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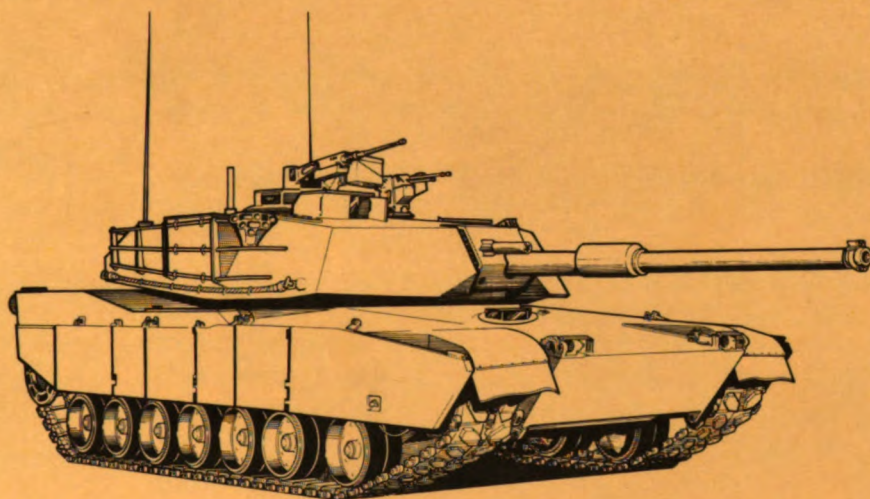
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TECHNICAL MANUAL

ORGANIZATIONAL TROUBLESHOOTING MANUAL

VOLUME II PART 1 OF 3



**TANK, COMBAT, FULL-TRACKED:
105-MM GUN, M1
(2350-01-061-2445)
GENERAL ABRAMS**

TURRET

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HEADQUARTERS, DEPARTMENT OF THE ARMY

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**WARNING
RADIOACTIVE MATERIAL**



HANDLE CAREFULLY

RADIOACTIVE

The M1 Collimator (Muzzle Reference Sensor) used to compensate for gun tube bend contains the radioactive isotope "tritium" (H-3).

The radioactive material is completely encased within the unit and poses no external radiation threat to the user.

The radioactive material is licensed under Federal Law by the Nuclear Regulatory Commission. The licensee is HQ, US Army AMCCOM, Rock Island, IL 61299. The licensed Health Physicist may be contacted at AUTOVON 793-6982/6989/5843 or commercial (309) 794-6982/6989/5843. Material pertaining to the NRC license, information concerning the safe use and storage of the radioactive material, and fire or other emergencies, should be referred to the licensed Health Physicist.

WARNING

The antireflective coating on all infrared optics contains thorium fluoride which is slightly radioactive. The only potential hazard involves ingestion (swallowing or inhaling) of this material. Dispose of broken lens, etc. in accordance with AR385-11.

DON'T TAKE CHANCES

WARNING

Ammunition containing explosives must be handled with care at all times. The explosive in primers and fuses is very sensitive to shock and high temperature. If ammunition is dropped, thrown, tumbled, or dragged, an explosion may result, causing death or injury and destruction of equipment. Disassembly of ammunition is not authorized.



WARNING

You can be blinded if you look into a laser beam when you are not wearing laser safety goggles. Never aim the laser rangefinder (LRF) at personnel.

If laser beam reflects from a flat, mirror-like surface, it can blind you unless you are wearing laser safety goggles.

All people who work down range of the laser must wear laser safety goggles. Laser safety goggles, NSN 4240-00-258-2054 or an approved substitute, will protect you.

Treat laser rangefinder (LRF) as a direct-fire weapon, with hazardous range of 8000 meters. Observe the following precautions when the LRF is being used:

Never fire the LRF at a target less than 10 meters away.

Never fire the LRF at flat glass or mirror-like targets.

Fire the LRF only at approved laser targets on an approved laser-firing range.

Report through the chain of command if:

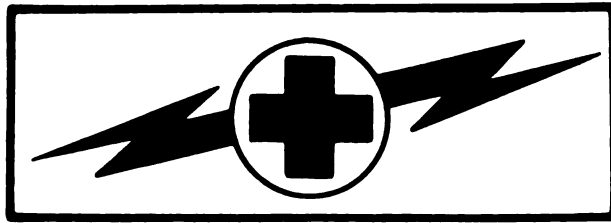
An unprotected person may have been in the beam path and closer than 8000 meters when the LRF was fired.

An unprotected person was looking at a flat glass or mirror-like surface when the LRF was fired at it.

NOTE

The person in charge must arrange for necessary eye examination and report in accordance with AR 385-63 and AR 385-40.

Make sure you get laser safety training before you work near an operating laser.



WARNING

HIGH VOLTAGE

is used in the operation of this equipment.

DEATH ON CONTACT

may result if personnel fail to observe safety precautions.

Never work on electronic equipment unless there is another person nearby. He should be familiar with the operation and hazards of the equipment. He should also be competent in giving first aid. When the technician is helped by operators, he must warn them about dangerous areas.

Whenever possible, the power supply to the equipment must be shut off before beginning work on the equipment. Take special care to ground every capacitor likely to hold a dangerous potential. When working inside the equipment, after the power has been turned off, always ground every part before touching it.

Be careful not to contact high-voltage connections when installing or operating this equipment.

Whenever possible, keep one hand away from the equipment to reduce the hazard of current flowing through vital organs of the body.

WARNING

Do not be misled by the term "low voltage." Voltages lower than 50 volts may cause death. For artificial respiration, refer to FM 21-11.

WARNING

Remove rings, bracelets, wristwatches, and chains before working around the tank or other vehicles. Jewelry can catch on equipment and cause injury, or may short across an electrical circuit and cause severe burns or electrical shock.



WARNING

CARBON MONOXIDE (EXHAUST GAS) CAN KILL YOU

Carbon monoxide is without color or smell, but can kill you. Breathing air with carbon monoxide produces symptoms of headache, dizziness, loss of muscular control, a sleepy feeling, and coma. Brain damage or death can result from heavy exposure. Carbon monoxide occurs in the exhaust fumes of fuel-burning heaters and internal combustion engines. Carbon monoxide can become dangerously concentrated under conditions of no air movement. Precautions must be followed to insure crew safety when the personnel heater, or main or auxiliary engine of any vehicle is operated for any purpose.

DO NOT operate personnel heater or engine of vehicle in a closed place unless the place has a lot of moving air.

DO NOT idle engine for long periods without ventilator blower operation. If tactical situation permits, open hatches.

DO NOT drive any vehicle with inspection plates, cover plates, or engine compartment doors removed unless necessary for maintenance purposes.

BE ALERT at all times during vehicle operation for exhaust odors and exposure symptoms. If either are present, **IMMEDIATELY VENTILATE** personnel compartments. If symptoms persist, remove affected crew to fresh air; keep warm; **DO NOT PERMIT PHYSICAL EXERCISE**; if necessary, give artificial respiration, and get immediate medical attention.

BE AWARE: neither the precleaner and particulate filter assembly nor the field protective mask for nuclear-biological-chemical (NBC) protection will protect you from carbon monoxide poisoning.

THE BEST DEFENSE AGAINST CARBON MONOXIDE POISONING IS GOOD VENTILATION.

NBC

NUCLEAR, BIOLOGICAL, OR CHEMICAL

HANDLE CAREFULLY

WARNING

After Nuclear, Biological, or Chemical (NBC) exposure of this vehicle, all air filters must be handled with extreme caution. Unprotected personnel may experience injury or death if residual toxic agents or radioactive material are present. If vehicle is exposed to chemical or biological agents, servicing personnel must wear protective mask, hood, protective overgarment, and chemical-protective gloves and boots. All contaminated air filters must be placed in double-lined plastic bags and swiftly moved to a segregation area away from the work site. The same procedure applies for radioactive dust contamination; however, the company NBC team should measure the radiation prior to filter removal to determine the extent of safety procedures required in accordance with the NBC Annex to the unit Standard Operating Procedures. The segregation area in which the contaminated air filters are temporarily stored must be marked with appropriate NBC placards. Final disposal of contaminated air filters shall be in accordance with local Standard Operating Procedures.

WARNING

Use adhesives, cleaning solvents, and sealing compounds in a well-ventilated area away from open flame. Adhesives, cleaning solvents, and sealing compounds are harmful to skin and clothing, can burn easily, and may give off harmful vapor.

WARNING

Verify that coax machinegun is cleared. Failure to clear machinegun could result in injury or death.

WARNING

Do not run bare hand on metal braided cables or hoses. Wires on cables or hoses can cut you. Wear protective gloves.

WARNING

Be sure vehicle master power is off before you work on any part of the electrical system. You can get electrical shock or burns if power is on.

WARNING

Do not exceed 10 mph during performance of the stabilization lurch test. A sudden stop from speeds greater than 10 mph could cause injury to personnel.

WARNING

Make sure that grenade launchers are empty while performing grenade test. Failure to remove grenades could cause injury or death.

WARNING

Before testing of turret systems using test leads and breakout box, lock main gun and turret before turning vehicle master power on. High RFI signals could cause gun to slam into its stops and/or the turret to slew at a high rate. If main gun or turret must be unlocked, ensure areas around tank and above and below main gun breech are kept clear of personnel/equipment to prevent injury to personnel and damage to equipment.

WARNING

Make sure commander's, loader's, and coax machineguns have been removed from tank and areas in and around tank have been cleared of ammunition before beginning any troubleshooting procedure.

TECHNICAL MANUAL

No. 9-2350-255-20-2-1

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, DC, 20 May 1984

Organizational Troubleshooting Manual

TANK, COMBAT, FULL-TRACKED: 105-MM GUN, M1 TURRET

(2350-01-061-2445)

GENERAL ABRAMS

Reporting Errors and Recommending Improvements

You can help improve this manual. If you find any mistake or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publication and Blank Forms), or DA Form 2028-2 located in the back of this manual, directly to: Commander, U.S. Army Armament, Munitions, and Chemical Command, ATTN: DRSMC-MAS, Rock Island, IL 61299. A reply will be furnished to you.

NOTE

This Volume is divided into three parts: Chapters 1 through 9 are contained in this part, Chapters 10 through 16 are in TM 9-2350-255-20-2-2-2 and Chapters 17 and 18 are in TM 9-2350-255-20-2-2-3.

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CHAPTER 1 GENERAL

Section I. SCOPE AND ORGANIZATION

1-1. Introduction. This manual contains instructions for organizational level troubleshooting of the M1 Abrams Tank Turret Assembly.

1-2. Scope. Detailed troubleshooting procedures for each of the functional groups or systems in the turret are covered in separate chapters in this manual. Other information such as schematic diagrams, functional flow diagrams, and test procedures required for fault isolation are also provided where needed. Figure 18-138 of TM 9-2350-255-20-2-2-3 lists all the common electrical symbols used on the M1 schematic diagrams.

1-3. Organization of Manual. Chapters 2 through 7 of this manual describe the basic approach used for troubleshooting, including system functional descriptions, and provide index tables for locating troubleshooting information. The rest of the manual is divided into chapters and paragraphs that cover each functional equipment group listed under paragraph 1-6.

1-4. Expendable Supplies and Materials. A complete list of expendable supplies and materials for the M1 Abrams Tank can be found in TM 9-2350-255-20-2-3-3, Appendix A, which is the authority for ordering these items. Complete information for ordering these items will also be listed in the supplies block of the troubleshooting procedure in which the supplies and materials are used.

1-5. Reporting Equipment Improvement Recommendations (EIR's). If your equipment needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about your equipment. Let us know why you don't like the design. Tell us why a procedure is hard to perform. Put it on an SF 368 (Quality Deficiency Report). Mail it to us at: Commander, USAAMCCOM, ATTN: DRSMC-MAS, Rock Island, IL 61299. We'll send you a reply.

Section II. EQUIPMENT FUNCTIONAL BREAKDOWNS

1-6. Functional Grouping of Equipment. The troubleshooting procedures in this manual are divided into functional groups or systems. Separate chapters are used to cover each functional group. Subsystems within the functional group are covered in separate sections within the chapter. The following functional groups are included:

- a. Turret Electrical System
- b. Hydraulic and Gun/Turret Drive System
- c. Fire Control System
- d. Commander's Weapon Station System
- e. Smoke Grenade System
- f. Nuclear, Biological, Chemical (NBC) System
- g. Communication System
- h. Turret Circuit Breaker System
- i. Test Equipment

Section III. GENERAL INFORMATION

1-7. **STE-M1/FVS SETCOM Abbreviations.** Table 1-1 is a list of abbreviations you will see displayed on the simplified test equipment-M1/FVS (STE-M1/FVS) set communicator (SETCOM) and what they mean.

Table 1-1. STE-M1/FVS Acronym and Abbreviation Index

ACRYM	Abbreviation	Nomenclature
AIRSW	AIR CLNR PRESS S	Air Intake Plenum Pressure Switch
ALT	—	Generator
ATP	—	Alternate Troubleshooting Procedure
AUXP	AUX HYDR PWRPACK	Auxiliary Hydraulic Powerpack Assembly
AXHPS	AUX HYD PRES SW	Hydraulic Pressure Switch
—	BATT/CHARGE SYS	Battery Charging System
BATBD	BATT TERMINAL BD	Battery Terminal Boards
BMACH	—	Blasting Machine
—	BO LIGHTS	Blackout Lights
*CA—	—	STE-M1/FVS Cable Adapter
CANT	CANT UNIT ASSY	Cant Unit Assembly
*CB—	—	Circuit Breaker
CCP	—	Ballistics Control Panel
CDOME	CMDRS DOMELIGHT	Commander's Domelight Assembly
CEU	—	Computer Electronics Unit
CFIRE	FIRE SNSR-CENTER	Fire Sensor (Crew CFIRE)
—	CHK CONN	Check Connections
CINT	C INTERCOM CNTL	Commander's Intercom Electrical Switch Assembly
CINTS	CMDR INTERCOM SW	Commander's Remote Intercom Switch
CKT	—	Circuit
CNTLM	CONTROL MODULE	Water Separator Spark Igniter
COAXS	COAX SOLENOID	Coax Electrical Solenoid
CVALV	CREW VALVE/BOTT	Fire Extinguisher Valve and Bottle Assembly
CWSGB	—	Gearbox Switch
CWSH	CWS CONTROL HNDL	Commander's Power Control Handle
CWSMB	—	Motor/Brake
CWSPU	CWS PWR CNTL U	Power Control Unit
*CX—	—	STE-M1/FVS Test Cable

*Numbers are displayed on SETCOM in place of dashes.

Table 1-1. STE-M1/FVS Acronym and Abbreviation Index (Continued)

ACRYM	Abbreviation	Nomenclature
DAP	DRVR ALERT PANEL	Driver's Indicator (Alert) Panel
DBA	—	Diagnostic Breakout Assembly
DDOME	DRVRS DOMELIGHT	Driver's Domelight
DFIRE	FIRE SENSOR - DRVR	Fire Sensor (Crew DFire)
DINT	D INTERCOM CNTL	Driver's Intercommunication Control Box
DIP	—	Driver's Instrument Panel
DMP	—	Driver's Master Control Panel
DSFSW	DOOR SAFETY SW	Ready Ammunition Door Safety Switch
ECU	—	Electronic Control Unit
ELSVO	ELEVATION SERVO	Elevation Servomechanism
EMFS	ELCT-MECH FL SYS	Electromechanical Fuel System
ENG	—	Engine
EOTXM	ENG OIL TEMP XMTR	Engine Oil Temperature Transmitter
EXCTR	—	Ignition Exciter
EXT	—	External
FC	—	Fire Control
FC/SS	—	Fire Control/Stabilization System
FEA	FIRE EXT AMP	Fire Extinguisher Control Amplifier
FERSW	FIRE EXT RESET S	Reset Switch Assembly
FLXFM	FUEL XFER MANF A	Manifold Assembly
FLXFP	FUEL XFER PUMP	Cam Actuated Fuel Pump
FLXMR	ENG COMP FL XMTR	Fuel Level Transmitter
FWRV	—	Forward/Reverse Valve Housing
FWSEP	FUEL/WATER SEP	Water Separator
GAS	—	Gunner's Auxiliary Sight
GCH	GNR CNTL HANDLES	Gunner's Control Grip Assembly
GDOME	GNRS DOMELIGHT	Gunner's Domelight Assembly
GGYRO	GUN GYROSCOPE	Reference Gyroscope
GPFLT	GAS PARTIC FLTR	Precleaner and Particulate Filter Assembly
GPS	—	Gunner's Primary Sight
GTD	—	Gun/Turret Drive Electronic Unit
GTR	GUN TRUN RSLVR	Gun Trunnion Resolver
GUNC	GUN CONDUCTER A	Conductor Assembly

Table 1-1. STE-M1/FVS Acronym and Abbreviation Index (Continued)

ACRYM	Abbreviation	Nomenclature
HANDP	HAND PUMP ASSY	Elevation Hand Pump
HDB	—	Hull Power Distribution Box
HDV	T HYD PWR DIST V	Hydraulic Turret Valve
HEATP	—	Heater Fuel Pump
HGYRO	—	Hull Gyroscope
HNB	—	Hull Networks Distribution Box
—	—	Main Hydraulic Centrifugal Pump
ICU	—	Image Control Unit
—	IGV ACT	Inlet Guide Vane Shouldered Shaft
IRRU	—	Infrared Radiation Unit
KNESW	—	Loader's Knee Switch
LDOME	LDRS DOMELIGHT	Loader's Domelight Assembly
LFFXM	LFT FR FUEL XMTR	Left Front Fuel Level Transmitter
LFIRE	FIRE SNSR-LEFT	Fire Sensor (Crew LFIRE)
LFLPS	LT FUEL PRESS SW	Left Fuel Pump Pressure Switch
LGREN	L GRENADE LAUNCH	Left Grenade Launcher
LHEAD	—	Left Headlight
LOS	—	Line-of-sight Electronics Unit
LP	—	Loader's Panel
LPARK	L PARK BRAKE SW	Left Parking Brake Signal Switch Assembly
LRF	—	Laser Rangefinder
LRFLP	L REAR FUEL PUMP	Left Rear In-tank Fuel Pump
LTAIL	—	Left Taillight Assembly
*M—	—	Meter Assembly
—	MAIN RV	Main Regulator Valve
—	Main V	Main Control Valve
—	Main VLV	Main Control Valve
MANFA	MANIFOLD ASSY	Hydraulic Distribution Manifold
MGSSW	MAIN GUN SAF SW	Main Gun Safety Switch
MRS	—	Muzzle Reference Sensor

*Numbers are displayed on SETCOM in place of dashes.

Table 1-1. STE-M1/FVS Acronym and Abbreviation Index (Continued)

ACRYM	Abbreviation	Nomenclature
NBC NBCHC NBCHD NBCHG NBCHL NH1 NH2 NITEP NPT1 NPT2	— CMDRS NBC HEATER DRVRS NBC HEATER GNRS NBC HEATER LDRS NBC HEATER NH SP PICKUP 1 NH SP PICKUP 2 — NPT SP PICKUP 1 NPT SP PICKUP 2	Nuclear, Biological, Chemical Commander's Heater Assembly Electric Air Heater Gunner's Heater Assembly Loader's Heater Assembly Engine Speed Pickup (No. 1) Engine Speed Pickup (No. 2) Night Periscope Speedometer Adapter No. 1 Speedometer Adapter No. 2
OILFS OILPS OLVLS	OIL FLTR PRESS S OIL PRESSURE SW OIL LEVEL SW	Pressure Filter Bypass Switch Engine Oil Pressure Switch Liquid Dual Level Float Switch
PHEAT PTRLY —	PERSONNEL HEATER ST PILOT RELAY PTS ACT	Vehicular Heater Starter Pilot Relay Power Turbine Stator Cylinder Assembly
REF RFFXM RFIRE RFLPS RFLXM RGREN RHEAD RPARK RRFLP RTAIL RTFAN RVDT	REF R FR FUEL XMTR FIRE SNSR-RIGHT RT FUEL PRESS SW REAR FUEL XMTR R GRENADE LAUNCH — R PARK BRAKE SW R REAR FUEL PUMP — RIGHT FAN CLUTCH RTRY VAR DIF XFM	Reference Right Front Fuel Level Transmitter Fire Sensor (Crew RFIRE) Right Fuel Pump Pressure Switch Rear Fuel Level Transmitter Right Grenade Launcher Right Headlight Right Parking Brake Signal Switch Assembly Right Rear In-tank Fuel Pump Right Taillight Assembly Magnetic Clutch Rotary Variable Differential Transformer
SHIFT SMOKE SRING SSOL START STOPS	SHIFT CNTRL ASSY SMOKE GEN FL PMP H/TUR SLIP RING STARTER SOLENOID STARTER STOPLIGHT SWITCH	Shift Control Assembly Smoke Generator Pump Assembly Hull/Turret Slipping Assembly Starter Motor Solenoid Switch Starter Motor Stoplight Switch Assembly

Table 1-1. STE-M1/FVS Acronym and Abbreviation Index (Continued)

ACRYM	Abbreviation	Nomenclature
*TA— TCH TCNTL TCP TEU TGYRO TMP TNB TPCU TRU TRVMC TRVSV T1SNR	— TANK CMDRS HNDLS THROTTLE CONTROL T — THERMAL ELECT U TURRET GYROSCOPE TEMP — THERMAL PWR CNTL THERMAL RCVR UN TRAVERSING MECH TRAVERSE SERVO T1 TEMP SENSOR	Transducer Commander's Control Assembly Steering Throttle Assembly Commander's Control Panel Assembly Thermal Electronics Unit Feed Forward Gyroscope Temperature Turret Networks Box Thermal Power Control Unit Thermal Receiver Unit Traversing Mechanism Assembly Traverse Servomechanism T1 Resistance Probe
VBLOW VOLTR	VENT BLOWER ASSY VOLTAGE REG	Fan Assembly Voltage Regulator
XMSN XMSOL XOILF XOLXM XPRES XTHRM XWIND	— XMSN SHIFT SOL XMN MAIN OIL FLT XMN OIL LVL XMTR XMSN OIL PRESS S XMSN THERMAL SW X WIND SENSOR	Transmission 24-volt Transmission Solenoid Differential Pressure Switch Oil Level Transmitter Transmission Oil Pressure Switch Thermostatic Switch Crosswind Sensor
ZDESW	ZERO DEG EL SW	Zero Degree Elevation Switch
1FIRE 1SHOT	FIRE SENSOR-ENG 1 1SHOT VALVE/BOTT	Fire Sensor (Engine 1FIRE) Valve and Bottle Assembly (1st Shot)
2FIRE 2SHOT	FIRE SENSOR-ENG 2 2SHOT VALVE/BOTT	Fire Sensor (Engine 2FIRE) Valve and Bottle Assembly (2nd Shot)
3FIRE	FIRE SENSOR-ENG 3	Fire Sensor (Engine 3FIRE)

*Numbers are displayed on SETCOM in place of dashes.

1-8. Fault Symptom Number Abbreviations. Table 1-2 is a list of abbreviations used in the fault symptom index number columns. The abbreviations tell you what system/subsystem the fault symptom is in.

Table 1-2. Fault Symptom Number Abbreviation Index

Abbreviation	Meaning
AES	Azimuth/Elevation Subsystem
AHS	Auxiliary Hydraulic Subsystem
ASTS	Auto Self Test and Cable Disconnect Subsystem
BPS	Blige Pump Subsystem
CDM	Cable Disconnect Monitor Subsystem
COMM	Communication System
CS	Computer Subsystem
CWS	Commander's Weapon Station System
ECS	Electrical Charging Subsystem
ESS	Engine System
FAS	Fan Assembly Subsystem
FCS	Firing Circuits Subsystem
FES	Fire Extinguisher System
FSS	Fuel Supply System
GAS	Gunner's Auxiliary Sight Reticle Subsystem
GPSD	Gunner's Primary Sight Defroster Subsystem
HCBM	Circuit Breaker Monitor Subsystem
HDCB	Hull Power Distribution Box Circuit Breaker Subsystem
HNBCB	Hull Networks Box Circuit Breaker Subsystem
ISS	Inflatable Seal System
LRF	Laser Rangefinder Subsystem
METS	Manual Elevation and Traverse Subsystem
MHS	Main Hydraulic Subsystem
MM	Maintenance Monitor Subsystem
NBC	Nuclear, Biological, Chemical System
NPS	Night Periscope Subsystem
PBS	Parking Brake Subsystem
PDMPC	Power Distribution/Master Power Control Subsystem
PHS	Personnel Heater Subsystem
PLDS	Panel Lights and Domelights Subsystem (Turret)
PLS	Panel Lights Subsystem (Hull)
RADC	Ready Ammunition Door Control Subsystem
SBS	Service Brake Subsystem
SGRS	Smoke Grenade System
SGS	Smoke Generator System
SS	Steering System
SSS	Suspension System
TCB	Turret Circuit Breaker System
TCBM	Turret Circuit Breaker Monitor Subsystem
TFD	Transmission and Final Drive System
TIS	Thermal Imaging System
TOC	Transmission Oil Cooler Subsystem
TSS	Transmission Shift Subsystem
VELS	Vehicle External Lights and Domelight Subsystem
V/TPC	Vehicle/Turret Power Control Subsystem

CHAPTER 2 TROUBLESHOOTING DATA

Section i. TROUBLESHOOTING APPROACH

2-1. General. Troubleshooting is a step-by-step process of finding the cause of a problem with the tank. This section explains the overall approach used for troubleshooting. It also describes the indexes and supporting data you will need to use and how to find them in this manual. All references to TM 9-2350-255-10 will be found in the index in the back of TM 9-2350-255-10-3.

2-2. Troubleshooting Index. The troubleshooting index (see chapter 3, table 3-1) is the master reference table for locating troubleshooting information for a particular functional group. It lists each group or system and provides a reference, by figure number, to the troubleshooting information for that system.

2-3. Test Equipment Procedures Index. The test equipment procedures index (see chapter 4, table 4-1) lists the test equipment and special tools used for troubleshooting and provides a reference, by figure number, to the detailed instructions for their use.

2-4. Troubleshooting Roadmaps. Troubleshooting roadmaps (see chapter 5) are provided for each functional system. They give the soldier an overall view of the assemblies or piece parts included in each system.

2-5. Fault Symptom Indexes. Separate fault symptom index tables (see chapter 6) are provided for each functional group or system. Each table lists the fault symptoms for the system or subsystem and refers to the TM and paragraph where the troubleshooting procedures for that system can be found. The symptom you have may not be exactly as described in the indexes. Find the symptom that most closely resembles the symptom you have and use the referenced troubleshooting procedure. The indexes also contain a Resources Required column that lists the number of personnel required to do each troubleshooting procedure.

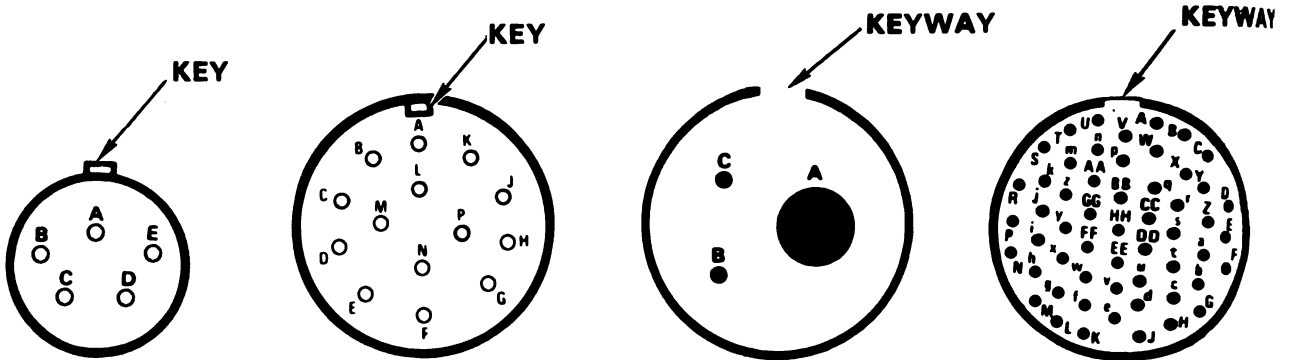
2-6. Troubleshooting Procedures. The troubleshooting procedures are in the form of fault isolation flowcharts (see sample, chapter 7). Each flowchart begins with a fault symptom that can be seen, felt, or heard during operation of the tank without using test equipment. Step-by-step instructions for finding and correcting the fault are given for each symptom. When needed, illustrations are included for the symptom showing locations of all test points and how each troubleshooting step should be done. If your tank still has problems after a troubleshooting procedure has been performed, your tank may have had more than one fault. Check the fault symptom index for another troubleshooting procedure and continue troubleshooting.

2-7. Alternate Troubleshooting Procedures (ATP). Alternate Troubleshooting Procedures (ATP) are also included in this manual. ATP for organizational-level provide troubleshooting procedures to be used when automated test equipment (ATE) is not available. ATE for troubleshooting the turret systems is identified as Simplified Test Equipment - M1/FVS or the STE-M1/FVS test set. ATP's are for skill level 2 personnel with appropriate MOS training. They are limited to those procedures which can be performed using conventional test equipment available to organizational maintenance personnel.

NOTE

The Simplified Test Equipment for the M1 Tank (STE-M1/FVS) will be referred to as STE in this manual.

2-8. Connector Diagrams. Included in the troubleshooting illustration are connector diagrams showing location of each pin, or socket, in relation to the main key or keyway on the connector. Connector views have been turned, when necessary, to show all lettering in an upright position. Examples of the four common types of connector diagrams are shown below.



2-9. Troubleshooting Approaches. There are two basic troubleshooting approaches in this manual. The two approaches are:

- a. Primary troubleshooting
- b. Alternate troubleshooting

The following blocks and illustrations are a guide on how and when to use each of these approaches.

TYPICAL TROUBLESHOOTING APPROACH

NOTE

The typical troubleshooting approach which follows is presented in the same format as the detailed troubleshooting procedure you will be using to identify and correct the fault in the M1 tank.

1

- Check the three key steps that make for good troubleshooting.
 - Identify the symptom.
 - Find the right troubleshooting procedure.
 - Use the detailed troubleshooting procedure to locate, and isolate the fault.

How do you "identify" the symptom?

- To identify the symptom, look at DA form 2404 filled out by the crew.
- If not enough information is given to identify the symptom, ask the crew questions and get as much information as possible about the symptom.
- Make sure there was no crew error in following the operator's procedure listed in TM 9-2350-255-10.

WARNING

Do not try to operate tank if there is any chance the symptom may injure personnel or damage tank. Example: "No steering control."

WARNING

Before operating tank, notify nearby personnel and make sure surrounding area is clear, to prevent injury to personnel or damage to equipment.

- If necessary, operate the tank to help identify the symptom.
- Now that you have an idea what the symptom is, find the system/subsystem the symptom is listed in.

EQUIPMENT INSPECTION AND MAINTENANCE WORKSHEET											
For use of this form, see TM 28-750, the program agency is the Office of the Deputy Chief of Staff for Logistics.											
1. ORGANIZATION A CO 171 ARMOR					2. NOMENCLATURE AND MODEL TANK COMBAT FIT 105 mm GUN M1						
3. REGISTRATION/BENEFIT		4. DATES		5. NUMBER OF HOURS		6. NUMBER OF DAYS		7. TIME INSTRUCTION			
141		733		76		10		9 JUNE 82 PMS (w)			
7. APPLICABLE REFERENCE											
TM NUMBER 9-2350-255-10			TM DATE Nov. 81			TM NUMBER			TM DATE		
COLUMN a - Enter TM item number.					COLUMN d - Show corrective action for deficiency or shortcoming listed in Column c.						
COLUMN b - Enter the applicable condition status symbol.					COLUMN e - Individual ascertaining completed corrective action initial in this column.						
COLUMN c - Enter deficiencies and shortcomings.											
STATUS SYMBOLS											
"X"-Indicates a deficiency in the equipment that places it in an inoperable status.					DIAGONAL "/"-Indicates a material defect other than a deficiency which must be corrected to increase deficiency or to make the item completely serviceable.						
CIRCLED "X"-Indicates a deficiency, however, the equipment may be operated under specific limitations as directed by higher authority or as prescribed locally, until corrective actions can be accomplished.					LAST NAME INITIAL IN BLACK, BLUE-BLACK INK, OR PENCIL indicates that a completely satisfactory condition exists.						
HORIZONTAL DASH "-"-Indicates that a required inspection, component replacement, maintenance operation check, or test flight to date has not been accomplished, or an overdue MWO has not been accomplished.					FOR AIRCRAFT-Status symbols will be recorded in red.						
ALL INSPECTIONS AND EQUIPMENT CONDITIONS RECORDED ON THIS FORM HAVE BEEN DETERMINED IN ACCORDANCE WITH DIAGNOSTIC PROCEDURES AND STANDARDS IN THE TM CITED HEREON.											
8a. SIGNATURE (Personnel performing inspection)			8b. TIME			8c. SIGNATURE (Maintenance Supervisor)			8d. TIME		
D. William C. Jones											
DEFICIENCIES AND SHORTCOMINGS											
CORRECTIVE ACTION											
INITIAL WHEN CORRECTED											
TM ITEM NO.	STATUS	DEFICIENCIES AND SHORTCOMINGS					CORRECTIVE ACTION			INITIAL WHEN CORRECTED	
46	X	Bilge pump doesn't work									

DA FORM 2404 1 APR 79

Replace edition of 1 Jan 84, which will be used

NOTE

If you don't know the system/subsystem that the symptom is in but you have an idea what component is bad, refer to the troubleshooting roadmaps in para. 5-1. The troubleshooting roadmaps list the components that are replaced in the troubleshooting procedures and are listed under each system/subsystem. Find the component you think is bad to identify what system/subsystem it will be in.

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**CHAPTER 6
FAULT SYMPTOM INDEXES**

6-1. General. This chapter contains symptom indexes which identify the correct procedures for troubleshooting a malfunction in any of the turret systems. A fault symptom index (table) is included for each turret system. The symptom indexes are listed in table 6-1 with page location numbers.

Table 6-1. Turret Systems

System/Subsystem	Fault Symptom Index		
	Table	Page	
Turret Electrical System	6-2	6-3	
Vehicle/Turret Power Control Subsystem		6-3	
Vehicle Master Power		6-3	
Turret Power		6-3	
Firing Circuits Subsystem		6-4	
Main Gun		6-4	
Coast Machinegun		6-6	
Lights		6-6	
Fan Assembly Subsystem		6-6	
Turret/Belt Breaker Monitor Subsystem		6-7	
Panel Lights and Dorn Lights Subsystem	6-7		
Domelight	6-8		
Main Hydraulic and Gun/Turret Drive System	6-3	6-10	
Main Hydraulic Subsystem		6-10	
Azimuth/Elevation Subsystem (Also in Fire Control System)		6-10	
Azimuth		6-10	
Elevation		6-11	
Manual Elevation and Traverse Subsystem		6-12	
Ready Ammunition Door Control Subsystem		6-13	
Auxiliary Hydraulic Subsystem		6-14	
Fire Control System		6-4	6-16
Auto Self Test and Cable Disconnect Subsystem			6-16
Computer and Azimuth/Elevation Subsystems	6-16		
Ammunition Select	6-16		
Battle Range	6-16		
Manual Self Test	6-17		
Ballistics Control Panel	6-16		
Muzzle Reference Sensor	6-16		
Gunner's Primary Sight Reticle	6-21		
Azimuth/Elevation	6-23		
Azimuth	6-24		
Elevation	6-24		
Lights	6-25		

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- To find the system/subsystem, go to para. 6-1, table 6-1, Turret Systems.

NOTE

Symptoms are identified in this manual by fault symptoms.

- Find the Fault Symptom Index table number in column 2.
- Find the Fault Symptom Index page number in column 3.

Did you find the right system/subsystem and fault symptom index?

YES

NO

5

Notify your supervisor.

- 6
- Find the Fault Symptom Index that table 6-1 referred you to.
 - Find the system/subsystem your system will be under.
- NOTE**
- The fault symptom you have may not be exactly as described in the indexes. Find the fault symptom that most closely resembles the fault symptom you have.
- Find the fault symptom you have.

TM 9-2350-255-20-2-2-1

Table 6-2. Turret Electrical System Fault Symptom Index

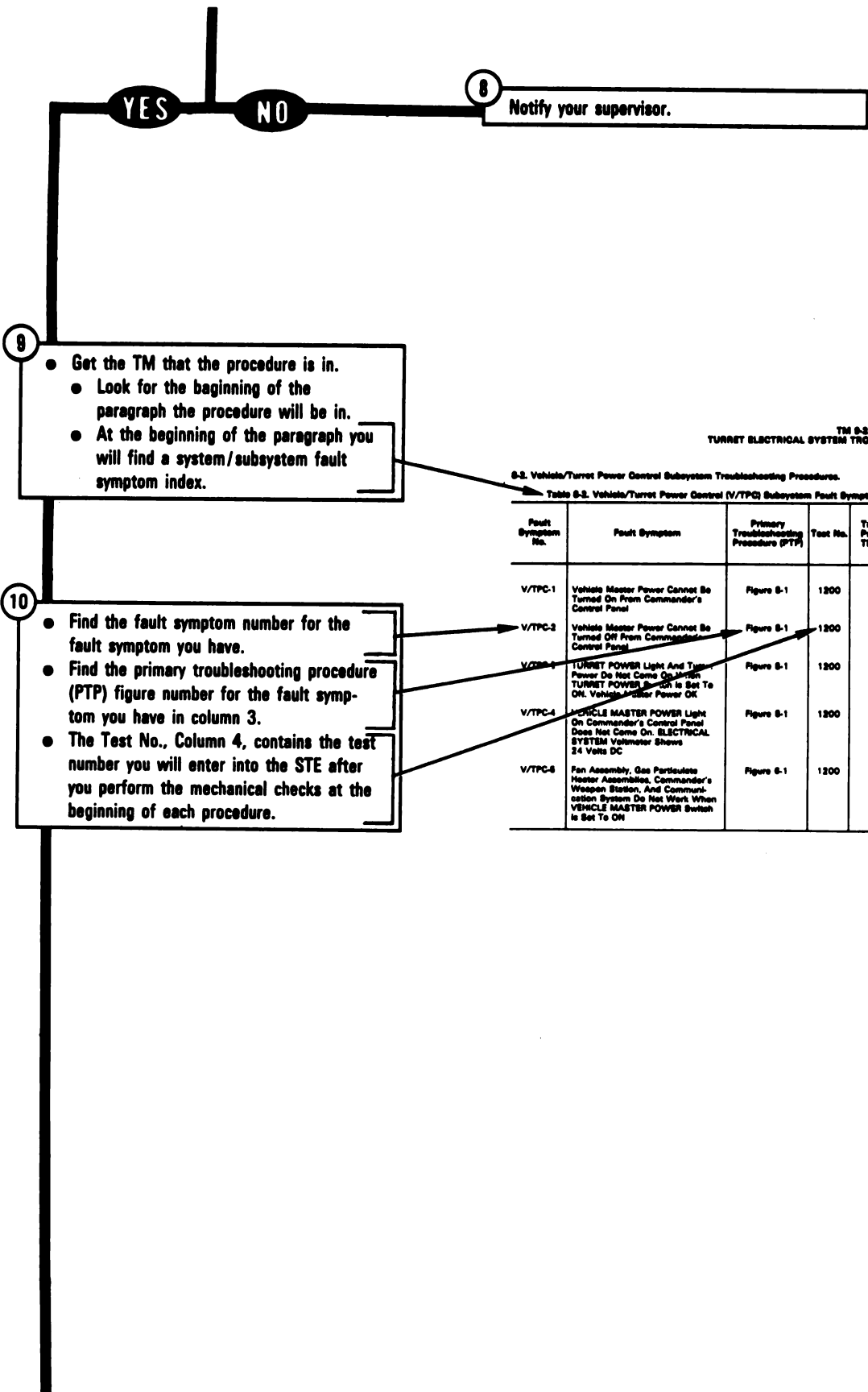
System Or Subsystem Fault Symptom No.	Symptom	Primary Troubleshooting Procedure (PTP)	Resources Required	
			STE	Personnel
VEHICLE/TURRET POWER CONTROL SUBSYSTEM				
Vehicle Master Power				
V/TPC-1	Vehicle Master Power Cannot Be Turned On From Commander's Control Panel	Para. 8-2	Yes	2
V/TPC-2	Vehicle Master Power Cannot Be Turned Off From Commander's Control Panel	Para. 8-2	Yes	2
V/TPC-4	VEHICLE MASTER POWER Light On From Commander's Control Panel Does Not Come On. ELECTRICAL SYSTEM Meter Shows 24 VOLTS DC	Para. 8-2	Yes	2
V/TPC-5	Fan Assembly or Particulate Heater Assembly, Commander's Weapon Station and Communication System Do Not Work When VEHICLE MASTER POWER Switch is Set To ON	Para. 8-2	Yes	2
Turret Power				
V/TPC-3	TURRET POWER Light And Turret Power Do Not Come On When TURRET POWER Switch is Set To ON. Vehicle Master Power OK	Para. 8-2	Yes	2
.....	TURRET POWER Light Does Not Come On When TURRET POWER Switch is Set To ON. Turret Power Panel Lights Test OK	Replace Turret Networks Box. Refer to TM 9-2350-255-20-2-3-1, Para. 2-7		
.....	TURRET POWER Light Comes On But Turret Power Stays Off	Replace Turret Networks Box. Refer to TM 9-2350-255-20-2-3-1, Para. 2-7		

- 7
- Find the fault symptom number in column 1.
 - This number will help you find your fault symptom in the index at the beginning of each paragraph.
 - Find the primary troubleshooting procedure (PTP) that you will be using in column 3.
 - This column will tell you the TM and paragraph the troubleshooting procedure will be in.
 - Find the resources that will be required in column 4 and 5.
 - These columns tell you if you will be using the STE and how many personnel will be needed to do the troubleshooting procedures.

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Did you find the right fault symptom index, fault symptom and resources required?



8 Notify your supervisor.

9

- Get the TM that the procedure is in.
- Look for the beginning of the paragraph the procedure will be in.
- At the beginning of the paragraph you will find a system/subsystem fault symptom index.

TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING

6-2. Vehicle/Turret Power Control Subsystem Troubleshooting Procedures.

Table 6-2. Vehicle/Turret Power Control (V/TPC) Subsystem Fault Symptom Index

Fault Symptom No.	Fault Symptom	Primary Troubleshooting Procedure (PTP)	Test No.	Alternate Troubleshooting Procedure (ATP) TM 9-2350-255-20-2-2-3
V/TPC-1	Vehicle Master Power Cannot Be Turned On From Commander's Control Panel	Figure 6-1	1200	Figure 18-1
V/TPC-2	Vehicle Master Power Cannot Be Turned Off From Commander's Control Panel	Figure 6-1	1200	Figure 18-2
V/TPC-3	TURRET POWER Light And Turret Power Do Not Come On When TURRET POWER Switch Is Set To ON. Vehicle Master Power OK	Figure 6-1	1200	Figure 18-3
V/TPC-4	VEHICLE MASTER POWER Light On Commander's Control Panel Does Not Come On. ELECTRICAL SYSTEM Voltmeter Shows 24 Volts DC	Figure 6-1	1200	Figure 18-4
V/TPC-5	Fan Assembly, Gas Particulate Heater Assemblies, Commander's Weapon Station, And Communication System Do Not Work When VEHICLE MASTER POWER Switch Is Set To ON	Figure 6-1	1200	Figure 18-5

10

- Find the fault symptom number for the fault symptom you have.
- Find the primary troubleshooting procedure (PTP) figure number for the fault symptom you have in column 3.
- The Test No., Column 4, contains the test number you will enter into the STE after you perform the mechanical checks at the beginning of each procedure.

TM 9-2350-255-20-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING

6-3. Vehicle/Turret Power Control Subsystem Troubleshooting Procedures.

Table 6-3. Vehicle/Turret Power Control (V/TPC) Subsystem Fault Symptom Index

Fault Symptom No.	Fault Symptom	Primary Troubleshooting Procedure (PTP)	Test No.	Alternate Troubleshooting Procedure (ATP) TM 9-2350-255-20-3-3
V/TPC-1	Vehicle Master Power Cannot Be Turned On From Commander's Control Panel	Figure 6-1	1200	Figure 16-1
V/TPC-2	Vehicle Master Power Cannot Be Turned Off From Commander's Control Panel	Figure 6-1	1200	Figure 16-2
V/TPC-3	DUBBLES POWER Light And Turret Power Do Not Come On When TURRET POWER Switch Is Set To ON. Vehicle Master Power OK	Figure 6-1	1200	Figure 16-3
V/TPC-4	VEHICLE MASTER POWER Light On Commander's Control Panel Does Not Come On. ELECTRICAL SYSTEM Voltmeter Shows 24 Volts DC	Figure 6-1	1200	Figure 16-4
V/TPC-5	Fan Assembly, Gas Particulate Heater Assemblies, Commander's Weapon Station, And Communication System Do Not Work When VEHICLE MASTER POWER Switch Is Set To ON	Figure 6-1	1200	Figure 16-5

NOTE
Do not start any alternate troubleshooting procedure (ATP) until the primary troubleshooting procedure (PTP) tells you to do so.

- The alternate troubleshooting procedure (ATP) column 5 tells you the figure for the procedure you will do to troubleshoot the fault symptom when you do not have all the STE components.

12 Did you find the primary procedure for the fault symptom you have?

YES

NO

13 Notify your supervisor.

14 Do you understand all the information in this guide?

YES

NO

15 Ask your supervisor to help you with the part you don't understand.

16 Are you familiar with the important troubleshooting information contained in the sample troubleshooting charts in para. 7-1 and 7-2?

NO

17 Read para. 7-1 and 7-2.

YES

18 Use the detailed troubleshooting procedure for the fault symptom you have to locate, and isolate the fault.

Section II. FUNCTIONAL DESCRIPTIONS

2-10. General. This section describes the functional systems in the turret. Diagrams are included to help you understand the operation of the systems.

2-11. Turret Electrical System (See FO-30). The M1 tank uses a 24-volt direct current electrical system. When the engine is running, primary power is supplied by an alternator on the powerpack. The alternator produces between 27.5 and 28.5 volts direct current power. When the engine is not running, primary power is supplied by six 12-volt batteries located in the right rear of the hull. These batteries are series/parallel connected to provide 24-volt power.

a. **Power Distribution.** Vehicle master electrical power enters the turret through the hull/turret slipring from the hull power distribution box. The power is routed to the turret networks box from the hull/turret slipring. The turret networks box contains circuit breakers, relays, printed circuit boards, and electrical interconnections for all turret systems. Electrical power and electrical signals are distributed to and from the turret networks box and all turret electrical components through the turret wiring harnesses.

b. **Power Control.** The VEHICLE MASTER POWER and TURRET POWER switches on the commander's control panel are used to turn vehicle and turret power on and off.

The commander's VEHICLE MASTER POWER switch has the same function as the VEHICLE MASTER POWER switch on the driver's master panel. Either VEHICLE MASTER POWER switch turns vehicle master power on or off for the entire tank. The master power on/off signal goes from the commander's control panel through the turret networks box and the hull/turret slipring to a relay in the hull networks box. It then goes to additional relays in the hull power distribution box that control power from the vehicle master power circuit breaker (CB4).

The TURRET POWER switch controls electrical power to the turret. The TURRET POWER switch is connected to the commander's VEHICLE MASTER POWER switch. Vehicle master power and turret power are turned on when the TURRET POWER switch is set to ON. The TURRET POWER switch does not turn off vehicle master power. Vehicle master power can only be turned off by the VEHICLE MASTER POWER switch.

The turret power on/off signal goes from the commander's control panel to the turret networks box. In the turret networks box, the signal controls relays that connect vehicle master power to the turret electrical circuits through the turret power control circuit breaker (CB13).

c. **Turret Domelights (See Figure 2-1).** The turret is provided with three identical domelight assemblies, one for each turret work station. Vehicle master power (+24 vdc) is supplied to the domelight assemblies through the turret networks box when the commander's TURRET POWER switch is in the ON position. A variable resistor on each domelight assembly provides on/off control of power to individual assemblies and operator control of lamp brightness. Each lamp is equipped with a red filter for reducing reflections in combat situations. Power circuit protection, for the domelight assemblies, is provided by the turret domelight circuit breaker (CB10) in the turret networks box.

d. **Turret Blower Circuit (See FO-31).** The fan assembly is an electrically powered fan that gets rid of fumes resulting from firing the coax machinegun or the main gun. It also can be used to draw outside air into the turret for crew comfort in hot weather. When the TURRET POWER switch on the commander's control panel is in the ON position, power is applied to the blower motor by setting the BLOWER switch on the loader's panel to the ON position. Power is also applied to the blower motor when the GUN SELECT switch on the gunner's primary sight control panel is in the COAX position, no matter what position the TURRET BLOWER switch is in. Circuit breakers CB11, CB20, and CB101 in the turret networks box provide protection for the fan assembly control and power circuits.

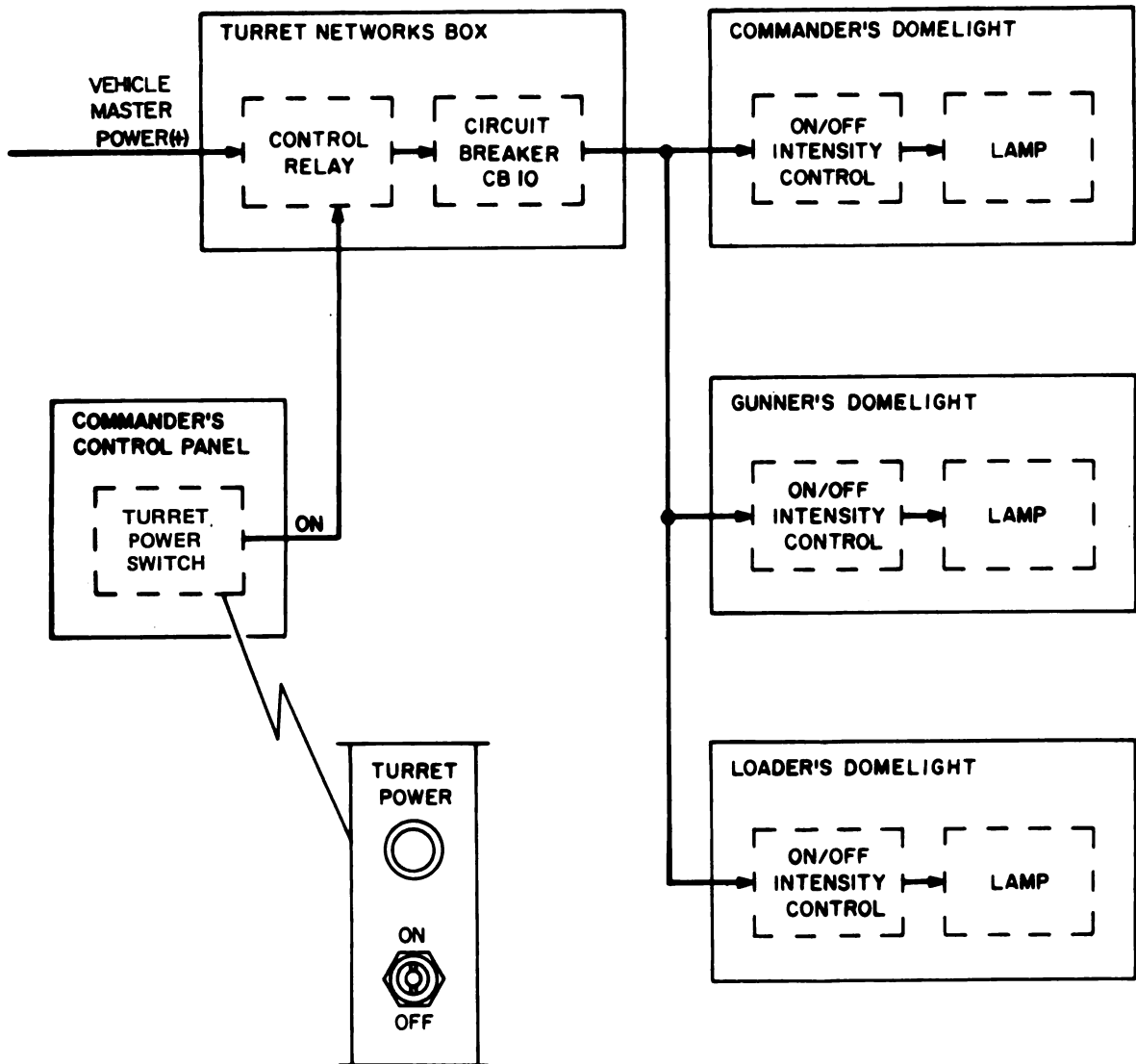


Figure 2-1. Turret Domelights Functional Block Diagram
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2-12. Hydraulic System (See FO-32). The hydraulic system consists of components in both the hull and the turret. Normal hydraulic power for the system is generated by an engine-driven hydraulic pump. When the engine is not running, hydraulic power is generated by an electric auxiliary hydraulic pump located on the hull floor below the turret basket. The hydraulic system operates the bilge pump in the hull. Hydraulic lines and fittings carry oil under pressure through the hydraulic distribution manifold to the hull/turret slipring, and from it to a hydraulic turret valve in the turret. The hydraulic turret valve controls hydraulic power to the ammo door hydraulic actuator, the elevation servomechanism, and the traverse servomechanism. A hydraulic system dial pressure gage is located at the gunner's station. A hydraulic system warning light on the driver's instrument panel warns of main hydraulic pump case drain line failure. The warning light is turned on by a switch in the hydraulic distribution manifold that senses a loss of case drain line fluid flow.

a. **Main Pump.** The engine-driven main hydraulic pump is disengaged during the start cycle. It starts operating after the start is complete and the engine is running. The main pump then runs constantly and provides normal system pressure of 1500 to 1700 psi. Fluid flow from the reservoir through the case drain line provides lubrication for the pump. Lubrication is necessary to prevent damage to the pump. The pump can supply fluid flow up to 47 gallons per minute (gpm).

b. **Auxiliary Pump.** The electric-powered, auxiliary hydraulic powerpack is controlled by a switch on the commander's control panel. The on/off signal from the switch operates a relay in the turret networks box that closes a circuit through the hull/turret slipring to the auxiliary hydraulic powerpack power relay in the hull networks box. This relay controls power to the auxiliary hydraulic powerpack circuit. With electric power supplied to the pump circuit, the pump will not operate unless a pressure sensor in the hydraulic reservoir senses system pressure of less than about 1150 psi, and closes the pressure switch. This pressure switch activates a relay in the networks box that then completes the power circuit to the auxiliary hydraulic powerpack. The auxiliary hydraulic powerpack power circuit is protected by a circuit breaker (CB 101) in the hull networks box.

c. **Hydraulic Distribution Manifold.** The hydraulic distribution manifold is located on the hull floor below the turret basket. The manifold distributes hydraulic fluid under pressure from the main hydraulic pump or auxiliary hydraulic powerpack to the hull/turret hydraulic systems.

The hydraulic distribution manifold contains two electrically controlled solenoid valves: the bilge pump valve and a dump valve. The bilge pump valve is controlled by a relay circuit in the hull networks box and is used to operate the bilge pump (see d, Bilge Pump). The dump valve is controlled by a main pump case drain line flow switch also located in the manifold assembly. When the case drain line flow switch senses a loss of fluid flow in the case drain line, the flow switch closes and energizes a relay in the driver's instrument panel. Energizing the relay in the driver's instrument panel deenergizes the dump valve and allows the valve to open. When the valve opens, 2.7 to 3 gallons per minute of fluid flows from the pump and back to the reservoir as long as the pump is running. This 3 gallons per minute flow through the dump valve acts as a backup system to provide lubrication for the pump. When the dump valve is deenergized, the hydraulic system malfunction light turns on to warn the crew that a hydraulic problem exists and to shut the engine down.

2-12. Hydraulic System (Continued)

d. **Bilge Pump.** The bilge pump is operated only during fording operations to pump water out of the hull. The bilge pump is a hydraulically operated pump, electrically controlled from the BILGE PUMP switch on the driver's master panel. The switch activates the bilge pump control relay in the hull networks box which energizes the bilge pump valve in the distribution manifold. When the bilge pump valve operates, hydraulic fluid is supplied through the valve to run the bilge pump motor. The BILGE PUMP switch also controls other relays in the hull networks box which disable the transmission and engine oil cooler fans while the bilge pump is running. The bilge pump power circuit is protected by a circuit breaker (CB 11) in the hull networks box.

e. **Hydraulic Turret Valve.** The hydraulic turret valve is located on the turret basket floor, forward of the electronics rack. The valve receives hydraulic power from the main hydraulic pump or auxiliary hydraulic powerpack through the hull/turret slipring. It operates on electrical control signals to control hydraulic power to all hydraulic components in the turret: the ammo door hydraulic actuator, the elevation servomechanism, and the traverse servomechanism.

The hydraulic turret valve contains four electrically controlled solenoid valves: an elevation power valve, an azimuth power valve, an ammo door open valve, and an ammo door closed valve. The elevation and azimuth power valves are controlled by relays in the turret networks box. These relays are activated by signals from the gun/turret drive electronic unit (see para. 2-13, Fire Control System). The ammo door valves are controlled by door-close relay in the turret networks box, a safety switch on the door, and the loader's knee switch (see f., Ammunition Door). The hydraulic valve control circuits are protected by a circuit breaker (CB 17) in the turret networks box.

f. **Ammunition Door.** The bustle ready ammunition door is opened and closed by an electro-hydraulic system. A hydraulic actuator drives the door in either direction by controlling hydraulic fluid flow through an electrically operated solenoid in the hydraulic turret valve. The door opens when the loader's knee switch is pushed in and closes when the switch is released. A ready ammunition door safety switch stops the door when it strikes any foreign object while the door is closing.

The loader's knee switch provides power to the door-open solenoid in the hydraulic turret valve and a door-close relay in the turret networks box. When the knee switch is pressed, the door-open solenoid valve directs fluid flow to extend the door actuating cylinder piston, driving the door open. When the knee switch is released, the door-close relay is energized, activating the door-close solenoid valve. The door-close solenoid valve directs fluid flow to retract the door actuating cylinder piston, driving the door closed. The ready ammunition door safety switch opens the circuit to the door-close relay when the door strikes an object while the door is closing. It also shuts off fluid to the actuating cylinder when the door reaches the full close position. The ammunition door control circuits are protected by a circuit breaker (CB 12) in the turret networks box.

2-13. Fire Control System. The M1 fire control system includes all the equipment needed to aim and fire the 105mm main gun and the coaxial machinegun.

Figure 2-2 shows how the fire control system aims the gun in front of a moving target. This lead angle points the gun where the target will be when the round arrives. Also, the gun elevation (or superelevation) aims the gun above the target because the round will fall on its way to the target. The gunner's primary sight (GPS) magnifies the target scene and displays the reticle. The gunner's control moves the reticle over the target. The line of sight goes from the gunner's eye through the reticle in the GPS to the target. The fire control system then calculates the aim point and moves the turret and the gun through the offsets. When the turret moves the gun through the azimuth offset, it also moves the GPS and the target image moves to one side of the sight display. The amount of movement is the same as the azimuth offset, since the center of the sight display is on the gun aim line. The GPS contains a mirror that is held on the line of sight in elevation. This keeps the reticle steady on the target. The fire control system senses the angle of this mirror (line of sight elevation) and also senses the gun elevation angle. The system then drives the gun so that the gun elevation angle falls on the gun aim line. When the M1 is moving, the fire control system holds the sight display steady by correcting the turret/gun azimuth angle and the GPS elevation angle. The system also holds the gun steady in elevation. This allows the gunner to track the target smoothly and keeps the gun on the aim point, even though the hull is moving.

The GPS contains a second eyepiece so the commander can see the same sight display that the gunner sees. The commander also has a handle so that he can aim and fire the gun. When the commander's control handle is operated, it takes control away from the gunner's control handles.

A thermal imaging system is mounted on the GPS. This system looks along the line of sight and displays the target scene on a small screen built into the sight. This display gives a picture of temperature differences using infrared radiation. The gunner sees targets that are warm standing out from things that are cool. This allows him to find a target at night, or to locate a target that is under cover.

The laser rangefinder is also mounted on the GPS. When the gunner (or commander) pushes the thumb button on the control handle, the laser fires pulses along the line of sight. The reflected laser pulses return along the same line to the laser rangefinder, which calculates range to the target. If there is more than one return, the sight display multiple target returns bar lights. The range is displayed in the sight and also sent to the fire control system computer, which corrects the offsets. The F symbol in the GPS lights if the computer senses a fault in the fire control system. If the main fire control system stops working, an auxiliary sight can be used to sight the gun. Manual controls can be used to traverse the turret and elevate the gun when hydraulic power is lost. If electrical power is lost, the main gun can be fired using the emergency manual firing device (the blasting machine).

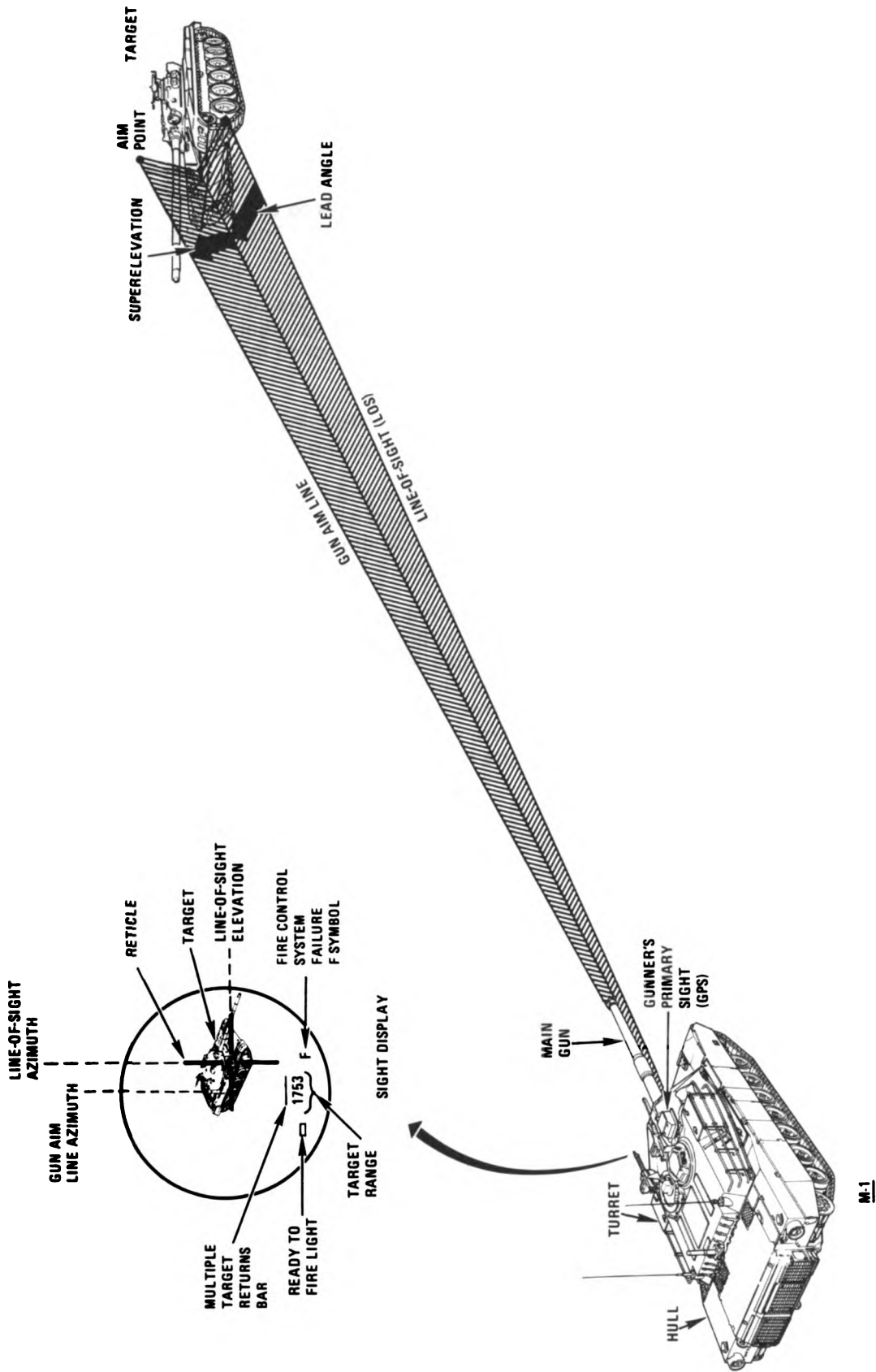


Figure 2-2. Fire Control System Overall Operation
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2-13. Fire Control System (Continued)

a. **Azimuth Subsystem.** The azimuth (AZ) subsystem allows the gunner to track the target smoothly by driving the gun to the proper aim line. As the reticle moves to one side in the sight display (see figure 2-3), the turret, gun, and GPS also move to stay on the aim line. The distance between the reticle and center of the sight display is called the lead angle.

The reticle image is generated in the laser rangefinder. The image passes through one side of the azimuth mirror, bounces off the reticle reflector, and then off the other side of the azimuth mirror on to the sight display. The azimuth mirror servo rotates the mirror to move the reticle. It does not move the target display.

The reticle azimuth position is controlled by two servos in the GPS. These two servos receive their signals from the computer based on the following computer inputs:

1. azimuth tracking rate, from the gunner's or commander's control handles,
2. azimuth reticle position, from the reticle servo potentiometer,
3. azimuth reticle rate, from the reticle servo tachometer, and
4. other inputs to the computer from the computer control panel.

Based on these inputs, the computer calculates the lead angle and causes the two servos to move the photosensor carriage to the line of sight angle. The light emitting diode (light source) is mounted in the gunner's primary sight. The light beam bounces off the azimuth mirror onto the photosensors. If the light beam does not fall on the middle of the photosensors, a signal is sent to the azimuth servo electronics. This signal moves the azimuth mirror so the light beam falls in the middle and the azimuth mirror position error signal goes to zero. At this point, the azimuth mirror will be turned to the line of sight angle, the reticle will be on the target, and the turret and gun will be on the lead angle to hit the target.

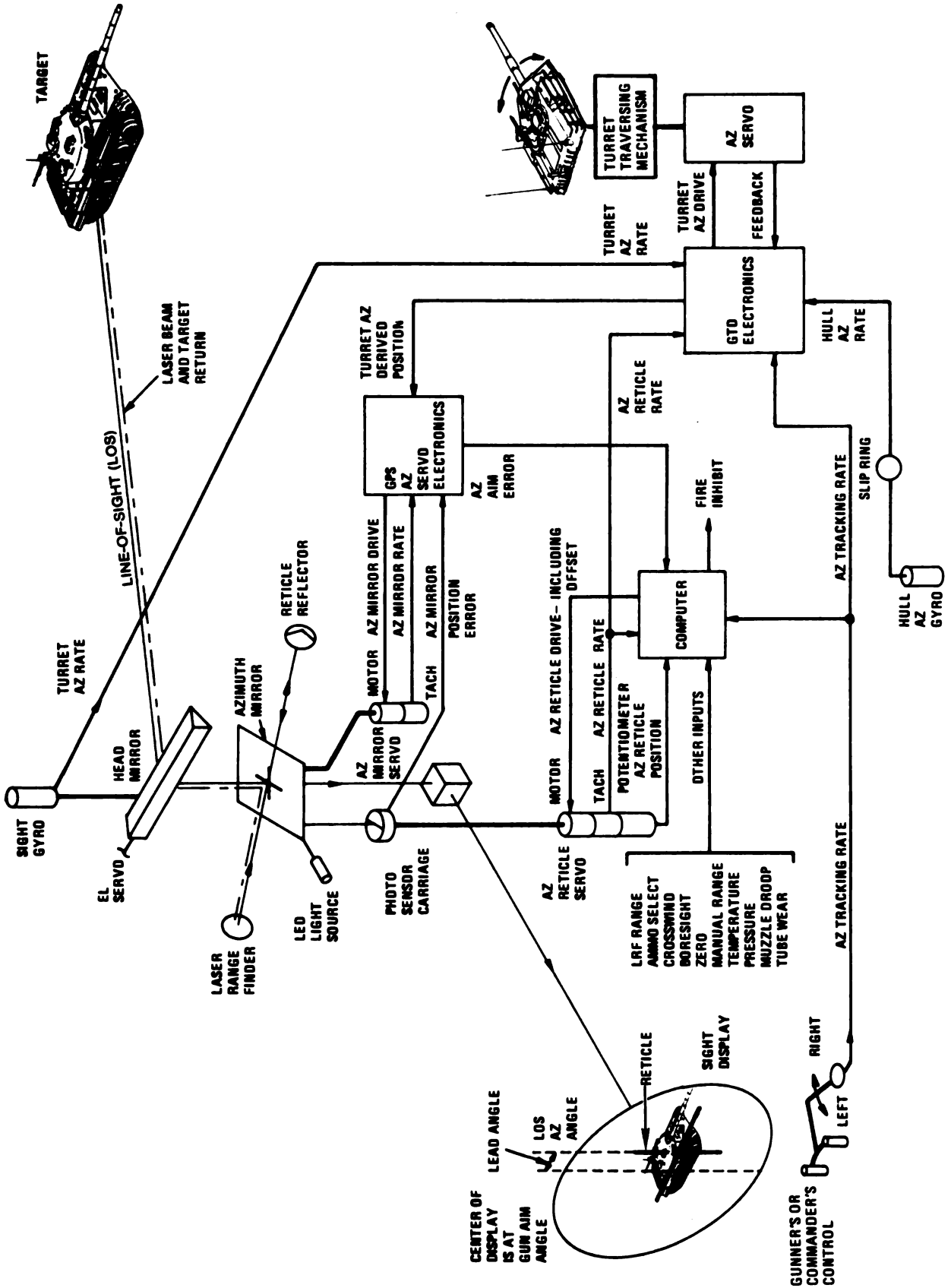


Figure 2-3. Fire Control Azimuth Subsystem Functional Block Diagram

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2-13. Fire Control System (Continued)

b. **Elevation Subsystem.** The elevation (EL) subsystem has two functions; tracking the line of sight to the target and holding the gun on the aim line. Figure 2-4 shows the main parts of the EL subsystem.

The sight display shows the target and the reticle. The head mirror reflects the target into the gunner's primary sight. Moving either control handle forward or backward turns the head mirror, keeping the reticle on the target.

The sight elevation servomechanism and the line-of-sight electronics unit drive the head mirror motor with the elevation tracking rate signal. The sight gyroscope senses movement of the sight head mirror and sends the sight elevation to the line-of-sight electronics unit. This keeps the head mirror steady while the M1 and the sight move up and down.

The head mirror resolver senses the head mirror angle. The gun trunnion resolver senses gun elevation angle. These angles are added and sent to the line-of-sight electronics unit. The line-of-sight electronics unit compares this angle with the superelevation angle from the fire control computer. If there is too much difference (ERROR) the computer sends a fire inhibit signal to stop the gun from firing.

The computer calculates the elevation offset using inputs from the computer control panel, laser rangefinder, and the gunner's primary sight control panel. The amount of elevation offset depends on tracking rate, range to the target, ammunition type, wind speed and direction, air pressure and temperature, and ammunition temperature. When any of these change, the elevation offset is changed to correct the gun aim. The elevation offset is fed to the line-of-sight electronics unit where any position error is added. This offset plus error signal is one of the signals used by the gun/turret drive electronic unit to position the gun.

The gun/turret drive electronic unit positions the gun using the following inputs:

1. up and down motion of the gun barrel from the gun elevation gyroscope,
2. up and down motion of the turret from the turret elevation gyroscope,
3. elevation position offset and error signal from the line-of-sight electronics unit,
4. elevation tracking rate from the gunner's or commander's control handles,
5. gun elevation rate from the gun elevation gyroscope, and
6. feedback from the gun elevation servomechanism.

The gun drive signal that results, supplied to the gun elevation servomechanism, moves the gun to the correct aim line and tracks the target smoothly. The azimuth servomechanism controls the traversing mechanism. The traversing mechanism drives the turret. It is controlled by the gun/turret drive electronic unit (GTD). The sight gyroscope in the gunner's primary sight senses turret azimuth motion. The hull azimuth gyroscope senses hull azimuth motion as the M1 moves. The gun/turret drive electronic unit takes the azimuth tracking rate, the azimuth reticle rate, and the turret azimuth rate, and commands the azimuth servomechanism to drive the turret. The hull azimuth is used by the gun/turret drive electronic unit to correct for hull motion as the M1 moves. The azimuth servomechanism causes the turret to stop on the correct line of sight and lets the hull move left and right beneath it. Since the turret can aim in any direction, the system does not know the turret azimuth position. It does know the azimuth reticle position and the lead angle. The gun/turret drive electronic unit calculates the turret azimuth derived position by processing the rate inputs. This signal goes to the gunner's primary sight azimuth servo electronics. The gunner's primary sight adds the turret azimuth derived position signal and the azimuth mirror position and sends the result to the computer. The computer compares this signal with the azimuth reticle position and the azimuth offset. If the computer finds that the gun is not aimed close enough, a fire inhibit signal prevents the gun from firing.

2-14. Commander's Weapon Station. The commander's weapon station (see FO-33) has a .50 caliber machinegun mounted on a rotating platform, allowing the weapon to be traversed to any azimuth position. The platform also mounts six unity vision periscopes, providing 360 degree field of view when the hatch is closed. A three power periscope gun sight, boresighted to the weapon, is mechanically coupled to the weapon mount. The sight and weapon are manually elevated, -10 to +65 degrees, by the manual elevation drive handle. The drive handle also has a control for firing the weapon.

Azimuth traversal of the weapon can be accomplished in either powered or manual modes.

Traversal in the powered mode requires setting TURRET POWER switch on the commander's control panel to ON, putting the control handle on the commander's weapon station gearbox in the POWER position, depressing the palm switch on the commander's control, and pressing the thumb control on the handle.

Traversal is accomplished by a rate servomechanism system. This system is made up of an azimuth drive unit, the commander's control, and electronic circuits in the power control unit. The azimuth drive unit is a round housing, containing the azimuth motor and brake assemblies that mechanically connect to the gearbox. The motor/brake has two shafts. The upper shaft is splined to the input gear on the gearbox. The lower shaft is keyed to the fail-safe, spring actuated brake mounted on the motor. The brake is normally on, and is released when the palm switch on the commander's control is depressed. To prevent damage, the brake will slip if the commander's weapon hits an object.

Input to the power control unit shaping network occurs when the palm switch is depressed and the thumb control is pressed. The input signal is polarized so traversal can be in either direction. The strength of the input signal also varies with the pressure applied to the thumb control. The harder the thumb control is pressed, the faster the weapon will traverse. The shaped output signal from the power control unit is supplied to the motor and brake. This shaped signal causes the brake to release and the motor to drive the weapon in the required direction, either fast or slow. As the weapon traverses, a feedback signal from the tachometer in the servomechanism amplifier, coupled through a power amplifier, is summed with the shaped signal to allow smooth tracking and accurate positioning of the weapon.

Traversal in the manual mode requires the control handle on the gearbox be set in the MANUAL position. This disengages the motor brake and engages the manual traverse ring. Rotating the traverse ring will then traverse the weapon. To lock the weapon in a fixed position, the control handle is set to the POWER position which reengages the brake. The gearbox is left in the POWER position when the commander's weapon station is not being used.

2-15. Smoke Grenade Launcher System. The smoke grenade launcher system (see figure 2-5) allows the commander to fire as many as 12 smoke grenades from launchers on both sides of the tank. The system consists of two launcher assemblies, one on each side of the tank, and the necessary control switches and relays for selecting the combinations of grenades for firing. Salvo selector switches and a READY switch on the commander's control panel provide system firing control. The READY switch must be held in the ON position to fire the grenades. With READY switch on, the commander may push either the SALVO 1 or SALVO 2 pushbutton switch on his control panel to fire the grenades. The six grenades in each launcher are arranged in sets of three. The SALVO 1 switch fires the number 1, 2, and 5 grenades from the right launcher and number 3, 4, and 6 from the left launcher. The SALVO 2 switch fires the number 3, 4, and 6 grenades from the right launcher and number 1, 2, and 5 from the left launcher. The salvo switches operate control relays in the hull networks box which send the firing signals to the launchers. The smoke grenade system uses 24-volt operating power from the turret power circuit.

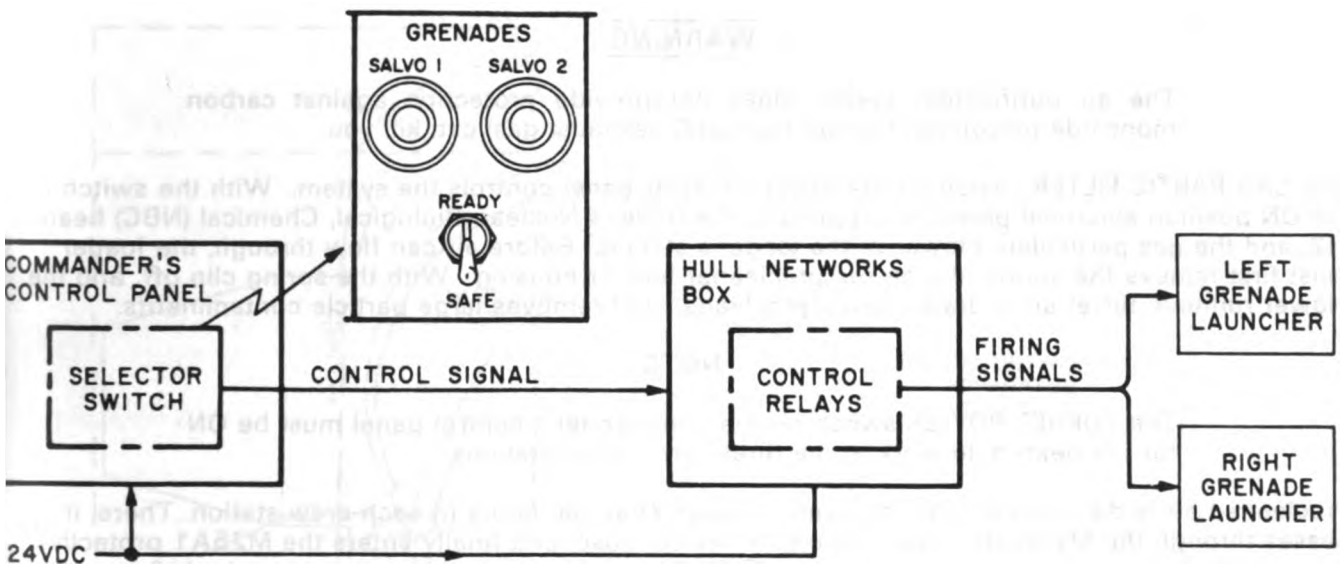


Figure 2-5. Smoke Grenade Launcher System Functional Block Diagram
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2-16. Nuclear, Biological, Chemical System. This system (see figure 2-6) provides detection and decontamination equipment to protect against nuclear, biological, or chemical attack. Detection equipment consists of the M256 chemical agent detector kit. Decontamination equipment consists of an air purification system and decontamination apparatus, ABC-M11.

a. **Detection Equipment.** The chemical agent detector kit is located on the turret floor under the gunner's seat. The kit contains material to identify toxic chemical agents that may be used by the enemy to disable the tank crew. Instructions for use are provided with the kit.

b. **Air Purification System.** This system (see FO-34) removes radioactive and chemical contaminants from the air supply inside the tank and distributes clean, filtered air to the crew. The system also heats the filtered air if it is too cold to be breathed comfortably.

WARNING

The air purification system does not provide protection against carbon monoxide poisoning. Carbon monoxide (exhaust gas) can kill you.

The GAS PARTIC FILTER switch on the driver's master panel controls the system. With the switch in the ON position electrical power is supplied to the driver's Nuclear, Biological, Chemical (NBC) heater, M2, and the gas particulate blower at the loader's station. Before air can flow through, the loader must first remove the spring clip on the precleaner blower housing. With the spring clip off, and the blower running, turret air is drawn into a precleaner that removes large particle contaminants.

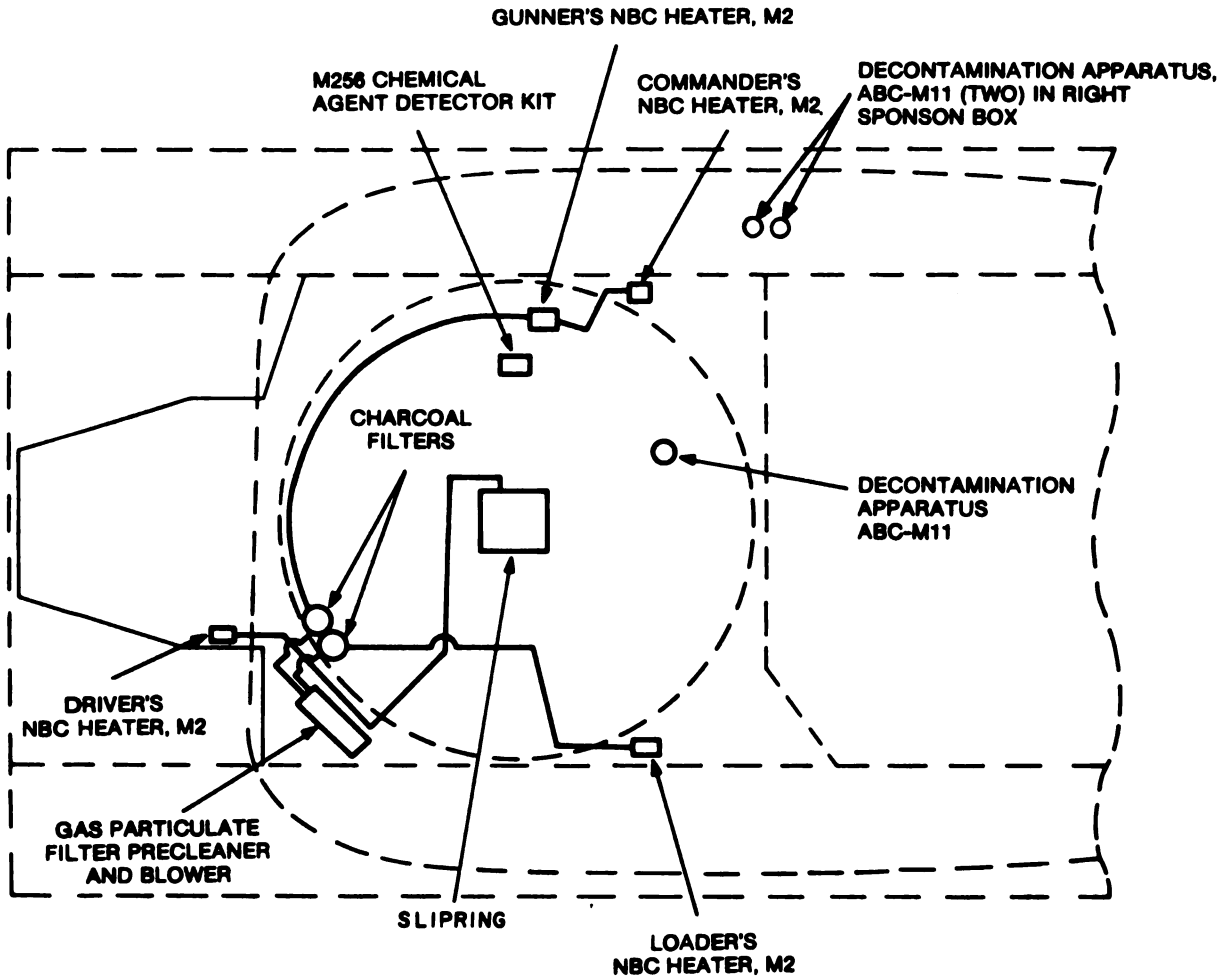
NOTE

The TURRET POWER switch on the commander's control panel must be ON for the heaters to work at the three turret crew stations.

Precleaned air is distributed under pressure through charcoal filters to each crew station. There, it passes through the M2 heater, then through a flexible hose, and finally enters the M25A1 protective mask through a filter cannister on the mask. The on/off and temperature switch on the M2 heater allows each crewman to control air temperature as required.

Circuit breakers CB26 and CB27 in the hull networks box and CB2, CB3, and CB4, in the turret networks box provide overload protection.

c. **Decontamination Equipment.** ABC-M11 portable decontamination apparatus is carried on the tank. One apparatus is at the commander's station mounted on the .50 caliber ammo box. Two additional apparatuses are carried in the right sponson storage box. Each apparatus contains pressurized DS2 used to decontaminate surfaces the crew may contact.



**Figure 2-6. Nuclear, Biological, Chemical System
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2-17. Communication System. This system (see FO-35) enables the tank commander and crew members to communicate with each other and to establish two-way communications in radio nets outside the tank. Power is supplied to the system through circuit breaker CB6 on the turret networks box. The audio amplifier is the main junction point for all the other parts of the system. It also amplifies the intercom and radio receiver signals.

Each crew station has an intercom control box which serves as the connection point for each crew member's CVC helmet. Each helmet contains a headset, microphone, and microphone switch. The gunner, driver, and commander are also provided with remote microphone keying switches to reduce hand motions while operating the tank.

The basic parts of the communication system will vary with mission requirements. Typically, the system will include the following:

1. amplifier, AM-1780 VRC,
2. control, frequency selector, C-2742/VRC,
3. control, intercommunication set (intercom control box) 10456/VRC, one at each crew station,
4. receiver, radio R-442/VRC, or AN/VRC12,
5. receiver-transmitter, radio, RT-246VRC, RT-246A/VRC, or RT841/PRC-77, and,
6. receiver, and receiver-transmitter antennas such as AS2731, AT1095, AT1730, MS-118A, MS-116A, or MS-117A.

The typical system can operate in two radio nets at the same time. The receiver monitors one net with the receiver-transmitter set to another. The frequency selector C-2742 allows the commander to remotely set output power of the receiver-transmitter and select preset operating frequencies.

Security equipment, TSEC/KY57 can also be installed on the M1 when required by the mission.

CHAPTER 3
TROUBLESHOOTING INDEX

Table 3-1. Troubleshooting Index

System	Troubleshooting Road Maps	Symptom and Resource Table	System Schematics	Harness Connector Diagrams
Turret Electrical System	Figure 5-1	Table 6-2	FO-1 through FO-10	•
Hydraulic and Gun/Turret Drive System	Figure 5-2	Table 6-3	FO-11 through FO-14	•
Fire Control System	Figure 5-3	Table 6-4	FO-15 through FO-26	•
Commander's Weapon Station System	Figure 5-4	Table 6-5	FO-27	•
Smoke Grenade System	Figure 5-5	Table 6-6	FO-28	•
Nuclear, Biological, Chemical System	Figure 5-6	Table 6-7	-	•
Communication System	Figure 5-7	Table 6-8	FO-29	•
Turret Circuit Breaker System	Figure 5-8	Table 6-9	-	•

*Refer to TM 9-2350-255-20-2-2-3, figure 18-104.

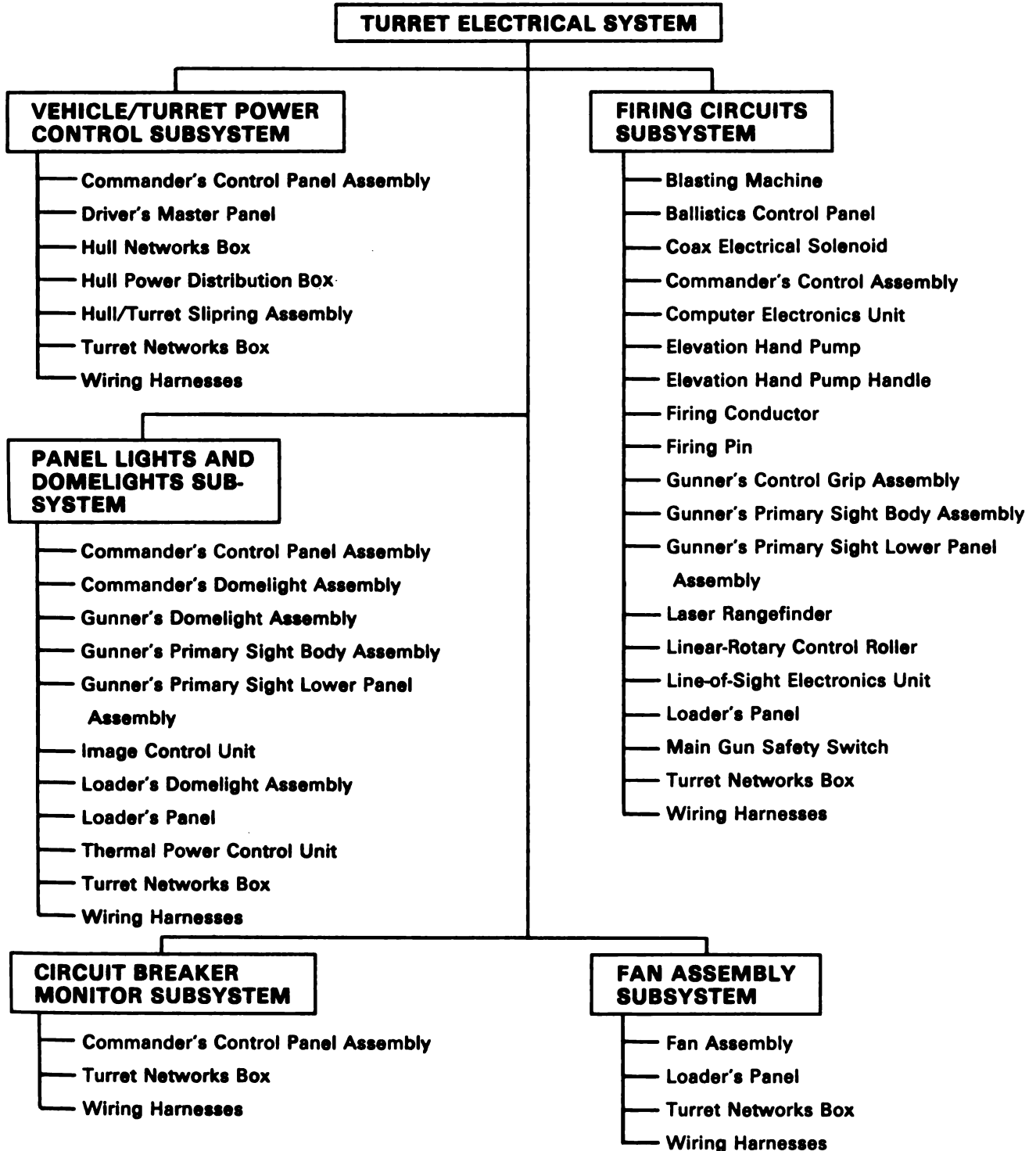
CHAPTER 4
TEST EQUIPMENT PROCEDURES INDEX

Table 4-1. Test Equipment Procedures

Item	Procedure	TM 9-2350-255-20-2-2-2 Figure
Breakout Box/Accessories Multimeter* Simplified Test Equipment for M1 Main Battle Tank (STE)	Common Hookups	15-2
	Multimeter Polarity Test	15-2
	Preparing STE for Operation	15-3
	Shutdown and Stow STE	15-4
	Cable Test 1390	15-5

For instructions on the use of your multimeter, refer to the operator's manual for the multimeter you are using.

**CHAPTER 5
TROUBLESHOOTING ROADMAPS**



*Figure 5-1. Turret Electrical System Troubleshooting Roadmap
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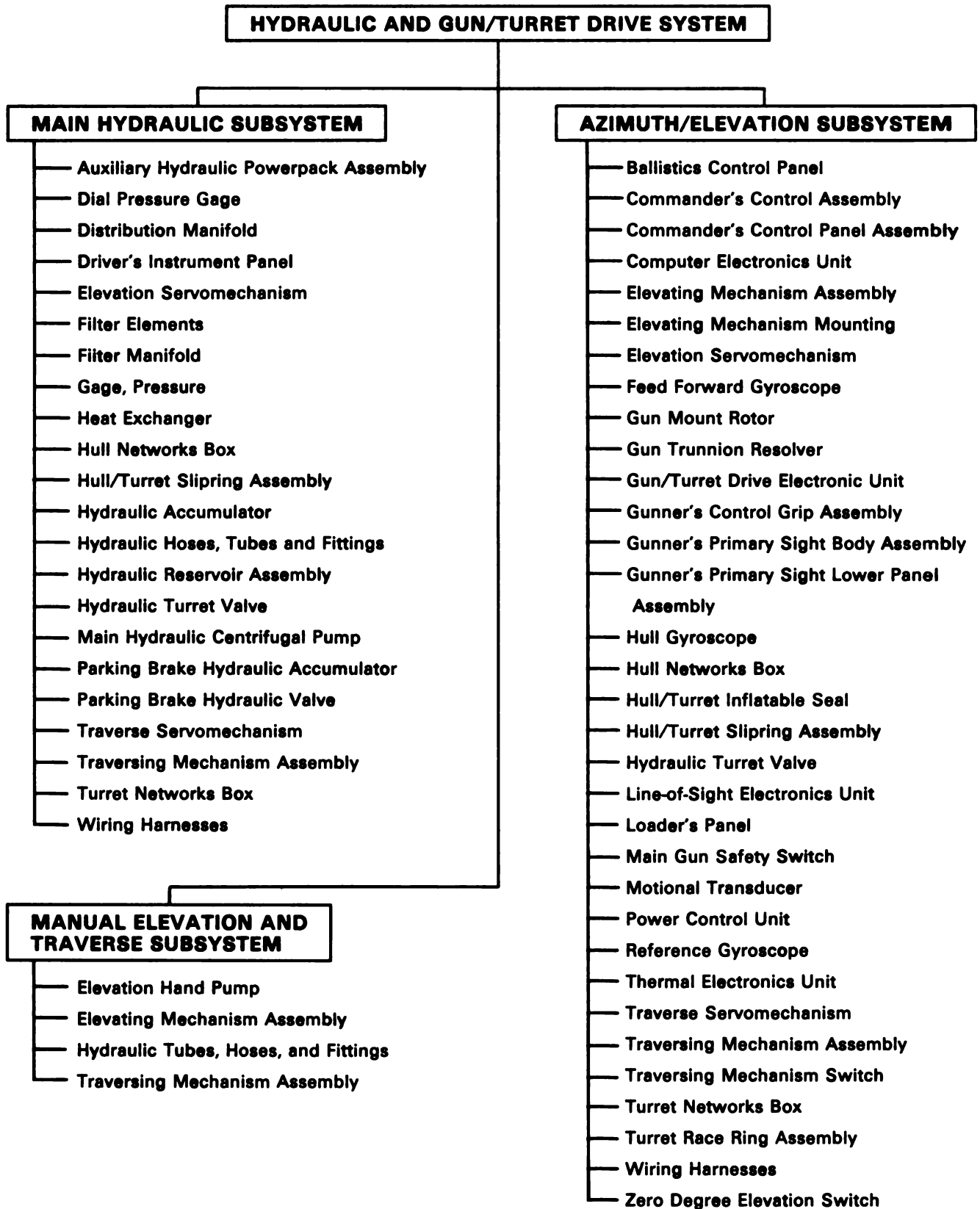


Figure 5-2. Hydraulic and Gun/Turret Drive System Troubleshooting Roadmap (Sheet 1 of 2)
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HYDRAULIC AND GUN/TURRET DRIVE SYSTEM (Continued)

AMMUNITION DOOR CONTROL SUBSYSTEM

- Ammo Door Hydraulic Actuator
- Arm Latch
- Hydraulic Tubes, Hoses, and Fittings
- Hydraulic Turret Valve
- Loader's Knee Switch
- Ready Ammunition Door Safety Switch
- Sliding Door Rails
- Sliding Metal Door Roller Assemblies
- Turret Networks Box
- Wiring Harnesses

AUXILIARY HYDRAULIC SUBSYSTEM

- Auxiliary Hydraulic Powerpack Assembly
- Commander's Control Panel Assembly
- Dial Pressure Gage
- Driver's Instrument Panel
- Elevating Mechanism Assembly
- Elevation Servomechanism
- Filter Manifold
- Gage, Pressure
- Hull Networks Box
- Hull/Turret Slipping Assembly
- Hydraulic Accumulator
- Hydraulic Distribution Manifold
- Hydraulic Pressure Switch
- Hydraulic Reservoir Assembly
- Hydraulic Tubes, Hoses, and Fittings
- Hydraulic Turret Valve
- Parking Brake Hydraulic Accumulator
- Parking Brake Hydraulic Valve
- Traverse Servomechanism
- Traversing Mechanism Assembly
- Turret Networks Box
- Wiring Harnesses

Figure 5-2. Hydraulic and Gun/Turret Drive System Troubleshooting (Sheet 2 of 2)
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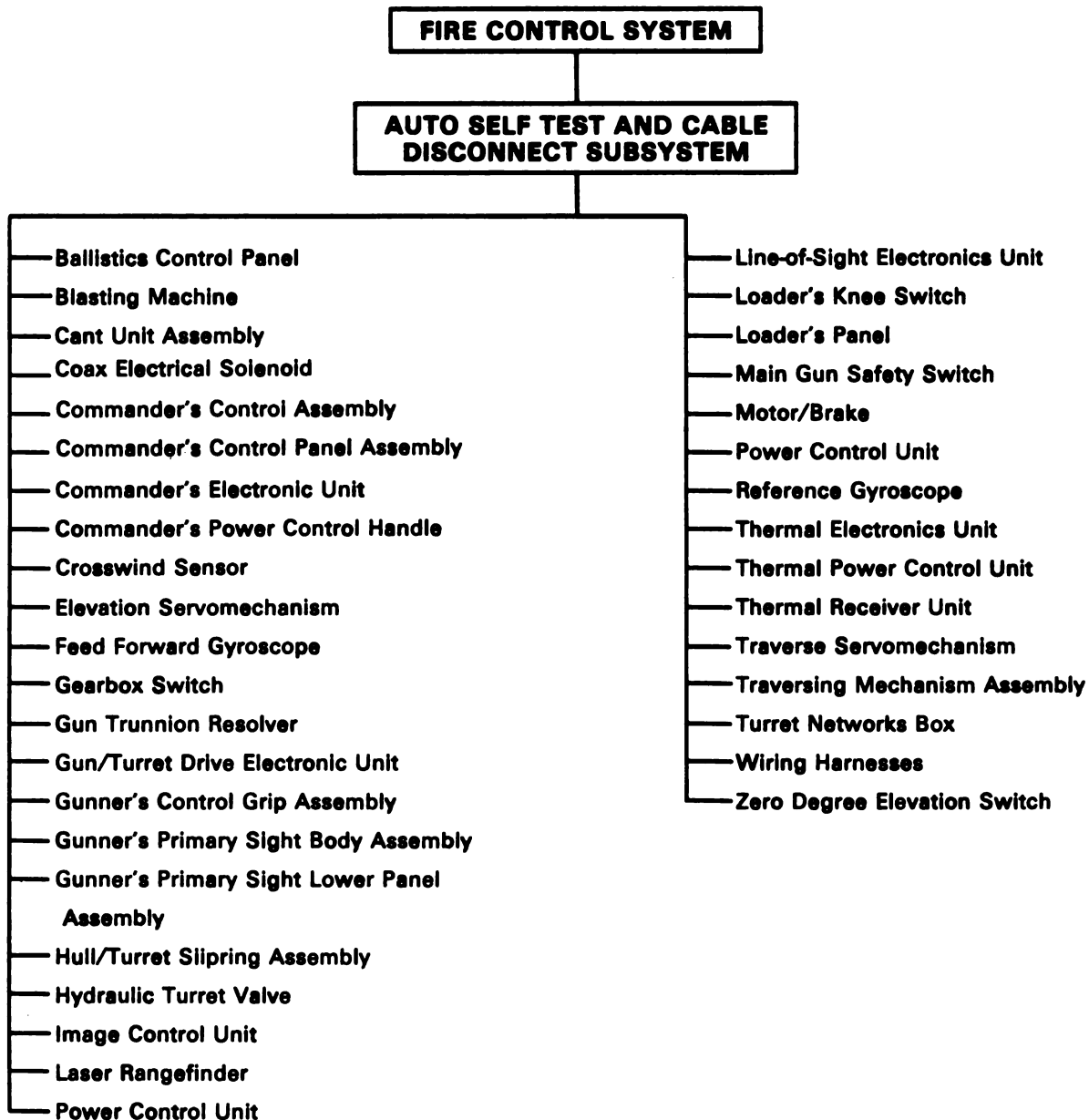


Figure 5-3. Fire Control System Troubleshooting Roadmaps (Sheet 1 of 3)
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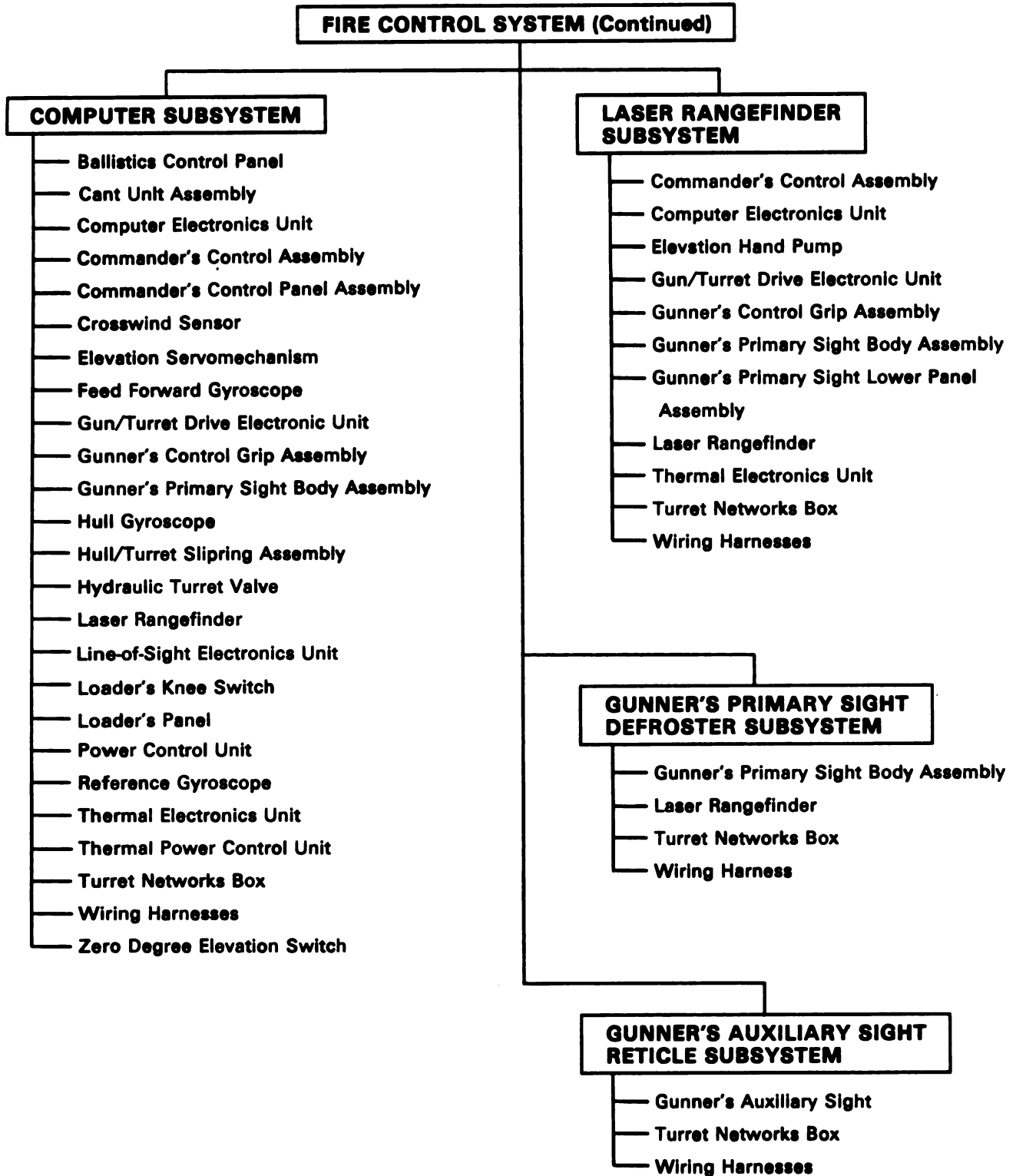


Figure 5-3. Fire Control System Troubleshooting Roadmaps (Sheet 2 of 3)
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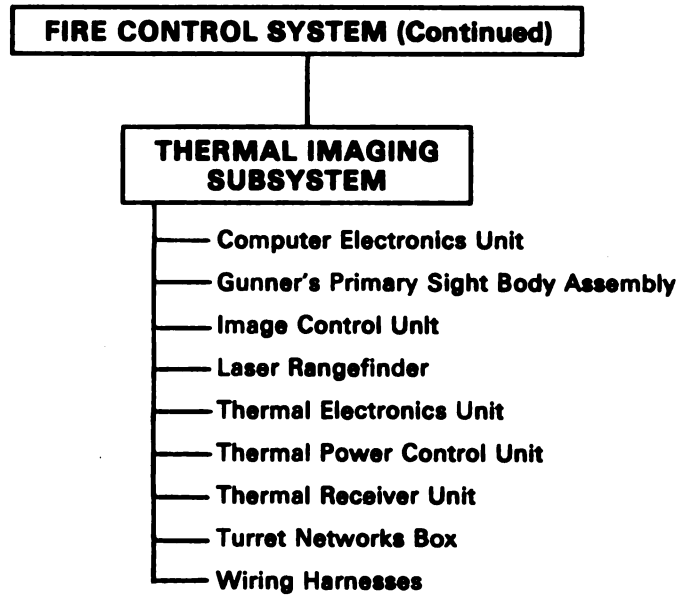
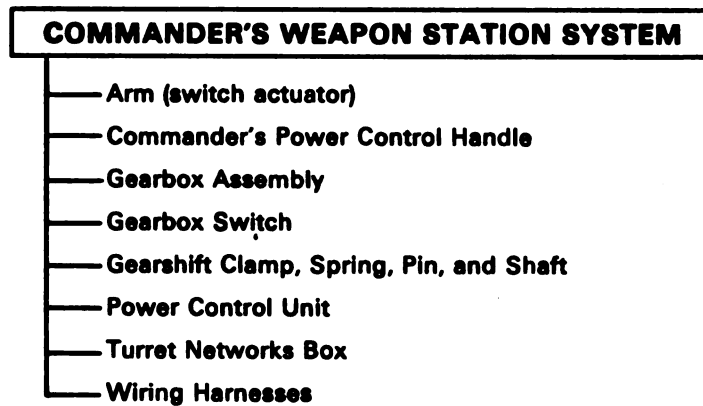


Figure 5-3. Fire Control System Troubleshooting Roadmaps (Sheet 3 of 3)



*Figure 5-4. Commander's Weapon Station System Troubleshooting Roadmap
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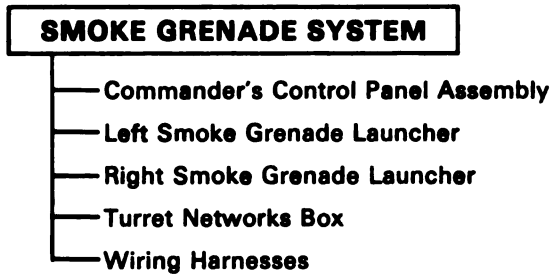


Figure 5-5. Smoke Grenade System Troubleshooting Roadmap

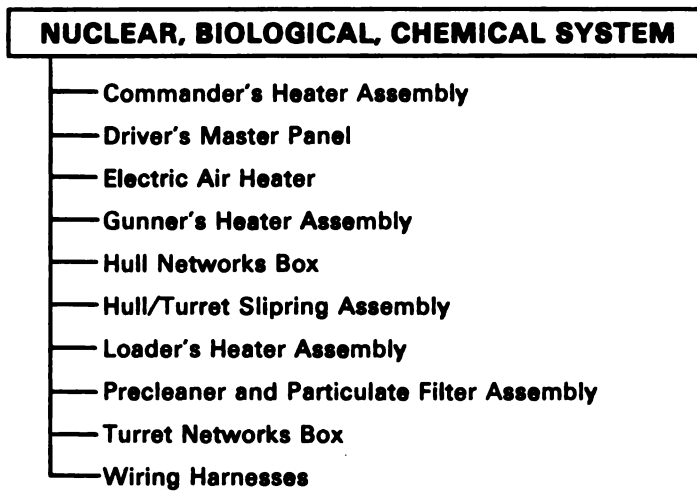


Figure 5-6. Nuclear, Biological, Chemical System Troubleshooting Roadmap

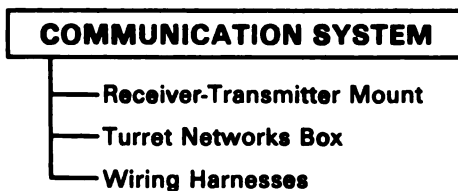
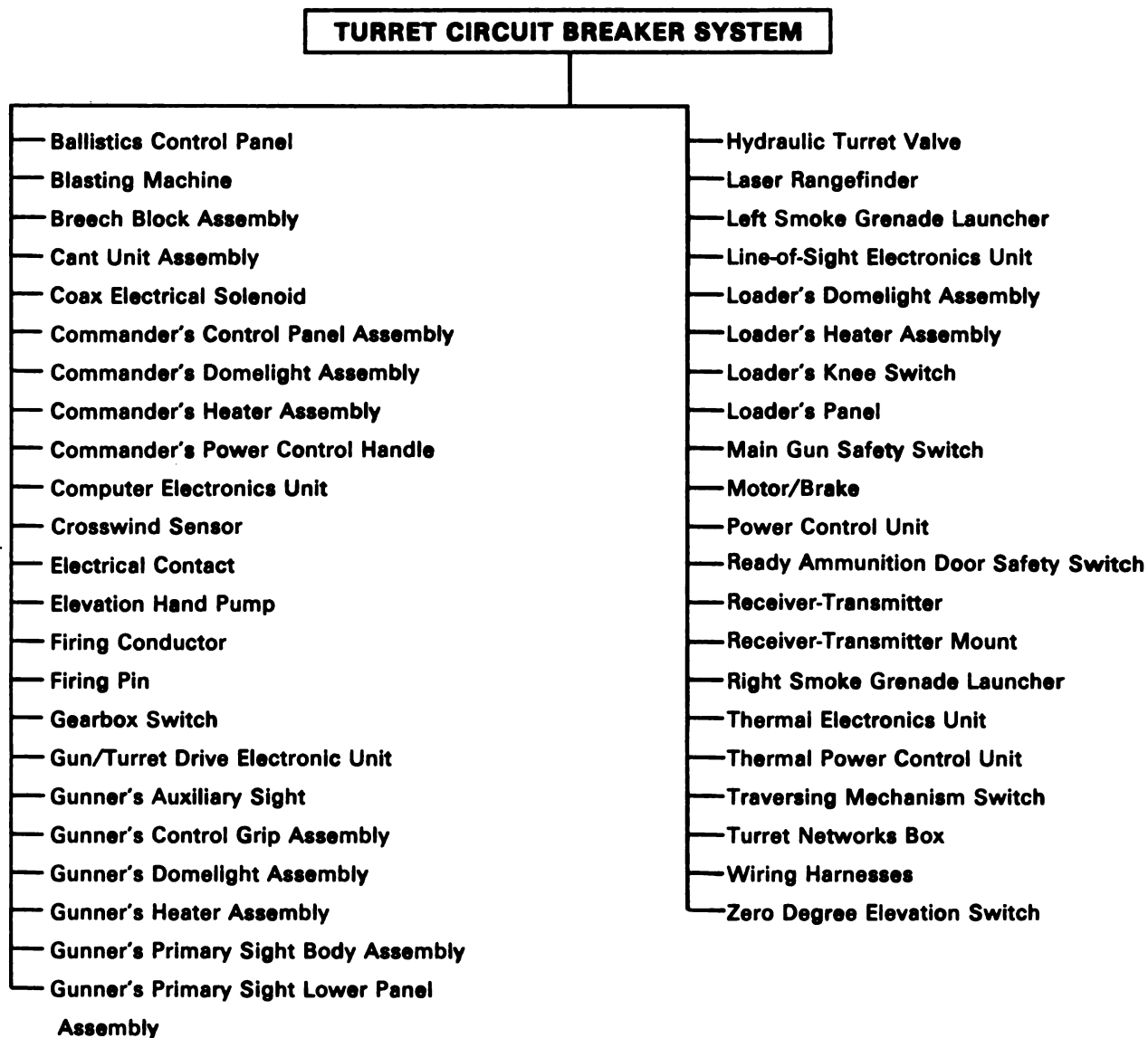


Figure 5-7. Communication System Troubleshooting Roadmap



*Figure 5-8. Turret Circuit Breaker System Troubleshooting Roadmap
Volume II
Para. 5-1*

**CHAPTER 6
FAULT SYMPTOM INDEXES**

6-1. General. This chapter contains symptom indexes which identify the correct procedures for troubleshooting a malfunction in any of the turret systems. A fault symptom index (table) is included for each turret system. The symptom indexes are listed in table 6-1 with page location numbers.

Table 6-1. Turret Systems

System/Subsystem	Fault Symptom Index	
	Table	Page
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Vehicle/Turret Power Control Subsystem		6-3
Vehicle Master Power		6-3
Turret Power		6-3
Firing Circuits Subsystem		6-4
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Coax Machinegun		6-5
Lights		6-5
Fan Assembly Subsystem		6-6
Turret Circuit Breaker Monitor Subsystem		6-7
Panel Lights and Domelights Subsystem		6-7
Panel Lights		6-7
Domelights		6-9
Hydraulic and Gun/Turret Drive System	6-3	6-10
Main Hydraulic Subsystem		6-10
Azimuth/Elevation Subsystem (Also in Fire Control System)		6-10
Azimuth		6-10
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Manual Elevation and Traverse Subsystem		6-12
Ready Ammunition Door Control Subsystem		6-13
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Computer and Azimuth/Elevation Subsystems		6-15
Ammunition Select		6-15
Battle Range		6-16
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Ballistics Control Panel		6-17
Muzzle Reference Sensor		6-18
Gunner's Primary Sight Reticle		6-18
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Azimuth		6-23
Elevation		6-24
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Table 6-1. Turret Systems (Continued)

System/Subsystem	Fault Symptom Index	
	Table	Page
Fire Control System (Continued)	6-4	6-15
Gunner's Primary Sight Defroster Subsystem		6-26
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Laser Rangefinder Subsystem		6-26
Thermal Imaging Subsystem		6-27
Commander's Weapon Station System	6-5	6-29
Smoke Grenade System	6-6	6-30
Nuclear, Biological, Chemical System	6-7	6-31
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Turret Circuit Breaker System	6-9	6-32

Table 6-2. Turret Electrical System Fault Symptom Index

System Or Subsystem Fault Symptom No.	Symptom	Primary Troubleshooting Procedure (PTP)	Resources Required	
			STE	Personnel
VEHICLE/TURRET POWER CONTROL SUBSYSTEM				
Vehicle Master Power				
V/TPC-1	Vehicle Master Power Cannot Be Turned On From Commander's Control Panel	Para. 8-2	Yes	2
V/TPC-2	Vehicle Master Power Cannot Be Turned Off From Commander's Control Panel	Para. 8-2	Yes	2
V/TPC-4	VEHICLE MASTER POWER Light On Commander's Control Panel Does Not Come On. ELECTRICAL SYSTEM Voltmeter Shows 24 VOLTS DC	Para. 8-2	Yes	2
V/TPC-5	Fan Assembly, Gas Particulate Heater Assemblies, Commander's Weapon Station, And Communication System Do Not Work When VEHICLE MASTER POWER Switch Is Set To ON	Para. 8-2	Yes	2
Turret Power				
V/TPC-3	TURRET POWER Light And Turret Power Do Not Come On When TURRET POWER Switch Is Set To ON. Vehicle Master Power OK	Para. 8-2	Yes	2
----	TURRET POWER Light Does Not Come On When TURRET POWER Switch Is Set To ON. Turret Power OK. Panel Lights Test OK	Replace Turret Networks Box. Refer to TM 9-2350-255-20-2-3-1, Para. 2-7		
----	TURRET POWER Light Comes On But Turret Power Stays Off	Replace Turret Networks Box. Refer to TM 9-2350-255-20-2-3-1, Para. 2-7		

Table 6-2. Turret Electrical System Fault Symptom Index (Continued)

System Or Subsystem Fault Symptom No.	Symptom	Primary Troubleshooting Procedure (PTP)	Resources Required	
			STE	Personnel
FIRING CIRCUITS SUBSYSTEM				
Main Gun				
FCS-1	Gunner Can Fire Main Gun and Coax Machingun But Commander Cannot	Para. 8-3	Yes	2
FCS-2	Commander Can Fire Main Gun And Coax Machinegun But Gunner Cannot	Para. 8-3	Yes	2
FCS-3	Commander And Gunner Cannot Fire Main Gun From Control Handles	Para. 8-3	Yes	2
FCS-4	Main Gun Does Not Fire From Gunner's Control, Commander's Control, Elevation Hand Pump, Or Blasting Machine	Para. 8-3	Yes	2
FCS-5	Main Gun Does Not Fire From Elevation Hand Pump	Para. 8-3	Yes	2
FCS-12	Firing Circuit Tester Light Comes On During Elevation Firing Inhibit Check	Para. 8-3	Yes	2
FCS-13	Firing Circuit Tester Light Comes On During Azimuth Firing Inhibit Check	Para. 8-3	Yes	2
FCS-16	Main Gun Can Be Fired With Main Gun Safety Switch In Safe Position And ARMED Light Is On	Para. 8-3	Yes	2
FCS-17	Gunner's And Commander's Controls And Elevation Hand Pump Can Fire Main Gun, But Blasting Machine Cannot	Para. 8-3	Yes	2

Table 6-2. Turret Electrical System Fault Symptom Index (Continued)

System Or Subsystem Fault Symptom No.	Symptom	Primary Troubleshooting Procedure (PTP)	Resources Required	
			STE	Personnel
Coax Machinegun				
FCS-6	Commander And Gunner Cannot Fire Coax Machinegun	Para. 8-3	Yes	2
----	Coax Gun Can Be Fired With GUN SELECT Switch In TRIGGER SAFE Position	Replace Turret Networks Box. Refer to TM 9-2350-255-20-2-3-1, Para. 2-7	No	
Lights				
FCS-7	COAX Light Does Not Come On When GUN SELECT Switch Is Set To COAX Position	Para. 8-3	Yes	2
FCS-8	MAIN Light Does Not Come On When GUN SELECT Switch Is Set To MAIN Position	Para. 8-3	Yes	2
FCS-9	TRIGGER SAFE Light Does Not Come On When GUN SELECT Switch Is Set To TRIGGER SAFE Position	Para. 8-3	Yes	2
FCS-10	Main Gun ARMED Light Does Not Come On When Main Gun Safety Switch Is In Armed Position	Para. 8-3	Yes	2
FCS-11	Main Gun SAFE Light Does Not Come On When Main Gun Safety Switch Is In Safe Position	Para. 8-3	Yes	2
FCS-14	Main Gun SAFE Light Stays On When Main Gun Safety Switch Is In Armed Position And ARMED Light is On	Para. 8-3	Yes	2
FCS-15	Main Gun ARMED Light Stays On When Main Gun Safety Switch Is In Safe Position And SAFE Light Is On	Para. 8-3	Yes	2
----	COAX Light Is On When GUN SELECT Switch is In MAIN Or TRIGGER SAFE Position	Replace Turret Networks Box. Refer to TM 9-2350-255-20-2-3-1, Para. 2-7		

Table 6-2. Turret Electrical System Fault Symptom Index (Continued)

System Or Subsystem Fault Symptom No.	Symptom	Primary Troubleshooting Procedure (PTP)	Resources Required	
			STE	Personnel
Lights (Continued)				
----	TRIGGER SAFE Light Is On When GUN SELECT Switch Is In COAX Or MAIN Position	Replace Turret Networks Box. Refer to TM 9-2350-255-20-2-3-1, Para. 2-7		
----	MAIN Light Is On When GUN SELECT Switch Is In COAX Or TRIGGER SAFE Position	Replace Turret Networks Box. Refer to TM 9-2350-255-20-2-3-1, Para. 2-7		
FAN ASSEMBLY SUBSYSTEM				
FAS-1	Fan Assembly Does Not Operate When TURRET BLOWER Switch Is ON Or When GUN SELECT Switch Is Set To COAX Position	Para. 8-4	No	2
FAS-2	Fan Assembly Does Not Operate When TURRET BLOWER Switch Is ON, But Operates When GUN SELECT Switch Is Set To COAX Position	Para. 8-4	No	2
FAS-3	Fan Assembly Does Not Shut Off	Para. 8-4	No	2
FAS-4	Little Or No Air Flows From Fan Assembly When Fan Is Running	Para. 8-4	No	2
----	Fan Assembly Does Not Operate When GUN SELECT Switch Is Set To COAX Position	Replace Turret Networks Box. Refer to TM 9-2350-255-20-2-3-1, Para. 2-7		

Table 6-2. Turret Electrical System Fault Symptom Index (Continued)

System Or Subsystem Fault Symptom No.	Symptom	Primary Troubleshooting Procedure (PTP)	Resources Required	
			STE	Personnel
TURRET CIRCUIT BREAKER MONITOR SUBSYSTEM				
TCBM-1	CKT BKR OPEN Light On Commander's Control Panel Does Not Come On When One Or More Circuit Breakers Are Off	Para. 8-5	No	2
TCBM-2	CKT BKR OPEN Light On Commander's Control Panel Stays On When RESET Switch On Turret Networks Box Is Pressed	Para. 8-5	No	2
TCBM-3	CKT BKR OPEN Light On Commander's Control Panel Is On When All Circuit Breakers Are In ON Position	Para. 8-5	No	2
PANEL LIGHTS AND DOMELIGHTS SUBSYSTEM				
Panel Lights				
PLDS-1	Commander's And Loader's Panel Lights Do Not Come On	Para. 8-6	No	2
PLDS-2	Loader's Panel Lights Do Not Come On	Para. 8-6	No	2
PLDS-3	Commander's And Loader's Panel Lights Do Not Come On When PANEL LIGHTS TEST Pushbutton Is Pressed	Para. 8-6	No	2
PLDS-7	Gunner's Primary Sight Panel Lights Do Not Come On	Para. 8-6	No	2
PLDS-8	Gunner's Primary Sight And Image Control Unit Panel Lights Do Not Come On When PANEL LIGHTS TEST Pushbutton Is Pressed	Para. 8-6	No	2
PLDS-9	DEFROSTER Light Does Not Come On When PANEL LIGHTS TEST Pushbutton Is Pressed	Para. 8-6	No	2
PLDS-10	Image Control Unit Panel Lights Do Not Come On When PANEL LIGHTS TEST Pushbutton Is Pressed	Para. 8-6	No	2

Table 6-2. Turret Electrical System Fault Symptom Index (Continued)

System Or Subsystem Fault Symptom No.	Symptom	Primary Troubleshooting Procedure (PTP)	Resources Required	
			STE	Personnel
Panel Lights (Continued)				
PLDS-11	Brightness Of Gunner's Primary Sight Panel Lights Does Not Vary With PANEL LIGHTS Knob	Para. 8-6	No	2
PLDS-12	Brightness Of Commander's Control Panel Lights Does Not Vary With PANEL LIGHTS Knob	Para. 8-6	No	2
----	Cannot Vary Brightness Of Loader's Panel Lights From Commander's Control Panel	Replace Commander's Control Panel Assembly. Refer to TM 9-2350-255-20-2-3-1, Para. 2-5		
----	DEFROSTER ON Light And AMMUNITION SELECT BH, HEAT, HEP, And SABOT Lights Do Not Come On During Panel Lights Test	Replace Turret Networks Box. Refer to TM 9-2350-255-20-2-3-1, Para. 2-7		
----	All But One Of The Lights On Commander's Control Panel Come On When PANEL LIGHTS TEST Pushbutton Is Pressed. Light OK During Normal Operation	Replace Turret Networks Box. Refer to TM 9-2350-255-20-2-3-1, Para. 2-7		
----	All But One Of The Lights On Gunner's Primary Sight Lower Panel Come On When PANEL LIGHTS TEST Pushbutton Is Pressed. Light OK During Normal Operation	Replace Turret Networks Box. Refer to TM 9-2350-255-20-2-3-1, Para. 2-7		

Table 6-2. Turret Electrical System Fault Symptom Index (Continued)

System Or Subsystem Fault Symptom No.	Symptom	Primary Troubleshooting Procedure (PTP)	Resources Required	
			STE	Personnel
Domelights				
PLDS-4	Loader's Domelight Does Not Come On When Domelight Knob Is Turned Fully Clockwise	Para. 8-6	No	2
PLDS-5	Gunner's Domelight Does Not Come On When Domelight Knob Is Turned Fully Clockwise	Para. 8-6	No	2
PLDS-6	Commander's Domelight Does Not Come On When Domelight Knob Is Turned Fully Clockwise	Para. 8-6	No	2
----	Commander's, Gunner's, And Loader's Domelights Do Not Work	Replace Turret Networks Box. Refer to TM 9-2350-255-20-2-3-1, Para. 2-7		

Table 6-3. Hydraulic and Gun/Turret Drive System Fault Symptom Index

System Or Subsystem Fault Symptom No.	Symptom	Primary Troubleshooting Procedure (PTP)	Resources Required	
			STE	Personnel
MAIN HYDRAULIC SUBSYSTEM				
MHS-1	Gage Shows More Than 1700 PSI With Engine Running	Para. 9-2	No	2
MHS-2	Gage Shows Less Than 1500 PSI With Engine Running And Turret Power On	Para. 9-2	No	2
MHS-3	HYDRAULIC SYSTEM MALFUNCTION Light Comes On With Engine Running	Para. 9-2	No	2
AZIMUTH/ELEVATION SUBSYSTEM				
Azimuth				
AES-3	Turret Traverses In NORMAL And/Or EMERGENCY Mode With Commander's Or Gunner's Palm Switch Pressed And Control Centered	Para. 9-3	Yes	3
AES-4	Erratic Tracking Of Turret In NORMAL And/Or EMERGENCY Mode	Para. 9-3	No	1
AES-5	Erratic Tracking Of Turret In EMERGENCY Mode Only Using Gunner's Control	Para. 9-3	No	1
AES-6	Erratic Tracking Of Turret In EMERGENCY Mode Only Using Commander's Control	Para. 9-3	No	1
----	Gunner And Commander Cannot Traverse Turret In NORMAL Mode	Replace Turret Networks Box. Refer to TM 9-2350-255-20-2-3-1, Para. 2-7		
----	Gunner And Commander Cannot Traverse Turret In EMERGENCY Mode	Replace Turret Networks Box. Refer to TM 9-2350-255-20-2-3-1, Para. 2-7		

Table 6-3. Hydraulic and Gun/Turret Drive System Fault Symptom Index (Continued)

System Or Subsystem Fault Symptom No.	Symptom	Primary Troubleshooting Procedure (PTP)	Resources Required	
			STE	Personnel
Elevation				
AES-1	Main Gun Slams Up Or Down And Turret Traverses In EMERGENCY Mode With Commander's Or Gunner's Palm Switch Pressed And Control Centered	Para. 9-3	Yes	3
AES-2	Main Gun Elevates, Depresses, or Chatters in NORMAL And/Or EMERGENCY Mode With Commander's Or Gunner's Palm Switch Pressed And Control Centered	Para. 9-3	Yes	3
AES-7	Erratic Tracking Of Main Gun In NORMAL Mode Or EMERGENCY Mode	Para. 9-3	No	1
AES-8	Erratic Tracking Of Main Gun In EMERGENCY Mode Only Using Gunner's Control	Para. 9-3	No	1
AES-9	Erratic Tracking Of Main Gun In EMERGENCY Mode Only Using Commander's Control	Para. 9-3	No	1
----	Main Gun Drifts In EMERGENCY Mode	Check and Adjust Drift. Refer to TM 9-2350-255-20-2-3-3, Para 7-5		3
----	Gunner And Commander Cannot Traverse Turret In NORMAL Mode	Replace Turret Networks Box. Refer to TM 9-2350-255-20-2-3-1, Para. 2-7		
----	Gunner And Commander Cannot Traverse Turret In EMERGENCY Mode	Replace Turret Networks Box. Refer to TM 9-2350-255-20-2-3-1, Para. 2-7		
----	Main Gun Elevates Against Stop In EMERGENCY Mode With Gunner's Or Commander's Palm Switches Pressed	Replace Electronic Unit. Refer to TM 9-2350-255-20-2-3-3, Para. 7-16		

Table 6-3. Hydraulic and Gun/Turret Drive System Fault Symptom Index (Continued)

System Or Subsystem Fault Symptom No.	Symptom	Primary Troubleshooting Procedure (PTP)	Resources Required	
			STE	Personnel

Elevation (Continued)

----	Main Gun Elevates Against Stop In NORMAL Or EMERGENCY Mode With Gunner's Palm Switch Pressed. Commander's Handle Works OK	Replace Gunner's Control Grip Assembly. Refer to TM 9-2350-255-20-2-3-3, Para. 7-21		
----	Main Gun Elevates Against Stop In NORMAL Or EMERGENCY Mode With Commander's Palm Switch Pressed. Gunner's Control Works OK	Replace Commander's Control Assembly. Refer to TM 9-2350-255-20-2-3-3, Para. 7-22		
----	Main Gun Depresses Against Stop In NORMAL Or EMERGENCY Mode With Gunner's Palm Switch Pressed. Commander's Handle Works OK	Replace Gunner's Control Grip Assembly. Refer to TM 9-2350-255-20-2-3-3, Para. 7-21		
----	Main Gun Depresses Against Stop In NORMAL Or EMERGENCY Mode With Commander's Palm Switch Pressed. Gunner's Control Works OK	Replace Commander's Control Assembly. Refer to TM 9-2350-255-20-2-3-3, Para. 7-22		
----	Main Gun Depresses Against Stop In EMERGENCY Mode With Gunner's Or Commander's Palm Switches Pressed	Replace Electronic Unit. Refer to TM 9-2350-255-20-2-3-3, Para. 7-16		

MANUAL ELEVATION AND TRAVERSE SUBSYSTEM

METS-1	Cannot Elevate Gun In MANUAL Mode. OK In NORMAL And EMERGENCY Mode	Para. 9-4	No	1
----	Cannot Traverse Turret In MANUAL Mode. OK In NORMAL And EMERGENCY Modes	Notify Support Maintenance		

Table 6-3. Hydraulic and Gun/Turret Drive System Fault Symptom Index (Continued)

System Or Subsystem Fault Symptom No.	Symptom	Primary Troubleshooting Procedure (PTP)	Resources Required	
			STE	Personnel
READY AMMUNITION DOOR CONTROL SUBSYSTEM				
RADC-1	Ready Ammunition Door Does Not Open When Loader's Knee Switch Is Pressed	Para. 9-5	Yes	2
RADC-2	Ready Ammunition Door Does Not Close When Loader's Knee Switch Is Released	Para. 9-5	Yes	2
RADC-3	Ready Ammunition Door Does Not Stop When Edge Of Door Hits Foreign Object	Para. 9-5	Yes	2
RADC-4	Ready Ammunition Door Opens And Will Not Close When TURRET POWER Switch Is Set To On	Para. 9-5	Yes	2
RADC-5	Ready Ammunition Door Closes With No Time Delay After Loader's Knee Switch Is Released	Para. 9-5	Yes	2
RADC-6	Ready Ammunition Door Does Not Slide Smoothly In Either Direction When Loader's Knee Switch Is Operated	Para. 9-5	Yes	2
RADC-7	Ready Ammunition Door Does Not Open Or Close Manually With Ready Ammunition Door Actuator In Fully Closed Position	Para. 9-5	No	2
----	Ready Ammunition Door Does Not Fully Close. Latch Does Not Engage	Adjust Sliding Metal Ready Door Closed Position. Refer to TM 9-2350-255-20-2-3-2, Para. 3-11		

Table 6-3. Hydraulic and Gun/Turret Drive System Fault Symptom Index (Continued)

System Or Subsystem Fault Symptom No.	Symptom	Primary Troubleshooting Procedure (PTP)	Resources Required	
			STE	Personnel
AUXILIARY HYDRAULIC SUBSYSTEM				
AHS-1	Auxiliary Hydraulic Powerpack Does Not Start When Hydraulic Pressure Is Below 1150 PSI. AUX HYDR POWER Light On	Para. 9-6	Yes	2
AHS-2	Auxiliary Hydraulic Powerpack Keeps Running With AUX HYDR POWER Switch In OFF Position	Para. 9-6	Yes	2
AHS-3	Auxiliary Hydraulic Powerpack Does Not Shut Off When Pressure Reaches 1700 PSI	Para. 9-6	Yes	2
AHS-4	AUX HYDR POWER Light Stays Off. Auxiliary Hydraulic Powerpack Works	Para. 9-6	Yes	2
AHS-5	Auxiliary Hydraulic Powerpack And AUX HYDR POWER Light Do Not Come On	Para. 9-6	Yes	2
AHS-6	Auxiliary Hydraulic Powerpack Does Not Build Hydraulic Pressure Or Sufficient Hydraulic Pressure While Running	Para. 9-6	No	2
AHS-7	Auxiliary Hydraulic Powerpack Cycles Too Often	Para. 9-6	No	2

Table 6-4. Fire Control System Fault Symptom Index

System Or Subsystem Fault Symptom No.	Symptom	Primary Troubleshooting Procedure (PTP)	Resources Required	
			STE	Personnel
AUTO SELF TEST AND CABLE DISCONNECT SUBSYSTEM				
ASTS-1	FIRE CONTROL MALF Light And F Symbol Come On. Computer Manual Self Test Shows No Failure	Refer to TM 9-2350-255-20-2-2-2, Para. 10-2	Yes	2
ASTS-2	FIRE CONTROL MALF Light Does Not Come On When A Harness Is Disconnected Or When PANEL LIGHTS TEST Pushbutton Is Pressed	Refer to TM 9-2350-255-20-2-2-2, Para. 10-2	Yes	2
ASTS-3	FIRE CONTROL MALF Light Does Not Come On With A Fire Control Or Harness Disconnected Malfunction. F Symbol On	Refer to TM 9-2350-255-20-2-2-2, Para. 10-2	Yes	2
ASTS-4	F Symbol Does Not Come On With A Fire Control Or Harness Disconnected Malfunction. FIRE CONTROL MALF Light On	Refer to TM 9-2350-255-20-2-2-2, Para. 10-2	Yes	2
ASTS-5	FIRE CONTROL MALF Light And F Symbol Do Not Come On With A Fire Control Or Harness Disconnected Malfunction	Refer to TM 9-2350-255-20-2-2-2, Para. 10-2	Yes	2
COMPUTER AND AZIMUTH/ELEVATION SUBSYSTEMS				
Ammunition Select				
CS-1	AMMUNITION SELECT HEAT Light Does Not Come On When AMMUNITION SELECT Switch Is Set To HEAT Position	Refer to TM 9-2350-255-20-2-2-2, Para. 10-3	Yes	2
CS-2	AMMUNITION SELECT HEP Light Does Not Come On When AMMUNITION SELECT Switch Is Set To HEP Position	Refer to TM 9-2350-255-20-2-2-2, Para. 10-3	Yes	2
CS-3	AMMUNITION SELECT SABOT Light Does Not Come On When AMMUNITION SELECT Switch Is Set To SABOT Position	Refer to TM 9-2350-255-20-2-2-2, Para. 10-3	Yes	2
CS-4	AMMUNITION SELECT BH Light Does Not Come On When AMMUNITION SELECT Switch Is Set To BH Position	Refer to TM 9-2350-255-20-2-2-2, Para. 10-3	Yes	2
CS-5	AMMUNITION SELECT Lights Do Not Come On	Refer to TM 9-2350-255-20-2-2-2, Para. 10-3	Yes	2

Table 6-4. Fire Control System Fault Symptom Index (Continued)

System Or Subsystem Fault Symptom No.	Symptom	Primary Troubleshooting Procedure (PTP)	Resources Required	
			STE	Personnel
Ammunition Select (Continued)				
CS-24	More Than One AMMUNITION SELECT Light Comes On	Refer to TM 9-2350-255-20-2-2-2, Para. 10-3	Yes	2
Battle Range				
CS-7	Range Does Not Increase When MANUAL RANGE ADD-DROP Switch Is Set To ADD Position	Refer to TM 9-2350-255-20-2-2-2, Para. 10-3	Yes	2
CS-8	Preset Range For Selected Ammunition Is Not Displayed When MANUAL RANGE BATTLE SGT Pushbutton Is Pressed	Refer to TM 9-2350-255-20-2-2-2, Para. 10-3	Yes	2
CS-9	Range Does Not Decrease When MANUAL RANGE ADD-DROP Switch Is Set to DROP Position	Refer to TM 9-2350-255-20-2-2-2, Para. 10-3	Yes	3
----	Range Does Not Increase When MANUAL RANGE ADD-DROP Switch Is Set To The ADD Position Nor Decrease When Switch Is Set To The DROP Position	Replace Commander's Control Panel Assembly. Refer to TM 9-2350-255-20-2-3-1, Para. 2-5		
Manual Self Test				
CS-18	FIRE CONTROL MALF Light And F Symbol Come On. Computer Manual Self Test Shows Failure Number 1	Refer to TM 9-2350-255-20-2-2-2, Para. 10-3	Yes	3
CS-11	FIRE CONTROL MALF Light And F Symbol Come On. Computer Manual Self Test Shows Failure Number 2	Refer to TM 9-2350-255-20-2-2-2, Para. 10-3	Yes	3
CS-10	FIRE CONTROL MALF Light And F Symbol Come On. Computer Manual Self Test Shows Failure Number 3	Refer to TM 9-2350-255-20-2-2-2, Para. 10-3	Yes	3
AES-39	FIRE CONTROL MALF Light And F Symbol Come On. Computer Manual Self Test Shows Failure Number 4	Refer to TM 9-2350-255-20-2-2-2, Para. 10-3	Yes	3
AES-40	FIRE CONTROL MALF Light And F Symbol Come On. Computer Manual Self Test Shows Failure Number 5	Refer to TM 9-2350-255-20-2-2-2, Para. 10-3	Yes	3

Table 6-4. Fire Control System Fault Symptom Index (Continued)

System Or Subsystem Fault Symptom No.	Symptom	Primary Troubleshooting Procedure (PTP)	Resources Required	
			STE	Personnel
Manual Self Test (Continued)				
AES-51	FIRE CONTROL MALF Light And F Symbol Come On. Computer Manual Self Test Shows Failure Number 6	Refer to TM 9-2350-255-20-2-2-2, Para. 10-3	Yes	3
AES-52	FIRE CONTROL MALF Light And F Symbol Come On. Computer Manual Self Test Shows Failure Number 7	Refer to TM 9-2350-255-20-2-2-2, Para. 10-3	Yes	3
LRF-4	FIRE CONTROL MALF Light And F Symbol Come On. Computer Manual Self Test Shows Failure Number 8	Refer to TM 9-2350-255-20-2-2-2, Para. 10-6	Yes	2
CS-12	Cannot Perform Computer Manual Self Test	Refer to TM 9-2350-255-20-2-2-2, Para. 10-3	Yes	3
Ballistics Control Panel				
CS-13	Ballistics Control Panel Does Not Display Data	Refer to TM 9-2350-255-20-2-2-2, Para. 10-3	Yes	3
CS-14	Data Cannot Be Entered In Computer	Refer to TM 9-2350-255-20-2-2-2, Para. 1-3	Yes	3
CS-15	Ballistics Control Panel Display Is Erratic And/Or Wrong	Refer to TM 9-2350-255-20-2-2-2, Para. 10-3	Yes	2
CS-16	One Or More Ballistics Control Panel Pushbuttons Do Not Work	Refer to TM 9-250-255-20-2-2-2, Para. 10-3	Yes	2
CS-17	Ballistics Control Panel Stays Off When ON/OFF Switch Is Set To ON	Refer to TM 9-2350-255-20-2-2-2, Para. 10-3	Yes	2
CS-19	Cannot Select BORESIGHT Or ZERO Mode On Ballistics Control Panel	Refer to TM 9-2350-255-20-2-2-2, Para. 10-3	Yes	2
CS-23	Ballistics Control Panel Does Not Come On, AMMUNITION SELECT Lights Do Not Come On, And MANUAL RANGE BATTLE SGT Does Not Work	Refer to TM 9-2350-255-20-2-2-2, Para. 10-3	Yes	2

Table 6-4. Fire Control System Fault Symptom Index (Continued)

System Or Subsystem Fault Symptom No.	Symptom	Primary Troubleshooting Procedure (PTP)	Resources Required	
			STE	Personnel
Muzzle Reference Sensor				
CS-20	MRS Light Does Not Come On When MRS Lever Is Set To The IN Position	Refer to TM 9-2350-255-20-2-2-2, Para. 10-3	Yes	3
CS-21	MRS Light Does Not Go Off When MRS Lever Is Set To The OUT Position	Refer to TM 9-2350-255-20-2-2-2, Para. 10-3	Yes	3
CS-22	Main Gun Does Not Go To Zero Degrees When MRS System Is Energized And Gunner's Or Commander's Palm Switch Is Pressed	Refer to TM 9-2350-255-20-2-2-2, Para. 10-3	Yes	3
----	MRS Is Cloudy When Viewed Thru Gunner's Primary Sight	Replace Gunner's Primary Sight Body Assembly. Refer to TM 9-2350-255-20-2-3-3, Para. 7-5		
----	Cannot Align Gunner's Primary Sight Daysight Reticle To MRS Reticle Using RETICLE ADJUST Switch On Computer Control Panel	Notify Support Maintenance That MRS Needs Alignment.		
Gunner's Primary Sight Reticle				
LRF-5	Gunner's Primary Sight Reticle Does Not Come On	Refer to TM 9-2350-255-20-2-2-2, Para. 10-6	No	2
----	Gunner's Primary Sight Reticle Control Does Not Dim Reticle	Replace Gunner's Primary Sight Body Assembly. Refer to TM 9-2350-255-20-2-3-3, Para. 7-5		
AES 46	Gunner's Primary Sight Reticle Does Not Move Up Or Down When Either The Gunner's or Commander's Control Is Moved In Normal Mode	Refer to TM 9-2350-255-20-2-2-2, Para. 10-3	Yes	3

Table 6-4. Fire Control System Fault Symptom Index (Continued)

System Or Subsystem Fault Symptom No.	Symptom	Primary Troubleshooting Procedure (PTP)	Resources Required	
			STE	Personnel
Gunner's Primary Sight Reticle (Continued)				
AES-49	Gunner's Primary Sight Reticle Bounces When Stopped Suddenly In NORMAL Or EMERGENCY Mode. Computer Manual Self Test May Display Failure Number 5 or 7	Refer to TM 9-2350-255-20-2-2-2, Para. 10-3	Yes	3
AES-50	Gunner's Primary Sight Reticle Does Not Move In NORMAL Or EMERGENCY Mode. Computer Manual Self Test Displays Failure Number 5 or 7	Refer to TM 9-2350-255-20-2-2-2, Para. 10-3	Yes	3
AES-58	Gunner's Primary Sight Reticle Does Not Move In Elevation	Refer to TM 9-2350-255-20-2-2-2, Para. 10-3	Yes	3
AES-59	Gunner's Primary Sight Reticle Does Not Move Smoothly In Elevation	Refer to TM 9-2350-255-20-2-2-2, Para. 10-3	Yes	3
AES-60	Cannot Hit Target Using Gunner's Primary Sight Reticle With Tank Moving. OK With Tank Stationary	Refer to TM 9-2350-255-20-2-2-2, Para. 10-3	Yes	3
----	Main Gun And Gunner's Primary Sight Reticle Do Not Move In NORMAL Or EMERGENCY Mode	Replace Gun/Turret Drive Electronics Unit. Refer to TM 9-2350-255-20-2-3-3, Para. 7-16		
----	Gunner's Primary Sight Reticle Does Not Move In EMERGENCY Mode	Replace Line-Of-Sight Electronics Unit. Refer to TM 9-2350-255-20-2-3-3, Para. 7-8		
AES-41	Computer Manual Self Test Shows Failure Number 6. Gunner's Primary Sight Reticle Stays To Extreme Left Or Right	Refer to TM 9-2350-255-20-2-2-2, Para. 10-3	Yes	3
AES-42	Computer Manual Self Test Shows Failure Number 6. Gunner's Primary Sight Reticle Keeps Moving Back And Forth	Refer to TM 9-2350-255-20-2-2-2, Para. 10-3	Yes	3

Table 6-4. Fire Control System Fault Symptom Index (Continued)

System Or Subsystem Fault Symptom No.	Symptom	Primary Troubleshooting Procedure (PTP)	Resources Required	
			STE	Personnel
Gunner's Primary Sight Reticle (Continued)				
AES-43	Computer Manual Self Test Shows Failure Number 6. Gunner's Primary Sight Reticle Does Not Move In Azimuth	Refer to TM 9-2350-255-20-2-2-2, Para. 10-3	Yes	3
AES-57	Turret Does Not Counter-Rotate To Provide Lead Angle When Tracking A Moving Target	Refer to TM 9-250-255-20-2-2-2, Para. 10-3	Yes	3
----	Computer Manual Self Test Shows No Failure. Gunner's Primary Sight Reticle Does Not Move In Azimuth	Replace Gunner's Primary Sight Body Assembly. Refer to TM 9-2350-255-20-2-3-3, Para. 7-5		
----	Computer Manual Self Test Shows Failure Number 1. Gunner's Primary Sight Reticle Stays To Extreme Left Or Right	Replace Computer Electronics Unit. Refer to TM 9-2350-255-20-2-3-3, Para. 7-14		
----	Gunner's Primary Sight Reticle Moves Against Stop In EMERGENCY Mode	Replace Line-Of-Sight Electronics Unit. Refer to TM 9-2350-255-20-2-3-3, Para. 7-8		
----	Computer Manual Self Test Shows Failure Number 1. Gunner's Primary Sight Reticle Keeps Moving Back And Forth	Replace Computer Electronics Unit. Refer to TM 9-2350-255-20-2-3-3, Para. 7-14		
----	Computer Manual Self Test Shows Failure Number 1. Gunner's Primary Sight Reticle Cannot Be Moved In Azimuth	Replace Computer Electronics Unit. Refer to TM 9-2350-255-20-2-3-3, Para. 7-14		

Table 6-4. Fire Control System Fault Symptom Index (Continued)

System Or Subsystem Fault Symptom No.	Symptom	Primary Troubleshooting Procedure (PTP)	Resources Required	
			STE	Personnel
Azimuth/Elevation				
AES-10	Main Gun And Turret Do Not Move In NORMAL And/Or EMERGENCY Mode. Hydraulic Pressure Gage Shows Between 1500 And 1700 PSI	Refer to TM 9-2350-255-20-2-2-2, Para. 10-3	Yes	3
AES-32	Turret And Main Gun Do Not Move Using Gunner's Control, But Do Move Using Commander's Control	Refer to TM 9-2350-255-20-2-2-2, Para. 10-3	Yes	3
AES-33	Turret And Main Gun Do Not Move Using Commander's Control, But Do Move Using Gunner's Control	Refer to TM 9-2350-255-20-2-2-2, Para. 10-3	Yes	3
AES-44	Turret/Main Gun Oscillates In NORMAL Mode With Commander's Or Gunner's Palm Switches Pressed And Controls Centered	Refer to TM 9-2350-255-20-2-2-2, Para. 10-3	Yes	3
AES-14	Main Gun Does Not Elevate Or Depress And Turret Does Not Traverse In NORMAL Mode	Refer to TM 9-2350-255-20-2-2-2, Para. 10-3	Yes	3
AES-47	Main Gun And Gunner's Primary Sight Reticle Elevate Or Depress In NORMAL Mode With Gunner's And Commander's Controls Centered And Either Gunner's Or Commander's Palm Switch Pressed	Refer to TM 9-2350-255-20-2-2-2, Para. 10-3	Yes	3
AES-48	Turret And Gunner's Primary Sight Reticle Traverse In NORMAL Mode With Gunner's And Commander's Controls Centered And Either Gunner's Or Commander's Palm Switch Pressed	Refer to TM 9-2350-255-20-2-2-2, Para. 10-3	Yes	3
AES-19	FIRE CONTROL MODE Switch Does Not Hold In MANUAL Or EMERGENCY Positions	Refer to TM 9-2350-255-20-2-2-2, Para. 10-3	Yes	3

Table 6-4. Fire Control System Fault Symptom Index (Continued)

System Or Subsystem Fault Symptom No.	Symptom	Primary Troubleshooting Procedure (PTP)	Resources Required	
			STE	Personnel
Azimuth/Elevation (Continued)				
----	FIRE CONTROL MODE Switch Is Moved From NORMAL To EMERGENCY Position, But Main Gun And Turret Are Stabilized	Replace Lower Panel Assembly. Refer to TM 9-2350-255-20-2-3-3, Para. 7-5		
AES-20	FIRE CONTROL MODE Switch Is Moved From NORMAL To EMERGENCY Position, But Main Gun And Turret Cannot Be Moved With Control Handles	Refer to TM 9-2350-255-20-2-2-2, Para. 10-3	Yes	3
AES-22	FIRE CONTROL MODE Switch Is Moved From EMERGENCY To NORMAL Position, But Main Gun And Turret Do Not Stabilize	Refer to TM 9-2350-255-20-2-2-2, Para. 10-3	Yes	3
----	FIRE CONTROL MODE Switch Is Moved From NORMAL To MANUAL Position, But Fire Control System Remains In NORMAL Mode	Replace Lower Panel Assembly. Refer to TM 9-2350-255-20-2-3-3, Para. 7-5		
AES-23	GUN/TURRET DRIVE Switch Is Moved From MANUAL To POWERED Position, But Main Gun And Turret Can Only Be Moved With Manual Controls. MANUAL Lights Remain On	Refer to TM 9-2350-255-20-2-2-2, Para. 10-3	Yes	3
----	GUN/TURRET DRIVE Switch Is Moved To MANUAL Position, But Main Gun And Turret Can Still Be Moved With Control Handles	Replace Loader's Panel. Refer to TM 9-2350-255-20-2-3-1, Para. 2-6		

Table 6-4. Fire Control System Fault Symptom Index (Continued)

System Or Subsystem Fault Symptom No.	Symptom	Primary Troubleshooting Procedure (PTP)	Resources Required	
			STE	Personnel
Azimuth				
AES-30	Turret Does Not Traverse In NORMAL Or EMERGENCY Mode. OK In MANUAL Mode	Refer to TM 9-2350-255-20-2-2-2, Para. 10-3	Yes	3
AES-11	Turret Does Not Traverse Using Commander's Control. Gunner's Control Works OK	Refer to TM 9-2350-255-20-2-2-2, Para. 10-3	Yes	3
AES-12	Turret Does Not Traverse Using Gunner's Control. Commander's Control Works OK	Refer to TM 9-2350-255-20-2-2-2, Para. 10-3	Yes	3
AES-13	Turret Drifts And NORMAL MODE DRIFT AZ Knob Has No Effect	Refer to TM 9-2350-255-20-2-2-2, Para. 10-3	Yes	3
AES-31	Turret Does Not Remain Stable In Azimuth When Tank Is Turned Left Or Right	Refer to TM 9-2350-255-20-2-2-2, Para. 10-3	Yes	3
AES-55	Erratic Tracking Of Turret In NORMAL Mode Only Using Gunner's Control	Refer to TM 9-2350-255-20-2-2-2, Para. 10-3	Yes	3
AES-56	Erratic Tracking Of Turret In NORMAL Mode Only Using Commander's Control	Refer to TM 9-2350-255-20-2-2-2, Para. 10-3	Yes	3
----	Turret Drifts In EMERGENCY Mode	Check And Adjust Drift. Refer to TM 9-2350-255-20-2-3-3, Para. 7-5		

Table 6-4. Fire Control System Fault Symptom Index (Continued)

System Or Subsystem Fault Symptom No.	Symptom	Primary Troubleshooting Procedure (PTP)	Resources Required	
			STE	Personnel
Elevation				
AES-16	Main Gun Slams Or Elevates Against Upper Stop When Traversing Over Rear Deck Interference Zone Or When EL UNCPL Mode Is Selected	Refer to TM 9-2350-255-20-2-2-2, Para. 10-3	Yes	3
AES-17	Main Gun Does Not Depress Below Zero Degrees Outside Rear Deck Interference Zone	Refer to TM 9-250-255-20-2-2-2, Para. 10-3	Yes	3
AES-18	Main Gun Does Not Elevate Or Depress In NORMAL Or EMERGENCY Mode. OK in MANUAL Mode	Refer to TM 9-2350-255-20-2-2-2, Para 10-3	Yes	3
AES-34	Main Gun Drifts In NORMAL Mode. NORMAL MODE DRIFT EL Knob Has No Effect	Refer to TM 9-2350-255-20-2-2-2, Para. 10-3	Yes	3
AES-45	Main Gun Does Not Remain Stable In Elevation. Gun Follows Pitching Motion Of Tank	Refer to TM 9-2350-255-20-2-2-2, Para. 10-3	Yes	3
AES-35	Main Gun Does Not Elevate Or Depress Using Gunner's Control. Commander's Control Works OK	Refer to TM 9-2350-255-20-2-2-2, Para. 10-3	Yes	3
AES-36	Main Gun Does Not Elevate Or Depress Using Commander's Control. Gunner's Control Works OK	Refer to TM 9-2350-255-20-2-2-2, Para. 10-3	Yes	3
AES-37	Main Gun Does Not Elevate To Zero Degrees When EL UNCPL Mode Is Selected	Refer to TM 9-2350-255-20-2-2-2, Para. 10-3	Yes	3
AES-38	Main Gun Does Not Elevate To Zero Degrees While Traversing In Interference Zone	Refer to TM 9-2350-255-20-2-2-2, Para. 10-3	Yes	3
AES-15	Main Gun Does Not Go To Zero Degrees When MRS Mode Is Selected And Gunner's Or Commander's Palm Switch Is Pressed	Refer to TM 9-2350-255-20-2-2-2, Para. 10-3	Yes	3
AES-21	GUN/TURRET DRIVE Switch Is Set To EL UNCPL Position, But Main Gun Remains Stabilized In Elevation	Refer to TM 9-2350-255-20-2-2-2, Para. 10-3	Yes	3

Table 6-4. Fire Control System Fault Symptom Index (Continued)

System Or Subsystem Fault Symptom No.	Symptom	Primary Troubleshooting Procedure (PTP)	Resources Required	
			STE	Personnel
Elevation (Continued)				
AES-24	GUN/TURRET DRIVE Switch Is Moved From EL UNCPL To POWERED Position, But Main Gun Remains Uncoupled In Elevation And EL UNCPL Light Remains On	Refer to TM 9-2350-255-20-2-2-2, Para. 10-3	Yes	3
AES-53	Erratic Tracking Of Main Gun In NORMAL Mode Only Using Gunner's Control	Refer to TM 9-2350-255-20-2-2-2, Para. 10-3	Yes	3
AES-54	Erratic Tracking Of Main Gun In NORMAL Mode Only Using Commander's Control	Refer to TM 9-2350-255-20-2-2-2, Para. 10-3	Yes	3
Lights				
CS-6	COAX Light And Fan Assembly Come On When GUN SELECT Switch Is Set To TRIGGER SAFE	Refer to TM 9-2350-255-20-2-2-2, Para. 10-3	Yes	3
AES-25	NORMAL Light On Gunner's Primary Sight Lower Panel Does Not Come On When FIRE CONTROL MODE Switch Is Set To NORMAL	Refer to TM 9-2350-255-20-2-2-2, Para. 10-3	Yes	3
AES-26	EMERGENCY Light On Gunner's Primary Sight Lower Panel Does Not Come On When FIRE CONTROL MODE Switch Is Set To EMERGENCY	Refer to TM 9-2350-255-20-2-2-2, Para. 10-3	Yes	3
AES-27	MANUAL Light On Gunner's Primary Sight Lower Panel And/Or Loader's Panel Does Not Come On When Turret Is Switched To MANUAL MODE With One Of The Manual Switches Or The Traversing Mechanism Palm Switch	Refer to TM 9-2350-255-20-2-2-2, Para. 10-3	Yes	3
AES-28	POWERED Light On Loader's Panel Does Not Come On When GUN/TURRET DRIVE Switch Is Set To POWERED	Refer to TM 9-2350-255-20-2-2-2, Para. 10-3	Yes	3
AES-29	EL UNCPL Light On Loader's Panel Does Not Come On When GUN/TURRET DRIVE Switch Is Set To EL UNCPL Position	Refer to TM 9-2350-255-20-2-2-2, Para. 10-3	Yes	3

Table 6-4. Fire Control System Fault Symptom Index (Continued)

System Or Subsystem Fault Symptom No.	Symptom	Primary Troubleshooting Procedure (PTP)	Resources Required	
			STE	Personnel
GUNNER'S PRIMARY SIGHT DEFROSTER SUBSYSTEM				
GPSD-1	Gunner's Primary Sight Window Defroster Does Not Work. DEFROSTER Light On	Refer to TM 9-2350-255-20-2-2-2, Para. 10-4	Yes	2
GPSD-2	Gunner's Primary Sight Window Defroster Does Not Work. DEFROSTER Light Off	Refer to TM 9-2350-255-20-2-2-2, Para. 10-4	Yes	2
GPSD-3	DEFROSTER Light Does Not Come On, Gunner's Primary Sight Window Defroster Works OK	Refer to TM 9-2350-255-20-2-2-2, Para. 10-4	Yes	2
GUNNER'S AUXILIARY SIGHT RETICLE SUBSYSTEM				
GAS-1	Gunner's Auxiliary Sight Reticles Do Not Light	Refer to TM 9-2350-255-20-2-2-2, Para. 10-5	No	2
LASER RANGEFINDER SUBSYSTEM				
LRF-1	Commander Can Fire Laser Rangefinder But Gunner Cannot	Refer to TM 9-2350-255-20-2-2-2, Para. 10-6	Yes	2
LRF-2	Gunner Can Fire Laser Rangefinder But Commander Cannot	Refer to TM 9-2350-255-20-2-2-2, Para. 10-6	Yes	2
LRF-3	Neither Gunner Nor Commander Can Fire Laser Rangefinder	Refer to TM 9-2350-255-20-2-2-2, Para. 10-6	Yes	2
LRF-6	Range Displayed In Gunner's Primary Sight Eyepiece Does Not Follow Ballistics Control Panel Range Display	Refer to TM 9-2350-255-20-2-2-2, Para. 10-6	No	2

Table 6-4. Fire Control System Fault Symptom Index (Continued)

System Or Subsystem Fault Symptom No.	Symptom	Primary Troubleshooting Procedure (PTP)	Resources Required	
			STE	Personnel
THERMAL IMAGING SUBSYSTEM				
TIS-1	Thermal Imaging System Picture Is Bad	Refer to TM 9-2350-255-20-2-2-2, Para. 10-7	No	2
TIS-2	Range, Ready To Fire, Multiple Returns, And F Symbols Do Not Appear In Gunner's Primary Sight	Refer to TM 9-2350-255-20-2-2-2, Para. 10-7	No	2
TIS-3	Ready To Fire Symbol Will Not Appear In Gunner's Primary Sight	Refer to TM 9-2350-255-20-2-2-2, Para. 10-7	No	2
TIS-4	Ready To Fire Symbol Is Present In Gunner's Primary Sight Whenever Turret Power Is On	Refer to TM 9-2350-255-20-2-2-2, Para. 10-7	No	2
TIS-5	Laser Rangefinder Multiple Returns Symbol Does Not Appear In Gunner's Primary Sight When Multiple Returns Are Received	Refer to TM 9-2350-255-20-2-2-2, Para. 10-7	No	2
TIS-6	Laser Rangefinder Multiple Returns Symbol Is Present In Gunner's Primary Sight Whenever Turret Power Is On	Refer to TM 9-2350-255-20-2-2-2, Para. 10-7	No	2
TIS-7	F Symbol Is Not Present In Gunner's Primary Sight When Fire Control Malfunction Exists	Refer to TM 9-2350-255-20-2-2-2, Para. 10-7	No	2
TIS-8	F Symbol Is Present In Gunner's Primary Sight When No Fire Control Malfunction Exists	Refer to TM 9-2350-255-20-2-2-2, Para. 10-7	No	2
TIS-9	Thermal Imaging System FAULT Light Stays On, Or TRU READY Light Stays Off	Refer to TM 9-2350-255-20-2-2-2, Para. 10-7	No	2
TIS-10	Cannot Align Thermal Imaging System Reticle With Gunner's Primary Sight Bore-sight Aiming Point	Refer to TM 9-2350-255-20-2-2-2, Para. 10-7	No	2
TIS-11	CONTRAST Control On Thermal Imaging System Image Control Unit Does Not Provide Proper Contrast Adjustment	Refer to TM 9-2350-255-20-2-2-2, Para. 10-7	No	2

Table 6-4. Fire Control System Fault Symptom Index (Continued)

System Or Subsystem Fault Symptom No.	Symptom	Primary Troubleshooting Procedure (PTP)	Resources Required	
			STE	Personnel
THERMAL IMAGING SUBSYSTEM (Continued)				
TIS-12	Thermal Imaging System Reticle Does Not Provide Proper Lead Angle	Refer to TM 9-2350-255-20-2-2-2, Para. 10-7	No	2
TIS-13	Thermal Imaging System Thermal Receiver Makes Noises When THERMAL MODE Switch Is Set To OFF	Refer to TM 9-2350-255-20-2-2-2, Para. 16-1	No	2
TIS-14	Thermal Imaging System Has Black, Flashing, Or Flickering Lines	Refer to TM 9-2350-255-20-2-2-2, Para. 16-1	No	2
TIS-15	No Thermal Imaging System Picture	Refer to TM 9-2350-255-20-2-2-2, Para. 16-1	No	2
----	Top Of Thermal Imaging System Picture Is Uneven Or Jagged	Replace Image Control Unit. Refer to TM 9-2350-255-20-2-3-3, Para. 7-24		
----	Image Magnification Does Not Change When THERMAL MAGNIFICATION Switch On Thermal Receiver Unit Is Moved From 3X to 10X	Replace Thermal Receiver Unit. Refer to TM 9-2350-255-20-2-3-3, Para. 7-24		

Table 6-5. Commander's Weapon Station System Fault Symptom Index

System Or Subsystem Fault Symptom No.	Symptom	Primary Troubleshooting Procedure (PTP)	Resources Required	
			STE	Personnel
CWS-1	Commander's Weapon Station Does Not Traverse In POWER Mode. MANUAL Mode OK	Refer to TM 9-2350-255-20-2-2-2, Para. 11-2	Yes	2
CWS-2	Commander's Weapon Station Traverses With Only Commander's Power Control Handle Palm Switch Pressed	Refer to TM 9-2350-255-20-2-2-2, Para. 11-2	Yes	2
CWS-3	Commander's Weapon Station Traverse Speed Increases To A High Rate With Slight Movement Of Commander's Power Control Handle Thumb Control	Refer to TM 9-2350-255-20-2-2-2, Para. 11-2	Yes	2
CWS-4	Commander's Weapon Station Does Not Track Smoothly At Low Speeds	Refer to TM 9-2350-255-20-2-2-2, Para. 11-2	Yes	2
CWS-5	Commander's Weapon Station Traverses In Only One Direction in Power Mode	Refer to TM 9-2350-255-20-2-2-2, Para. 11-2	Yes	2
CWS-6	Commander's Weapon Station Traverses With Only Commander's Power Control Handle Thumb Control Moved	Refer to TM 9-2350-255-20-2-2-2, Para. 11-2	Yes	2
CWS-7	Commander's Weapon Station Does Not Move or Move Smoothly In MANUAL Mode. POWER Mode OK	Refer to TM 9-2350-255-20-2-2-2, Para. 11-2	Yes	2
....	Commander's Weapon Station Only Traverses At One Constant Speed	Replace Power Control Unit. Refer to TM 9-2350-255-20-2-3-1, Para. 2-12		

Table 6-6. Smoke Grenade System Fault Symptom Index

System Or Subsystem Fault Symptom No.	Symptom	Primary Troubleshooting Procedure (PTP)	Resources Required	
			STE	Personnel
SGRS-1	Neither Smoke Grenade Launcher Fires When SALVO 1 Or 2 Pushbutton Is Pressed	Refer to TM 9-2350-255-20-2-2-2, Para. 12-2	No	2
SGRS-2	Smoke Grenades Do Not Fire From Right Launcher When SALVO 1 Pushbutton Is Pressed. Left Launcher OK	Refer to TM 9-2350-255-20-2-2-2, Para. 12-2	No	2
SGRS-3	Smoke Grenades Do Not Fire From Left Launcher When SALVO 1 Pushbutton Is Pressed. Right Launcher OK	Refer to TM 9-2350-255-20-2-2-2, Para. 12-2	No	2
SGRS-4	Smoke Grenades Do Not Fire From Right Launcher When SALVO 2 Pushbutton Is Pressed. Left Launcher OK	Refer to TM 9-2350-255-20-2-2-2, Para. 12-2	No	2
SGRS-5	Smoke Grenades Do Not Fire From Left Launcher When SALVO 2 Pushbutton Is Pressed. Right Launcher OK	Refer to TM 9-2350-255-20-2-2-2, Para. 12-2	No	2
SGRS-6	Neither Launcher Fires Smoke Grenades When SALVO 1 Pushbutton Is Pressed	Refer to TM 9-2350-255-20-2-2-2, Para. 12-2	No	2
SGRS-7	Neither Launcher Fires Smoke Grenades When SALVO 2 Pushbutton Is Pressed	Refer to TM 9-2350-255-20-2-2-2, Para. 12-2	No	2
SGRS-8	All Smoke Grenades Fire When Only One SALVO Pushbutton Is Pressed	Refer to TM 9-2350-255-20-2-2-2, Para. 12-2	No	2
SGRS-9	Left Launcher Fires An Incorrect Number Of Smoke Grenades	Refer to TM 9-2350-255-20-2-2-2, Para. 12-2	No	2
SGRS-10	Right Launcher Fires An Incorrect Number Of Smoke Grenades	Refer to TM 9-2350-255-20-2-2-2, Para. 12-2	No	2
SGRS-11	One Salvo Of Smoke Grenades Fires Without Pressing SALVO Pushbuttons	Refer to TM 9-2350-255-20-2-2-2, Para. 12-2	No	2
----	Smoke Grenades Can Be Fired With SAFE-READY Switch In SAFE Position	Replace Commander's Control Panel Assembly. Refer to TM 9-2350-255-20-2-3-1, Para. 2-5		

Table 6-7. Nuclear, Biological Chemical System Fault Symptom Index

System Or Subsystem Fault Symptom No.	Symptom	Primary Troubleshooting Procedure (PTP)	Resources Required	
			STE	Personnel
NBC-1	Driver's Electric Air Heater Does Not Work. GAS PARTIC FILTER Light Comes On	Refer to TM 9-2350-255-20-2-2-2, Para. 13-2	No	2
NBC-2	GAS PARTIC FILTER Light Does Not Come On. All Heaters Work	Refer to TM 9-2350-255-20-2-2-2, Para. 13-2	No	2
NBC-3	GAS PARTIC FILTER Light Does Not Come On. Gas Particulate Blower Does Not Work. No Heaters Work	Refer to TM 9-2350-255-20-2-2-2, Para. 13-2	No	2
NBC-4	Gas Particulate Blower Does Not Work. GAS PARTIC FILTER Light Comes On	Refer to TM 9-2350-255-20-2-2-2, Para. 13-2	No	2
NBC-5	Gunner's Heater Does Not Work. Commander's And Loader's Heaters OK	Refer to TM 9-2350-255-20-2-2-2, Para. 13-2	No	2
NBC-6	Commander's Heater Does Not Work. Gunner's And Loader's Heaters OK	Refer to TM 9-2350-255-20-2-2-2, Para. 13-2	No	2
NBC-7	Loader's Heater Does Not Work. Commander's And Gunner's Heaters OK	Refer to TM 9-2350-255-20-2-2-2, Para. 13-2	No	2
NBC-8	Gas Particulate Blower And GAS PARTIC FILTER Light Stay On When GAS PARTIC FILTER Switch Is Set To OFF Position	Refer to TM 9-2350-255-20-2-2-2, Para. 13-2	No	2
-----	Gunner's, Commander's, and Loader's Heaters Do Not Work. Driver's Electric Air Heater And Gas Particulate Blower OK	Replace Turret Networks Box. Refer to TM 9-2350-255-20-2-3-1, Para. 2-7		

Table 6-8. Communication System Fault Symptom Index

System Or Subsystem Fault Symptom No.	Symptom	Primary Troubleshooting Procedure (PTP)	Resources Required	
			STE	Personnel
COMM-1	Cannot Communicate On Radio Or Intercom. Amplifier Power Indicator Light And Receiver-Transmitter Dial Lights Do Not Come On NOTE Refer to TM 11-5820-401-20-2 For All Other Fault Symptoms In The Communication System	Refer to TM 9-2350-255-20-2-2-2, Para. 14-2	No	1

Table 6-9. Turret Circuit Breaker System Fault Symptom Index

System Or Subsystem Fault Symptom No.	Symptom	Primary Troubleshooting Procedure (PTP)	Resources Required	
			STE	Personnel
TCB-2	Circuit Breaker 2 On Turret Networks Box Shuts Off	Refer to TM 9-2350-255-20-2-2-3, Para. 17-2	No	1
TCB-3	Circuit Breaker 3 On Turret Networks Box Shuts Off	Refer to TM 9-2350-255-20-2-2-3, Para. 17-2	No	1
TCB-4	Circuit Breaker 4 On Turret Networks Box Shuts Off	Refer to TM 9-2350-255-20-2-2-3, Para. 17-2	No	1
TCB-5	Circuit Breaker 5 On Turret Networks Box Shuts Off	Refer to TM 9-2350-255-20-2-2-3, Para. 17-2	No	1
TCB-6	Circuit Breaker 6 On Turret Networks Box Shuts Off	Refer to TM 9-2350-255-20-2-2-3, Para. 17-2	No	1
TCB-9	Circuit Breaker 9 On Turret Networks Box Shuts Off	Refer to TM 9-2350-255-20-2-2-3, Para. 17-2	No	2

Table 6-9. Turret Circuit Breaker System Fault Symptom Index (Continued)

System Or Subsystem Fault Symptom No.	Symptom	Primary Troubleshooting Procedure (PTP)	Resources Required	
			STE	Personnel
TCB-10	Circuit Breaker 10 On Turret Networks Box Shuts Off	Refer to TM 9-2350-255-20-2-2-3, Para. 17-2	No	1
TCB-11	Circuit Breaker 11 On Turret Networks Box Shuts Off	Refer to TM 9-2350-255-20-2-2-3, Para. 17-2	No	1
TCB-12	Circuit Breaker 12 On Turret Networks Box Shuts Off	Refer to TM 9-2350-255-20-2-2-3, Para. 17-2	No	1
TCB-13	Circuit Breaker 13 On Turret Networks Box Shuts Off	Refer to TM 9-2350-255-20-2-2-3, Para. 17-2	No	1
TCB-14	Circuit Breaker 14 On Turret Networks Box Shuts Off	Refer to TM 9-2350-255-20-2-2-3, Para. 17-2	No	1
TCB-15	Circuit Breaker 15 On Turret Networks Box Shuts Off	Refer to TM 9-2350-255-20-2-2-3, Para. 17-2	No	1
TCB-16	Circuit Breaker 16 On Turret Networks Box Shuts Off	Refer to TM 9-2350-255-20-2-2-3, Para. 17-2	No	1
TCB-17	Circuit Breaker 17 On Turret Networks Box Shuts Off	Refer to TM 9-2350-255-20-2-2-3, Para. 17-2	No	1
TCB-18	Circuit Breaker 18 On Turret Networks Box Shuts Off	Refer to TM 9-2350-255-20-2-2-3, Para. 17-2	No	1
TCB-19	Circuit Breaker 19 On Turret Networks Box Shuts Off	Refer to TM 9-2350-255-20-2-2-3, Para. 17-2	No	1
TCB-20	Circuit Breaker 20 On Turret Networks Box Shuts Off	Refer to TM 9-2350-255-20-2-2-3, Para. 17-2	No	1

Table 6-9. Turret Circuit Breaker System Fault Symptom Index (Continued)

System Or Subsystem Fault Symptom No.	Symptom	Primary Troubleshooting Procedure (PTP)	Resources Required	
			STE	Personnel
TCB-21	Circuit Breaker 21 On Turret Networks Box Shuts Off	Refer to TM 9-2350-255-20-2-2-3, Para. 17-2	No	1
TCB-22	Circuit Breaker 22 On Turret Networks Box Shuts Off	Refer to TM 9-2350-255-20-2-2-3, Para. 17-2	No	1
TCB-25	Circuit Breaker 25 On Turret Networks Box Shuts Off	Refer to TM 9-2350-255-20-2-2-3, Para. 17-2	No	1
TCB-27	Circuit Breaker 27 On Turret Networks Box Shuts Off	Refer to TM 9-2350-255-20-2-2-3, Para. 17-2	No	1
TCB-28	Circuit Breaker 28 On Turret Networks Box Shuts Off	Refer to TM 9-2350-255-20-2-2-3, Para. 17-2	No	1
TCB-29	Circuit Breaker 29 On Turret Networks Box Shuts Off	Refer to TM 9-2350-255-20-2-2-3, Para. 17-2	No	1
TCB-30	Circuit Breaker 30 On Turret Networks Box Shuts Off	Refer to TM 9-2350-255-20-2-2-3, Para. 17-2	No	1
TCB-31	Circuit Breaker 31 On Turret Networks Box Shuts Off	Refer to TM 9-2350-255-20-2-2-3, Para. 17-2	No	1
TCB-32	Circuit Breaker 32 On Turret Networks Box Shuts Off	Refer to TM 9-2350-255-20-2-2-3, Para. 17-2	No	1

CHAPTER 7 SAMPLE TROUBLESHOOTING CHARTS

7-1. General. This chapter explains how the troubleshooting and test equipment procedures in this manual should be used. It includes samples of a typical fault isolation flowchart in a troubleshooting procedure. Also, a typical test equipment procedure is explained.

7-2. Fault Isolation Flowchart. The fault isolation flowchart is the basic procedure for finding bad components. It describes and illustrates each step of the troubleshooting procedure with enough detail so that a soldier with little or no experience can find and correct faults. Each flowchart begins with a fault symptom that can be seen, felt or heard by one or more members of the crew during operation of the tank. A typical fault isolation flowchart in a troubleshooting procedure can be found in figure 7-1.

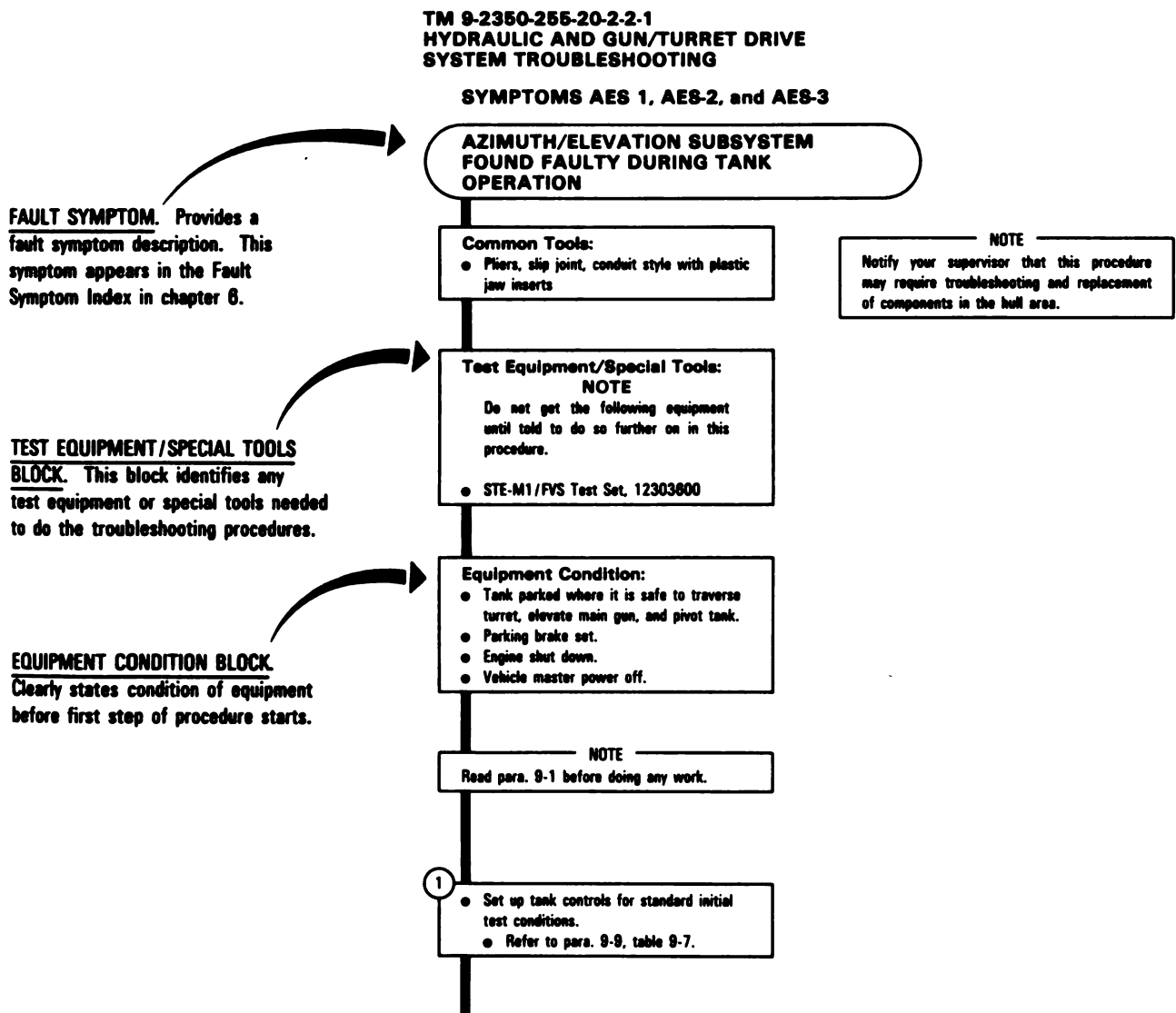


Figure 7-1. Sample Fault Isolation Flowchart (Sheet 1 of 11)
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QUESTION BLOCK. Answer the question yes or no and follow the yes or no line to the next block. The AES number is the fault symptom number from chapter 8.

PROCEDURE BLOCK - GENERAL
The top lines tell you what to do and the indented lines tell you how to do it.

CONNECTOR INSPECTION PROCEDURE BLOCK. This procedure block tells you to see if any connectors are loose that are part of the subsystem. The figure you refer to for each harness is a diagram showing the harness location in the tank.

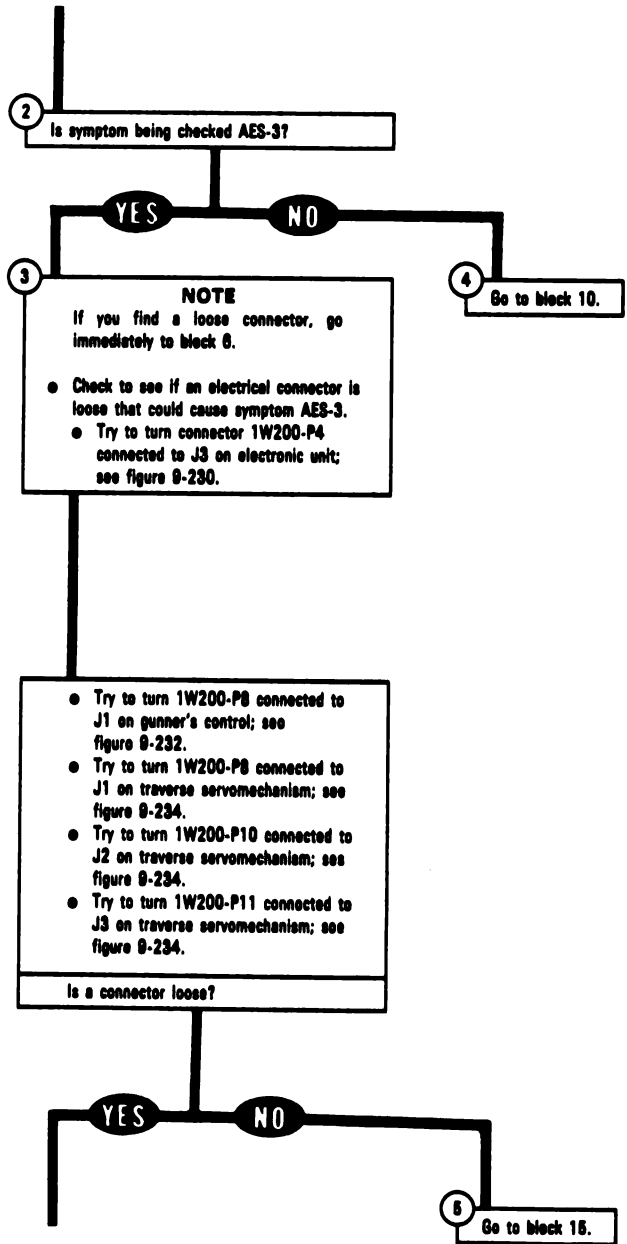
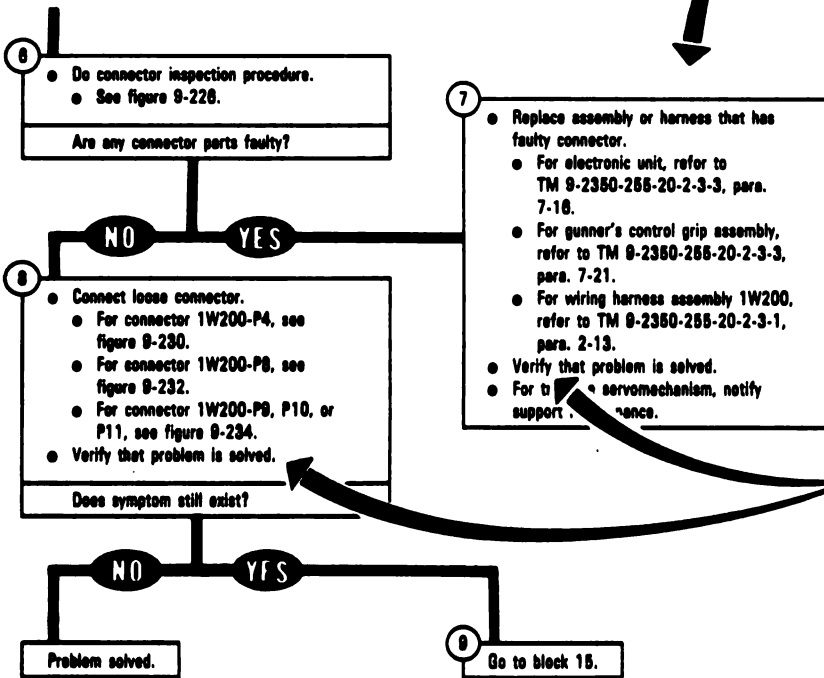


Figure 7-1. Sample Fault Isolation Flowchart (Sheet 2 of 11)
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CORRECTIVE ACTION BLOCK.

This block tells you how to correct the problem. In most cases, it will call for replacing a bad component and tell you where to find the replacement procedures. It may also tell you to do some other maintenance procedure to find and correct the fault.



VERIFICATION TASK.

This step tells you to verify that problem is solved. After replacing a faulty component or connecting a loose connector, check to see if symptom still exists by operating vehicle under the same condition as when fault was observed. In some tasks, you will be directed to repeat a STE test or procedure to verify that the problem is solved.

From block 4

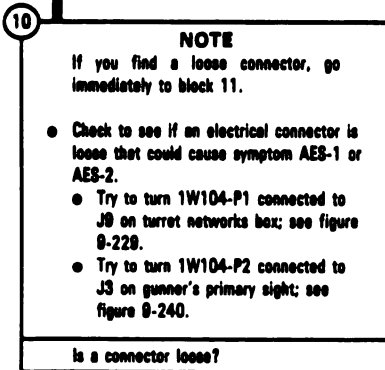


Figure 7-1. Sample Fault Isolation Flowchart (Sheet 3 of 11)
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ARR82-5528

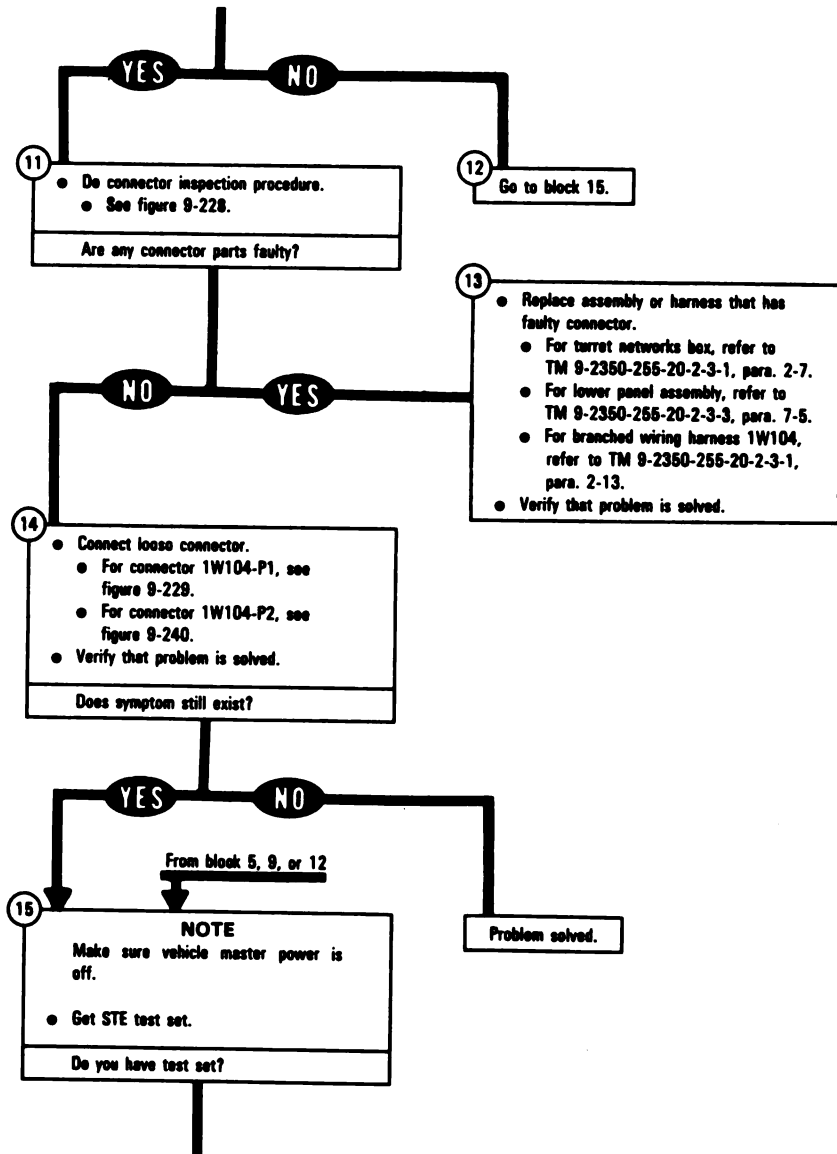


Figure 7-1. Sample Fault Isolation Flowchart (Sheet 4 of 11)
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ALTERNATE TROUBLESHOOTING PROCEDURES BLOCK. Alternate Troubleshooting Procedures (ATP's) are for skill level 2 personnel. ATP's are used when the STE test set is not available.

STE SETUP BLOCK. This block tells you how to prepare STE test set for operation.

TEST NUMBER BLOCK. This test block tells you what number is to be entered into SETCOM. Enter test number and follow SETCOM instructions.

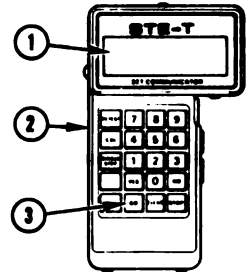
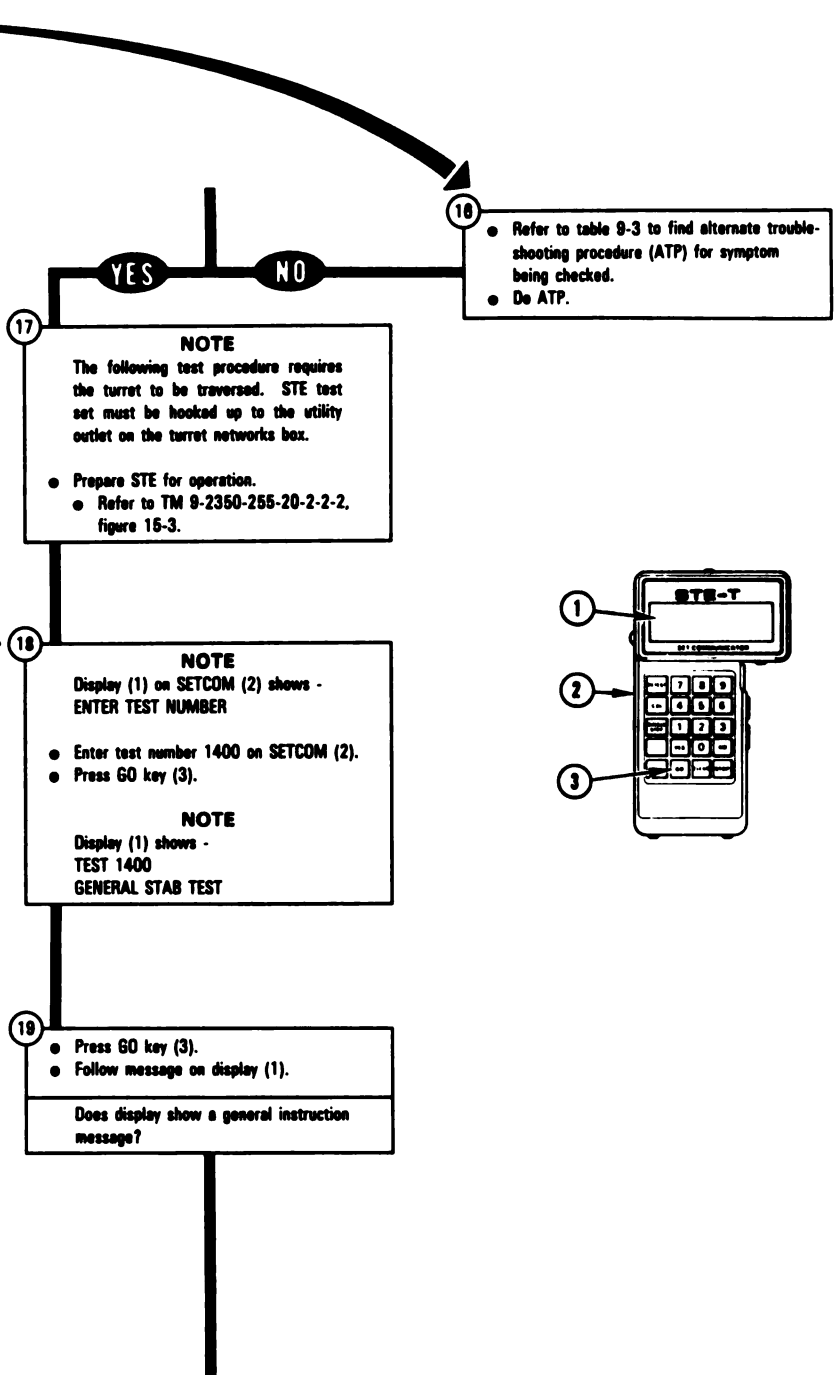
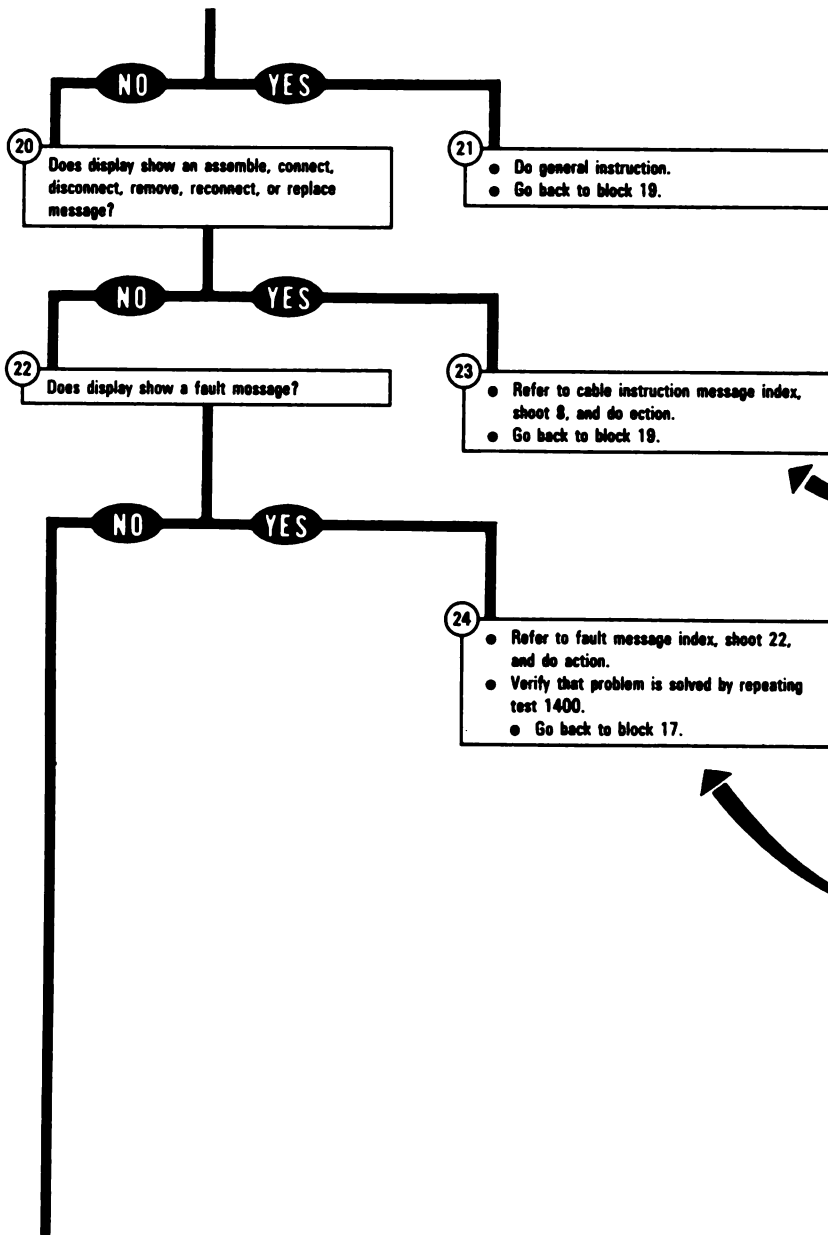


Figure 7-1. Sample Fault Isolation Flowchart (Sheet 5 of 11)
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ARR82-5530



CABLE INSTRUCTION MESSAGE INDEX BLOCK.

The Cable Instruction Message Index tells you how to hook up the STE to the tank and references a figure which shows how the connection should look. A sample of the index is located on sheet 8 of this figure.

FAULT MESSAGE INDEX BLOCK.

The Fault Message Index tells you what to replace to correct the fault or it may tell you to run another test, or do a follow-on procedure which will isolate the faulty assembly. A sample of the index is located on sheet 9 of this figure.

Figure 7-1. Sample Fault Isolation Flowchart (Sheet 6 of 11)

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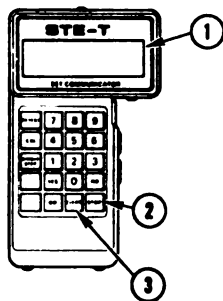
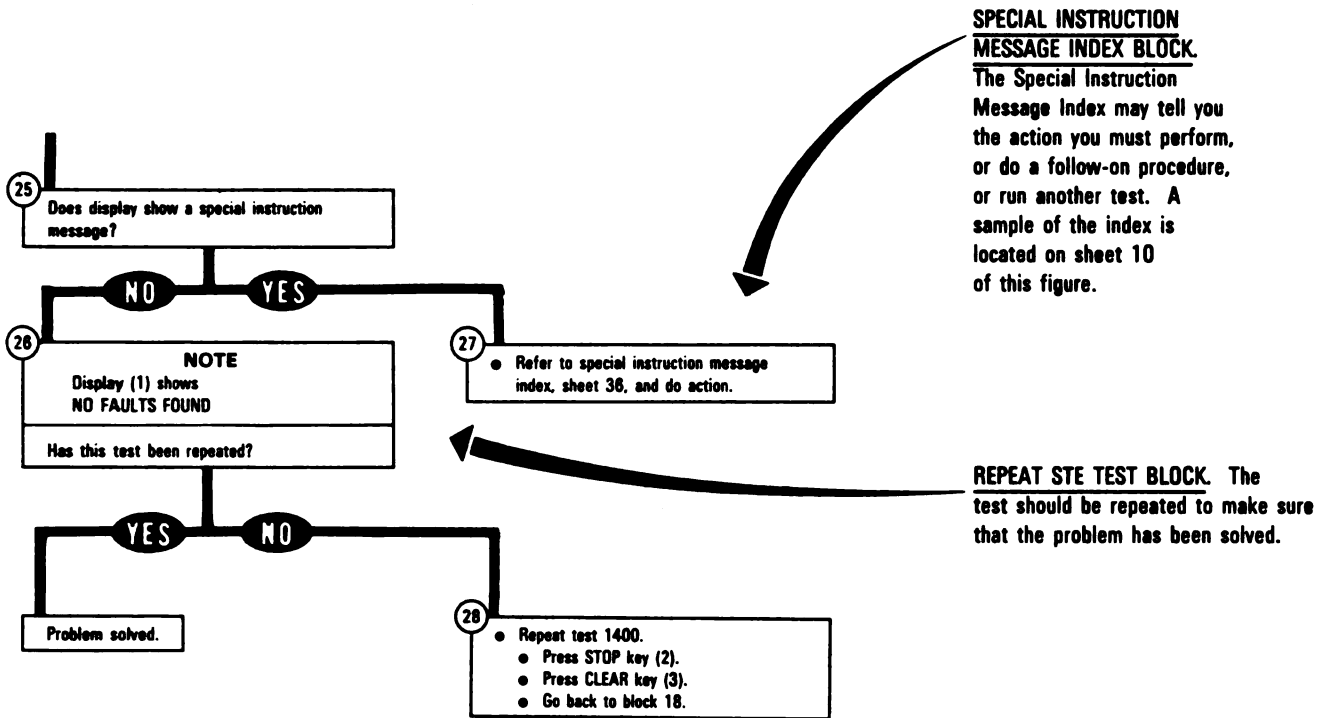


Figure 7-1. Sample Fault Isolation Flowchart (Sheet 7 of 11)
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Para. 7-2

ARR82-5532

CABLE INSTRUCTION MESSAGE COLUMN. This column shows the assemble, connect, disconnect, or reconnect message you see displayed on the STE SETCOM.

Azimuth/Elevation Subsystem Cable Instruction Message Index

Cable Instruction Message	Action
ASSEMBLE CX304, CX307 AND CA419	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX304 to P3 on DBA CX307. ● Connect P2 on adapter CA419 to P1 on DBA CX307. ● See figure 9-11.
ASSEMBLE CX304, CX307 AND CA421	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX304 to P3 on DBA CX307. ● Connect P2 on adapter CA421 to P2 on DBA CX307. ● See figure 9-27.
ASSEMBLE CX304, CX307 AND CA505	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX304 to P3 on DBA CX307. ● Connect P2 on adapter CA505 to P1 on DBA CX307. ● See figure 9-17.
ASSEMBLE CX304, CX307 AND CA515	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX304 to P3 on DBA CX307. ● Connect P2 on adapter CA515 to P1 on DBA CX307. ● See figure 9-29.
ASSEMBLE CX304, CX307 AND CA515/16	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX304 to P3 on DBA CX307. ● Connect P2 on adapter CA515 to P1 on DBA CX307. ● Connect P2 on adapter CA516 to P2 on DBA CX307. ● See figure 9-29.
ASSEMBLE CX304, CX307 AND CA527	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX304 to P3 on DBA CX307. ● Connect P2 on adapter CA527 to P1 on DBA CX307. ● See figure 9-7.
ASSEMBLE CX304, CX308 AND CA535/36	<ul style="list-style-type: none"> ● Connect P1 on CIB cable to P3 on DBA CX308. ● Connect P2 on adapter CA535 to P1 on DBA CX308. ● Connect P2 on adapter CA536 to P2 on DBA CX308. ● See figure 9-18.
ASSEMBLE CX304, CX308 AND CA537	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX304 to P3 on DBA CX308. ● Connect P2 on adapter CA537 to P2 on DBA CX308. ● See figure 9-9.
ASSEMBLE CX305, CX307 AND CA417	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX305 to P3 on DBA CX307. ● Connect P2 on adapter CA417 to P2 on DBA CX307. ● See figure 9-13.
ASSEMBLE CX305, CX307 AND CA417/18	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX305 to P3 on DBA CX307. ● Connect P2 on adapter CA418 to P1 on DBA CX307. ● Connect P2 on adapter CA417 to P2 on DBA CX307. ● See figure 9-13.
ASSEMBLE CX305, CX307 AND CA419	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX305 to P3 on DBA CX307. ● Connect P2 on adapter CA419 to P1 on DBA CX307. ● See figure 9-11.

CABLE INSTRUCTION MESSAGE INDEX ACTION COLUMN. The action column tells you how to assemble, connect, disconnect, or reconnect a vehicle harness, STE cable(s), or STE adapter(s) when a cable instruction message is displayed on the STE SETCOM. A typical illustration which shows you how to do the action required is shown on sheet 11 of this figure.

Figure 7-1. Sample Fault Isolation Flowchart (Sheet 8 of 11)
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ARR82-5533

FAULT MESSAGE COLUMN. This column shows the fault message you see displayed on the STE SETCOM.

TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING

Azimuth/Elevation Subsystem Fault Message Index

Fault Message		Action
FAULTY AZ FRICTION	141906	<ul style="list-style-type: none"> Do follow-on procedure See figure 9-154.
FAULTY BATTERY/CHARGING SYS	140014	<ul style="list-style-type: none"> Charge batteries. Refer to TM 9-2350-255-10. Go back to block 17.
FAULTY CCP	144203 144207 144204 144209 144206 144210 144208 144211	<ul style="list-style-type: none"> Replace ballistics control panel. Refer to TM 9-2350-255-20-2-3-3, para. 7-15.
FAULTY CCP OR 1W202	140246	<ul style="list-style-type: none"> Do follow-on procedure. See figure 9-44.
FAULTY CEU	140209 142129 140216 142308 140220 142314 140258 142316 140468 142457 142126 142472	<ul style="list-style-type: none"> Replace computer electronics unit. Refer to TM 9-2350-255-20-2-3-3, para. 7-14.
FAULTY CEU OR GPS	141161	<ul style="list-style-type: none"> Replace computer electronics unit. Refer to TM 9-2350-255-20-2-3-3, para. 7-14. If problem is not solved, replace gunner's primary sight body assembly. Refer to TM 9-2350-255-20-2-3-3, para. 7-5.
FAULTY CEU OR 1W201	140567 141025 142475	<ul style="list-style-type: none"> Do follow-on procedure. See figure 9-89. See figure 9-87. See figure 9-166.
FAULTY CEU OR 1W202	144214	<ul style="list-style-type: none"> Do follow-on procedure. See figure 9-56.
FAULTY EL DELTA P	142727	<ul style="list-style-type: none"> Elevation servomechanism motional transducer is faulty. Notify support maintenance.
FAULTY EL DELTA P OR 1W200	142716	<ul style="list-style-type: none"> Do follow-on procedure. See figure 9-72.
FAULTY ELSVO	142411 146065 147060	<ul style="list-style-type: none"> Elevation servomechanism is faulty. Notify support maintenance.

FAULT MESSAGE INDEX ACTION COLUMN. The action column tells you what to do when a fault message is displayed on the STE SETCOM.

Figure 7-1. Sample Fault Isolation Flowchart (Sheet 9 of 11)
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Para. 7-2

ARR82-5534

SPECIAL INSTRUCTION MESSAGE INDEX COLUMN

This column shows the special instruction message you see displayed on the STE SETCOM.

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

Azimuth/Elevation Subsystem Special Instruction Message Index (Continued)

Special Instruction Message	Action
PRESS AND RELEASE AMMO SBDS SW ON CCP OR PRESS AND RELEASE TUBE WEAR SW ON CCP	<ul style="list-style-type: none"> ● Loosen two screws and open protective cover over three right side input keys on ballistics control panel. ● Press and release switch indicated on SETCOM display. ● Go back to block 19.
PUSH GO AND ADJUST AZ DRIFT FULL CCW TRY FOR -15 V PUSH GO -XX.XX	<ul style="list-style-type: none"> ● Press GO key on SETCOM. ● Rotate AZ NORMAL MODE DRIFT knob counterclockwise until second line on SETCOM display shows between -13.00 and -17.00. ● Go back to block 19.
PUSH GO AND ADJUST AZ DRIFT FULL CW TRY FOR +15 V PUSH GO XX.XX	<ul style="list-style-type: none"> ● Press GO key on SETCOM. ● Rotate AZ NORMAL MODE DRIFT knob clockwise until second line on SETCOM display shows between 13.00 and 17.00. ● Go back to block 19.
PUSH GO AND ADJUST EL DRIFT FULL CCW TRY FOR -15 V PUSH GO -XX.XX	<ul style="list-style-type: none"> ● Press GO key on SETCOM. ● Rotate EL NORMAL MODE DRIFT knob counterclockwise until second line on SETCOM display shows between -13.00 and -17.00. ● Go back to block 19.
PUSH GO AND ADJUST EL DRIFT FULL CW TRY FOR +15 V PUSH GO XX.XX	<ul style="list-style-type: none"> ● Press GO key on SETCOM. ● Rotate EL NORMAL MODE DRIFT knob clockwise until second line on SETCOM display shows between 13.00 and 17.00. ● Go back to block 19.
PUSH GO THEN PIVOT TURN 45 DEGS	<ul style="list-style-type: none"> ● This test must be repeated three times. ● Press GO key on SETCOM before each 45 degree pivot turn. ● Go back to block 19.
SEE -20 MANUAL	140514 <ul style="list-style-type: none"> ● Do follow-on procedure. <ul style="list-style-type: none"> ● See figure 9-173.
	141541 <ul style="list-style-type: none"> ● Replace line-of-sight electronics unit. <ul style="list-style-type: none"> ● Refer to TM 9-2350-255-20-2-3-3, para. 7-8. ● Verify that problem is solved. ● If problem still exists, notify support maintenance that gun trunnion resolver or branched wiring harness 1W207 is faulty.

SPECIAL INSTRUCTION MESSAGE INDEX ACTION COLUMN.

This action column tells you what to do when a special instruction message is displayed on the STE SETCOM.

Figure 7-1. Sample Fault Isolation Flowchart (Sheet 10 of 11)

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STE HOOKUP ILLUSTRATION. This illustration shows you how to assemble, connect, disconnect, or reconnect vehicle harness, STE cable(s), or STE adapter(s) when using the STE test set for troubleshooting.

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

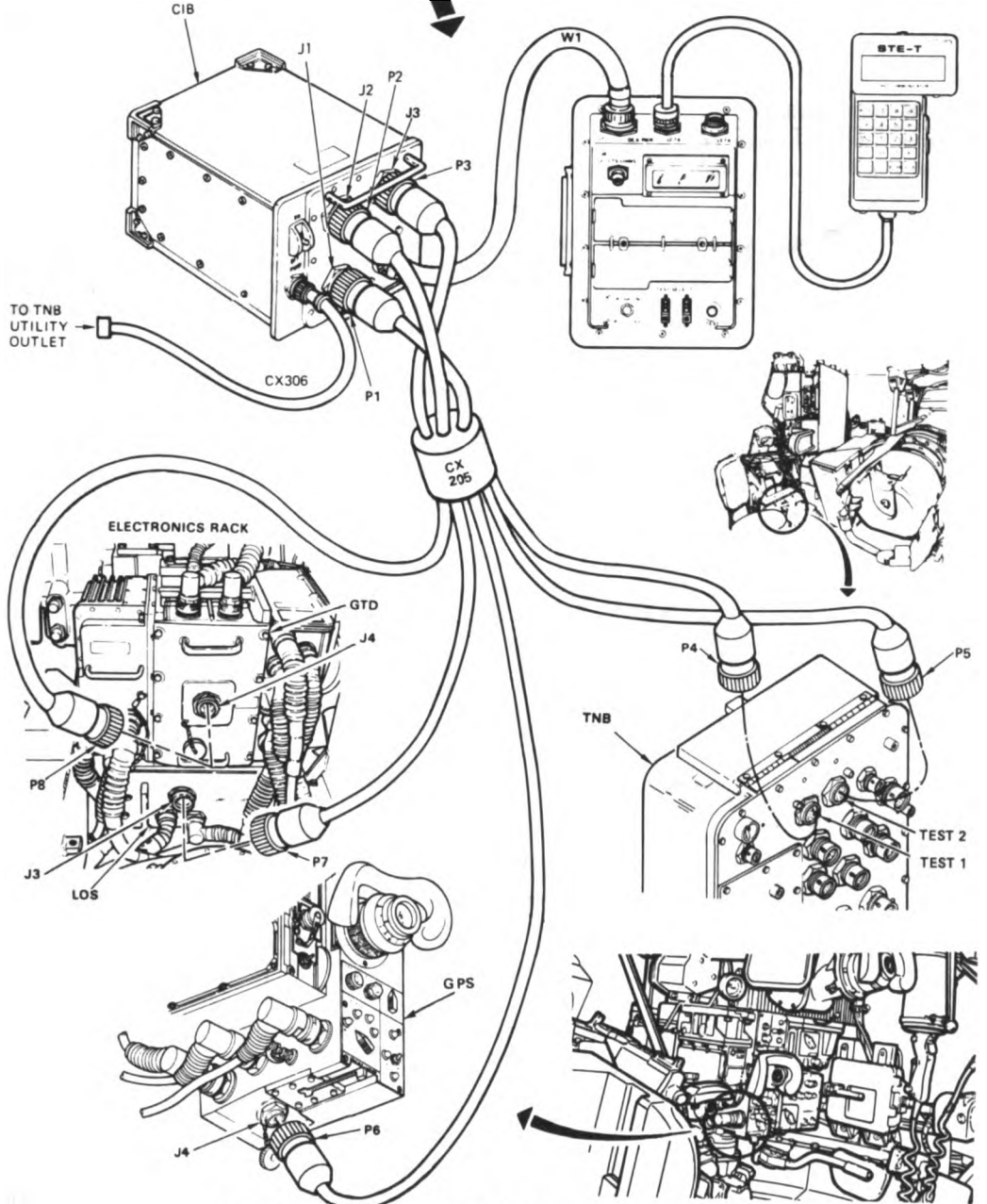


Figure 9-6. STE Turret Cable Hookup Between CIB And Tank

ARR82-5699

Figure 7-1. Sample Fault Isolation Flowchart (Sheet 11 of 11)
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ARR82-5535

7-3. Test Equipment Procedures. The test equipment procedures describe and illustrate how the test equipment is used to make the tests and measurements called for in the troubleshooting procedures. The instructions are very detailed so that a soldier with no previous experience can use the equipment. The test equipment procedures are grouped in a single chapter in the manual and referred to in the individual troubleshooting procedures as needed. A sample page from a typical test equipment procedure with explanations of the different parts of a procedure can be found below.

TEST NAME AND DESCRIPTION.

States name of test to be made and description of when to use the test.

15-8. Cable Test. The cable test is a special function of the STE test set. It provides a means to check tank harnesses (excluding communications harnesses) for proper continuity. The cable test is used in troubleshooting when the STE SETCOM displays more than one possible faulty component including a harness. The following procedures explain the operation of the cable test and provide test information for harnesses not covered by the STE program.

CABLE TEST START MESSAGE.

Message displayed on SETCOM when prepared to run cable test 1390.

DISPLAY SHOWS -
TEST 1390
CABLE TEST

NOTE

Refer to cable test notes on sheet 12 before starting test.

1

- Press GO key (1) on SETCOM (2).

NOTE

Display (3) on SETCOM (2) shows -
WHAT CABLE.

INSTRUCTIONS AND NOTES.

Details the steps necessary to perform the test and explains operations peculiar to the STE test set.

2

NOTE

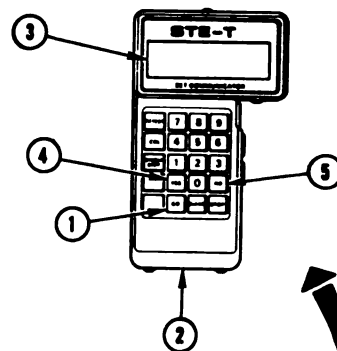
When entering cable number, leave out letters and dashes. Example: For harness 2W105 you must enter 2105; for harness 2W105-1 enter 21051.

- Enter cable number on SETCOM (2).
- Press GO key (1).

NOTE

If tank harness has more than two connector ends, SETCOM display (3) will ask which ends are to be tested. Connector ends will appear one at a time on lower right corner of display (3). Press YES key (4) or NO key (5) for each listed connector end.

Does display show -
WHICH ENDS ?



TEST EQUIPMENT ILLUSTRATION.

These illustrations locate the different controls and areas on the test equipment that you will use to perform the test.

Figure 7-2. Sample Test Equipment Procedure
Volume II
Para. 7-3

ARR82-5537

CHAPTER 8
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING

8-1. General. This chapter tells you how to troubleshoot the subsystems of the turret electrical system. The subsystems are listed in table 8-1 with paragraph and page numbers.

Table 8-1. Turret Electrical Subsystems

Subsystem	Use STE	Para.	Page
Vehicle/turret power control	Yes	8-2	8-3
Firing circuits	Yes	8-3	8-43
Fan assembly	No	8-4	8-123
Turret circuit breaker monitor	No	8-5	8-142
Panel lights and domelights	No	8-6	8-151

The STE-M1/FVS test set (referred to as STE) is used to troubleshoot three subsystems of the turret electrical system. For a detailed description of the STE test set, refer to TM 9-2350-255-20-2-2-2, paragraph 15-4.

A fault symptom index is located at the beginning of each subsystem paragraph. The index identifies the primary and alternate procedure used to troubleshoot a known fault symptom. The primary procedure is included within the paragraph. When the STE test set is not available, use the alternate procedure located in TM 9-2350-255-20-2-2-3, chapter 18. Do not start any alternate troubleshooting procedure until you have completed the pretest steps in the primary procedure.

One of eight types of messages will be displayed on the STE test set communicator (SETCOM). Cable instruction messages, fault messages, and special instruction messages are indexed in the primary procedure with their related actions. For a full explanation of all the messages with examples, refer to TM 9-2350-255-20-2-2-2, paragraph 15-4. STE test set hookup diagrams show how the test set is connected to the tank for each troubleshooting action. These diagrams are located at the end of the primary procedures.

Follow these general troubleshooting instructions in each procedure unless the procedure directs otherwise:

- a. Make sure the troubleshooting instructions in TM 9-2350-255-10 have been completed before starting this troubleshooting action. Make sure all test connections are correct. An incorrect test connection can lead to the replacement of a good tank component.
- b. If the same symptom exists after replacing a tank component, repeat the troubleshooting procedure.
- c. Look for obvious damage to harnesses and all surrounding components while checking for loose electrical connectors.

TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING

8-1. General (Continued)

- d. Use slip joint conduit style pliers with plastic jaw inserts to loosen connectors that cannot be loosened by hand.
- e. When taking apart or joining connectors, look for missing, bent, broken, and pushed in pins. If you find missing or damaged pins, notify your supervisor.
- f. Connect all cables and harnesses that were disconnected in order to get at the connector being checked.
- g. Use care when hooking up all connectors to avoid bending or breaking pins. Use hands only to tighten connectors.
- h. Cap all electrical connectors that are taken off during troubleshooting.
- i. Be sure to close grille doors and access panels before traversing the turret.
- j. Be sure tank is parked where it is safe to start the engine and traverse the turret.
- k. Be sure vehicle master power is off before connecting or disconnecting any electrical cable or harness.
- l. When using a multimeter or the vehicle test meter (VTM) as a multimeter or when using electrical jumpers, it will be necessary to attach adapters from the TA1 continuity test probe kit to the test probes or to the ends of the jumpers. Additional adapters and/or jumpers may be required. Refer to TM 9-2350-255-20-2-2-2, paragraph 15-2, for information on additional items. Check the component to be tested and select the proper adapters needed for your test.
- m. Remove test probes and/or jumpers after answering the question for that test unless otherwise noted. When connecting test probes where jumpers are already connected, lift jumper slightly so test probe can make contact.
- n. When preparing the VTM for measuring resistance and continuity, dc voltage, or ac voltage, refer to TM 9-4910-751-14-1, Volume I, Appendix E. NOTE: Do not change VTM power hookup from CIB.
- o. Before performing steps in replacement blocks, read preliminary procedures in maintenance manual to avoid connecting or installing unnecessary equipment.

WARNING

Before testing of the turret electrical system using test leads and breakout box, lock main gun and turret before turning vehicle master power on. High RFI signals could cause gun to slam into its stops and/or the turret to slew at a high rate. If main gun or turret must be unlocked, make sure areas around tank and above and below main gun breech are kept clear of personnel/equipment to prevent injury to personnel and damage to equipment.

2. Vehicle/Turret Power Control Subsystem Troubleshooting Procedures.

Table 8-2. Vehicle/Turret Power Control (V/TPC) Subsystem Fault Symptom Index

Fault Symptom No.	Fault Symptom	Primary Troubleshooting Procedure (PTP)	Test No.	Alternate Troubleshooting Procedure (ATP) TM 9-2350-255-20-2-2-3
V/TPC-1	Vehicle Master Power Cannot Be Turned On From Commander's Control Panel	Figure 8-1	1200	Figure 18-1
V/TPC-2	Vehicle Master Power Cannot Be Turned Off From Commander's Control Panel	Figure 8-1	1200	Figure 18-2
V/TPC-3	TURRET POWER Light And Turret Power Do Not Come On When TURRET POWER Switch Is Set To ON. Vehicle Master Power OK	Figure 8-1	1200	Figure 18-3
V/TPC-4	VEHICLE MASTER POWER Light On Commander's Control Panel Does Not Come On. ELECTRICAL SYSTEM Voltmeter Shows 24 Volts DC	Figure 8-1	1200	Figure 18-4
V/TPC-5	Fan Assembly, Gas Particulate Heater Assemblies, Commander's Weapon Station, And Communication System Do Not Work When VEHICLE MASTER POWER Switch Is Set To ON	Figure 8-1	1200	Figure 18-5

SYMPTOMS V/TPC-1 THROUGH V/TPC-5

VEHICLE/TURRET POWER CONTROL
SUBSYSTEM FOUND FAULTY DURING
TANK OPERATION

Common Tools:

- Pliers, slip joint, conduit style with plastic jaw inserts

NOTE

Notify your supervisor that this procedure may require troubleshooting and replacement of components in the hull area.

Test Equipment/Special Tools:

NOTE

Do not get the following equipment until told to do so further on in this procedure.

- STE-M1/FVS Test Set, 1232400

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

NOTE

Read para. 8-1 before doing any work.

1

- Set up tank controls for standard initial test conditions.
- Refer to para. 9-9, table 9-7.

Figure 8-1 (Sheet 1 of 11)
Volume II
Para. 8-2

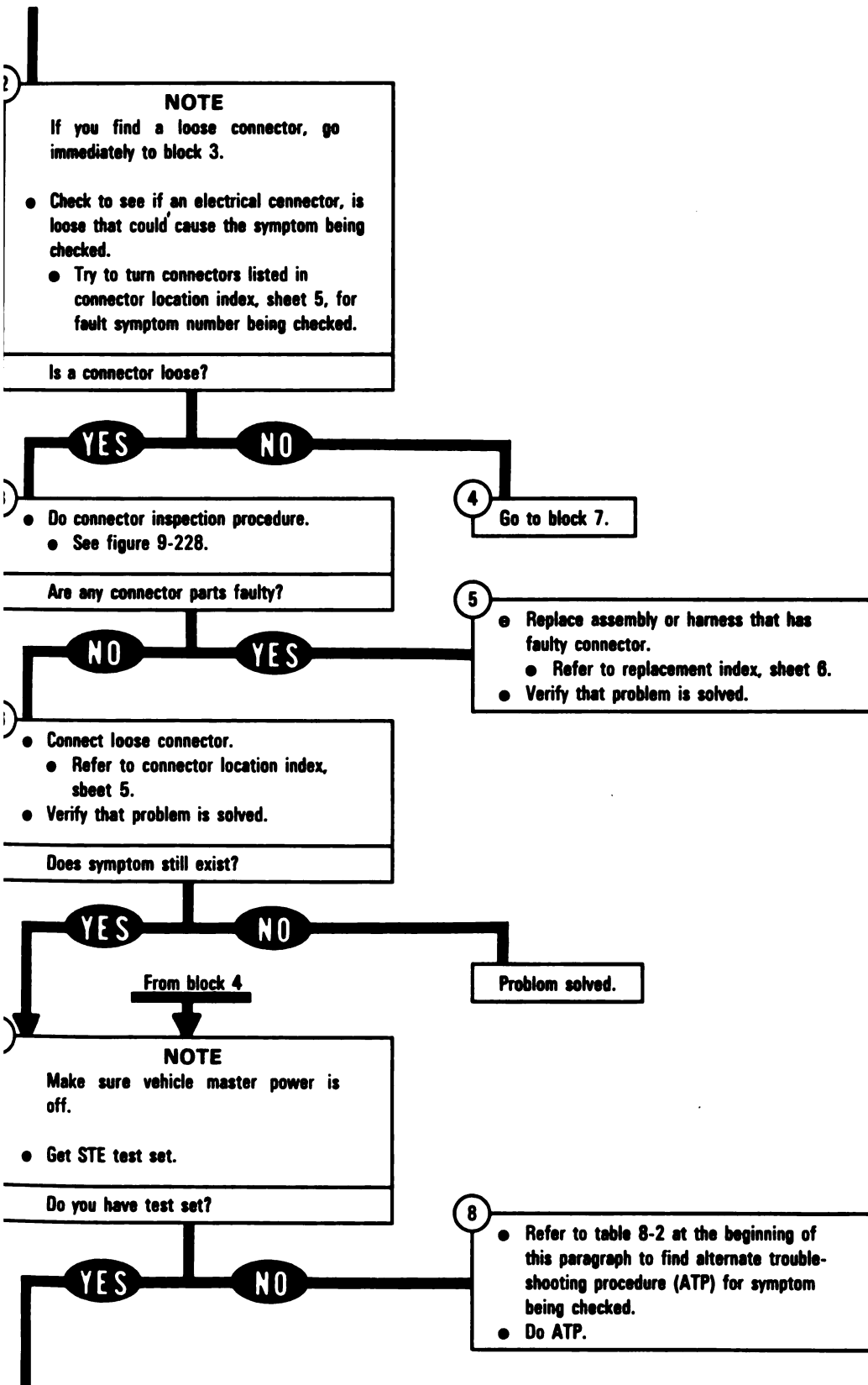
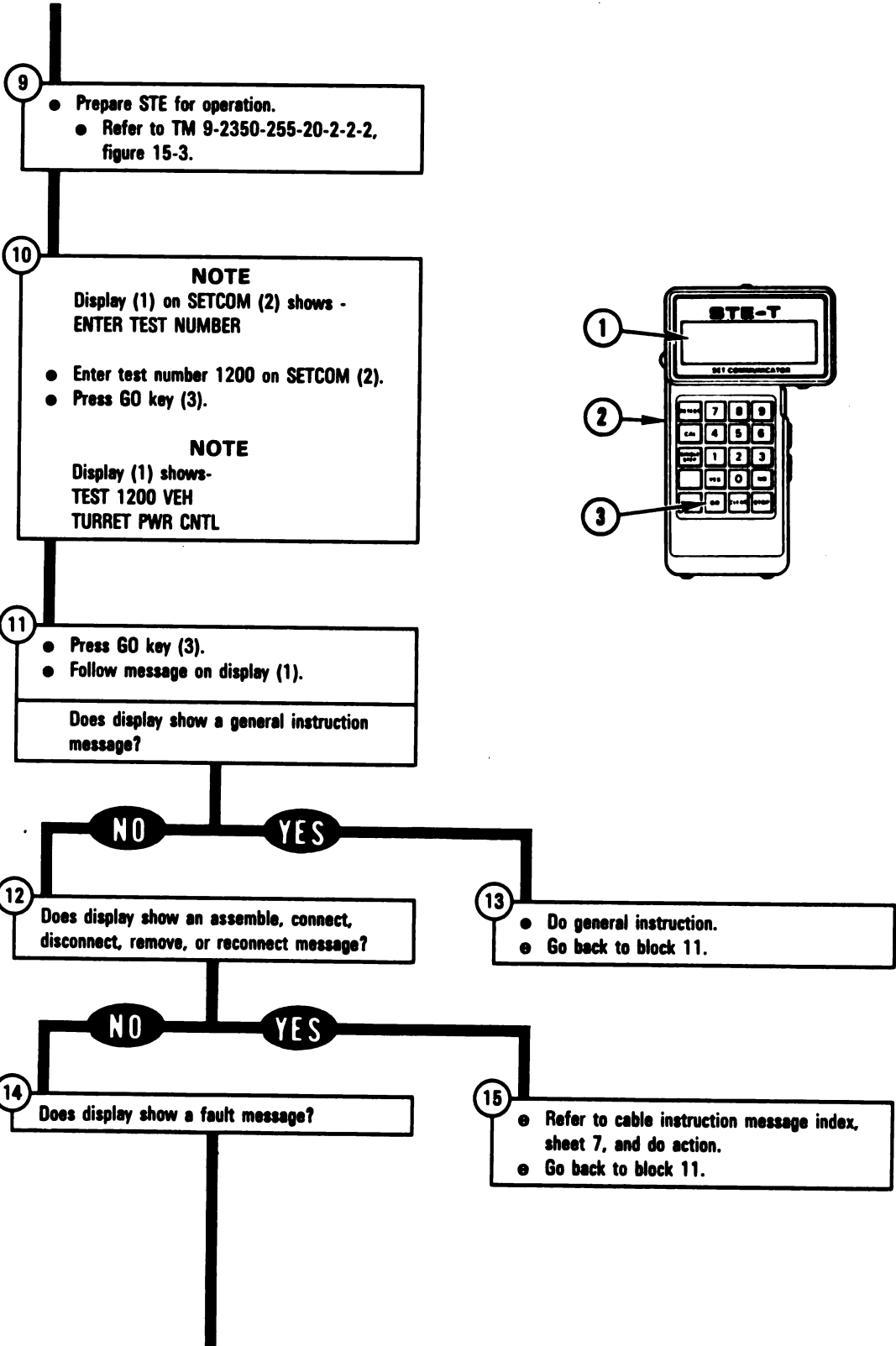


Figure 8-1 (Sheet 2 of 11)
Volume II
Para. 8-2

**TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING**



*Figure 8-1 (Sheet 3 of 11)
Volume II
Para. 8-2*

ARR82-5538

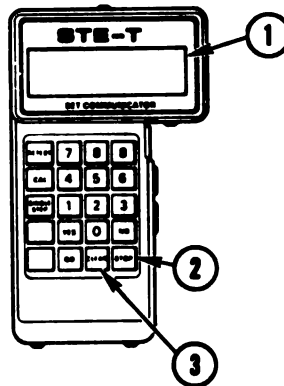
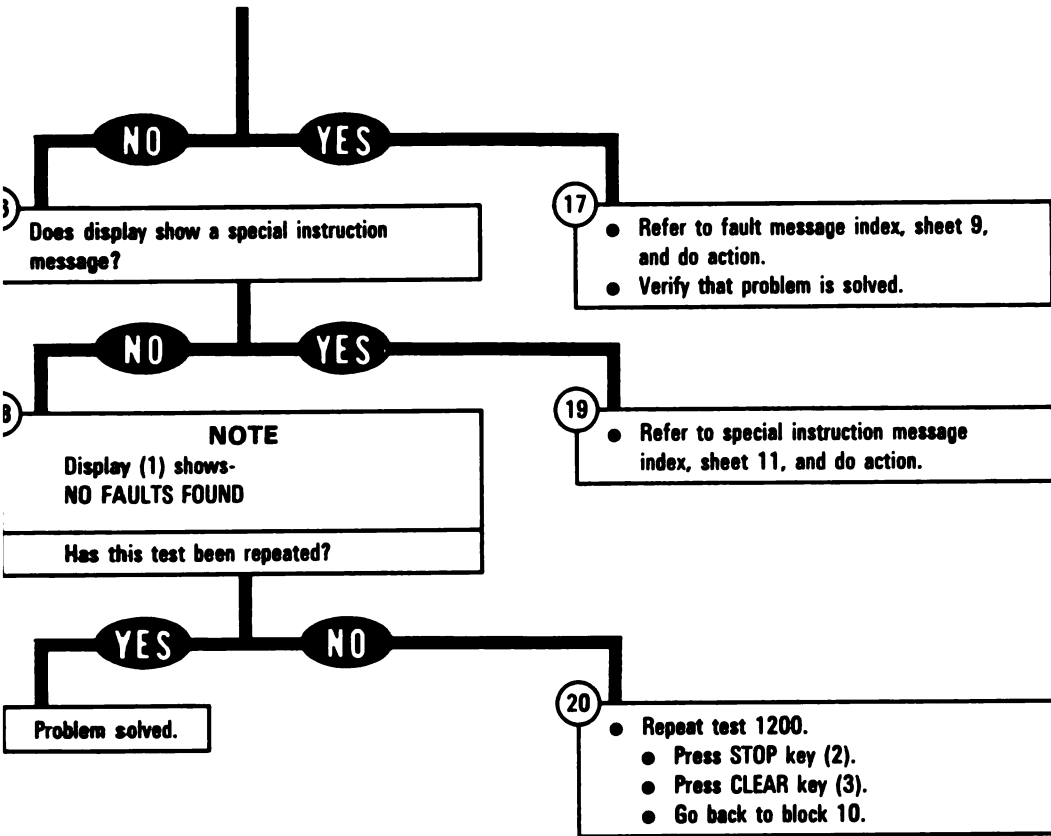


Figure 8-1 (Sheet 4 of 11)
Volume II
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ARR82-5539

TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING

Connector Location Index

Fault Symptom No.	Harness Connector	Connect To	Figure
V/TPC-1	1W102-P1	J8 on turret networks box	9-229
	1W101-P2	J11 on turret networks box	9-229
	1W102-P2	J1 on commander's control panel	9-231
	2W109-P1	J3 on hull/turret slipring	9-233
	1W101-P1	J8 on hull/turret slipring	9-233
	2W109-P3	J7 on hull networks box	9-241
V/TPC-2	1W102-P1	J8 on turret networks box	9-229
	1W101-P2	J11 on turret networks box	9-229
	1W102-P2	J1 on commander's control panel	9-231
	1W109-P1	J3 on hull/turret slipring	9-233
	1W101-P1	J8 on hull/turret slipring	9-233
V/TPC-3	1W102-P1	J8 on turret networks box	9-229
	1W100-P5	J13 on turret networks box	9-229
	1W102-P2	J1 on commander's control panel	9-231
	2W102-P4	J4 on hull/turret slipring	9-233
	2W102-P5	J5 on hull/turret slipring	9-233
	1W100-P3	J9 on hull/turret slipring	9-233
	1W100-P2	J10 on hull/turret slipring	9-233
	2W109-P3	J7 on hull networks box	9-241
2W102-P1	J4 on power distribution box	9-248	
V/TPC-4	1W102-P1	J8 on turret networks box	9-229
	1W102-P2	J1 on commander's control panel	9-231
V/TPC-5	1W301-P1	J1 on turret networks box	9-229
	1W100-P5	J13 on turret networks box	9-229
	2W102-P2	J1 on hull/turret slipring	9-233
	2W102-P3	J2 on hull/turret slipring	9-233
	1W100-P1	J6 on hull/turret slipring	9-233
	1W100-P4	J7 on hull/turret slipring	9-233
2W102-P1	J4 on power distribution box	9-248	

Figure 8-1 (Sheet 5 of 11)
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Replacement Index

Assembly or Harness	TM 9-2350-255-20-	Para.
Branched wiring harness 2W102	1-3-6	11-18
Branched wiring harness 2W109	Notify support maintenance	-
Cable assembly 1W301	2-3-1	2-13
Commander's control panel assembly	2-3-1	2-5
Driver's master control panel	1-3-6	11-15
Hull networks distribution box	1-3-6	11-12
Hull power distribution box	1-3-6	11-11
Hull/turret slipring assembly	2-3-1	2-8
Turret networks box	2-3-1	2-7
Wiring harness assembly 1W100, 1W101, or 1W102	2-3-1	2-13

Figure 8-1 (Sheet 6 of 11)
Volume II
Para. 8-2

**TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING**

Vehicle/Turret Power Control Subsystem Cable Instruction Message Index

Cable Instruction Message	Action
ASSEMBLE CX304, CX307 AND CA529/30	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX304 to P3 on DBA CX307. ● Connect P2 on adapter CA529 to P2 on DBA CX307. ● Connect P2 on adapter CA530 to P1 on DBA CX307. ● See figure 8-2.
ASSEMBLE CX304, CX307 AND CA530	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX304 to P3 on DBA CX307. ● Connect P2 on adapter CA530 to P1 on DBA CX307. ● See figure 8-2.
ASSEMBLE CX304, CX307 AND CA545	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX304 to P3 on DBA CX307. ● Connect P2 on adapter CA545 to P1 on DBA CX307. ● See figure 8-3.
ASSEMBLE CX304, CX307 AND CA545/46	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX304 to P3 on DBA CX307. ● Connect P2 on adapter CA545 to P1 on DBA CX307. ● Connect P2 on adapter CA546 to P2 on DBA CX307. ● See figure 8-3.
ASSEMBLE CX304, CX308 AND CA447	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX304 to P3 on DBA CX308. ● Connect P2 on adapter CA447 to P2 on DBA CX308. ● See figure 8-4.
ASSEMBLE CX304, CX308 AND CA447/48	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX304 to P3 on DBA CX308. ● Connect P2 on adapter CA448 to P1 on DBA CX308. ● Connect P2 on adapter CA447 to P2 on DBA CX308. ● See figure 8-4.
ASSEMBLE CX305, CX307 AND CA419	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX305 to P3 on DBA CX307. ● Connect P2 on adapter CA419 to P1 on DBA CX307. ● See figure 8-5.
ASSEMBLE CX305, CX307 AND CA530	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX305 to P3 on DBA CX307. ● Connect P2 on adapter CA530 to P1 on DBA CX307. ● See figure 8-2.
ASSEMBLE CX305, CX307 AND CA545	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX305 to P3 on DBA CX307. ● Connect P2 on adapter CA545 to P1 on DBA CX307. ● See figure 8-3.
CONNECT CIB J1 (CX305) TO TNB TJ1 (CA206)	<ul style="list-style-type: none"> ● Connect P1 on adapter CA206 to TEST 1 on turret networks box. ● Connect P1 on CIB cable CX305 to P2 on adapter CA206. ● See figure 8-6. ● Connect P2 on CIB cable CX305 to J1 on CIB. ● See figure 8-7.

Figure 8-1 (Sheet 7 of 11)
**Volume II
Para. 8-2**

Vehicle/Turret Power Control Subsystem Cable Instruction Message Index (Continued)

Cable Instruction Message	Action
CONNECT CIB J2 (CX304) HNB TJ1 (CA607)	<ul style="list-style-type: none"> ● Connect P1 on adapter CA607 to TJ1 on hull networks box. ● Connect P1 on CIB cable CX304 to P2 on adapter CA607. <ul style="list-style-type: none"> ● See figure 8-8. ● Connect P2 on CIB cable CX304 to J2 on CIB. <ul style="list-style-type: none"> ● See figure 8-7.
CONNECT DBA BETWEEN V101 ← → TNB J11	<ul style="list-style-type: none"> ● Connect P1 on adapter CA546 to J11 on turret networks box. ● Connect 1W101-P2 to P1 on adapter CA545. <ul style="list-style-type: none"> ● See figure 8-3.
CONNECT DBA BETWEEN V102 ← → TNB J8	<ul style="list-style-type: none"> ● Connect P1 on adapter CA529 to J8 turret networks box. ● Connect 1W102-P1 to P1 on adapter CA530. <ul style="list-style-type: none"> ● See figure 8-2.
CONNECT DBA BETWEEN V109 ← → HNB J7	<ul style="list-style-type: none"> ● Connect P1 on adapter CA447 to J7 on hull networks box. ● Connect 2W109-P3 to P1 on adapter CA448. <ul style="list-style-type: none"> ● See figure 8-4.
CONNECT DBA TO VB J7	<ul style="list-style-type: none"> ● Connect P1 on adapter CA447 to J7 on hull networks box. <ul style="list-style-type: none"> ● See figure 8-4.
CONNECT DBA TO W101 P1	<ul style="list-style-type: none"> ● Connect 1W101-P1 to P1 on adapter CA419. <ul style="list-style-type: none"> ● See figure 8-5.
CONNECT DBA TO W101 P2	<ul style="list-style-type: none"> ● Connect 1W101-P2 to P1 on adapter CA545. <ul style="list-style-type: none"> ● See figure 8-3.
CONNECT DBA TO W102 P1	<ul style="list-style-type: none"> ● Connect 1W102-P1 to P1 on adapter CA530. <ul style="list-style-type: none"> ● See figure 8-2.
DISCONNECT DBA FROM W101 P2	<ul style="list-style-type: none"> ● Disconnect 1W101-P2 from P1 on adapter CA545. <ul style="list-style-type: none"> ● See figure 8-3.
DISCONNECT DBA FROM W101 ← → TNB J11	<ul style="list-style-type: none"> ● Disconnect 1W101-P2 from P1 on adapter CA545. ● Disconnect P1 on adapter CA546 from J11 on turret networks box. <ul style="list-style-type: none"> ● See figure 8-3.
DISCONNECT DBA FROM W102 P1	<ul style="list-style-type: none"> ● Disconnect 1W102-P1 from P1 on adapter CA530. <ul style="list-style-type: none"> ● See figure 8-2.
DISCONNECT W101 ← → SRING J8	<ul style="list-style-type: none"> ● Disconnect 1W101-P1 from J8 on hull/turret slipring. <ul style="list-style-type: none"> ● See figure 9-233.
DISCONNECT W101 ← → TNB J11	<ul style="list-style-type: none"> ● Disconnect 1W101-P2 from J11 on turret networks box. <ul style="list-style-type: none"> ● See figure 9-229.
DISCONNECT W102 ← → TCP J1	<ul style="list-style-type: none"> ● Disconnect 1W102-P2 from J1 on commander's control panel. <ul style="list-style-type: none"> ● See figure 9-231.

Figure 8-1 (Sheet 8 of 11)
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Para. 8-2

**TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING**

Vehicle/Turret Power Control Subsystem Cable Instruction Message Index (Continued)

Cable Instruction Message	Action
DISCONNECT 1W102 <- -> TNB J8	<ul style="list-style-type: none"> ● Disconnect 1W102-P1 from J8 on turret networks box. ● See figure 9-229.
DISCONNECT 2W109 <- -> HNB J7	<ul style="list-style-type: none"> ● Disconnect 2W109-P3 from J7 on hull networks box. ● See figure 9-241.
RECONNECT 1W101 <- -> TNB J11	<ul style="list-style-type: none"> ● Connect 1W101-P2 to J11 on turret networks box. ● See figure 9-229.
RECONNECT 1W102 <- -> TNB J8	<ul style="list-style-type: none"> ● Connect 1W102-P1 to J8 on turret networks box. ● See figure 9-229.
REMOVE CX304 AND ADAPTER AT HNB TJ1	<ul style="list-style-type: none"> ● Disconnect P1 on CIB cable CX304 from P2 on adapter CA607 ● Disconnect P1 on adapter CA607 from TJ1 on hull networks box. ● See figure 8-8.
REMOVE CX305 AND ADAPTER AT TNB TJ1	<ul style="list-style-type: none"> ● Disconnect P1 on CIB cable CX305 from P2 on adapter CA206 ● Disconnect P1 on adapter CA206 from TEST 1 on turret networks box. ● See figure 8-6.

Vehicle/Turret Power Control Subsystem Fault Message Index

Fault Message	Action
FAULT BATTERY/ CHARGE SYSTEM 120069	<ul style="list-style-type: none"> ● Charge batteries. ● Refer to TM 9-2350-255-10. ● Go back to block 9.
FAULTY HNB 120030 120037 120044	<ul style="list-style-type: none"> ● Replace hull networks distribution box. ● Refer to TM 9-2350-255-20-1-3-6, para. 11-12.
FAULTY HULL POWER SYSTEM 120070	<ul style="list-style-type: none"> ● Run hull power distribution test number 1000. ● Refer to TM 9-2350-255-20-1-2-2, para. 16-2.
FAULTY PANEL LGT SUPPLIES 133102	<ul style="list-style-type: none"> ● Test set found a panel lights problem. ● Refer to panel lights symptoms in para. 6-1 and correct panel lights problem before continuing test.
FAULTY SRING 120004 120057	<ul style="list-style-type: none"> ● Replace hull/turret sliping assembly. ● Refer to TM 9-2350-255-20-2-3-1, para. 2-8.

Figure 8-1 (Sheet 9 of 11)
**Volume II
Para. 8-2**

Vehicle/Turret Power Control Subsystem Fault Message Index (Continued)

Fault Message			Action
ULTY SRING OR V109	120039		<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 8-17.
ULTY TCP	120007 120015	120019 120022 120058	<ul style="list-style-type: none"> ● Replace commander's control panel assembly. ● Refer to TM 9-2350-255-20-2-3-1, para. 2-5.
ULTY TCP 1W102	120005 120033 120038	120048 120053 120060	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 8-9.
		120050 120063 120064	<ul style="list-style-type: none"> ● See figure 8-13. ● See figure 8-13. ● See figure 8-14.
ULTY TNB	120006 120018 120021 120029 120032 120034 120035 120040	120041 120046 120047 120049 120051 120052 120061 120062	<ul style="list-style-type: none"> ● Replace turret networks box. ● Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
ULTY TNB OR NB		120068	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 8-18.
ULTY TNB OR W102		120045 120059	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 8-16.
ULTY VEH/TURRET OWER CNTL		120703 120803	<ul style="list-style-type: none"> ● Restart test number 1200. ● Go back to block 9.
ULTY 1W101		120042	<ul style="list-style-type: none"> ● Replace wiring harness assembly 1W101. ● Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
ULTY 2W102, 1W100 RING		120010 120011	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 8-11. ● See figure 8-12.
ULTY 2W109, 1W101 RING		120031 120036 120043	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 8-10.

Figure 8-1 (Sheet 10 of 11)
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Para. 8-2

**TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING**

Vehicle/Turret Power Control Subsystem Special Instruction Message Index

Special Instruction Message	Action
SEE -20 MANUAL 120026	● Do follow-on procedure. ● See figure 8-15.

Figure 8-1 (Sheet 11 of 11)
Volume II
Para. 8-2

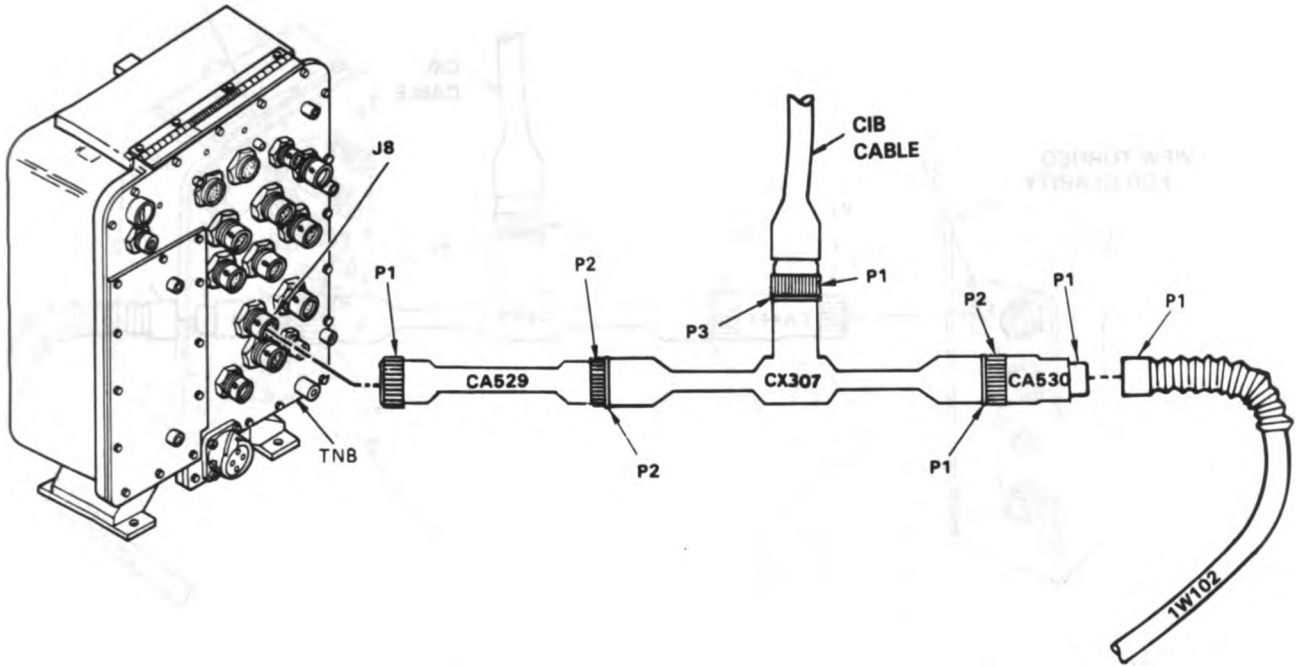


Figure 8-2. STE Turret Cable Hookup Between TNB-J8 and 1W102-P1

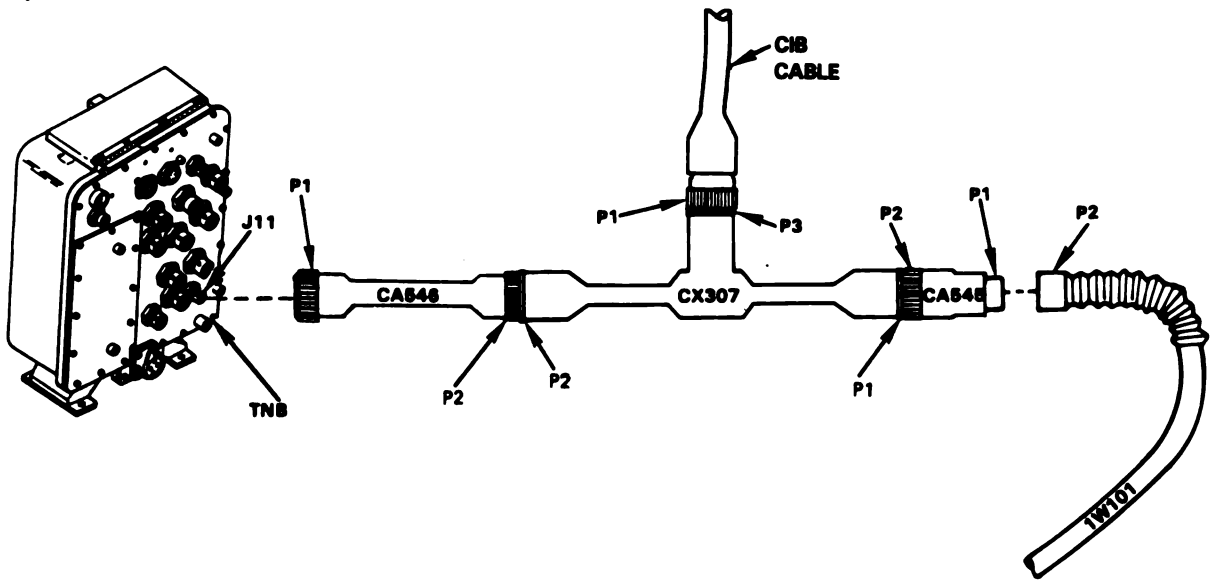


Figure 8-3. STE Turret Cable Hookup Between TNB-J11 and 1W101-P2
Volume II
Para. 8-2

ARR82-5540

**TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING**

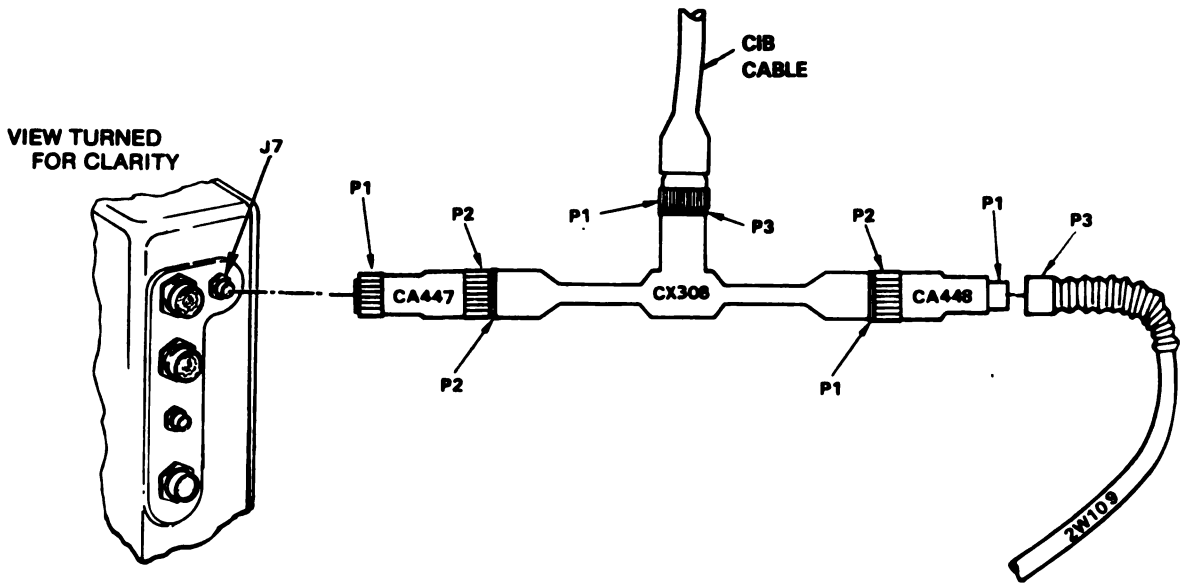


Figure 8-4. STE Turret Cable Hookup Between HNB-J7 and 2W109-P3

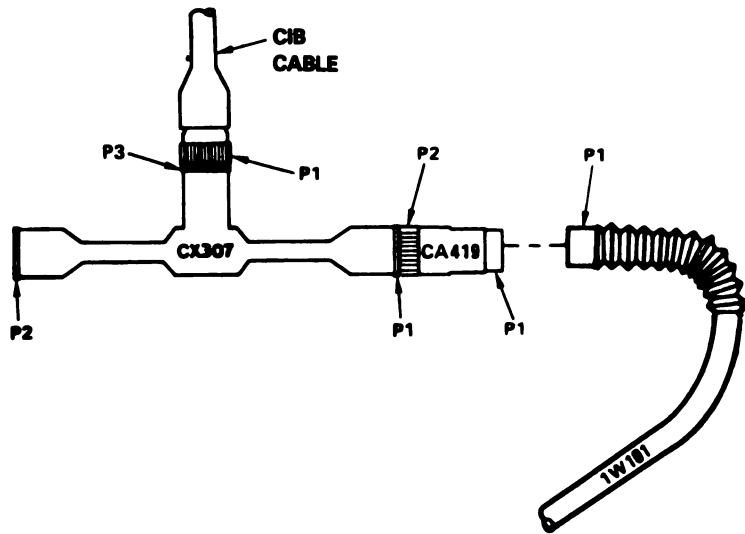


Figure 8-5. STE Turret Cable Hookup to 1W101-P1
**Volume II
Para. 8-2**

ARR82-5541

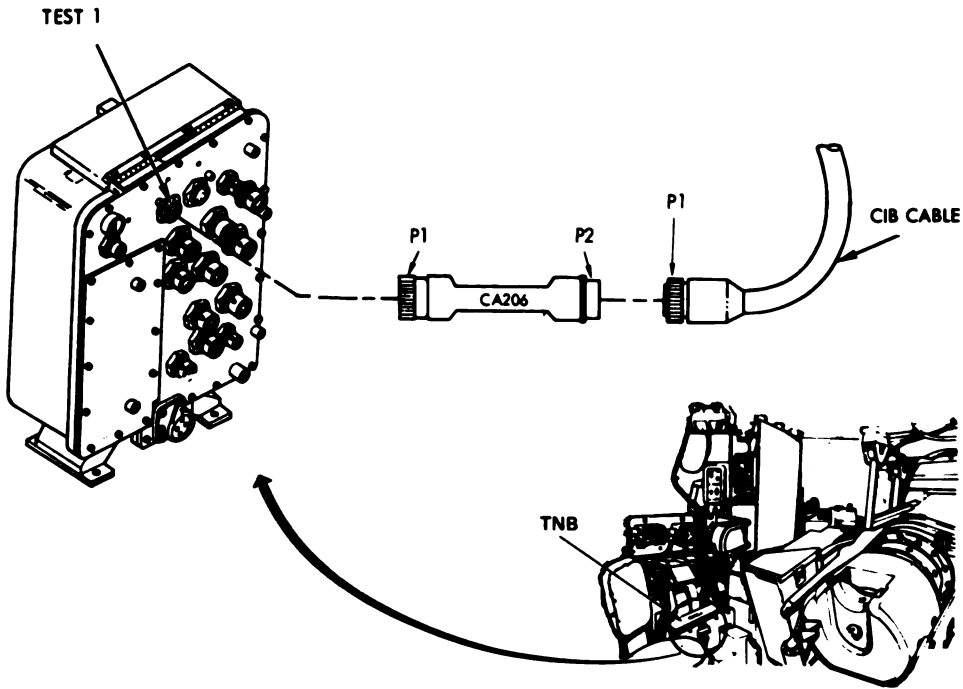


Figure 8-6. STE Turret Cable Hookup To TNB-Test 1

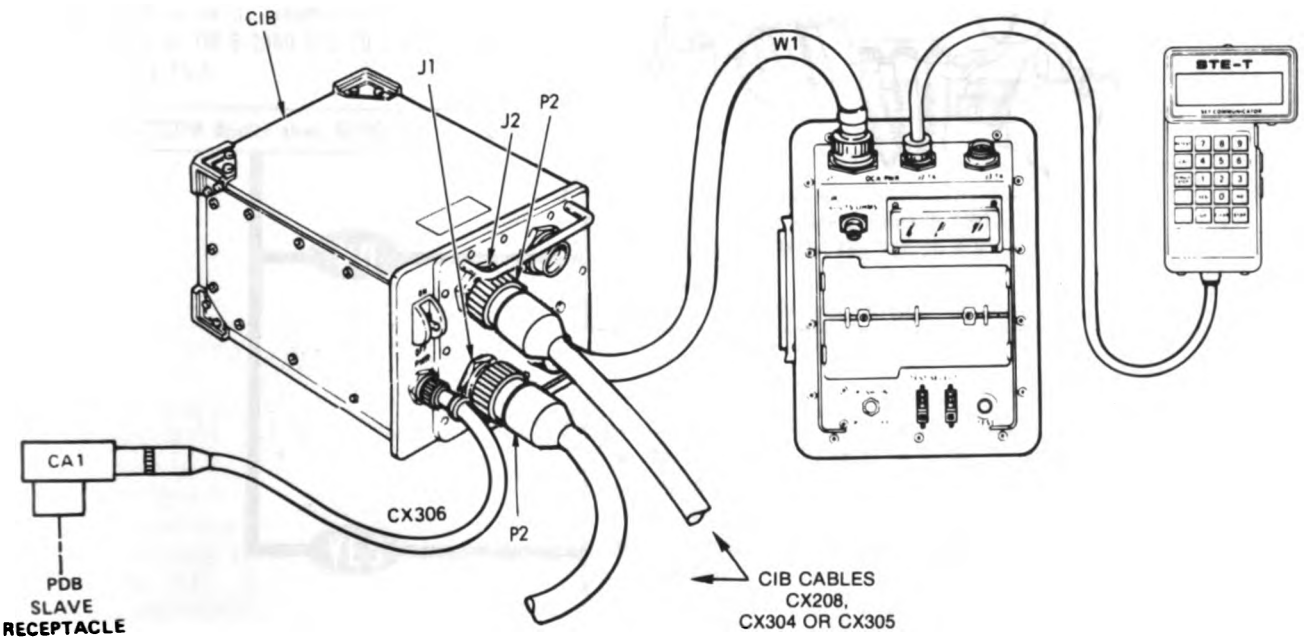


Figure 8-7. STE Turret Cable Hookup To CIB
Volume II
Para. 8-2

ARR82-5542

TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING

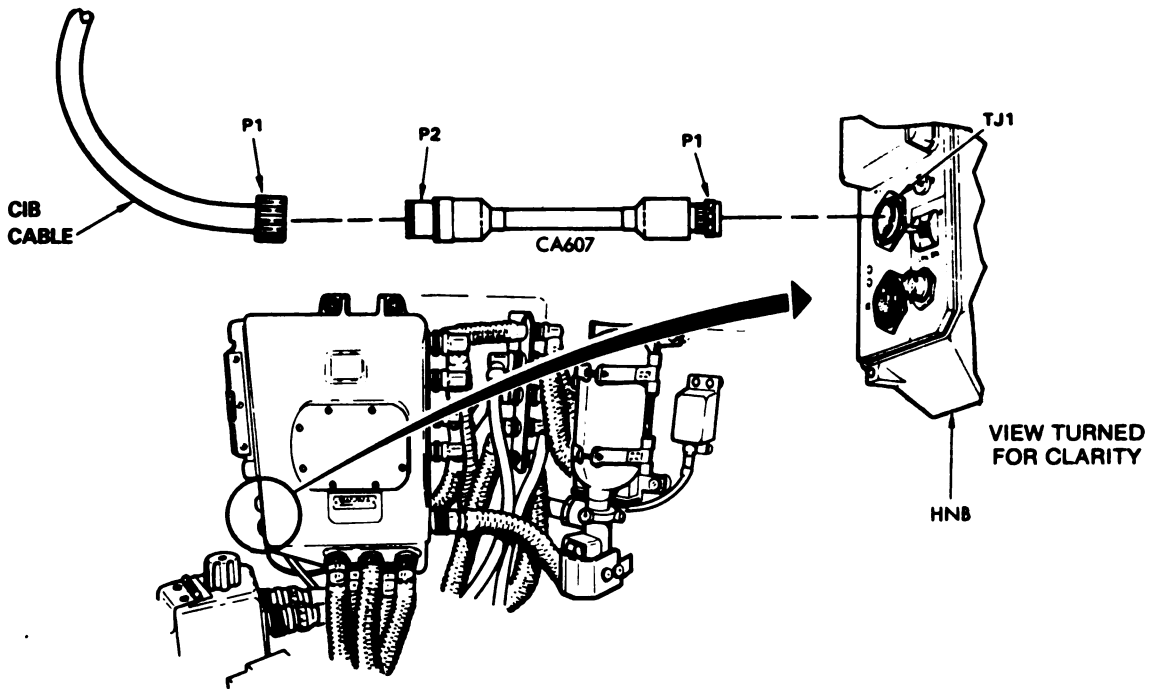


Figure 8-8. STE Turret Cable Hookup To HNB-TJ1
Volume II
Para. 8-2

ARR82-5543

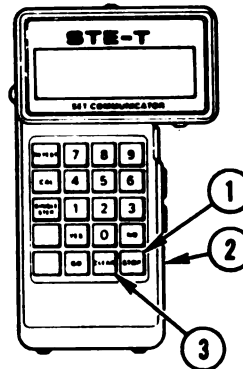
**DISPLAY SHOWS-
FAULTY TCP
OR 1W102**

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- Disconnect CA206-P2 from CX305-P1.
 - See figure 8-6.
- Disconnect CA529-P2 from CX307-P2.
 - See figure 8-2.
- Disconnect 1W102-P2 from J1 on commander's control panel.
 - See figure 9-231.

- 120005
- 120033
- 120038
- 120048
- 120053
- 120060



- Prepare STE to run cable test 1390.
 - Press STOP key (1) on SETCOM (2).
 - Press CLEAR key (3).
 - Enter test number 1390 on SETCOM (2).
- Run test on 1W102 between P1 and P2.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.

Does SETCOM display show GOOD?

NO

- Replace wiring harness assembly 1W102.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

YES

- Connect 1W102-P1 to J8 on turret networks box.
 - See figure 9-229.
- Replace commander's control panel assembly.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-5.
 - Verify that problem is solved.

Figure 8-9
Volume II
Para. 8-2

ARR82-5544

**TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS-
FAULTY 2W109, 1W101
SRING**

• 120031
120036
120043

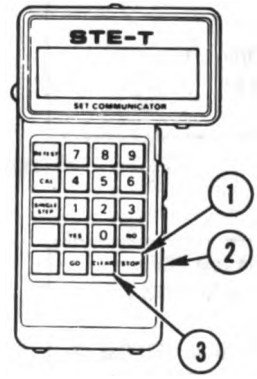
Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

NOTE
Notify your supervisor that this procedure may require troubleshooting and replacement of components in the hull area.

1

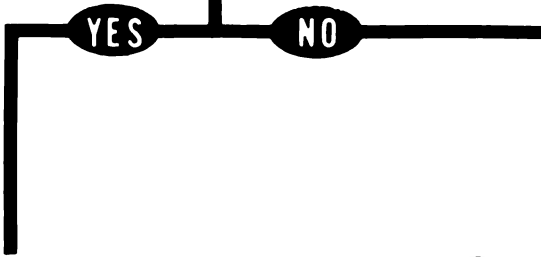
- Disconnect CA208-P2 from CX305-P1.
 - See figure 8-6.
- Disconnect CA447-P2 from CX308-P2.
 - See figure 8-4.
- Disconnect CX304-P1 from CX308-P3.
 - See figure 8-4.
- Disconnect 1W101-P1 from J8 on hull/turret slipring.
 - See figure 9-233.
- Disconnect 1W101-P2 from J11 on turret networks box.
 - See figure 9-229.



2

- Prepare STE to run cable test 1390.
 - Press STOP key (1) on SETCOM (2).
 - Press CLEAR key (2).
 - Enter test number 1390 on SETCOM (2).
- Run test on 1W101 between P1 and P2.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.

Does SETCOM display show GOOD?



3

- Connect 2W109-P3 to J7 on hull networks box.
 - See figure 9-241.
- Replace wiring harness assembly 1W101.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

Figure 8-10 (Sheet 1 of 2)
**Volume II
Para. 8-2**

ARR82-5545

**TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING**

- Disconnect CX304-P1 (1) from CX307-P3 (2).
- Disconnect CA419-P2 (3) from CX307-P1 (4).
- Disconnect 2W109-P1 from J3 on hull/turret slipring.
- See figure 9-233.

- Prepare STE to run cable test 1390.
 - Press STOP key (5) on SETCOM (8).
 - Press CLEAR key (7).
 - Enter test number 1390 on SETCOM (8).
- Run test on 2W109 between P1 and P3.
- Refer to TM 9-2350-255-20-2-2-2, figure 15-5.

Does SETCOM display show GOOD?

YES

NO

- Connect 2W109-P3 to J7 on hull networks box.
 - See figure 9-241.
- Connect 1W101-P2 to J11 on turret networks box.
 - See figure 9-229.
- Replace hull/turret slipring assembly.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-8.
- Verify that problem is solved.

7

- Connect 1W101-P1 to J8 on hull/turret slipring.
 - See figure 9-233.
- Connect 1W101-P2 to J11 on turret networks box.
 - See figure 9-229.
- Branched wiring harness 2W109 is faulty. Notify support maintenance.

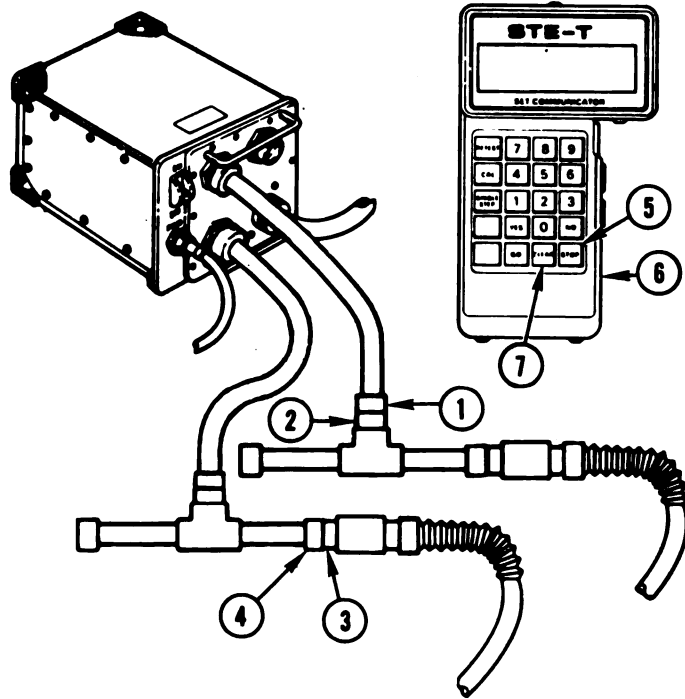


Figure 8-10 (Sheet 2 of 2)
**Volume II
Para. 8-2**

ARR82-5546

**TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS-
FAULTY 2W102, 1W100
SRING**

120010

Test Equipment/Special Tools:

- Breakout Box Tool Kit, 12311066

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- 1
- Disconnect 2W102-P3 from J2 on hull/turret slipring.
 - See figure 9-233.
 - Disconnect 2W102-P5 from J5 on hull/turret slipring.
 - See figure 9-233.
 - Change control from SETCOM to VTM.
 - Set PWR switch (1) on CIB (2) to OFF to reset VTM (3).
 - Set PWR switch (1) to ON.
 - Prepare VTM for measuring dc voltage.
 - Refer to para. 8-1.

- 2
- Set VEHICLE MASTER POWER switch (4) to ON.
 - Test for 18 to 30 V dc between contact A on 2W102-P5 and contact A on 2W102-P3.
 - Connect black test probe (5) to contact A on P5 (6).
 - Connect red test probe (7) to contact A on P3 (8).

Does VTM display show between 18 and 30?

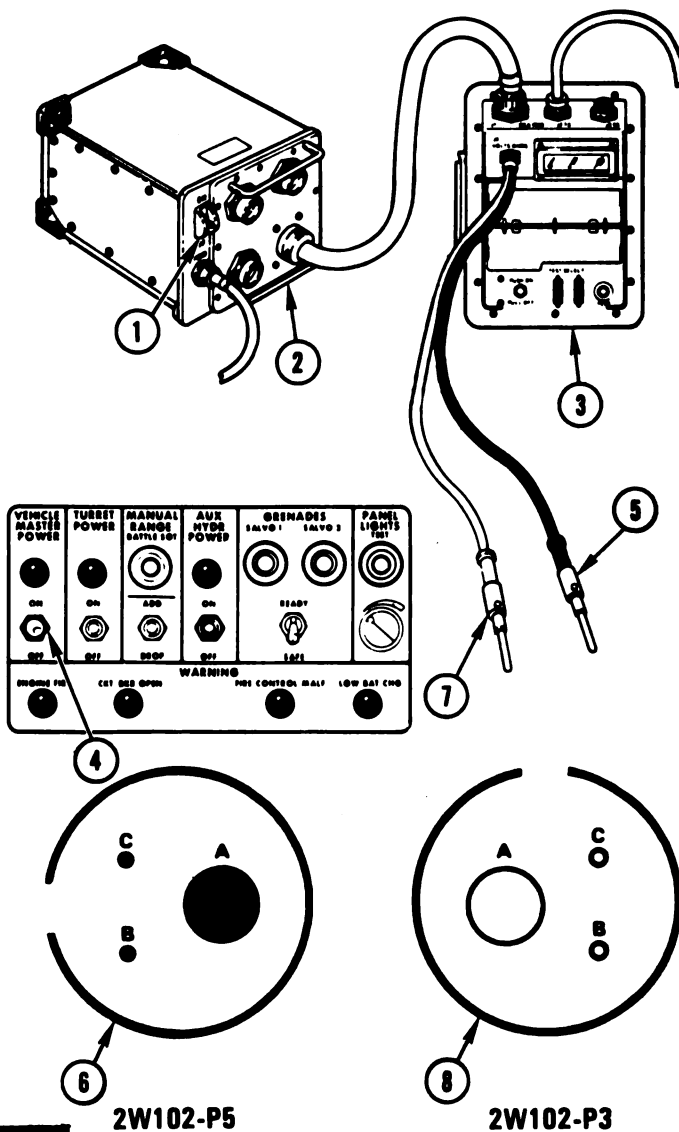
NO

YES

3
Go to block 10.

NOTE

Notify your supervisor that this procedure may require troubleshooting and replacement of components in the hull area.



*Figure 8-11 (Sheet 1 of 4)
Volume II
Para. 8-2*

ARR82-5547

**TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING**

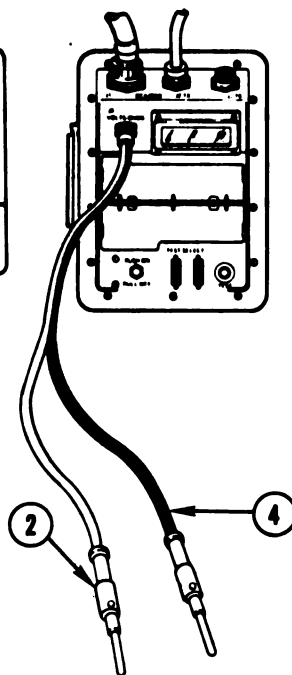
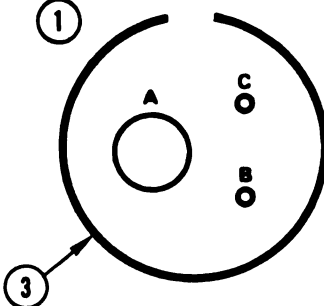
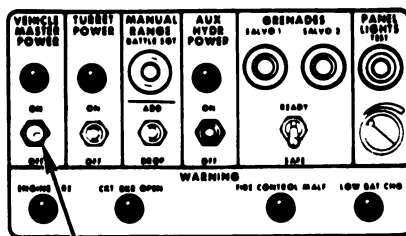
4

- Set **VEHICLE MASTER POWER** switch (1) to OFF.
- Disconnect 2W102-P1 from J4 on power distribution box.
 - See figure 9-248.
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 8-1.

5

- Test for continuity between contact A on 2W102-P3 and contact B on 2W102-P1.
- Connect red test probe (2) to contact A on 2W102-P3 (3).
- Connect black test probe (4) to contact B on 2W102-P1 (5).

Does VTM display show between 0 and 5?



2W102-P3

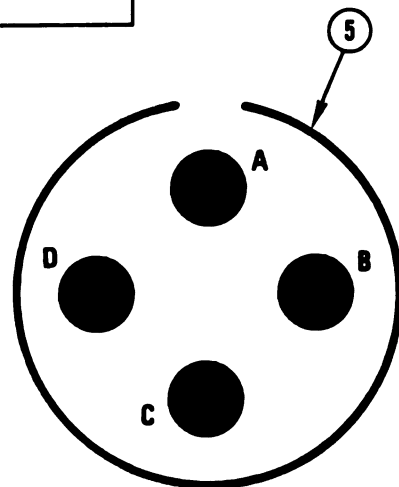
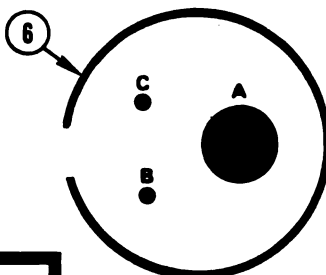
6

- Replace branched wiring harness 2W102.
- Refer to TM 9-2350-255-20-1-3-8, para. 11-18.
- Verify that problem is solved.

7

- Test for continuity between contact A on 2W102-P5 and contact C on 2W102-P1.
- Connect red test probe (2) to contact A on 2W102-P5 (6).
- Connect black test probe (4) to contact C on 2W102-P1 (5).

Does VTM display show between 0 and 5?



2W102-P5

2W102-P1

8

- Connect 2W102-P3 to J2 on hull/turret slipring.
 - See figure 9-233.
- Connect 2W102-P5 to J5 on hull/turret slipring.
 - See figure 9-233.
- Replace hull power distribution box.
 - Refer to TM 9-2350-255-20-1-3-8, para. 11-11.
- Verify that problem is solved.

9

- Replace branched wiring harness 2W102.
- Refer to TM 9-2350-255-20-1-3-8, para. 11-18.
- Verify that problem is solved.

*Figure 8-11 (Sheet 2 of 4)
Volume II
Para. 8-2*

ARR82-5548

**TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS-
FAULTY 2W102, 1W100
SRING**

120011

Test Equipment/Special Tools:

- Breakout Box Tool Kit, 12311086

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

NOTE

Notify your supervisor that this procedure may require troubleshooting and replacement of components in the hull area.

- 1
- Disconnect 2W102-P4 from J4 on hull/turret slipring.
 - See figure 9-233.
 - Disconnect 2W102-P5 from J5 on hull/turret slipring.
 - See figure 9-233.
 - Change control from SETCOM to VTM.
 - Set PWR switch (1) on CIB (2) to OFF to reset VTM (3).
 - Set PWR switch (1) to ON.
 - Prepare VTM for measuring dc voltage.
 - Refer to para. 8-1.

- 2
- Set VEHICLE MASTER POWER switch (4) to ON.
 - Test for 18 to 30 V dc between contact A on 2W102-P5 and contact A on 2W102-P4.
 - Connect black test probe (5) to contact A on P5 (6).
 - Connect red test probe (7) to contact A on P4 (8).

Does VTM display show between 18 and 30?

NO

YES

3
Go to block 10.

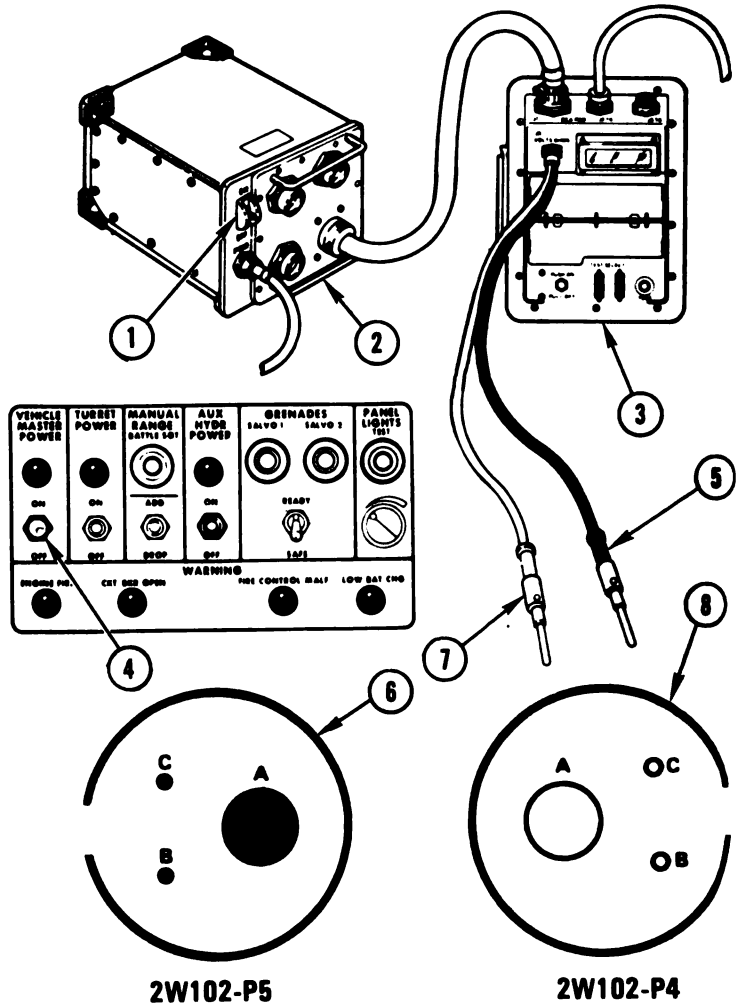
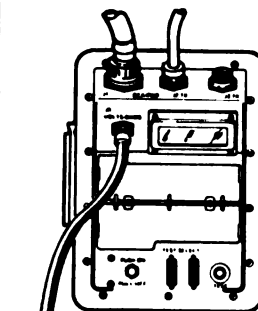
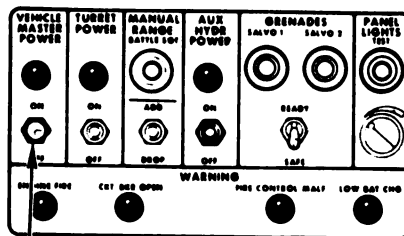


Figure 8-12 (Sheet 1 of 4)
Volume II
Para. 8-2

ARR82-5551

4

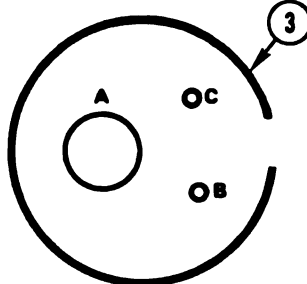
- Set VEHICLE MASTER POWER switch (1) to OFF.
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 8-1.
- Disconnect 2W102-P1 from J4 on power distribution box.
 - See figure 9-248.



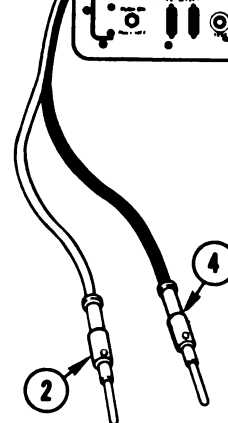
5

- Test for continuity between contact A on 2W102-P4, and contact D on 2W102-P1.
- Contact red test probe (2) to contact A on P4 (3).
- Contact black test probe (4) to contact D on P1 (5).

Does VTM display show between 0 and 5?



2W102-P4



6

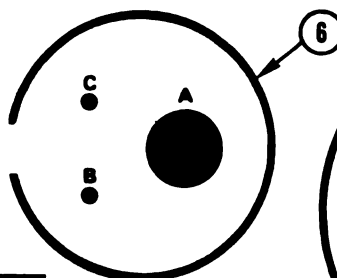
- Replace branched wiring harness 2W102.
- Refer to TM 9-2350-255-20-1-3-6, para. 11-18.
- Verify that problem is solved.

YES NO

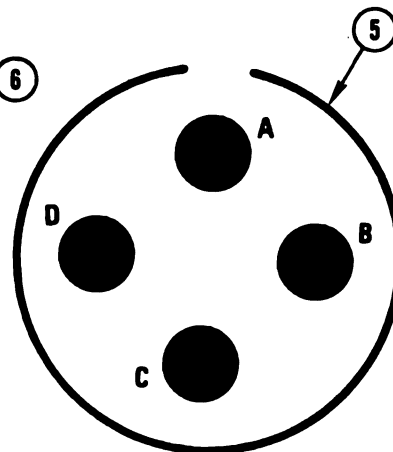
7

- Test for continuity between contact A on 2W102-P5 and contact C on 2W102-P1.
- Connect red test probe (2) to contact A on P5 (6).
- Connect black test probe (4) to contact C on P1 (5).

Does VTM display show between 0 and 5?



2W102-P5



2W102-P1

YES NO

8

- Connect 2W102-P4 to J4 on hull/turret slipring.
 - See figure 9-233.
- Connect 2W102-P5 to J5 on hull/turret slipring.
 - See figure 9-233.
- Replace hull power distribution box.
 - Refer to TM 9-2350-255-20-1-3-6, para. 11-11.
- Verify that problem is solved.

9

- Replace branched wiring harness 2W102.
- Refer to TM 9-2350-255-20-1-3-6, para. 11-18.
- Verify that problem is solved.

Figure 8-12 (Sheet 2 of 4)
Volume II
Para. 8-2

ARR82-5552

**TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING**

From block 3

10

- Set VEHICLE MASTER POWER switch (1) to OFF.
- Disconnect 1W100-P2 from J10 on hull/turret slipping.
 - See figure 9-233.
- Disconnect 1W100-P3 from J9 on hull/turret slipping.
 - See figure 9-233.

NOTE
Leave jumper (2) connected for remainder of tests.

- Connect jumper (2) between contact A on 1W100-P3 (3) and contact A on 1W100-P2 (4).

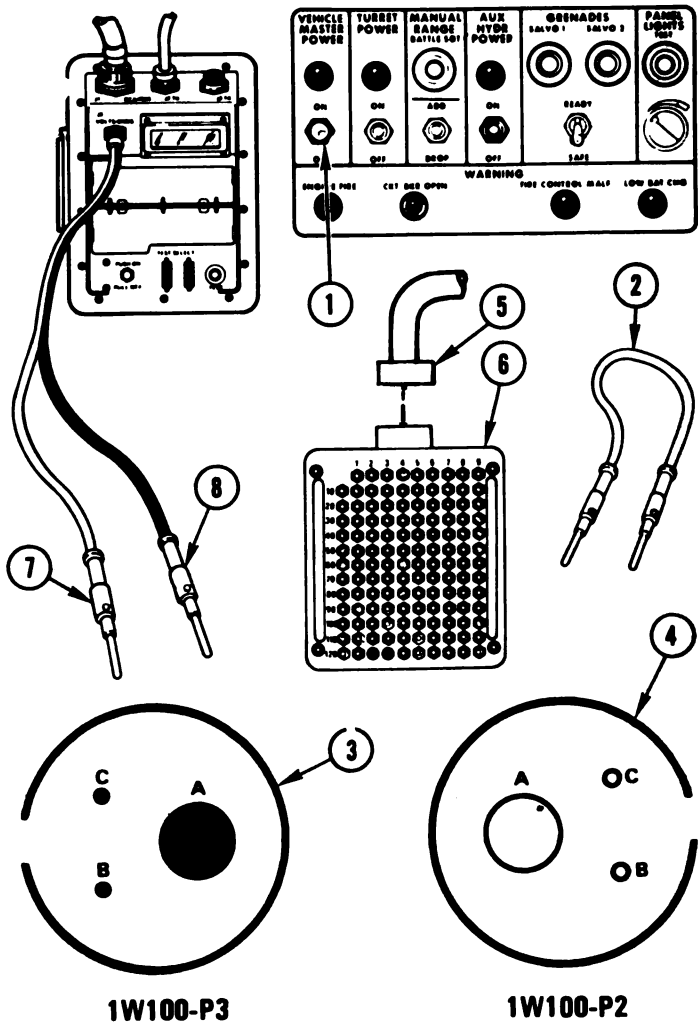
11

- Disconnect CX305-P2 from CIB-J1.
 - See figure 8-7.
- Connect CX305-P2 (5) to breakout box (6).
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 8-1.

12

- Test for continuity between test points 10 and 11 on breakout box.
 - Connect red test probe (7) to test point 10 on breakout box (6).
 - Connect black test probe (8) to test point 11 on breakout box (6).

Does VTM display show between 0 and 5?



NO **YES**

13

- Replace hull/turret slipping assembly.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-8.
 - Verify that problem is solved.

*Figure 8-12 (Sheet 3 of 4)
Volume II
Para. 8-2*

ARR82-5553

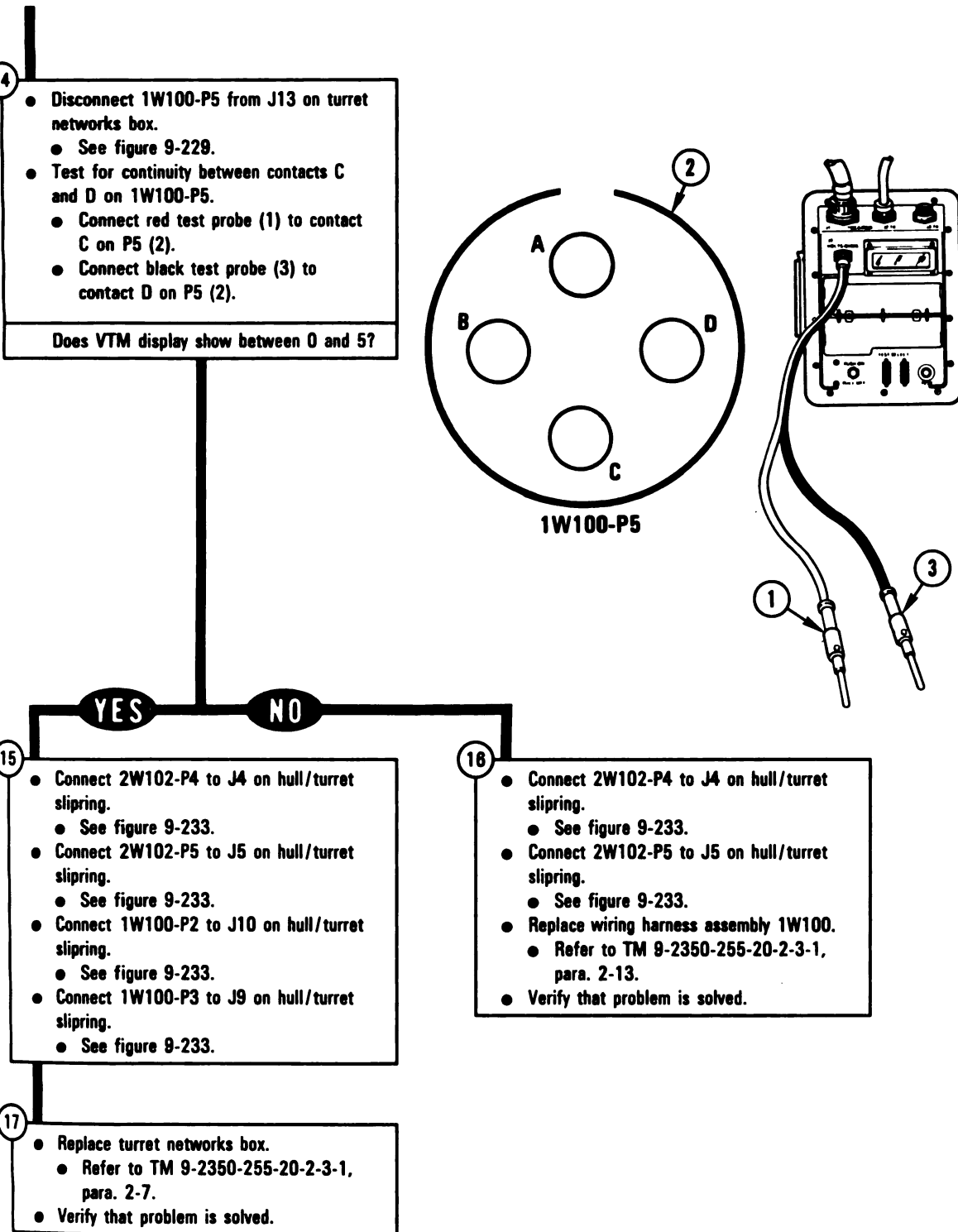


Figure 8-12 (Sheet 4 of 4)
Volume II
Para. 8-2

ARR82-5554

**DISPLAY SHOWS-
FAULTY TCP
OR 1W102**

• 120050
120063

**Additional Test
Equipment/Special Tools:**

- Breakout Box Tool Kit, 12311086

Equipment Condition:

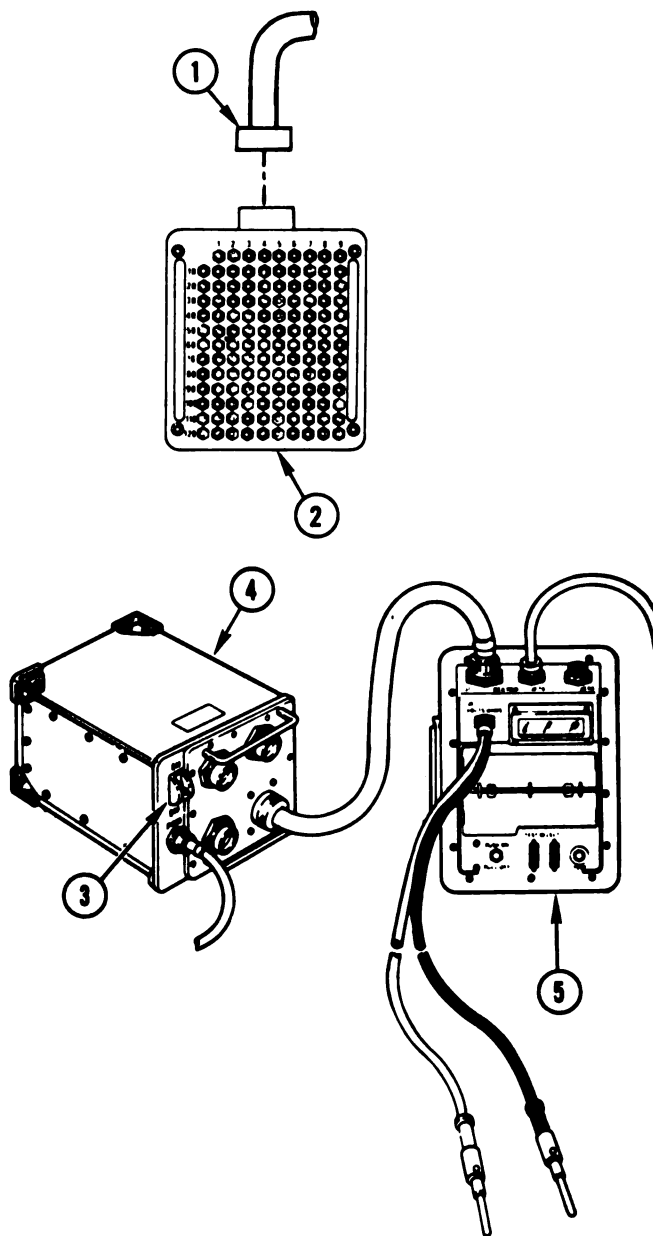
- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

1

- Disconnect CX304-P2 from CIB-J2.
● See figure 8-7.
- Connect CX304-P2 (1) to breakout box (2).
- Disconnect 1W102-P2 from J1 on
commander's control panel.
● See figure 9-231.

2

- Change control from SETCOM to VTM.
● Set PWR switch (3) on CIB (4) to OFF
to reset VTM (5).
- Set PWR switch (3) to ON.
- Prepare VTM for measuring resistance
between 0 and 1500 ohms.
● Refer to para. 8-1.



*Figure 8-13 (Sheet 1 of 2)
Volume II
Para. 8-2*

ARR82-5555

NOTE

If VTM display shows 0 to 5, go immediately to block 5.

- Test for 0 to 5 ohms between test points on breakout box listed in table A for fault number being tested.
- Connect red test probe (1) to test point on breakout box (2) listed in table A for fault number being tested.
- Connect black test probe (3) to test points on breakout box (2) listed in table A for fault number being tested.

Does VTM display show between 0 and 5?

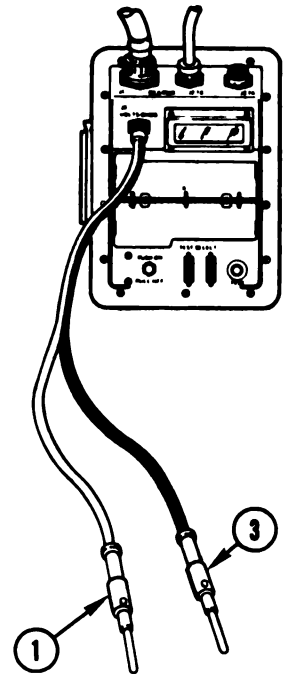
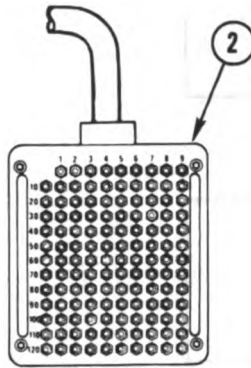


Table A

Fault Number	Red Test Probe	Black Test Probe
120050	16	7 through 15, 17 through 39, 62, 74, 75, 89 through 113, and 129
120063	27	7 through 26, 28 through 39, 62, 74, 75, 89 through 113, and 129

NO

- 4
- Connect 1W102-P1 to J8 on turret networks box.
 - See figure 9-229.
 - Replace commander's control panel assembly.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-5.
 - Verify that problem is solved.

YES

- 5
- Replace wiring harness assembly 1W102.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

Figure 8-13 (Sheet 2 of 2)
Volume II
Para. 8-2

ARR82-5556

**TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING**

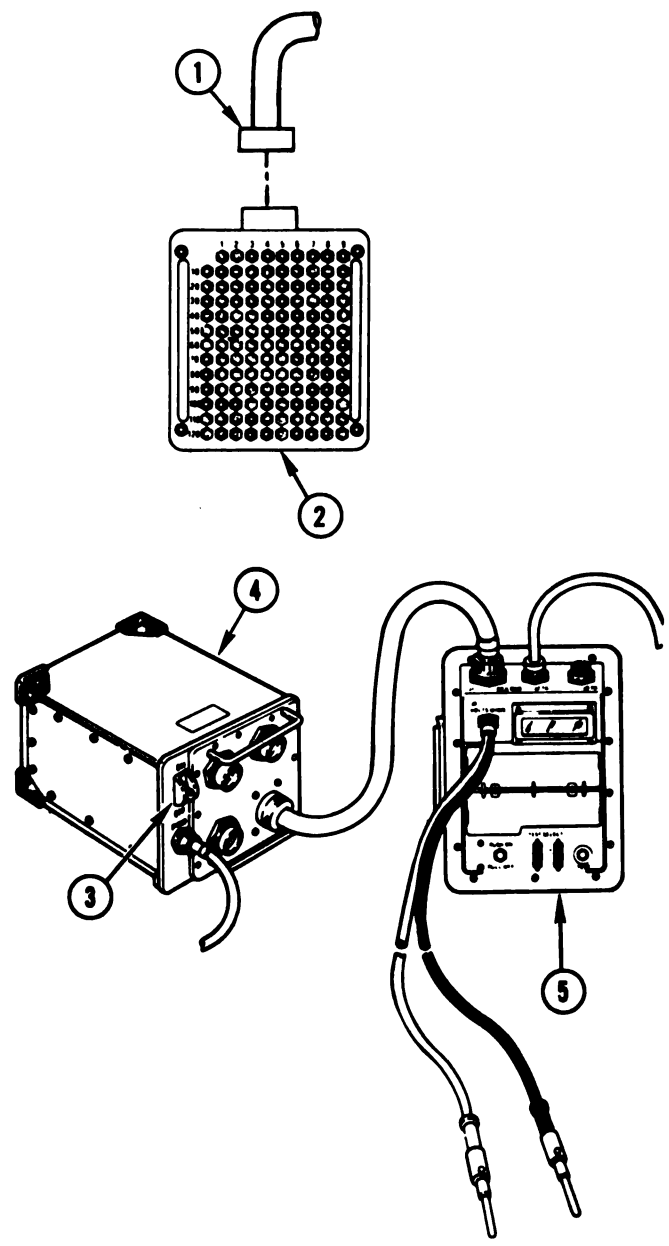
**DISPLAY SHOWS-
FAULTY TCP
OR 1W102** **120064**

**Additional Test
Equipment/Special Tools:**
● Breakout Box Tool Kit, 12311088

Equipment Condition:
● Tank parked.
● Parking brake set.
● Engine shut down.
● Vehicle master power off.

1
● Disconnect CX305-P2 from CIB-J1.
● See figure 8-7.
● Connect CX305-P2 (1) to breakout box (2).
● Disconnect 1W102-P2 from J1 on
commander's control panel.
● See figure 9-231.

2
● Change control from SETCOM to VTM
● Set PWR switch (3) on CIB (4) to OFF
to reset VTM (5).
● Set PWR switch (3) to ON.
● Prepare VTM for measuring resistance
between 0 and 1500 ohms.
● Refer to para. 8-1.



*Figure 8-14 (Sheet 1 of 2)
Volume II
Para. 8-2*

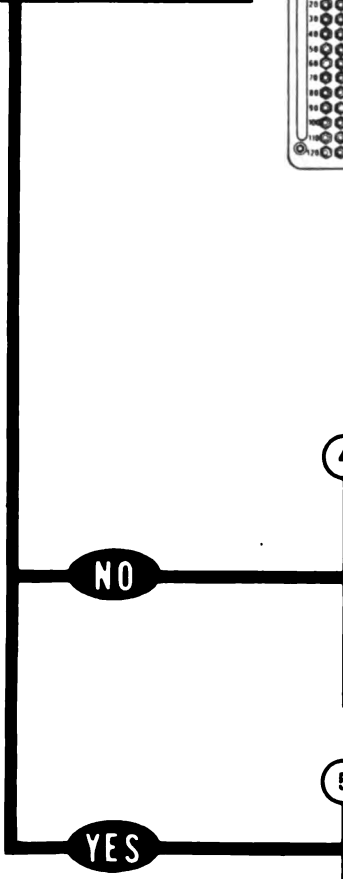
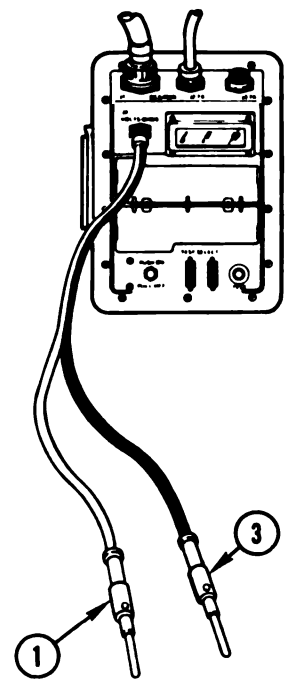
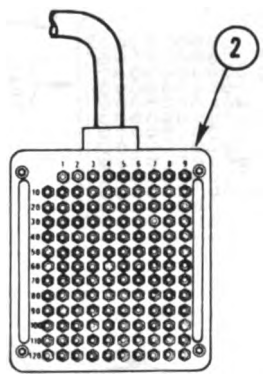
ARR82-5557

- Connect red test probe (1) to test point 25 on breakout box (2).

NOTE
If VTM display shows 0 to 5, go immediately to block 5.

- Test for 0 to 5 ohms by connecting black test probe (3) to each test point on breakout box (2) listed below:
 - 7 through 24
 - 26 through 39
 - 62, 74, and 75
 - 89 through 113
 - 129

Does VTM display show between 0 to 5?



NO

4

- Connect 1W102-P1 to J8 on turret networks box.
- See figure 9-229.
- Replace commander's control panel assembly.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-5.
- Verify that problem is solved.

YES

5

- Replace wiring harness assembly 1W102.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

Figure 8-14 (Sheet 2 of 2)
Volume II
Para. 8-2

**TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS-
SEE -20 MANUAL**

120026

Additional Test

Equipment/Special Tools:

- Breakout Box Tool Kit, 12311068

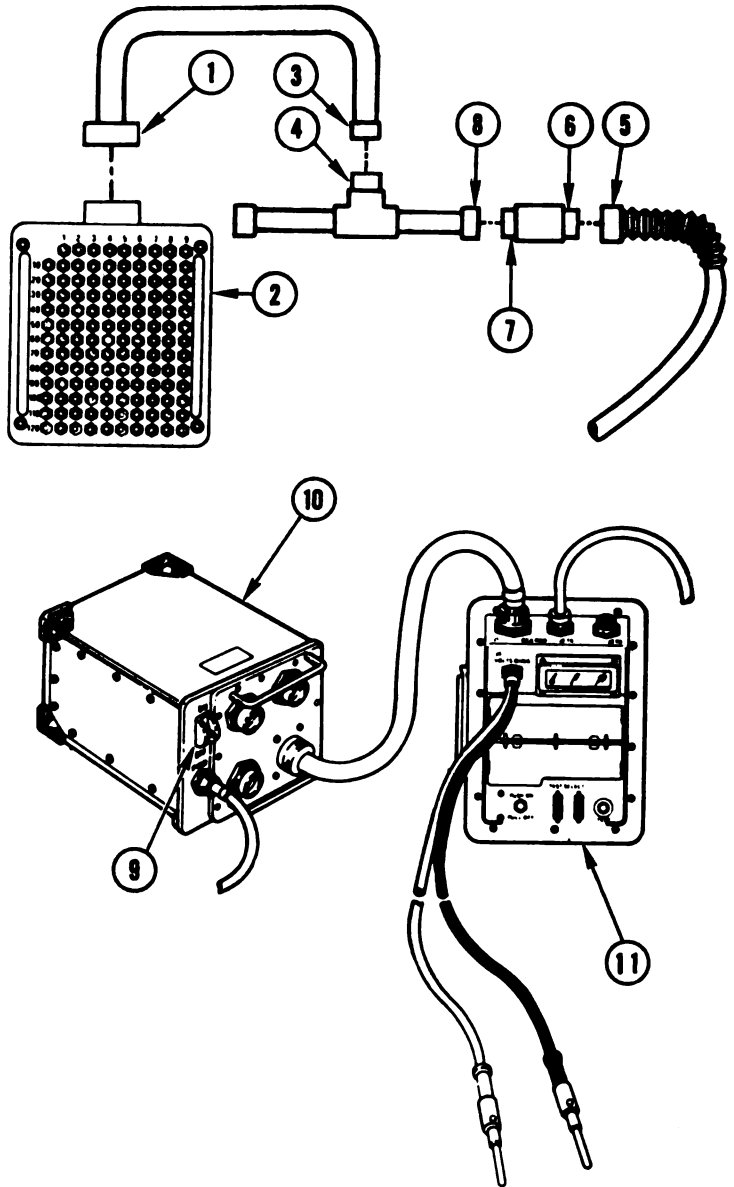
Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- 1
- Disconnect CX305-P2 from CIB-J1.
 - See figure 8-7.
 - Connect CX305-P2 (1) to breakout box (2).
 - Disconnect CX305-P1 from CA208-P2.
 - See figure 8-6.
 - Connect CX305-P1 (3) to CX307-P3 (4).

- 2
- Disconnect 1W102-P1 from J8 on turret networks box.
 - See figure 9-229.
 - Connect 1W102-P1 (5) to CA530-P1 (8).
 - Connect CA530-P2 (7) to CX307-P1 (8).

- 3
- Change control from SETCOM to VTM.
 - Set PWR switch (9) on CIB (10) to OFF to reset VTM (11).
 - Set PWR switch (9) to ON.
 - Prepare VTM for for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 8-1.



*Figure 8-15 (Sheet 1 of 2)
Volume II
Para. 8-2*

ARR82-5559

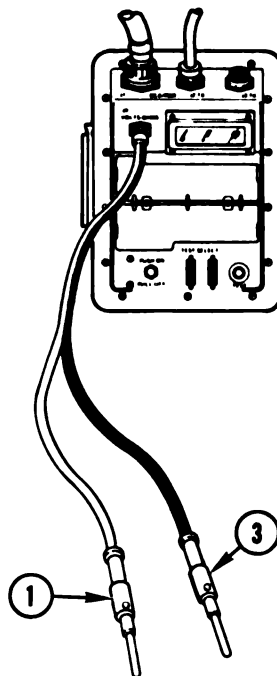
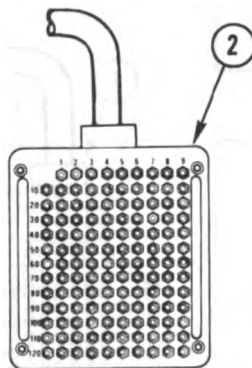
- Connect red test probe (1) to test point 37 on breakout box (2).

NOTE

If VTM display shows 0 to 5, leave test probes connected and go immediately to block 6.

- Test for 0 to 5 ohms by connecting black test probe (3) to each test point on breakout box (2) listed below:
 - 7 through 36
 - 38, 39, 62, 74, and 75
 - 89 through 113
 - 129

Does VTM display show between 0 and 5?



YES

NO

- 5
- Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
 - Verify that problem is solved.

- 6
- Disconnect 1W102-P2 from J1 on commander's control panel.
 - See figure 9-231.
 - Test for 0 to 5 ohms.*

Does VTM display show between 0 and 5?

NO

- 7
- Connect 1W102-P1 to J8 on turret networks box.
 - See figure 9-229.
 - Replace commander's control panel assembly.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-5.
 - Verify that problem is solved.

YES

- 8
- Replace wiring harness assembly 1W102.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

Figure 8-15 (Sheet 2 of 2)
Volume II
Para. 8-2

ARR82-5560

* Between contacts found in block 4

**DISPLAY SHOWS-
 FAULTY TNB OR
 1W102**

• 120045
 120059

**Additional Test
 Equipment/Special Tools:**
 • Breakout Box Tool Kit, 12311066

Equipment Condition:
 • Tank parked.
 • Parking brake set.
 • Engine shut down.
 • Vehicle master power off.

1

- Disconnect CX305-P2 from CIB-J1.
 - See figure 8-7.
- Connect CX305-P2 (1) to breakout box (2).
- Disconnect CA419-P2 from CX307-P1.
 - See figure 8-5.

2

- Disconnect 1W102-P1 from J8 on turret networks box.
 - See figure 9-229.
- Connect 1W102-P1 (3) to CA530-P1 (4).
- Connect CA530-P2 (5) to CX307-P1 (6).

3

- Change control from SETCOM to VTM.
 - Set PWR switch (7) on CIB (8) to OFF to reset VTM (9).
 - Set PWR switch (7) to ON.
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 8-1.

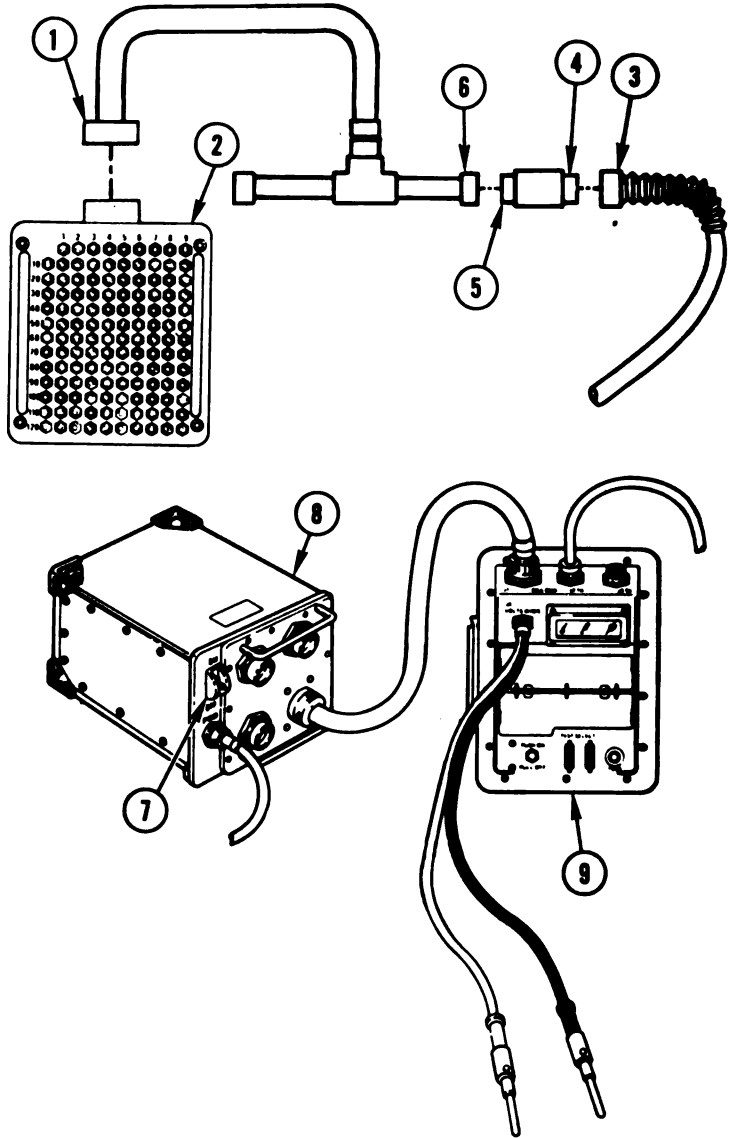


Figure 8-16 (Sheet 1 of 2)
**Volume II
 Para. 8-2**

ARR82-5561

NOTE

If VTM display shows 0 to 5, go immediately to block 6.

- Test for 0 to 5 ohms between test points on breakout box listed in table A for fault number being tested.
- Connect red test probe (1) to test point on breakout box (2) listed in table A for fault number being tested.
- Connect black test probe (3) to test points on breakout box (2) listed in table A for fault number being tested.

Does VTM display show between 0 and 5?

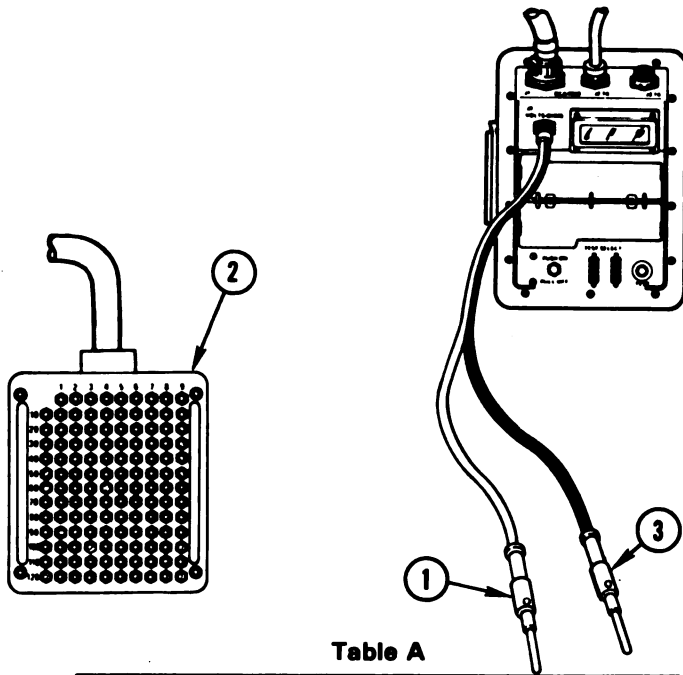
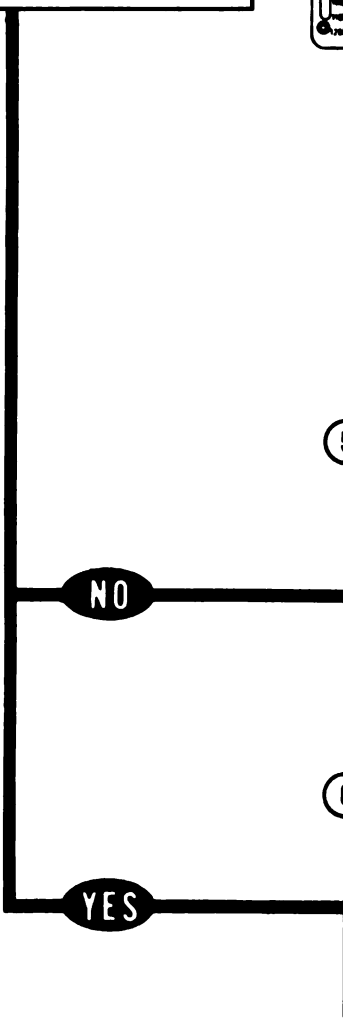


Table A

Fault Number	Red Test Probe	Black Test Probe
120045	22	7 through 21, 23 through 38, 89 through 113
120059	24	7 through 23, 25 through 38, 89 through 113



NO

YES

- 5
- Connect 1W101-P1 to J8 on hull/turret slipring.
 - See figure 9-233.
 - Connect 1W102-P2 to J1 on commander's control panel.
 - See figure 9-231.
 - Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
 - Verify that problem is solved.

- 6
- Connect 1W101-P1 to J8 on hull/turret slipring.
 - See figure 9-233.
 - Replace wiring harness assembly 1W102.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

Figure 8-16 (Sheet 2 of 2)
Volume II
Para. 8-2

ARR82-5562

**TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS-
FAULTY SRING OR
2W109**

120039

Additional Test

Equipment/Special Tools:

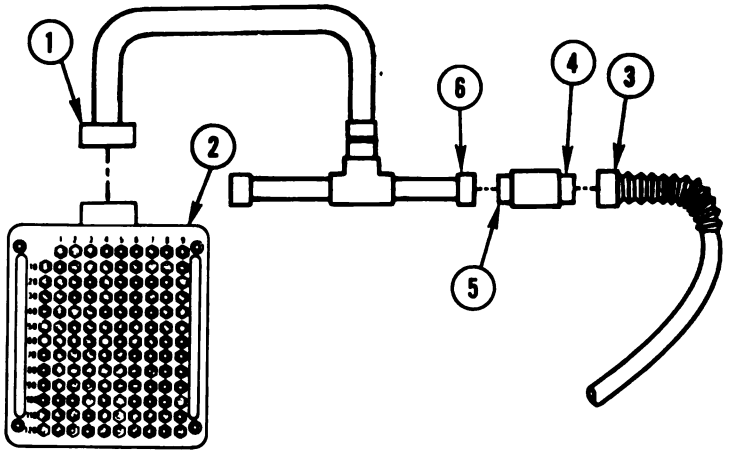
- Breakout Box Tool Kit, 12311066

Equipment Condition:

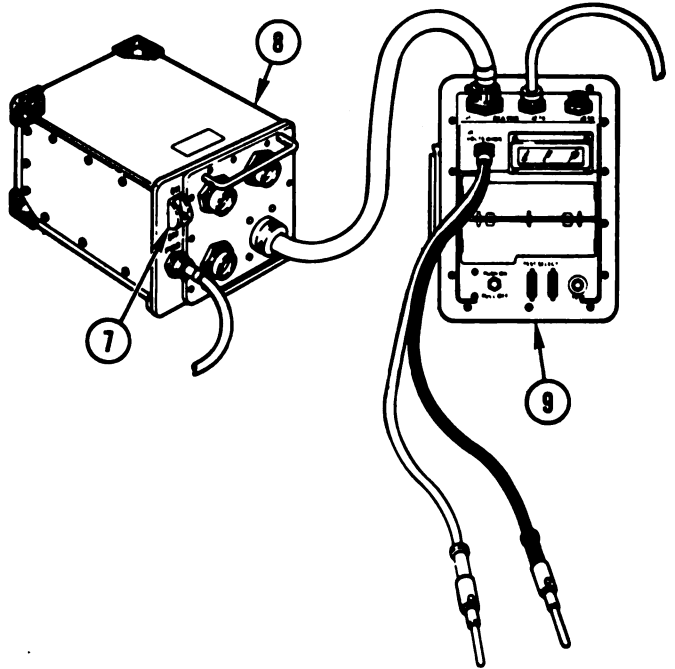
- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

NOTE
Notify your supervisor that this procedure may require troubleshooting and replacement of components in the hull area.

- ①
- Disconnect CX305-P2 from CIB-J1.
 - See figure 8-7.
 - Connect CX305-P2 (1) to breakout box (2).
 - Disconnect CX545-P2 from CX307-P1.
 - See figure 8-3.
 - Disconnect 2W110-P1 from 2W109-J1.
 - See figure 9-241.



- ②
- Disconnect 2W109-P1 from J3 on hull/turret slipring.
 - See figure 9-233.
 - Connect 2W109-P1 (3) to CA421-P1 (4).
 - Connect CA421-P2 (5) to CX307-P1 (8).



- ③
- Change control from SETCOM to VTM.
 - Set PWR switch (7) on CIB (8) to OFF to reset VTM (9).
 - Set PWR switch (7) to ON.
 - Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 8-1.

*Figure 8-17 (Sheet 1 of 3)
Volume II
Para. 8-2*

ARR82-5563

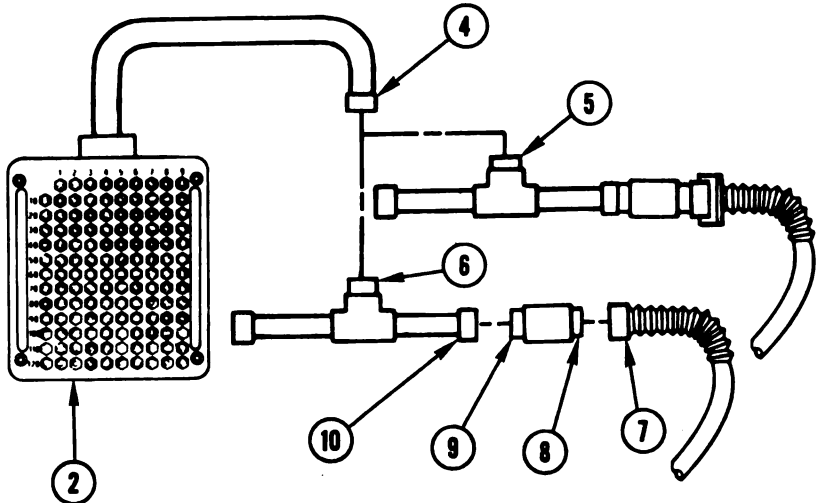
- Connect red test probe (1) to test point 15 on breakout box (2).

NOTE

If VTM display shows 0 to 5, go immediately to block 5.

- Test for 0 to 5 ohms by connecting black test probe (3) to each test point on breakout box (2) listed below:
 - 7 through 14
 - 18 through 38
 - 89 through 113
 - 129

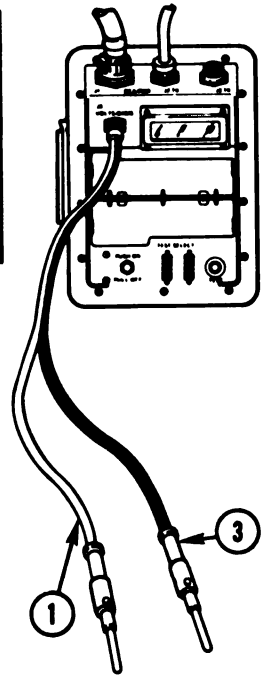
Does VTM display show between 0 and 5?



NO **YES**

5

- Connect 1W101-P1 to J8 on hull/turret slipring.
- See figure 9-233.
- Connect 1W101-P2 to J11 on turret networks box.
- See figure 9-229.
- Branched wiring harness 2W109 is faulty. Notify support maintenance.



6

- Disconnect CX305-P1 (4) from CX307-P3 (5).
- Connect CX305-P1 (4) to CX308-P3 (6).
- Connect 2W109-P3 (7) to CA448-P1 (8).
- Connect CA448-P2 (9) to CX308-P1 (10).

Figure 8-17 (Sheet 2 of 3)
**Volume II
Para. 8-2**

ARR82-5564

**TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING**

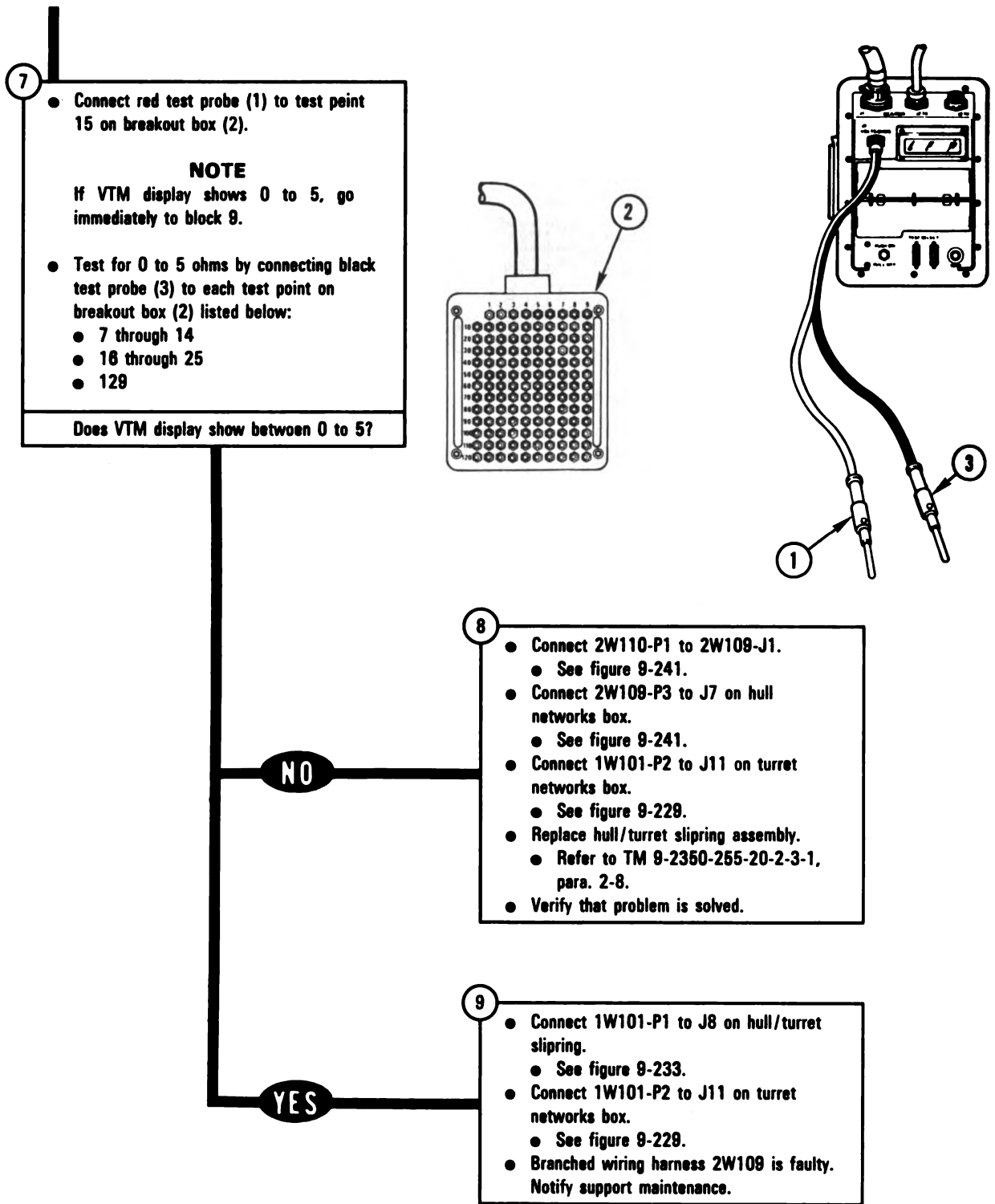


Figure 8-17 (Sheet 3 of 3)
**Volume II
Para. 8-2**

ARR82-5565

**DISPLAY SHOWS-
FAULTY TNB OR
HNB**

120068

Additional Test

Equipment/Special Tools:

- Breakout Box Tool Kit, 12311086

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- 1**
- Disconnect CX305-P2 from CIB-J1.

- See figure 8-7.

- Connect CX305-P2 (1) to breakout box (2).

- Disconnect CX305-P1 from CX307-P3.

- See figure 8-3.

- Connect CX305-P1 (3) to CX308-P3 (4).

- 2**
- Connect CA447-P1 (5) to J7 (6) on hull networks box (7).

- Connect CA447-P2 (8) to CX308-P1 (9).

- Change control from SETCOM to VTM.

- Set PWR switch (10) on CIB (11) to OFF to reset VTM (12).

- Set PWR switch (10) to ON.

- Prepare VTM for measuring resistance between 0 and 1500 ohms.

- Refer to para. 8-1.

NOTE

Notify your supervisor that this procedure may require troubleshooting and replacement of components in the hull area.

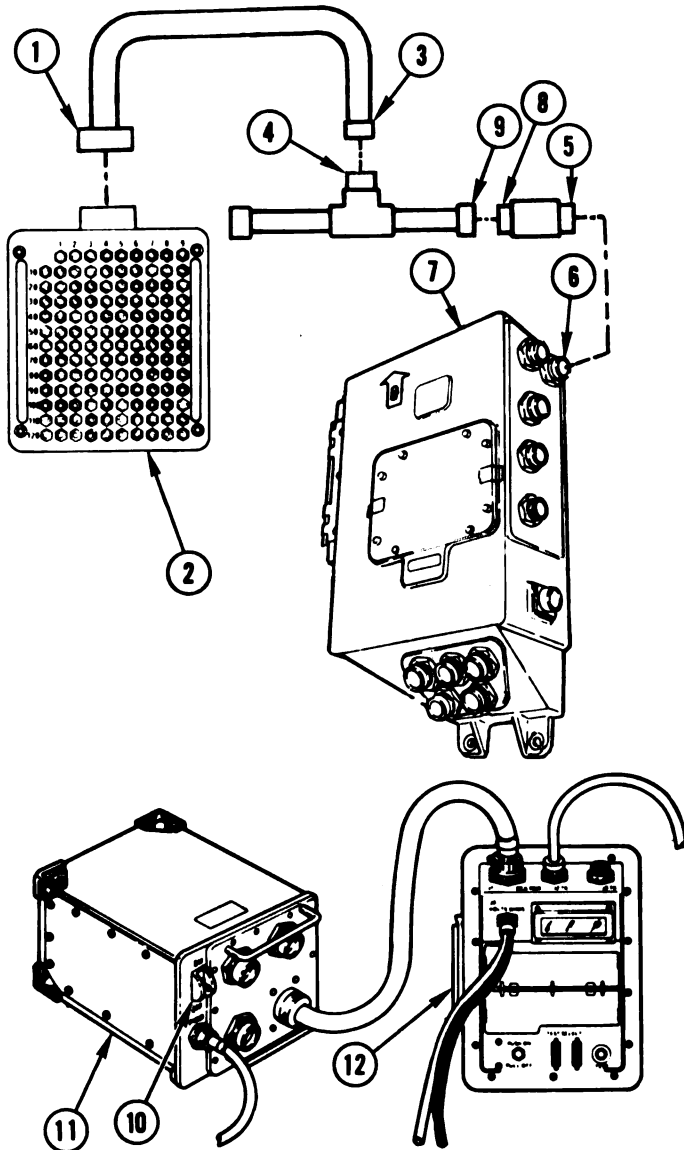


Figure 8-18 (Sheet 1 of 2)
Volume II
Para. 8-2

ARR82-5566

**TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING**

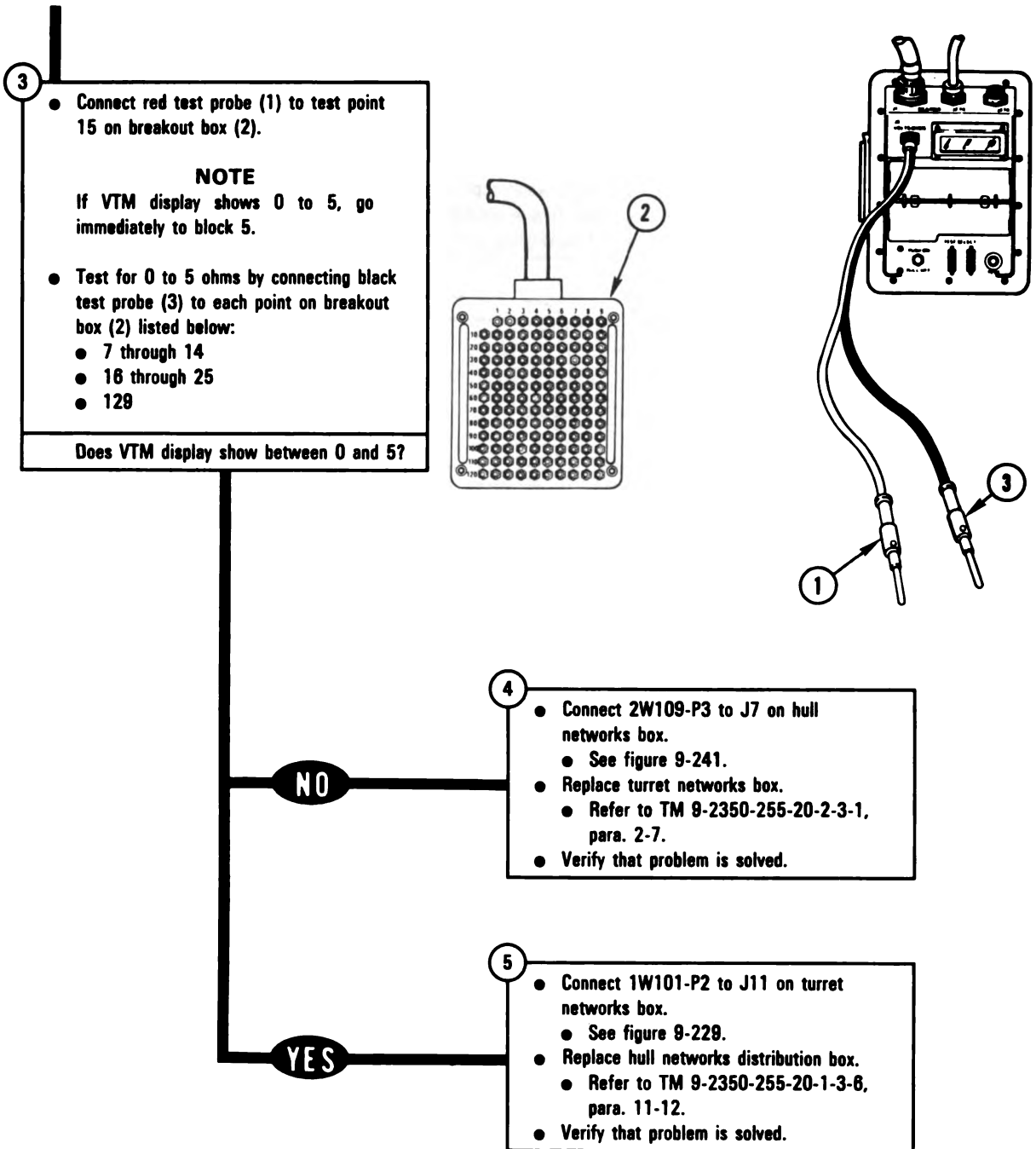


Figure 8-18 (Sheet 2 of 2)
**Volume II
Para. 8-2**

ARR82-5567

13. Firing Circuits Subsystem Troubleshooting Procedures

Table 8-3. Firing Circuits Subsystem (FCS) Fault Symptom Index

Fault Symptom No.	Fault Symptom	Primary Troubleshooting Procedure (PTP)	Test No.	Alternate Troubleshooting Procedure (ATP) TM 9-2350-255-20-2-2-3
FCS-1	Gunner Can Fire Main Gun And Coax Machine Gun But Commander Cannot	Figure 8-19	1220	Figure 18-6
FCS-2	Commander Can Fire Main Gun And Coax Machine Gun But Gunner Cannot	Figure 8-19	1220	Figure 18-7
FCS-3	Commander And Gunner Cannot Fire Main Gun From Control Handles	Figure 8-19	1220	Figure 18-8
FCS-4	Main Gun Does Not Fire From Gunner's Control, Commander's Control, Elevation Hand Pump Or Blasting Machine	Figure 8-19	1220	Figure 18-9
FCS-5	Main Gun Does Not Fire From Elevation Hand Pump	Figure 8-19	1220	Figure 18-10
FCS-6	Commander And Gunner Cannot Fire Coax Machine Gun	Figure 8-19	1220	Figure 18-11
FCS-7	COAX Light Does Not Come On When GUN SELECT Switch Is Set To COAX Position	Figure 8-19	1220	Figure 18-12
FCS-8	MAIN Light Does Not Come On When GUN SELECT Switch Is Set To MAIN Position	Figure 8-19	1220	Figure 18-13
FCS-9	TRIGGER SAFE Light Does Not Come On When GUN SELECT Switch Is Set To TRIGGER SAFE Position	Figure 8-19	1220	Figure 18-14
FCS-10	Main Gun ARMED Light Does Not Come On When Main Gun Safety Switch Is In Armed Position	Figure 8-19	1220	Figure 18-15

**TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING**

Table 8-3. Firing Circuits Subsystem (FCS) Fault Symptom Index (Continued)

Fault Symptom No.	Fault Symptom	Primary Troubleshooting Procedure (PTP)	Test No.	Alternate Troubleshooting Procedure (ATP) TM 9-2350-255-20-2-2-3
FCS-11	Main Gun SAFE Light Does Not Come On When Main Gun Safety Switch Is In Safe Position	Figure 8-19	1220	Figure 18-16
FCS-12	Firing Circuit Tester Light Comes On During Elevation Firing Inhibit Check	Figure 8-19	1220	Figure 18-17
FCS-13	Firing Circuit Tester Light Comes On During Azimuth Firing Inhibit Check	Figure 8-19	1220	Figure 18-18
FCS-14	Main Gun SAFE Light Stays On When Main Gun Safety Switch Is In Armed Position And ARMED Light Is On	Figure 8-19	1220	Figure 18-19
FCS-15	Main Gun ARMED Light Stays On When Main Gun Safety Switch Is In Safe Position And SAFE Light Is On	Figure 8-19	1220	Figure 18-20
FCS-16	Main Gun Can Be Fired With Main Gun Safety Switch In Safe Position And ARMED Light Is On	Figure 8-19	1220	Figure 18-21
FCS-17	Gunner's And Commander's Controls And Elevation Hand Pump Can Fire Main Gun, But Blasting Machine Cannot	Figure 8-19	1220	Figure 18-22

SYMPTOM FCS-1 through FCS-17

**FIRING CIRCUITS SUBSYSTEM FOUND
FAULTY DURING TANK OPERATION**

Common Tools:

- Pliers, slip joint, conduit style with plastic jaw inserts
- Screwdriver, flat tip

Test Equipment/Special Tools:

NOTE

Do not get the following equipment until told to further on in this procedure.

- STE-M1/FVS Test Set, 12322400

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

NOTE

Read para. 8-1 before doing any work.

WARNING

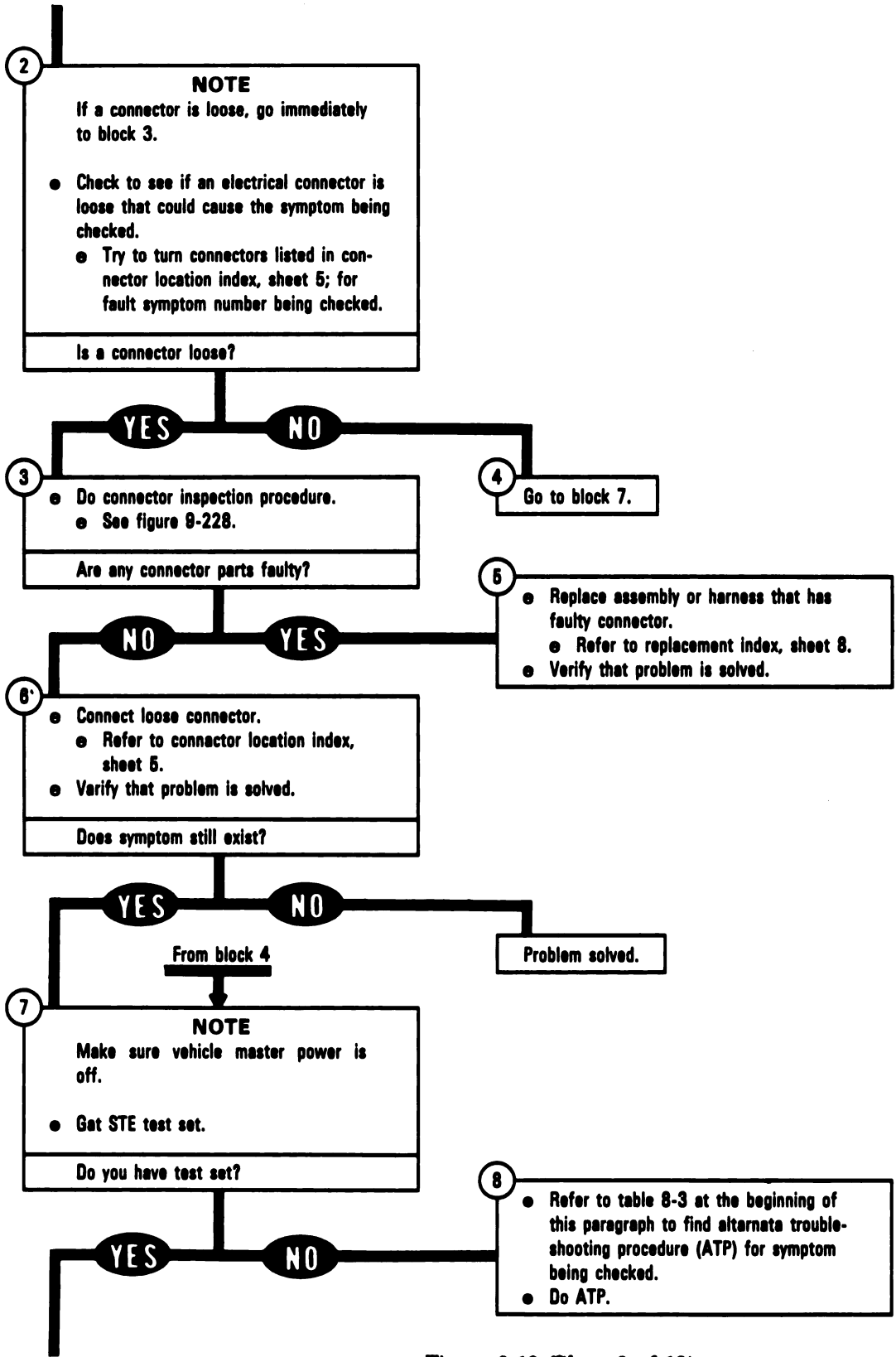
Be sure main gun and coax machinegun are clear.

1

- Set up tank controls for standard initial test conditions.
- Refer to para. 9-9, table 9-7.

Figure 8-19 (Sheet 1 of 13)
Volume II
Para. 8-3

**TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING**



*Figure 8-19 (Sheet 2 of 13)
Volume II
Para. 8-3*

9

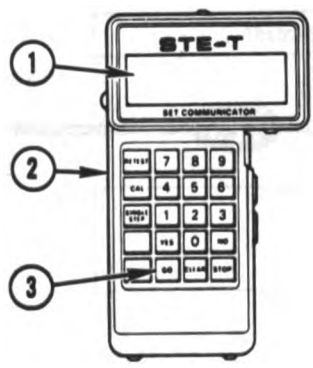
- Prepare STE for operation.
- Refer to TM 9-2350-255-20-2-2-2, figure 15-3.

10

NOTE
Display (1) on SETCOM (2) shows -
ENTER TEST NUMBER.

- Enter test number 1220 on SETCOM (2).
- Press GO key (3).

NOTE
Display (1) shows -
TEST 1220
FIRING CIRCUITS



11

- Press GO key (3).
- Follow message on display (1).

Does display show a general instruction message?

NO **YES**

12

Does display show an assemble, connect, disconnect, reconnect, or remove message?

NO **YES**

14

Does display show a special instruction message?

NO **YES**

16

Does display show a fault message?

13

- Do general instruction.
- Go back to block 11.

15

- Refer to cable instruction message index, sheet 7, and do action.
- Go back to block 11.

17

- Refer to special instruction message index, sheet 13, and do action.

Figure 8-19 (Sheet 3 of 13)
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Para. 8-3

TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING

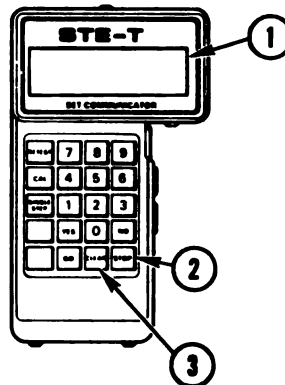
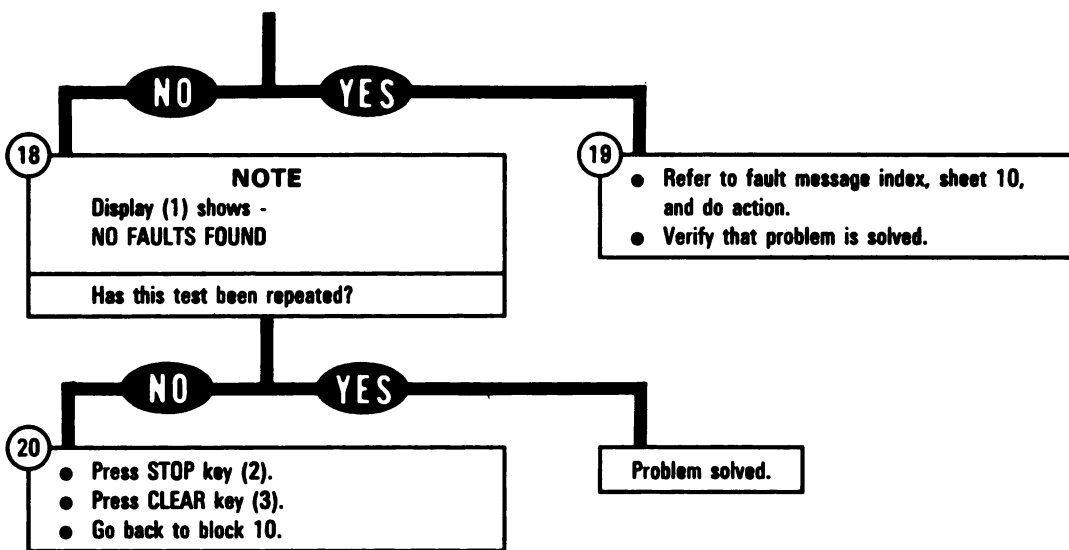


Figure 8-19 (Sheet 4 of 13)
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Para. 8-3

ARR82-5569

Connector Location Index

Fault Symptom No.	Harness Connector	Connects To	Figure
FCS-1	1W200-P1	J5 on turret networks box	9-229
	1W200-P7	J1 on commander's control	9-232
FCS-2	1W200-P1	J5 on turret networks box	9-229
	1W200-P8	J1 on gunner's control	9-232
FCS-3	1W201-P1	J6 on turret networks box	9-229
	1W201-P2	J1 on computer electronics unit	9-230
FCS-4	1W107-P1	J4 on turret networks box	9-229
	1W108-P1	1W107-J1	9-237
	1W108-E1	Torque bracket contact	9-249
	1W108-E2	Electrical contact	9-249
FCS-5	1W200-P8	J1 on gunner's control	9-232
	1S241-P1	1W200-J1	9-235
FCS-6	1W107-P1	J4 on turret networks box	9-229
	1W104-P1	J9 on turret networks box	9-229
	1W108-P1	1W107-J1	9-237
	1W104-P2	J3 on gunner's primary sight	9-240
	1W108-P3	J1 on coax electrical solenoid	9-249
FCS-7	1W104-P1	J9 on turret networks box	9-229
	1W104-P2	J3 on gunner's primary sight	9-240
FCS-8	1W104-P1	J9 on turret networks box	9-229
	1W104-P2	J3 on gunner's primary sight	9-240
FCS-9	1W104-P1	J9 on turret networks box	9-229
	1W104-P2	J3 on gunner's primary sight	9-240
FCS-10	1W106-P1	J2 on turret networks box	9-229
	1W107-P1	J4 on turret networks box	9-229
	1W106-P2	J1 on loader's panel	9-236
	1S100-P1	1W108-J1	9-237
	1W108-P1	1W107-J1	9-237
FCS-11	1W106-P1	J2 on turret networks box	9-229
	1W106-P2	J1 on loader's panel	9-236
FCS-12	1W202-P1	J7 on turret networks box	9-229
	1W202-P3	J1 on line-of-sight electronics unit	9-238

Figure 8-19 (Sheet 5 of 13)
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Para. 8-3

**TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING**

Connector Location Index (Continued)

Fault Symptom No.	Harness Connector	Connects To	Figure
FCS-13	1W203-P1	J3 on turret networks box	9-229
	1W200-P1	J5 on turret networks box	9-229
	1W200-P4	J3 on electronic unit	9-230
	1W203-P2	J1 on gunner's primary sight	9-240
FCS-14	1W106-P1	J2 on turret networks box	9-229
	1W106-P2	J1 on loader's panel	9-236
FCS-15	1W106-P1	J2 on turret networks box	9-229
	1W106-P2	J1 on loader's panel	9-236
FCS-16	1W107-P1	J4 on turret networks box	9-229
	1S100-P1	1W108-J1	9-237
	1W108-P1	1W107-P1	9-237
FCS-17	1W107-P1	J4 on turret networks box	9-229
	1W105-P1	J10 on turret networks box	9-229
	1G100-P1	1W105-J2	9-235
	1S100-P1	1W108-J1	9-237
	1W108-P1	1W107-J1	9-237

Replacement Index

Assembly or Harness	TM 9-2350-255-20-	Para.
Blasting machine	2-3-1	2-9
Branched wiring harness 1W104, 1W106, 1W107, 1W201, 1W202, or 1W203	2-3-1	2-13
Commander's control assembly	2-3-3	7-22
Computer electronics unit	2-3-3	7-14
Electrical solenoid	2-3-3	6-7
Elevation hand pump handle	2-3-2	4-8
Gun/turret drive electronics unit	2-3-3	7-16
Gunner's control grip assembly	2-3-3	7-21
Gunner's primary sight body assembly	2-3-3	7-5
Line-of-sight electronics unit	2-3-3	7-8
Loader's panel	2-3-1	2-6
Main gun safety switch	2-3-1	2-14
Turret networks box	2-3-1	2-7
Wiring harness assembly 1W105, 1W108, or 1W200	2-3-1	2-13

Figure 8-19 (Sheet 6 of 13)
**Volume II
Para. 8-3**

Firing Circuits Subsystem Cable Instruction Message Index for Test 1220

Cable Instruction Message	Action
ASSEMBLE CX305, CX307 AND CA425	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX305 to P3 on DBA CX307. ● Connect P2 on adapter CA425 to P2 on DBA CX307. ● See figure 8-22.
ASSEMBLE CX305, CX307 AND CA426	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX305 to P3 on DBA CX307. ● Connect P2 on adapter CA426 to P1 on DBA CX307. ● See figure 8-22.
ASSEMBLE CX305, CX307 AND CA501/02	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX305 to P3 on DBA CX307. ● Connect P2 on adapter CA501 to P2 on DBA CX307. ● Connect P2 on adapter CA502 to P1 on DBA CX307. ● See figure 8-23.
ASSEMBLE CX305, CX307 AND CA502	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX305 to P3 on DBA CX307. ● Connect P2 on adapter CA502 to P1 on DBA CX307. ● See figure 8-23.
ASSEMBLE CX305, CX307 AND CA503/04	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX305 to P3 on DBA CX307. ● Connect P2 on adapter CA503 to P1 on DBA CX307. ● Connect P2 on adapter CA504 to P2 on DBA CX307. ● See figure 8-24.
ASSEMBLE CX305, CX307 AND CA504	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX305 to P3 on DBA CX307. ● Connect P2 on adapter CA504 to P2 on DBA CX307. ● See figure 8-24.
ASSEMBLE CX305, CX307 AND CA511/12	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX305 to P3 on DBA CX307. ● Connect P2 on adapter CA511 to P2 on DBA CX307. ● Connect P2 on adapter CA512 to P1 on DBA CX307. ● See figure 8-25.
ASSEMBLE CX305, CX307 AND CA517/18	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX305 to P3 on DBA CX307. ● Connect P2 on adapter CA517 to P1 on DBA CX307. ● Connect P2 on adapter CA518 to P2 on DBA CX307. ● See figure 8-26.
ASSEMBLE CX305, CX307 AND CA519/20	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX305 to P3 on DBA CX307. ● Connect P2 on adapter CA519 to P1 on DBA CX307. ● Connect P2 on adapter CA520 to P2 on DBA CX307. ● See figure 8-27.
ASSEMBLE CX305, CX307 AND CA521	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX305 to P3 on DBA CX307. ● Connect P2 on adapter CA521 to P1 on DBA CX307. ● See figure 8-28.
ASSEMBLE CX305, CX307 AND CA521/22	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX305 to P3 on DBA CX307. ● Connect P2 on adapter CA521 to P1 on DBA CX307. ● Connect P2 on adapter CA522 to P2 on DBA CX307. ● See figure 8-28.

Figure 8-19 (Sheet 7 of 13)
Volume II
Para. 8-3

**TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING**

Firing Circuits Subsystem Cable Instruction Message Index for Test 1220 (Continued)

Cable Instruction Message	Action
ASSEMBLE CX305, CX307 AND CA522	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX305 to P3 on DBA CX307. ● Connect P2 on adapter CA522 to P2 on DBA CX307. ● See figure 8-28.
ASSEMBLE CX305, CX308 AND CA557/58	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX305 to P3 on DBA CX308. ● Connect P2 on adapter CA557 to P2 on DBA CX308. ● Connect P2 on adapter CA558 to P1 on DBA CX308. ● See figure 8-29.
CONNECT CIB J1 (CX305) TO TNB TJ1 (CA206)	<ul style="list-style-type: none"> ● Connect P1 on adapter CA206 to TEST 1 on turret networks box. ● Connect P1 on CIB cable CX305 to P2 on adapter CA206. ● See figure 8-21. ● Connect P2 on CIB cable CX305 to J1 on CIB-J1. ● See figure 8-20.
CONNECT CIB J2 TO TNB TJ2 (USE CX208)	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX208 to TEST 2 on turret networks box. ● See figure 8-21. ● Connect P2 on CIB cable CX208 to CIB-J2. ● See figure 8-20.
CONNECT DBA BETWEEN 1W104 ← → GPS J3	<ul style="list-style-type: none"> ● Connect P1 on adapter CA512 to J3 on gunner's primary sight. ● Connect 1W104-P2 to P1 on adapter CA511. ● See figure 8-25.
CONNECT DBA BETWEEN 1W104 ← → TNB J9	<ul style="list-style-type: none"> ● Connect P1 on adapter CA517 to J9 on turret networks box. ● Connect 1W104-P1 to P1 on adapter CA518. ● See figure 8-26.
CONNECT DBA BETWEEN 1W106 ← → TNB J2	<ul style="list-style-type: none"> ● Connect P1 on adapter CA519 to J2 on turret networks box. ● Connect 1W106-P1 to P1 on adapter CA520. ● See figure 8-27.
CONNECT DBA BETWEEN 1W108 ← → MGSSW	<ul style="list-style-type: none"> ● Connect main gun safety switch (1S100)-P1 to P1 on adapter CA558. ● Connect P1 on adapter CA557 to 1W108-J1. ● See figure 8-29.
CONNECT DBA BETWEEN 1W200 ← → TNB J5	<ul style="list-style-type: none"> ● Connect P1 on adapter CA503 to J5 on turret networks box. ● Connect 1W200-P1 to P1 on adapter CA504. ● See figure 8-24.
CONNECT DBA BETWEEN 1W201 ← → TNB J6	<ul style="list-style-type: none"> ● Connect P1 on adapter CA501 to J6 on turret networks box. ● Connect 1W201-P1 to P1 on adapter CA502. ● See figure 8-23.
CONNECT DBA TO GPS J3	<ul style="list-style-type: none"> ● Connect P1 on adapter CA512 to J3 on gunner's primary sight. ● See figure 8-25.

Figure 8-19 (Sheet 8 of 13)
Volume II
Para. 8-3

Firing Circuits Subsystem Cable Instruction Message Index for Test 1220 (Continued)

Cable Instruction Message	Action
CONNECT DBA TO JB J4	<ul style="list-style-type: none"> ● Connect P1 on adapter CA521 to J4 on turret networks box. ● See figure 8-28.
CONNECT DBA TO JB J10	<ul style="list-style-type: none"> ● Connect P1 on adapter CA425 to J10 on turret networks box. ● See figure 8-22.
CONNECT DBA TO W104 P2	<ul style="list-style-type: none"> ● Connect 1W104-P2 to P1 on adapter CA511. ● See figure 8-25.
CONNECT DBA TO W105 P1	<ul style="list-style-type: none"> ● Connect 1W105-P1 to P1 on adapter CA426. ● See figure 8-22.
CONNECT DBA TO W107 P1	<ul style="list-style-type: none"> ● Connect 1W107-P1 to P1 on adapter CA522. ● See figure 8-28.
CONNECT DBA TO W200 P1	<ul style="list-style-type: none"> ● Connect 1W200-P1 to P1 on adapter CA504. ● See figure 8-24.
CONNECT DBA TO W201 P1	<ul style="list-style-type: none"> ● Connect 1W201-P1 to P1 on adapter CA502. ● See figure 8-23.
DISCONNECT DBA FROM TNB J10	<ul style="list-style-type: none"> ● Disconnect P1 on adapter CA425 from J10 on turret networks box. ● Disconnect P2 on adapter CA425 from P2 on DBA CX307. ● See figure 8-22.
DISCONNECT DBA FROM W104 ← → TNB J9	<ul style="list-style-type: none"> ● Disconnect P2 on adapter CA517 from P1 on DBA CX307. ● Disconnect P2 on adapter CA518 from P2 on DBA CX307. ● See figure 8-26.
DISCONNECT DBA FROM W201 P1	<ul style="list-style-type: none"> ● Disconnect 1W201-P1 from P1 on adapter CA502. ● See figure 8-23.
DISCONNECT 1W103 ← → VBLow J1	<ul style="list-style-type: none"> ● Disconnect 1W103-P2 from J1 on fan assembly. ● See figure 9-236.
DISCONNECT 1W104 ← → GPS J3	<ul style="list-style-type: none"> ● Disconnect 1W104-P2 from J3 on gunner's primary sight. ● See figure 9-240.
DISCONNECT 1W104 ← → TNB J9	<ul style="list-style-type: none"> ● Disconnect 1W104-P1 from J9 on turret networks box. ● See figure 9-229.
DISCONNECT 1W105 ← → BMACH	<ul style="list-style-type: none"> ● Disconnect blasting machine (1G100)-P1 from 1W105-J2. ● See figure 9-235.
DISCONNECT 1W105 ← → TNB J10	<ul style="list-style-type: none"> ● Disconnect 1W105-P1 from J10 on turret networks box. ● See figure 9-229.

Figure 8-19 (Sheet 9 of 13)
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Para. 8-3

Firing Circuits Subsystem Cable Instruction Message Index for Test 1220 (Continued)

Cable Instruction Message	Action
DISCONNECT 1W106<- -> TNB J2	<ul style="list-style-type: none"> ● Disconnect 1W106-P1 from J2 on turret networks box. ● See figure 9-229.
DISCONNECT 1W107<- -> TNB J4	<ul style="list-style-type: none"> ● Disconnect 1W107-P1 from J4 on turret networks box. ● See figure 9-229.
DISCONNECT 1W108<- -> MGSSW	<ul style="list-style-type: none"> ● Disconnect main gun safety switch (1S100)-P1 from 1W108-J1. ● See figure 9-237.
DISCONNECT 1W200<- -> HANDP	<ul style="list-style-type: none"> ● Disconnect elevation hand pump (1S241)-P1 from 1W200-J1. ● See figure 9-235.
DISCONNECT 1W200<- -> TNB J5	<ul style="list-style-type: none"> ● Disconnect 1W200-P1 from J5 on turret networks box. ● See figure 9-229.
DISCONNECT 1W201<- -> TNB J6	<ul style="list-style-type: none"> ● Disconnect 1W201-P1 from J6 on turret networks box. ● See figure 9-229.
DISCONNECT 1W203<- -> TNB J3	<ul style="list-style-type: none"> ● Disconnect 1W203-P1 from J3 on turret networks box. ● See figure 9-229.
RECONNECT 1W103<- -> VBLOW J1	<ul style="list-style-type: none"> ● Connect 1W103-P2 to J1 on fan assembly. ● See figure 9-236.
RECONNECT 1W107<- -> TNB J4	<ul style="list-style-type: none"> ● Connect 1W107-P1 to J4 on turret networks box. ● See figure 9-229.
REMOVE CX305 AND ADAPTER AT TNB TJ1	<ul style="list-style-type: none"> ● Disconnect P1 on CIB cable CX305 from P2 on adapter CA206. ● Disconnect P1 adapter CA206 from TEST 1 on turret networks box. ● See figure 8-21.

Firing Circuits Subsystem Fault Message Index for Test 1220

Fault Message	Action
FAULTY BATTERY/ CHARGING SYS 109921	<ul style="list-style-type: none"> ● Charge batteries. ● Refer to TM 9-2350-255-10. ● Go back to to block 9.
FAULTY BMACH 122413	<ul style="list-style-type: none"> ● Replace blasting machine. ● Refer to TM 9-2350-255-20-2-3-1, para. 2-9.
FAULTY BMACH OR 1W105 122172 122407 122408	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 8-45. ● See figure 8-50. ● See figure 8-50.

Figure 8-19 (Sheet 10 of 13)
**Volume II
Para. 8-3**

Firing Circuits Subsystem Fault Message Index for Test 1220 (Continued)

Fault Message			Action
FAULTY CEU	122174		<ul style="list-style-type: none"> ● Replace computer electronics unit. ● Refer to TM 9-2350-255-20-2-3-3, para. 7-14.
FAULTY CEU OR CP	122173		<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 8-52.
FAULTY CEU OR W201	122160		<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 8-30. ● See figure 8-30. ● See figure 8-44. ● See figure 8-31.
	122164		
	122311		
	122317		
FAULTY COAXS, 1W107 OR 1W108	122149		<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 8-51. ● See figure 8-32.
	122153		
FAULTY GCH	122008	122031	<ul style="list-style-type: none"> ● Replace gunner's control grip assembly. ● Refer to TM 9-2350-255-20-2-3-3, para. 7-21.
	122010	122035	
	122012	122037	
FAULTY GCH OR W200		122002	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 8-53.
		122022	
		122023	
		122056	
FAULTY GPS	122107	122133	<ul style="list-style-type: none"> ● Replace gunner's primary sight body assembly. ● Refer to TM 9-2350-255-20-2-3-3, para. 7-5.
	122123	122140	
	122125	122141	
	122130	122144	
		122146	
FAULTY GPS OR 1W104		122019	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 8-49.
FAULTY GUNC, 1W107 OR 1W108		122186	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 8-35.
FAULTY HANDP		122027	<ul style="list-style-type: none"> ● Replace elevation hand pump handle. ● Refer to TM 9-2350-255-20-2-3-2, para. 4-8.
FAULTY HANDP OR 1W200		122042	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 8-33.
FAULTY LP OR 1W106		122029	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 8-34. ● See figure 8-56. ● See figure 8-34. ● See figure 8-34. ● See figure 8-34.
		122053	
		122060	
		122136	
		122158	

Figure 8-19 (Sheet 11 of 13)
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Para. 8-3

**TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING**

Firing Circuits Subsystem Fault Message Index for Test 1220 (Continued)

Fault Message	Action
FAULTY LRF OR 1W203	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 8-42.
122028 122040	
FAULTY MGSSW	<ul style="list-style-type: none"> ● Adjust main gun safety switch. ● Refer to TM 9-2350-255-20-2-3-1, para. 2-14. ● If unable to adjust switch, replace main gun safety switch. ● Refer to TM 9-250-255-20-2-3-1, para. 2-14.
122155	
FAULTY MGSSW, 1W107 OR 1W108	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 8-48. ● See figure 8-37. ● See figure 8-48.
122127 122410 122412	
FAULTY PANEL LGT SUPPLIES	<ul style="list-style-type: none"> ● Test set found a panel light problem. Refer to panel light symptoms in para. 6-1 index and correct panel light problem before continuing test.
133102 133202	
FAULTY TCH OR 1W200	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 8-47.
122055 122202 122203 122204	
FAULTY TNB	<ul style="list-style-type: none"> ● Replace turret networks box. ● Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
122001 122043 122137 122185 122003 122044 122148 122205 122004 122054 122151 122306 122005 122057 122152 122307 122009 122058 122159 122308 122015 122059 122161 122309 122017 122102 122162 122310 122020 122106 122163 122312 122021 122108 122170 122313 122024 122109 122171 122314 122030 122112 122176 122316 122033 122113 122177 122318 122039 122126 122182 122409 122041 122128 122184 122411	
FAULTY TNB OR 1W104	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 8-39. ● See figure 8-39. ● See figure 8-38. ● See figure 8-38. ● See figure 8-38. ● See figure 8-38. ● See figure 8-38. ● See figure 8-38. ● See figure 8-38. ● See figure 8-38. ● See figure 8-38.
122122 122124 122131 122134 122138 122139 122142 122145 122147	

Figure 8-19 (Sheet 12 of 13)
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Firing Circuits Subsystem Fault Message Index for Test 1220 (Continued)

Fault Message	Action
AULTY TNB OR W105 122414	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 8-55.
AULTY TNB OR W200 122032	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 8-54.
AULTY TNB, 1W107 OR 1W108 122154 122156	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 8-41.
AULTY VEH/TURRET WR CNTL 109922 120703 120803	<ul style="list-style-type: none"> ● Run vehicle/turret power distribution test number 1200. ● See figure 8-1.

Firing Circuits Subsystem Special Instruction Message Index for Test 1220

Special Instruction Message	Action
SEE -20 MANUAL 122118 122129 122132 122135 122143 122157 122167	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 8-40. ● See figure 8-43. ● See figure 8-43. ● See figure 8-46. ● See figure 8-43. ● See figure 8-46. ● See figure 8-36.
122181 122183 122302 122303	<ul style="list-style-type: none"> ● Run computer subsystem test number 1430. ● Go to TM 9-2350-255-20-2-2-2, figure 10-37, block 11.
SYSTEM ERROR 109902 122045 122175	<ul style="list-style-type: none"> ● Run STE self-test number 666. ● Refer to TM 9-2350-255-20-2-2-2, figure 15-3, block 26. ● Repeat firing circuits test number 1220. ● Press STOP and CLEAR keys on SETCOM. ● Go back to block 10. ● If same error message appears on SETCOM display, notify support maintenance that test set is faulty.

Figure 8-19 (Sheet 13 of 13)
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Para. 8-3

**TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING**

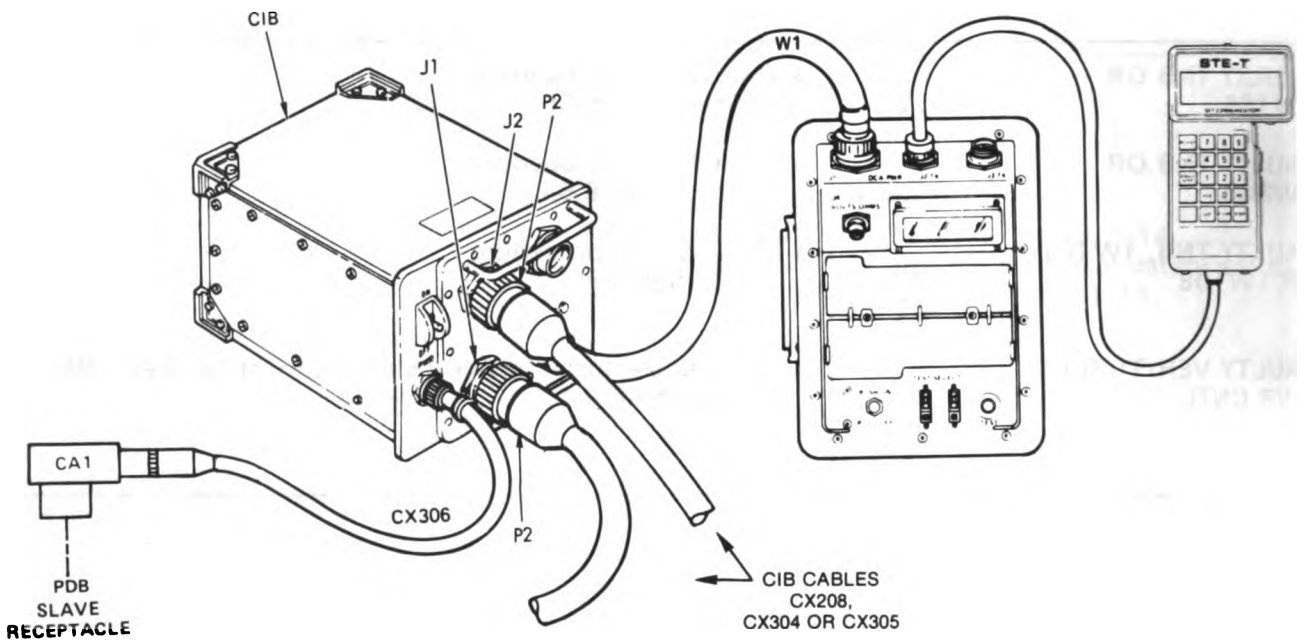
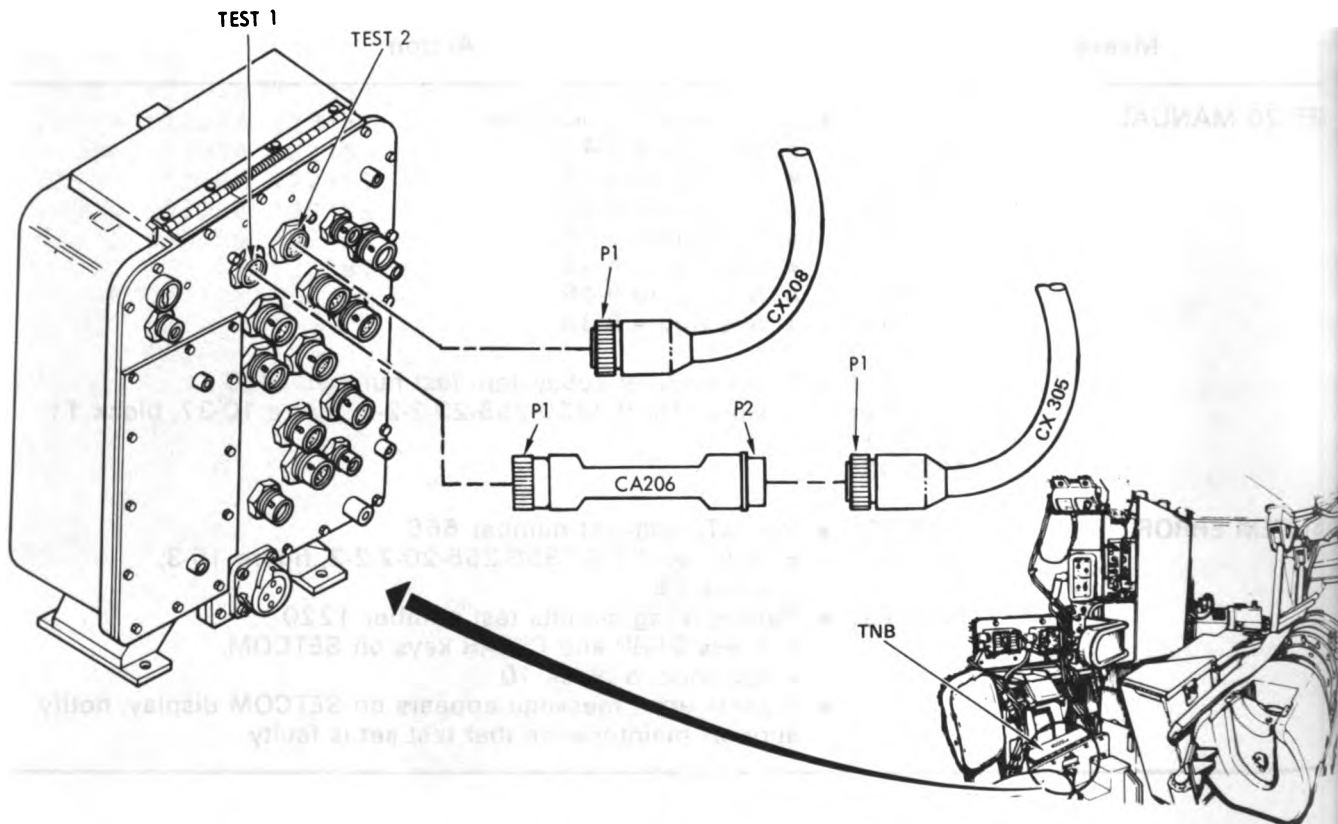


Figure 8-20. STE Turret Cable Hookup to CIB



**Figure 8-21. STE Turret Cable Hookup to TNB TEST 1 and TEST 2
Volume II
Para. 8-3**

ARR82-5570

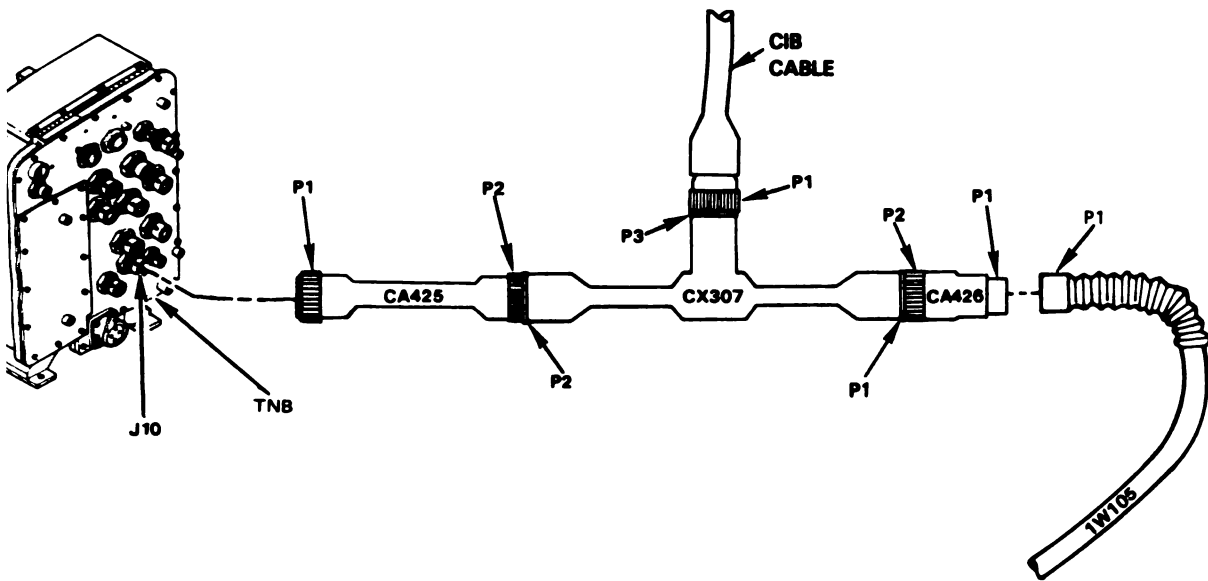


Figure 8-22. STE Turret Cable Hookup Between TNB-J10 and 1W105-P1

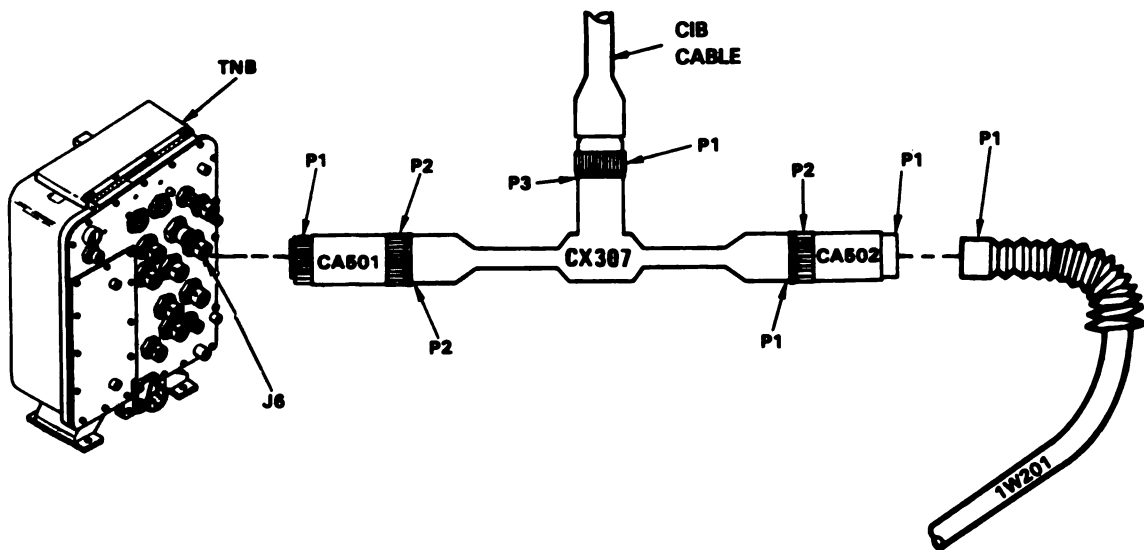


Figure 8-23. STE Turret Cable Hookup Between TNB-J6 and 1W201-P1

ARR82-5571

Volume II
Para. 8-3

**TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING**

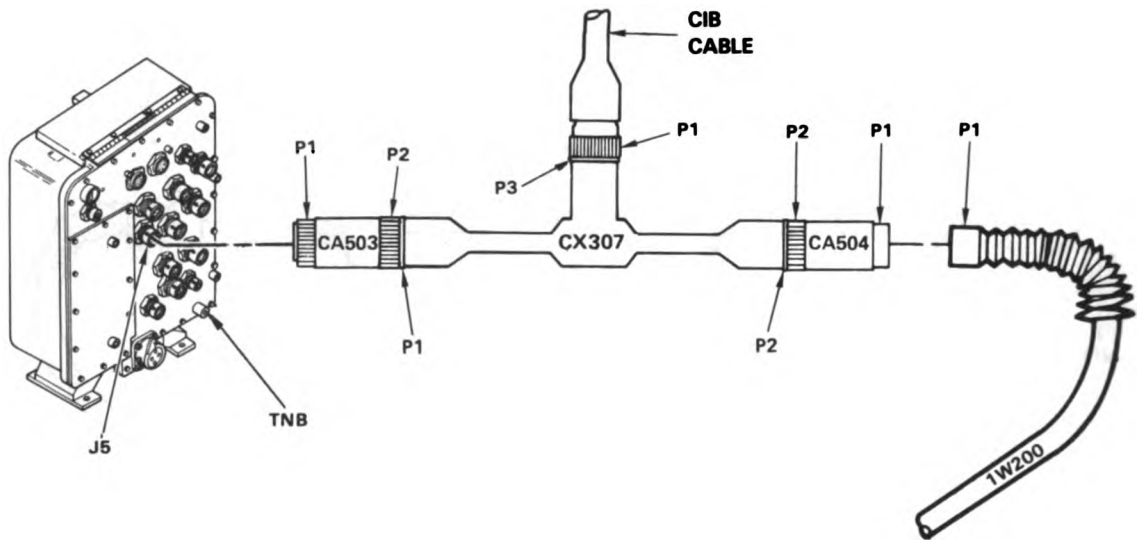


Figure 8-24. STE Turret Cable Hookup Between TNB-J5 and 1W200-P1

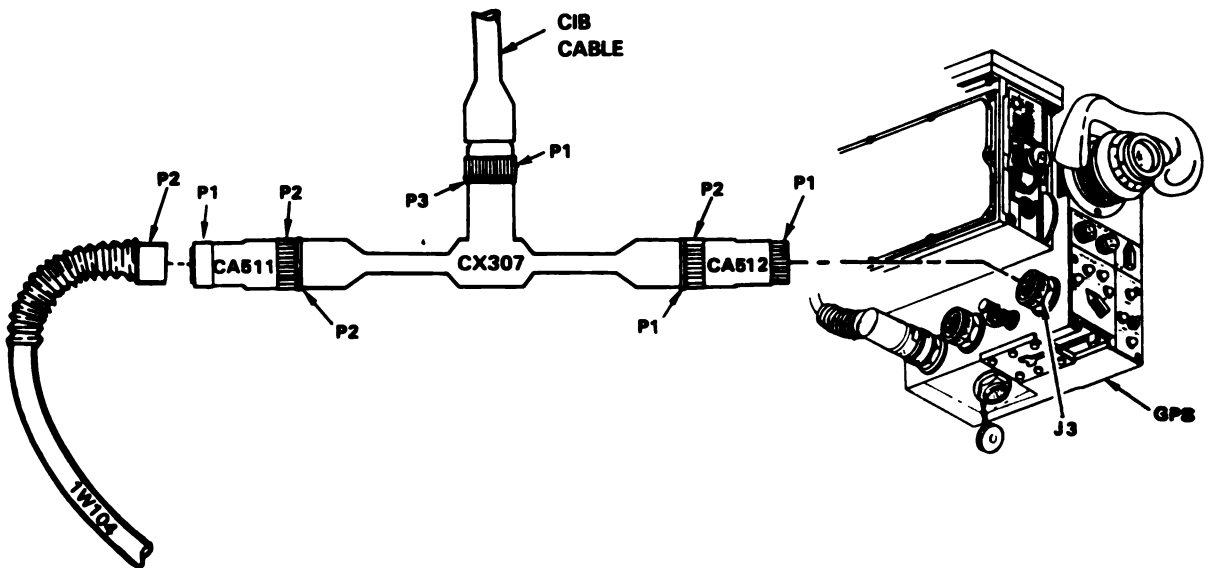


Figure 8-25. STE Turret Cable Hookup Between GPS-J3 and 1W104-P2

**Volume II
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ARR82-5572

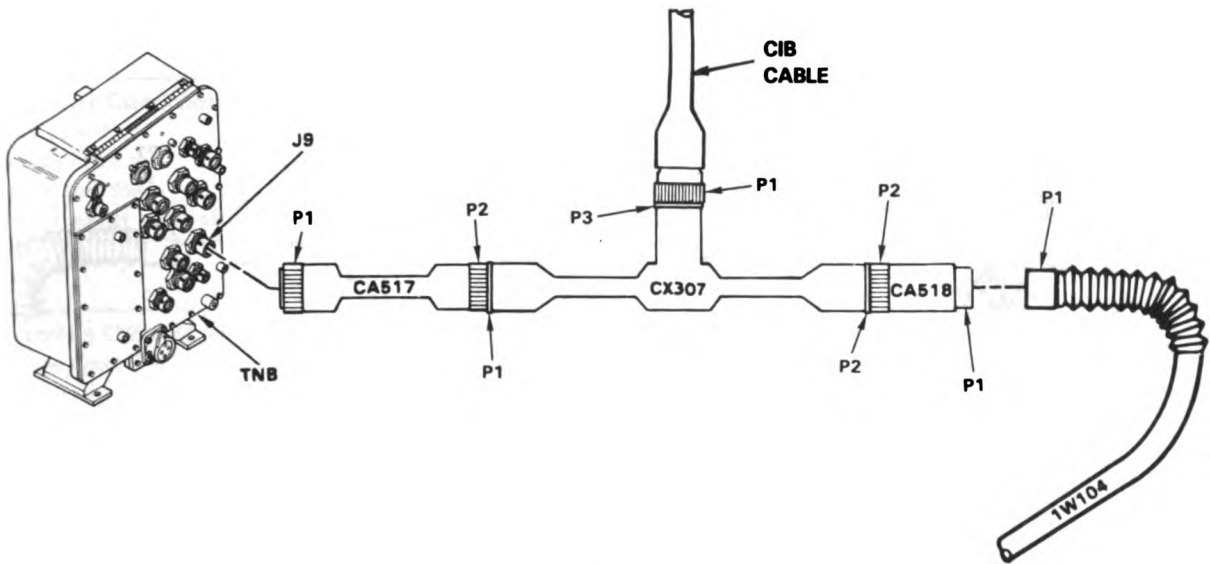


Figure 8-26. STE Turret Cable Hookup Between TNB-J9 and 1W104-P1

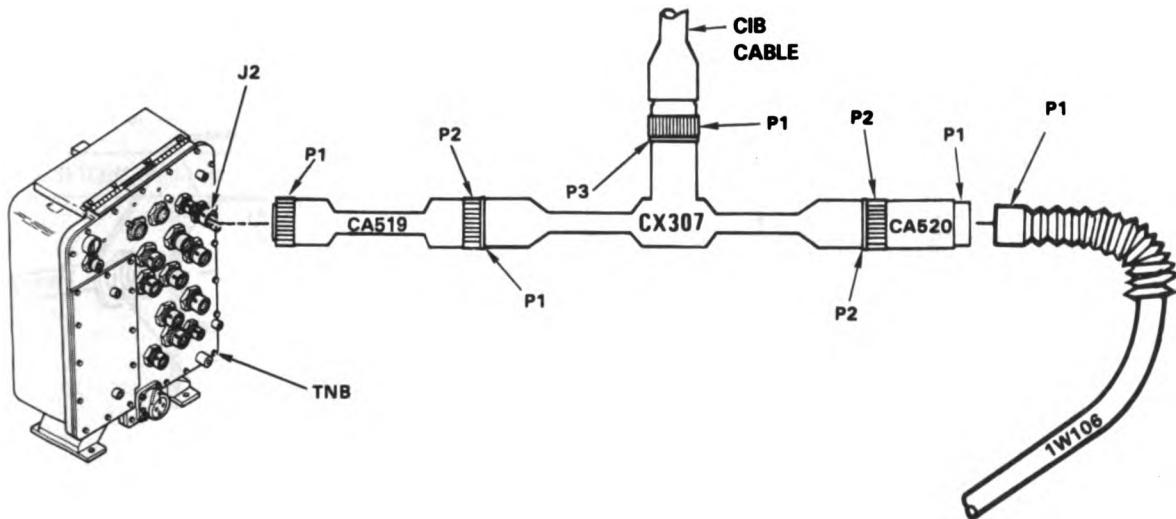


Figure 8-27. STE Turret Cable Hookup Between TNB-J2 and 1W106-P1
Volume II
Para. 8-3

ARR82-5573

**TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING**

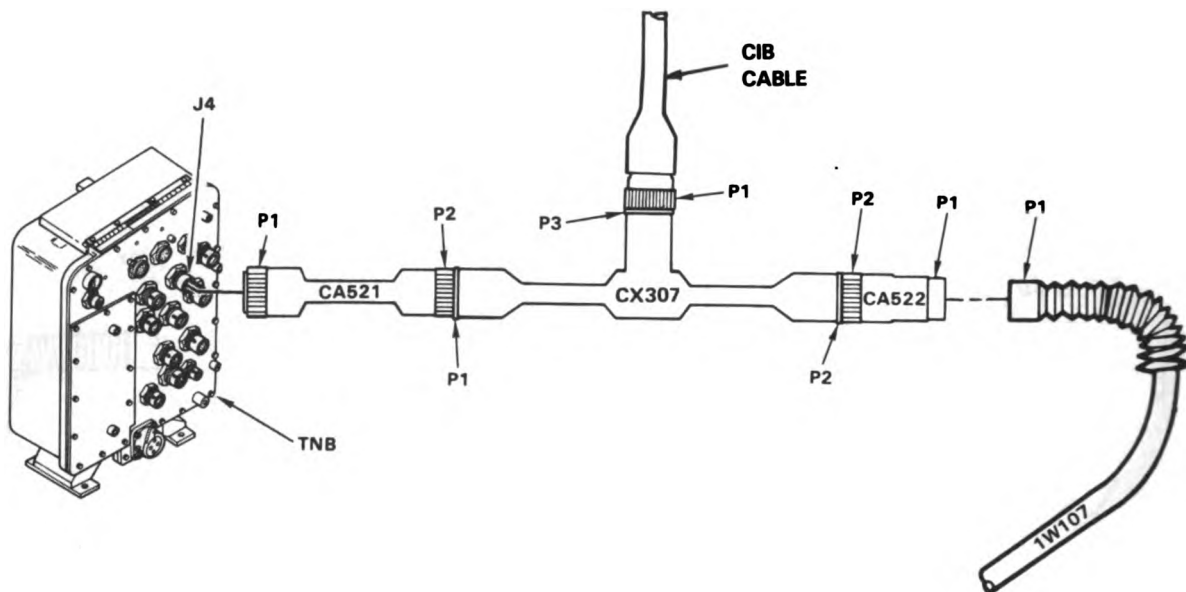


Figure 8-28. STE Turret Cable Hookup Between TNB-J4 and 1W107-P1

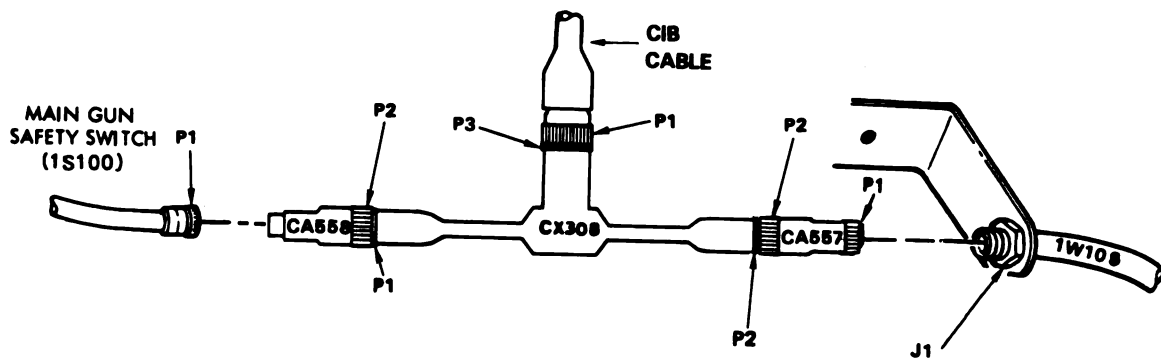


Figure 8-29. STE Turret Cable Hookup Between 1W108-J1 and Main Gun Safety Switch (1S100)-P1

ARR82-5574

**Volume II
Para. 8-3**

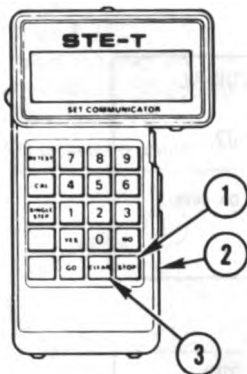
**DISPLAY SHOWS -
FAULTY CEU OR
1W201**

• 122160
• 122164

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- Disconnect CX208-P2 from CIB-J2.
 - See figure 8-20.
- If connected, disconnect CA501-P2 from CX307-P2.
 - See figure 8-23.
- Disconnect 1W201-P2 from J1 on computer electronics unit.
 - See figure 9-230.



- Prepare STE to run cable test 1390.
 - Press STOP key (1) on SETCOM (2).
 - Press CLEAR key (3).
 - Enter test number 1390 on SETCOM (2).
- Run test on 1W201 between P1 and P2.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.

Does SETCOM display show GOOD?

NO

- 3
- Replace branched wiring harness 1W201.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

YES

- 4
- Connect 1W201-P1 to J6 on turret networks box.
 - See figure 9-229.
 - Replace computer electronics unit.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-14.
 - Verify that problem is solved.

Figure 8-30
Volume II
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ARR82-5575

**DISPLAY SHOWS -
 FAULTY CEU OR
 1W201**

122317

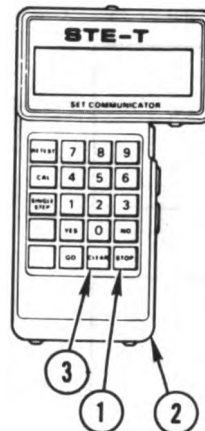
Additional Test

Equipment/Special Tools:

- Breakout Box Tool Kit, 12311086

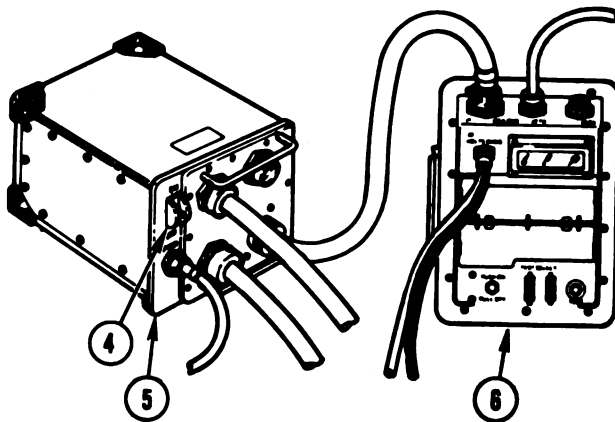
Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.



- 1
- Disconnect CX305-P1 from CA206-P2.
 - See figure 8-21.
 - Disconnect CX208-P2 from CIB-J2.
 - See figure 8-20.
 - Disconnect 1W201-P2 from J1 on computer electronics unit.
 - See figure 9-230.

- 2
- Prepare STE to run cable test 1390.
 - Press STOP key (1) on SETCOM (2).
 - Press CLEAR key (3).
 - Enter test number 1390 on SETCOM (2).
 - Run test on 1W201 between P1 and P2.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.



Does VTM display show GOOD?

YES

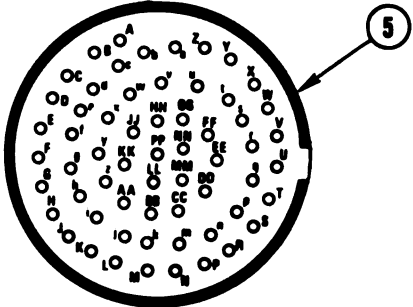
NO

- 3
- Replace branched wiring harness 1W201.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

- 4
- Change control from SETCOM to VTM.
 - Set PWR switch (4) on CIB (5) to OFF to reset VTM (6).
 - Set PWR switch (4) to ON.
 - Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 8-1.

Figure 8-31 (Sheet 1 of 3)
 Volume II
 Para. 8-3

- Connect CX208-P2 (1) to breakout box (2).
- Test for continuity between test point 82 on breakout box and contact GG on turret networks box J6.
- Connect red test probe (3) to test point 82 on breakout box (2).
- Connect black test probe (4) to contact GG on J6 (5).



Does VTM display show between 0 and 5?

TNB-J6

YES **NO**

- Connect 1W201-P2 to J1 on computer electronics unit.
- See figure 9-230.
- Replace turret networks box.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
- Verify that problem is solved.

- Disconnect 1W201-P2 (8) from CA419-P1 (7).
- Disconnect CX208-P2 (1) from breakout box (2).
- Disconnect CX305-P2 (8) from CIB-J1(9).
- Connect CX305-P2 (8) to breakout box (2).

- Connect red test probe (3) to test point 108 on breakout box (2).

NOTE

If VTM display shows 0 to 5, go immediately to block 10.

- Test for 0 to 5 ohms by connecting black test probe (4) to each test point on breakout box (2) listed below:
 - 7 through 39
 - 62, 74, and 75
 - 89 through 107
 - 109 through 113

Does VTM display show between 0 and 5?

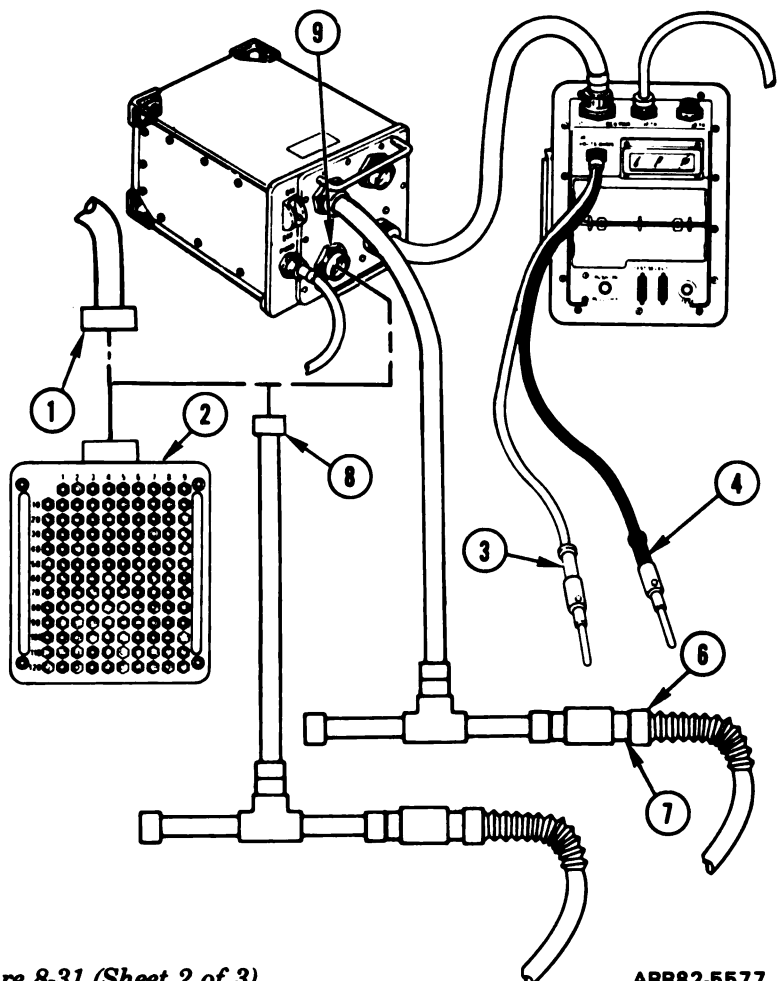


Figure 8-31 (Sheet 2 of 3)
Volume II
Para. 8-3

ARR82-5577

**TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING**

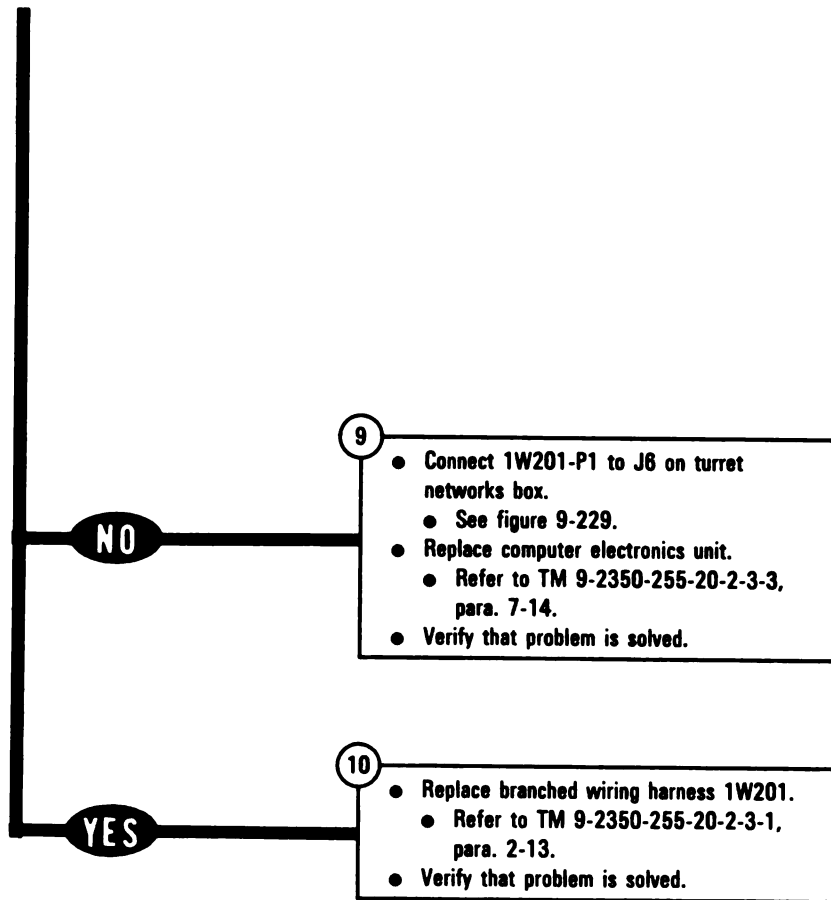


Figure 8-31 (Sheet 3 of 3)
**Volume II
Para. 8-3**

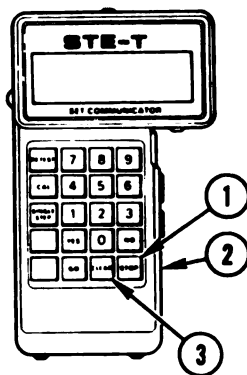
**DISPLAY SHOWS -
FAULTY COAXS, 1W107
OR 1W108**

122153

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- Disconnect CX208-P2 from C1B-J2.
 - See figure 8-20.
- Disconnect CA521-P1 from J4 on turret networks box.
 - See figure 8-28.
- Disconnect 1W108-P1 from 1W107-J1.
 - See figure 9-237.



- Prepare STE to run cable test 1390.
 - Press STOP key (1) on SETCOM (2).
 - Press CLEAR key (3).
 - Enter test number 1390 on SETCOM (2).
- Run test on 1W107 between J1 and P1.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.

Does SETCOM display show GOOD?

YES

NO

3

- Replace branched wiring harness 1W107.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

Figure 8-32 (Sheet 1 of 2)
Volume II
Para. 8-3

ARR82-5578

**TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING**

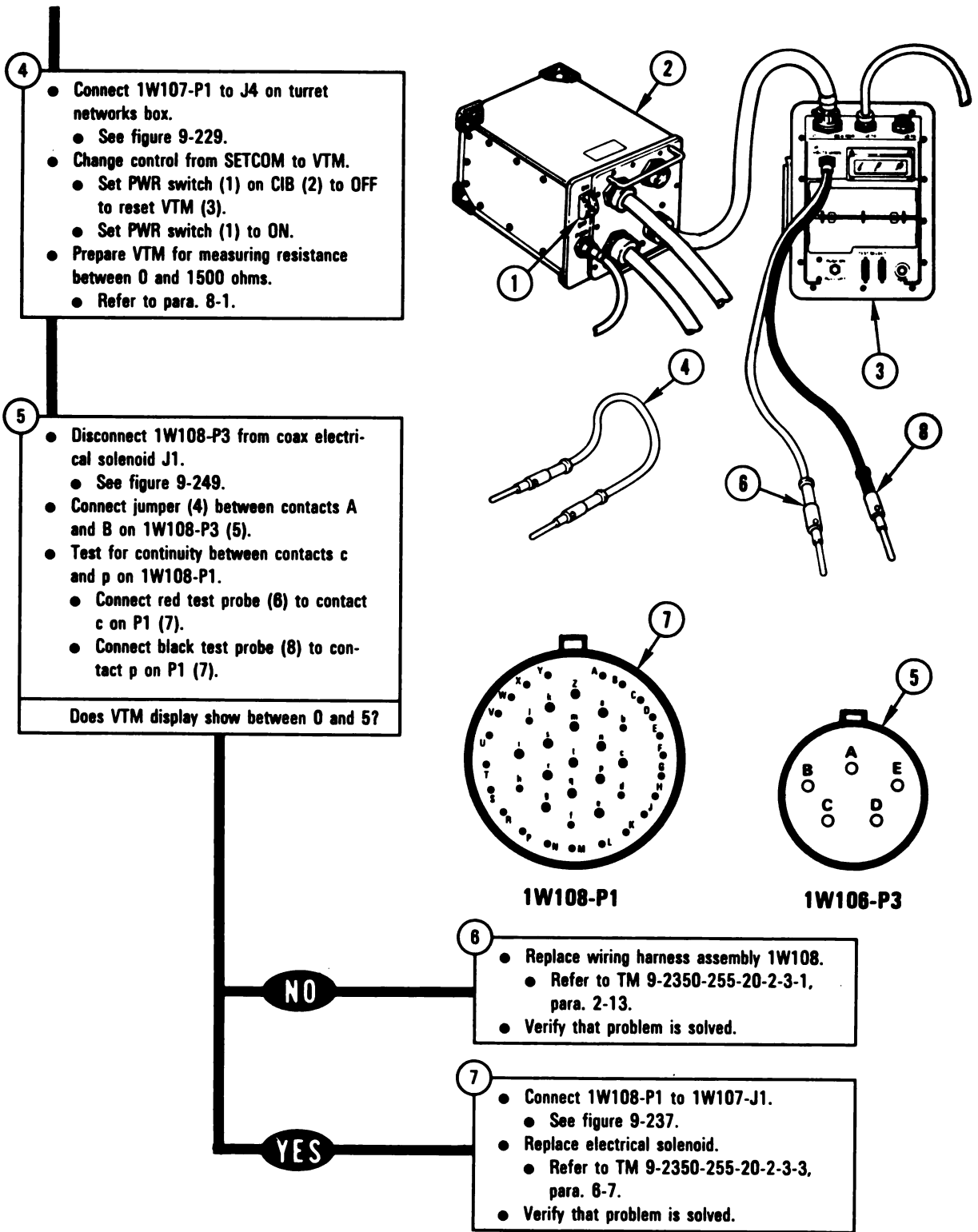


Figure 8-32 (Sheet 2 of 2)
**Volume II
Para. 8-3**

ARR82-5579

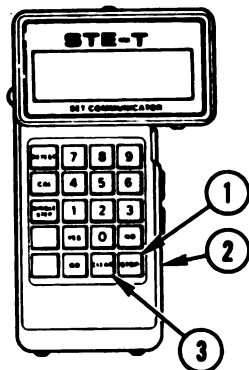
**DISPLAY SHOWS -
FAULTY HANDP OR
1W200**

122042

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- Disconnect CA503-P2 from CX307-P1.
 - See figure 8-24.
- Disconnect CX208-P2 from CIB-J2.
 - See figure 8-21.
- Disconnect elevation hand pump (1S241)-P1 from 1W200-J1.
 - See figure 9-235.



- Prepare STE to run cable test 1390.
 - Press STOP key (1) on SETCOM (2).
 - Press CLEAR key (3).
 - Enter test number 1390 on SETCOM (2).
- Run test on 1W200 between J1 and P1.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.

Does SETCOM display show GOOD?

NO

- 3
- Replace wiring harness assembly 1W200.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

YES

- 4
- Connect 1W200-P1 to J5 on turret networks box.
 - See figure 9-229.
 - Replace elevation hand pump handle.
 - Refer to TM 9-2350-255-20-2-3-2, para. 4-8.
 - Verify that problem is solved.

Figure 8-33
Volume II
Para. 8-3

ARR82-5580

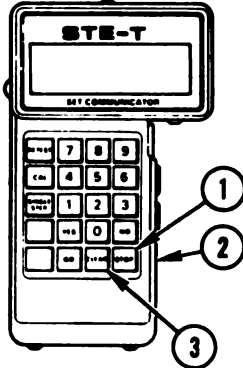
**TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING**

- 122029
- 122080
- 122138
- 122158

**DISPLAY SHOWS -
FAULTY LP OR
1W106**

- Equipment Condition:**
- Tank parked.
 - Parking brake set.
 - Engine shut down.
 - Vehicle master power off.

- 1
- Disconnect CX208-P2 from CIB-J2.
 - See figure 8-20.
 - Disconnect CA519-P2 from CX307-P1.
 - See figure 8-27.
 - Disconnect 1W106-P2 from J1 on loader's panel.
 - See figure 9-236.



- 2
- Prepare STE to run cable test 1390.
 - Press STOP key (1) on SETCOM (2)
 - Press CLEAR key (3).
 - Enter test number 1390 on SETCOM (2).
 - Run test on 1W106 between P1 and P2.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.
- Does SETCOM display show GOOD?

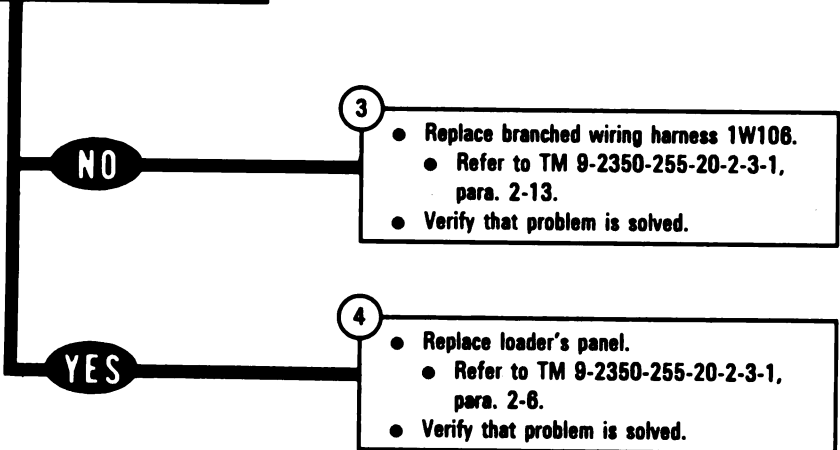


Figure 8-34
Volume II
Para. 8-3

ARR82-5581

**DISPLAY SHOWS -
FAULTY GUNC, 1W107
OR 1W108**

122186

**Additional Test
Equipment/Special Tools:**

- Breakout Box Tool Kit, 12311086.

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- Disconnect CX305-P2 from CIB-J1.
 - See figure 8-20.
- Connect CX305-P2 (1) to breakout box (2).
- Disconnect CX305-P1 from CA208-P2.
 - See figure 8-21.
- Connect CX305-P1 (3) to CX307-P3 (4).

- Disconnect 1W108-P1 from 1W107-J1.
 - See figure 9-237.
- Connect 1W108-P1 (5) to CA522-P1 (6).
- Connect CA522-P2 (7) to CX307-P1 (8).
- Connect 1W105-P1 to J10 on turret networks box.
 - See figure 9-229.

- Change control from SETCOM to VTM.
 - Set PWR switch (9) on C1B (10) to OFF to reset VTM (11).
 - Set PWR switch (9) to ON.
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 8-1.

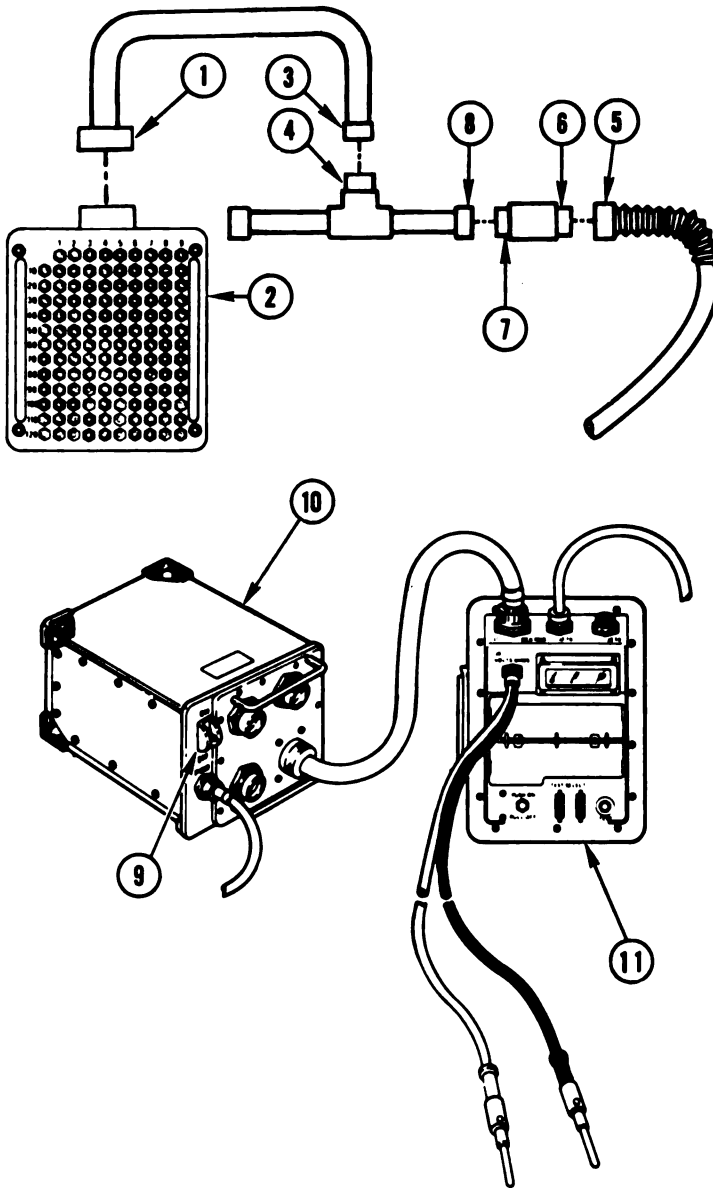
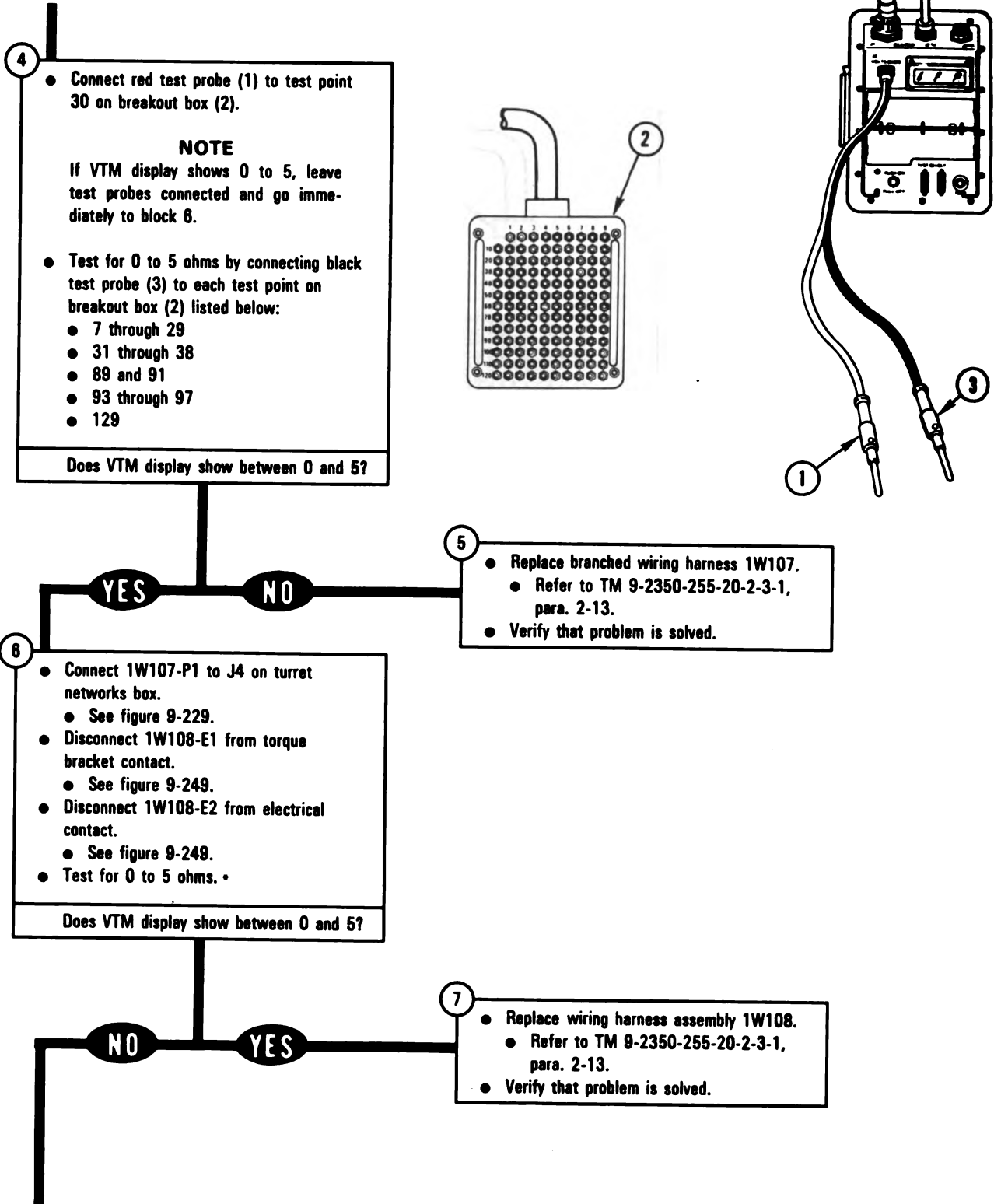


Figure 8-35 (Sheet 1 of 3)
Volume II
Para. 8-3

ARR82-5582

**TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING**



* Between contacts found in block 4

Figure 8-35 (Sheet 2 of 3)
Volume II
Para. 8-3

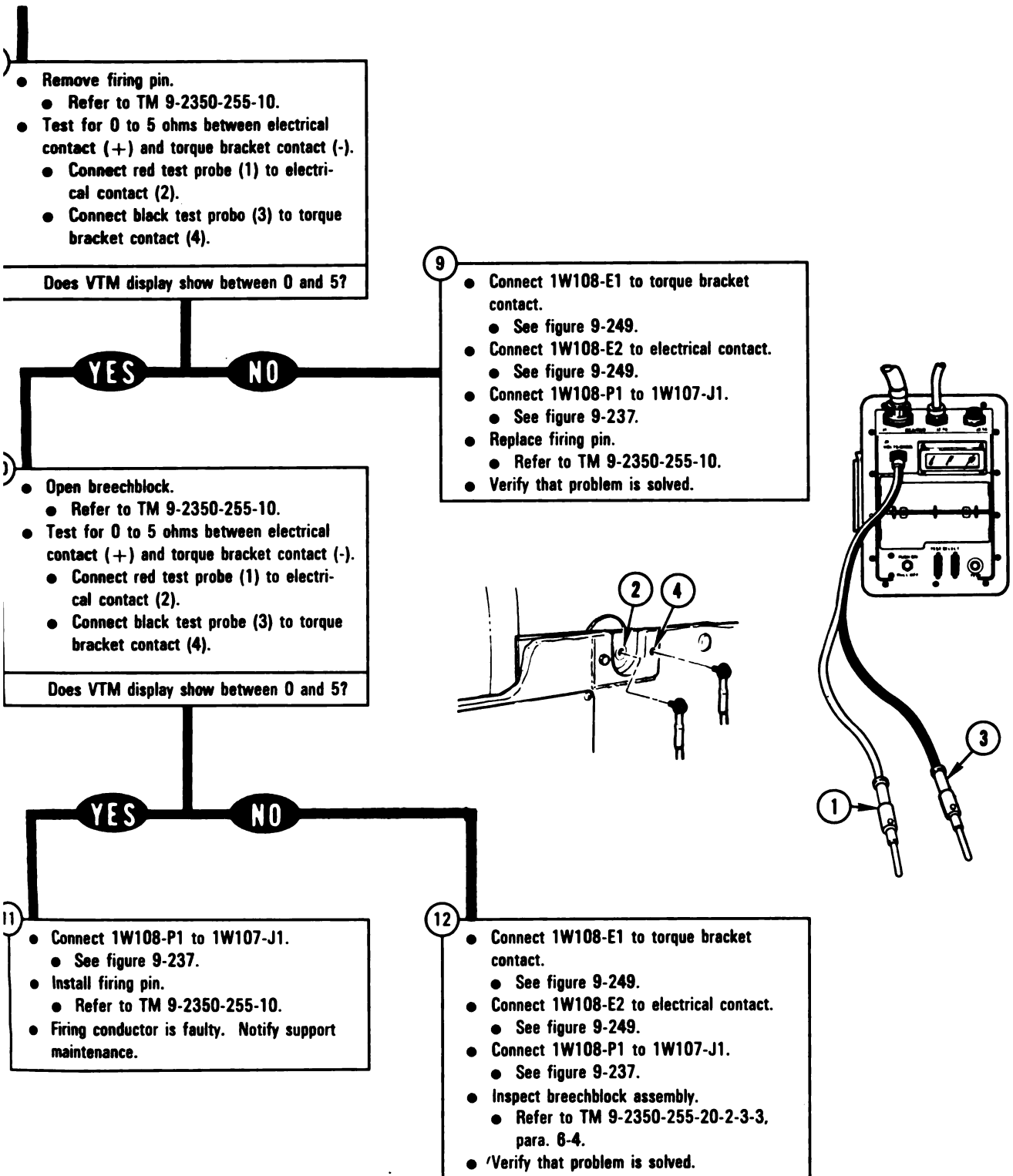


Figure 8-35 (Sheet 3 of 3)
Volume II
Para. 8-3

ARR82-5584

**TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS -
SEE -20 MANUAL** **122167**

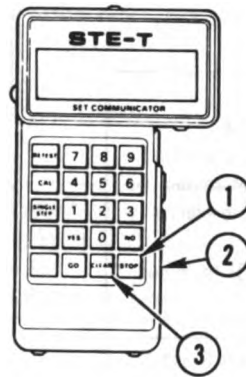
**Additional Test
Equipment/Special Tools:**

- Breakout Box Tool Kit, 12311066

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- 1
- Disconnect CX305-P1 from CA208-P2.
 - See figure 8-21.
 - Disconnect CX208-P1 from TEST 2 on turret networks box.
 - See figure 8-21.
 - Disconnect CX208-P2 from CIB-J2.
 - See figure 8-20.
 - Disconnect 1W108-P1 from 1W107-J1.
 - See figure 9-237.
 - Disconnect 1W107-P1 from J4 on turret networks box.
 - See figure 9-229.



- 2
- Prepare STE to run cable test 1390.
 - Press STOP key (1) on SETCOM (2).
 - Press CLEAR key (3).
 - Enter test number 1390 on SETCOM (2).
 - Run test on 1W107 between J1 and P1.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.
- Does SETCOM display show GOOD?



- 3
- Replace branched wiring harness 1W107.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - This symptom may have multiple faults. Go to block 4 and continue testing.

*Figure 8-36 (Sheet 1 of 3)
Volume II
Para. 8-3*

**TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING**

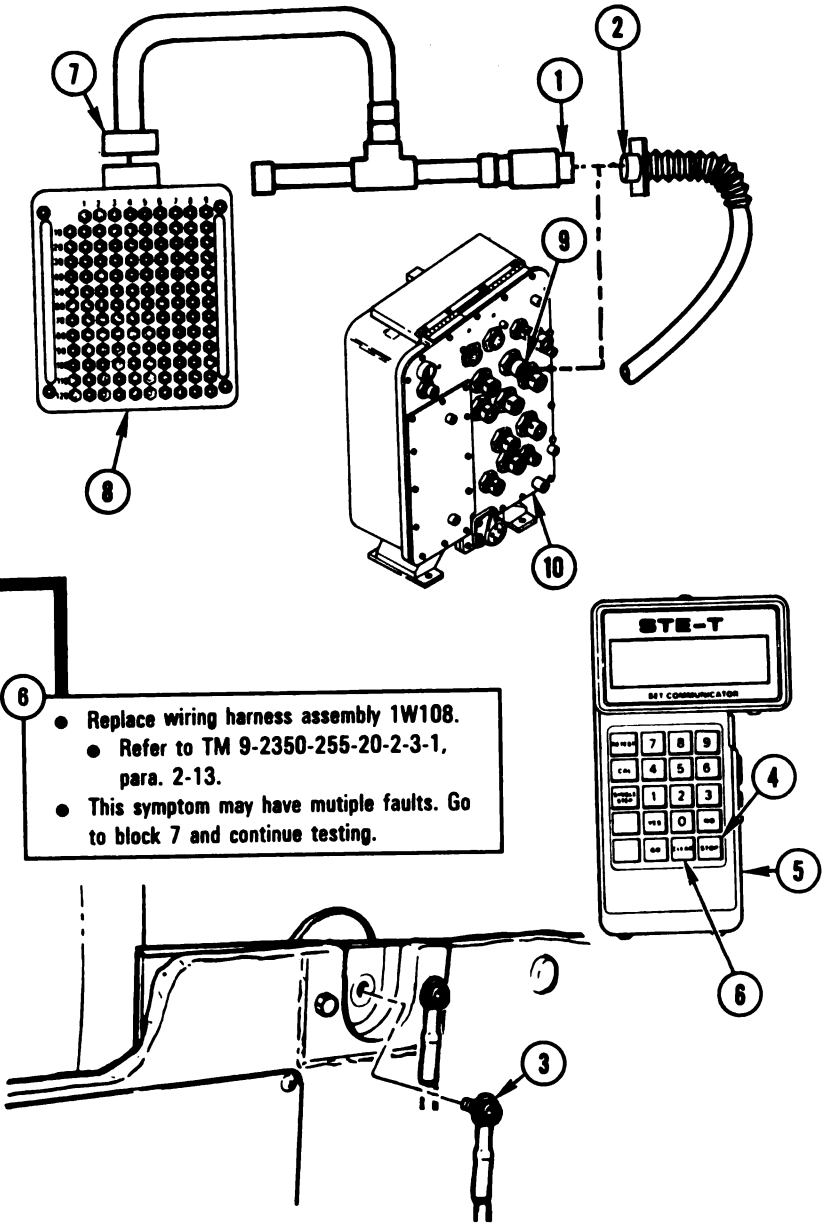
Disconnect 1W107-P1 from CA522-P1.
 ● See figure 8-28.
 Disconnect CX305-P2 from CIB-J1.
 ● See figure 8-20.
 Disconnect CA521-P1 (1) from 1W107-J1 (2).
 Disconnect 1W108-E2 from electrical contact.
 ● See figure 9-249.

Get TA1 adapter that will fit 1W108-E2 (3) for cable test.
 Prepare STE to run cable test 1390.
 ● Press STOP key (4) on SETCOM (5).
 ● Press CLEAR key (6).
 ● Enter test number 1390 on SETCOM (5).
 Run test on 1W108 between E2 and P1.
 ● Refer to TM 9-2350-255-20-2-2-2, figure 15-5.

Does SETCOM display show GOOD?

YES **NO**

● Connect CX305-P2 (7) to breakout box (8).
 ● Connect CA521-P1 (1) to J4 (9) on turret networks box (10).
 ● Connect 1W108-P1 to 1W107-J1.
 ● See figure 9-237.



● Replace wiring harness assembly 1W108.
 ● Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 ● This symptom may have multiple faults. Go to block 7 and continue testing.

*Figure 8-36 (Sheet 2 of 3)
Volume II
Para. 8-3*

ARR82-5586

**TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING**

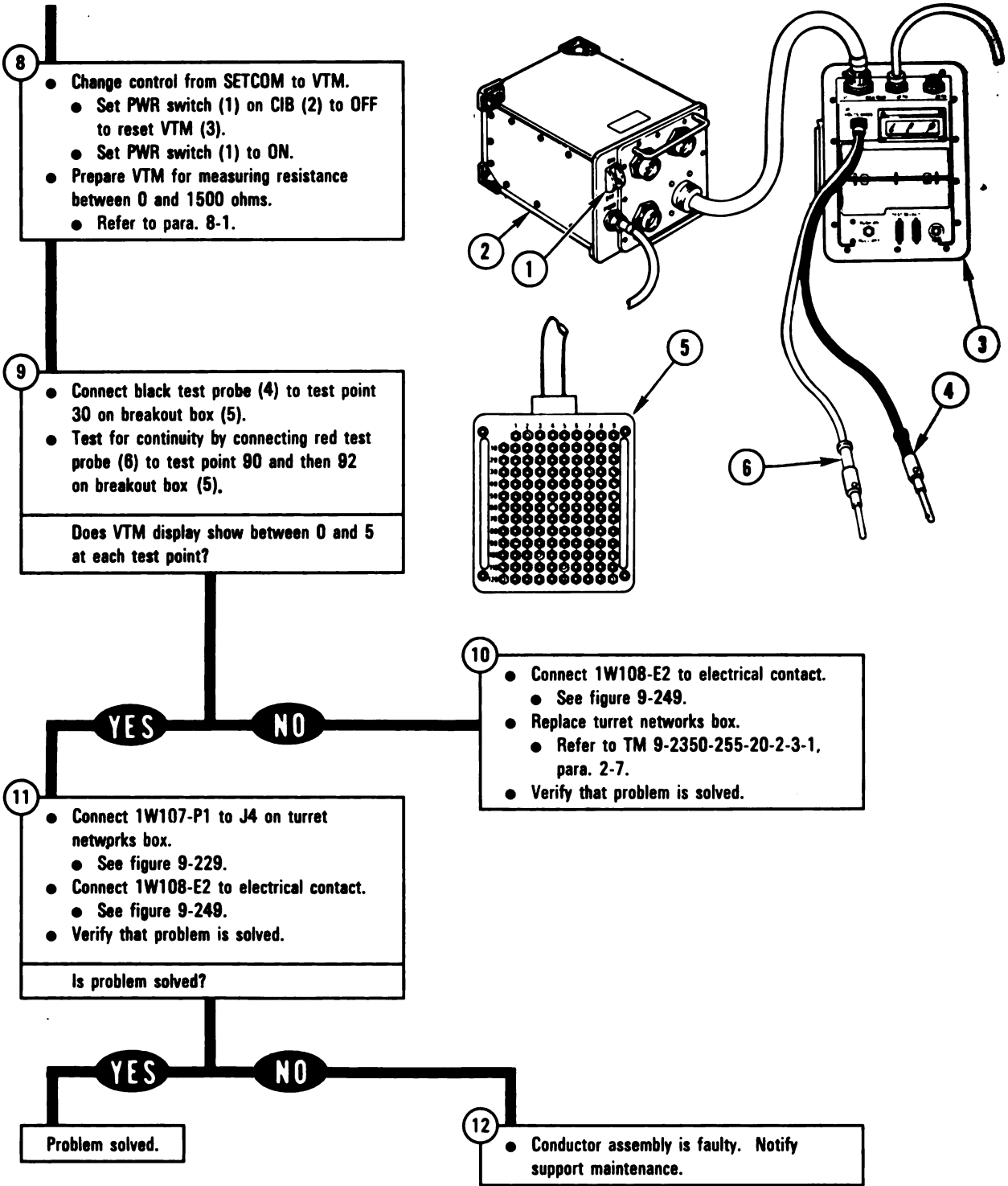


Figure 8-36 (Sheet 3 of 3)
**Volume II
Para. 8-3**

ARR82-5587

**DISPLAY SHOWS -
FAULTY MGSSW, 1W107
OR 1W108**

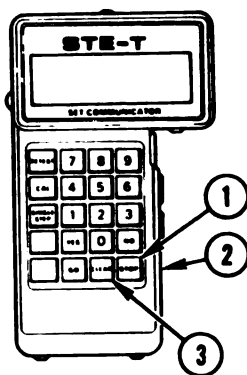
122410

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- Disconnect CX208-P2 from CIB-J2.
 - See figure 8-20.
- Connect 1W105-P1 to J10 on turret networks box.
 - See figure 9-229.
- Disconnect 1W108-P1 from 1W107-J1.
 - See figure 9-237.

- 2
- Prepare STE to run cable test 1390.
 - Press STOP key (1) on SETCOM (2).
 - Press CLEAR key (3).
 - Enter test number 1390 on SETCOM (2).
 - Run test on 1W107 between J1 and P1.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.



Does SETCOM display show GOOD?

YES

NO

3

- Replace branched wiring harness 1W107.
- Refer to TM 9-2350-225-20-2-3-1, para. 2-13.
- Verify that problem is solved.

Figure 8-37 (Sheet 1 of 2)
Volume II
Para. 8-3

ARR82-5588

**TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING**

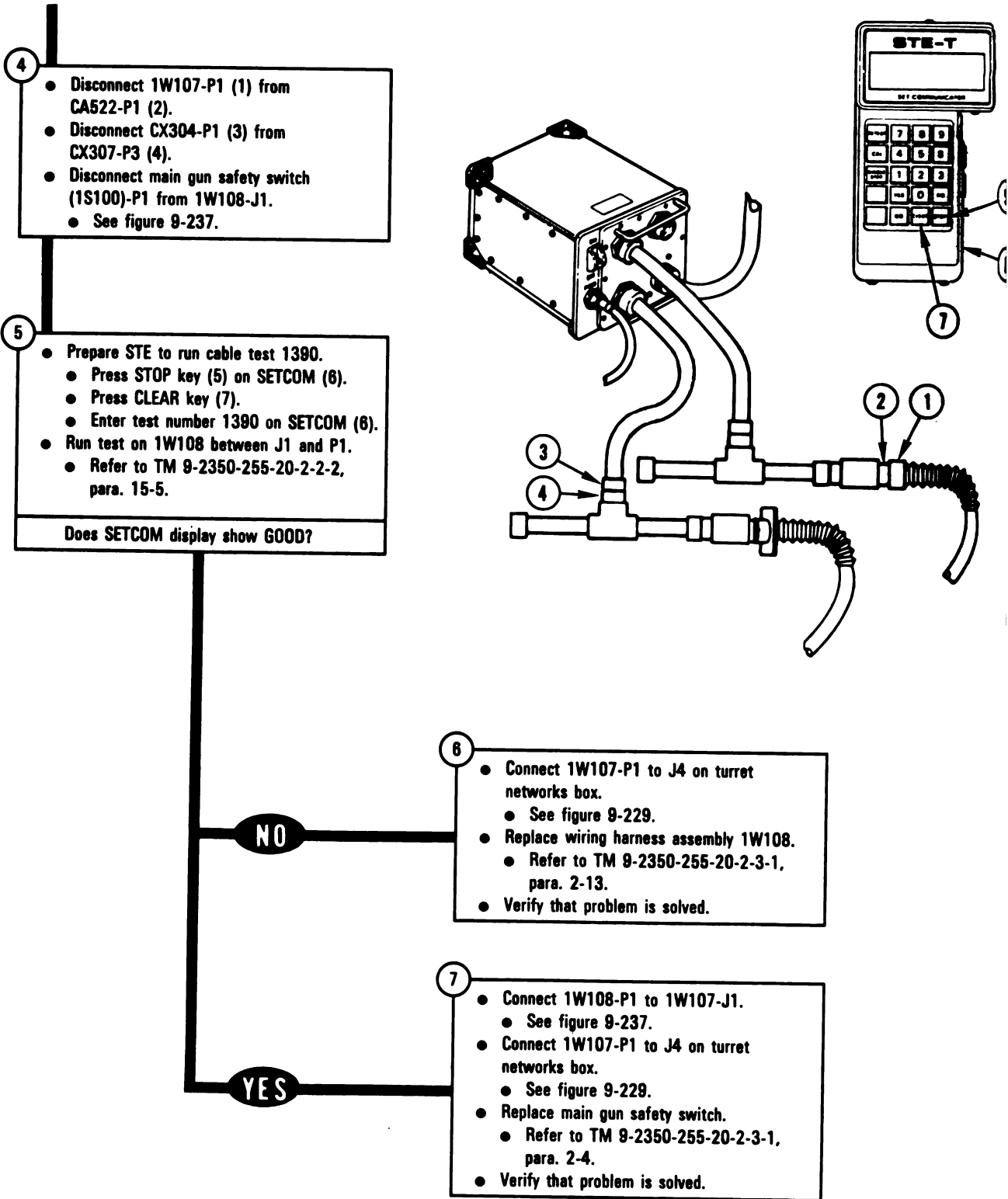


Figure 8-37 (Sheet 2 of 2)
**Volume II
Para. 8-3**

ARR82-5589

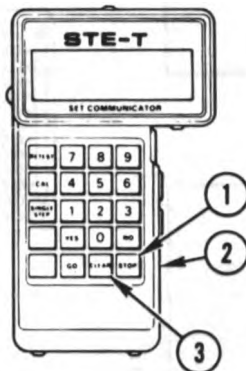
**DISPLAY SHOWS -
FAULTY TNB OR
1W104**

- 122131
- 122134
- 122138
- 122139
- 122142
- 122145
- 122147

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- 1
- Disconnect CX208-P2 from CIB-J2.
 - See figure 8-20.
 - If connected, disconnect CA512-P2 from CX307-P1.
 - See figure 8-25.
 - Disconnect 1W104-P1 from J9 on turret networks box.
 - See figure 9-229.



- 2
- Prepare STE to run cable test 1390.
 - Press STOP key (1) on SETCOM (2).
 - Press CLEAR key (3).
 - Enter test number 1390 on SETCOM (2).
 - Run test on 1W104 between P1 and P2.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.

Does SETCOM display show GOOD?

NO

- 3
- Replace branched wiring harness 1W104.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

YES

- 4
- Connect 1W104-P2 to J3 on gunner's primary sight.
 - See figure 9-240.
 - Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
 - Verify that problem is solved.

Figure 8-38
Volume II
Para. 8-3

ARR82-5590

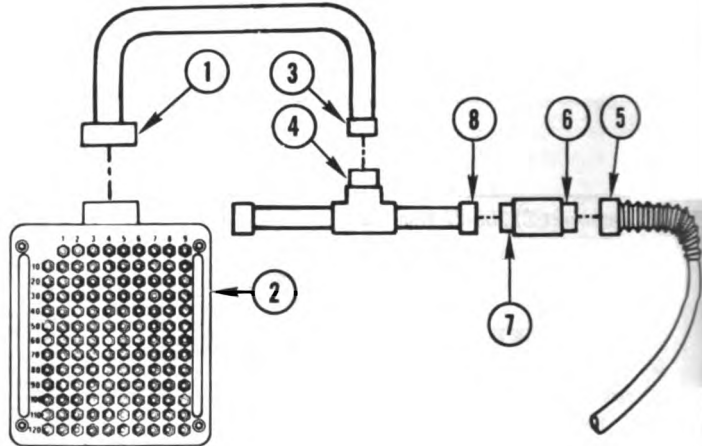
**DISPLAY SHOWS -
 FAULTY TNB OR
 1W104**

• 122122
 122124

**Additional Test
 Equipment/Special Tools:**
 • Breakout Box Tool Kit, 12311068.

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.



- 1
- Connect CX304-P2 (1) to breakout box (2).
 - Connect CX304-P1 (3) to CX307-P3 (4).
 - Disconnect 1W104-P1 from J9 on turret networks box.
 - See figure 9-229.
 - Connect 1W104-P1 (5) to CA518-P1 (6).
 - Connect CA518-P2 (7) to CX307-P1 (8).

- 2
- Change control from SETCOM to VTM.
 - Set PWR switch (9) on CIB (10) to OFF to reset VTM (11).
 - Set PWR switch (9) to ON.
 - Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 8-1.

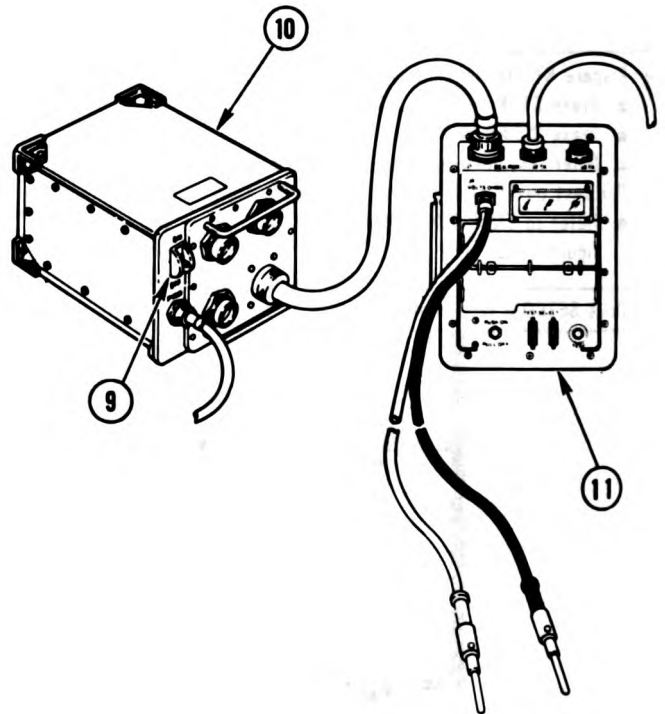


Figure 8-39 (Sheet 1 of 2)
 Volume II
 Para. 8-3

ARR82-5591

NOTE

If VTM display shows 0 to 5, go immediately to block 5.

- Test for 0 to 5 ohms between test points on breakout box listed in table A for fault number being tested.
- Connect red test probe (1) to test point on breakout box (2) listed in table A for fault number being tested.
- Connect black test probe (3) to test points on breakout box (2) listed in table A for fault number being tested.

Table A

Fault number	Red test probe	Black test probe
122122	24	7 through 23, 25 through 39, 62, 74, 75, 89 through 113, and 129
122124	26	7 though 25, 27 through 39, 62, 74, 75, 89 through 113, and 129

Does VTM display show between 0 and 5?

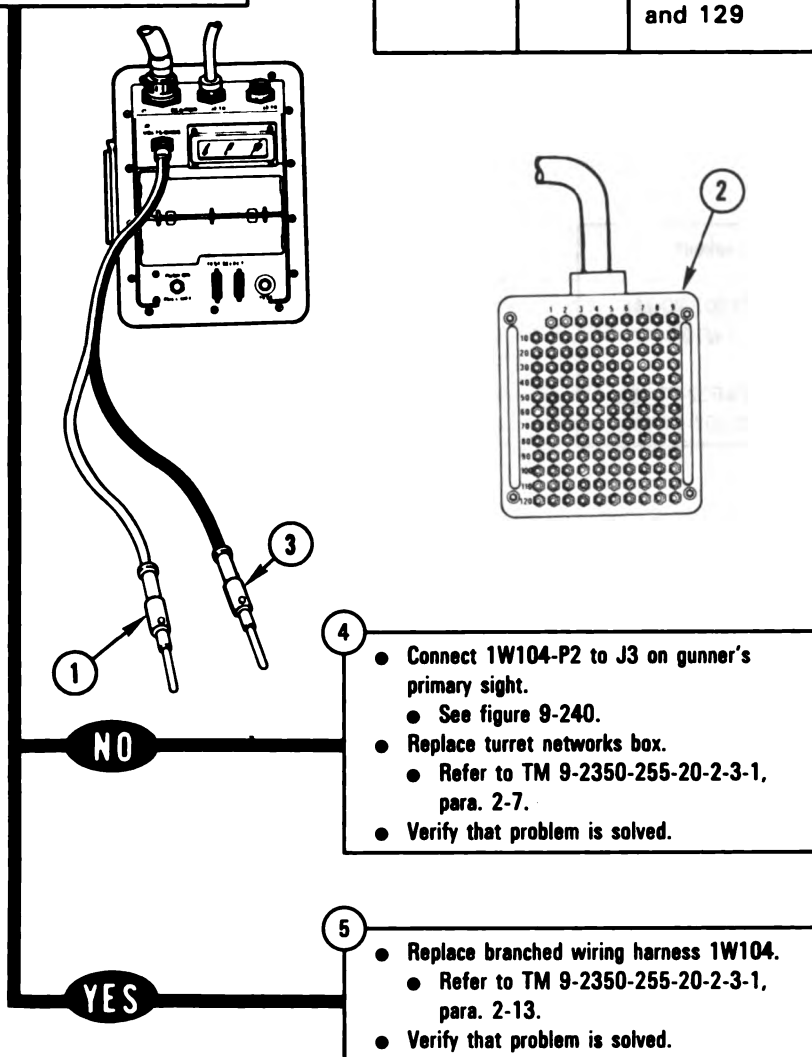


Figure 8-39 (Sheet 2 of 2)
Volume II
Para. 8-3

ARR82-5592

DISPLAY SHOWS -
SEE -20 MANUAL

122118

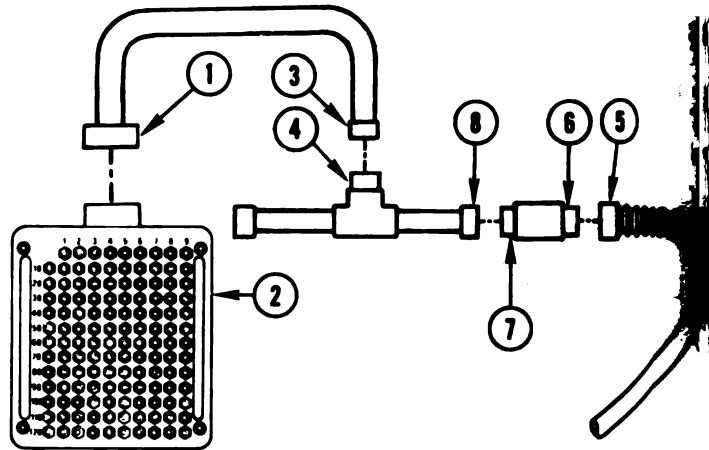
Additional Test

Equipment/Special Tools:

- Breakout Box Tool Kit, 12311066

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.



1

- Connect CX304-P2 (1) to breakout box (2).
- Connect CX304-P1 (3) to CX307-P3 (4).
- Disconnect 1W108-P1 from 1W107-J1.
 - See figure 9-237.
- Connect 1W108-P1 (5) to CA522-P1 (6).
- Connect CA522-P2 (7) to CX307-P1 (8).

2

- Change control from SETCOM to VTM.
 - Set PWR switch (9) on CIB (10) to OFF to reset VTM (11).
 - Set PWR switch (9) to ON.
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 8-1.

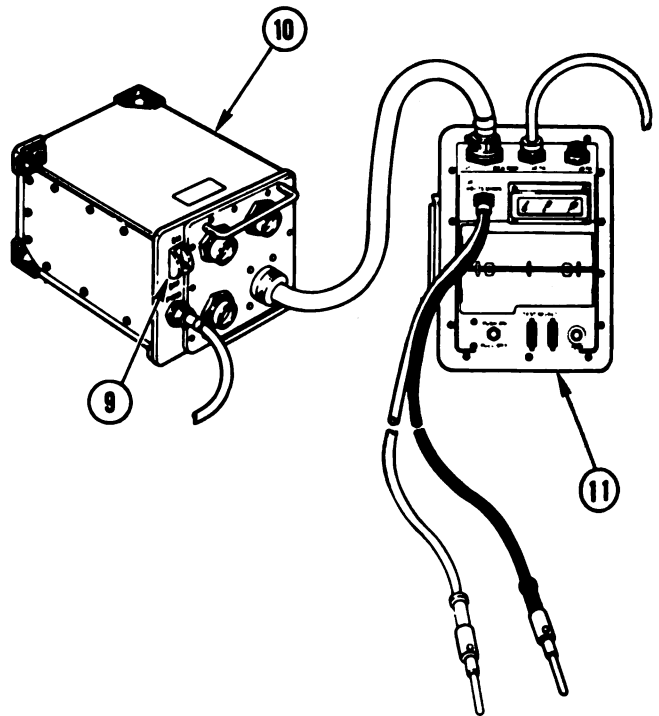


Figure 8-40 (Sheet 1 of 6)
Volume II
Para. 8-3

ARR82-5593

● Connect red test probe (1) to test point 30 on breakout box (2).

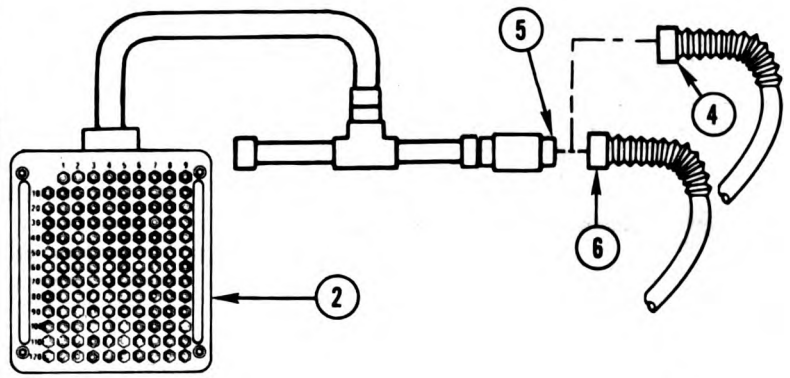
NOTE

If VTM display shows 0 to 5, go immediately to block 4.

● Test for 0 to 5 ohms by connecting black test probe (3) to each test point on breakout box (2) listed below:

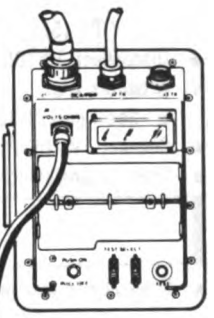
- 7
- 16 through 25
- 32 and 93

Does VTM display show between 0 and 5?



4

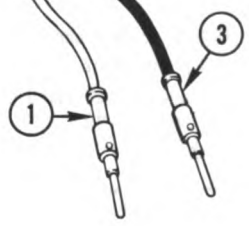
- Replace wiring harness assembly 1W108.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- This symptom has multiple faults. Go to block 16 and continue testing.



NO **YES**

5

- Disconnect 1W108-P1 (4) from CA522-P1 (5).
- Connect 1W108-P1 to 1W107-J1.
 - See figure 9-237.
- Disconnect 1W107-P1 from J4 on turret networks box.
 - See figure 9-229.
- Connect 1W107-P1 (6) to CA522-P1 (5).



**Figure 8-40 (Sheet 2 of 6)
Volume II
Para. 8-3**

ARR82-5594

**TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING**

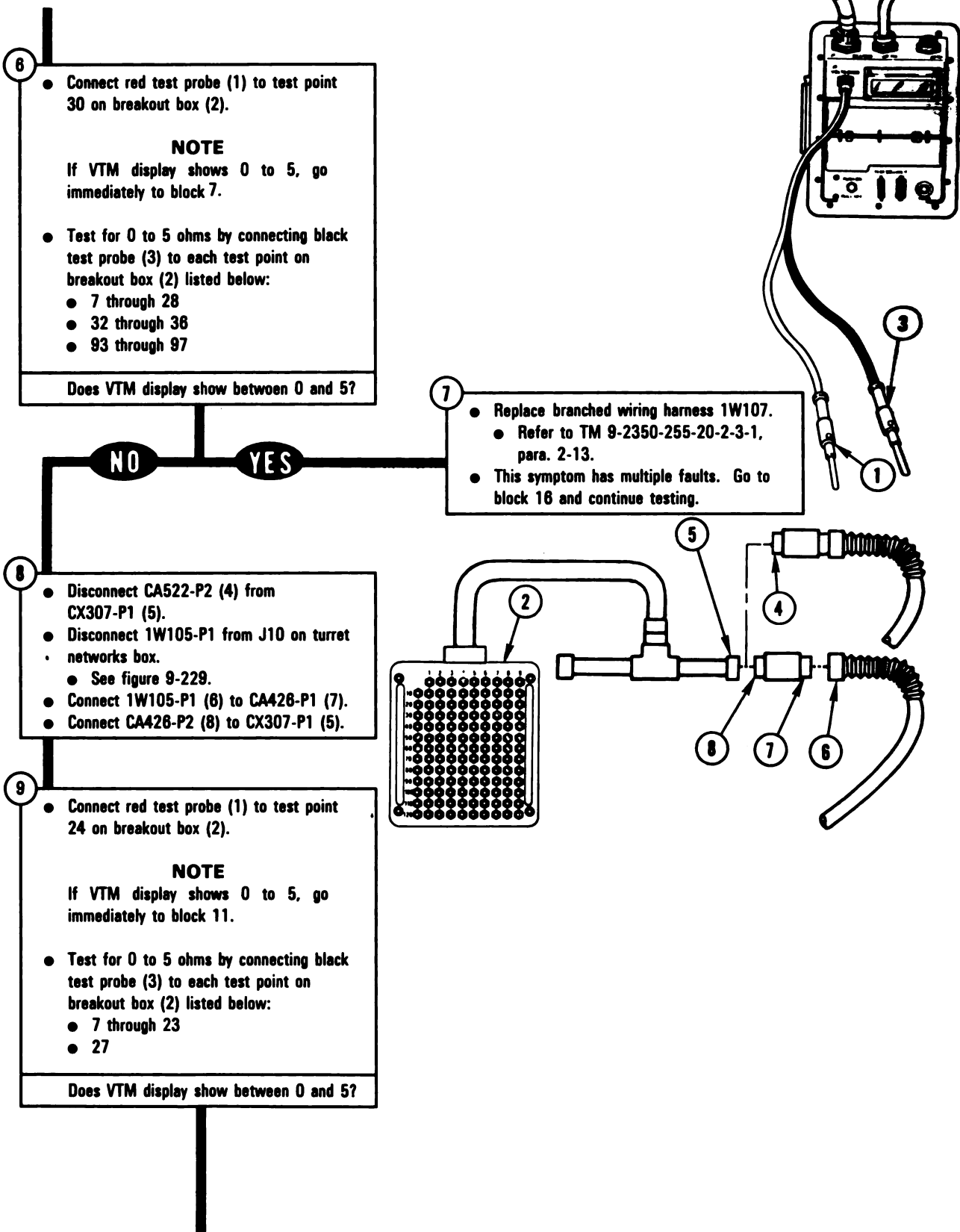


Figure 8-40 (Sheet 3 of 6)
Volume II
Para. 8-3

ARR82-5595

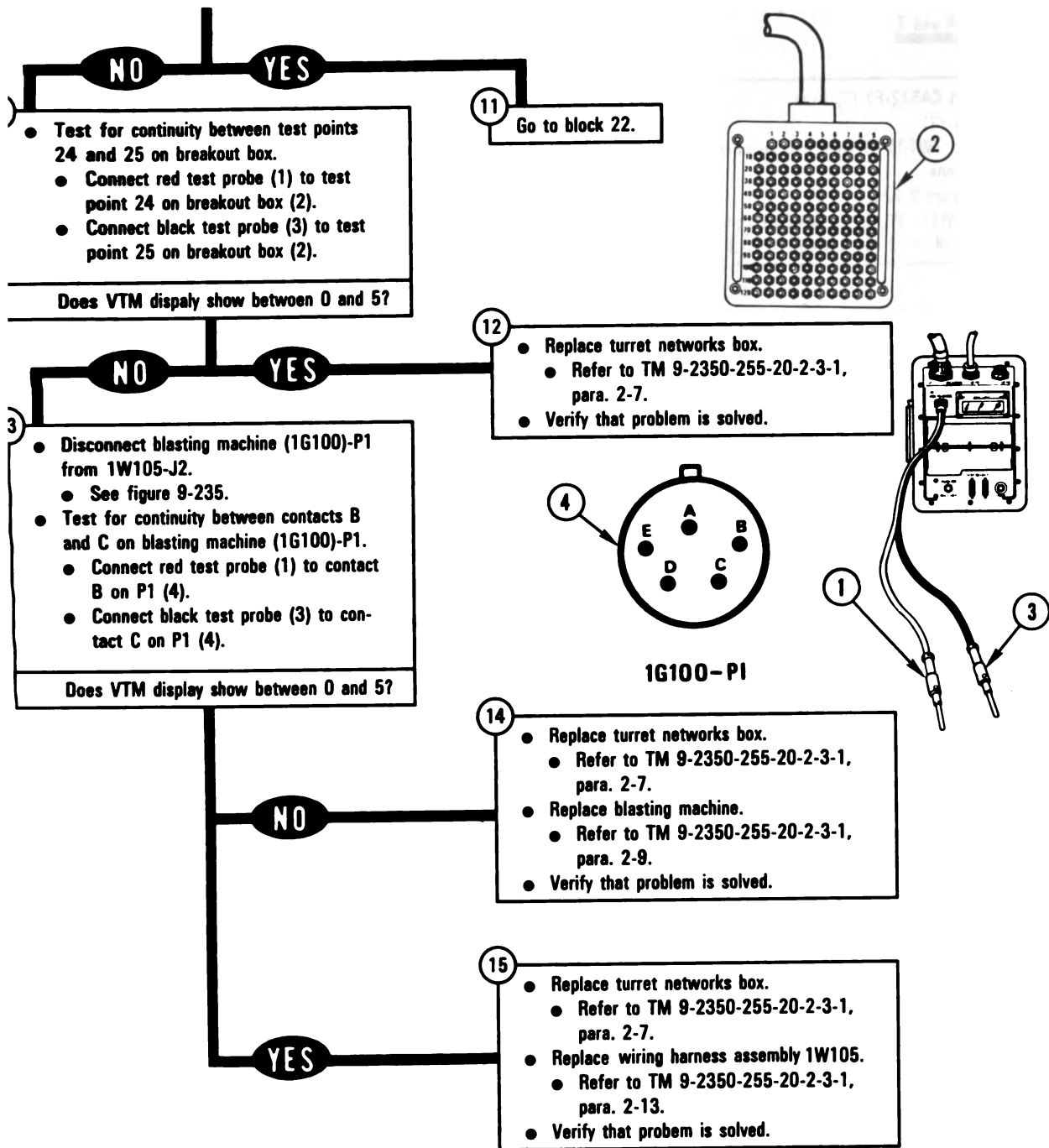


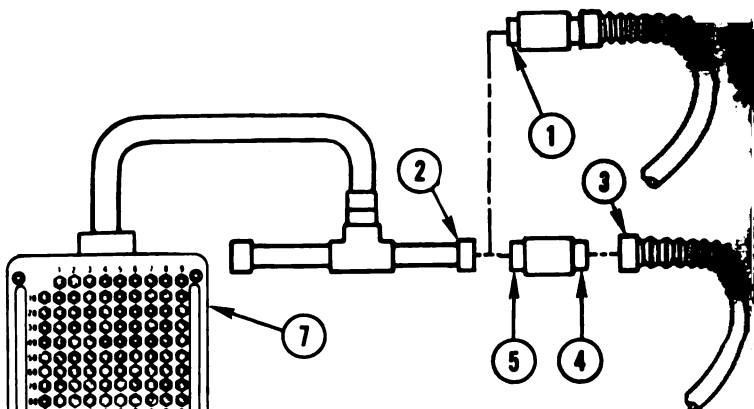
Figure 8-40 (Sheet 4 of 6)
Volume II
Para. 8-3

ARR82-5596

TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING

From blocks 4 and 7

- 16
- Disconnect CA522-P2 (1) from CX307-P1 (2).
 - Disconnect 1W105-P1 from J10 on turret networks box.
 - See figure 9-229.
 - Connect 1W105-P1 (3) to CA426-P1 (4).
 - Connect CA426-P2 (5) to CX307-P1 (2).



- 17
- Test for continuity between test points 24 and 25 on breakout box.
 - Connect red test probe (8) to test point 24 on breakout box (7).
 - Connect black test probe (8) to test point 25 on breakout box (7).

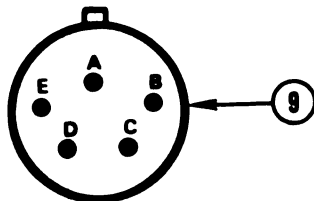
Does VTM display show between 0 and 5?

NO

YES

- 18
- Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
 - Verify that problem is solved.

- 19
- Disconnect blasting machine (1G100)-P1 from 1W105-J2.
 - See figure 9-235.
 - Test for continuity between contacts B and C on blasting machine P1.
 - Connect red test probe (8) to contact B on P1 (9).
 - Connect black test probe (8) to contact C on P1 (9).



1G100-P1

Does VTM display show between 0 and 5?

NO

YES

- 20
- Connect 1W105-P1 to J10 on turret networks box.
 - See figure 9-229.
 - Replace blasting machine.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-9.
 - Verify that problem is solved.

- 21
- Replace wiring harness assembly 1W105.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

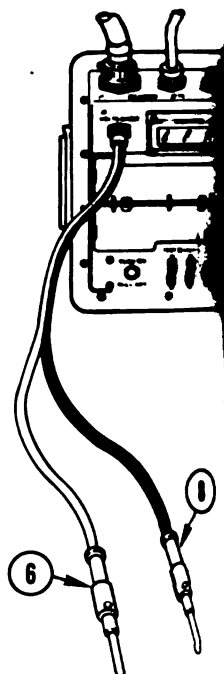


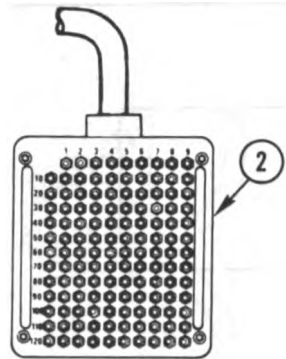
Figure 8-40 (Sheet 5 of 6)
 Volume II
 Para. 8-3

ARR82-5597

TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING

From block 11

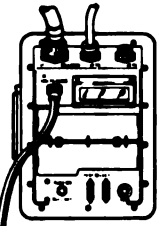
- Test for continuity between test points 24 and 25 on breakout box.
 - Connect red test probe (1) to test point 24 on breakout box (2).
 - Connect black test probe (3) to test point 25 on breakout box (2).
- Does VTM display show between 0 and 5?



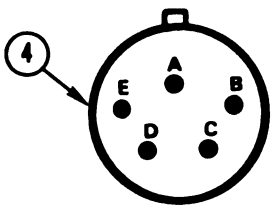
NO

YES

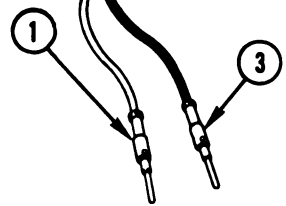
- 23
- Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
 - Replace wiring harness assembly 1W105.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13
 - Verify that problem is solved.



- 24
- Disconnect blasting machine (1G100)-P1 from 1W105-J2.
 - See figure 9-235.
 - Test for continuity between contacts B and C on blasting machine (1G100)-P1.
 - Connect red test probe (1) to contact B on P1 (4).
 - Connect black test probe (3) to contact C on P1 (4).
- Does VTM display show between 0 and 5?



1G100-P1



NO

YES

- 25
- Replace blasting machine.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-9.
 - Replace wiring harness assembly 1W105.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

- 26
- Replace wiring harness assembly 1W105.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

Figure 8-40 (Sheet 6 of 6)
 Volume II
 Para. 8-3

ARR82-5598

**TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING**

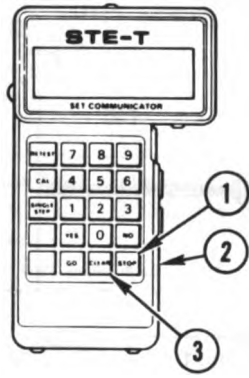
• 122154
• 122156

**DISPLAY SHOWS -
FAULTY TNB, 1W107
OR 1W108**

- Equipment Condition:**
- Tank parked.
 - Parking brake set.
 - Engine shut down.
 - Vehicle master power off.

- 1
- Disconnect CX208-P2 from CIB-J2.
 - See figure 8-20.
 - Disconnect CA558-P2 from CX308-P1.
 - See figure 8-29.
 - Disconnect 1W108-P1 from 1W107-J1.
 - See figure 9-237.

- 2
- Prepare STE to run cable test 1390.
 - Press STOP key (1) on SETCOM (2).
 - Press CLEAR key (3).
 - Enter test number 1390 on SETCOM (2).
 - Run test on 1W108 between J1 and P1.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.
- Does SETCOM display show GOOD?



YES **NO**

- 3
- Replace wiring harness assembly 1W108.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

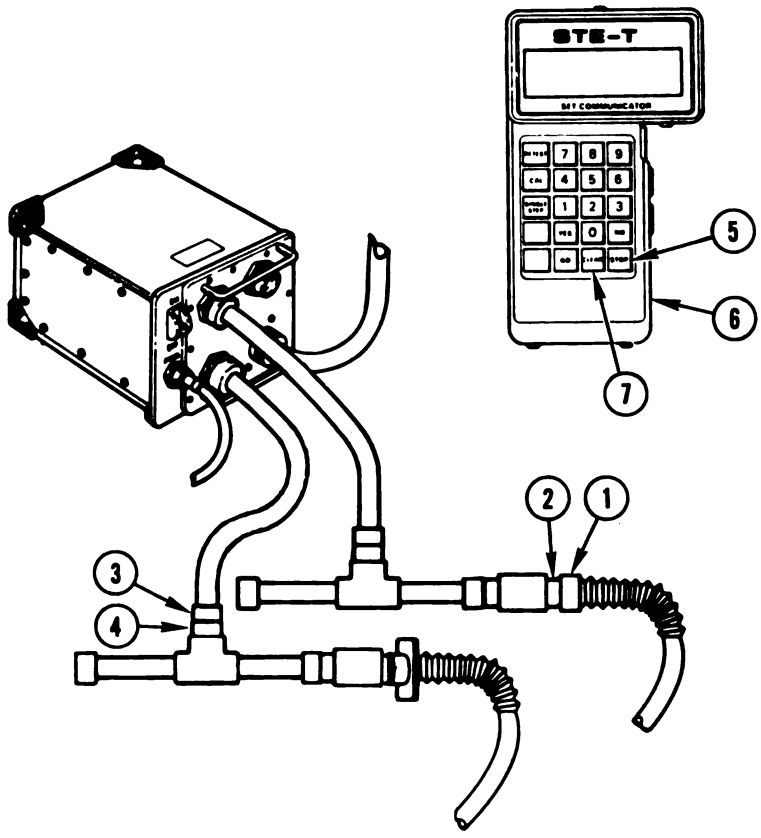
*Figure 8-41 (Sheet 1 of 2)
Volume II
Para. 8-3*

**TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING**

- Disconnect 1W108-P1 (1) from CA522-P1 (2).
- Disconnect CX305-P1 (3) from CX308-P3 (4).
- Disconnect 1W107-P1 from J4 on turret networks box.
 - See figure 9-229.

- Prepare STE to run cable test 1390.
 - Press STOP key (5) on SETCOM (6).
 - Press CLEAR key (7).
 - Enter test number 1390 on SETCOM (8).
- Run test on 1W107 between J1 and P1.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.

Does SETCOM display show GOOD?



NO

- 6
- Connect main gun safety switch (1S100)-P1 to 1W108-J1.
 - See figure 9-237.
 - Replace branched wiring harness 1W107.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

YES

- 7
- Connect main gun safety switch (1S100)-P1 to 1W108-J1.
 - See figure 9-237.
 - Connect 1W108-P1 to 1W107-J1.
 - See figure 9-237.
 - Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
 - Verify that problem is solved.

Figure 8-41 (Sheet 2 of 2)
Volume II
Para. 8-3

ARR82-5600

**TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING**

• 122028
122040

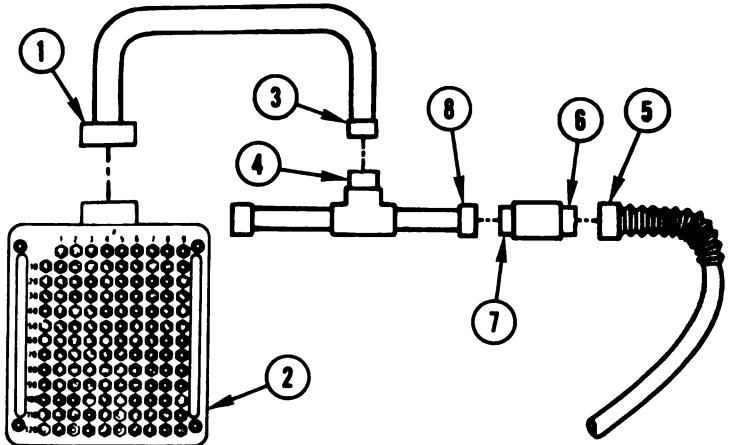
**DISPLAY SHOWS -
FAULTY LRF OR
1W203**

**Additional Test
Equipment/Special Tools:**
• Breakout Box Tool Kit, 12311088

Equipment Condition:
• Tank parked.
• Parking brake set.
• Engine shut down.
• Vehicle master power off.

1
• Connect CX304-P2 (1) to breakout box (2).
• Connect CX304-P1 (3) to CX307-P3 (4).

2
• Connect 1W203-P1 (5) to CA528-P1 (6).
• Connect CA528-P2 (7) to CX307-P2 (8).
• Disconnect 1W203-P3 from J1 on laser rangefinder.
• See figure 9-240.



*Figure 8-42 (Sheet 1 of 3)
Volume II
Para. 8-3*

ARR82-5601

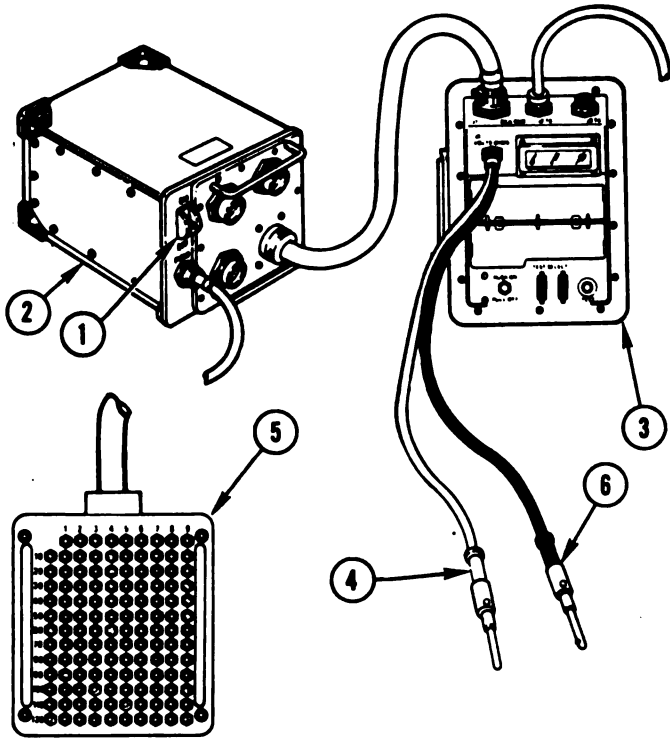
- Change control from SETCOM to VTM.
 - Set PWR switch (1) on CIB (2) to OFF to reset VTM (3).
 - Set PWR switch (1) to ON.
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 8-1.

- Connect red test probe (4) to test point 94 on breakout box (5).

NOTE

If VTM display shows 0 to 5, go immediately to block 5.

- Test for 0 to 5 ohms by connecting black test probe (6) to each test point on breakout box (5) listed below:
 - 7 through 39
 - 82, 74 and 75
 - 89 through 93
 - 95 through 113
 - 129



Does VTM display show between 0 and 5?

NO

YES

- Replace branched wiring harness 1W203.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

Figure 8-42 (Sheet 2 of 3)
Volume II
Para. 8-3

ARR82-5602

**TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING**

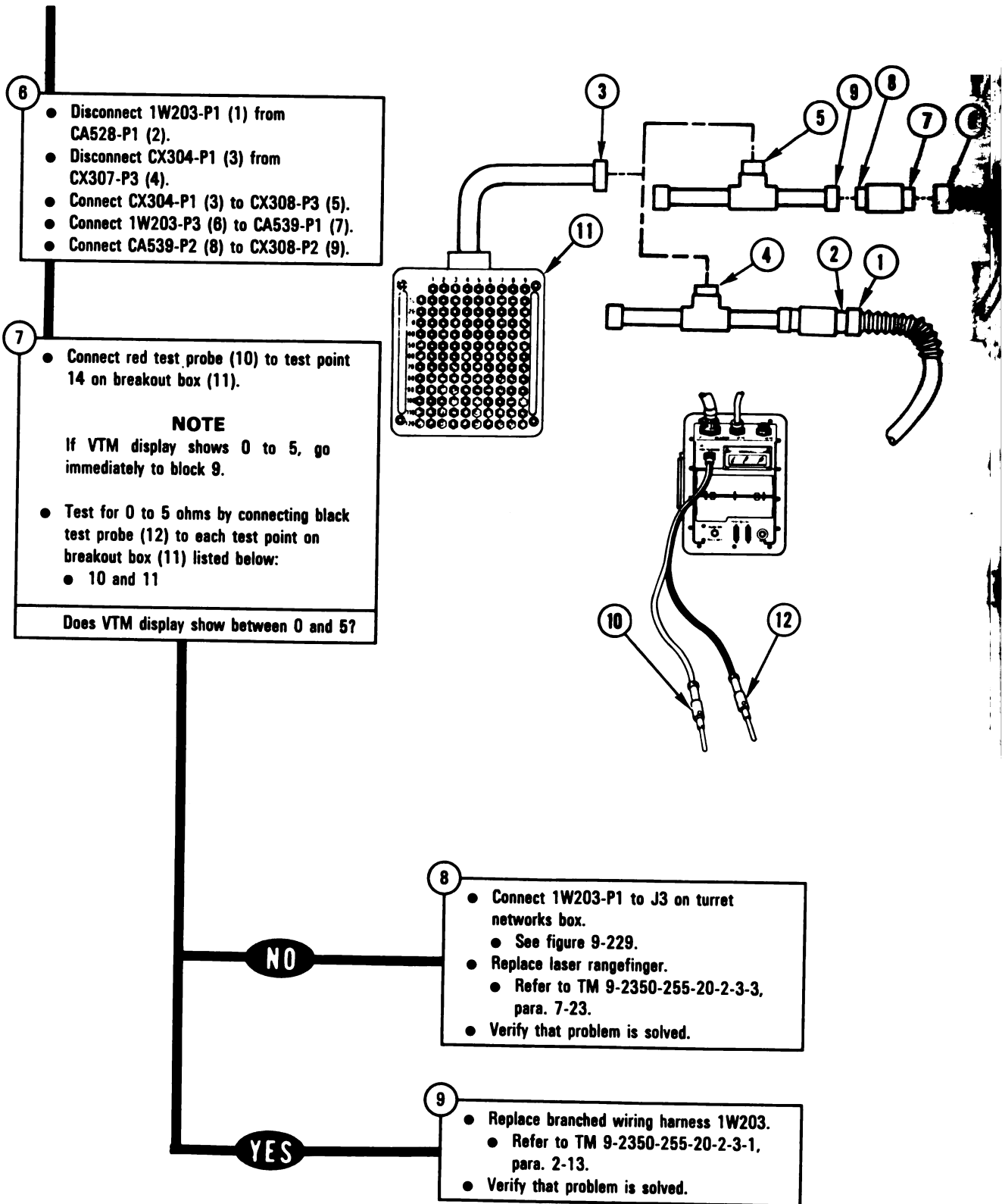


Figure 8-42 (Sheet 3 of 3)
Volume II
Para. 8-3

ARR82-5603

DISPLAY SHOWS -
SEE -20 MANUAL

- 122129
- 122132
- 122143

Additional Test Equipment/Special Tools:

- Breakout Box Tool Kit, 12311066

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut off.
- Vehicle master power off.

- Connect CX304-P2 (1) to breakout box (2).
- Connect CX304-P1 (3) to CX307-P3 (4).
- Disconnect 1W104-P1 from J9 on turret networks box.
 - See figure 9-229.
- Connect 1W104-P1 (5) to CA518-P1 (6).
- Connect CA518-P2 (7) to CX307-P1 (8).

- Change control from SETCOM to VTM.
 - Set PWR switch (9) on CIB (10) to OFF to reset VTM (11).
 - Set PWR switch (9) to ON.
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 8-1.

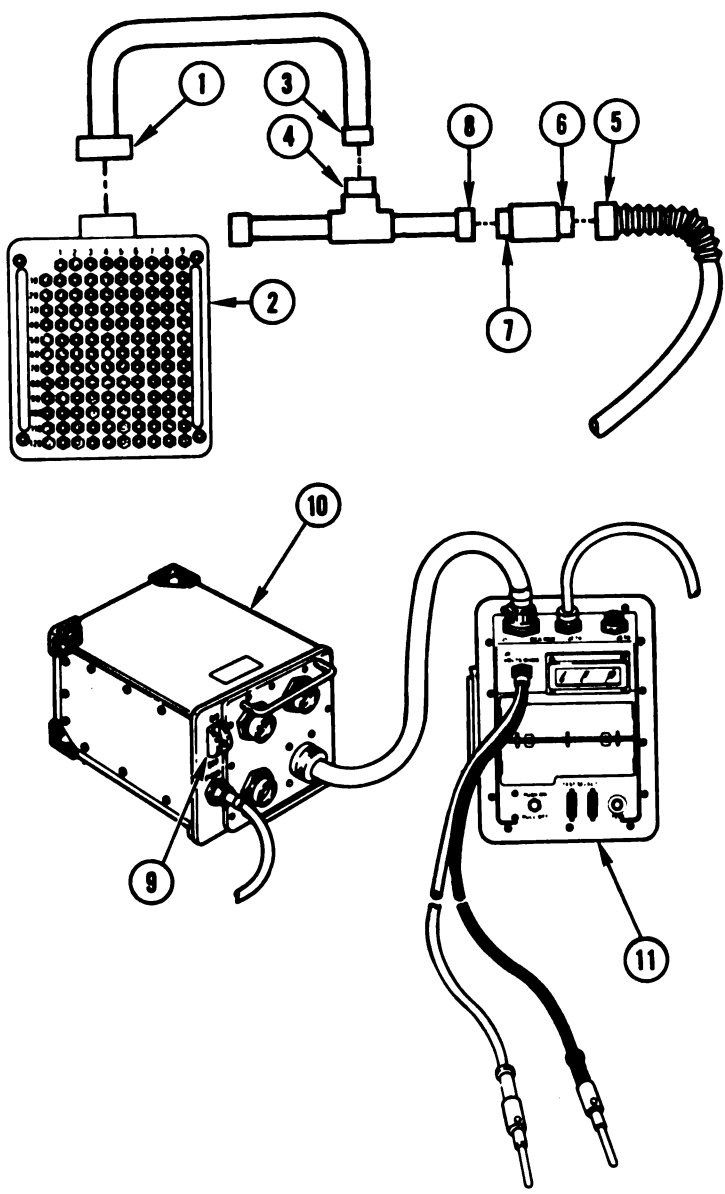


Figure 8-43 (Sheet 1 of 2)
Volume II
Para. 8-3

ARR82-5604

**TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM*TROUBLESHOOTING**

Table A

Fault number	Red test probe	Black test probe
122129	98	7 through 39, 62, 74, 75, 89 through 97, 99 through 113, and 129
122132	100	7 through 39, 62, 74, 75 89 through 99, 101 through 113, and 129
122143	99	7 through 39, 62, 74, 75, 89 through 98, 100 through 113, and 129

NOTE
If VTM display shows 0 to 5, leave test probes connected and go immediately to block 5.

- Test for 0 to 5 ohms between test points on breakout box listed in table A for fault number being tested.
- Connect red test probe (1) to test point on breakout box (2) listed in table A for fault number being tested.
- Connect black test probe (3) to test points on breakout box (2) listed in table A for fault number being tested.

Does VTM display show between 0 and 5?

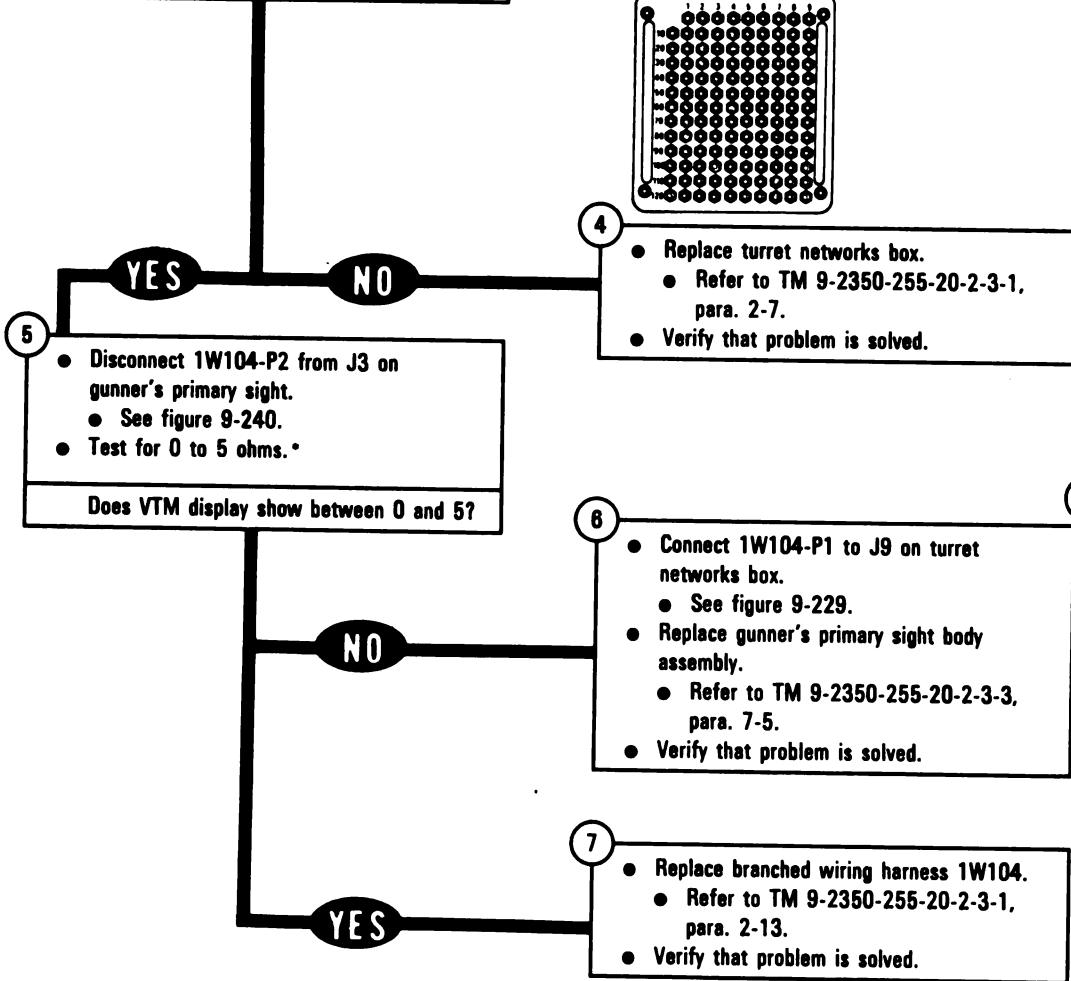
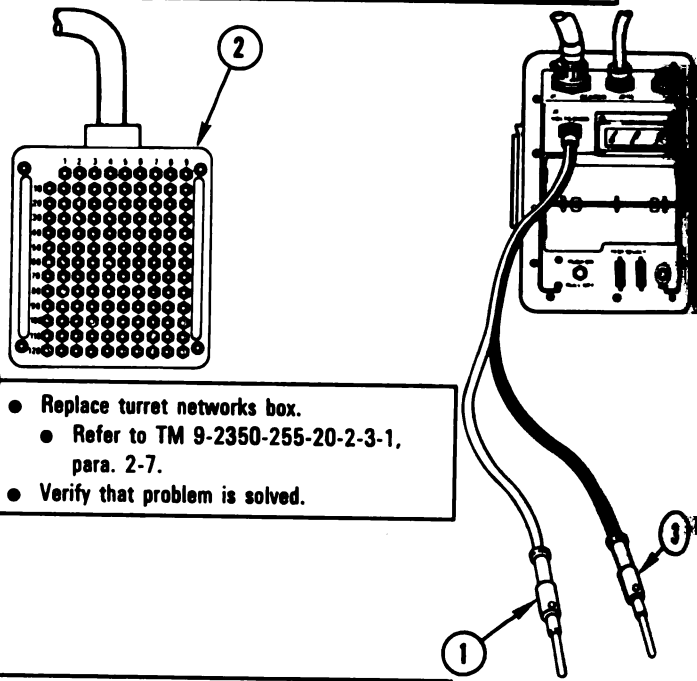


Figure 8-43 (Sheet 2 of 2)
**Volume II
Para. 8-3**

ARR82-5605

* Between contacts found in block 3
8-94

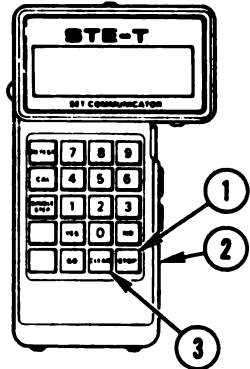
**DISPLAY SHOWS -
FAULTY CEU OR
1W201** **122311**

**Additional Test
Equipment/Special Tools:**
 ● Breakout Box Tool Kit, 12311066

Equipment Condition:
 ● Tank parked.
 ● Parking brake set.
 ● Engine shut down.
 ● Vehicle master power off.

● Disconnect CX208-P2 from C1B-J2.
 ● See figure 8-20.
 ● Disconnect CA501-P2 from CX307-P2.
 ● See figure 8-23.
 ● Disconnect 1W201-P2 from J1 on com-
 puter electronics unit.
 ● See figure 9-230.

● Prepare STE to run cable test 1390.
 ● Press STOP key (1) on SETCOM (2).
 ● Press CLEAR key (3).
 ● Enter test number 1390 on SETCOM (2).
 ● Run test on 1W201 between P1 and P2.
 ● Refer to TM 9-2350-255-20-2-2-2,
 figure 15-5.



Does SETCOM display show GOOD?

YES

NO

③
 ● Replace branched wiring harness 1W201.
 ● Refer to TM 9-2350-255-20-2-3-1,
 para. 2-13.
 ● Verify that problem is solved.

Figure 8-44 (Sheet 1 of 2)
Volume II
Para. 8-3

ARR82-5606

**TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING**

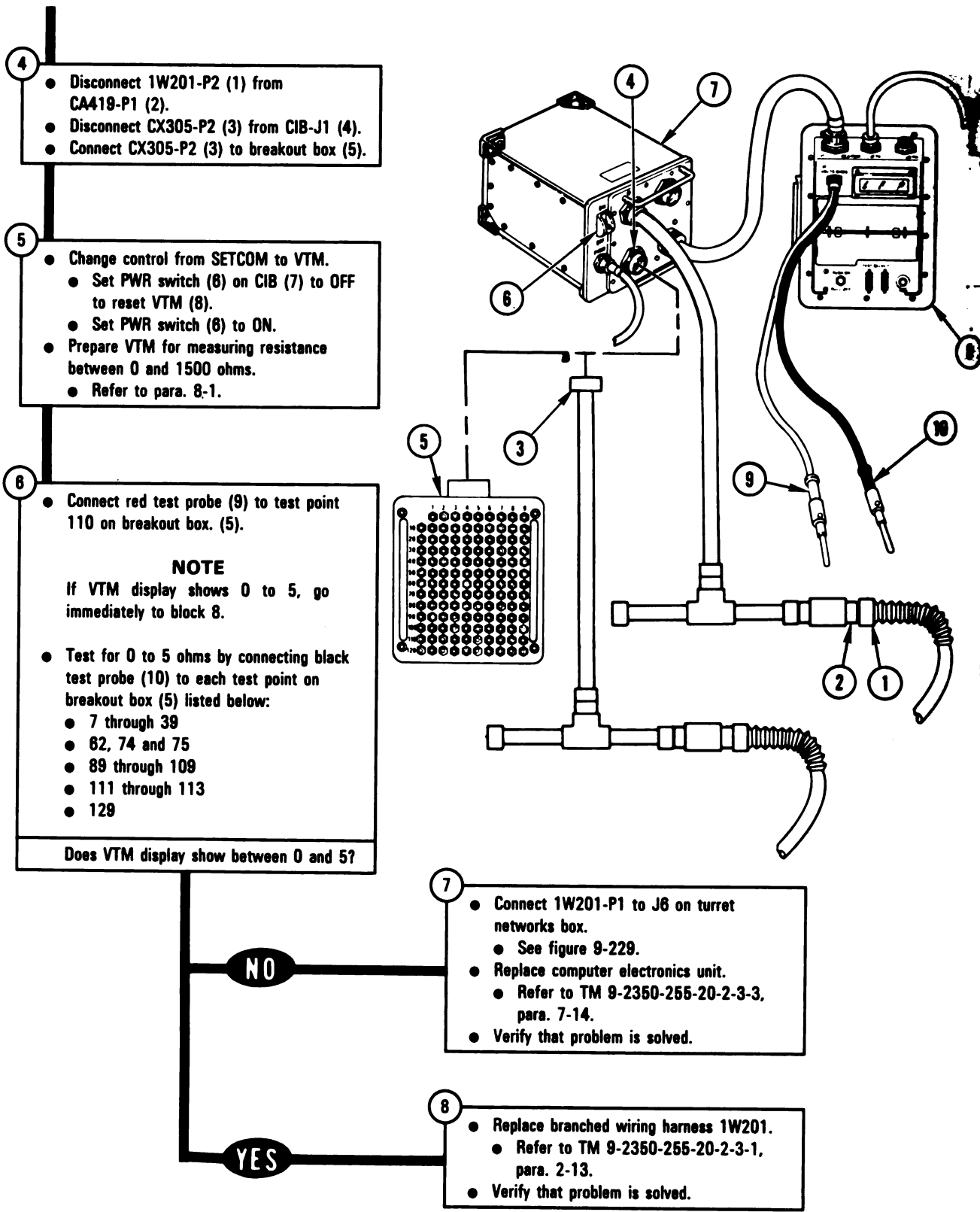


Figure 8-44 (Sheet 2 of 2)
Volume II
Para. 8-3

ARR82-5607

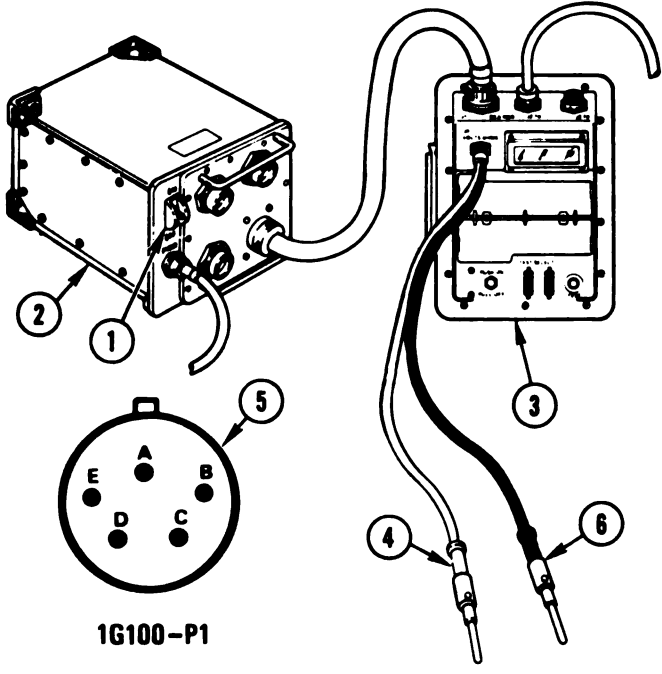
**DISPLAY SHOWS -
FAULTY BMACH
OR 1W105** 122172

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- Disconnect blasting machine (1G100)-P1 from 1W105-J2.
- See figure 9-235.
- Change control from SETCOM to VTM.
- Set PWR switch (1) on CIB (2) to OFF to reset VTM (3).
- Set PWR switch (1) to ON.
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
- Refer to para. 8-1.

- Test for 0 to 5 ohms between contact B and connector body and all other contacts on blasting machine (1G100)-P1.
- Connect red test probe (4) to contact B on P1 (5).
- Connect black test probe (6) to connector body and all other contacts on P1 (5).



Does VTM display show between 0 to 5?

NO

YES

3

- Replace wiring harness assembly 1W105.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

4

- Connect 1W105-P1 to J10 turret networks box.
- See figure 9-229.
- Replace blasting machine.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-9.
- Verify that problem is solved.

Figure 8-45
Volume II
Para. 8-3

ARR82-5608

DISPLAY SHOWS -
 SEE -20 MANUAL

• 122135
 122157

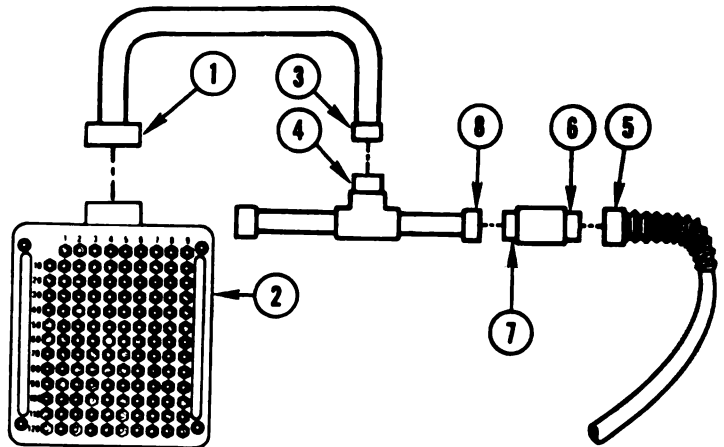
Additional Test

Equipment/Special Tools:

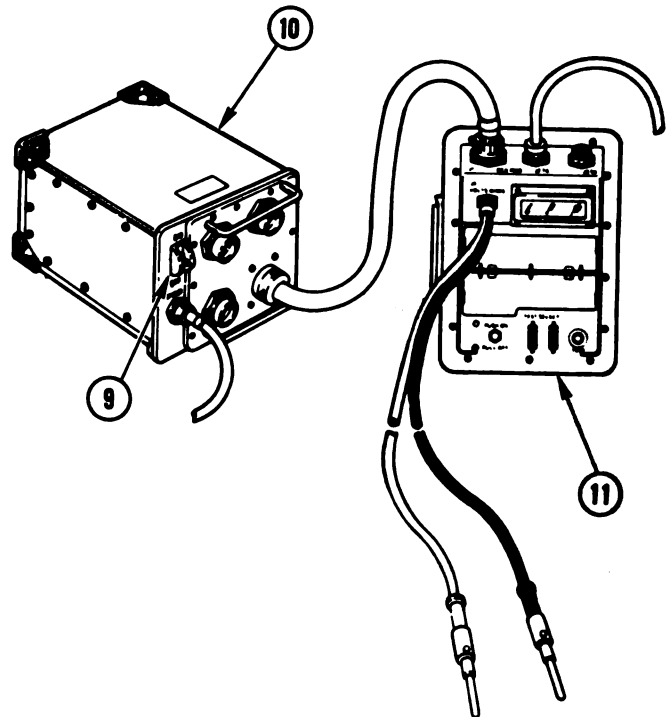
- Breakout Box Tool Kit, 12311066

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.



- 1
- Connect CX304-P2 (1) to breakout box (2).
 - Connect CX304-P1 (3) to CX307-P3 (4).
 - Disconnect 1W106-P1 from J2 on turret networks box.
 - See figure 9-229.
 - Connect 1W106-P1 (5) to CA520-P1 (8).
 - Connect CA520-P2 (7) to CX307-P1 (8).



- 2
- Disconnect 1W106-P2 from J1 on loader's panel.
 - See figure 9-236.
 - Change control from SETCOM to VTM.
 - Set PWR switch (9) on CIB (10) to OFF to reset VTM (11).
 - Set PWR switch (9) to ON.
 - Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 8-1.

Figure 8-46 (Sheet 1 of 3)
 Volume II
 Para. 8-3

ARR82-5609

**TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING**

NOTE

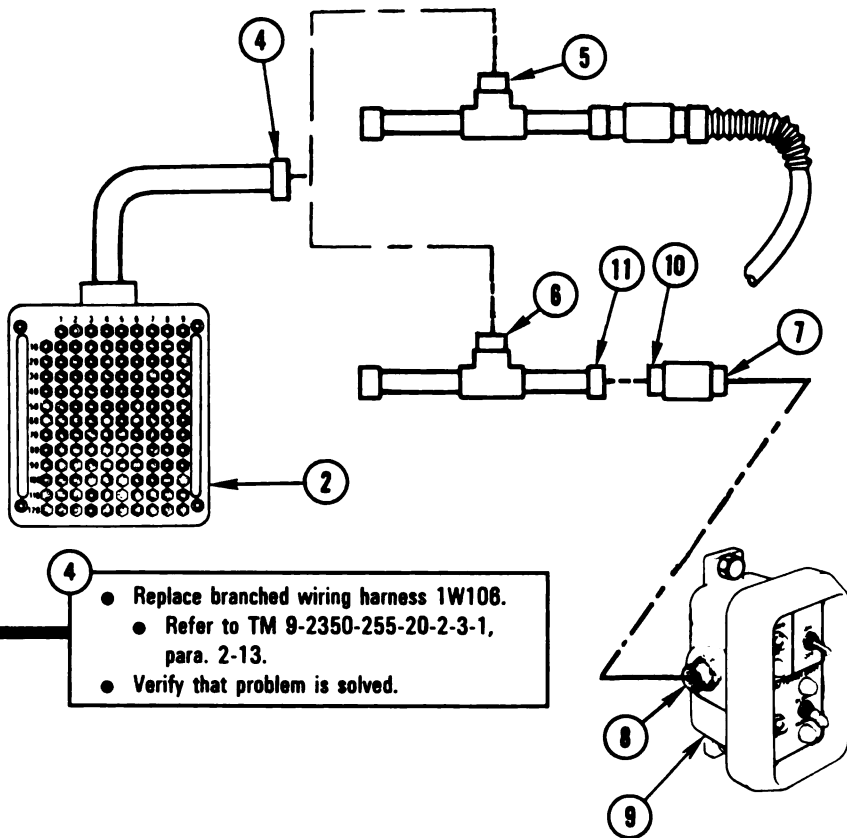
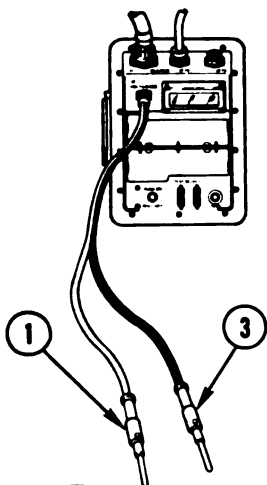
If VTM display shows 0 to 5, go immediately to block 4.

- Test for 0 to 5 ohms between test points on breakout box listed in table A for fault number being tested.
- Connect red test probe (1) to test point on breakout box (2) listed in table A for fault number being tested.
- Connect black test probe (3) to test points on breakout box (2) listed in table A for fault number being tested.

Table A

Fault number	Red test probe	Black test probe
122 135	95	7 through 38, 89 through 94, 96 through 111, and 129
122 157	96	7 through 38, 89 through 95, 97 through 111, and 129

Does VTM display show between 0 and 5?



- 4
- Replace branched wiring harness 1W106.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

NO **YES**

- Disconnect CX304-P1 (4) from CX307-P3 (5).
- Connect CX304-P1 (4) to CX308-P3 (8).
- Connect CA538-P1 (7) to J1 (8) on loader's panel (9).
- Connect CA538-P2 (10) to CX308-P1 (11).

Figure 8-46 (Sheet 2 of 3)
**Volume II
Para. 8-3**

ARR82-5610

**TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING**

Table B

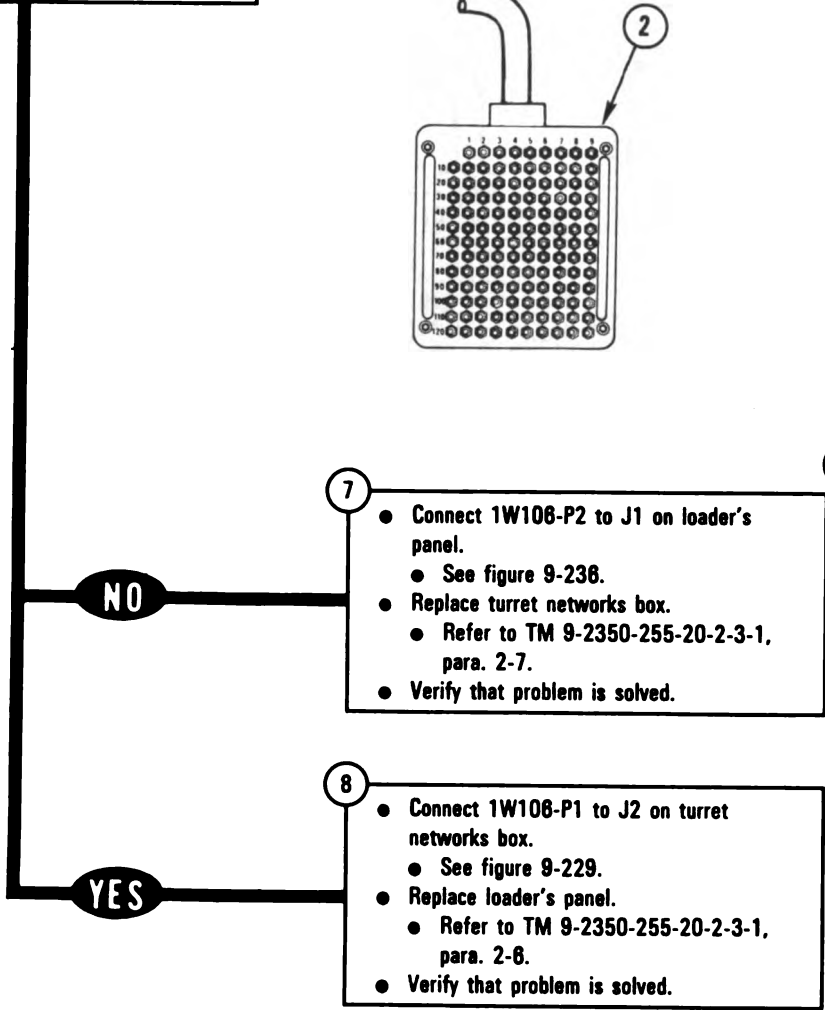
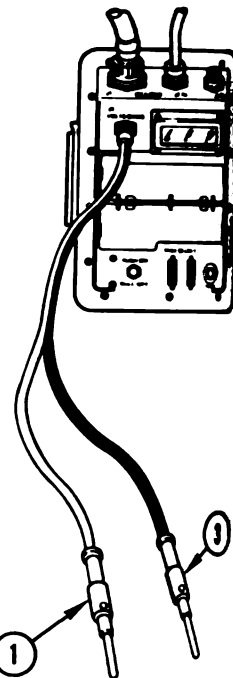
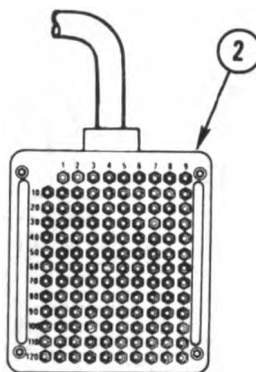
Fault number	Red test probe	Black test probe
122135	21	7 through 20, 22 through 125, and 129
122157	22	7 through 21, 23 through 25, and 129

6

NOTE
If VTM display shows 0 to 5, go immediately to block 8.

- Test for 0 to 5 ohms between test points on breakout box listed in table B for fault number being tested.
- Connect red test probe (1) to test point on breakout box (2) listed in table B for fault number being tested.
- Connect black test probe (3) to test points on breakout box (2) listed in table B for fault number being tested.

Does VTM display show between 0 and 5?



7

- Connect 1W108-P2 to J1 on loader's panel.
- See figure 9-238.
- Replace turret networks box.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
- Verify that problem is solved.

8

- Connect 1W108-P1 to J2 on turret networks box.
- See figure 9-229.
- Replace loader's panel.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-6.
- Verify that problem is solved.

Figure 8-46 (Sheet 3 of 3)
**Volume II
Para. 8-3**

ARR82-5611

**DISPLAY SHOWS -
FAULTY TCH OR
1W200**

Additional Test

Equipment/Special Tools:

- Breakout Box Tool Kit, 12311086

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- Disconnect CX208-P2 from CIB-J2.

- See figure 8-20.

- Disconnect 1W200-P7 from J1 on commander's control.

- See figure 9-232.

- Prepare STE to run cable test 1390.

- Press STOP key (1) on SETCOM (2).

- Press CLEAR key (3).

- Enter test number 1390 on SETCOM (2).

- Run test on 1W200 between P1 and P7.

- Refer to TM 9-2350-255-20-2-2-2, figure 15-5.

Does SETCOM display show GOOD?

YES

NO

- Disconnect 1W200-P7 (4) from CA535-P1 (5).

- Disconnect CX305-P2 (8) from CIB-J1 (7).

- Connect CX305-P2 (8) to breakout box (8).

- 122055
- 122202
- 122203
- 122204

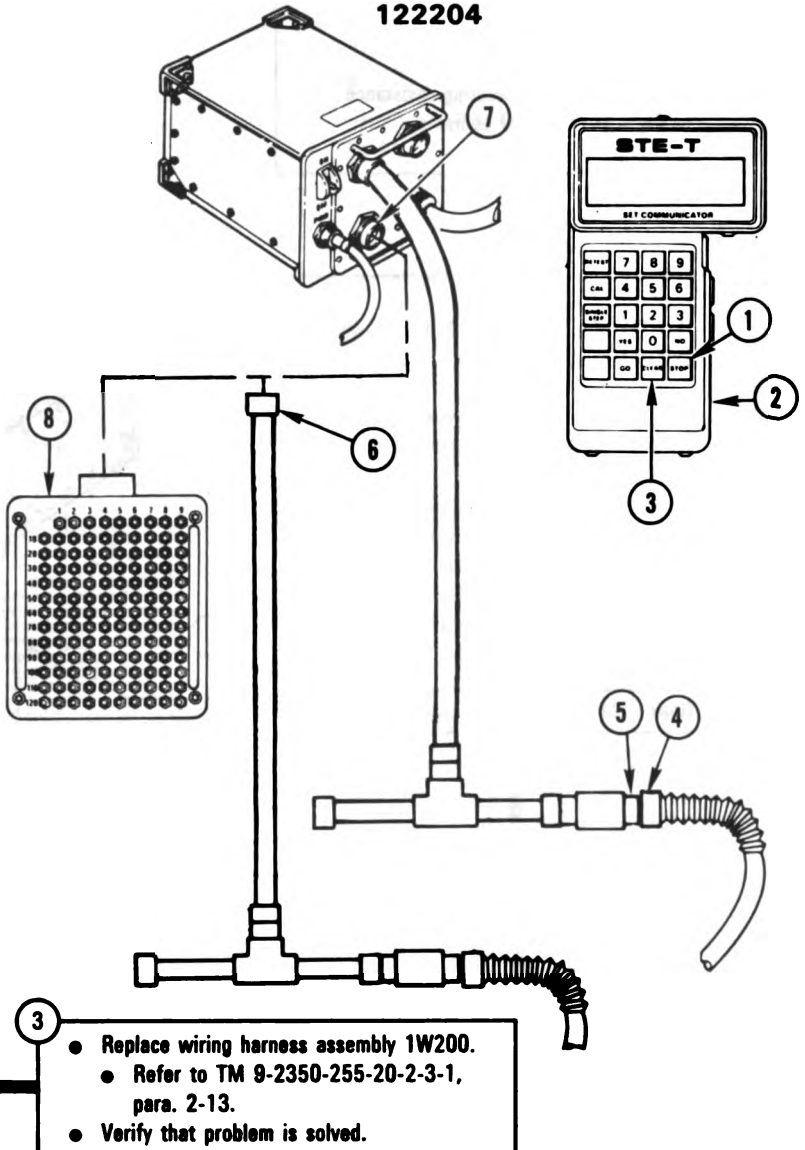


Figure 8-47 (Sheet 1 of 3)
Volume II
Para. 8-3

ARR82-5612

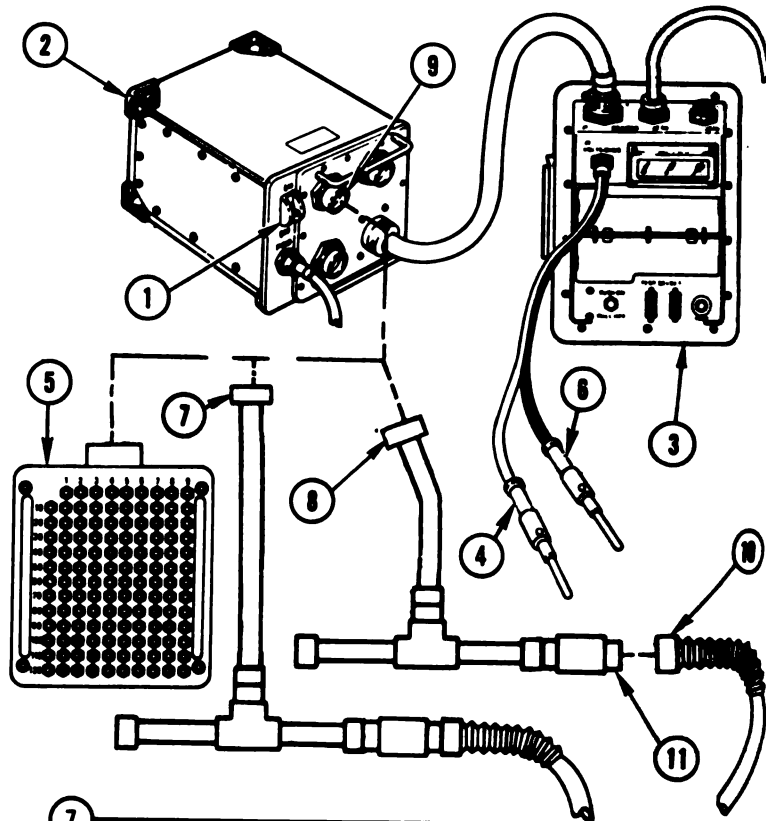
**TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING**

Table A

Fault number	Red test probe	Black test probe
122055 122202	24	7 through 23, 25 through 39, 62, 74, 75, 89 through 113, and 129
122203	26	7 through 25, 27 through 39, 62, 74, 75, and 89 through 113, and 129
122204	25	7 through 24, 26 through 39, 62, 74, 75, 89 through 113, and 129

- 5**
- Change control from SETCOM to VTM.
 - Set PWR switch (1) on CIB (2) to OFF to reset VTM (3).
 - Set PWR switch (1) to ON.
 - Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 8-1.

- 6**
- NOTE**
- If VTM display shows 0 to 5, go immediately to block 7.
- Test for 0 to 5 ohms between test points on breakout box listed in table A for fault number being tested.
 - Connect red test probe (4) to test point on breakout box (5) listed in table A for fault number being tested.
 - Connect black test probe (6) to test points on breakout box (5) listed in table A for fault number being tested.
- Does VTM display show between 0 and 5?



- 8**
- NO** **YES**
- Disconnect CX305-P2 (7) from breakout box (5).
 - Disconnect CX304-P2 (8) from CIB-J2 (9).
 - Connect CX304-P2 (8) to breakout box (5).
 - Connect 1W200-P7 (10) to CA535-P1 (11).

- 7**
- Replace wiring harness assembly 1W200.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

*Figure 8-47 (Sheet 2 of 3)
Volume II
Para. 8-3*

ARR82-5613

**TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING**

Table B

Fault number	Red test probe	Black test probe
122055 122202	20	7 through 19, 21 through 28, 39, 62, 74, and 75
122203	23	7 through 22, 24 through 28, 39, 62, 74, and 75
122204	21	7 through 20, 22 through 28, 39, 62, 74, and 75

NOTE

If VTM display shows 0 to 5, go immediately to block 11.

● Test for 0 to 5 ohms between test points on breakout box listed in table B for fault number being tested.

● Connect red test probe (1) to test point on breakout box (2) listed in table B for fault number being tested.

● Connect black test probe (3) to test points on breakout box (2) listed in table B for fault number being tested.

Does VTM display show between 0 and 5?

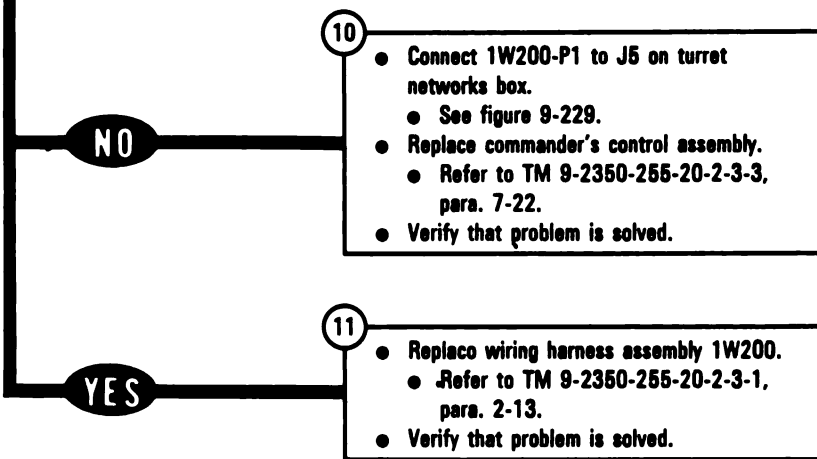
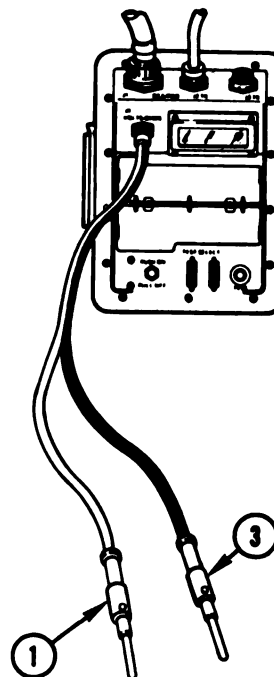
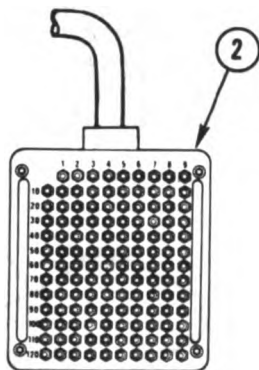


Figure 8-47 (Sheet 3 of 3)
**Volume II
Para. 8-3**

ARR82-5614

**DISPLAY SHOWS -
 FAULTY MGSSW, 1W107
 OR 1W108**

• 122127
 122412

**Additional Test
 Equipment/Special Tools:**

- Breakout Box Tool Kit, 12311066

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

1

- Disconnect CX305-P2 from CIB-J1.
 - See figure 8-20.
- If connected, disconnect CX305-P1 from CA206-P2.
 - See figure 8-21.
- Connect CX305-P2 (1) to breakout box (2).

2

- If disconnected, connect CX305-P1 (3) to CX307-P3 (4).
- If disconnected, connect 1W107-P1 (5) to CA522-P1 (8).
- If disconnected, connect CA522-P2 (7) to CX307-P2 (8).
- Disconnect 1W108-P1 from 1W107-J1.
 - See figure 9-237.

3

- Change control from SETCOM to VTM.
 - Set PWR switch (9) on CIB (10) to OFF to reset VTM (11).
 - Set PWR switch (9) to ON.
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 8-1.

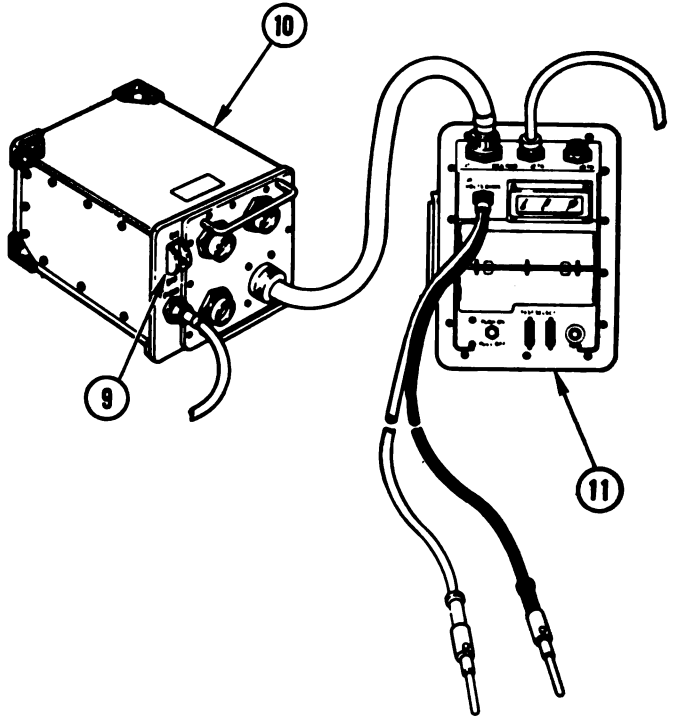
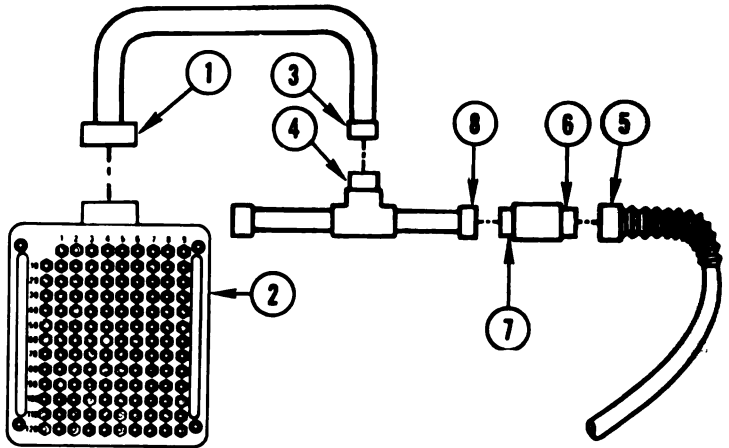


Figure 8-48 (Sheet 1 of 3)
 Volume II
 Para. 8-3

NOTE

If VTM display shows 0 to 5, go immediately to block 5.

- Test for 0 to 5 ohms between test points on breakout box listed in table A for fault number being tested.
- Connect red test probe (1) to test point on breakout box (2) listed in table A for fault number being tested.
- Connect black test probe (3) to test points on breakout box (2) listed in table A for fault number being tested.

Does VTM display show between 0 and 5?

NO

YES

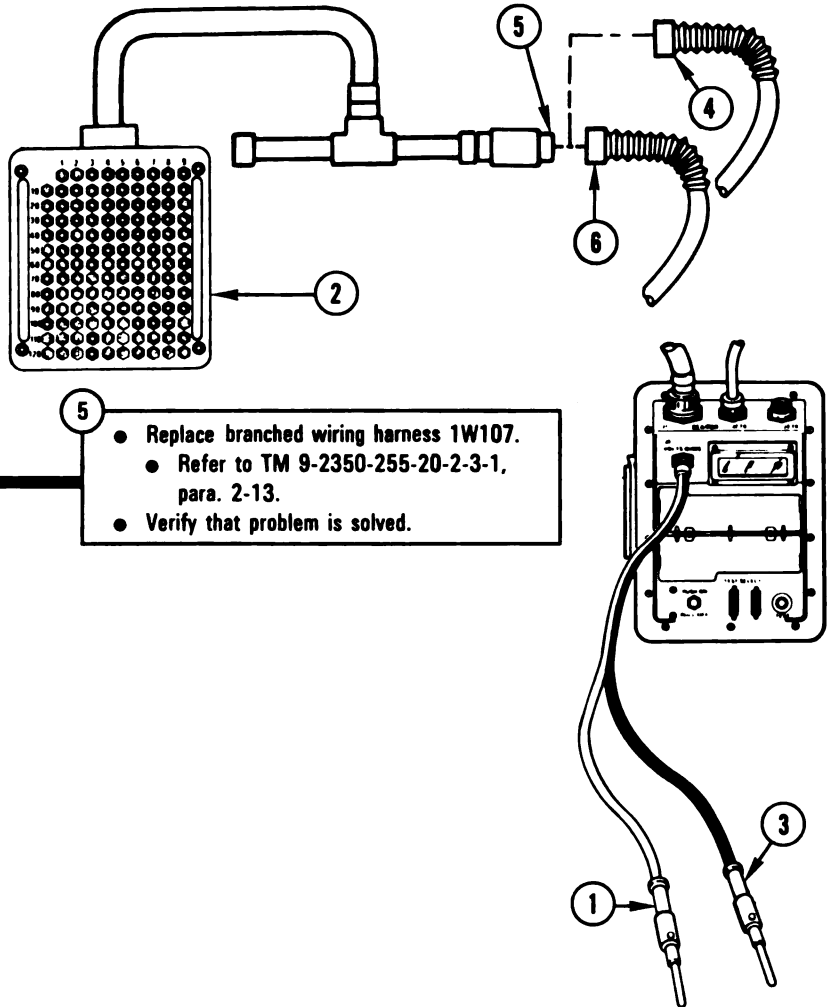
- Disconnect main gun safety switch (1S100)-P1 from 1W108-J1.
- See figure 9-237.
- Disconnect 1W107-P1 (4) from CA522-P1 (5).
- Connect 1W108-P1 (6) to CA522-P1 (5).

NOTE

If VTM display shows 0 to 5, go immediately to block 9.

- Test for 0 to 5 ohms between test points on breakout box listed in table A for fault number being tested.
- Connect red test probe (1) to test point on breakout box (2) listed in table A for fault number being tested.
- Connect black test probe (3) to test points on breakout box (2) listed in table A for fault number being tested.

Does VTM display show between 0 and 5?



- 5
- Replace branched wiring harness 1W107.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

Table A

Fault number	Red test probe	Black test probe
122127	20	7 through 19, 21 through 38, 89 through 97
122412	23	7 through 22, 24 through 38, 89 through 97, and 129

TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING

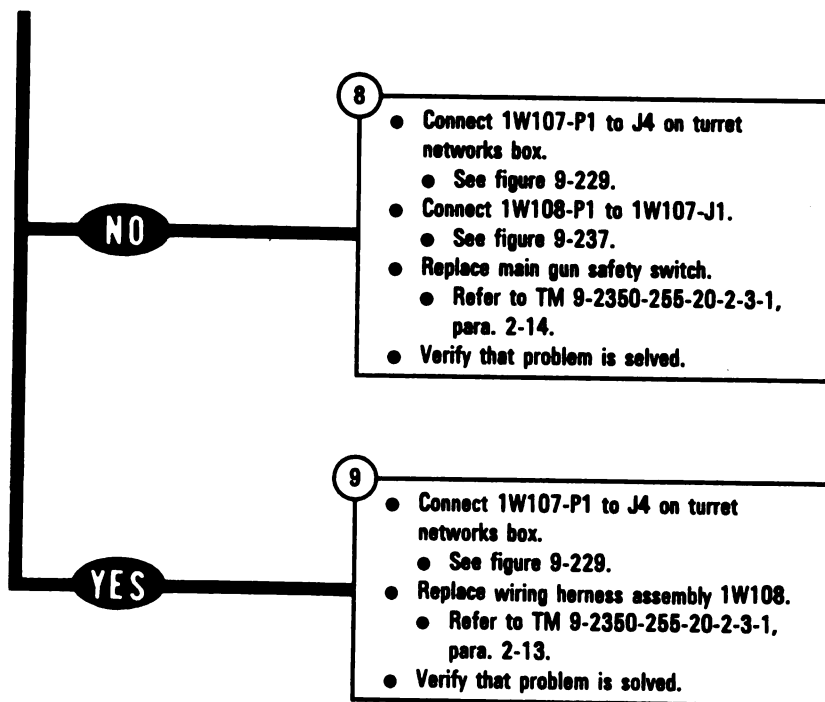


Figure 8-48 (Sheet 3 of 3)
Volume II
Para. 8-3

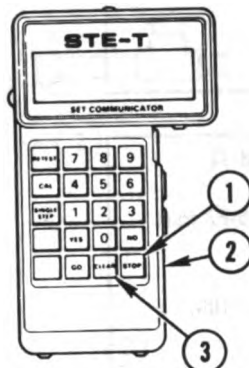
**DISPLAY SHOWS -
FAULTY GPS OR
1W104**

122019

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- Disconnect CA517-P2 from CX307-P1.
 - See figure 8-26.
- Disconnect CX208-P2 from CIB-J2.
 - See figure 8-20.
- Disconnect 1W104-P2 from J3 on gunner's primary sight.
 - See figure 9-240.



- 2
- Prepare STE to run cable test 1390.
 - Press STOP key (1) on SETCOM (2).
 - Press CLEAR key (3).
 - Enter test number 1390 on SETCOM (2).
 - Run test on 1W104 between P1 and P2.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.

Does SETCOM display show GOOD?

NO

- 3
- Replace branched wiring harness 1W104.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem solved.

YES

- 4
- Connect 1W104-P1 to J9 on turret networks box.
 - See figure 9-229.
 - Replace lower panel assembly.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-5.
 - Verify that problem is solved.

Figure 8-49
Volume II
Para. 8-3

ARR82-5617

**TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING**

• 122407
122408

**DISPLAY SHOWS -
FAULTY BMACH
OR 1W105**

Common Tools:

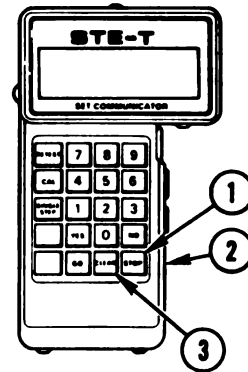
- Inspection Mirror

Equipment Condition

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

1

- Disconnect CX208-P2 from CIB-J2.
 - See figure 8-20.
- If connected, disconnect CA425-P2 from CX307-P2.
 - See figure 8-22.
- Disconnect blasting machine (1G100)-P1 from 1W105-J2.
 - See figure 9-235.



2

- Get TA1 adapter that will fit contacts on 1W105-J2.
- Prepare STE to run cable test 1390.
 - Press STOP key (1) on SETCOM (2).
 - Press CLEAR Key (3).
 - Enter test number 1390 on SETCOM (2).

NOTE

Use inspection mirror as an aid to probe connector 1W105-J2.

- Run test on 1W105 between J2 and P1.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.

Does SETCOM display show GOOD?

NO

YES

4

- Connect 1W107-P1 to J4 on turret networks box.
 - See figure 9-229.
- Replace wiring harness assembly 1W105.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

3

- Connect 1W105-P1 to J10 on turret networks box.
 - See figure 9-229.
- Connect 1W107-P1 to J4 on turret networks box.
 - See figure 9-229.
- Replace blasting machine.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-9.
- Verify that problem is solved.

Figure 8-50
Volume II
Para. 8-3

ARR82-5618

**DISPLAY SHOWS -
FAULTY COAXS, 1W107
OR 1W108** **122149**

**Additional Test
Equipment/Special Tools:**
● Breakout Box Tool Kit, 12311068

Equipment Condition:
● Tank parked.
● Parking brake set.
● Engine shut down.
● Vehicle master power off.

● Connect CX304-P2 (1) to breakout box (2).
● Connect CX304-P1 (3) to CX307-P3 (4).
● Connect 1W107-P1 (5) to CA522-P1 (6).
● Connect CA522-P2 (7) to CX307-P2 (8).

● Connect 1W103-P2 to J1 on fan assembly.
● See figure 9-236.
● Disconnect 1W108-P3 from J1 on coax electrical solenoid.
● See figure 9-249.

● Change control from SETCOM to VTM.
● Set PWR switch (9) on CIB (10) to OFF to reset VTM (11).
● Set PWR switch (9) to ON.
● Prepare VTM for measuring resistance between 0 and 1500 ohms.
● Refer to para. 8-1.

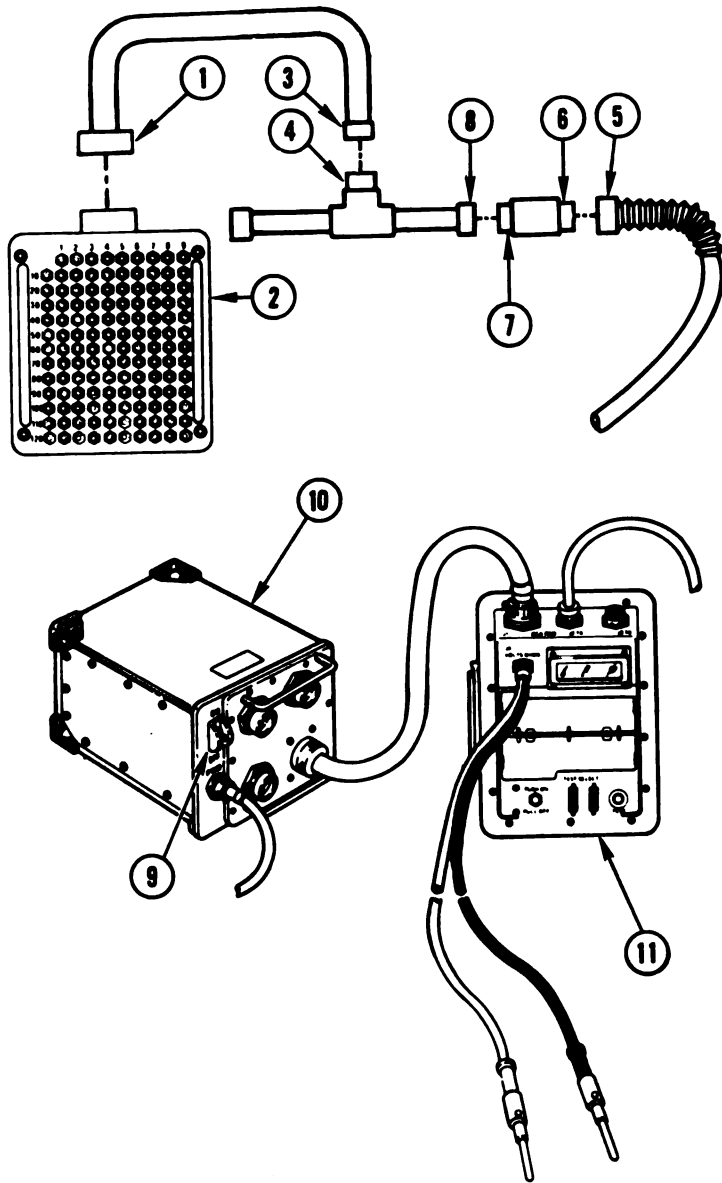
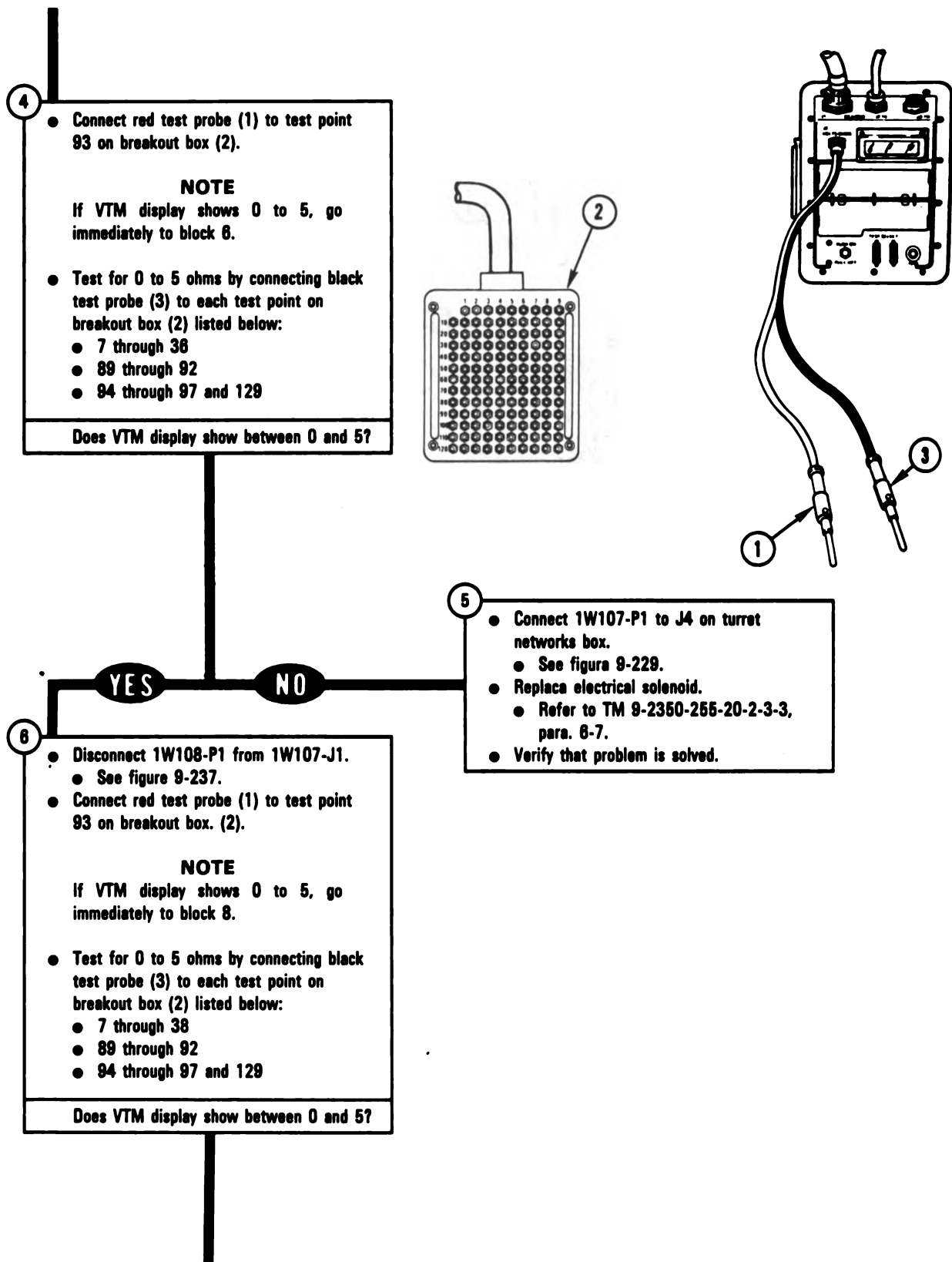


Figure 8-51 (Sheet 1 of 3)
Volume II
Para. 8-3

ARR82-5619

**TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING**



*Figure 8-51 (Sheet 2 of 3)
Volume II
Para. 8-3*

ARR82-5620

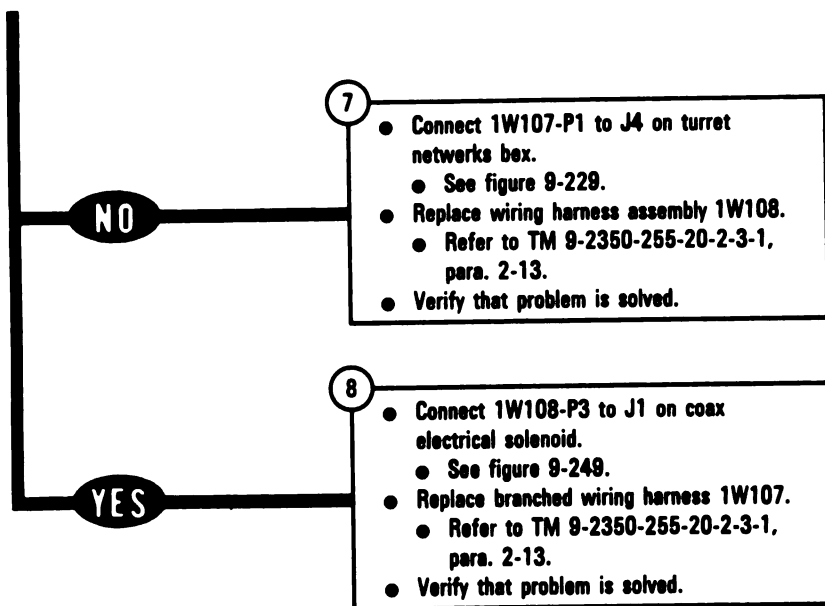


Figure 8-51 (Sheet 3 of 3)
**Volume II
Para. 8-3**

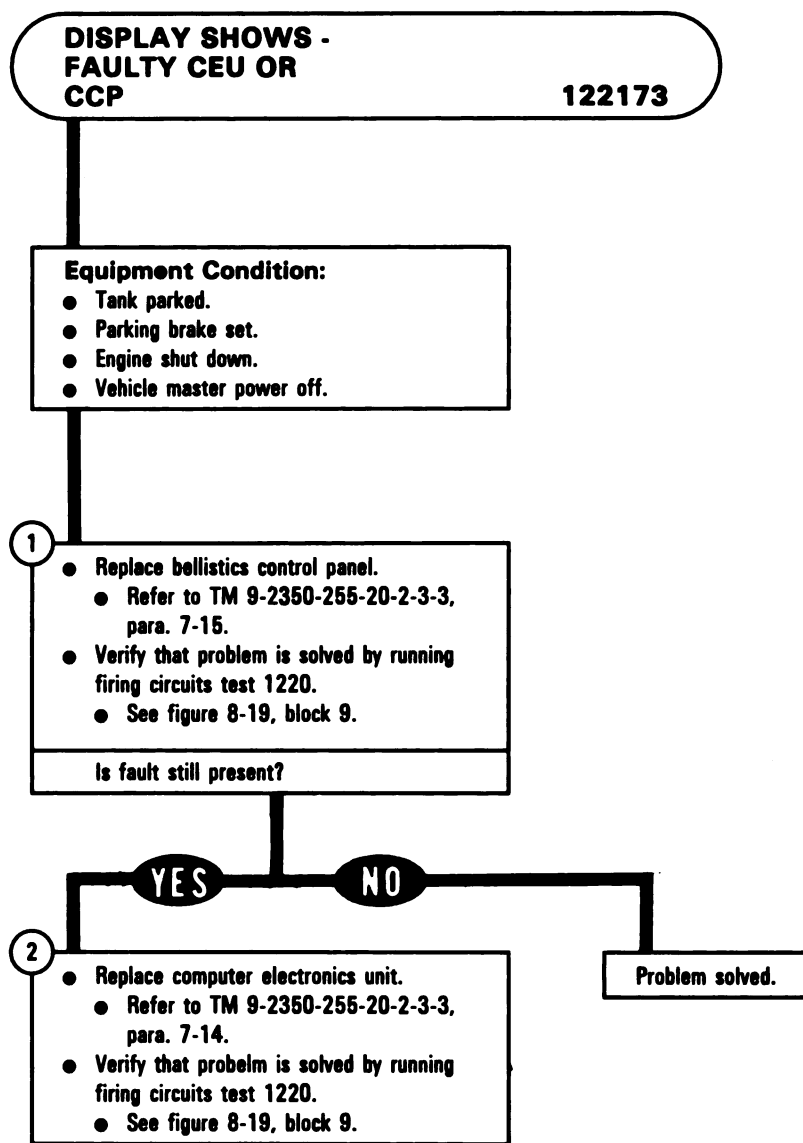


Figure 8-52
Volume II
Para. 8-3

DISPLAY SHOWS -
FAULTY GCH OR
1W200

- 122002
- 122022
- 122023
- 122056

**Additional Test
Equipment/Special Tools**

- Breakout Box Tool Kit, 12311086

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- 1
- Disconnect CX208-P2 from CIB-J2.
 - See figure 8-20.
 - Disconnect 1W200-P8 from J1 on gunner's control.
 - See figure 9-232.
 - Prepare STE to run cable test 1390.
 - Press STOP key (1) on SETCOM (2).
 - Press CLEAR key (3).
 - Enter test number 1390 on SETCOM (2).
 - Run test on 1W200 between P1 and P8.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.

Does SETCOM display show GOOD?

YES

NO

- 3
- Disconnect 1W200-P8 (4) from CA535-P1 (5).
 - Disconnect CX305-P2 (8) from CIB-J1 (7).
 - Connect CX305-P2 (8) to breakout box (8).
 - Change control from SETCOM to VTM.
 - Set PWR switch (9) on CIB (10) to OFF to reset VTM (11).
 - Set PWR switch (9) to ON.
 - Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 8-1.

- 2
- Replace wiring harness assembly 1W200.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

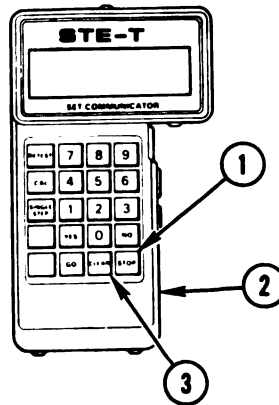
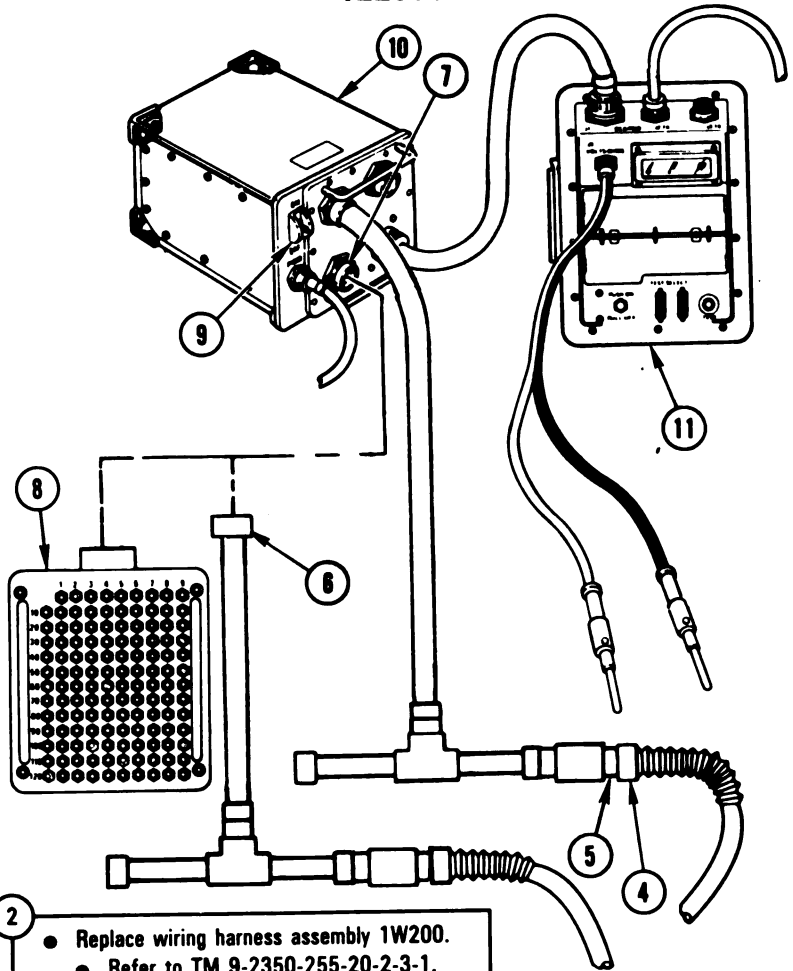


Figure 8-53 (Sheet 1 of 3)
Volume II
Para. 8-3

ARR82-5621

**TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING**

Table A

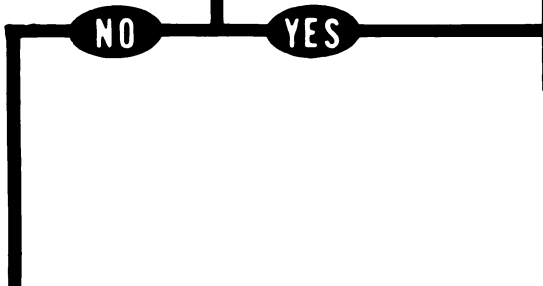
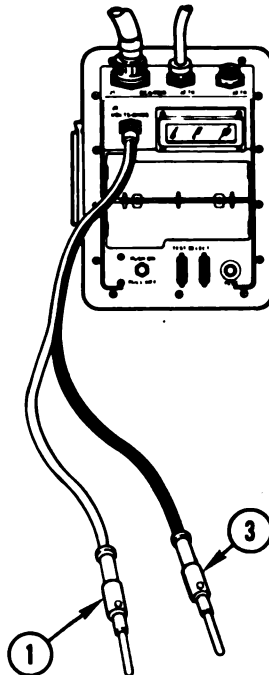
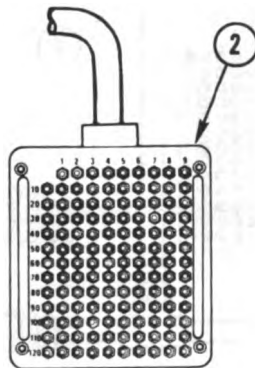
Fault number	Red test probe	Black test probe
122002 122056	111	7 through 38, 62, 74, 75, 89 through 109, 112, 113, and 129
122022	112	7 through 39, 62, 74, 75, 89 through 109, and 113
122023	113	7 through 39, 62, 74, 75, 89 through 109, and 112

4

NOTE
If VTM display shows 0 to 5, go immediately to block 5.

- Test for 0 to 5 ohms between test points on breakout box listed in table A for fault number being tested.
- Connect red test probe (1) to test point on breakout box (2) listed in table A for fault number being tested.
- Connect black test probe (3) to test points on breakout box (2) listed in table A for fault number being tested.

Does VTM display show between 0 and 5?



5

- Replace wiring harness assembly 1W200.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

Figure 8-53 (Sheet 2 of 3)
**Volume II
Para. 8-3**

ARR82-5622

Table B

Fault number	Red test probe	Black test probe
122002 122056	20	7 through 19, and 21 through 28
122022	23	7 through 22, and 24 through 28
122023	21	7 through 20, and 22 through 28

- Disconnect 1W200-P1 (1) from CA504-P1 (2).
- Disconnect CX305-P2 (3) from breakout box (4).
- Disconnect CX304-P2 (5) from CIB-J2 (6).
- Connect CX304-P2 (5) to breakout box (4).
- Connect 1W200-P8 (7) to CA535-P1 (8).

NOTE

If VTM display shows 0 to 5, go immediately to block 9.

- Test for 0 to 5 ohms between test points on breakout box listed in table B for fault number being tested.
- Connect red test probe (9) to test point on breakout box (4) listed in table B for fault number being tested.
- Connect black test probe (10) to test points on breakout box (4) listed in table B for fault number being tested.

Does VTM display show between 0 and 5?

NO

YES

- Connect 1W200-P1 to J5 on turret networks box.
- See figure 9-229.
- Replace gunner's control grip assembly.
- Refer to TM 9-2350-255-20-2-3-3, para. 7-21.
- Verify that problem is solved.

- Replace wiring harness assembly 1W200.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

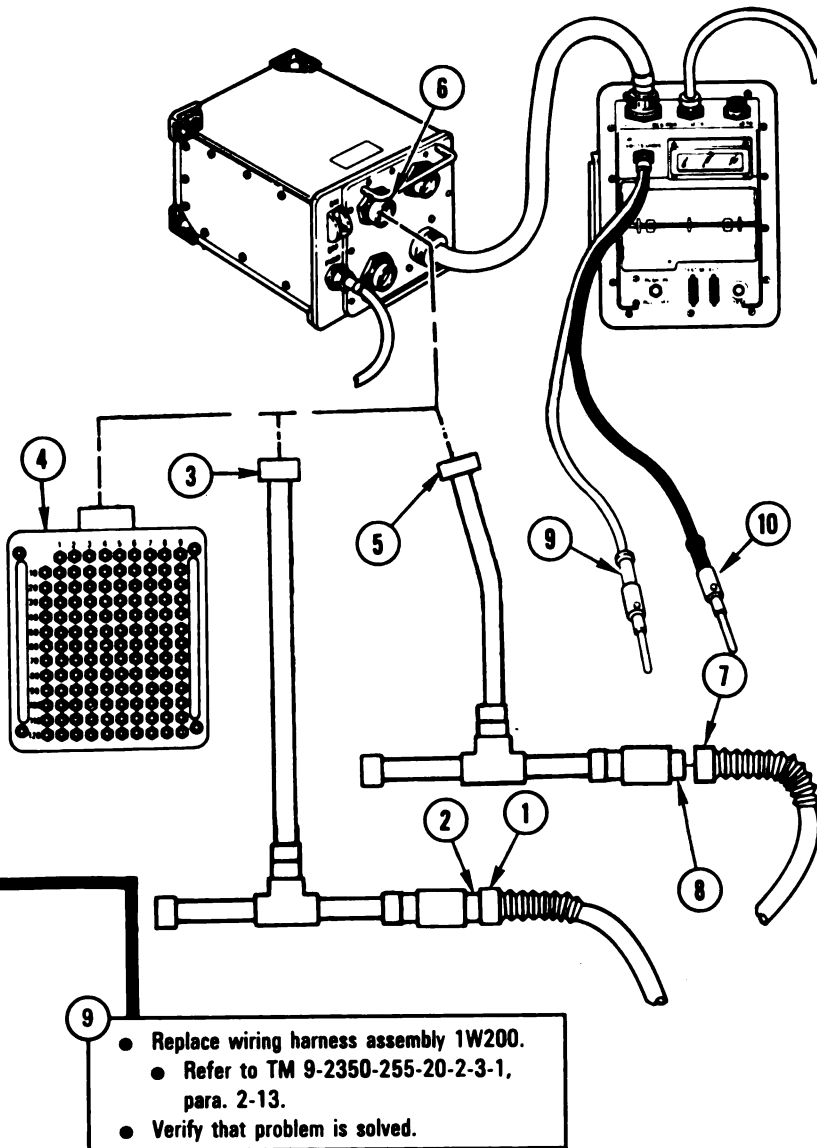


Figure 8-53 (Sheet 3 of 3)
**Volume II
Para. 8-3**

ARR82-5623

**DISPLAY SHOWS -
 FAULTY TNB OR
 1W200** **122032**

**Additional Test
 Equipment/Special Tools:**
 ● Breakout Box Tool Kit, 12311066

Equipment Condition:
 ● Tank parked.
 ● Parking brake set.
 ● Engine shut down.
 ● Vehicle master power off.

1

- Disconnect CX305-P2 from CIB-J1.
 - See figure 8-20.
- Connect CX305-P2 (1) to breakout box (2).
- Disconnect CX305-P1 from CA206-P2.
 - See figure 8-21.
- Connect CX305-P1 (3) to CX307-P3 (4).

2

- Disconnect 1W200-P1 from J5 on turret networks box.
 - See figure 9-229.
- Connect 1W200-P1 (5) to CA504-P1 (8).
- Connect CA504-P2 (7) to CX307-P1 (8).
- Disconnect 1W200-P8 from J1 on gunner's control.
 - See figure 9-232.

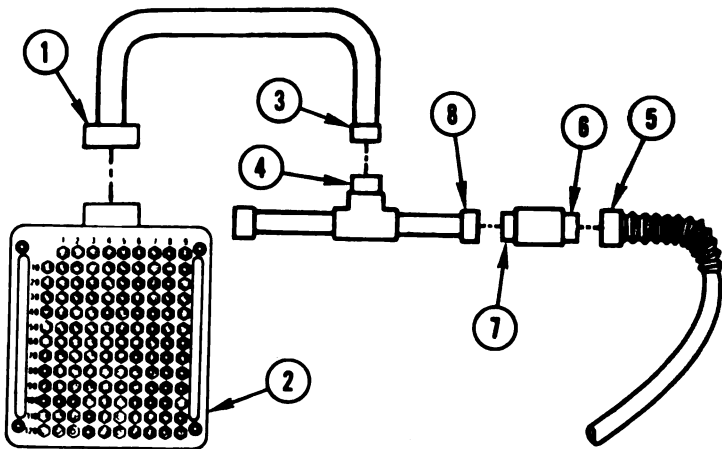
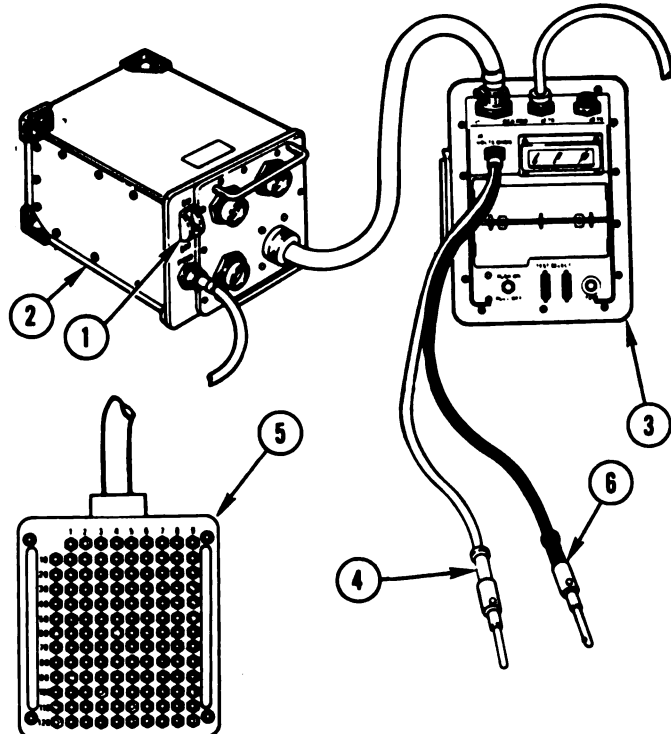


Figure 8-54 (Sheet 1 of 3)
 Volume II
 Para. 8-3

- Change control from SETCOM to VTM.
- Set PWR switch (1) on CIB (2) to OFF to reset VTM (3).
- Set PWR switch (1) to ON.
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
- Refer to para. 8-1.



- Connect red test probe (4) to test point 111 on breakout box (5).
- NOTE**
If VTM display shows 0 to 5, go immediately to block 5.
- Test for 0 to 5 ohms by connecting black test probe (6) to each test point on breakout box (5) listed below:
 - 24, 25, and 26
 - 105
- Does VTM display show between 0 and 5?

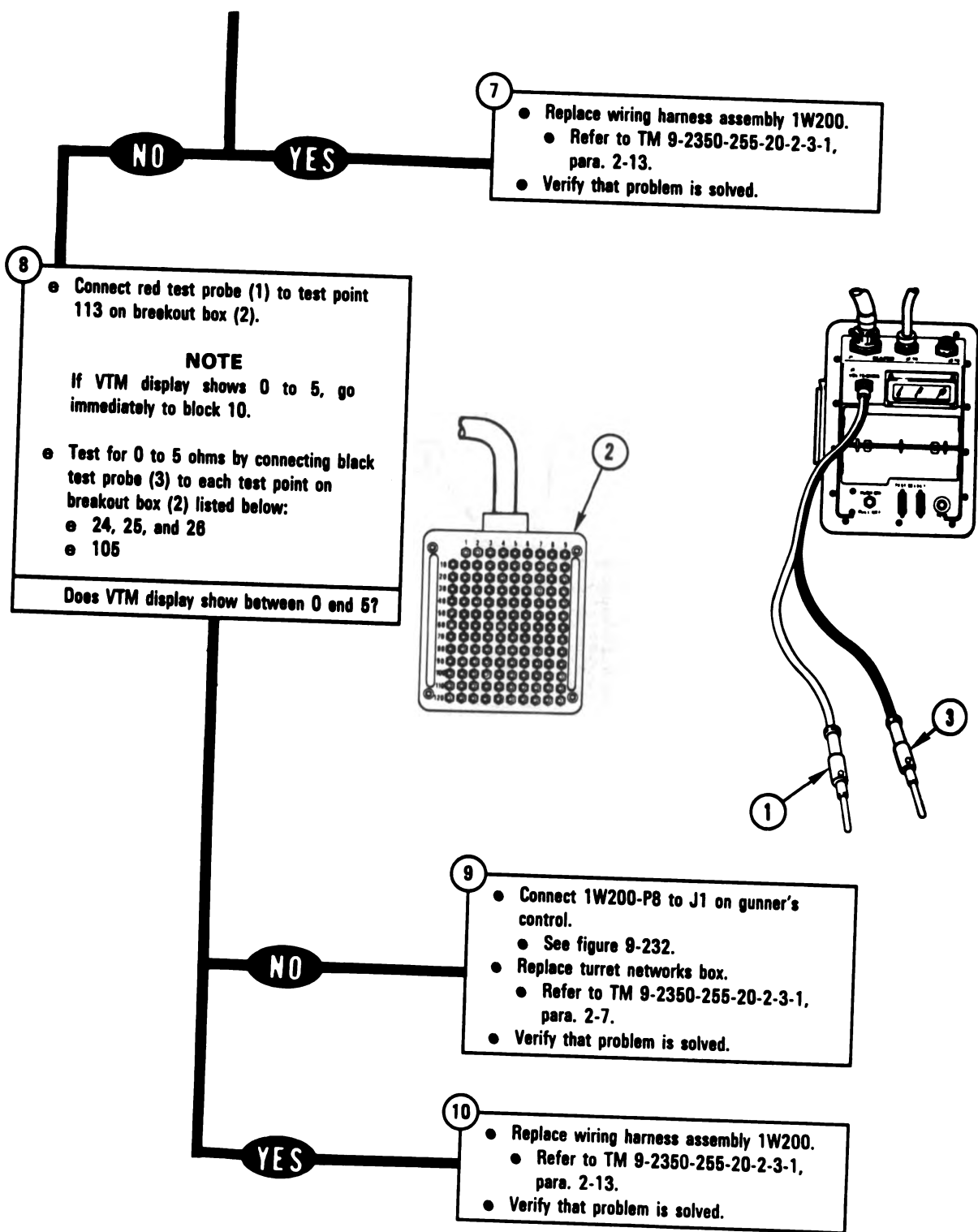
- 5
- Replace wiring harness assembly 1W200.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

- NO
- YES
- Connect red test probe (4) to test point 112 on breakout box (5).
- NOTE**
If VTM display shows 0 to 5, go immediately to block 7.
- Test for 0 to 5 ohms by connecting black test probe (6) to each test point on breakout box (5) listed below:
 - 24, 25, and 26.
 - 105
- Does VTM display show between 0 and 5?

Figure 8-54 (Sheet 2 of 3)
Volume II
Para. 8-3

ARR82-5625

**TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING**



*Figure 8-54 (Sheet 3 of 3)
Volume II
Para. 8-3*

ARR82-5626

**DISPLAY SHOWS -
FAULTY TNB OR
1W105**

122414

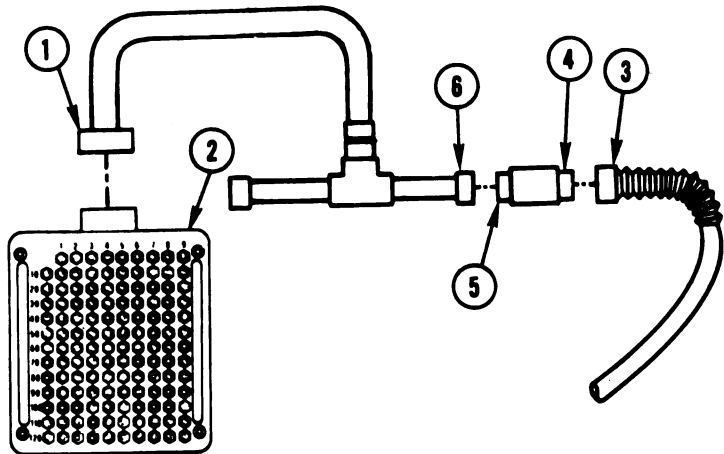
**Additional Test
Equipment/Special Tools**

- Breakout Box Tool Kit, 12311086

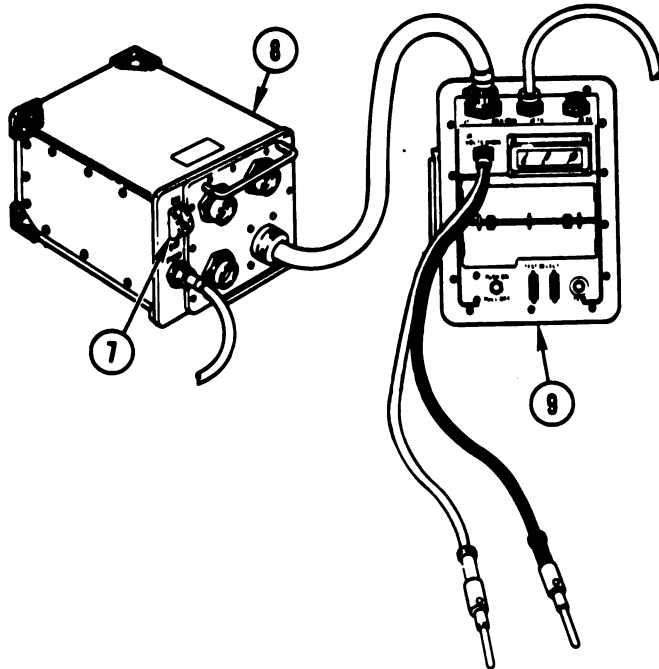
Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- 1
- Disconnect CX305-P2 from CIB-J1.
 - See figure 8-20.
 - Connect CX305-P2 (1) to breakout box (2).
 - Disconnect 1W105-P1 from J10 on turret networks box.
 - See figure 9-229.
 - Connect 1W105-P1 (3) to CA426-P1 (4).



- 2
- Disconnect CA522-P2 from CX307-P2.
 - See figure 8-28.
 - Disconnect CA521-P2 from CX307-P1.
 - See figure 8-28.
 - Connect CA426-P2 (5) to CX307-P2 (8).



- 3
- Change control from SETCOM to VTM.
 - Set PWR switch (7) on CIB (8) to OFF to reset VTM (9).
 - Set PWR switch (7) to ON.
 - Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 8-1.

Figure 8-55 (Sheet 1 of 2)
Volume II
Para. 8-3

ARR82-5627

**TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING**

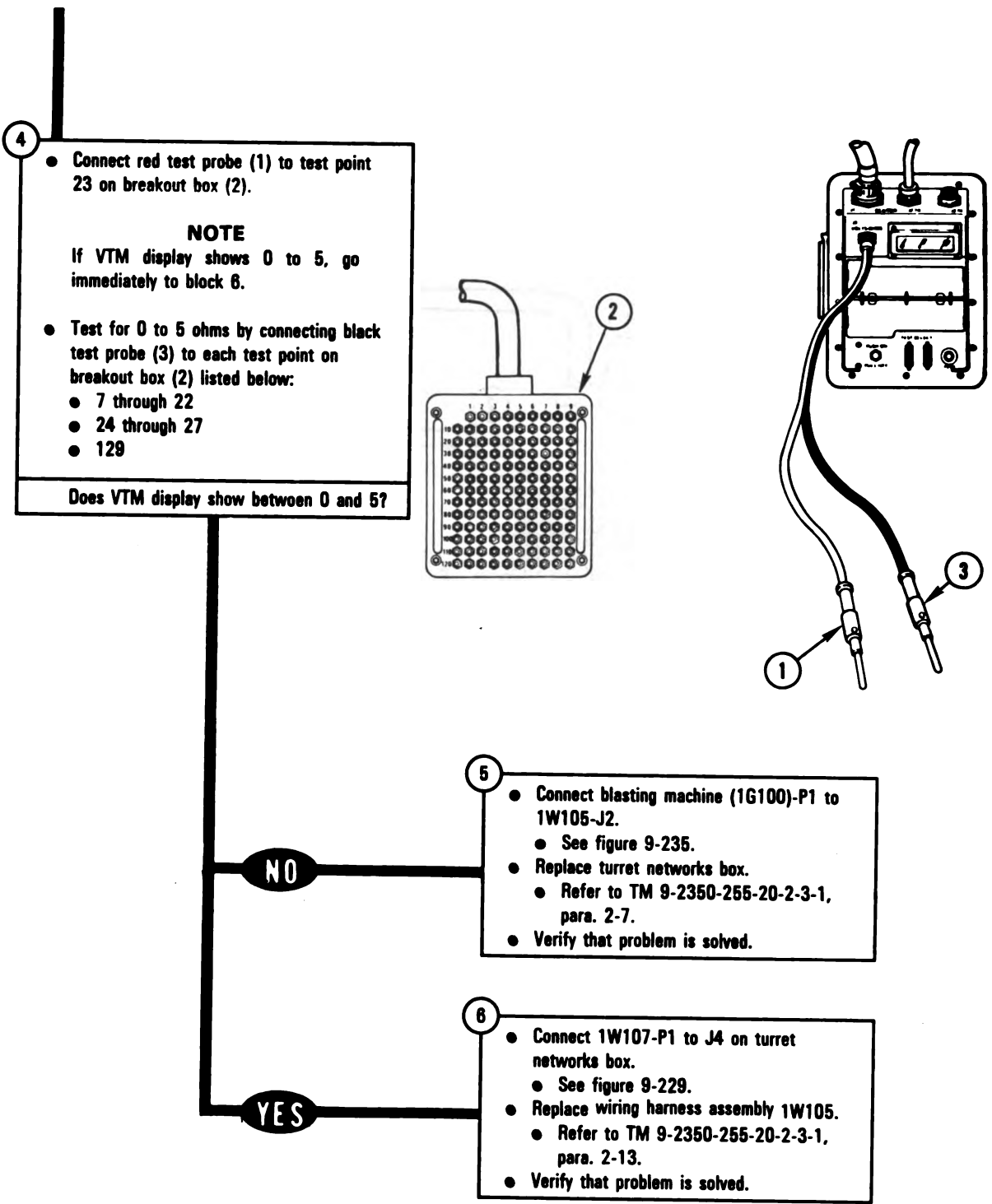


Figure 8-55 (Sheet 2 of 2)
**Volume II
Para. 8-3**

ARR82-5629

**DISPLAY SHOWS -
FAULTY LP OR
1W108**

122053

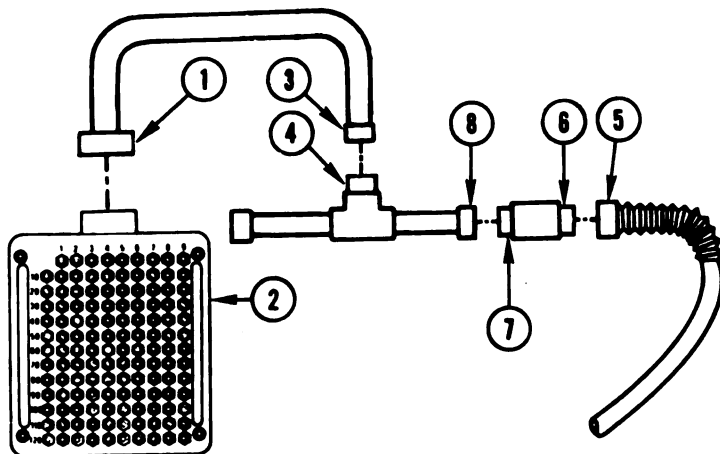
Additional Test

Equipment/Special Tools:

- Breakout Box Tool Kit, 12311068

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut off.
- Vehicle master power off.



- 1
- Connect CX304-P2 (1) to breakout box (2).

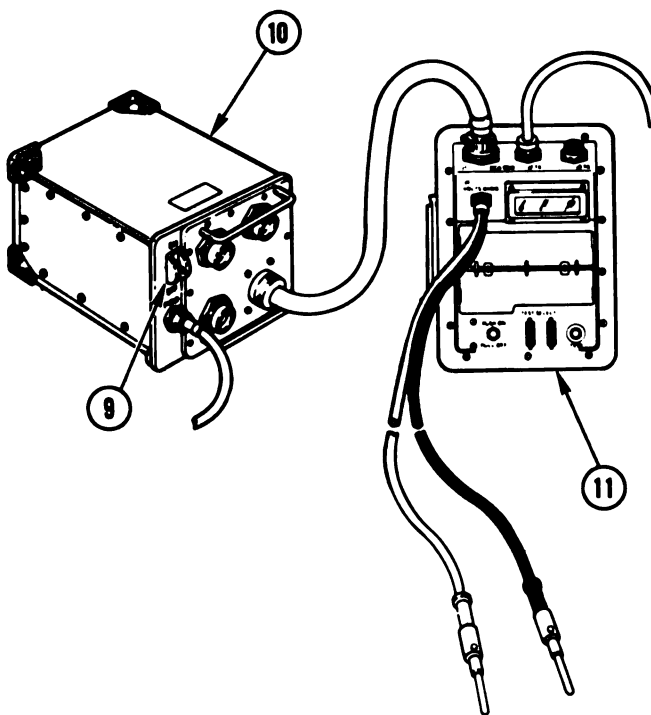
- Connect CX304-P1 (3) to CX307-P3 (4).

- Disconnect 1W108-P2 from J1 on loader's panel.

- See figure 9-236.

- Connect 1W108-P1 (5) to CA520-P1 (8).

- Connect CA520-P2 (7) to CX307-P1 (8).



- 2
- Change control from SETCOM to VTM.

- Set PWR switch (9) on CIB (10) to OFF to reset VTM (11).

- Set PWR switch (9) to ON.

- Prepare VTM for measuring resistance between 0 and 1500 ohms.

- Refer to para. 8-1.

Figure 8-56 (Sheet 1 of 2)
Volume II
Para. 8-3

ARR82-5629

**TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING**

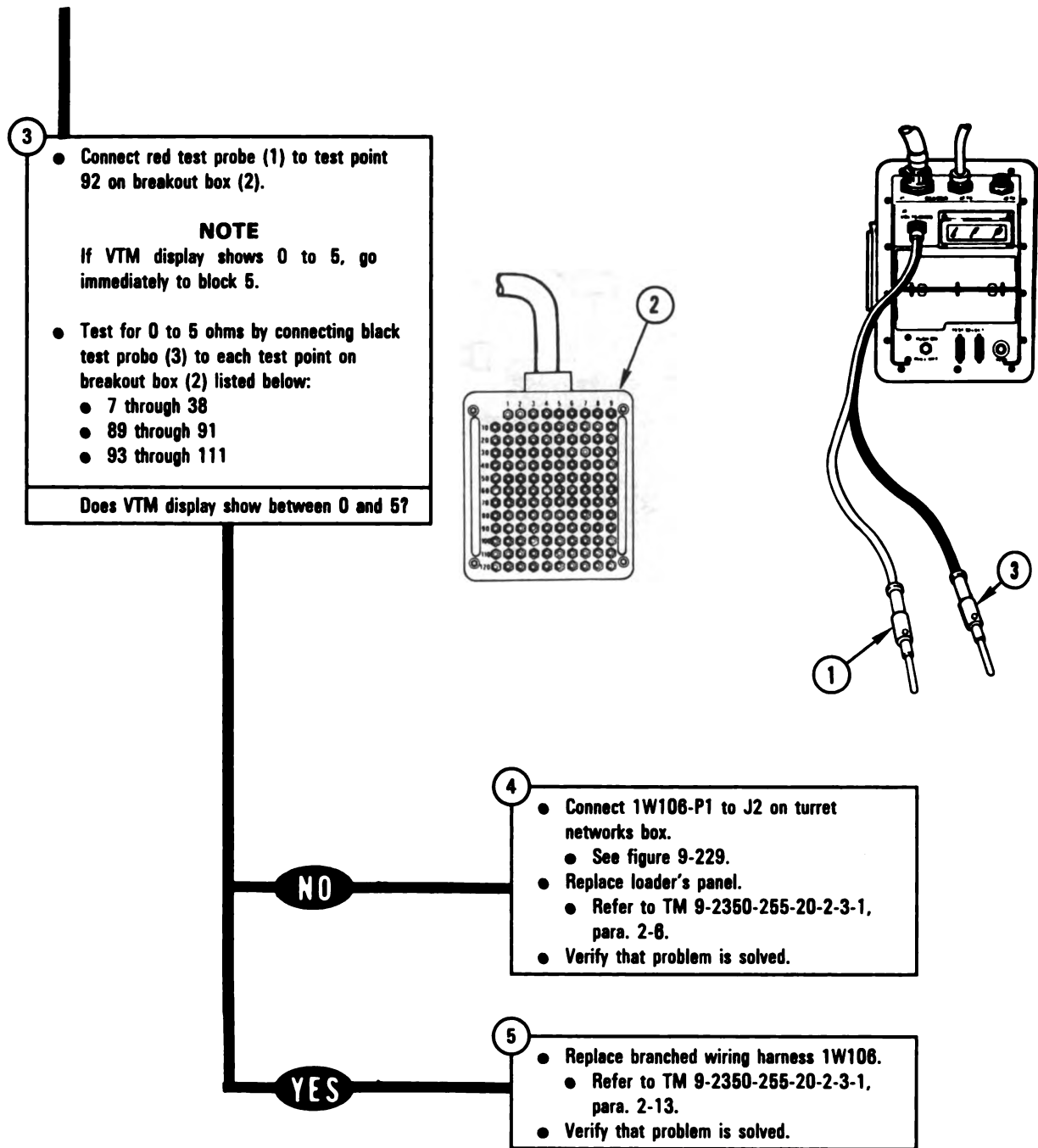


Figure 8-56 (Sheet 2 of 2)
Volume II
Para. 8-3

ARR82-5630

Fan Assembly Subsystem Troubleshooting Procedures.

Table 8-4. Fan Assembly Subsystem (FAS) Fault Symptom Index

Fault Symptom No.	Fault Symptom	Primary Troubleshooting Procedure (PTP)
FAS-1	Fan Assembly Does Not Operate When TURRET BLOWER Switch Is ON Or When GUN SELECT Switch Is Set To COAX Position	Figure 8-57
FAS-2	Fan Assembly Does Not Operate When TURRET BLOWER Switch Is ON But Operates When GUN SELECT Switch Is Set To COAX Position	Figure 8-58
FAS-3	Fan Assembly Does Not Shut Off	Figure 8-59
FAS-4	Little Or No Air Flows From Fan Assembly When Fan Is Running	Figure 8-60

SYMPTOM FAS-1

**FAN ASSEMBLY DOES NOT OPERATE
WHEN TURRET BLOWER SWITCH IS ON
OR WHEN GUN SELECT SWITCH IS SET
TO COAX POSITION**

Common Tools:

- Pliers, slip joint, conduit style with plastic jaw inserts

Supplies:

- Connector Pin/Socket Adapters
- Electrical Jumpers

Test Equipment/Special Tools:

- Breakout Box Tool Kit, 12311088
- Multimeter

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

WARNING

Make sure coax machinegun is cleared.

NOTE

Read para. 8-1 before doing any work.

1

- Set up tank controls for standard initial test conditions.
- Refer to para. 9-9, table 9-7.

Figure 8-57 (Sheet 1 of 7)
**Volume II
Para. 8-4**

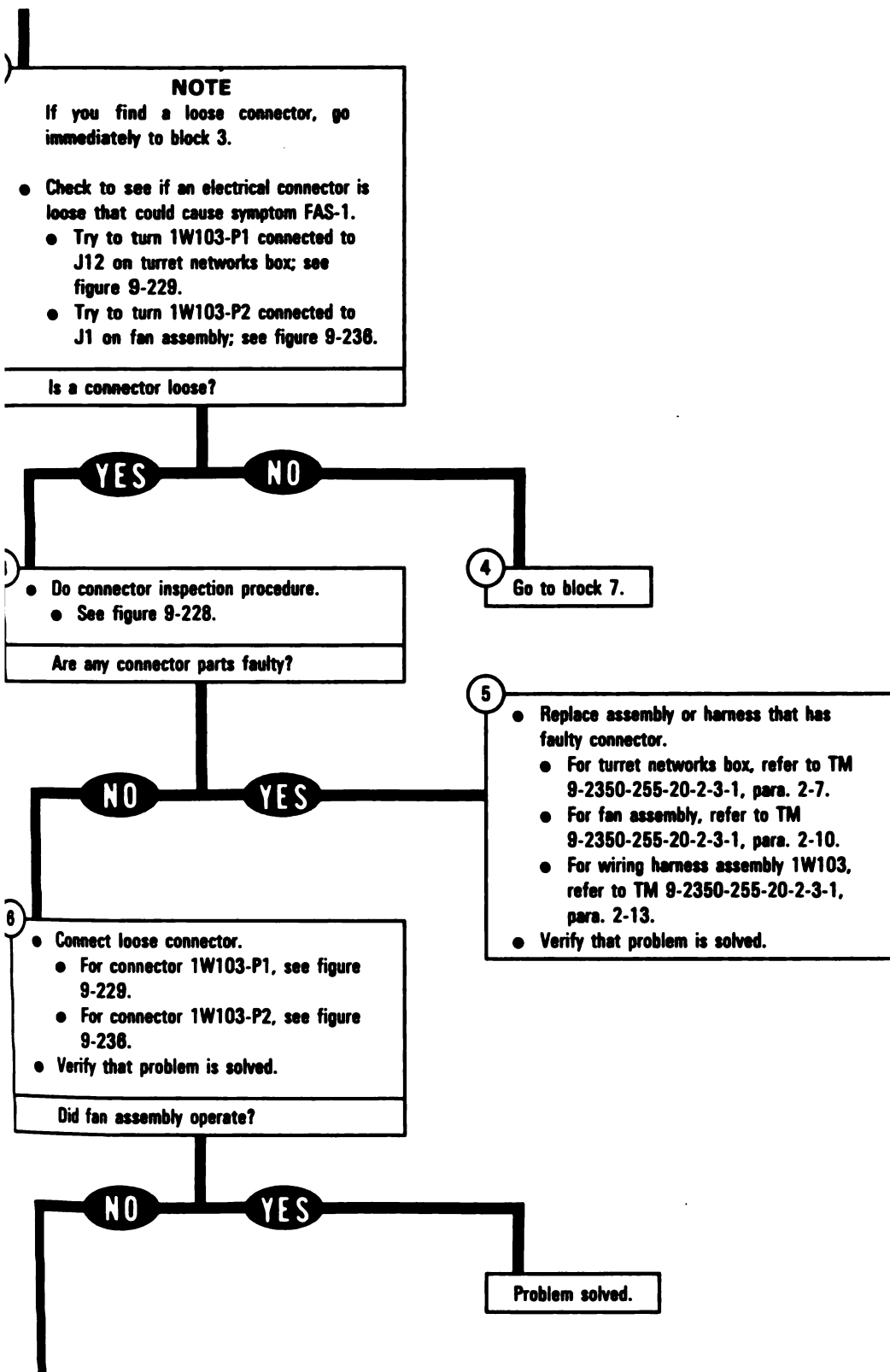


Figure 8-57 (Sheet 2 of 7)
Volume II
Para. 8-4

**TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING**

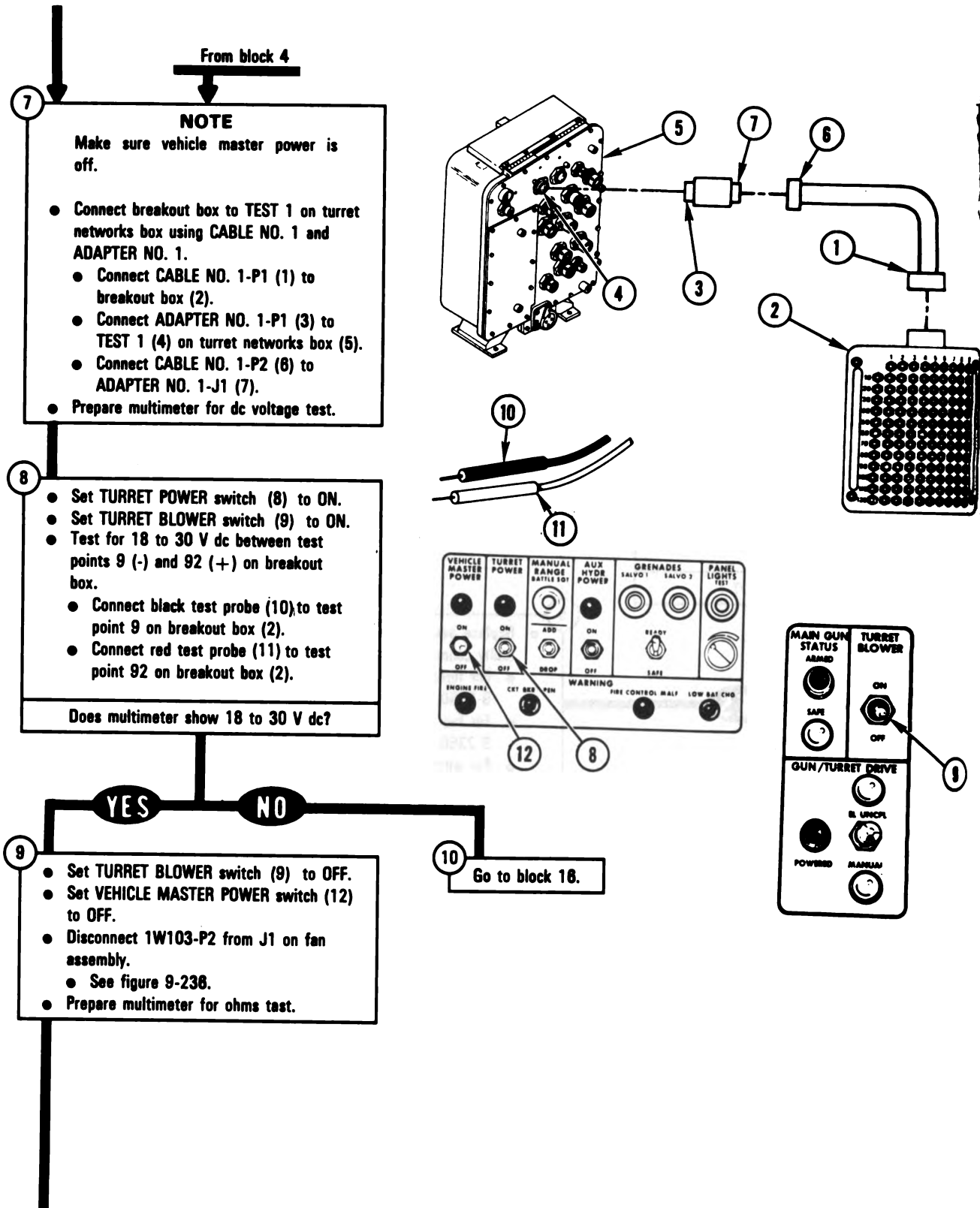


Figure 8-57 (Sheet 3 of 7)
Volume II
Para. 8-4

ARR82-5631

Table A

Black Test Probe	Red Test Probe
A	C
A	E
B	D
B	F

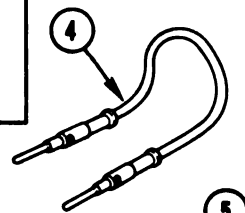
Table B

Jumper	Black Test Probe	Red Test Probe
A and B	A	B
C and D	C	D
E and F	E	F

● Test for continuity between contacts on 1W103-P2 listed in table A.
 ● Connect black test probe (1) to contacts on P2 (2) listed in table A.
 ● Connect red test probe (3) to contacts on P2 (2) listed in table A.

Does multimeter show continuity between each pair of contacts?

12 ● Replace fan assembly.
 ● Refer to TM 9-2350-255-20-2-3-1, para. 2-10.
 ● Verify that problem is solved.

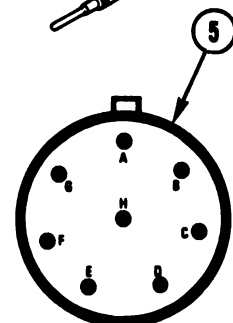
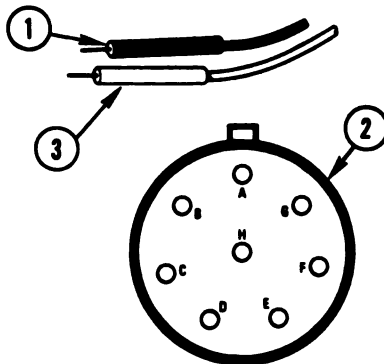


NO

YES

● Disconnect 1W103-P1 from J12 on turret networks box.
 ● See figure 9-229.
 ● Connect jumper (4) between contacts on 1W103-P2 (2) listed in table B.
 ● Test for continuity between contacts on 1W103-P1 listed in table B.
 ● Connect black test probe (1) to contacts on P1 (5) listed in table B.
 ● Connect red test probe (3) to contacts on P1 (5) listed in table B.

Does multimeter show continuity between each pair of contacts?



1W103-P2

1W103-P1

14 ● Replace wiring harness assembly 1W103.
 ● Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 ● Verify that problem is solved.

15 ● Connect 1W103-P2 to J1 on fan assembly.
 ● See figure 9-236.
 ● Replace turret networks box.
 ● Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
 ● Verify that problem is solved.

Figure 8-57 (Sheet 4 of 7)
Volume II
Para. 8-4

ARR82-5632

**TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING**

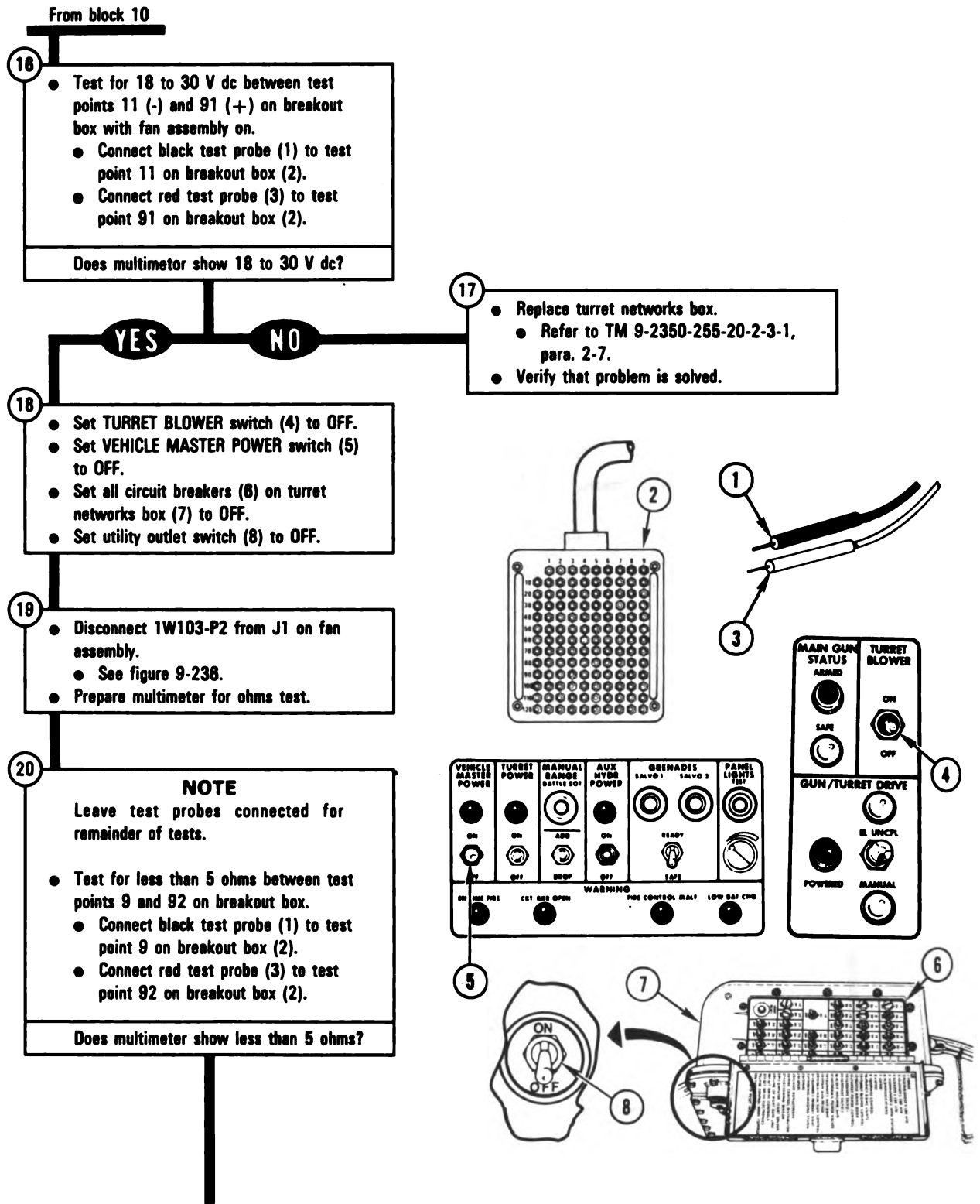


Figure 8-57 (Sheet 5 of 7)
Volume II
Para. 8-4

ARR82-5633

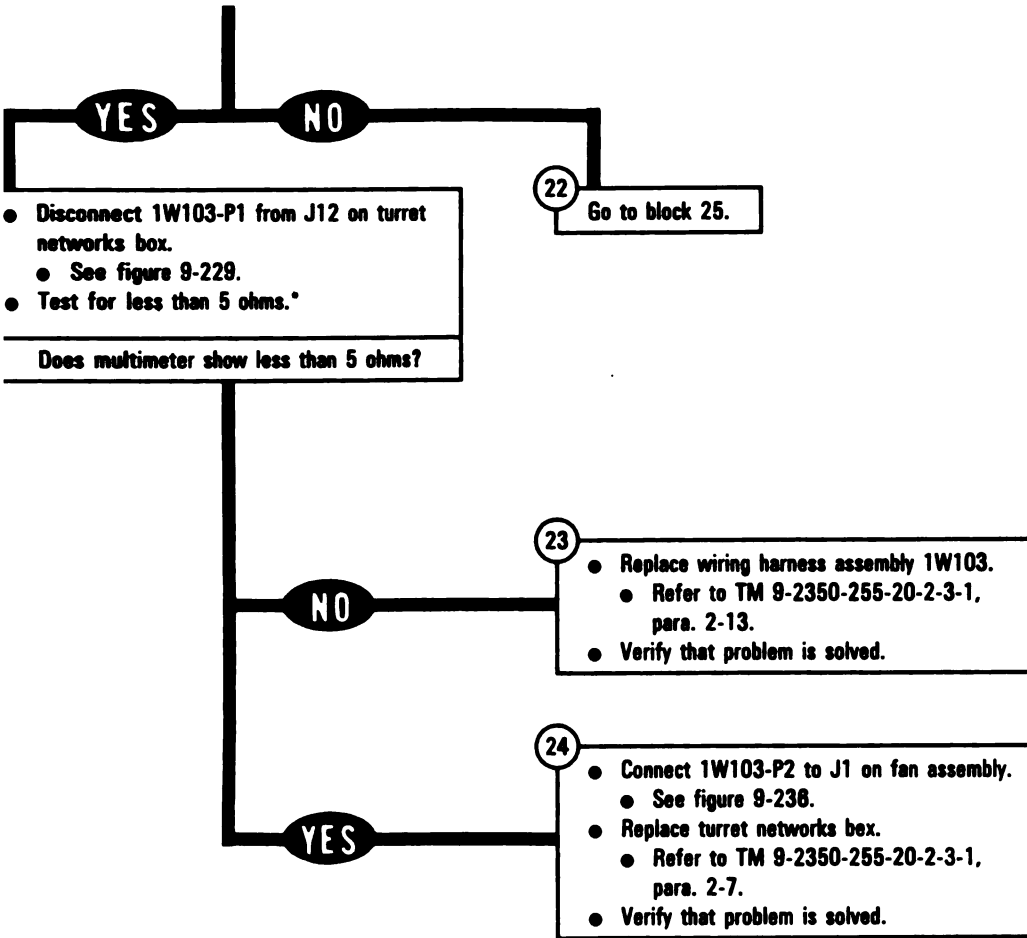


Figure 8-57 (Sheet 6 of 7)
Volume II
Para. 8-4

between contacts found in block 20

**TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING**

From block 22

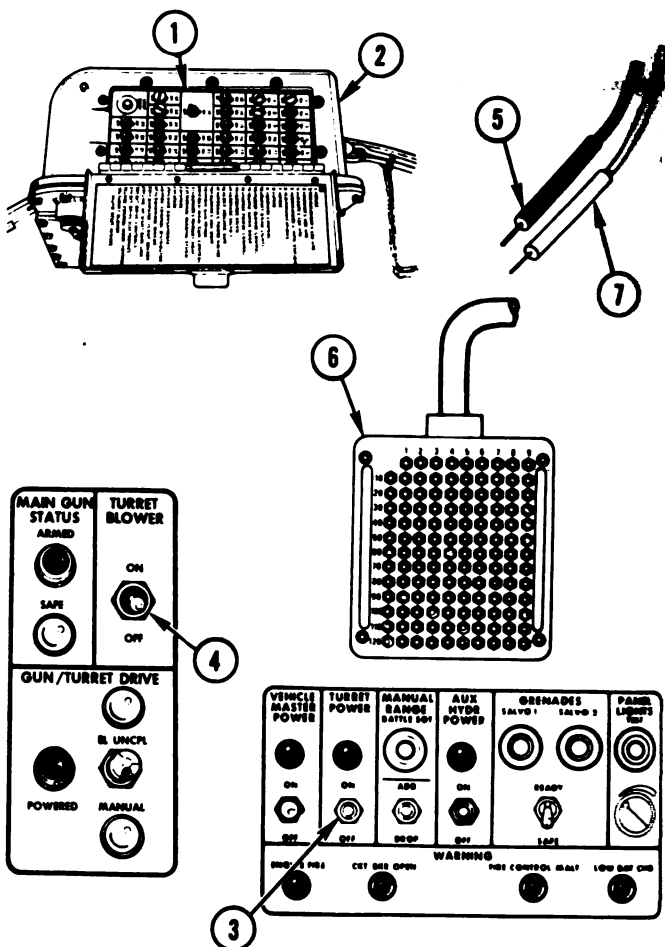
25

- Prepare multimeter for dc voltage test.
- Set all circuit breakers (1) on turret networks box (2) to ON.

NOTE
Wait 30 minutes before setting turret power on.

- Set TURRET POWER switch (3) to ON.
- Set TURRET BLOWER switch (4) to ON.
- Test for 18 to 30 V dc between test points 9 (-) and 92 (+) on breakout box.
- Connect black test probe (5) to test point 9 on breakout box (8).
- Connect red test probe (7) to test point 92 on breakout box (8).

Does multimeter show 18 to 30 V dc?



NO

28

- Connect 1W103-P2 to J1 on fan assembly.
- See figure 9-238.
- Replace turret networks box.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
- Verify that problem is solved.

YES

27

- Replace fan assembly.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-10.
- Verify that problem is solved.

Figure 8-57 (Sheet 7 of 7)
Volume II
Para. 8-4

ARR82-5634

SYMPTOM FAS-2

FAN ASSEMBLY DOES NOT OPERATE WHEN TURRET BLOWER SWITCH IS ON BUT OPERATES WHEN GUN SELECT SWITCH IS SET TO COAX POSITION

Common Tools:

- Pliers, slip joint, conduit style with plastic jaw inserts

Supplies:

Connector Pin/Socket Adapters
Electrical Jumpers

Test Equipment/Special Tools:

- Multimeter

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

WARNING

Be sure coax machinegun is cleared.

NOTE

Read para. 8-1 before doing any work.

- Set up tank controls for standard initial test conditions.
 - Refer to para. 9-9, table 9-7.

Figure 8-58 (Sheet 1 of 3)
Volume II
Para. 8-4

**TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING**

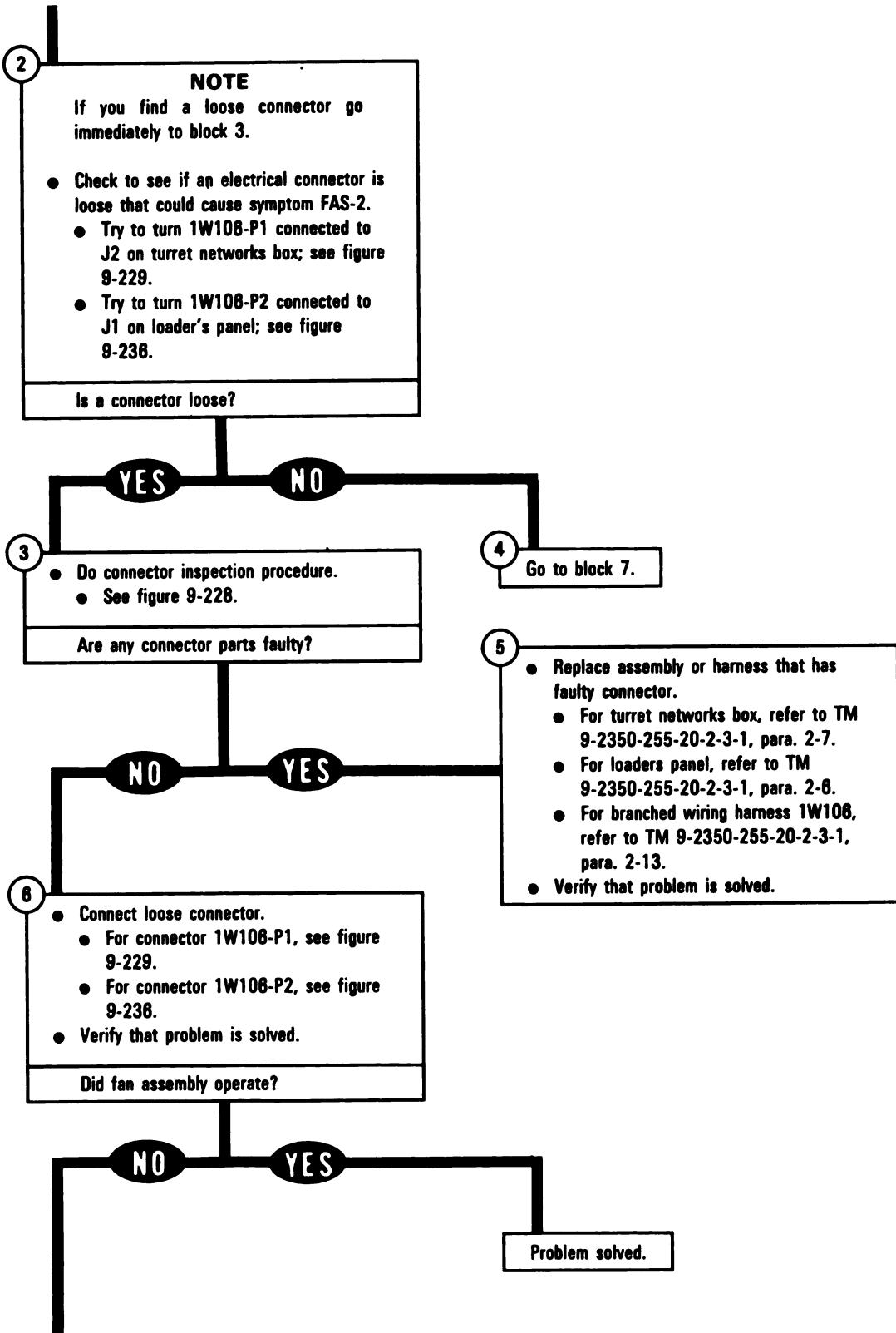


Figure 8-58 (Sheet 2 of 3)
Volume II
Para. 8-4

**TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING**

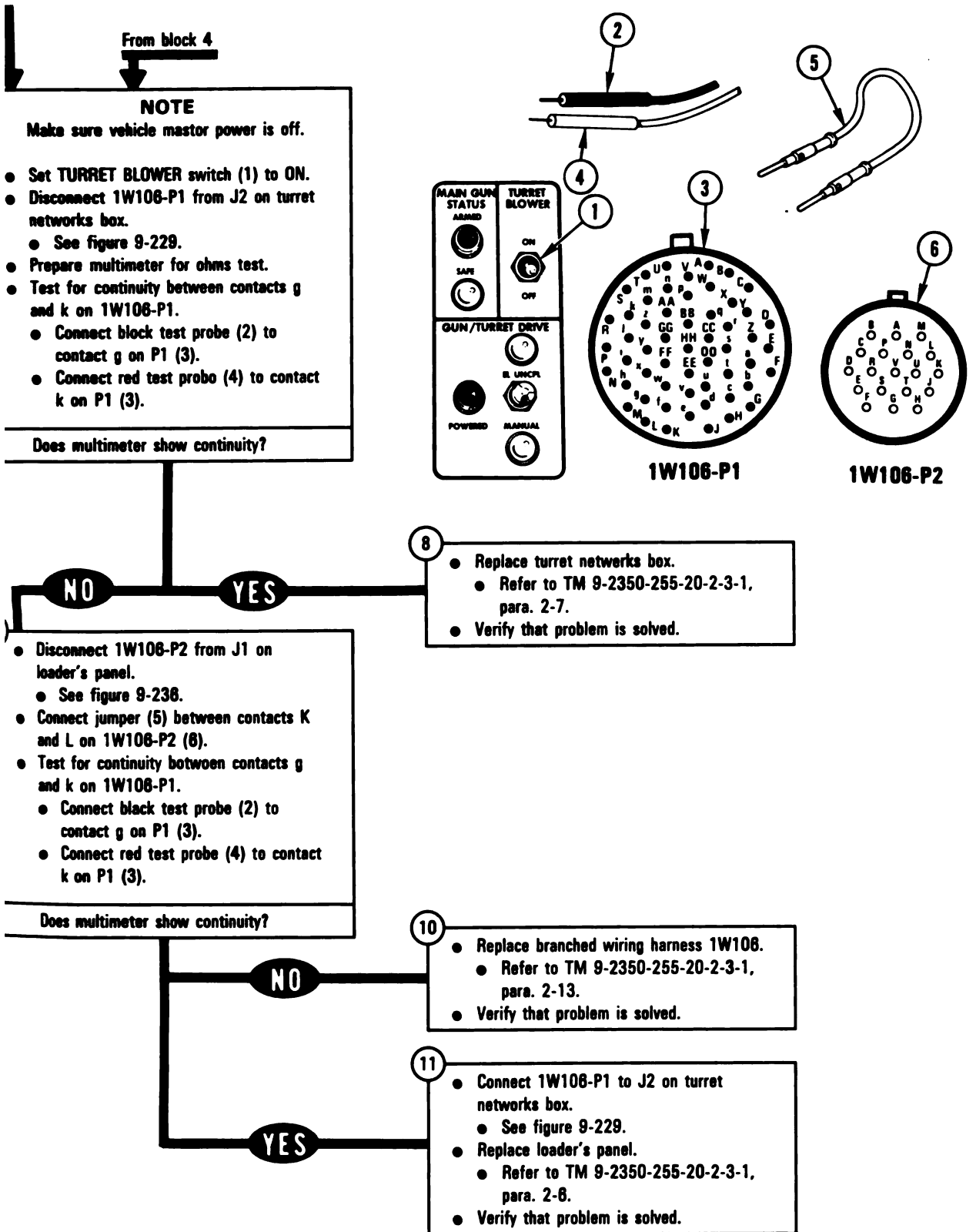


Figure 8-58 (Sheet 3 of 3)
**Volume II
Para. 8-4**

ARR82-5635

SYMPTOM FAS-3

FAN ASSEMBLY DOES NOT SHUT OFF

Common Tools:

- Pliers, slip joint, conduit style with plastic jaw inserts

Supplies:

Connector Pin/Socket Adapters

Test Equipment/Special Tools:

- Breakout Box Tool Kit, 12311066
- Multimeter

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

NOTE

Read para. 8-1 before doing any work.

1

- Set up tank controls for standard initial test conditions.
- Refer to para. 9-9, table 9-7 .

Figure 8-59 (Sheet 1 of 5)
**Volume II
Para. 8-4**

NOTE

If you find a loose connector go immediately to block 3.

- Check to see if an electrical connector is loose that could cause symptom FAS-3.
- Try to turn 1W108-P1 connected to J2 on turret networks box; see figure 9-229.
- Try to turn 1W108-P2 connected to J1 on loader's panel; see figure 9-238.

Is a connector loose?

YES

NO

- Do connector inspection procedure.
- See figure 9-228.

4

Go to block 7.

Are any connector parts faulty?

5

- Replace assembly or harness that has faulty connector.
- For turret networks box, refer to TM 9-2350-255-20-2-3-1, para. 2-7.
- For loader's panel, refer to TM 9-2350-255-20-2-3-1, para. 2-8.
- For branched wiring harness 1W108, refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

NO

YES

- Connect loose connector.
- For connector 1W108-P1, see figure 9-229.
- For connector 1W108-P2, see figure 9-238.
- Verify that problem is solved.

Did fan assembly shut off?

NO

YES

Problem solved.

Figure 8-59 (Sheet 2 of 5)
Volume II
Para. 8-4

**TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING**

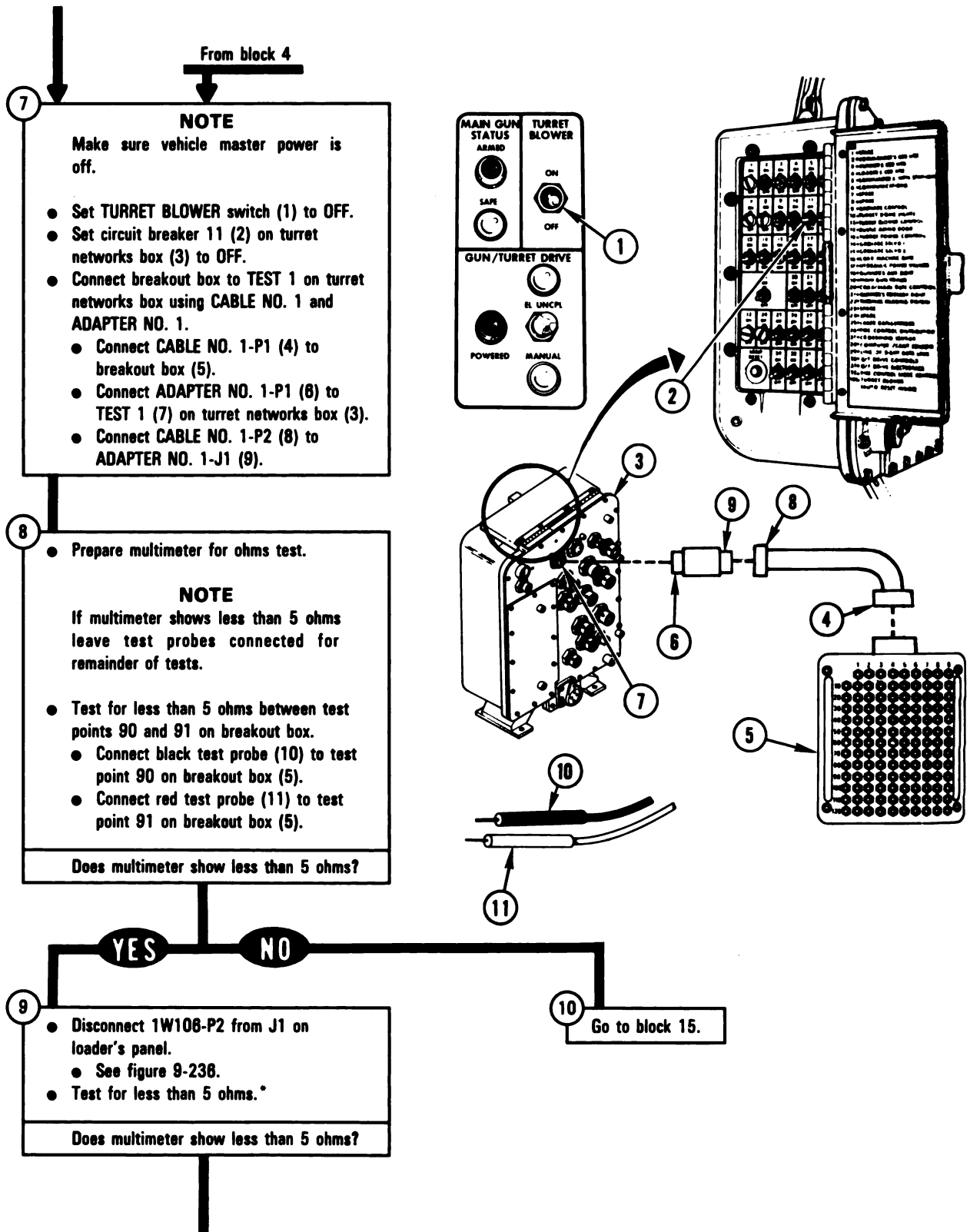


Figure 8-59 (Sheet 3 of 5)
Volume II
Para. 8-4

ARR82-5634

* Between contacts found in block 8

TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING

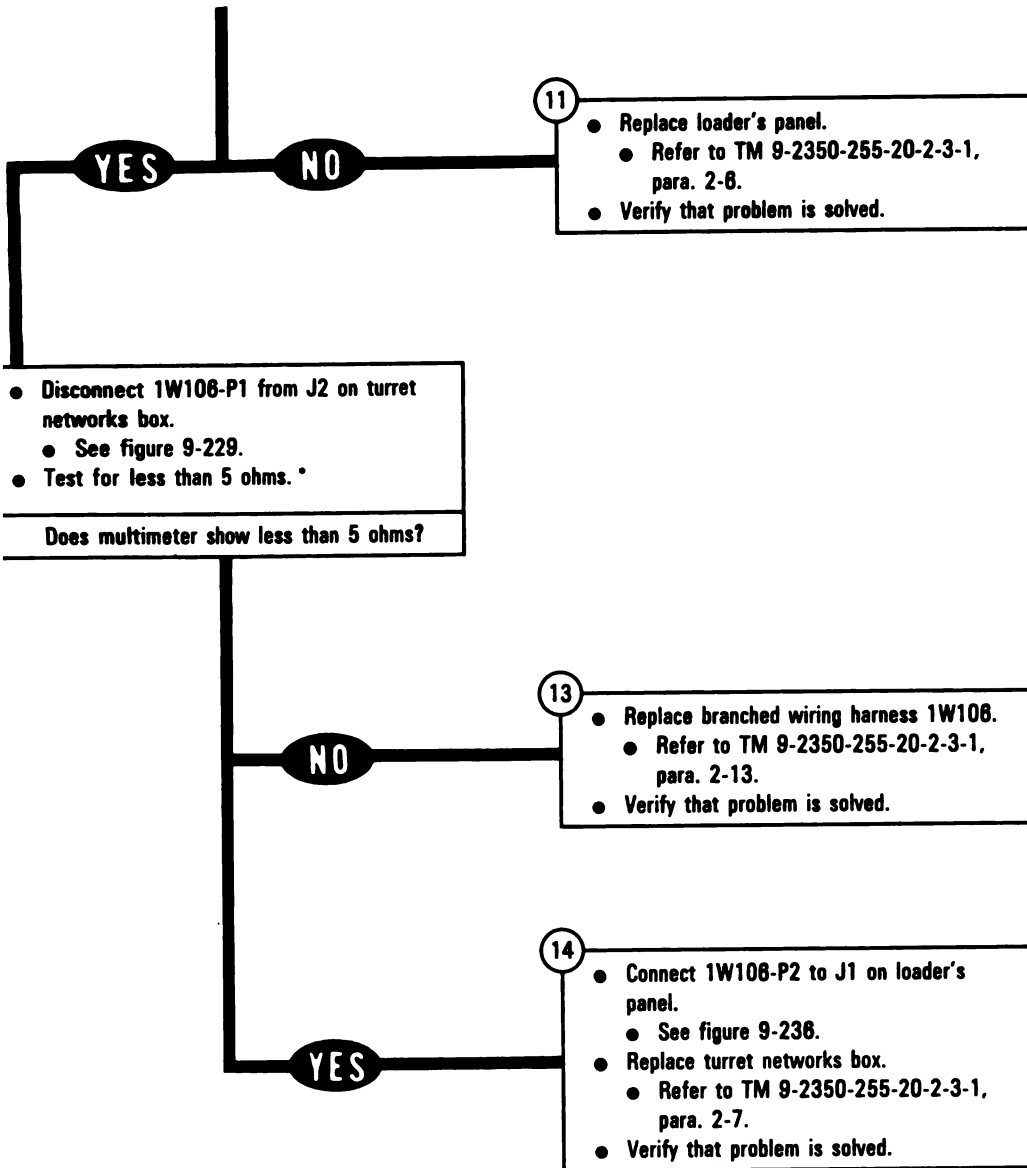


Figure 8-59 (Sheet 4 of 5)
Volume II
Para. 8-4

* Between contacts found in block 8

**TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING**

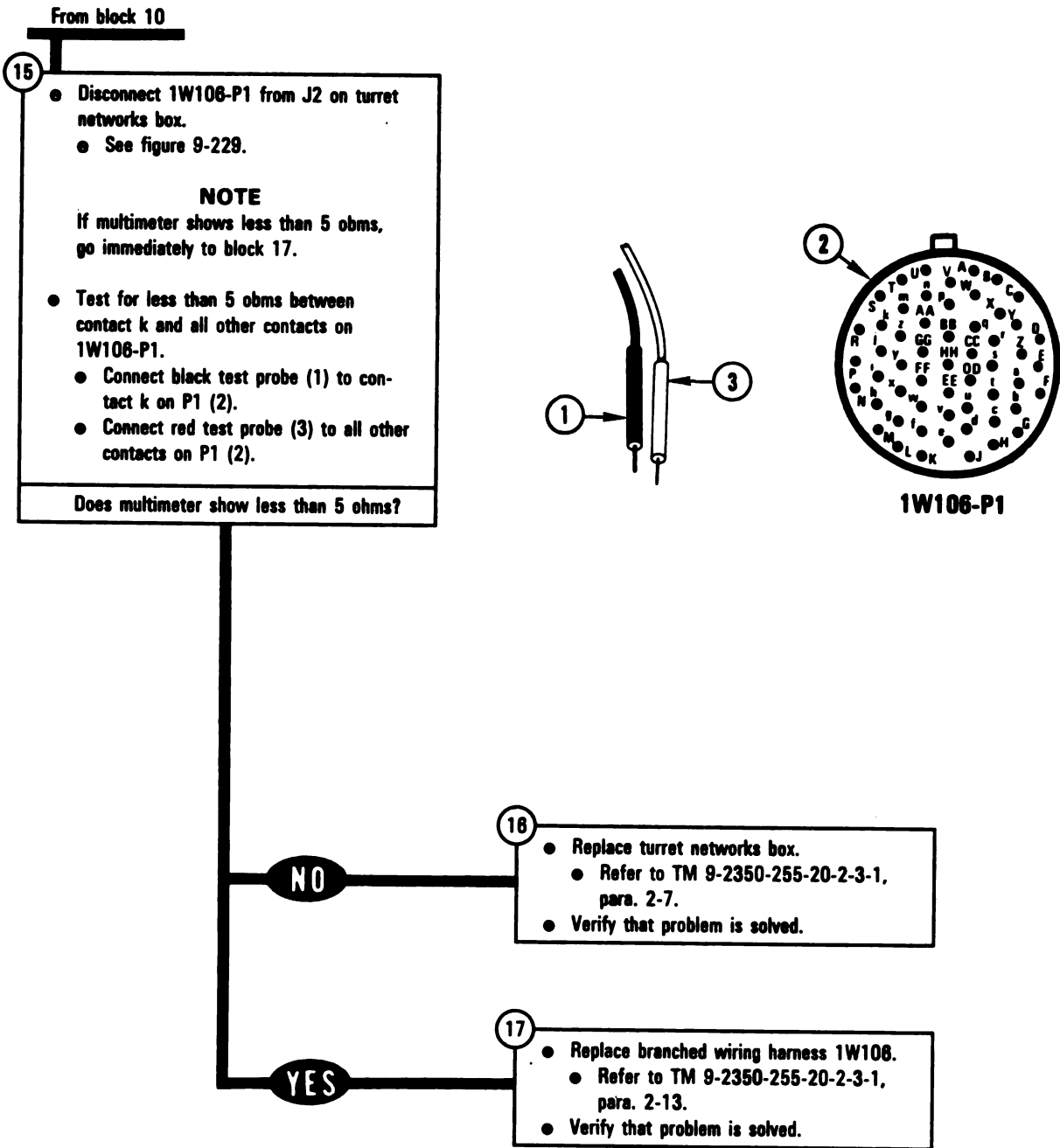


Figure 8-59 (Sheet 5 of 5)
**Volume II
Para. 8-4**

ARR82-5637

SYMPTOM FAS-4

LITTLE OR NO AIR FLOWS FROM FAN ASSEMBLY WHEN FAN IS RUNNING

Common Tools:

- Pliers, slip joint, conduit style with plastic jaw inserts

Supplies:

- Connector Pin/Socket Adapters
- Electrical Jumpers

Test Equipment/Special Tools:

- Breakout Box Tool Kit, 12311088
- Multimeter

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

NOTE

Read para. 8-1 before doing any work.

1

- Set up tank controls for standard initial test conditions.
- Refer to para. 9-9, table 9-7.

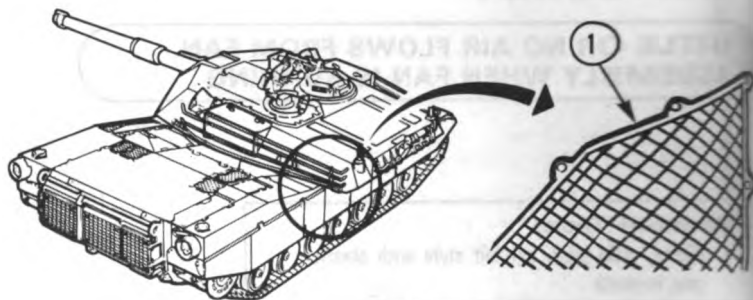
Figure 8-60 (Sheet 1 of 3)
Volume II
Para. 8-4

**TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING**

2

- Traverse turret manually until vehicle ventilation screen (1) can be seen under left rear corner of turret. Lock turret.
- Refer to TM 9-2350-255-10.
- Check to see if vehicle ventilation screen (1) is clogged.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-10.

Is screen clogged?

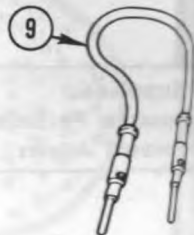


NO

YES

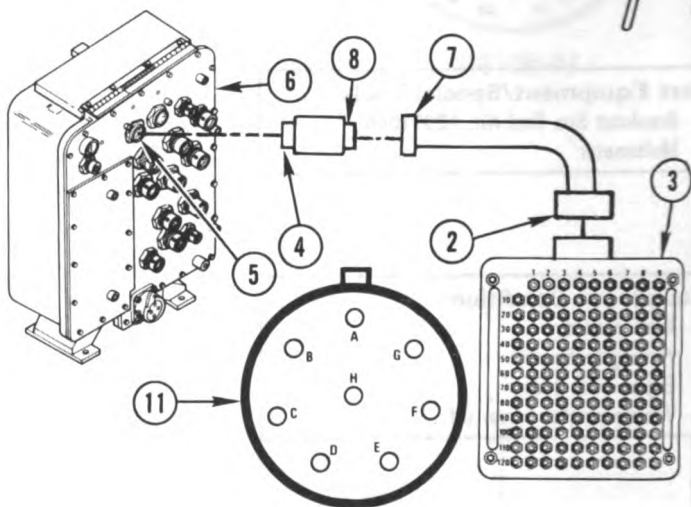
3

- Remove vehicle ventilation screen.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-10.
- Verify that problem is solved.



4

- Connect breakout box to TEST 1 on turret networks box using CABLE NO. 1 and ADAPTER NO. 1.
- Connect CABLE NO. 1-P1 (2) to breakout box (3).
- Connect ADAPTER NO. 1-P1 (4) to TEST 1 (5) on turret networks box (6).
- Connect CABLE NO. 1-P2 (7) to ADAPTER NO. 1-J1 (8).
- Disconnect 1W103-P2 from J1 on fan assembly.
- See figure 9-236.



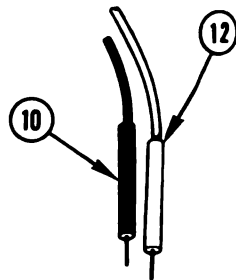
5

- Connect jumper (9) between test points 9 and 92 on breakout box (3).
- Prepare multimeter for ohms test.
- Test for continuity between contacts on 1W103-P2 listed in table A.
- Connect black test probe (10) to contacts on P2 (11) listed in table A.
- Connect red test probe (12) to contacts on P2 (11) listed in table A.

1W103-P2

Table A

Black Test Probe	Red Test Probe
A	D
B	E
C	F



Does multimeter show continuity between each pair of contacts?

NO

YES

6

- Replace fan assembly.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-10.
- Verify that problem is solved.

*Figure 8-60 (Sheet 2 of 3)
Volume II
Para. 8-4*

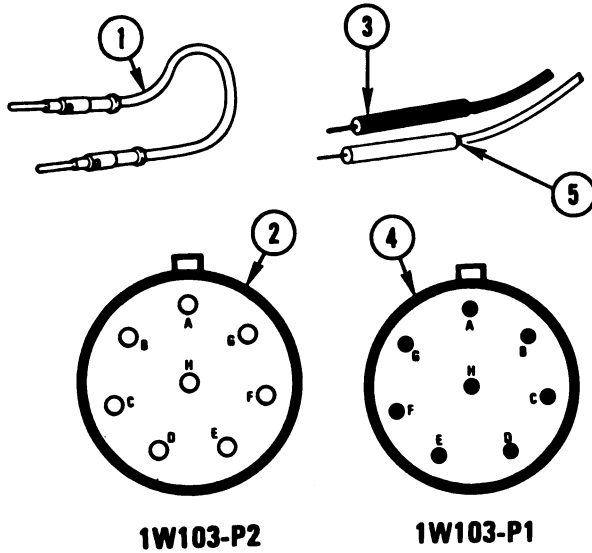
ARR82-5638

TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING

Table A

Jumper	Black Test Probe	Red Test Probe
A and D	A	D
B and E	B	E
C and F	C	F

- Disconnect 1W103-P1 from J12 on turret networks box.
 - See figure 9-229.
 - Connect jumper (1) between contacts on 1W103-P2 (2) listed in table A.
 - Test for continuity between contacts on 1W103-P1 listed in table A.
 - Connect black test probe (3) to contacts on P1 (4) listed in table A.
 - Connect red test probe (5) to contacts on P1 (4) listed in table A.
- Does multimeter show continuity between each pair of contacts?



NO

8

- Replace wiring harness assembly 1W103.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

YES

9

- Connect 1W103-P2 to J1 on fan assembly.
- See figure 9-236.
- Replace turret networks box.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
- Verify that problem is solved.

Figure 8-60 (Sheet 3 of 3)
Volume II
Para. 8-4

ARR82-5639

8-5. Turret Circuit Breaker Monitor Subsystem Troubleshooting Procedures.

Table 8-5. Turret Circuit Breaker Monitor (TCBM) Subsystem Fault Symptom Index

Fault Symptom No.	Fault Symptom	Primary Troubleshooting Procedure (PTP)
TCBM-1	CKT BKR OPEN Light On Commander's Control Panel Does Not Come On When One Or More Circuit Breakers Are Off	Figure 8-61
TCBM-2	CKT BKR OPEN Light On Commander's Control Panel Stays On When RESET Switch On Turret Networks Box Is Pressed	Figure 8-62
TCBM-3	CKT BKR OPEN Light On Commander's Control Panel Is On When All Circuit Breakers Are In ON Position	Figure 8-62

SYMPTOM TCBM-1

CKT BKR OPEN LIGHT ON COMMANDER'S CONTROL PANEL DOES NOT COME ON WHEN ONE OR MORE CIRCUIT BREAKERS ARE OFF

Common Tools:

- Pliers, slip joint, conduit style with plastic jaw inserts

Supplies:

- Connector Pin/Socket Adapters
- Electrical Jumpers

Test Equipment/Special Tools:

- Breakout Box Tool Kit, 12311068
- Multimeter

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

NOTE

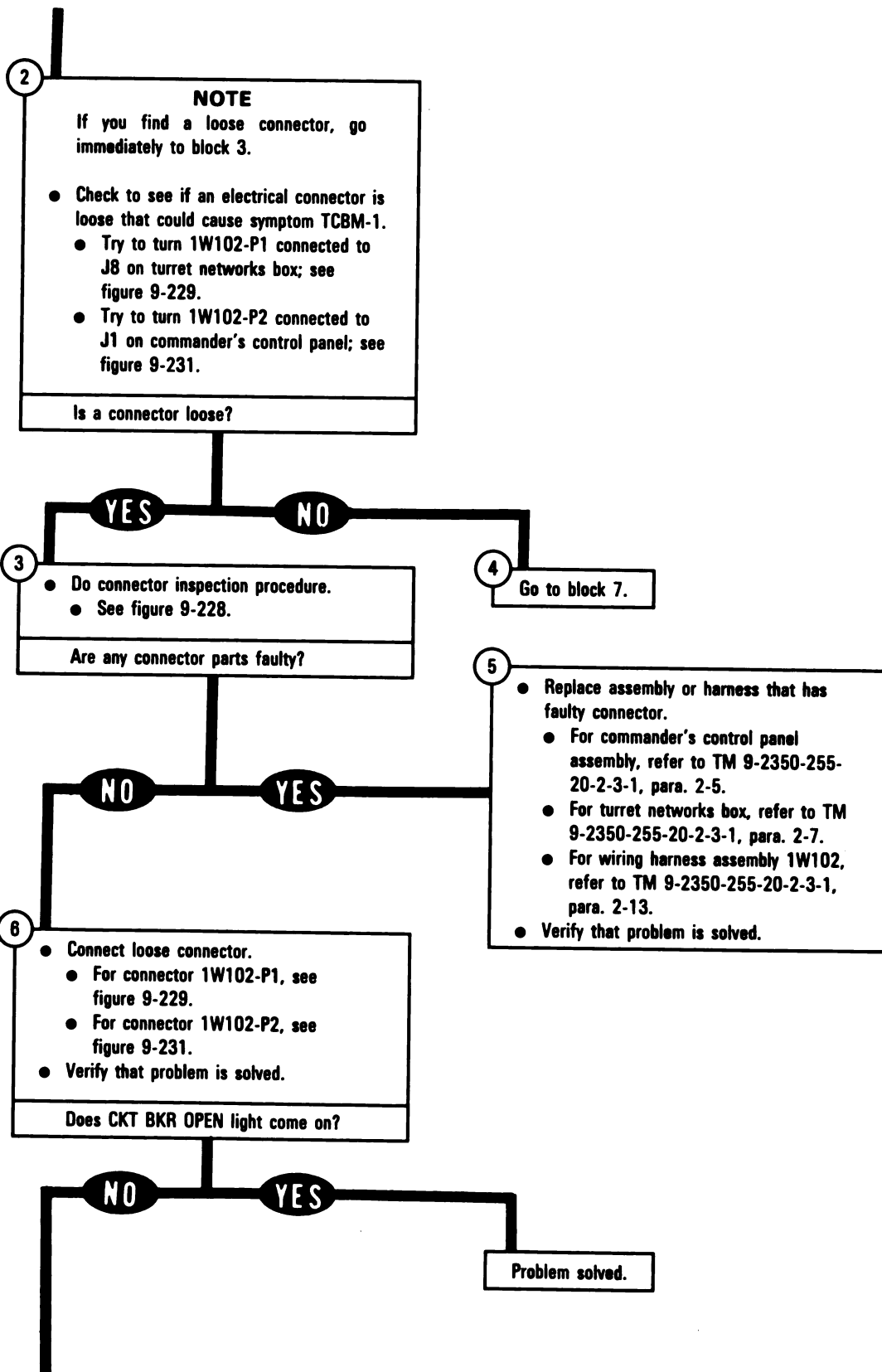
Read para. 8-1 before doing any work.

1

- Set up tank controls for standard initial test conditions.
- Refer to para. 9-9, table 9-7.

Figure 8-61 (Sheet 1 of 4)
Volume II
Para. 8-5

**TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING**

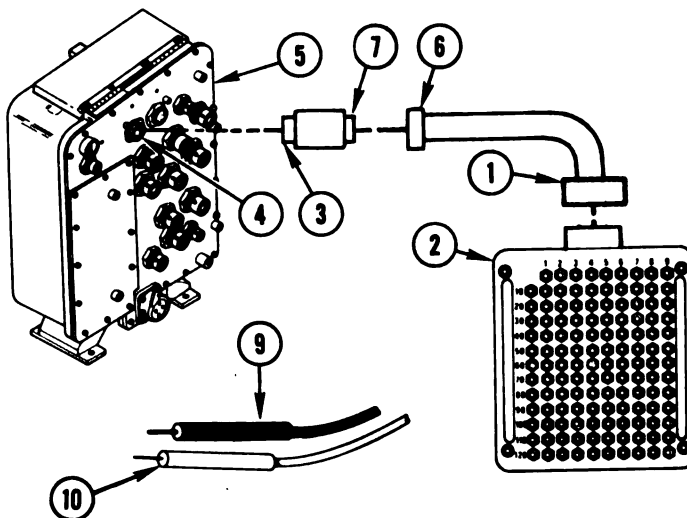


*Figure 8-61 (Sheet 2 of 4)
Volume II
Para. 8-5*

From block 4

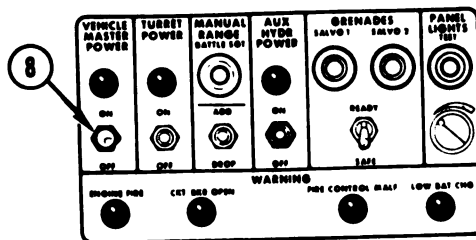
NOTE
Make sure vehicle master power is off.

- Connect breakout box to TEST 1 on turret networks box using CABLE NO. 1 and ADAPTER NO. 1.
- Connect CABLE NO. 1-P1 (1) to breakout box (2).
- Connect ADAPTER NO. 1-P1 (3) to TEST 1 (4) on turret networks box (5).
- Connect CABLE NO. 1-P2 (6) to ADAPTER NO. 1-J1 (7).
- Prepare multimeter for dc voltage test.



8

- Set VEHICLE MASTER POWER switch (8) to ON.
- Test for 18 to 30 V dc between test points 11 (-) and 106 (+) on breakout box.
- Connect black test probe (9) to test point 11 on breakout box (2).
- Connect red test probe (10) to test point 106 on breakout box (2).



Does multimeter show 18 to 30 V dc?

9

- Replace turret networks box.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
- Verify that problem is solved.

NO

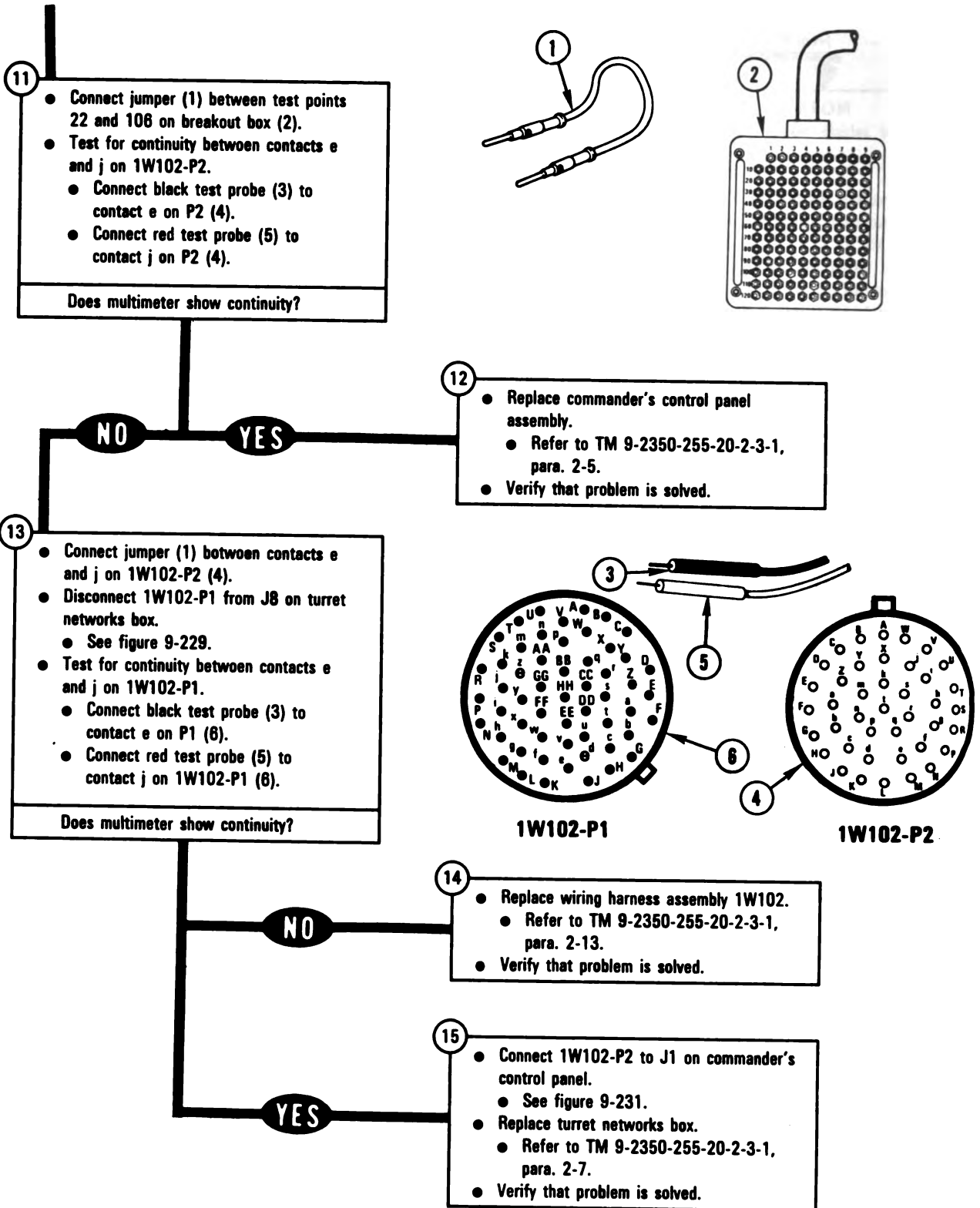
YES

10

- Set VEHICLE MASTER POWER switch (8) to OFF.
- Disconnect 1W102-P2 from J1 on commander's control panel.
- See figure 9-231.
- Prepare multimeter for ohms test.

Figure 8-61 (Sheet 3 of 4)
Volume II
Para. 8-5

**TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING**



*Figure 8-61 (Sheet 4 of 4)
Volume II
Para. 8-5*

ARR82-5642

SYMPTOM TCBM-2 OR TCBM-3

CKT BKR OPEN LIGHT ON COMMANDER'S CONTROL PANEL STAYS ON WHEN RESET SWITCH ON TURRET NETWORKS BOX IS PRESSED

OR

CKT BKR OPEN LIGHT ON COMMANDER'S CONTROL PANEL IS ON WHEN ALL CIRCUIT BREAKERS ARE IN ON POSITION

Common Tools:

- Pliers, slip joint, conduit style with plastic jaw inserts

Test Equipment/Special Tools:

- Breakout Box Tool Kit, 12311088
- Multimeter

Equipment Condition:

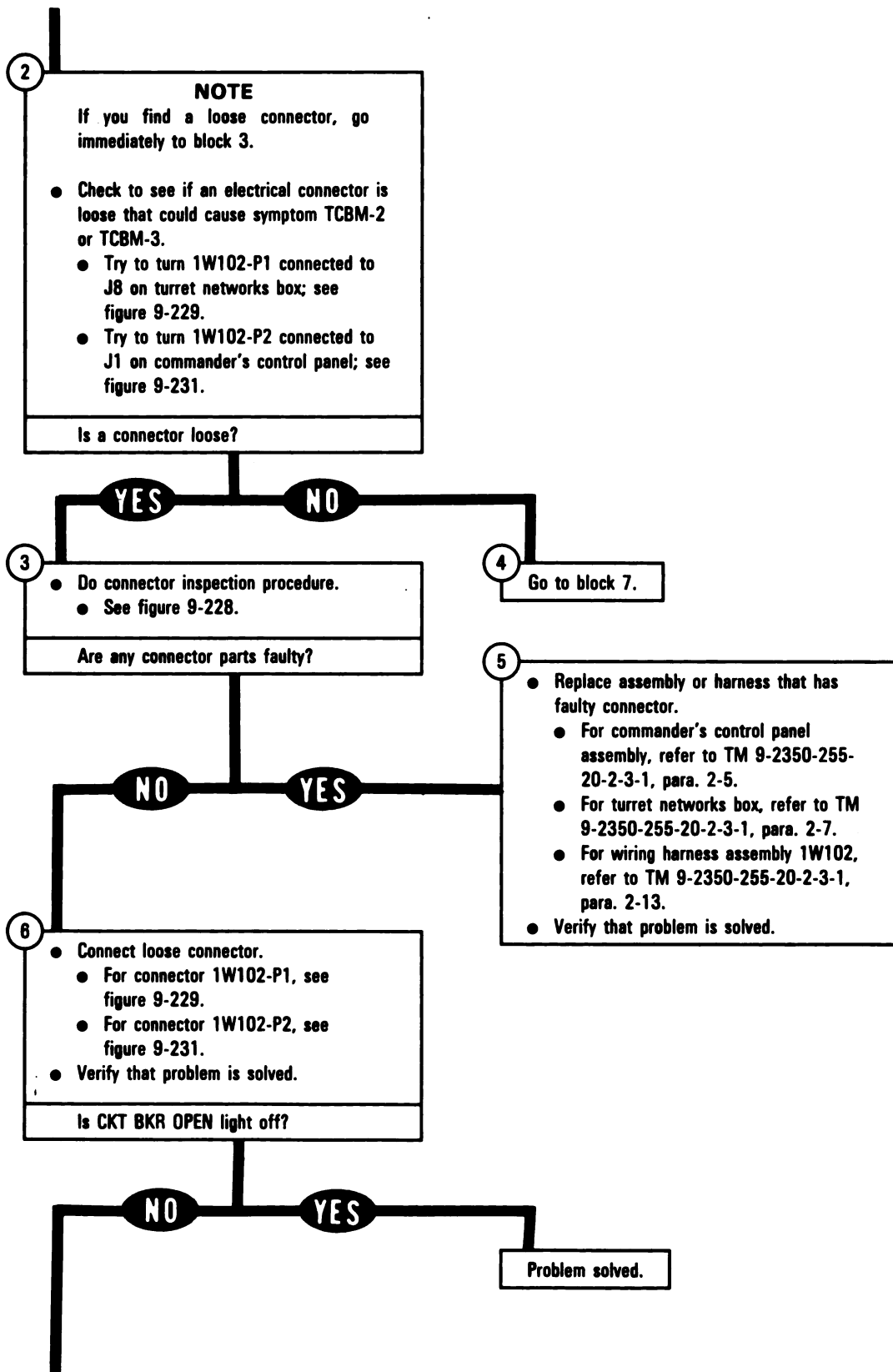
- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

NOTE

Read para. 8-1 before doing any work.

- 1
- Set up tank controls for standard initial test conditions.
 - Refer to para. 9-9, table 9-7.

Figure 8-62 (Sheet 1 of 4)
Volume II
Para. 8-5



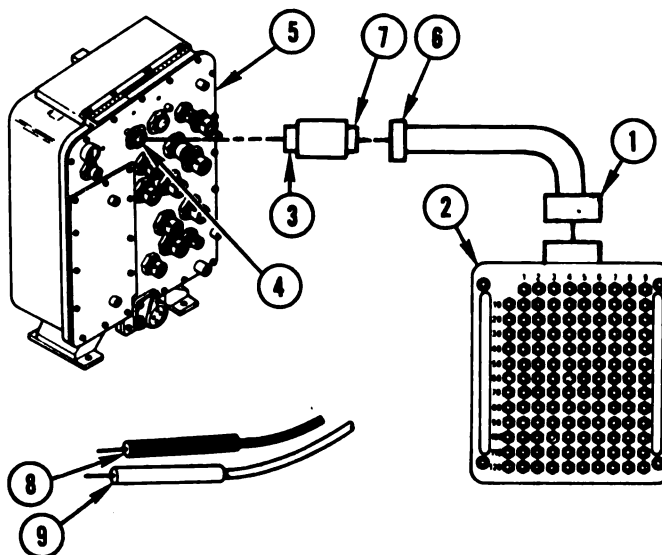
*Figure 8-62 (Sheet 2 of 4)
Volume II
Para. 8-5*

From block 4

NOTE

Make sure vehicle master power is off.

- Connect breakout box to TEST 1 on turret networks box using CABLE NO. 1 and ADAPTER NO. 1.
- Connect CABLE NO. 1-P1 (1) to breakout box (2).
- Connect ADAPTER NO. 1-P1 (3) to TEST 1 (4) on turret networks box (5).
- Connect CABLE NO. 1-P2 (6) to ADAPTER NO. 1-J1 (7).
- Prepare multimeter for ohms test.



NOTE

If multimeter shows less than 5 ohms leave test probes connected for remainder of tests.

- Test for less than 5 ohms between test points 11 and 106 on breakout box.
- Connect black test probe (8) to test point 11 on breakout box (2).
- Connect red test probe (9) to test point 106 on breakout box (2).

Does multimeter show less than 5 ohms?

YES

NO

9

- Replace turret networks box.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
- Verify that problem is solved.

10

- Disconnect 1W102-P2 from J1 on commander's control panel.
- See figure 9-231.
- Test for less than 5 ohms.

Does multimeter show less than 5 ohms?

Figure 8-62 (Sheet 3 of 4)
Volume II
Para. 8-5

ARR82-5642

TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING

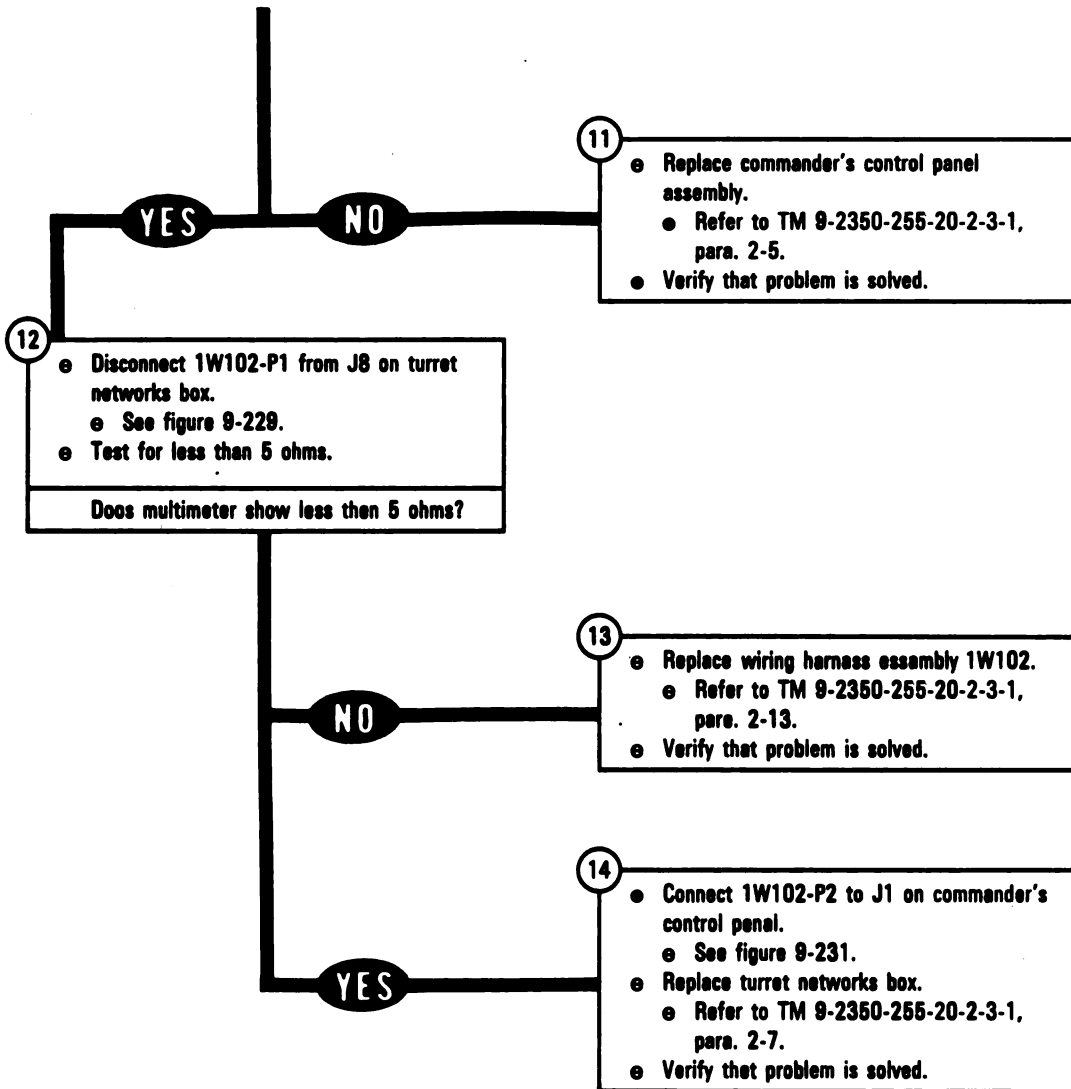


Figure 8-62 (Sheet 4 of 4)
Volume II
Para. 8-5

Panel Lights and Domelights Troubleshooting Procedures.

Table 8-6. Panel Lights and Domelights Subsystem (PLDS) Fault Symptom Index

Fault Symptom No.	Fault Symptom	Primary Troubleshooting Procedure (PTP)
PLDS-1	Commander's and Loader's Panel Lights Do Not Come On	Figure 8-63
PLDS-2	Loader's Panel Lights Do Not Come On	Figure 8-64
PLDS-3	Commander's And Loader's Panel Lights Do Not Come On When PANEL LIGHTS TEST Pushbutton Is Pressed	Figure 8-65
PLDS-4	Loader's Domelight Does Not Come On When Domelight Knob Is Turned Fully Clockwise	Figure 8-66
PLDS-5	Gunner's Domelight Does Not Come On When Domelight Knob Is Turned Fully Clockwise	Figure 8-67
PLDS-6	Commander's Domelight Does Not Come On When Domelight Knob Is Turned Fully Clockwise	Figure 8-68
PLDS-7	Gunner's Primary Sight Panel Lights Do Not Come On	Figure 8-69
PLDS-8	Gunner's Primary Sight And Image Control Unit Panel Lights Do Not Come On When PANEL LIGHTS TEST Pushbutton Is Pressed	Figure 8-70
PLDS-9	DEFROSTER Light Does Not Come On When PANEL LIGHTS TEST Pushbutton Is Pressed	Figure 8-71
PLDS-10	Image Control Unit Panel Lights Do Not Come On When PANEL LIGHTS TEST Pushbutton Is Pressed	Figure 8-72
PLDS-11	Brightness Of Gunner's Primary Sight Panel Lights Does Not Vary With PANEL LIGHTS Knob	Figure 8-73
PLDS-12	Brightness Of Commander's Control Panel Lights Does Not Vary With PANEL LIGHTS Knob	Figure 8-74

SYMPTOM PLDS-1

**COMMANDER'S AND LOADER'S
PANEL LIGHTS DO NOT COME ON**

Common Tools:

- Pliers, slip joint, conduit style with plastic jaw inserts

Supplies:

- Connector Pin/Socket Adapters
- Electrical Jumpers

Test Equipment/Special Tools:

- Breakout Box Tool Kit, 12311086
- Multimeter

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

NOTE

Read para. 8-1 before doing any work.

1

- Set up tank controls for standard initial test conditions.
- Refer to para. 9-9, table 9-7.

Figure 8-63 (Sheet 1 of 6)
Volume II
Para. 8-6

NOTE

If you find a loose connector, go immediately to block 3.

- Check to see if an electrical connector is loose that could cause symptom PLDS-1.
- Try to turn 1W102-P1 connected to J8 on turret networks box; see figure 9-229.
- Try to turn 1W102-P2 connected to J1 on commander's control panel; see figure 9-231.

Is a connector loose?

YES

NO

- Do connector inspection procedure.
- See figure 9-228.

Are any connector parts faulty?

NO

YES

4

Go to block 7.

5

- Replace assembly or harness that has faulty connector.
 - For turret networks box, refer to TM 9-2350-255-20-2-3-1, para. 2-7.
 - For commander's control panel assembly, refer to TM 9-2350-255-20-2-3-1, para. 2-5.
 - For wiring harness assembly 1W102, refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

6

- Connect loose connector.
 - For connector 1W102-P1, see figure 9-229.
 - For connector 1W102-P2, see figure 9-231.
- Verify that problem is solved.

Does symptom still exist?

YES

NO

Problem solved.

Figure 8-63 (Sheet 2 of 6)
Volume II
Para. 8-6

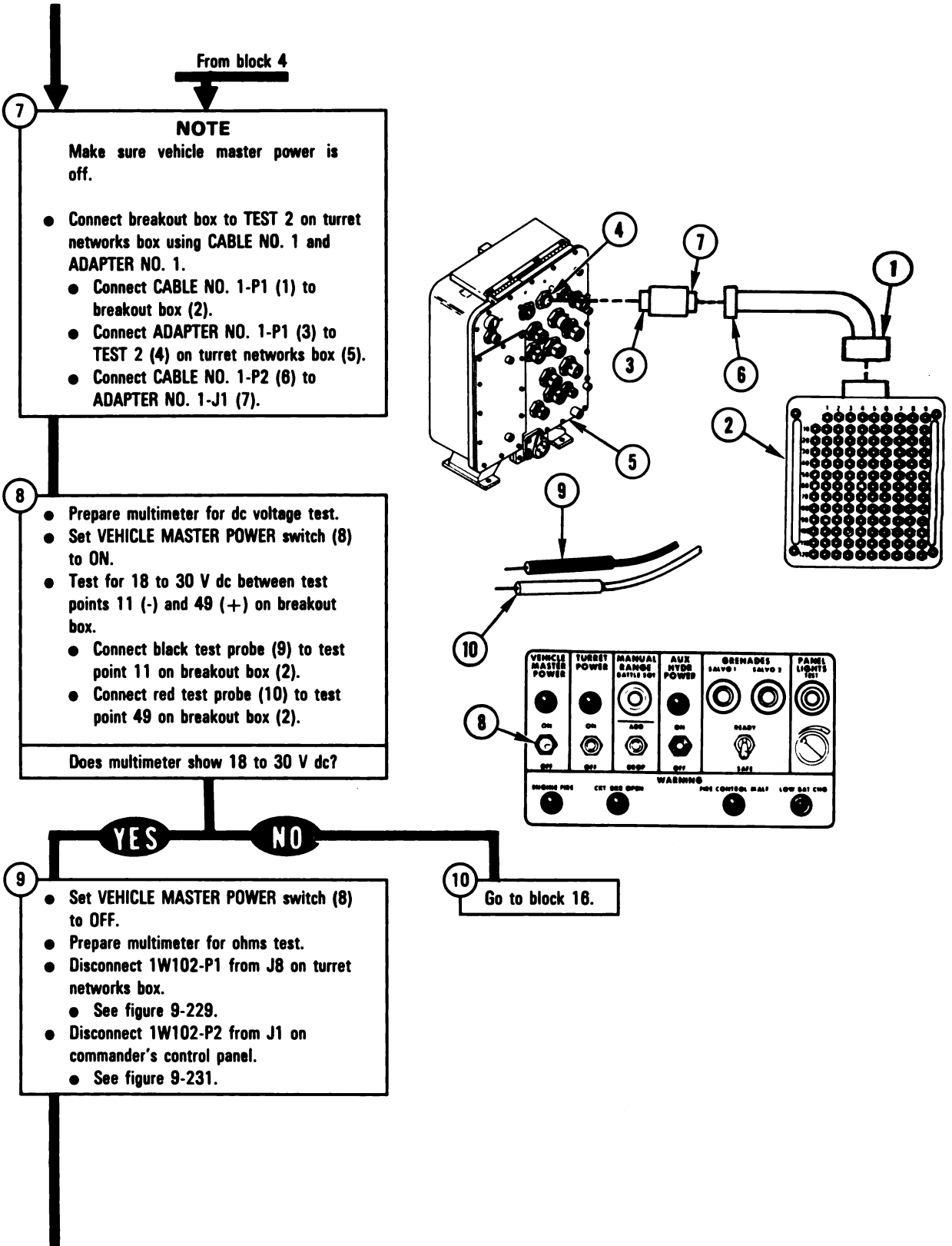
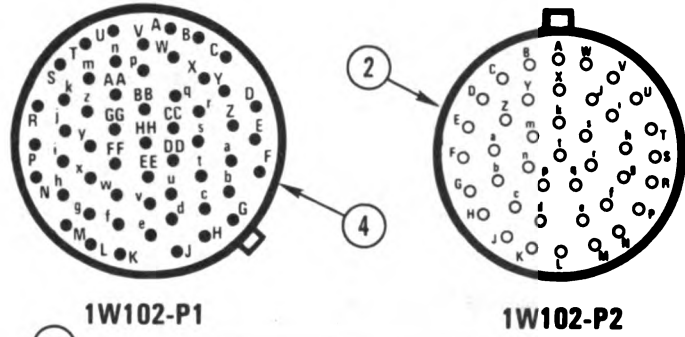
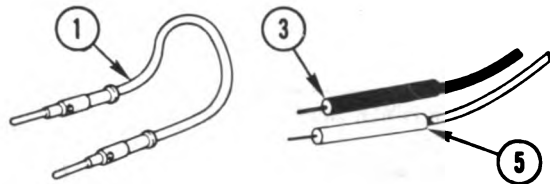


Figure 8-63 (Sheet 3 of 6)
 Volume II
 Para. 8-6

ARR82-5643

**TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING**

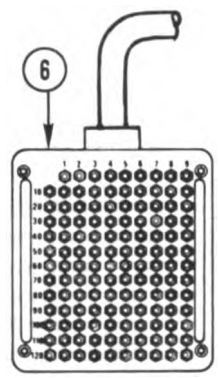
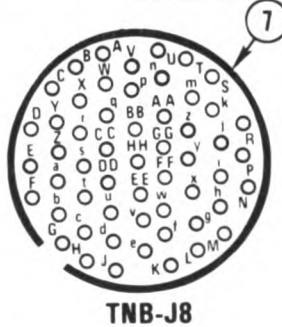
- Connect jumper (1) between contacts n and p on 1W102-P2 (2).
 - Test for continuity between contacts n and p on 1W102-P1.
 - Connect black test probe (3) to contact n on P1 (4).
 - Connect red test probe (5) to contact p on P1 (4).
- Does multimeter show continuity?



YES **NO**

- 12
- Replace wiring harness assembly 1W102.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

- Test for continuity between test point 49 on breakout box and contact p on turret networks box J8.
 - Connect black test probe (3) to test point 49 on breakout box (6).
 - Connect red test probe (5) to contact p on J8 (7).
- Does multimeter show continuity?



NO

- 14
- Connect 1W102-P2 to J1 on commander's control panel.
 - See figure 9-231.
 - Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
 - Verify that problem is solved.

YES

- 15
- Connect 1W102-P1 to J8 on turret networks box.
 - See figure 9-229.
 - Replace commander's control panel assembly.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-5.
 - Verify that problem is solved.

**Figure 8-63 (Sheet 4 of 6)
Volume II
Para. 8-6**

ARR82-5644

**TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING**

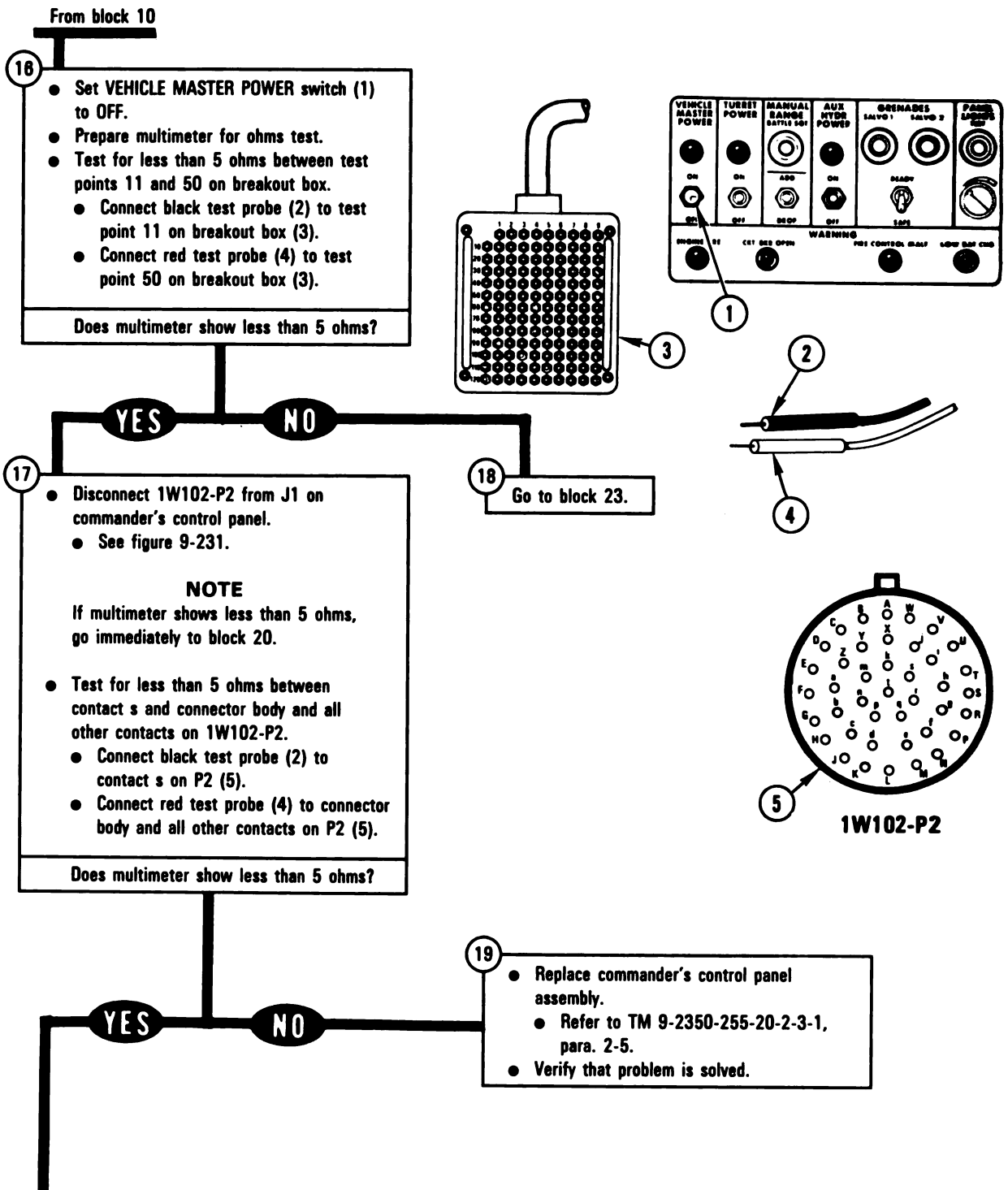


Figure 8-63 (Sheet 5 of 6)
Volume II
Para. 8-6

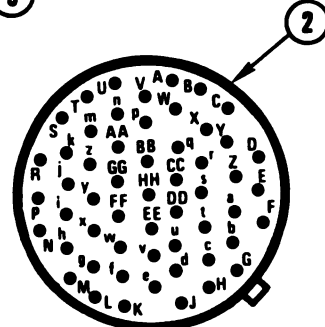
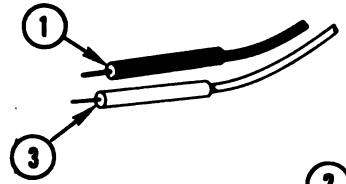
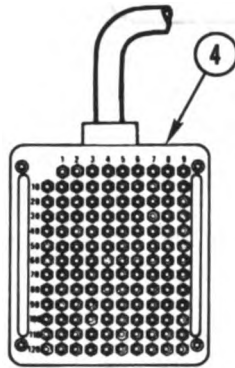
ARR82-5645

- Disconnect 1W102-P1 from J8 on turret networks box.
- See figure 9-229.

NOTE
If multimeter shows less than 5 ohms, go immediately to block 21.

- Test for less than 5 ohms between contact s and connector body and all other contacts on 1W102-P1.
 - Connect black test probe (1) to contact s on P1 (2).
 - Connect red test probe (3) to connector body and all other contacts on P1 (2).

Does multimeter show less than 5 ohms?



1W102-P1

YES **NO**

- Replace wiring harness assembly 1W102.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

22

- Connect 1W102-P2 to J1 on commander's control panel.
 - See figure 9-231.
 - Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
 - Verify that problem is solved.

From block 18

3

- Test for less than 5 ohms between test points 11 and 49 on breakout box.
 - Connect black test probe (1) to test point 11 on breakout box (4).
 - Connect red test probe (3) to test point 49 on breakout box (4).

Does multimeter show less than 5 ohms?

YES **NO**

24

- Do troubleshooting procedure for symptom TCB-13.
 - Refer to TM 9-2350-255-20-2-2-3, figure 17-10.

25

- Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
 - Verify that problem is solved.

Figure 8-63 (Sheet 6 of 6)
Volume II
Para. 8-6

SYMPTOM PLDS-2

**LOADER'S PANEL LIGHTS DO NOT
COME ON**

Common Tools:

- Pliers, slip joint, conduit style with plastic jaw inserts

Supplies:

- Connector Pin/Socket Adapters
- Electrical Jumpers

Test Equipment/Special Tools:

- Breakout Box Tool Kit, 12311066
- Multimeter

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

NOTE

Read para. 8-1 before doing any work.

1

- Set up tank controls for standard initial test conditions.
- Refer to para. 9-9, table 9-7.

Figure 8-64 (Sheet 1 of 5)
Volume II
Para. 8-6

NOTE

If you find a loose connector, go immediately to block 3.

- Check to see if an electrical connector is loose that could cause symptom PLDS-2.
- Try to turn 1W108-P1 connected to J2 on turret networks box; see figure 9-229.

- Try to turn 1W102-P1 connected to J8 on turret networks box; see figure 9-229.
- Try to turn 1W108-P2 connected to J1 on loader's panel; see figure 9-236.
- Try to turn 1W102-P2 connected to J1 on commander's control panel; see figure 9-231.

Is a connector loose?

YES

NO

- Do connector inspection procedure.
- See figure 9-228.

Are any connector parts faulty?

4 Go to block 7.

NO

YES

- 5
- Replace assembly or harness that has faulty connector.
 - For turret networks box, refer to TM 9-2350-255-20-2-3-1, para. 2-7.
 - For commander's control panel assembly, refer to TM 9-2350-255-20-2-3-1, para. 2-5.
 - For loader's panel, refer to TM 9-2350-255-20-2-3-1, para. 2-6.
 - For wiring harness assembly 1W102 or branched wiring harness 1W108, refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

Figure 8-64 (Sheet 2 of 5)
Volume II
Para. 8-6

**TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING**

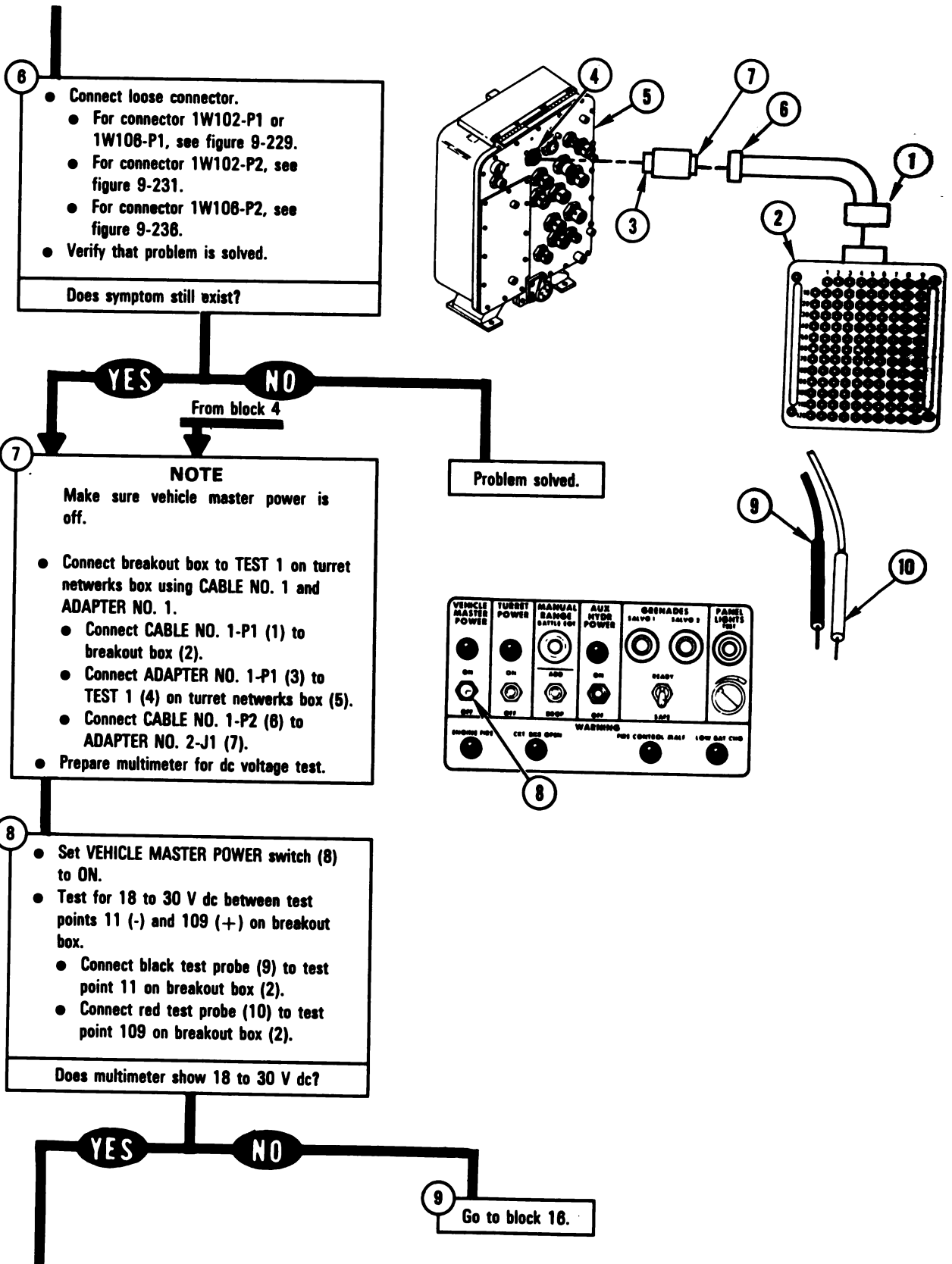


Figure 8-64 (Sheet 3 of 5)
Volume II
Para. 8-6

ARR82-5647

TM 9-2350-255-20-2-2-1 TURRET ELECTRICAL SYSTEM TROUBLESHOOTING

- ▶ Set **VEHICLE MASTER POWER** switch (1) to OFF.
- ▶ Prepare multimeter for ohms test.
- ▶ Disconnect 1W108-P1 from J2 on turret networks box.
- See figure 9-229.

- Test for continuity between test point 109 on breakout box and contact d on turret networks box J2.
- Connect black test probe (2) to test point 109 on breakout box (3).
- Connect red test probe (4) to contact d on J2 (5).

Does multimeter show continuity?

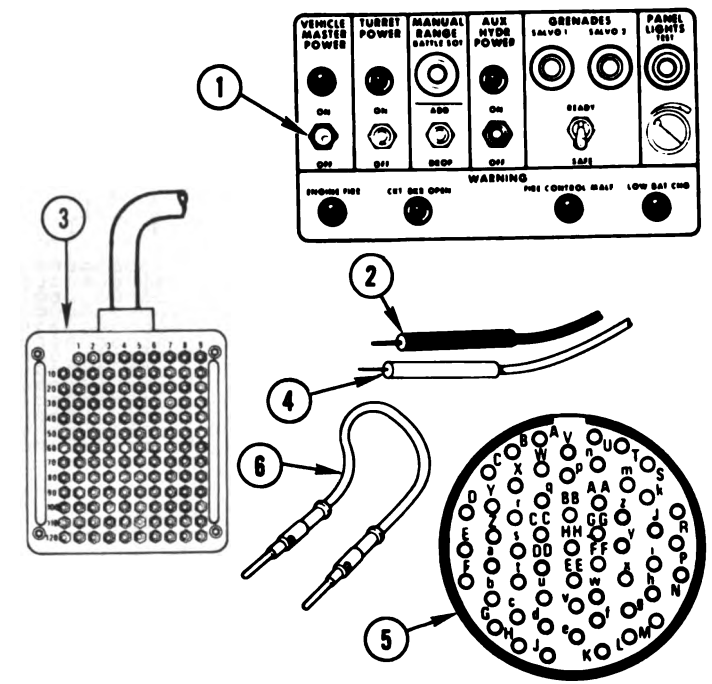
YES **NO**

- Disconnect 1W108-P2 from J1 on loader's panel.
- See figure 9-236.
- Connect jumper (6) between contacts D and E on 1W108-P2 (7).
- Test for continuity between contacts d and e on 1W108-P1.
- Connect black test probe (2) to contact d on P1 (8).
- Connect red test probe (4) to contact e on P1 (8).

Does multimeter show continuity?

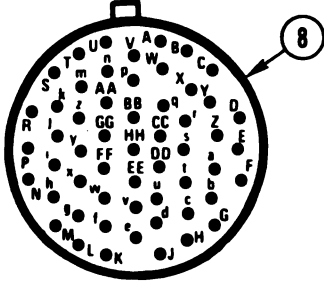
NO

YES

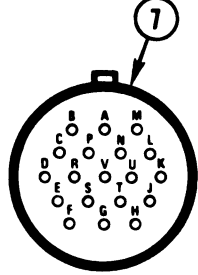


- 12
- Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
 - Verify that problem is solved.

TNB-J2



1W108-P1



1W108-P2

- 14
- Replace branched wiring harness 1W108.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

- 15
- Connect 1W108-P1 to J2 on turret networks box.
 - See figure 9-229.
 - Replace loader's panel.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-8.
 - Verify that problem is solved.

Figure 8-64 (Sheet 4 of 5)
Volume II
Para. 8-6

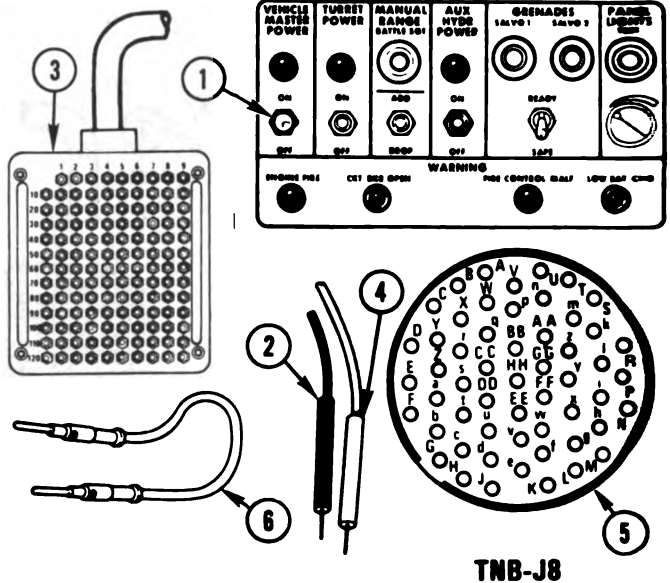
ARR82-5648

**TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING**

From block 9

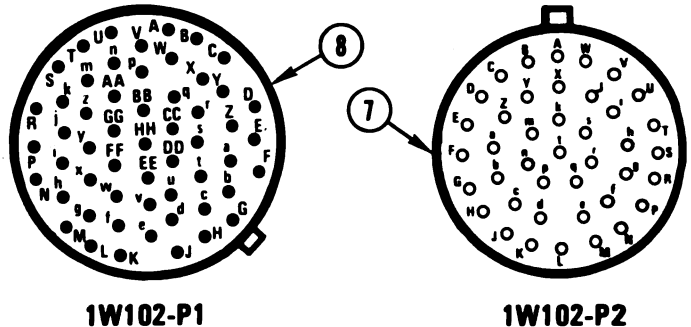
- 16
- Set VEHICLE MASTER POWER switch (1) to OFF.
 - Prepare multimeter for ohms test.
 - Disconnect 1W102-P1 from J8 on turret networks box.
 - See figure 9-229.

- 17
- Test for continuity between test point 109 on breakout box and contact n on turret networks box J8.
 - Connect black test probe (2) to test point 109 on breakout box (3).
 - Connect red test probe (4) to contact n on J8 (5).
- Does multimeter show continuity?



- 18
- Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
 - Verify that problem is solved.

- 19
- Disconnect 1W102-P2 from J1 on commander's control panel.
 - See figure 9-231.
 - Connect jumper (6) between contacts n and p on 1W102-P2 (7).
 - Test for continuity between contacts n and p on 1W102-P1.
 - Connect black test probe (2) to contact n on P1 (8).
 - Connect red test probe (4) to contact p on P1 (8).
- Does multimeter show continuity?



- 20
- Connect 1W102-P1 to J8 on turret networks box.
 - See figure 9-229.
 - Replace commander's control panel assembly.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-5.
 - Verify that problem is solved.

- 21
- Replace wiring harness assembly 1W102.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

Figure 8-64 (Sheet 5 of 5)
Volume II
Para. 8-6

ARR82-5649

SYMPTOM PLDS-3

COMMANDER'S AND LOADER'S PANEL LIGHTS DO NOT COME ON WHEN PANEL LIGHTS TEST PUSHBUTTON IS PRESSED

Common Tools:

- Pliers, slip joint, conduit style with plastic jaw inserts

Supplies:

- Connector Pin/Socket Adapters
- Electrical Jumpers

Test Equipment/Special Tools:

- Breakout Box Tool Kit, 12311068
- Multimeter

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

NOTE

Read para. 8-1 before doing any work.

- Set up tank controls for standard initial test conditions.
- Refer to para. 9-9, table 9-7.

Figure 8-65 (Sheet 1 of 4)
Volume II
Para. 8-6

**TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING**

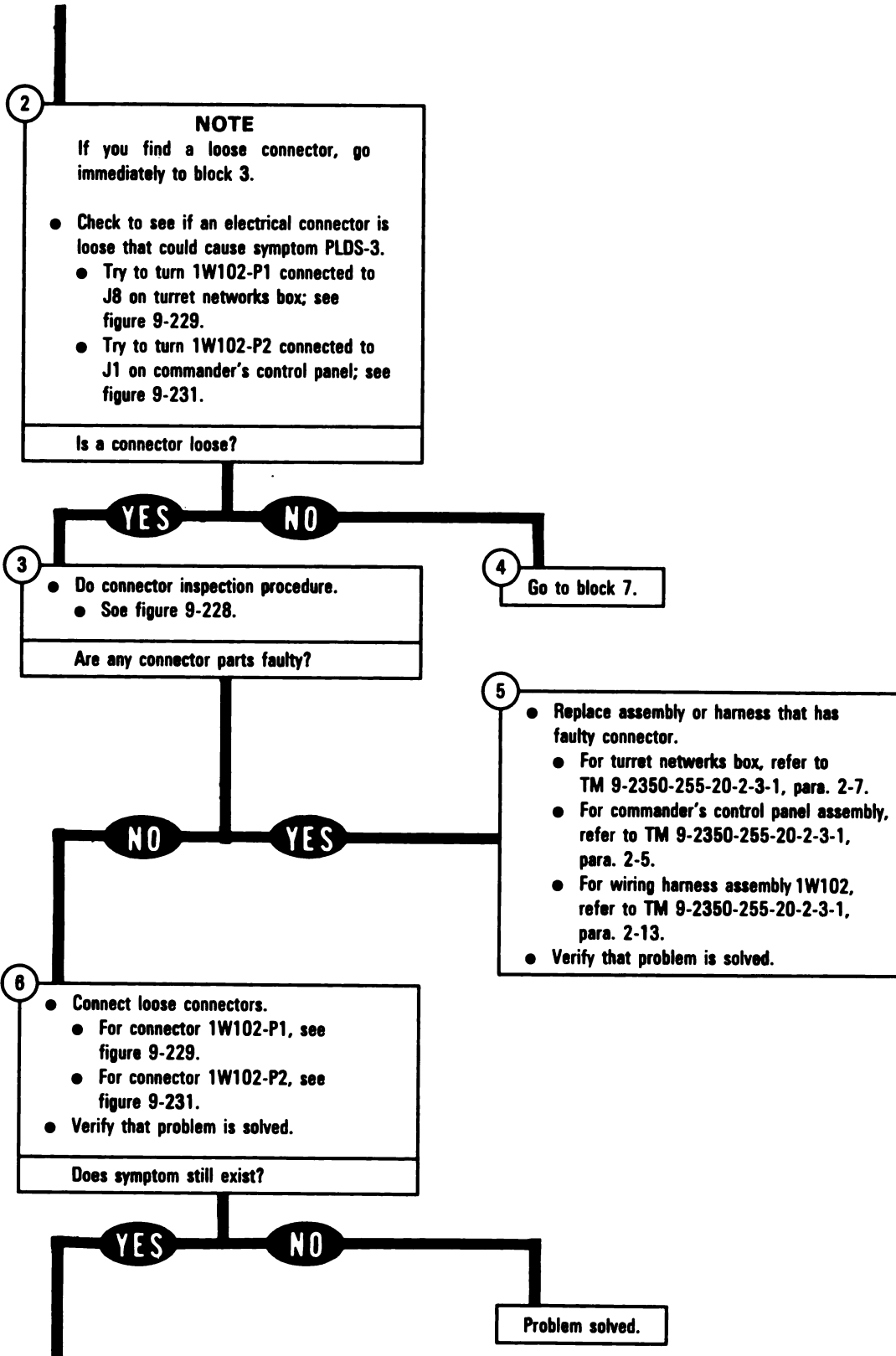


Figure 8-65 (Sheet 2 of 4)
Volume II
Para. 8-6

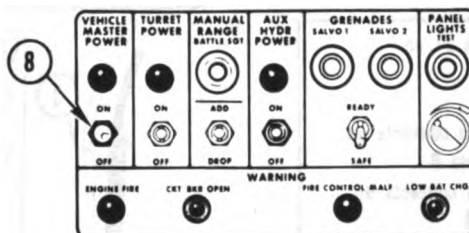
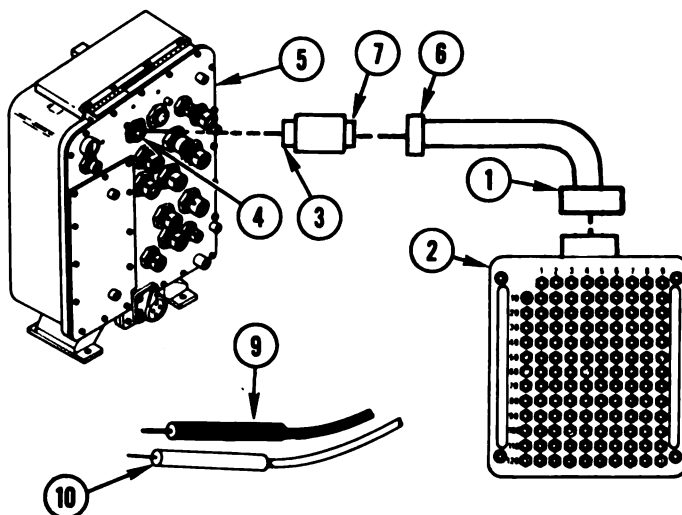
From block 4

NOTE

Make sure vehicle master power is off.

Connect breakout box to TEST 1 on turret networks box using CABLE NO. 1 and ADAPTER NO. 1.

- Connect CABLE NO. 1-P1 (1) to breakout box (2).
 - Connect ADAPTER NO. 1-P1 (3) to TEST 1 (4) on turret networks box (5).
 - Connect CABLE NO. 1-P2 (6) to ADAPTER NO. 1-J1 (7).
- Prepare multimeter for dc voltage test.



- Set VEHICLE MASTER POWER switch (8) to ON.
- Test for 18 to 30 V dc between test points 11 (-) and 16 (+) on breakout box.
 - Connect black test probe (9) to test point 11 on breakout box (2).
 - Connect red test probe (10) to test point 16 on breakout box (2).

Does multimeter show 18 to 30 V dc?

YES NO

- 9
- Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
 - Verify that problem is solved.

- Set VEHICLE MASTER POWER switch (8) to OFF.
- Prepare multimeter for ohms test.
- Disconnect 1W102-P1 from J8 on turret networks box.
- See figure 9-229.

Figure 8-65 (Sheet 3 of 4)
Volume II
Para. 8-6

ARR82-5650

**TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING**

Table A

Black test probe	Red test probe
K	n
q	r

Table B

Jumper	Black test probe	Red test probe
q and r	q	r
K and n	K	n

11

- Test for continuity between contacts on 1W102-P1 listed in table A with PANEL LIGHTS TEST pushbutton pressed.
- Connect black test probe (1) to contacts on P1 (2) listed in table A.
- Connect red test probe (3) to contacts on P1 (2) listed in table A.
- Press and hold PANEL LIGHTS TEST pushbutton (4).

Does multimeter show continuity between each pair of contacts?

NO **YES**

12

- Replace turret networks box.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
- Verify that problem is solved.

13

- Disconnect 1W102-P2 from J1 on commander's control panel.
- See figure 9-231.
- Connect jumper (5) between contacts on 1W102-P2 (6) listed in table B.
- Test for continuity between contacts on 1W102-P1 listed in table B.
- Connect black test probe (1) to contacts on P1 (2) listed in table B.
- Connect red test probe (3) to contacts on P1 (2) listed in table B.

Does multimeter show continuity between each pair of contacts?

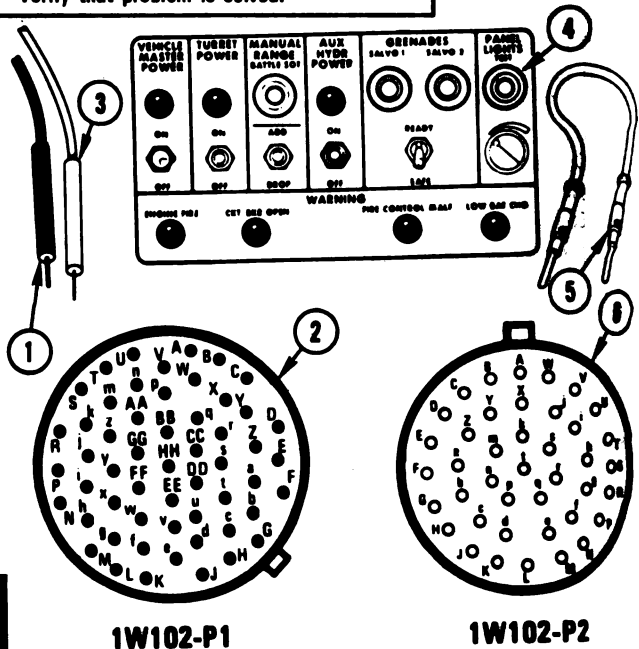
YES **NO**

14

- Connect 1W102-P1 to J8 on turret networks box.
- See figure 9-229.
- Replace commander's control panel assembly.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-5.
- Verify that problem is solved.

15

- Replace wiring harness assembly 1W102.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.



*Figure 8-65 (Sheet 4 of 4)
Volume II
Para. 8-6*

ARR82-5651

SYMPTOM PLDS-5

GUNNER'S DOMELIGHT DOES NOT COME ON WHEN DOMELIGHT KNOB IS TURNED FULLY CLOCKWISE

Common Tools:
● Pliers, slip joint, conduit style with plastic jaw inserts

Supplies:
Connector Pin/Socket Adapters
Electrical Jumpers

Test Equipment/Special Tools:
● Multimeter

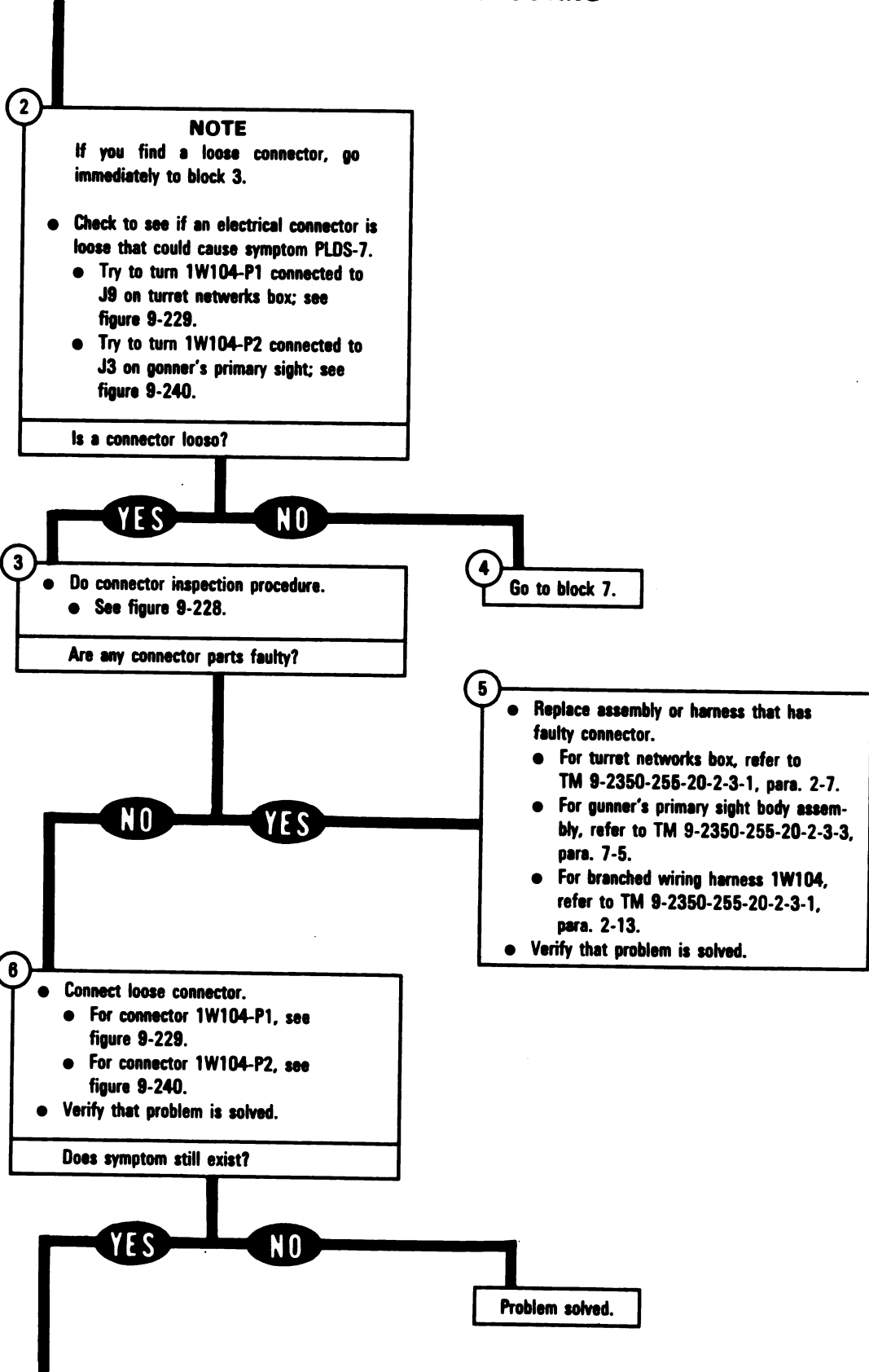
Equipment Condition:
● Tank parked.
● Parking brake set.
● Engine shut down.
● Vehicle master power off.

NOTE
Read para. 8-1 before doing any work.

1
● Set up tank controls for standard initial test conditions.
● Refer to para. 9-9, table 9-7.

Figure 8-67 (Sheet 1 of 4)
Volume II
Para. 8-6

**TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING**



*Figure 8-69 (Sheet 2 of 6)
Volume II
Para. 8-6*

TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING

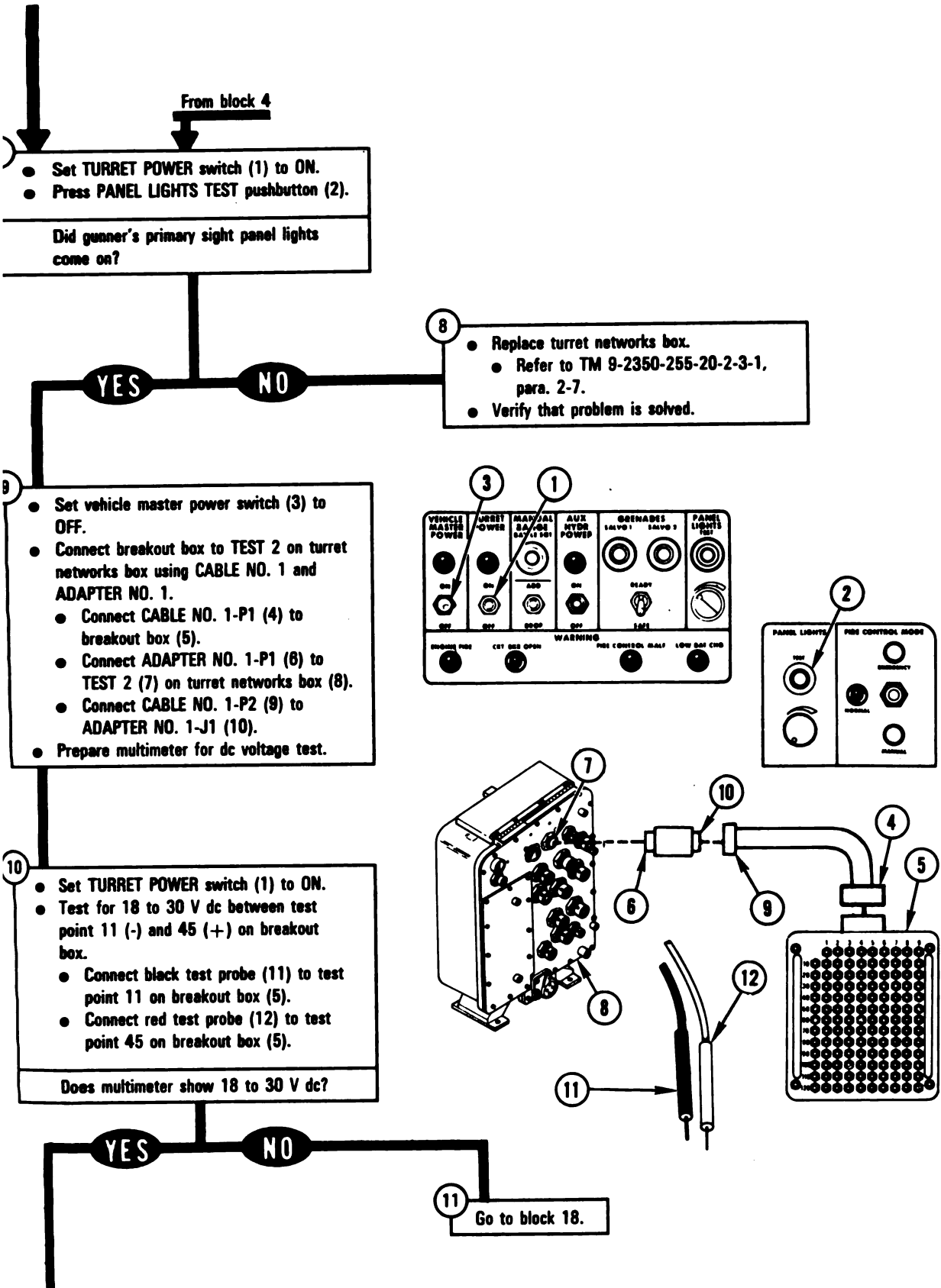
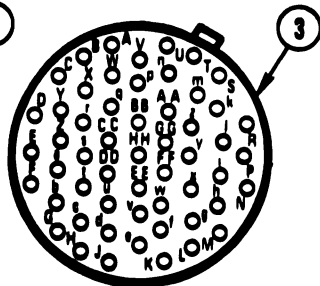
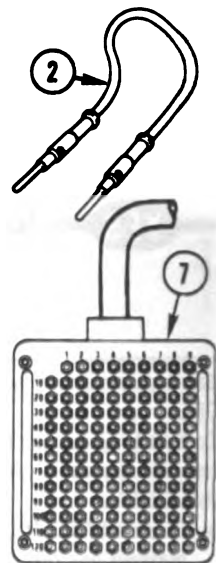
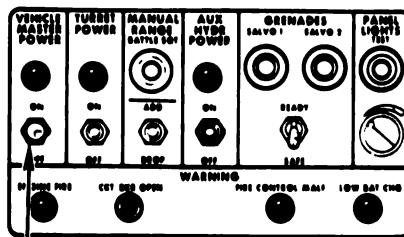


Figure 8-69 (Sheet 3 of 6)
Volume II
Para. 8-6

ARR82-5658

**TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING**

- 12**
- Set VEHICLE MASTER POWER switch (1) to OFF.
 - Prepare multimeter for ohms test.
 - Disconnect 1W104-P2 from J3 on gunner's primary sight.
 - See figure 9-240.
 - Disconnect 1W104-P1 from J9 on turret networks box.
 - See figure 9-229.



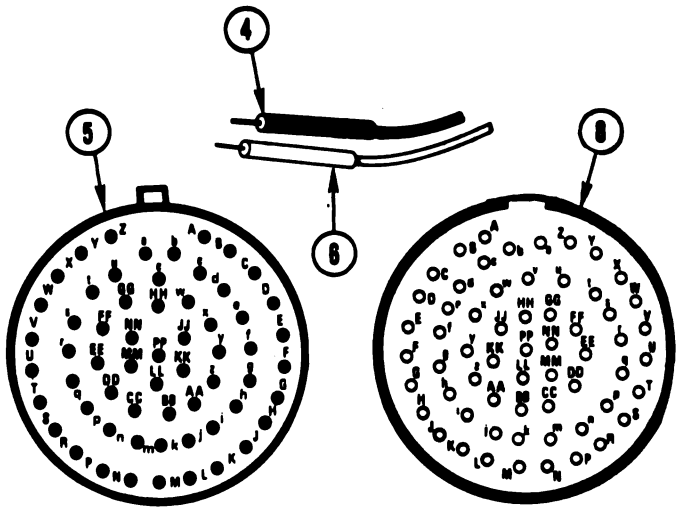
1W104-P2

- 13**
- Connect jumper (2) between contacts CC and DD on 1W104-P2 (3).
 - Test for continuity between contacts CC and DD on 1W104-P1.
 - Connect black test probe (4) to contact CC on P1 (5).
 - Connect rod test probe (6) to contact DD on P1 (5).
- Does multimeter show continuity?

YES **NO**

- 14**
- Replace branched wiring harness 1W104.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

- 15**
- Test for continuity between test point 45 on breakout box end contact DD on turret networks box J9.
 - Connect black test probe (4) to test point 45 on breakout box (7).
 - Connect red test probe (6) to contact DD on J9 (8).
- Does multimeter show continuity?

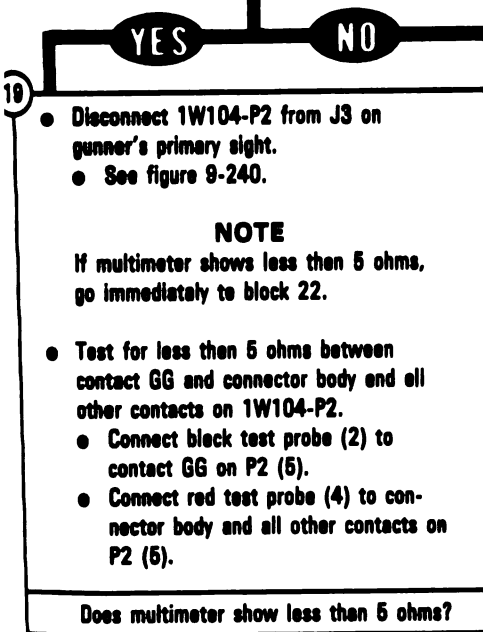
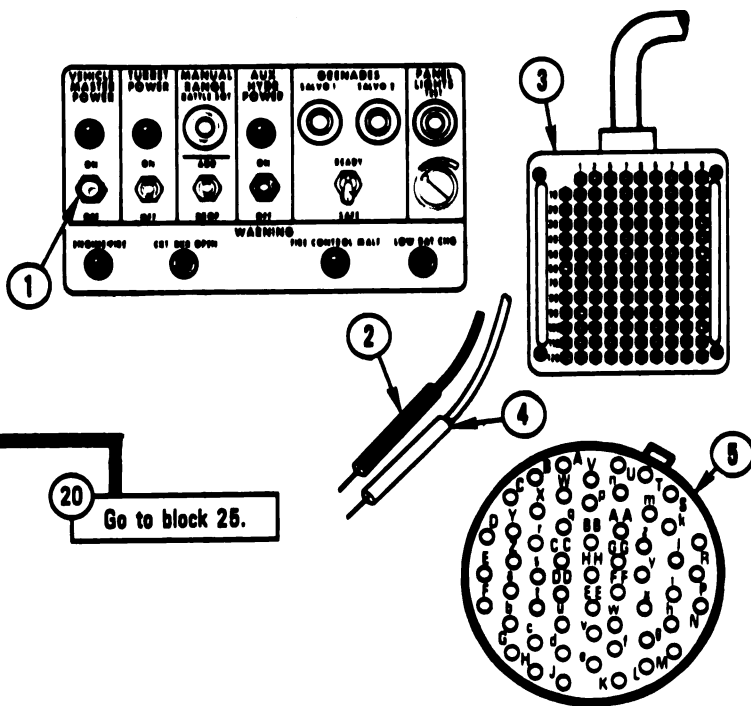
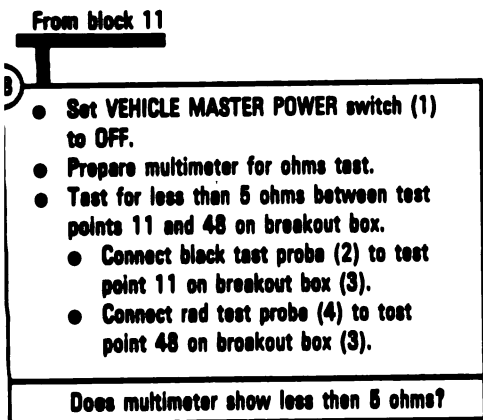
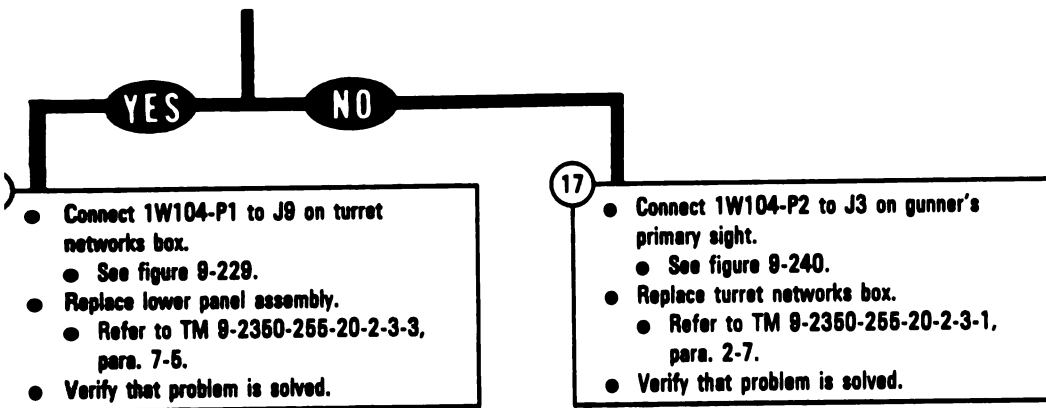


1W104-P1

TNB-J9

*Figure 8-69 (Sheet 4 of 6)
Volume II
Para. 8-6*

ARR82-5659



20
Go to block 25.

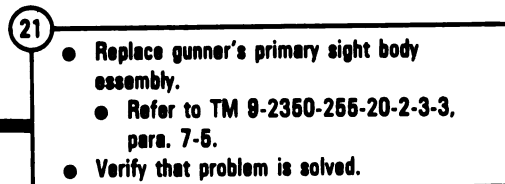
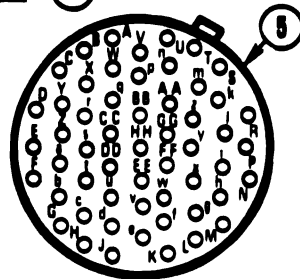


Figure 8-69 (Sheet 5 of 6)
Volume II
Para. 8-6

ARR82-5660

**TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING**

22

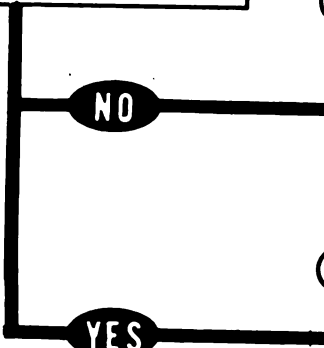
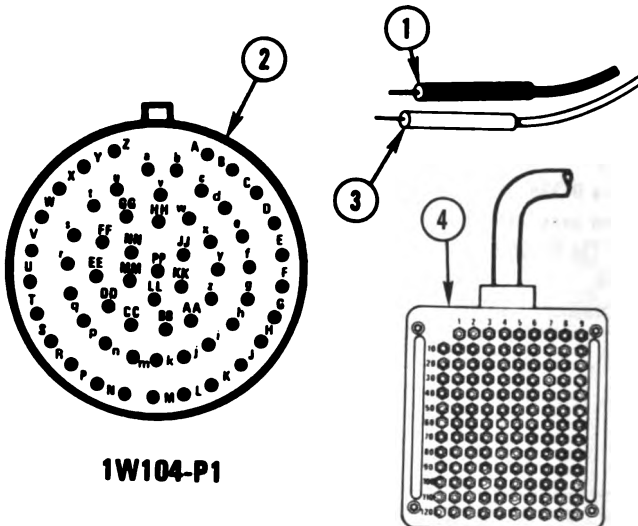
- Disconnect 1W104-P1 from J9 on turret networks box.
- See figure 9-229.

NOTE

If multimeter shows less than 5 ohms, go immediately to block 24.

- Test for less than 5 ohms between contact GG and connector body and all other contacts on 1W104-P1.
- Connect black test probe (1) to contact GG on P1 (2).
- Connect red test probe (3) to connector body and all other contacts on P1 (2).

Does multimeter show less than 5 ohms?



23

- Connect 1W104-P2 to J3 on gunner's primary sight.
- See figure 9-240.
- Replace turret networks box.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
- Verify that problem is solved.

24

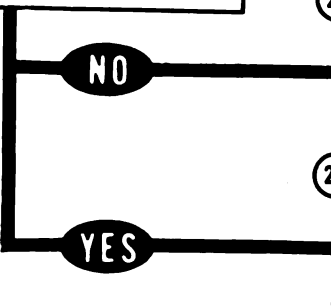
- Replace branched wiring harness 1W104.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

From block 20

25

- Test for less than 5 ohms between test points 11 and 45 on breakout box.
- Connect black test probe (1) to test point 11 on breakout box (4).
- Connect red test probe (3) to test point 45 on breakout box (4).

Does multimeter show less than 5 ohms?



26

- Replace turret networks box.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
- Verify that problem is solved.

27

- Do troubleshooting procedure for symptom TCB-30.
- Refer to TM 9-2350-255-20-2-2-3, figure 17-24.

Figure 8-69 (Sheet 6 of 6)
Volume II
Para. 8-6

SYMPTOM PLDS-8

GUNNER'S PRIMARY SIGHT AND IMAGE CONTROL UNIT PANEL LIGHTS DO NOT COME ON WHEN PANEL LIGHTS TEST PUSHBUTTON IS PRESSED

Common Tools:

- Pliers, slip joint, conduit style with plastic jaw inserts

Supplies:

- Connector Pin/Socket Adapters
- Electrical Jumpers

Test Equipment/Special Tools:

- Multimeter

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

NOTE

Read para. 8-1 before doing any work.

- ①
- Set up tank controls for standard initial test conditions.
 - Refer to para. 9-9, table 9-7.

Figure 8-70 (Sheet 1 of 4)
Volume II
Para. 8-6

**TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING**

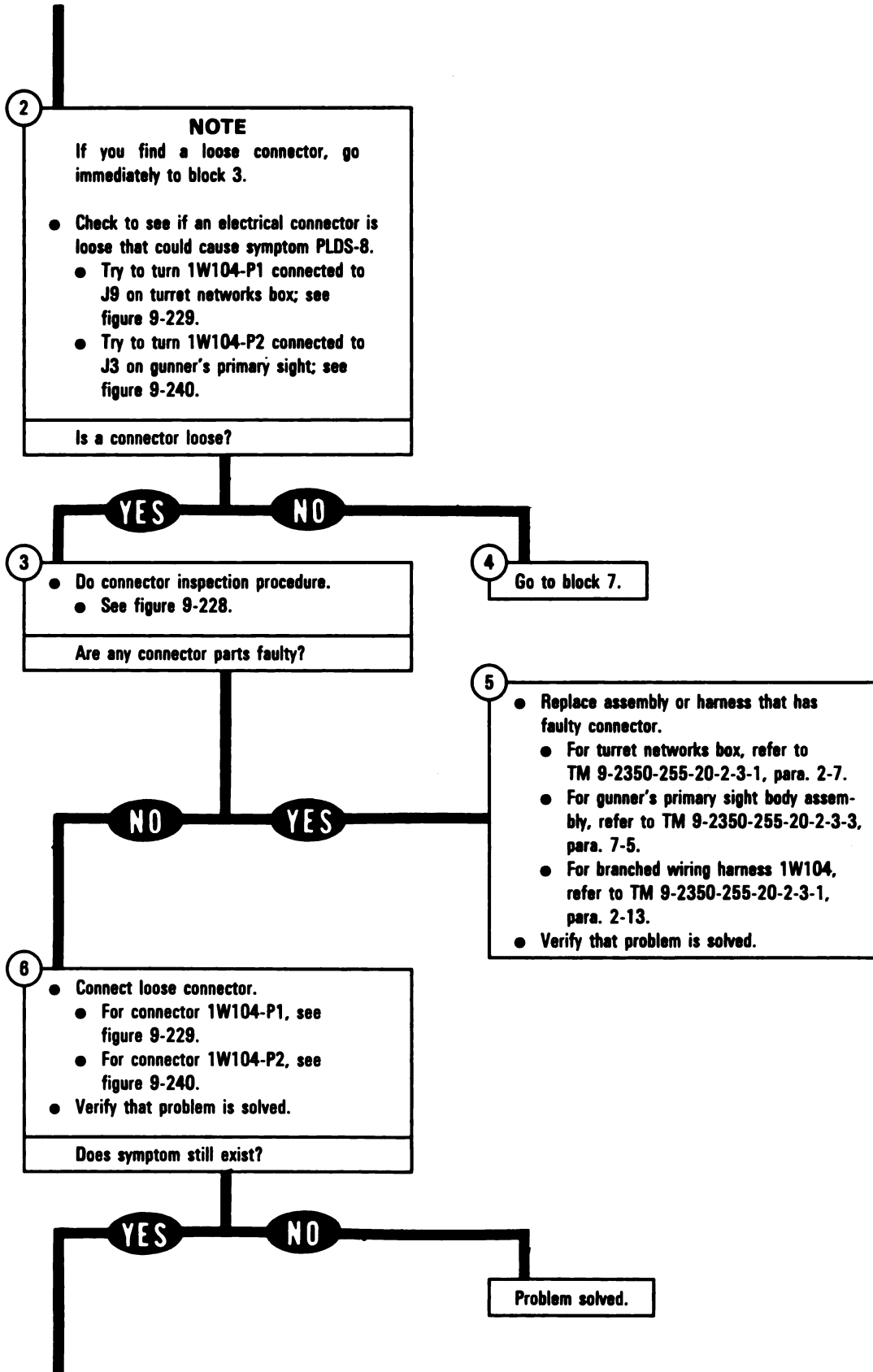


Figure 8-70 (Sheet 2 of 4)
Volume II
Para. 8-6

From block 4

NOTE

Make sure vehicle master power is off.

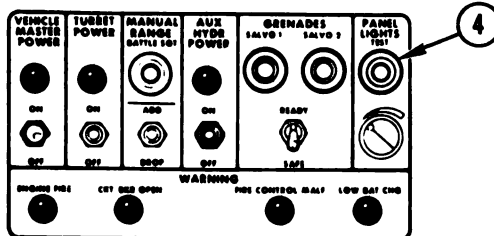
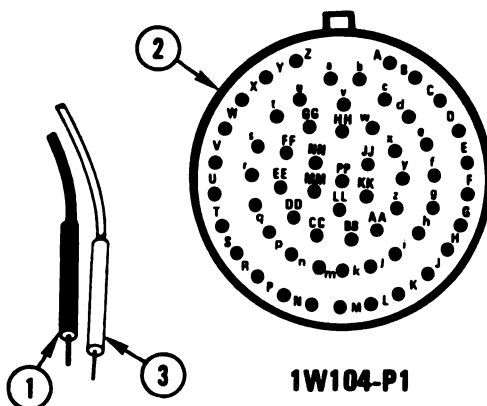
- Prepare multimeter for ohms test.
- Disconnect 1W104-P1 from J9 on turret networks box.
- See figure 9-229.

Table A

Black test probe	Red test probe
BB	CC
EE	FF

- Test for continuity between contacts on 1W104-P1 listed in table A with PANEL LIGHTS TEST pushbutton pressed.
- Connect black test probe (1) to contacts on P1 (2) listed in table A.
- Connect red test probe (3) to contacts on P1 (2) listed in table A.
- Press and hold PANEL LIGHTS TEST pushbutton (4).

Does multimeter show continuity between each pair of contacts?



NO

YES

9

- Replace turret networks box.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
- Verify that problem is solved.

Figure 8-70 (Sheet 3 of 4)
Volume II
Para. 8-6

**TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING**

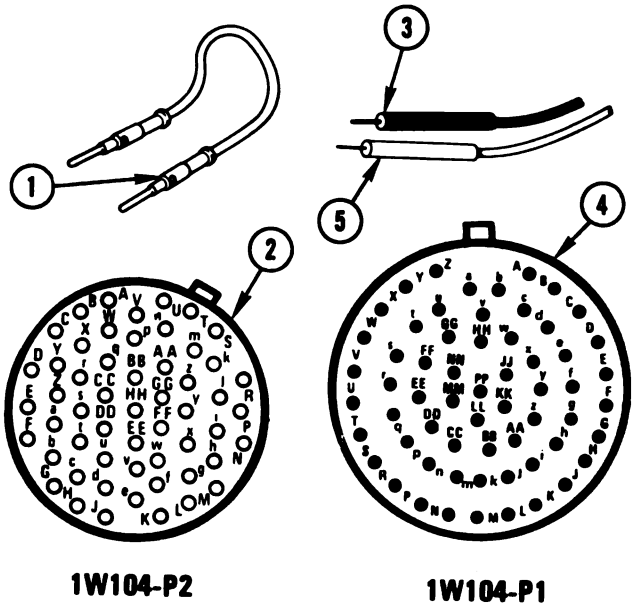
10

- Disconnect 1W104-P2 from J3 on gunner's primary sight.
 - See figure 9-240.
- Connect jumper (1) between contacts on 1W104-P2 (2) listed in table B.
- Test for continuity between contacts on 1W104-P1 listed in table B.
 - Connect black test probe (3) to contacts on P1 (4) listed in table B.
 - Connect red test probe (5) to contacts on P1 (4) listed in table B.

Does multimeter show continuity between each pair of contacts?

Table B

Jumper	Black test probe	Red test probe
BB and CC	BB	CC
EE and FF	EE	FF



NO

YES

11

- Replace branched wiring harness 1W104.
 - Refer to TM 9-2350-255-20-2-3-1, para. 12-13.
- Verify that problem is solved.

12

- Connect 1W104-P1 to J9 on turret networks box.
 - See figure 9-229.
- Replace gunner's primary sight body assembly.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-5.
- Verify that problem is solved.

*Figure 8-70 (Sheet 4 of 4)
Volume II
Para. 8-6*

ARR82-5663

SYMPTOM PLDS-9

**DEFROSTER LIGHT DOES NOT COME ON
WHEN PANEL LIGHTS TEST PUSHBUTTON
IS PRESSED**

Common Tools:

- Pliers, slip joint, conduit style with plastic jaw inserts

Supplies:

- Connector Pin/Socket Adapters
- Electrical Jumpers

Test Equipment/Special Tools:

- Multimeter

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

NOTE

Read para. 8-1 before doing any work.

- Set up tank controls for standard initial test conditions.
- Refer to para. 9-9, table 9-7.

Figure 8-71 (Sheet 1 of 4)
Volume II
Para. 8-6

**TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING**

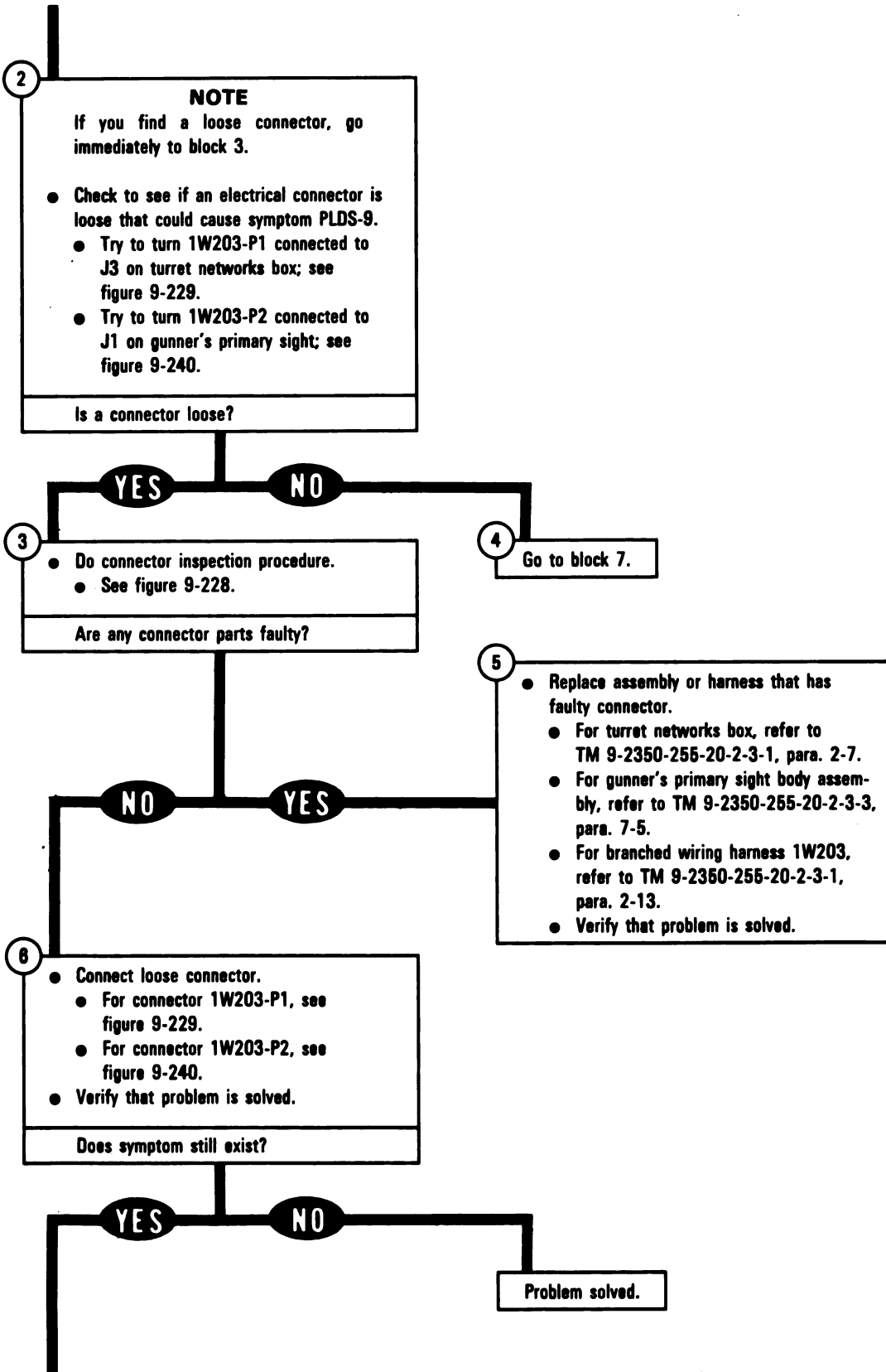


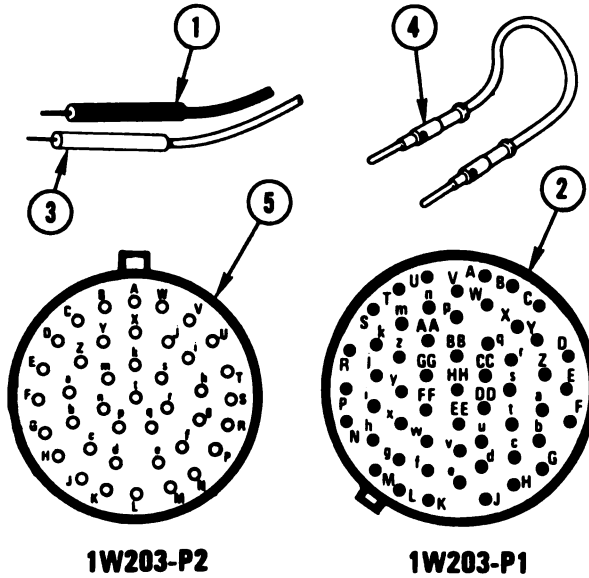
Figure 8-71 (Sheet 2 of 4)
Volume II
Para. 8-6

From block 4

NOTE

Make sure vehicle master power is off.

- Prepare multimeter for ohms test.
- Disconnect 1W203-P1 from J3 on turret networks box.
- See figure 9-229.



- Test for less than 250 ohms between contacts U and V on 1W203-P1.
- Connect black test probe (1) to contact U on P1 (2).
- Connect red test probe (3) to contact V on P1 (2).

Does multimeter show less than 250 ohms?

NO

YES

- 9
- Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
 - Verify that problem is solved.

- Disconnect 1W203-P2 from J1 on gunner's primary sight.
- See figure 9-240.
- Connect jumper (4) between contacts U and V on 1W203-P1 (2).
- Test for continuity between contacts E and F on 1W203-P2.
- Connect black test probe (1) to contact E on P2 (5).
- Connect red test probe (3) to contact F on P2 (5).

Does multimeter show continuity?

Figure 8-71 (Sheet 3 of 4)
Volume II
Para. 8-6

ARR82-5664

TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING

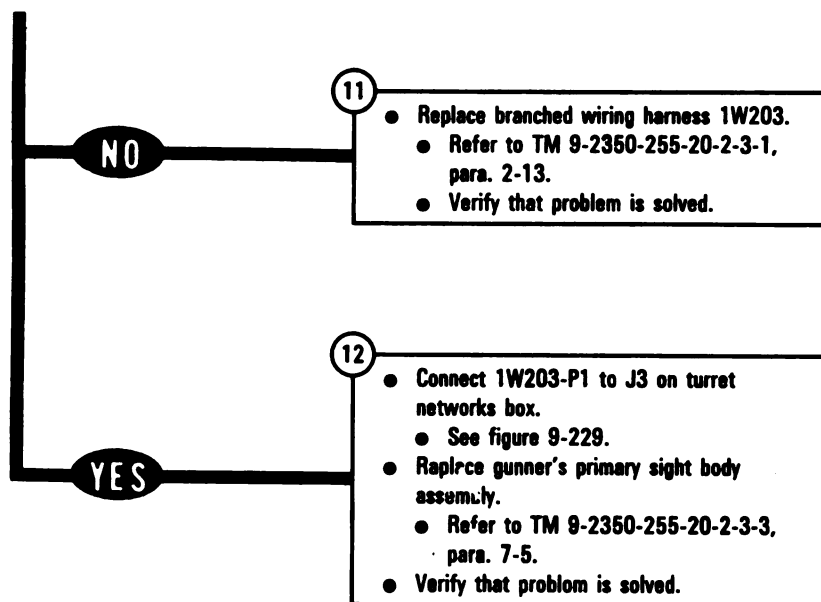


Figure 8-71 (Sheet 4 of 4)
Volume II
Para. 8-6

SYMPTOM PLDS-10

IMAGE CONTROL UNIT PANEL LIGHTS DO NOT COME ON WHEN PANEL LIGHTS TEST PUSHBUTTON IS PRESSED

Common Tools:

- Pliers, slip joint, conduit style with plastic jaw inserts

Supplies:

Connector Pin/Socket Adapters
Electrical Jumpers

Test Equipment/Special Tools:

- Breakout Box Tool Kit, 12311068
- Multimeter

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

NOTE

- Read para. 8-1 before doing any work.
- Verify polarity of your meter before performing resistance test in blocks 9, 11, 13, and 15; refer to TM 9-2350-255-20-2-2-2, figure 15-2.

- Set up tank controls for standard initial test conditions.
- Refer to para. 9-9, table 9-7.

Figure 8-72 (Sheet 1 of 5)
Volume II
Para. 8-6

**TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING**

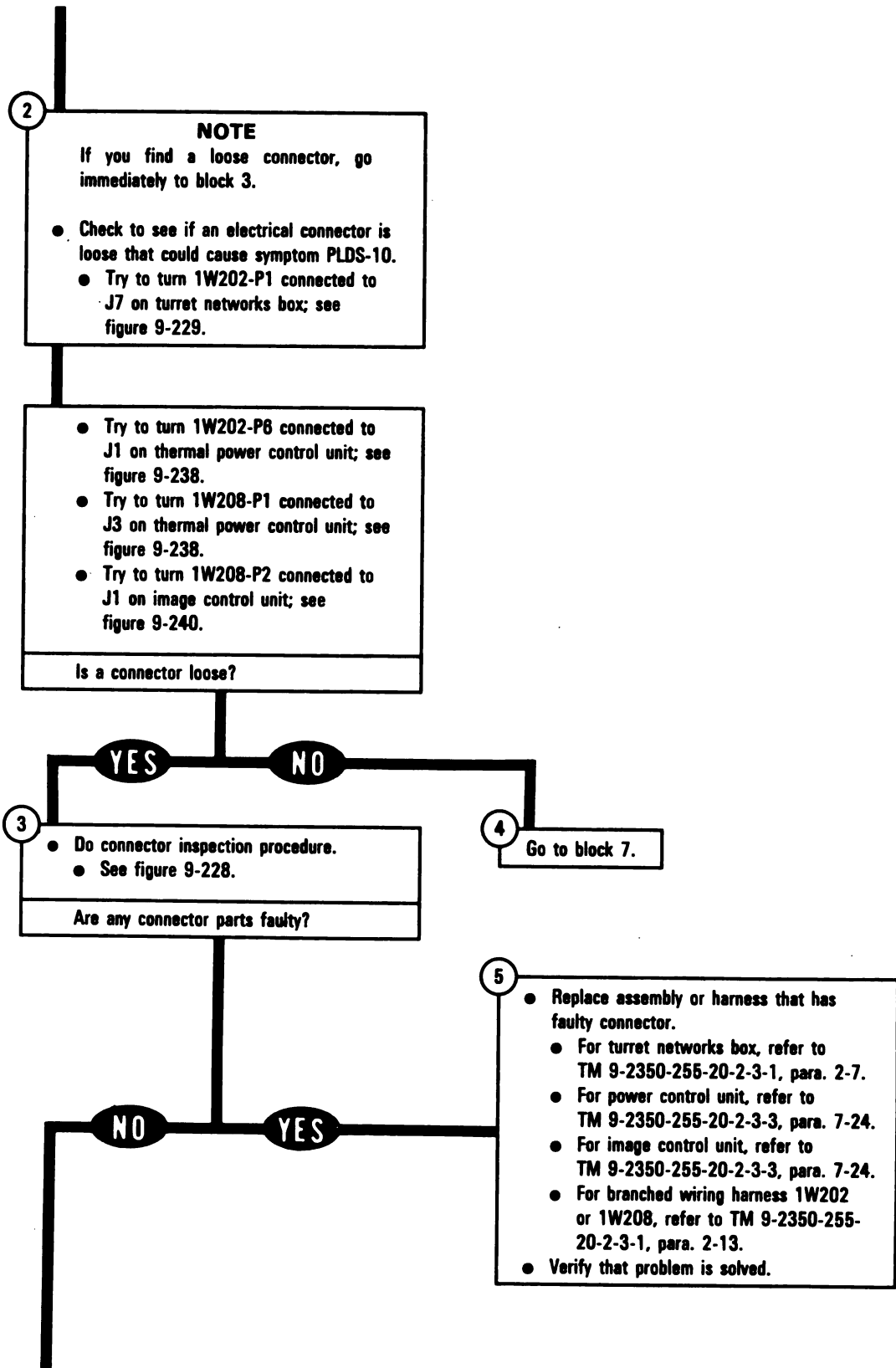


Figure 8-72 (Sheet 2 of 5)
Volume II
Para. 8-6

- Connect loose connector.
 - For connector 1W202-P8 or 1W208-P1, see figure 9-238.
 - For connector 1W202-P1, see figure 9-229.
 - For connector 1W208-P2, see figure 9-240.
- Verify that problem is solved.

Does symptom still exist?

YES

NO

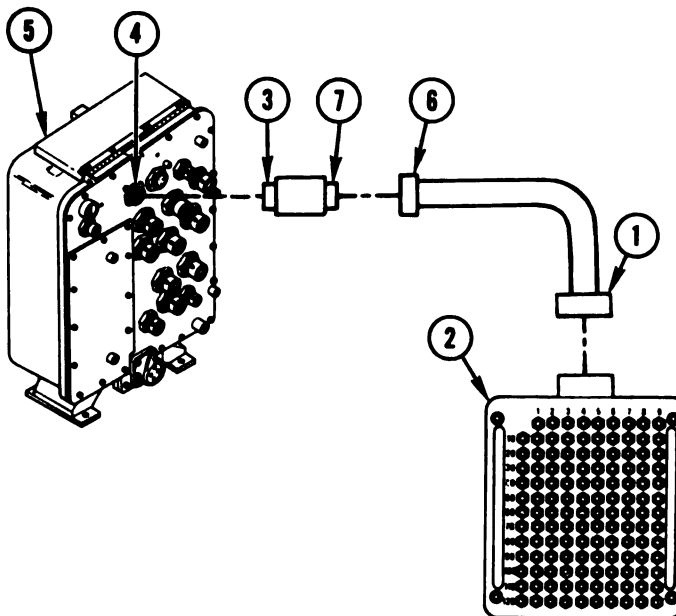
From block 4

NOTE

Make sure vehicle master power is off.

- Connect breakout box to TEST 1 on turret networks box using CABLE NO. 1 and ADAPTER NO. 1.
 - Connect CABLE NO. 1-P1 (1) to breakout box (2).
 - Connect ADAPTER NO. 1-P1 (3) to TEST 1 (4) on turret networks box (5).
 - Connect CABLE NO. 1-P2 (6) to ADAPTER NO. 1-J1 (7).
- Prepare multimeter for ohms test.

Problem solved.



- Disconnect 1W203-P2 from J1 on gunner's primary sight.
 - See figure 9-240.
- Disconnect 1W104-P2 from J3 on gunner's primary sight.
 - See figure 9-240.
- Disconnect 1W202-P1 from J7 on turret networks box.
 - See figure 9-229.

Figure 8-72 (Sheet 3 of 5)
Volume II
Para. 8-6

ARR82-5665

**TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING**

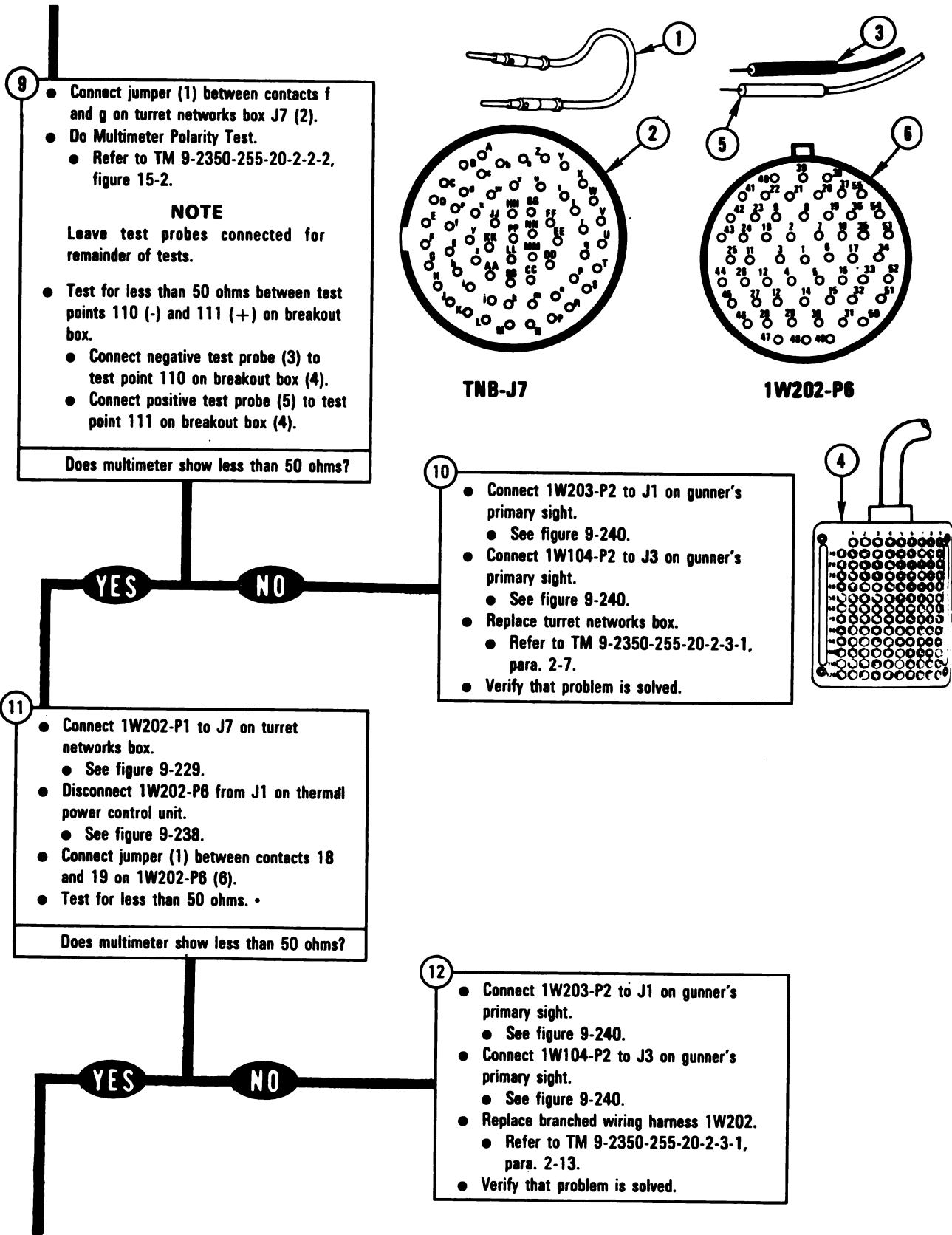


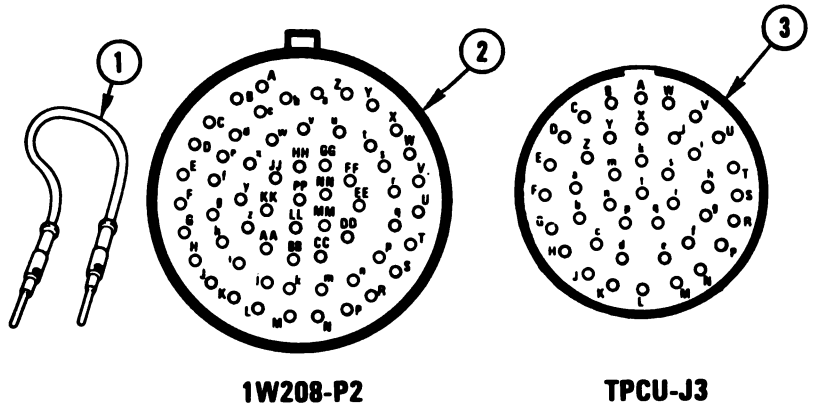
Figure 8-72 (Sheet 4 of 5)
Volume II
Para. 8-6

ARR82-5666

* Between contacts found in block 9

**TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING**

- Connect 1W202-P6 to J1 on thermal power control unit.
 - See figure 9-238.
- Disconnect 1W208-P2 from J1 on image control unit.
 - See figure 9-240.
- Connect jumper (1) between contacts x and y on 1W208-P2 (2).
- Test for less than 50 ohms. *



Does multimeter show less than 50 ohms?

NO **YES**

- 14
- Connect 1W203-P2 to J1 on gunner's primary sight.
 - See figure 9-240.
 - Connect 1W104-P2 to J3 on gunner's primary sight.
 - See figure 9-240.
 - Replace image control unit.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-24.
 - Verify that problem is solved.

- Connect 1W208-P2 to J1 on image control unit.
 - See figure 9-240.
- Disconnect 1W208-P1 from J3 on thermal power control unit.
 - See figure 9-238.
- Connect jumper (1) between contacts T and U on thermal power control unit J3 (3).
- Test for less than 50 ohms. *

Does multimeter show less than 50 ohms?

YES **NO**

- Connect 1W203-P2 to J1 on gunner's primary sight.
 - See figure 9-240.
- Connect 1W104-P2 to J3 on gunner's primary sight.
 - See figure 9-240.
- Replace branched wiring harness 1W208.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

- 17
- Connect 1W203-P2 to J1 on gunner's primary sight.
 - See figure 9-240.
 - Connect 1W104-P2 to J3 on gunner's primary sight.
 - See figure 9-240.
 - Replace power control unit.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-24.
 - Verify that problem is solved.

Figure 8-72 (Sheet 5 of 5)
Volume II
Para. 8-6

ARR82-5667

Between contacts found in block

SYMPTOM PLDS-11

**BRIGHTNESS OF GUNNER'S PRIMARY
SIGHT PANEL LIGHTS DOES NOT VARY
WITH PANEL LIGHTS KNOB**

Common Tools:

- Pliers, slip joint, conduit style with plastic jaw inserts

Supplies:

Connector Pin/Socket Adapters
Electrical Jumpers

Test Equipment/Special Tools:

- Multimeter

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

NOTE

Read para. 8-1 before doing any work.

1

- Set up tank controls for standard initial test conditions.
- Refer to para. 9-9, table 9-7.

Figure 8-73 (Sheet 1 of 4)
Volume II
Para. 8-6

NOTE

If you find a loose connector, go immediately to block 3.

Check to see if an electrical connector is loose that could cause symptom PLDS-11.

- Try to turn 1W104-P1 connected to J9 on turret networks box; see figure 9-229.
- Try to turn 1W104-P2 connected to J3 on gunner's primary sight; see figure 9-240.

Is a connector loose?

YES

NO

- Do connector inspection procedure.
- See figure 9-228.

Are any connector parts faulty?

4

Go to block 7.

NO

YES

5

- Replace assembly or harness that has faulty connector.
 - For turret networks box, refer to TM 9-2350-255-20-2-3-1, para. 2-7.
 - For gunner's primary sight body assembly, refer to TM 9-2350-255-20-2-3-3, para. 7-5.
 - For branched wiring harness 1W104, refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

- Connect loose connector.
 - For connector 1W104-P1, see figure 9-229.
 - For connector 1W104-P2, see figure 9-240.
- Verify that problem is solved.

Does symptom still exist?

YES

NO

Problem solved.

Figure 8-73 (Sheet 2 of 4)
Volume II
Para. 8-6

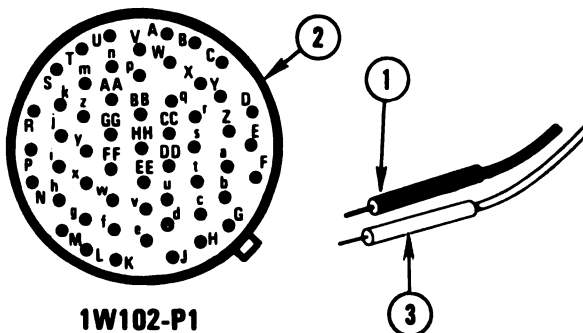
**TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING**

From block 4

7

NOTE
Make sure vehicle master power is off.

- Prepare multimeter for ohms test.
- Disconnect 1W102-P1 from J8 on turret networks box.
- See figure 9-229.

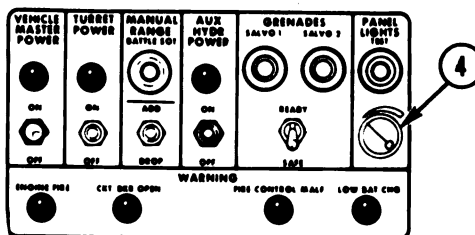


8

NOTE
Leave test probes connected for remainder of tests.

- Test for resistance varying from 0 to 5000 ohms between contacts s and t on 1W102-P1 while turning PANEL LIGHTS knob counterclockwise.
- Connect black test probe (1) to contact s on P1 (2).
- Connect red test probe (3) to contact t on P1 (2).
- Turn PANEL LIGHTS knob (4) counterclockwise.

Does multimeter show resistance varying from 0 to 5000 ohms?



NO YES

9

- Replace turret networks box.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
- Verify that problem is solved.

10

- Disconnect 1W102-P2 from J1 on commander's control panel.
- See figure 9-231.
- Test for less than 5 ohms.*

Does multimeter show less than 5 ohms?

Figure 8-74 (Sheet 3 of 4)
Volume II
Para. 8-6

ARR82-5670

* Between contacts found in block 8

**TM 9-2350-255-20-2-2-1
TURRET ELECTRICAL SYSTEM TROUBLESHOOTING**

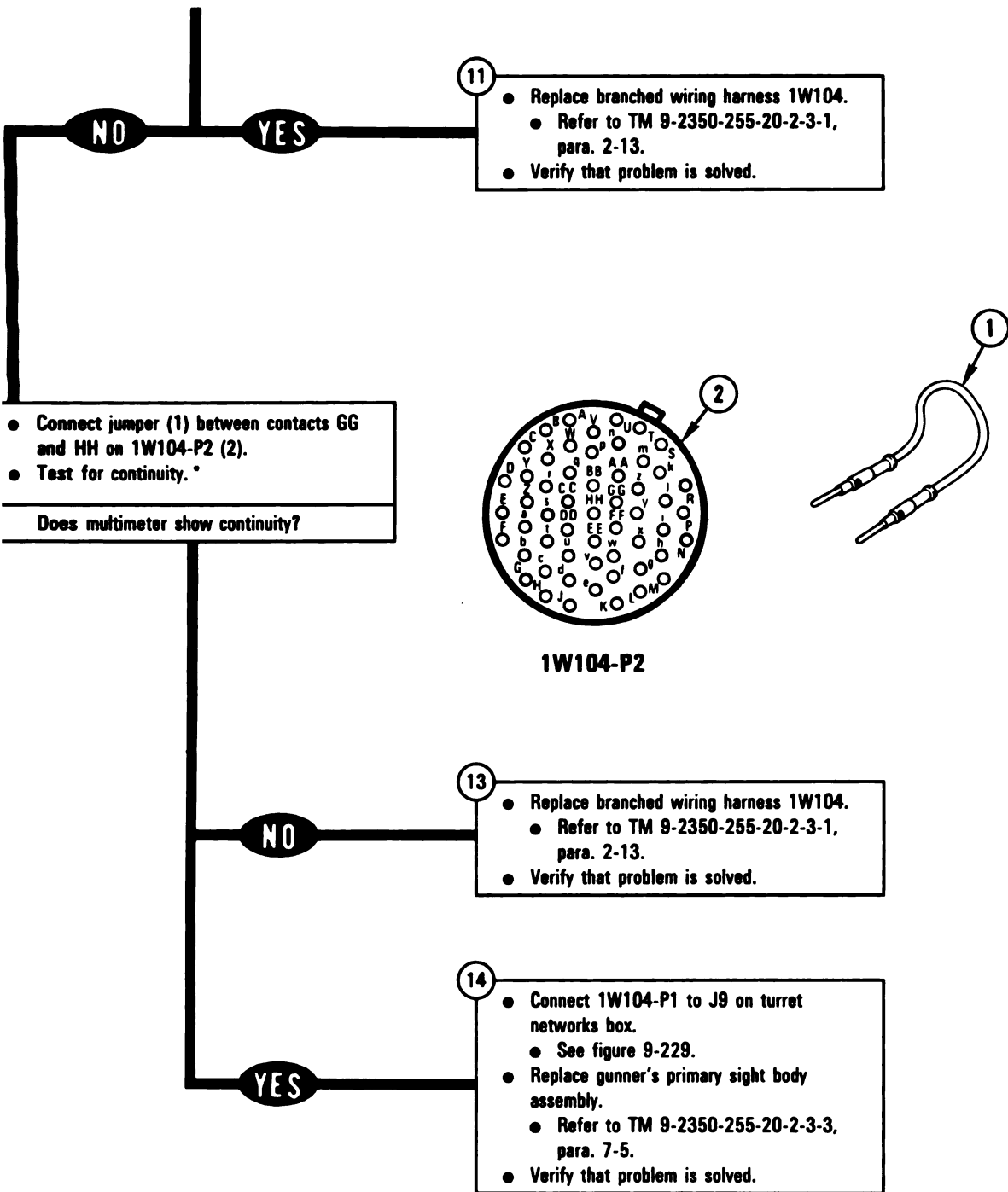


Figure 8-73 (Sheet 4 of 4)
Volume II
Para. 8-6

ARR82-5669

Between contacts found in block 8

CHAPTER 9

HYDRAULIC AND GUN/TURRET DRIVE SYSTEM TROUBLESHOOTING

General. This chapter tells you how to troubleshoot the subsystems of the hydraulic and gun/turret drive system. The subsystems are listed in table 9-1 with paragraph and page numbers.

Table 9-1. Hydraulic and Gun/Turret Drive Subsystems

Subsystem	Use STE	Para.	Page
Main Hydraulic	No	9-2	9-2
Azimuth/Elevation	Yes	9-3	9-37
Manual Elevation And Traverse	No	9-4	9-462
Ammunition Door Control	Yes	9-5	9-465
Auxiliary Hydraulic	Yes	9-6	9-497

The STE-M1/FVS test set, (referred to as STE), is used to troubleshoot the azimuth/elevation, ammunition door control and auxiliary hydraulic subsystems. For a detailed description of the STE test set, refer to TM 9-2350-255-20-2-2-2, paragraph 15-4.

A fault symptom index is located at the beginning of each subsystem paragraph. The index identifies the primary and alternate procedure used to troubleshoot a known fault symptom. The primary procedure is included within the paragraph. When the STE test set is not available, use the alternate procedure located in TM 9-2350-255-20-2-2-3, chapter 18. Do not start any alternate troubleshooting procedure until you have completed the pre-test steps in the primary procedure.

One of eight types of messages will be displayed on the STE test set communicator (SETCOM). Cable instruction messages, fault messages, and special instruction messages are indexed in the primary procedure with their related actions. For a full explanation of all the messages with examples, refer to TM 9-2350-255-20-2-2-2, paragraph 15-4. STE test set hookup diagrams show how the test set is connected to the tank for each troubleshooting action. These diagrams are located at the end of the primary procedures.

Follow these general troubleshooting instructions in each procedure unless the procedure directs otherwise:

- a. Make sure the troubleshooting instructions in TM 9-2350-255-10 have been completed before starting this troubleshooting action. Make sure all test connections are correct. An incorrect test connection can lead to the replacement of a good tank component.
- b. If the same symptom exists after replacing a tank component, repeat the troubleshooting procedure.
- c. Look for obvious damage to harnesses and all surrounding components while checking for loose electrical connectors.
- d. Use slip joint conduit style pliers with plastic jaw inserts to loosen connectors that cannot be loosened by hand.
- e. When taking apart or joining connectors, look for missing, bent, broken, and pushed-in pins. If you find missing or damaged pins, notify your supervisor.
- f. Connect all cables and harnesses that were disconnected in order to get at the connector being checked.
- g. Use care when hooking up all connectors to avoid bending or breaking pins. Use hands only to tighten connectors.

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

9-1. General (Continued)

- h. Cap all electrical connectors that are taken off during troubleshooting.
- i. Be sure to close grille doors and access panels before traversing the turret.
- j. Be sure tank is parked where it is safe to start the engine and traverse the turret.
- k. Be sure vehicle master power is off before connecting or disconnecting any electrical cable or harness.
- l. When using a multimeter or the vehicle test meter (VTM) as a multimeter or when using electric jumpers, it will be necessary to attach adapters from the TA1 continuity test probe kit to the test probes or to the ends of the jumpers. Additional adapters and/or jumpers may be required. Refer to TM 9-2350-255-20-2-2-2, paragraph 15-2 for information on additional items. Check the component to be tested and select the proper adapters needed for your test.
- m. Remove test probes and/or jumpers after answering the question for that test unless otherwise noted. When connecting test probes where jumpers are already connected, lift jumper slightly so test probe can make contact.
- n. When preparing the VTM for measuring resistance and continuity, dc voltage, or ac voltage, refer to TM 9-4910-751-14-1, Volume I, Appendix E. **NOTE:** Do not change VTM power hookup from CIB.
- o. Before performing steps in replacement blocks, read preliminary procedures in maintenance manual to avoid connecting or installing unnecessary equipment.

WARNING

Before testing of the hydraulic and gun/turret drive system using test leads and breakout box, lock main gun and turret before turning vehicle master power on. High RFI signals could cause gun to slam into its stops and/or the turret to slew at a high rate. If main gun or turret must be unlocked, make sure areas around tank and above and below main gun breech are kept clear of personnel/equipment to prevent injury to personnel and damage to equipment.

9-2. Main Hydraulic Subsystem Troubleshooting Procedures

Table 9-2. Main Hydraulic Subsystem (MHS) Fault Symptom Index

Fault Symptom No.	Fault Symptom	Primary Troubleshooting Procedure (PTP)	Test No.	Alternate Troubleshooting Procedure (ATP) TM 9-2350-255-20-2-2-3
MHS-1	Gage Shows More Than 1700 PSI With Engine Running	Figure 9-1	—	—
MHS-2	Gage Shows Less Than 1500 PSI With Engine Running And Turret Power On	Figure 9-2	—	—
MHS-3	Hydraulic System Malfunction Light Comes On With Engine Running	Figure 9-3	—	—

SYMPTOM MHS-1

**GAGE SHOWS MORE THAN 1700 PSI
WITH ENGINE RUNNING**

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

NOTE

Read para. 9-1 before doing any work.

- Set up tank controls for standard initial test conditions.
- Refer to para. 9-9, table 9-7.

- Set TURRET POWER switch (1) to ON.
- Set AUX HYDR POWER switch (2) on commander's control panel (3) to ON.
- Operate ready ammunition door until auxiliary hydraulic powerpack starts.
 - Refer to TM 9-2350-255-10.
- Watch dial pressure gage (4) until powerpack shuts off.

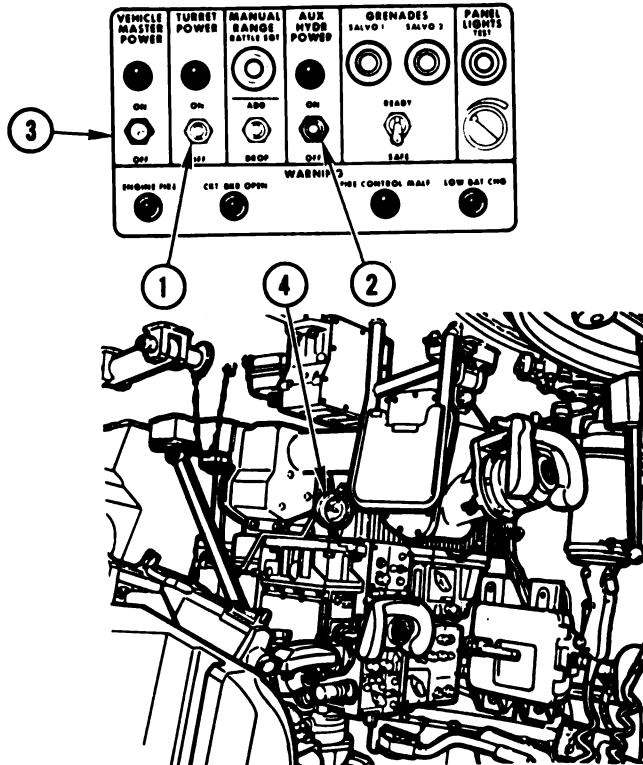
Does gage show above 1700 psi?

NO

YES

NOTE

Notify your supervisor that this procedure may require troubleshooting and replacement of components in the hull area.



- Replace main hydraulic centrifugal pump.
 - Refer to TM 9-2350-255-20-1-3-4, para. 8-5.
- Verify that problem is solved.

- Replace dial pressure gage.
 - Refer to TM 9-2350-255-20-2-3-2, para. 4-10.
- Verify that problem is solved.

Figure 9-1
Volume II
Para. 9-2

ARR82-5672

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

SYMPTOM MHS-2

**GAGE SHOWS LESS THAN 1500 PSI WITH
ENGINE RUNNING AND TURRET POWER
ON**

Common Tools:

- Pliers, slip joint, conduit style with plastic jaw inserts

Supplies:

Connector Pin/Socket Adapters
Electrical Jumpers (two required)
Blocks, wood

Test Equipment/Special Tools:

- Breakout Box Tool Kit, 12311066
- Multimeter

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

WARNING

Faulty hydraulic system can cause failure of parking brake. Be sure tank is parked on level ground and tracks are blocked to prevent injury to personnel or damage to equipment.

NOTE

- Read para. 9-1 before doing any work.
- Read TM 9-2350-255-20-1-3-4, para. 8-4, before doing any work.

1

- Block tracks.
 - Refer to TM 9-2350-255-10.
- Set up tank controls for standard initial test conditions.
 - Refer to para. 9-9, table 9-7.

NOTE

Notify your supervisor that this procedure may require troubleshooting and replacement of components in the hull area.

Figure 9-2 (Sheet 1 of 10)
**Volume II
Para. 9-2**

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

● Check hydraulic reservoir for proper fluid level.
● Refer to TM 9-2350-255-10.

Is fluid level OK?

YES

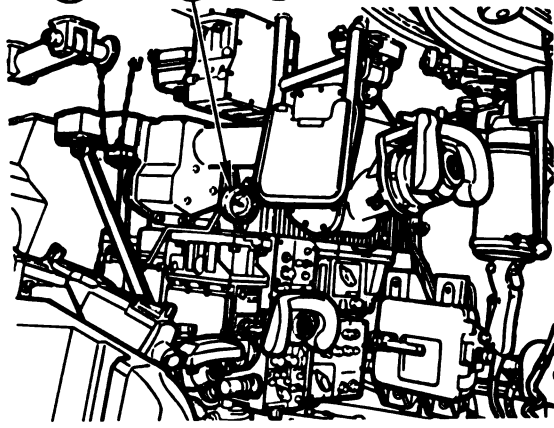
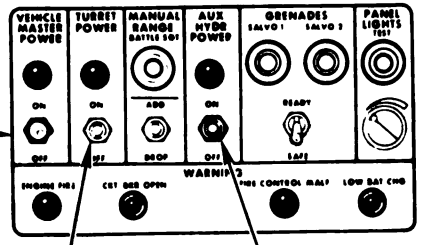
NO

3 ● Do main hydraulic inspection procedure.
● See figure 9-4.

● Set TURRET POWER switch (1) to ON.
● Set AUX HYDR POWER switch (2) on commander's control panel (3) to ON.

NOTE
If auxiliary hydraulic powerpack does not build pressure, go immediately to block 5.

● Check for more than 1500 psi on dial pressure gage (4) when auxiliary hydraulic powerpack shuts off.



Does gage show more than 1500 psi?

NO

YES

● Check the two red indicator buttons on filter manifold to see if they are popped out.
● Refer to TM 9-2350-255-10.

Are red indicator buttons popped out?

6 Go to block 13.

NO

YES

7 ● Replace filter manifold filter elements.
● Refer to TM 9-2350-255-20-1-3-4, para. 8-10.
● Verify that problem is solved.

Figure 9-2 (Sheet 2 of 10)
Volume II
Para. 9-2

ARR82-5673

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

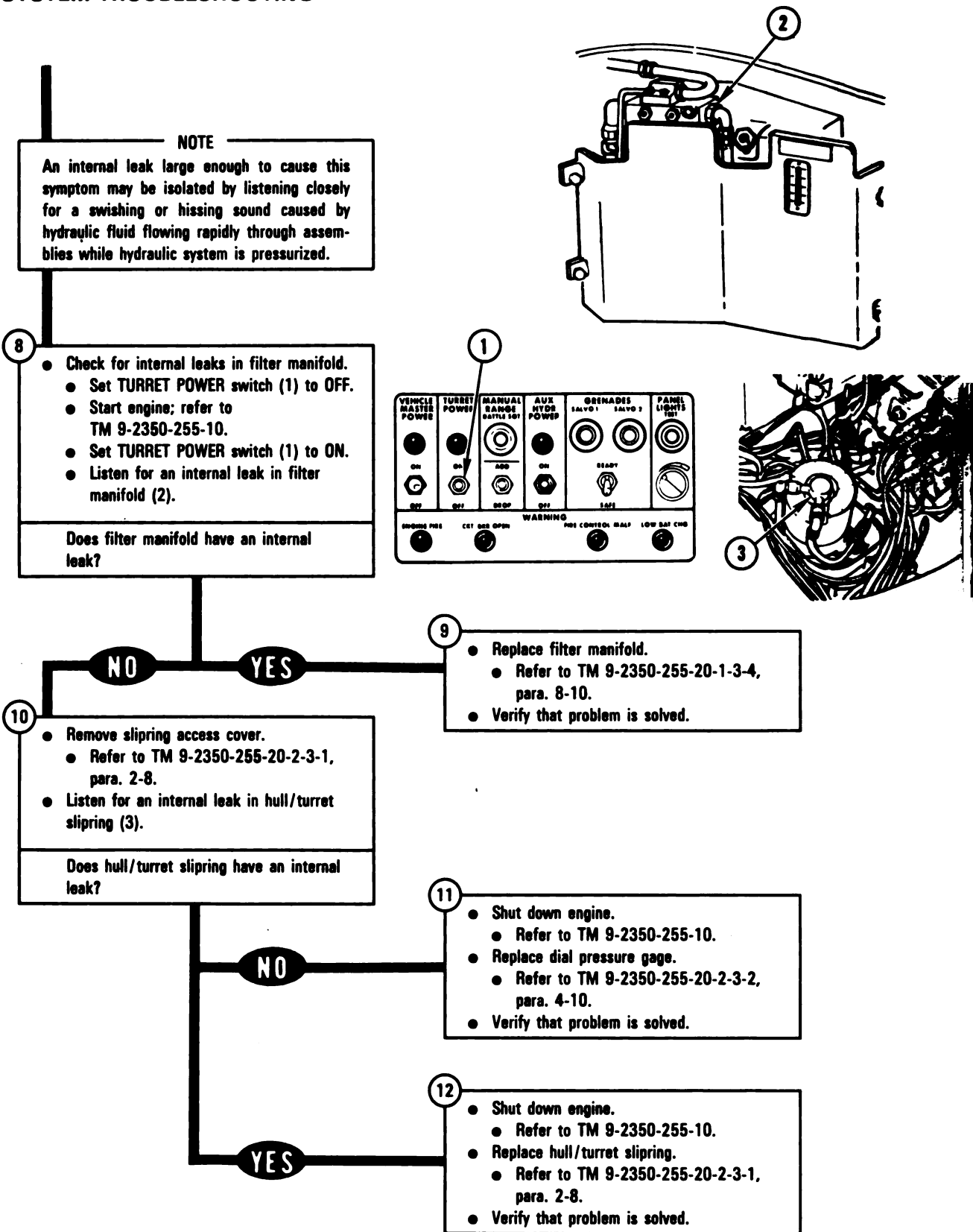


Figure 9-2 (Sheet 3 of 10)
Volume II
Para. 9-2

ARR82-5674

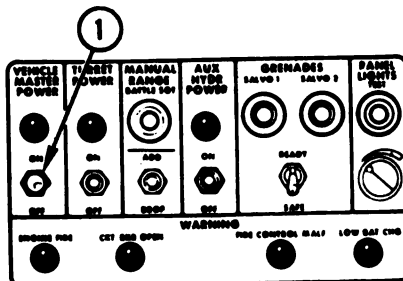
From block 6

- Set VEHICLE MASTER POWER switch (1) to OFF.

NOTE

If you find a loose connector, go immediately to block 14.

- Check to see if an electrical connector is loose that could cause symptom MHS-2.
- Try to turn 2W109-P3 connected to J7 on hull networks box; see figure 9-241.
- Try to turn 2W105-P2 connected to J3 on hull networks box; see figure 9-241.



- Try to turn 1W101-P2 connected to J11 on turret networks box; see figure 9-229.
- Try to turn 1W101-P1 connected to J8 on hull/turret slipring; see figure 9-233.
- Try to turn 2W109-P1 connected to J3 on hull/turret slipring; see figure 9-233.
- Try to turn 3W104-P1 connected to 2W105-J2; see figure 9-248.
- Try to turn 3W104-P9 connected to J1 on main hydraulic pump; see figure 9-247.

Is a connector loose?

YES

NO

- 14
- Do connector inspection procedure.
 - See figure 9-228.

Are any connector parts faulty?

15 Go to block 18.

Figure 9-2 (Sheet 4 of 10)
Volume II
Para. 9-2

ARR82-5675

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

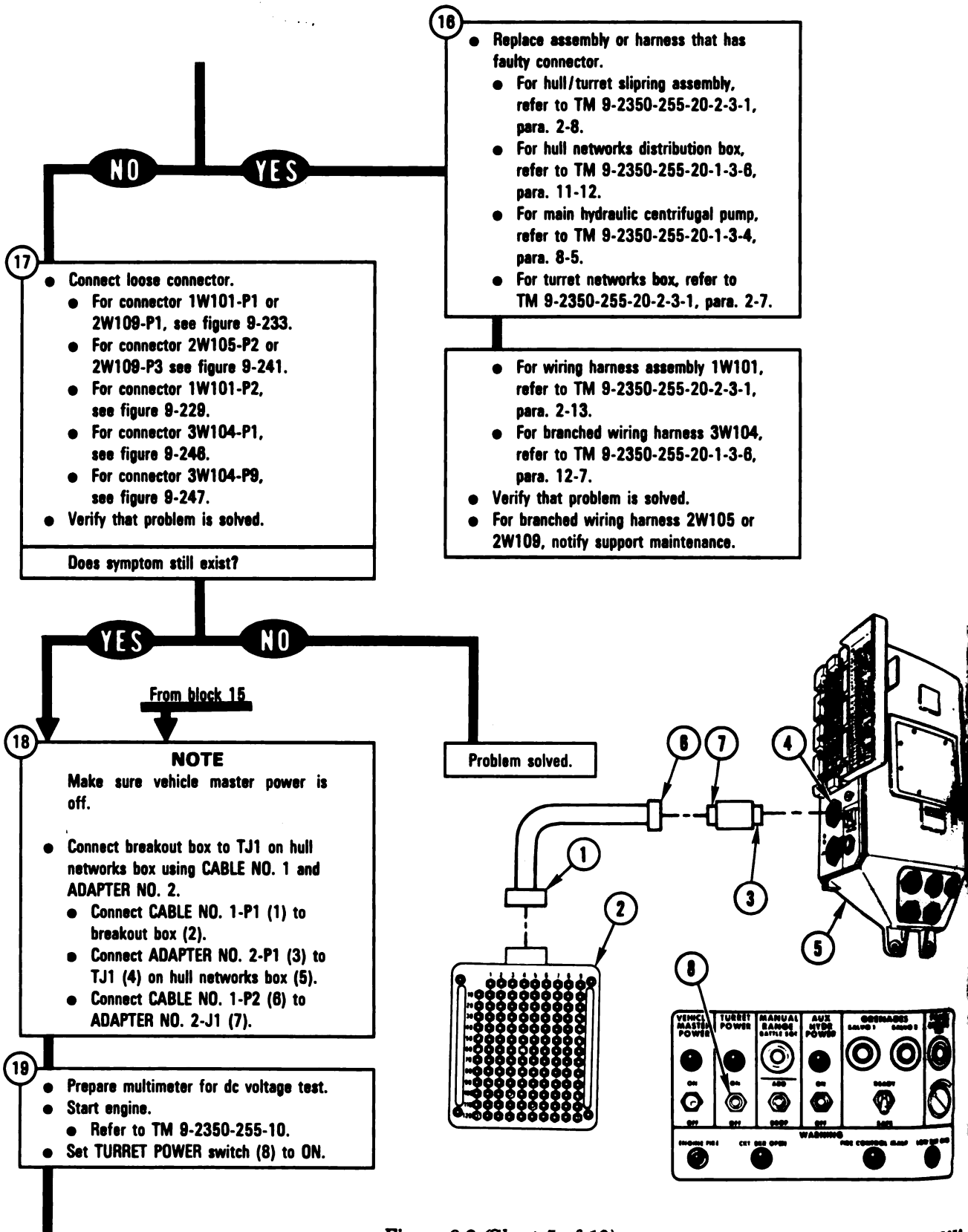


Figure 9-2 (Sheet 5 of 10)
Volume II
Para. 9-2

ARR82-5676

TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING

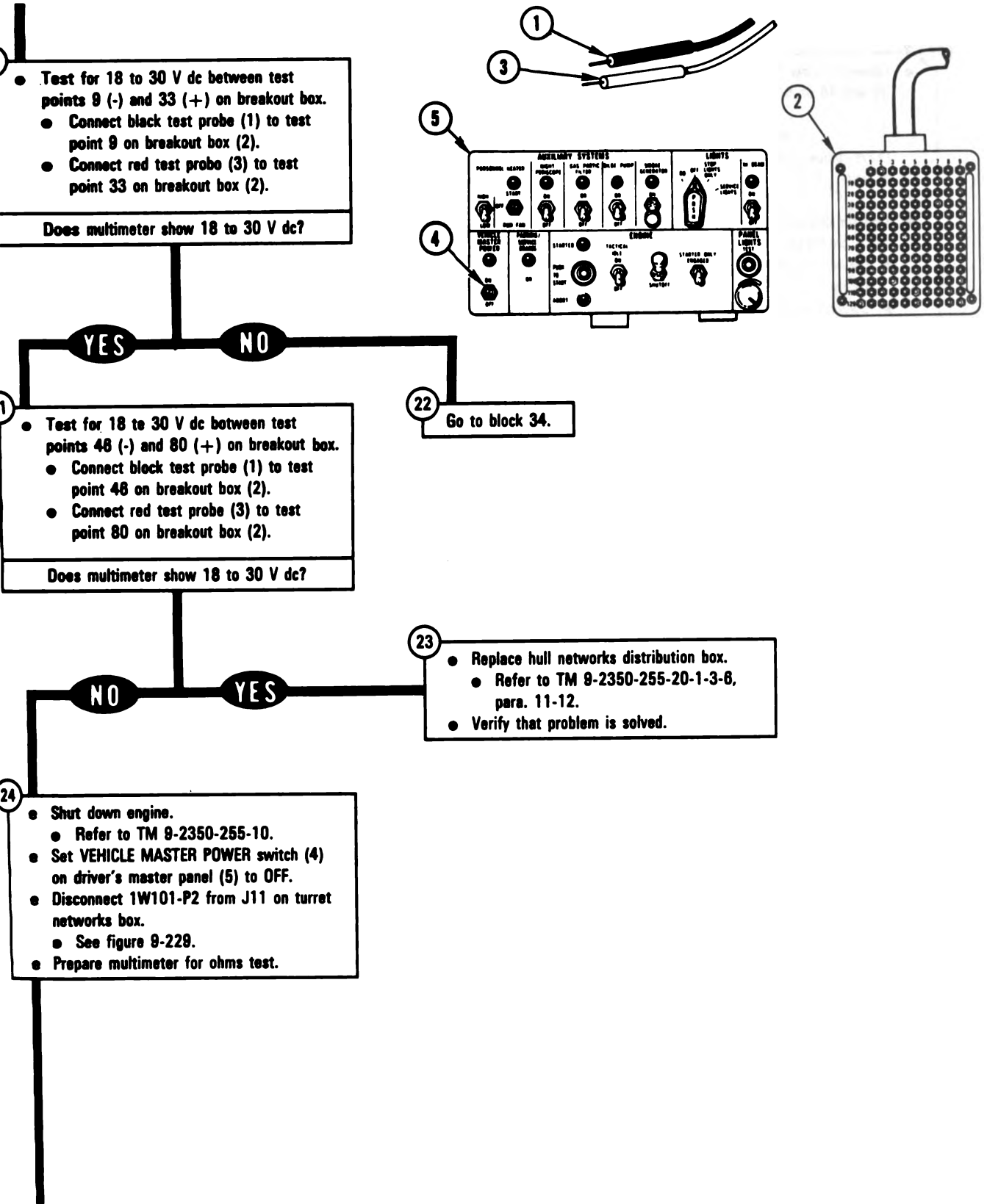
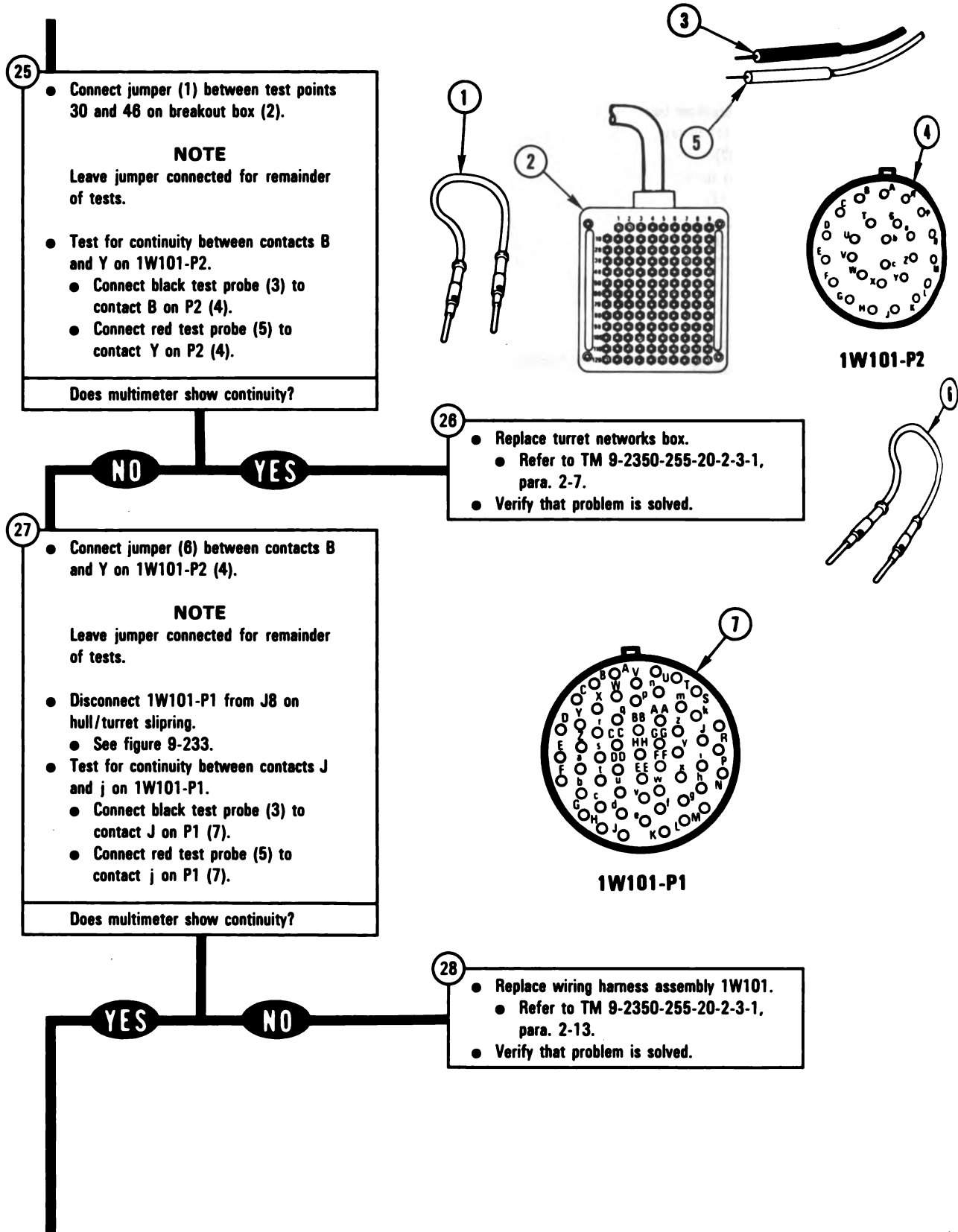


Figure 9-2 (Sheet 6 of 10)
 Volume II
 Para. 9-2

ARR82-5677

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

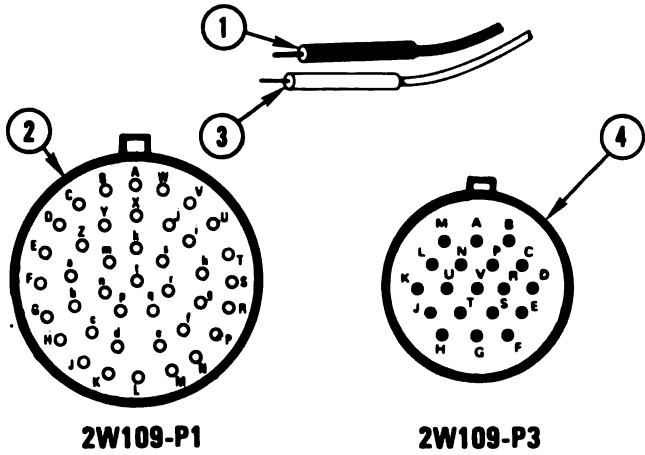


*Figure 9-2 (Sheet 7 of 10)
Volume II
Para. 9-2*

ARR82-5678

- Connect 1W101-P1 to J8 on hull/turret slipring.
- See figure 9-233.
- Disconnect 2W109-P1 from J3 on hull/turret slipring.
- See figure 9-233.
- Test for continuity between contacts J and j on 2W109-P1.
- Connect black test probe (1) to contact J on P1 (2).
- Connect red test probe (3) to contact j on P1 (2).

Does multimeter show continuity?



NO

YES

30

- Connect 1W101-P2 to J11 on turret networks box.
- See figure 9-229.
- Replace hull/turret slipring assembly.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-8.
- Verify that problem is solved.

- Connect 2W109-P1 to J3 on hull/turret slipring.
- See figure 9-233.
- Disconnect 2W109-P3 from J7 on hull networks box.
- See figure 9-241.
- Test for continuity between contacts J and V on 2W109-P3.
- Connect black test probe (1) to contact J on P3 (4).
- Connect red test probe (3) to contact V on P3 (4).

Does multimeter show continuity?

NO

YES

32

- Connect 1W101-P2 to J11 on turret networks box.
- See figure 9-229.
- Branched wiring harness 2W109 is faulty. Notify support maintenance.

33

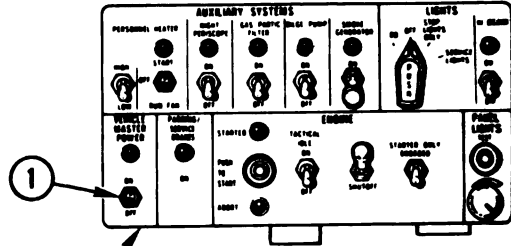
- Connect 1W101-P2 to J11 on turret networks box.
- See figure 9-229.
- Replace hull networks distribution box.
- Refer to TM 9-2350-255-20-1-3-8, para. 11-12.
- Verify that problem is solved.

Figure 9-2 (Sheet 8 of 10)
Volume II
Para. 9-2

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

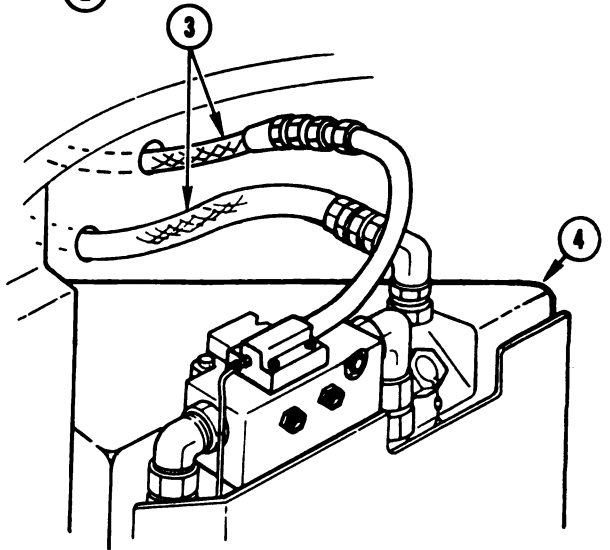
From block 22

- 34
- Shut down engine.
 - Refer to TM 9-2350-255-10.
 - Set VEHICLE MASTER POWER switch (1) on driver's master panel (2) to OFF.



WARNING
The engine compartment is extremely hot. Be very careful when inspecting hydraulic hoses and fittings to avoid severe burns.

- 35
- Check pump inlet hose for crimps, crushes, or other damage.
 - Check section of hose (3) connected to reservoir (4) for crimps, crushes, or other damage.
 - Remove engine access cover and rear precleaner door; refer to TM 9-2350-255-10.
 - Check section of hose (5) connected to main hydraulic pump (6) for crimps, crushes, or other damage.



Is hose crimped, crushed, or damaged?

NO **YES**

- 36
- Replace pump inlet hose.
 - Refer to TM 9-2350-255-20-1-3-4, para. 8-12, part of task 8.
 - Verify that problem is solved.

- 37
- Check pump inlet hose quick-disconnect coupling for proper connection.
 - Check quick-disconnect coupling (7) on main hydraulic pump (6) for proper connection.

Is quick-disconnect coupling properly connected?

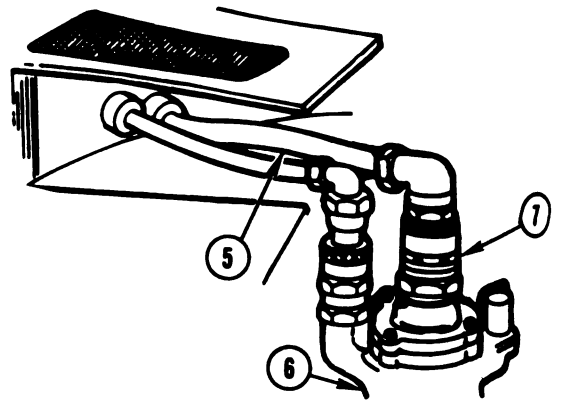


Figure 9-2 (Sheet 9 of 10)
Volume II
Para. 9-2

ARR82-5680

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

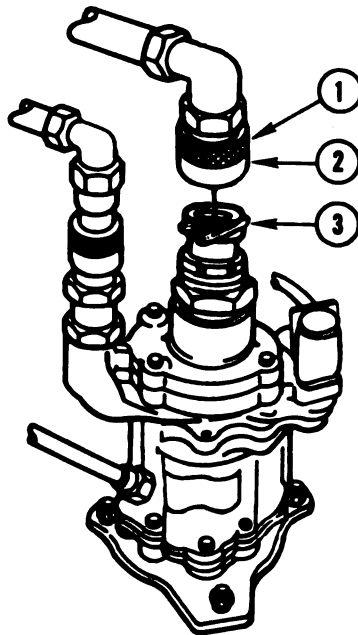
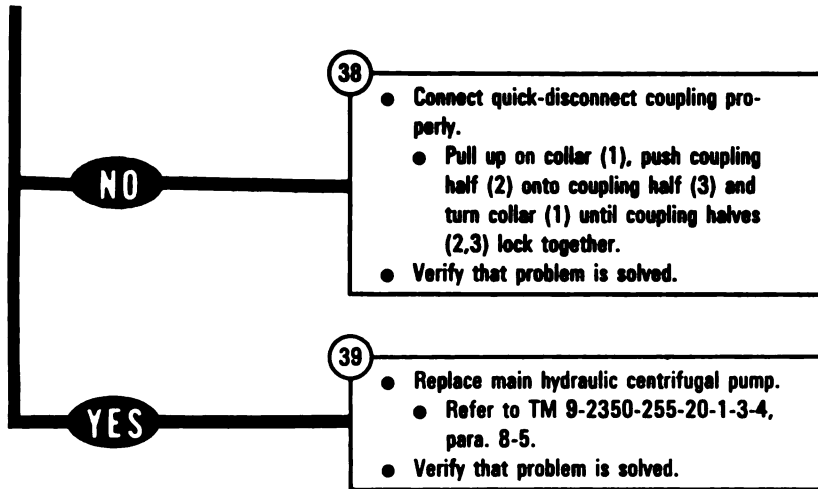


Figure 9-2 (Sheet 10 of 10)
Volume II
Para. 9-2

ARR82-5681

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

SYMPTOM MHS-3

**HYDRAULIC SYSTEM MALFUNCTION
LIGHT COMES ON WITH ENGINE
RUNNING**

Common Tools:

- Pliers, slip joint, conduit style with plastic jaw inserts

Supplies:

Connector Pin/Socket Adapters
Electrical Jumpers
Blocks, wood

Test Equipment/Special Tools:

- Multimeter

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

WARNING

Faulty hydraulic system can cause failure of parking brake. Be sure tank is parked on level ground and tracks are blocked to prevent injury to personnel or damage to equipment.

NOTE

- Read para. 9-1 before doing any work.
- Read TM 9-2350-255-20-1-3-4, para. 8-4, before doing any work.

NOTE

Notify your supervisor that this procedure may require troubleshooting and replacement of components in the hull area.

Figure 9-3 (Sheet 1 of 8)
**Volume II
Para. 9-2**

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

- Block tracks.
 - Refer to TM 9-2350-255-10.
- Set up tank controls for standard initial test conditions.
 - Refer to para. 9-9, table 9-7.

- Check hydraulic reservoir for proper fluid level.
 - Refer to TM 9-2350-255-10.

Is fluid level OK?

YES

NO

- 3**
- Do hydraulic system inspection.
 - See figure 9-4.

WARNING

Engine compartment and surrounding areas will be hot if engine was recently shut down. Use care to avoid severe burns while inspecting the main hydraulic pump.

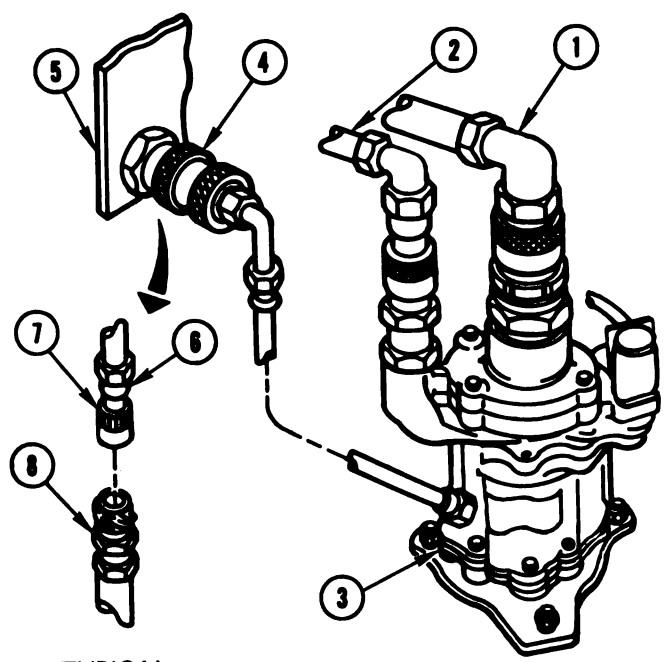
- Check main hydraulic pump quick-disconnect couplings for proper connections.
 - Remove engine access cover; refer to TM 9-2350-255-10.
 - Check quick-disconnect couplings (1,2) on main hydraulic pump (3) for proper connections.
 - Check quick-disconnect coupling (4) on bracket (5) for proper connection.

Are quick-disconnect couplings properly connected?

YES

NO

- 5**
- Connect quick-disconnect couplings properly.
 - Push coupling-half (8) and turn collar (7) until coupling halves (8, 8) lock together.
 - Verify that problem is solved.



TYPICAL

Figure 9-3 (Sheet 2 of 8)
**Volume II
Para. 9-2**

ARR82-5682

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

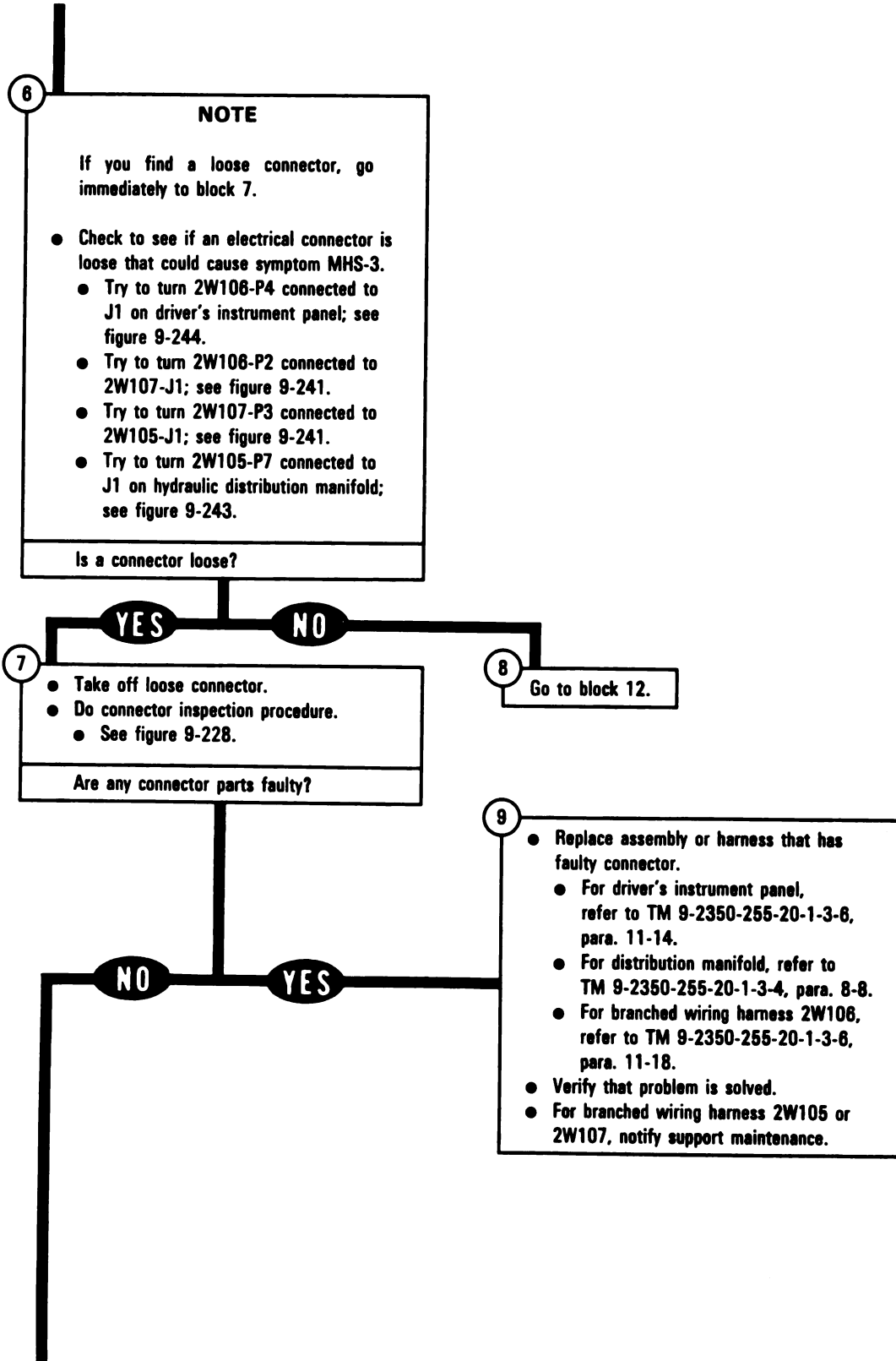


Figure 9-3 (Sheet 3 of 8)
**Volume II
Para. 9-2**

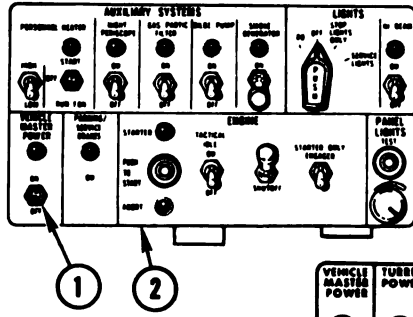
TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING

Connect loose connector.

- For connector 2W105-P7, see figure 9-243.
- For connector 2W106-P2 or 2W107-P3, see figure 9-241.
- For connector 2W106-P4, see figure 9-244.

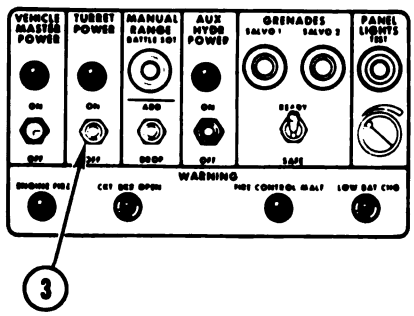
Verify that problem is solved.

Does symptom still exist?



YES **NO**

Problem solved.



Shut down engine.

- Refer to TM 9-2350-255-10.

Set VEHICLE MASTER POWER switch (1) on driver's master panel (2) to OFF.

From block 8

Disconnect 2W105-P7 from J1 on hydraulic distribution manifold.

- See figure 9-243.

Start engine.

- Refer to TM 9-2350-255-10.

Set TURRET POWER switch (3) to ON.

Verify that problem is solved.

Does symptom still exist?

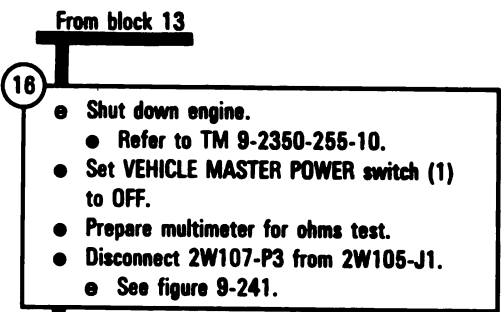
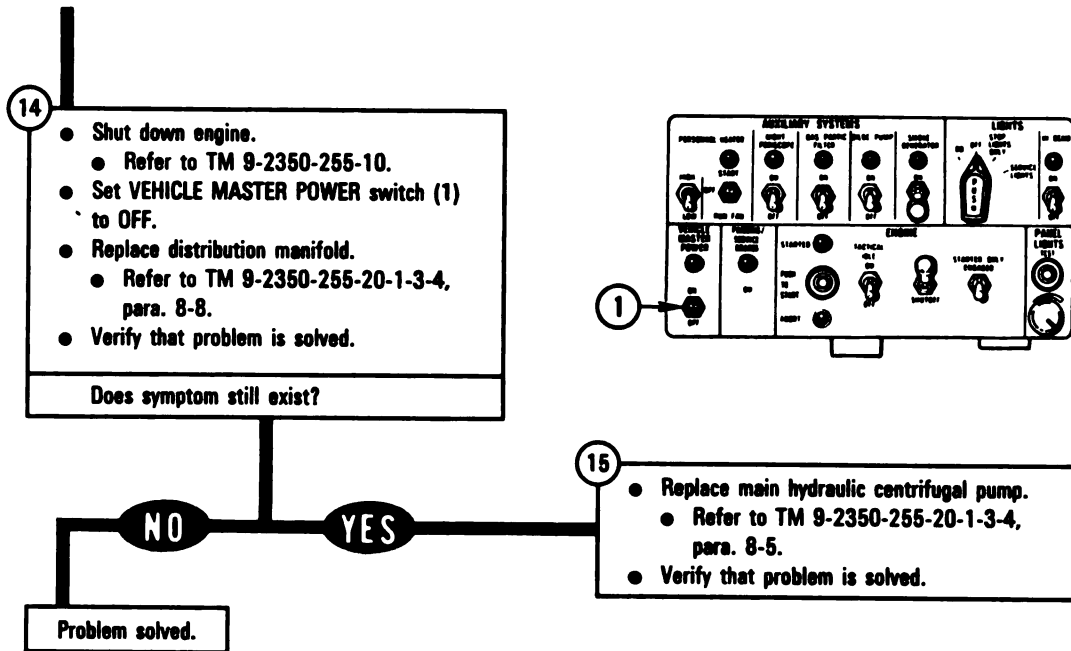
NO **YES**

13
Go to block 16.

Figure 9-3 (Sheet 4 of 8)
 Volume II
 Para. 9-2

ARR82-5683

**TM 9-2350-255-20-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**



*Figure 9-3 (Sheet 5 of 8)
Volume II
Para. 9-2*

ARR82-5684

NOTE

If multimeter shows less than 5 ohms, go immediately to block 19.

- Test for less than 5 ohms between contact N and connector body and all other contacts on 2W107-P3.
- Connect black test probe (1) to contact N on P3 (2).
- Connect red test probe (3) to connector body and all other contacts on P3 (2).

Does multimeter show less than 5 ohms?

YES

NO

18

- Branched wiring harness 2W105 is faulty. Notify support maintenance.

- Disconnect 2W106-P2 from 2W107-J1.
- See figure 9-241.

NOTE

If multimeter shows less than 5 ohms, go immediately to block 21.

- Test for less than 5 ohms between contact HH and connector body and all other contacts on 2W106-P2.
- Connect black test probe (1) to contact HH on P2 (4).
- Connect red test probe (3) to connector body and all other contacts on P2 (4).

Does multimeter show less than 5 ohms?

YES

NO

20

- Connect 2W105-P7 to hydraulic distribution manifold.
- See figure 9-243.
- Branched wiring harness 2W107 is faulty. Notify support maintenance.

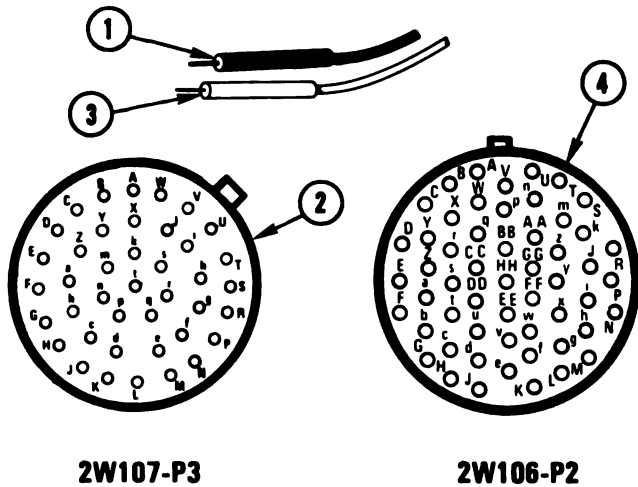


Figure 9-3 (Sheet 6 of 8)
Volume II
Para. 9-2

ARR82-5685

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

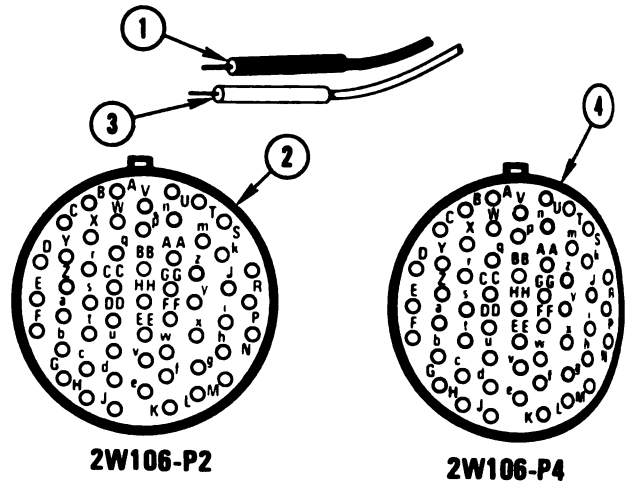
21

- Disconnect 2W106-P4 from J1 on driver's instrument panel.
- See figure 9-244.

NOTE
If multimeter shows less than 5 ohms, go immediately to block 22.

- Test for less than 5 ohms between contact HH and connector body and all other contacts on 2W106-P2.
- Connect black test probe (1) to contact HH on P2 (2).
- Connect red test probe (3) to connector body and all other contacts on P2 (2).

Does multimeter show less than 5 ohms?



22

- Connect 2W107-P3 to 2W105-J1.
- See figure 9-241.
- Connect 2W105-P7 to J1 on hydraulic distribution manifold.
- See figure 9-243.
- Replace branched wiring harness 2W106.
- Refer to TM 9-2350-255-20-1-3-6, para. 11-18.
- Verify that problem is solved.

23

NOTE
If multimeter shows less than 5 ohms, go immediately to block 25.

- Test for less than 5 ohms between contact h and connector body and all other contacts on 2W106-P4.
- Connect black test probe (1) to contact h on P4 (4).
- Connect red test probe (3) to connector body and all other contacts on P4 (4).

Does multimeter show less than 5 ohms?

Figure 9-3 (Sheet 7 of 8)
Volume II
Para. 9-2

ARR82-5686

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

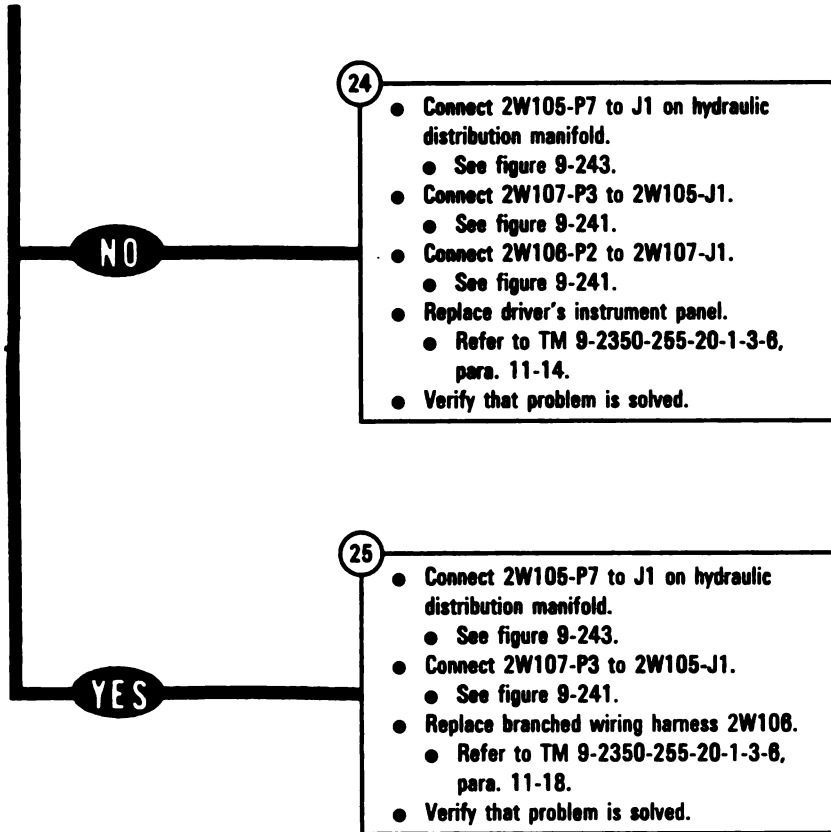


Figure 9-3 (Sheet 8 of 8)
**Volume II
Para. 9-2**

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

MAIN HYDRAULIC SYSTEM INSPECTION

WARNING

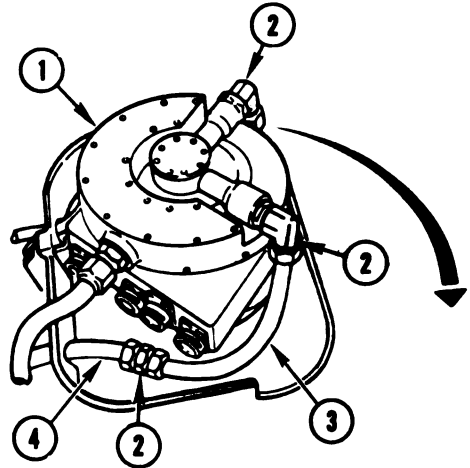
Personnel can be severely burned if they attempt to inspect engine hydraulics while engine is hot. Inspection must be made when engine is cold.

NOTE

Notify your supervisor that this procedure may require troubleshooting and replacement of components in the hull area.

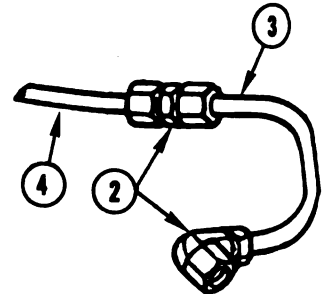
NOTE

A leak big enough to cause your symptom will dump large amounts of hydraulic fluid in the area of the leak. Hydraulic fluid has a noticeable color and odor that can aid in finding the general area of the leak. Use this procedure to help find the specific assembly, hose, tube, or fitting that is damaged and to direct you to the replacement procedure.



HARNESSES REMOVED FOR CLARITY

VIEW TURNED FOR CLARITY



1

- Check for leaks at hull/turret slipping.
 - Remove slipping access cover; refer to TM 9-2350-255-20-2-3-1, para. 2-8.
 - Check slipping (1), fittings (2), tubes (3), and hoses (4).

Is there a leak?

NO

YES

2

- Replace faulty assembly or part.
 - Refer to replacement index, sheet 13.
- Fill hydraulic reservoir.
 - Refer to LO 9-2350-255-12.
- Verify that problem is solved.

*Figure 9-4 (Sheet 1 of 15)
Volume II
Para. 9-2*

ARR82-5687

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

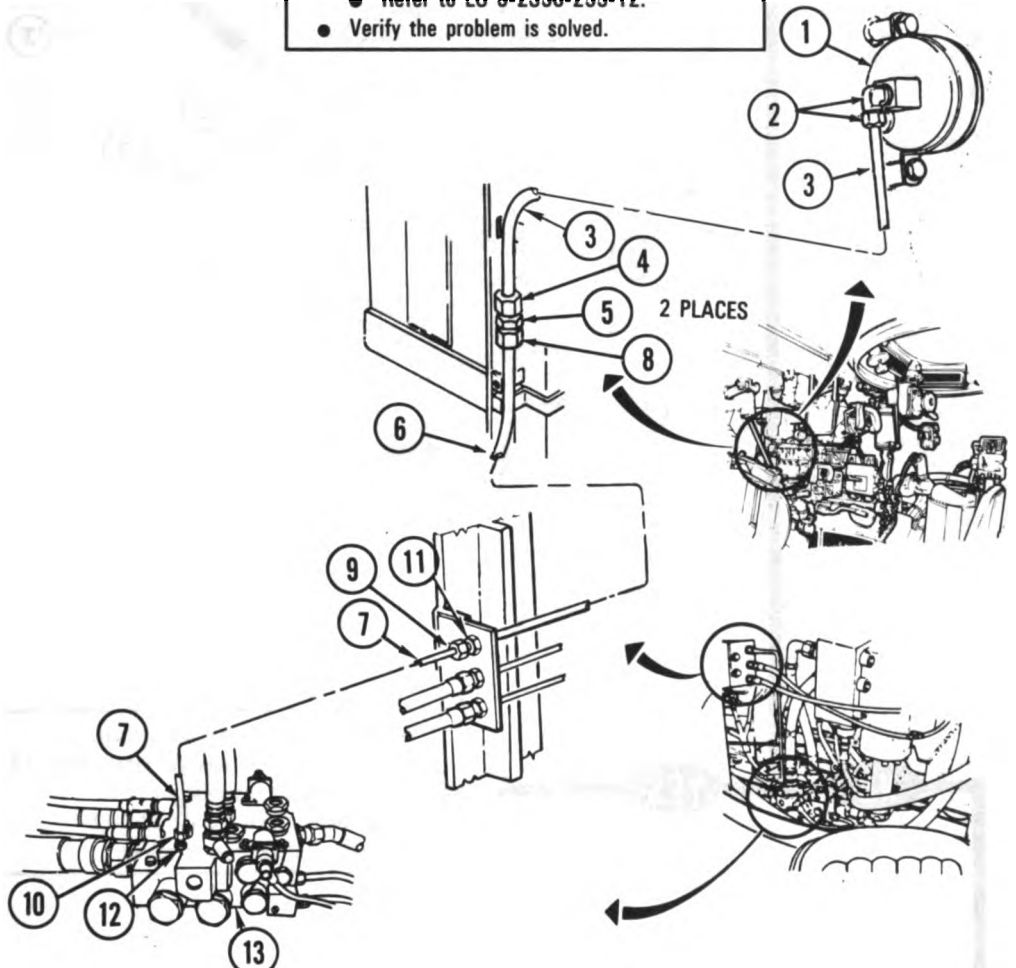
- Manually traverse turret until main gun is over right front fender to reach hydraulic turret valve, then lock turret.
 - Refer to TM 9-2350-255-10.
- Check for leaks at dial pressure gage and at tubes and fittings connecting gage to hydraulic turret valve.
 - Check dial pressure gage (1), fittings (2), and tube (3).
 - Check tube (3), fitting (4), and nipple (5).
 - Check tubes (6, 7), fittings (8, 9, 10), nipple (11), adapter (12), and hydraulic turret valve (13).

Are there any leaks?

NO

YES

- 4**
- Replace faulty assemblies or parts.
 - Refer to replacement index, sheet 13.
 - Fill hydraulic reservoir.
 - Refer to LO 9-2350-255-12.
 - Verify the problem is solved.



**Figure 9-4 (Sheet 2 of 15)
Volume II
Para. 9-2**

ARR82-5688

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

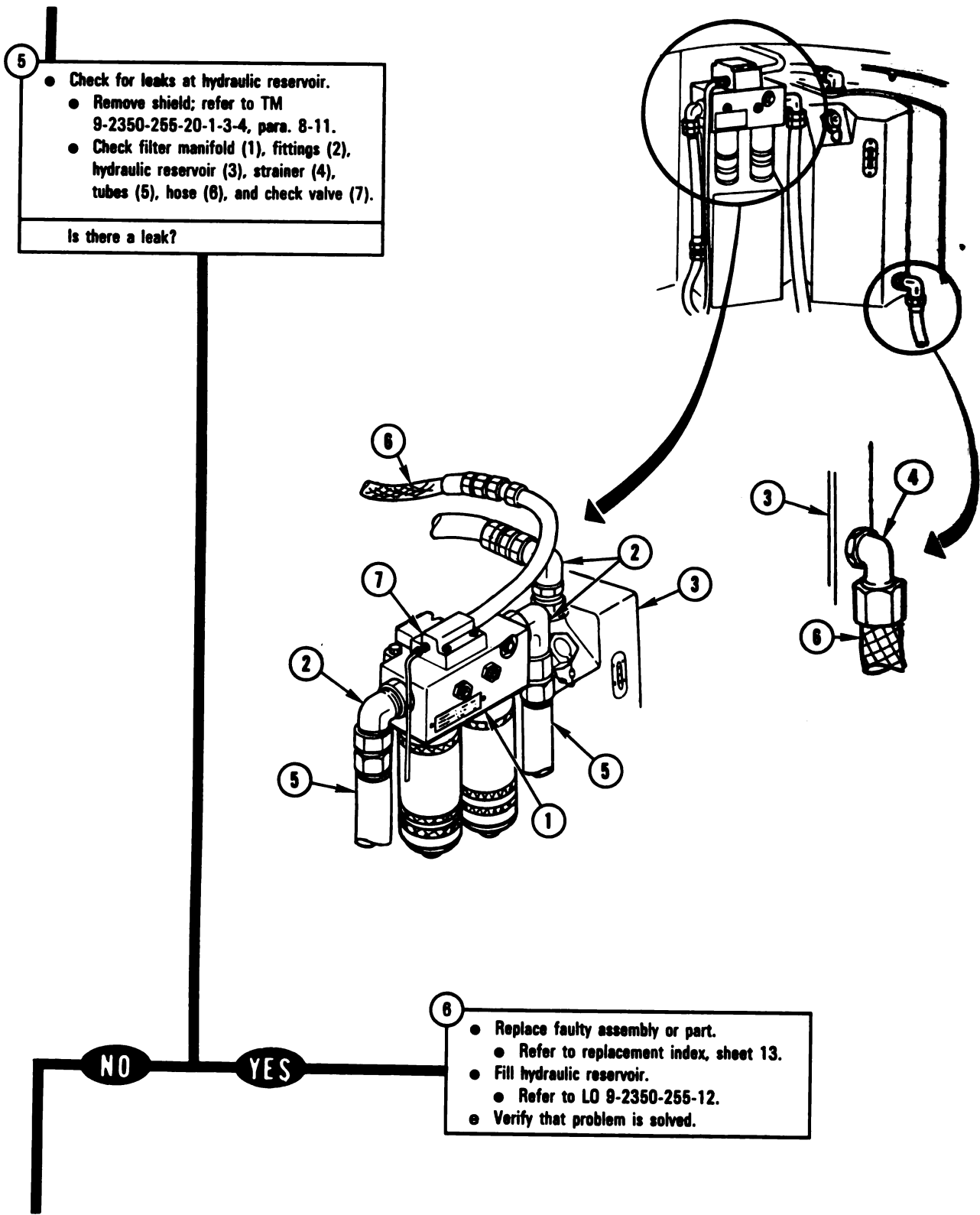


Figure 9-4 (Sheet 3 of 15)
Volume II
Para. 9-2

ARR82-5689

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

● Check for leaks at hydraulic accumulator from driver's compartment.

- Remove baffle plate; refer to TM 9-2350-255-20-2-3-2, para. 3-16.
- Check hydraulic accumulator (1), fitting (2), and tube (3).

Is there a leak?

NO **YES**

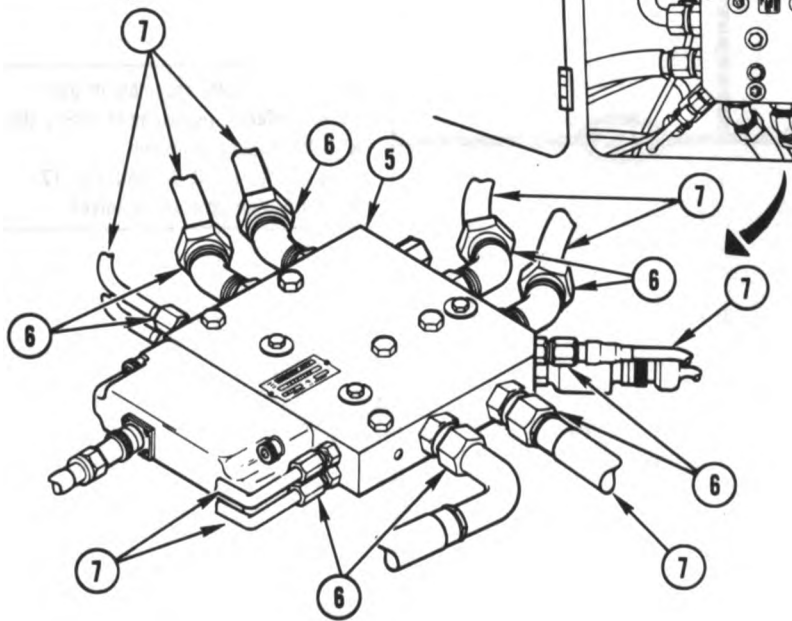
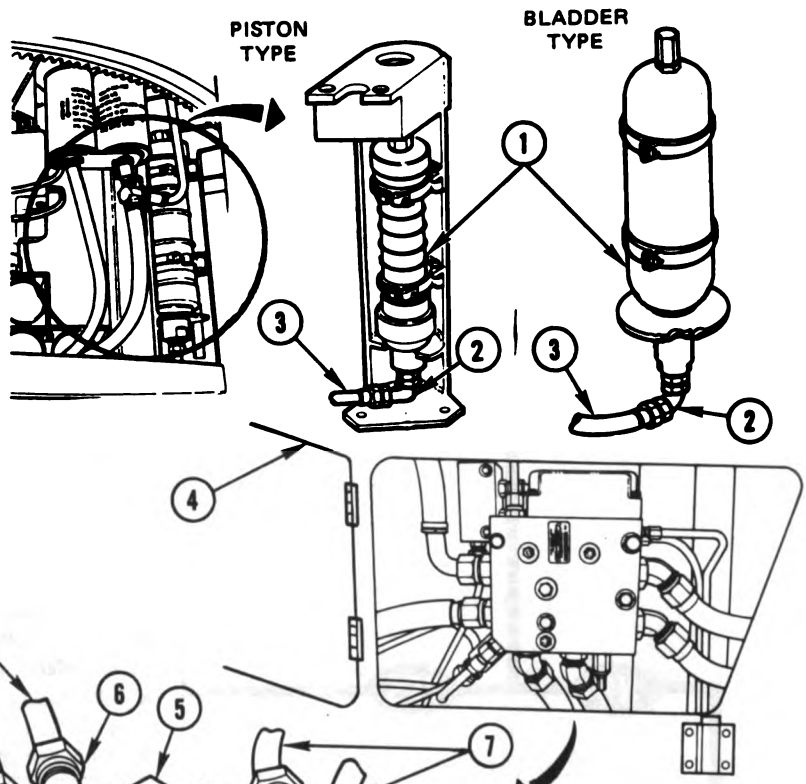
8

- Replace faulty assembly or part.
 - Refer to replacement index, sheet 13.
- Fill hydraulic reservoir.
 - Refer to LO 9-2350-255-12.
- Verify that problem is solved.

● Check for leaks at hydraulic distribution manifold.

- Open turret access door (4) and manually traverse turret counterclockwise until hydraulic distribution manifold (5) comes into view; refer to TM 9-2350-255-10.
- Check hydraulic distribution manifold (5), fittings (6), and tubes (7).

Is there a leak?



*Figure 9-4 (Sheet 4 of 15)
Volume II
Para. 9-2*

ARR82-5690

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

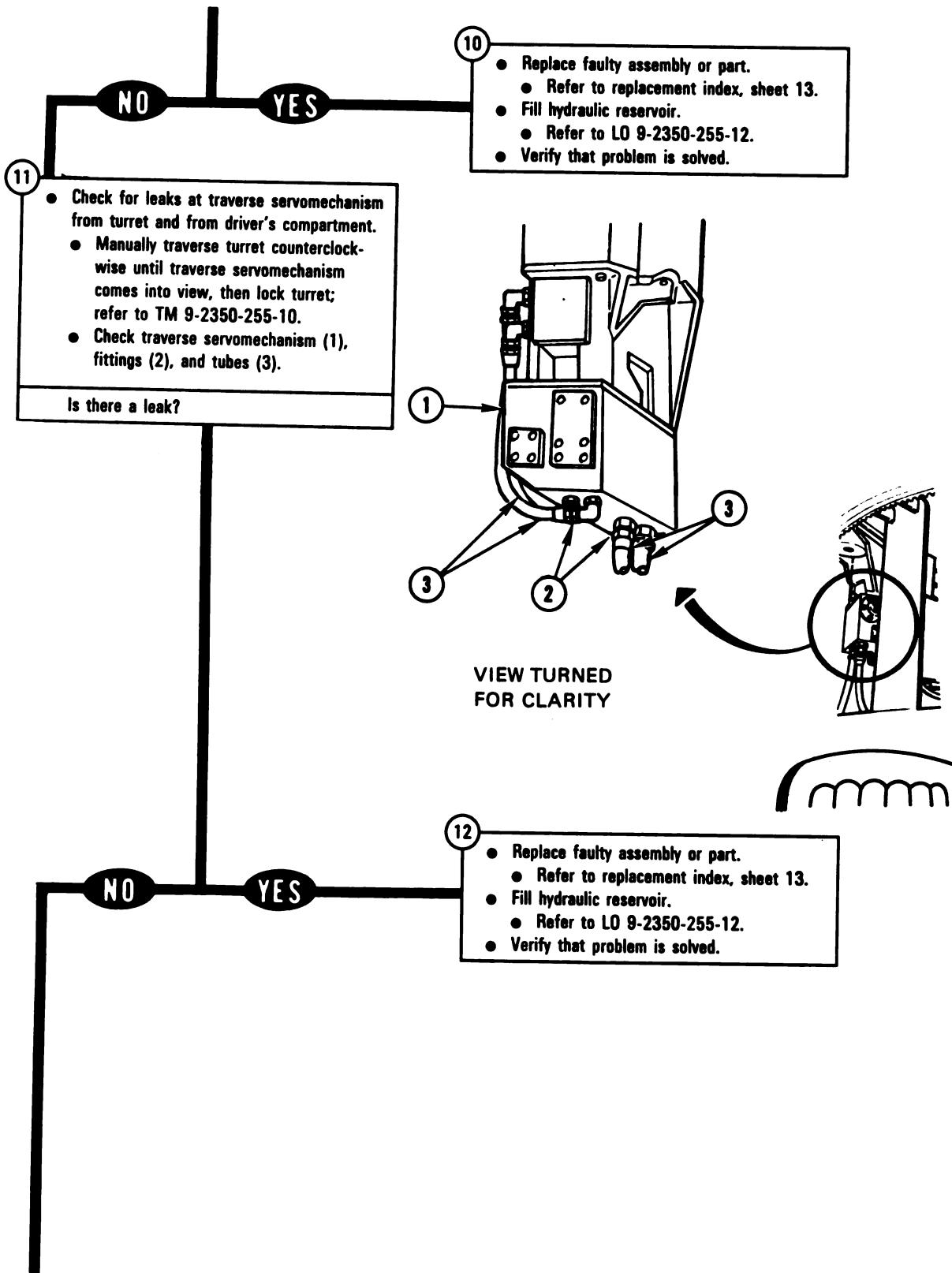


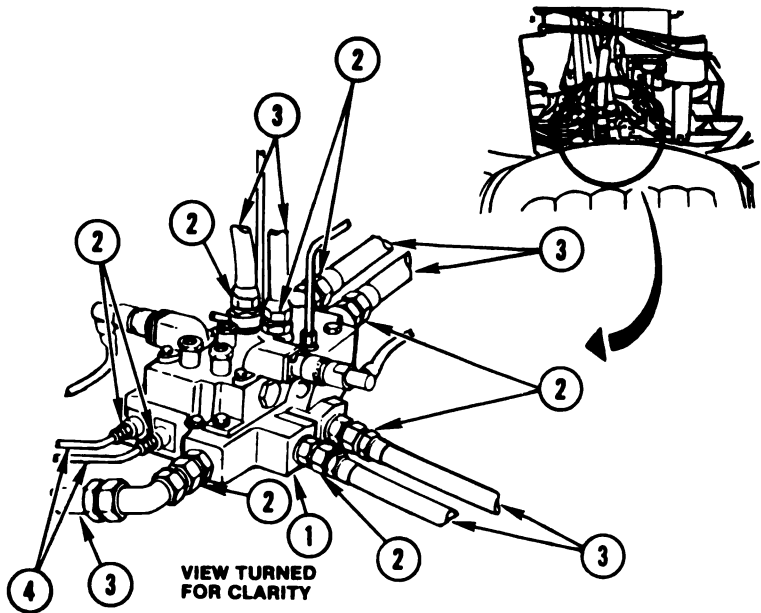
Figure 9-4 (Sheet 5 of 15)
Volume II
Para. 9-2

ARR82-5691

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

- Check for leaks at the hydraulic turret valve from the driver's compartment.
- Manually traverse turret clockwise until hydraulic turret valve comes into view, then lock turret; refer to TM 9-2350-255-10.
- Check turret valve (1), fittings (2), hoses (3), and tubes (4).

Is there a leak?



NO

YES

- 14
- Replace faulty assembly or part.
 - Refer to replacement index, sheet 13.
 - Fill hydraulic reservoir.
 - Refer to LO 9-2350-255-12.
 - Verify that problem is solved.

- Check for leaks at elevation servomechanism from the driver's compartment.
- Check elevation servomechanism (5), fittings (6), and hoses (7).

Is there a leak?

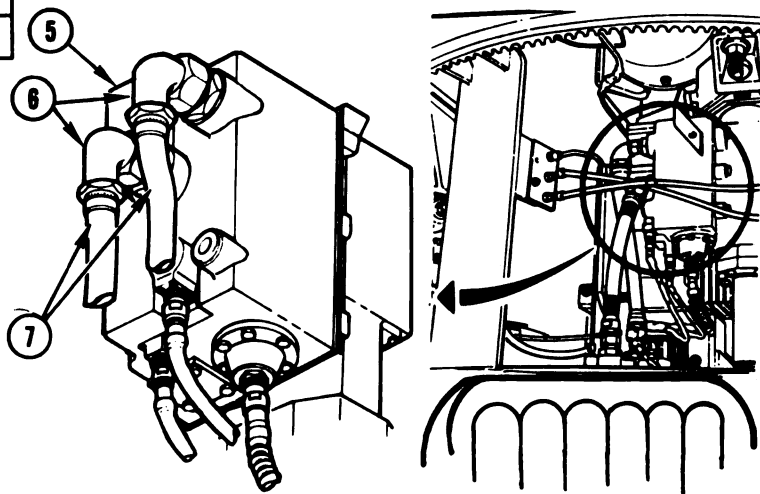


Figure 9-4 (Sheet 6 of 15)
Volume II
Para. 9-2

ARR82-5692

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

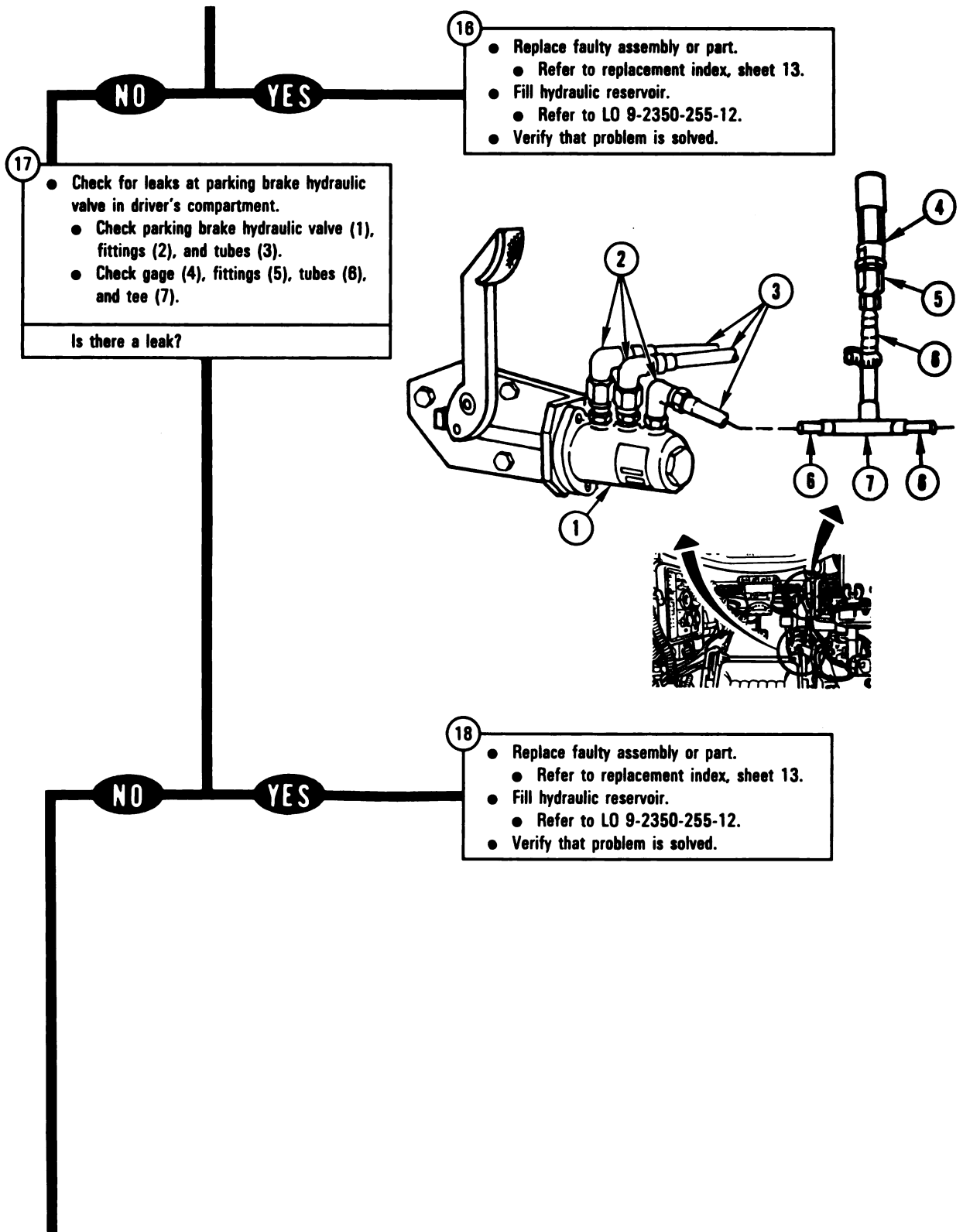


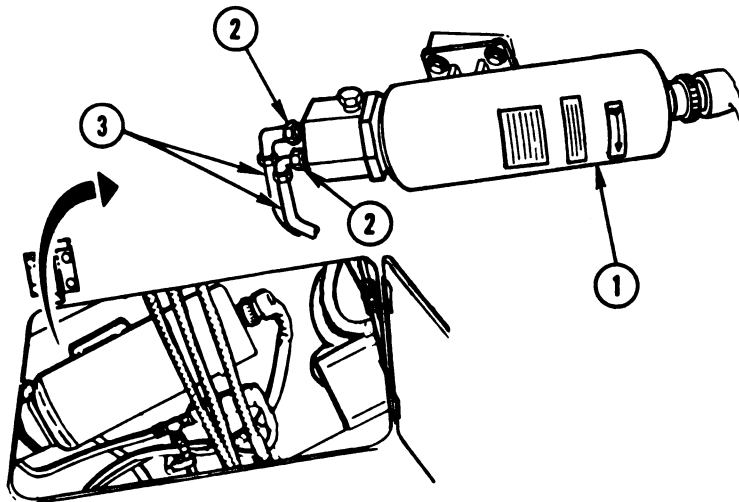
Figure 9-4 (Sheet 7 of 15)
Volume II
Para. 9-2

ARR82-5693

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

- Check for leaks at auxiliary hydraulic powerpack.
- Open turret platform access door; refer to TM 9-2350-255-10.
- Manually traverse turret clockwise until auxiliary hydraulic powerpack (1) comes into view; refer to TM 9-2350-255-10.
- Check auxiliary hydraulic powerpack (1), fittings (2), and tubes (3).

Is there a leak?



20

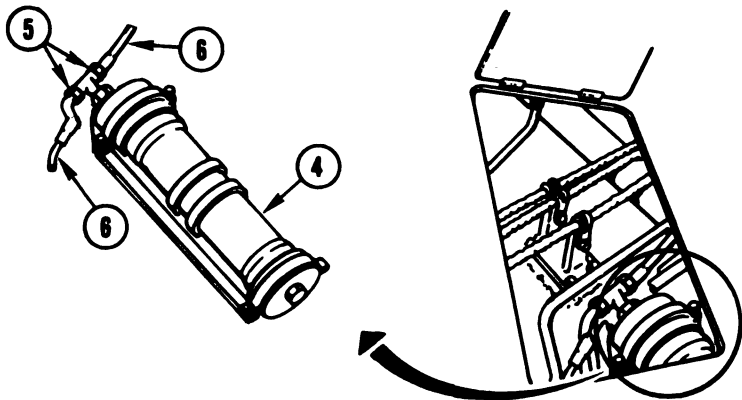
- Replace faulty assembly or part.
 - Refer to replacement index, sheet 13.
- Fill hydraulic reservoir.
 - Refer to LO 9-2350-255-12.
- Verify that problem is solved.

NO

YES

- Check for leaks at parking brake hydraulic accumulator.
- Manually traverse turret clockwise until parking brake hydraulic accumulator (4) comes into view; refer to TM 9-2350-255-10.
- Check parking brake hydraulic accumulator (4), fittings (5), and tubes (6).

Is there a leak?



22

- Replace faulty assembly or part.
 - Refer to replacement index, sheet 13.
- Fill hydraulic reservoir.
 - Refer to LO 9-2350-255-12.
- Verify that problem is solved.

Figure 9-4 (Sheet 8 of 15)
Volume II
Para. 9-2

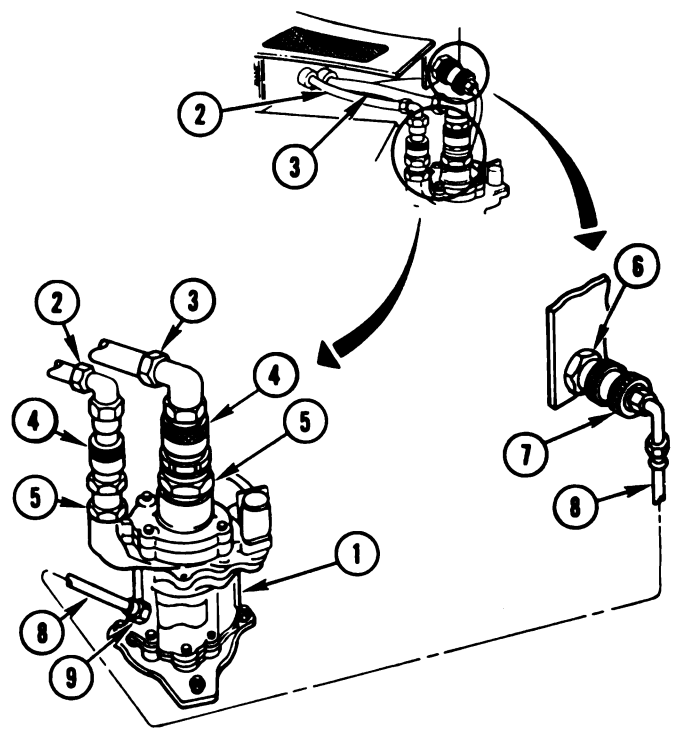
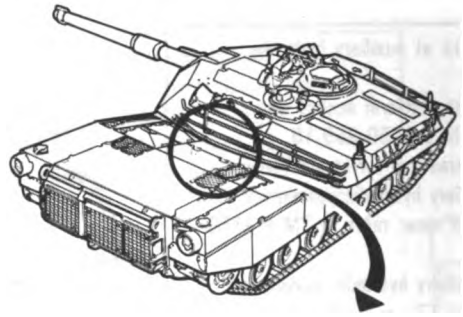
ARR82-5694

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

23

- Check for leaks at main hydraulic pump and connecting lines.
- Manually traverse turret counterclockwise until main gun is over left side of tank; refer to TM 9-2350-255-10.
- Remove engine access cover; refer to TM 9-2350-255-10.
- Check main hydraulic pump (1), outlet hose (2), inlet hose (3), quick-disconnect couplings (4), couplings (5), coupling (6), quick-disconnect coupling (7), case drain hose (8), and adapter (9).

Is there a leak?



NO

YES

24

- Replace faulty assembly or part.
- Refer to replacement index, sheet 13.
- Fill hydraulic reservoir.
- Refer to LO 9-2350-255-12.
- Verify that problem is solved.

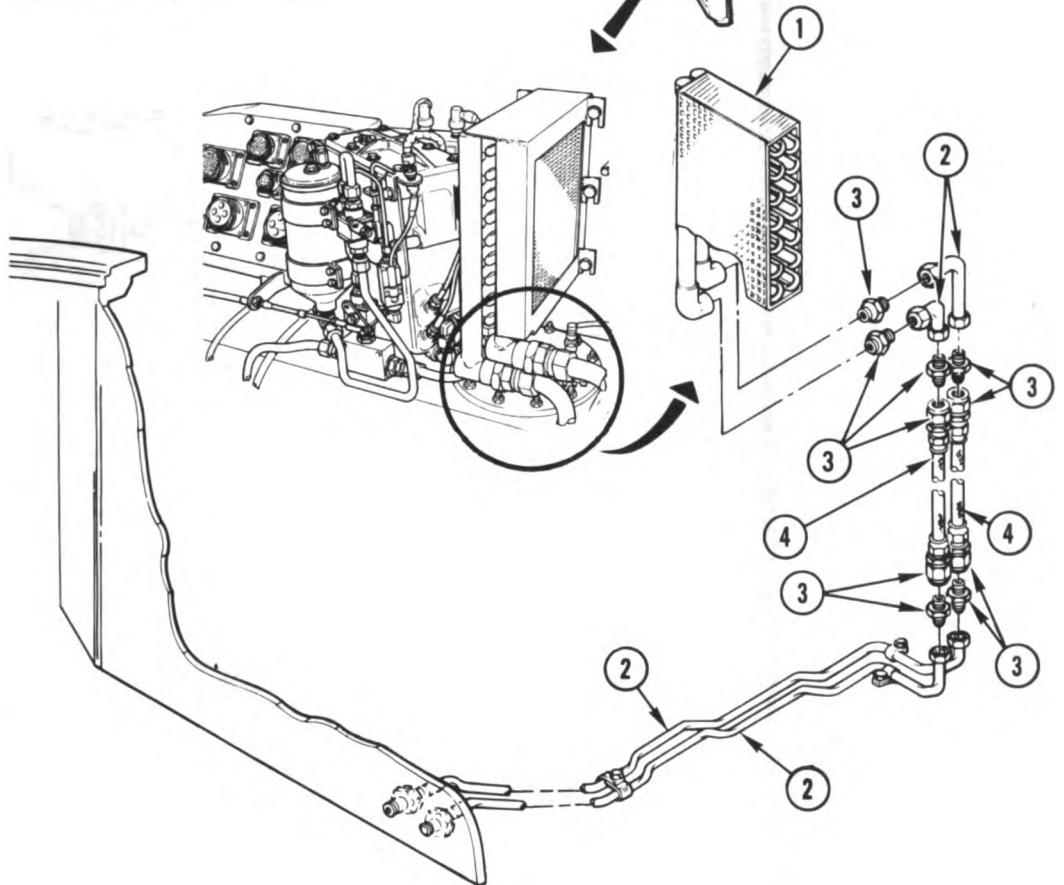
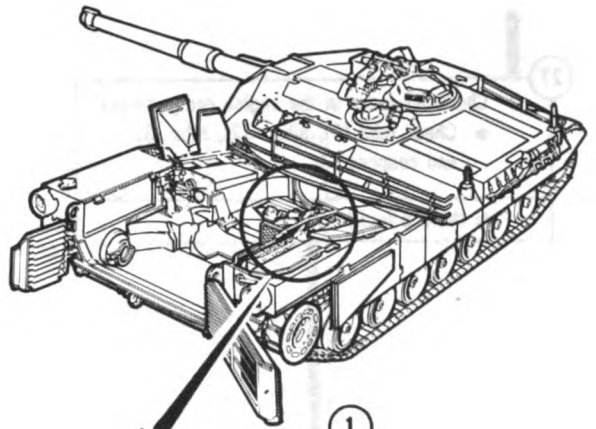
*Figure 9-4 (Sheet 9 of 15)
Volume II
Para. 9-2*

ARR82-5695

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

- Check for leaks at heat exchanger.
- Remove powerpack; refer to TM 9-2350-255-20-1-3-1, para. 2-5.
- Remove right engine compartment fuel tank heat shield and brackets; refer to TM 9-2350-255-20-1-3-2, para. 4-7.
- Check heat exchanger (1), tubes (2), fittings (3), and hoses (4).

Is there a leak?



NO

YES

26

- Replace faulty assembly or part.
- Refer to replacement index, sheet 13.
- Fill hydraulic reservoir.
- Refer to LO 9-2350-255-12.
- Verify that problem is solved.

Figure 9-4 (Sheet 10 of 15)
Volume II
Para. 9-2

ARR82-5696

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

27

- Check for leaks in the engine compartment.
- Check tube (1), elbow (2), tube (3), and coupling (4).

Is there a leak?

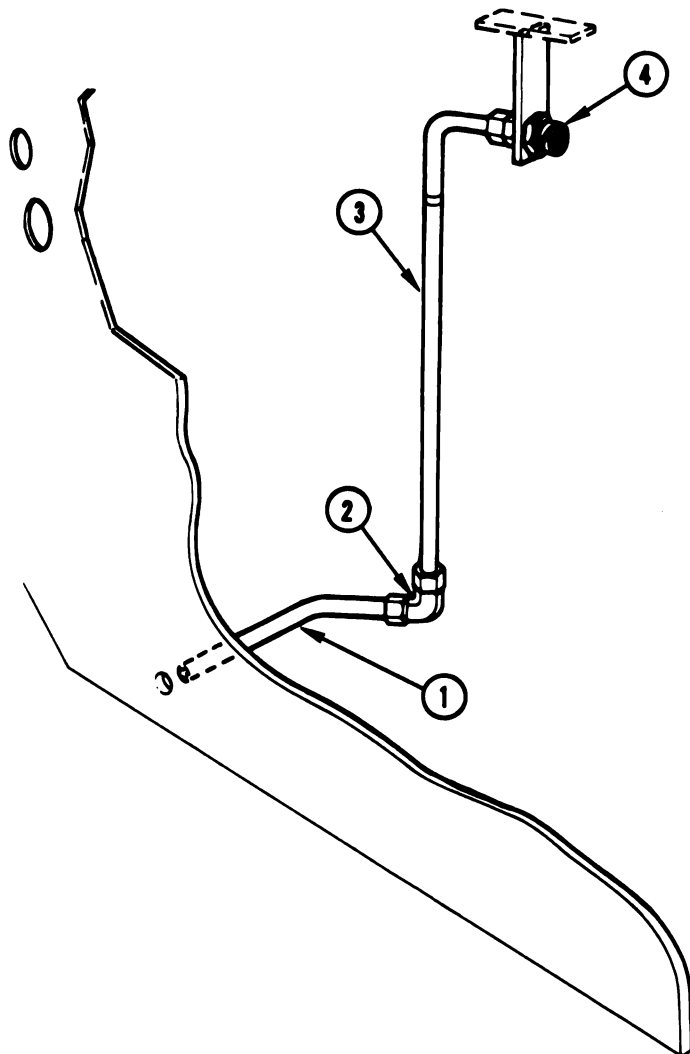
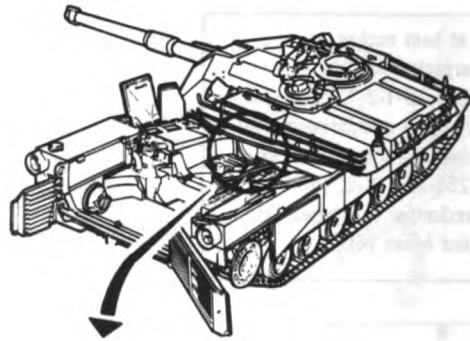


Figure 9-4 (Sheet 11 of 15)
**Volume II
Para. 9-2**

ARR62-5097

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

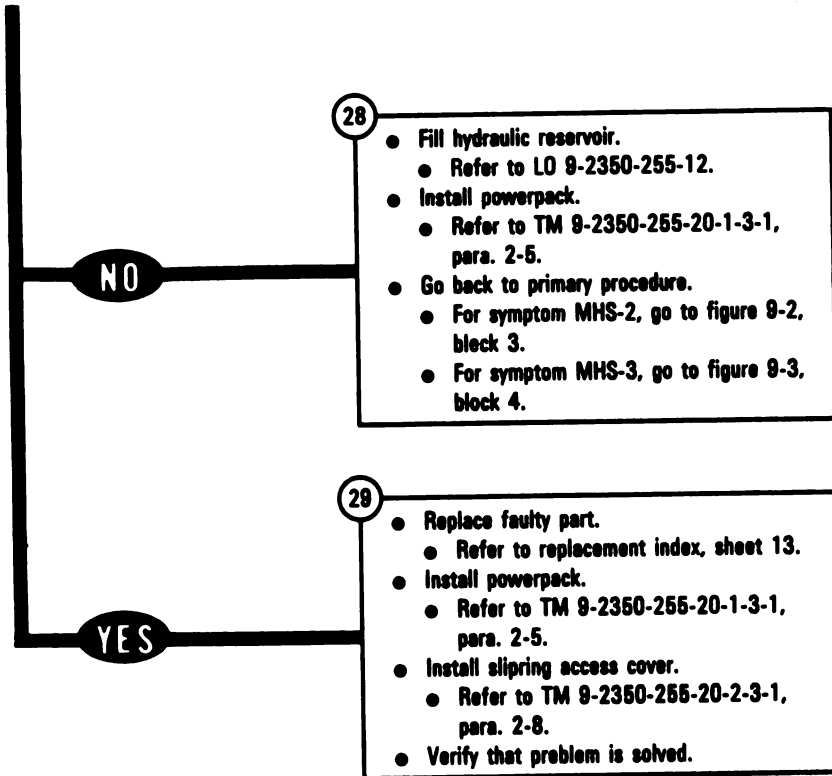


Figure 9-4 (Sheet 12 of 15)
Volume II
Para. 9-2

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

Replacement Index

Hydraulic Assembly	Reference	
	TM 9-2350-255-20-	Para.
Auxiliary hydraulic powerpack assembly	1-3-3	8-7
Elevation servomechanism	Notify support maintenance	—
Gage and bushing	1-3-3	6-7
Heat exchanger and mounting bracket	1-3-4	8-6
Hull/turret slipping assembly	2-3-1	2-8
Hydraulic accumulator	2-3-2	4-10
Distribution manifold	1-3-4	8-8
Dial pressure gage	2-3-2	4-10
Filter manifold	1-3-4	8-10
Filter manifold tube assembly	1-3-4	8-10
Hydraulic turret valve	2-3-2	4-10
Pressure switch	1-3-4	8-9
Hydraulic reservoir assembly	1-3-4	8-11
Main hydraulic centrifugal pump	1-3-4	8-5
Parking brake hydraulic accumulator	1-3-4	8-13
Parking brake hydraulic valve	1-3-3	6-7
Traversing mechanism assembly	Notify support maintenance	—
Traverse servomechanism	Notify support maintenance	—
Parking brake actuating cylinder	1-3-3	6-7
Hydraulic Adapters, Fittings, Hoses, and Tubes		
Metal tube assembly, distribution manifold to parking brake hydraulic accumulator and parking brake hydraulic valve	Notify support maintenance	—
Adapter on distribution manifold	1-3-4	8-8, part of task 1 8-13
Hydraulic accumulator tee	1-3-4	6-7, part of task 1 6-7, part of task 14
Adapter on gage	1-3-3	
Elbow on parking brake hydraulic valve	1-3-3	
Hose assembly, hydraulic turret valve to metal tube assembly	2-3-2	4-7
Hose assembly, auxiliary powerpack to reservoir	1-3-4	8-12
Metal tube assembly to hull/turret slipping assembly	2-3-2	4-7

Figure 9-4 (Sheet 13 of 15)
**Volume II
Para. 9-2**

Replacement Index (Continued)

Hydraulic Adapters, Fittings, Hoses, and Tubes (Continued)	Reference	
	TM 9-2350-255-20-	Para.
Pressure hose assembly, auxiliary powerpack to filter manifold	1-3-4	8-12
Pressure hose assembly, hydraulic turret valve to main distribution manifold	2-3-2	4-7
Metal tube assembly, water container bracket to dial pressure gage	2-3-2	4-7
Metal tube assembly, dial pressure gage, hydraulic turret valve to bracket	2-3-2	4-7
Metal tube assembly, dial pressure gage bracket to water container bracket	2-3-2	4-7
Pressure hose assembly, distribution manifold to slipping return hose assembly	1-3-4	8-12
Pressure hose assembly, distribution manifold to slipping return hose assembly	1-3-4	8-12
Pressure hose assembly and tube assembly, distribution manifold to filter manifold	1-3-4	8-12
Pressure hose assembly and tube assembly, distribution manifold to filter manifold	1-3-4	8-12
Pressure hose assembly, hydraulic turret valve to elevation servomechanism assembly	2-3-2	4-7
Pump outlet hose assembly	1-3-4	8-12
Pump inlet hose assembly	1-3-4	8-12
Case drain line from main hydraulic centrifugal pump to distribution manifold.		
Case drain hose assembly from pump to bracket	1-3-4	8-12, task 10
Case drain tube assembly from bracket to elbow	1-3-4	8-12, task 14
Metal tube assembly from elbow through bulkhead to distribution manifold	Notify support maintenance	—
Adapter on distribution manifold	1-3-4	8-8, part of task 1
Heat exchanger pressure and return hose assembly and tube assembly	1-3-4	8-12

Figure 9-4 (Sheet 14 of 15)
**Volume II
Para. 9-2**

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

Replacement Index (Continued)

Hydraulic Adapters, Fittings, Hoses, and Tubes (Continued)	Reference	
	TM 9-2350-255-20-	Para.
Metal tube assembly from distribution manifold to parking brake hydraulic valve and parking brake actuating cylinder	Notify support maintenance	—
Adapter and elbow on distribution manifold	1-3-4	8-8
Adapter on parking brake actuating cylinder	1-3-3	6-7, part of task 7
Adapter on parking brake hydraulic valve	1-3-3	6-7
Hose assembly, traverse servomechanism assembly to turret traversing mechanism assembly	2-3-2	4-7
Hose assembly, hydraulic turret valve to traverse servomechanism assembly	2-3-2	4-7
Metal tube assembly from heat exchanger pressure and return hose to distribution manifold	Notify support maintenance	—
Elbow on distribution manifold	1-3-4	8-8, part of task 1
Metal tube assembly (pump by pass tube assembly) from filter manifold check valve to distribution manifold	1-3-4	8-12

Figure 9-4 (Sheet 15 of 15)
**Volume II
Para. 9-2**

Azimuth/Elevation Subsystem Troubleshooting Procedures

Table 9-3. Azimuth/Elevation Subsystem (AES) Fault Symptom Index

Fault Symptom No.	Fault Symptom	Primary Troubleshooting Procedure (PTP)	Test No.	Alternate Troubleshooting Procedure (ATP) TM 9-2350-255-20-2-2-3
AES-1	Main Gun Slams Up Or Down And Turret Traverses In EMERGENCY Mode With Commander's Or Gunner's Palm Switch Pressed And Control Centered	Figure 9-5	1400	Figure 18-33
AES-2	Main Gun Elevates, Depresses, Or Chatters In NORMAL And/Or EMERGENCY Mode With Commander's Or Gunner's Palm Switch Pressed And Control Centered	Figure 9-5	1400	Figure 18-34
AES-3	Turret Traverses In NORMAL And/Or EMERGENCY Mode With Commander's Or Gunner's Palm Switch Pressed And Control Centered	Figure 9-5	1400	Figure 18-35
AES-4	Erratic Tracking Of Turret In NORMAL And EMERGENCY Mode	Figure 9-192	-	-
AES-5	Erratic Tracking Of Turret In EMERGENCY Mode Only Using Gunner's Control	Figure 9-192	-	-
AES-6	Erratic Tracking Of Turret In EMERGENCY Mode Only Using Commander's Control	Figure 9-192	-	-
AES-7	Erratic Tracking Of Main Gun In NORMAL Or EMERGENCY Mode	Figure 9-193	-	-
AES-8	Erratic Tracking Of Main Gun In EMERGENCY Mode Only Using Gunner's Control	Figure 9-193	-	-
AES-9	Erratic Tracking Of Main Gun In EMERGENCY Mode Only Using Commander's Control	Figure 9-193	-	-

SYMPTOMS AES 1, AES-2, and AES-3

**AZIMUTH/ELEVATION SUBSYSTEM
FOUND FAULTY DURING TANK
OPERATION**

Common Tools:

- Pliers, slip joint, conduit style with plastic jaw inserts

NOTE
Notify your supervisor that this procedure may require troubleshooting and replacement of components in the hull area.

Test Equipment/Special Tools:
NOTE
Do not get the following equipment until told to do so further on in this procedure.

- STE-M1/FVS Test Set, 12303600

Equipment Condition:

- Tank parked where it is safe to traverse turret, elevate main gun, and pivot tank.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

NOTE
Read para. 9-1 before doing any work.

1

- Set up tank controls for standard initial test conditions.
- Refer to para. 9-9, table 9-7.

Figure 9-5 (Sheet 1 of 39)
Volume II
Para. 9-3

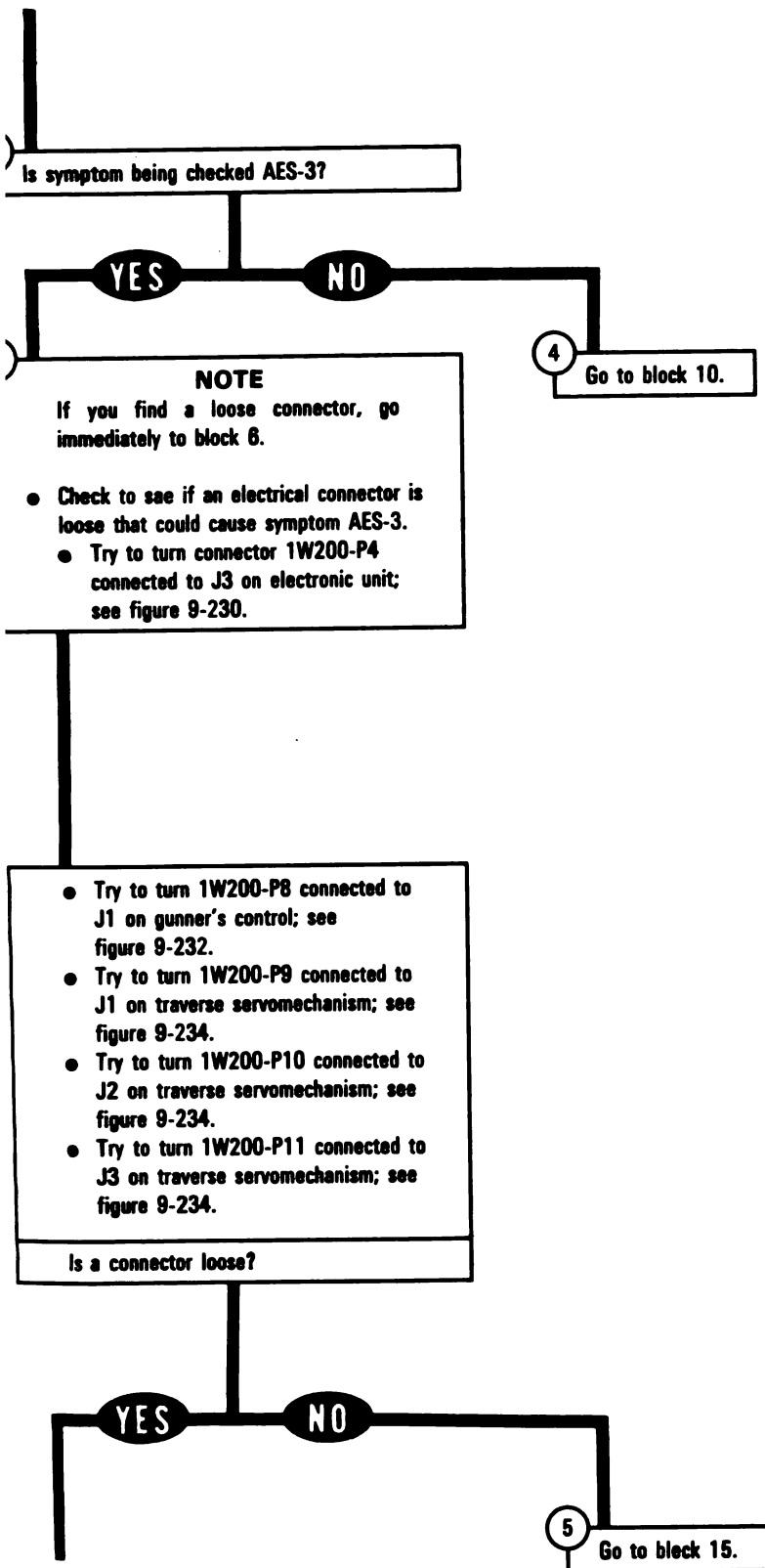
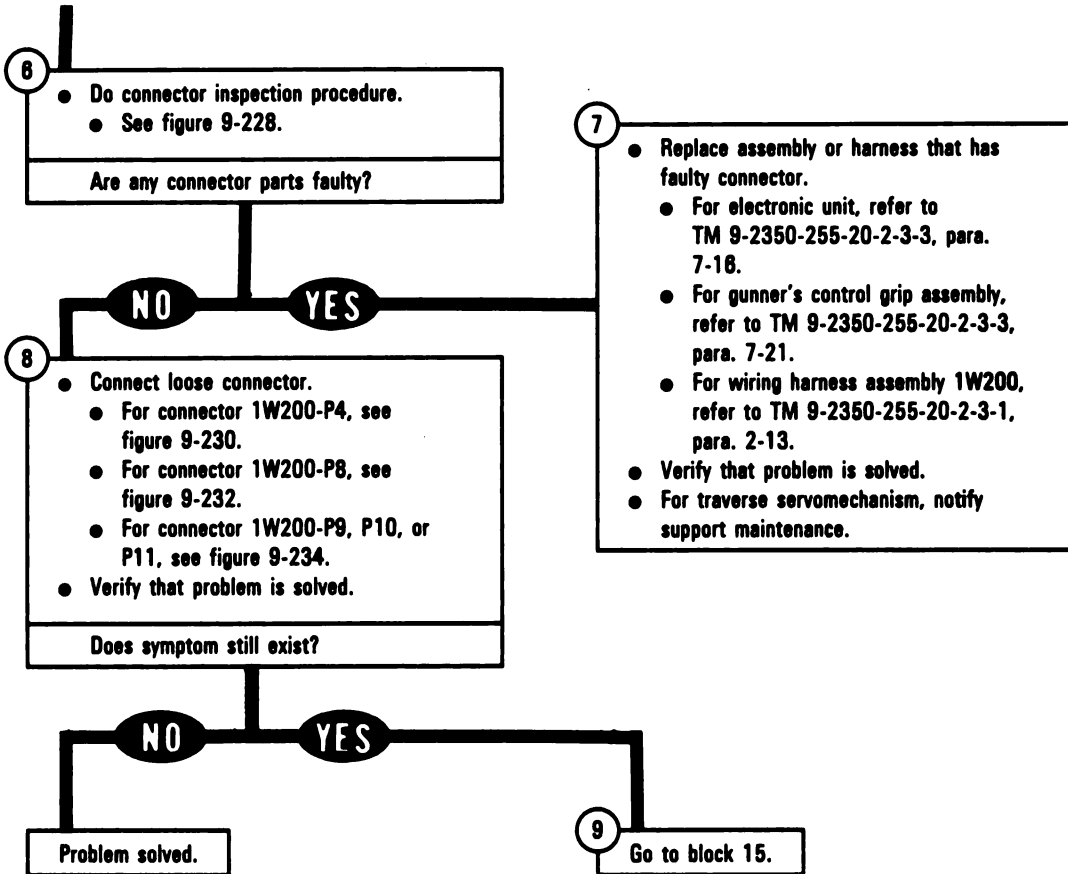
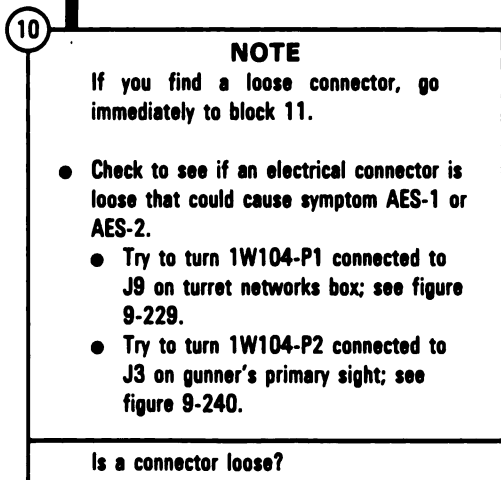


Figure 9-5 (Sheet 2 of 39)
Volume II
Para. 9-3

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**



From block 4



*Figure 9-5 (Sheet 3 of 39)
Volume II
Para. 9-3*

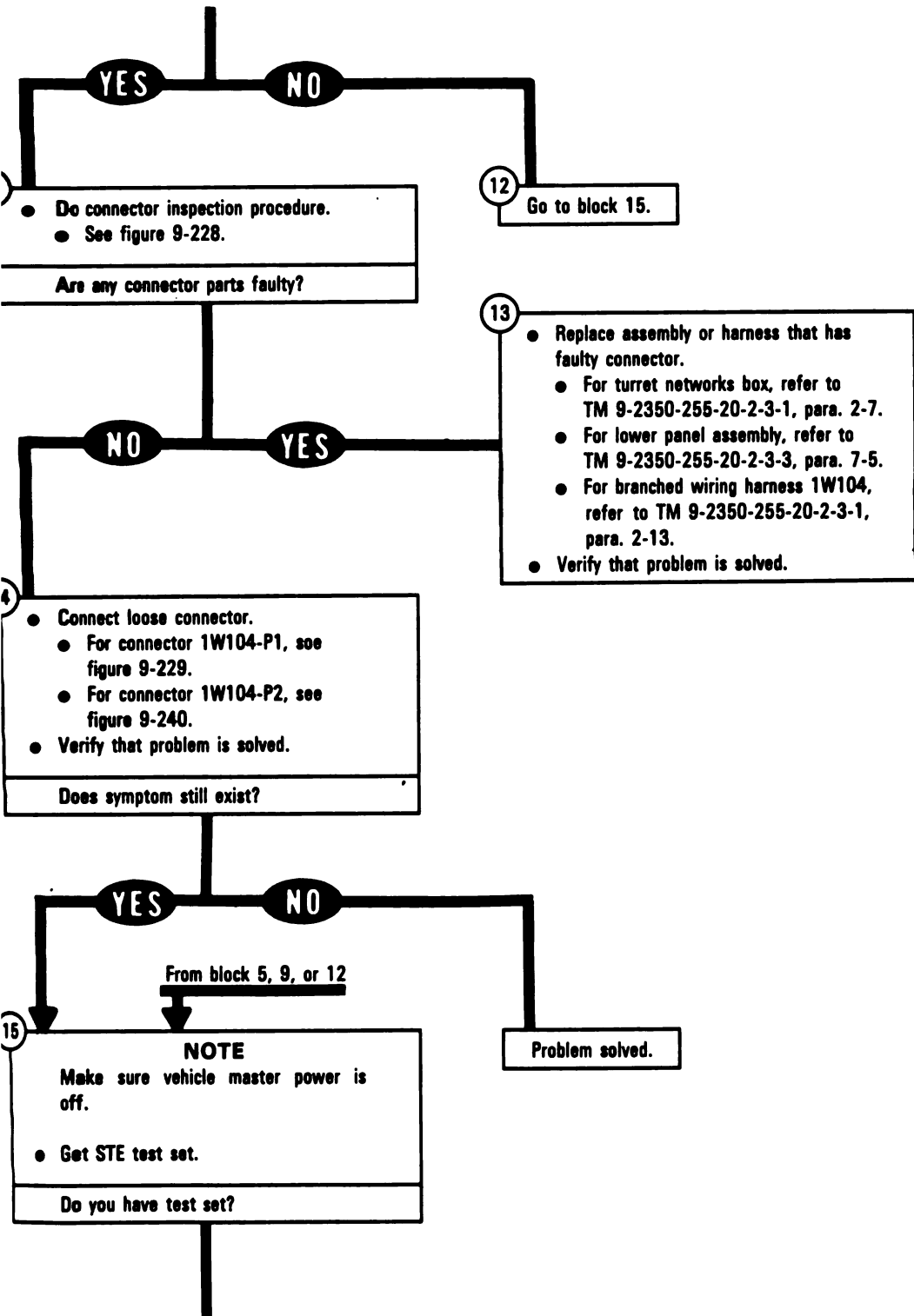


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**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

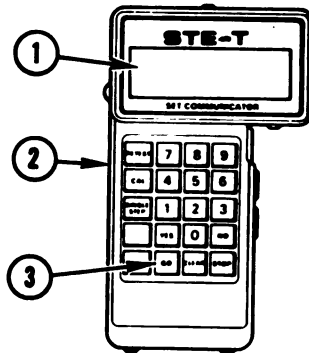
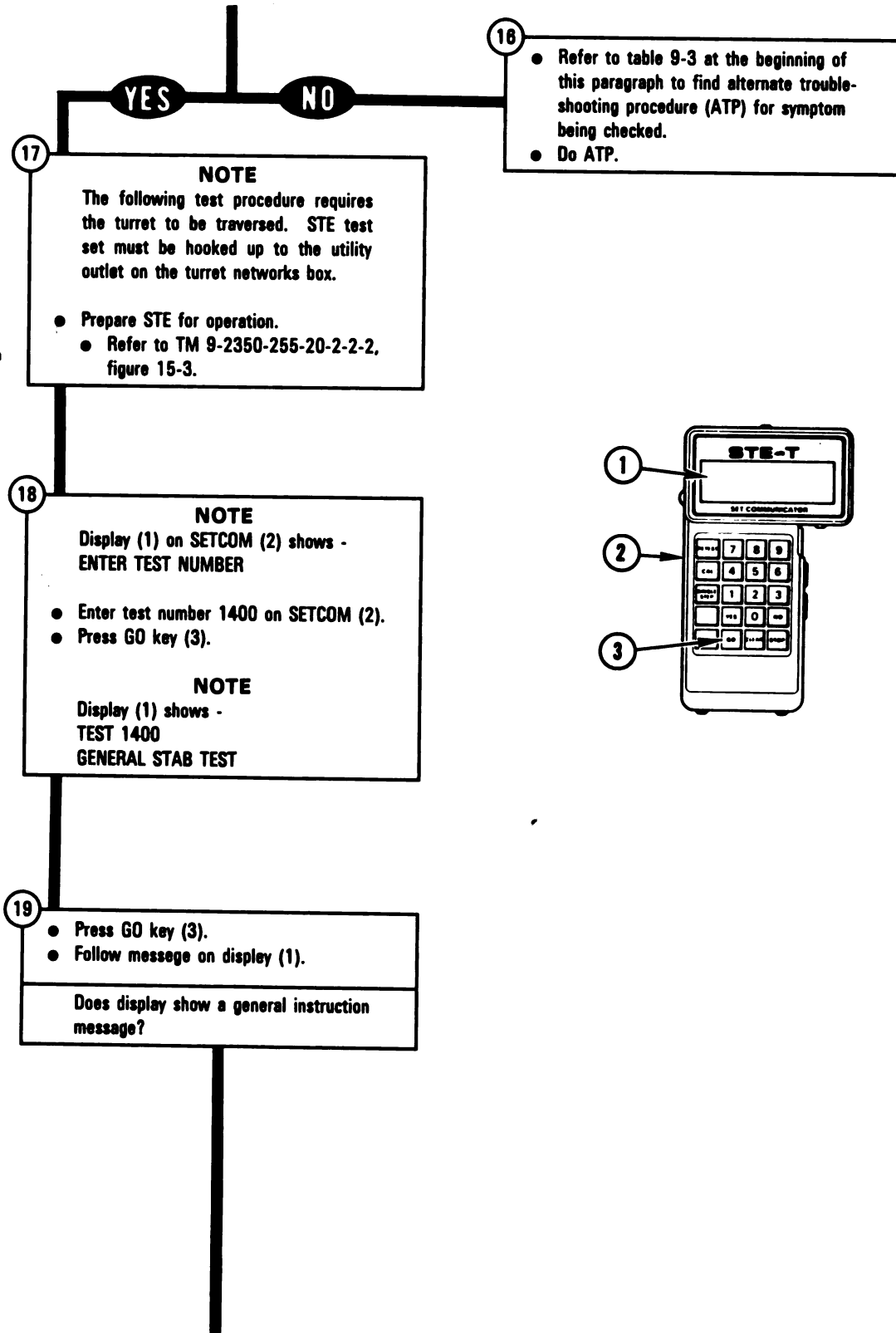


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ARR82-6328

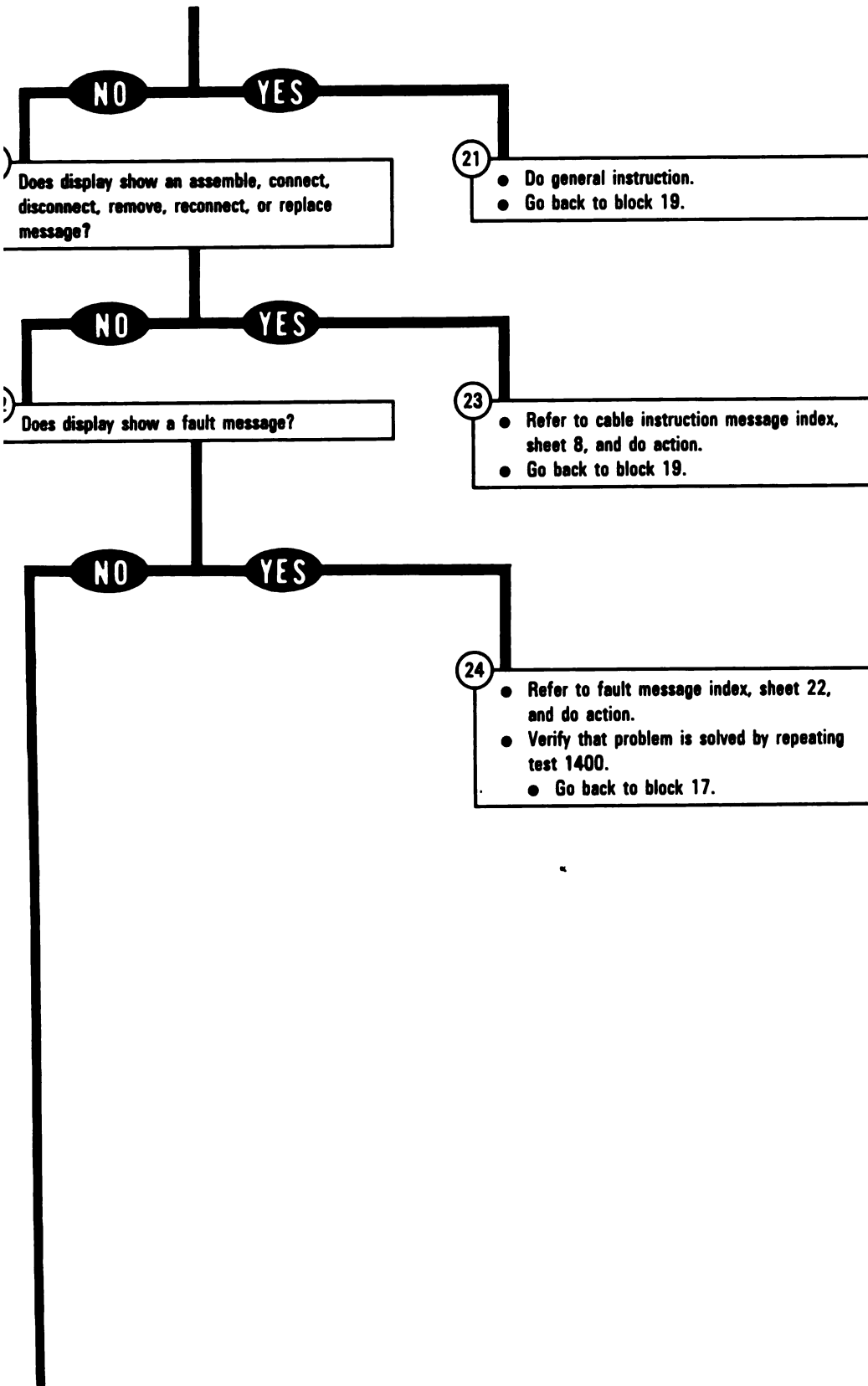


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**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

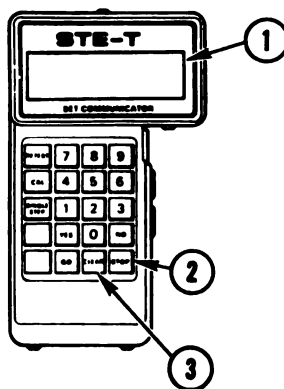
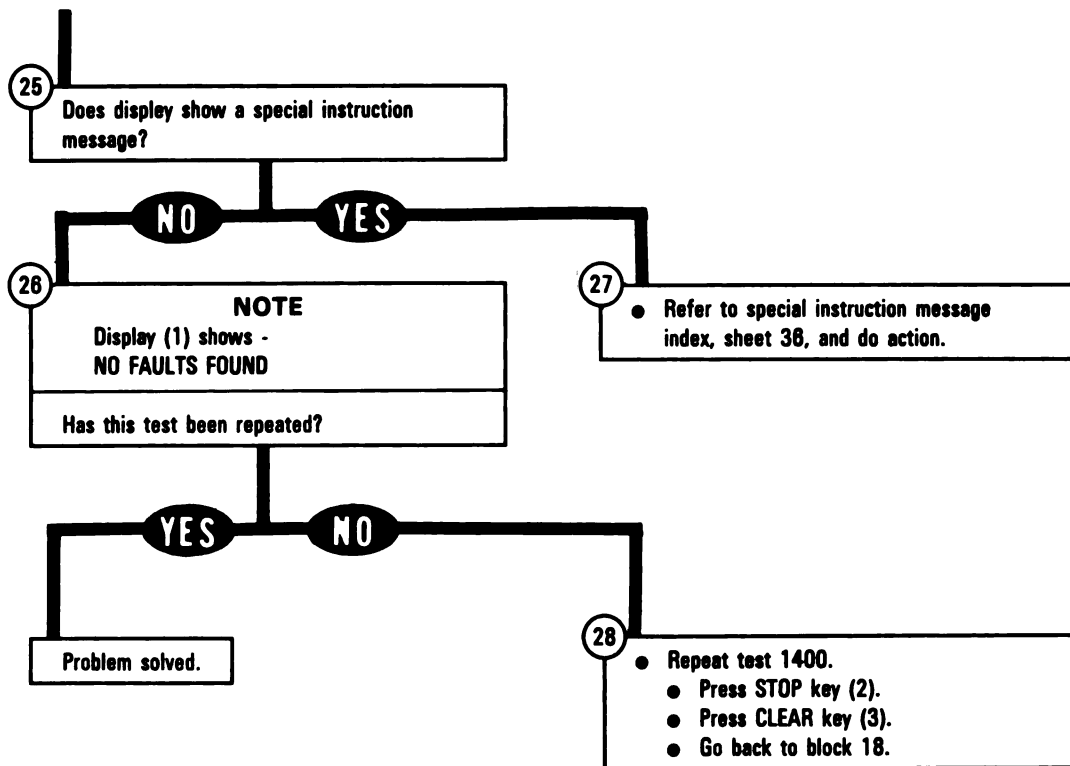


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ARR82-5698

Azimuth/Elevation Subsystem Cable Instruction Message Index

Cable Instruction Message	Action
SEMBLE CX304, 307 AND CA419	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX304 to P3 on DBA CX307. ● Connect P2 on adapter CA419 to P1 on DBA CX307. ● See figure 9-11.
SEMBLE CX304, 307 AND CA421	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX304 to P3 on DBA CX307. ● Connect P2 on adapter CA421 to P2 on DBA CX307. ● See figure 9-27.
SEMBLE CX304, 307 AND CA505	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX304 to P3 on DBA CX307. ● Connect P2 on adapter CA505 to P1 on DBA CX307. ● See figure 9-17.
SEMBLE CX304, 307 AND CA515	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX304 to P3 on DBA CX307. ● Connect P2 on adapter CA515 to P1 on DBA CX307. ● See figure 9-29.
SEMBLE CX304, 307 AND CA515/16	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX304 to P3 on DBA CX307. ● Connect P2 on adapter CA515 to P1 on DBA CX307. ● Connect P2 on adapter CA516 to P2 on DBA CX307. ● See figure 9-29.
SEMBLE CX304, 307 AND CA527	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX304 to P3 on DBA CX307. ● Connect P2 on adapter CA527 to P1 on DBA CX307. ● See figure 9-7.
SEMBLE CX304, 308 AND CA535/36	<ul style="list-style-type: none"> ● Connect P1 on CIB cable to P3 on DBA CX308. ● Connect P2 on adapter CA535 to P1 on DBA CX308. ● Connect P2 on adapter CA536 to P2 on DBA CX308. ● See figure 9-18.
SEMBLE CX304, 308 AND CA537	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX304 to P3 on DBA CX308. ● Connect P2 on adapter CA537 to P2 on DBA CX308. ● See figure 9-9.
SEMBLE CX305, 307 AND CA417	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX305 to P3 on DBA CX307. ● Connect P2 on adapter CA417 to P2 on DBA CX307. ● See figure 9-13.
SEMBLE CX305, 307 AND CA417/18	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX305 to P3 on DBA CX307. ● Connect P2 on adapter CA418 to P1 on DBA CX307. ● Connect P2 on adapter CA417 to P2 on DBA CX307. ● See figure 9-13.
SEMBLE CX305, 307 AND CA419	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX305 to P3 on DBA CX307. ● Connect P2 on adapter CA419 to P1 on DBA CX307. ● See figure 9-11.

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HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

Azimuth/Elevation Subsystem Cable Instruction Message Index (Continued)

Cable Instruction Message	Action
ASSEMBLE CX305, CX307 AND CA419/20	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX305 to P3 on DBA CX307. ● Connect P2 on adapter CA419 to P1 on DBA CX307. ● Connect P2 on adapter CA420 to P2 on DBA CX307. ● See figure 9-11.
ASSEMBLE CX305, CX307 AND CA501/02	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX305 to P3 on DBA CX307. ● Connect P2 on adapter CA501 to P2 on DBA CX307. ● Connect P2 on adapter CA502 to P1 on DBA CX307. ● See figure 9-28.
ASSEMBLE CX305, CX307 AND CA503/04	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX305 to P3 on DBA CX307. ● Connect P2 on adapter CA503 to P1 on DBA CX307. ● Connect P2 on adapter CA504 to P2 on DBA CX307. ● See figure 9-8.
ASSEMBLE CX305, CX307 AND CA504	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX305 to P3 on DBA CX307. ● Connect P2 on adapter CA504 to P2 on DBA CX307. ● See figure 9-8.
ASSEMBLE CX305, CX307 AND CA505	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX305 to P3 on DBA CX307. ● Connect P2 on adapter CA505 to P1 on DBA CX307. ● See figure 9-17.
ASSEMBLE CX305, CX307 AND CA505/06	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX305 to P3 on DBA CX307. ● Connect P2 on adapter CA505 to P1 on DBA CX307. ● Connect P2 on adapter CA506 to P2 on DBA CX307. ● See figure 9-17.
ASSEMBLE CX305, CX307 AND CA506	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX305 to P3 on DBA CX307. ● Connect P2 on adapter CA506 to P2 on DBA CX307. ● See figure 9-17.
ASSEMBLE CX305, CX307 AND CA511	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX305 to P3 on DBA CX307. ● Connect P2 on adapter CA511 to P2 on DBA CX307. ● See figure 9-24.
ASSEMBLE CX305, CX307 AND CA511/12	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX305 to P3 on DBA CX307. ● Connect P2 on adapter CA511 to P2 on DBA CX307. ● Connect P2 on adapter CA512 to P1 on DBA CX307. ● See figure 9-24.
ASSEMBLE CX305, CX307 AND CA512	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX305 to P3 on DBA CX307. ● Connect P2 on adapter CA512 to P1 on DBA CX307. ● See figure 9-24.
ASSEMBLE CX305, CX307 AND CA515	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX305 to P3 on DBA CX307. ● Connect P2 on adapter CA515 to P1 on DBA CX307. ● See figure 9-29.

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Azimuth/Elevation Subsystem Cable Instruction Message Index (Continued)

Cable Instruction Message	Action
SEMBLE CX305, 307 AND CA515/16	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX305 to P3 on DBA CX307. ● Connect P2 on adapter CA515 to P1 on DBA CX307. ● Connect P2 on adapter CA516 to P2 on DBA CX307. ● See figure 9-29.
SEMBLE CX305, 307 AND CA518	<ul style="list-style-type: none"> ● Connect P1 on CIB cable to P3 on DBA CX307. ● Connect P2 on adapter CA518 to P2 on DBA CX307. ● See figure 9-30.
SEMBLE CX305, 307 AND CA519	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX305 to P3 on DBA CX307. ● Connect P2 on adapter CA519 to P1 on DBA CX307. ● See figure 9-16.
SEMBLE CX305, 307 AND CA519/20	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX305 to P3 on DBA CX307. ● Connect P2 on adapter CA519 to P1 on DBA CX307. ● Connect P2 on adapter CA520 to P2 on DBA CX307. ● See figure 9-16.
SEMBLE CX305, 307 AND CA520	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX305 to P3 on DBA CX307. ● Connect P2 on adapter CA520 to P2 on DBA CX307. ● See figure 9-16.
SEMBLE CX305, 307 AND CA521/22	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX305 to P3 on DBA CX307. ● Connect P2 on adapter CA521 to P1 on DBA CX307. ● Connect P2 on adapter CA522 to P2 on DBA CX307. ● See figure 9-31.
SEMBLE CX305, 307 AND CA523	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX305 to P3 on DBA CX307. ● Connect P2 on adapter CA523 to P2 on DBA CX307. ● See figure 9-23.
SEMBLE CX305, 307 AND CA523/24	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX305 to P3 on DBA CX307. ● Connect P2 on adapter CA523 to P2 on DBA CX307. ● Connect P2 on adapter CA524 to P1 on DBA CX307. ● See figure 9-23.
SEMBLE CX305, 307 AND CA524	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX305 to P3 on DBA CX307. ● Connect P2 on adapter CA524 to P1 on DBA CX307. ● See figure 9-23.
SEMBLE CX305, 307 AND CA527/28	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX305 to P3 on DBA CX307. ● Connect P2 on adapter CA527 to P1 on DBA CX307. ● Connect P2 on adapter CA528 to P2 on DBA CX307. ● See figure 9-7.
SEMBLE CX305, 308 AND CA535	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX305 to P3 on DBA CX308. ● Connect P2 on adapter CA535 to P1 on DBA CX308. ● See figure 9-18.

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HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

Azimuth/Elevation Subsystem Cable Instruction Message Index (Continued)

Cable instruction Message	Action
ASSEMBLE CX305, CX308 AND CA535/36	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX305 to P3 on DBA CX308. ● Connect P2 on adapter CA535 to P1 on DBA CX308. ● Connect P2 on adapter CA536 to P2 on DBA CX308. ● See figure 9-18.
ASSEMBLE CX305, CX308 AND CA536	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX305 to P3 on DBA CX308. ● Connect P2 on adapter CA536 to P2 on DBA CX308. ● See figure 9-18.
ASSEMBLE CX305, CX308 AND CA541	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX305 to P3 on DBA CX308. ● Connect P2 on adapter CA541 to P1 on DBA CX308. ● See figure 9-34.
ASSEMBLE CX305, CX308 AND CA557/58	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX305 to P3 on DBA CX308. ● Connect P2 on adapter CA557 to P1 on DBA CX308. ● Connect P2 on adapter CA558 to P2 on DBA CX308. ● See figure 9-22.
CONNECT CIB J2 TO TNB TJ2 (CA206)	<ul style="list-style-type: none"> ● Connect P1 on adapter CA206 to TEST 2 on turret networks box. ● Connect P1 on CIB cable CX304 to P2 on adapter CA206. ● See figure 9-33. ● Connect P2 on CIB cable CX304 to CIB-J2. ● See figure 9-32.
CONNECT CX205 <- -> CIB J1	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX205 to CIB-J1. ● See figure 9-6.
CONNECT CX205 TO CIB AND TANK	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX205 to CIB-J1. ● Connect P2 on CIB cable CX205 to CIB-J2. ● Connect P3 on CIB cable CX205 to CIB-J3. ● Connect P4 on CIB cable CX205 to TEST 1 on turret networks box. ● Connect P5 on CIB cable CX205 to TEST 2 on turret networks box. ● Connect P6 on CIB cable CX205 to J4 on gunner's primary sight. ● Connect P7 on CIB cable CX205 to J3 on line-of-sight electronics unit. ● Connect P8 on CIB cable CX205 to J4 on electronic unit. ● See figure 9-6.
CONNECT CX304 P2 TO CIB J1	<ul style="list-style-type: none"> ● Connect P2 on CIB cable CX304 to CIB-J1. ● See figure 9-32.
CONNECT CX304 P2 TO CIB J2	<ul style="list-style-type: none"> ● Connect P2 on CIB cable CX304 to CIB-J2. ● See figure 9-32.

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Azimuth/Elevation Subsystem Cable Instruction Message Index (Continued)

Cable Instruction Message	Action
CONNECT CX305 P2 TO J1	<ul style="list-style-type: none"> ● Connect P2 on CIB cable CX305 to CIB-J1. ● See figure 9-32.
CONNECT CX305 P2 TO J2	<ul style="list-style-type: none"> ● Connect P2 on CIB cable CX305 to CIB-J2. ● See figure 9-32.
CONNECT DBA BETWEEN 104 <--> GPS J3	<ul style="list-style-type: none"> ● Connect P1 on adapter CA512 to J3 on gunner's primary sight. ● Connect 1W104-P2 to P1 on adapter CA511. ● See figure 9-26.
CONNECT DBA BETWEEN 106 <--> LP J1	<ul style="list-style-type: none"> ● Connect P1 on adapter CA536 to J1 on loader's panel. ● Connect 1W106-P2 to P1 on adapter CA535. ● See figure 9-21.
CONNECT DBA BETWEEN 106 <--> TNB J2	<ul style="list-style-type: none"> ● Connect P1 on adapter CA519 to J2 on turret networks box. ● Connect 1W106-P1 to P1 on adapter CA520. ● See figure 9-14.
CONNECT DBA BETWEEN 107 <--> TNB J4	<ul style="list-style-type: none"> ● Connect P1 on adapter CA521 to J4 on turret networks box. ● Connect 1W107-P1 to P1 on adapter CA522. ● See figure 9-31.
CONNECT DBA BETWEEN 107 <--> ZDESW	<ul style="list-style-type: none"> ● Connect P1 on adapter CA557 to 1W107-J2 ● Connect zero degree elevation switch (1S242)-P1 to P1 on adapter CA558. ● See figure 9-22.
CONNECT DBA BETWEEN 1200 <--> GCH J1	<ul style="list-style-type: none"> ● Connect P1 on adapter CA536 to J1 on gunner's control. ● Connect 1W200-P8 to P1 on adapter CA535. ● See figure 9-19.
CONNECT DBA BETWEEN 1200 <--> GTD J3	<ul style="list-style-type: none"> ● Connect P1 on adapter CA516 to J3 on electronic unit. ● Connect 1W200-P4 to P1 on adapter CA515. ● See figure 9-29.
CONNECT DBA BETWEEN 1200 <--> TCH J1	<ul style="list-style-type: none"> ● Connect P1 on adapter CA536 to J1 on commander's control. ● Connect 1W200-P7 to P1 on adapter CA535. ● See figure 9-20.
CONNECT DBA BETWEEN 1200 <--> TNB J5	<ul style="list-style-type: none"> ● Connect P1 on adapter CA503 to J5 on turret networks box. ● Connect 1W200-P1 to P1 on adapter CA504. ● See figure 9-8.

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Azimuth/Elevation Subsystem Cable Instruction Message Index (Continued)

Cable Instruction Message	Action
CONNECT DBA BETWEEN 1W201 <- -> CEU J1	<ul style="list-style-type: none"> ● Connect P1 on adapter CA420 to J1 on computer electronics unit. ● Connect 1W201-P2 to P1 on adapter CA419. ● See figure 9-10.
CONNECT DBA BETWEEN 1W201 <- -> TNB J6	<ul style="list-style-type: none"> ● Connect P1 on adapter CA501 to J6 on turret networks box. ● Connect 1W201-P1 to P1 on adapter CA502. ● See figure 9-28.
CONNECT DBA BETWEEN 1W202 <- -> LOS J1	<ul style="list-style-type: none"> ● Connect P1 on adapter CA418 to J1 on line-of-sight electronics unit. ● Connect 1W202-P3 to P1 on adapter CA417. ● See figure 9-13.
CONNECT DBA BETWEEN 1W202 <- -> TNB J7	<ul style="list-style-type: none"> ● Connect P1 on adapter CA505 to J7 on turret networks box. ● Connect 1W202-P1 to P1 on adapter CA506. ● See figure 9-17.
CONNECT DBA BETWEEN 1W203 <- -> TNB J3	<ul style="list-style-type: none"> ● Connect P1 on adapter CA527 to J3 on turret networks box. ● Connect 1W203-P1 to P1 on adapter CA528. ● See figure 9-7.
CONNECT DBA BETWEEN 1W206 <- -> LOS J2	<ul style="list-style-type: none"> ● Connect P1 on adapter CA519 to J2 on line-of-sight electronics unit. ● Connect 1W206-P1 to P1 on adapter CA520. ● See figure 9-15.
CONNECT DBA TO CEU J2	<ul style="list-style-type: none"> ● Connect P1 on adapter CA512 to J2 on computer electronics unit. ● See figure 9-25.
CONNECT DBA TO GCH J1	<ul style="list-style-type: none"> ● Connect P1 on adapter CA536 to J1 on gunner's control. ● See figure 9-19.
CONNECT DBA TO GPS J3	<ul style="list-style-type: none"> ● Connect P1 on adapter CA512 to J3 on gunner's primary sight. ● See figure 9-26.
CONNECT DBA TO GTD J2	<ul style="list-style-type: none"> ● Connect P1 on adapter CA524 to J2 on electronic unit. ● See figure 9-23.
CONNECT DBA TO GTD J3	<ul style="list-style-type: none"> ● Connect P1 on adapter CA516 to J3 on electronic unit. ● See figure 9-29.
CONNECT DBA TO LOS J2	<ul style="list-style-type: none"> ● Connect P1 on adapter CA519 to J2 on line-of-sight electronics unit. ● See figure 9-15.

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Azimuth/Elevation Subsystem Cable Instruction Message Index (Continued)

Cable Instruction Message	Action
CONNECT DBA TO J3	<ul style="list-style-type: none"> ● Connect P1 on adapter CA527 to J3 on turret networks box. ● See figure 9-7.
CONNECT DBA TO J5	<ul style="list-style-type: none"> ● Connect P1 on adapter CA503 to J5 on turret networks box. ● See figure 9-8.
CONNECT DBA TO J7	<ul style="list-style-type: none"> ● Connect P1 on adapter CA505 to J7 on turret networks box. ● See figure 9-17.
CONNECT DBA TO 104 P1	<ul style="list-style-type: none"> ● Connect 1W104-P1 to P1 on adapter CA518. ● See figure 9-30.
CONNECT DBA TO 104 P2	<ul style="list-style-type: none"> ● Connect 1W104-P2 to P1 on adapter CA511. ● See figure 9-26.
CONNECT DBA TO 106 P1	<ul style="list-style-type: none"> ● Connect 1W106-P1 to P1 on adapter CA520. ● See figure 9-14.
CONNECT DBA TO 200	<ul style="list-style-type: none"> ● If 1W200-P3 was disconnected, connect P3 to P1 on adapter CA523. ● See figure 9-23. ● If 1W200-P4 was disconnected, connect P4 to P1 on adapter CA515. ● See figure 9-29.
CONNECT DBA TO 200 P1	<ul style="list-style-type: none"> ● Connect 1W200-P1 to P1 on adapter CA504. ● See figure 9-8.
CONNECT DBA TO 200 P3	<ul style="list-style-type: none"> ● Connect 1W200-P3 to P1 on adapter CA523. ● See figure 9-23.
CONNECT DBA TO 200 P4	<ul style="list-style-type: none"> ● Connect 1W200-P4 to P1 on adapter CA515. ● See figure 9-29.
CONNECT DBA TO 200 P5	<ul style="list-style-type: none"> ● Connect 1W200-P5 to P1 on adapter CA541. ● See figure 9-36.
CONNECT DBA TO 200 P7	<ul style="list-style-type: none"> ● Connect 1W200-P7 to P1 on adapter CA535. ● See figure 9-20.
CONNECT DBA TO 200 P8	<ul style="list-style-type: none"> ● Connect 1W200-P8 to P1 on adapter CA535. ● See figure 9-19.

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Azimuth/Elevation Subsystem Cable Instruction Message Index (Continued)

Cable Instruction Message	Action
CONNECT DBA TO 1W201	<ul style="list-style-type: none"> ● Connect 1W201-P2 to P1 on adapter CA419. ● See figure 9-10.
CONNECT DBA TO 1W202 P1	<ul style="list-style-type: none"> ● Connect 1W202-P1 to P1 on adapter CA506. ● See figure 9-17.
CONNECT DBA TO 1W202 P2	<ul style="list-style-type: none"> ● Connect 1W202-P2 to P1 on adapter CA511. ● See figure 9-25.
CONNECT DBA TO 1W202 P3	<ul style="list-style-type: none"> ● Connect 1W202-P3 to P1 on adapter CA417. ● See figure 9-13.
CONNECT DBA TO 1W203 P1	<ul style="list-style-type: none"> ● Connect 1W203-P1 to P1 on adapter CA528. ● See figure 9-7.
CONNECT DBA TO 1W203 P2	<ul style="list-style-type: none"> ● Connect 1W203-P2 to P1 on adapter CA421. ● See figure 9-27.
CONNECT DBA TO 1W206 P2	<ul style="list-style-type: none"> ● Connect 1W206-P2 to P1 on adapter CA419. ● See figure 9-12.
CONNECT DBA TO 1W206 P3	<ul style="list-style-type: none"> ● Connect 1W206-P3 to P1 on adapter CA537. ● See figure 9-9.
CONNECT DBA TO 2W109	<ul style="list-style-type: none"> ● Connect 2W109-P2 to P1 on adapter CA541. ● See figure 9-35.
DISCONNECT CA515, CONNECT CA503	<ul style="list-style-type: none"> ● Disconnect P2 on adapter CA515 from P1 on DBA CX307. ● See figure 9-29. ● Connect P2 on adapter CA503 to P1 on DBA CX307. ● See figure 9-8.
DISCONNECT CX205 <- -> CIB J1	<ul style="list-style-type: none"> ● Disconnect P1 on CIB cable CX205 from CIB-J1. ● See figure 9-6.
DISCONNECT CX205 <- -> CIB J2	<ul style="list-style-type: none"> ● Disconnect P2 on CIB cable CX205 from CIB-J2. ● See figure 9-6.
DISCONNECT CX307 <- -> CA521/22	<ul style="list-style-type: none"> ● Disconnect P2 on adapter CA521 from P1 on DBA CX307. ● Disconnect P2 on adapter CA522 from P2 on DBA CX307. ● See figure 9-31.

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Azimuth/Elevation Subsystem Cable Instruction Message Index (Continued)

Cable Instruction Message	Action
CONNECT DBA FROM J1 AND TNB J3	<ul style="list-style-type: none"> ● Disconnect P2 on CIB cable CX305 from CIB-J1. ● See figure 9-32. ● Disconnect P1 on adapter CA527 from J3 on turret networks box. ● See figure 9-7.
CONNECT DBA FROM J2	<ul style="list-style-type: none"> ● Disconnect P2 on CIB cable CX305 from CIB-J1. ● See figure 9-32.
CONNECT DBA FROM J2	<ul style="list-style-type: none"> ● Disconnect P1 on adapter CA524 from J2 on electronic unit. ● See figure 9-23.
CONNECT DBA FROM J3	<ul style="list-style-type: none"> ● Disconnect P1 on adapter CA516 from J3 on electronic unit. ● See figure 9-29.
CONNECT DBA FROM J107 ← -> TNB J4	<ul style="list-style-type: none"> ● Disconnect P1 on adapter CA521 from J4 on turret networks box. ● Disconnect 1W107-P1 from P1 on adapter CA522. ● See figure 9-31.
CONNECT DBA FROM J200	<ul style="list-style-type: none"> ● Disconnect 1W200-P4 from P1 on adapter CA515. ● See figure 9-29.
CONNECT DBA FROM J200 P1	<ul style="list-style-type: none"> ● Disconnect 1W200-P1 from P1 on adapter CA504. ● See figure 9-8.
CONNECT DBA FROM J200 P4 AND CIB J1	<ul style="list-style-type: none"> ● Disconnect P2 on adapter CA515 from P1 on DBA CX307. ● Disconnect 1W200-P4 from P1 on adapter CA515. ● See figure 9-29. ● Disconnect P2 on CIB cable CX305 from CIB-J1. ● See figure 9-32.
CONNECT DBA FROM J202 P1	<ul style="list-style-type: none"> ● Disconnect 1W202-P1 from P1 on adapter CA506. ● See figure 9-17.
CONNECT DBA FROM J203 ← -> TNB J3	<ul style="list-style-type: none"> ● Disconnect P1 on adapter CA527 from J3 on turret networks box. ● Disconnect 1W203-P1 from P1 on adapter CA528. ● See figure 9-7.
CONNECT DBA FROM J203 P1	<ul style="list-style-type: none"> ● Disconnect 1W203-P1 from P1 on adapter CA528. ● See figure 9-7.
CONNECT DBA FROM J206 P2	<ul style="list-style-type: none"> ● Disconnect 1W206-P2 from P1 on adapter CA419. ● See figure 9-12.

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**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

Azimuth/Elevation Subsystem Cable Instruction Message Index (Continued)

Cable Instruction Message	Action
DISCONNECT 1W103 <--> VLOW J1	<ul style="list-style-type: none"> ● Disconnect 1W103-P2 from J1 on fan assembly. ● See figure 9-236.
DISCONNECT 1W104 <--> GPS J3	<ul style="list-style-type: none"> ● Disconnect 1W104-P2 from J3 on gunner's primary sight. ● See figure 9-240.
DISCONNECT 1W104 <--> TNB J9	<ul style="list-style-type: none"> ● Disconnect 1W104-P1 from J9 on turret networks box. ● See figure 9-229.
DISCONNECT 1W104 <--> TRVMC J1	<ul style="list-style-type: none"> ● Disconnect 1W104-P3 from J1 on traversing mechanism. ● See figure 9-235.
DISCONNECT 1W106 <--> LP J1	<ul style="list-style-type: none"> ● Disconnect 1W106-P2 from J1 on loader's panel. ● See figure 9-236.
DISCONNECT 1W106 <--> TNB J2	<ul style="list-style-type: none"> ● Disconnect 1W106-P1 from J2 on turret networks box. ● See figure 9-229.
DISCONNECT 1W107 <--> TNB J4	<ul style="list-style-type: none"> ● Disconnect 1W107-P1 from J4 on turret networks box. ● See figure 9-229.
DISCONNECT 1W107 <--> ZDESW	<ul style="list-style-type: none"> ● Disconnect zero degree elevation switch (1S242)-P1 from 1W107-J2. ● See figure 9-237.
DISCONNECT 1W200 <--> ELSVO J1	<ul style="list-style-type: none"> ● Disconnect 1W200-P12 from J1 on elevation servomechanism. ● See figure 9-239.
DISCONNECT 1W200 <--> ELSVO J2	<ul style="list-style-type: none"> ● Disconnect 1W200-P13 from J2 on elevation servomechanism. ● See figure 9-239.
DISCONNECT 1W200 <--> ELSVO J3	<ul style="list-style-type: none"> ● Disconnect 1W200-P14 from J3 on elevation servomechanism. ● See figure 9-239.
DISCONNECT 1W200 <--> GCH J1	<ul style="list-style-type: none"> ● Disconnect 1W200-P8 from J1 on gunner's control. ● See figure 9-232.
DISCONNECT 1W200 <--> GGYRO J1	<ul style="list-style-type: none"> ● Disconnect 1W200-P5 from J1 on reference gyroscope. ● See figure 9-237.
DISCONNECT 1W200 <--> GTD J1	<ul style="list-style-type: none"> ● Disconnect 1W200-P2 from J1 on electronic unit. ● See figure 9-230.

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Azimuth/Elevation Subsystem Cable Instruction Message Index (Continued)

Cable Instruction Message	Action
DISCONNECT 1W200 ←→ GTD J2	<ul style="list-style-type: none"> ● Disconnect 1W200-P3 from J2 on electronic unit. ● See figure 9-230.
DISCONNECT 1W200 ←→ GTD J3	<ul style="list-style-type: none"> ● Disconnect 1W200-P4 from J3 on electronic unit. ● See figure 9-230.
DISCONNECT 1W200 ←→ TCH J1	<ul style="list-style-type: none"> ● Disconnect 1W200-P7 from J1 on commander's control. ● See figure 9-232.
DISCONNECT 1W200 ←→ TNB J5	<ul style="list-style-type: none"> ● Disconnect 1W200-P1 from J5 on turret networks box. ● See figure 9-229.
DISCONNECT 1W200 ←→ TRVSV J1	<ul style="list-style-type: none"> ● Disconnect 1W200-P9 from J1 on traverse servomechanism. ● See figure 9-234.
DISCONNECT 1W200 ←→ TRVSV J2	<ul style="list-style-type: none"> ● Disconnect 1W200-P10 from J2 on traverse servomechanism. ● See figure 9-234.
DISCONNECT 1W200 ←→ TRVSV J3	<ul style="list-style-type: none"> ● Disconnect 1W200-P11 from J3 on traverse servomechanism. ● See figure 9-234.
DISCONNECT 1W201 ←→ CEU J1	<ul style="list-style-type: none"> ● Disconnect 1W201-P2 from J1 on computer electronics unit. ● See figure 9-230.
DISCONNECT 1W201 ←→ TNB J6	<ul style="list-style-type: none"> ● Disconnect 1W201-P1 from J6 on turret networks box. ● See figure 9-229.
DISCONNECT 1W202 ←→ CEU J2	<ul style="list-style-type: none"> ● Disconnect 1W202-P2 from J2 on computer electronics unit. ● See figure 9-230.
DISCONNECT 1W202 ←→ LOS J1	<ul style="list-style-type: none"> ● Disconnect 1W202-P3 from J1 on line-of-sight electronics unit. ● See figure 9-238.
DISCONNECT 1W202 ←→ TNB J7	<ul style="list-style-type: none"> ● Disconnect 1W202-P1 from J7 on turret networks box. ● See figure 9-229.
DISCONNECT 1W203 ←→ GPS J1	<ul style="list-style-type: none"> ● Disconnect 1W203-P2 from J1 on gunner's primary sight. ● See figure 9-240.
DISCONNECT 1W203 ←→ TNB J3	<ul style="list-style-type: none"> ● Disconnect 1W203-P1 from J3 on turret networks box. ● See figure 9-229.
DISCONNECT 1W204 ←→ CEU J3	<ul style="list-style-type: none"> ● Disconnect 1W204-P1 from J3 on computer electronics unit. ● See figure 9-230.

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**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
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Azimuth/Elevation Subsystem Cable Instruction Message Index (Continued)

Cable Instruction Message	Action
DISCONNECT 1W206 ←-→ DBA	<ul style="list-style-type: none"> ● Disconnect 1W206-P1 from P1 on adapter CA520. ● See figure 9-15.
DISCONNECT 1W206 ←-→ GPS J2	<ul style="list-style-type: none"> ● Disconnect 1W206-P2 from J2 on gunner's primary sight. ● See figure 9-240.
DISCONNECT 1W206 ←-→ LOS J2	<ul style="list-style-type: none"> ● Disconnect 1W206-P1 from J2 on line-of-sight electronics unit. ● See figure 9-238.
DISCONNECT 1W206 P3 ←-→ 1W207 J1	<ul style="list-style-type: none"> ● Disconnect 1W206-P3 from 1W207-J1. ● See figure 9-234.
DISCONNECT 2W109 ←-→ HYGRO	<ul style="list-style-type: none"> ● Disconnect 2W109-P2 from J1 on hull gyroscope. ● See figure 9-239.
RECONNECT CX205 ←-→ CIB J1	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX205 to CIB-J1. ● See figure 9-6.
RECONNECT CX205 ←-→ CIB J2 OR RECONNECT CX205 TO CIB J2	<ul style="list-style-type: none"> ● Connect P2 on CIB cable CX205 to CIB-J2. ● See figure 9-6.
RECONNECT DBA TO CIB J2	<ul style="list-style-type: none"> ● Connect P2 on CIB cable CX305 to CIB-J2. ● See figure 9-32.
RECONNECT 1W103 ←-→ VBLOW J1	<ul style="list-style-type: none"> ● Connect 1W103-P2 to J1 on fan assembly. ● See figure 9-236.
RECONNECT 1W104 ←-→ TNB J9	<ul style="list-style-type: none"> ● Connect 1W104-P1 to J9 on turret networks box. ● See figure 9-229.
RECONNECT 1W107 ←-→ TNB J4	<ul style="list-style-type: none"> ● Connect 1W107-P1 to J4 on turret networks box. ● See figure 9-229.
RECONNECT 1W200 ←-→ ELSVO J1	<ul style="list-style-type: none"> ● Connect 1W200-P12 to J1 on elevation servomechanism. ● See figure 9-239.
RECONNECT 1W200 ←-→ ELSVO J2	<ul style="list-style-type: none"> ● Connect 1W200-P13 to J2 on elevation servomechanism. ● See figure 9-239.
RECONNECT 1W200 ←-→ GTD J3	<ul style="list-style-type: none"> ● Connect 1W200-P4 to J3 on electronic unit. ● See figure 9-230.
RECONNECT 1W200 ←-→ TNB J5	<ul style="list-style-type: none"> ● Connect 1W200-P1 to J5 on turret networks box. ● See figure 9-229.

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Azimuth/Elevation Subsystem Cable Instruction Message Index (Continued)

Cable Instruction Message	Action
DISCONNECT 100 ←-→ TRVSV J1	<ul style="list-style-type: none"> ● Connect 1W200-P9 to J1 on traverse servomechanism. ● See figure 9-234.
DISCONNECT 100 ←-→ TRVSV J2	<ul style="list-style-type: none"> ● Connect 1W200-P10 to J2 on traverse servomechanism. ● See figure 9-234.
DISCONNECT 202 ←-→ TNB J7	<ul style="list-style-type: none"> ● Connect 1W202-P1 to J7 on turret networks box. ● See figure 9-229.
DISCONNECT 203 ←-→ TNB J3	<ul style="list-style-type: none"> ● Connect 1W203-P1 to J3 on turret networks box. ● See figure 9-229.
DISCONNECT 206 ←-→ GPS J2	<ul style="list-style-type: none"> ● Connect 1W206-P2 to J2 on gunner's primary sight. ● See figure 9-240.
MOVE CX205 FROM	<ul style="list-style-type: none"> ● Disconnect P1 on CIB cable CX205 from CIB-J1. ● Disconnect P2 on CIB cable CX205 from CIB-J2. ● Disconnect P3 on CIB cable CX205 from CIB-J3. ● See figure 9-6.
MOVE CX205 FROM AND TANK	<ul style="list-style-type: none"> ● Disconnect P1 on CIB cable CX205 from CIB-J1. ● Disconnect P2 on CIB cable CX205 from CIB-J2. ● Disconnect P3 on CIB cable CX205 from CIB-J3. ● Disconnect P4 on CIB cable CX205 from TEST 1 on turret networks box. ● Disconnect P5 on CIB cable CX205 from TEST 2 on turret networks box. ● Disconnect P6 on CIB cable CX205 from J4 on gunner's primary sight. ● Disconnect P7 on CIB cable CX205 from J3 on line-of-sight electronics unit. ● Disconnect P8 on CIB cable CX205 from J4 on electronic unit. ● See figure 9-6.
MOVE CX205 FROM J1	<ul style="list-style-type: none"> ● Disconnect P1 on CIB cable CX205 from CIB-J1. ● See figure 9-6.
MOVE CX205 FROM J1 AND J2	<ul style="list-style-type: none"> ● Disconnect P1 on CIB cable CX205 from CIB-J1. ● Disconnect P2 on CIB cable CX205 from CIB-J2. ● See figure 9-6.
MOVE CX205 FROM J2	<ul style="list-style-type: none"> ● Disconnect P2 on CIB cable CX205 from CIB-J2. ● See figure 9-6.

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**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
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Azimuth/Elevation Subsystem Cable Instruction Message Index (Continued)

Cable Instruction Message	Action
REPLACE CA419 WITH CA515	<ul style="list-style-type: none"> ● Disconnect P2 on adapter CA419 from P1 on DBA CX307. ● See figure 9-11. ● Connect P2 on adapter CA515 to P1 on DBA CX307. ● See figure 9-29.
REPLACE CA419 WITH CA519	<ul style="list-style-type: none"> ● Disconnect P2 on adapter CA419 from P1 on DBA CX307. ● See figure 9-11. ● Connect P2 on adapter CA519 to P1 on DBA CX307. ● See figure 9-15.
REPLACE CA504 WITH CA516	<ul style="list-style-type: none"> ● Disconnect P2 on adapter CA504 from P2 on DBA CX307. ● See figure 9-8. ● Connect P2 on adapter CA516 to P2 on DBA CX307. ● See figure 9-29.
REPLACE CA506 WITH CA504	<ul style="list-style-type: none"> ● Disconnect P2 on adapter CA506 from P2 on DBA CX307. ● See figure 9-17. ● Connect P2 on adapter CA504 to P2 on DBA CX307. ● See figure 9-8.
REPLACE CA516 WITH CA505	<ul style="list-style-type: none"> ● Disconnect P2 on adapter CA516 from P2 on DBA CX307. ● See figure 9-29. ● Connect P2 on adapter CA505 to P1 on DBA CX307. ● See figure 9-17.

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Azimuth/Elevation Subsystem Fault Message Index

Fault Message	Action
.TY AZ TION 141906	<ul style="list-style-type: none"> ● Do follow-on procedure ● See figure 9-154.
.TY BATTERY/ RGING SYS 140014	<ul style="list-style-type: none"> ● Charge batteries. ● Refer to TM 9-2350-255-10. ● Go back to block 17.
LTY CCP 144203 144207 144204 144209 144205 144210 144206 144211	<ul style="list-style-type: none"> ● Replace ballistics control panel. ● Refer to TM 9-2350-255-20-2-3-3, para. 7-15.
LTY CCP OR 02 140246	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 9-44.
LTY CEU 140209 142129 140216 142308 140220 142314 140258 142316 140468 142457 142126 142472	<ul style="list-style-type: none"> ● Replace computer electronics unit. ● Refer to TM 9-2350-255-20-2-3-3, para. 7-14.
LTY CEU OR) 141161	<ul style="list-style-type: none"> ● Replace computer electronics unit. ● Refer to TM 9-2350-255-20-2-3-3, para. 7-14. ● If problem is not solved, replace gunner's primary sight body assembly. ● Refer to TM 9-2350-255-20-2-3-3, para. 7-5.
LTY CEU OR 201 140567 141025 142475	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 9-89. ● See figure 9-57. ● See figure 9-166.
LTY CEU OR 202 144214	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 9-56.
LTY EL DELTA P 142727	<ul style="list-style-type: none"> ● Elevation servomechanism motional transducer is faulty. Notify support maintenance.
LTY EL DELTA P OR /200 142716	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 9-72.
LTY ELSVO 142411 146065 147050	<ul style="list-style-type: none"> ● Elevation servomechanism is faulty. Notify support maintenance.

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**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
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Azimuth/Elevation Subsystem Fault Message Index (Continued)

Fault Message	Action
FAULTY ELSVO OR HYDRAULICS 141212 141252 141247 147029 141248 147038 147040	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 9-156.
FAULTY ELSVO OR 1W200 141425 147022 147041 147048	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 9-188. ● See figure 9-106. ● See figure 9-138. ● See figure 9-118.
FAULTY GCH 140423 141049 140559 141055 140568 141056 141019 141058 141059	<ul style="list-style-type: none"> ● Replace gunner's control grip assembly. ● Refer to TM 9-2350-255-20-2-3-3, para. 7-21.
FAULTY GCH OR TCH 140415	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 9-77.
FAULTY GCH OR 1W200 140454 140537	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 9-46. ● Replace gunner's control grip assembly. ● Refer to TM 9-2350-255-20-2-3-3, para. 7-21. ● If problem is not solved, replace wiring harness assembly 1W200. ● Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
141003 141016 141045 141051 147009 147010 147011 147012 147043 147046	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 9-47. ● See figure 9-129. ● See figure 9-78. ● See figure 9-131. ● See figure 9-121. ● See figure 9-140. ● See figure 9-121. ● See figure 9-140. ● See figure 9-122. ● See figure 9-141.
FAULTY GGYRO 146028 146053	<ul style="list-style-type: none"> ● Replace reference gyroscope. ● Refer to TM 9-2350-255-20-2-3-3, para. 7-19.

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TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
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Azimuth/Elevation Subsystem Fault Message Index (Continued)

Fault Message	Action
ILTY GPS 140020 140721 142111 140044 140725 142138 140050 140738 142222 140052 141151 142427 140065 141163 142607 140231 141518 142609 140613 141531 142613 140617 141720 142615 140620 141823 144415 140711 142016 146113	<ul style="list-style-type: none"> ● Replace gunner's primary sight body assembly. ● Refer to TM 9-2350-255-20-2-3-3, para. 7-5.
ILTY GPS OR J 142013	<p style="text-align: center;">NOTE</p> <p>Do not turn off test set or turret power until step 1 in follow-on procedure 9-150 is complete.</p> <ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 9-150.
142473	<ul style="list-style-type: none"> ● Replace computer electronics unit. ● Refer to TM 9-2350-255-20-2-3-3, para. 7-14. ● If problem is not solved, replace gunner's primary sight body assembly. ● Refer to TM 9-2350-255-20-2-3-3, para. 7-5.
ILTY GPS OR TNB 142403	<ul style="list-style-type: none"> ● Adjust turret counterrotation scaling. ● Refer to TM 9-2350-255-20-2-3-3, para. 7-5. ● If problem is not solved, replace turret networks box. ● Refer to TM 9-2350-255-20-2-3-1, para. 2-7. ● If problem is not solved, replace gunner's primary sight body assembly. ● Refer to TM 9-2350-255-20-2-3-3, para. 7-5.
ILTY GPS OR W104 140235 141168	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 9-127. ● See figure 9-110.
ILTY GPS OR W203 140033 140112 140123 140217 140222 146114 146115 146119	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 9-75. ● See figure 9-75. ● See figure 9-75. ● See figure 9-75. ● See figure 9-75. ● See figure 9-125. ● See figure 9-125. ● See figure 9-137.

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**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
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Azimuth/Elevation Subsystem Fault Message Index (Continued)

Fault Message	Action
FAULTY GPS OR 1W206 140213 140242 140245 140248 140251 140305 140313 140318 140321 140323 141520 141522 141525 141530 141534 141535	<ul style="list-style-type: none"> ● Do follow-on procedure. <ul style="list-style-type: none"> ● See figure 9-76. ● See figure 9-76. ● See figure 9-39. ● See figure 9-128. ● See figure 9-52. ● See figure 9-42. ● See figure 9-41. ● See figure 9-76. ● See figure 9-108. ● See figure 9-108. ● See figure 9-101. ● See figure 9-76. ● See figure 9-101. ● See figure 9-101. ● See figure 9-126. ● See figure 9-101.
FAULTY GTD 140027 141109 146027 140111 141120 146030 140128 141122 146033 140406 141133 146034 140409 141411 146059 140462 141419 146120 140469 141422 146122 140516 141424 146124 140532 141507 146133 140534 141818 146135 140550 142008 146138 140557 142015 146146 140572 142017 146150 140577 142022 147003 140578 142115 147004 140591 142131 147005 141006 142302 147006 141010 142505 147025 141015 142533 147027 141029 142606 147033 141036 144313 147037 141044 144331 147042 141046 144409 147051 141107 144410	<ul style="list-style-type: none"> ● Replace gun/turret drive electronics unit. <ul style="list-style-type: none"> ● Refer to TM 9-2350-255-20-2-3-3, para. 7-16.

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Azimuth/Elevation Subsystem Fault Message Index (Continued)

Fault Message	Action
ILTY GTD, ELSVO GCH OR	<ul style="list-style-type: none"> ● Replace gunner's control grip assembly. <ul style="list-style-type: none"> ● Refer to TM 9-2350-255-20-2-3-3, para. 7-21. ● If problem is not solved, replace gun/turret drive electronics unit. <ul style="list-style-type: none"> ● Refer to TM 9-2350-255-20-2-3-3, para. 7-16.
ILTY GTD, GCH OR VO	<ul style="list-style-type: none"> ● If problem is not solved, elevation servo is faulty. Notify support maintenance.
ILTY GTD, GCH TRVSV	<ul style="list-style-type: none"> ● Do follow-on procedure. <ul style="list-style-type: none"> ● See figure 9-161.
ILTY GTD, GGYRO OR /200	<ul style="list-style-type: none"> ● Do follow-on procedure. <ul style="list-style-type: none"> ● See figure 9-111.
ILTY GTD OR SVO	<ul style="list-style-type: none"> ● Replace gun/turret drive electronics unit. <ul style="list-style-type: none"> ● Refer to TM 9-2350-255-20-2-3-3, para. 7-16. ● If problem is not solved, elevation servo is faulty. Notify support maintenance.
ILTY GTD OR GCH	<ul style="list-style-type: none"> ● Replace gunner's control grip assembly. <ul style="list-style-type: none"> ● Refer to TM 9-2350-255-20-2-3-3, para. 7-21. ● If problem is not solved, replace gun/turret drive electronics unit. <ul style="list-style-type: none"> ● Refer to TM 9-2350-255-20-2-3-3, para. 7-16.
	<ul style="list-style-type: none"> ● Do follow-on procedure. <ul style="list-style-type: none"> ● See figure 9-136.
ILTY GTD OR GYRO	<ul style="list-style-type: none"> ● Replace hull gyroscope. <ul style="list-style-type: none"> ● Refer to TM 9-2350-255-20-2-3-3, para. 7-19. ● If problem is not solved, replace gun/turret electronics unit. <ul style="list-style-type: none"> ● Refer to TM 9-2350-255-20-2-3-3, para. 7-16.

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**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
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Azimuth/Elevation Subsystem Fault Message Index (Continued)

Fault Message	Action
FAULTY GTD OR TCH	140518 <ul style="list-style-type: none"> ● Replace commander's control assembly. ● Refer to TM 9-2350-255-20-2-3-3, para. 7-22. ● If problem is not solved, replace gun/turret drive electronic unit. ● Refer to TM 9-2350-255-20-2-3-3, para. 7-16.
FAULTY GTD OR TRVSV	141426 142724 <ul style="list-style-type: none"> ● Replace gun/turret drive electronics unit. ● Refer to TM 9-2350-255-20-2-3-3, para. 7-16. ● If problem is not solved, traverse servomechanism is faulty. Notify support maintenance.
FAULTY GTD OR 1W200	<ul style="list-style-type: none"> ● Do follow on procedure. ● See figure 9-79. ● See figure 9-67. ● See figure 9-79. ● See figure 9-79. ● See figure 9-105. ● See figure 9-160. ● See figure 9-160. ● See figure 9-114. ● See figure 9-160. ● See figure 9-79. ● See figure 9-80. ● See figure 9-160. ● See figure 9-142. ● See figure 9-107. ● See figure 9-107. ● See figure 9-163. ● See figure 9-144. ● See figure 9-164. ● See figure 9-163. ● See figure 9-163.
FAULTY GTD, TRVSV OR GCH	147044 <ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 9-161.
FAULTY HGYRO	142520 <ul style="list-style-type: none"> ● Replace hull gyroscope. ● Refer to TM 9-2350-255-20-2-3-3, para. 7-19.

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Azimuth/Elevation Subsystem Fault Message Index (Continued)

Fault Message	Action
JLTY HYDRAULIC PLY 141207 141223	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 9-167.
JLTY LAMP CIRCUIT 140607	<ul style="list-style-type: none"> ● Do test procedure for symptom PLDS-2. ● See figure 8-64.
JLTY LAMP POWER CIRCUIT 140048	<ul style="list-style-type: none"> ● Do test procedure for symptom PLDS-7. ● See figure 8-69.
JLTY LOS 140208 140312 142306 140211 140314 142310 140223 140319 142463 140224 140320 144222 140227 141020 144224 140237 141511 144235 140243 141533 144244 140252 142028 144307 140254 142106 144334 140304 142107 144342 140307 142109 144354 140310 142110 144355 140311 142128	<ul style="list-style-type: none"> ● Replace line-of-sight electronics unit. ● Refer to TM 9-2350-255-20-2-3-3, para. 7-8.
JLTY LOS AND GPS R 1W206 140219 140244 140250 140253 140255	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 9-168.
JLTY LOS, CEU R 1W202 141505 142317	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 9-98. ● See figure 9-92.
JLTY LOS OR W202 140523 141529 142228 142430 144309 144407 144412 147216	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 9-151. ● See figure 9-99. ● See figure 9-146. ● See figure 9-146. ● See figure 9-93. ● See figure 9-148. ● See figure 9-148. ● See figure 9-146.

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**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
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Azimuth/Elevation Subsystem Fault Message Index (Continued)

Fault Message	Action
FAULTY LOS OR 1W206 141141 141521 141526 141527 141528 142141 142143	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 9-171. ● See figure 9-100. ● See figure 9-100. ● See figure 9-100. ● See figure 9-100. ● See figure 9-176. ● See figure 9-176.
FAULTY LP 140061 140623 140624 140631 140637	<ul style="list-style-type: none"> ● Replace loader's panel. ● Refer to TM 9-2350-255-20-2-3-1, para. 2-6.
FAULTY LP OR 1W106 140473 140745 140751 140833 140842	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 9-187. ● See figure 9-49. ● See figure 9-48. ● See figure 9-49. ● See figure 9-49.
FAULTY LRU'S AND CABLES 140104 140105 140106 140207 140453	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 9-95. ● See figure 9-50. ● See figure 9-51. ● See figure 9-53. ● See figure 9-145.
FAULTY MECHANICAL PART 141813 141920 142407 142408 142412	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 9-154. ● See figure 9-154. ● See figure 9-149. ● See figure 9-149. ● Elevating mechanism assembly is faulty. Notify support maintenance.
FAULTY MGSSW, 1W107 OR 1W108 140845	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 9-84.

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**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

Azimuth/Elevation Subsystem Fault Message Index (Continued)

Fault Message	Action
ULTY OR MISALIGNED :SW 140818	<ul style="list-style-type: none"> ● Position main gun over right fuel cap. ● Set TURRET POWER to OFF. ● Shut down engine. ● Reduce hydraulic pressure to zero psi by operating bilge pump. ● Set circuit breaker 17 on turret networks box to OFF. <ul style="list-style-type: none"> ● Refer to TM 9-2350-255-10. ● Change STE power hookup from turret networks box to power distribution box. <ul style="list-style-type: none"> ● See figure 9-37. ● Press TEST button on VTM. ● Press CLEAR key on SETCOM. ● Enter test number 1449 on SETCOM. ● Press GO key on SETCOM. ● Go back to block 19. ● If test 1449 cannot be completed, replace zero degree elevation switch. <ul style="list-style-type: none"> ● Refer to TM 9-2350-255-20-2-3-1, para. 2-14.
ULTY TCH 140525 140579 140583 140529 140580 140589 140533 140582 141008	<ul style="list-style-type: none"> ● Replace commander's control assembly. <ul style="list-style-type: none"> ● Refer to TM 9-2350-255-20-2-3-3, para. 7-22.
ULTY TCH OR V200 140467 140521	<ul style="list-style-type: none"> ● Do follow-on procedure. <ul style="list-style-type: none"> ● See figure 9-102. ● Replace commander's control assembly. <ul style="list-style-type: none"> ● Refer to TM 9-2350-255-20-2-3-3, para. 7-22. ● If problem is not solved, replace wiring harness assembly 1W200. <ul style="list-style-type: none"> ● Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 140545 140571 140573	<ul style="list-style-type: none"> ● Do follow-on procedure. <ul style="list-style-type: none"> ● See figure 9-83. ● See figure 9-83. ● See figure 9-54.
ULTY TEST SET 144305 147104	<ul style="list-style-type: none"> ● Notify support maintenance.

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**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
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Azimuth/Elevation Subsystem Fault Message Index (Continued)

Fault Message	Action	
FAULTY TEU OR 1W202	141136	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 9-170.
FAULTY TGYRO	142532	<ul style="list-style-type: none"> ● Replace feed forward gyroscope. ● Refer to TM 9-2350-255-20-2-3-3, para. 7-19.
FAULTY TGYRO OR 1W200	142517	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 9-174.
FAULTY TNB		<ul style="list-style-type: none"> ● Replace turret networks box. ● Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
140005 140449 140737 142120		
140025 140452 140744 142231		
140026 140455 140752 142232		
140035 140470 140816 142466		
140036 140474 140823 142468		
140039 140509 140824 142469		
140049 140527 140825 142477		
140051 140566 140828 142478		
140116 140585 140829 144308		
140117 140610 140830 144411		
140120 140619 140831 144414		
140121 140622 140834 144416		
140124 140630 140840 146032		
140127 140633 140843 146039		
140221 140641 140844 146040		
140239 140707 140847 146046		
140315 140712 140903 146047		
140317 140713 141033 147205		
140404 140716 141148 147206		
140410 140717 141170 147208		
140420 140718 141824 147209		
140434 140719 141926 147212		
140441 140734 141928 147218		
140444 140736 142014		
FAULTY TNB, CEU OR 1W201	142464	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 9-183.
FAULTY TNB, CEU OR 1W202	141540	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 9-185.
FAULTY TNB, GPS, LOS 1W202/6	141172	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 9-181.
FAULTY TNB, GPS OR 1W104	140465 140615 140710	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 9-132. ● See figure 9-132. ● See figure 9-58.

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Azimuth/Elevation Subsystem Fault Message Index (Continued)

Fault Message	Action
ULTY TNB, GPS 1W203 140110 140422	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 9-43. ● See figure 9-45.
ULTY TNB, GTD 1W200 140114 140407 140425 140431 140437 140540 140548 141132	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 9-169. ● See figure 9-152. ● See figure 9-60. ● See figure 9-82. ● See figure 9-40. ● See figure 9-155. ● See figure 9-147. ● See figure 9-112.
ULTY TNB & GTD 1W200 140417 140429	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 9-59. ● See figure 9-61.
ULTY TNB, HDV OR W104 140442 140443 147213	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 9-64. ● See figure 9-65. ● See figure 9-96.
ULTY TNB, LOS, GPS R 1W202/3 140424	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 9-116.
ULTY TNB, LOS OR W202 140249 140259 140260 142465	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 9-62. ● See figure 9-177. ● See figure 9-177. ● See figure 9-182.
ULTY TNB OR NB & 1W200 140418 140436	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 9-63.
ULTY TNB OR W104 140023 140046 140066 140433 140440 140612 140709 140724 140731 140806 141717	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 9-81. ● See figure 9-81. ● See figure 9-68. ● See figure 9-104. ● See figure 9-74. ● See figure 9-81. ● See figure 9-81. ● See figure 9-81. ● See figure 9-81. ● See figure 9-81. ● See figure 9-55. ● See figure 9-81.

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**TM 9-2350-255-20-2-2-1
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Azimuth/Elevation Subsystem Fault Message Index (Continued)

Fault Message	Action
FAULTY TNB OR 1W104 (Continued)	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 9-81. ● See figure 9-81. ● See figure 9-81. ● See figure 9-134. ● See figure 9-134. ● See figure 9-134. ● See figure 9-165.
FAULTY TNB OR 1W106	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 9-66.
FAULTY TNB OR 1W107	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 9-123. ● See figure 9-179.
FAULTY TNB OR 1W200	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 9-88. ● See figure 9-85. ● See figure 9-73. ● See figure 9-103. ● See figure 9-73. ● See figure 9-85. ● See figure 9-70. ● See figure 9-70. ● See figure 9-142. ● See figure 9-130. ● See figure 9-91. ● See figure 9-143. ● See figure 9-143. ● See figure 9-113. ● See figure 9-159. ● See figure 9-124. ● See figure 9-124. ● See figure 9-135. ● See figure 9-135.
FAULTY TNB OR 1W201	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 9-69. ● See figure 9-69. ● See figure 9-69. ● See figure 9-97. ● See figure 9-178. ● See figure 9-69. ● See figure 9-180. ● See figure 9-69.

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Azimuth/Elevation Subsystem Fault Message Index (Continued)

Fault Message	Action
JLTY TNB OR W202 140212 140214 142127 142130 142142 142460 142461 142462 142470 142471 144353 144356	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 9-86. ● See figure 9-86. ● See figure 9-172. ● See figure 9-158. ● See figure 9-172. ● See figure 9-184. ● See figure 9-184. ● See figure 9-184. ● See figure 9-153. ● See figure 9-153. ● See figure 9-94. ● See figure 9-86.
ULTY TNB OR W203 146112 146128	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 9-175.
ULTY TNB, SRING W1W101 140832 141927	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 9-87.
ULTY TNB, SRING, W101, 2W109 142527 142530	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 9-186.
ULTY TNB, TCP W1W102 140643	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 9-133.
ULTY TNB, TEU OR W202 142011 142019	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 9-109.
ULTY TNB, 1W201 W1W203 141155 141156 141157 141158 141159 141160	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 9-117.
ULTY TRAV MECH W 140041 140042	<ul style="list-style-type: none"> ● Traversing mechanism is faulty. Notify support maintenance.
ULTY TRVMC OR W104 140906	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 9-38.

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**TM 9-2350-255-20-2-2-1
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Azimuth/Elevation Subsystem Fault Message Index (Continued)

Fault Message	Action
FAULTY TRVSV 142726	<ul style="list-style-type: none"> ● Traverse servomechanism is faulty. Notify support maintenance.
FAULTY TRVSV OR HYDRAULICS 141242 141249 141250 141251 147008 147034 147052	<ul style="list-style-type: none"> ● Do follow-on procedure. <ul style="list-style-type: none"> ● See figure 9-157.
FAULTY TRVSV OR MOTOR 141908 141909	<ul style="list-style-type: none"> ● Traverse servomechanism or traversing mechanism is faulty. Notify support maintenance.
FAULTY TRVSV OR 1W200 141428 142715 147017 147039 147045 147049	<ul style="list-style-type: none"> ● Do follow-on procedure. <ul style="list-style-type: none"> ● See figure 9-189. ● See figure 9-90. ● See figure 9-119. ● See figure 9-139. ● See figure 9-120. ● See figure 9-119.
FAULTY VEH/TURRET PWR CNTL 140022 140032 140047	<ul style="list-style-type: none"> ● Run vehicle/turret power distribution test number 1200. <ul style="list-style-type: none"> ● See figure 8-1.
FAULTY ZDESW 146058	<ul style="list-style-type: none"> ● Replace zero degree elevation switch. <ul style="list-style-type: none"> ● Refer to TM 9-2350-255-20-2-3-1, para. 2-14.
FAULTY ZDESW OR 1W107 140803 141174	<ul style="list-style-type: none"> ● Do follow-on procedure. <ul style="list-style-type: none"> ● See figure 9-71. ● See figure 9-115.
FAULTY 1W104 140057 140618 140621	<ul style="list-style-type: none"> ● Replace branched wiring harness 1W104. <ul style="list-style-type: none"> ● Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
FAULTY 1W106 140007 140625 140632	<ul style="list-style-type: none"> ● Replace branched wiring harness 1W106. <ul style="list-style-type: none"> ● Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
FAULTY 1W107 140838 146054 146055	<ul style="list-style-type: none"> ● Replace branched wiring harness 1W107. <ul style="list-style-type: none"> ● Refer to TM 9-2350-255-20-2-3-1, para. 2-13.

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Azimuth/Elevation Subsystem Fault Message Index (Continued)

Fault Message			Action
JLTY 1W200			<ul style="list-style-type: none"> ● Replace wiring harness assembly 1W200. ● Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
140043	142529	148042	
140503	142710	148147	
140554	142711	148148	
141022	144406	148149	
141053	144408	147018	
	148041	147023	
JLTY 1W203		148127	<ul style="list-style-type: none"> ● Replace branched wiring harness 1W203. ● Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
JLTY 1W204		140258	<ul style="list-style-type: none"> ● Replace branched wiring harness 1W204. ● Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
ULTY 1W206		144413	<ul style="list-style-type: none"> ● Replace branched wiring harness 1W206. ● Refer to TM 9-2350-255-20-2-3-1, para. 2-13.

Azimuth/Elevation Subsystem Special Instruction Message Index

Special Instruction Message			Action
ENSURE AZ L/R LAMPS ARE OUT			<ul style="list-style-type: none"> ● If AZ left lamp is on, tap RETICLE ADJUST switch to right with finger until lamp goes out. ● If AZ right lamp is on, tap RETICLE ADJUST switch to left with finger until lamp goes out. ● Go back to block 19.
ENSURE EL U/D LAMPS ARE OUT			<ul style="list-style-type: none"> ● If EL up lamp is on, tap RETICLE ADJUST switch downward with finger until lamp goes out. ● If EL down lamp is on, tap RETICLE ADJUST switch upward with finger until lamp goes out. ● Go back to block 19.
EXCESSIVE FRICTION		148068	<ul style="list-style-type: none"> ● Notify support maintenance that main gun does not move.
REDUCE PANEL LIGHT INTENSITY SET IT TO MAXIMUM			<ul style="list-style-type: none"> ● Set PANEL LIGHTS knob to maximum clockwise position. ● Go back to block 19.

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**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
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Azimuth/Elevation Subsystem Special instruction Message Index (Continued)

Special Instruction Message	Action
<p>PRESS AND RELEASE AMMO SBDS SW ON CCP OR PRESS AND RELEASE TUBE WEAR SW ON CCP</p>	<ul style="list-style-type: none"> ● Loosen two screws and open protective cover over three right side input keys on ballistics control panel. ● Press and release switch indicated on SETCOM display. ● Go back to block 19.
<p>PUSH GO AND ADJUST AZ DRIFT FULL CCW TRY FOR -15 V PUSH GO -XX.XX</p>	<ul style="list-style-type: none"> ● Press GO key on SETCOM. ● Rotate AZ NORMAL MODE DRIFT knob counterclockwise until second line on SETCOM display shows between -13.00 and -17.00. ● Go back to block 19.
<p>PUSH GO AND ADJUST AZ DRIFT FULL CW TRY FOR +15 V PUSH GO XX.XX</p>	<ul style="list-style-type: none"> ● Press GO key on SETCOM. ● Rotate AZ NORMAL MODE DRIFT knob clockwise until second line on SETCOM display shows between 13.00 and 17.00. ● Go back to block 19.
<p>PUSH GO AND ADJUST EL DRIFT FULL CCW TRY FOR -15 V PUSH GO -XX.XX</p>	<ul style="list-style-type: none"> ● Press GO key on SETCOM. ● Rotate EL NORMAL MODE DRIFT knob counterclockwise until second line on SETCOM display shows between -13.00 and -17.00. ● Go back to block 19.
<p>PUSH GO AND ADJUST EL DRIFT FULL CW TRY FOR +15 V PUSH GO XX.XX</p>	<ul style="list-style-type: none"> ● Press GO key on SETCOM. ● Rotate EL NORMAL MODE DRIFT knob clockwise until second line on SETCOM display shows between 13.00 and 17.00. ● Go back to block 19.
<p>PUSH GO THEN PIVOT TURN 45 DEGS</p>	<ul style="list-style-type: none"> ● This test must be repeated three times. ● Press GO key on SETCOM before each 45 degree pivot turn. ● Go back to block 19.
<p>SEE -20 MANUAL</p>	<p>140514 ● Do follow-on procedure. ● See figure 9-173.</p>
	<p>141541 ● Replace line-of-sight electronics unit. ● Refer to TM 9-2350-255-20-2-3-3, para. 7-8. ● Verify that problem is solved. ● If problem still exists, notify support maintenance that gun trunnion resolver or branched wiring harness 1W207 is faulty.</p>

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Azimuth/Elevation Subsystem Special Instruction Message Index (Continued)

Special Instruction Message	Action
<p>-20 MANUAL tinued)</p>	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 9-162.
<p>141929</p>	
<p>142318</p>	<ul style="list-style-type: none"> ● Run ammo lamps circuit test number 1438. ● Press CLEAR key on SETCOM. ● Go to TM 9-2350-255-20-2-2-2, figure 10-37, block 48.
<p>142444 142446 142448</p>	<ul style="list-style-type: none"> ● Test set found a computer system problem and will automatically enter computer test 1430. Go to TM 9-2350-255-20-2-2-2, figure 10-37, block 14.
<p>144208 144212 144216</p>	<ul style="list-style-type: none"> ● Do computer system test for symptom CS-15. ● Refer to TM 9-2350-255-20-2-2-2, figure 10-37.
<p>1445XX</p>	<p>NOTE</p> <p>Test 1400 may have to be repeated because this test requires special attention to the position of tank controls that may have been held when this message was displayed. The controls must remain held until told to release them in the follow-on procedure.</p>
<p>02 06 07 08 09 10 11</p>	<ul style="list-style-type: none"> ● If the controls have been released, repeat test 1400. ● Press STOP key on SETCOM. ● Press CLEAR key on SETCOM. ● Go back to block 18. ● If controls are being held, or if none were being held when message was displayed, do follow-on procedure. ● Refer to TM 9-2350-255-20-2-2-2, figure 10-90. ● Refer to TM 9-2350-255-20-2-2-2, figure 10-91. ● Refer to TM 9-2350-255-20-2-2-2, figure 10-92. ● Refer to TM 9-2350-255-20-2-2-2, figure 10-93. ● Refer to TM 9-2350-255-20-2-2-2, figure 10-94. ● Refer to TM 9-2350-255-20-2-2-2, figure 10-95. ● Refer to TM 9-2350-255-20-2-2-2, figure 10-96.
<p>144901 144917</p>	<ul style="list-style-type: none"> ● Adjustment test cannot be performed until problem with main gun is corrected. ● Go back to block 17.

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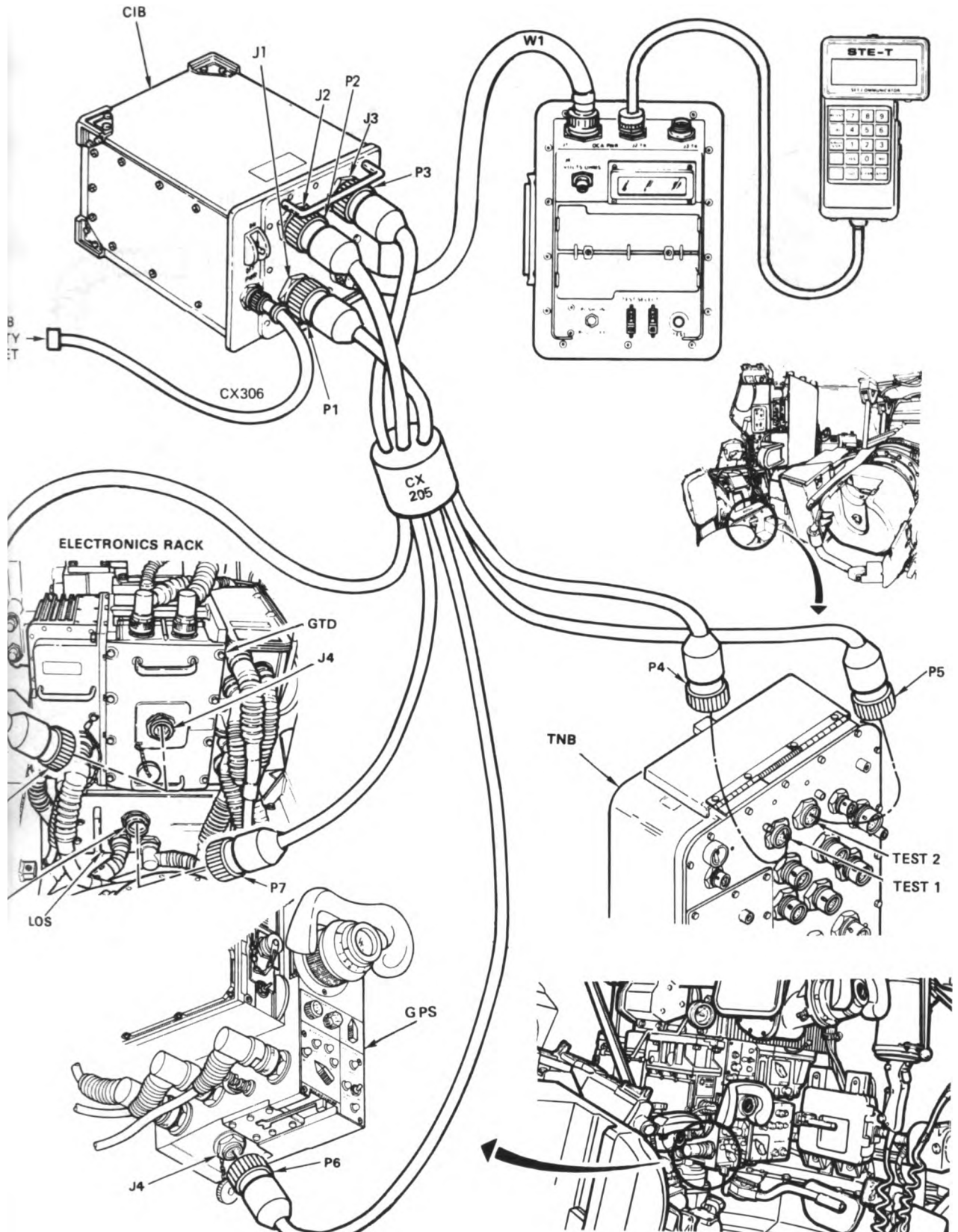
**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

Azimuth/Elevation Subsystem Special Instruction Message Index (Continued)

Special Instruction Message	Action
SEE -20 MANUAL (continued)	<ul style="list-style-type: none"> ● Position main gun over right rear fuel cap. ● Set TURRET POWER to OFF. ● Shut down engine. ● Reduce hydraulic pressure to zero psi by operating bilge pump. ● Set circuit breaker 17 on turret networks box to OFF. <ul style="list-style-type: none"> ● Refer to TM 9-2350-255-10. ● Change STE power hookup from turret networks box to power distribution box. <ul style="list-style-type: none"> ● See figure 9-37. ● Press TEST button on VTM. ● Press CLEAR key on SETCOM. ● Enter test number 1449 on SETCOM. ● Press GO key on SETCOM. ● Go back to block 19.
	<ul style="list-style-type: none"> ● Run auto self test number 1210. <ul style="list-style-type: none"> ● Refer to TM 9-2350-255-20-2-2-2, para. 10-2.
	<ul style="list-style-type: none"> ● Do follow-on procedure.
	<ul style="list-style-type: none"> ● See figure 9-190.
	<ul style="list-style-type: none"> ● See figure 9-191.
SYSTEM ERROR	<ul style="list-style-type: none"> ● Run STE self test number 666. <ul style="list-style-type: none"> ● Refer to TM 9-2350-255-20-2-2-2, figure 15-3, block 19. ● Repeat general stab test number 1400. ● Press STOP key on SETCOM. ● Press CLEAR key on SETCOM. ● Go back to block 18. ● If same error message appears on SETCOM display, test set is faulty. Notify support maintenance.

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HYDRAULIC AND GUN/TURRET DRIVE
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**Figure 9-6. STE Turret Cable Hookup Between CIB And Tank
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**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

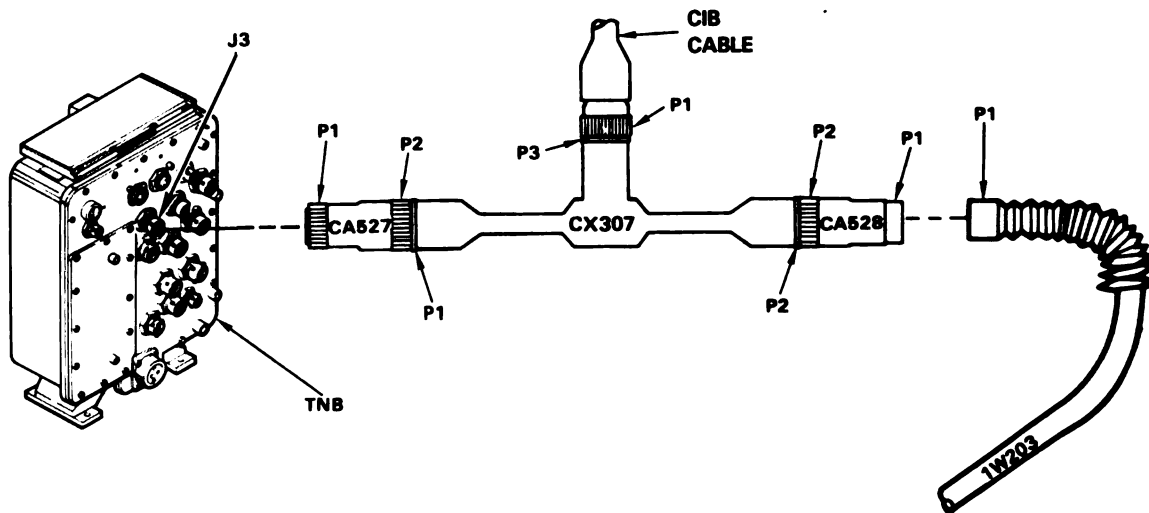


Figure 9-7. STE Turret Cable Hookup Between TNB-J3 And 1W203-P1

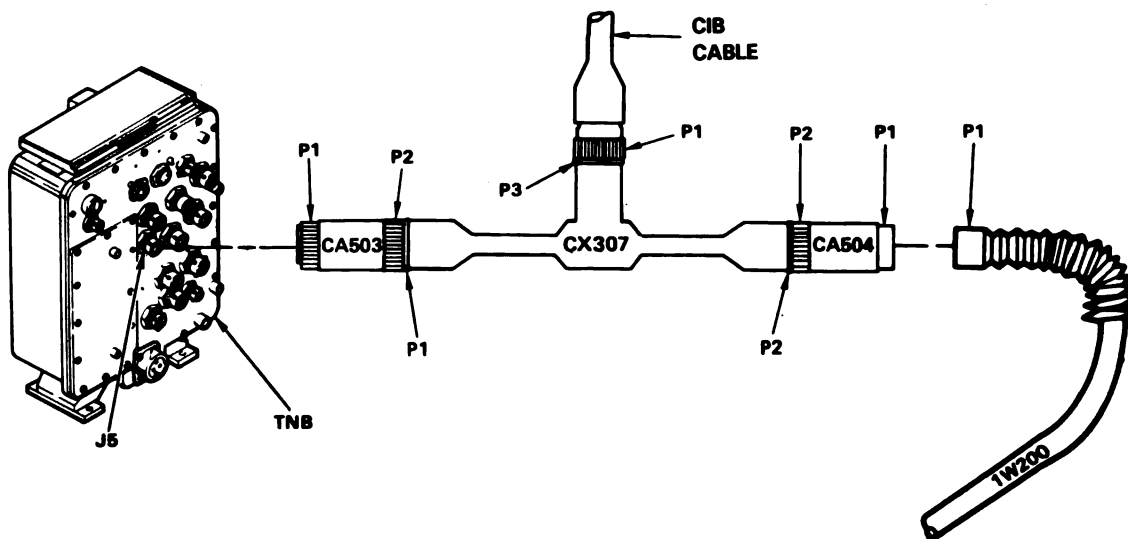


Figure 9-8. STE Turret Cable Hookup Between TNB-J5 And 1W200-P1
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ARR82-5700

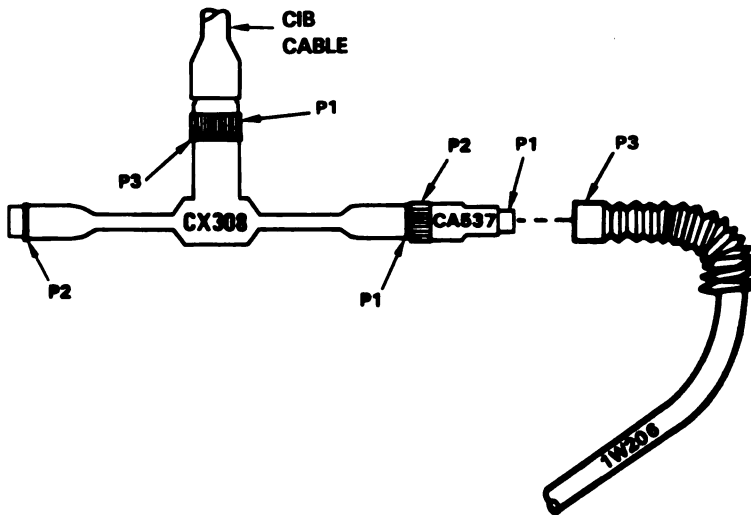


Figure 9-9. STE Turret Cable Hookup To 1W206-P3

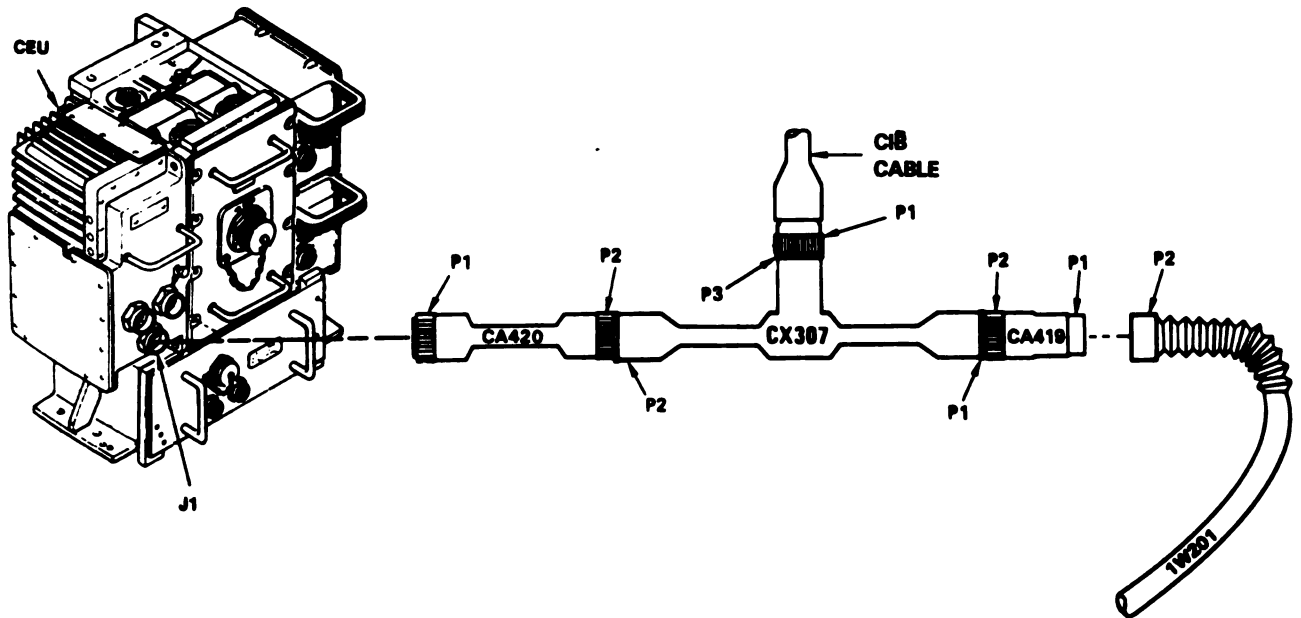


Figure 9-10. STE Turret Cable Hookup Between CEU-J1 And 1W201-P2
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ARR82-5701

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

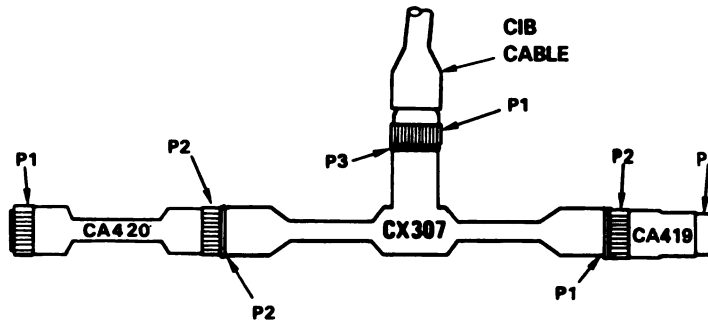


Figure 9-11. STE Turret Cable Hookup To DBA And Adapters CA419/20

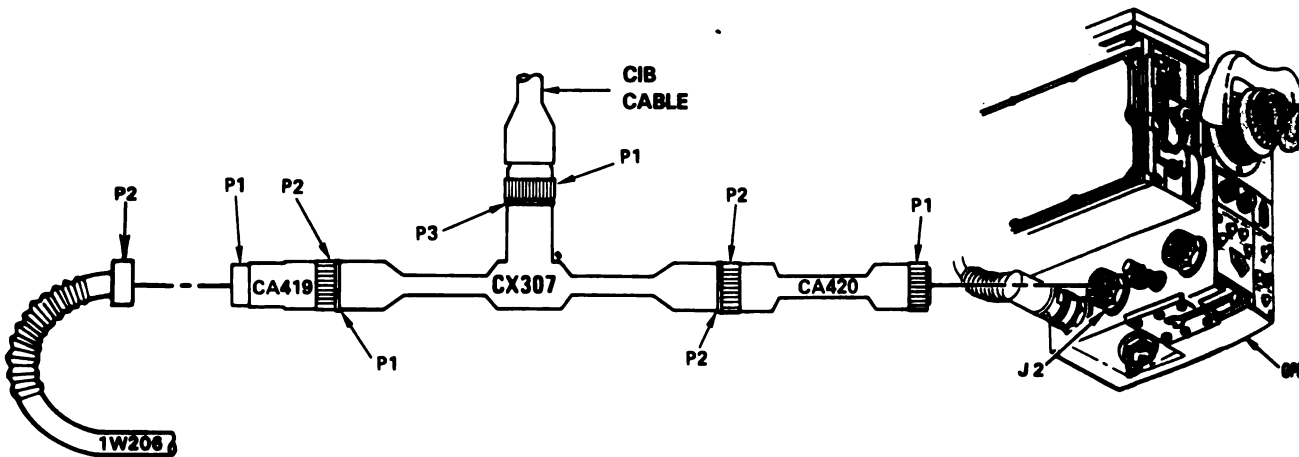


Figure 9-12. STE Turret Cable Hookup Between GPS-J2 And 1W206-P2
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ARR82-5702

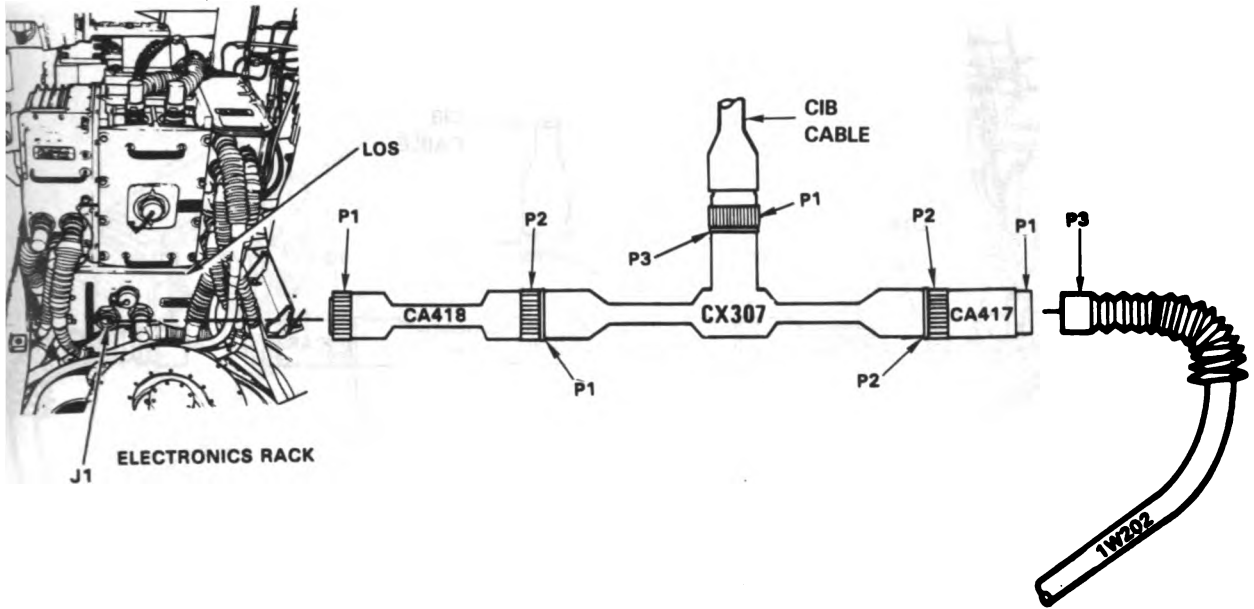


Figure 9-13. STE Turret Cable Hookup Between LOS-J1 And 1W202-P3

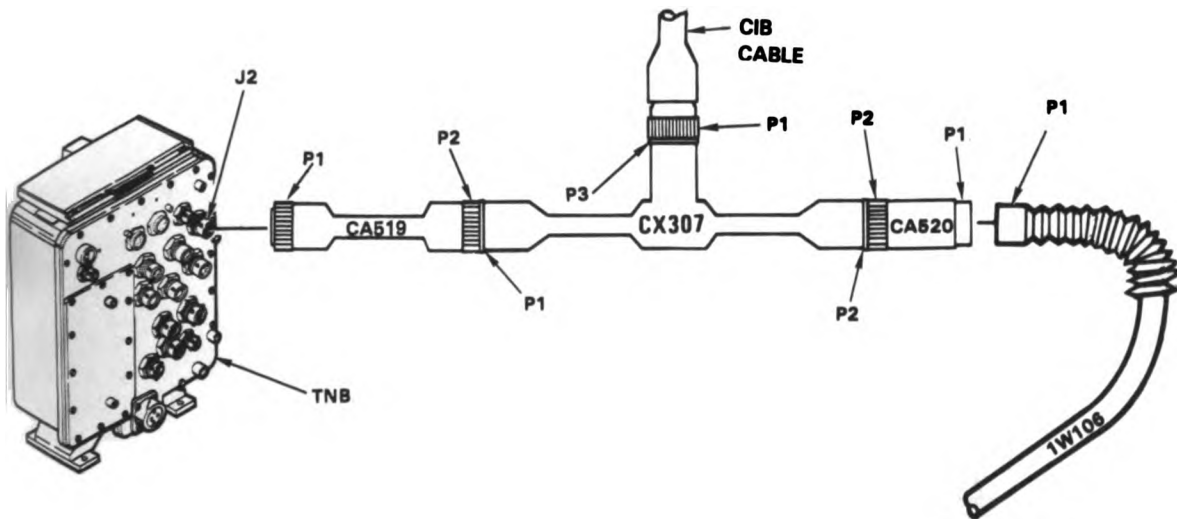


Figure 9-14. STE Turret Cable Hookup Between TNB-J2 And 1W106-P1

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**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
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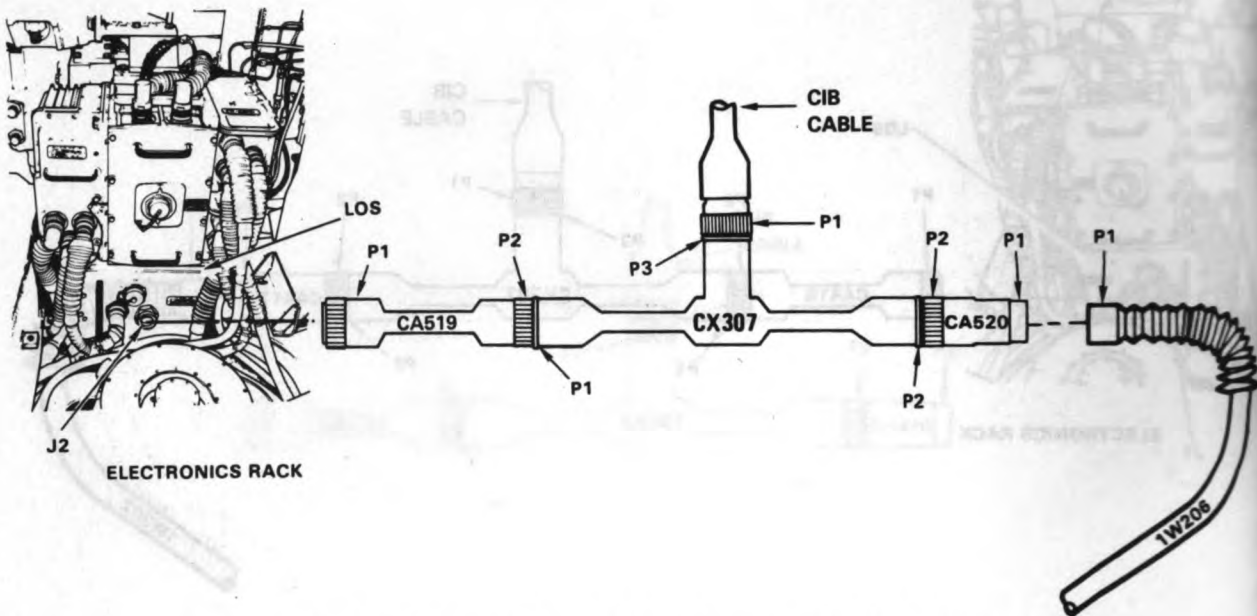


Figure 9-15. STE Turret Cable Hookup Between LOS-J2 And 1W206-P1

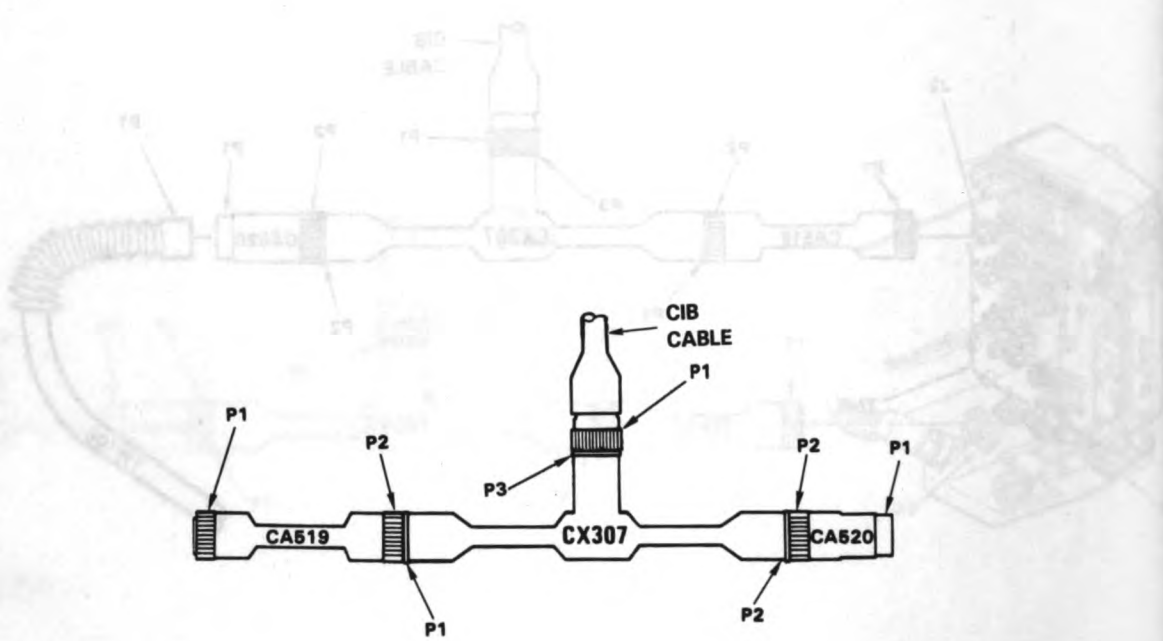


Figure 9-16. STE Turret Cable Hookup To DBA And Adapters CA519/20
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ARR82-5704

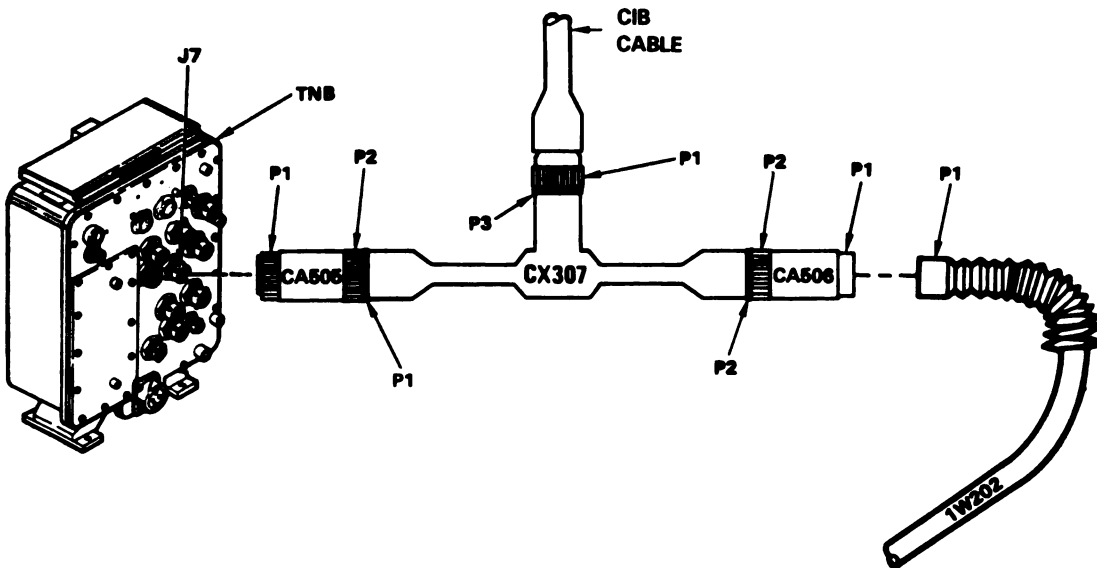


Figure 9-17. STE Turret Cable Hookup Between TNB-J7 And 1W202-P1

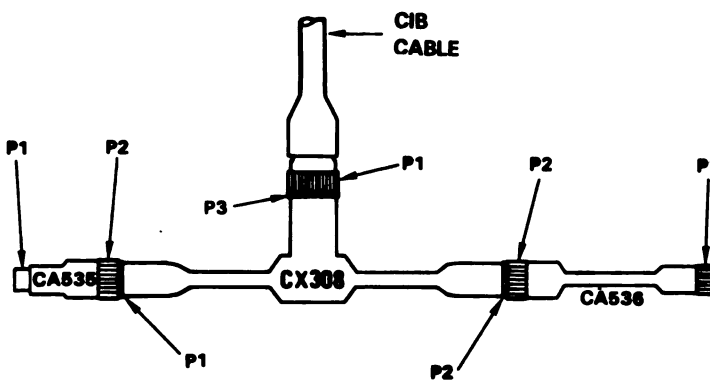


Figure 9-18. STE Turret Cable Hookup To DBA And Adapters CA535/36
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ARR82-5705

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

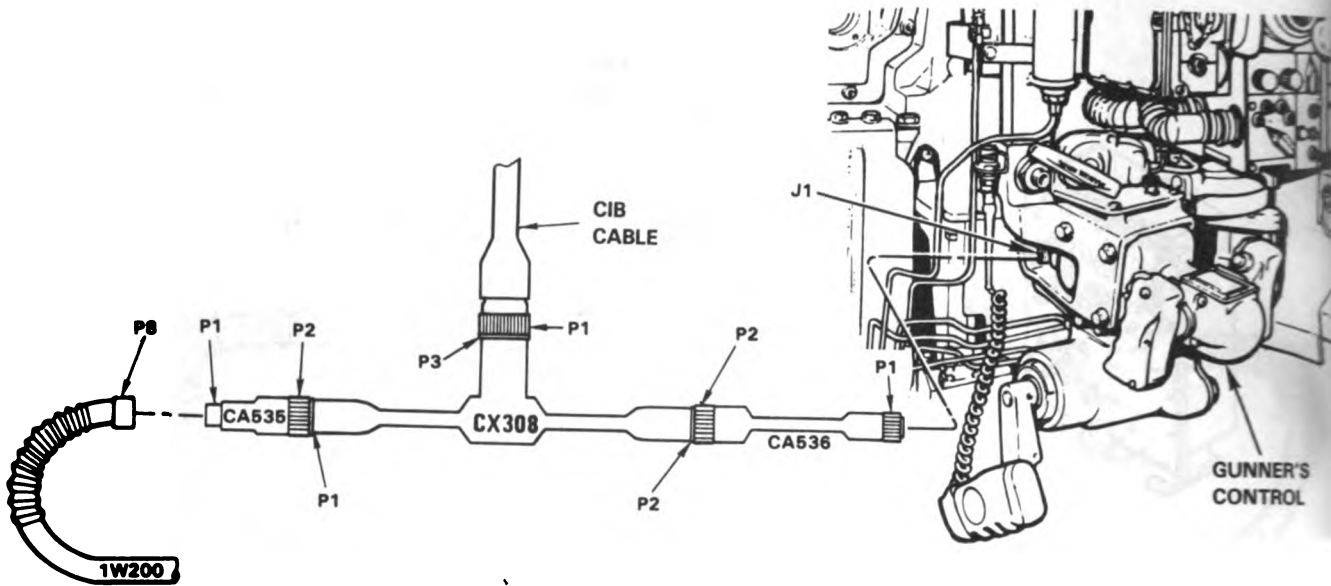


Figure 9-19. STE Turret Cable Hookup Between GCH-J1 And 1W200-P8

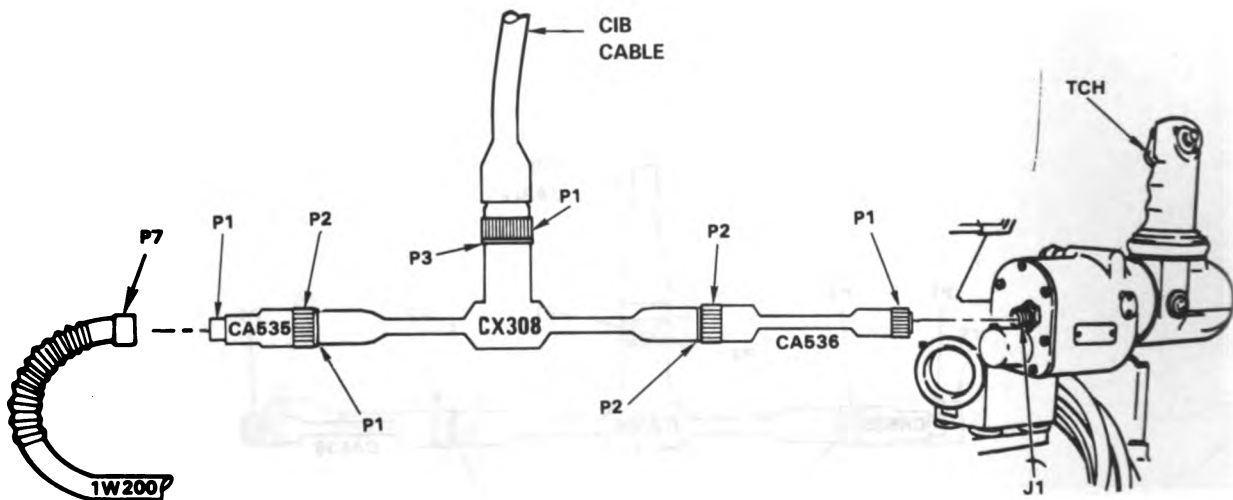


Figure 9-20. STE Turret Cable Hookup Between TCH-J1 And 1W200-P7

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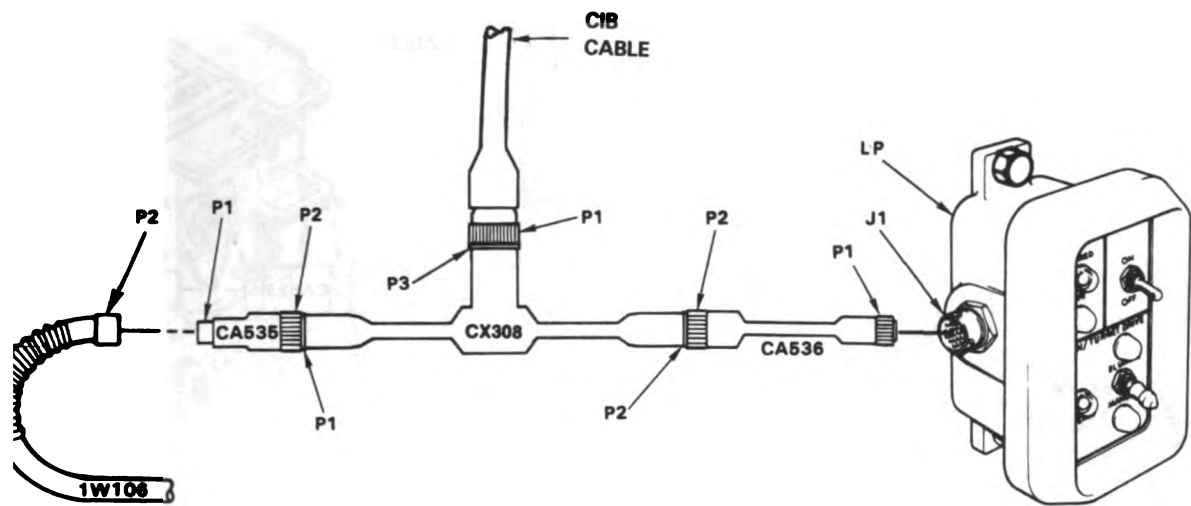


Figure 9-21. STE Turret Cable Hookup Between LP-J1 And 1W106-P2

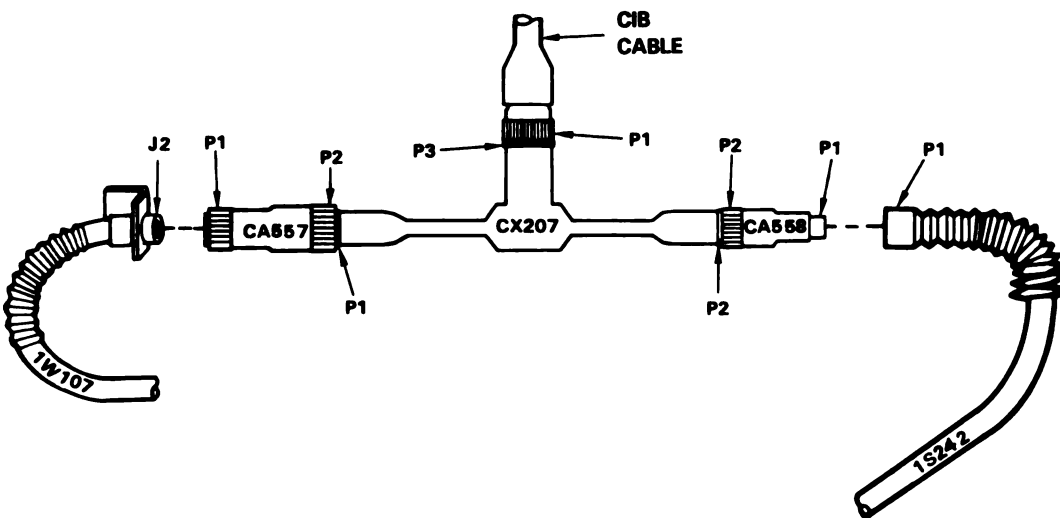


Figure 9-22. STE Turret Cable Hookup Between ZDESW And 1W107-J2

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**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

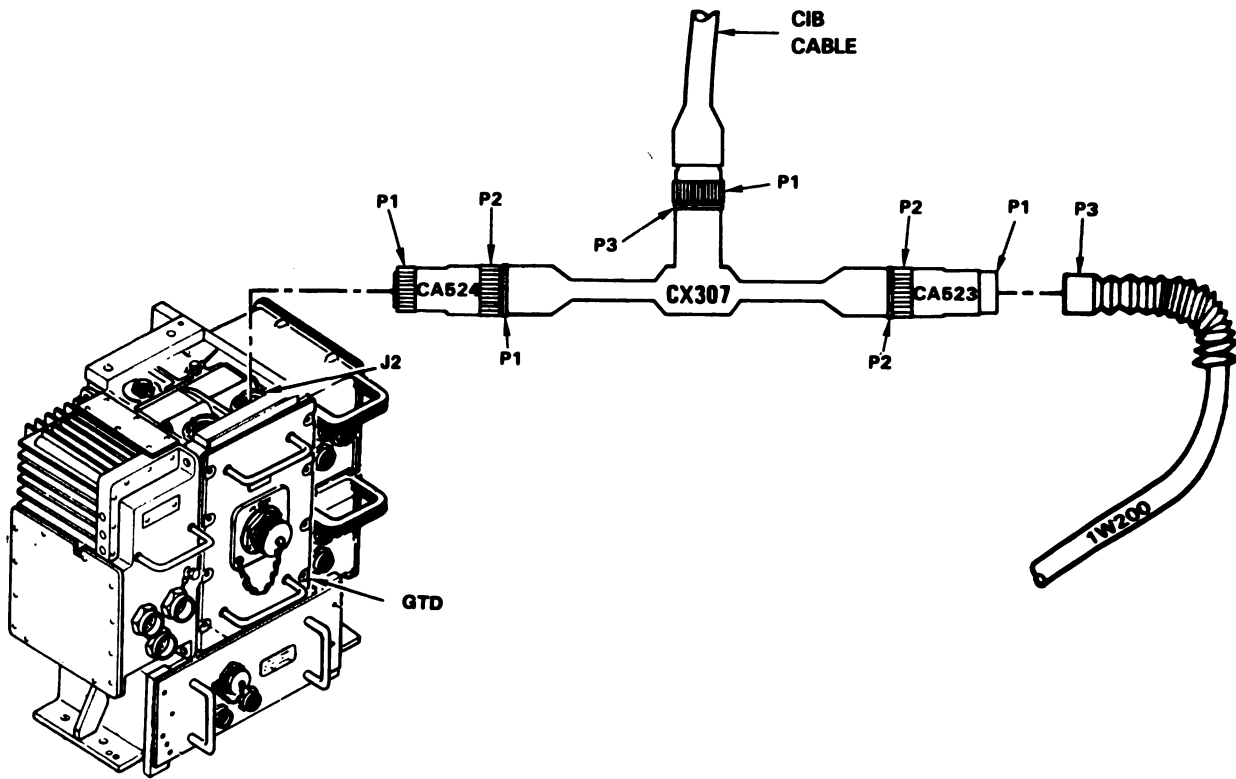
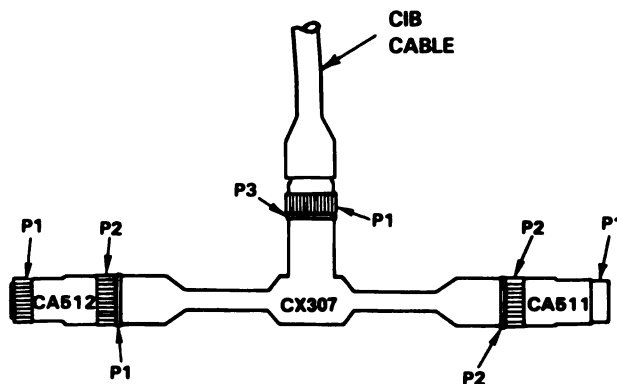


Figure 9-23. STE Turret Cable Hookup Between GTD-J2 And 1W200-P3



*Figure 9-24. STE Turret Cable Hookup To DBA And Adapters CA511/12
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ARR82-5708

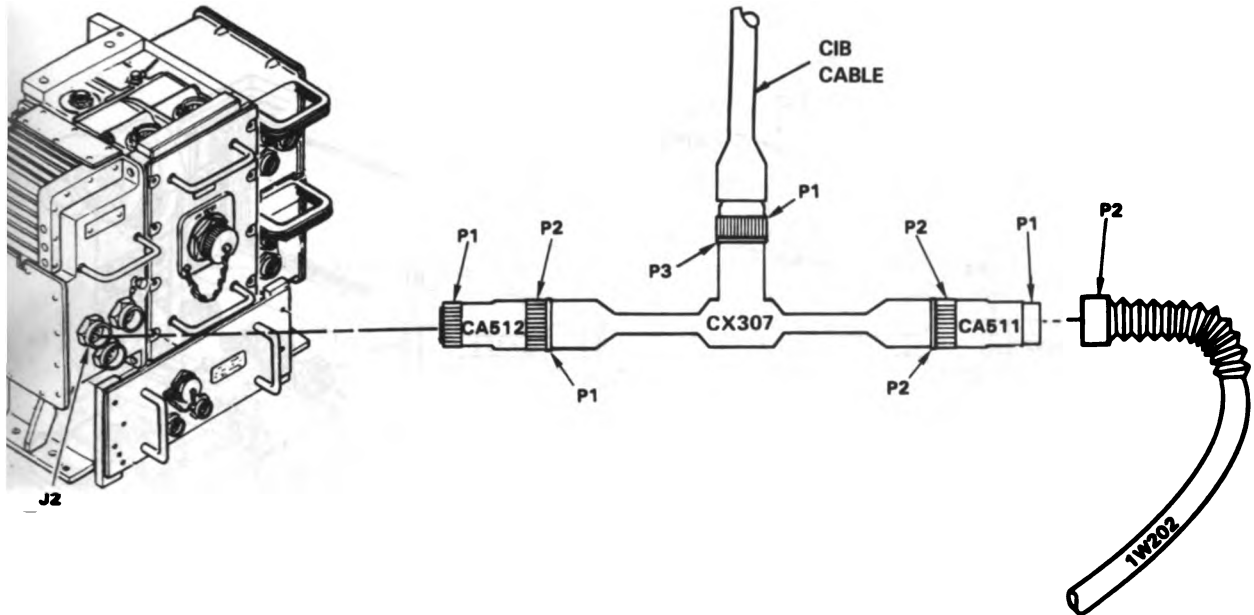


Figure 9-25. STE Turret Cable Hookup Between CEU-J2 And 1W202-P2

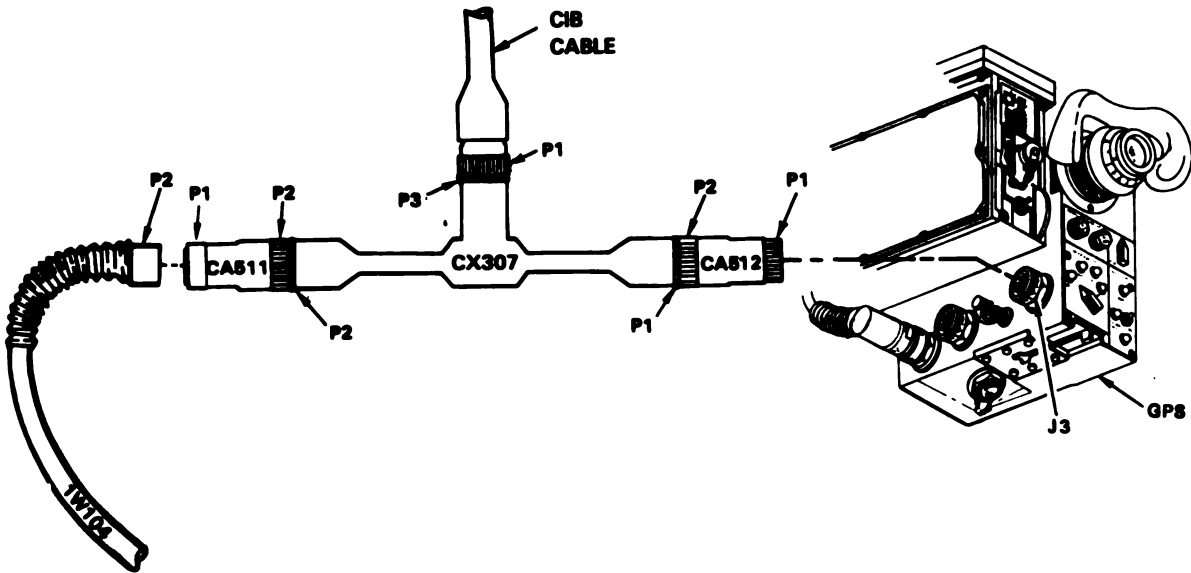


Figure 9-26. STE Turret Cable Hookup Between GPS-J3 And 1W104-P2

ARR82-5709

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**TM 9-2350-255-20-2-2-1
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SYSTEM TROUBLESHOOTING**

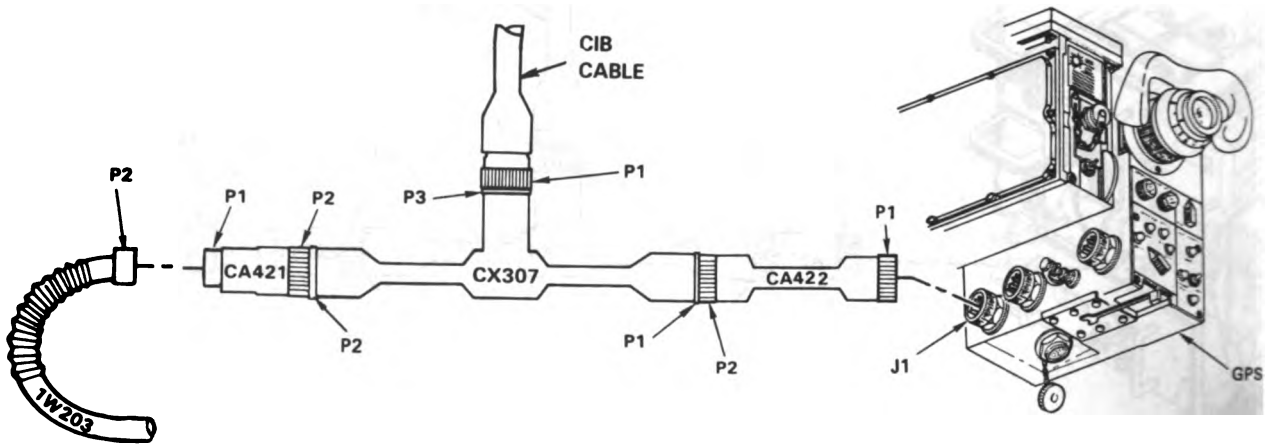


Figure 9-27. STE Turret Cable Hookup Between GPS-J1 And 1W203-P2

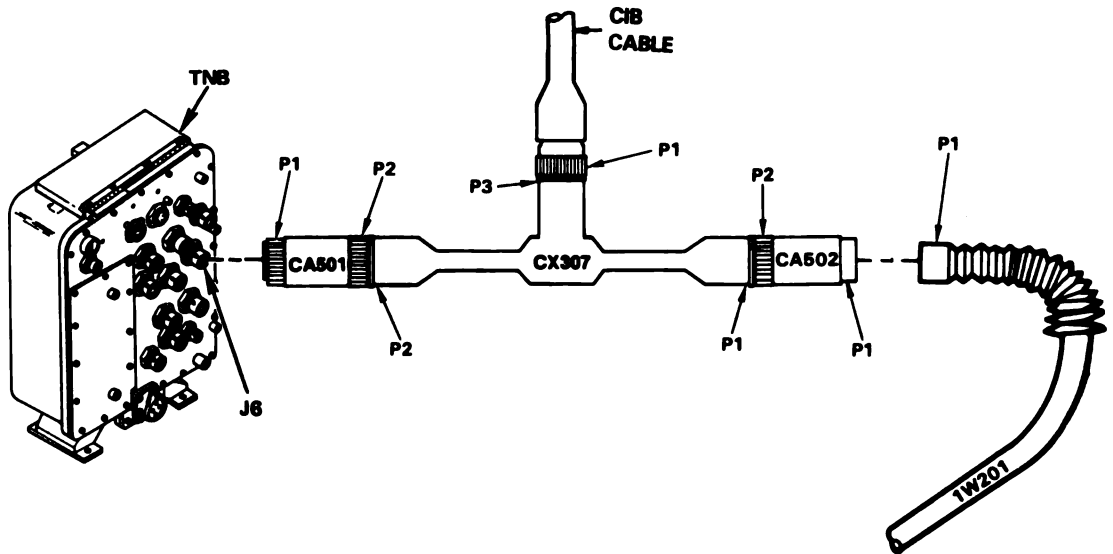


Figure 9-28. STE Turret Cable Hookup Between TNB-J6 And 1W201-P1
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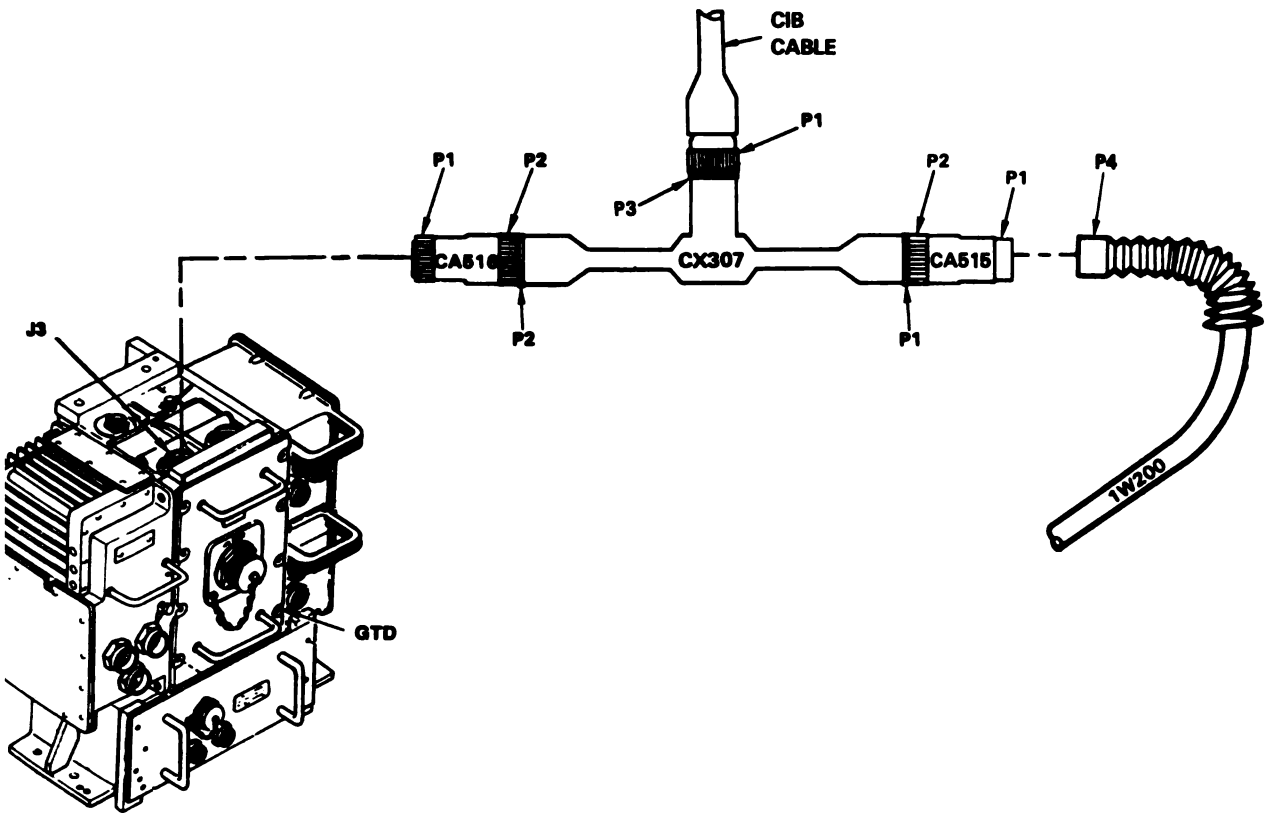


Figure 9-29. STE Turret Cable Hookup Between GTD-J3 And 1W200-P4

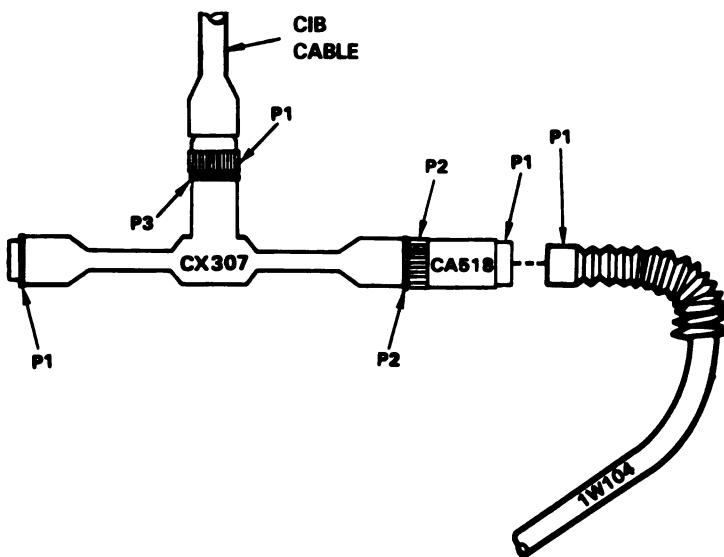


Figure 9-30. STE Turret Cable Hookup To 1W104-P1
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ARR82-5711

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

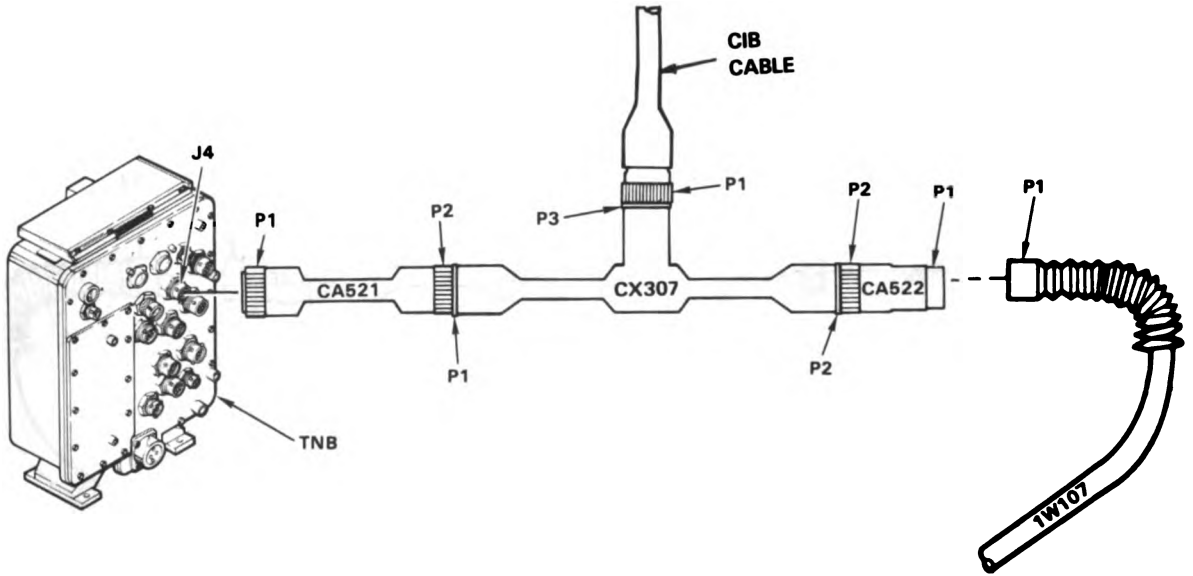
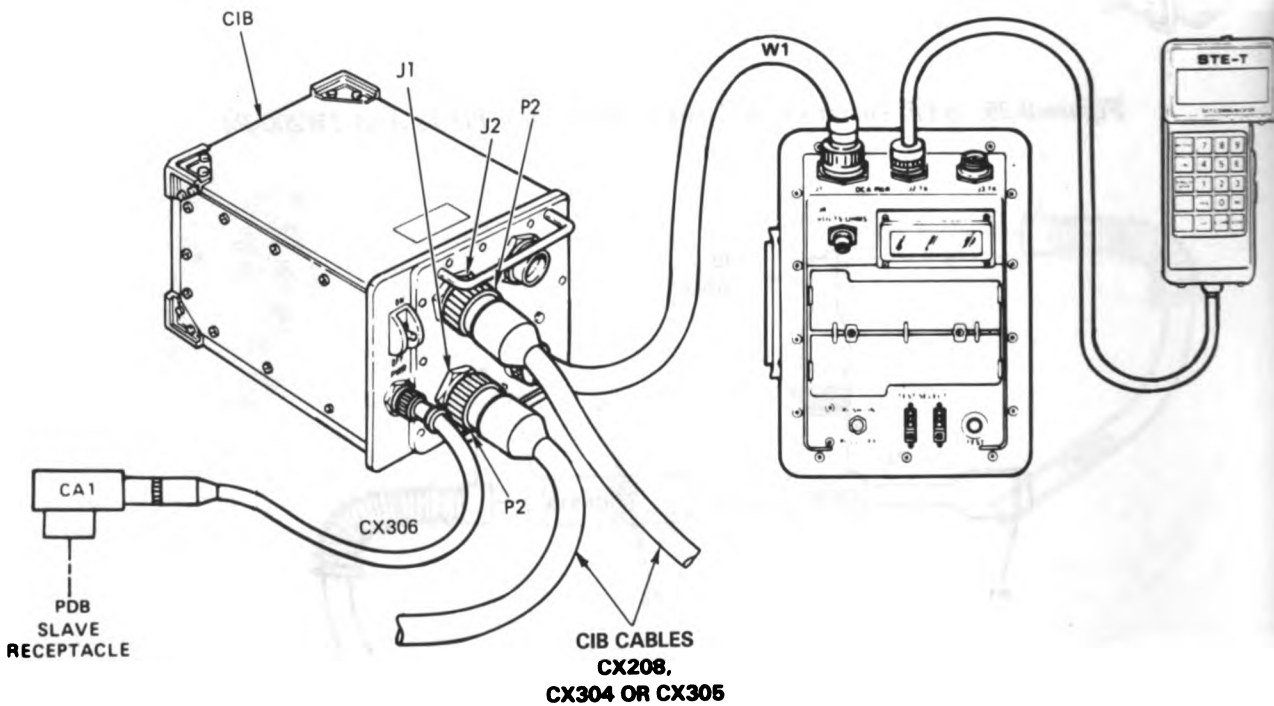


Figure 9-31. STE Turret Cable Hookup Between TNB-J4 And 1W107-P1



**Figure 9-32. STE Turret Cable Hookup To CIB
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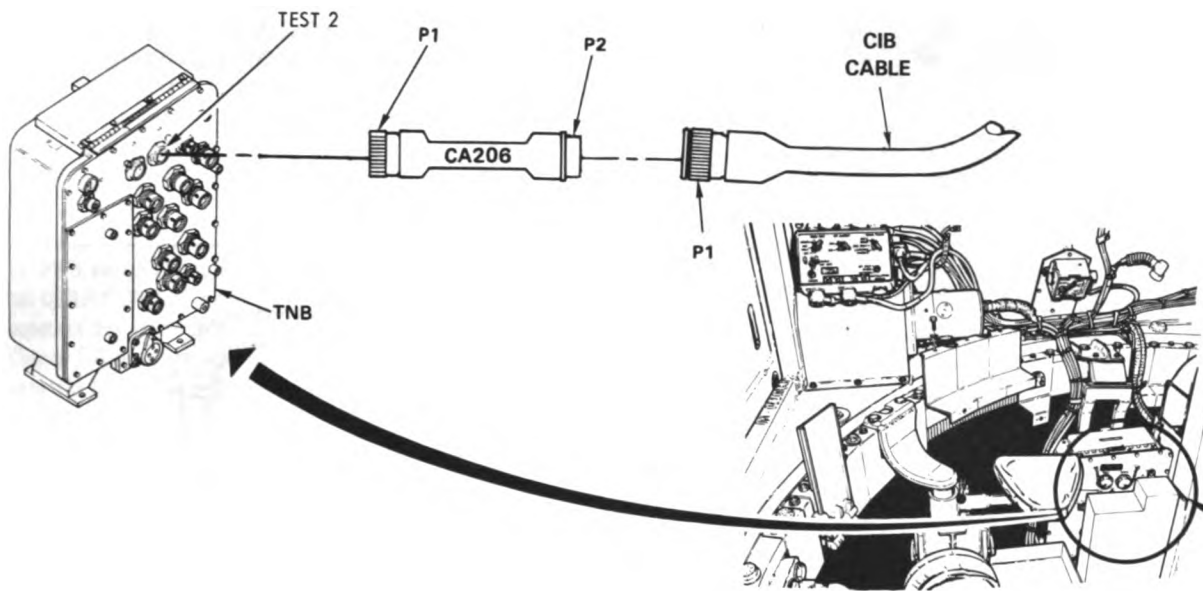


Figure 9-33. STE Turret Cable Hookup To TNB TEST 2

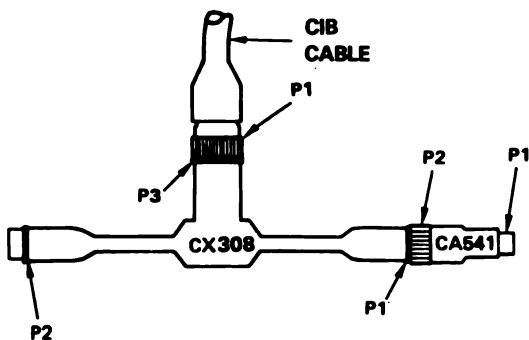


Figure 9-34. STE Turret Cable Hookup To DBA And Adapter CA541
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HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING

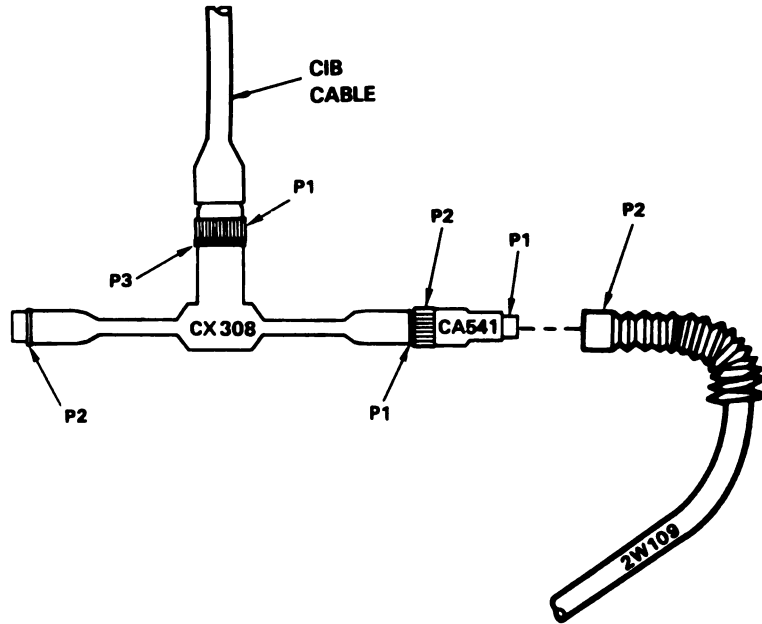


Figure 9-35. STE Turret Cable Hookup To 2W109-P2

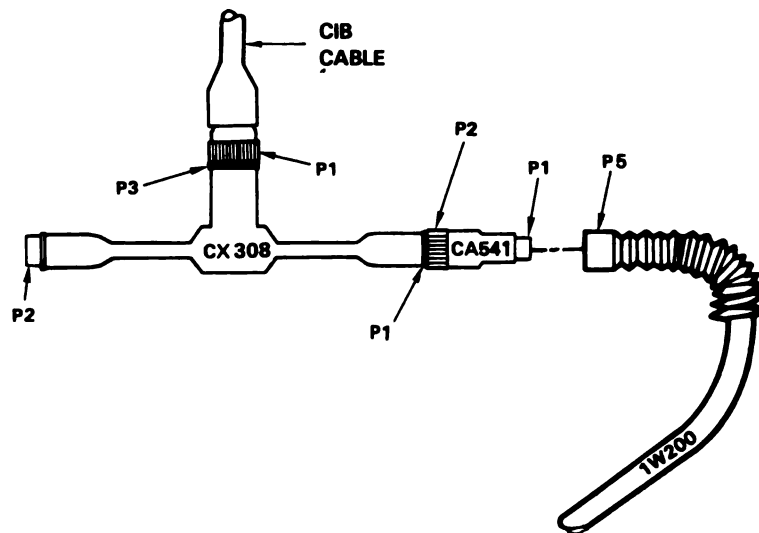
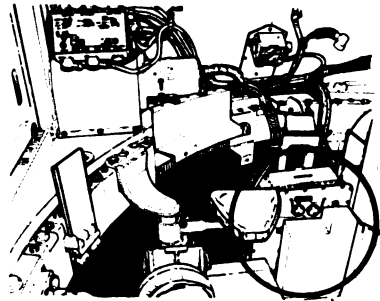
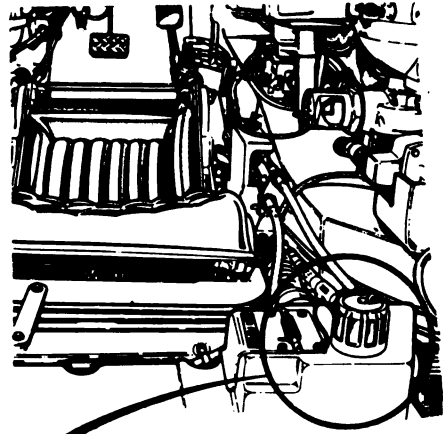


Figure 9-36. STE Turret Cable Hookup To 1W200-P5

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ARR82-5714

**CHANGE STE POWER HOOKUP
 FROM TURRET NETWORKS BOX TO
 POWER DISTRIBUTION BOX**



- Set PWR switch (1) on CIB (2) to OFF.
- Set UTILITY OUTLET switch (3) on turret networks box (4) to OFF.
- Change CIB power hookup from turret networks box to power distribution box.
 - Disconnect CX308-P1 (5) from utility outlet (6) on turret networks box (4).
 - Connect CX308-P1 (5) to NATO adapter (7).
 - Disconnect slave receptacle cover (8).
 - Plug NATO adapter (7) into slave receptacle (9).
- Set PWR switch (1) on CIB (2) to ON.

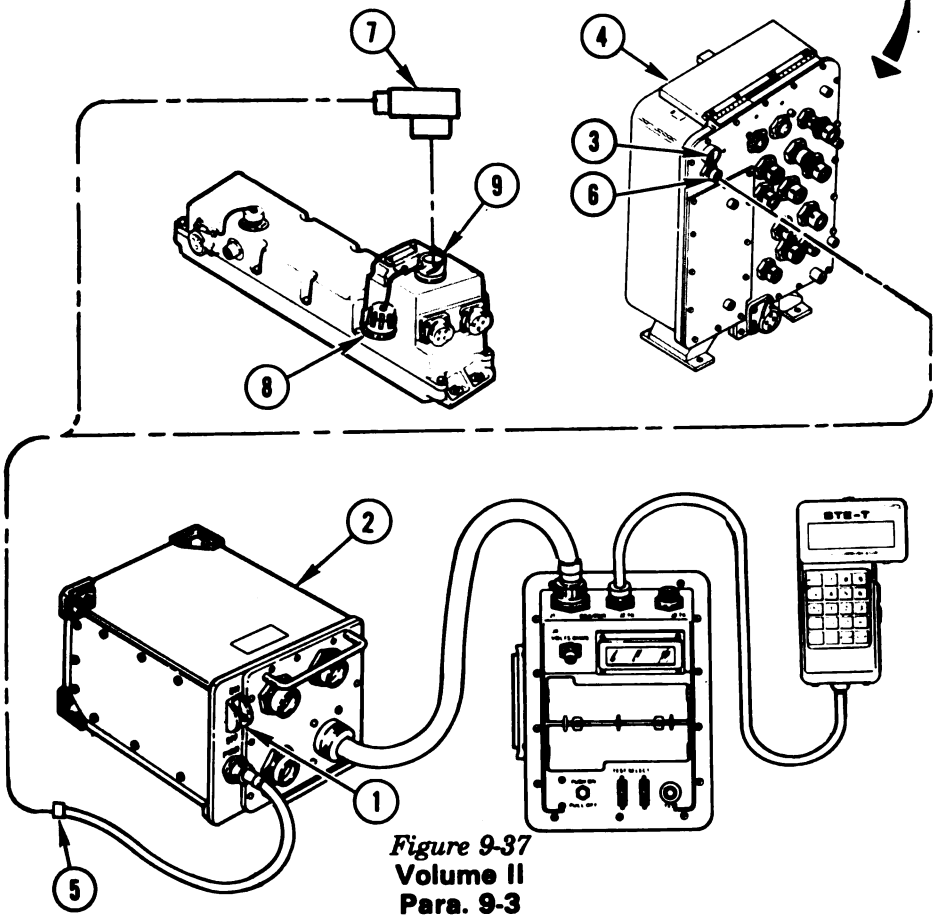


Figure 9-37
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ARR82-5715

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS -
FAULTY TRVMC OR
1W104**

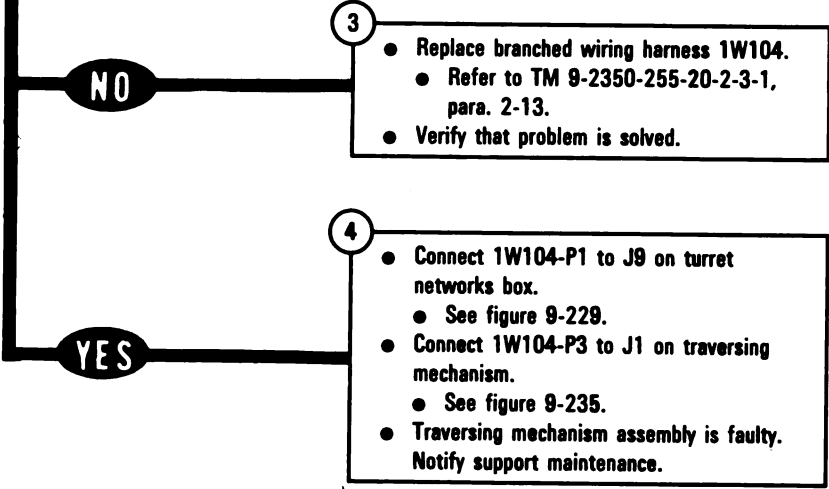
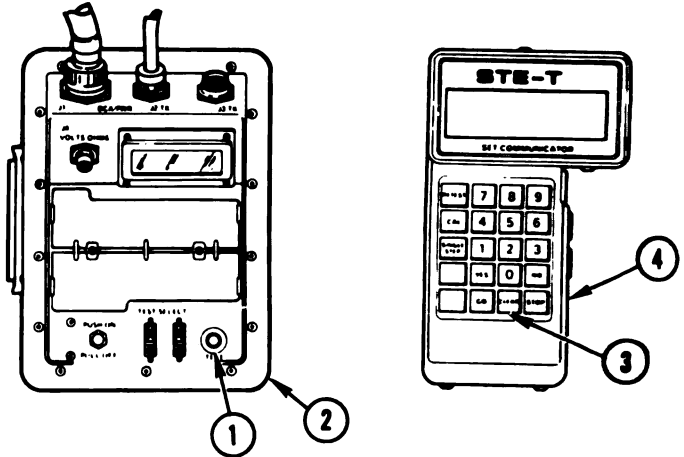
140906

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- 1**
- Disconnect 1W104-P3 from J1 on traversing mechanism.
 - See figure 9-235.
 - Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.

- 2**
- Prepare STE to run cable test 1390.
 - Press TEST button (1) on VTM (2).
 - Press CLEAR key (3) on SETCOM (4).
 - Enter test number 1390 on SETCOM (4).
 - Run test on 1W104 between P1 and P3.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.
- Does SETCOM display show GOOD?**



**Figure 9-38
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ARR82-5716

**DISPLAY SHOWS -
FAULTY GPS OR
1W206**

140245

Additional Test

Equipment/Special Tools:

- Breakout Box Tool Kit, 12311086

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- Disconnect CA519-P2 from CX307-P1.

- See figure 9-15.

- Disconnect CX305-P2 from CIB-J1.

- See figure 9-32.

- Connect CX305-P2 (1) to breakout box (2).

- Disconnect 1W206-P2 from J2 on gunner's primary sight.

- See figure 9-240.

- Connect 1W206-P2 (3) to CA419-P1 (4).

- Connect CA419-P2 (5) to CX307-P1 (6).

- Change STE power hookup from turret networks box to power distribution box.

- See figure 9-37.

- Prepare VTM for measuring resistance between 0 and 1500 ohms.

- Refer to para. 9-1.

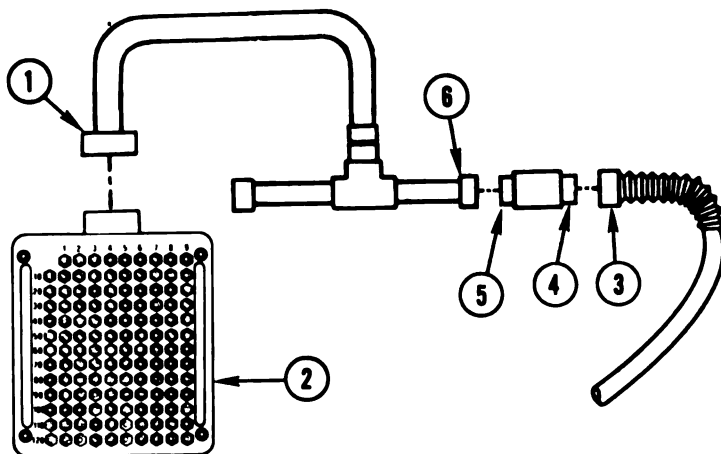


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ARR82-5717

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

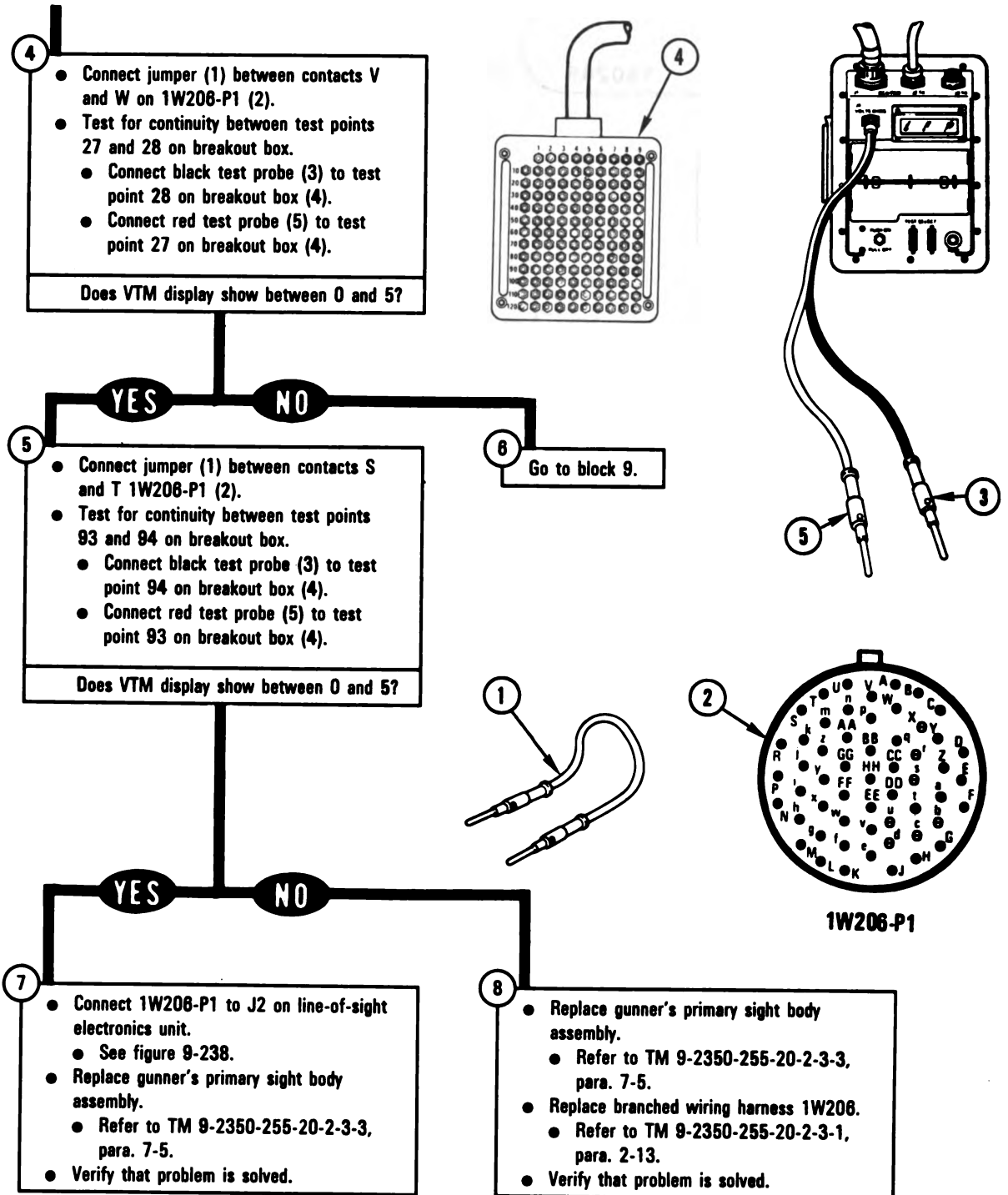


Figure 9-39 (Sheet 2 of 3)
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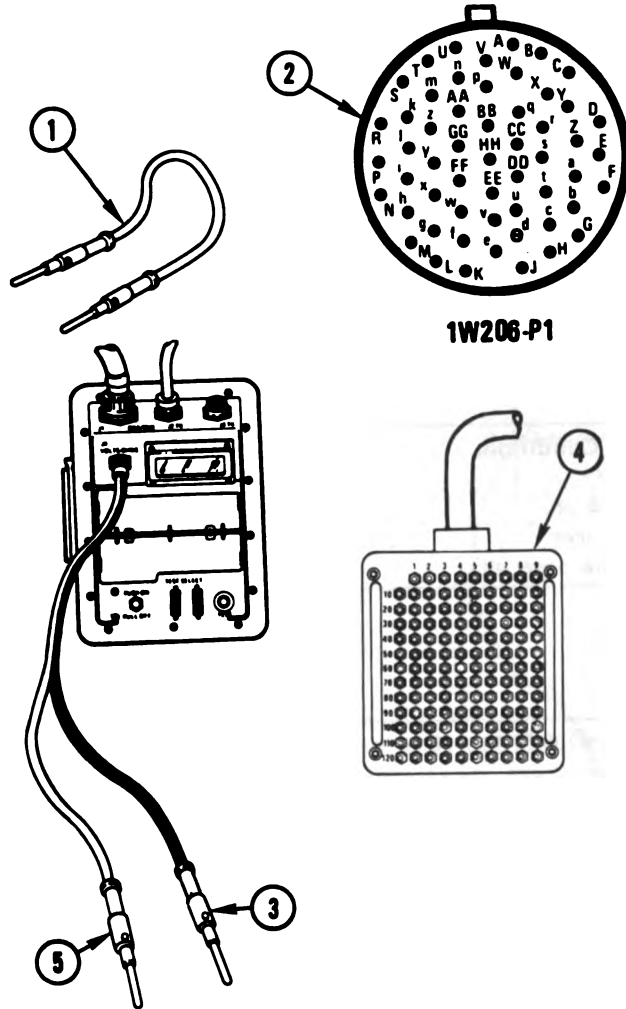
ARR62-5718

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

From block 6

- Connect jumper (1) between contacts S and T on 1W206-P1 (2).
- Test for continuity between test points 93 and 94 on breakout box (4).
- Connect black test probe (3) to test point 94 on breakout box (4).
- Connect red test probe (5) to test point 93 on breakout box (4).

Does VTM display show between 0 and 5?



NO

- 10
- Replace branched wiring harness 1W206.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

YES

- 11
- Replace gunner's primary sight body assembly.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-5.
 - Replace branched wiring harness 1W206.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

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**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS -
FAULTY TNB, GTD
OR 1W200**

140437

Additional Test

Equipment/Special Tools:

- Breakout Box Tool Kit, 12311086

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

1

- Disconnect 1W200-P1 from J5 on turret networks box.
 - See figure 9-229.
- Connect CX304-P2 (1) to breakout box (2).
- Connect CX304-P1 (3) to CX307-P3 (4).

2

- Disconnect 1W200-P4 from J3 on electronic unit.
 - See figure 9-230.
- Connect 1W200-P4 (5) to CA515-P1 (6).
- Connect CA515-P2 (7) to CX307-P1 (8).

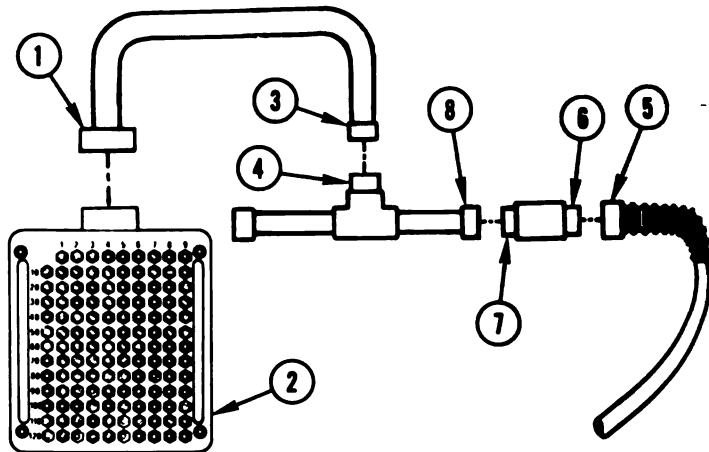


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ARR82-5720

- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 9-1.

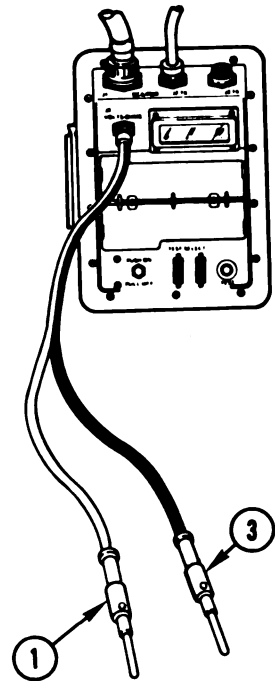
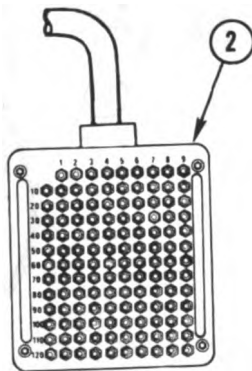
- Connect red test probe (1) to test point 110 on breakout box (2).

NOTE

If VTM display shows 0 to 5, go immediately to block 5.

- Test for 0 to 5 ohms by connecting black test probe (3) to each test point on breakout box (2) listed below:
 - 7 through 39
 - 62, 74, and 75
 - 89 through 109
 - 111 through 113

Does VTM display show between 0 and 5?



NO

YES

- 5
- Replace wiring harness assembly 1W200.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13..
 - Verify that problem is solved.

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**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

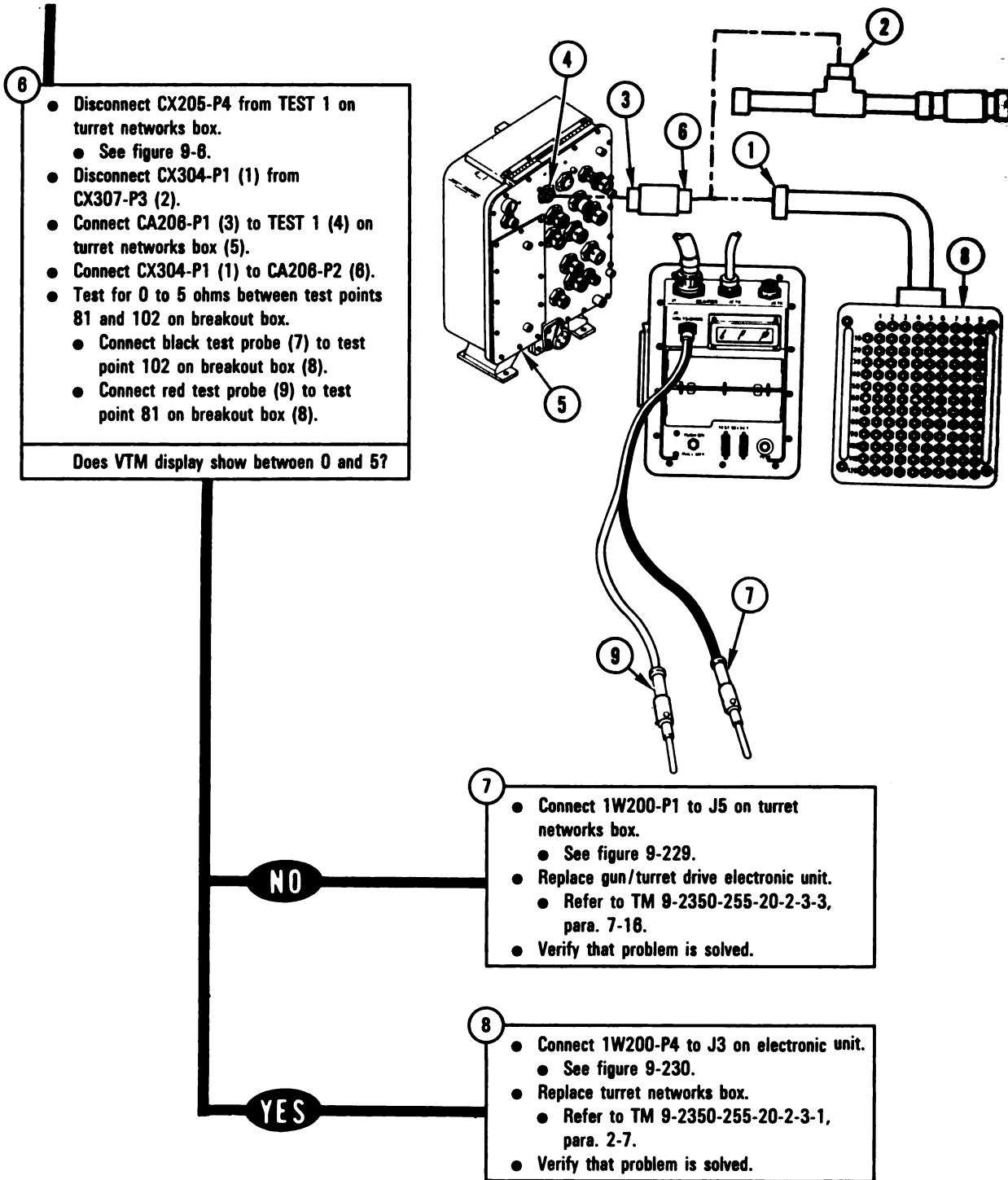


Figure 9-40 (Sheet 3 of 3)
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ARR82-5722

**DISPLAY SHOWS -
FAULTY GPS OR
1W206**

140313

**Additional Test
Equipment/Special Tools:**

- Breakout Box Tool Kit, 12311086

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- Disconnect CA519-P2 from CX307-P1.
 - See figure 9-15.
- Disconnect CX305-P2 from CIB-J1.
 - See figure 9-32.
- Disconnect 1W208-P2 from J2 on gunner's primary sight.
 - See figure 9-240.

- Connect CX305-P2 (1) to breakout box (2).
- Connect 1W208-P1 (3) to CA520-P1 (4).
- Connect CA520-P2 (5) to CX307-P1 (6).

- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 9-1.

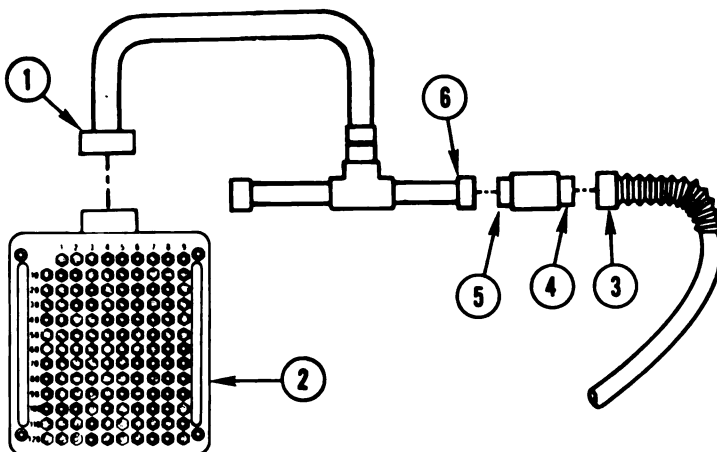


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**TM 9-2350-255-20-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

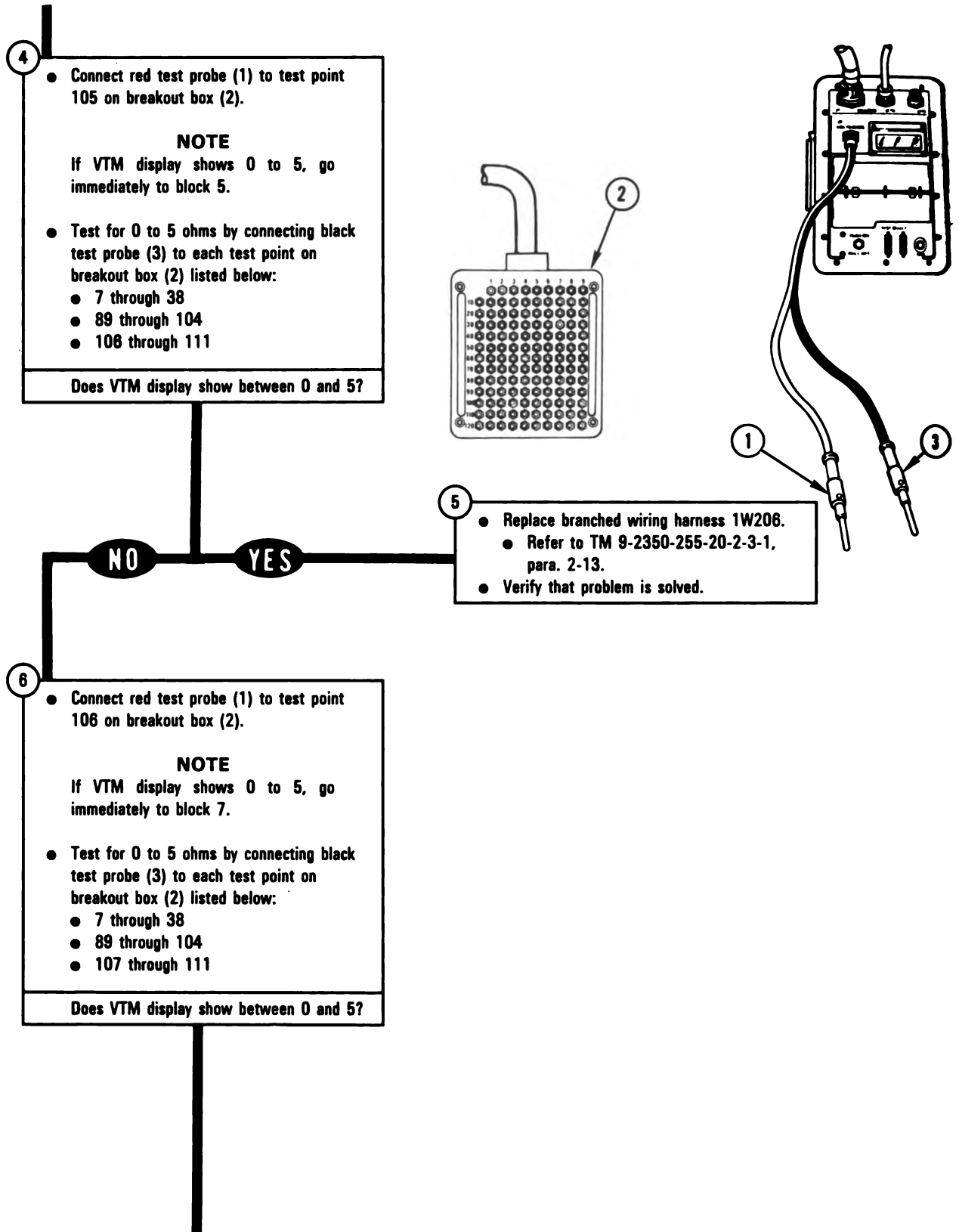


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ARR82-5724

TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING

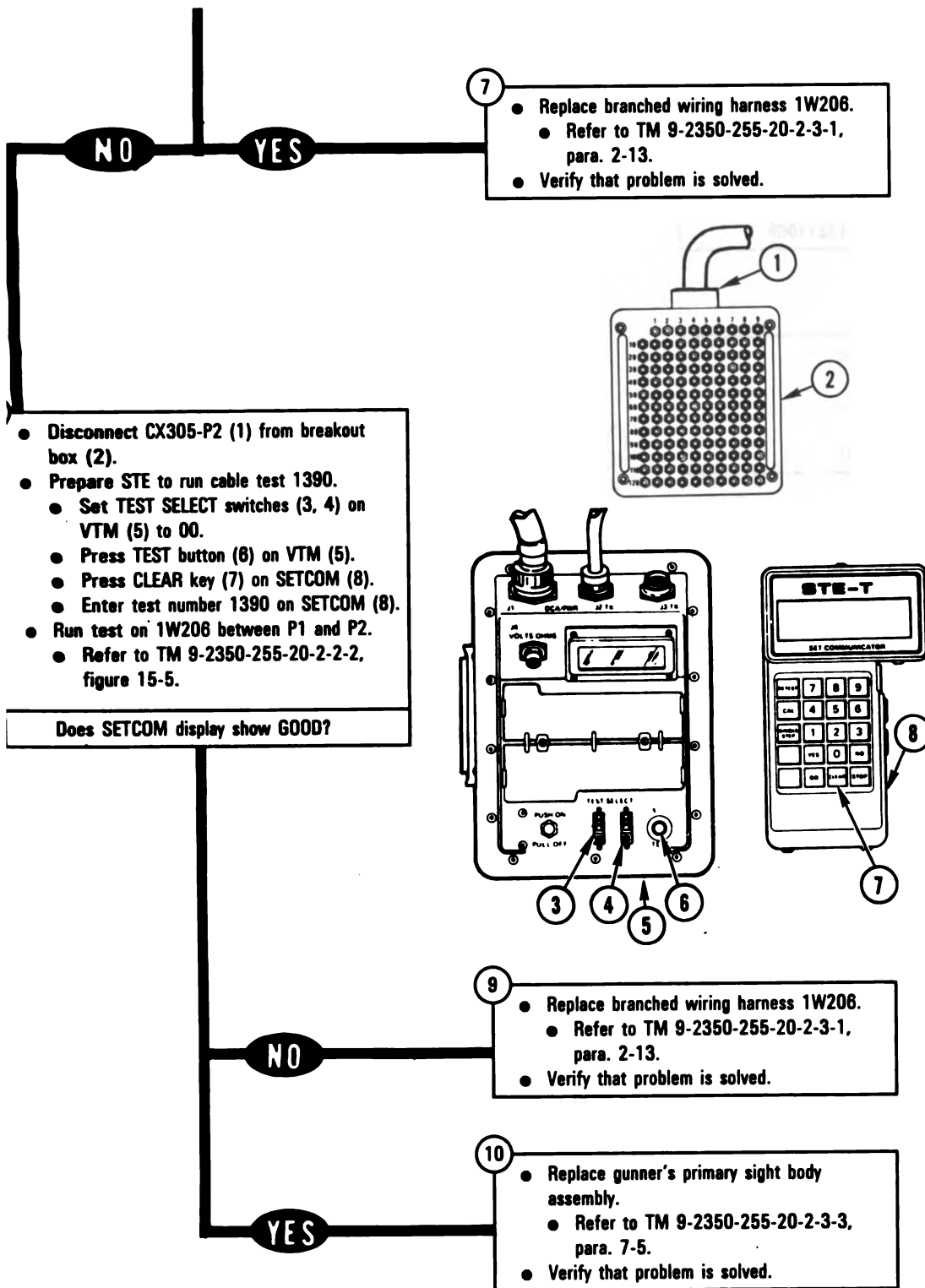


Figure 9-41 (Sheet 3 of 3)
Volume II
Para. 9-3

ARR82-5225

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS -
FAULTY GPS OR
1W206**

140305

**Additional Test
Equipment/Special Tools:**

- Breakout Box Tool Kit, 12311086

Equipment Condition:

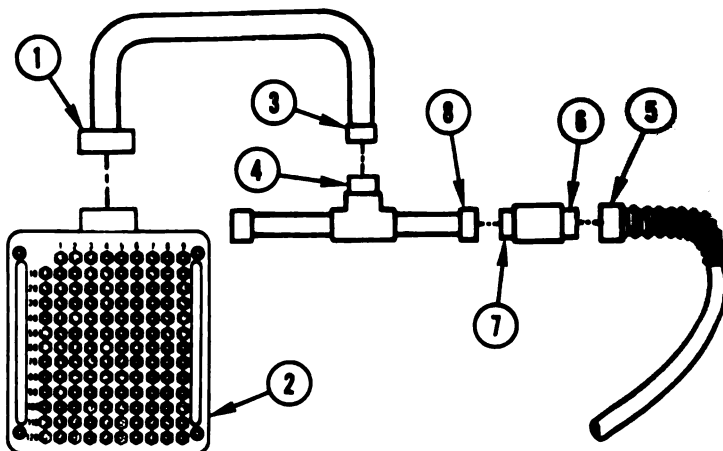
- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

1

- Disconnect 1W206-P2 from J2 on gunner's primary sight.
 - See figure 9-240.
- Connect CX304-P2 (1) to breakout box (2).
- Connect CX304-P1 (3) to CX307-P3 (4).
- Connect 1W206-P1 (5) to CA520-P1 (6).
- Connect CA520-P2 (7) to CX307-P1 (8).

2

- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 9-1.



*Figure 9-42 (Sheet 1 of 2)
Volume II
Para. 9-3*

ARR82-5726

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

● Connect red test probe (1) to test point 110 on breakout box (2).

NOTE
If VTM display shows 0 to 5, go immediately to block 4.

● Test for 0 to 5 ohms by connecting black test probe (3) to each test point on breakout box (2) listed below:

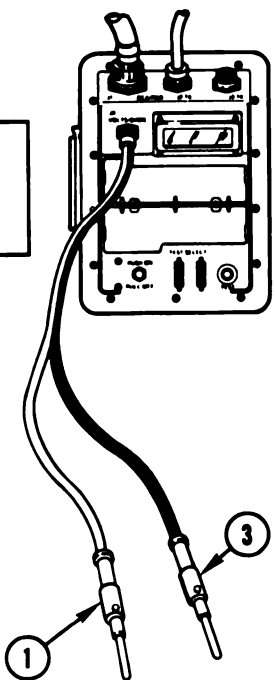
- 7 through 38
- 89 through 108
- 111

Does VTM display show between 0 and 5?

NO **YES**

4

- Replace branched wiring harness 1W206.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.



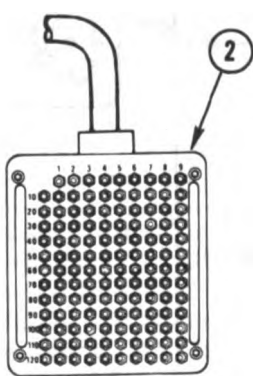
● Connect red test probe (1) to test point 109 on breakout box (2).

NOTE
If VTM display shows 0 to 5, go immediately to block 7.

● Test for 0 to 5 ohms by connecting black test probe (3) to each test point on breakout box (2) listed below:

- 7 through 38
- 89 through 108
- 110 and 111

Does VTM display show between 0 and 5?



NO

6

- Replace gunner's primary sight body assembly.
- Refer to TM 9-2350-255-20-2-3-3, para. 7-5.
- Verify that problem is solved.

YES

7

- Replace branched wiring harness 1W206.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

Figure 9-42 (Sheet 2 of 2)
Volume II
Para. 9-3

ARR82-5727

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS -
FAULTY TNB, GPs,
OR 1W203**

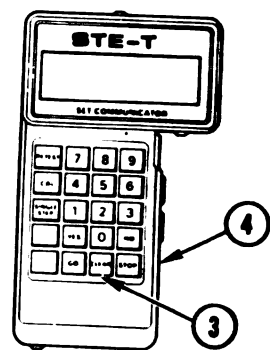
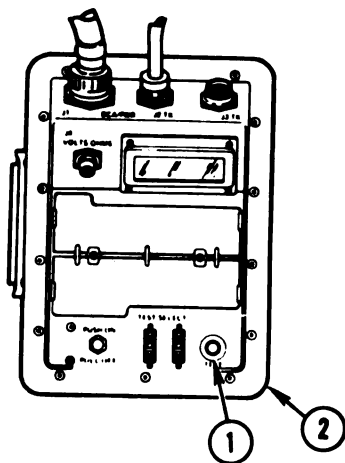
140110

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

1

- Disconnect CX205-P1 from CIB-J1.
 - See figure 9-6.
- Disconnect CX205-P2 from CIB-J2.
 - See figure 9-6.
- Disconnect 1W203-P1 from J3 on turret networks box.
 - See figure 9-229.
- Disconnect 1W203-P2 from J1 on gunner's primary sight.
 - See figure 9-240.
- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.



2

- Prepare STE to run cable test 1390.
 - Press TEST button (1) on VTM (2).
 - Press CLEAR key (3) on SETCOM (4).
 - Enter test number 1390 on SETCOM (4).
- Run test on 1W203 between P1 and P2.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.

Does SETCOM display show GOOD?

YES

NO

3

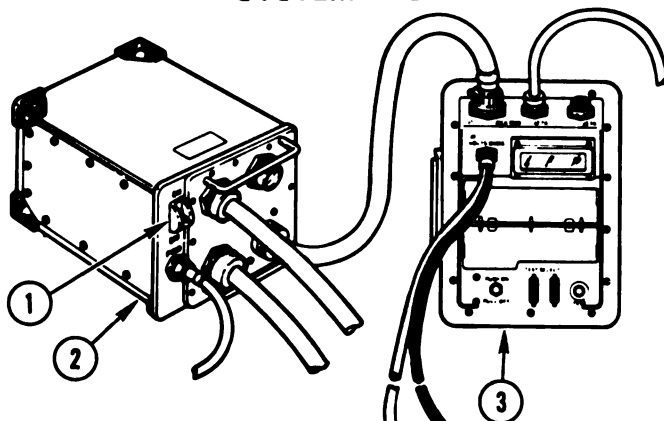
- Replace branched wiring harness 1W203.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

*Figure 9-43 (Sheet 1 of 2)
Volume II
Para. 9-3*

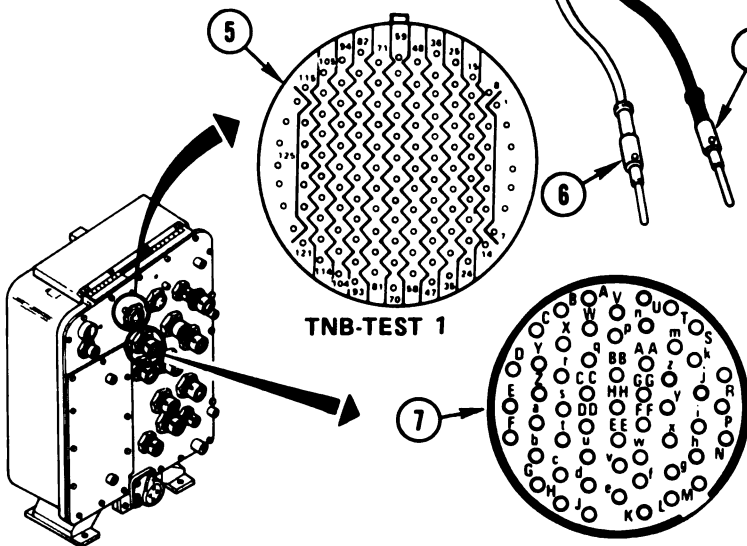
ARR82-5728

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

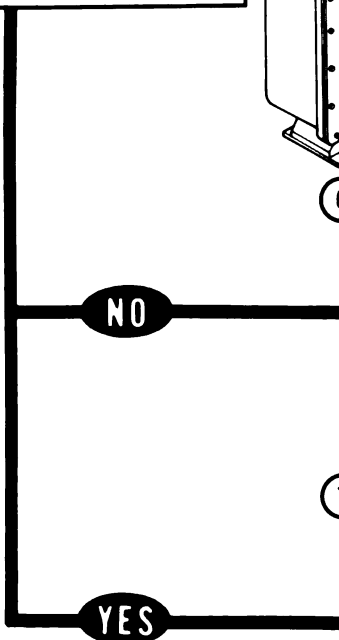
- Change control from SETCOM to VTM.
 - Set PWR switch (1) on CIB (2) to OFF to reset VTM (3).
 - Set PWR switch (1) to ON.
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 9-1.



- Disconnect CX205-P4 from TEST 1 on turret networks box.
 - See figure 9-8.
- Test for continuity between contact 12 on turret networks box TEST 1 and contact g on turret networks box J3.
 - Connect black test probe (4) to contact 12 on TEST 1 (5).
 - Connect red test probe (8) to contact g on J3 (7).



Does VTM display show between 0 and 5?



- 6
- Connect 1W203-P2 to J1 on gunner's primary sight.
 - See figure 9-240.
 - Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
 - Verify that problem is solved.

- 7
- Connect 1W203-P1 to J3 on turret networks box.
 - See figure 9-229.
 - Replace gunner's primary sight body assembly.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-5.
 - Verify that problem is solved.

Figure 9-43 (Sheet 2 of 2)
**Volume II
Para. 9-3**

ARR82-5729

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS -
FAULTY CCP OR
1W202** **140246**

**Additional Test
Equipment/Special Tools:**

- Breakout Box Tool Kit, 12311086

Equipment Condition:

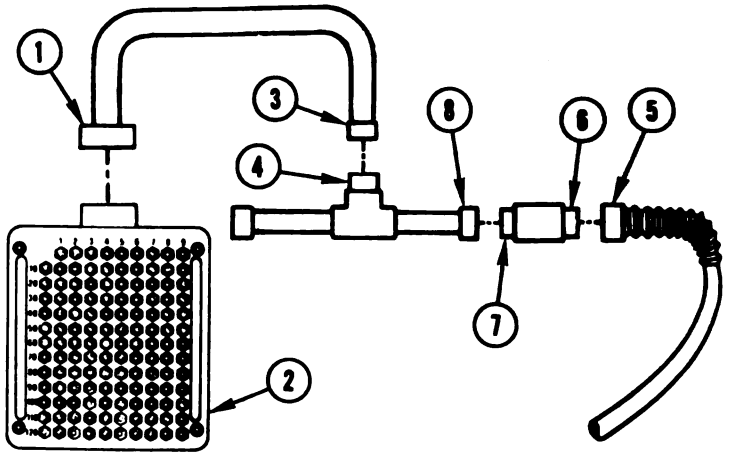
- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

1

- Connect CX305-P2 (1) to breakout box (2).
- Connect CX305-P1 (3) to CX307-P3 (4).
- Connect 1W202-P2 (5) to CA511-P1 (8).
- Connect CA511-P2 (7) to CX307-P1 (8).
- Disconnect 1W202-P5 from J1 on ballistics control panel.
- See figure 9-232.

2

- Change STE power hookup from turret networks box to power distribution box.
- See figure 9-37.
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
- Refer to para. 9-1.



*Figure 9-44 (Sheet 1 of 2)
Volume II
Para. 9-3*

ARR82-5730

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

● Connect red test probe (1) to test point 23 on breakout box (2).

NOTE
If VTM display shows 0 to 5, go immediately to block 5.

● Test for 0 to 5 ohms by connecting black test probe (3) to each test point on breakout box (2) listed below:

- 18 and 24

Does VTM display show between 0 and 5?

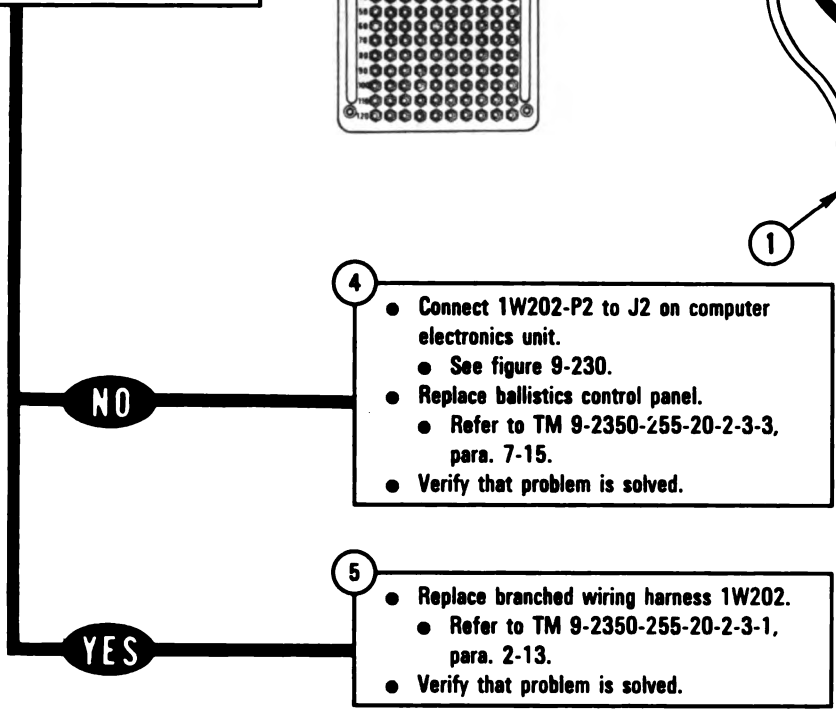
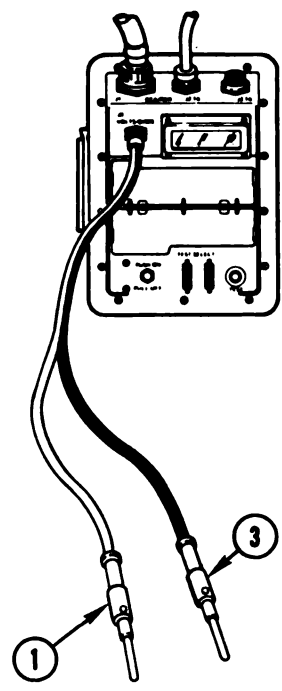
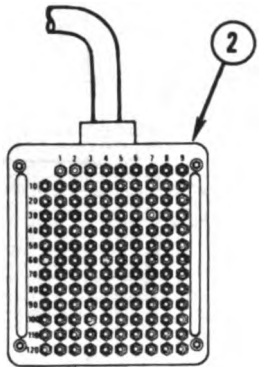


Figure 9-44 (Sheet 2 of 2)
Volume II
Para. 9-3

ARR82-5731

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS -
FAULTY TNB, GPS
OR 1W203**

140422

**Additional Test
Equipment/Special Tools:**

- Breakout Box Tool Kit, 12311086

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

1

- Connect CX304-P2 (1) to breakout box (2).
- Connect CX304-P1 (3) to CX307-P3 (4).
- Disconnect 1W203-P2 from J1 on gunner's primary sight.
 - See figure 9-240.
- Connect 1W203-P2 (5) to CA421-P1 (6).
- Connect CA421-P2 (7) to CX307-P1 (8).

2

- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 9-1.

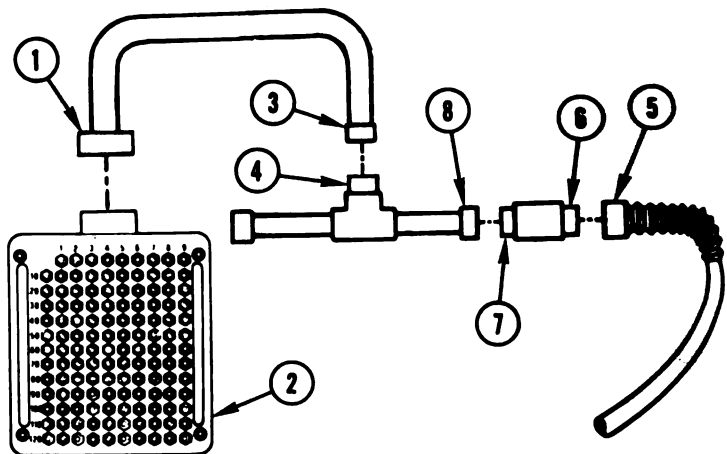
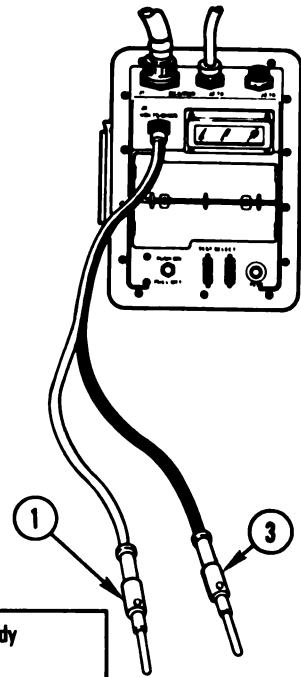
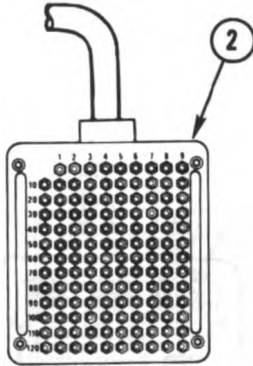


Figure 9-45 (Sheet 1 of 2)
**Volume II
Para. 9-3**

ARR82-5732

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

- Connect red test probe (1) to test point 27 on breakout box (2).
- NOTE**
If VTM display shows 0 to 5, leave test probes connected and go immediately to block 5.
- Test for 0 to 5 ohms by connecting black test probe (3) to each test point on breakout box (2) listed below:
 - 7 through 28
 - 29 through 38
 - 89 through 97



Does VTM display show between 0 and 5?

YES **NO**

- 4**
- Replace gunner's primary sight body assembly.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-5.
 - Verify that problem is solved.

- Disconnect 1W203-P1 from J3 on turret networks box.
 - See figure 9-229.
 - Test for 0 to 5 ohms.
- Does VTM display show between 0 and 5?

NO

YES

- 6**
- Connect 1W203-P2 to J1 on gunner's primary sight.
 - See figure 9-240.
 - Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
 - Verify that problem is solved.

- 7**
- Replace branched wiring harness 1W203.
 - Refer to TM 9-2350-250-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

Figure 9-45 (Sheet 2 of 2)
Volume II
Para. 9-3

ARR82-5733

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS -
FAULTY GCH OR
1W200**

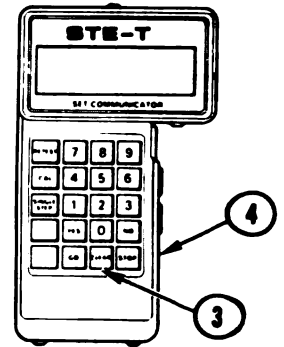
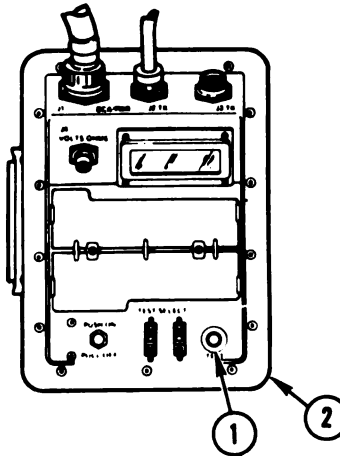
140454

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

1

- Disconnect CA503-P2 from CX307-P1.
 - See figure 9-8.
- Disconnect 1W200-P8 from J1 on gunner's control.
 - See figure 9-232.
- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.



2

- Prepare STE to run cable test 1390.
 - Press TEST button (1) on VTM (2).
 - Press CLEAR key (3) on SETCOM (4).
 - Enter test number 1390 on SETCOM (4).
- Run test on 1W200 between P1 and P8.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.

Does SETCOM display show GOOD?

NO

3

- Replace wiring harness assembly 1W200.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

YES

4

- Connect 1W200-P1 to J5 on turret networks box.
 - See figure 9-229.
- Replace gunner's control grip assembly.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-21.
- Verify that problem is solved.

**Figure 9-46
Volume II
Para. 9-3**

ARR82-5734

**DISPLAY SHOWS -
FAULTY GCH OR
1W200**

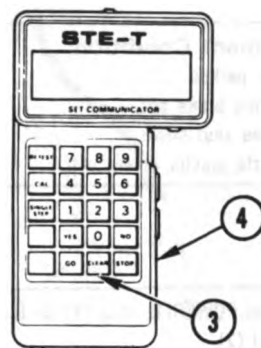
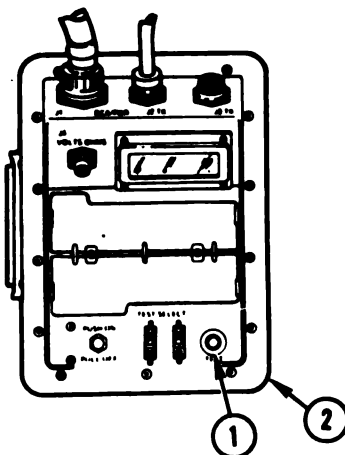
141003

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- Disconnect 1W200-P8 from J1 on gunner's control.
 - See figure 9-232.
- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.

- Prepare STE to run cable test 1390.
 - Press TEST button (1) on VTM (2).
 - Press CLEAR key (3) on SETCOM (4).
 - Enter test number 1390 on SETCOM (4).
- Run test on 1W200 between P4 and P8.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.



Does SETCOM display show GOOD?

NO

- 3
- Replace wiring harness assembly 1W200.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

YES

- 4
- Connect 1W200-P4 to J3 on electronic unit.
 - See figure 9-230.
 - Replace gunner's control grip assembly.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-21.
 - Verify that problem is solved.

Figure 9-47
Volume II
Para. 9-3

ARR82-5735

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS -
FAULTY LP OR
1W106**

140751

Additional Test

Equipment/Special Tools:

- Breakout Box Tool Kit, 12311066

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

1

- Install POWERED lamp (1) on loader's panel (2).
- Disconnect CX305-P2 from C1B-J1.
 - See figure 9-32.
- Disconnect 1W106-P2 from J1 on loader's panel.
 - See figure 9-236.
- Connect CX305-P2 (3) to breakout box (4).

2

- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 9-1.

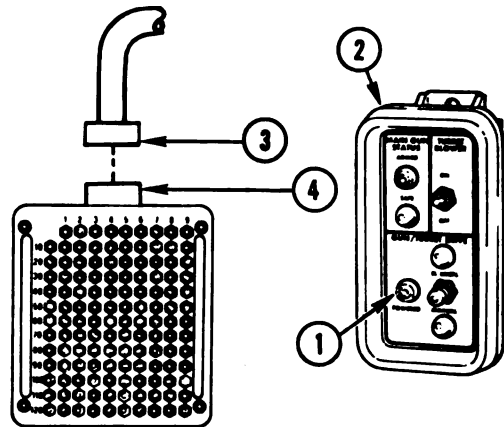


Figure 9-48 (Sheet 1 of 2)
**Volume II
Para. 9-3**

ARR82-5738

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

Connect red test probe (1) to test point 97 on breakout box (2).

NOTE
If VTM display shows 0 to 5, go immediately to block 5.

Test for 0 to 5 ohms by connecting black test probe (3) to each test point on breakout box (2) listed below:

- 7 through 39
- 89 through 96
- 98 through 111

Does VTM display show between 0 and 5?

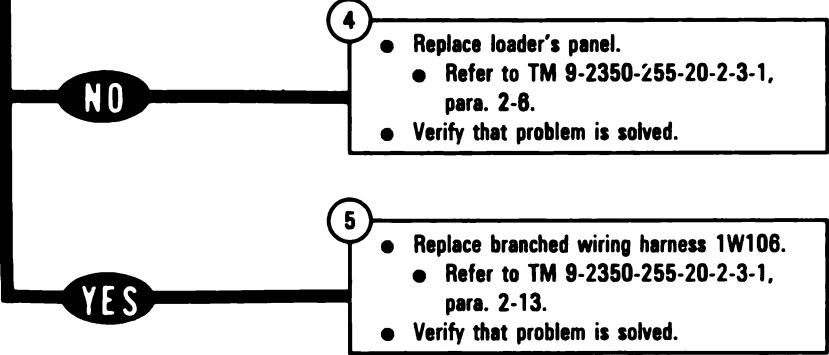
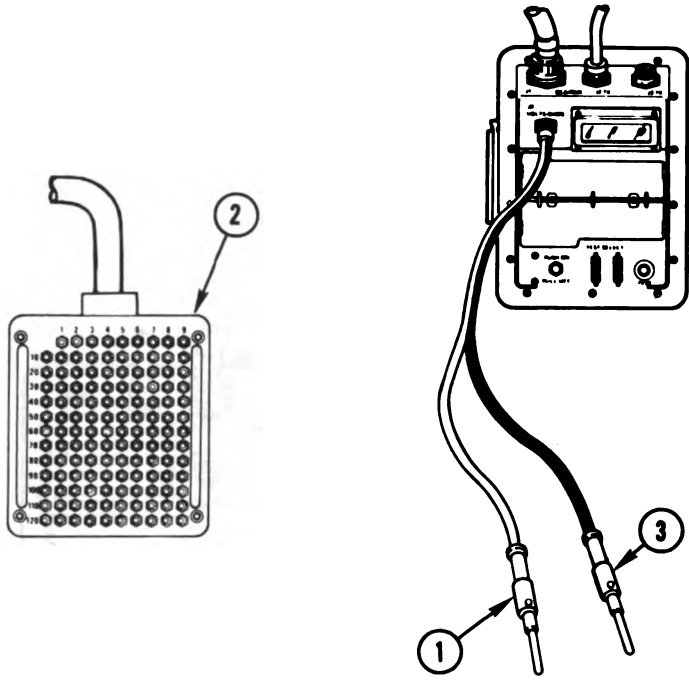


Figure 9-48 (Sheet 2 of 2)
**Volume II
Para. 9-3**

ARR82-5737

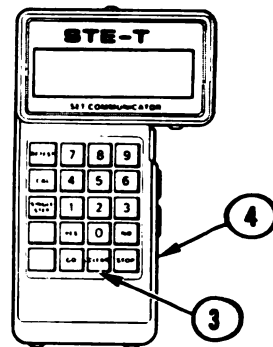
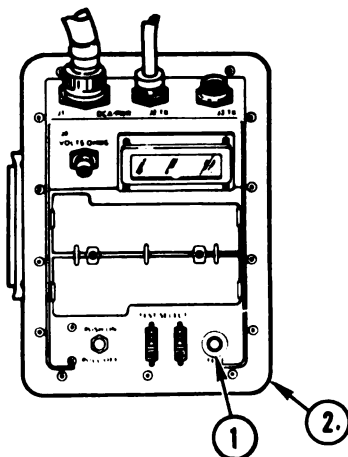
**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

• 140745
• 140833
• 140842

**DISPLAY SHOWS -
FAULTY LP OR
1W106**

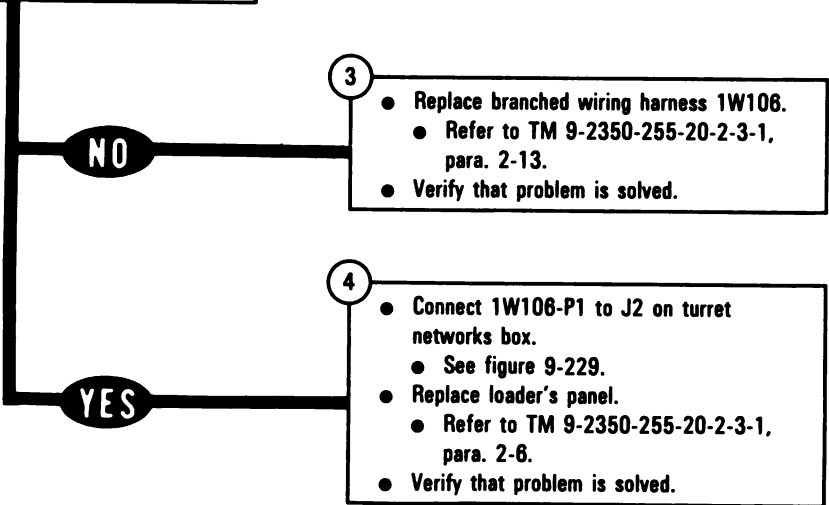
- Equipment Condition:**
- Tank parked.
 - Parking brake set.
 - Engine shut down.
 - Vehicle master power off.

- 1
- Disconnect CA519-P2 from CX307-P1.
 - See figure 9-14.
 - Disconnect 1W106-P2 from J1 on loader's panel.
 - See figure 9-236.
 - Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.



- 2
- Prepare STE to run cable test 1390.
 - Press TEST button (1) on VTM (2).
 - Press CLEAR key (3) on SETCOM (4).
 - Enter test number 1390 on SETCOM (4).
 - Run test on 1W106 between P1 and P2.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.

Does SETCOM display show GOOD?



- 3
- Replace branched wiring harness 1W106.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

- 4
- Connect 1W106-P1 to J2 on turret networks box.
 - See figure 9-229.
 - Replace loader's panel.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-6.
 - Verify that problem is solved.

Figure 9-49
Volume II
Para. 9-3

ARR82-5738

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS -
FAULTY LRU'S AND
CABLES**

140105

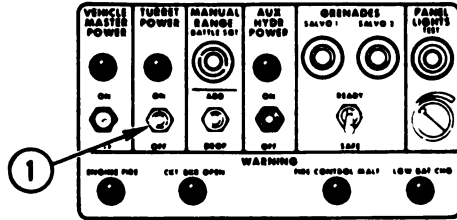
Additional Test

Equipment/Special Tools:

- Breakout Box Tool Kit, 12311066

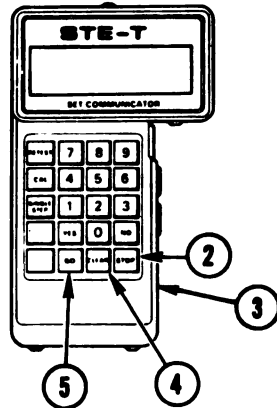
Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power on.



- Reduce hydraulic pressure to zero psi, by operating bilge pump.
 - Refer to TM 9-2350-255-10.
- Disconnect 1W200-P3 from J2 on electronic unit.
 - See figure 9-230.
- Set TURRET POWER switch (1) to ON.

- Press STOP key (2) on SETCOM (3).
- Press CLEAR key (4).
- Enter test number 140105 on SETCOM (3).
- Press GO key (5).



Does SETCOM display show between 13 and 17V?

YES

NO

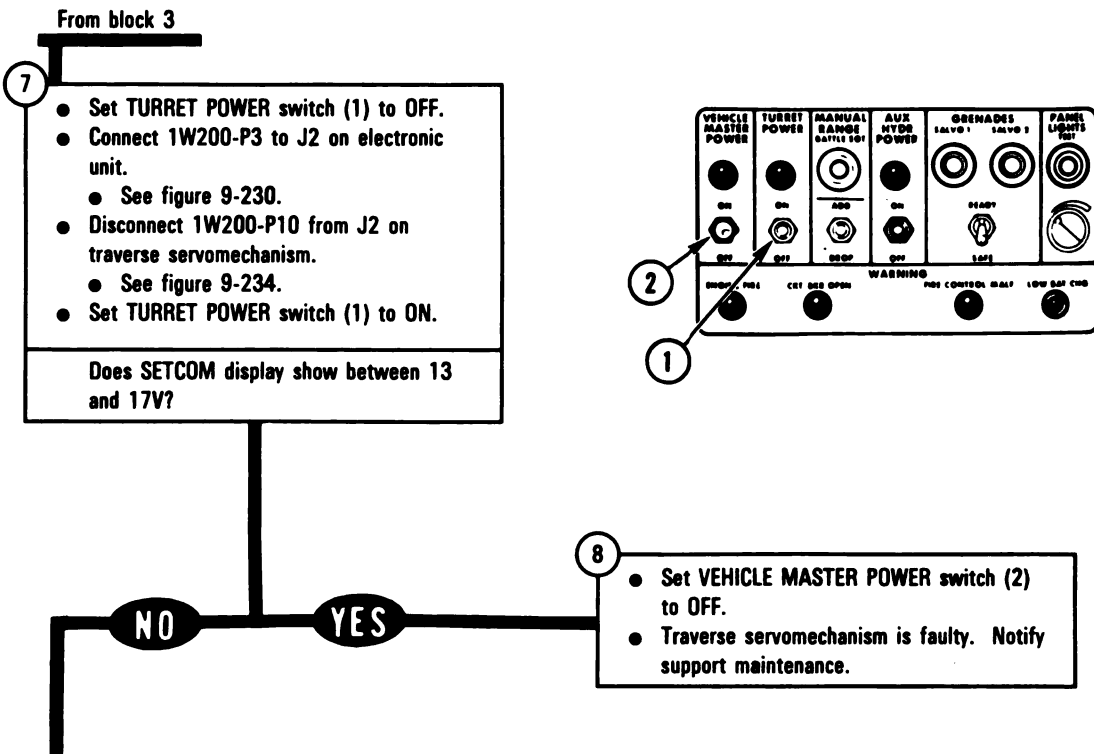
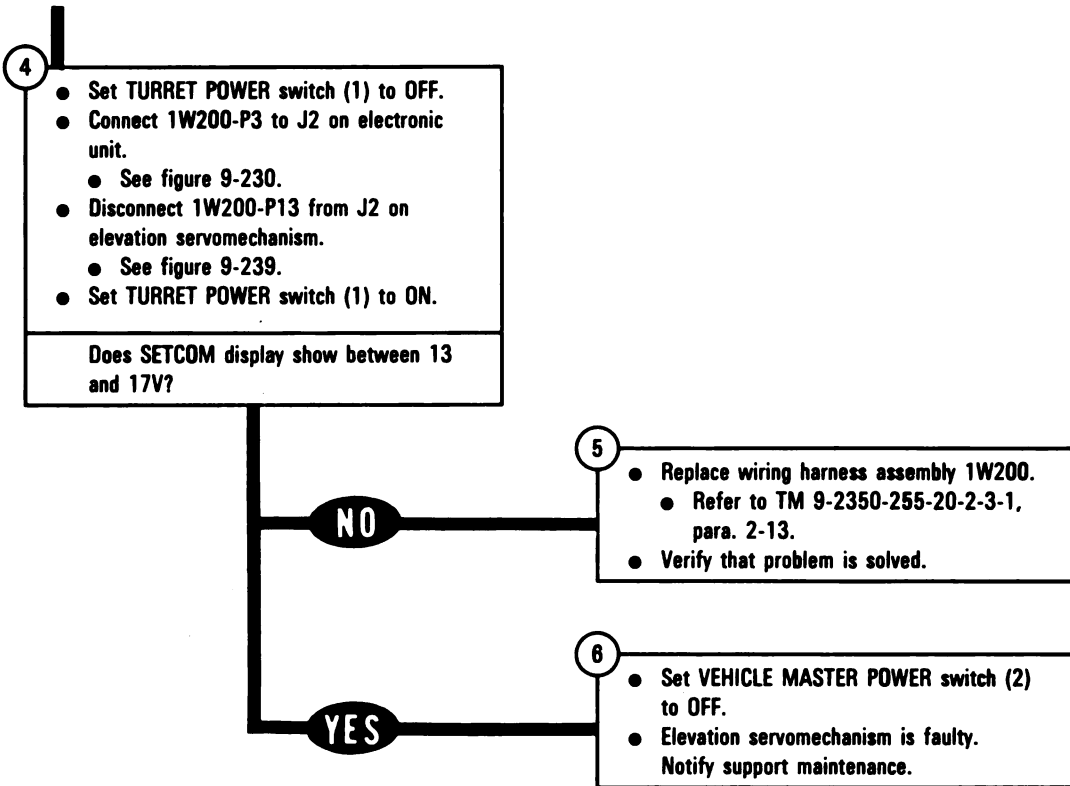
3

Go to block 7.

*Figure 9-50 (Sheet 1 of 7)
Volume II
Para. 9-3*

ARR82-5739

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**



*Figure 9-50 (Sheet 2 of 7)
Volume II
Para. 9-3*

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

- ▶ Set TURRET POWER switch (1) to OFF.
- ▶ Connect 1W200-P10 to J2 on traverse servomechanism.
 - See figure 9-234.
- ▶ Disconnect 1W200-P4 from J3 on electronic unit.
 - See figure 9-230.
- ▶ Set TURRET POWER switch (1) to ON.

Does SETCOM display show between 13 and 17V?

YES

NO

10

- Replace gun/turret drive electronic unit.
- Refer to TM 9-2350-255-20-2-3-3, para. 7-16.
- Verify that problem is solved.

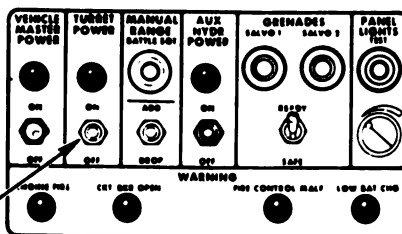
- Set TURRET POWER switch (1) to OFF.
- Connect 1W200-P4 to J3 on electronic unit.
 - See figure 9-230.
- Disconnect 1W104-P1 from J9 on turret networks box.
 - See figure 9-229.
- Set TURRET POWER switch (1) to ON.

Does SETCOM display show between 13 and 17V?

YES

NO

1



13

Go to block 16.

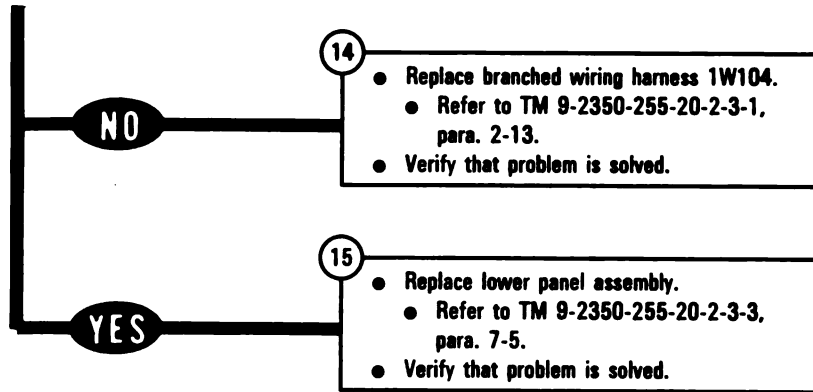
- Set TURRET POWER switch (1) to OFF.
- Connect 1W104-P1 to J9 on turret networks box.
 - See figure 9-229.
- Disconnect 1W104-P2 from J3 on gunner's primary sight.
 - See figure 9-240.
- Set TURRET POWER switch (1) to ON.

Does SETCOM display show between 13 and 17V?

Figure 9-50 (Sheet 3 of 7)
**Volume II
Para. 9-3**

ARR82-5741

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

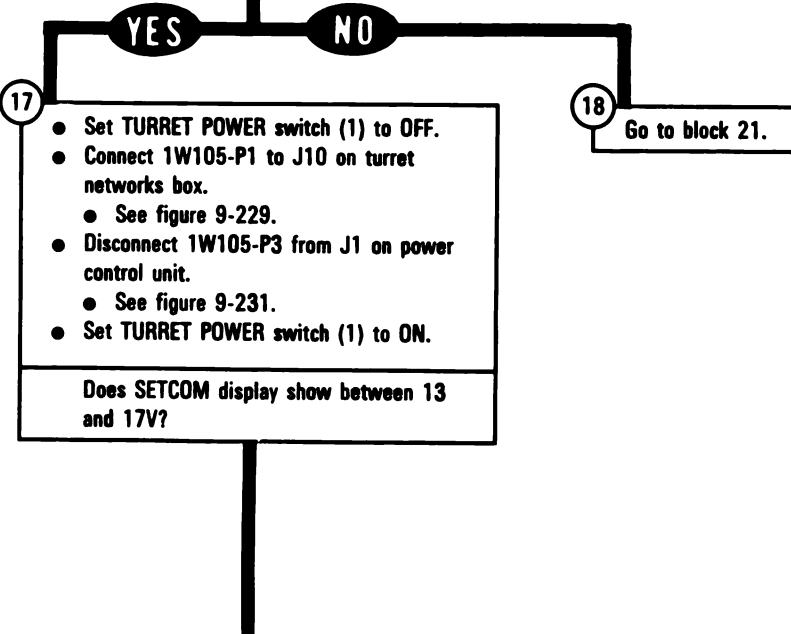
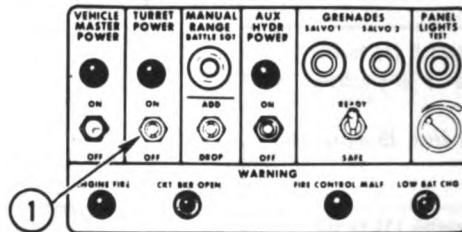


From block 13

16

- Set TURRET POWER switch (1) to OFF.
- Connect 1W104-P1 to J9 on turret networks box.
 - See figure 9-229.
- Disconnect 1W105-P1 from J10 on turret networks box.
 - See figure 9-229.
- Set TURRET POWER switch (1) to ON.

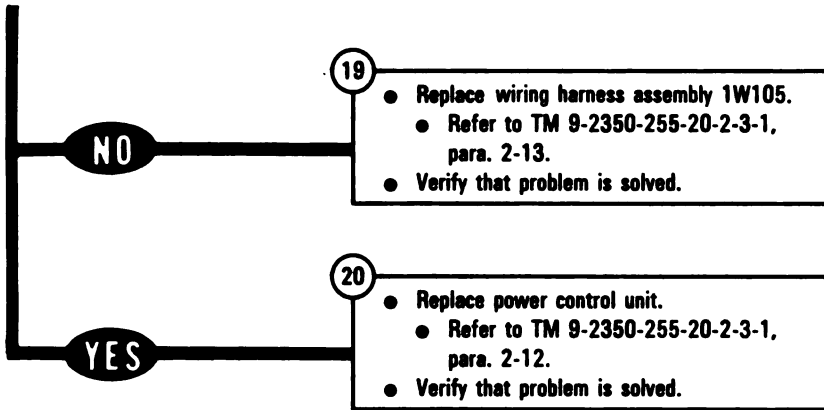
Does SETCOM display show between 13 and 17V?



*Figure 9-50 (Sheet 4 of 7)
Volume II
Para. 9-3*

ARR82-5742

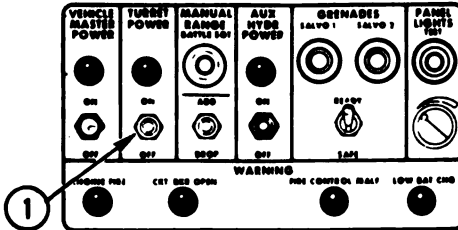
**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**



From block 18

- Set TURRET POWER switch (1) to OFF.
- Connect 1W105-P1 to J10 on turret networks box.
 - See figure 9-229.
- Disconnect 1W203-P1 from J3 on turret networks box.
 - See figure 9-229.
- Set TURRET POWER switch (1) to ON.

Does SETCOM display show between 13 and 17V?



YES **NO**

- Set TURRET POWER switch (1) to OFF.
- Connect 1W203-P1 to J3 on turret networks box.
 - See figure 9-229.
- Disconnect 1W203-P2 from J1 on gunner's primary sight.
 - See figure 9-240.
- Set TURRET POWER switch (1) to ON.

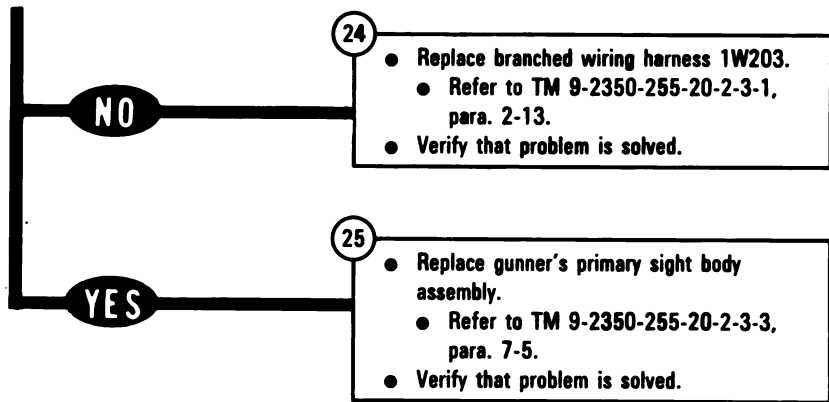
Does SETCOM display show between 13 and 17V?

23 Go to block 26.

Figure 9-50 (Sheet 5 of 7)
Volume II
Para. 9-3

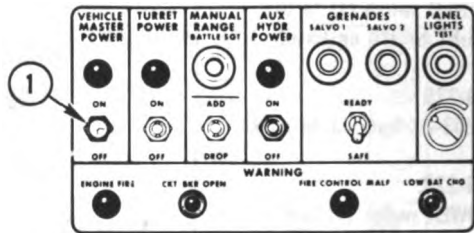
ARR82-5743

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

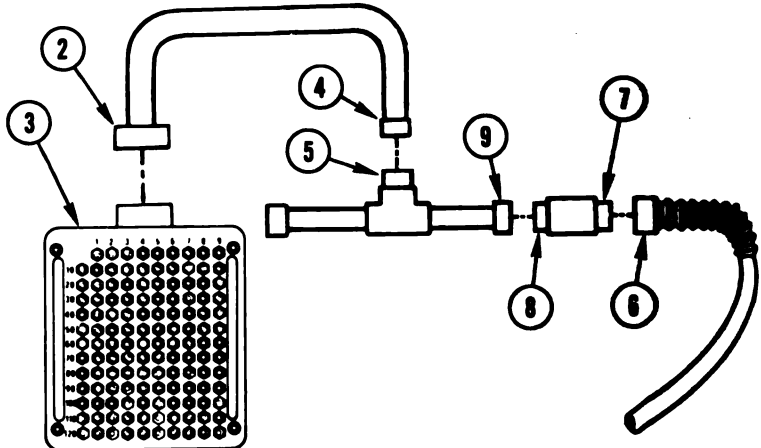


From block 23

- 26**
- Set VEHICLE MASTER POWER switch (1) to OFF.
 - Disconnect 1W200-P1 from J5 on turret networks box.
 - See figure 9-229.
 - Disconnect 1W200-P10 from J2 on traverse servomechanism.
 - See figure 9-234.



- 27**
- Connect CX305-P2 (2) to breakout box (3).
 - Connect CX305-P1 (4) to CX307-P3 (5).
 - Disconnect 1W200-P4 from J3 on electronic unit.
 - See figure 9-230.
 - Connect 1W200-P4 (6) to CA515-P1 (7).
 - Connect CA515-P2 (8) to CX307-P1 (9).



- 28**
- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.
 - Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 9-1.

*Figure 9-50 (Sheet 6 of 7)
Volume II
Para. 9-3*

ARR82-574

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

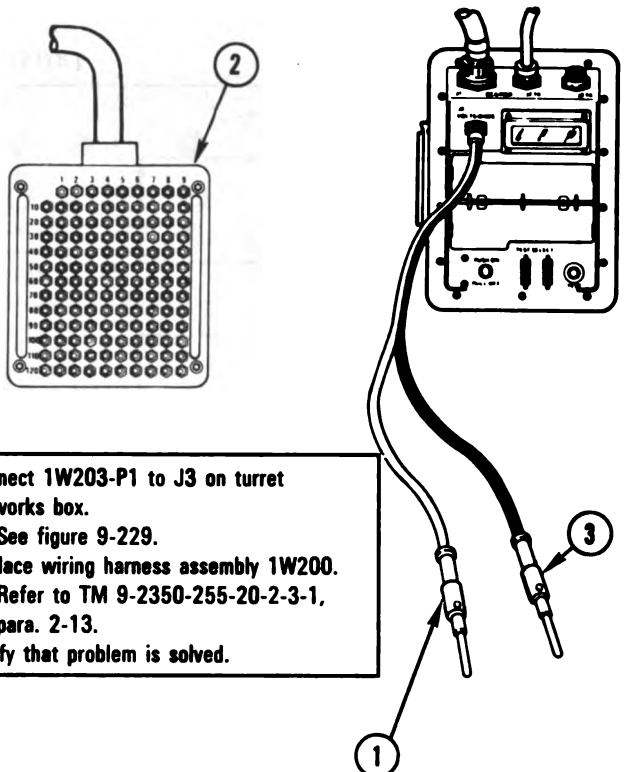
● Connect red test probe (1) to test point 19 on breakout box (2).

NOTE

If VTM display shows 0 to 5, go immediately to block 30.

● Test for 0 to 5 ohms by connecting black test probe (3) to each test point on breakout box (2) listed below:

- 6 through 18
- 20 through 39
- 62, 74, and 75
- 89 through 113



Does VTM display show between 0 and 5?

NO **YES**

30

- Connect 1W203-P1 to J3 on turret networks box.
- See figure 9-229.
- Replace wiring harness assembly 1W200.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

● Connect red test probe (1) to test point 11 on breakout box (2).

NOTE

If VTM display shows 0 to 5, go immediately to block 33.

● Test for 0 to 5 ohms by connecting black test probe (3) to each test point on breakout box (2) listed below:

- 6 through 10
- 12 through 39
- 62, 74, and 75
- 89 through 113

Does VTM display show between 0 and 5?

NO

32

- Connect 1W200-P10 to J2 on traverse servomechanism.
- See figure 9-234.
- Replace turret networks box.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
- Verify that problem is solved.

YES

33

- Connect 1W203-P1 to J3 on turret networks box.
- See figure 9-229.
- Replace wiring harness assembly 1W200.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

Figure 9-50 (Sheet 7 of 7)
Volume II
Para. 9-3

ARR82-5745

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS
FAULTY LRU'S AND
CABLES**

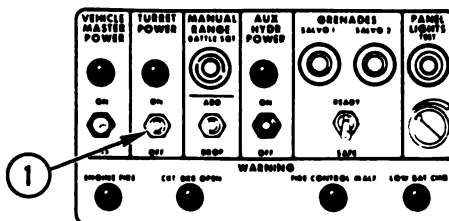
140106

**Additional Test
Equipment/Special Tools:**

- Breakout Box Tool Kit, 12311066

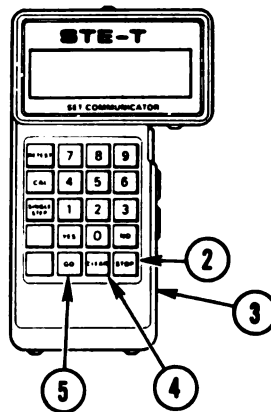
Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power on.



- 1
- Reduce hydraulic pressure to zero psi, by operating bilge pump.
 - Refer to TM 9-2350-255-10.
 - Disconnect 1W200-P3 from J2 on electronic unit.
 - See figure 9-230.
 - Set TURRET POWER switch (1) to ON.

- 2
- Press STOP key (2) on SETCOM (3).
 - Press CLEAR key (4).
 - Enter test number 140106 on SETCOM (3).
 - Press GO key (5).



Does SETCOM display show between -13 and -17V?

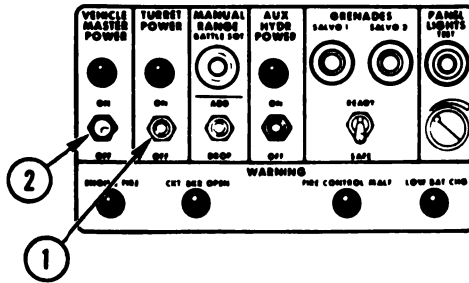
YES

NO

3
Go to block 7.

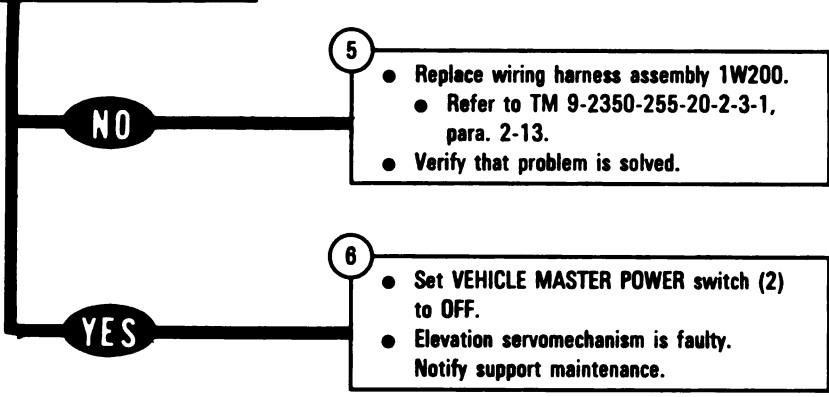
*Figure 9-51 (Sheet 1 of 7)
Volume II
Para. 9-3*

TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING



- Set TURRET POWER switch (1) to OFF.
- Connect 1W200-P3 to J2 on electronic unit.
 - See figure 9-230.
- Disconnect 1W200-P13 from J2 on elevation servomechanism.
 - See figure 9-239.
- Set TURRET POWER switch (1) to ON.

Does SETCOM display show between -13 and -17V?



From block 3

- Set TURRET POWER switch (1) to OFF.
- Connect 1W200-P3 to J2 on electronic unit.
 - See figure 9-230.
- Disconnect 1W200-P10 from J2 on traverse servomechanism.
 - See figure 9-234.
- Set TURRET POWER switch (1) to ON.

Does SETCOM display show between -13 and -17V?

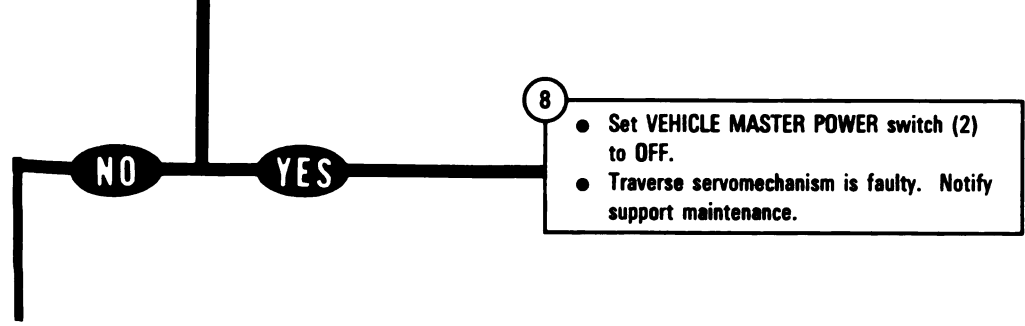
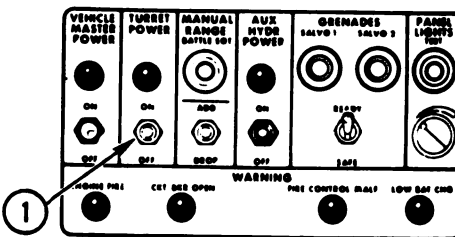
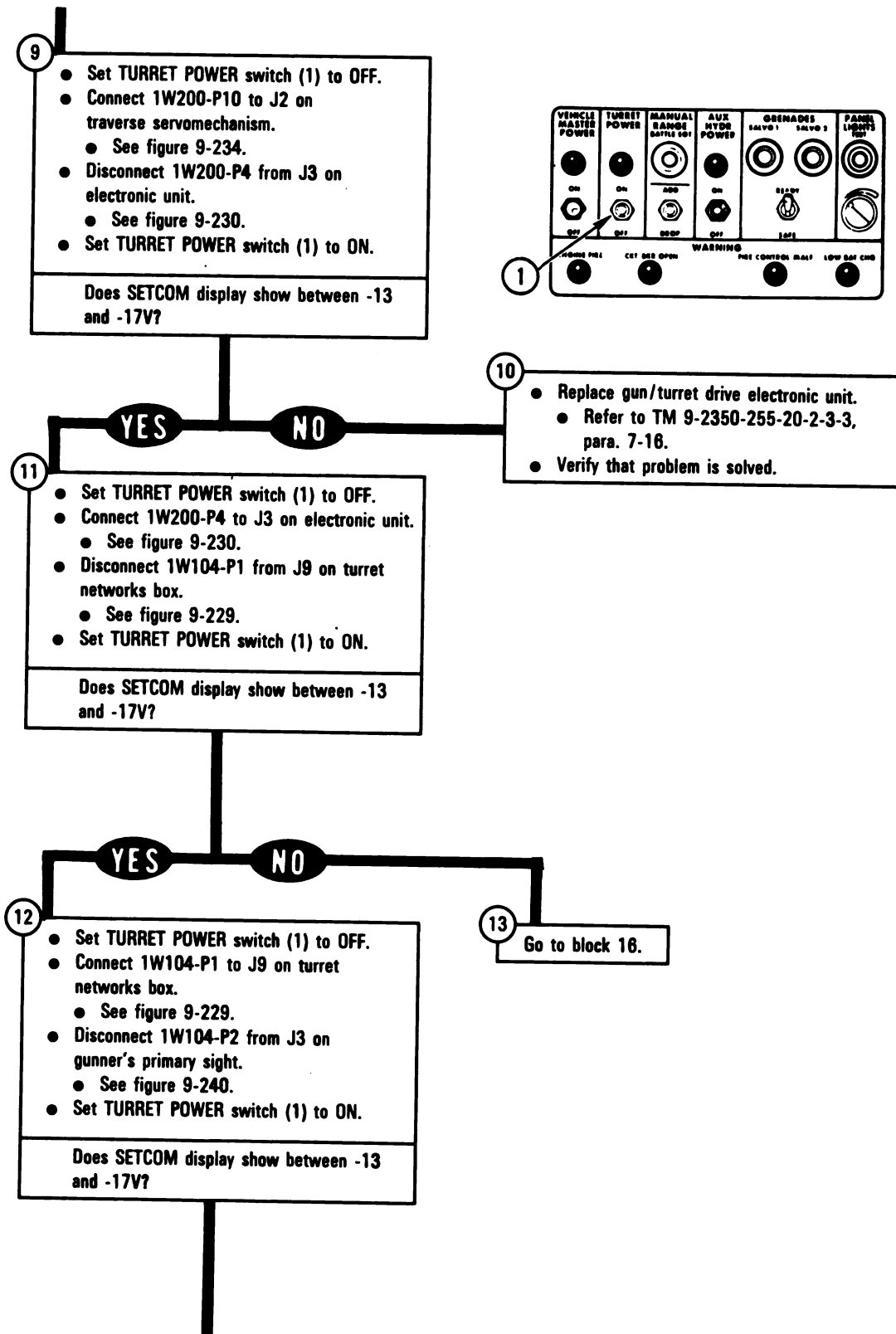


Figure 9-51 (Sheet 2 of 7)
 Volume II
 Para. 9-3

ARR82-5747

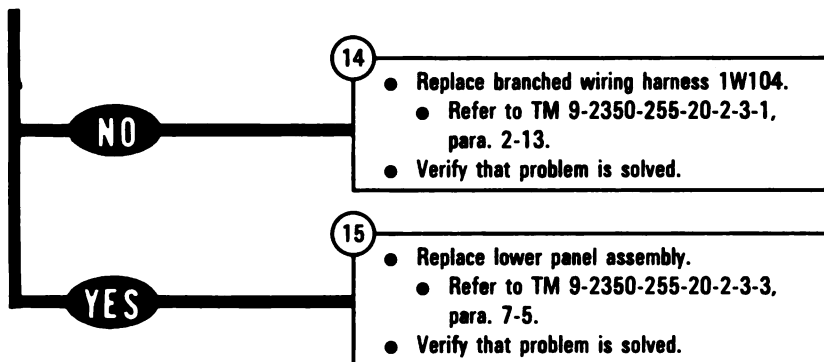
**TM 9-2350-255-20-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**



*Figure 9-51 (Sheet 3 of 7)
Volume II
Para. 9-3*

ARR825

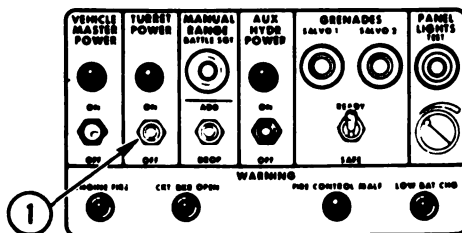
**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**



From block 13

- Set TURRET POWER switch (1) to OFF.
- Connect 1W104-P1 to J9 on turret networks box.
 - See figure 9-229.
- Disconnect 1W105-P1 from J10 on turret networks box.
 - See figure 9-229.
- Set TURRET POWER switch (1) to ON.

Does SETCOM display show between -13 and -17V?



YES

NO

- Set TURRET POWER switch (1) to OFF.
- Connect 1W105-P1 to J10 on turret networks box.
 - See figure 9-229.
- Disconnect 1W105-P3 from J1 on power control unit.
 - See figure 9-231.
- Set TURRET POWER switch (1) to ON.

Does SETCOM display show between -13 and -17V?

18

Go to block 21.

NO

19

- Replace wiring harness assembly 1W105.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

YES

20

- Replace power control unit.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-12.
- Verify that problem is solved.

Figure 9-51 (Sheet 4 of 7)
**Volume II
Para. 9-3**

ARR82-5749

9-127

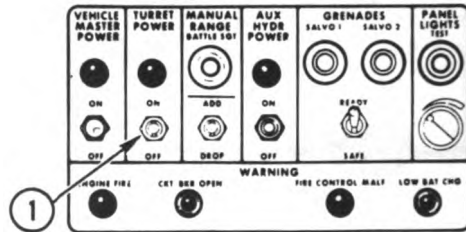
**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

From block 18

21

- Set TURRET POWER switch (1) to OFF.
- Connect 1W105-P1 to J10 on turret networks box.
 - See figure 9-229.
- Disconnect 1W203-P1 from J3 on turret networks box.
 - See figure 9-229.
- Set TURRET POWER switch (1) to ON.

Does SETCOM display show between -13 and -17V?



YES NO

22

- Set TURRET POWER switch (1) to OFF.
- Connect 1W203-P1 to J3 on turret networks box.
 - See figure 9-229.
- Disconnect 1W203-P2 from J1 on gunner's primary sight.
 - See figure 9-240.
- Set TURRET POWER switch (1) to ON.

Does SETCOM display show between -13 and -17V?

23 Go to block 26.

NO

24

- Replace branched wiring harness 1W203.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

YES

25

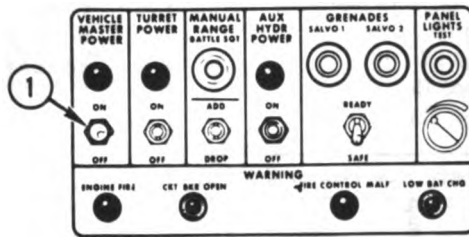
- Replace gunner's primary sight body assembly.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-5.
 - Verify that problem is solved.

*Figure 9-51 (Sheet 5 of 7)
Volume II
Para. 9-3*

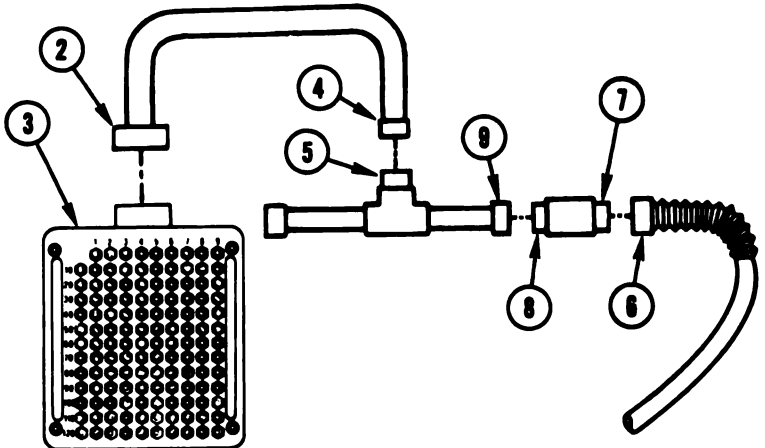
TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING

From block 23

- Set VEHICLE MASTER POWER switch (1) to OFF.
- Disconnect 1W200-P1 from J5 on turret networks box.
 - See figure 9-229.
- Disconnect 1W200-P10 from J2 on traverse servomechanism.
 - See figure 9-234.



- Connect CX305-P2 (2) to breakout box (3).
- Connect CX305-P1 (4) to CX307-P3 (5).
- Disconnect 1W200-P4 from J3 on electronic unit.
 - See figure 9-230.
- Connect 1W200-P4 (8) to CA515-P1 (7).
- Connect CA515-P2 (8) to CX307-P1 (9).



- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 9-1.

Figure 9-51 (Sheet 6 of 7)
Volume II
Para. 9-3

ARR82-5751

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

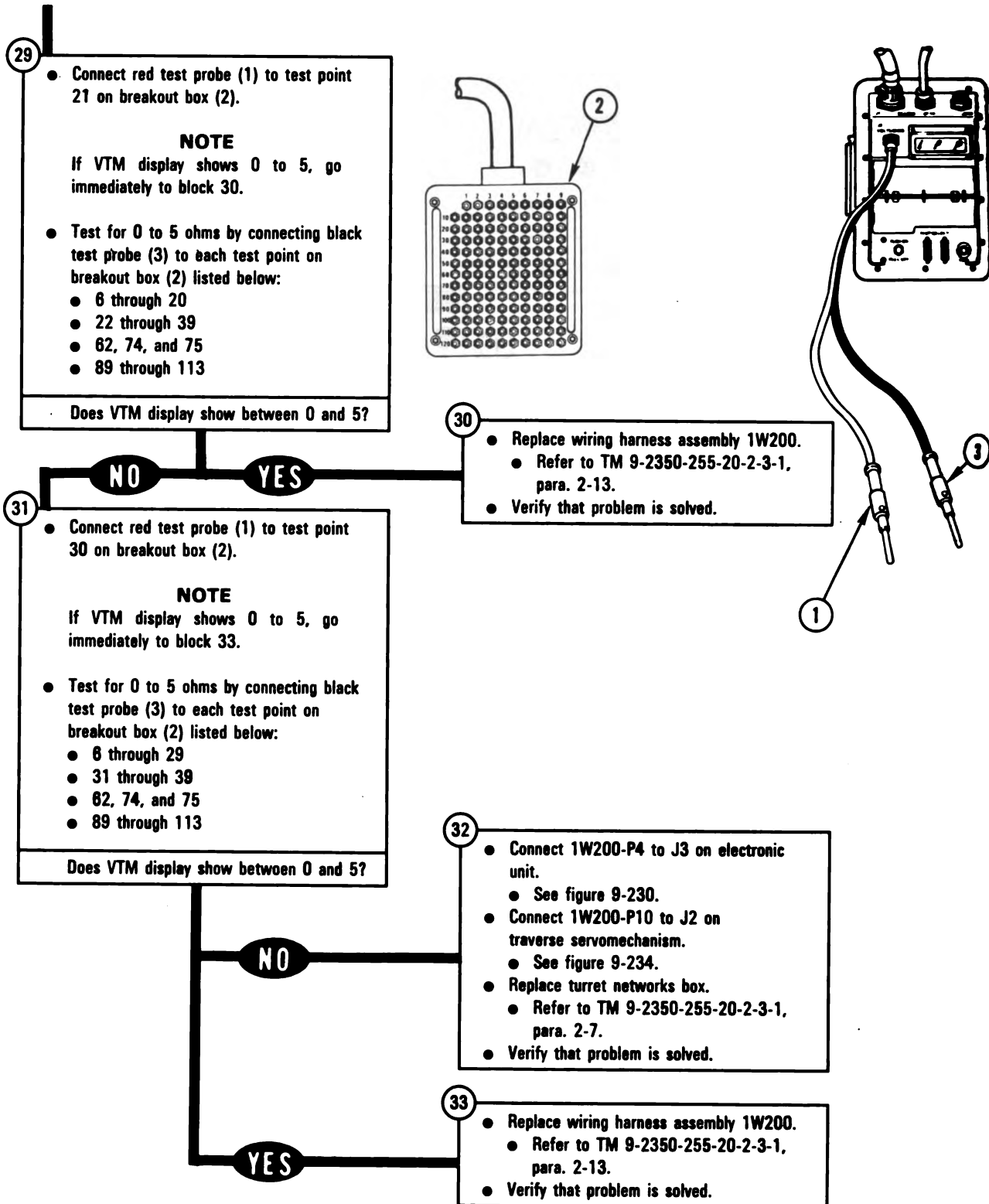


Figure 9-51 (Sheet 7 of 7)
Volume II
Para. 9-3

ARR82-5752

**DISPLAY SHOWS -
FAULTY GPS OR
1W206**

140251

**Additional Test
Equipment/Special Tools:**

- Breakout Box Tool Kit, 12311066

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- Disconnect CA519-P2 from CX307-P1.
 - See figure 9-15.
- Disconnect CX305-P2 from CIB-J1.
 - See figure 9-32.
- Disconnect 1W206-P2 from J2 on gunner's primary sight.
 - See figure 9-240.

- Connect CX305-P2 (1) to breakout box (2).
- If disconnected, connect 1W206-P1 (3) to CA520-P1 (4).

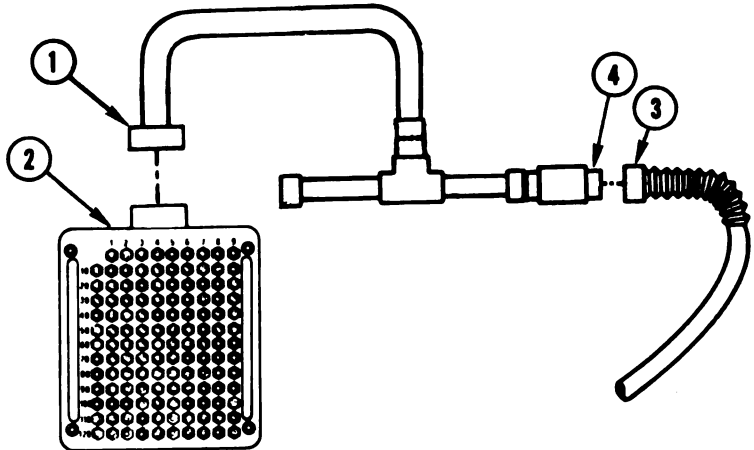
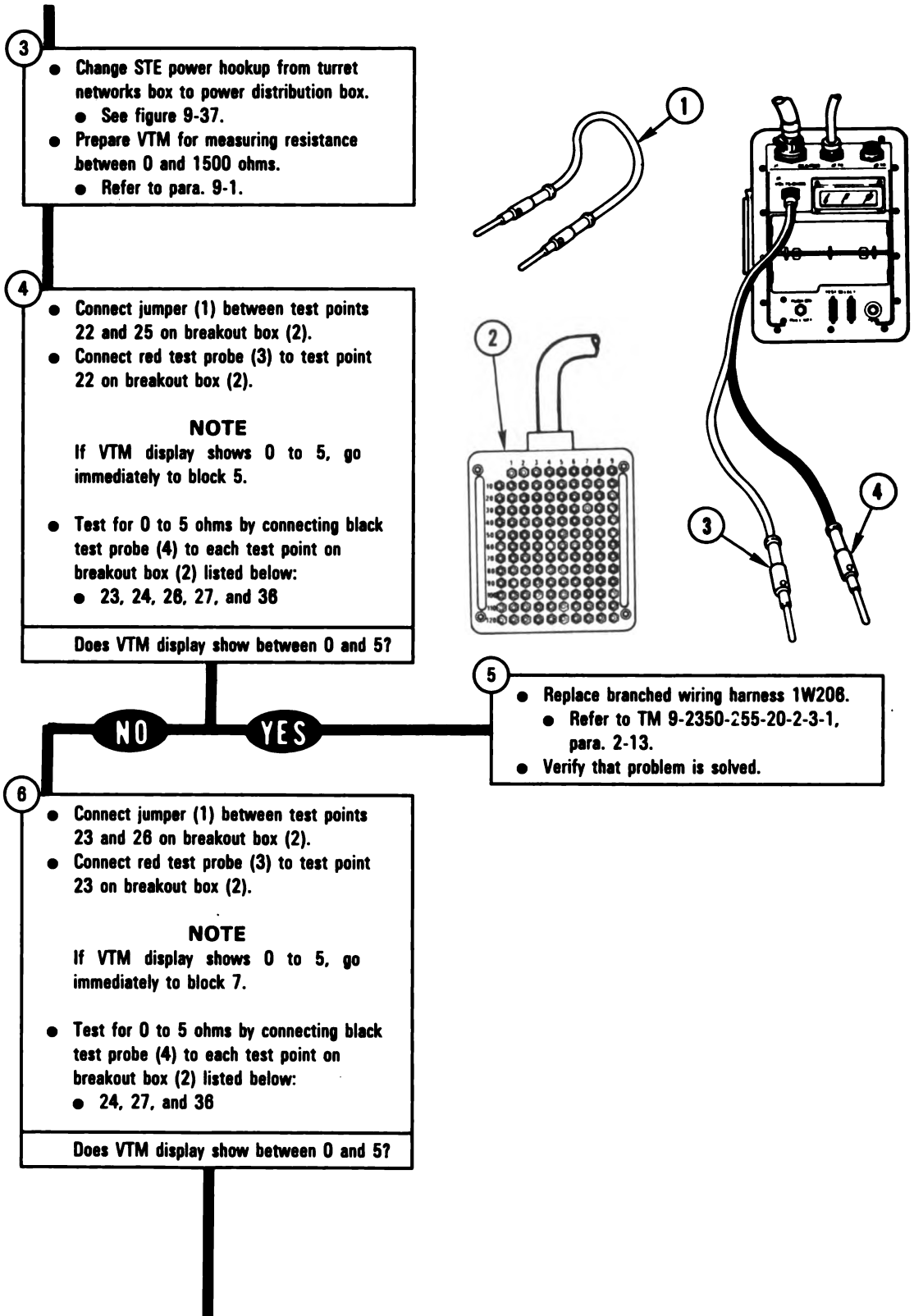


Figure 9-52 (Sheet 1 of 4)
Volume II
Para. 9-3

ARR82-5753

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**



*Figure 9-52 (Sheet 2 of 4)
Volume II
Para. 9-3*

ARR82-5754

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

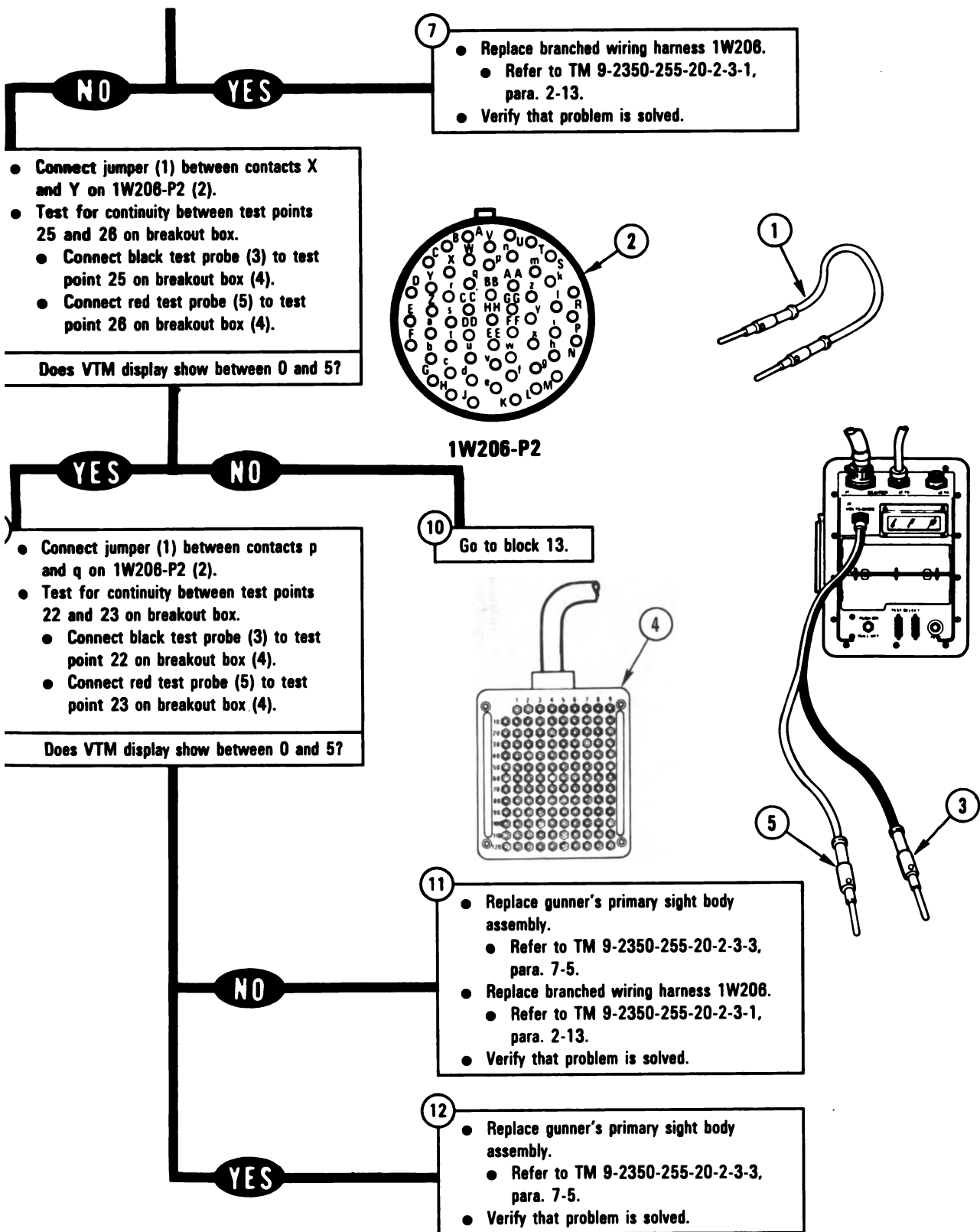


Figure 9-52 (Sheet 3 of 4)
Volume II
Para. 9-3

ARR82-5755

9-133

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

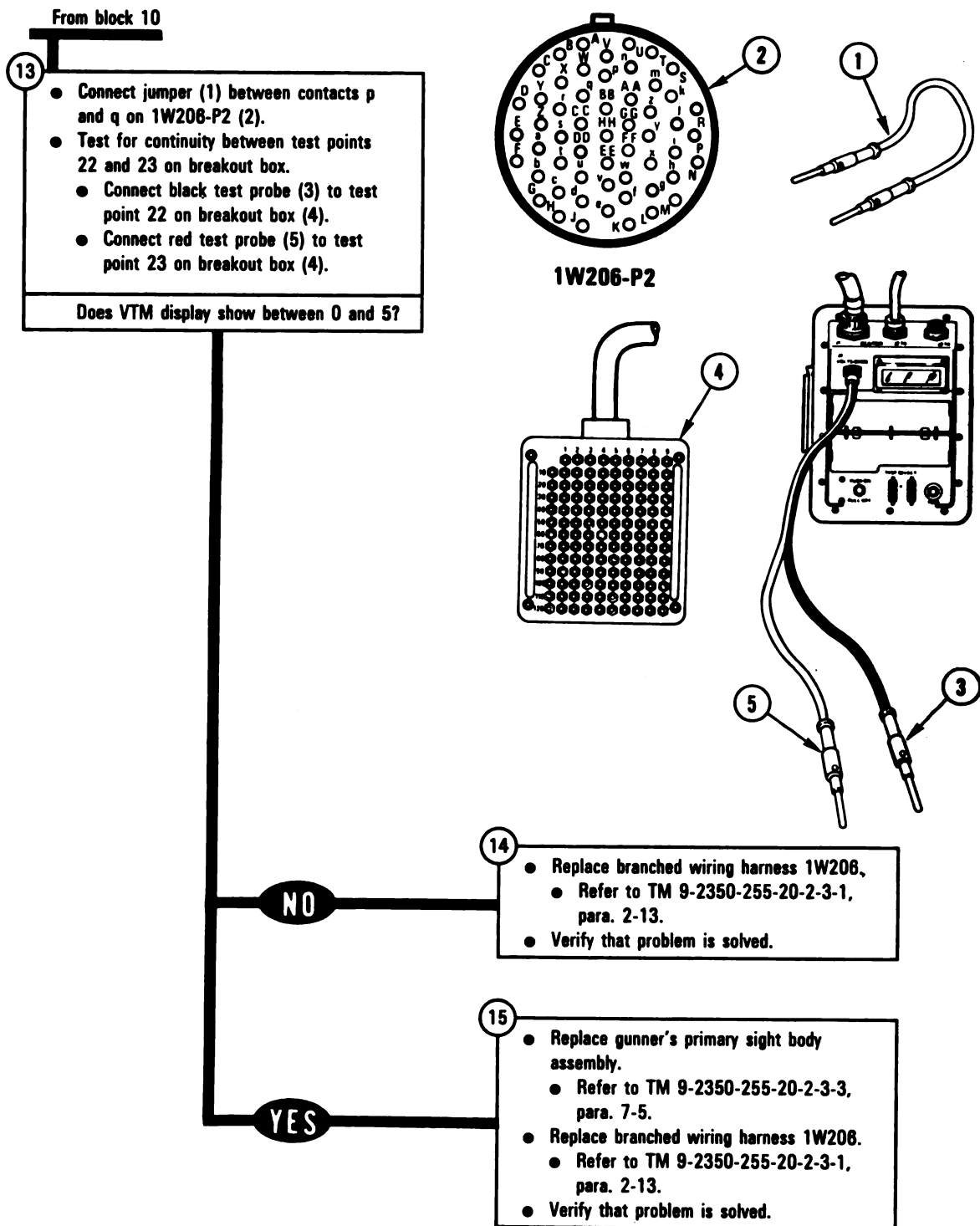


Figure 9-52 (Sheet 4 of 4)
Volume II
Para. 9-3

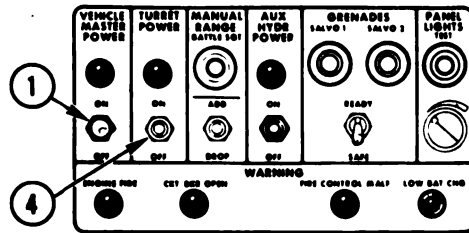
TM 9-2350-255-20-2-2-1 HYDRAULIC AND GUN/TURRET DRIVE SYSTEM TROUBLESHOOTING

**DISPLAY SHOWS -
FAULTY LRU'S AND
CABLES**

140207

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power on.

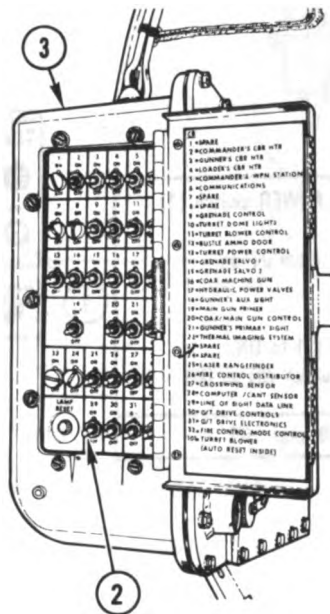


- Reduce hydraulic pressure to zero psi, by operating bilge pump.
- Refer to TM 9-2350-255-10.
- Set VEHICLE MASTER POWER switch (1) to OFF.
- Disconnect 1W202-P3 from J1 on line-of-sight electronics unit.
- See figure 9-238.
- Set circuit breaker 29 (2) on turret networks box (3) to ON.
- Set TURRET POWER switch (4) to ON.

Does circuit breaker 29 shut off?

YES

NO



2

- Replace line-of-sight electronics unit.
- Refer to TM 9-2350-255-20-2-3-3, para. 7-8.
- Verify that problem is solved.

Figure 9-53 (Sheet 1 of 3)
**Volume II
Para. 9-3**

ARR82-6757

9-135

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

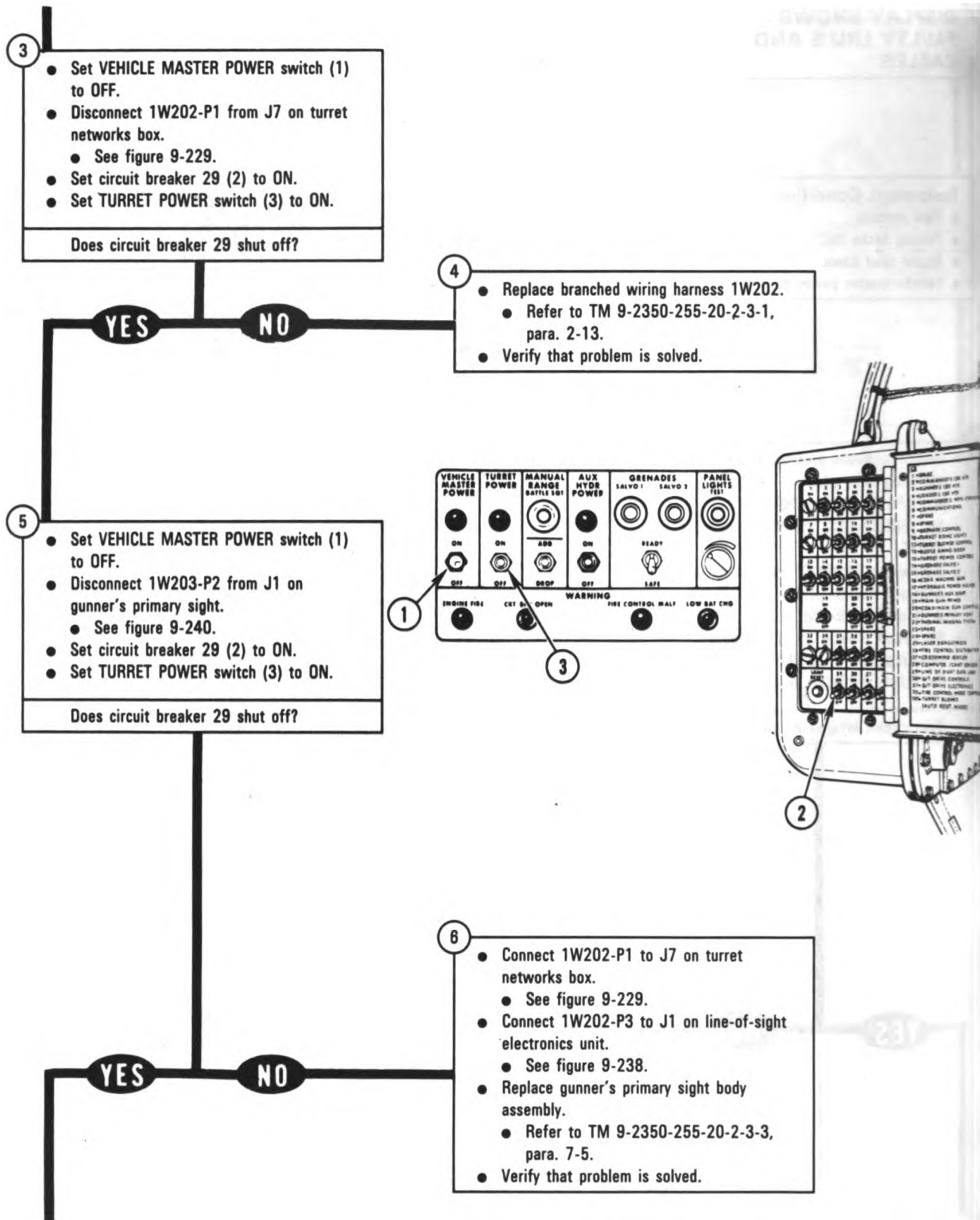
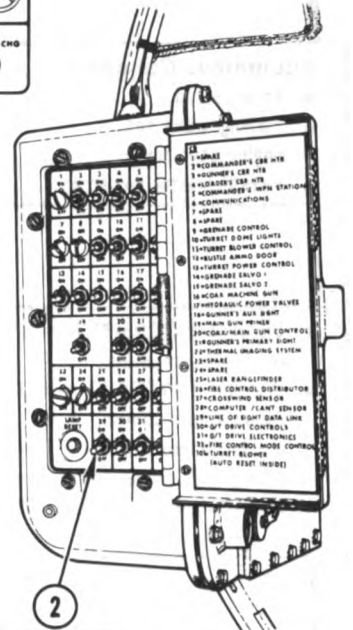
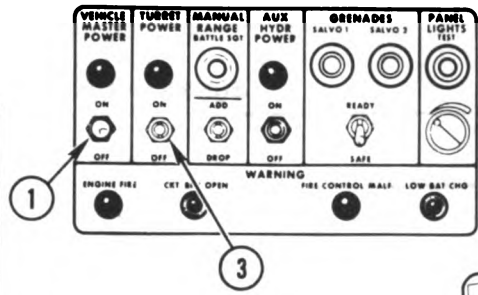


Figure 9-53 (Sheet 2 of 3)
Volume II
Para. 9-3

ARR82-5751

TM 9-2350-255-20-2-2-1 HYDRAULIC AND GUN/TURRET DRIVE SYSTEM TROUBLESHOOTING

- Set VEHICLE MASTER POWER switch (1) to OFF.
- Disconnect 1W203-P1 from J3 on turret networks box.
 - See figure 9-229.
- Set circuit breaker 29 (2) to ON.
- Set TURRET POWER switch (3) to ON.



Does circuit breaker 29 shut off?

NO

- 8
- Connect 1W202-P1 to J7 on turret networks box.
 - See figure 9-229.
 - Connect 1W202-P3 to J1 on line-of-sight electronics unit.
 - See figure 9-238.
 - Replace branched wiring harness 1W203.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

YES

- 9
- Connect 1W202-P3 to J1 on line-of-sight electronics unit.
 - See figure 9-238.
 - Connect 1W203-P2 to J1 on gunner's primary sight.
 - See figure 9-240.
 - Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
 - Verify that problem is solved.

**Figure 9-53 (Sheet 3 of 3)
Volume II
Para. 9-3**

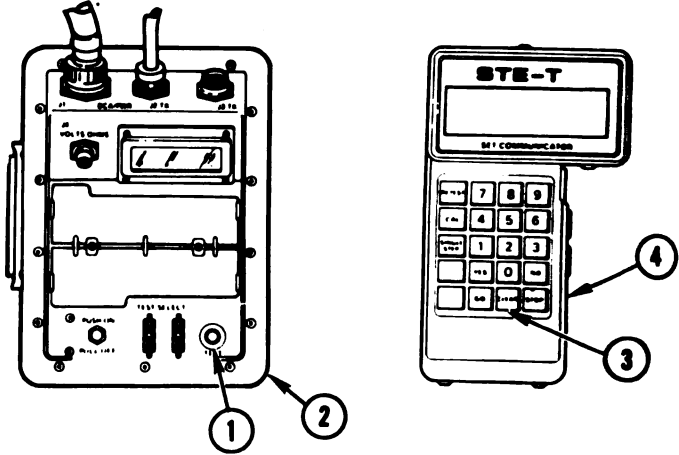
ARR82-5759

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

DISPLAY SHOWS FAULTY TCH OR 1W200 **140573**

- Equipment Condition:**
- Tank parked.
 - Parking brake set.
 - Engine shut down.
 - Vehicle master power off.

- 1
- Disconnect CX305-P1 from CX307-P3.
 - See figure 9-23.
 - Disconnect 1W200-P7 from J1 on commander's control.
 - See figure 9-232.
 - Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.



- 2
- Prepare STE to run cable test 1390.
 - Press TEST button (1) on VTU (2).
 - Press CLEAR key (3) on SETCOM (4).
 - Enter test number 1390 on SETCOM (4).
 - Run test on 1W200 between P4 and P7.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.

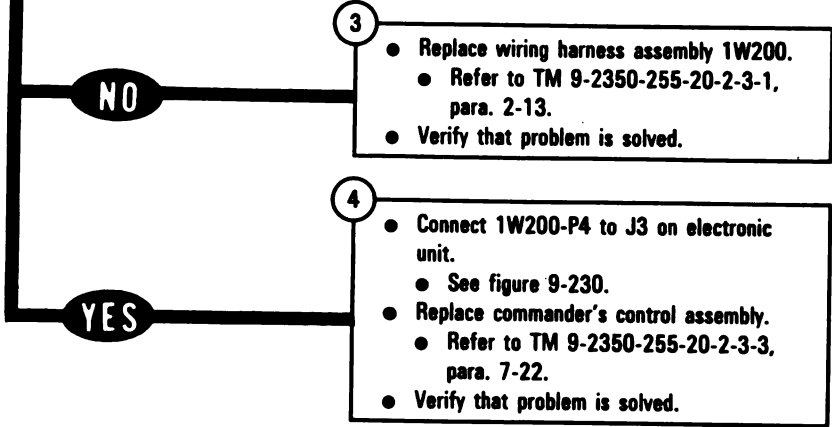


Figure 9-54
Volume II
Para. 9-3

**DISPLAY SHOWS -
 FAULTY TNB OR
 1W104** **140806**

**Additional Test
 Equipment/Special Tools:**
 ● Breakout Box Tool Kit, 12311066

Equipment Condition:
 ● Tank parked.
 ● Parking brake set.
 ● Engine shut down.
 ● Vehicle master power off.

● Connect CX304-P2 (1) to breakout box (2).
 ● Connect CX304-P1 (3) to CX307-P3 (4).
 ● Disconnect 1W104-P1 from J9 on turret networks box.
 ● See figure 9-229.
 ● Connect 1W104-P1 (5) to CA518-P1 (6).
 ● Connect CA518-P2 (7) to CX307-P1 (8).

● Change STE power hookup from turret networks box to power distribution box.
 ● See figure 9-37.
 ● Prepare VTM for measuring resistance between 0 and 1500 ohms.
 ● Refer to para. 9-1.

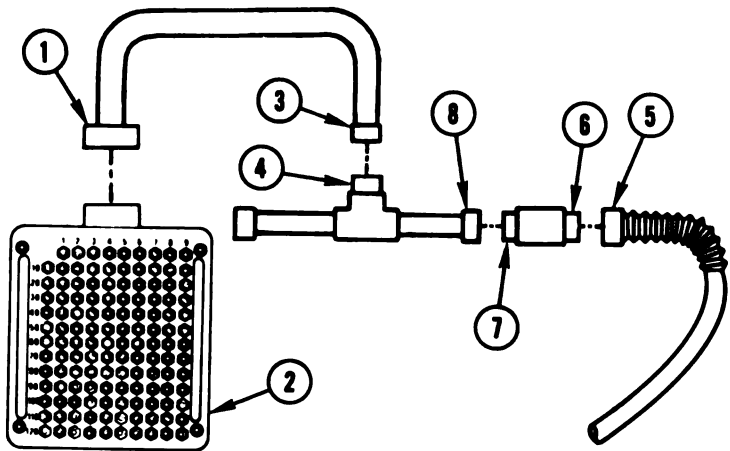


Figure 9-55 (Sheet 1 of 2)
 Volume II
 Para. 9-3

ARR82-5761

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

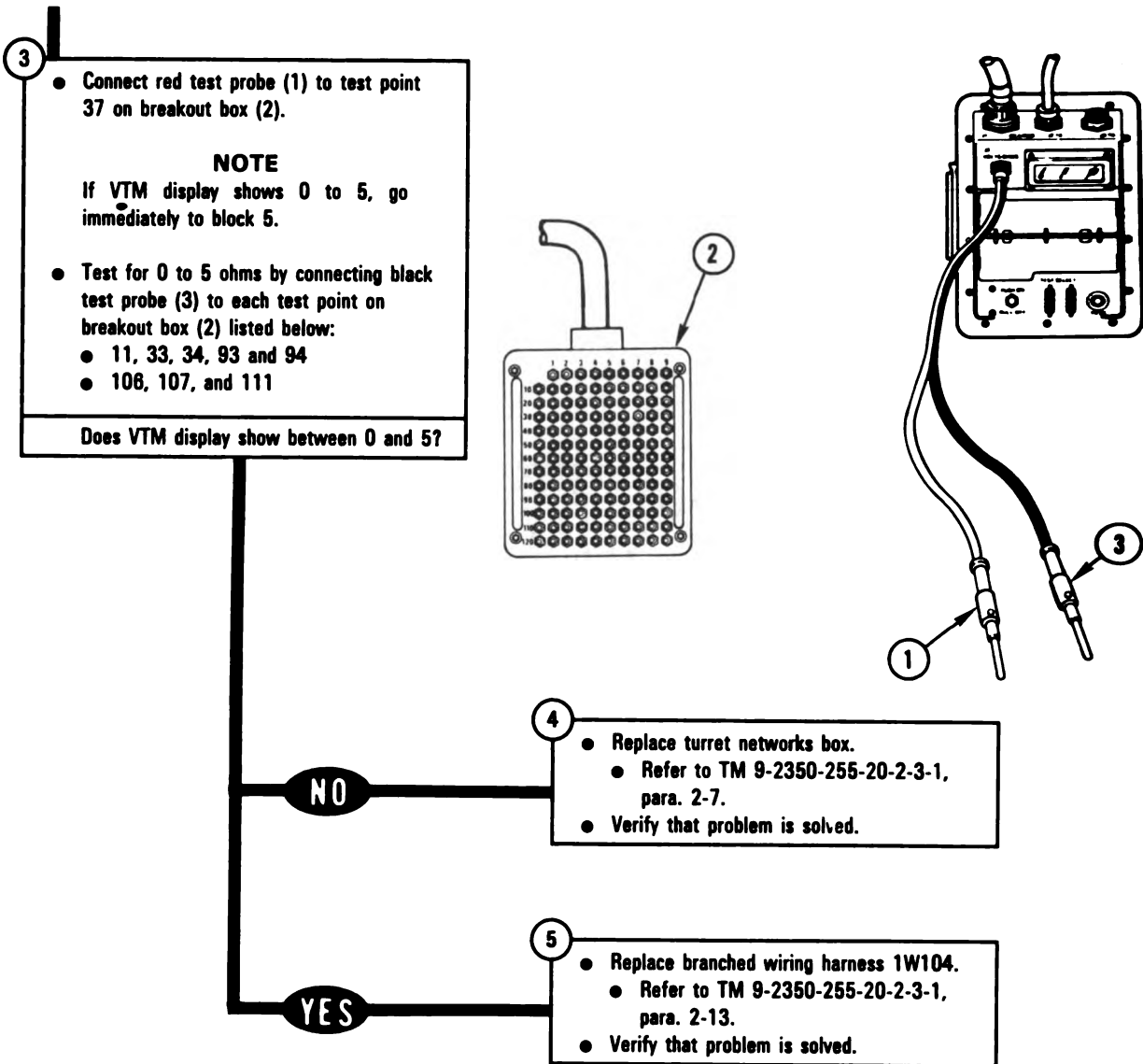


Figure 9-55 (Sheet 2 of 2)
Volume II
Para. 9-3

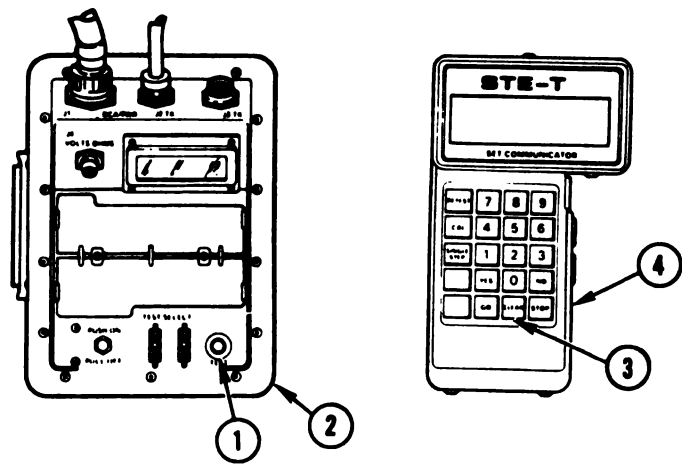
ARR82-5762

**DISPLAY SHOWS -
FAULTY CEU OR
1W202** **144214**

**Additional Test
Equipment/Special Tools:**
● Breakout Box Tool Kit, 12311066

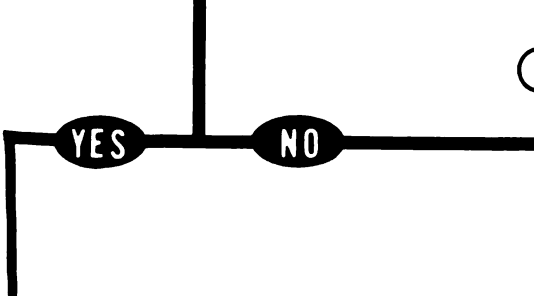
Equipment Condition:
● Tank parked.
● Parking brake set.
● Engine shut down.
● Vehicle master power off.

- Disconnect CX305-P2 from CIB-J1.
● See figure 9-32.
- Disconnect 1W202-P2 from J2 on computer electronics unit.
● See figure 9-230.
- Change STE power hookup from turret networks box to power distribution box.
● See figure 9-37.



- Prepare STE to run cable test 1390.
● Press TEST button (1) on VTM (2).
● Press CLEAR key (3) on SETCOM (4).
● Enter test number 1390 on SETCOM (4).
- Run test on 1W202 between P2 and P3.
● Refer to TM 9-2350-255-20-2-2-2, figure 15-5.

Does SETCOM display show GOOD?

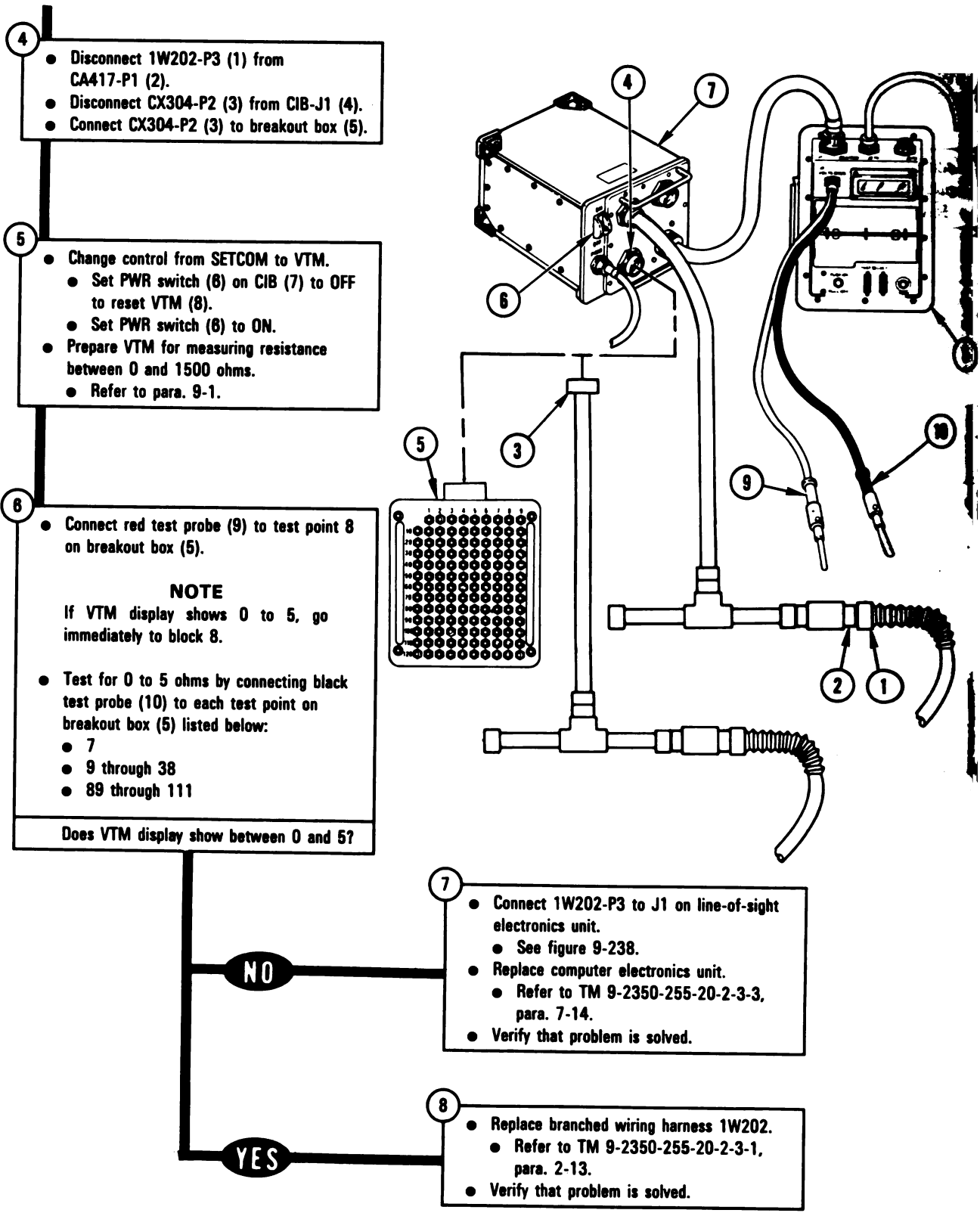


- 3
- Replace branched wiring harness 1W202.
● Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

Figure 9-56 (Sheet 1 of 2)
Volume II
Para. 9-3

ARR82-5763

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**



*Figure 9-56 (Sheet 2 of 2)
Volume II
Para. 9-3*

ARR82-5764

DISPLAY SHOWS -
FAULTY CEU OR
1W201

141025

Additional Test

Equipment/Special Tools:

- Breakout Box Tool Kit, 12311088

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- Connect CX305-P2 (1) to breakout box (2).
- Connect CX305-P1 (3) to CX307-P3 (4).
- Connect 1W201-P1 (5) to CA502-P1 (8).
- Connect CA502-P2 (7) to CX307-P1 (8).
- Disconnect 1W201-P2 from J1 on computer electronics unit.
- See figure 9-230.

- Change STE power hookup from turret networks box to power distribution box.
- See figure 9-37.
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
- Refer to para. 9-1.

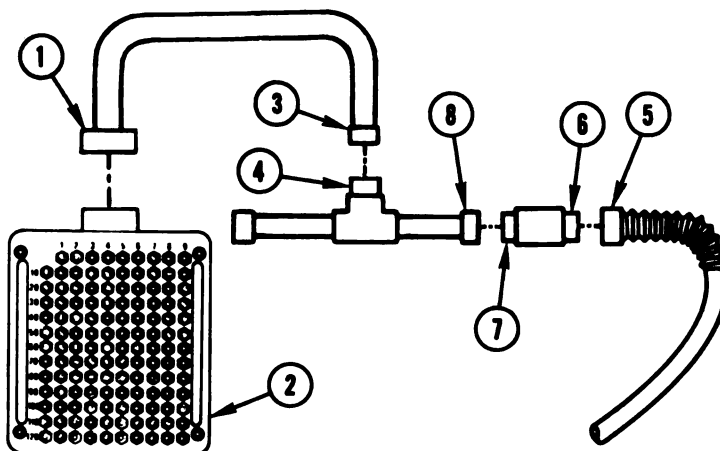
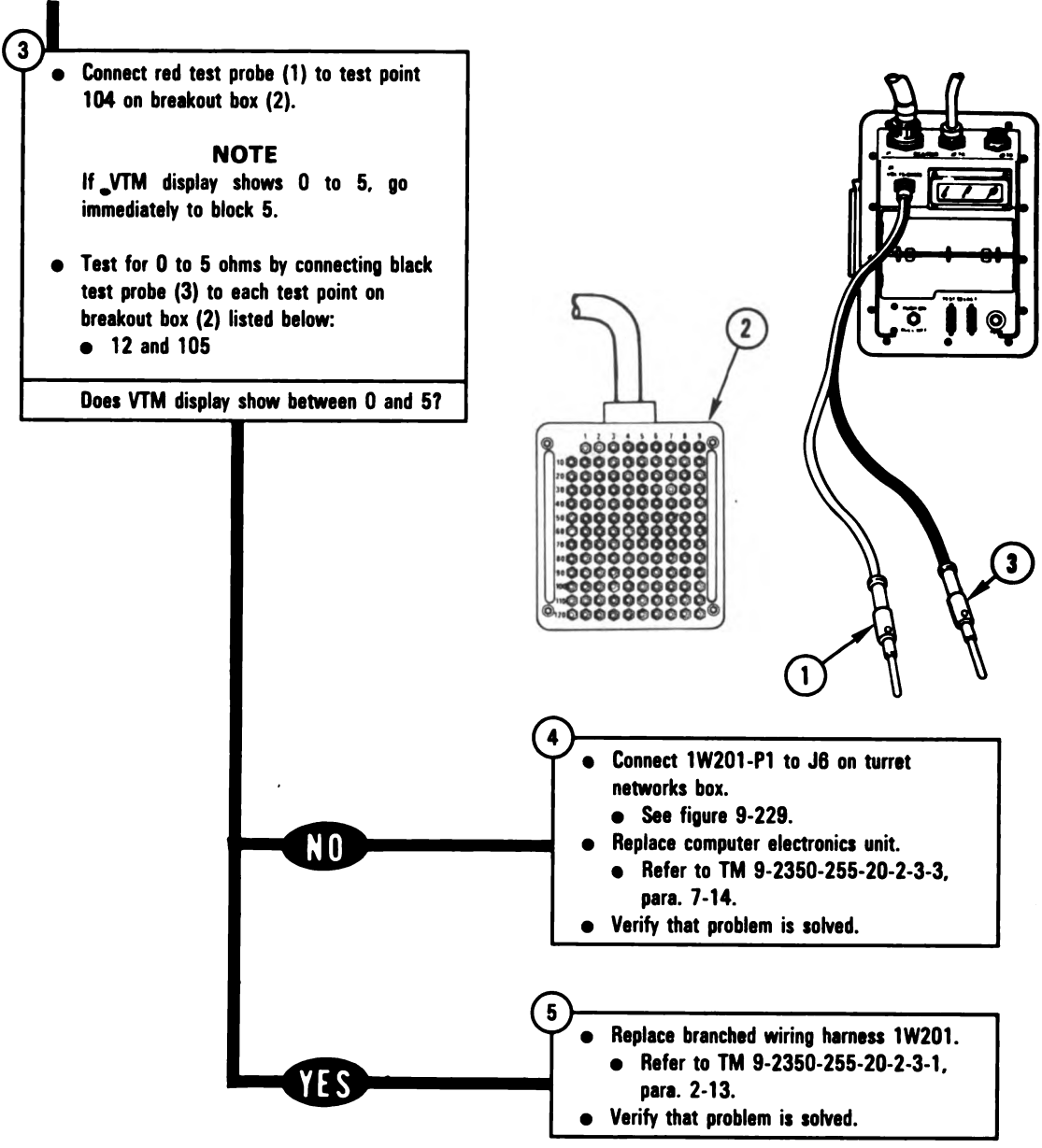


Figure 9-57 (Sheet 1 of 2)
Volume II
Para. 9-3

ARR82-5765

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**



*Figure 9-57 (Sheet 2 of 2)
Volume II
Para. 9-3*

ARR824

**DISPLAY SHOWS -
FAULTY TNB, GPS OR
1W104**

140710

Additional Test

Equipment/Special Tools:

- Breakout Box Tool Kit, 12311088

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- Connect CX305-P2 (1) to breakout box (2).
- Connect CX305-P1 (3) to CX307-P3 (4).
- Disconnect 1W104-P1 from J9 on turret networks box.
 - See figure 9-229.
- Connect 1W104-P1 (5) to CA518-P1 (8).
- Connect CA518-P2 (7) to CX307-P1 (8).

- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 9-1.

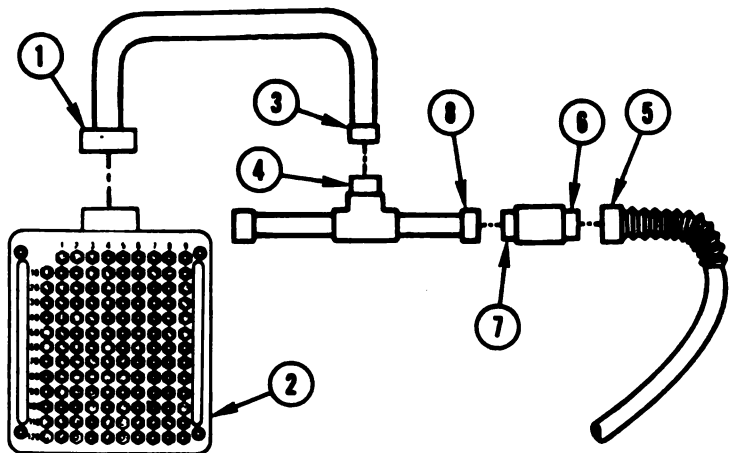


Figure 9-58 (Sheet 1 of 2)
Volume II
Para. 9-3

ARR82-5767

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

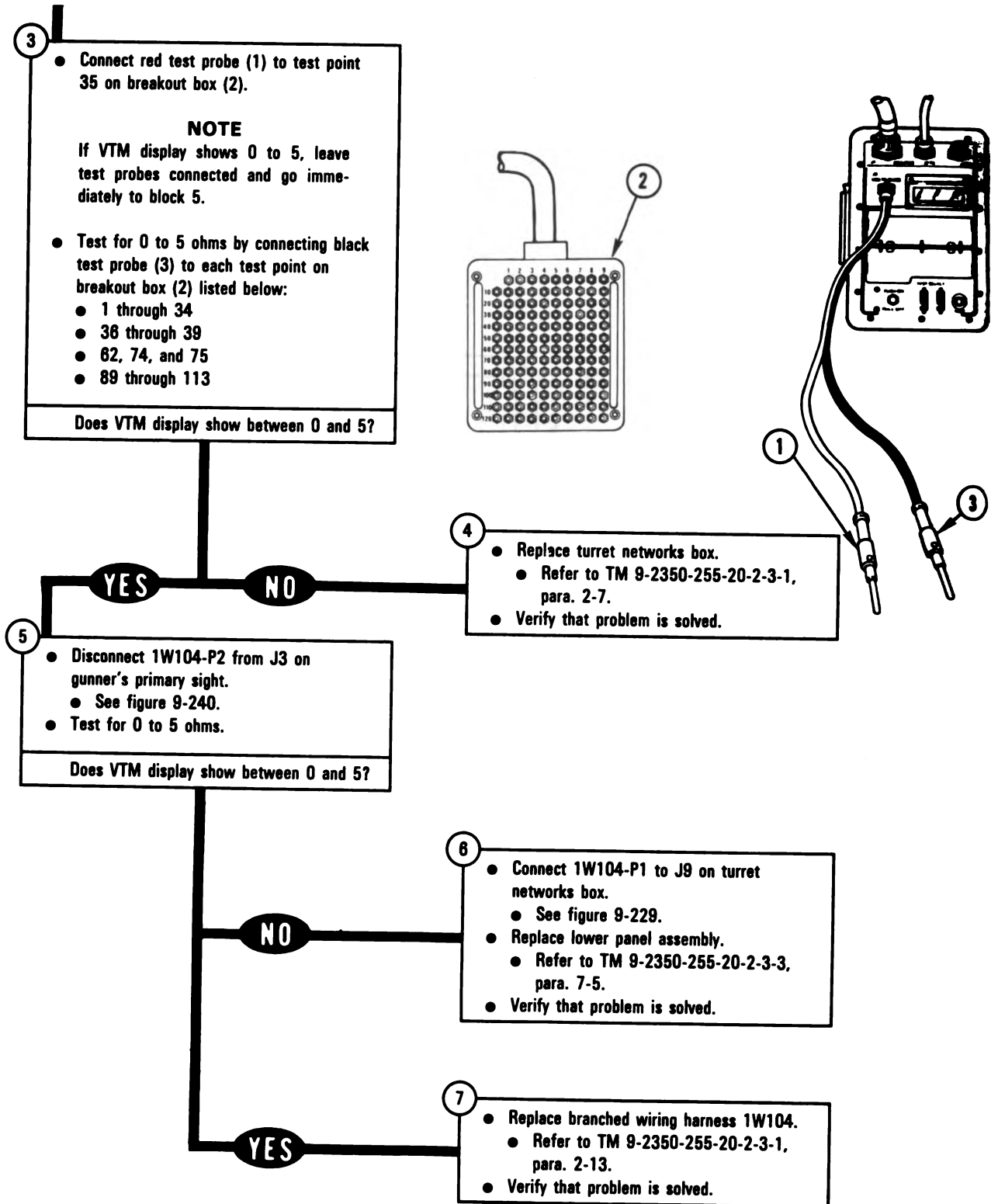


Figure 9-58 (Sheet 2 of 2)
Volume II
Para. 9-3

ARR82-5788

DISPLAY SHOWS -
 FAULTY TNB & GTD
 OR 1W200 140417

**Additional Test
 Equipment/Special Tools:**
 › Breakout Box Tool Kit, 12311066

Equipment Condition:
 › Tank parked.
 › Parking brake set.
 › Engine shut down.
 › Vehicle master power off.

› Disconnect 1W200-P4 from J3 on
 electronic unit.
 ● See figure 9-230.
 › Connect CX305-P2 (1) to breakout box (2).
 › Connect CX305-P1 (3) to CX307-P3 (4).

› Disconnect 1W200-P1 from J5 on turret
 networks box.
 ● See figure 9-229.
 › Connect 1W200-P1 (5) to CA504-P1 (6).
 › Connect CA504-P2 (7) to CX307-P1 (8).

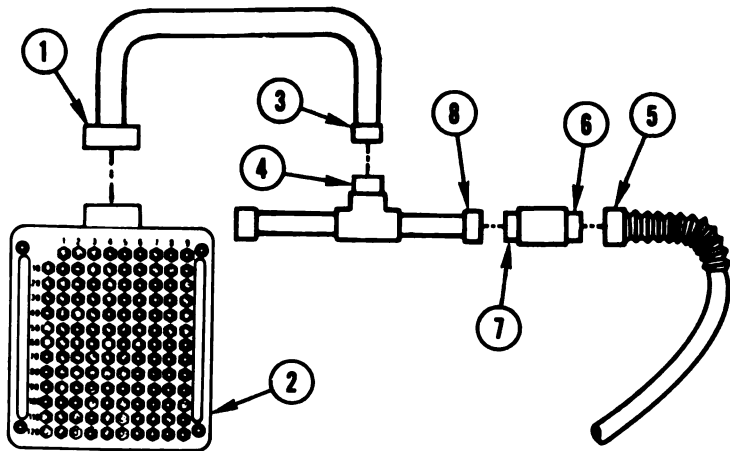


Figure 9-59 (Sheet 1 of 2)
 Volume II
 Para. 9-3

ARR82-5769

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

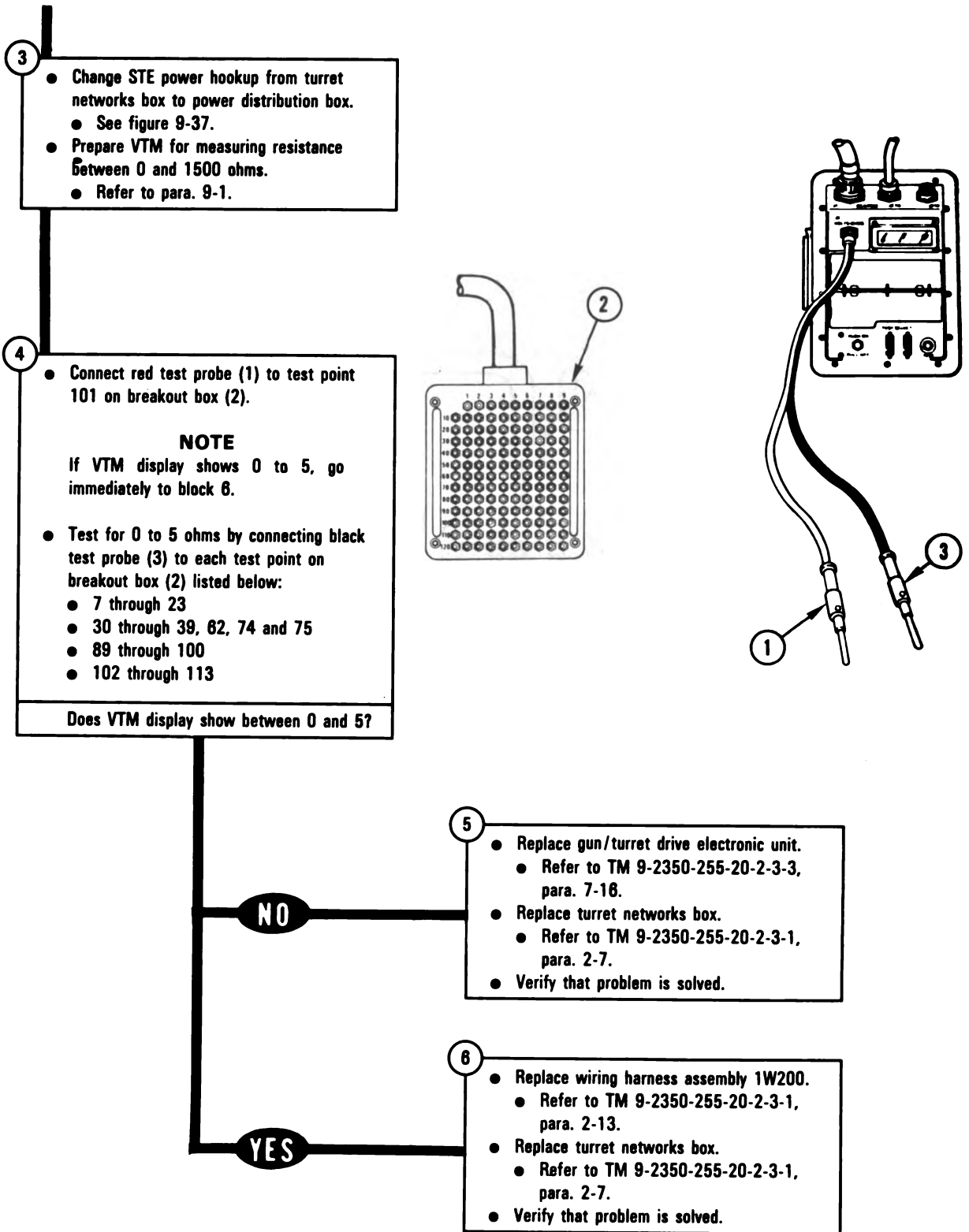


Figure 9-59 (Sheet 2 of 2)
Volume II
Para. 9-3

ARR82-5770

**DISPLAY SHOWS -
FAULTY TNB, GTD
OR 1W200** **140425**

**Additional Test
Equipment/Special Tools:**
● Breakout Box Tool Kit, 12311068

Equipment Condition:
● Tank parked.
● Parking brake set.
● Engine shut down.
● Vehicle master power off.

● Connect CX304-P2 (1) to breakout box (2).
● Connect CX304-P1 (3) to CX307-P3 (4).
● Disconnect 1W200-P1 from J5 on turret networks box.
● See figure 9-229.
● Connect 1W200-P1 (5) to CA504-P1 (6).
● Connect CA504-P2 (7) to CX307-P1 (8).

● Change STE power hookup from turret networks box to power distribution box.
● See figure 9-37.
● Prepare VTM for measuring resistance between 0 and 1500 ohms.
● Refer to para. 9-1.

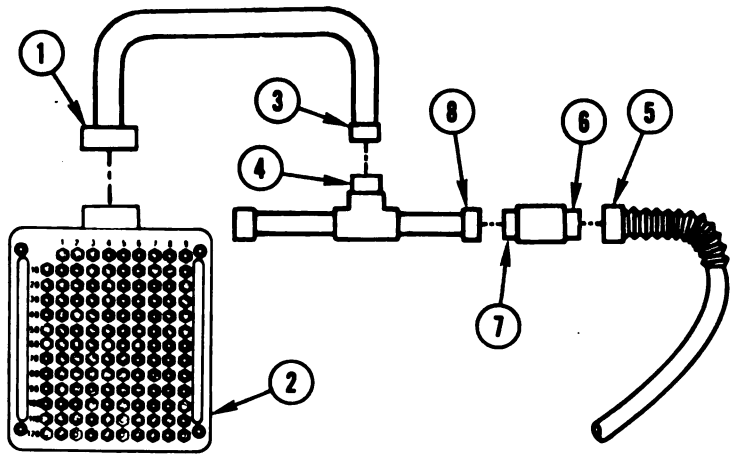
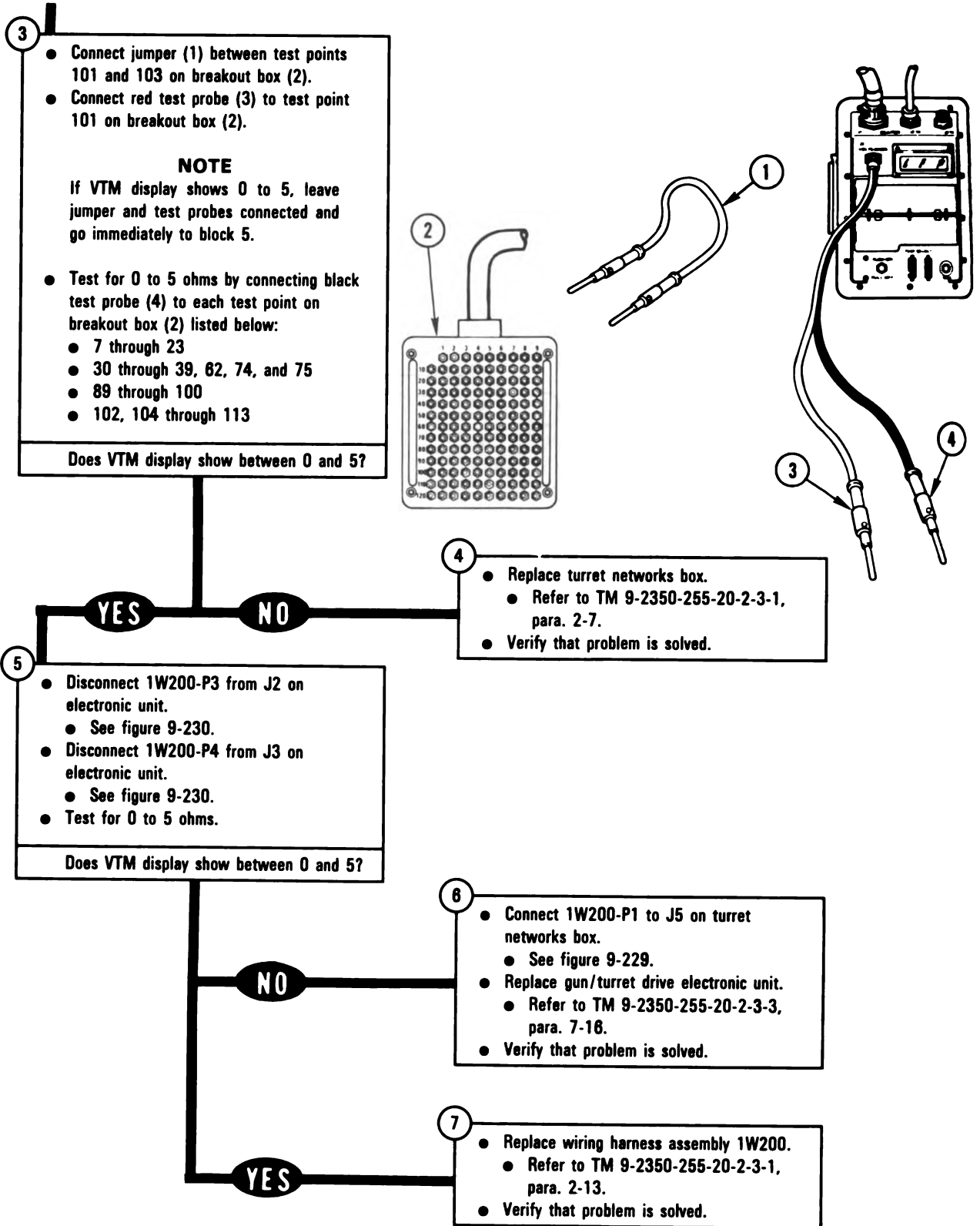


Figure 9-60 (Sheet 1 of 2)
Volume II
Para. 9-3

ARR82-5771

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**



*Figure 9-60 (Sheet 2 of 2)
Volume II
Para. 9-3*

ARR82-5772

**DISPLAY SHOWS -
FAULTY TNB & GTD
OR 1W200** **140429**

**Additional Test
Equipment/Special Tools:**
• Breakout Box Tool Kit, 12311066

Equipment Condition:
• Tank parked.
• Parking brake set.
• Engine shut down.
• Vehicle master power off.

• Disconnect 1W200-P3 from J2 on
electronic unit.
• See figure 9-230.
• Connect CX305-P2 (1) to breakout box (2).
• Connect CX305-P1 (3) to CX307-P3 (4).

• Disconnect 1W200-P1 from J5 on turret
networks box.
• See figure 9-229.
• Connect 1W200-P1 (5) to CA504-P1 (6).
• Connect CA504-P2 (7) to CX307-P1 (8).

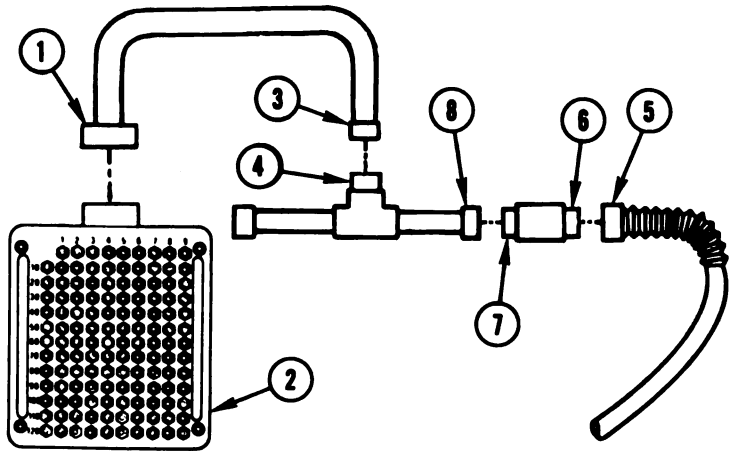


Figure 9-61 (Sheet 1 of 2)
Volume II
Para. 9-3

ARR82-5773

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

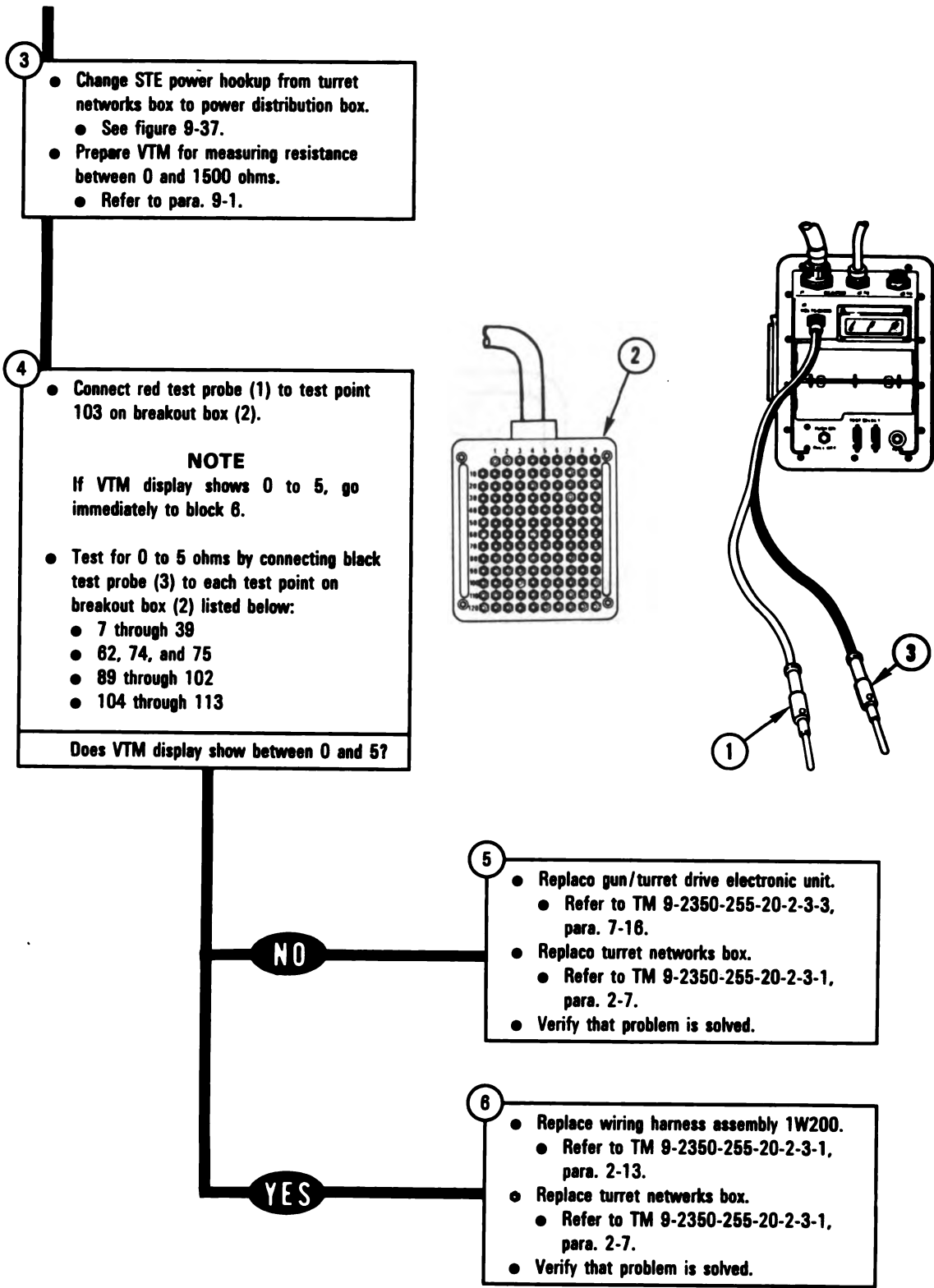


Figure 9-61 (Sheet 2 of 2)
Volume II
Para. 9-3

ARR82-5

DISPLAY SHOWS -
FAULTY TNB, LOS OR
1W202

140249

Additional Test

Equipment/Special Tools:

- Breakout Box Tool Kit, 12311086

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- Connect CX305-P2 (1) to breakout box (2).
- Connect CX305-P1 (3) to CX307-P3 (4).
- Disconnect 1W202-P3 from J1 on line-of-sight electronics unit.
 - See figure 9-238.
- Connect 1W202-P3 (5) to CA417-P1 (6).
- Connect CA417-P2 (7) to CX307-P1 (8).

- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 9-1.

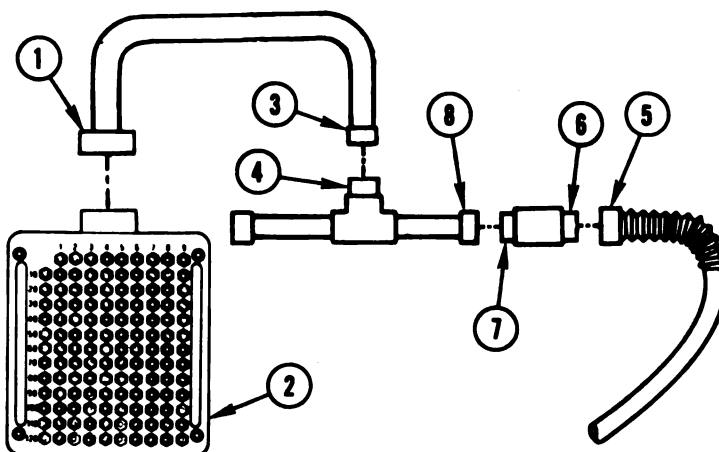


Figure 9-62 (Sheet 1 of 3)
Volume II
Para. 9-3

ARR82-5775

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

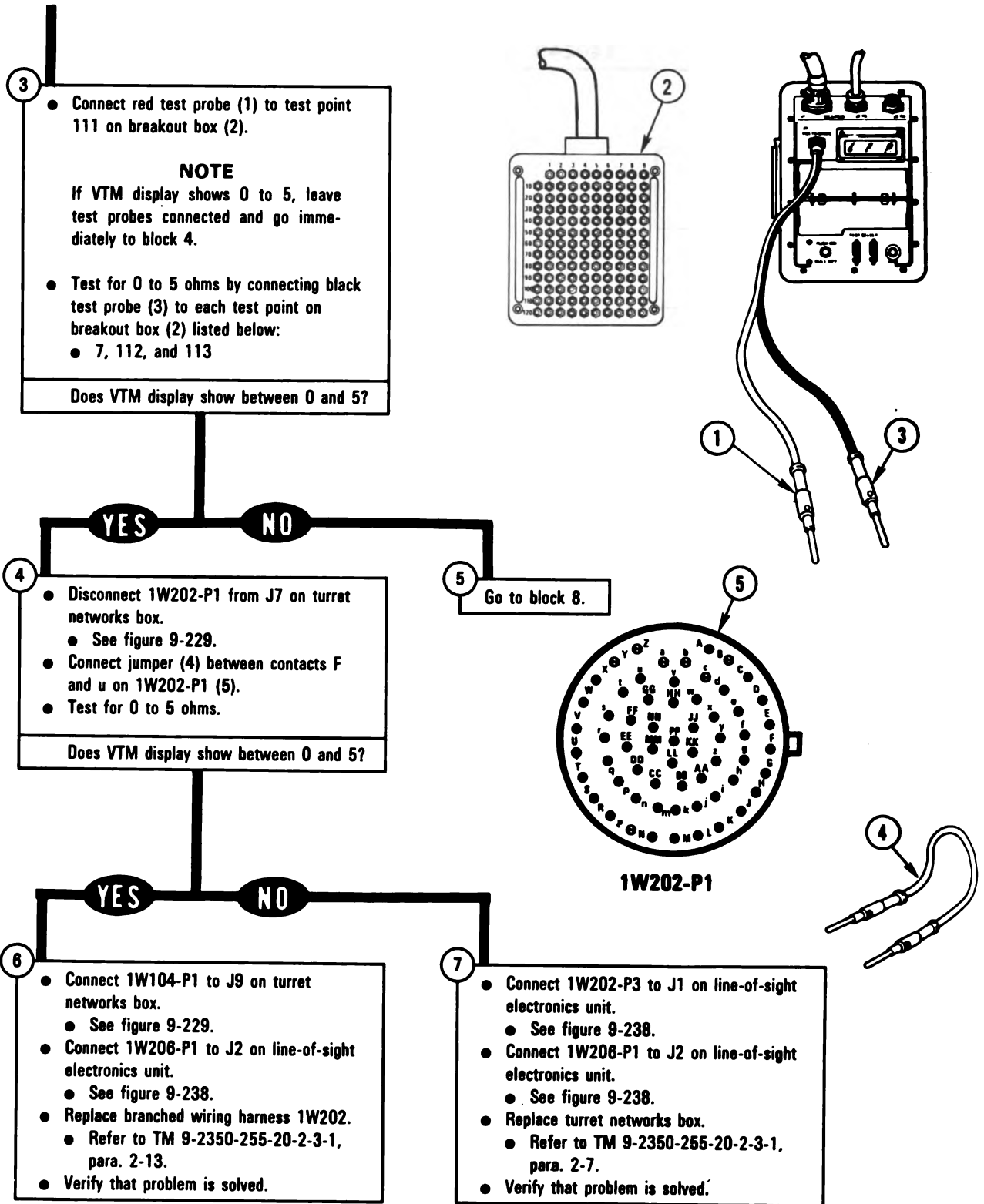


Figure 9-62 (Sheet 2 of 3)
Volume II
Para. 9-3

ARR82-5776

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

From block 5

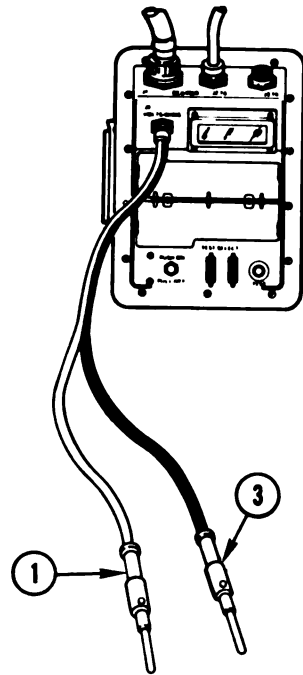
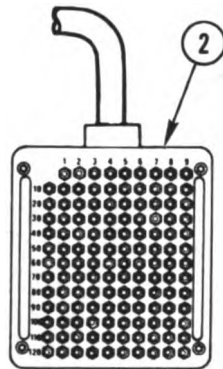
- Connect red test probe (1) to test point 112 on breakout box (2).

NOTE

If VTM display shows 0 to 5, leave test probes connected and go immediately to block 4.

- Test for 0 to 5 ohms by connecting black test probe (3) to each test point on breakout box (2) listed below:
 - 7 and 113

Does VTM display show between 0 and 5?



YES

NO

9

- Connect 1W104-P1 to J9 on turret networks box.
 - See figure 9-229.
- Replace line-of-sight electronics unit.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-8.
- Verify that problem is solved.

Go back to block 4.

Figure 9-62 (Sheet 3 of 3)
Volume II
Para. 9-3

ARR82-5777

9-155

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

• 140418
• 140436

**DISPLAY SHOWS -
FAULTY TNB OR
TNB & 1W200**

Additional Test

Equipment/Special Tools:

- Breakout Box Tool Kit, 12311066

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- 1
- Disconnect 1W200-P4 from J3 on electronic unit.
 - See figure 9-230.
 - Connect CX305-P2 (1) to breakout box (2).
 - Connect CX305-P1 (3) to CX307-P3 (4).

- 2
- Disconnect 1W200-P1 from J5 on turret networks box.
 - See figure 9-229.
 - Connect 1W200-P1 (5) to CA504-P1 (6).
 - Connect CA504-P2 (7) to CX307-P1 (8).

- 3
- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.
 - Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 9-1.

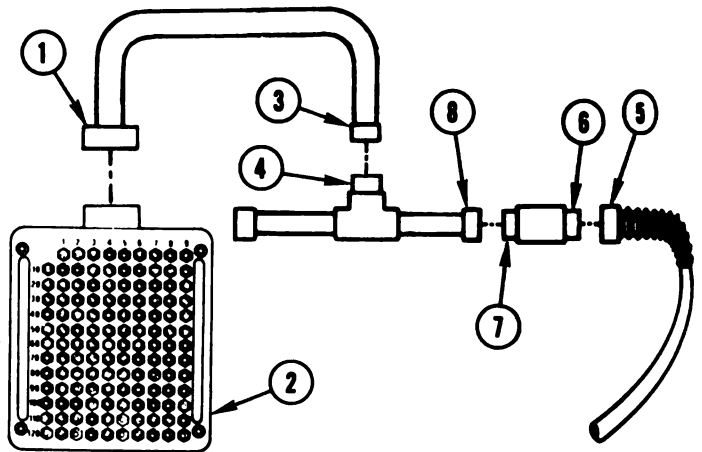


Figure 9-63 (Sheet 1 of 2)
**Volume II
Para. 9-3**

ARR62-5778

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

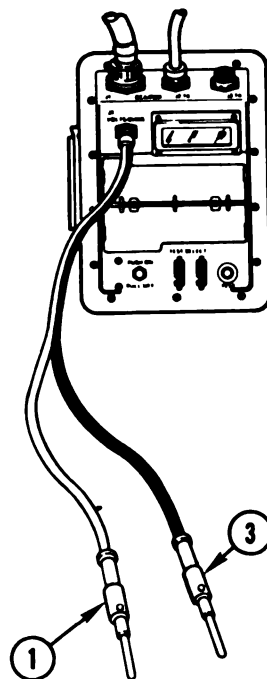
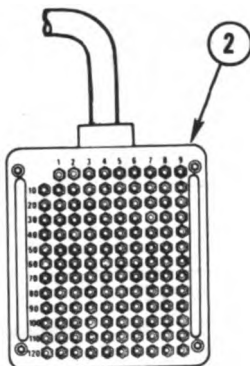
- Connect red test probe (1) to test point 101 on breakout box (2).

NOTE

If VTM display shows 0 to 5, go immediately to block 8.

- Test for 0 to 5 ohms by connecting black test probe (3) to each test point on breakout box (2) listed below:
 - 7 through 39
 - 62, 74, and 75
 - 89 through 100
 - 102 through 113

Does VTM display show between 0 and 5?



NO

- 5
- Connect 1W200-P4 to J3 on electronic unit.
 - See figure 9-230.
 - Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
 - Verify that problem is solved.

YES

- 6
- Replace wiring harness assembly 1W200.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
 - Verify that problem is solved.

Figure 9-63 (Sheet 2 of 2)
**Volume II
Para. 9-3**

ARR82-5779

9-157

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS -
FAULTY TNB, HDV OR
1W104**

140442

Additional Test

Equipment/Special Tools:

- Breakout Box Tool Kit, 12311066

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

1

- Disconnect CX205-P1 from CIB-J1.
 - See figure 9-8.
- Disconnect CX205-P2 from CIB-J2.
 - See figure 9-8.
- Disconnect CX205-P3 from CIB-J3.
 - See figure 9-8.
- Disconnect 1W104-P1 from J9 on turret networks box.
 - See figure 9-229.

2

- Disconnect 1W104-P4 from J1 on hydraulic turret valve.
 - See figure 9-234.
- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.

Figure 9-64 (Sheet 1 of 3)
**Volume II
Para. 9-3**

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

- Get TA1 adapter that will fit 1W104-P4 (1) contacts for cable test.
- Prepare STE to run cable test 1390.
 - Press TEST button (2) on VTM (3).
 - Press CLEAR key (4) on SETCOM (5).
- Run test on 1W104 between P1 and P4.
- Refer to TM 9-2350-255-20-2-2-2, figure 15-5.

Does SETCOM display show GOOD?

YES

NO

- Replace branched wiring harness 1W104.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

- Connect breakout box to TEST 1 on turret networks box using CX208.
 - Connect CX208-P1 (6) to TEST 1 (7) on turret networks box (8).
 - Connect CX208-P2 (9) to breakout box (10).
- Change control from SETCOM to VTM.
 - Set PWR switch (11) on CIB (12) to OFF to reset VTM (3).
 - Set PWR switch (11) to ON.
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 9-1.

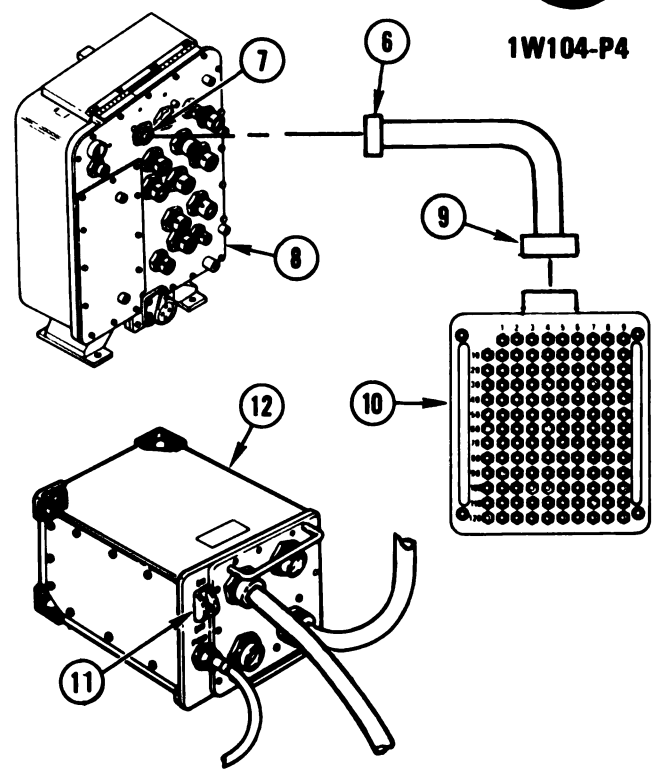
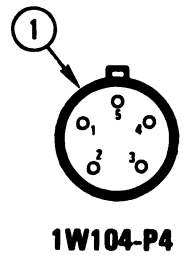
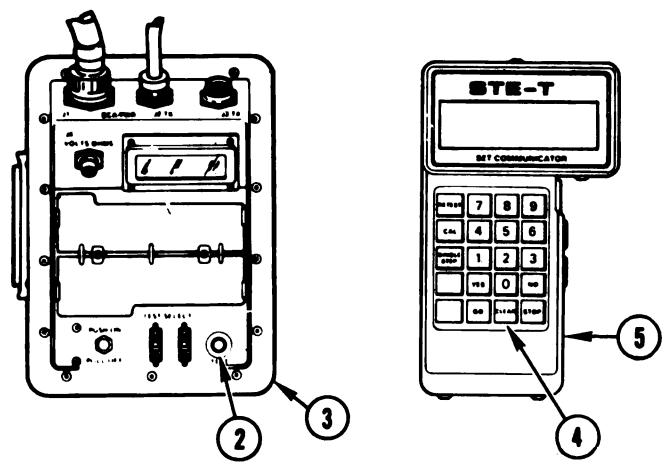


Figure 9-64 (Sheet 2 of 3)
Volume II
Para. 9-3

ARR82-5780

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

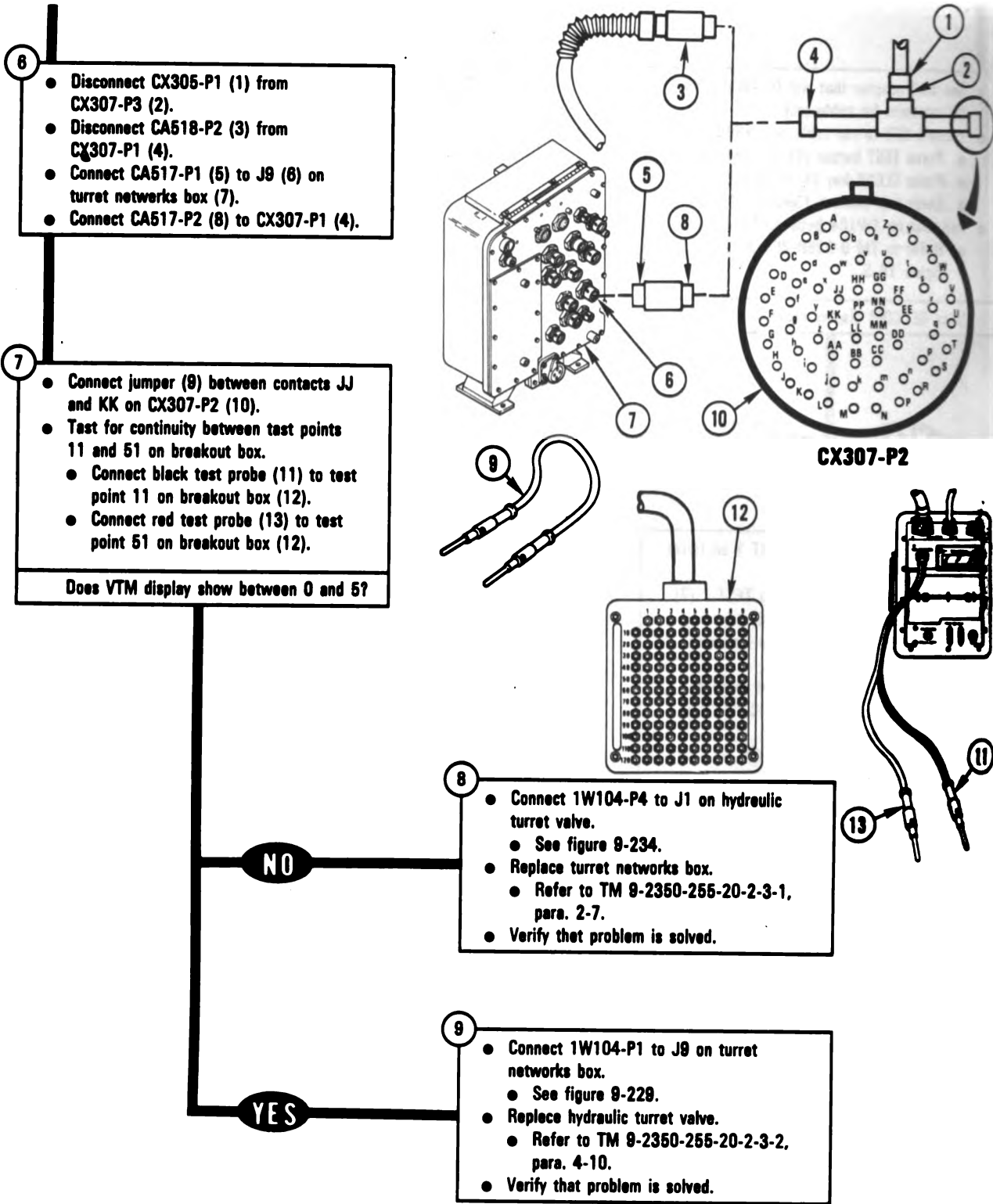


Figure 9-64 (Sheet 3 of 3)
Volume II
Para. 9-3

ARR82-5781

DISPLAY SHOWS -
FAULTY TNB, HDV OR
1W104

140443

Additional Test

Equipment/Special Tools:

- Breakout Box Tool Kit, 12311066

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- Disconnect CX205-P1 from C1B-J1.
 - See figure 9-8.
- Disconnect CX205-P2 from C1B-J2.
 - See figure 9-8.
- Disconnect CX205-P3 from C1B-J3.
 - See figure 9-8.
- Disconnect 1W104-P1 from J9 on turret networks box.
 - See figure 9-229.

- Disconnect 1W104-P7 from J4 on hydraulic turret valve.
 - See figure 9-234.
- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.

Figure 9-65 (Sheet 1 of 3)
Volume II
Para. 9-3

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

- 3
- Get TA1 adapter that will fit 1W104-P7 (1) contacts for cable test.
 - Prepare STE to run cable test 1390.
 - Press TEST button (2) on VTM (3).
 - Press CLEAR key (4) on SETCOM (5).
 - Enter test number 1390 on SETCOM (5).
 - Run test on 1W104 between P1 and P7.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.
- Does SETCOM display show GOOD?

YES **NO**

- 4
- Replace branched wiring harness 1W104.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

- 5
- Connect breakout box to TEST 1 on turret networks box using CX208.
 - Connect CX208-P1 (6) to TEST 1 (7) on turret networks box (8).
 - Connect CX208-P2 (9) to breakout box (10).
 - Change control from SETCOM to VTM.
 - Set PWR switch (11) on CIB (12) to OFF to reset VTM (3).
 - Set PWR switch (11) to ON.
 - Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 9-1.

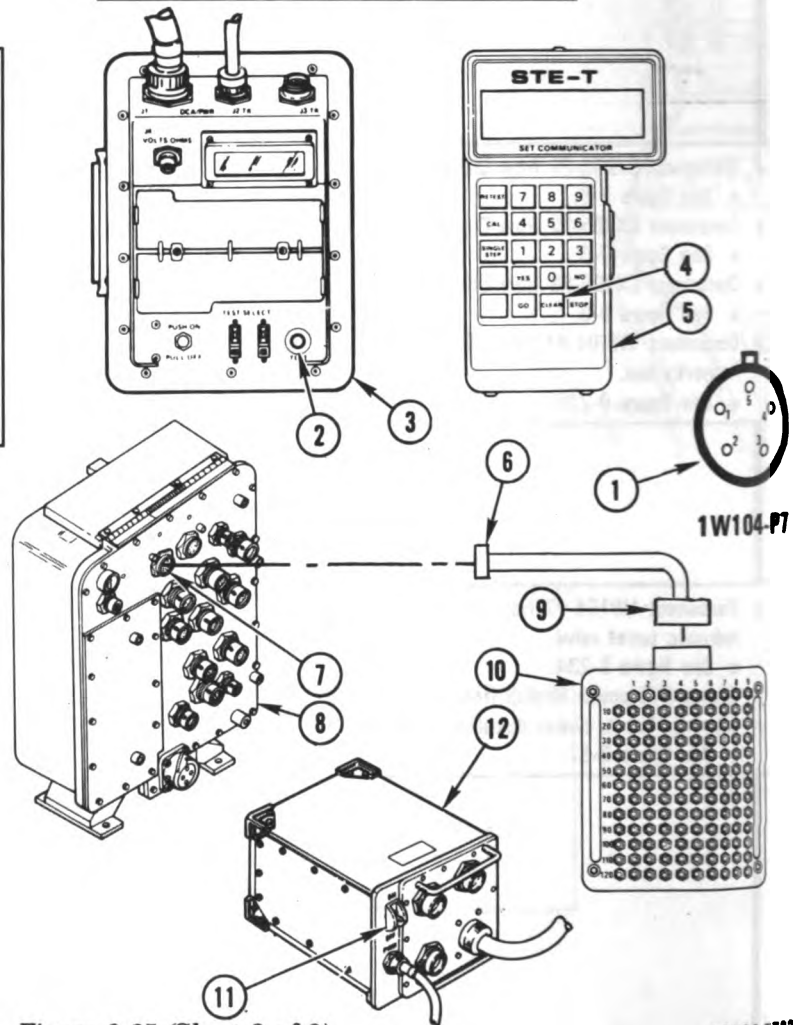


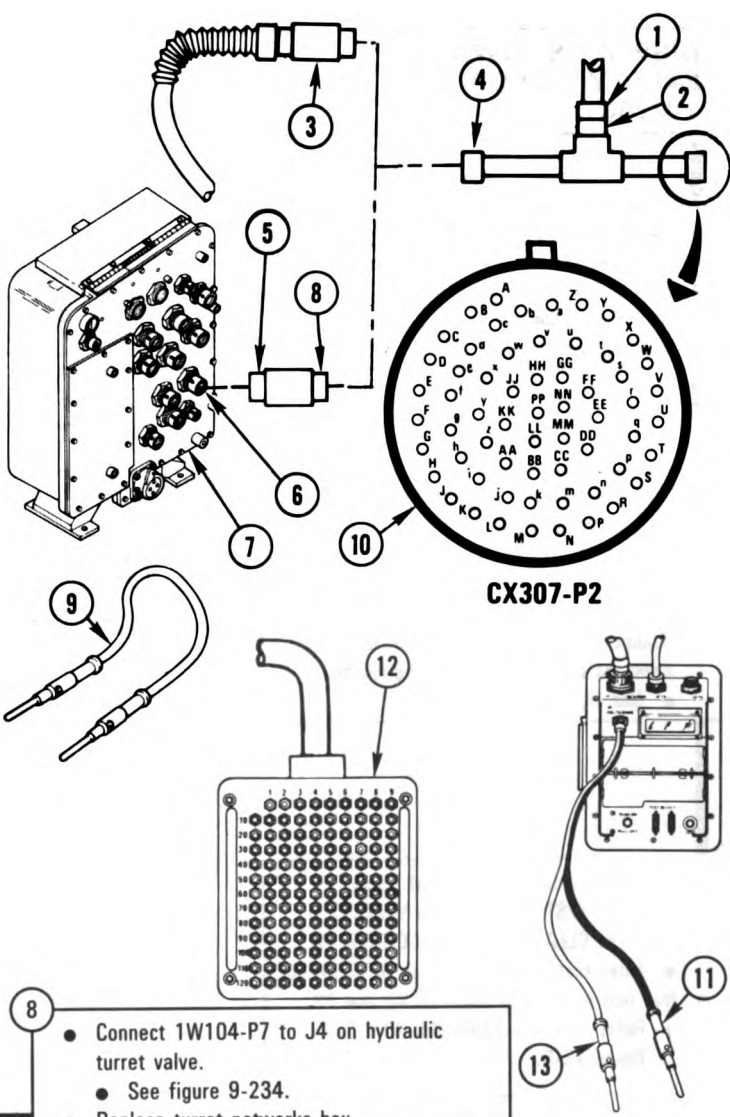
Figure 9-65 (Sheet 2 of 3)
**Volume II
Para. 9-3**

ARR82-5782

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

- Disconnect CX305-P1 (1) from CX307-P3 (2).
- Disconnect CA518-P2 (3) from CX307-P1 (4).
- Connect CA517-P1 (5) to J9 (6) on turret networks box (7).
- Connect CA517-P2 (8) to CX307-P1 (4).

- Connect jumper (9) between contacts B and C on CX307-P2 (10).
- Test for continuity between test points 11 and 74 on breakout box.
- Connect black test probe (11) to test point 11 on breakout box (12).
- Connect red test probe (13) to test point 74 on breakout box (12).



Does VTM display show between 0 and 5?

NO

8

- Connect 1W104-P7 to J4 on hydraulic turret valve.
- See figure 9-234.
- Replace turret networks box.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
- Verify that problem is solved.

YES

9

- Connect 1W104-P1 to J9 on turret networks box.
- See figure 9-229.
- Replace hydraulic turret valve.
- Refer to TM 9-2350-255-20-2-3-2, para. 4-10.
- Verify that problem is solved.

**Figure 9-65 (Sheet 3 of 3)
Volume II
Para. 9-3**

ARR82-5783

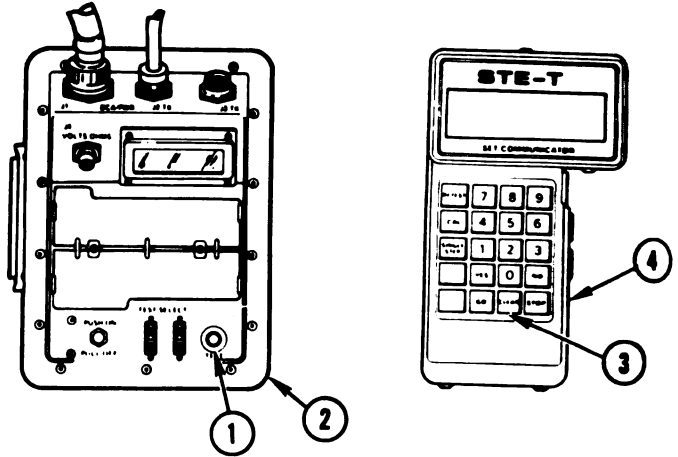
**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS -
FAULTY TNB OR
1W106**

140644

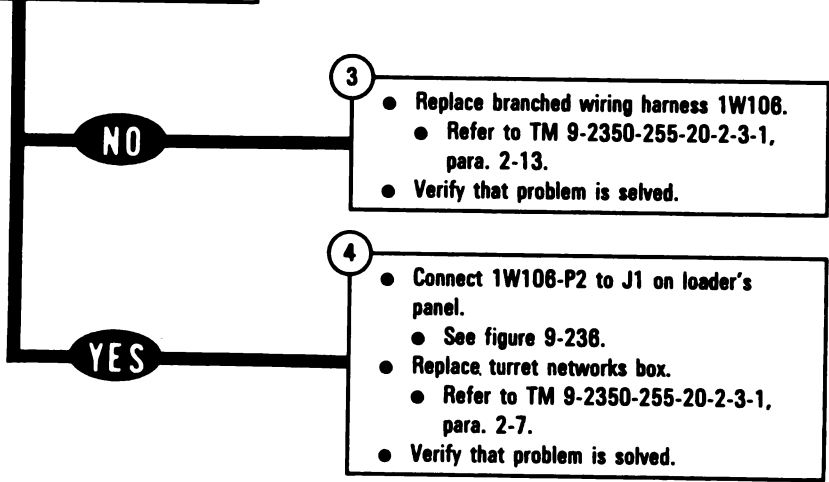
Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.



- 1
- Disconnect CA536-P2 from CX308-P2.
 - See figure 9-21.
 - Disconnect 1W106-P1 from J2 on turret networks box.
 - See figure 9-229.
 - Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.

- 2
- Prepare STE to run cable test 1390.
 - Press TEST button (1) on VTM (2).
 - Press CLEAR key (3) on SETCOM (4).
 - Enter test number 1390 on SETCOM (4).
 - Run test on 1W106 between P1 and P2.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.
- Does SETCOM display show GOOD?



- 3
- Replace branched wiring harness 1W106.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

- 4
- Connect 1W106-P2 to J1 on loader's panel.
 - See figure 9-236.
 - Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
 - Verify that problem is solved.

*Figure 9-66
Volume II
Para. 9-3*

ARR82-5784

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

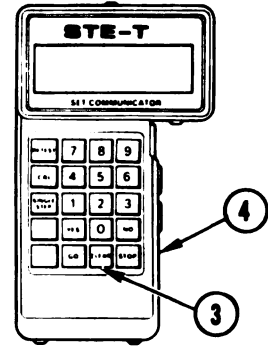
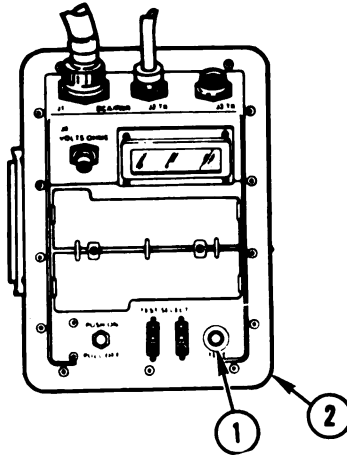
**DISPLAY SHOWS -
FAULTY GTD OR
1W200**

140119

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- Disconnect CA503-P2 from CX307-P1.
 - See figure 9-8.
- Disconnect 1W200-P2 from J1 on electronic unit.
 - See figure 9-230.
- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.



- Prepare STE to run cable test 1390.
 - Press TEST button (1) on VTM (2).
 - Press CLEAR key (3) on SETCOM (4).
 - Enter test number 1390 on SETCOM (4).
- Run test on 1W200 between P1 and P2.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.

Does SETCOM display show GOOD?

NO

YES

- 3
- Replace wiring harness assembly 1W200.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

- 4
- Connect 1W200-P1 to J5 on turret networks box.
 - See figure 9-229.
 - Replace gun/turret drive electronic unit.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-16.
 - Verify that problem is solved.

Figure 9-67
Volume II
Para. 9-3

ARR82-5785

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

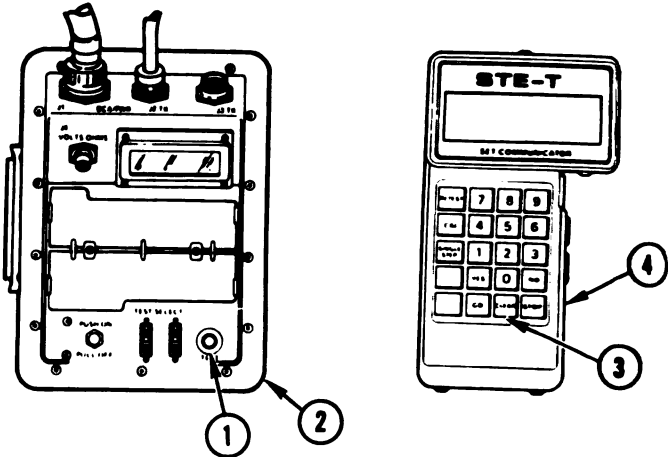
**DISPLAY SHOWS -
FAULTY TNB
OR 1W104** **140066**

**Additional Test
Equipment/Special Tools:**

- Breakout Box Tool Kit, 12311086

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.



1

- Disconnect CX205-P1 from CIB-J1.
 - See figure 9-8.
- Disconnect 1W104-P1 from J9 on turret networks box.
 - See figure 9-229.
- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.

2

- Prepare STE to run cable test 1390.
 - Press TEST button (1) on VTM (2).
 - Press CLEAR key (3) on SETCOM (4).
 - Enter test number 1390 on SETCOM (4).
- Run test on 1W104 between P1 and P2.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.

Does SETCOM display show GOOD?

YES

NO

3

- Replace branched wiring harness 1W104.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

*Figure 9-68 (Sheet 1 of 2)
Volume II
Para. 9-3*

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

- Disconnect 1W104-P1 (1) from CA518-P1 (2).
- Disconnect CX305-P2 (3) from CIB-J2 (4).
- Connect CX305-P2 (3) to breakout box (5).

- Change control from SETCOM to VTM.
 - Set PWR switch (8) on CIB (7) to OFF to reset VTM (8).
 - Set PWR switch (8) to ON.
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 9-1.

- Connect red test probe (9) to test point 96 on breakout box (5).

NOTE

If VTM display shows 0 to 5, go immediately to block 8.

- Test for 0 to 5 ohms by connecting black test probe (10) to each test point on breakout box (5) listed below:
 - 7 through 39
 - 62, 74, and 75
 - 89 through 95
 - 97 through 113

Does VTM display show between 0 and 5?

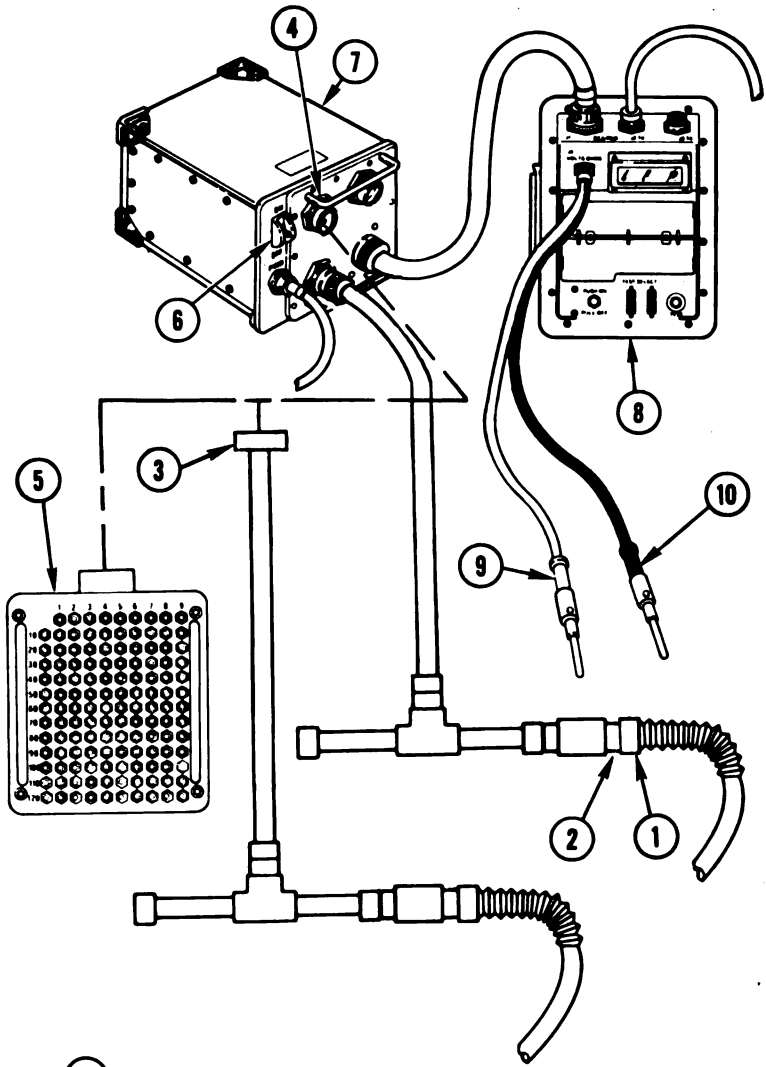
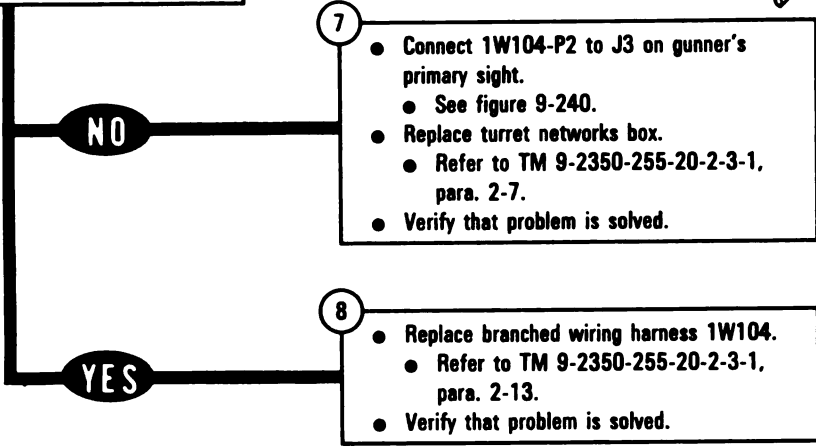


Figure 9-68 (Sheet 2 of 2)
Volume II
Para. 9-3

ARR82-5787

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

- 140233
- 140234
- 140247
- 142453
- 142456

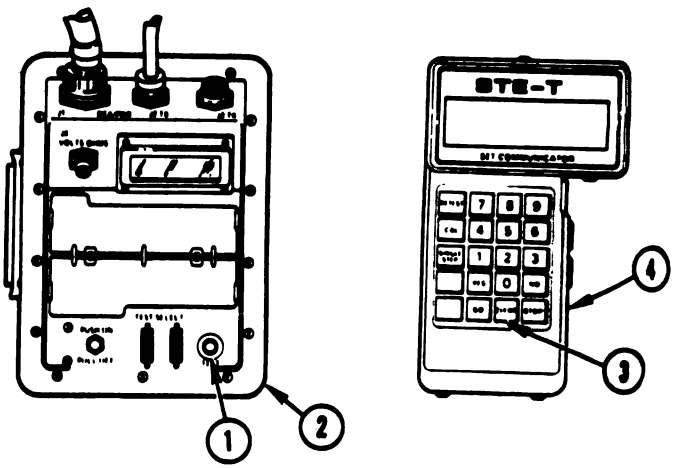
**DISPLAY SHOWS -
FAULTY TNB OR
1W201**

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

1

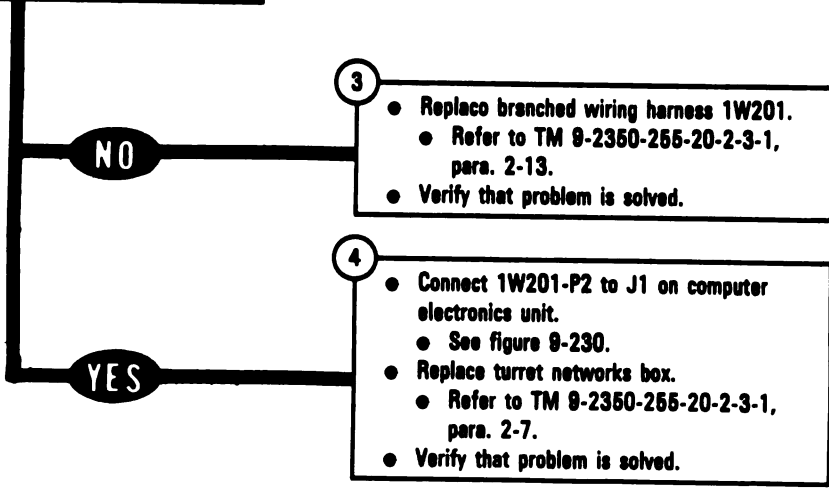
- If connected, disconnect CA420-P2 from CX307-P2.
 - See figure 9-10.
- Disconnect 1W201-P1 from J8 on turret networks box.
 - See figure 9-229.
- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.



2

- Prepare STE to run cable test 1390.
 - Press TEST button (1) on VTM (2).
 - Press CLEAR key (3) on SETCOM (4).
 - Enter test number 1390 on SETCOM (4).
- Run test on 1W201 between P1 and P2.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.

Does SETCOM display show GOOD?



3

- Replace branched wiring harness 1W201.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

4

- Connect 1W201-P2 to J1 on computer electronics unit.
 - See figure 9-230.
- Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
- Verify that problem is solved.

**Figure 9-69
Volume II
Para. 9-3**

ARR82-5788

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

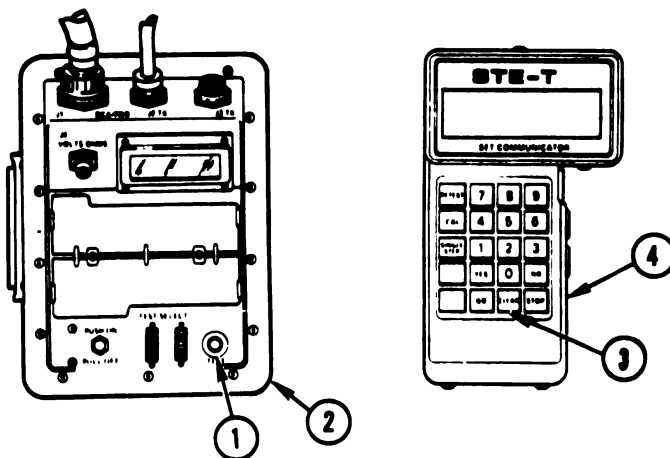
**DISPLAY SHOWS -
FAULTY TNB OR
1W200**

• 140510
140513

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- Disconnect CA536-P2 from CX306-P2.
 - See figure 9-20.
- Disconnect 1W200-P1 from J5 on turret networks box.
 - See figure 9-229.
- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.



- Prepare STE to run cable test 1390.
 - Press TEST button (1) on VTM (2).
 - Press CLEAR key (3) on SETCOM (4).
 - Enter test number 1390 on SETCOM (4).
- Run test on 1W200 between P1 and P7.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.

Does SETCOM display show GOOD?

NO

YES

- 3
- Replace wiring harness assembly 1W200.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

- 4
- Connect 1W200-P7 to J1 on commander's control.
 - See figure 9-232.
 - Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
 - Verify that problem is solved.

**Figure 9-70
Volume II
Para. 9-3**

ARR82-5789

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS -
FAULTY ZDESW OR
1W107**

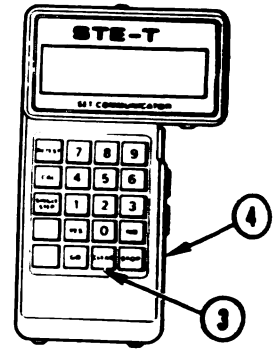
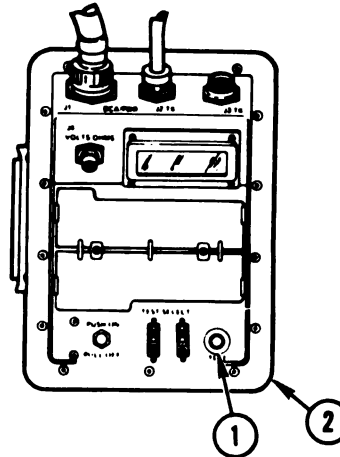
140803

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

1

- Disconnect CA521-P2 from CX307-P1.
 - See figure 9-31.
- Disconnect zero degree elevation switch (1S242)-P1 from 1W107-J2.
 - See figure 9-237.
- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.



2

- Prepare STE to run cable test 1390.
 - Press TEST button (1) on VTM (2).
 - Press CLEAR key (3) on SETCOM (4).
 - Enter test number 1390 on SETCOM (4).
- Run test on 1W107 between J2 and P1.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.

Does SETCOM display show GOOD?

NO

3

- Replace branched wiring harness 1W107.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

YES

4

- Connect 1W107-P1 to J4 on turret networks box.
 - See figure 9-229.
- Replace zero degree elevation switch.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-14.
- Verify that problem is solved.

**Figure 9-71
Volume II
Para. 9-3**

ARR82-5790

**DISPLAY SHOWS -
FAULTY EL DELTA P OR
1W200**

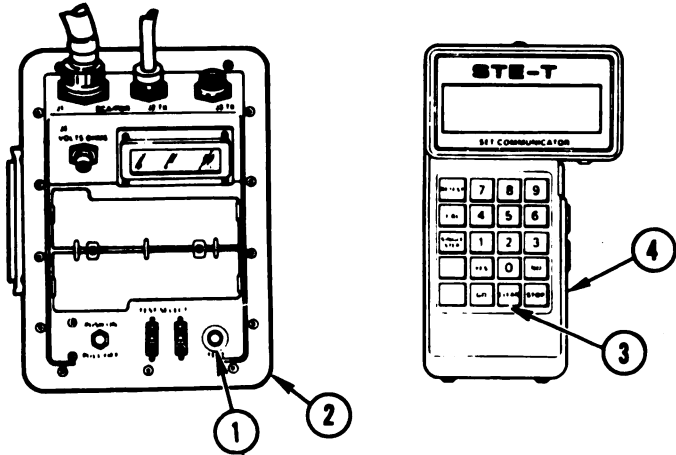
142716

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- Disconnect 1W200-P13 from J2 on elevation servomechanism.
 - See figure 9-239.
- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.

- Prepare STE to run cable test 1390.
 - Press TEST button (1) on VTM (2).
 - Press CLEAR key (3) on SETCOM (4).
 - Enter test number 1390 on SETCOM (4).
- Run test on 1W200 between P3 and P13.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.



Does SETCOM display show GOOD?

NO

- Replace wiring harness assembly 1W200.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

YES

- Connect 1W200-P3 to J2 on electronic unit.
 - See figure 9-230.
- Elevation servomechanism is faulty. Notify support maintenance.

Figure 9-72
Volume II
Para. 9-3

ARR82-5791

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS -
FAULTY TNB OR
1W200**

• 140438
140461

**Additional Test:
Equipment/Special Tools:**
● Breakout Box Tool Kit, 12311066

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- 1
- If connected, disconnect 1W200-P4 from J3 on electronic unit.
 - See figure 9-230.
 - Connect CX305-P2 (1) to breakout box (2).
 - Connect CX305-P1 (3) to CX307-P3 (4).

- 2
- Disconnect 1W200-P1 from J5 on turret networks box.
 - See figure 9-229.
 - Connect 1W200-P1 (5) to CA504-P1 (6).
 - Connect CA504-P2 (7) to CX307-P1 (8).

- 3
- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.
 - Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 9-1.

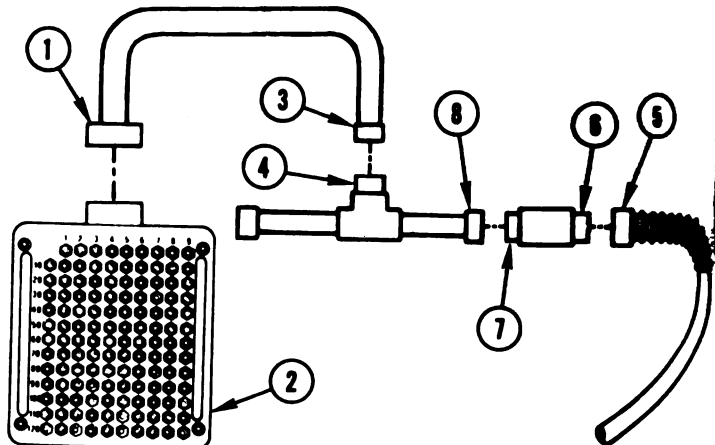


Figure 9-73 (Sheet 1 of 2)
**Volume II
Para. 9-3**

ARR82-5792

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

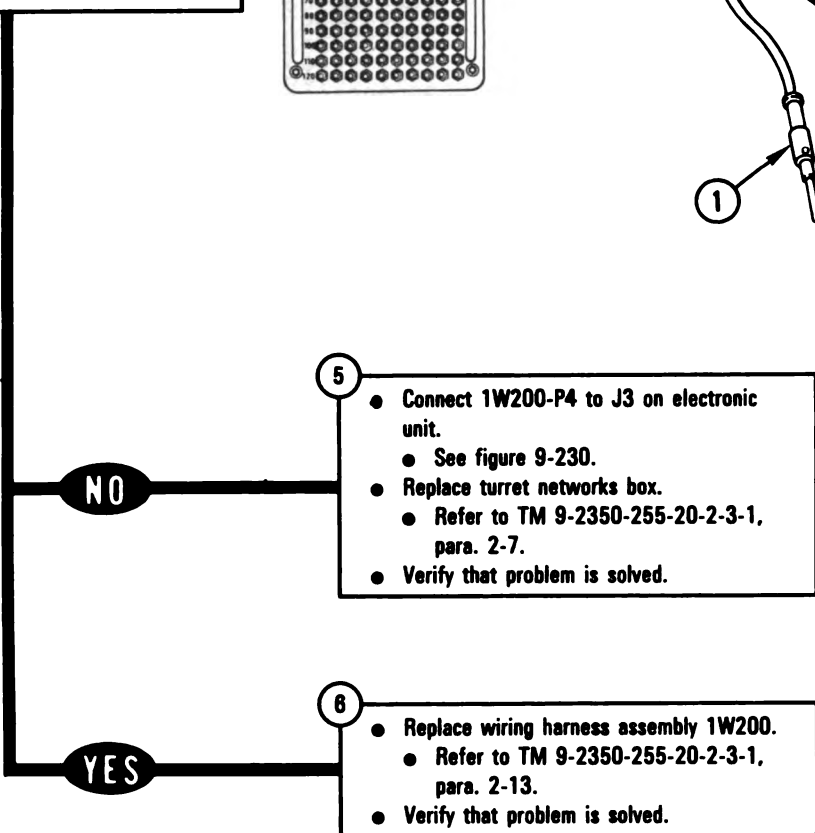
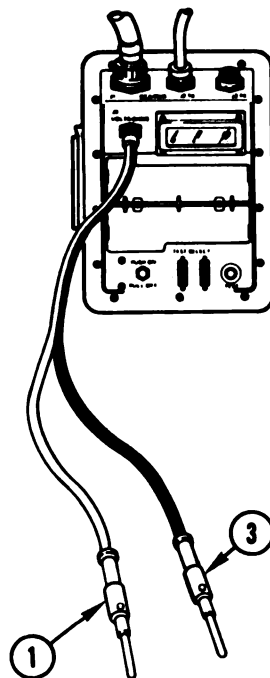
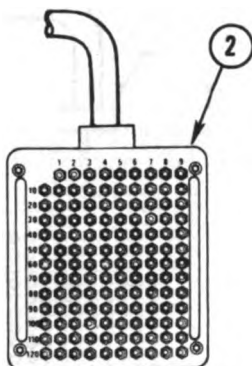
- Connect red test probe (1) to test point 100 on breakout box (2).

NOTE

If VTM display shows 0 to 5, go immediately to block 6.

- Test for 0 to 5 ohms by connecting black test probe (3) to each test point on breakout box (2) listed below:
 - 7 through 39
 - 62, 74, and 75
 - 89 through 99
 - 101 through 113

Does VTM display show between 0 and 5?



- 5**
- Connect 1W200-P4 to J3 on electronic unit.
 - See figure 9-230.
 - Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
 - Verify that problem is solved.

- 6**
- Replace wiring harness assembly 1W200.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

Figure 9-73 (Sheet 2 of 2)
Volume II
Para. 9-3

ARR82-5793

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS -
FAULTY TNB OR
1W104**

140440

Additional Test:

Equipment/Special Tools:

- Breakout Box Tool Kit, 12311066

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

1

- Disconnect 1W104-P7 from J4 on hydraulic turret valve.
 - See figure 9-234.
- Connect CX305-P2 (1) to breakout box (2).
- Connect CX305-P1 (3) to CX307-P3 (4).

2

- Disconnect 1W104-P1 from J9 on turret networks box.
 - See figure 9-229.
- Connect 1W104-P1 (5) to CA518-P1 (6).
- Connect CA518-P2 (7) to CX307-P1 (8).

3

- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 9-1.

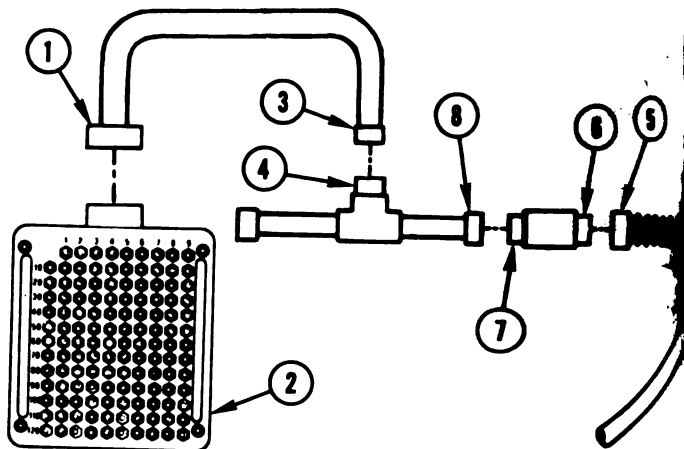


Figure 9-74 (Sheet 1 of 2)
**Volume II
Para. 9-3**

ARR82-5794

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

Connect red test probe (1) to test point 9 on breakout box (2).

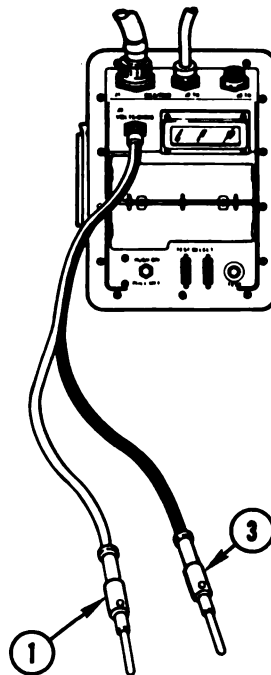
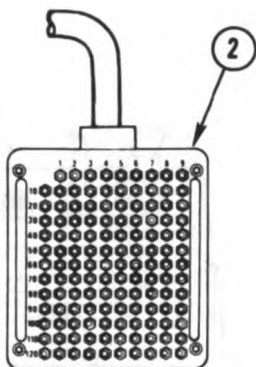
NOTE

If VTM display shows 0 to 5, go immediately to block 8.

Test for 0 to 5 ohms by connecting black test probe (3) to each test point on breakout box (2) listed below:

- 7 and 8
- 10 through 39
- 62, 74, and 75
- 101 through 113

Does VTM display show between 0 and 5?



NO

5

- Connect 1W104-P7 to J4 on hydraulic turret valve.
- See figure 9-234.
- Replace turret networks box.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
- Verify that problem is solved.

YES

6

- Replace branched wiring harness 1W104.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

Figure 9-74 (Sheet 2 of 2)
Volume II
Para. 9-3

ARR82-5795

9-175

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

- 140033
- 140112
- 140123
- 140217
- 140222

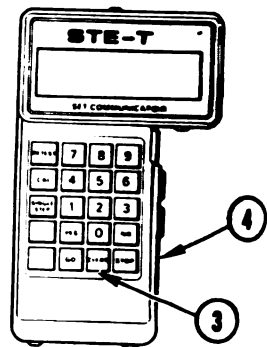
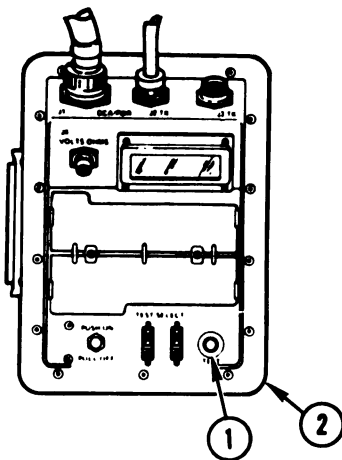
**DISPLAY SHOWS -
FAULTY GPS OR
1W203**

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

1

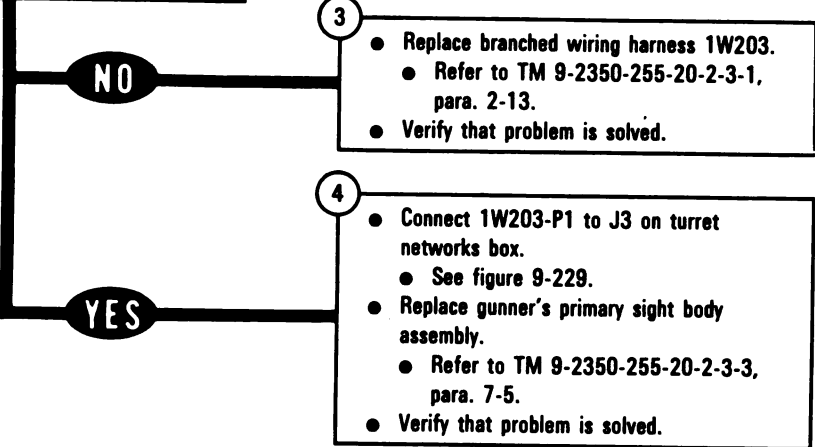
- Disconnect CA527-P2 from CX307-P1.
 - See figure 9-7.
- Disconnect 1W203-P2 from J1 on gunner's primary sight.
 - See figure 9-240.
- Change STE power hook up from turret networks box to power distribution box.
 - See figure 9-37.



2

- Prepare STE to run cable test 1390.
 - Press TEST button (1) on VTM (2).
 - Press CLEAR key (3) on SETCOM (4).
 - Enter test number 1390 on SETCOM (4).
- Run test on 1W203 between P1 and P2.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.

Does SETCOM display show GOOD?



3

- Replace branched wiring harness 1W203.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

4

- Connect 1W203-P1 to J3 on turret networks box.
 - See figure 9-229.
- Replace gunner's primary sight body assembly.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-5.
- Verify that problem is solved.

*Figure 9-75
Volume II
Para. 9-3*

ARR82-5796

**DISPLAY SHOWS -
FAULTY GPS OR
1W206**

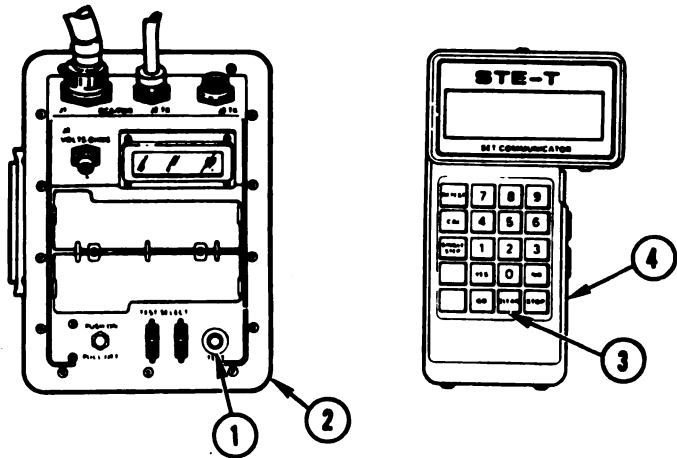
- 140213
- 140242
- 140318
- 141522

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- Disconnect CA519-P2 from CX307-P1.
 - See figure 9-16.
- Disconnect 1W206-P2 from J2 on gunner's primary sight.
 - See figure 9-240.
- Change STE power hook up from turret networks box to power distribution box.
 - See figure 9-37.

- Prepare STE to run cable test 1390.
 - Press TEST button (1) on VTM (2).
 - Press CLEAR key (3) on SETCOM (4).
 - Enter test number 1390 on SETCOM (4).
- Run test on 1W206 between P1 and P2.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.



Does SETCOM display show GOOD?

NO

- 3
- Replace branched wiring harness 1W206.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

YES

- 4
- Connect 1W206-P1 to J2 on line-of-sight electronics unit.
 - See figure 9-238.
 - Replace gunner's primary sight body assembly.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-5.
 - Verify that problem is solved.

Figure 9-76
Volume II
Para. 9-3

ARR82-5797

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

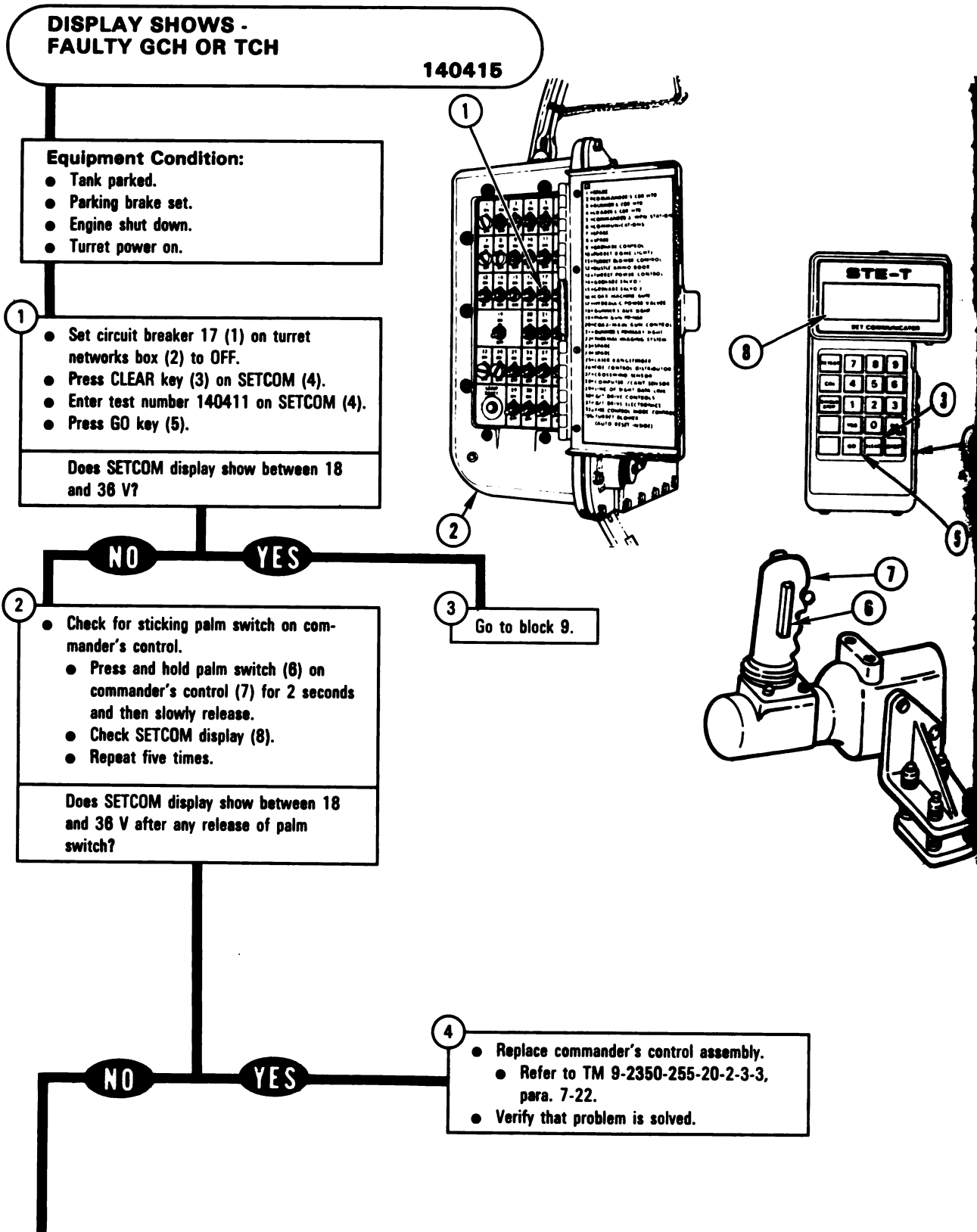


Figure 9-77 (Sheet 1 of 3)
Volume II
Para. 9-3

ARR82-5798

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

Check for sticking left palm switch on gunner's control.

- Press and hold left palm switch (1) on gunner's control (2) for 2 seconds and then slowly release.
- Check SETCOM display (3).
- Repeat five times.

Does SETCOM display show between 18 and 36 V after any release of palm switch?

6

- Replace gunner's control grip assembly.
- Refer to TM 9-2350-255-20-2-3-3, para. 7-21.
- Verify that problem is solved.

Check for sticking right palm switch on gunner's control.

- Press and hold right palm switch (4) on gunner's control (2) for 2 seconds and then slowly release.
- Check SETCOM display (3).
- Repeat five times.

Does SETCOM display show between 18 and 36 V after any release of palm switch?

8

- Replace gunner's control grip assembly.
- Refer to TM 9-2350-255-20-2-3-3, para. 7-21.
- Verify that problem is solved.

No faults found.

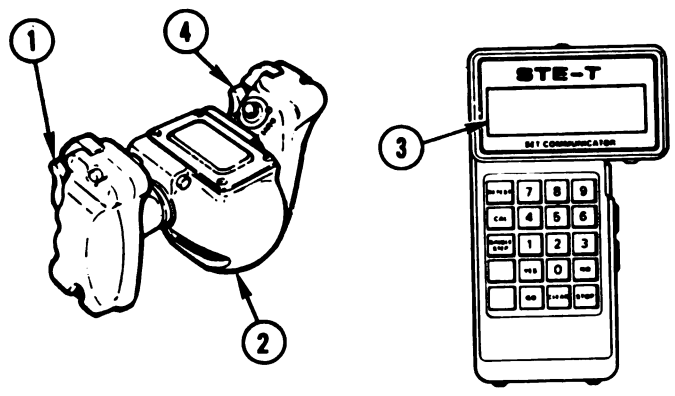


Figure 9-77 (Sheet 2 of 3)
**Volume II
Para. 9-3**

ARR82-5799

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

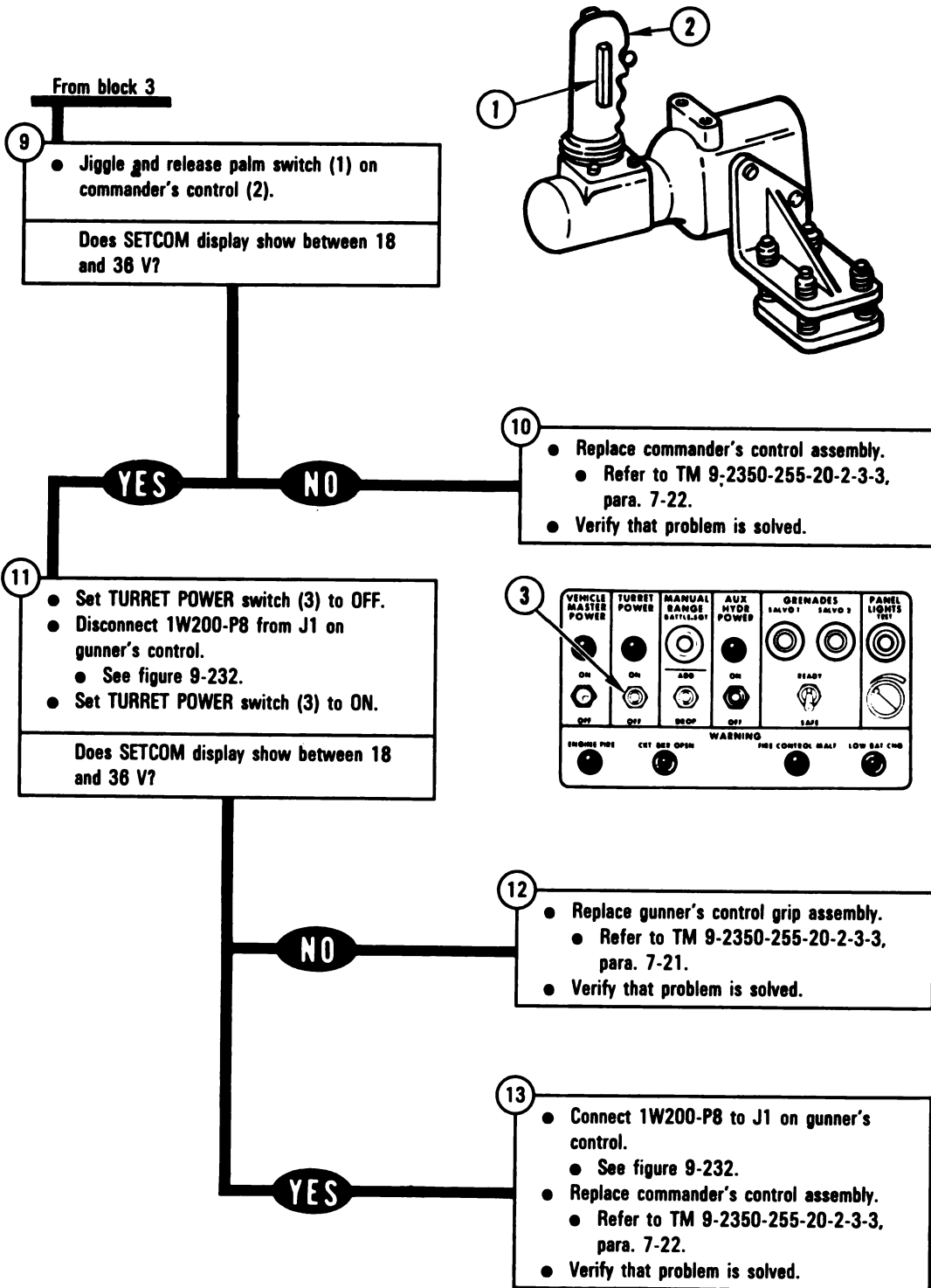


Figure 9-77 (Sheet 3 of 3)
Volume II
Para. 9-3

ARR82-5800

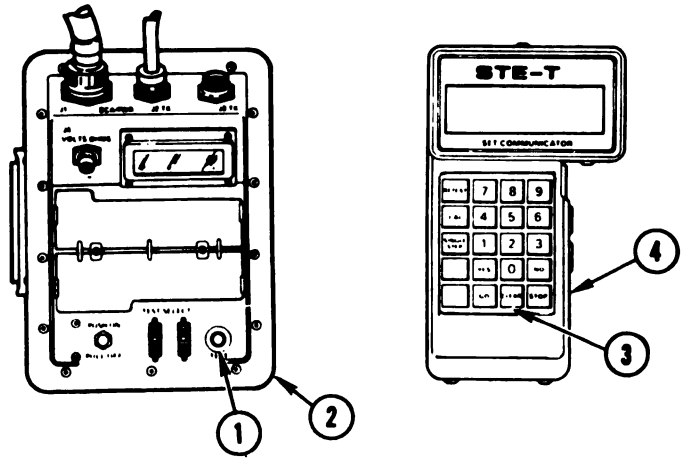
**DISPLAY SHOWS -
FAULTY GCH OR
1W200** **141045**

**Additional Test
Equipment/Special Tools:**
● Breakout Box Tool Kit, 12311066

Equipment Condition:
● Tank parked.
● Parking brake set.
● Engine shut down.
● Vehicle master power off.

● Disconnect 1W200-P8 from J1 on
gunner's control.
● See figure 9-232.
● Change STE power hook up from turret
networks box to power distribution box.
● See figure 9-37.

● Prepare STE to run cable test 1390.
● Press TEST button (1) on VTM (2).
● Press CLEAR key (3) on SETCOM (4).
● Enter test number 1390 on SETCOM (4).
● Run test on 1W200 between P4
and P8.
● Refer to TM 9-2350-255-20-2-2-2,
figure 15-5.



Does SETCOM display show GOOD?

YES

NO

3 ● Replace wiring harness assembly 1W200.
● Refer to TM 9-2350-255-20-2-3-1,
para. 2-13.
● Verify that problem is solved.

Figure 9-78 (Sheet 1 of 2)
Volume II
Para. 9-3

ARR82-5801

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

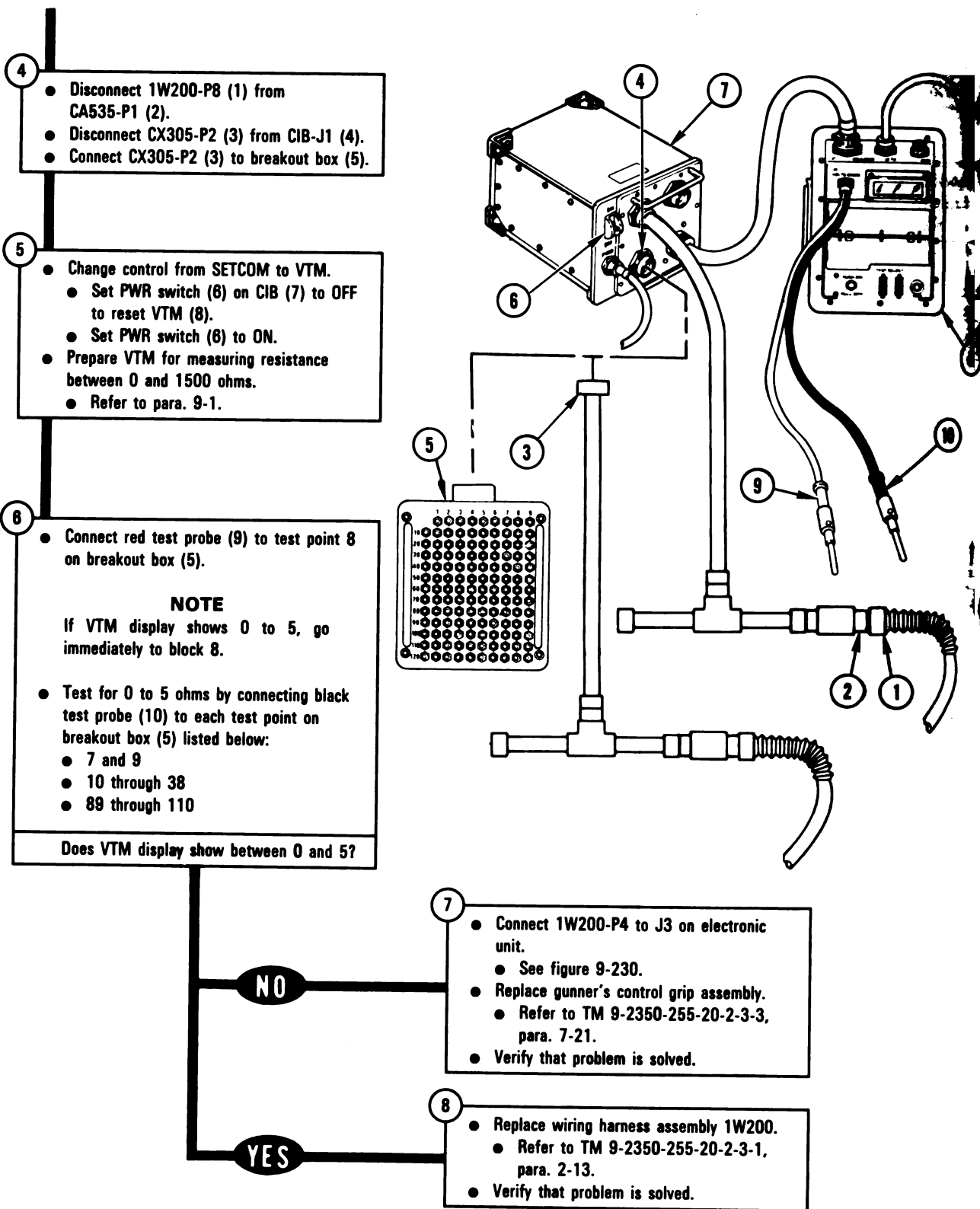


Figure 9-78 (Sheet 2 of 2)
Volume II
Para. 9-3

ARR82-5802

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS -
FAULTY GTD
1W200**

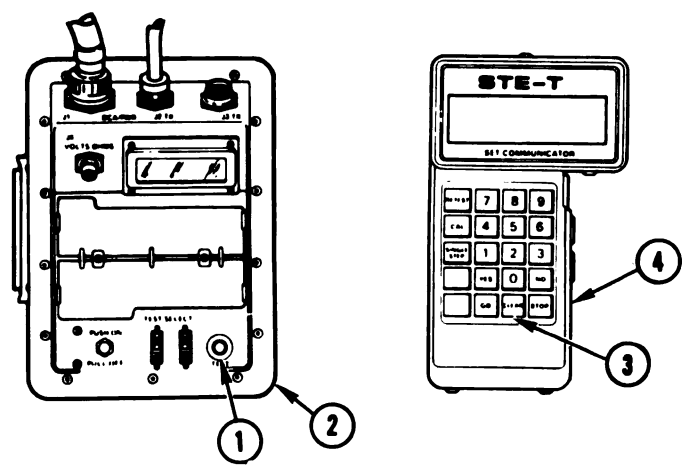
- 140115
- 140125
- 140308
- 140727

Equipment Condition:

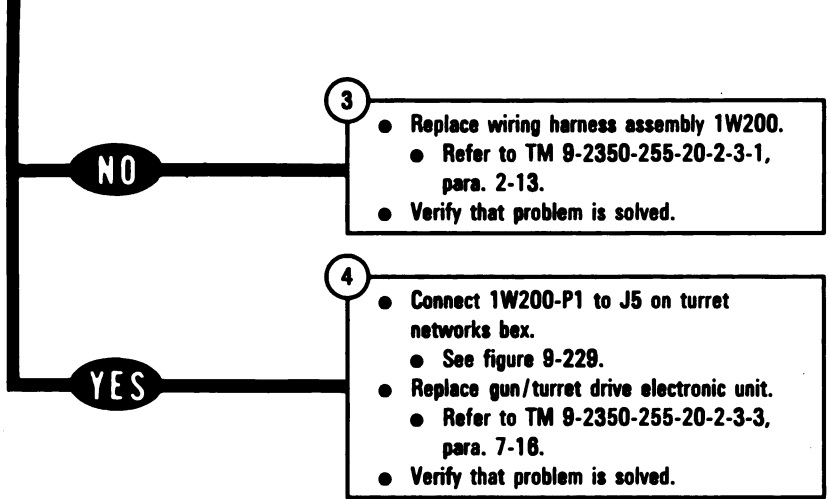
- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- Disconnect CA503-P2 from CX307-P1.
 - See figure 9-8.
- Disconnect 1W200-P4 from J3 on electronic unit.
 - See figure 9-230.
- Change STE power hook up from turret networks box to power distribution box.
 - See figure 9-37.

- Prepare STE to run cable test 1390.
 - Press TEST button (1) on VTM (2).
 - Press CLEAR key (3) on SETCOM (4).
 - Enter test number 1390 on SETCOM (4).
- Run test on 1W200 between P1 and P4.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.



Does SETCOM display show GOOD?



**Figure 9-79
Volume II
Para. 9-3**

ARR82-5803

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS -
FAULTY GTD OR
1W200**

140841

Additional Test

Equipment/Special Tools:

- Breakout Box Tool Kit, 12311088

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

1

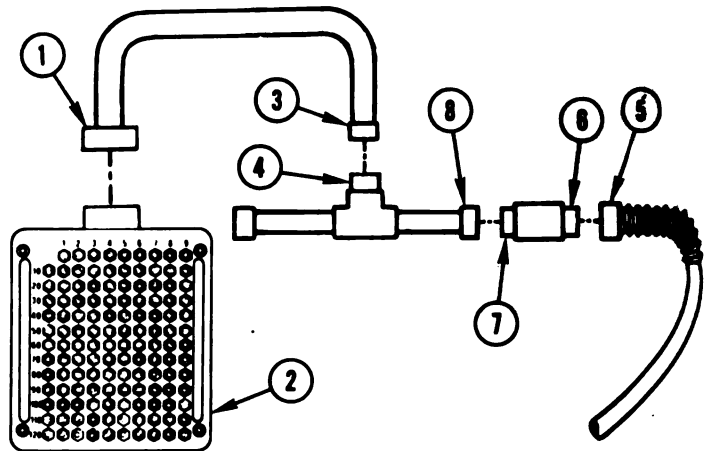
- Disconnect 1W200-P3 from J2 on electronic unit.
 - See figure 9-230.
- Disconnect 1W200-P4 from J3 on electronic unit.
 - See figure 9-230.

2

- Connect CX305-P2 (1) to breakout box (2).
- Connect CX305-P1 (3) to CX307-P3 (4).
- Connect 1W200-P1 (5) to CA504-P1 (6).
- Connect CA504-P2 (7) to CX307-P1 (8).

3

- Change STE power hook up from turret networks box to power distribution box.
 - See figure 9-37.
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 9-1.



*Figure 9-80 (Sheet 1 of 2)
Volume II
Para. 9-3*

ARR82-5804

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

Connect red test probe (1) to test point 106 on breakout box (2).

NOTE
If VTM display shows 0 to 5, go immediately to block 6.

Test for 0 to 5 ohms by connecting black test probe (3) to each test point on breakout box (2) listed below:

- 7 through 39
- 62, 74, and 75
- 89 through 105
- 107 through 113

Does VTM display show between 0 and 5?

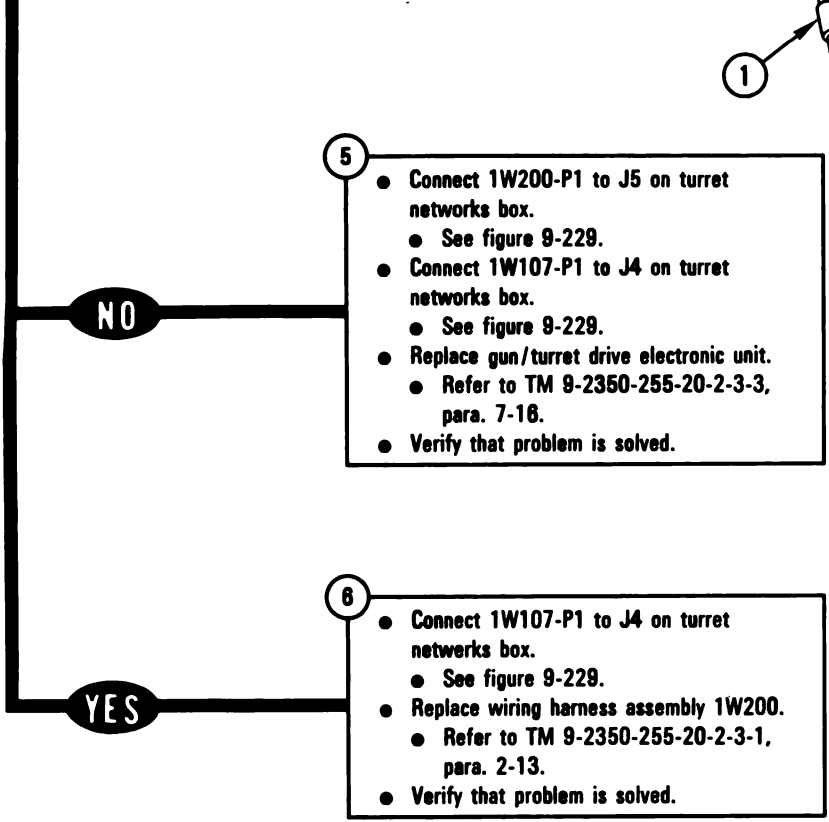
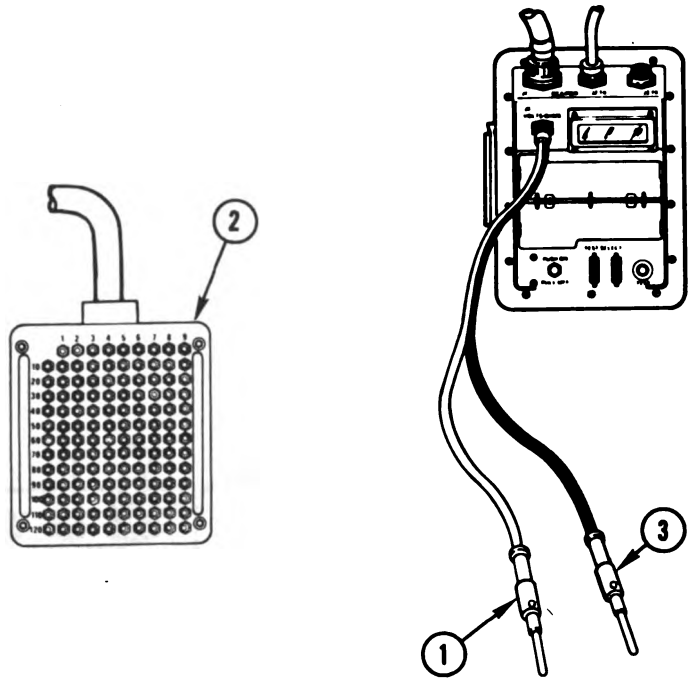


Figure 9-80 (Sheet 2 of 2)
Volume II
Para. 9-3

ARR82-5805

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS -
FAULTY TNB OR
1W104**

- 140023
- 140046
- 140612
- 140709
- 140724
- 140731
- 141717
- 141718
- 141719
- 142221

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

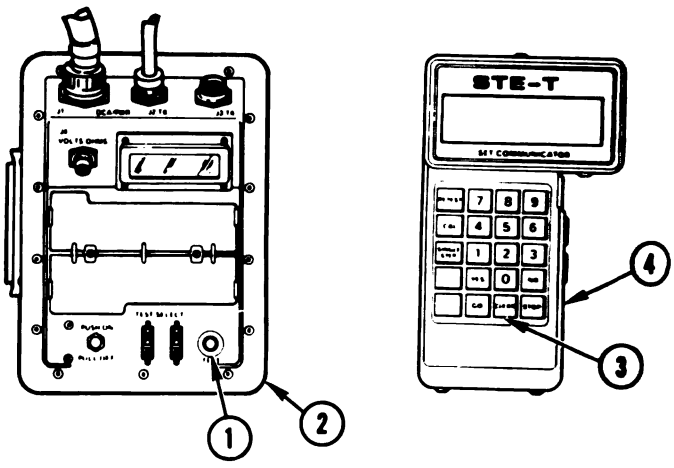
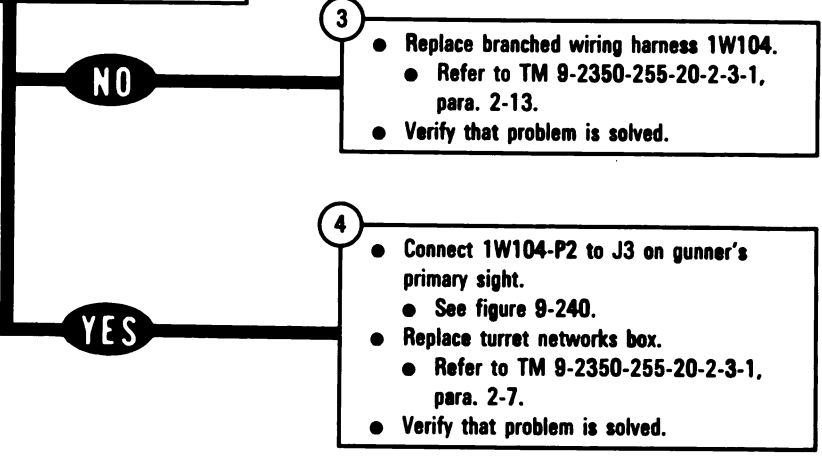
1

- Disconnect 1W104-P1 from J9 on turret networks box.
 - See figure 9-229.
- If connected, disconnect CA512-P2 from CX307-P1.
 - See figure 9-26.
- If connected, disconnect CX205-P2 from CIB-J2.
 - See figure 9-6.
- Change STE power hook up from turret networks box to power distribution box.
 - See figure 9-37.

2

- Prepare STE to run cable test 1390.
 - Press TEST button (1) on VTM (2).
 - Press CLEAR key (3) on SETCOM (4).
 - Enter test number 1390 on SETCOM (4).
- Run test on 1W104 between P1 and P2.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.

Does SETCOM display show GOOD?



3

- Replace branched wiring harness 1W104.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

4

- Connect 1W104-P2 to J3 on gunner's primary sight.
 - See figure 9-240.
- Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
- Verify that problem is solved.

*Figure 9-81
Volume II
Para. 9-3*

ARR82-5806

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS -
FAULTY TNB, GTD,
OR 1W200**

140431

Additional Test

Equipment/Special Tools:

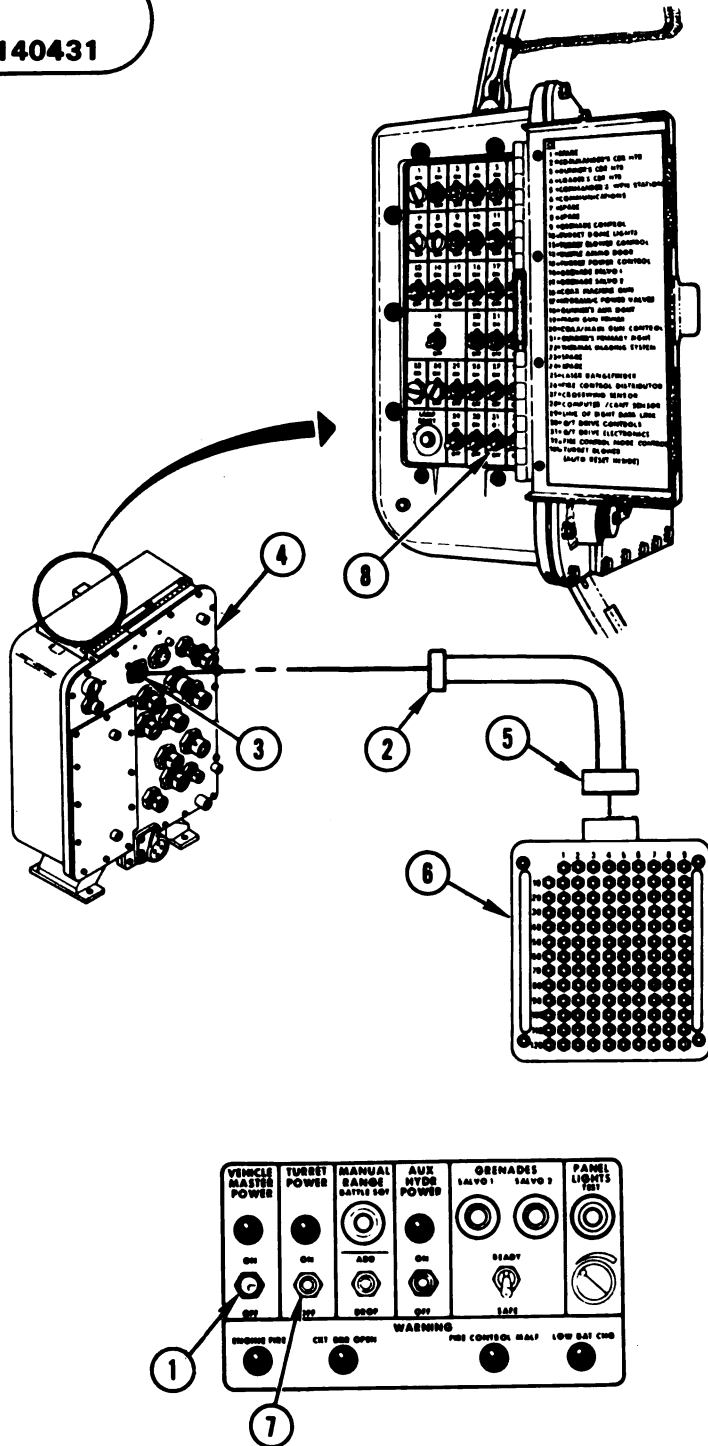
- Breakout Box Tool Kit, 12311086

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power on.

- Reduce hydraulic pressure to zero psi, by operating bilge pump.
 - Refer to TM 9-2350-255-10.
- Set VEHICLE MASTER POWER switch (1) to OFF.
- Disconnect CX205-P4 from TEST 1 on turret networks box.
 - See figure 9-8.
- Disconnect 1W200-P3 from J2 on electronic unit.
 - See figure 9-230.

- Connect breakout box to TEST 1 on turret networks box using CX208.
 - Connect CX208-P1 (2) to TEST 1 (3) on turret networks box (4).
 - Connect CX208-P2 (5) to breakout box (6).
- Set TURRET POWER switch (7) to ON.
- Set circuit breaker 31 (8) on turret networks box (4) to ON.



*Figure 9-82 (Sheet 1 of 3)
Volume II
Para. 9-3*

ARR82-5807

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

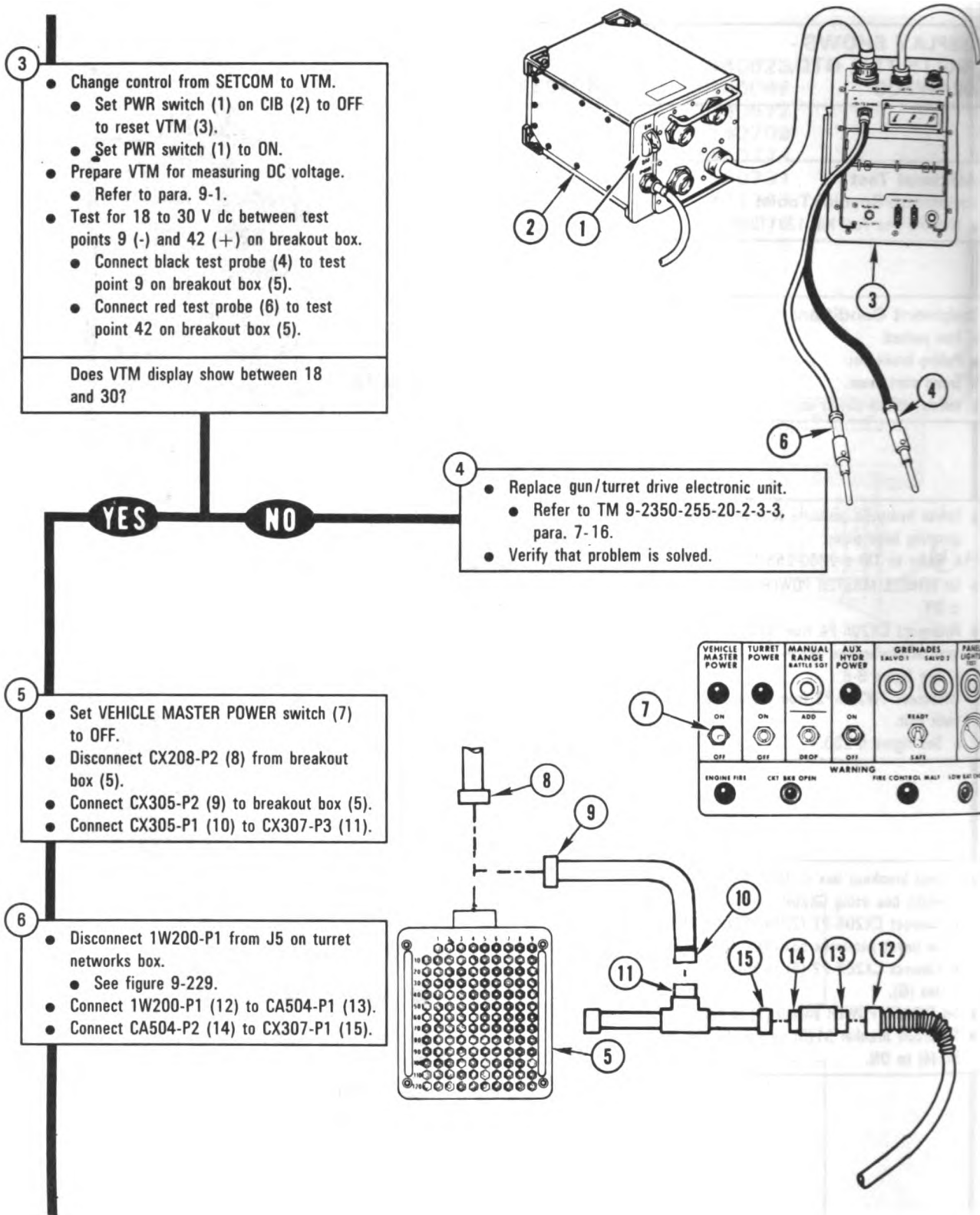


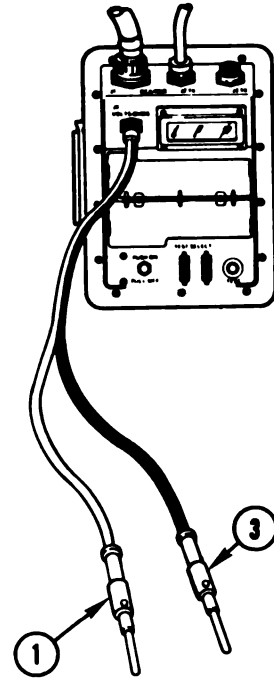
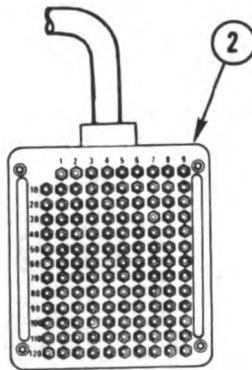
Figure 9-82 (Sheet 2 of 3)
Volume II
Para. 9-3

ARR82-5808

TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING

- Change STE power hook up from turret networks box to power distribution box.
 - See figure 9-37.
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 9-1.

- Connect red test probe (1) to test point 102 on breakout box (2).
- NOTE**
 If VTM display shows 0 to 5, go immediately to block 10.
- Test for 0 to 5 ohms by connecting black test probe (3) to each test point on breakout box (2) listed below:
 - 7 through 39
 - 62, 74, and 75
 - 89 through 101
 - 103 through 113



Does VTM display show between 0 and 5?

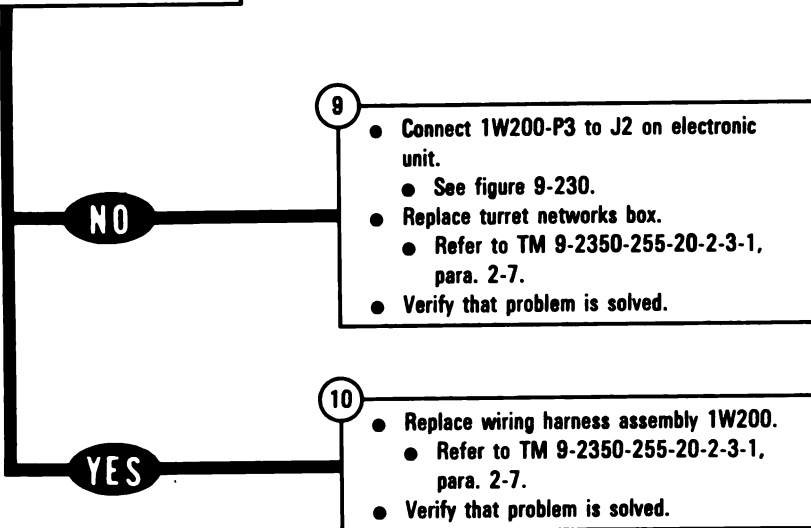


Figure 9-82 (Sheet 3 of 3)
Volume II
Para. 9-3

ARR82-5809

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

• 140545
140571

**DISPLAY SHOWS -
FAULTY TCH OR
1W200**

**Additional Test
Equipment/Special Tools:**

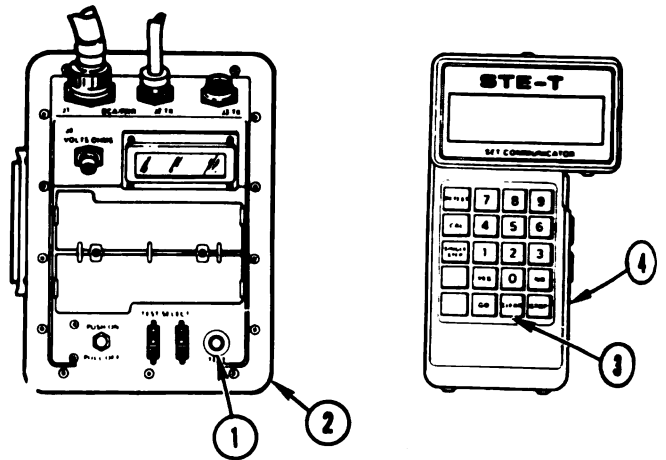
- Breakout Box Tool Kit, 12311066

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

1

- Disconnect CX304-P1 from CX307-P3.
 - See figure 9-29.
- Disconnect 1W200-P7 from J1 on commander's control.
 - See figure 9-232.
- Change STE power hook up from turret networks box to power distribution box.
 - See figure 9-37.



2

- Prepare STE to run cable test 1390.
 - Press TEST button (1) on VTM (2).
 - Press CLEAR key (3) on SETCOM (4).
 - Enter test number 1390 on SETCOM (4).
- Run test on harness 1W200 between P3 and P7.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.

Does SETCOM display show GOOD?

YES

NO

3

- Replace wiring harness assembly 1W200.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

*Figure 9-83 (Sheet 1 of 2)
Volume II
Para. 9-3*

ARR82-5810

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

- Disconnect 1W200-P7 (1) from CA535-P1 (2).
- Disconnect CX305-P2 (3) from CIB-J1 (4).
- Connect CX305-P2 (3) to breakout box (5).

- Change control from SETCOM to VTM.
 - Set PWR switch (6) on CIB (7) to OFF to rest VTM (8).
 - Set PWR switch (6) to ON.
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 9-1.

- Connect red test probe (9) to test point 104 on breakout box (5).

NOTE

If VTM display shows 0 to 5, go immediately to block 8.

- Test for 0 to 5 ohms by connecting black test probe (10) to each test point on breakout box (5) listed below:
 - 8, 9, 26, and 27

Does VTM display show between 0 and 5?

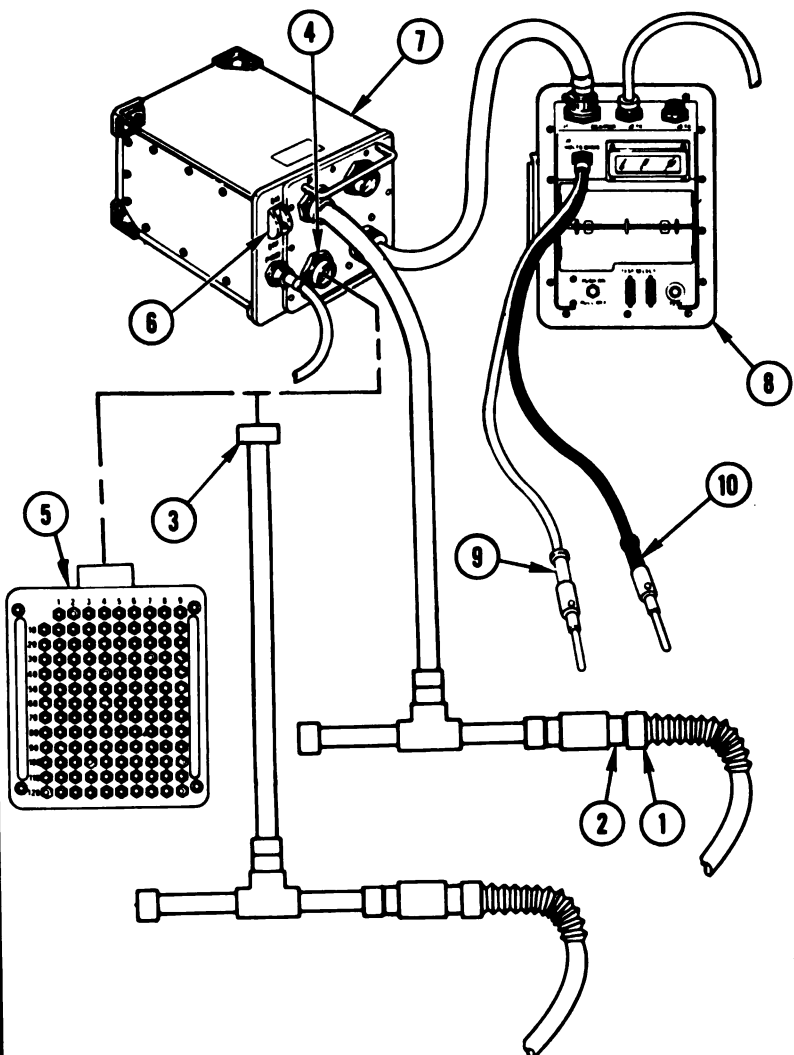
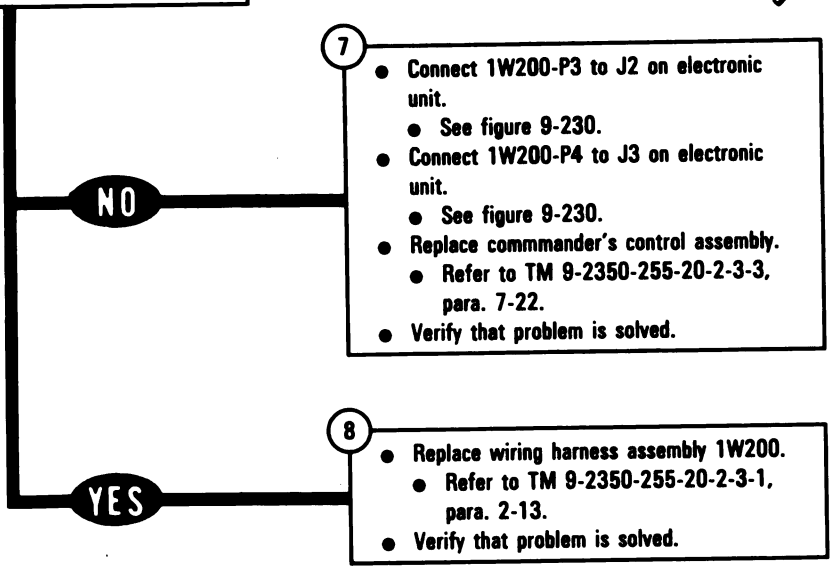


Figure 9-83 (Sheet 2 of 2)
**Volume II
Para. 9-3**

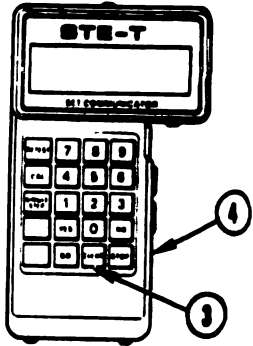
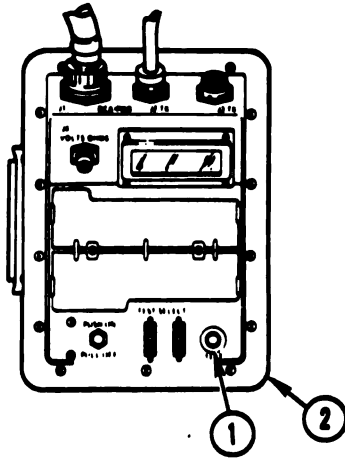
ARR82-5811

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS -
FAULTY MGSSW, 1W107
OR 1W108** **140S45**

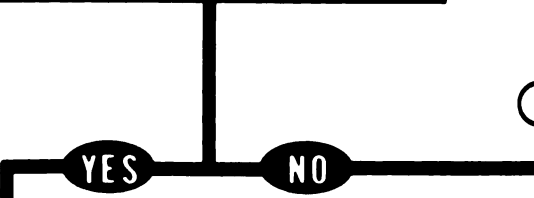
- Equipment Condition:**
- Tank parked.
 - Parking brake set.
 - Engine shut down.
 - Vehicle master power off.

- 1**
- Disconnect CA521-P2 from CX307-P1.
 - See figure 9-31.
 - Disconnect 1W108-P1 from 1W107-J1.
 - See figure 9-237.
 - Change STE power hook up from turret networks box to power distribution box.
 - See figure 9-37.



- 2**
- Prepare STE to run cable test 1390.
 - Press TEST button (1) on VTM (2).
 - Press CLEAR key (3) on SETCOM (4).
 - Enter test number 1390 on SETCOM (4).
 - Run test on 1W107 between P1 and J1.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.

Does SETCOM display show GOOD?



- 3**
- Replace branched wiring harness 1W107.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

*Figure 9-84 (Sheet 1 of 2)
Volume II
Para. 9-3*

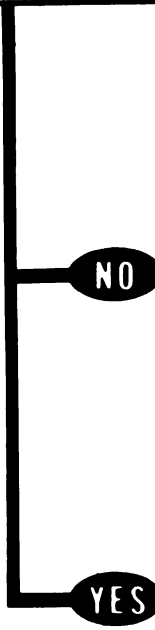
ARR02-5012

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

- Disconnect 1W107-P1 (1) from CA522-P1 (2).
- Disconnect CX304-P1 (3) from CX307-P3 (4).
- Disconnect main gun safety switch (1S100)-P1 from 1W108-J1.
- See figure 9-237.

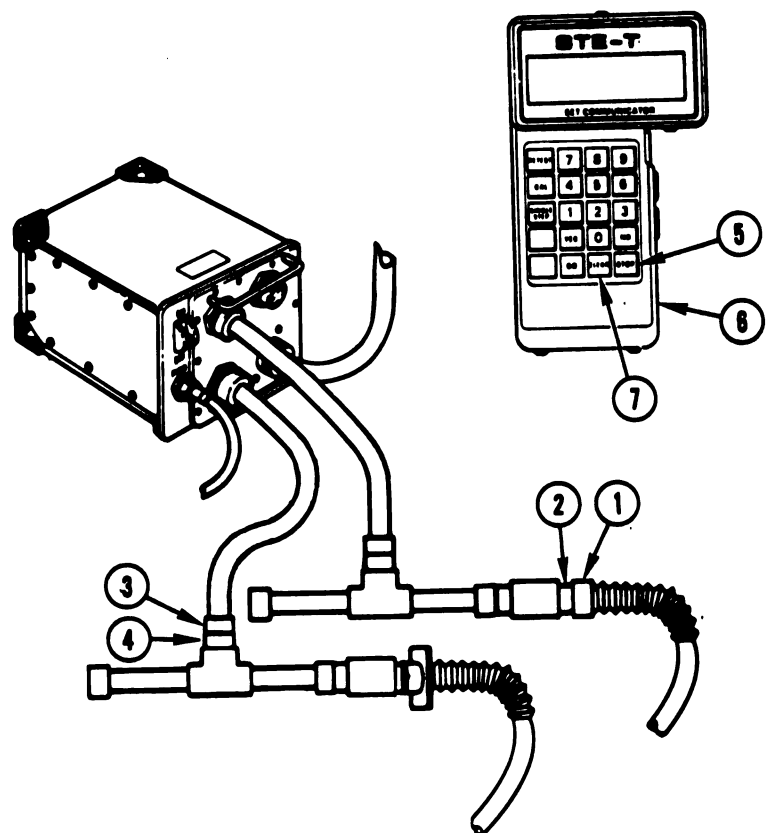
- Prepare STE to run cable test 1390.
 - Press STOP key (5) on SETCOM (6).
 - Press CLEAR key (7).
 - Enter test number 1390 on SETCOM (6).
- Run test on 1W108 between P1 and J1.
- Refer to TM 9-2350-255-20-2-2-2, figure 15-5.

Does SETCOM display show GOOD?



NO

YES



- 8
- Connect 1W107-P1 to J4 on turret networks box.
 - See figure 9-229.
 - Replace wiring harness assembly 1W108.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

- 7
- Connect 1W108-P1 to 1W107-J1.
 - See figure 9-237.
 - Connect 1W107-P1 to J4 on turret networks box.
 - See figure 9-229.
 - Replace main gun safety switch.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-14.
 - Verify that problem is solved.

Figure 9-84 (Sheet 2 of 2)
**Volume II
Para. 9-3**

ARR82-5813

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS -
FAULTY TNB OR
1W200**

• 140432
140464

Additional Test

Equipment/Special Tools:

- Breakout Box Tool Kit, 12311066

Equipment Condition:

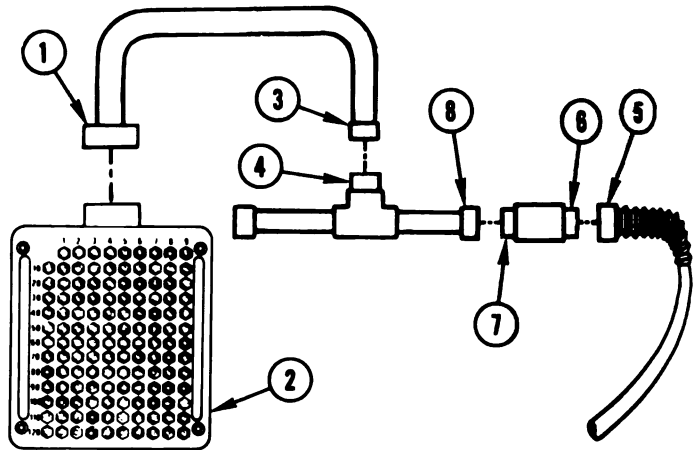
- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

1

- If connected, disconnect 1W200-P3 from J2 on electronic unit.
 - See figure 9-230.
- Connect CX305-P2 (1) to breakout box (2).
- Connect CX305-P1 (3) to CX307-P3 (4).
- Disconnect 1W200-P1 from J5 on turret networks box.
 - See figure 9-229.

2

- Connect 1W200-P1 (5) to CA504-P1 (6).
- Connect CA504-P2 (7) to CX307-P1 (8).
- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 9-1.



*Figure 9-85 (Sheet 1 of 2)
Volume II
Para. 9-3*

ARR82-5814

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

- Connect red test probe (1) to test point 102 on breakout box (2).

NOTE
If VTM display shows 0 to 5, go immediately to block 5.

- Test for 0 to 5 ohms by connecting black test probe (3) to each test point on breakout box (2) listed below:
 - 7, 10 through 15
 - 17 through 23
 - 30 through 39, 62, 74, and 75
 - 89 through 101
 - 103 through 113

Does VTM display show between 0 and 5?

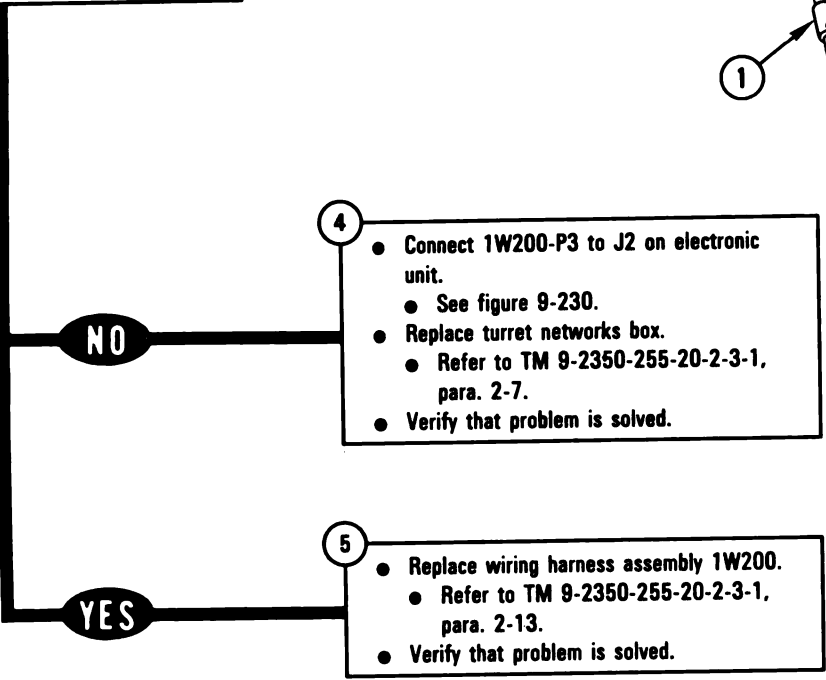
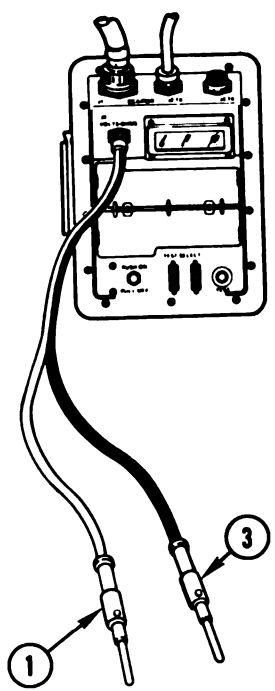
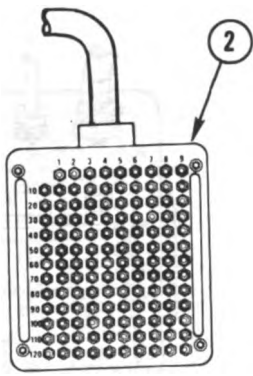


Figure 9-85 (Sheet 2 of 2)
**Volume II
Para. 9-3**

ARR82-5815

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

• 140212
140214
144356

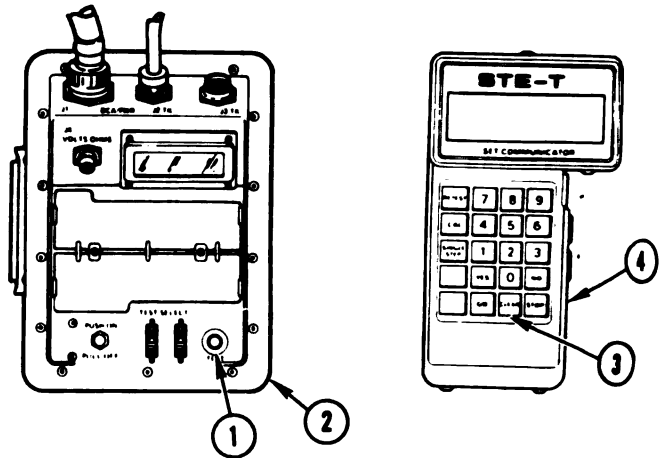
**DISPLAY SHOWS -
FAULTY TNB OR
1W202**

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

1

- If connected, disconnect CA418-P2 from CX307-P1.
 - See figure 9-13.
- Disconnect 1W202-P1 from J7 on turret networks box.
 - See figure 9-229.
- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.



2

- Prepare STE to run cable test 1390.
 - Press TEST button (1) on VTM (2).
 - Press CLEAR key (3) on SETCOM (4).
 - Enter test number 1390 on SETCOM (4).
- Run test on 1W202 between P1 and P3.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.

Does SETCOM display show GOOD?

NO

3

- Replace branched wiring harness 1W202.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

YES

4

- Connect 1W202-P3 to J1 on line-of-sight electronics unit.
 - See figure 9-238.
- Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
- Verify that problem is solved.

Figure 9-86
Volume II
Para. 9-3

ARR82-5816

• 140832
 141927

DISPLAY SHOWS -
 FAULTY TNB, SRING
 OR 1W101

Additional Test

Equipment/Special Tools:

- Breakout Box Tool Kit, 12311066

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- Disconnect CX205-P4 from TEST 1 on turret networks box.
 - See figure 9-6.
- Disconnect CX205-P5 from TEST 2 on turret networks box.
 - See figure 9-6.
- Disconnect 1W101-P2 from J11 on turret networks box.
 - See figure 9-229.
- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.

- Connect CX305-P2 (1) to breakout box (2).
- Connect CX305-P1 (3) to CX307-P3 (4).
- Connect CA548-P1 (5) to J11 (8) on turret networks box (7).
- Connect CA548-P2 (8) to CX307-P1 (9).

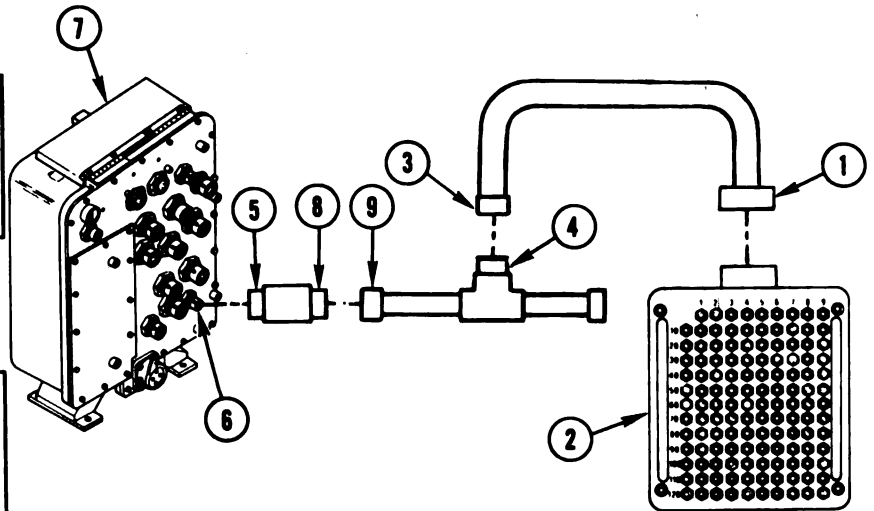


Figure 9-87 (Sheet 1 of 3)
 Volume II
 Para. 9-3

ARR82-5817

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

3

- Prepare VTM for measuring resistance between 0 and 1500 ohms.
- Refer to para. 9-1.

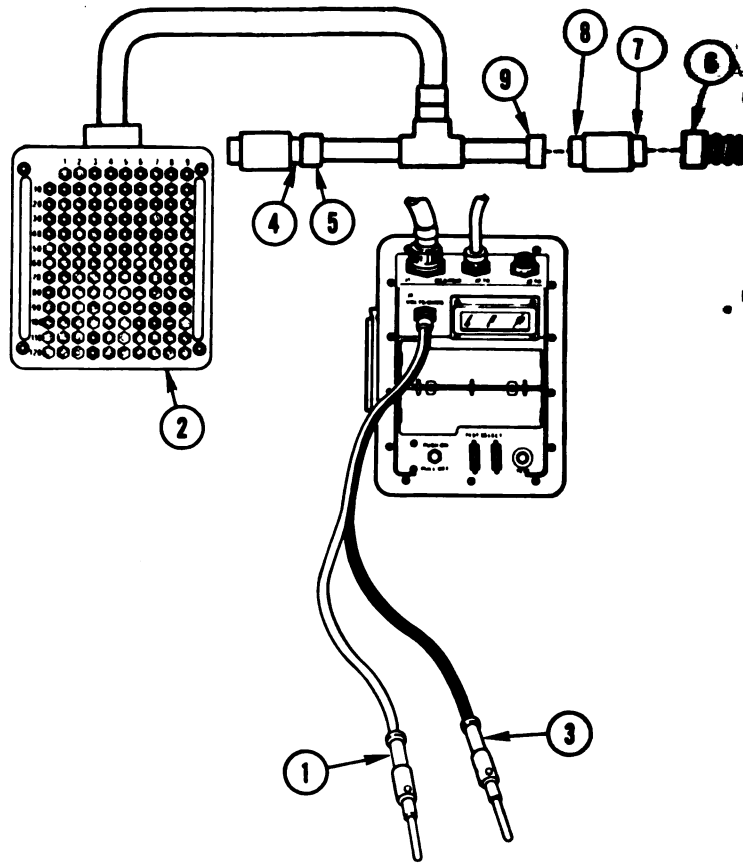
4

- Connect red test probe (1) to test point 32 on breakout box (2).

NOTE
If VTM display shows 0 to 5, go immediately to block 5.

- Test for 0 to 5 ohms by connecting black test probe (3) to each test point on breakout box (2) listed below:
 - 7 through 13
 - 15 through 17
 - 19 through 21
 - 24 through 31

Does VTM display show between 0 and 5?



5

- Replace turret networks box.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
- Verify that problem is solved.

6

- Disconnect CA546-P2 (4) from CX307-P1 (5).
- Disconnect 1W101-P1 from J8 on hull/turret slipring.
 - See figure 9-233.
- Connect 1W101-P1 (6) to CA419-P1 (7).
- Connect CA419-P2 (8) to CX307-P2 (9).

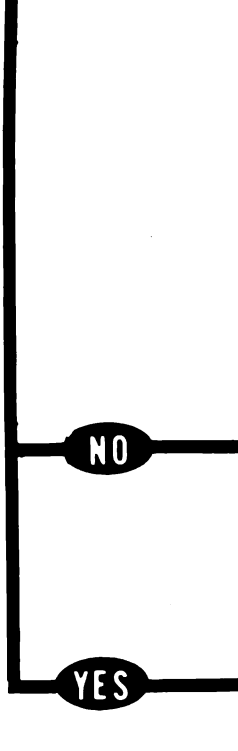
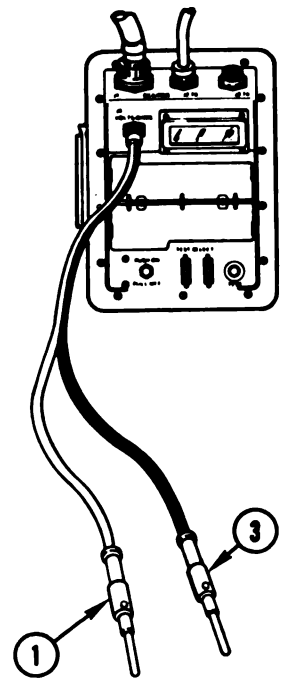
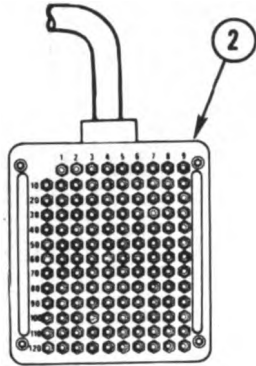
*Figure 9-87 (Sheet 2 of 3)
Volume II
Para. 9-3*

- Connect red test probe (1) to test point 7 on breakout box (2).

NOTE
If VTM display shows 0 to 5, go immediately to block 9.

- Test for 0 to 5 ohms by connecting black test probe (3) to each test point on breakout box (2) listed below:
 - 8 through 31
 - 37, 38, and 96
 - 99 and 102

Does VTM display show between 0 and 5?



8

- Connect 1W101-P2 to J11 on turret networks box.
 - See figure 9-229.
- Replace hull/turret slipring assembly.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-8.
- Verify that problem is solved.

9

- Replaced wiring harness assembly 1W101.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

Figure 9-87 (Sheet 3 of 3)
Volume II
Para. 9-3

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS -
FAULTY TNB OR
1W200**

140426

**Additional Test
Equipment/Special Tools:**

- Breakout Box Tool Kit, 12311066

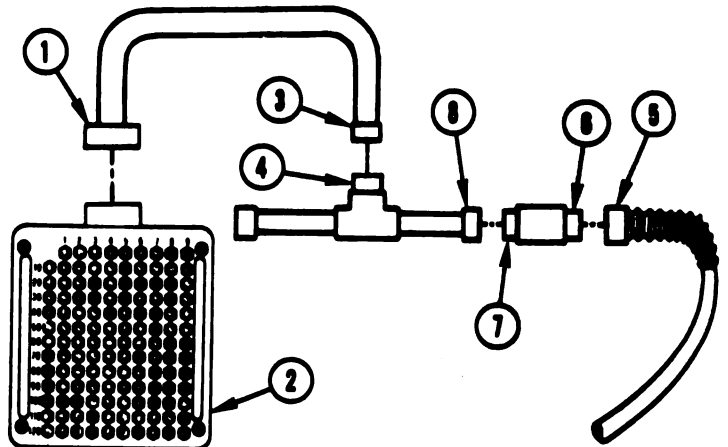
Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- 1
- Disconnect 1W200-P4 from J3 on electronic unit.
 - See figure 9-230.
 - Connect CX305-P2 (1) to breakout box (2).
 - Connect CX305-P1 (3) to CX307-P3 (4).

- 2
- Disconnect 1W200-P1 from J5 on turret networks box.
 - See figure 9-228.
 - Connect 1W200-P1 (5) to CA504-P1 (6).
 - Connect CA504-P2 (7) to CX307-P1 (8).

- 3
- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.
 - Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 9-1.



**Figure 9-88 (Sheet 1 of 2)
Volume II
Para. 9-3**

ARR82-5820

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

● Connect red test probe (1) to test point 101 on breakout box (2).

NOTE
If VTM display shows 0 to 5, go immediately to block 6.

● Test for 0 to 5 ohms by connecting black test probe (3) to each test point on breakout box (2) listed below:

- 7 through 39
- 62, 74, and 75
- 89 through 100
- 102 through 113

Does VTM display show between 0 and 5?

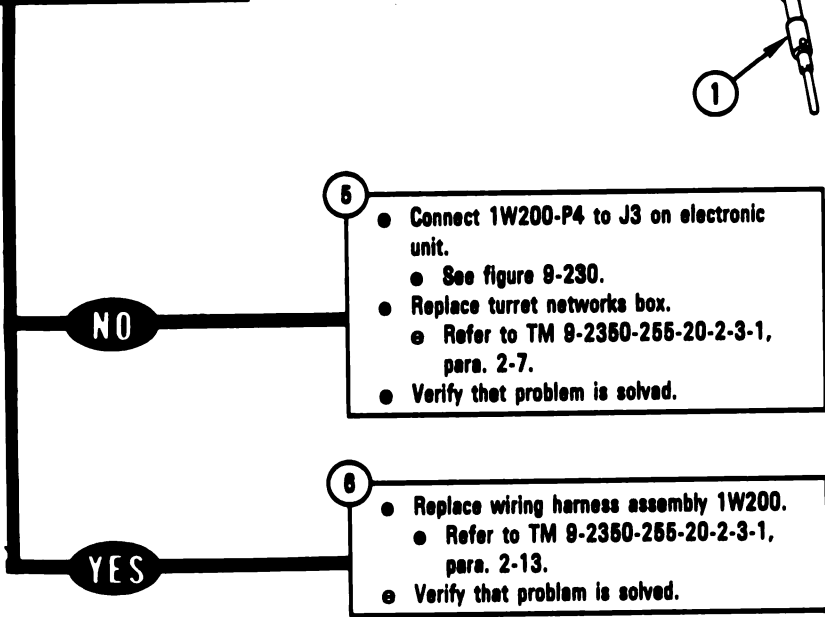
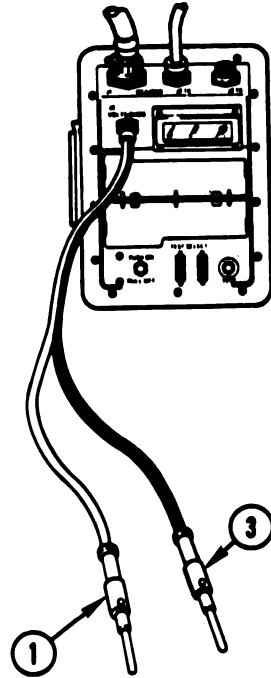
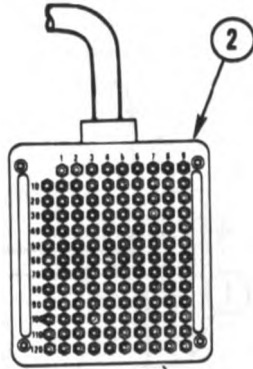


Figure 9-88 (Sheet 2 of 2)
Volume II
Para. 9-3

ARR82-5821

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS -
FAULTY CEU OR
1W201**

140567

**Additional Test
Equipment/Special Tools:**

- Breakout Box Tool Kit, 12311066

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- 1
- Connect CX305-P2 (1) to breakout box (2).
 - Connect CX305-P1 (3) to CX307-P3 (4).
 - Disconnect 1W201-P2 from J1 on computer electronics unit.
 - See figure 9-230.
 - Connect 1W201-P1 (5) to CA502-P1 (6).
 - Connect CA502-P2 (7) to CX307-P1 (8).

- 2
- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.
 - Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 9-1.

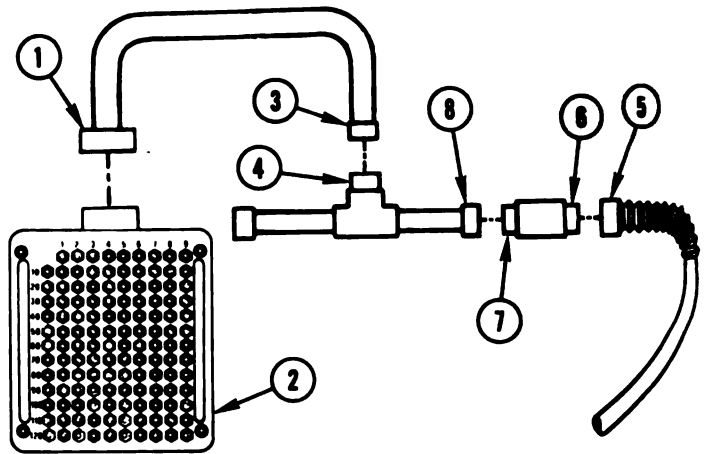


Figure 9-89 (Sheet 1 of 2)
**Volume II
Para. 9-3**

ARR82-5822

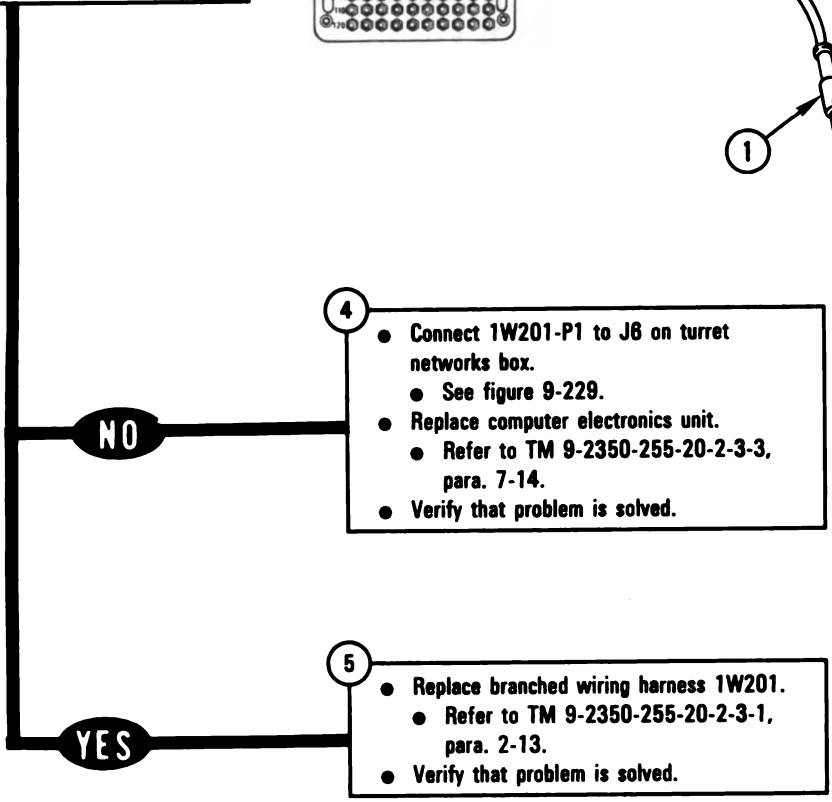
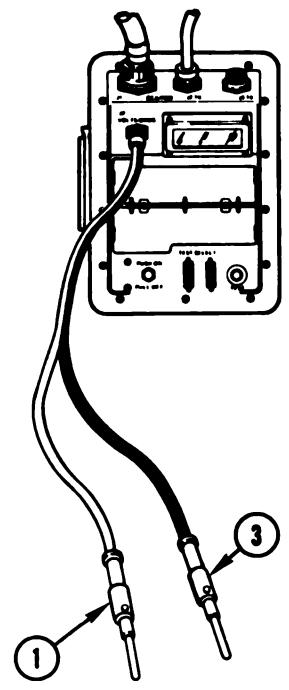
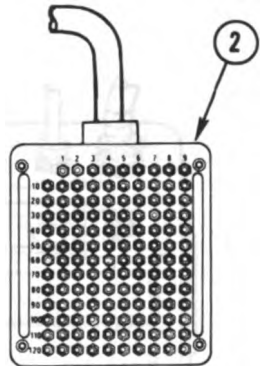
**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

- Connect red test probe (1) to test point 104 on breakout box (2).

NOTE
If VTM display shows 0 to 5, go immediately to block 5.

- Test for 0 to 5 ohms by connecting black test probe (3) to each test point listed below on breakout box (2).
 - 7 through 39
 - 62, 74, and 75
 - 89 through 103
 - 105 through 113

Does VTM display show between 0 and 5?



4

- Connect 1W201-P1 to J6 on turret networks box.
- See figure 9-229.
- Replace computer electronics unit.
- Refer to TM 9-2350-255-20-2-3-3, para. 7-14.
- Verify that problem is solved.

5

- Replace branched wiring harness 1W201.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

Figure 9-89 (Sheet 2 of 2)
Volume II
Para. 9-3

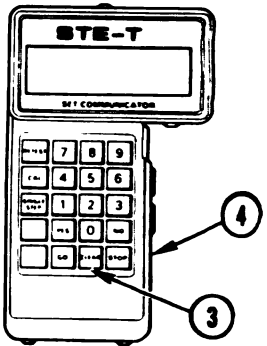
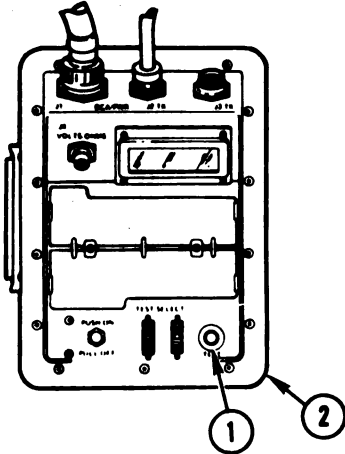
ARR82-5823

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

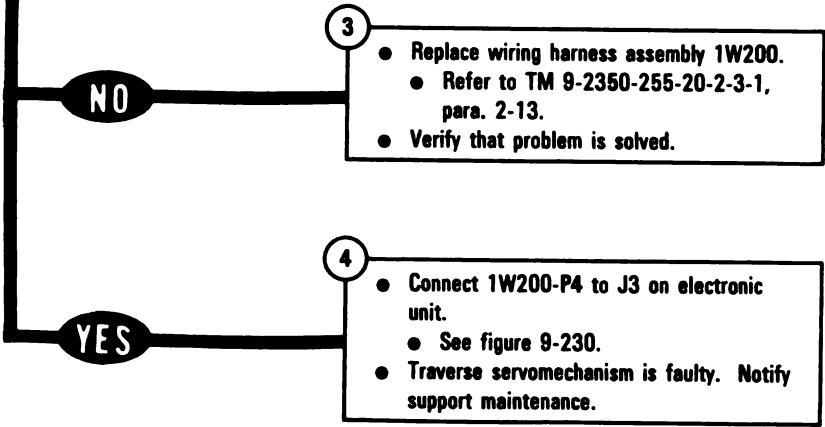
**DISPLAY SHOWS -
FAULTY TRVSV OR
1W200** **142715**

- Equipment Condition:**
- Tank parked.
 - Parking brake set.
 - Engine shut down.
 - Vehicle master power off.

- ①
- Disconnect 1W200-P10 from J2 on traverse servomechanism.
 - See figure 9-234.
 - Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.



- ②
- Prepare STE to run cable test 1390.
 - Press TEST button (1) on VTM (2).
 - Press CLEAR key (3) on SETCOM (4).
 - Enter test number 1390 on SETCOM (4).
 - Run test on 1W200 between P4 and P10.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.
- Does SETCOM display show GOOD?



- ③
- Replace wiring harness assembly 1W200.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

- ④
- Connect 1W200-P4 to J3 on electronic unit.
 - See figure 9-230.
 - Traverse servomechanism is faulty. Notify support maintenance.

Figure 9-90
Volume II
Para. 9-3

**DISPLAY SHOWS -
FAULTY TNB OR
1W200** 141007

**Additional Test
Equipment/Special Tools:**
• Breakout Box Tool Kit, 12311066

Equipment Condition:
• Tank parked.
• Parking brake set.
• Engine shut down.
• Vehicle master power on.

• Reduce hydraulic pressure to zero psi, by operating bilge pump.
• Refer to TM 9-2350-255-10.
• Set VEHICLE MASTER POWER switch (1) to OFF.
• Disconnect CX205-P4 from TEST 1 on turret networks box.
• See figure 9-8.
• Disconnect 1W200-P1 from J5 on turret networks box.
• See figure 9-229.

• Connect breakout box to TEST 1 on turret networks box using CABLE NO. 1 and ADAPTER NO. 1.
• Connect CABLE NO. 1-P1 (2) to breakout box (3).
• Connect ADAPTER NO. 1-P1 (4) to TEST 1 (5) on turret networks box (6).
• Connect CABLE NO. 1-P2 (7) to ADAPTER NO. 1-J1 (8).

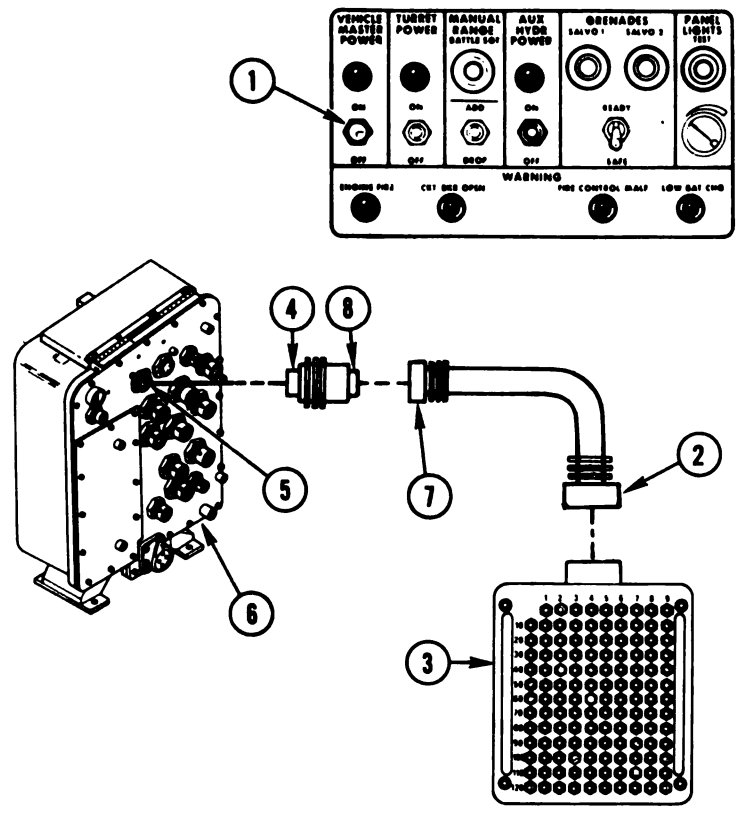
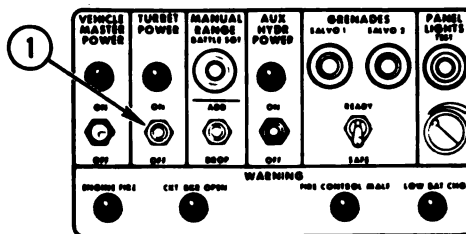


Figure 9-91 (Sheet 1 of 2)
Volume II
Para. 9-3

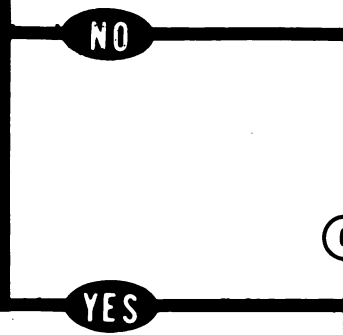
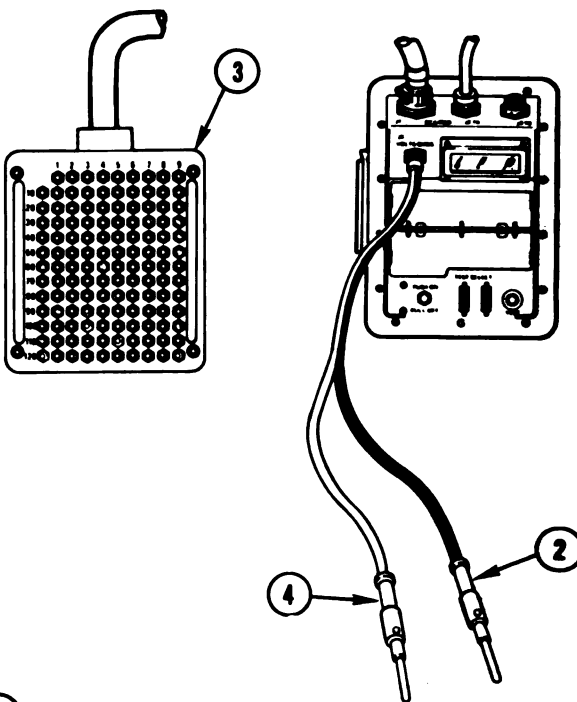
ARR82-5825

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

- 3
- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.
 - Prepare VTM for dc voltage test.
 - Refer to para. 9-1.
 - Set TURRET POWER switch (1) to ON.



- 4
- Test for less than 1 V dc between test points 9 (-) and 38 (+) on breakout box.
 - Connect black test probe (2) to test point 9 on breakout box (3).
 - Connecting red test probe (4) to test point 38 on breakout box (3).
- Does VTM display show less than 1?



- 5
- Connect 1W200-P7 to J1 on commander's control.
 - See figure 9-232.
 - Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
 - Verify that problem is solved.

- 6
- Replace wiring harness assembly 1W200.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

*Figure 9-91 (Sheet 2 of 2)
Volume II
Para. 9-3*

DISPLAY SHOWS -
FAULTY LOS, CEU,
OR 1W202

142317

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- Disconnect CA512-P2 from CX307-P1.
 - See figure 9-25.
- Disconnect 1W202-P3 from J1 on line-of-sight electronics unit.
 - See figure 9-238.
- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.

- Prepare STE to run cable test 1390.
 - Press TEST button (1) on VTM (2).
 - Press CLEAR key (3) on SETCOM (4).
 - Enter test number 1390 on SETCOM (4).
- Run test on 1W202 between P2 and P3.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.

Does SETCOM display show GOOD?

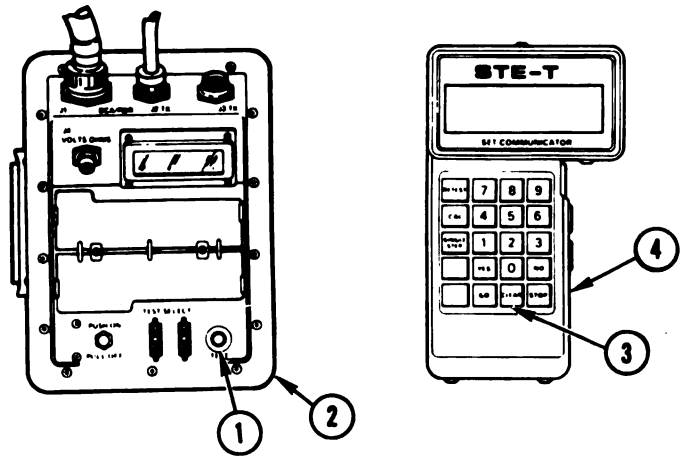


Figure 9-92 (Sheet 1 of 2)
Volume II
Para. 9-3

ARR82-5827

TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING

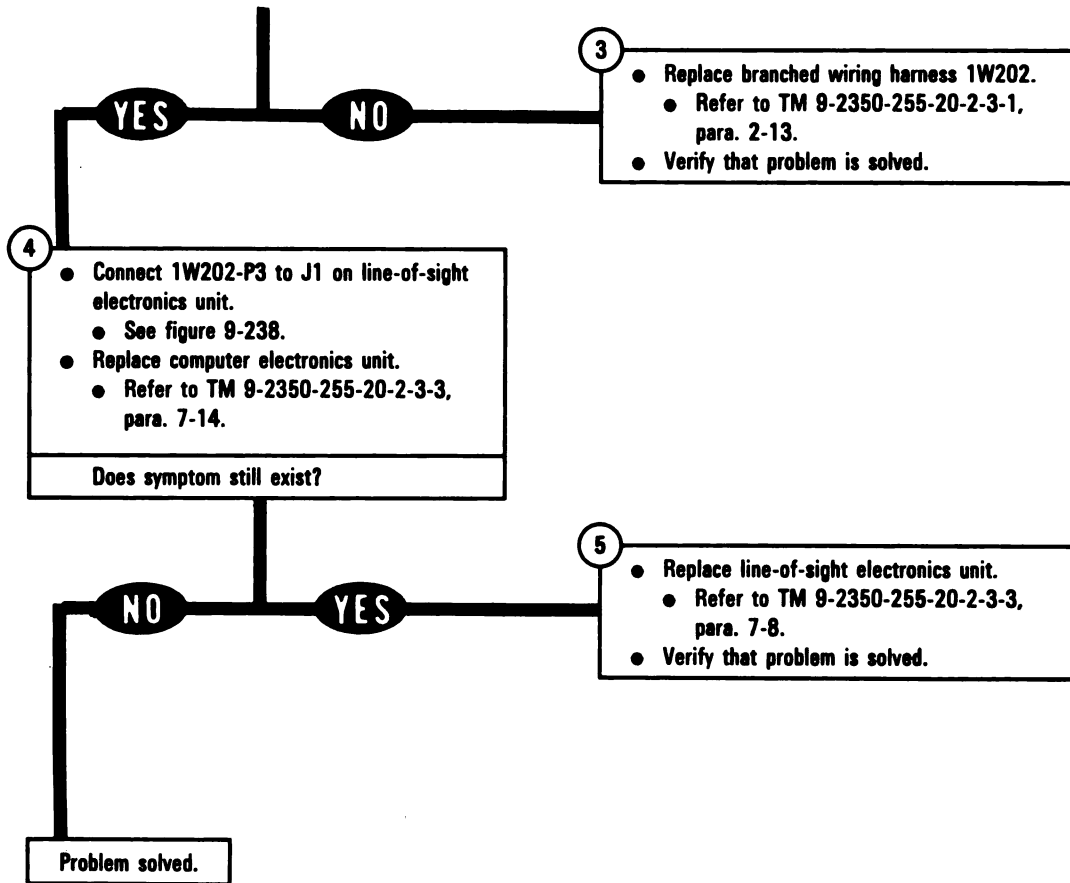


Figure 9-92 (Sheet 2 of 2)
Volume II
Para. 9-3

**DISPLAY SHOWS -
FAULTY LOS OR
1W202**

144309

Additional Test

Equipment/Special Tools:

- Breakout Box Tool Kit, 12311066

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- Disconnect 1W202-P3 from J1 on line-of-sight electronics unit.
- See figure 9-238.

- Connect CX305-P2 (1) to breakout box (2).
- Connect CX305-P1 (3) to CX307-P3 (4).
- Connect 1W202-P1 (5) to CA506-P1 (6).
- Connect CA506-P2 (7) to CX307-P1 (6).

- Change STE power hookup from turret networks box to power distribution box.
- See figure 9-37.
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
- Refer to para. 9-1.

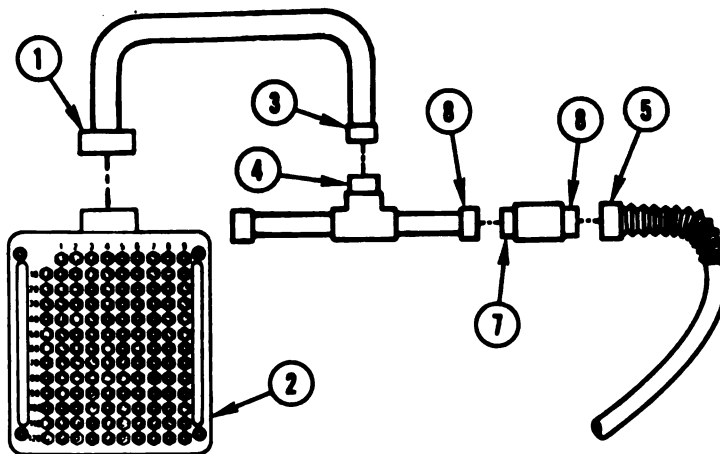


Figure 9-93 (Sheet 1 of 2)
Volume II
Para. 9-3

ARR82-5828

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

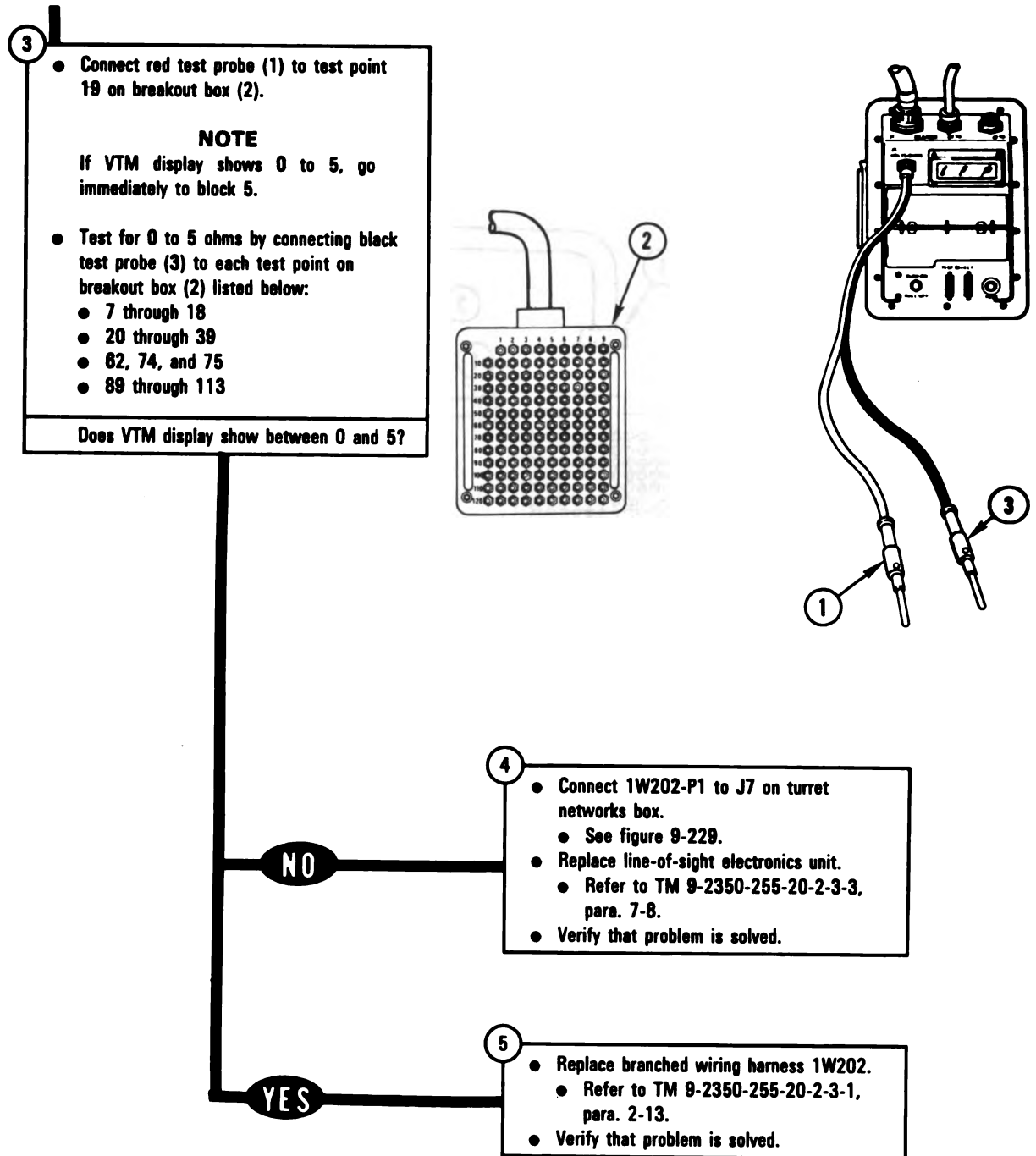


Figure 9-93 (Sheet 2 of 2)
Volume II
Para. 9-3

ARR82-5829

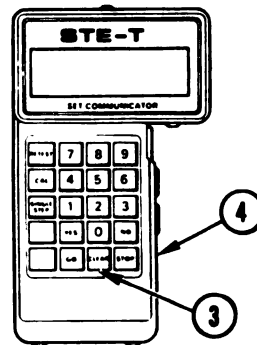
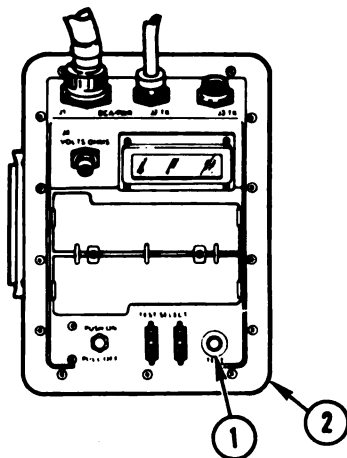
DISPLAY SHOWS -
FAULTY TNB OR
1W202

144353

Equipment Condition:

- ▶ Tank parked.
- ▶ Parking brake set.
- ▶ Engine shut down.
- ▶ Vehicle master power off.

- Disconnect 1W202-P1 from J7 on turret networks box.
 - See figure 9-229.
- Disconnect CX305-P2 from CIB-J1.
 - See figure 9-32.
- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.



- Prepare STE to run cable test 1390.
 - Press TEST button (1) on VTM (2).
 - Press CLEAR key (3) on SETCOM (4).
 - Enter test number 1390 on SETCOM (4).
- Run test on 1W202 between P1 and P3.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.

Does SETCOM display show GOOD?

YES

NO

3

- Replace branched wiring harness 1W202.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

Figure 9-94 (Sheet 1 of 2)
Volume II
Para. 9-3

ARR82-5830

9-211

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

4

- Disconnect 1W202-P3 (1) from CA417-P1 (2).
- Disconnect CX304-P2 (3) from CIB-J1 (4).
- Connect CX304-P2 (3) to breakout box (5).

5

- Change control from SETCOM to VTM.
 - Set PWR switch (6) on CIB (7) to OFF to reset VTM (8).
 - Set PWR switch (6) to ON.
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 9-1.

6

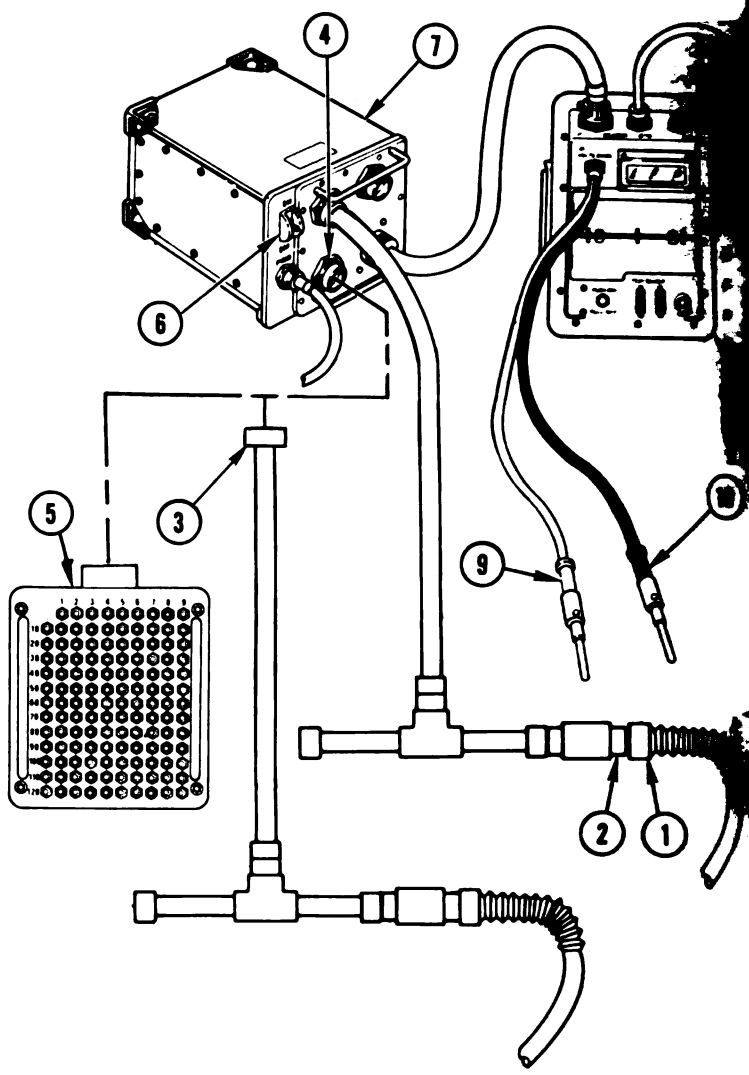
- Connect red test probe (9) to test point 19 on breakout box (5).

NOTE

If VTM display shows 0 to 5, go immediately to block 8.

- Test for 0 to 5 ohms by connecting black test probe (10) to each test point on breakout box (5) listed below:
 - 7 through 18
 - 20 through 39
 - 62, 74, and 75
 - 89 through 113

Does VTM display show between 0 and 5?



NO

7

- Connect 1W202-P3 to J1 on line-of-sight electronics unit.
 - See figure 9-238.
- Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
- Verify that problem is solved.

YES

8

- Replace branched wiring harness 1W202.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

Figure 9-94 (Sheet 2 of 2)
Volume II
Para. 9-3

ARR82-5831

**DISPLAY SHOWS -
FAULTY LRU'S AND
CABLES**

140104

Equipment Condition:

- ▶ Tank parked.
- ▶ Parking brake set.
- ▶ Engine shut down.
- ▶ Vehicle master power on.

- Reduce hydraulic pressure to zero psi, by operating bilge pump.
 - Refer to TM 9-2350-255-10.
- Disconnect 1W200-P3 from J2 on electronic unit.
 - See figure 9-230.
- Disconnect 1W200-P4 from J3 on electronic unit.
 - See figure 9-230.

- Set TURRET POWER switch (1) to ON.
- Press STOP key (2) on SETCOM (3).
- Press CLEAR key (4) on SETCOM (3).
- Enter test number 140102 on SETCOM (3).
- Press GO key (5) on SETCOM (3).

Does SETCOM display show between 88 and 79 VPP?

YES

NO

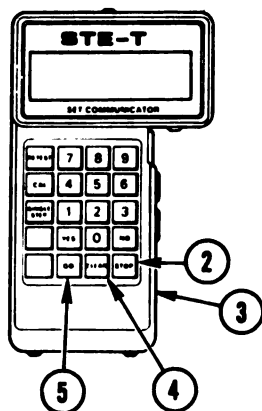
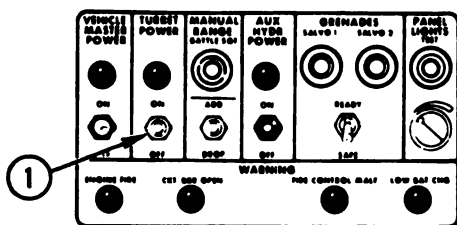
- Set TURRET POWER switch (1) to OFF.
- Connect 1W200-P3 to J2, on electronic unit.
 - See figure 9-230.
- Set TURRET POWER switch (1) to ON.

Does SETCOM display show between 88 and 79 VPP?

NO

YES

NOTE
Notify your supervisor that this procedure may require troubleshooting and replacement of components in the hull area.



- Replace gun/turret drive electronic unit.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-18.
 - Verify that problem is solved.

5
Go to block 18.

Figure 9-95 (Sheet 1 of 8)
Volume II
Para. 9-3

ARR82-5832

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

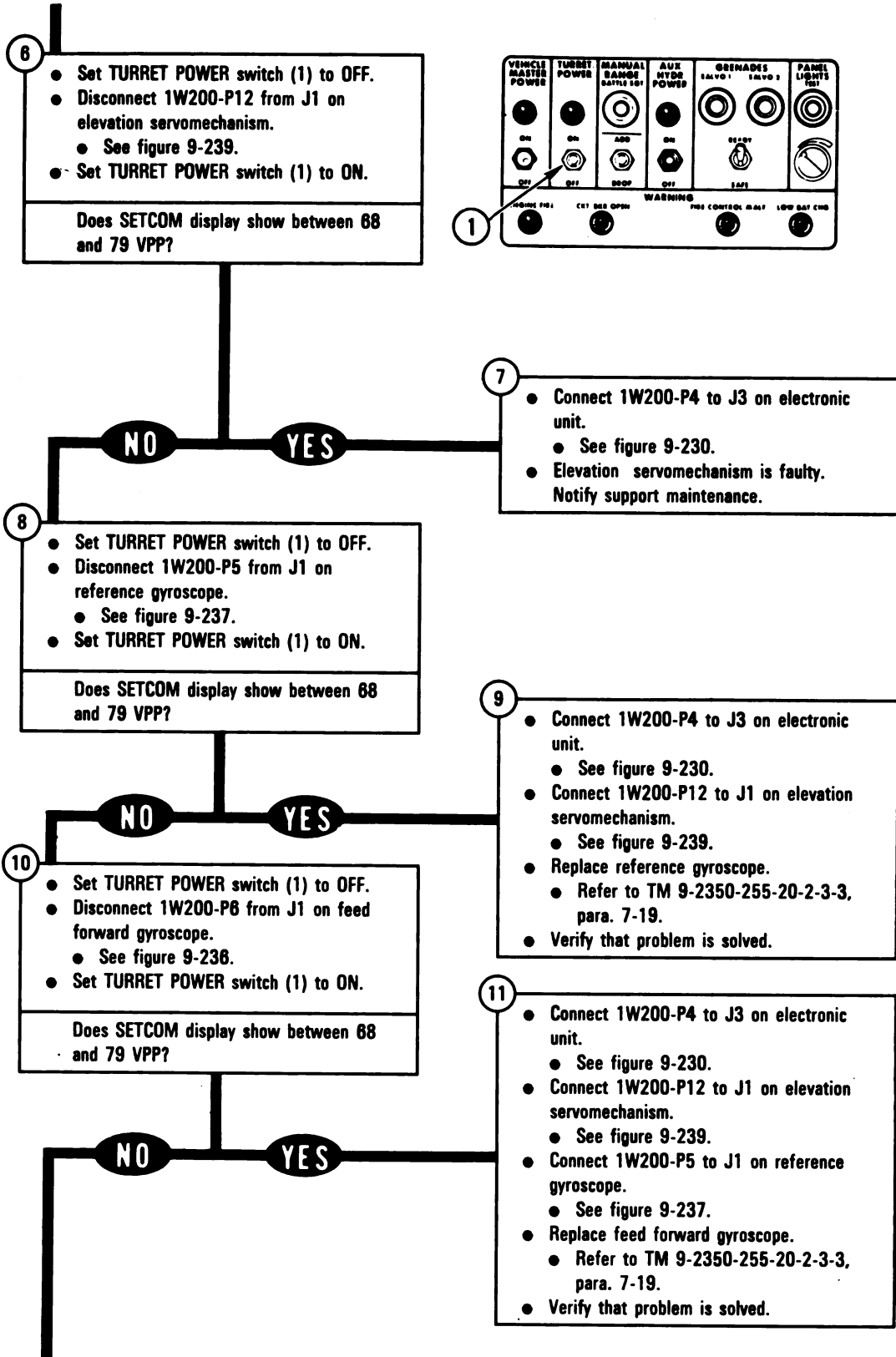
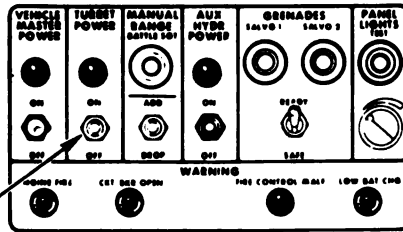


Figure 9-95 (Sheet 2 of 8)
Volume II
Para. 9-3

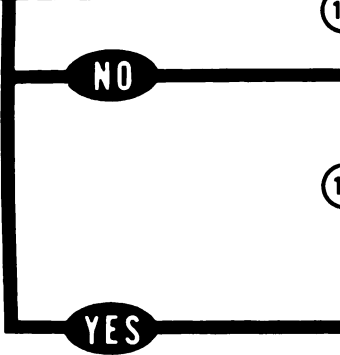
ARR82-5833

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**



Set TURRET POWER switch (1) to OFF.
Disconnect 1W200-P7 from J1 on commander's control.
● See figure 9-232.
Set TURRET POWER switch (1) to ON.

Does SETCOM display show between 68 and 79 VPP?



13

- Replace wiring harness assembly 1W200.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

14

- Connect 1W200-P4 to J3 on electronic unit.
- See figure 9-230.
- Connect 1W200-P12 to J1 on elevation servomechanism.
- See figure 9-239.
- Connect 1W200-P5 to J1 on reference gyroscope.
- See figure 9-237.

15

- Connect 1W200-P8 to J1 on feed forward gyroscope.
- See figure 9-236.
- Replace commander's control assembly.
- Refer to TM 9-2350-255-20-2-3-3, para. 7-22.
- Verify that problem is solved.

From block 5

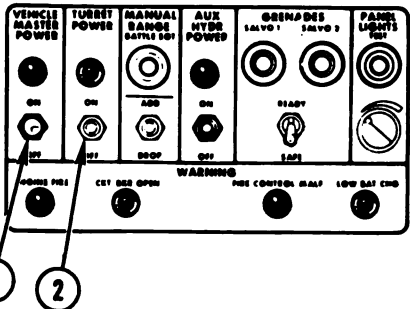
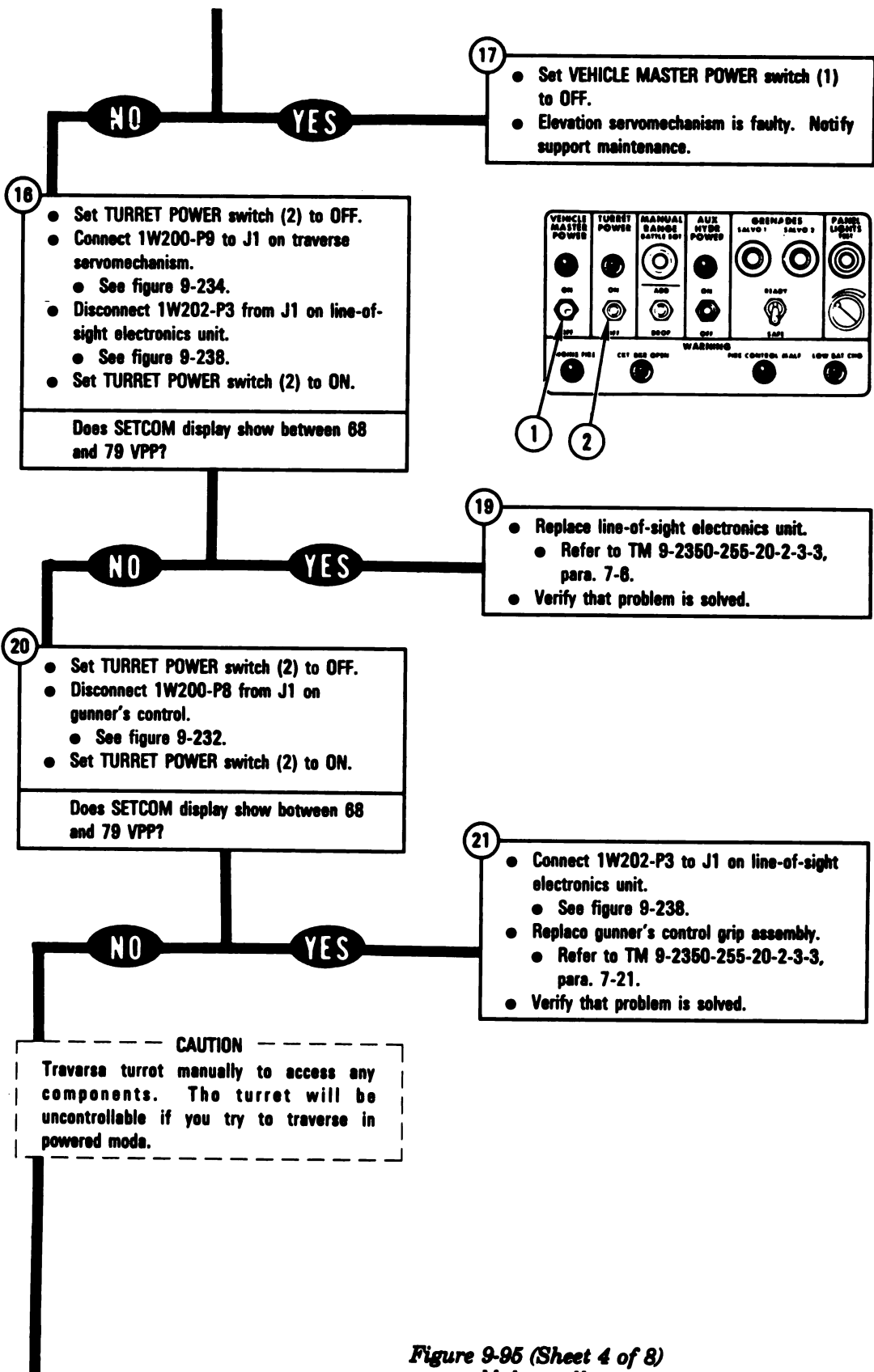
- Set TURRET POWER switch (1) to OFF.
- Connect 1W200-P4 to J3 on electronic unit.
- See figure 9-230.
- Disconnect 1W200-P9 from J1 on traverse servomechanism.
- See figure 9-234.
- Set TURRET POWER switch (1) to ON.

Does SETCOM display show between 68 and 79 VPP?

Figure 9-95 (Sheet 3 of 8)
**Volume II
Para. 9-3**

ARR82-5834

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

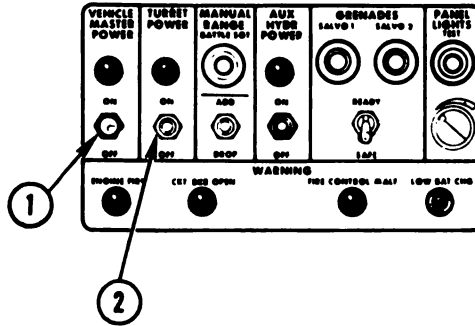


*Figure 9-95 (Sheet 4 of 8)
Volume II
Para. 9-3*

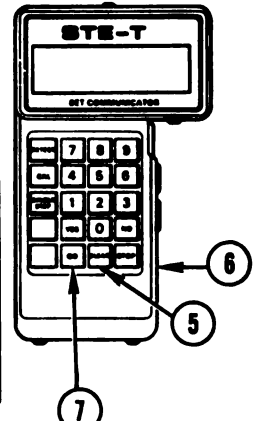
ARR82-6836

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

- Set VEHICLE MASTER POWER switch (1) to OFF.
- Connect 1W200-P8 to J1 on gunner's control.
 - See figure 9-232.
- Disconnect 2W109-P2 from J1 on hull gyroscope.
 - See figure 9-239.
- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.
- Set TURRET POWER switch (2) to ON.



- Press TEST button (3) on VTM (4).
- Press CLEAR key (5) on SETCOM (6).
- Enter test number 140102 on SETCOM (6).
- Press GO key (7) on SETCOM (6).

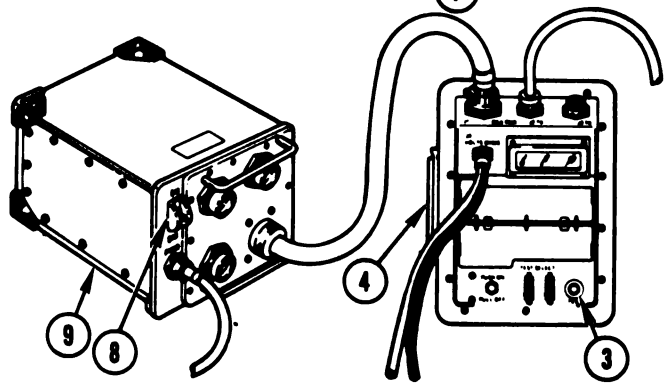


Does SETCOM display show between 88 and 79 VPP?

NO **YES**

- 24
- Connect 1W202-P3 to J1 on line-of-sight electronics unit.
 - See figure 9-238.
 - Replace hull gyroscope.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-19.
 - Verify that problem is solved.

- Set VEHICLE MASTER POWER switch (1) to OFF.
- Change control from SETCOM to VTM.
 - Set PWR switch (8) on CIB (9) to OFF to reset VTM (4).
 - Set PWR switch (8) to ON.
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 9-1.



*Figure 9-95 (Sheet 5 of 8)
Volume II
Para. 9-3*

ARR82-5836

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

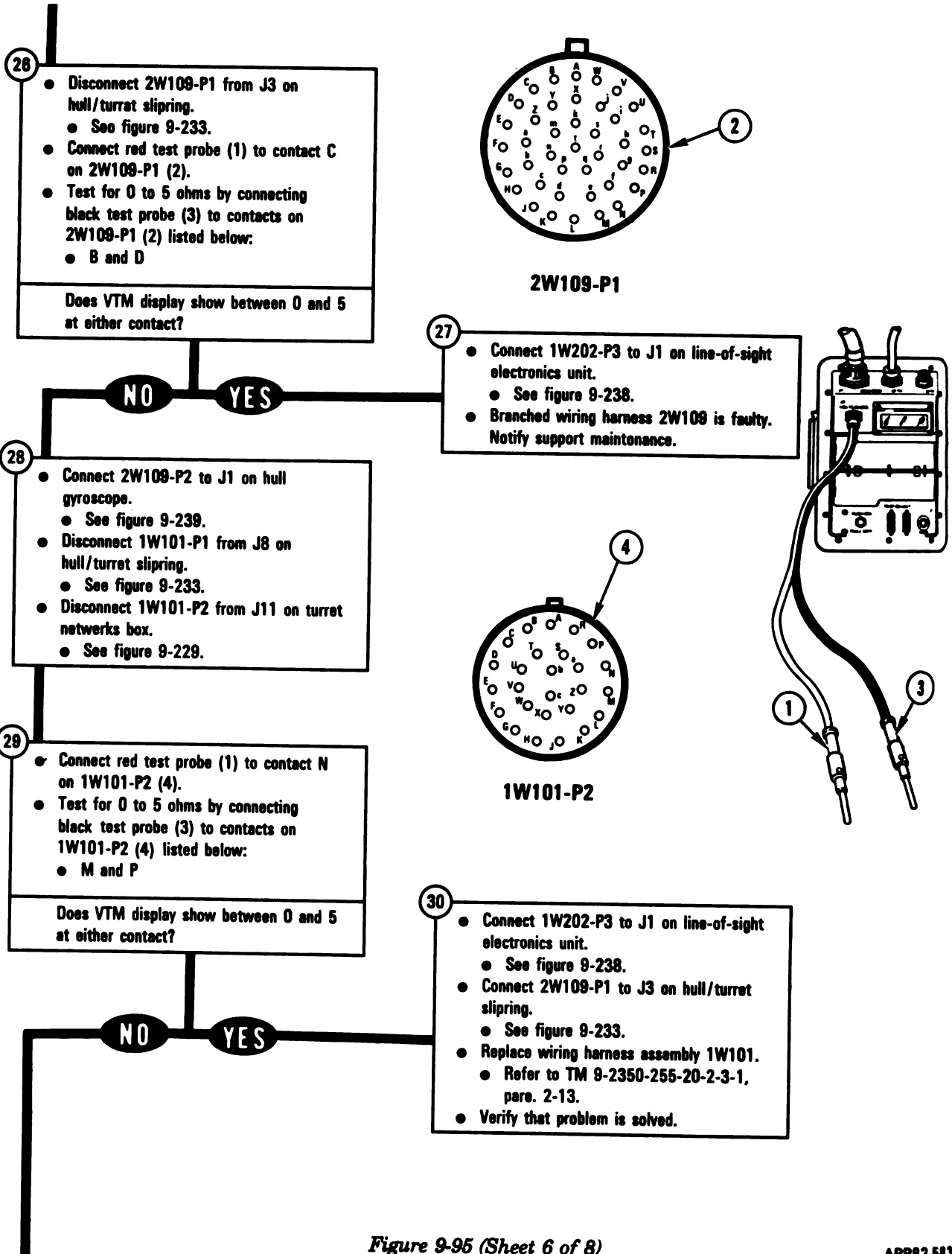
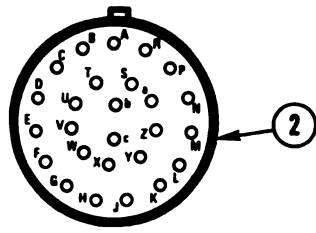


Figure 9-95 (Sheet 6 of 8)
Volume II
Para. 9-3

ARR82-5837

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

Connect 1W101-P1 to J8 on hull/turret slipring.
 ● See figure 9-233.
 Connect red test probe (1) to contact N on 1W101-P2 (2).
 Test for 0 to 5 ohms by connecting black test probe (3) to contacts on 1W101-P2 (2) listed below:
 ● M and P

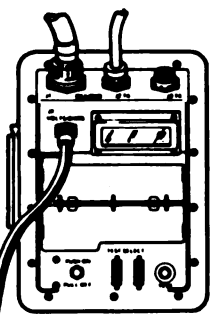


1W101-P2

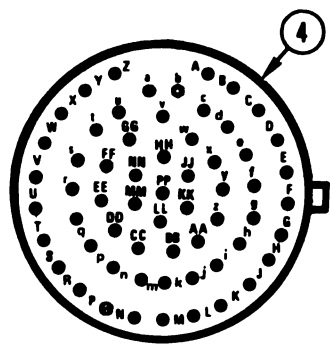
Does VTM display show between 0 and 5 at either contact?

NO **YES**

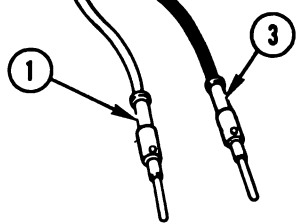
32 ● Connect 1W202-P3 to J1 on line-of-sight electronics unit.
 ● See figure 9-238.
 ● Replace hull/turret slipring assembly.
 ● Refer to TM 9-2350-255-20-2-3-1, para. 2-8.
 ● Verify that problem is solved.



● Connect 2W109-P1 to J3 on hull/turret slipring.
 ● See figure 9-233.
 ● Disconnect 1W202-P1 from J7 on turret networks box.
 ● See figure 9-229.



1W202-P1



● Connect red test probe (1) to contact m on 1W202-P1 (4).
 ● Test for 0 to 5 ohms by connecting black test probe (3) to contacts on 1W202-P1 (4) listed below:
 ● n and p

Does VTM display show between 0 and 5 at either contact?

NO **YES**

35 ● Connect 1W101-P2 to J11 on turret networks box.
 ● See figure 9-229.
 ● Replace branched wiring harness 1W202.
 ● Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 ● Verify that problem is solved.

Figure 9-95 (Sheet 7 of 8)
**Volume II
 Para. 9-3**

ARR82-5838

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

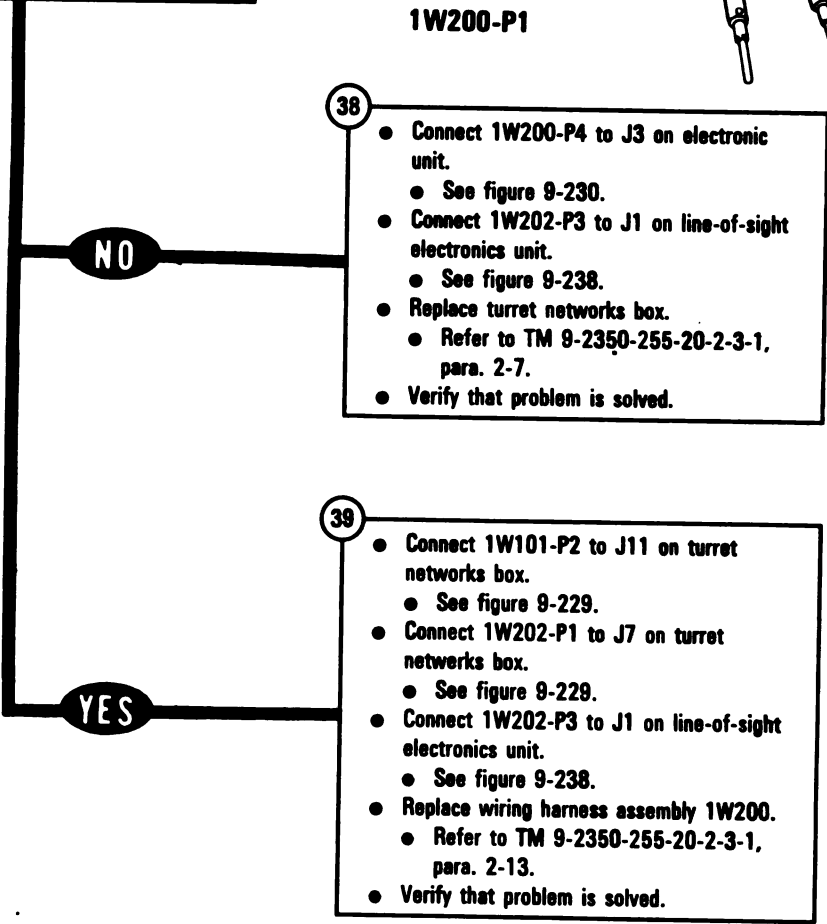
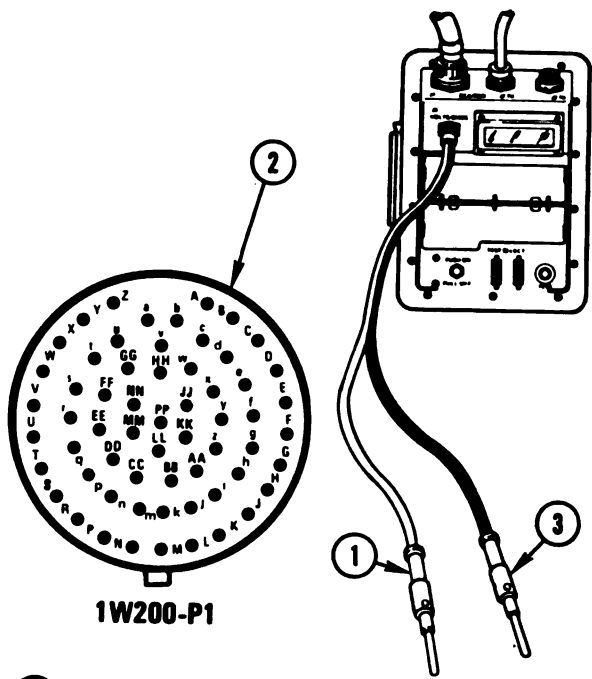
36

- Disconnect 1W200-P4 from J3 on electronic unit.
 - See figure 9-230.
- Disconnect 1W200-P1 from J5 on turret networks box.
 - See figure 9-229.

37

- Connect red test probe (1) to contact f on 1W200-P1 (2).
- Test for 0 to 5 ohms by connecting black test probe (3) to contacts on 1W200-P1 (2) listed below:
 - g and h

Does VTM display show between 0 and 5 at either contact?



*Figure 9-95 (Sheet 8 of 8)
Volume II
Para. 9-3*

ARR82-5839

**DISPLAY SHOWS -
 FAULTY TNB, HDV OR
 1W104** **147213**

**Additional Test
 Equipment/Special Tools:**
 ● Breakout Box Tool Kit, 12311066

Equipment Condition:
 ● Tank parked.
 ● Parking brake set.
 ● Engine shut down.
 ● Vehicle master power off.

● Disconnect 1W104-P1 from J9 on turret networks box.
 ● See figure 9-229.
 ● Change STE power hookup from turret networks box to power distribution box.
 ● See figure 9-37.
 ● Prepare VTM for measuring resistance between 0 and 1500 ohms.
 ● Refer to para. 9-1.

● Connect CX305-P2 (1) to breakout box (2).
 ● Connect CX305-P1 (3) to CX307-P3 (4).
 ● Connect CA517-P1 (5) to J9 (6) on turret networks box (7).
 ● Connect CA517-P2 (8) to CX307-P1 (9).

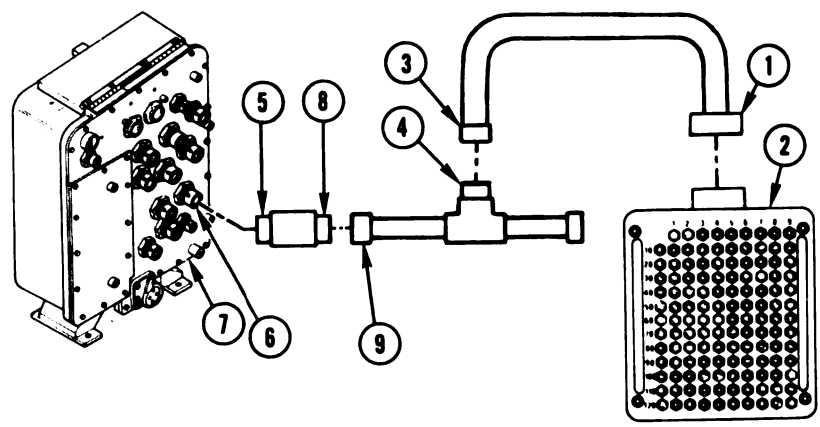


Figure 9-96 (Sheet 1 of 3)
 Volume II
 Para. 9-3

ARR82-5840

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

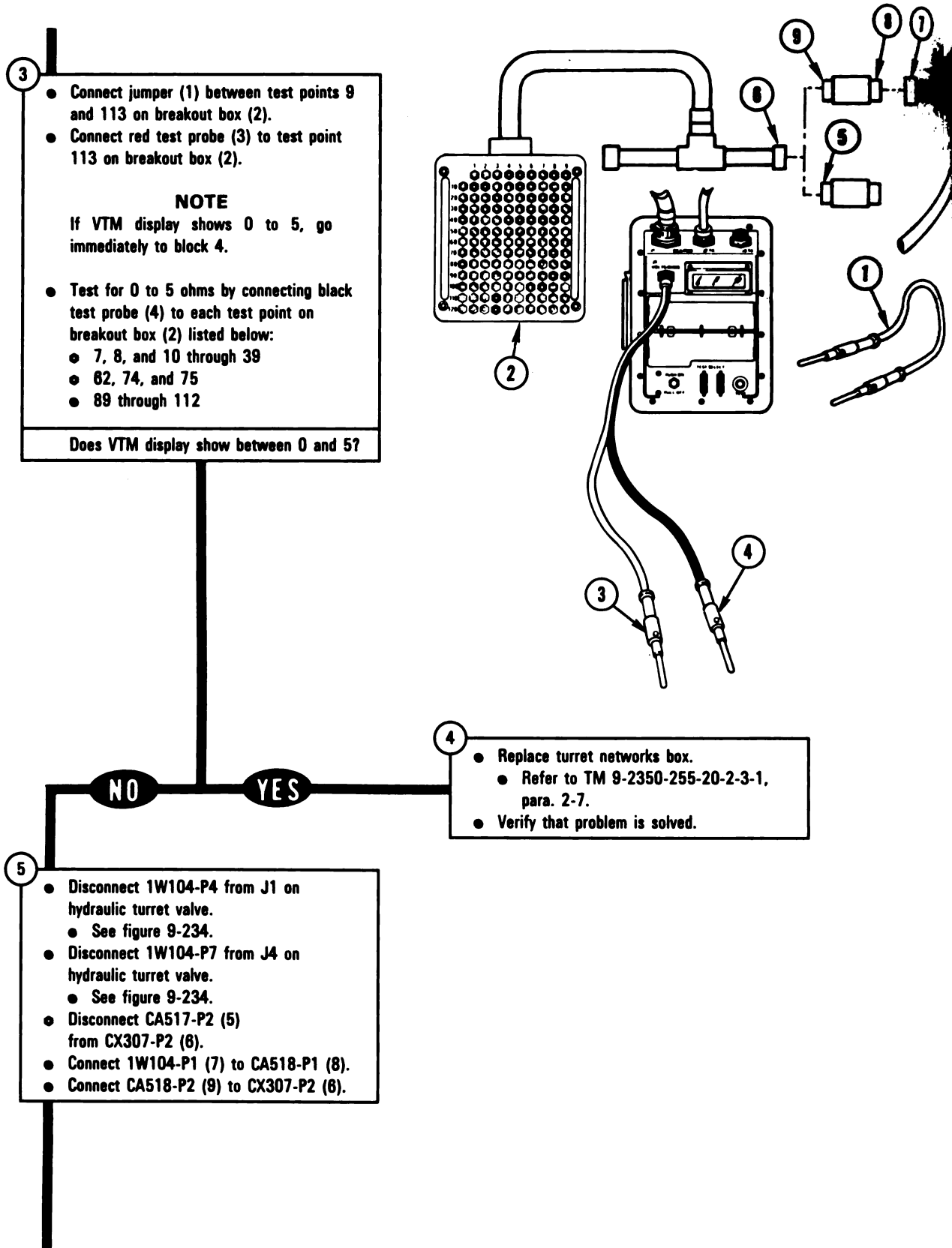


Figure 9-96 (Sheet 2 of 3)
**Volume II
Para. 9-3**

ARR82-5841

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

- Connect jumper (1) between test points 9 and 113 on breakout box (2).
 - Connect red test probe (3) to test point 113 on breakout box (2).
- NOTE**
If VTM display shows 0 to 5, go immediately to block 8.
- Test for 0 to 5 ohms by connecting black test probe (4) to each test point on breakout box (2) listed below:
 - 7, 8, and 10 through 39
 - 62, 74, and 75
 - 89 through 112
- Does VTM display show between 0 and 5?

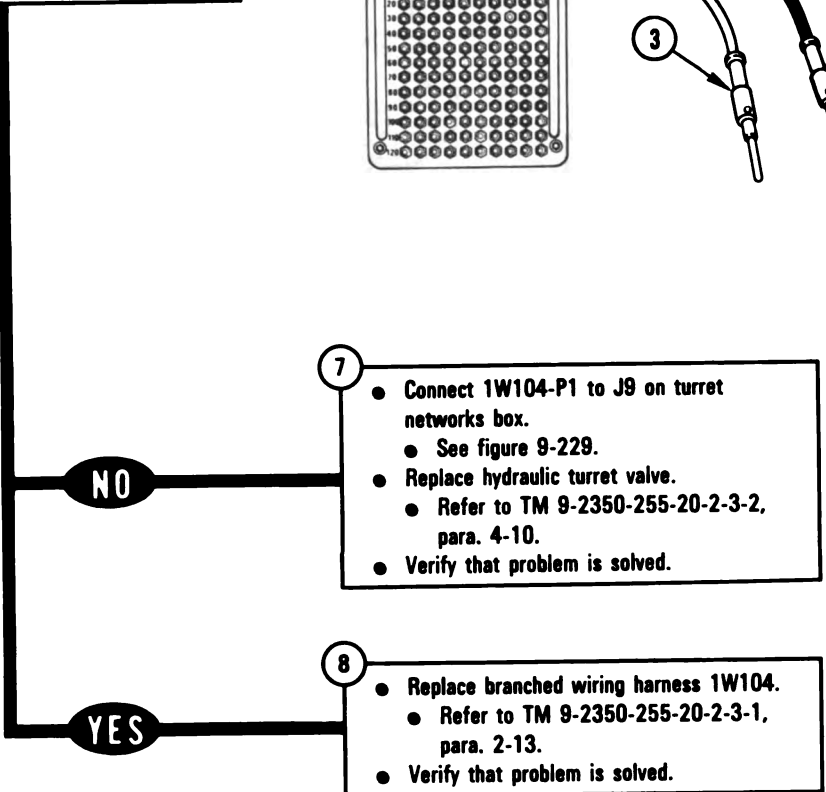
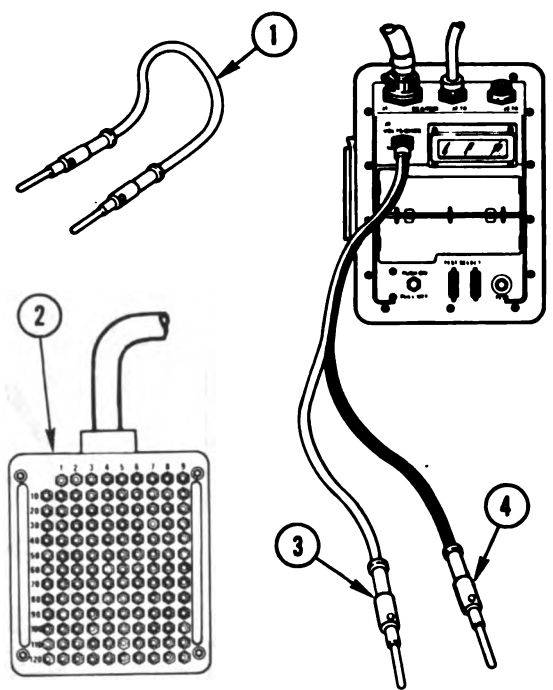


Figure 9-96 (Sheet 3 of 3)
Volume II
Para. 9-3

ARR82-5842

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS -
FAULTY TNB OR
1W201**

140257

**Additional Test
Equipment/Special Tools:**

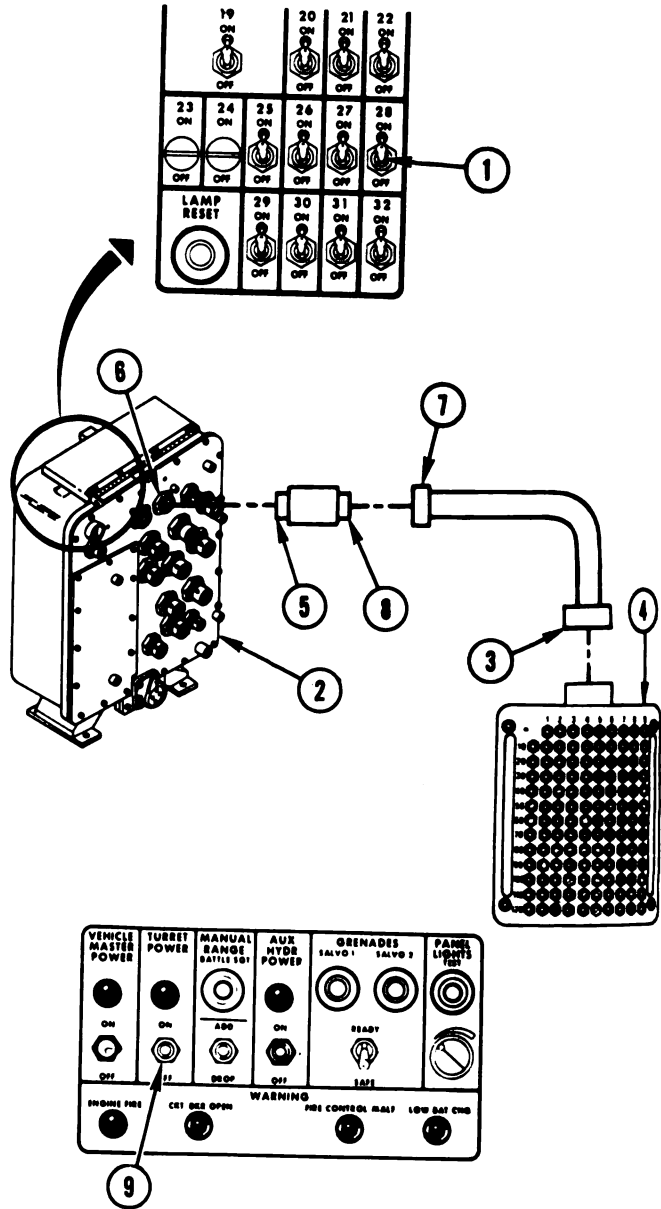
- Breakout Box Tool Kit, 12311088

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- 1**
- Disconnect CX205-P5 from TEST 2 on turret networks box.
 - See figure 9-6.
 - Disconnect 1W201-P1 from J6 on turret networks box.
 - See figure 9-229.
 - Set circuit breaker 28 (1) on turret networks box (2) to ON.

- 2**
- Connect breakout box to TEST 2 on turret networks box using CX305 and CA206.
 - Connect CX305-P2 (3) to breakout box (4).
 - Connect CA206-P1 (5) to TEST 2 (6) on turret networks box (2).
 - Connect CX305-P1 (7) to CA206-P2 (8).
 - Set TURRET POWER switch (9) to ON.



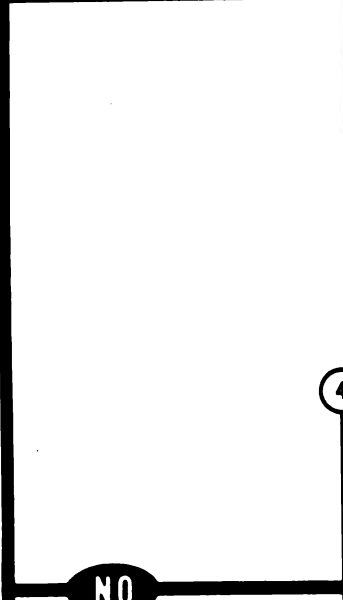
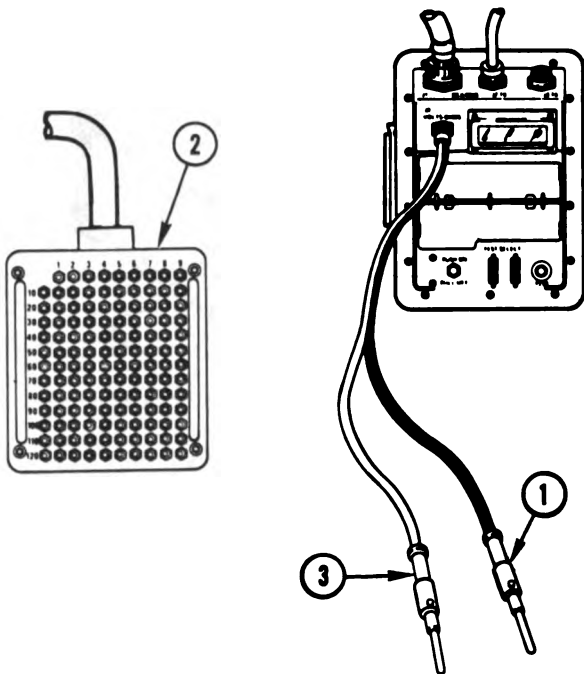
*Figure 9-97 (Sheet 1 of 2)
Volume II
Para. 9-3*

ARR82-5643

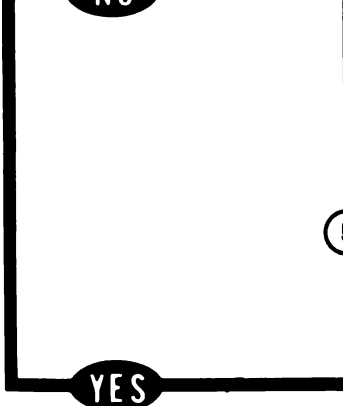
**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

- Prepare VTM for measuring dc voltage.
 - Refer to para. 9-1.
- Test for 18 to 30 V dc between test points 11 (-) and 36 (+) on breakout box.
 - Connect black test probe (1) to test point 11 on breakout box (2).
 - Connect red test probe (3) to test point 36 on breakout box (2).

Does VTM display show between 18 and 30 V dc?



- 4
- Connect 1W201-P2 to J1 on computer electronics unit.
 - See figure 9-230.
 - Connect 1W202-P2 to J2 on computer electronics unit.
 - See figure 9-230.
 - Connect 1W204-P1 to J3 on computer electronics unit.
 - See figure 9-230.
 - Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
 - Verify that problem is solved.



- 5
- Connect 1W202-P2 to J2 on computer electronics unit.
 - See figure 9-230.
 - Connect 1W204-P1 to J3 on computer electronics unit.
 - See figure 9-230.
 - Replace branched wiring harness 1W201.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

Figure 9-97 (Sheet 2 of 2)
**Volume II
Para. 9-3**

ARR82-5844

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS -
FAULTY LOS, CEU,
OR 1W202**

141505

Additional Test

Equipment/Special Tools:

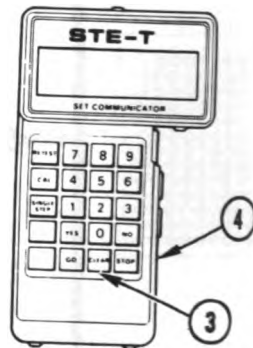
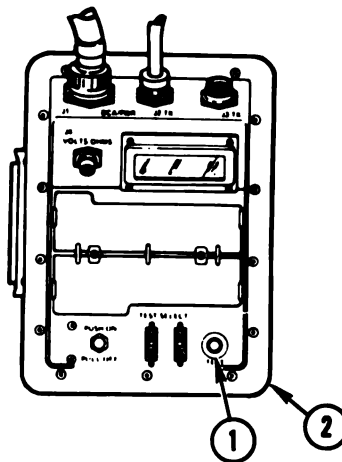
- Breakout Box Tool Kit, 12311086

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

1

- Disconnect CX205-P1 from CIB-J1.
 - See figure 9-6.
- Disconnect CX205-P1 from CIB-J2.
 - See figure 9-6.
- Disconnect 1W202-P3 from J1 on line-of-sight electronics unit.
 - See figure 9-238.
- Disconnect 1W202-P2 from J2 on computer electronics unit.
 - See figure 9-230.
- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.



2

- Prepare STE to run cable test 1390.
 - Press TEST button (1) on VTM (2).
 - Press CLEAR key (3) on SETCOM (4).
 - Enter test number 1390 on SETCOM (4).
- Run test on 1W202 between P1 and P3.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.

Does SETCOM display show GOOD?

YES

NO

3

- Replace branched wiring harness 1W202.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

*Figure 9-98 (Sheet 1 of 3)
Volume II
Para. 9-3*

ARR82-5845

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

- Disconnect 1W202-P3 (1) from CA417-P1 (2).
- Disconnect CX305-P2 (3) from CIB-J1 (4).
- Connect CX305-P2 (3) to breakout box (5).

- Change control from SETCOM to VTM.
 - Set PWR switch (8) on CIB (7) to OFF to reset VTM (8).
 - Set PWR switch (8) to ON.
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 9-1.

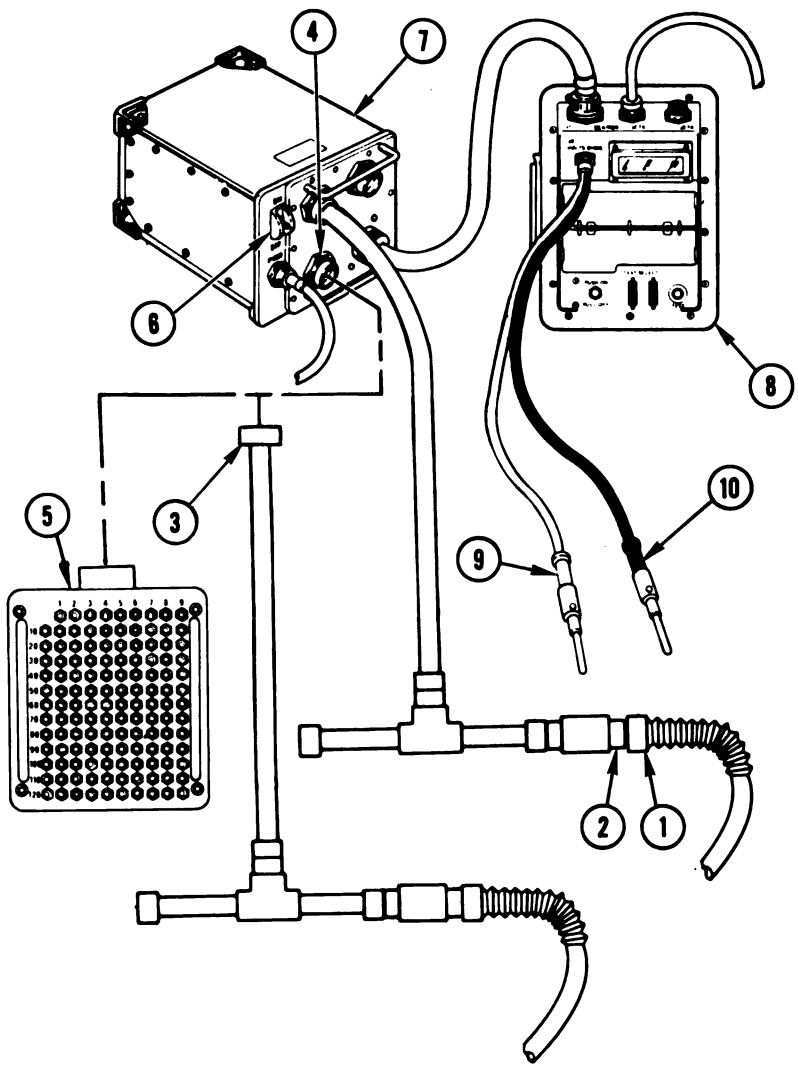
- Connect red test probe (9) to test point 23 on breakout box (5).

NOTE

If VTM display shows 0 to 5, go immediately to block 7.

- Test for 0 to 5 ohms by connecting black test probe (10) to each test point on breakout box (5) listed below:
 - 7 through 22
 - 24 through 39
 - 62, 74, and 75
 - 89 through 113

Does VTM display show between 0 and 5?



NO **YES**

- Replace branched wiring harness 1W202.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

Figure 9-98 (Sheet 2 of 3)
**Volume II
Para. 9-3**

ARR82-5846

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

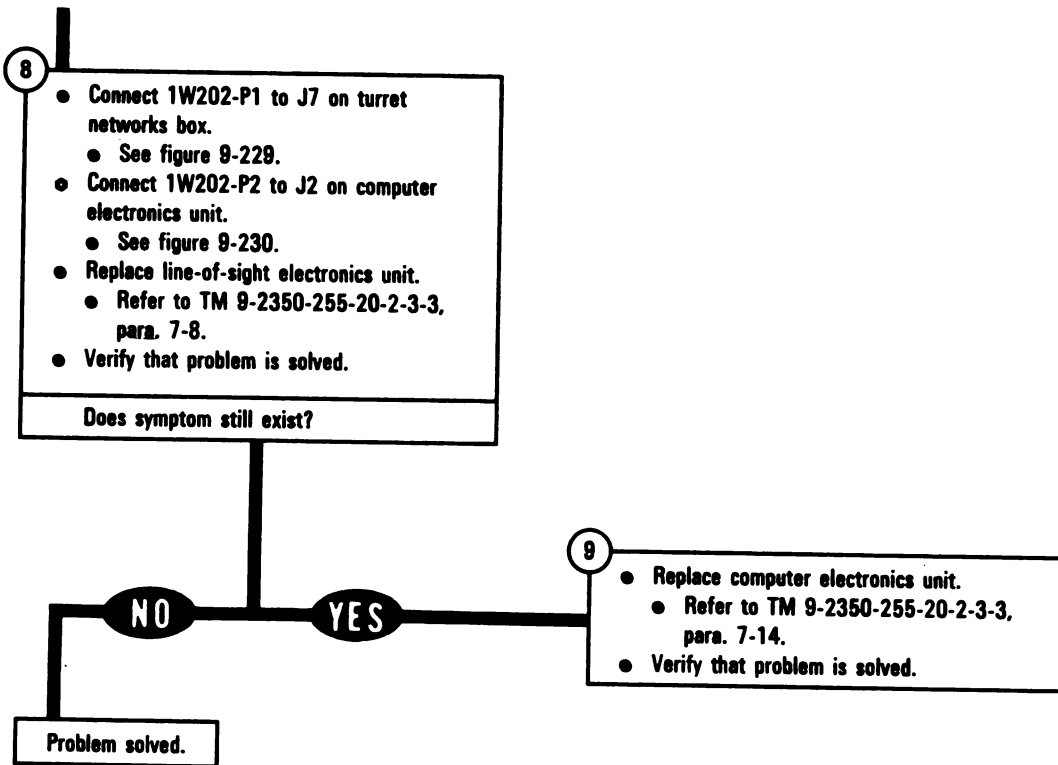


Figure 9-98 (Sheet 3 of 3)
Volume II
Para. 9-3

**DISPLAY SHOWS -
FAULTY LOS OR
1W202** **141529**

**Additional Test
Equipment/Special Tools:**
● Breakout Box Tool Kit, 12311068

Equipment Condition:
● Tank parked.
● Parking brake set.
● Engine shut down.
● Vehicle master power off.

● Disconnect 1W202-P1 from J7 on turret networks box.
● See figure 9-229.
● Connect CX305-P2 (1) to breakout box (2).
● Connect CX305-P1 (3) to CX307-P3 (4).
● Connect 1W202-P3 (5) to CA417-P1 (6).
● Connect CA417-P2 (7) to CX307-P1 (8).

● Change STE power hookup from turret networks box to power distribution box.
● See figure 9-37.
● Prepare VTM for measuring resistance between 0 and 1500 ohms.
● Refer to para. 9-1.

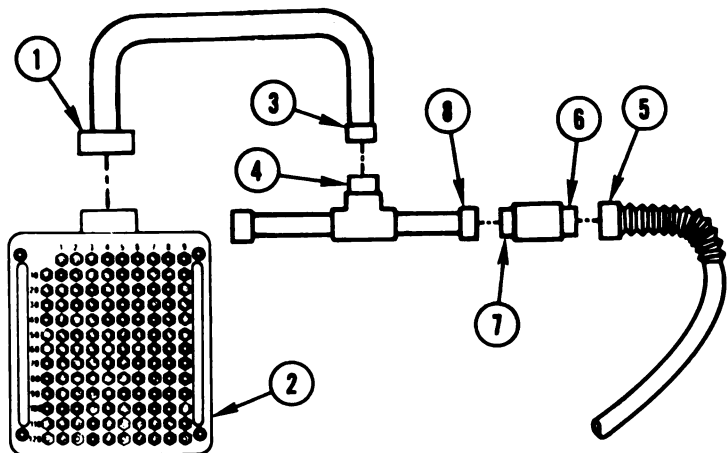


Figure 9-99 (Sheet 1 of 2)
Volume II
Para. 9-3

ARR82-5847

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

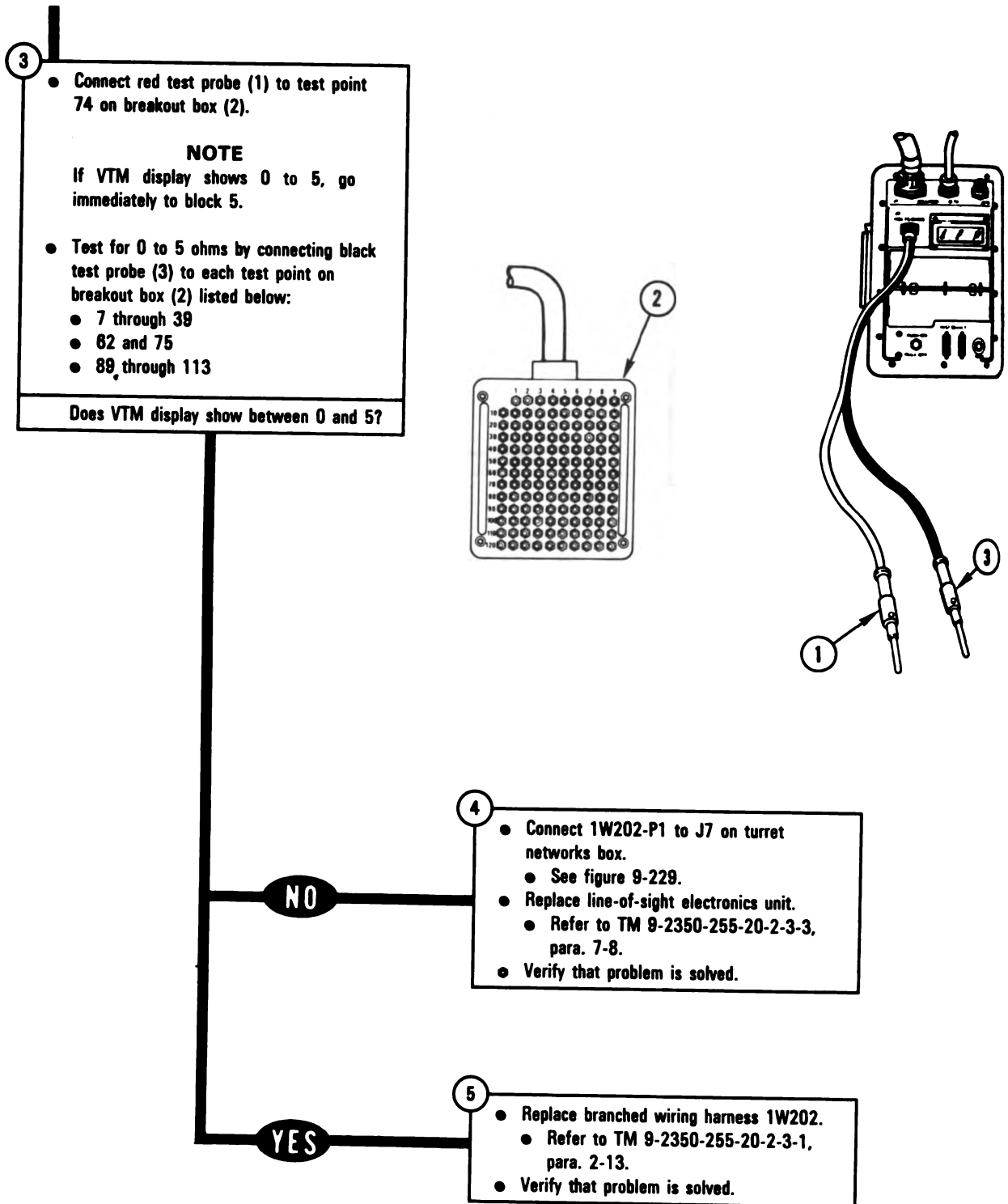


Figure 9-99 (Sheet 2 of 2)
Volume II
Para. 9-3

ARR82-5848

**DISPLAY SHOWS -
FAULTY LOS OR
1W206**

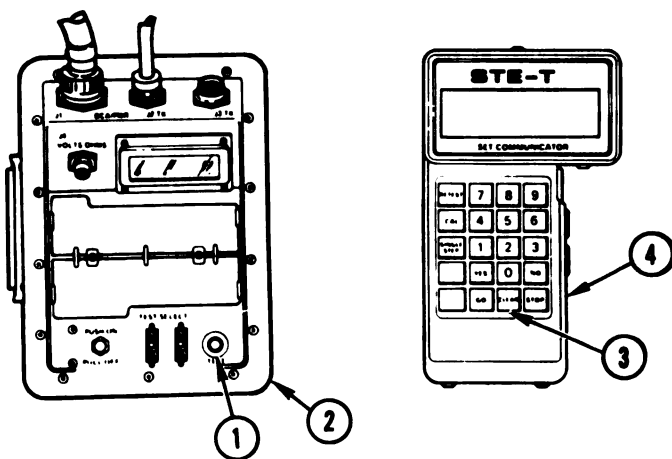
- 141521
- 141526
- 141527
- 141528

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- Disconnect CX205-P1 from CIB-J1.
 - See figure 9-8.
- Disconnect 1W206-P1 from J2 on line-of-sight electronics unit.
 - See figure 9-238.
- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.

- Prepare STE to run cable test 1390.
 - Press TEST button (1) on VTM (2).
 - Press CLEAR key (3) on SETCOM (4).
 - Enter test number 1390 on SETCOM (4).
- Run test on 1W206 between P1 and P3.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.



Does SETCOM display show GOOD?

NO

- Replace branched wiring harness 1W206.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

YES

- Connect 1W206-P3 to 1W207-J1.
 - See figure 9-234.
- Replace line-of-sight electronics unit.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-8.
 - Verify that problem is solved.

Figure 9-100
Volume II
Para. 9-3

ARR82-5849

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

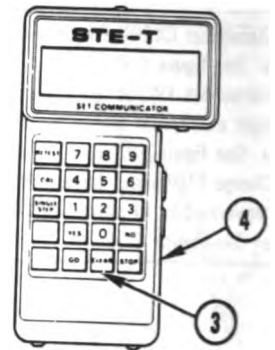
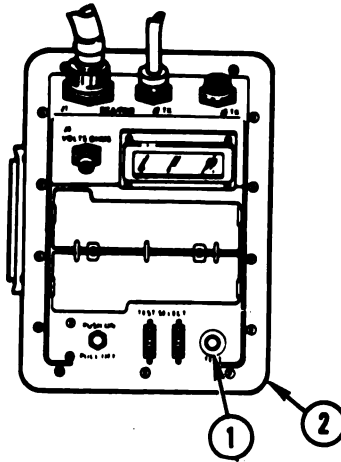
• 141520
141525
141530
141535

**DISPLAY SHOWS -
FAULTY GPS OR
1W208**

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- 1
- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.
 - Disconnect CX205-P1 from CIB-J1.
 - See figure 9-8.
 - Disconnect 1W208-P1 from J2 on line-of-sight electronics unit.
 - See figure 9-238.
 - Disconnect 1W208-P2 from J2 on gunner's primary sight.
 - See figure 9-240.



- 2
- Prepare STE to run cable test 1390.
 - Press TEST button (1) on VTM (2).
 - Press CLEAR key (3) on SETCOM (4).
 - Enter test number 1390 on SETCOM (4).
 - Run test on 1W208 between P1 and P3.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.
- Does SETCOM display show GOOD?

- 3
- NO**
- Replace branched wiring harness 1W208.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

- 4
- YES**
- Connect 1W208-P1 to J2 on line-of-sight electronics unit.
 - See figure 9-238.
 - Connect 1W208-P3 to 1W207-J1.
 - See figure 9-234.
 - Replace gunner's primary sight body assembly.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-5.
 - Verify that problem is solved.

Figure 9-101
Volume II
Para. 9-3

ARR82-5850

**DISPLAY SHOWS -
FAULTY TCH OR
1W200** **140467**

**Additional Test
Equipment/Special Tools:**
● Breakout Box Tool Kit, 12311068

Equipment Condition:
● Tank parked.
● Parking brake set.
● Engine shut down.
● Vehicle master power off.

● Disconnect 1W200-P7 from J1 on commander's control.
● See figure 9-232.
● Connect CX305-P2 (1) to breakout box (2).
● Connect CX305-P1 (3) to CX307-P3 (4).
● Connect 1W200-P1 (5) to CA504-P1 (6).
● Connect CA504-P2 (7) to CX307-P1 (8).

2 ● Change STE power hookup from turret networks box to power distribution box.
● See figure 9-37.
● Prepare VTM for measuring resistance between 0 and 1500 ohms.
● Refer to para. 9-1.

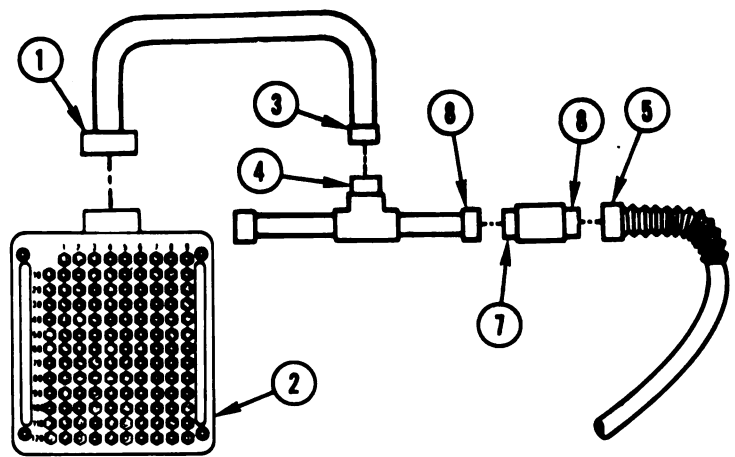


Figure 9-102 (Sheet 1 of 3)
Volume II
Para. 9-3

ARR82-5851

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

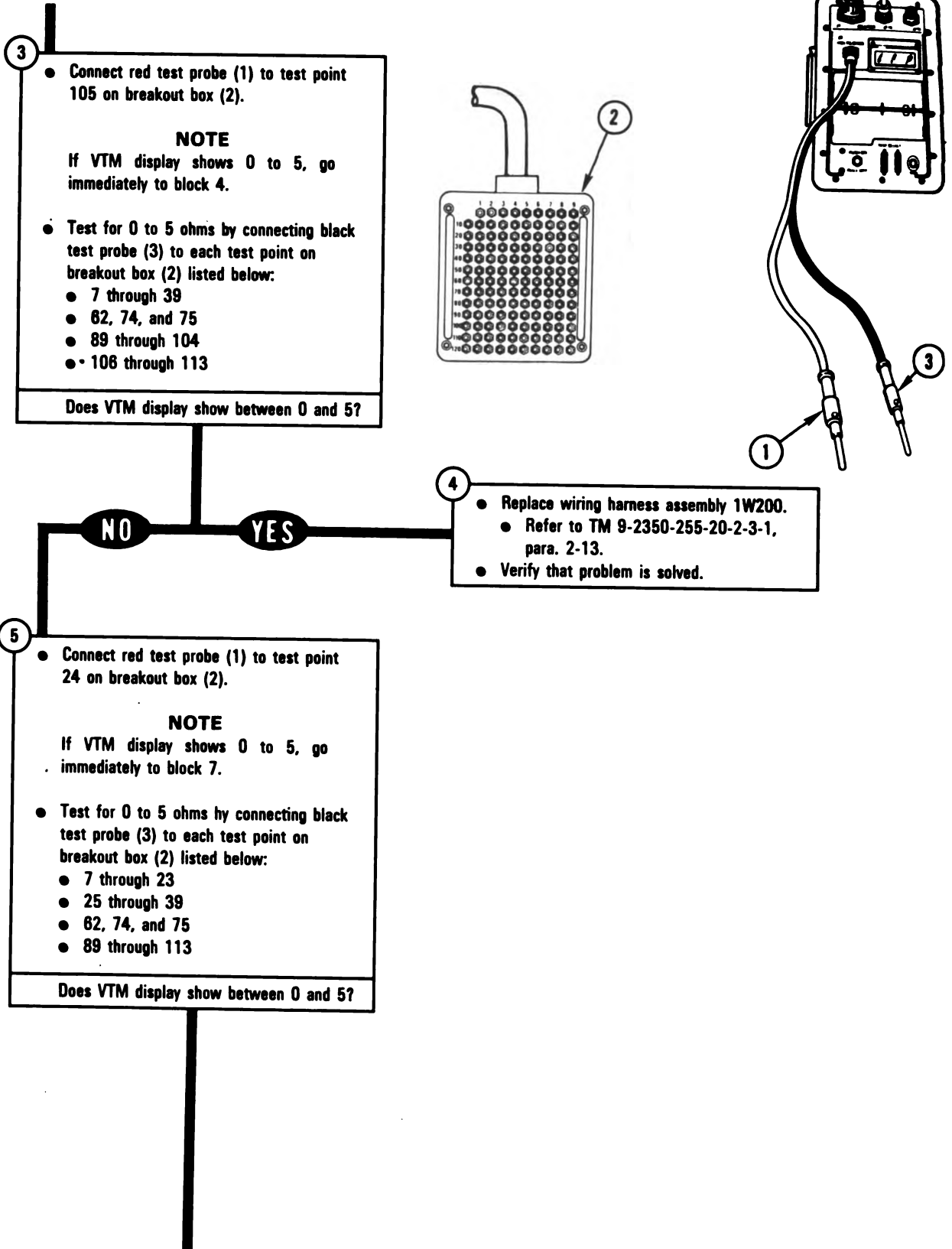


Figure 9-102 (Sheet 2 of 3)
Volume II
Para. 9-3

ARR82-5852

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

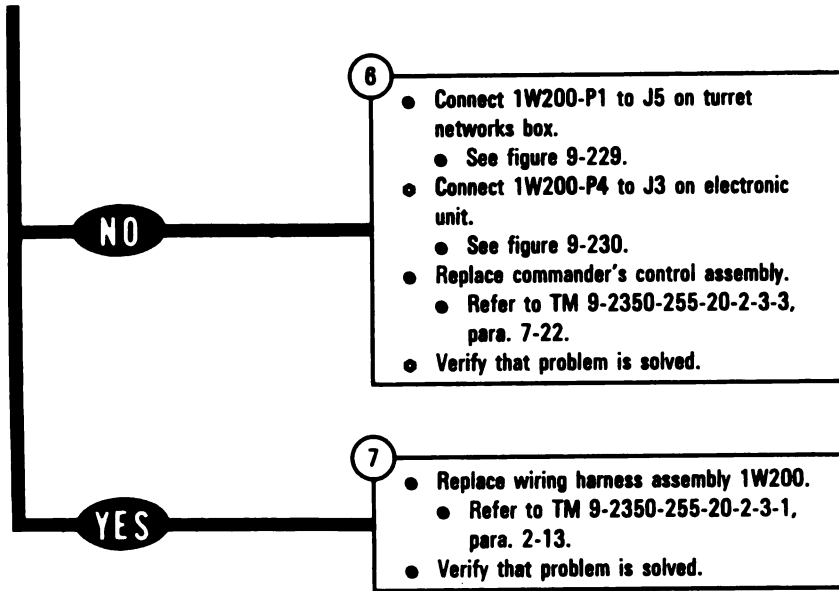


Figure 9-102 (Sheet 3 of 3)
Volume II
Para. 9-3

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS -
FAULTY TNB OR
1W200**

140451

Additional Test

Equipment/Special Tools:

- Breakout Box Tool Kit, 12311088

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- 1
- Connect CX305-P2 (1) to breakout box (2).
 - Connect CX305-P1 (3) to CX307-P3 (4).
 - Disconnect 1W200-P1 from J5 on turret networks box.
 - See figure 9-229.
 - Connect 1W200-P1 (5) to CA504-P1 (6).
 - Connect CA504-P2 (7) to CX307-P1 (8).

- 2
- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.
 - Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 9-1.

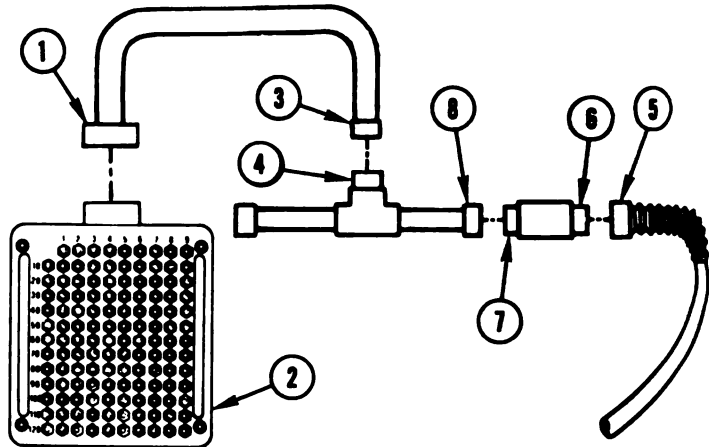


Figure 9-103 (Sheet 1 of 2)
**Volume II
Para. 9-3**

ARR82-5853

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

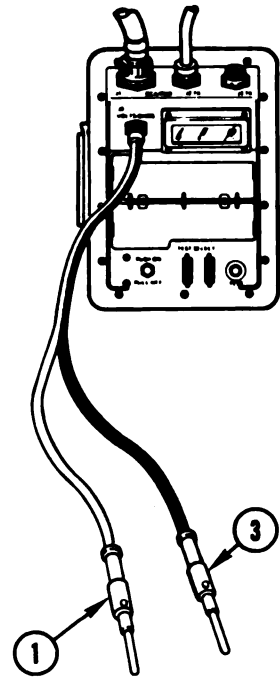
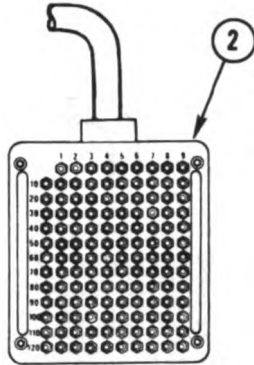
- Connect red test probe (1) to test point 111 on breakout box (2).

NOTE

If VTM display shows 0 to 5, go immediately to block 5.

- Test for 0 to 5 ohms by connecting black test probe (3) to each test point on breakout box (2) listed below:
 - 7 through 39
 - 62, 74, and 75
 - 89 through 110
 - 112 and 113

Does VTM display show between 0 and 5?



NO

- 4
- Connect 1W200-P8 to J1 on gunner's control.
 - See figure 9-232.
 - Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
 - Verify that problem is solved.

YES

- 5
- Replace wiring harness assembly 1W200.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

Figure 9-103 (Sheet 2 of 2)
Volume II
Para. 9-3

ARR82-5854

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS -
FAULTY TNB OR
1W104**

140433

**Additional Test
Equipment/Special Tools:**

- Breakout Box Tool Kit, 12311066

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

1

- Disconnect 1W104-P4 from J1 on hydraulic turret valve.
 - See figure 9-234.
- Connect CX305-P2 (1) to breakout box (2).
- Connect CX305-P1 (3) to CX307-P3 (4).

2

- Disconnect 1W104-P1 from J9 on turret networks box.
 - See figure 9-229.
- Connect 1W104-P1 (5) to CA518-P1 (6).
- Connect CA518-P2 (7) to CX307-P1 (8).

3

- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 9-1.

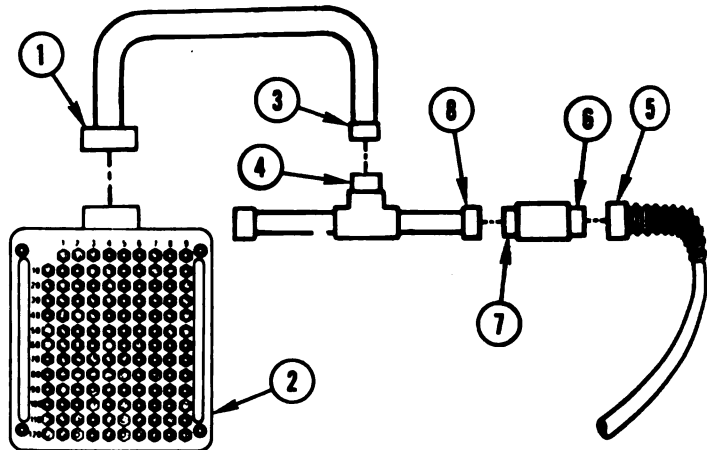


Figure 9-104 (Sheet 1 of 2)
**Volume II
Para. 9-3**

ARR82-5855

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

Connect red test probe (1) to test point 113 on breakout box (2).

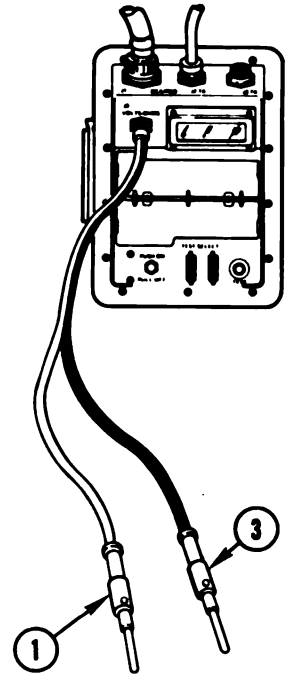
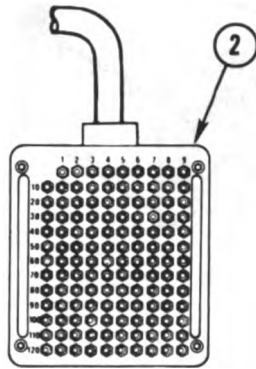
NOTE

If VTM display shows 0 to 5, go immediately to block 6.

Test for 0 to 5 ohms by connecting black test probe (3) to each test point on breakout box (2) listed below:

- 7 through 39
- 62, 74, and 75
- 89 through 112

Does VTM display show between 0 and 5?



NO

- 5
- Connect 1W104-P4 to J1 on hydraulic turret valve.
 - See figure 9-234.
 - Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
 - Verify that problem is solved.

YES

- 6
- Replace branched wiring harness 1W104.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

Figure 9-104 (Sheet 2 of 2)
**Volume II
Para. 9-3**

ARR82-5856

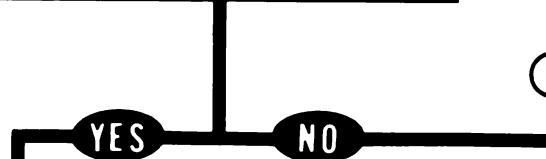
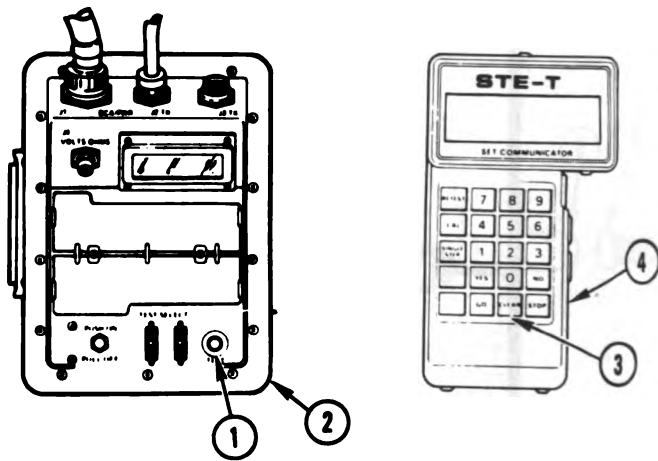
**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS -
FAULTY GTD OR
1W200** **140463**

- Equipment Condition:**
- Tank parked.
 - Parking brake set.
 - Engine shut down.
 - Vehicle master power off.

- 1**
- Disconnect CA503-P2 from CX307-P1.
 - See figure 9-8.
 - Disconnect 1W200-P4 from J3 on electronic unit.
 - See figure 9-230.
 - Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.

- 2**
- Prepare STE to run cable test 1390.
 - Press TEST button (1) on VTM (2).
 - Press CLEAR key (3) on SETCOM (4).
 - Enter test number 1390 on SETCOM (4).
 - Run test on 1W200 between P1 and P4.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.
- Does SETCOM display show GOOD?



- 3**
- Replace wiring harness assembly 1W200.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

*Figure 9-105 (Sheet 1 of 2)
Volume II
Para. 9-3*

ARR62-6857

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

Disconnect 1W200-P3 from J2 on electronic unit.

- See figure 9-230.

Disconnect CA515-P2 (1) from CX307-P1 (2).

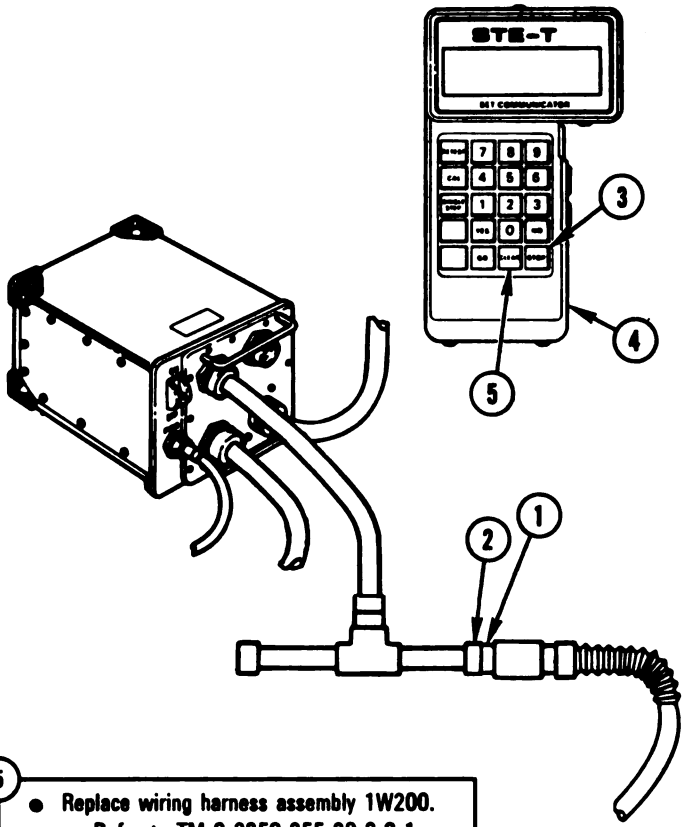
Prepare STE to run cable test 1390.

- Press STOP key (3) on SETCOM (4).
- Press CLEAR key (5).
- Enter test number 1390 on SETCOM (4).

Run test on 1W200 between P1 and P3.

- Refer to TM 9-2350-255-20-2-2-2, figure 15-5.

Does SETCOM display show GOOD?



5

- Replace wiring harness assembly 1W200.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

6

- Connect 1W200-P1 to J5 on turret networks box.
- See figure 9-229.
- Replace gun/turret drive electronic unit.
- Refer to TM 9-2350-255-20-2-3-3, para. 7-16.
- Verify that problem is solved.

Figure 9-105 (Sheet 2 of 2)
**Volume II
Para. 9-3**

ARR82-5858

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS -
FAULTY ELSVO OR
1W200**

147022

Additional Test

Equipment/Special Tools:

- Breakout Box Tool Kit, 12311066

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

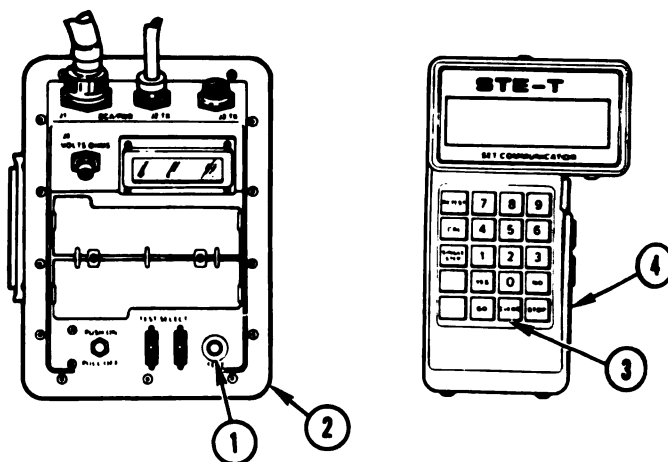
1

- Disconnect CX205-P1 from C1B-J1.
 - See figure 9-8.
- Disconnect CA524-P2 from CX307-P2.
 - See figure 9-23.
- Disconnect 1W200-P14 from J3 on elevation servomechanism.
 - See figure 9-239.

2

- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.
- Prepare STE to run cable test 1390.
 - Press TEST button (1) on VTM (2).
 - Press CLEAR key (3) on SETCOM (4).
 - Enter test number 1390 on SETCOM (4).
- Run test on 1W200 between P3 and P14.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.

Does SETCOM display show GOOD?



*Figure 9-106 (Sheet 1 of 3)
Volume II
Para. 9-3*

ARR82-5859

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

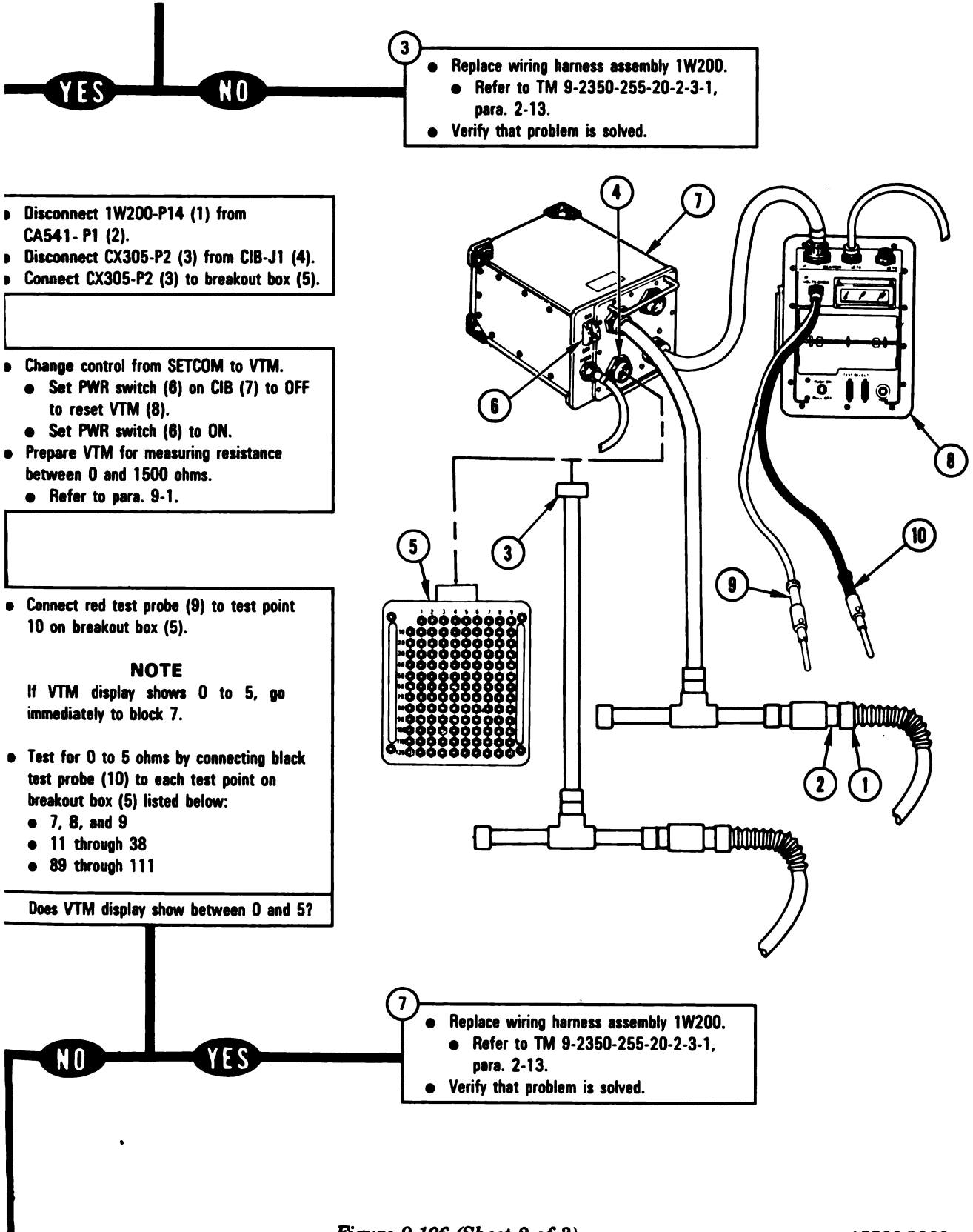


Figure 9-106 (Sheet 2 of 3)
Volume II
Para. 9-3

ARR82-5860

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

8

- Connect red test probe (1) to test point 29 on breakout box (2).

NOTE
If VTM display shows 0 to 5, go immediately to block 10.

- Test for 0 to 5 ohms by connecting black test probe (3) to each test point on breakout box (2) listed below:
 - 7 through 28
 - 30 through 39
 - 62, 74 and 75
 - 90 through 113

Does VTM display show between 0 and 5?

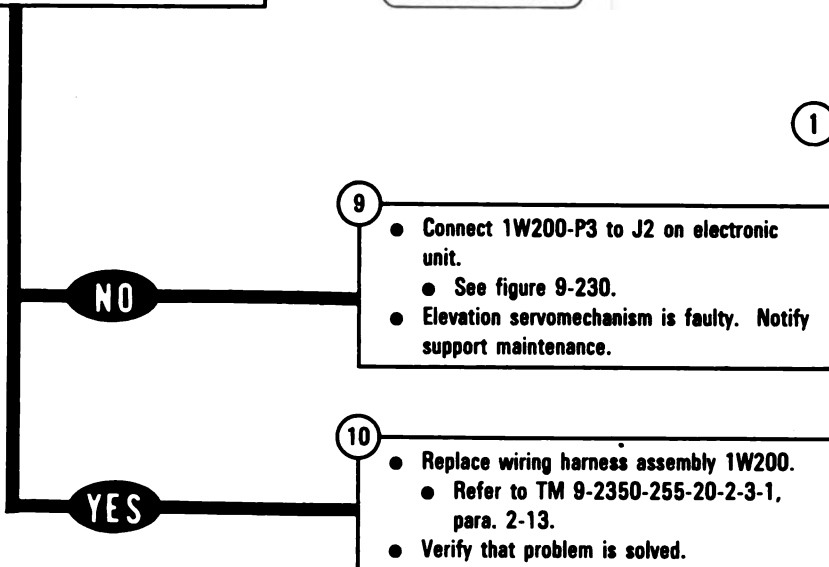
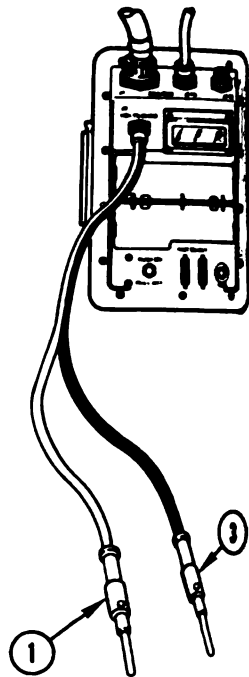
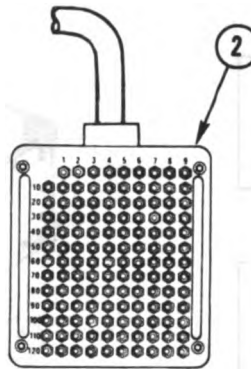


Figure 9-106 (Sheet 3 of 3)
Volume II
Para. 9-3

ARR82-5861

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS -
FAULTY GTD OR
1W200**

• 142118
142119

Additional Test

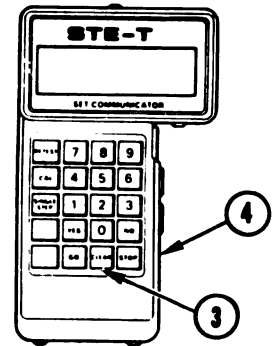
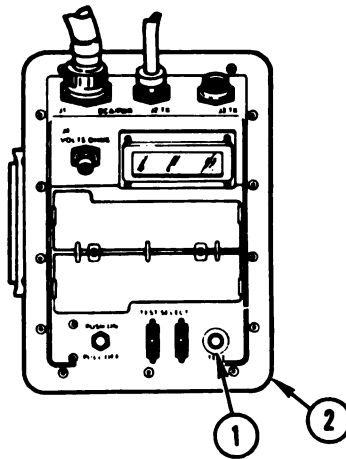
Equipment/Special Tools:

- Breakout Box Tool Kit, 12311068

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- Disconnect CX205-P1 from CIB-J1.
 - See figure 9-8.
- Disconnect 1W200-P3 from J2 on electronic unit.
 - See figure 9-230.
- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.



- Prepare STE to run cable test 1390.
 - Press TEST button (1) on VTM (2).
 - Press CLEAR key (3) on SETCOM (4).
 - Enter test number 1390 on SETCOM (4).
- Run test on 1W200 between P1 and P3.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.

Does SETCOM display show GOOD?

YES

NO

3

- Replace wiring harness assembly 1W200.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

Figure 9-107 (Sheet 1 of 3)
**Volume II
Para. 9-3**

ARR82-5862

9-245

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

- 4**
- Disconnect 1W200-P3 (1) from CA523-P1 (2).
 - Disconnect CX305-P2 (3) from CIB-J1 (4).
 - Connect CX305-P2 (3) to breakout box (5).

- 5**
- Change control from SETCOM to VTM.
 - Set PWR switch (8) on CIB (7) to OFF to reset VTM (8).
 - Set PWR switch (8) to ON.
 - Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 9-1.

- 6**
- NOTE**
- If VTM display shows 0 to 5, go immediately to block 8.
- Test for 0 to 5 ohms between test points on breakout box listed in table A for fault number being tested.
 - Connect red test probe (9) to test point on breakout box (5) listed in table A.
 - Connect black test probe (10) to test points on breakout box (5) listed in table A.
- Does VTM display show between 0 and 5?

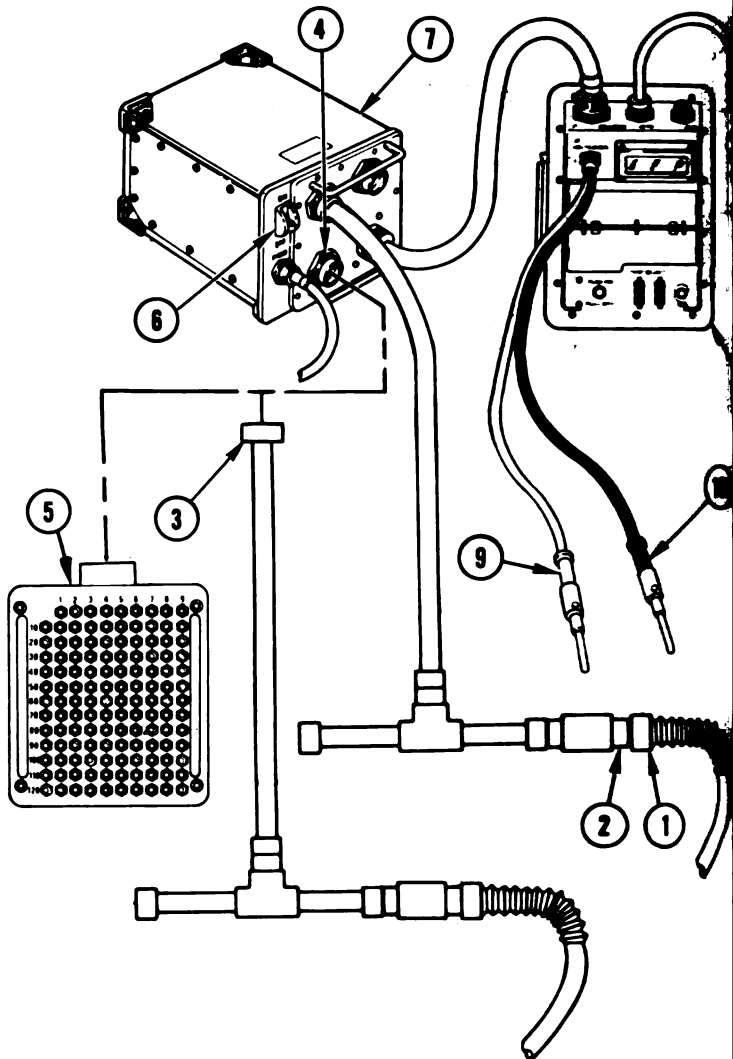


Table A

Fault number	Red test probe	Black test probe
142118	92	7 through 39, 62, 74, 75, 89 through 91, 93 through 113
142119	93	7 through 39, 62, 74, 75, 89 through 92, 94 through 113

Figure 9-107 (Sheet 2 of 3)
**Volume II
Para. 9-3**

ARR82-5863

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

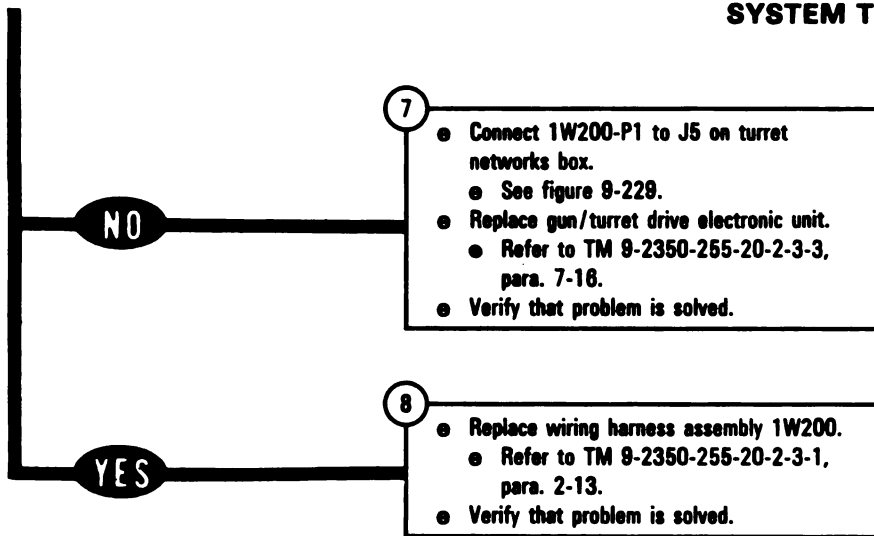


Figure 9-107 (Sheet 3 of 3)
**Volume II
Para. 9-3**

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS -
FAULTY GPS OR
1W206**

• 140321
• 140323

**Additional Test
Equipment/Special Tools:**

- Breakout Box Tool Kit, 12311086

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

1

- Disconnect CA519-P2 from CX307-P1.
 - See figure 9-15.
- Disconnect CX305-P2 from CIB-J1.
 - See figure 9-32.
- Disconnect 1W206-P2 from J2 on gunner's primary sight.
 - See figure 9-240.

2

- Connect CX305-P2 (1) to breakout box (2).
- Connect 1W206-P1 (3) to CA520-P1 (4).
- Connect CA520-P2 (5) to CX208-P1 (6).

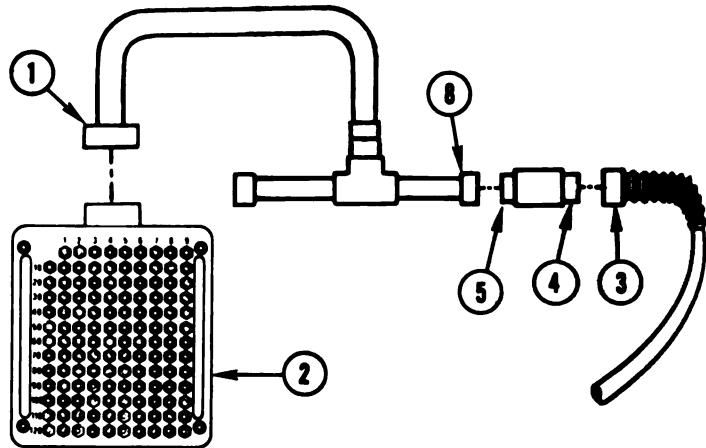
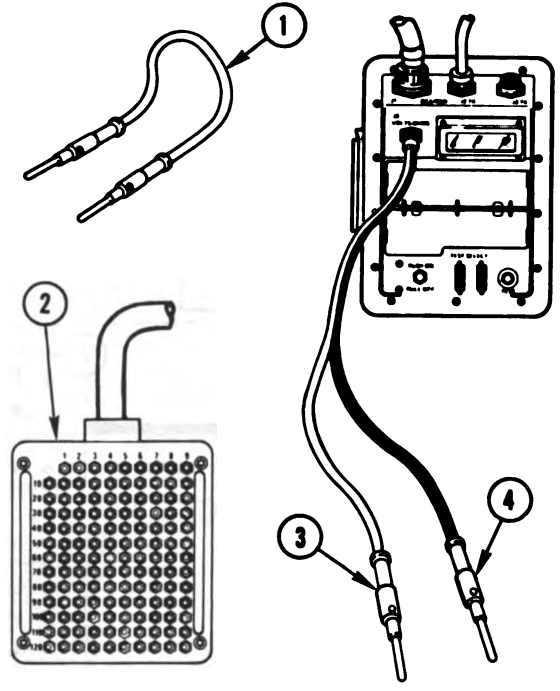


Figure 9-108 (Sheet 1 of 3)
**Volume II
Para. 9-3**

ARR82-5864

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

- ▷ Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.
- ▷ Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 9-1.
- ▷ Connect jumper (1) between test points on breakout box (2), listed in table A for fault number being tested.



NOTE

If VTM display shows 0 to 5, go immediately to block 5.

- Test for 0 to 5 ohms between test points on breakout box listed in table A for fault number being tested.
 - Connect red test probe (3) to test point on breakout box (2) listed in table A.
 - Connect black test probe (4) to test points on breakout box (2) listed in table A.

Does VTM display show between 0 and 5?

Table A

Fault number	Jumper	Red test probe	Black test probe
140321	102, 103	102	7 through 39, 62, 74, 75, 89 through 101, 104 through 113
140323	99, 100	99	7 through 39, 62, 74, 75, 89 through 98, 101 through 113

- 5**
- Replace branched wiring harness 1W208.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

NO

YES

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

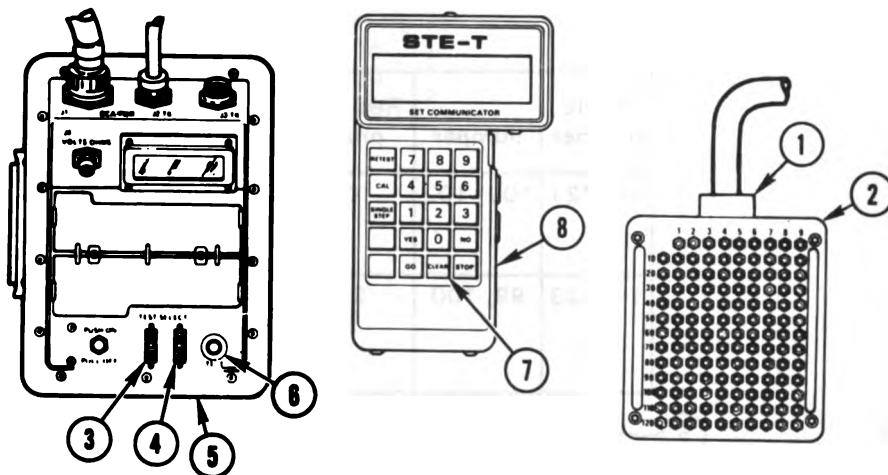
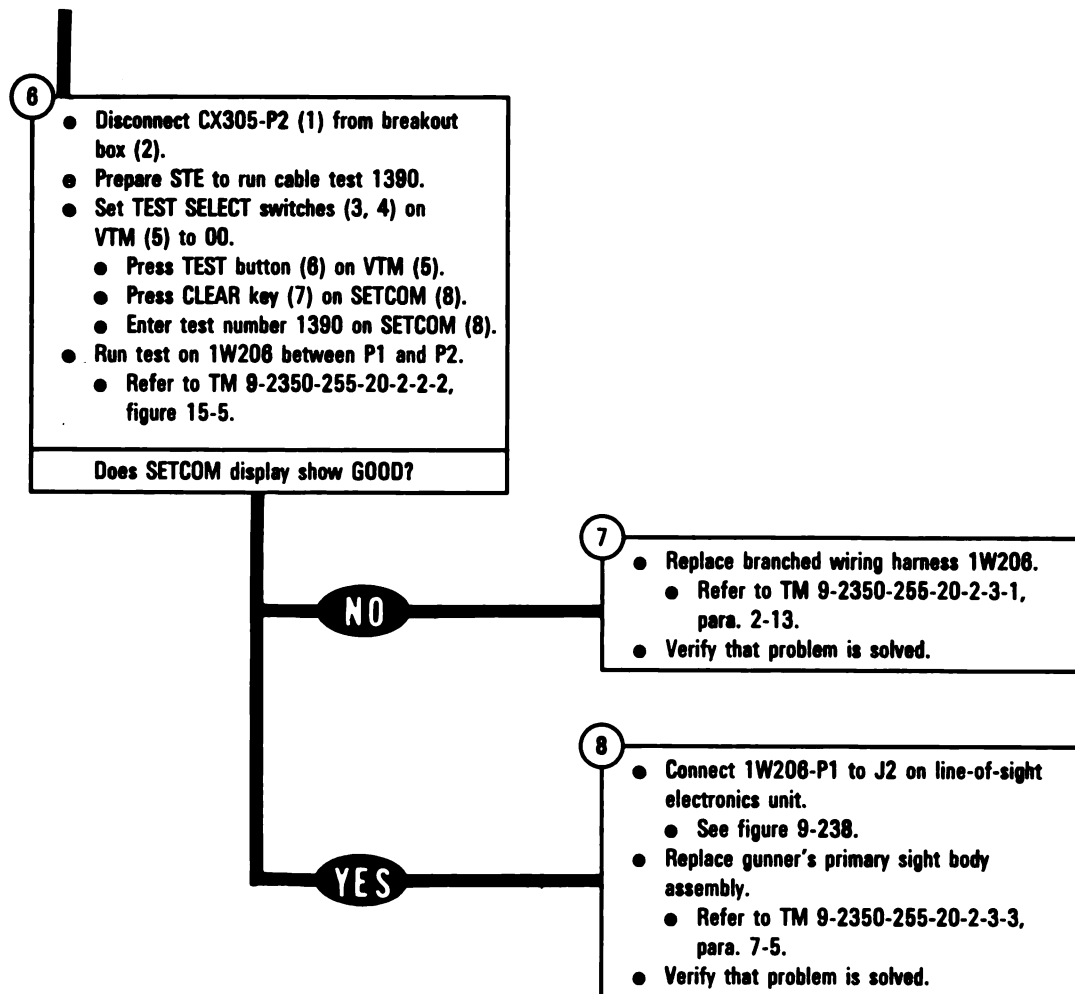


Figure 9-108 (Sheet 3 of 3)
**Volume II
Para. 9-3**

ARR82-5866

DISPLAY SHOWS -
FAULTY TNB, TEU, OR
1W202

• 142011
142019

Additional Test

Equipment/Special Tools:

- Breakout Box Tool Kit, 12311088

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- Disconnect 1W202-P4 from J1 on thermal electronics unit.

- See figure 9-238.

- Connect CX305-P2 (1) to breakout box (2).
- Connect CX305-P1 (3) to CX307-P3 (4).

- Disconnect 1W202-P1 from J7 on turret networks box.

- See figure 9-229.

- Connect 1W202-P1 (5) to CA508-P1 (6).
- Connect CA508-P2 (7) to CX307-P1 (8).

- Change STE power hookup from turret networks box to power distribution box.

- See figure 9-37.

- Prepare VTM for measuring resistance between 0 and 1500 ohms.

- Refer to para. 9-1.

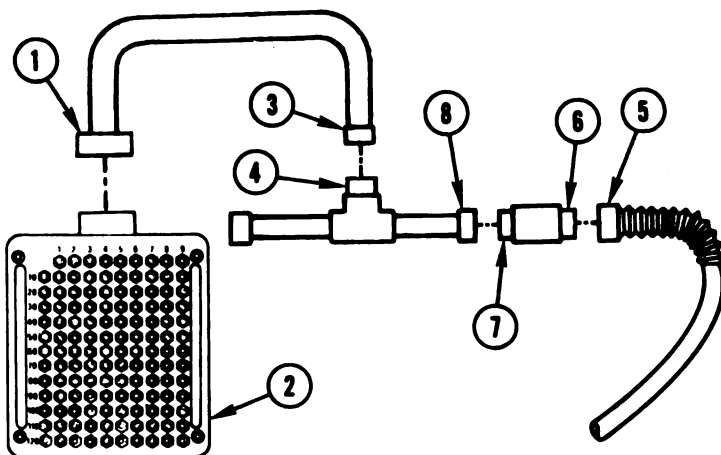


Figure 9-109 (Sheet 1 of 3)
Volume II
Para. 9-3

ARR82-5867

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

4

NOTE
If VTM display shows 0 to 5, go immediately to block 5.

- Test for 0 to 5 ohms between test points on breakout box listed in table A for fault number being tested.
- Connect red test probe (1) to test point on breakout box (2) listed in table A.
- Connect black test probe (3) to test points on breakout box (2) listed in table A.

Does VTM display show between 0 and 5?

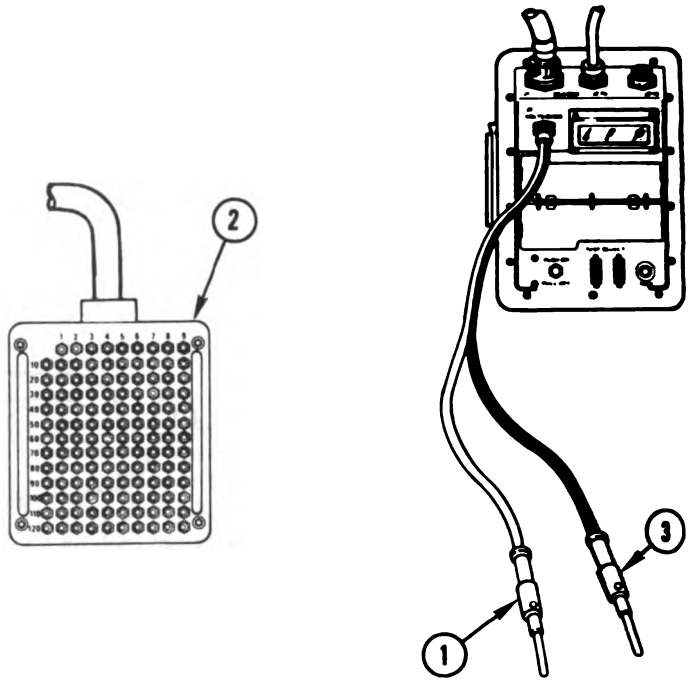
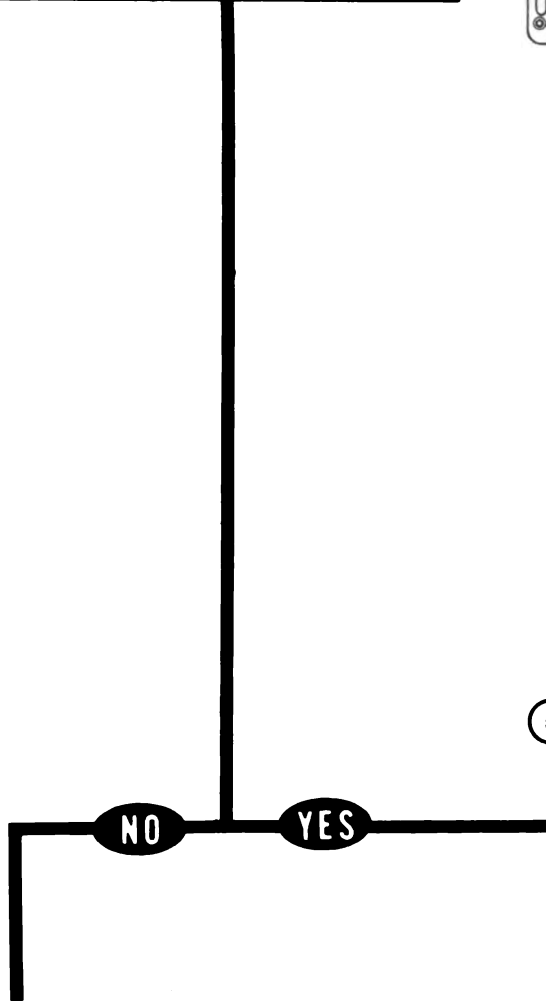


Table A

Fault number	Red test probe	Black test probe
142011	111	7 through 39, 62, 74, 75, 89 through 110, 112, 113
142019	112	7 through 39, 62, 74, 75, 89 through 111, 113



5

- Connect 1W203-P1 to J3 on turret networks box.
- See figure 9-229.
- Replace branched wiring harness 1W202.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

Figure 9-109 (Sheet 2 of 3)
**Volume II
Para. 9-3**

ARR82-5064

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

Table B

Fault number	Red test probe	Black test probe
142011	111	7 through 39, 62, 74, 75, 89 through 110, 112, 113
142019	112	7 through 39, 62, 74, 75, 89 through 111, 113

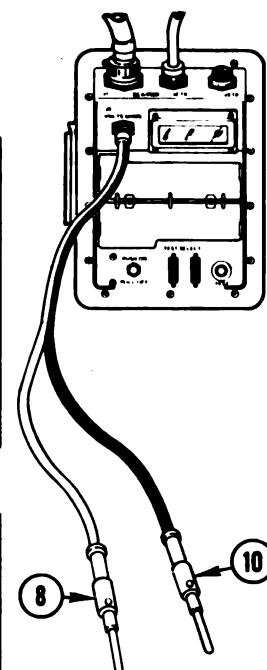
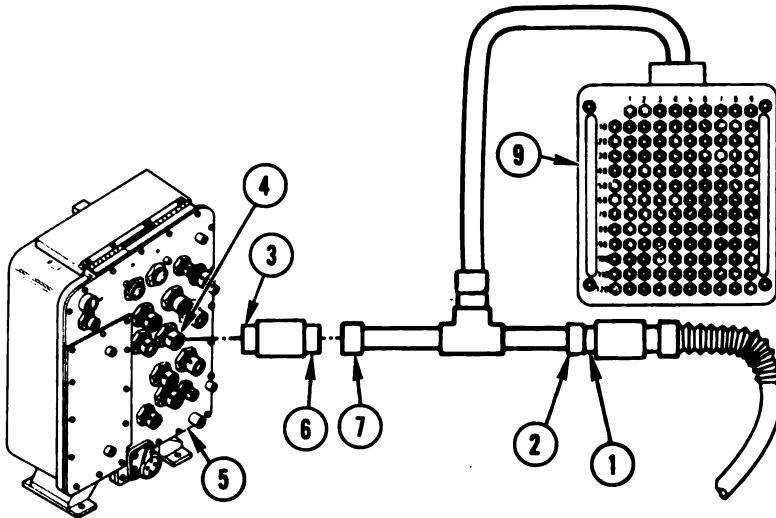
- Disconnect CA508-P1 (1) from CX307-P1 (2).
- Connect CA505-P1 (3) to J7 (4) on turret networks box (5).
- Connect CA505-P2 (6) to CX307-P2 (7).

NOTE

If VTM display shows 0 to 5, go immediately to block 9.

- Test for 0 to 5 ohms between test points on breakout box listed in table B for fault number being tested.
- Connect red test probe (8) to test point on breakout box (9) listed in table B.
- Connect black test probe (10) to test points on breakout box (9) listed in table B.

Does VTM display show between 0 and 5?



NO

YES

- 8
- Connect 1W202-P1 to J7 on turret networks box.
 - See figure 9-229.
 - Connect 1W203-P1 to J3 on turret networks box.
 - See figure 9-229.
 - Replace thermal electronics unit.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-24.
 - Verify that problem is solved.

- 9
- Connect 1W202-P4 to J1 on thermal electronics unit.
 - See figure 9-238.
 - Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
 - Verify that problem is solved.

Figure 9-109 (Sheet 3 of 3)
**Volume II
Para. 9-3**

ARR82-5869

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS -
FAULTY GPS OR
1W104**

141168

Additional Test

Equipment/Special Tools:

- Breakout Box Tool Kit, 12311086

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

1

- Disconnect 1W104-P2 from J3 on gunner's primary sight.
 - See figure 9-240.
- Connect CX305-P2 (1) to breakout box (2).
- Connect CX305-P1 (3) to CX307-P3 (4).
- Connect 1W104-P1 (5) to CA518-P1 (6).
- Connect CA518-P2 (7) to CX307-P1 (8).

2

- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 9-1.

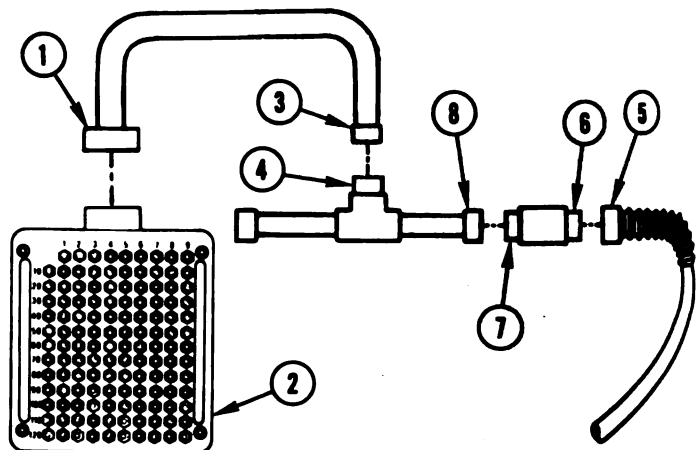


Figure 9-110 (Sheet 1 of 2)
**Volume II
Para. 9-3**

ARR82-5870

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

- Connect red test probe (1) to test point 22 on breakout box (2).

NOTE
If VTM display shows 0 to 5, go immediately to block 5.

- Test for 0 to 5 ohms by connecting black test probe (3) to each test point on breakout box (2) listed below:
 - 7 through 21
 - 23 through 39
 - 62, 74, and 75
 - 89 through 113

Does VTM display show between 0 and 5?

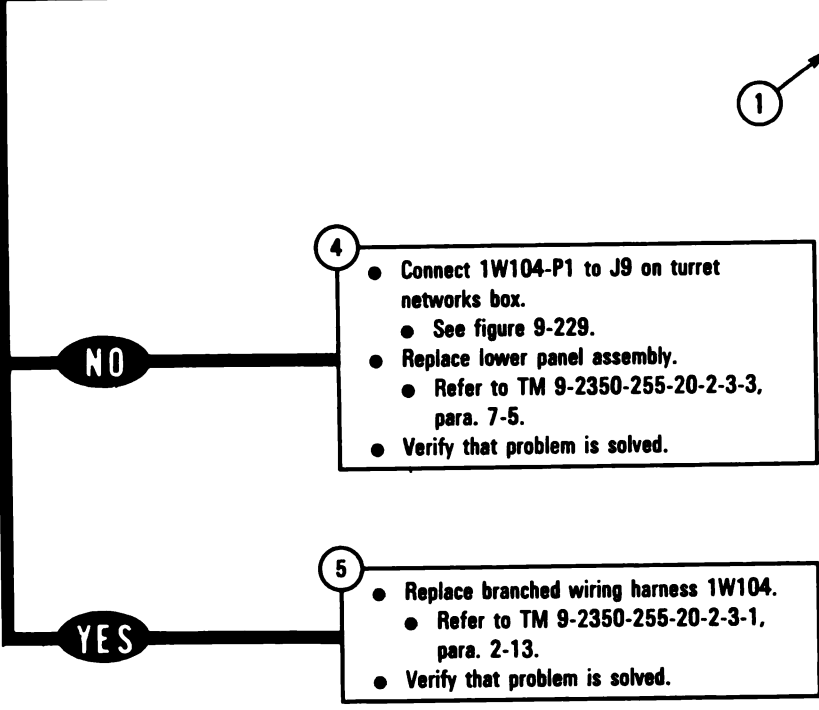
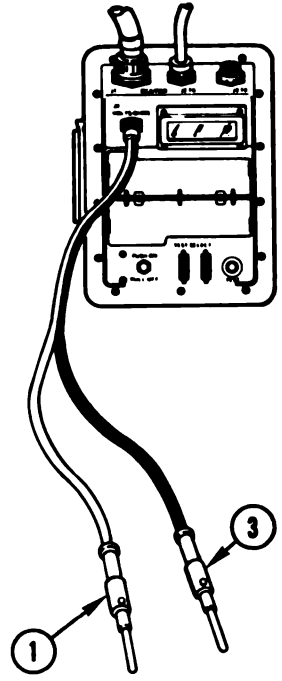
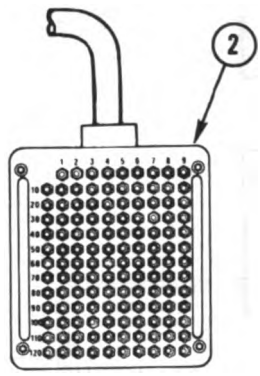


Figure 9-110 (Sheet 2 of 2)
Volume II
Para. 9-3

ARR82-5871

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS -
FAULTY GTD, GGYRO OR
1W200**

141105

Additional Test

Equipment/Special Tools:

- Breakout Box Tool Kit, 12311066

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- 1
- Disconnect CX205-P1 from CIB-J1.
 - See figure 9-8.
 - Disconnect CX205-P2 from CIB-J2.
 - See figure 9-8.
 - Disconnect 1W200-P5 from J1 on reference gyroscope.
 - See figure 9-237.
 - Connect CX305-P2 (1) to breakout box (2).
 - Connect CX305-P1 (3) to CX307-P3 (4).

- 2
- Disconnect 1W200-P3 from J2 on electronic unit.
 - See figure 9-230.
 - Connect 1W200-P3 (5) to CA523-P1 (6).
 - Connect CA523-P2 (7) to CX307-P1 (8).

- 3
- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.
 - Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 9-1.

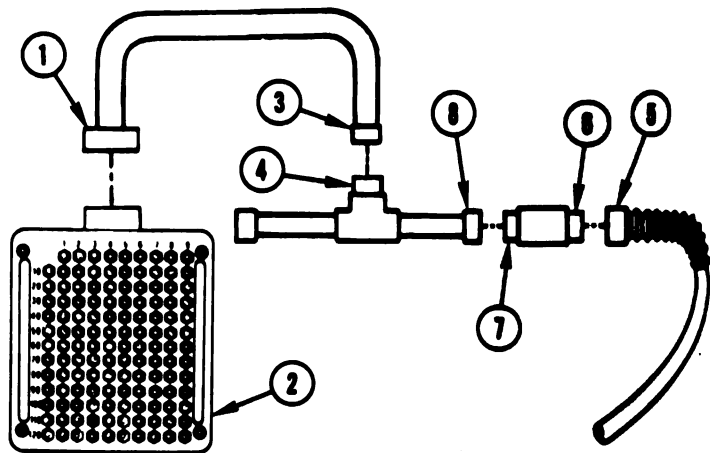
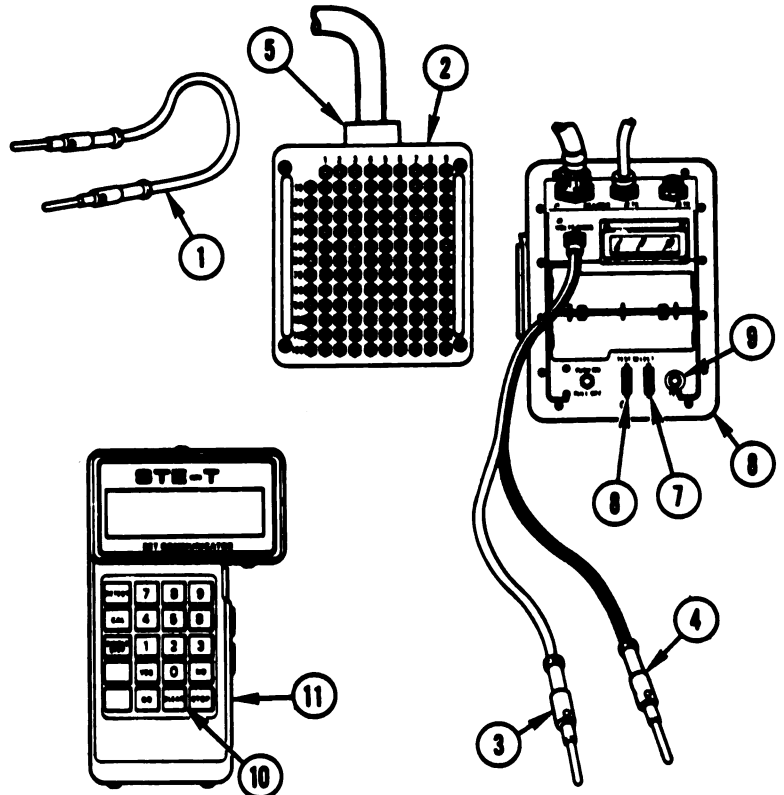


Figure 9-111 (Sheet 1 of 3)
**Volume II
Para. 9-3**

ARR02-5872

- Connect jumper (1) between test points 13 and 34 on breakout box (2).
 - Connect red test probe (3) to test point 13 on breakout box (2).
- NOTE**
If VTM display shows 0 to 5, go immediately to block 5.
- Test for 0 to 5 ohms by connecting black test probe (4) to each test point on breakout box (2) listed below:
 - 7 through 12
 - 14 through 33
 - 35 through 39
 - 62, 74, and 75
 - 89 through 113
- Does VTM display show between 0 and 5?



- 5
- Replace wiring harness assembly 1W200.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

- NO
- YES
- Disconnect CX305-P2 (5) from breakout box. (2).
 - Prepare STE to run cable test 1390.
 - Set TEST SELECT switches (6, 7) on VTM (8) to 00.
 - Press TEST button (9) on VTM (8).
 - Press CLEAR key (10) on SETCOM (11).
 - Enter test number 1390 on SETCOM (11).
 - Run test on 1W200 between P3 and P5.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.
- Does SETCOM display show GOOD?

Figure 9-111 (Sheet 2 of 3)
Volume II
Para. 9-3

ARR82-5873

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

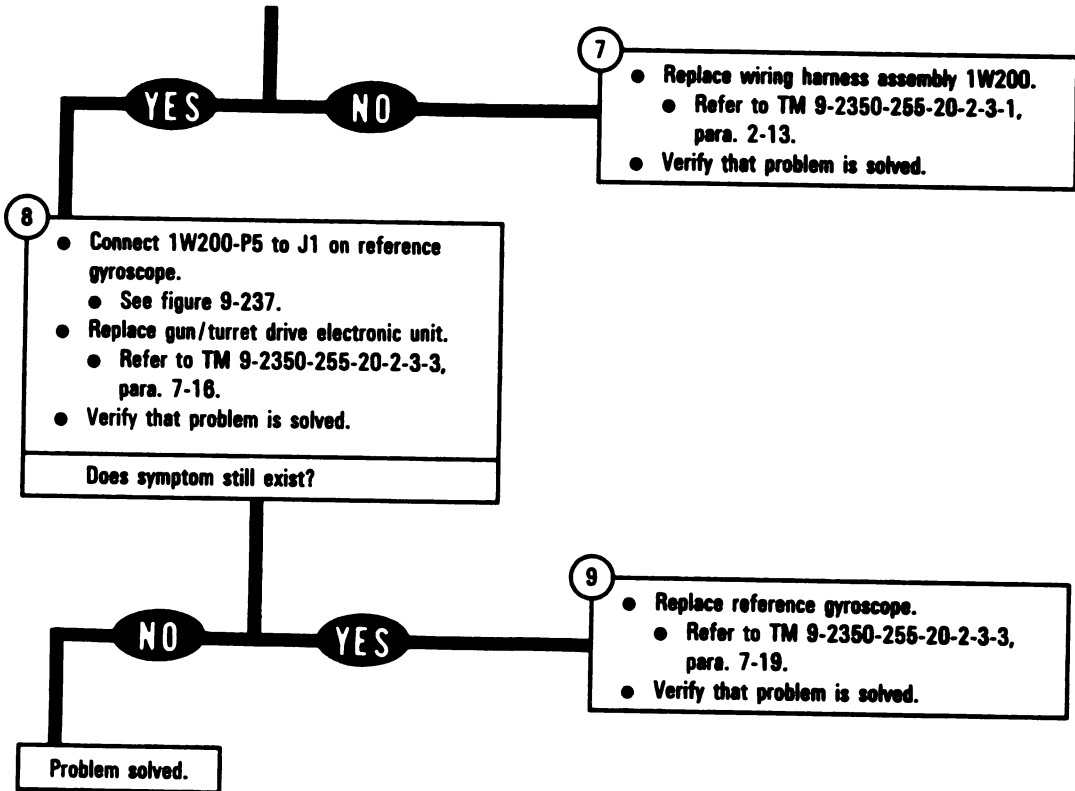


Figure 9-111 (Sheet 3 of 3)
**Volume II
Para. 9-3**

**DISPLAY SHOWS -
FAULTY TNB, GTD
OR 1W200**

141132

Additional Test

Equipment/Special Tools:

- Breakout Box Tool Kit, 12311066

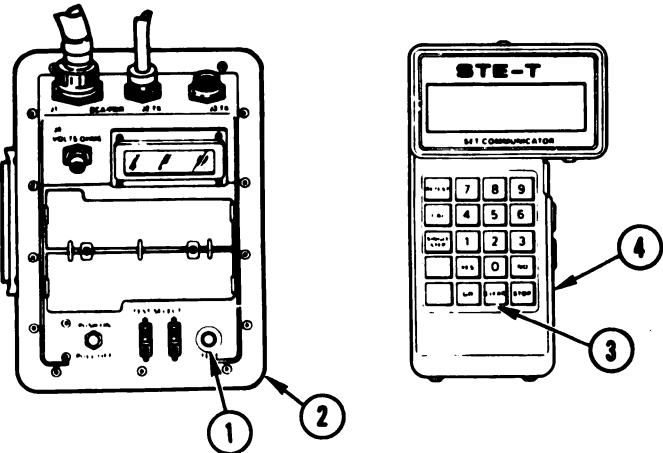
Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- Disconnect CX205-P1 from C1B-J1.
 - See figure 9-6.
- Disconnect CX205-P2 from C1B-J2.
 - See figure 9-6.
- Disconnect 1W200-P1 from J5 on turret networks box.
 - See figure 9-229.
- Disconnect 1W200-P3 from J2 on electronic unit.
 - See figure 9-230.

- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.
- Prepare STE to run cable test 1390.
 - Press TEST button (1) on VTM (2).
 - Press CLEAR key (3) on SETCOM (4).
 - Enter test number 1390 on SETCOM (4).
- Run test on 1W200 between P1 and P3.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.

Does SETCOM display show GOOD?



YES

NO

3

- Replace wiring harness assembly 1W200.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

Figure 9-112 (Sheet 1 of 2)
Volume II
Para. 9-3

ARR82-5874

9-259

TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING

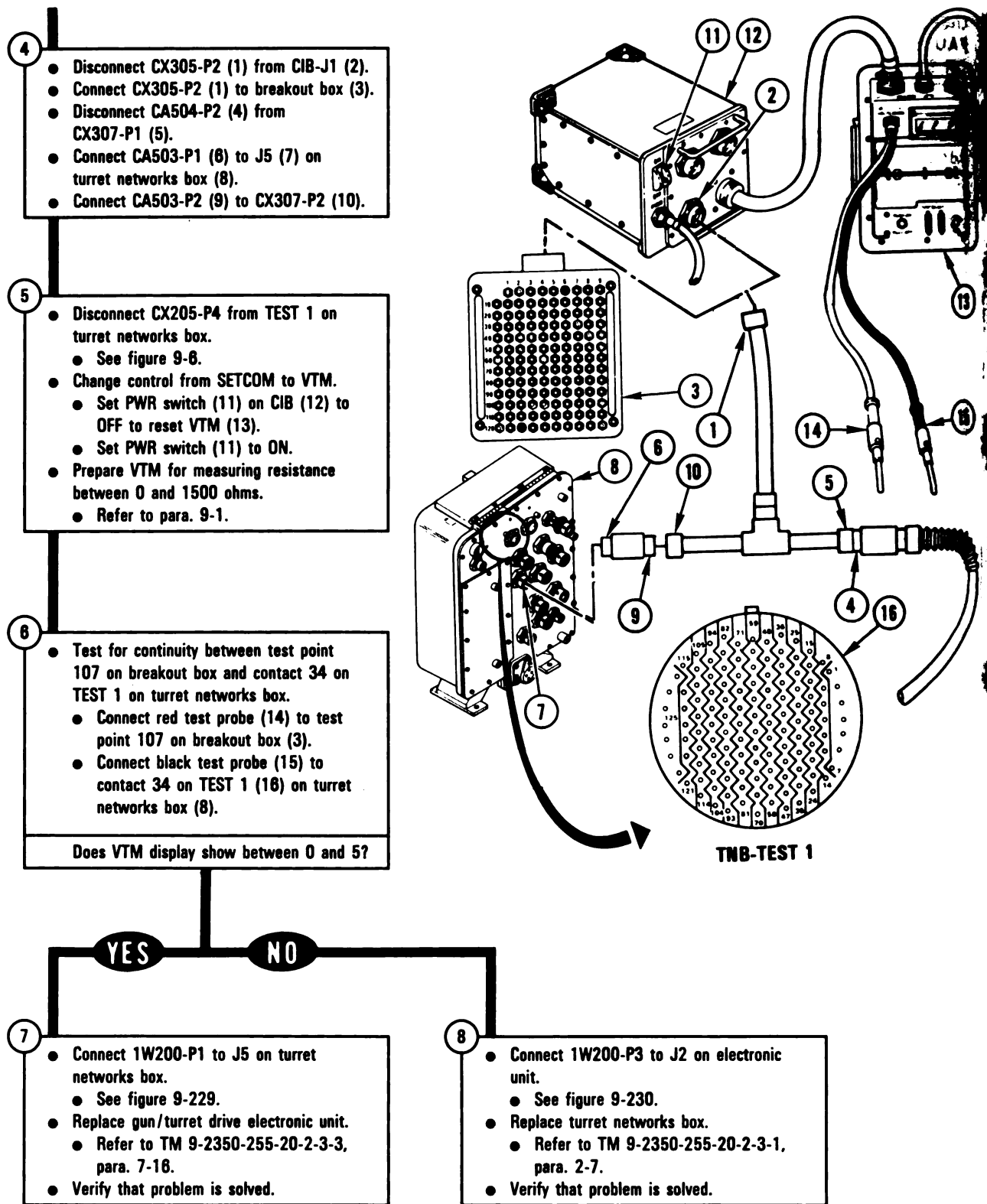


Figure 9-112 (Sheet 2 of 2)
Volume II
Para. 9-3

ARR82-5875

DISPLAY SHOWS -
FAULTY TNB OR
1W200

141134

Additional Test

Equipment/Special Tools:

- Breakout Box Tool Kit, 12311088

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- Connect CX305-P2 (1) to breakout box (2).
- Connect CX305-P1 (3) to CX307-P3 (4).
- Disconnect 1W200-P1 from J5 on turret networks box.
 - See figure 9-229.
- Connect 1W200-P1 (5) to CA504-P1 (8).
- Connect CA504-P2 (7) to CX307-P1 (8).

- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 9-1.

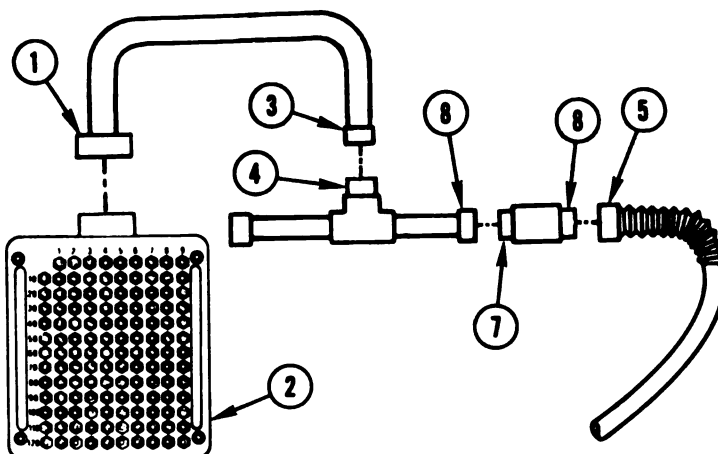


Figure 9-113 (Sheet 1 of 2)
Volume II
Para. 9-3

ARR82-5876

9-261

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

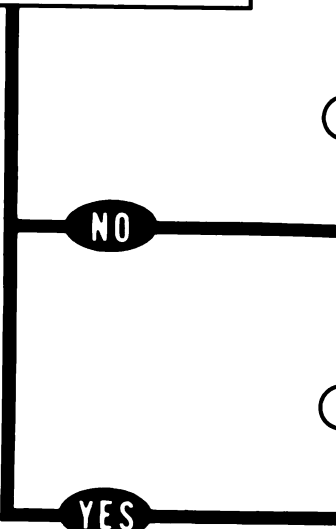
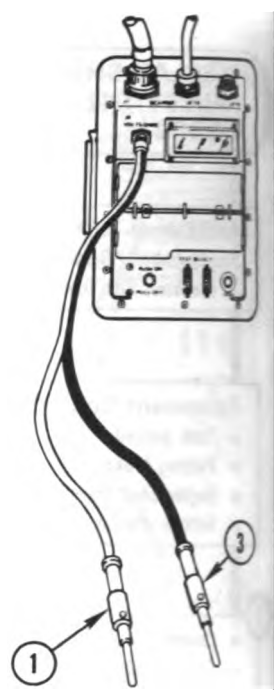
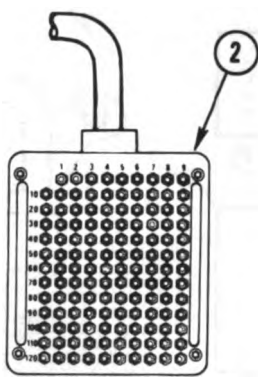
3

- Connect red test probe (1) to test point 107 on breakout box (2).

NOTE
If VTM display shows 0 to 5, go immediately to block 5.

- Test for 0 to 5 by connecting black test probe (3) to each test point on breakout box (2) listed below:
 - 7 through 39
 - 62, 74, and 75
 - 89 through 106
 - 108 through 113

Does VTM display show between 0 and 5?



4

- Connect 1W200-P3 to J2 on electronic unit.
- See figure 9-230.
- Replace turret networks box.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
- Verify that problem is solved.

5

- Connect 1W107-P1 to J4 on turret networks box.
- See figure 9-229.
- Replace wiring harness assembly 1W200.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

Figure 9-113 (Sheet 2 of 2)
Volume II
Para. 9-3

ARR82-5877

**DISPLAY SHOWS
FAULTY GTD OR
1W200**

140562

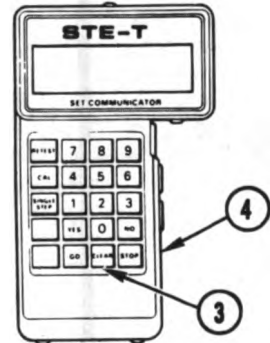
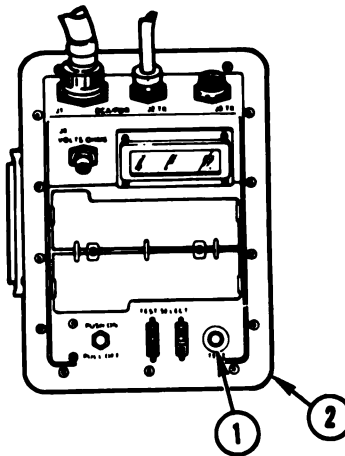
**Additional Test
Equipment/Special Tools:**

- Breakout Box Tool Kit, 12311066

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- If connected, disconnect CX205-P2 from CIB-J2.
 - See figure 9-8.
- If connected, disconnect CX205-P1 from CIB-J1.
 - See figure 9-8.
- If connected, disconnect CA536-P2 from CX308-P2.
 - See figure 9-19.
- Disconnect 1W200-P4 from J3 on electronic unit.
 - See figure 9-230.



- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.
- Prepare STE to run cable test 1390.
 - Press TEST button (1) on VTM (2).
 - Press CLEAR key (3) on SETCOM (4).
 - Enter test number 1390 on SETCOM (4).
- Run test on 1W200 between P4 and P8.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.

Does SETCOM display show GOOD?

YES

NO

- Replace wiring harness assembly 1W200.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

Figure 9-114 (Sheet 1 of 2)
Volume II
Para. 9-3

ARR82-5878

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

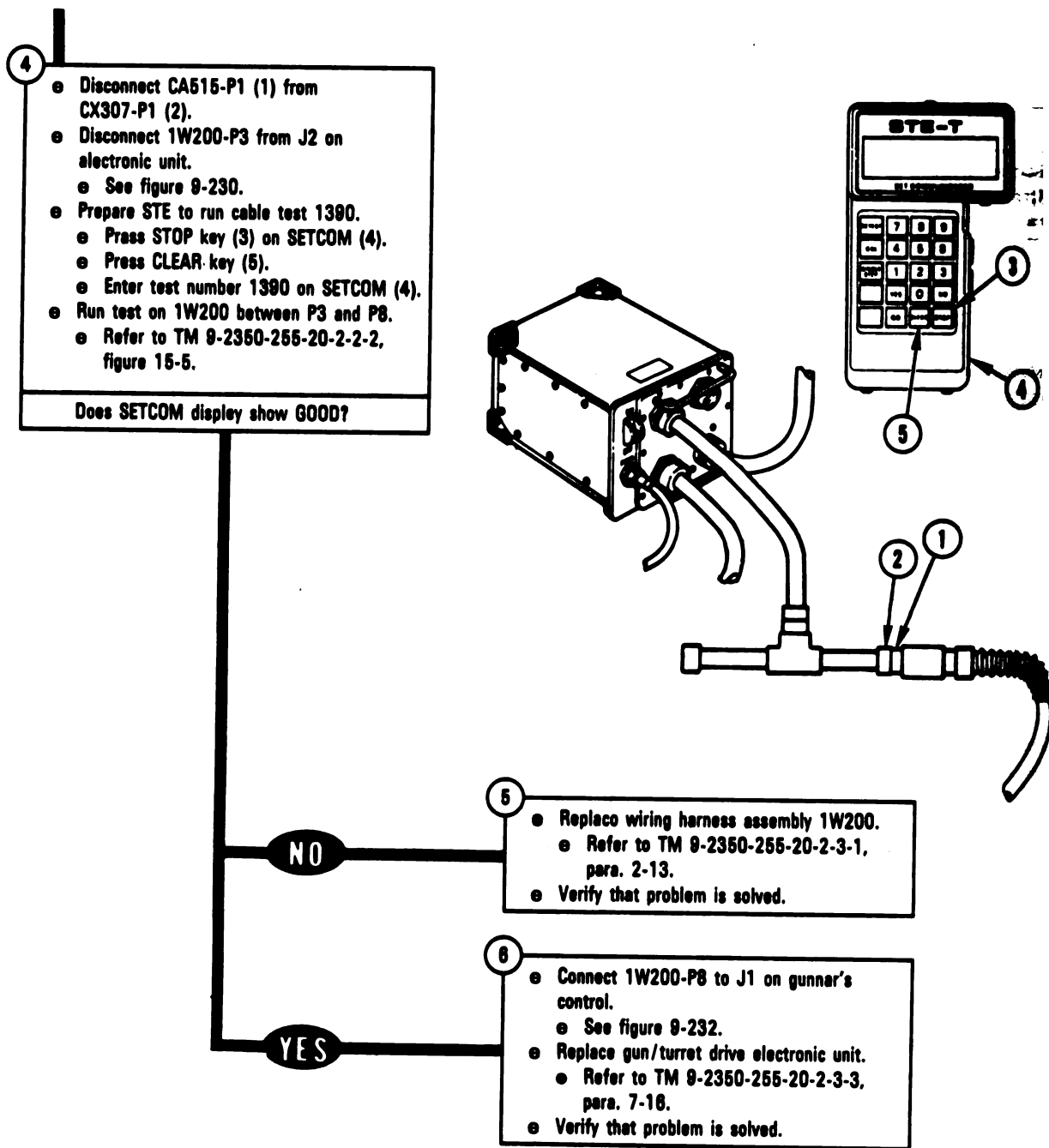


Figure 9-114 (Sheet 2 of 2)
Volume II
Para. 9-3

ARR82-5879

DISPLAY SHOWS -
 FAULTY ZDESW OR
 1W107

141174

Additional Test

Equipment/Special Tools:

- Breakout Box Tool Kit, 12311066

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- Disconnect zero degree elevation switch (1S242)-P1 from 1W107-J2.

- See figure 9-237.

- Connect CX305-P2 (1) to breakout box (2).
- Connect CX305-P1 (3) to CX307-P3 (4).
- Connect 1W107-P1 (5) to CA522-P1 (8).
- Connect CA522-P2 (7) to CX307-P1 (8).

- Change STE power hookup from turret networks box to power distribution box.

- See figure 9-37.

- Prepare VTM for measuring resistance between 0 and 1500 ohms.

- Refer to para. 9-1.

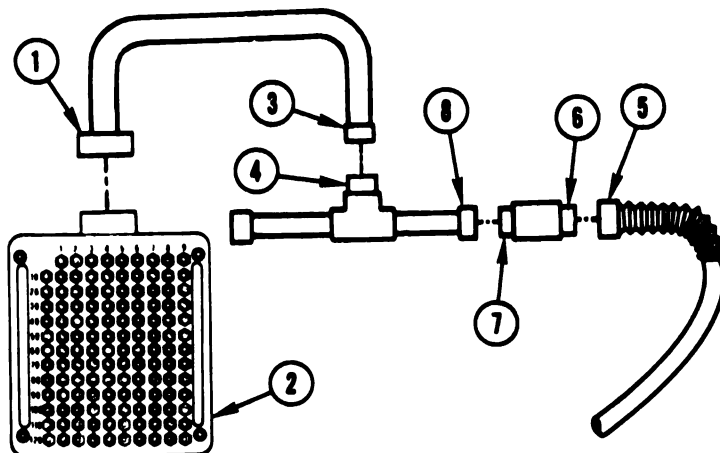


Figure 9-115 (Sheet 1 of 2)
 Volume II
 Para. 9-3

ARR82-5880

9-265

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

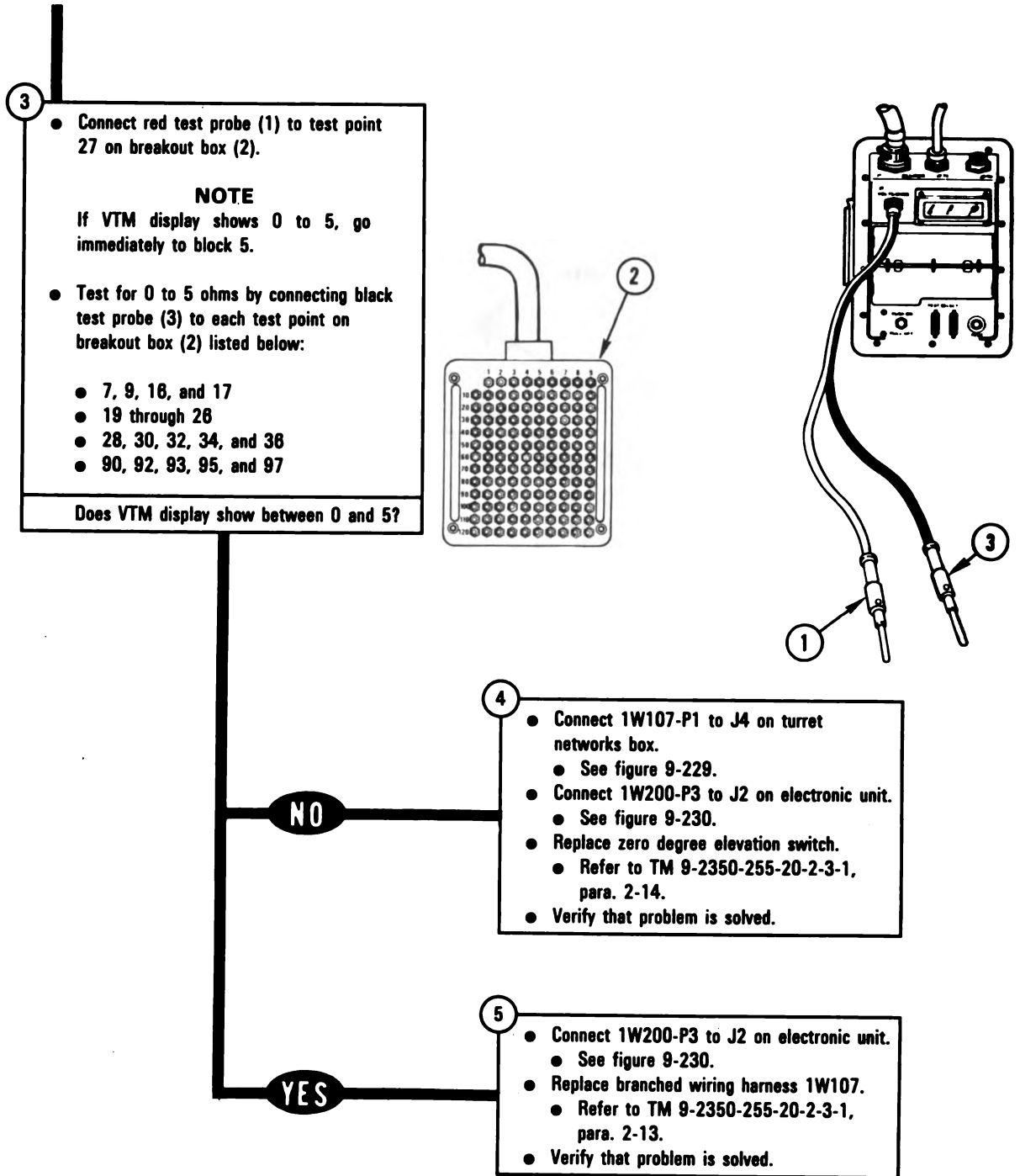


Figure 9-115 (Sheet 2 of 2)
Volume II
Para. 9-3

ARR82-5881

**TM 9-2350-255-20-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS -
FAULTY TNB, LOS, GPS
OR 1W202/3**

140424

**Additional Test
Equipment/Special Tools:**
Breakout Box Tool Kit, 12311068

Equipment Condition:
Tank parked.
Parking brake set.
Engine shut down.
Vehicle master power off.

- Reduce hydraulic pressure to zero psi by operating bilge pump.
 - Refer to TM 9-2350-255-10.
- Disconnect CX205-P5 from TEST 2 on turret networks box.
 - See figure 9-8.
- Disconnect 1W202-P3 from J1 on line-of-sight electronics unit.
 - See figure 9-238.

- Connect CX305-P2 (1) to breakout box (2).
- Connect CA206-P1 (3) to TEST 2 (4) on turret networks box (5).
- Connect CX305-P1 (6) to CA206-P2 (7).
- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.
- Set circuit breaker 29 (8) on turret networks box (5) to ON.

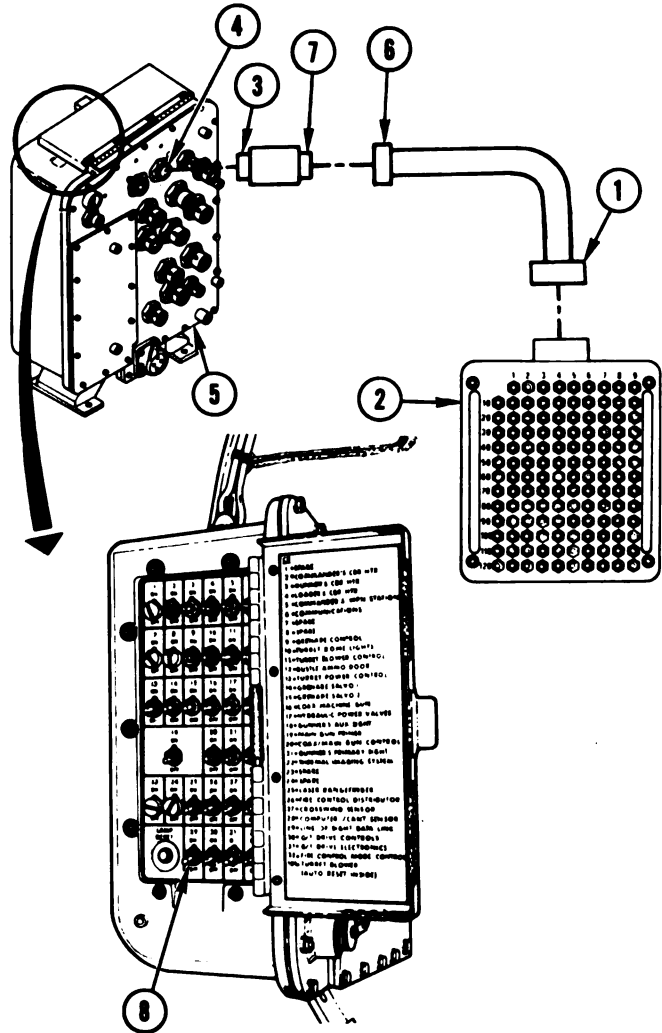


Figure 9-116 (Sheet 1 of 3)
**Volume II
Para. 9-3**

ARR82-5882

9-267

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

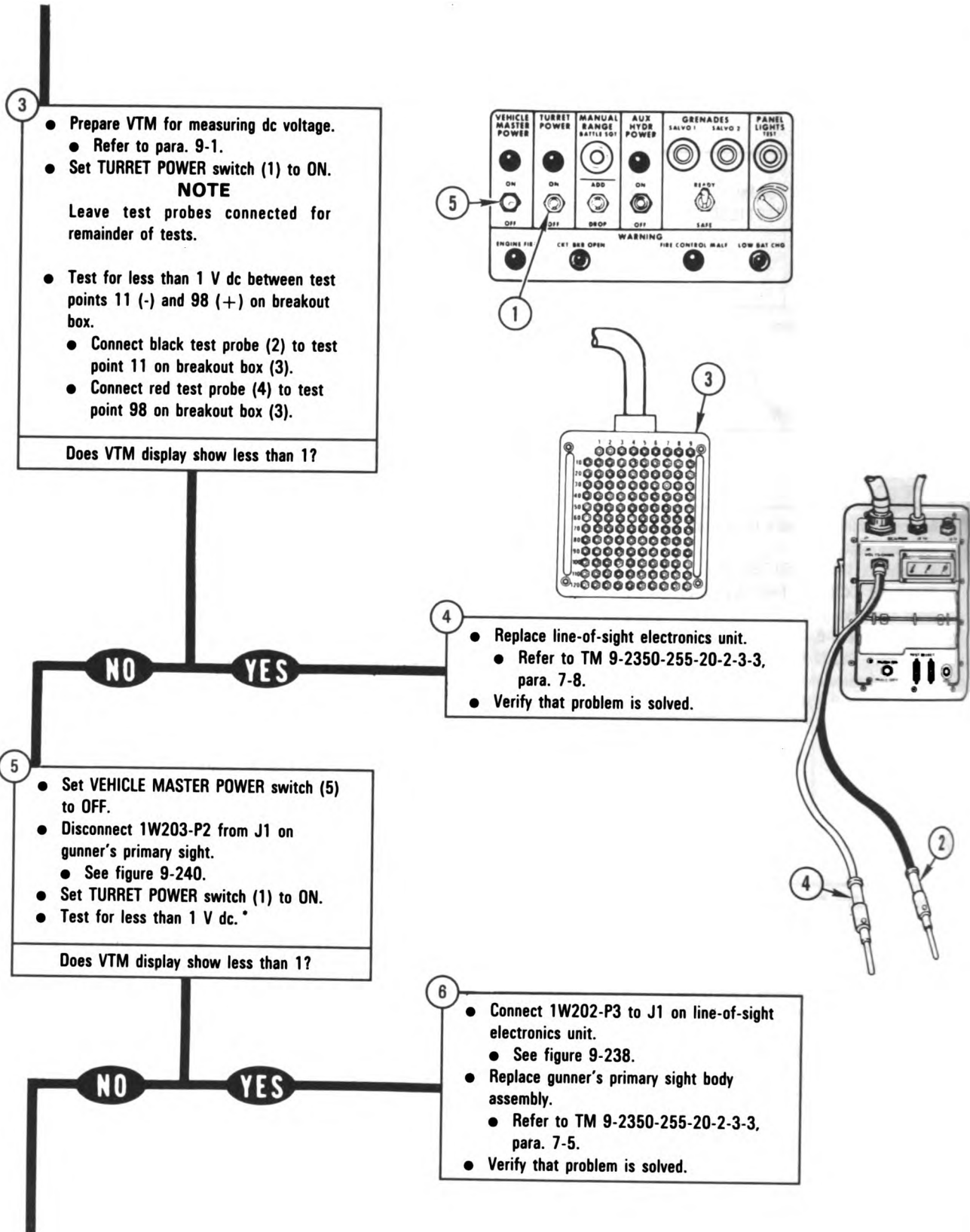


Figure 9-116 (Sheet 2 of 3)

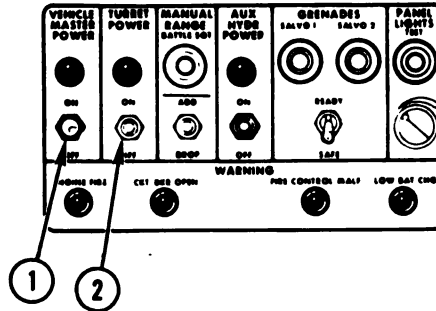
**Volume II
Para. 9-3**

ARR82-5883

* Between contacts found in block 3

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

- Set VEHICLE MASTER POWER switch (1) to OFF.
 - Disconnect 1W203-P1 from J3 on turret networks box.
 - See figure 9-229.
 - Set TURRET POWER switch (2) to ON.
 - Test for less than 1 V dc.*
- Does VTM display show less than 1?



- NO** **YES**
- Set VEHICLE MASTER POWER switch (1) to OFF.
 - Disconnect 1W202-P1 from J7 on turret networks box.
 - See figure 9-229.
 - Set TURRET POWER switch (2) to ON.
 - Test for less than 1 V dc.*
- Does VTM display show less than 1?

- 8
- Connect 1W202-P3 to J1 on line-of-sight electronics unit.
 - See figure 9-238.
 - Replace branched wiring harness 1W203.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

- 10
- Connect 1W202-P3 to J1 on line-of-sight electronics unit.
 - See figure 9-238.
 - Connect 1W203-P2 to J1 on gunner's primary sight.
 - See figure 9-240.
 - Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
 - Verify that problem is solved.

- 11
- Connect 1W203-P1 to J3 on turret networks box.
 - See figure 9-229.
 - Connect 1W203-P2 to J1 on gunner's primary sight.
 - See figure 9-240.
 - Replace branched wiring harness 1W202.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

Figure 9-116 (Sheet 3 of 3)
Volume II
Para. 9-3

ARR82-5884

*between contacts found in block 3

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS -
FAULTY TNB, 1W201
OR 1W203**

• 141155 141158
141156 141159
141157 141160

**Additional Test
Equipment/Special Tools:**

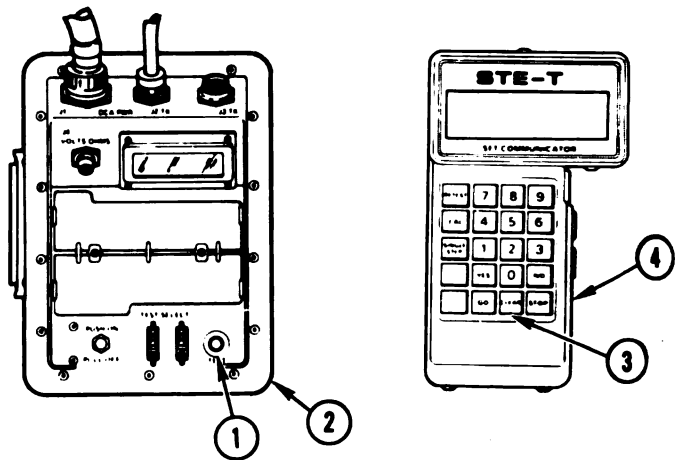
- Breakout Box Tool Kit, 12311066

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- 1
- Disconnect CA419-P2 from CX307-P1.
 - See figure 9-10.
 - Disconnect 1W203-P1 from J3 on turret networks box.
 - See figure 9-229.
 - Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.

- 2
- Prepare STE to run cable test 1390.
 - Press TEST button (1) on VTM (2).
 - Press CLEAR key (3) on SETCOM (4).
 - Enter test number 1390 on SETCOM (4).
 - Run test on 1W203 between P1 and P2.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.
- Does SETCOM display show GOOD?



*Figure 9-117 (Sheet 1 of 5)
Volume II
Para. 9-3*

ARR82-588

TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING

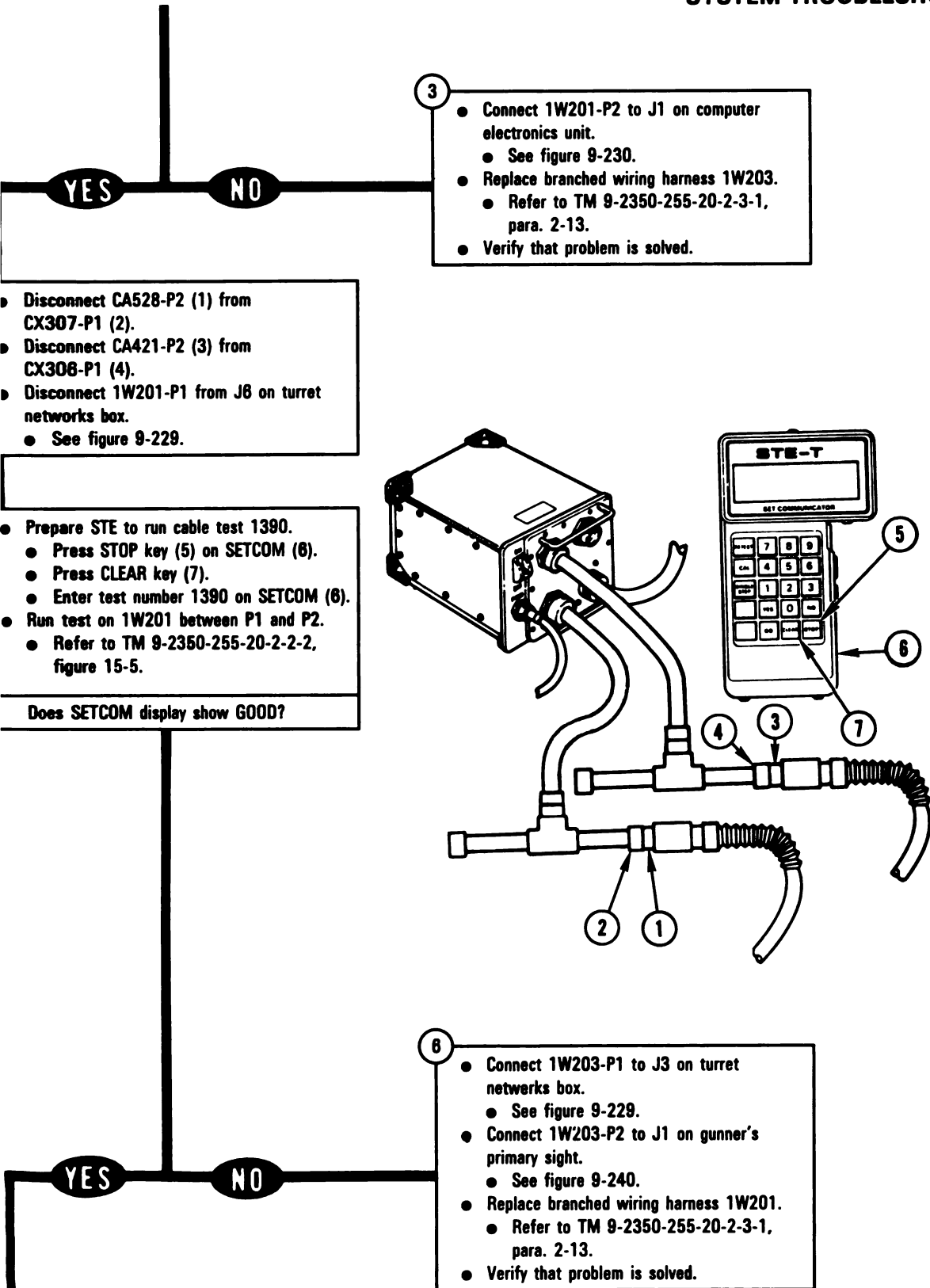


Figure 9-117 (Sheet 2 of 5)
Volume II
Para. 9-3

ARR82-5886

9-271

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

- 7**
- Disconnect 1W201-P2 (1) from CA419-P1 (2).
 - Disconnect CX305-P2 (3) from CIB-J1 (4).
 - Connect CX305-P2 (3) to breakout box (5).

- 8**
- Change control from SETCOM to VTM.
 - Set PWR switch (8) on CIB (7) to OFF to reset VTM (8).
 - Set PWR switch (8) to ON.
 - Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 9-1.

9

NOTE

If VTM display shows 0 to 5, go immediately to block 10.

- Test for 0 to 5 ohms between test points on breakout box listed in table A for fault number being tested.
- Connect red test probe (9) to test point on breakout box (5) listed in table A for fault number being tested.
- Connect black test probe (10) to test points on breakout box (5) listed in table A for fault number being tested.

Does VTM display show between 0 and 5?

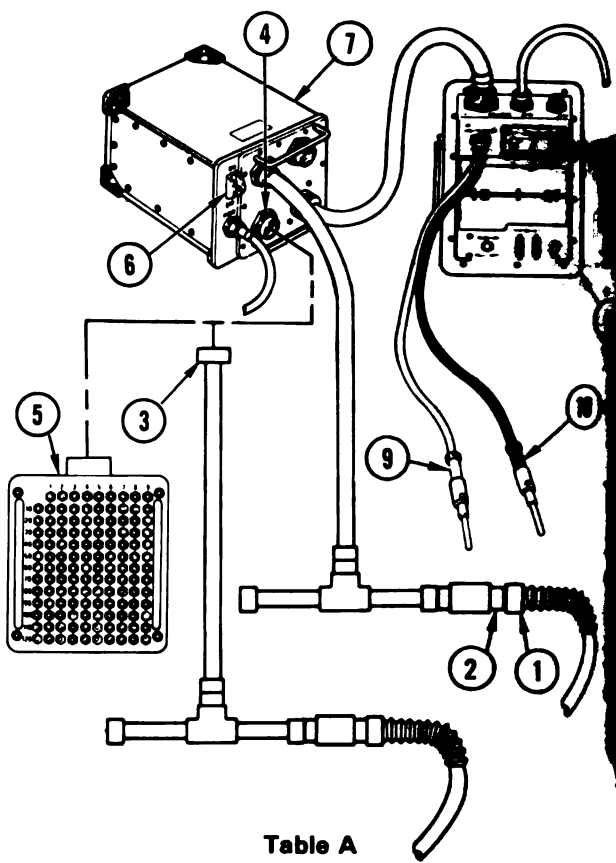


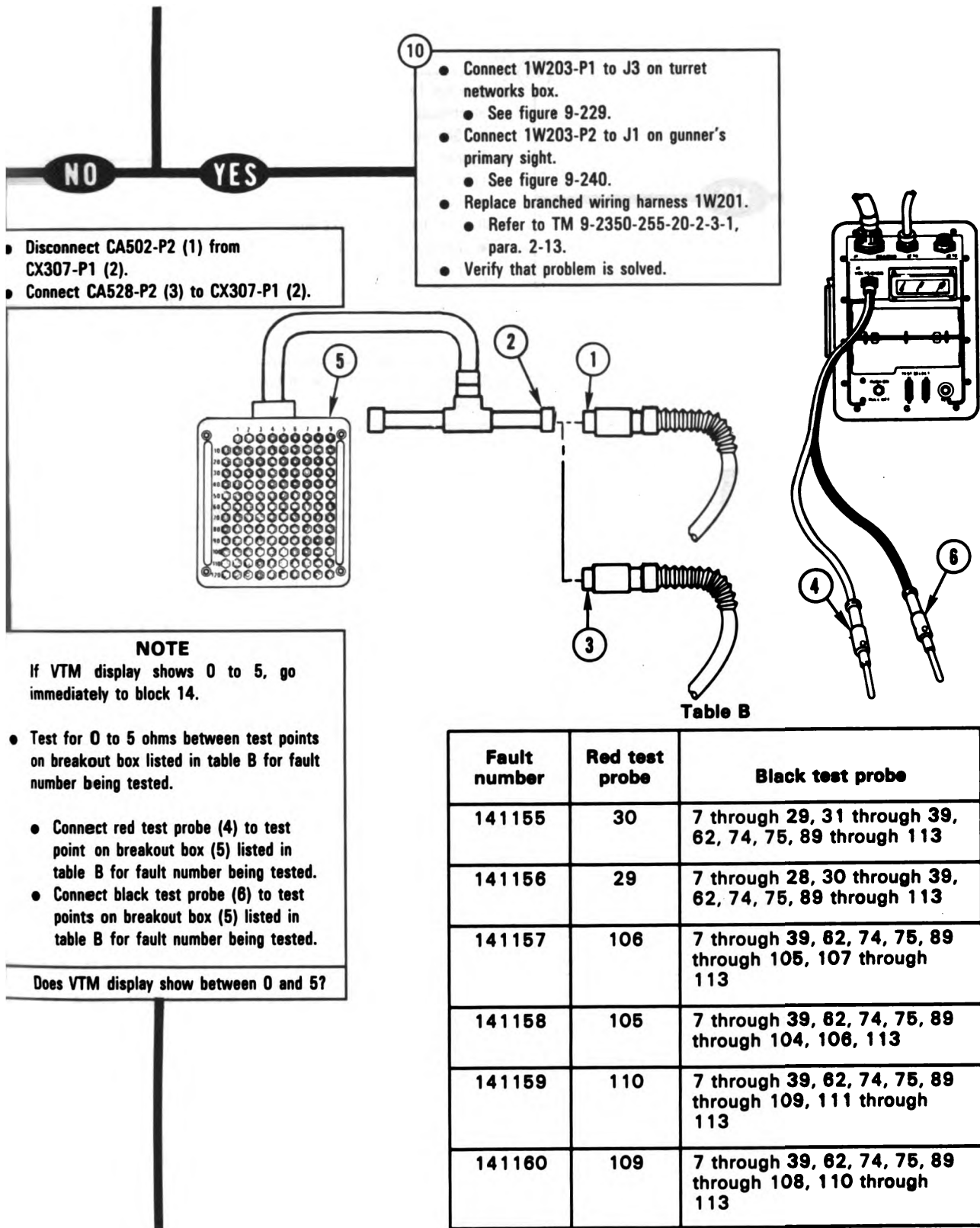
Table A

Fault number	Red test probe	Black test probe
141155	27	7 through 26, 28 through 39, 62, 74, 75, 89 through 113
141156	26	7 through 25, 27 through 39, 62, 74, 75, 89 through 113
141157	25	7 through 24, 26 through 39, 62, 74, 75, 89 through 113
141158	95	7 through 39, 62, 74, 75, 89 through 94, 96 through 113
141159	22	7 through 21, 23 through 39, 62, 74, 75, 89 through 113
141160	93	7 through 39, 62, 74, 75, 89 through 92, 94 through 113

Figure 9-117 (Sheet 3 of 5)
**Volume II
Para. 9-3**

ARR82-5887

TM 9-2350-255-20-2-2-1 HYDRAULIC AND GUN/TURRET DRIVE SYSTEM TROUBLESHOOTING



● Disconnect CA502-P2 (1) from CX307-P1 (2).
 ● Connect CA528-P2 (3) to CX307-P1 (2).

● Connect 1W203-P1 to J3 on turret networks box.
 ● See figure 9-229.
 ● Connect 1W203-P2 to J1 on gunner's primary sight.
 ● See figure 9-240.
 ● Replace branched wiring harness 1W201.
 ● Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 ● Verify that problem is solved.

NOTE
If VTM display shows 0 to 5, go immediately to block 14.

● Test for 0 to 5 ohms between test points on breakout box listed in table B for fault number being tested.

● Connect red test probe (4) to test point on breakout box (5) listed in table B for fault number being tested.

● Connect black test probe (6) to test points on breakout box (5) listed in table B for fault number being tested.

Does VTM display show between 0 and 5?

Table B

Fault number	Red test probe	Black test probe
141155	30	7 through 29, 31 through 39, 62, 74, 75, 89 through 113
141156	29	7 through 28, 30 through 39, 62, 74, 75, 89 through 113
141157	106	7 through 39, 62, 74, 75, 89 through 105, 107 through 113
141158	105	7 through 39, 62, 74, 75, 89 through 104, 106, 113
141159	110	7 through 39, 62, 74, 75, 89 through 109, 111 through 113
141160	109	7 through 39, 62, 74, 75, 89 through 108, 110 through 113

Figure 9-117 (Sheet 4 of 5)
Volume II
Para. 9-3

ARR82-5888

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

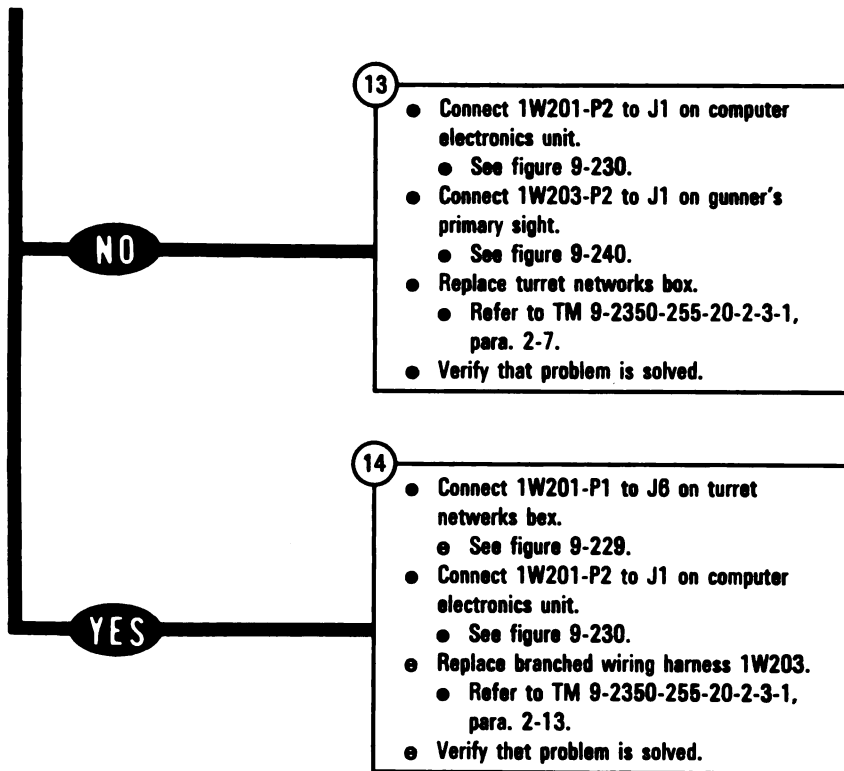


Figure 9-117 (Sheet 5 of 5)
Volume II
Para. 9-3

**DISPLAY SHOWS -
 FAULTY ELSVO OR
 1W200** **147048**

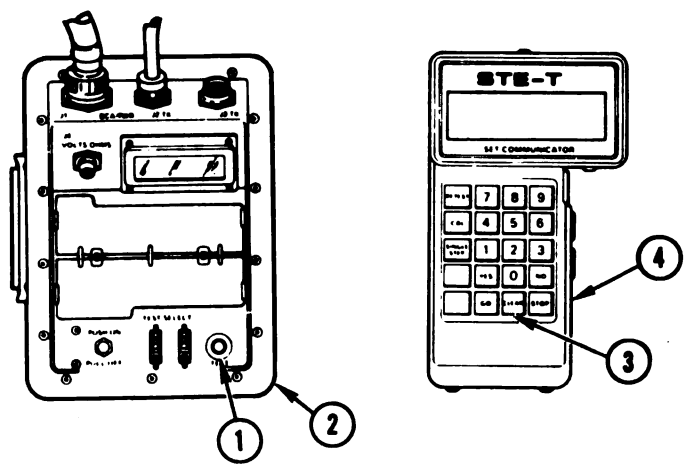
Supplies:
 Electrical Jumpers

**Additional Test
 Equipment/Special Tools:**
 ● Breakout Box Tool Kit, 12311068

Equipment Condition:
 ● Tank parked.
 ● Parking brake set.
 ● Engine shut down.
 ● Vehicle master power off.

- Disconnect CA535-P2 from CX308-P1.
 ● See figure 9-19.
- Disconnect CA538-P2 from CX308-P2.
 ● See figure 9-19.
- Disconnect 1W200-P12 from J1 on
 elevation servomechanism.
 ● See figure 9-239.
- Change STE power hookup from turret
 networks box to power distribution box.
 ● See figure 9-37.

- Prepare STE to run cable test 1390.
 ● Press TEST button (1) on VTM (2).
 ● Press CLEAR key (3) on SETCOM (4).
 ● Enter test number 1390 on SETCOM (4).
- Run test on 1W200 between P3 and P12.
 ● Refer to TM 9-2350-255-20-2-2-2,
 figure 15-5.



Does SETCOM display show GOOD?

YES

NO

3 ● Replace wiring harness assembly 1W200.
 ● Refer to TM 9-2350-255-20-2-3-1,
 para. 2-13.
 ● Verify that problem is solved.

Figure 9-118 (Sheet 1 of 4)
 Volume II
 Para. 9-3

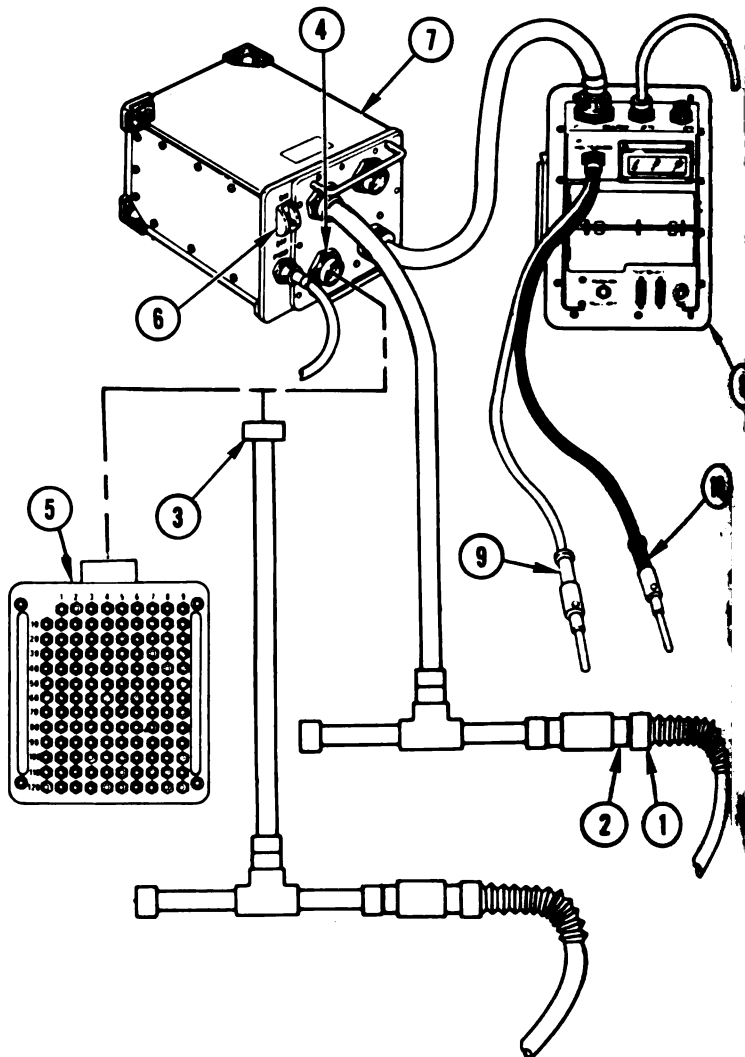
ARR82-5889

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

- 4**
- Disconnect 1W200-P12 (1) from CA539-P1 (2).
 - Disconnect CX305-P2 (3) from CIB-J1 (4).
 - Connect CX305-P2 (3) to breakout box (5).

- 5**
- Change control from SETCOM to VTM.
 - Set PWR switch (8) on CIB (7) to OFF to reset VTM (8).
 - Set PWR switch (8) to ON.
 - Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 9-1.

- 6**
- Connect red test probe (9) to test point 98 on breakout box (5).
- NOTE**
If VTM display shows 0 to 5, go immediately to block 7.
- Test for 0 to 5 ohms by connecting black test probe (10) to each test point on breakout box (5) listed below:
 - 7 through 38
 - 89 through 97
 - 99 through 111
- Does VTM display show between 0 and 5?



- 7**
- Replace wiring harness assembly 1W200.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

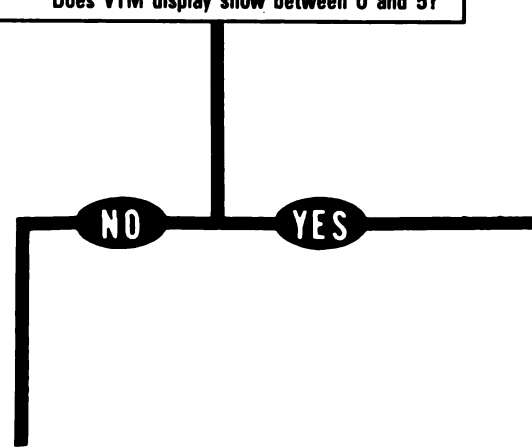


Figure 9-118 (Sheet 2 of 4)
Volume II
Para. 9-3

ARR82-5690

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

Connect red test probe (1) to test point 97 on breakout box (2).

NOTE
If VTM display shows 0 to 5, go immediately to block 9.

Test for 0 to 5 ohms by connecting black test probe (3) to each test point on breakout box (2) listed below:

- 7 through 38
- 89 through 96
- 98 through 111

Does VTM display show between 0 and 5?

9

- Replace wiring harness assembly 1W200.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

NO **YES**

- Disconnect 1W200-P8 from CA535-P1.
 - See figure 9-19.
- Connect jumper (4) between contacts M and U on 1W200-P8 (5).
- Connect jumper (6) between contacts B and C on 1W200-P12 (7).

NOTE
If VTM display shows 0 to 5, leave jumpers connected.

- Test for continuity between test points 32 and 97 on breakout box.
 - Connect black test probe (3) to test point 97 on breakout box (2).
 - Connect red test probe (1) to test point 32 on breakout box (2).

Does VTM display show less than 5?

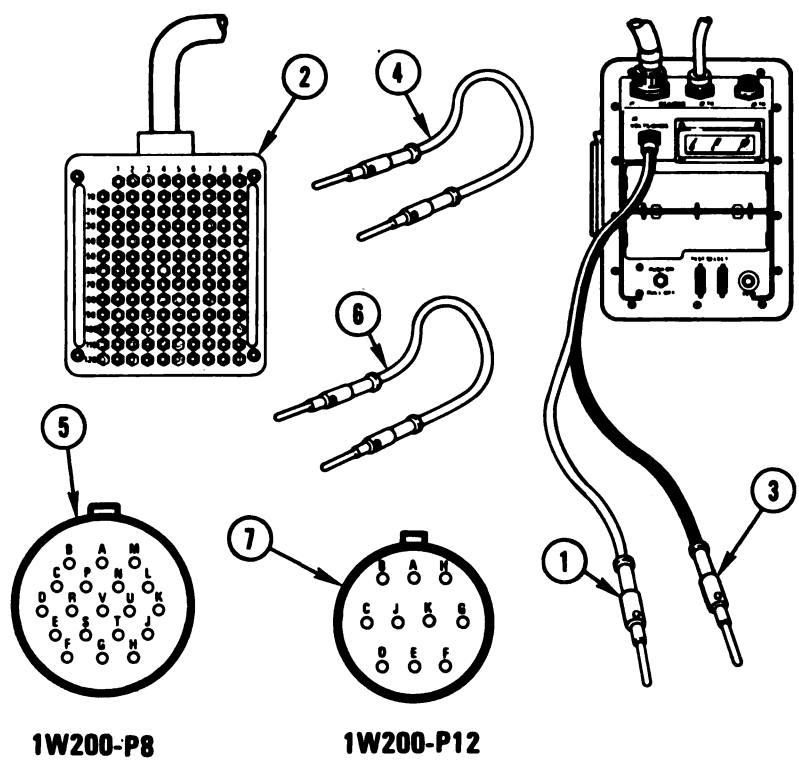


Figure 9-118 (Sheet 3 of 4)
Volume II
Para. 9-3

ARR82-5891

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

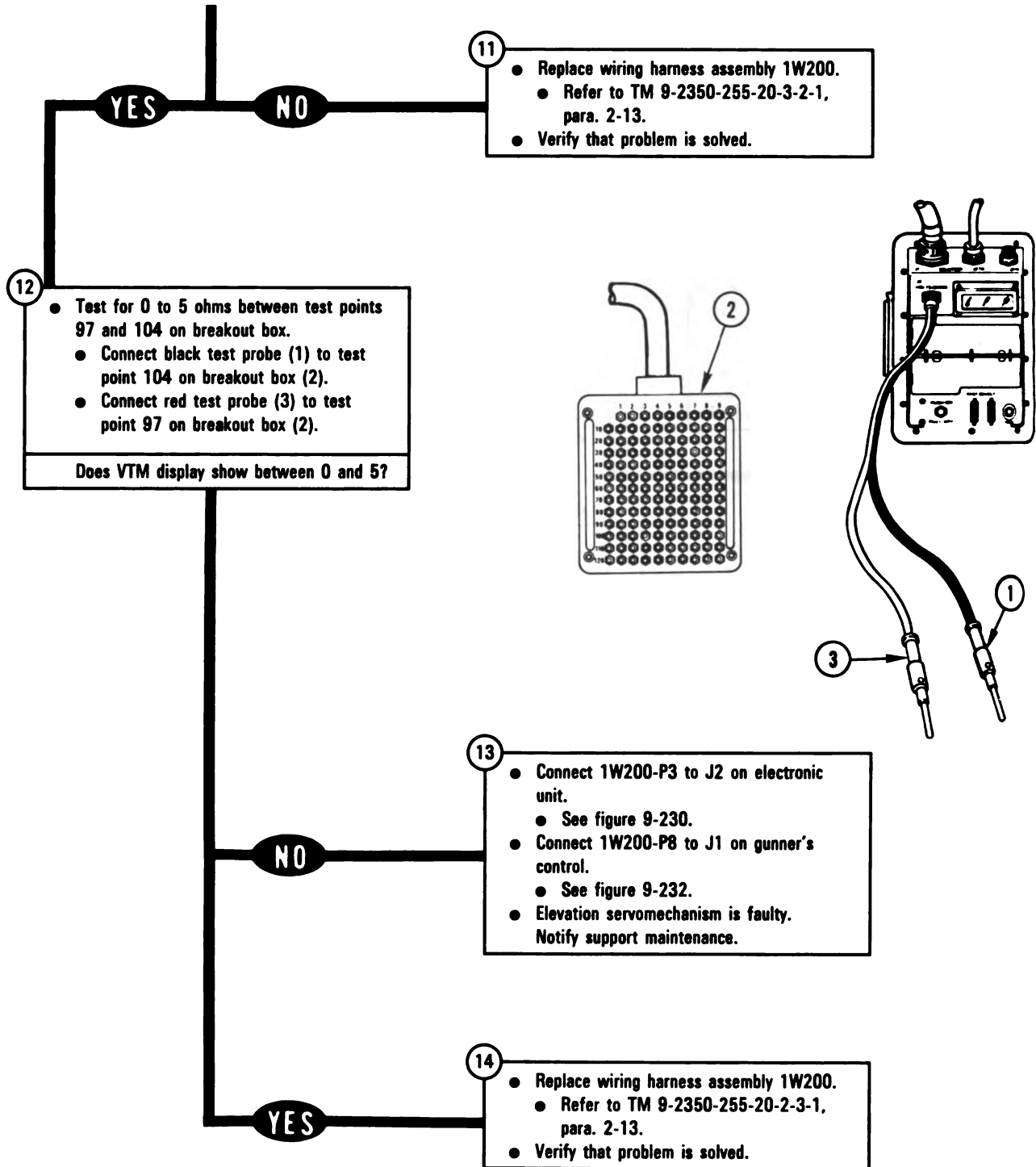


Figure 9-118 (Sheet 4 of 4)
**Volume II
Para. 9-3**

ARR82-5891

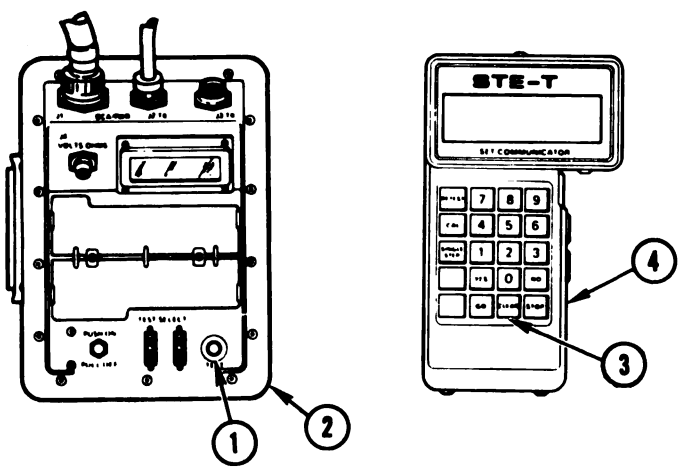
**DISPLAY SHOWS -
 FAULTY TRVSV OR
 1W200**

• 147017
 147049

**Additional Test
 Equipment/Special Tools:**
 • Breakout Box Tool Kit, 12311088

Equipment Condition:
 • Tank parked.
 • Parking brake set.
 • Engine shut down.
 • Vehicle master power off.

- Disconnect CX205-P1 from CIB-J1.
 - See figure 9-8.
- If connected, disconnect CA516-P2 from CX307-P2.
 - See figure 9-29.
- Disconnect 1W200-P11 from J3 on traverse servomechanism.
 - See figure 9-234.
- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.



- Prepare STE to run cable test 1390.
 - Press TEST button (1) on VTM (2).
 - Press CLEAR key (3) on SETCOM (4).
 - Enter test number 1390 on SETCOM (4).
- Run test on 1W200 between P4 and P11.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.

Does SETCOM display show GOOD?

YES **NO**

- 3
- Replace wiring harness assembly 1W200.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

Figure 9-119 (Sheet 1 of 3)
 Volume II
 Para. 9-3

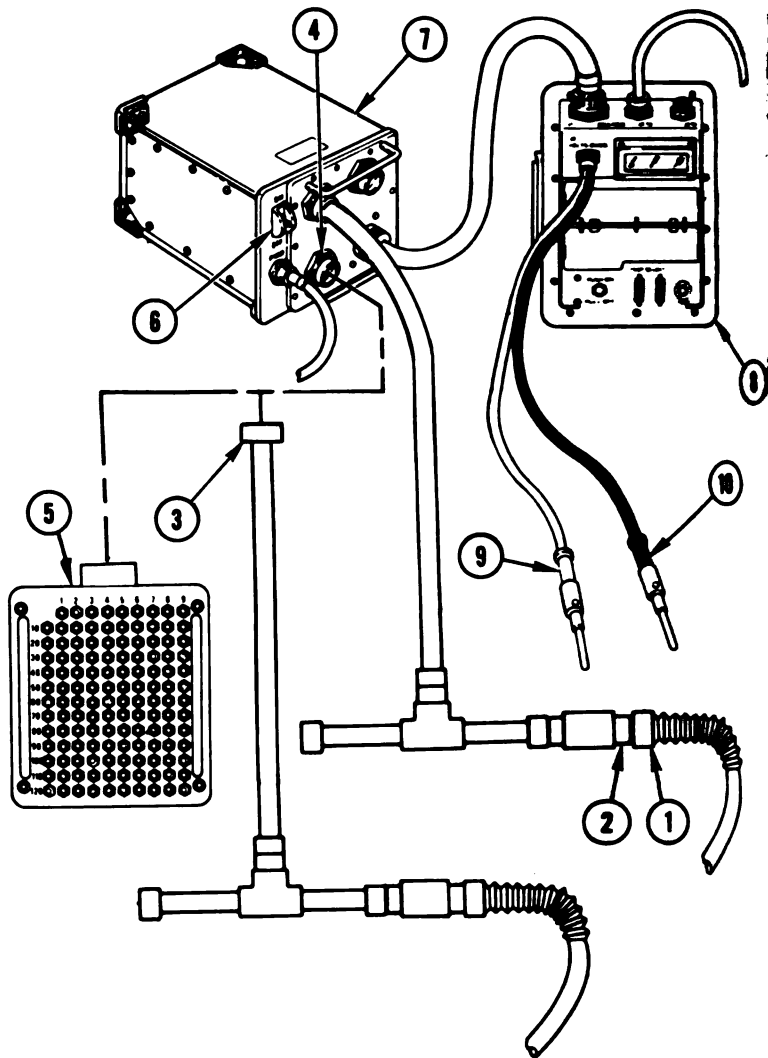
ARR82-5893

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

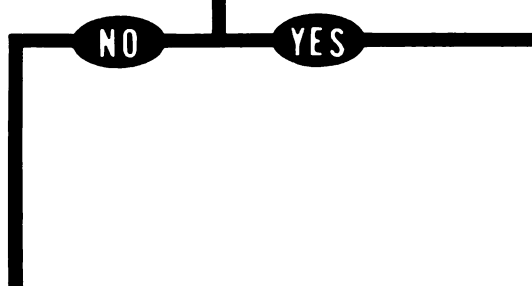
- 4
- Disconnect 1W200-P11 (1) from CA541-P1 (2).
 - Disconnect CX305-P2 (3) from CIB-J1 (4).
 - Connect CX305-P2 (3) to breakout box (5).

- 5
- Change control from SETCOM to VTM.
 - Set PWR switch (8) on CIB (7) to OFF to reset VTM (8).
 - Set PWR switch (8) to ON.
 - Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 9-1.

- 6
- Connect red test probe (9) to test point 96 on breakout box (5).
- NOTE**
- If VTM display shows 0 to 5, go immediately to block 7.
- Test for 0 to 5 ohms by connecting black test probe (10) to each test point on breakout box (5) listed below:
 - 7 through 38
 - 89 through 95
 - 97 through 111
- Does VTM display show between 0 and 5?



- 7
- Replace wiring harness assembly 1W200.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.



*Figure 9-119 (Sheet 2 of 3)
Volume II
Para. 9-3*

ARR82-5894

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

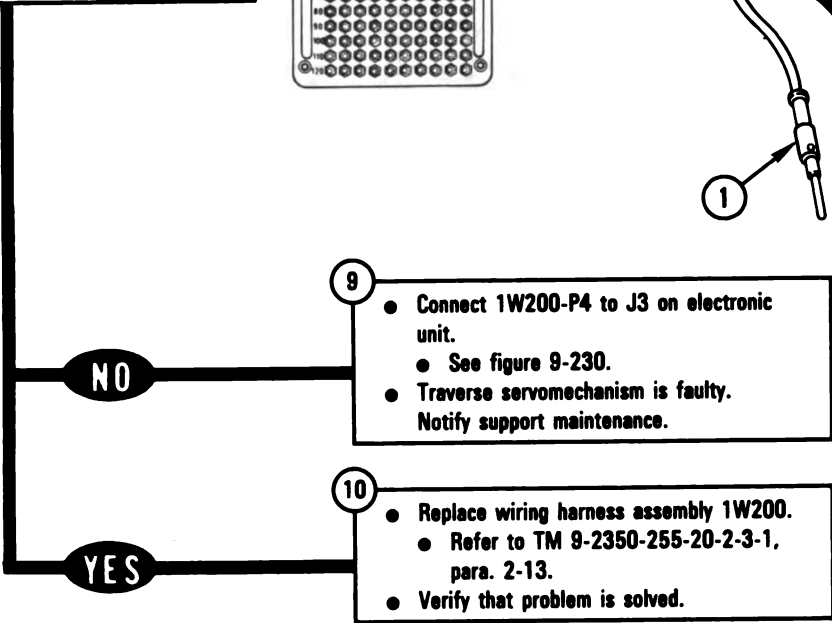
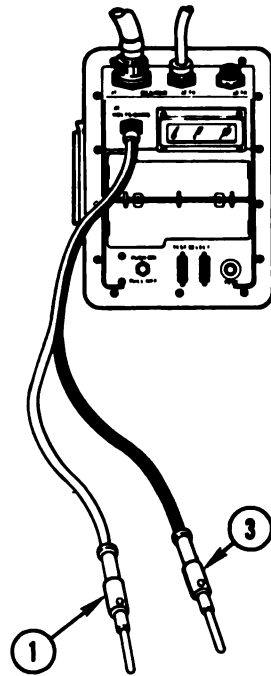
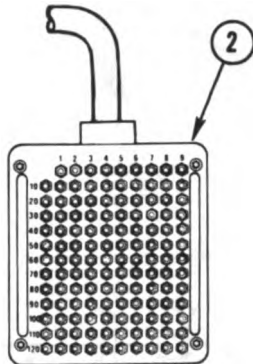
Connect red test probe (1) to test point 97 on breakout box (2).

NOTE
If VTM display shows 0 to 5, go immediately to block 10.

Test for 0 to 5 ohms by connecting black test probe (3) to each test point on breakout box (2) listed below:

- 7 through 38
- 89 through 96
- 98 through 111

Does VTM display show between 0 and 5?



9

- Connect 1W200-P4 to J3 on electronic unit.
- See figure 9-230.
- Traverse servomechanism is faulty. Notify support maintenance.

10

- Replace wiring harness assembly 1W200.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

Figure 9-119 (Sheet 3 of 3)
Volume II
Para. 9-3

ARR82-5895

9-281

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS -
FAULTY TRVSV OR
1W200** **147045**

Supplies:
Electrical Jumpers

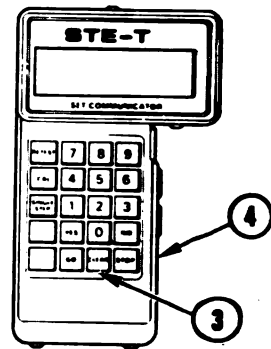
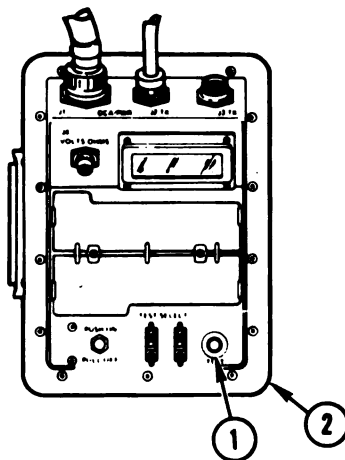
**Additional Test
Equipment/Special Tools:**
● Breakout Box Tool Kit, 12311086

Equipment Condition:
● Tank parked.
● Parking brake set.
● Engine shut down.
● Vehicle master power off.

1 ● Disconnect CA535-P2 from CX308-P1.
● See figure 9-19.
● Disconnect CA536-P2 from CX308-P2.
● See figure 9-19.
● Disconnect 1W200-P9 from J1 on
traverse servomechanism.
● See figure 9-234.

2 ● Change STE power hookup from turret
networks box to power distribution box.
● See figure 9-37.
● Prepare STE to run cable test 1390.
● Press TEST button (1) on VTM (2).
● Press CLEAR key (3) on SETCOM (4).
● Enter test number 1390 on SETCOM (4).
● Run test on 1W200 between P4 and P9.
● Refer to TM 9-2350-255-20-2-2-2,
figure 15-5.

Does SETCOM display show GOOD?



YES **NO**

3 ● Replace wiring harness assembly 1W200.
● Refer to TM 9-2350-255-20-2-3-1,
para. 2-13.
● Verify that problem is solved.

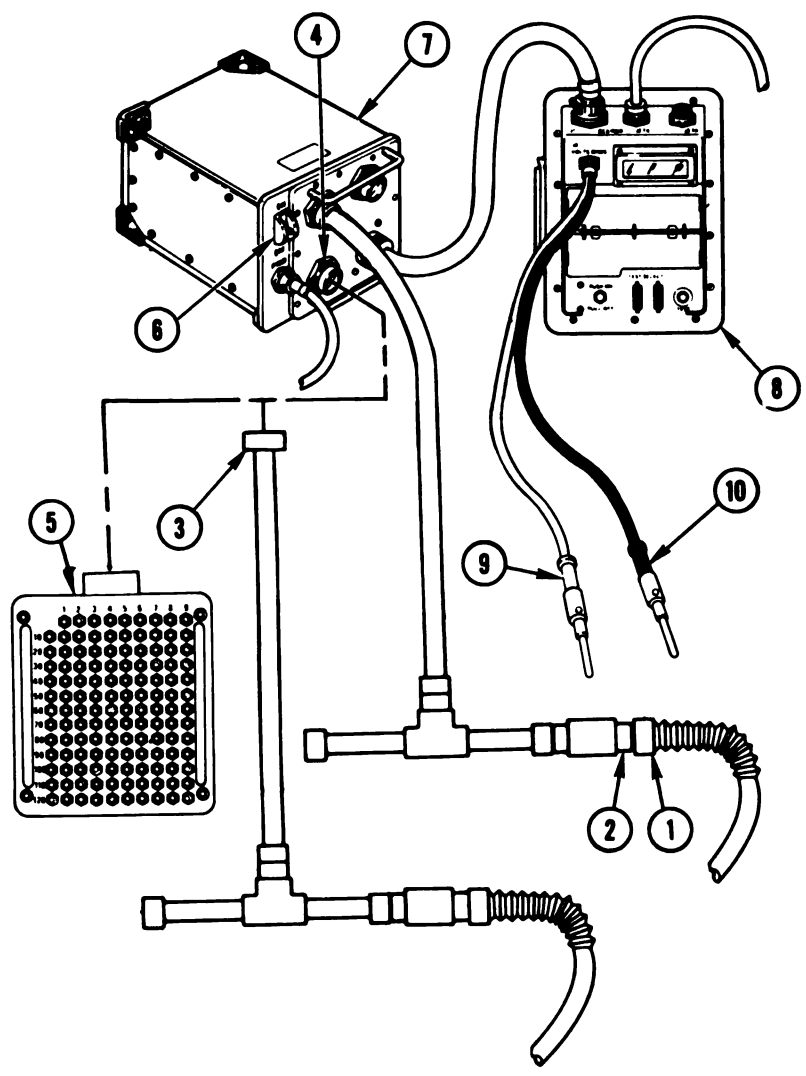
*Figure 9-120 (Sheet 1 of 4)
Volume II
Para. 9-3*

TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING

- Disconnect 1W200-P9 (1) from CA539-P1 (2).
- Disconnect CX305-P2 (3) from CIB-J1 (4).
- Connect CX305-P2 (3) to breakout box (5).

- Change control from SETCOM to VTM.
 - Set PWR switch (8) on CIB (7) to OFF to reset VTM (8).
 - Set PWR switch (8) to ON.
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 9-1.

- Connect red test probe (9) to test point 10 on breakout box.
- NOTE**
- If VTM display shows 0 to 5, go immediately to block 7.
- Test for 0 to 5 ohms by connecting black test probe (10) to each test point on breakout box (5) listed below:
 - 7 through 9
 - 11 through 38
 - 89 through 111



Does VTM display show between 0 and 5?

NO **YES**

- 7
- Replace wiring harness assembly 1W200.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

Figure 9-120 (Sheet 2 of 4)
Volume II
Para. 9-3

ARR82-5897

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

8

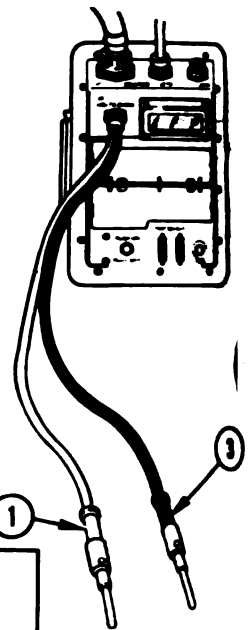
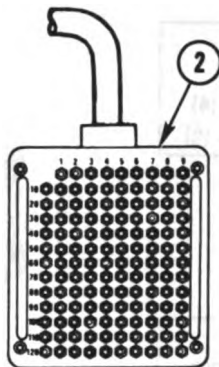
- Connect red test probe (1) to test point 29 on breakout box (2).

NOTE

If VTM display shows 0 to 5, go immediately to block 9.

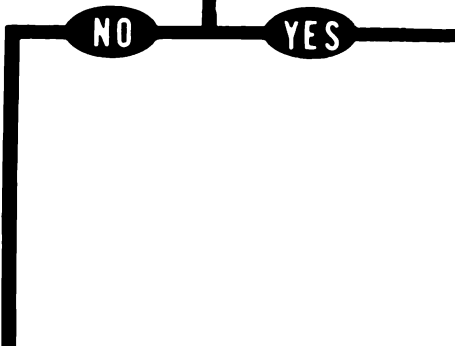
- Test for 0 to 5 ohms by connecting black test probe (3) to each test point on breakout box (2) listed below:
 - 7 through 28
 - 30 through 38
 - 89 through 111

Does VTM display show between 0 and 5?



9

- Replace wiring harness assembly 1W200.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.



10

- Disconnect 1W200-P8 from CA535-P1.
 - See figure 9-19.
- Connect jumper (4) between contacts J and N on 1W200-P8 (5).
- Connect jumper (6) between contacts B and C on 1W200-P9 (7).

NOTE

If VTM display shows 0 to 5, leave jumpers connected.

- Test for continuity between test points 10 and 95 on breakout box.
 - Connect black test probe (3) to test point 95 on breakout box (2).
 - Connect red test probe (1) to test point 10 on breakout box (2).

Does VTM display show less than 5?

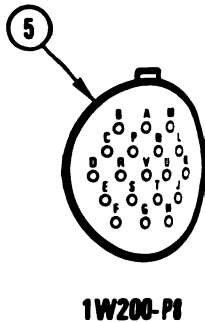
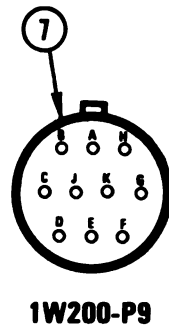
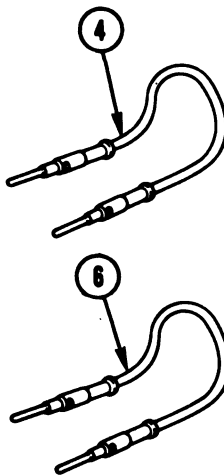


Figure 9-120 (Sheet 3 of 4)
Volume II
Para. 9-3

ARR82-5898

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

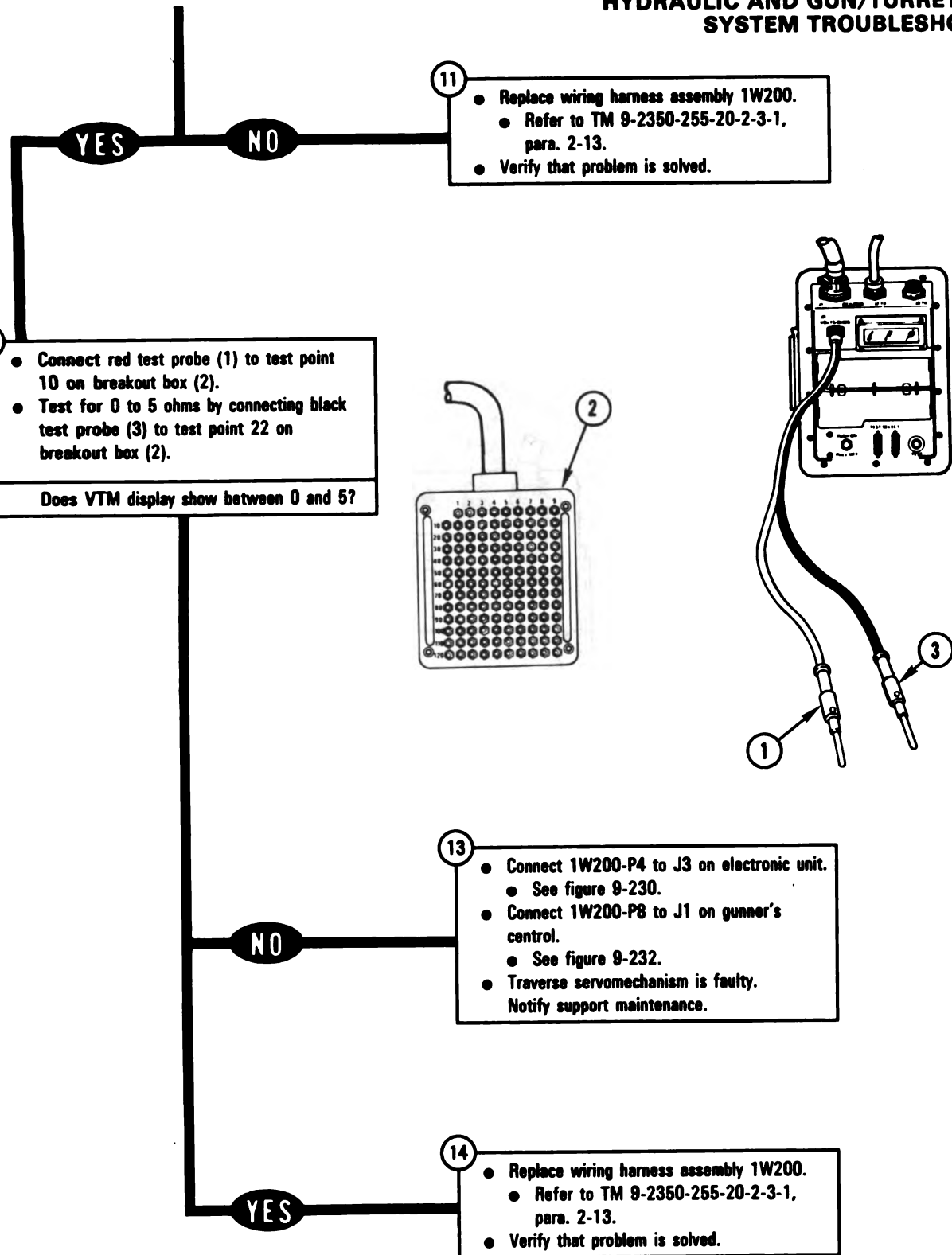


Figure 9-120 (Sheet 4 of 4)
Volume II
Para. 9-3

ARR82-5899

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS -
FAULTY GCH OR
1W200**

• 147009
147011

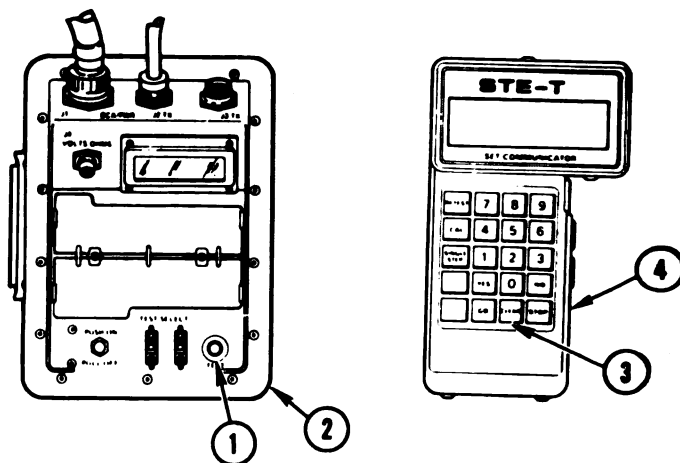
**Additional Test
Equipment/Special Tools:**

- Breakout Box Tool Kit, 12311066

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- 1
- Disconnect CX205-P1 from CIB-J1.
 - See figure 9-6.
 - Disconnect CA516-P2 from CX307-P2.
 - See figure 9-29.
 - Disconnect 1W200-P8 from J1 on gunner's control.
 - See figure 9-232.
 - Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.



- 2
- Prepare STE to run cable test 1390.
 - Press TEST button (1) on VTM (2).
 - Press CLEAR key (3) on SETCOM (4).
 - Enter test number 1390 on SETCOM (4).
 - Run test on 1W200 between P4 and P8.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.

Does SETCOM display show GOOD?

YES

NO

- 3
- Replace wiring harness assembly 1W200.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

*Figure 9-121 (Sheet 1 of 3)
Volume II
Para. 9-3*

ARR82-5900

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

- Disconnect 1W200-P4 (1) from CA515-P1 (2).
- Disconnect CX304-P2 (3) from CIB-J2 (4).
- Connect CX304-P2 (3) to breakout box (5).

- Change control from SETCOM to VTM.
 - Set PWR switch (6) on CIB (7) to OFF to reset VTM (8).
 - Set PWR switch (6) to ON.
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 9-1.

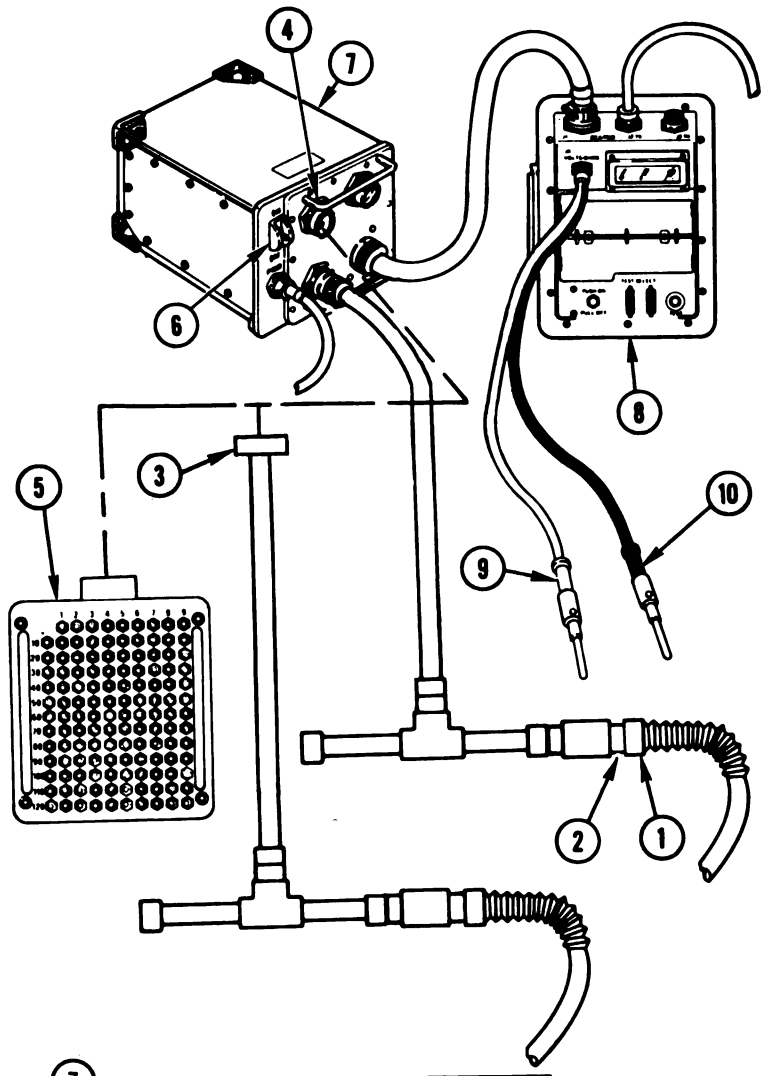
- Connect red test probe (9) to test point 15 on breakout box (5).

NOTE

If VTM display shows 0 to 5, go immediately to block 7.

- Test for 0 to 5 ohms by connecting black test probe (10) to each test point on breakout box (5).
 - 7 through 14
 - 18 through 28

Does VTM display show between 0 and 5?



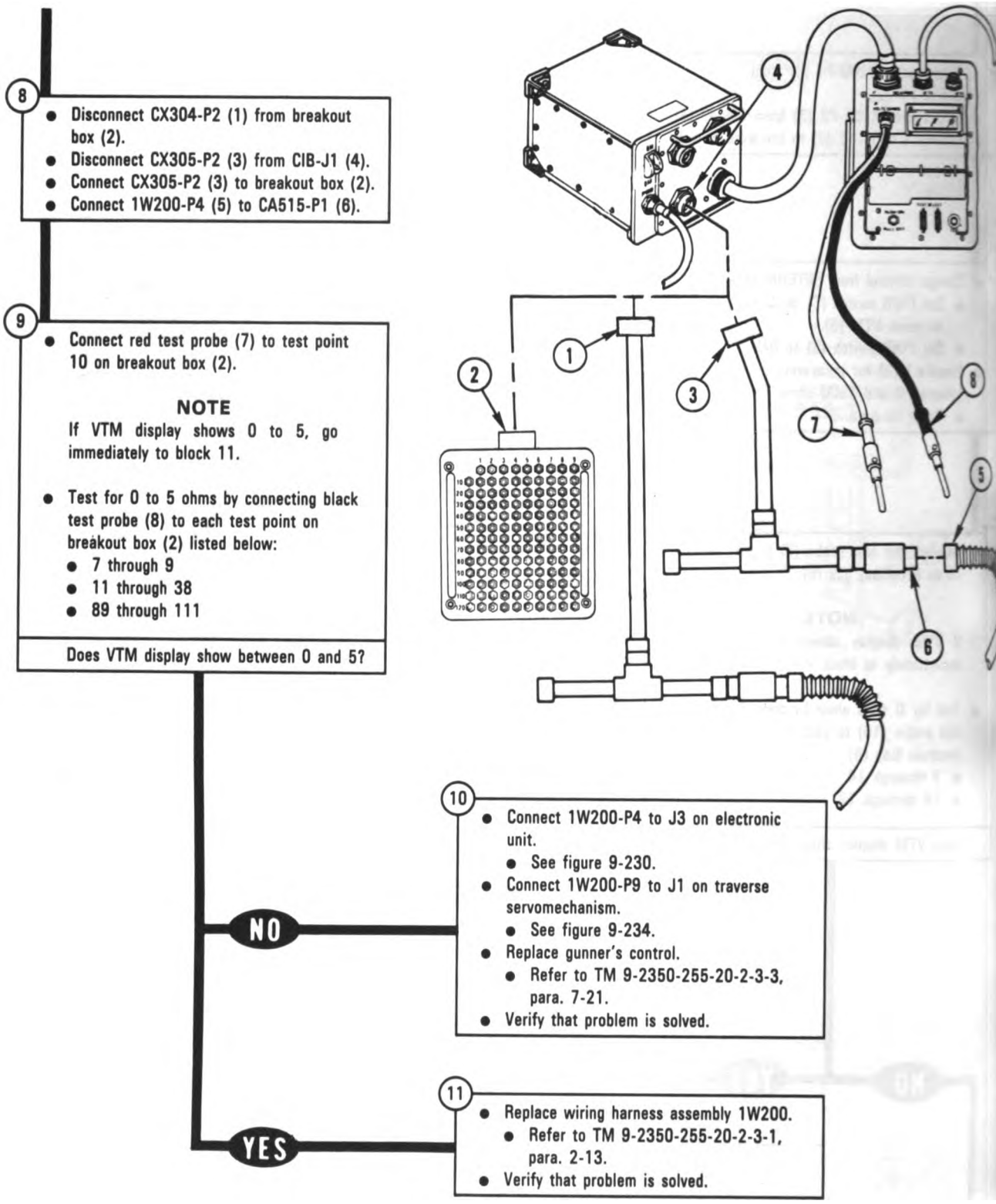
NO **YES**

- Replace wiring harness assembly 1W200.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

Figure 9-121 (Sheet 2 of 3)
**Volume II
Para. 9-3**

ARR82-5901

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**



**Figure 9-121 (Sheet 3 of 3)
Volume II
Para. 9-3**

ARR82-5902

**DISPLAY SHOWS -
FAULTY GCH OR
1W200**

147043

Additional Test

Equipment/Special Tools:

- Breakout Box Tool Kit, 12311088

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- Disconnect CA536-P2 from CX308-P2.
 - See figure 9-19.
- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.

2
Go to figure 9-121, block 2.

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS -
FAULTY TNB
OR 1W107**

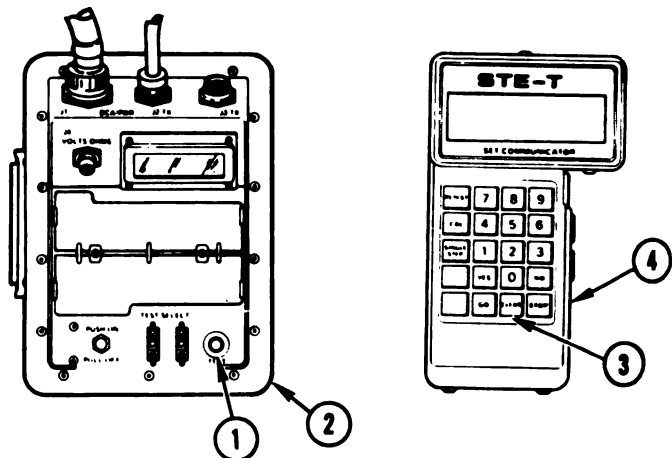
146056

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- 1
- Disconnect CX205-P2 from CIB-J2.
 - See figure 9-6.
 - Disconnect CA558-P2 from CX308-P2.
 - See figure 9-22.
 - Disconnect 1W107-P1 from J4 on turret networks box.
 - See figure 9-229.
 - Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.

- 2
- Prepare STE to run cable test 1390.
 - Press TEST button (1) on VTM (2).
 - Press CLEAR key (3) on SETCOM (4).
 - Enter test number 1390 on SETCOM (4).
 - Run test on 1W107 between J2 and P1.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.
- Does SETCOM display show GOOD?



- NO
- 3
- Connect 1W200-P3 to J2 on electronic unit.
 - See figure 9-230.
 - Connect 1W200-P4 to J3 on electronic unit.
 - See figure 9-230.
 - Replace branched wiring harness 1W107.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

- YES
- 4
- Connect 1W200-P3 on electronic unit.
 - See figure 9-230.
 - Connect 1W200-P4 to J3 on electronic unit.
 - See figure 9-230.
 - Connect zero degree elevation switch (1S242)-P1 to 1W107-J2.
 - See figure 9-237.
 - Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
 - Verify that problem is solved.

**Figure 9-123
Volume II
Para. 9-3**

ARR82-8779

DISPLAY SHOWS -
FAULTY TNB OR
1W200

• 146117
146118

Additional Test

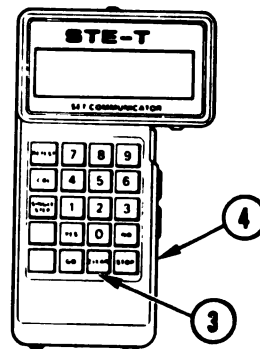
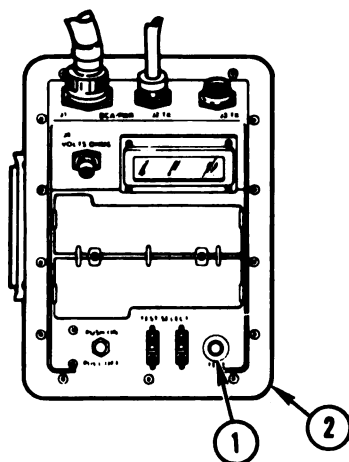
Equipment/Special Tools:

- Breakout Box Tool Kit, 12311088

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- Connect 1W203-P1 to J3 on turret networks box.
 - See figure 9-229.
- Disconnect CA527-P2 from CX307-P1.
 - See figure 9-7.
- Disconnect CA516-P2 from CX307-P2.
 - See figure 9-29 .
- Disconnect 1W200-P1 from J5 on turret networks box.
 - See figure 9-229.



- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.
- Prepare STE to run cable test 1390.
 - Press TEST button (1) on VTM (2).
 - Press CLEAR key (3) on SETCOM (4).
 - Enter test number 1390 on SETCOM (4).
- Run test on 1W200 between P1 and P4.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.

Does SETCOM display show GOOD?

Figure 9-124 (Sheet 1 of 4)
Volume II
Para. 9-3

ARR82-5903

9-291

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

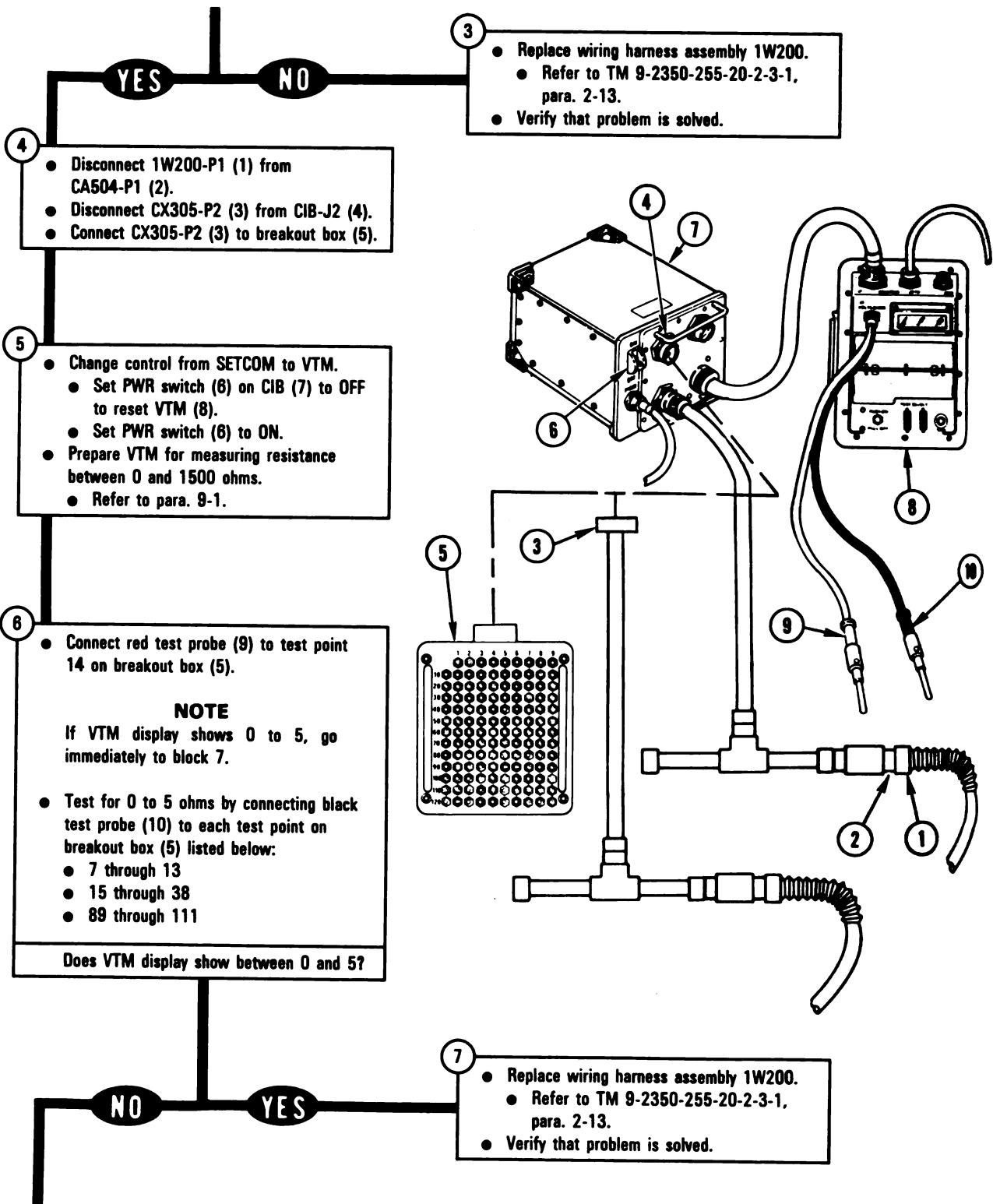


Figure 9-124 (Sheet 2 of 4)
Volume II
Para. 9-3

ARR82-5904

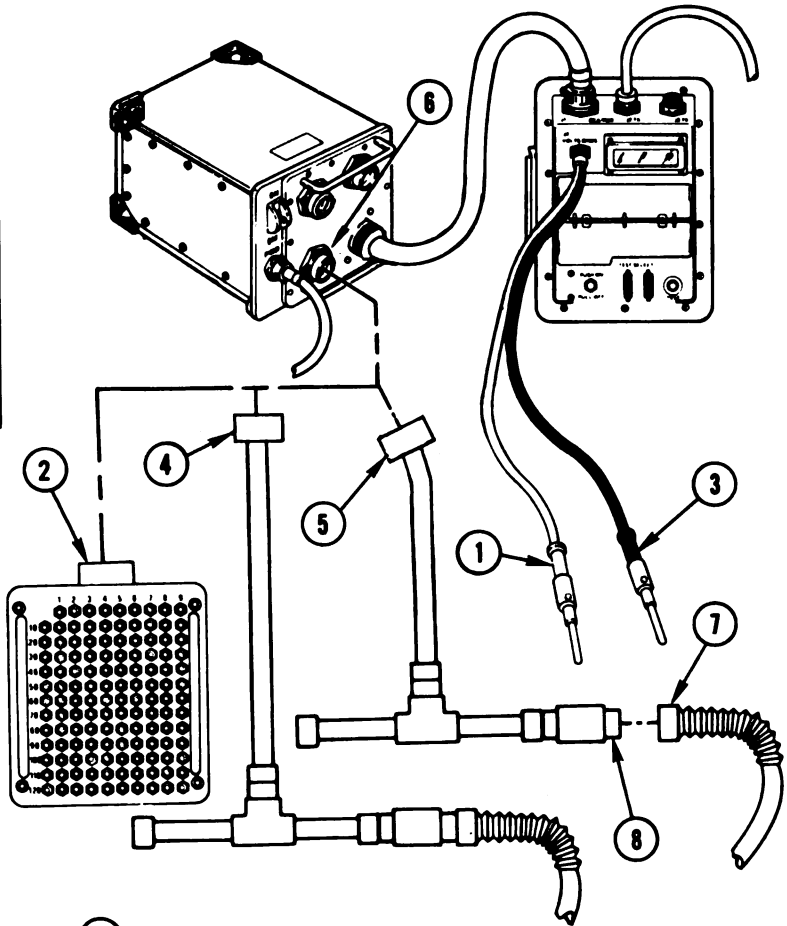
- Connect red test probe (1) to test point 15 on breakout box (2).

NOTE

If VTM display shows 0 to 5, go immediately to block 9.

- Test for 0 to 5 ohms by connecting black test probe (3) to each test point on breakout box (2) listed below:
 - 7 through 14
 - 16 through 38
 - 89 through 111

Does VTM display show between 0 and 5?



NO

YES

- 9
- Replace wiring harness assembly 1W200.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

- 10
- Disconnect CX305-P2 (4) from breakout box (2).
 - Disconnect CX304-P2 (5) from CIB-J1 (6).
 - Connect CX304-P2 (5) to breakout box (2).
 - Connect 1W200-P1 (7) to CA504-P1 (8).

Figure 9-124 (Sheet 3 of 4)
Volume II
Para. 9-3

ARR82-5905

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

11

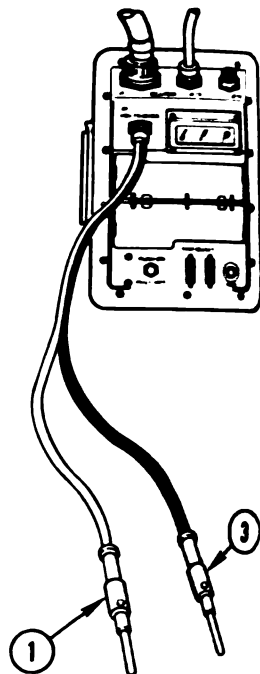
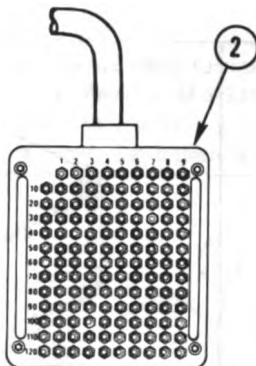
- Connect red test probe (1) to test point 22 on breakout box (2).

NOTE

If VTM display shows 0 to 5, go immediately to block 12.

- Test for 0 to 5 ohms by connecting black test probe (3) to each test point on breakout box (2) listed below:
 - 7 through 21
 - 23 through 38
 - 89 through 111

Does VTM display show between 0 and 5?



NO

YES

13

- Connect red test probe (1) to test point 23 on breakout box (2).

NOTE

If VTM display shows 0 to 5, go immediately to block 15.

- Test for 0 to 5 ohms by connecting black test probe (3) to each test point on breakout box (2) listed below:
 - 7 through 22
 - 24 through 38
 - 89 through 111

Does VTM display show between 0 and 5?

12

- Replace wiring harness assembly 1W200.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

14

- Connect 1W200-P4 to J3 on electronic unit.
- See figure 9-230.
- Replace turret networks box.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
- Verify that problem is solved.

15

- Replace wiring harness assembly 1W200.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

*Figure 9-124 (Sheet 4 of 4)
Volume II
Para. 9-3*

ARR82-5906

DISPLAY SHOWS -
FAULTY GPS OR
1W203

• 146114
146115

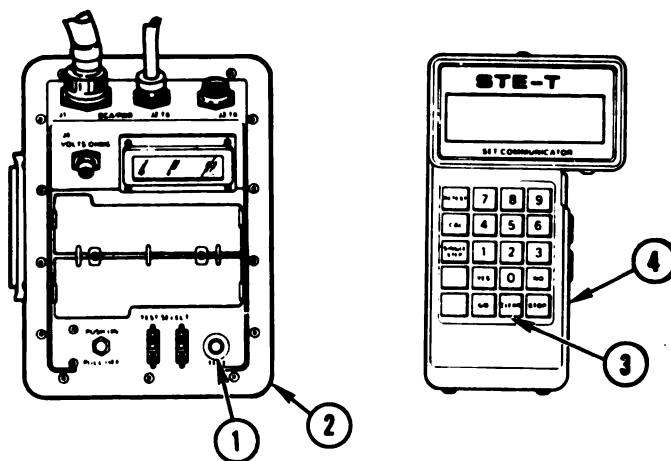
**Additional Test
Equipment/Special Tools:**

- Breakout Box Tool Kit, 12311088

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- Disconnect CX205-P2 from CIB-J2.
 - See figure 9-8.
- Disconnect CA527-P2 from CX307-P1.
 - See figure 9-7.
- Disconnect 1W203-P2 from J1 on gunner's primary sight.
 - See figure 9-240.
- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.



- Prepare STE to run cable test 1390.
 - Press TEST button (1) on VTM (2).
 - Press CLEAR key (3) on SETCOM (4).
 - Enter test number 1390 on SETCOM (4).
- Run test on 1W203 between P1 and P2.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.

Does SETCOM display show GOOD?

YES

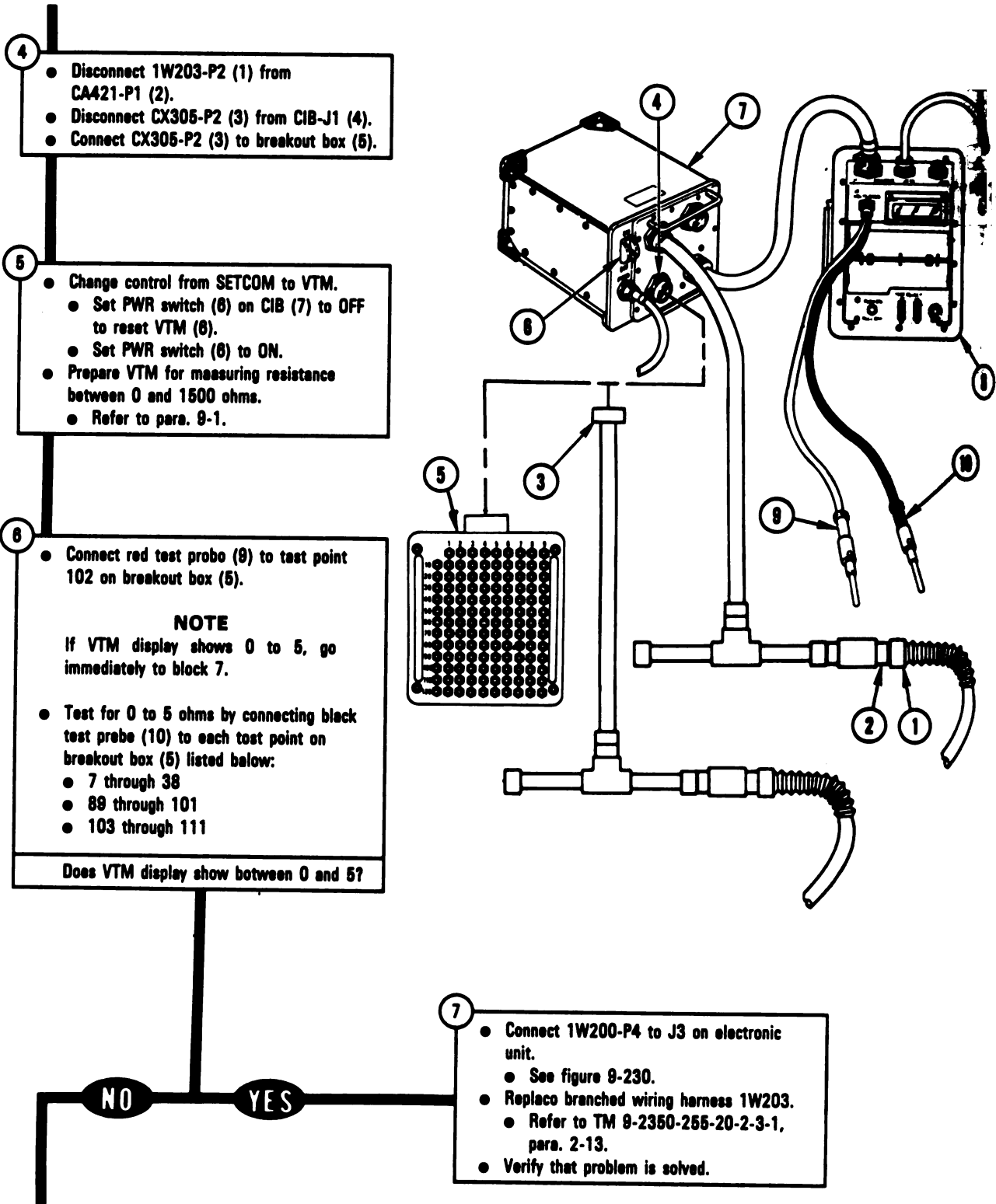
NO

- 3
- Connect 1W200-P4 to J3 on electronic unit.
 - See figure 9-230.
 - Replace branched wiring harness 1W203.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

Figure 9-125 (Sheet 1 of 5)
Volume II
Para. 9-3

ARR82-5907

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**



*Figure 9-125 (Sheet 2 of 5)
Volume II
Para. 9-3*

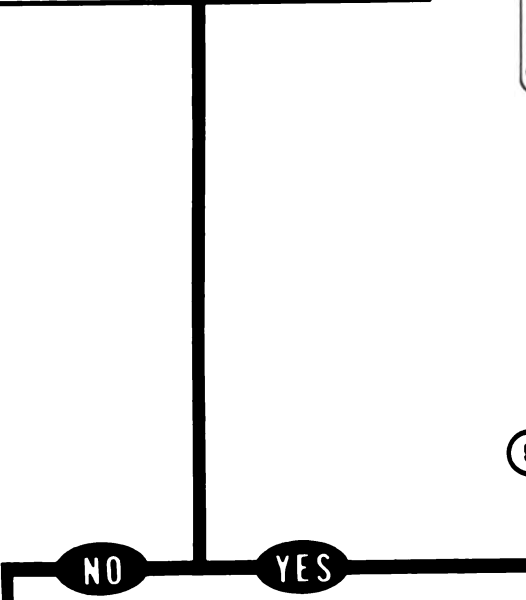
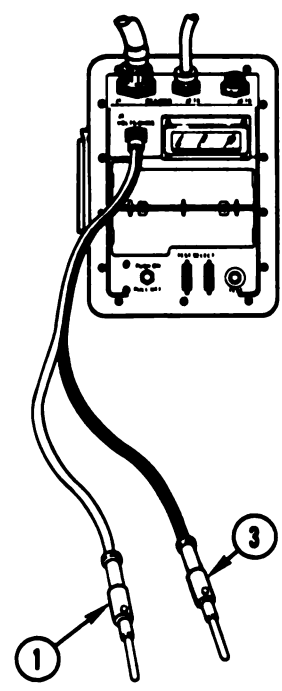
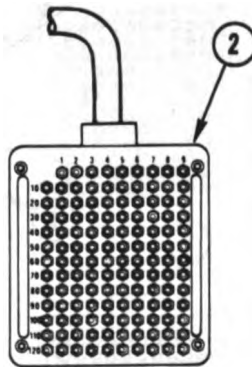
ARR82-5908

- Connect red test probe (1) to test point 38 on breakout box (2).

NOTE
If VTM display shows 0 to 5, go immediately to block 9.

- Test for 0 to 5 ohms by connecting block test probe (3) to each test point on breakout box (2) listed below:
 - 7 through 37
 - 89 through 111

Does VTM display show between 0 and 5?



9

- Connect 1W200-P4 to J3 on electronic unit.
 - See figura 9-230.
- Replace branched wiring harness 1W203.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

*Figure 9-125 (Sheet 3 of 5)
Volume II
Para. 9-3*

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

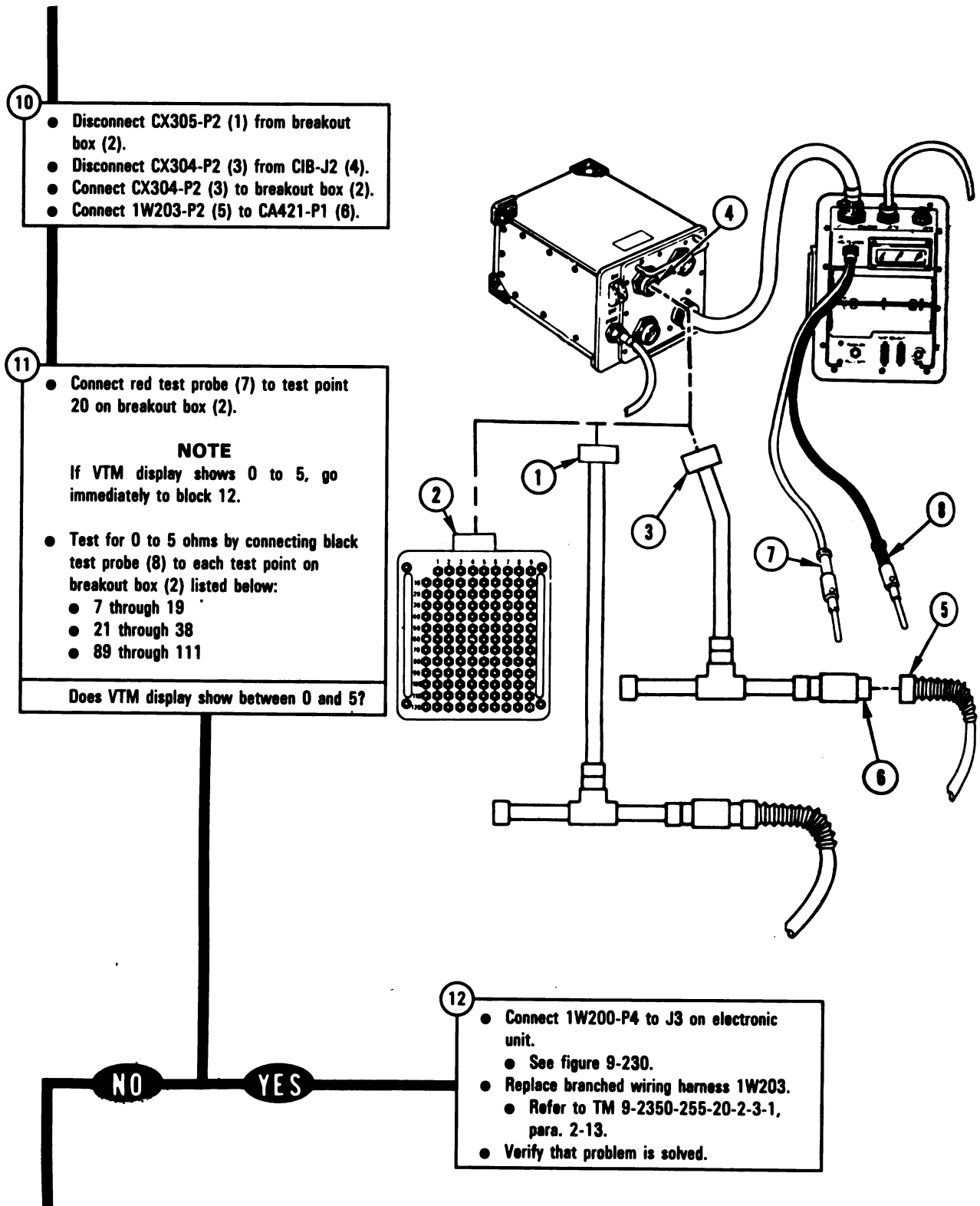


Figure 9-125 (Sheet 4 of 5)
**Volume II
Para. 9-3**

ARR82-5910

- Connect red test probe (1) to test point 19 on breakout box (2).

NOTE
If VTM display shows 0 to 5, go immediately to block 15.

- Test for 0 to 5 ohms by connecting black test probe (3) to each test point on breakout box (2) listed below:
 - 7 through 18
 - 20 through 38
 - 89 through 111

Does VTM display show between 0 and 5?

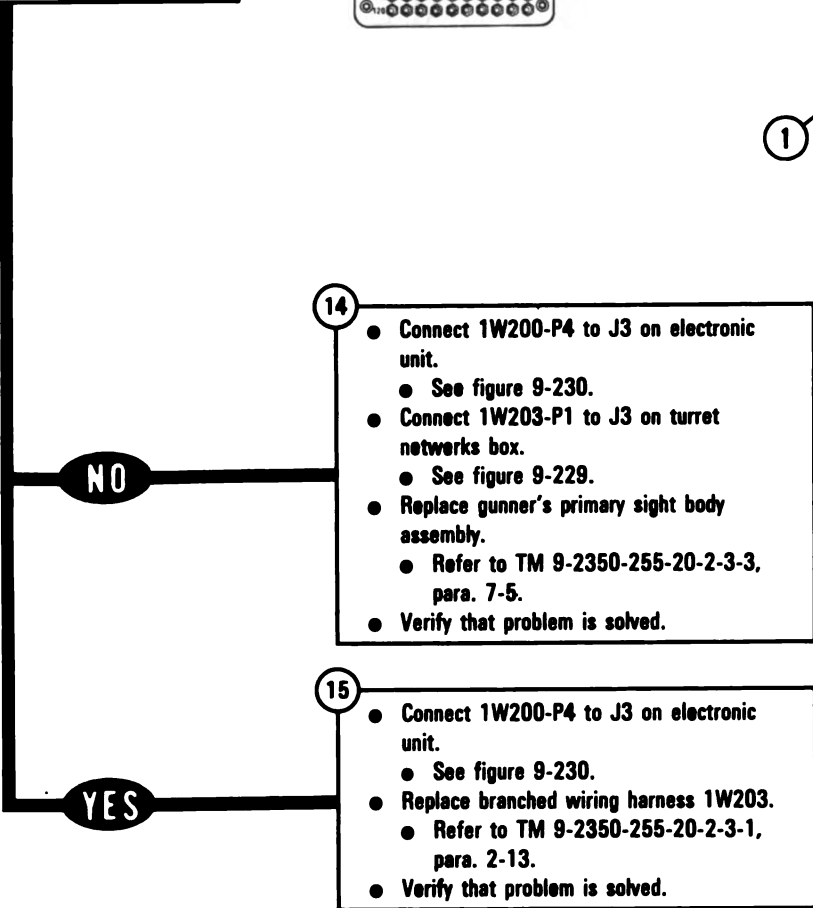
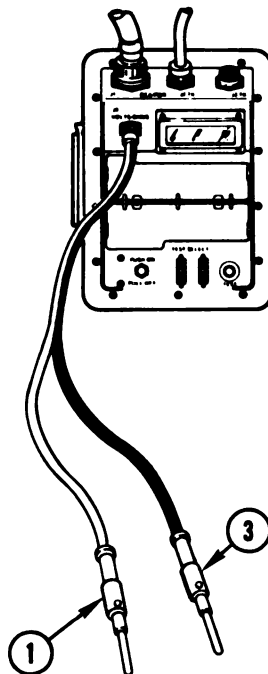
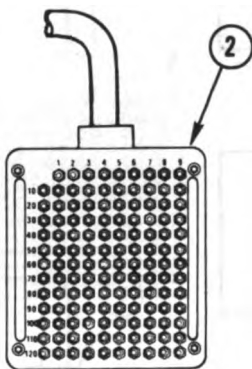


Figure 9-125 (Sheet 5 of 5)
Volume II
Para. 9-3

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS -
FAULTY GPS OR
1W206** **141534**

**Additional Test
Equipment/Special Tools:**

- Breakout Box Tool Kit, 12311066

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

1

- Connect CX304-P2 (1) to breakout box (2).
- Connect CX304-P1 (3) to CX307-P3 (4).
- Disconnect 1W206-P2 from J2 on gunner's primary sight.
 - See figure 9-240.
- Connect 1W206-P1 (5) to CA520-P1 (6).
- Connect CA520-P2 (7) to CX307-P1 (8).

2

- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 9-1.

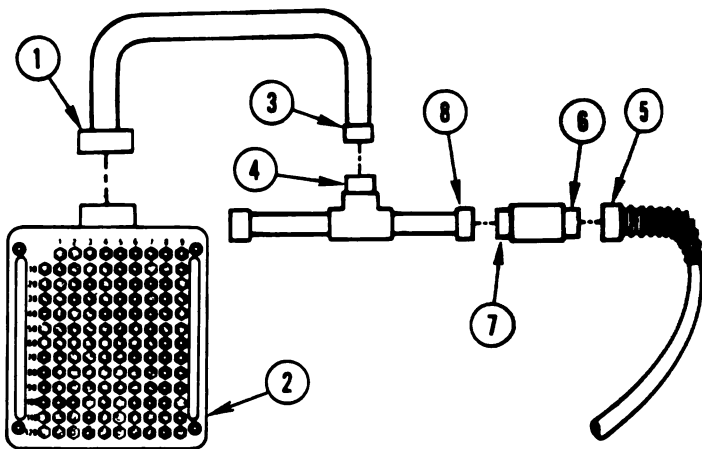


Figure 9-126 (Sheet 1 of 2)
**Volume II
Para. 9-3**

ARR82-5912

TM 9-2350-255-20-2-2-1 HYDRAULIC AND GUN/TURRET DRIVE SYSTEM TROUBLESHOOTING

● Connect red test probe (1) to test point 28 on breakout box (2).

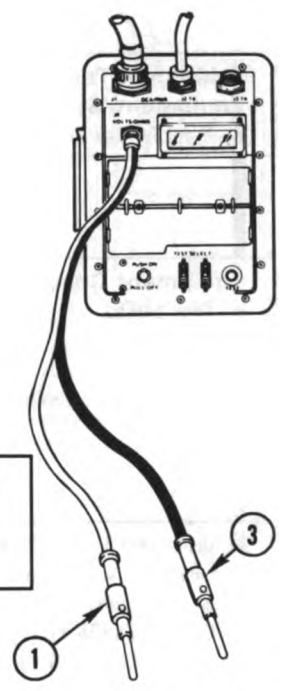
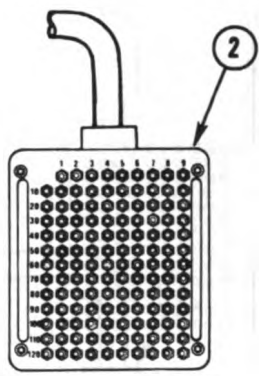
NOTE

If VTM display shows 0 to 5, go immediately to block 4.

● Test for 0 to 5 ohms by connecting black test probe (3) to each test point on breakout box (2) listed below:

- 7 through 27
- 29 through 38
- 89 through 111

Does VTM display show between 0 and 5?



4

- Replace branched wiring harness 1W206.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

● Connect red test probe (1) to test point 29 on breakout box (2).

NOTE

If VTM display shows 0 to 5, go immediately to block 7.

● Test for 0 to 5 ohms by connecting black test probe (3) to each test point on breakout box (2) listed below:

- 7 through 27
- 30 through 38
- 89 through 111

Does VTM display show between 0 and 5?

6

- Connect 1W206-P1 to J2 on line-of-sight electronics unit.
- See figure 9-238.
- Replace gunner's primary sight body assembly.
- Refer to TM 9-2350-255-20-2-3-3, para. 7-5.
- Verify that problem is solved.

7

- Replace branched wiring harness 1W206.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

Figure 9-126 (Sheet 2 of 2)
Volume II
Para. 9-3

ARR82-5913

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS -
FAULTY GPS OR
1W104**

140235

Additional Test

Equipment/Special Tools:

- Breakout Box Tool Kit, 12311066

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

1

- Disconnect 1W104-P2 from J3 on gunner's primary sight.
 - See figure 9-240.
- Connect CX305-P2 (1) to breakout box (2).
- Connect CX305-P1 (3) to CX307-P3 (4).
- Connect 1W104-P1 (5) to CA518-P1 (6).
- Connect CA518-P2 (7) to CX307-P1 (8).

2

- Connect 1W206-P1 to J2 on line-of-sight electronics unit.
 - See figure 9-238.
- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 9-1.

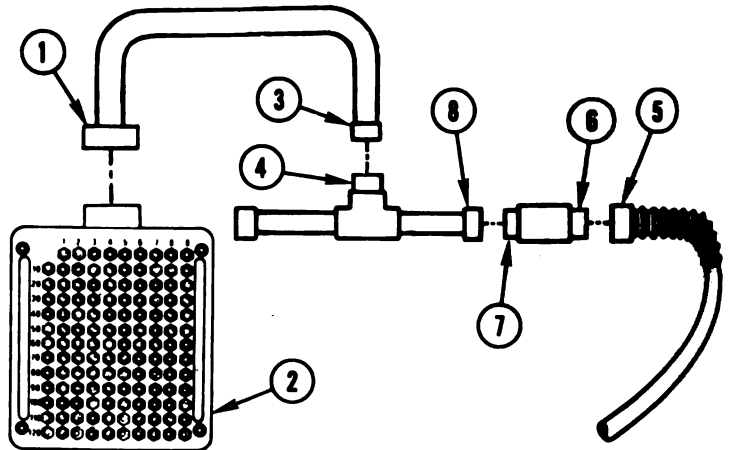


Figure 9-127 (Sheet 1 of 2)
**Volume II
Para. 9-3**

ARR82-5914

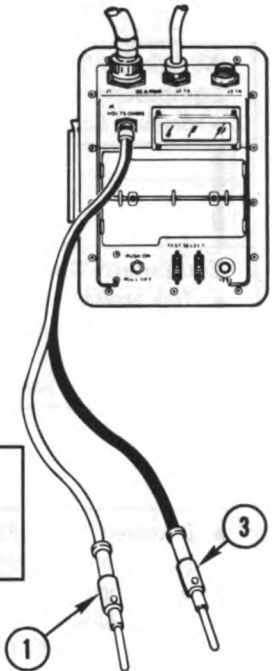
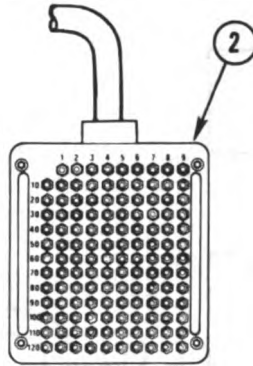
**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

- Connect red test probe (1) to test point 90 on breakout box (2).

NOTE
If VTM display shows 0 to 5, go immediately to block 4.

- Test for 0 to 5 ohms by connecting black test probe (3) to each test point on breakout box (2) listed below:
 - 17, 89, and 91

Does VTM display show between 0 and 5?



NO **YES**

4

- Replace branched wiring harness 1W104.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

- Connect red test probe (1) to test point 91 on breakout box (2).

NOTE
If VTM display shows 0 to 5, go immediately to block 7.

- Test for 0 to 5 ohms by connecting black test probe (3) to each test point on breakout box (2) listed below:
 - 17 and 89

Does VTM display show between 0 and 5?

NO

6

- Connect 1W104-P1 to J9 on turret networks box.
- See figure 9-229.
- Replace lower panel assembly.
- Refer to TM 9-2350-255-20-2-3-3, para. 7-5.
- Verify that problem is solved.

YES

7

- Replace branched wiring harness 1W104.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

**Figure 9-127 (Sheet 2 of 2)
Volume II
Para. 9-3**

ARR82-5915

9-303

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS -
FAULTY GPS OR
1W206**

140248

Additional Test

Equipment/Special Tools:

- Breakout Box Tool Kit, 12311066

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

1

- Disconnect 1W206-P2 from J2 on gunner's primary sight.
 - See figure 9-240.
- Connect CX304-P2 (1) to breakout box (2).
- Connect CX304-P1 (3) to CX307-P3 (4).
- Connect 1W206-P1 (5) to CA520-P1 (6).
- Connect CA520-P2 (7) to CX307-P1 (8).

2

- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 9-1.

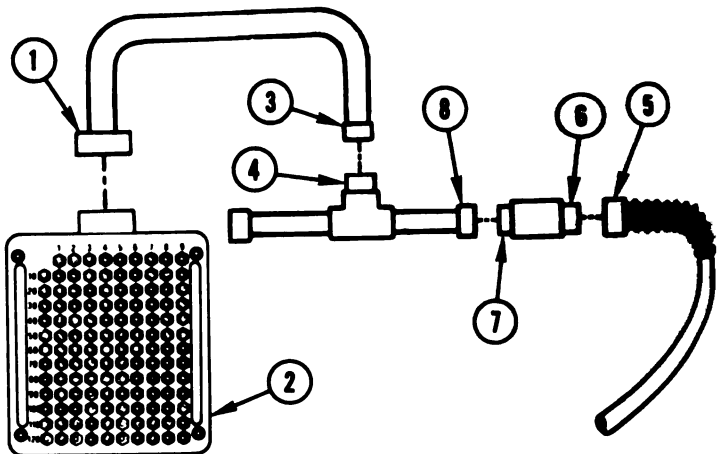


Figure 9-128 (Sheet 1 of 3)
**Volume II
Para. 9-3**

ARR82-5918

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

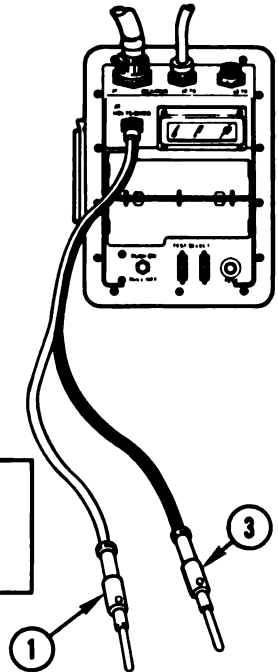
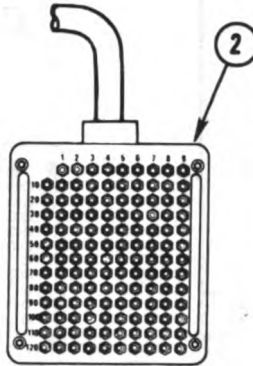
● Connect red test probe (1) to test point 94 on breakout box (2).

NOTE
If VTM display shows 0 to 5, go immediately to block 4.

● Test for 0 to 5 ohms by connecting black test probe (3) to each test point on breakout box (2) listed below:

- 33, 93, and 95
- 96, 97, and 98

Does VTM display show between 0 and 5?



NO

YES

4

- Replace branched wiring harness 1W206.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

● Connect red test probe (1) to test point 97 on breakout box (2).

NOTE
If VTM display shows 0 to 5, go immediately to block 6.

● Test for 0 to 5 ohms by connecting black test probe (3) to each test point on breakout box (2) listed below:

- 33, 93, and 95
- 96 and 98

Does VTM display show between 0 and 5?

NO

YES

6

- Replace branched wiring harness 1W206.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

Figure 9-128 (Sheet 2 of 3)
Volume II
Para. 9-3

ARR82-5917

9-305

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

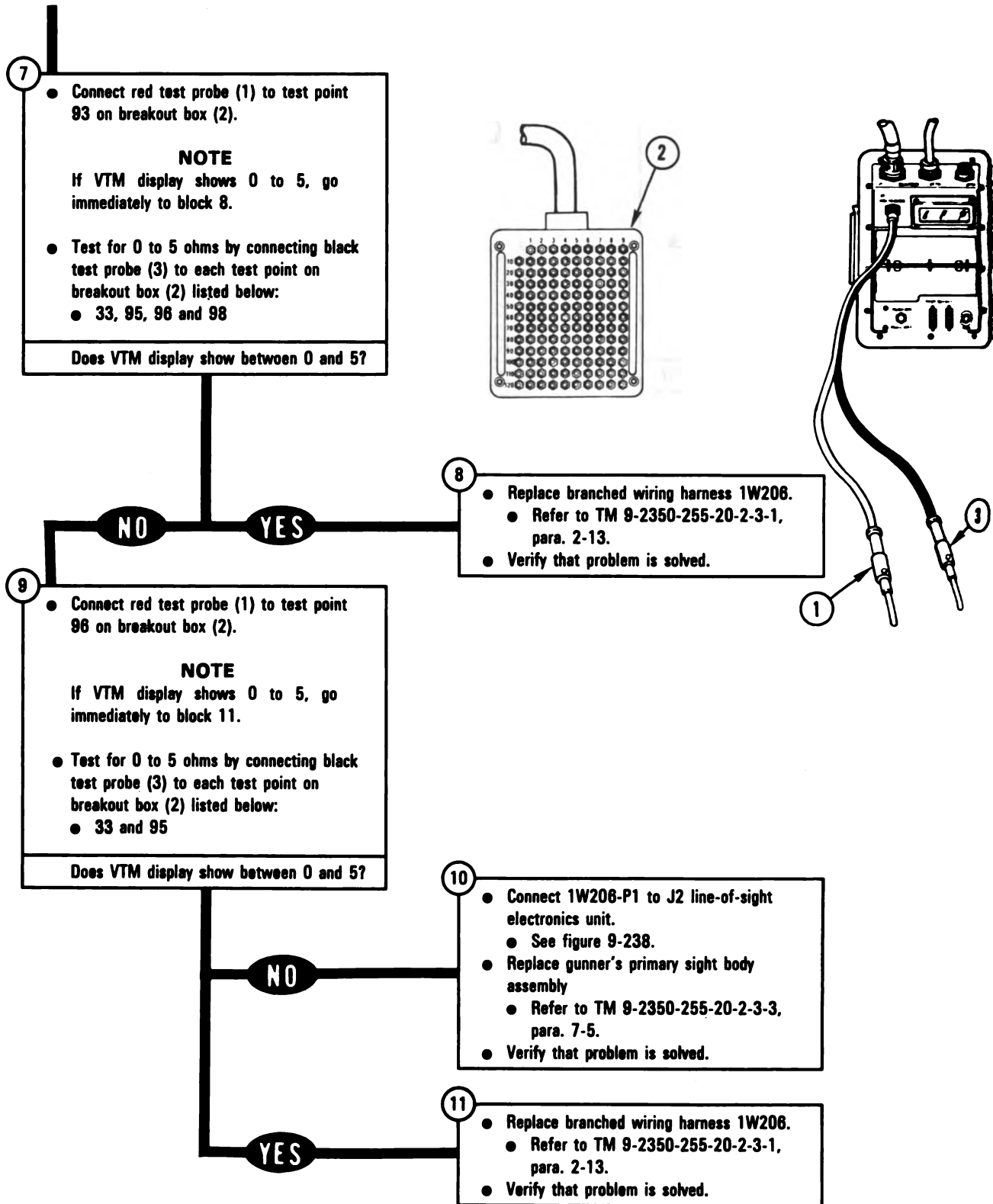


Figure 9-128 (Sheet 3 of 3)
Volume II
Para. 9-3

ARR82-5918

DISPLAY SHOWS -
FAULTY GCH OR
1W200

141016

Additional Test

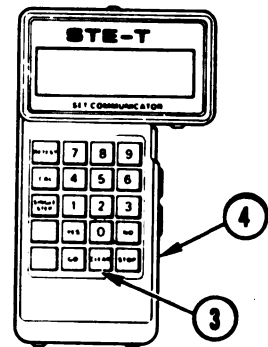
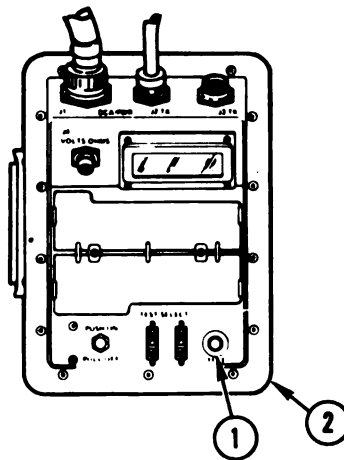
Equipment/Special Tools:

- Breakout Box Tool Kit, 12311066

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- Disconnect CX205-P2 from CIB-J2.
 - See figure 9-6.
- Disconnect CX205-P1 from CIB-J1.
 - See figure 9-6.
- Disconnect 1W200-P8 from J1 on gunner's control.
 - See figure 9-232.
- Disconnect 1W200-P4 from J3 on electronic unit.
 - See figure 9-230.
- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.



- Prepare STE to run cable test 1390.
 - Press TEST button (1) on VTM (2).
 - Press CLEAR key (3) on SETCOM (4).
 - Enter test number 1390 on SETCOM (4).
- Run test on 1W200 between P4 and P8.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.

Does SETCOM display show GOOD?

YES

NO

3

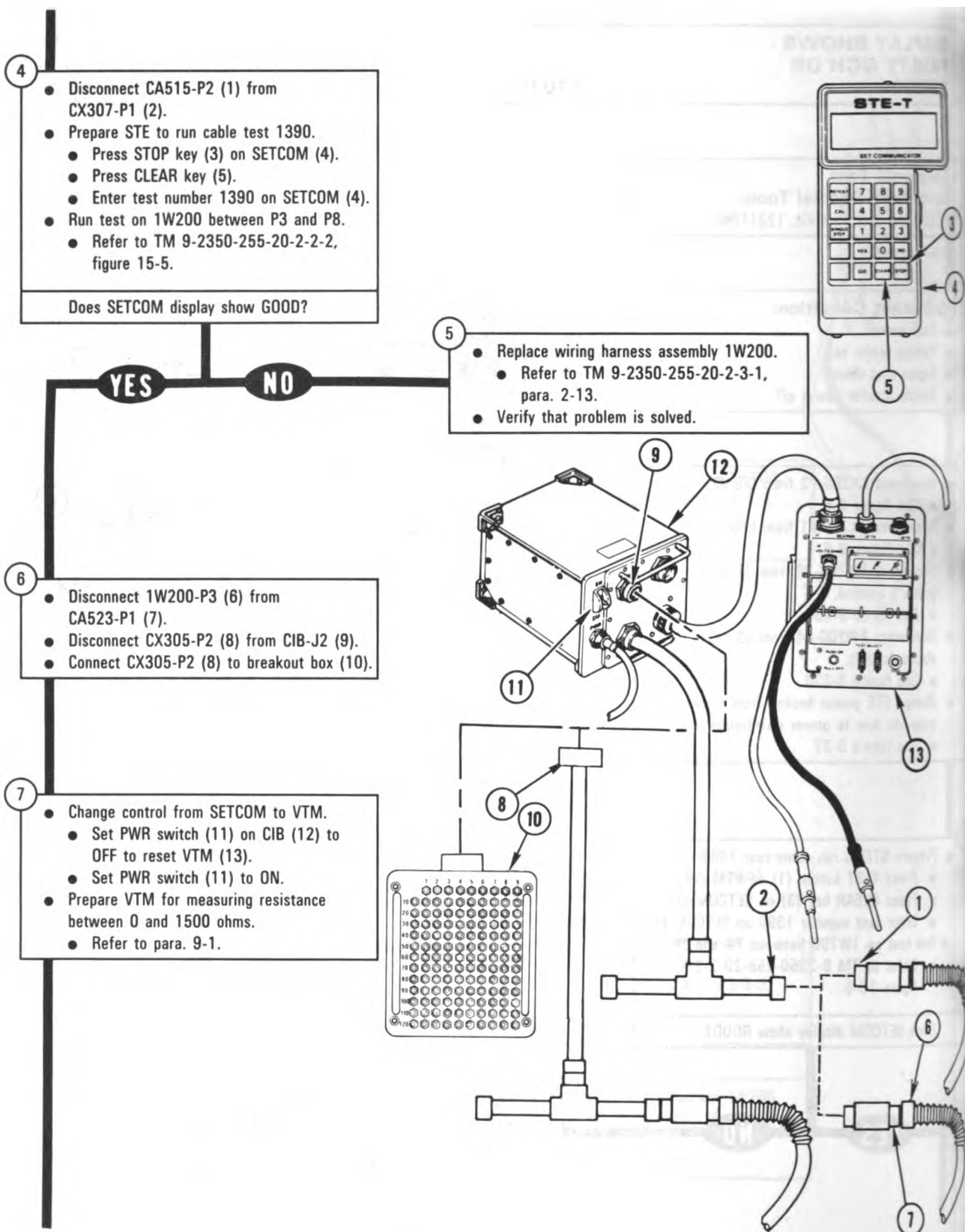
- Replace wiring harness assembly 1W200.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

Figure 9-129 (Sheet 1 of 3)
Volume II
Para. 9-3

ARR82-5919

9-307

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**



**Figure 9-129 (Sheet 2 of 3)
Volume II
Para. 9-3**

ARR82-5970

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

- Connect red test probe (1) to test point 11 on breakout box (2).

NOTE

If VTM display shows 0 to 5, go immediately to block 9.

- Test for 0 to 5 ohms by connecting black test probe (3) to each test point on breakout box (2) listed below:
 - 7 through 9
 - 10, 12, and 15
 - 18, 19, and 24

Does VTM display show between 0 and 5?

NO

YES

9

- Replace wiring harness assembly 1W200.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

- Connect red test probe (1) to test point 10 on breakout box (2).

NOTE

If VTM display shows 0 to 5, go immediately to block 12.

- Test for 0 to 5 ohms by connecting black test probe (3) to each test point on breakout box (2) listed below:
 - 7 through 9
 - 12, 15, and 18
 - 19 and 24

Does VTM display show between 0 and 5?

NO

YES

11

- Connect 1W200-P3 to J2 on electronic unit.
 - See figure 9-230.
- Connect 1W200-P4 to J3 on electronic unit.
 - See figure 9-230.
- Replace gunner's control grip assembly.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-21.
- Verify that problem is solved.

12

- Replace wiring harness assembly 1W200.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

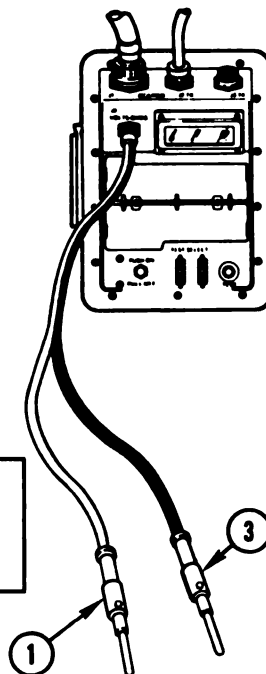
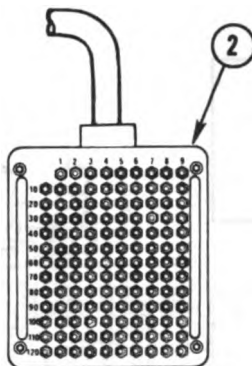
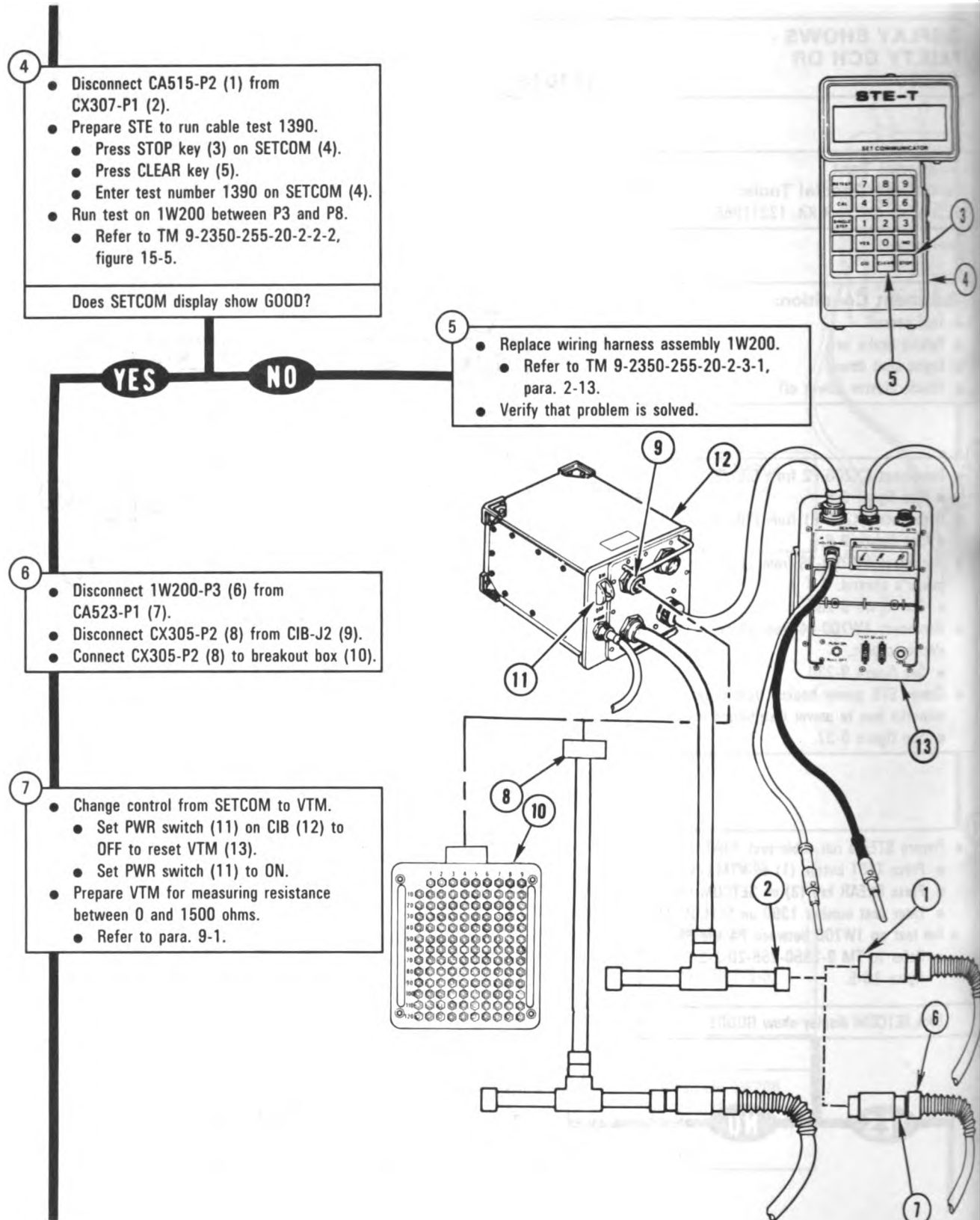


Figure 9-129 (Sheet 3 of 3)
**Volume II
Para. 9-3**

ARR82-5921

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**



**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

- Connect red test probe (1) to test point 11 on breakout box (2).

NOTE

If VTM display shows 0 to 5, go immediately to block 9.

- Test for 0 to 5 ohms by connecting black test probe (3) to each test point on breakout box (2) listed below:

- 7 through 9
- 10, 12, and 15
- 18, 19, and 24

Does VTM display show between 0 and 5?

NO

YES

9

- Replace wiring harness assembly 1W200.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

- Connect red test probe (1) to test point 10 on breakout box (2).

NOTE

If VTM display shows 0 to 5, go immediately to block 12.

- Test for 0 to 5 ohms by connecting black test-probe (3) to each test point on breakout box (2) listed below:

- 7 through 9
- 12, 15, and 18
- 19 and 24

Does VTM display show between 0 and 5?

NO

YES

11

- Connect 1W200-P3 to J2 on electronic unit.
- See figure 9-230.
- Connect 1W200-P4 to J3 on electronic unit.
- See figure 9-230.
- Replace gunner's control grip assembly.
- Refer to TM 9-2350-255-20-2-3-3, para. 7-21.
- Verify that problem is solved.

12

- Replace wiring harness assembly 1W200.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

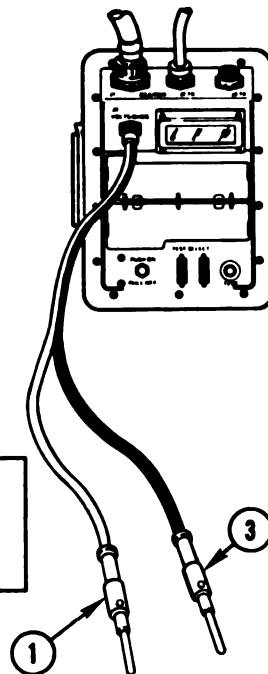
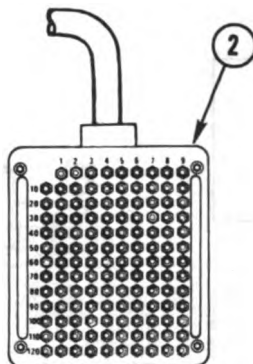


Figure 9-129 (Sheet 3 of 3)
Volume II
Para. 9-3

ARR82-5921

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

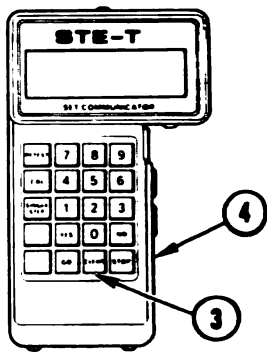
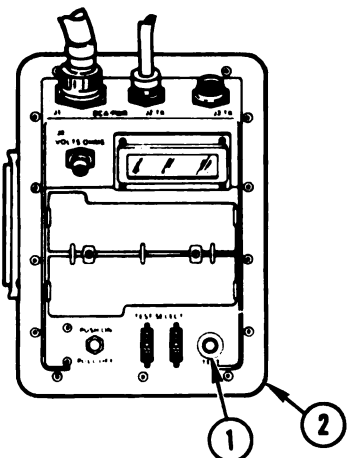
**DISPLAY SHOWS -
FAULTY TNB OR
1W200** **140570**

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

1

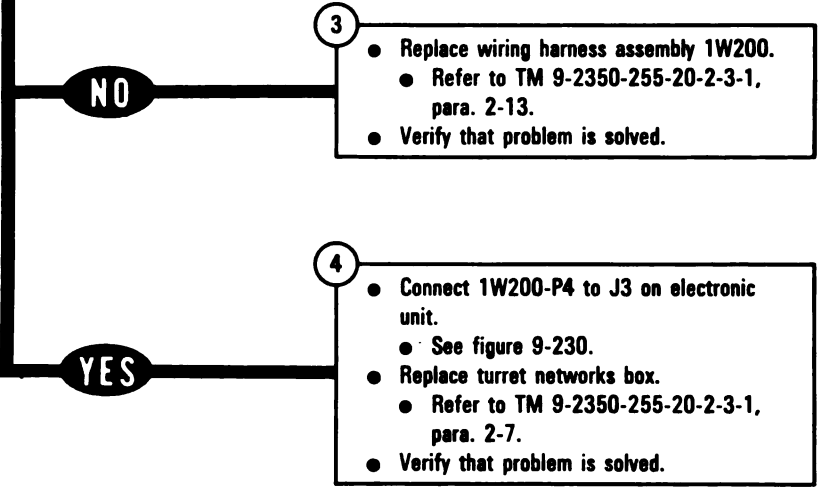
- Disconnect CA516-P2 from CX307-P2.
 - See figure 9-29.
- Disconnect 1W200-P1 from J5 on turret networks box.
 - See figure 9-229.
- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.



2

- Prepare STE to run cable test 1390.
 - Press TEST button (1) on VTM (2).
 - Press CLEAR key (3) on SETCOM (4).
 - Enter test number 1390 on SETCOM (4).
- Run test on 1W200 between P1 and P4.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.

Does SETCOM display show GOOD?



**Figure 9-130
Volume II
Para. 9-3**

ARR82-5 2

**DISPLAY SHOWS -
FAULTY GCH OR
1W200**

141051

Additional Test

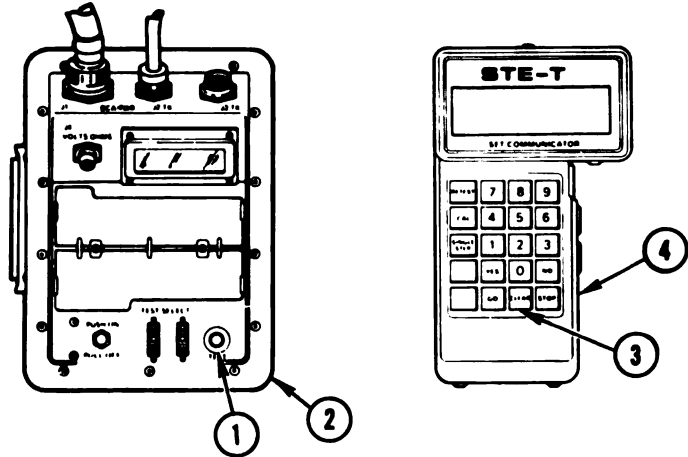
Equipment/Special Tools:

- Breakout Box Tool Kit, 12311066

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- Disconnect 1W200-P8 from J1 on gunner's control.
 - See figure 9-232.
- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.



- Prepare STE to run cable test 1390.
 - Press TEST button (1) on VTM (2).
 - Press CLEAR key (3) on SETCOM (4).
 - Enter test number 1390 on SETCOM (4).
- Run test on 1W200 between P3 and P8.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.

Does SETCOM display show GOOD?

YES

NO

- 3
- Replace wiring harness assembly 1W200.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

Figure 9-131 (Sheet 1 of 2)
Volume II
Para. 9-3

ARR82-5923

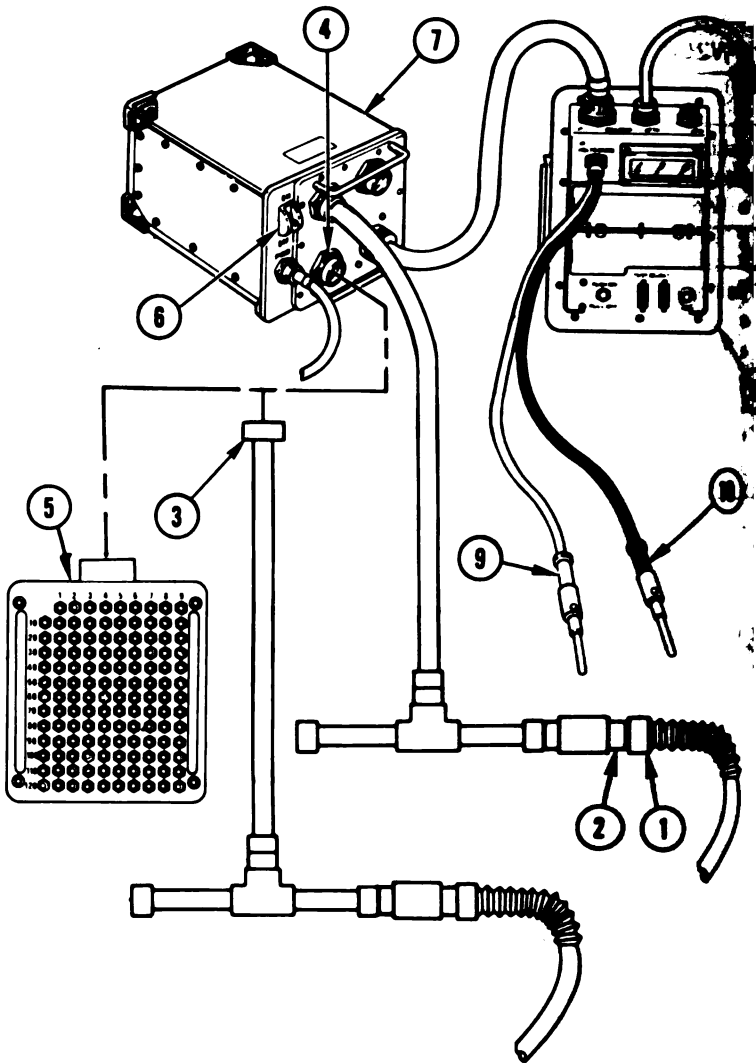
9-311

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

- 4**
- Disconnect 1W200-P8 (1) from CA535-P1 (2).
 - Disconnect CX305-P2 (3) from CIB-J1 (4).
 - Connect CX305-P2 (3) to breakout box (5).

- 5**
- Change control from SETCOM to VTM.
 - Set PWR switch (6) on CIB (7) to OFF to reset VTM. (8).
 - Set PWR switch (6) to ON.
 - Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 9-1.

- 6**
- Connect red test probe (9) to test point 7 on breakout box (5).
- NOTE**
- If VTM display shows 0 to 5, go immediately to block 8.
- Test for 0 to 5 ohms by connecting black test probe (10) to each test point on breakout box (5) listed below:
 - 8 through 36
 - 89 through 99
 - 103, 104, and 110
- Does VTM display show between 0 and 5?



- 7**
- Connect 1W200-P3 to J2 on electronic unit.
 - See figure 9-230.
 - Replace gunner's control grip assembly.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-21.
 - Verify that problem is solved.

- 8**
- Replace wiring harness assembly 1W200.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

Figure 9-131 (Sheet 2 of 2)
**Volume II
Para. 9-3**

ARR82-592

DISPLAY SHOWS -
FAULTY TNB, GPS OR
1W104

• 140465
140615

Additional Test

Equipment/Special Tools:

- Breakout Box Tool Kit, 12311088

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- Connect CX304-P2 (1) to breakout box (2).
- Connect CX304-P1 (3) to CX307-P3 (4).
- Disconnect 1W104-P1 from J9 on turret networks box.
 - See figure 9-229.
- Connect 1W104-P1 (5) to CA518-P1 (6).
- Connect CA518-P2 (7) to CX307-P1 (8).

- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 9-1.

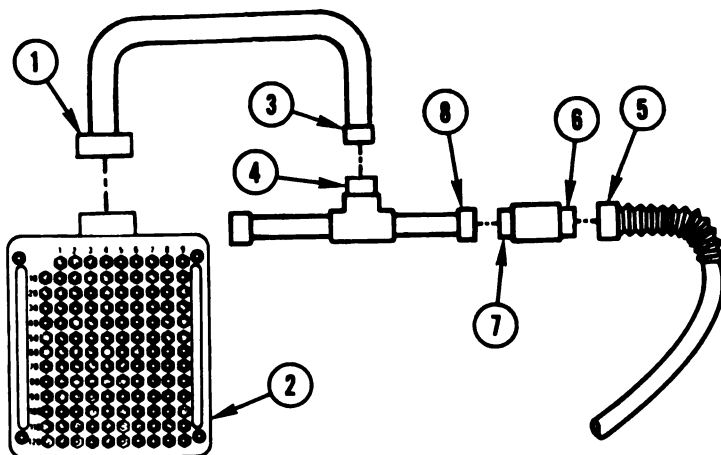
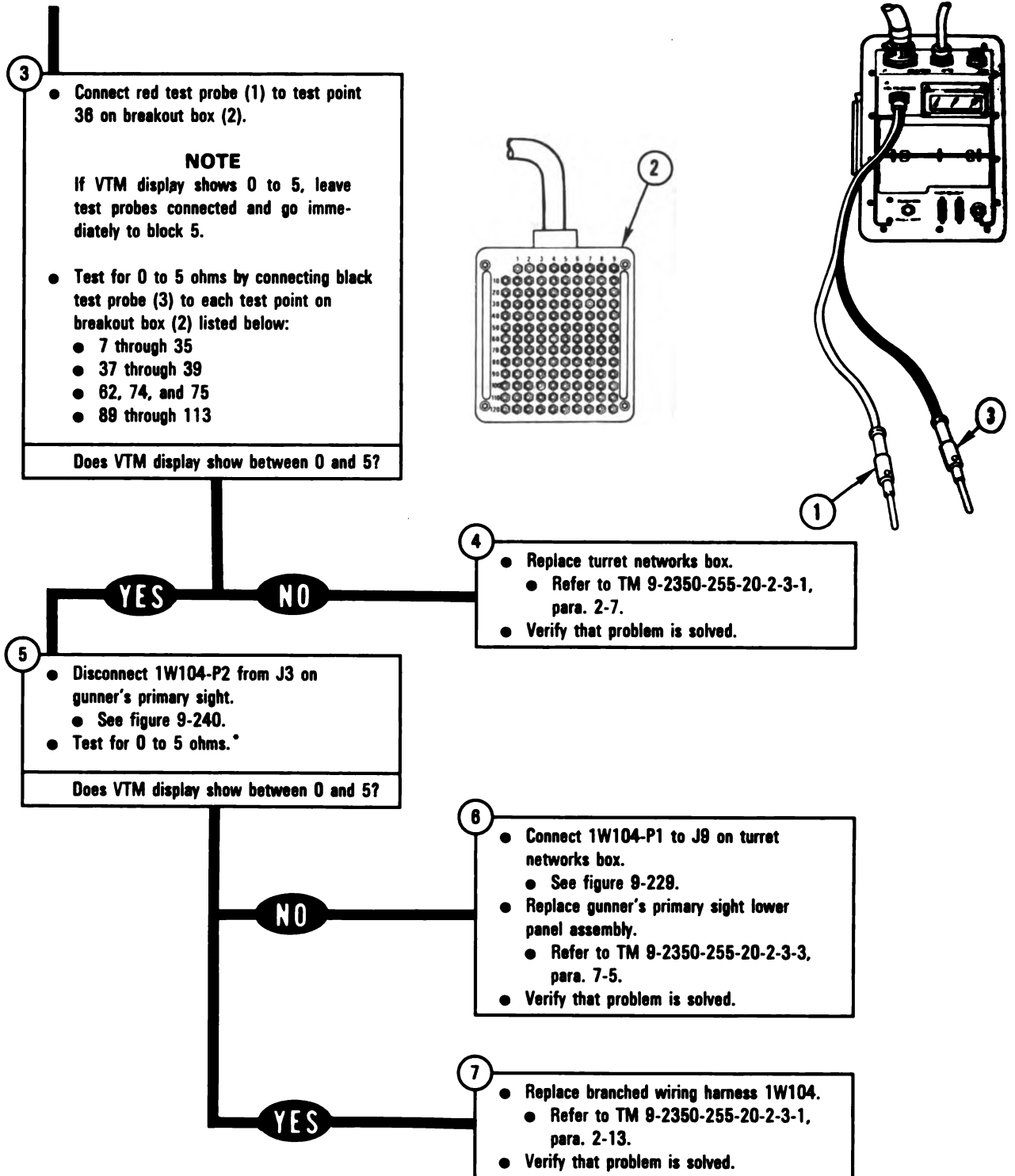


Figure 9-132 (Sheet 1 of 2)
Volume II
Para. 9-3

ARR82-5925

9-313

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**



* Between contact found in block 3

Figure 9-132 (Sheet 2 of 2)
**Volume II
Para. 9-3**

**DISPLAY SHOWS -
FAULTY TNB, TCP
OR 1W102**

140643

Additional Test

Equipment/Special Tools:

- Breakout Box Tool Kit, 12311086

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- Disconnect CX205-P2 from CIB-J2.

- See figure 9-8.

- Disconnect CX205-P1 from CIB-J1.

- See figure 9-8.

- Disconnect 1W102-P1 from J8 on turret networks box.

- See figure 9-229.

- Disconnect 1W102-P2 from J1 on commander's control panel.

- See figure 9-231.

- Change STE power hookup from turret networks box to power distribution box.

- See figure 9-37.

- Prepare STE to run cable test 1390.

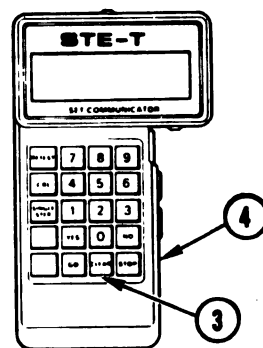
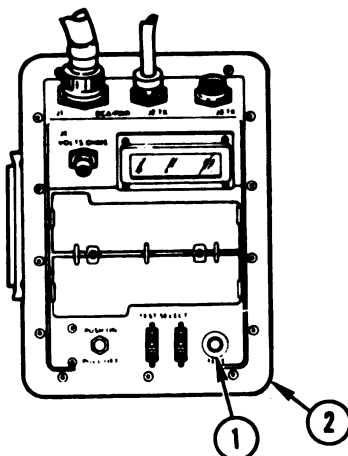
- Press TEST button (1) on VTM (2).

- Press CLEAR key (3) on SETCOM (4).

- Enter test number 1390 on SETCOM (4).

- Run test on 1W102 between P1 and P2.

- Refer to TM 9-2350-255-20-2-2-2, figure 15-5.



Does SETCOM display show GOOD?

YES

NO

3

- Replace wiring harness assembly 1W102.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

Figure 9-133 (Sheet 1 of 3)
**Volume II
Para. 9-3**

ARR82-5927

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

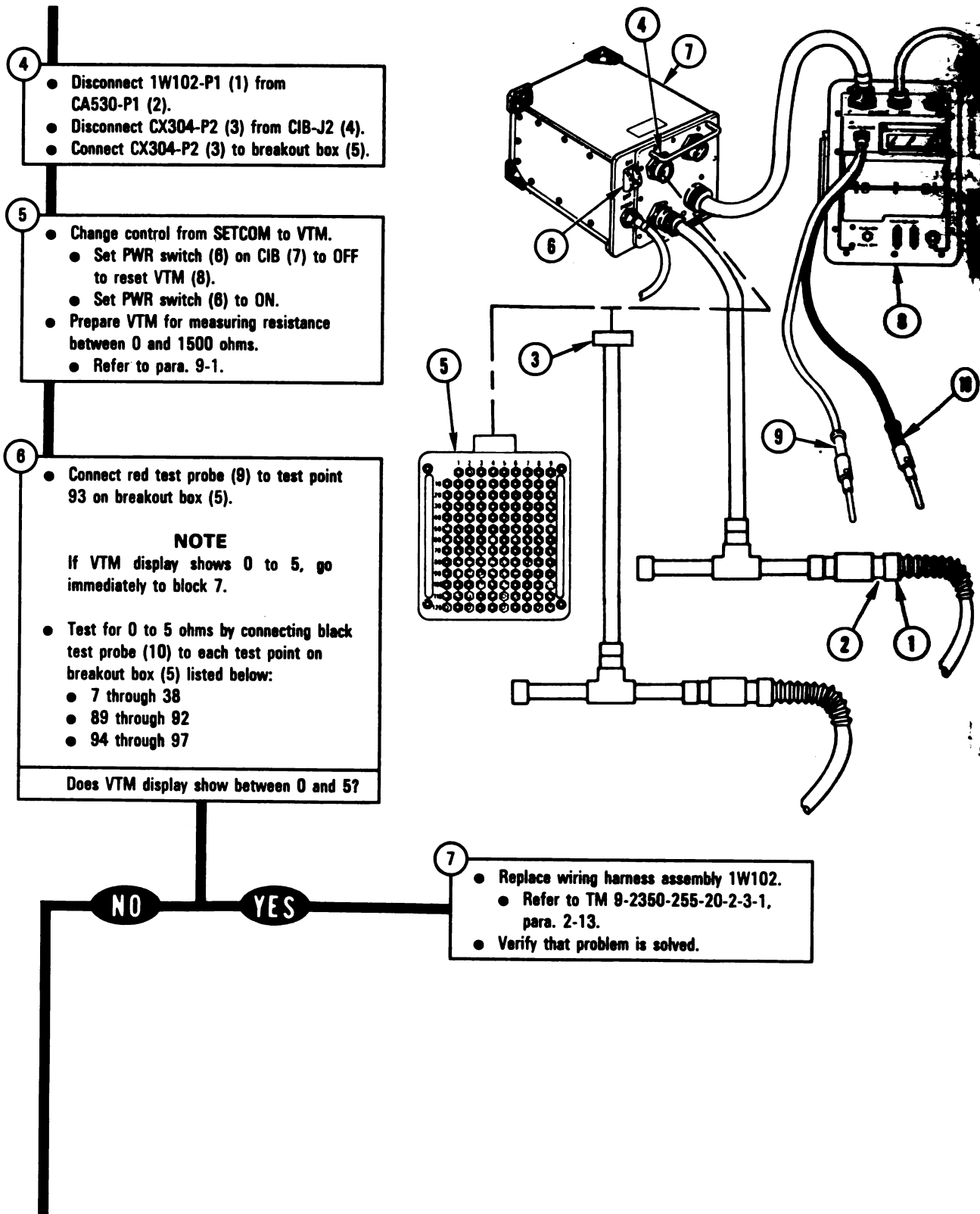
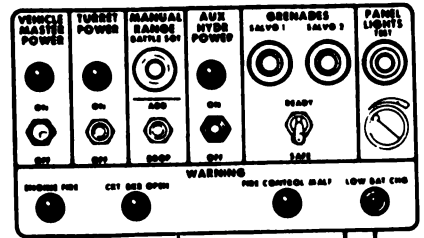


Figure 9-133 (Sheet 2 of 3)
Volume II
Para. 9-3

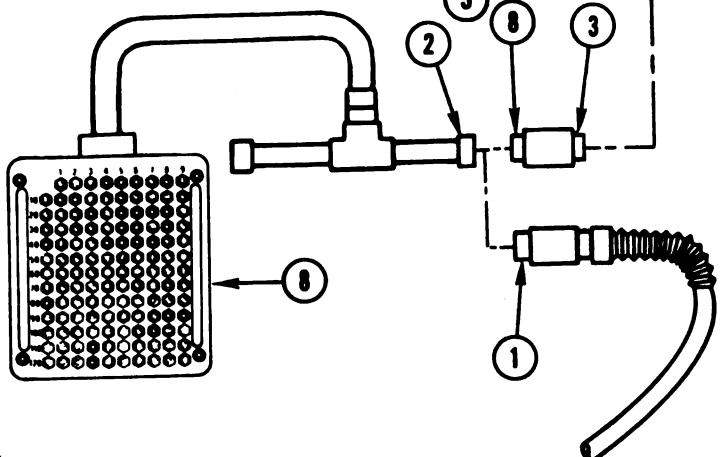
ARR82-5928

TM 9-2350-255-20-2-2-1 HYDRAULIC AND GUN/TURRET DRIVE SYSTEM TROUBLESHOOTING

- Disconnect CA421-P2 (1) from CX307-P1 (2).
- Connect CA422-P1 (3) to J1 (4) on commander's control panel (5).
- Connect CA422-P2 (8) to CX307-P1 (2).



- Connect red test probe (7) to test point 93 on breakout box (8).
- NOTE**
If VTM display shows 0 to 5, go immediately to block 10.
- Test for 0 to 5 ohms by connecting black test probe (9) to each test point on breakout box (8) listed below:
 - 7 through 38
 - 89 through 91
 - 94 through 97



Does VTM display show between 0 and 5?

NO

YES

- 10
- Connect 1W102-P1 to J8 on turret networks box.
 - See figure 9-229.
 - Replace commander's control panel assembly.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-5.
 - Verify that problem is solved.

- Test for continuity between test points 92 and 93 on breakout box.
 - Connect black test probe (9) to test point 93 on breakout box (8).
 - Connect red test probe (7) to test point 92 on breakout box (8).

Does VTM display show between 0 and 5?

NO

YES

- 12
- Connect 1W102-P1 to J8 on turret networks box.
 - See figure 9-229.
 - Replace commander's control panel assembly.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-5.
 - Verify that problem is solved.

- 13
- Connect 1W102-P2 to J1 on commander's control panel.
 - See figure 9-231.
 - Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
 - Verify that problem is solved.

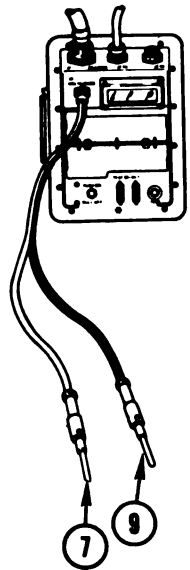


Figure 9-133 (Sheet 3 of 3)
Volume II
Para. 9-3

ARR82-5929

9-317

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS -
FAULTY TNB OR
1W104**

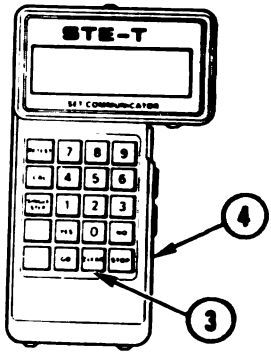
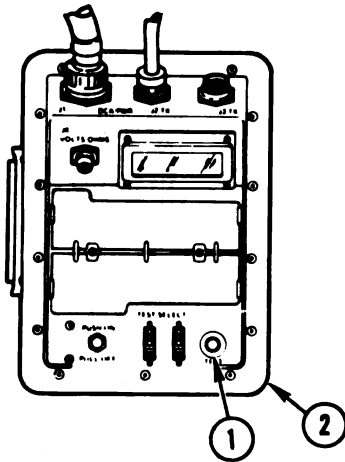
• 142224
142225
142226

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

1

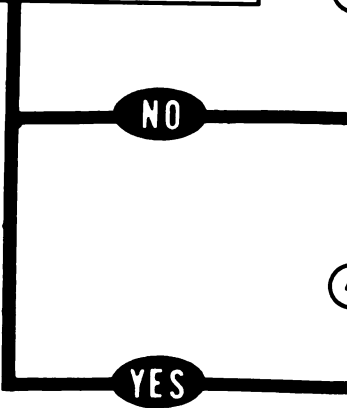
- Disconnect CA505-P2 from CX307-P1.
 - See figure 9-17.
- Disconnect 1W104-P1 from J9 on turret networks box.
 - See figure 9-229.
- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.



2

- Prepare STE to run cable test 1390.
 - Press TEST button (1) on VTM (2).
 - Press CLEAR key (3) on SETCOM (4).
 - Enter test number 1390 on SETCOM (4).
- Run test on 1W104 between P1 and P2.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.

Does SETCOM display show GOOD?



3

- Connect 1W202-P1 to J7 on turret networks box.
 - See figure 9-229.
- Replace branched wiring harness 1W104.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

4

- Connect 1W104-P2 to J3 on gunner's primary sight.
 - See figure 9-240.
- Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
- Verify that problem is solved.

Figure 9-134
Volume II
Para. 9-3

ARR82-5930

DISPLAY SHOWS -
FAULTY TNB OR
1W200

• 146125
146126

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

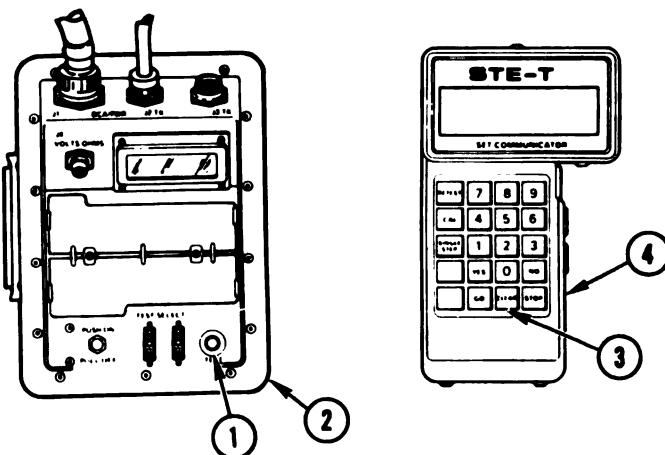
- Disconnect CA527-P2 from CX307-P1.
 - See figure 9-7.
- Disconnect CA528-P2 from CX307-P2.
 - See figure 9-7.
- Disconnect CA518-P2 from CX307-P2.
 - See figure 9-29.
- Disconnect 1W200-P1 from J5 on turret networks box.
 - See figure 9-229.

- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.
- Prepare STE to run cable test 1390.
 - Press TEST button (1) on VTM (2).
 - Press CLEAR key (3) on SETCOM (4).
 - Enter test number 1390 on SETCOM (4).
- Run test on 1W200 between P1 and P4.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.

Does SETCOM display show GOOD?

NO

YES



- 3
- Connect 1W203-P1 to J3 on turret networks box.
 - See figure 9-229.
 - Replace wiring harness assembly 1W200.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

- 4
- Connect 1W200-P4 to J3 on electronic unit.
 - See figure 9-230.
 - Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
 - Verify that problem is solved.

Figure 9-135
Volume II
Para. 9-3

ARR82-5931

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS -
FAULTY GTD OR
GCH** **141052**

**Additional Test
Equipment/Special Tools:**
 ● Breakout Box Tool Kit, 12311086

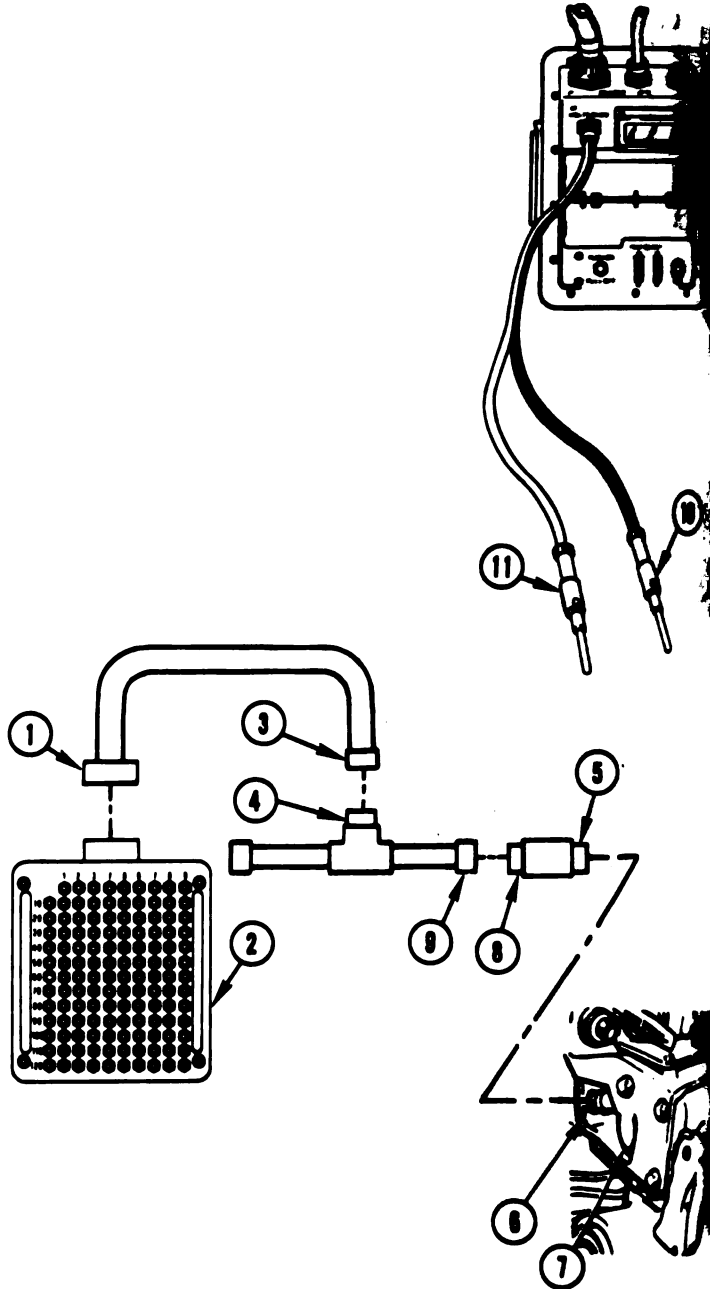
Equipment Condition:
 ● Tank parked.
 ● Parking brake set.
 ● Engine shut down.
 ● Vehicle master power off.

1
 ● Connect CX304-P2 (1) to breakout box (2).
 ● Connect CX304-P1 (3) to CX308-P3 (4).
 ● Connect CA536-P1 (5) to J1 (6) on
 gunner's control (7).
 ● Connect CA536-P2 (8) to CX308-P1 (8).

2
 ● Change STE power hookup from turret
 networks box to power distribution box.
 ● See figure 9-37.
 ● Prepare VTM for measuring resistance
 between 0 and 1500 ohms.
 ● Refer to para. 9-1.

3
 ● Test for 190 to 290 ohms between test
 points 9 and 10 on breakout box.
 ● Connect black test probe (10) to test
 point 9 on breakout box (2).
 ● Connect red test probe (11) to test
 point 10 on breakout box (2).

**Does VTM display show between 190
and 290?**



*Figure 9-136 (Sheet 1 of 2)
Volume II
Para. 9-3*

ARR82-5932

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

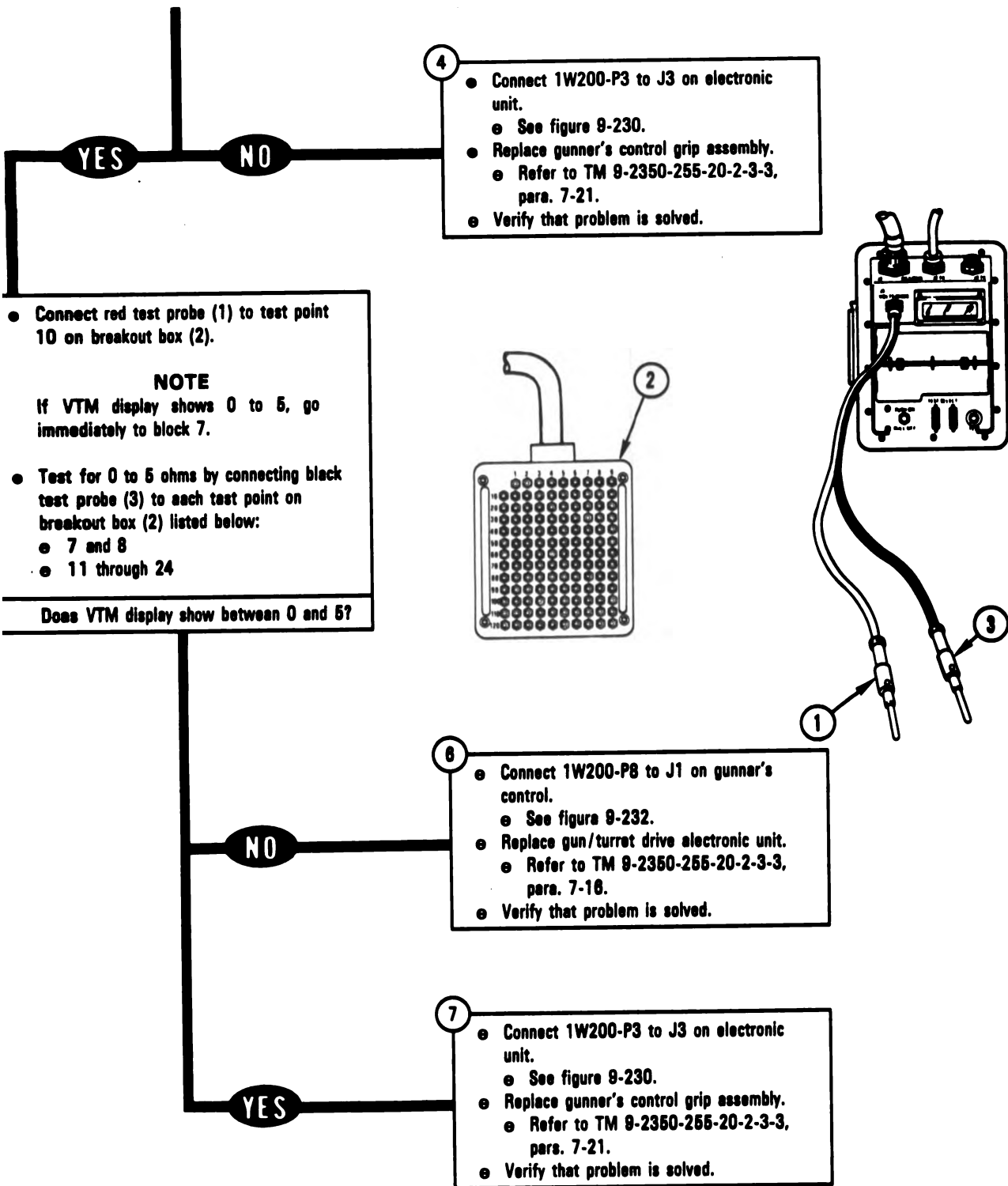


Figure 9-136 (Sheet 2 of 2)
Volume II
Para. 9-3

ARR82-5933

9-321

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS -
FAULTY GPS OR
1W203**

146119

Additional Test

Equipment/Special Tools:

- Breakout Box Tool Kit, 12311086

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

1

- Disconnect 1W200-P4 from CA515-P1.
 - See figure 9-29.
- Connect 1W200-P4 to J3 on electronic unit.
 - See figure 9-230.
- Disconnect CA515-P2 from CX307-P1.
 - See figure 9-29.

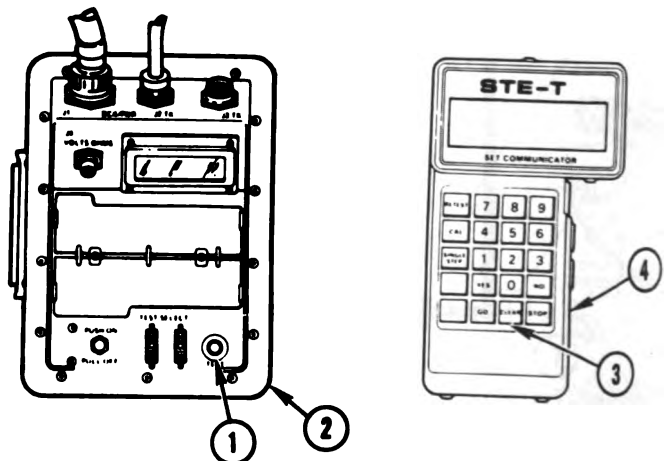
2

- Disconnect CA516-P2 from CX307-P2.
 - See figure 9-29.
- Disconnect CA527-P2 from CX307-P1.
 - See figure 9-7.
- Disconnect 1W203-P2 from J1 on gunner's primary sight.
 - See figure 9-240.

3

- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.
- Prepare STE to run cable test 1390.
 - Press TEST button (1) on VTM (2).
 - Press CLEAR key (3) on SETCOM (4).
 - Enter test number 1390 on SETCOM (4).
- Run test on 1W203 between P1 and P2.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.

Does SETCOM display show GOOD?



*Figure 9-137 (Sheet 1 of 4)
Volume II
Para. 9-3*

ARR82-5934

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

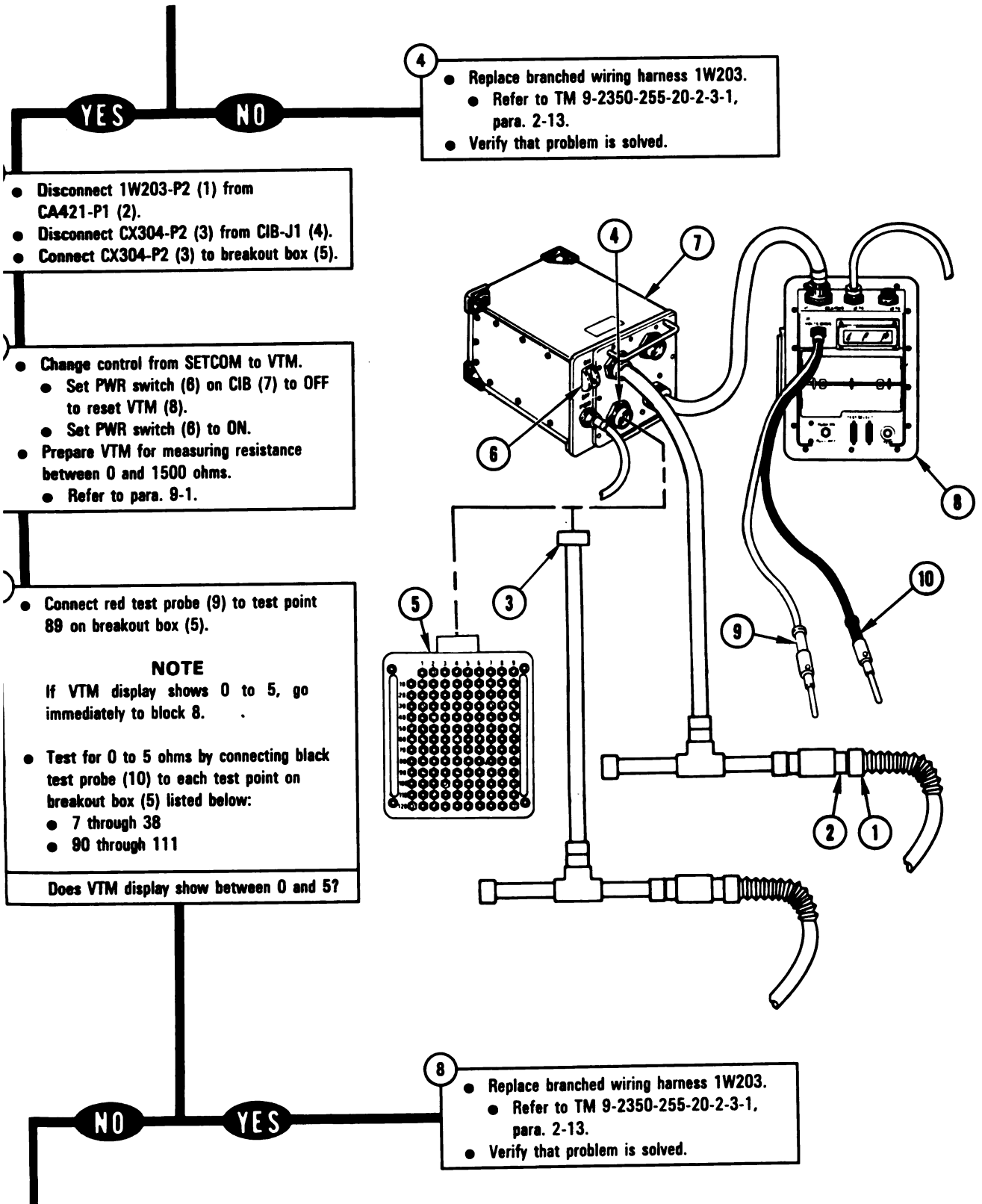


Figure 9-137 (Sheet 2 of 4)
Volume II
Para. 9-3

ARR82-5935

9-323

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

9

- Connect red test probe (1) to test point 103 on breakout box (2).

NOTE
If VTM display shows 0 to 5, go immediately to block 10.

- Test for 0 to 5 ohms by connecting black test probe (3) to each test point on breakout box (2) listed below:
 - 7 and 38
 - 89 through 102
 - 104 through 111

Does VTM display show between 0 and 5?

NO

YES

10

- Replace branched wiring harness 1W203.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

11

- Disconnect CX304-P2 (4) from breakout box (2).
- Disconnect CX305-P2 (5) from CIB-J2 (6).
- Connect CX305-P2 (5) to breakout box (2).
- Connect 1W203-P2 (7) to CA421-P1 (8).

12

- Connect red test probe (1) to test point 22 on breakout box (2).

NOTE
If VTM display shows 0 to 5, go immediately to block 13.

- Test for 0 to 5 ohms by connecting black test probe (3) to each test point on breakout box (2) listed below:
 - 7 and 21
 - 24 through 38
 - 89 through 111

Does VTM display show between 0 and 5?

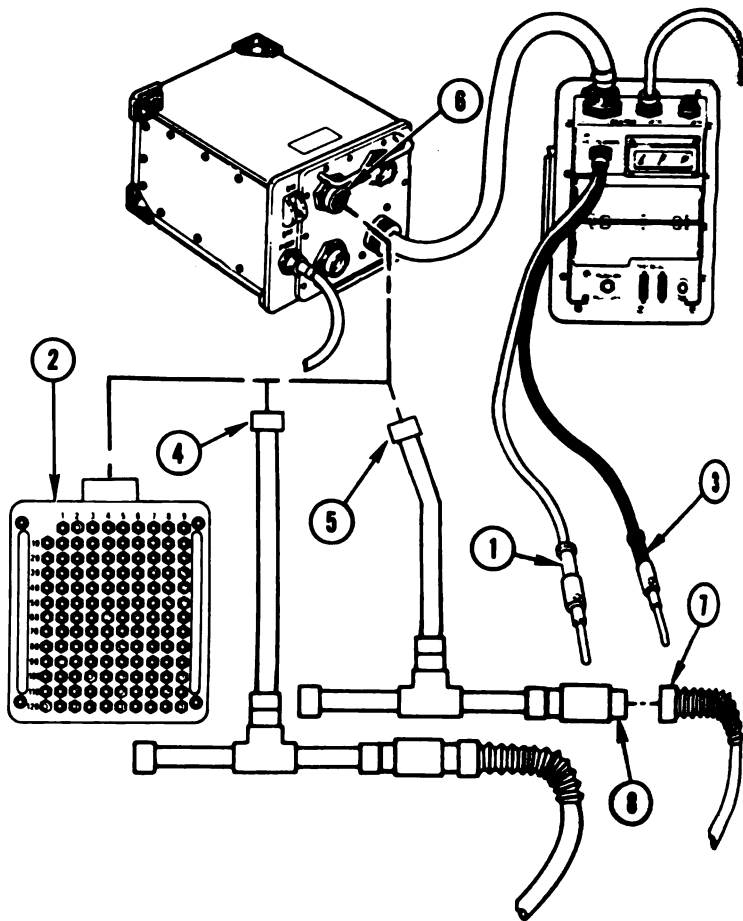


Figure 9-137 (Sheet 3 of 4)
Volume II
Para. 9-3

ARR82-5936

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

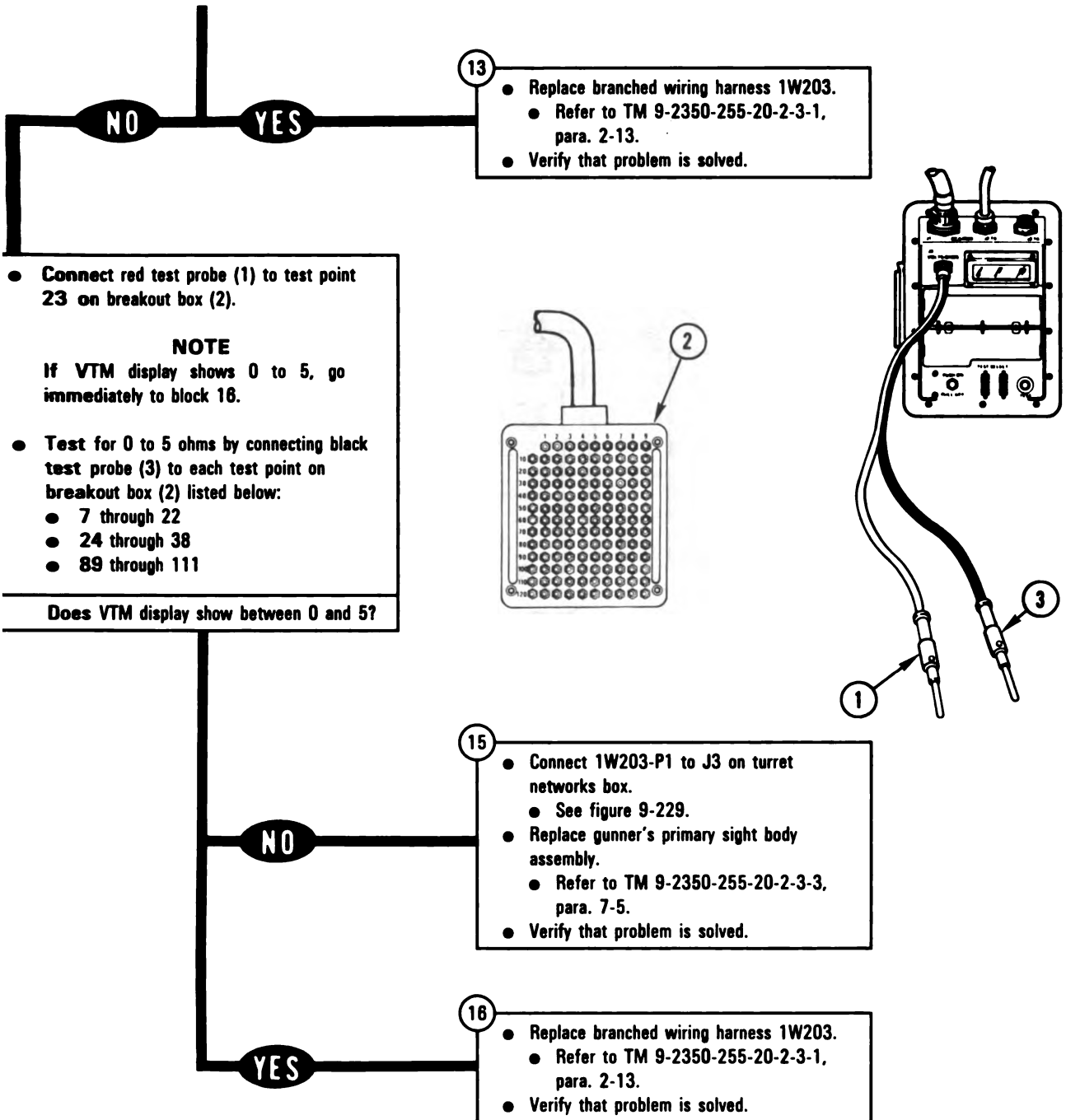


Figure 9-137 (Sheet 4 of 4)
Volume II
Para. 9-3

ARR82-5937

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

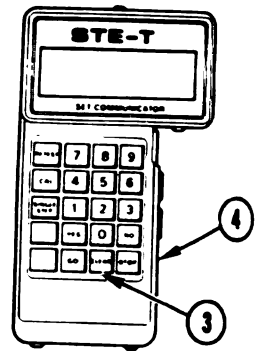
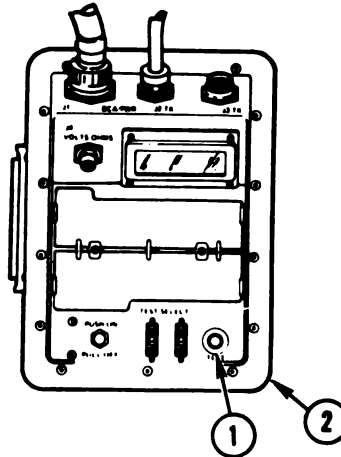
**DISPLAY SHOWS -
FAULTY ELSVO OR
1W200**

147041

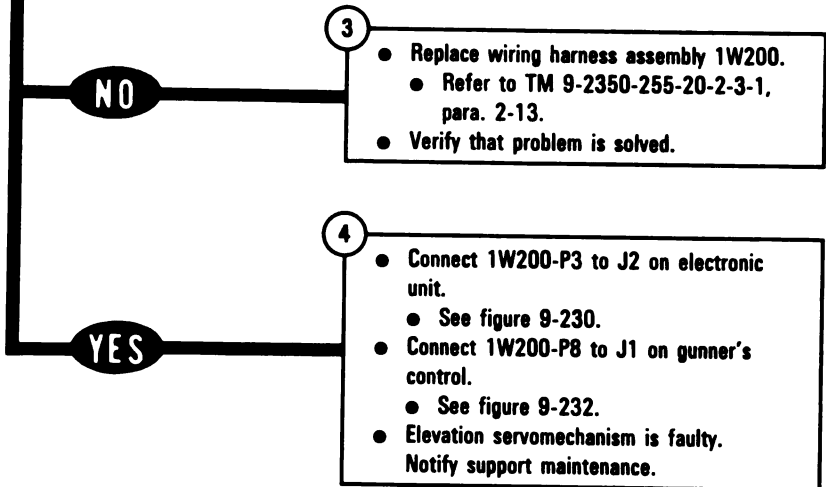
Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- 1
- Disconnect CA524-P2 from CX307-P1.
 - See figure 9-23.
 - Disconnect 1W200-P12 from J1 on elevation servomechanism.
 - See figure 9-239.
 - Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.



- 2
- Prepare STE to run cable test 1390.
 - Press TEST button (1) on VTM (2).
 - Press CLEAR key (3) on SETCOM (4).
 - Enter test number 1390 on SETCOM (4).
 - Run test on 1W200 between P3 and P12.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.
- Does SETCOM display show GOOD?



- 3
- Replace wiring harness assembly 1W200.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

- 4
- Connect 1W200-P3 to J2 on electronic unit.
 - See figure 9-230.
 - Connect 1W200-P8 to J1 on gunner's control.
 - See figure 9-232.
 - Elevation servomechanism is faulty. Notify support maintenance.

Figure 9-138
Volume II
Para. 9-3

ARR82-5938

**DISPLAY SHOWS -
FAULTY TRVSV OR
1W200**

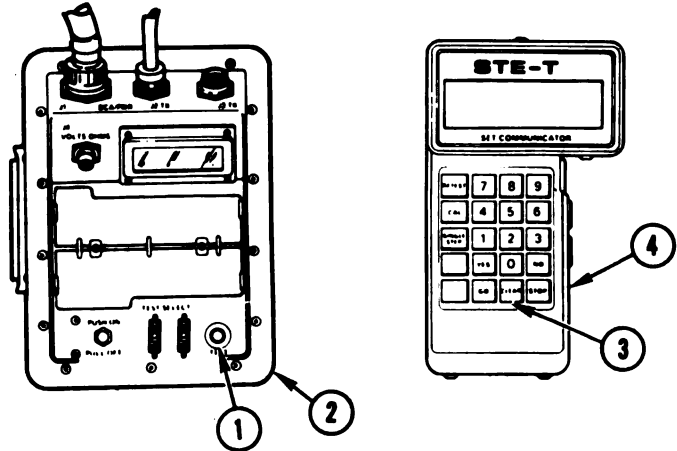
147039

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- Disconnect CA516-P2 from CX307-P2.
 - See figure 9-29.
- Disconnect 1W200-P9 from J1 on traverse servomechanism.
 - See figure 9-234.
- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.

- Prepare STE to run cable test 1390.
 - Press TEST button (1) on VTM (2).
 - Press CLEAR key (3) on SETCOM (4).
 - Enter test number 1390 on SETCOM (4).
- Run test on 1W200 between P4 and P9.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.



Does SETCOM display show GOOD?

NO

- Replace wiring harness assembly 1W200.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

YES

- Connect 1W200-P4 to J3 on electronic unit.
 - See figure 9-230.
- Connect 1W200-P8 to J1 on gunner's control.
 - See figure 9-232.
- Traverse servomechanism is faulty. Notify support maintenance.

Figure 9-139
Volume II
Para. 9-3

ARR82-5939

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

• 147010
147012

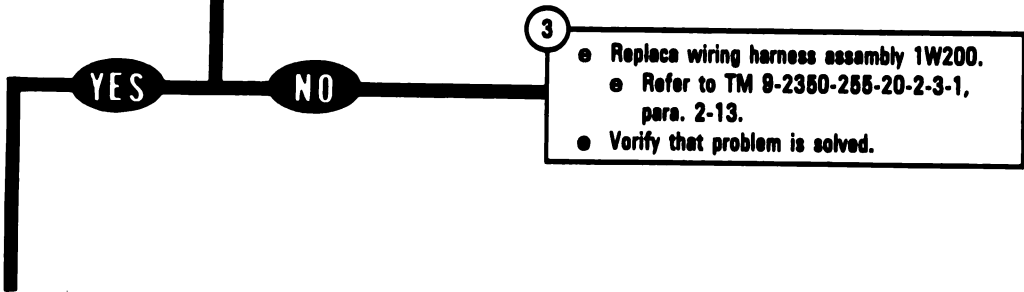
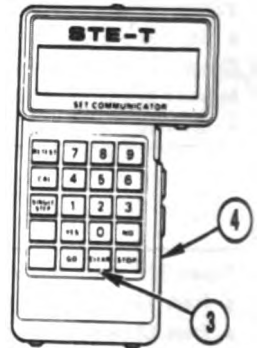
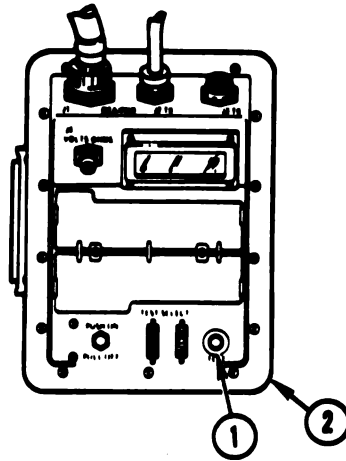
**DISPLAY SHOWS -
FAULTY GCH OR
1W200**

**Additional Test
Equipment/Special Tools:**
• Breakout Box Tool Kit, 12311068

Equipment Condition:
• Tank parked.
• Parking brake set.
• Engine shut down.
• Vehicle master power off.

- 1
- Disconnect 1W200-P8 from J1 on gunner's control.
 - See figure 9-232.
 - Disconnect CX208-P1 from CIB-J1.
 - See figure 9-6.
 - Disconnect CA524-P2 from CX307-P1.
 - See figure 9-23.
 - Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.

- 2
- Prepare STE to run cable test 1390.
 - Press TEST button (1) on VTM (2).
 - Press CLEAR key (3) on SETCOM (4).
 - Enter test number 1390 on SETCOM (4).
 - Run test on 1W200 between P3 and P8.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.
- Does SETCOM display show GOOD?



*Figure 9-140 (Sheet 1 of 3)
Volume II
Para. 9-3*

ARR82-5940

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

- Disconnect CX305-P2 (1) from CIB-J1 (2).
- Disconnect CX304-P2 (3) from CIB-J2 (4).
- Connect CX304-P2 (3) to breakout box (5).

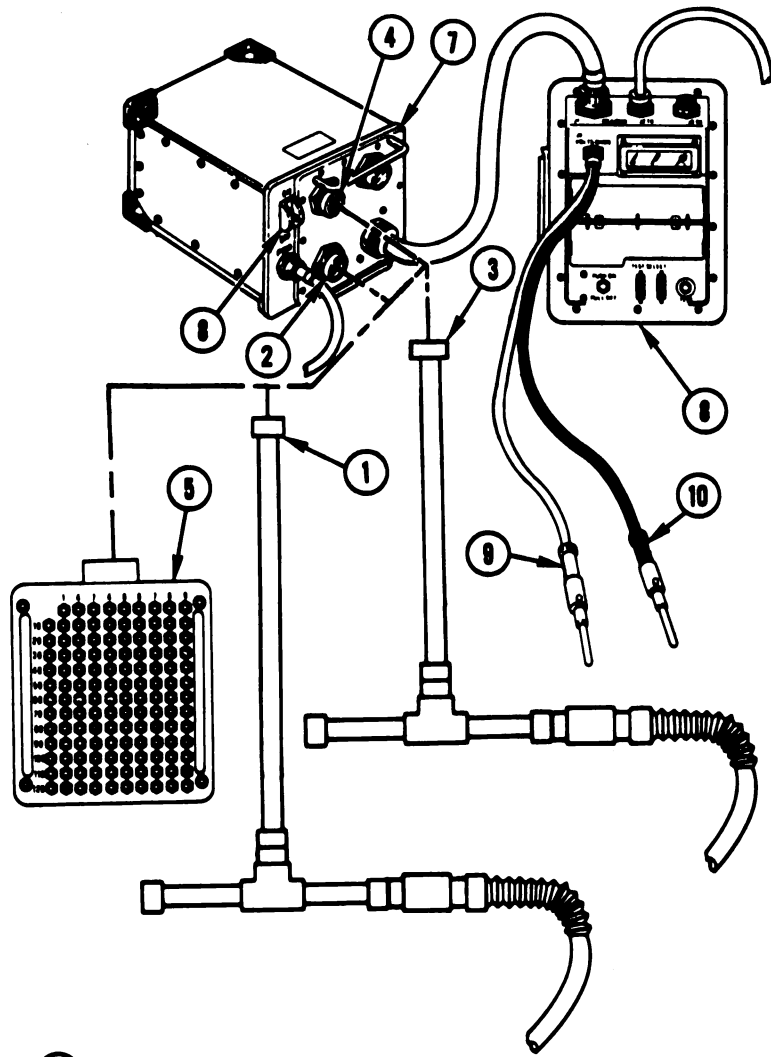
- Change control from SETCOM to VTM.
 - Set PWR switch (6) on CIB (7) to OFF to reset VTM (8).
 - Set PWR switch (6) to ON.
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 9-1.

- Connect red test probe (9) to test point 18 on breakout box (5).

NOTE

If VTM display shows 0 to 5, go immediately to block 7.

- Test for 0 to 5 ohms by connecting black test probe (10) to each test point on breakout box (5) listed below:
 - 7 through 17
 - 19 through 28



Does VTM display show between 0 and 5?

NO

YES

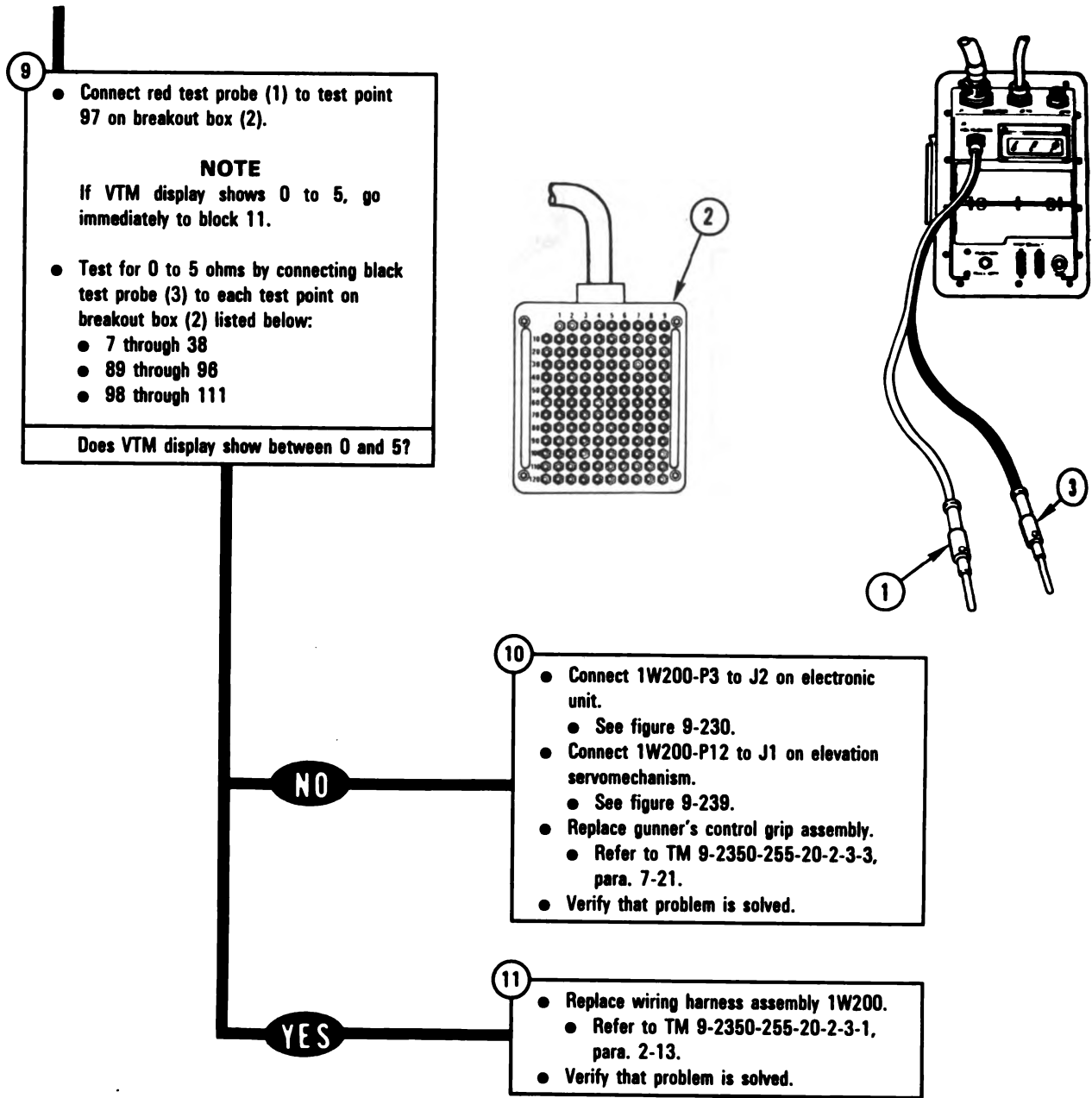
- 7
 - Replace wiring harness assembly 1W200.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

- Disconnect CX304-P2 (3) from breakout box (5).
- Connect CX305-P2 (1) to breakout box (5).

Figure 9-140 (Sheet 2 of 3)
**Volume II
Para. 9-3**

ARR82-5941

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**



*Figure 9-140 (Sheet 3 of 3)
Volume II
Para. 9-3*

ARR82-5942

**DISPLAY SHOWS -
FAULTY GCH
OR 1W200** **147046**

**Additional Test
Equipment/Special Tools:**
● Breakout Box Tool Kit, 12311066

Equipment Condition:
● Tank parked.
● Parking brake set.
● Engine shut down.
● Vehicle master power off.

● Disconnect CA524-P2 from CX307-P1.
● See figure 9-23.
● Disconnect CA536-P2 from CX308-P2.
● See figure 9-19.
● Change STE power hookup from turret networks box to power distribution box.
● See figure 9-37.

Go to figure 9-140, block 2.

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS -
FAULTY TNB OR
1W200**

140553

OR

**DISPLAY SHOWS -
FAULTY GTD OR
1W200**

141035

Additional Test

Equipment/Special Tools:

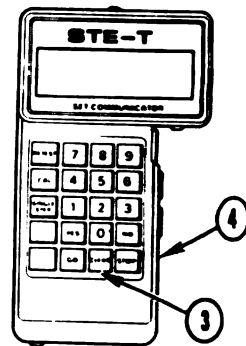
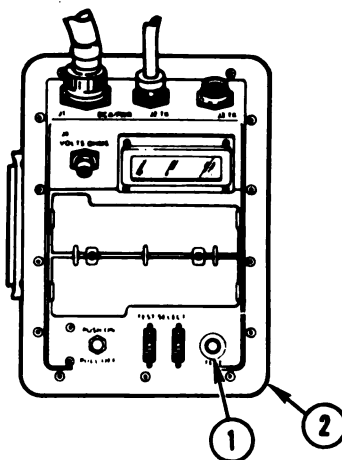
- Breakout Box Tool Kit, 12311086

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

1

- If connected, disconnect CX205-P1 from CIB-J1.
 - See figure 9-8.
- Disconnect CX205-P2 from CIB-J2.
 - See figure 9-8.
- Disconnect 1W200-P1 from J5 on turret networks box.
 - See figure 9-229.
- Connect 1W202-P1 to J7 on turret networks box.
 - See figure 9-229.



2

- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.
- Prepare STE to run cable test 1390.
 - Press TEST button (1) on VTM (2).
 - Press CLEAR key (3) on SETCOM (4).
 - Enter test number 1390 on SETCOM (4).
- Run test on 1W200 between P1 and P3.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.

Does SETCOM display show GOOD?

YES

NO

3

- Replace wiring harness assembly 1W200.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

*Figure 9-142 (Sheet 1 of 3)
Volume II
Para. 9-3*

ARR62-5943

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

- Disconnect CX304-P2 (1) from CIB-J1 (2).
- Disconnect CX305-P2 (3) from CIB-J2 (4).
- Connect CX305-P2 (3) to breakout box (5).
- Change control from SETCOM to VTM.
 - Set PWR switch (8) on CIB (7) to OFF to reset VTM (8).
 - Set PWR switch (8) to ON.
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
- Refer to para. 9-1.

- Connect jumper (9) between test points 21 and 89 on breakout box (5).
- Connect red test probe (10) to test point 21 on breakout box (5).

NOTE

If VTM display shows 0 to 5, go immediately to block 6.

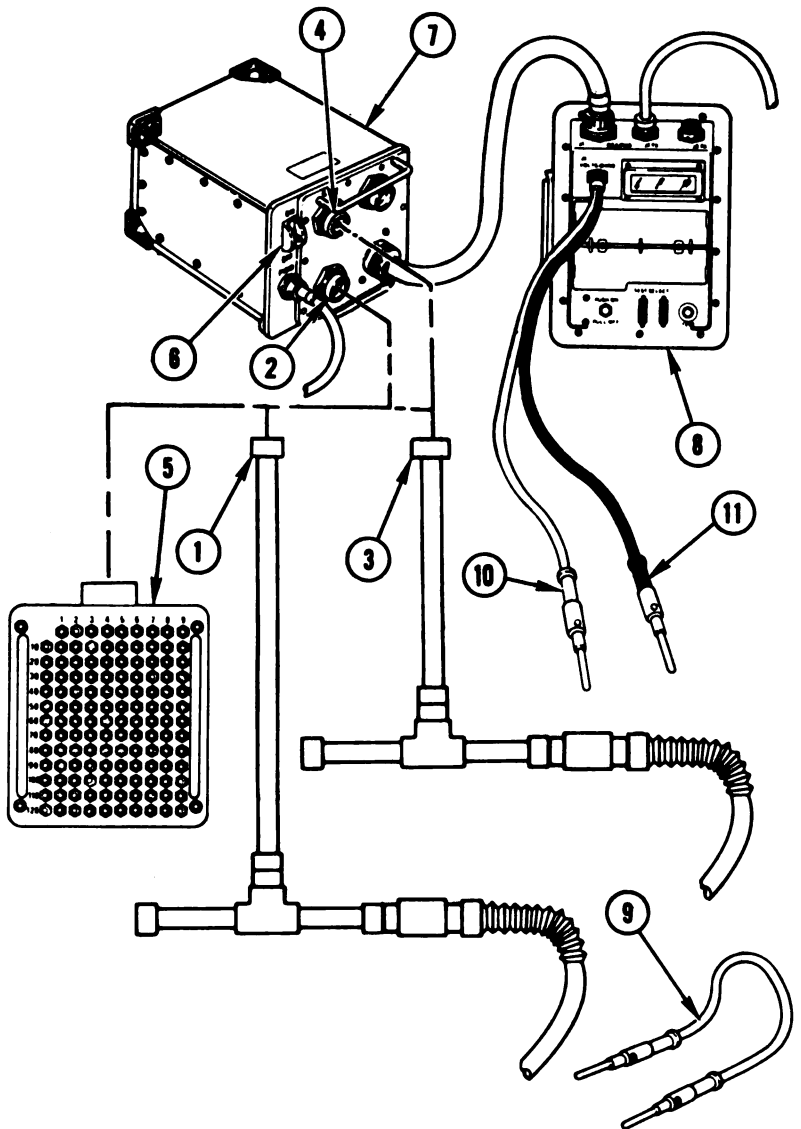
- Test for 0 to 5 ohms by connecting black test probe (11) to each test point on breakout box (5) listed below:
 - 7 through 20
 - 22 through 39
 - 62, 74, and 75
 - 90 through 113

Does VTM display show between 0 and 5?

NO

YES

- Disconnect CX305-P2 (3) from breakout box (5).
- Connect CX304-P2 (1) to breakout box (5).



- 6**
- Replace wiring harness assembly 1W200.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

Figure 9-142 (Sheet 2 of 3)
**Volume II
Para. 9-3**

ARR82-5944

9-333

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

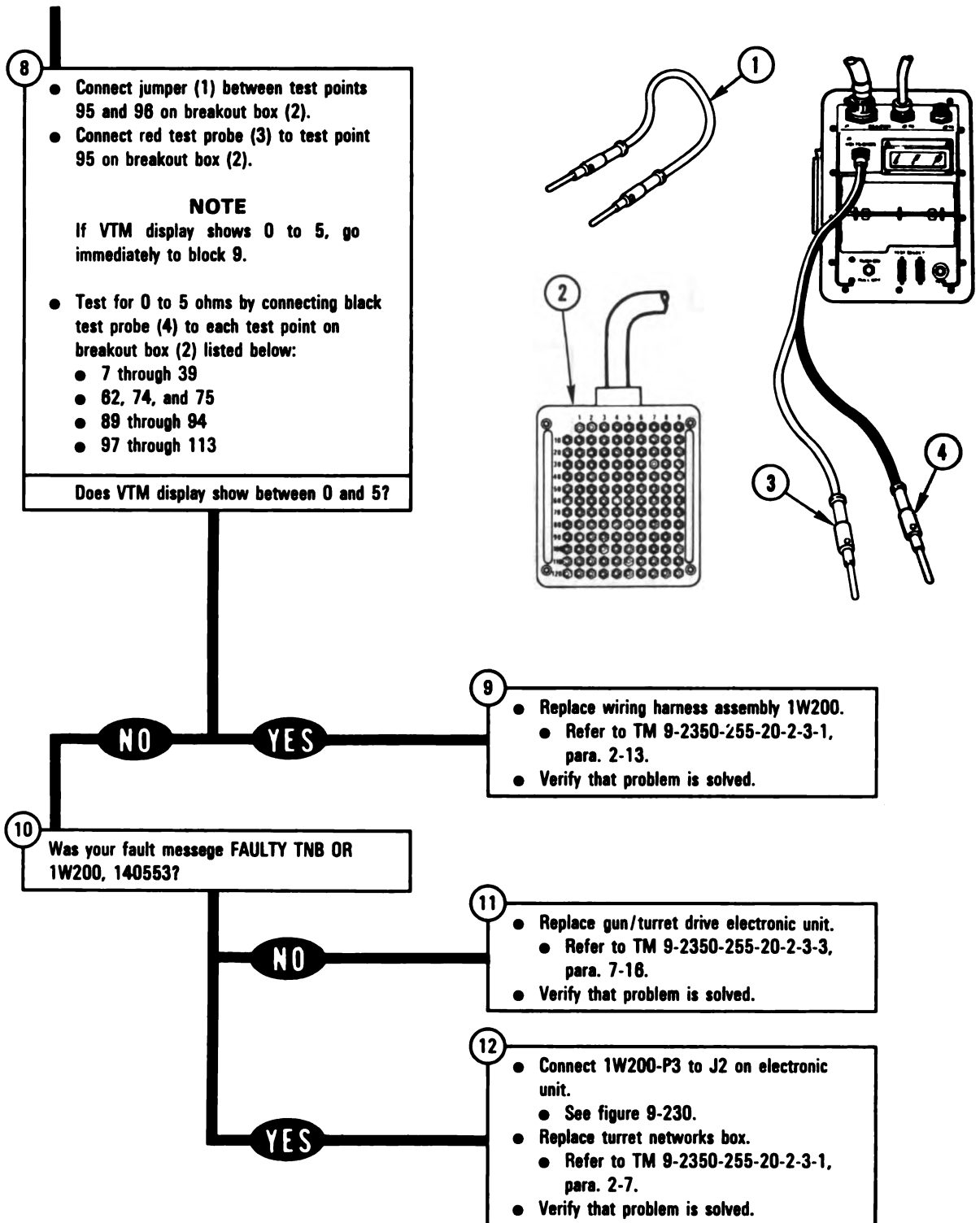


Figure 9-142 (Sheet 3 of 3)
Volume II
Para. 9-3

ARR82-5945

DISPLAY SHOWS -
FAULTY TNB OR
1W200

• 141028
141041

Additional Test Equipment/Special Tools:

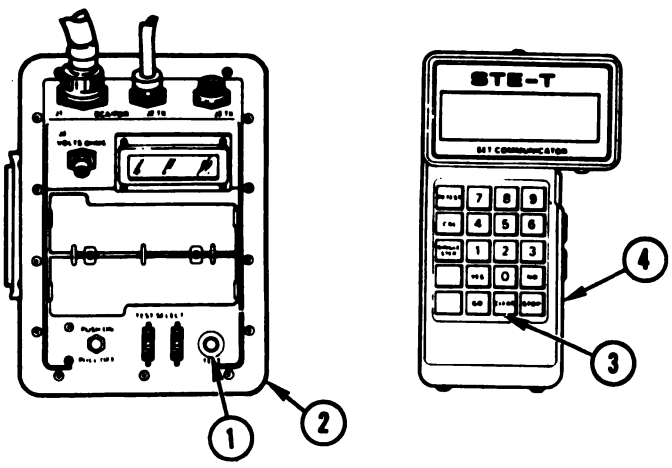
- Breakout Box Tool Kit, 12311086

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- Disconnect CX304-P1 from CA206-P2.
 - See figure 9-33.
- Disconnect 1W200-P1 from J5 on turret networks box.
 - See figure 9-229.
- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.

- Prepare STE to run cable test 1390.
 - Press TEST button (1) on VTM (2).
 - Press CLEAR key (3) on SETCOM (4).
 - Enter test number 1390 on SETCOM (4).
- Run test on 1W200 between P1 and P4.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.



Does SETCOM display show GOOD?

YES NO

3

- Replace wiring harness assembly 1W200.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

Figure 9-143 (Sheet 1 of 3)
Volume II
Para. 9-3

ARR82-5946

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

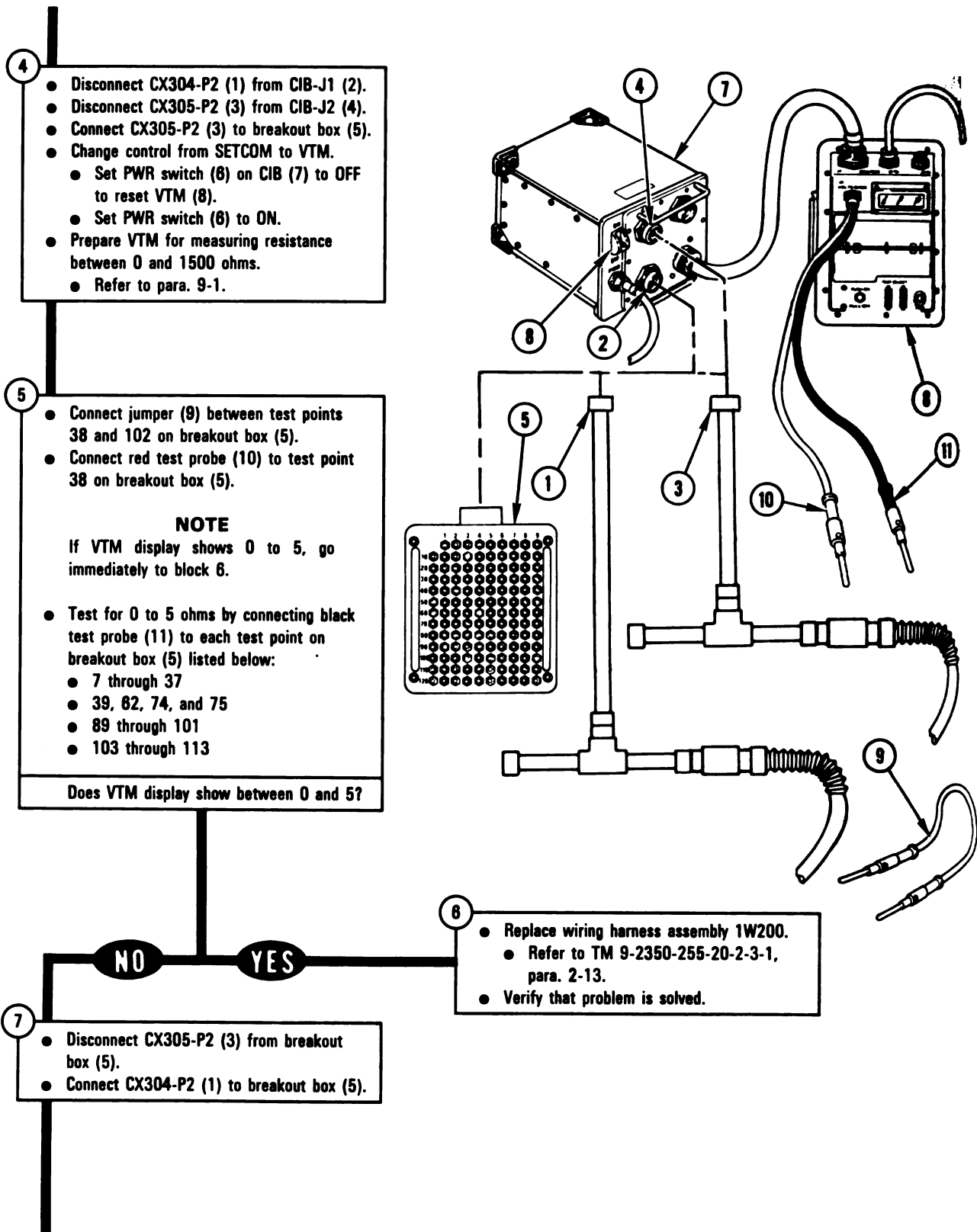


Figure 9-143 (Sheet 2 of 3)
Volume II
Para. 9-3

ARR82-5947

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

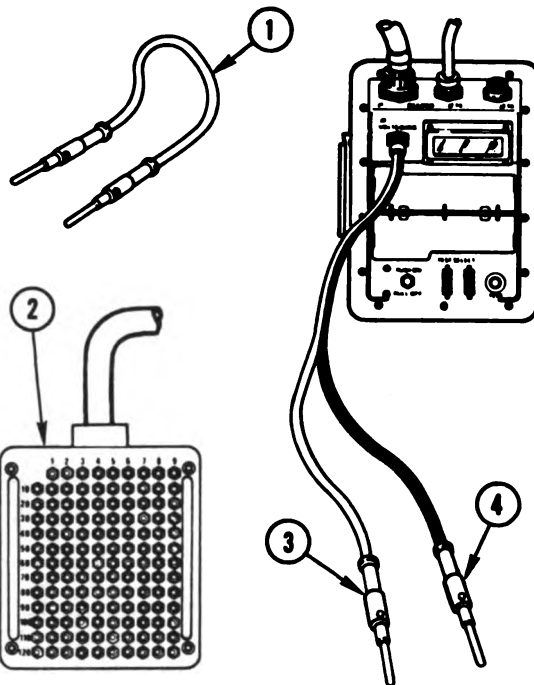
Connect jumper (1) between test points 11 and 12 on breakout box (2).
Connect red test probe (3) to test point 11 on breakout box (2).

NOTE

If VTM display shows 0 to 5, go immediately to block 10.

Test for 0 to 5 ohms by connecting black test probe (4) to each test point on breakout box (2) listed below:

- 7 through 10
- 13 through 39
- 62, 74, and 75
- 89 through 113



Does VTM display show between 0 and 5?

NO

- 9
- Connect 1W200-P4 to J3 on electronic unit.
 - See figure 9-230.
 - Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
 - Verify that problem is solved.

YES

- 10
- Replace wiring harness assembly 1W200.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

Figure 9-143 (Sheet 3 of 3)
**Volume II
Para. 9-3**

ARR82-5948

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS -
FAULTY GTD OR
1W200**

146048

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

1

- Disconnect CX205-P2 from C1B-J2.
 - See figure 9-6.
- Disconnect 1W200-P4 from J3 on electronic unit.
 - See figure 9-230.
- Disconnect CA503-P2 from CX307-P1.
 - See figure 9-8.
- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.

2

- Prepare STE to run cable test 1390.
 - Press TEST button (1) on VTM (2).
 - Press CLEAR key (3) on SETCOM (4).
 - Enter test number 1390 on SETCOM (4).
- Run test on 1W200 between P1 and P4.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.

Does SETCOM display show GOOD?

NO

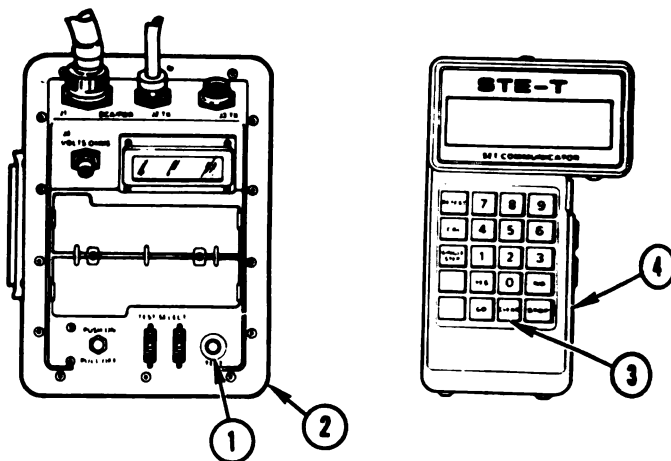
3

- Replace wiring harness assembly 1W200.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

YES

4

- Connect 1W200-P1 to J5 on turret networks box.
 - See figure 9-229.
- Replace gun/turret drive electronic unit.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-16.
- Verify that problem is solved.



**Figure 9-144
Volume II
Para. 9-3**

ARR82-594

**DISPLAY SHOWS -
FAULTY LRU'S AND
CABLES**

140453

Supplies:
Electrical Jumpers (three required)

**Additional Test
Equipment/Special Tools:**
● Breakout Box Tool Kit, 12311086

Equipment Condition:
● Tank parked.
● Parking brake set.
● Engine shut down.
● Vehicle master power off.
● Internal gun travel lock locked.
● Turret lock locked.

- Disconnect 1W200-P3 from J2 on electronic unit.
 - See figure 9-230.
- Disconnect 1W200-P4 from J3 on electronic unit.
 - See figure 9-230.
- Connect CX208-P1 (1) to TEST 1 (2) on turret networks box (3).
- Connect CX208-P2 (4) to breakout box (5).

- Connect jumper (6) between test points 37 and 72 on breakout box (5).

NOTE

If circuit breaker 30 shuts off, leave jumper connected for remainder of tests.

- Set circuit breaker 30 (7) on turret networks box (3) to ON.
- Set TURRET POWER switch (8) to ON.
- Press and hold palm switch (9) on gunner's control (10).

Does circuit breaker 30 shut off?

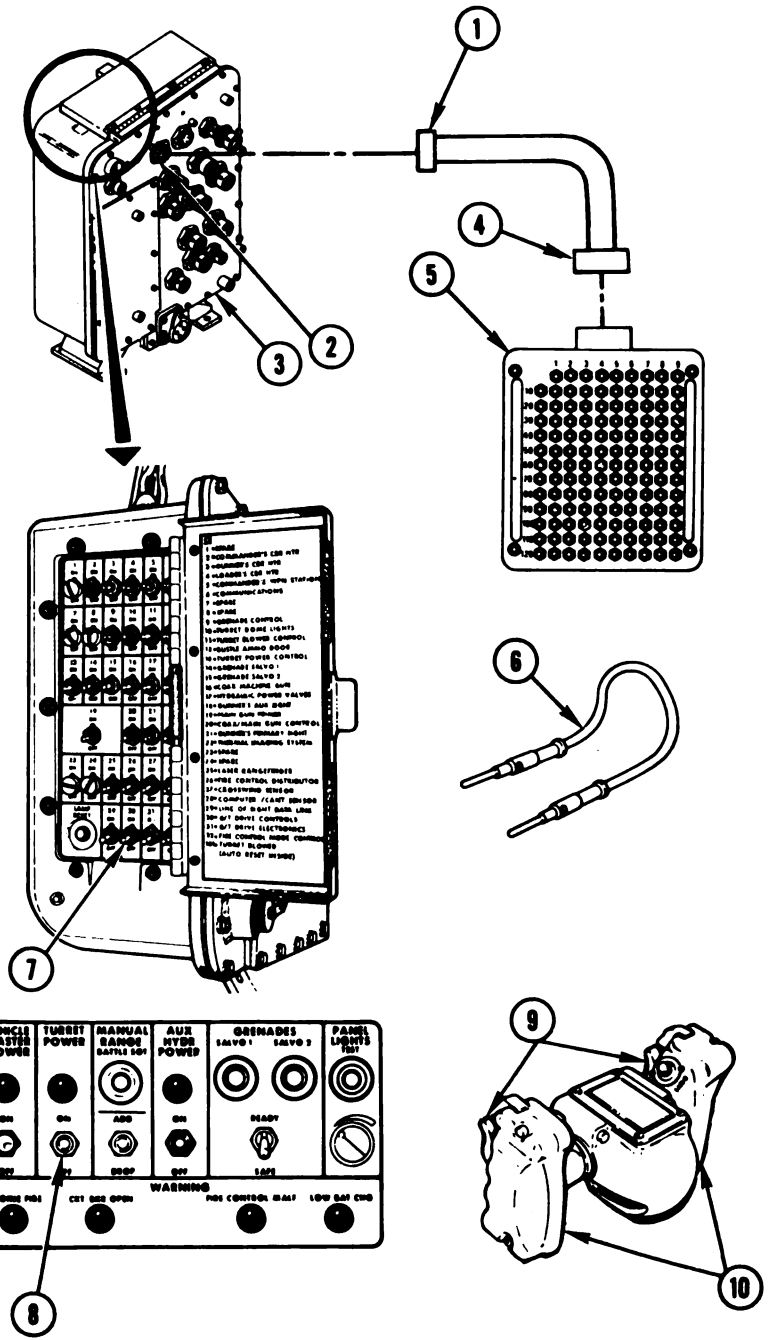


Figure 9-145 (Sheet 1 of 3)
Volume II
Para. 9-3

ARR82-5950

9-339

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

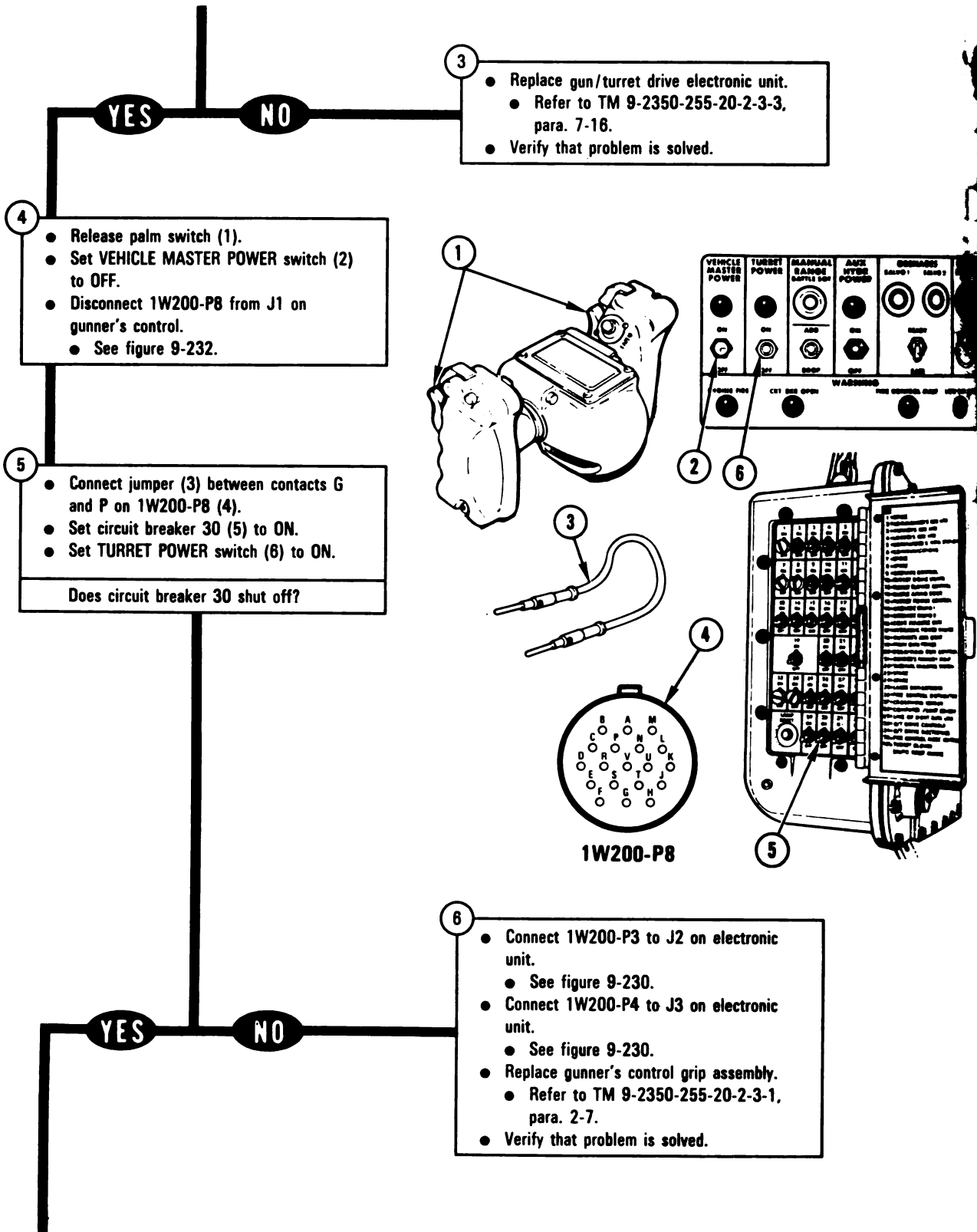


Figure 9-145 (Sheet 2 of 3)
Volume II
Para. 9-3

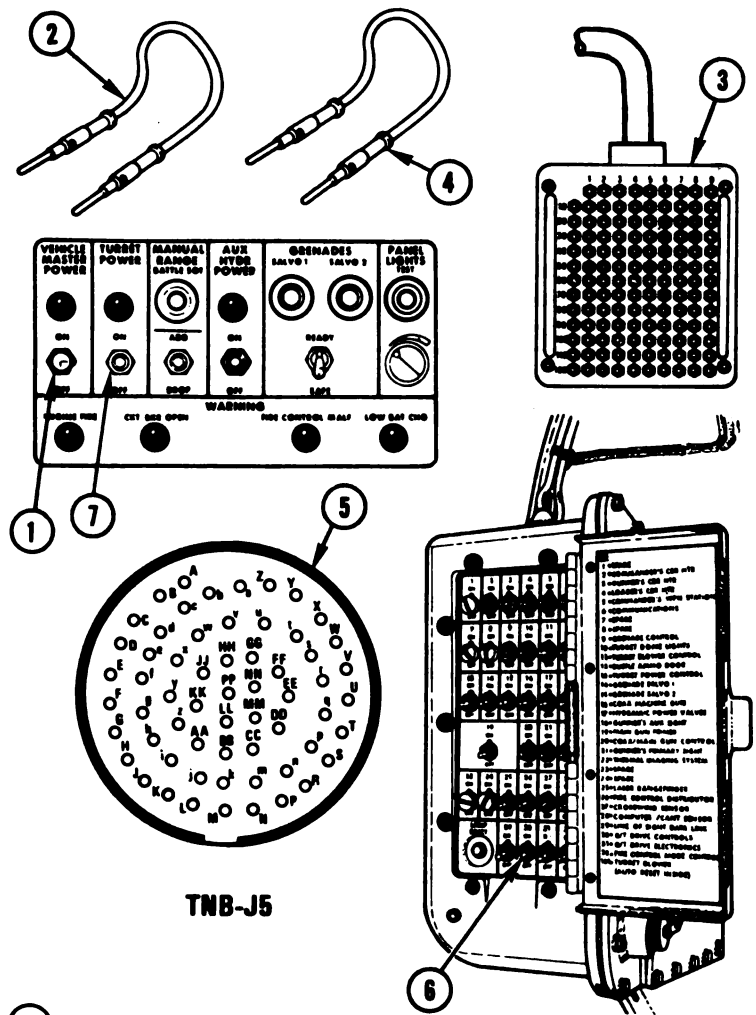
ARR82-5951

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

Set **VEHICLE MASTER POWER** switch (1) to **OFF**.
Disconnect 1W200-P1 from J5 on turret networks box.
● See figure 9-229.

Connect jumper (2) between test points 10 and 34 on breakout box (3).
Connect jumper (4) between contacts A and P on turret networks box J5 (5).
Set circuit breaker 30 (6) to **ON**.
Set **TURRET POWER** switch (7) to **ON**.

Does circuit breaker 30 shut off?



NO

9

- Replace wiring harness assembly 1W200.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

YES

10

- Connect 1W200-P3 to J2 on electronic unit.
- See figure 9-230.
- Connect 1W200-P4 to J3 on electronic unit.
- See figure 9-230.
- Connect 1W200-P8 to J1 on gunner's control.
- See figure 9-232.
- Replace turret networks box.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
- Verify that problem is solved.

Figure 9-145 (Sheet 3 of 3)
Volume II
Para. 9-3

ARR82-5952

9-341

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS -
FAULTY LOS OR
1W202**

• 142228
142430
147216

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

1

- Disconnect CA505-P2 from CX307-P1.
 - See figure 9-17.
- If connected, disconnect CA511-P2 from CX307-P2.
 - See figure 9-26.
- Disconnect 1W202-P3 from J1 on line-of-sight electronics unit.
 - See figure 9-238.
- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.

2

- Prepare STE to run cable test 1390.
 - Press TEST button (1) on VTM (2).
 - Press CLEAR key (3) on SETCOM (4).
 - Enter test number 1390 on SETCOM (4).
- Run test on 1W202 between P1 and P3.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.

Does SETCOM display show GOOD?

NO

3

- If disconnected, connect 1W104-P2 to J3 on gunner's primary sight.
 - See figure 9-240.
- Replace branched wiring harness 1W202.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

YES

4

- If disconnected, connect 1W104-P2 to J3 on gunner's primary sight.
 - See figure 9-240.
- Connect 1W202-P1 to J7 on turret networks box.
 - See figure 9-229.
- Replace line-of-sight electronics unit.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-8.
- Verify that problem is solved.

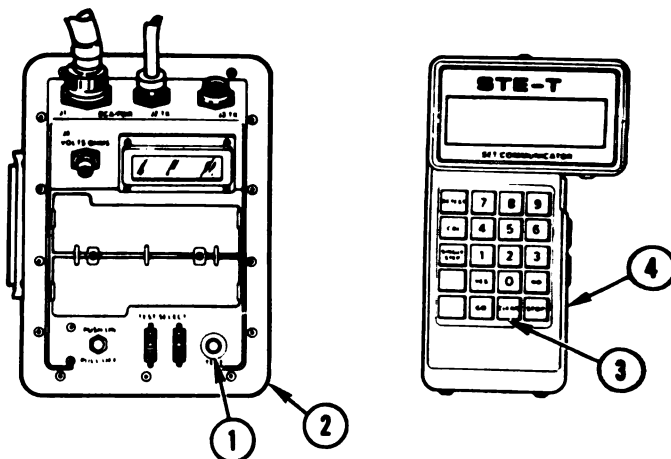


Figure 9-146
Volume II
Para. 9-3

DISPLAY SHOWS -
FAULTY TNB, GTD
OR 1W200 140548

Additional Test Equipment/Special Tools:

- Breakout Box Tool Kit, 12311066

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- Disconnect CX205-P5 from TEST 2 on turret networks box.
 - See figure 9-6.
- Disconnect 1W200-P4 from J3 on electronic unit.
 - See figure 9-230.
- Connect jumper (1) between contacts i and y on 1W200-P4 (2).

NOTE

Leave jumper connected for remainder of tests.

- Connect CX208-P2 (3) to breakout box (4).
- Connect CX208-P1 (5) to TEST 2 (6) on turret networks box (7).

- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 9-1.

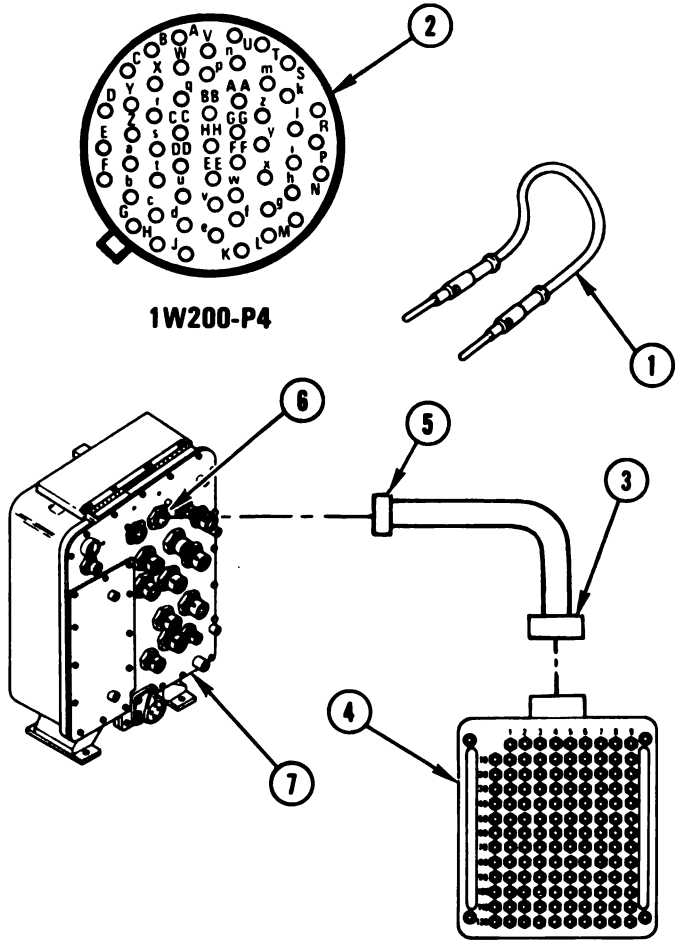


Figure 9-147 (Sheet 1 of 2)
Volume II
Para. 9-3

ARR82-5954

TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING

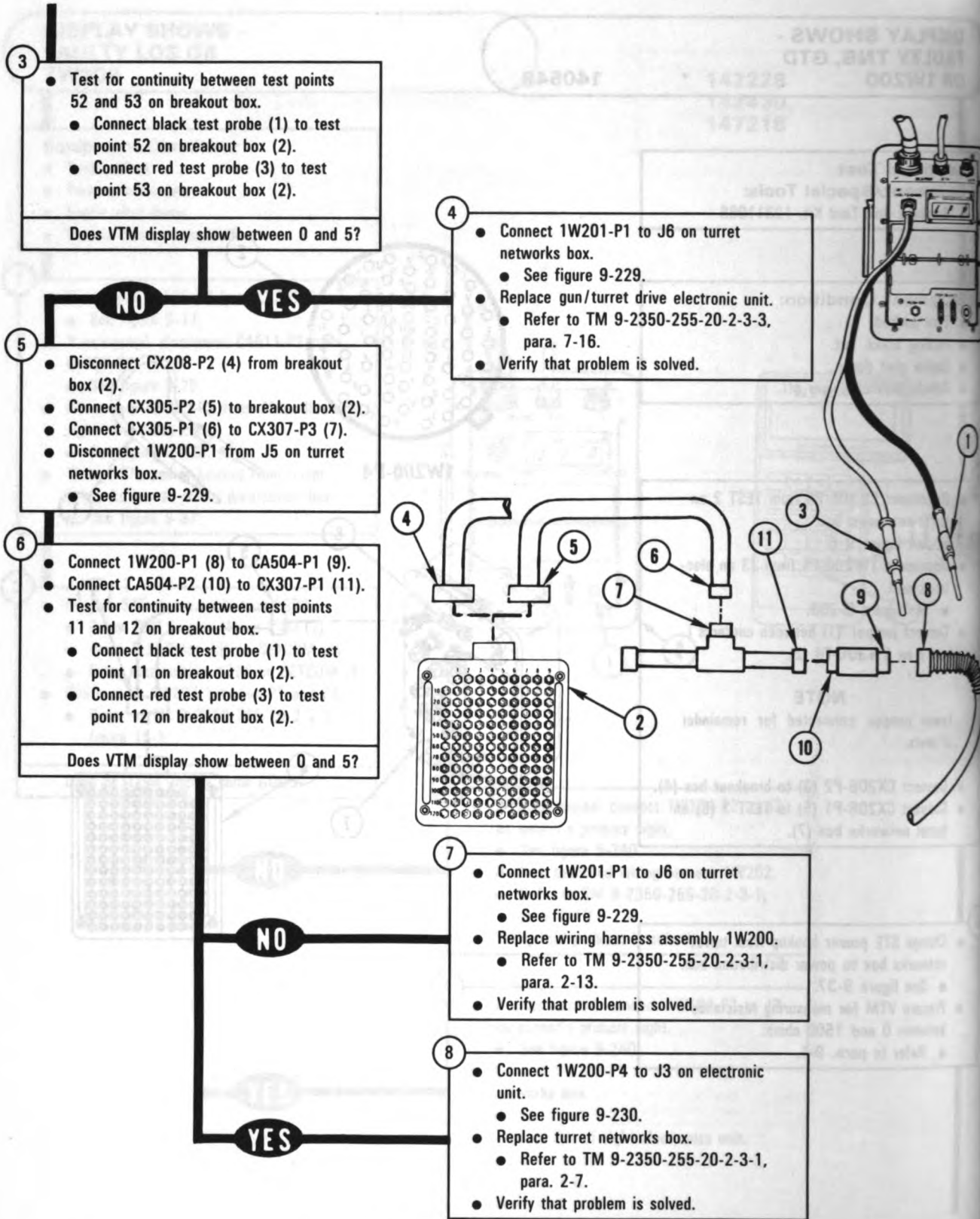


Figure 9-147 (Sheet 2 of 2)
Volume II
Para. 9-3

ARR82-5955

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS -
FAULTY LOS OR
1W202**

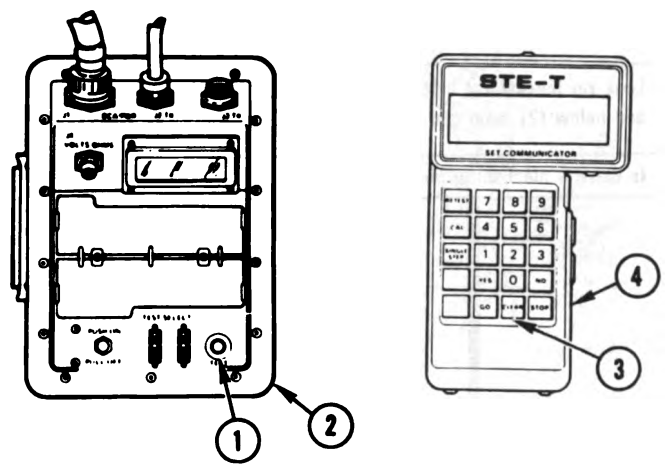
• 144407
144412

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- Disconnect CA519-P2 from CX307-P1.
 - See figure 9-15.
- Disconnect 1W202-P3 from J1 on line-of-sight electronics unit.
 - See figure 9-238.
- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.

- Prepare STE to run cable test 1390.
 - Press TEST button (1) on VTM (2).
 - Press CLEAR key (3) on SETCOM (4).
 - Enter test number 1390 on SETCOM (4).
- Run test on 1W202 between P1 and P3.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.



Does SETCOM display show GOOD?

NO

3

- Connect 1W206-P1 to J2 on line-of-sight electronics unit.
 - See figure 9-238.
- Connect 1W206-P2 to J2 on gunner's primary sight.
 - See figure 9-240.
- Replace branched wiring harness 1W202.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

YES

4

- Connect 1W206-P2 to J2 on gunner's primary sight.
 - See figure 9-240.
- Connect 1W202-P1 to J7 on turret networks box.
 - See figure 9-229.
- Replace line-of-sight electronic unit.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-8.
- Verify that problem is solved.

**Figure 9-148
Volume II
Para. 9-3**

ARR82-5956

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS -
FAULTY MECHANICAL
PART**

• 142407
142408

- Equipment Condition:**
- Tank parked.
 - Parking brake set.
 - Engine shut down.
 - Vehicle master power off.

- 1
- Look for mechanical blockage above (1) and below (2) main gun (3).
- Is there a mechanical blockage?

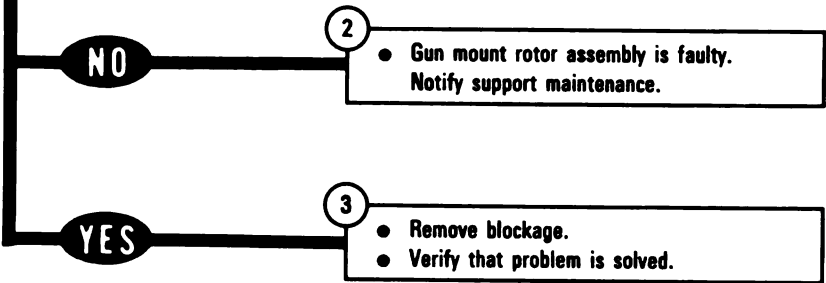
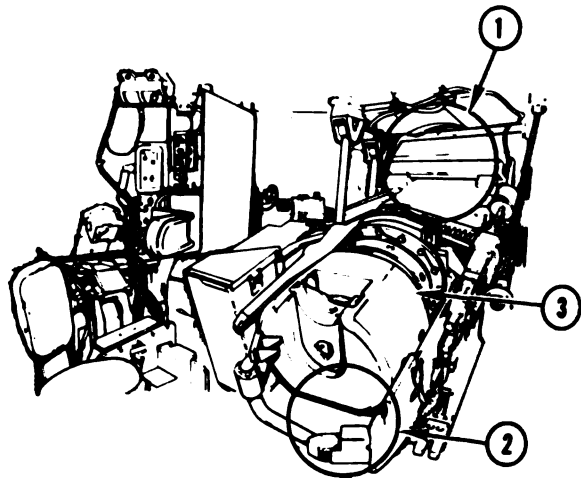


Figure 9-149
**Volume II
Para. 9-3**

ARR82-5957

DISPLAY SHOWS -
FAULTY GPS OR
CEU

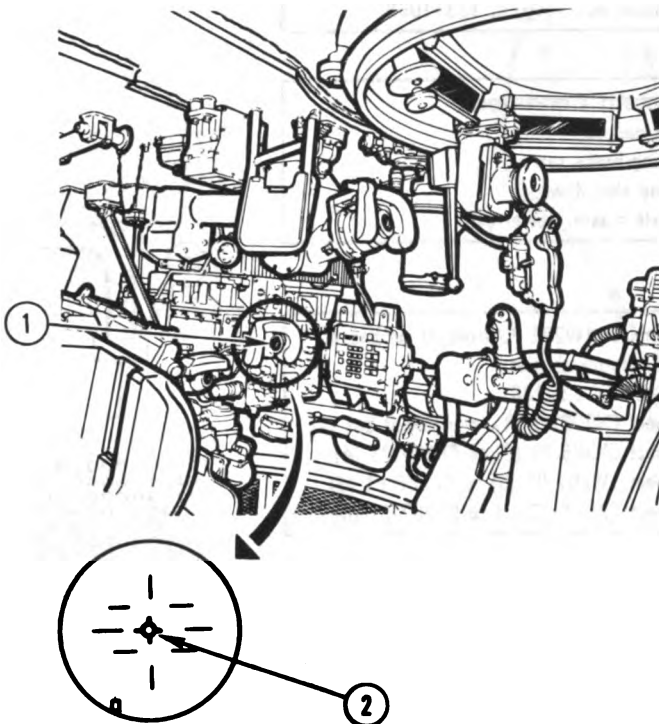
142013

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Turret power on.

- Look into gunner's primary sight eyepiece (1) to see if reticle (2) is centered.

Is reticle centered?



NO

- 2
- Replace computer electronics unit.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-14.
 - Verify that problem is solved.

YES

- 3
- Replace gun/turret drive electronic unit.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-18.
 - If problem is not solved, replace gunner's primary sight body assembly.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-5.
 - Verify that problem is solved.

Figure 9-150
Volume II
Para. 9-3

ARR82-5958

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS -
FAULTY LOS OR
1W202**

140523

**Additional Test
Equipment/Special Tools:**

- Breakout Box Tool Kit, 12311088

Equipment Condition:

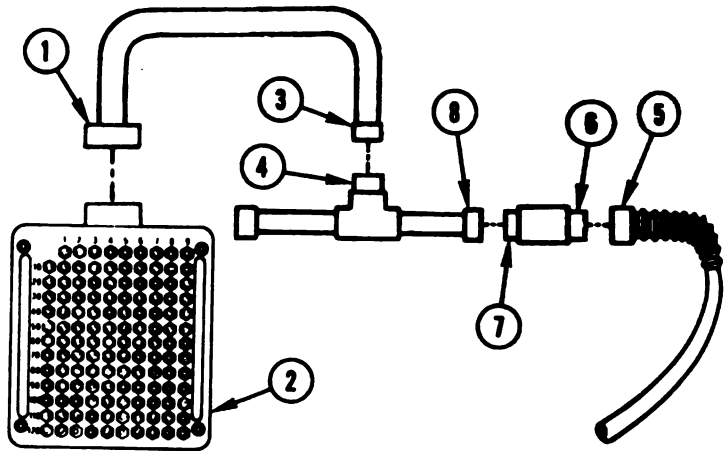
- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

1

- Disconnect 1W202-P3 from J1 on line-of-sight electronics unit.
 - See figure 9-238.
- Connect CX305-P2 (1) to breakout box (2).
- Connect CX305-P1 (3) to CX307-P3 (4).
- Connect 1W202-P1 (5) to CA506-P1 (6).
- Connect CA506-P2 (7) to CX307-P1 (8).

2

- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 9-1.



*Figure 9-151 (Sheet 1 of 2)
Volume II
Para. 9-3*

ARR82-5959

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

- Connect red test probe (1) to test point 19 on breakout box (2).

NOTE
If VTM display shows 0 to 5, go immediately to block 5.

- Test for 0 to 5 ohms by connecting black test probe (3) to each test point on breakout box (2) listed below:
 - 7 through 18
 - 20 through 39
 - 62, 74, and 75
 - 89 through 113

Does VTM display show between 0 and 5?

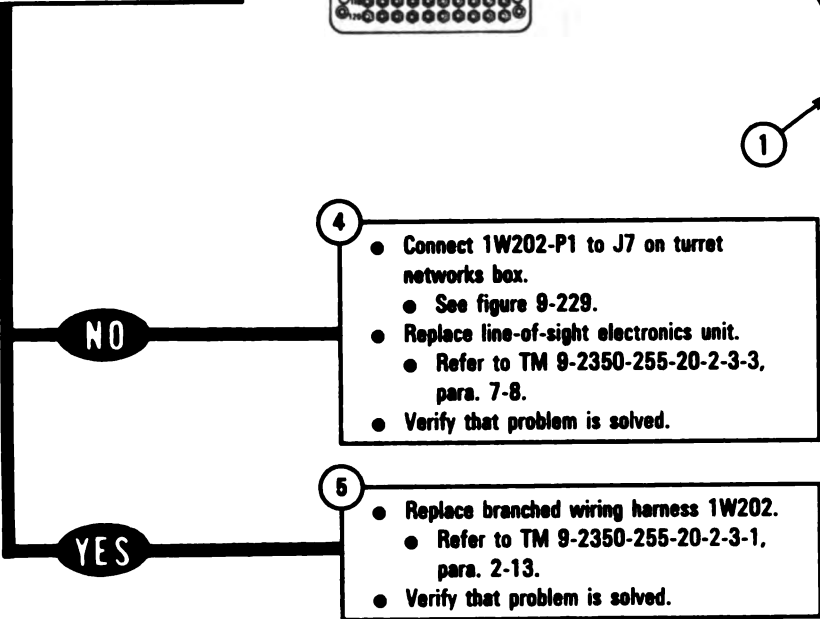
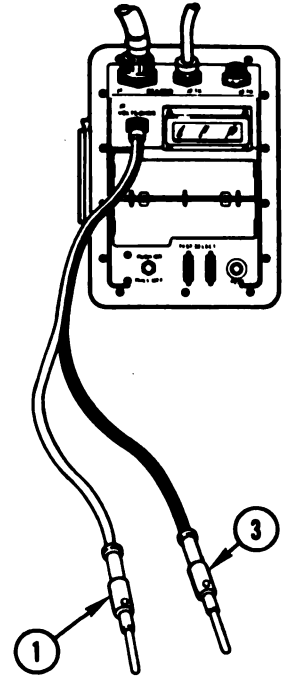
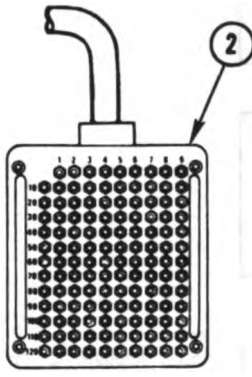


Figure 9-151 (Sheet 2 of 2)
Volume II
Para. 9-3

ARR82-5960

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS -
FAULTY TNB, GTD
OR 1W200**

140407

Additional Test

Equipment/Special Tools:

- Breakout Box Tool Kit, 12311086

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- 1
- Disconnect 1W200-P2 from J1 on electronic unit.
 - See figure 9-230.
 - Connect CX305-P2 (1) to breakout box (2).
 - Connect CX305-P1 (3) to CX307-P3 (4).

- 2
- Disconnect 1W200-P1 from J5 on turret networks box.
 - See figure 9-229.
 - Connect 1W200-P1 (5) to CA504-P1 (6).
 - Connect CA504-P2 (7) to CX307-P1 (8).

- 3
- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.
 - Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 9-1.

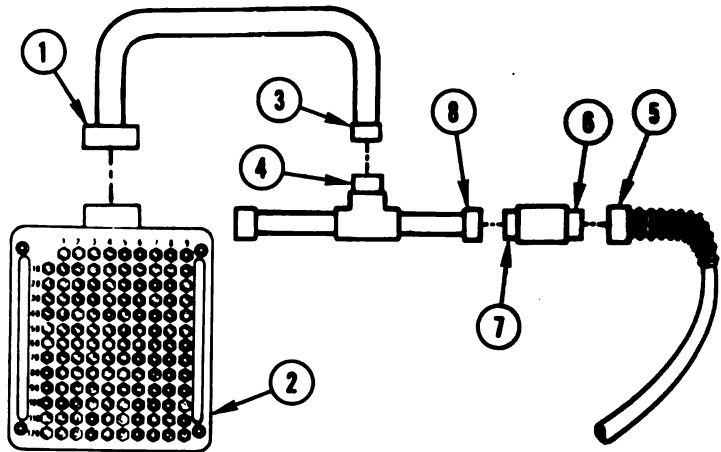


Figure 9-152 (Sheet 1 of 3)
**Volume II
Para. 9-3**

ARR82-5961

● Connect red test probe (1) to test point 104 on breakout box (2).

NOTE
If VTM display shows 0 to 5, go immediately to block 5.

● Test for 0 to 5 ohms by connecting black test probe (3) to each test point on breakout box (2) listed below:

- 7 through 23
- 30 through 39, 62, 74, and 75
- 89 through 103
- 105 through 113

Does VTM display show between 0 and 5?

NO

● Disconnect CA504-P2 (4) from CX307-P1 (5).

● Connect CA503-P1 (6) to J5 (7) on turret networks box (8).

● Connect CA503-P2 (9) to CX307-P2 (10).

● Connect red test probe (1) to test point 104 on breakout box (2).

NOTE
If VTM display shows 0 to 5, go immediately to block 9.

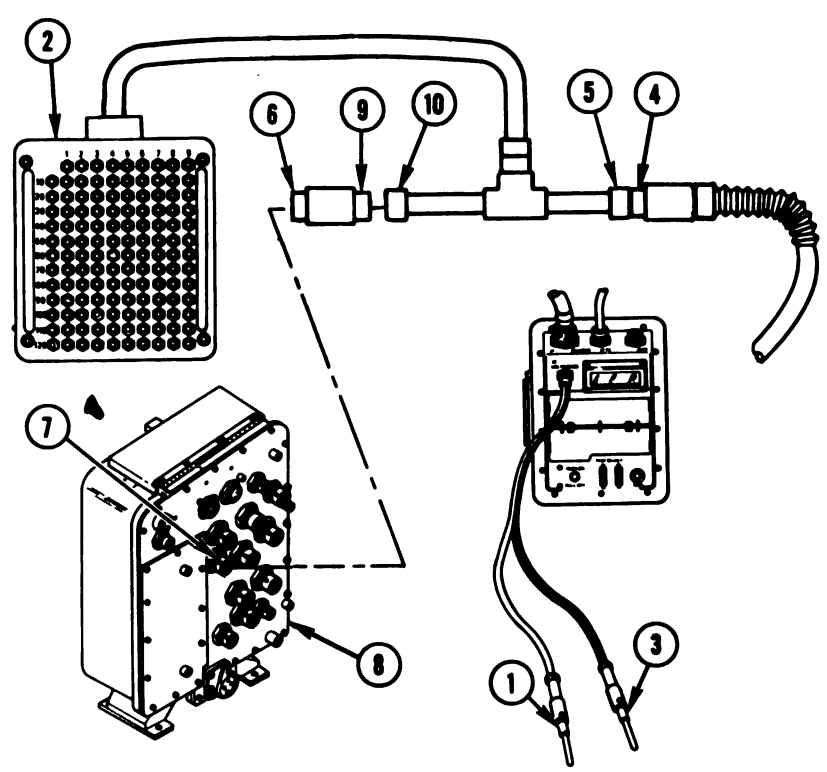
● Test for 0 to 5 ohms by connecting black test probe (3) to each test point on breakout box (2) listed below:

- 7 through 23
- 30 through 39, 62, 74, and 75
- 89 through 103
- 105 through 113

Does VTM display show between 0 and 5?

5

- Replace wiring harness assembly 1W200.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.



*Figure 9-152 (Sheet 2 of 3)
Volume II
Para. 9-3*

ARR82-5962

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

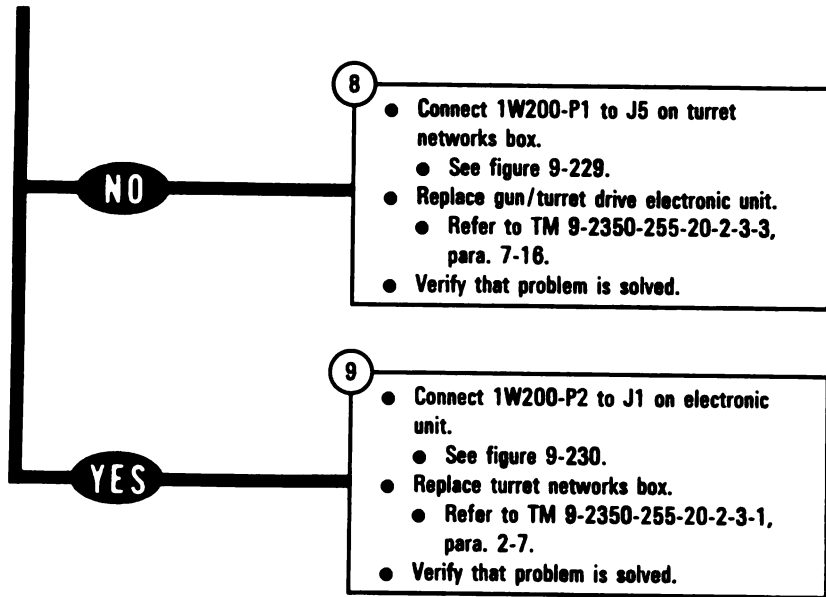


Figure 9-152 (Sheet 3 of 3)
Volume II
Para. 9-3

**DISPLAY SHOWS -
FAULTY TNB OR
1W202**

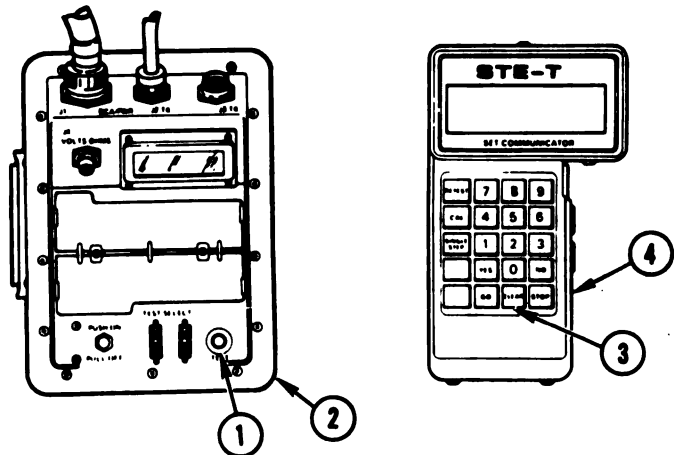
• 142470
142471

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- Disconnect CX205-P2 from CIB-J2.
 - See figure 9-6.
- Disconnect 1W202-P1 from J7 on turret networks box.
 - See figure 9-229.
- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.

- Prepare STE to run cable test 1390.
 - Press TEST button (1) on VTM (2).
 - Press CLEAR key (3) on SETCOM (4).
 - Enter test number 1390 on SETCOM (4).
- Run test on 1W202 between P1 and P2.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.



Does SETCOM display show GOOD?

NO

- 3
- Replace branched wiring harness 1W202.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

YES

- 4
- Connect 1W202-P3 to J1 on line-of-sight electronics unit.
 - See figure 9-238.
 - Connect 1W202-P2 to J2 on computer electronics unit.
 - See figure 9-230.
 - Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
 - Verify that problem is solved.

Figure 9-153
Volume II
Para. 9-3

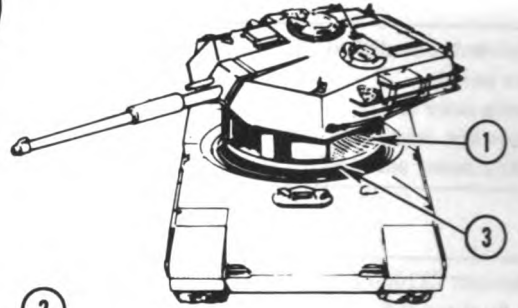
ARR82-5963

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS
FAULTY AZ
FRICTION** OR **141906**

**DISPLAY SHOWS
FAULTY MECHANICAL
PART**

• **141813**
141920



TURRET LIFTED
FOR CLARITY

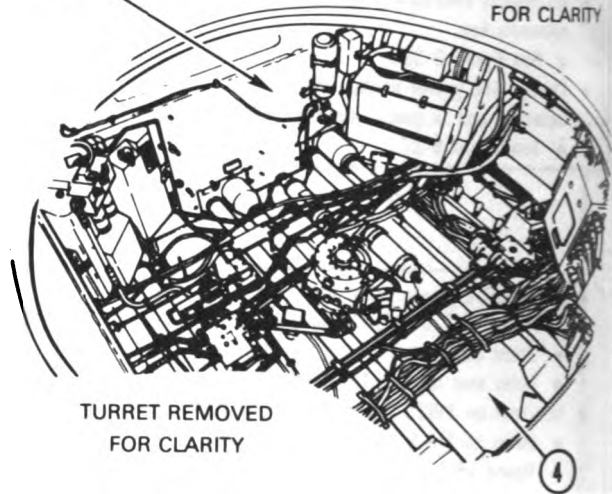
Equipment Condition:

- Tank parked where it is safe to traverse turret.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

1

- Check to see if hull-turret seal is inflated.
- Refer to TM 9-2350-255-10.

Is hull-turret seal inflated?



TURRET REMOVED
FOR CLARITY

NO **YES**

2

- Deflate hull-turret seal.
- Refer to TM 9-2350-255-10.
- Verify that problem is solved.

3

- Look between turret basket (1) and hull wall (2) for mechanical blockage.
- Look between turret platform (3) and hull floor (4) for mechanical blockage.

Is there mechanical blockage?

NO **YES**

4

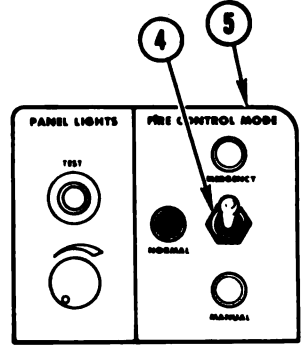
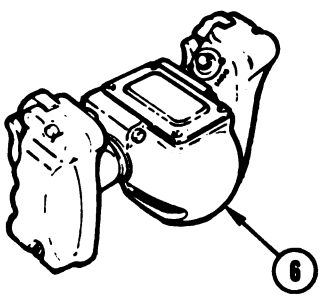
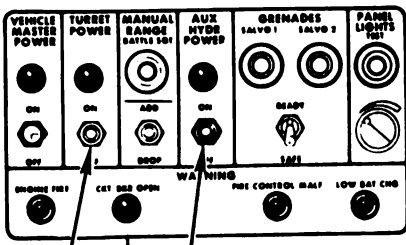
- Remove blockage.
- Verify that problem is solved.

Figure 9-154 (Sheet 1 of 3)
Volume II
Para. 9-3

ARR82-5964

TM 9-2350-255-20-2-2-1 HYDRAULIC AND GUN/TURRET DRIVE SYSTEM TROUBLESHOOTING

- Bleed air from traverse hydraulic system.
 - Refer to TM 9-2350-255-20-2-3-2, para. 4-5.
- Set TURRET POWER switch (1) to ON.
- Set AUX HYDR POWER switch (2) on commander's control panel (3) to ON.
- Set FIRE CONTROL MODE switch (4) on gunner's primary sight lower panel (5) to EMERGENCY.



- Traverse turret slowly to the left and then to the right using gunner's control (6).

Does turret track erratically?

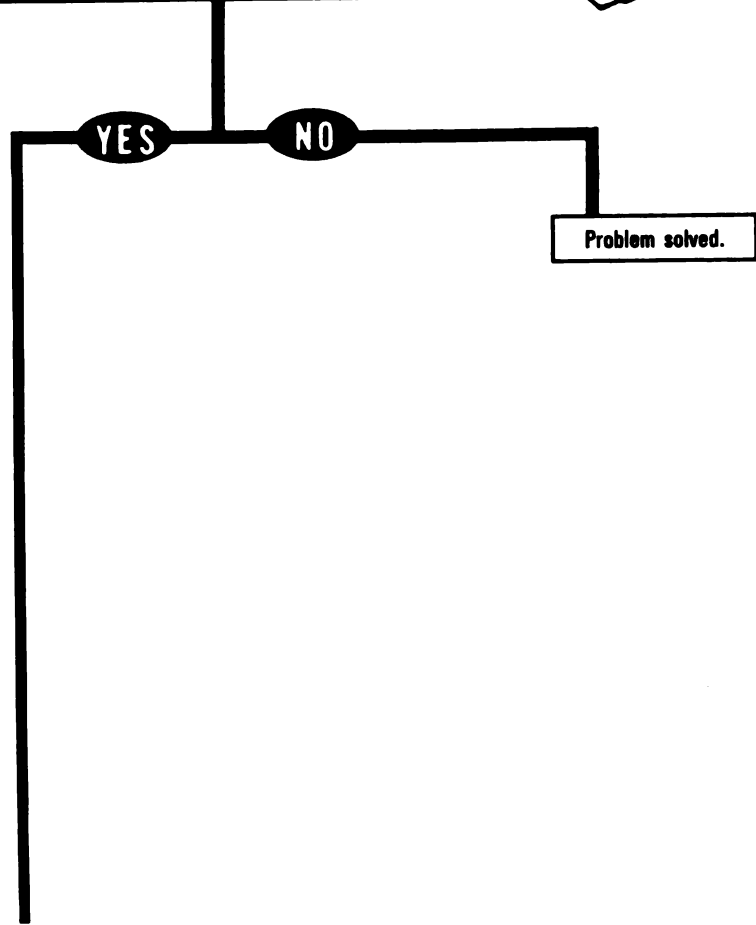
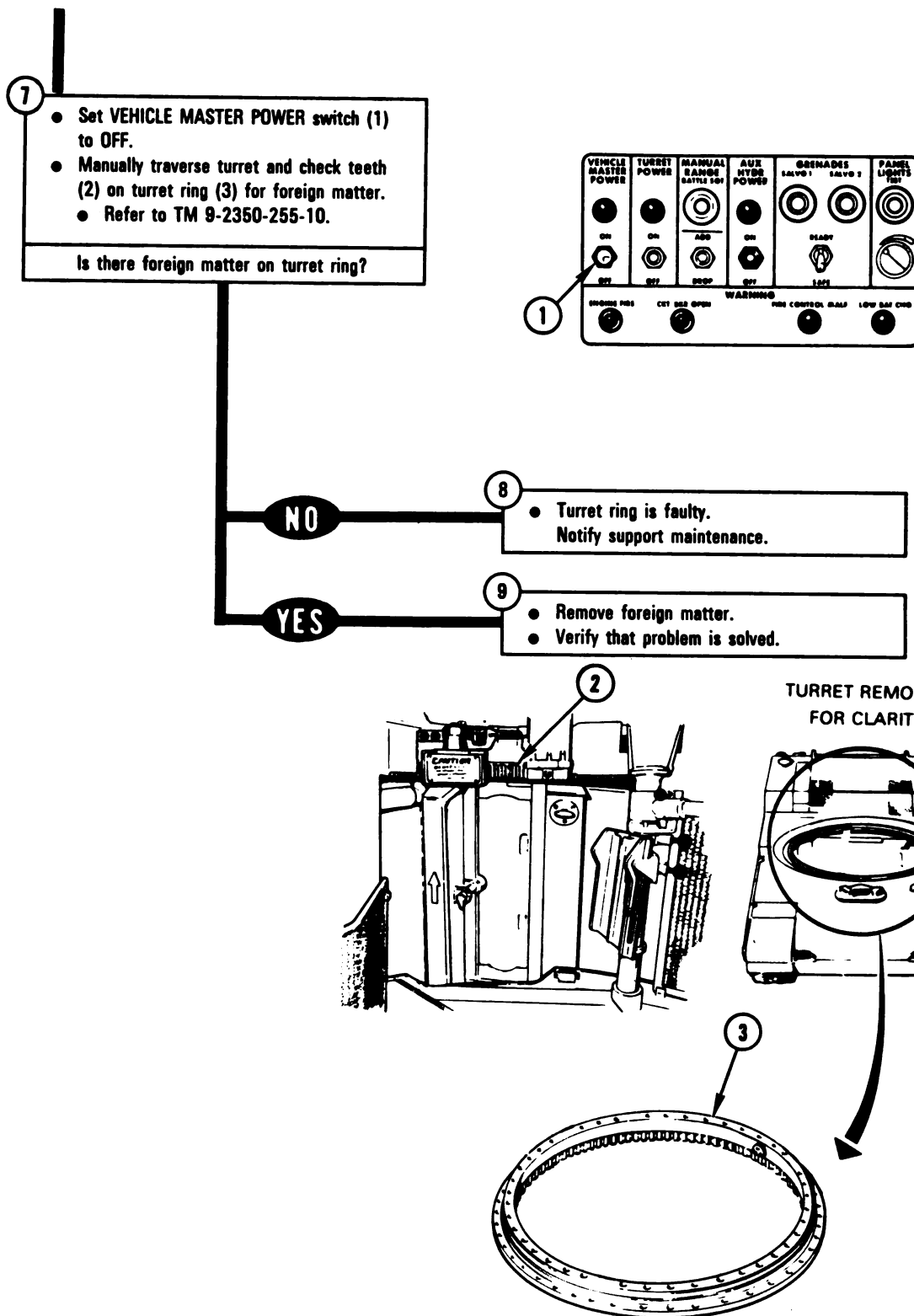


Figure 9-154 (Sheet 2 of 3)
Volume II
Para. 9-3

ARR82-5965

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**



*Figure 9-154 (Sheet 3 of 3)
Volume II
Para. 9-3*

ARR82-5966

**DISPLAY SHOWS
 FAULTY TNB, GTD
 OR 1W200**

140540

**Additional Test
 Equipment/Special Tools:**

- Breakout Box Tool Kit, 12311068

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- Connect 1W201-P1 to J6 on turret networks box.

- See figure 9-229.

- Connect CX305-P2 (1) to breakout box (2).
- Connect CX305-P1 (3) to CX307-P3 (4).

- Disconnect 1W200-P4 from J3 on electronic unit.

- See figure 9-230.

- Connect 1W200-P4 (5) to CA515-P1 (6).
- Connect CA515-P2 (7) to CX307-P1 (8).

- Change STE power hookup from turret networks box to power distribution box.

- See figure 9-37.

- Prepare VTM for measuring resistance between 0 and 1500 ohms.

- Refer to para. 9-1.

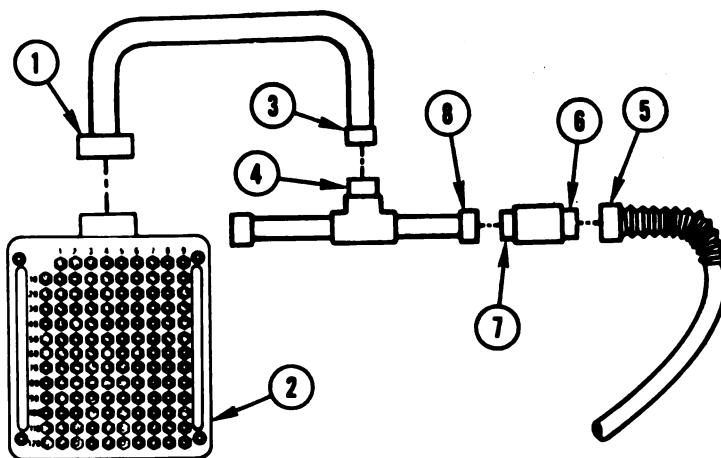


Figure 9-155 (Sheet 1 of 4)
 Volume II
 Para. 9-3

ARR82-5967

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

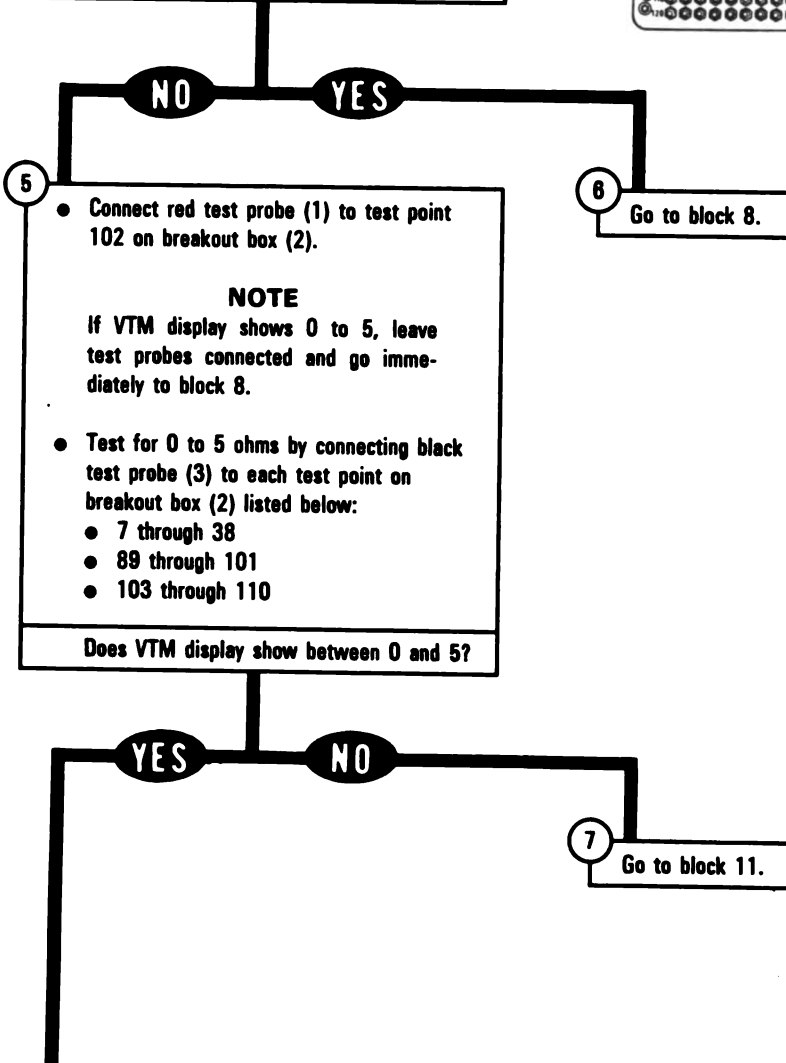
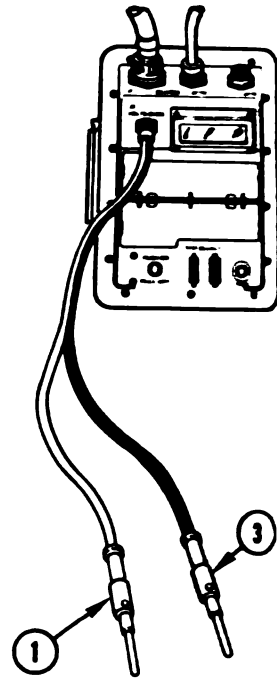
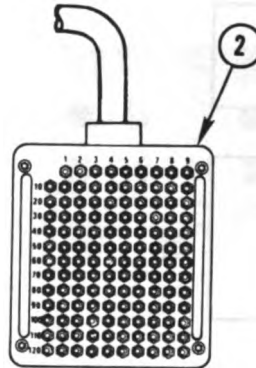
4

- Connect red test probe (1) to test point 38 on breakout box (2).

NOTE
If VTM display shows 0 to 5, leave test probes connected and go immediately to block 6.

- Test for 0 to 5 ohms by connecting black test probe (3) to each test point on breakout box (2) listed below:
 - 7 through 37
 - 89 through 110

Does VTM display show between 0 and 5?



*Figure 9-155 (Sheet 2 of 4)
Volume II
Para. 9-3*

ARR82-5968

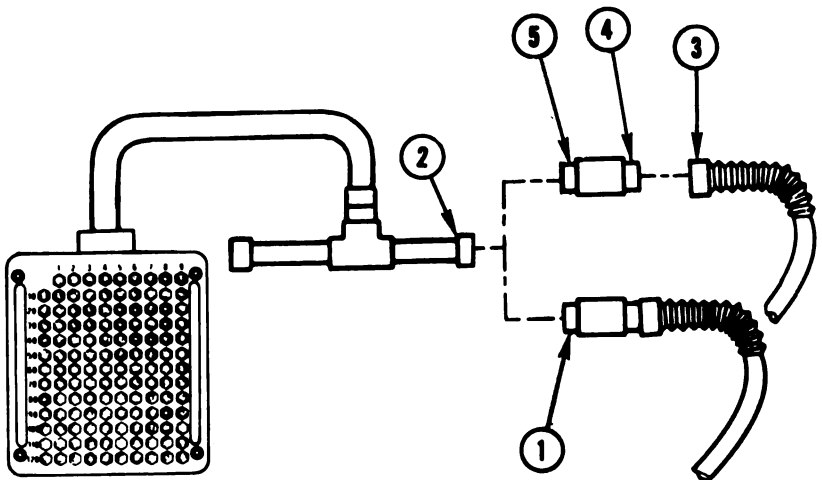
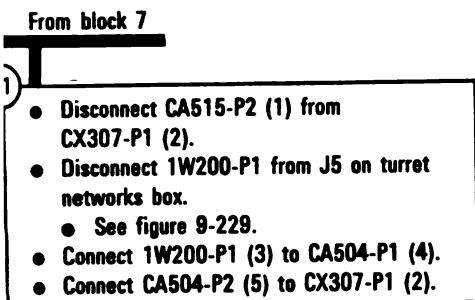
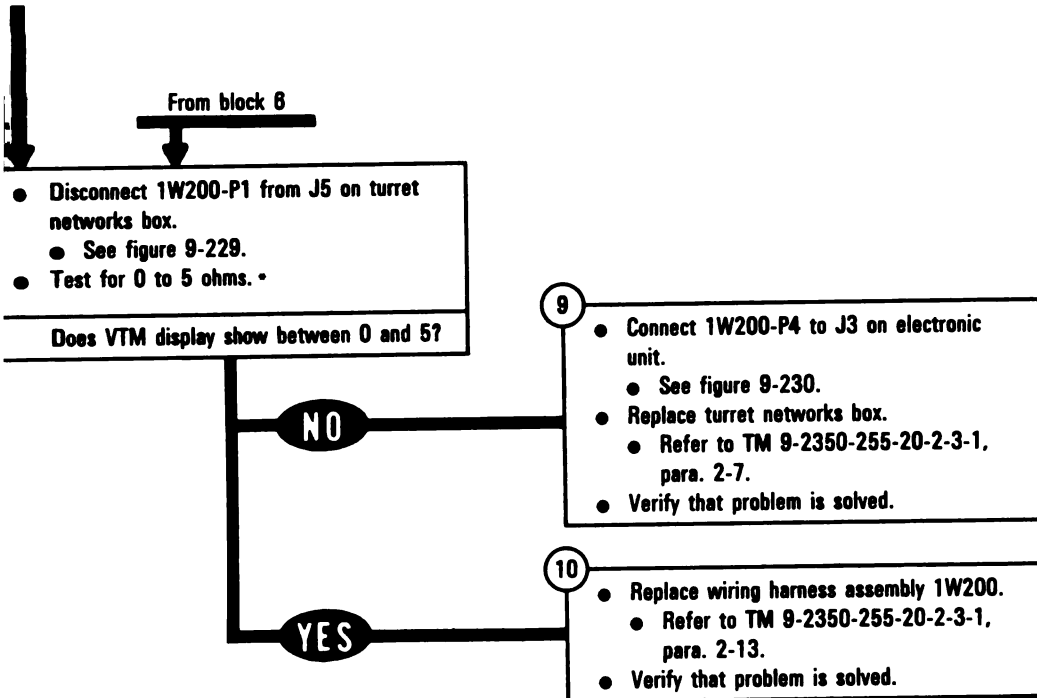


Figure 9-155 (Sheet 3 of 4)
Volume II
Para. 9-3

ARR82-5969

* Between contacts found in block 5

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

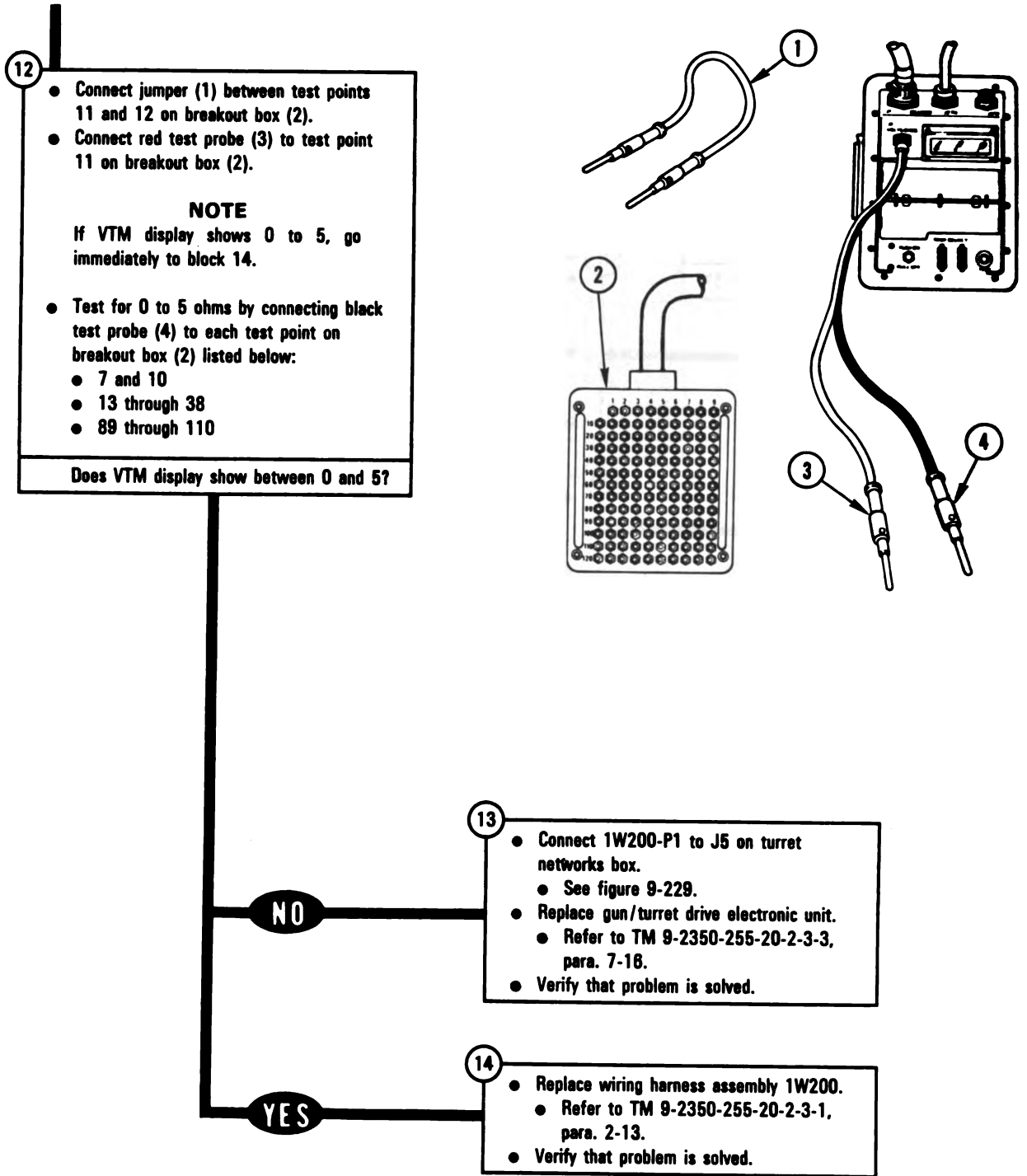


Figure 9-155 (Sheet 4 of 4)
**Volume II
Para. 9-3**

ARR82-5970

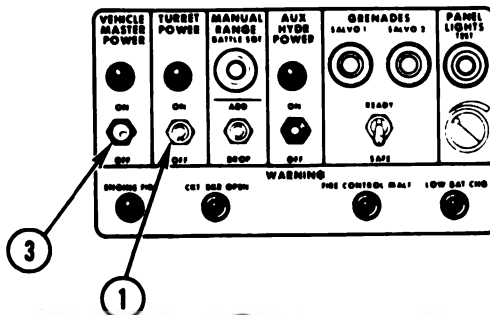
**DISPLAY SHOWS
FAULTY ELSVO OR
HYDRAULICS**

- 141212
- 141247
- 141248
- 141252
- 147029
- 147038
- 147040

Equipment Condition:

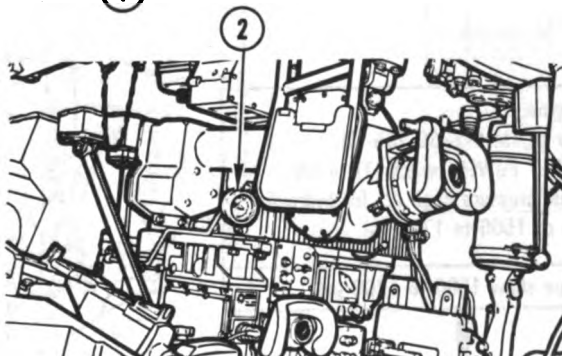
- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- If connected, disconnect CA524-P1 from J2 on electronic unit.
 - See figure 9-23.
- If disconnected, connect 1W200-P3 to J2 on electronic unit.
 - See figure 9-230.



- Start engine.
 - Refer to TM 9-2350-255-10.
- Set TURRET POWER switch (1) to ON.
- Check dial pressure gage (2) for hydraulic pressure of 1500 to 1700 psi.

Does gage show 1500 to 1700 psi?



NO

- 3
- Shut down engine.
 - Refer to TM 9-2350-255-10.
 - Set VEHICLE MASTER POWER switch (3) to OFF.
 - Hydraulic system is faulty.
 - See para. 9-2, table 9-2.

YES

- 4
- Shut down engine.
 - Refer to TM 9-2350-255-10.
 - Set VEHICLE MASTER POWER switch (3) to OFF.
 - Elevation servomechanism is faulty. Notify support maintenance.

Figure 9-156
Volume II
Para. 9-3

ARR82-5971

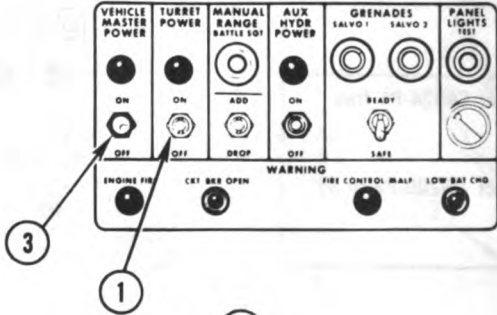
**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

• 141242
141249
141250
141251
147008
147034
147052

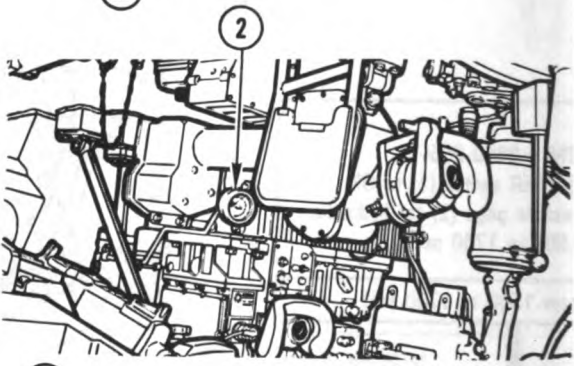
**DISPLAY SHOWS -
FAULTY TRVSV OR
HYDRAULICS**

- Equipment Condition:**
- Tank parked.
 - Parking brake set.
 - Engine shut down.
 - Vehicle master power off.

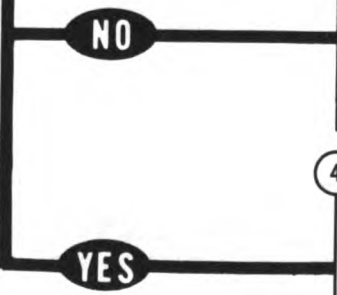
- 1
- If connected, disconnect CA515-P1 from J3 on electronic unit.
 - See figure 9-29.
 - If disconnected, connect 1W200-P4 to J3 on electronic unit.
 - See figure 9-230.



- 2
- Start engine.
 - Refer to TM 9-2350-255-10.
 - Set TURRET POWER switch (1) to ON.
 - Check dial pressure gage (2) for hydraulic pressure of 1500 to 1700 psi.



Does gage show 1500 to 1700 psi?



- 3
- Shut down engine.
 - Refer to TM 9-2350-255-10.
 - Set VEHICLE MASTER POWER switch (3) to OFF.
 - Hydraulic system is faulty.
 - See para. 9-2, table 9-2.

- 4
- Shut down engine.
 - Refer to TM 9-2350-255-10.
 - Set VEHICLE MASTER POWER switch (3) to OFF.
 - Traverse servomechanism is faulty.
 - Notify support maintenance.

*Figure 9-157
Volume II
Para. 9-3*

**DISPLAY SHOWS -
FAULTY TNB OR
1W202** 142130

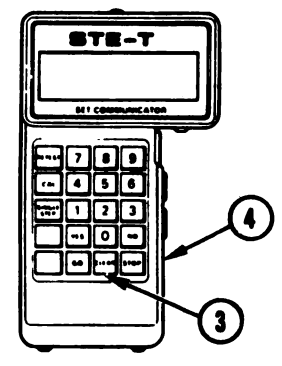
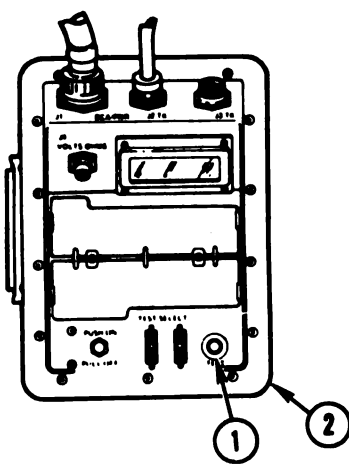
**Additional Test
Equipment/Special Tools:**
● Breakout Box Tool Kit, 12311066

Equipment Condition:
● Tank parked.
● Parking brake set.
● Engine shut down.
● Vehicle master power off.

● Disconnect CX205-P2 from CIB-J2.
● See figure 9-6.
● Disconnect 1W202-P1 from J7 on turret networks box.
● See figure 9-229.
● Change STE power hookup from turret networks box to power distribution box.
● See figure 9-37.

● Prepare STE to run cable test 1390.
● Press TEST button (1) on VTM (2).
● Press CLEAR key (3) on SETCOM (4).
● Enter test number 1390 on SETCOM (4).
● Run test on 1W202 between P1 and P3.
● Refer to TM 9-2350-255-20-2-2-2, figure 15-5.

Does SETCOM display show GOOD?



YES

NO

3 ● Replace branched wiring harness 1W202.
● Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
● Verify that problem is solved.

Figure 9-158 (Sheet 1 of 2)
Volume II
Para. 9-3

ARR82-5977

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

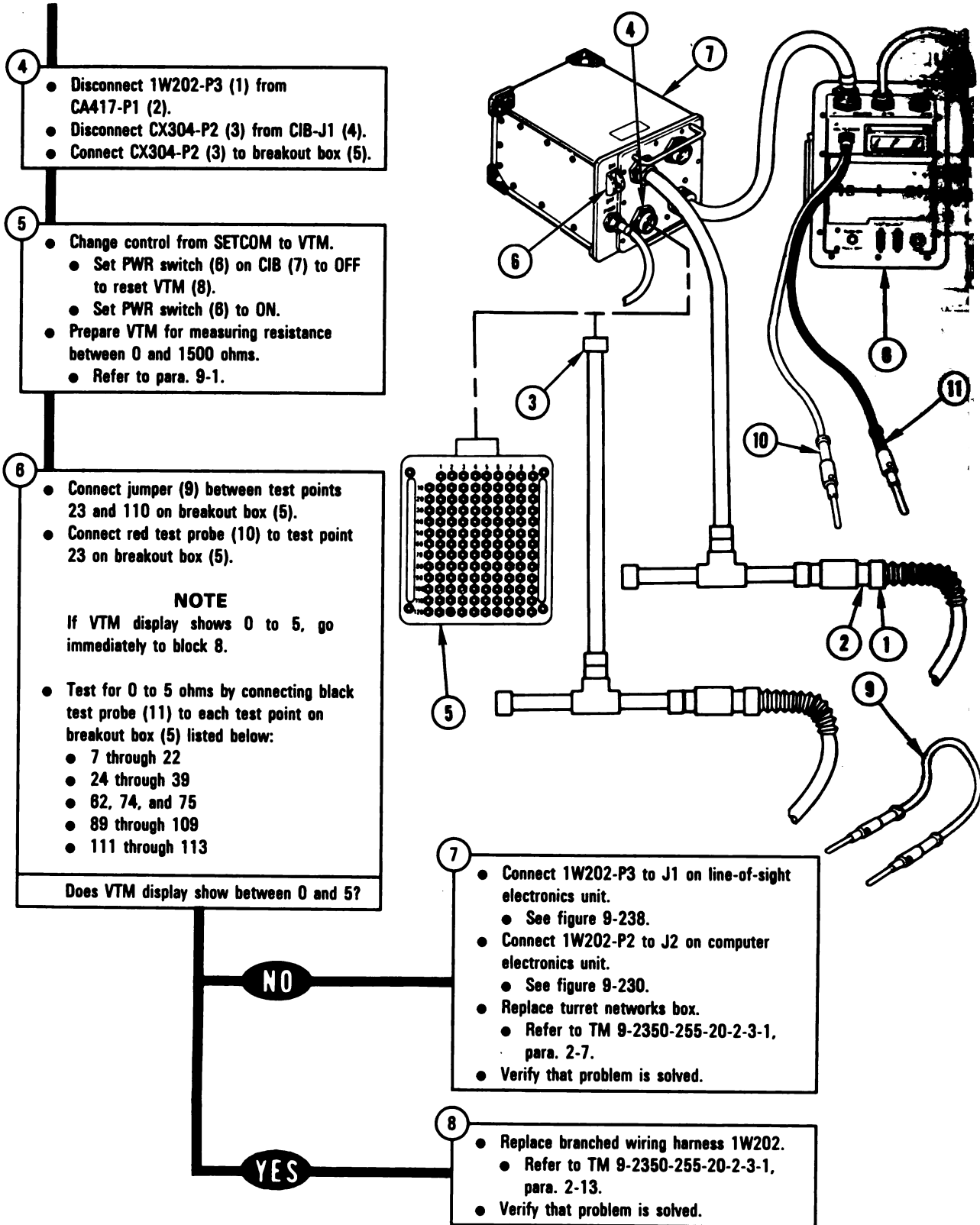


Figure 9-158 (Sheet 2 of 2)
Volume II
Para. 9-3

ARR82-59 '8

DISPLAY SHOWS -
 FAULTY TNB OR
 1W200

141506

Additional Test

Equipment/Special Tools:

Breakout Box Tool Kit, 12311066

Equipment Condition:

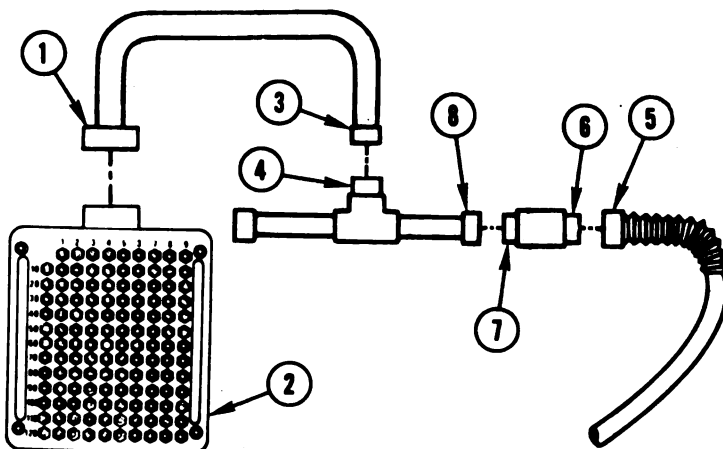
Tank parked.
 Parking brake set.
 Engine shut down.
 Vehicle master power off.

Connect CX305-P2 (1) to breakout box (2).
 Connect CX305-P1 (3) to CX307-P3 (4).
 Disconnect 1W200-P1 from J5 on turret
 networks box.

● See figure 9-229.

Connect 1W200-P1 (5) to CA504-P1 (6).

Connect CA504-P2 (7) to CX307-P2 (8).



Change STE power hookup from turret
 networks box to power distribution box.

● See figure 9-37.

Prepare VTM for measuring resistance
 between 0 and 1500 ohms.

● Refer to para. 9-1.

Figure 9-159 (Sheet 1 of 2)
 Volume II
 Para. 9-3

ARR82-5979

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

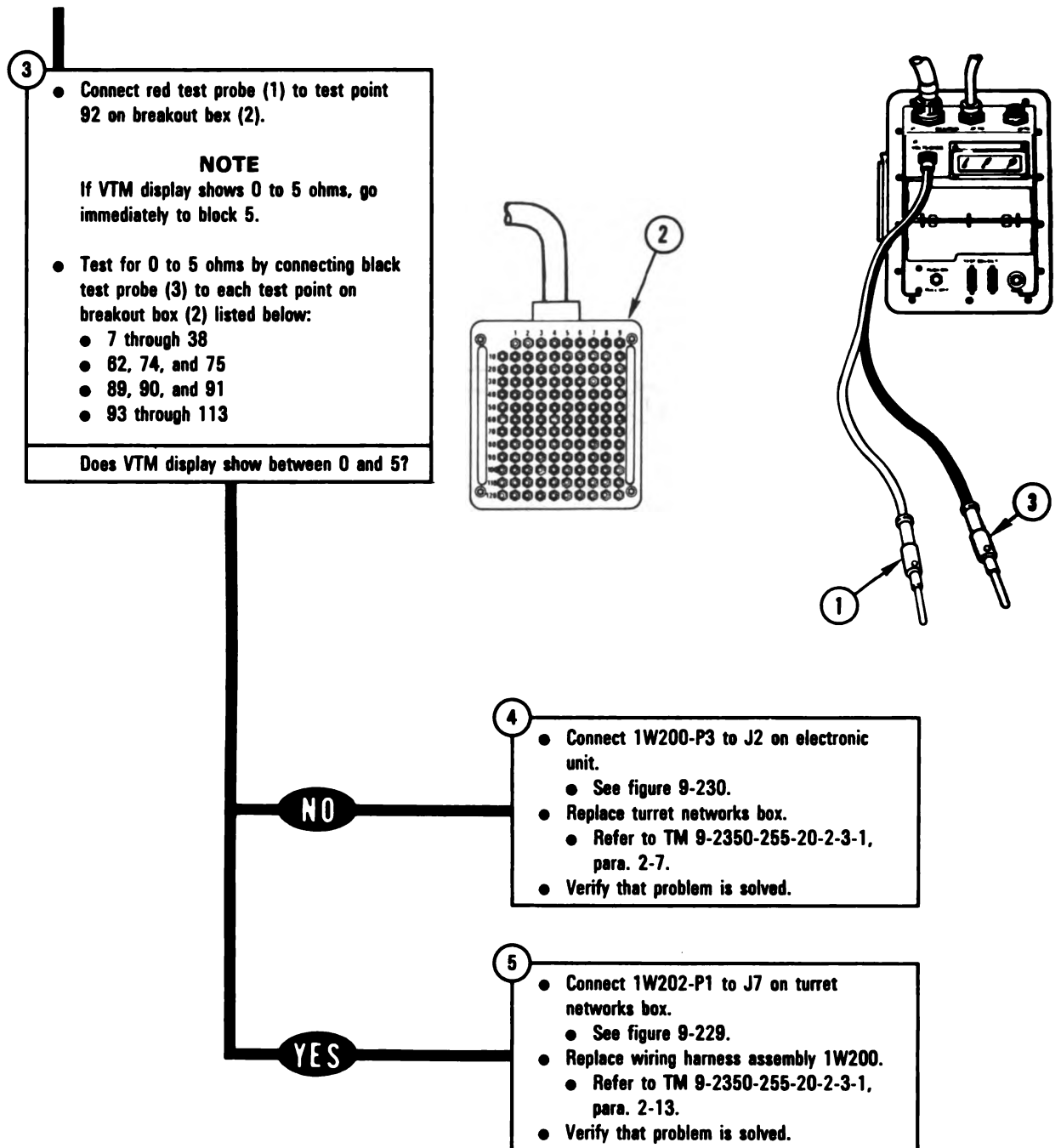


Figure 9-159 (Sheet 2 of 2)
Volume II
Para. 9-3

ARR82-

DISPLAY SHOWS -
FAULTY GTD OR
1W200

- 140517
- 140535
- 140586
- 141024

Additional Test

Equipment/Special Tools:

- Breakout Box Tool Kit, 12311066

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- If connected, disconnect 1W200-P7 from J1 on commander's control.
 - See figure 9-232.
- If connected, disconnect 1W200-P8 from J1 on gunner's control.
 - See figure 9-232.
- Disconnect CX305-P2 from CIB-J2.
 - See figure 9-32.
- Disconnect CX305-P1 from CX308-P3.
 - See figure 9-18.

- Disconnect 1W200-P4 from J3 on electronic unit.
 - See figure 9-230.
- Connect CX305-P2 (1) to breakout box (2).
- Connect CX305-P1 (3) to CX307-P3 (4).

- Disconnect 1W200-P3 from J2 on electronic unit.
 - See figure 9-230.
- Connect 1W200-P3 (5) to CA523-P1 (8).
- Connect CA523-P2 (7) to CX307-P1 (8).
- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.

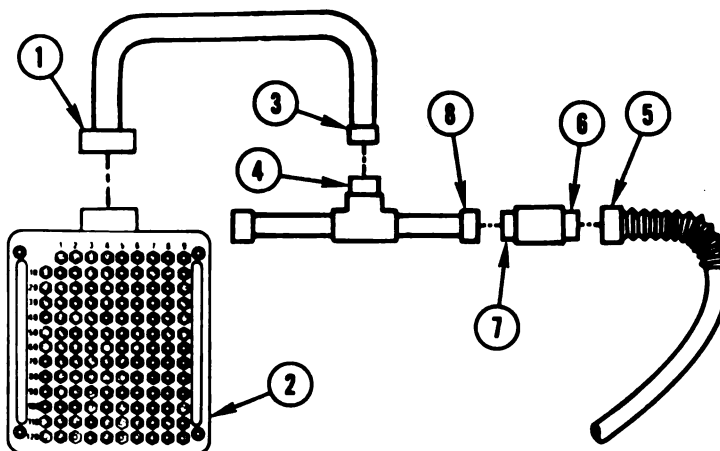


Figure 9-160 (Sheet 1 of 4)
Volume II
Para. 9-3

ARR82-5981

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

4

- Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 9-1.

NOTE
If VTM display shows 0 to 5, go immediately to block 5.

- Test for 0 to 5 ohms between test points on breakout box listed in table A for fault number being tested.
 - Connect red test probe (1) to test point on breakout box (2) listed in table A for fault number being tested.
 - Connect black test probe (3) to test points on breakout box (2) listed in table A for fault number being tested.

Does VTM display show between 0 and 5?

Table A

Fault number	Red test probe	Black test probe
140535 OR 141024	9	7 and 8, 10 through 38, 62 74, 75, and 89 through 113.
140517 OR 140586	7	8 through 38, 62, 74, 75 and 89 through 113.

NO

YES

6

- Disconnect CA523-P2 (4) from CX307-P1 (5).
- Connect 1W200-P4 (6) to CA515-P1 (7).
- Connect CA515-P2 (8) to CX307-P1 (5).

5

- Replace wiring harness assembly 1W200.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

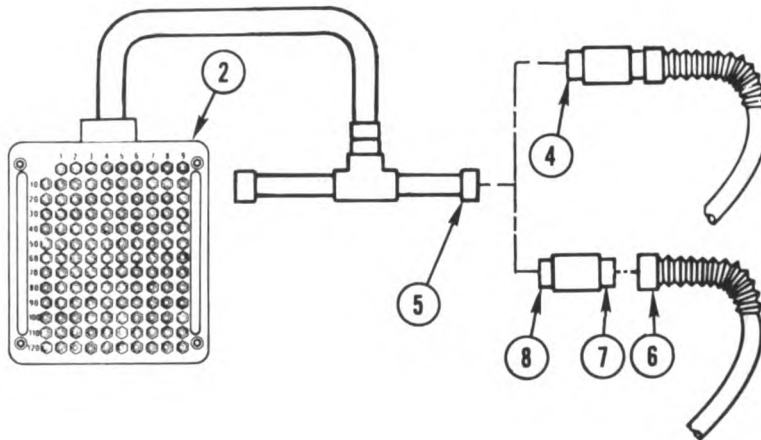
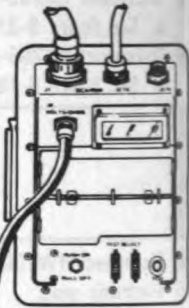


Figure 9-160 (Sheet 2 of 4)
**Volume II
Para. 9-3**

ARR82-550

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

NOTE

If VTM display shows 0 to 5, go immediately to block 8.

Test for 0 to 5 ohms between test points on breakout box listed in table B for fault number being tested.

- Connect red test probe (1) to test point on breakout box (2) listed in table B for fault number being tested.
- Connect black test probe (3) to test points on breakout box (2) listed in table B for fault number being tested.

Does VTM display show between 0 and 5?

NO

YES

Was your fault message FAULTY GTD OR 1W200 140517 or 141024?

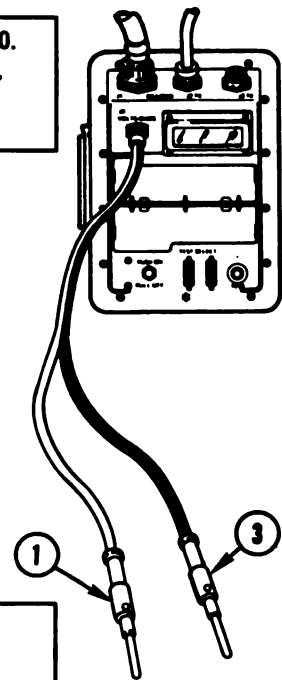
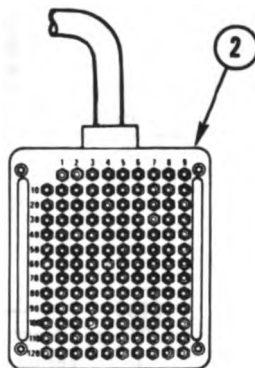
NO

YES

Table B

Fault number	Red test probe	Black test probe
140535 OR 141024	7	8 through 38, 62, 74, 75, and 89 through 113.
140517 OR 140586	8	7, 9 through 38, 62, 74, 75, and 89 through 113.

- 8
- Replace wiring harness assembly 1W200.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.



- 10
- Connect 1W200-P7 to J1 on commander's control.
 - See figure 9-232.
 - Connect 1W200-P8 to J1 on gunner's control.
 - See figure 9-232.
 - Replace gun/turret drive electronic unit.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-16.
 - Verify that problem is solved.

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

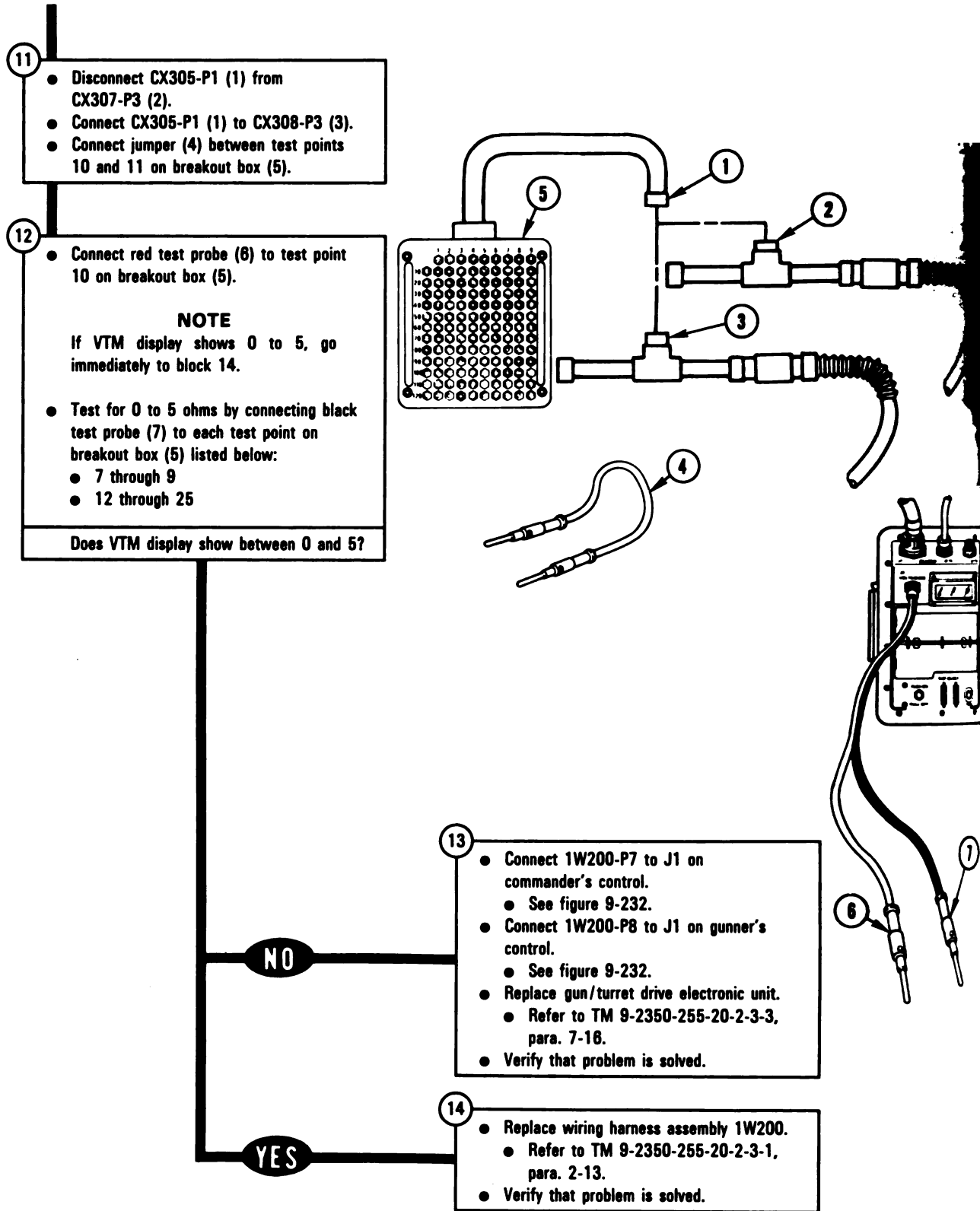


Figure 9-160 (Sheet 4 of 4)
Volume II
Para. 9-3

ARR82-5984

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

DISPLAY SHOWS -
FAULTY GTD, TRVSV
OR GCH 147044

OR

DISPLAY SHOWS -
FAULTY GTD, GCH
OR TRVSV

• 141809
141810

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- Replace gunner's control grip assembly.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-21.
- Verify that problem is solved.

Does symptom still exist?

YES **NO**

Problem solved.

- Replace gun/turret drive electronic unit.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-16.
- Verify that problem is solved.

Does symptom still exist?

NO **YES**

Problem solved.

3
• Traverse servomechanism is faulty.
Notify support maintenance.

Figure 9-161
Volume II
Para. 9-3

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS -
SEE -20 MANUAL**

141929

**Additional Test
Equipment/Special Tools:**

- Breakout Box Tool Kit, 12311066

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.
- Internal gun travel lock locked.
- Turret lock locked.

NOTE

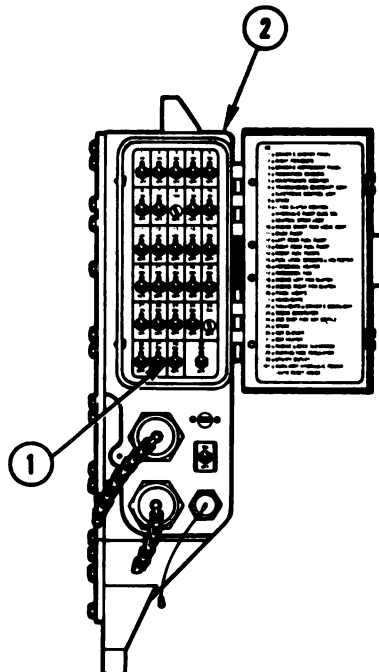
Main gun must be over rear deck during this test.

NOTE
Notify your supervisor that this procedure may require troubleshooting and replacement of components in the hull area.

1

- Check to see if circuit breaker 28 (1) on hull networks box (2) is OFF.

Is circuit breaker 28 OFF?



YES

NO

3

- Change STE power hookup from turret networks box to power distribution box.
- See figure 9-37.
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
- Refer to para. 9-1.

2 Go to block 16.

*Figure 9-162 (Sheet 1 of 6)
Volume II
Para. 9-3*

ARR8: 38

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

Connect CX305-P2 (1) to breakout box (2).
Connect CA301-P1 (3) to TJ1 (4) on hull networks box (5).
Connect CX305-P1 (6) to CA301-P2 (7).

NOTE

If VTM display shows 0 to 5, leave test probes connected for remainder of tests.

Test for 0 to 5 ohms between test points 9 and 59 on breakout box.

- Connect black test probe (8) to test point 9 on breakout box (2).
- Connect red test probe (9) to test point 59 on breakout box (2).

Does VTM display show between 0 and 5?

YES

NO

- 6
- Replace hull networks distribution box.
 - Refer to TM 9-2350-255-20-1-3-6, para. 11-12.
 - Verify that problem is solved.

Disconnect 1W101-P2 from J11 on turret networks box.

- See figure 9-229.
- Test for 0 to 5 ohms.

Does VTM display show between 0 and 5?

YES

NO

- 8
- Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
 - Verify that problem is solved.

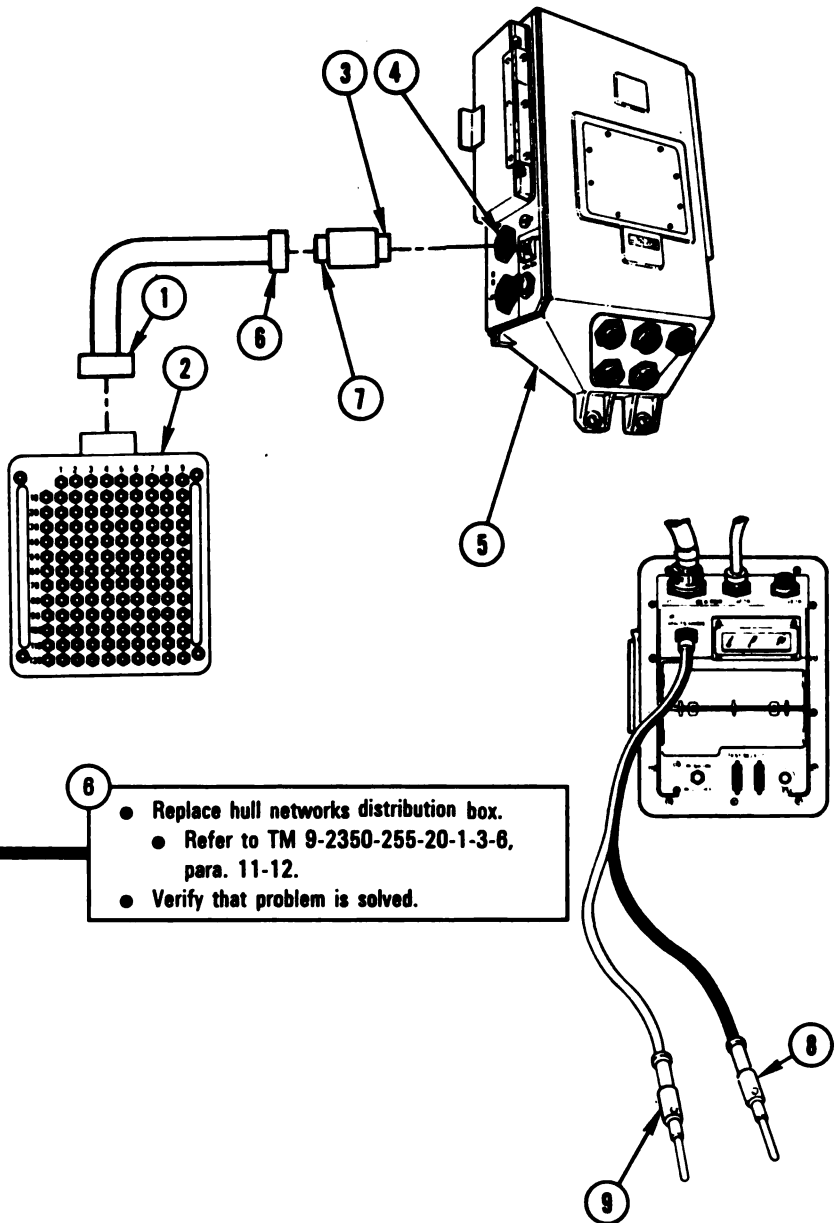
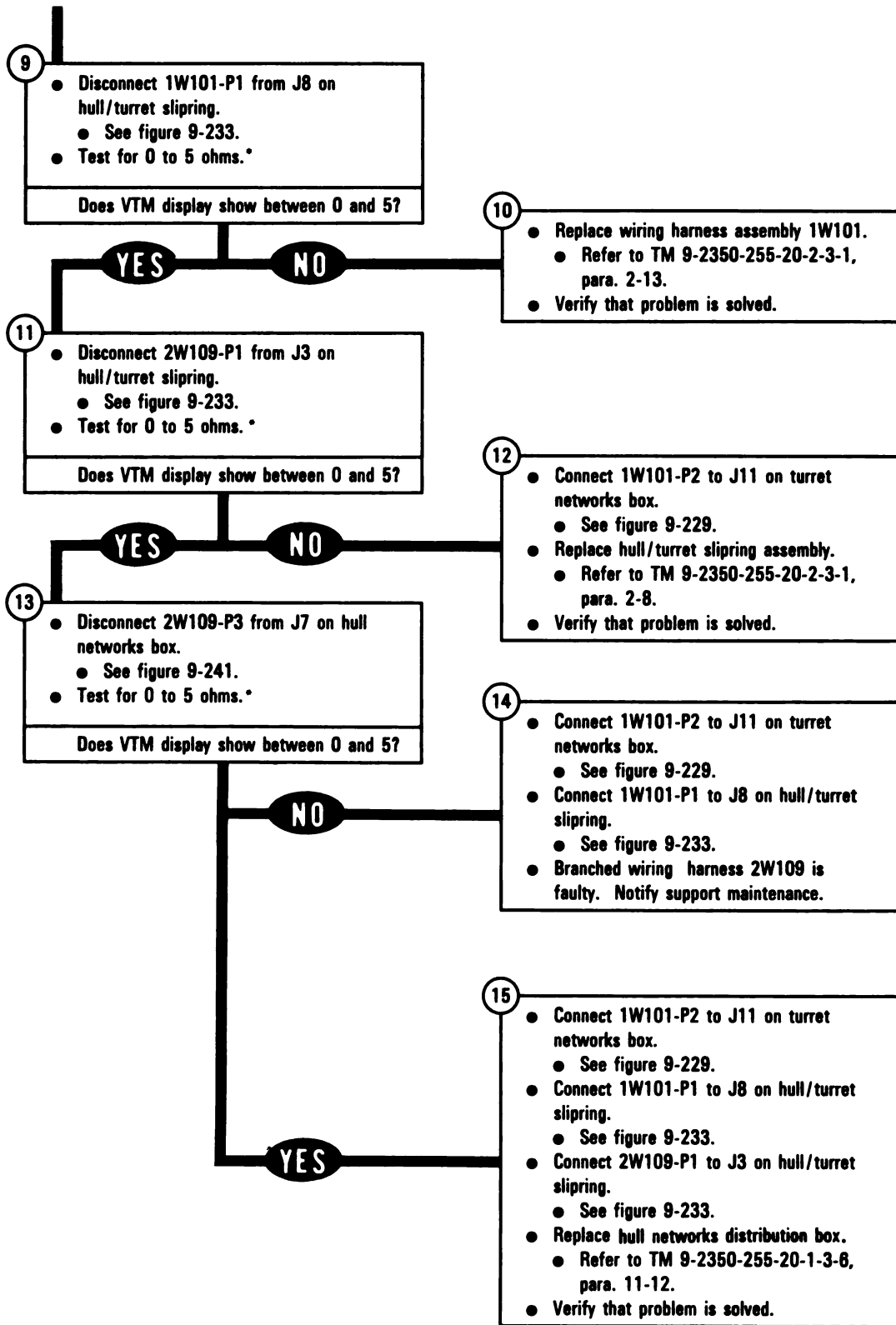


Figure 9-162 (Sheet 2 of 6)
Volume II
Para. 9-3

ARR82-5986

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**



* Between contacts found in block 5

Figure 9-162 (Sheet 3 of 6)
Volume II
Para. 9-3

TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING

From block 2

- Change STE power hookup from turret networks box to power distribution box.
- See figure 9-37.
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
- Refer to para. 9-1.

- Disconnect 2W109-P3 from J7 on hull networks box.
- See figure 9-241.
- Connect CX305-P2 (1) to breakout box (2).
- Connect CA607-P1 (3) to TJ1 (4) on hull networks box (5).
- Connect CX305-P1 (6) to CA607-P2 (7).

- Make sure circuit breaker 1 (8) on hull networks box (5) is ON.
- Test for continuity between test point 111 on breakout box and contact L on J7 on hull networks box.
- Connect black test probe (9) to test point 111 on breakout box (2).
- Connect red test probe (10) to contact L on J7 (11) on hull networks box (5).

Does VTM display show between 0 and 5?

YES

NO

- Replace hull networks distribution box.
- Refer to TM 9-2350-255-20-1-3-8, para. 11-12.
- Verify that problem is solved.

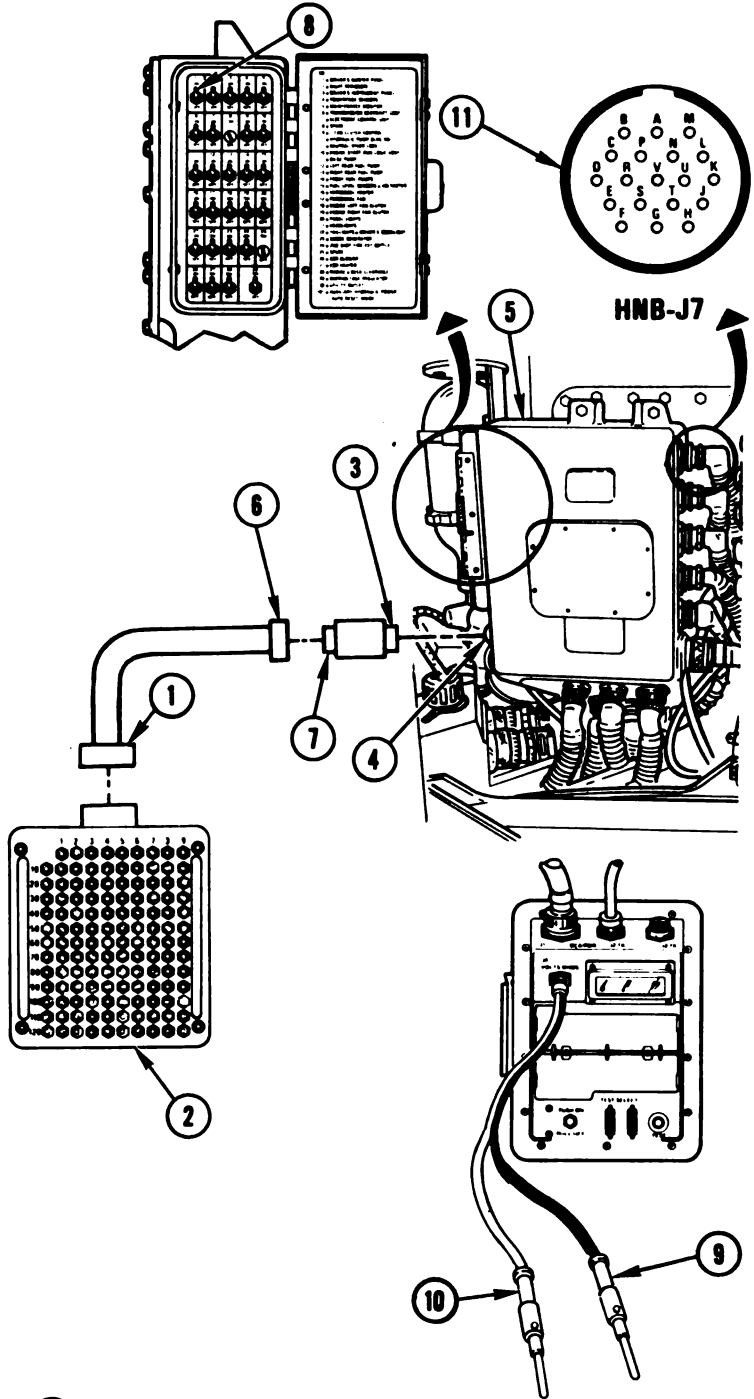


Figure 9-162 (Sheet 4 of 6)
Volume II
Para. 9-3

ARR82-5987

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

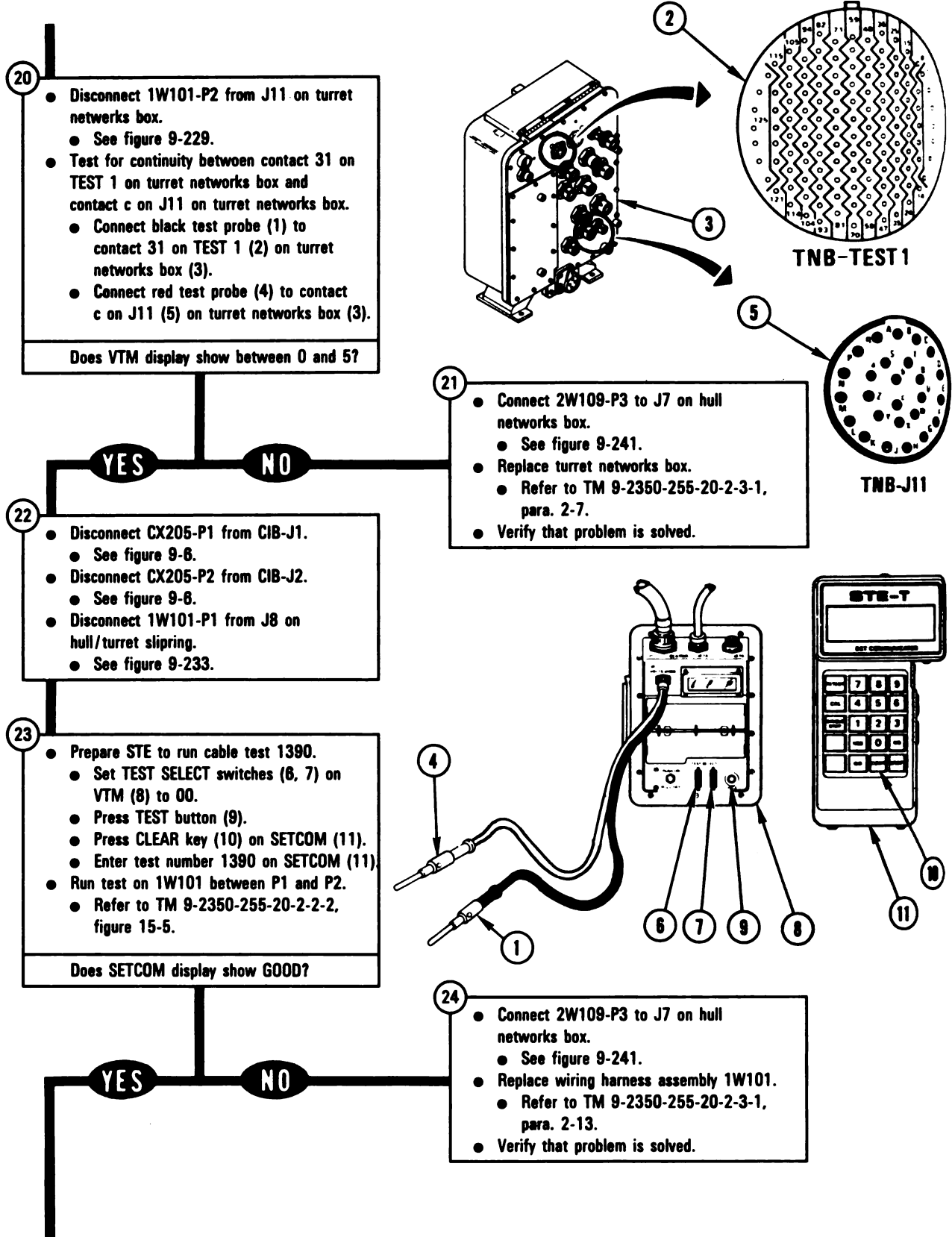


Figure 9-162 (Sheet 5 of 6)
Volume II
Para. 9-3

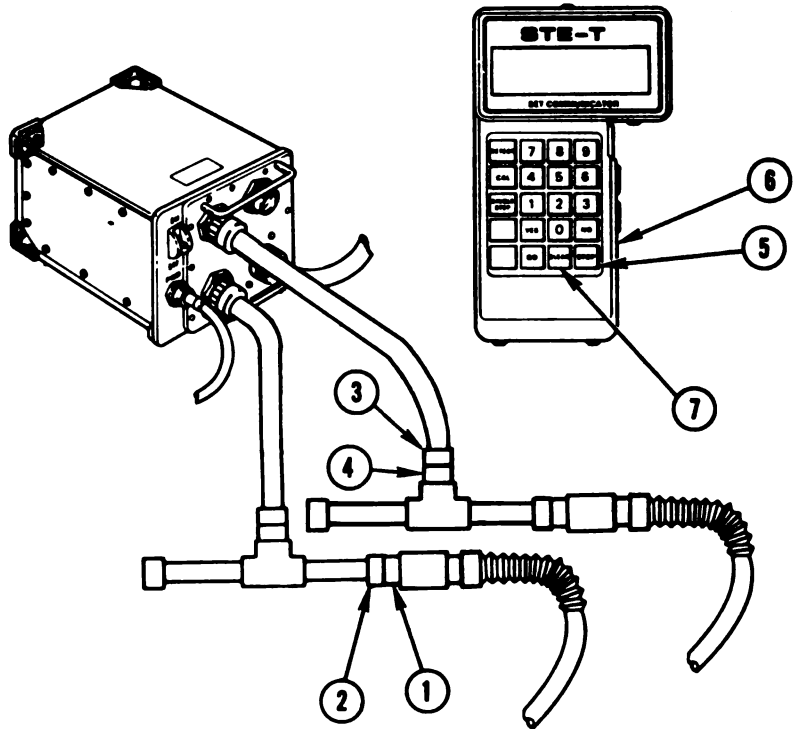
ARR82-594

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

- Disconnect CA419-P2 (1) from CX307-P1 (2).
 Disconnect CX304-P1 (3) from CX307-P3 (4).
 Disconnect 2W109-P1 from J3 on hull/turret slipping.
 ● See figure 9-233.

- Prepare STE to run cable test 1390.
 ● Press STOP key (5) on SETCOM (6).
 ● Press CLEAR key (7).
 ● Enter test number 1390 on SETCOM (6).
 Run test on 2W109 between P1 and P3.
 ● Refer to TM 9-2350-255-20-2-2-2, figure 15-5.

Does SETCOM display show GOOD?



NO

- 27
- Connect 1W101-P1 to J8 on hull/turret slipping.
 ● See figure 9-233.
 - Connect 1W101-P2 to J11 on turret networks box.
 ● See figure 9-229.
 - Branched wiring harness 2W109 is faulty. Notify support maintenance.

YES

- 28
- Connect 1W101-P2 to J11 on turret networks box.
 ● See figure 9-229.
 - Connect 2W109-P3 to J7 on hull networks box.
 ● See figure 9-241.
 - Replace hull/turret slipping assembly.
 ● Refer to TM 9-2350-255-20-2-3-1, para. 2-8.
 - Verify that problem is solved.

Figure 9-162 (Sheet 6 of 6)
 Volume II
 Para. 9-3

ARR82-5989

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

• 146021
146051
146052

**DISPLAY SHOWS -
FAULTY GTD OR
1W200**

**Additional Test
Equipment/Special Tools:**

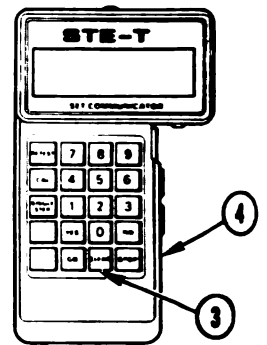
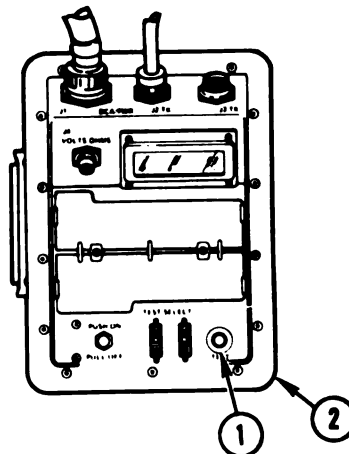
- Breakout Box Tool Kit, 12311088

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

1

- Disconnect CX205-P1 from CIB-J1.
 - See figure 9-6.
- Disconnect 1W200-P3 from J2 on electronic unit.
 - See figure 9-230.
- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.



2

- Prepare STE to run cable test 1390.
 - Press TEST button (1) on VTM (2).
 - Press CLEAR key (3) on SETCOM (4).
 - Enter test number 1390 on SETCOM (4).
- Run test on 1W200 between P3 and P5.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.

Does SETCOM display show GOOD?

3

- Replace wiring harness assembly 1W200.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

4

Was your fault number 146052?

5

- Connect 1W200-P5 to J1 on reference gyroscope.
 - See figure 9-237.
- Replace gun/turret drive electronic unit.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-16.
- Verify that problem is solved.

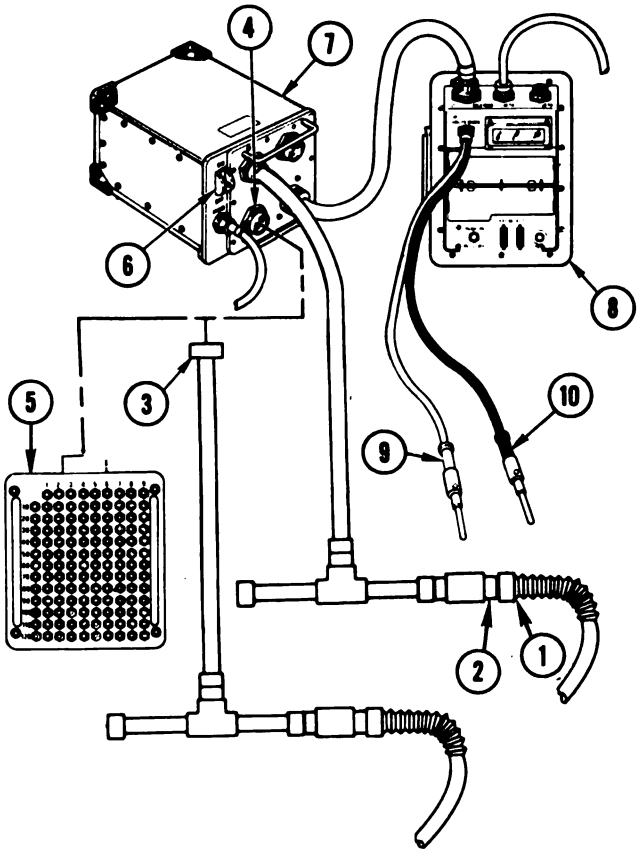
Figure 9-163 (Sheet 1 of 2)
Volume II
Para. 9-3

ARR82-594

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

- Disconnect 1W200-P5 (1) from CA541-P1 (2).
- Disconnect CX304-P2 (3) from CIB-J1 (4).
- Connect CX304-P2 (3) to breakout box (5).

- Change control from SETCOM to VTM.
 - Set PWR switch (6) on CIB (7) to OFF to reset VTM (8).
 - Set PWR switch (6) to ON.
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 9-1.



NOTE

If VTM display shows 0 to 5, go immediately to block 10.

- Test for 0 to 5 ohms between test points on breakout box listed in table A for fault number being tested.
 - Connect red test probe (9) to test point on breakout box (5) listed in table A for fault number being tested.
 - Connect black test probe (10) to test points on breakout box (5) listed in table A for fault number being tested.

Table A

Fault number	Red test probe	Black test probe
146021	14	7 through 13, 15 through 39, 62, 74, 75, and 89 through 113
146051	15	7 through 14, 16 through 39, 62, 74, 75, and 89 through 113

Does VTM display show between 0 and 5?

NO **YES**

- Connect 1W200-P5 to J1 on reference gyroscope.
 - See figure 9-237.
- Replace gun/turret drive electronic unit.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-16.
- Verify that problem is solved.

- 10**
- Replace wiring harness assembly 1W200.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

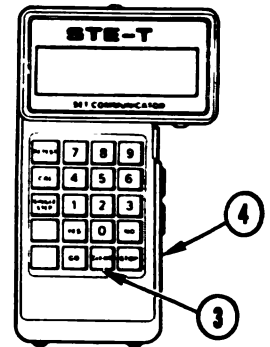
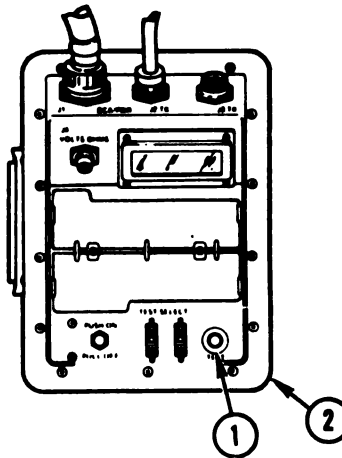
**DISPLAY SHOWS -
FAULTY GTD OR
1W200**

146049

Equipment Condition:

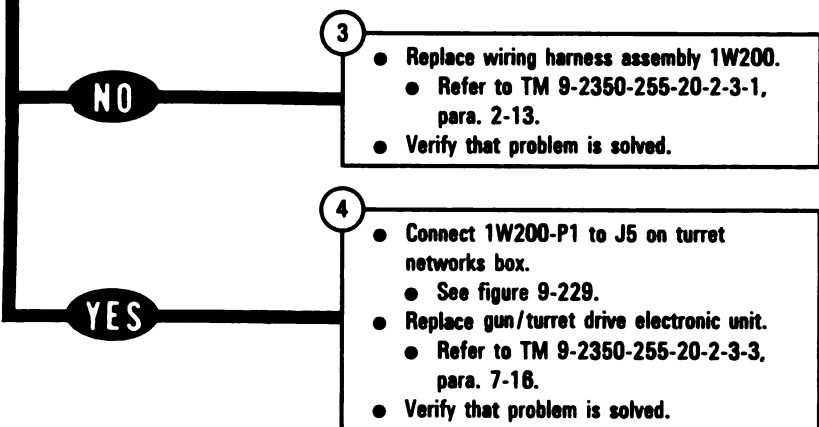
- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- 1
- Disconnect 1W200-P3 from J2 on electronic unit.
 - See figure 9-230.
 - Disconnect CA503-P2 from CX307-P1.
 - See figure 9-8.
 - Disconnect CX205-P2 from C1B-J2.
 - See figure 9-8.
 - Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.



- 2
- Prepare STE to run cable test 1390.
 - Press TEST button (1) on VTM (2).
 - Press CLEAR key (3) on SETCOM (4).
 - Enter test number 1390 on SETCOM (4).
 - Run test on 1W200 between P1 and P3.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.

Does SETCOM display show GOOD?



- 3
- Replace wiring harness assembly 1W200.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

- 4
- Connect 1W200-P1 to J5 on turret networks box.
 - See figure 9-229.
 - Replace gun/turret drive electronic unit.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-16.
 - Verify that problem is solved.

Figure 9-164
Volume II
Para. 9-3

ARR82-59

**DISPLAY SHOWS -
FAULTY TNB OR
1W104**

142227

Additional Test

Equipment/Special Tools:

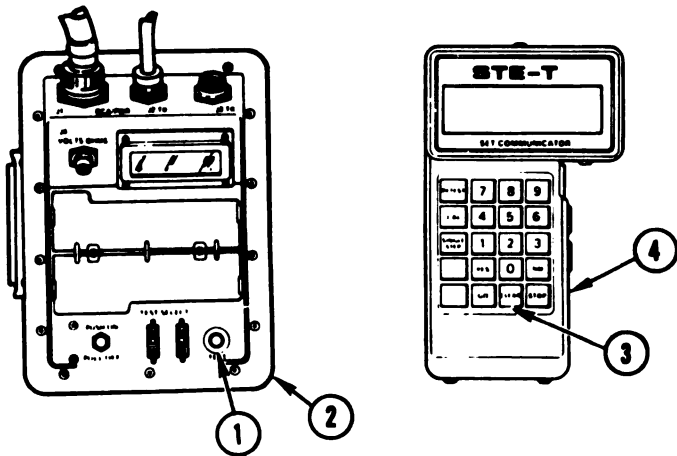
- Breakout Box Tool Kit, 12311068

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- Disconnect CA505-P2 from CX307-P1.
 - See figure 9-17.
- Disconnect 1W104-P1 from J9 on turret networks box.
 - See figure 9-229.
- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.

- Prepare STE to run cable test 1390.
 - Press TEST button (1) on VTM (2).
 - Press CLEAR key (3) on SETCOM (4).
 - Enter test number 1390 on SETCOM (4).
- Run test on 1W104 between P1 and P2.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.



Does SETCOM display show GOOD?

YES

NO

- Connect 1W202-P1 to J7 on turret networks box.
 - See figure 9-229.
- Replace branched wiring harness 1W104.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

Figure 9-165 (Sheet 1 of 2)
Volume II
Para. 9-3

ARR82-5993

9-381

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

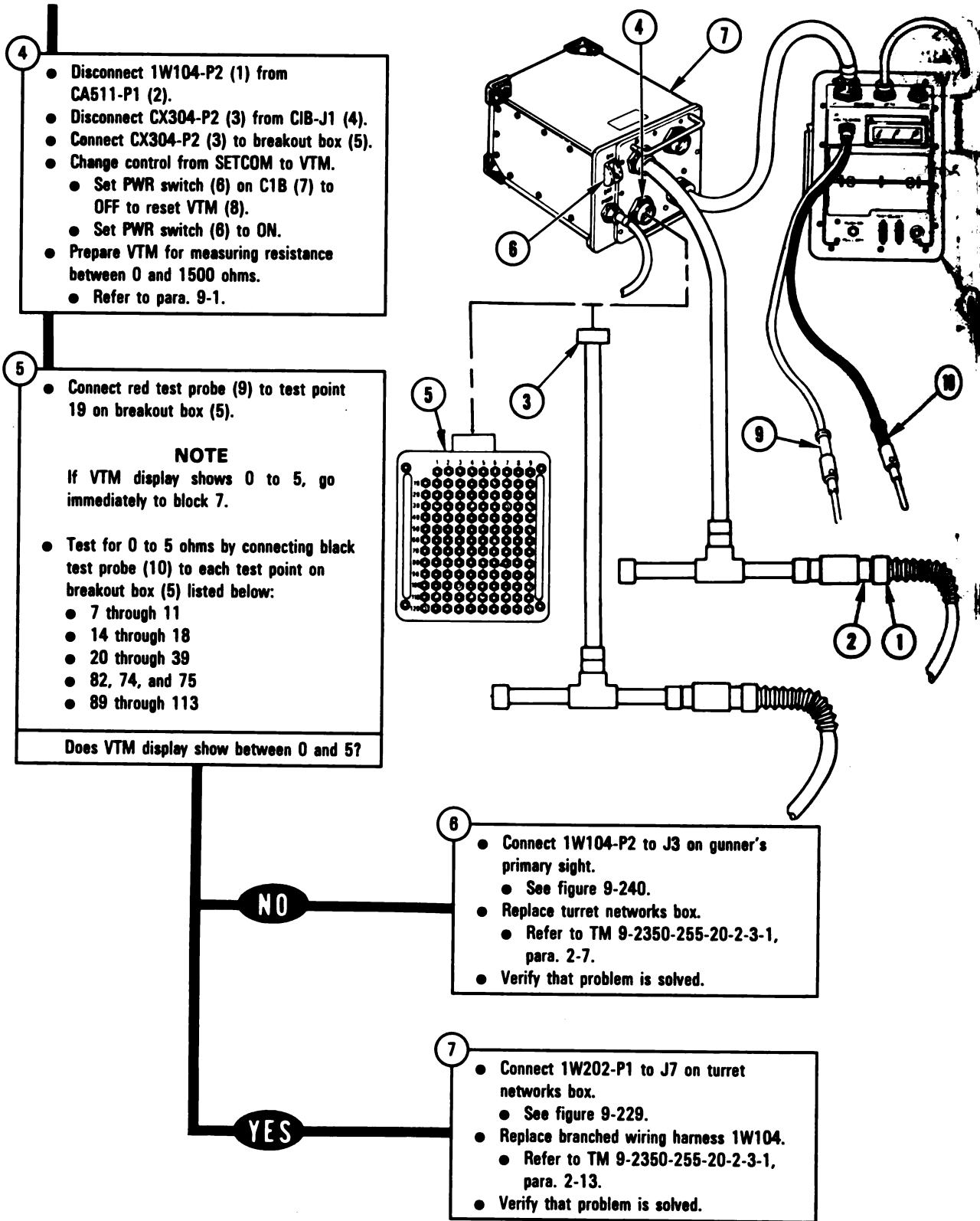


Figure 9-165 (Sheet 2 of 2)

Volume II
Para. 9-3

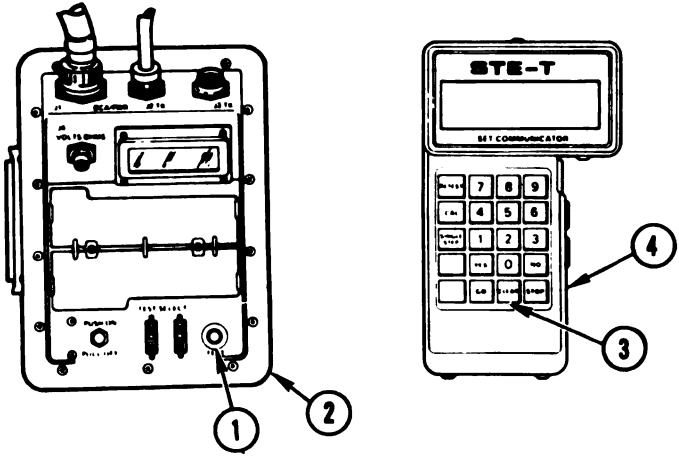
ARR82-5994

**DISPLAY SHOWS -
FAULTY CEU OR
1W201** 142475

- Equipment Condition:**
- Tank parked.
 - Parking brake set.
 - Engine shut down.
 - Vehicle master power off.

- Disconnect CA501-P2 from CX307-P2.
 - See figure 9-28.
- Disconnect 1W201-P2 from J1 on computer electronics unit.
 - See figure 9-230.
- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.

- Prepare STE to run cable test 1390.
 - Press TEST button (1) on VTM (2).
 - Press CLEAR key (3) on SETCOM (4).
 - Enter test number 1390 on SETCOM (4).
- Run test on 1W201 between P1 and P2.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.



Does SETCOM display show GOOD?

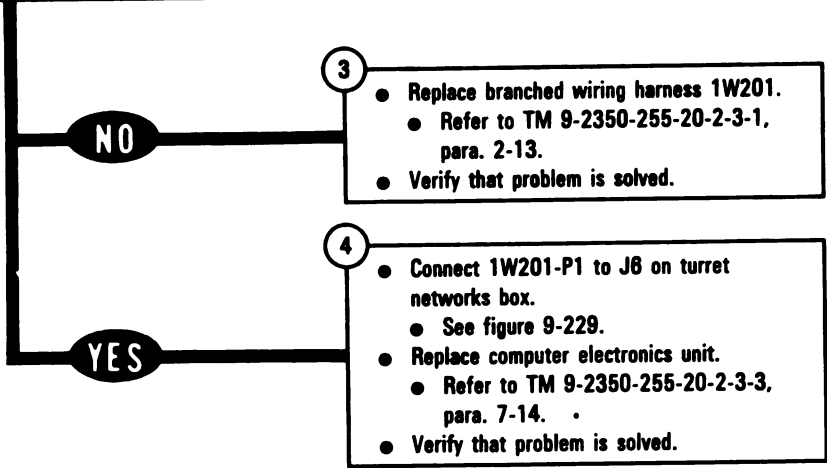


Figure 9-166
Volume II
Para. 9-3

ARR82-5995

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

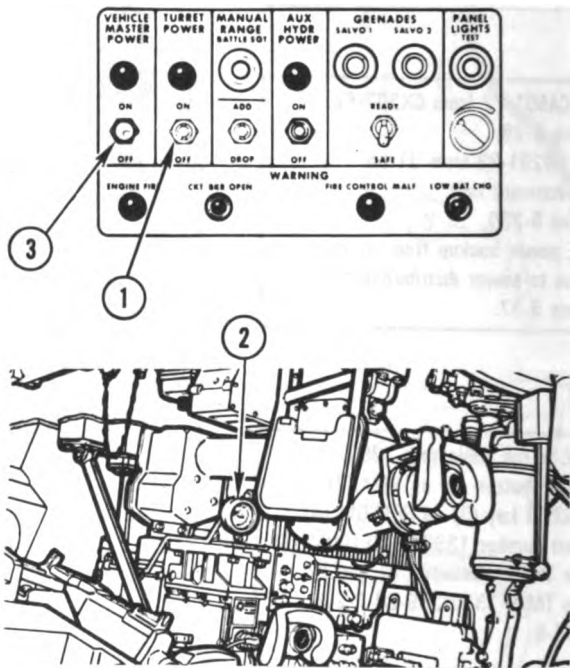
• 141207
141223

**DISPLAY SHOWS -
FAULTY HYDRAULIC
SUPPLY**

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- 1
- Start engine.
 - Refer to TM 9-2350-255-10.
 - Set TURRET POWER switch (1) to ON.
 - Check dial pressure gage (2) for hydraulic pressure of 1500 to 1700 psi.
- Does gage show 1500 to 1700 psi?



- NO
- 2
- Shut down engine.
 - Refer to TM 9-2350-255-10.
 - Set VEHICLE MASTER POWER switch (3) to OFF.
 - Hydraulic system is faulty.
 - See para. 9-2, table 9-2.
- YES
- 3
- Shut down engine.
 - Refer to TM 9-2350-255-10.
 - Set VEHICLE MASTER POWER switch (3) to OFF.
 - Traverse servomechanism is faulty. Notify support maintenance.

Figure 9-167
Volume II
Para. 9-3

ARR82-5996

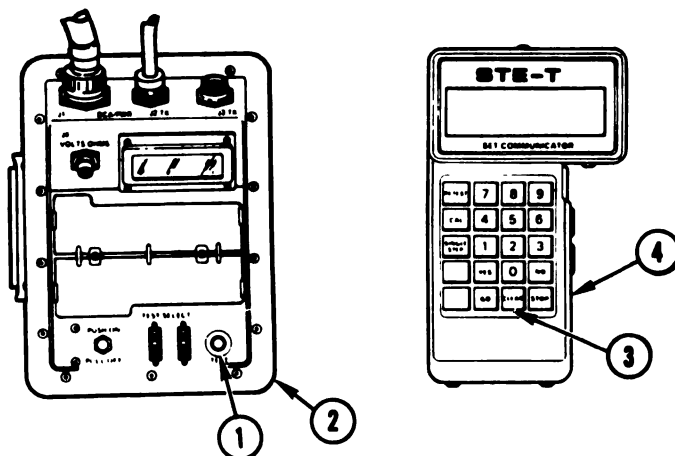
**DISPLAY SHOWS -
FAULTY LOS AND GPS
OR 1W206**

- 140219
- 140244
- 140250
- 140253
- 140255

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- Disconnect CA519-P2 from CX307-P1.
 - See figure 9-15.
- Disconnect 1W206-P2 from J2 on gunner's primary sight.
 - See figure 9-240.
- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.



- Prepare STE to run cable test 1390.
 - Press TEST button (1) on VTM (2).
 - Press CLEAR key (3) on SETCOM (4).
 - Enter test number 1390 on SETCOM (4).
- Run test on 1W206 between P1 and P2.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.

Does SETCOM display show GOOD?

NO

- Replace line-of-sight electronics unit.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-8.
- Replace branched wiring harness 1W206.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

YES

- Replace line-of-sight electronics unit.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-8.
- Replace gunner's primary sight body assembly.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-5.
- Verify that problem is solved.

Figure 9-168
Volume II
Para. 9-3

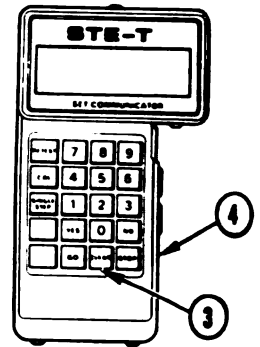
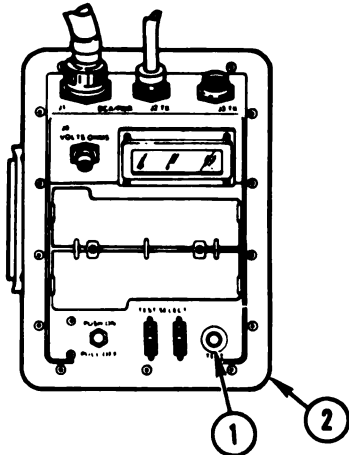
ARR82-5997

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS -
FAULTY TNB, GTD
OR 1W200** **140114**

- Equipment Condition:**
- Tank parked.
 - Parking brake set.
 - Engine shut down.
 - Vehicle master power off.

- 1**
- Disconnect CX205-P1 from CIB-J1.
 - See figure 9-8.
 - Disconnect CX205-P2 from CIB-J2.
 - See figure 9-8.
 - Disconnect 1W200-P1 from J5 on turret networks box.
 - See figure 9-229.
 - Disconnect 1W200-P4 from J3 on electronic unit.
 - See figure 9-230.



- 2**
- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.
 - Prepare STE to run cable test 1390.
 - Press TEST button (1) on VTM (2).
 - Press CLEAR key (3) on SETCOM (4).
 - Enter test number 1390 on SETCOM (4).
 - Run test on 1W200 between P1 and P4.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.

Does SETCOM display show GOOD?

YES

NO

- 3**
- Replace wiring harness assembly 1W200.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

*Figure 9-169 (Sheet 1 of 3)
Volume II
Para. 9-3*

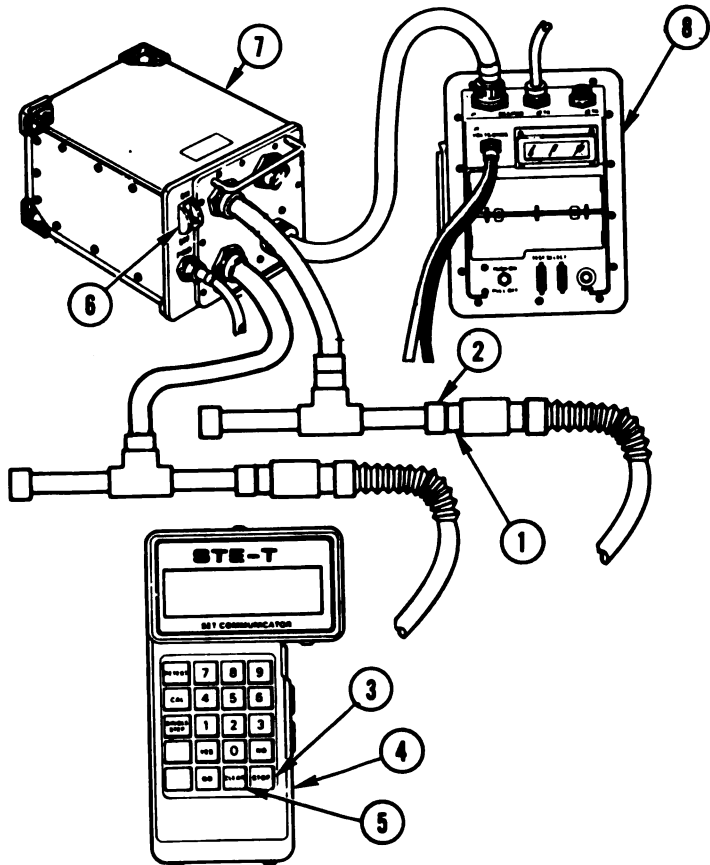
- Disconnect CA515-P2 (1) from CX307-P1 (2).
- Disconnect 1W200-P2 from J1 on electronic unit.
 - See figure 9-230.
- Prepare STE to run cable test 1390.
 - Press STOP key (3) on SETCOM (4).
 - Press CLEAR key (5).
 - Enter test number 1390 on SETCOM (4).
- Run test on 1W200 between P1 and P2.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.

Does SETCOM display show GOOD?

YES

NO

- 5
- Replace wiring harness assembly 1W200.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.



- 8
- Change control from SETCOM to VTM.
 - Set PWR switch (8) on CIB (7) to OFF to reset VTM (8).
 - Set PWR switch (8) to ON.
 - Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 9-1.

Figure 9-169 (Sheet 2 of 3)
Volume II
Para. 9-3

ARR82-5999

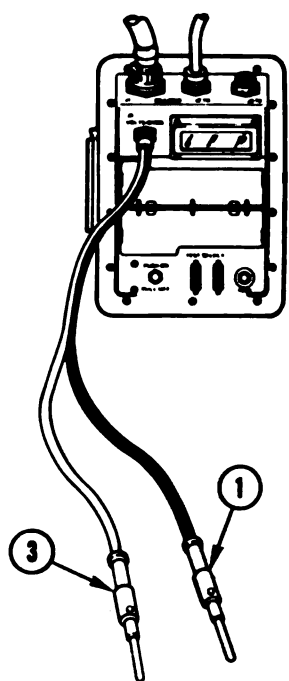
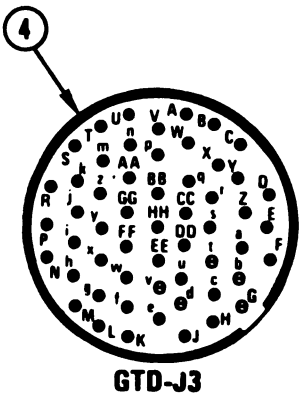
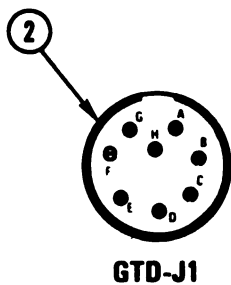
9-387

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

7

- Test for continuity between contact on electronic unit J1 and contact P on electronic unit J3.
 - Connect black test probe (1) to contact A on electronic unit J1 (2).
 - Connect red test probe (3) to contact P on electronic unit J3 (4).

Does VTM display show between 0 and 5?



NO

8

- Connect 1W200-P1 to J5 on turret networks box.
 - See figure 9-229.
- Replace gun/turret drive electronic unit.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-16.
- Verify that problem is solved.

YES

9

- Connect 1W200-P2 to J1 on electronic unit.
 - See figure 9-230.
- Connect 1W200-P4 to J3 on electronic unit.
 - See figure 9-230.
- Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
- Verify that problem is solved.

Figure 9-169 (Sheet 3 of 3)
Volume II
Para. 9-3

**DISPLAY SHOWS -
 FAULTY TEU OR
 1W202** **141136**

**Additional Test
 Equipment/Special Tools:**
 ● Breakout Box Tool Kit, 12311088

Equipment Condition:
 ● Tank parked.
 ● Parking brake set.
 ● Engine shut down.
 ● Vehicle master power off.

● Disconnect 1W202-P3 from J1 on
 line-of-sight electronics unit.
 ● See figure 9-238.

● Connect CX305-P2 (1) to breakout box (2).
 ● Connect CX305-P1 (3) to CX307-P3 (4).
 ● Connect 1W202-P1 (5) to CA506-P1 (6).
 ● Connect CA506-P2 (7) to CX307-P1 (8).

● Change STE power hookup from turret
 networks box to power distribution box.
 ● See figure 9-37.
 ● Prepare VTM for measuring resistance
 between 0 and 1500 ohms.
 ● Refer to para. 9-1.

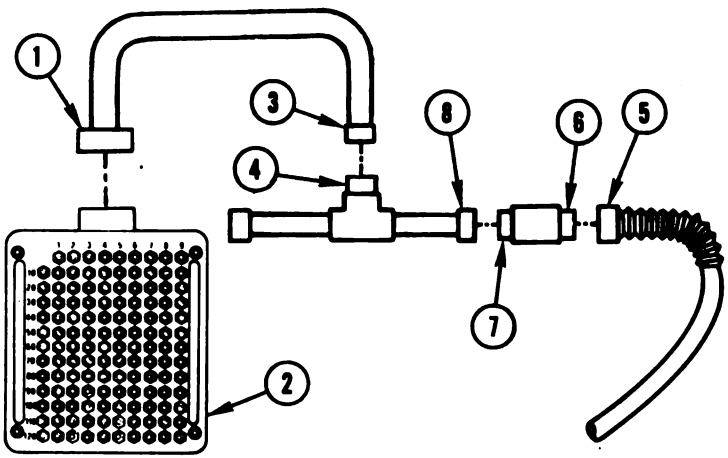


Figure 9-170 (Sheet 1 of 2)
 Volume II
 Para. 9-3

ARR82-6001

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

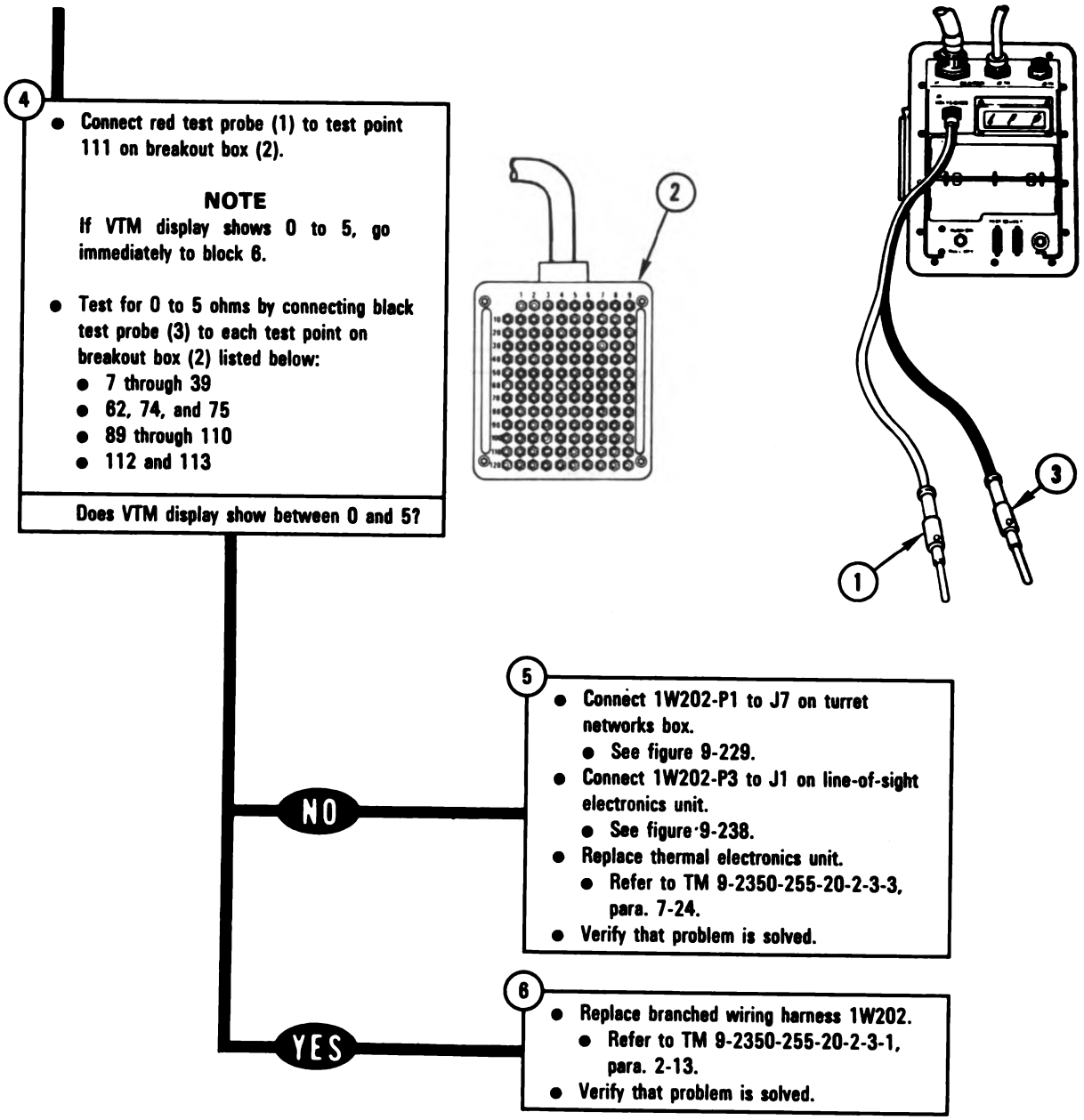


Figure 9-170 (Sheet 2 of 2)
Volume II
Para. 9-3

ARR82-6002

DISPLAY SHOWS -
FAULTY LOS OR
1W206

141141

Additional Test

Equipment/Special Tools:

- Breakout Box Tool Kit, 12311086

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- Connect CX305-P2 (1) to breakout box (2).
- Connect CX305-P1 (3) to CX307-P3 (4).
- Disconnect 1W206-P1 from J2 on line-of-sight electronics unit.
 - See figure 9-238.
- Connect 1W206-P1 (5) to CA520-P1 (6).
- Connect CA520-P2 (7) to CX307-P1 (8).

- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 9-1.

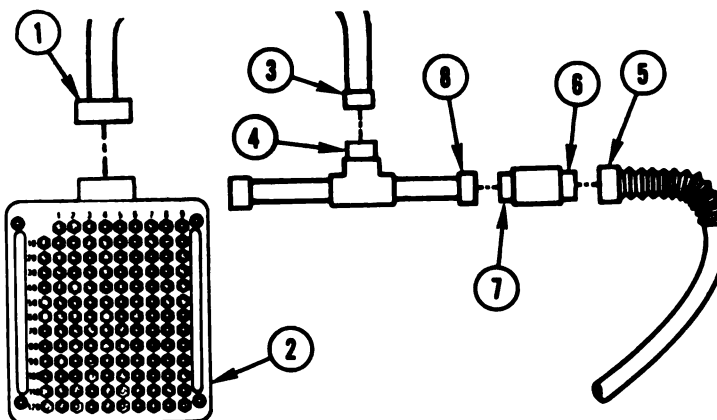


Figure 9-171 (Sheet 1 of 2)
Volume II
Para. 9-3

ARR82-6003

9-391

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

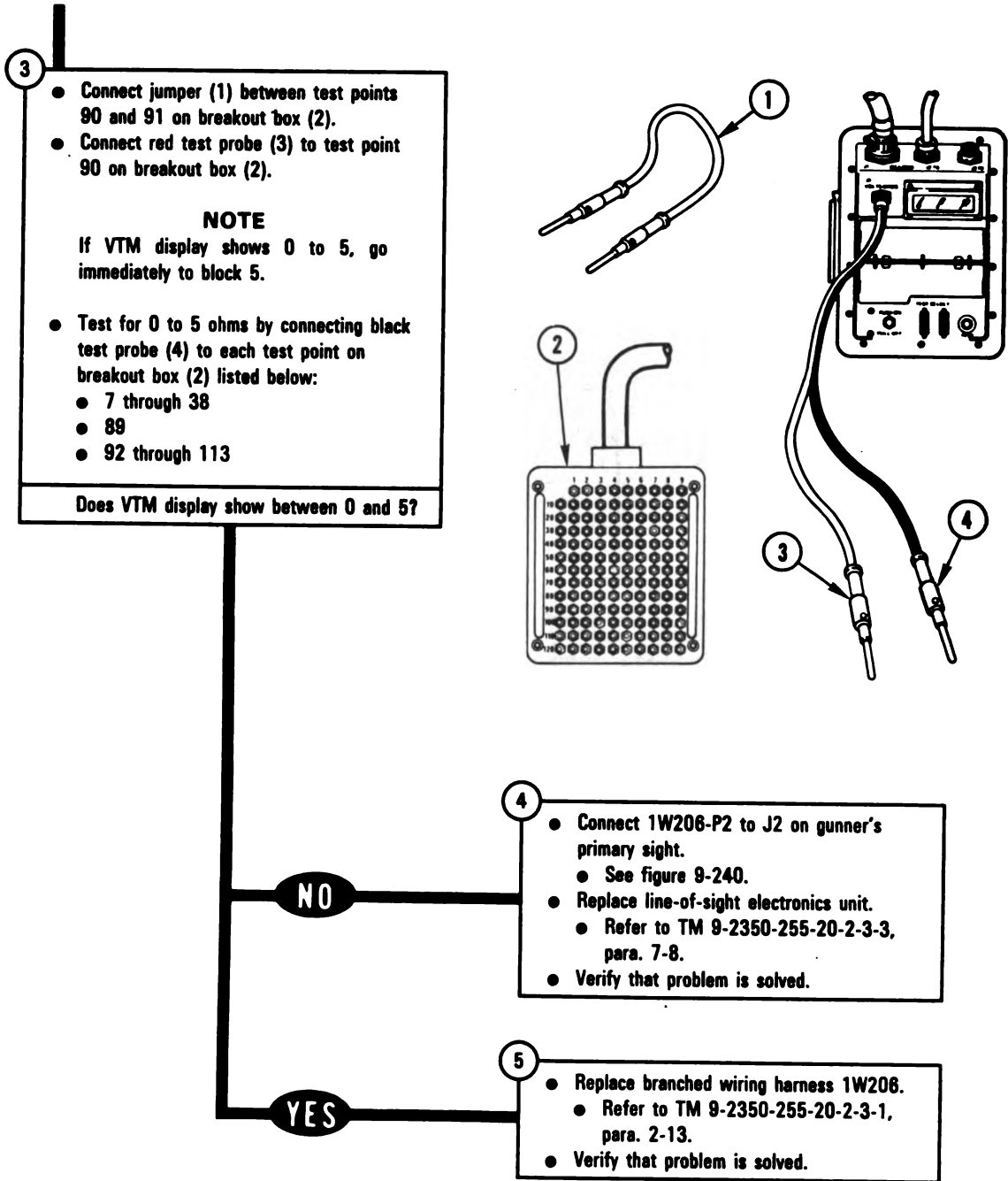


Figure 9-171 (Sheet 2 of 2)
Volume II
Para. 9-3

ARR82-6004

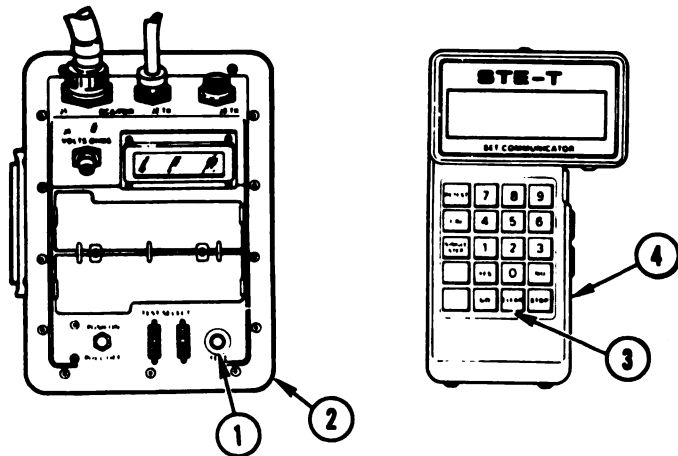
**DISPLAY SHOWS -
FAULTY TNB OR
OR 1W202**

• 142127
142142

**Additional Test
Equipment/Special Tools:**
• Breakout Box Tool Kit, 12311068

Equipment Condition:
• Tank parked.
• Parking brake set.
• Engine shut down.
• Vehicle master power off.

- Disconnect CX205-J1 from CIB-J1.
• See figure 9-8.
- Disconnect CA419-P2 from CX307-P1.
• See figure 9-12.
- Disconnect 1W202-P1 from J7 on turret networks box.
• See figure 9-229.
- Connect 1W206-P2 to J2 on gunner's primary sight.
• See figure 9-240.



- Change STE power hookup from turret networks box to power distribution box.
• See figure 9-37.
- Prepare STE to run cable test 1390.
• Press TEST button (1) on VTM (2).
• Press CLEAR key (3) on SETCOM (4).
• Enter test number 1390 on SETCOM (4).
- Run test on 1W202 between P1 and P3.
• Refer to TM 9-2350-255-20-2-2-2, figure 15-5.

Does SETCOM display show GOOD?

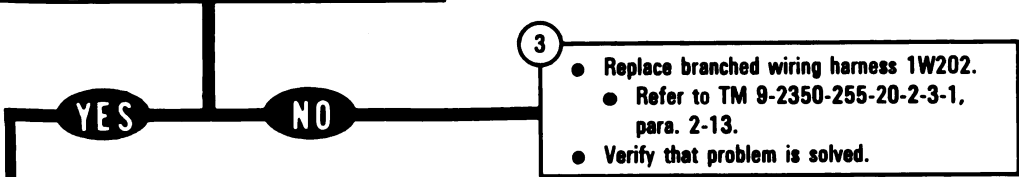


Figure 9-172 (Sheet 1 of 2)
Volume II
Para. 9-3

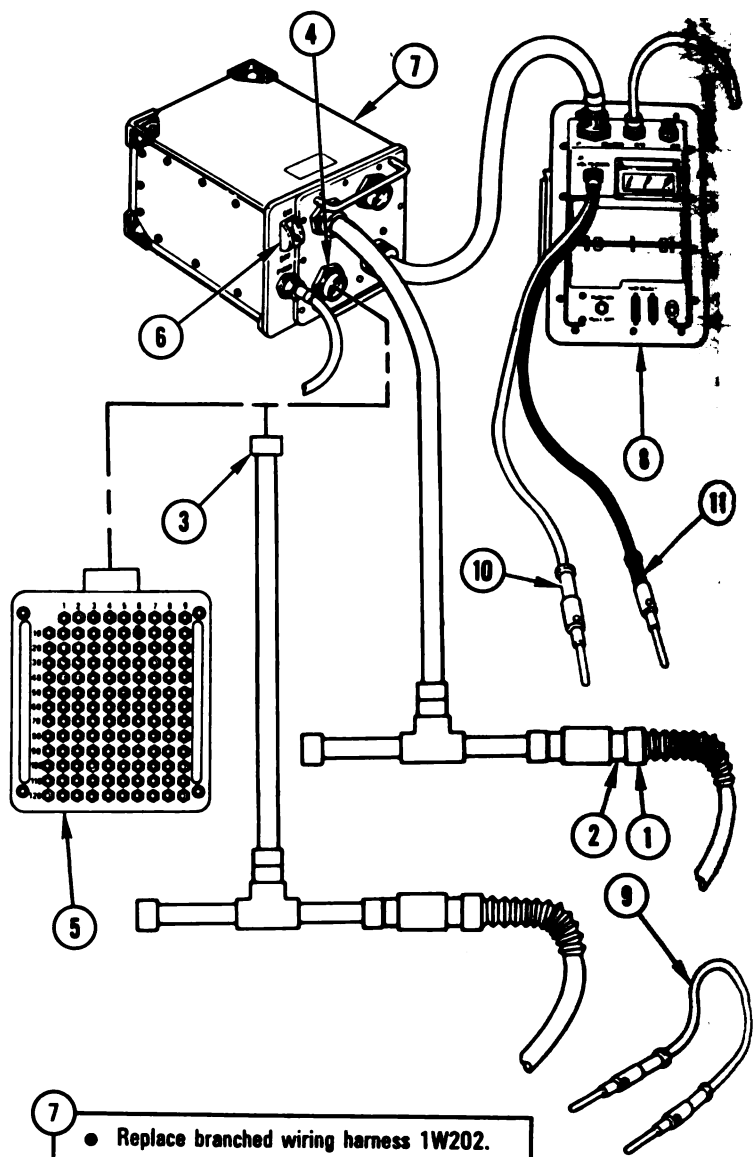
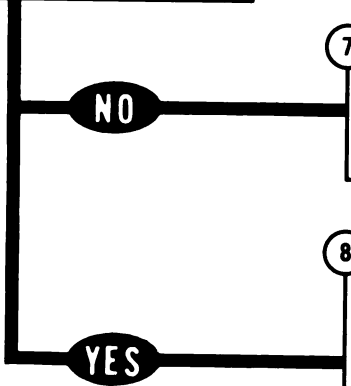
ARR82-6005

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

- 4**
- Disconnect 1W202-P3 (1) from CA417-P1 (2).
 - Disconnect CX305-P2 (3) from CIB-J1 (4).
 - Connect CX305-P2 (3) to breakout box (5).

- 5**
- Change control from SETCOM to VTM.
 - Set PWR switch (6) on CIB (7) to OFF to reset VTM (8).
 - Set PWR switch (6) to ON.
 - Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 9-1.

- 6**
- Connect jumper (9) between test points 107 and 108 on breakout box (5).
 - Connect red test probe (10) to test point 107 on breakout box (5).
- NOTE**
- If VTM display shows 0 to 5, go immediately to block 8.
- Test for 0 to 5 ohms by connecting black test probe (11) to each test point on breakout box (5) listed below:
 - 7 through 39
 - 62, 74, and 75
 - 89 through 106
 - 109 through 113
- Does VTM display show between 0 and 5?



- 7**
- Replace branched wiring harness 1W202.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

- 8**
- Connect 1W202-P3 to J1 on line-of-sight electronics unit.
 - See figure 9-238.
 - Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
 - Verify that problem is solved.

Figure 9-172 (Sheet 2 of 2)
Volume II
Para. 9-3

ARR82-600A

DISPLAY SHOWS -
 SEE -20 MANUAL

140514

Additional Test

Equipment/Special Tools:

- Breakout Box Tool Kit, 12311088

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- Disconnect 1W200-P1 from J5 on turret networks box.
 - See figure 9-229.
- Connect CX305-P2 (1) to breakout box (2).
- Connect CX305-P1 (3) to CX307-P3 (4).

- Disconnect 1W200-P3 from J2 on electronic unit.
 - See figure 9-230.
- Connect 1W200-P3 (5) to CA523-P1 (6).
- Connect CA523-P2 (7) to CX307-P1 (8).

- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 9-1.

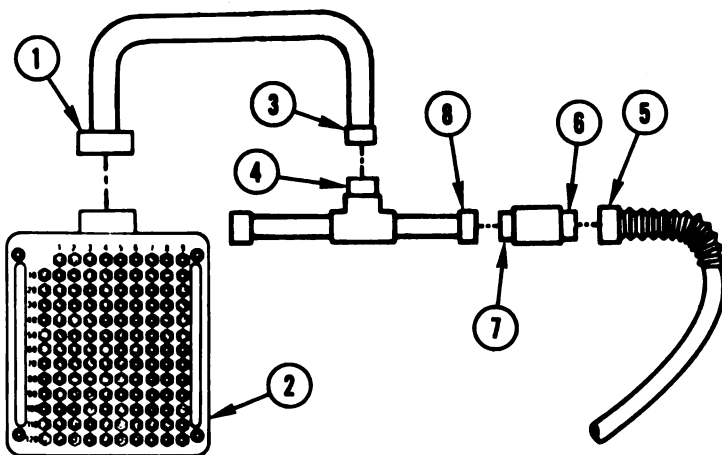


Figure 9-173 (Sheet 1 of 8)
 Volume II
 Para. 9-3

ARR82-6007

9-395

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

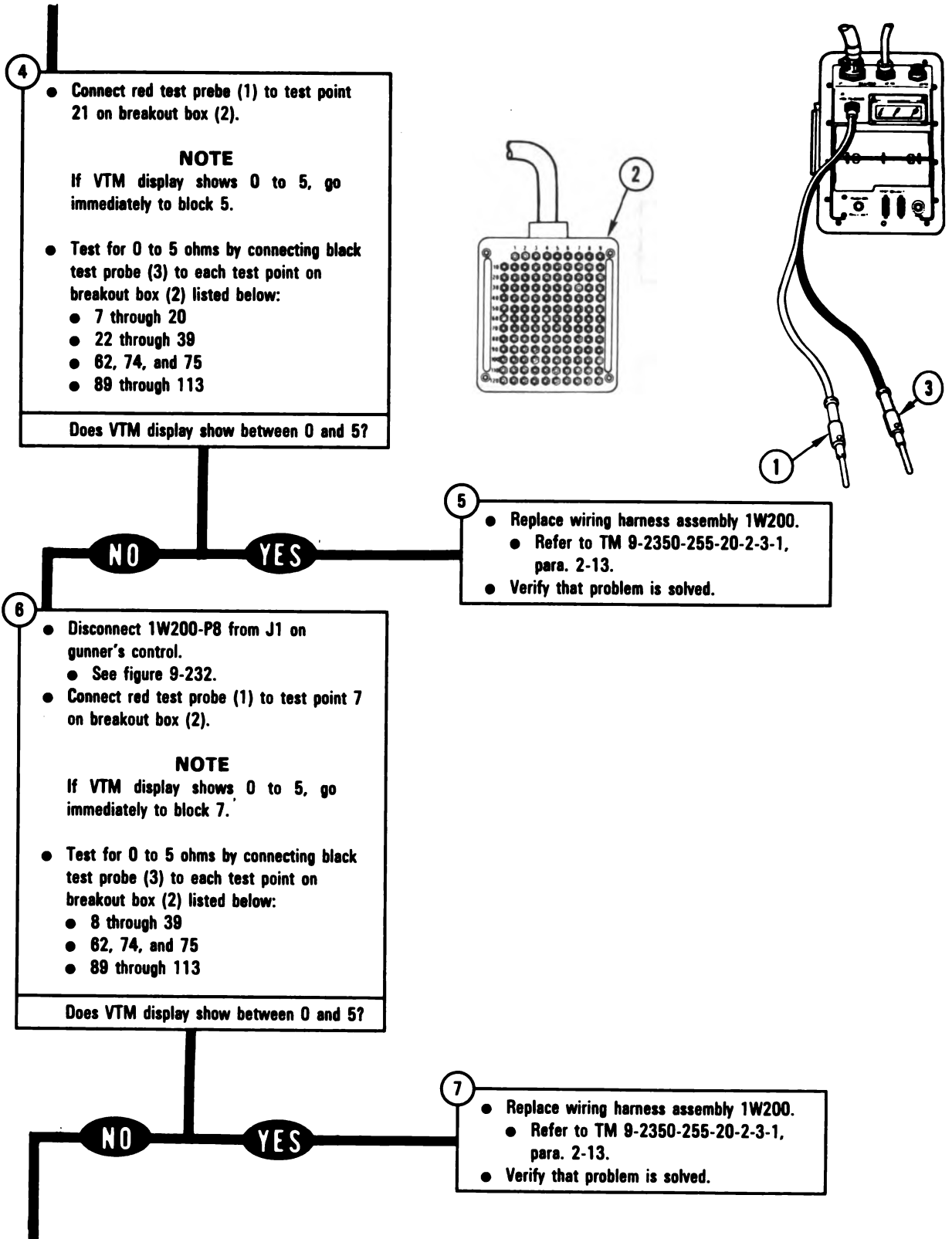


Figure 9-173 (Sheet 2 of 8)
**Volume II
Para. 9-3**

ARR82-60

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

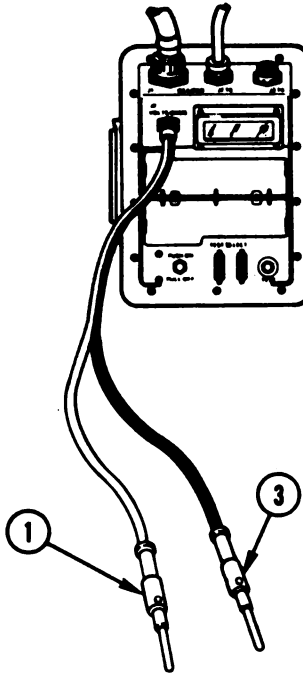
- Disconnect 1W200-P7 from J1 on commander's control.
 - See figure 9-232.
- Connect red test probe (1) to test point 9 on breakout box (2).

NOTE

If VTM display shows 0 to 5, go immediately to block 9.

- Test for 0 to 5 ohms by connecting black test probe (3) to each test point on breakout box (2) listed below:
 - 8
 - 10 through 39
 - 62, 74, and 75
 - 89 through 113

Does VTM display show between 0 and 5?



NO

YES

- 9
- Replace wiring harness assembly 1W200.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

- Disconnect CA523-P2 (4) from CX307-P1 (5).
- Disconnect 1W200-P4 from J3 on electronic unit.
 - See figure 9-230.
- Connect 1W200-P4 (6) to CA515-P1 (7).
- Connect CA515-P2 (8) to CX307-P1 (5).

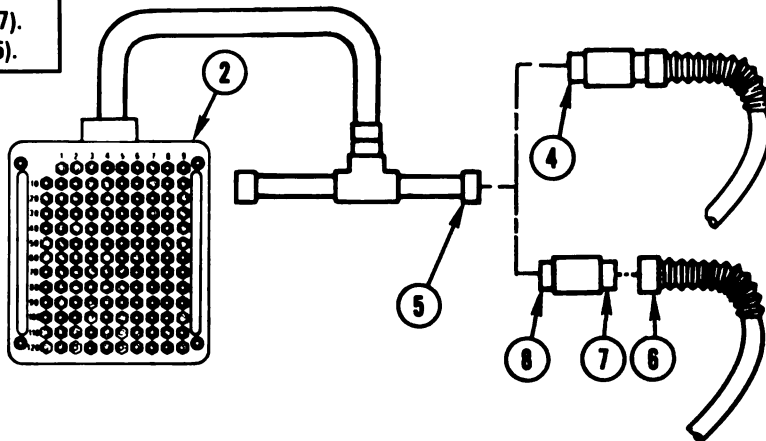
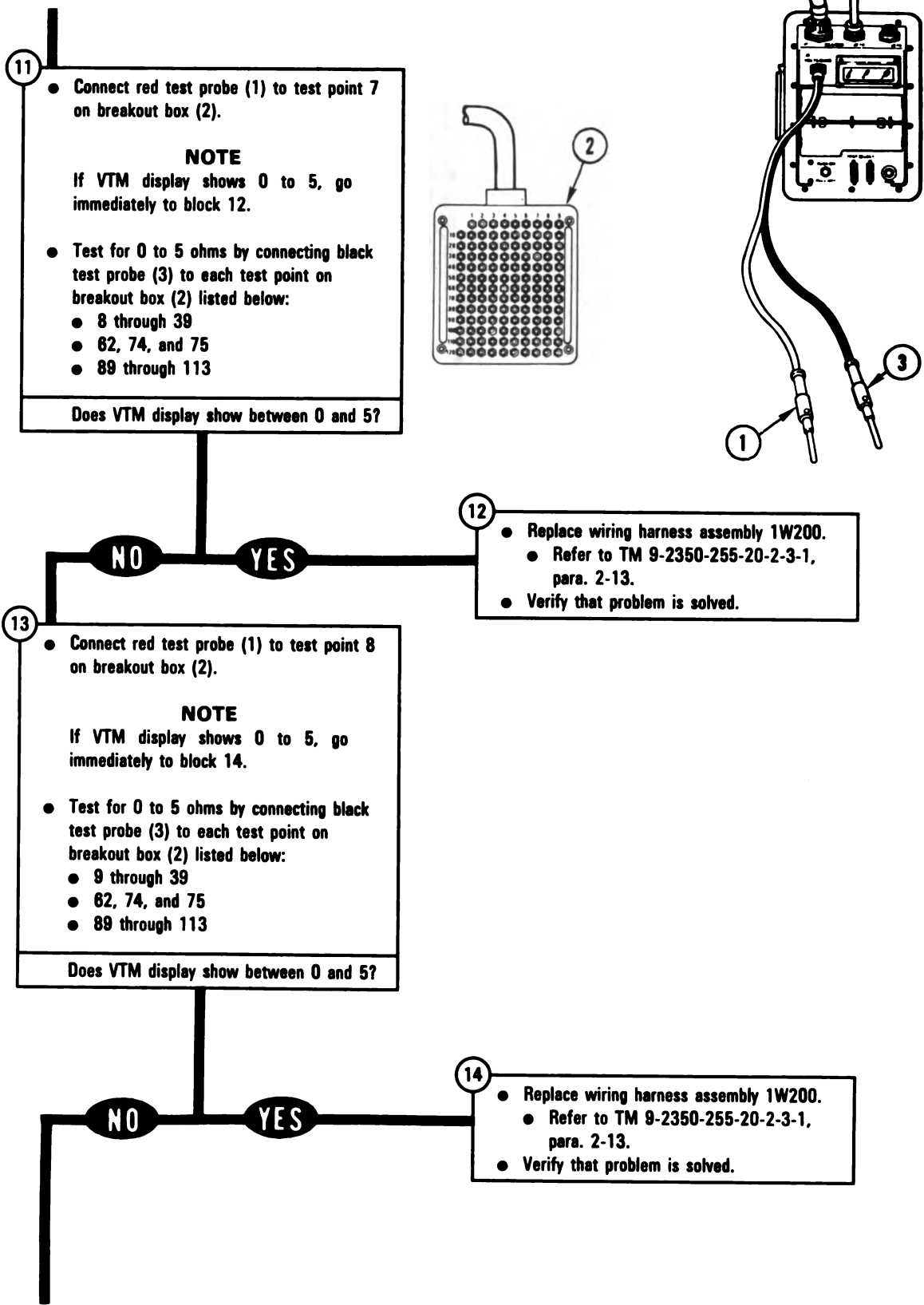


Figure 9-173 (Sheet 3 of 8)
Volume II
Para. 9-3

ARR82-6009

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**



*Figure 9-173 (Sheet 4 of 8)
Volume II
Para. 9-3*

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

Disconnect CX305-P1 (1) from CX307-P3 (2).
Connect CX305-P1 (1) to CX308-P3 (3).
Connect CA536-P1 (4) to J1 (5) on commander's control (6).
Connect CA536-P2 (7) to CX308-P1 (8).

Connect jumper (9) between test points 10 and 11 on breakout box (10).
Connect red test probe (11) to test point 10 on breakout box (10).
Press and hold palm switch (12) on commander's control (6).

NOTE

If VTM display shows 0 to 5, go immediately to block 17.

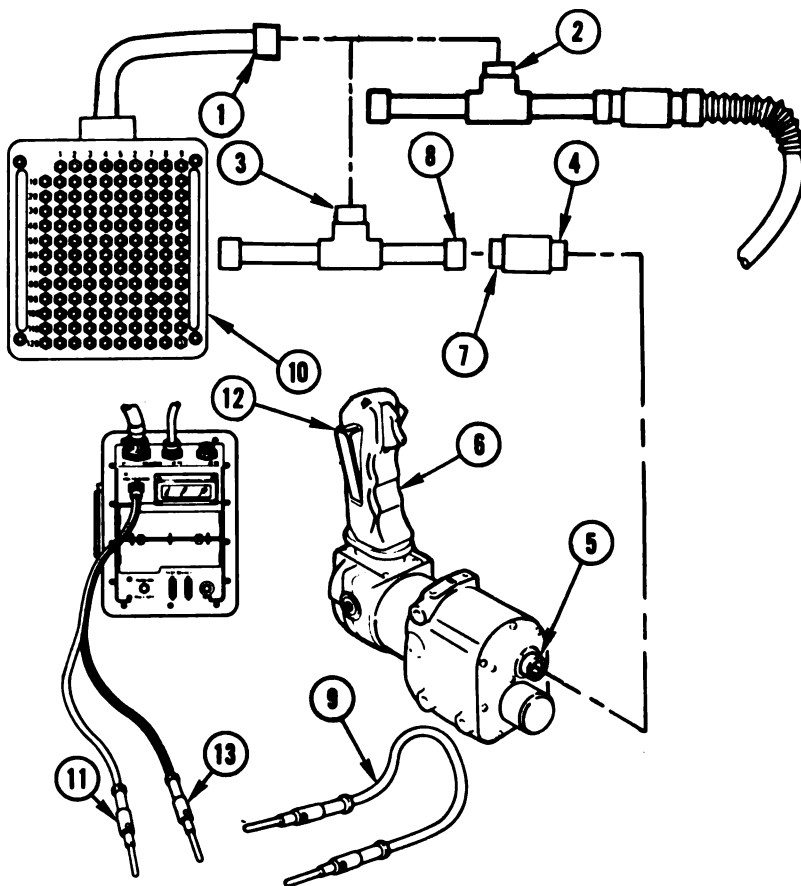
Test for 0 to 5 ohms by connecting black test probe (13) to each test point on breakout box (10) listed below:

- 7, 8, 9, 12, and 13
- 20, 21, and 23

Does VTM display show between 0 and 5?

NO

YES



- 17**
- Connect 1W200-P1 to J5 on turret networks box.
 - See figure 9-229.
 - Connect 1W200-P3 to J2 on electronic unit.
 - See figure 9-230.
 - Connect 1W200-P4 to J3 on electronic unit.
 - See figure 9-230.

- 18**
- Connect 1W200-P8 to J1 on gunner's control.
 - See figure 9-232.
 - Replace commander's control assembly.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-22.
 - Verify that problem is solved.

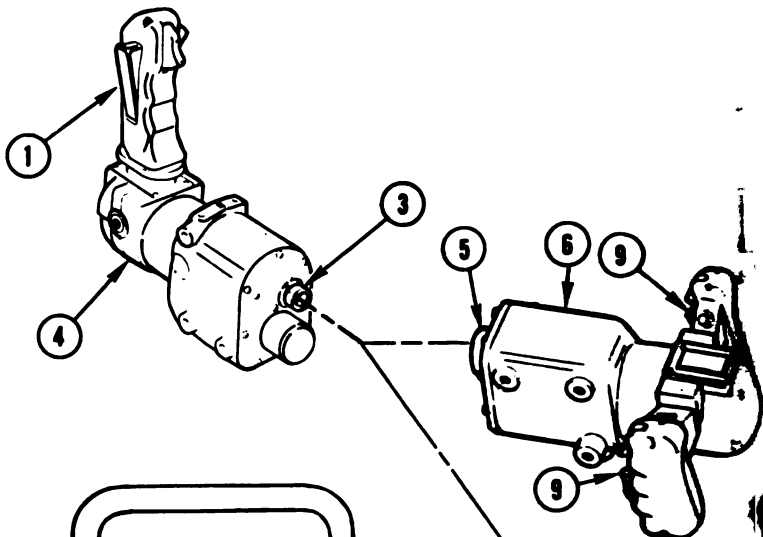
Figure 9-173 (Sheet 5 of 8)
**Volume II
Para. 9-3**

ARR82-6011

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

19

- Release palm switch (1).
- Disconnect CA538-P1 (2) from J1 (3) on commander's control (4).
- Connect CA538-P1 (2) to J1 (5) on gunner's control (8).



20

- Connect red test probe (7) to test point 10 on breakout box (8).
- Press and hold palm switches (9) on gunner's control (6).

NOTE

If VTM display shows 0 to 5, go immediately to block 21.

- Test for 0 to 5 ohms by connecting black test probe (10) to each test point on breakout box (8) listed below:
 - 7, 8, and 9
 - 12, 13, and 15
 - 18 through 21
 - 23 and 24

Does VTM display show between 0 and 5?

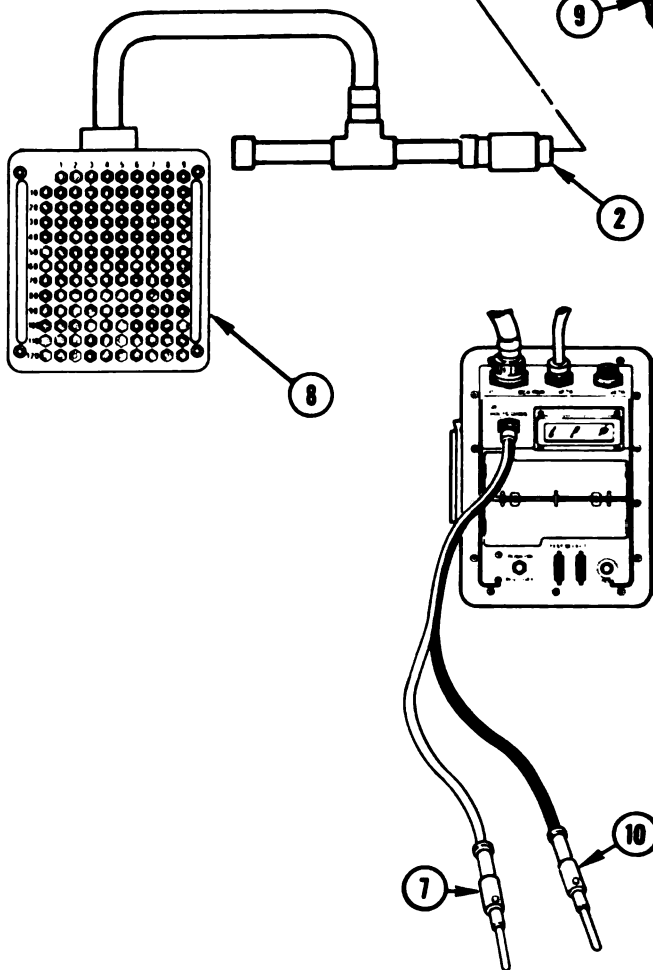
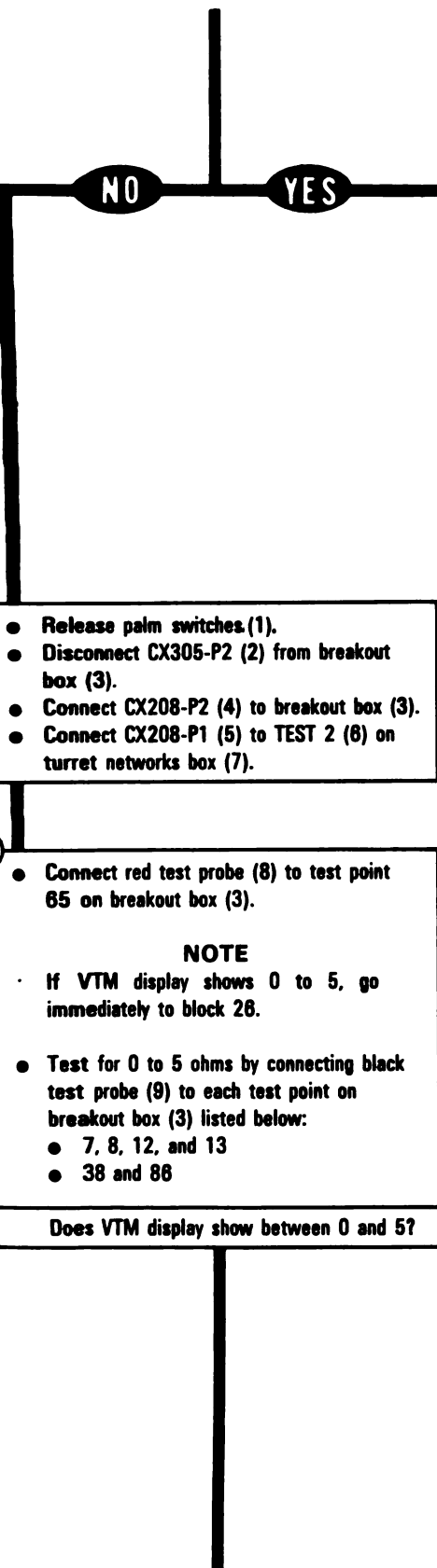


Figure 9-173 (Sheet 6 of 8)
**Volume II
Para. 9-3**

ARR82-6012



- 21
- Connect 1W200-P1 to J5 on turret networks box.
 - See figure 9-229.
 - Connect 1W200-P3 to J2 on electronic unit.
 - See figure 9-230.
 - Connect 1W200-P4 to J3 on electronic unit.
 - See figure 9-230.

- 22
- Connect 1W200-P7 to J1 on commander's control.
 - See figure 9-232.
 - Replace gunner's control grip assembly.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-21.
 - Verify that problem is solved.

- Release palm switches (1).
- Disconnect CX305-P2 (2) from breakout box (3).
- Connect CX208-P2 (4) to breakout box (3).
- Connect CX208-P1 (5) to TEST 2 (6) on turret networks box (7).

- Connect red test probe (8) to test point 65 on breakout box (3).
- NOTE**
If VTM display shows 0 to 5, go immediately to block 26.
- Test for 0 to 5 ohms by connecting black test probe (9) to each test point on breakout box (3) listed below:
 - 7, 8, 12, and 13
 - 38 and 86

Does VTM display show between 0 and 5?

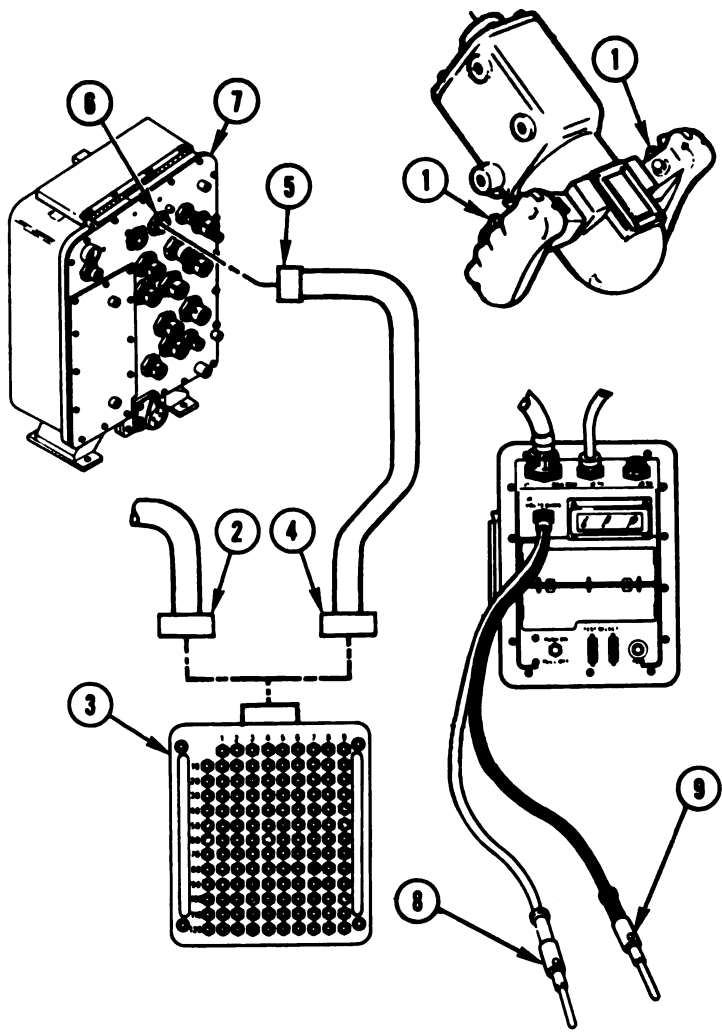


Figure 9-173 (Sheet 7 of 8)
Volume II
Para. 9-3

ARR82-6013

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

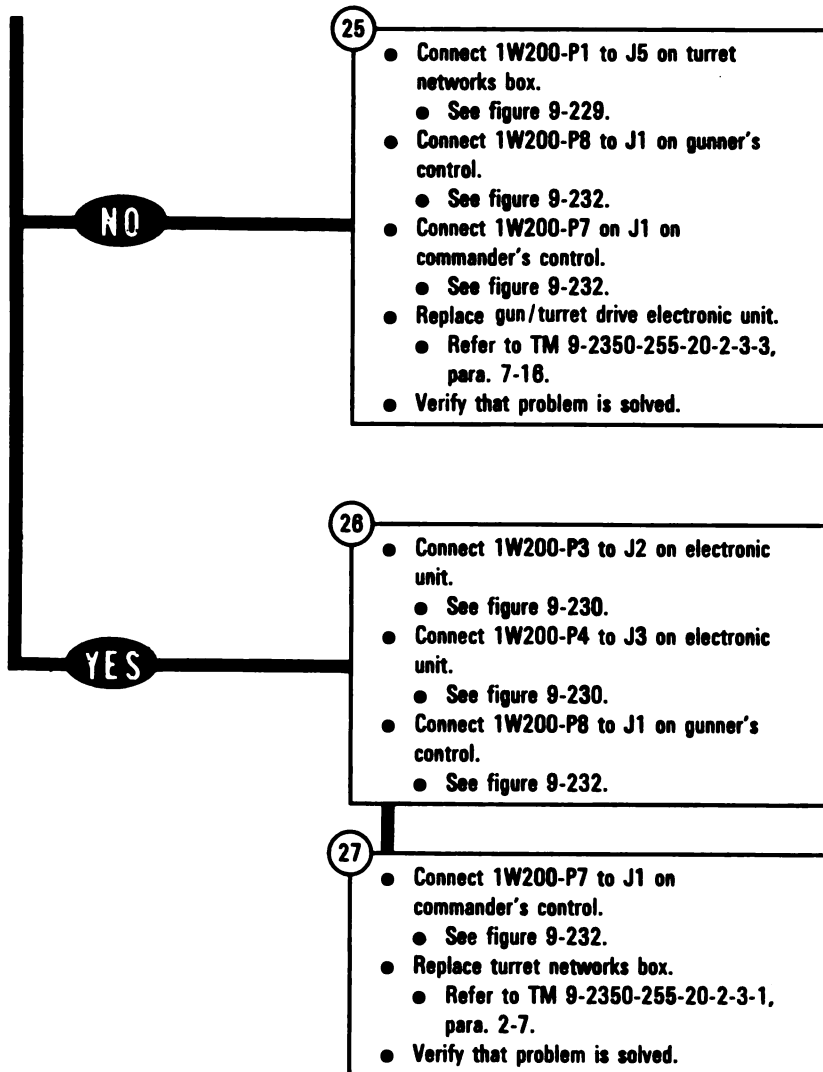


Figure 9-173 (Sheet 8 of 8)
Volume II
Para. 9-3

DISPLAY SHOWS -
FAULTY TGYRO OR
1W200

142517

Additional Test

Equipment/Special Tools:

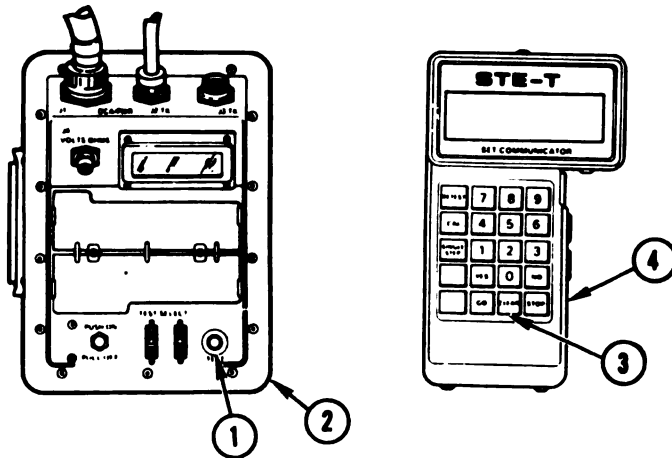
- Breakout Box Tool Kit, 12311066

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- Disconnect CA524-P2 from CX307-P1.
 - See figure 9-23.
- Disconnect 1W200-P6 from J1 on feed forward gyroscope.
 - See figure 9-236.

- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.
- Prepare STE to run cable test 1390.
 - Press TEST button (1) on VTM (2).
 - Press CLEAR key (3) on SETCOM (4).
 - Enter test number 1390 on SETCOM (4).
- Run test on 1W200 between P3 and P6.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.



Does SETCOM display show GOOD?

YES

NO

- Replace wiring harness assembly 1W200.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

Figure 9-174 (Sheet 1 of 2)
Volume II
Para. 9-3

ARR82-6014

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

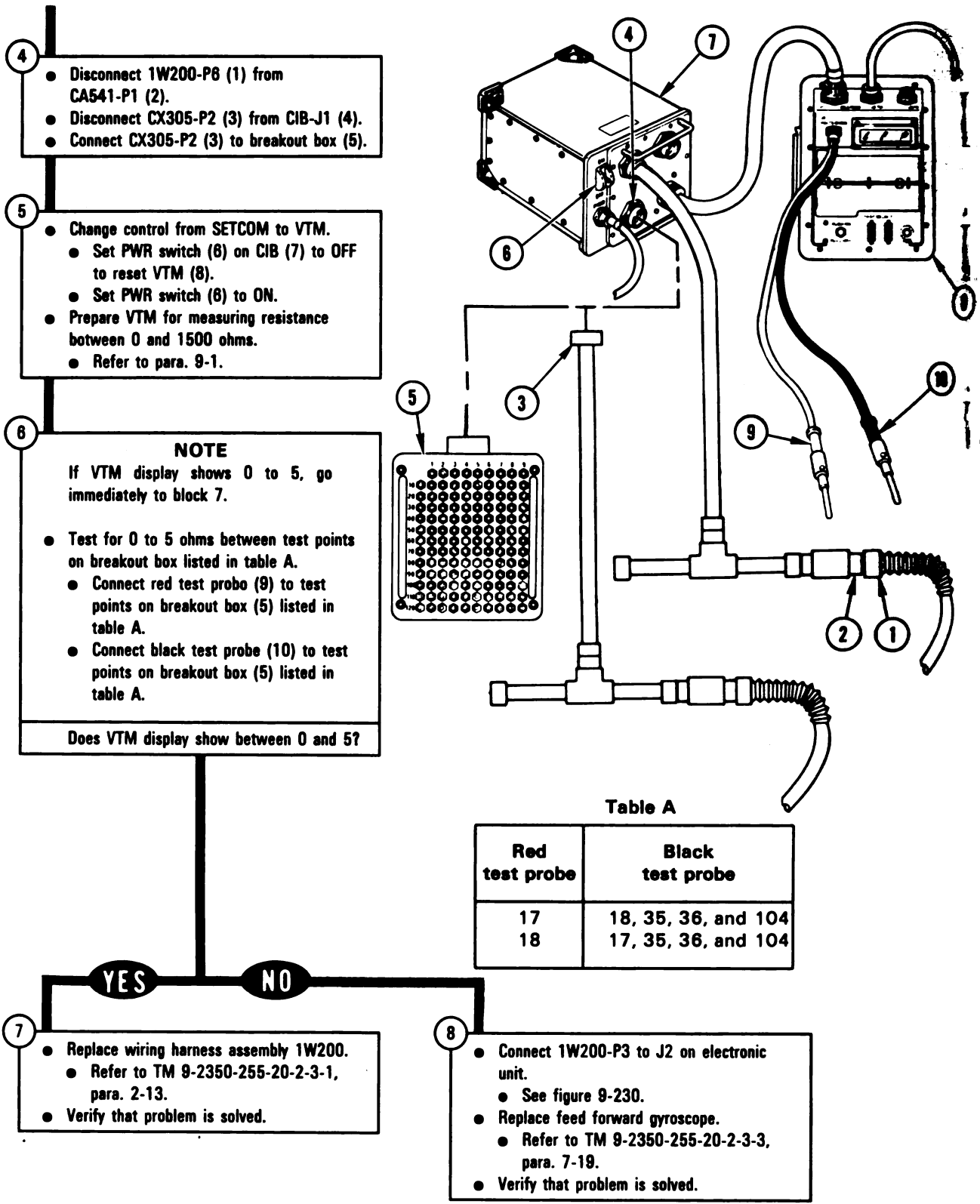


Figure 9-174 (Sheet 2 of 2)
Volume II
Para. 9-3

ARR82-6015

DISPLAY SHOWS -
FAULTY TNB OR
1W203

• 146112
146128

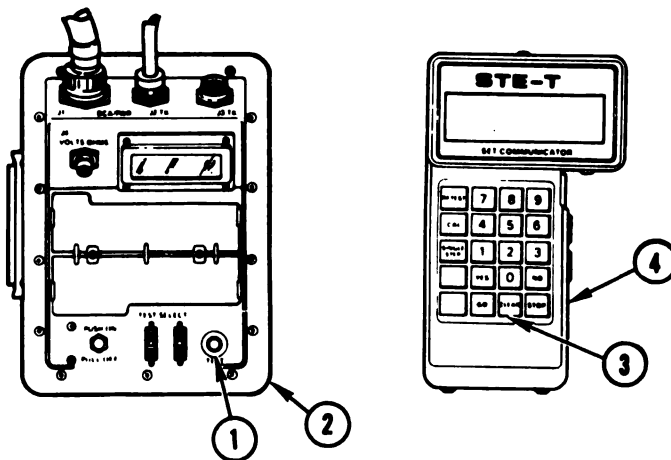
**Additional Test
Equipment/Special Tools:**

- Breakout Box Tool Kit, 12311066

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- Disconnect CX205-P2 from CIB-J2.
 - See figure 9-6.
- Disconnect CA515-P2 from CX307-P1.
 - See figure 9-29.
- Disconnect CA516-P2 from CX307-P2.
 - See figure 9-29.
- Disconnect 1W203-P1 from J3 on turret networks box.
 - See figure 9-229.



- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.
- Prepare STE to run cable test 1390.
 - Press TEST button (1) on VTM (2).
 - Press CLEAR key (3) on SETCOM (4).
 - Enter test number 1390 on SETCOM (4).
- Run test on 1W203 between P1 and P2.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.

Does SETCOM display show GOOD?

YES

NO

- Connect 1W200-P4 to J3 on electronic unit.
 - See figure 9-230.
- Replace branched wiring harness 1W203.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

Figure 9-175 (Sheet 1 of 3)
Volume II
Para. 9-3

ARR82-6016

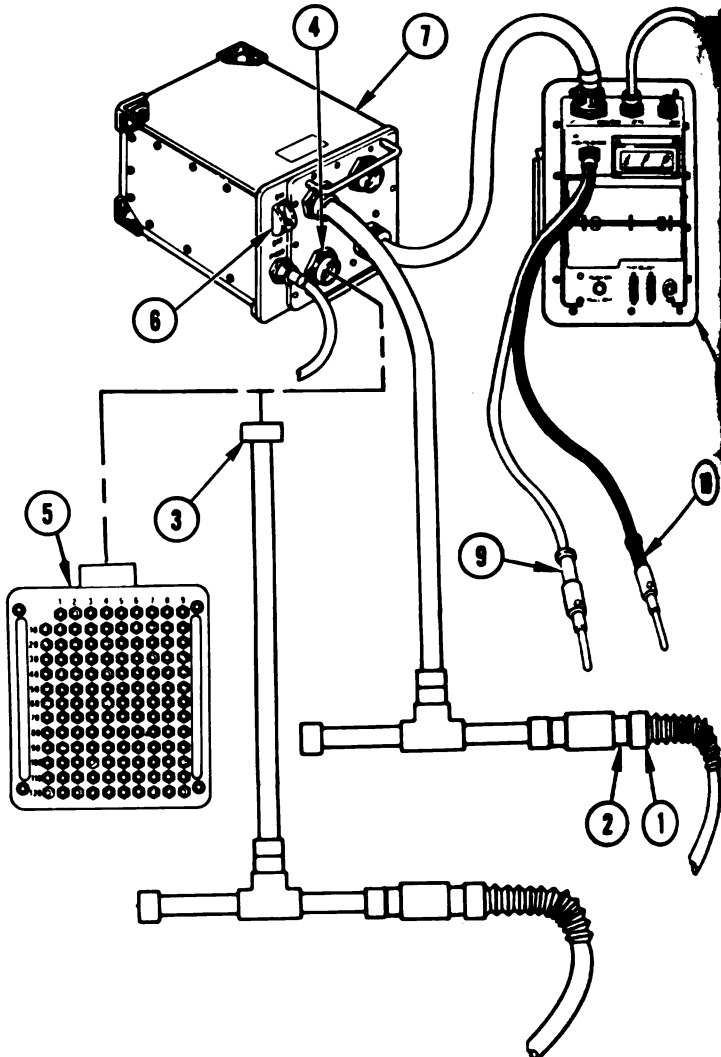
9-405

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

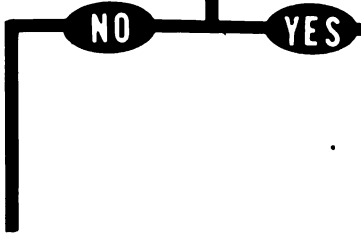
- 4**
- Disconnect 1W203-P2 (1) from CA421-P1 (2).
 - Disconnect CX305-P2 (3) from CIB-J1 (4).
 - Connect CX305-P2 (3) to breakout box (5).

- 5**
- Change control from SETCOM to VTM.
 - Set PWR switch (6) on CIB (7) to OFF to reset VTM (8).
 - Set PWR switch (6) to ON.
 - Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 9-1.

- 6**
- Connect red test probe (9) to test point 107 on breakout box (5).
- NOTE**
- If VTM display shows 0 to 5, go immediately to block 7.
- Test for 0 to 5 ohms by connecting black test probe (10) to each test point on breakout box (5) listed below:
 - 7 through 38
 - 89 through 106
 - 108 through 111
- Does VTM display show between 0 and 5?



- 7**
- Connect 1W200-P4 to J3 on electronic unit.
 - See figure 9-230.
 - Replace branched wiring harness 1W203.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.



*Figure 9-175 (Sheet 2 of 3)
Volume II
Para. 9-3*

ARR82-601

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

Connect red test probe (1) to test point 111 on breakout box (2).

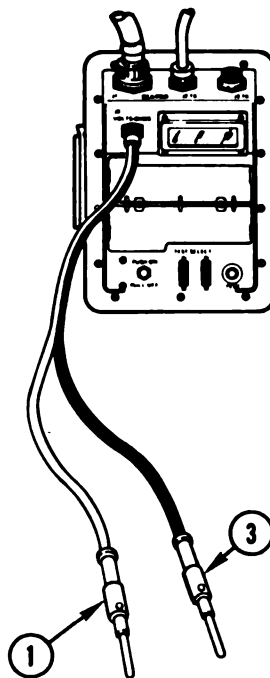
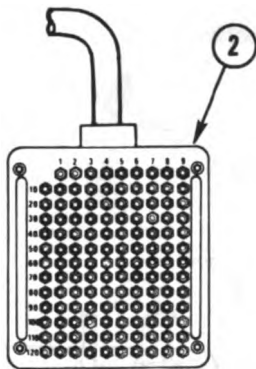
NOTE

If VTM display shows 0 to 5, go immediately to block 10.

Test for 0 to 5 ohms by connecting black test probe (3) to each test point on breakout box (2) listed below:

- 7 through 38
- 89 through 110

Does VTM display show between 0 and 5?



NO

- 9**
- Connect 1W200-P4 to J3 on electronic unit.
 - See figure 9-230.
 - Connect 1W203-P2 to J1 on gunner's primary sight.
 - See figure 9-240.
 - Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
 - Verify that problem is solved.

YES

- 10**
- Connect 1W200-P4 to J3 on electronic unit.
 - See figure 9-230.
 - Replace branched wiring harness 1W203.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

Figure 9-175 (Sheet 3 of 3)
**Volume II
Para. 9-3**

ARR82-6018

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

• 142141
• 142143

**DISPLAY SHOWS -
FAULTY LOS OR
1W206**

**Additional Test
Equipment/Special Tools:**

- Breakout Box Tool Kit, 12311088

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

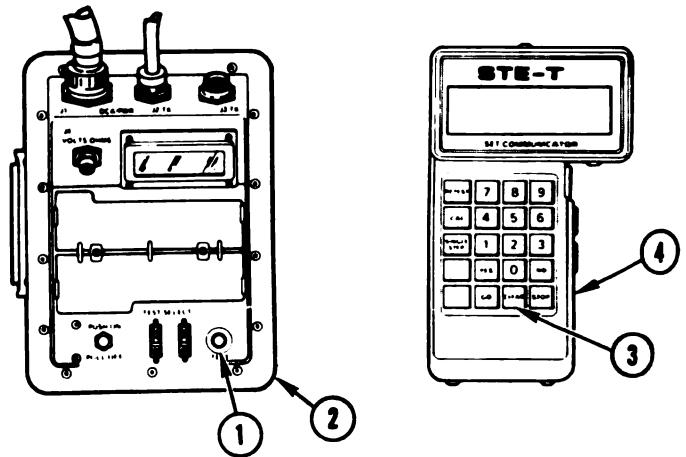
1

- Disconnect CX205-P1 from CIB-J1.
 - See figure 9-8.
- Disconnect 1W206-P1 from J2 on line-of-sight electronics unit.
 - See figure 9-238.

2

- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.
- Prepare STE to run cable test 1390.
 - Press TEST button (1) on VTM (2).
 - Press CLEAR key (3) on SETCOM (4).
 - Enter test number 1390 on SETCOM (4).
- Run test on 1W206 between P1 and P2.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.

Does SETCOM display show GOOD?



YES **NO**

3

- Connect 1W202-P3 to J1 on line-of-sight electronics unit.
 - See figure 9-238.
- Replace branched wiring harness 1W206.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

*Figure 9-176 (Sheet 1 of 2)
Volume II
Para. 9-3*

ARR82-6C

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

- Disconnect 1W206-P2 (1) from CA419-P1 (2).
- Disconnect CX304-P2 (3) from CIB-J1 (4).
- Connect CX304-P2 (3) to breakout box (5).

- Change control from SETCOM to VTM.
 - Set PWR switch (6) on CIB (7) to OFF to reset VTM (8).
 - Set PWR switch (6) to ON.
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 9-1.

- Connect red test probe (9) to test point 34 on breakout box (5).

NOTE

If VTM display shows 0 to 5, go immediately to block 7.

- Test for 0 to 5 ohms by connecting black test probe (10) to each test point on breakout box (5) listed below:
 - 7 through 33
 - 35 through 39
 - 62, 74, and 75
 - 89 through 113

Does VTM display show 0 and 5?

YES

NO

- Connect 1W202-P3 to J1 on line-of-sight electronics unit.
 - See figure 9-238.
- Replace branched wiring harness 1W206.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

8

- Connect 1W206-P2 to J2 on gunner's primary sight.
 - See figure 9-240.
- Replace line-of-sight electronics unit.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-8.
- Verify that problem is solved.

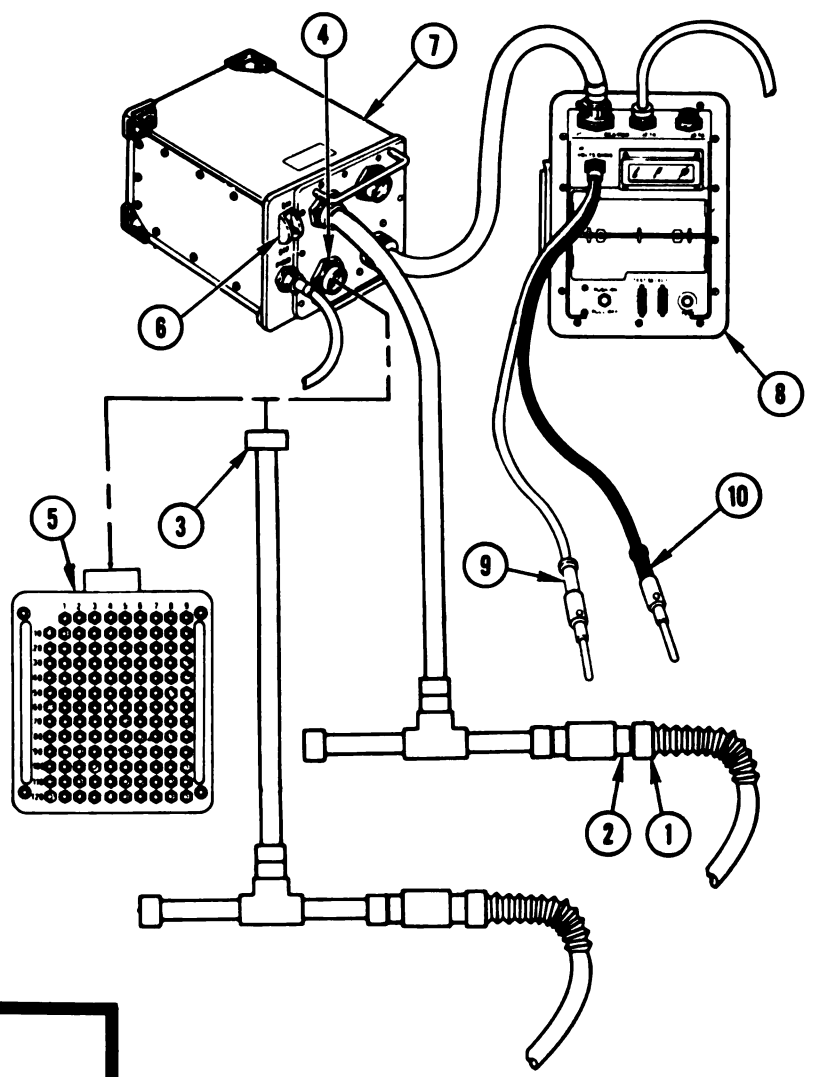


Figure 9-176 (Sheet 2 of 2)
Volume II
Para. 9-3

ARR82-6020

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS -
FAULTY TNB, LOS OR
1W202**

• 140259
140260

**Additional Test
Equipment/Special Tools:**

- Breakout Box Tool Kit, 12311066

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

1

- Disconnect 1W202-P3 from J1 on line-of-sight electronics unit.
 - See figure 9-238.
- Connect CX305-P2 (1) to breakout box (2).
- Connect CX305-P1 (3) to CX307-P3 (4).
- Connect CA418-P1 (5) to J1 (6) on line-of-sight electronics unit (7).
- Connect CA418-P2 (8) to CX307-P1 (9).

2

- Connect 1W206-P1 to J2 on line-of-sight electronics unit.
 - See figure 9-238.
- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 9-1.

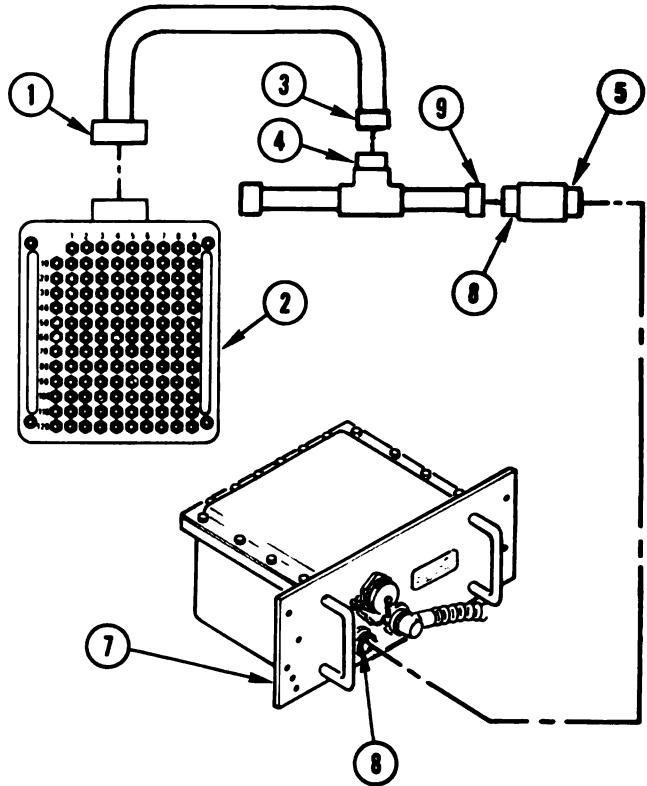


Figure 9-177 (Sheet 1 of 3)
**Volume II
Para. 9-3**

ARR82-6021

TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING

NOTE

If VTM display shows 0 to 5, go immediately to block 4.

- Test for 0 to 5 ohms between test points on breakout box listed in table A for fault number being tested.
- Connect red test probe (1) to test point on breakout box (2) listed in table A for fault number being tested.
- Connect black test probe (3) to test points on breakout box (2) listed in table A for fault number being tested.

Table A

Fault Number	Red test probe	Black test probe
140259	102	7 through 39, 62, 74, and 75 89 through 101, 103 through 113
140260	105	7 through 39, 62, 74, and 75 89 through 104, 106 through 113

Does VTM display show between 0 and 5?

NO

YES

4

- Replace line-of-sight electronics unit.
- Refer to TM 9-2350-255-20-2-3-3, para. 7-8.
- Verify that problem is solved.

- Disconnect CA418-P2 (4) from CX307-P1 (5)
- Disconnect 1W202-P1 from J7 on turret networks box.
- See figure 9-229.
- Connect 1W202-P1 (8) to CA508-P1 (7).
- Connect CA508-P2 (8) to CX307-P1 (5).

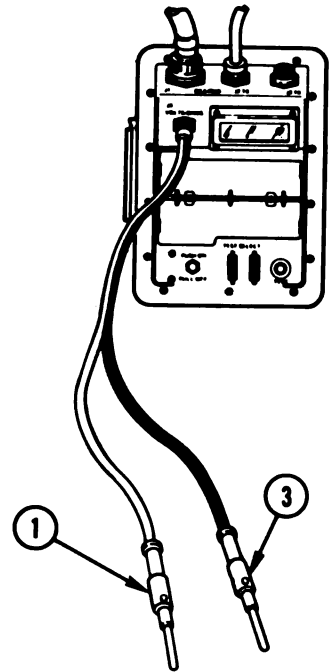
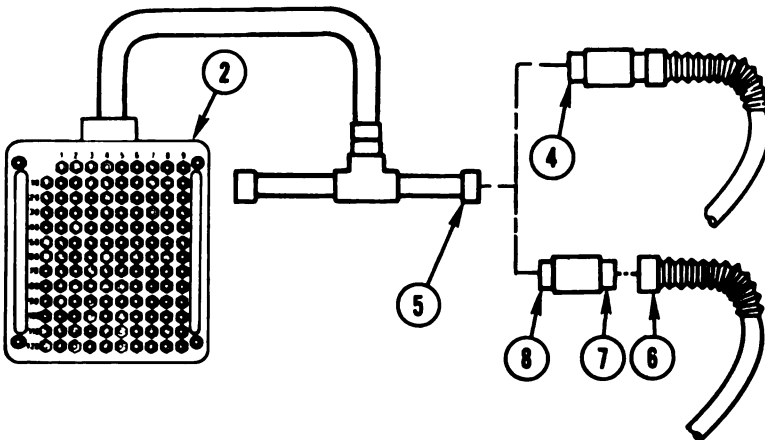


Figure 9-177 (Sheet 2 of 3)
Volume II
Para. 9-3

ARR82-8022

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

6

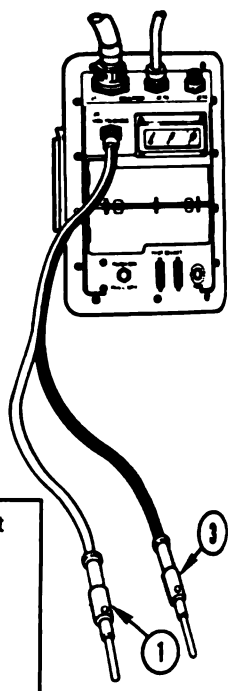
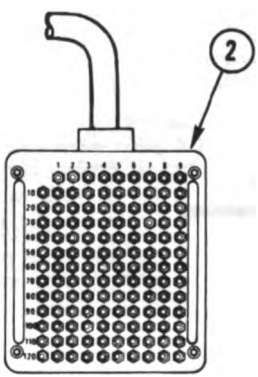
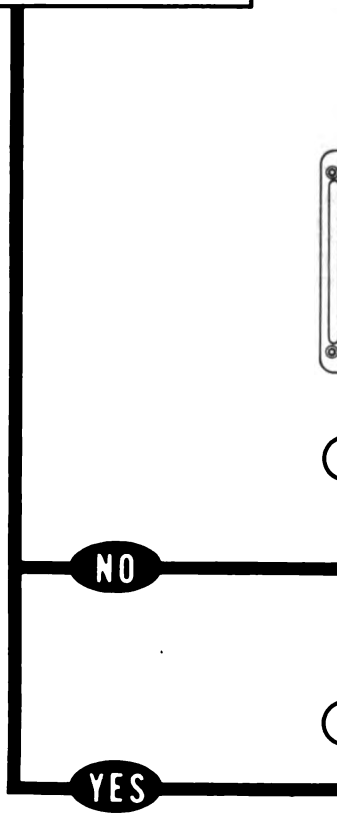
NOTE
If VTM display shows 0 to 5, go immediately to block 8.

- Test for 0 to 5 ohms between test points on breakout box listed in table B for fault number being tested.
- Connect red test probe (1) to test point on breakout box (2) listed in table B for fault number being tested.
- Connect black test probe (3) to test points on breakout box (2) listed in table B for fault number being tested.

Does VTM display show between 0 and 5?

Table B

Fault Number	Red test probe	Black test probe
140259	108	7 through 39, 62, 74, and 75 89 through 107, 109 through 113
140260	105	7 through 39, 62, 74, and 75 89 through 104, 106 through 113



7

- Connect 1W202-P3 to J1 on line-of-sight electronics unit.
- See figure 9-238.
- Replace turret networks box.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
- Verify that problem is solved.

8

- Replace branched wiring harness 1W202.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

*Figure 9-177 (Sheet 3 of 3)
Volume II
Para. 9-3*

ARR82-6023

DISPLAY SHOWS -
 FAULTY TNB
 OR 1W201

140471

Additional Test

Equipment/Special Tools:

- Breakout Box Tool Kit, 12311088

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- Connect CX305-P2 (1) to breakout box (2).
- Connect CX305-P1 (3) to CX307-P3 (4).
- Disconnect 1W201-P1 from J8 on turret networks box.
 - See figure 9-229.
- Connect 1W201-P1 (5) to CA502-P1 (6).
- Connect CA502-P2 (7) to CX307-P1 (8).

- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 9-1.

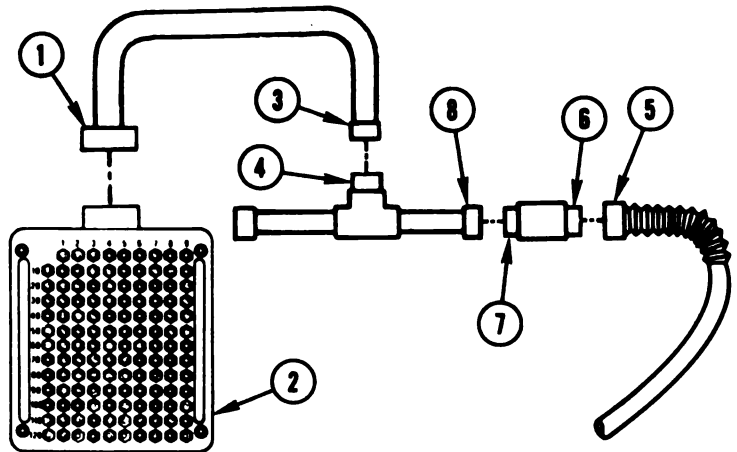


Figure 9-178 (Sheet 1 of 2)
 Volume II
 Para. 9-3

ARR82-6024

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

6

NOTE

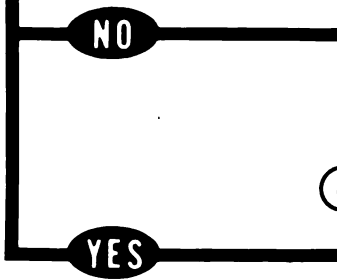
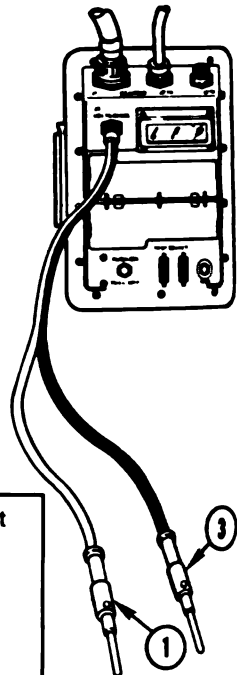
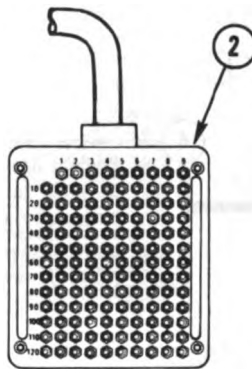
If VTM display shows 0 to 5, go immediately to block 8.

- Test for 0 to 5 ohms between test points on breakout box listed in table B for fault number being tested.
- Connect red test probe (1) to test point on breakout box (2) listed in table B for fault number being tested.
- Connect black test probe (3) to test points on breakout box (2) listed in table B for fault number being tested.

Does VTM display show between 0 and 5?

Table B

Fault Number	Red test probe	Black test probe
140259	108	7 through 39, 62, 74, and 75 89 through 107, 109 through 113
140260	105	7 through 39, 62, 74, and 75 89 through 104, 106 through 113



7

- Connect 1W202-P3 to J1 on line-of-sight electronics unit.
- See figure 9-238.
- Replace turret networks box.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
- Verify that problem is solved.

8

- Replace branched wiring harness 1W202.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

*Figure 9-177 (Sheet 3 of 3)
Volume II
Para. 9-3*

ARR82-6023

DISPLAY SHOWS -
FAULTY TNB
OR 1W201 140471

**Additional Test
Equipment/Special Tools:**
● Breakout Box Tool Kit, 12311066

Equipment Condition:
● Tank parked.
● Parking brake set.
● Engine shut down.
● Vehicle master power off.

● Connect CX305-P2 (1) to breakout box (2).
● Connect CX305-P1 (3) to CX307-P3 (4).
● Disconnect 1W201-P1 from J6 on turret networks box.
● See figure 9-229.
● Connect 1W201-P1 (5) to CA502-P1 (8).
● Connect CA502-P2 (7) to CX307-P1 (8).

● Change STE power hookup from turret networks box to power distribution box.
● See figure 9-37.
● Prepare VTM for measuring resistance between 0 and 1500 ohms.
● Refer to para. 9-1.

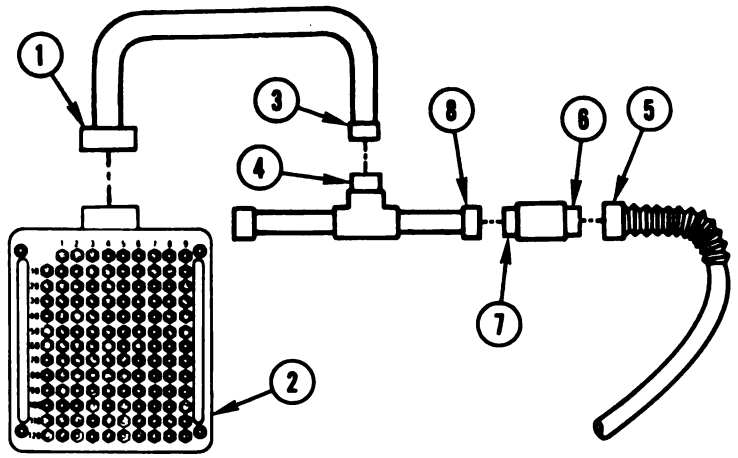


Figure 9-178 (Sheet 1 of 2)
Volume II
Para. 9-3

ARR82-6024

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

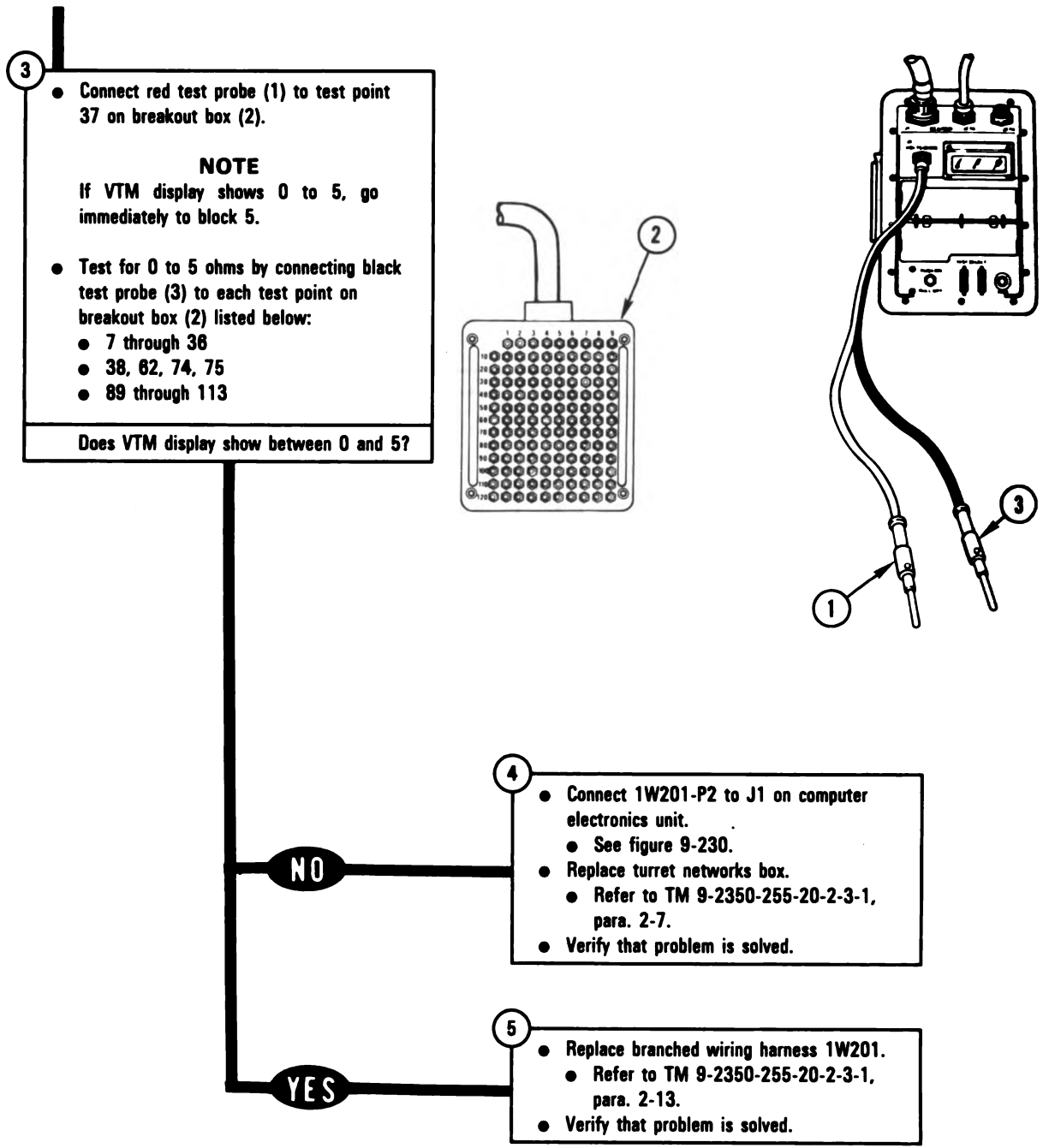


Figure 9-178 (Sheet 2 of 2)
Volume II
Para. 9-3

ARR82-6

**DISPLAY SHOWS -
FAULTY TNB OR
1W107**

146060

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- Disconnect CX205-P2 from C1B-J2.
 - See figure 9-6.
- Disconnect CA558-P2 from CX308-P2.
 - See figure 9-22.
- Disconnect 1W107-P1 from J4 on turret networks box.
 - See figure 9-229.

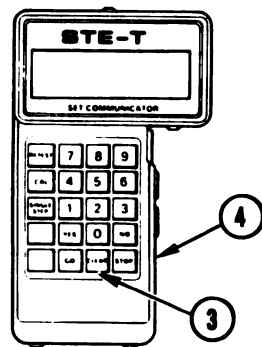
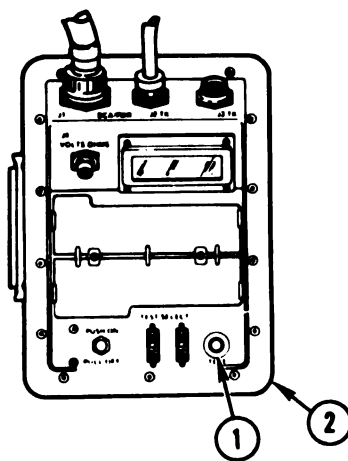
- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.
- Prepare STE to run cable test 1390.
 - Press TEST button (1) on VTM (2).
 - Press CLEAR key (3) on SETCOM (4).
 - Enter test number 1390 on SETCOM (4).
- Run test on 1W107 between P1 and J2.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.

Does SETCOM display show GOOD?

YES

NO

- Connect zero degree elevation switch (1S242)-P1 to 1W107-J2.
 - See figure 9-237.
- Connect 1W200-P3 to J2 on electronic unit.
 - See figure 9-230.
- Connect 1W200-P4 to J3 on electronic unit.
 - See figure 9-230.
- Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
- Verify that problem is solved.



- Connect 1W200-P3 to J2 on electronic unit.
 - See figure 9-230.
- Connect 1W200-P4 to J3 on electronic unit.
 - See figure 9-230.
- Replace branched harness wiring 1W107.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

Figure 9-179
Volume II
Para. 9-3

ARR82-6026

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS
FAULTY TNB OR
1W201**

142454

**Additional Test
Equipment/Special Tools:**

- Breakout Box Tool Kit, 12311088

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- 1
- Disconnect 1W201-P1 from J8 on turret networks box.
 - See figure 9-229.
 - Connect CX304-P2 (1) to breakout box (2).
 - Connect CX304-P1 (3) to CX307-P3 (4).

- 2
- Disconnect 1W201-P2 from CA419-P1.
 - See figure 9-10.
 - Connect 1W201-P1 (5) to CA502-P1 (8).
 - Connect CA502-P2 (7) to CX307-P1 (8).

- 3
- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.
 - Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 9-1.

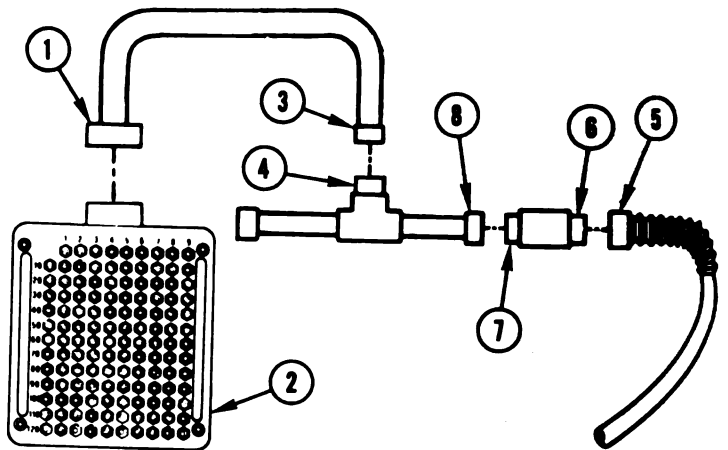


Figure 9-180 (Sheet 1 of 2)
**Volume II
Para. 9-3**

ARR82-8027

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

- Connect red test probe (1) to test point 106 on breakout box (2).

NOTE
If VTM display shows 0 to 5, go immediately to block 6.

- Test for 0 to 5 ohms by connecting black test probe (3) to each test point on breakout box (2) listed below:
 - 7 through 39
 - 62, 74, and 75
 - 107 through 113

Does VTM display show between 0 and 5?

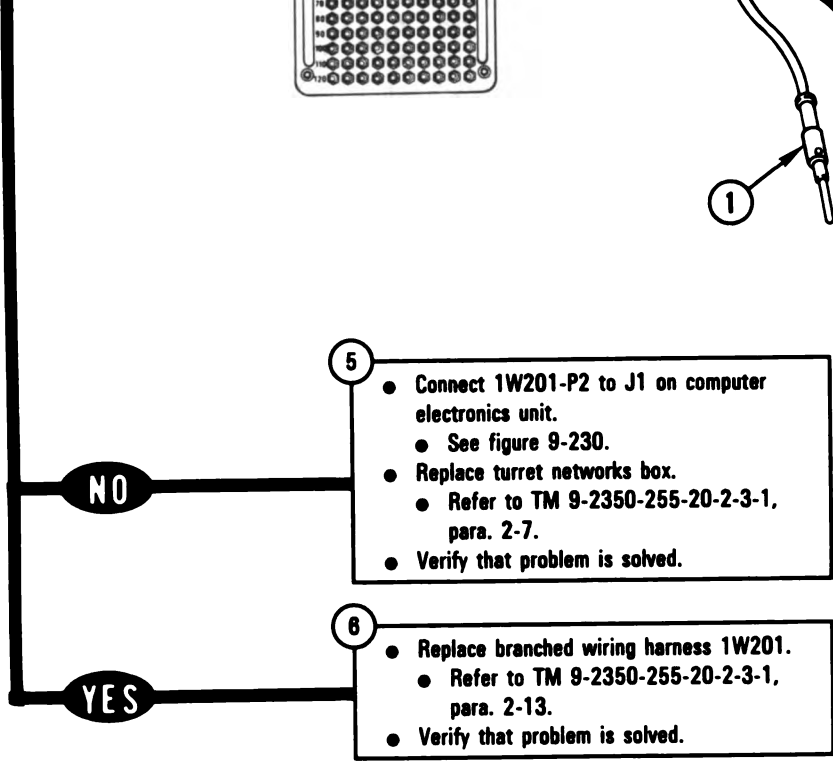
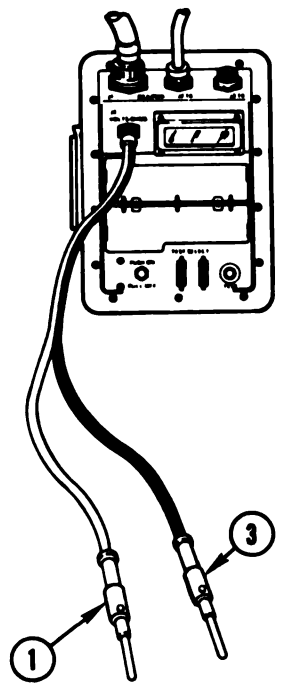
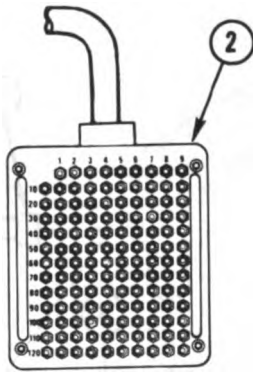


Figure 9-180 (Sheet 2 of 2)
Volume II
Para. 9-3

ARR82-6028

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS
FAULTY TNB, GPS, LOS
1W202/6**

141172

Additional Test

Equipment/Special Tools:

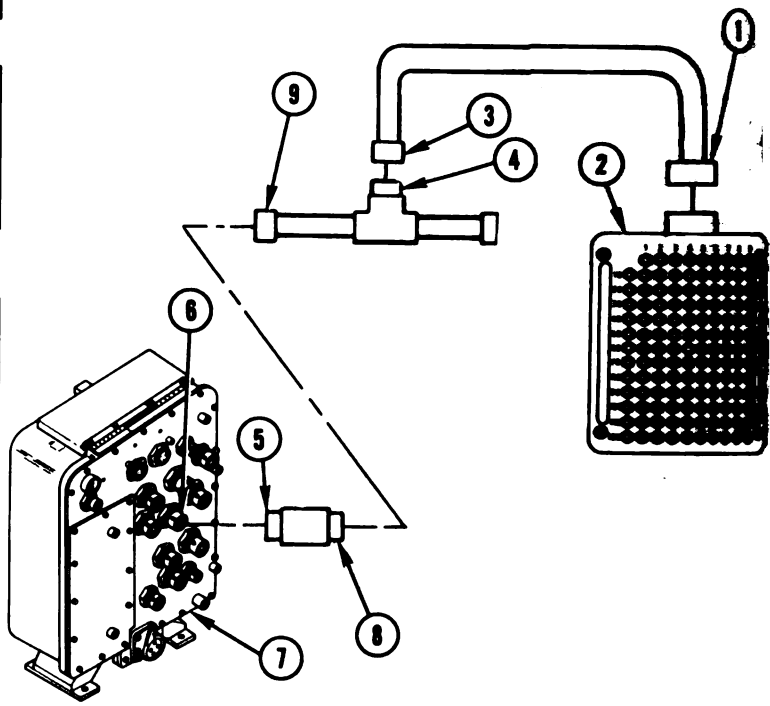
- Breakout Box Tool Kit, 12311066

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- 1
- Disconnect 1W202-P1 from J7 on turret networks box.
 - See figure 9-229.
 - Disconnect 1W202-P3 from J1 on line-of-sight electronics unit.
 - See figure 9-238.
 - Disconnect 1W208-P1 from J2 on line-of-sight electronics unit.
 - See figure 9-238.
 - Disconnect 1W208-P2 from J2 on gunner's primary sight.
 - See figure 9-240.

- 2
- Connect CX305-P2 (1) to breakout box (2).
 - Connect CX305-P1 (3) to CX307-P3 (4).
 - Connect CA505-P1 (5) to J7 (6) on turret networks box (7).
 - Connect CA505-P2 (8) to CX307-P1 (9).



*Figure 9-181 (Sheet 1 of 8)
Volume II
Para. 9-3*

ARR82-6029

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 9-1.

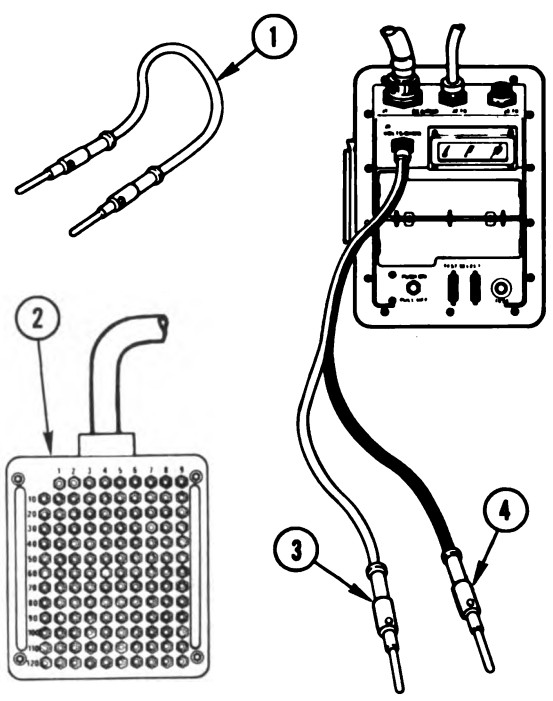
- Connect jumper (1) between test points 107 and 108 on breakout box (2).
- Connect red test probe (3) to test point 108 on breakout box (2).

NOTE

If VTM display shows 0 to 5, go immediately to block 5.

- Test for 0 to 5 ohms by connecting black test probe (4) to each test point on breakout box (2) listed below:
 - 7 through 39
 - 62, 74, and 75
 - 89 through 106
 - 109 through 113

Does VTM display show between 0 and 5?



NO

YES

- 5
- Connect 1W202-P3 to J1 on line-of-sight electronics unit.
 - See figure 9-238.
 - Connect 1W206-P1 to J2 on line-of-sight electronics unit.
 - See figure 9-238.
 - Connect 1W206-P2 to J2 on gunner's primary sight.
 - See figure 9-240.
 - Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
 - Verify that problem is solved.

Figure 9-181 (Sheet 2 of 8)
**Volume II
Para. 9-3**

ARR82-6030

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

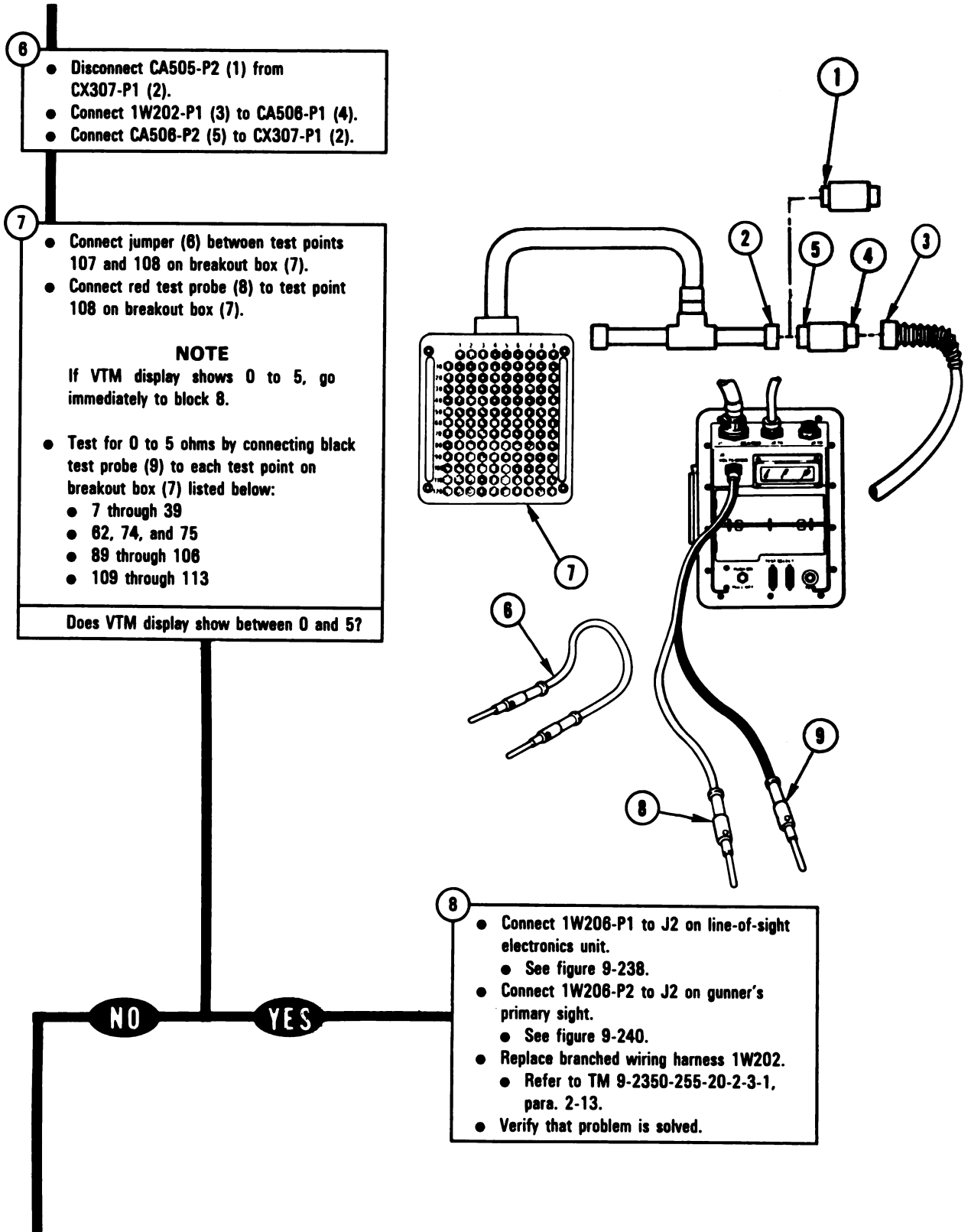


Figure 9-181 (Sheet 3 of 8)
**Volume II
Para. 9-3**

ARR82-6031

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

- Disconnect CA506-P2 (1) from CX307-P1 (2).
- Connect 1W202-P3 (3) to CA417-P1 (4).
- Connect CA417-P2 (5) to CX307-P1 (2).

- Connect jumper (8) between test points 102 and 103 on breakout box (7).
- Connect red test probe (8) to test point 102 on breakout box (7).

NOTE

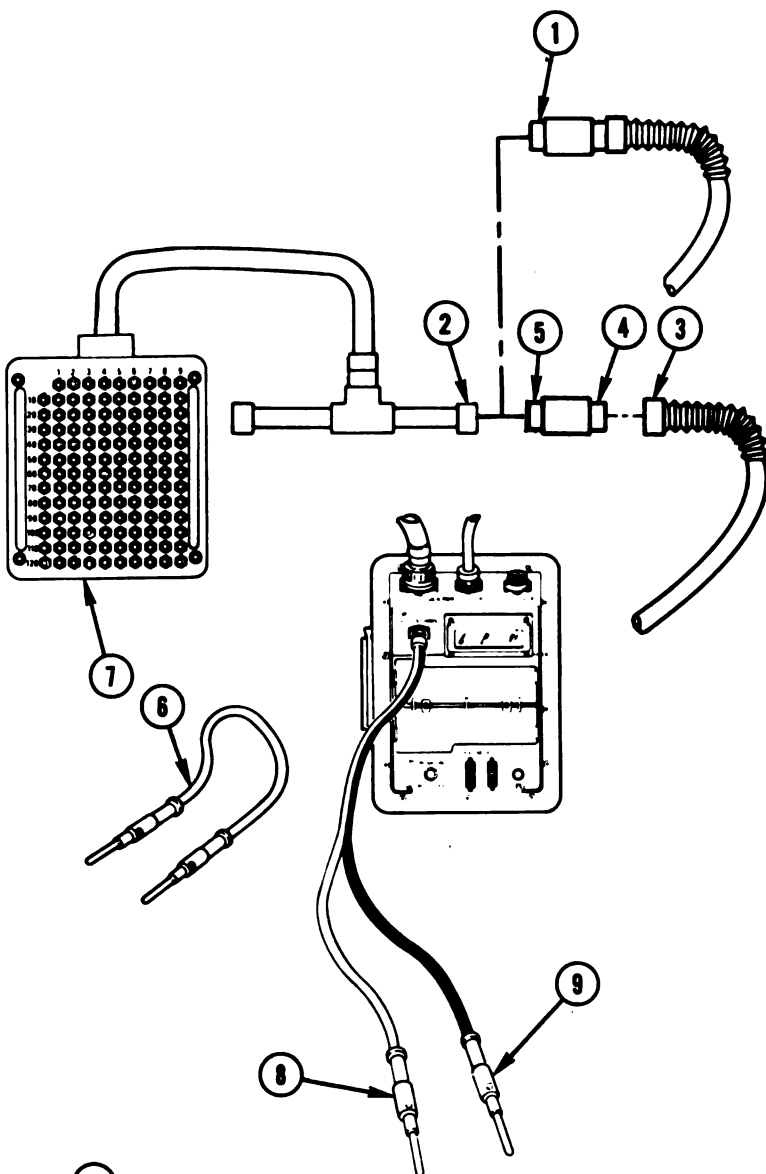
If VTM display shows 0 to 5, go immediately to block 11.

- Test for 0 to 5 ohms by connecting black test probe (9) to each test point on breakout box (7) listed below:
 - 7 through 39
 - 62, 74, and 75
 - 89 through 101
 - 104 through 113

Does VTM display show between 0 and 5?

NO

YES



- 11
- Connect 1W206-P1 to J2 on line-of-sight electronics unit.
 - See figure 9-238.
 - Connect 1W206-P2 to J2 on gunner's primary sight.
 - See figure 9-240.
 - Replace branched wiring harness 1W202.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

Figure 9-181 (Sheet 4 of 8)
**Volume II
Para. 9-3**

ARR82-6032

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

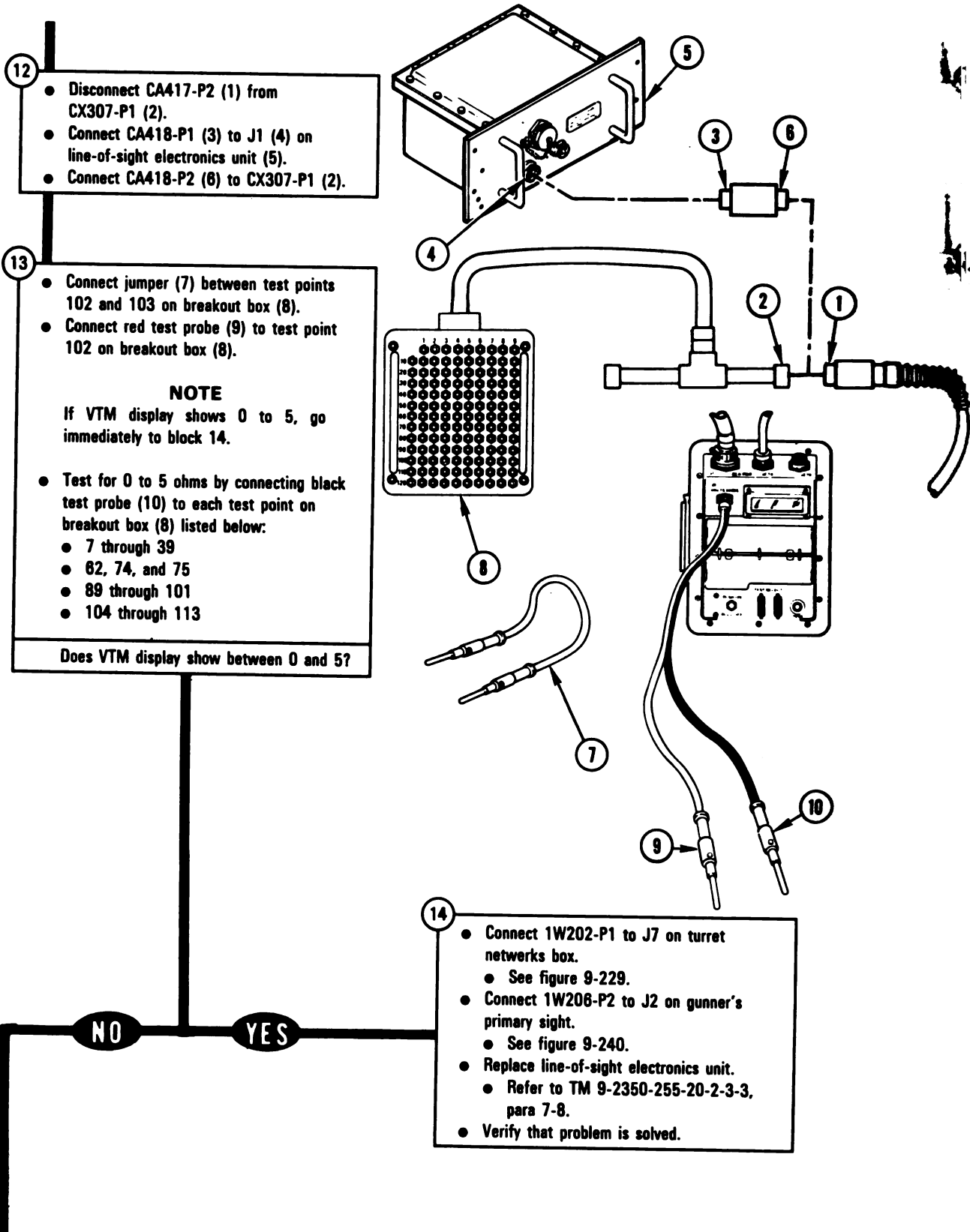


Figure 9-181 (Sheet 5 of 8)
Volume II
Para. 9-3

ARR82-6033

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

- Disconnect CA418-P2 (1) from CX307-P1 (2).
- Connect CA519-P1 (3) to J2 (4) on line-of-sight electronics unit (5).
- Connect CA519-P2 (6) to CX307-P1 (2).

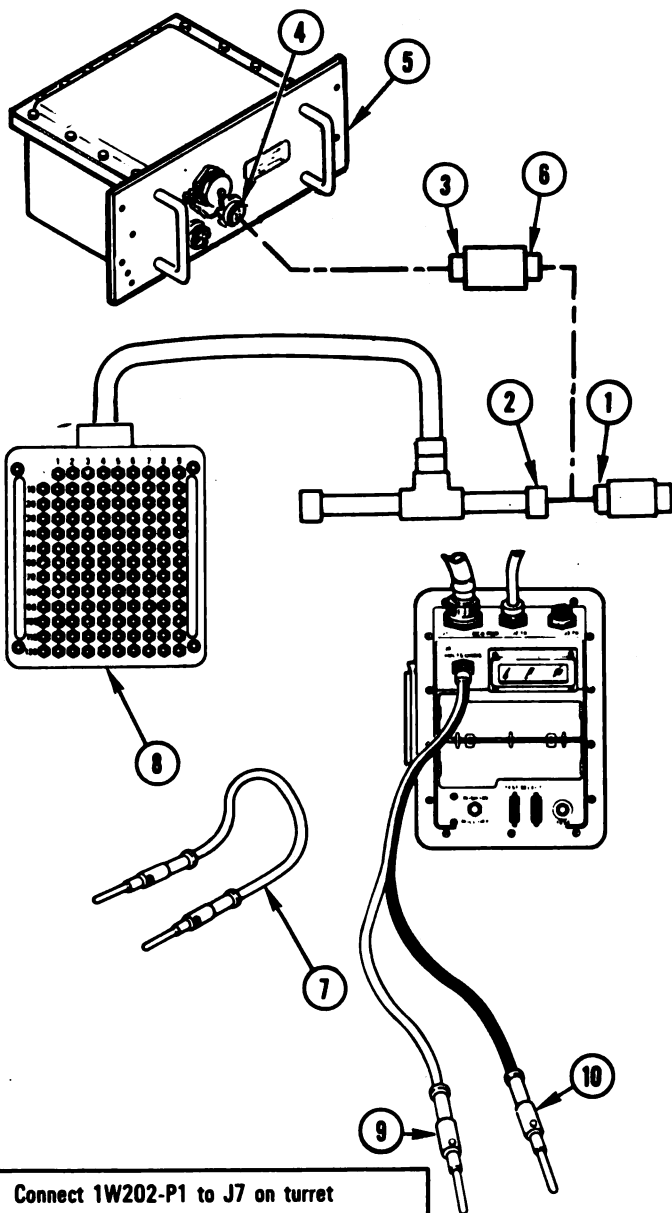
- Connect jumper (7) between test points 34 and 35 on breakout box (8).
- Connect red test probe (9) to test point 34 on breakout box (8).

NOTE

If VTM display shows 0 to 5, go immediately to block 17.

- Test for 0 to 5 ohms by connecting black test probe (10) to each test point on breakout box (8) listed below:
 - 7 through 33
 - 36 through 39
 - 62, 74, and 75
 - 89 through 113

Does VTM display show between 0 and 5?



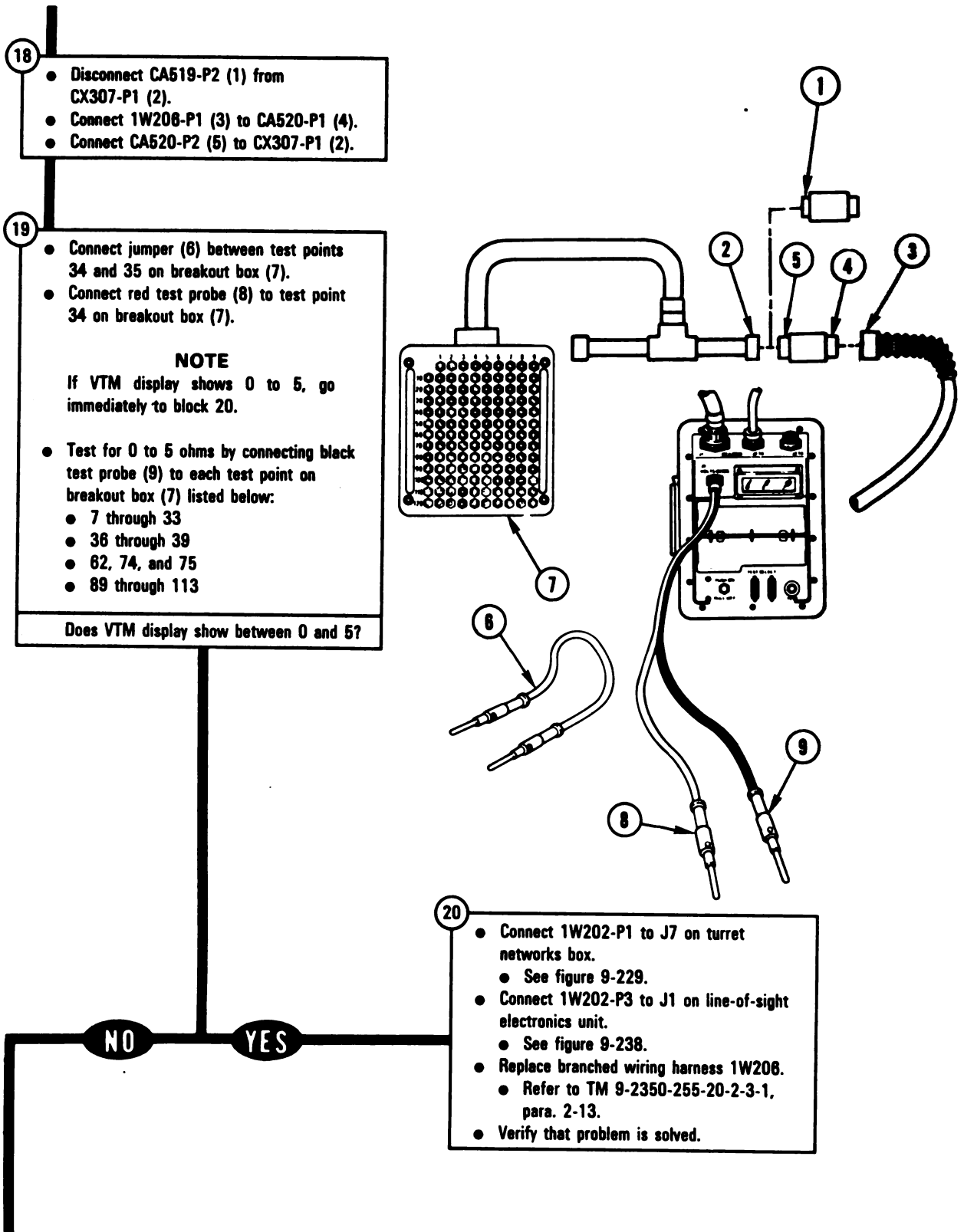
- 17
- Connect 1W202-P1 to J7 on turret networks box.
 - See figure 9-229.
 - Connect 1W206-P2 to J2 on gunner's primary sight.
 - See figure 9-240.
 - Replace line-of-sight electronics unit.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-8.
 - Verify that problem is solved.

NO **YES**

Figure 9-181 (Sheet 6 of 8)
Volume II
Para. 9-3

ARR82-6034

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**



*Figure 9-181 (Sheet 7 of 8)
Volume II
Para. 9-3*

ARR82-6C

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

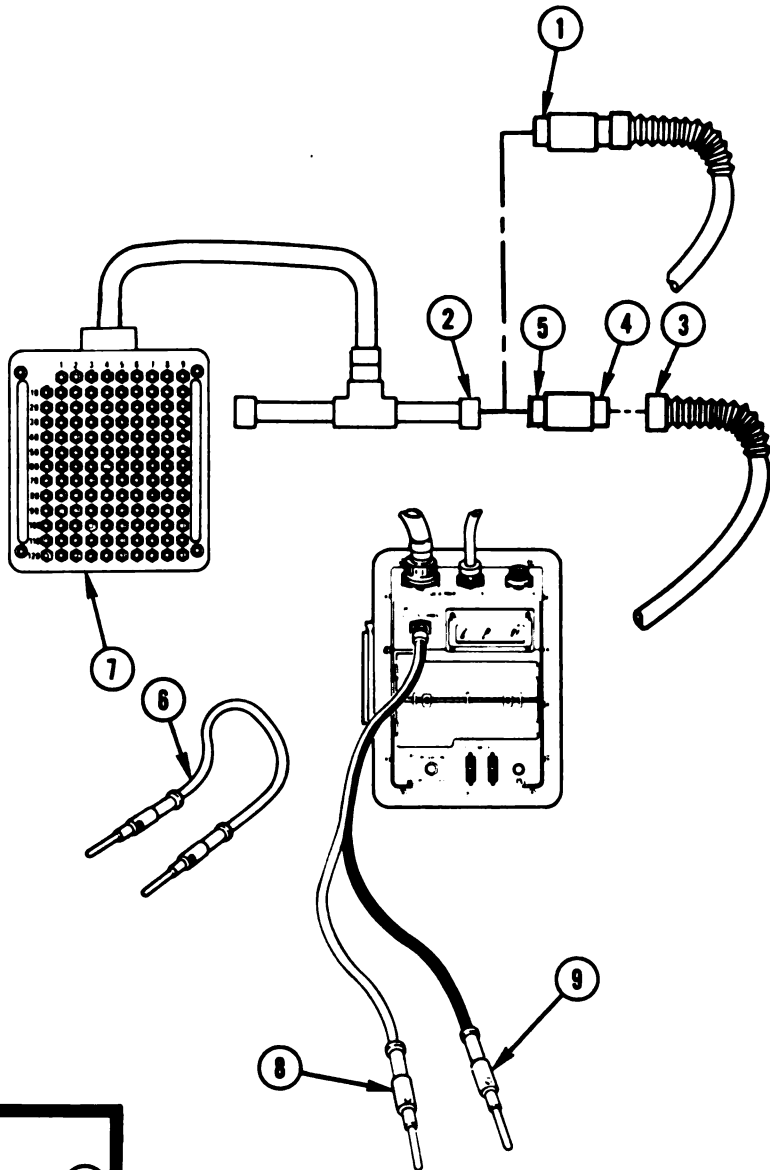
- Disconnect CA520-P2 (1) from CX307-P1 (2).
- Connect 1W206-P2 (3) to CA419-P1 (4).
- Connect CA419-P2 (5) to CX307-P1 (2).

- Connect jumper (6) between test points 32 and 33 on breakout box (7).
- Connect red test probe (8) to test point 32 on breakout box (7).

NOTE

If VTM display shows 0 to 5, go immediately to block 23.

- Test for 0 to 5 ohms by connecting black test probe (9) to each test point on breakout box (7) listed below:
 - 7 through 31
 - 34 through 39
 - 62, 74, and 75
 - 89 through 113



Does VTM display show between 0 and 5?

YES

NO

- Connect 1W202-P1 to J7 on turret networks box.
 - See figure 9-229.
- Connect 1W202-P3 to J1 on line-of-sight electronics unit.
 - See figure 9-238
- Replace branched wiring harness 1W206.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

- 24
- Connect 1W202-P1 to J7 on turret networks box.
 - See figure 9-229.
 - Connect 1W202-P3 to J1 on line-of-sight electronics unit.
 - See figure 9-238.
 - Connect 1W206-P1 to J2 on line-of-sight electronics unit.
 - See figure 9-238.
 - Replace gunner's primary sight body assembly.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-5.
 - Verify that problem is solved.

Figure 9-181 (Sheet 8 of 8)
Volume II
Para. 9-3

ARR82-6036

9-425

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS -
FAULTY TNB, LOS OR
1W202**

142465

Additional Test

Equipment/Special Tools:

- Breakout Box Tool Kit, 12311066

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- 1
- Disconnect 1W202-P3 from J1 on line-of-sight electronics unit.
 - See figure 9-238.
 - Connect CX305-P2 (1) to breakout box (2).
 - Connect CX305-P1 (3) to CX307-P3 (4).

- 2
- Disconnect 1W202-P1 from J7 on turret networks box.
 - See figure 9-229.
 - Connect 1W202-P1 (5) to CA506-P1 (6).
 - Connect CA506-P2 (7) to CX307-P1 (8).

- 3
- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.
 - Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 9-1.

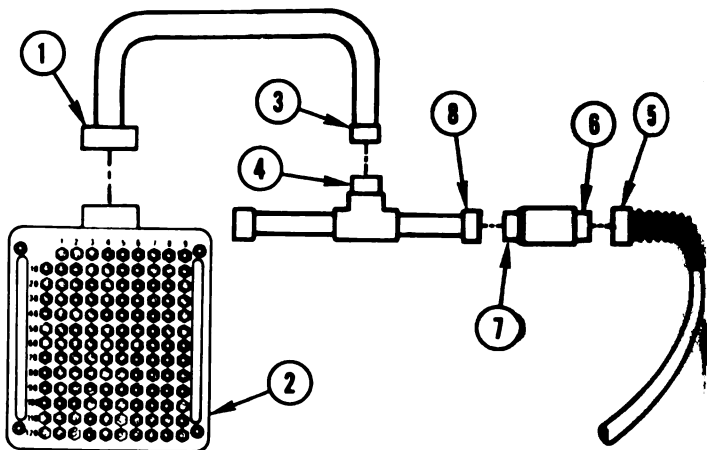


Figure 9-182 (Sheet 1 of 2)
**Volume II
Para. 9-3**

ARR82-6037

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

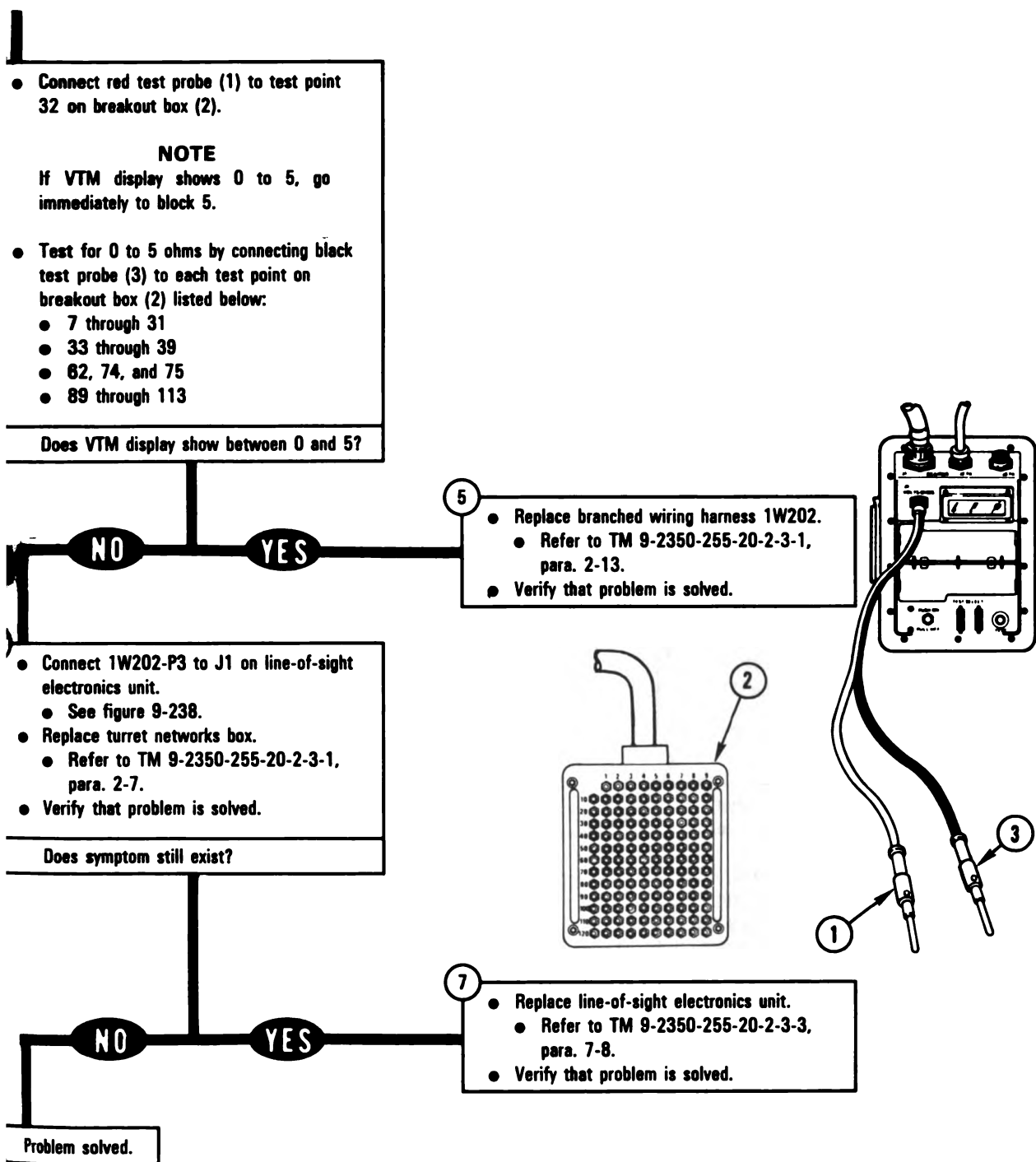


Figure 9-182 (Sheet 2 of 2)
Volume II
Para. 9-3

ARR82-6038

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS -
FAULTY TNB, CEU
OR 1W201**

142464

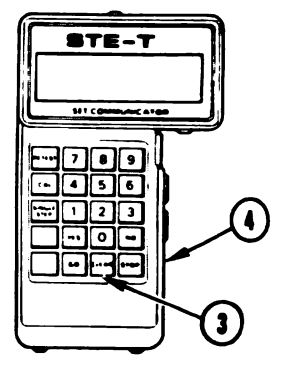
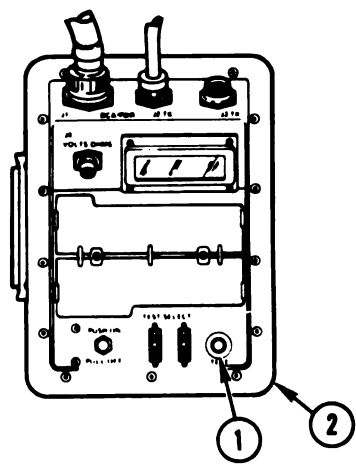
**Additional Test
Equipment/Special Tools:**

- Breakout Box Tool Kit, 12311088

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- 1
- Disconnect CX205-P1 from CIB-J1.
 - See figure 9-6.
 - Disconnect CX205-P2 from CIB-J2.
 - See figure 9-6.
 - Disconnect 1W201-P1 from J8 on turret networks box.
 - See figure 9-229.
 - Disconnect 1W201-P2 from J1 on computer electronics unit.
 - See figure 9-230.



- 2
- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.
 - Prepare STE to run cable test 1390.
 - Press TEST button (1) on VTM (2).
 - Press CLEAR key (3) on SETCOM (4).
 - Enter test number 1390 on SETCOM (4).
 - Run test on 1W201 between P1 and P2.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.

Does SETCOM display show GOOD?

YES

NO

- 3
- Replace branched wiring harness 1W201.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

*Figure 9-183 (Sheet 1 of 2)
Volume II
Para. 9-3*

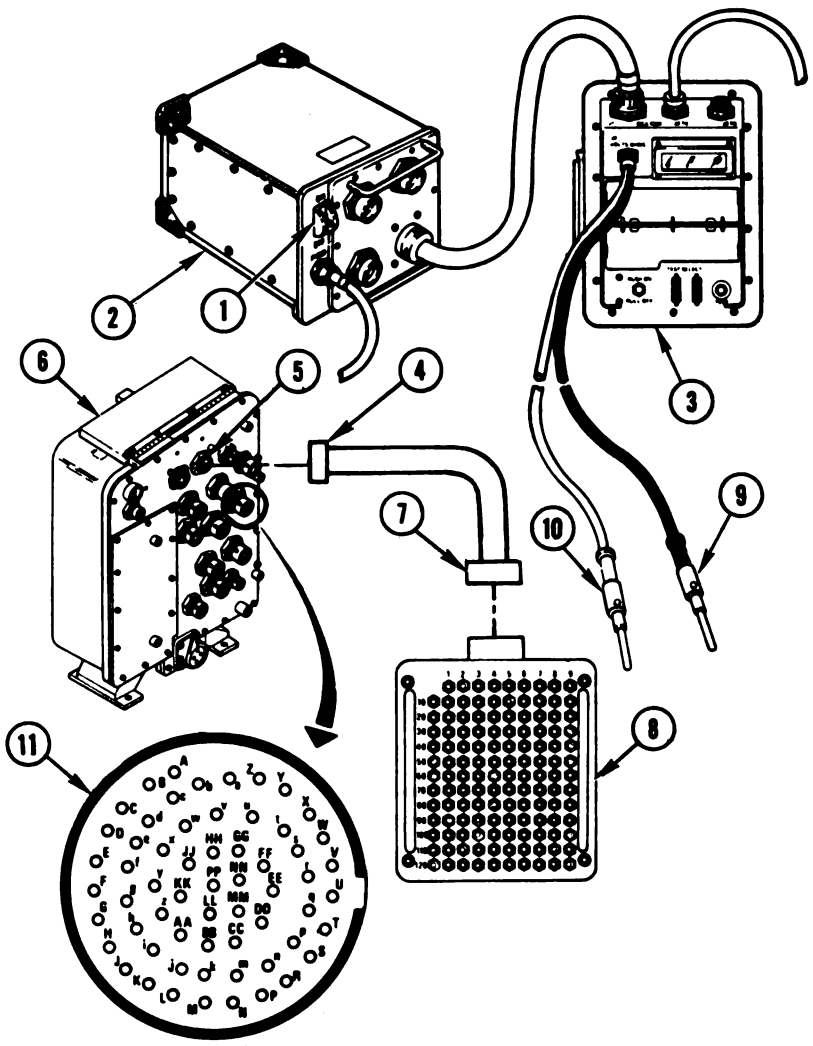
ARR82-60

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

- Change control from SETCOM to VTM.
- Set PWR switch (1) on CIB (2) to OFF to reset VTM (3).
 - Set PWR switch (1) to ON.
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
- Refer to para. 9-1.

- Connect breakout box to TEST 2 on turret networks box using CX208.
- Connect CX208-P1 (4) to TEST 2 (5) on turret networks box (6).
 - Connect CX208-P2 (7) to breakout box (8).
- Test for continuity between test point 89 on breakout box and contact h on turret networks box J6.
- Connect black test probe (9) to test point 89 on breakout box (8).
 - Connect red test probe (10) to contact h on turret networks box J6 (11).

Does VTM display show between 0 and 5?



TNB-J6

YES

NO

- Connect 1W201-P1 to J8 on turret networks box.
- See figure 9-229.
- Replace computer electronics unit.
- Refer to TM 9-2350-255-20-2-3-3, para. 7-14.
- Verify that problem is solved.

- 7
- Connect 1W201-P2 to J1 on computer electronics unit.
 - See figure 9-230.
 - Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
 - Verify that problem is solved.

Figure 9-183 (Sheet 2 of 2)
**Volume II
Para. 9-3**

ARR82-6040

9-429

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS -
FAULTY TNB OR
1W202**

- 142460
- 142461
- 142462

**Additional Test
Equipment/Special Tools:**

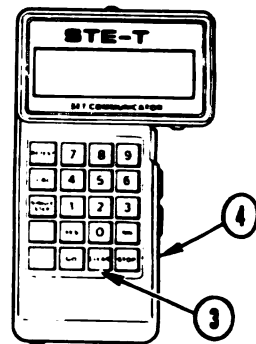
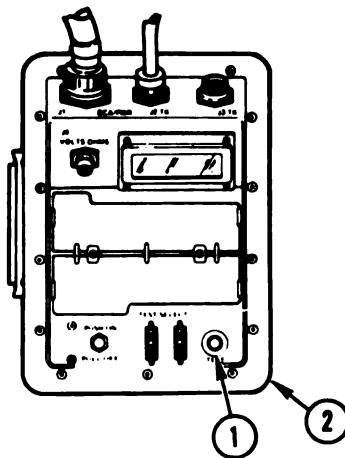
- Breakout Box Tool Kit, 12311088

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

①

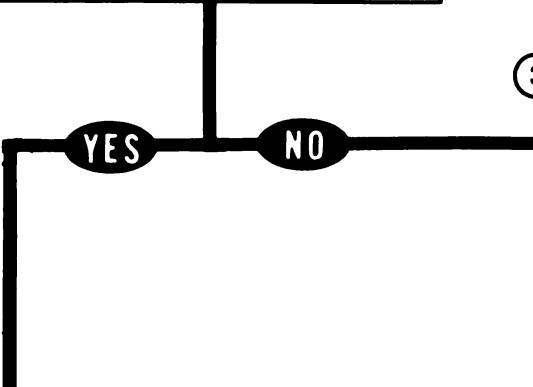
- Disconnect CX205-P2 from CIB-J2.
 - See figure 9-6.
- Disconnect 1W202-P1 from J7 on turret networks box.
 - See figure 9-229.
- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.



②

- Prepare STE to run cable test 1390.
 - Press TEST button (1) on VTM (2).
 - Press CLEAR key (3) on SETCOM (4).
 - Enter test number 1390 on SETCOM (4).
- Run test on 1W202 between P1 and P3.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.

Does SETCOM display show GOOD?



③

- Replace branched wiring harness 1W202.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

*Figure 9-184 (Sheet 1 of 3)
Volume II
Para. 9-3*

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

- Disconnect 1W202-P3 (1) from CA417-P1 (2).
- Disconnect CX304-P2 (3) from CIB-J1 (4).
- Connect CX304-P2 (3) to breakout box (5).

- Change control from SETCOM to VTM.
 - Set PWR switch (6) on CIB (7) to OFF to reset VTM (8).
 - Set PWR switch (6) to ON.
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 9-1.

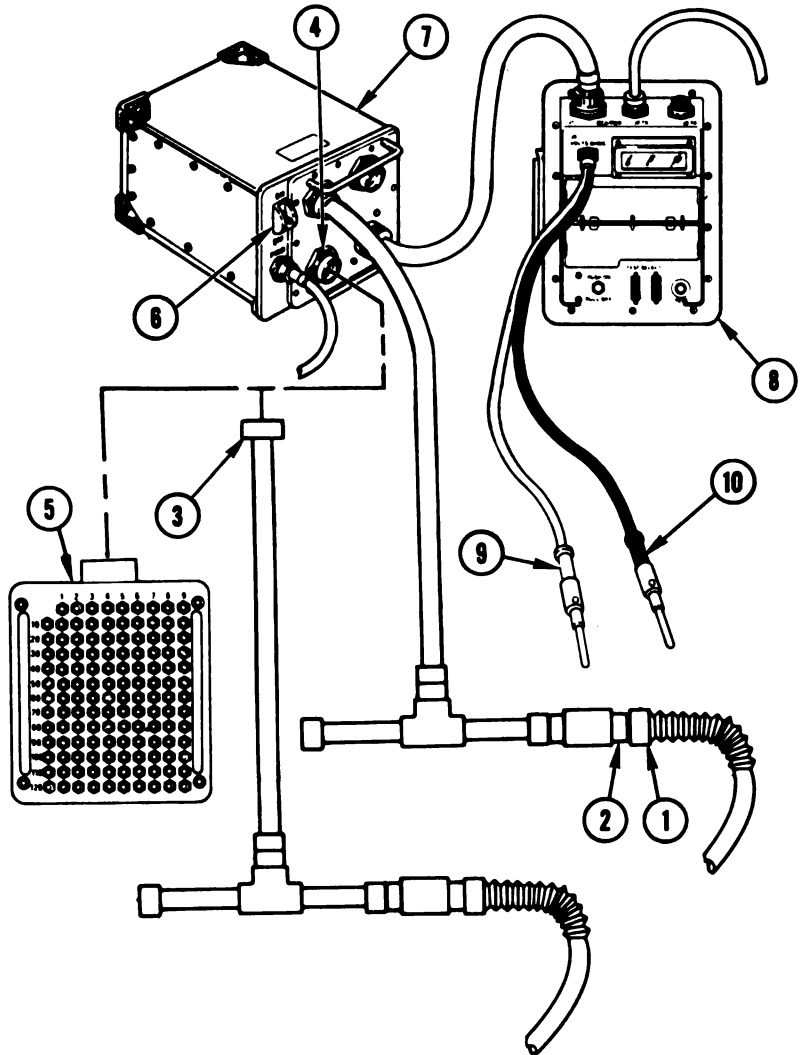
- Connect red test probe (9) to test point 107 on breakout box (5).

NOTE

If VTM display shows 0 to 5, go immediately to block 7.

- Test for 0 to 5 ohms by connecting black test probe (10) to each test point on breakout box (5) listed below:
 - 7 through 39
 - 62, 74, and 75
 - 89 through 106
 - 108 through 113

Does VTM display show between 0 and 5?



- 7**
- Replace branched wiring harness 1W202.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

NO **YES**

Figure 9-184 (Sheet 2 of 3)
Volume II
Para. 9-3

ARR82-6042

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

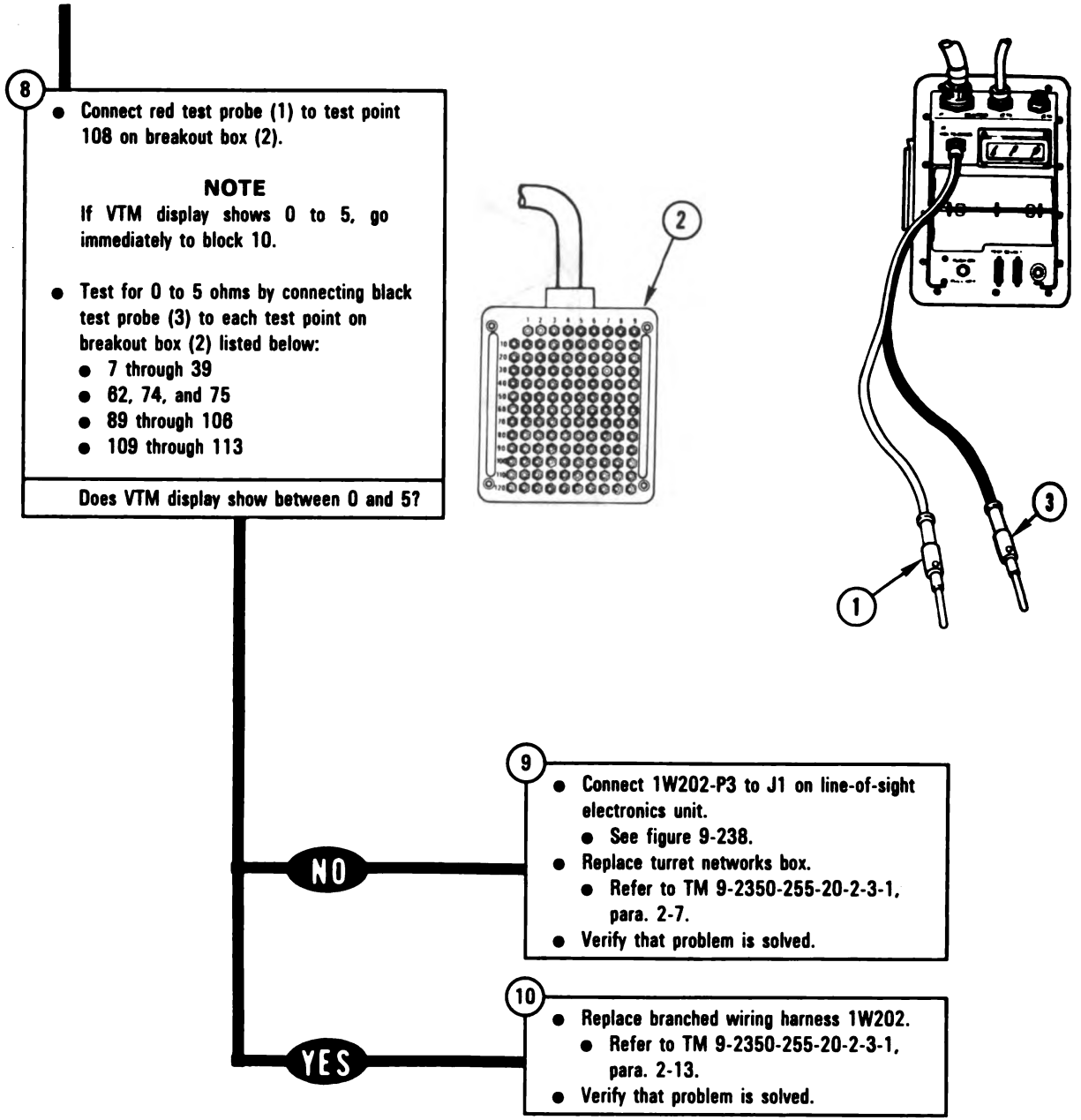


Figure 9-184 (Sheet 3 of 3)
Volume II
Para. 9-3

ARR82-6043

**DISPLAY SHOWS -
 FAULTY TNB, CEU
 OR 1W202** **141540**

**Additional Test
 Equipment/Special Tools:**
 • Breakout Box Tool Kit, 12311086

Equipment Condition:
 • Tank parked.
 • Parking brake set.
 • Engine shut down.
 • Vehicle master power off.

• Disconnect 1W202-P2 from J2 on computer electronics unit.
 • See figure 9-230.
 • Connect CX305-P2 (1) to breakout box (2).
 • Connect CX305-P1 (3) to CX307-P3 (4).

• Disconnect 1W202-P1 from J7 on turret networks box.
 • See figure 9-229.
 • Connect 1W202-P1 (5) to CA506-P1 (6).
 • Connect CA506-P2 (7) to CX307-P1 (8).

• Change STE power hookup from turret networks box to power distribution box.
 • See figure 9-37.
 • Prepare VTM for measuring resistance between 0 and 1500 ohms.
 • Refer to para. 9-1.

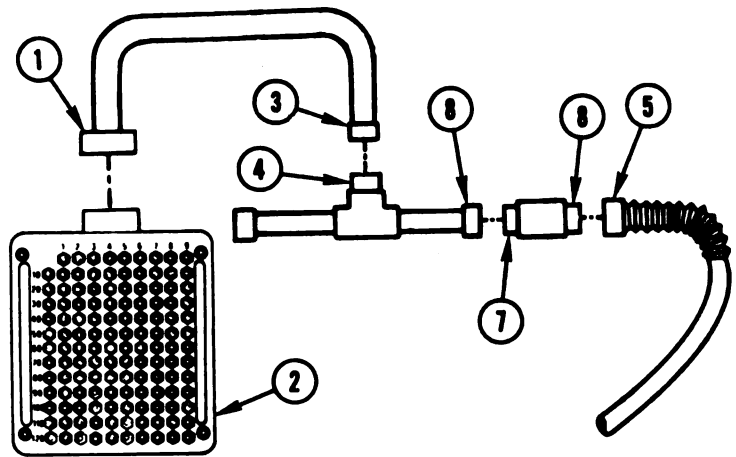


Figure 9-185 (Sheet 1 of 3)
Volume II
Para. 9-3

ARR82-6044

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

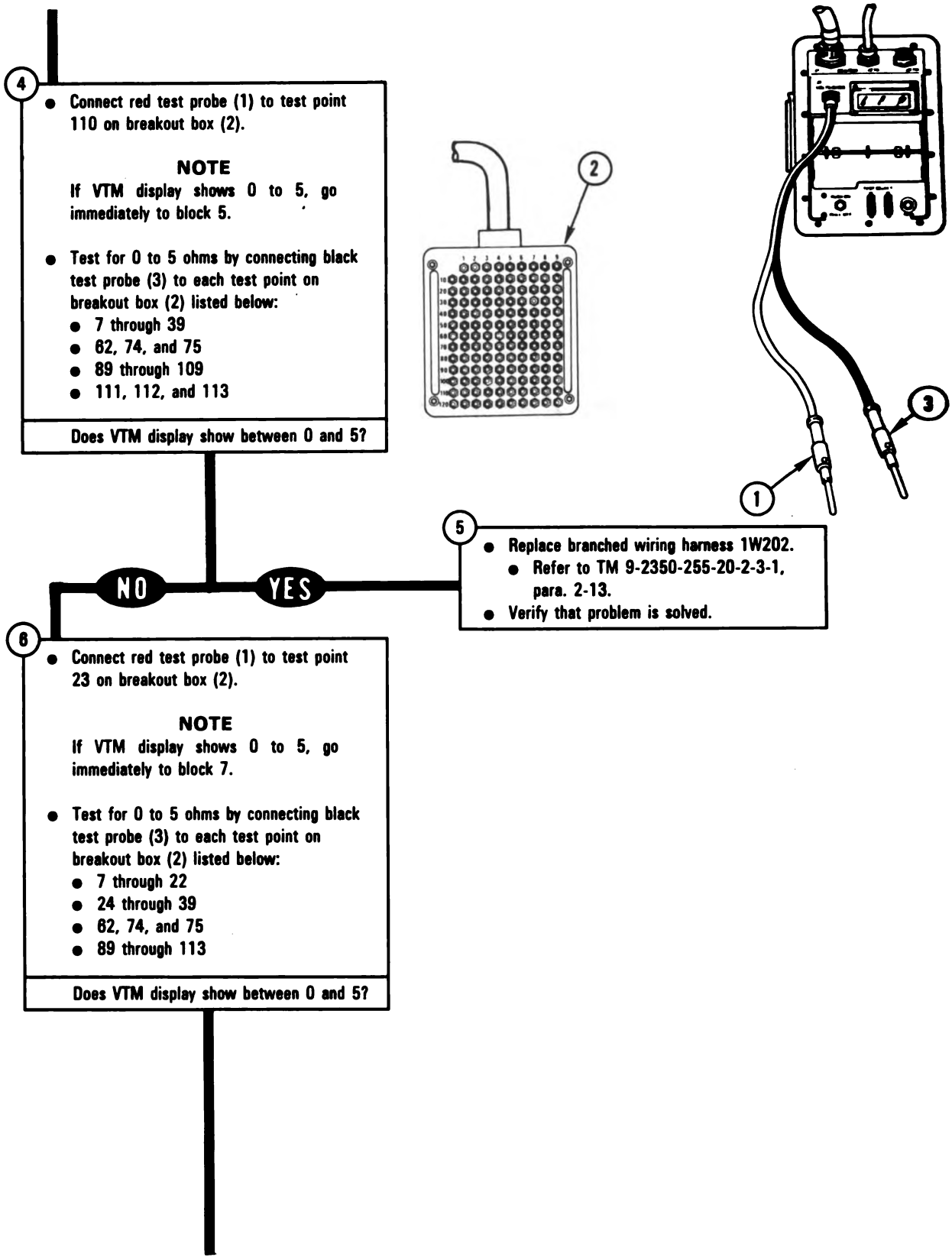
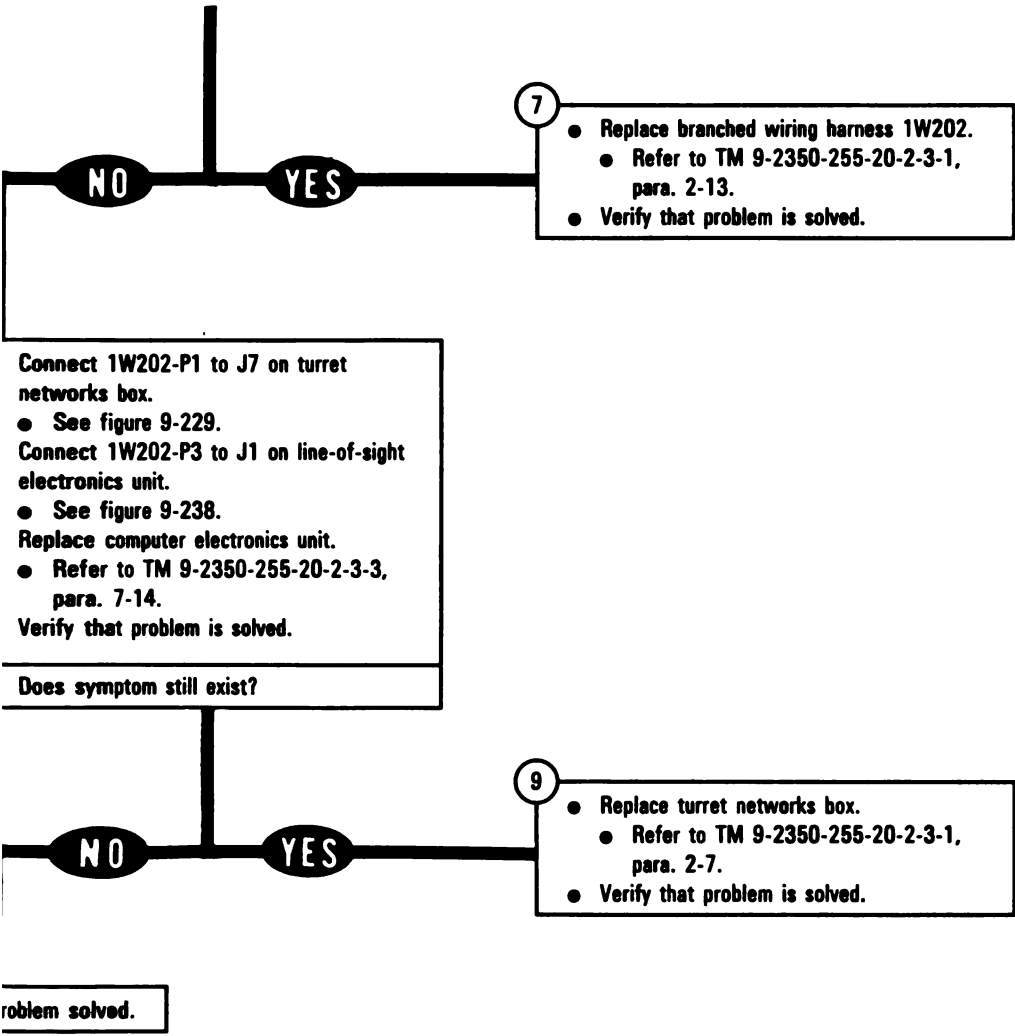


Figure 9-185 (Sheet 2 of 3)
Volume II
Para. 9-3

ARR8: 34

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**



**Figure 9-185 (Sheet 3 of 3)
Volume II
Para. 9-3**

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS -
FAULTY TNB, SRING,
1W101, 2W109**

• 142527
142530

Additional Test

Equipment/Special Tools:

- Breakout Box Tool Kit, 12311086

NOTE

Notify your supervisor that this procedure may require troubleshooting and replacement of components in the hull area.

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

1

- If connected, disconnect CA515-P2 from CX307-P1.
 - See figure 9-29
- If connected, disconnect 1W200-P4 from CA515-P1.
 - See figure 9-29.
- If connected, disconnect CA503-P2 from CX307-P1.
 - See figure 9-8.
- If disconnected, connect 1W200-P1 to J5 on turret networks box.
 - See figure 9-229.

2

- Connect 1W202-P3 to J1 on line-of-sight electronics unit.
 - See figure 9-238.
- Connect 1W200-P4 to J3 on electronic unit.
 - See figure 9-230.
- Disconnect 2W109-P1 from J3 on hull/turret slipring.
 - See figure 9-233.

3

- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.

Figure 9-186 (Sheet 1 of 5)
**Volume II
Para. 9-3**

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

Prepare STE to run cable test 1390.

- Press TEST button (1) on VTM (2).
- Press CLEAR key (3) on SETCOM (4).
- Enter test number 1390 on SETCOM (4).

Run test on 2W109 between P1 and P2.

- Refer to TM 9-2350-255-20-2-2-2, figure 15-5.

Does SETCOM display show GOOD?

YES **NO**

5 ● Branched wiring harness 2W109 is faulty. Notify support maintenance.

Disconnect CX305-P1 (5) from CX308-P3 (8).

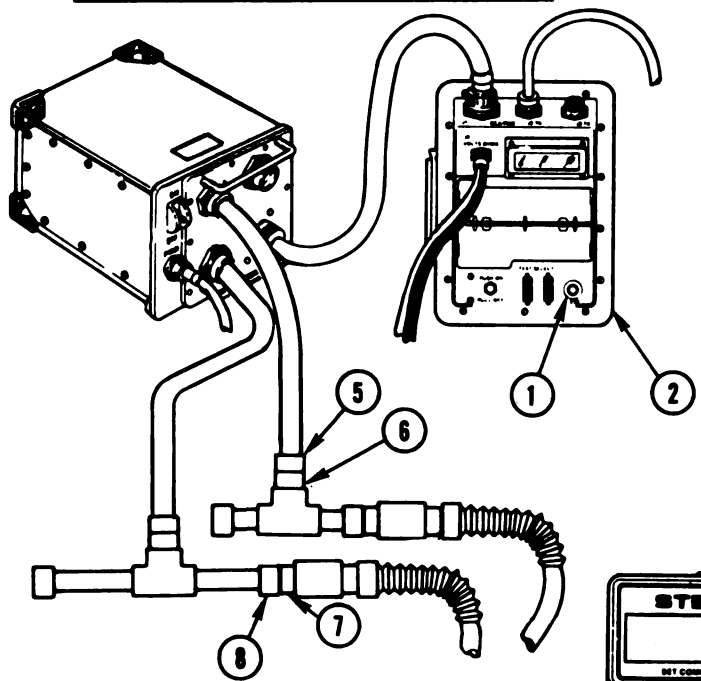
Disconnect CA421-P2 (7) from CX307-P1 (8).

Disconnect 1W101-P1 from J8 on hull/turret slipring.

- See figure 9-233.

Disconnect 1W101-P2 from J11 on turret networks box.

- See figure 9-229.



Prepare STE to run cable test 1390.

- Press STOP key (9) on SETCOM (4).
- Press CLEAR key (3).
- Enter test number 1390 on SETCOM (4).

Run test on 1W101 between P1 and P2.

- Refer to TM 9-2350-255-20-2-2-2, figure 15-5.

Does SETCOM display show GOOD?

YES **NO**

8 ● Connect 2W109-P1 to J3 on hull/turret slipring.

- See figure 9-233.

● Connect 2W109-P2 to J1 on hull gyroscope.

- See figure 9-239.

● Replace wiring harness assembly 1W101.

- Refer to TM 9-2350-255-20-2-3-1, para. 2-13.

● Verify that problem is solved.

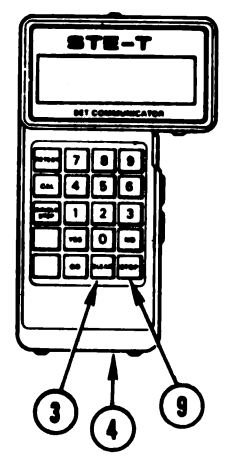


Figure 9-186 (Sheet 2 of 5)
Volume II
Para. 9-3

ARR82-6046

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

- 9
- Disconnect 1W101-P2 (1) from CA545-P1 (2).
 - Disconnect 1W101-P1 (3) from CA419-P1 (4).
 - Disconnect CX304-P2 (5) from CIB-J1 (6).
 - Connect CX304-P2 (5) to breakout box (7).
 - Disconnect CX304-P1 (8) from CX307-P3 (9).
 - Connect CX304-P1 (8) to CX308-P3 (10).

- 10
- Connect 2W109-P1 to J3 on hull/turret slipring.
 - See figure 9-233.
 - Connect 1W101-P1 to J8 on hull/turret slipring.
 - See figure 9-233.
 - Change control from SETCOM to VTM.
 - Set PWR switch (11) on CIB (12) to OFF to reset VTM (13).
 - Set PWR switch (11) to ON.
 - Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 9-1.

- 11
- NOTE**
- If VTM display does not show 0 to 5, go immediately to block 12.
- Test for continuity between test points on breakout box and contacts on 1W101-P2 listed in table A.
 - Connect red test probe (14) to test points on breakout box (7) listed in table A.
 - Connect black test probe (15) to contacts on P2 (1) listed in table A.
- Does VTM display show 0 to 5 between each pair of contacts?

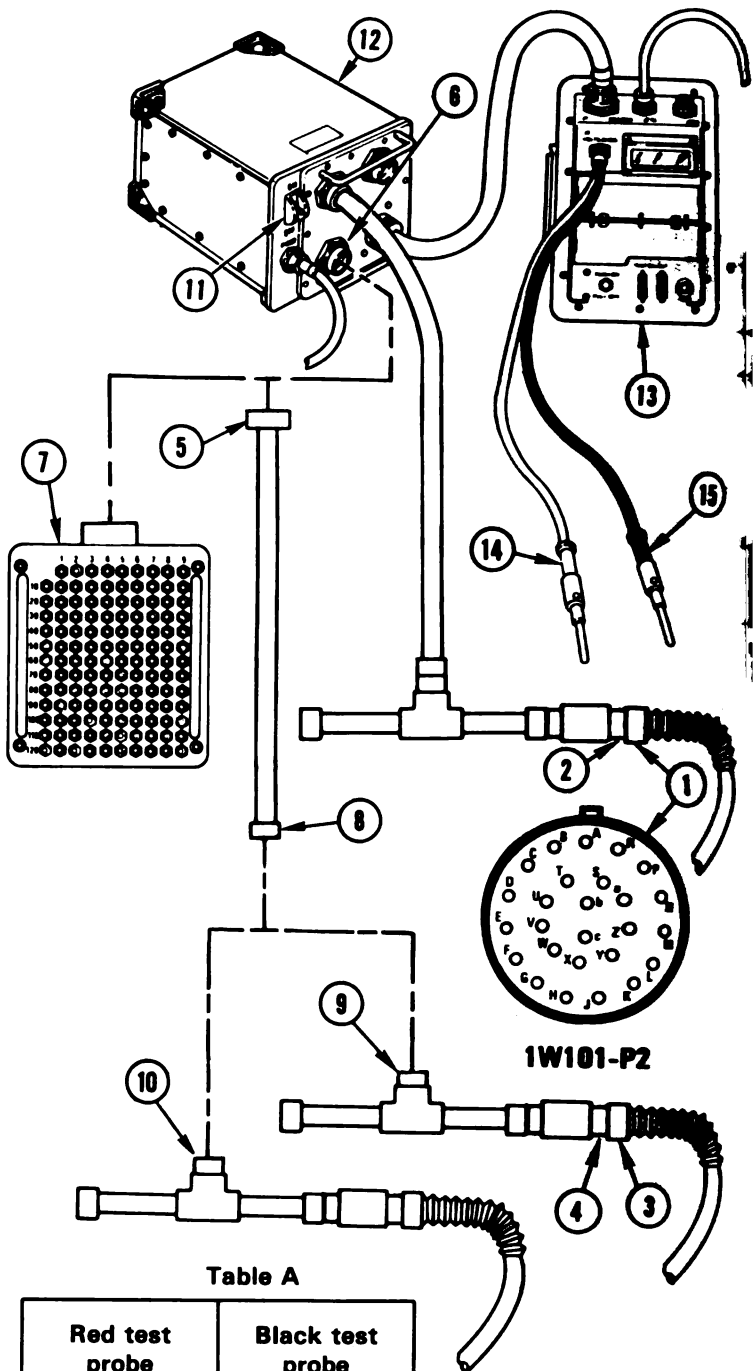


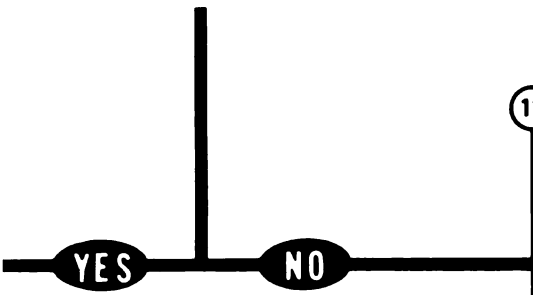
Table A

Red test probe	Black test probe
7	N
8	P
9	S
10	R

*Figure 9-186 (Sheet 3 of 5)
Volume II
Para. 9-3*

ARR82-604

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**



- 12
- Connect 2W109-P2 to J1 on hull gyro-scope.
 - See figure 9-239.
 - Connect 1W101-P2 to J11 on turret networks box.
 - See figure 9-229.
 - Replace hull/turret slipping assembly.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-8.
 - Verify that problem is solved.

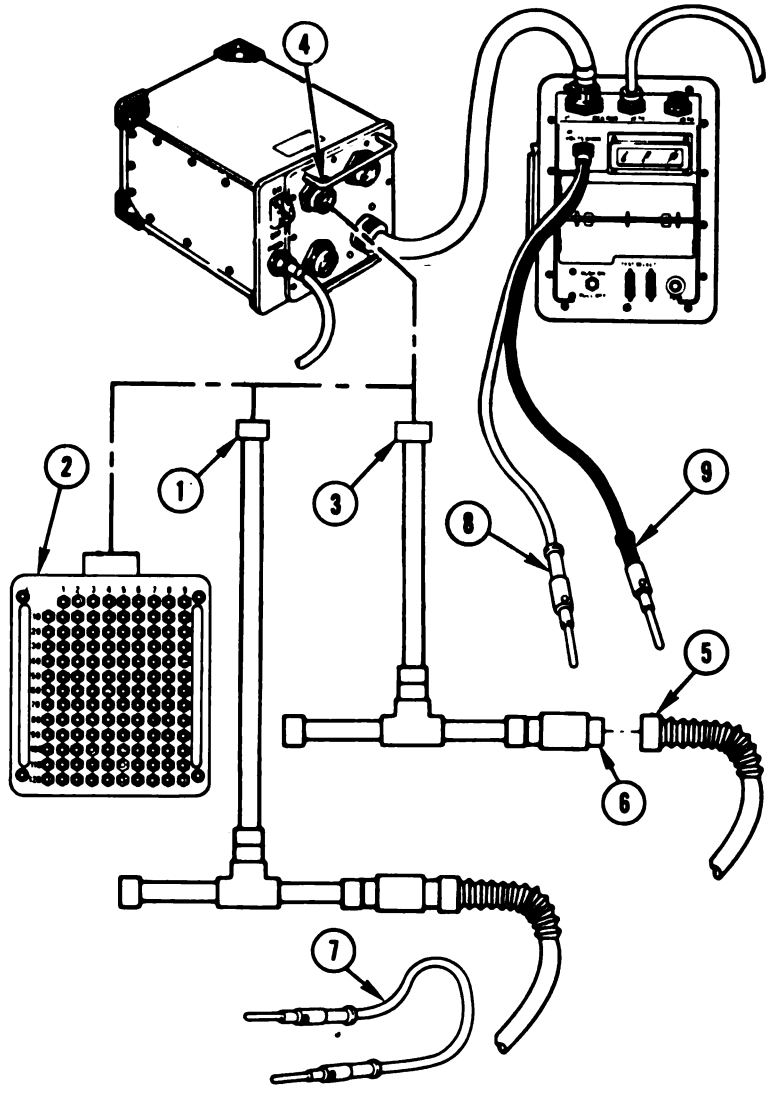
Disconnect CX304-P2 (1) from breakout box (2).
 Disconnect CX305-P2 (3) from CIB-J2 (4).
 Connect CX305-P2 (3) to breakout box (2).
 Connect 1W101-P2 (5) to CA545-P1 (6).

Connect jumper (7) between test points 18 and 23 on breakout box (2).
 Connect red test probe (8) to test point 18 on breakout box (2).

NOTE
 If VTM display shows 0 to 5, leave test probes and jumper connected for remainder of tests and go immediately to block 16.

Test for 0 to 5 ohms by connecting black test probe (9) to each test point on breakout box (2) listed below:
 ● 19 through 22

Does VTM display show between 0 and 5?



*Figure 9-186 (Sheet 4 of 5)
 Volume II
 Para. 9-3*

ARR82-8048

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

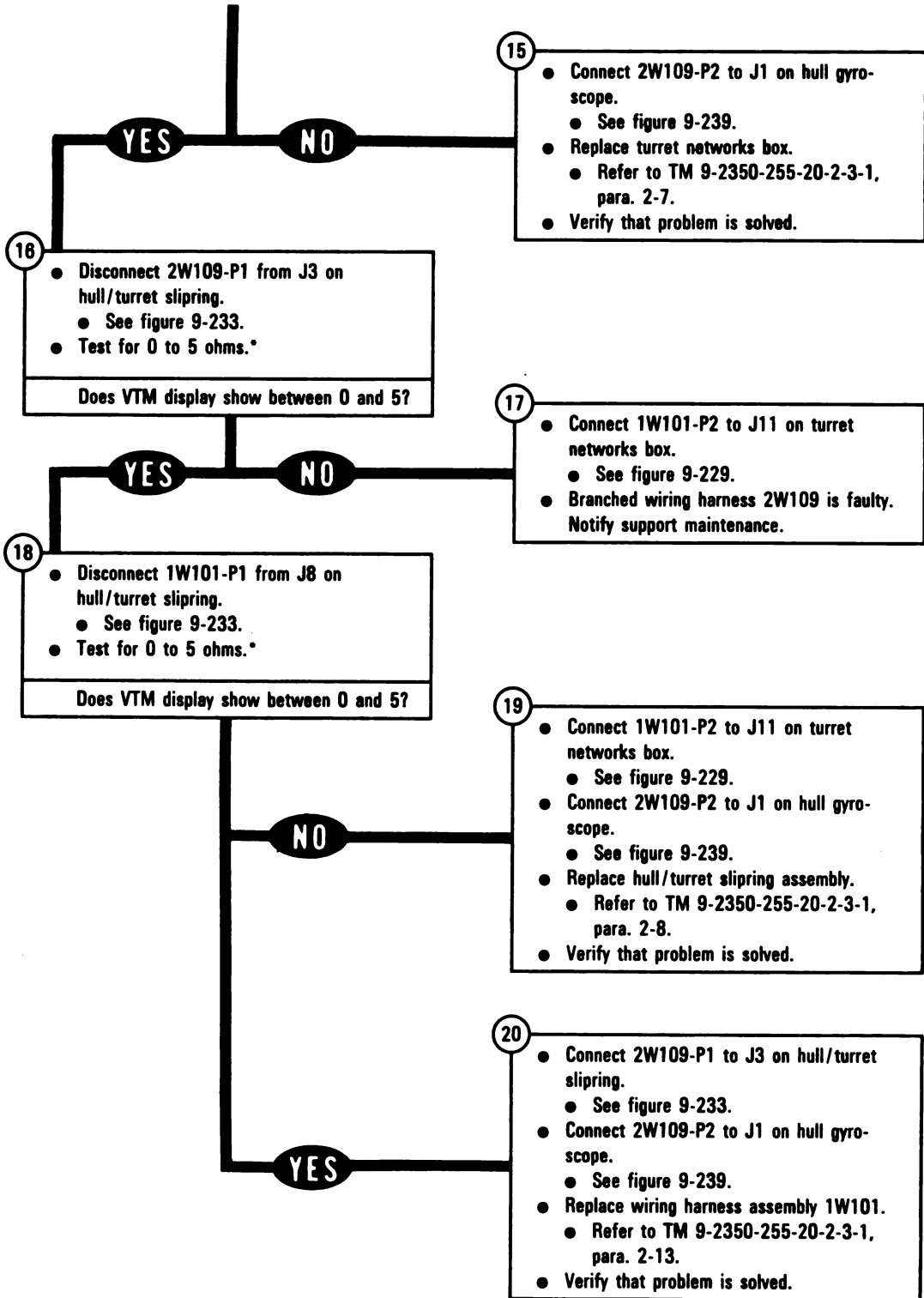


Figure 9-186 (Sheet 5 of 5)

**Volume II
Para. 9-3**

* Between contacts found in block 14

**DISPLAY SHOWS -
 FAULTY LP OR
 1W106**

140473

Additional Test

Equipment/Special Tools:

- Breakout Box Tool Kit, 12311088

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- Disconnect 1W106-P2 from J1 on loader's panel.

- See figure 9-238.
- Connect CX305-P2 (1) to breakout box (2).
- Connect CX305-P1 (3) to CX307-P3 (4).
- Connect 1W106-P1 (5) to CA520-P1 (6).
- Connect CA520-P2 (7) to CX307-P1 (8).

- Change STE power hookup from turret networks box to power distribution box.

- See figure 9-37.
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
- Refer to para. 9-1.

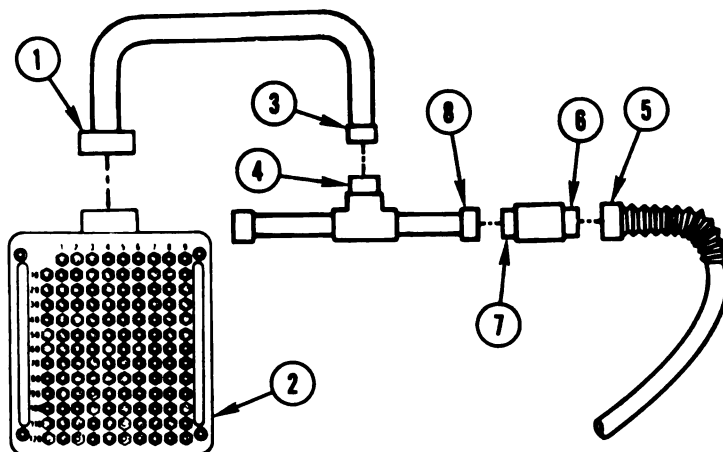
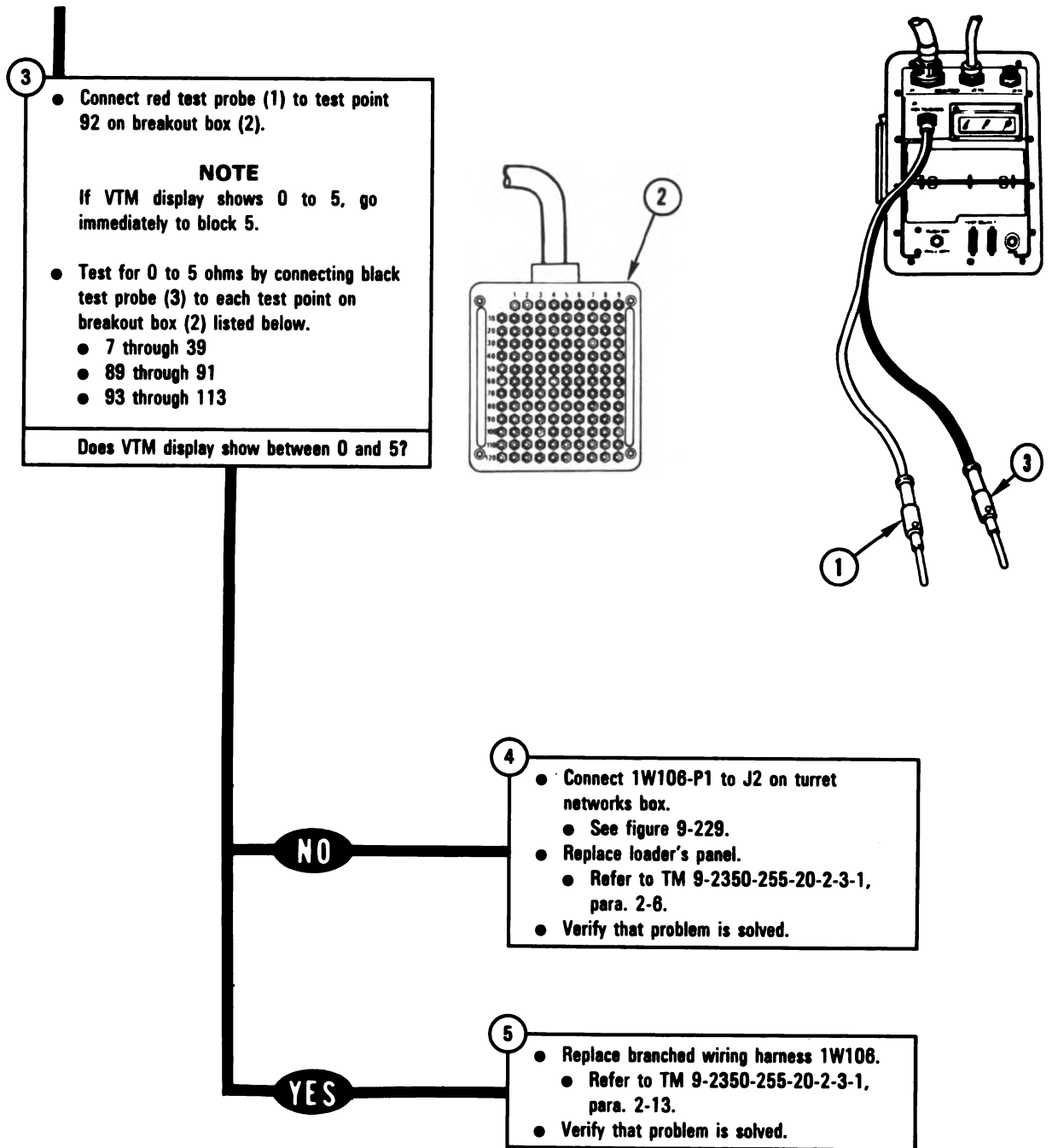


Figure 9-187 (Sheet 1 of 2)
Volume II
Para. 9-3

ARR82-6049

9-441

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**



*Figure 9-187 (Sheet 2 of 2)
Volume II
Para. 9-3*

ARR82-8054

DISPLAY SHOWS -
FAULTY ELSVO OR
1W200

141425

Additional Test

Equipment/Special Tools:

- Breakout Box Tool Kit, 12311086

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- Disconnect 1W200-P13 from J2 on elevation servomechanism.

- See figure 9-239.

- Connect CX305-P2 (1) to breakout box (2).
- Connect CX305-P1 (3) to CX307-P3 (4).

- Disconnect 1W200-P3 from J2 on electronic unit.

- See figure 9-230.

- Connect 1W200-P3 (5) to CA523-P1 (6).
- Connect CA523-P2 (7) to CX307-P1 (8).

- Change STE power hookup from turret networks box to power distribution box.

- See figure 9-37.

- Prepare VTM for measuring resistance between 0 and 1500 ohms.

- Refer to para. 9-1.

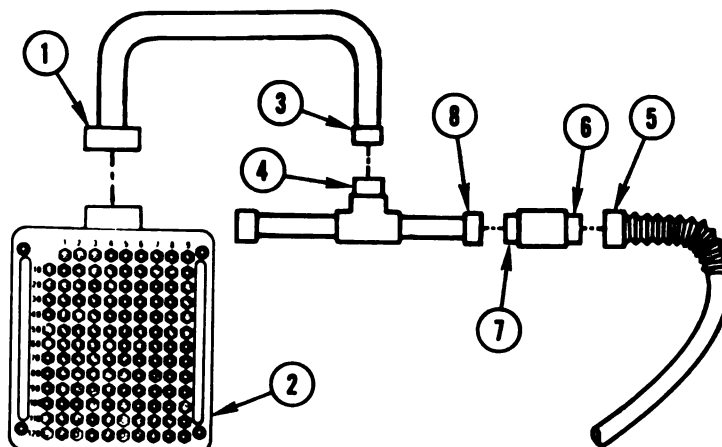


Figure 9-188 (Sheet 1 of 2)
Volume II
Para. 9-3

ARR82-6051

9-443

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

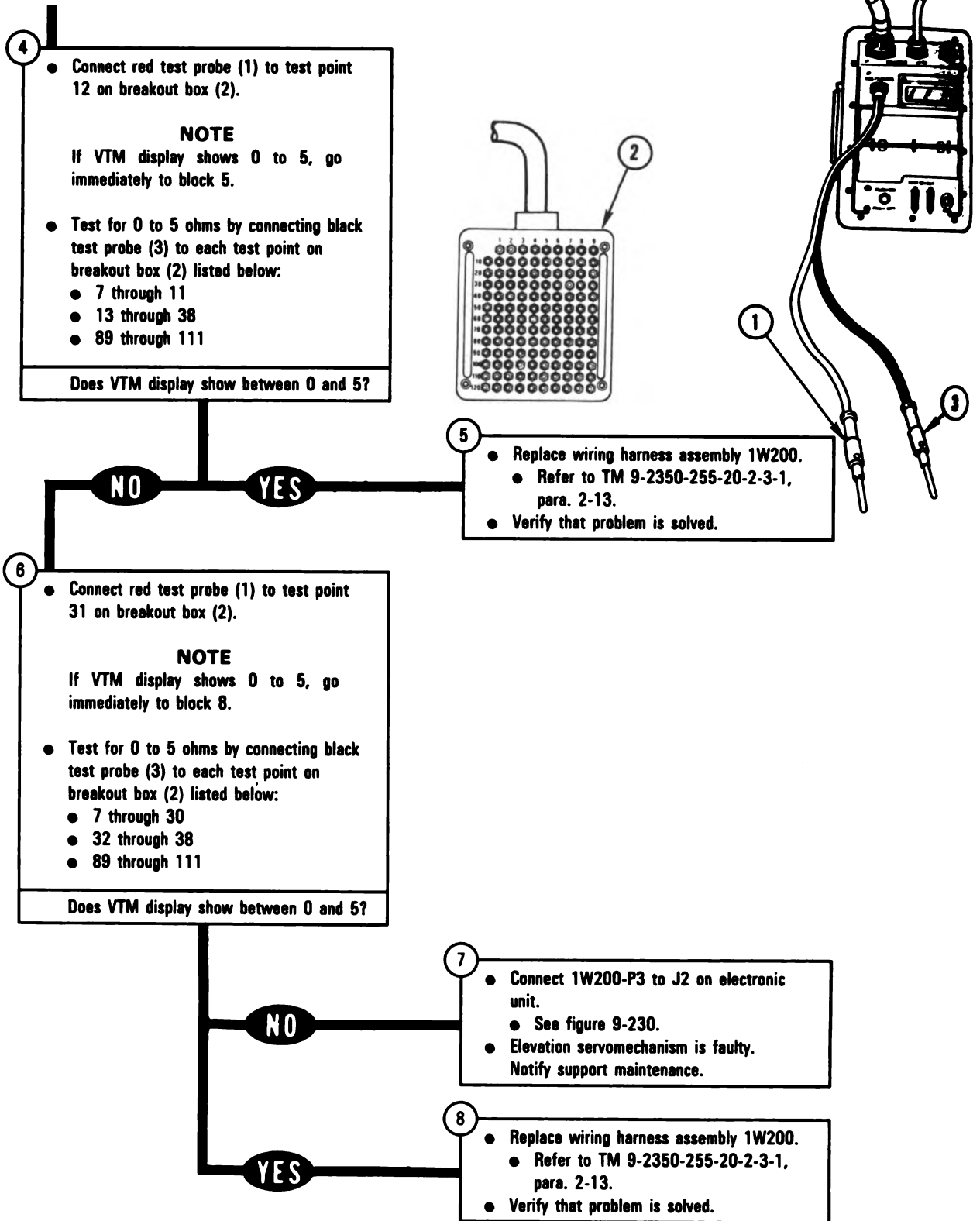


Figure 9-188 (Sheet 2 of 2)
**Volume II
Para. 9-3**

ARR82-6051

**DISPLAY SHOWS -
FAULTY TRVSV OR
1W200**

141428

**Additional Test
Equipment/Special Tools:**

- Breakout Box Tool Kit, 12311086

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- Disconnect 1W200-P10 from J2 on tra-verse servomechanism.
 - See figure 9-234.
- Connect CX305-P2 (1) to breakout box (2).
- Connect CX305-P1 (3) to CX307-P3 (4).

- Disconnect 1W200-P4 from J3 on elec-tronic unit.
 - See figure 9-230.
- Connect 1W200-P4 (5) to CA515-P1 (6).
- Connect CA515-P2 (7) to CX307-P1 (8).

- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 9-1.

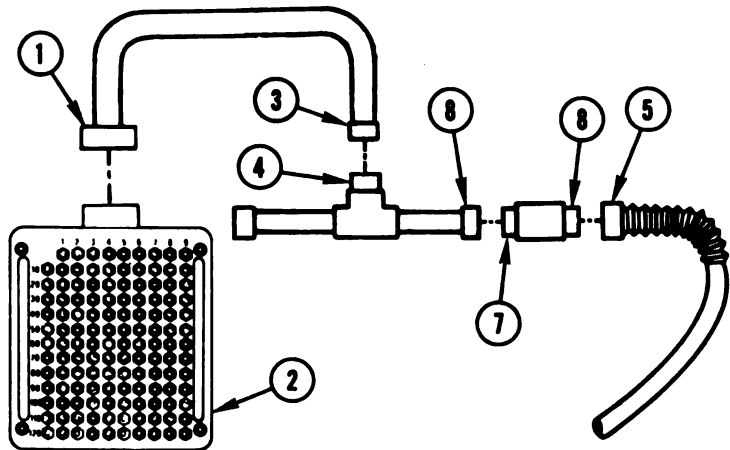


Figure 9-189 (Sheet 1 of 2)
**Volume II
Para. 9-3**

ARR82-6053

9-445

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

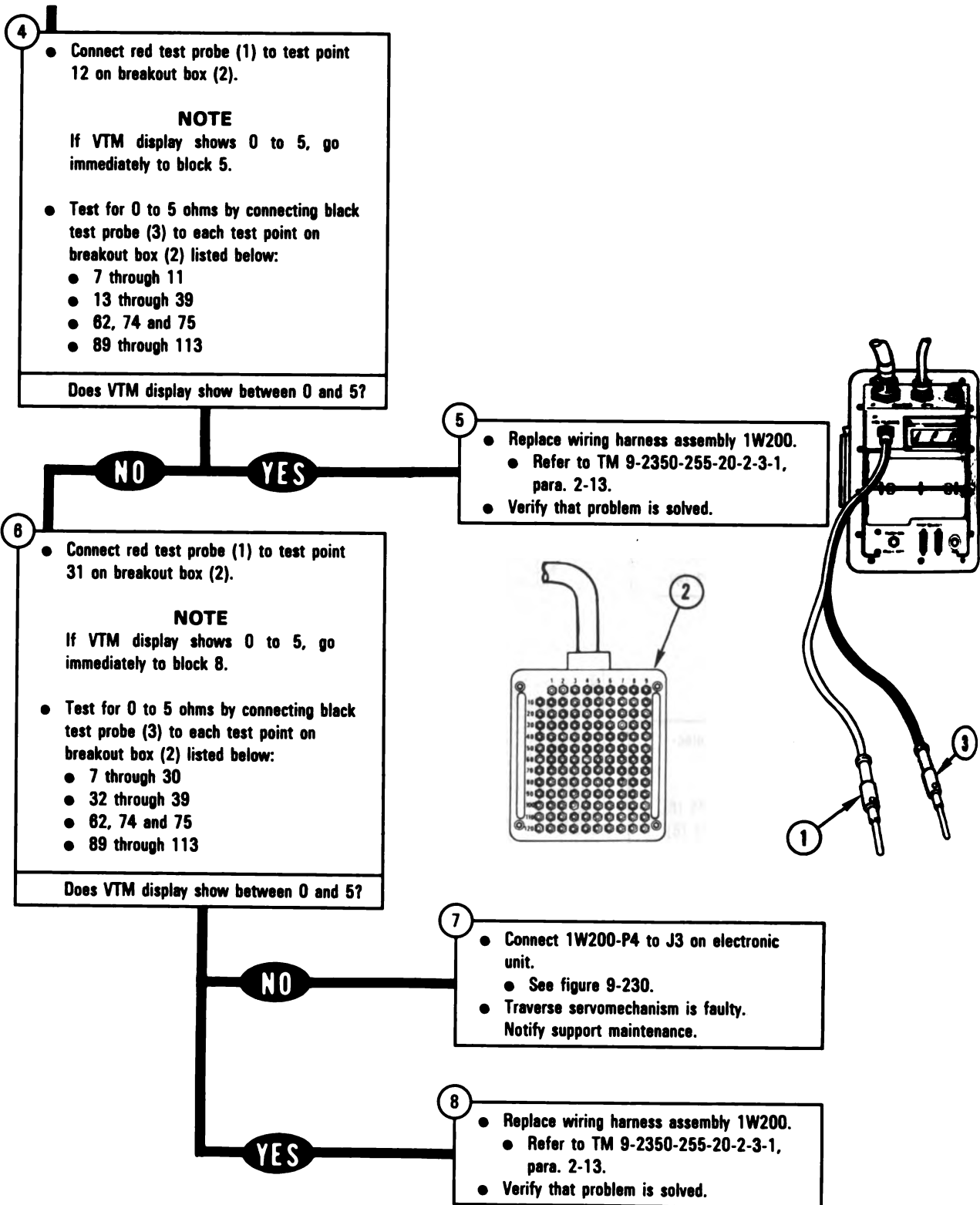


Figure 9-189 (Sheet 2 of 2)
Volume II
Para. 9-3

ARR82-6054

DISPLAY SHOWS -
 SEE - 20 MANUAL 149807

Additional Test Equipment/Special Tools:
 Breakout Box Tool Kit, 12311066

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- Disconnect CX205-P6 from J4 on gunner's primary sight.
- See figure 9-6.
- Connect breakout box to J4 on gunner's primary sight using CABLE NO. 1 and ADAPTER NO. 1.
- Connect CABLE NO. 1-P1 (1) to breakout box (2).
- Connect ADAPTER NO. 1-P1 (3) to J4 (4) on gunner's primary sight (5).
- Connect CABLE NO. 1-P2 (6) to ADAPTER NO. 1-J1 (7).

- Change STE power hookup from turret networks box to power distribution box.
- See figure 9-37.
- Prepare VTM for measuring dc voltage.
- Refer to para. 9-1.

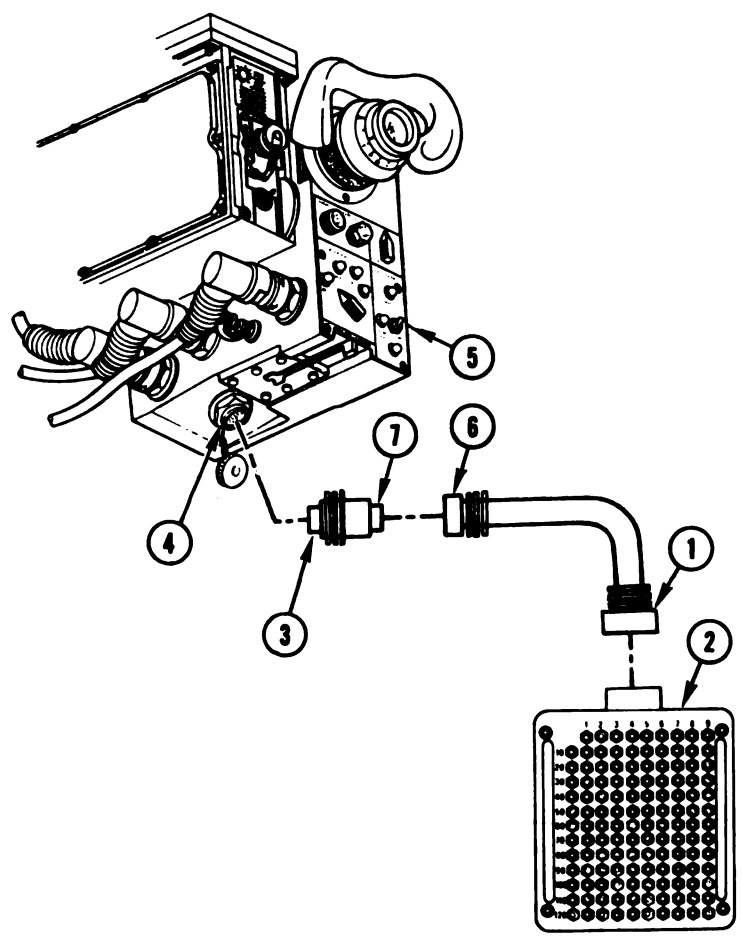


Figure 9-190 (Sheet 1 of 5)
 Volume II
 Para. 9-3

ARR82-6055

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

From block 5

12

- Test for 18 to 30 V dc between test points 129 (-) and 69 (+) on breakout box with gunner's palm switch pressed.
- Connect black test probe (1) to test point 129 on breakout box (2).
- Connect red test probe (3) to test point 69 on breakout box (2).
- Press and hold palm switch (4) on gunner's control (5).

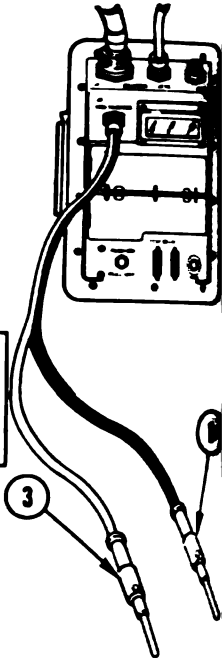
Does VTM display show between 18 and 30?

NO

YES

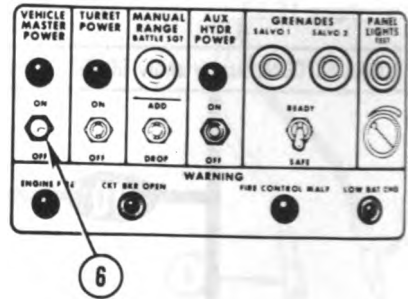
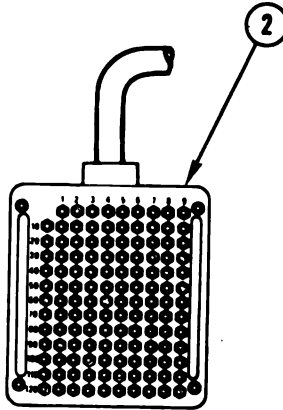
13

- Set VEHICLE MASTER POWER switch (6) to OFF.
- STE test cable CX205 is faulty. Notify support maintenance.



14

- Release palm switch (4).
- Set VEHICLE MASTER POWER switch (6) to OFF.
- Disconnect 1W203-P2 from J1 on gunner's primary sight.
- See figure 9-240.
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
- Refer to para. 9-1.



15

- Test for less than 1000 ohms between test point 69 on breakout box and contact X on gunner's primary sight J1.
- Connect red test probe (3) to test point 69 on breakout box (2).
- Connect black test probe (1) to contact X on J1 (7).

Does VTM display show less than 1000?

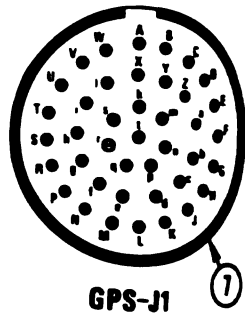
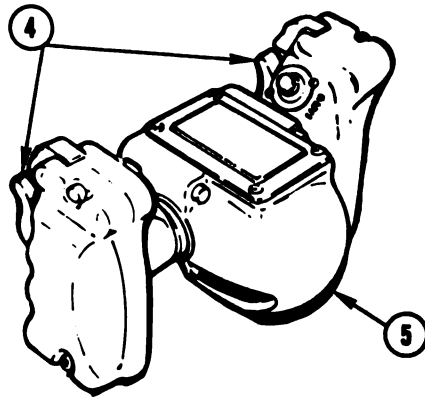


Figure 9-190 (Sheet 4 of 5)
Volume II
Para. 9-3

ARR82-6058

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

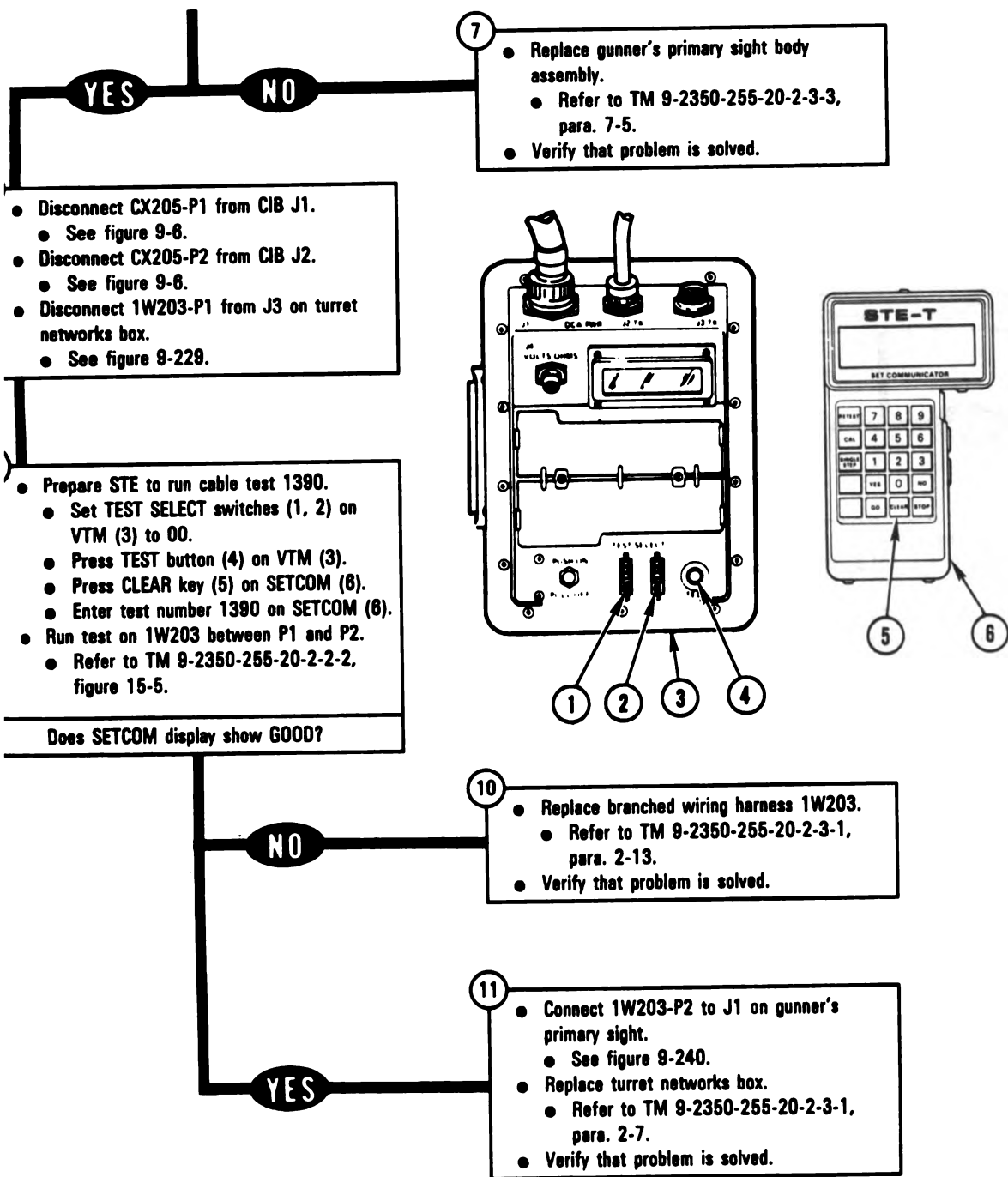


Figure 9-190 (Sheet 3 of 5)
Volume II
Para. 9-3

ARR82-6057

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS -
SEE - 20 MANUAL**

149809

Additional Test

Equipment/Special Tools:

- Breakout Box Tool Kit, 12311066

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

1

- Disconnect CX205-P8 from J4 on gunner's primary sight.
 - See figure 9-6.
- Connect breakout box to J4 on gunner's primary sight using CABLE NO. 1 and ADAPTER NO. 1.
 - Connect CABLE NO. 1-P1 (1) to breakout box (2).
 - Connect ADAPTER NO. 1-P1 (3) to J4 (4) on gunner's primary sight (5).
 - Connect CABLE NO. 1-P2 (6) to ADAPTER NO. 1-J1 (7).

2

- Change STE power hookup from turret networks box to power distribution box.
 - See figure 9-37.
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 9-1.

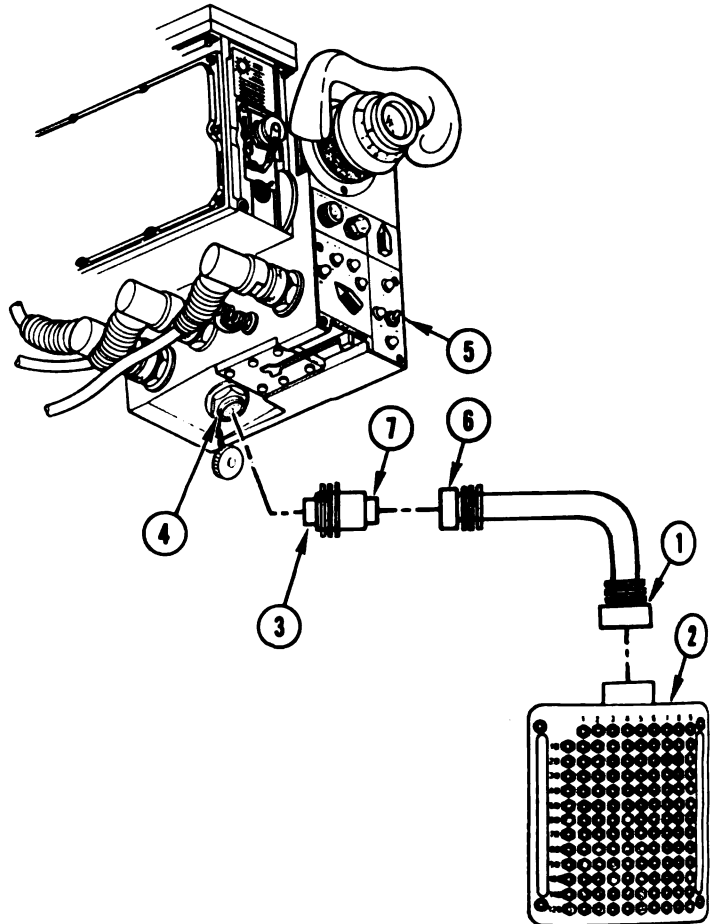


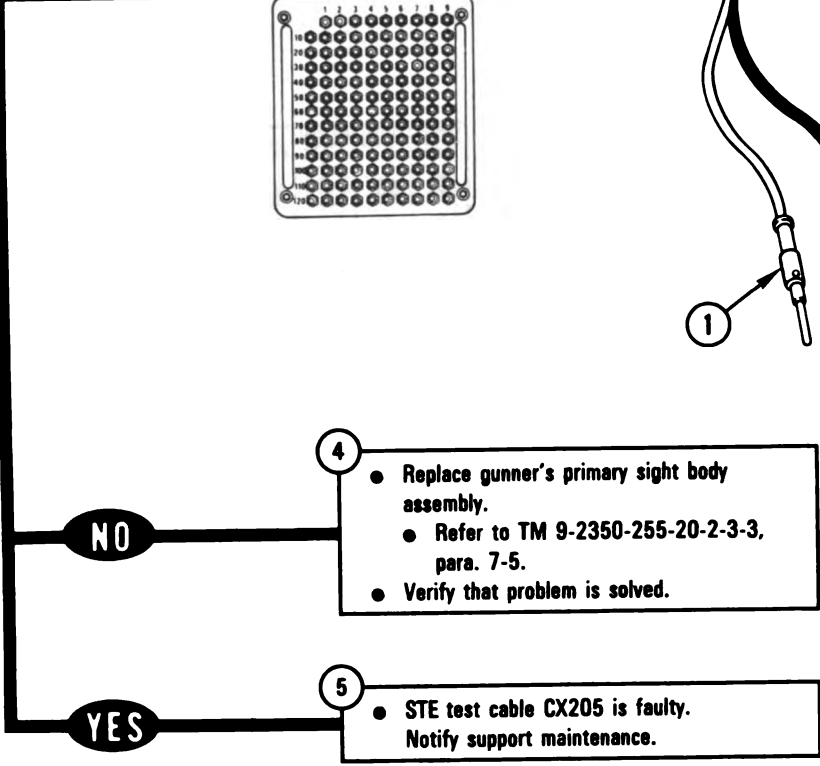
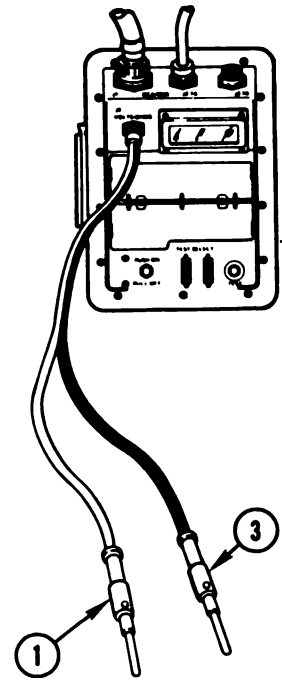
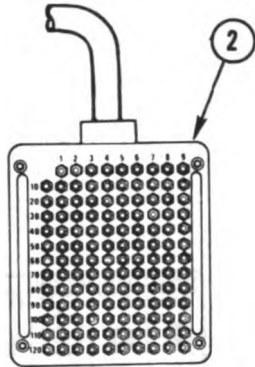
Figure 9-191 (Sheet 1 of 2)

**Volume II
Para. 9-3**

ARR82-6064

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

- Test for less than 25 ohms between test points 126 and 127 on breakout box.
 - Connect red test probe (1) to test point 127 on breakout box (2).
 - Connect black test probe (3) to test point 126 on breakout box (2).
- Does VTM display show less than 25?**



4

- Replace gunner's primary sight body assembly.
- Refer to TM 9-2350-255-20-2-3-3, para. 7-5.
- Verify that problem is solved.

5

- STE test cable CX205 is faulty. Notify support maintenance.

Figure 9-191 (Sheet 2 of 2)
**Volume II
Para. 9-3**

ARR82-6061

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

SYMPTOMS AES-4, AES-5, and AES-6

**AZIMUTH SUBSYSTEM FOUND FAULTY
DURING TANK OPERATION**

Equipment Condition:

- Tank parked where it is safe to traverse turret.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

CAUTION

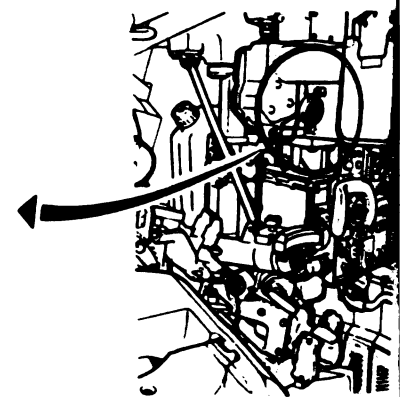
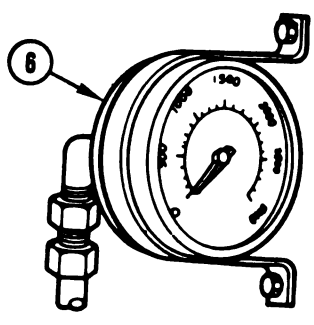
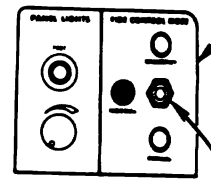
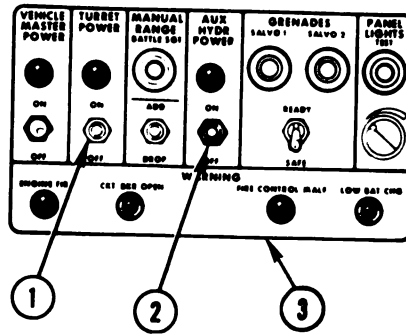
Make sure hull/turret inflatable seal is not inflated. Seal can be torn, pressure tube pulled off, or turret traversing can be erratic. Refer to TM 9-2350-255-10.

1

- Set up tank controls for standard initial test conditions.
- Refer to para. 9-9, table 9-7.

2

- Set TURRET POWER switch (1) to ON.
- Set AUX HYDR POWER switch (2) on commander's control panel (3) to ON.
- Set FIRE CONTROL MODE switch (4) on gunner's primary sight lower panel (5) to EMERGENCY.
- Make sure dial pressure gage (6) shows above 1200 psi before continuing.



*Figure 9-192 (Sheet 1 of 5)
Volume II
Para. 9-3*

ARR62-6062

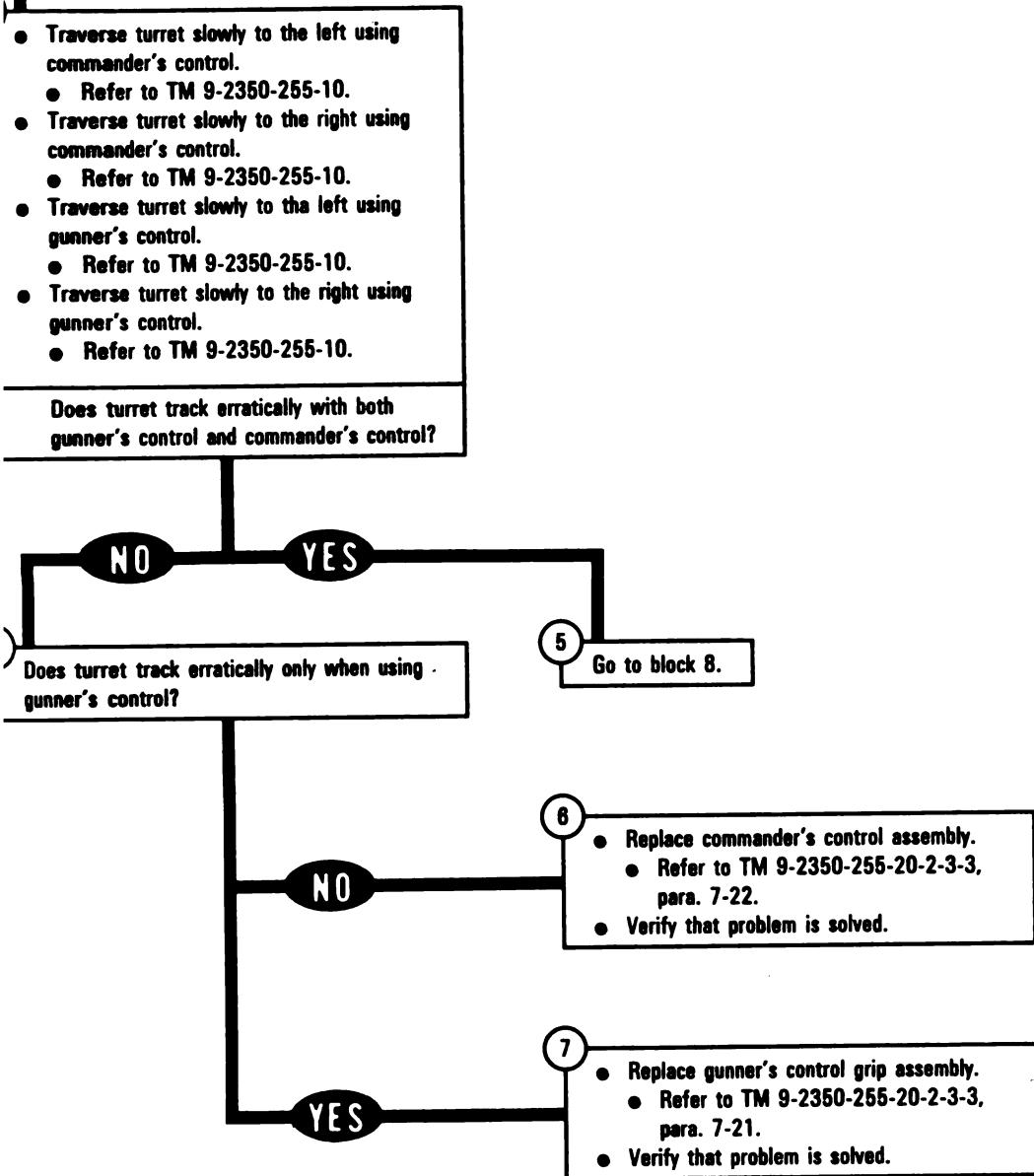
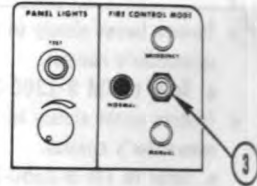
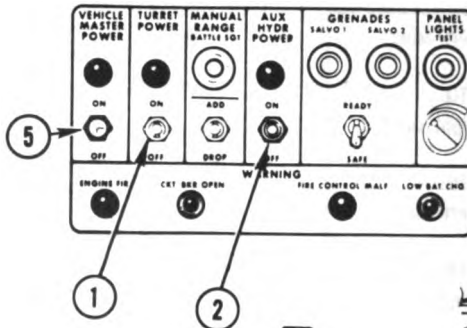


Figure 9-192 (Sheet 2 of 5)
Volume II
Para. 9-3

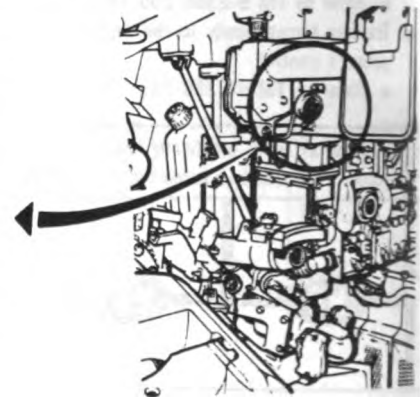
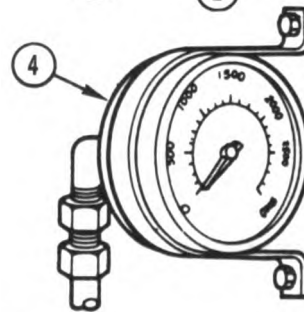
**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

From block 5

- 8
- Bleed air from traverse hydraulic system.
 - Refer to TM 9-2350-255-20-2-3-2, para. 4-5.
 - Set TURRET POWER switch (1) to ON.
 - Set AUX HYDR POWER switch (2) to ON.
 - Set FIRE CONTROL MODE switch (3) to EMERGENCY.



- 9
- Make sure dial pressure gage (4) shows above 1200 psi before continuing.
 - Traverse turret slowly to the left and right using gunner's control.
 - Refer to TM 9-2350-255-10.
- Does turret still track erratically?



YES NO

- 10
- Set VEHICLE MASTER POWER switch (5) to OFF.
 - Adjust traversing mechanism anti-back-lash.
 - Refer to TM 9-2350-255-20-2-3-2, para. 4-11.
 - Set TURRET POWER switch (1) to ON.
 - Set AUX HYDR POWER switch (2) to ON.
 - Set FIRE CONTROL MODE switch (3) to EMERGENCY.

Problem solved.

- 11
- Make sure dial pressure gage (4) shows above 1200 psi before continuing.
 - Traverse turret slowly to the left and right using gunner's control.
 - Refer to TM 9-2350-255-10.
- Does turret still track erratically?

YES NO

Problem solved.

Figure 9-192 (Sheet 3 of 5)
Volume II
Para. 9-3

ARR82-8063

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

Set **VEHICLE MASTER POWER** switch (1) to OFF.

Manually traverse turret one complete turn and check gear teeth (2) on turret ring (3) for gouges, breaks, or flat spots.

● Refer to TM 9-2350-255-10.

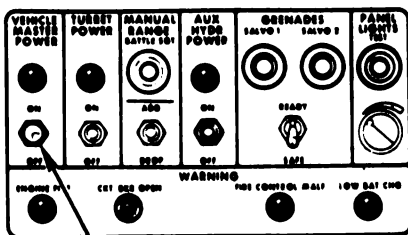
Does turret ring have any gouged or broken teeth, or flat spots?

NO

YES

13

● Turret ring is faulty.
Notify support maintenance.



TURRET REMOVED FOR CLARITY

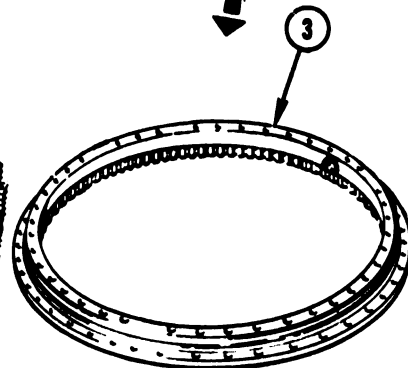
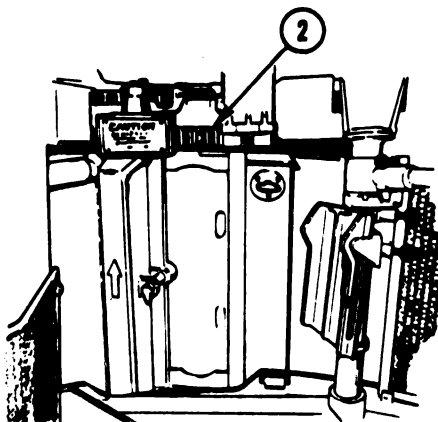
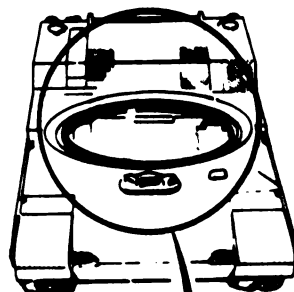


Figure 9-192 (Sheet 4 of 5)
Volume II
Para. 9-3

ARR82-6064

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

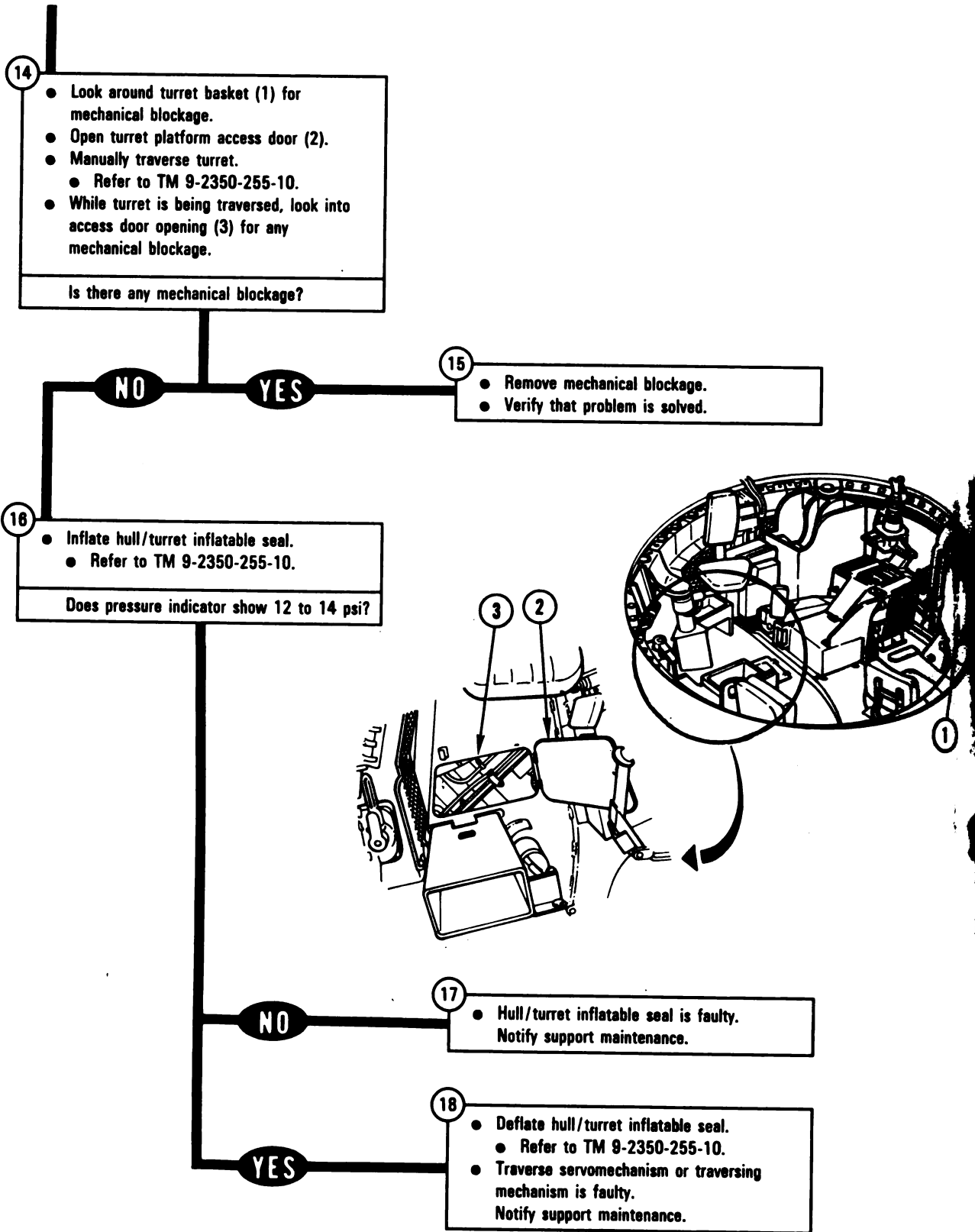


Figure 9-192 (Sheet 5 of 5)
Volume II
Para. 9-3

ARR82-6065

SYMPTOMS AES-7, AES-8, and AES-9

**ELEVATION SUBSYSTEM FOUND FAULTY
DURING TANK OPERATION**

Equipment Condition:

- Tank parked where it is safe to elevate main gun and traverse turret.
- Main gun over front deck.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- Set up tank controls for standard initial test conditions.
- Refer to para. 9-9, table 9-7.

- Set TURRET POWER switch (1) to ON.
- Set AUX HYDR POWER switch (2) on commander's control panel (3) to ON.
- Set FIRE CONTROL MODE switch (4) on gunner's primary sight lower panel (5) to EMERGENCY.
- Make sure dial pressure gage (6) shows above 1200 psi before continuing.

- Elevate main gun slowly to full elevation using commander's control.
- Refer to TM 9-2350-255-10.
- Depress main gun slowly to full depression using commander's control.
- Refer to TM 9-2350-255-10.

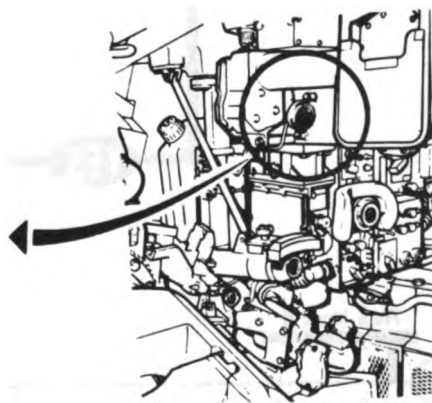
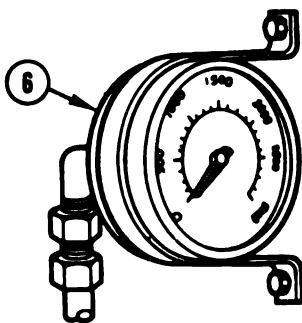
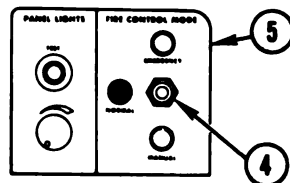
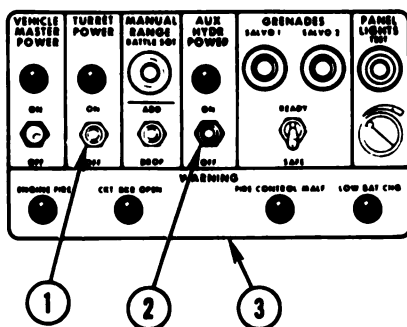


Figure 9-193 (Sheet 1 of 3)
Volume II
Para. 9-3

ARR82-8066

9-459

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

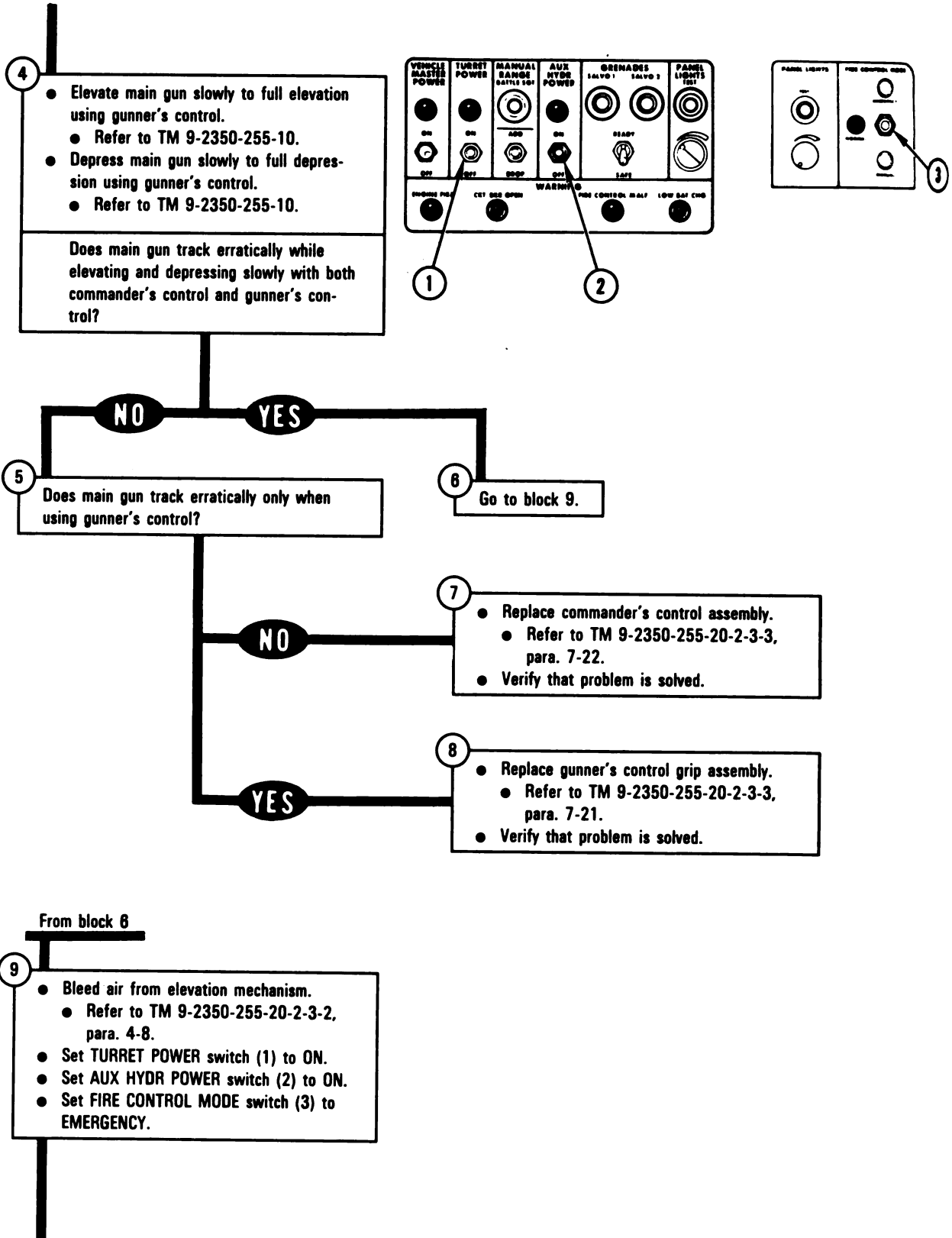
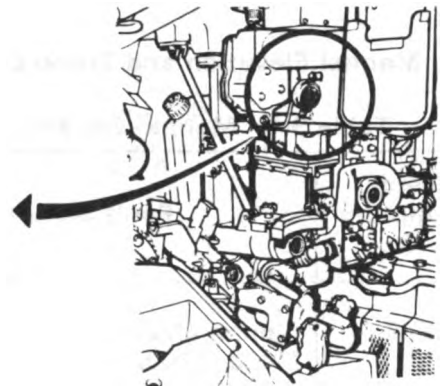
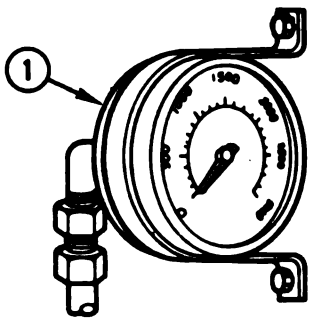


Figure 9-193 (Sheet 2 of 3)
Volume II
Para. 9-3

ARR82-606

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

Wait until dial pressure gage (1) shows above 1200 psi before continuing.
Elevate main gun slowly to full elevation using gunner's control.
● Refer to TM 9-2350-255-10.
Depress main gun slowly to full depression using gunner's control.
● Refer to TM 9-2350-255-10.



Does main gun still track erratically?

YES **NO**

Problem solved.

Elevate main gun manually for full elevation.
● Refer to TM 9-2350-255-10.
Depress main gun manually to full depression.
● Refer to TM 9-2350-255-10.

Does main gun elevate and depress smoothly?

NO **YES**

12 ● Set VEHICLE MASTER POWER switch (2) to OFF.
● Elevating mechanism assembly is faulty. Notify support maintenance.

13 ● Set VEHICLE MASTER POWER switch (2) to OFF.
● Elevation servomechanism is faulty. Notify support maintenance.

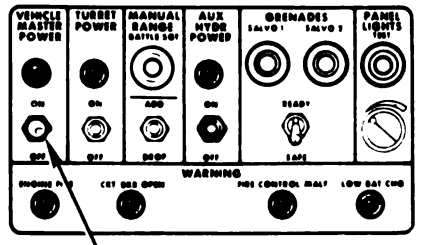


Figure 9-193 (Sheet 3 of 3)
Volume II
Para. 9-3

ARR82-8068

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

9-4. Manual Elevation and Traverse Subsystem Troubleshooting Procedure

Table 9-4. Manual Elevation and Traverse Subsystem (METS) Fault Symptom Index

Fault Symptom No.	Fault Symptom	Primary Troubleshooting Procedure (PTP)	Test No.	Alternate Troubleshooting Procedure (ATP)
METS-1	Cannot Elevate Gun In Manual Mode. OK In Normal And Emergency Mode	Figure 9-194	—	—

TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING

SYMPTOM METS-1

**CANNOT ELEVATE GUN IN MANUAL
MODE. OK IN NORMAL AND EMER-
GENCY MODE**

Equipment Condition:

- ▶ Tank parked.
 - ▶ Parking brake set.
 - ▶ Engine shut down.
 - ▶ Vehicle master power off.
-
- ▶ Set up tank controls for standard initial test conditions.
 - Refer to para. 9-9, table 9-7.
-
- Remove baffle plate.
 - Refer to TM 9-2350-255-20-2-3-2, para. 3-16.
 - Remove gunner's screen.
 - Refer to TM 9-2350-255-20-2-3-2, para. 3-16.
 - Traverse turret until main gun is over right front fender.
 - Refer to TM 9-2350-255-10.

- Check hydraulic assemblies, fittings, hoses, and tubes for damage and leaks.
 - Look at hand pump (1), fittings (2), and tubes (3).
 - Look at hoses (4), fittings (5), and elevating mechanism (6).

Are any hydraulic assemblies, fittings, hoses, or tubes damaged or leaking?

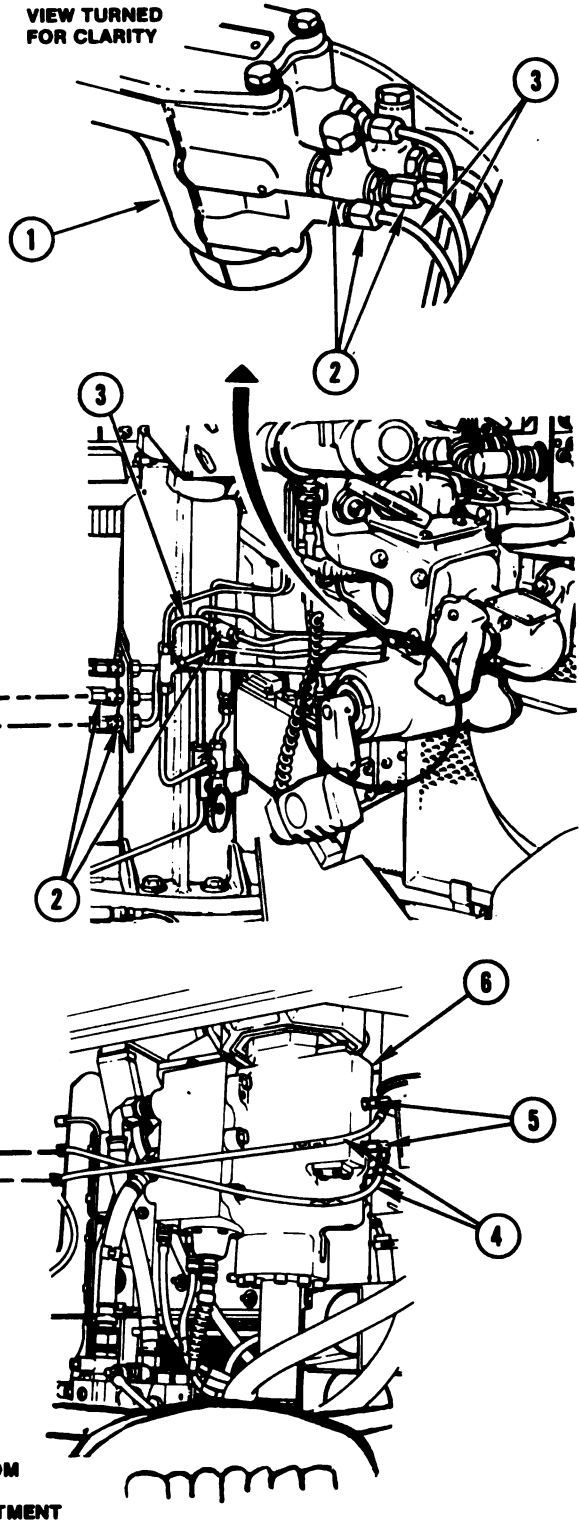


Figure 9-194 (Sheet 1 of 2)
Volume II
Para. 9-4

ARR82-6089

9-463

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

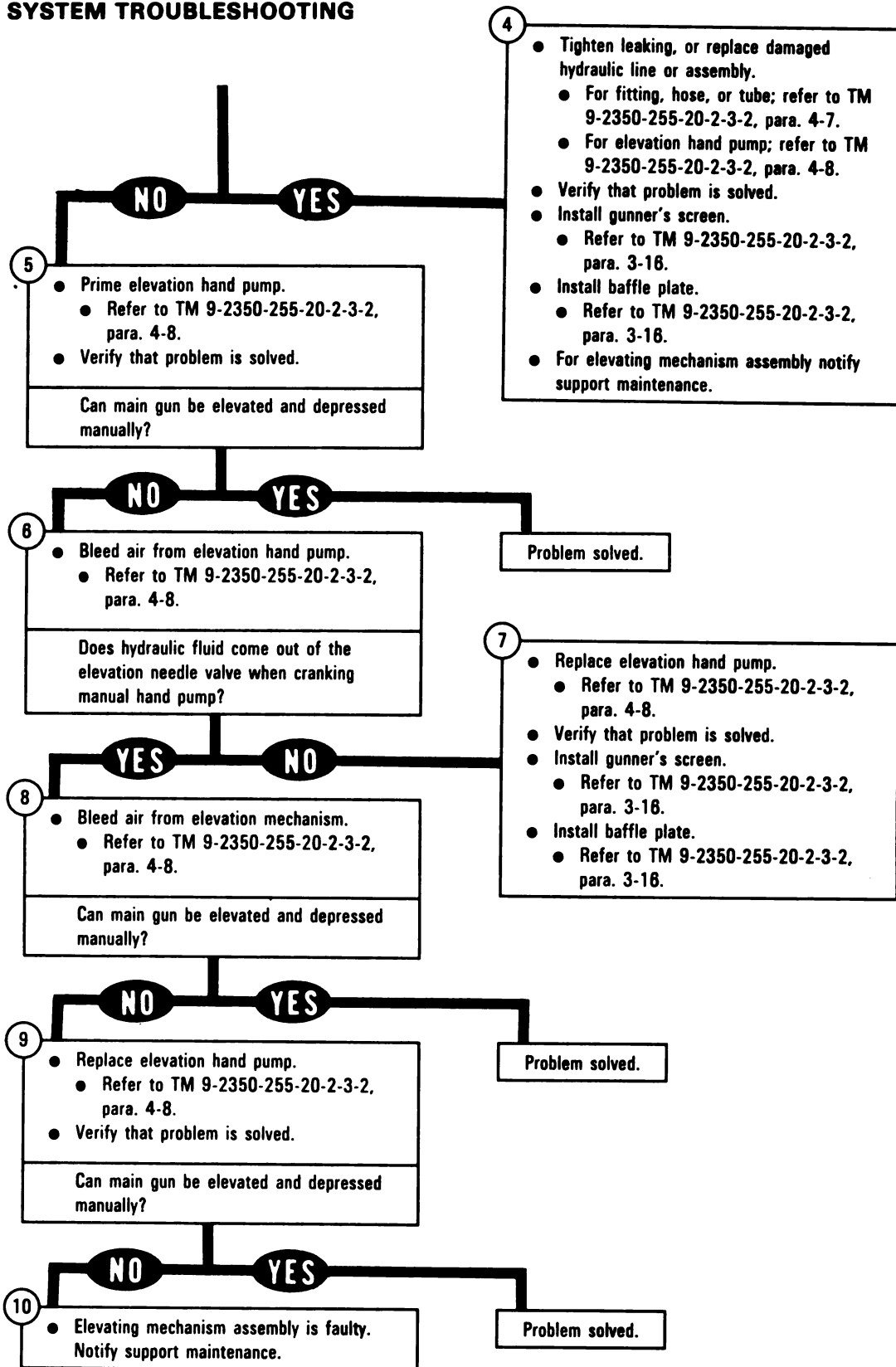


Figure 9-194 (Sheet 2 of 2)
Volume II
Para. 9-4

Ready Ammunition Door Control Subsystem Troubleshooting Procedures

Table 9-5. Ready Ammunition Door Control (RADC) Subsystem Fault Symptom Index

Fault Symptom No.	Fault Symptom	Primary Troubleshooting Procedure (PTP)	Test	Alternate Troubleshooting Procedure (ATP) TM 9-2350-255-20-2-2-3
ADC-1	Ready Ammunition Door Does Not Open When Loader's Knee Switch Is Pressed	Figure 9-195	1270	Figure 18-28
ADC-2	Ready Ammunition Door Does Not Close When Loader's Knee Switch Is Released	Figure 9-195	1270	Figure 18-29
ADC-3	Ready Ammunition Door Does Not Stop When Edge Of Door Hits Foreign Object	Figure 9-195	1270	Figure 18-30
ADC-4	Ready Ammunition Door Opens And Will Not Close When TURRET POWER Switch Is Set To ON	Figure 9-195	1270	Figure 18-31
ADC-5	Ready Ammunition Door Closes With No Time Delay After Loader's Knee Switch Is Released	Figure 9-195	1270	Figure 18-32
ADC-6	Ready Ammunition Door Does Not Slide Smoothly In Either Direction When Loader's Knee Switch Is Operated	Figure 9-195	—	—
ADC-7	Ready Ammunition Door Does Not Open Or Close Manually With Ready Ammunition Door Actuator In Fully Closed Position	Figure 9-195	—	—

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

SYMPTOMS RADC-1 THROUGH RADC-7

**READY AMMUNITION DOOR CONTROL
SUBSYSTEM FOUND FAULTY DURING
TANK OPERATION**

Common Tools:

- Pliers, slipjoint, conduit style with plastic jaw inserts.

Test Equipment/Special Tools:

NOTE

Do not get the following equipment until told to do so further on in this procedure.

STE/M1/FVS 1232400

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

NOTE

Read para. 9-1 before doing any work.

1

- Set up tank controls for standard initial test conditions.
- Refer to para. 9-9, table 9-7.

2

Is symptom RADC-1, RADC-6 or RADC-7 being checked?

YES

NO

3

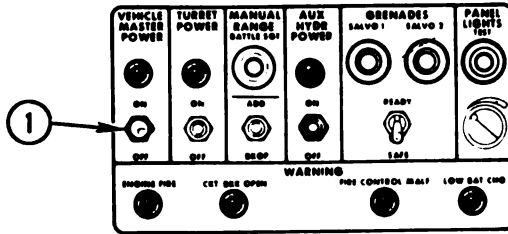
Go to block 6.

*Figure 9-195 (Sheet 1 of 12)
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**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

Manually open ready ammunition door.
 ● Refer to TM 9-2350-255-10.

Does ready ammunition door open smoothly?



YES → From block 3

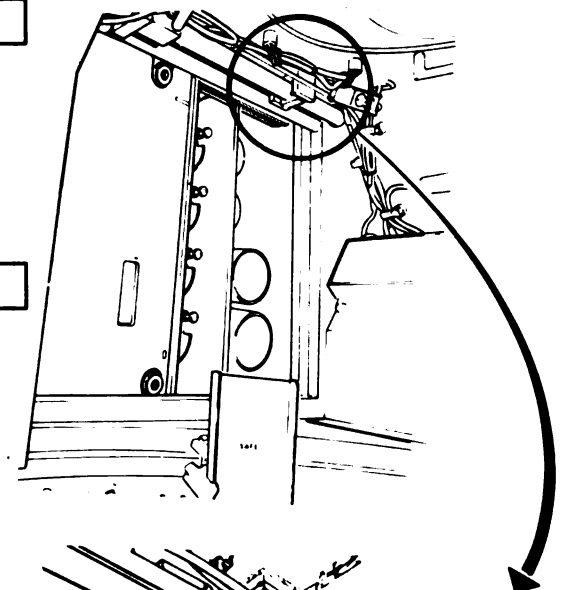
NO → 5 Go to block 25.

Is symptom RADC-3, RADC-4, or RADC-5 being checked?

NO → 8 Go to block 28.

YES →

Disconnect ready ammunition door from actuator shaft.
 ● Refer to TM 9-2350-255-10.



Reduce hydraulic pressure to zero psi, by operating bilge pump.
 ● Refer to TM 9-2350-255-10.

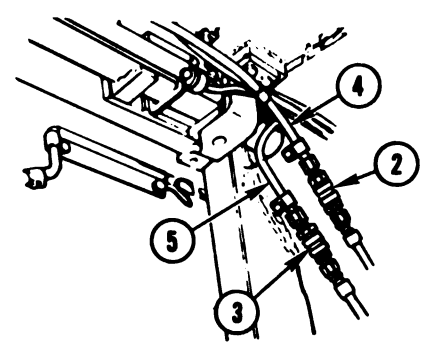
Set VEHICLE MASTER POWER switch (1) to OFF.

NOTE

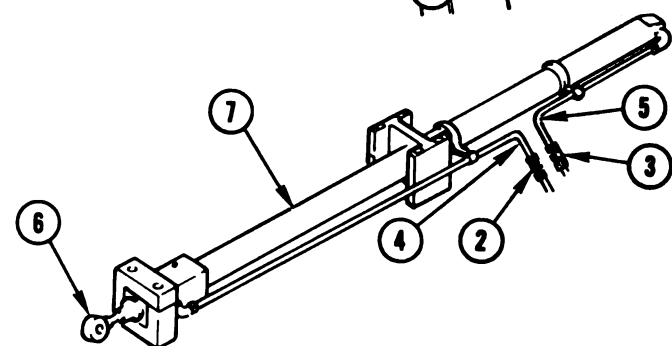
Make sure ready ammunition door is open.

Disconnect hydraulic quick disconnect couplings (2, 3) from ready ammunition door hydraulic tubes (4, 5).

Check for smooth sliding movement of actuator shaft by manually sliding actuator shaft (6) in or out of actuator (7).



Does actuator shaft slide smoothly?



**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

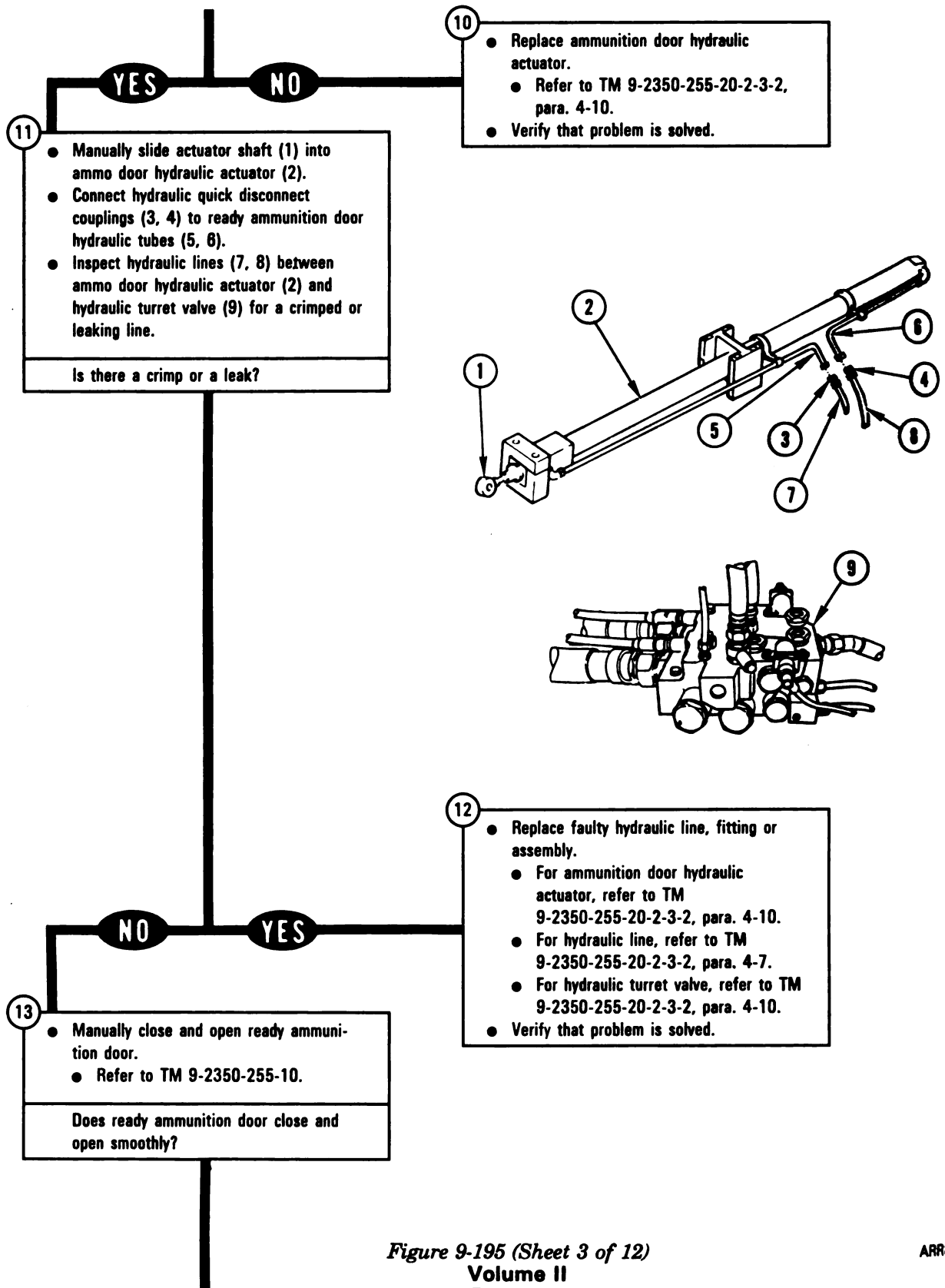


Figure 9-195 (Sheet 3 of 12)
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ARR82-6071

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

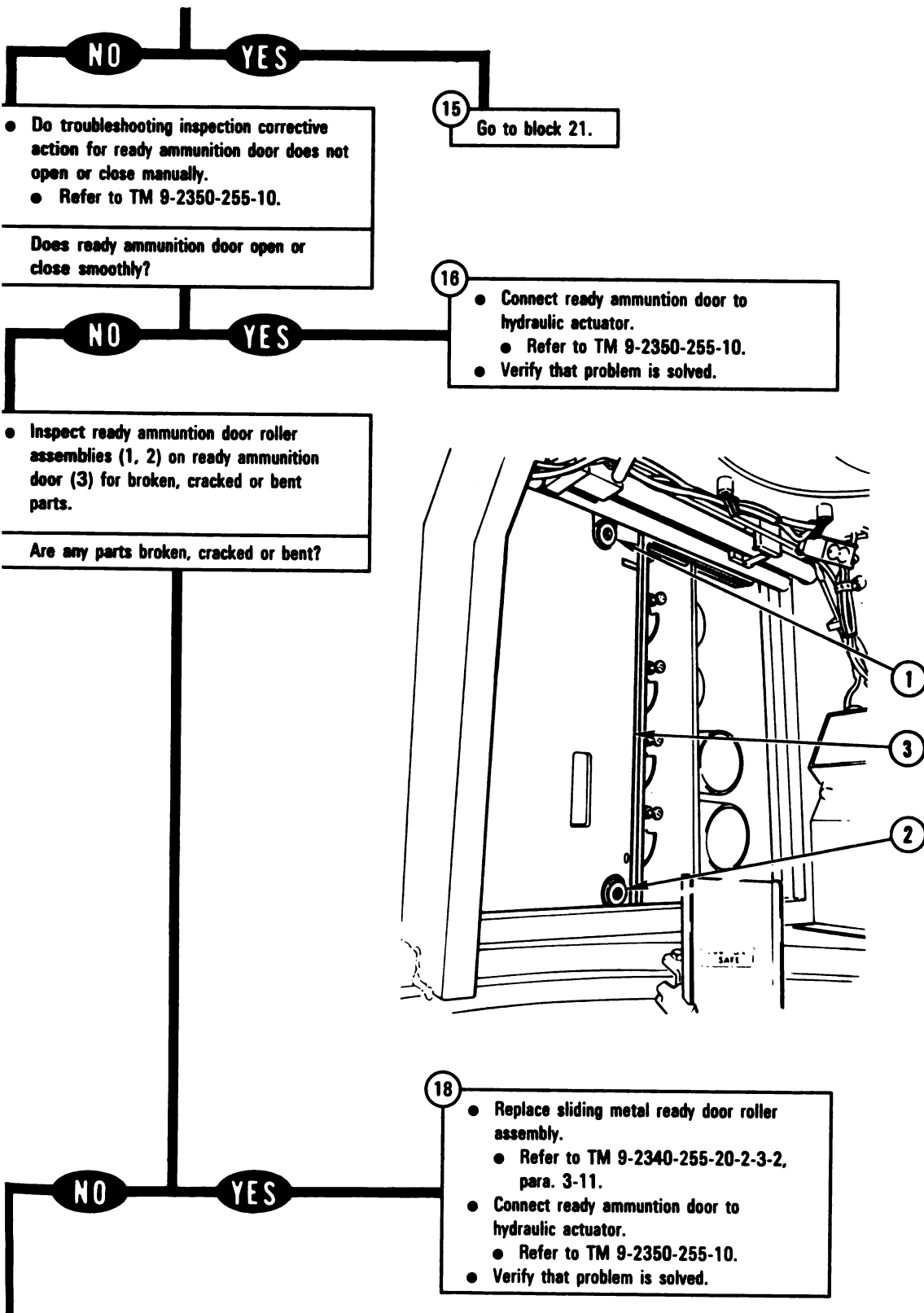


Figure 9-195 (Sheet 4 of 12)
Volume II
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ARR82-6072

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

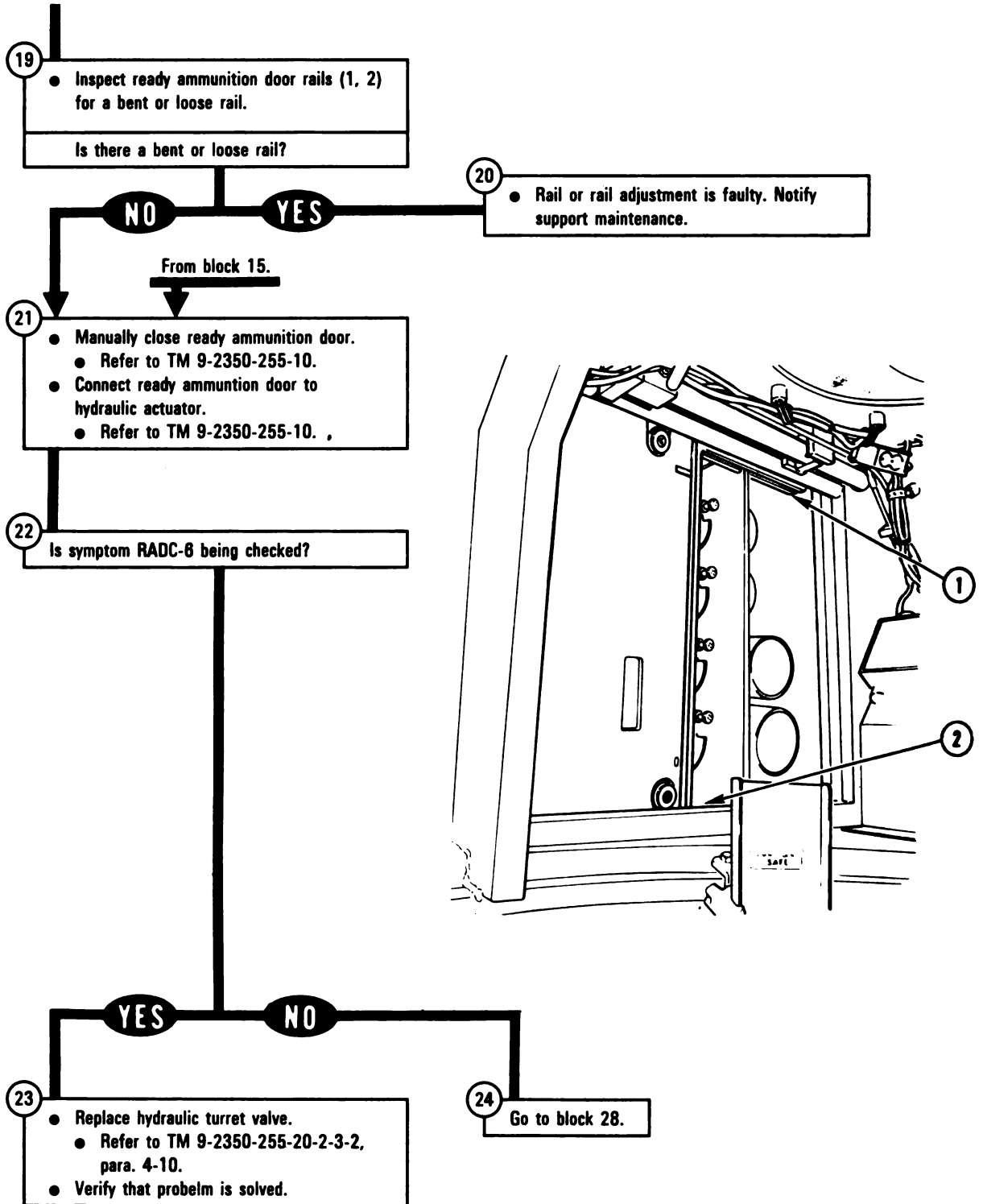
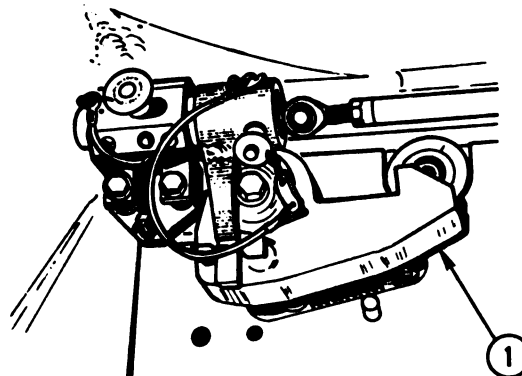


Figure 9-195 (Sheet 5 of 12)
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ARR82-60

From block 5

Does ready ammunition door latch (1)
push down?



NO

YES

- Replace arm latch.
 - Refer to TM 9-2350-255-20-2-3-2, para. 3-11.
- Verify that problem is solved.

27

Go back to block 14.

From block 8 or 24

NOTE

If you find a loose connector go immediately to block 29.

- Check to see if an electrical connector is loose that could cause symptoms RADC-1, RADC-2, RADC-3, RADC-4, or RADC-5.
- Try to turn 1W104-P1 connected to J9 on turret networks box; see figure 9-229.
- Try to turn 1W106-P1 connected to J2 on turret networks box; see figure 9-229.

Figure 9-195 (Sheet 6 of 12)
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ARR82-6074

9-471

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

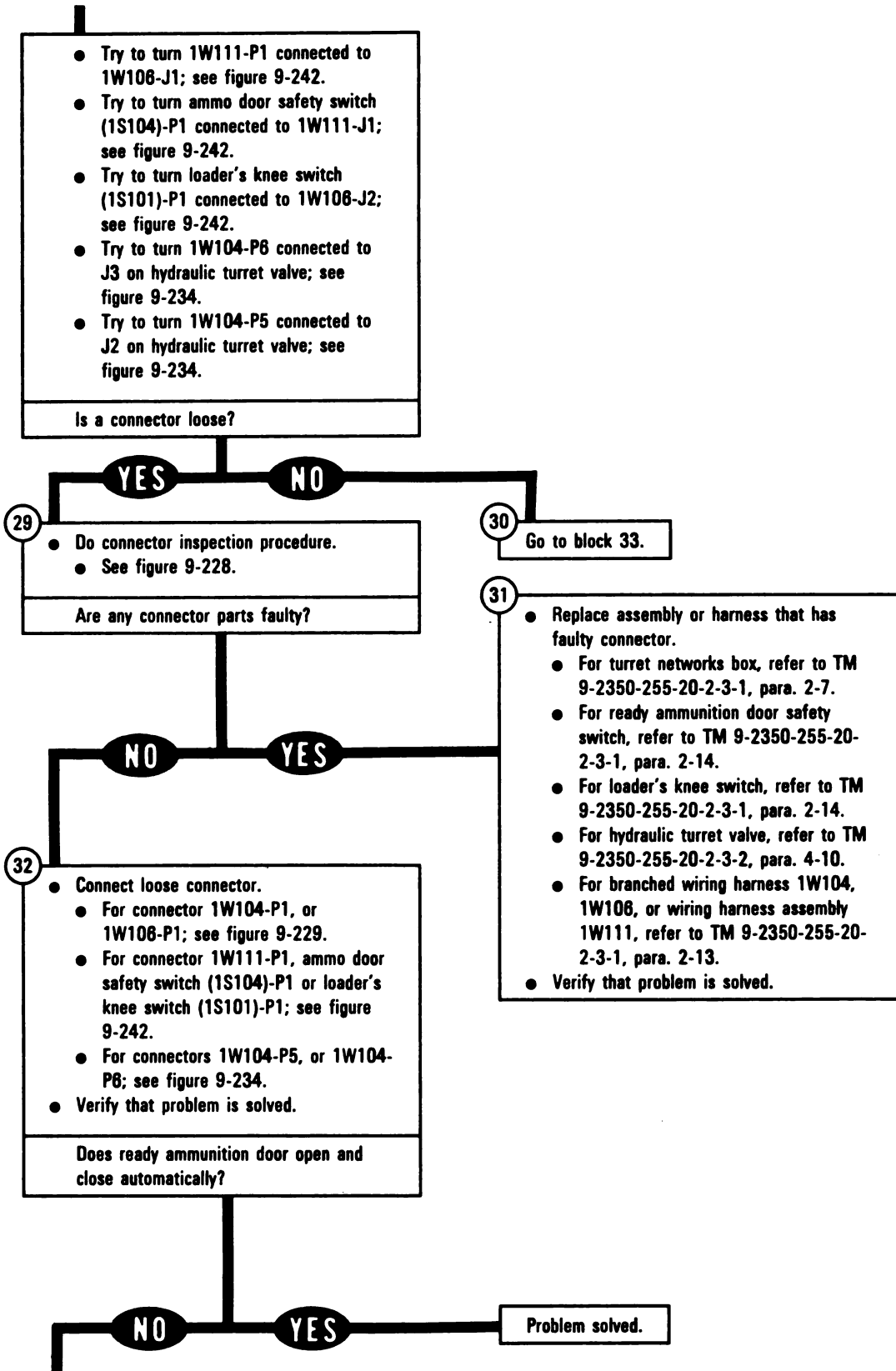


Figure 9-195 (Sheet 7 of 12)
Volume II
Para. 9-5

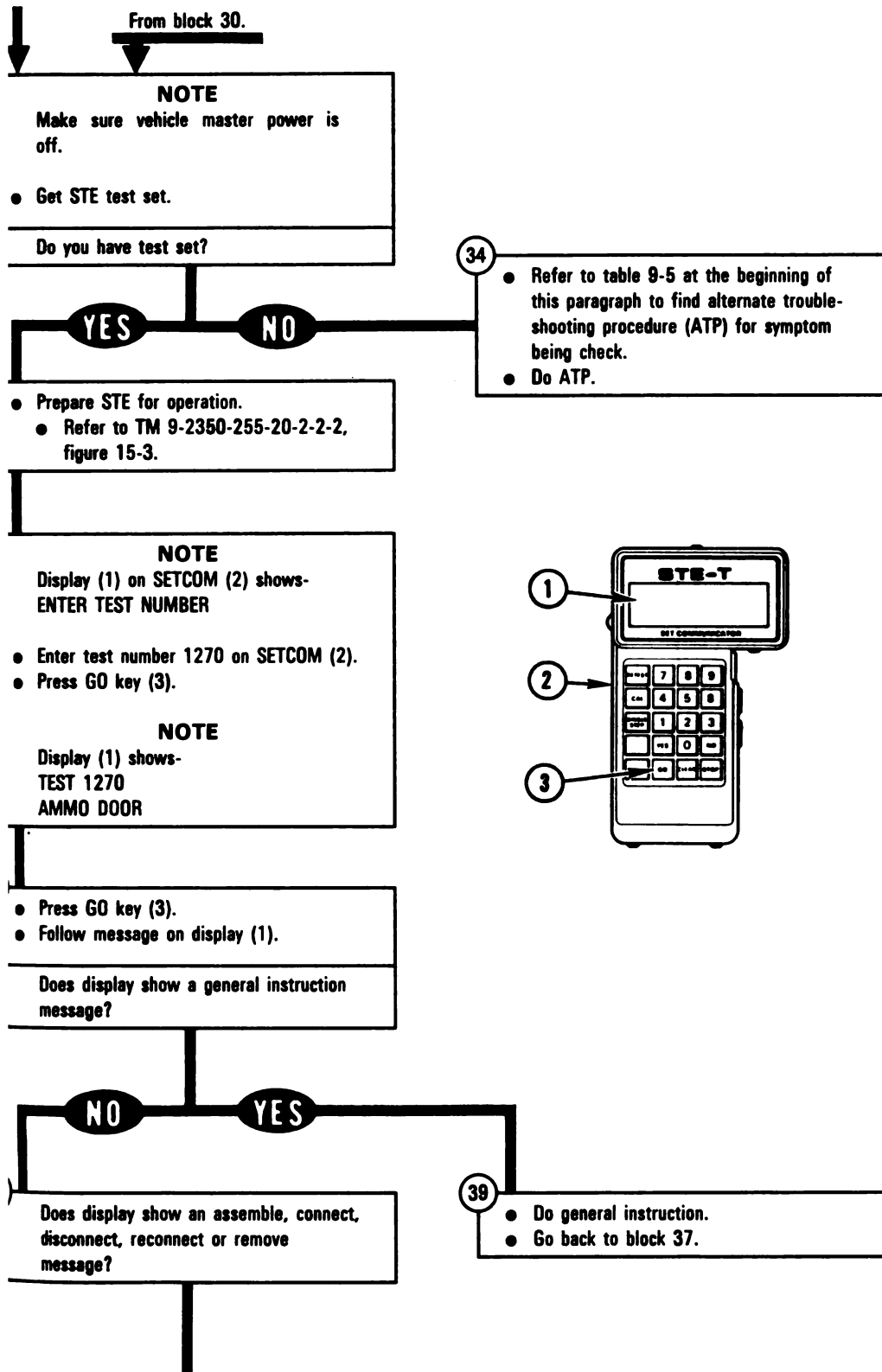


Figure 9-195 (Sheet 8 of 12)
 Volume II
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ARR82-8075

9-473

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

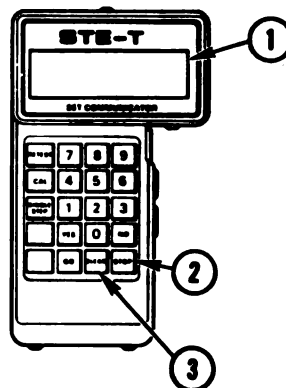
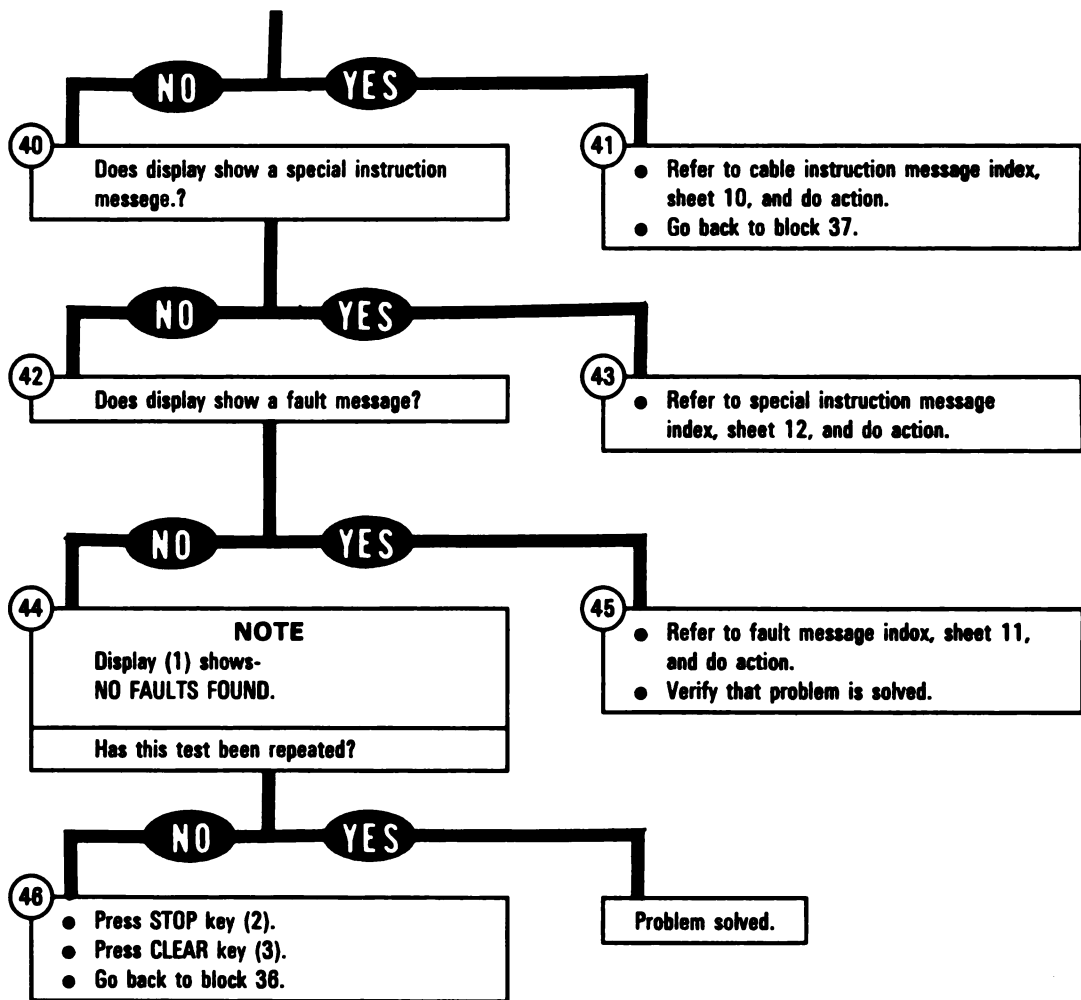


Figure 9-195 (Sheet 9 of 12)
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ARR82-601

Ready Ammunition Door Control Subsystem Cable Instruction Message Index

Cable Instruction Message	Action
CONNECT CIB CABLE CX304, DBA CX307 AND CA517	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX304 to P3 on DBA CX307. ● Connect P2 on adapter CA517 to P1 on DBA CX307. <ul style="list-style-type: none"> ● See figure 9-199.
CONNECT CIB CABLE CX304, DBA CX307 AND CA520	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX304 to P3 on DBA CX307. ● Connect P2 on adapter CA520 to P2 on DBA CX307. <ul style="list-style-type: none"> ● See figure 9-198.
CONNECT CIB J1 (CX305) TO DBA J1 (CA206)	<ul style="list-style-type: none"> ● Connect P1 on adapter CA206 to TEST 1 on turret networks box. ● Connect P1 on CIB cable CX305 to P2 on adapter CA206. <ul style="list-style-type: none"> ● See figure 9-196 ● Connect P2 on CIB cable CX305 to J1 on CIB. <ul style="list-style-type: none"> ● See figure 9-197.
CONNECT CIB CABLE CX304 P2 TO DBA J2	<ul style="list-style-type: none"> ● Connect P2 on CIB cable CX304 to J2 on CIB. <ul style="list-style-type: none"> ● See figure 9-197.
CONNECT DBA TO DBA J9	<ul style="list-style-type: none"> ● Connect P1 on adapter CA517 to J9 on turret networks box. <ul style="list-style-type: none"> ● See figure 9-199.
CONNECT DBA TO DBA 106 P1	<ul style="list-style-type: none"> ● Connect 1W106-P1 to P1 on adapter CA520. <ul style="list-style-type: none"> ● See figure 9-198.
CONNECT DBA 104 ← → TNB J9	<ul style="list-style-type: none"> ● Disconnect 1W104-P1 from J9 on turret networks box. <ul style="list-style-type: none"> ● See figure 9-229.
CONNECT DBA 106 ← → KNESW P1	<ul style="list-style-type: none"> ● Disconnect loader's knee switch (1S101)-P1 from 1W106-J2. <ul style="list-style-type: none"> ● See figure 9-242.
CONNECT DBA 106 ← → TNB J2	<ul style="list-style-type: none"> ● Disconnect 1W106-P1 from J2 on turret networks box. <ul style="list-style-type: none"> ● See figure 9-229.
CONNECT DBA 111 ← → DSFSW	<ul style="list-style-type: none"> ● Disconnect ready ammunition door safety switch (1S104)-P1 from 1W111-J1. <ul style="list-style-type: none"> ● See figure 9-242.

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

Ready Ammunition Door Control Subsystem Fault Message Index

Fault Message	Action
FAULTY BATTERY/ CHARGING SYS 109921	<ul style="list-style-type: none"> ● Charge batteries. ● Refer to TM 9-2350-255-10. ● Go back to block 35.
FAULTY DSFSW 127042	<ul style="list-style-type: none"> ● Adjust ready ammunition door safety switch. ● Refer to TM 9-2350-255-20-2-3-1, para. 2-14. ● If adjustment does not correct fault, replace ready ammunition door safety switch. ● Refer to TM 9-2350-255-20-2-3-1, para. 2-14.
FAULTY HDV OR 1W104 127002 127003 127005 127026 127027 127038	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 9-200. ● See figure 9-200. ● See figure 9-200. ● See figure 9-200. ● See figure 9-201. ● See figure 9-202.
FAULTY KNEE SWITCH ADJUSTMENT 127012	<ul style="list-style-type: none"> ● Adjust loader's knee switch. ● Refer to TM 9-2350-255-20-2-3-1, para. 2-14.
FAULTY KNEE SWITCH OR 1W106 127004 127016 127030 127031	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 9-203. ● See figure 9-204. ● See figure 9-203. ● See figure 9-204.
FAULTY RELEASE PIN 127036	<ul style="list-style-type: none"> ● Replace quick release pin. ● Refer to TM 9-2350-255-20-2-3-2, para. 3-11.
FAULTY TNB 127001 127007 127013 127020 127021 127024 127025 127029 127033 127035 127037 127039 127045 127046 127047	<ul style="list-style-type: none"> ● Replace turret networks box. ● Refer to TM 9-2350-255-20-2-3-1, para. 2-7.

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Ready Ammunition Door Control Subsystem Fault Message Index (Continued)

Fault Message	Action
MULTY TNB OR /104 <p style="text-align: right;">127006 127028</p>	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 9-205.
MULTY VEH/TURRET /R CNTL <p style="text-align: right;">109922 120703 120803</p>	<ul style="list-style-type: none"> ● Run vehicle/turret power control test number 1200. ● See figure 8-1.
MULTY 1W106, 1W111 DSFSW <p style="text-align: right;">127032</p>	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 9-206.
MULTY 1W106, 1W111 TNB <p style="text-align: right;">127041</p>	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 9-207.

Ready Ammunition Door Control Subsystem Special Instruction Message Index

Special Instruction Message	Action
PRESS AND HOLD ACTUATOR BUTTON	<ul style="list-style-type: none"> ● Place loader's knee switch lever up in safe position. ● Press and hold loader's knee switch actuator button (below knee switch lever hinge). ● Go back to block 37.
SEE -20 MANUAL <p style="text-align: right;">127044</p>	<ul style="list-style-type: none"> ● Adjust ready ammunition door safety switch. <ul style="list-style-type: none"> ● Refer to TM 9-2350-255-20-2-3-1, para. 2-14. ● If adjustment does not correct fault, do follow-on procedure. <ul style="list-style-type: none"> ● See figure 9-208.
SYSTEM ERROR <p style="text-align: right;">109902</p>	<ul style="list-style-type: none"> ● Run STE self-test number 666. <ul style="list-style-type: none"> ● Refer to TM 9-2350-255-20-2-2-2, figure 15-3, block 26. ● Repeat ammunition door test number 1270. <ul style="list-style-type: none"> ● Press STOP key on SETCOM. ● Press CLEAR key on SETCOM. ● Go back to block 36. ● If same error message appears on SETCOM display, notify support maintenance that test set is faulty.

Figure 9-195 (Sheet 12 of 12)
**Volume II
Para. 9-5**

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

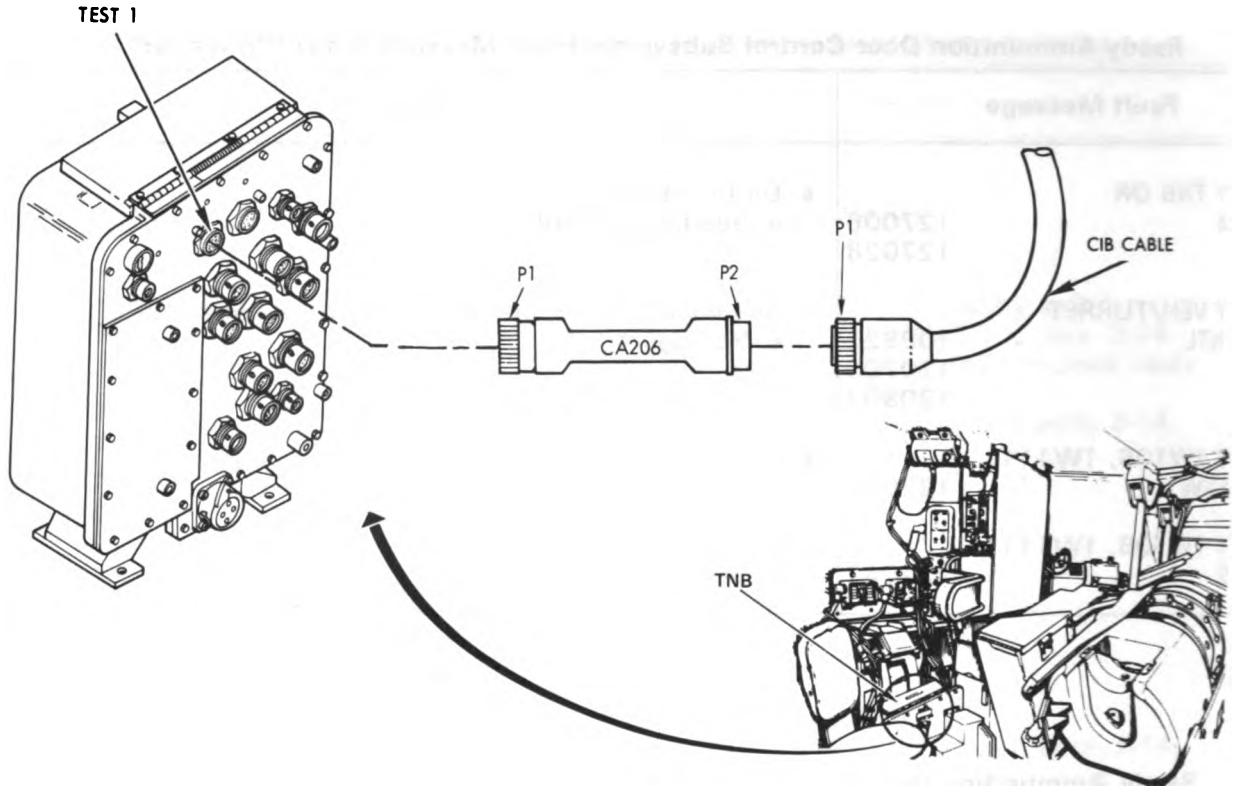
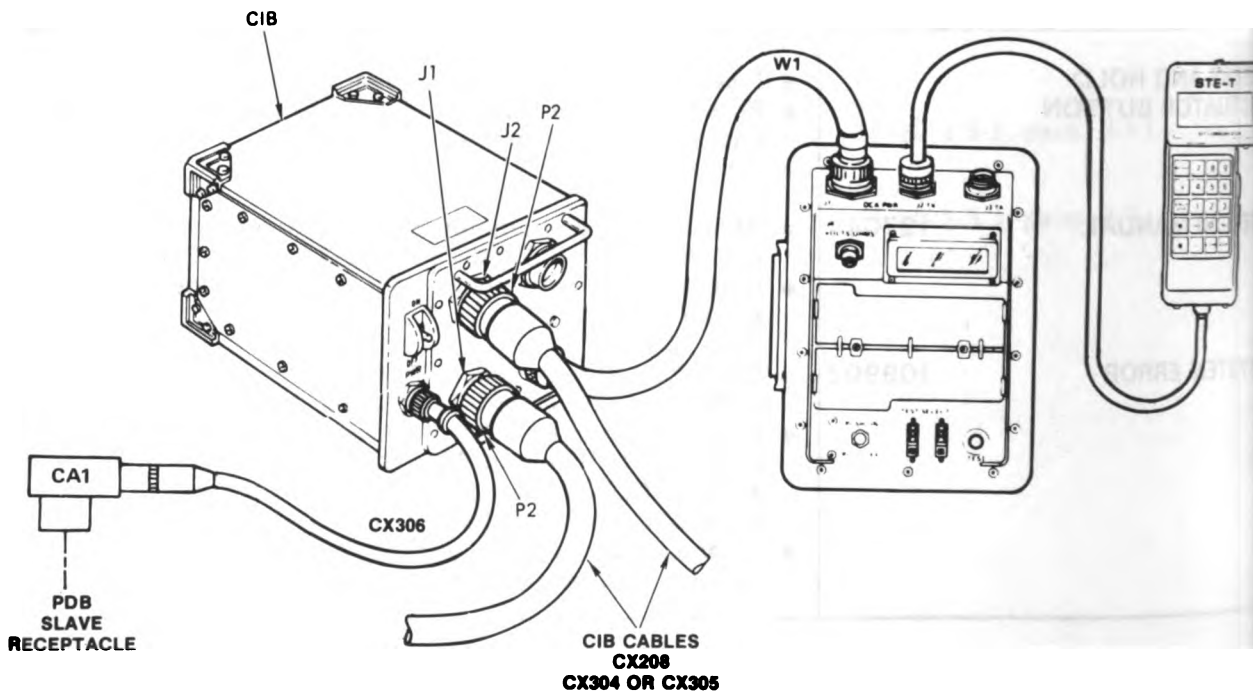


Figure 9-196. STE Turret Cable Hookup To TNB-Test 1



**Figure 9-197. STE Turret Cable Hookup To CIB
Volume II
Para. 9-5**

ARR82-6071

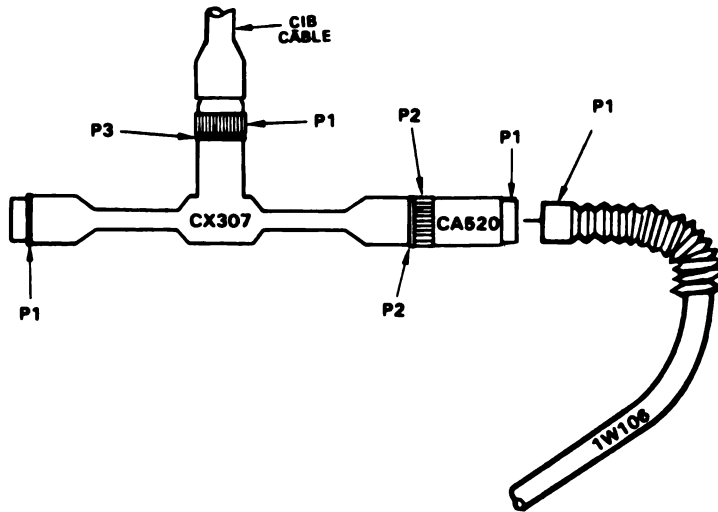


Figure 9-198. STE Turret Cable Hookup To 1W106-P1

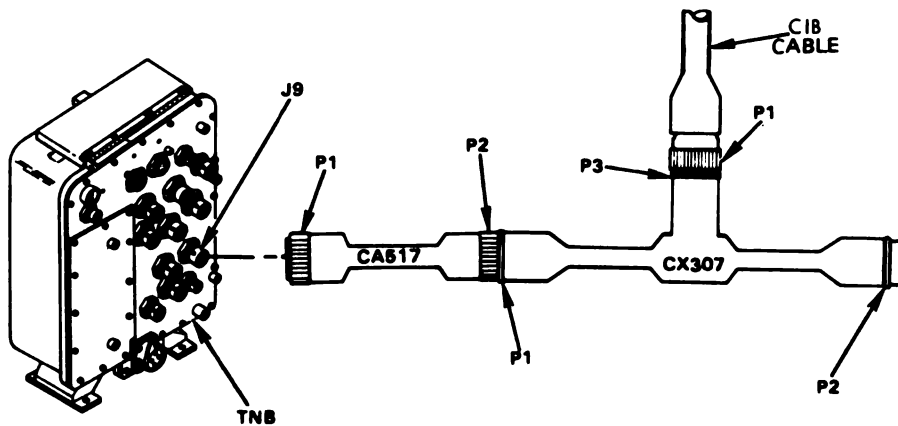


Figure 9-199. STE Turret Cable Hookup To TNB-J9
Volume II
Para. 9-5

ARR82-6078

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS -
FAULTY HDV OR
1W104**

**Additional Test
Equipment/Special Tools:**

- Breakout Box Tool Kit, 12311086

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- 127002
- 127003
- 127005
- 127026

- 1
- Disconnect 1W104-P5 from J2 on hydraulic turret valve.
 - See figure 9-234.
 - Disconnect 1W104-P6 from J3 on hydraulic turret valve.
 - See figure 9-234.

- 2
- Connect CX304-P2 (1) to breakout box (2).
 - Connect CX304-P1 (3) to CX307-P3 (4).
 - Connect 1W104-P1 (5) to CA518-P1 (8).
 - Connect CA518-P2 (7) to CX307-P2 (8).

- 3
- Change control from SETCOM to VTM.
 - Set PWR switch (9) on CIB (10) to OFF to reset VTM (11).
 - Set PWR switch (9) to ON.
 - Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 9-1.

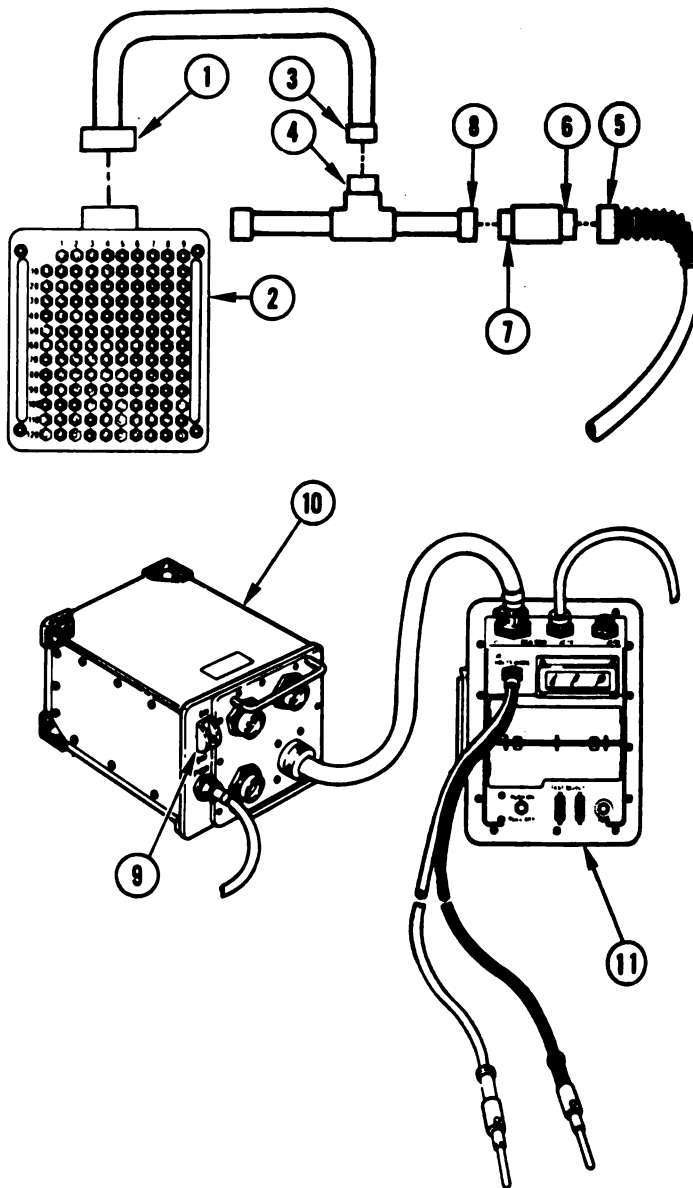


Figure 9-200 (Sheet 1 of 2)
**Volume II
Para. 9-5**

ARR82-8071

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

NOTE

If VTM display shows 0 to 5, go immediately to block 6.

Table A

Fault Number	Red Test Probe	Black Test Probe
127002 127005	106	7 through 39, 62, 74, 75, 89 through 105, 107 through 113, and 129
127003 127026	20	7 through 19, 21 through 39, 62, 74, 75, 110 through 113, and 129

Test for 0 to 5 ohms between test points on breakout box listed in table A for fault number being tested.

- Connect red test probe (1) to test point on breakout box (2) listed in table A for fault number being tested.
- Connect black test probe (3) to test points on breakout box (2) listed in table A for fault number being tested.

Does VTM display show between 0 and 5?

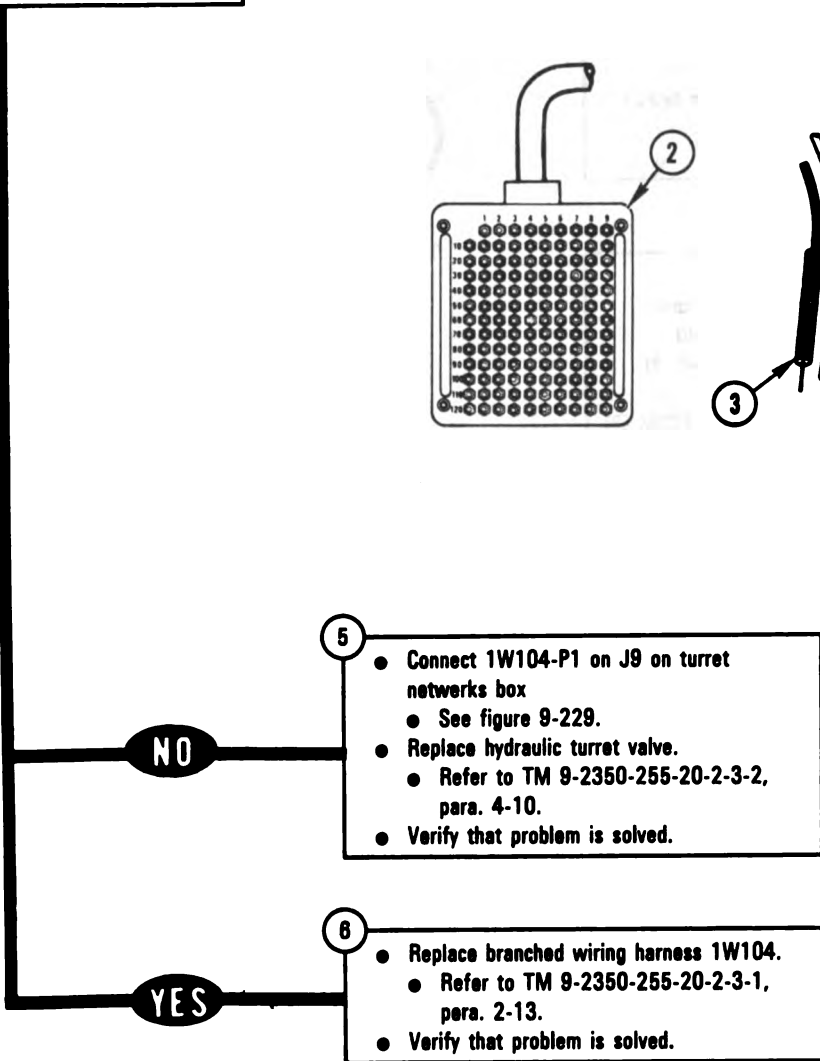
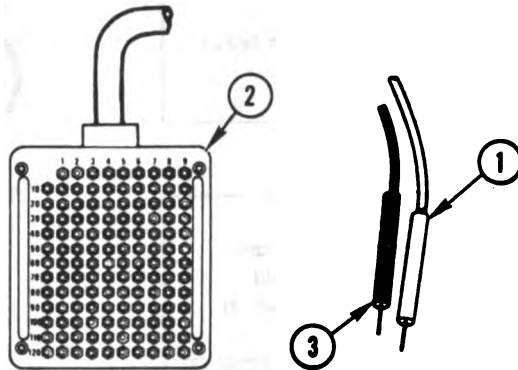


Figure 9-200 (Sheet 2 of 2)
**Volume II
Para. 9-5**

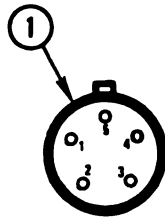
ARR82-6080

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

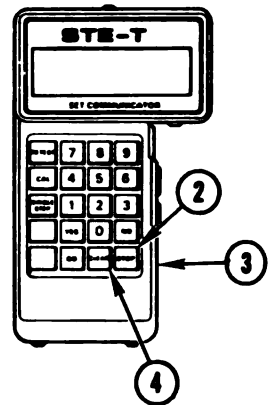
**DISPLAY SHOWS -
FAULTY HDV OR
1W104** **127027**

- Equipment Condition:**
- Tank parked.
 - Parking brake set.
 - Engine shut down.
 - Vehicle master power off.

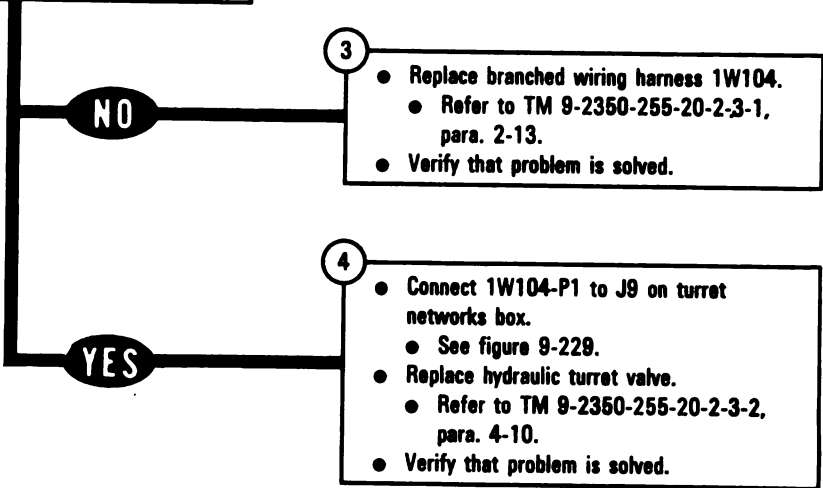
- 1**
- Disconnect CX304-P1 from CX307-P3.
 - See figure 9-199.
 - Disconnect CA517-P2 from CX307-P1.
 - See figure 9-199.
 - Disconnect CX305-P1 from CA208-P2.
 - See figure 9-196.
 - Disconnect 1W104-P5 from J2 on hydraulic turret valve.
 - See figure 9-234.



1W104-P5



- 2**
- Get TA1 adapter that will fit 1W104-P5 (1) contacts for cable test.
 - Prepare STE to run cable test 1390.
 - Press STOP key (2) on SETCOM (3).
 - Press CLEAR key (4).
 - Enter test number 1390 on SETCOM (3).
 - Run test on 1W104 between P1 and P5.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.
- Does SETCOM display show GOOD?**



**Figure 9-201
Volume II
Para. 9-5**

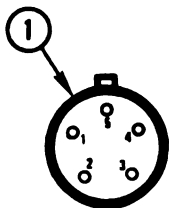
**DISPLAY SHOWS -
FAULTY HDV OR
1W104**

127038

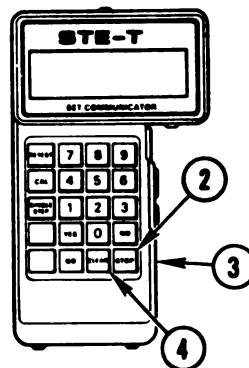
Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- Disconnect CX304-P1 from CX307-P3.
 - See figure 9-199.
- Disconnect CA517-P2 from CX307-P1.
 - See figure 9-199.
- Disconnect CX305-P1 from CA208-P2.
 - See figure 9-198.
- Disconnect 1W104-P8 from J3 on hydraulic turret valve.
 - See figure 9-234.



1W104-P6



- Get TA1 adapter that will fit 1W104-P8 (1) contacts for cable test.
- Prepare STE to run cable test 1390.
 - Press STOP key (2) on SETCOM (3).
 - Press CLEAR key (4).
 - Enter test number 1390 on SETCOM (3).
- Run test on 1W104 between P1 and P8.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.

Does SETCOM display show GOOD?

NO

- 3
- Replace branched wiring harness 1W104.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

YES

- 4
- Connect 1W104-P1 to J9 on turret networks box.
 - See figure 9-229.
 - Replace hydraulic turret valve.
 - Refer to TM 9-2350-255-20-2-3-2, para. 4-10.
 - Verify that problem is solved.

Figure 9-202
Volume II
Para. 9-5

ARR82-6082

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS -
FAULTY KNEE SWITCH
OR 1W106**

• 127004
127030

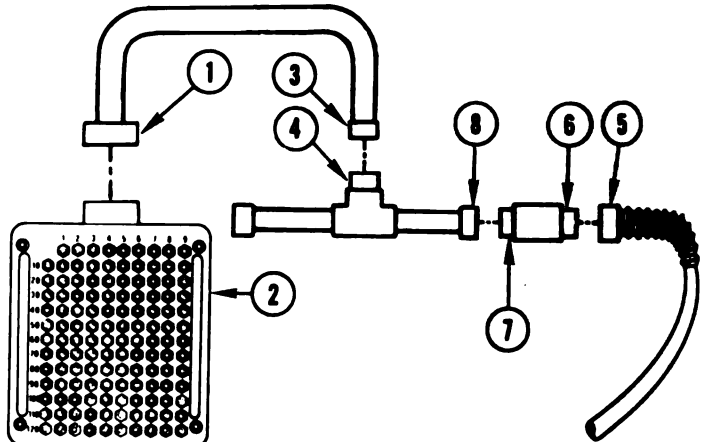
Additional Test

Equipment/Special Tools:

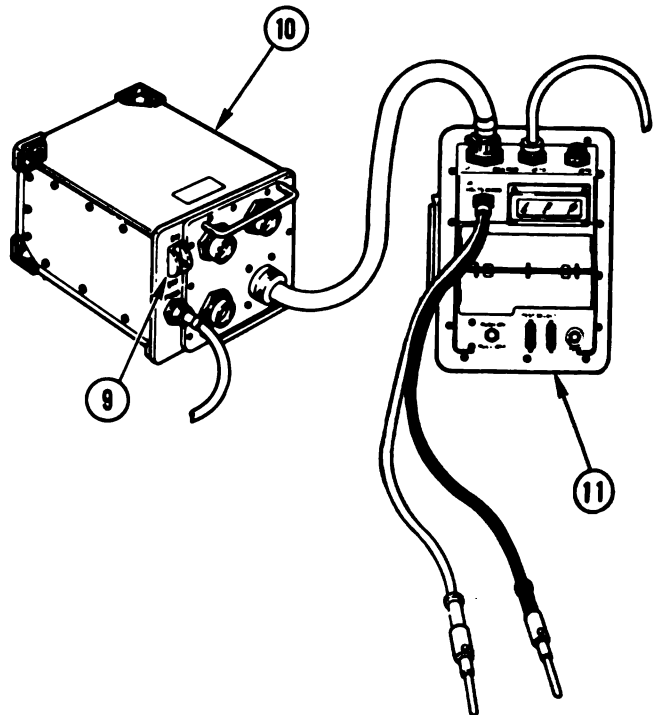
- Breakout Box Tool Kit, 12311066

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.



- 1
- Disconnect loader's knee switch (1S101)-P1 from 1W106-J2.
 - See figure 9-242.
 - Connect CX304-P2 (1) to breakout box (2).
 - Connect CX304-P1 (3) to CX307-P3 (4).
 - Connect 1W106-P1 (5) to CA520-P1 (6).
 - Connect CA520-P2 (7) to CX307-P1 (8).



- 2
- Change control from SETCOM to VTM.
 - Set PWR switch (9) on CIB (10) to OFF to reset VTM (11).
 - Set PWR switch (9) to ON.
 - Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 9-1.

*Figure 9-203 (Sheet 1 of 2)
Volume II
Para. 9-5*

ARR82-6083

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

Table A

Fault Number	Red Test Probe	Black Test Probe
127004	107	7 through 39, 62, 74, 75, 89 through 106, 108 through 113, and 129
127030	109	7 through 39, 62, 74, 75, 89 through 108, 110 through 113, and 129

NOTE

If VTM display shows 0 to 5, go immediately to block 5.

Test for 0 to 5 ohms between test points on breakout box listed in table A for fault number being tested.

- Connect red test probe (1) to test point on breakout box (2) listed in table A for fault number being tested.
- Connect black test probe (3) to test points on breakout box (2) listed in table A for fault number being tested.

Does VTM display show between 0 and 5?

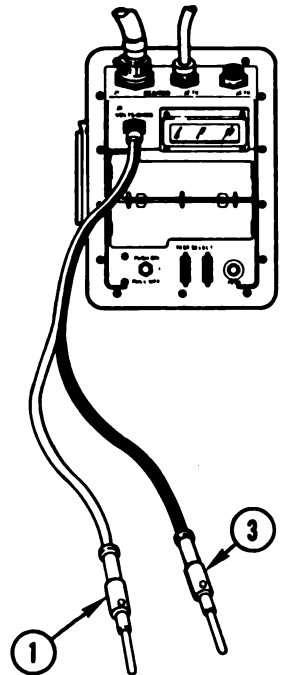
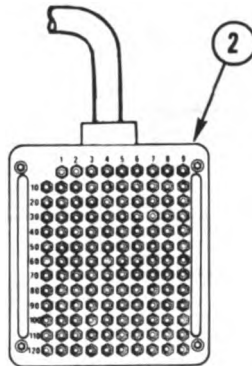
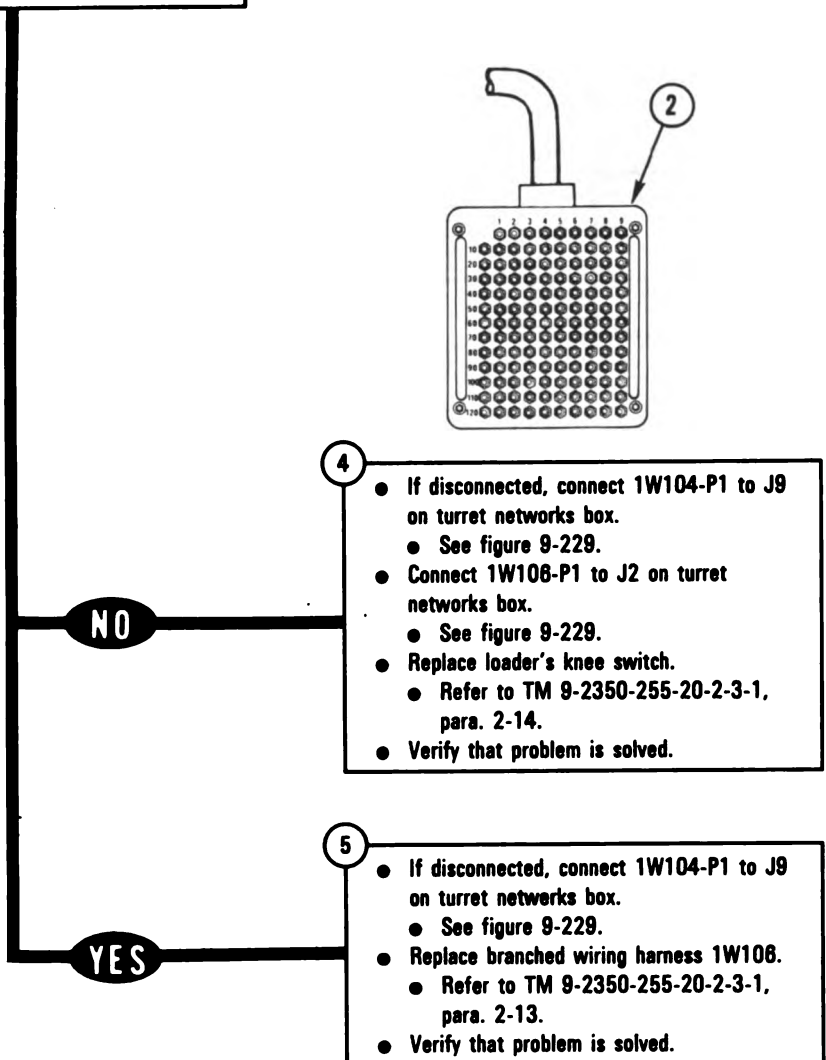


Figure 9-203 (Sheet 2 of 2)
**Volume II
Para. 9-5**

ARR82-6084

9-485

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

• 127016
127031

**DISPLAY SHOWS -
FAULTY KNEE SWITCH
OR 1W106**

**Additional Test
Equipment/Special Tools:**

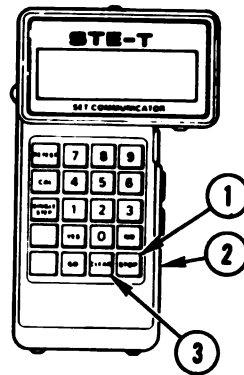
- Breakout Box Tool Kit, 12311066

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

①

- Disconnect CX305-P1 from CA206-P2.
 - See figure 9-198.
- Disconnect loader's knee switch (1S101)-P1 from 1W106-J2.
 - See figure 9-242.



②

- Prepare STE to run cable test 1390.
 - Press STOP key (1) on SETCOM (2).
 - Press CLEAR key (3).
 - Enter test number 1390 on SETCOM (2).
- Run test on 1W106 between J2 and P1.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.

Does SETCOM display show GOOD?

YES

NO

③

- Connect 1W104-P1 to J9 on turret networks box.
 - See figure 9-229.
- Replace branched wiring harness 1W106.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

*Figure 9-204 (Sheet 1 of 3)
Volume II
Para. 9-5*

ARR82-6084

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

Table A

Fault Number	Red Test Probe	Black Test Probe
127016	107	7 through 39, 62, 74, 75, 89 through 106, 108, 110 through 113, and 129
127031	108	7 through 39, 62, 74, 75, 89 through 107, 110 through 113, and 129

- Disconnect 1W108-J2 (1) from CA557-P1 (2).
- Disconnect CX304-P2 (3) from CIB-J2 (4).
- Connect CX304-P2 (3) to breakout box (5).

- Change control from SETCOM to VTM.
- Set PWR switch (6) on CIB (7) to OFF to reset VTM (8).
- Set PWR switch (6) to ON.
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
- Refer to para. 9-1.

- Connect jumper (9) between test points 108 and 109 on breakout box (5).

NOTE

If VTM display shows 0 to 5, go immediately to block 8.

- Test for 0 to 5 ohms between test points on breakout box listed in table A for fault number being tested.
- Connect red test probe (10) to test point on breakout box (5) listed in table A for fault number being tested.
- Connect black test probe (11) to test points on breakout box (5) listed in table A for fault number being tested.

Does VTM display show between 0 and 5?

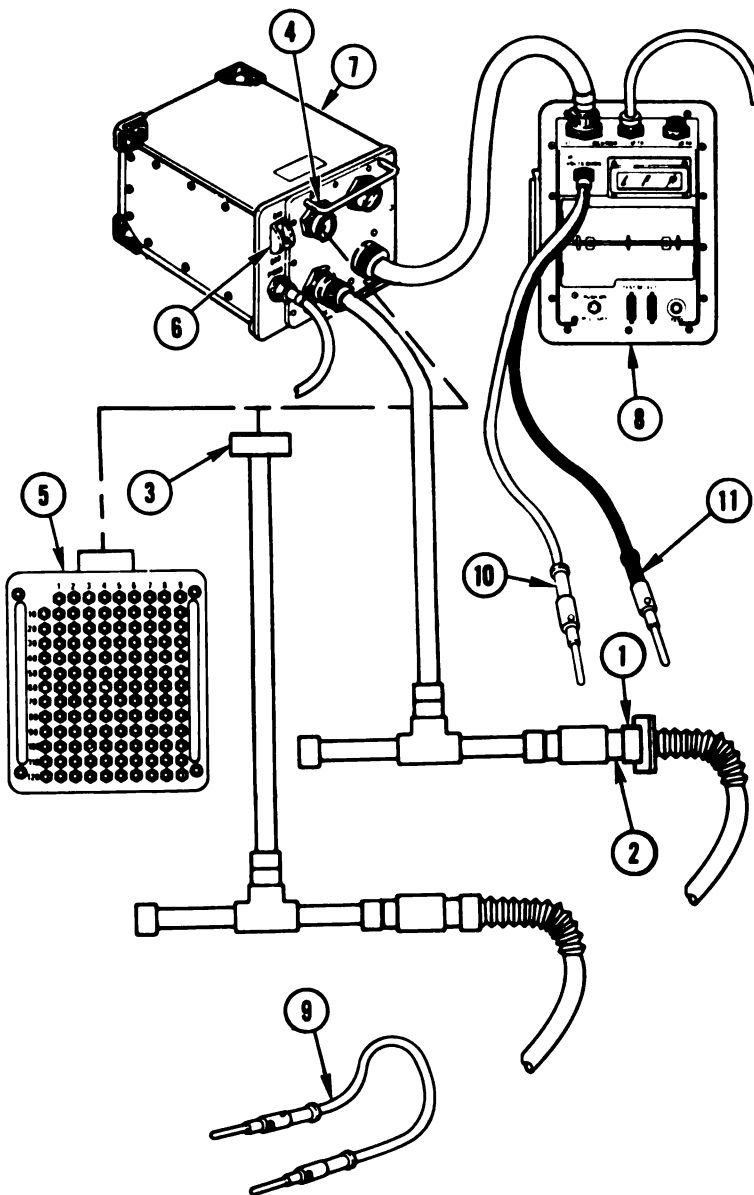


Figure 9-204 (Sheet 2 of 3)
**Volume II
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ARR82-6086

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

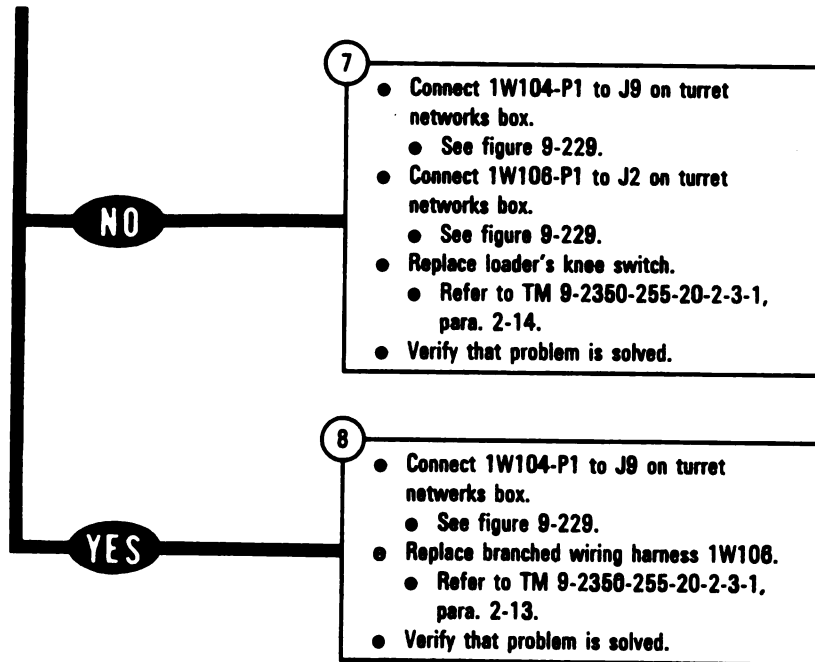


Figure 9-204 (Sheet 3 of 3)
Volume II
Para. 9-5

TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING

DISPLAY SHOWS -
FAULTY TNB OR
1W104

• 127006
127028

Additional Test

Equipment/Special Tools:

- Breakout Box Tool Kit, 12311086

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- Disconnect 1W104-P1 from J9 on turret networks box.

- See figure 9-229.

- Disconnect 1W104-P6 from J3 on hydraulic turret valve.

- See figure 9-234.

- Connect CX304-P2 (1) to breakout box (2).

- Connect CX304-P1 (3) to CX307-P3 (4).

- Connect 1W104-P1 (5) to CA518-P1 (6).

- Connect CA518-P2 (7) to CX307-P1 (8).

- Change control from SETCOM to VTM.

- Set PWR switch (9) on CIB (10) to OFF to reset VTM (11).

- Set PWR switch (9) to ON.

- Prepare VTM for measuring resistance between 0 and 1500 ohms.

- Refer to para. 9-1.

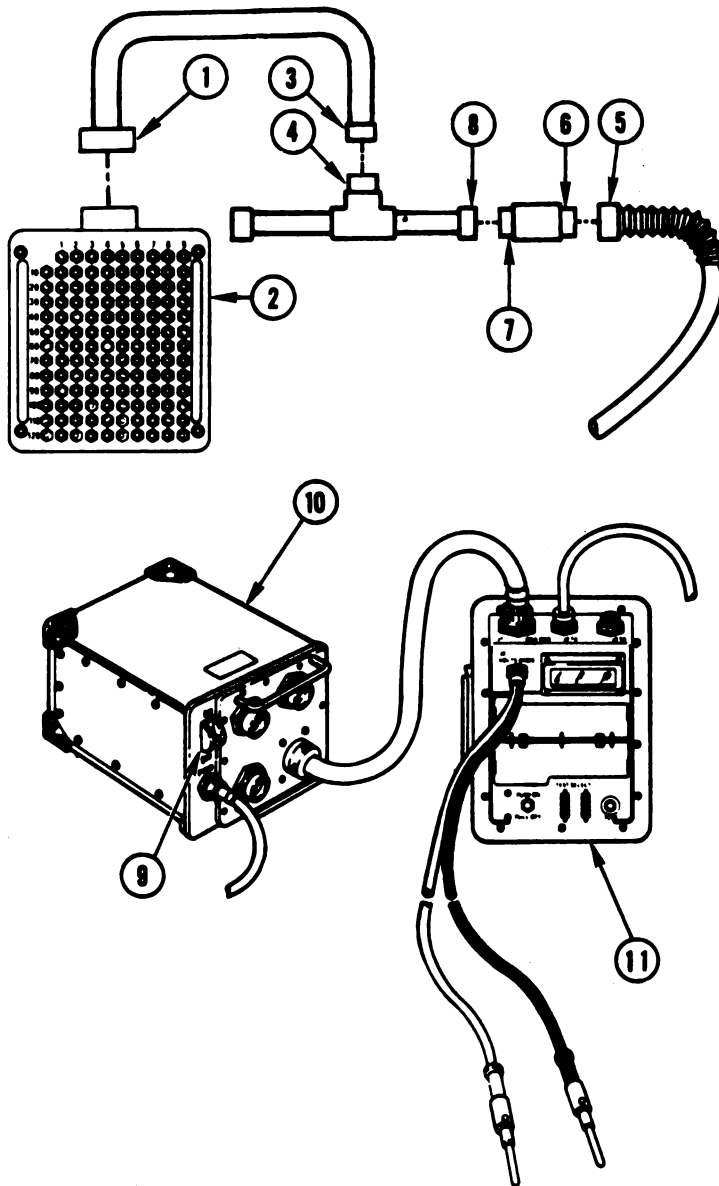


Figure 9-205 (Sheet 1 of 2)
Volume II
Para. 9-5

ARR82-6087

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

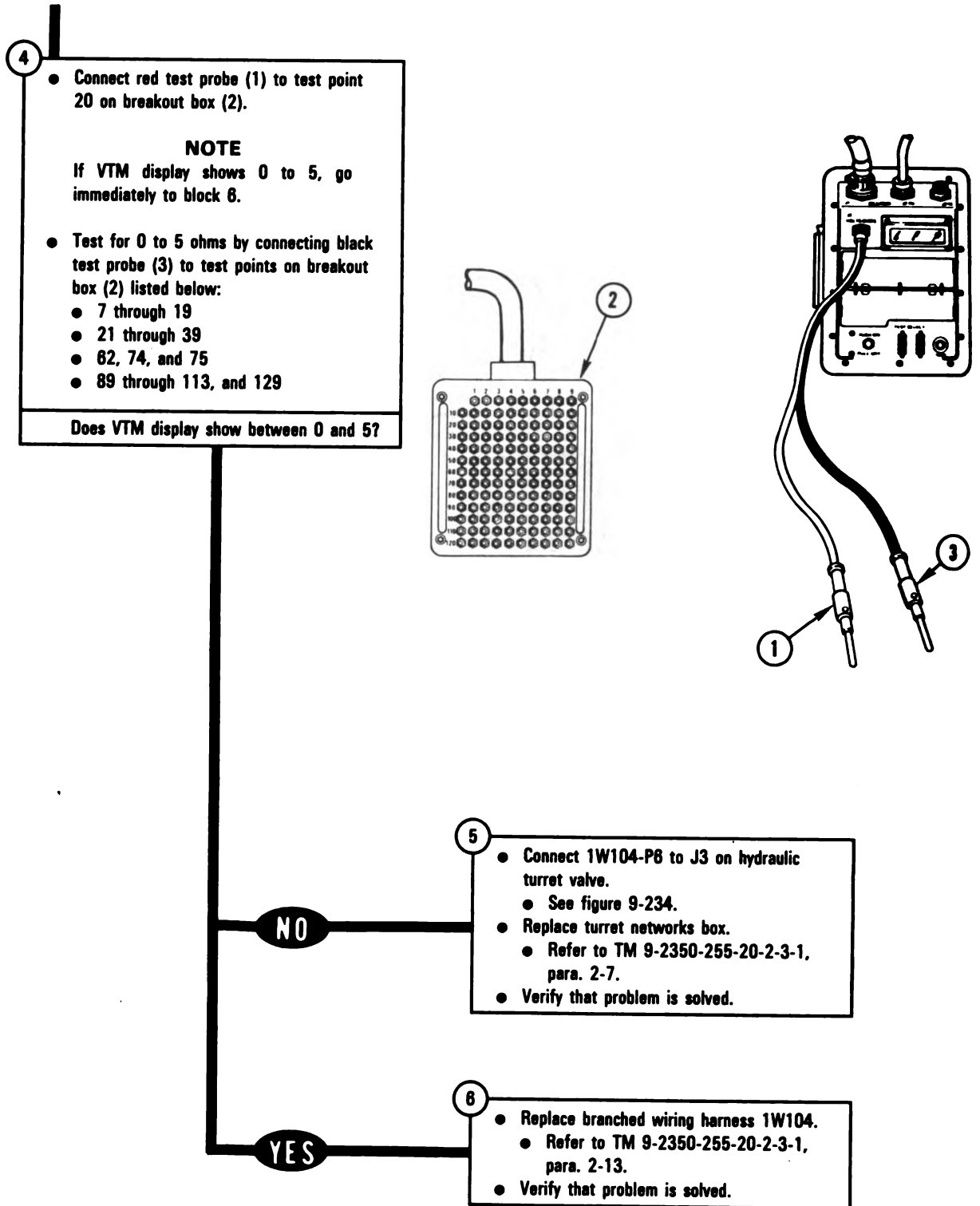


Figure 9-205 (Sheet 2 of 2)
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ARR82-6084

**DISPLAY SHOWS -
 FAULTY 1W106, 1W111
 OR DSFSW**

127032

**Additional Test
 Equipment/Special Tools:**

- Breakout Box Tool Kit, 12311086

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- Connect 1W104-P1 to J9 on turret networks box.

- See figure 9-229.

- Disconnect CX304-P2 from CIB-J2.

- See figure 9-197.

- Disconnect ready ammunition door safety switch (1S104)-P1 from 1W111-J1.

- See figure 9-242.

- Connect CX304-P2 (1) to breakout box (2).

- Change control from SETCOM to VTM.

- Set PWR switch (3) on CIB (4) to OFF to reset VTM (5).

- Set PWR switch (3) to ON.

- Prepare VTM for measuring resistance between 0 and 1500 ohms.

- Refer to para. 9-1.

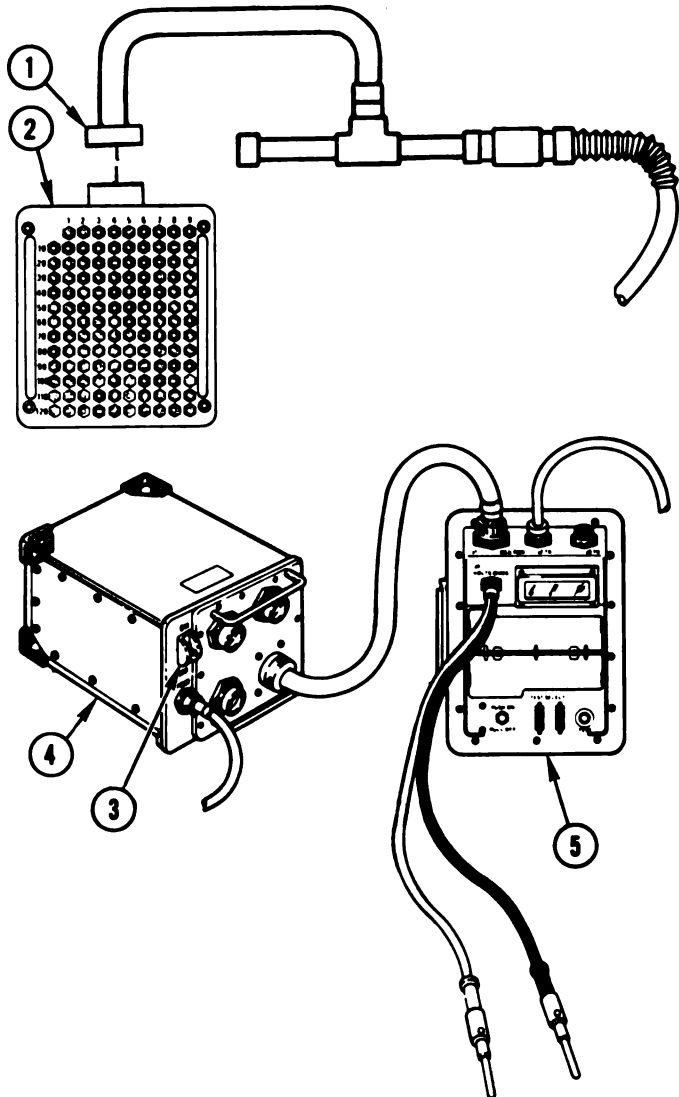


Figure 9-206 (Sheet 1 of 2)
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ARR82-6089

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

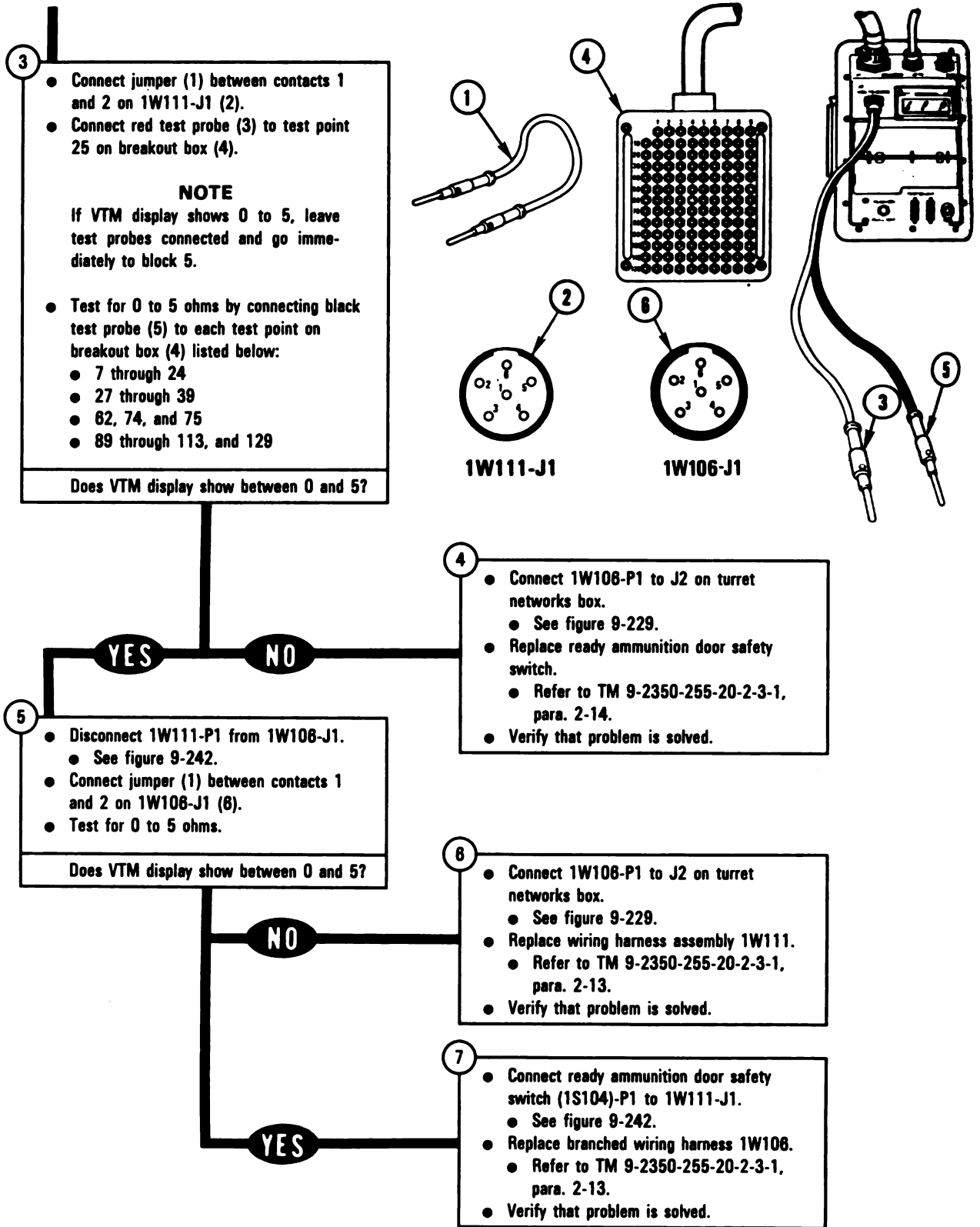


Figure 9-206 (Sheet 2 of 2)
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ARR82-605

DISPLAY SHOWS -
 FAULTY 1W106, 1W111
 OR TNB 127041

Additional Test Equipment/Special Tools:
 Breakout Box Tool Kit, 12311066

Equipment Condition:
 Tank parked.
 Parking brake set.
 Engine shut down.
 Vehicle master power off.

- Disconnect 1W106-P1 from J2 on turret networks box.
 - See figure 9-229.
- Connect CX304-P2 (1) to breakout box (2).
- Connect CX304-P1 (3) to CX307-P3 (4).
- Connect 1W106-P1 (5) to CA520-P1 (6).
- Connect CA520-P2 (7) to CX307-P1 (8).

- Change control from SETCOM to VTM.
 - Set PWR switch (9) on CIB (10) to OFF to reset VTM (11).
 - Set PWR switch (9) to ON.
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 9-1.

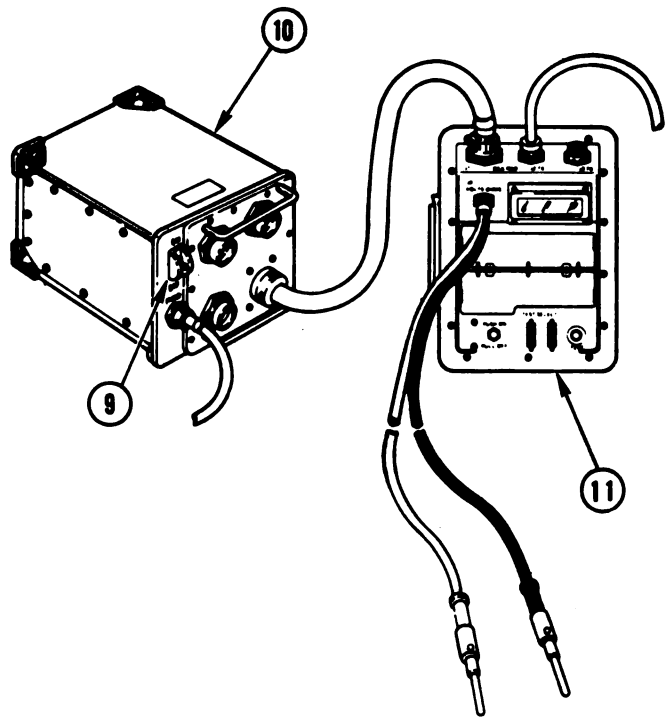
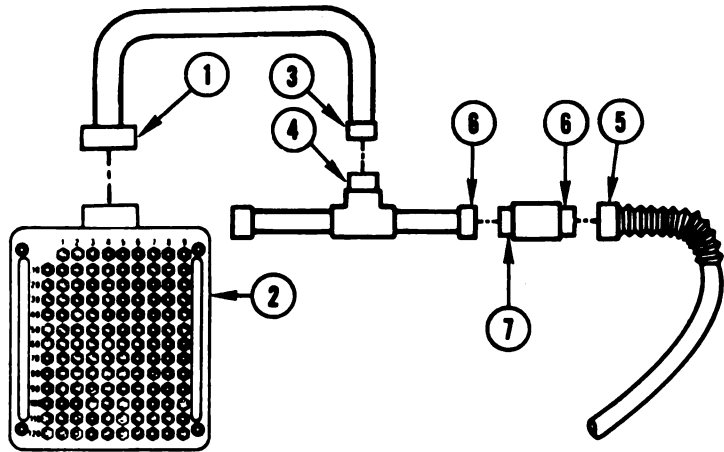


Figure 9-207 (Sheet 1 of 2)
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 Para. 9-5

ARR82-6091

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

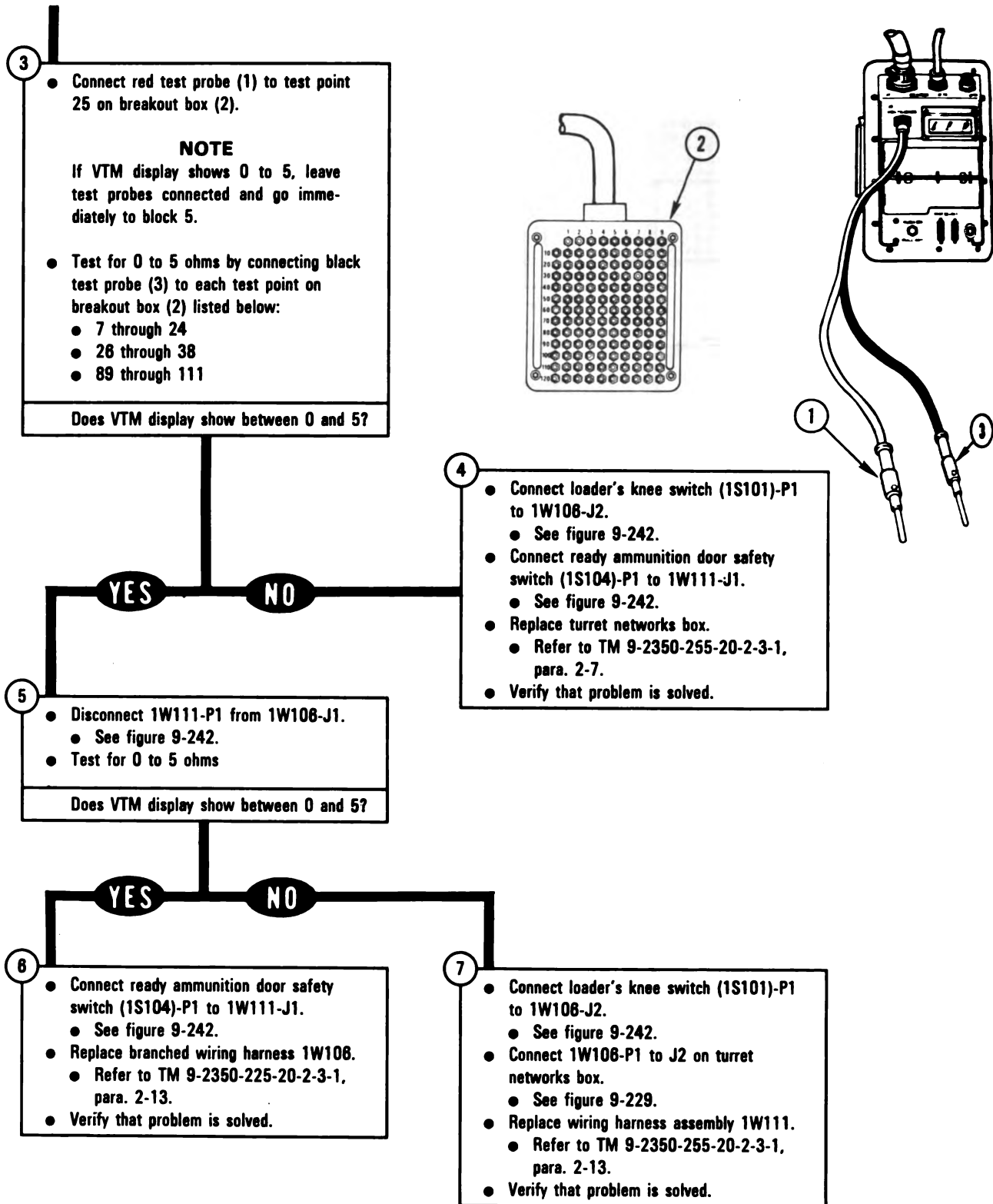


Figure 9-207 (Sheet 2 of 2)
**Volume II
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ARR82-609

**DISPLAY SHOWS -
SEE -20 MANUAL**

127044

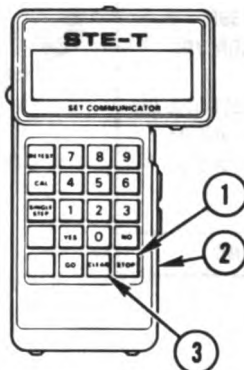
Additional Test

Equipment/Special Tools:

- Breakout Box Tool Kit, 12311068

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.



- Disconnect CX305-P1 from CA206-P2.
 - See figure 9-196.
- Disconnect 1W111-P1 from 1W106-J1.
 - See figure 9-242.

- Prepare STE to run cable test 1390.
 - Press STOP key (1) on SETCOM (2).
 - Press CLEAR key (3).
 - Enter test number 1390 on SETCOM (2).
- Run test on 1W106 between J1 and P1.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.

Does SETCOM display show GOOD?

YES

NO

3

- Replace branched wiring harness 1W106.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

Figure 9-208 (Sheet 1 of 2)
**Volume II
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ARR82-6093

9-495

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

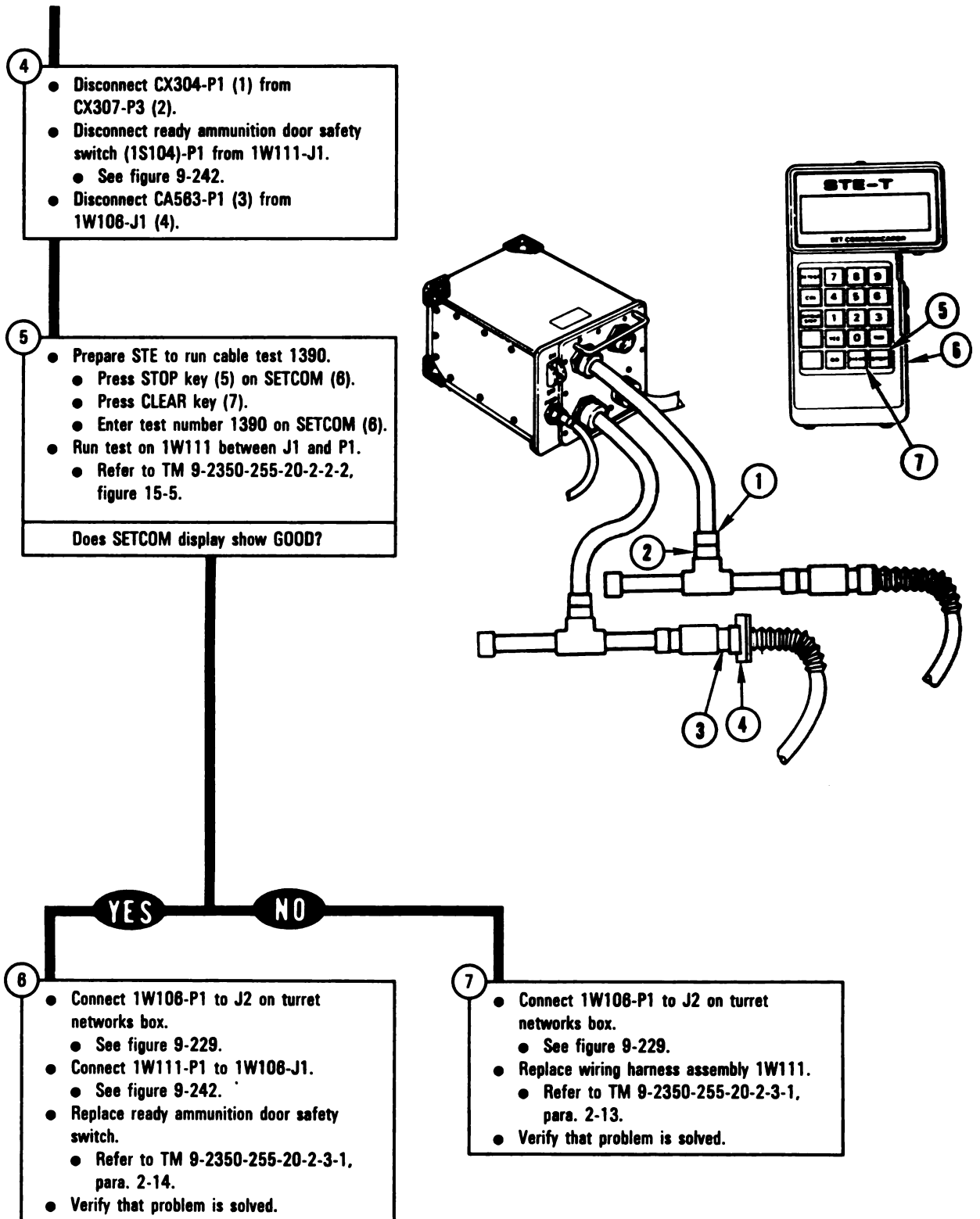


Figure 9-208 (Sheet 2 of 2)
**Volume II
Para. 9-5**

ARR82-6

Auxiliary Hydraulic Subsystem Troubleshooting Procedures

Table 9-6. Auxiliary Hydraulic Subsystem (AHS) Fault Symptom Index

Fault Symptom No.	Fault Symptom	Primary Troubleshooting Procedure (PTP)	Test No.	Alternate Troubleshooting Procedure (ATP) TM 9-2350-255-20-2-2-3
HS-1	Auxiliary Hydraulic Powerpack Does Not Start When Hydraulic Pressure Is Below 1150 psi. AUX HYDR POWER Light On	Figure 9-209	1040	Figure 18-23
HS-2	Auxiliary Hydraulic Powerpack Keeps Running With AUX HYDR POWER Switch In OFF Position	Figure 9-209	1040	Figure 18-24
HS-3	Auxiliary Hydraulic Powerpack Does Not Shut Off When Pressure Reaches 1700 psi	Figure 9-209	1040	Figure 18-25
HS-4	AUX HYDR POWER Light Stays Off. Auxiliary Hydraulic Powerpack Works	Figure 9-209	1040	Figure 18-26
HS-5	Auxiliary Hydraulic Powerpack And AUX HYDR POWER Light Do Not Come On	Figure 9-209	1040	Figure 18-27
HS-6	Auxiliary Hydraulic Powerpack Does Not Build Hydraulic Pressure Or Sufficient Hydraulic Pressure While Running	Figure 9-209	-	-
HS-7	Auxiliary Hydraulic Powerpack Cycles Too Often	Figure 9-209	-	-

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

SYMPTOMS AHS-1 through AHS-7

**AUXILIARY HYDRAULIC SUBSYSTEM
FOUND FAULTY DURING TANK
OPERATION**

Common Tools:

- Pliers, slip joint, conduit style with plastic jaw insert

Supplies:

Blocks, wood

Test Equipment/Special Tools:

NOTE

Do not get the following equipment until told to do so further on in this procedure.

- STE-M1/FVS Test Set, 12322400

Equipment Condition:

- Tank parked where it is safe to traverse turret, elevate main gun, and pivot tank.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

CAUTION

Faulty hydraulic subsystem may cause failure of parking brake. Make sure wood blocks (1) are under each end of both tracks (2).

NOTE

- Read TM 9-2350-255-20-1-3-4, para. 8-4, before doing any work.
- Read para. 9-1 before doing any work.
- Open turret access door and traverse turret to check assemblies, fittings and lines under the turret; lock turret.
- Refer to TM 9-2350-255-10.

NOTE

Notify your supervisor that this procedure may require troubleshooting and replacement of components in the hull area.

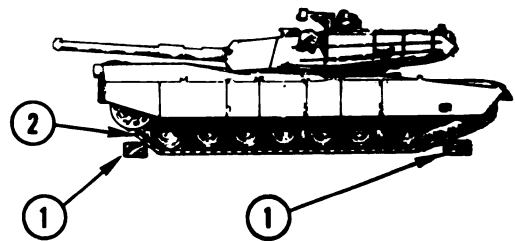
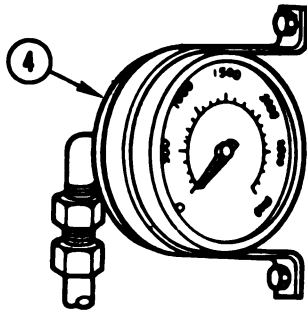
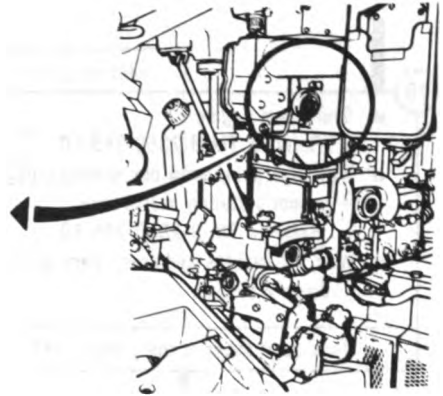


Figure 9-209 (Sheet 1 of 21)
**Volume II
Para. 9-6**

ARR82-

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**



Set up tank controls for standard initial test conditions.
 ● Refer to para. 9-9, table 9-7.

Is symptom AHS-7 being checked?

NO **YES**

Is symptom AHS-6 being checked?

YES **NO**

Reduce hydraulic pressure to zero psi by operating bilge pump.
 ● Refer to TM 9-2350-255-10.
 Set TURRET POWER switch (1) to ON.
 Set AUX HYDR POWER switch (2) on commander's control panel (3) to ON.
 Check dial pressure gage (4) to see if hydraulic pressure increases.

Does hydraulic pressure increase?

NO **YES**

Set AUX HYDR POWER switch (2) to OFF.
 Start engine.
 ● Refer to TM 9-2350-255-10.
 Check dial pressure gage (4) to see if hydraulic pressure is at least 1500 psi.

Does dial pressure gage show at least 1500 psi?

YES **NO**

4 Go to block 17.

6 Go to block 40.

8 Go to block 31.

9 ● Do troubleshooting procedure for symptom MHS-2, (Gage Shows Less Than 1500 PSI With Engine Running And Turret Power On).
 ● See figure 9-2.

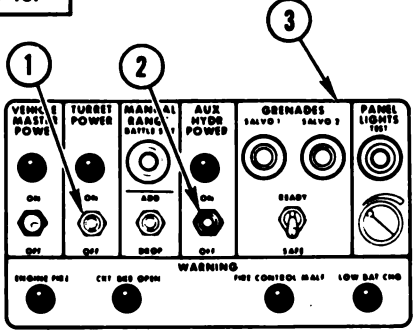


Figure 9-209 (Sheet 2 of 21)
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ARR82-6096

9-499

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

10

- Shut down engine.
 - Refer to TM 9-2350-255-10.
- Run bilge pump until dial pressure gage (1) in gunner's station shows zero.
 - Refer to TM 9-2350-255-10.
- Wait 15 minutes and then check gage (2) in driver's station.

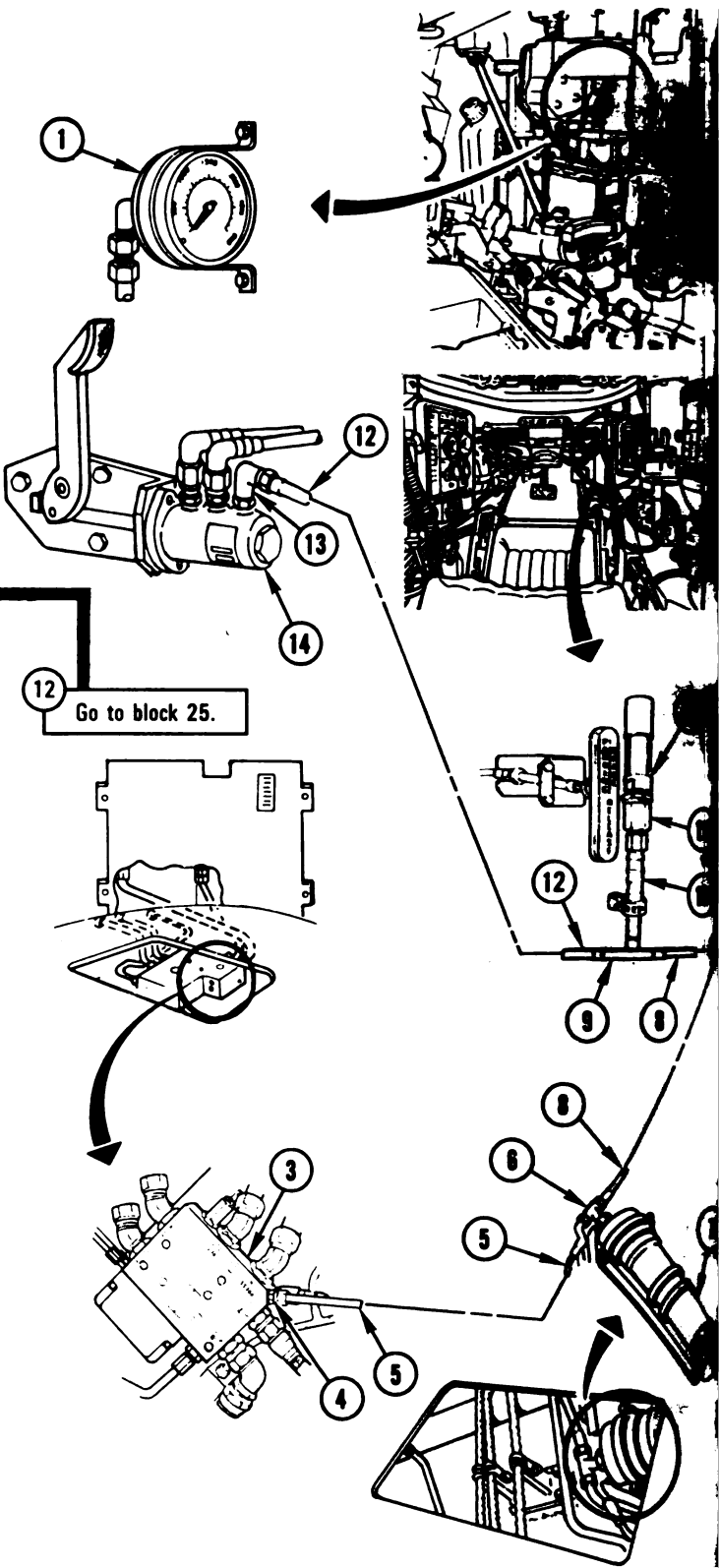
Does gage show in the green area?

NO **YES**

11

- Check for damage or leaks on adapters, assemblies, fittings and tubes listed below:
 - Hydraulic distribution manifold (3), adapter (4), tube (5), tee (6), and parking brake hydraulic accumulator (7).
 - Tube (8), tee (9), tube (10), adapter (11), and dial pressure gage (2) in driver's station.
 - Tube (12), elbow (13), and parking brake hydraulic valve (14).

Is there damage on any adapter, assembly, fitting or tube?



*Figure 9-209 (Sheet 3 of 21)
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ARR82-609

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

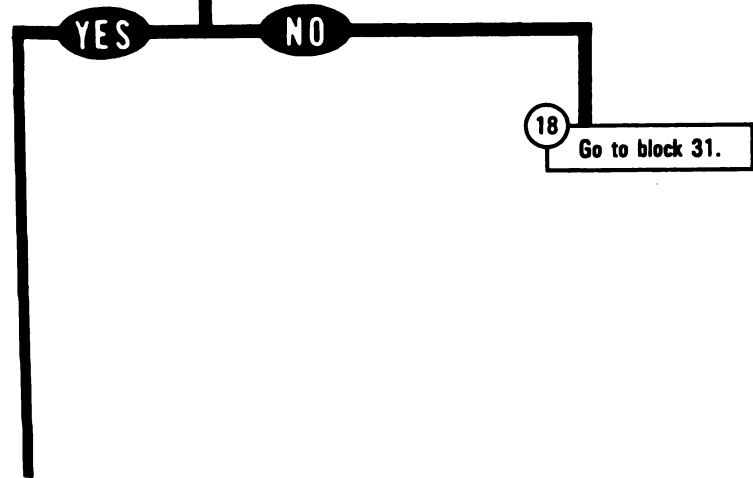
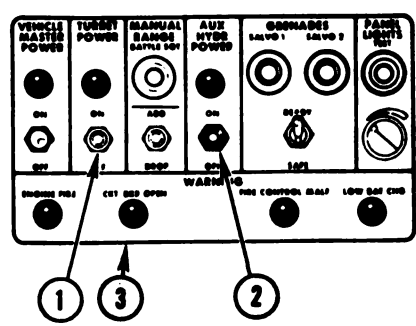
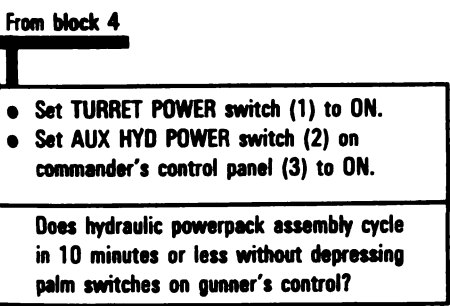
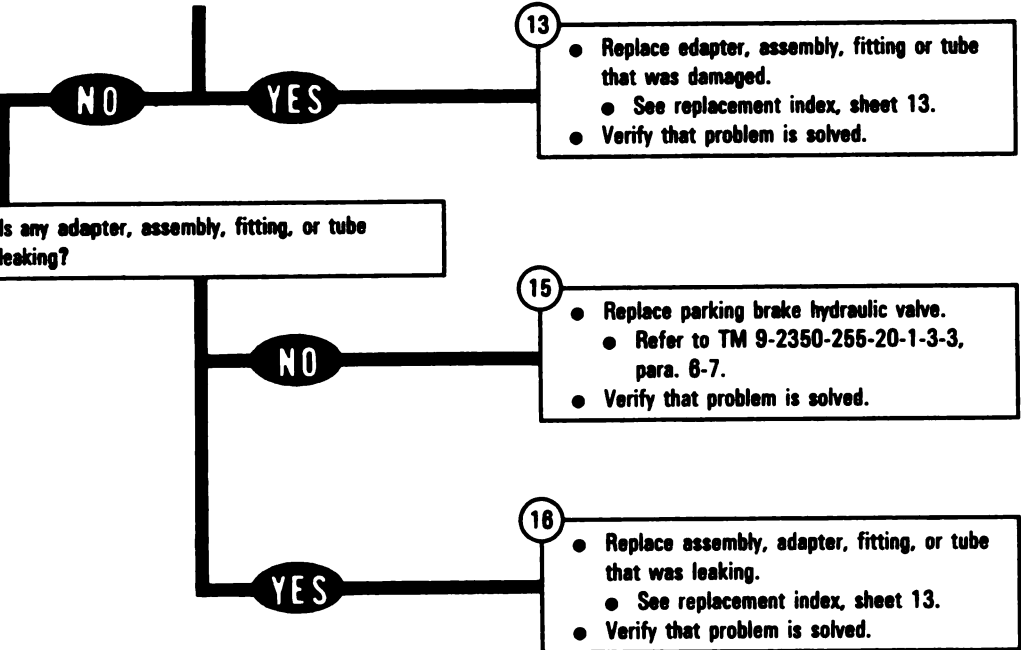


Figure 9-209 (Sheet 4 of 21)
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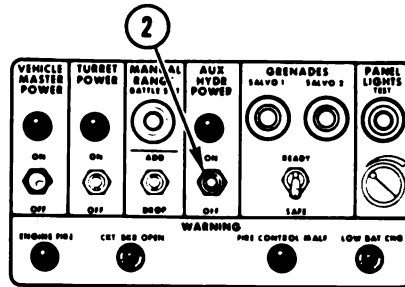
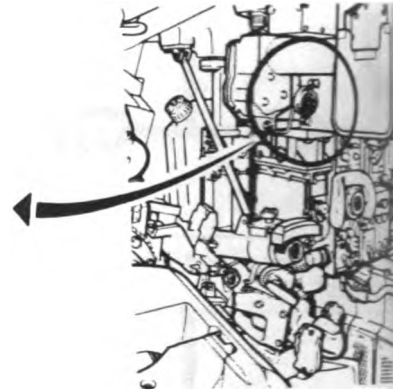
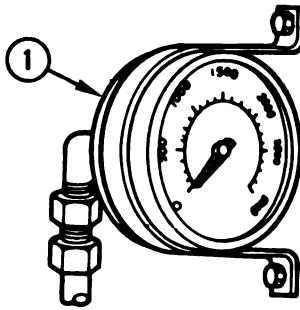
ARR82-5525

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

19

- Check to see if auxiliary hydraulic powerpack will turn on between 1000 and 1200 psi and turn off between 1500 and 1700 psi.
- Operate ready ammunition door automatically until auxiliary hydraulic powerpack turns on; refer to TM 9-2350-255-10.
- Look at dial pressure gage (1) in gunner's station.

Does auxiliary hydraulic powerpack turn on between 1000 and 1200 psi and turn off between 1500 and 1700 psi?



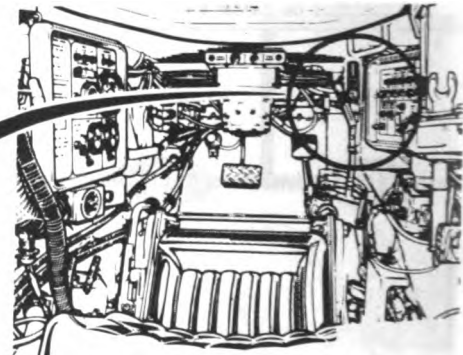
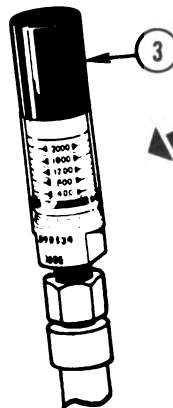
20

- Replace pressure switch.
- Refer to TM 9-2350-255-20-1-3-4, para 8-9.
- Verify that problem is solved.

21

- Set AUX HYDR POWER switch (2) to OFF.
- Reduce hydraulic pressure to zero psi, by operating bilge pump.
- Refer to TM 9-2350-255-10.
- Look at pressure gage (3) in driver's station.

Is pressure level in green area?



22

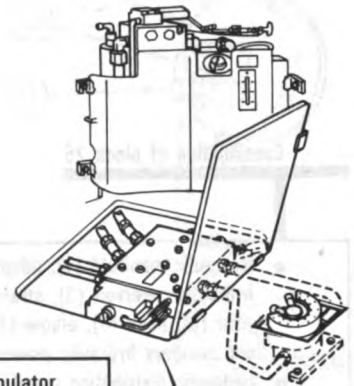
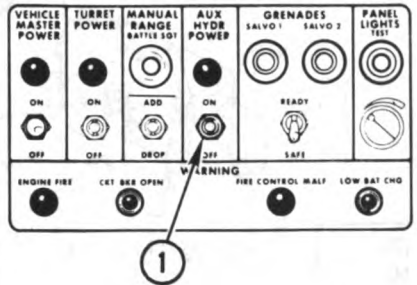
Go back to block 11.

Figure 9-209 (Sheet 5 of 21)
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TM 9-2350-255-20-2-2-1 HYDRAULIC AND GUN/TURRET DRIVE SYSTEM TROUBLESHOOTING

Set AUX HYDR POWER switch (1) to ON.
When auxiliary hydraulic powerpack shuts off, set AUX HYDR POWER switch (1) to OFF.
Check main accumulator pressure.
● Refer to TM 9-2350-255-10.

Is main accumulator pressure OK?



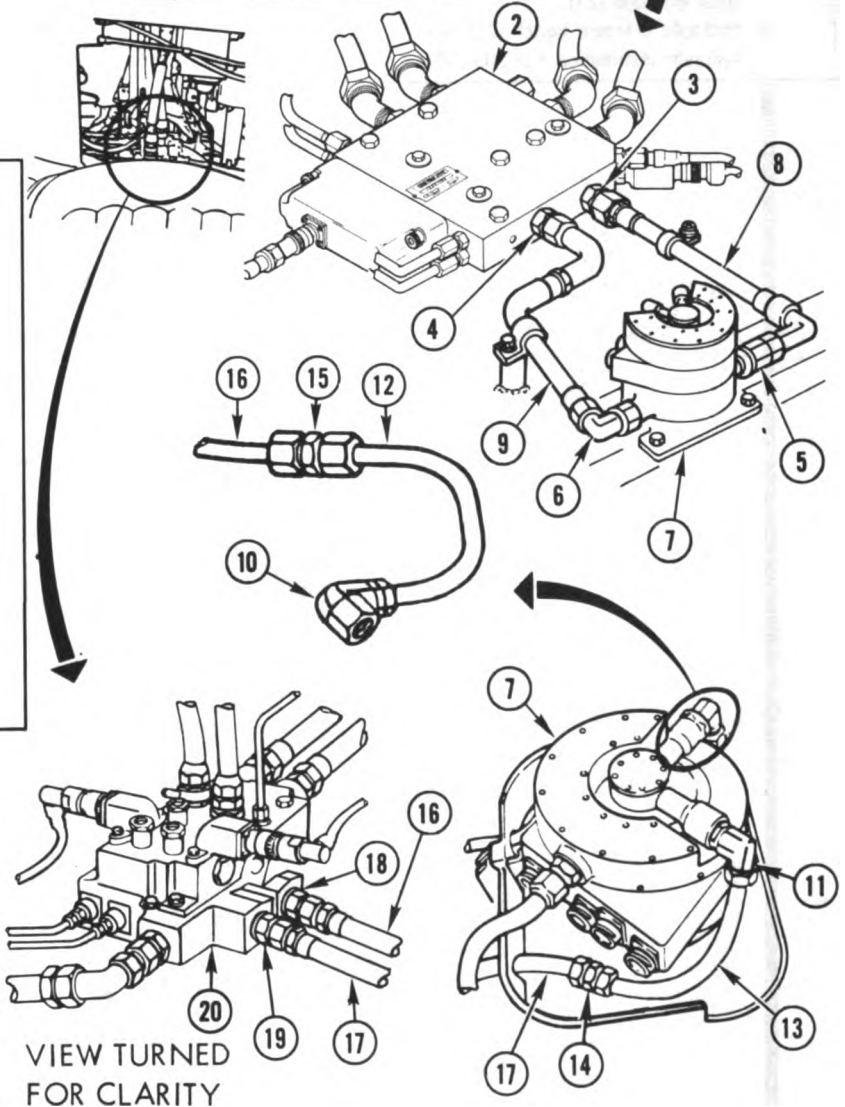
YES **NO**

24

- Service or replace hydraulic accumulator.
- Refer to TM 9-2350-255-20-2-3-2, para. 4-10.
- Verify that problem is solved.

From block 12

- Remove slipping access cover.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-8.
- Remove shield.
 - Refer to TM 9-2350-255-20-1-3-3, para. 8-11.
- Remove baffle plate.
 - Refer to TM 9-2350-255-20-2-3-2, para. 3-16.
- Check for leaks on assemblies, adapters, fittings, hoses and tubes listed below:
 - Hydraulic distribution manifold (2), adapters (3,4,5), elbow (6), hull/turret slipping (7), pressure hose (8), and return hose (9).
 - Elbows (10,11), tubes (12,13), nipples (14,15), hoses (16,17), adapters (18,19), and hydraulic turret valve (20).



VIEW TURNED FOR CLARITY

Figure 9-209 (Sheet 6 of 21)
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ARR82-6099

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

Continuation of block 25

- Hydraulic manifold (1), adapter (2), hydraulic reservoir (3), strainer (4), tube (5), hose (8), elbow (7), reducer (8), and auxiliary hydraulic powerpack (9).
- Hydraulic distribution manifold (10), elbows (11,12), tubes (13,14), nipple (15), elbow (16), hoses (17,18), elbows (19,20), and hydraulic filter manifold (21).
- Hydraulic pressure switch (22) on hydraulic distribution manifold (10).

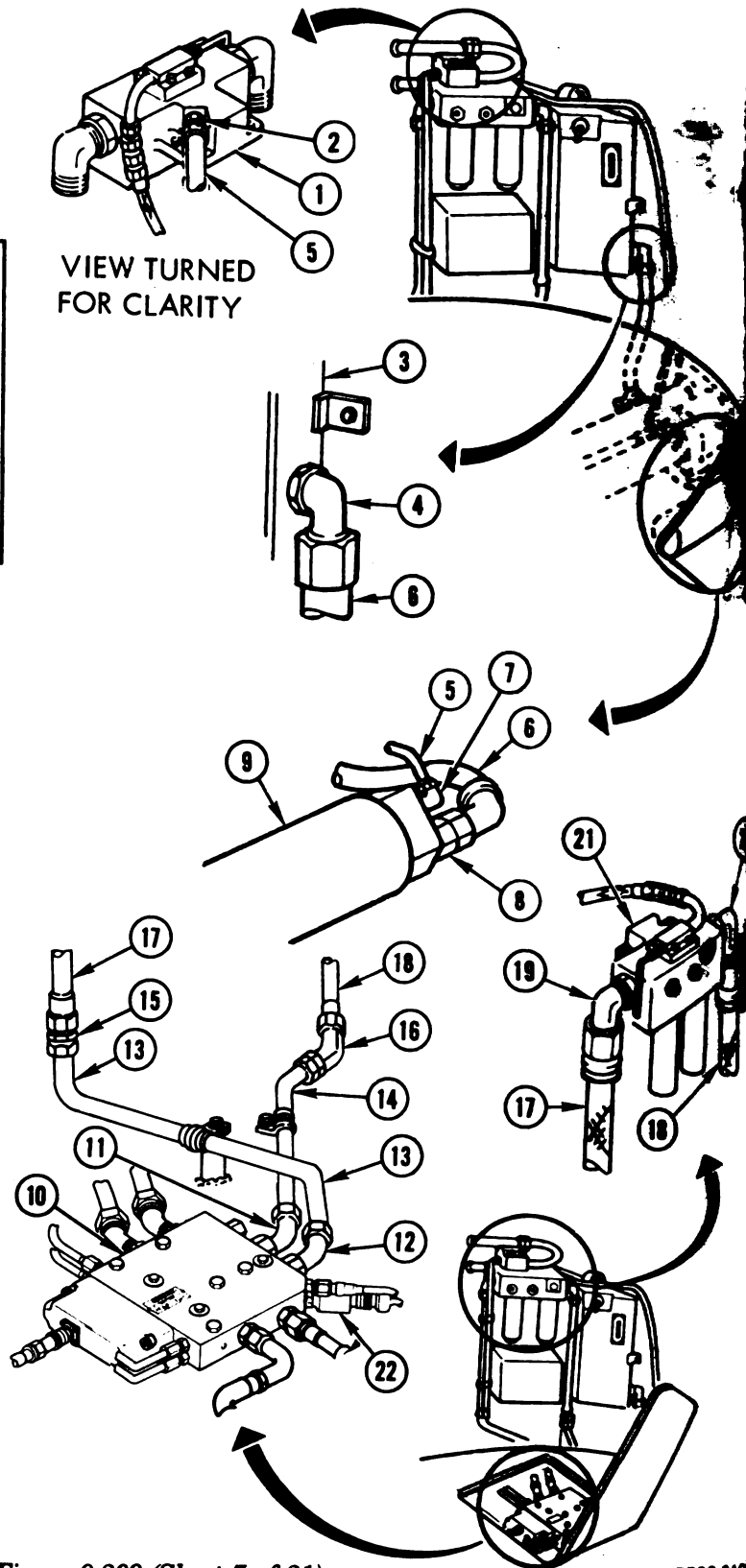


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TM 9-2350-255-20-2-2-1
 HYDRAULIC AND GUN/TURRET DRIVE
 SYSTEM TROUBLESHOOTING

Continuation of block 25

- Hydraulic accumulator (1), reducer (2), hose assembly (3), adapter (4), and hydraulic turret valve (5).
- Hydraulic turret valve (5), dampener (6), metal tube assembly (7), and nipple (8).
- Metal tube assembly (9) and nipple (10).
- Metal tube assembly (11), elbow (12), and dial pressure gage (13) in gunner's station.

Is any assembly, adapter, fitting, hose, or tube leaking?

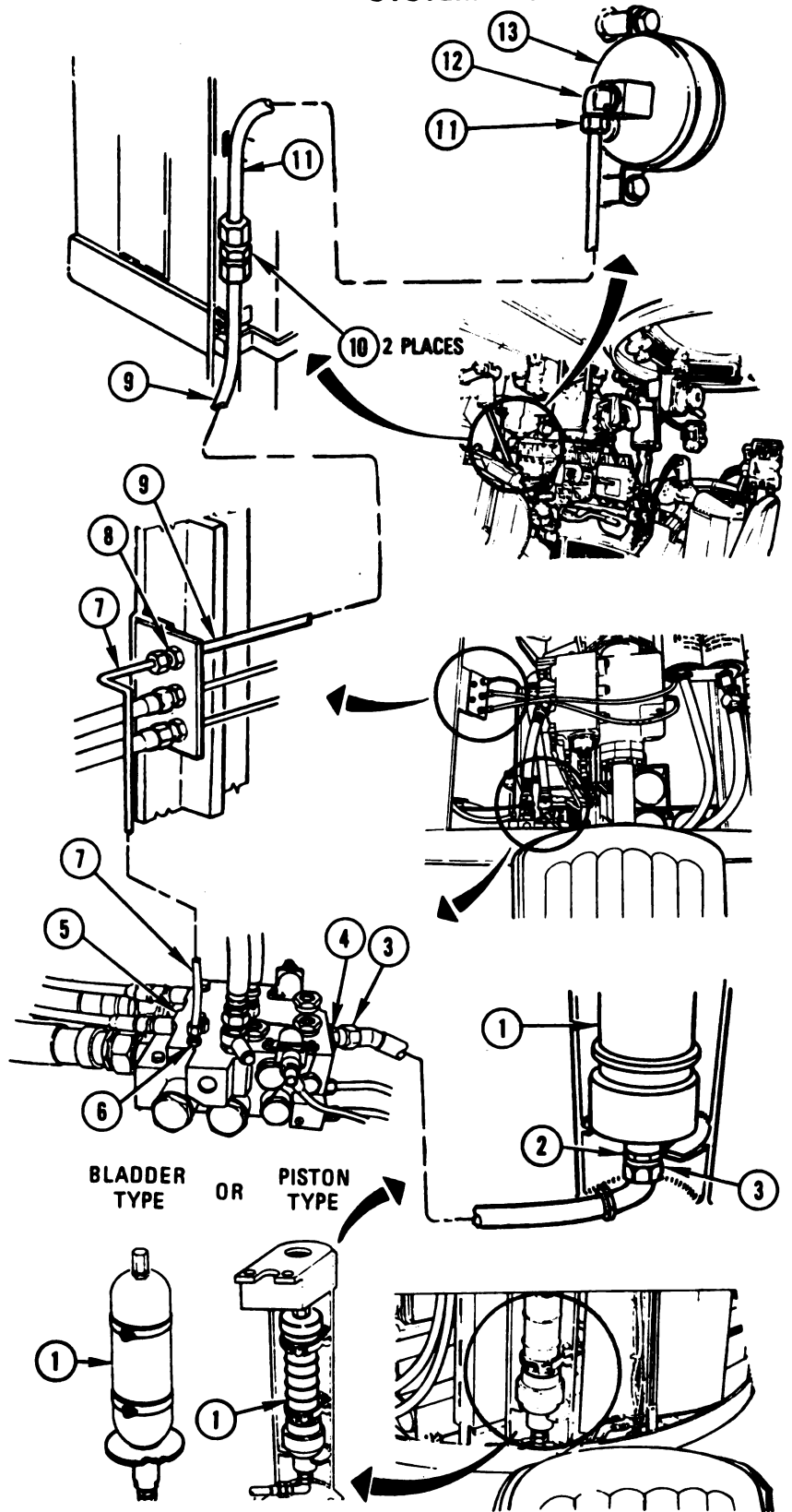


Figure 9-209 (Sheet 8 of 21)
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ARR82-6101

9-505

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

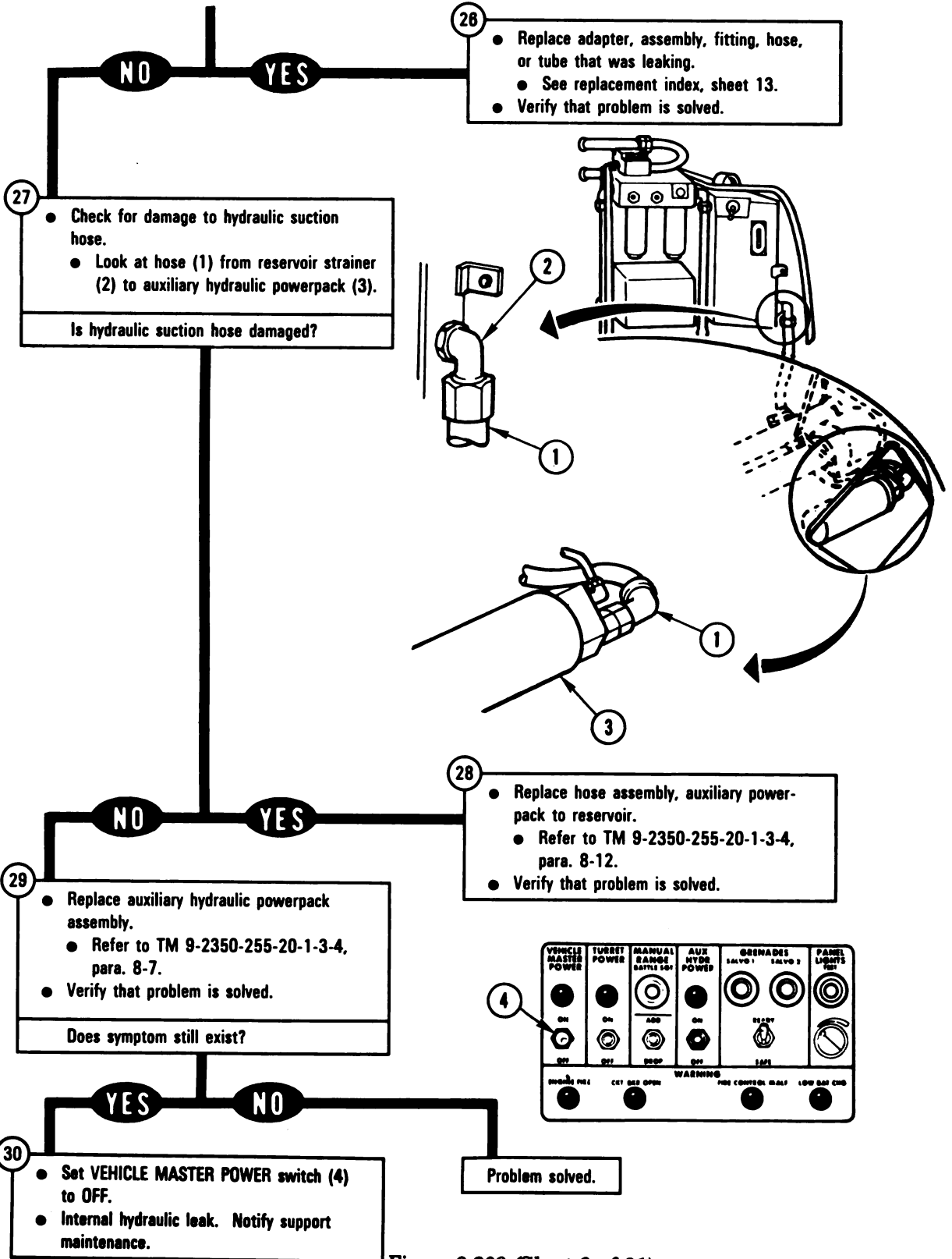


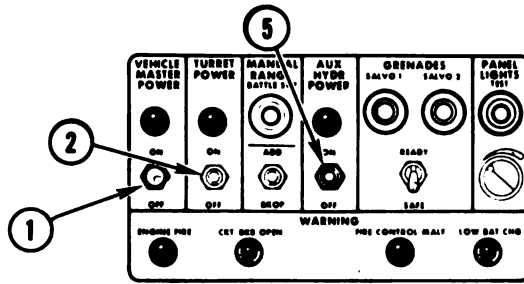
Figure 9-209 (Sheet 9 of 21)
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ARR82-610

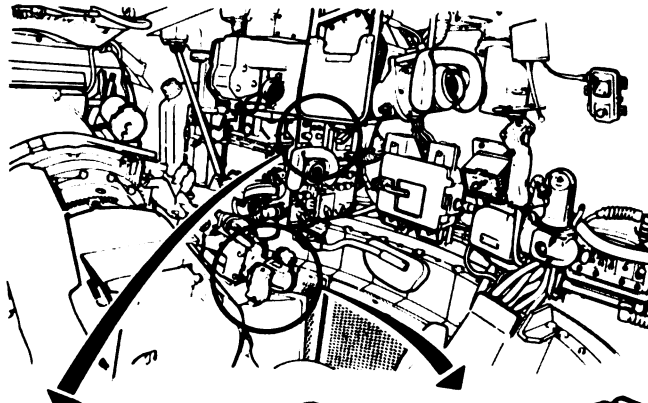
TM 9-2350-255-20-2-2-1 HYDRAULIC AND GUN/TURRET DRIVE SYSTEM TROUBLESHOOTING

From blocks 8 and 18

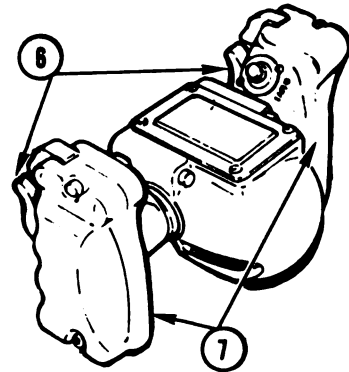
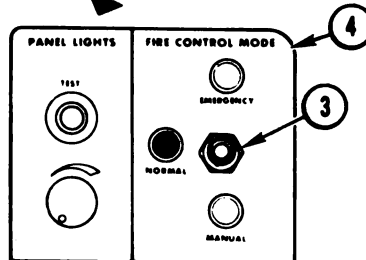
- ▶ Set VEHICLE MASTER POWER switch (1) to OFF.
- ▶ Disconnect 1W104-P4 from J1 on hydraulic turret valve.
 - See figure 9-234.
- ▶ Set TURRET POWER switch (2) to ON.



- Set FIRE CONTROL MODE switch (3) on gunner's primary sight lower control panel (4) to EMERGENCY.
- Set AUX HYDR POWER switch (5) on commander's control panel (6) to ON.
- Depress palm switch (8) on gunner's control (7).



Does symptom still exist?



YES

NO

33
Go to block 37.

Figure 9-209 (Sheet 10 of 21)
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ARR82-6103

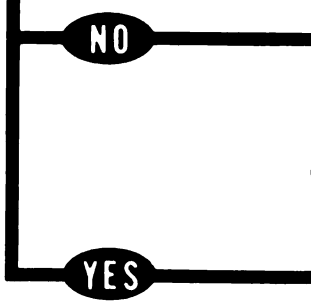
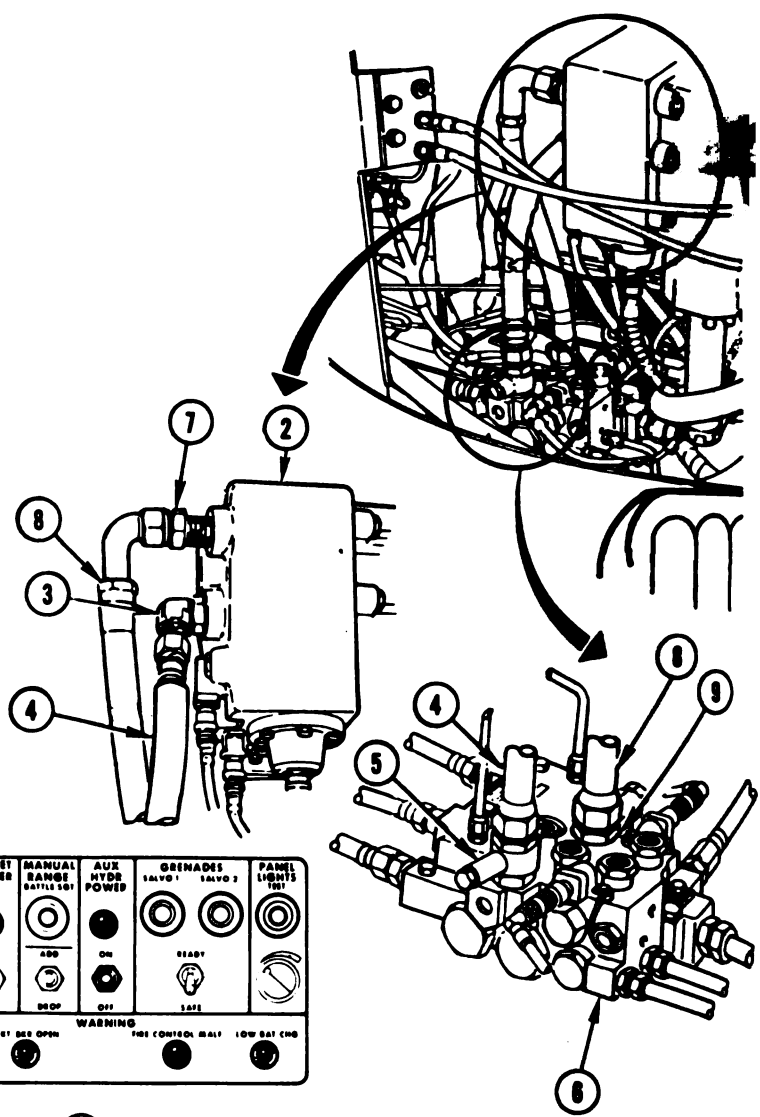
9-507

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

34

- Set **VEHICLE MASTER POWER** switch (1) to OFF.
- Check for leaks on adapters, assemblies, elbows, and hoses listed below:
 - Elevation servomechanism (2), elbow (3), hose (4), test adapter (5), and hydraulic turret valve (6).
 - Elevation servomechanism (2), adapter (7), hoses (8), test adapter (9), and hydraulic turret valve (6).

Is any adapter, assembly, elbow or hose leaking?



35

- Connect 1W104-P4 to J1 on hydraulic turret valve.
- See figure 9-234.
- Elevation servomechanism or elevating mechanism assembly is faulty. Notify support maintenance.

36

- Connect 1W104-P4 to J1 on hydraulic turret valve.
- See figure 9-234.
- Replace adapter, assembly, elbow, or hose that was leaking.
- See replacement index, sheet 13.
- Verify that problem is solved.

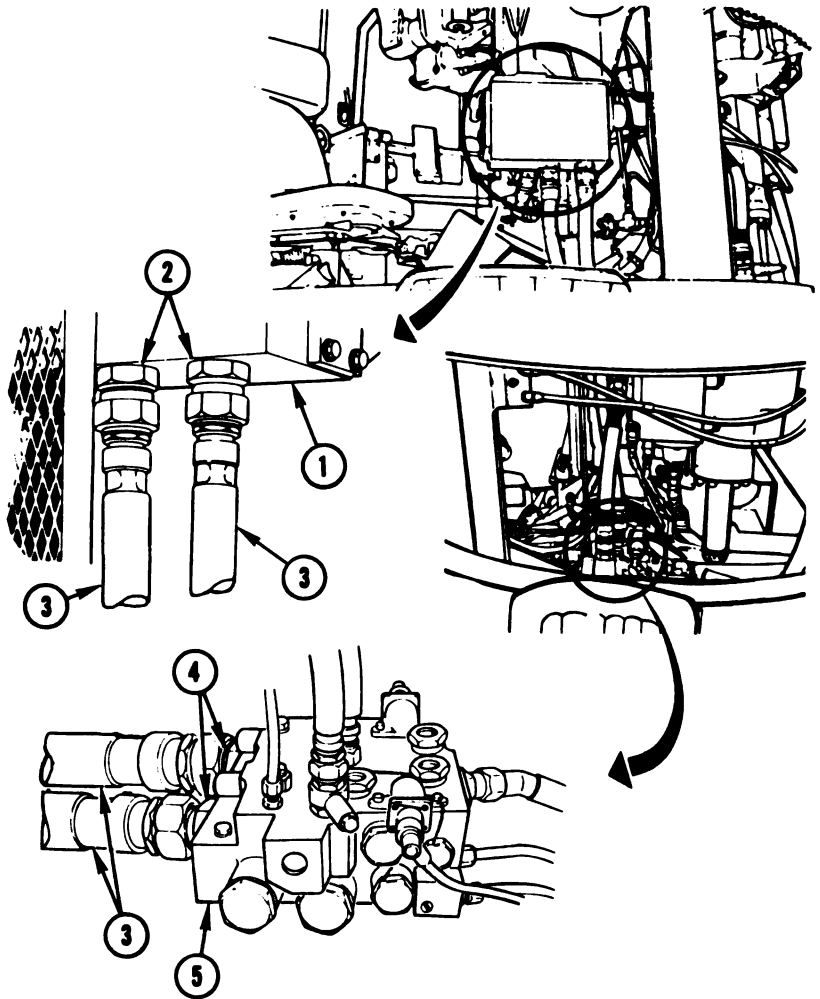
Figure 9-209 (Sheet 11 of 21)
**Volume II
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TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING

From block 33

- Check for leaks on adapters, assemblies, and hoses listed below:
 - Traverse servomechanism (1), adapters (2), hose assemblies (3), adapters (4), and hydraulic turret valve (5).

Is any adapter, assembly or hose leaking?



NO

38

- Connect 1W104-P4 to J1 on hydraulic turret valve.
- See figure 9-234.
- Traverse servomechanism or traversing mechanism assembly is faulty. Notify support maintenance.

YES

39

- Connect 1W104-P4 to J1 on hydraulic turret valve.
- See figure 9-234.
- Replace adapter, assembly, or hose that is leaking.
- See replacement index, sheet 13.
- Verify that problem is solved.

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ARR82-6105

9-509

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

Replacement Index

Hydraulic Assemblies	Reference	
	TM 9-2350-255-20-	Para.
Auxiliary Hydraulic Powerpack Assembly	1-3-4	8-7
Gage and Bushing in driver's station	1-3-3	6-7
Hull/turret Slipping Assembly	2-3-1	2-8
Hydraulic Accumulator	2-3-2	4-10
Hydraulic Dial Pressure Gage	2-3-2	4-10
Hydraulic Distribution Manifold	1-3-4	8-8
Hydraulic Filter Manifold	1-3-4	8-10
Hydraulic Pressure Switch	1-3-4	8-9
Hydraulic Reservoir Assembly	1-3-4	8-11
Hydraulic Turret Valve	2-3-2	4-10
Parking Brake Hydraulic Accumulator	1-3-4	8-13
Parking Brake Hydraulic Valve	1-3-3	6-7
Hydraulic Adapters, Fittings, Hoses, and Tubes		
Adapter on distribution manifold where tube from parking brake hydraulic accumulator connects	1-3-4, part of task 1	8-8
Adapter connected to gage in driver's station	1-3-3, part of task 1	6-7
Elbow connected to parking brake hydraulic valve	1-3-3, part of task 14	6-7
Hose assembly, auxiliary powerpack to reservoir	1-3-4	8-12
Hose assembly, hydraulic turret valve to main accumulator	2-3-2	4-7
Hose assembly, hydraulic turret valve to metal tube assembly	2-3-2	4-7
Hydraulic accumulator tee	1-3-4	8-13
Metal tube assembly, dial pressure gage, bracket to water container bracket	2-3-2	4-7
Metal tube assembly, dial pressure gage, hydraulic turret valve to bracket	2-3-2	4-7
Metal tube assembly to hull/turret slipping assembly	2-3-2	4-7
Metal tube assembly, water container bracket to dial pressure gage	2-3-2	4-7
Pressure hose assembly and tube assembly, distribution manifold to filter manifold	1-3-4	8-12
Pressure hose assembly, distribution manifold to slipping	1-3-4	8-12
Return hose assembly and tube assembly, distribution manifold to filter manifold	1-3-4	8-12
Return hose assembly, distribution manifold to slipping	1-3-4	8-12
Tube assembly, auxiliary powerpack to filter manifold	1-3-4	8-12
Tube from distribution manifold to parking brake hydraulic accumulator	Notify support maintenance	
Tube from parking brake hydraulic accumulator to gage and parking brake hydraulic valve	Notify support maintenance	

Figure 9-209 (Sheet 13 of 21)
**Volume II
Para. 9-6**

From block 6

NOTE

If you find a loose connector, go immediately to block 41.

- Check to see if an electrical connector is loose that could cause symptoms AHS-1, AHS-2, AHS-3, AHS-4, AHS-5.
- Try to turn connectors listed in connector location index, sheet 17.

Is a connector loose?

YES

NO

- Do connector inspection procedure.
- See figure 9-228.

Are any connector parts faulty?

42

Go to block 45.

YES

NO

- Replace assembly or harness that has faulty connector.
- Refer to replacement index, sheet 17.
- Verify that problem is solved.

43

- Connect loose connector.
- Refer to connector location index, sheet 17.
- Verify that problem is solved.

Does symptom still exist?

YES

NO

Problem solved.

Figure 9-209 (Sheet 14 of 21)
 Volume II
 Para. 9-6

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

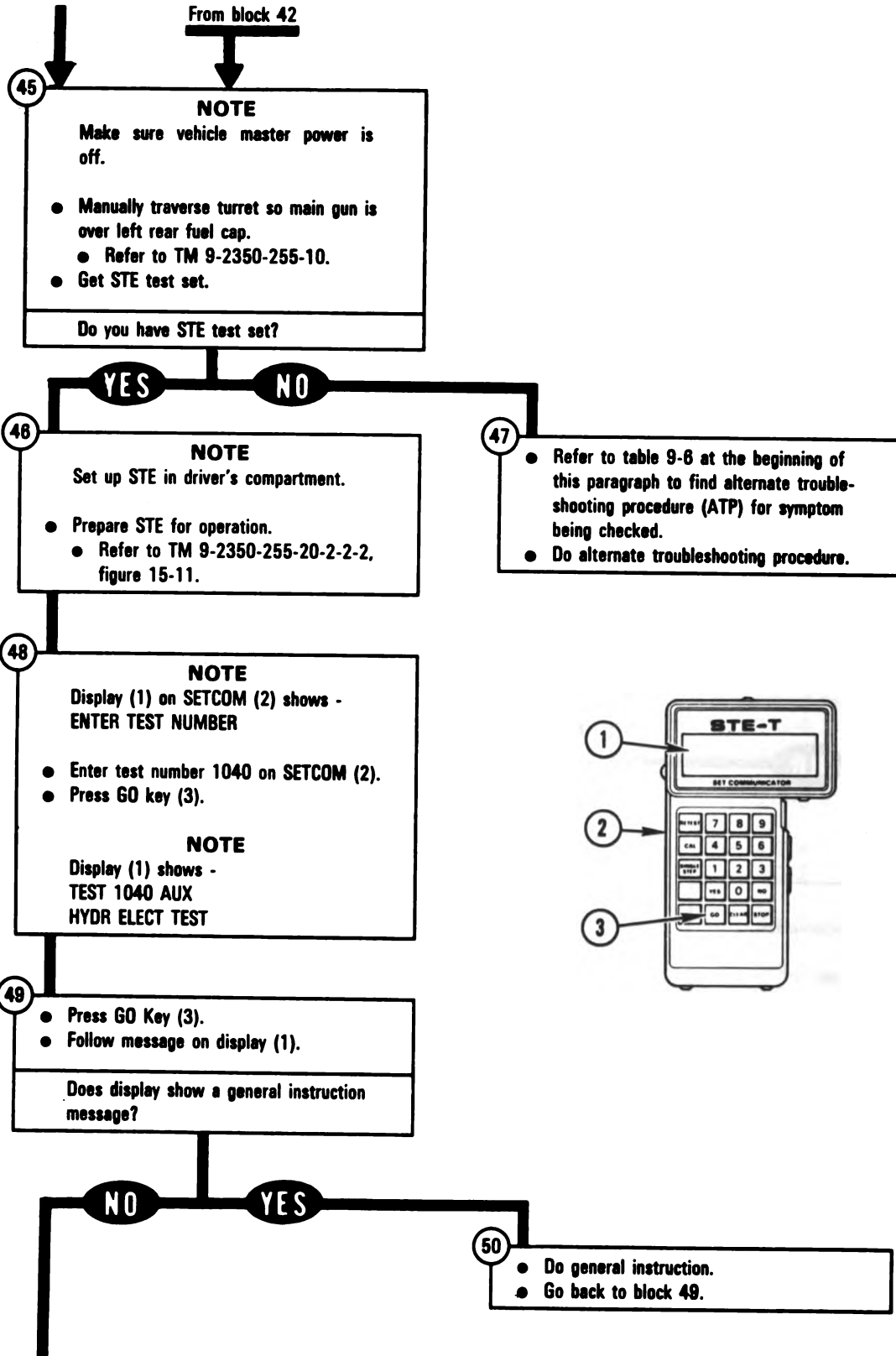


Figure 9-209 (Sheet 15 of 21)
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ARR82-

TM 9-2350-255-20-2-2-1
 HYDRAULIC AND GUN/TURRET DRIVE
 SYSTEM TROUBLESHOOTING

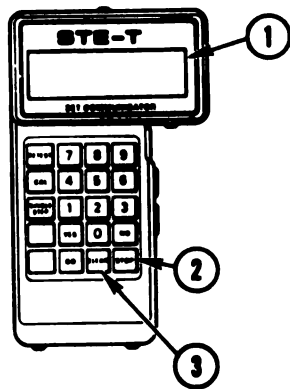
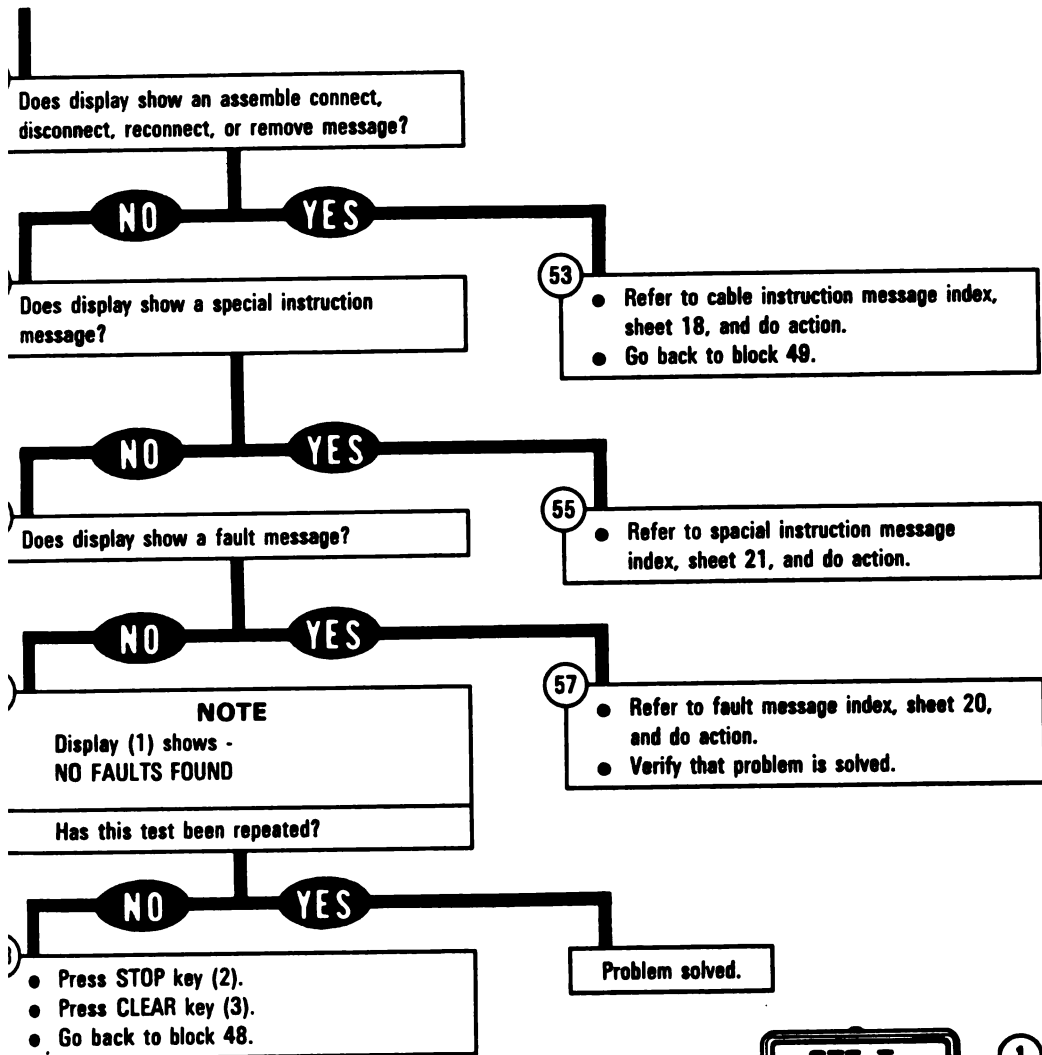


Figure 9-209 (Sheet 16 of 21)
 Volume II
 Para. 9-6

ARR82-6107

9-513

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

Connector Location Index

Harness Connector	Connects To	Figure
1W102-P1	J8 on turret networks box	9-229
1W101-P2	J11 on turret networks box	9-229
1W102-P2	J1 on commander's control panel	9-231
2W109-P1	J3 on hull/turret slipring	9-233
1W101-P1	J8 on hull/turret slipring	9-233
2W105-P2	J3 on hull networks box	9-241
2W109-P3	J7 on hull networks box	9-241
2W112-P1	J11 on hull networks box	9-241
2W106-P1	J12 on hull networks box	9-241
2W106-P2	2W107-J1	9-241
2W107-P3	2W105-J1	9-241
2W105-P7	J1 on hydraulic distribution manifold	9-243
2W112-P3	J1 on hydraulic pressure switch	9-243
2W112-P4	J1 on auxiliary hydraulic powerpack	9-243
2W106-P4	J1 on driver's instrument panel	9-244
2W106-P5	J2 on driver's instrument panel	9-244

Replacement Index

Assembly or Harness	TM 9-2350-2550-20-	Para.
Auxiliary hydraulic powerpack assembly	1-3-4	8-7
Branched wiring harness 2W105, 2W107, or 2W109	Notify support maintenance	-
Branched wiring harness 2W106 or 2W112	1-3-6	11-18
Commander's control panel assembly	2-3-1	2-5
Distribution manifold	1-3-4	8-8
Driver's instrument panel	1-3-6	11-14
Hull networks distribution box	1-3-6	11-12
Hull/turret slipring assembly	2-3-1	2-8
Hydraulic Pressure switch	1-3-4	8-9
Turret networks box	2-3-1	2-7
Wiring harness assembly 1W101 or 1W102	2-3-1	2-13

Figure 9-209 (Sheet 17 of 21)
**Volume II
Para. 9-6**

Auxiliary Hydraulic Subsystem Cable Instruction Message Index

Cable Instruction Message	Action
ASSEMBLE CX304, CX307 AND CA529/30	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX304 to P3 on DBA CX307. ● Connect P2 on adapter CA529 to P1 on DBA CX307. ● Connect P2 on adapter CA530 to P2 on DBA CX307. ● See figure 9-214.
ASSEMBLE CX305, CX307 AND CA530	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX305 to P3 on DBA CX307. ● Connect P2 on adapter CA530 to P1 on DBA CX307. ● See figure 9-216.
ASSEMBLE CX305, CX308 AND CA448	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX305 to P3 on DBA CX308. ● Connect P2 on adapter CA448 to P1 on DBA CX308. ● See figure 9-217.
ASSEMBLE CX305, CX308 AND CA447/48	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX305 to P3 on DBA CX308. ● Connect P2 on adapter CA447 to P1 on DBA CX308. ● Connect P2 on adapter CA448 to P2 on DBA CX308. ● See figure 9-213.
CONNECT CIB J1 (CX304) TO HNB TJ1 (CA607)	<ul style="list-style-type: none"> ● Connect P1 on adapter CA607 to TJ1 on hull networks box. ● Connect P1 on CIB cable CX304 to P2 on adapter CA607. ● See figure 9-212. ● Connect P2 on CIB cable CX304 to J1 on CIB. ● See figure 9-210.
CONNECT CIB J2 (CX305) TO TNB TJ1 (CA206)	<ul style="list-style-type: none"> ● Connect P1 on adapter CA206 to TEST 1 on turret networks box. ● Connect P1 on CIB cable CX305 to P2 on adapter CA206. ● See figure 9-211. ● Connect P2 on CIB cable CX305 to J2 on CIB. ● See figure 9-210.
CONNECT DBA BETWEEN 1W102 ← → TNB J8	<ul style="list-style-type: none"> ● Connect P1 on adapter CA529 to J8 on turret networks box. ● Connect 1W102-P1 to P1 on adapter CA530. ● See figure 9-214.
CONNECT DBA BETWEEN 1W109 ← → HNB J7	<ul style="list-style-type: none"> ● Connect P1 on adapter CA447 to J7 on hull networks box. ● Connect 2W109-P3 to P1 on adapter CA448. ● See figure 9-213.
CONNECT DBA TO 1W102 P1	<ul style="list-style-type: none"> ● Connect 1W102-P1 to P1 on adapter CA530. ● See figure 9-216.

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

Auxiliary Hydraulic Subsystem Cable Instruction Message Index (Continued)

Cable Instruction Message	Action
CONNECT DBA TO 2W109 P3	<ul style="list-style-type: none"> ● Connect 2W109-P3 to P1 on adapter CA448. ● See figure 9-217.
DISCONNECT 1W101 ← → TNB J11	<ul style="list-style-type: none"> ● Disconnect 1W101-P2 from J11 on turret networks box. ● See figure 9-229.
DISCONNECT 1W102 ← → TNB J8	<ul style="list-style-type: none"> ● Disconnect 1W102-P1 from J8 on turret networks box. ● See figure 9-229.
DISCONNECT 2W109 ← → HNB J7	<ul style="list-style-type: none"> ● Disconnect 2W109-P3 from J7 on hull networks box. ● See figure 9-241.
REMOVE CX304 AND ADAPTER AT HNB TJ1	<ul style="list-style-type: none"> ● Disconnect P1 on adapter CA607 from TJ1 on hull networks box. ● Disconnect P2 on adapter CA607 from P1 on CIB cable CX304. ● See figure 9-212.
REMOVE CX305 AND ADAPTER AT TNB TJ1	<ul style="list-style-type: none"> ● Disconnect P1 on adapter CA206 from TEST 1 on turret networks box. ● Disconnect P2 on adapter CA206 from P1 on CIB cable CX305. ● See figure 9-211.

Figure 9-209 (Sheet 19 of 21)
**Volume II
Para. 9-6**

Auxiliary Hydraulic Subsystem Fault Message Index

Fault Message	Action
ALTY AUX HYDR PUMP OR 2W112 104022	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 9-222.
ALTY AXHPS, HNB 2W112 104021 104030	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 9-221. ● See figure 9-225.
ALTY BATTERY/ CHARGING SYS 109912	<ul style="list-style-type: none"> ● Charge batteries. ● Refer to TM 9-2350-255-10. ● Go back to block 46.
ALTY HNB 104020 104028 104029 104031	<ul style="list-style-type: none"> ● Replace hull networks box. ● Refer to TM 9-2350-255-20-1-3-6, para. 11-12.
ALTY HNB OR 112 104009	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 9-219.
ALTY HULL POWER STEM 109908	<ul style="list-style-type: none"> ● Run hull power distribution test number 1000. ● Refer to TM 9-2350-255-20-1-2-2, figure 16-1.
ALTY HYDR STEM 104006 104007	<ul style="list-style-type: none"> ● Do troubleshooting for symptom AHS 6. ● Go back to block 1.
ALTY PANEL LGT SUPPLIES 133102	<ul style="list-style-type: none"> ● Test set found a panel light problem. Refer to panel light symptoms in para. 6-1 index and correct panel light problem before continuing test.
ALTY SRING, 1W101 2W109 104033	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 9-226.
ALTY SRING, 2W109, IB OR 1W101 104027	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 9-224.
ALTY TCP 1W102 104016 104019 104035	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 9-220. ● See figure 9-220 ● See figure 9-227.

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

Auxiliary Hydraulic Subsystem Fault Message Index (Continued)

Fault Message	Action
FAULTY TNB 104011 104012 104015 104017 104018 104026 104032 104034	<ul style="list-style-type: none"> ● Replace turret networks box. ● Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
FAULTY TNB, TCP OR 1W102 104003	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 9-218.
FAULTY VEH/TURRET POWER CNTL 120703	<ul style="list-style-type: none"> ● Run vehicle/turret power control test number 1200. ● See figure 8-1.
SYSTEM ERROR 109902 109903	<ul style="list-style-type: none"> ● Run STE self test number 666. ● Refer to TM 9-2350-255-20-2-2-2, figure 15-3, block 26. ● Repeat auxiliary hydraulic electrical test number 1040. ● Press STOP and CLEAR keys on SETCOM. ● Go back to block 48. ● If same error message appears on SETCOM display, notify support maintenance that test set is faulty.

Auxiliary Hydraulic Subsystem Special Instruction Message Index

Special Instruction Message	Action
AT MAX PRESS DOES HYDR PUMP SHUT OFF?	<ul style="list-style-type: none"> ● Does auxiliary hydraulic powerpack shut off when pressure reaches between 1500 and 1700 psi? ● Go back to block 49.
BE SURE HYDRAULIC PRESSURE IS ZERO	<ul style="list-style-type: none"> ● Reduce hydraulic pressure by running bilge pump. ● Refer to TM 9-2350-255-10. ● Go back to block 49.
SEE - 20 MANUAL 104023	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 9-223.

Figure 9-209 (Sheet 21 of 21)
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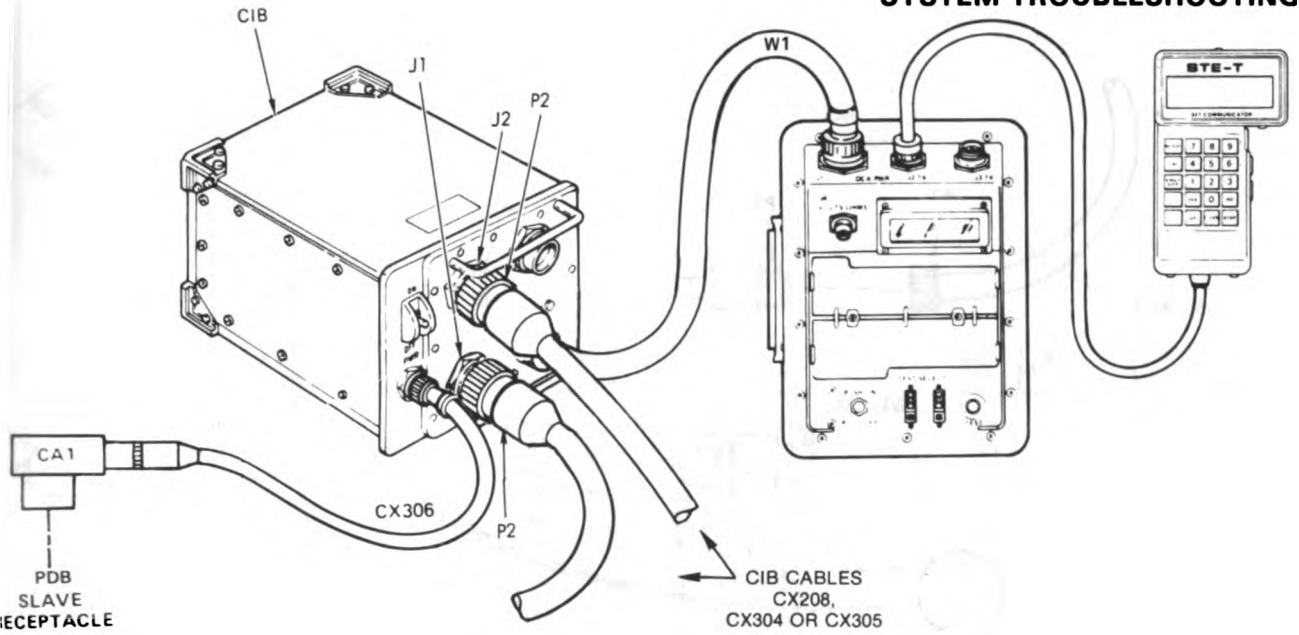
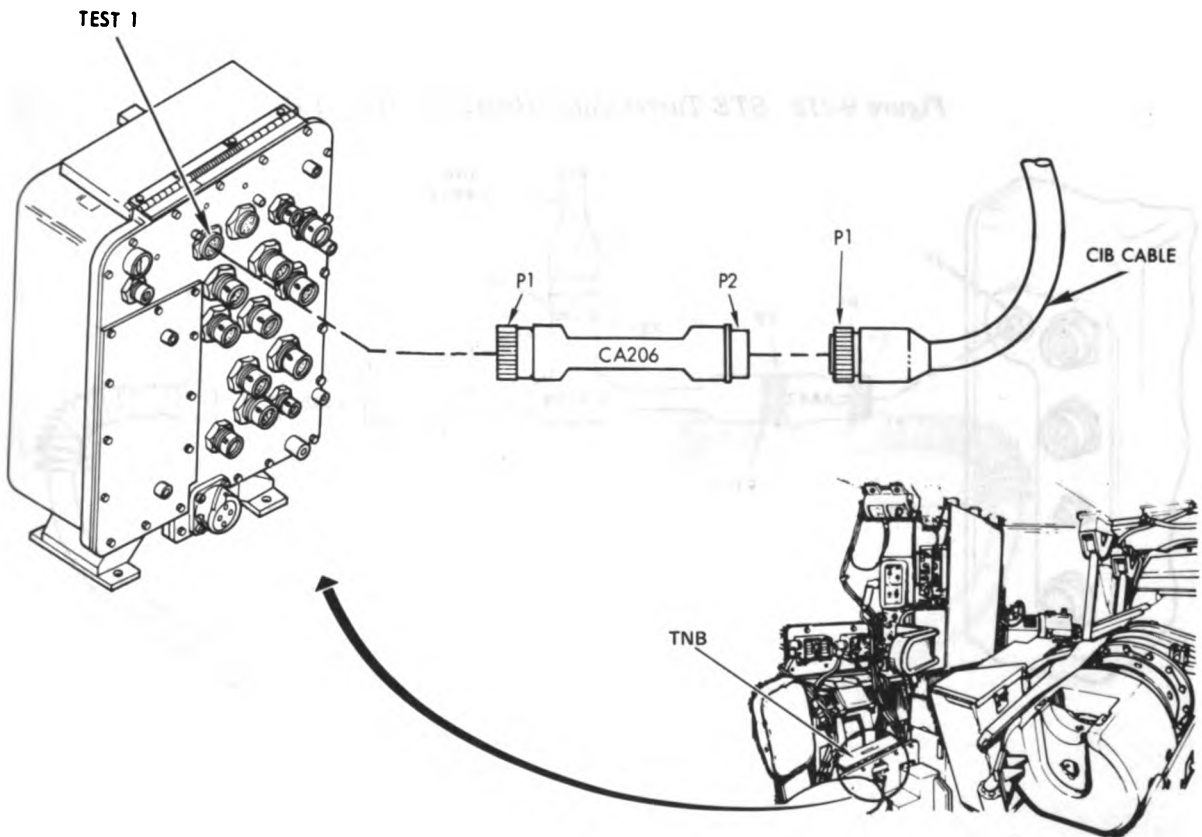


Figure 9-210. STE Turret Cable Hookup to CIB



**Figure 9-211. STE Turret Cable Hookup to TNB-Test 1
Volume II
Para. 9-6**

ARR82-6108

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

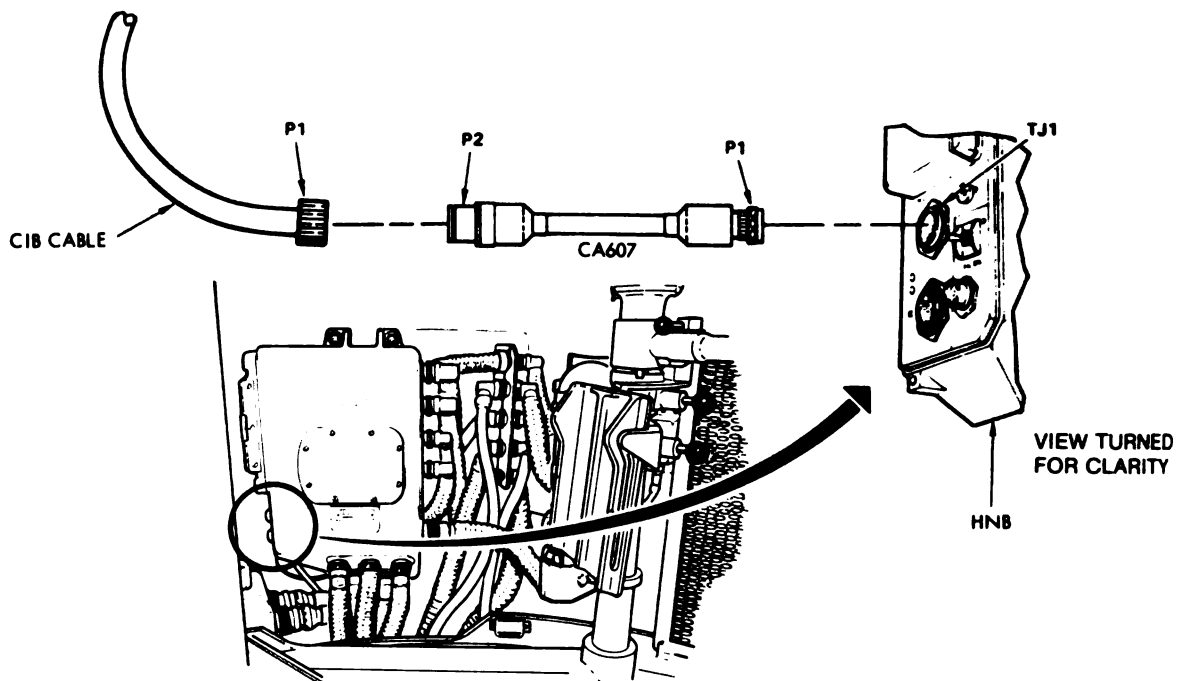


Figure 9-212. STE Turret Cable Hookup to HNB-TJ1

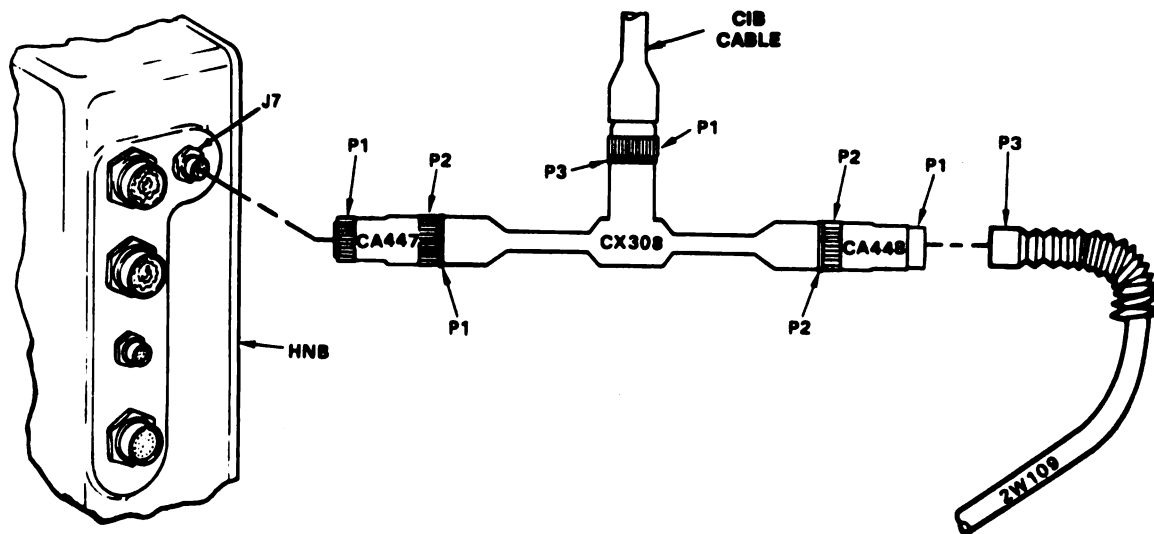


Figure 9-213. STE Turret Cable Hookup Between HNB-J7 And 2W109-P3
Volume II
Para. 9-6

ARR82-6109

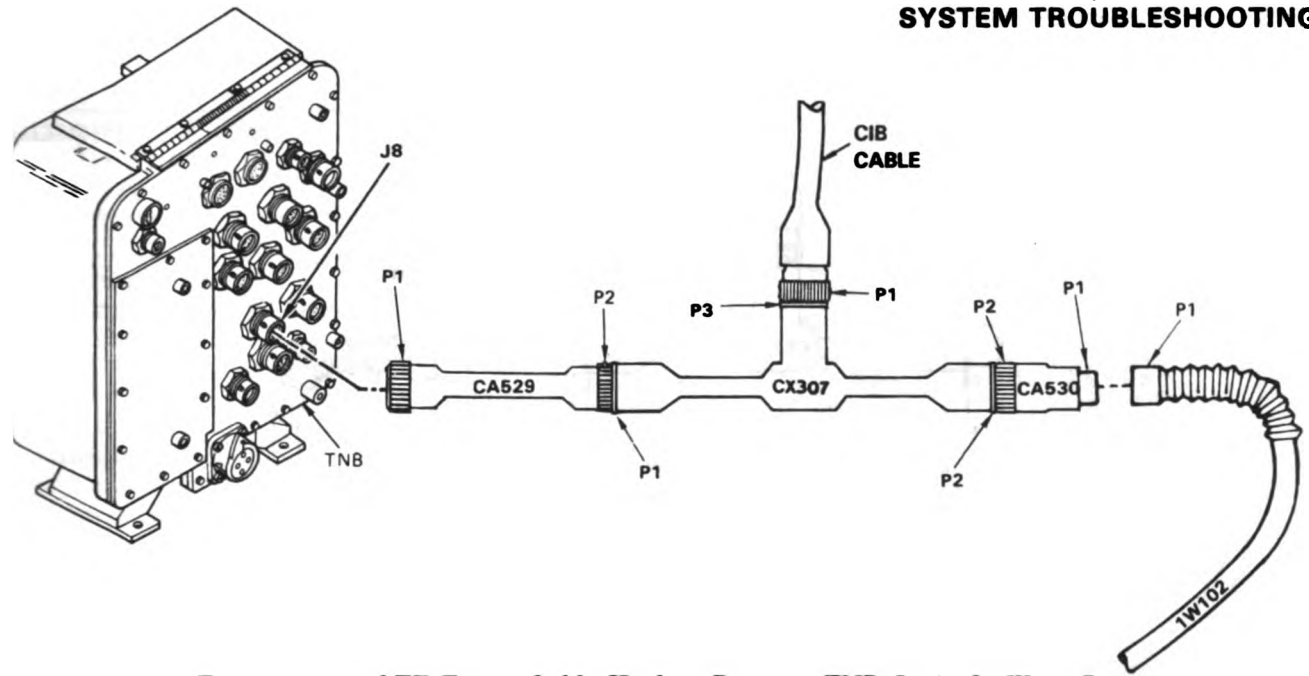


Figure 9-214. STE Turret Cable Hookup Between TNB-J8 And 1W102-P1

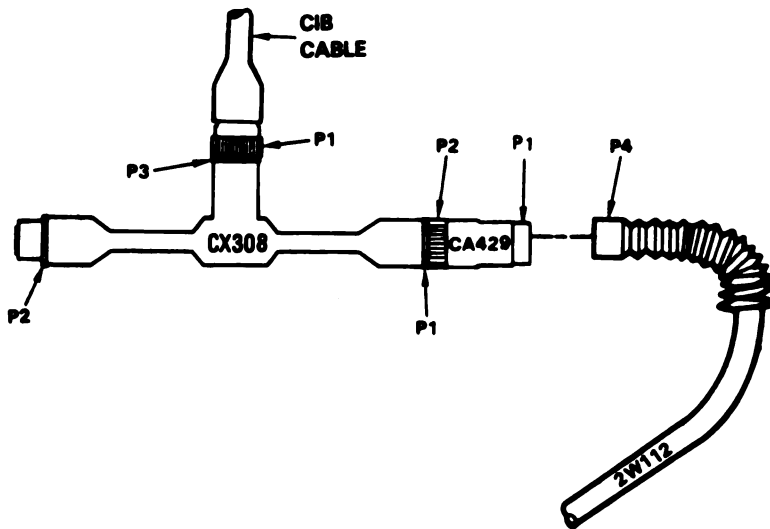


Figure 9-215. STE Turret Cable Hookup To 2W112-P4
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Para. 9-6

ARR82-6110

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

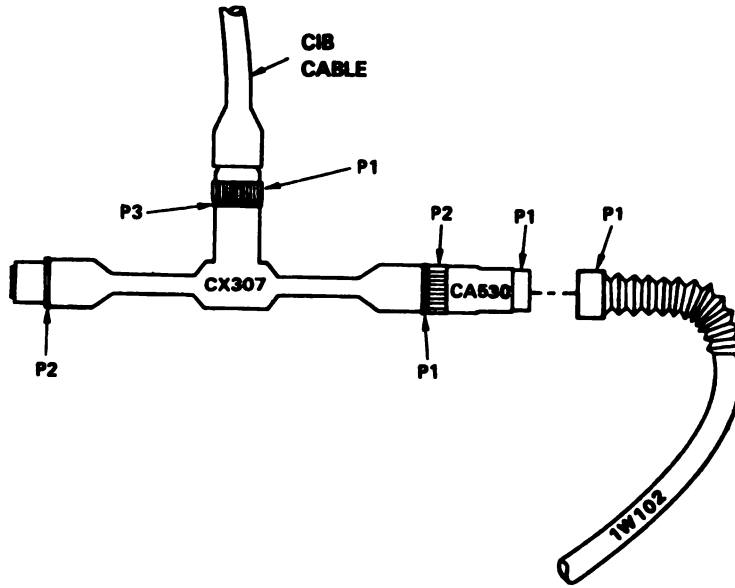


Figure 9-216. STE Turret Cable Hookup To 1W102-P1

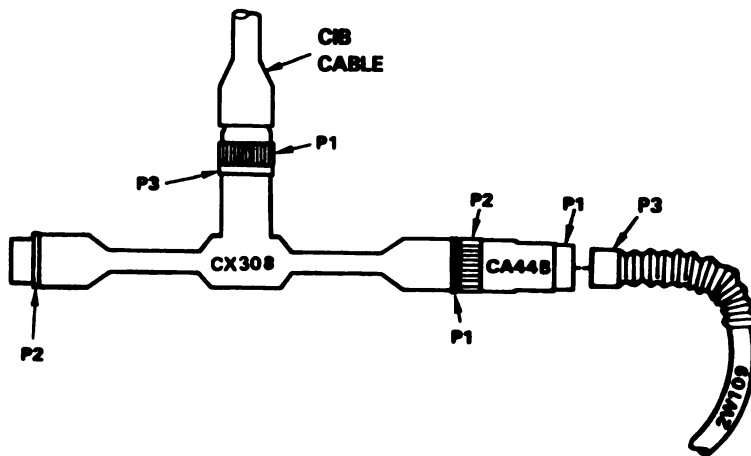


Figure 9-217. STE Turret Cable Hookup To 2W109-P3
**Volume II
Para. 9-6**

ARR62-6111

**DISPLAY SHOWS-
FAULTY TNB, TCP
OR 1W102** 104003

**Additional Test
Equipment/Special Tools:**
● Breakout Box Tool Kit, 12311086

Equipment Condition:
● Tank parked.
● Parking brake set.
● Engine shut down.
● Vehicle master power off.

- Disconnect CX305-P2 from CIB-J2.
● See figure 9-210.
- Disconnect CX305-P1 from CA208-P2.
● See figure 9-211.
- Disconnect 1W102-P2 from J1 on commander's control panel.
● See figure 9-231.
- Disconnect 1W102-P1 from J8 on turret networks box.
● See figure 9-229.

- Connect CX305-P2 (1) to breakout box (2).
- Connect CX305-P1 (3) to CX307-P3 (4).
- Connect 1W102-P1 (5) to CA530-P1 (6).
- Connect CA530-P2 (7) to CX307-P1 (8).

- Change control from SETCOM to VTM.
● Set PWR switch (9) on CIB (10) to OFF to reset VTM (11).
- Set PWR switch (9) to ON.
- Prepare VTM for measuring resistance between 0 and 1500 ohms..
- Refer to para. 9-1.

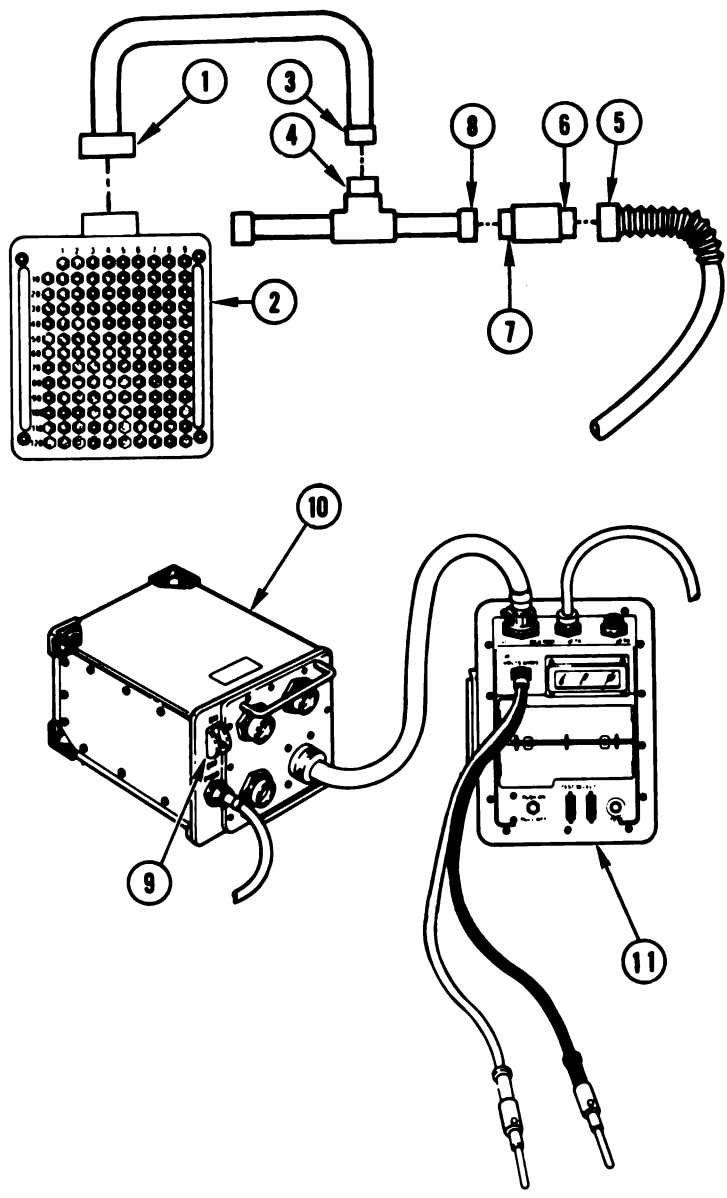


Figure 9-218 (Sheet 1 of 2)
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Para. 9-6

ARR82-6112

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

4

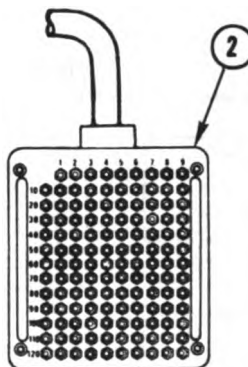
- Connect red test probe (1) to test point 38 on breakout box (2).

NOTE

If VTM display shows 0 to 5, go immediately to block 5.

- Test for 0 to 5 ohms by connecting black test probe (3) to each test point on breakout box (2) listed below:
 - 7 through 37
 - 89 through 111
 - 129

Does VTM display show between 0 and 5?



5

- Replace wiring harness assembly 1W102.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

NO YES

6

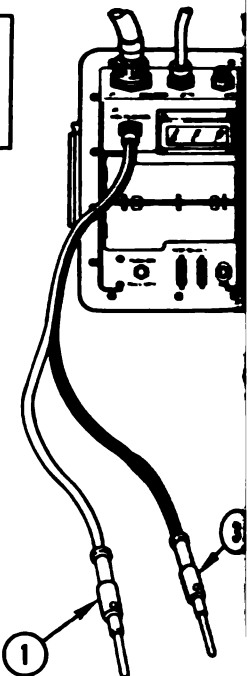
- Connect 1W102-P2 to J1 on commander's control panel.
 - See figure 9-231.
- Connect red test probe (1) to test point 38 on breakout box (2).

NOTE

If VTM display shows 0 to 5 at any test point listed below, go immediately to block 7.

- Test for 0 to 5 ohms by connecting black test probe (3) to each test point on breakout box (2) listed below:
 - 7 through 37
 - 89 through 111

Does VTM display show between 0 and 5?



NO YES

8

- Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
- Verify that problem is solved.

7

- Connect 1W102-P1 to J8 on turret networks box.
 - See figure 9-229.
- Replace commander's control panel assembly.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-5.
- Verify that problem is solved.

Figure 9-218 (Sheet 2 of 2)
**Volume II
Para. 9-6**

ARR82-6113

DISPLAY SHOWS-
FAULTY HNB OR
2W112

104009

Additional Test

Equipment/Special Tools:

- Breakout Box Tool Kit, 12311086

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- Connect 2W109-P3 to J7 on hull networks box.
 - See figure 9-241.
- Disconnect CX305-P2 from C1B-J2.
 - See figure 9-210.
- Disconnect CX305-P1 from CA206-P2.
 - See figure 9-211.
- Disconnect 2W112-P4 from J1 on auxiliary hydraulic powerpack.
 - See figure 9-243.

- Connect CX305-P2 (1) to breakout box (2).
- Connect CX305-P1 (3) to CX307-P3 (4).
- Disconnect 2W112-P1 from J11 on hull networks box.
 - See figure 9-241.
- Connect 2W112-P1 (5) to CA482-P1 (6).
- Connect CA482-P2 (7) to CX307-P1 (8).

- Change control from SETCOM to VTM.
 - Set PWR switch (9) on CIB (10) to OFF to reset VTM (11).
 - Set PWR switch (9) to ON.
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 9-1.

NOTE

Notify your supervisor that this procedure may require troubleshooting and replacement of components in the hull area.

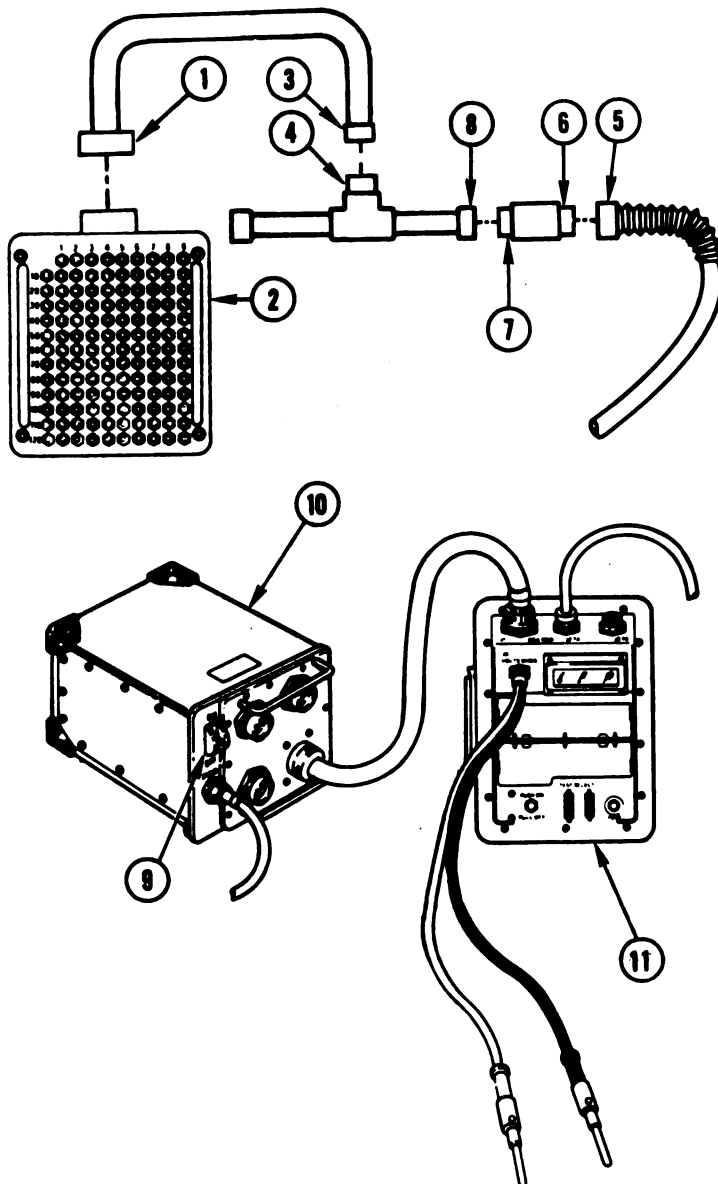
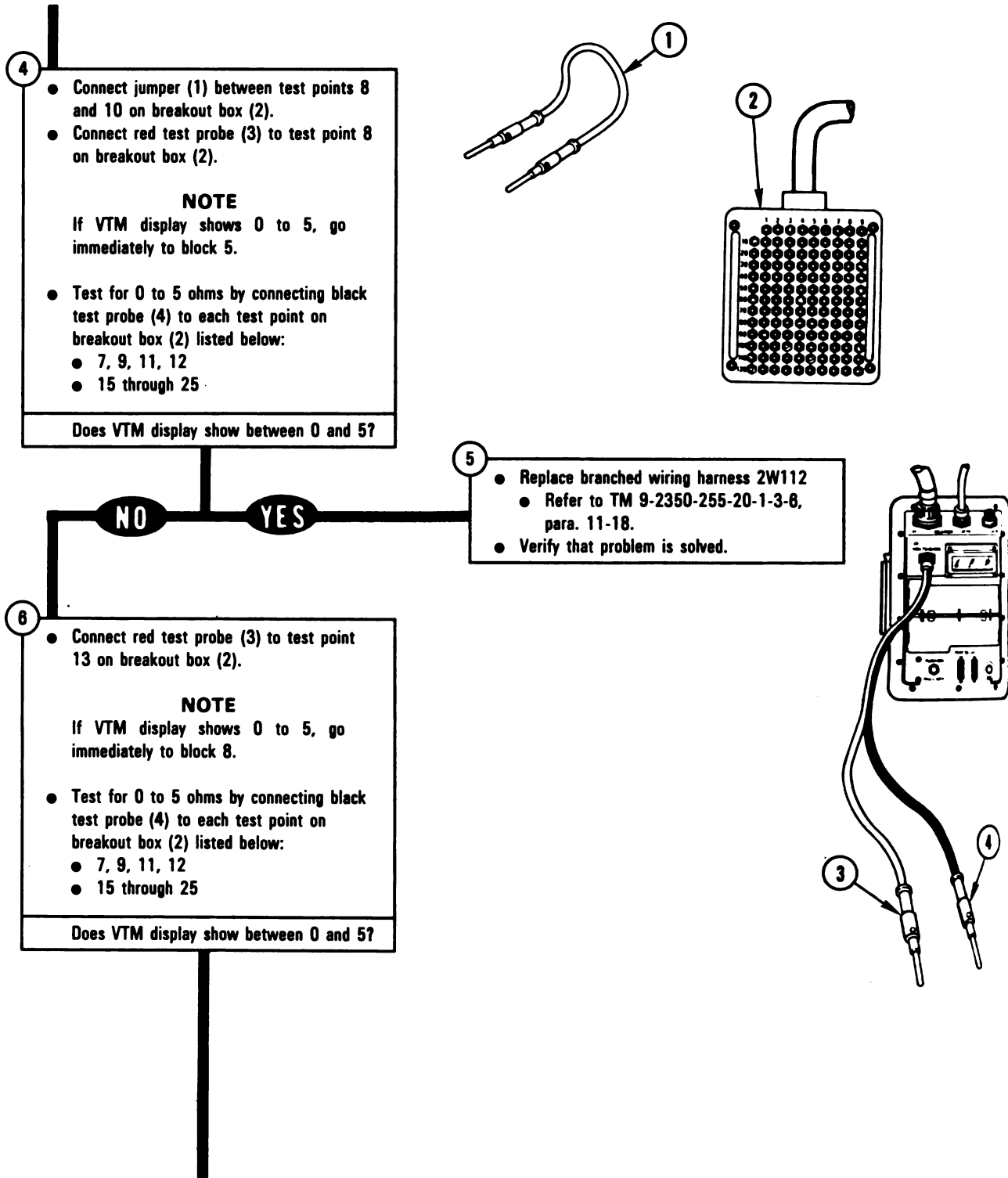


Figure 9-219 (Sheet 1 of 3)
Volume II
Para. 9-6

ARR82-6114

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**



*Figure 9-219 (Sheet 2 of 3)
Volume II
Para. 9-6*

ARR82-6111

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

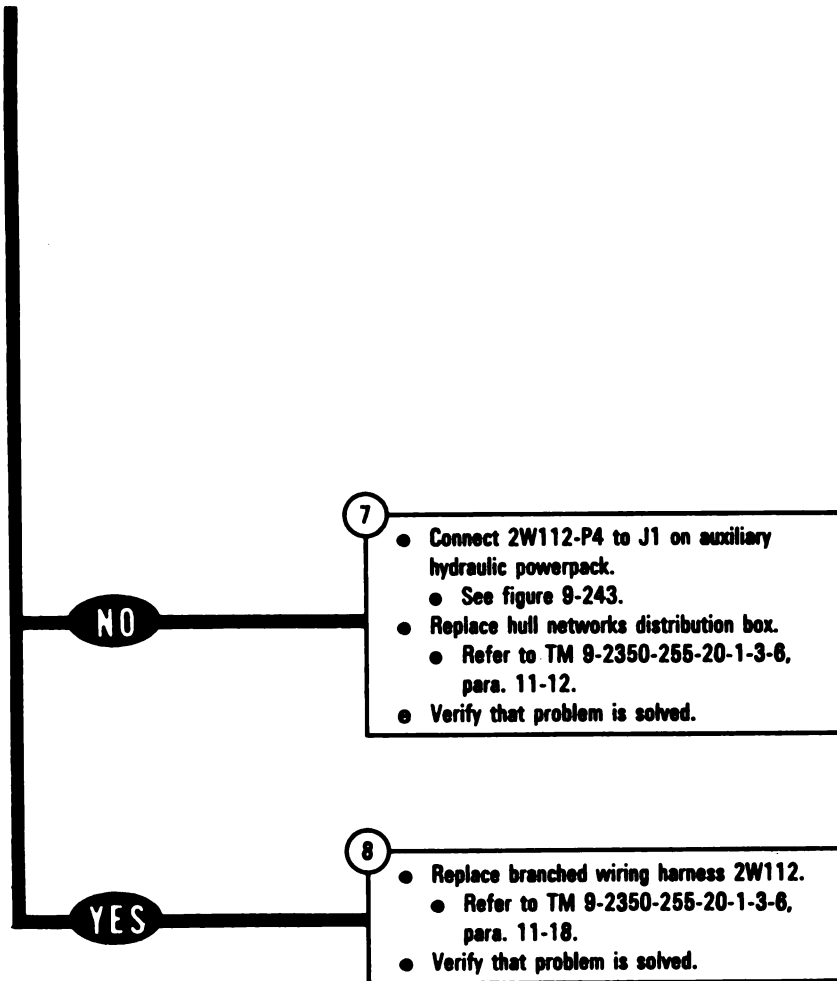


Figure 9-219 (Sheet 3 of 3)
Volume II
Para. 9-6

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

• 104016
104019

**DISPLAY SHOWS-
FAULTY TCP
OR 1W102**

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

1

- Disconnect CX305-P1 from CA206-P2.
 - See figure 9-211.
- Disconnect CA529-P2 from CX307-P1.
 - See figure 9-214.
- Disconnect 1W102-P2 from J1 on commander's control panel.
 - See figure 9-231.

2

- Prepare STE to run cable test 1390.
 - Press STOP key (1) on SETCOM (2).
 - Press CLEAR key (3).
 - Enter test number 1390 on SETCOM (2).
- Run test on 1W102 between P1 and P2.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.

Does SETCOM display show GOOD?

NO

3

- Replace wiring harness assembly 1W102.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

YES

4

- Connect 1W102-P1 to J8 on turret networks box.
 - See figure 9-229.
- Replace commander's control panel assembly.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-5.
- Verify that problem is solved.

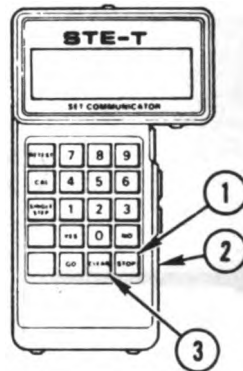


Figure 9-220
Volume II
Para. 9-6

ARR824

DISPLAY SHOWS-
FAULTY AXHPS, HNB
OR 2W112 104021

Additional Test Equipment/Special Tools:
Breakout Box Tool Kit, 12311066

Equipment Condition:
Tank parked.
Parking brake set.
Engine shut down.
Vehicle master power off.

- Disconnect CX305-P1 from CIB-J2.
 - See figure 9-210.
- Disconnect CX305-P1 from CA206-P2.
 - See figure 9-211.
- Disconnect 2W112-P1 from J11 on hull networks box.
 - See figure 9-241.

- Connect CX305-P2 (1) to breakout box (2).
- Connect CX305-P1 (3) to CX307-P3 (4).
- Connect 2W112-P1 (5) to CA462-P1 (6).
- Connect CA462-P2 (7) to CX307-P1 (8).

- Change control from SETCOM to VTM.
 - Set PWR switch (9) on CIB (10) to OFF to reset VTM (11).
 - Set PWR switch (9) to ON.
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 9-1.

NOTE

Notify your supervisor that this procedure may require troubleshooting and replacement of components in the hull area.

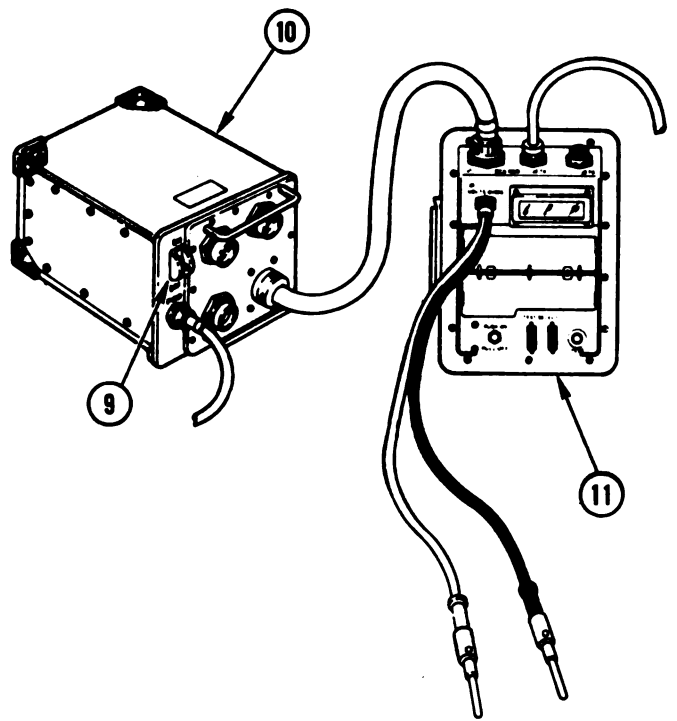
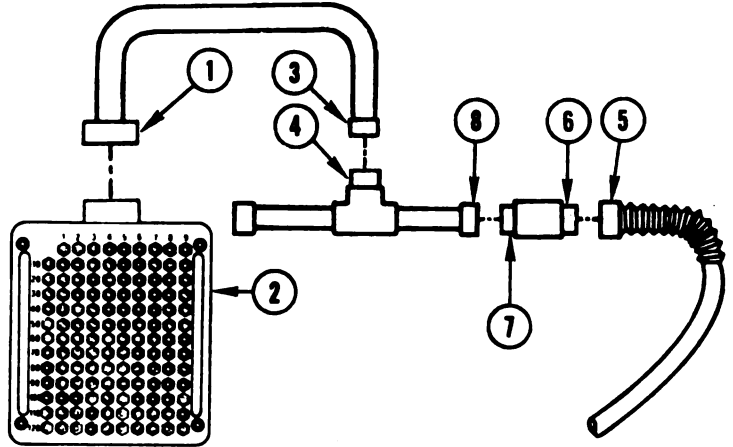


Figure 9-221 (Sheet 1 of 2)
Volume II
Para. 9-6

ARR82-6117

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

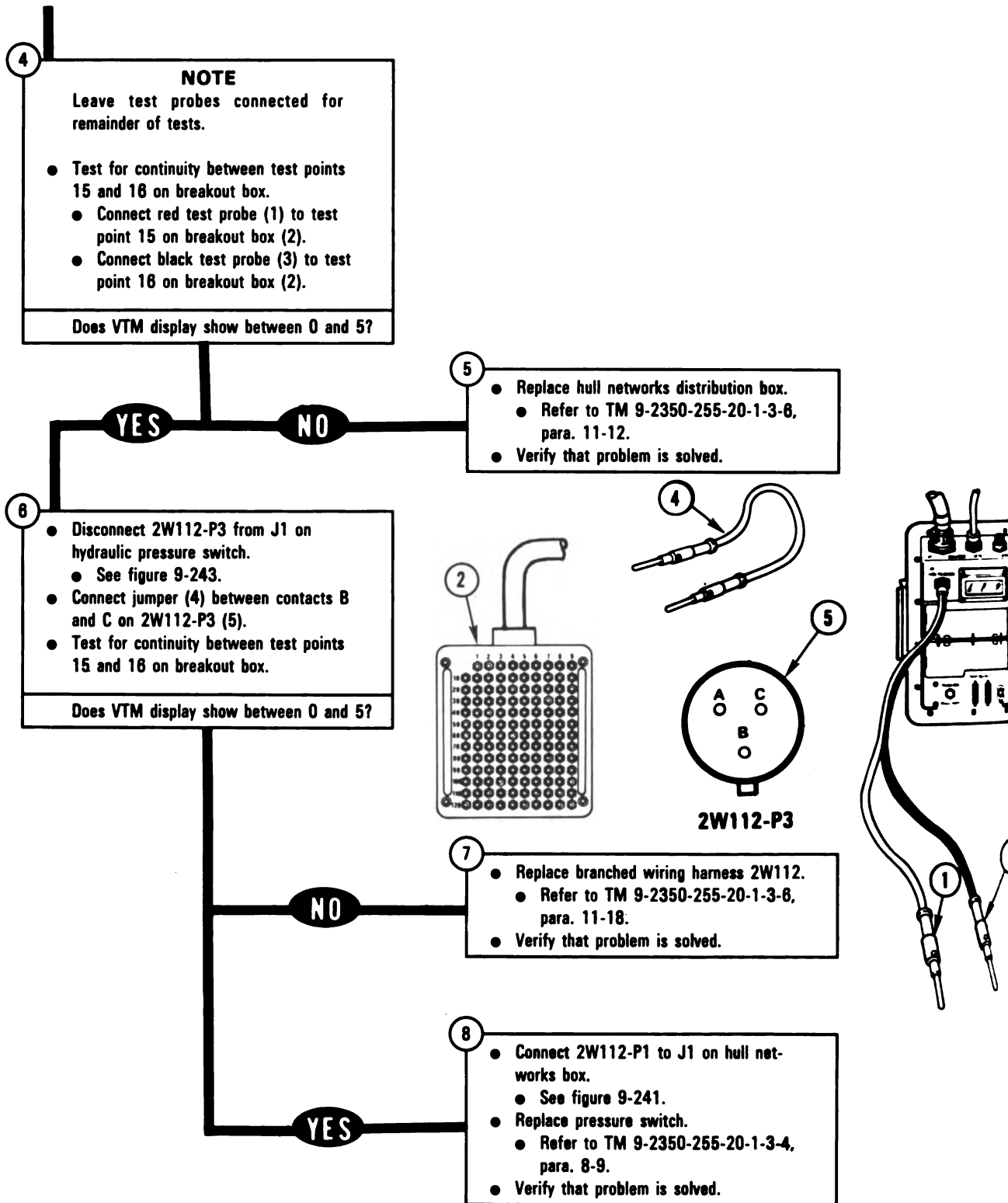


Figure 9-221 (Sheet 2 of 2)
Volume II
Para. 9-6

ARR82-6118

DISPLAY SHOWS-
FAULTY AUX HYDR PUMP
HNB OR 2W112

104022

Additional Test

Equipment/Special Tools:

- › Breakout Box Tool Kit, 12311068

Equipment Condition:

- › Tank parked.
- › Parking brake set.
- › Engine shut down.
- › Vehicle master power off.

- › Disconnect CX305-P2 from CIB-J2.
 - See figure 9-210.
- › Disconnect CX305-P1 from CA206-P2.
 - See figure 9-211.
- › Disconnect 2W112-P1 from J11 on hull networks box.
 - See figure 9-241.

- Connect CX305-P2 (1) to breakout box (2).
- Connect CX305-P1 (3) to CX307-P3 (4).
- Connect 2W112-P1 (5) to CA482-P1 (8).
- Connect CA482-P2 (7) to CX307-P1 (8).

- Change control from SETCOM to VTM.
 - Set PWR switch (9) on CIB (10) to OFF to reset VTM (11).
 - Set PWR switch (9) to ON.
- Prepare VTM for measuring resistance between 0 to 1500 ohms.
 - Refer to para. 9-1.

NOTE

Notify your supervisor that this procedure may require troubleshooting and replacement of components in the hull area.

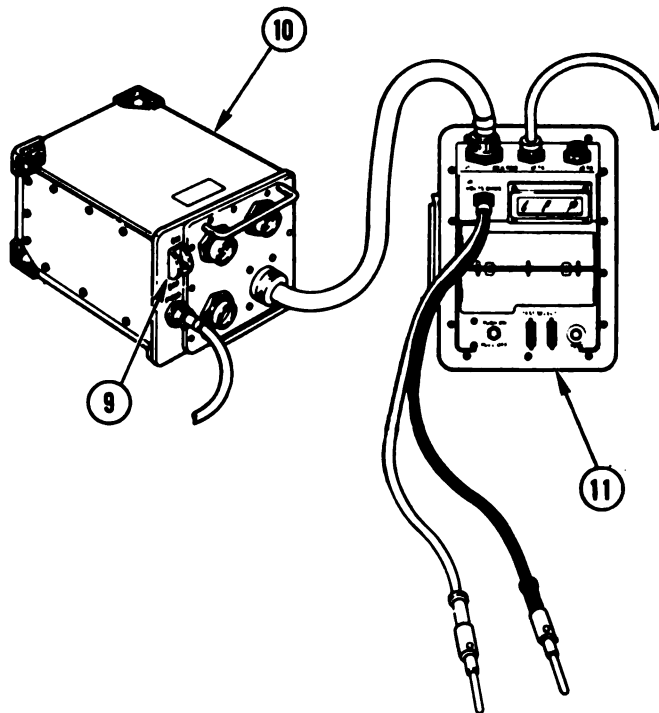
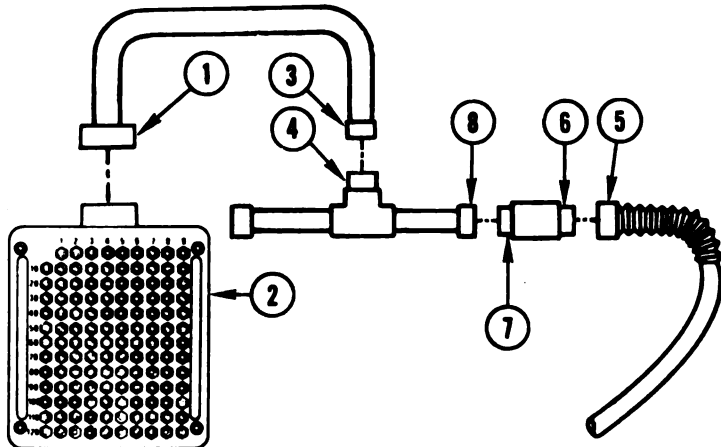


Figure 9-222 (Sheet 1 of 2)
Volume II
Para. 9-6

ARR82-6119

9-531

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

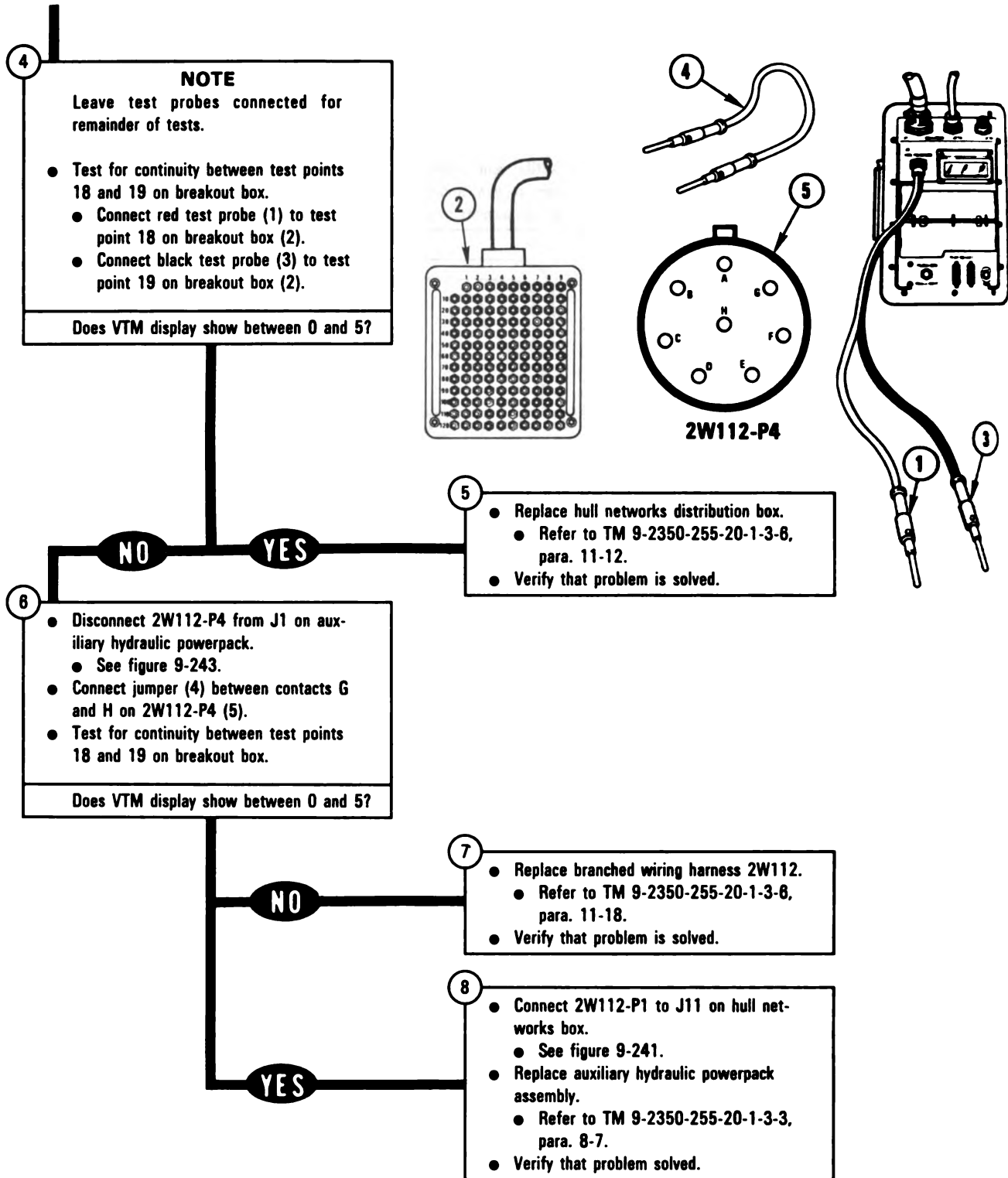


Figure 9-222 (Sheet 2 of 2)
Volume II
Para. 9-6

ARR82-612

DISPLAY SHOWS-
SEE -20 MANUAL

104023

Additional Test

Equipment/Special Tools:

- Breakout Box Tool Kit, 12311066

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- Disconnect 2W112-P1 from J11 on hull networks box.

- See figure 9-241.

- Disconnect CX305-P1 from CA206-P2.

- See figure 9-211.

- Disconnect CX304-P2 from CIB-J1.

- See figure 9-210.

- Connect CX304-P2 (1) to breakout box (2).

- Change control from SETCOM to VTM.

- Set PWR switch (3) on CIB (4) to OFF to reset VTM (5).

- Set PWR switch (3) to ON.

- Prepare VTM for measuring dc voltage.

- Refer to para. 9-1.

NOTE

Notify your supervisor that this procedure may require troubleshooting and replacement of components in the hull area.

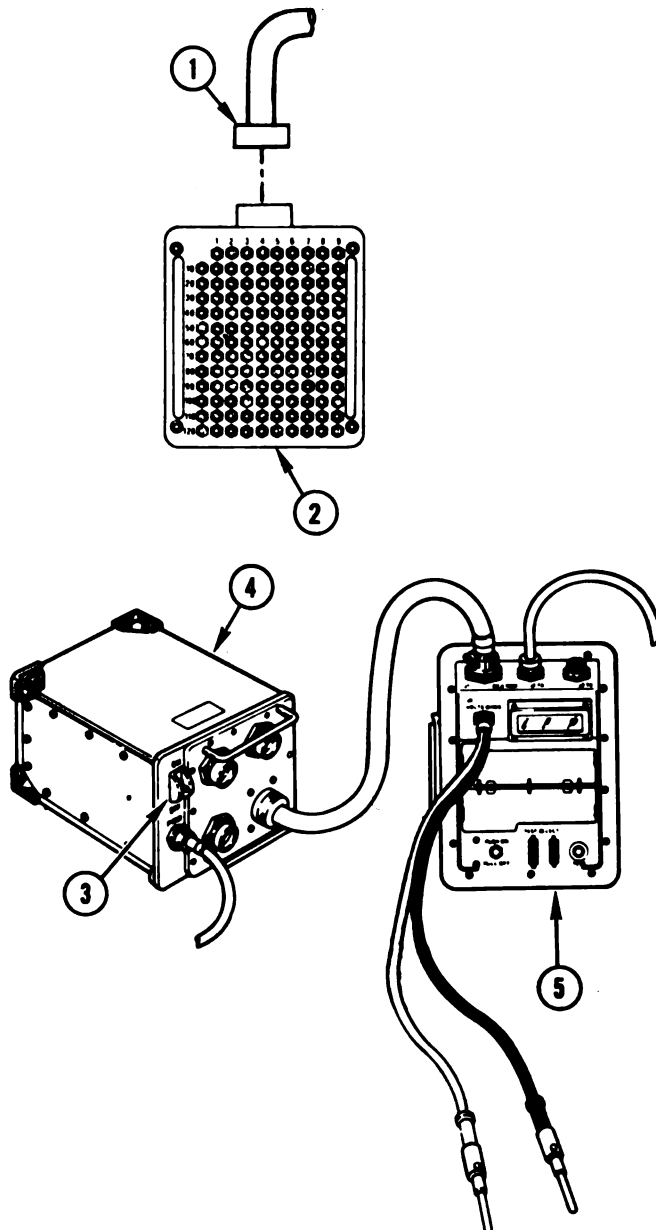


Figure 9-223 (Sheet 1 of 7)
Volume II
Para. 9-6

ARR82-6121

9-533

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

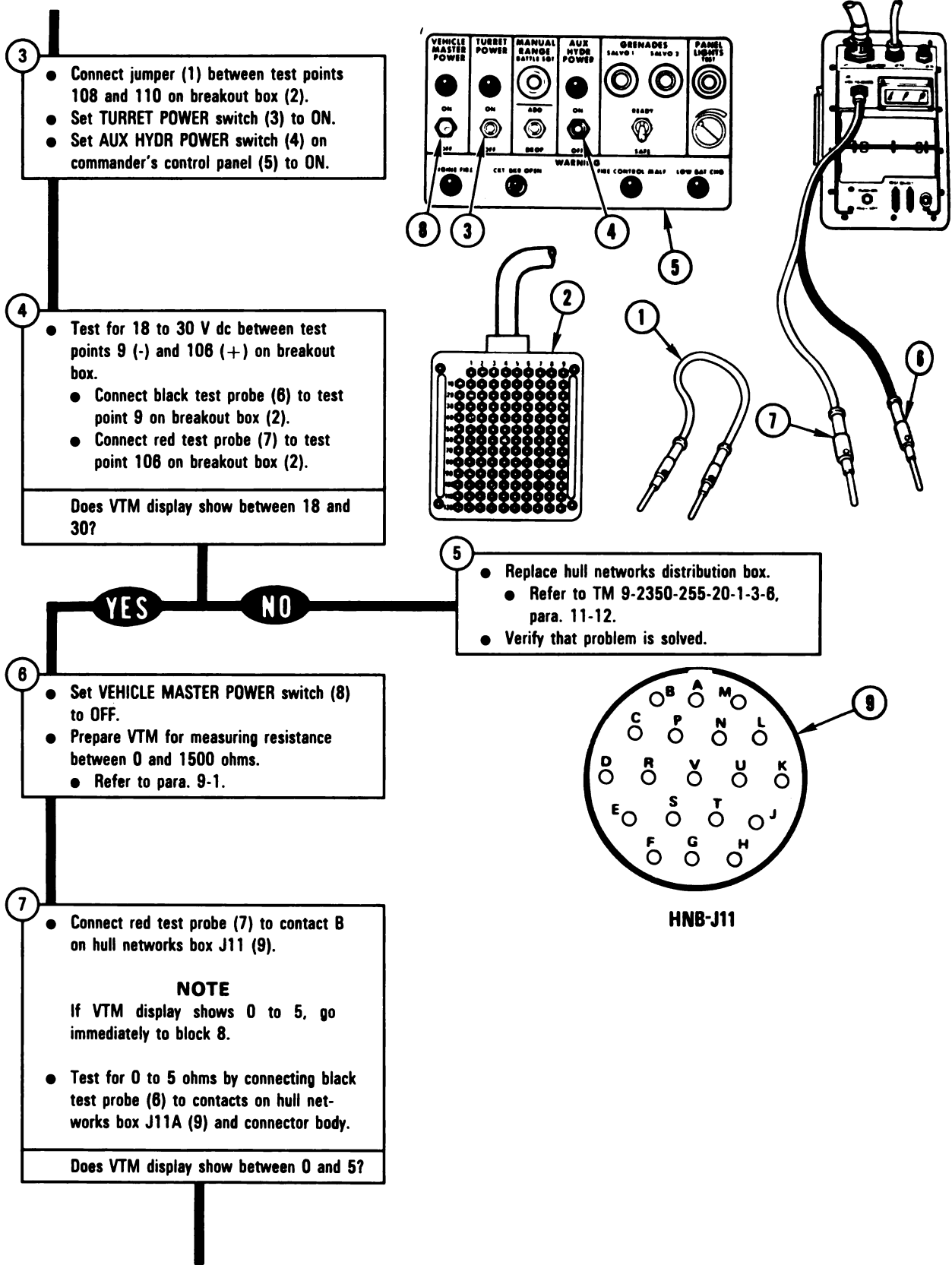


Figure 9-223 (Sheet 2 of 7)
Volume II
Para. 9-6

ARR82-6122

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

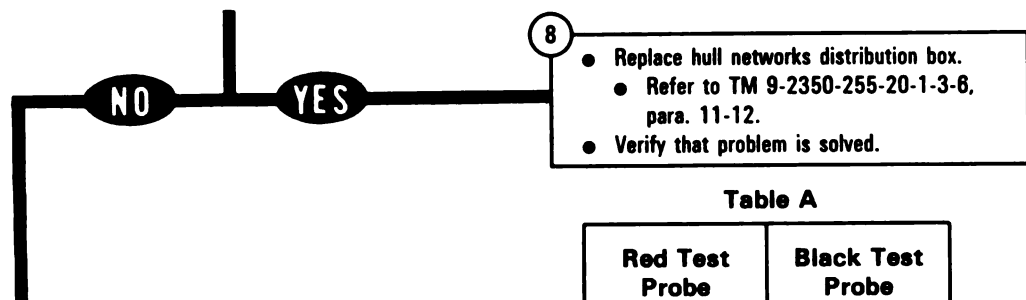


Table A

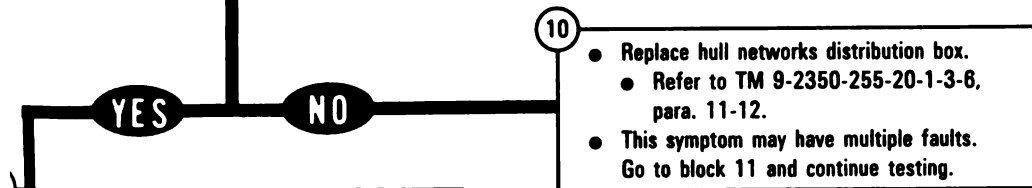
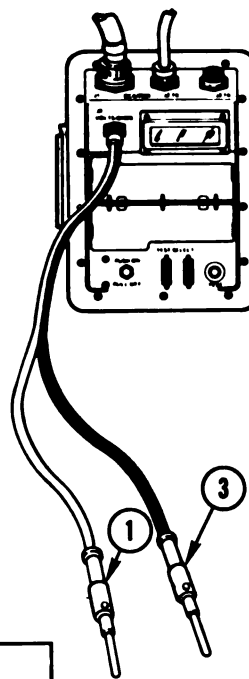
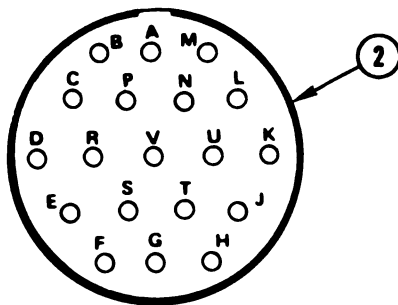
Red Test Probe	Black Test Probe
A	C
A	F
B	D
B	G

NOTE

If VTM display does not show 0 to 5, go immediately to block 10.

- Test for continuity between contacts on hull networks box J11 listed in table A.
- Connect red test probe (1) to contacts on J11 (2) listed in table A.
- Connect black test probe (3) to contacts on J11 (2) listed in table A.

Does VTM display show between 0 and 5?



- Disconnect 2W112-P4 from J1 on auxiliary hydraulic powerpack.
- See figure 9-243.
- Disconnect CX304-P1 from CA807-P2.
- See figure 9-212.

Figure 9-223 (Sheet 3 of 7)
**Volume II
Para. 9-6**

ARR82-6123

9-535

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

- 12
- Connect CX304-P1 (1) to CX307-P3 (2).
 - Connect 2W112-P1 (3) to CA462-P1 (4).
 - Connect CA462-P2 (5) to CX307-P1 (8).

13

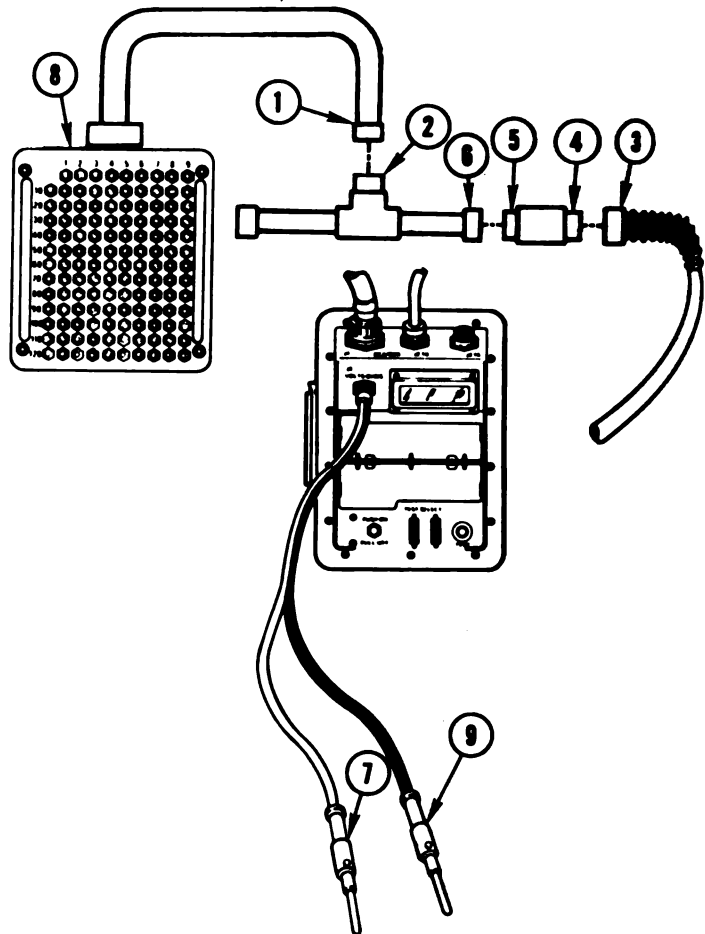
NOTE
If VTM display shows 0 to 5, go immediately to block 14.

- Test for 0 to 5 ohms between test points on breakout box listed in table B.
- Connect red test probe (7) to test points on breakout box (8) listed in table B.
- Connect black test probe (9) to test points on breakout box (8) listed in table B.

Does VTM display show between 0 and 5?

Table B

Red Test Probe	Black Test Probe
8, 10, 13	7, 9, 11, and 12 14 through 25, and connector body



NO

15

- Disconnect CX304-P1 (1) from CX307-P3 (2).

14

- Replace branched wiring harness 2W112.
- Refer to TM 9-2350-255-20-1-3-8, para. 11-18.
- Verify that problem is solved.

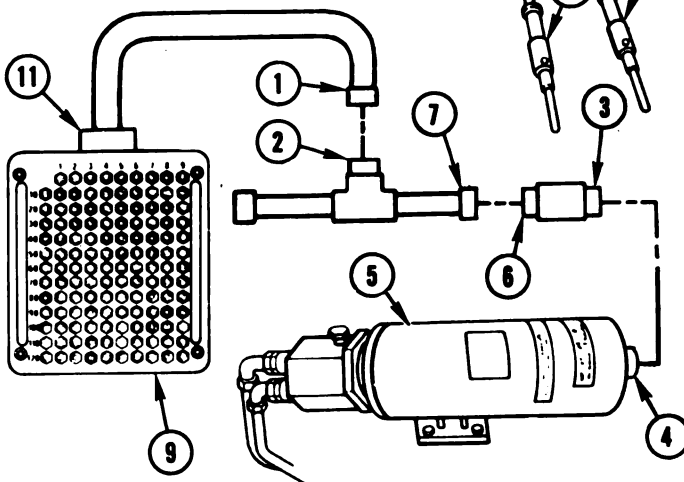
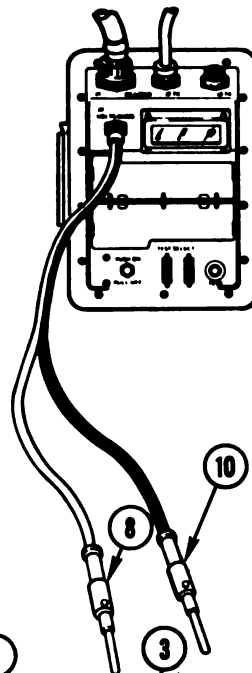
*Figure 9-223 (Sheet 4 of 7)
Volume II
Para. 9-6*

ARR82-6124

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

Table C

Red Test Probe	Black Test Probe
7	8
9	10
11	12



- Connect CX304-P1 (1) to CX308-P3 (2).
- Connect CA430-P1 (3) to J1 (4) on auxiliary hydraulic powerpack (5).
- Connect CA430-P2 (8) to CX308-P1 (7).

NOTE

If VTM display does not show 0 to 5, go immediately to block 18.

- Test for continuity between test points on breakout box listed in table C.
- Connect red test probe (8) to test points on breakout box (9) listed in table C.
- Connect black test probe (10) to test points on breakout box (9) listed in table C.

Does VTM display show between 0 and 5?

YES

NO

- Disconnect CX304-P1 (1) from CX308-P3 (2).
- Disconnect CA430-P2 (8) from CX308-P1 (7).
- Disconnect CX304-P2 (11) from breakout box (9).

- 18**
- Replace auxiliary hydraulic powerpack assembly.
 - Refer to TM 9-2350-255-20-1-3-4, para. 8-7.
 - This symptom may have multiple faults. Go to block 19 and continue testing.

Figure 9-223 (Sheet 5 of 7)
**Volume II
Para. 9-6**

ARR82-6125

9-537

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

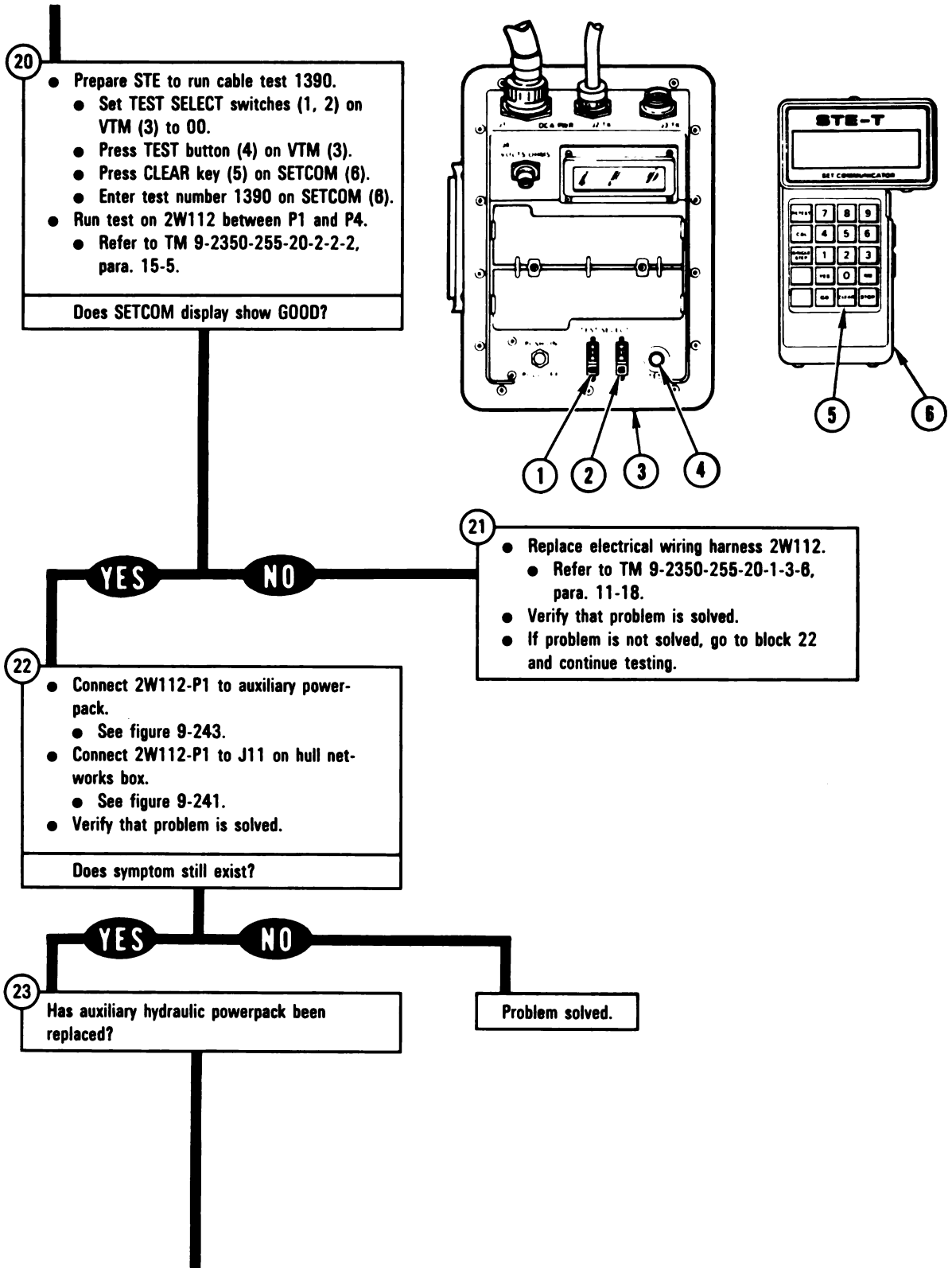


Figure 9-223 (Sheet 6 of 7)
**Volume II
Para. 9-6**

ARR82-612

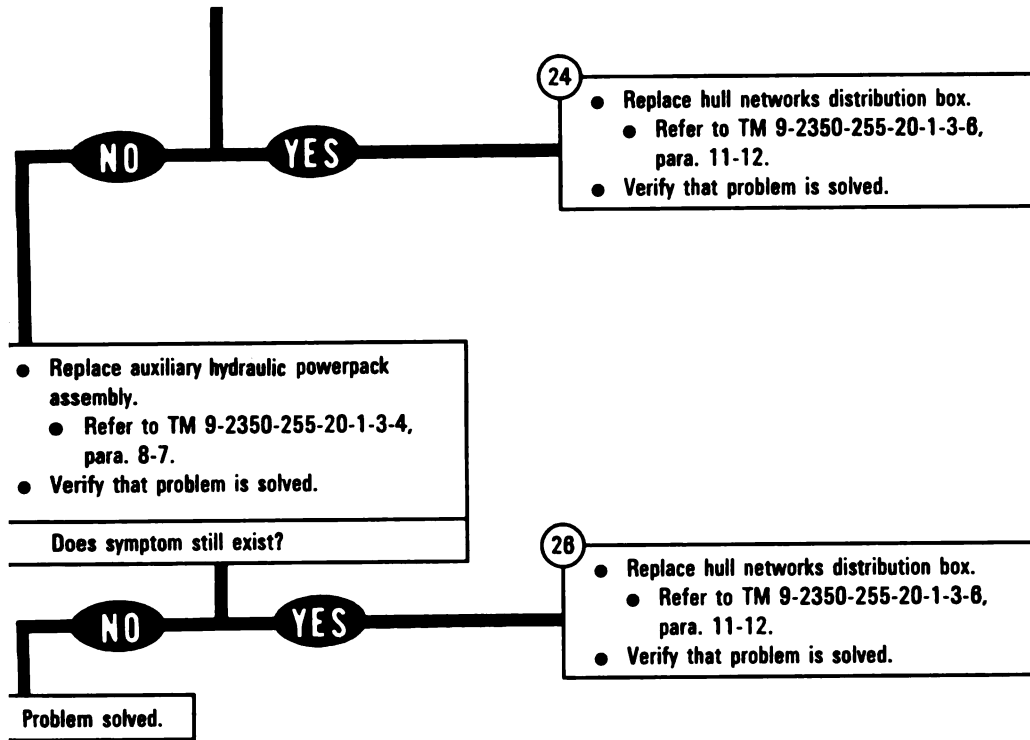


Figure 9-223 (Sheet 7 of 7)
Volume II
Para. 9-6

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS-
FAULTY SRING, 2W109,
TNB OR 1W101** **104027**

**Additional Test
Equipment/Special Tools:**

- Breakout Box Tool Kit, 12311086

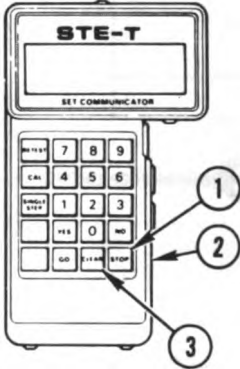
NOTE
Notify your supervisor that this procedure may require troubleshooting and replacement of components in the hull area.

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

1

- Disconnect CX304-P1 from CA807-P2.
 - See figure 9-212.
- Disconnect CA447-P2 from CX308-P1.
 - See figure 9-213.
- Disconnect 2W109-P1 from J3 on hull/turret slipring.
 - See figure 9-233.



2

- Prepare STE to run cable test 1390.
 - Press STOP key (1) on SETCOM (2).
 - Press CLEAR key (3).
 - Enter test number 1390 on SETCOM (2).
- Run test on 2W109 between P1 and P3.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.

Does VTM display show GOOD?

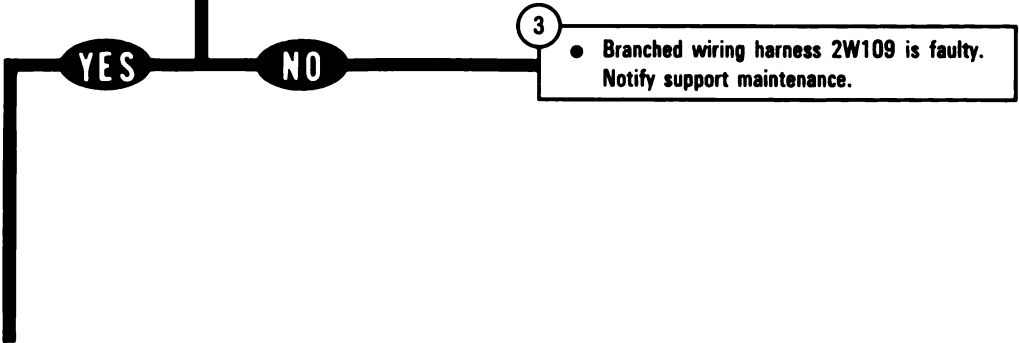


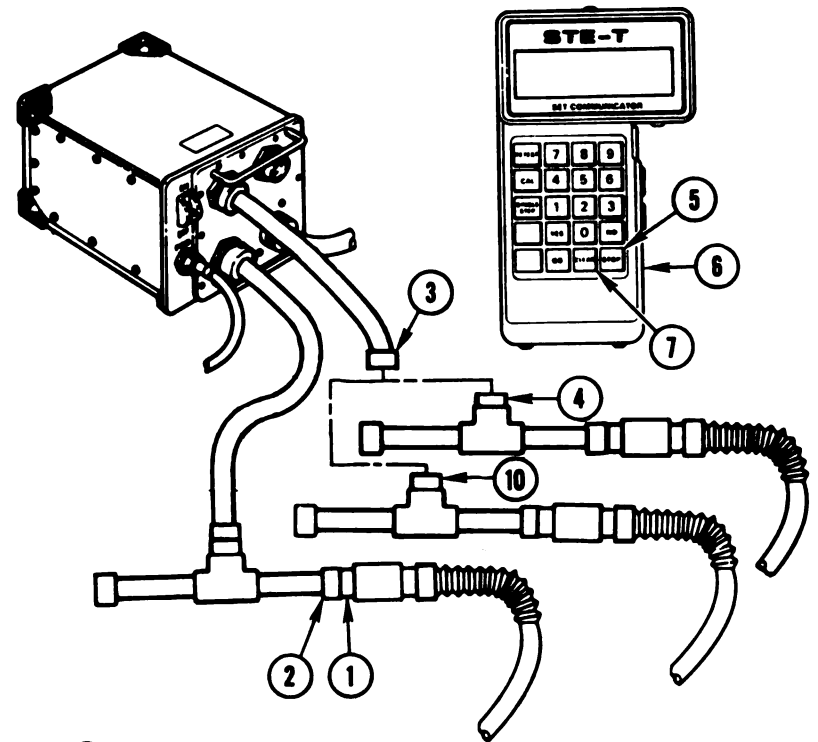
Figure 9-224 (Sheet 1 of 3)
**Volume II
Para. 9-6**

ARR82-6127

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

- Disconnect CA421-P2 (1) from CX307-P1 (2).
- Disconnect CX305-P1 (3) from CX308-P3 (4).
- Disconnect 1W101-P1 from J8 on hull/turret slipping.
 - See figure 9-233.
- Disconnect 1W101-P2 from J11 on turret networks box.
 - See figure 9-229.

- Prepare STE to run cable test 1390.
 - Press STOP key (5) on SETCOM (6).
 - Press CLEAR key (7).
 - Enter test number 1390 on SETCOM (6).
- Run test on 1W101 between P1 and P2.
 - Refer to TM 9-2350-255-20-2-2-2, figure 15-5.



Does SETCOM display show GOOD?

YES **NO**

- Connect 2W109-P3 to J7 on hull networks box.
 - See figure 9-241.
- Connect 2W109-P1 to J3 on hull/turret slipping.
 - See figure 9-233.
- Replace wiring harness assembly 1W101.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

- Disconnect CX305-P2 (8) from CIB-J2 (9).
- Disconnect CX305-P1 (3) from CX307-P3 (10).
- Connect CX305-P2 (8) to breakout box (11).
- Connect CA206-P1 to TEST 1 on turret networks box.
 - See figure 9-211.
- Connect CX305-P1 to CA206-P2.
 - See figure 9-211.

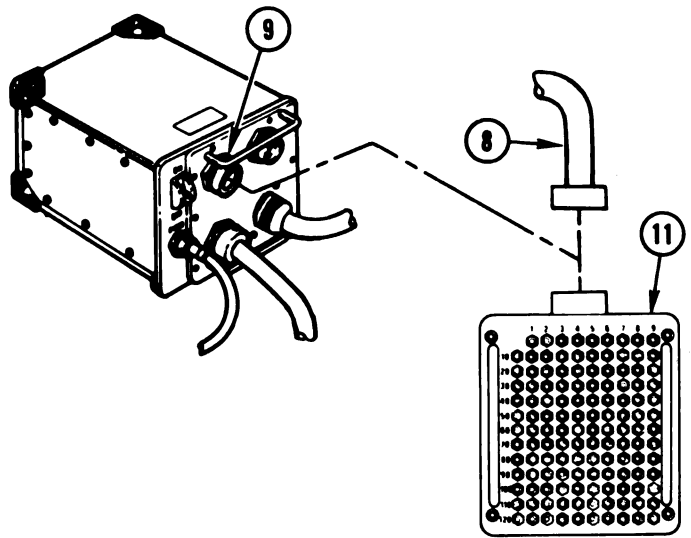


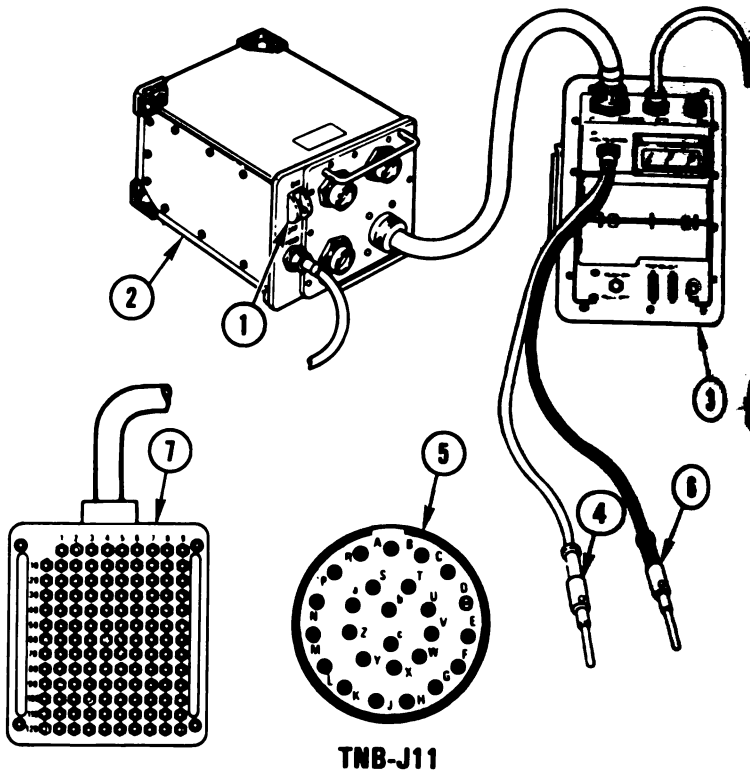
Figure 9-224 (Sheet 2 of 3)
Volume II
Para. 9-6

ARR82-6128

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

- 8
- Change control from SETCOM to VTM.
 - Set PWR switch (1) on CIB (2) to OFF to reset VTM (3).
 - Set PWR switch (1) to ON.
 - Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 9-1.

- 9
- Test for 0 to 5 ohms between contact B on turret networks box J11 and test point 27 on breakout box.
 - Connect red test probe (4) to contact B on J11 (5).
 - Connect black test probe (8) to test point 27 on breakout box (7).
- Does VTM display show between 0 and 5?



- YES
- 10
- Connect 1W101-P2 to J11 on turret networks box.
 - See figure 9-229.
 - Connect 2W109-P3 to J7 on hull networks box.
 - See figure 9-241.
 - Replace hull/turret slipping assembly.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-8.
 - Verify that problem is solved.

- NO
- 11
- Connect 2W109-P3 to J7 on hull networks box.
 - See figure 9-241.
 - Connect 2W109-P1 to J3 on hull/turret slipping.
 - See figure 9-233.
 - Connect 1W101-P1 to J8 on hull/turret slipping.
 - See figure 9-233.
 - Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
 - Verify that problem is solved.

Figure 9-224 (Sheet 3 of 3)
Volume II
Para. 9-6

**DISPLAY SHOWS-
FAULTY AXHPS, HNB
OR 2W112**

104030

**Additional Test
Equipment/Special Tools:**

- Breakout Box Tool Kit, 12311086

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- Disconnect CX305-P2 from CIB-J2.
 - See figure 9-210.
- Disconnect 2W112-P3 from J1 on hydraulic pressure switch.
 - See figure 9-243.
- Set TURRET POWER switch (1) on commander's control panel (2) to ON.
- Set AUX HYDR POWER switch (3) on commander's control panel (2) to ON.

Does auxiliary hydraulic powerpack start?

NO

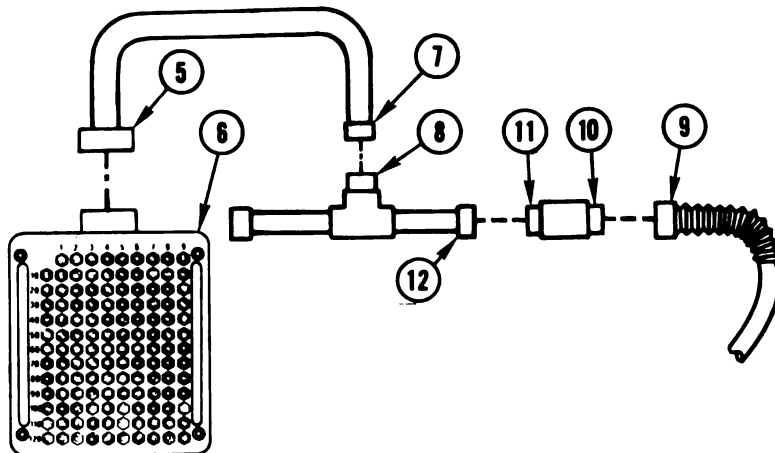
YES

- Set VEHICLE MASTER POWER switch (4) to OFF.
- Disconnect CX305-P1 from CA206-P2.
 - See figure 9-211.
- Disconnect 2W112-P1 from J11 on hull networks box.
 - See figure 9-241.

- Connect CX305-P2 (5) to breakout box (6).
- Connect CX305-P1 (7) to CX307-P3 (8).
- Connect 2W112-P1 (9) to CA482-P1 (10).
- Connect CA482-P2 (11) to CX307-P1 (12).

NOTE

Notify your supervisor that this procedure may require troubleshooting and replacement of components in the hull area.



2

- Replace pressure switch.
 - Refer to TM 9-2350-255-20-1-3-4, para. 8-9.
- Verify that problem is solved.

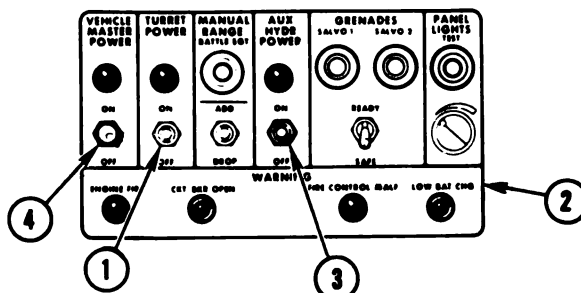


Figure 9-225 (Sheet 1 of 2)
Volume II
Para. 9-6

ARR82-6130

9-543

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

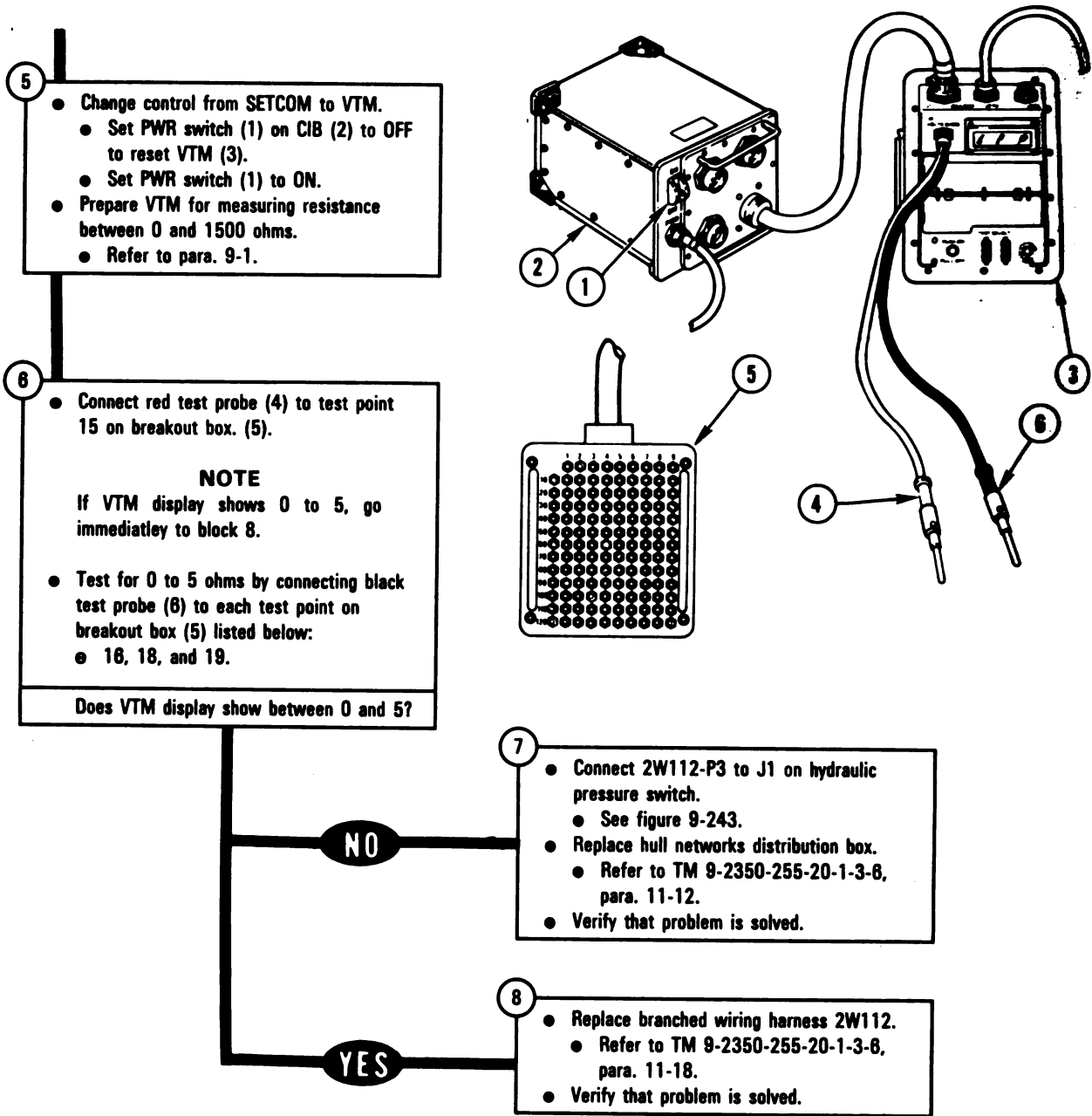


Figure 9-225 (Sheet 2 of 2)
Volume II
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ARR82-6131

DISPLAY SHOWS-
FAULTY SRING, 1W101
OR 2W109

104033

Additional Test

Equipment/Special Tools:

- Breakout Box Tool Kit, 12311066

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- Disconnect 2W109-P1 from J3 on hull/turret slipring.
 - See figure 9-233.
- Disconnect CX305-P2 from CIB-J2.
 - See figure 9-210.
- Connect CX305-P2 (1) to breakout box (2).

- Change control from SETCOM to VTM.
 - Set PWR switch (3) on CIB (4) to OFF to reset VTM (5).
 - Set PWR switch (3) to ON.
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 9-1.

NOTE

Notify your supervisor that this procedure may require troubleshooting and replacement of components in the hull area.

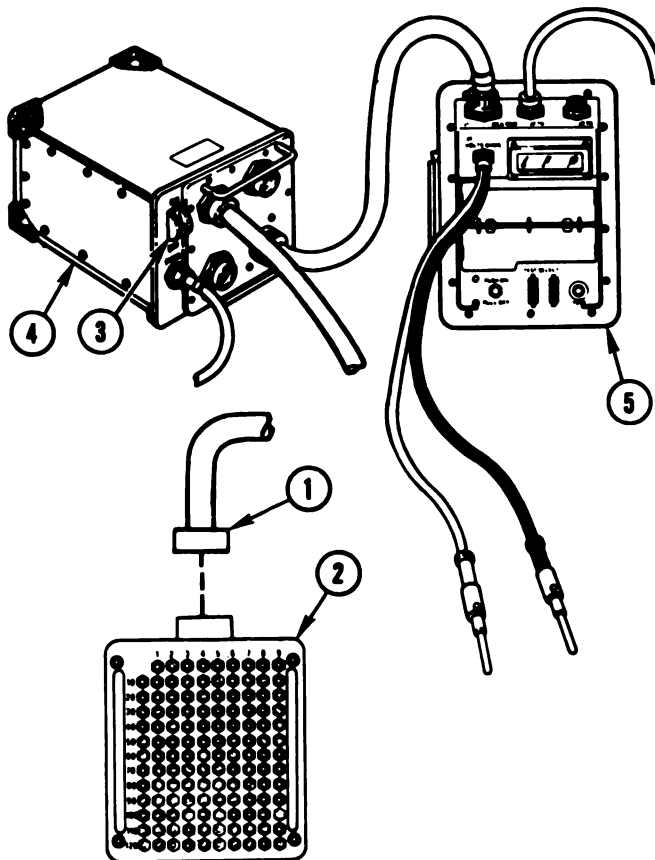


Figure 9-226 (Sheet 1 of 3)
Volume II
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ARR82-6132

9-545

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

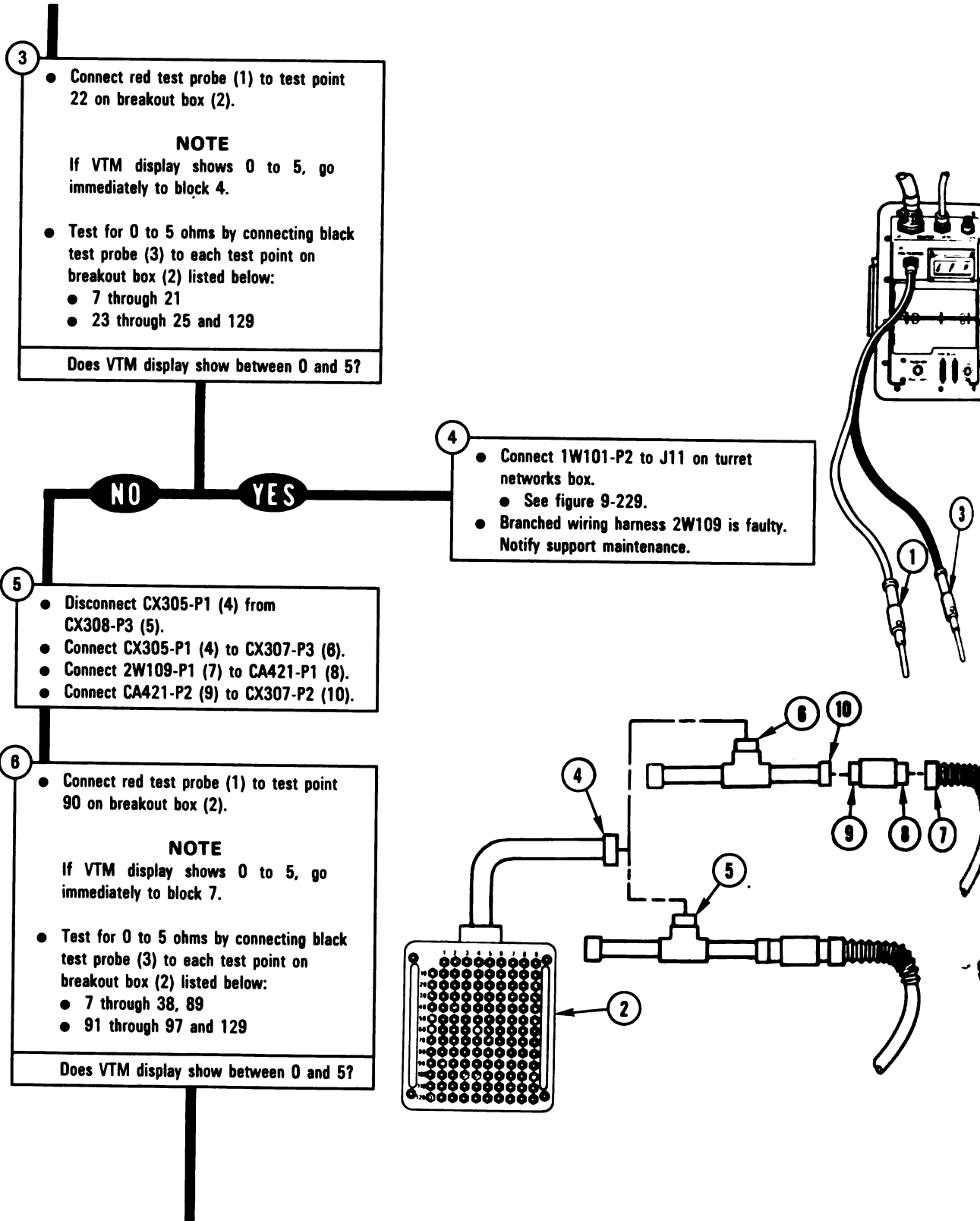


Figure 9-226 (Sheet 2 of 3)
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ARR82-6133

TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING

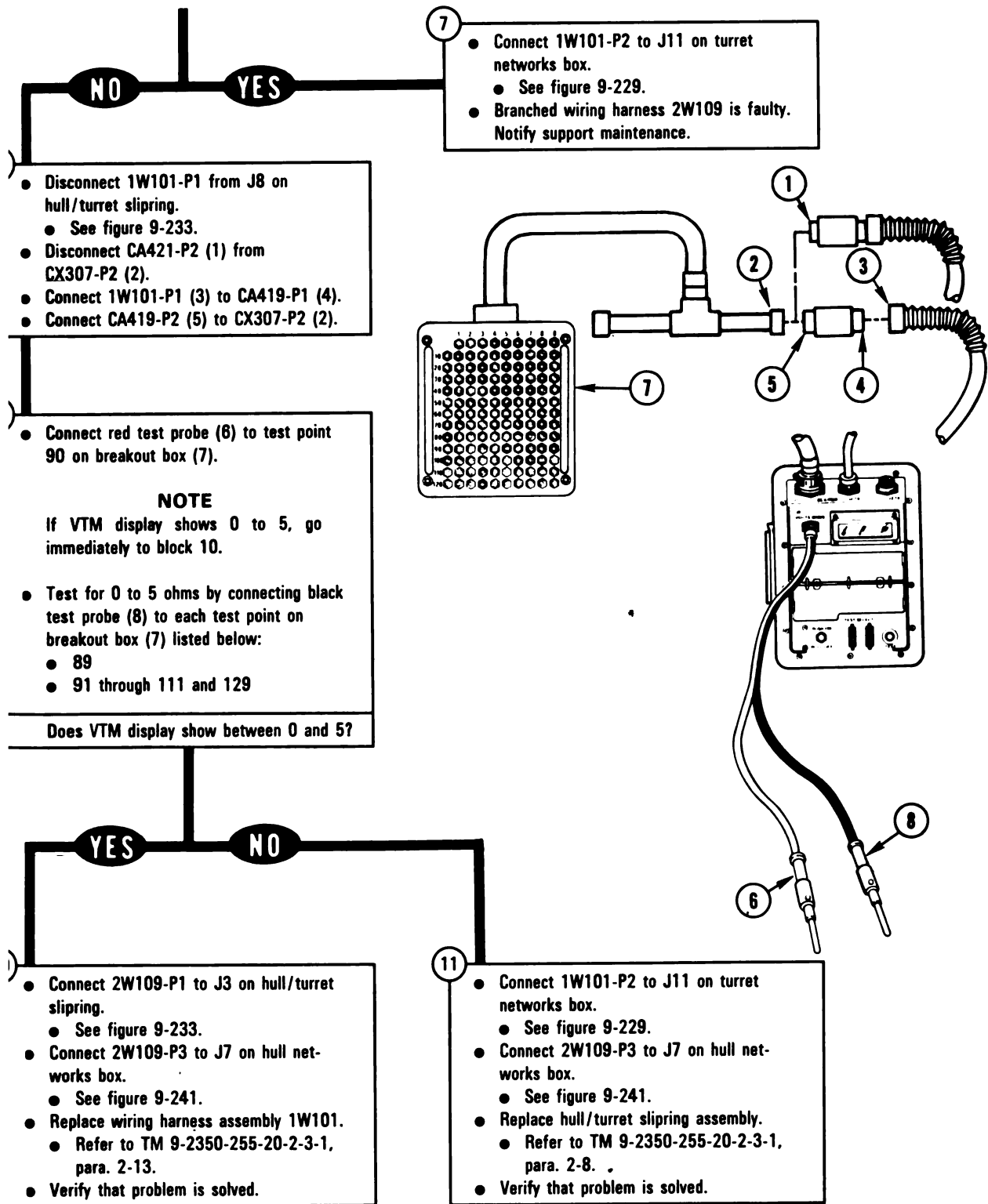


Figure 9-226 (Sheet 3 of 3)
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ARR82-6134

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS-
FAULTY TCP
OR 1W102**

104035

**Additional Test
Equipment/Special Tools:**

- Breakout Box Tool Kit, 12311068

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

1

- Disconnect 1W102-P2 from J1 on commander's control panel.
 - See figure 9-231.
- Disconnect CX305-P2 from CIB-J2.
 - See figure 9-210.
- Connect CX305-P2 (1) to breakout box (2).

2

- Change control from SETCOM to VTM.
 - Set PWR switch (3) on CIB (4) to OFF to reset VTM (5).
 - Set PWR switch (3) to ON.
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 9-1.

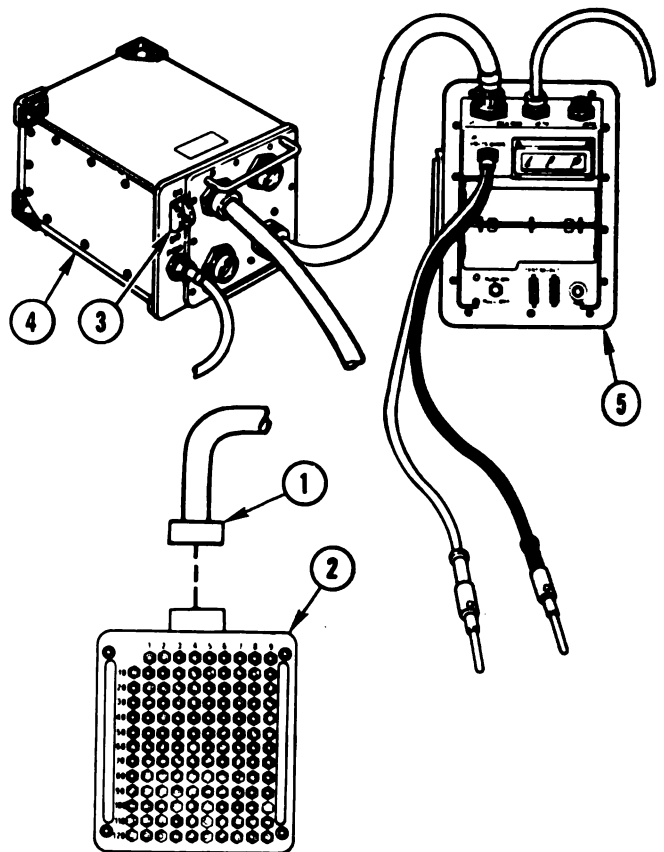


Figure 9-227 (Sheet 1 of 2)
**Volume II
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ARR82-6135

**TM 9-2350-255-20-2-2-1
HYDRAULIC AND GUN/TURRET DRIVE
SYSTEM TROUBLESHOOTING**

Connect red test probe (1) to test point 28 on breakout box (2).

NOTE
If VTM display shows 0 to 5, go immediately to block 5.

Test for 0 to 5 ohms by connecting black test probe (3) to each test point on breakout box (2) listed below:

- 7 through 27
- 29 through 38
- 89 through 111 and 129

Does VTM display show between 0 and 5?

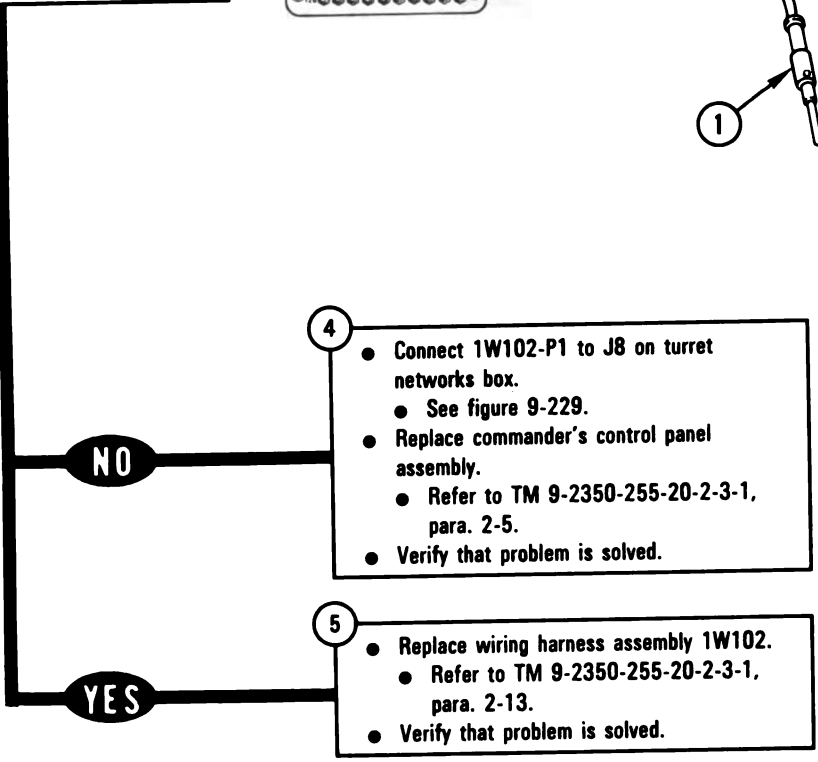
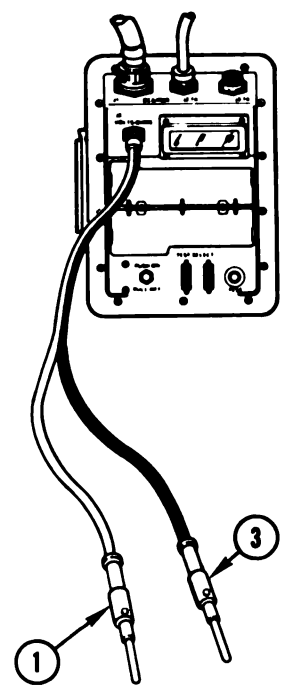
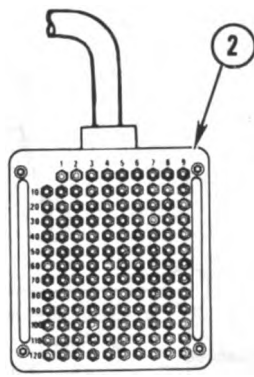


Figure 9-227 (Sheet 2 of 2)
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Para. 9-6

ARR82-6136

9-549

9-7. Turret System Connector Inspection Procedure.

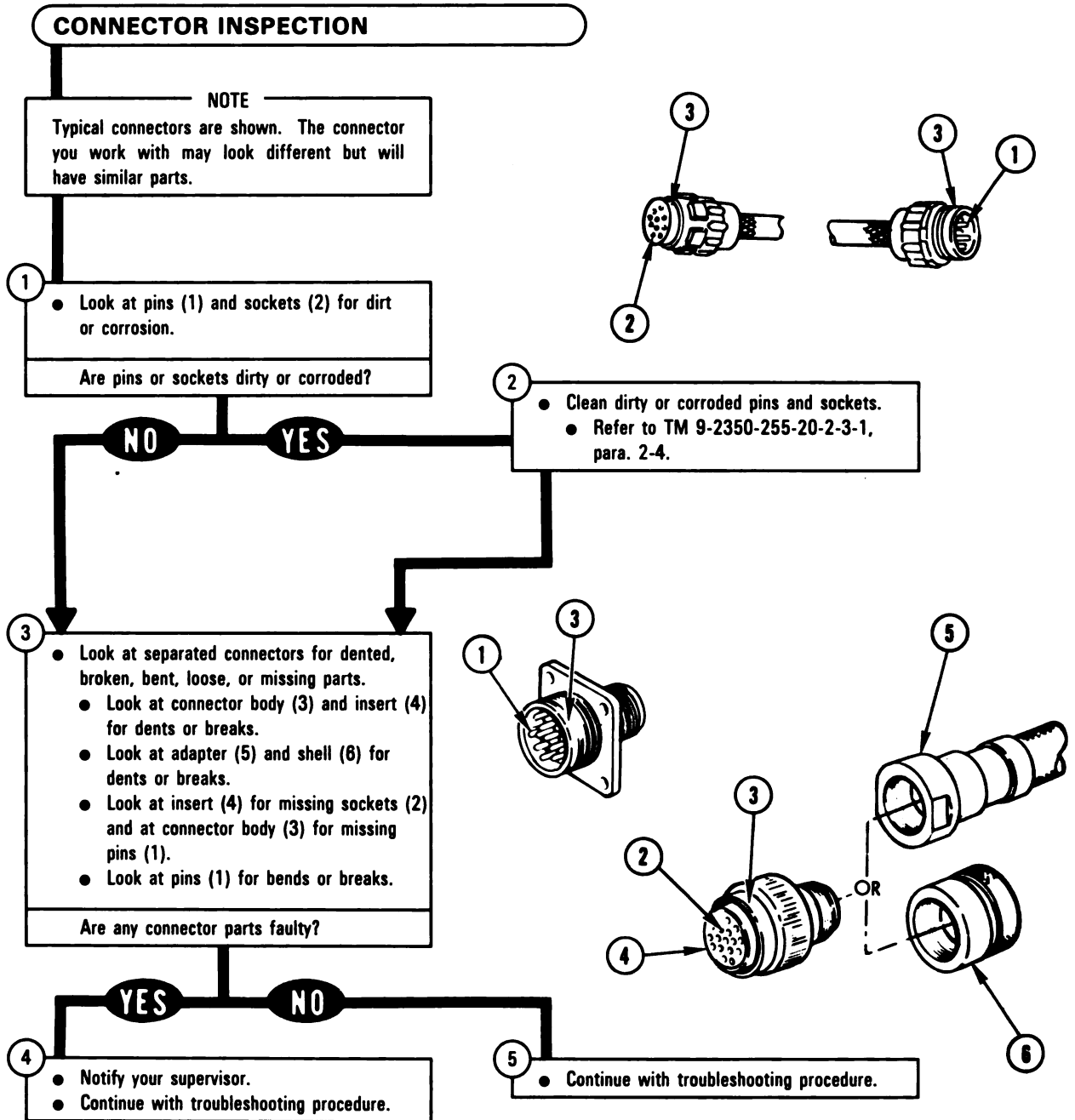
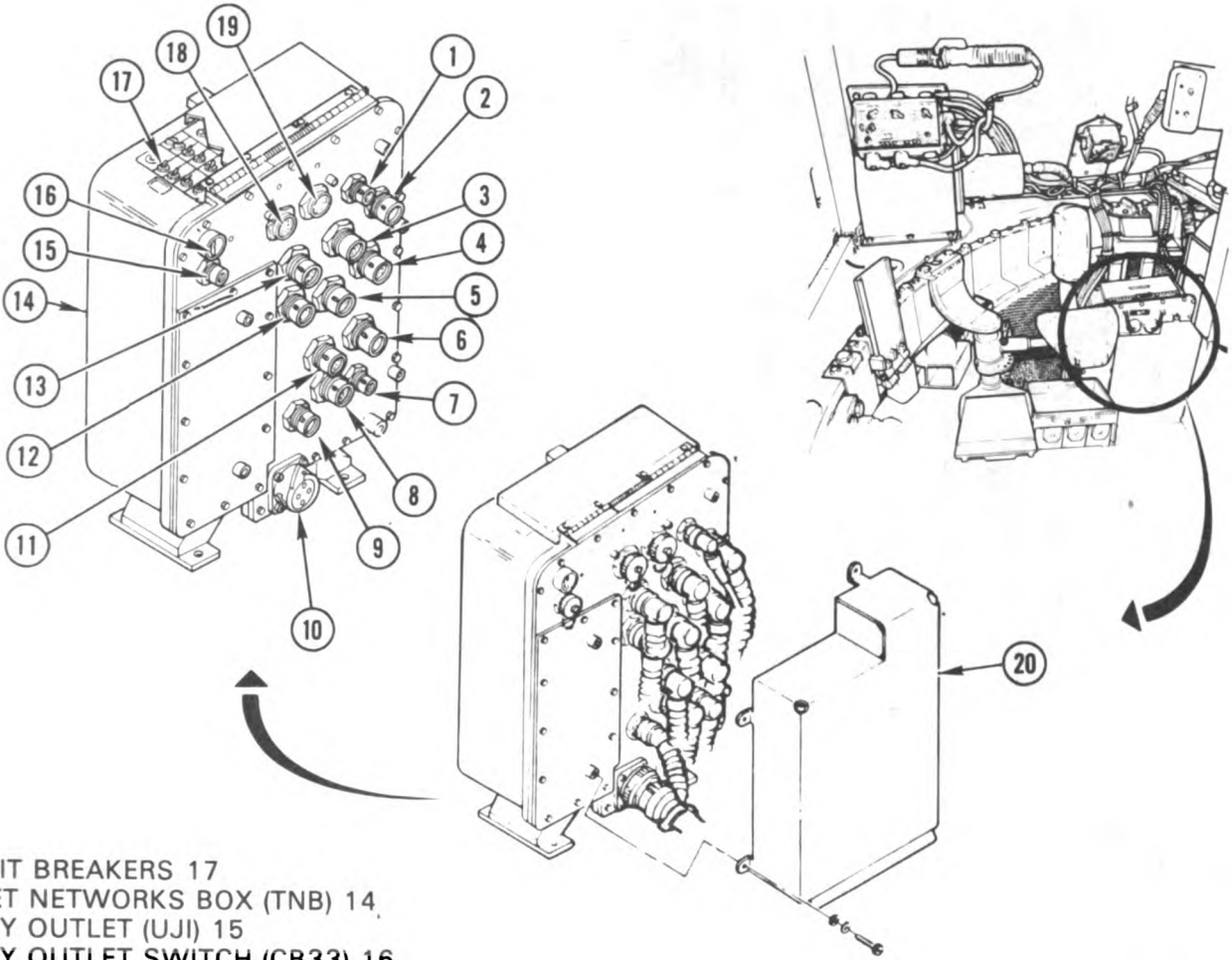


Figure 9-228
Volume II
Para. 9-7

ARR82-6137

9-8. **Component Location Diagrams for Turret System Troubleshooting.** This paragraph contains component location diagrams and access tasks required for troubleshooting the turret subsystems. These tasks are listed in figure 9-229 through figure 9-252. These tasks are required when troubleshooting the turret for loose vehicle harness connections and for identifying component locations during troubleshooting.



17 CIRCUIT BREAKERS
 14 TURRET NETWORKS BOX (TNB)
 15 UTILITY OUTLET (UJI)
 16 UTILITY OUTLET SWITCH (CB33)

Harness Connector	Connects to	Item
1W100-P5	TNB-J13	10
1W101-P2	TNB-J11	7
1W102-P1	TNB-J8	11
1W103-P1	TNB-J12	9
1W104-P1	TNB-J9	6
1W105-P1	TNB-J10	8
1W106-P1	TNB-J2	2

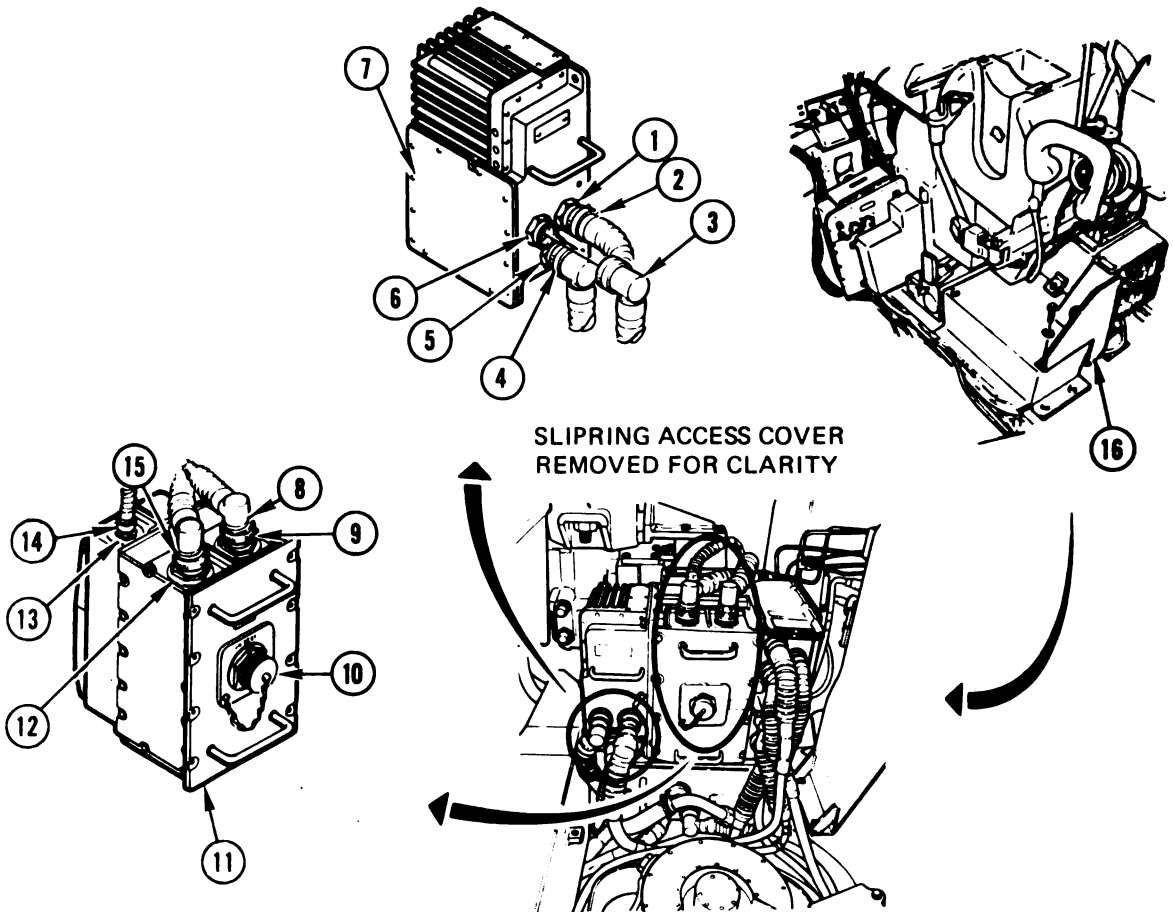
Harness Connector	Connects to	Item
1W107-P1	TNB-J4	3
1W200-P1	TNB-J5	12
1W201-P1	TNB-J6	4
1W202-P1	TNB-J7	5
1W203-P1	TNB-J3	13
1W301-P1	TNB-J1	1
	TEST 1	18
	TEST 2	19

To gain access to items 1 through 14, remove guard (20); refer to TM 9-2350-255-20-2-3-1, para. 2-7. Install guard when troubleshooting is complete.

Also referred to as SC-D-866547.

Figure 9-229. Turret System Component Location Diagrams
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 Para. 9-8

ARR82-6784



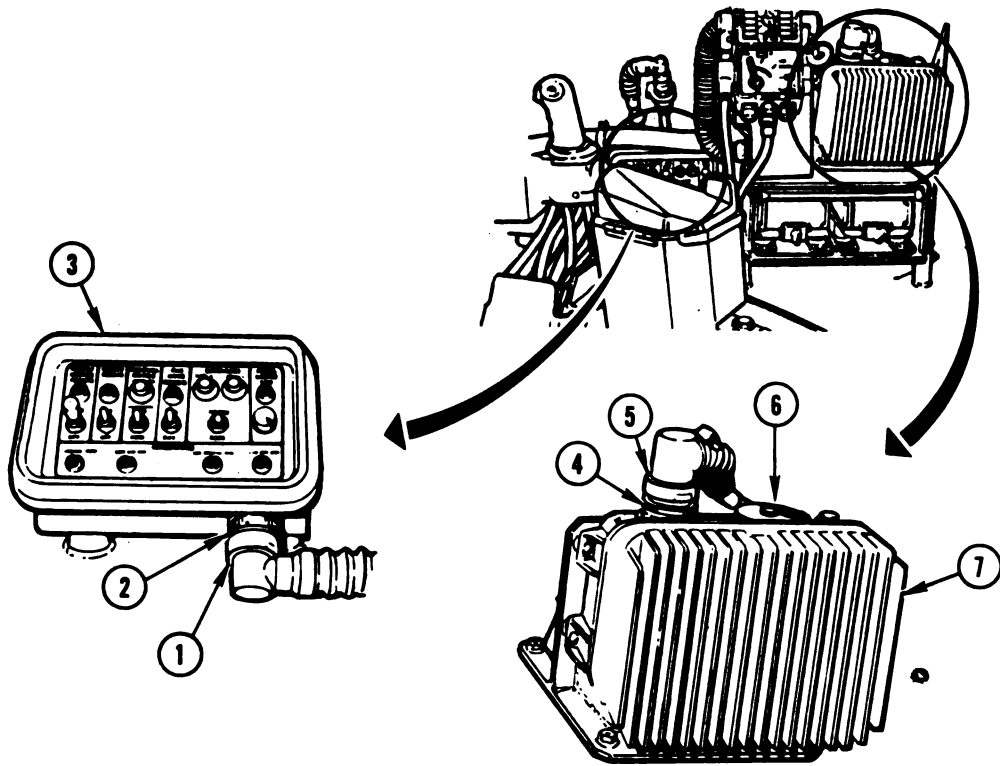
COMPUTER ELECTRONICS UNIT (CEU) 7
ELECTRONIC UNIT (GTD) 11

Harness Connector	Item	Connects to	Item
1W200-P2	14	GTD-J1	13
1W200-P3	8	GTD-J2	9
1W200-P4	15	GTD-J3	12
1W201-P2	4	CEU-J1	5
1W202-P2	3	CEU-J2	6
1W204-P1	2	CEU-J3	1
		GTD-J4	10

To gain access to items 1 through 15, remove electronics rack shield (16); refer to TM 9-2350-255-20-2-3-3, para. 7-7. Install shield when troubleshooting is complete.

Figure 9-230. Turret System Component Location Diagrams
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Para. 9-8

ARR82-613



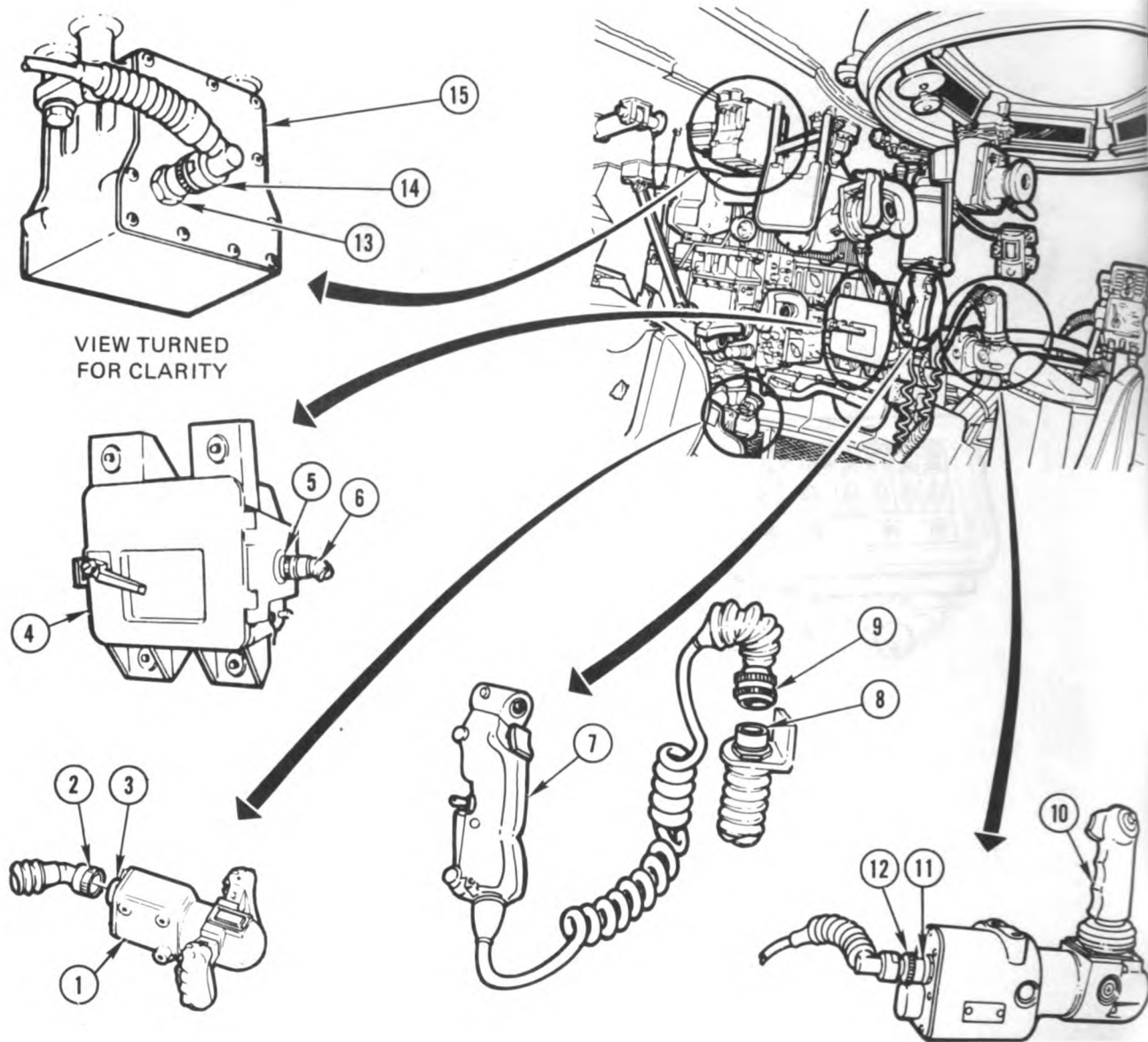
COMMANDER'S CONTROL PANEL (TCP) 3
 POWER CONTROL UNIT (CWSPU) 7

Harness Connector	Item	Connects to	Item
1W102-P2	1	TCP-J1	2
1W105-P3	5	CWSPU-J1	4
		CWSPU-TJ1	6

Figure 9-231. Turret System Component Location Diagrams
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ARR82-6139

9-553

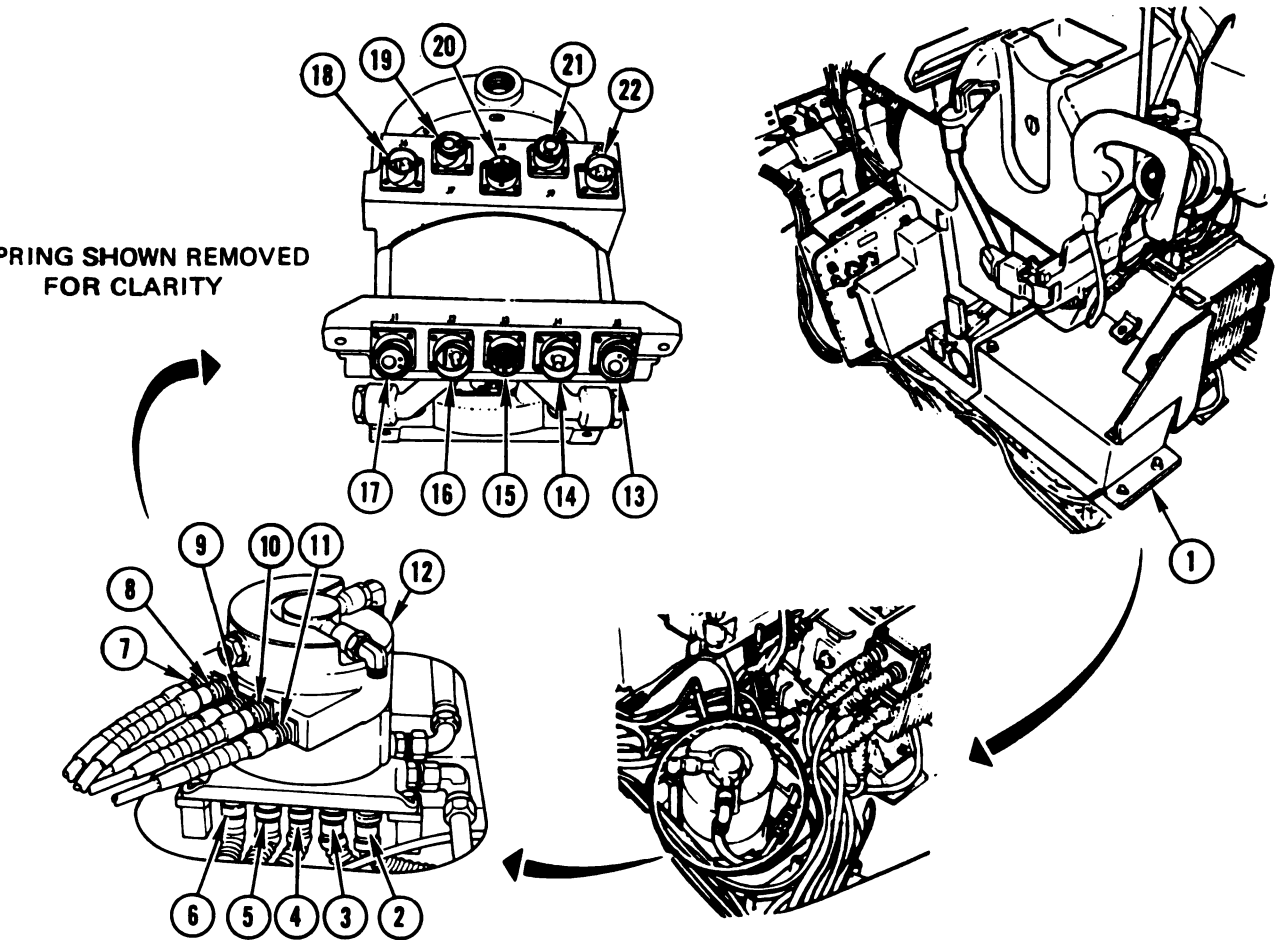


- BALLISTICS CONTROL PANEL (CCP) 4
- CANT UNIT (CANT) 15
- COMMANDER'S CONTROL (TCH) 10
- COMMANDER'S POWER CONTROL HANDLE (1A231) 7
- GUNNER'S CONTROL (GCH) 1

Harness Connector	Item	Connects to	Item
1A231-P1	9	1W105-J3	8
1W200-P7	12	TCH-J1	11
1W200-P8	2	GCH-J1	3
1W202-P5	6	CCP-J1	5
1W204-P3	14	CANT-J1	13

Figure 9-232. Turret System Component Location Diagrams
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Para. 9-8

ARR82-614



HULL/TURRET SLIPRING (SRING) 12

Harness Connector	Item	Connects to	Item
1W100-P1	7	SRING-J6	18
1W100-P2	11	SRING-J10	22
1W100-P3	10	SRING-J9	21
1W100-P4	8	SRING-J7	19
1W101-P1	9	SRING-J8	20

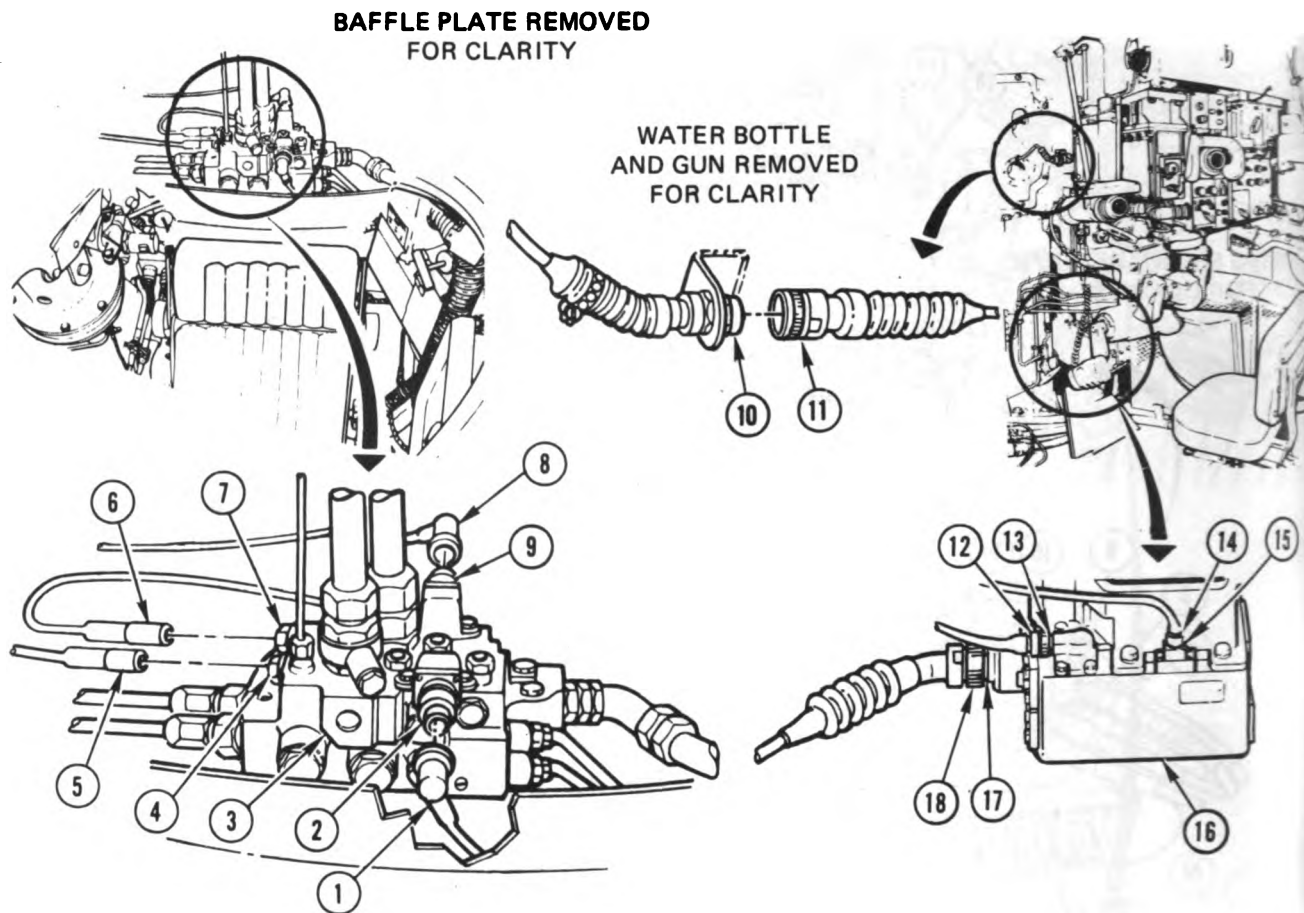
Harness Connector	Item	Connects to	Item
2W102-P2	6	SRING-J1	17
2W102-P3	5	SRING-J2	16
2W102-P4	3	SRING-J4	14
2W102-P5	2	SRING-J5	13
2W109-P1	4	SRING-J3	15

To gain access to items 7 through 12 and items 18 through 22, remove slipring access cover (1); refer to TM 9-2350-255-20-2-3-1, para. 2-8. Install cover when troubleshooting is complete.

To gain access to items 2 through 6 and items 12 through 17 through turret platform access door, traverse turret until main gun is over rear deck, and then lock turret; refer to TM 9-2350-255-10.

Figure 9-233. Turret System Component Location Diagrams
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ARR82-6141



**HYDRAULIC TURRET VALVE (HDV) 3
TRAVERSE SERVOMECHANISM (TRVSV) 16**

Harness Connector	Item	Connects to	Item
1W104-P4	6	HDV-J1	7
1W104-P5	1	HDV-J2	2
1W104-P6	8	HDV-J3	9
1W104-P7	5	HDV-J4	4

Harness Connector	Item	Connects to	Item
1W200-P9	18	TRVSV-J1	17
1W200-P10	14	TRVSV-J2	15
1W200-P11	12	TRVSV-J3	13
1W206-P3	11	1W207-J1	10

To gain access to items 1 through 9 from driver's compartment:

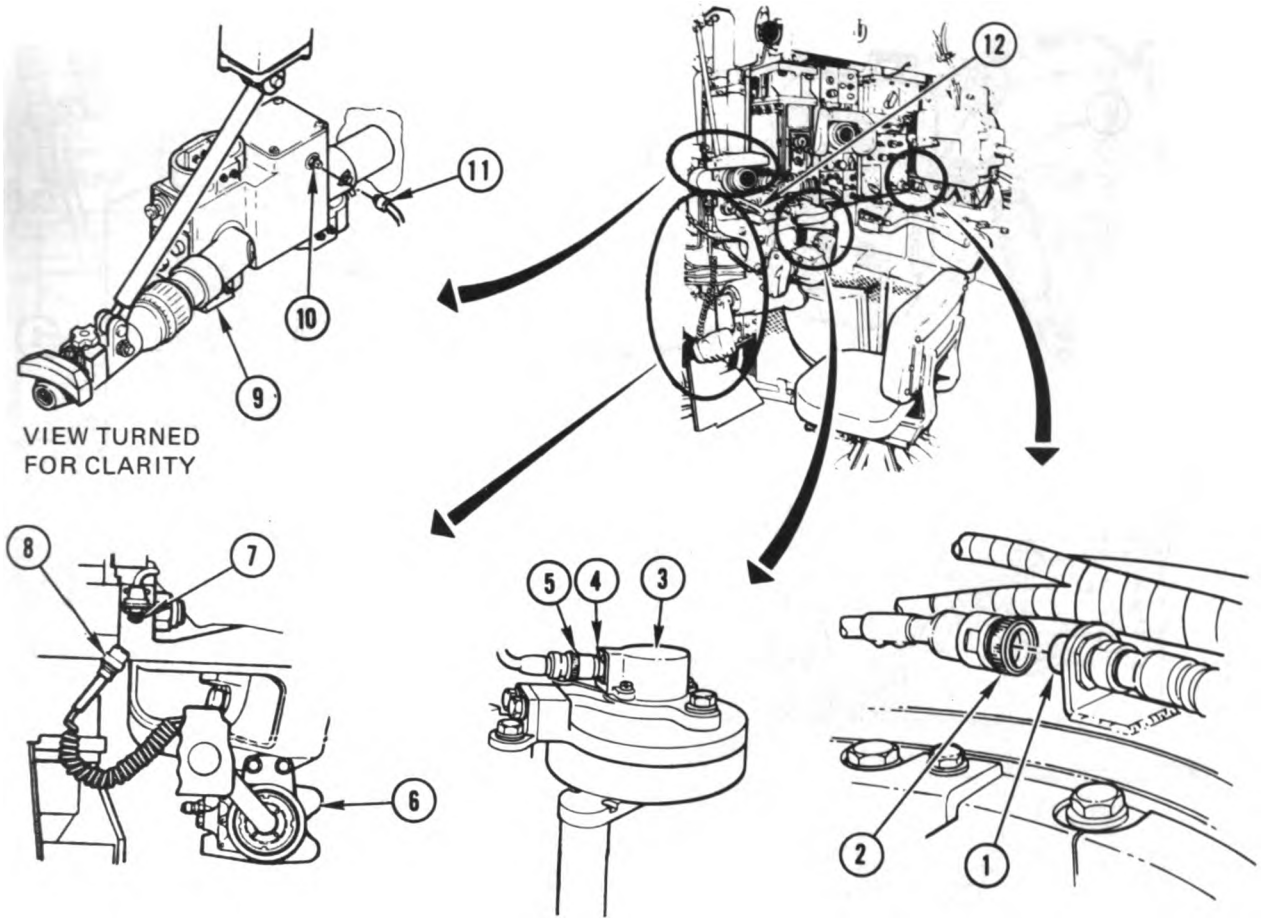
1. Remove baffle plate; refer to TM 9-2350-255-20-2-3-2, para. 3-16.
2. Traverse turret until main gun points straight forward, and then lock turret; refer to TM 9-2350-255-10.

Install plate when troubleshooting is complete.

To gain access to items 10 and 11, elevate main gun to maximum; refer to TM 9-2350-255-10.

**Figure 9-234. Turret System Component Location Diagrams
Volume II
Para. 9-8**

ARR82-6141

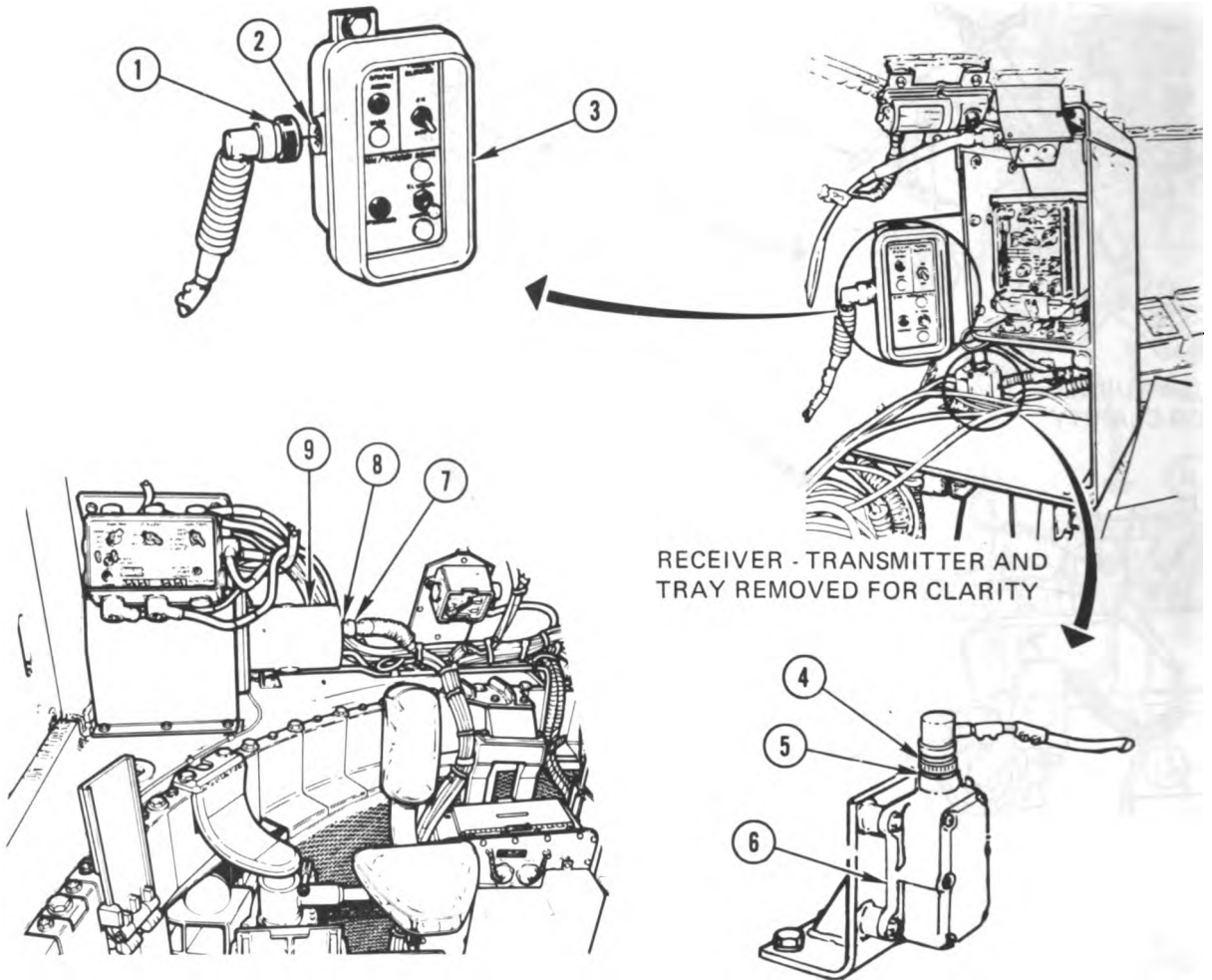


BLASTING MACHINE (1G100) 12
 ELEVATION HAND PUMP (1S241) 6
 GUNNER'S AUXILIARY SIGHT (GAS) 9
 TRAVERSING MECHANISM (TRVMC) 3

Harness Connector	Item	Connects to	Item
1G100-P1	2	1W105-J2	1
1S241-P1	8	1W200-J1	7
1W104-P3	5	TRVMC-J1	4
1W108-P2	11	GAS-J1	10

Figure 9-235. Turret System Component Location Diagrams
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ARR82-6143

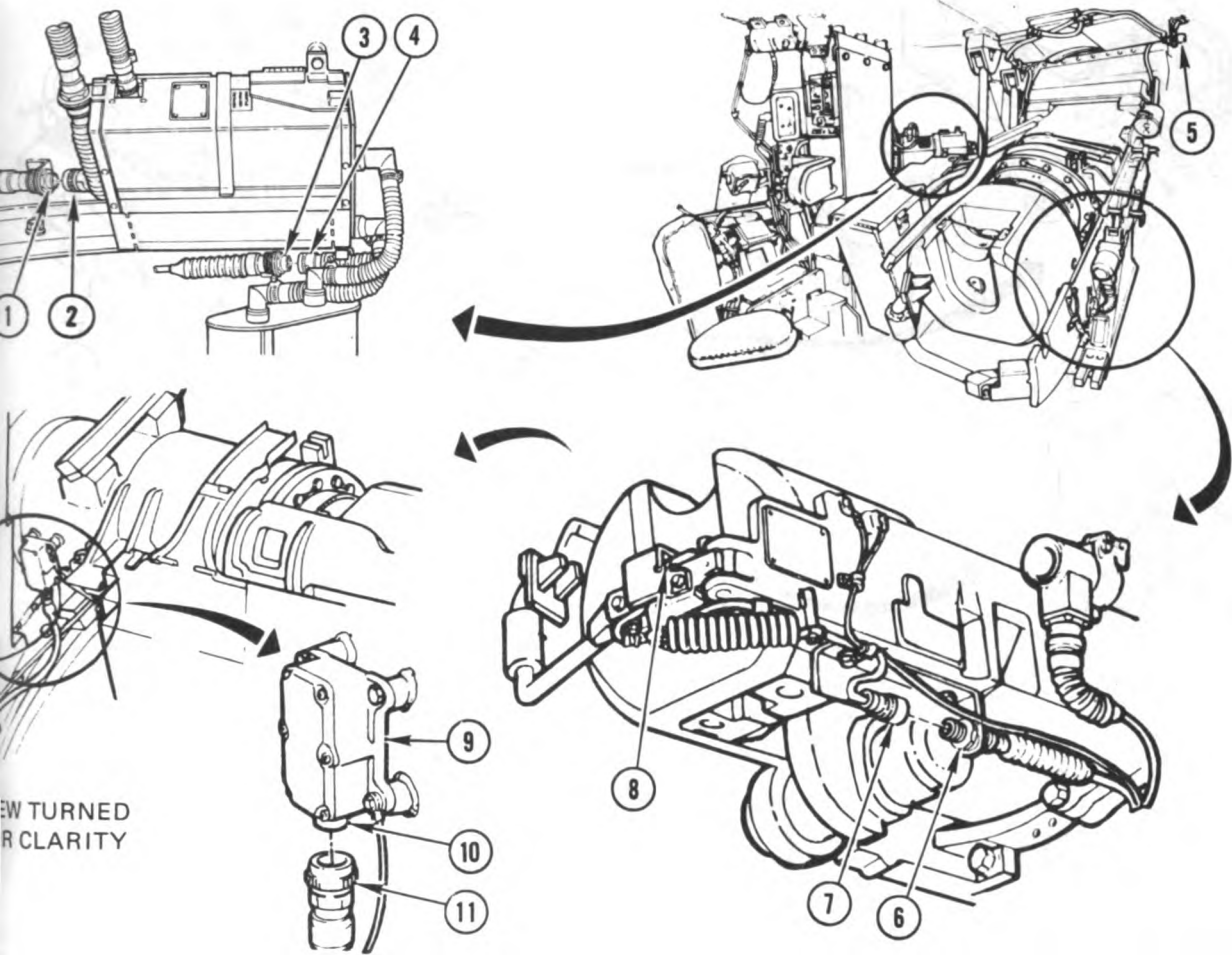


FAN ASSEMBLY (VBLOW) 9
 FEED FORWARD GYROSCOPE (TGYRO) 6
 LOADER'S PANEL (LP) 3

Harness Connector	Item	Connects to	Item
1W103-P2	7	VBLOW-J1	8
1W106-P2	1	LP-J1	2
1W200-P6	4	TGYRO-J1	5

Figure 9-236. Turret System Component Location Diagrams
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ARR82-6144



VIEW TURNED FOR CLARITY

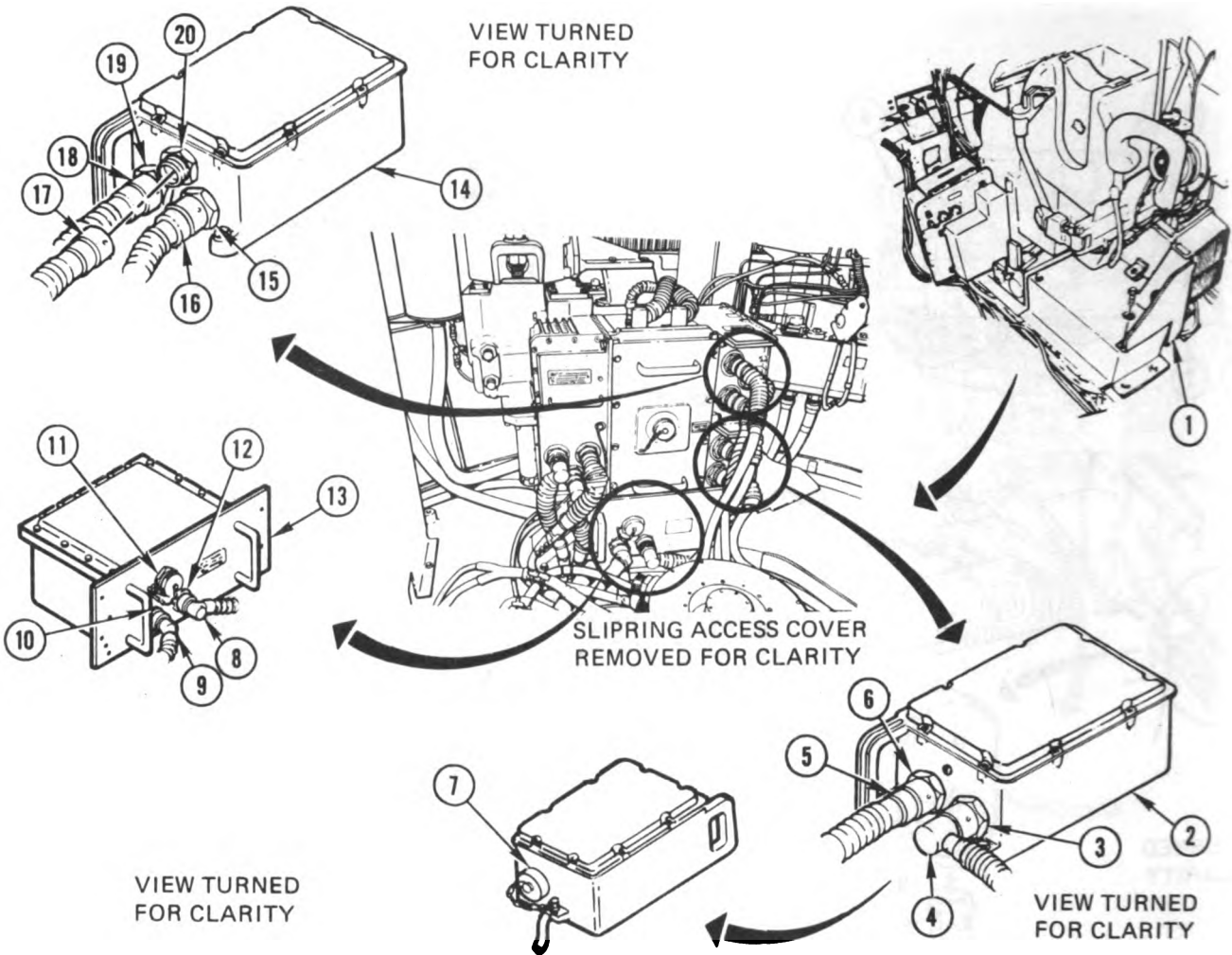
MAIN GUN SAFETY SWITCH (1S100) 8
 REFERENCE GYROSCOPE (GGYRO) 9
 ZERO DEGREE ELEVATION SWITCH (1S242) 5

Harness Connector	Item	Connects to	Item
1S100-P1	7	1W108-J1	6
1S242-P1	2	1W107-J2	1
1W108-P1	4	1W107-J1	3
1W200-P5	11	GGYRO-J1	10

- To gain access to items 1 through 4, 9, 10, and 11 from driver's compartment:
1. Remove baffle plate; refer to TM 9-2350-255-20-2-3-2, para 3-16.
 2. Traverse turret until main gun is over right front fender, and then lock turret; refer to TM 9-2350-255-10.
- Install plate when troubleshooting is complete.

Figure 9-237. Turret System Component Location Diagrams
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ARR82-6145



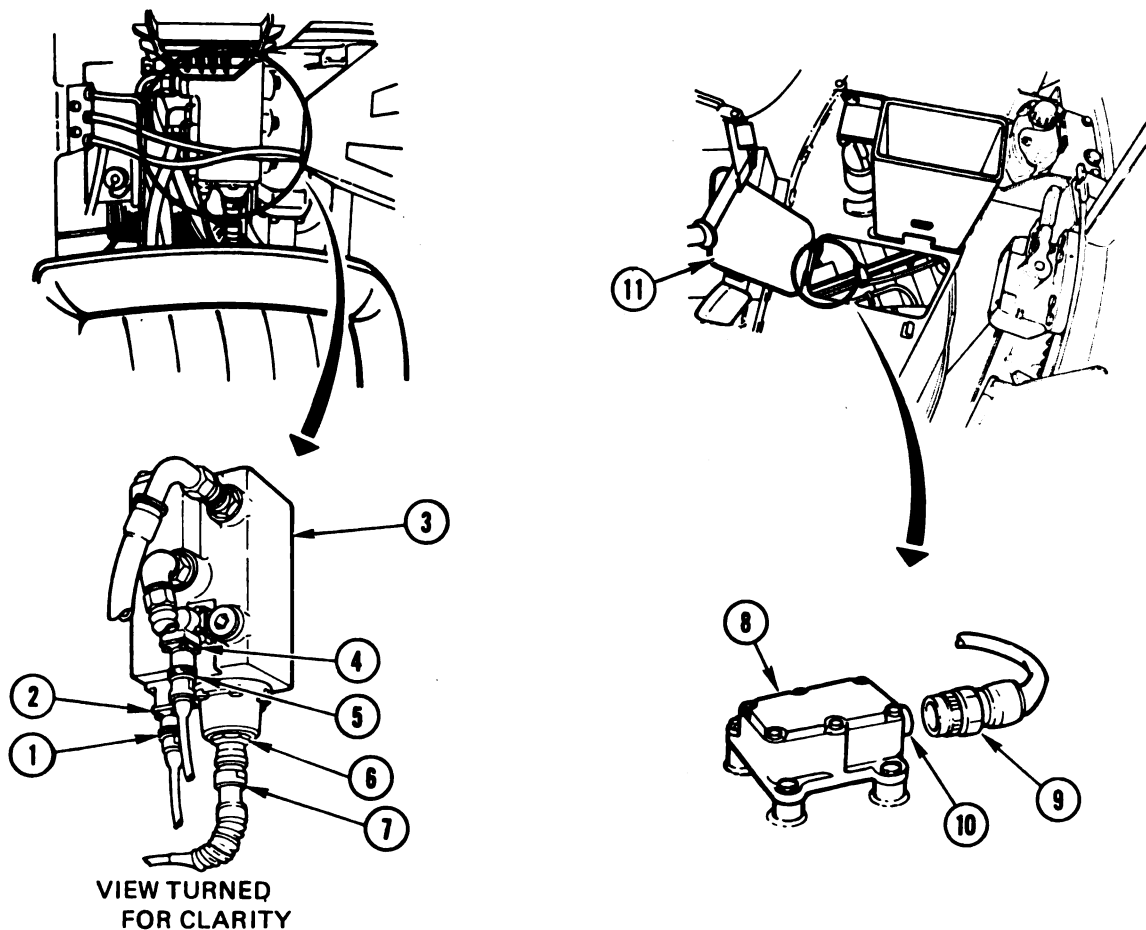
LINE-OF-SIGHT ELECTRONICS UNIT (LOS) 13
 THERMAL ELECTRONICS UNIT (TEU) 2
 THERMAL POWER CONTROL UNIT (TPCU) 14

Harness Connector	Item	Connects to	Item
1W202-P3	9	LOS-J1	10
1W202-P4	5	TEU-J1	6
1W202-P6	18	TPCU-J1	19
1W206-P1	8	LOS-J2	12
1W208-P1	17	TPCU-J3	20
1W209-P1	4	TEU-J2	3
1W210-P1	16	TPCU-J2	15
		LOS-J3	11
		TEU-J3	7

To gain access to items 2 through 6, and items 8 through 20, remove electronics rack shield (1); refer to TM 9-2350-255-20-2-3-3, para. 7-7. Install shield when troubleshooting is complete.

Figure 9-238. Turret System Component Location Diagrams
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VIEW TURNED FOR CLARITY

**ELEVATION SERVOMECHANISM (ELSVO) 3
FULL GYROSCOPE (HGYRO) 8**

Harness Connector	Item	Connects to	Item
1W200-P12	7	ELSVO-J1	6
1W200-P13	1	ELSVO-J2	2
1W200-P14	5	ELSVO-J3	4
2W109-P2	9	HGYRO-J1	10

To gain access to items 1 through 7 from driver's compartment:

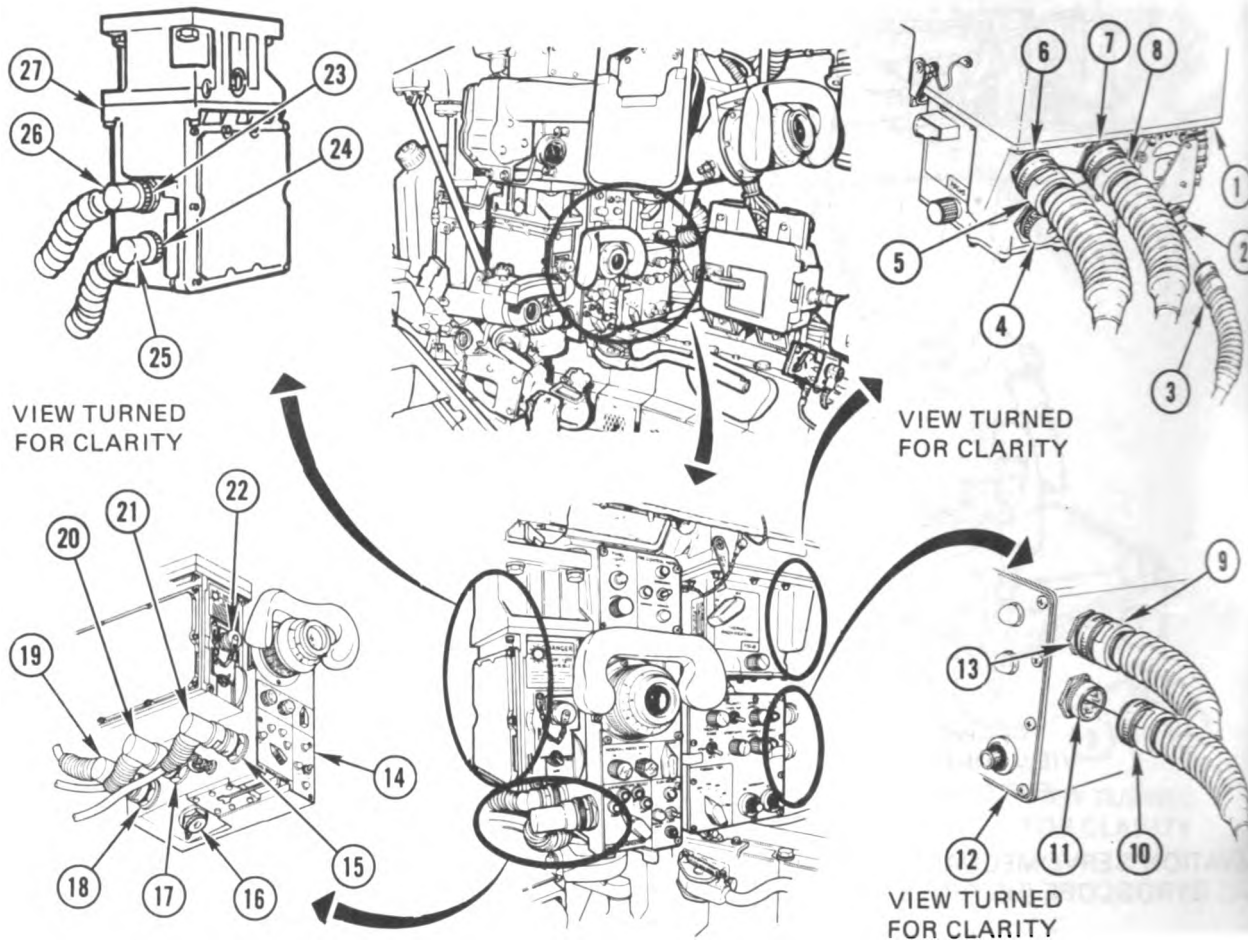
1. Remove baffle plate; refer to TM 9-2350-255-20-2-3-2, para 3-16.
2. Traverse turret until main gun points straight forward, and then lock turret; refer to TM 9-2350-255-10.

Install plate when troubleshooting is complete.

To gain access to items 8, 9, and 10 through turret platform access door (11), traverse turret until main gun is over left rear fuel cap, and then lock turret; refer to TM 9-2350-255-10.

Figure 9-239. Turret System Component Location Diagrams
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ARR82-6147

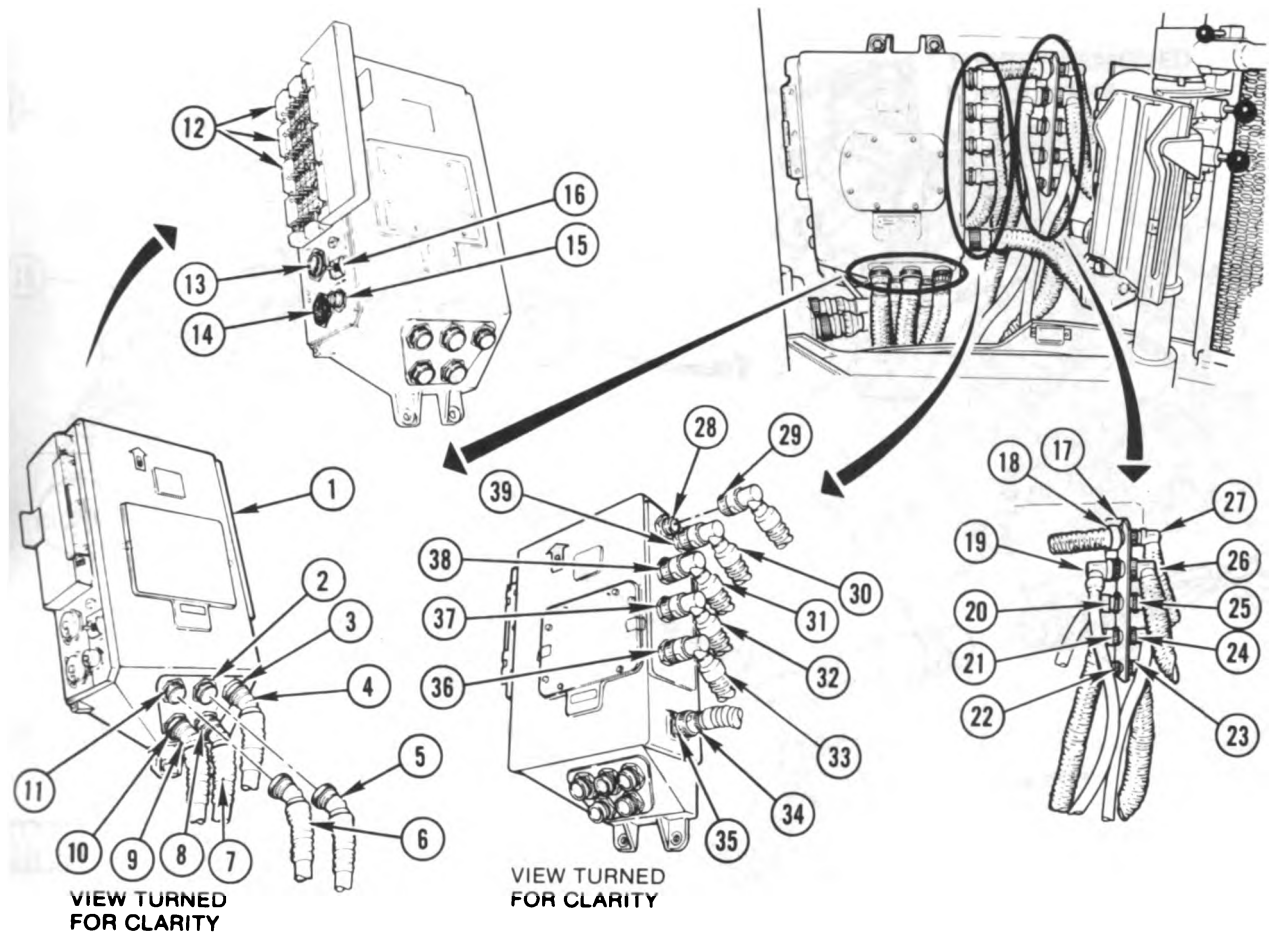


GUNNER'S PRIMARY SIGHT (GPS) 14
 IMAGE CONTROL UNIT (ICU) 12
 LASER RANGEFINDER (LRF) 27
 THERMAL RECEIVER UNIT (TRU) 1

Harness Connector	Item	Connects to	Item	Harness Connector	Item	Connects to	Item
1W104-P2	21	GPS-J3	15	1W209-P2	8	TRU-J2	1
1W203-P2	19	GPS-J1	18	1W209-P3	10	ICU-J2	1
1W203-P3	25	LRF-J1	24	1W210-P2	5	TRU-J1	1
1W204-P2	26	LRF-J2	23	1W210-P3	3	TRU-J4	3
1W206-P2	20	GPS-J2	17			GPS-J4	10
1W208-P2	9	ICU-J1	13			LRF-J3	22
						TRU-J3	4

Figure 9-240. Turret System Component Location Diagrams
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ARR82-614



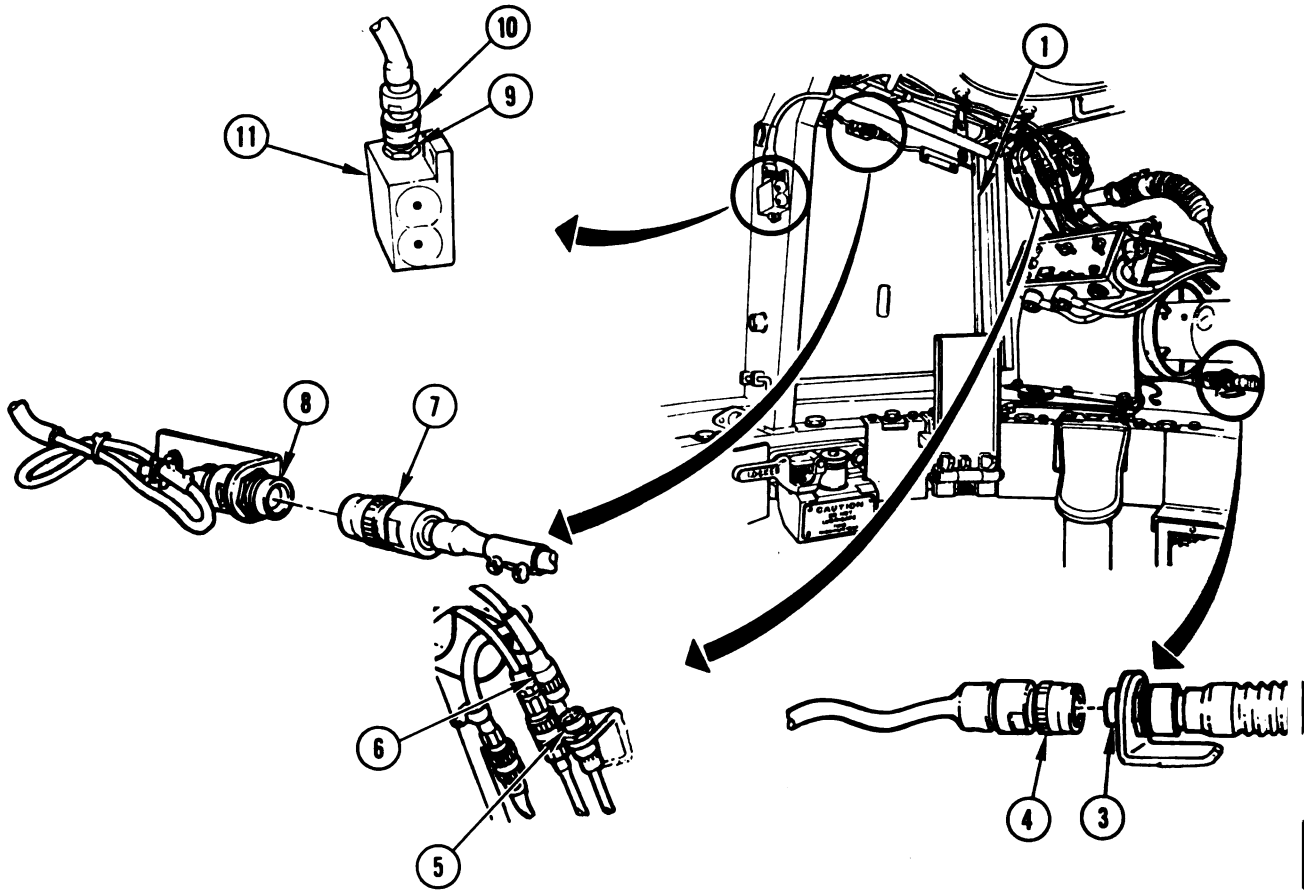
CABLE JUNCTION BRACKET 17
 CIRCUIT BREAKERS 12
 FULL NETWORKS BOX (HNB) 1
 UTILITY OUTLET (UJ1) 15
 UTILITY OUTLET SWITCH (CB-30) 16

Harness Connector	Item	Connects to	Item	Harness Connector	Item	Connects to	Item
2W101-P2	34	HNB-J6	35	2W107-P1	29	HNB-J1	28
2W103-P2	9	HNB-J9	10	2W107-P3	21	2W105-J1	24
2W104-P1	7	HNB-J8	8	2W108-P1	33	HNB-J4	36
2W105-P1	31	HNB-J2	38	2W109-P3	30	HNB-J7	39
2W105-P2	32	HNB-J3	37	2W110-P1	22	2W109-J1	23
2W105-P4	20	2W104-J1	25	2W111-P1	4	HNB-J10	3
2W105-P6	18	2W105-2-J1	27	2W112-P1	5	HNB-J11	2
2W106-P1	6	HNB-J12	11			HNB-TJ1	13
2W106-P2	19	2W107-J1	26			HNB-TJ2	14

To gain access to the above components, traverse turret until basket opening is in line with component, and then lock turret; refer to TM 9-2350-255-10.

Figure 9-241. Turret System Component Location Diagrams
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ARR82-6655

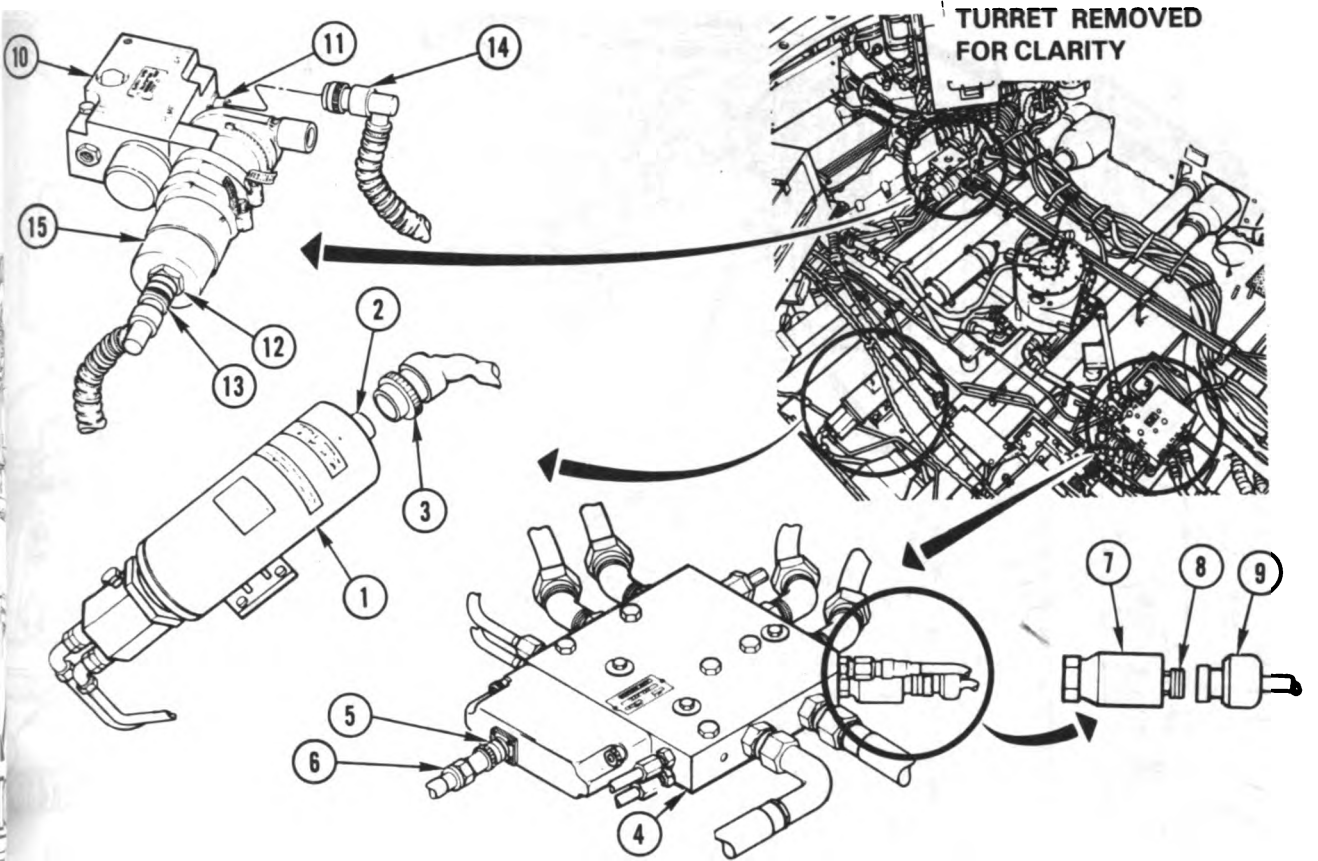


CREW CFIRE SENSOR (CFIRE) 11
 LOADER'S KNEE SWITCH (1S101) 2
 READY AMMUNITION DOOR SAFETY SWITCH (1S104) 1

Harness Connector	Item	Connects to	Item
1S101-P1	4	1W106-J2	3
1S104-P1	7	1W111-J1	8
1W101-P3	10	CFIRE-J1	9
1W111-P1	6	1W106-J1	5

Figure 9-242. Turret System Component Location Diagrams
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ARR82-6



1 AUXILIARY HYDRAULIC POWERPACK (AUXP)
 2 MAN ACTUATED FUEL PUMP (FLXFP)
 3 HYDRAULIC DISTRIBUTION MANIFOLD (MANFA)
 4 HYDRAULIC PRESSURE SWITCH (AXHPS)
 5 MANIFOLD ASSEMBLY (FLXFM)

Harness Connector	Item	Connects to	Item	Harness Connector	Item	Connects to	Item
2W105-P7	6	MANFA-J1	5	2W112-P3	9	AXHPS-J1	8
2W105-P10	13	FLXFP-J1	12	2W112-P4	3	AUXP-J1	2
2W106-P8	14	FLXFM-J1	11				

To gain access to items 1, 2, and 3 through turret platform access door, traverse turret until main gun is over right side of tank, and then lock turret; refer to TM 9-2350-255-10.

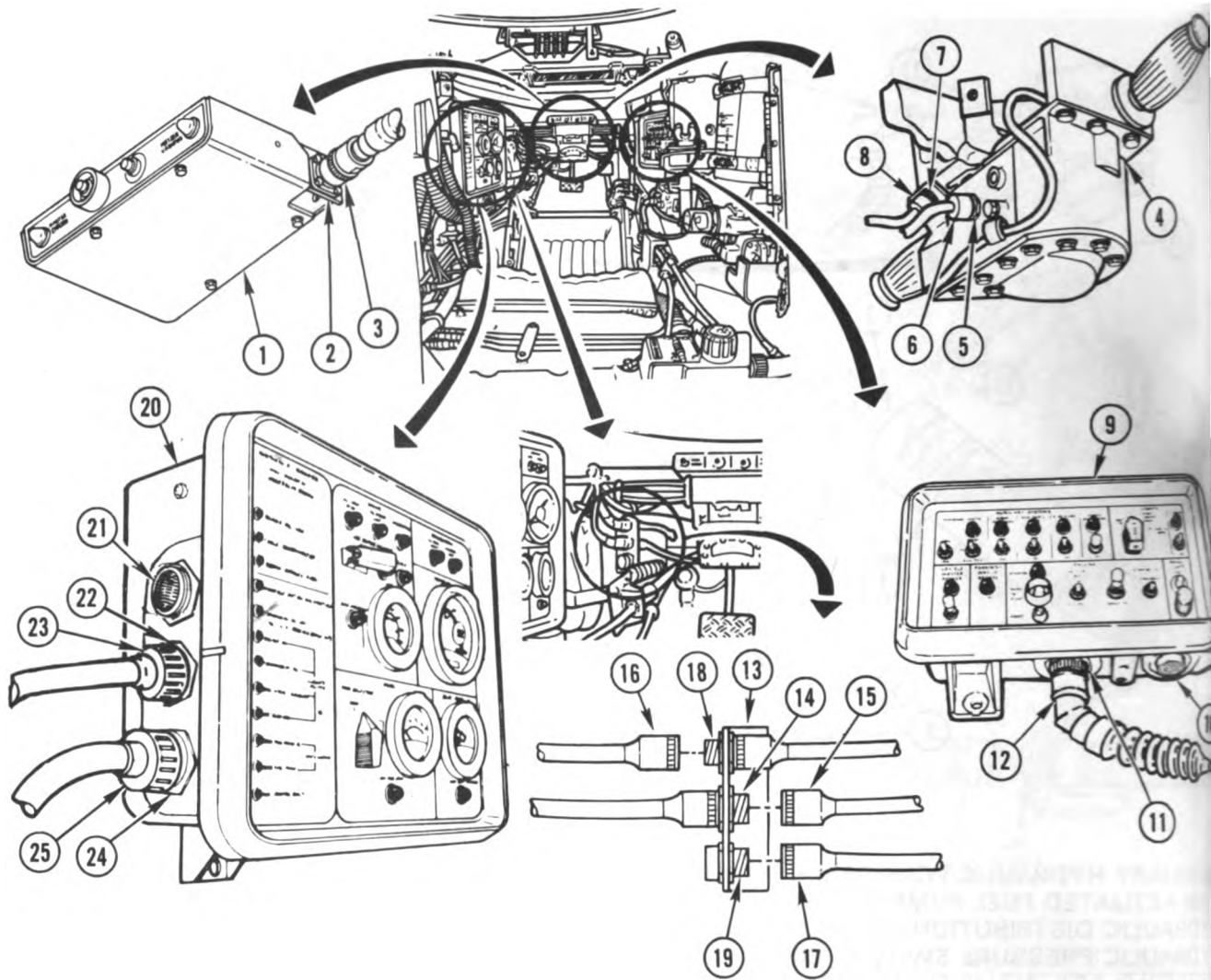
To gain access to items 4, 5, and 6 through turret platform access door, traverse turret until main gun is centered over front of tank, and then lock turret; refer to TM 9-2350-255-10.

To gain access to items 7, 8, and 9 through turret platform access door, traverse turret until main gun is over right front fender of tank, and then lock turret; refer to TM 9-2350-255-10.

To gain access to items 10, 11, 12, 13, and 14 through turret platform access door, traverse turret until main gun is over left rear fuel cap, and then lock turret; refer to TM 9-2350-255-10.

Figure 9-243. Turret System Component Location Diagrams
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ARR82-6150

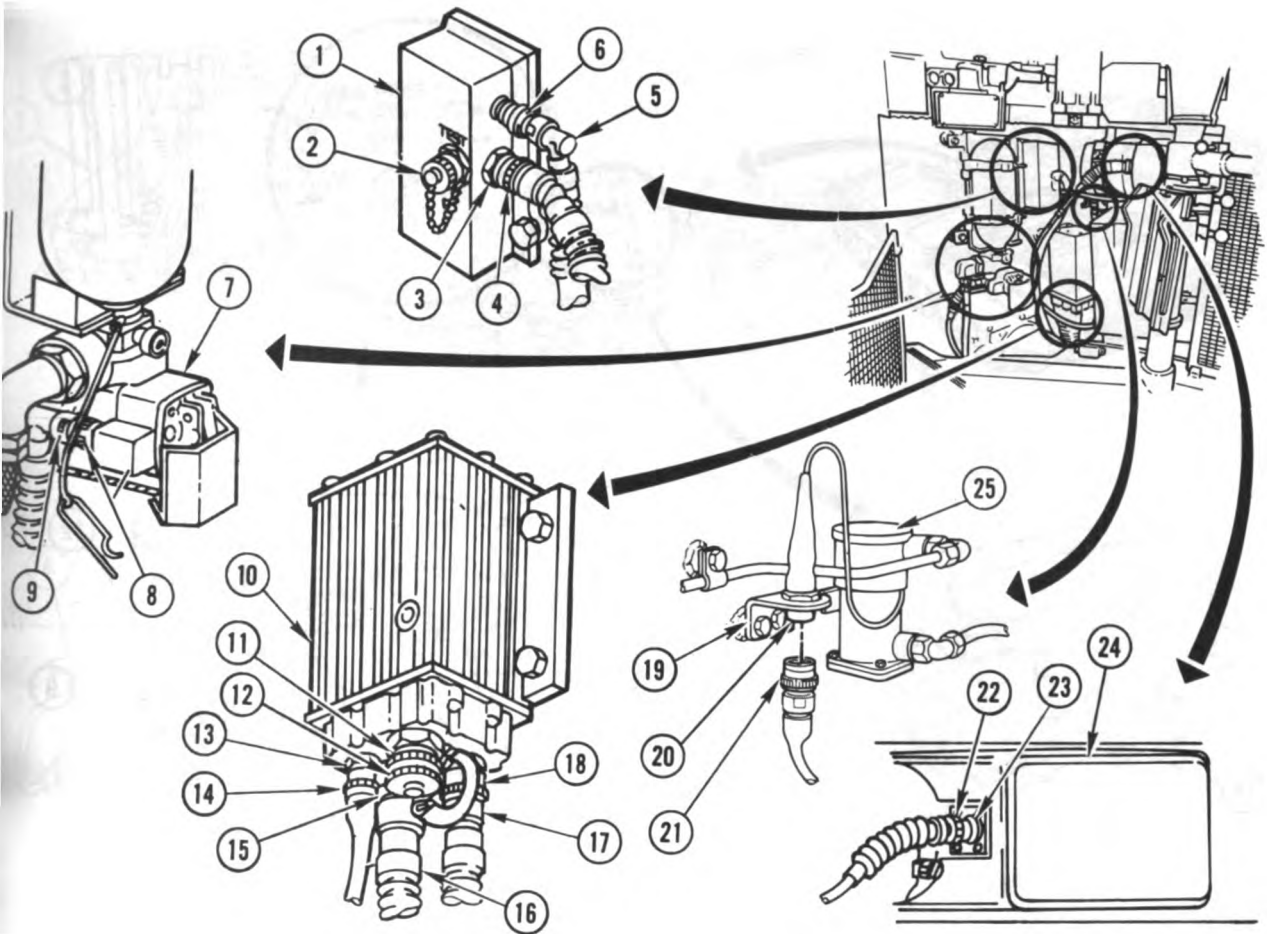


- DRIVER'S ALERT PANEL (DAP) 1
- DRIVER'S COMPARTMENT BRACKET ASSEMBLY 13
- DRIVER'S INSTRUMENT PANEL (DIP) 20
- DRIVER'S MASTER PANEL (DMP) 9
- SHIFT CONTROL ASSEMBLY/THROTTLE STEERING ASSEMBLY (SHIFT) 4

Harness Connector	Item	Connects to	Item	Harness Connector	Item	Connects to	Item
2W104-P3	12	DMP-J1	11	2W106-P5	25	DIP-J2	24
2W104-P5	16	STOPS-J1	18	2W106-P6	3	DAP-J1	2
2W104-P7	6	SHIFT-J1	5	2W301-P1	8	SHIFT-J2	7
2W104-P8	15	RVDT-J1	14			DIP-TJ1	21
2W104-P9	17	2L104-J1	19			DMP-TJ1	10
2W106-P4	23	DIP-J1	22				

Figure 9-244. Turret System Component Location Diagrams
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ARR82-6151



- TABLE JUNCTION BRACKET 19
- ELECTRONIC CONTROL UNIT (ECU) 10
- FIRE EXTINGUISHER AMPLIFIER (FEA) 1
- LEFT ENGINE COMPARTMENT FIRE EXTINGUISHER VALVE (2SHOT) 7
- PERSONNEL HEATER (PHEAT) 24
- PERSONNEL HEATER FUEL PUMP 25

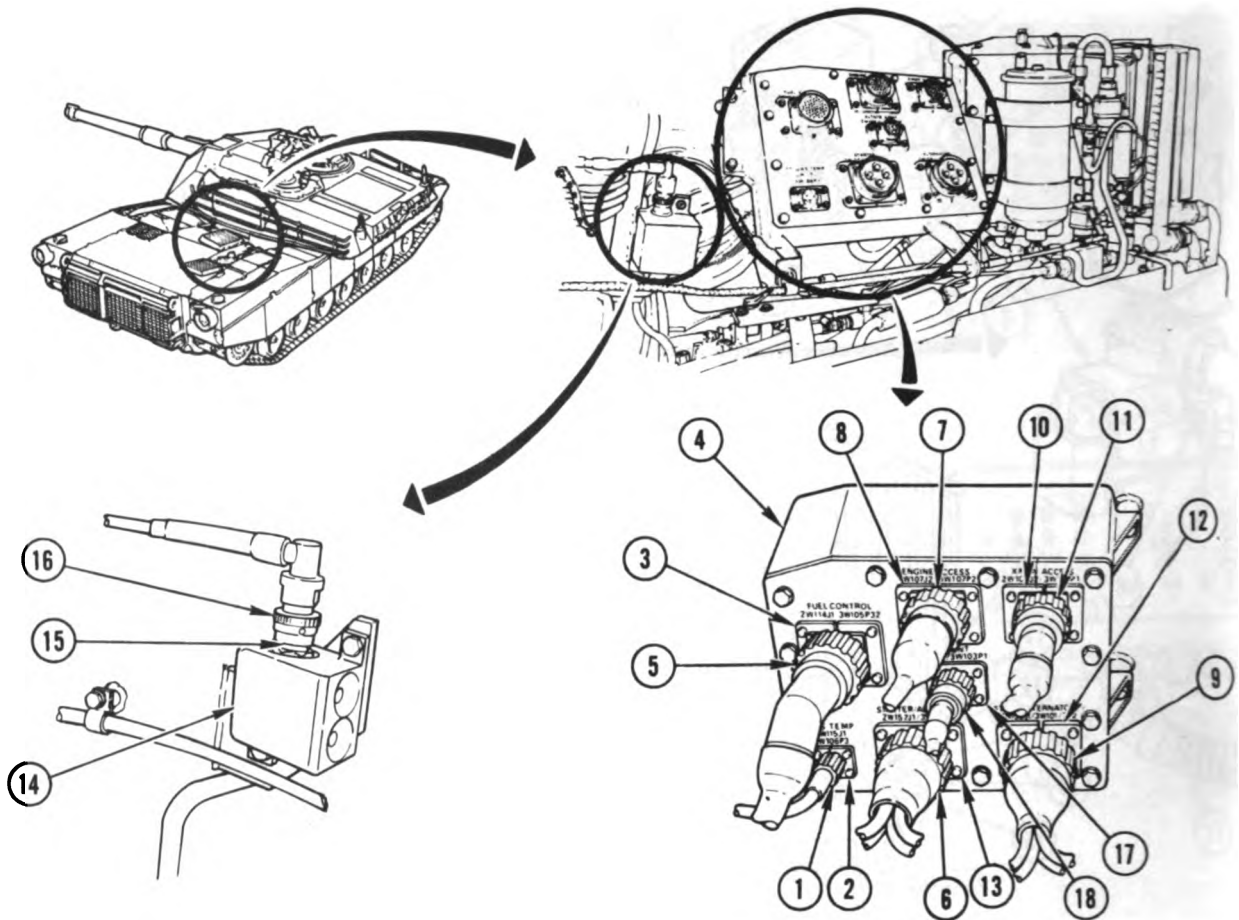
Harness Connector	Item	Connects to	Item
2W105-P5	16	ECU-J3	15
2W106-P3	21	HEATP-J1	20
2W110-P4	5	FEA-J2	6
2W111-P4	4	FEA-J1	3
2W111-P5	9	2SHOT-J1	8

Harness Connector	Item	Connects to	Item
2W112-P2	22	PHEAT-J1	23
2W114-P1	17	ECU-J2	18
2W115-P1	14	ECU-J4	13
Shorting Cap	12	ECU-J1	11
		FEA-TJ1	2

To gain access to the above components, traverse turret until basket opening is in line with component, and then lock turret; refer to TM 9-2350-255-10.

Figure 9-245. Turret System Component Location Diagrams
 Volume II
 Para. 9-8

ARR82-6152



**DISCONNECT PANEL 4
ENGINE 3FIRE SENSOR (3FIRE) 14**

Harness Connector	Item	Connects to	Item	Harness Connector	Item	Connects to	Item
2W160-P3	16	3FIRE-J1	15	3W103-P1	18	2W108-J1	17
• 3W101-P1	6	2W157-J1	13	3W104-P1	11	2W105-J2	10
3W101/2-P1	6	2W157-J1	13	3W105-P32	5	2W114-J1	3
3W101/2-P2	9	2W158-J1	12	3W106-P3	1	2W115-J1	2
• 3W102-P1	9	2W158-J1	12	3W107-P2	7	2W107-J2	8

To gain access to the above components:

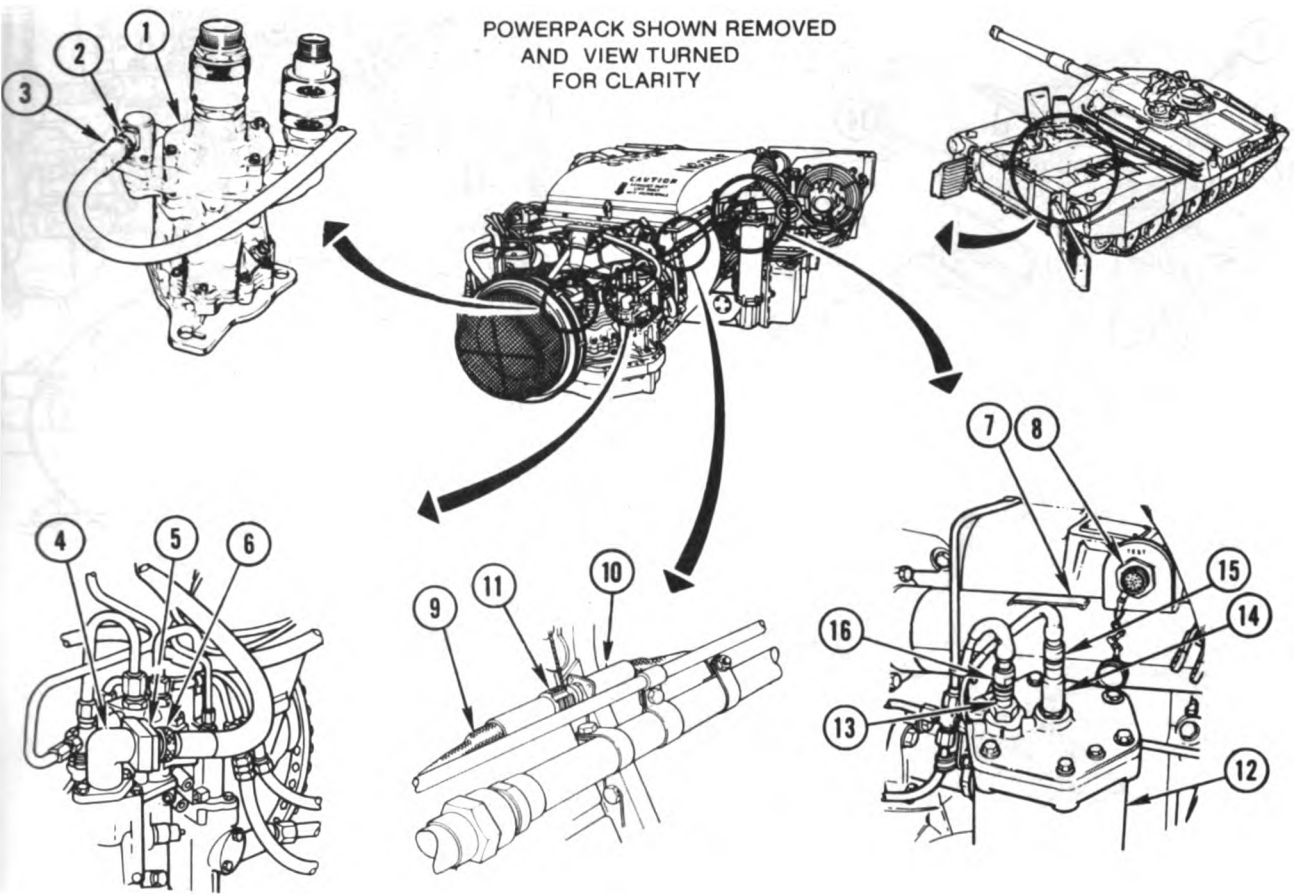
1. Traverse turret until main gun is over left side of tank, and then lock turret; refer to TM 9-2350-255-10.
2. Open top right grille doors; refer to TM 9-2350-255-10.
3. Remove engine access cover; refer to TM 9-2350-255-10.

Install cover and close doors when troubleshooting is complete.

* For tank serial numbers 001 through 110.

*Figure 9-246. Turret System Component Location Diagrams
Volume II
Para. 9-8*

ARR82-8153



POWERPACK SHOWN REMOVED
AND VIEW TURNED
FOR CLARITY

ELECTROMECHANICAL FUEL SYSTEM (EMFS) 4
 FUEL MANAGEMENT SYSTEM HARNESS 9
 LEFT OIL COOLER DRIVE SHAFT COVER 7
 MAIN HYDRAULIC CENTRIFUGAL PUMP (HPB) 1
 TRANSMISSION OIL FILTER 12

Harness Connector	Item	Connects to	Item
3W104-P7	15	PRES SW-J1	14
3W104-P8	16	PRES DIF SW-J1	13
3W104-P9	3	HPB-J1	2

Harness Connector	Item	Connects to	Item
3W105-P33	6	EMFS-J33	5
3W105-P37	11	3W105-1-J37 3W104-TJ1	10 8

To gain access to the above components, traverse turret until main gun is over left side of tank, and then lock turret; refer to TM 9-2350-255-10.

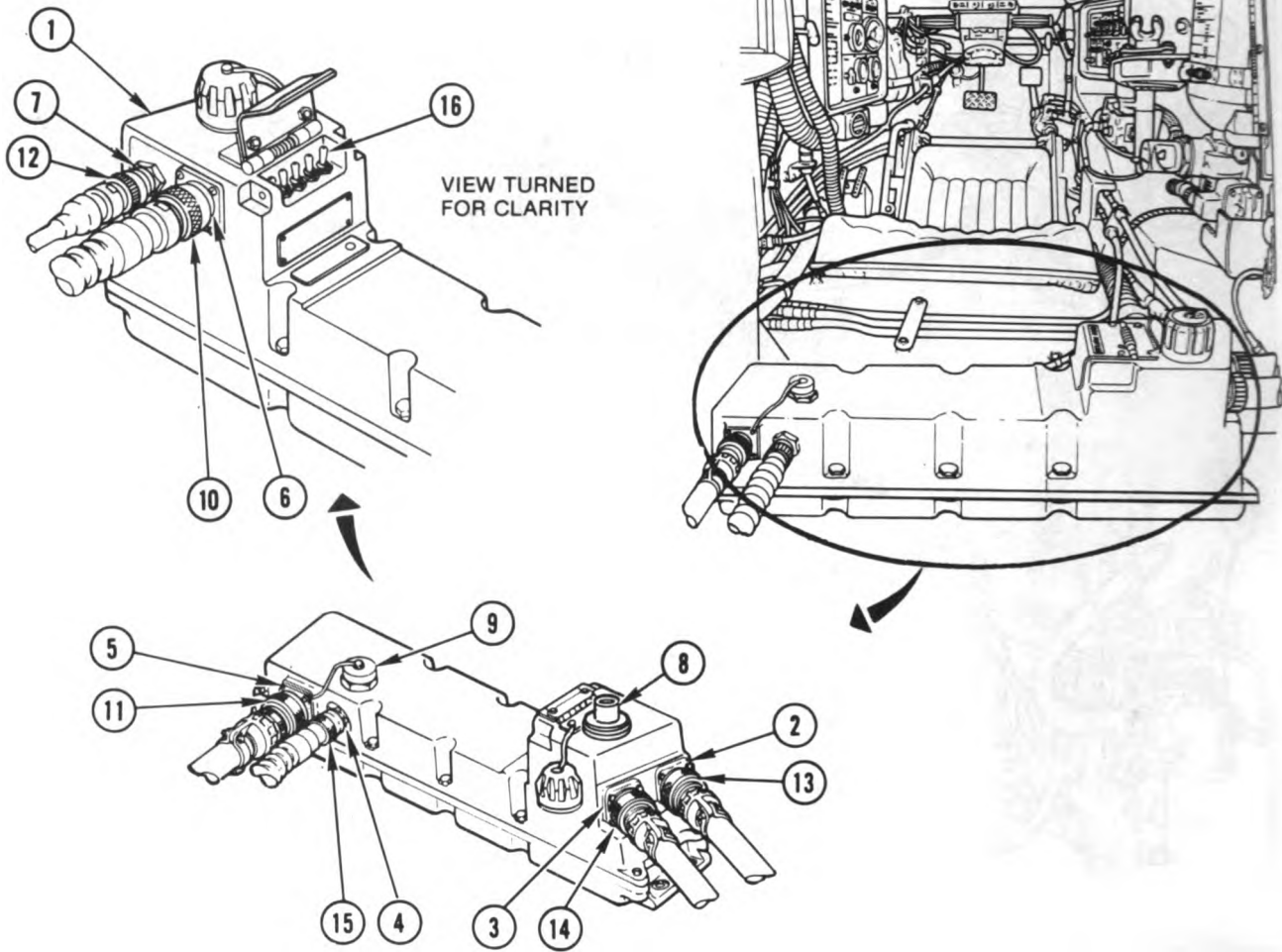
To gain access to items 1 through 6, remove engine access cover; refer to TM 9-2350-255-10.

To gain access to items 7 through 16, open top left grille doors; refer to TM 9-2350-255-10.

Close doors and cover when troubleshooting is complete.

Figure 9-247. Turret System Component Location Diagrams
 Volume II
 Para. 9-8

ARR82-6154



**CIRCUIT BREAKERS 16
POWER DISTRIBUTION BOX (HDB) 1**

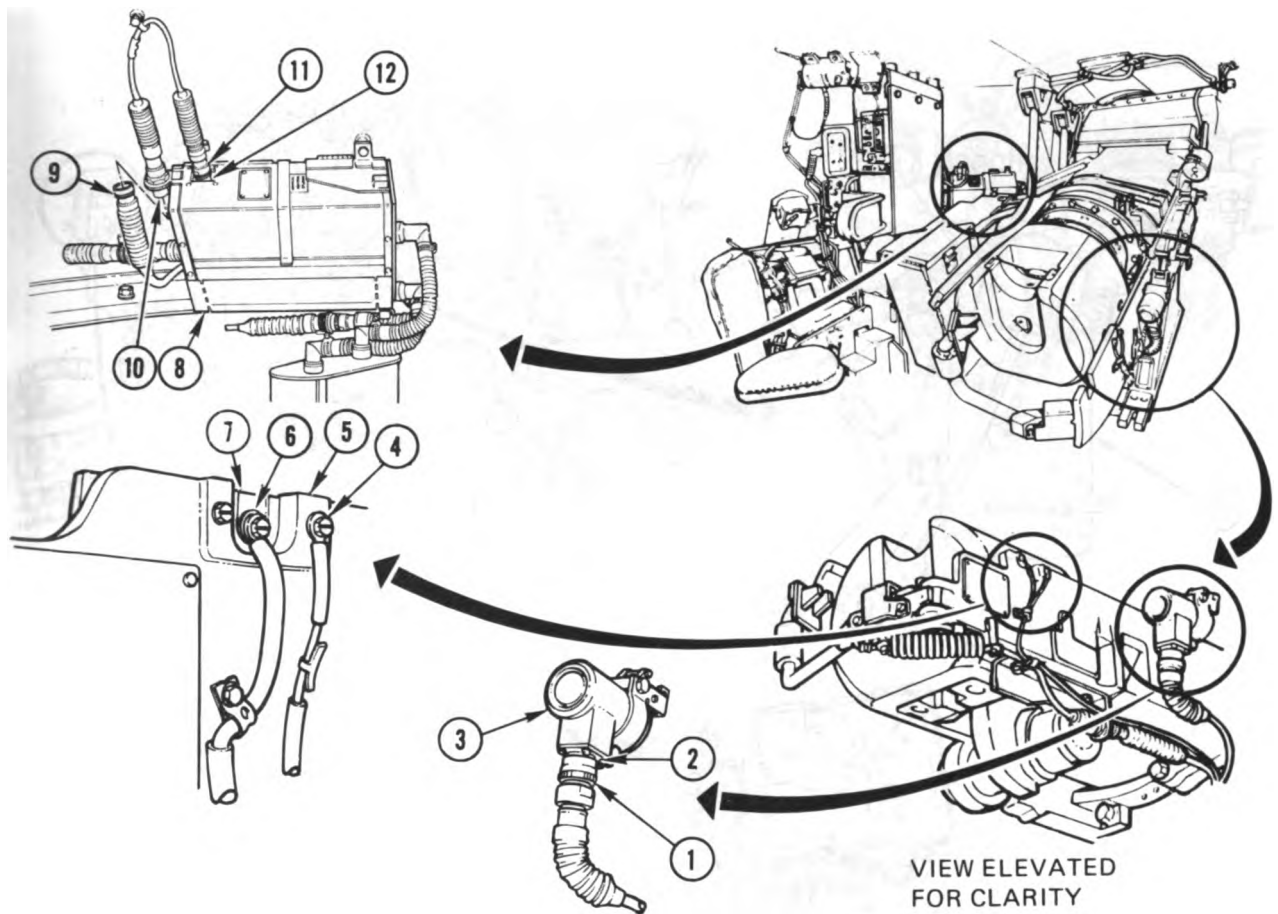
Harness Connector	Item	Connects To	Item	Harness Connector	Item	Connects To	Item
2W101-P1	10	HDB-J5	6	2W155-P1	14	HDB-J2	3
2W102-P1	11	HDB-J4	5	2W156-P1	15	HDB-J3	4
2W103-P1	12	HDB-J6	7			HDB-TJ1	9
2W154-P1	13	HDB-J1	2			NATO	
						SLAVE-J7	8

To gain access to items 4, 5, 11, and 15:

1. Open turret platform access door; refer to TM 9-2350-255-10.
2. Traverse turret until main gun is over rear deck, and then lock turret; refer to TM 9-2350-255-10.
3. Reach connectors through turret platform access door.

Close door when troubleshooting is complete.

**Figure 9-248. Turret System Component Location Diagrams
Volume II
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COAX ELECTRICAL SOLENOID (COAXS) 3
 ELECTRICAL CONTACT (GUNC +) 7
 RECLENER AND PARTICULATE FILTER ASSEMBLY (GPFLT) 8
 TORQUE BRACKET CONTACT (GUNC -) 5

Harness Connector	Item	Connects to	Item
1W107-P3	9	1W107-2-J1	10
1W107-2-P1	11	GPFLT-J1	12
1W108-E1(-)	4	GUNC (-)	5
1W108-E2(+)	6	GUNC (+)	7
1W108-P3	1	COAXS-J1	2

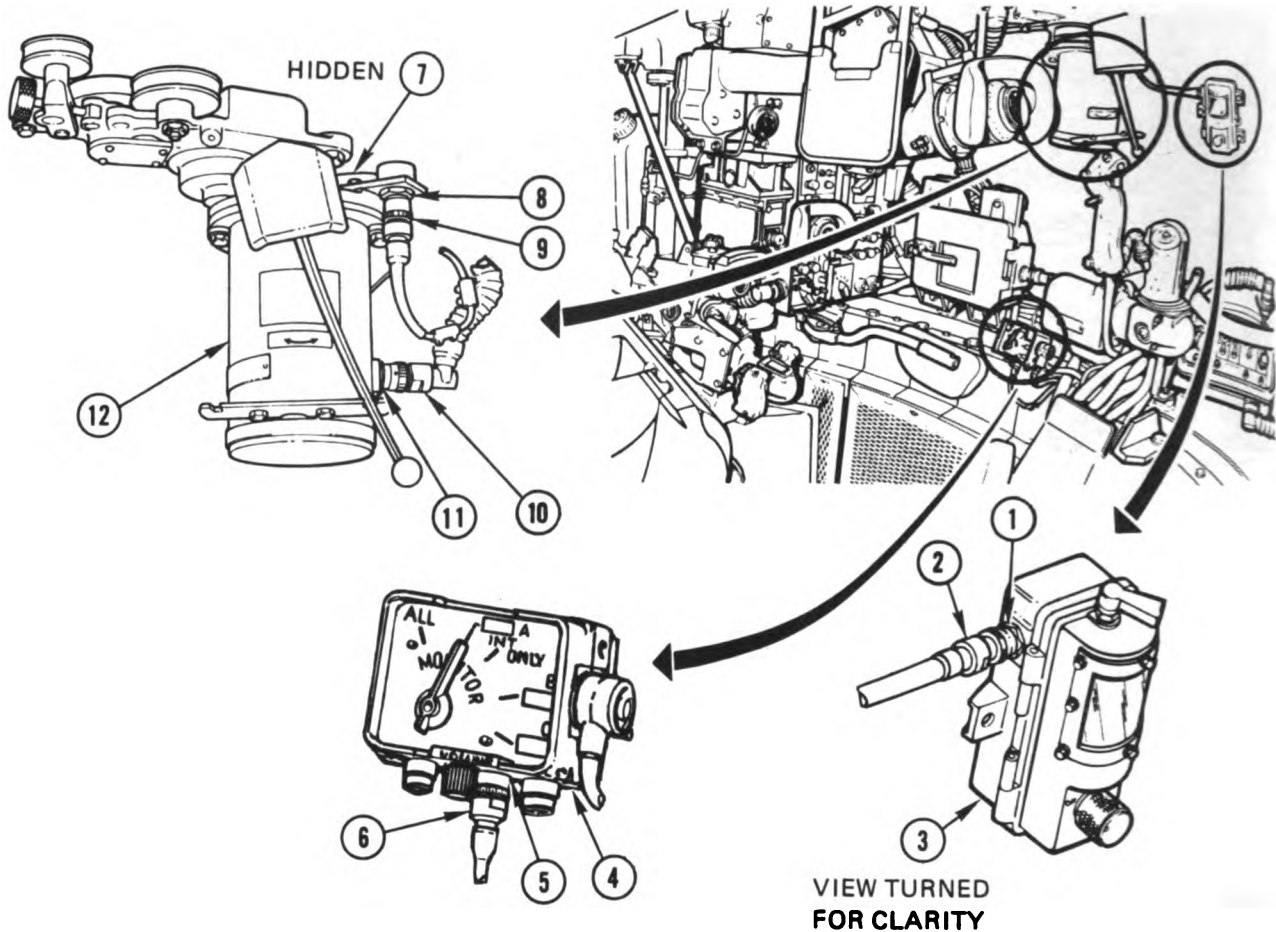
To gain access to items 8 through 12, raise main gun to maximum; refer to TM 9-2350-255-10.

To disconnect or connect items 4 and 6, use flat tip screwdriver.

Figure 9-249. Turret System Component Location Diagrams
 Volume II
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ARR82-6156

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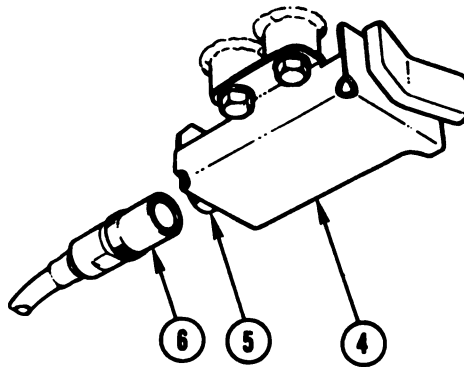
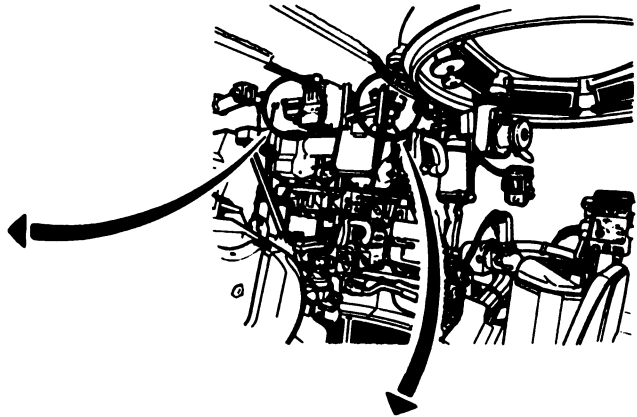
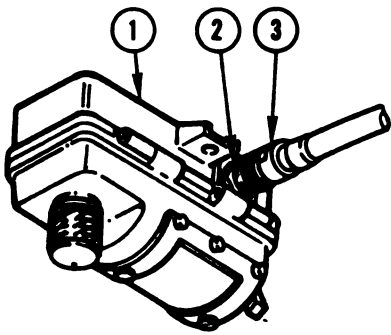


COMMANDER'S DOMELIGHT (CDOME) 3
 GEARBOX SWITCH (1S230) 7
 GUNNER'S INTERCOM CONTROL BOX (GINT) 4
 MOTOR/BRAKE (CWSMB) 12

Harness Connector	Item	Connects to	Item
1W102-P3	2	CDOME-J1	1
1W105-P4	10	CWSMB-J1	11
1W105-P6	9	1S230-J1	8
1W323-P2	6	GINT-J2	5

Figure 9-250. Turret System Component Location Diagrams
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ARR82-6157

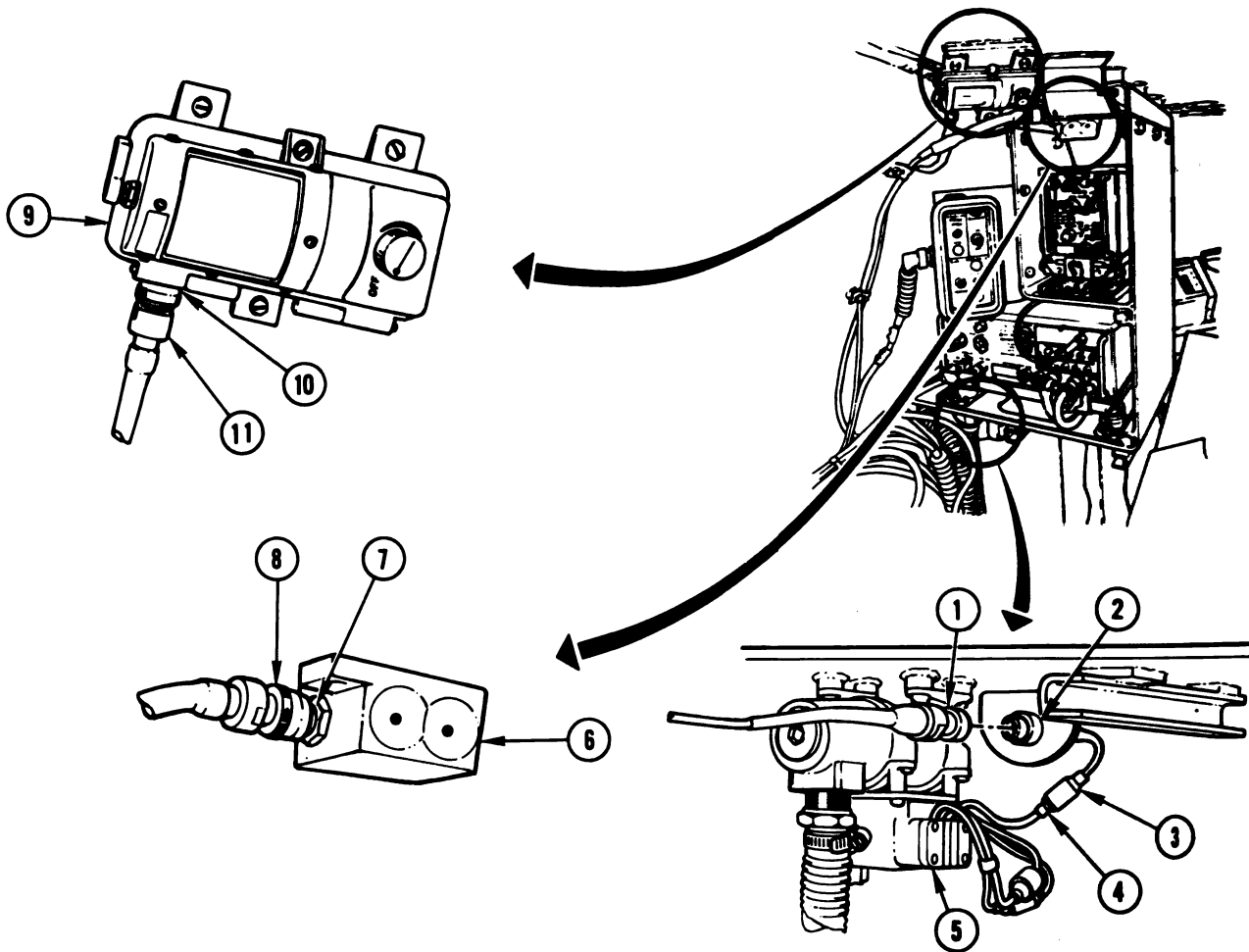


COMMANDER'S REMOTE INTERCOM SWITCH (CINTS) 4
 GUNNER'S DOMELIGHT (GDOME) 1

Harness Connector	Item	Connects to	Item
1W102-P4	3	GDOME-J1	2
1W105-P5	6	CINTS-J1	5

Figure 9-251. Turret System Component Location Diagrams
 Volume II
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ARR82-6158



CREW RFIRE SENSOR (RFIRE) 6
 LOADER'S DOMELIGHT (LDOME) 9
 LOADER'S HEATER (NBCHL) 5

Harness Connector	Item	Connects to	Item
1W101-P5	7	RFIRE-J1	8
1W106-P3	11	LDOME-J1	10
1W107-P2	1	1W107-1-J1	2
1W107-1-P1	3	NBCHL-J1	4

Figure 9-252. Turret System Component Location Diagrams
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ARR82-6159

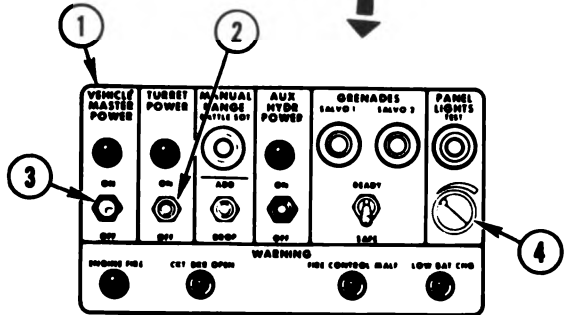
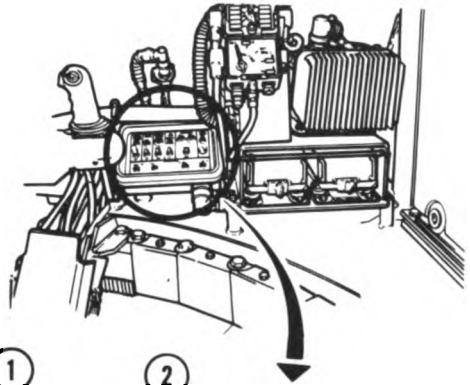
9-9. Turret Standard Initial Test Conditions. This paragraph tells you what the conditions of the tank should be before you begin troubleshooting. Initial test conditions for the commander's, gunner's, driver's, and loader's stations are listed in table 9-7.

Table 9-7. Turret Standard Initial Test Conditions

COMMANDER'S STATION

A. Commander's Control Panel (1)

1. Set **TURRET POWER** switch (2) to OFF.
2. Set **VEHICLE MASTER POWER** switch (3) to OFF.
3. Set **PANEL LIGHTS** control (4) to maximum clockwise position.



GUNNER'S STATION

B. Gunner's Primary Sight Upper Panel (5)

Set **DEFROSTER** switch (6) to OFF.

C. Gunner's Primary Sight Lower Panel (7)

Set **PANEL LIGHTS** control (8) to maximum clockwise position.

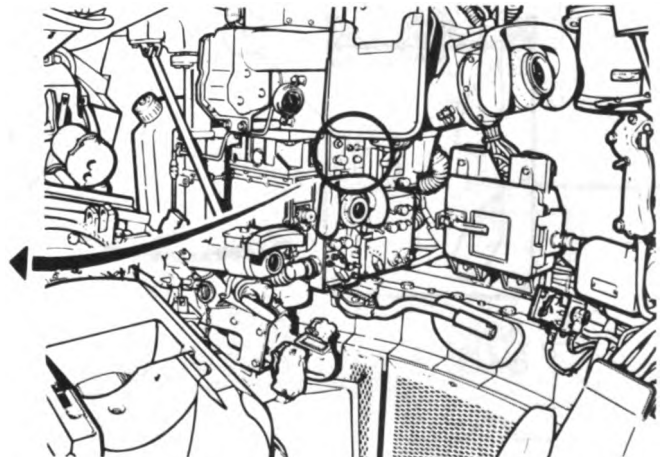
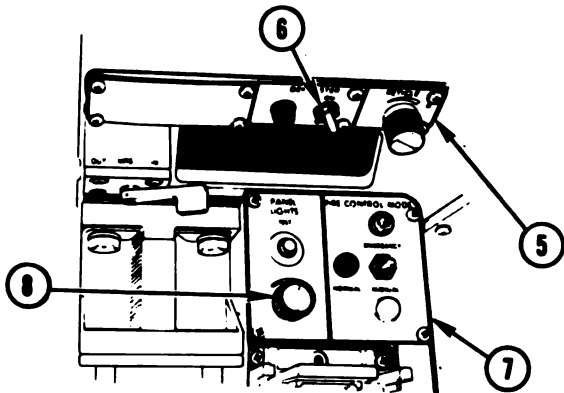


Table 9-7. Turret Standard Initial Test Conditions (Continued)

GUNNER'S STATION (Continued)

- D. Gunner's Image Control Unit (1)
Set THERMAL MODE switch (2) to OFF.
- E. Gunner's Auxiliary Sight Panel (3)
Set RETICLE control (4) to maximum counterclockwise position.

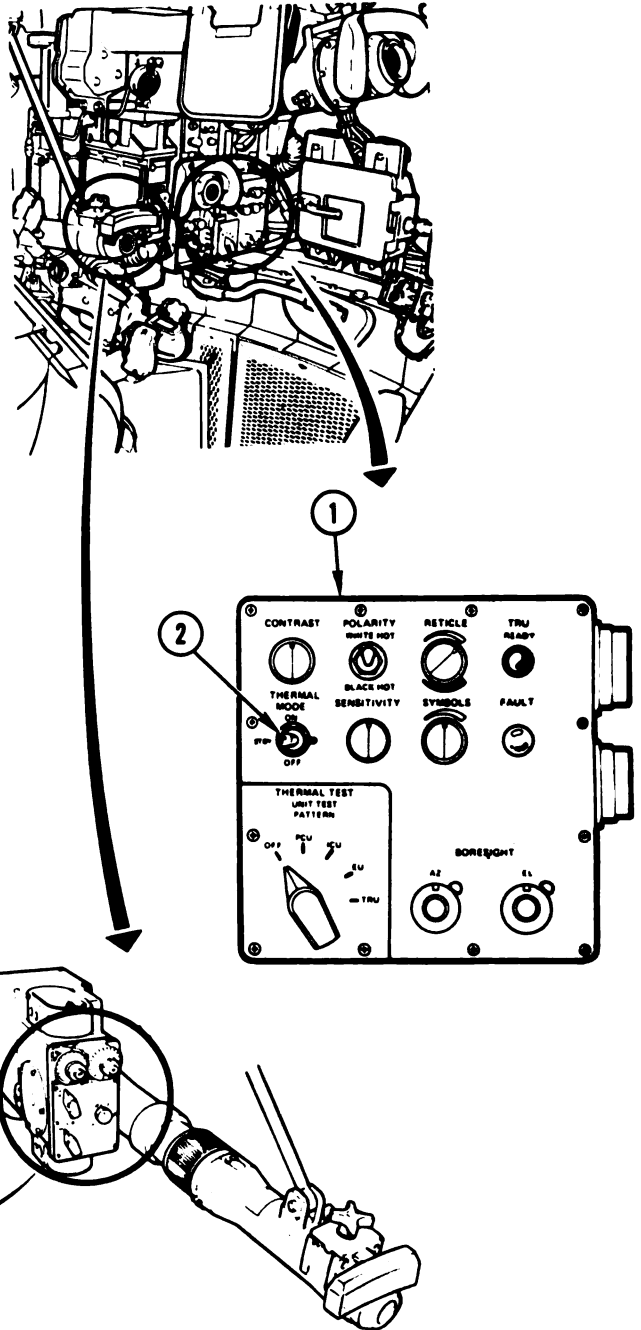


Table 9-7. Turret Standard Initial Test Conditions (Continued)

JINNER'S STATION (Continued)

Ballistics Control Panel (1)

Set PWR switch (2) to OFF.

Laser Rangefinder (3)

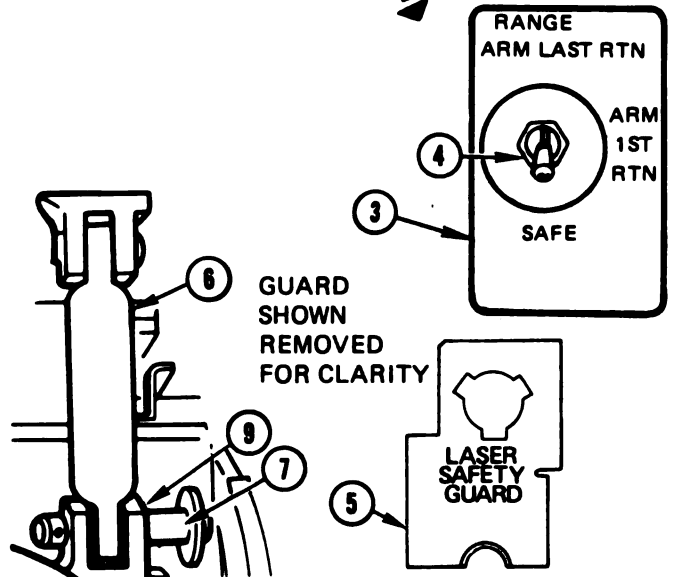
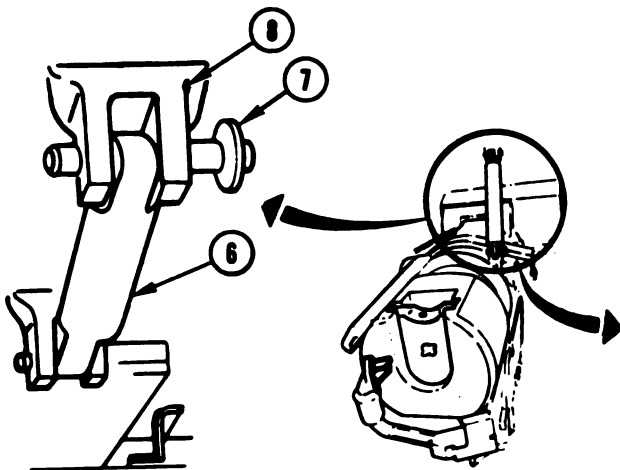
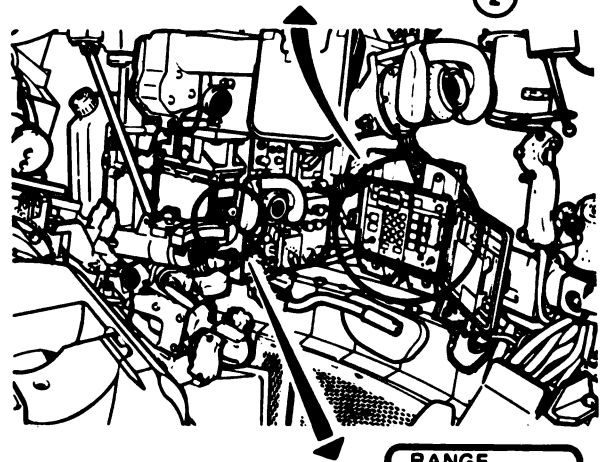
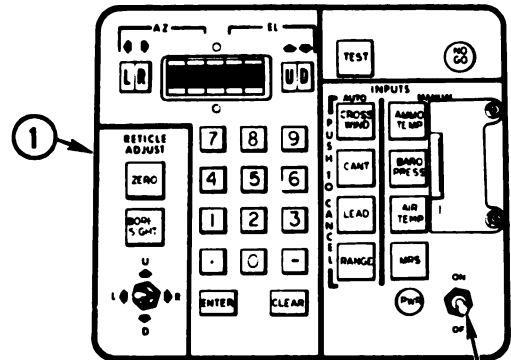
1. Set laser rangefinder switch (4) to SAFE.
2. Install laser guard (5); refer to TM 9-2350-255-10.

Internal Gun Travel Lock (6)

1. Release quick-release pin (7) from roof strut (8).
2. Swing internal gun travel lock (6) down into main gun strut (9) and engage quick-release pin (7).

NOTE

Gun may have to be elevated or depressed to engage quick-release pin.



ARR82-6182

Table 9-7. Turret Standard Initial Test Conditions (Continued)

LOADER'S STATION

I. Turret Networks Box (1)

1. Open circuit breaker access cover (2) on turret networks box (1).
2. Set all circuit breaker switches (3) to ON.

J. Loader's Panel (4)

1. Set TURRET BLOWER switch (5) to OFF.
2. Set GUN/TURRET DRIVE switch (6) to POWERED.

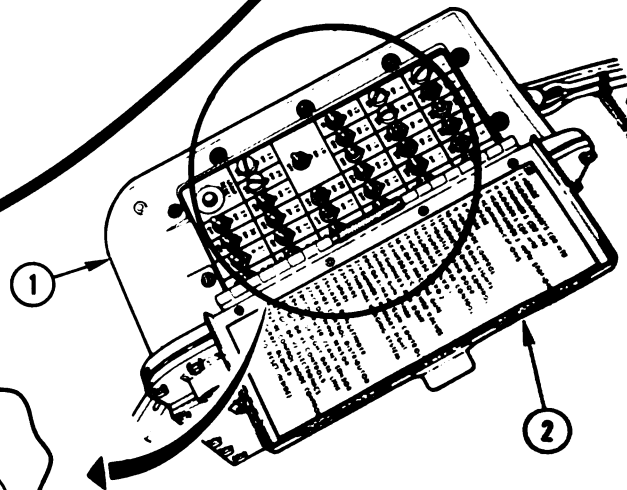
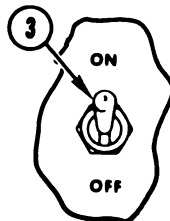
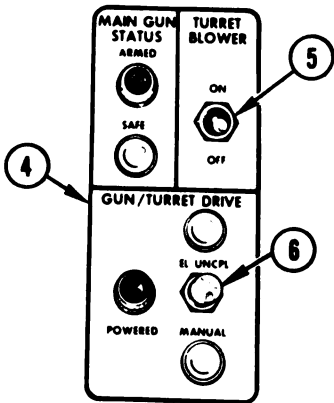
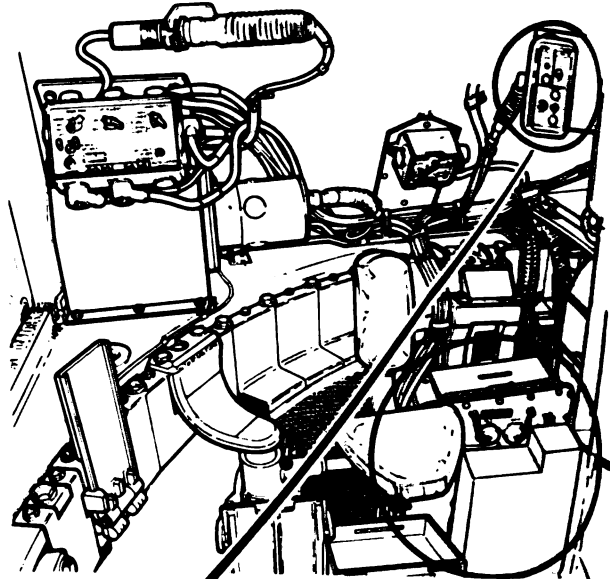


Table 9-7. Turret Standard Initial Test Conditions (Continued)

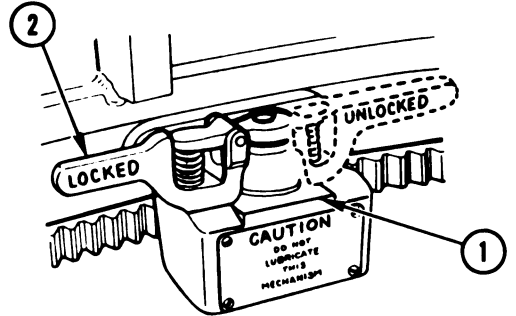
LOADER'S STATION (Continued)

K. Turret Lock (1)

Turn turret lock handle (2) clockwise to LOCKED position.

NOTE

Turret may have to be traversed slightly left or right for handle (2) to drop into detent position.



DRIVER'S STATION

L. Driver's Master Panel (3)

1. Set VEHICLE MASTER POWER switch (4) to OFF.
2. Set PERSONNEL HEATER switch (5) to LOW and switch (6) to OFF.
3. Set NIGHT PERISCOPE switch (7) to OFF.
4. Set GAS PARTIC FILTER switch (8) to OFF.
5. Set BILGE PUMP switch (9) to OFF.
6. Set SMOKE GENERATOR switch (10) to OFF.
7. Set LIGHTS switch (11) to OFF.
8. Set ENGINE TACTICAL IDLE switch (12) to OFF.
9. Set PANEL LIGHTS control (13) to maximum clockwise position.

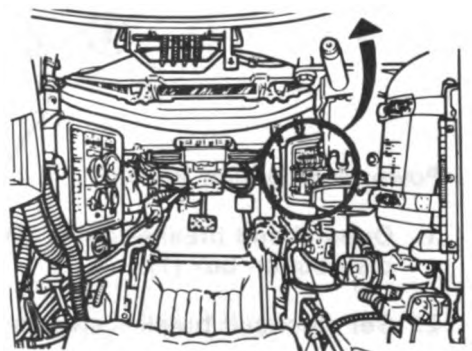
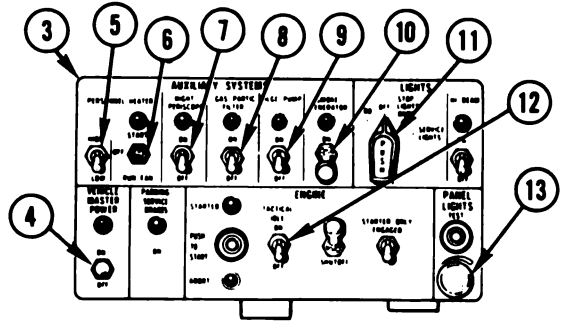
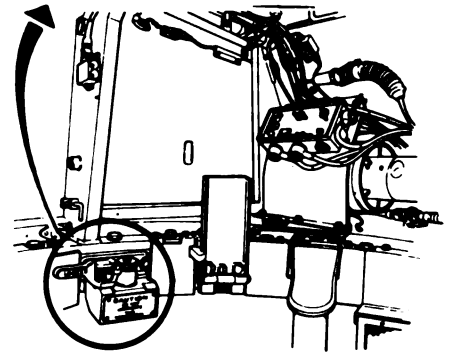
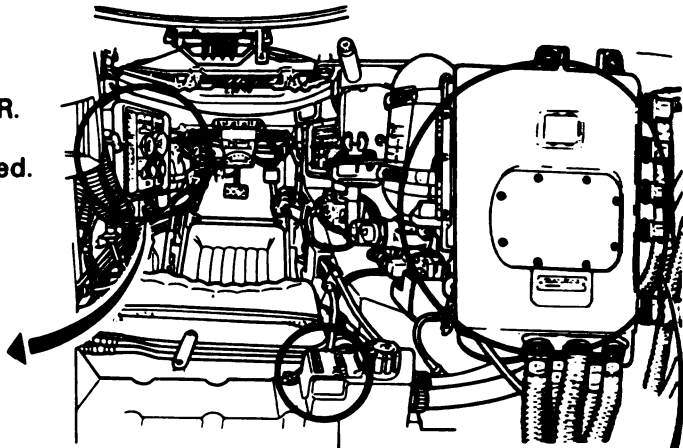
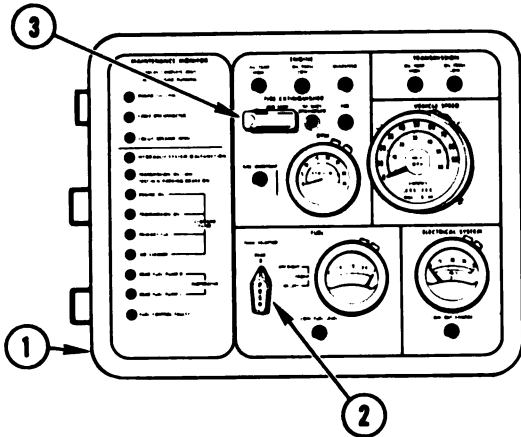


Table 9-7. Turret Standard Initial Test Conditions (Continued)

DRIVER'S STATION (Continued)

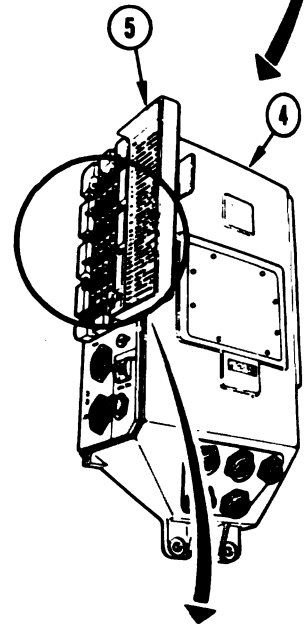
M. Driver's Instrument Panel (1)

1. Set TANK SELECTOR switch (2) to REAR.
2. Make sure 2ND SHOT guard (3) is closed.



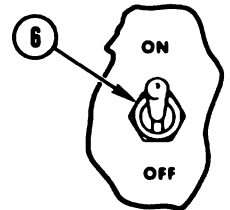
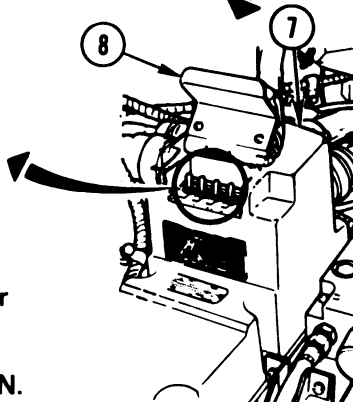
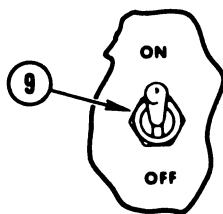
N. Hull Networks Box (4)

1. Open circuit breaker cover (5) on hull networks box (4).
2. Set all circuit breaker switches (6) to ON.



O. Power Distribution Box (7)

1. Open circuit breaker cover (8) on power distribution box (7).
2. Set all circuit breaker switches (9) to ON.



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