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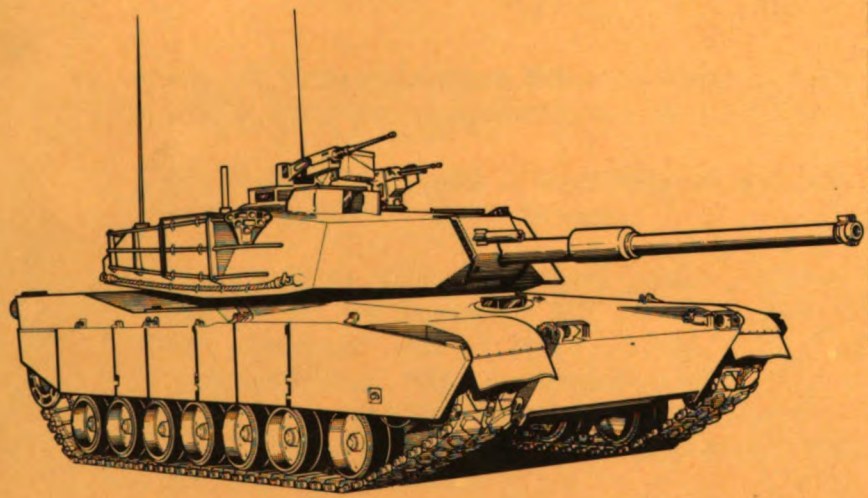


TECHNICAL MANUAL

**ORGANIZATIONAL TROUBLESHOOTING
MANUAL**

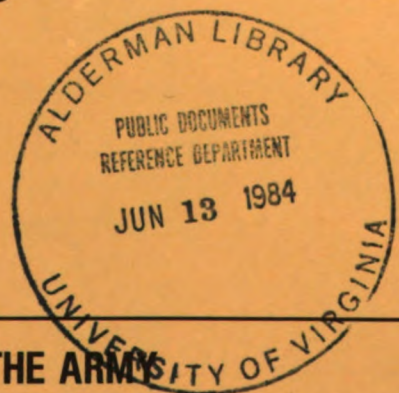
**VOLUME II
PART 2 OF 3**

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

TURRET



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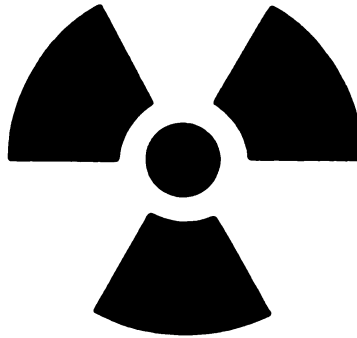
ARR82-5453

HEADQUARTERS, DEPARTMENT OF THE ARMY

MAY 1984

840612-3



**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.

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Volume II

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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.

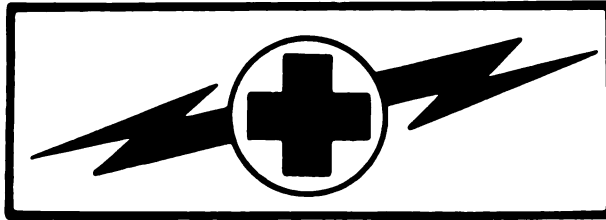
NOTE

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.

ARR82-5973

Volume II



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. 9-2350-255-20-2-2-2

HEADQUARTERS
 DEPARTMENT OF THE ARMY
 WASHINGTON, D C, 21 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 10 through 16 are contained in this part, Chapters 1 through 9 are in TM 9-2350-255-20-2-2-1, and Chapters 17 and 18 are in TM 9-2350-255-20-2-2-3.

Part 2

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CHAPTER 10
FIRE CONTROL SYSTEM TROUBLESHOOTING

10-1. General. This chapter tells you how to troubleshoot the subsystems of the fire control system. The subsystems are listed in table 10-1 with paragraph and page numbers.

Table 10-1. Fire Control Subsystems

Subsystem	Use STE	Para.	Page
Auto Self Test	Yes	10-2	10-3
Computer and Azimuth/Elevation	Yes	10-3	10-168
Gunner's Primary Sight Defroster	Yes	10-4	10-446
Gunner's Auxiliary Sight Reticle	No	10-5	10-456
Laser Rangefinder	Yes	10-6	10-463
Thermal Imaging System	No	10-7	10-526

The STE-M1/FVS test set (referred to as STE) is used to troubleshoot three subsystems of the fire control system. Troubleshooting the thermal imaging subsystem is done by on-vehicle built-in test equipment and checkout procedures located in paragraph 16. For a detailed description of the STE test set, refer to 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 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 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

10-1. 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 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 hook-up 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 fire control 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.

10-2. Auto Self Test Subsystem Troubleshooting Procedures.

Table 10-2. Auto Self Test and Cable Disconnect Subsystem (ASTS) 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
ASTS-1	FIRE CONTROL MALF Light And F Symbol Come On. Computer Manual Self Test Shows No Failure	Figure 10-1	1210	Figure 18-36
ASTS-2	FIRE CONTROL MALF Light Does Not Come On When A Harness Is Disconnected Or When PANEL LIGHTS TEST Pushbutton Is Pressed	Figure 10-1	1210	Figure 18-37
ASTS-3	FIRE CONTROL MALF Light Does Not Come On With A Fire Control Or Harness Disconnected Malfunction. F Symbol On	Figure 10-1	1210	Figure 18-37
ASTS-4	F Symbol Does Not Come On With A Fire Control Or Harness Disconnected Malfunction. FIRE CONTROL MALF Light On	Figure 10-1	1210	Figure 18-38
ASTS-5	FIRE CONTROL MALF Light And F Symbol Do Not Come On With A Fire Control Or Harness Disconnected Malfunction	Figure 10-1	1210	Figure 18-39

SYMPTOMS ASTS-1 through ASTS-5

**AUTO SELF TEST AND CABLE
DISCONNECT SUBSYSTEM FOUND
FAULTY DURING TANK OPERATION**

Common Tools:

- Pliers, slip joint, 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 Test Set, 12322400

Equipment Condition:

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

NOTE

Read para. 10-1 before doing any work.

1

- Set up tank controls for standard initial test conditions.
- Refer to para. 16-6, table 16-2.

2

- Get STE test set.

Do you have test set?

YES

NO

3

- Refer to table 10-2 at the beginning of this paragraph to find alternate troubleshooting procedure (ATP) for symptom being checked.
- Do ATP.

Figure 10-1 (Sheet 1 of 7)
Volume II
Para. 10-2

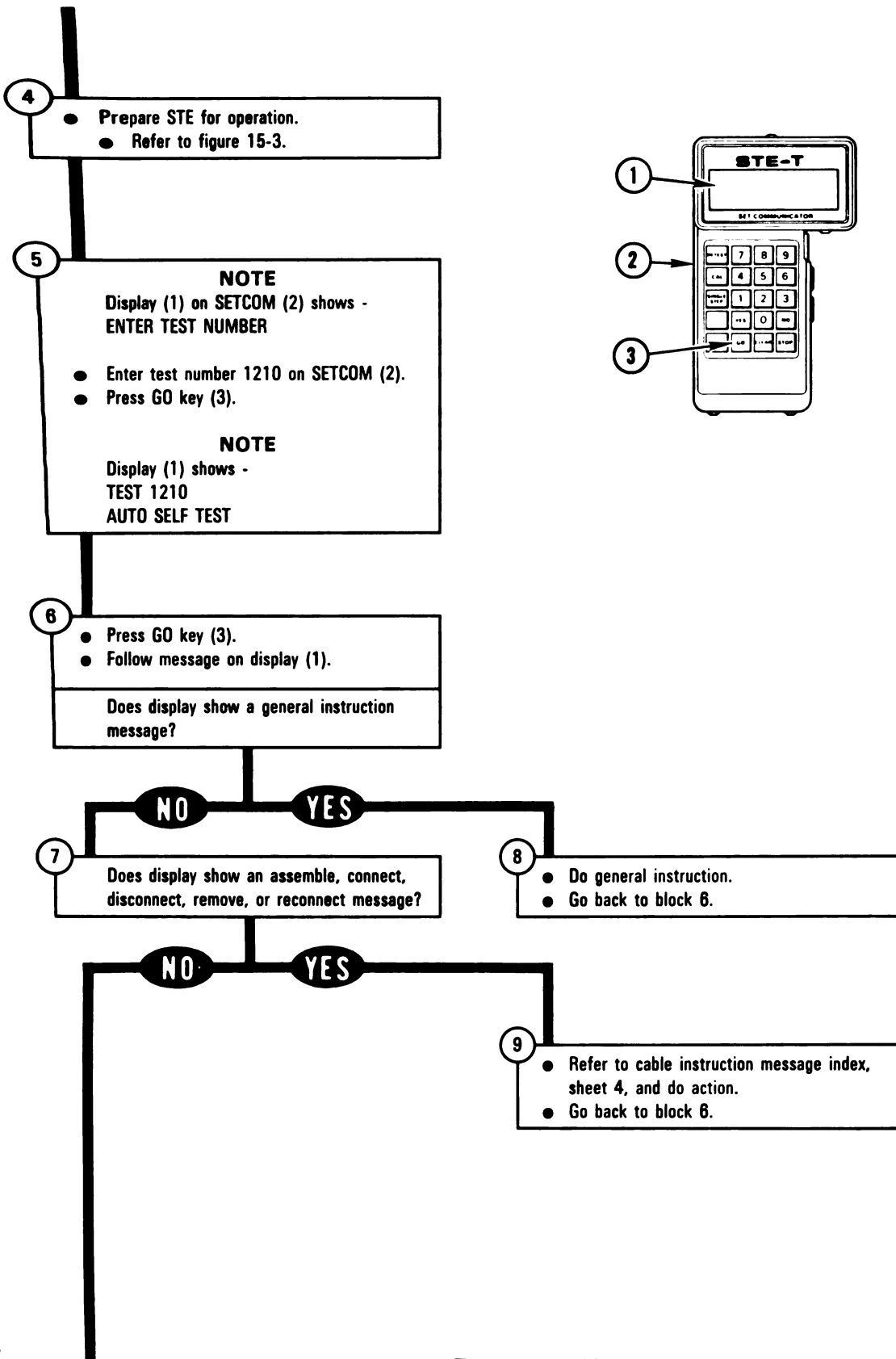


Figure 10-1 (Sheet 2 of 7)
 Volume II
 Para. 10-2

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

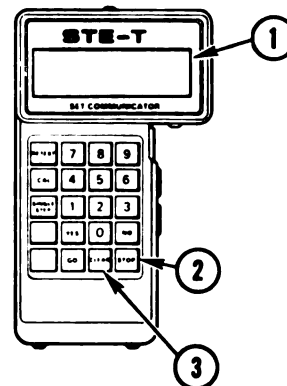
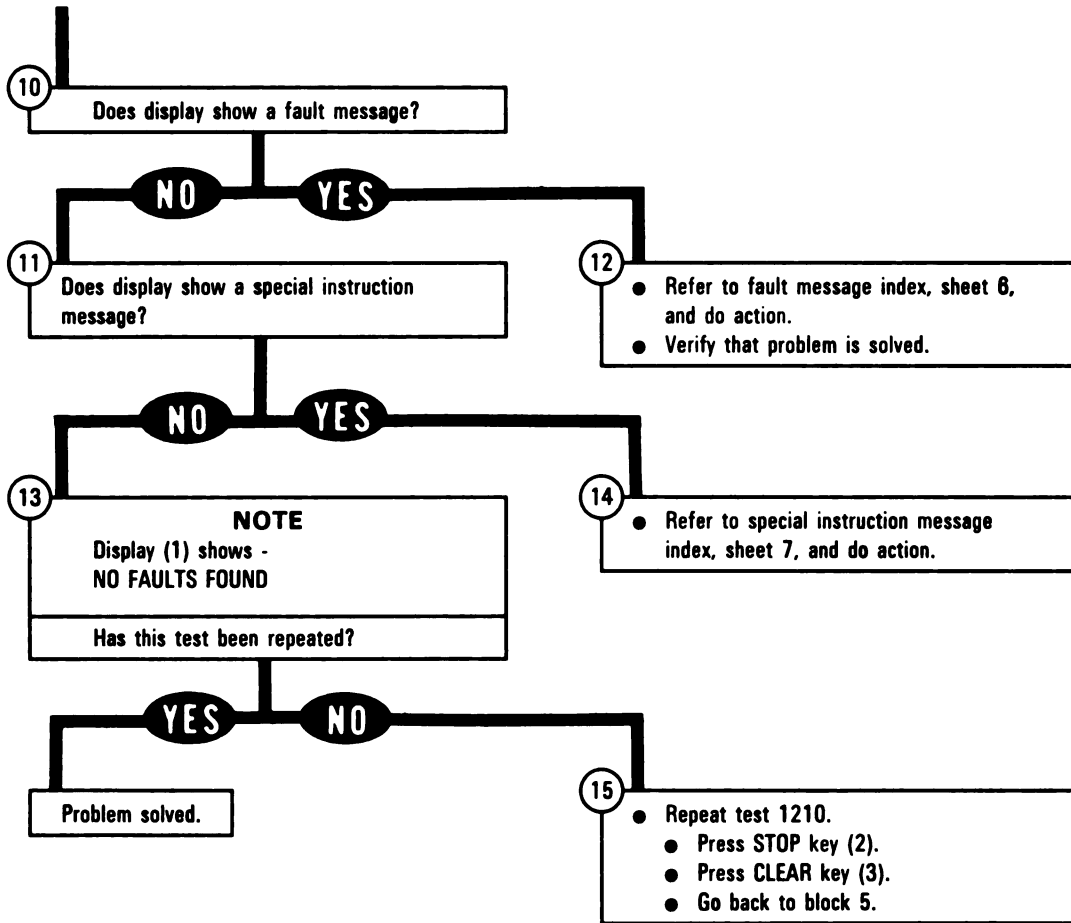


Figure 10-1 (Sheet 3 of 7)
Volume II
Para. 10-2

ARR82-6167

Auto Self Test and Cable Disconnect Subsystem Cable Instruction Message Index

Cable Instruction Message	Action
ASSEMBLE CX304, CX307 AND CA509/10	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX304 to P3 on DBA CX307. ● Connect P2 on adapter CA509 to P1 on DBA CX307. ● Connect P2 on adapter CA510 to P2 on DBA CX307. ● See figure 10-5.
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 10-4.
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 10-3. ● Connect P2 on CIB cable CX305 to J1 on CIB. ● See figure 10-2.
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 10-3. ● Connect P2 on CIB cable CX208 to J2 on CIB. ● See figure 10-2.
CONNECT CX304 TO CIB J2	<ul style="list-style-type: none"> ● Connect P2 on CIB cable CX304 to J2 on CIB. ● See figure 10-2.
CONNECT DBA BETWEEN 1W102 <- -> TNB J8	<ul style="list-style-type: none"> ● Connect P1 on adapter CA529 to J8 on turret networks box. ● Connect P1 on adapter CA530 to P1 on 1W102. ● See figure 10-4.
CONNECT DBA BETWEEN 1W202 <- -> TEU J1	<ul style="list-style-type: none"> ● Connect P1 on adapter CA509 to P4 on 1W202. ● Connect P1 on adapter CA510 to J1 on thermal electronics unit. ● See figure 10-5.
DISCONNECT 1W102 <- -> TNB J8	<ul style="list-style-type: none"> ● Disconnect 1W102-P1 from J8 on turret networks box. ● See figure 16-5.
DISCONNECT 1W200 <- -> GTD J3	<ul style="list-style-type: none"> ● Disconnect 1W200-P4 from J3 on electronic unit. ● See figure 16-6.
DISCONNECT 1W201 <- -> CEU J1	<ul style="list-style-type: none"> ● Disconnect 1W201-P2 from J1 on computer electronics unit. ● See figure 16-6.

Figure 10-1 (Sheet 4 of 7)
Volume II
Para. 10-2

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

Auto Self Test and Cable Disconnect Subsystem Cable Instruction Message Index (Continued)

Cable Instruction Message	Action
DISCONNECT 1W202 ←-→ CCP J1	<ul style="list-style-type: none"> ● Disconnect 1W202-P5 from J1 on ballistics control panel. ● See figure 16-8.
DISCONNECT 1W202 ←-→ LOS J1	<ul style="list-style-type: none"> ● Disconnect 1W202-P3 from J1 on line-of-sight electronics unit. ● See figure 16-14.
DISCONNECT 1W202 ←-→ TEU J1	<ul style="list-style-type: none"> ● Disconnect 1W202-P4 from J1 on thermal electronics unit. ● See figure 16-14.
DISCONNECT 1W202 ←-→ TPCU J1	<ul style="list-style-type: none"> ● Disconnect 1W202-P6 from J1 on thermal power control unit. ● See figure 16-14.
DISCONNECT 1W203 ←-→ TNB J3	<ul style="list-style-type: none"> ● Disconnect 1W203-P1 from J3 on turret networks box. ● See figure 16-5.
DISCONNECT 1W204 ←-→ CANT J1	<ul style="list-style-type: none"> ● Disconnect 1W204-P3 from J1 on cant unit. ● See figure 16-8.
DISCONNECT 1W204 ←-→ LRF J2	<ul style="list-style-type: none"> ● Disconnect 1W204-P2 from J2 on laser rangefinder. ● See figure 16-16.
RECONNECT 1W200 ←-→ GTD J3	<ul style="list-style-type: none"> ● Connect 1W200-P4 to J3 on electronic unit. ● See figure 16-6.
RECONNECT 1W202 ←-→ CCP J1	<ul style="list-style-type: none"> ● Connect 1W202-P5 to J1 on ballistics control panel. ● See figure 16-8.
RECONNECT 1W202 ←-→ LOS J1	<ul style="list-style-type: none"> ● Connect 1W202-P3 to J1 on light-of-sight electronics unit. ● See figure 16-14.
RECONNECT 1W203 ←-→ TNB J3	<ul style="list-style-type: none"> ● Connect 1W203-P1 to J3 on turret networks box. ● See figure 16-5.
RECONNECT 1W204 ←-→ CANT J1	<ul style="list-style-type: none"> ● Connect 1W204-P3 to J1 on cant unit. ● See figure 16-8.
RECONNECT 1W204 ←-→ LRF J2	<ul style="list-style-type: none"> ● Connect 1W204-P2 to J2 on laser rangefinder. ● See figure 16-16.
REMOVE CX208 FROM CIB AND TANK	<ul style="list-style-type: none"> ● Disconnect P1 on CIB cable CX208 from TEST 2 on turret networks box. ● See figure 10-3. ● Disconnect P2 on CIB cable CX208 from J2 on CIB. ● See figure 10-2.

Figure 10-1 (Sheet 5 of 7)
Volume II
Para. 10-2

Auto Self Test and Cable Disconnect Subsystem Fault Message Index

Fault Message	Action
FAULTY AUTO SELF-TEST CKT	● Do follow-on procedure.
	● See figure 10-24.
	● See figure 10-25.
	● See figure 10-26.
	● See figure 10-27.
	● See figure 10-6.
	● See figure 10-13.
	● See figure 10-14.
	● See figure 10-15.
	● See figure 10-7.
	● See figure 10-16.
	● See figure 10-17.
	● See figure 10-18.
	● See figure 10-19.
	● See figure 10-28.
	● See figure 10-9.
	● See figure 10-8.
● See figure 10-20.	
● See figure 10-32.	
● See figure 10-21.	
● See figure 10-22.	
● See figure 10-23.	
FAULTY BATTERY/CHARGING SYS	● Charge batteries.
	● Refer to TM 9-2350-255-10.
● Go back to block 4.	
FAULTY CEU	● Replace computer electronics units.
● Refer to TM 9-2350-255-20-2-3-3, para. 7-14.	
FAULTY PANEL LGT SUPPLIES	● Test set found a panel lights problem.
	● Refer to panel light symptoms in para. 6-1 and correct panel lights problem before continuing test.
FAULTY TCP OR 1W102	● Do follow-on procedure.
	● See figure 10-10.
FAULTY TEU	● Replace thermal electronics unit.
	● Refer to TM 9-2350-255-20-2-3-3, para. 7-24.
FAULTY TNB	● Replace turret networks box.
	● Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
	121002 121031 121054
	121005 121033 121061
	121006 121045 121064
	121008 121047 121068
	121015 121049 121071
121050 121075	

Figure 10-1 (Sheet 6 of 7)
Volume II
Para. 10-2

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

Auto Self Test and Cable Disconnect Subsystem Fault Message Index (Continued)

Fault Message	Action
FAULTY TNB OR 1W201 <div style="text-align: right; padding-right: 20px;">121078</div>	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 10-31.
FAULTY TNB OR 1W202 <div style="text-align: right; padding-right: 20px;">121023 121024 121034</div>	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 10-29. ● See figure 10-33. ● See figure 10-12.
FAULTY TNB, TCP, OR 1W102 <div style="text-align: right; padding-right: 20px;">121003</div>	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 10-11.
FAULTY TNB, TEU OR 1W202 <div style="text-align: right; padding-right: 20px;">121032 121056</div>	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 10-34. ● See figure 10-30.
FAULTY VEH/TURRET PWR CNTL <div style="text-align: right; padding-right: 20px;">120503 120703</div>	<ul style="list-style-type: none"> ● Run vehicle/turret power control test number 1200. ● Refer to TM 9-2350-255-20-2-2-1, figure 8-1.

Auto Self Test and Cable Disconnect Subsystem Special Instruction Message Index

Special Instruction Message	Action
SEE -20 MANUAL <div style="text-align: right; padding-right: 20px;">121035 121079</div>	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 10-35. ● See figure 10-36.
SYSTEM ERROR <div style="text-align: right; padding-right: 20px;">109902</div>	<ul style="list-style-type: none"> ● Run STE self-test number 666. ● See figure 15-3, block 26. ● Repeat auto self test and cable disconnect subsystem test number 1210. ● Press STOP key on SETCOM. ● Press CLEAR key on SETCOM. ● Go back to block 5. ● If same error message appears on SETCOM display, notify support maintenance that test set is faulty.

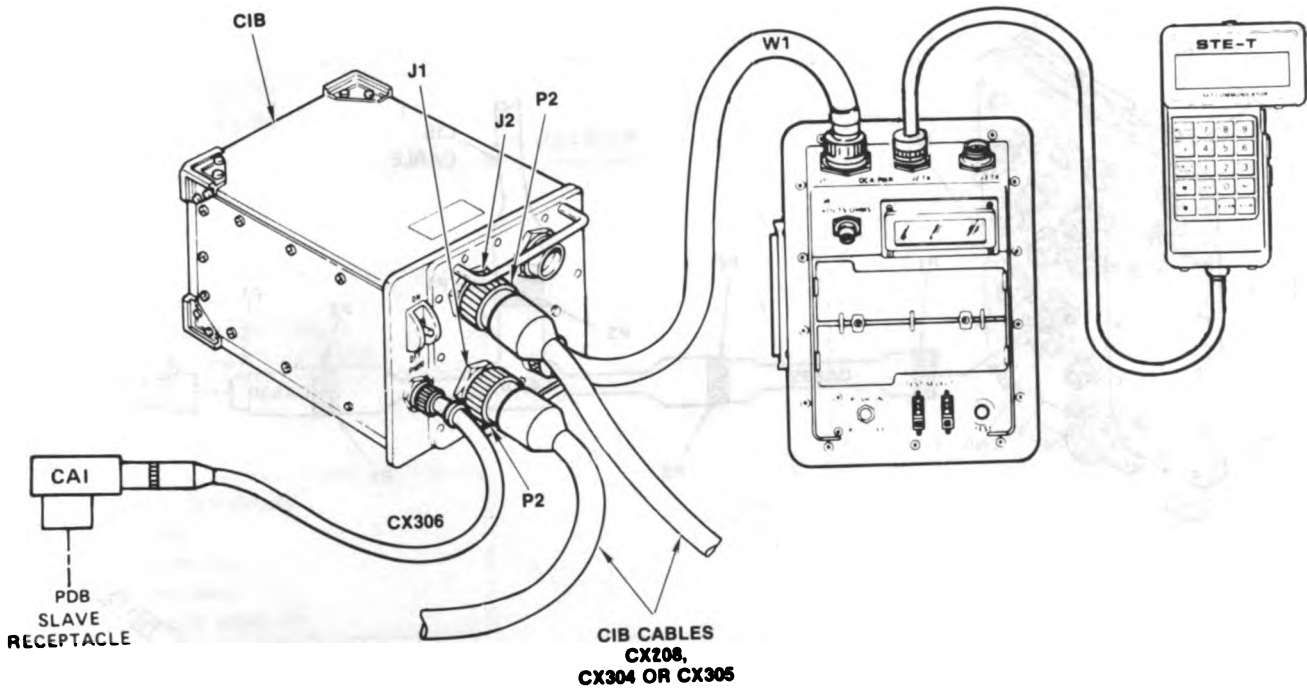


Figure 10-2. STE Turret Cable Hookup to CIB

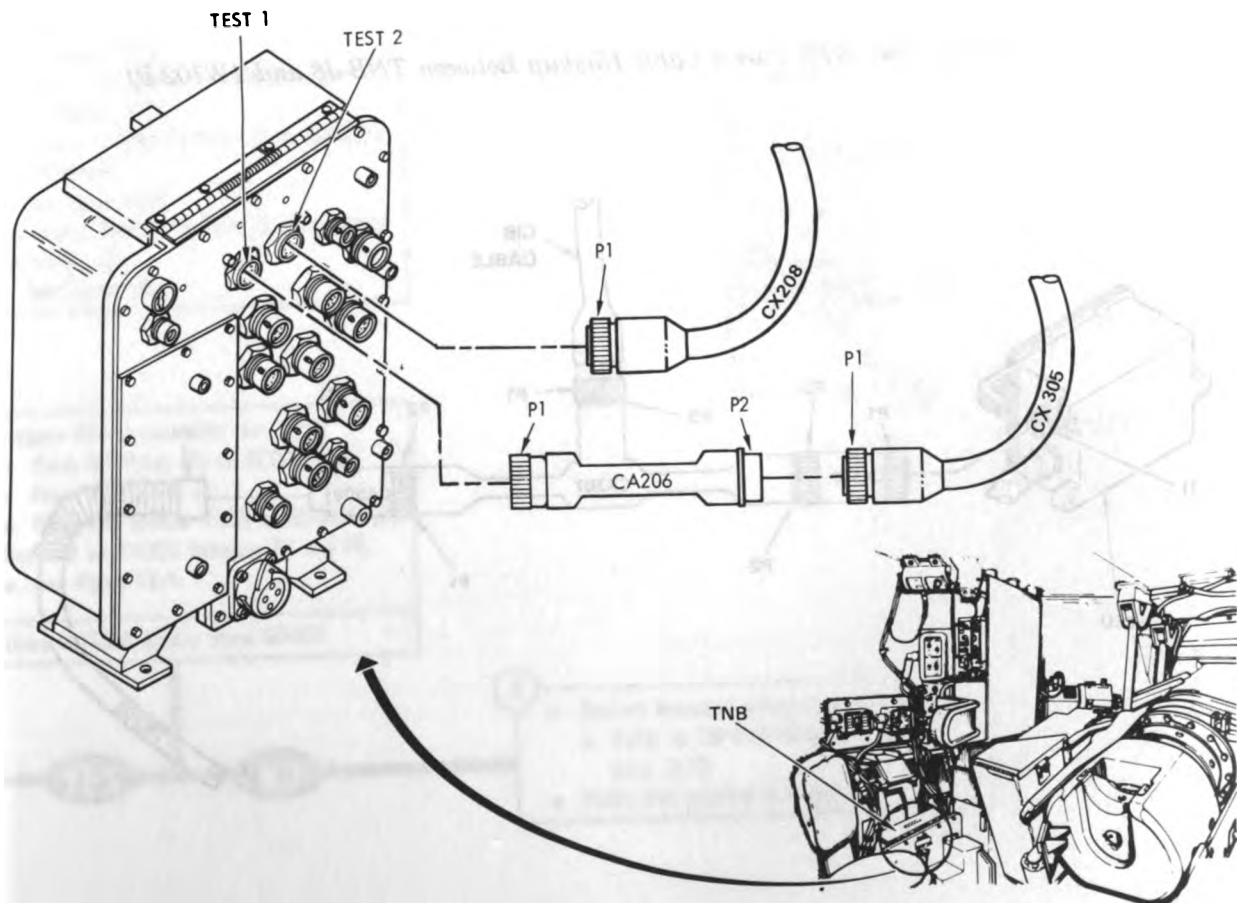


Figure 10-3. STE Turret Cable Hookup to TNB TEST 1 and TEST 2
Volume II
Para. 10-2

ARR82-6168

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

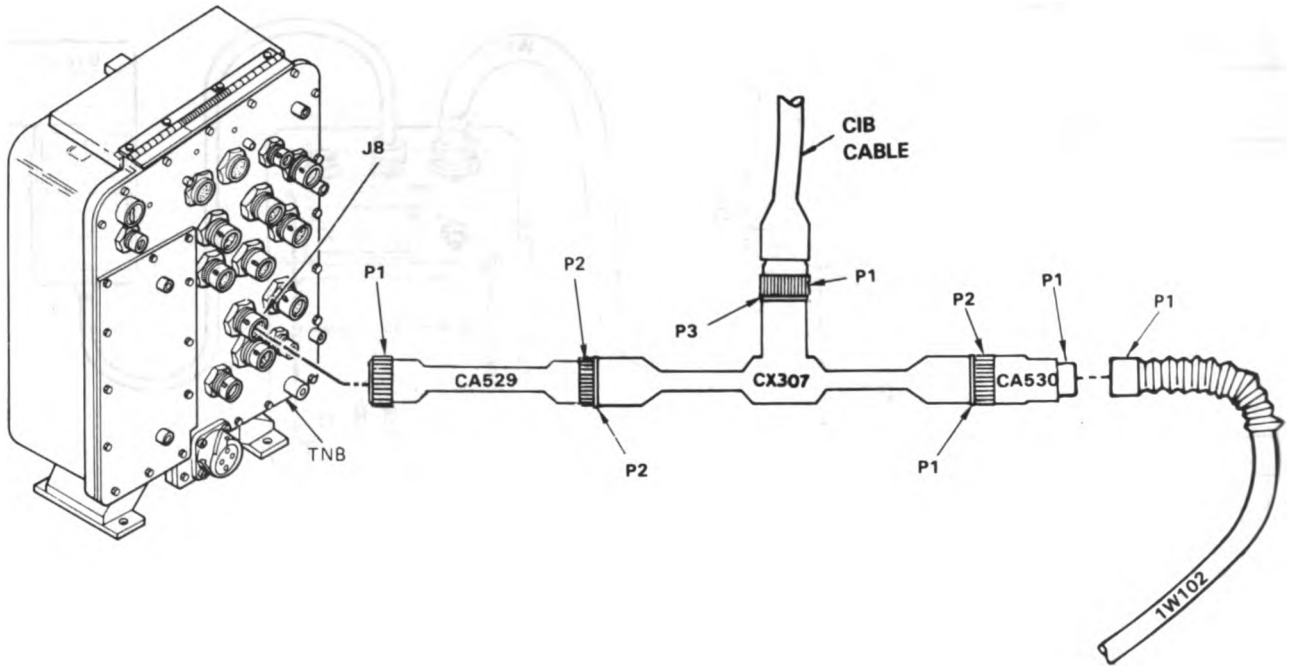


Figure 10-4. STE Turret Cable Hookup Between TNB-J8 and 1W102-P1

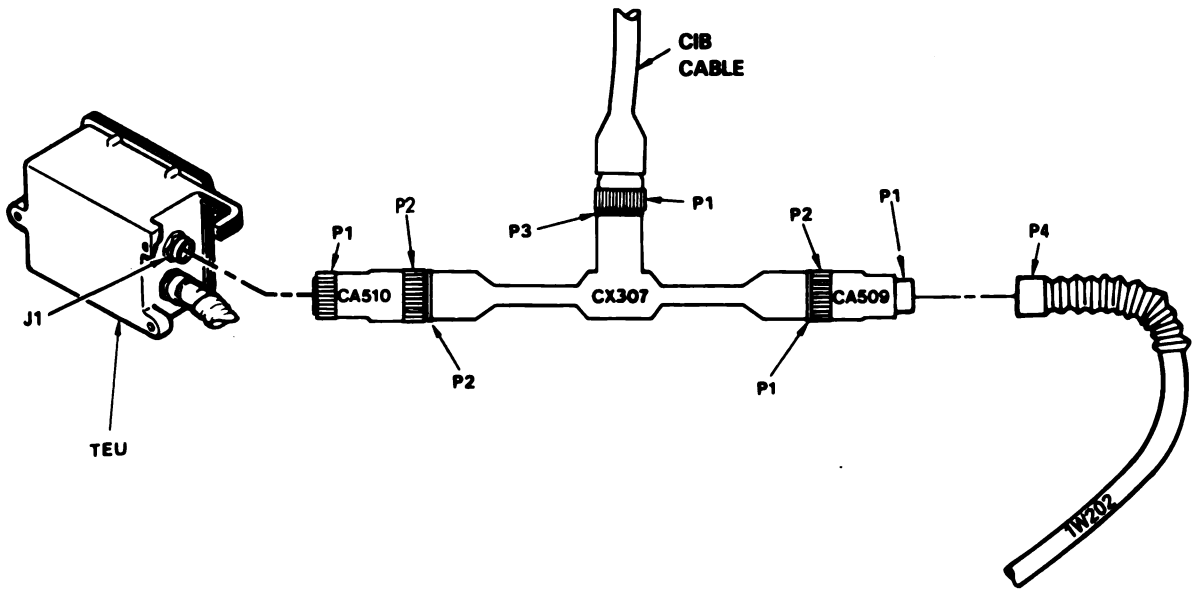


Figure 10-5. STE Turret Cable Hookup Between TEU-J1 and 1W202-P4

ARR82-6169

Volume II
Para. 10-2

**DISPLAY SHOWS -
FAULTY AUTO SELF-
TEST CKT**

121012

**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 CX208-P2 from J2 on CIB.
 - See figure 10-2.
- Disconnect CX305-P1 from CA206-P2.
 - See figure 10-3.
- Disconnect 1W202-P5 from J1 on ballistics control panel.
 - See figure 16-8.
- Disconnect 1W202-P2 from J2 on computer electronics unit.
 - See figure 16-6.

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 1W202 between P2 and P5.
 - See 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.

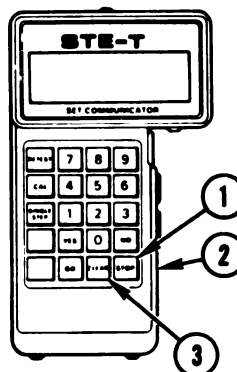
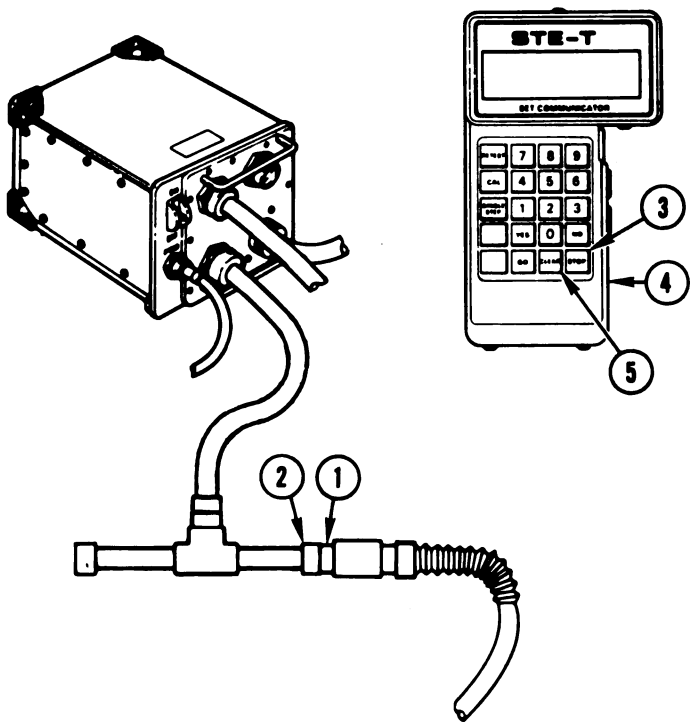


Figure 10-6 (Sheet 1 of 4)
Volume II
Para. 10-2

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

- 4
- Disconnect CA511-P2 (1) from CX307-P1 (2).
 - Disconnect 1W202-P1 from J7 on turret networks box.
 - See figure 18-5.
 - 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 1W202 between P1 and P5.
 - See figure 15-5.
- Does SETCOM display show GOOD?



YES

NO

- 5
- Replace branched wiring harness 1W202.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

Figure 10-6 (Sheet 2 of 4)
Volume II
Para. 10-2

ARR82-6 196

- 6
- Disconnect CA547-P2 (1) from CX308-P1 (2).
 - Disconnect CX304-P2 (3) from CIB-J2 (4).
 - Connect CX304-P2 (3) to breakout box (5).
 - Connect CA548-P1 (6) to J1 (7) on ballistics control panel (8).
 - Connect CA548-P2 (9) to CX308-P1 (2).

- 7
- 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
 - Refer to para. 10-1.

- 8
- Test for continuity between test points 12 and 19 on breakout box.
 - Connect black test probe (13) to test point 12 on breakout box (5).
 - Connect red test probe (14) to test point 19 on breakout box (5).
- Does VTM display show between 0 and 5?

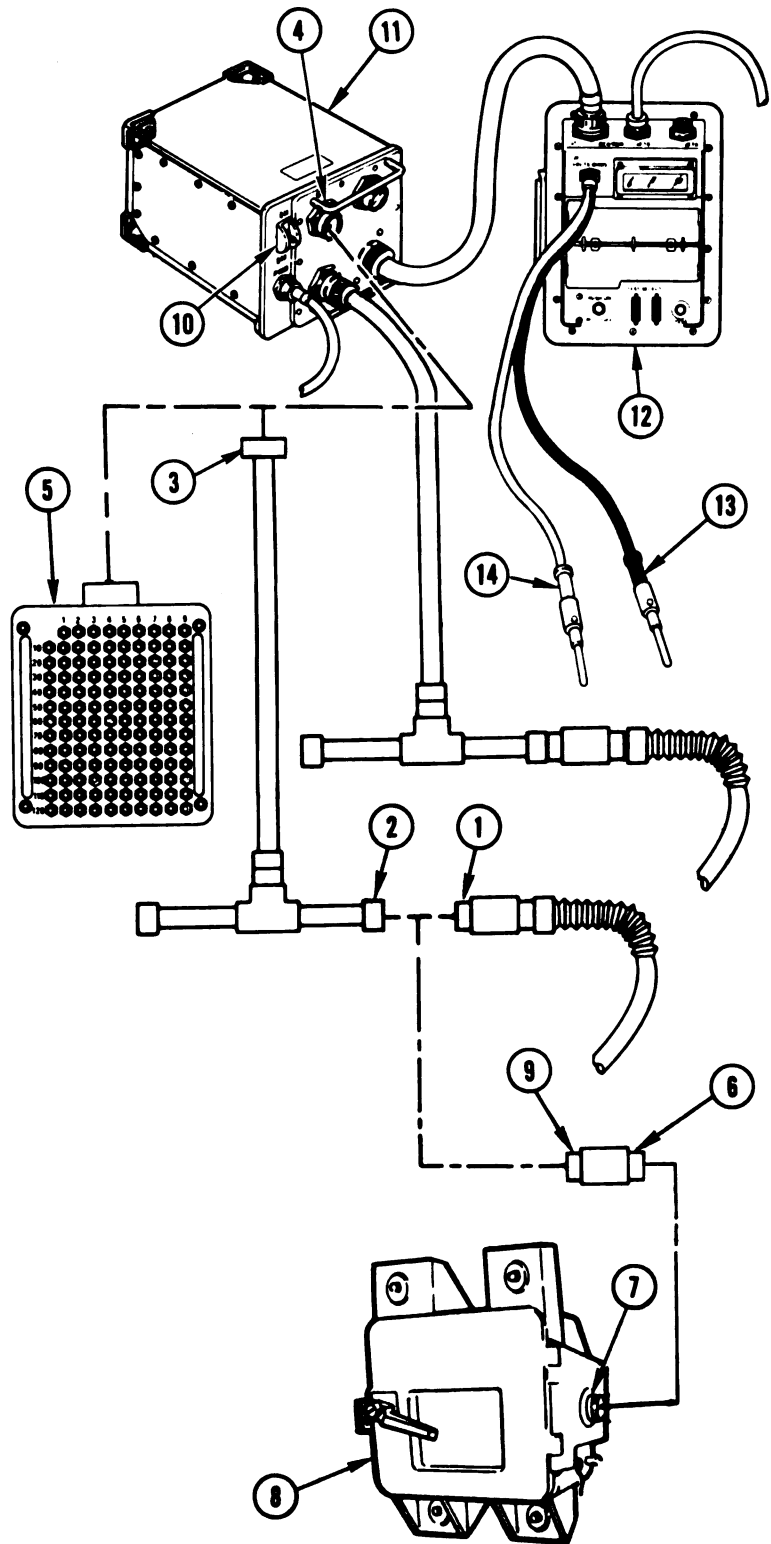


Figure 10-6 (Sheet 3 of 4)
Volume II
Para. 10-2

ARR82-6197

**TM 9-2350-255-20-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

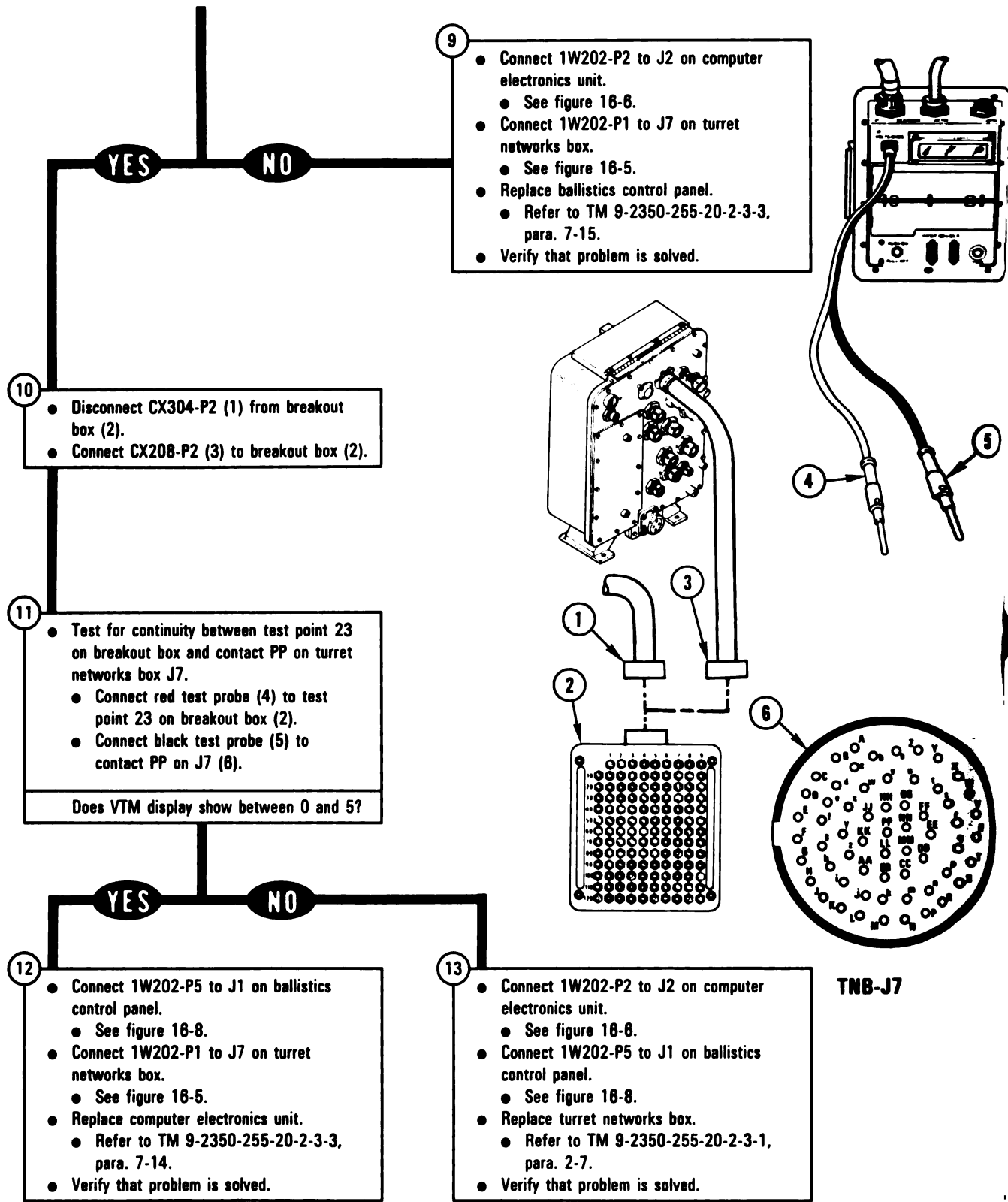


Figure 10-6 (Sheet 4 of 4)
Volume II
Para. 10-2

ARR82-6198

**DISPLAY SHOWS -
FAULTY AUTO SELF-
TEST CKT**

121017

**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 CX208-P2 from J2 on CIB.
 - See figure 10-2.
- Disconnect CX305-P1 from CA208-P2.
 - See figure 10-3.
- Disconnect 1W102-P1 from J8 on turret networks box.
 - See figure 16-5.
- Disconnect 1W102-P2 from J1 on commander's control panel.
 - See figure 16-7.

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.
 - See 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.

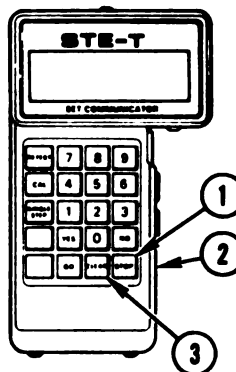


Figure 10-7 (Sheet 1 of 2)
Volume II
Para. 10-2

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

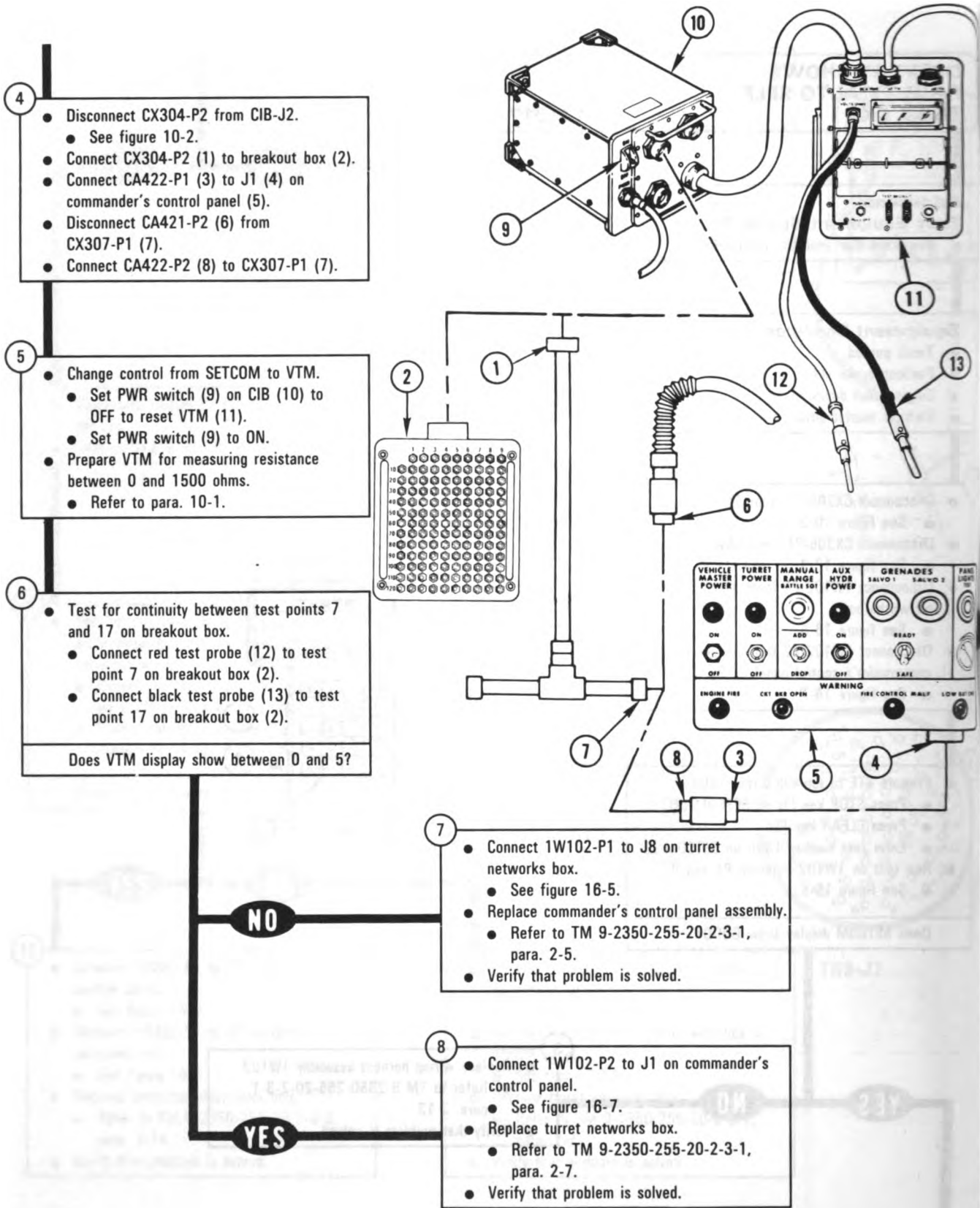


Figure 10-7 (Sheet 2 of 2)
Volume II
Para. 10-2

ARR82-6200

**DISPLAY SHOWS .
 FAULTY AUTO SELF-
 TEST CKT**

121043

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 10-3.
 - Disconnect CX305-P2 from CIB-J1.
 - See figure 10-2.

- 2
- 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 16-5.
 - Connect 1W202-P1 (5) to CA508-P1 (6).
 - Connect CA508-P2 (7) to CX307-P2 (8).

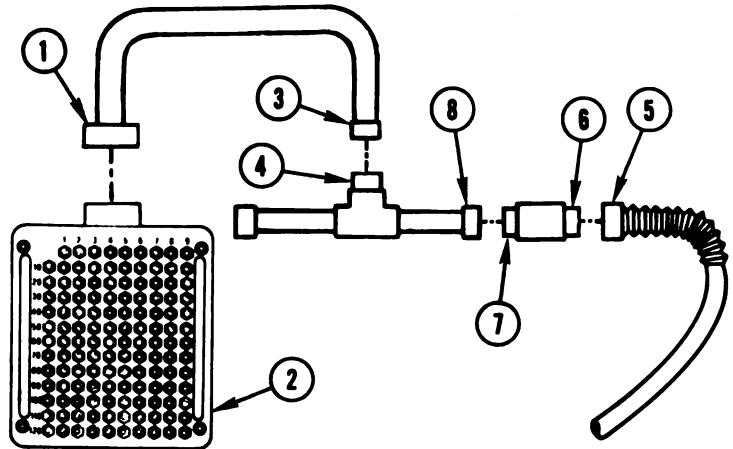


Figure 10-8 (Sheet 1 of 2)
 Volume II
 Para. 10-2

ARR82-6201

TM 9-2350-255-20-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

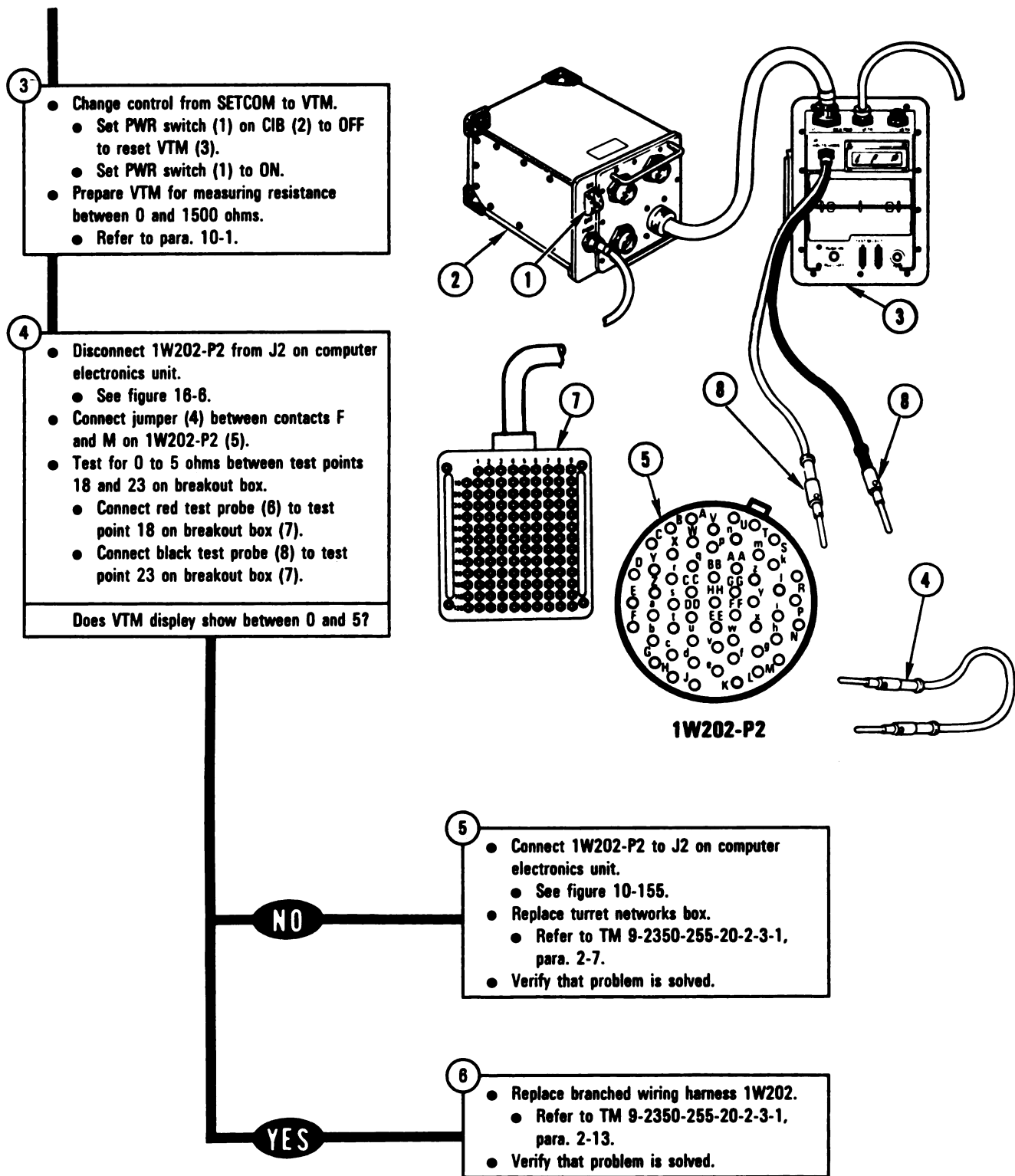


Figure 10-8 (Sheet 2 of 2)
Volume II
Para. 10-2

ARR82-6202

**DISPLAY SHOWS -
FAULTY AUTO SELF-
TEST CKT**

121040

**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 CX208-P2 from CIB-J2.
- See figure 10-2.
- Connect CX208-P2 (1) to breakout box (2).
- Connect 1W204-P3 to J1 on cant unit.
- See figure 16-8.
- Disconnect 1W204-P1 from J3 on computer electronics unit.
- See figure 16-6.

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. 10-1.

3

- Set VEHICLE MASTER POWER switch (6) to ON.
- Test for 4 to 6 V dc between test points 11 and 26 on breakout box.
- Connect black test probe (7) to test point 11 on breakout box (2).
- Connect red test probe (8) to test point 26 on breakout box (2).

Does VTM display show between 4 and 6?

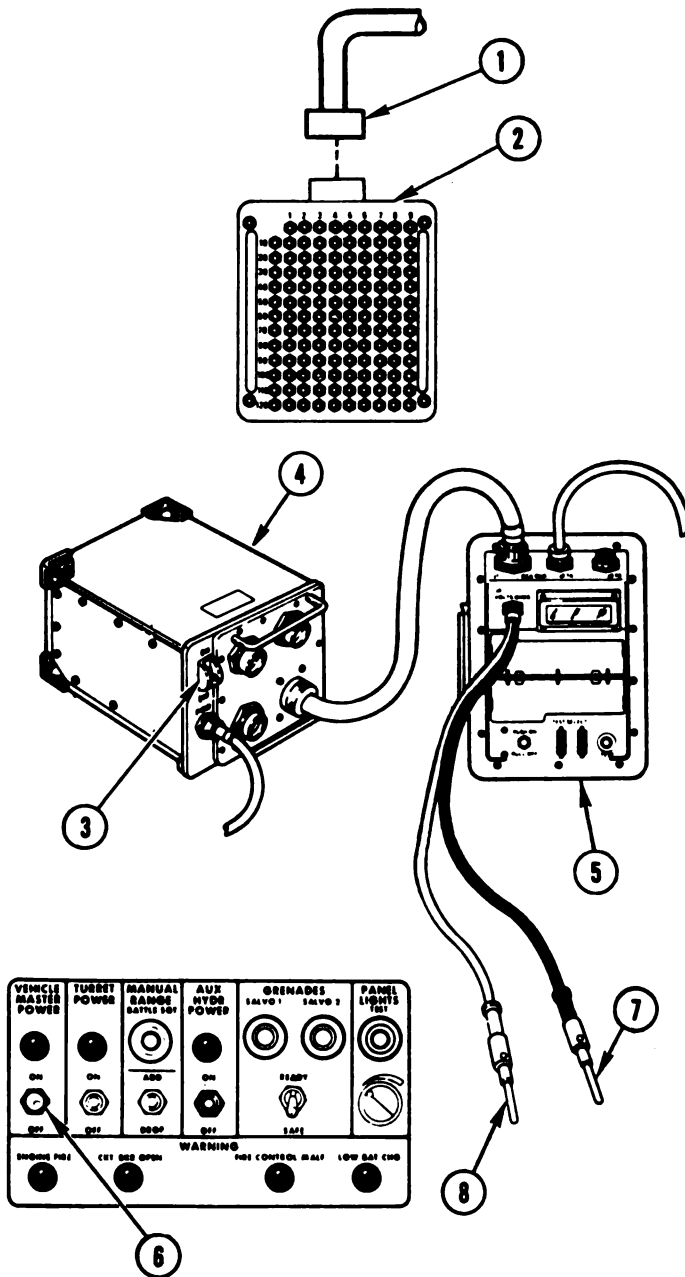


Figure 10-9 (Sheet 1 of 3)
Volume II
Para. 10-2

ARR82-6203

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

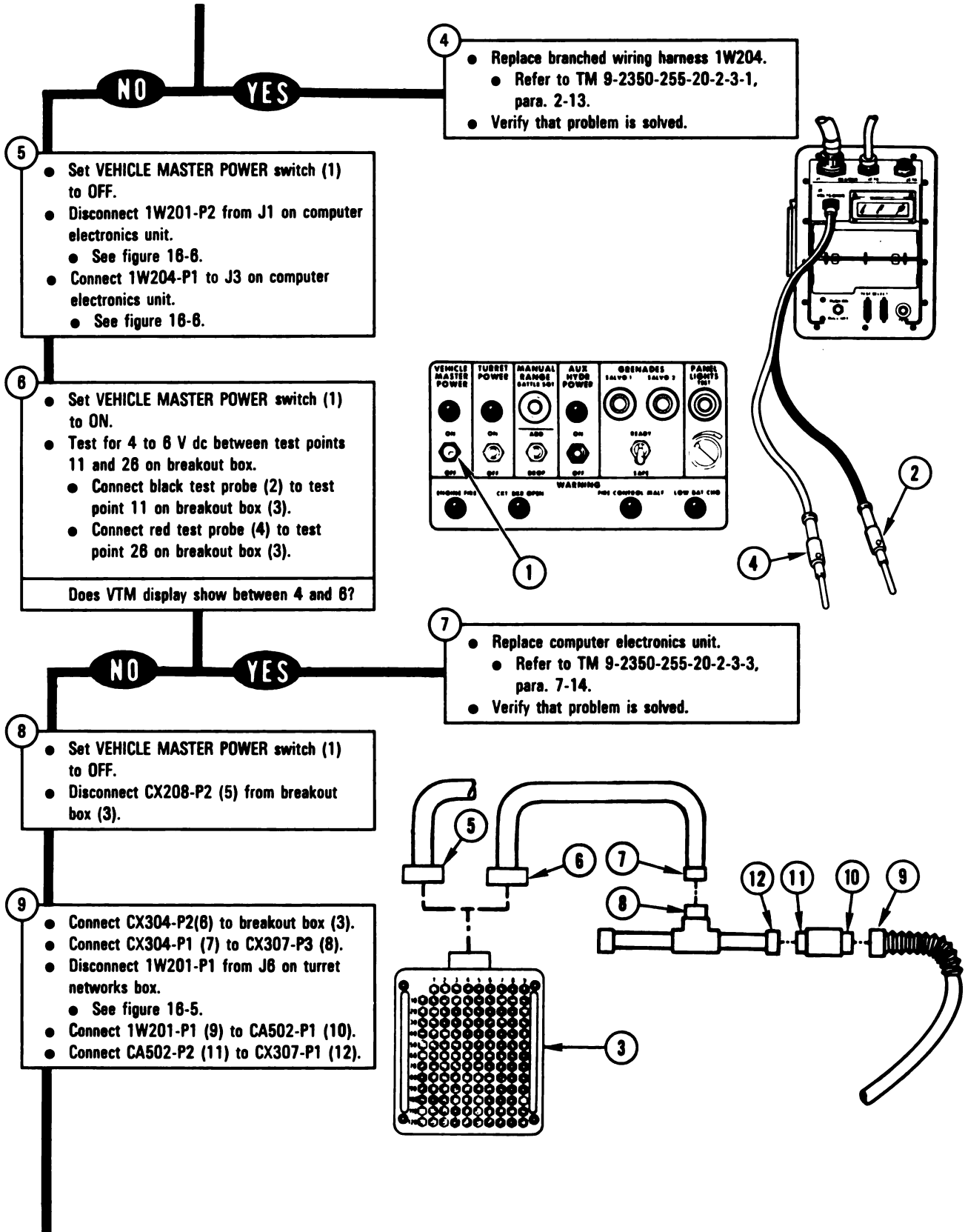


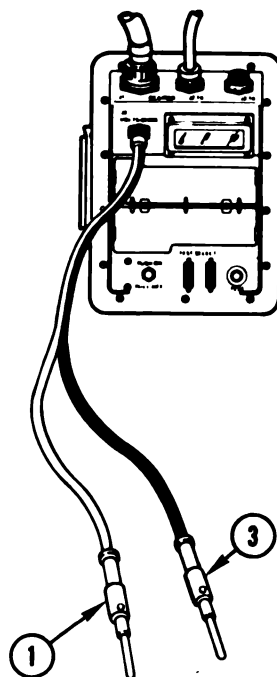
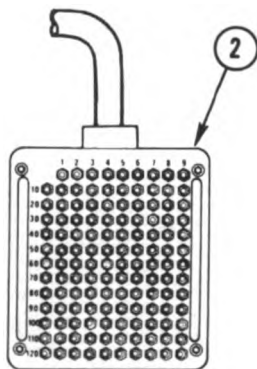
Figure 10-9 (Sheet 2 of 3)
 Volume II
 Para. 10-2

ARR82-6204

10

- Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 10-1.
- Test for 0 to 5 ohms between test points 12 and 19 on breakout box.
 - Connect red test probe (1) to test point 12 on breakout box (2).
 - Connect black test probe (3) to test point 19 on breakout box (2).

Does VTM display show between 0 and 5?



NO

11

- Connect 1W201-P2 to J1 on computer electronics unit.
 - See figure 16-8.
- Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
- Verify that problem is solved.

YES

12

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

Figure 10-9 (Sheet 3 of 3)
Volume II
Para. 10-2

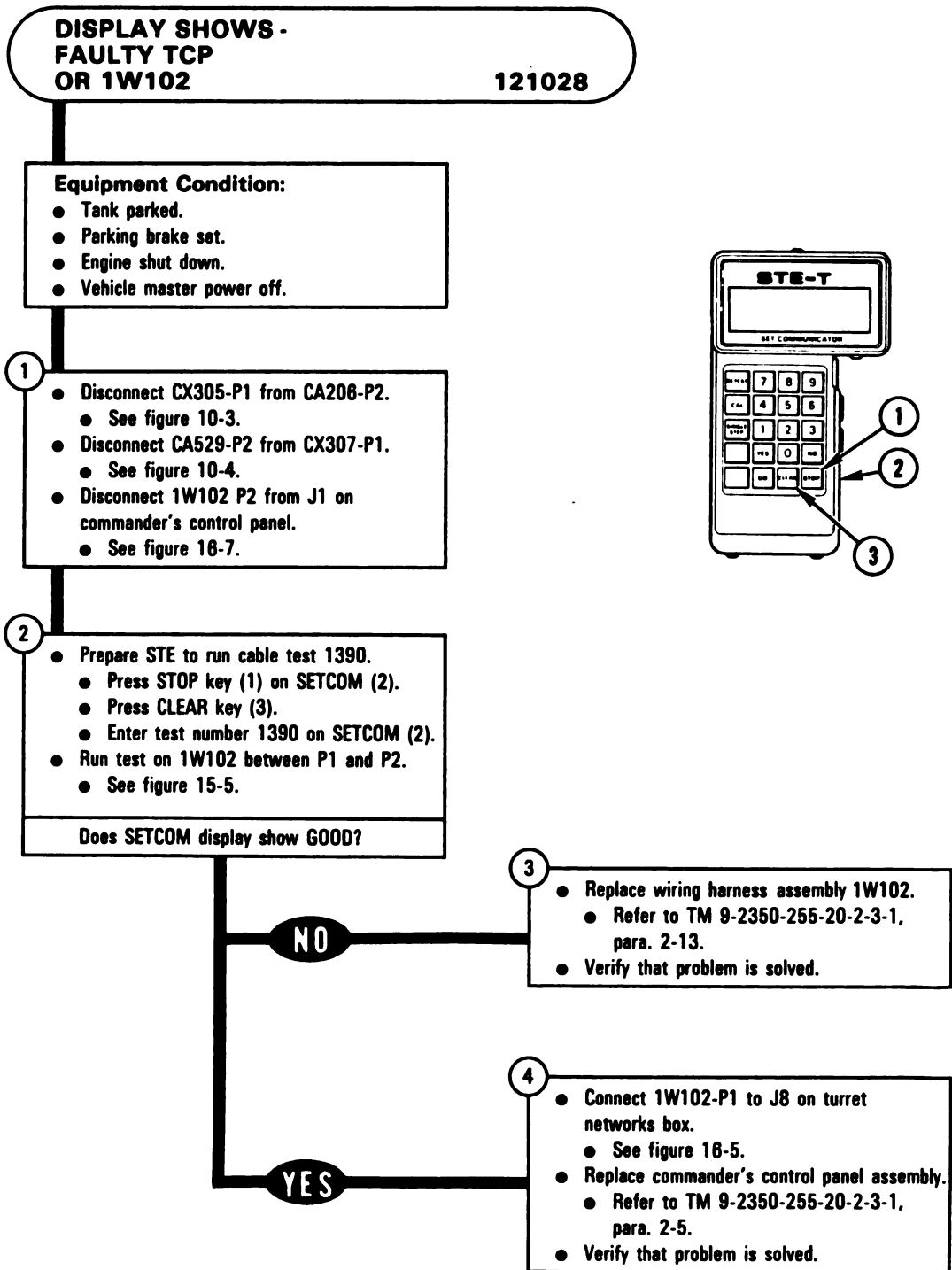


Figure 10-10
Volume II
Para. 10-2

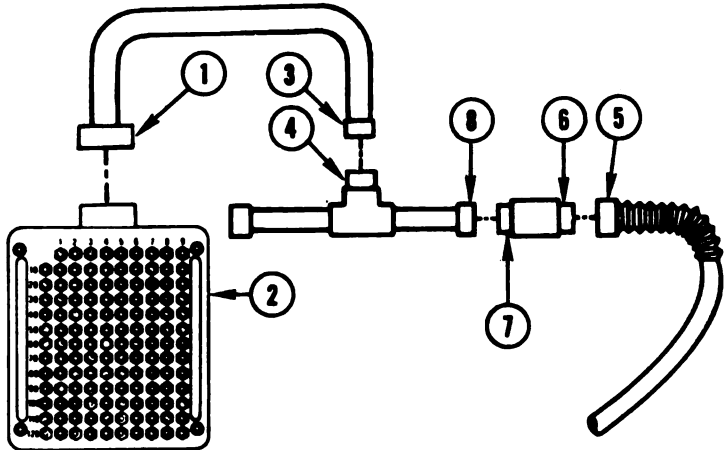
**DISPLAY SHOWS -
 FAULTY TNB, TCP
 OR 1W102** 121003

**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 1W102-P1 from J8 on turret networks box.
- See figure 16-5.

2

- Connect 1W102-P1 (5) to CA530-P1 (6).
- Connect CA530-P2 (7) to CX307-P1 (8).
- Disconnect 1W102-P2 from J1 on commander's control panel.
- See figure 16-7.

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. 10-1.

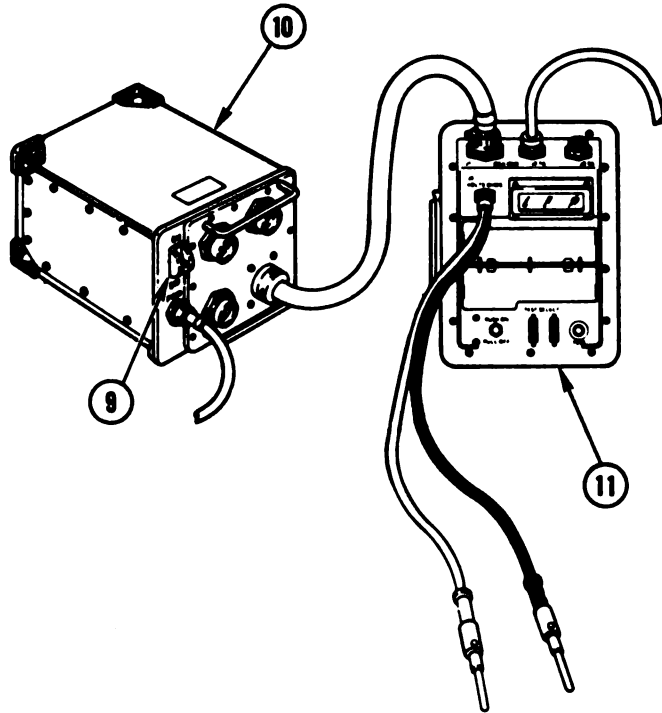


Figure 10-11 (Sheet 1 of 2)
 Volume II
 Para. 10-2

ARR82-6207

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

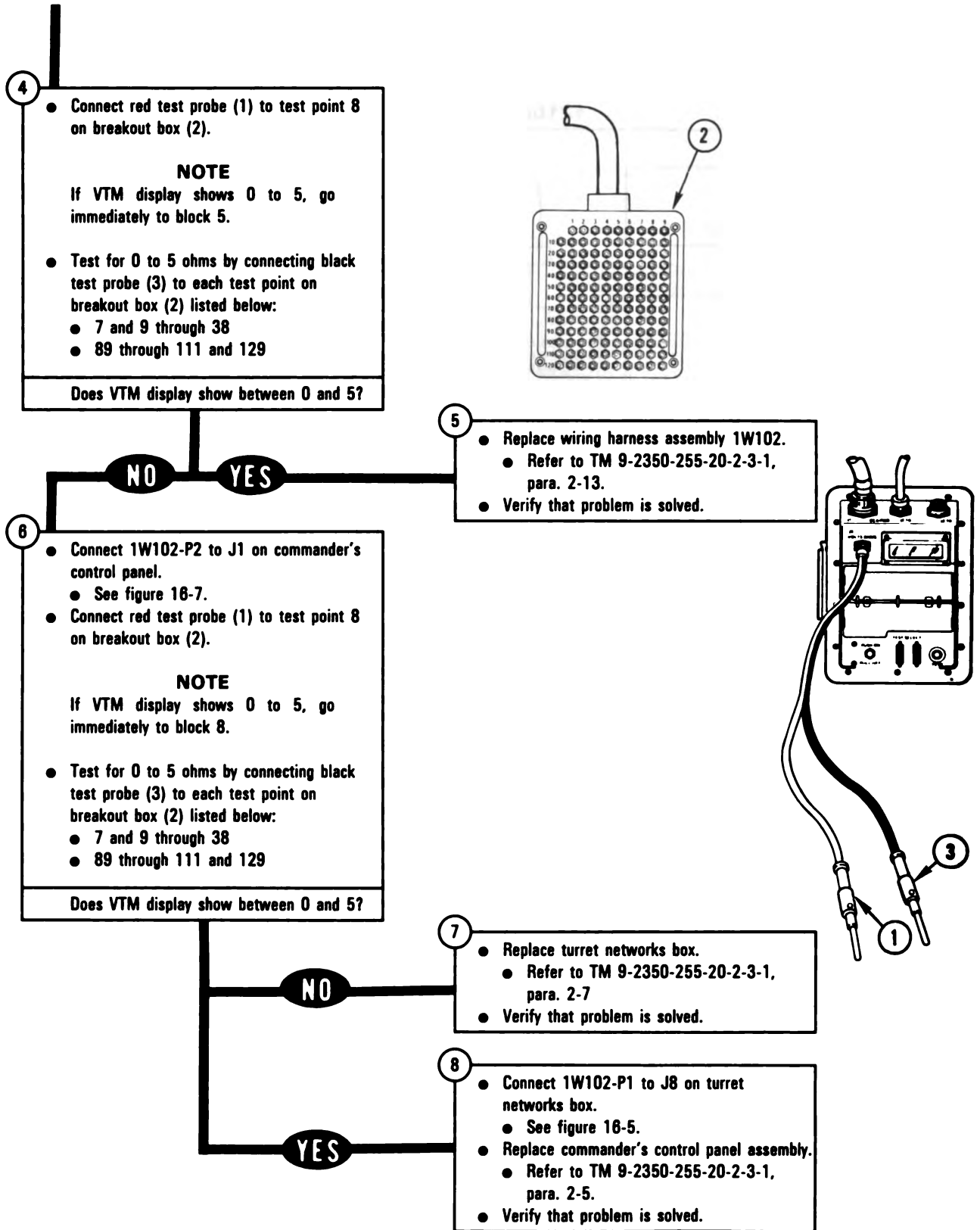


Figure 10-11 (Sheet 2 of 2)
Volume II
Para. 10-2

ARR82-6208

**DISPLAY SHOWS -
 FAULTY TNB OR
 1W202**

121034

Supplies:

- Connector Pin/Socket Adapters
- Electrical Jumper

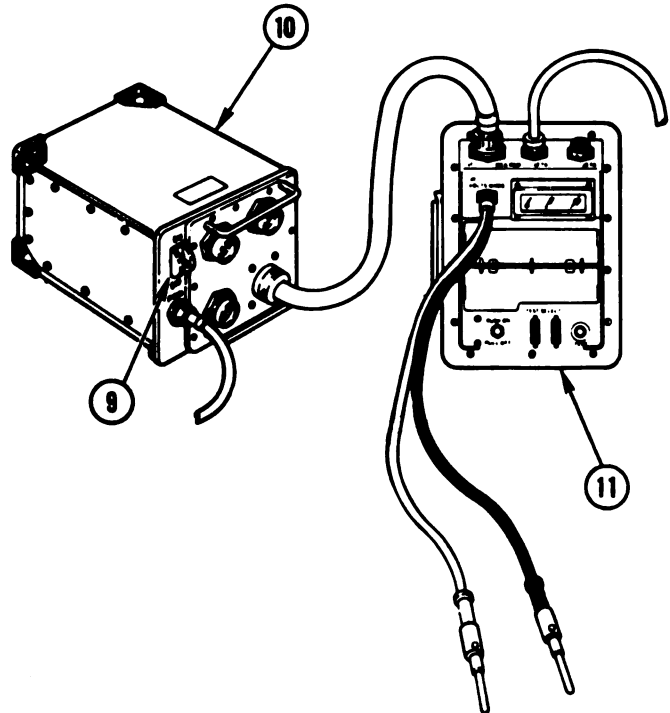
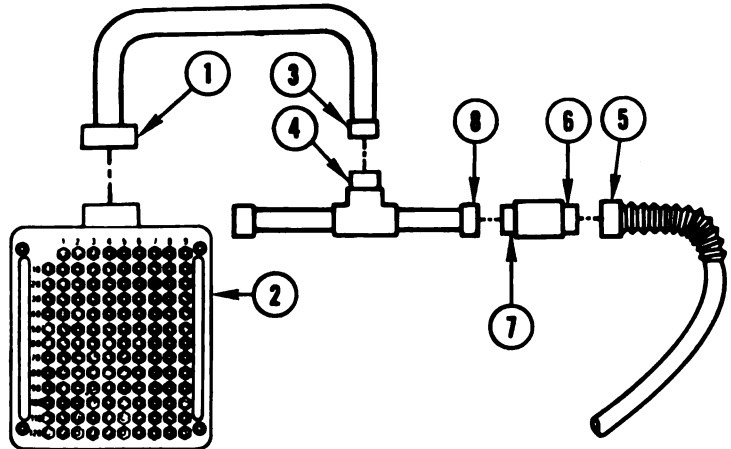
Additional Test

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-P1 from J7 on turret networks box.
 - See figure 16-5.
 - Disconnect 1W202-P4 from J1 on thermal electronics unit.
 - See figure 16-14.

- 2
- Connect CX304-P2 (1) to breakout box (2).
 - Connect CX304-P1 (3) to CX307-P3 (4).
 - Connect 1W202-P1 (5) to CA506-P1 (6).
 - Connect CA506-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 measuring resistance between 0 and 1500 ohms.
 - Refer to para. 10-1.

Figure 10-12 (Sheet 1 of 2)
 Volume II
 Para. 10-2

ARR82-8209

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

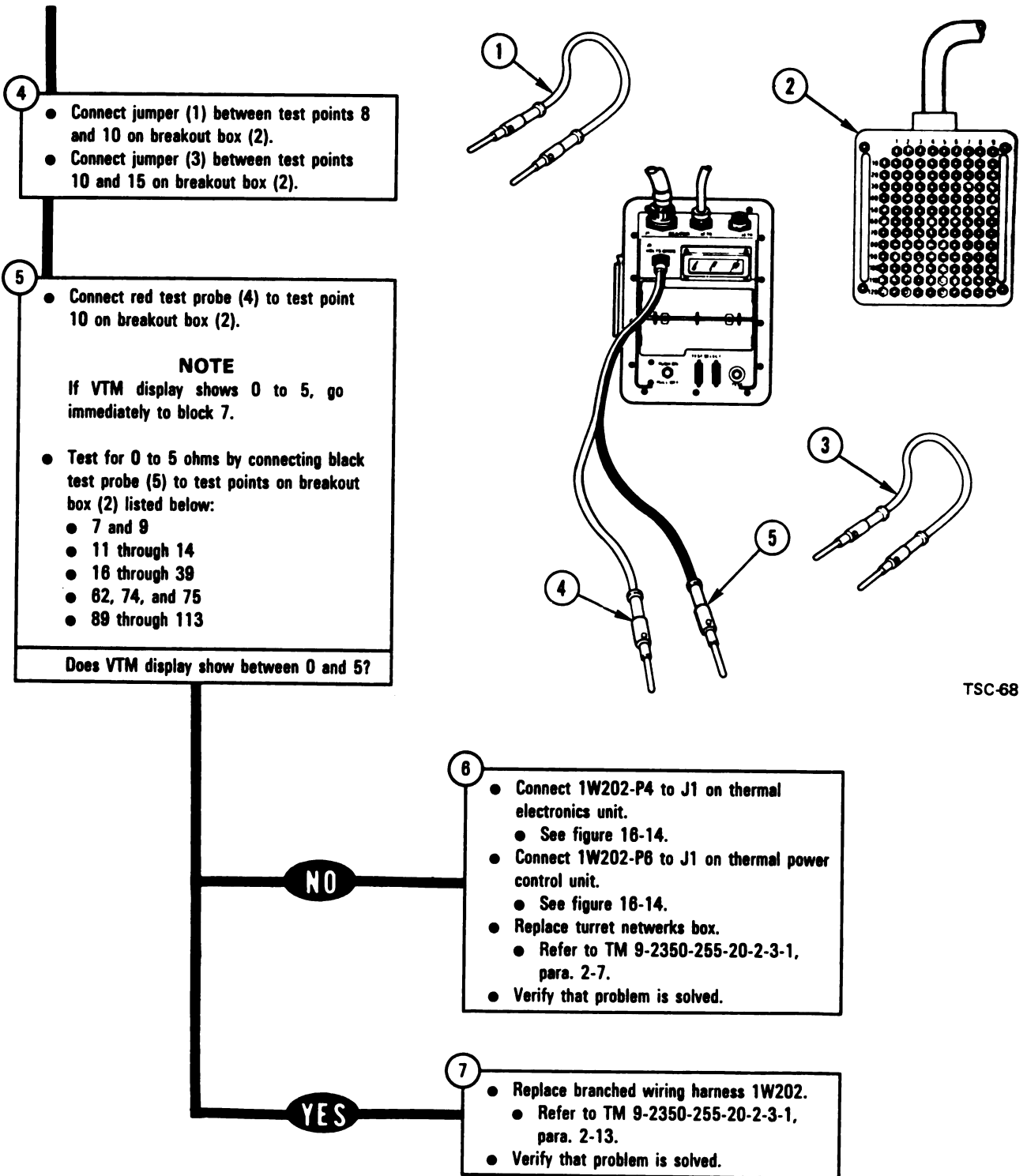


Figure 10-12 (Sheet 2 of 2)
Volume II
Para. 10-2

ARR82-6210

**DISPLAY SHOWS -
FAULTY AUTO SELF-
TEST CKT**

121013

**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 CX208-P2 from CIB-J2.
- See figure 10-2.
- Connect CX208-P2 (1) to breakout box (2).
- Disconnect 1W206-P3 from 1W207-J1.
- See figure 16-10.

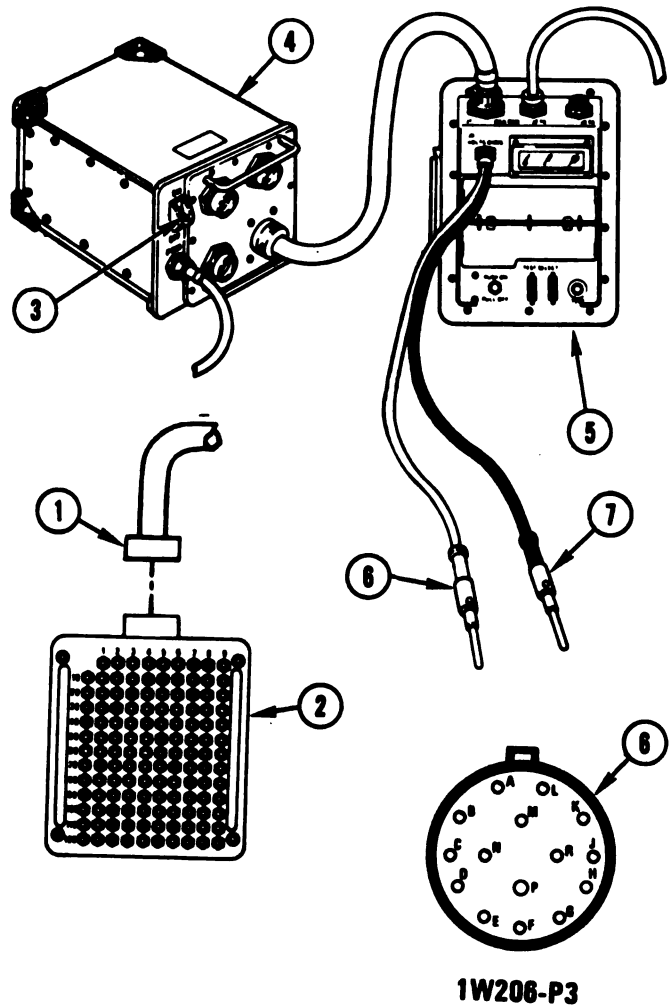
2

- 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. 10-1.

3

- Test for continuity between test point 22 on breakout box and contact E on 1W206-P3.
- Connect red test probe (6) to test point 22 on breakout box (2).
- Connect black test probe (7) to contact E on P3 (8).

Does VTM display show between 0 and 5?

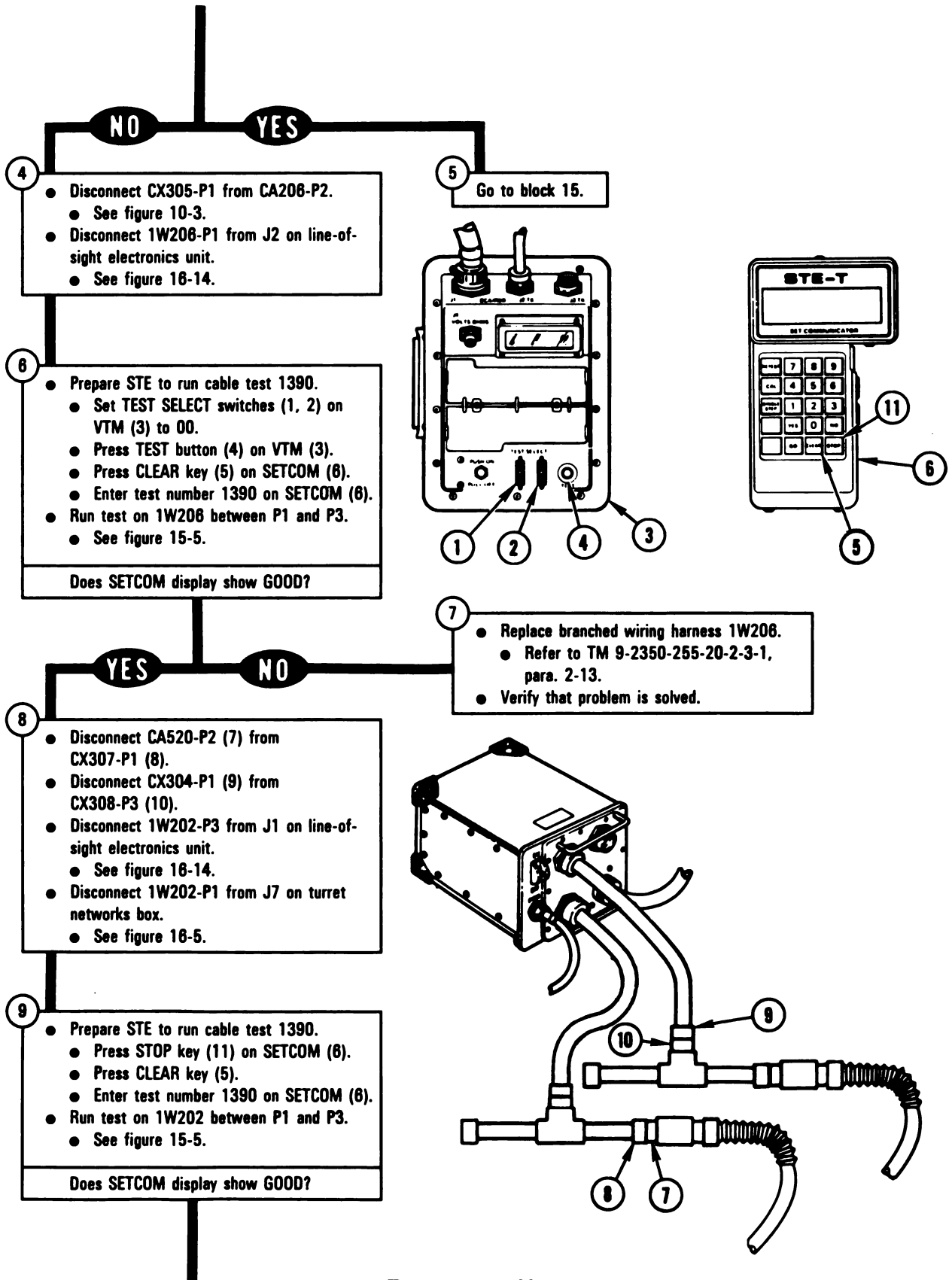


1W206-P3

Figure 10-13 (Sheet 1 of 6)
Volume II
Para. 10-2

ARR82-6211

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**



*Figure 10-13 (Sheet 2 of 6)
Volume II
Para. 10-2*

ARR82-6212

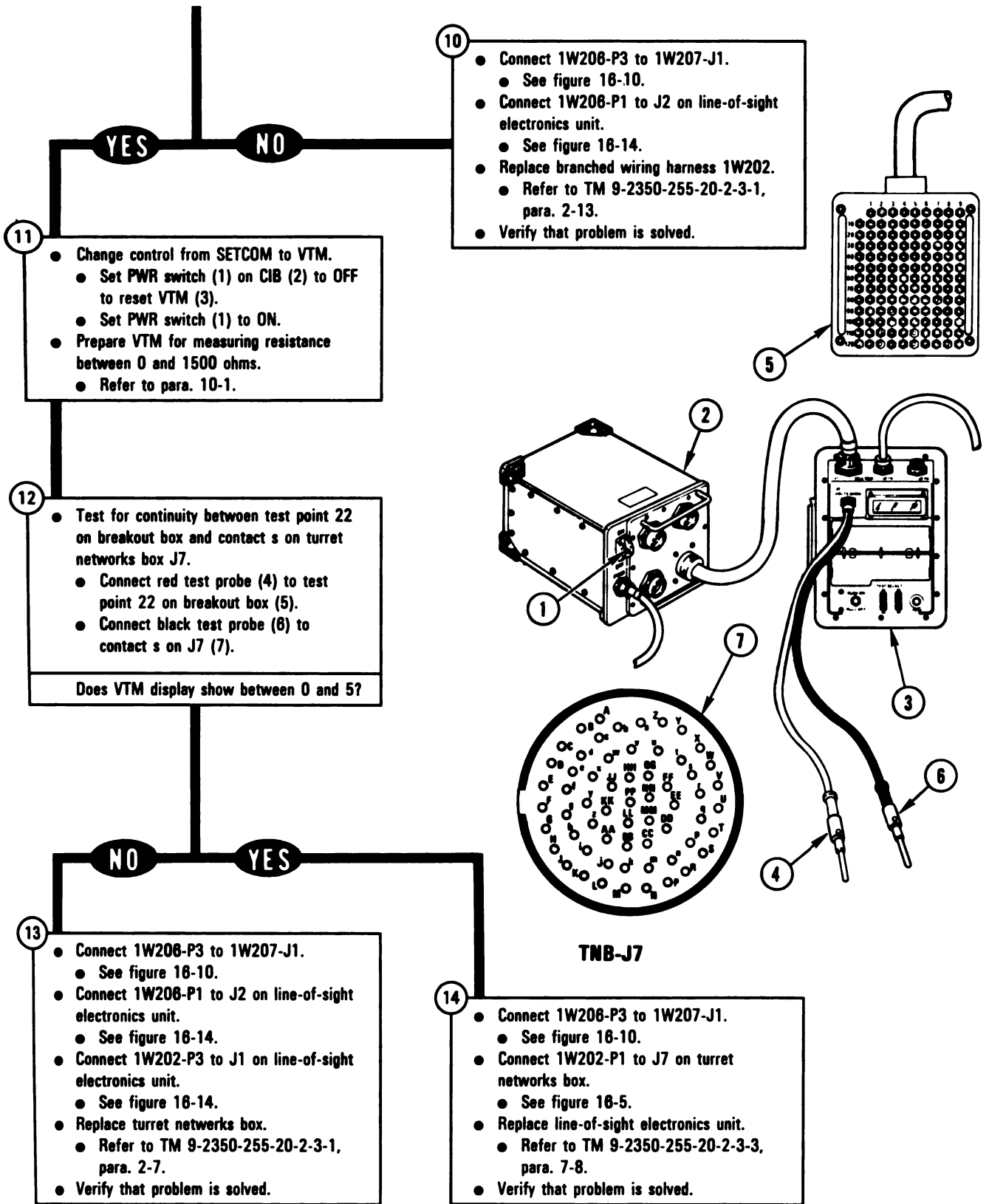
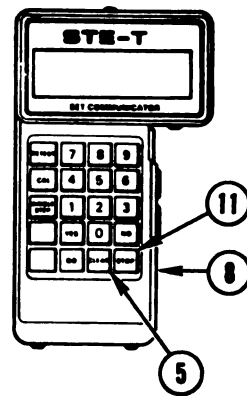
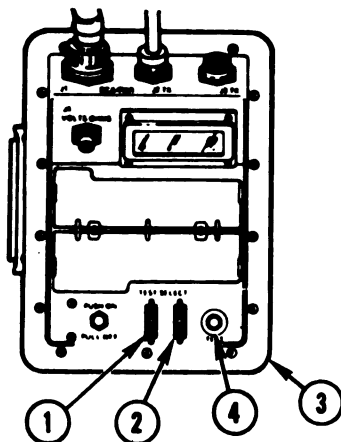


Figure 10-13 (Sheet 3 of 6)
Volume II
Para. 10-2

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

From block 5

- 15
- Disconnect 1W208-P1 from J2 on line-of-sight electronics unit.
 - See figure 16-14.
 - Disconnect 1W208-P2 from J2 on gunner's primary sight.
 - See figure 16-16.
 - Disconnect CX305-P1 from CA208-P2.
 - See figure 10-3.



- 16
- Prepare STE to run cable test 1390.
 - Set TEST SELECT switches (1, 2) on VTM (3) to 00.
 - Press TEST button (4) on VTM (3).
 - Press CLEAR key (5) on SETCOM (8).
 - Enter test number 1390 on SETCOM (8).
 - Run test on 1W208 between P2 and P3.
 - See figure 15-5.

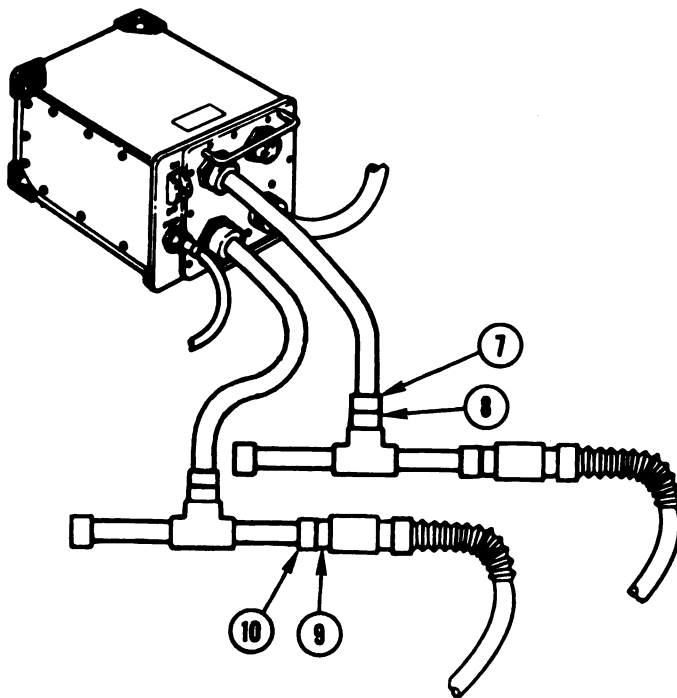
Does SETCOM display show GOOD?

YES

NO

- 17
- Replace branched wiring harness 1W208.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

- 18
- Connect 1W208-P1 to J2 on line-of-sight electronics unit.
 - See figure 16-14.
 - Disconnect 1W203-P2 from J1 on gunner's primary sight.
 - See figure 16-16.
 - Disconnect 1W203-P1 from J3 on turret networks box.
 - See figure 16-5.
 - Disconnect CX304-P1 (7) from CX308-P3 (8).
 - Disconnect CA419-P2 (9) from CX307-P1 (10).

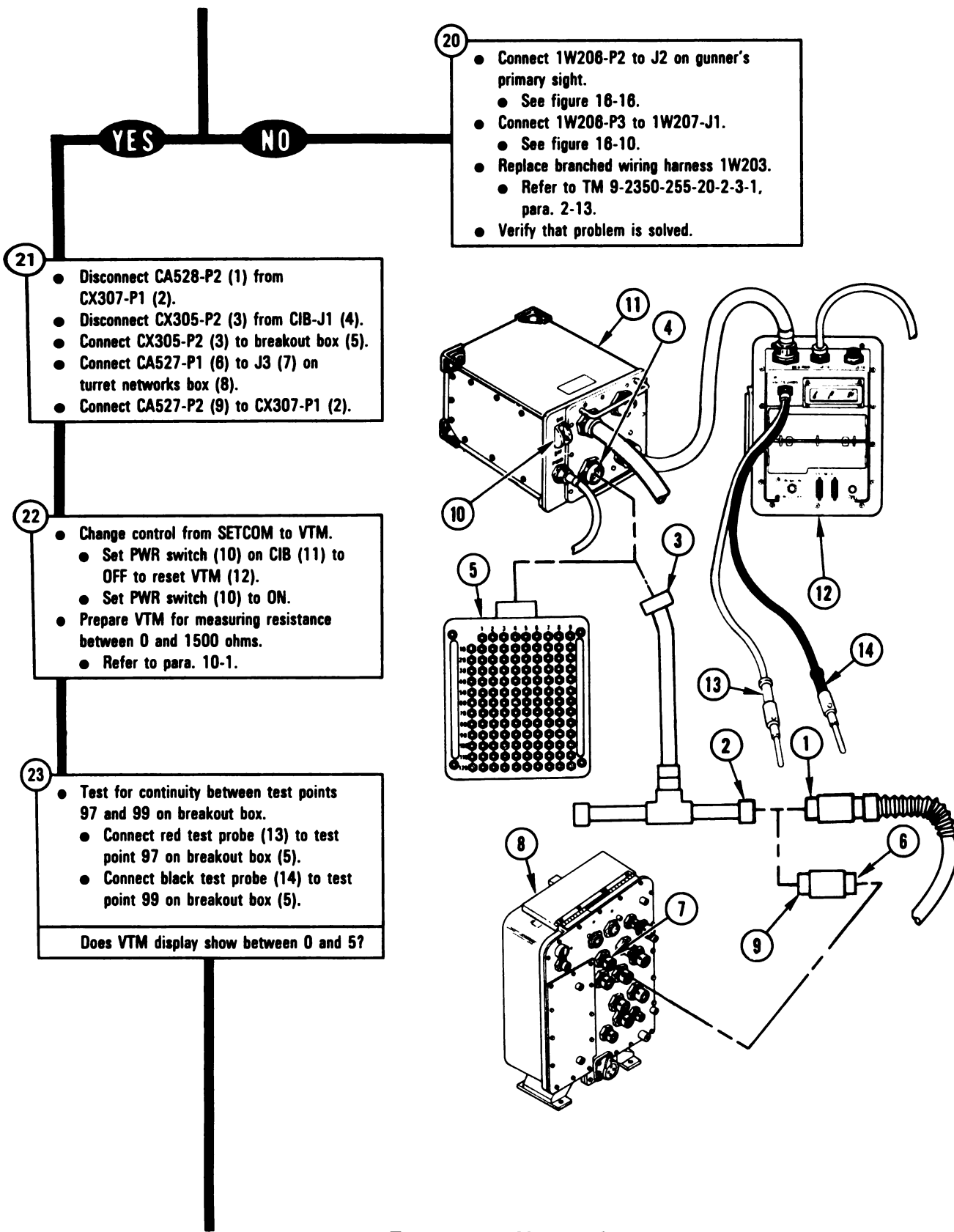


- 19
- Prepare STE to run cable test 1390.
 - Press STOP key (11) on SETCOM (8).
 - Press CLEAR key (5).
 - Enter test number 1390 on SETCOM (8).
 - Run test on 1W203 between P1 and P2.
 - See figure 15-5.

Does SETCOM display show GOOD?

Figure 10-13 (Sheet 4 of 6)
 Volume II
 Para. 10-2

ARR82-6214



- 20
- Connect 1W206-P2 to J2 on gunner's primary sight.
 - See figure 16-16.
 - Connect 1W206-P3 to 1W207-J1.
 - See figure 16-10.
 - Replace branched wiring harness 1W203.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

- 21
- Disconnect CA528-P2 (1) from CX307-P1 (2).
 - Disconnect CX305-P2 (3) from CIB-J1 (4).
 - Connect CX305-P2 (3) to breakout box (5).
 - Connect CA527-P1 (6) to J3 (7) on turret networks box (8).
 - Connect CA527-P2 (9) to CX307-P1 (2).

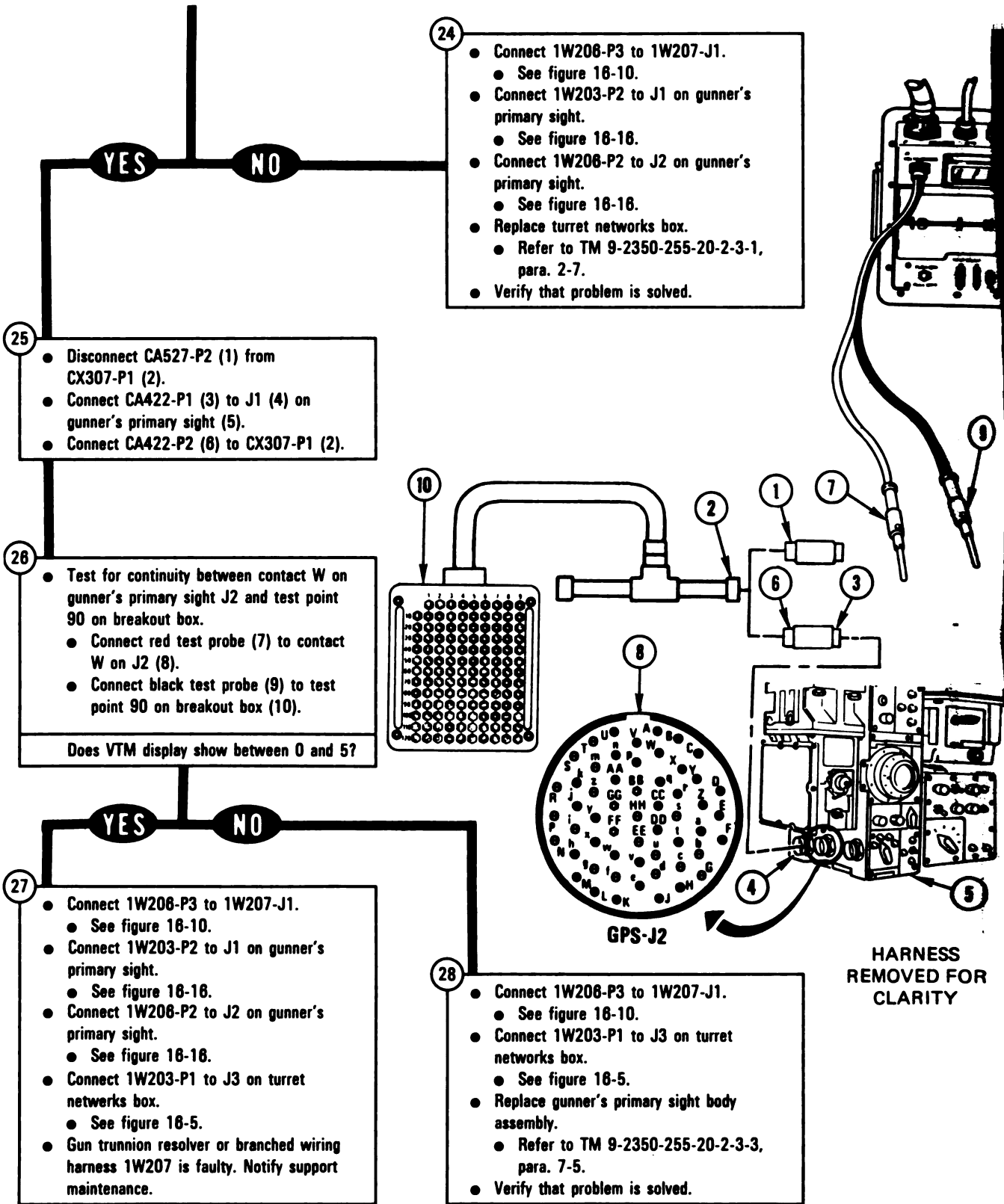
- 22
- Change control from SETCOM to VTM.
 - Set PWR switch (10) on CIB (11) to OFF to reset VTM (12).
 - Set PWR switch (10) to ON.
 - Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 10-1.

- 23
- Test for continuity between test points 97 and 99 on breakout box.
 - Connect red test probe (13) to test point 97 on breakout box (5).
 - Connect black test probe (14) to test point 99 on breakout box (5).
- Does VTM display show between 0 and 5?

Figure 10-13 (Sheet 5 of 6)
Volume II
Para. 10-2

ARR82-6215

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**



*Figure 10-13 (Sheet 6 of 6)
Volume II
Para. 10-2*

ARR82-62 16

**DISPLAY SHOWS -
 FAULTY AUTO SELF-
 TEST CKT**

121014

**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 1W200-P1 from J5 on turret networks box.
 - See figure 16-5.
- Connect 1W200-P1 (5) to CA504-P1 (8).
- Connect CA504-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. 10-1.

3

- Test for continuity between test points 20 and 7 on breakout box.
 - Connect red test probe (12) to test point 20 on breakout box (2).
 - Connect black test probe (13) to test point 7 on breakout box (2).

Does VTM display show between 0 and 5?

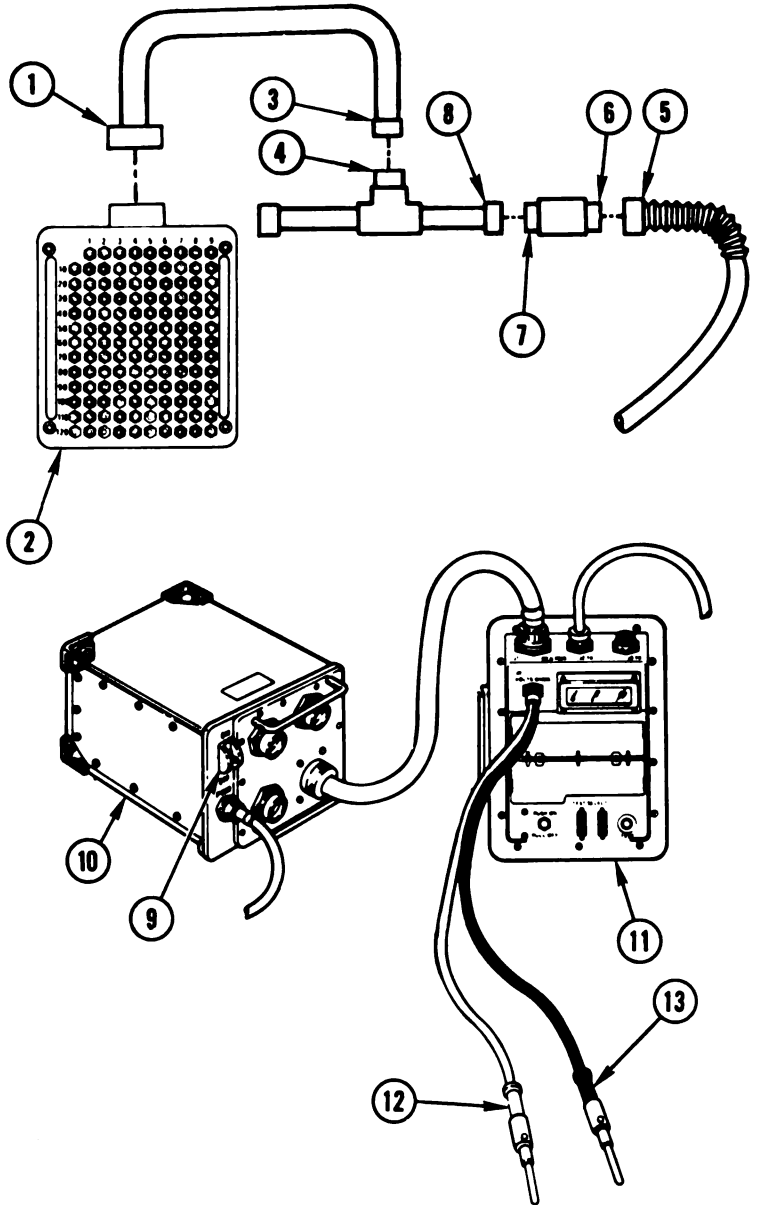


Figure 10-14 (Sheet 1 of 16)
 Volume II
 Para. 10-2

ARR82-6217

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

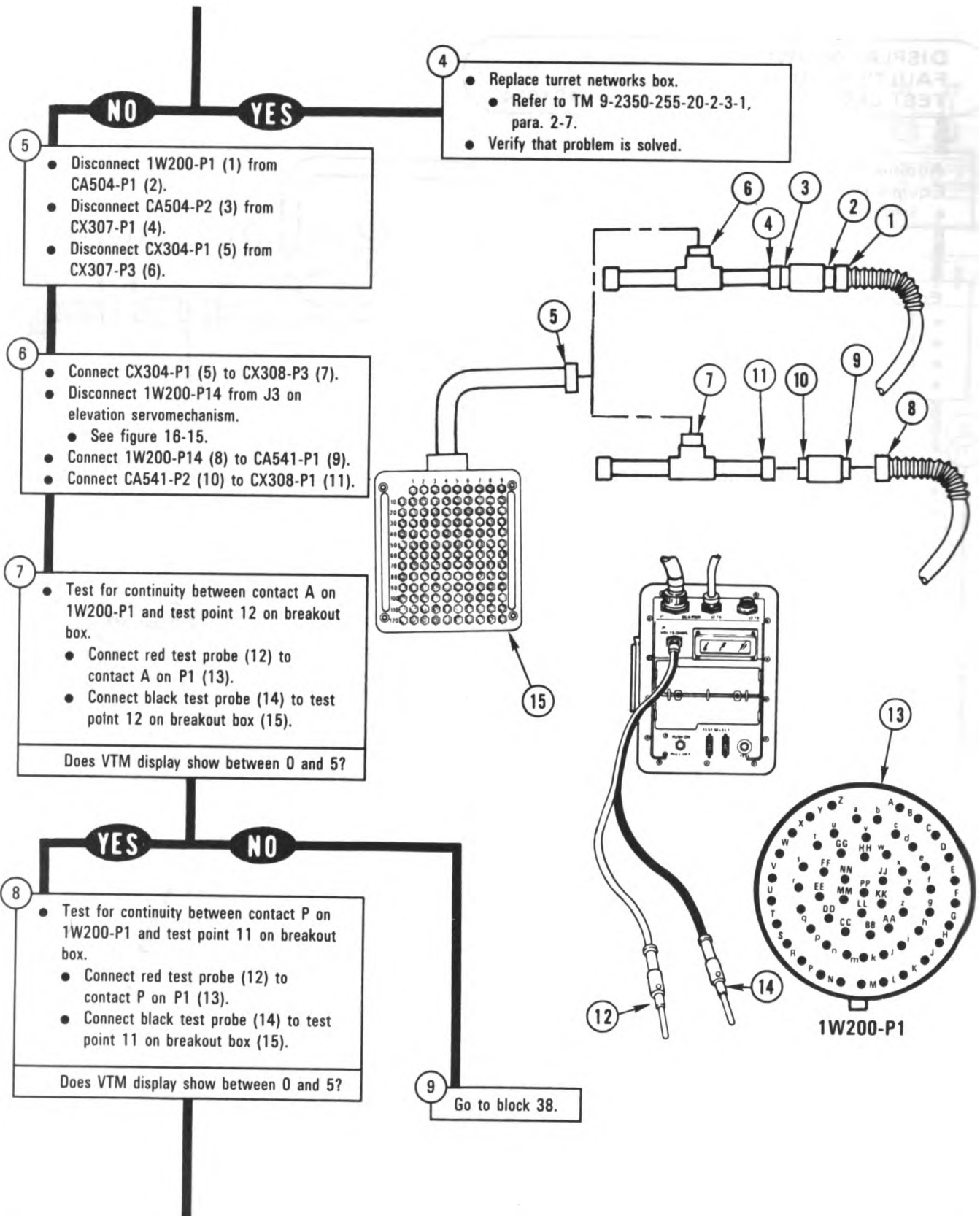


Figure 10-14 (Sheet 2 of 16)
Volume II
Para. 10-2

ARR82-6218

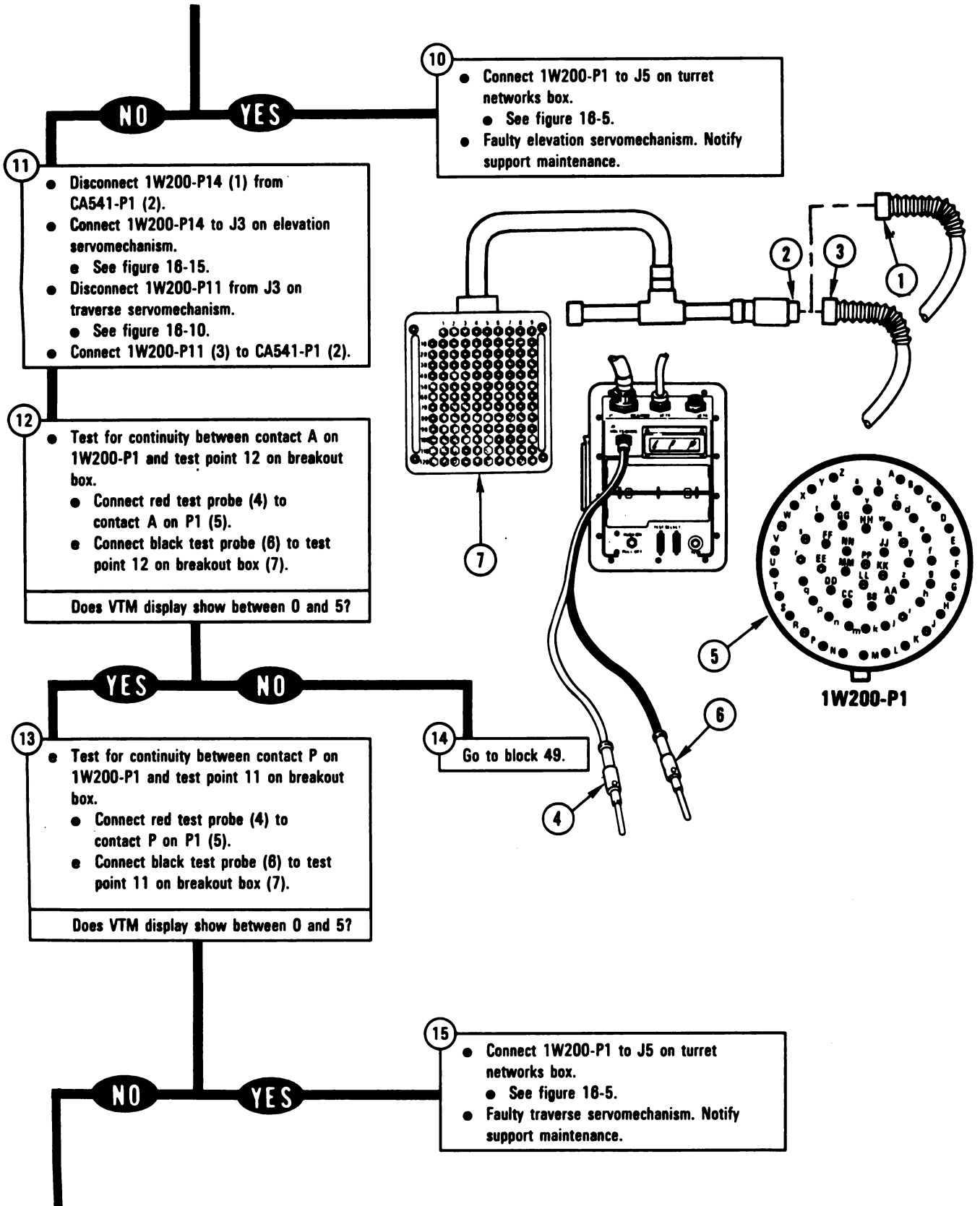


Figure 10-14 (Sheet 3 of 16)
 Volume II
 Para. 10-2

ARR82-6219

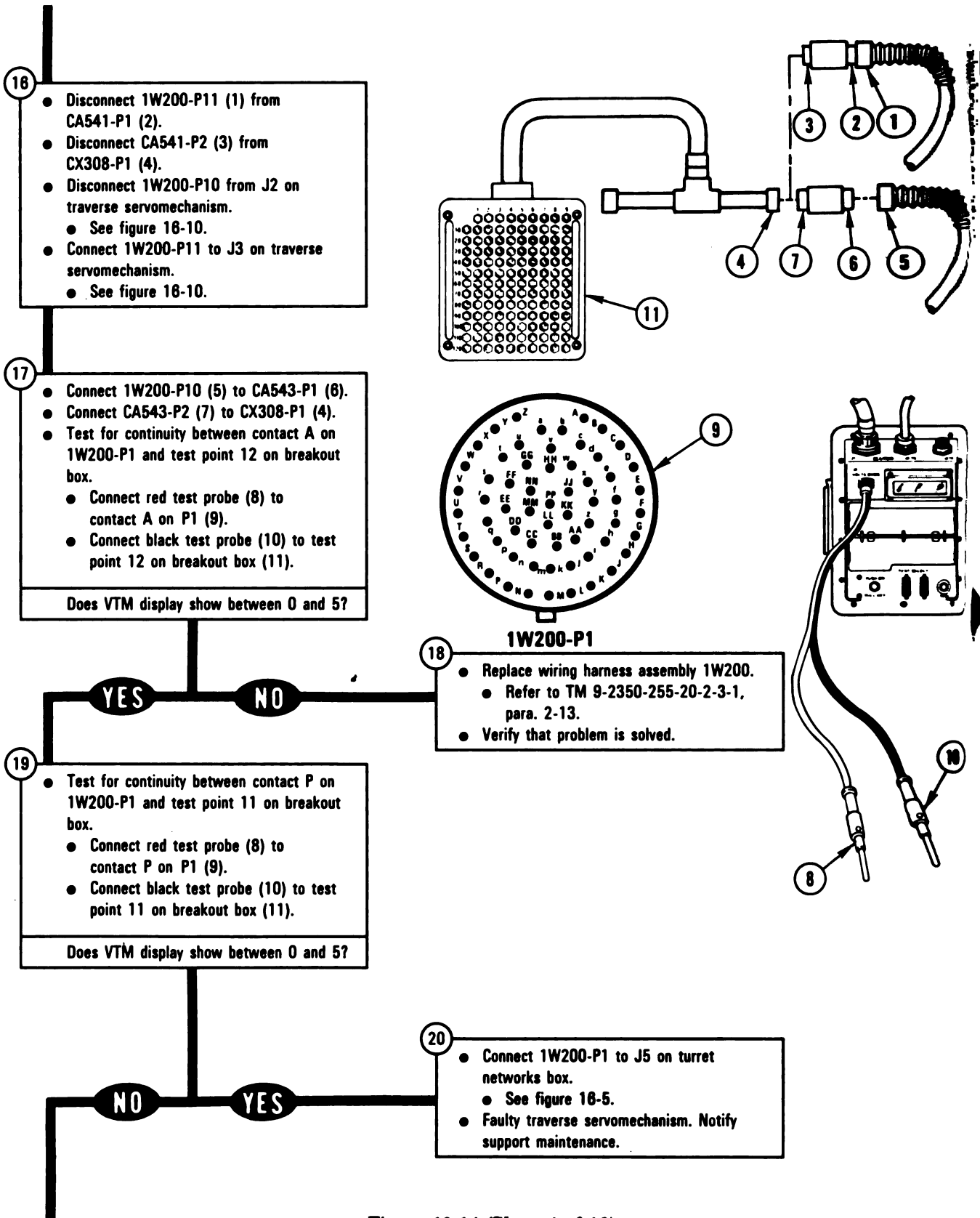


Figure 10-14 (Sheet 4 of 16)
 Volume II
 Para. 10-2

ARR82-6220

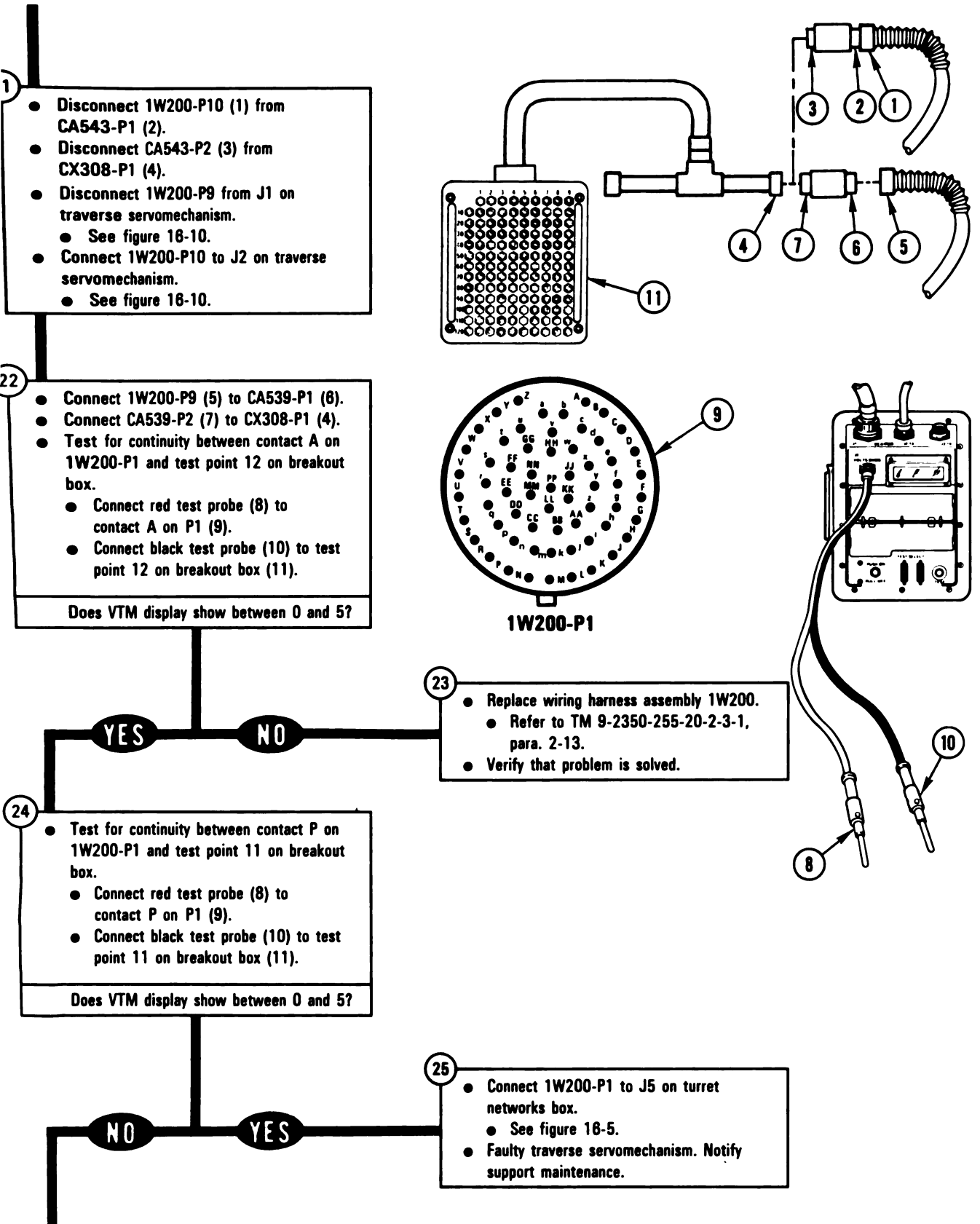
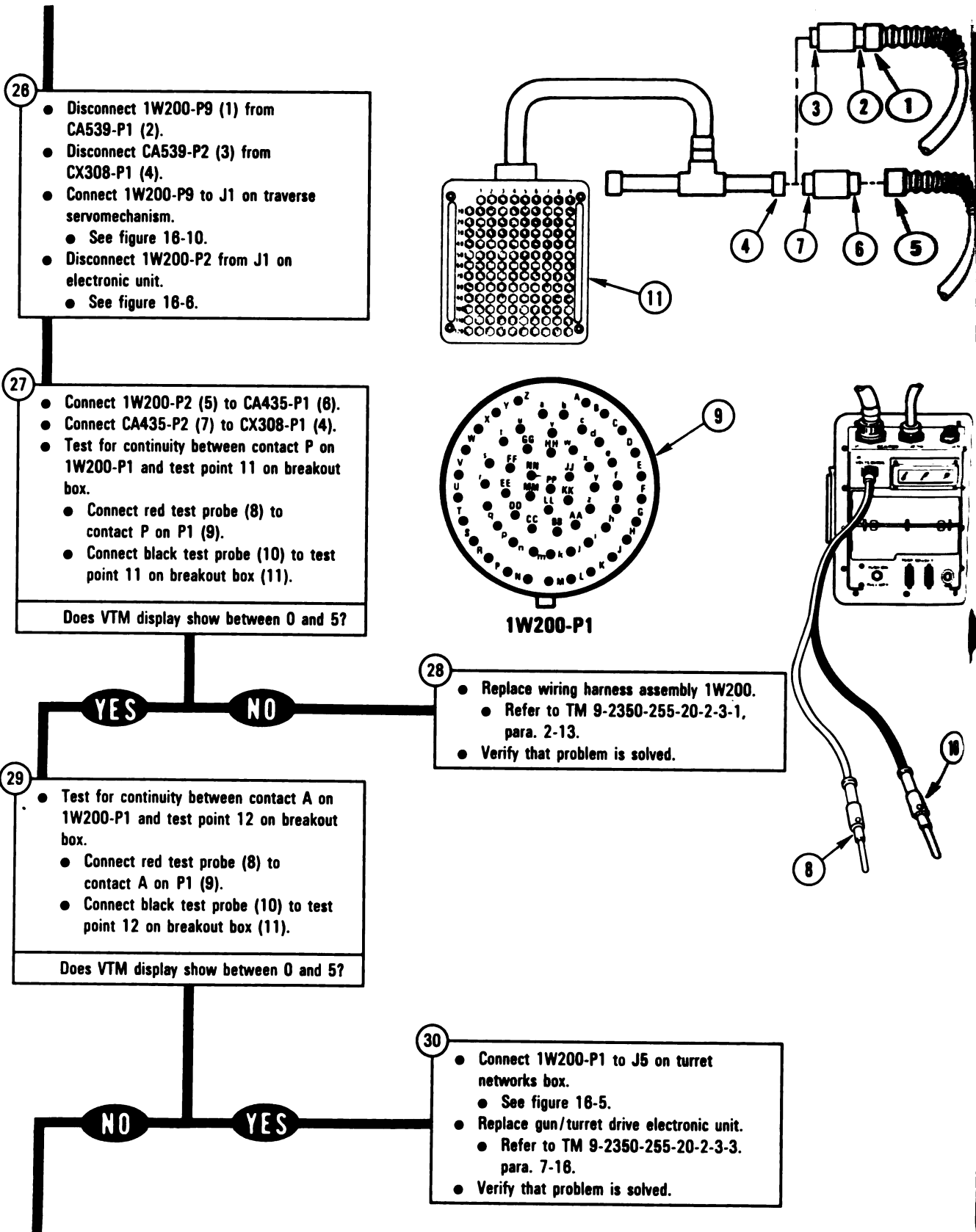


Figure 10-14 (Sheet 5 of 16)
Volume II
Para. 10-2

ARR82-6221

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING



26

- Disconnect 1W200-P9 (1) from CA539-P1 (2).
- Disconnect CA539-P2 (3) from CX308-P1 (4).
- Connect 1W200-P9 to J1 on traverse servomechanism.
 - See figure 16-10.
- Disconnect 1W200-P2 from J1 on electronic unit.
 - See figure 16-6.

27

- Connect 1W200-P2 (5) to CA435-P1 (6).
- Connect CA435-P2 (7) to CX308-P1 (4).
- Test for continuity between contact P on 1W200-P1 and test point 11 on breakout box.
 - Connect red test probe (8) to contact P on P1 (9).
 - Connect black test probe (10) to test point 11 on breakout box (11).

Does VTM display show between 0 and 5?

YES

NO

28

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

29

- Test for continuity between contact A on 1W200-P1 and test point 12 on breakout box.
 - Connect red test probe (8) to contact A on P1 (9).
 - Connect black test probe (10) to test point 12 on breakout box (11).

Does VTM display show between 0 and 5?

NO

YES

30

- Connect 1W200-P1 to J5 on turret networks box.
 - See figure 16-5.
- 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 10-14 (Sheet 6 of 16)
Volume II
Para. 10-2

ARR82-6222

- Disconnect 1W200-P2 (1) from CA435-P1 (2).
- Connect 1W200-P2 to J1 on electronic unit.
- See figure 16-8.
- Disconnect CX304-P1 (3) from CX308-P3 (4).

- Connect CX304-P1 (3) to CX307-P3 (5).
- Disconnect 1W200-P3 from J2 on electronic unit.
- See figure 16-8.
- Connect 1W200-P3 (6) to CA523-P1 (7).
- Connect CA523-P2 (8) to CX307-P1 (9).

- Test for continuity between contact P on 1W200-P1 and test point 24 on breakout box.
- Connect red test probe (10) to contact P on P1 (11).
- Connect black test probe (12) to test point 24 on breakout box (13).

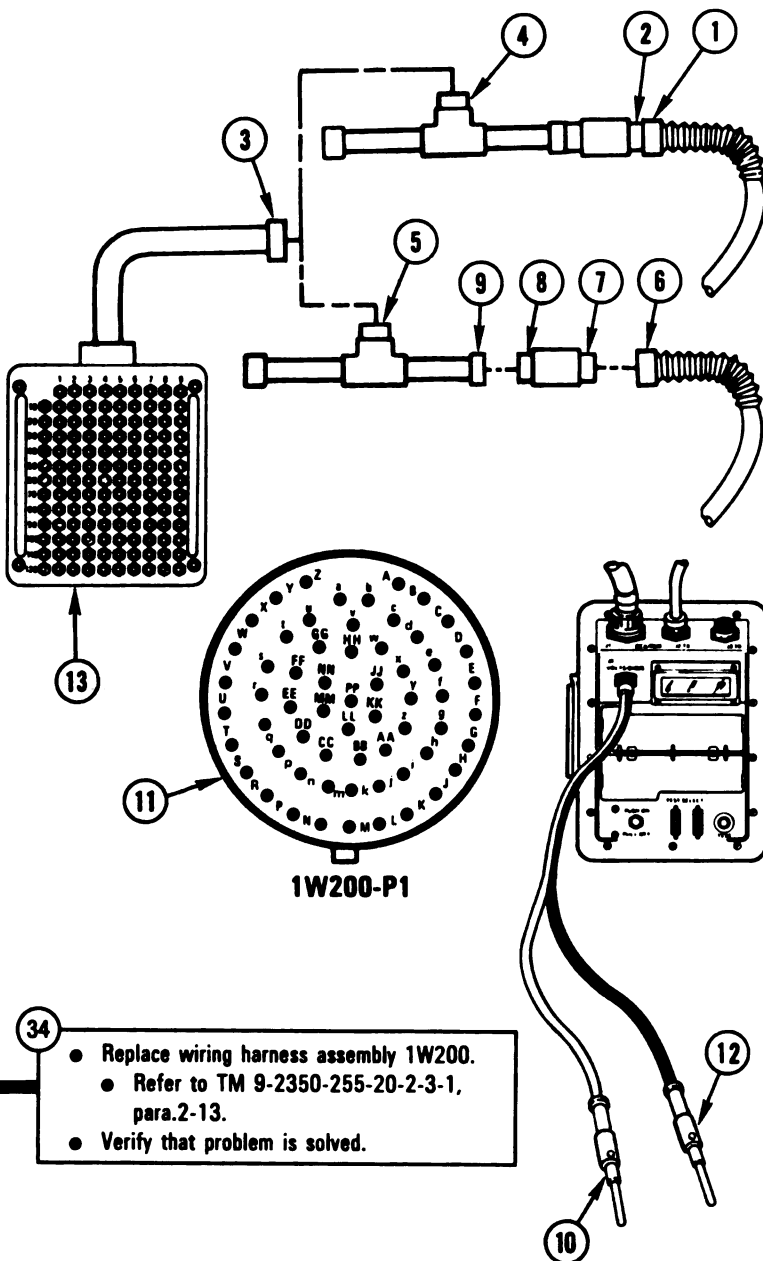
Does VTM display show between 0 and 5?

YES

NO

- Test for continuity between contact A on 1W200-P1 and test point 99 on breakout box.
- Connect red test probe (10) to contact A on P1 (11).
- Connect black test probe (12) to test point 99 on breakout box (13).

Does VTM display show between 0 and 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 10-14 (Sheet 7 of 16)
Volume II
Para. 10-2

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

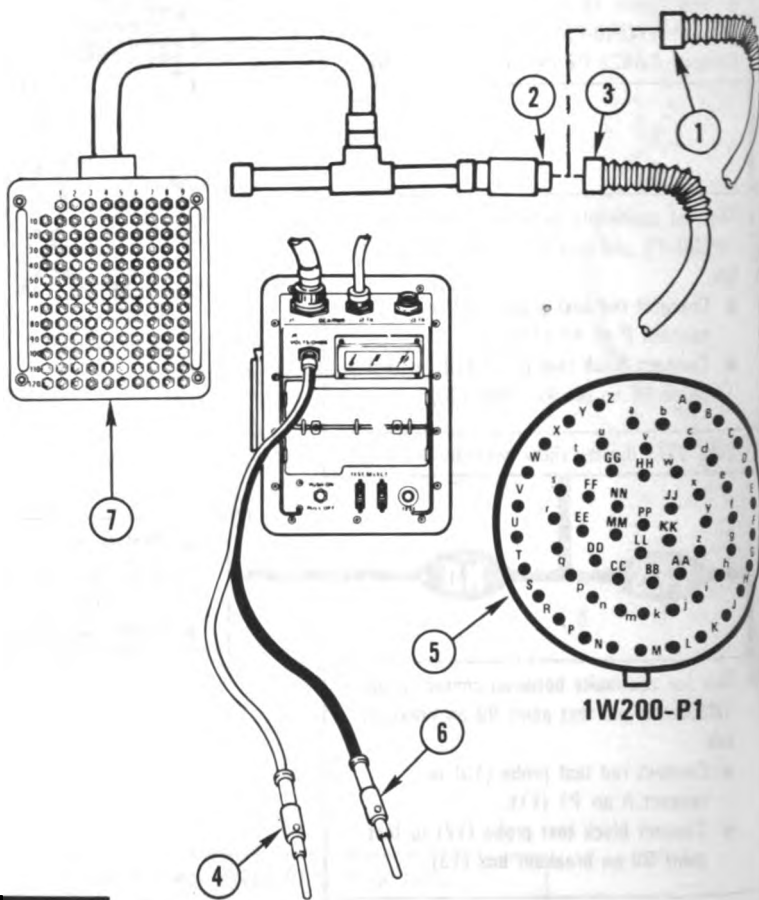
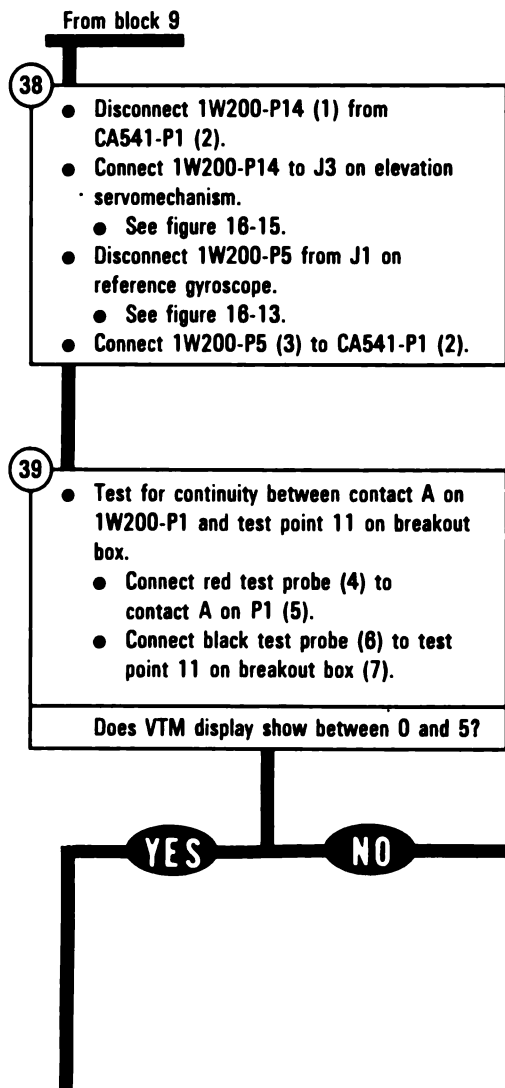
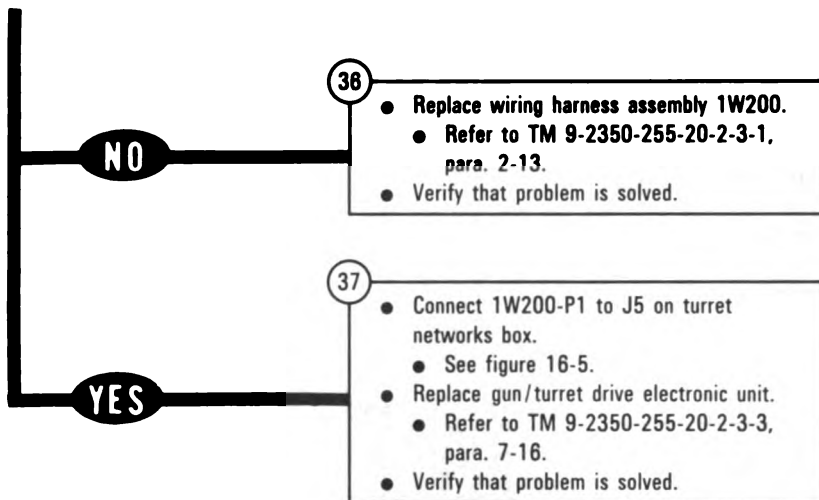


Figure 10-14 (Sheet 8 of 16)
 Volume II
 Para. 10-2

ARR82-6224

41

- Test for continuity between contact P on 1W200-P1 and test point 12 on breakout box.
- Connect red test probe (1) to contact P on P1 (2).
- Connect black test probe (3) to test point 12 on breakout box (4).

Does VTM display show between 0 and 5?

42

- Connect 1W200-P1 to J5 on turret networks box.
- See figure 16-5.
- Replace reference gyroscope.
- Refer to TM 9-2350-255-20-2-3-3, para. 7-19.
- Verify that problem is solved.

NO YES

43

- Disconnect 1W200-P5 (5) from CA541-P1 (6).
- Connect 1W200-P5 to J1 on reference gyroscope.
- See figure 16-13.
- Disconnect 1W200-P6 from J1 on feed forward gyroscope.
- See figure 16-12.
- Connect 1W200-P6 (7) to CA541-P1 (6).

44

- Test for continuity between contact A on 1W200-P1 and test point 11 on breakout box.
- Connect red test probe (1) to contact A on P1 (2).
- Connect black test probe (3) to test point 11 on breakout box (4).

Does VTM display show between 0 and 5?

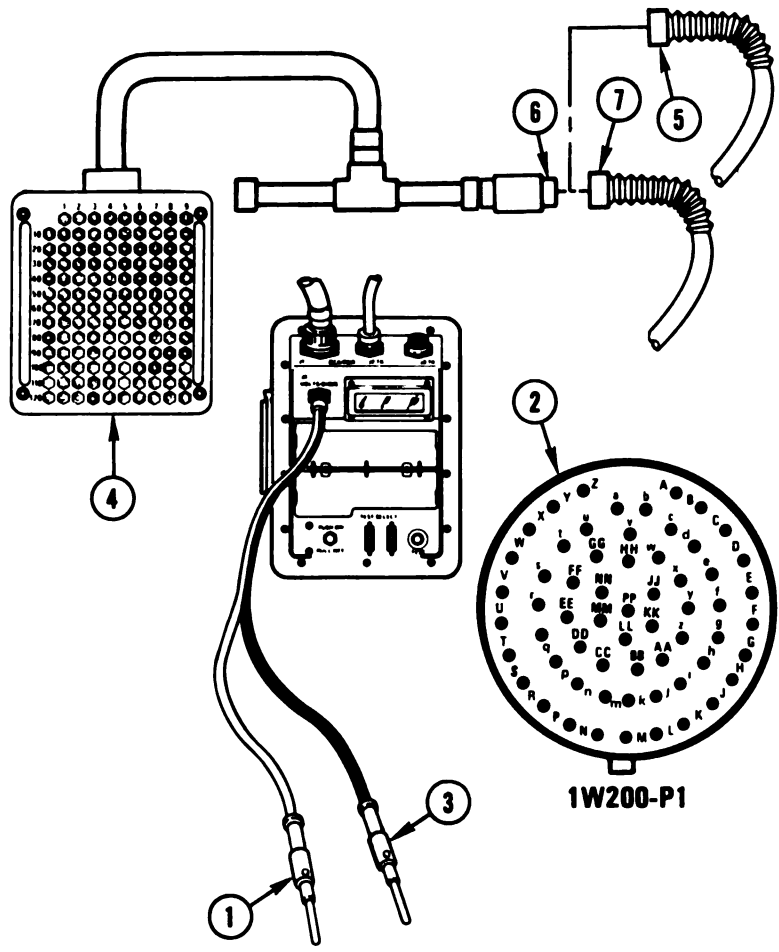


Figure 10-14 (Sheet 9 of 16)
Volume II
Para. 10-2

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

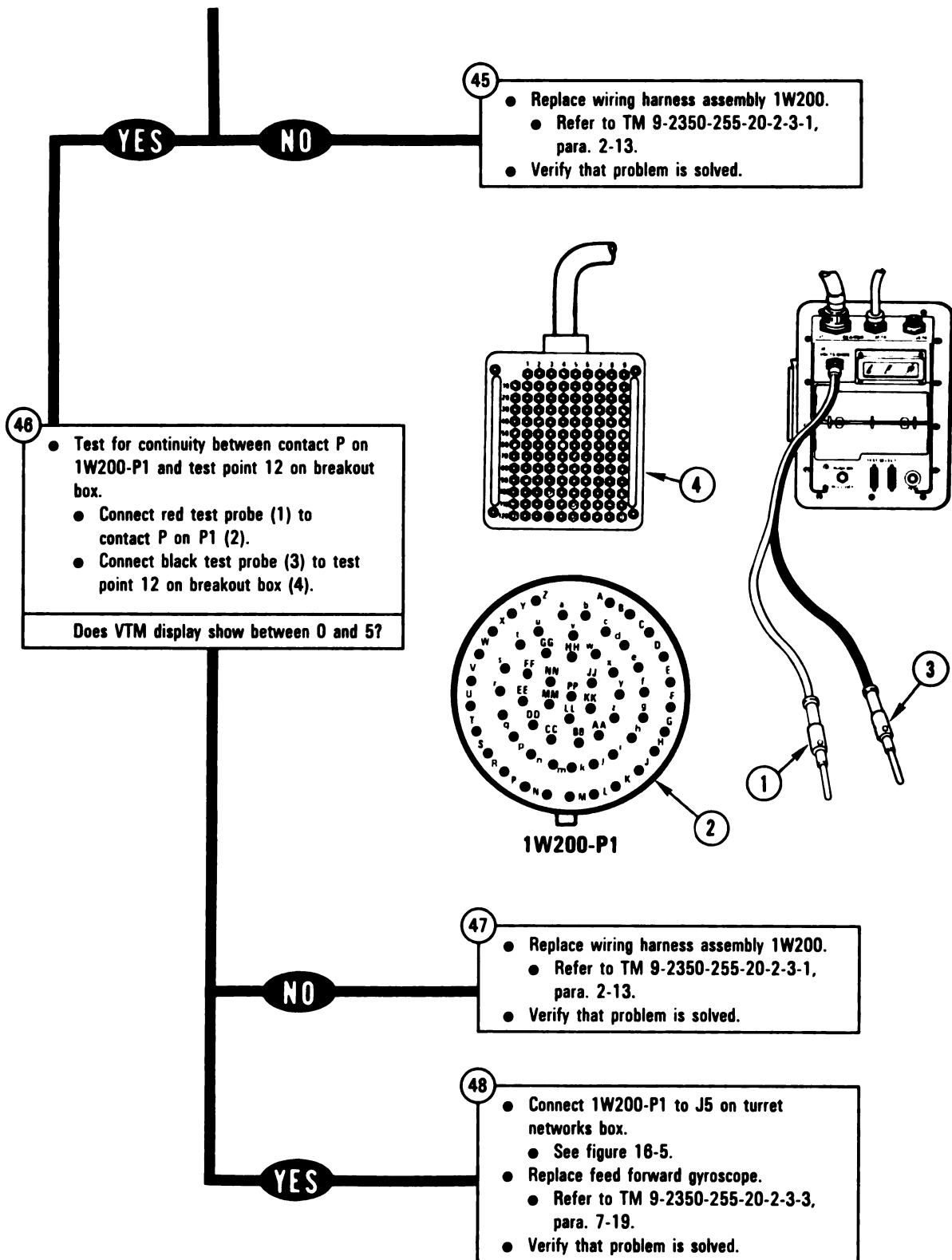
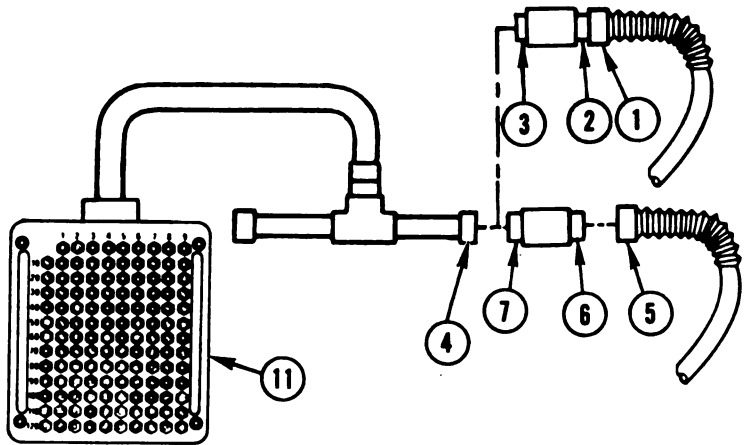


Figure 10-14 (Sheet 10 of 16)
 Volume II
 Para. 10-2

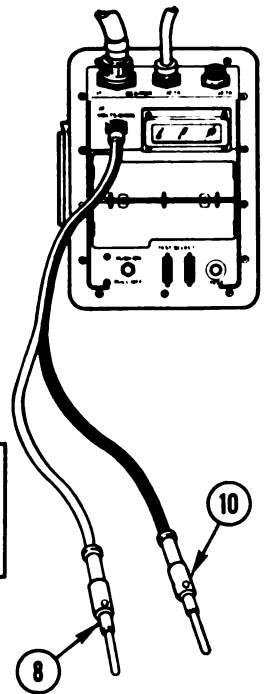
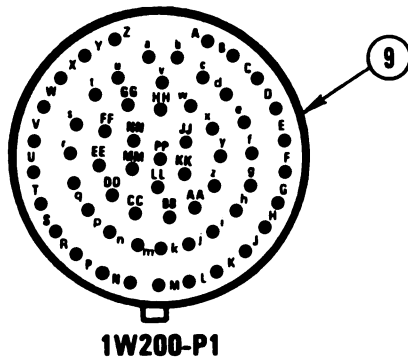
ARR82-6226

From block 14

- Disconnect 1W200-P11 (1) from CA541-P1 (2).
- Disconnect CA541-P2 (3) from CX308-P1 (4).
- Connect 1W200-P11 to J3 on traverse servomechanism.
 - See figure 18-10.
- Disconnect 1W200-P12 from J1 on elevation servomechanism.
 - See figure 18-15.



- Connect 1W200-P12 (5) to CA539-P1 (6).
- Connect CA539-P2 (7) to CX308-P1 (4).
- Test for continuity between contact P on 1W200-P1 and test point 11 on breakout box.
 - Connect red test probe (8) to contact P on P1 (9).
 - Connect black test probe (10) to test point 11 on breakout box (11).



Does VTM display show between 0 and 5?

YES

NO

- Test for continuity between contact A on 1W200-P1 and test point 12 on breakout box.
 - Connect red test probe (8) to contact A on P1 (9).
 - Connect black test probe (10) to test point 12 on breakout box (11).

Does VTM display show between 0 and 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 10-14 (Sheet 11 of 16)
Volume II
Para. 10-2

ARR82-6227

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

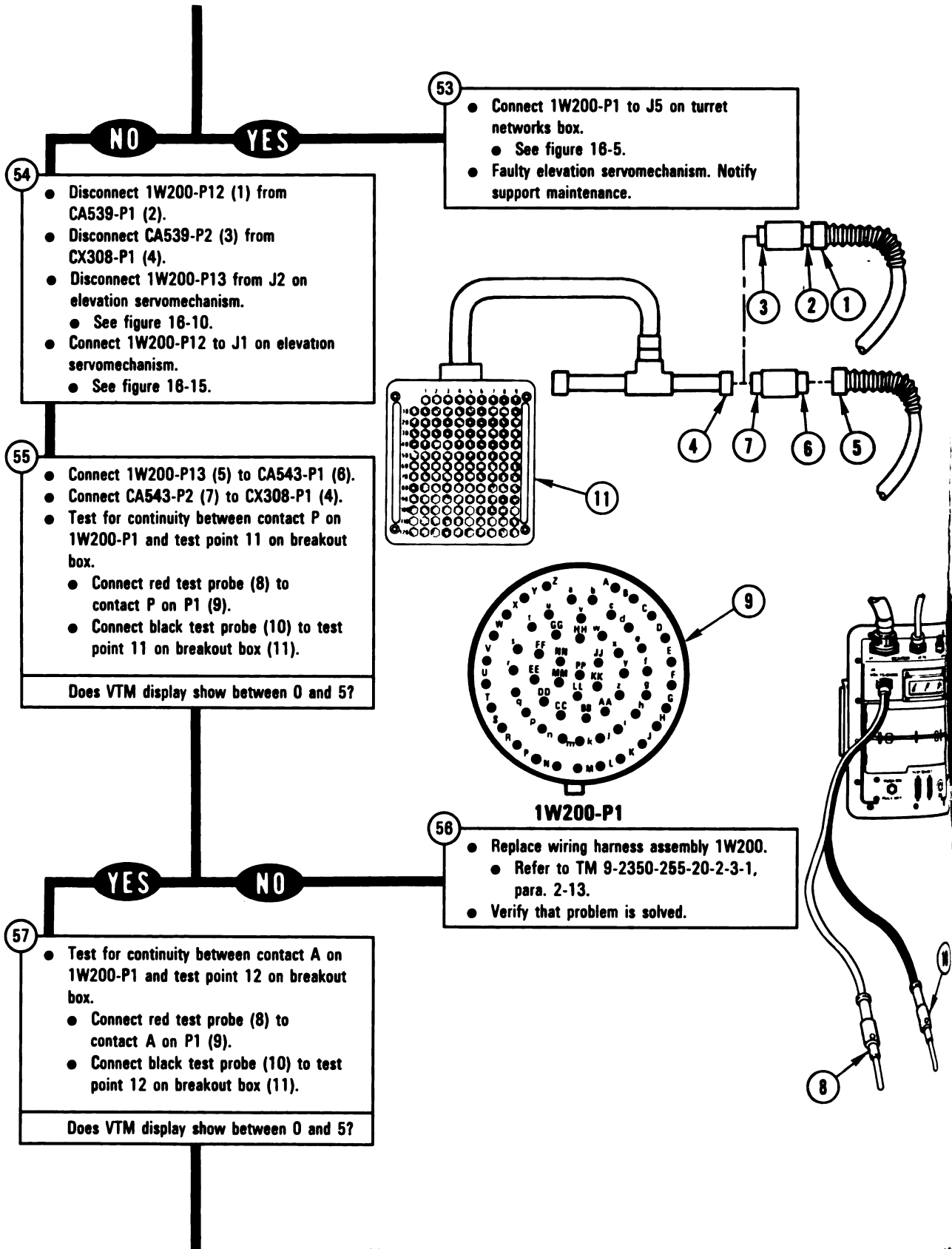
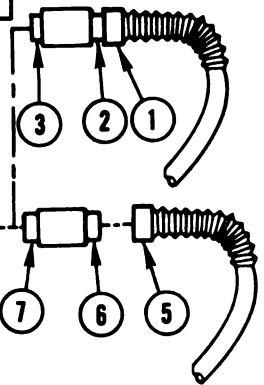
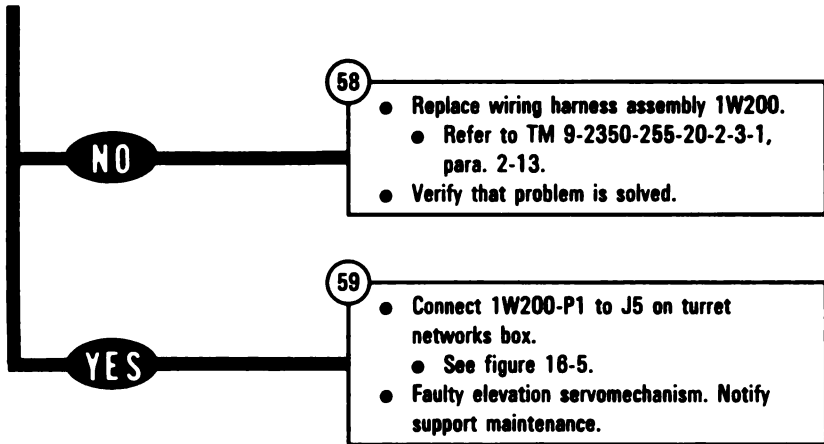


Figure 10-14 (Sheet 12 of 16)
Volume II
Para. 10-2

ARR82-622



From block 40

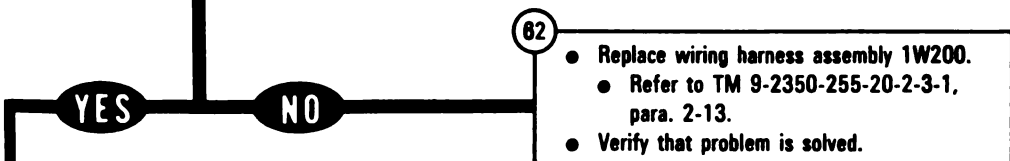
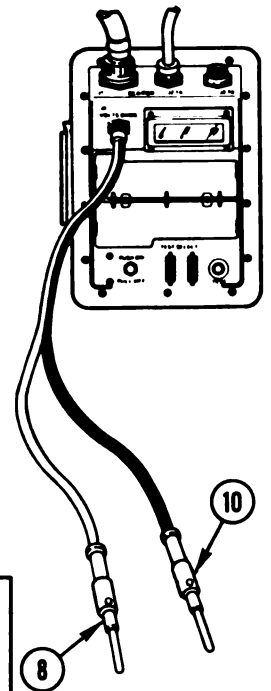
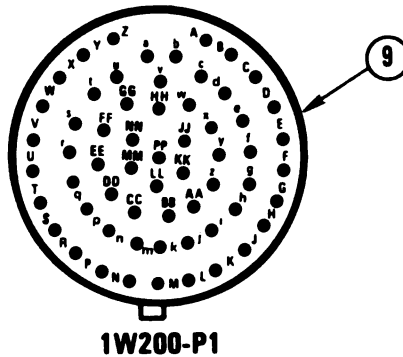
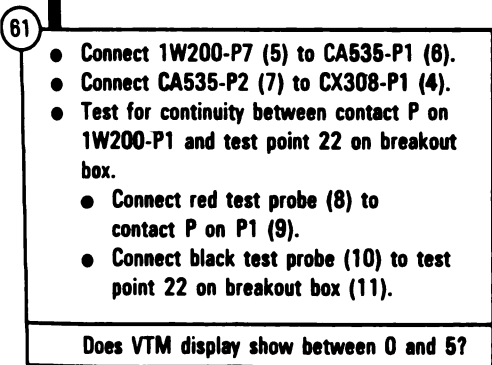
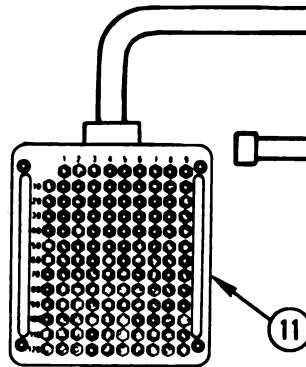
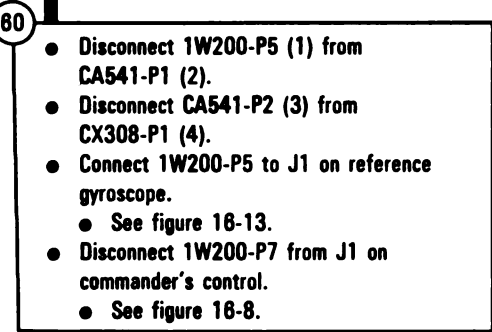


Figure 10-14 (Sheet 13 of 16)
Volume II
Para. 10-2

ARR82-6229

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

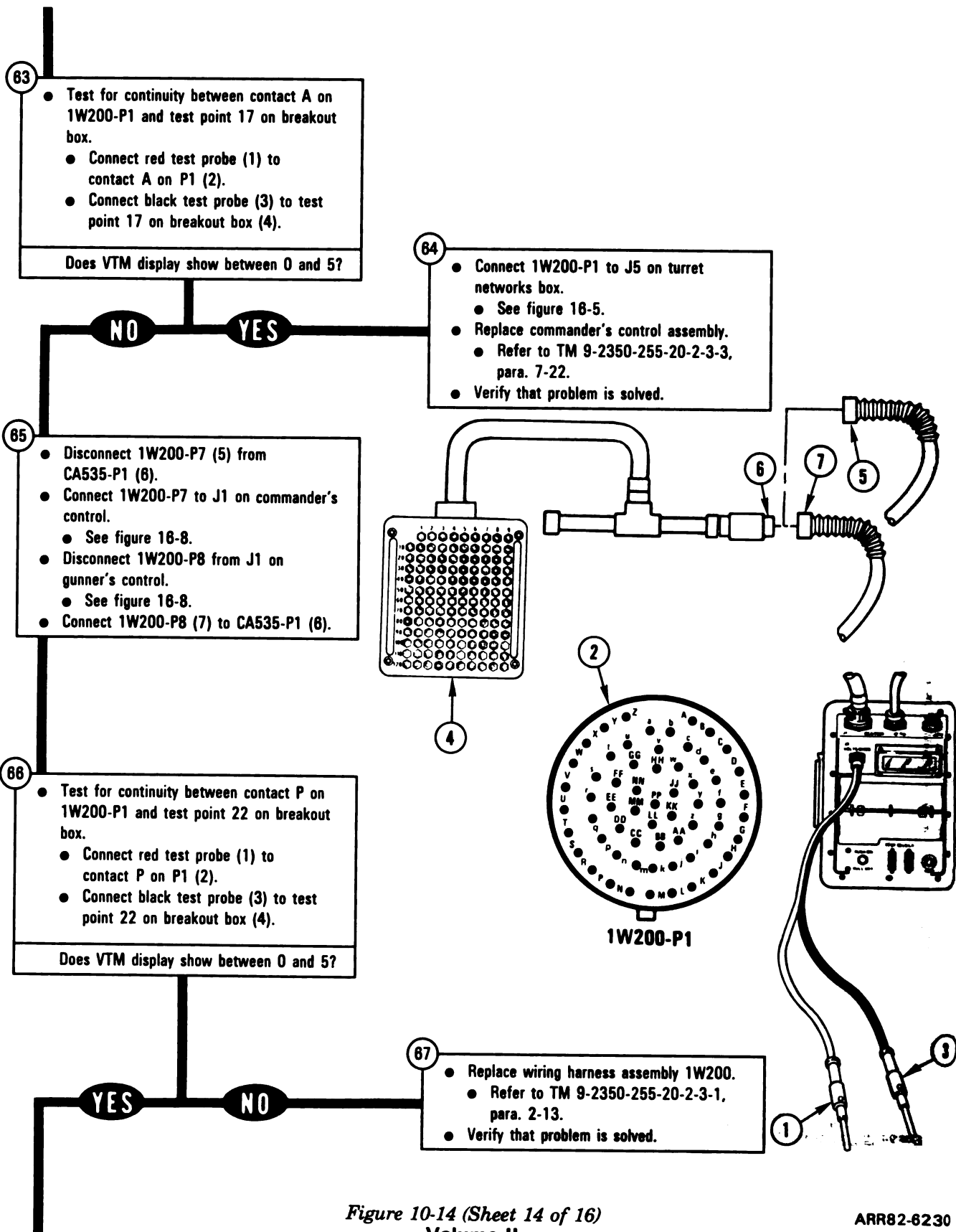


Figure 10-14 (Sheet 14 of 16)
Volume II
Para. 10-2

ARR82-6230

68

- Test for continuity between contact A on 1W200-P1 and test point 17 on breakout box.
- Connect red test probe (1) to contact A on P1 (2).
- Connect black test probe (3) to test point 17 on breakout box (4).

Does VTM display show between 0 and 5?

NO

YES

69

- Connect 1W200-P1 to J5 on turret networks box.
- See figure 16-5.
- Replace gunner's control grip assembly.
- Refer to TM 9-2350-255-20-2-3-3, para. 7-21.
- Verify that problem is solved.

70

- Disconnect 1W200-P8 (5) from CA535-P1 (6).
- Connect 1W200-P8 to J1 on gunner's control.
- See figure 16-8.
- Disconnect CX304-P1 (7) from CX308-P3 (8).

71

- Connect CX304-P1 (7) to CX307-P3 (9).
- Disconnect 1W200-P4 from J3 on electronic unit.
- See figure 16-8.
- Connect 1W200-P4 (10) to CA515-P1 (11).
- Connect CA515-P2 (12) to CX307-P1 (13).

72

- Test for continuity between contact P on 1W200-P1 and test point 99 on breakout box.
- Connect red test probe (1) to contact P on P1 (2).
- Connect black test probe (3) to test point 99 on breakout box (4).

Does VTM display show between 0 and 5?

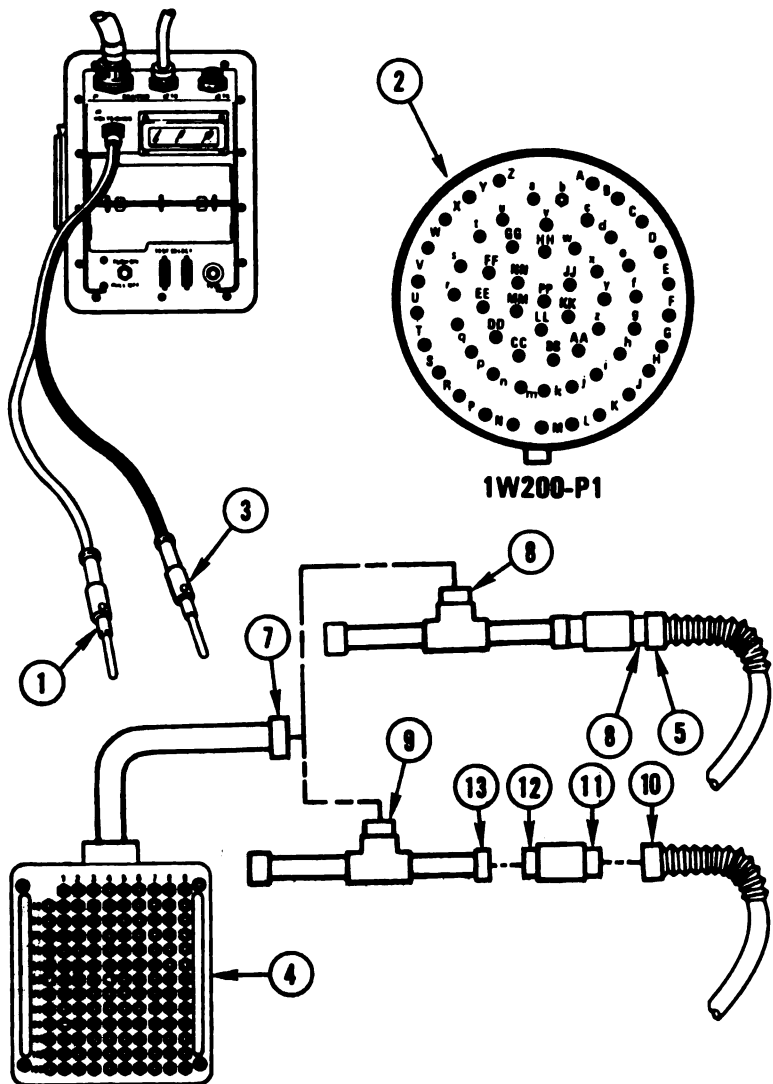
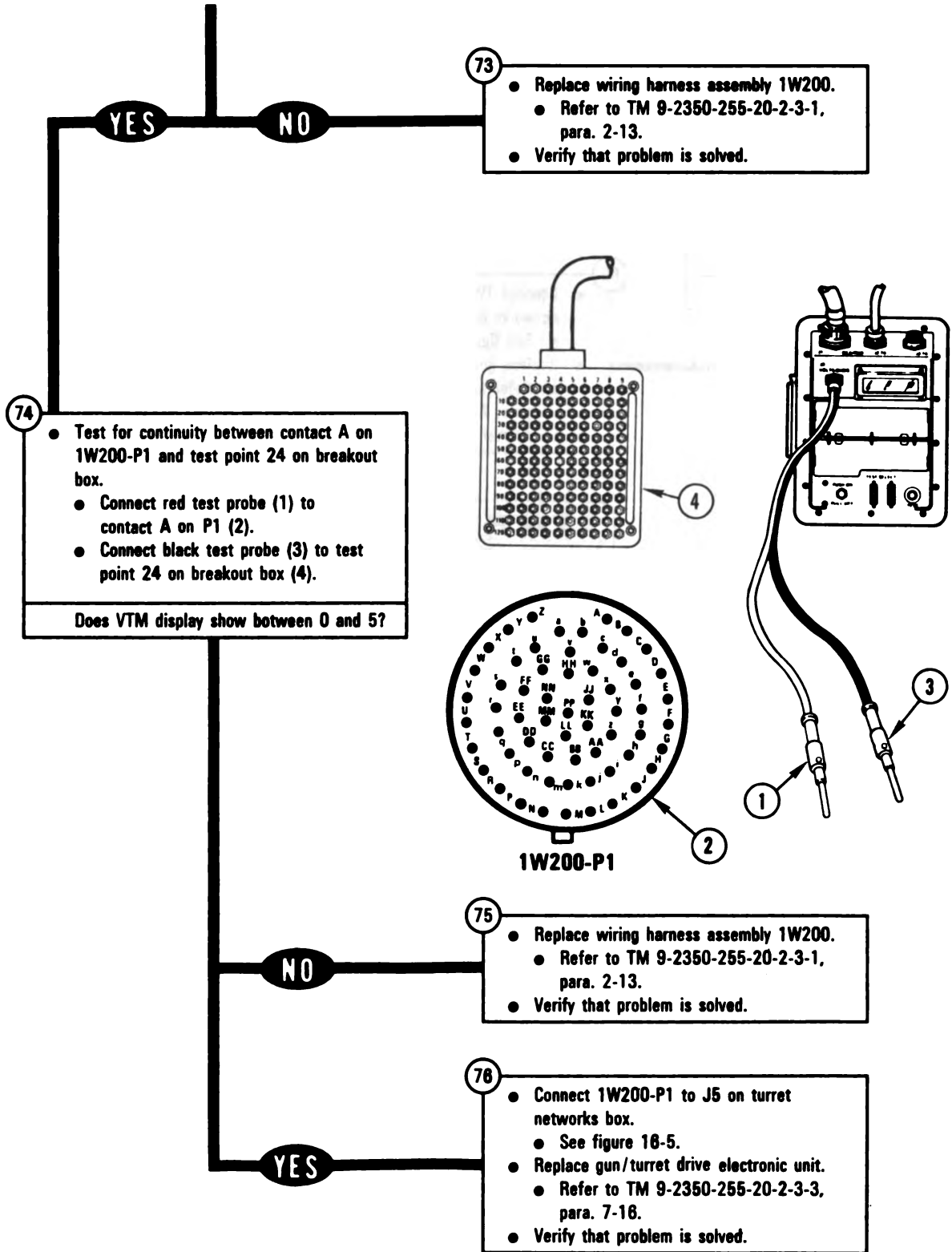


Figure 10-14 (Sheet 15 of 16)
Volume II
Para. 10-2

ARR82-6231

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**



*Figure 10-14 (Sheet 16 of 16)
Volume II
Para. 10-2*

ARR82-6232

**DISPLAY SHOWS -
FAULTY AUTO SELF-
TEST CKT**

121016

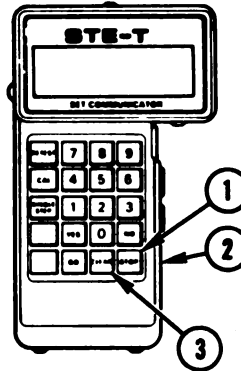
Additional Test

Equipment/Special Tools:

- Breakout Box Tool Kit, 12311066

Equipment Condition:

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



- 1
- Disconnect CX208-P2 from CIB-J2.
 - See figure 10-2.
 - Disconnect CX305-P1 from CA208-P2.
 - See figure 10-3.
 - Disconnect 1W101-P2 from J11 on turret networks box.
 - See figure 16-5.
 - Disconnect 1W101-P1 from J8 on hull/turret slipring.
 - See figure 16-9.

- 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 1W101 between P1 and P2.
 - See figure 15-5.

Does SETCOM display GOOD?

YES

NO

- 3
- Replace wiring harness assembly 1W101.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

Figure 10-15 (Sheet 1 of 3)
Volume II
Para. 10-2

ARR82-8233

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

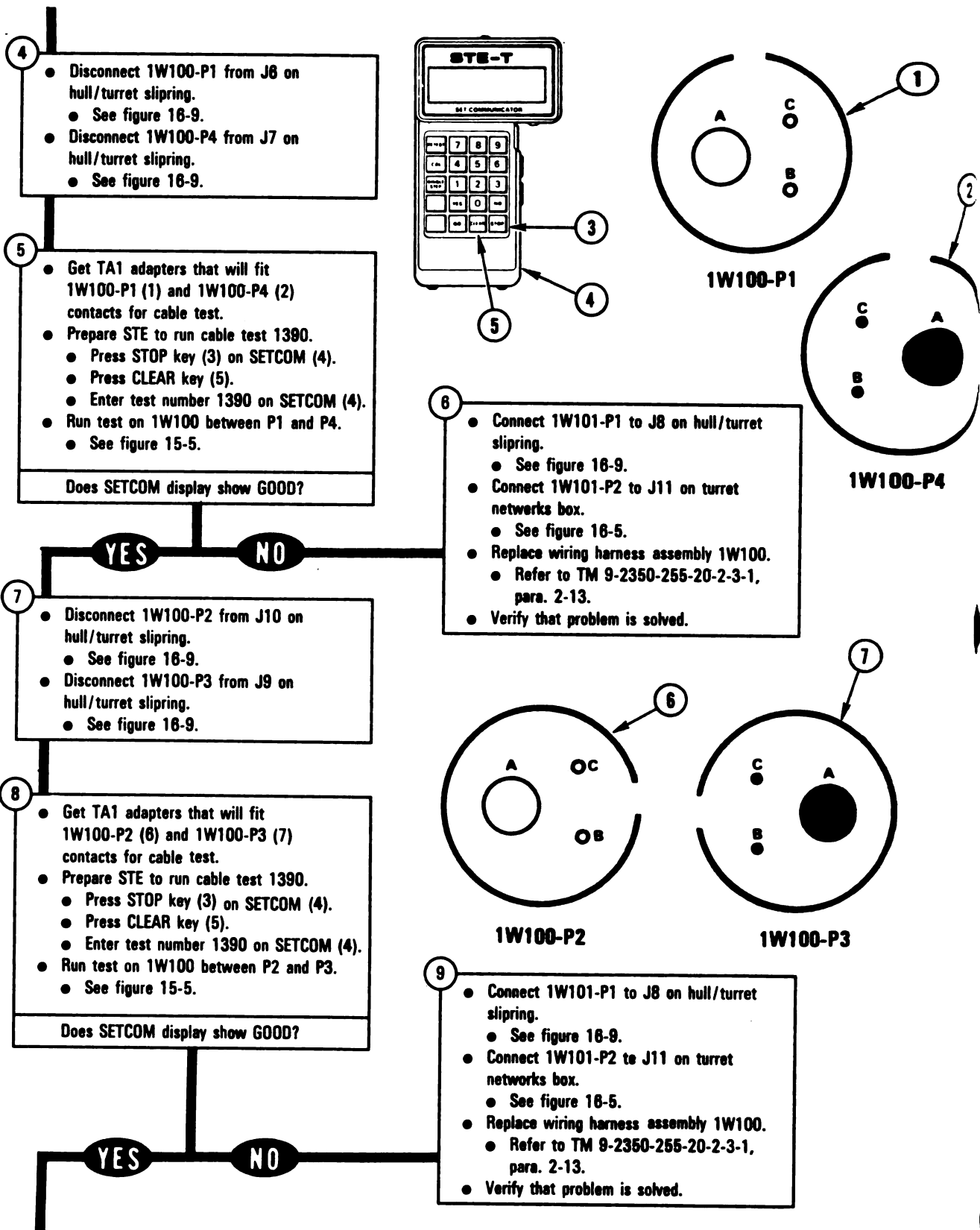
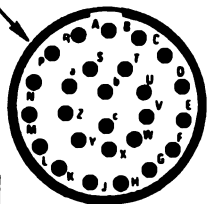
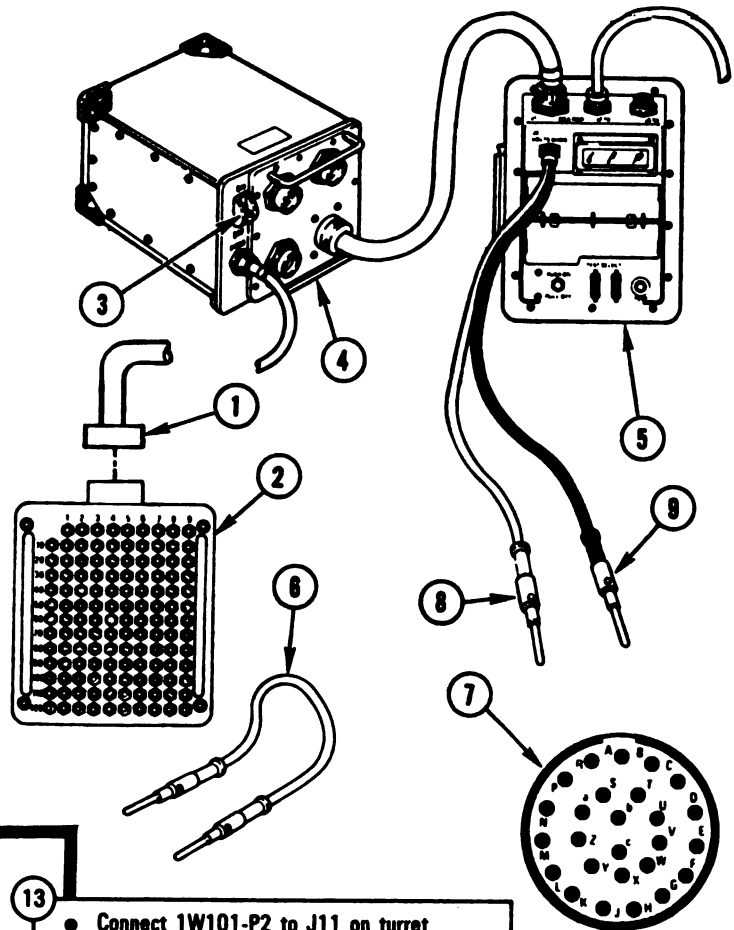


Figure 10-15 (Sheet 2 of 3)
Volume II
Para. 10-2

ARR82-6234

- 9
- Connect CX208-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. 10-1.

- 11
- Connect jumper (6) between contacts A and J on turret networks box J11 (7).
 - Test for continuity between test points 15 and 77 on breakout box.
 - Connect red test probe (8) to test point 15 on breakout box (2).
 - Connect black test probe (9) to test point 77 on breakout box (2).
- Does VTM display show between 0 and 5?



- NO
- 12
- Connect 1W100-P2 to J10 on hull/turret slipping.
 - See figure 16-9.
 - Connect 1W100-P3 to J9 on hull/turret slipping.
 - See figure 16-9.
 - Connect 1W101-P1 to J8 on hull/turret slipping.
 - See figure 16-9.
 - Connect 1W100-P4 to J7 on hull/turret slipping.
 - See figure 16-9.
 - Connect 1W100-P1 to J6 on hull/turret slipping.
 - See figure 16-9.

- 13
- Connect 1W101-P2 to J11 on turret networks box.
 - See figure 16-5.
 - Replace hull/turret slipping assembly.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-8.
 - Verify that problem is solved.

- 14
- Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
 - Verify that problem is solved.

Figure 10-15 (Sheet 3 of 3)
Volume II
Para. 10-2

**DISPLAY SHOWS -
 FAULTY AUTO SELF-
 TEST CKT**

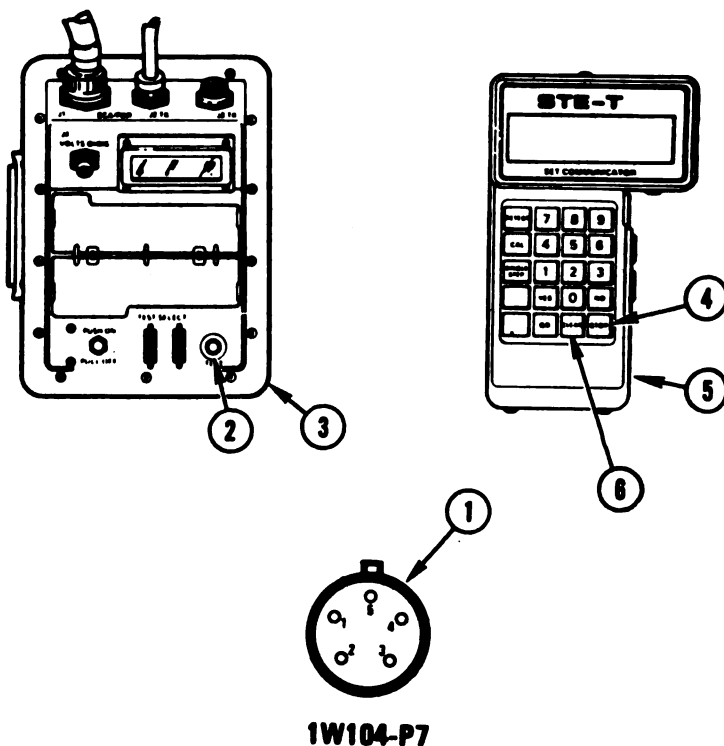
121018

**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 CX208-P2 from CIB J2.
 - See figure 10-2.
 - Disconnect CX305-P1 from CA206-P2.
 - See figure 10-3.
 - Disconnect 1W104-P1 from J9 on turret networks box.
 - See figure 16-5.
 - Disconnect 1W104-P7 from J4 on hydraulic turret valve.
 - See figure 16-10.

- 2
- 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 STOP key (4) on SETCOM (5).
 - Press CLEAR key (6).
 - Enter test number 1390 on SETCOM (5).
 - Run test on 1W104 between P1 and P7.
 - See figure 15-5.

Does SETCOM display show GOOD?

YES

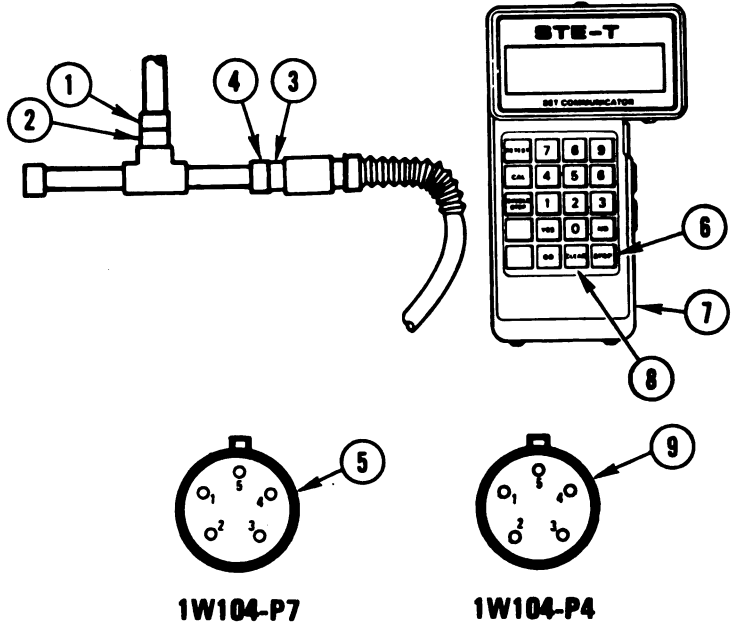
NO

- 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 10-16 (Sheet 1 of 8)
 Volume II
 Para. 10-2

ARR82-8236

- Disconnect CX305-P1 (1) from CX307-P3 (2).
- Disconnect CA518-P2 (3) from CX307-P1 (4).
- Disconnect 1W104-P3 from J1 on traversing mechanism.
 - See figure 16-11.



- 5
- Get TA1 adapter that will fit 1W104-P7 (5) contacts for cable test.
 - Prepare STE to run cable test 1390.
 - Press STOP key (6) on SETCOM (7).
 - Press CLEAR key (8).
 - Enter test number 1390 on SETCOM (7).
 - Run test on 1W104 between P3 and P7.
 - See figure 15-5.
- Does SETCOM display show GOOD?

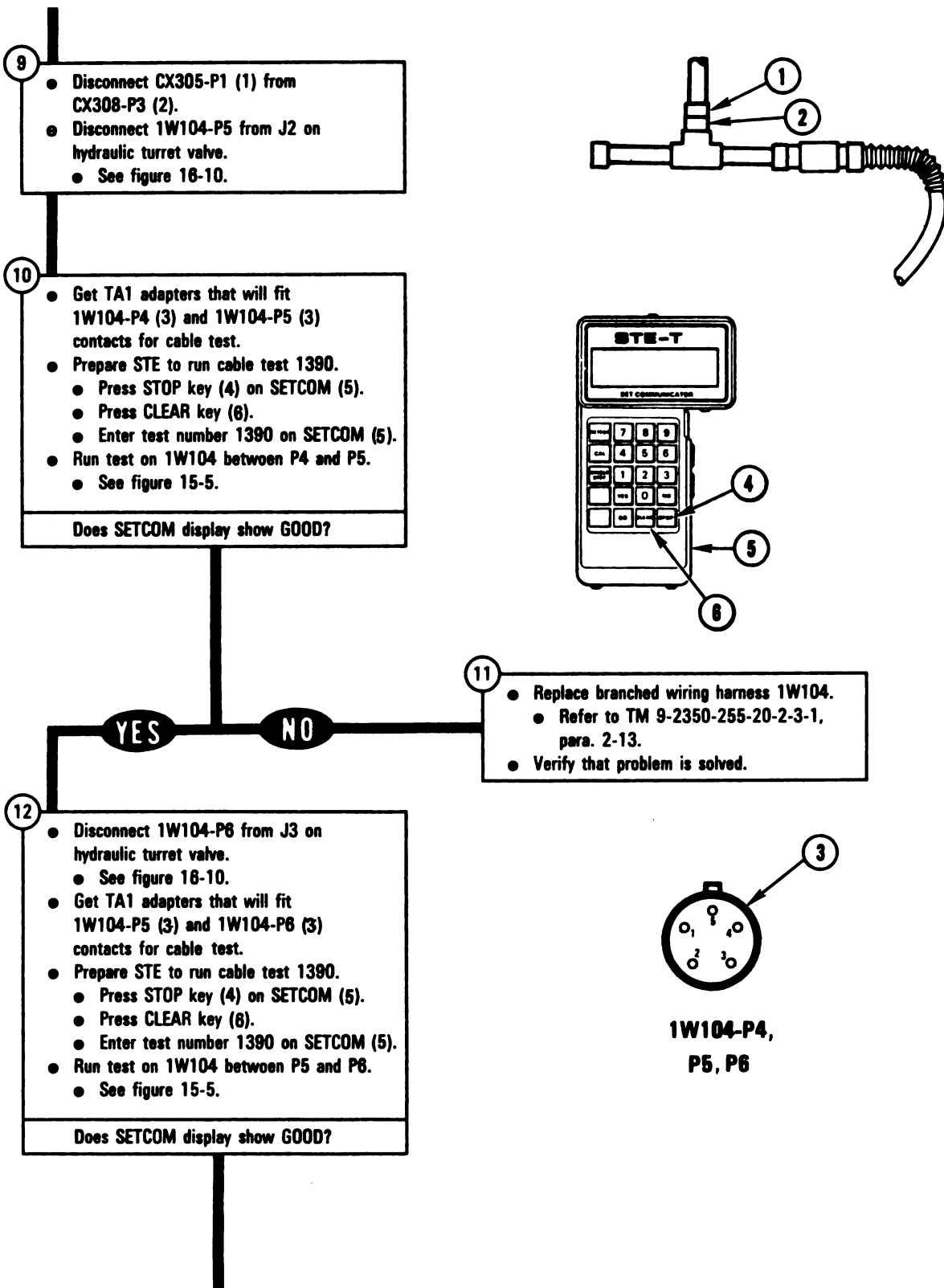
- 6
- Replace branched wiring harness 1W104.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

- 7
- Disconnect 1W104-P4 from J1 on hydraulic turret valve.
 - See figure 16-10.
 - Get TA1 adapter that will fit 1W104-P4 (9) contacts for cable test.
 - Prepare STE to run cable test 1390.
 - Press STOP key (6) on SETCOM (7).
 - Press CLEAR key (8).
 - Enter test number 1390 on SETCOM (7).
 - Run test on 1W104 between P3 and P4.
 - See figure 15-5.
- Does SETCOM display show GOOD?

- 8
- Replace branched wiring harness 1W104.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

Figure 10-16 (Sheet 2 of 8)
Volume II
Para. 10-2

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**



*Figure 10-16 (Sheet 3 of 8)
Volume II
Para. 10-2*

ARR82-6238

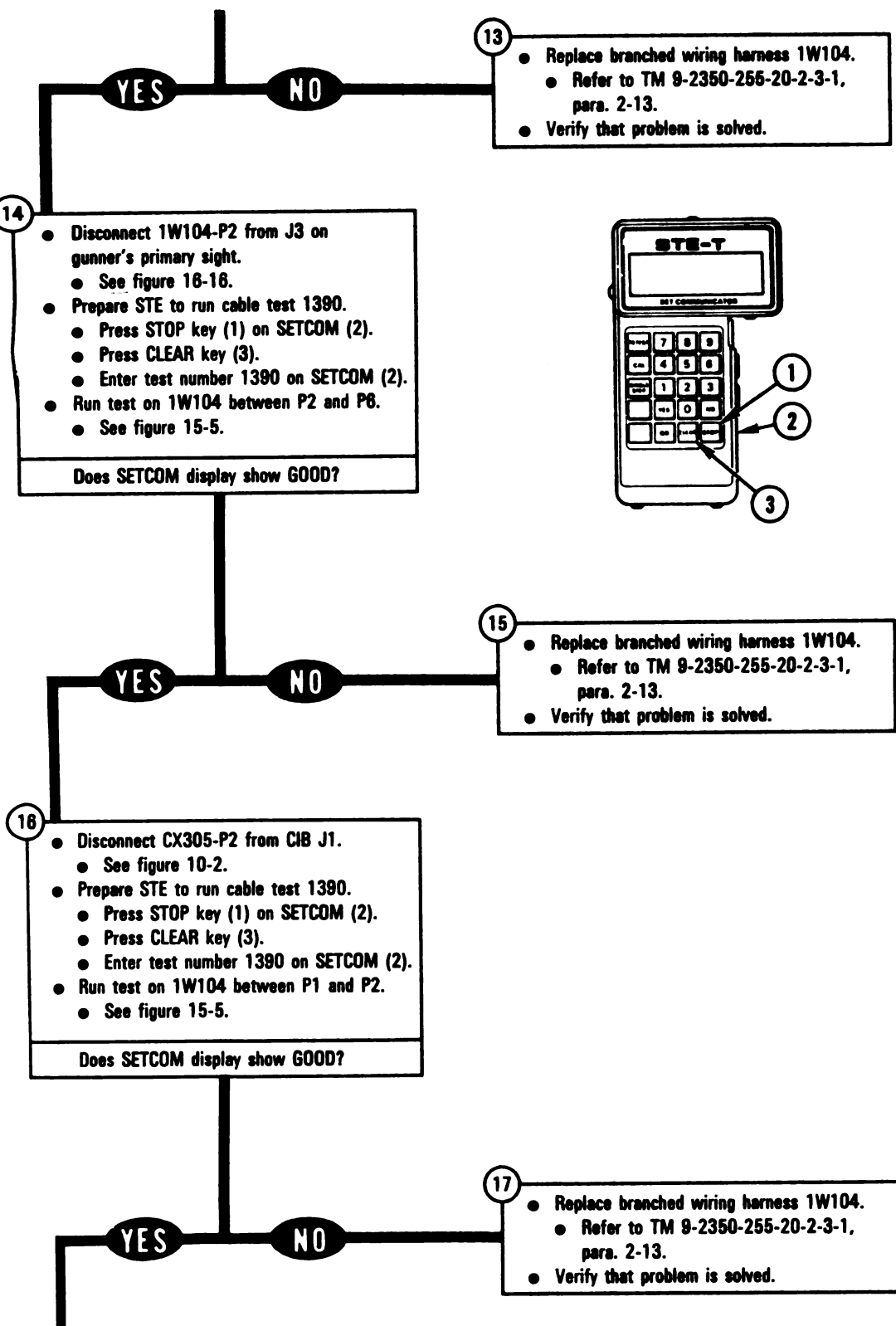


Figure 10-16 (Sheet 4 of 8)
Volume II
Para. 10-2

ARR82-8239

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

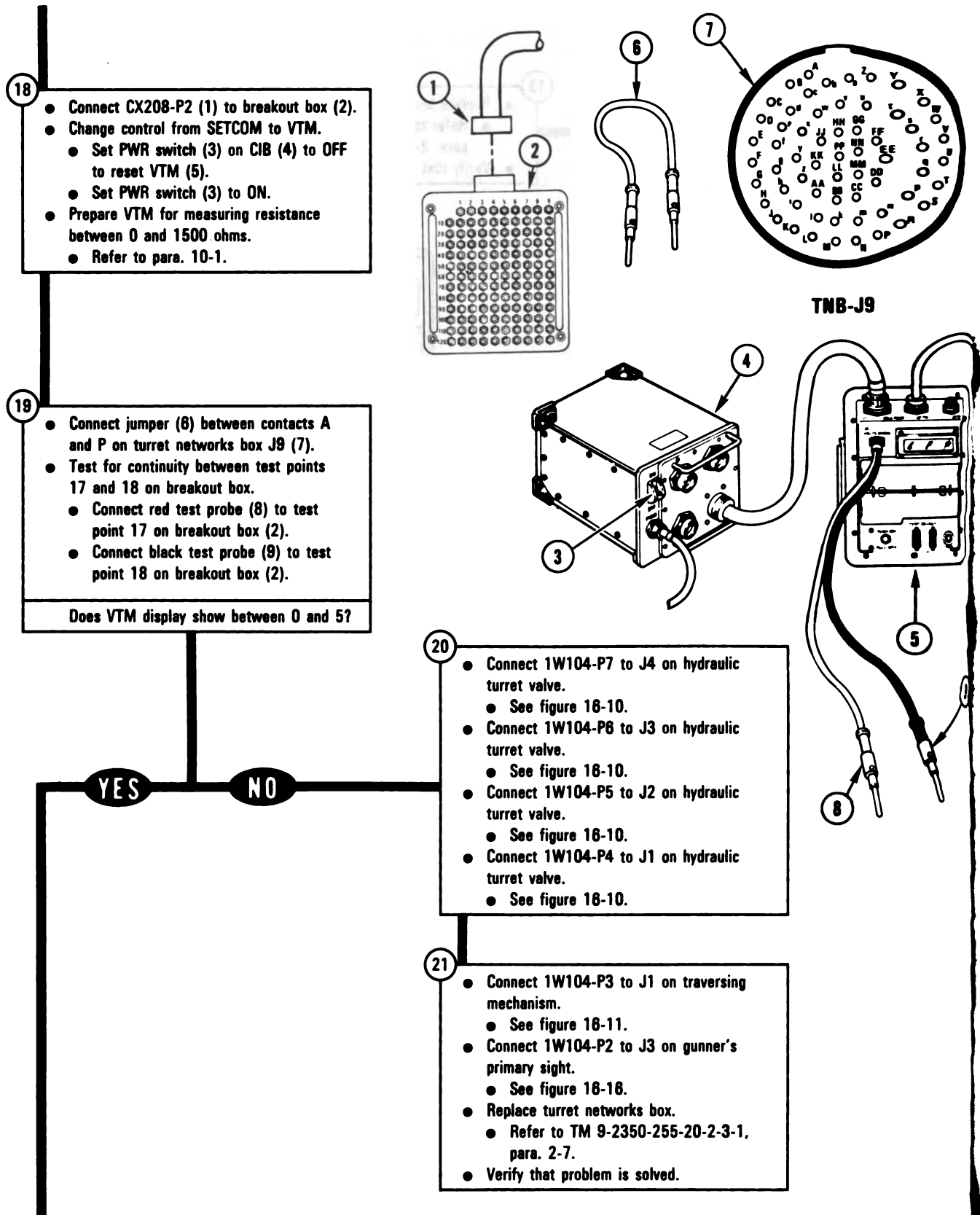


Figure 10-16 (Sheet 5 of 8)
Volume II
Para. 10-2

ARR82-6240

- 2
- Disconnect CA511-P2 (1) from CX307-P1 (2).
 - Disconnect CX208-P2 (3) from breakout box (4).
 - Disconnect CX305-P2 (5) from CIB J2 (8).

- 23
- Connect CX305-P2 (5) to breakout box (4).
 - Connect CA512-P1 (7) to J3 (8) on gunner's primary sight (9).
 - Connect CA512-P2 (10) to CX307-P1 (2).

- 24
- Test for continuity between test points 7 and 18 on breakout box.
 - Connect red test probe (11) to test point 7 on breakout box (4).
 - Connect black test probe (12) to test point 18 on breakout box (4).
- Does VTM display show between 0 and 5?

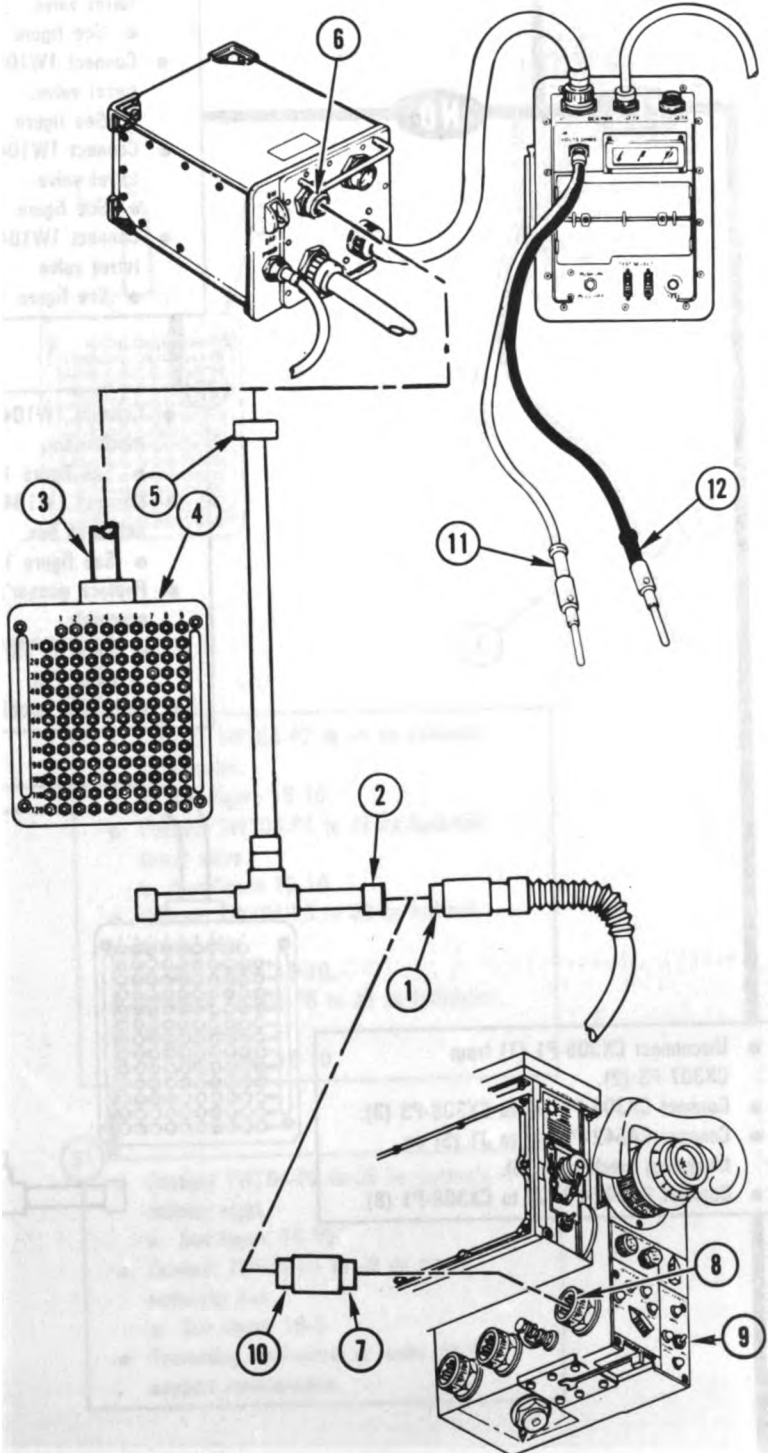
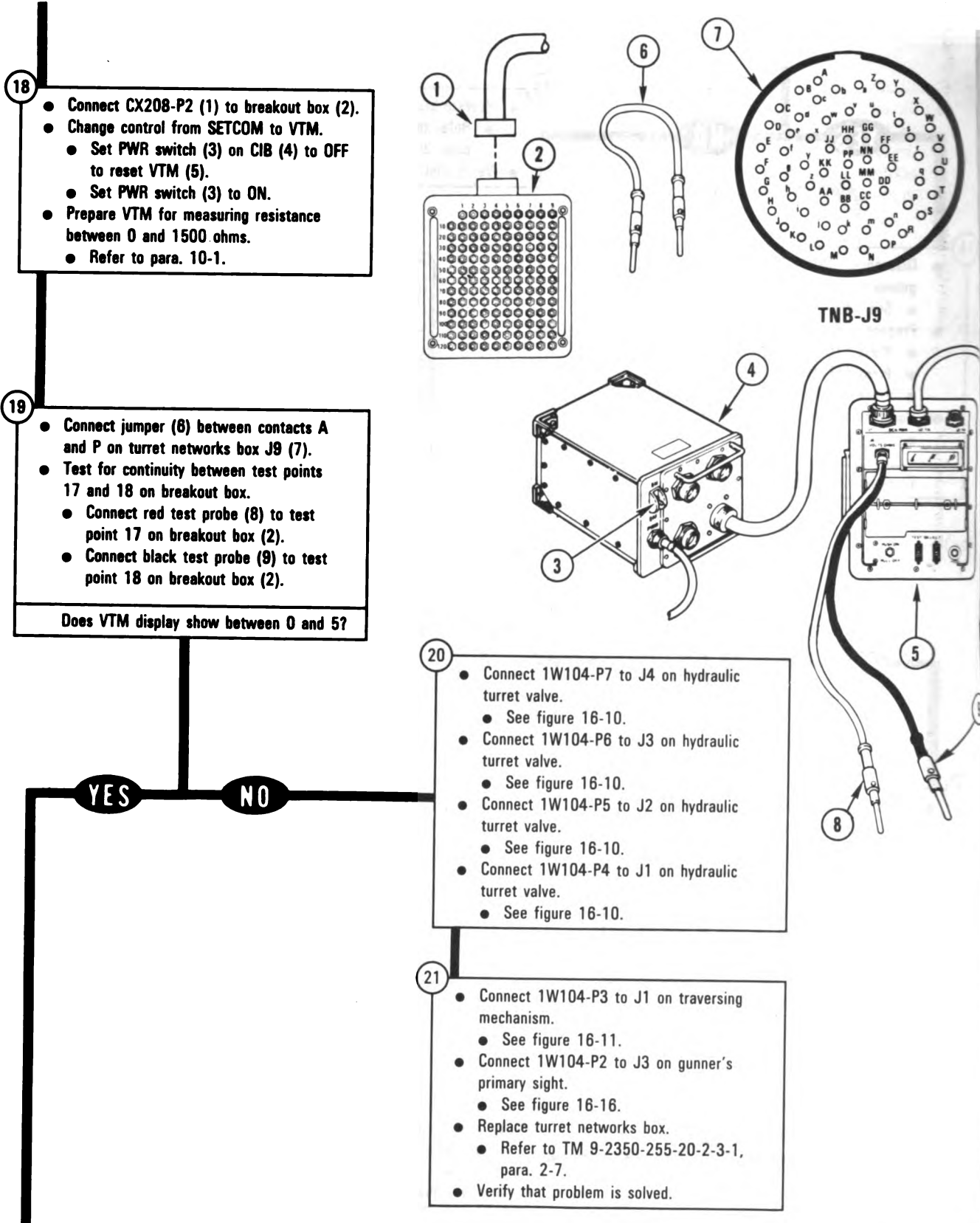


Figure 10-16 (Sheet 6 of 8)
 Volume II
 Para. 10-2

ARR82-6241

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING



18

- Connect CX208-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. 10-1.

19

- Connect jumper (6) between contacts A and P on turret networks box J9 (7).
- Test for continuity between test points 17 and 18 on breakout box.
 - Connect red test probe (8) to test point 17 on breakout box (2).
 - Connect black test probe (9) to test point 18 on breakout box (2).

Does VTM display show between 0 and 5?

YES **NO**

20

- Connect 1W104-P7 to J4 on hydraulic turret valve.
 - See figure 16-10.
- Connect 1W104-P6 to J3 on hydraulic turret valve.
 - See figure 16-10.
- Connect 1W104-P5 to J2 on hydraulic turret valve.
 - See figure 16-10.
- Connect 1W104-P4 to J1 on hydraulic turret valve.
 - See figure 16-10.

21

- Connect 1W104-P3 to J1 on traversing mechanism.
 - See figure 16-11.
- Connect 1W104-P2 to J3 on gunner's primary sight.
 - See figure 16-16.
- Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
- Verify that problem is solved.

Figure 10-16 (Sheet 5 of 8)
Volume II
Para. 10-2

ARR82-6240

- 22
- Disconnect CA511-P2 (1) from CX307-P1 (2).
 - Disconnect CX208-P2 (3) from breakout box (4).
 - Disconnect CX305-P2 (5) from CIB J2 (8).

- 23
- Connect CX305-P2 (5) to breakout box (4).
 - Connect CA512-P1 (7) to J3 (8) on gunner's primary sight (9).
 - Connect CA512-P2 (10) to CX307-P1 (2).

- 24
- Test for continuity between test points 7 and 16 on breakout box.
 - Connect red test probe (11) to test point 7 on breakout box (4).
 - Connect black test probe (12) to test point 16 on breakout box (4).

Does VTM display show between 0 and 5?

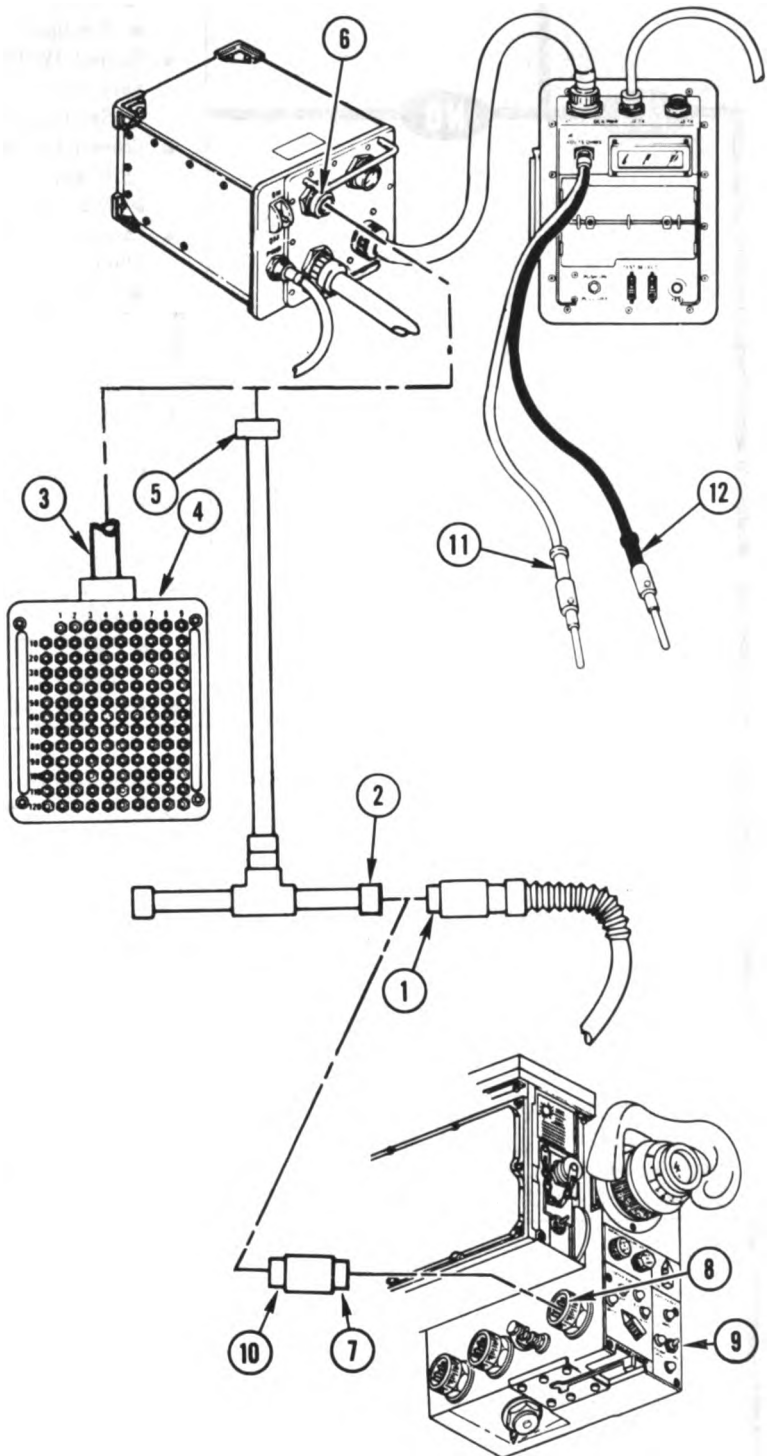
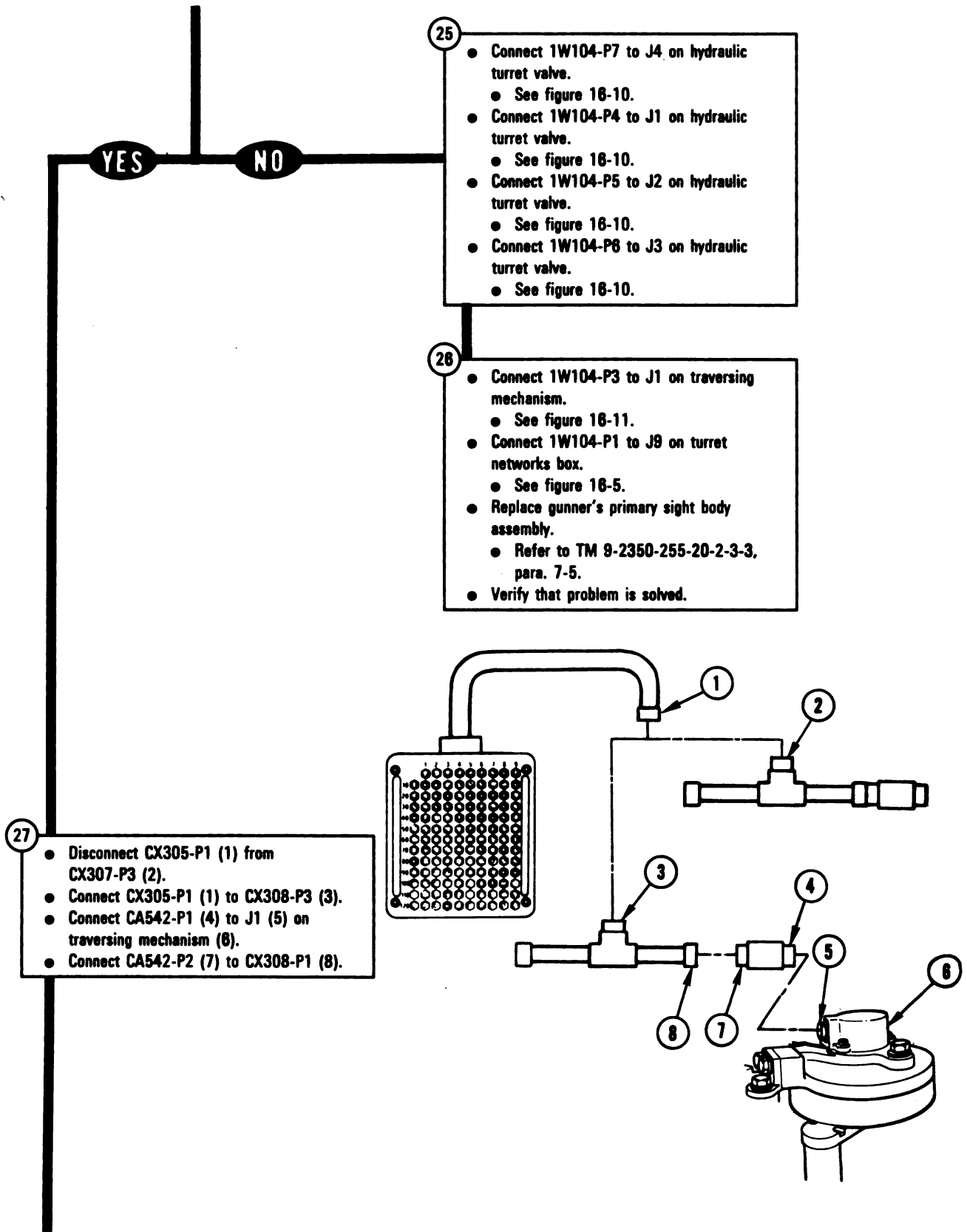


Figure 10-16 (Sheet 6 of 8)
 Volume II
 Para. 10-2

ARR82-6241



- 25
- Connect 1W104-P7 to J4 on hydraulic turret valve.
 - See figure 18-10.
 - Connect 1W104-P4 to J1 on hydraulic turret valve.
 - See figure 18-10.
 - Connect 1W104-P5 to J2 on hydraulic turret valve.
 - See figure 18-10.
 - Connect 1W104-P6 to J3 on hydraulic turret valve.
 - See figure 18-10.

- 26
- Connect 1W104-P3 to J1 on traversing mechanism.
 - See figure 18-11.
 - Connect 1W104-P1 to J9 on turret networks box.
 - See figure 18-5.
 - 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.

- 27
- Disconnect CX305-P1 (1) from CX307-P3 (2).
 - Connect CX305-P1 (1) to CX308-P3 (3).
 - Connect CA542-P1 (4) to J1 (5) on traversing mechanism (8).
 - Connect CA542-P2 (7) to CX308-P1 (8).

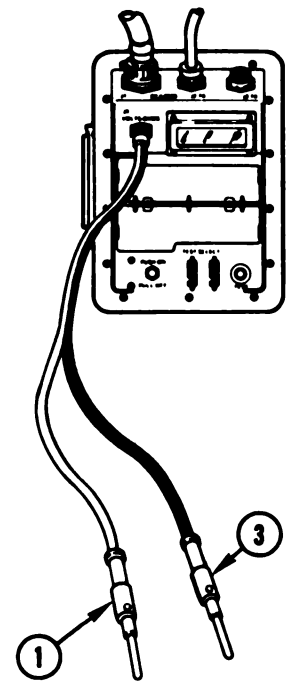
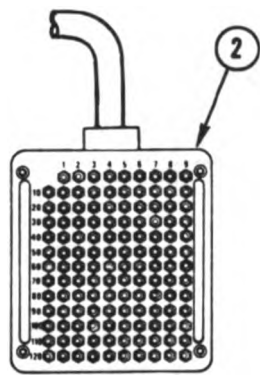
Figure 10-16 (Sheet 7 of 8)
 Volume II
 Para. 10-2

ARR82-6242

3

- Test for continuity between test points 11 and 12 on breakout box.
- Connect red test probe (1) to test point 11 on breakout box (2).
- Connect black test probe (3) to test point 12 on breakout box (2).

Does VTM display show between 0 and 5?



YES

NO

29

- Connect 1W104-P3 to J1 on traversing mechanism.
 - See figure 16-11.
- Connect 1W104-P2 to J3 on gunner's primary sight.
 - See figure 16-16.
- Connect 1W104-P1 to J9 on turret networks box.
 - See figure 16-5.
- Replace hydraulic turret valve.
 - Refer to TM 9-2350-255-20-2-3-2, para. 4-10.
- Verify that problem is solved.

30

- Connect 1W104-P7 to J4 on hydraulic turret valve.
 - See figure 16-10.
- Connect 1W104-P4 to J1 on hydraulic turret valve.
 - See figure 16-10.
- Connect 1W104-P5 to J2 on hydraulic turret valve.
 - See figure 16-10.
- Connect 1W104-P6 to J3 on hydraulic turret valve.
 - See figure 16-10.

31

- Connect 1W104-P2 to J3 on gunner's primary sight.
 - See figure 16-16.
- Connect 1W104-P1 to J9 on turret networks box.
 - See figure 16-5.
- Traversing mechanism is faulty. Notify support maintenance.

Figure 10-16 (Sheet 8 of 8)
Volume II
Para. 10-2

**DISPLAY SHOWS -
FAULTY AUTO SELF-
TEST CKT**

121019

Common Tools:

- Mirror, inspection

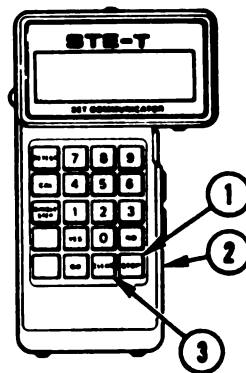
Additional Test

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 10-3.
 - Disconnect 1W105-P1 from J10 on turret networks box.
 - See figure 16-5.
 - Disconnect 1W105-P3 from J1 on power control unit.
 - See figure 16-7.

- 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 1W105 between P1 and P3.
 - See figure 15-5.

Does SETCOM display show GOOD?

Figure 10-17 (Sheet 1 of 10)
Volume II
Para. 10-2

ARR82-6244

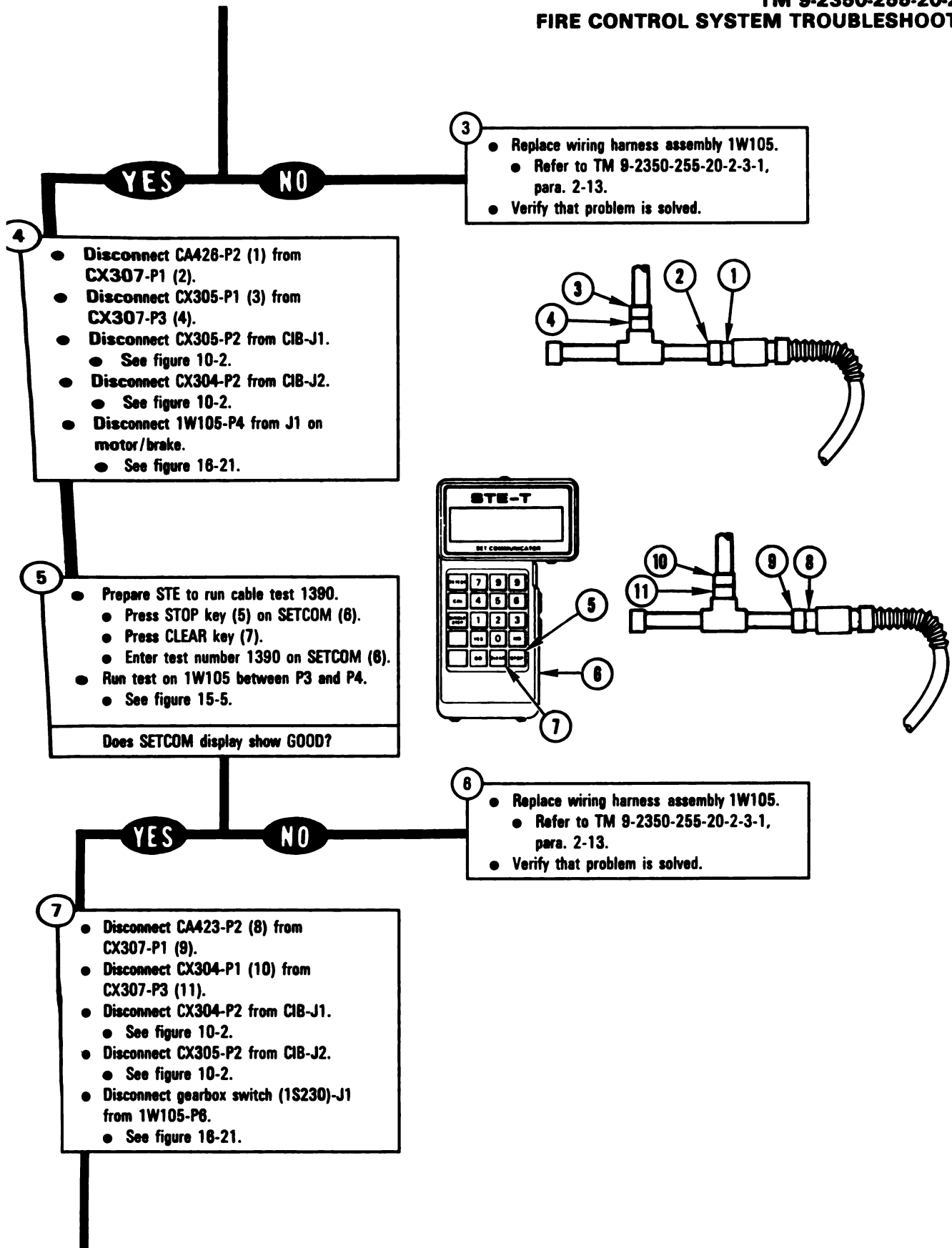


Figure 10-17 (Sheet 2 of 10)
Volume II
Para. 10-2

ARR82-6245

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

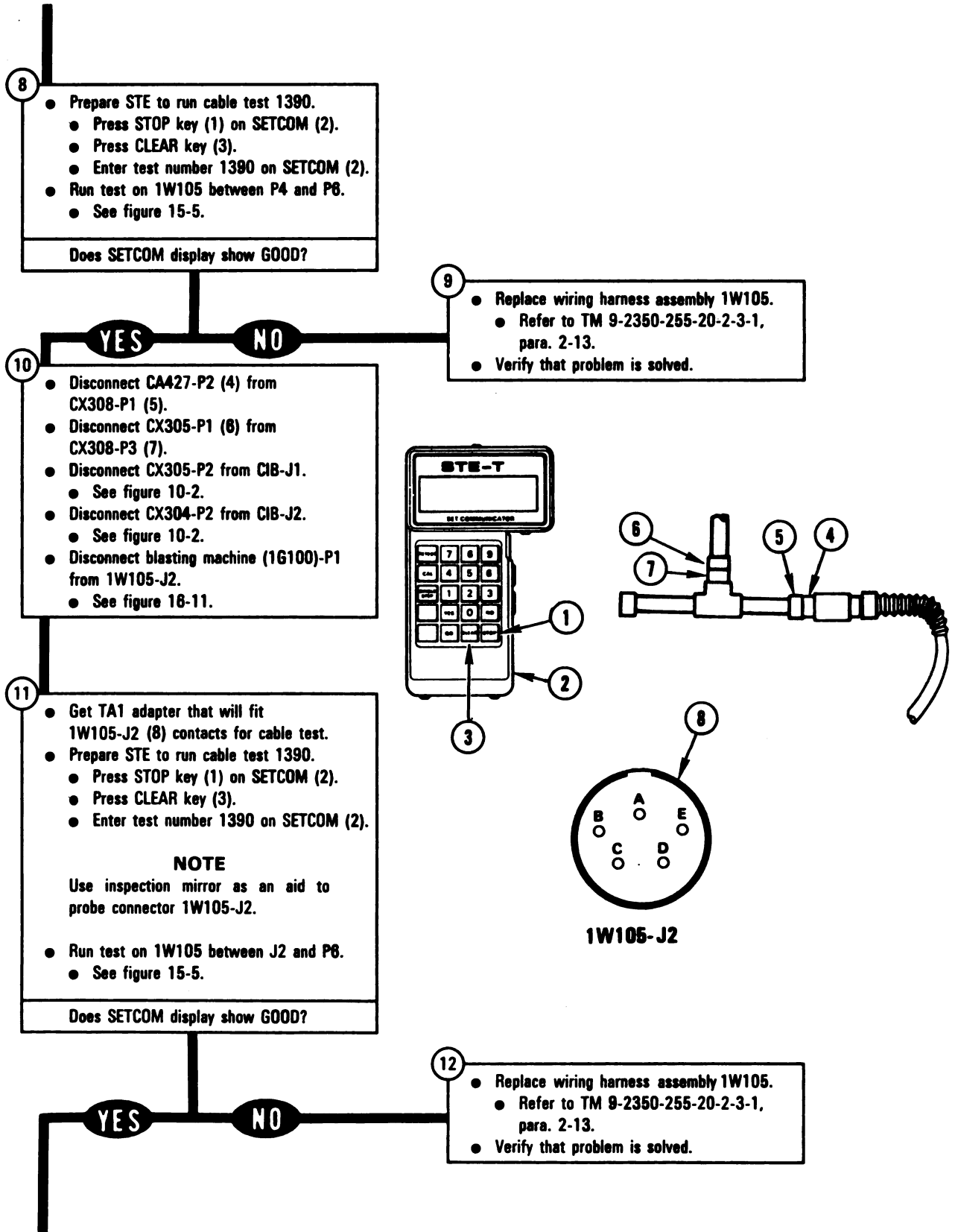
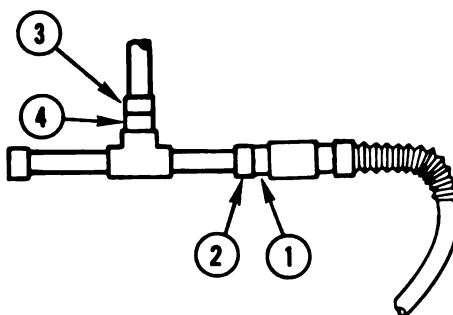


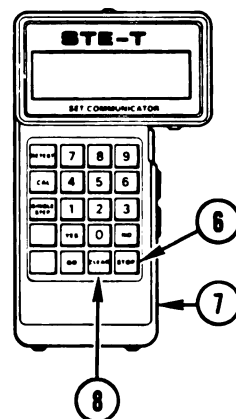
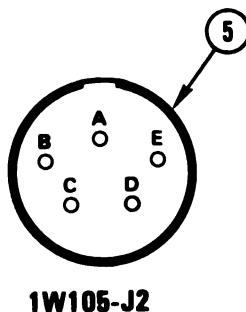
Figure 10-17 (Sheet 3 of 10)
**Volume II
Para. 10-2**

ARR82-6246

- 3
- Disconnect CA483-P2 (1) from CX308-P1 (2).
 - Disconnect CX304-P1 (3) from CX308-P3 (4).
 - Disconnect commander's power control handle (1A231)-P1 from 1W105-J3.
 - See figure 16-8.



- 14
- Get TA1 adapter that will fit 1W105-J2 (5) contacts for cable test.
 - Prepare STE to run cable test 1390.
 - Press STOP key (6) on SETCOM (7).
 - Press CLEAR key (8).
 - Enter test number 1390 on SETCOM (7).
- NOTE**
Use inspection mirror as an aid to probe connector 1W105-J2.
- Run test on 1W105 between J2 and J3.
 - See figure 15-5.
- Does SETCOM display show GOOD?



- 15
- Replace wiring harness assembly 1W105.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

- YES NO
- 16
- Disconnect CX304-P2 from CIB-J2.
 - See figure 10-2.
 - Prepare STE to run cable test 1390.
 - Press STOP key (6) on SETCOM (7).
 - Press CLEAR key (8).
 - Enter test number 1390 on SETCOM (7).
 - Run test on 1W105 between J3 and P1.
 - See figure 15-5.
- Does SETCOM display show GOOD?

Figure 10-17 (Sheet 4 of 10)
Volume II
Para. 10-2

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

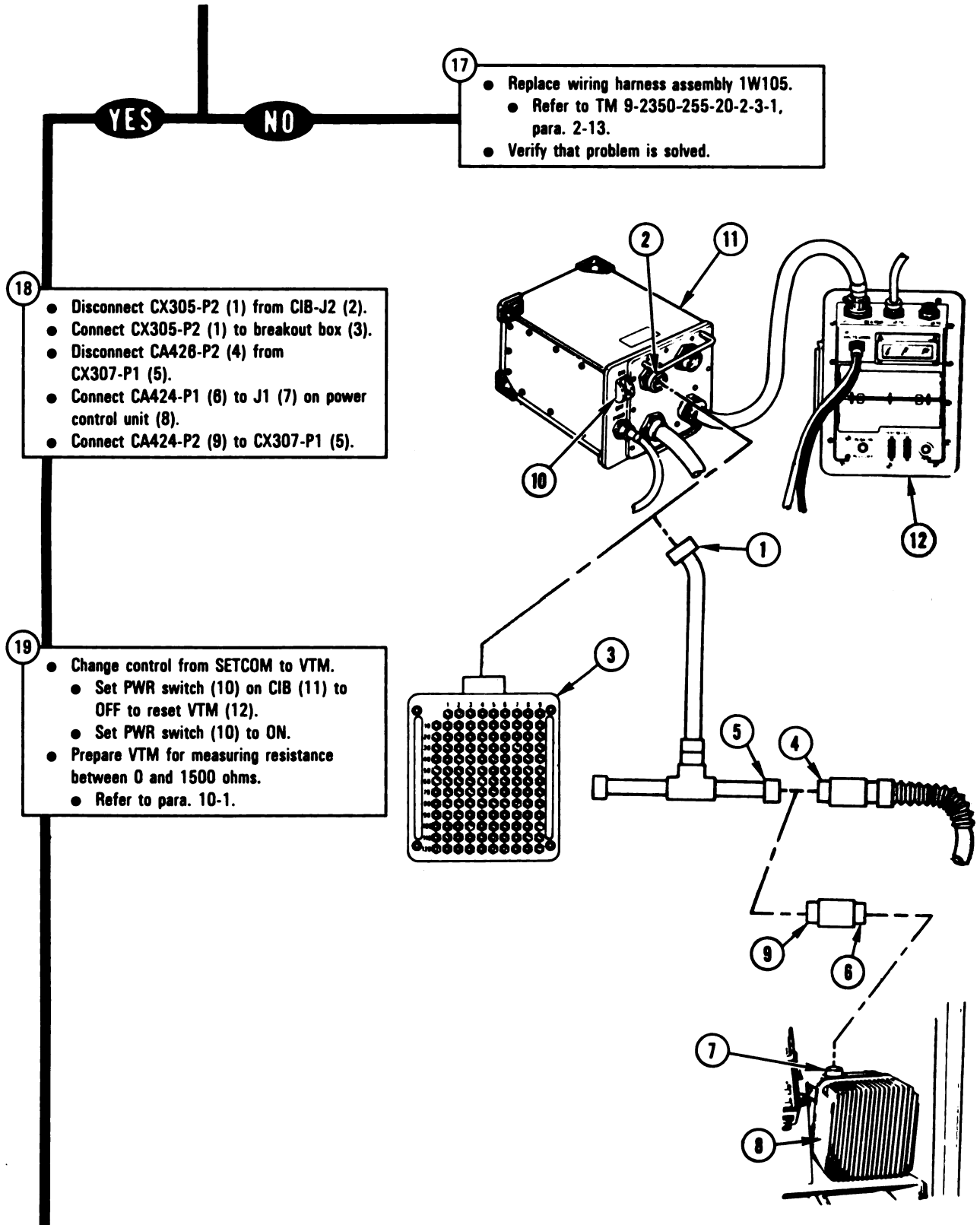


Figure 10-17 (Sheet 5 of 10)
Volume II
Para. 10-2

ARR82-6248

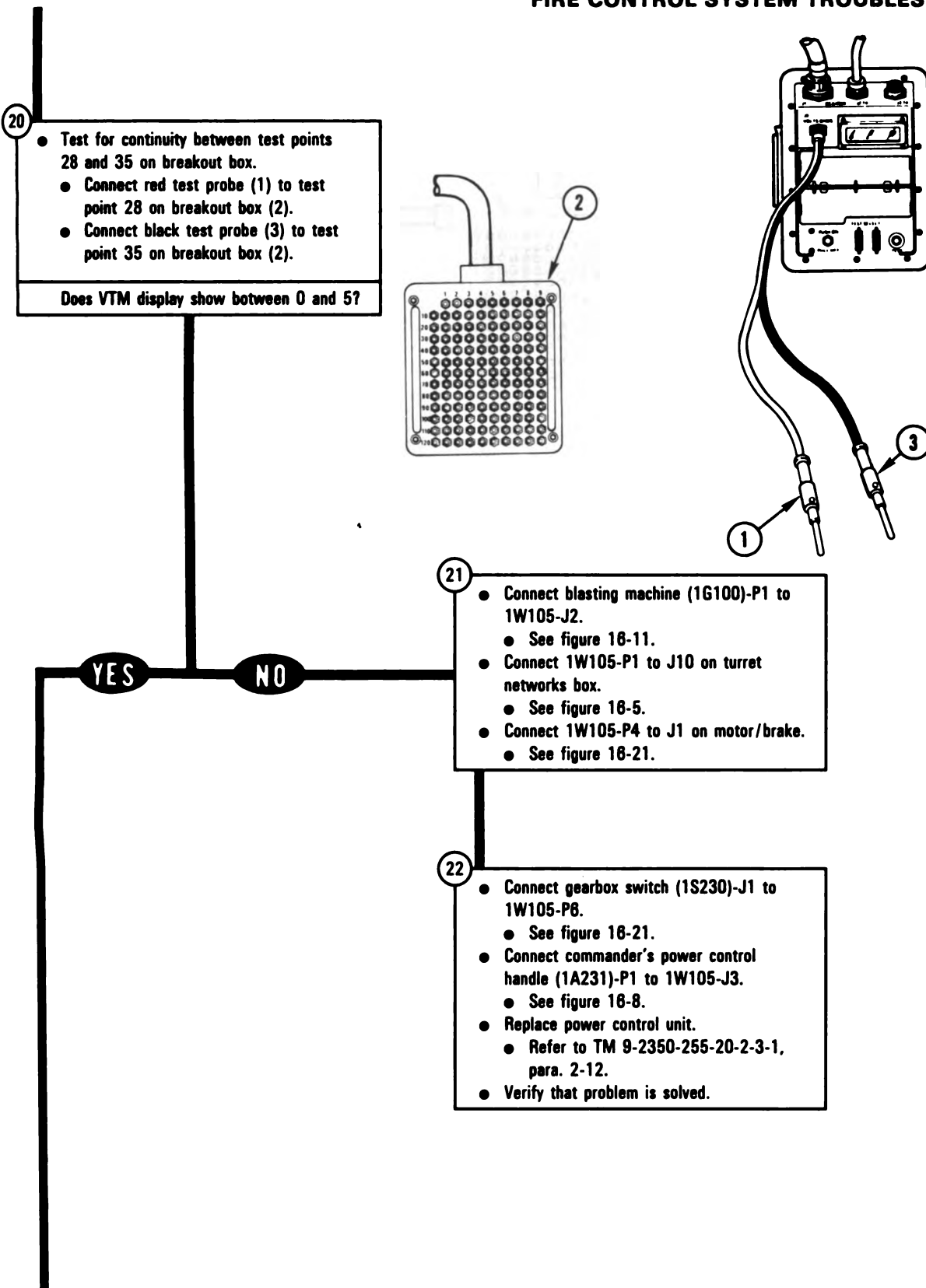
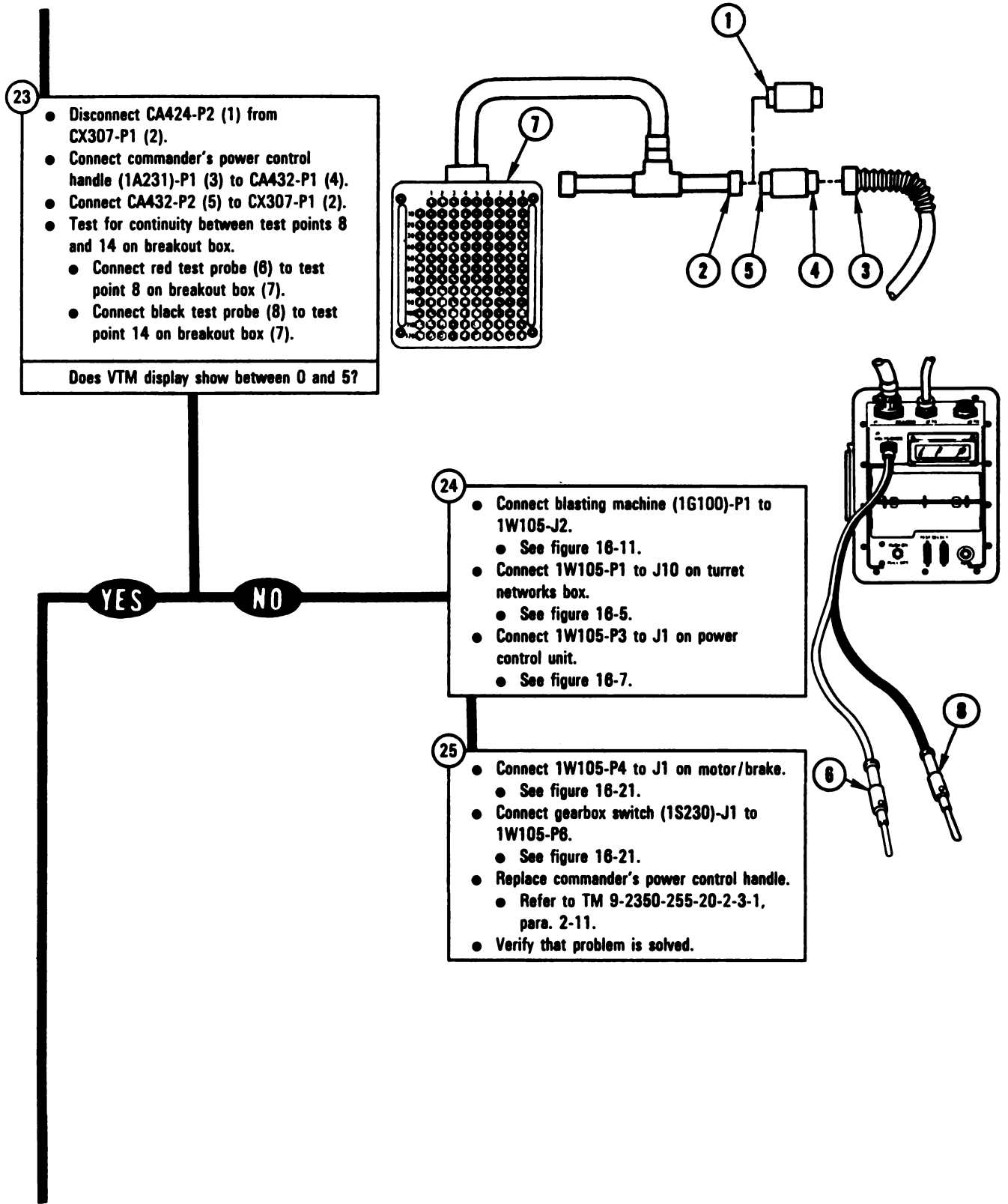


Figure 10-17 (Sheet 6 of 10)
Volume II
Para. 10-2

TM 9-2350-255-20-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING



23

- Disconnect CA424-P2 (1) from CX307-P1 (2).
- Connect commander's power control handle (1A231)-P1 (3) to CA432-P1 (4).
- Connect CA432-P2 (5) to CX307-P1 (2).
- Test for continuity between test points 8 and 14 on breakout box.
 - Connect red test probe (6) to test point 8 on breakout box (7).
 - Connect black test probe (8) to test point 14 on breakout box (7).

Does VTM display show between 0 and 5?

24

- Connect blasting machine (1G100)-P1 to 1W105-J2.
 - See figure 16-11.
- Connect 1W105-P1 to J10 on turret networks box.
 - See figure 16-5.
- Connect 1W105-P3 to J1 on power control unit.
 - See figure 16-7.

25

- Connect 1W105-P4 to J1 on motor/brake.
 - See figure 16-21.
- Connect gearbox switch (1S230)-J1 to 1W105-P8.
 - See figure 16-21.
- Replace commander's power control handle.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-11.
- Verify that problem is solved.

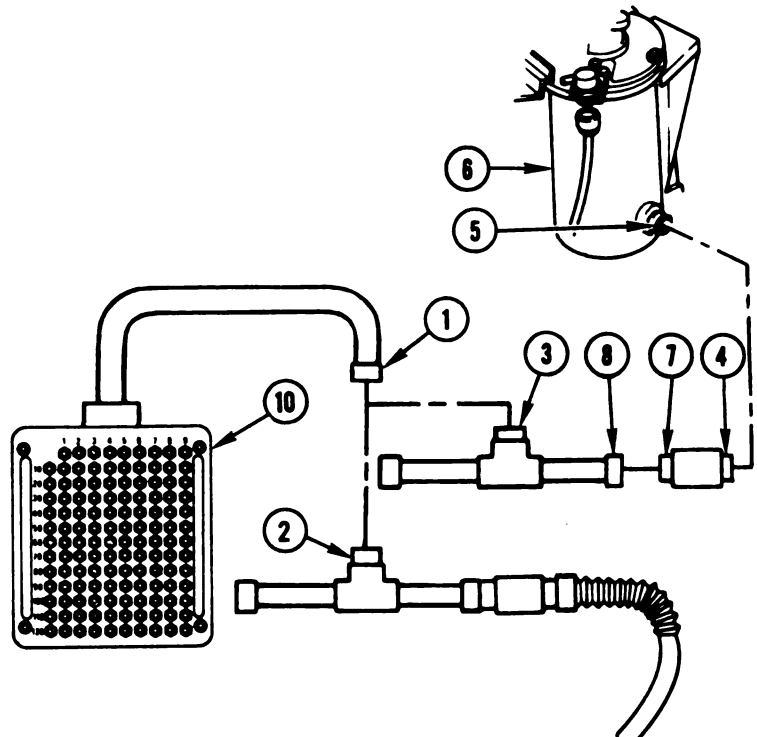
Figure 10-17 (Sheet 7 of 10)
 Volume II
 Para. 10-2

ARR82-6250

26

- Disconnect CX305-P1 (1) from CX307-P3 (2).
- Connect CX305-P1 (1) to CX308-P3 (3).
- Connect CA428-P1 (4) to J1 (5) on motor/brake (6).
- Connect CA428-P2 (7) to CX308-P1 (8).
- Test for continuity between test points 8 and 14 on breakout box.
- Connect red test probe (9) to test point 8 on breakout box (10).
- Connect black test probe (11) to test point 14 on breakout box (10).

Does VTM display show between 0 and 5?

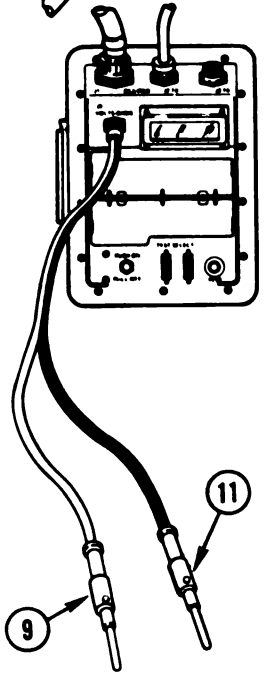


YES

NO

27

- Connect blasting machine (1G100)-P1 to 1W105-J2.
- See figure 18-11.
- Connect commander's power control handle (1A231)-P1 to 1W105-J3.
- See figure 18-8.
- Connect 1W105-P1 to J10 on turret networks box.
- See figure 18-5.



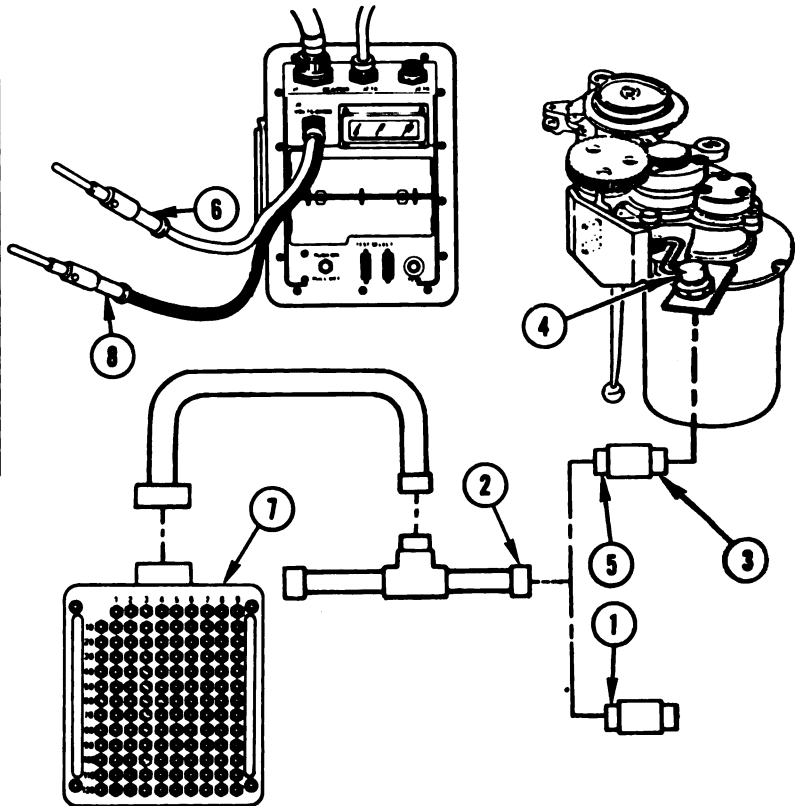
28

- Connect 1W105-P3 to J1 on power control unit.
- See figure 18-7.
- Connect gearbox switch (1S230)-J1 on 1W105-P8.
- See figure 18-21.
- Replace motor/brake.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-11.
- Verify that problem is solved.

Figure 10-17 (Sheet 8 of 10)
Volume II
Para. 10-2

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

- 29
- Disconnect CA428-P2 (1) from CX308-P1 (2).
 - Connect CA484-P1 (3) to gearbox switch (1S230)-J1 (4).
 - Connect CA484-P2 (5) to CX308-P1 (2).
 - Test for continuity between test points 11 and 12 on breakout box.
 - Connect red test probe (6) to test point 11 on breakout box (7).
 - Connect black test probe (8) to test point 12 on breakout box (7).
- Does VTM display show between 0 and 5?



- 30
- Connect blasting machine (1G100)-P1 to 1W105-J2.
 - See figure 18-11.
 - Connect commander's power control handle (1A231)-P1 to 1W105-J3.
 - See figure 18-8.
 - Connect 1W105-P1 to J10 on turret networks box.
 - See figure 18-5.

- 31
- Connect 1W105-P3 to J1 on power control unit.
 - See figure 18-7.
 - Connect 1W105-P4 to J1 on motor/brake.
 - See figure 18-21.
 - Replace connector-switch.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-11.
 - Verify that problem is solved.

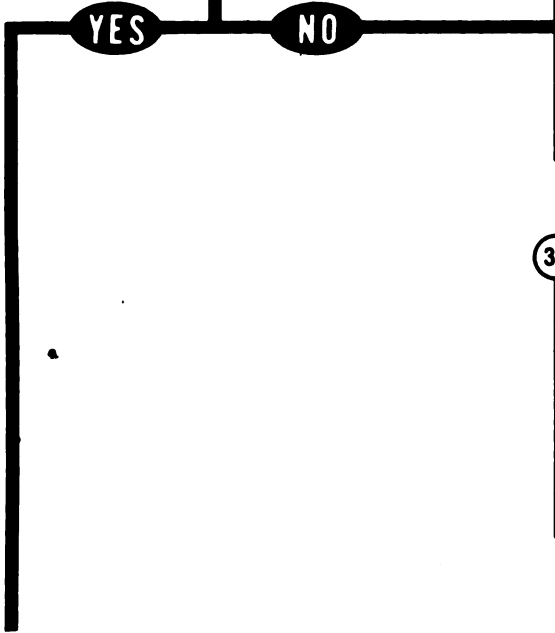
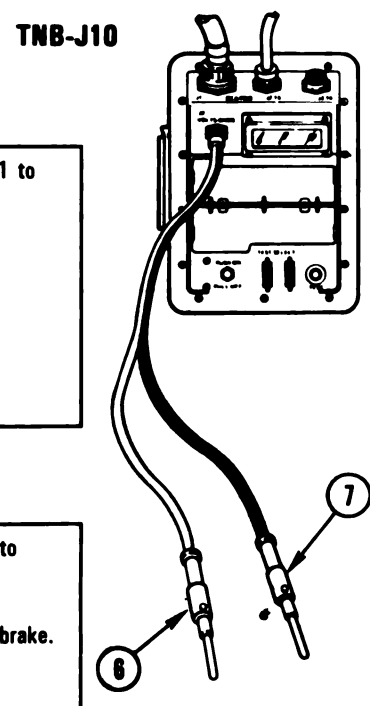
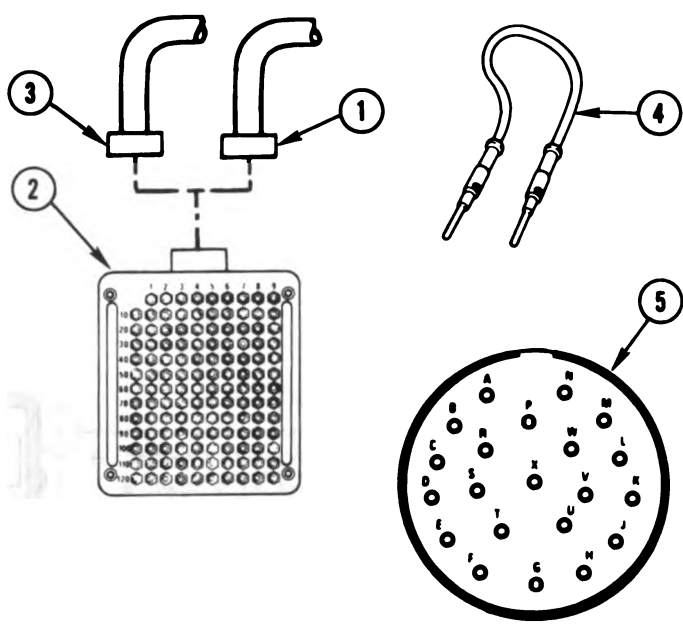


Figure 10-17 (Sheet 9 of 10)
Volume II
Para. 10-2

ARR82-6252

- Disconnect CX305-P2 (1) from breakout box (2).
 - Connect CX208-P2 (3) to breakout box (2).
 - Connect jumper (4) between contacts A and H on turret networks box J10 (5).
 - Test for continuity between test points 18 and 19 on breakout box.
 - Connect red test probe (8) to test point 18 on breakout box (2).
 - Connect black test probe (7) to test point 19 on breakout box (2).
- Does VTM display show between 0 and 5?**



YES

NO

- 33**
- Connect commander's power control handle (1A231)-P1 to 1W105-J3.
 - See figure 18-8.
 - Connect 1W105-P1 to J10 on turret networks box.
 - See figure 18-5.
 - Connect 1W105-P3 to J1 on power control unit.
 - See figure 18-7.

- 34**
- Connect blasting machine (1G100)-P1 to 1W105-J2.
 - See figure 18-11.
 - Connect commander's power control handle (1A231)-P1 to 1W105-J3.
 - See figure 18-8.
 - Connect 1W105-P3 to J1 on power control unit.
 - See figure 18-7.

- 35**
- Connect 1W105-P4 to J1 on motor/brake.
 - See figure 18-21.
 - Connect gearbox switch (1S230)-J1 to 1W105-P8.
 - See figure 18-21.
 - Replace blasting machine.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-9.
 - Verify that problem is solved.

- 36**
- Connect gearbox switch (1S230)-J1 to 1W105-P8.
 - See figure 18-21.
 - Connect 1W105-P4 to J1 on motor/brake.
 - See figure 18-21.
 - Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
 - Verify that problem is solved.

Figure 10-17 (Sheet 10 of 10)
Volume II
Para. 10-2

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS -
FAULTY AUTO SELF-
TEST CKT**

121020

Additional Test

Equipment/Special Tools:

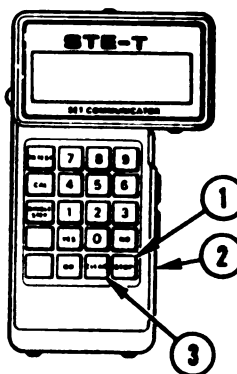
- Breakout Box Tool Kit, 12311066

Equipment Condition:

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

1

- Disconnect CX208-P2 from CIB-J2.
 - See figure 10-2.
- Disconnect CX305-P1 from CA206-P2.
 - See figure 10-3.
- Disconnect 1W106-P1 from J2 on turret networks box.
 - See figure 16-5.
- Disconnect 1W106-P2 from J1 on loader's panel.
 - See figure 16-12.



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.
 - See 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 10-18 (Sheet 1 of 5)
Volume II
Para. 10-2*

ARR82-6254

4

- Disconnect CX305-P1 (1) from CX307-P3 (2).
- Disconnect 1W111-P1 from 1W106-J1.
 - See figure 10-18.
- 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 1W106 between J1 and P2.
 - See figure 15-5.

Does SETCOM display show GOOD?

5

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

6

- Disconnect CA535-P2 (8) from CX308-P1 (7).
- Disconnect loader's knee switch (1S101)-P1 from 1W106-J2.
- 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 1W106 between J1 and J2.
 - See figure 15-5.

Does SETCOM display show GOOD?

7

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

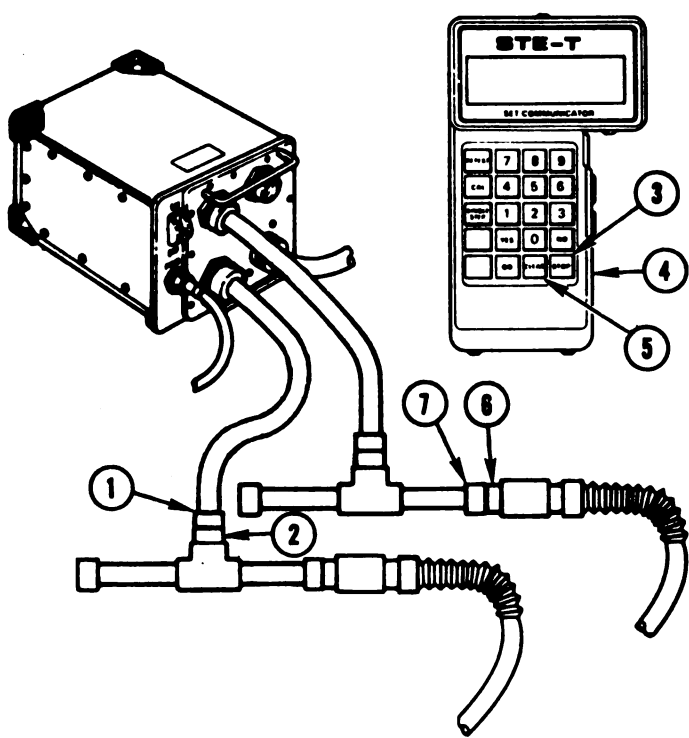
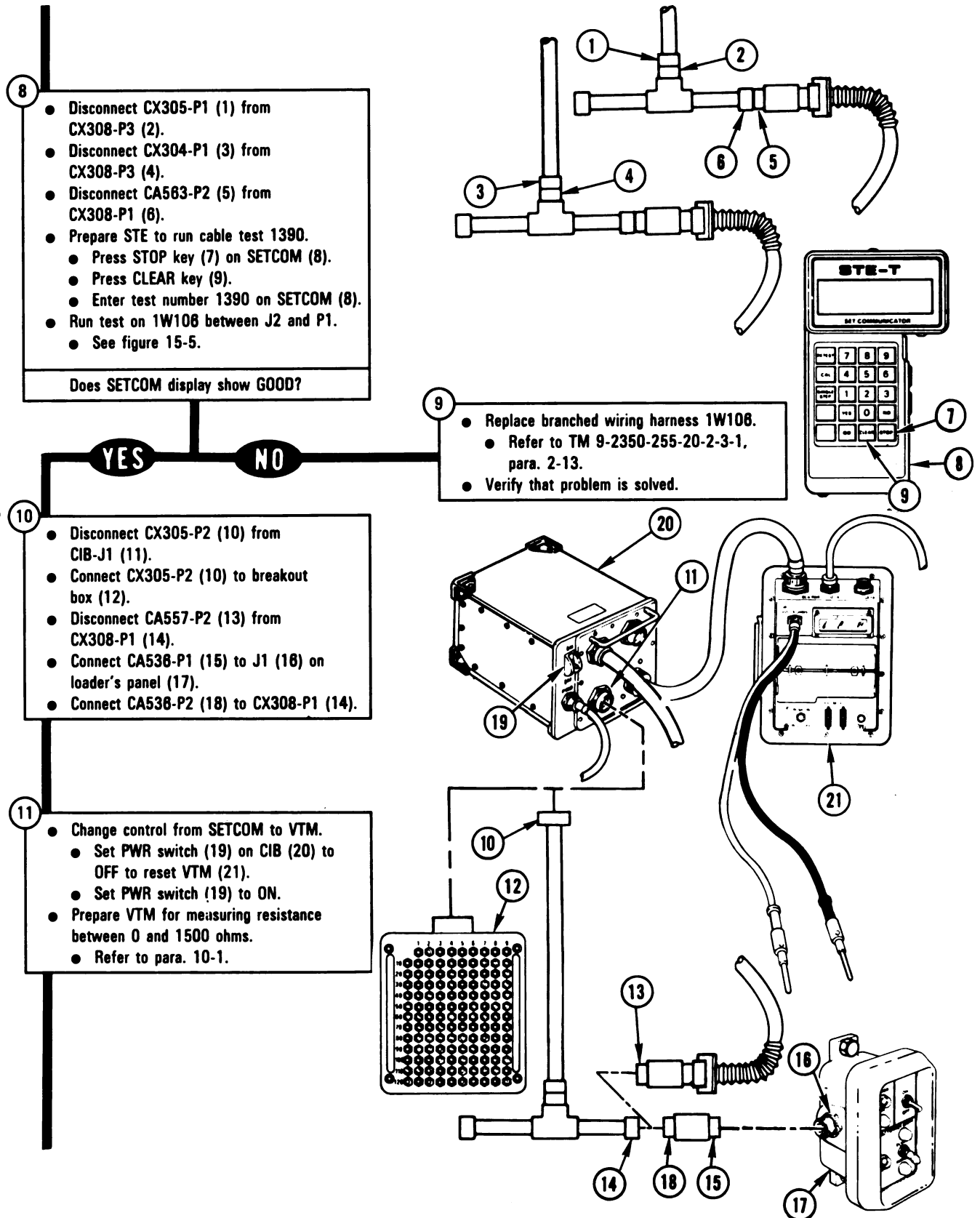


Figure 10-18 (Sheet 2 of 5)
 Volume II
 Para. 10-2

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING



8

- Disconnect CX305-P1 (1) from CX308-P3 (2).
- Disconnect CX304-P1 (3) from CX308-P3 (4).
- Disconnect CA563-P2 (5) from CX308-P1 (6).
- Prepare STE to run cable test 1390.
 - Press STOP key (7) on SETCOM (8).
 - Press CLEAR key (9).
 - Enter test number 1390 on SETCOM (8).
- Run test on 1W108 between J2 and P1.
- See figure 15-5.

Does SETCOM display show GOOD?

YES

NO

10

- Disconnect CX305-P2 (10) from CIB-J1 (11).
- Connect CX305-P2 (10) to breakout box (12).
- Disconnect CA557-P2 (13) from CX308-P1 (14).
- Connect CA538-P1 (15) to J1 (18) on loader's panel (17).
- Connect CA538-P2 (18) to CX308-P1 (14).

11

- Change control from SETCOM to VTM.
 - Set PWR switch (19) on CIB (20) to OFF to reset VTM (21).
 - Set PWR switch (19) to ON.
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
- Refer to para. 10-1.

9

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

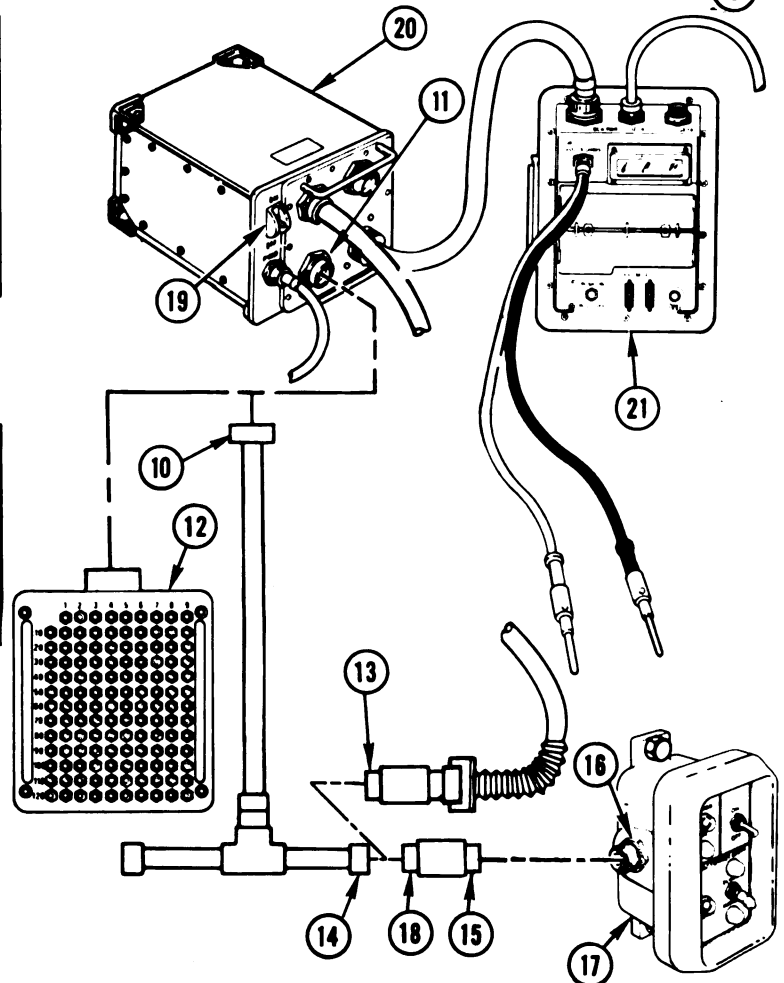


Figure 10-18 (Sheet 3 of 5)
Volume II
Para. 10-2

ARR82-6256

12

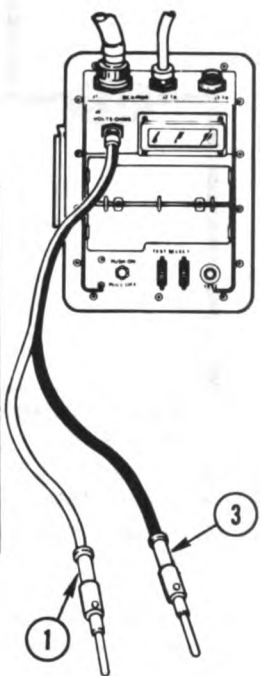
- Test for continuity between test points 7 and 13 on breakout box.
- Connect red test probe (1) to test point 7 on breakout box (2).
- Connect black test probe (3) to test point 13 on breakout box (2).

Does VTM display show between 0 and 5?

YES **NO**

13

- Connect 1W106-P1 to J2 on turret networks box.
- See figure 16-5.
- Connect 1W111-P1 to 1W106-J1.
- See figure 16-18.
- Connect loader's knee switch (1S101)-P1 to 1W106-J2.
- See figure 16-18.
- Replace loader's panel.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-6.
- Verify that problem is solved.



14

- Connect loader's knee switch (1S101)-P1 (4) to CA558-P1 (5).
- Disconnect CA536-P2 (6) from CX308-P1 (7).
- Connect CA558-P2 (8) to CX308-P1 (7).
- Test for continuity between test points 13 and 15 on breakout box.
- Connect red test probe (1) to test point 13 on breakout box (2).
- Connect black test probe (3) to test point 15 on breakout box (2).

Does VTM display show between 0 and 5?

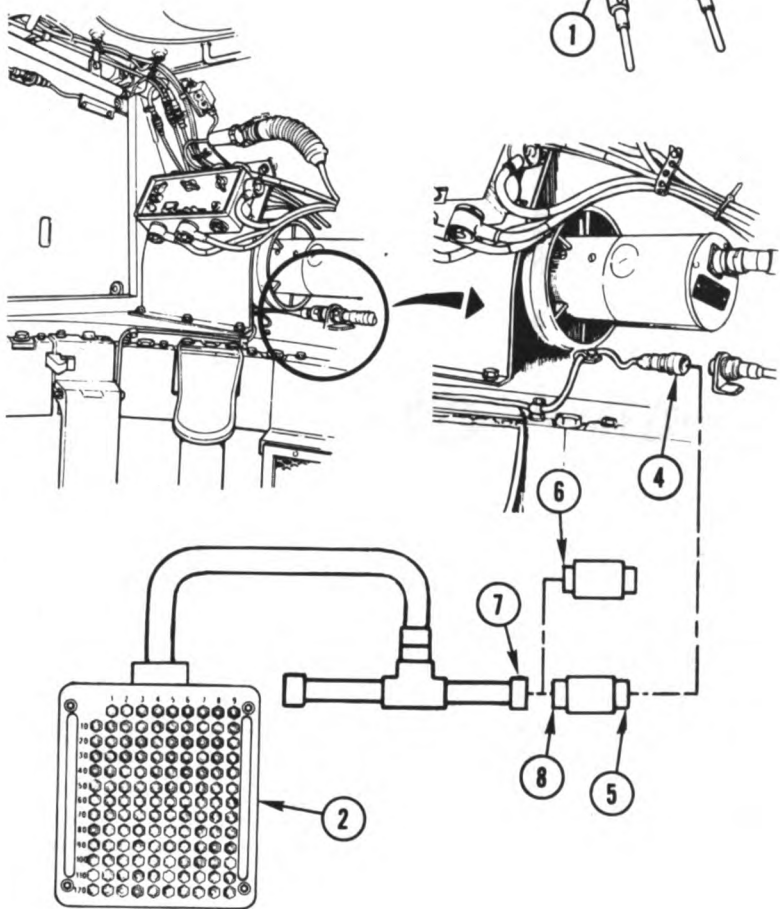


Figure 10-18 (Sheet 4 of 5)
Volume II
Para. 10-2

ARR82-6257

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

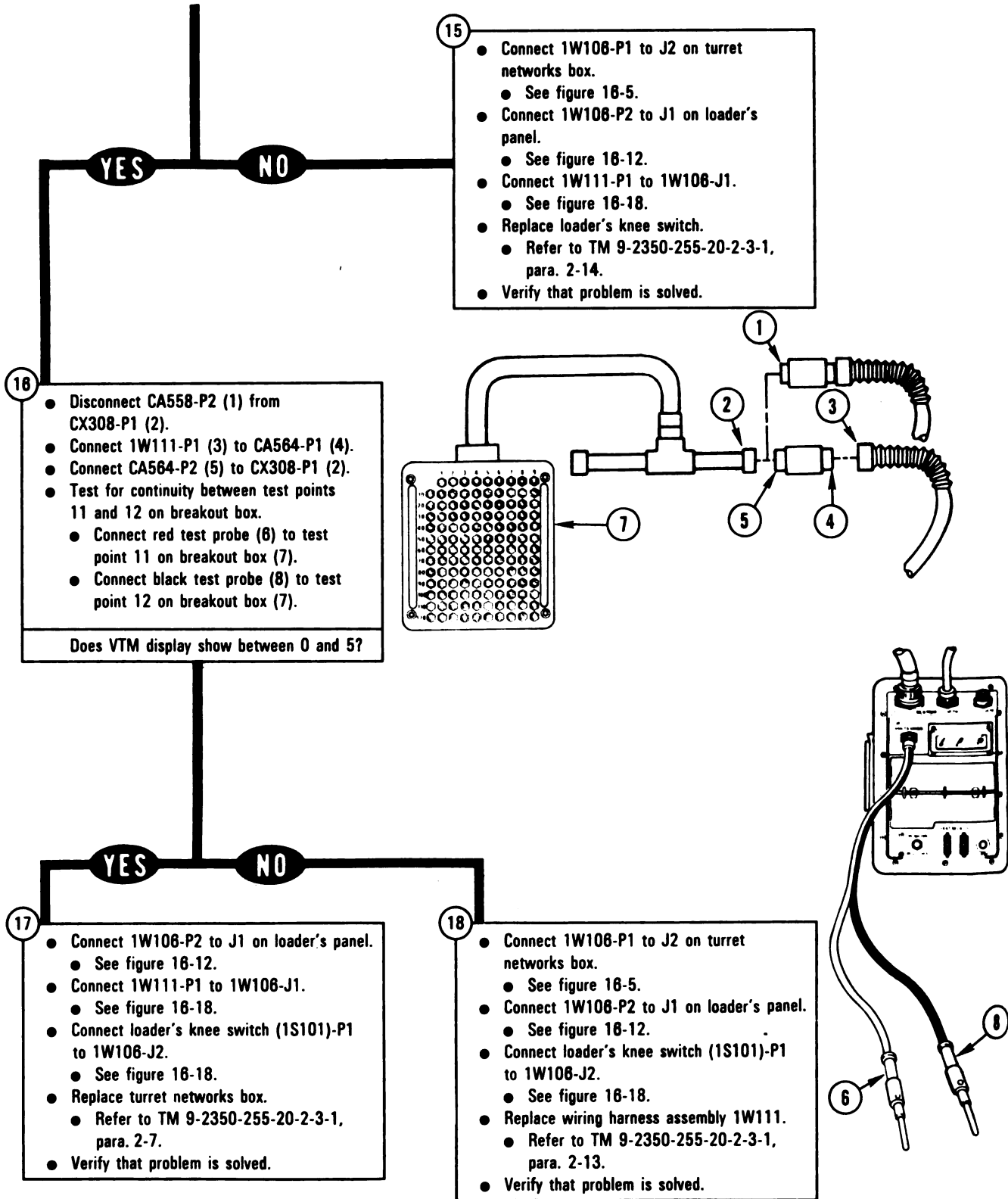


Figure 10-18 (Sheet 5 of 5)
Volume II
Para. 10-2

ARR82-6258

**DISPLAY SHOWS -
 FAULTY AUTO SELF-
 TEST CKT**

121021

Additional Test

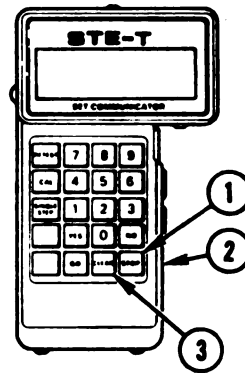
Equipment/Special Tools:

- 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 10-3.
 - Disconnect CX206-P2 from C18-J2.
 - See figure 10-2.
 - Disconnect 1W107-P1 from J4 on turret networks box.
 - See figure 16-5.
 - Disconnect 1W108-P1 from 1W107-J1.
 - See figure 16-13.



- 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.
 - See 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 10-19 (Sheet 1 of 7)
 Volume II
 Para. 10-2

ARR82-6259

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

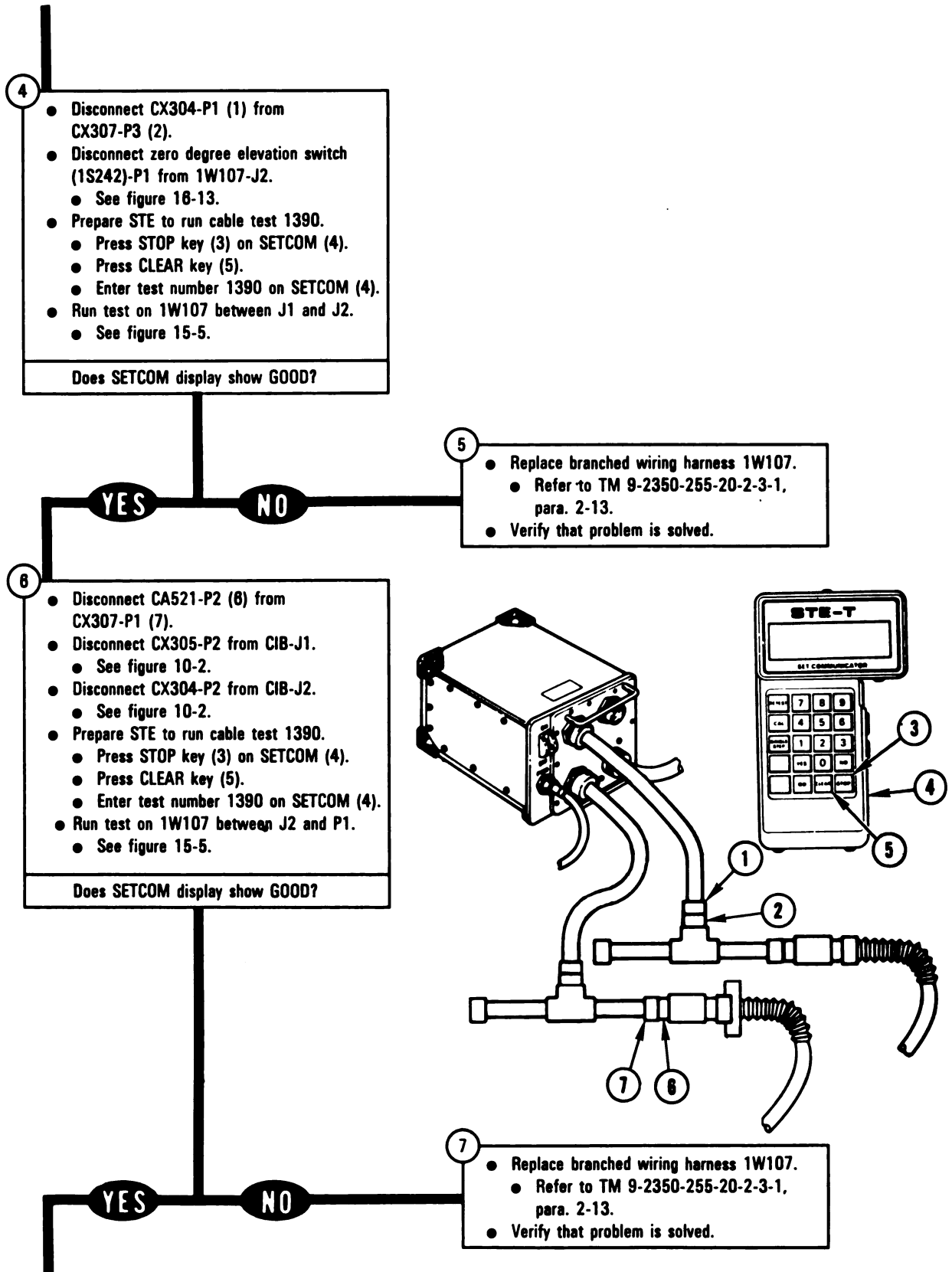


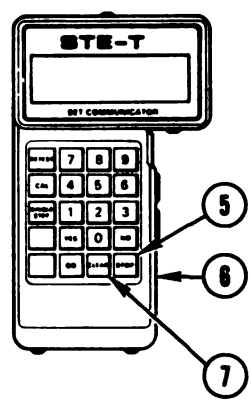
Figure 10-19 (Sheet 2 of 7)
Volume II
Para. 10-2

ARR82-6260

8

- Disconnect 1W107-P1 (1) from CA522-P1 (2).
- Disconnect CA557-P1 (3) from 1W107-J2 (4).
- Disconnect main gun safety switch (1S100)-P1 from 1W108-J1.
 - See figure 18-13.
- 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 J1 and P1.
 - See figure 15-5.

Does SETCOM display show GOOD?



9

- Connect 1W107-P1 to J4 on turret networks box.
 - See figure 18-5.
- Connect zero degree elevation switch (1S242)-P1 to 1W107-J2.
 - See figure 18-13.
- Replace wiring harness assembly 1W108.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

YES NO

10

- Disconnect CX305-P2 from C18-J2.
 - See figure 10-2.
- Disconnect 1W108-P3 from J1 on coax electrical solenoid.
 - See figure 18-20.

11

- Get TA1 adapter that will fit 1W108-P3 (8) contacts for cable test.
- 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 J1 and P3.
 - See figure 15-5.

Does SETCOM display show GOOD?

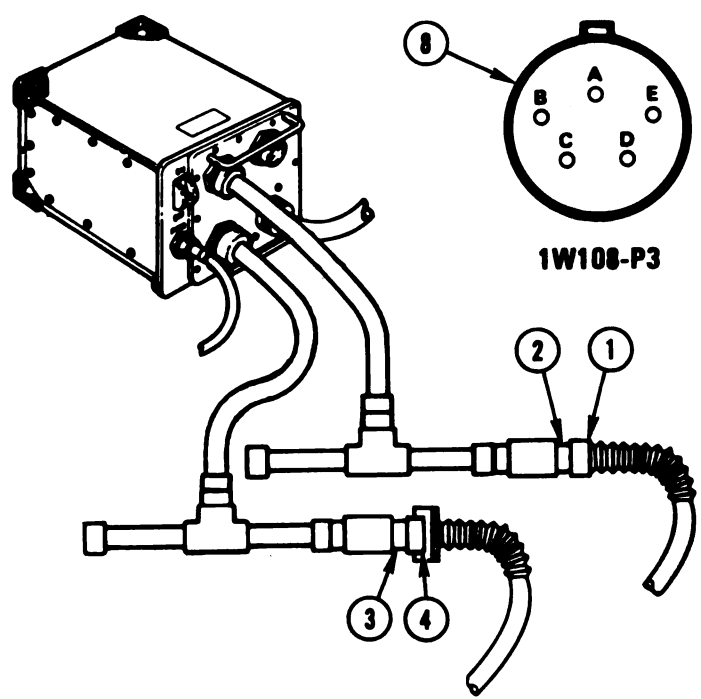


Figure 10-19 (Sheet 3 of 7)
Volume II
Para. 10-2

ARR82-6261

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

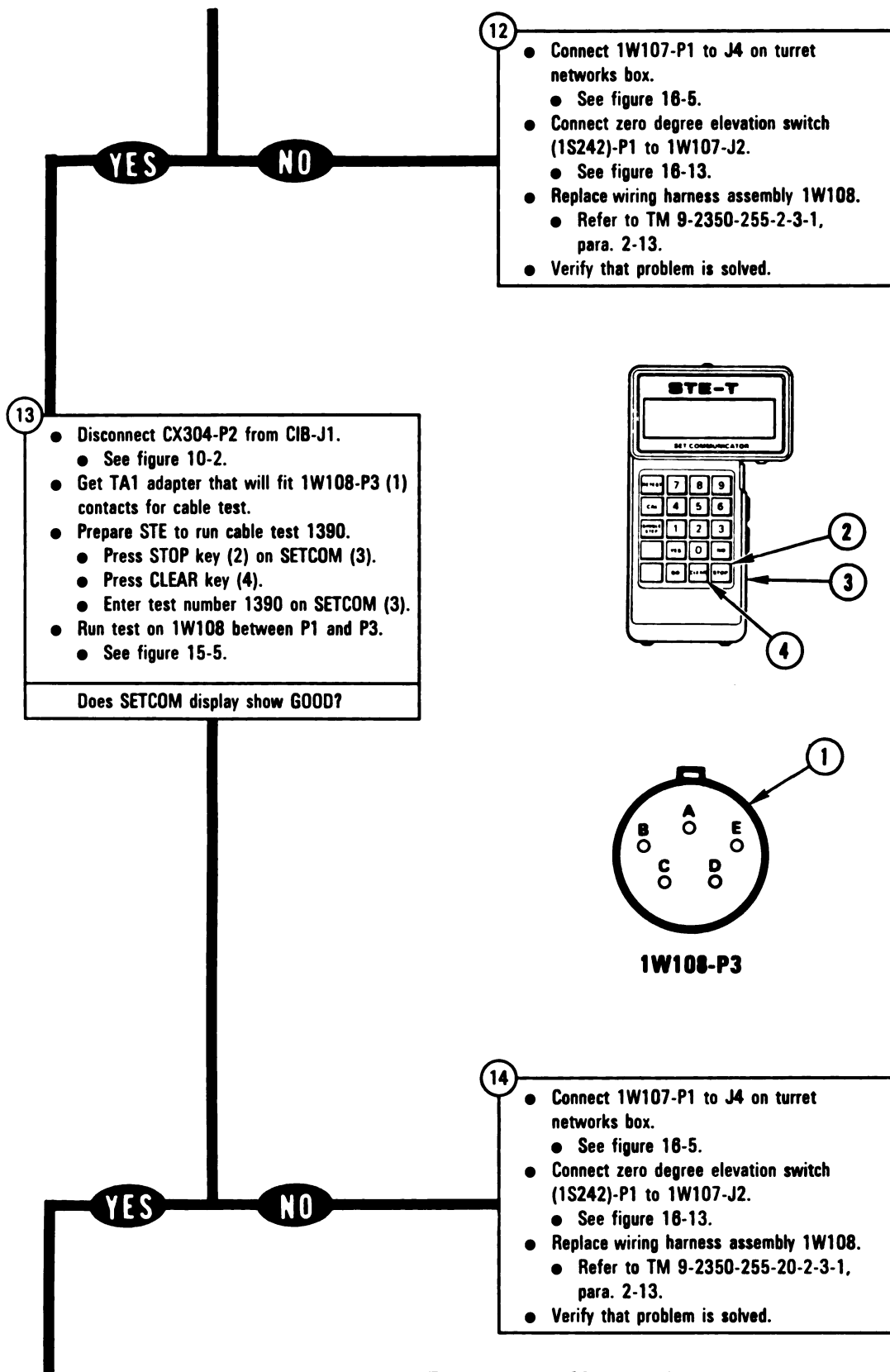
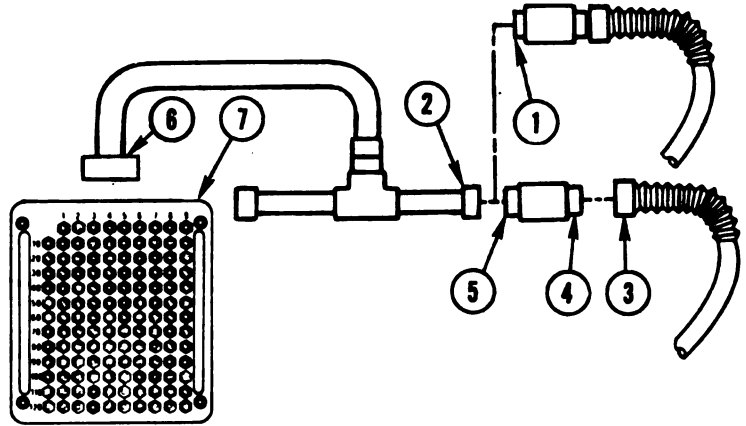
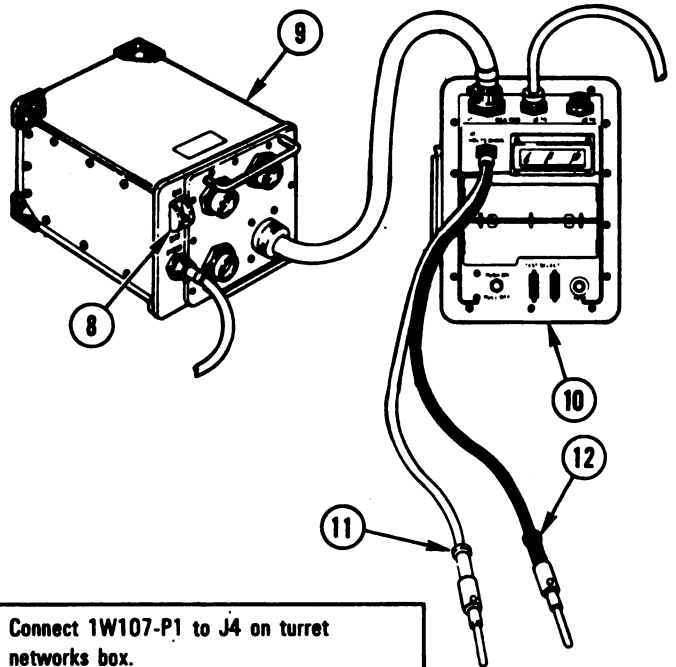


Figure 10-19 (Sheet 4 of 7)
 Volume II
 Para. 10-2

- 15
- Disconnect CA557-P2 (1) from CX308-P1 (2).
 - Connect main gun safety switch (1S100)-P1 (3) to CA558-P1 (4).
 - Connect CA558-P2 (5) to CX308-P1 (2).
 - Connect CX304-P2 (6) to breakout box (7).



- 16
- Change control from SETCOM to VTM.
 - Set PWR switch (8) on CIB (9) to OFF to reset VTM (10).
 - Set PWR switch (8) to ON.
 - Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 10-1.



- 17
- Test for continuity between test points 13 and 15 on breakout box.
 - Connect red test probe (11) to test point 13 on breakout box (7).
 - Connect black test probe (12) to test point 15 on breakout box (7).

Does VTM display show between 0 and 5?

YES

NO

- 18
- Connect 1W107-P1 to J4 on turret networks box.
 - See figure 16-5.
 - Connect 1W108-P1 to 1W107-J1.
 - See figure 16-13.
 - Connect zero degree elevation switch (1S242)-P1 to 1W107-J2.
 - See figure 16-13.

- 19
- Connect 1W108-P3 to J1 on coax electrical solenoid.
 - See figure 16-20.
 - Replace main gun safety switch.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-14.
 - Verify that problem is solved.

Figure 10-19 (Sheet 5 of 7)
Volume II
Para. 10-2

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

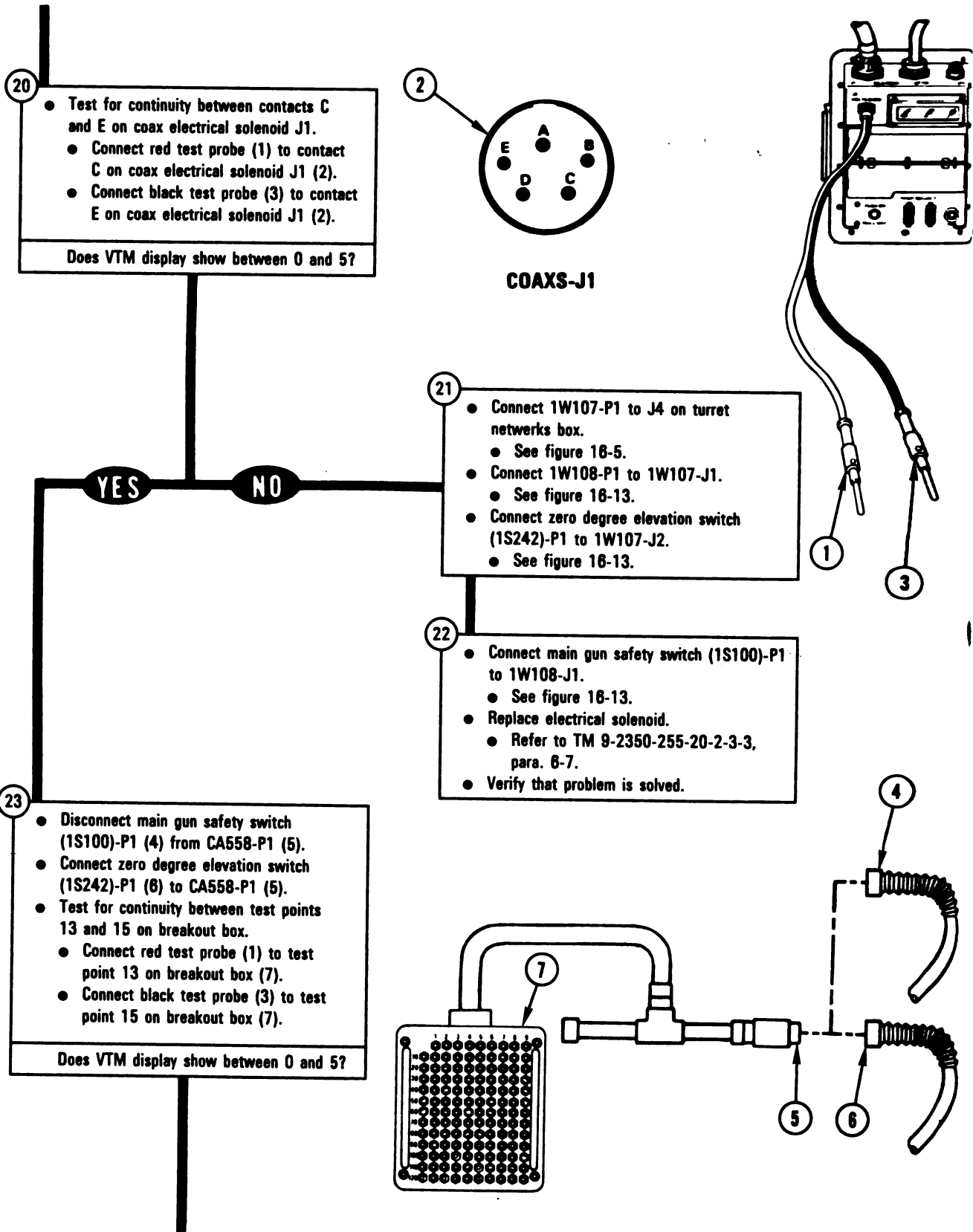


Figure 10-19 (Sheet 6 of 7)
Volume II
Para. 10-2

ARR82-6284

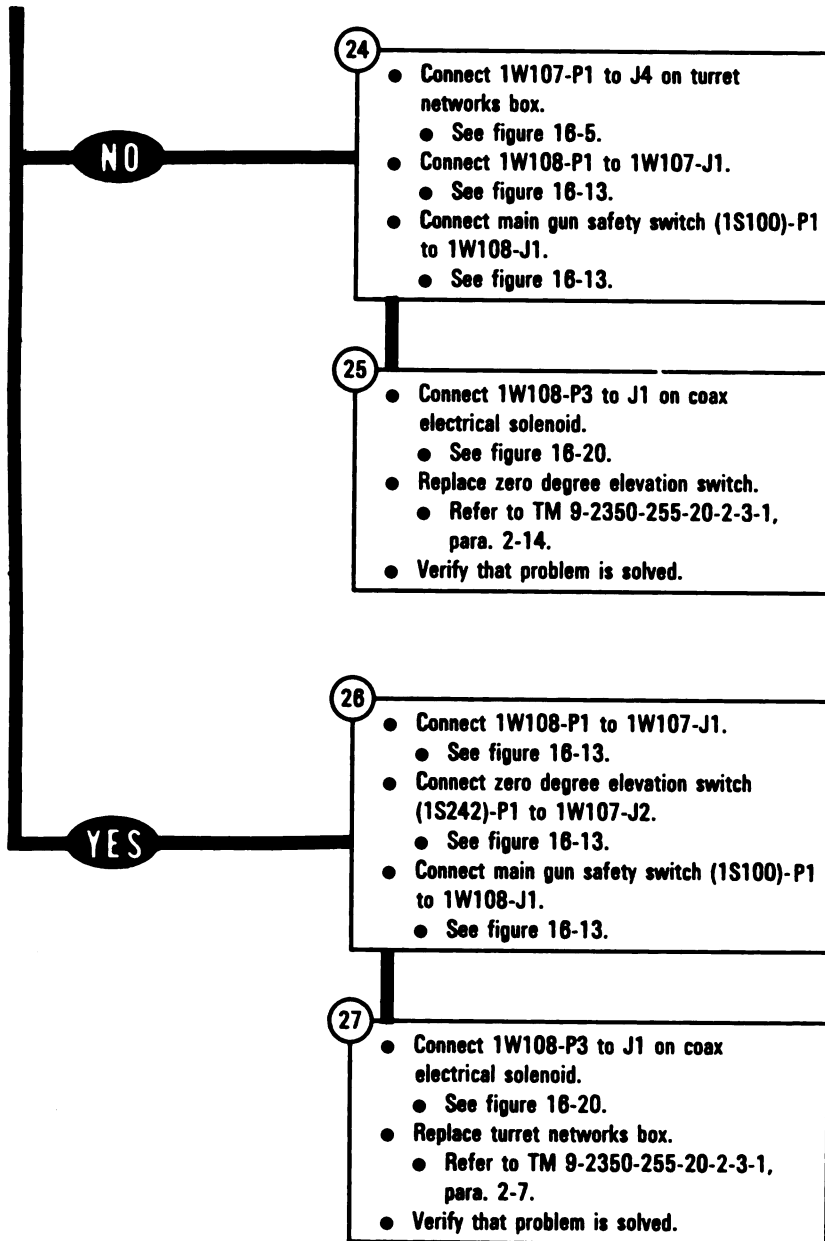


Figure 10-19 (Sheet 7 of 7)
Volume II
Para. 10-2

**DISPLAY SHOWS -
 FAULTY AUTO SELF-
 TEST CKT**

121044

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-P1 from J5 on turret networks box.
 - See figure 16-5.
 - Disconnect CX208-P2 from CIB-J2.
 - See figure 10-2.
 - Connect CX208-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. 10-1.

- 2
- Set TURRET POWER switch (6) to ON.
- NOTE**
 Leave test probes connected until test in block 32 is completed.
- Test for 18 to 30 V dc between test points 11 (-) and 14 (+) on breakout box.
 - Connect black test probe (7) to test point 11 on breakout box (2).
 - Connect red test probe (8) to test point 14 on breakout box (2).
- Does VTM display show between 18 and 30?

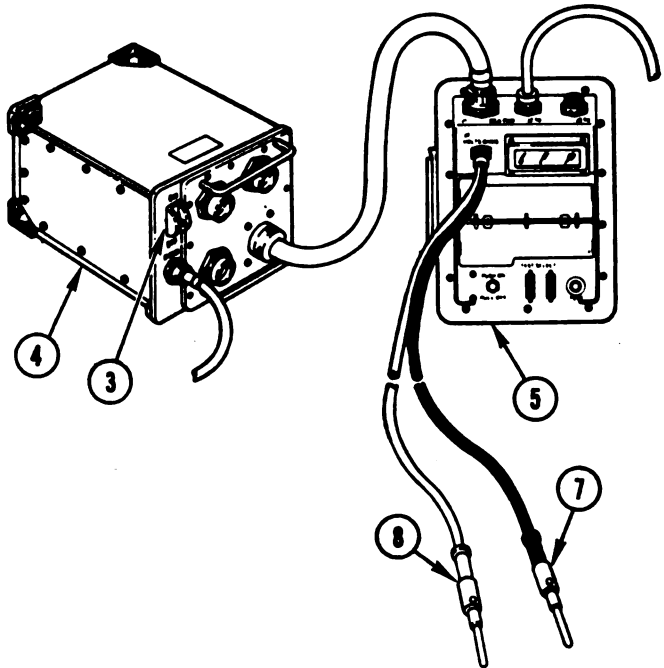
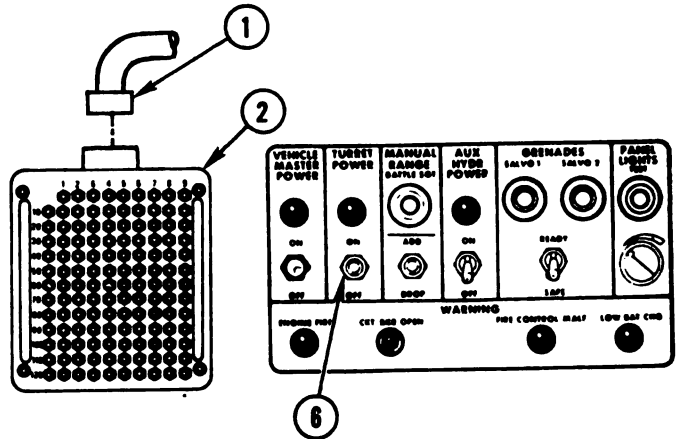


Figure 10-20 (Sheet 1 of 8)
 Volume II
 Para. 10-2

ARR82-8265

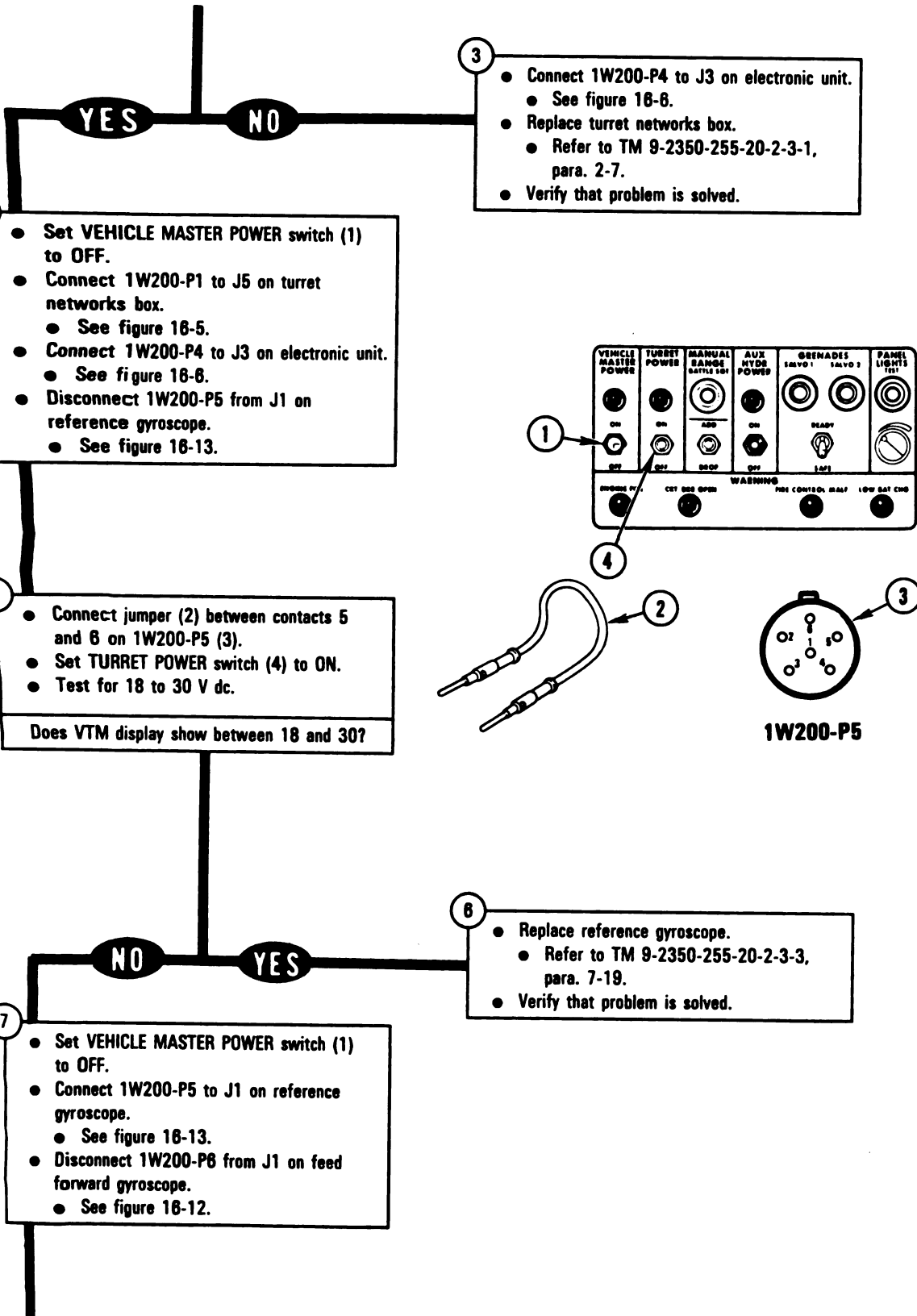


Figure 10-20 (Sheet 2 of 8)
Volume II
Para. 10-2

ARR82-6266

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

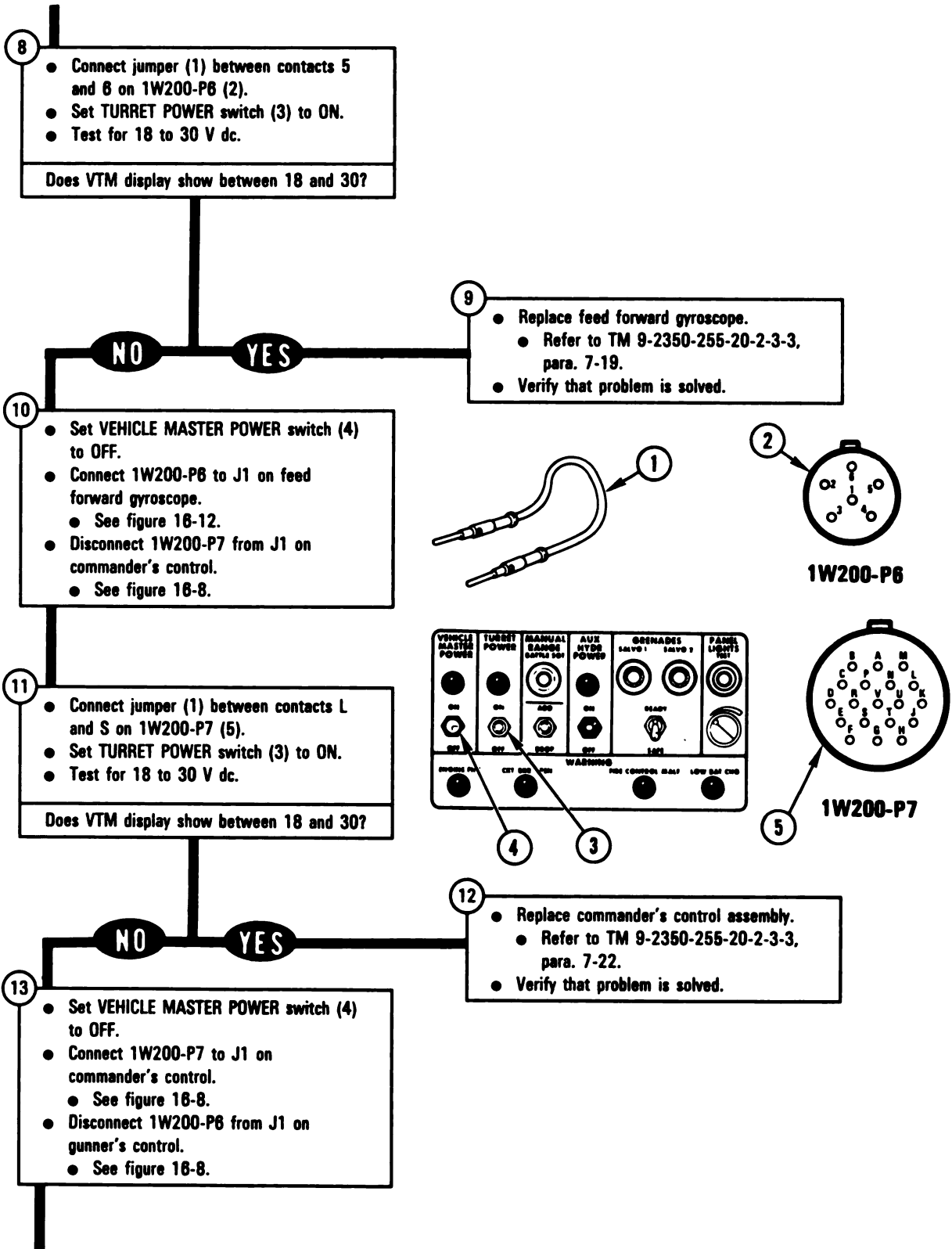


Figure 10-20 (Sheet 3 of 8)
 Volume II
 Para. 10-2

ARR82-6267

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

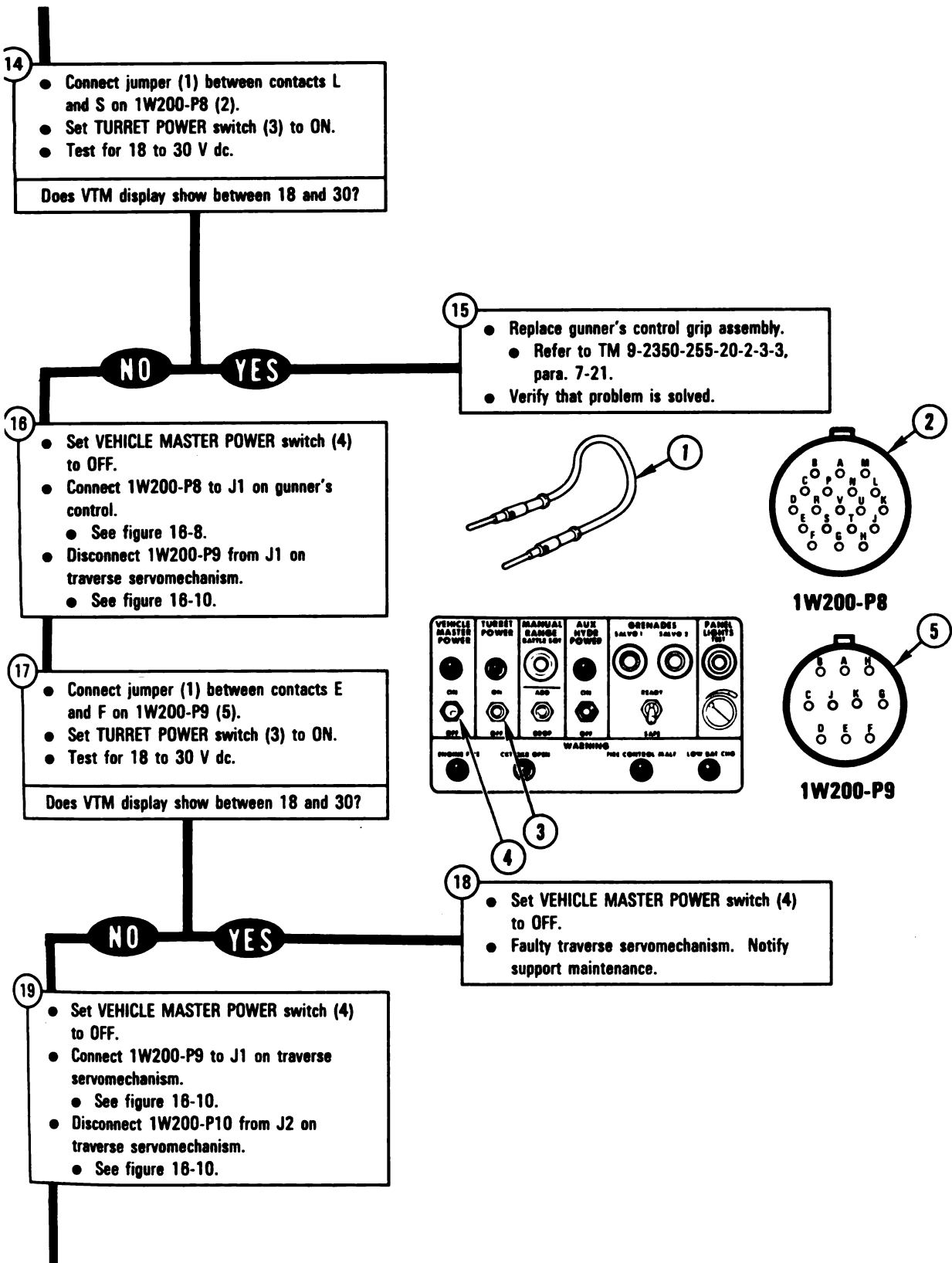


Figure 10-20 (Sheet 4 of 8)
Volume II
Para. 10-2

ARR82-8268

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

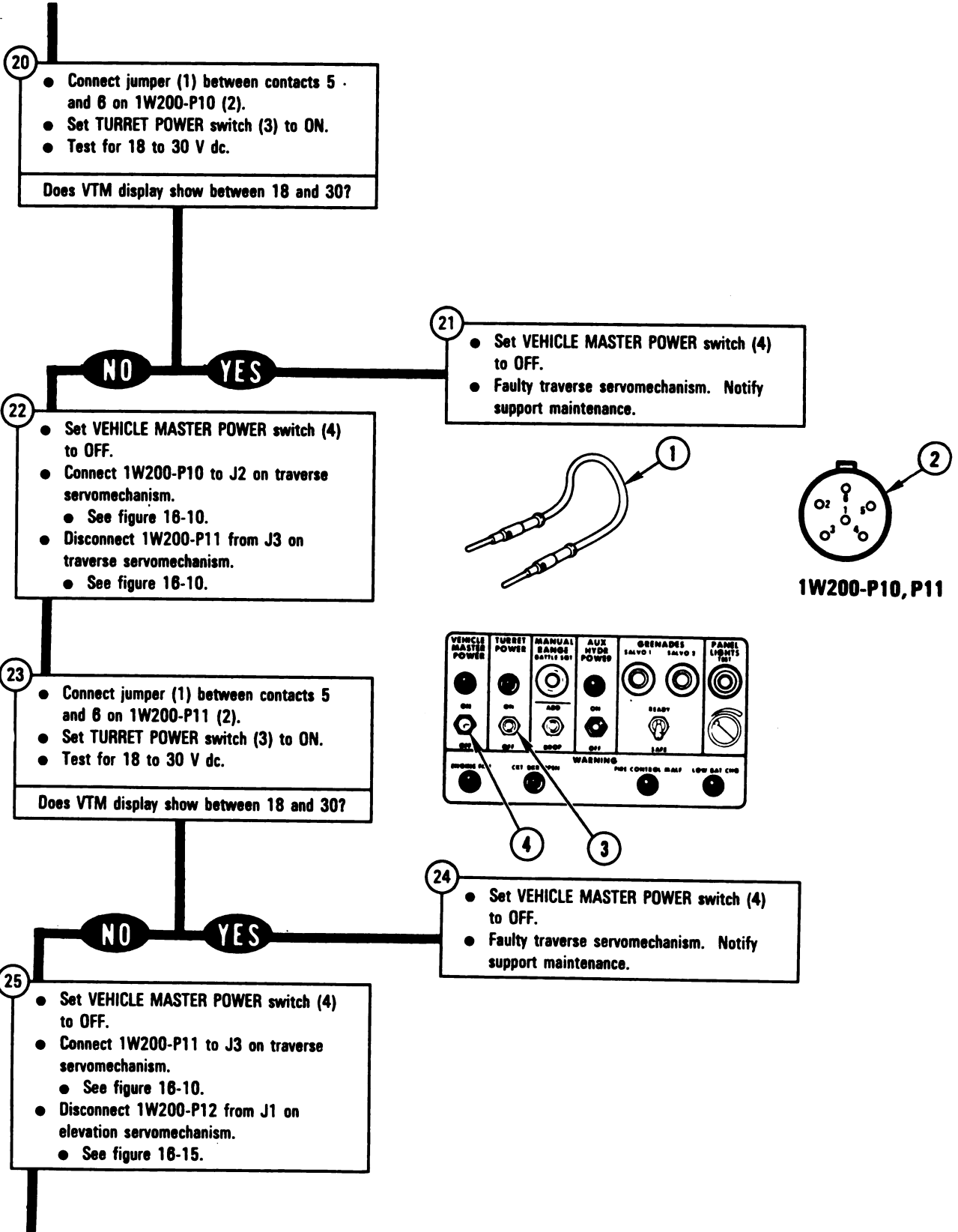


Figure 10-20 (Sheet 5 of 8)
Volume II
Para. 10-2

ARR82-6269

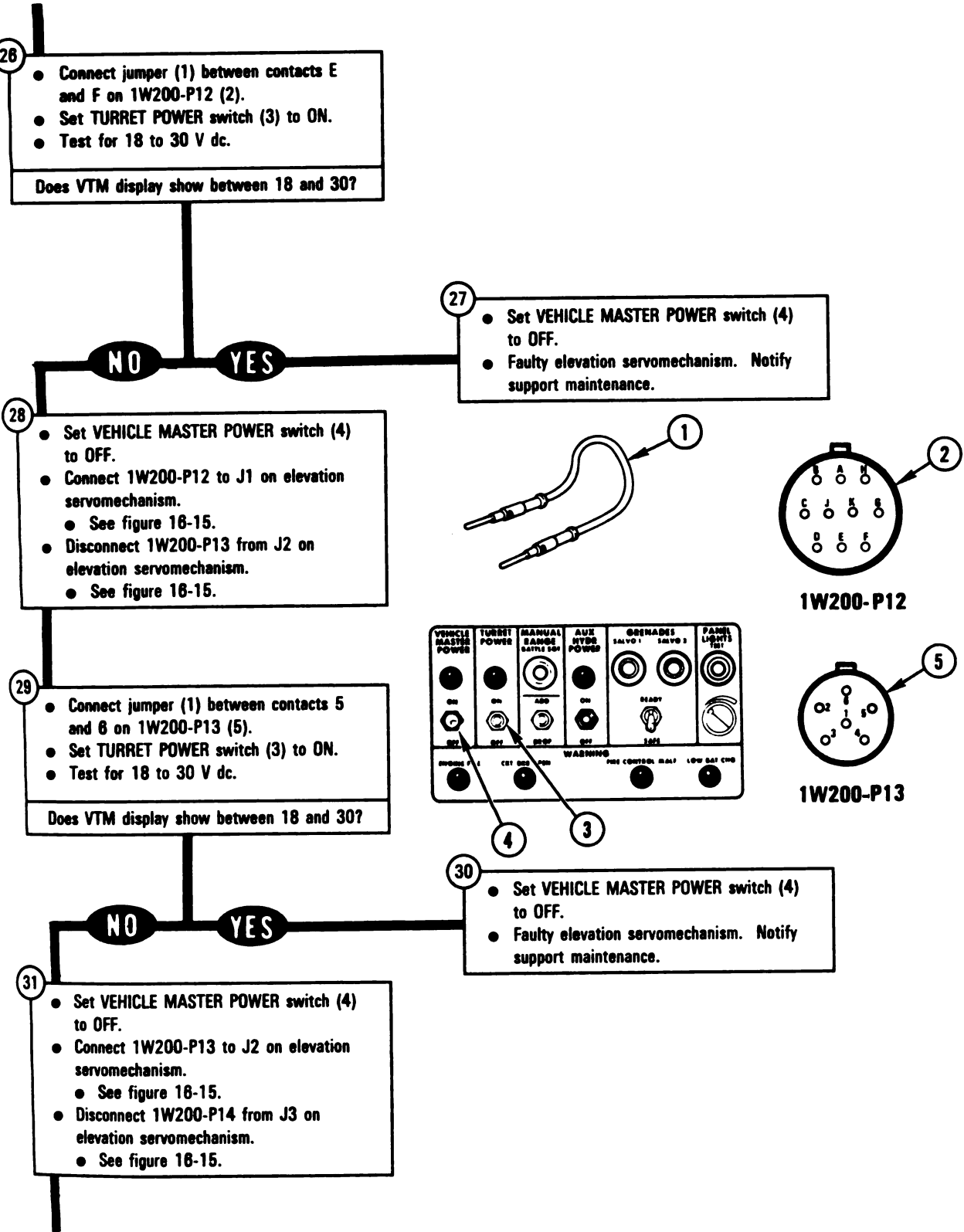


Figure 10-20 (Sheet 6 of 8)
Volume II
Para. 10-2

ARR82-6270

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

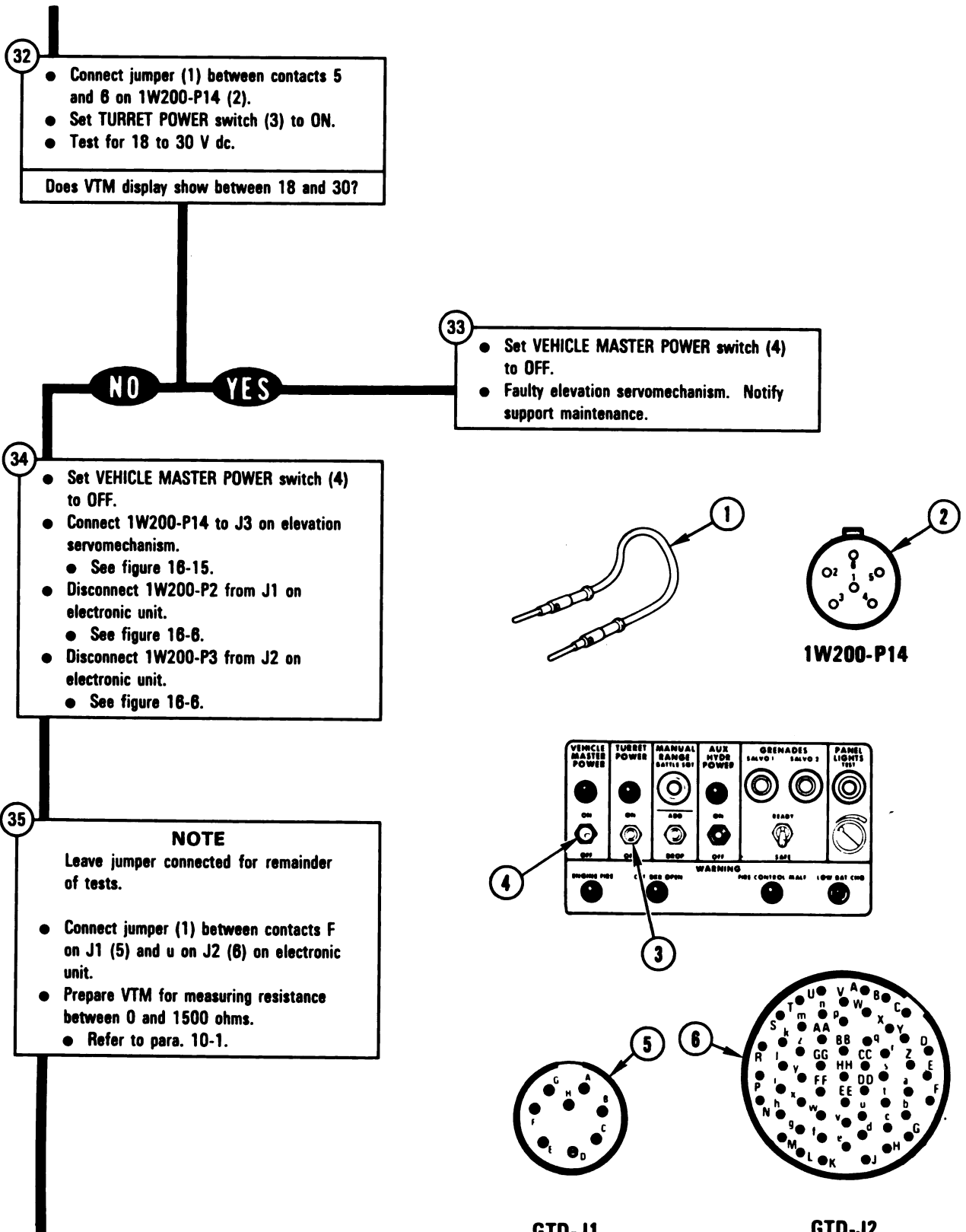


Figure 10-20 (Sheet 7 of 8)
Volume II
Para. 10-2

ARR82-6271

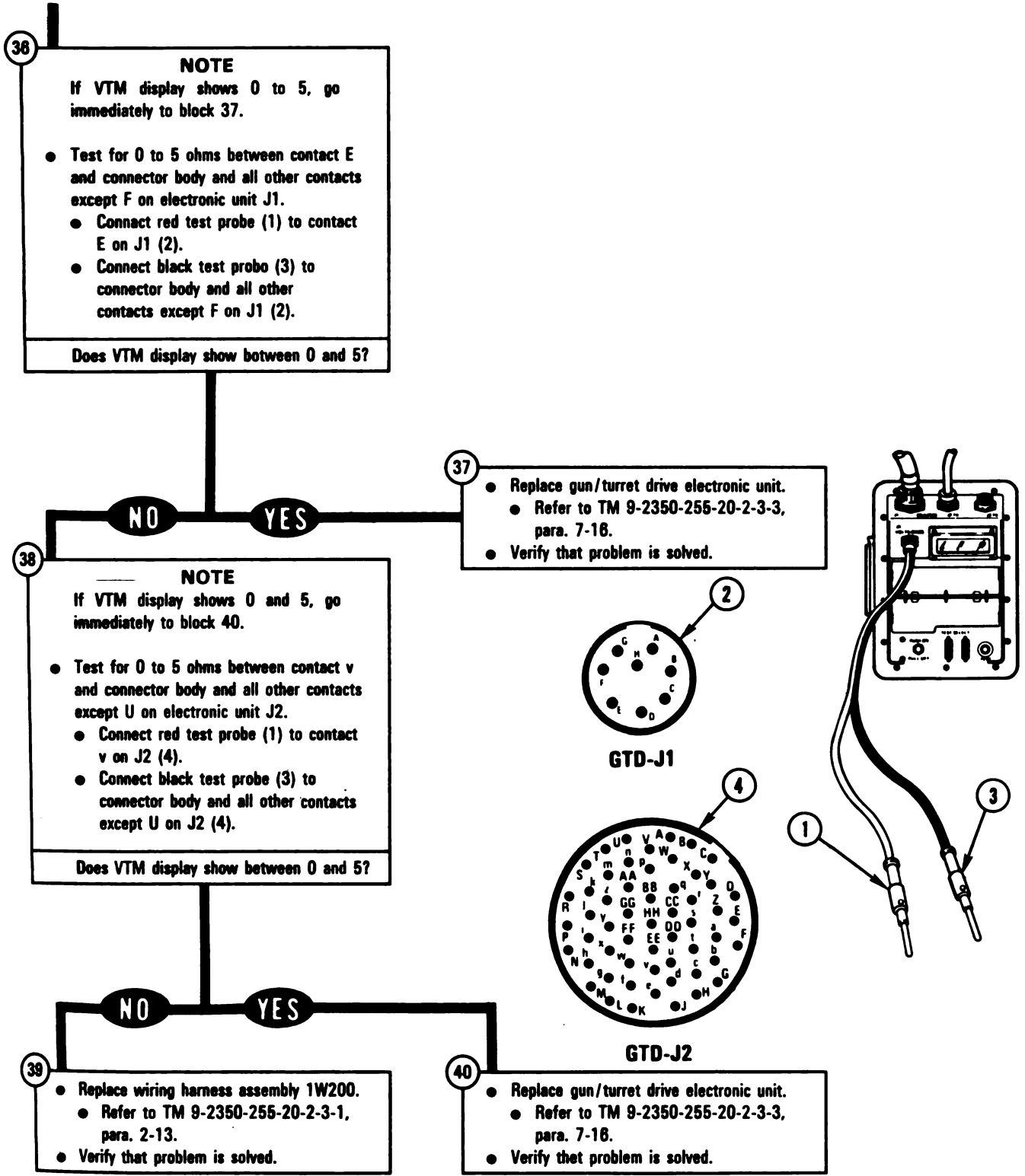


Figure 10-20 (Sheet 8 of 8)
Volume II
Para. 10-2

ARR82-8272

**DISPLAY SHOWS -
 FAULTY AUTO SELF-
 TEST CKT**

121082

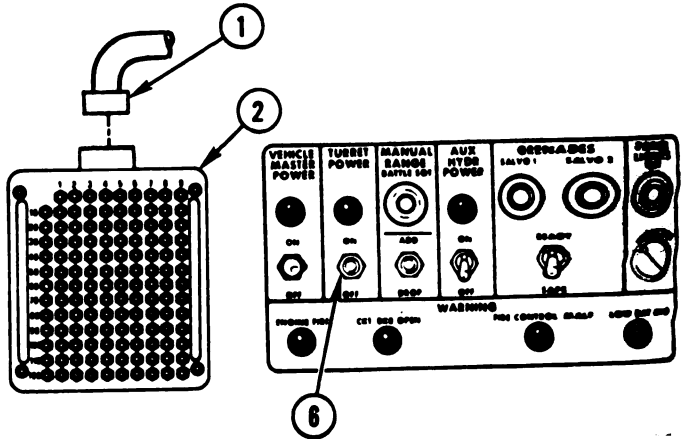
Additional Test

Equipment/Special Tools:

- Breakout Box Tool Kit, 12311086

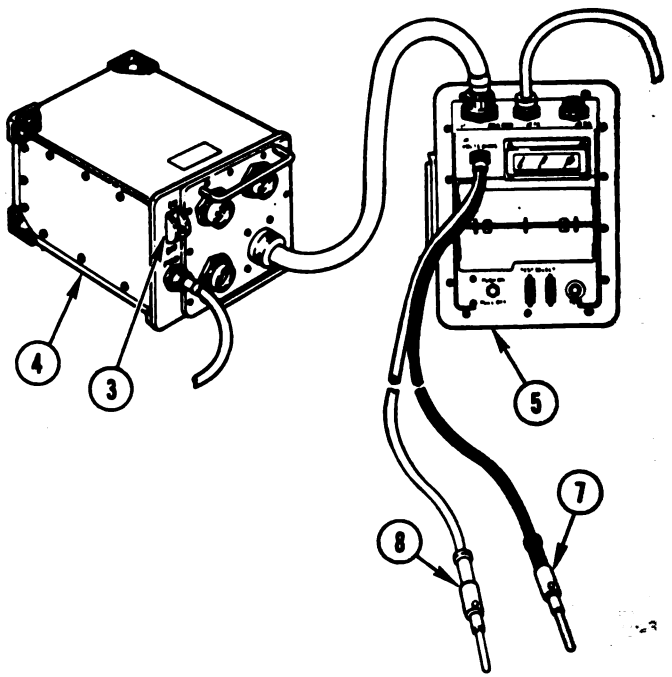
Equipment Condition:

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



- 1
- Disconnect 1W202-P1 from J7 on turret networks box.
 - See figure 18-5.
 - Disconnect CX208-P2 from CIB-J2.
 - See figure 10-2.
 - Connect CX208-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 dc voltage.
 - Refer to para. 10-1.



- 3
- Set TURRET POWER switch (6) to ON.
 - Test for 4 to 6 V dc between test points 11 (-) and 27 (+) on breakout box.
 - Connect black test probe (7) to test point 11 on breakout box (2).
 - Connect red test probe (8) to test point 27 on breakout box (2).

Does VTM display show between 4 and 6?

YES NO

- 4
- Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
 - Verify that problem is solved.

Figure 10-21 (Sheet 1 of 9)
 Volume II
 Para. 10-2

ARR82-4273

5

- Set VEHICLE MASTER POWER switch (1) to OFF.
- Disconnect CX305-P2 from CIB-J1.
 - See figure 10-2.
- Disconnect CX305-P1 from CA208-P2.
 - See figure 10-3.
- Disconnect CX208-P2 (2) from breakout box (3).

6

- Connect CX305-P2 (4) to breakout box (3).
- Connect CX305-P1 (5) to CX307-P3 (8).
- Disconnect 1W202-P4 from J1 on thermal electronics unit.
 - See figure 16-14.
- Connect 1W202-P4 (7) to CA509-P1 (8).
- Connect CA509-P2 (9) to CX307-P1 (10).

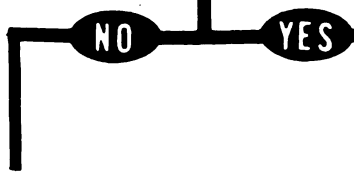
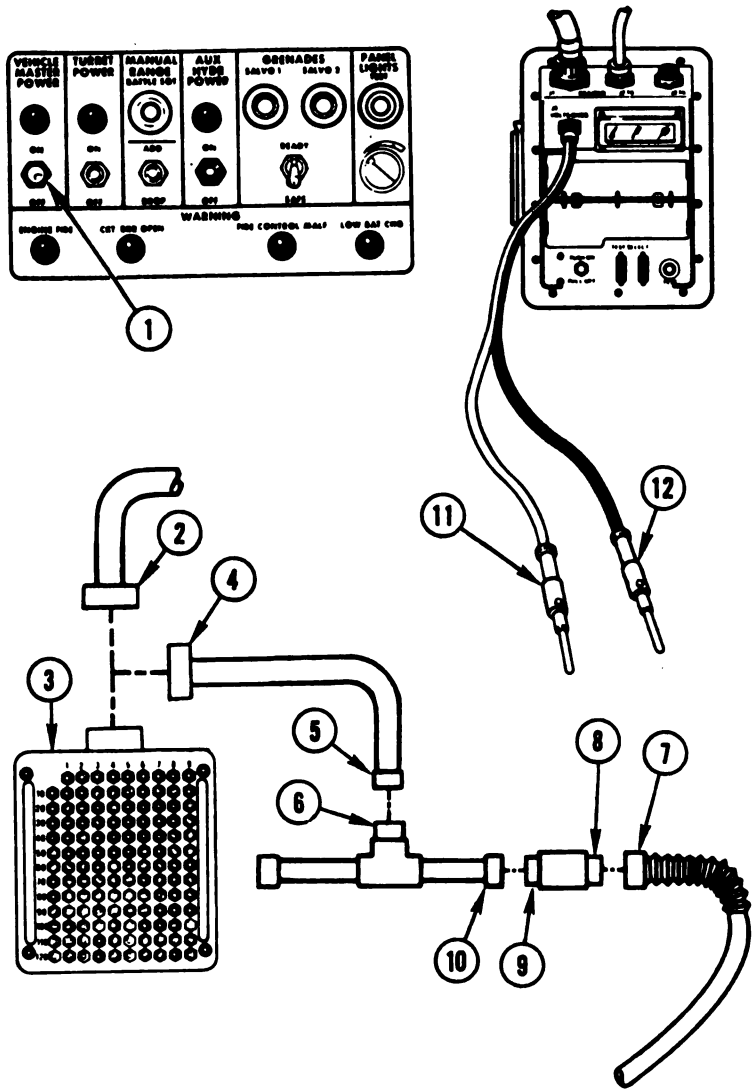
7

- Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 10-1.
- Connect red test probe (11) to test point 110 on breakout box (3).

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

- Test for 0 to 5 ohms by connecting black test probe (12) to each test point on breakout box (3) listed below:
 - 31 and 99

Does VTM display show between 0 and 5?



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 10-21 (Sheet 2 of 9)
Volume II
Para. 10-2

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

- 9
- Disconnect CX305-P2 (1) from breakout box (2).
 - Disconnect CA509-P2 (3) from CX307-P1 (4).
 - Disconnect 1W202-P4 (5) from CA509-P1 (6).
 - Disconnect 1W209-P1 from J2 on thermal electronics unit.
 - See figure 16-14.

- 10
- Connect 1W202-P4 to J1 on thermal electronics unit.
 - See figure 16-14.
 - Connect 1W202-P1 to J7 on turret networks box.
 - See figure 16-5.
 - Connect CX208-P2 (7) to breakout box (2).
 - Prepare VTM for measuring dc voltage.
 - Refer to para. 10-1.
 - Set TURRET POWER switch (8) to ON.

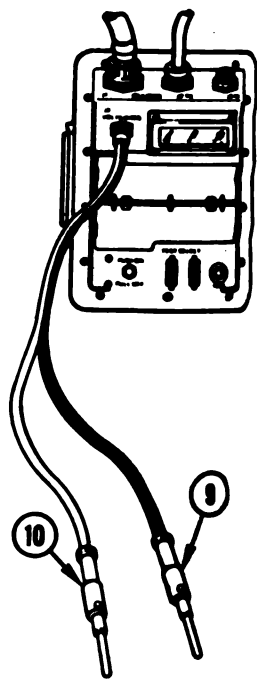
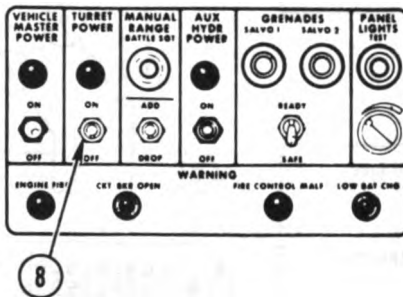
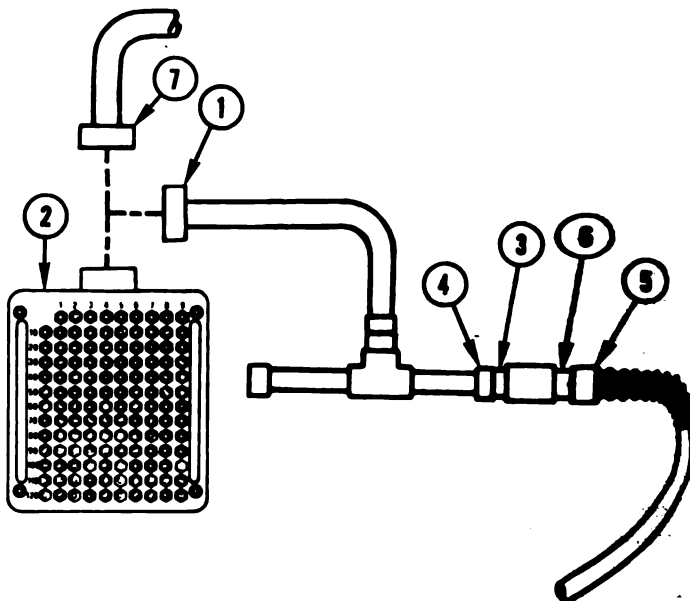
11

NOTE

Leave test probes connected for blocks 13, 14, and 17.

- Test for 4 to 6 V dc between test points 11 (-) and 27 (+) on breakout box.
- Connect black test probe (9) to test point 11 on breakout box (2).
- Connect red test probe (10) to test point 27 on breakout box (2).

Does VTM display show between 4 and 6?



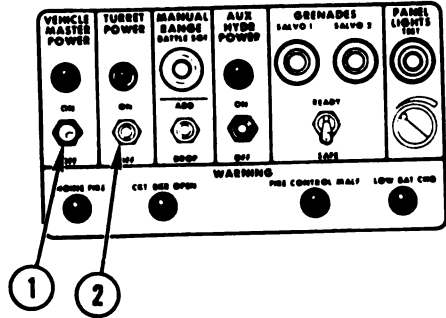
- 12
- Replace thermal electronics unit.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-24.
 - Verify that problem is solved.

YES **NO**

Figure 10-21 (Sheet 3 of 9)
Volume II
Para. 10-2

ARR82-6275

- Set VEHICLE MASTER POWER switch (1) to OFF.
 - Connect 1W209-P1 to J2 on thermal electronics unit.
 - See figure 16-14.
 - Disconnect 1W209-P3 from J2 on image control unit.
 - See figure 16-18.
 - Set TURRET POWER switch (2) to ON.
 - Test for 4 to 6 V dc.
- Does VTM display show between 4 and 6?



- NO** **YES**
- Set VEHICLE MASTER POWER switch (1) to OFF.
 - Disconnect 1W208-P2 from J1 on image control unit.
 - See figure 16-16.
 - Connect 1W209-P3 to J2 on image control unit.
 - See figure 16-16.
 - Set TURRET POWER switch (2) to ON.
 - Test for 4 to 6 V dc.
- Does VTM display show between 4 and 6?

15 Go to block 34.

- NO** **YES**
- Set VEHICLE MASTER POWER switch (1) to OFF.
 - Connect 1W208-P2 to J1 on image control unit.
 - See figure 16-16.
 - Disconnect 1W208-P1 from J3 on thermal power control unit.
 - See figure 16-14.
 - Set TURRET POWER switch (2) to ON.
 - Test for 4 to 6 V dc.
- Does VTM display show between 4 and 6?

16

- Replace image control unit.
- Refer to TM 9-2350-255-20-2-3-3, para. 7-24.
- Verify that problem is solved.

Figure 10-21 (Sheet 4 of 9)
Volume II
Para. 10-2

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

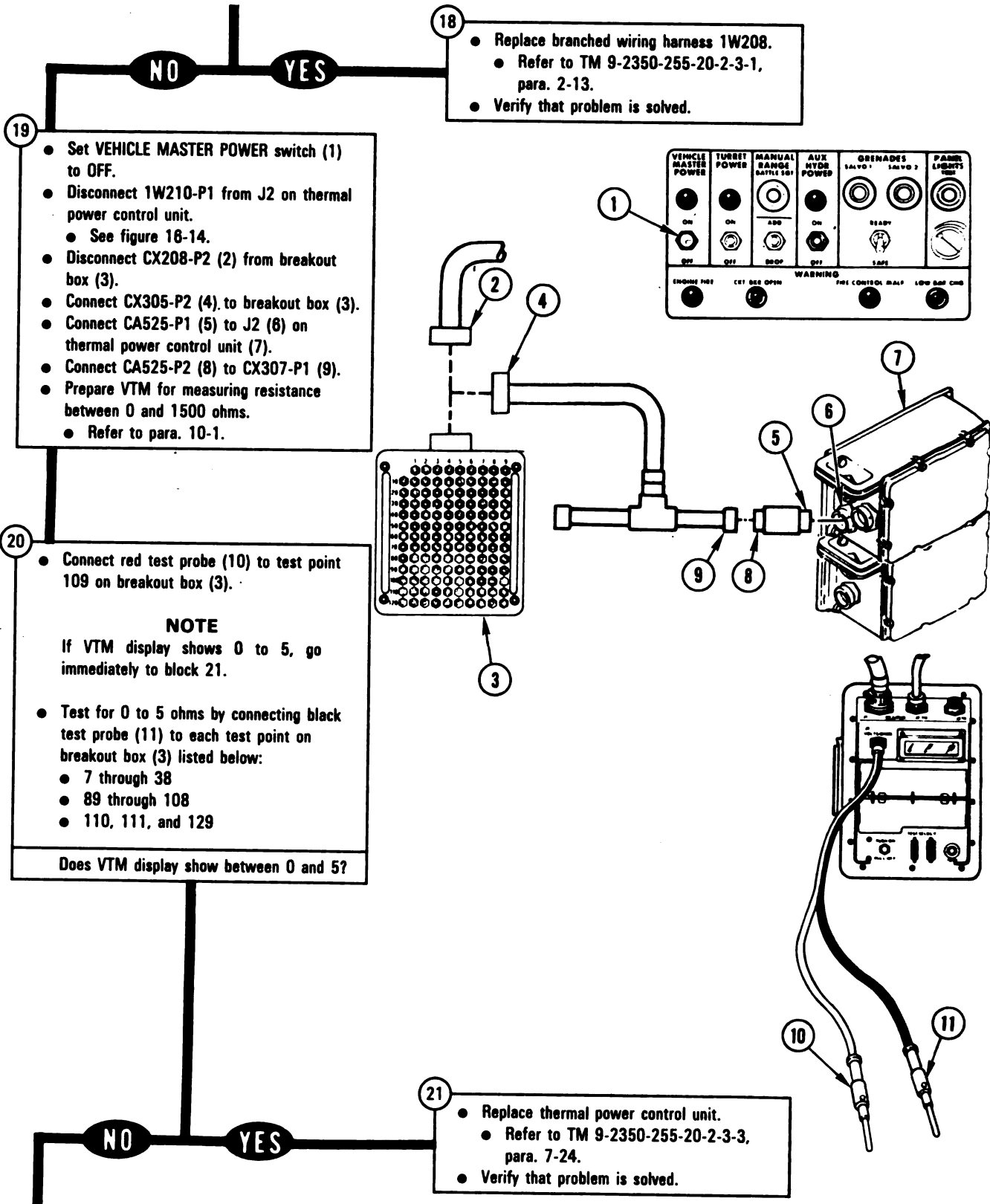
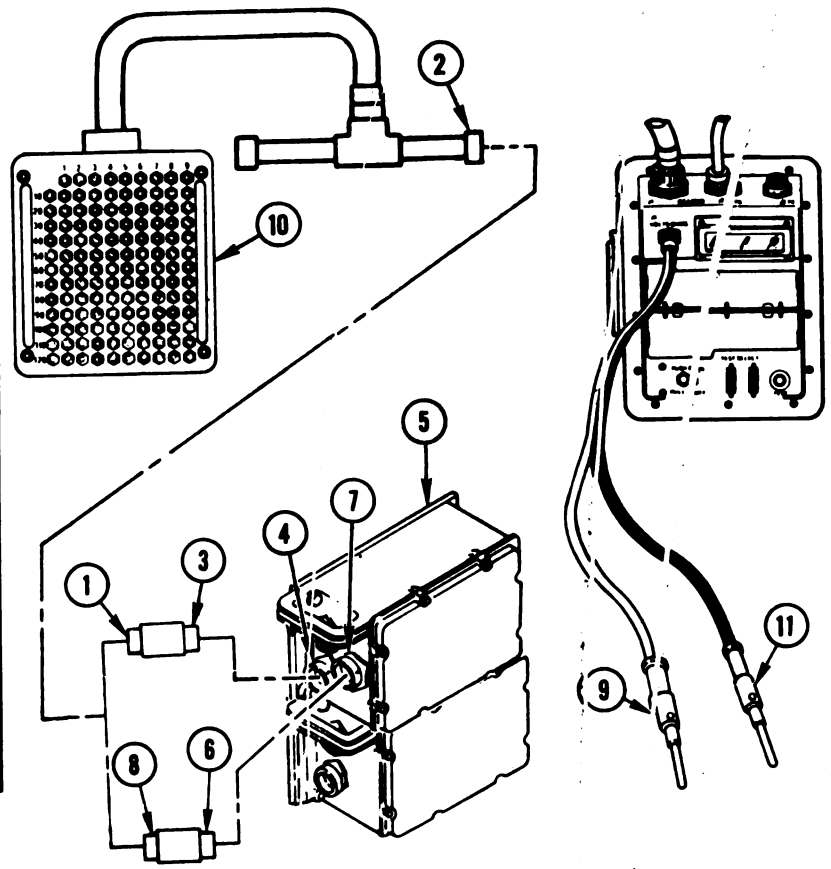


Figure 10-21 (Sheet 5 of 9)
Volume II
Para. 10-2

ARR82-6277

- 22
- Disconnect CA525-P2 (1) from CX307-P1 (2).
 - Disconnect CA525-P1 (3) from J2 (4) on thermal power control unit (5).
 - Connect CA531-P1 (6) to J3 (7) on thermal power control unit (5).
 - Connect CA531-P2 (8) to CX307-P1 (2).

- 23
- Connect red test probe (9) to test point 97 on breakout box (10).
- NOTE**
If VTM display shows 0 to 5, go immediately to block 24.
- Test for 0 to 5 ohms by connecting black test probe (11) to each test point on breakout box (10) listed below:
 - 7 through 38
 - 89 through 96
 - 129
- Does VTM display show between 0 and 5?



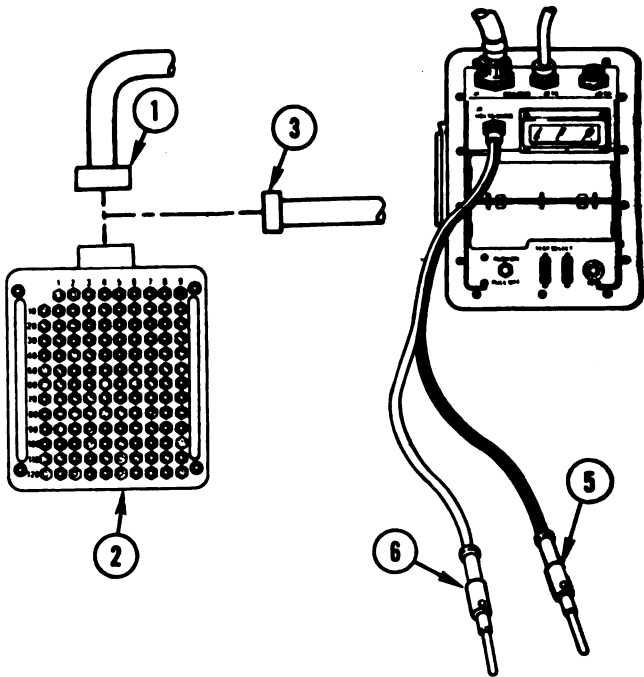
- 24
- Replace thermal power control unit.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-24.
 - Verify that problem is solved.

- NO
- 25
- Disconnect CA531-P1 (6) from J3 (7) on thermal power control unit (5).
 - Connect 1W210-P1 to J2 on thermal power control unit.
 - See figure 16-14.
 - Connect 1W208-P1 to J3 on thermal power control unit.
 - See figure 16-14.
 - Disconnect 1W209-P2 from J2 on thermal receiver unit.
 - See figure 16-16.
- YES

Figure 10-21 (Sheet 6 of 9)
Volume II
Para. 10-2

ARR82-6278

- 26
- Disconnect CX305-P2 (1) from breakout box (2).
 - Connect CX2'08-P2 (3) to breakout box (2).
 - Prepare VTM for measuring dc voltage.
 - Refer to para. 10-1.
 - Set TURRET POWER switch (4) to ON.



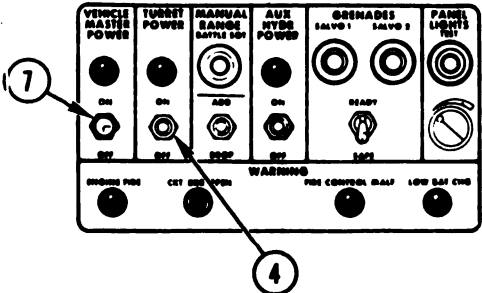
- 27
- NOTE**
- Leave test probes connected for remainder of tests
- Test for 4 to 6 V dc between test points 11 (-) and 27 (+) on breakout box.
 - Connect black test probe (5) to test point 11 on breakout box (2).
 - Connect red test probe (6) to test point 27 on breakout box (2).
- Does VTM display show between 4 and 6?

YES

NO

- 28
- Replace branched wiring harness 1W209.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

- 29
- Set VEHICLE MASTER POWER switch (7) to OFF.
 - Disconnect 1W210-P2 from J1 on thermal receiver unit.
 - See figure 16-16.
 - Connect 1W203-P2 to J2 on thermal receiver unit.
 - See figure 16-16.
 - Set TURRET POWER switch (4) to ON.
 - Test for 4 to 6 V dc.
- Does VTM display show between 4 and 6?



YES

NO

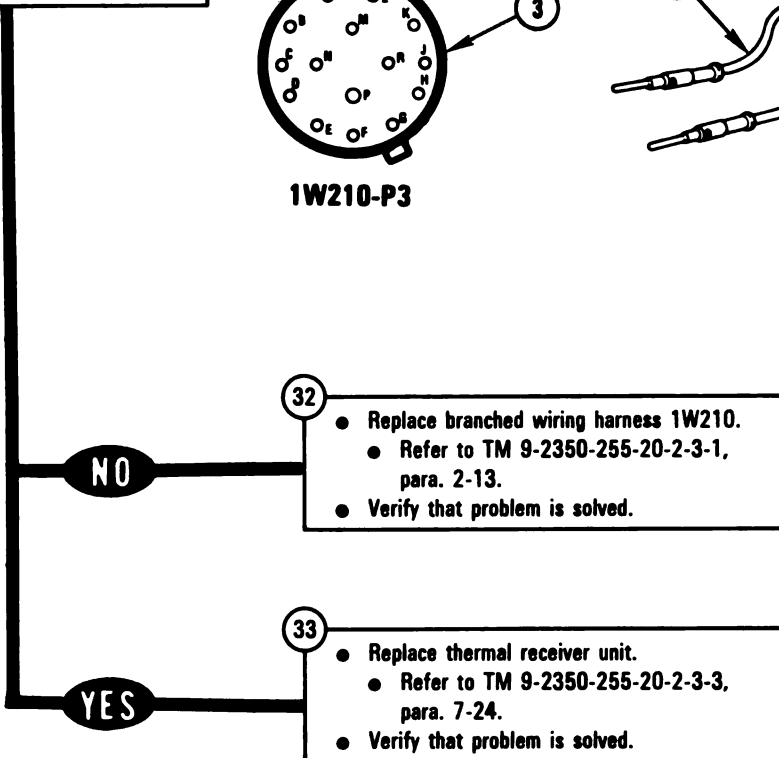
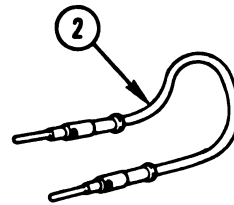
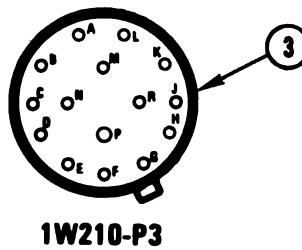
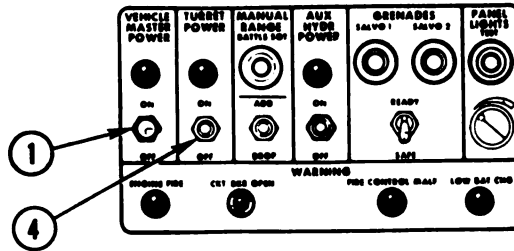
- 30
- Replace thermal receiver unit.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-24.
 - Verify that problem is solved.

Figure 10-21 (Sheet 7 of 9)
Volume II
Para. 10-2

31

- Set VEHICLE MASTER POWER switch (1) to OFF.
- Disconnect 1W210-P3 from J4 on thermal receiver unit.
 - See figure 16-16.
- Connect 1W210-P2 to J1 on thermal receiver unit.
 - See figure 16-16.
- Connect jumper (2) between contacts J and R on 1W210-P3 (3).
- Set TURRET POWER switch (4) to ON.
- Test for 4 to 6 V dc.

Does VTM display show between 4 and 6?



- 32
- Replace branched wiring harness 1W210.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

- 33
- Replace thermal receiver unit.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-24.
 - Verify that problem is solved.

Figure 10-21 (Sheet 8 of 9)
Volume II
Para. 10-2

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

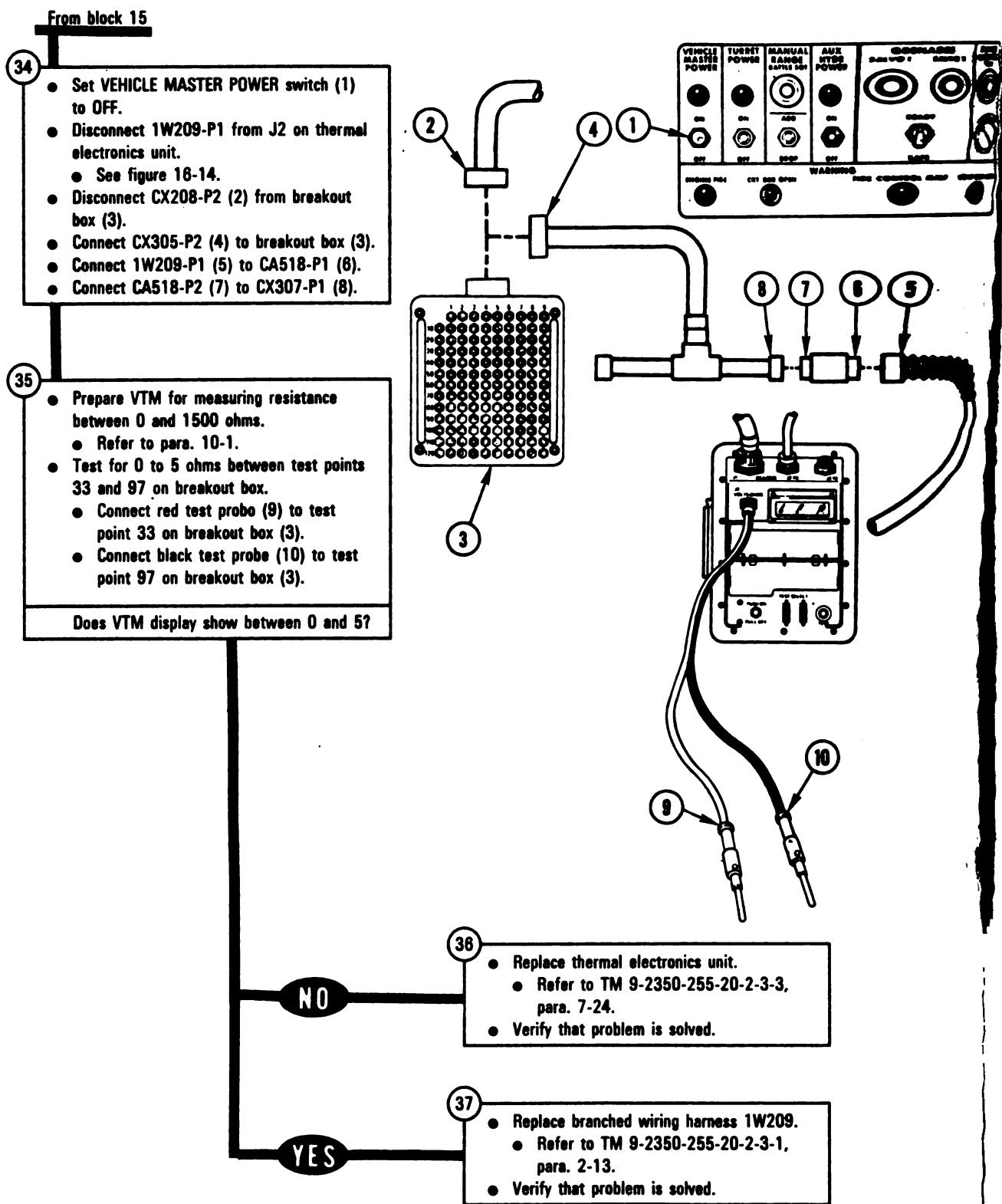


Figure 10-21 (Sheet 9 of 9)
**Volume II
Para. 10-2**

ARR82-421

DISPLAY SHOWS -
FAULTY AUTO SELF -
TEST CKT

121089

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 crosswind sensor (1A253)-P1 from 1W205-J2.
 - See figure 16-23.
- Disconnect CX208-P2 from CIB-J2.
 - See figure 10-2.
- Connect CX208-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. 10-1.

- Set TURRET POWER switch (6) to ON.
- Test for 4 to 6 V dc between test points 11 (-) and 25 (+) on breakout box.
 - Connect black test probe (7) to test point 11 on breakout box (2).
 - Connect red test probe (8) to test point 25 on breakout box (2).

Does VTM display show between 4 and 6?

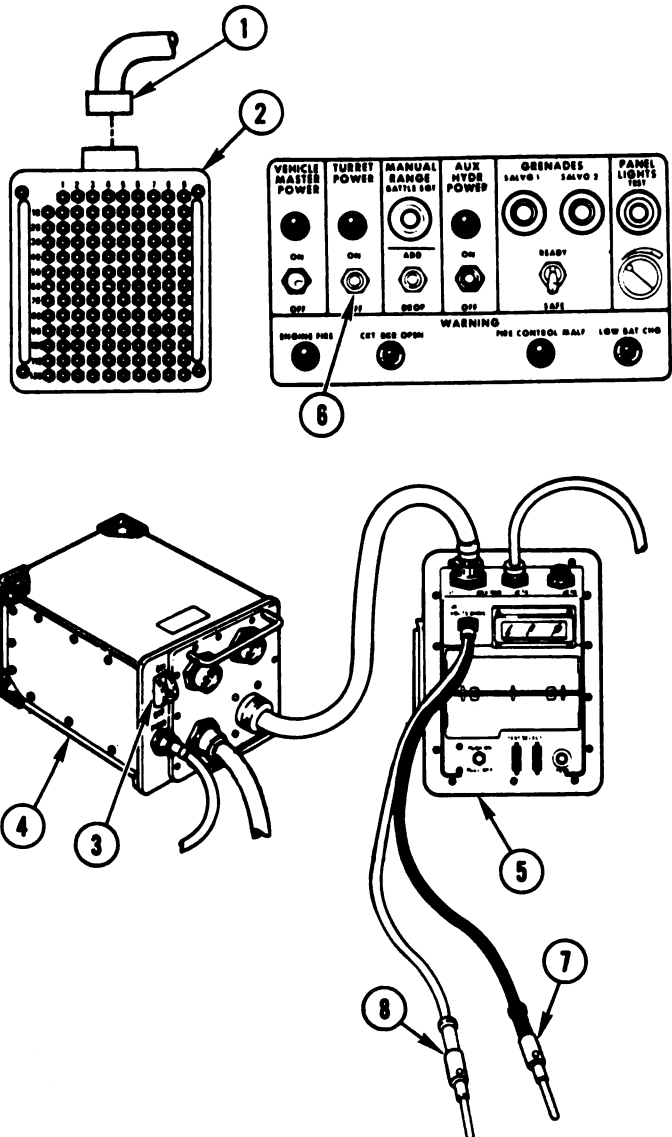


Figure 10-22 (Sheet 1 of 3)
Volume II
Para. 10-2

ARR82-6282

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

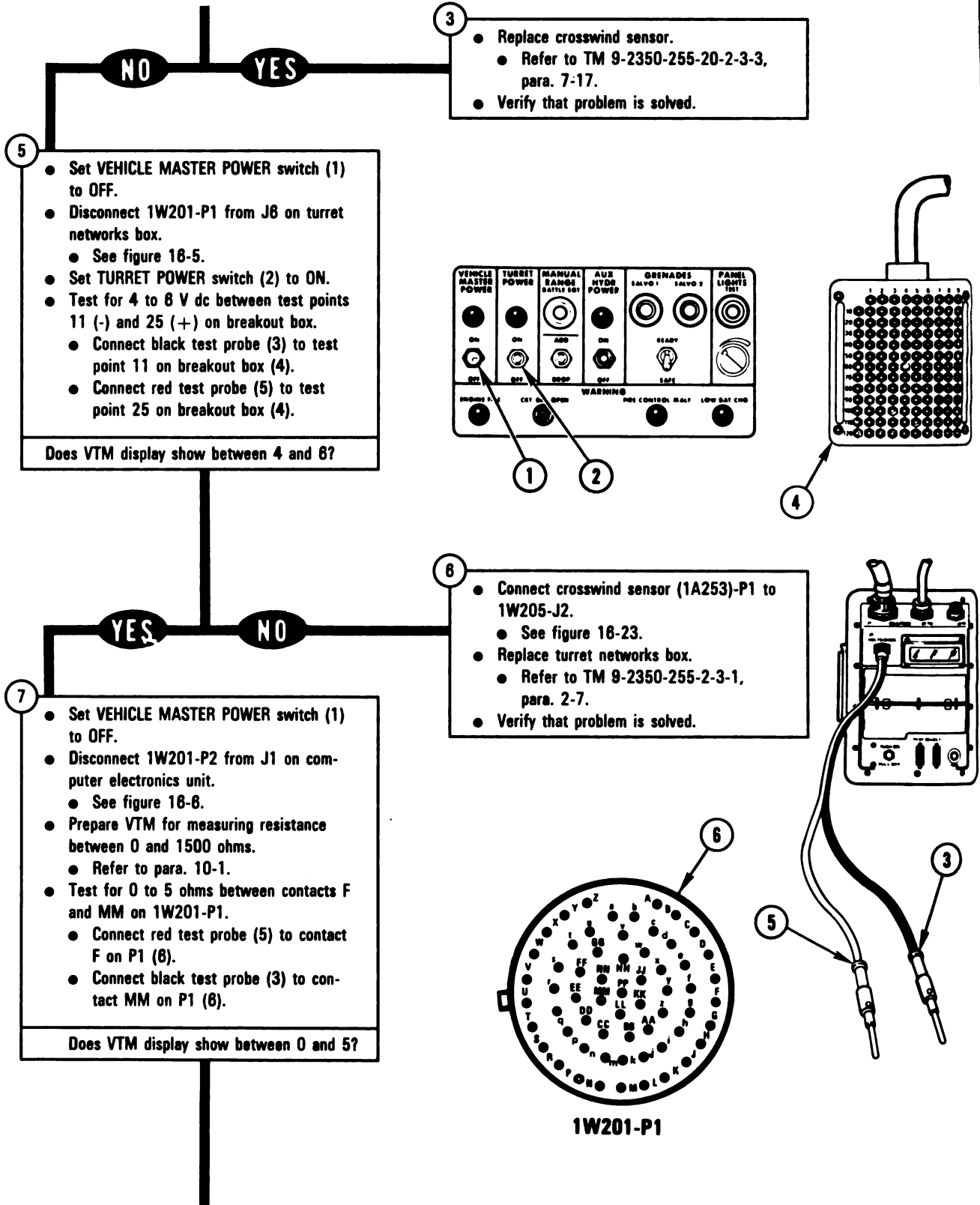


Figure 10-22 (Sheet 2 of 3)
Volume II
Para. 10-2

ARR82-6283

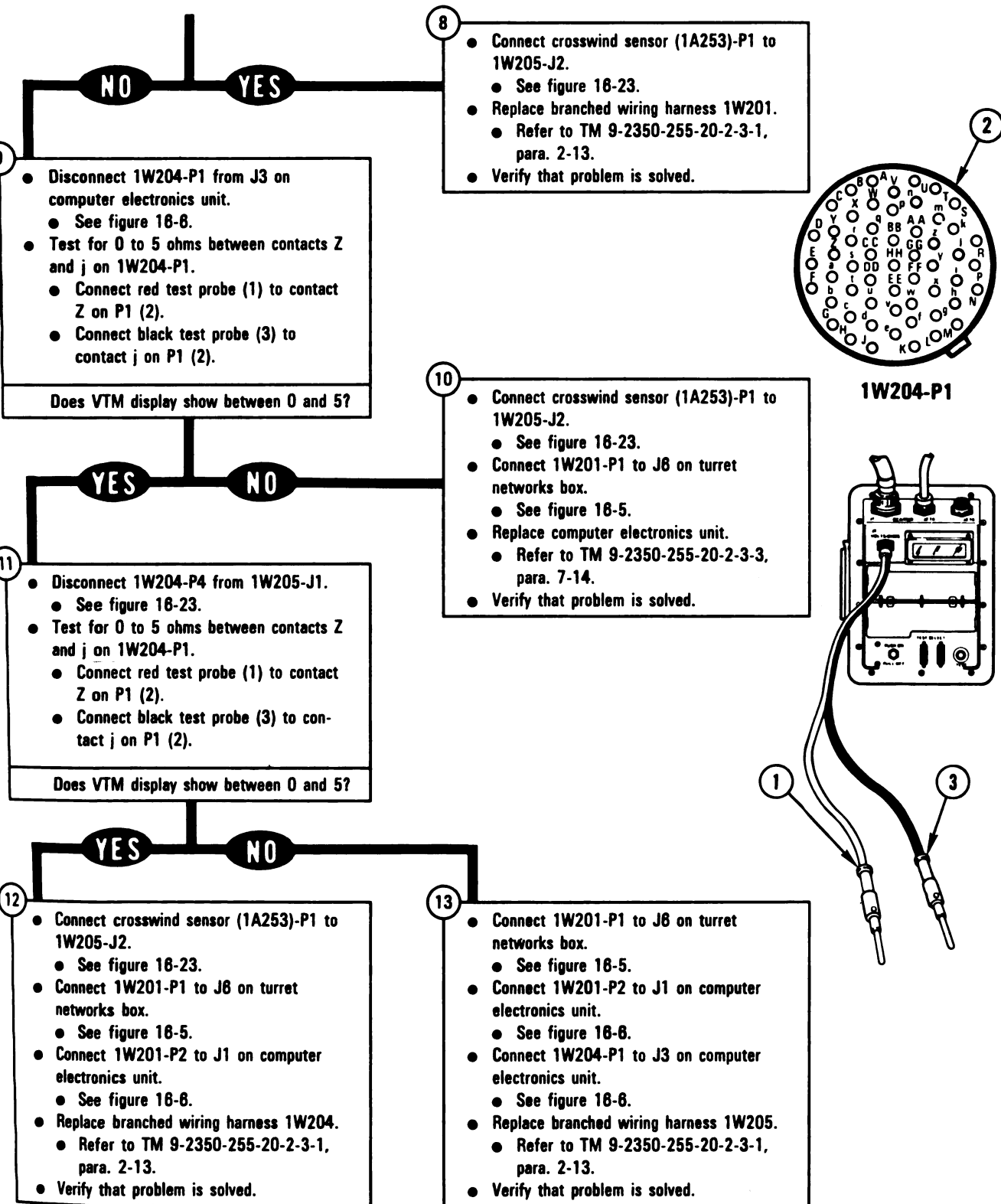


Figure 10-22 (Sheet 3 of 3)
Volume II
Para. 10-2

ARR82-6284

**TM 9-2350-255-20-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS -
FAULTY AUTO SELF -
TEST CKT** **121076**

**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 1W203-P3 from J1 on laser rangefinder.
 - See figure 16-18.
- Set TURRET POWER switch (1) to ON.

Does FIRE CONTROL MALF light on commander's control panel stay on?

NO

YES

3

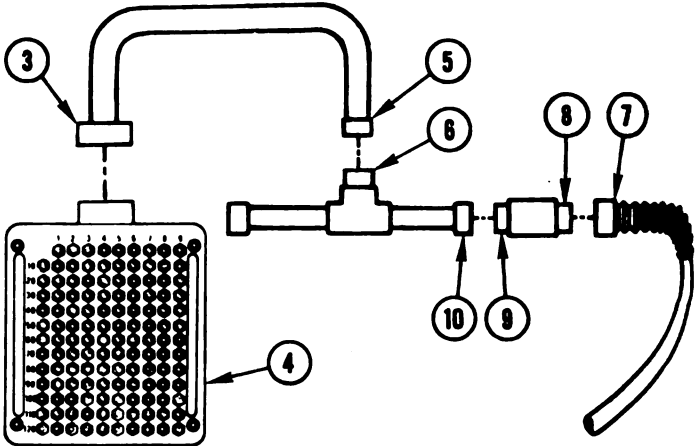
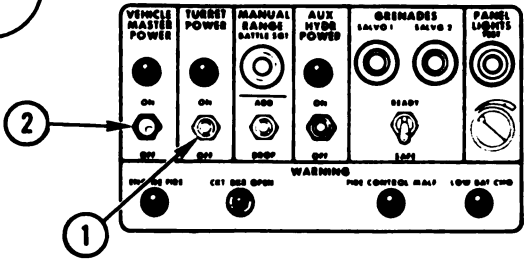
- Set VEHICLE MASTER POWER switch (2) to OFF.
- Connect CX304-P2 (3) to breakout box (4).
- Connect CX304-P1 (5) to CX307-P3 (6).

4

- Disconnect 1W203-P1 from J3 on turret networks box.
 - See figure 16-5.
- Connect 1W203-P1 (7) to CA528-P1 (8).
- Connect CA528-P2 (9) to CX307-P1 (10).

2

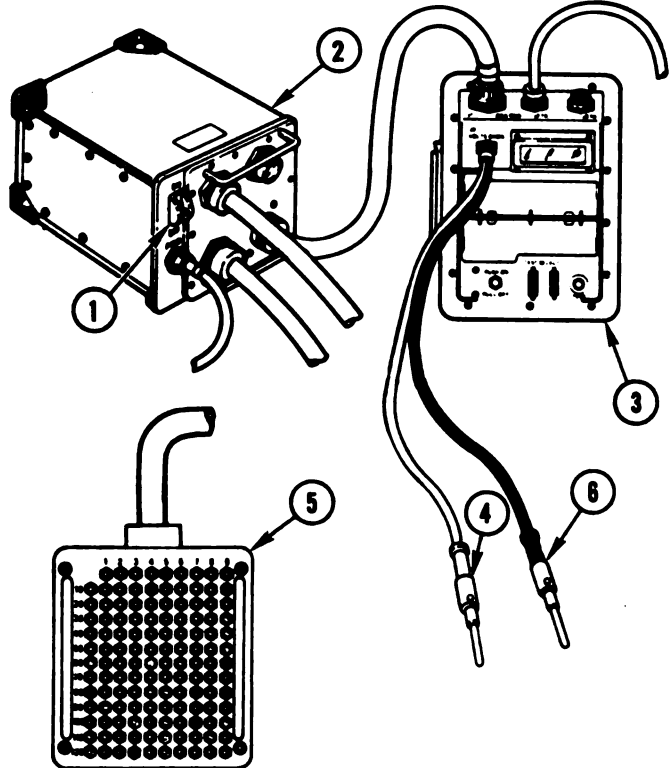
- Replace laser rangefinder.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-23.
- Verify that problem is solved.



*Figure 10-23 (Sheet 1 of 2)
Volume II
Para. 10-2*

ARR82-6285

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. 10-1.



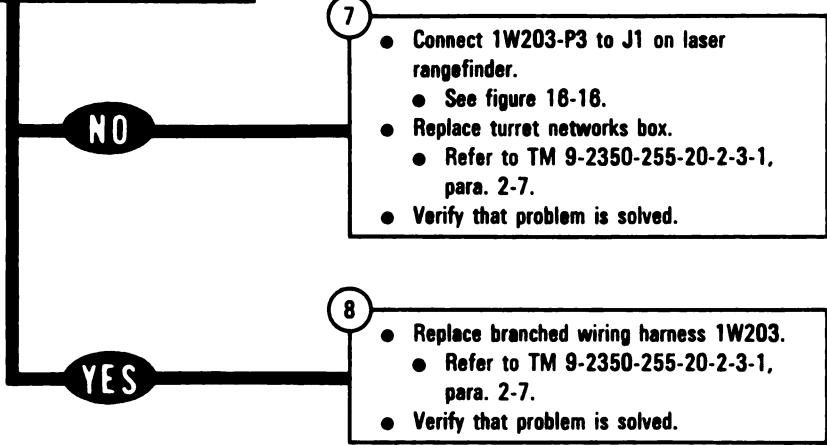
● Connect red test probe (4) to test point 104 on breakout box (5).

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

● Test for 0 to 5 ohms by connecting black test probe (6) to each test point on breakout box (5) listed below:

- 7 through 38
- 89 through 103
- 105 through 111

Does VTM display show between 0 and 5?



7

- Connect 1W203-P3 to J1 on laser rangefinder.
- See figure 18-16.
- 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 1W203.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
- Verify that problem is solved.

Figure 10-23 (Sheet 2 of 2)
 Volume II
 Para. 10-2

**DISPLAY SHOWS -
 FAULTY AUTO SELF -
 TEST CKT**

121007

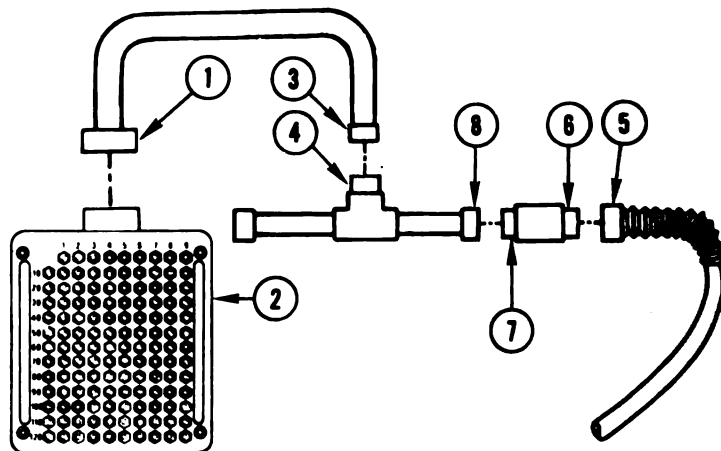
Additional Test

Equipment/Special Tools:

- Breakout Box Tool Kit, 12311066

Equipment Condition:

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

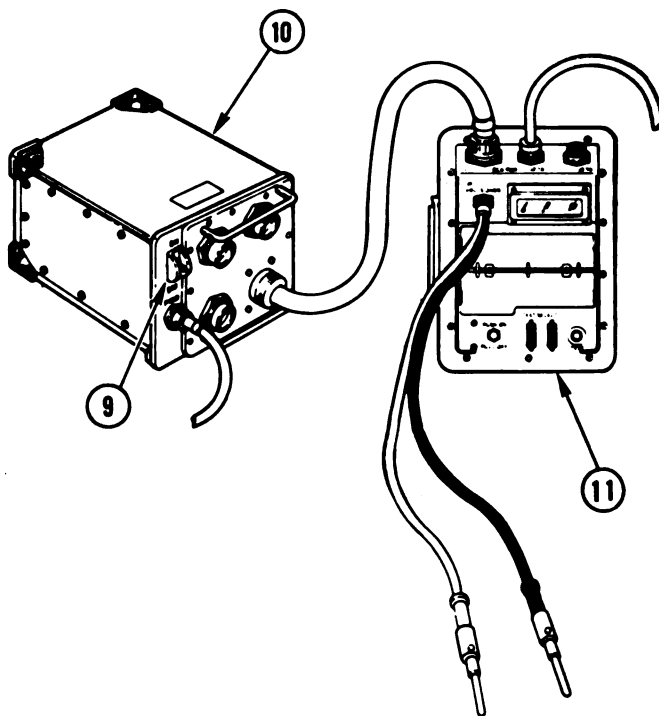


1

- Disconnect CX208-P2 from CIB-J2.
 - See figure 10-2.
- Disconnect CX305-P1 from CA208-P2.
 - See figure 10-3.
- Disconnect CX305-P2 from CIB J1.
 - See figure 10-2.
- Connect CX305-P2 (1) to breakout box (2).

2

- Connect CX305-P1 (3) to CX307-P3 (4).
- Disconnect 1W209-P1 from J2 on thermal electronics unit.
 - See figure 18-14.
- Connect 1W209-P1 (5) to CA518-P1 (8).
- Connect CA518-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 to measure resistance between 0 and 1500 ohms.
 - Refer to para. 10-1.

Figure 10-24 (Sheet 1 of 8)
 Volume II
 Para. 10-2

ARR82-6287

NOTE

If VTM display does not show 0 to 5, leave test probes connected for blocks 5 and 9.

Test for continuity between test points 7 and 33 on breakout box.

- Connect red test probe (1) to test point 7 on breakout box (2).
- Connect black test probe (3) to test point 33 on breakout box (2).

Does VTM display show between 0 and 5?

NO

YES

- Disconnect 1W208-P2 from J1 on image control unit.
 - See figure 18-18.
- Disconnect 1W209-P3 from J2 on image control unit.
 - See figure 18-18.
- Connect jumper (4) between contacts PP on 1W208-P2 (5) and a on 1W209-P3 (6).
- Test for continuity.*

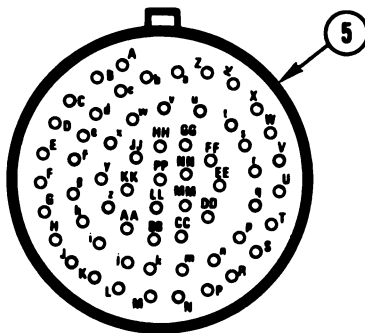
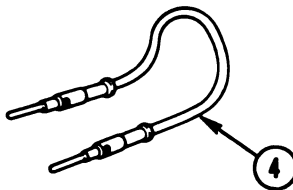
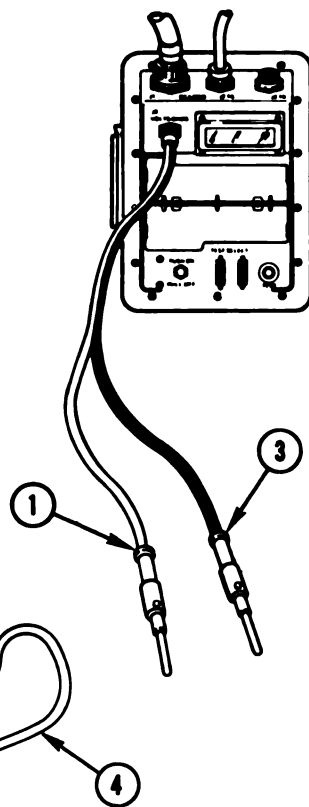
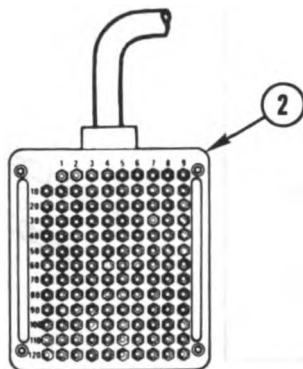
Does VTM display show between 0 and 5?

NO

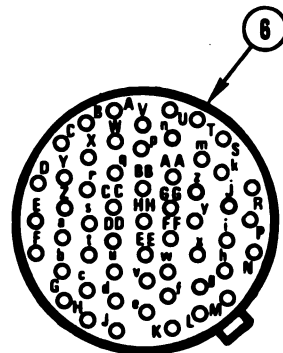
YES

8 Go to block 29.

- 7
- Connect 1W209-P1 to J2 on thermal electronics unit.
 - See figure 18-14.
 - Replace image control unit.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-24.
 - Verify that problem is solved.



1W208-P2

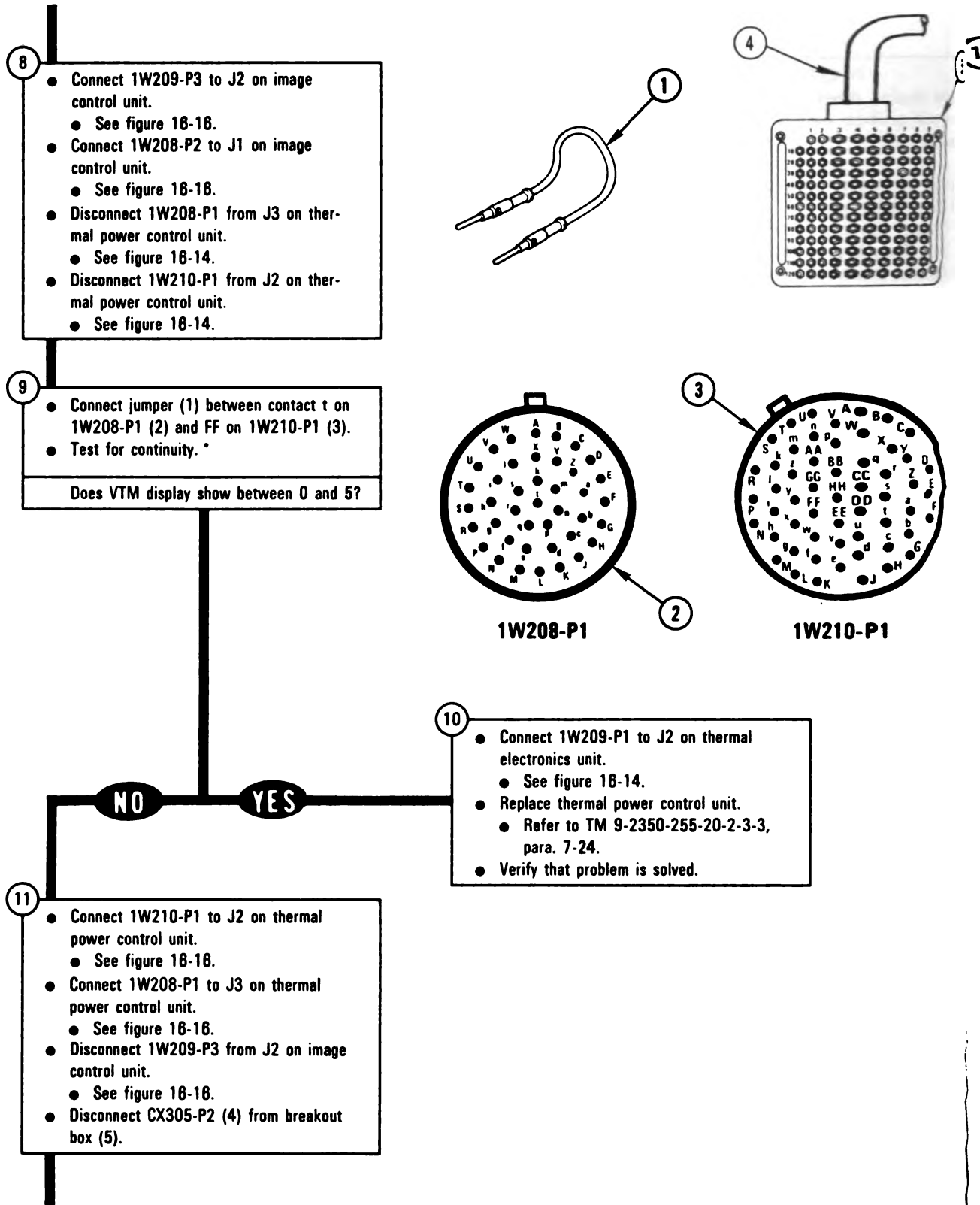


1W209-P3

* Between contacts found in block 4.

Figure 10-24 (Sheet 2 of 8)
Volume II
Para. 10-2

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**



* Between contacts found in block 4

Figure 10-24 (Sheet 3 of 8)
Volume II
Para. 10-2

ARR82-6289

- Prepare STE to run cable test 1390.
 - Set TEST SELECT switches (1, 2) on VTM (3) to 00.
 - Press TEST button (4) on VTM (3).
 - Press STOP key (5) on SETCOM (8).
 - Press CLEAR key (7).
 - Enter test number 1390 on SETCOM (8).
- Run test on 1W209 between P1 and P3.
 - See figure 15-5.

Does VTM display show GOOD?

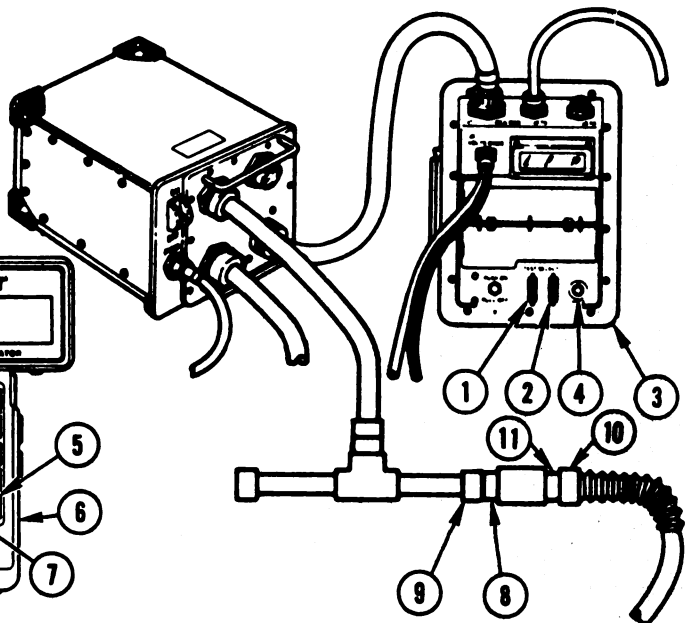
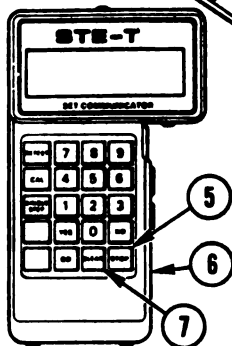
YES

NO

13

- Replace branched wiring harness 1W209.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

- Disconnect CA513-P2 (8) from CX307-P1 (9).
- Disconnect 1W209-P3 (10) from CA513-P1 (11).
- Connect 1W209-P3 to J2 on image control unit.
 - See figure 16-16.
- Disconnect 1W209-P2 from J2 on thermal receiver unit.
 - See figure 16-16.



- 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 1W209 between P1 and P2.
 - See figure 15-5.

Does SETCOM display show GOOD?

YES

NO

16

- Replace branched wiring harness 1W209.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

Figure 10-24 (Sheet 4 of 8)
Volume II
Para. 10-2

ARR82-6290

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

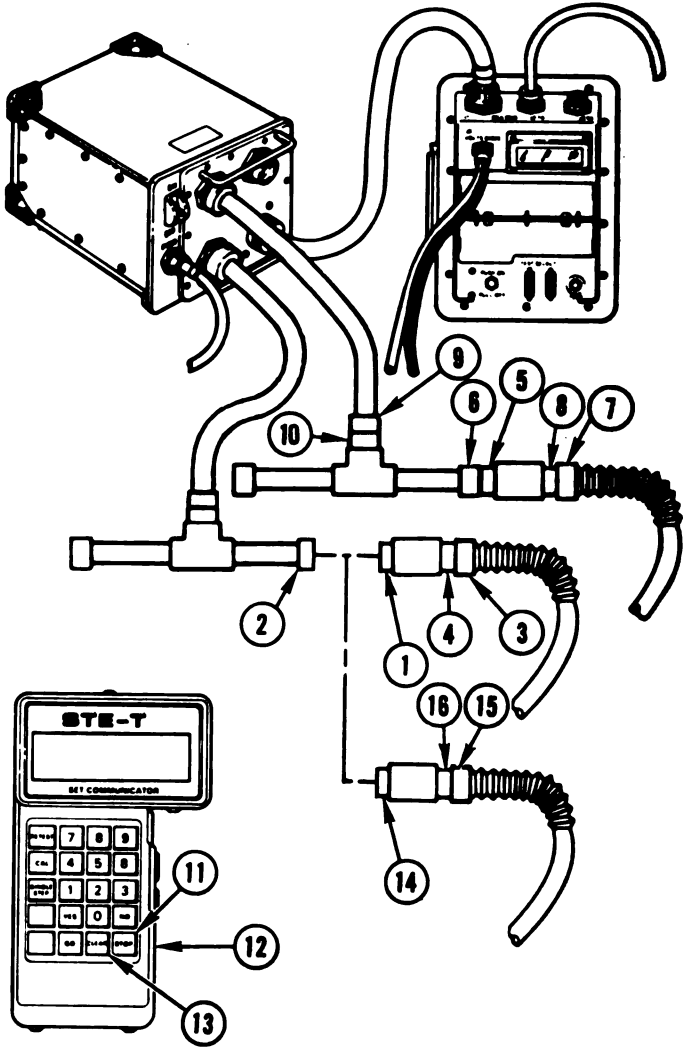
- 17
- Disconnect CA518-P2 (1) from CX307-P1 (2).
 - Disconnect 1W209-P1 (3) from CA518-P1 (4).
 - Disconnect CA515-P2 (5) from CX307-P1 (8).
 - Disconnect 1W209-P2 (7) from CA515-P1 (8).
 - Disconnect CX304-P1 (9) from CX307-P3 (10).

- 18
- Connect 1W209-P1 to J2 on thermal electronics unit.
 - See figure 16-14.
 - Connect 1W209-P2 to J2 on thermal receiver unit.
 - See figure 16-16.
 - Disconnect 1W210-P3 from J4 on thermal receiver unit.
 - See figure 16-16.
 - Disconnect 1W210-P1 from J2 on thermal power control unit.
 - See figure 16-14.

- 19
- Prepare STE to run cable test 1390.
 - Press STOP key (11) on SETCOM (12).
 - Press CLEAR key (13).
 - Enter test number 1390 on SETCOM (12).
 - Run test on 1W210 between P1 and P3.
 - See figure 15-5.
- Does VTM display show GOOD?

YES **NO**

- 21
- Disconnect CA526-P2 (14) from CX307-P1 (2).
 - Disconnect 1W210-P1 (15) from CA526-P1 (16).
 - Disconnect 1W210-P2 from J1 on thermal receiver unit.
 - See figure 16-16.



- 20
- Replace branched wiring harness 1W210.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

Figure 10-24 (Sheet 5 of 8)
Volume II
Para. 10-2

ARR82-6291

22

- 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 1W210 between P2 and P3.
 - See figure 15-5.

Does SETCOM display show GOOD?

YES

NO

23

- Replace branched wiring harness 1W210.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

24

- Disconnect CA533-P2 (4) from CA307-P1 (5).
- Disconnect 1W210-P2 (6) from CA533-P1 (7).
- Disconnect CX304-P1 (8) from CX308-P3 (9).
- Disconnect 1W210-P3 (10) from CA553-P1 (11).
- Connect 1W210-P1 to J2 on thermal power control unit.
 - See figure 16-14.

25

- Connect 1W210-P2 to J1 on thermal receiver unit.
 - See figure 16-16.
- Connect 1W210-P3 to J4 on thermal receiver unit.
 - See figure 16-16.
- Disconnect 1W208-P1 from J3 on thermal power control unit.
 - See figure 16-14.
- Disconnect 1W208-P2 from J1 on image control unit.
 - See figure 16-16.

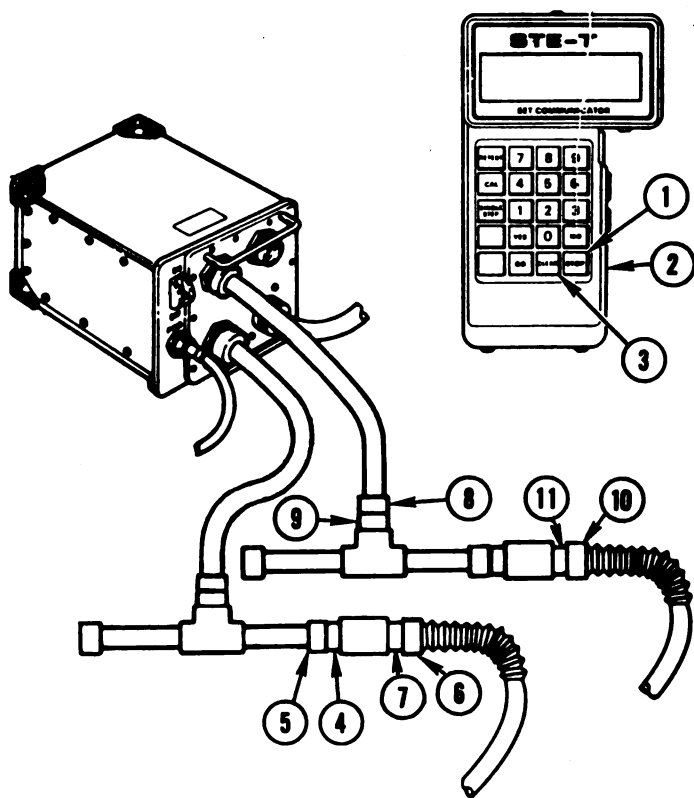
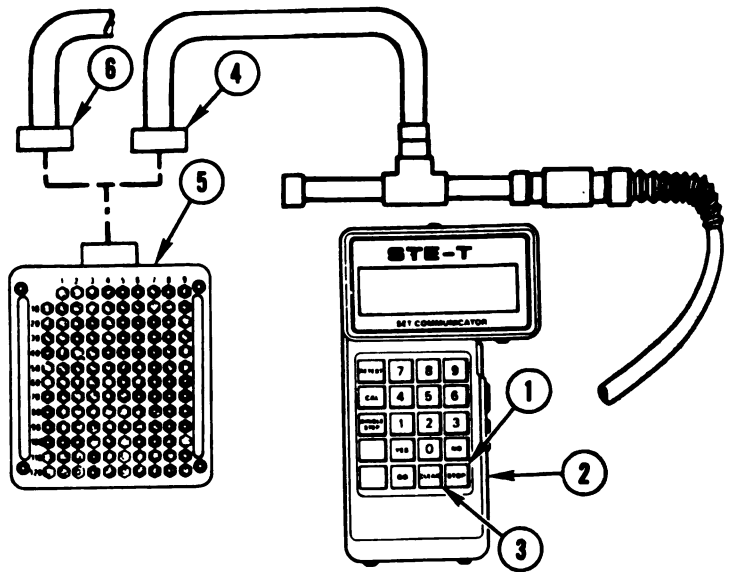
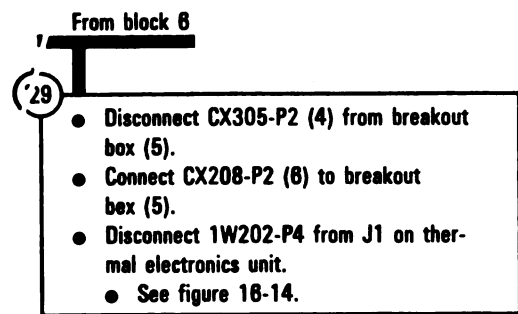
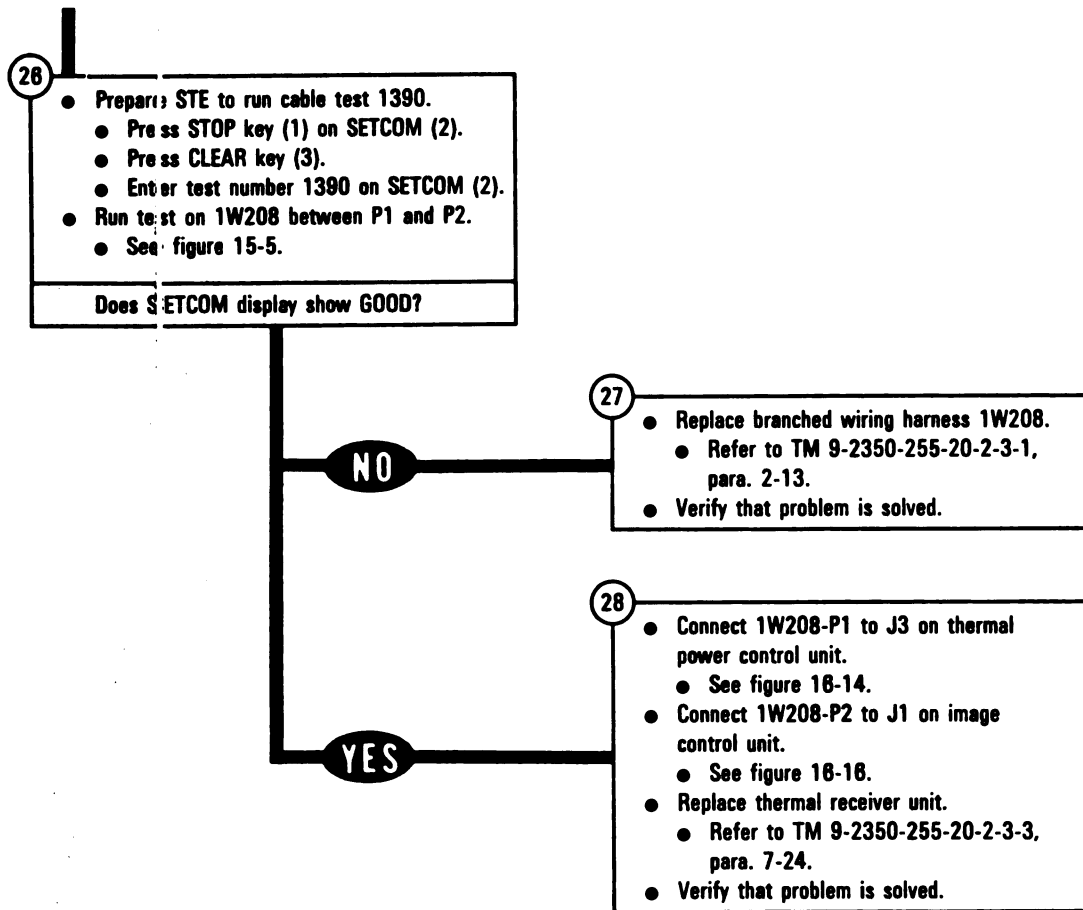


Figure 10-24 (Sheet 6 of 8)
 Volume II
 Para. 10-2

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**



**Figure 10-24 (Sheet 7 of 8)
Volume II
Para. 10-2**

ARR82-6293

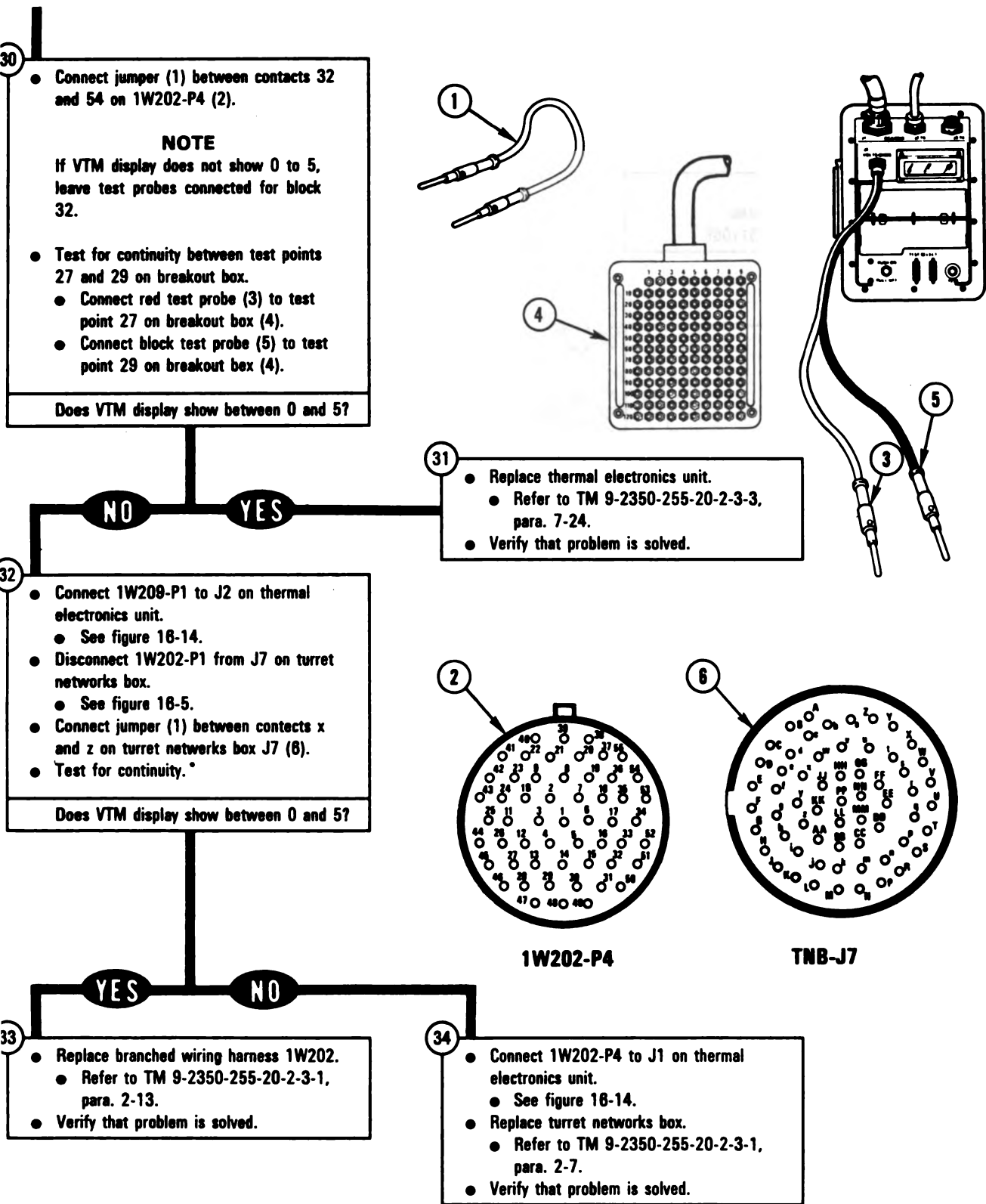


Figure 10-24 (Sheet 8 of 8)
Volume II
Para. 10-2

ARR82-6294

DISPLAY SHOWS -
FAULTY AUTO SELF -
TEST CKT

121009

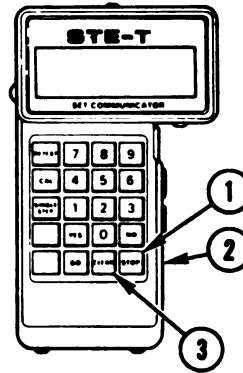
Additional Test

Equipment/Special Tools:

- Breakout Box Tool Kit, 12311068

Equipment Condition:

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



1

- Disconnect CX208-P2 from CIB-J2.
 - See figure 10-2.
- Disconnect CX305-P1 from CA208-P2.
 - See figure 10-3.
- Disconnect 1W204-P1 from J3 on computer electronics unit.
 - See figure 16-8.
- Disconnect 1W204-P3 from J1 on cant unit.
 - See figure 16-8.

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 1W204 between P1 and P3.
 - See figure 15-5.

Does SETCOM display show GOOD?

Figure 10-25 (Sheet 1 of 4)
Volume II
Para. 10-2

ARR82-6295

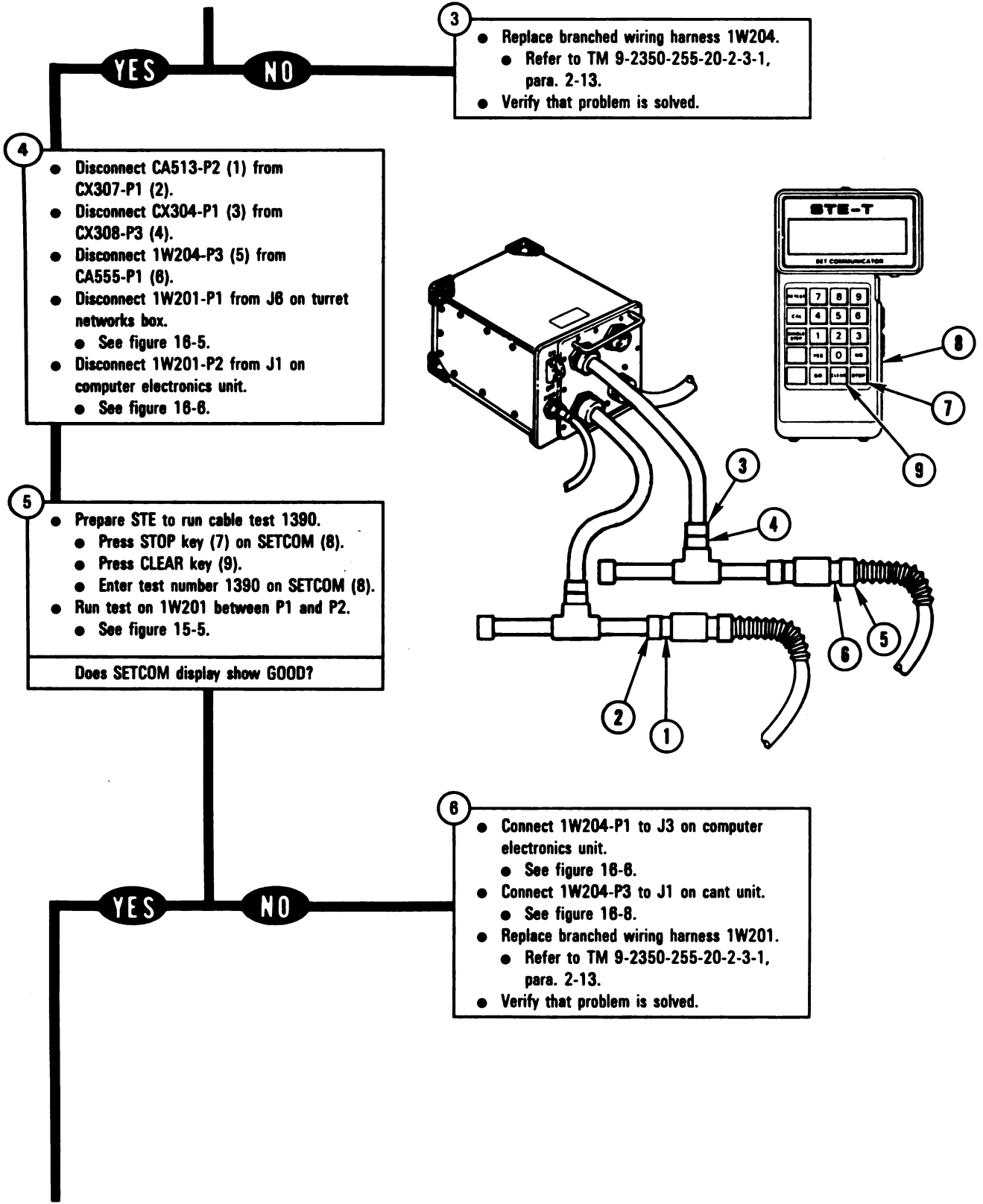


Figure 10-25 (Sheet 2 of 4)
Volume II
Para. 10-2

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

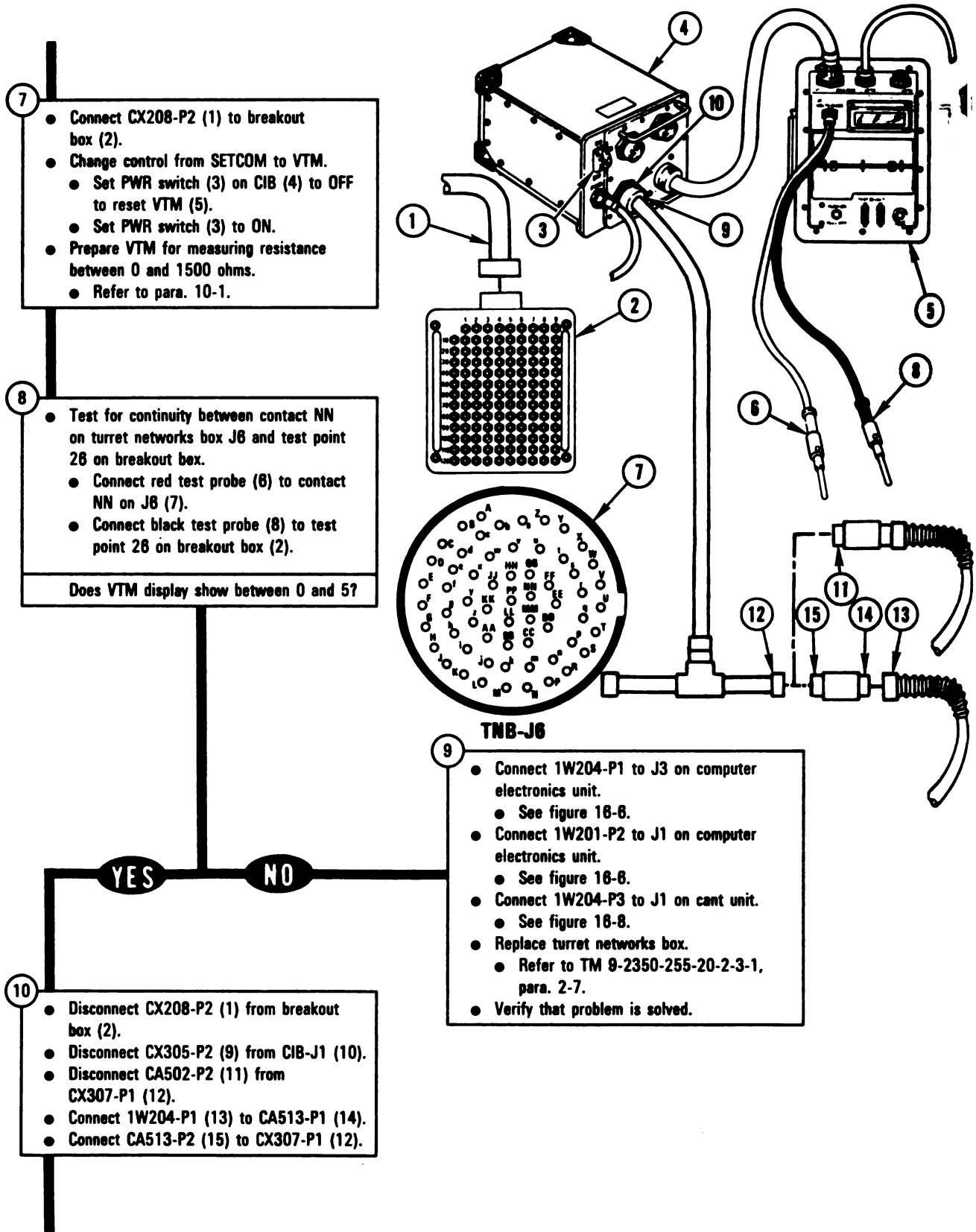
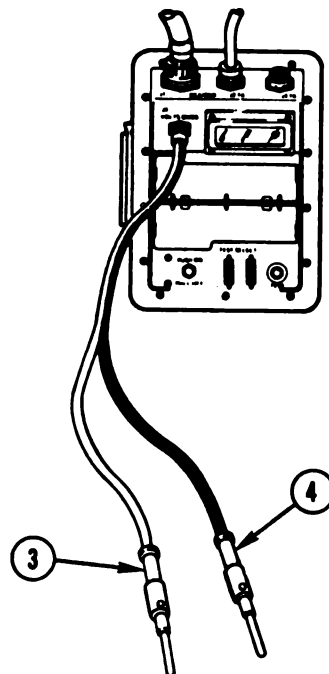
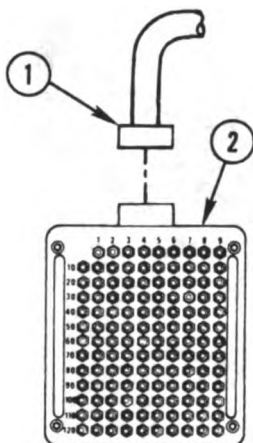


Figure 10-25 (Sheet 3 of 4)
Volume II
Para. 10-2

ARR82-6297

- 1
- Connect CX305-P2 (1) to breakout box (2).
 - Connect 1W204-P3 to J1 on cant unit.
 - See figure 16-8.
 - Test for continuity between test points 24 and 30 on breakout box.
 - Connect red test probe (3) to test point 24 on breakout box (2).
 - Connect black test probe (4) to test point 30 on breakout box (2).

Does VTM display show between 0 and 5?



NO

- 12
- Connect 1W201-P2 to J1 on computer electronics unit.
 - See figure 16-6.
 - Connect 1W204-P1 to J3 on computer electronics unit.
 - See figure 16-6.
 - Connect 1W201-P1 to J6 on turret networks box.
 - See figure 16-5.
 - Replace cant unit assembly.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-18.
 - Verify that problem is solved.

YES

- 13
- Connect 1W201-P1 to J6 on turret networks box.
 - See figure 16-5.
 - Replace computer electronics unit.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-14.
 - Verify that problem is solved.

Figure 10-25 (Sheet 4 of 4)
Volume II
Para. 10-2

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS -
FAULTY AUTO SELF -
TEST CKT**

121010

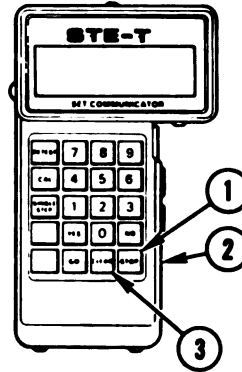
**Additional Test
Equipment/Special Tools:**

- Breakout Box Tool Kit, 12311066

Equipment Condition:

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

- 1
- Disconnect CX208-P2 from CIB-J2.
 - See figure 10-2.
 - Disconnect CX305-P1 from CA208-P2.
 - See figure 10-3.
 - Disconnect 1W201-P1 from J6 on turret networks box.
 - See figure 16-5.
 - Disconnect 1W201-P2 from J1 on computer electronics unit.
 - See figure 16-6.



- 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.
 - See figure 15-5.
- Does SETCOM display show GOOD?

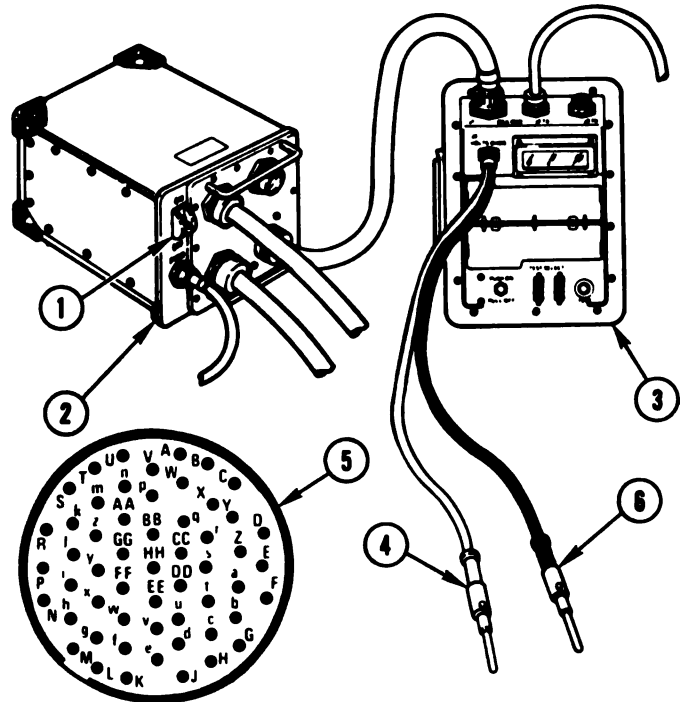
YES **NO**

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

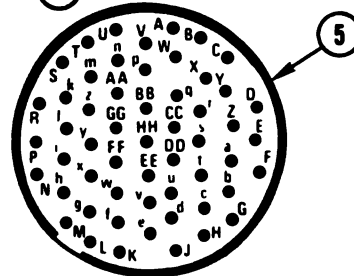
*Figure 10-26 (Sheet 1 of 4)
Volume II
Para. 10-2*

ARR82-6299

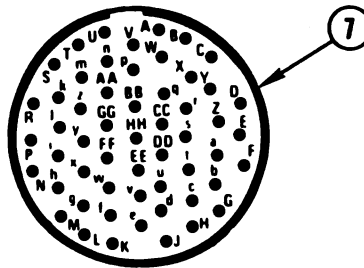
- 4
- Disconnect 1W204-P1 from J3 on computer electronics unit.
 - See figure 18-6.
 - Change control from SETCOM to VTM.
 - Set PWR switch (1) on CIB (2) to OFF to reset VTM (3).
 - Set PWR switch (1) to ON.
 - Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 10-1.



- 5
- Test for continuity between contact j on J3 and contact EE on J1 on computer electronics unit.
 - Connect red test probe (4) to contact j on J3 (5).
 - Connect black test probe (8) to contact EE on J1 (7).



CEU-J3



CEU-J1

Does VTM display show between 0 and 5?

YES

NO

- 6
- Connect 1W201-P1 to J6 on turret networks box.
 - See figure 18-5.
 - Replace computer electronics unit.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-14.
 - Verify that problem is solved.

Figure 10-26 (Sheet 2 of 4)
Volume II
Para. 10-2

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

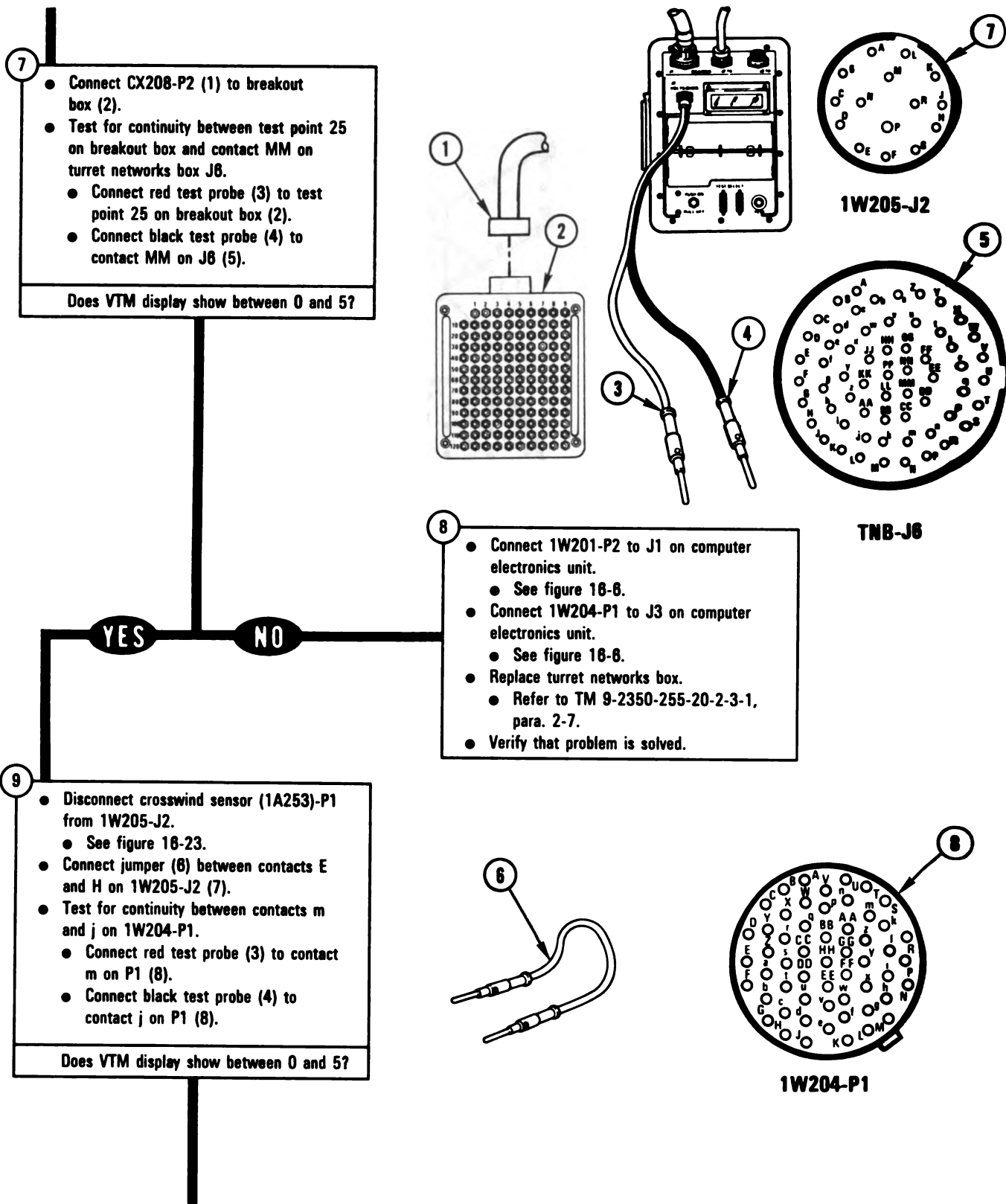


Figure 10-26 (Sheet 3 of 4)
Volume II
Para. 10-2

ARR82-6301

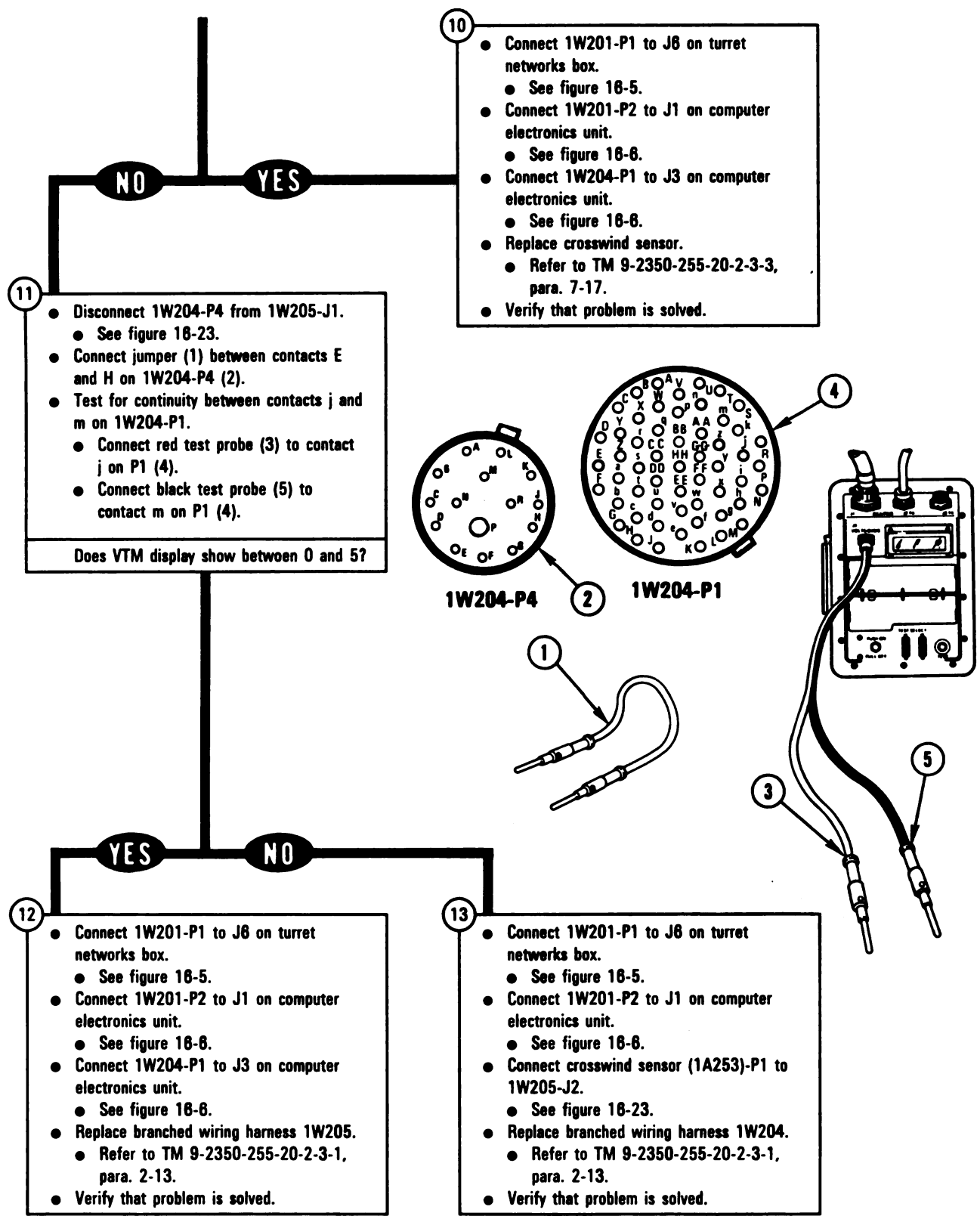


Figure 10-26 (Sheet 4 of 4)
Volume II
Para. 10-2

ARR82-6302

DISPLAY SHOWS -
FAULTY AUTO SELF -
TEST CKT

121011

**Additional Test
Equipment/Special Tools:**

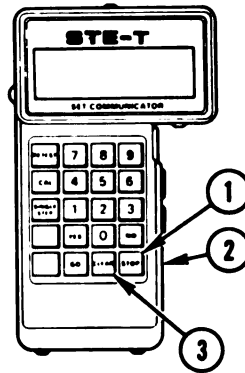
- Breakout Box Tool Kit, 12311088

Equipment Condition:

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

1

- Disconnect CX208-P2 from CIB-J2.
 - See figure 10-2.
- Disconnect CX305-P1 from CA206-P2.
 - See figure 10-3.
- Disconnect 1W203-P1 from J3 on turret networks box.
 - See figure 16-5.
- Disconnect 1W203-P3 from J1 on laser rangefinder.
 - See figure 16-16.



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 1W203 between P1 and P3.
 - See 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 10-27 (Sheet 1 of 3)
Volume II
Para. 10-2

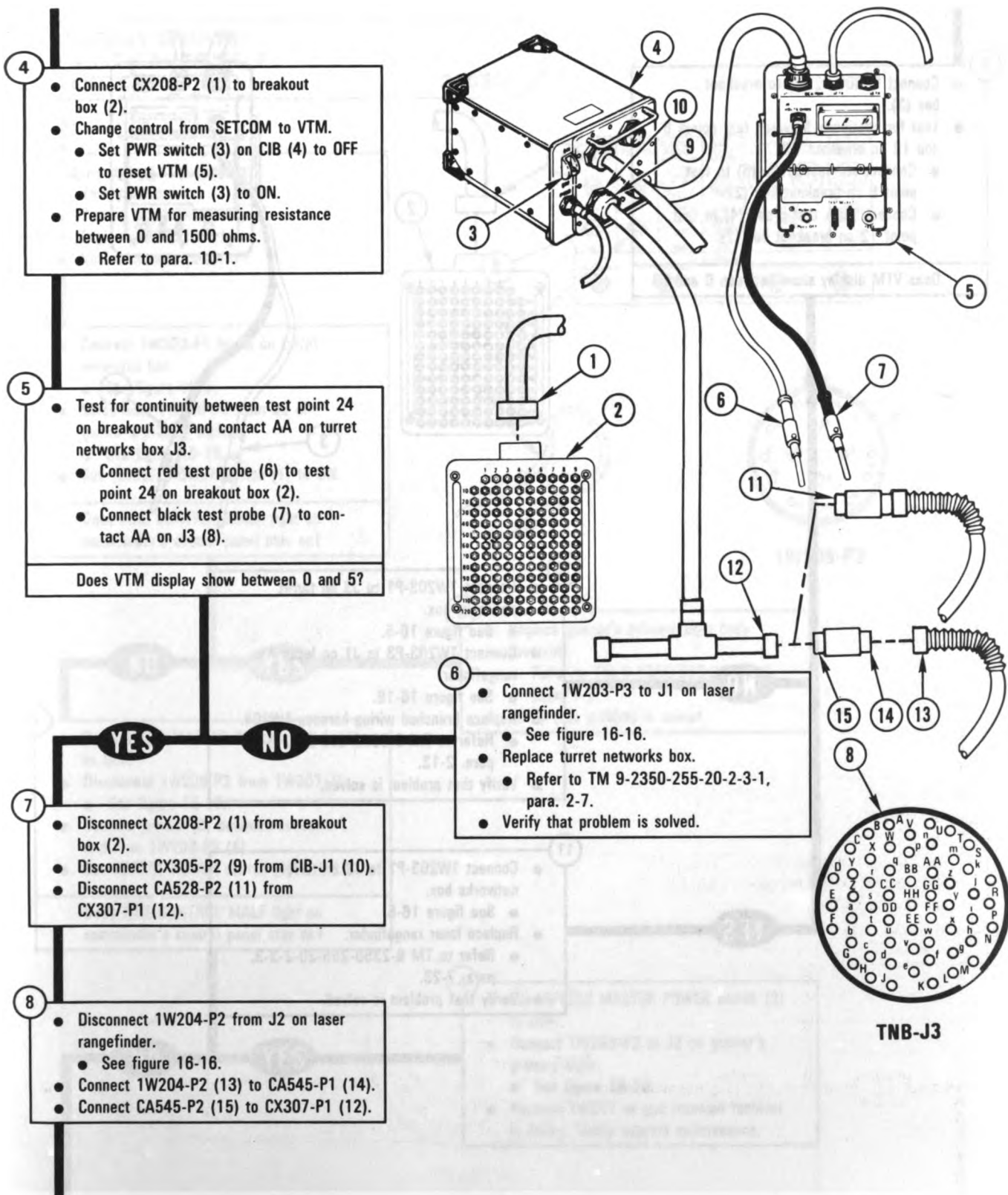


Figure 10-27 (Sheet 2 of 3)
Volume II
Para. 10-2

ARR82-6304

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

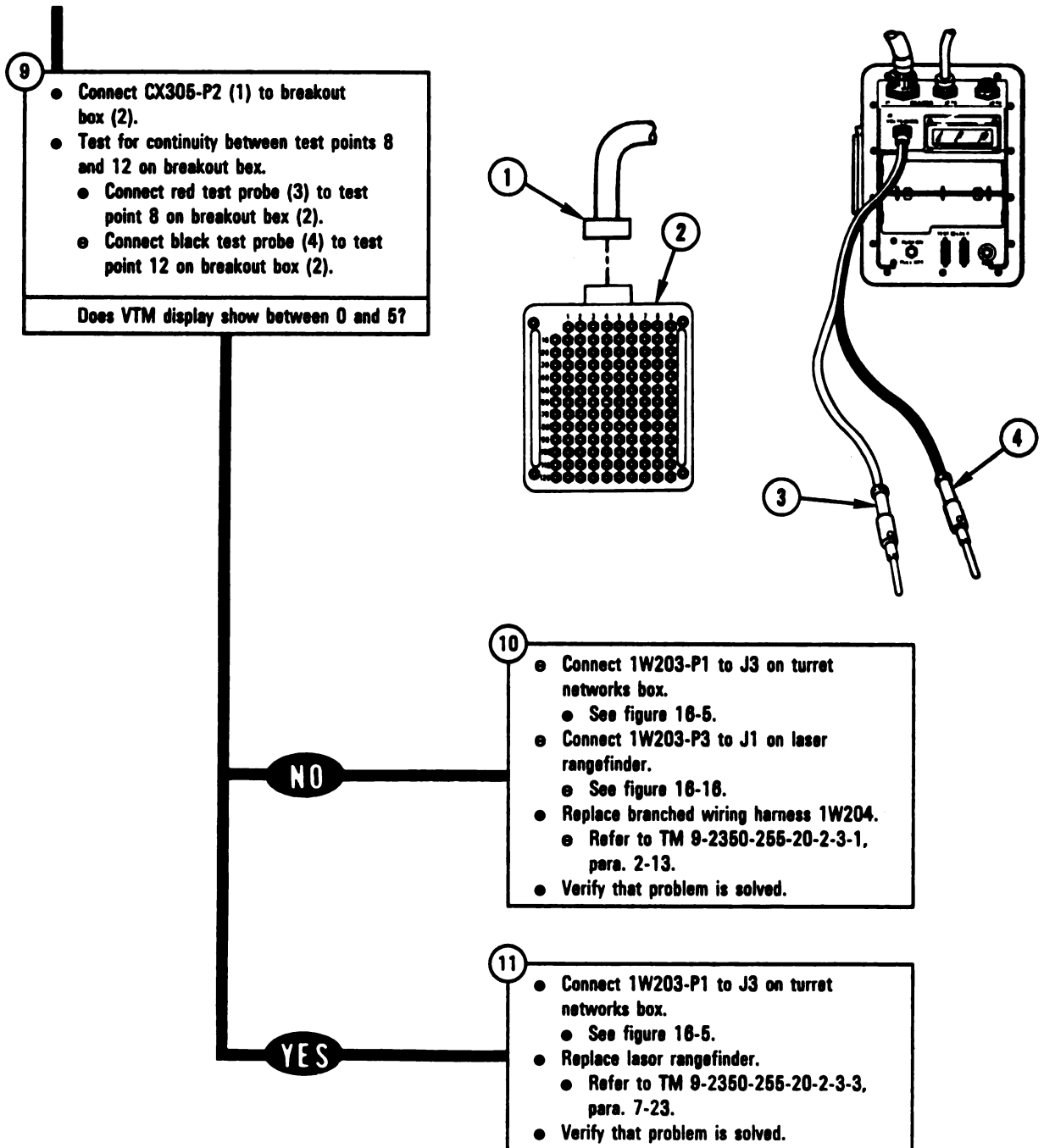


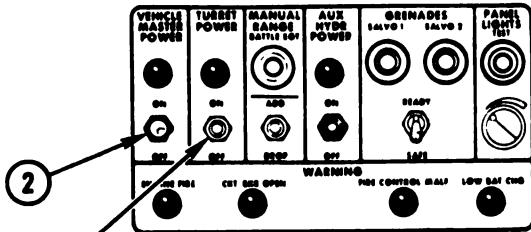
Figure 10-27 (Sheet 3 of 3)
Volume II
Para. 10-2

ARR82-6305

DISPLAY SHOWS - FAULTY AUTO SELF - TEST CKT 121030

Equipment Condition:

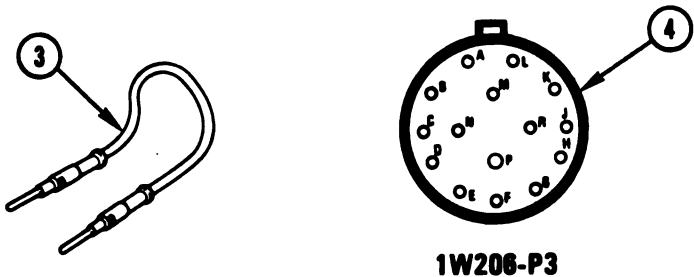
- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.



1

- Connect 1W203-P1 to J3 on turret networks box.
- See figure 16-5.
- Disconnect 1W206-P2 from J2 on gunner's primary sight.
- See figure 16-16.
- Set TURRET POWER switch (1) to ON.

Does FIRE CONTROL MALF light on commander's control panel stay on?



1W206-P3

NO **YES**

2

- 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.

3

- Set VEHICLE MASTER POWER switch (2) to OFF.
- Disconnect 1W206-P3 from 1W207-J1.
- See figure 16-10.
- Connect jumper (3) between contacts E and F on 1W206-P3 (4).
- Set TURRET POWER switch (1) to DN.

Does FIRE CONTROL MALF light on commander's control panel stay on?

NO **YES**

4

- Set VEHICLE MASTER POWER switch (2) to OFF.
- Connect 1W206-P2 to J2 on gunner's primary sight.
- See figure 16-16.
- Harness 1W207 or gun trunnion resolver is faulty. Notify support maintenance.

Figure 10-28 (Sheet 1 of 3)
Volume II
Para. 10-2

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

5

- Set VEHICLE MASTER POWER switch (1) to OFF.
- Connect 1W206-P3 to 1W207-J1.
 - See figure 16-10.
- Disconnect 1W206-P1 from J2 on line-of-sight electronics unit.
 - See figure 16-14.
- Set TURRET POWER switch (2) to ON.

Does FIRE CONTROL MALF light on commander's control panel stay on?

NO **YES**

7

- Set VEHICLE MASTER POWER switch (1) to OFF.
- Disconnect 1W202-P3 from J1 on line-of-sight electronics unit.
 - See figure 16-14.
- Disconnect 1W202-P1 from J7 on turret networks box.
 - See figure 16-5.
- 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. 10-1.

8

- Test for 0 to 5 ohms between contacts F and s on 1W202-P3.
 - Connect red test probe (6) to contact F on P3 (7).
 - Connect black test probe (8) to contact s on P3 (7).

Does VTM display show between 0 and 5?

6

- Replace branched wiring harness 1W206.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

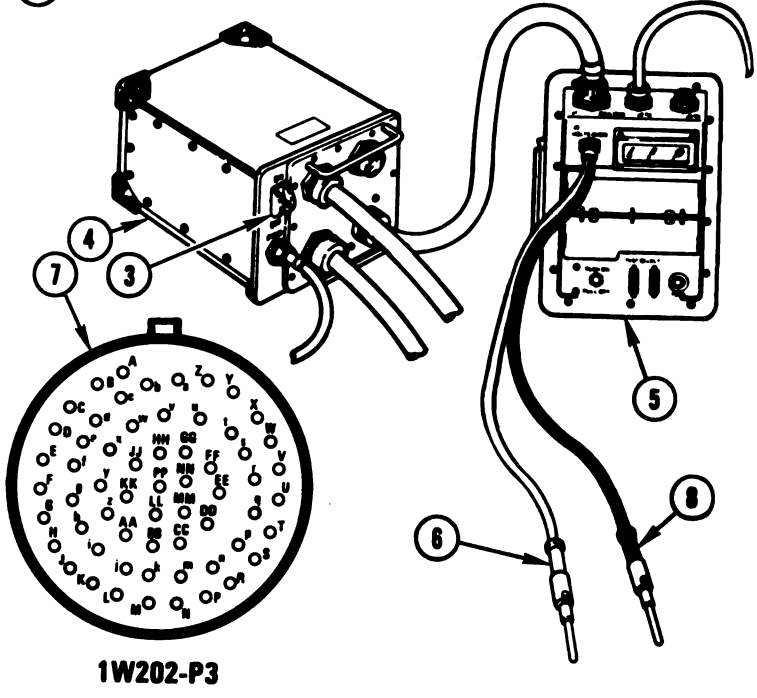
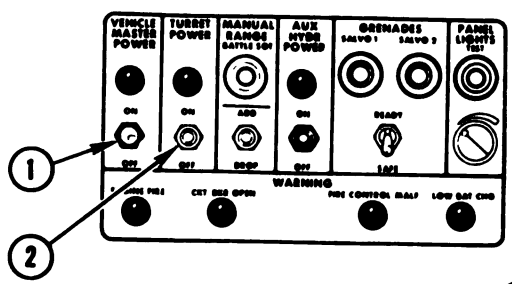


Figure 10-28 (Sheet 2 of 3)
Volume II
Para. 10-2

ARR82-6307

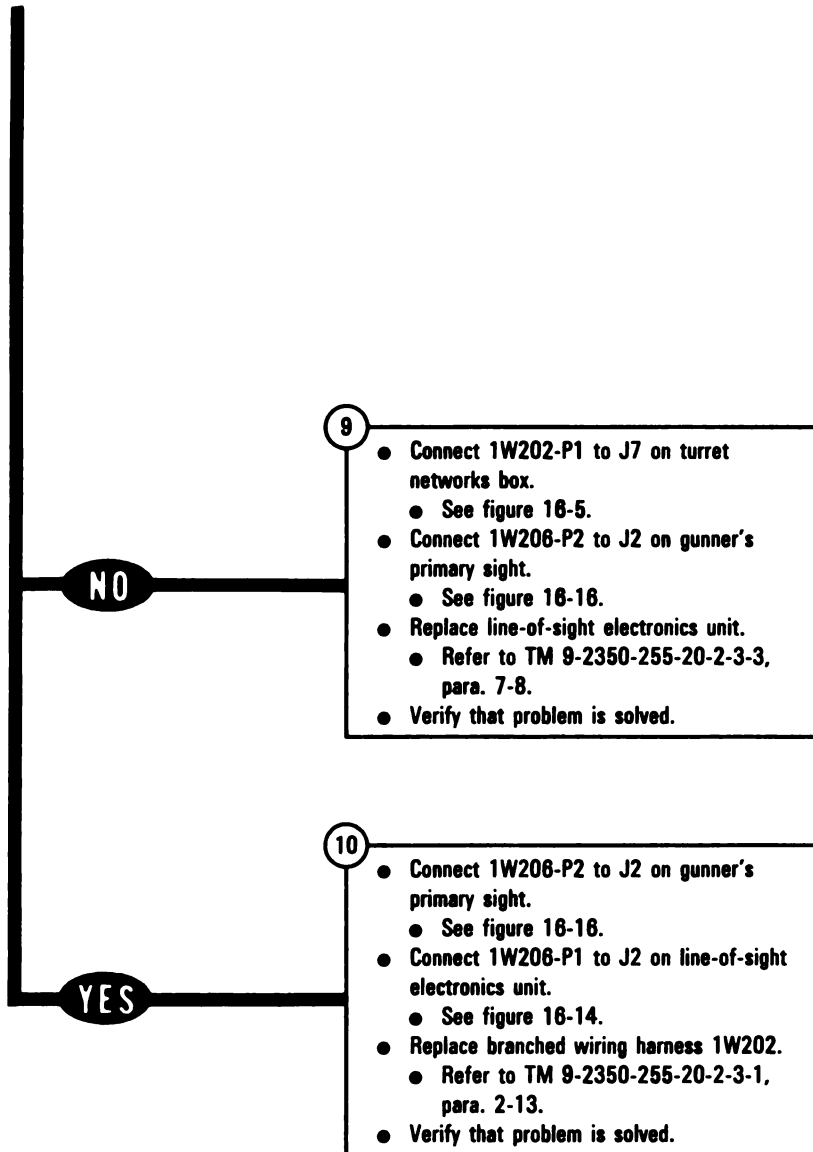


Figure 10-28 (Sheet 3 of 3)
Volume II
Para. 10-2

**DISPLAY SHOWS -
 FAULTY TNB OR
 1W202**

121023

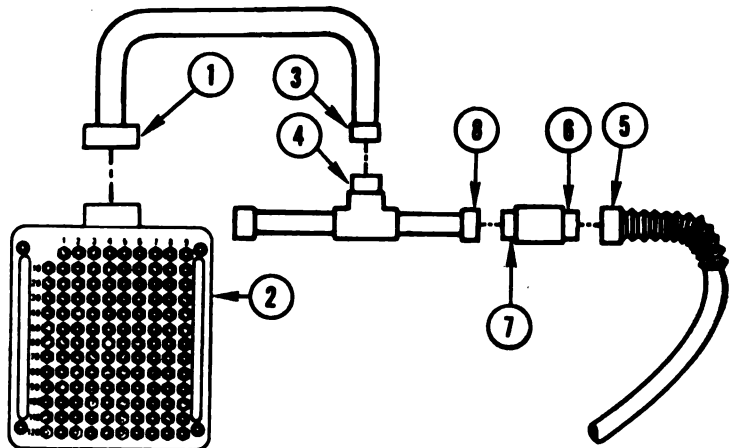
Additional Test

Equipment/Special Tools:

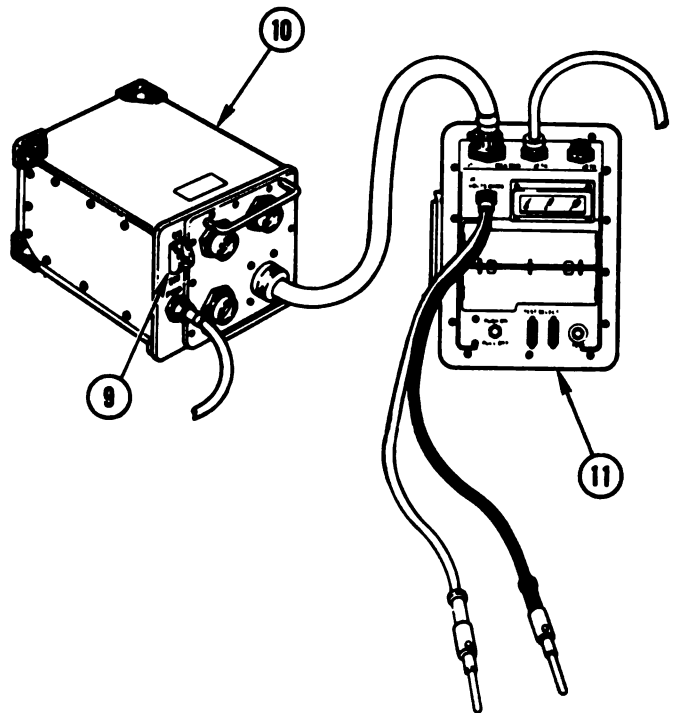
- Breakout Box Tool Kit, 12311066

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 1W202-P1 from J7 on turret networks box.
 - See figure 16-5.
 - Connect 1W202-P1 (5) to CA506-P1 (6).
 - Connect CA506-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. 10-1.

Figure 10-29 (Sheet 1 of 2)
 Volume II
 Para. 10-2

ARR82-6308

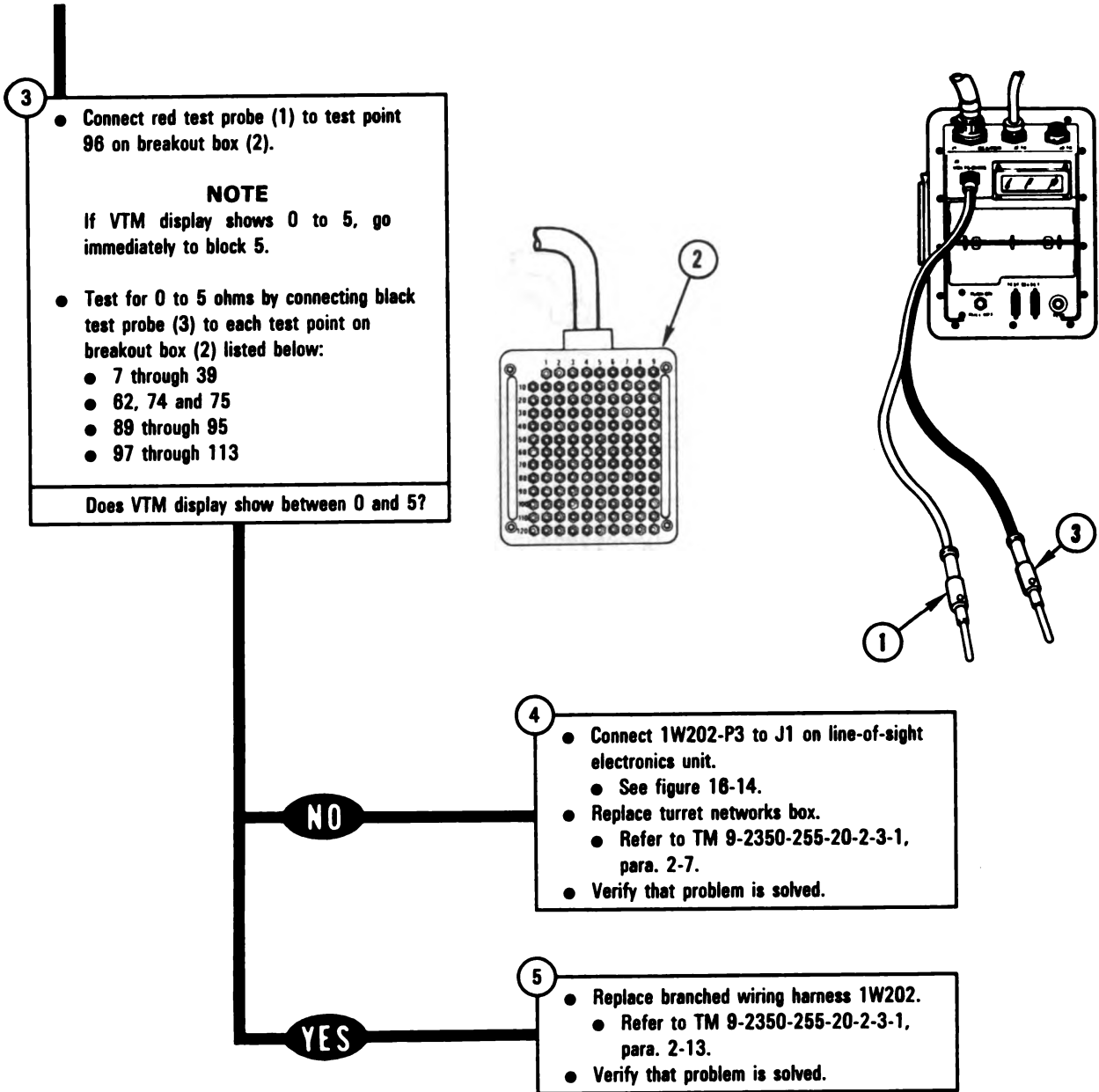


Figure 10-29 (Sheet 2 of 2)
Volume II
Para. 10-2

**DISPLAY SHOWS -
FAULTY TNB, TEU, OR
1W202**

121056

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 CX208-P2 from CIB-J2.
 - See figure 10-2.
 - Connect CX208-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 dc voltage.
 - Refer to para. 10-1.

- 3
- Set TURRET POWER switch (8) to ON.
 - Test for -0.5 to 0.5 V dc between test points 11 (-) and 29 (+) on breakout box.
 - Connect black test probe (7) to test point 11 on breakout box (2).
 - Connect red test probe (8) to test point 29 on breakout box (2).

Does VTM display show between -0.5 and 0.5?

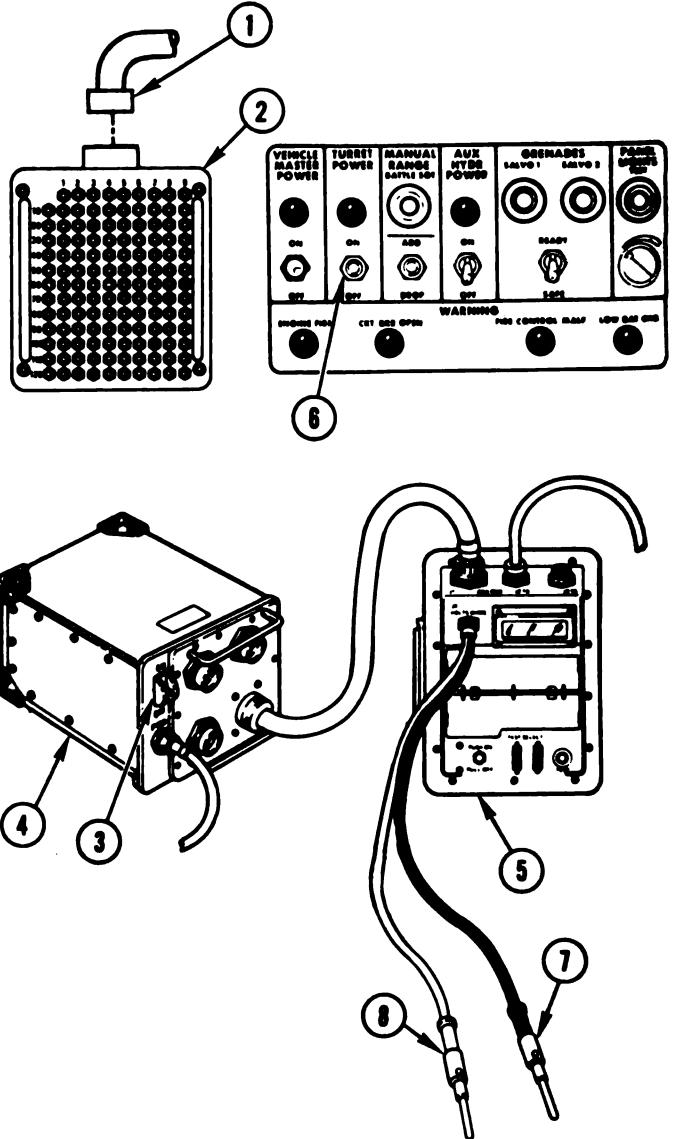


Figure 10-30 (Sheet 1 of 4)
Volume II
Para. 10-2

ARR82-6310

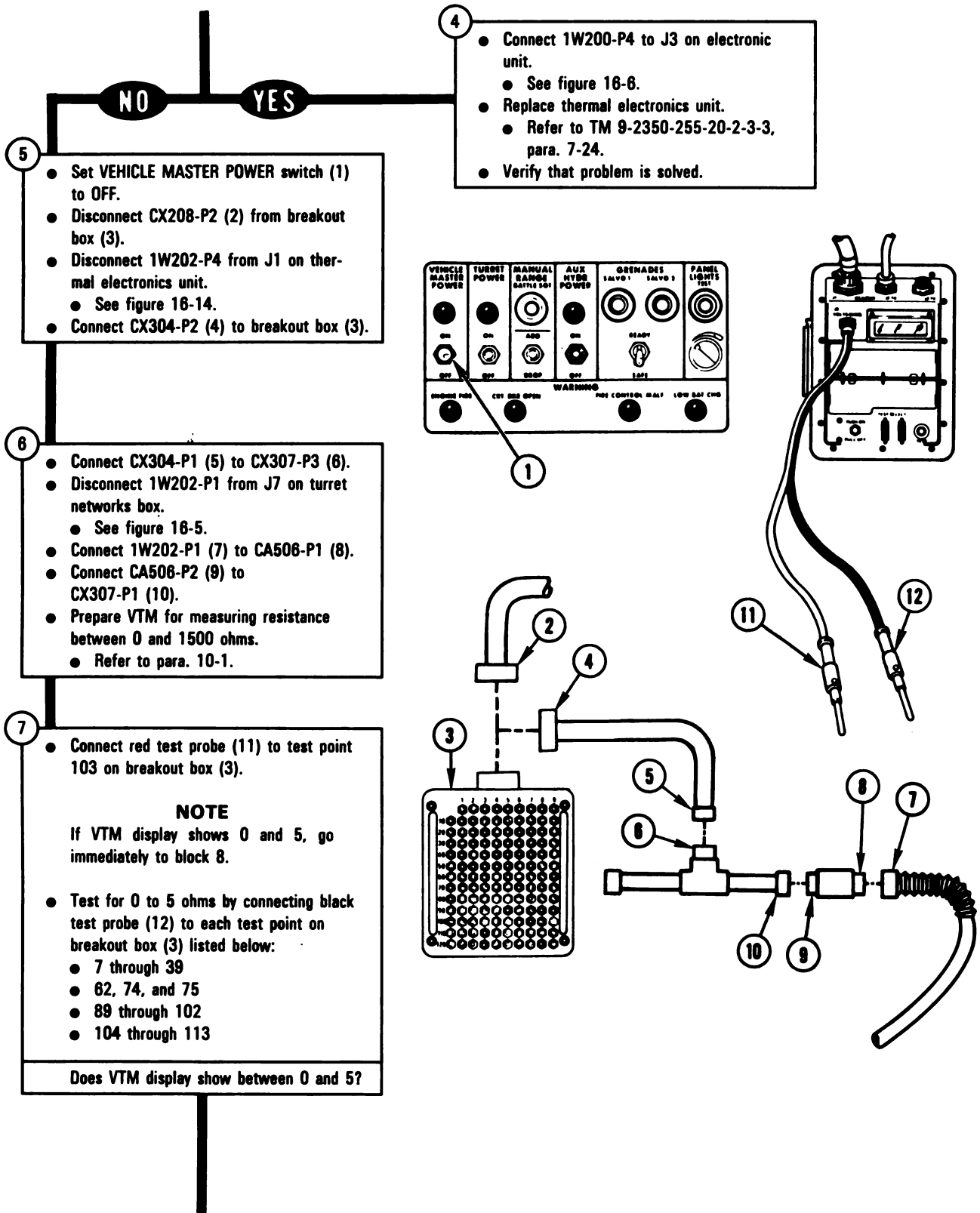
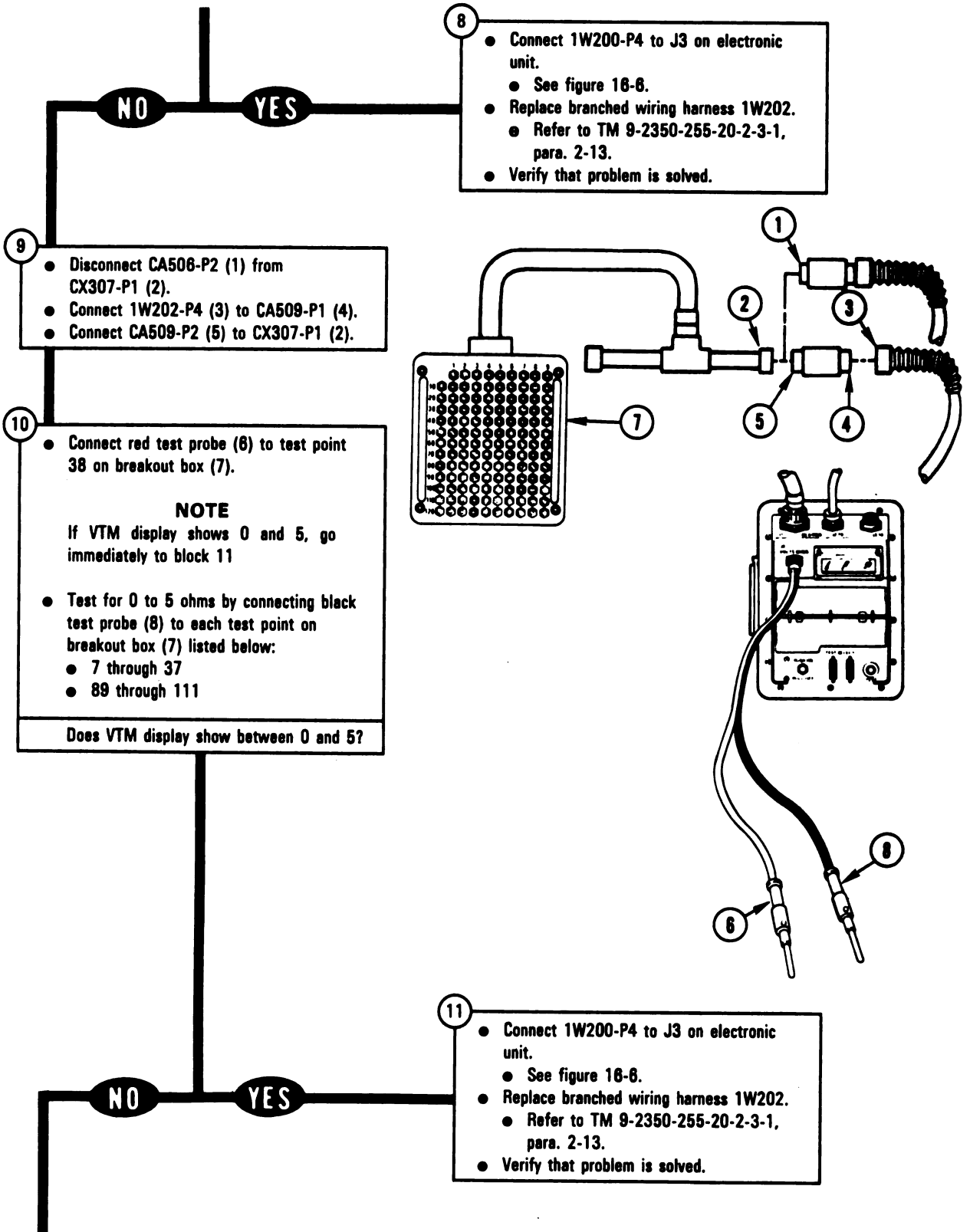


Figure 10-30 (Sheet 2 of 4)
Volume II
Para. 10-2

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**



*Figure 10-30 (Sheet 3 of 4)
Volume II
Para. 10-2*

ARR82-6312

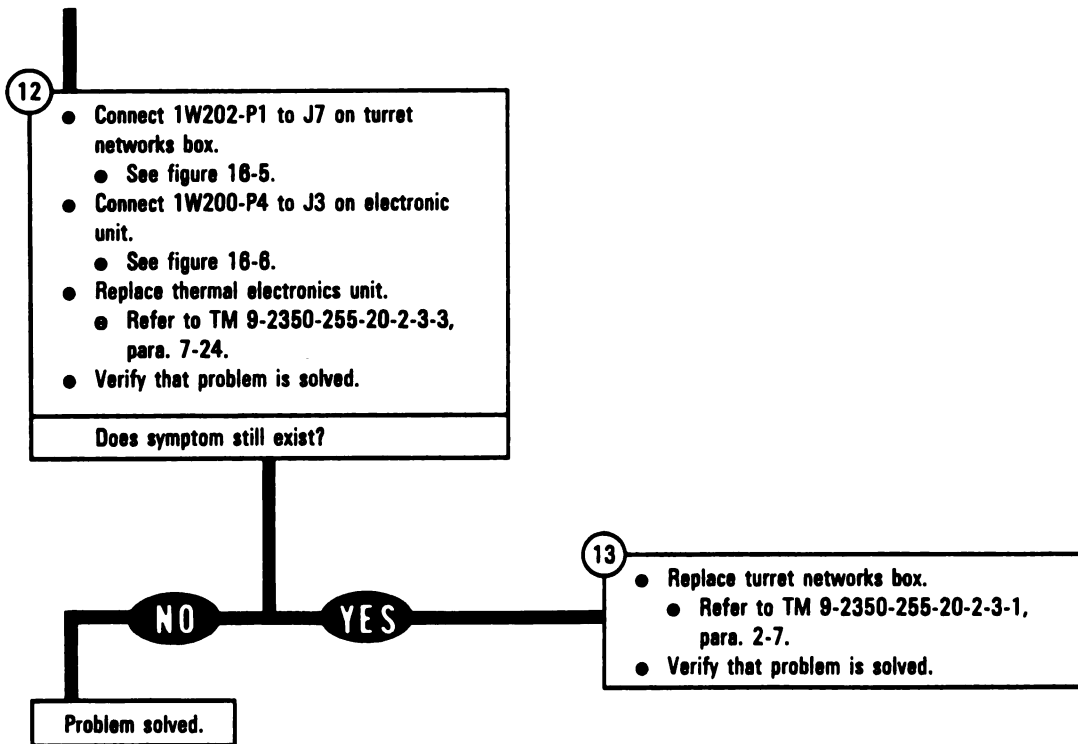


Figure 10-30 (Sheet 4 of 4)
Volume II
Para. 10-2

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

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

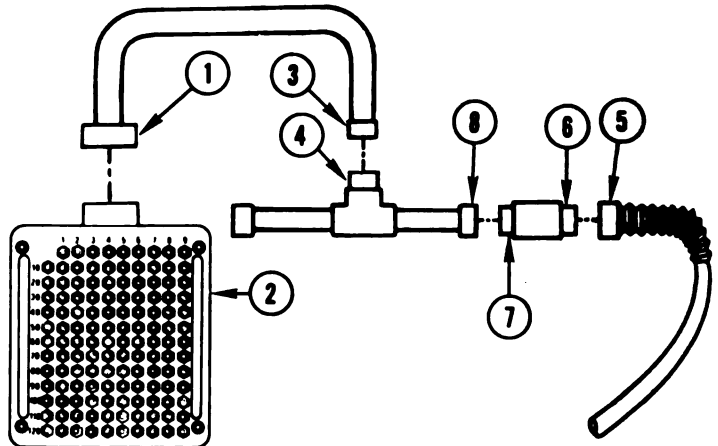
121078

**Additional Test
Equipment/Special Tools:**

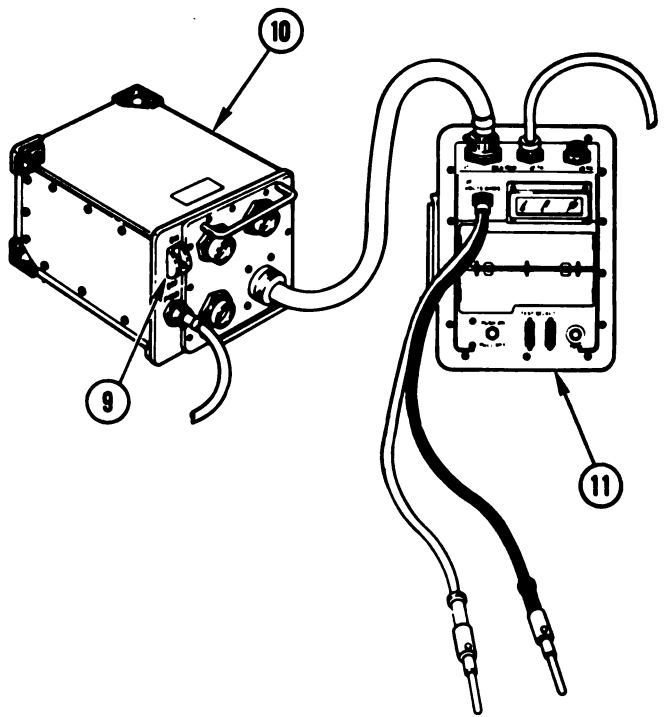
- Breakout Box Tool Kit, 12311066

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 1W201-P1 from J6 on turret networks box.
 - See figure 16-5.
 - Connect 1W201-P1 (5) to CA502-P1 (6).
 - Connect CA502-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. 10-1.

*Figure 10-31 (Sheet 1 of 2)
Volume II
Para. 10-2*

ARR82-6313

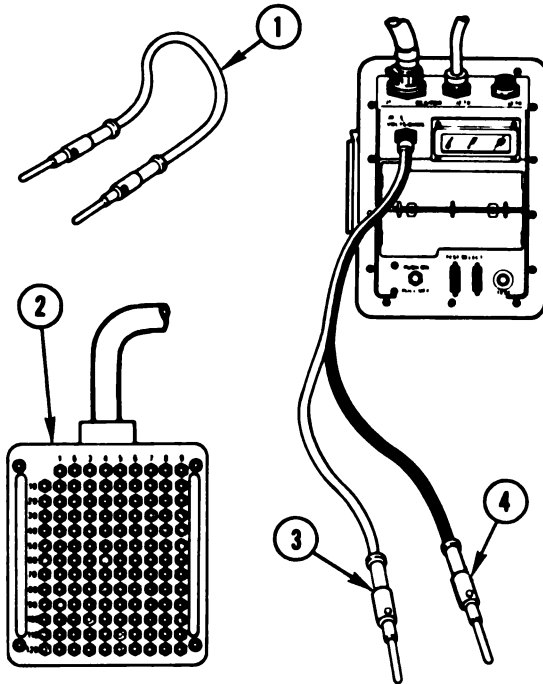
- Connect jumper (1) between test points 20 and 91 on breakout box (2).
- Connect red test probe (3) to test point 112 on breakout box (2).

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 111
 - 113

Does VTM display show between 0 and 5?



NO

- 4
- Connect 1W201-P2 to J1 on computer electronics unit.
 - See figure 16-6.
 - 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 branched wiring harness 1W201.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

Figure 10-31 (Sheet 2 of 2)
 Volume II
 Para. 10-2

**DISPLAY SHOWS -
 FAULTY AUTO SELF-
 TEST CKT**

121048

Additional Test

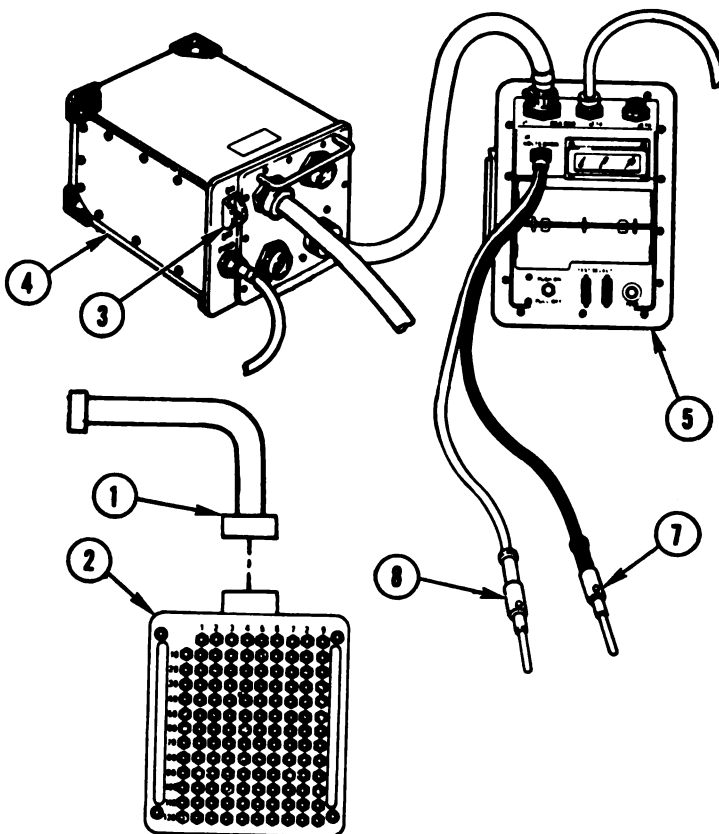
Equipment/Special Tools:

- Breakout Box Tool Kit, 12311088

Equipment Condition:

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

- 1
- Disconnect 1W105-P1 from J10 on turret networks box.
 - See figure 18-5.
 - Disconnect CX208-P2 from CIB-J2.
 - See figure 10-2.
 - Connect CX208-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 dc voltage.
 - Refer to para. 10-1.
 - Set TURRET POWER switch (6) to ON.

- 3
- NOTE**
- Leave test probes connected until told to move them.
- Test for 4 to 6 V dc between test points 11 (-) and 21 (+) on breakout box.
 - Connect black test probe (7) to test point 11 on breakout box (2).
 - Connect red test probe (8) to test point 21 on breakout box (2).
- Does VTM display show between 4 and 6?

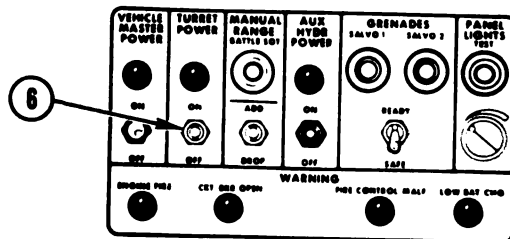


Figure 10-32 (Sheet 1 of 24)
 Volume II
 Para. 10-2

ARR82-6315

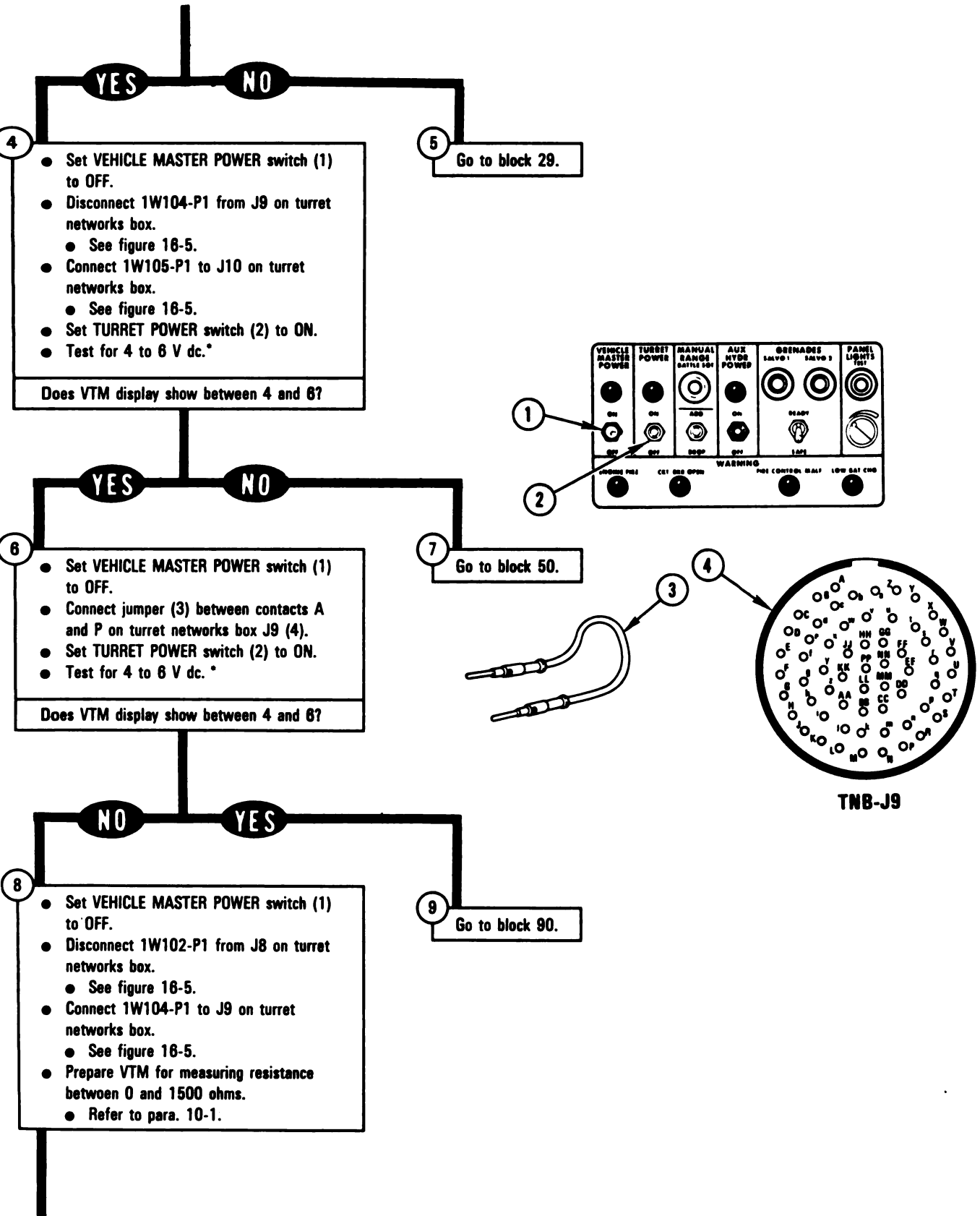


Figure 10-32 (Sheet 2 of 24)
Volume II
Para. 10-2

ARR82-6316

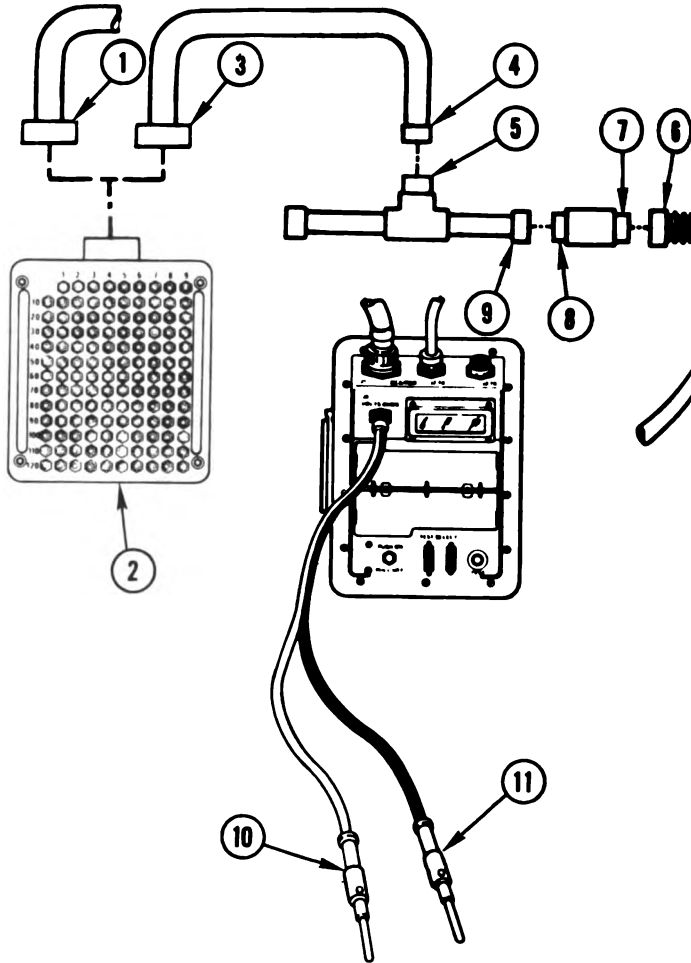
* Between contacts found in block 3.

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

- 10
- Disconnect CX305-P2 from CIB-J1.
 - See figure 10-2.
 - Disconnect CX305-P1 from CA208-P2.
 - See figure 10-3.
 - Disconnect CX208-P2 (1) from breakout box (2).

- 11
- Connect CX305-P2 (3) to breakout box (2).
 - Connect CX305-P1 (4) to CX307-P3 (5).
 - Connect 1W102-P1 (8) to CA530-P1 (7).
 - Connect CA530-P2 (8) to CX307-P1 (9).

- 12
- Connect red test probe (10) to test point 7 on breakout box (2).
- NOTE**
- If VTM display shows 0 to 5, leave test probes connected and go immediately to block 14.
- Test for 0 to 5 ohms by connecting black test probe (11) to each test point on breakout box (2) listed below:
 - 8 through 16
 - 18 through 38
 - 89 through 111
 - 129
- Does VTM display show between 0 and 5?



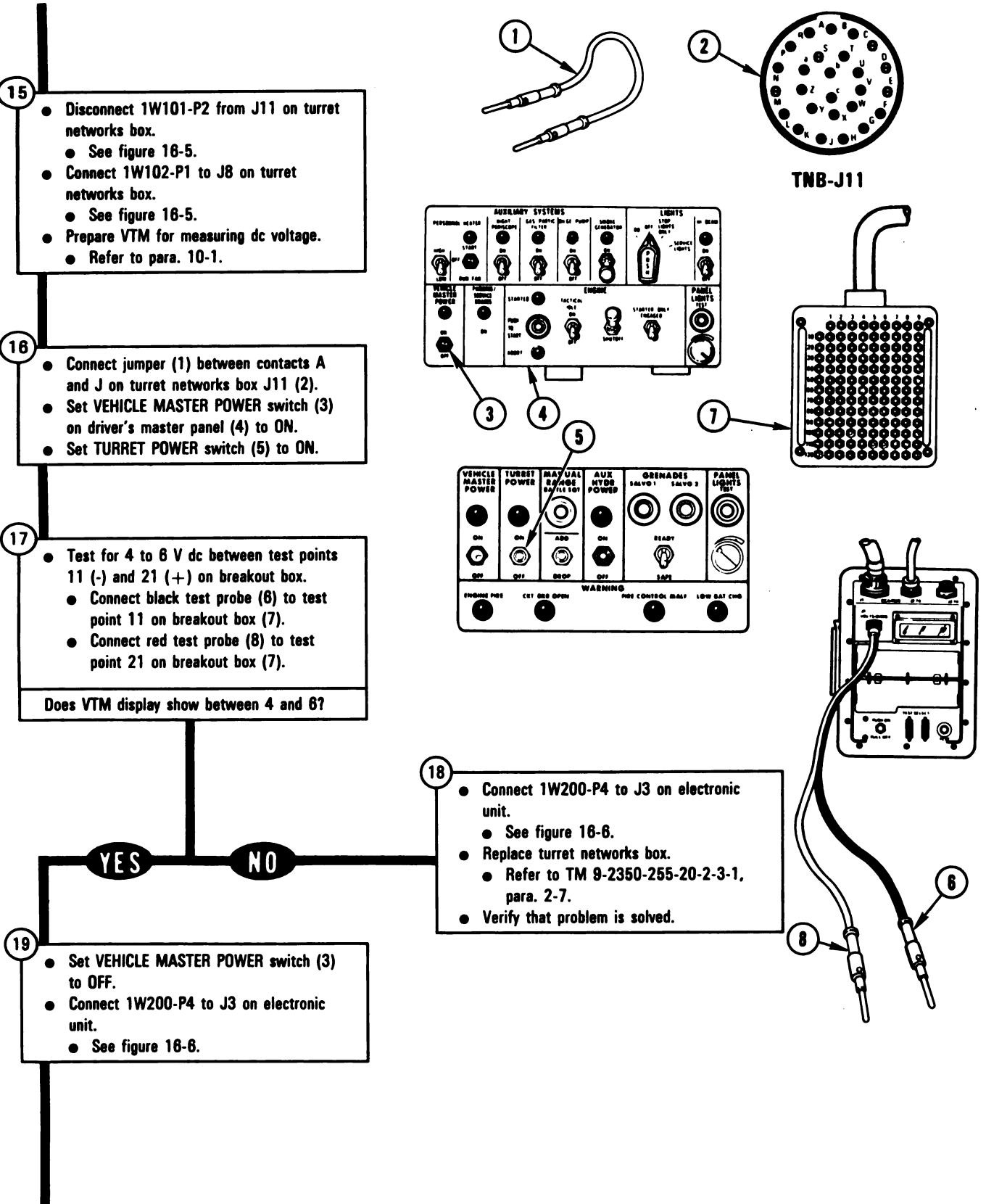
- NO
- 13
- Disconnect CA530-P2 (8) from CX307-P1 (9).
 - Disconnect 1W102-P1 (8) from CA530-P1 (7).
 - Disconnect CX305-P2 (3) from breakout box (2).
 - Connect CX208-P2 (1) to breakout box (2).

14 Go to block 72.

Figure 10-32 (Sheet 3 of 24)
Volume II
Para. 10-2

ARR82-8317

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**



15

- Disconnect 1W101-P2 from J11 on turret networks box.
 - See figure 16-5.
- Connect 1W102-P1 to J8 on turret networks box.
 - See figure 16-5.
- Prepare VTM for measuring dc voltage.
 - Refer to para. 10-1.

16

- Connect jumper (1) between contacts A and J on turret networks box J11 (2).
- Set VEHICLE MASTER POWER switch (3) on driver's master panel (4) to ON.
- Set TURRET POWER switch (5) to ON.

17

- Test for 4 to 6 V dc between test points 11 (-) and 21 (+) on breakout box.
 - Connect black test probe (8) to test point 11 on breakout box (7).
 - Connect red test probe (8) to test point 21 on breakout box (7).

Does VTM display show between 4 and 6?

YES **NO**

19

- Set VEHICLE MASTER POWER switch (3) to OFF.
- Connect 1W200-P4 to J3 on electronic unit.
 - See figure 16-6.

18

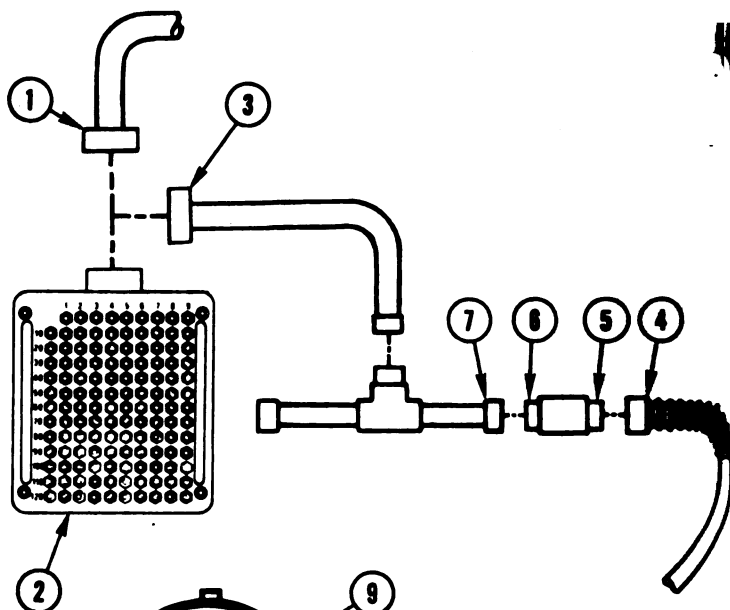
- Connect 1W200-P4 to J3 on electronic unit.
 - See figure 16-6.
- Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
- Verify that problem is solved.

*Figure 10-32 (Sheet 4 of 24)
Volume II
Para. 10-2*

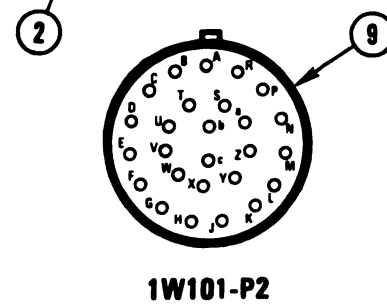
ARR82-6318

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

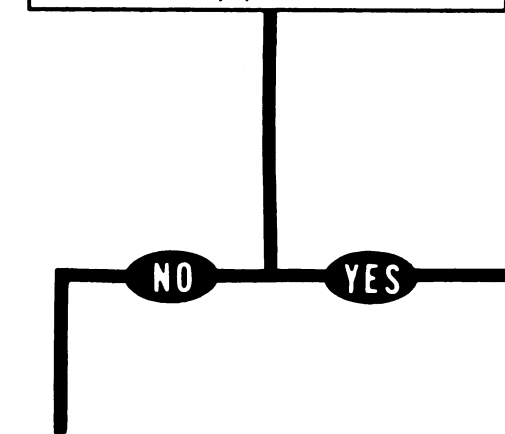
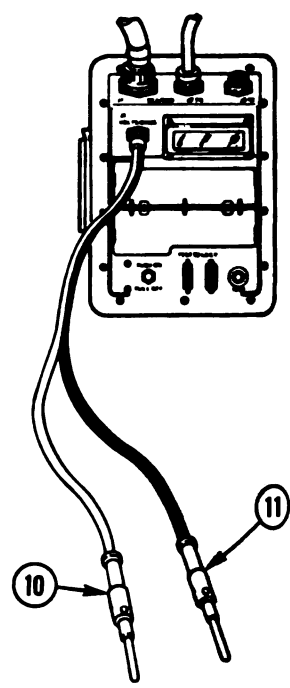
- 20
- Disconnect CX208-P2 (1) from breakout box (2).
 - Connect CX305-P2 (3) to breakout box (2).
 - Disconnect 1W101-P1 from J8 on hull/turret slipring.
 - See figure 18-9.
 - Connect 1W101-P1 (4) to CA419-P1 (5).
 - Connect CA419-P2 (6) to CX307-P1 (7).



- 21
- Connect jumper (8) between contacts A and J on 1W101-P2 (9).
 - Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 10-1.



- 22
- Connect red test probe (10) to test point 12 on breakout box (2).
- NOTE**
- If VTM display shows 0 to 5, go immediately to block 23.
- Test for 0 to 5 ohms by connecting black test probe (11) to each test point on breakout box (2) listed below:
 - 7 through 11
 - 13 through 21
 - 23 through 38
 - 89 through 111, and 129
- Does VTM display show between 0 and 5?



- 23
- Replace wiring harness assembly 1W101.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

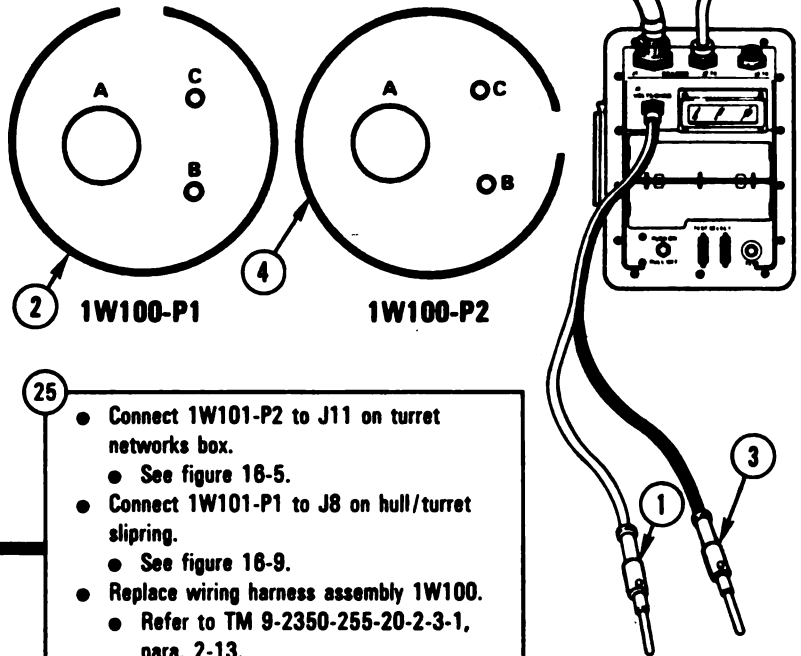
Figure 10-32 (Sheet 5 of 24)
Volume II
Para. 10-2

ARR82-6319

24

- Disconnect 1W100-P4 from J7 on hull/turret slipring.
 - See figure 16-9.
- Disconnect 1W100-P1 from J8 on hull/turret slipring.
 - See figure 16-9.
- Test for 0 to 5 ohms between contacts A and B on 1W100-P1.
 - Connect red test probe (1) to contact B on P1 (2).
 - Connect black test probe (3) to contact A and P1 (2).

Does VTM display show between 0 to 5?



25

- Connect 1W101-P2 to J11 on turret networks box.
 - See figure 16-5.
- Connect 1W101-P1 to J8 on hull/turret slipring.
 - See figure 16-9.
- Replace wiring harness assembly 1W100.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

NO

YES

26

- Disconnect 1W100-P3 from J9 on hull/turret slipring.
 - See figure 16-9.
- Disconnect 1W100-P2 from J10 on hull/turret slipring.
 - See figure 16-9.
- Test for 0 to 5 ohms between contacts A and B on 1W100-P2.
 - Connect red test probe (1) to contact B on P2 (4).
 - Connect black test probe (3) to contact A on P2 (4).

Does VTM display show between 0 and 5?

YES

NO

27

- Connect 1W101-P2 to J11 on turret networks box.
 - See figure 16-5.
- Connect 1W101-P1 to J8 on hull/turret slipring.
 - See figure 16-9.
- Replace wiring harness assembly 1W100.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

28

- Connect 1W101-P2 to J11 on turret networks box.
 - See figure 16-5.
- Replace hull/turret slipring assembly.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-8.
- Verify that problem is solved.

Figure 10-32 (Sheet 6 of 24)
Volume II
Para. 10-2

ARR82-6320

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

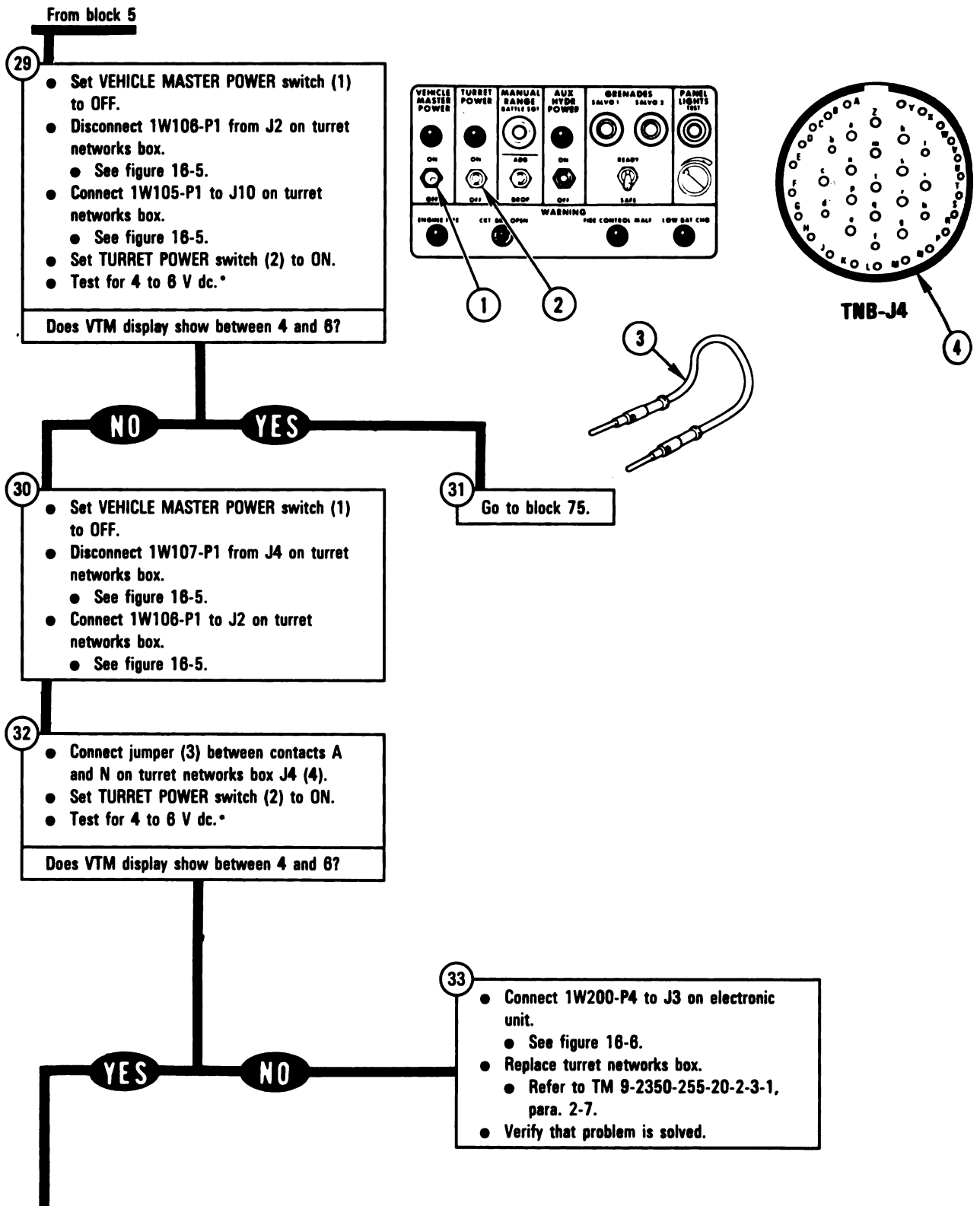


Figure 10-32 (Sheet 7 of 24)
Volume II
Para. 10-2

* Between contacts found in block 3

- 34
- Set VEHICLE MASTER POWER switch (1) to OFF.
 - Connect 1W107-P1 to J4 on turret networks box.
 - See figure 18-5.
 - Disconnect 1W108-P3 from J1 on coax electrical solenoid.
 - See figure 18-20.

- 35
- Disconnect CX305-P1 from CA208-P2.
 - See figure 10-3.
 - Disconnect CX305-P2 from C1B-J1.
 - See figure 10-2.
 - Disconnect CX208-P2 (2) from breakout box (3).

- 36
- Connect CX305-P2 (4) to breakout box (3).
 - Connect CX305-P1 (5) to CX307-P3 (6).
 - Disconnect 1W108-P1 from 1W107-J1.
 - See figure 18-13.
 - Connect 1W108-P1 (7) to CA522-P1 (8).
 - Connect CA522-P2 (9) to CX307-P1 (10).

- 37
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 10-1.
 - Disconnect main gun safety switch (1S100)-P1 from 1W108-J1.
 - See figure 18-13.

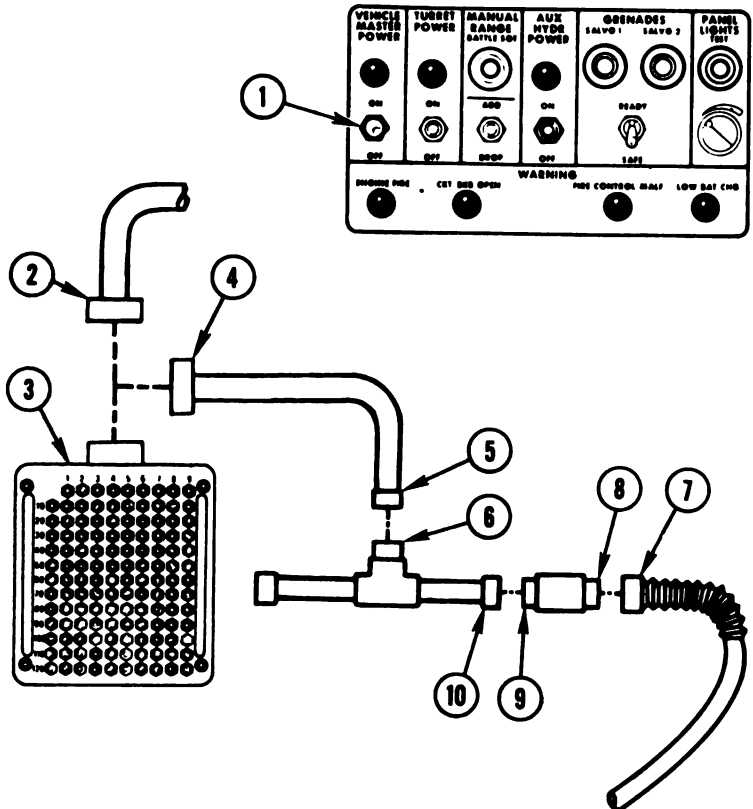


Figure 10-32 (Sheet 8 of 24)
Volume II
Para. 10-2

ARR82-6322

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

38

- Connect jumper (1) between contacts G and J on 1W108-J1 (2).

NOTE

If VTM display shows 0 to 5, go immediately to block 39.

- Test for 0 to 5 ohms between test points on breakout box listed in table A.
- Connect red test probe (3) to test points on breakout box (4) listed in table A.
- Connect black test probe (5) to test points on breakout box (4) listed in table A.

Does VTM display show between 0 and 5?

NO

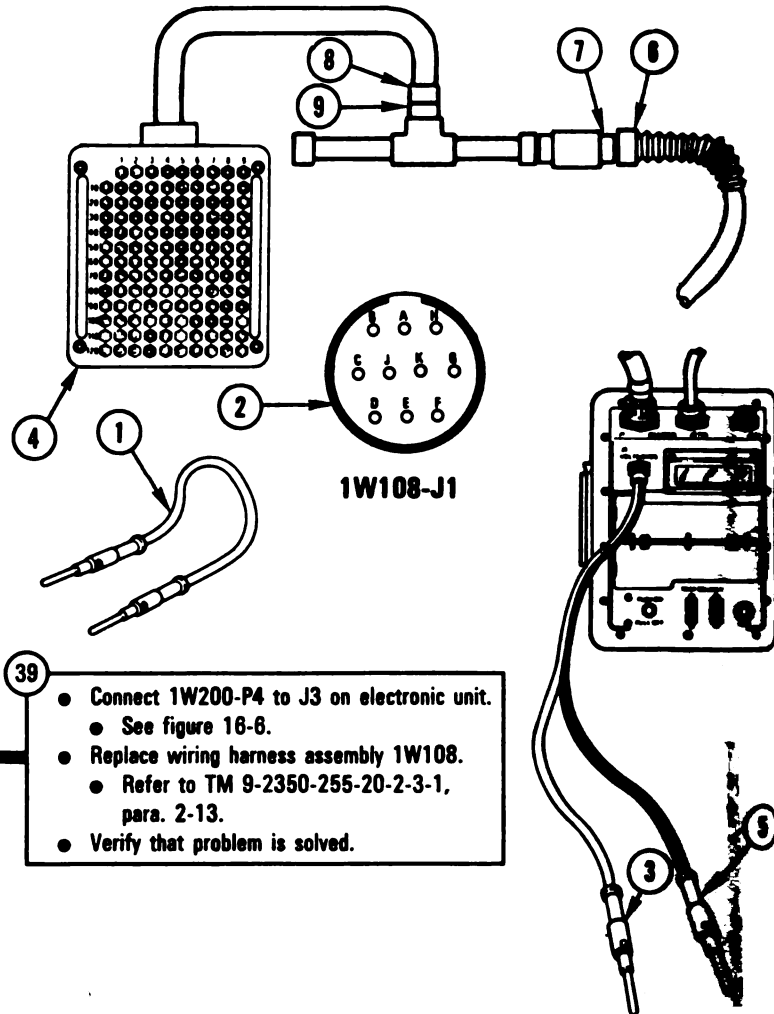
YES

40

- Disconnect 1W108-P1 (8) from CA522-P1 (7).
- Disconnect CX305-P1 (8) from CX307-P3 (9).
- Connect 1W108-P1 to 1W107-J1.
- See figure 16-13.

Table A

Red Test Probe	Black Test Probe
7	18 through 38, 89 through 97, and 129
19	7 through 18, 20 through 38, 89 through 97, and 129



39

- Connect 1W200-P4 to J3 on electronic unit.
- See figure 16-6.
- Replace wiring harness assembly 1W108.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

Figure 10-32 (Sheet 9 of 24)
**Volume II
Para. 10-2**

ARR82-6323

NOTE

If VTM display shows 0 to 5, go immediately to block 42.

- Test for 0 to 5 ohms between contact C and connector body and all other contacts except E on coax electrical solenoid J1.
- Connect red test probe (1) to contact C on J1 (2).
- Connect black test probe (3) to connector body and all other contacts except E on J1 (2).

Does VTM display show between 0 and 5?

NO

YES

42

- Connect main gun safety switch (1S100)-P1 to 1W108-J1.
- See figure 16-13.
- Connect 1W200-P4 to J3 on electronic unit.
- See figure 16-6.
- Replace electrical solenoid.
- Refer to TM 9-2350-255-20-2-3-3, para. 6-7.
- Verify that problem is solved.

43

- Connect 1W108-P3 to J1 on coax electrical solenoid.
- See figure 16-20.
- Connect CX305-P1 (4) to CX308-P3 (5).
- Connect main gun safety switch (1S100)-P1 (6) to CA558-P1 (7).
- Connect CA558-P2 (8) to CX308-P1 (9).

44

- Connect red test probe (1) to test point 13 on breakout box (10).

NOTE

If VTM display shows 0 to 5, go immediately to block 45.

- Test for 0 to 5 ohms by connecting black test probe (3) to each test point on breakout box (10) listed below:
- 7 through 12
- 14, 16 and 129

Does VTM display show between 0 and 5?

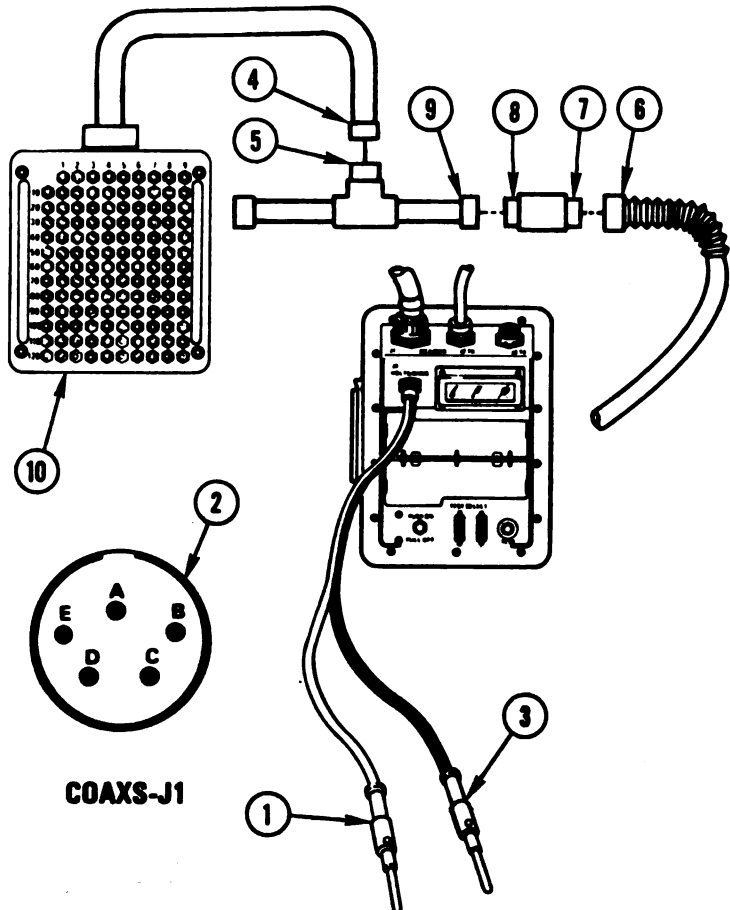


Figure 10-32 (Sheet 10 of 24)
Volume II
Para. 10-2

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

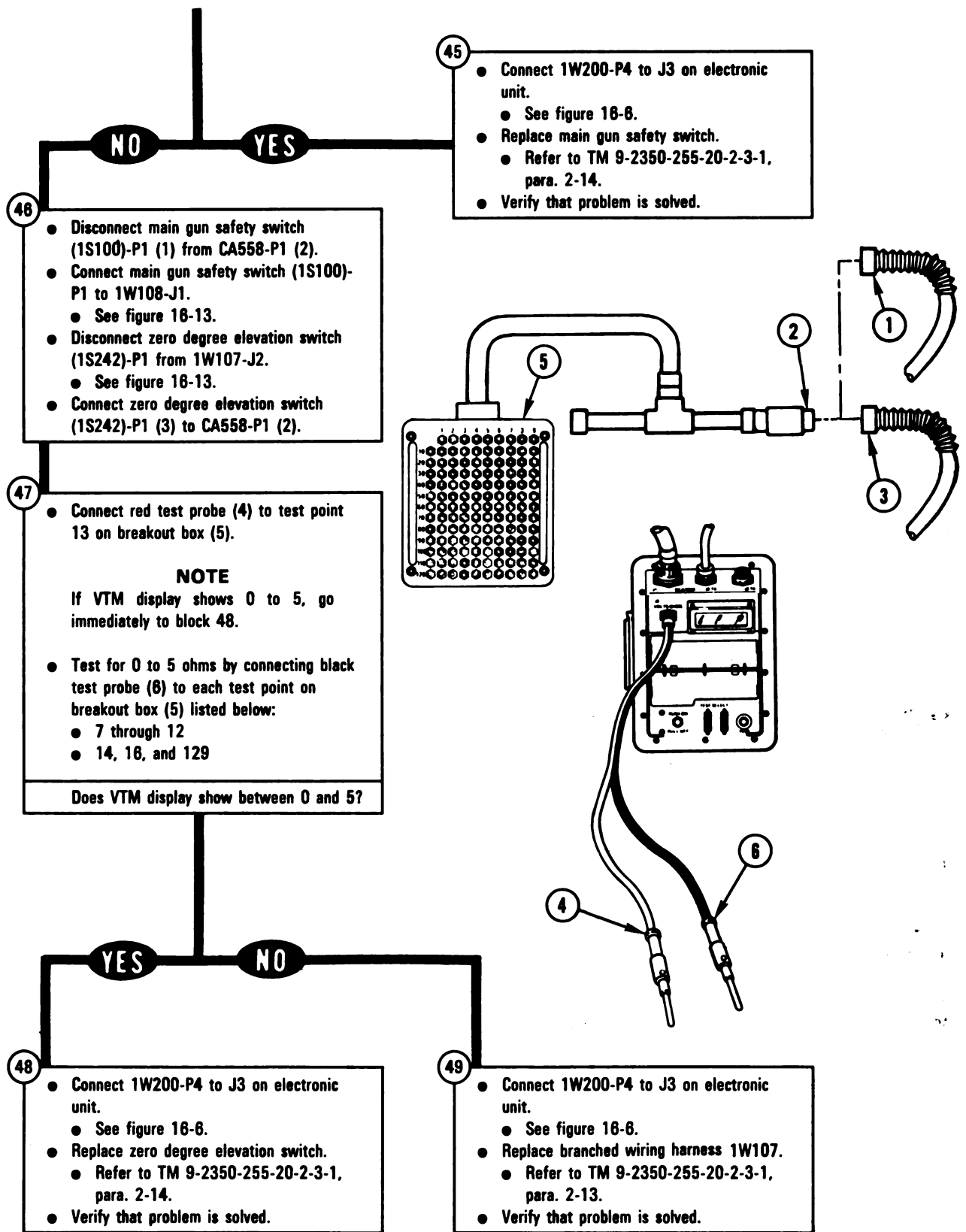


Figure 10-32 (Sheet 11 of 24)
Volume II
Para. 10-2

ARR82-63

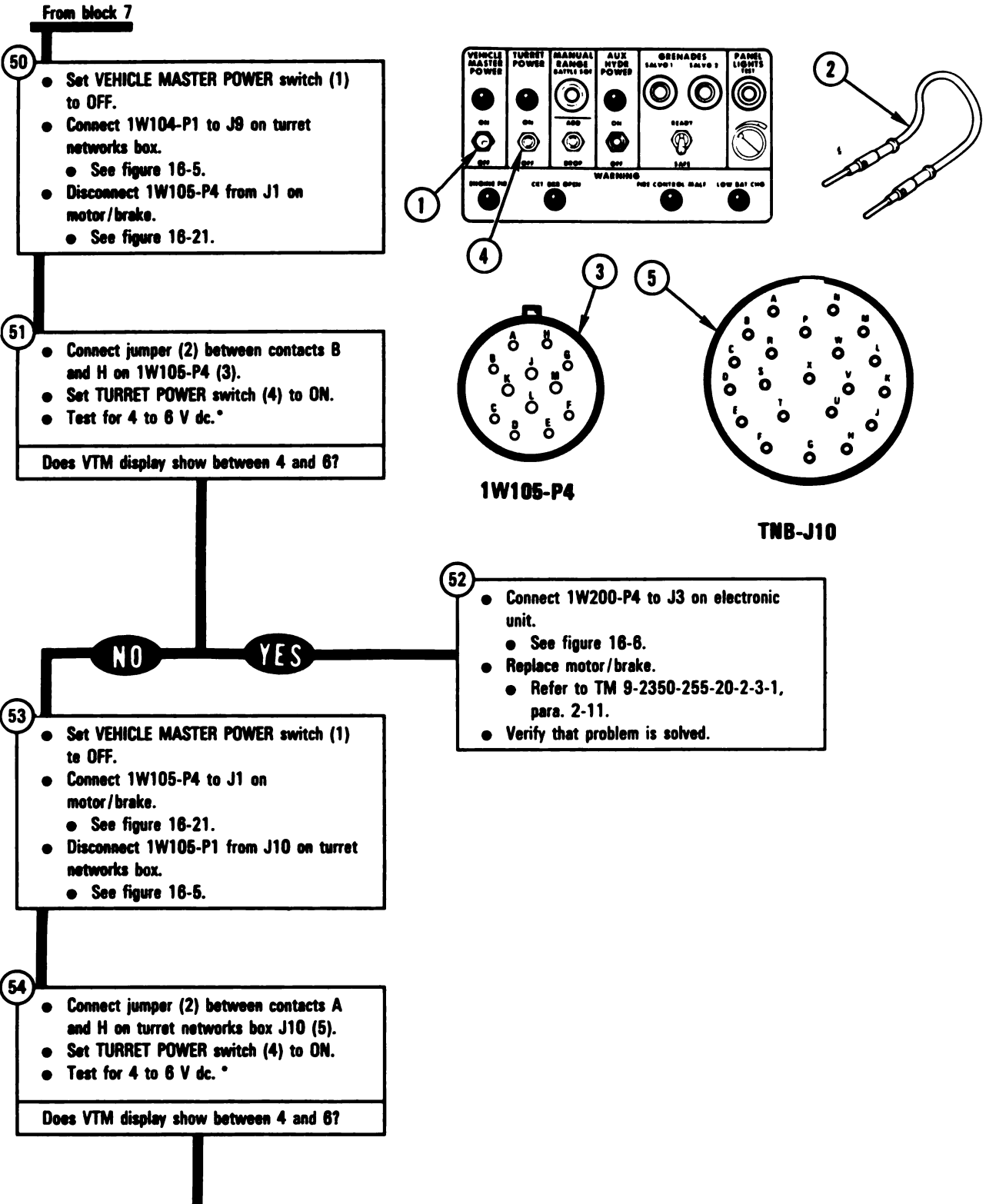
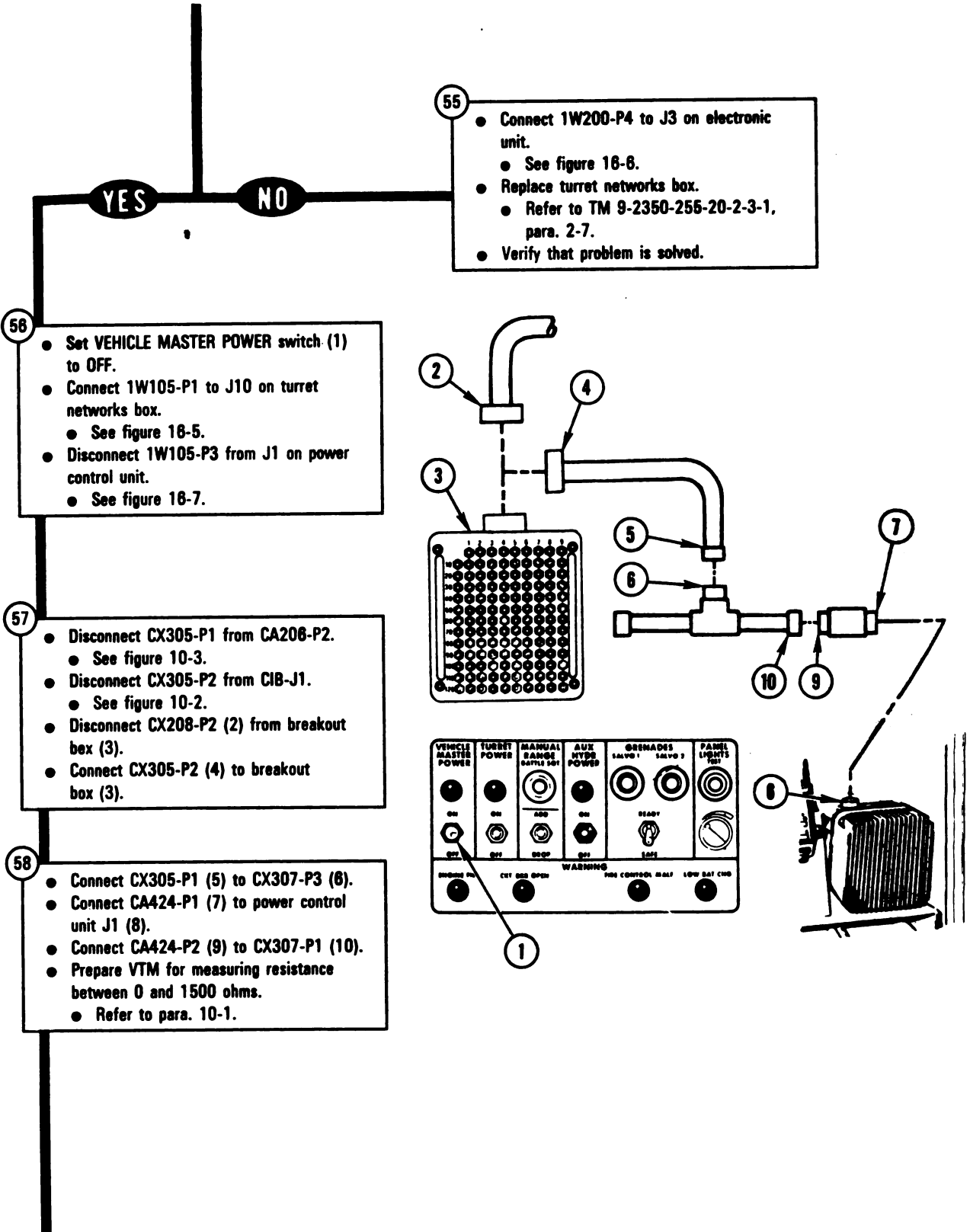


Figure 10-32 (Sheet 12 of 24)
Volume II
Para. 10-2

* Between contacts found in block 3.

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING



56

- Set VEHICLE MASTER POWER switch (1) to OFF.
- Connect 1W105-P1 to J10 on turret networks box.
 - See figure 16-5.
- Disconnect 1W105-P3 from J1 on power control unit.
 - See figure 16-7.

57

- Disconnect CX305-P1 from CA206-P2.
 - See figure 10-3.
- Disconnect CX305-P2 from CIB-J1.
 - See figure 10-2.
- Disconnect CX208-P2 (2) from breakout box (3).
- Connect CX305-P2 (4) to breakout box (3).

58

- Connect CX305-P1 (5) to CX307-P3 (6).
- Connect CA424-P1 (7) to power control unit J1 (8).
- Connect CA424-P2 (9) to CX307-P1 (10).
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 10-1.

55

- Connect 1W200-P4 to J3 on electronic unit.
 - See figure 16-6.
- Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
- Verify that problem is solved.

Figure 10-32 (Sheet 13 of 24)
Volume II
Para. 10-2

59

- 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 60.

- 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 34
 - 36 through 38
 - 89 through 97, and 129

Does VTM display show between 0 and 5?

60

- Connect 1W200-P4 to J3 on electronic unit.
- See figure 16-6.
- Replace power control unit.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-12.

61

- Disconnect CA424-P2 (4) from CX307-P1 (5).
- Disconnect CA424-P1 (8) from power control unit J1 (7).
- Connect 1W105-P3 to J1 on power control unit.
- See figure 16-7.

62

- Disconnect commander's power control handle (1A231)-P1 from 1W105-J3.
- See figure 16-8.
- Connect commander's power control handle (1A231)-P1 (8) to CA432-P1 (9).
- Connect CA432-P2 (10) to CX307-P1 (5).

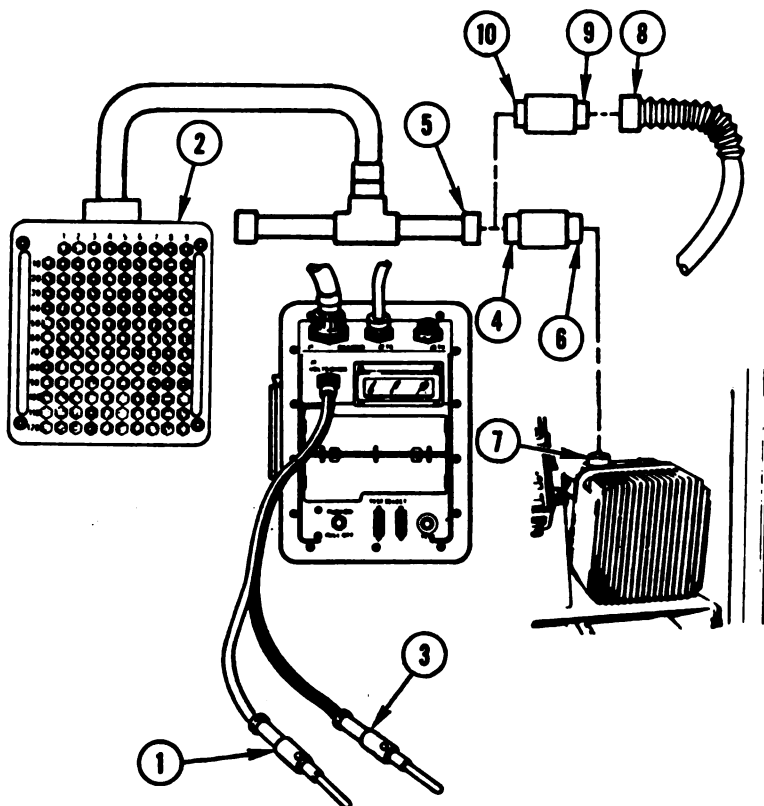


Figure 10-32 (Sheet 14 of 24)
Volume II
Para. 10-2

ARR82-6329

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

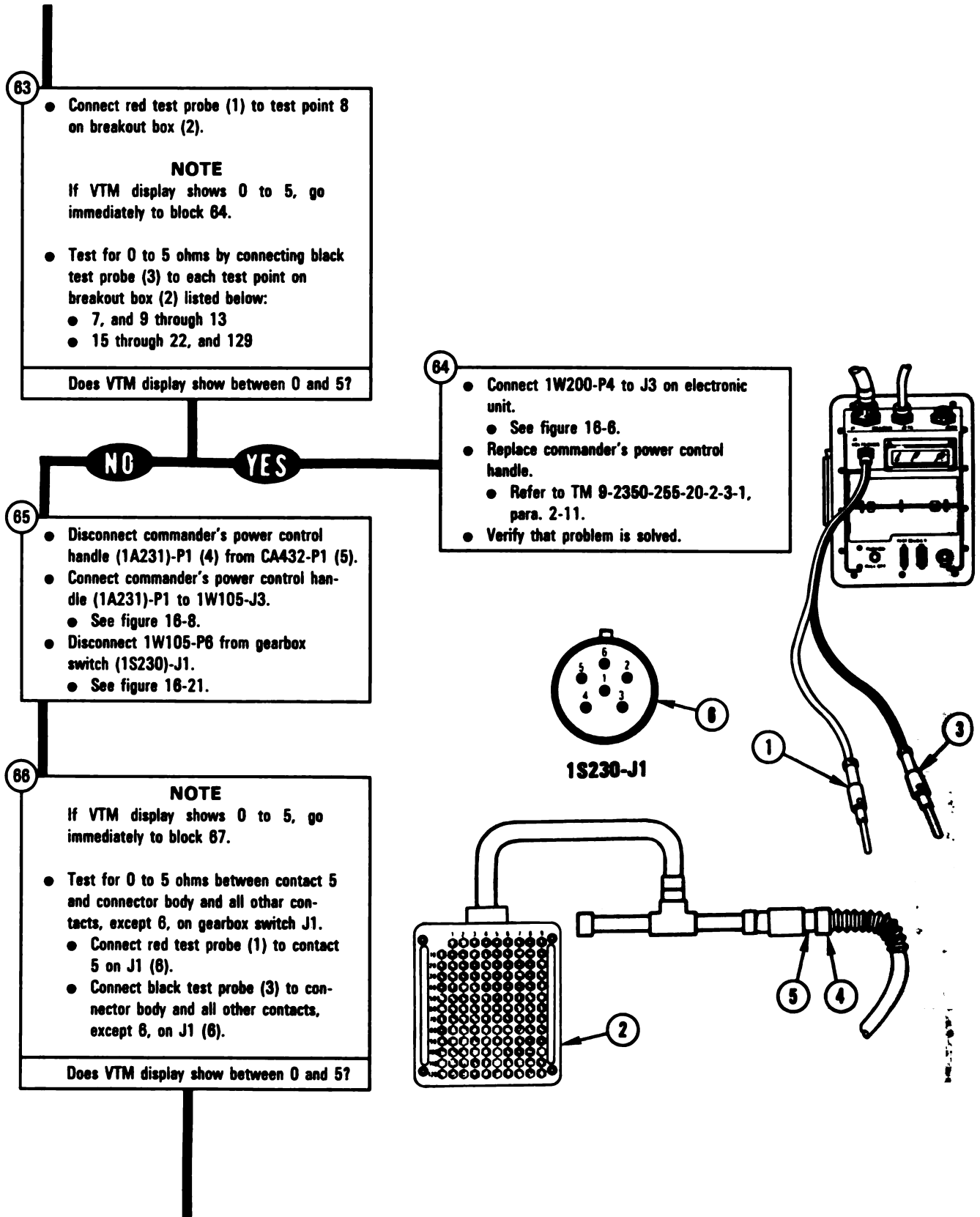


Figure 10-32 (Sheet 15 of 24)
Volume II
Para. 10-2

ARR82-6330

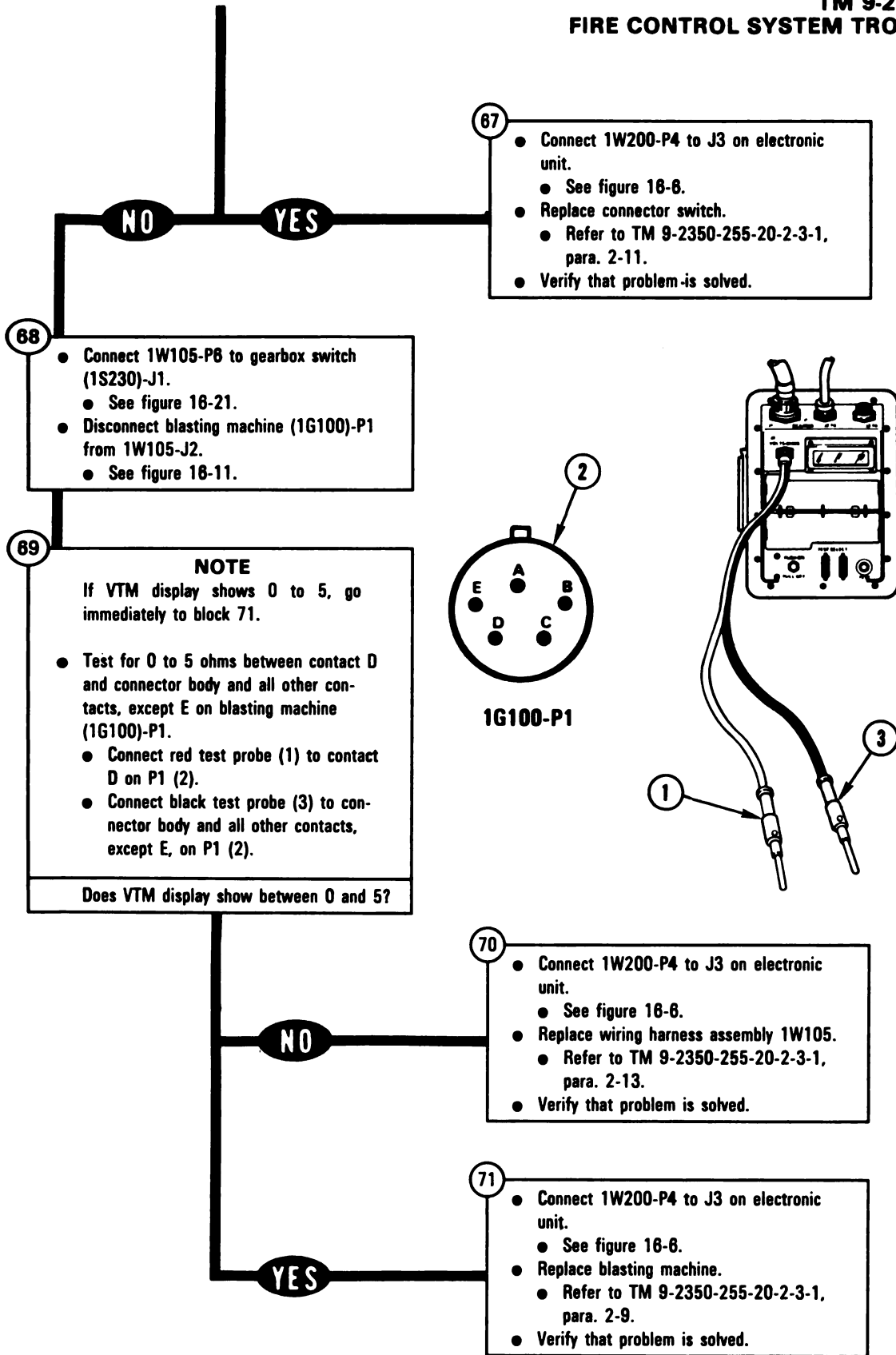
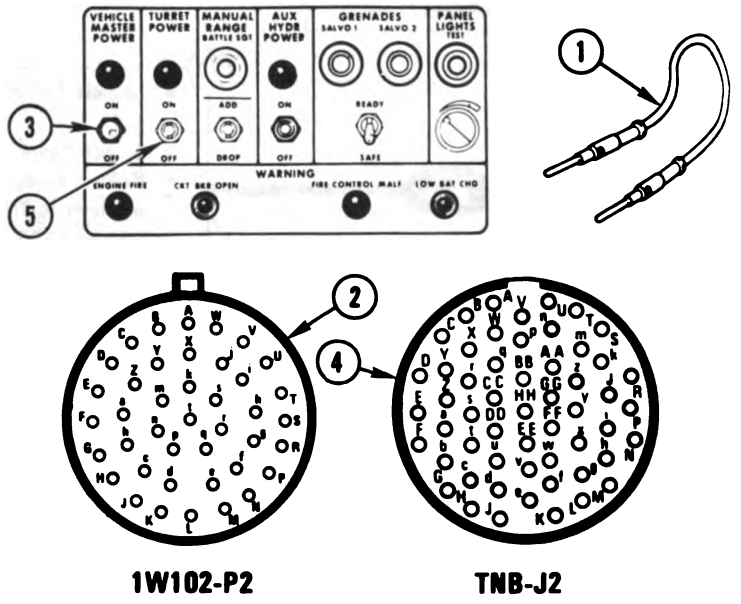
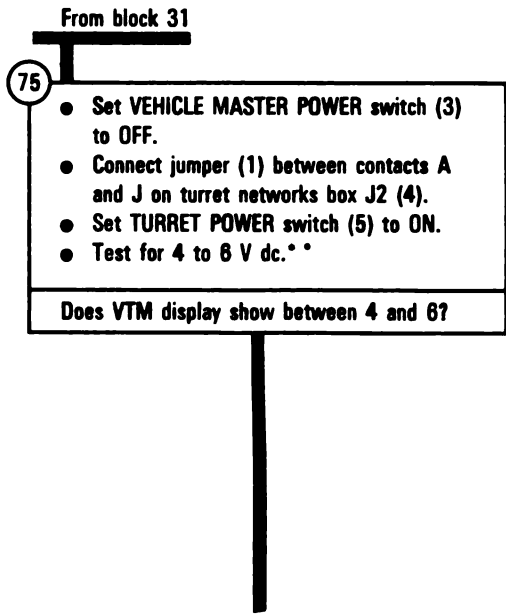
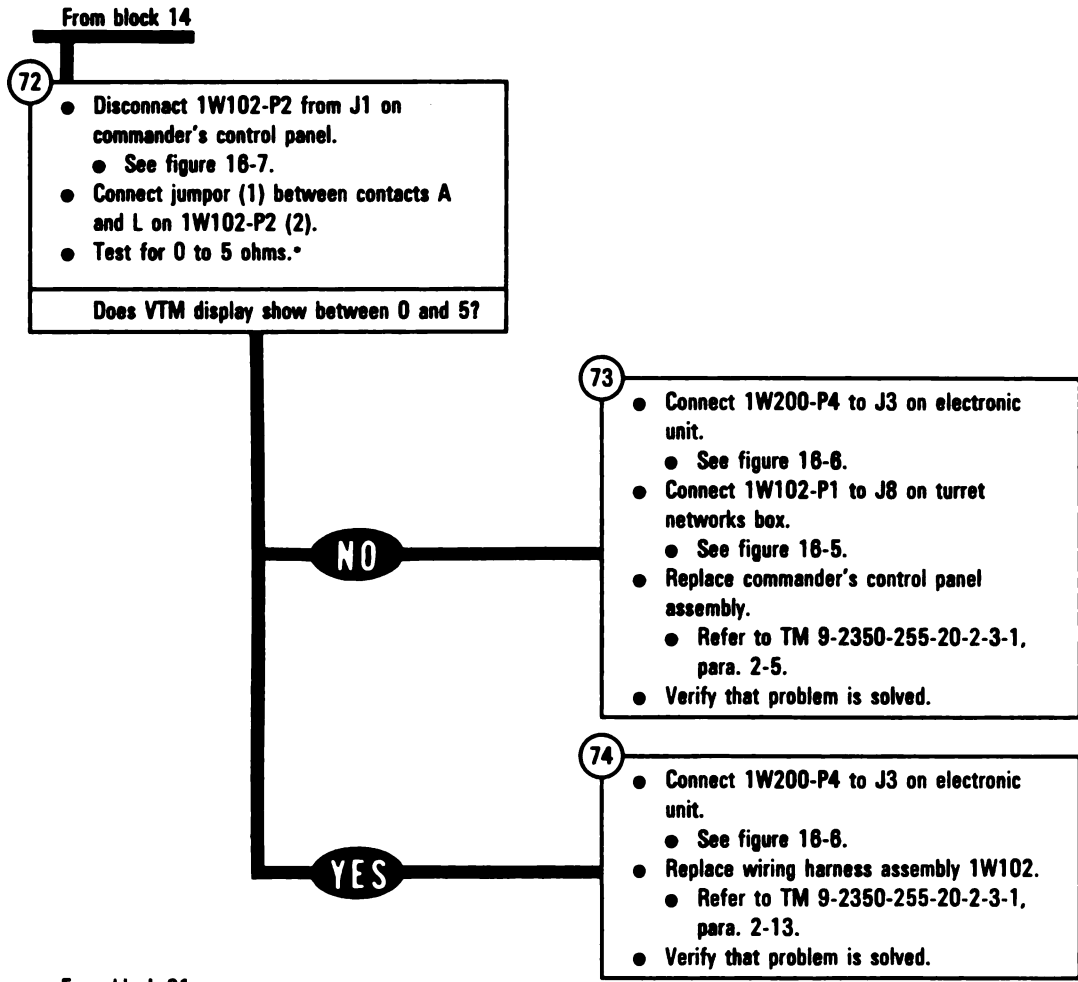


Figure 10-32 (Sheet 16 of 24)
Volume II
Para. 10-2

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**



*Figure 10-32 (Sheet 17 of 24)
Volume II
Para. 10-2*

* Between contacts found in block 3.
** Between contacts found in block 12.

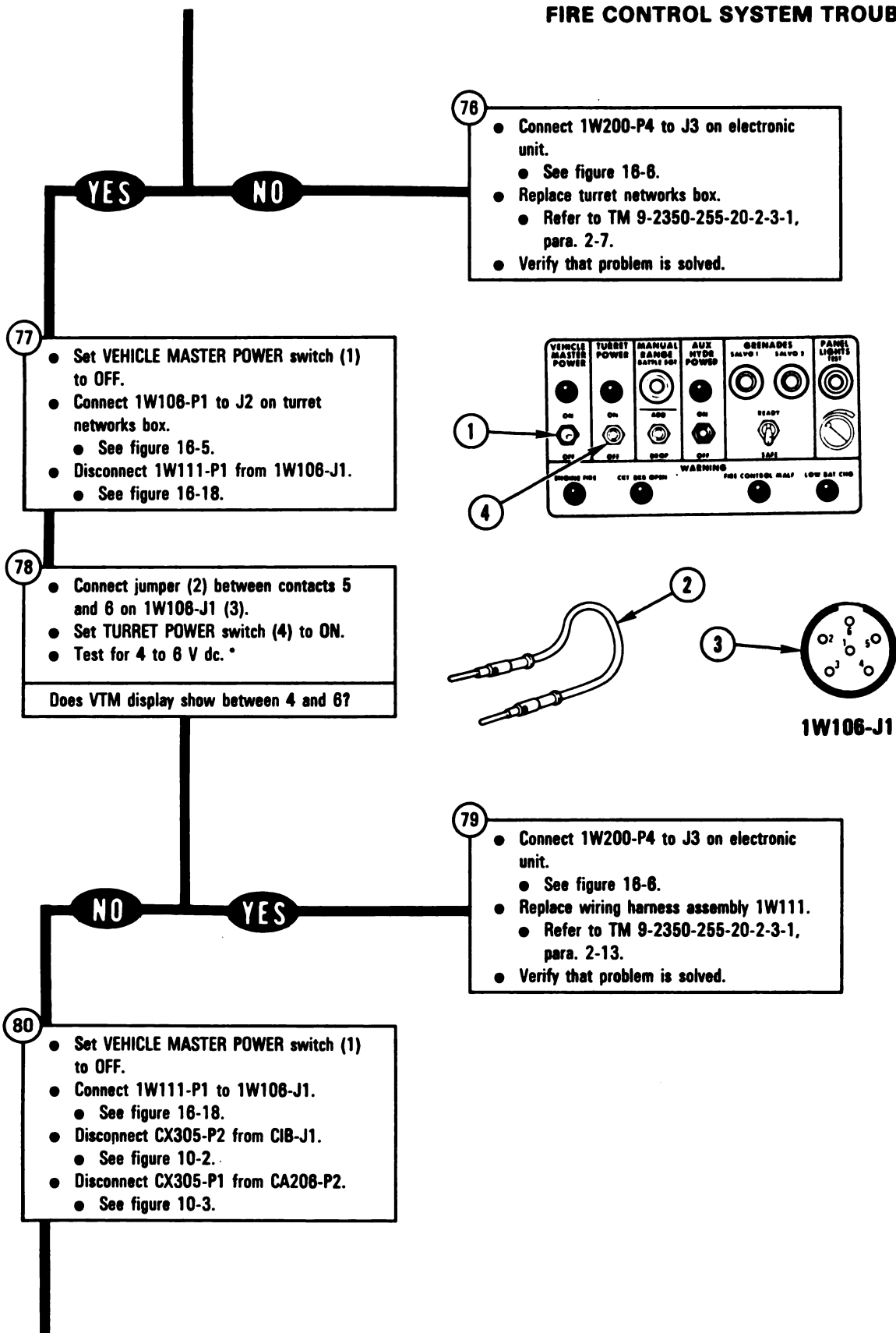


Figure 10-32 (Sheet 18 of 24)
Volume II
Para. 10-2

ARR82-6333

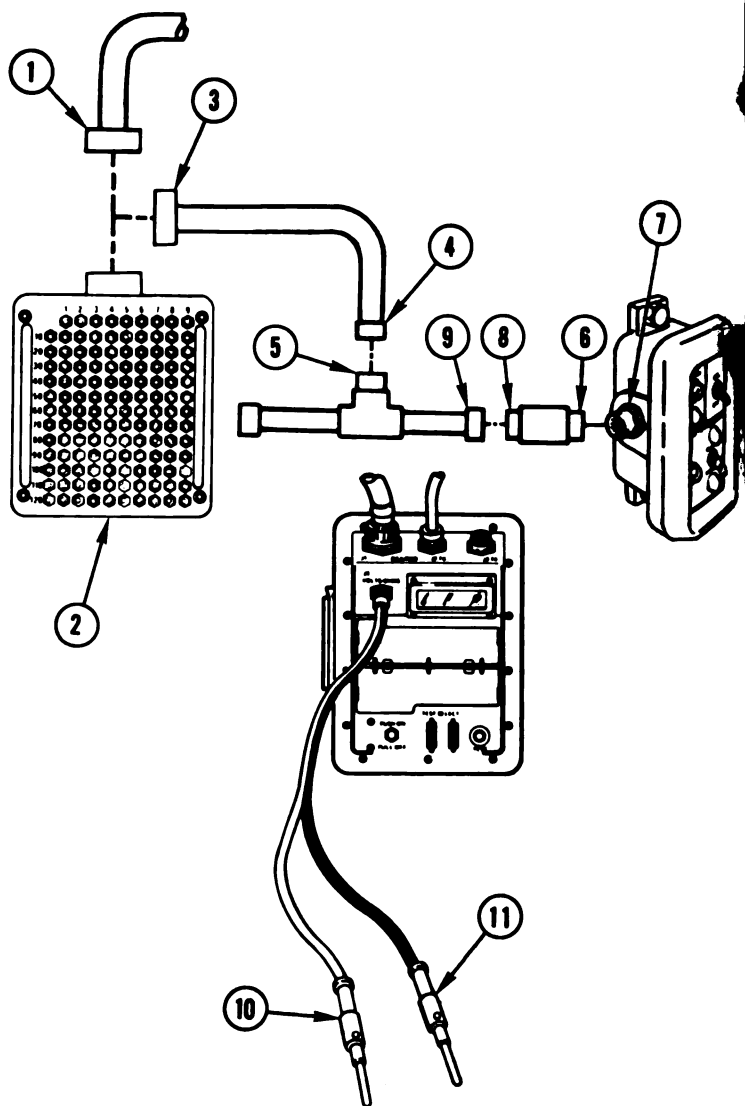
* Between contacts found in block 3.

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

- 81
- Disconnect CX208-P2 (1) from breakout box (2).
 - Connect CX305-P2 (3) to breakout box (2).
 - Connect CX305-P1 (4) to CX308-P3 (5).
 - Disconnect 1W106-P2 from J1 on loader's panel.
 - See figure 16-12.

- 82
- Connect CA536-P1 (6) to loader's panel J1 (7).
 - Connect CA536-P2 (8) to CX308-P1 (9).
 - Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 10-1.

- 83
- Connect red test probe (10) to test point 13 on breakout box (2).
- NOTE**
 If VTM display shows 0 to 5, go immediately to block 64.
- Test for 0 to 5 ohms by connecting black test probe (11) to each test point on breakout box (2) listed below:
 - 8 through 12, and 14
 - 16 through 25, and 129
- Does VTM display show between 0 and 5?



- 84
- Connect 1W200-P4 to J3 on electronic unit.
 - See figure 16-6.
 - Replace loader's panel.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-6.
 - Verify that problem is solved.

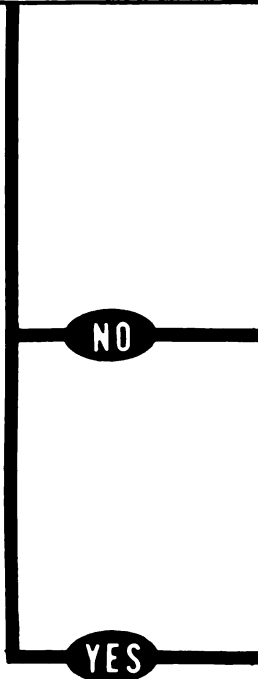
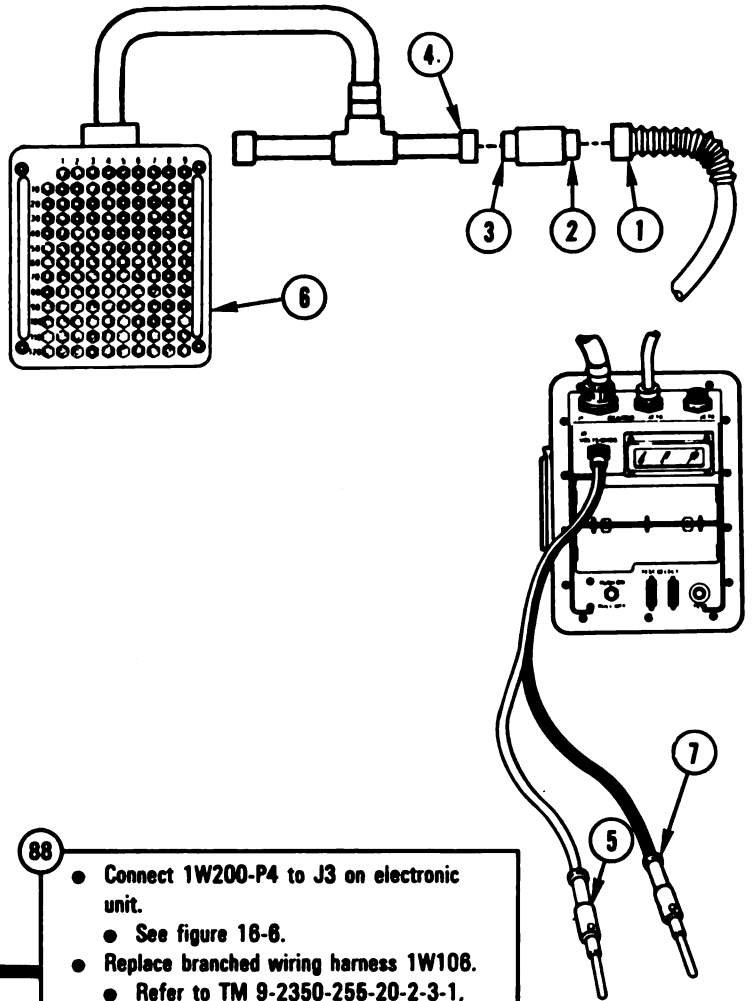
- NO
- 85
- Disconnect CA536-P2 (8) from CX308-P1 (9).
 - Disconnect CA536-P1 (8) from loader's panel J1 (7).
 - Connect 1W106-P2 to J1 on loader's panel.
 - See figure 16-12.

Figure 10-32 (Sheet 19 of 24)
 Volume II
 Para. 10-2

ARR82-6334

- 86**
- Disconnect loader's knee switch (1S101)-P1 from 1W106-J2.
 - See figure 16-18.
 - Connect loader's knee switch (1S101)-P1 (1) to CA558-P1 (2).
 - Connect CA558-P2 (3) to CX306-P1 (4).

- 87**
- Connect red test probe (5) to test point 13 on breakout box (6).
- NOTE**
- If VTM display shows 0 to 5 ohms, go immediately to block 89.
- Test for 0 to 5 ohms by connecting black test probe (7) to each test point on breakout box (6) listed below:
 - 7 through 12
 - 14, 16, and 129
- Does VTM display show between 0 and 5?



- 88**
- Connect 1W200-P4 to J3 on electronic unit.
 - See figure 16-6.
 - Replace branched wiring harness 1W106.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

- 89**
- Connect 1W200-P4 to J3 on electronic unit.
 - See figure 16-6.
 - Replace loader's knee switch.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-14.
 - Verify that problem is solved.

Figure 10-32 (Sheet 20 of 24)
Volume II
Para. 10-2

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

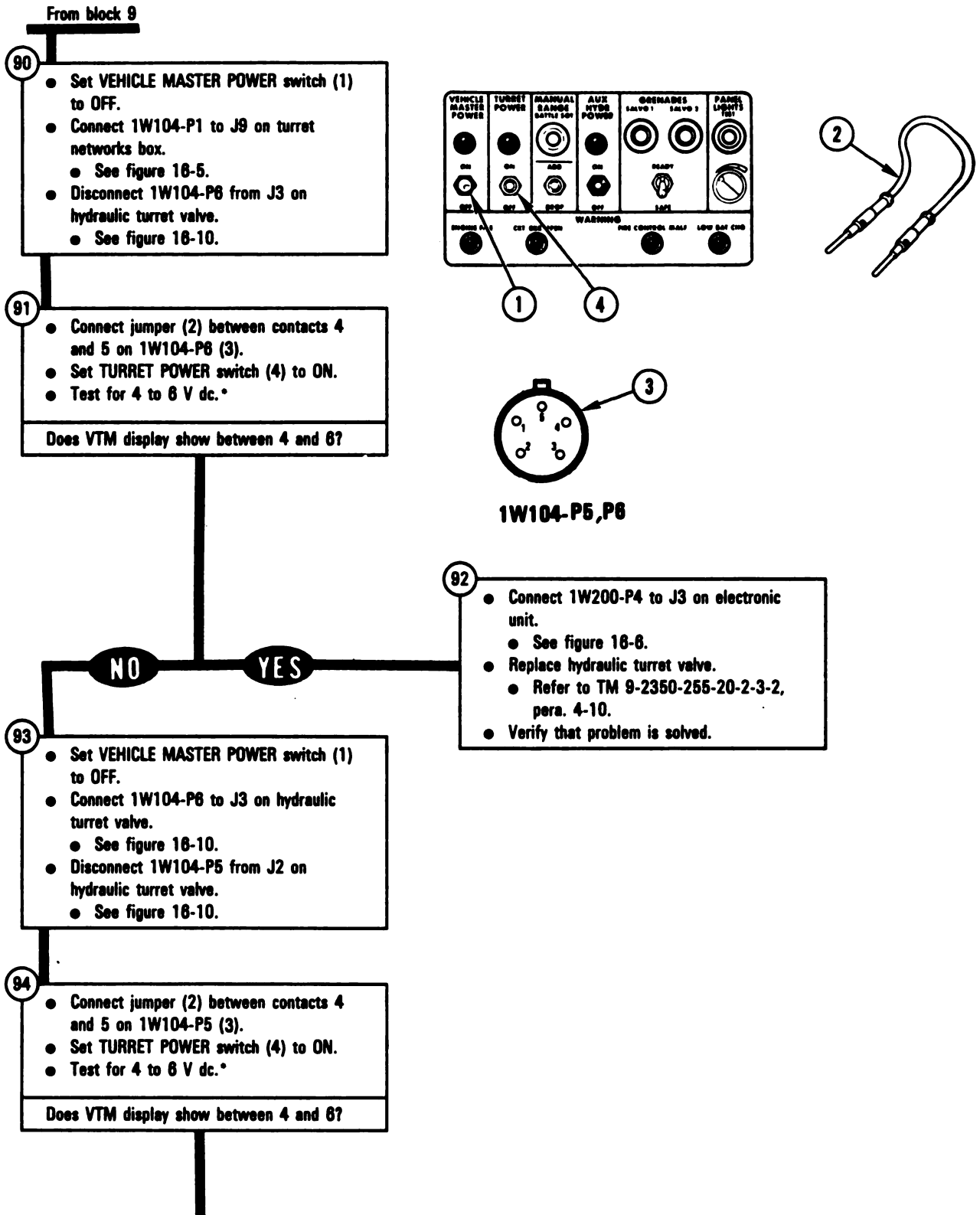


Figure 10-32 (Sheet 21 of 24)
Volume II
Para. 10-2

* Between contacts found in block 3.

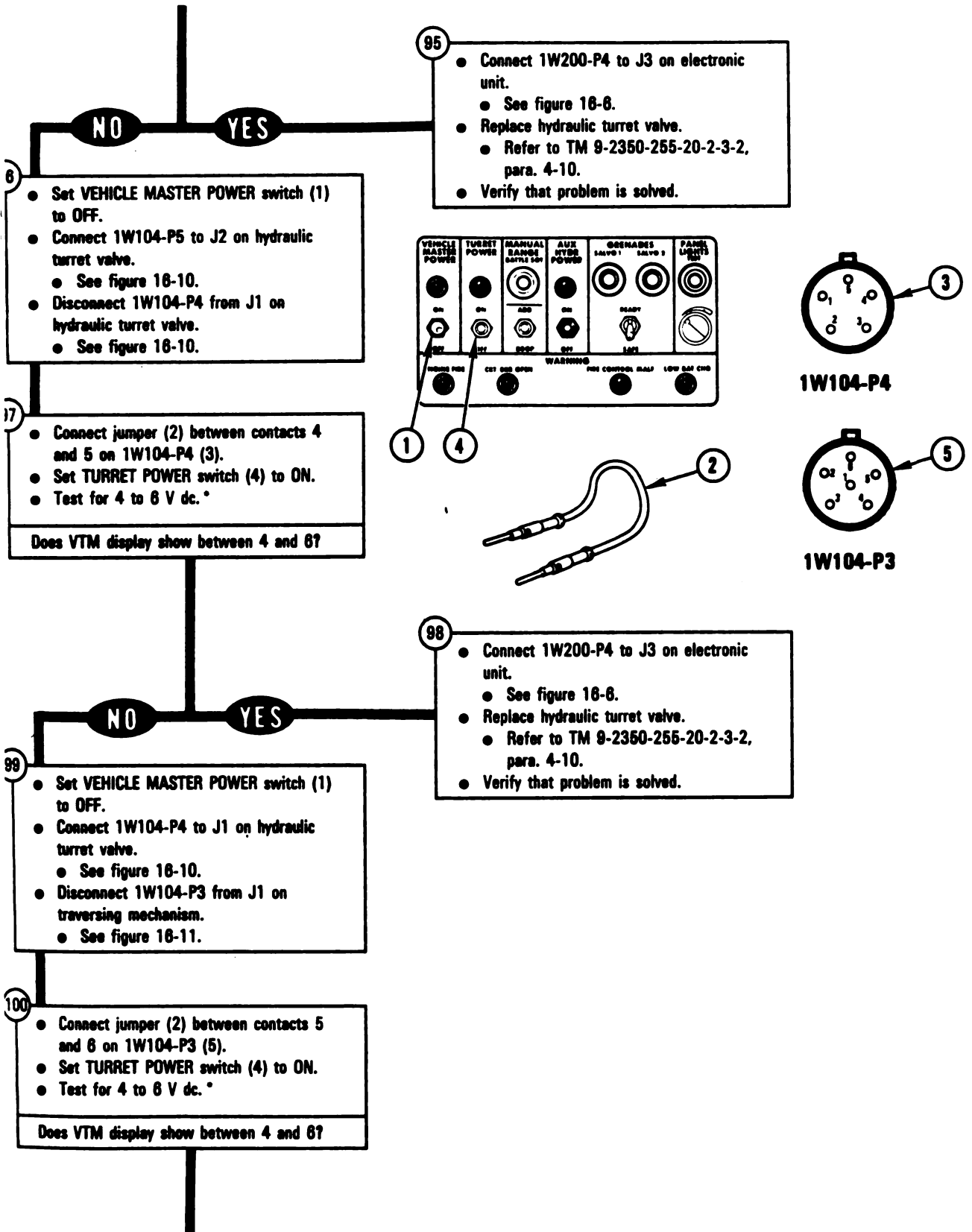


Figure 10-32 (Sheet 22 of 24)
Volume II
Para. 10-2

ARR82-6337

* Between contacts found in block 3.

TM 9-2350-255-20-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

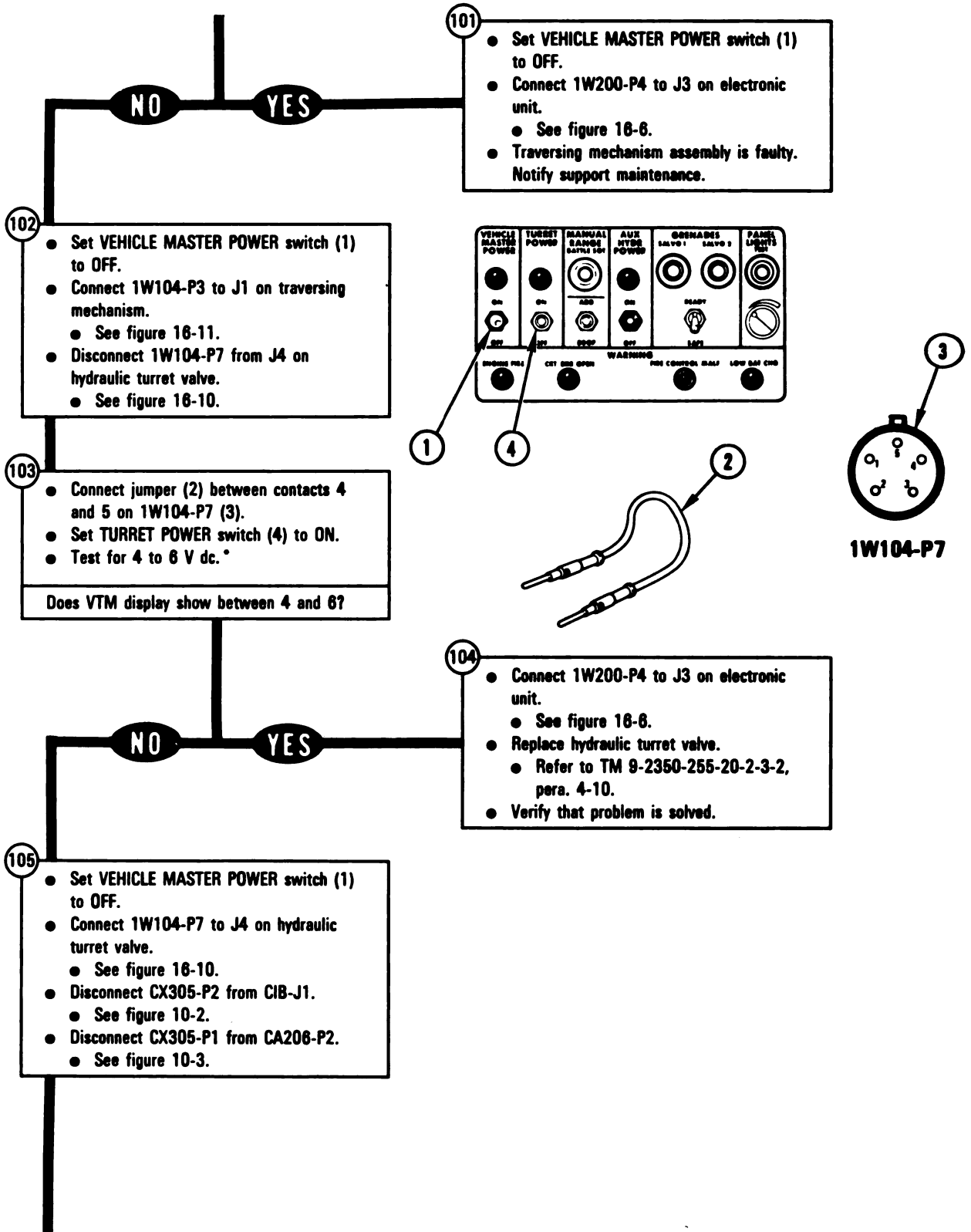


Figure 10-32 (Sheet 23 of 24)
Volume II
Para. 10-2

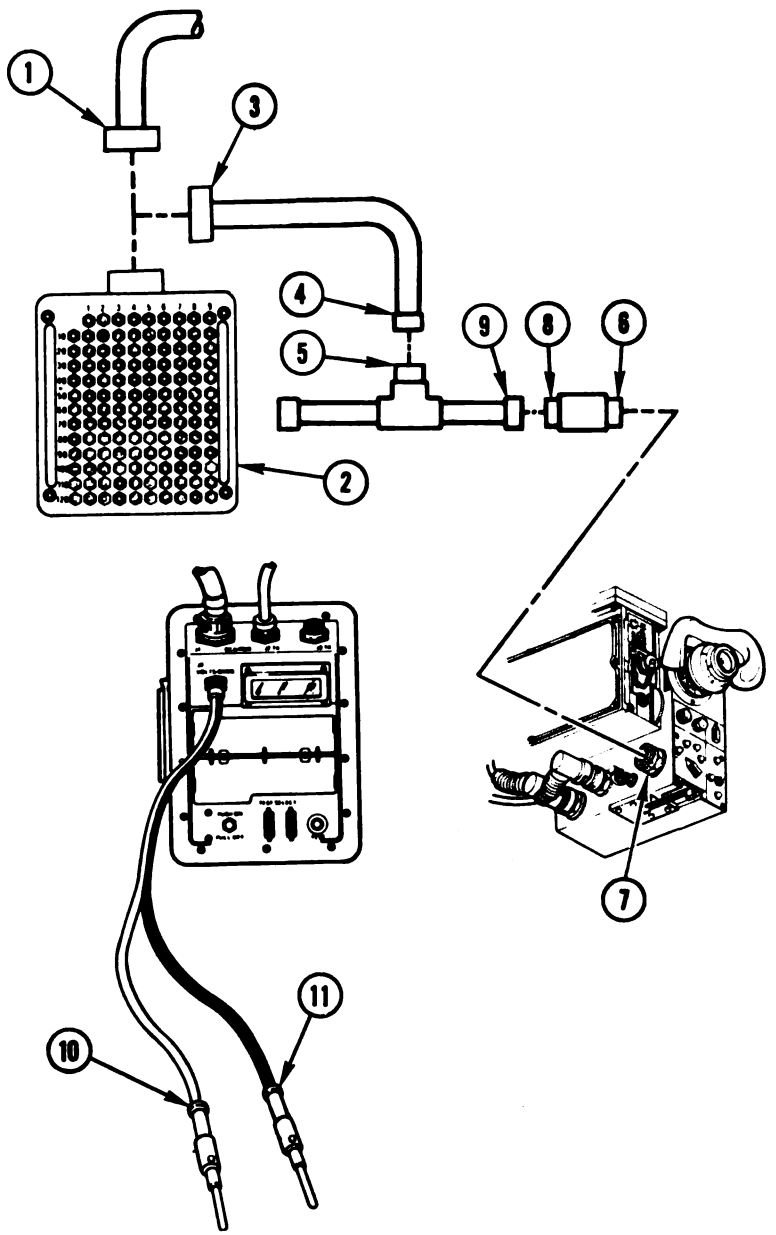
ARR82-6338

* Between contacts found in block 3.

- 106
- Disconnect CX208-P2 (1) from breakout box (2).
 - Connect CX305-P2 (3) to breakout box (2).
 - Connect CX305-P1 (4) to CX307-P3 (5).
 - Disconnect 1W104-P2 from J3 on gunner's primary sight.
 - See figure 16-16.

- 107
- Connect CA512-P1 (6) to gunner's primary sight J3 (7).
 - Connect CA512-P2 (8) to CX307-P1 (9).
 - Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 10-1.

- 108
- Connect red test probe (10) to test point 7 on breakout box (2).
- NOTE**
If VTM display shows 0 to 5, go immediately to block 109.
- Test for 0 to 5 ohms by connecting black test probe (11) to each test point on breakout box (2) listed below:
 - 8 through 15
 - 17 through 38
 - 89 through 111, and 129
- Does VTM display show between 0 and 5?



YES **NO**

- 109
- Connect 1W200-P4 to J3 on electronic unit.
 - See figure 16-6.
 - Replace lower panel assembly.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-5.
 - Verify that problem is solved.

- 110
- Connect 1W200-P4 to J3 on electronic unit.
 - See figure 16-6.
 - Replace branched wiring harness 1W104.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

Figure 10-32 (Sheet 24 of 24)
Volume II
Para. 10-2

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

DISPLAY SHOWS - FAULTY TNB OR 1W202 **121024**

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

- 1**
- Disconnect CX305-P1 from CA206-P2.
 - See figure 10-3.
 - Disconnect CA510-P2 from CX307-P2.
 - See figure 10-5.
 - Disconnect 1W202-P1 from J7 on turret networks box.
 - See figure 16-5.

- 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 P4.
 - See figure 15-5.

Does SETCOM display show GOOD?

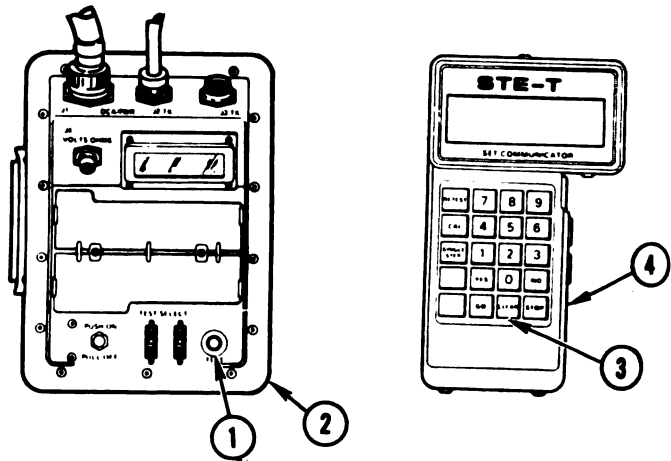
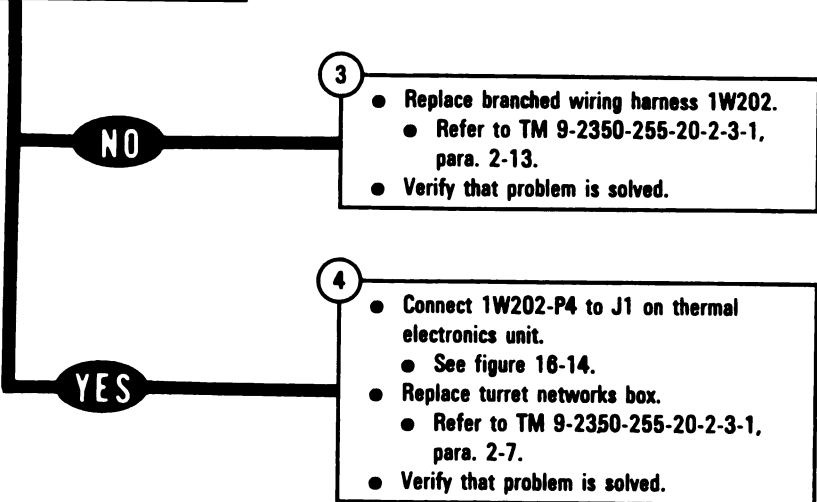


Figure 10-33
Volume II
Para. 10-2

ARR82-6340

**DISPLAY SHOWS -
 FAULTY TNB, TEU OR
 1W202**

121032

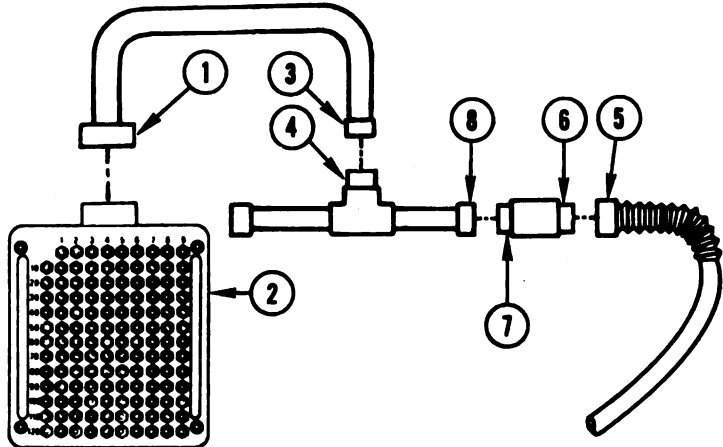
Additional Test

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 10-2.

- Disconnect CX305-P1 from CA206-P2.

- See figure 10-3.

- Disconnect 1W202-P4 from J1 on thermal electronics unit.

- See figure 16-14.

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

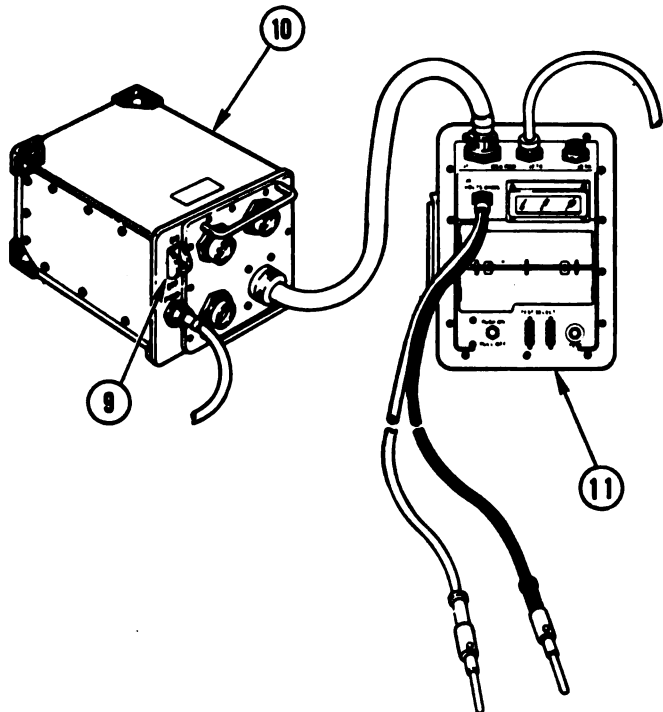
- Connect CX305-P1 (3) to CX307-P3 (4).

- Disconnect 1W202-P1 from J7 on turret networks box.

- See figure 16-5.

- Connect 1W202-P1 (5) to CA506-P1 (6).

- Connect CA506-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 measuring resistance between 0 and 1500 ohms.

- Refer to para. 10-1.

Figure 10-34 (Sheet 1 of 2)
 Volume II
 Para. 10-2

ARR82-6341

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

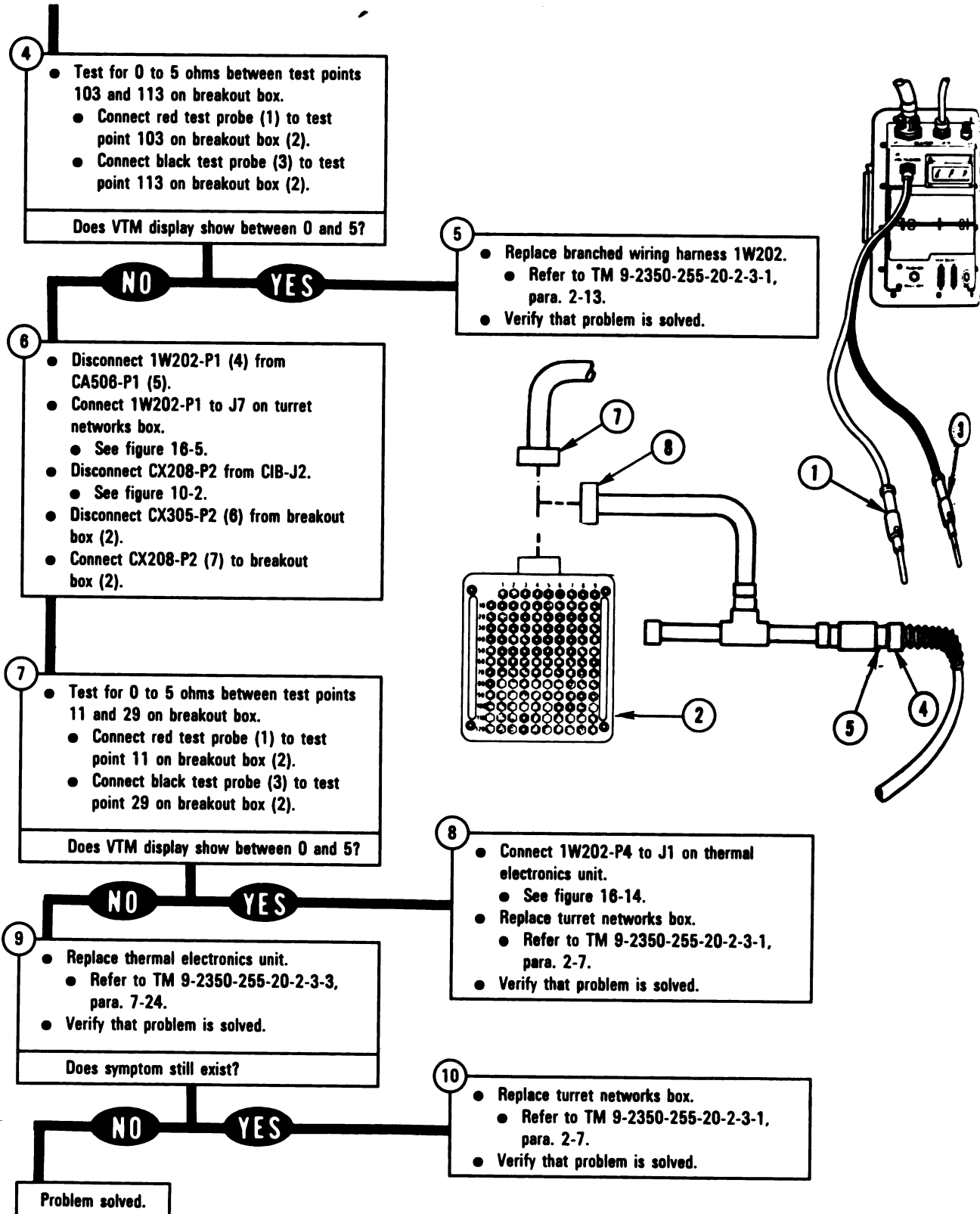


Figure 10-34 (Sheet 2 of 2)
 Volume II
 Para. 10-2

ARR82-634Z

DISPLAY SHOWS -
SEE -20 MANUAL

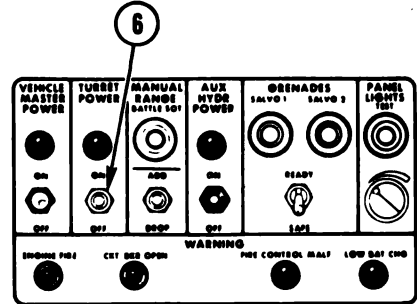
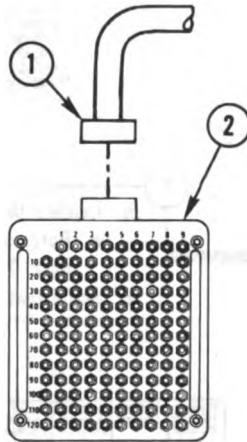
121035

**Additional Test
Equipment/Special Tools:**

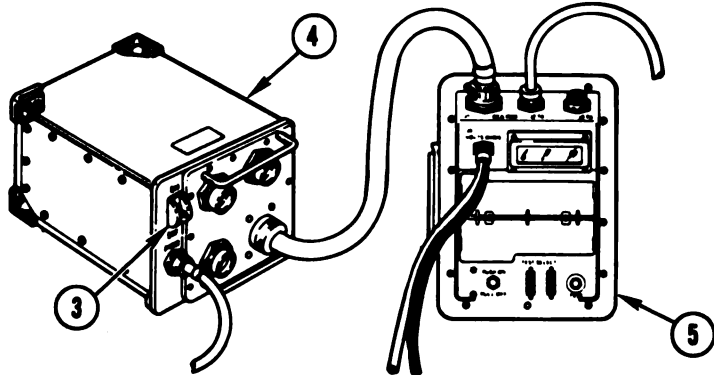
- Breakout Box Tool Kit, 12311066

Equipment Condition:

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



- 1
- Disconnect CX208-P2 from CIB-J2.
 - See figure 10-2.
 - Connect CX208-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. 10-1.



- 2
- Disconnect 1W202-P4 from J1 on thermal electronics unit.
 - See figure 16-14.
 - Connect 1W202-P6 to J1 on thermal power control unit.
 - See figure 16-14.
 - Set TURRET POWER switch (8) to ON.

Figure 10-35 (Sheet 1 of 2)
Volume II
Para. 10-2

ARR82-6343

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

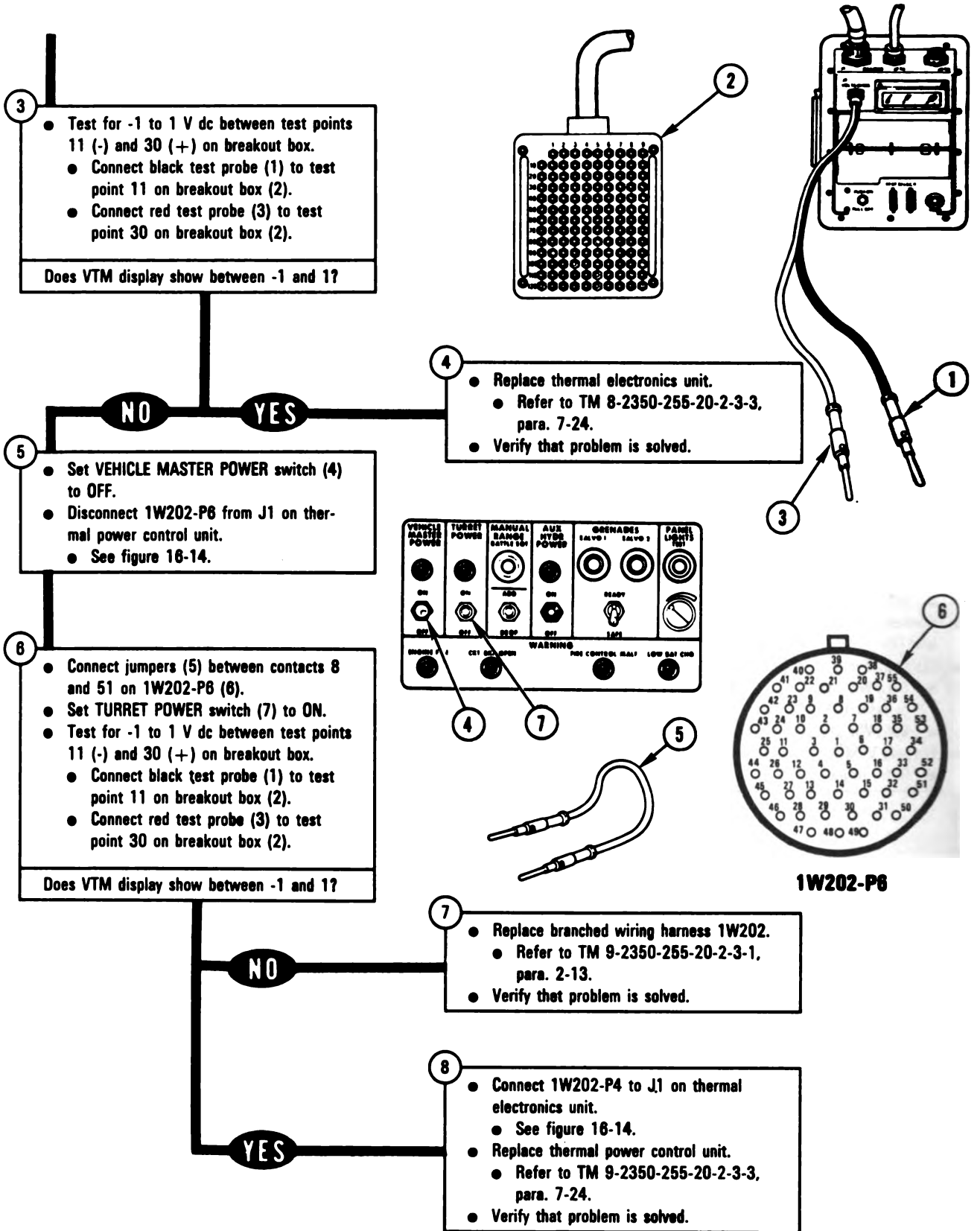


Figure 10-35 (Sheet 2 of 2)
 Volume II
 Para. 10-2

ARR82-6344

DISPLAY SHOWS -
 SEE -20 MANUAL

121079

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 10-2.

- Connect CX208-P2 (1) to breakout box (2).

- Disconnect 1W204-P1 from J3 on computer electronics unit.

- See figure 16-6.

- Connect 1W201-P2 to J1 on computer electronics unit.

- See figure 16-6.

- 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. 10-1.

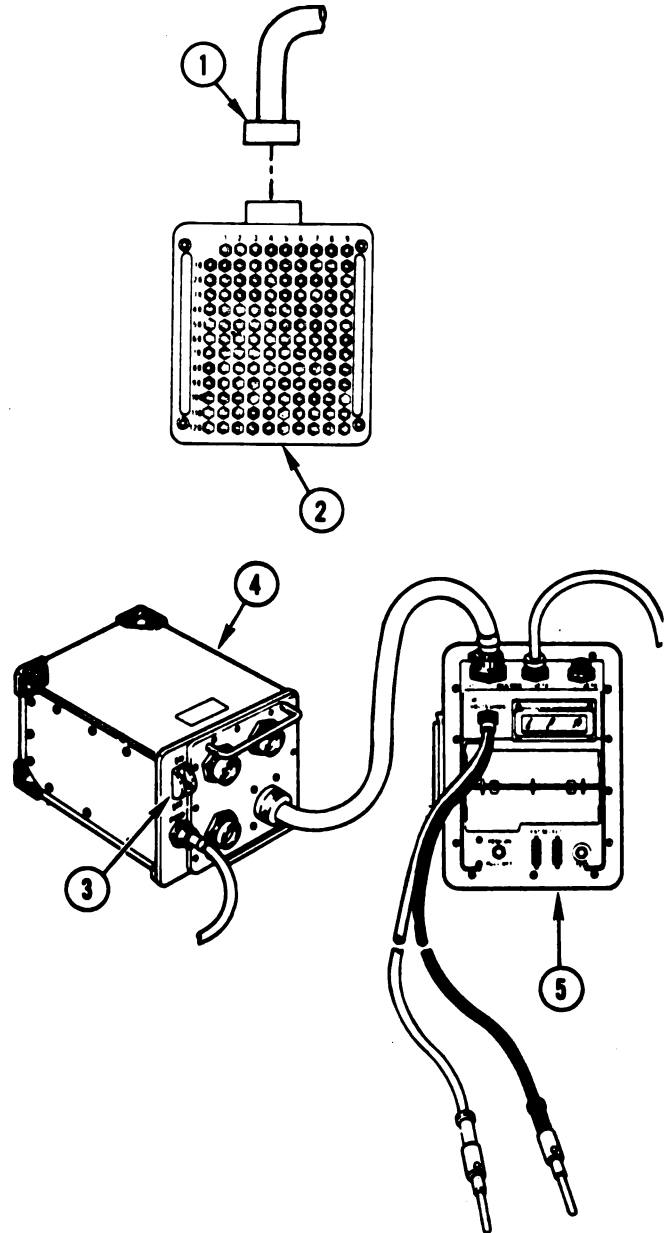


Figure 10-36 (Sheet 1 of 3)
 Volume II
 Para. 10-2

ARR82-6345

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

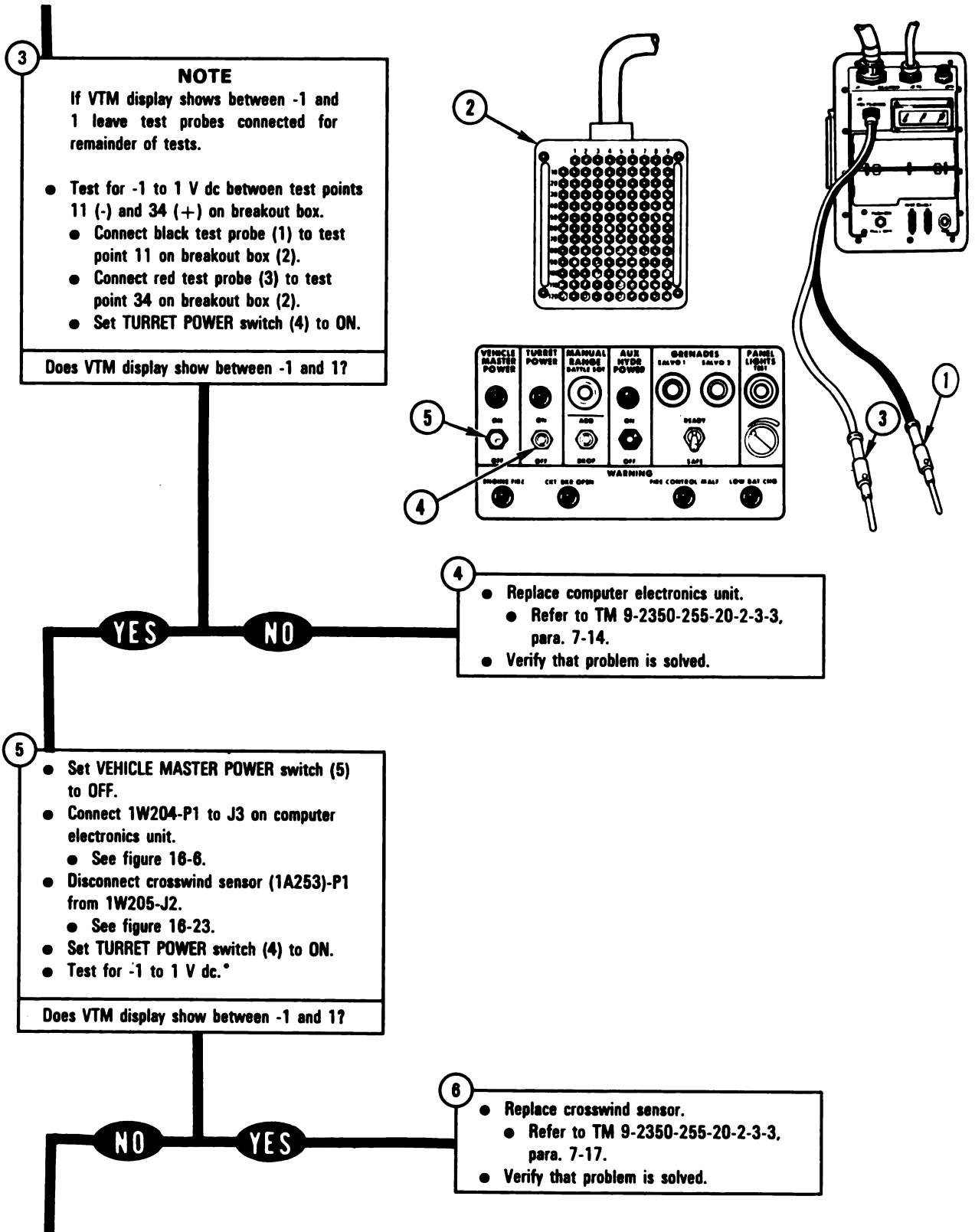
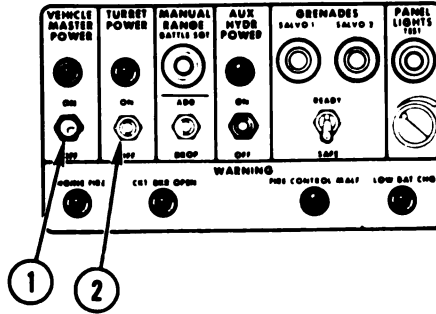


Figure 10-36 (Sheet 2 of 3)
Volume II
Para. 10-2

* Between contacts found in block 3.

- Set VEHICLE MASTER POWER switch (1) to OFF.
- Connect crosswind sensor (1A253)-P1 to 1W205-J2.
 - See figure 16-23.
- Disconnect 1W204-P4 from 1W205-J1.
 - See figure 16-23.
- Set TURRET POWER switch (2) to ON.
- Test for -1 to 1 V dc.

Does VTM display show between -1 and 1?



NO

8

- Replace branched wiring harness 1W204.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

YES

9

- Replace branched wiring harness 1W205.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

Figure 10-36 (Sheet 3 of 3)
 Volume II
 Para. 10-2

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

10-3. Computer and Azimuth/Elevation Subsystems Troubleshooting Procedures.

Table 10-3. Computer (CS) and Azimuth/Elevation (AES) Subsystems 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
CS-1	AMMUNITION SELECT HEAT Light Does Not Come On When AMMUNITION SELECT Switch Is Set To HEAT Position	Figure 10-37	1438	Figure 18-40
CS-2	AMMUNITION SELECT HEP Light Does Not Come On When AMMUNITION SELECT Switch Is Set To HEP Position	Figure 10-37	1438	Figure 18-41
CS-3	AMMUNITION SELECT SABOT Light Does Not Come On When AMMUNITION SELECT Switch Is Set To SABOT Position	Figure 10-37	1438	Figure 18-42
CS-4	AMMUNITION SELECT BH Light Does Not Come On When AMMUNITION SELECT Switch Is Set To BH Position	Figure 10-37	1438	Figure 18-43
CS-5	AMMUNITION SELECT Lights Do Not Come On	Figure 10-37	1438	Figure 18-44
CS-6	COAX Light And Fan Assembly Come On When GUN SELECT Switch Is Set To TRIGGER SAFE	Figure 10-37	1438	Figure 18-44
CS-7	Range Does Not Increase When MANUAL RANGE ADD-DROP Switch Is Set To ADD Position	Figure 10-37	1430	Figure 18-45
CS-8	Preset Range For Selected Ammunition Is Not Displayed When MANUAL RANGE BATTLE SGT Pushbutton Is Pressed	Figure 10-37	1430	Figure 18-46
CS-9	Range Does Not Decrease When MANUAL RANGE ADD-DROP Switch Is Set To DROP Position	Figure 10-37	1430	Figure 18-47
CS-10	FIRE CONTROL MALF Light And F Symbol Come On. Computer Manual Self Test Shows Failure Number 3	Figure 10-37	1430	Figure 18-48

**Table 10-3. Computer (CS) and Azimuth/Elevation (AES) Subsystems 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
CS-11	FIRE CONTROL MALF Light And F Symbol Come On. Computer Manual Self Test Shows Failure Number 2	Figure 10-37	1430	Figure 18-49
CS-12	Cannot Perform Computer Manual Self Test	Figure 10-37	1430	Figure 18-50
CS-13	Ballistics Control Panel Does Not Display Data	Figure 10-37	1430	Figure 18-51
CS-14	Data Cannot Be Entered In Computer	Figure 10-37	1430	Figure 18-51
CS-15	Ballistics Control Panel Display Is Erratic And/Or Wrong	Figure 10-37	1430	Figure 18-51
CS-16	One Or More Ballistics Control Panel Pushbuttons Do Not Work	Figure 10-37	1430	Figure 18-51
CS-17	Ballistics Control Panel Stays Off When ON/OFF Switch Is Set To ON	Figure 10-37	1430	Figure 18-52
CS-18	FIRE CONTROL MALF Light And F Symbol Come On. Computer Manual Self Test Shows Failure Number 1	Figure 10-37	1430	Figure 18-53
CS-19	Cannot Select BORESIGHT Or ZERO Mode On Ballistics Control Panel	Figure 10-37	1430	Figure 18-54
CS-20	MRS Light Does Not Come On When MRS Lever Is Set To The IN Position	Figure 10-37	1430	Figure 18-55
CS-21	MRS Light Does Not Go Off When MRS Lever Is Set To The OUT Position	Figure 10-37	1430	Figure 18-56
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	Figure 10-37	1430	Figure 18-57

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

Table 10-3. Computer (CS) and Azimuth/Elevation (AES) Subsystems 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
CS-23	Ballistics Control Panel Does Not Come On, AMMUNITION SELECT Lights Do Not Come On, And MANUAL RANGE BATTLE SGT Does Not Work	Figure 10-37	1430	—
CS-24	More Than One AMMUNITION SELECT Light Comes On	Figure 10-37	1438	—
AES-10	Main Gun And Turret Do Not Move In NORMAL And/Or EMERGENCY Mode. Hydraulic Pressure Gage Shows Between 1500 And 1700 PSI	Figure 10-37	1430	Figure 18-33
AES-11	Turret Does Not Traverse Using Commander's Control. Gunner's Control Works OK	Figure 10-37	1430	Figure 18-58
AES-12	Turret Does Not Traverse Using Gunner's Control. Commander's Control Works OK	Figure 10-37	1430	Figure 18-59
AES-13	Turret Drifts And NORMAL MODE DRIFT AZ Knob Has No Effect	Figure 10-37	1430	Figure 18-60
AES-14	Main Gun Does Not Elevate Or Depress And Turret Does Not Traverse In NORMAL Mode	Figure 10-37	1430	Figure 18-61
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	Figure 10-37	1430	Figure 18-62
AES-16	Main Gun Slams Or Elevates Against Upper Stop When Traversing Over Rear Deck Interference Zone Or When EL UNCPL Mode Is Selected	Figure 10-37	1430	Figure 18-63
AES-17	Main Gun Does Not Depress Below Zero Degrees Outside Rear Deck Interference Zone	Figure 10-37	1430	Figure 18-64

Table 10-3. Computer (CS) and Azimuth/Elevation (AES) Subsystems 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
AES-18	Main Gun Does Not Elevate Or Depress In NORMAL Or EMERGENCY Mode. OK in MANUAL Mode	Figure 10-37	1430	Figure 18-65
AES-19	FIRE CONTROL MODE Switch Does Not Hold In MANUAL Or EMERGENCY Positions	Figure 10-37	1430	Figure 18-66
AES-20	FIRE CONTROL MODE Switch Is Moved From NORMAL To EMERGENCY Position, But Main Gun And Turret Cannot Be Moved With Control Handles	Figure 10-37	1430	Figure 18-67
AES-21	GUN/TURRET DRIVE Switch Is Set To EL UNCPL Position, But Main Gun Remains Stabilized In Elevation	Figure 10-37	1430	Figure 18-68
AES-22	FIRE CONTROL MODE Switch Is Moved From EMERGENCY To NORMAL Position, But Main Gun And Turret Do Not Stabilize	Figure 10-37	1430	Figure 18-69
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	Figure 10-37	1430	Figure 18-70
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	Figure 10-37	1430	Figure 18-71
AES-25	NORMAL Light On Gunner's Primary Sight Lower Panel Does Not Come On When FIRE CONTROL MODE Switch Is Set To NORMAL	Figure 10-37	1430	Figure 17-72

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

Table 10-3. Computer (CS) and Azimuth/Elevation (AES) Subsystems 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
AES-26	EMERGENCY Light On Gunner's Primary Sight Lower Panel Does Not Come On When FIRE CONTROL MODE Switch Is Set To EMERGENCY	Figure 10-37	1430	Figure 18-73
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	Figure 10-37	1430	Figure 18-74
AES-28	POWERED Light On Loader's Panel Does Not Come On When GUN/TURRET DRIVE Switch Is Set To POWERED	Figure 10-37	1430	Figure 18-75
AES-29	EL UNCPL Light On Loader's Panel Does Not Come On When GUN/TURRET DRIVE Switch Is Set To EL UNCPL Position	Figure 10-37	1430	Figure 18-76
AES-30	Turret Does Not Traverse In NORMAL Or EMERGENCY Mode. OK In MANUAL Mode	Figure 10-37	1430	Figure 18-77
AES-31	Turret Does Not Remain Stable In Azimuth When Tank Is Turned Left Or Right	Figure 10-37	1430	Figure 18-78
AES-32	Turret And Main Gun Do Not Move Using Gunner's Control, But Do Move Using Commander's Control	Figure 10-37	1430	Figure 18-79
AES-33	Turret And Main Gun Do Not Move Using Commander's Control, But Do Move Using Gunner's Control	Figure 10-37	1430	Figure 18-80
AES-34	Main Gun Drifts In NORMAL Mode. NORMAL MODE DRIFT EL Knob Has No Effect	Figure 10-37	1430	Figure 18-81

Table 10-3. Computer (CS) and Azimuth/Elevation (AES) Subsystems 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
AES-35	Main Gun Does Not Elevate Or Depress Using Gunner's Control. Commander's Control Works OK	Figure 10-37	1430	Figure 18-82
AES-36	Main Gun Does Not Elevate Or Depress Using Commander's Control. Gunner's Control Works OK	Figure 10-37	1430	Figure 18-83
AES-37	Main Gun Does Not Elevate To Zero Degrees When EL UNCPL Mode Is Selected	Figure 10-37	1430	Figure 18-84
AES-38	Main Gun Does Not Elevate To Zero Degrees While Traversing In Interference Zone	Figure 10-37	1430	Figure 18-85
AES-39	FIRE CONTROL MALF Light And F Symbol Come On. Computer Manual Self Test Shows Failure Number 4	Figure 10-37	1430	Figure 18-86
AES-40	FIRE CONTROL MALF Light And F Symbol Come On. Computer Manual Self Test Shows Failure Number 5	Figure 10-37	1430	Figure 18-87
AES-41	Computer Manual Self Test Shows Failure Number 6. Gunner's Primary Sight Reticle Stays To Extreme Left Or Right	Figure 10-37	1430	Figure 18-88
AES-42	Computer Manual Self Test Shows Failure Number 6. Gunner's Primary Sight Reticle Keeps Moving Back And Forth	Figure 10-37	1430	Figure 18-89
AES-43	Computer Manual Self Test Shows Failure Number 6. Gunner's Primary Sight Reticle Does Not Move In Azimuth	Figure 10-37	1430	Figure 18-90

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

Table 10-3. Computer (CS) and Azimuth/Elevation (AES) Subsystems 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
AES-44	Turret/Main Gun Oscillates In NORMAL Mode With Commander's Or Gunner's Palm Switches Pressed And Controls Centered	Figure 10-37	1430	—
AES-45	Main Gun Does Not Remain Stable In Elevation. Gun Follows Pitching Motion Of Tank	Figure 10-37	1430	—
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	Figure 10-37	1430	—
AES-47	Main Gun And Gunner's Primary Sight Reticle Elevate Or Depress In NORMAL Mode With Gunner's And Commmander's Controls Centered And Either Gunner's Or Commander's Palm Switch Pressed	Figure 10-37	1430	—
AES-48	Turret And Gunner's Primary Sight Reticle Traverse In NORMAL Mode With Gunner's And Commmander's Controls Centered And Either Gunner's Or Commander's Palm Switch Pressed	Figure 10-37	1430	—
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	Figure 10-37	1430	—
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	Figure 10-37	1430	—

Table 10-3. Computer (CS) and Azimuth/Elevation (AES) Subsystems 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
AES-51	FIRE CONTROL MALF Light And F Symbol Come On. Computer Manual Self Test Shows Failure Number 6	Figure 10-37	1430	—
AES-52	FIRE CONTROL MALF Light And F Symbol Come On. Computer Manual Self Test Shows Failure Number 7	Figure 10-37	1430	—
AES-53	Erratic Tracking Of Main Gun In NORMAL Mode Only Using Gunner's Control	Figure 10-37	1430	—
AES-54	Erratic Tracking Of Main Gun In NORMAL Mode Only Using Commander's Control	Figure 10-37	1430	—
AES-55	Erratic Tracking Of Turret In NORMAL Mode Only Using Gunner's Control	Figure 10-37	1430	—
AES-56	Erratic Tracking Of Turret In NORMAL Mode Only Using Commander's Control	Figure 10-37	1430	—
AES-57	Turret Does Not Counterrotate To Provide Lead Angle When Tracking A Moving Target	Figure 10-37	1430	—
AES-58	Gunner's Primary Sight Reticle Does Not Move In Elevation	Figure 10-37	1430	—
AES-59	Gunner's Primary Sight Reticle Does Not Move Smoothly In Elevation	Figure 10-37	1430	—
AES-60	Cannot Hit Target Using Gunner's Primary Sight Reticle With Tank Moving, OK With Tank Stationary	Figure 10-37	1430	—

**COMPUTER OR AZIMUTH/ELEVATION
SUBSYSTEM FOUND FAULTY DURING
TANK OPERATION**

Supplies:

- Pencil
- Writing paper

Common Tools:

- Extension, socket wrench, 3/8-inch square drive, 5-inch
- Handle, socket wrench, ratchet, 3/8-inch square drive
- Pliers, slip joint, conduit style with plastic jaw inserts
- Socket, socket wrench, 3/8-inch square drive, 9/16 inch
- Universal Joint, socket wrench, 3/8-inch square drive

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. 10-1 before doing any work.

1

- Set up tank controls for standard initial test conditions.
 - Refer to para. 16-8, table 16-2.
- Remove baffle plate.
 - Refer to TM 9-2350-255-20-2-3-2, para. 3-16.
- Make sure traverse and elevation servomechanism filter indicator buttons are not popped out.
 - 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 10-37 (Sheet 1 of 32)
Volume II
Para. 10-3

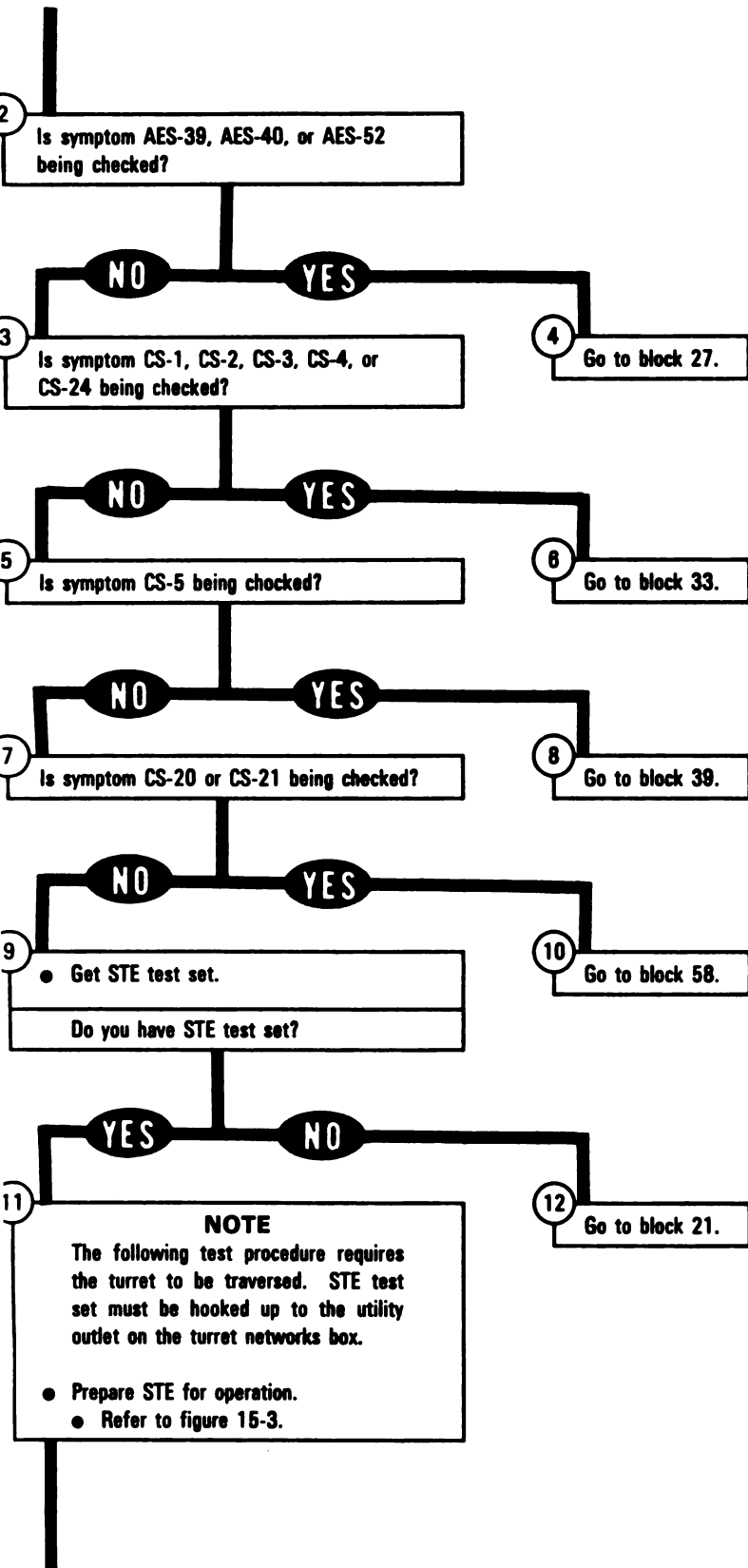


Figure 10-37 (Sheet 2 of 32)
 Volume II
 Para. 10-3

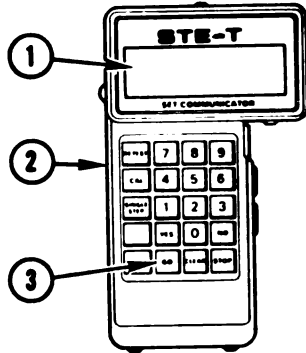
**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

13

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

- Enter test number 1430 on SETCOM (2).
- Press GO key (3).

NOTE
Display (1) shows -
TEST 1430
COMPUTER SYSTEM



14

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

Does display show a general instruction message?

NO **YES**

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

18

- Do general instruction.
- Go back to block 14.

NO **YES**

17 Does display show a fault message?

18

- Refer to cable instruction message index, sheet 19, and do action.
- Go back to block 14.

NO **YES**

19

NOTE

- Display (1) shows a special instruction message.
- If display (1) shows SEE-20 MANUAL be sure thermal mode switch is set to OFF.
- Refer to special instruction message index, sheet 26, and do action.

20

NOTE

Be sure THERMAL MODE switch is set to OFF.

- Refer to fault message index, sheet 24, and do action.
- Verify that problem is solved by repeating test number 1430.
- Go back to block 11.

*Figure 10-37 (Sheet 3 of 32)
Volume II
Para. 10-3*

ARR82-6344

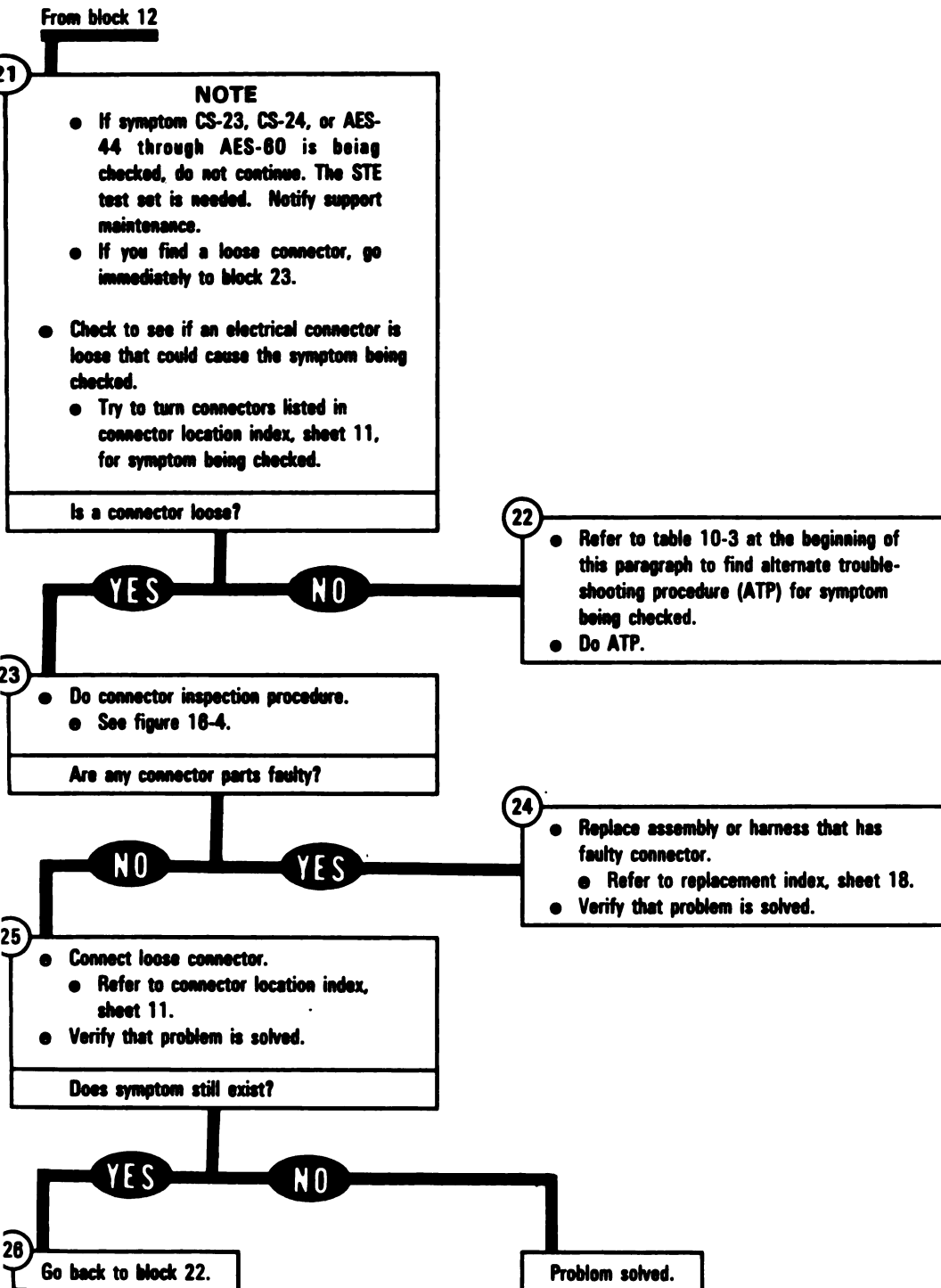
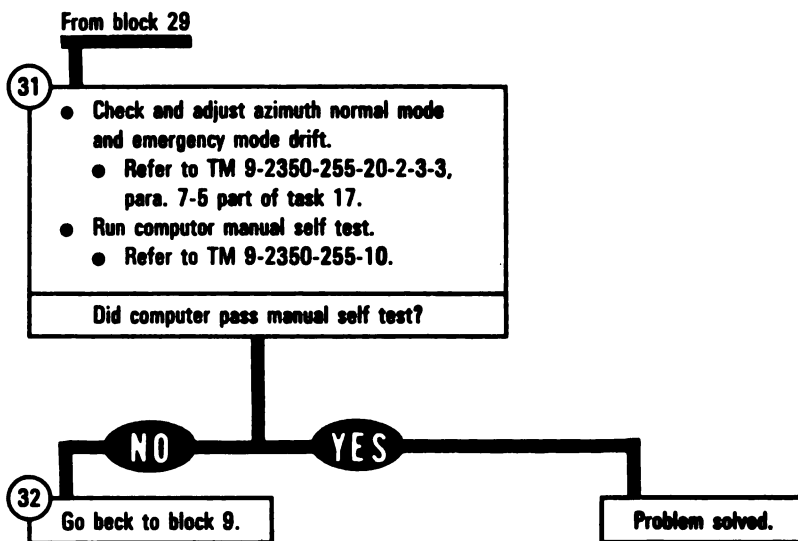
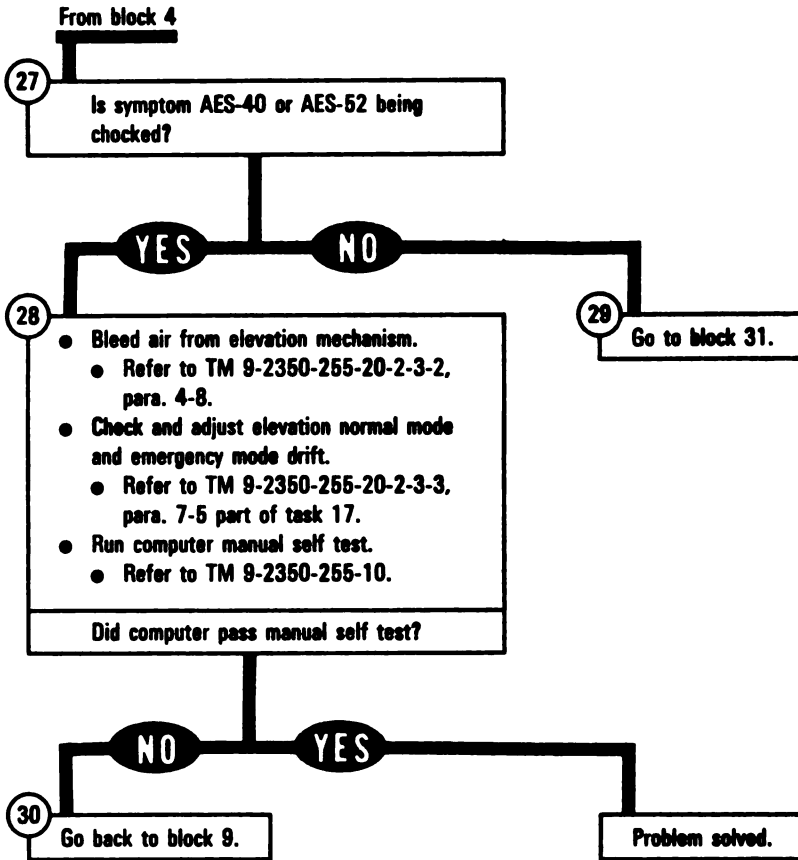


Figure 10-37 (Sheet 4 of 32)
 Volume II
 Para. 10-3

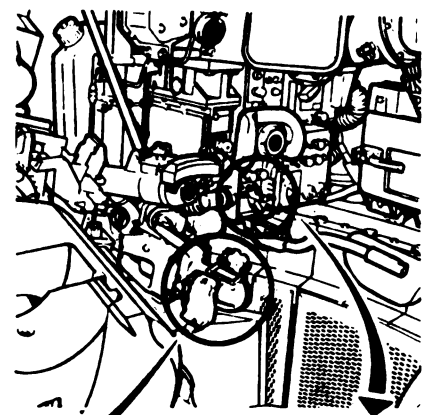
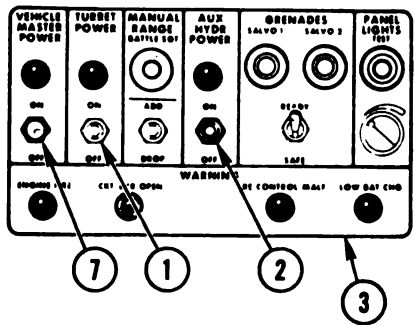
**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**



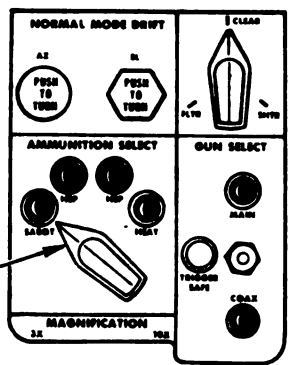
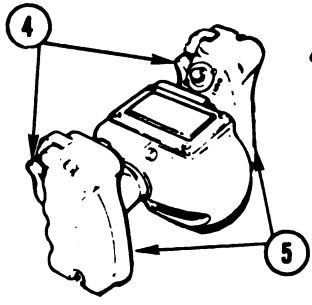
*Figure 10-37 (Sheet 5 of 32)
Volume II
Para. 10-3*

From block 6

- Unlock internal gun travel lock.
 - 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.
- Enter a range of 4000 meters on ballistics control panel.
 - Refer to TM 9-2350-255-10.



- Check for ballistic solution.
 - Squeeze palm switches (4) on gunner's control (5).
 - Rotate AMMUNITION SELECT switch (6) through each ammunition type and set back to original position.



Did gun move in any AMMUNITION SELECT switch position?

NO YES

- Release palm switches (4).
- Enter a range of 1000 meters on ballistics control panel.
 - Refer to TM 9-2350-255-10.
- Check for ballistic solution.
 - Squeeze and release palm switches (4).

- 36
- Release palm switches (4).
 - Set VEHICLE MASTER POWER switch (7) to OFF.
 - Lock internal gun travel lock.
 - Refer to TM 9-2350-255-10.
 - Go to block 39.

Did gun move?

NO

- 37
- Run test number 1400.
 - Refer to TM 9-2350-255-20-2-2-1, figure 9-5.

YES

- 38
- Replace computer electronics unit.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-14.
 - Verify that problem is solved.

Figure 10-37 (Sheet 6 of 32)
Volume II
Para. 10-3

ARR82-6349

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

From blocks 8 and 38

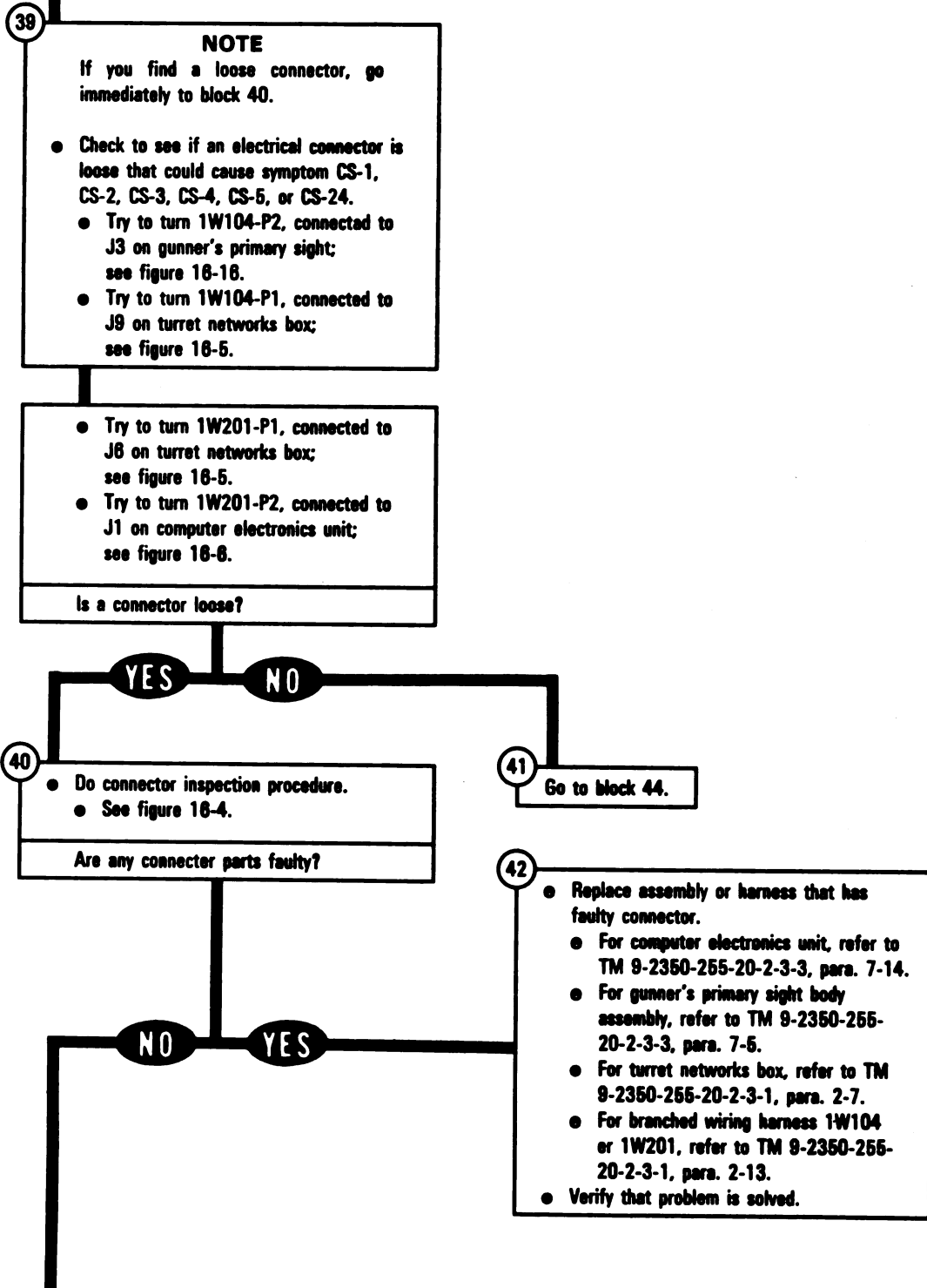


Figure 10-37 (Sheet 7 of 32)
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Para. 10-3

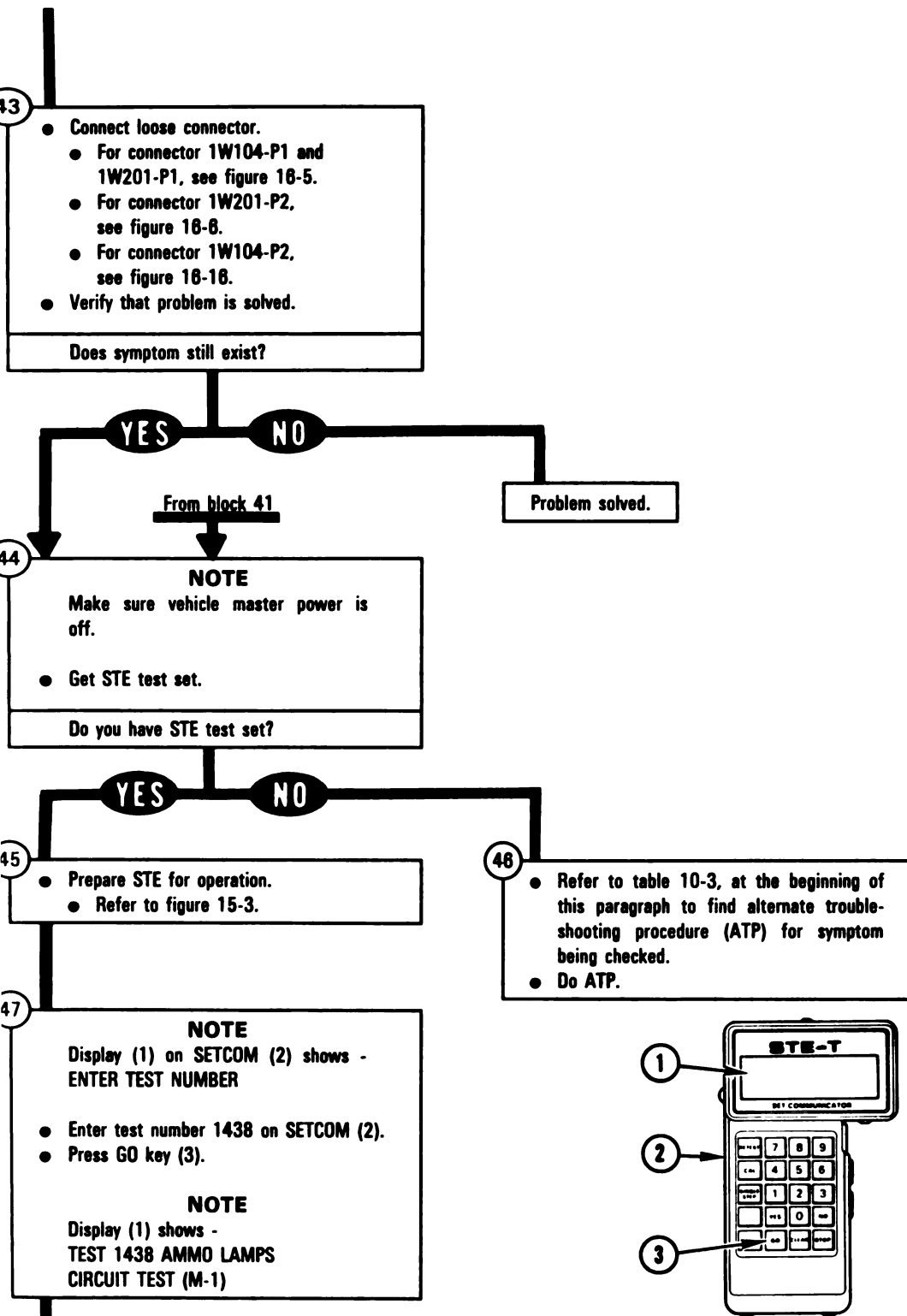


Figure 10-37 (Sheet 8 of 32)
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 Para. 10-3

ARR82-6350

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

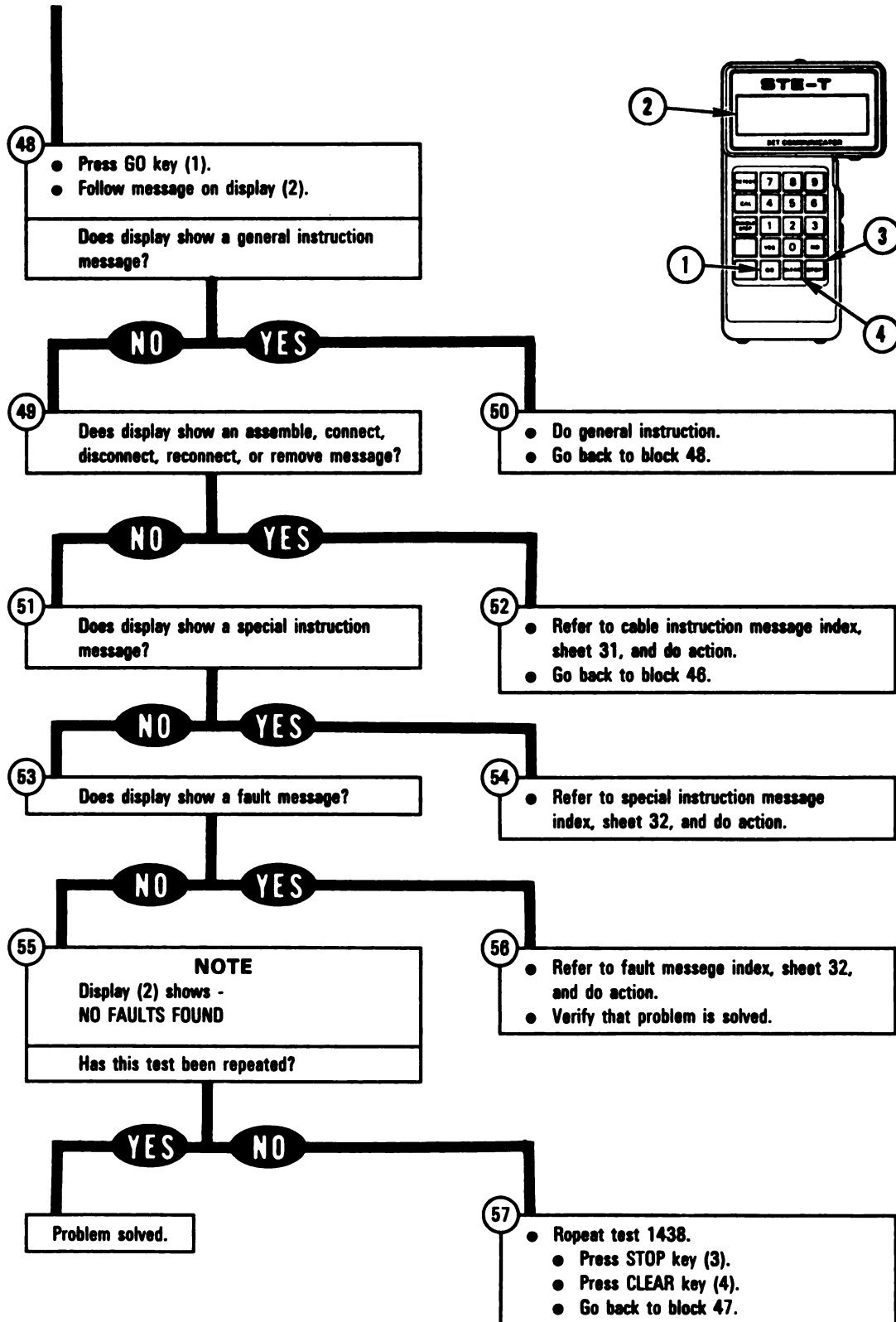


Figure 10-37 (Sheet 9 of 32)
**Volume II
Para. 10-3**

ARR82-4351

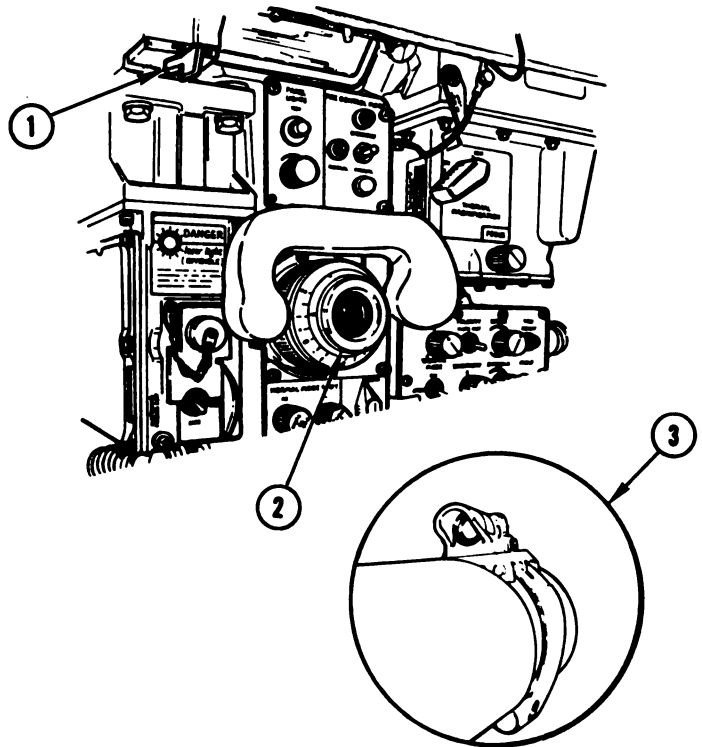
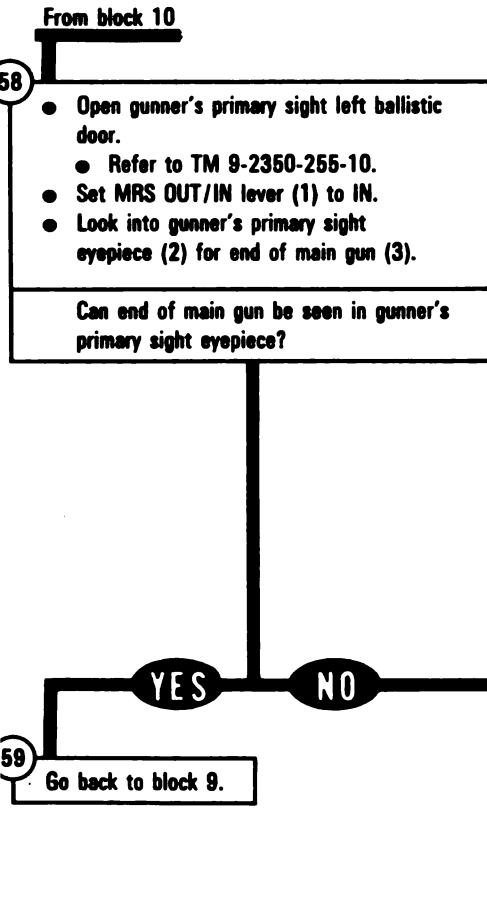


Figure 10-37 (Sheet 10 of 32)
 Volume II
 Para. 10-3

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

Connector Location Index

Fault Symptom No.	Harness Connector	Connects To	Figure
AES-10	1W106-P1	J2 on turret networks box	16-5
	1W200-P1	J5 on turret networks box	16-5
	1W202-P1	J7 on turret networks box	16-5
	1W104-P1	J9 on turret networks box	16-5
	1W101-P2	J11 on turret networks box	16-5
	1W200-P2	J1 on electronic unit	16-6
	1W200-P3	J2 on electronic unit	16-6
	1W200-P4	J3 on electronic unit	16-6
	1W200-P7	J1 on commander's control	16-8
	1W200-P8	J1 on gunner's control	16-8
	2W109-P1	J3 on hull/turret slipring	16-9
	1W101-P1	J8 on hull/turret slipring	16-9
	1W200-P9	J1 on traverse servomechanism	16-10
	1W104-P3	J1 on traversing mechanism	16-11
	1W106-P2	J1 on loader's panel	16-12
	1W200-P6	J1 on feed forward gyroscope	16-12
	1W200-P5	J1 on reference gyroscope	16-13
	1W202-P3	J1 on line-of-sight electronics unit	16-14
	1W200-P12	J1 on elevation servomechanism	16-15
	2W109-P2	J1 on hull gyroscope	16-15
1W104-P2	J3 on gunner's primary sight	16-16	
AES-11	1W200-P4	J3 on electronic unit	16-6
	1W200-P7	J1 on commander's control	16-8

Figure 10-37 (Sheet 11 of 32)
Volume II
Para. 10-3

Connector Location Index (Continued)

Fault Symptom No.	Harness Connector	Connects To	Figure
AES-12	1W200-P4	J3 on electronic unit	16-8
	1W200-P8	J1 on gunner's control	16-8
AES-13	1W104-P1	J9 on turret networks box	16-5
	1W104-P2	J3 on gunner's primary sight	16-16
AES-14	1W200-P1	J5 on turret networks box	16-5
	1W104-P1	J9 on turret networks box	16-5
	1W200-P3	J2 on electronic unit	16-8
	1W104-P2	J3 on gunner's primary sight	16-16
AES-15	1W203-P1	J3 on turret networks box	16-5
	1W203-P2	J1 on gunner's primary sight	16-16
AES-16	1W107-P1	J4 on turret networks box	16-5
	1W200-P1	J5 on turret networks box	16-5
	1W200-P3	J2 electronic unit	16-8
	1W200-P4	J3 electronic unit	16-8
	1S242-P1	1W107-J2	16-13
AES-17	1W107-P1	J4 on turret networks box	16-5
	1W200-P1	J5 on turret networks box	16-5
	1W101-P2	J11 on turret networks box	16-5
	1W200-P3	J2 on electronic unit	16-8
	1W200-P4	J3 on electronic unit	16-8
	1W101-P1	J8 on hull/turret slipring	16-9
	1S242-P1	1W107-J2	16-13

Figure 10-37 (Sheet 12 of 32)
Volume II
Para. 10-3

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

Connector Location Index (Continued)

Fault Symptom No.	Harness Connector	Connects To	Figure
AES-18	1W104-P1	J9 on turret networks box	16-5
	1W104-P7	J4 on hydraulic turret valve	16-10
AES-19	1W104-P1	J9 on turret networks box	16-5
	1W104-P2	J3 on gunner's primary sight	16-16
AES-20	1W104-P1	J9 on turret networks box	16-5
	1W104-P2	J3 on gunner's primary sight	16-16
AES-21	1W106-P1	J2 on turret networks box	16-5
	1W107-P1	J4 on turret networks box	16-5
	1W106-P2	J1 on loader's panel	16-12
	1S100-P1	1W108-J1	16-13
	1S242-P1	1W107-J2	16-13
AES-22	1W108-P1	1W107-J1	16-13
	1W104-P1	J9 on turret networks box	16-5
	1W104-P2	J3 on gunner's primary sight	16-16
AES-23	1W106-P1	J2 on turret networks box	16-5
	1W104-P1	J9 on turret networks box	16-5
	1W104-P3	J1 on traversing mechanism	16-11
	1W106-P2	J1 on loader's panel	16-12
	1W104-P2	J3 on gunner's primary sight	16-16
AES-24	1W106-P1	J2 on turret networks box	16-5
	1W106-P2	J1 on loader's panel	16-12
AES-25	1W104-P1	J9 on turret networks box	16-5
	1W104-P2	J3 on gunner's primary sight	16-16

Figure 10-37 (Sheet 13 of 32)
Volume II
Para. 10-3

Connector Location Index (Continued)

Fault Symptom No.	Harness Connector	Connects To	Figure
AES-26	1W104-P1	J9 on turret networks box	16-5
	1W104-P2	J3 on gunner's primary sight	16-16
AES-27	1W106-P1	J2 on turret networks box	16-5
	1W104-P1	J9 on turret networks box	16-5
	1W104-P3	J1 on traversing mechanism	16-11
	1W106-P2	J1 on loader's panel	16-12
AES-28	1W104-P2	J3 on gunner's primary sight	16-16
	1W106-P1	J2 on turret networks box	16-5
AES-29	1W106-P2	J1 on loader's panel	16-12
	1W106-P1	J2 on turret networks box	16-5
AES-30	1W104-P1	J9 on turret networks box	16-5
	1W104-P4	J1 on hydraulic turret valve	16-10
AES-31	1W200-P1	J5 on turret networks box	16-5
	1W101-P2	J11 on turret networks box	16-5
	1W200-P4	J3 on electronic unit	16-6
	2W109-P1	J3 on hull/turret slipping	16-9
	1W101-P1	J8 on hull/turret slipping	16-9
AES-32	2W109-P2	J1 on hull gyroscope	16-15
	1W200-P1	J5 on turret networks box	16-5
	1W200-P4	J5 on electronic unit	16-6
	1W200-P7	J1 on commander's control	16-8
	1W200-P8	J1 on gunner's control	16-8

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FIRE CONTROL SYSTEM TROUBLESHOOTING**

Connector Location Index (Continued)

Fault Symptom No.	Harness Connector	Connects To	Figure
AES-33	1W200-P1	J5 on turret networks box	16-5
	1W200-P3	J2 on electronic unit	16-6
	1W200-P4	J3 on electronic unit	16-6
	1W200-P7	J1 commander's control	16-8
AES-34	1W202-P1	J7 on turret networks box	16-5
	1W104-P1	J9 on turret networks box	16-5
	1W202-P3	J1 on line-of-sight electronics unit	16-14
	1W104-P2	J3 on gunner's primary sight	16-18
AES-35	1W200-P3	J2 on electronic unit	16-6
	1W200-P8	J1 on gunner's control	16-8
AES-36	1W200-P3	J2 on electronic unit	16-6
	1W200-P7	J1 on commander's control	16-8
AES-37	1W106-P1	J2 on turret networks box	16-5
	1W107-P1	J4 on turret networks box	16-5
	1W200-P1	J5 on turret networks box	16-5
	1W200-P3	J2 on electronic unit	16-6
	1W200-P4	J3 on electronic unit	16-5
	1W106-P2	J1 on loader's panel	16-12
	1S100-P1	1W108-J1	16-13
	1S242-P1	1W107-J2	16-13
	1W108-P1	1W107-J1	16-13

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Connector Location Index (Continued)

Fault Symptom No.	Harness Connector	Connects To	Figure
AES-38	1W107-P1	J4 on turret networks box	16-5
	1W200-P1	J5 on turret networks box	16-5
	1W101-P2	J11 on turret networks box	16-5
	1W200-P3	J2 on electronic unit	16-6
	1W200-P4	J3 on electronic unit	16-6
	2W109-P1	J3 on hull/turret slipping	16-9
	1W101-P1	J8 on hull/turret slipping	16-9
	1S242-P1	1W107-J2	16-13
	2W109-P3	J7 on hull networks box	16-17
CS-7,CS-8 and CS-9	1W201-P1	J6 on turret networks box	16-5
	1W102-P1	J8 on turret networks box	16-5
	1W201-P2	J1 on computer electronics unit	16-6
	1W102-P2	J1 on commander's control panel	16-7
CS-10	1W201-P1	J6 on turret networks box	16-5
	1W201-P2	J1 on computer electronics unit	16-6
	1W202-P2	J2 on computer electronics unit	16-6
	1W204-P1	J3 on computer electronics unit	16-6
	1W202-P5	J1 on ballistics control panel	16-8
	1A253-P1	1W205-J2	16-23
	1W204-P4	1W205-J1	16-23
CS-11	1W204-P1	J3 on computer electronics unit	16-6
	1W204-P3	J1 on cant unit	16-8

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**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

Connector Location Index (Continued)

Fault Symptom No.	Harness Connector	Connects To	Figure
CS-12	1W201-P1	J6 on turret networks box	16-5
	1W201-P2	J1 on computer electronics unit	16-6
	1W202-P2	J2 on computer electronics unit	16-6
	1W204-P1	J3 on computer electronics unit	16-6
	1W202-P5	J1 on ballistics control panel	16-8
	1W204-P3	J1 on cant unit	16-8
	1A253-P1	1W205-J2	16-23
	1W204-P4	1W205-J1	16-23
CS-13	1W202-P2	J2 on computer electronics unit	16-6
CS-14,CS-15 CS-16 and CS-17	1W202-P2	J2 on computer electronics unit	16-6
	1W202-P5	J1 on ballistics control panel	16-8
CS-18 and CS-19	1W201-P1	J6 on turret networks box	16-5
	1W201-P2	J1 on computer electronics unit	16-6
CS-20,CS-21 and CS-22	1W203-P1	J3 on turret networks box	16-5
	1W200-P1	J5 on turret networks box	16-5
	1W201-P1	J6 on turret networks box	16-5
	1W200-P4	J3 on electronic unit	16-6
	1W201-P2	J1 on computer electronics unit	16-6
	1W200-P7	J1 on commander's control	16-8
	1W200-P8	J1 on gunner's control	16-8
	1W206-P3	1W207-J1	16-10
1W203-P2	J1 on gunner's primary sight	16-16	
1W206-P2	J2 on gunner's primary sight	16-16	

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Replacement Index

Assembly or Harness	TM 9-2350-255-20-	Para.
Ballistics control panel	2-3-3	7-15
Branched wiring harness 1W107 or 1W205	2-3-1	2-13
Branched wiring harness 1W207	•	
Cant unit assembly	2-3-3	7-18
Commander's control assembly	2-3-3	7-22
Commander's control panel assembly	2-3-1	2-5
Computer electronics unit	2-3-3	7-14
Crosswind sensor	2-3-3	7-17
Elevation servomechanism assembly	•	
Feed forward gyroscope	2-3-3	7-19
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
Hull gyroscope	2-3-3	7-19
Hull networks distribution box	1-3-6	11-12
Hull/turret slipping assembly	2-3-1	2-8
Hydraulic turret valve	2-3-2	4-10
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
Reference gyroscope	2-3-3	7-19
Traverse servomechanism assembly	•	
Traversing mechanism assembly	•	
Turret networks box	2-3-1	2-7
Wiring harness assembly 1W108	2-3-1	2-13
Zero degree elevation switch	2-3-1	2-14

*Notify support maintenance

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

Computer Subsystem Cable Instruction Message Index for Test 1430

Cable Instruction Message	Action
ASSEMBLE CX304 CX307 AND CA501/02	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX304 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 10-43.
ASSEMBLE CX304 CX308 AND CA551/52	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX304 to P3 on DBA CX308. ● Connect P2 on adapter CA551 to P1 on DBA CX308. ● Connect P2 on adapter CA552 to P2 on DBA CX308. ● See figure 10-50.
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 10-39.
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 10-40.
ASSEMBLE CX305 CX307 AND CA421/22	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX305 to P3 on DBA CX307. ● Connect P2 on adapter CA421 to P1 on DBA CX307. ● Connect P2 on adapter CA422 to P2 on DBA CX307. ● See figure 10-41.
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 10-43.
ASSEMBLE CX305 CX307 AND CA513/14	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX305 to P3 on DBA CX307. ● Connect P2 on adapter CA513 to P1 on DBA CX307. ● Connect P2 on adapter CA514 to P2 on DBA CX307. ● See figure 10-44.
ASSEMBLE CX305 CX307 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 P2 on DBA CX307. ● Connect P2 on adapter CA528 to P1 on DBA CX307. ● See figure 10-46.
ASSEMBLE CX305 CX307 AND CA529/30	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX305 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 10-47.
ASSEMBLE CX305 CX308 AND CA539	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX305 to P3 on DBA CX308. ● Connect P2 on adapter CA539 to P1 on DBA CX308. ● See figure 10-48.

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Computer Subsystem Cable Instruction Message Index for Test 1430 (Continued)

Cable Instruction Message	Action
ASSEMBLE CX305 X308 AND CA547/48	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX305 to P3 on DBA CX308. ● Connect P2 on adapter CA547 to P1 on DBA CX308. ● Connect P2 on adapter CA548 to P2 on DBA CX308. ● See figure 10-49.
ASSEMBLE CX305 X308 AND CA555/56	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX305 to P3 on DBA CX308. ● Connect P2 on adapter CA555 to P1 on DBA CX308. ● Connect P2 on adapter CA556 to P2 on DBA CX308. ● See figure 10-51.
CONNECT CX205 TO CIB AND TANK	<ul style="list-style-type: none"> ● Connect P1 on cable CX205 to J1 on CIB. ● Connect P2 on cable CX205 to J2 on CIB. ● Connect P3 on cable CX205 to J3 on CIB. ● Connect P4 on cable CX205 to TEST 1 on turret networks box. ● Connect P5 on cable CX205 to TEST 2 on turret networks box. ● Connect P6 on cable CX205 to J4 on gunner's primary sight. ● Connect P7 on cable CX205 to J3 on line-of-sight electronics unit. ● Connect P8 on cable CX205 to J4 on electronic unit. ● See figure 10-38.
CONNECT CX304 P2 TO CIB J1	<ul style="list-style-type: none"> ● Connect P2 on CIB cable CX304 to J1 on CIB. ● See figure 10-52.
CONNECT CX305 P2 TO CIB J1	<ul style="list-style-type: none"> ● Connect P2 on CIB cable CX305 to J1 on CIB ● See figure 10-52
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 10-47.
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 10-40.
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 10-43.
CONNECT DBA BETWEEN 1W202 <--> CCP J1	<ul style="list-style-type: none"> ● Connect P1 on adapter CA548 to J1 on ballistics control panel. ● Connect 1W202-P5 to P1 on adapter CA547. ● See figure 10-49.

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**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

Computer Subsystem Cable Instruction Message Index for Test 1430 (Continued)

Cable Instruction Message	Action
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 10-46.
CONNECT DBA BETWEEN 1W204 ← -> CANT U J1	<ul style="list-style-type: none"> ● Connect P1 on adapter CA556 to J1 on cant unit. ● Connect 1W204-P3 to P1 on adapter CA555. ● See figure 10-51.
CONNECT DBA BETWEEN 1W205 ← -> XWIND P1	<ul style="list-style-type: none"> ● Connect crosswind sensor (1A253)-P1 to P1 on adapter CA552 ● Connect P1 on adapter CA551 to 1W205-J2. ● See figure 10-50.
CONNECT DBA TO CEU J3 ONLY	<ul style="list-style-type: none"> ● Connect P1 on adapter CA514 to J3 on computer electronics unit. ● See figure 10-44.
CONNECT DBA TO GPS J1	<ul style="list-style-type: none"> ● Connect P1 on adapter CA422 to J1 on gunner's primary sight ● See figure 10-41.
CONNECT DBA TO 1W201 P2	<ul style="list-style-type: none"> ● Connect 1W201-P2 to P1 on adapter CA419. ● See figure 10-39.
CONNECT DBA TO 1W203 P2	<ul style="list-style-type: none"> ● Connect 1W203-P2 to P1 on adapter CA421. ● See figure 10-41.
CONNECT DBA TO 1W203 P3 ONLY	<ul style="list-style-type: none"> ● Connect 1W203-P3 to P1 on adapter CA539. ● See figure 10-48.
CONNECT DBA TO 1W204 P1	<ul style="list-style-type: none"> ● Connect 1W204-P1 to P1 on adapter CA513. ● See figure 10-44.
CONNECT DBA TO 1W204 P3 ONLY	<ul style="list-style-type: none"> ● Connect 1W204-P3 to P1 on adapter CA555. ● See figure 10-51.
DISCONNECT CX305 FROM CIB	<ul style="list-style-type: none"> ● Disconnect P2 on CIB cable CX305 from J1 on CIB. ● See figure 10-52.
DISCONNECT DBA FROM CX304	<ul style="list-style-type: none"> ● Disconnect P1 on CIB cable CX304 from P3 on DBA CX308 ● See figure 10-48.
DISCONNECT DBA FROM CX305	<ul style="list-style-type: none"> ● Disconnect P1 on CIB cable CX305 from P3 on DBA CX308. ● See figure 10-48.
DISCONNECT DBA FROM XWIND P1	<ul style="list-style-type: none"> ● Disconnect crosswind sensor (1A253)-P1 from P1 on adapter CA552. ● See figure 10-50.

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Computer Subsystem Cable Instruction Message Index for Test 1430 (Continued)

Cable Instruction Message	Action
DISCONNECT DBA FROM 1W102 ←-→ TNB J8	<ul style="list-style-type: none"> ● Disconnect P1 on adapter CA529 from J8 on turret networks box. ● Disconnect 1W102-P1 from P1 on adapter CA530. ● See figure 10-47.
DISCONNECT DBA FROM 1W201 ←-→ CEU J1	<ul style="list-style-type: none"> ● Disconnect 1W201-P2 from P1 on adapter CA419. ● Disconnect P1 on adapter CA420 from J1 on computer electronics unit. ● See figure 10-40.
DISCONNECT DBA FROM 1W203 P2	<ul style="list-style-type: none"> ● Disconnect 1W203-P2 from P1 on adapter CA421. ● See figure 10-41.
DISCONNECT DBA FROM 1W203 P3	<ul style="list-style-type: none"> ● Disconnect 1W203-P3 from P1 on adapter CA539. ● See figure 10-48.
DISCONNECT DBA FROM 1W204 ←-→ CANT U J1	<ul style="list-style-type: none"> ● Disconnect P1 on adapter CA556 from J1 on cant unit. ● Disconnect 1W204-P3 from P1 on adapter CA555. ● See figure 10-51.
DISCONNECT DBA FROM 1W205 ←-→ XWIND P1	<ul style="list-style-type: none"> ● Disconnect crosswind sensor (1A253)-P1 from P1 on adapter CA552. ● Disconnect P1 on adapter CA551 from 1W205-J2. ● See figure 10-50.
DISCONNECT 1W102 ←-→ TCP J1	<ul style="list-style-type: none"> ● Disconnect 1W102-P2 from J1 on commander's control panel. ● See figure 16-7.
DISCONNECT 1W102 ←-→ TNB J8	<ul style="list-style-type: none"> ● Disconnect 1W102-P1 from J8 on turret networks box. ● See figure 16-5.
DISCONNECT 1W103 ←-→ VBLOW J1	<ul style="list-style-type: none"> ● Disconnect 1W103-P2 from J1 on fan assembly. ● See figure 16-12.
DISCONNECT 1W201 ←-→ CEU J1	<ul style="list-style-type: none"> ● Disconnect 1W201-P2 from J1 on computer electronics unit. ● See figure 16-6.
DISCONNECT 1W201 ←-→ TNB J6	<ul style="list-style-type: none"> ● Disconnect 1W201-P1 from J6 on turret networks box ● See figure 16-5.
DISCONNECT 1W202 ←-→ CCP J1	<ul style="list-style-type: none"> ● Disconnect 1W202-P5 from J1 on ballistics control panel. ● See figure 16-8.
DISCONNECT 1W203 ←-→ GPS J1	<ul style="list-style-type: none"> ● Disconnect 1W203-P2 from J1 on gunner's primary sight. ● See figure 16-16.

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**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

Computer Subsystem Cable Instruction Message Index for Test 1430 (Continued)

Cable Instruction Message	Action
DISCONNECT 1W203 ←-→ LRF J1	<ul style="list-style-type: none"> ● Disconnect 1W203-P3 from J1 on laser rangefinder. ● See figure 16-16.
DISCONNECT 1W203 ←-→ TNB J3	<ul style="list-style-type: none"> ● Disconnect 1W203-P1 from J3 on turret networks box. ● See figure 16-5.
DISCONNECT 1W204 ←-→ CANT J1	<ul style="list-style-type: none"> ● Disconnect 1W204-P3 from J1 on cant unit. ● See figure 16-8.
DISCONNECT 1W204 ←-→ CEU J3	<ul style="list-style-type: none"> ● Disconnect 1W204-P1 from J3 on computer electronics unit. ● See figure 16-6.
DISCONNECT 1W205 ←-→ XWIND P1	<ul style="list-style-type: none"> ● Disconnect crosswind sensor (1A253)-P1 from 1W205-J2. ● See figure 16-23.
RECONNECT CX205 ←-→ CIB J1	<ul style="list-style-type: none"> ● Connect P1 on cable CX205 to J1 on CIB. ● See figure 10-38.
RECONNECT 1W102 ←-→ TNB J8	<ul style="list-style-type: none"> ● Connect 1W102-P1 to J8 on turret networks box. ● See figure 16-5.
RECONNECT 1W103 ←-→ VBLOW J1	<ul style="list-style-type: none"> ● Connect 1W103-P2 to J1 on fan assembly. ● See figure 16-12.
RECONNECT 1W203 ←-→ LRF J1	<ul style="list-style-type: none"> ● Connect 1W203-P3 to J1 on laser rangefinder. ● See figure 16-16.
RECONNECT 1W204 ←-→ CANT U J1	<ul style="list-style-type: none"> ● Connect 1W204-P3 to J1 on cant unit. ● See figure 16-8.
RECONNECT 1W205 ←-→ XWIND P1	<ul style="list-style-type: none"> ● Connect crosswind sensor (1A253)-P1 to 1W205-J2. ● See figure 10-23.
REMOVE CX205 FROM CIB J1	<ul style="list-style-type: none"> ● Disconnect P1 on cable CX205 from J1 on CIB. ● See figure 10-38.

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Computer Subsystem Fault Message Index for Test 1430

Fault Message			Action
FAULTY BATTERY/ CHARGING SYS	109926		<ul style="list-style-type: none"> ● Charge batteries. ● Refer to TM 9-2350-255-10. ● Go back to block 11.
FAULTY CANT	143205 143206 143207		<ul style="list-style-type: none"> ● Replace cant unit assembly. ● Refer to TM 9-2350-255-20-2-3-3, para. 7-18.
FAULTY CCP	143026 143027 143035 143036 143037 143061 143102 143104	144203 144204 144205 144206 144207 144209 144210 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 CEU	143038 143073 143078 143124 143125 143134 143142	143157 143162 143167 143171 143173 143178 143312	<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 1W201	143116 143121 143137 143145		<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 10-64.
FAULTY CEU OR 1W202	143060 143063 143103		<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 10-57. ● See figure 10-58. ● See figure 10-61.
FAULTY CEU OR 1W204	143202 143203 143204 143210		<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 10-74. ● See figure 10-74. ● See figure 10-75. ● See figure 10-76.

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**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

Computer Subsystem Fault Message Index for Test 1430 (Continued)

Fault Message		Action
FAULTY CEU, 1W201, 1W204, 1W205	143307	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 10-80.
FAULTY CEU, 1W204, OR 1W205	143304 143305 143308 143310	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 10-78. ● See figure 10-79. ● See figure 10-79. ● See figure 10-79.
FAULTY CROSSWIND SENSOR	143316	<ul style="list-style-type: none"> ● Replace crosswind sensor. ● Refer to TM 9-2350-255-20-2-3-3, para. 7-17.
FAULTY GPS	143004 143072 143106 143111	<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.
FAULTY GPS OR 1W203	143150	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 10-67.
FAULTY LRF OR 1W204	143180	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 10-73.
FAULTY TCP	143128	<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.
FAULTY TCP OR 1W102	143118 143133 143141	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 10-65.
FAULTY TNB	143045 143138 143117 143146 143122 143182 143311	<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 OR 1W201	143077 143161 143166 143168 143172 143175	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 10-60. ● See figure 10-68. ● See figure 10-69. ● See figure 10-70. ● See figure 10-70. ● See figure 10-71.

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Computer Subsystem Fault Message Index for Test 1430 (Continued)

Fault Message	Action
FAULTY TNB OR V202 143050	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 10-56.
FAULTY TNB OR V203 143176	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 10-72.
FAULTY TNB, 1W102 R 1W201 143127	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 10-66.
FAULTY TNB, 1W203 R 1W201 143108	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 10-62.
FAULTY VEH/TURRET WR CNTL 109927	<ul style="list-style-type: none"> ● Run vehicle/turret power distribution test number 1200. ● Refer to TM 9-2350-255-20-2-2-1, figure 8-1.

Computer Subsystem Special Instruction Message Index for Test 1430

Special Instruction Message	Action
AN RANGE BE OGGLED TO XXXX OR OGGLE RANGE TO XXX	<ul style="list-style-type: none"> ● Add or drop range displayed in gunner's primary sight eyepiece and commander's extension using MANUAL RANGE ADD-DROP switch on commander's control panel. ● Refer to TM 9-2350-255-10. ● Go back to block 14.
INSUFFICIENT VOLTAGE AT TNB CBXX	<ul style="list-style-type: none"> ● Write down the number of the circuit breaker. ● Go back to block 14.
MOVE GUN TO ZERO DEGREE ELEVATION	<ul style="list-style-type: none"> ● Manually move gun to position that travel lock can be engaged but do not engage travel lock. ● Refer to TM 9-2350-255-10. ● Go back to block 14.
PRESS AND RELEASE AMMO SBDS SW ON CCP OR PRESS AND RELEASE CCP BS ADJUST SW 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 input key displayed on SETCOM. ● Go back to block 14.

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**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

Computer Subsystem Fault Message Index for Test 1430 (Continued)

Special Instruction Message	Action
PUSH GO, ROTATE CANT CW AND WATCH VOLTS	<ul style="list-style-type: none"> ● Hold cant unit with nameplate down and J1 facing toward you. ● Press GO key on SETCOM. ● Rotate cant unit one quarter turn clockwise so nameplate is facing left, while watching voltage displayed on SETCOM. ● Go back to block 14.
RECORD FOLLOWING MESSAGE (SEE -20 MAN)	<ul style="list-style-type: none"> ● Get ready to write down the number of the circuit breaker that will appear in the next message. ● Go back to block 14.
REMOVE CANT FROM CEILING	<ul style="list-style-type: none"> ● Remove three bolts from cant unit with 9/16-inch socket, universal, extension and handle. Do not disconnect test hookup from cant unit. ● Go back to block 14.
SEE -20 MANUAL	<ul style="list-style-type: none"> ● Run test for fault symptom LRF-5. <ul style="list-style-type: none"> ● See figure 10-130.
143012 143033	<ul style="list-style-type: none"> ● Replace ballistics control panel.
143013 143044	<ul style="list-style-type: none"> ● Refer to TM 9-2350-255-20-2-3-3, para. 7-15.
143014 143062	<ul style="list-style-type: none"> ● Verify that problem is solved.
143105	<ul style="list-style-type: none"> ● If problem still exists, replace computer electronics unit. <ul style="list-style-type: none"> ● Refer to TM 9-2350-255-20-2-3-3, para. 7-14.
143015 143084	<ul style="list-style-type: none"> ● If any AUTO INPUTS key is lit, press the AUTO INPUTS key to cancel the light.
143016 143085	<ul style="list-style-type: none"> ● Close door on ballistics control panel.
143039 143086	<ul style="list-style-type: none"> ● If removed, install cant unit assembly.
143042 143147	<ul style="list-style-type: none"> ● Refer to TM 9-2350-255-20-2-3-3, para. 7-18.
143083 143158	<ul style="list-style-type: none"> ● Press STOP key on SETCOM. ● Press CLEAR key on SETCOM. ● Run general stabilization test number 1400. <ul style="list-style-type: none"> ● Refer to TM 9-2350-255-20-2-2-1, figure 9-5, starting at block 18.
143023	<ul style="list-style-type: none"> ● Adjust turret counterrotation scaling. <ul style="list-style-type: none"> ● Refer to TM 9-2350-255-20-2-3-3, para. 7-5. ● Repeat computer subsystem test number 1430. <ul style="list-style-type: none"> ● Press STOP key on SETCOM. ● Press CLEAR key on SETCOM. ● Go back to block 13.

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Computer Subsystem Fault Message Index for Test 1430 (Continued)

Special Instruction Message	Action
SEE -20 MANUAL (continued)	143024 ● Do follow-on procedure. 143025 ● See figure 10-54.
	143029 ● Do test for fault symptom TIS-12. 143040 ● See figure 10-143.
	143030 ● Run ammo lamps circuit test number 1438. ● Press STOP key on SETCOM. ● Press CLEAR key on SETCOM. ● Go back to block 47.
	143048 ● Do follow-on procedure. ● See figure 10-55.
	143049 ● Test set found stabilization problem and will automatically enter stabilization test number 1400. ● Go to TM 9-2350-255-20-2-2-1, figure 9-5, block 19.
	143052 ● Run laser rangefinder test number 1450. ● See figure 10-119.
	143053 ● Run auto self test number 1210. ● See figure 10-1.
	143054 ● Faulty circuit of circuit breaker number written down. ● If circuit breaker has shut off, do circuit breaker procedure. ● Refer to TM 9-2350-255-20-2-2-3, para. 17-2. ● If circuit breaker did not shut off, replace turret networks box. ● Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
	143064 ● Do follow-on procedure. ● See figure 10-59.
	143112 ● See figure 10-97.
	143113 ● See figure 10-63.
	143114 ● Replace computer electronics unit. ● Refer to TM 9-2350-255-20-2-3-3, para. 7-14.
	143181 ● Replace computer electronics unit. ● Refer to TM 9-2350-255-20-2-3-3, para. 7-14. ● Verify that problem is solved. ● If problem still exists, replace laser rangefinder. ● Refer to TM 9-2350-255-20-2-3-3, para. 7-23.

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**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

Computer Subsystem Fault Message Index for Test 1430 (Continued)

Special Instruction Message	Action
SEE -20 MANUAL (Continued)	<ul style="list-style-type: none"> ● Clean crosswind sensor. <ul style="list-style-type: none"> ● Refer to TM 9-2350-255-10. ● Repeat computer subsystem test number 1430. <ul style="list-style-type: none"> ● Press STOP key on SETCOM. ● Press CLEAR key on SETCOM. ● Go back to block 13. ● If same special instruction message appears on SETCOM display, replace crosswind sensor. <ul style="list-style-type: none"> ● Refer to TM 9-2350-255-20-2-3-3, para. 7-17.
143183	<ul style="list-style-type: none"> ● Do follow-on procedure. <ul style="list-style-type: none"> ● See figure 10-77.
143212	<ul style="list-style-type: none"> ● Set TURRET POWER switch to OFF. ● Disconnect P2 on CIB cable CX304 from J1 on CIB. <ul style="list-style-type: none"> ● See figure 10-52. ● Disconnect P1 on adapter CA551 from 1W205-J2. <ul style="list-style-type: none"> ● See figure 10-50. ● Disconnect crosswind sensor (1A253)-P1 from P1 on adapter CA552. <ul style="list-style-type: none"> ● See figure 10-50. ● Connect crosswind sensor (1A253)-P1 to 1W205-J2. <ul style="list-style-type: none"> ● See figure 16-23. ● Clean crosswind sensor. <ul style="list-style-type: none"> ● Refer to TM 9-2350-255-10. ● Repeat computer subsystem test number 1430. <ul style="list-style-type: none"> ● Press STOP key on SETCOM. ● Press CLEAR key on SETCOM. ● Go back to block 13. ● If same special instruction message appears on SETCOM display, replace crosswind sensor. <ul style="list-style-type: none"> ● Refer to TM 9-2350-255-20-2-3-3, para. 7-17.
143313	<ul style="list-style-type: none"> ● Do follow-on procedure. <ul style="list-style-type: none"> ● See figure 10-81.
143314	<ul style="list-style-type: none"> ● Replace ballistics control panel. <ul style="list-style-type: none"> ● Refer to TM 9-2350-255-20-2-3-3, para. 7-15.
144208	<ul style="list-style-type: none"> ● Repeat computer subsystem test number 1430. <ul style="list-style-type: none"> ● Press STOP key on SETCOM. ● Press CLEAR key on SETCOM. ● Go back to block 13.
144216	<ul style="list-style-type: none"> ● Repeat computer subsystem test number 1430. <ul style="list-style-type: none"> ● Press STOP key on SETCOM. ● Press CLEAR key on SETCOM. ● Go back to block 13.

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Computer Subsystem Fault Message Index for Test 1430 (Continued)

Special Instruction Message	Action
<p>EE -20 MANUAL Continued)</p> <p style="text-align: right;">1445XX</p> <p style="text-align: right;">02</p> <p style="text-align: right;">06</p> <p style="text-align: right;">07</p> <p style="text-align: right;">08</p> <p style="text-align: right;">09</p> <p style="text-align: right;">10</p> <p style="text-align: right;">11</p> <p style="text-align: right;">149807</p> <p style="text-align: right;">149809</p> <p>SYSTEM ERROR</p> <p style="text-align: right;">109902</p> <p style="text-align: right;">143055</p> <p style="text-align: right;">143109</p>	<p style="text-align: center;">NOTE</p> <p>Test 1430 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> <ul style="list-style-type: none"> ● If the controls have been released, repeat test 1430. <ul style="list-style-type: none"> ● Press STOP key on SETCOM. ● Press CLEAR key on SETOM. ● Go back to block 13. ● If controls are being held, or if none were being held when message was displayed, do follow-on procedure. <ul style="list-style-type: none"> ● See figure 10-90. ● See figure 10-91. ● See figure 10-92. ● See figure 10-93. ● See figure 10-94. ● See figure 10-95. ● See figure 10-96. ● Do follow-on procedure. <ul style="list-style-type: none"> ● See figure 10-98. ● See figure 10-99. ● Run STE self-test number 666. <ul style="list-style-type: none"> ● See figure 15-3, block 19. ● Repeat computer subsystem test number 1430. <ul style="list-style-type: none"> ● Press STOP key on SETCOM. ● Press CLEAR key on SETCOM. ● Go back to block 13. ● If same special instruction message appears on SETCOM display, notify support maintenance that test set is faulty.

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**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

Computer Subsystem Cable Instruction Message Index for Test 1438

Cable Instruction Message	Action
ASSEMBLE CX304 CX307 AND CA501	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX304 to P3 on DBA CX307. ● Connect P2 on adapter CA501 to P2 on DBA CX307. ● See figure 10-42.
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 P2 on DBA CX307. ● Connect P2 on adapter CA518 to P1 on DBA CX307. ● See figure 10-45.
CONNECT CIB J2 TO TNB TJ2 (USE CX208)	<ul style="list-style-type: none"> ● Connect P2 on CIB cable CX208 to J2 on CIB. ● Connect P1 on CIB cable CX208 to TEST 2 on turret networks box. ● See figure 10-53.
CONNECT CX304 P2 TO CIB J1	<ul style="list-style-type: none"> ● Connect P2 on CIB cable CX304 to J1 on CIB. ● See figure 10-52.
CONNECT CX305 P2 TO CIB J2	<ul style="list-style-type: none"> ● Connect P2 on CIB cable CX305 to J2 on CIB. ● See figure 10-52.
CONNECT DBA TO TNB J6	<ul style="list-style-type: none"> ● Connect P1 on adapter CA501 to J6 on turret networks box. ● See figure 10-42.
CONNECT DBA TO TNB J9	<ul style="list-style-type: none"> ● Connect P1 on adapter CA517 to J9 on turret networks box. ● See figure 10-45.
CONNECT DBA TO 1W104 P1	<ul style="list-style-type: none"> ● Connect 1W104-P1 to P1 on adapter CA518. ● See figure 10-45.
CONNECT 1W201 ← -> TNB J6	<ul style="list-style-type: none"> ● Connect 1W201-P1 to J6 on turret networks box. ● See figure 16-5.
DISCONNECT DBA FROM 1W104 P1	<ul style="list-style-type: none"> ● Disconnect 1W104-P1 from P1 on adapter CA518. ● See figure 10-45.
DISCONNECT 1W104 P1 ← -> TNB J9	<ul style="list-style-type: none"> ● Disconnect 1W104-P1 from J9 on turret networks box. ● See figure 16-5.
DISCONNECT 1W201 ← -> TNB J6	<ul style="list-style-type: none"> ● Disconnect 1W201-P1 from J6 on turret networks box. ● See figure 16-5.
REMOVE CX208 FROM CIB J2	<ul style="list-style-type: none"> ● Disconnect P2 on CIB cable CX208 from J2 on CIB. ● See figure 10-53.

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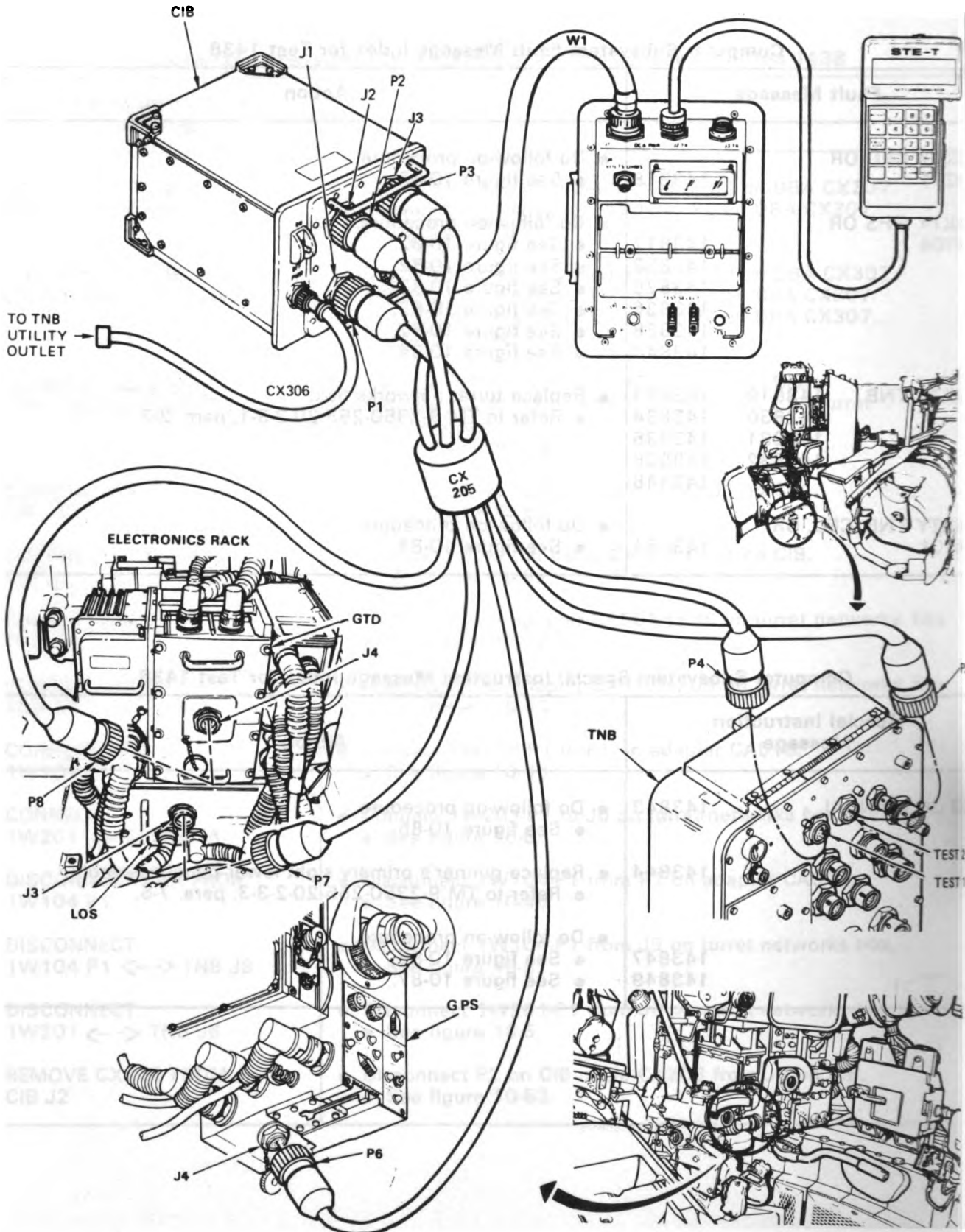
Computer Subsystem Fault Message Index for Test 1438

Fault Message			Action
MULTY CEU OR V201	143818		<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 10-83.
MULTY GPS OR V104	143812		<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 10-82. ● See figure 10-82. ● See figure 10-82. ● See figure 10-82. ● See figure 10-82. ● See figure 10-84.
	143823		
	143825		
	143826		
	143828		
	143840		
MULTY TNB	143819	143833	<ul style="list-style-type: none"> ● Replace turret networks box. ● Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
	143830	143834	
	143831	143835	
	143832	143836	
		143848	
MULTY TNB, CEU, OR V201	143851		<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 10-88.

Computer Subsystem Special Instruction Message Index for Test 1438

Special Instruction Message			Action
EE -20 MANUAL	143843		<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 10-85.
	143844		<ul style="list-style-type: none"> ● Replace gunner's primary sight lower panel assembly. ● Refer to TM 9-2350-255-20-2-3-3, para. 7-5.
	143847		<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 10-86. ● See figure 10-87.
	143849		

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**



**Figure 10-38. STE Turret Cable Hookup Between CIB And Tank
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ARR8263

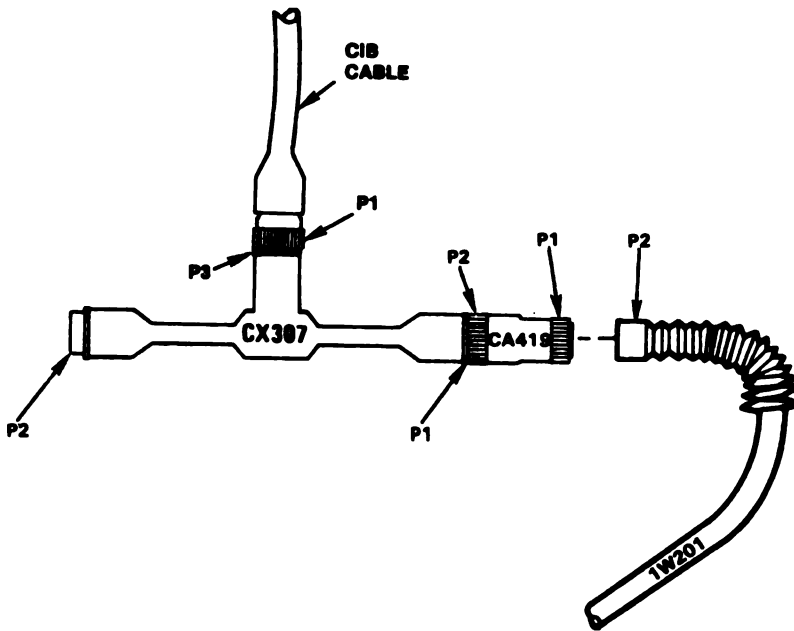


Figure 10-39. STE Turret Cable Hookup To 1W201-P2

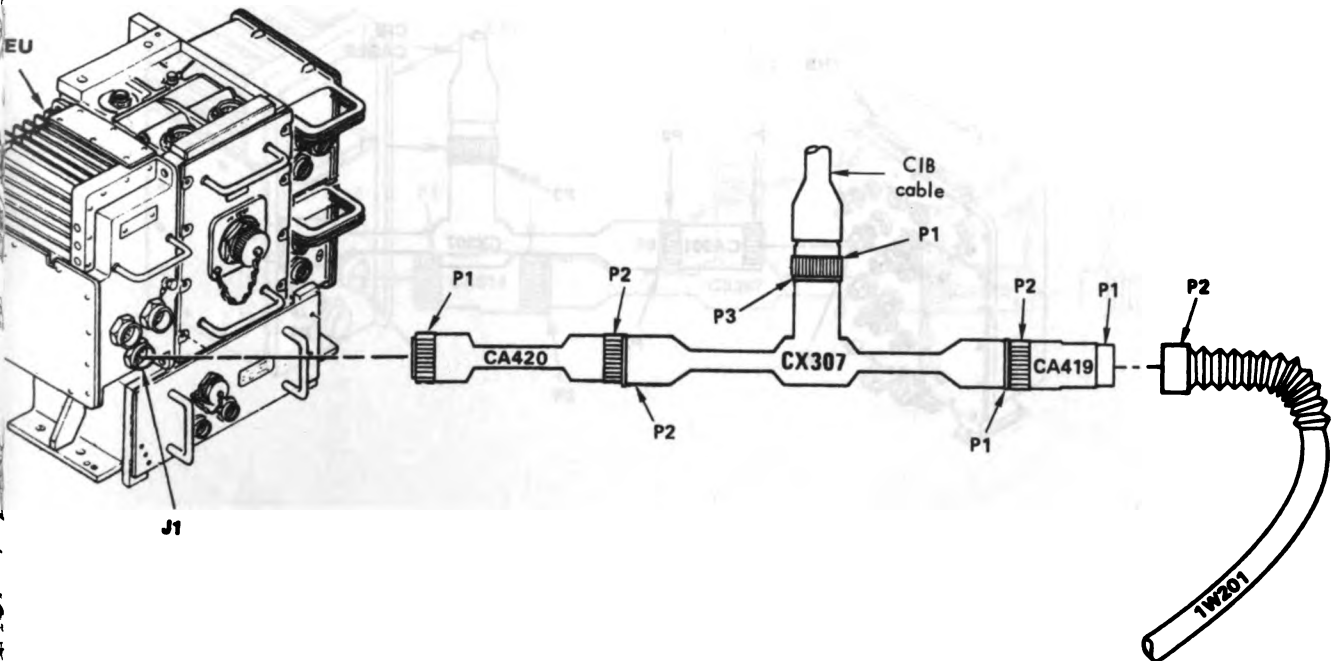


Figure 10-40. STE Turret Cable Hookup Between CEU-J1 And 1W201-P2
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ARR82-6354

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

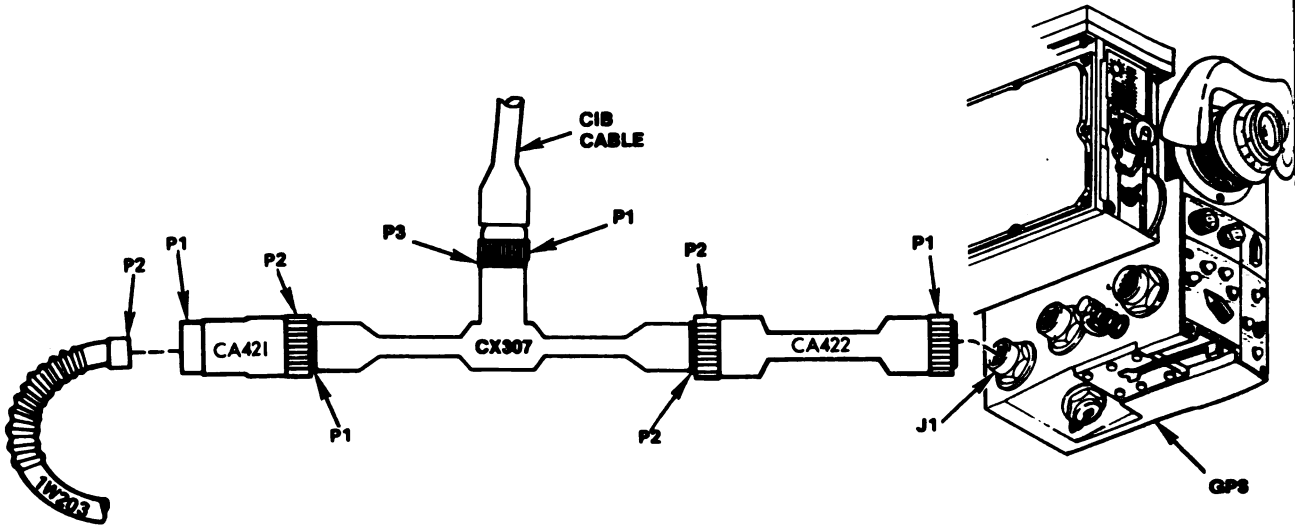


Figure 10-41. STE Turret Cable Hookup Between GPS-J1 And 1W203-P2

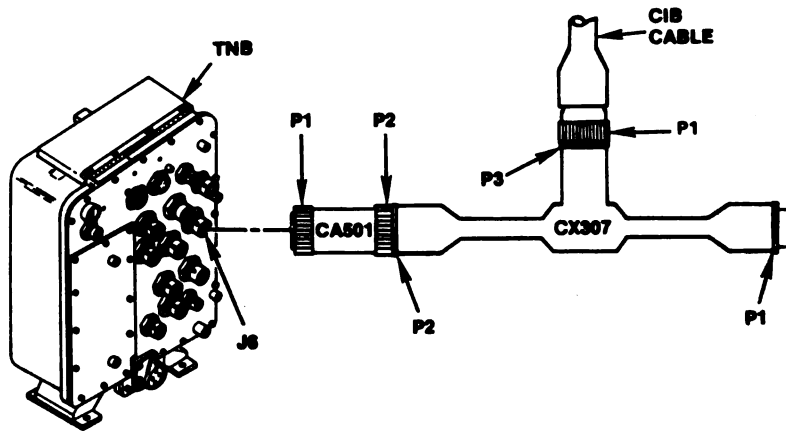


Figure 10-42. STE Turret Cable Hookup To TNB-J6
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ARR82-636

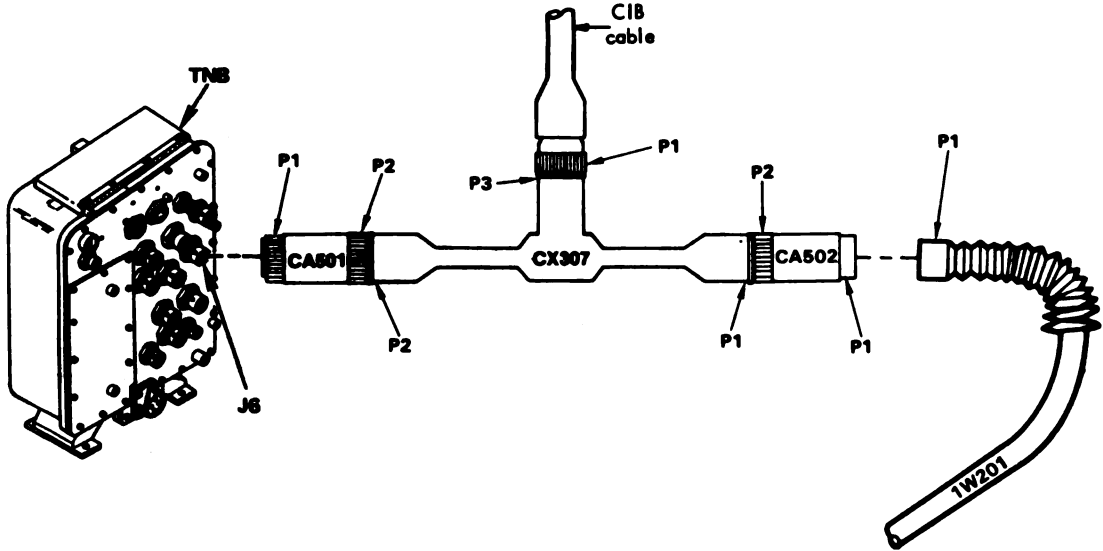


Figure 10-43. STE Turret Cable Hookup Between TNB-J6 And 1W201-P1

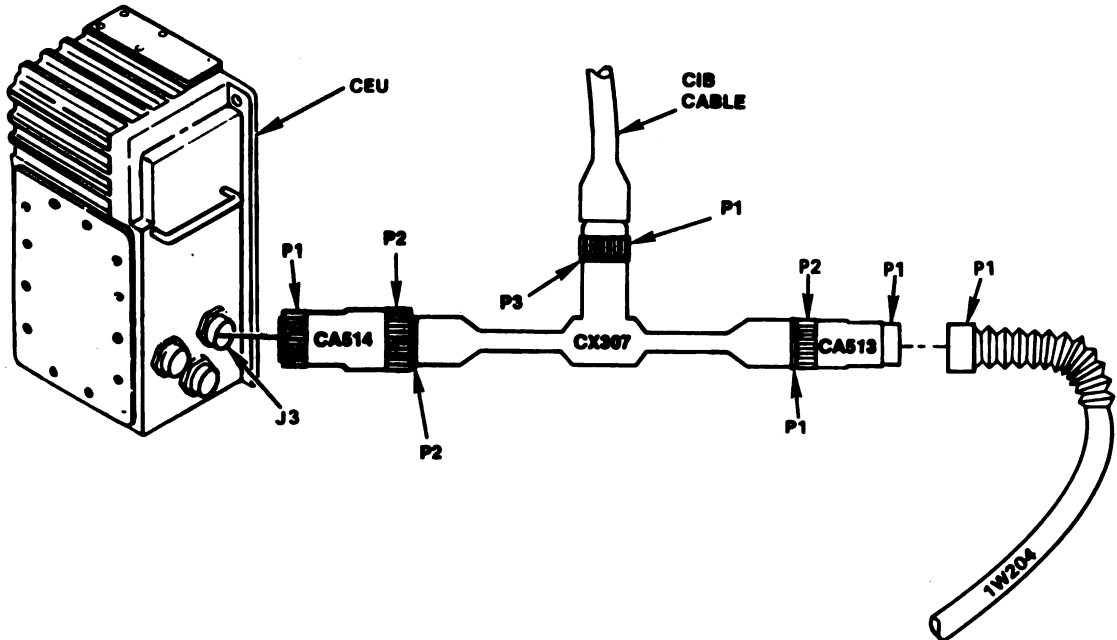


Figure 10-44. STE Turret Cable Hookup Between CEU-J3 And 1W204-P1

ARR82-6356

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

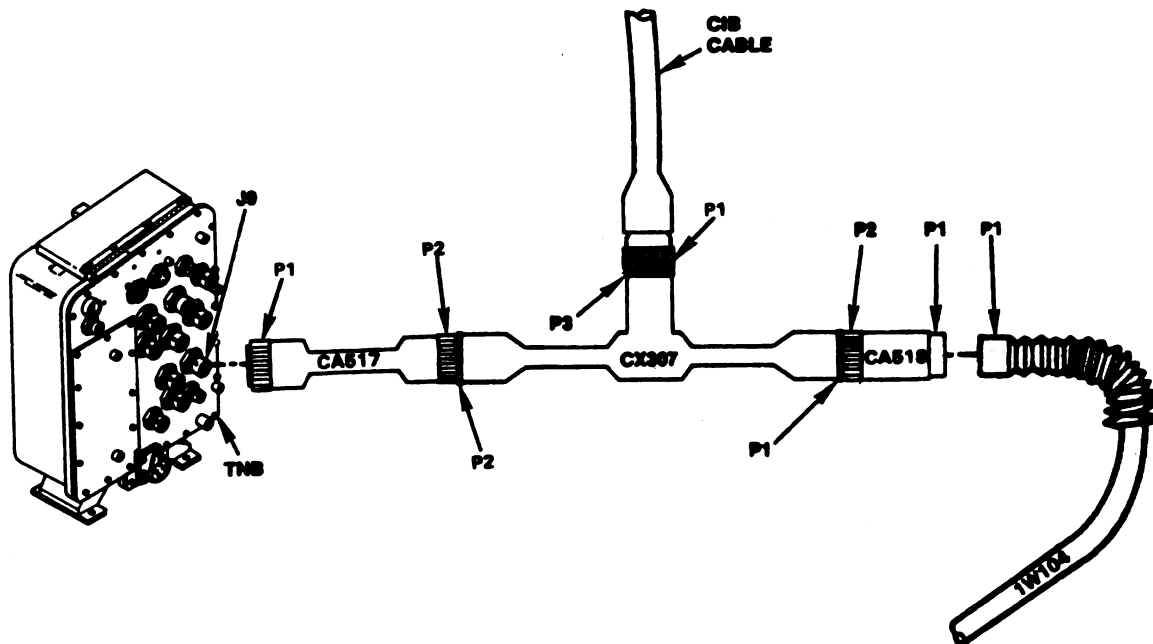


Figure 10-45. STE Turret Cable Hookup Between TNB-J9 And 1W104-P1

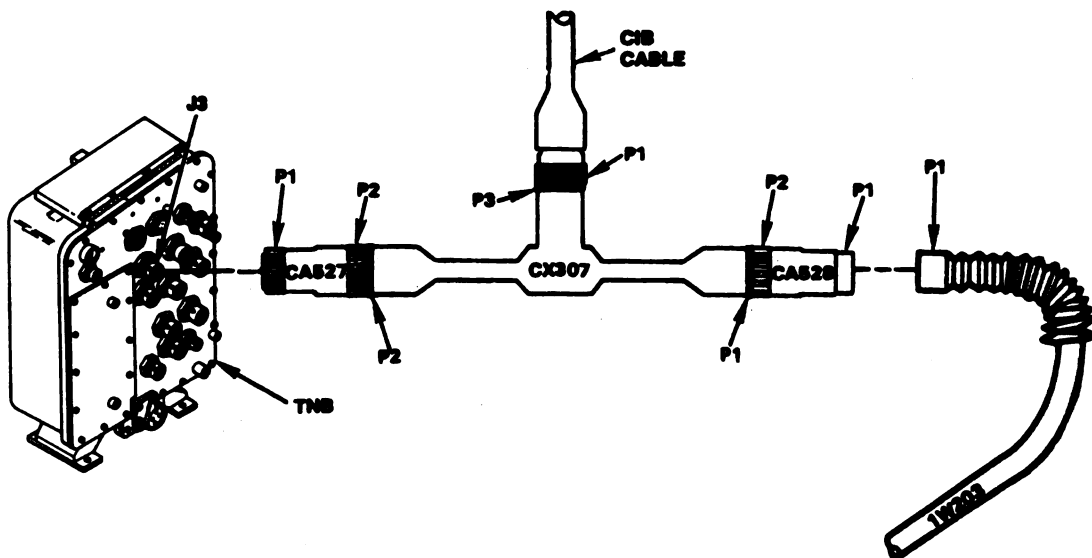


Figure 10-46. STE Turret Cable Hookup Between TNB-J3 And 1W203-P1
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ARR82487

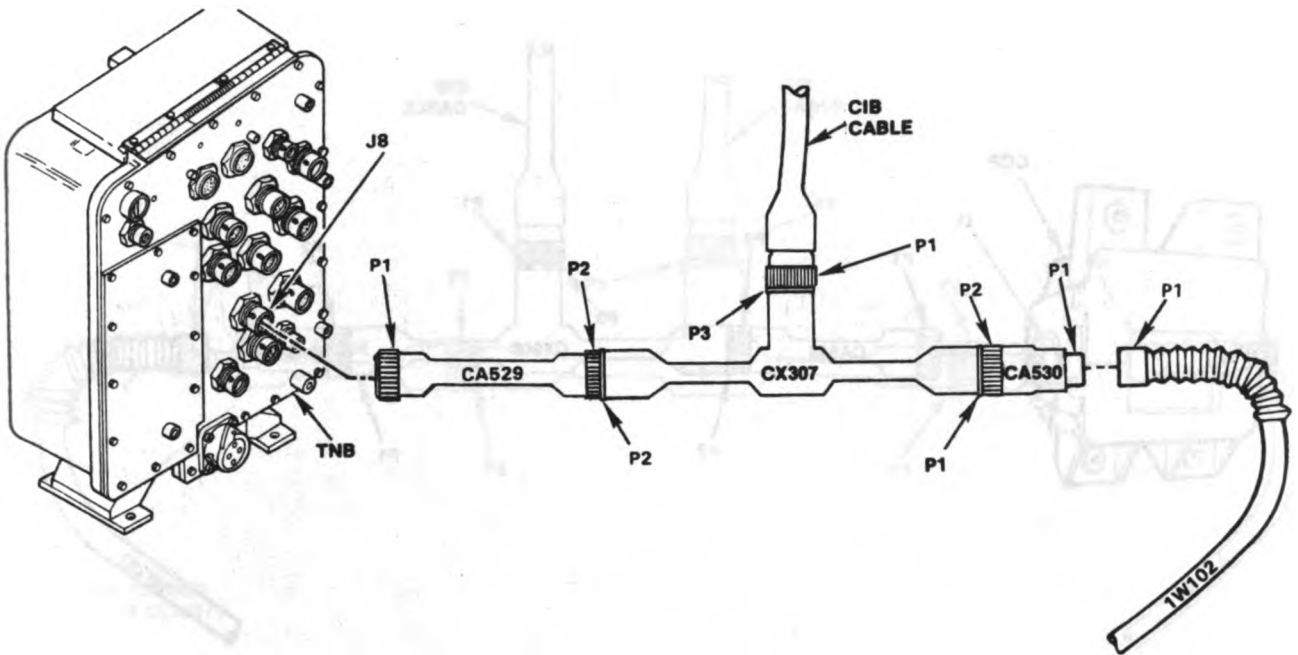


Figure 10-47. STE Turret Cable Hookup Between TNB-J8 And 1W102-P1

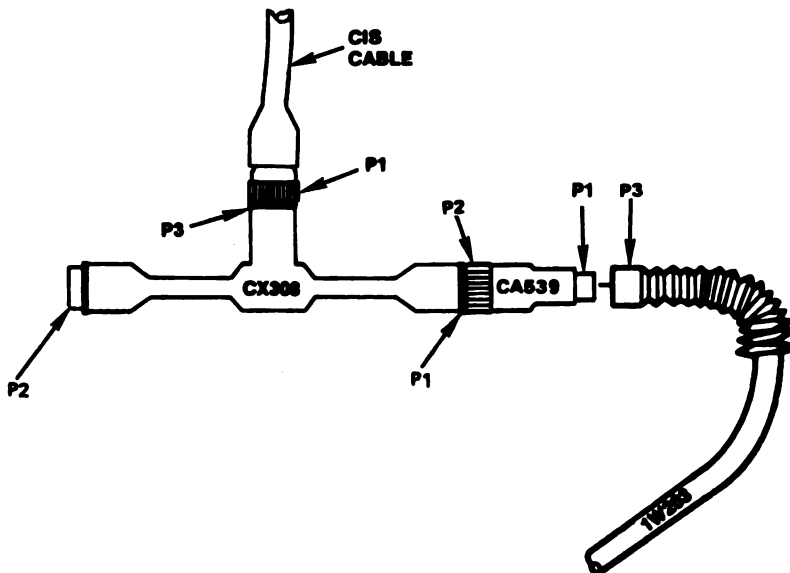


Figure 10-48. STE Turret Cable Hookup To 1W203-P3
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TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

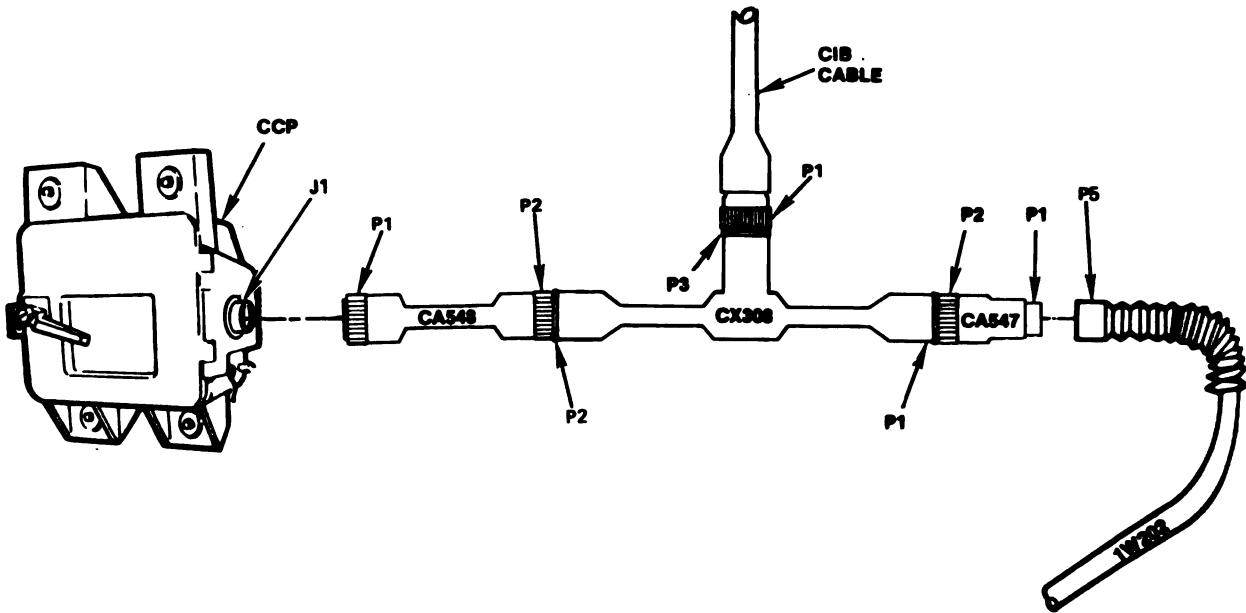


Figure 10-49. STE Turret Cable Hookup Between CCP-J1 And 1W202-P5

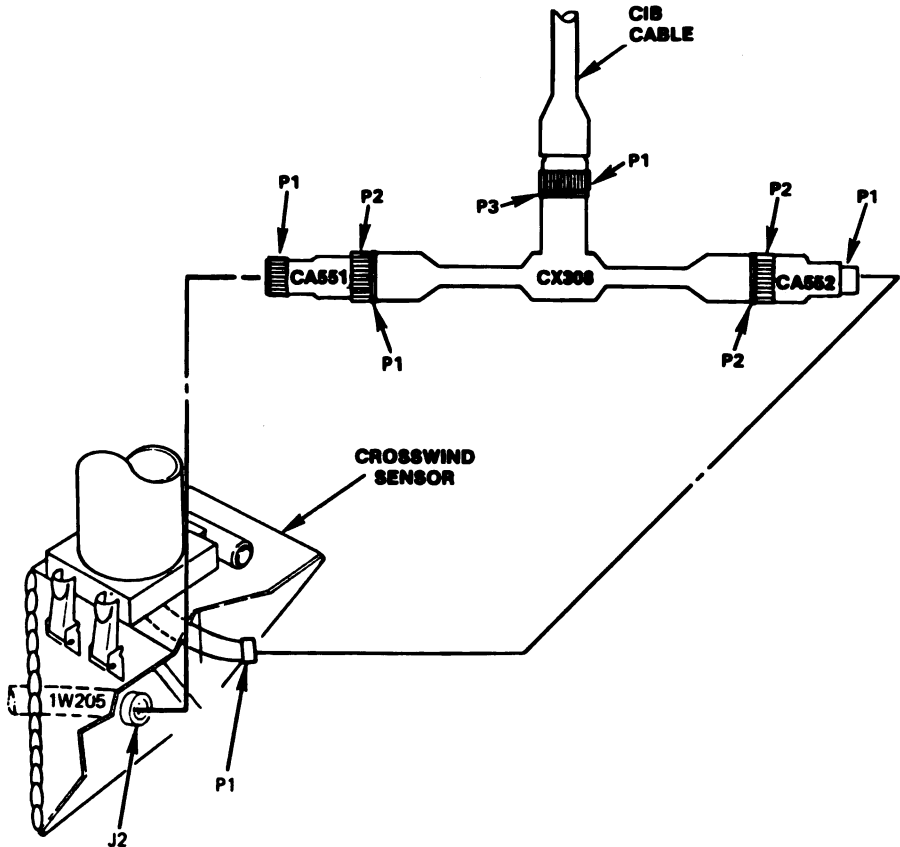


Figure 10-50. STE Turret Cable Hookup Between Crosswind Sensor (1A253)-P1 And 1W205-J2

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ARR82-635

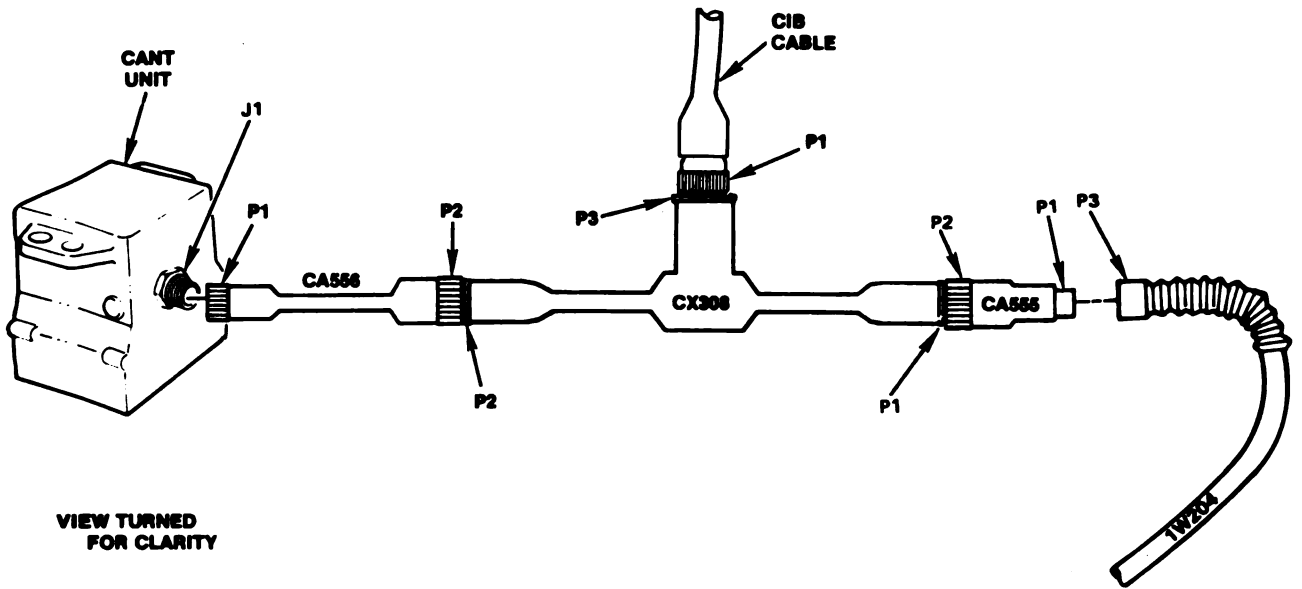


Figure 10-51. STE Turret Cable Hookup Between Cant Unit J1 And 1W204-P3

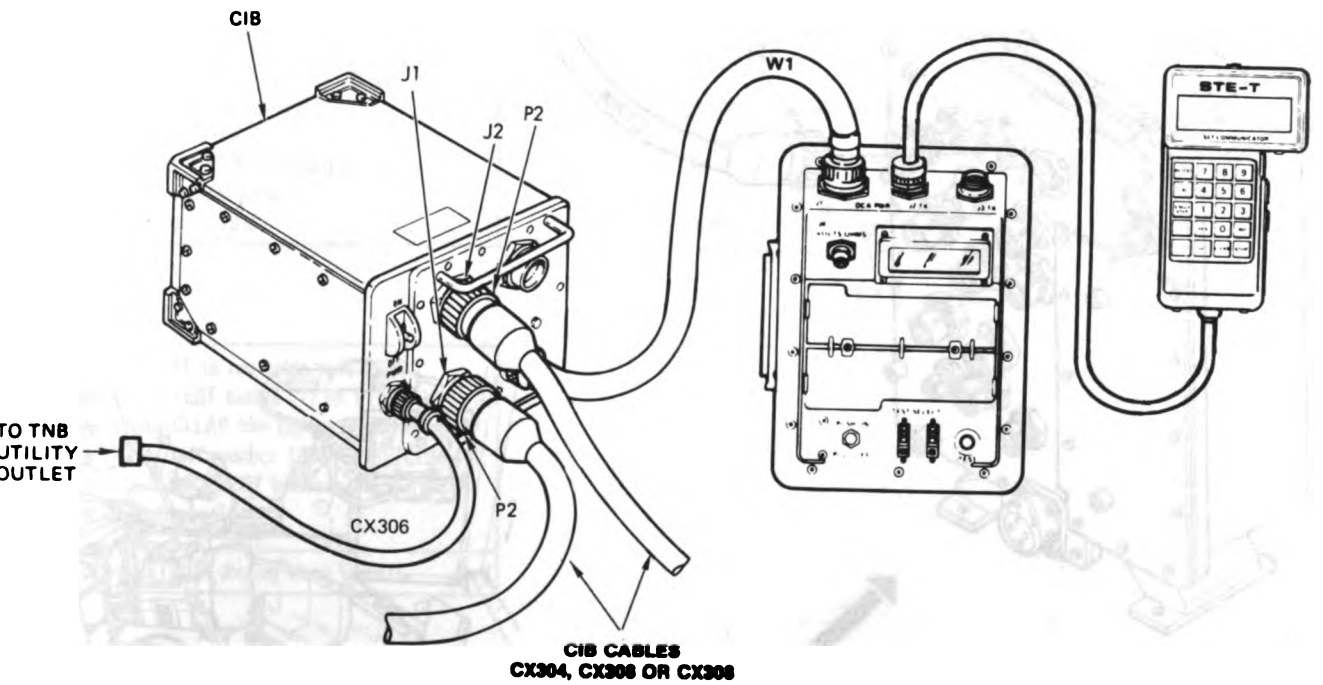


Figure 10-52. STE Turret Cable Hookup To CIB
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ARR82-6360

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

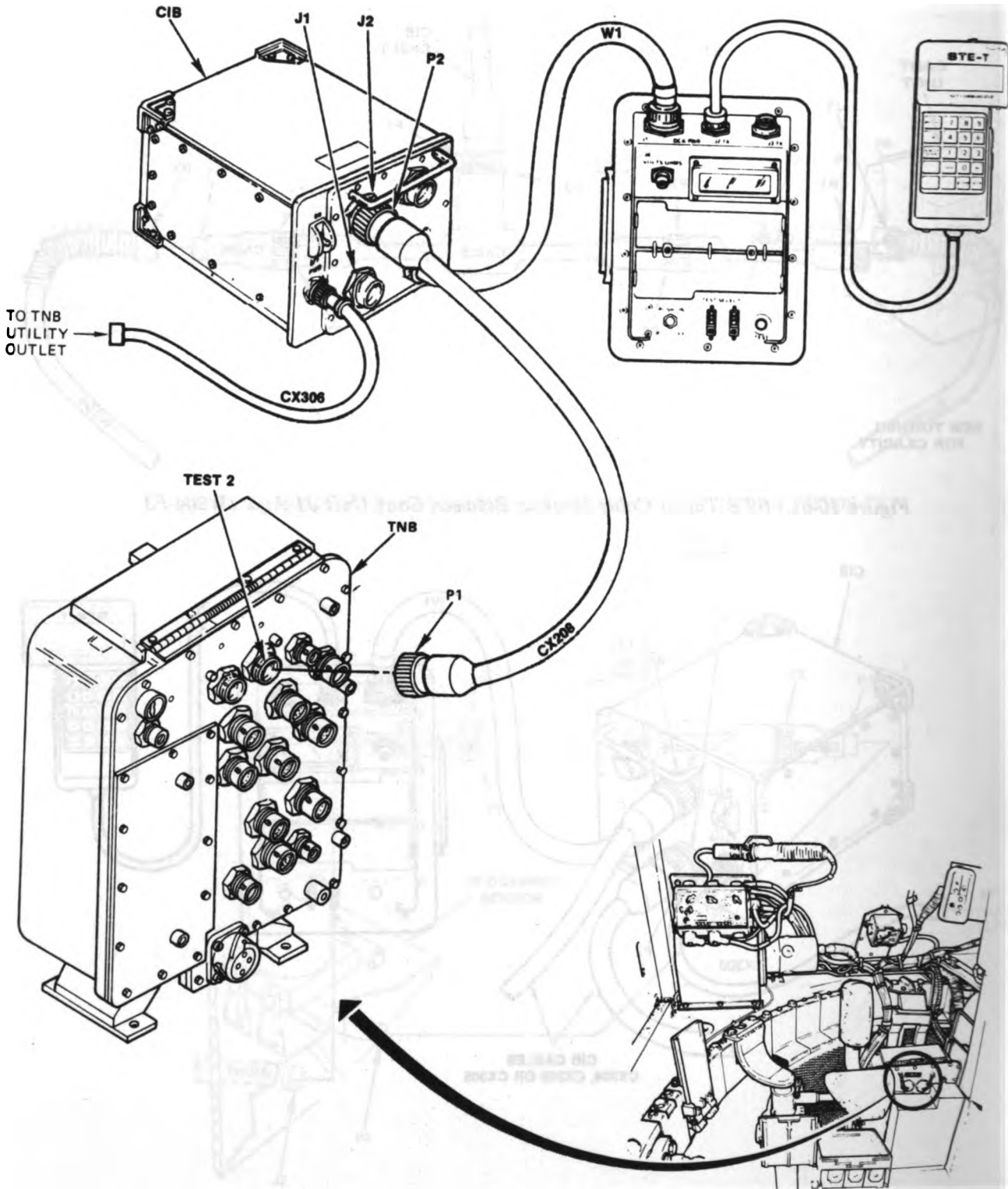


Figure 10-53. STE Turret Cable Hookup To TNB TEST 2
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ARR82-53

DISPLAY SHOWS -
SEE -20 MANUAL

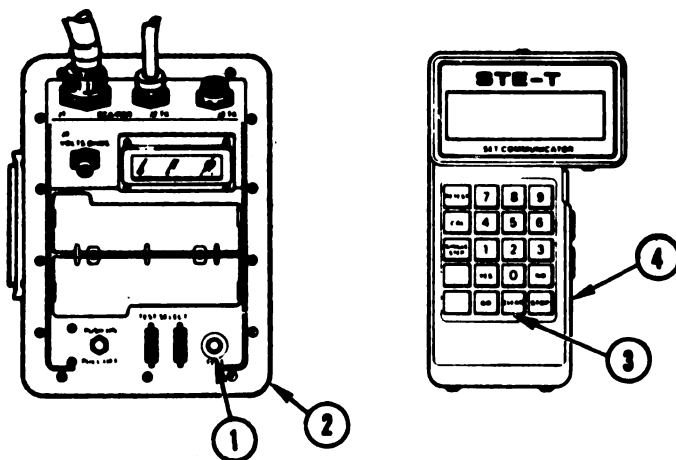
• 143024
143025

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.
- Turret networks box circuit breakers on.

- Change STE power hookup from turret networks box to power distribution box.
 - See figure 10-89.

- Disconnect CX205-P1 from CIB-J1.
 - See figure 10-38.
- Disconnect CX205-P2 from CIB-J2.
 - See figure 10-38.
- Disconnect 1W202-P2 from J2 on computer electronics unit.
 - See figure 16-8.
- Disconnect 1W202-P5 from J1 on ballistics control panel.
 - See figure 16-8.



- 3 ● 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 P5.
 - See figure 15-5.

Does SETCOM display show GOOD?

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ARR82-6362

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

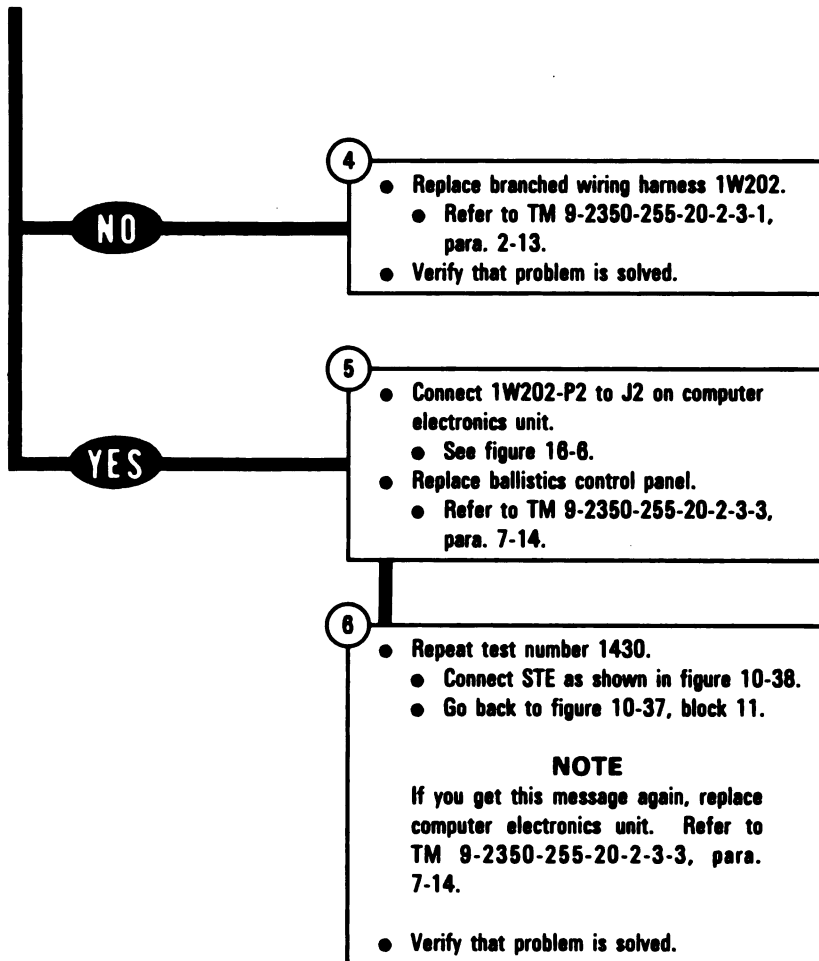


Figure 10-54 (Sheet 2 of 2)
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**DISPLAY SHOWS -
 SEE -20 MANUAL**

143048

**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

- Change STE power hookup from turret networks box to power distribution box.
- See figure 10-89.

2

- Disconnect CX205-P1 from CIB-J1.
- See figure 10-38.
- Disconnect CX205-P2 from CIB-J2.
- See figure 10-38.
- Disconnect 1W202-P2 from J2 on computer electronics unit.
- See figure 16-8.
- Disconnect 1W202-P5 from J1 on ballistics control panel.
- See figure 16-8.

3

- 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 P5.
- See figure 15-5.

Does SETCOM display show GOOD?

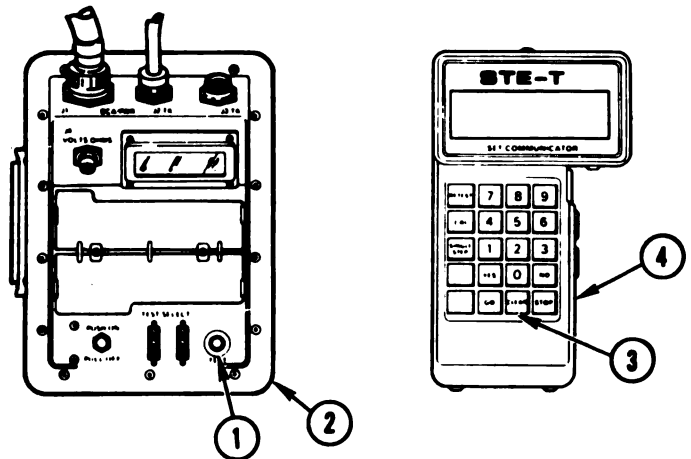


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TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

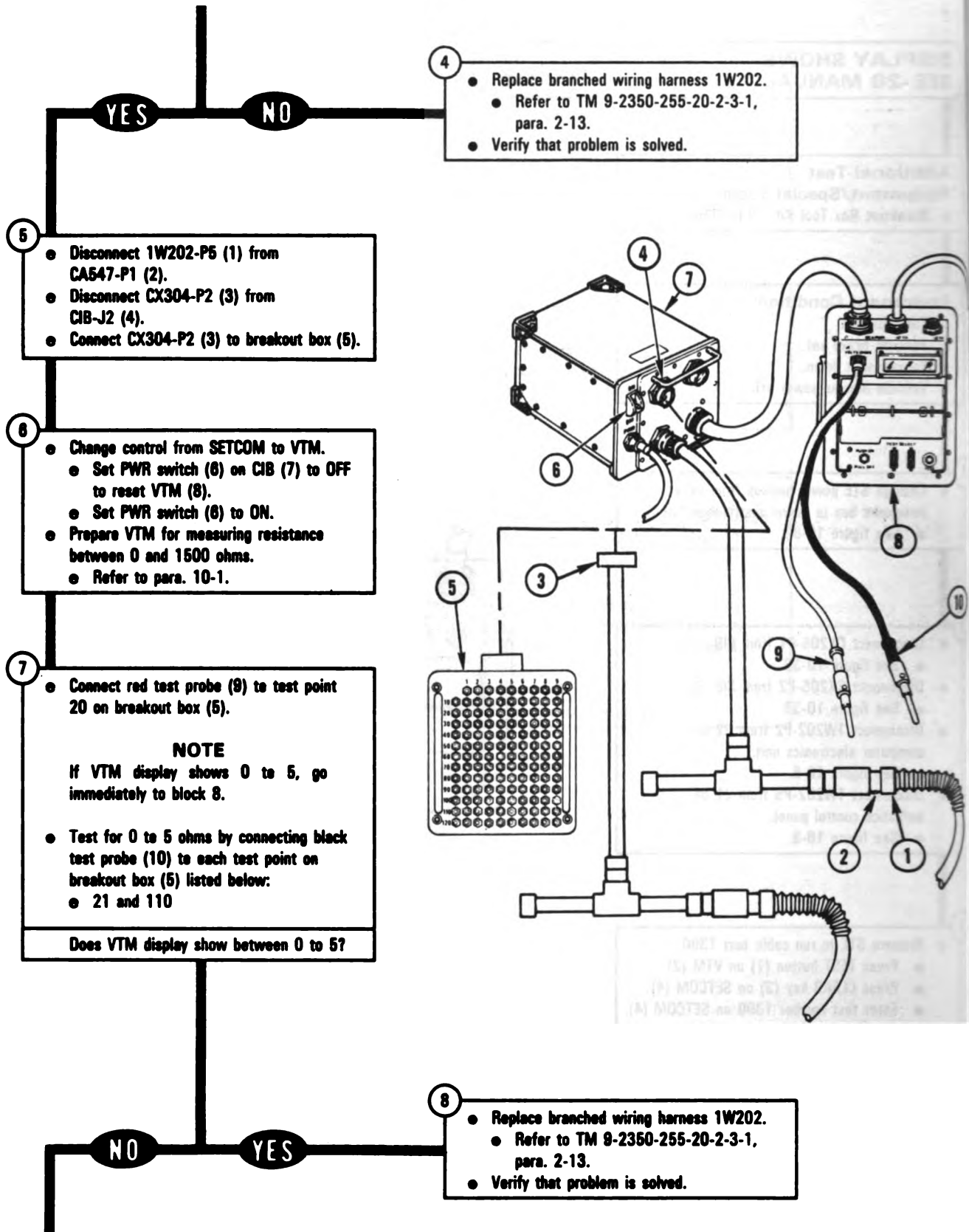


Figure 10-55 (Sheet 2 of 3)
Volume II
Para. 10-3

ARR82-63E

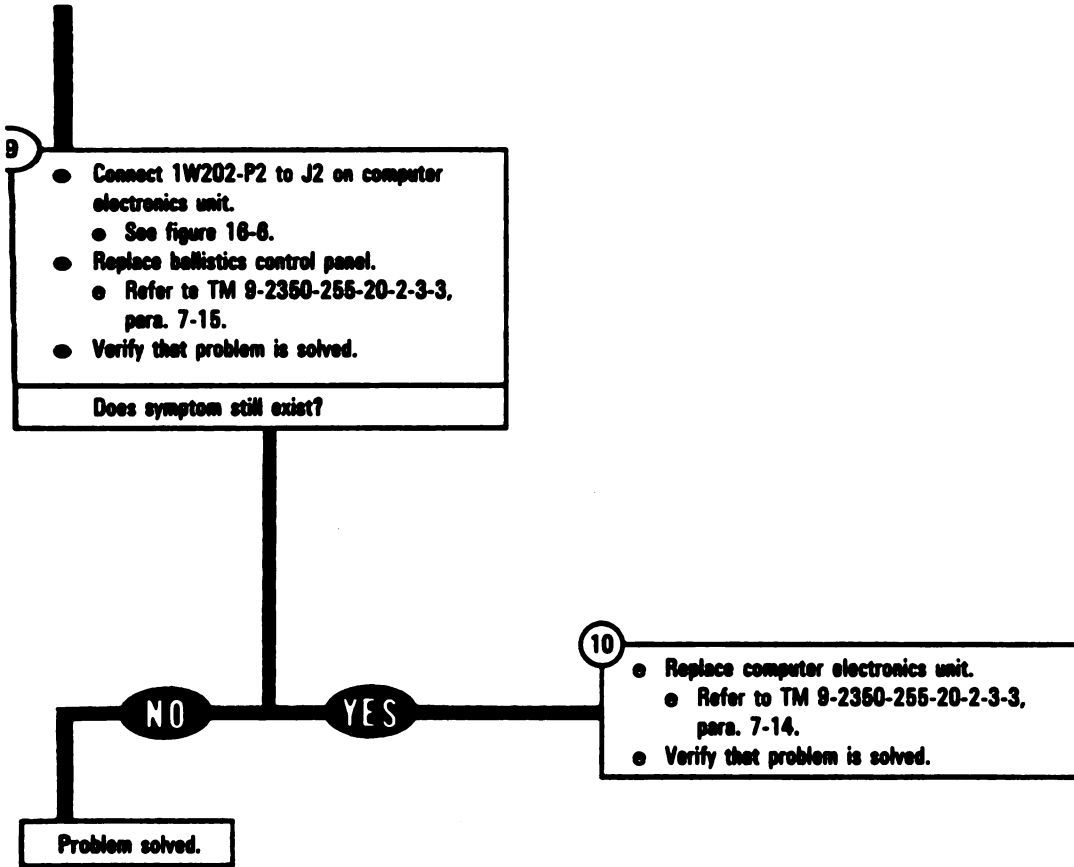


Figure 10-55 (Sheet 3 of 3)
Volume II
Para. 10-3

**DISPLAY SHOWS -
 FAULTY TNB OR
 1W202**

143050

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 10-89.

- 2
- Disconnect CX305-P2 from CIB-J1.
 - See figure 10-52.
 - Disconnect CX205-P2 from CIB-J2.
 - See figure 10-38.
 - Disconnect CA548-P2 from CX308-P2.
 - See figure 10-49.
 - Disconnect 1W202-P1 from J7 on turret networks box.
 - See figure 16-5.

- 3
- 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 P5.
 - See figure 15-5.

Does SETCOM display show GOOD?

NO

- 4
- Replace branched wiring harness 1W202.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

YES

- 5
- Connect 1W202-P5 to J1 on ballistics control panel.
 - See figure 16-8.
 - Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
 - Verify that problem is solved.

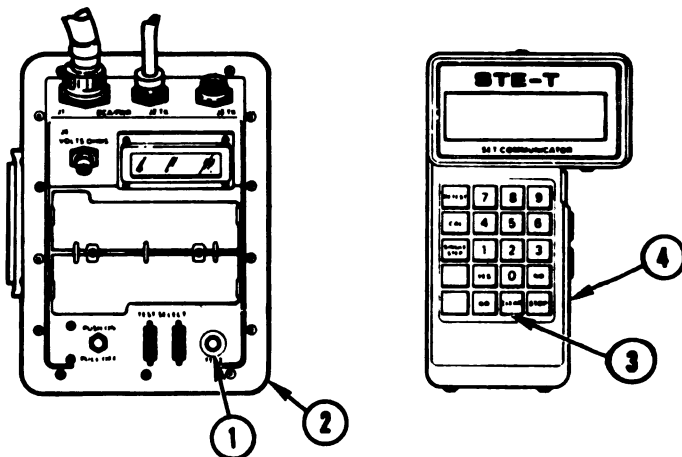


Figure 10-56
 Volume II
 Para. 10-3

ARR82-438

**DISPLAY SHOWS -
FAULTY CEU OR
1W202**

143060

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 10-89.

- 2
- Disconnect CX305-P2 from CIB-J1.
 - See figure 10-52.
 - Disconnect CX205-P2 from CIB-J2.
 - See figure 10-38.
 - Disconnect CA548-P2 from CX308-P2.
 - See figure 10-49.
 - Disconnect 1W202-P2 from J2 on computer electronics unit.
 - See figure 16-8.

- 3
- 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 P5.
 - See figure 15-5.

Does SETCOM display show GOOD?

YES

NO

- 4
- Connect 1W202-P2 to J2 on computer electronics unit.
 - See figure 16-8.
 - Connect 1W202-P5 to J1 on ballistics control panel.
 - See figure 16-8.
 - Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-3, para. 2-7.
 - Verify that problem is solved.

- 5
- Replace branched wiring harness 1W202.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

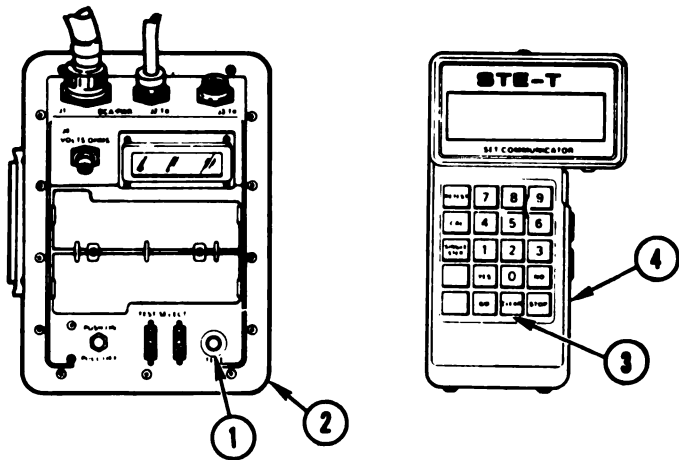


Figure 10-57
Volume II
Para. 10-3

ARR82-6367

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS -
FAULTY CEU OR
1W202** **143063**

**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

- Change STE power hookup from turret networks box to power distribution box.
- See figure 10-89.

2

- Disconnect CX305-P1 from C1B-J1.
- See figure 10-52.
- Disconnect CX205-P2 from C1B-J2.
- See figure 10-38.
- Disconnect CA548-P2 from CX308-P2.
- See figure 10-49.
- Disconnect 1W202-P2 from J2 on computer electronics unit.
- See figure 16-6.

3

- 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 P5.
- See figure 15-5.

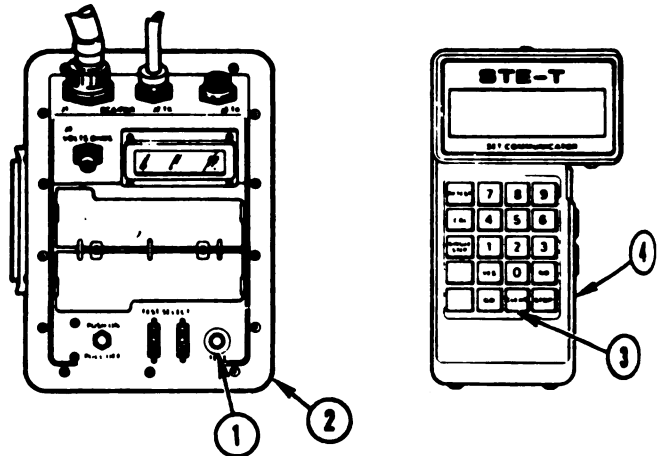
Does SETCOM display show GOOD?

YES

NO

4

- Replace branched wiring harness 1W202.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.



*Figure 10-58 (Sheet 1 of 2)
Volume II
Para. 10-3*

ARR82-636

- Disconnect 1W202-P5 (1) from CA547-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. 10-1.

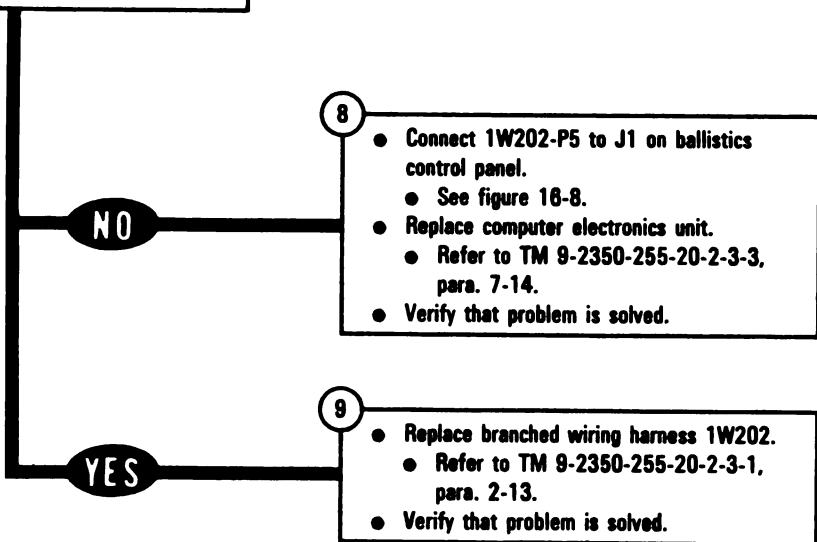
- Connect red test probe (9) to test point 101 on breakout box (5).

NOTE

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

- Test for 0 to 5 ohms by connecting black test probe (10) to each test point on breakout box (5) listed below:
 - 18 and 108

Does VTM display show between 0 to 5?



- 8
- Connect 1W202-P5 to J1 on ballistics control panel.
 - See figure 16-8.
 - Replace computer electronics unit.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-14.
 - Verify that problem is solved.

- 9
- Replace branched wiring harness 1W202.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

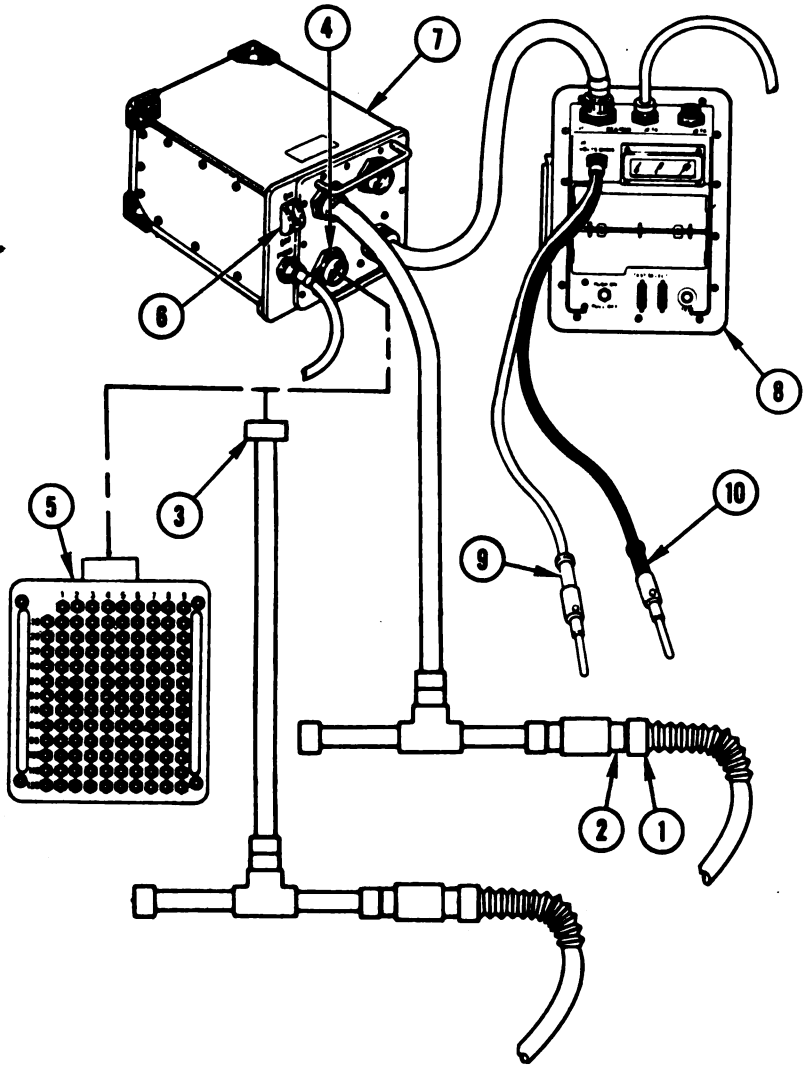


Figure 10-58 (Sheet 2 of 2)
Volume II
Para. 10-3

ARR82-6369

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS -
SEE -20 MANUAL**

143064

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
- Change STE power hookup from turret networks box to power distribution box.
 - See figure 10-89.

- 2
- Disconnect CX205-P2 from CIB-J2.
 - See figure 10-38.
 - Disconnect CA548-P2 from CX308-P2.
 - See figure 10-49.
 - Disconnect 1W202-P2 from J2 on computer electronics unit.
 - See figure 18-8.

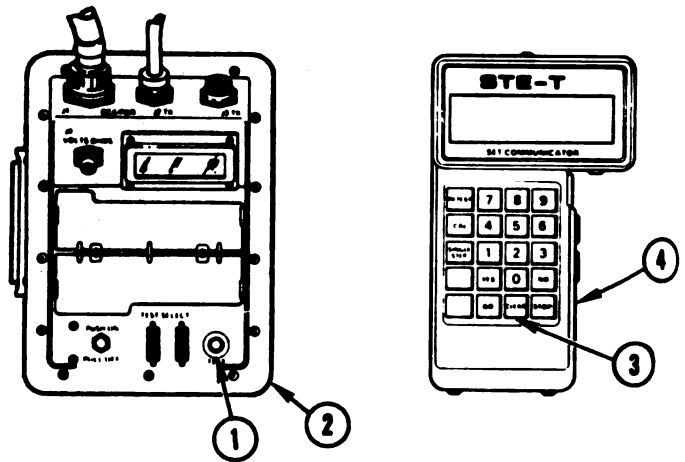
- 3
- Prepare STE to run cable test 1390.
 - Press TEST button (1) on VTM (2).
 - Press CLEAR key (3) on SETCOM (4).
 - Enter test number 1390 on SETCOM (4).
 - Run test on 1W202 between P2 and P5.
 - See figure 15-5.

Does SETCOM display show GOOD?

YES

NO

- 4
- Replace branched wiring harness 1W202.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.



*Figure 10-59 (Sheet 1 of 3)
Volume II
Para. 10-3*

ARR82-637C

- 5
- Disconnect 1W202-P5 (1) from CA547-P1 (2).
 - Disconnect CX304-P2 (3) from CIB-J2 (4).
 - Connect CX304-P2 (3) to breakout box (5).

- 6
- 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. 10-1.

- 7
- 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.
 - Connect red test probe (9) to test points 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?

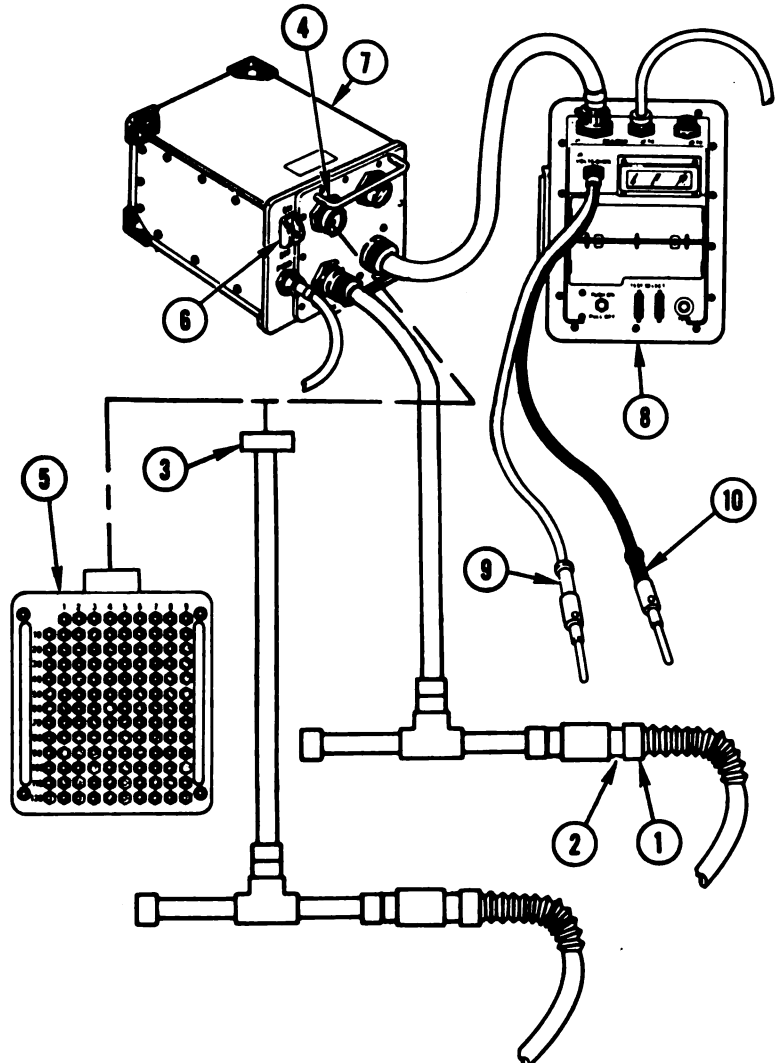


Table A

Red Test Probe	Black Test Probe
18	19, 37, 99, 100 through 104, 109, and 111
19	37
99	100
102	103
109	104 and 111

Figure 10-59 (Sheet 2 of 3)
Volume II
Para. 10-3

ARR82-6371

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

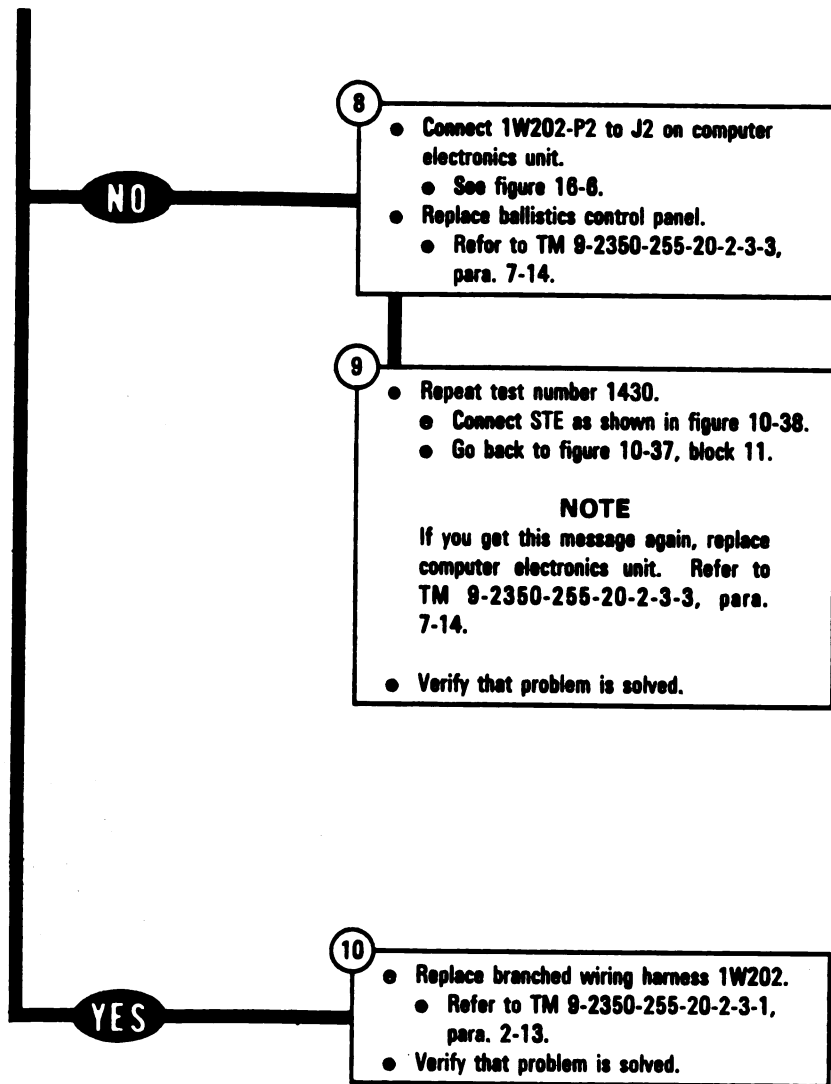


Figure 10-59 (Sheet 3 of 3)
Volume II
Para. 10-3

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

143077

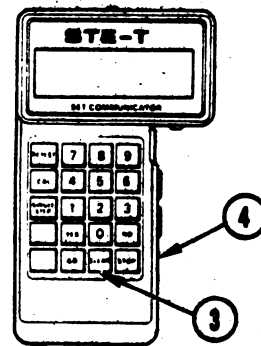
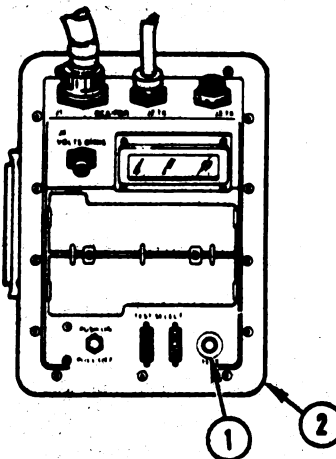
Equipment Condition:

- 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 10-89.

- 2
- Disconnect CX305-P2 from CIB-J1.
 - See figure 10-52.
 - Disconnect CX205-P2 from CIB-J2.
 - See figure 10-38.
 - Disconnect 1W201-P1 from J6 on turret networks box.
 - See figure 16-5.

- 3
- 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.
 - See figure 15-5.



Does SETCOM display show GOOD?

NO

- 4
- Replace branched wiring harness 1W201.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

YES

- 5
- Connect 1W201-P2 to J1 on computer electronics unit.
 - See figure 16-6.
 - Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
 - Verify that problem is solved.

Figure 10-60
Volume II
Para. 10-3

ARR82-6373

**DISPLAY SHOWS -
 FAULTY CEU OR
 1W202**

143103

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 10-89.

- 2
- Disconnect CX305-P2 from CIB-J1.
 - See figure 10-52.
 - Disconnect CX205-P2 from CIB-J2.
 - See figure 10-38.
 - Disconnect CA548-P2 from CX308-P2.
 - See figure 10-49.
 - Disconnect 1W202-P2 from J2 on computer electronics unit.
 - See figure 18-6.

- 3
- 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 P5.
 - See figure 15-5.

Does SETCOM display show GOOD?

YES

NO

- 4
- Connect 1W202-P5 to J1 on ballistics control panel.
 - See figure 18-8.
 - 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 1W202.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

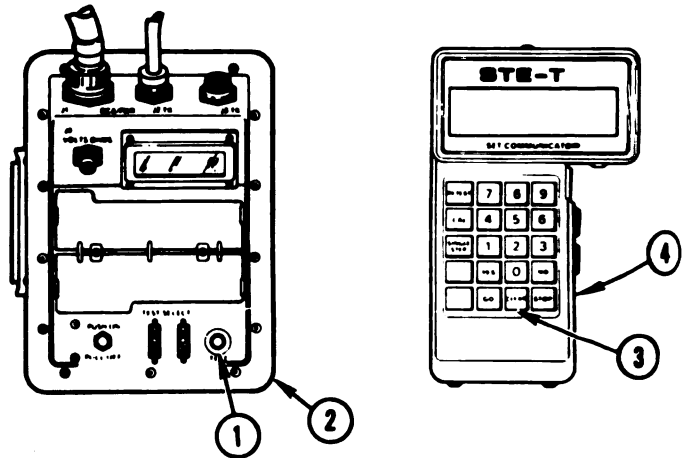


Figure 10-61
 Volume II
 Para. 10-3

ARR82-637

**DISPLAY SHOWS -
FAULTY TNB, 1W203,
OR 1W201** **143108**

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

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

● Change STE power hookup from turret
networks box to power distribution box.
● See figure 10-89.

● Disconnect CX305-P2 from CIB-J1.
● See figure 10-52.
● Connect CX305-P2 (1) to breakout box (2).
● Disconnect 1W203-P1 from J3 on turret
networks box.
● See figure 16-5.

● Prepare VTM for measuring resistance
between 0 and 1500 ohms.
● Refer to para. 10-1.

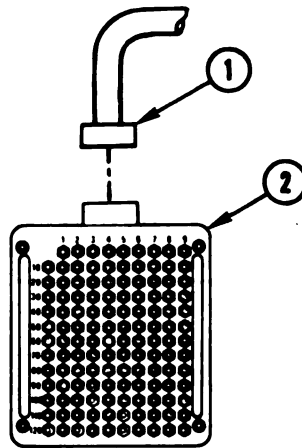


Figure 10-62 (Sheet 1 of 3)
**Volume II
Para. 10-3**

ARR82-6375

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

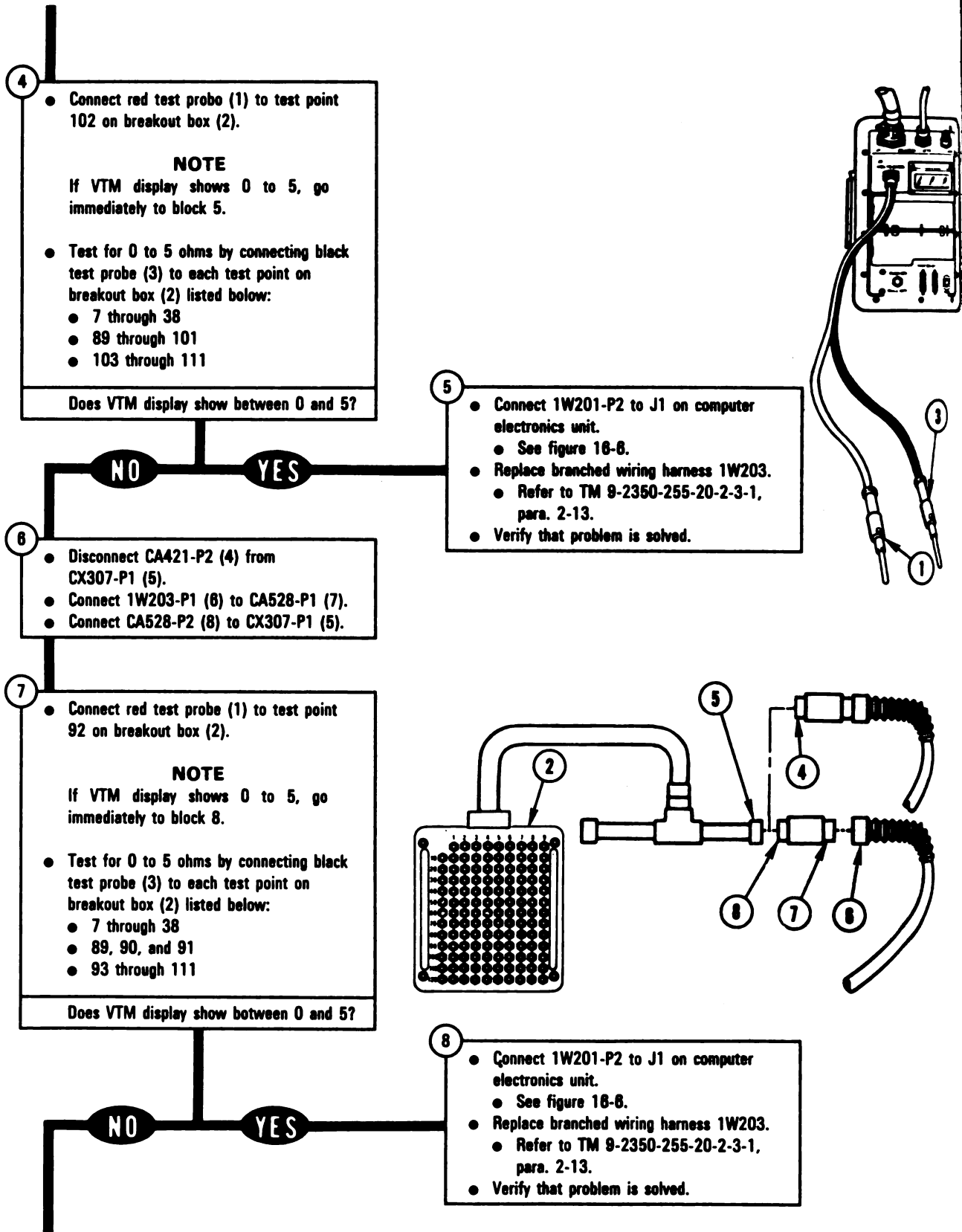


Figure 10-62 (Sheet 2 of 3)
Volume II
Para. 10-3

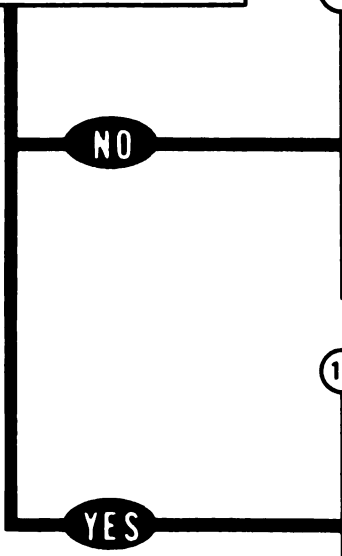
ARR82-637E

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

- Disconnect CA528-P2 (1) from CX307-P1 (2).
- Disconnect 1W201-P1 from J8 on turret networks box.
 - See figure 18-5.
- Connect 1W201-P1 (3) to CA502-P1 (4).
- Connect CA502-P2 (5) to CX307-P1 (2).

- Connect red test probe (8) to test point 103 on breakout box (7).
- NOTE**
If VTM display shows 0 to 5, go immediately to block 12.
- Test for 0 to 5 ohms by connecting black test probe (8) to each test point on breakout box (7) listed below:
 - 7 through 38
 - 89 through 102
 - 104 through 111

Does VTM display show between 0 and 5?



- 11
- Connect 1W201-P2 to J1 on computer electronics unit.
 - See figure 18-6.
 - Connect 1W203-P2 to J1 on gunner's primary sight.
 - See figure 18-16.
 - Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
 - Verify that problem is solved.

- 12
- Connect 1W203-P1 to J3 on turret networks box.
 - See figure 18-5.
 - Connect 1W203-P2 to J1 on gunner's primary sight.
 - See figure 18-16.
 - Replace branched wiring harness 1W201.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

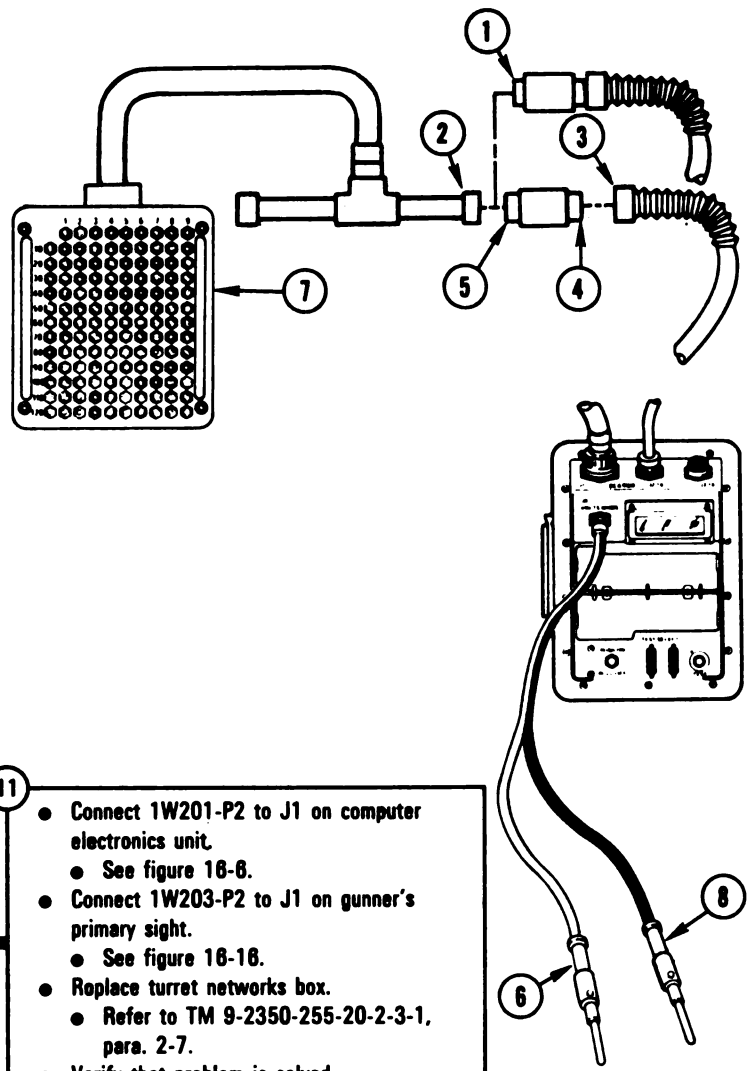


Figure 10-62 (Sheet 3 of 3)
Volume II
Para. 10-3

ARR82-6377

DISPLAY SHOWS -
SEE -20 MANUAL

143113

**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
- Change STE power hookup from turret networks box to power distribution box.
 - See figure 10-89.

- 2
- Disconnect CX205-P1 from CIB-J1.
 - See figure 10-38.
 - Disconnect CX205-P2 from CIB-J2.
 - See figure 10-38.
 - Disconnect 1W202-P2 from J2 on computer electronics unit.
 - See figure 18-6.
 - Disconnect 1W202-P4 from J1 on thermal electronics unit.
 - See figure 18-14.

- 3
- 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 P4.
 - See figure 15-5.

Does SETCOM display show GOOD?

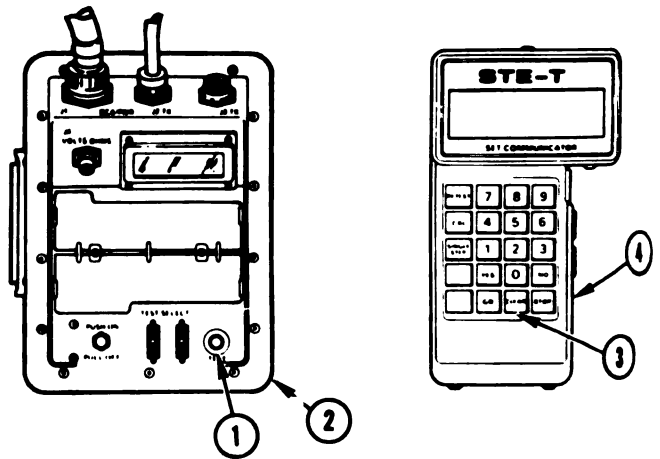


Figure 10-63 (Sheet 1 of 3)
Volume II
Para. 10-3

ARR82-637E

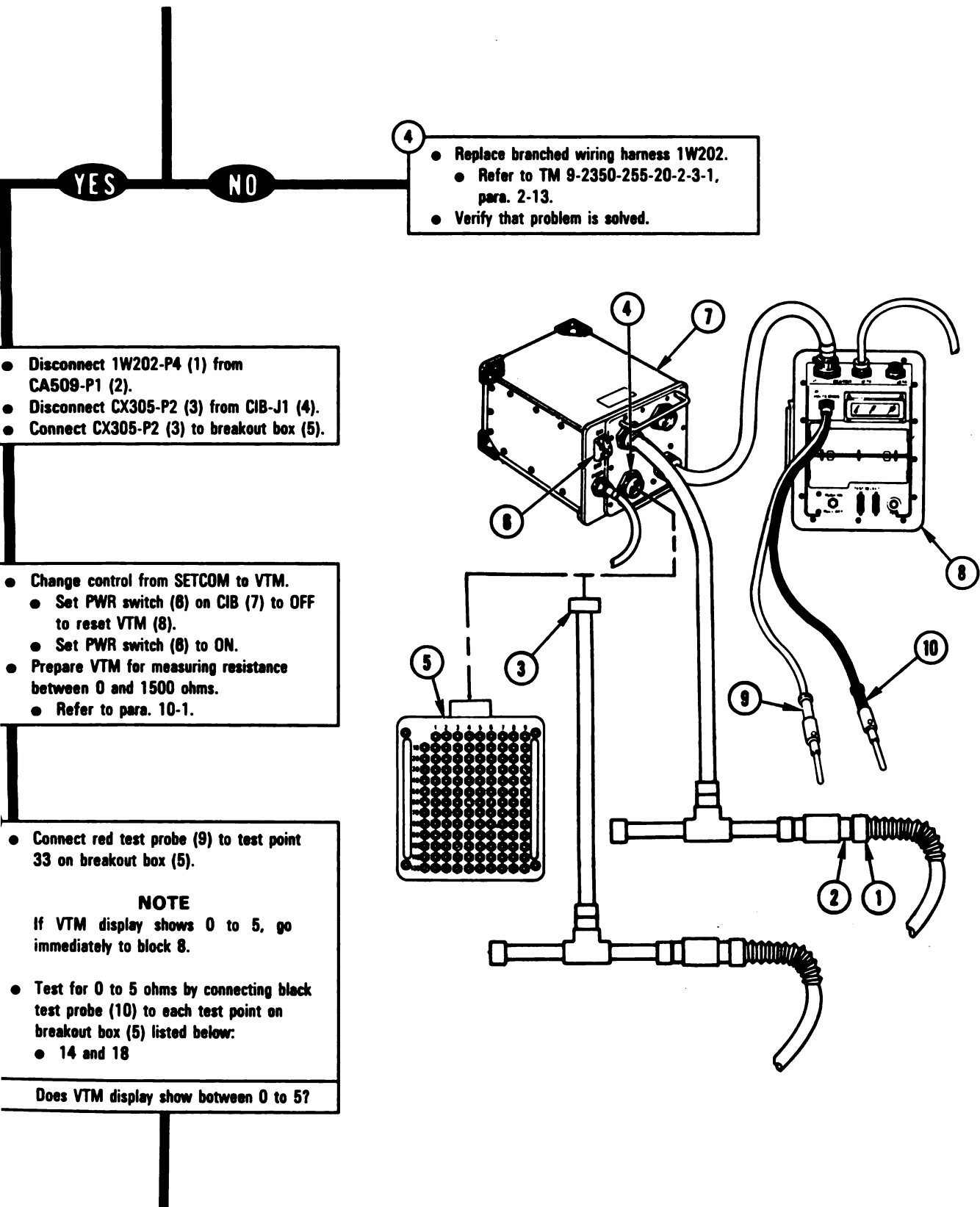


Figure 10-63 (Sheet 2 of 3)
Volume II
Para. 10-3

ARR82-6379

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

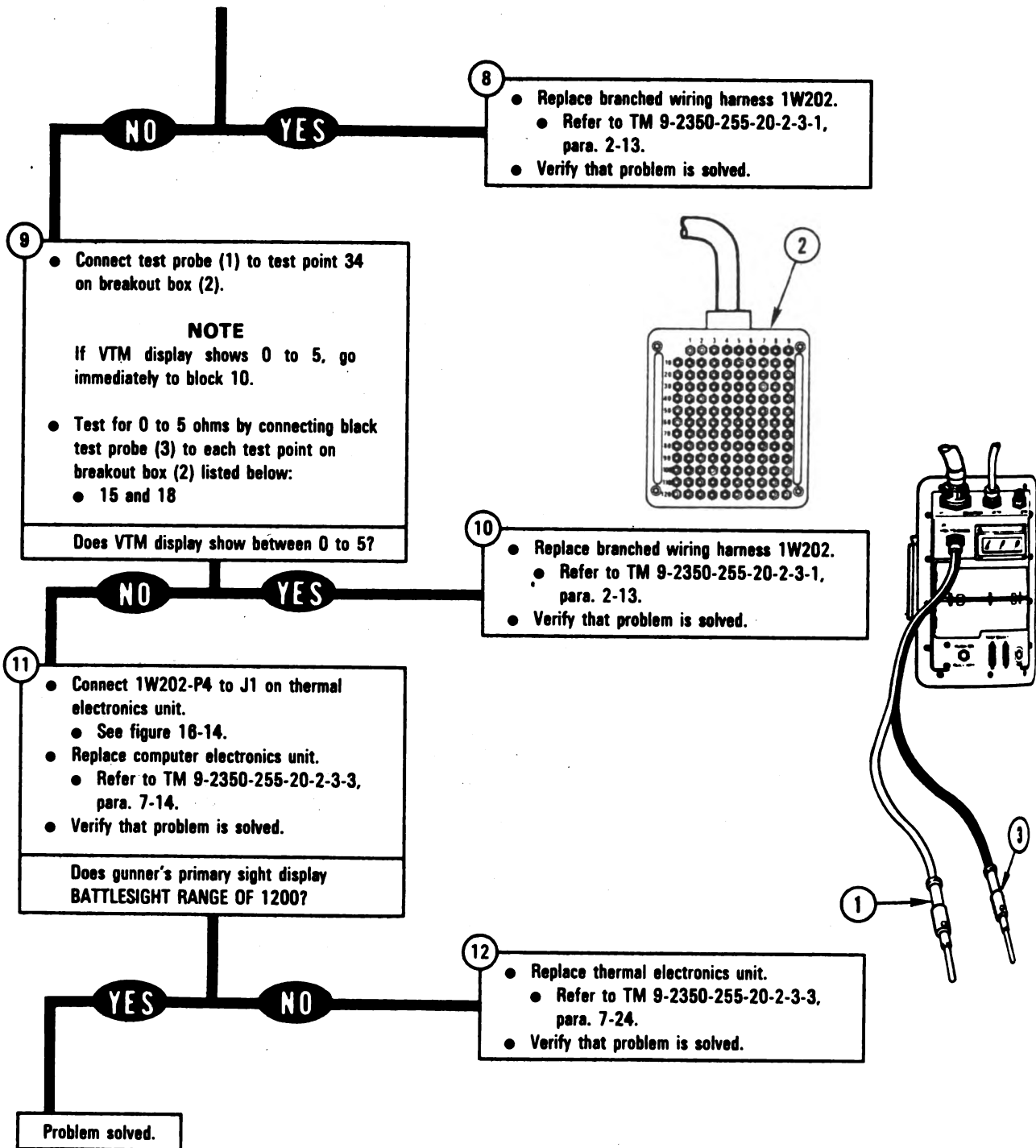


Figure 10-63 (Sheet 3 of 3)
Volume II
Para. 10-3

ARR82-6380

DISPLAY SHOWS -
FAULTY CEU OR
1W201

- 143116
- 143121
- 143137
- 143145

Equipment Condition:

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

- Change STE power hookup from turret networks box to power distribution box.
 - See figure 10-89.

- Disconnect CX205-P2 from CIB-J2.
 - See figure 10-38.
- Disconnect CA501-P2 from CX307-P2.
 - See figure 10-43.
- Disconnect 1W201-P2 from J1 on computer electronics unit.
 - See figure 16-8.

- 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.
 - See figure 15-5.

Does SETCOM display show GOOD?

YES

NO

- Connect 1W201-P1 to J6 on turret networks box.
 - See figure 16-5.
- 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.

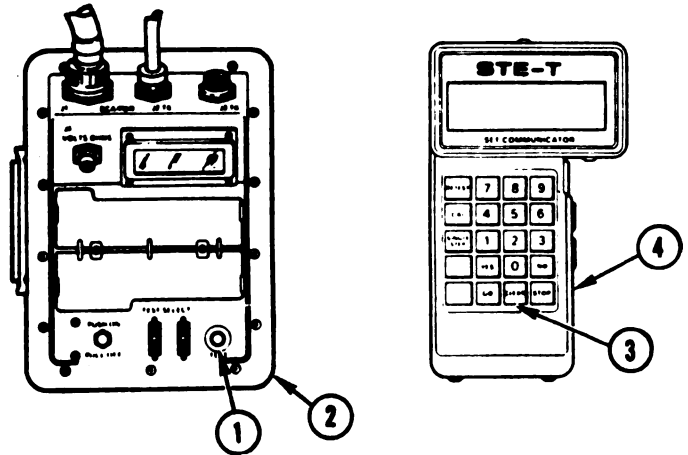


Figure 10-64
Volume II
Para. 10-3

ARR82-6381

**TM 9-2350-255-20-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

• 143118
143133
143141

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

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 10-89.

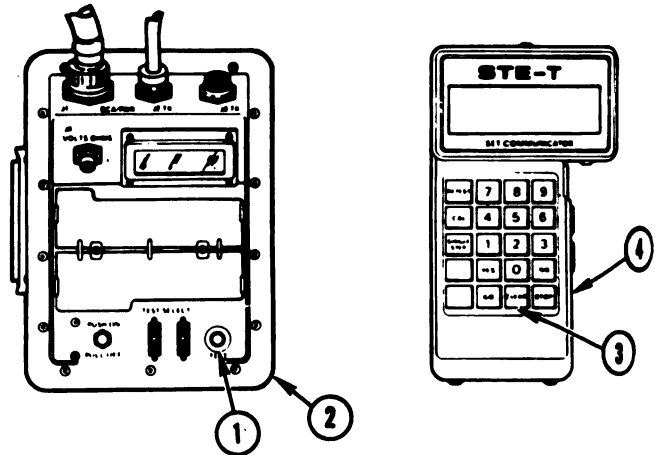
2

- Disconnect CX205-P2 from CIB-J2.
- See figure 10-38.
- Disconnect CA529-P2 from CX307-P2.
- See figure 10-47.
- Disconnect 1W102-P2 from J1 on commander's control panel.
- See figure 16-7.

3

- 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.
- See figure 15-5.

Does SETCOM display show GOOD?



YES

4

- Connect 1W102-P1 to J8 on turret networks box.
- See figure 16-5.
- Replace commander's control panel assembly.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-5.
- Verify that problem is solved.

NO

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 10-65
Volume II
Para. 10-3*

ARR82-63K

DISPLAY SHOWS -
FAULTY TNB 1W102
OR 1W201

143127

Additional Test

Equipment/Special Tools:

- Breakout Box Tool Kit, 12311068

Equipment Condition:

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

- Change STE power hookup from turret networks box to power distribution box.
 - See figure 10-89.

- Disconnect CX305-P2 from CIB-J1.
 - See figure 10-52.
- Connect CX305-P2 (1) to breakout box (2).
- Disconnect 1W201-P1 from J8 on turret networks box.
 - See figure 16-5.

- Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 10-1.

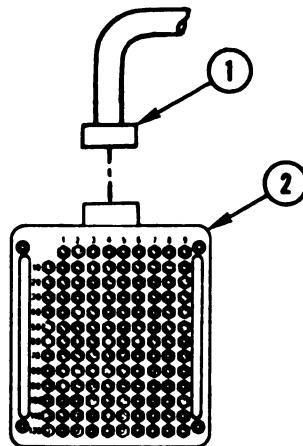


Figure 10-66 (Sheet 1 of 3)
Volume II
Para. 10-3

ARR82-6383

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

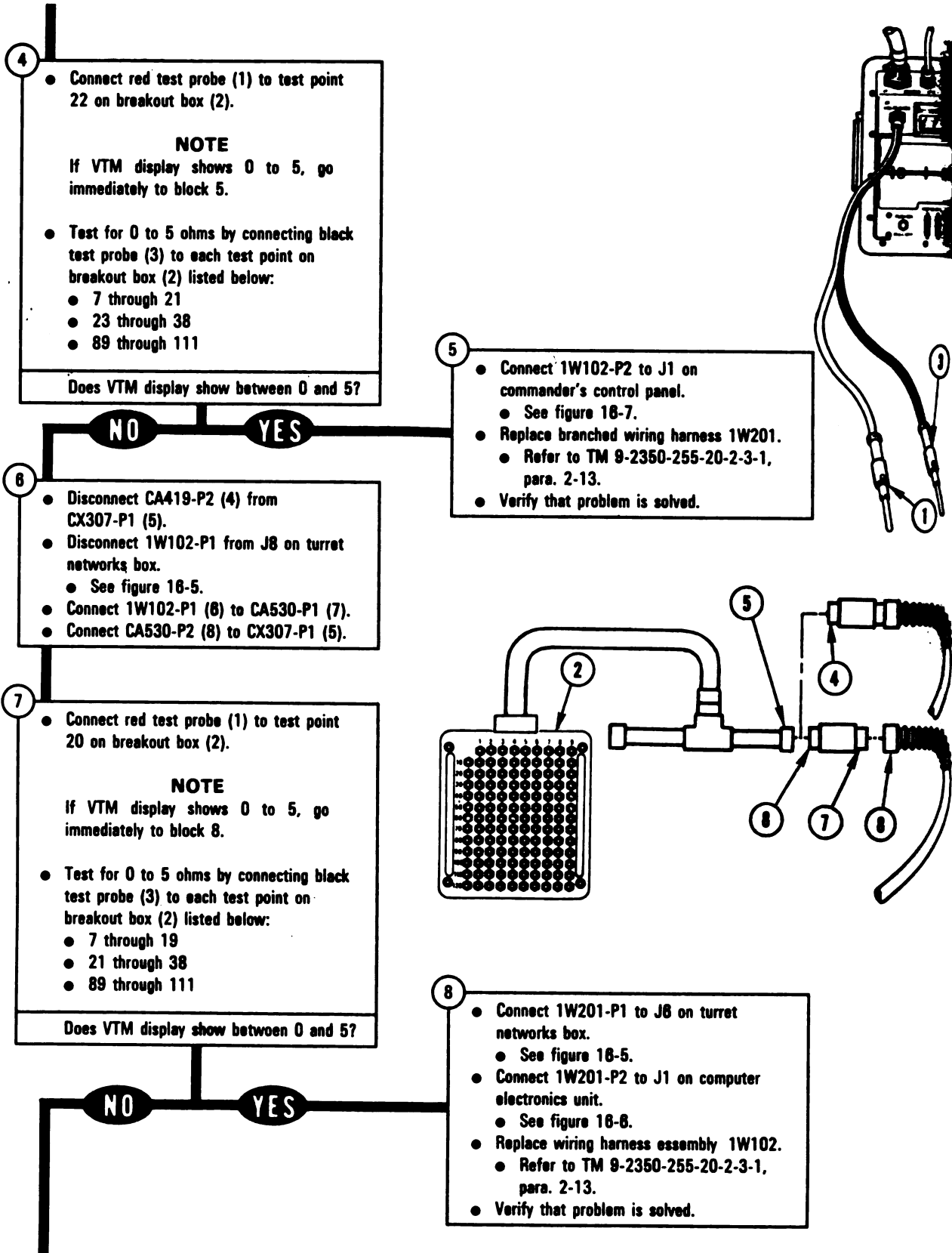


Figure 10-66 (Sheet 2 of 3)
 Volume II
 Para. 10-3

ARR82-6304

- Disconnect CA530-P2 (1) from CX307-P1 (2).
- Connect 1W102-P2 (3) to CA421-P1 (4).
- Connect CA421-P2 (5) to CX307-P1 (2).

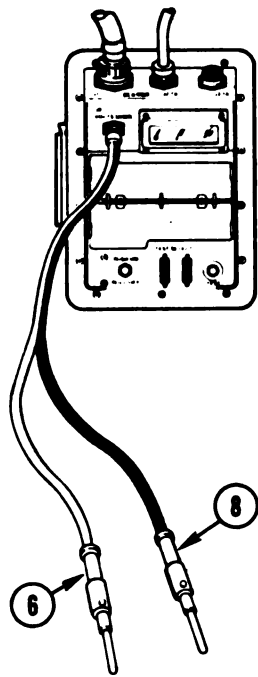
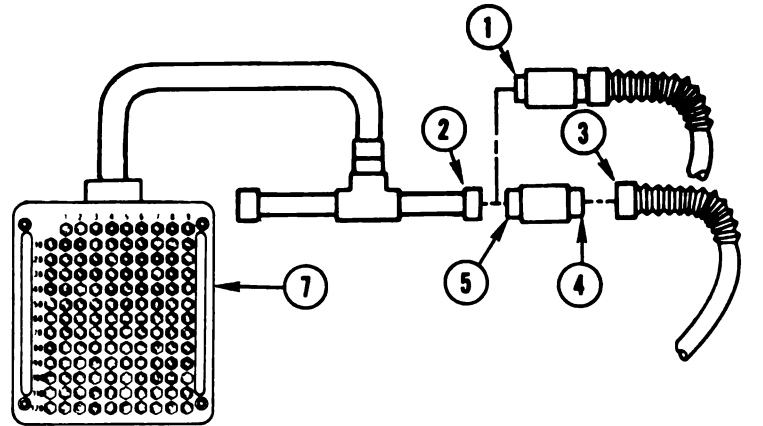
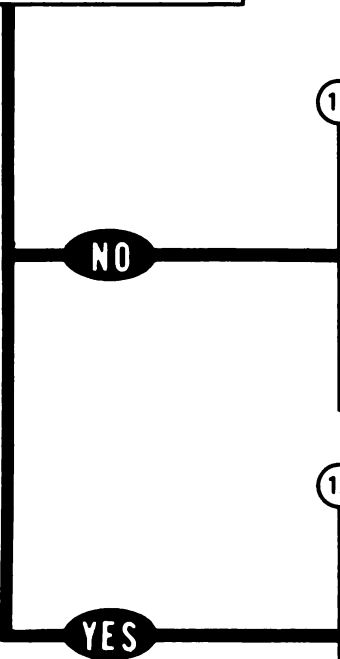
- Connect red test probe (8) to test point 2D on breakout box (7).

NOTE

If VTM display shows 0 to 5, go immediately to block 12.

- Test for 0 to 5 ohms by connecting black test probe (8) to each test point on breakout box (7) listed below:
 - 7 through 19
 - 21 through 38
 - 89 through 111

Does VTM display show between 0 and 5?



- 11
- Connect 1W102-P2 to J1 on commander's control panel.
 - See figure 16-7.
 - Connect 1W201-P2 to J1 on computer electronics unit.
 - See figure 16-6.
 - Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
 - Verify that problem is solved.

- 12
- Connect 1W201-P1 to J6 on turret networks box.
 - See figure 16-5.
 - Connect 1W201-P2 to J1 on computer electronics unit.
 - See figure 16-6.
 - Replace wiring harness assembly 1W102.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

Figure 10-66 (Sheet 3 of 3)
Volume II
Para. 10-3

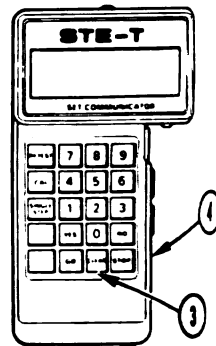
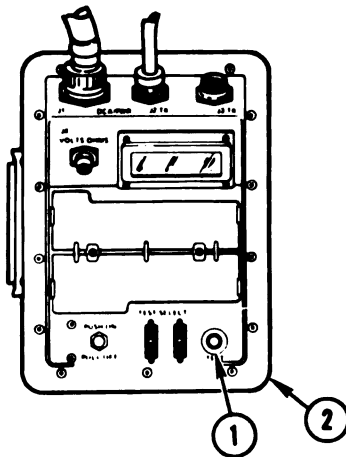
ARR82-6385

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

143150

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 10-89.

- 2
- Disconnect CX205-P2 from CIB-J2.
 - See figure 10-38.
 - Disconnect CA527-P2 from CX307-P2.
 - See figure 10-48.
 - Disconnect 1W203-P2 from J1 on gunner's primary sight.
 - See figure 18-16.

- 3
- 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.
 - See figure 15-5.

Does SETCOM display show GOOD?

YES

NO

- 4
- Connect 1W203-P1 to J3 on turret networks box.
 - See figure 18-5.
 - 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
- Replace branched wiring harness 1W203.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

Figure 10-67
 Volume II
 Para. 10-3

ARR82-638E

DISPLAY SHOWS -
FAULTY TNB OR
1W201

143161

Additional Test

Equipment/Special Tools:

- Breakout Box Tool Kit, 12311068

Equipment Condition:

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

- Change STE power hookup from turret networks box to power distribution box.
 - See figure 10-89.

- 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 16-5.
- Connect 1W201-P1 (5) to CA502-P1 (6).
- Connect CA502-P2 (7) to CX307-P1 (8).

- Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 10-1.

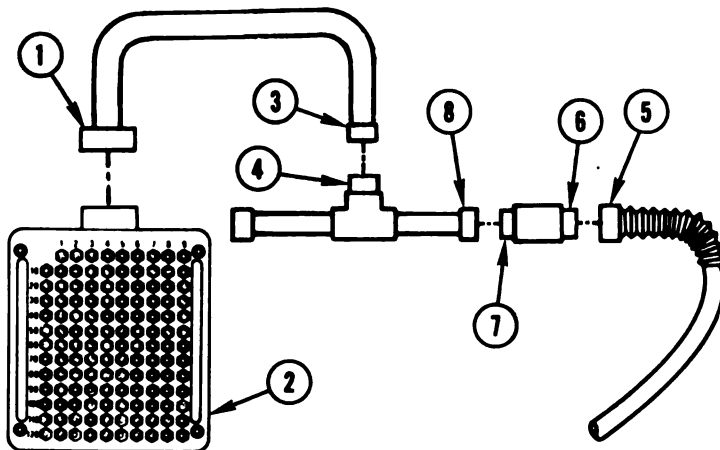


Figure 10-68 (Sheet 1 of 2)
Volume II
Para. 10-3

ARR82-6387

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

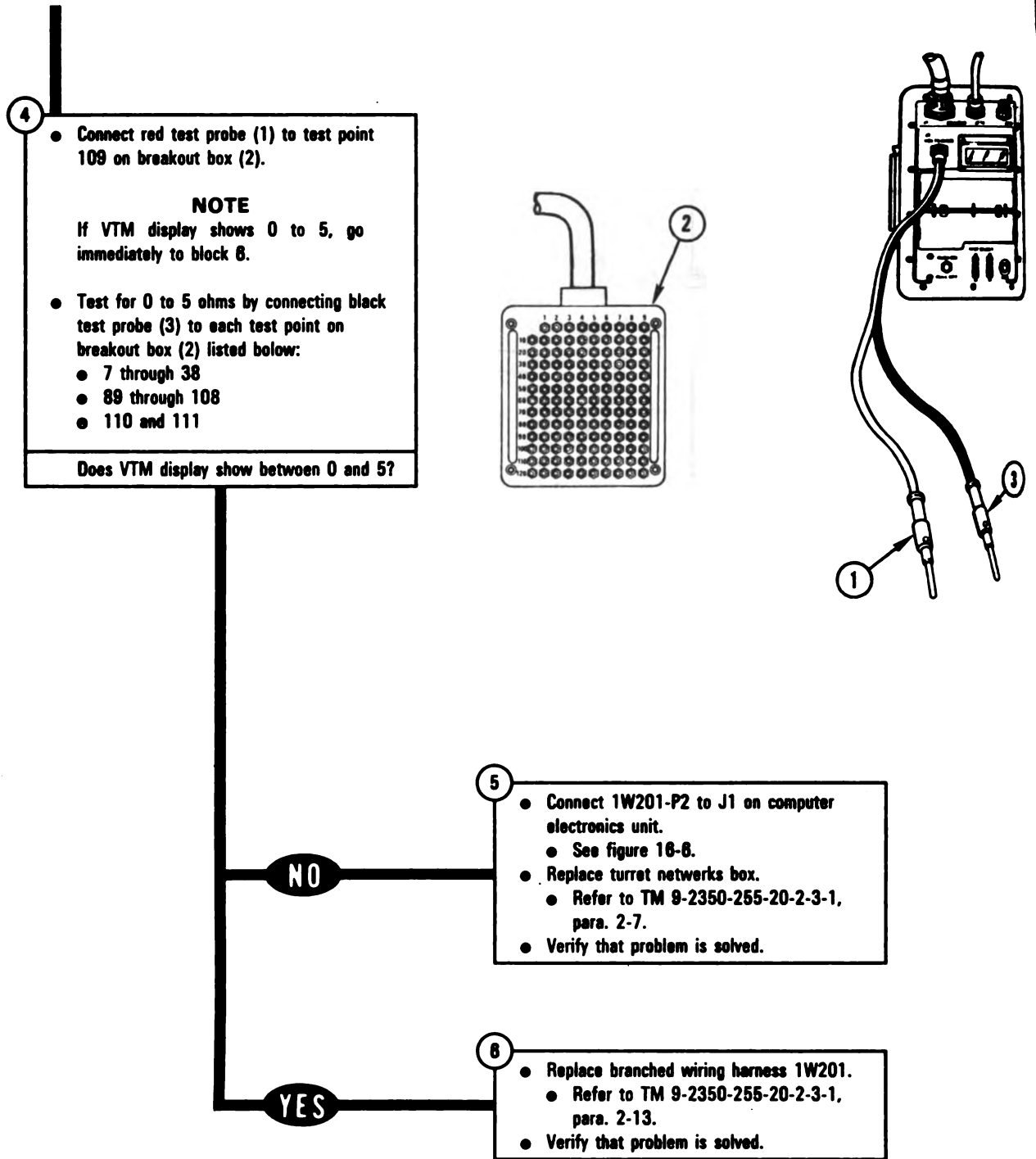


Figure 10-68 (Sheet 2 of 2)
Volume II
Para. 10-3

ARR82-438

DISPLAY SHOWS -
 FAULTY TNB OR
 1W201

143166

Additional Test

Equipment/Special Tools:

- Breakout Box Tool Kit, 12311066

Equipment Condition:

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

- Change STE power hookup from turret networks box to power distribution box.
- See figure 10-89.

- Connect CX305-P2 (1) to breakout box (2).
- Connect CX305-P1 (3) to CX307-P3 (4).
- Disconnect 1W201-P1 from JB on turret networks box.
- See figure 10-5.
- Connect 1W201-P1 (5) to CA502-P1 (6).
- Connect CA502-P2 (7) to CX307-P1 (8).

- Prepare VTM for measuring resistance between 0 and 1500 ohms.
- Refer to para. 10-1.

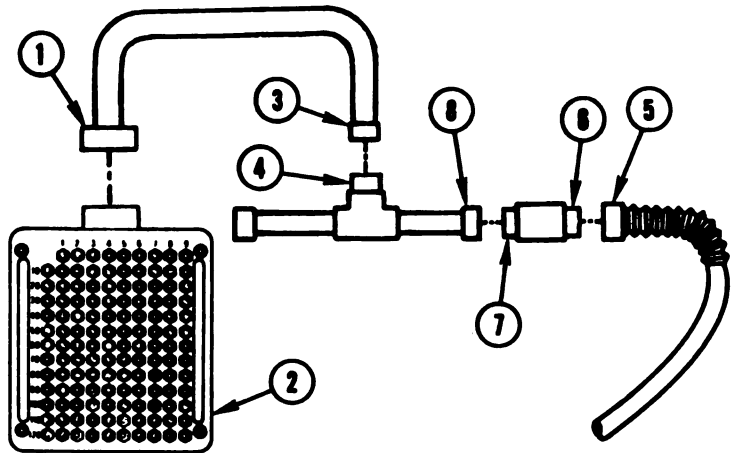


Figure 10-69 (Sheet 1 of 2)
 Volume II
 Para. 10-3

ARR82-6389

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

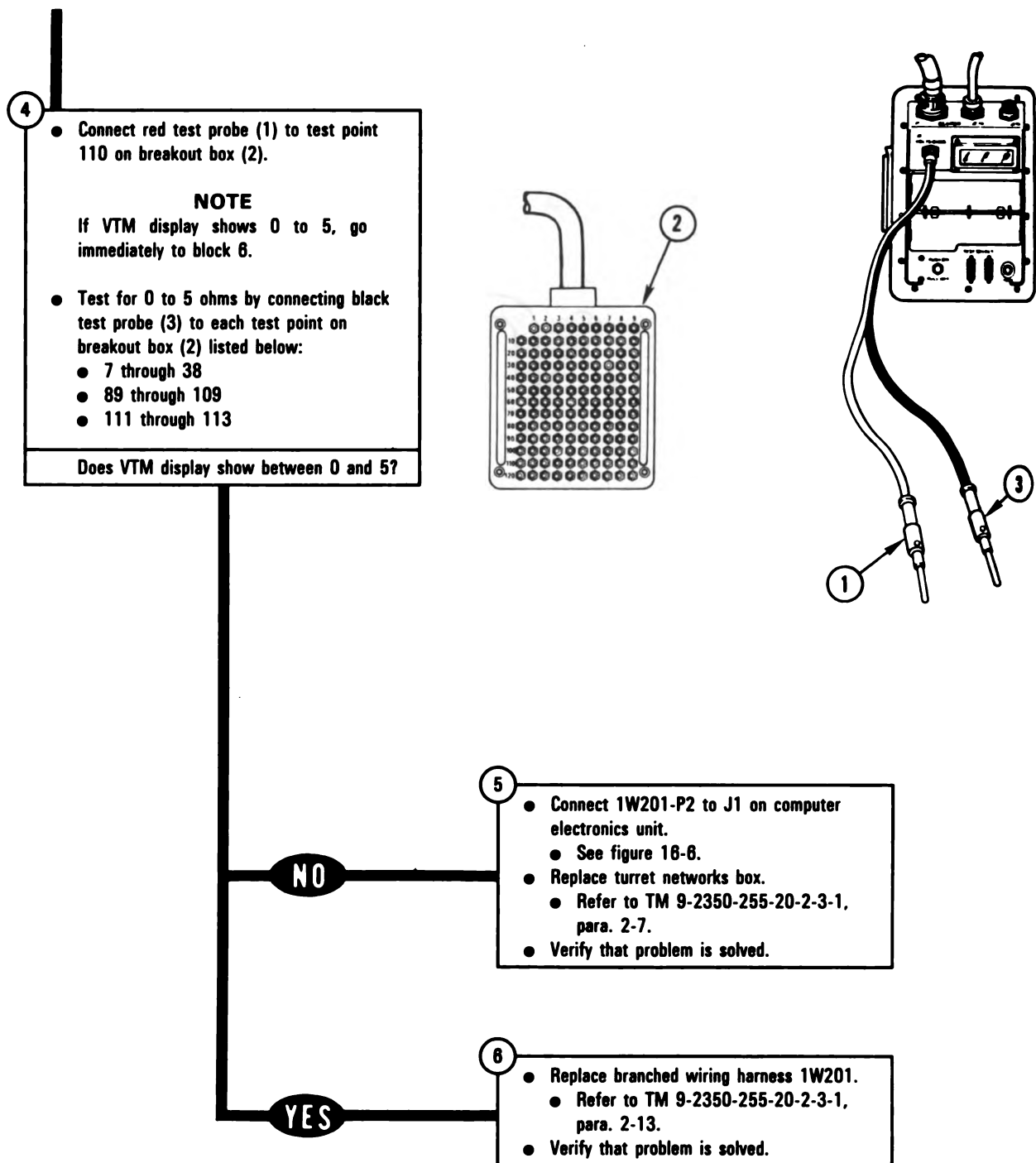


Figure 10-69 (Sheet 2 of 2)
Volume II
Para. 10-3

ARR82-6390

• 143168
143172

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

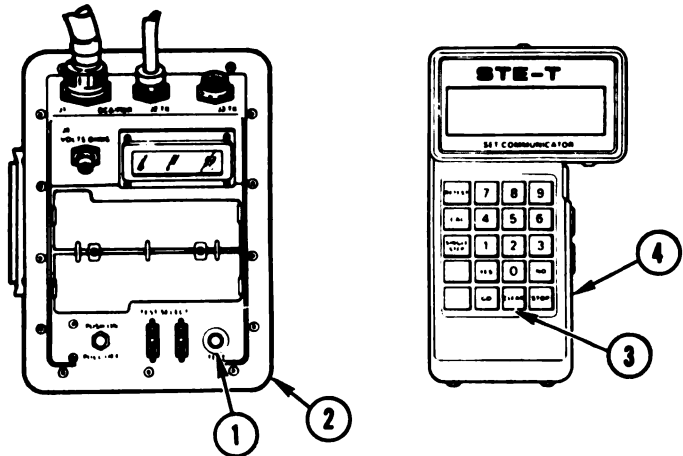
Equipment Condition:

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

- Change STE power hookup from turret networks box to power distribution box.
- See figure 10-89.

- Disconnect CX305-P2 from CIB-J1.
- See figure 10-52.
- Disconnect CX205-P2 from CIB-J2.
- See figure 10-38.
- Disconnect CA420-P2 from CX307-P2.
- See figure 10-40.
- Disconnect 1W201-P1 from J6 on turret networks box.
- See figure 16-5.

- 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.
- See figure 15-5.



Does SETCOM display show GOOD?

YES

NO

- Connect 1W201-P2 to J1 on computer electronics unit.
- See figure 16-8.
- Replace turret networks box.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
- Verify that problem is solved.

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

Figure 10-70
Volume II
Para. 10-3

ARR82-6391

DISPLAY SHOWS -
FAULTY TNB OR
1W201

143175

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

- Change STE power hookup from turret networks box to power distribution box.
 - See figure 10-89.

2

- Disconnect 1W201-P1 from J8 on turret networks box.
 - See figure 18-5.
- Disconnect CX205-P5 from TEST 2 on turret networks box.
 - See figure 10-38.
- Connect CA208-P1 (1) to TEST 2 (2) on turret networks box (3).
- Connect CX305-P1 (4) to CA208-P2 (5).
- Connect CX305-P2 (6) to breakout box (7).

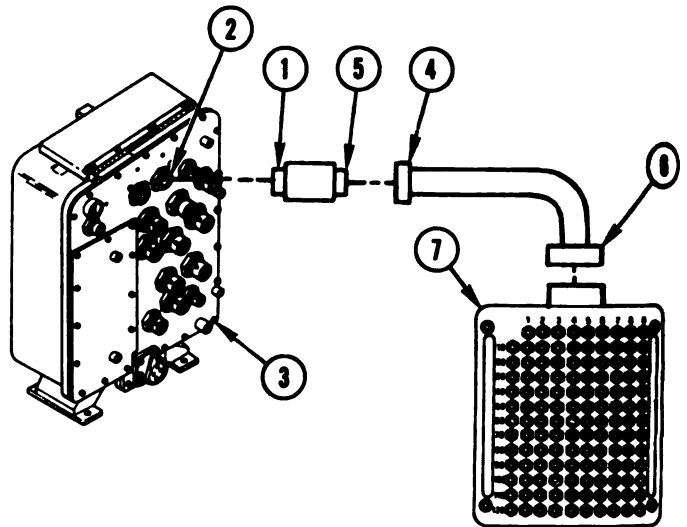


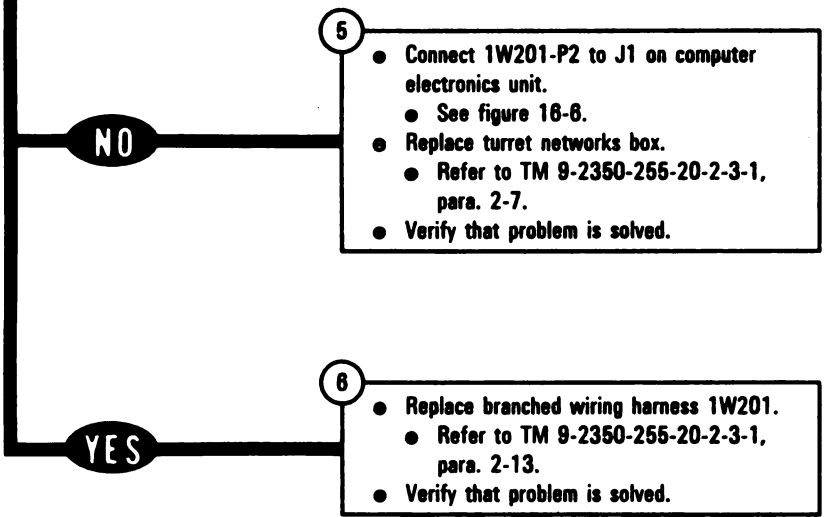
Figure 10-71 (Sheet 1 of 2)
Volume II
Para. 10-3

ARR82-6391

- Prepare VTM for measuring DC voltage.
- Refer to para. 10-1.

- Set VEHICLE MASTER POWER switch (1) to ON.
- Test for 4.5 to 5.5 V dc between test point 11 (-) and 46 (+) on breakout box.
- Connect black test probe (2) to test point 11 on breakout box (3).
- Connect red test probe (4) to test point 46 on breakout box (3).

Does VTM display show 4.5 to 5.5?



- 5
- Connect 1W201-P2 to J1 on computer electronics unit.
 - See figure 18-6.
 - Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
 - Verify that problem is solved.

- 6
- Replace branched wiring harness 1W201.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

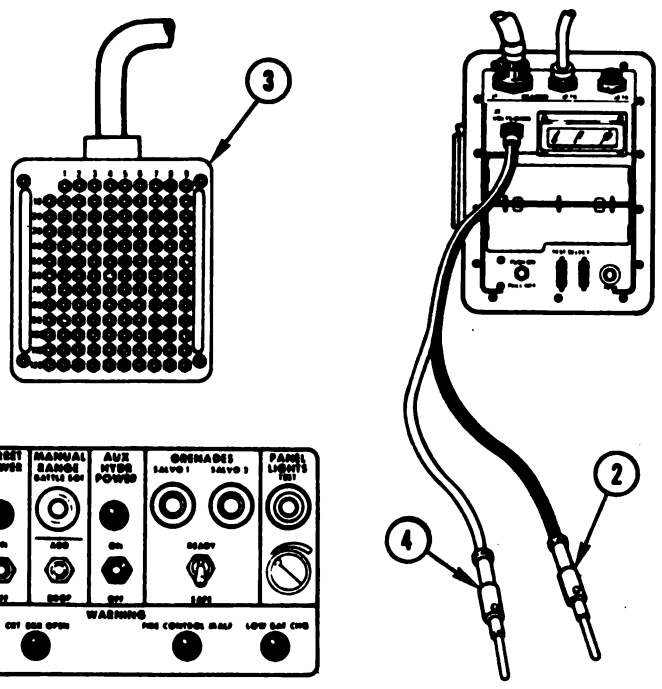


Figure 10-71 (Sheet 2 of 2)
Volume II
Para. 10-3

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

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

143176

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 10-89.

2

- Disconnect CX305-P2 from CIB-J1.
- See figure 10-52.
- Disconnect CX205-P2 from CIB-J2.
- See figure 10-38.
- Disconnect 1W203-P1 from J3 on turret networks box.
- See figure 16-5.

3

- 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 P3.
- See figure 15-5.

Does SETCOM display show GOOD?

YES

NO

4

- Connect 1W203-P3 to J1 on laser rangefinder.
- See figure 16-16.
- Replace turret networks box.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
- Verify that problem is solved.

5

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

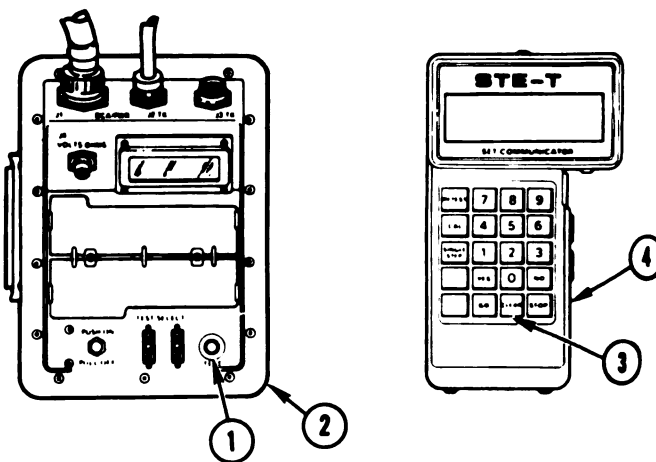


Figure 10-72
Volume II
Para. 10-3

ARR82-6394

**DISPLAY SHOWS -
 FAULTY LRF OR
 1W204**

143180

**Additional Test
 Equipment/Special Tools:**

- Breakout Box Tool Kit, 12311088

Equipment Condition:

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

- Change STE power hookup from turret networks box to power distribution box.
- See figure 10-89.

- Disconnect CX205-P2 from C1B-J2.
- See figure 10-38.
- Disconnect CA514-P2 from CX307-P2.
- See figure 10-44.
- Disconnect 1W204-P2 from J2 on laser rangefinder.
- See figure 16-16.

- 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 1W204 between P1 and P2.
- See figure 15-5.

Does SETCOM display show GOOD?

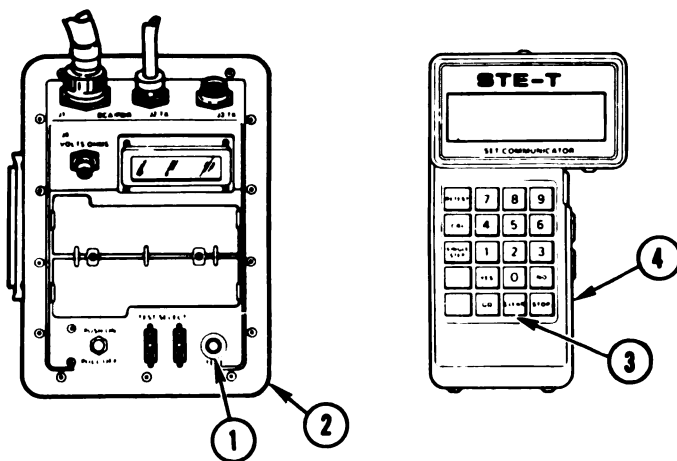


Figure 10-73 (Sheet 1 of 3)
 Volume II
 Para. 10-3

ARR82-6395

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

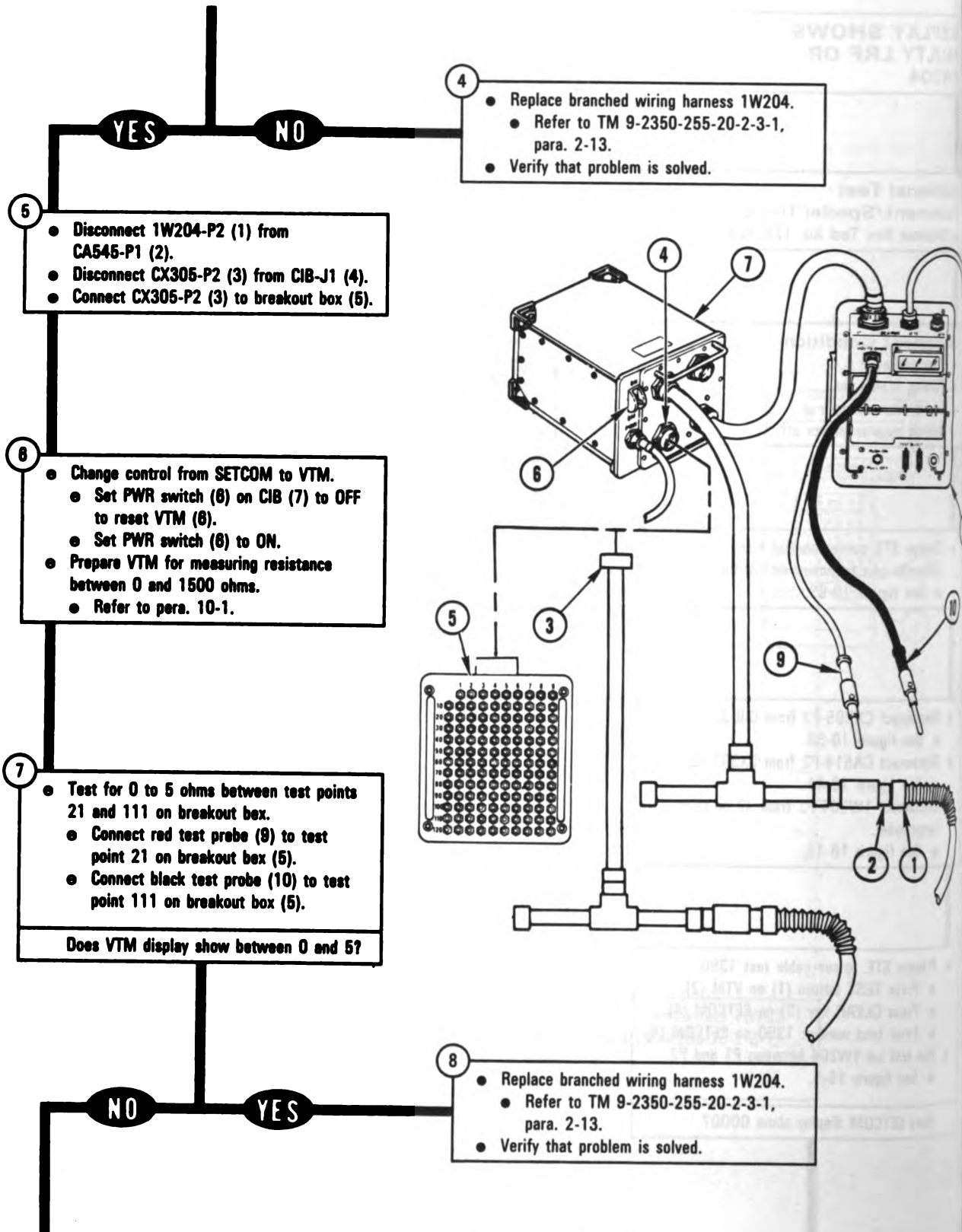


Figure 10-73 (Sheet 2 of 3)
Volume II
Para. 10-3

ARR82-638

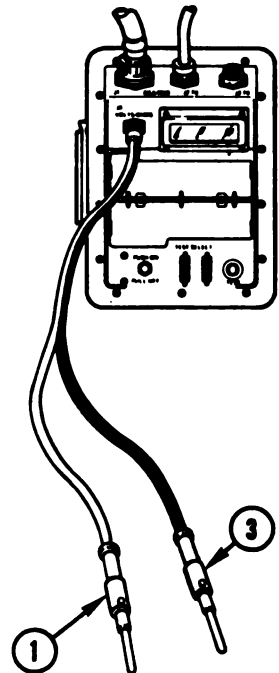
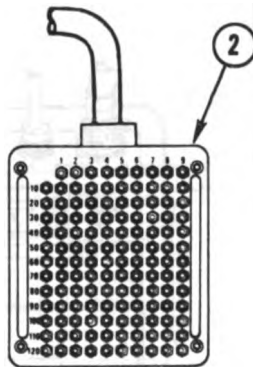
- Connect red test probe (1) to test point 108 on breakout box (2).

NOTE

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

- 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 107
 - 109 through 111

Does VTM display show between 0 and 5?



NO

10

- Connect 1W204-P1 to J3 on computer electronics unit.
- See figure 16-6.
- Replace laser rangefinder.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-23.
- Verify that problem is solved.

YES

11

- Replace branched wiring harness 1W204.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

Figure 10-73 (Sheet 3 of 3)
 Volume II
 Para. 10-3

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

• 143202
 143203

**DISPLAY SHOWS -
 FAULTY CEU OR
 1W204**

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 10-89.

- 2
- Disconnect CX305-P2 from CIB-J1.
 - See figure 10-52.
 - Disconnect CX205-P2 from CIB-J2.
 - See figure 10-38.
 - Disconnect CA556-P2 from CX308-P2.
 - See figure 10-51.
 - Disconnect 1W204-P1 from J3 on computer electronics unit.
 - See figure 16-6.

- 3
- 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 1W204 between P1 and P3.
 - See figure 15-5.

Does SETCOM display show GOOD?

NO

- 4
- Replace branched wiring harness 1W204.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

YES

- 5
- Connect 1W204-P3 to J1 on cant unit.
 - See figure 16-8.
 - Replace computer electronics unit.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-14.
 - Verify that problem is solved.

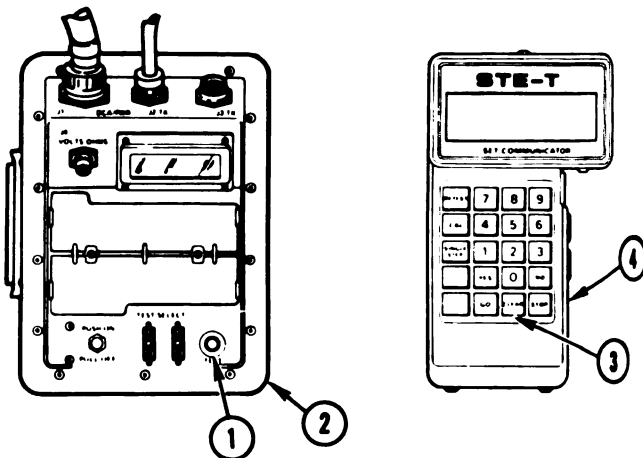


Figure 10-74
Volume II
Para. 10-3

ARR82-6355

**DISPLAY SHOWS -
FAULTY CEU OR
1W204** **143204**

**Additional Test
Equipment/Special Tools:**
● Breakout Box Tool Kit, 12311086

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

● Change STE power hookup from turret networks box to power distribution box.
● See figure 10-89.

● Disconnect 1W204-P3 from CA555-P1.
● See figure 10-51.
● Disconnect 1W204-P2 from J2 on laser rangefinder.
● See figure 16-18.
● Disconnect 1W204-P1 from J3 on computer electronics unit.
● See figure 16-6.
● Disconnect crosswind sensor (1A253)-P1 from 1W205-J2.
● See figure 16-23.

3 ● Connect CX304-P2 (1) to breakout box (2).
● Connect CX304-P1 (3) to CX307-P3 (4).
● Connect 1W204-P1 (5) to CA513-P1 (6).
● Connect CA513-P2 (7) to CX307-P1 (8).

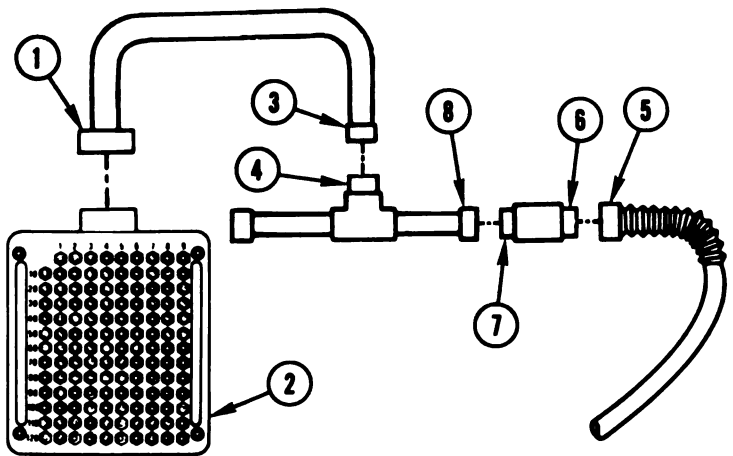


Figure 10-75 (Sheet 1 of 2)
Volume II
Para. 10-3

ARR82-6399

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

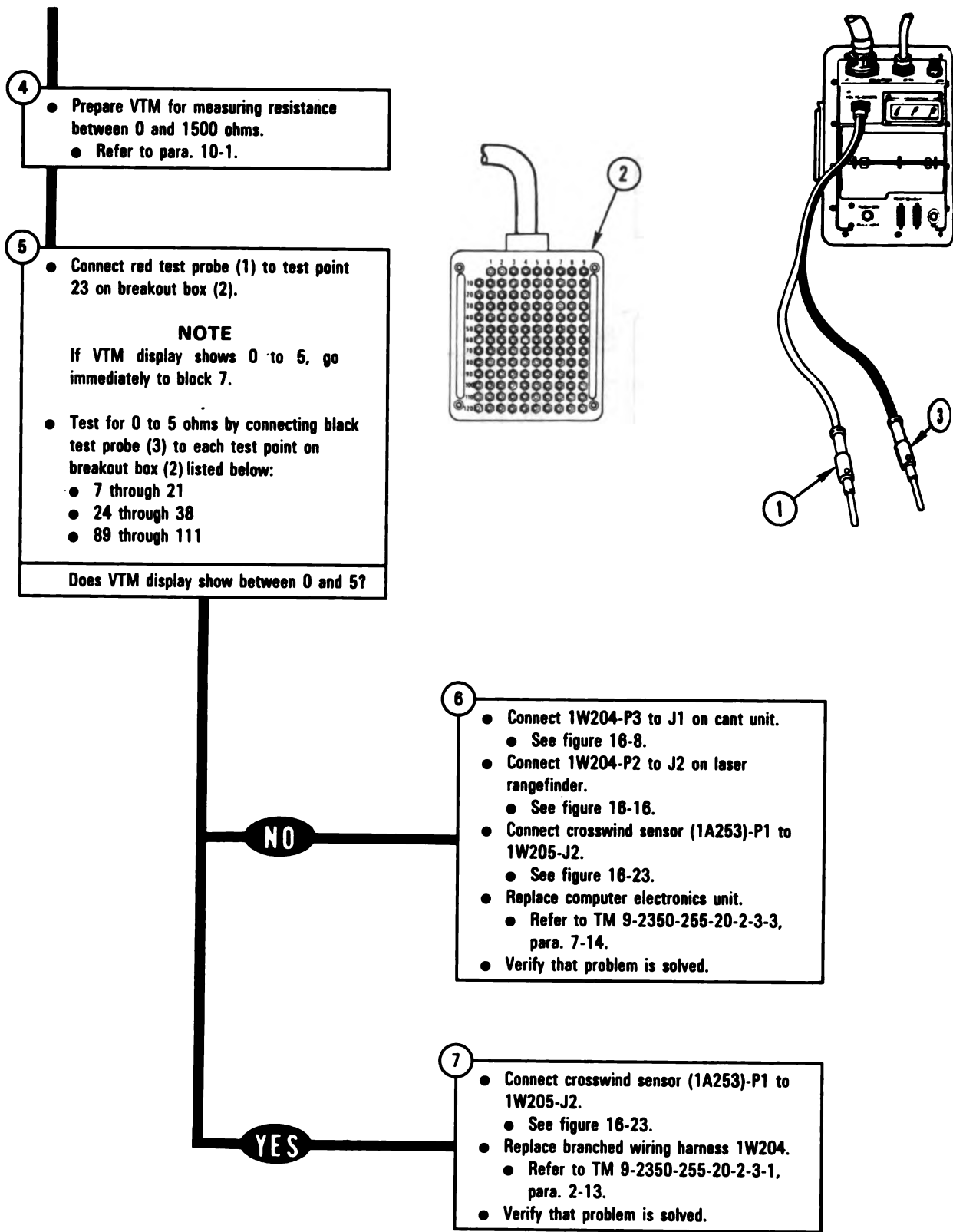


Figure 10-75 (Sheet 2 of 2)
Volume II
Para. 10-3

ARR82-64

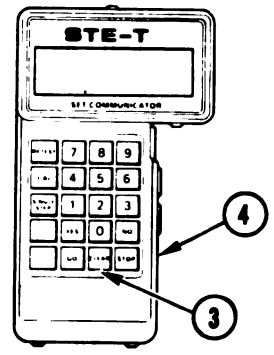
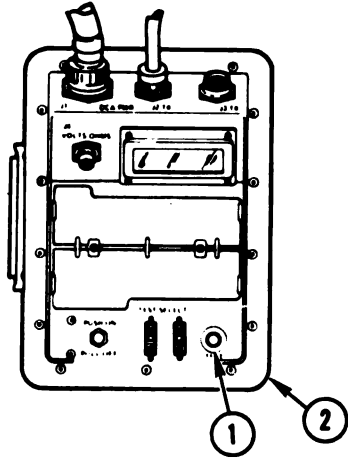
**DISPLAY SHOWS -
 FAULTY CEU OR
 1W204** 143210

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

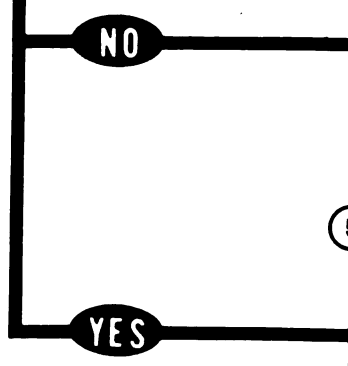
- Change STE power hookup from turret networks box to power distribution box.
 - See figure 10-89.

- Disconnect CX305-P2 from CIB-J1.
 - See figure 10-52.
- Disconnect CX205-P2 from CIB-J2.
 - See figure 10-38.
- Disconnect CA556-P2 from CX308-P2.
 - See figure 10-51.
- Disconnect 1W204-P1 from J3 on computer electronics unit.
 - See figure 16-8.

- 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 1W204 between P1 and P3.
 - See figure 15-5.



Does SETCOM display show GOOD?



- 4
- Install cant unit assembly.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-18, part of task 1.
 - Replace branched wiring harness 1W204.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

- 5
- Install cant unit assembly.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-18, part of task 1.
 - Replace computer electronics unit.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-14.
 - Verify that problem is solved.

Figure 10-76
 Volume II
 Para. 10-3

ARR82-6401

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

**DISPLAY SHOWS -
SEE -20 MANUAL**

143212

**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

- Change STE power hookup from turret networks box to power distribution box.
 - See figure 10-89.

2

- Disconnect CX305-P2 from CIB-J1.
 - See figure 10-52.
- Connect CX305-P2 (1) to breakout box (2).
- Disconnect CA556-P2 from CX308-P1.
 - See figure 10-51.
- Disconnect 1W204-P1 from J3 on computer electronics unit.
 - See figure 16-6.

3

- Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 10-1.

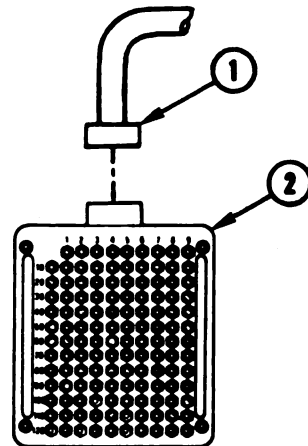


Figure 10-77 (Sheet 1 of 2)
Volume II
Para. 10-3

ARR82-6402

▶ Test for 0 to 5 ohms between test points 11 and 12 on breakout box.

- Connect red test probe (1) to test point 11 on breakout box (2).
- Connect black test probe (3) to test point 12 on breakout box (2).

Does VTM display show between 0 and 5?

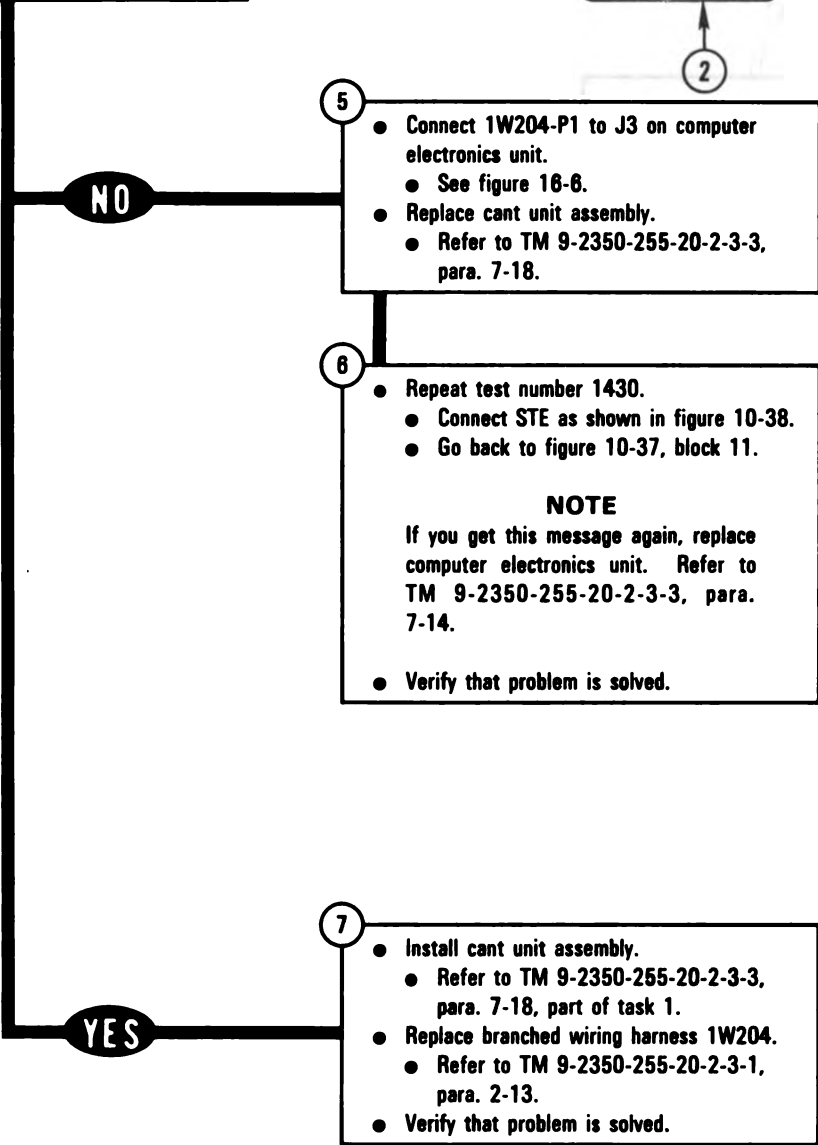
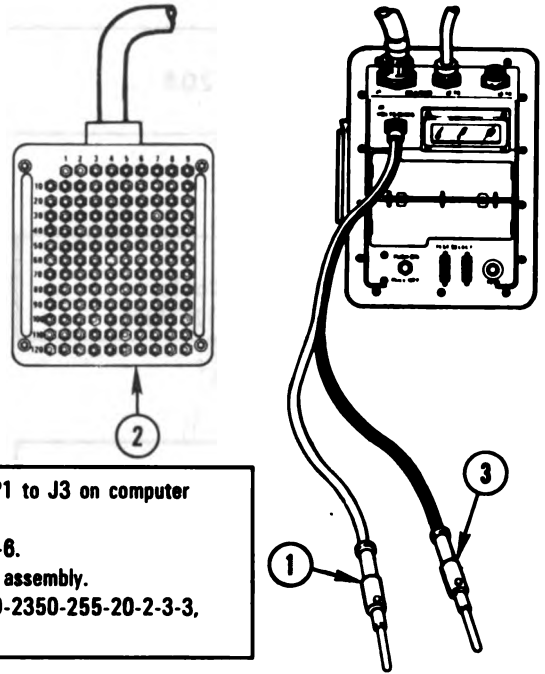


Figure 10-77 (Sheet 2 of 2)
Volume II
Para. 10-3

ARR82-6403

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

**DISPLAY SHOWS -
FAULTY CEU, 1W204
OR 1W205**

143304

**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

- Change STE power hookup from turret networks box to power distribution box.
 - See figure 10-89.

2

- Disconnect 1W204-P2 from J2 on laser rangefinder.
 - See figure 16-16.
- Disconnect 1W204-P3 from J1 on cant unit.
 - See figure 16-8.
- Disconnect CA551-P1 from 1W205-J2.
 - See figure 10-50.

3

- Connect CX305-P2 (1) to breakout box (2).
- Connect CX305-P1 (3) to CX307-P3 (4).
- Disconnect 1W204-P1 from J3 on computer electronics unit.
 - See figure 16-6.
- Connect 1W204-P1 (5) to CA513-P1 (6).
- Connect CA513-P2 (7) to CX307-P1 (8).

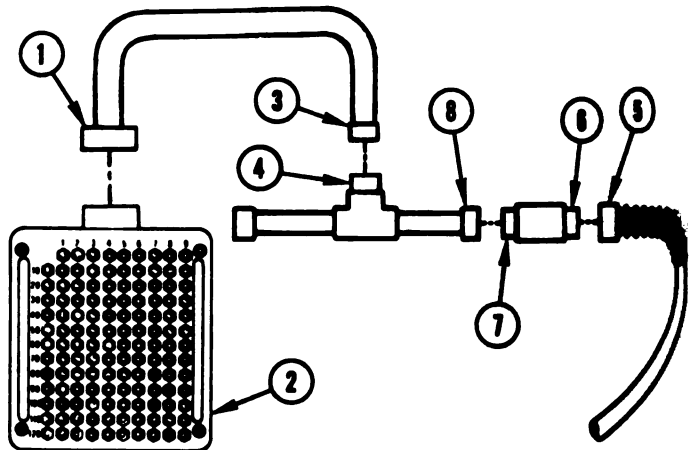


Figure 10-78 (Sheet 1 of 3)
Volume II
Para. 10-3

ARR82-4404

- Prepare VTM for measuring resistance between 0 and 1500 ohms.
- Refer to para. 10-1.

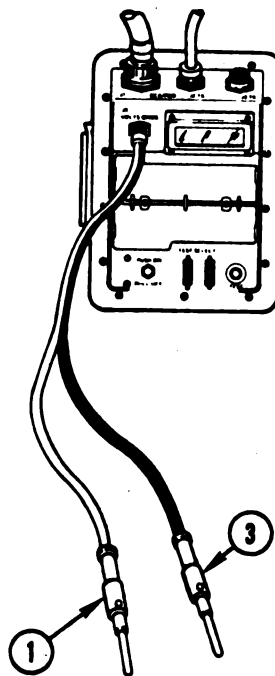
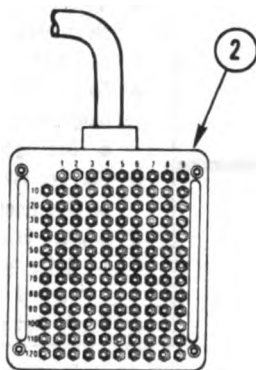
- Connect red test probe (1) to test point 91 on breakout box (2).

NOTE

If VTM display shows 0 to 5, leave test probes connected and 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 and 90
 - 92 through 111

Does VTM display show between 0 and 5?



YES

NO

- 6
- Connect 1W204-P2 to J2 on laser rangefinder.
 - See figure 16-16.
 - Connect 1W204-P3 to J1 on cant unit.
 - See figure 16-8.
 - Connect crosswind sensor (1A253)-P1 to 1W205-J2.
 - See figure 16-23.
 - Replace computer electronics unit.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-14.
 - Verify that problem is solved.

- Disconnect 1W204-P4 from 1W205-J1.
 - See figure 16-23.
- Test for 0 to 5 ohms.*

Does VTM display show between 0 and 5?

Figure 10-78 (Sheet 2 of 3)
Volume II
Para. 10-3

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

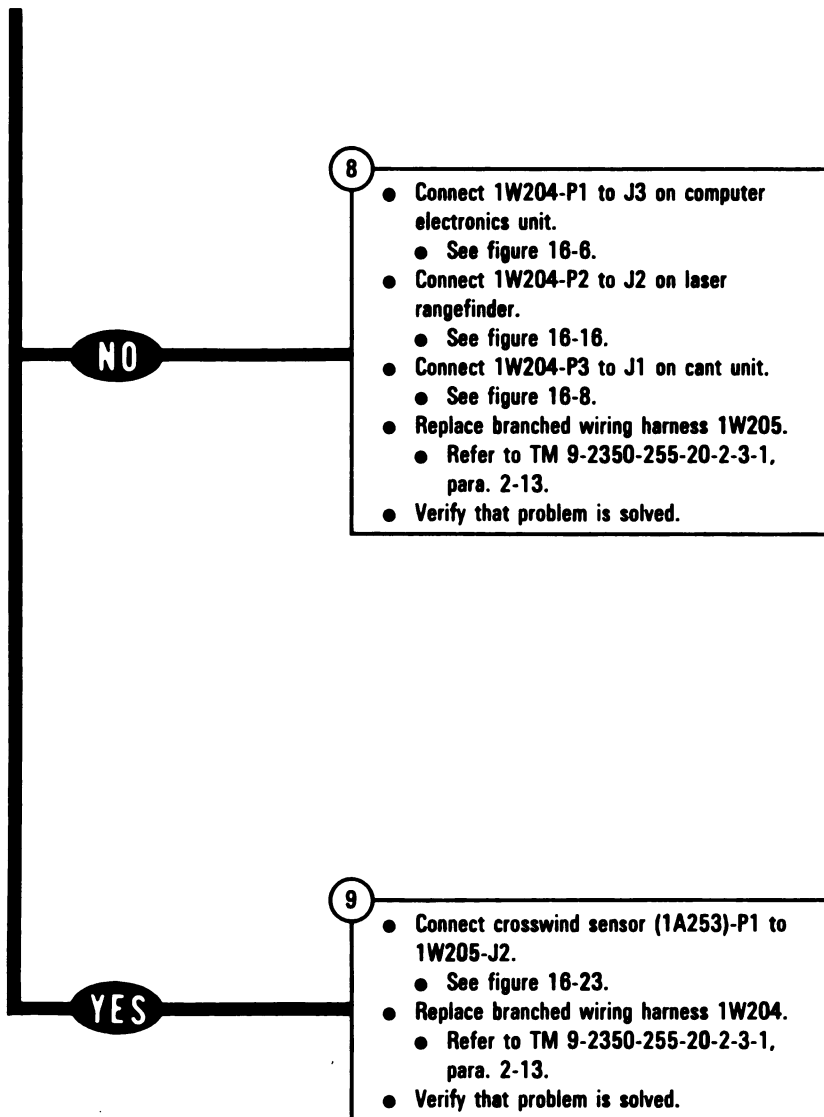


Figure 10-78 (Sheet 3 of 3)
Volume II
Para. 10-3

**DISPLAY SHOWS -
FAULTY CEU, 1W204
OR 1W205**

- 143305
- 143308
- 143310

**Additional Test
Equipment/Special Tools:**
● Breakout Box Tool Kit, 12311086

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

● Change STE power hookup from turret networks box to power distribution box.
● See figure 10-89.

● Disconnect CX205-P2 from CIB-J2.
● See figure 10-38.
● Disconnect CX304-P2 from CIB-J1.
● See figure 10-52.
● Disconnect CX304-P1 from CX308-P3.
● See figure 10-50.
● Disconnect CA551-P1 from 1W205-J2.
● See figure 10-50.
● Disconnect 1W204-P1 from J3 on computer electronics unit.
● See figure 16-6.

Figure 10-79 (Sheet 1 of 3)
Volume II
Para. 10-3

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

- 3
- Connect CX304-P2 (1) to breakout box (2).
 - Connect CX304-P1 (3) to CX307-P3 (4).
 - Connect 1W204-P1 (5) to CA513-P1 (6).
 - Connect CA513-P2 (7) to CX307-P1 (8).
- 4
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 10-1.
- 5
- Connect jumper (9) between contacts on 1W205-J2 (10) listed in table A for fault number being tested.
 - Test for 0 to 5 ohms between test points listed in table A for fault number being tested.
 - Connect red test probe (11) to test point on breakout box (2) listed in table A for fault number being tested.
 - Connect black test probe (12) to test point on breakout box (2) listed in table A for fault number being tested.
- Does VTM display show between 0 and 5?

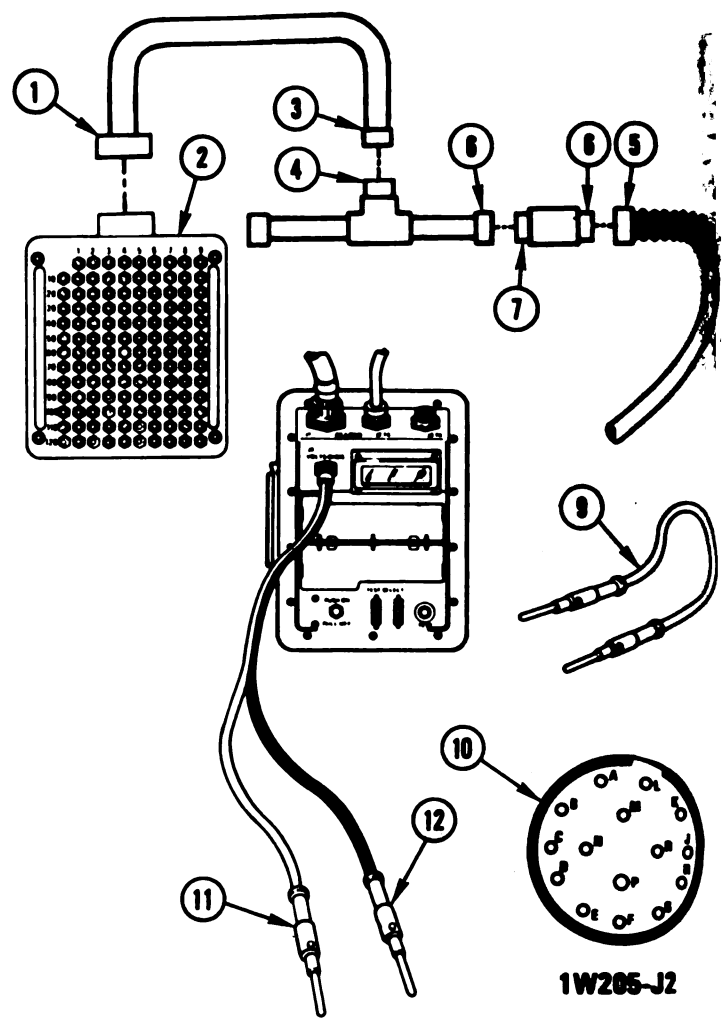


Table A

Fault Number	Jumper	Red Test Probe	Black Test Probe
143305	K and L	32	36
143308	K and R	32	34
143310	J and K	32	93

Figure 10-79 (Sheet 2 of 3)
Volume II
Para. 10-3

ARR82-640C

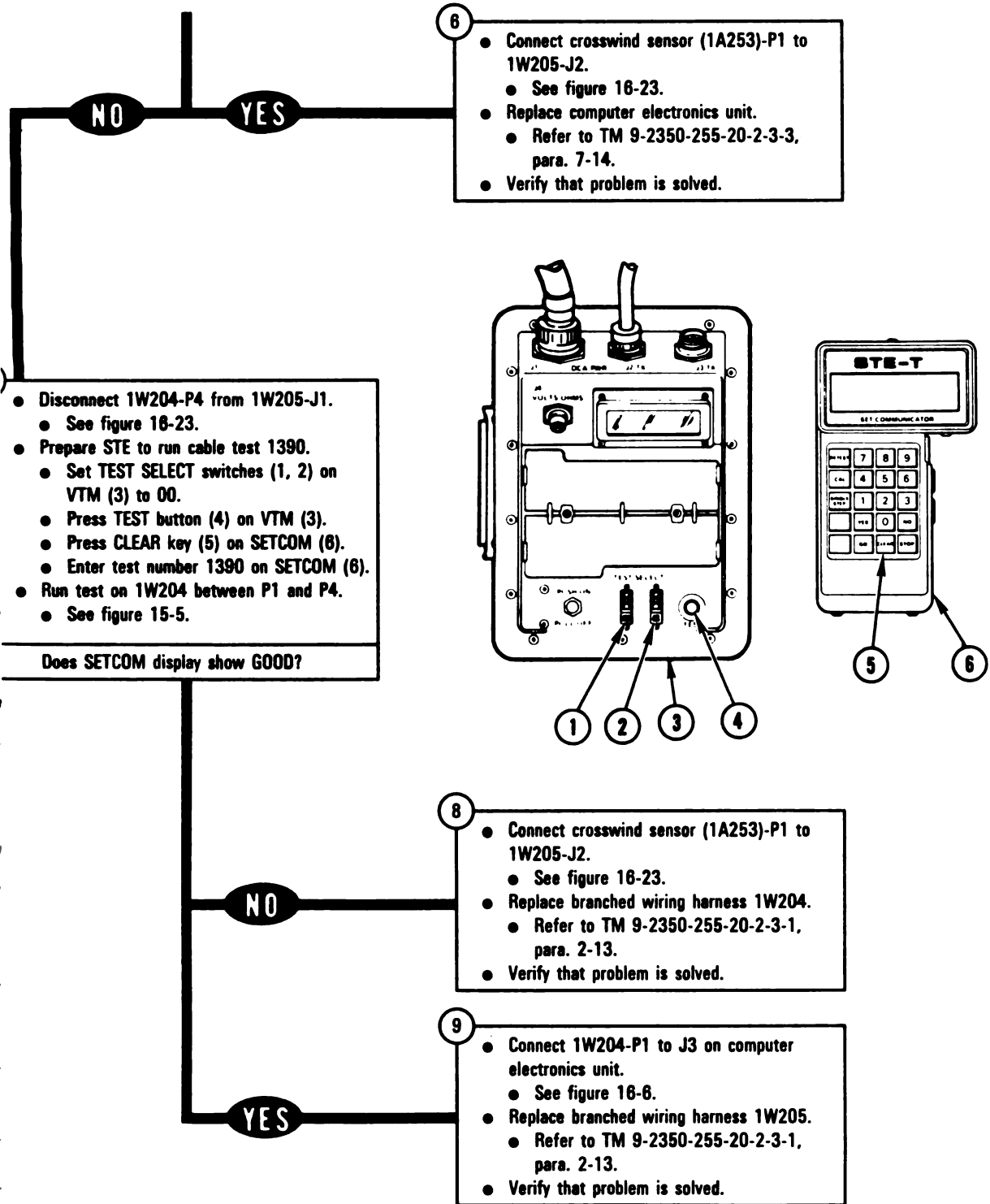


Figure 10-79 (Sheet 3 of 3)
Volume II
Para. 10-3

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

DISPLAY SHOWS -
FAULTY CEU, 1W201,
1W204, 1W205

143307

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 10-89.

2

- Disconnect CX205-P2 from CIB-J2.
- See figure 10-38.
- Disconnect CA501-P2 from CX307-P2.
- See figure 10-43.
- Disconnect 1W201-P2 from J1 on computer electronics unit.
- See figure 16-6.

3

- 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.
- See figure 15-5.

Does SETCOM display show GOOD?

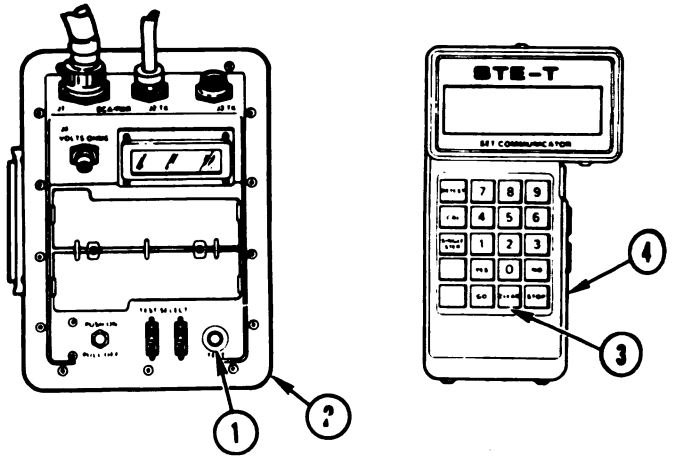


Figure 10-80 (Sheet 1 of 3)
Volume II
Para. 10-3

ARR82-6406

YES

NO

- 4
- Replace branched wiring harness 1W201.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

Disconnect crosswind sensor (1A253)-P1 from 1W205-J2.

- See figure 18-23.

Disconnect 1W204-P1 from J3 on computer electronics unit.

- See figure 18-6.

Disconnect CX304-P2 from CIB-J1.

- See figure 10-52.

Disconnect CA502-P2 from CX307-P1.

- See figure 10-43.

Connect CX304-P2 (1) to breakout box (2).

Connect 1W204-P1 (3) to CA513-P1 (4).

Connect CA513-P2 (5) to CX307-P1 (6).

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. 10-1.

Connect jumper (10) between contacts B and N on 1W205-J2 (11).

Test for continuity between test points 37 and 38 on breakout box.

- Connect red test probe (12) to test point 37 on breakout box (2).
- Connect black test probe (13) to test point 38 on breakout box (2).

Does VTM display show between 0 and 5?

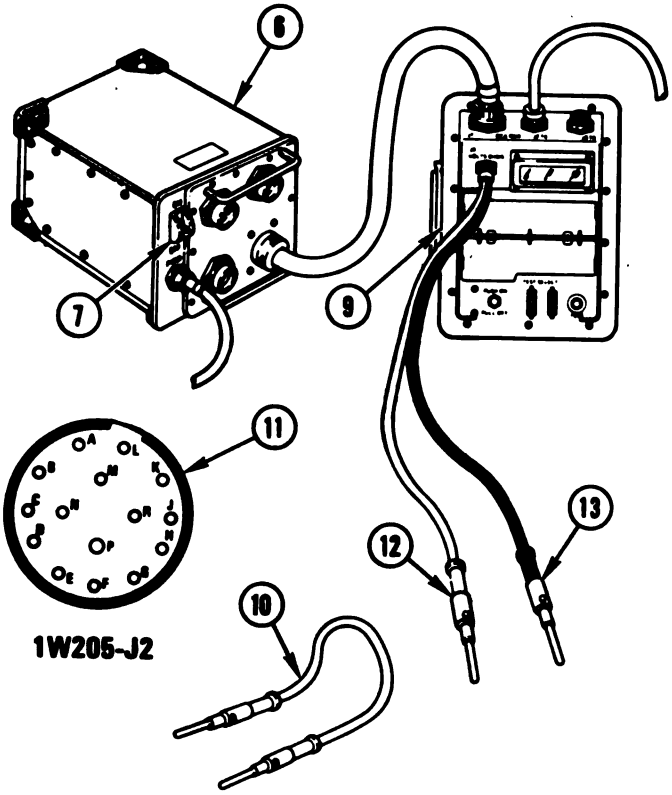
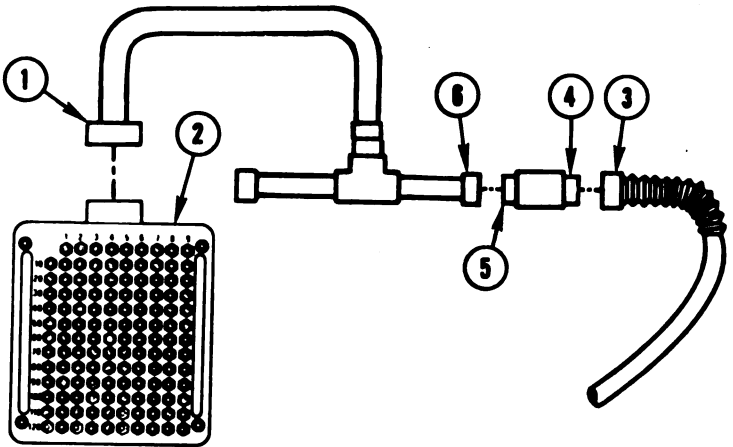


Figure 10-80 (Sheet 2 of 3)
Volume II
Para. 10-3

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

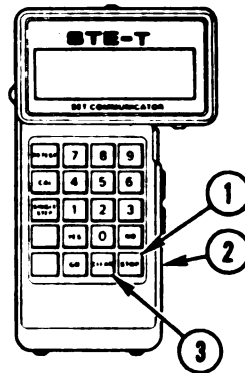
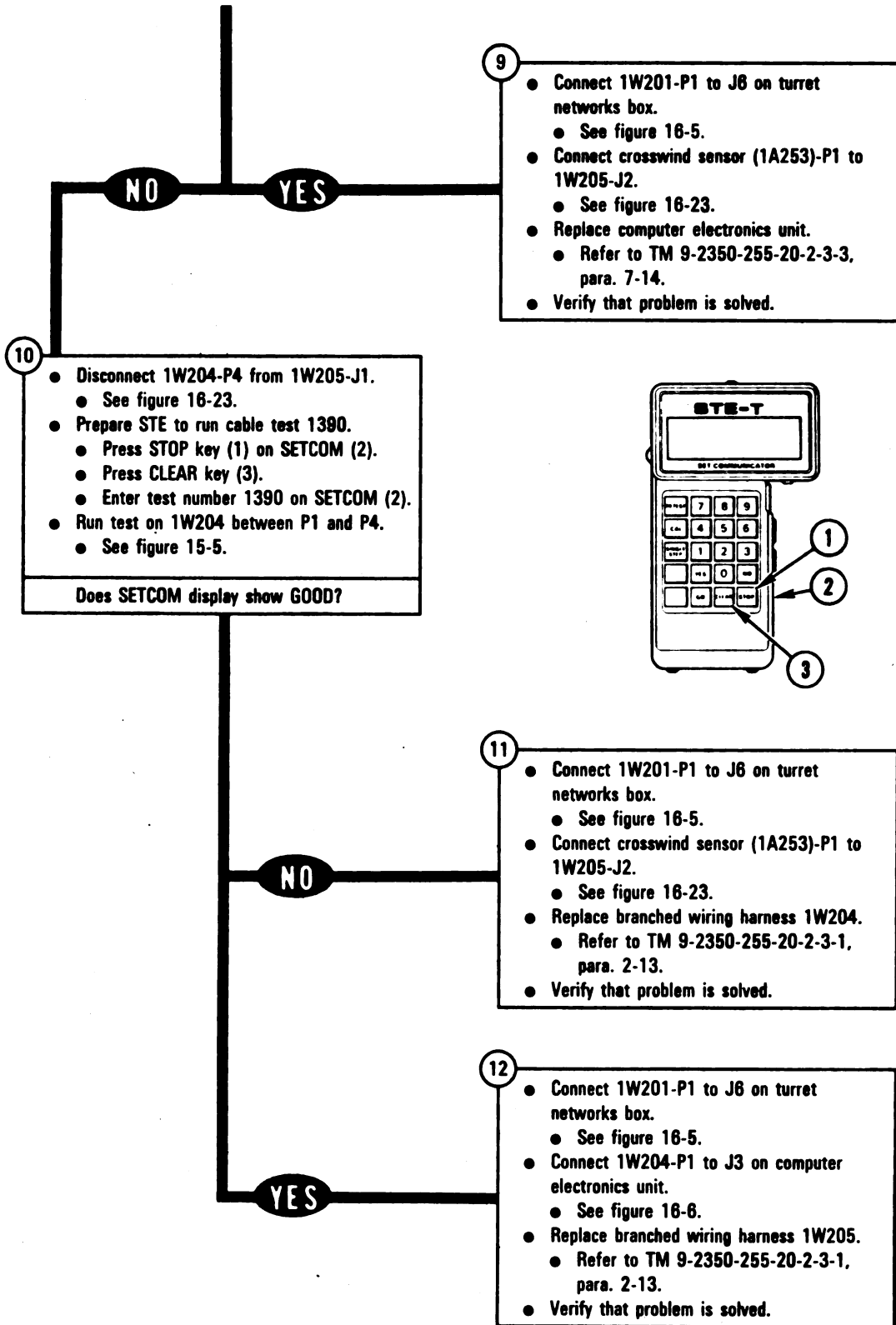


Figure 10-80 (Sheet 3 of 3)
Volume II
Para. 10-3

**DISPLAY SHOWS -
SEE -20 MANUAL**

143314

Additional Test

Equipment/Special Tools:

- Breakout Box Tool Kit, 12311086

Equipment Condition:

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

- Change STE power hookup from turret networks box to power distribution box.
- See figure 10-89.

- Disconnect CX304-P1 from CX308-P3.
- See figure 10-50.
- Disconnect CA551-P1 from 1W205-J2.
- See figure 10-50.
- Disconnect CX304-P2 from CIB-J1.
- See figure 10-52.

- Disconnect 1W204-P2 from J2 on laser rangefinder.
- See figure 16-16.
- Disconnect 1W204-P3 from J1 on cant unit.
- See figure 16-8.
- Disconnect 1W204-P1 from J3 on computer electronics unit.
- See figure 16-6.

- Connect CX304-P2 (1) to breakout box (2).
- Connect CX304-P1 (3) to CX307-P3 (4).
- Connect 1W204-P1 (5) to CA513-P1 (6).
- Connect CA513-P2 (7) to CX307-P1 (8).

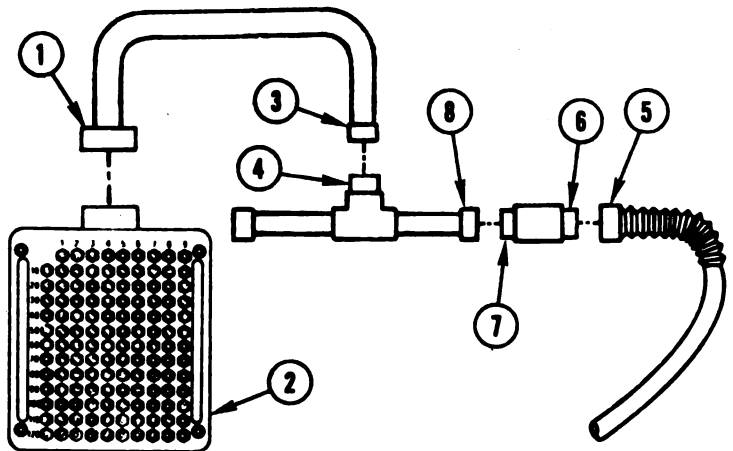
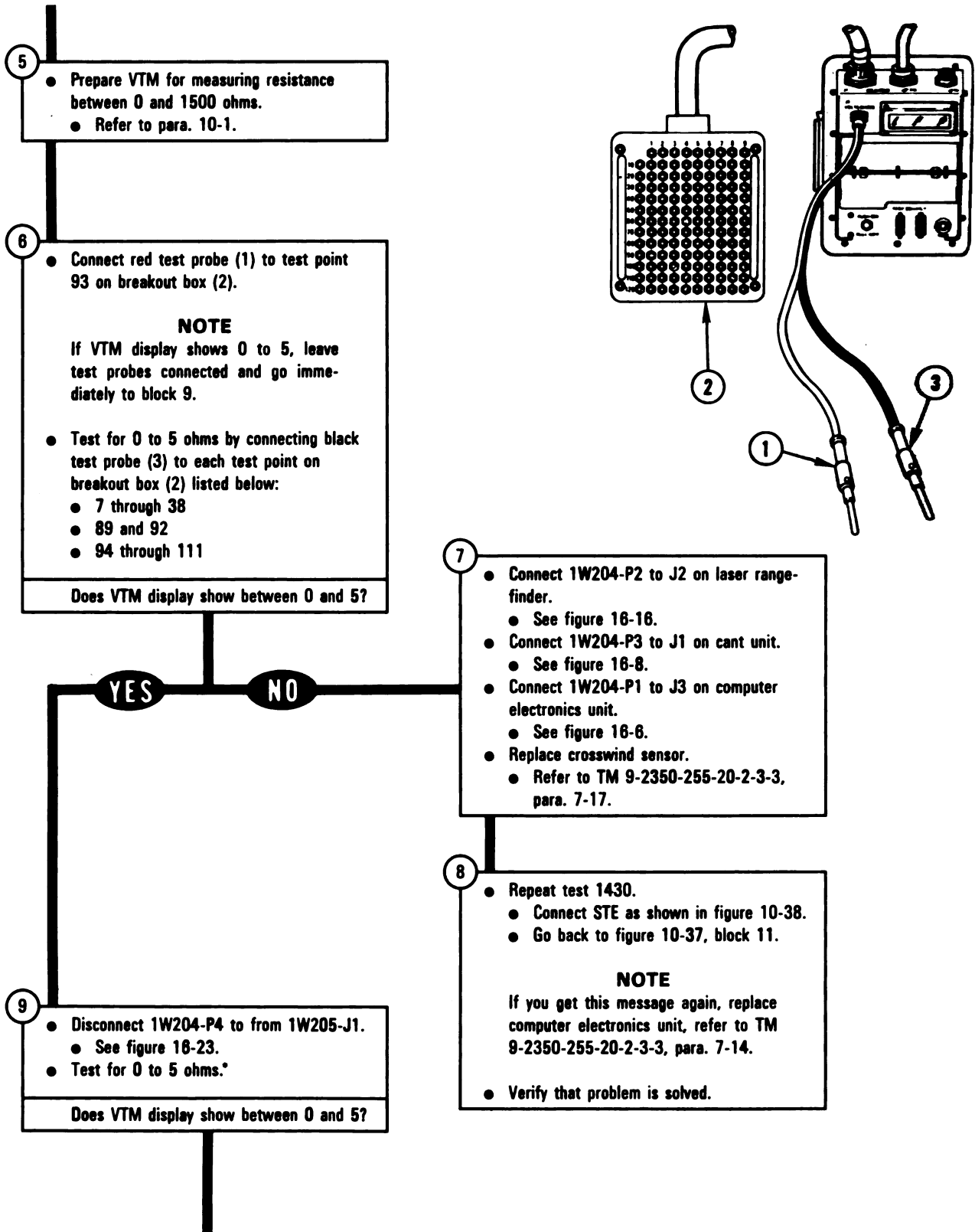


Figure 10-81 (Sheet 1 of 3)
Volume II
Para. 10-3

ARR82-6411

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**



* Between contacts found in block 6

*Figure 10-81 (Sheet 2 of 3)
Volume II
Para. 10-3*

ARR824

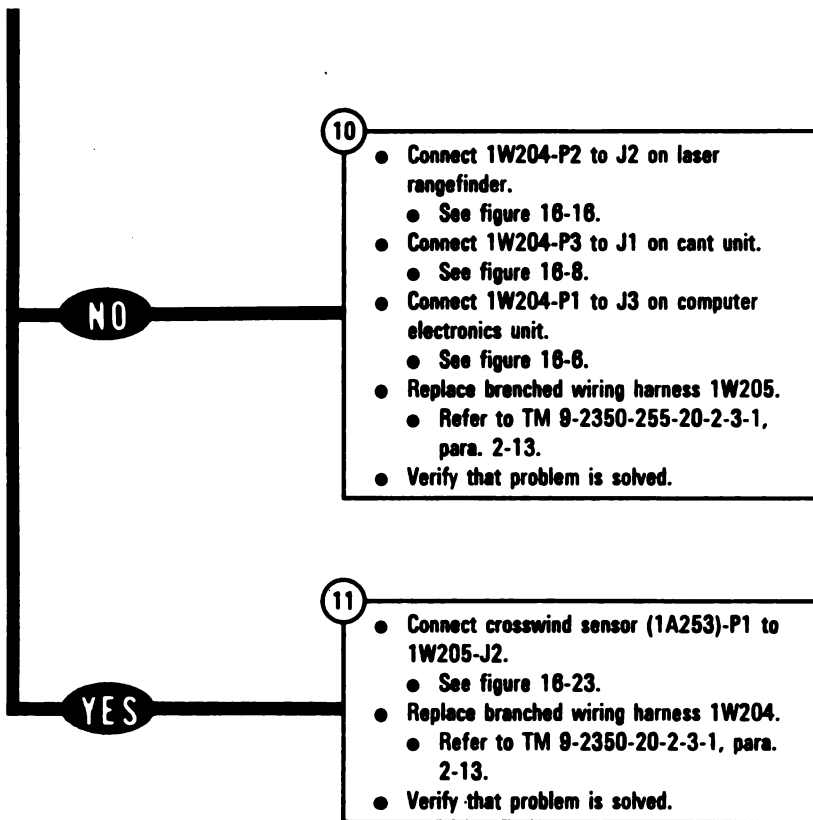


Figure 10-81 (Sheet 3 of 3)
Volume II
Para. 10-3

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

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

- 143812
- 143823
- 143825
- 143826
- 143828

Additional Test

Equipment/Special Tools:

- Breakout Box Tool Kit, 12311066

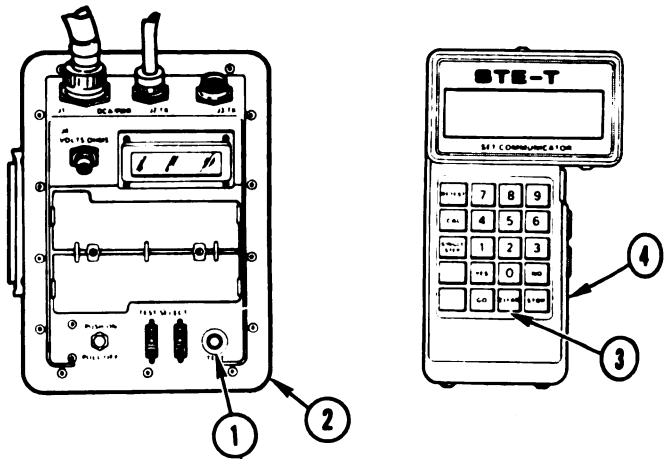
Equipment Condition:

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

- 1
- Change STE power hookup from turret networks box to power distribution box.
 - See figure 10-89.

- 2
- Disconnect CX305-P2 from CIB-J2.
 - See figure 10-52.
 - Disconnect 1W104-P2 from J3 on gunner's primary sight.
 - See figure 16-16.

- 3
- 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.
 - See 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.

*Figure 10-82 (Sheet 1 of 4)
Volume II
Para. 10-3*

ARR82-64

- Disconnect 1W104-P2 (1) from CA511-P1 (2).
- Disconnect 1W104-P1 (3) from CA518-P1 (4).
- Connect 1W104-P1 to J9 on turret networks box.
 - See figure 16-5.
- Connect CX208-P2 (5) to breakout box (8).

- 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 dc voltage.
 - Refer to para. 10-1.

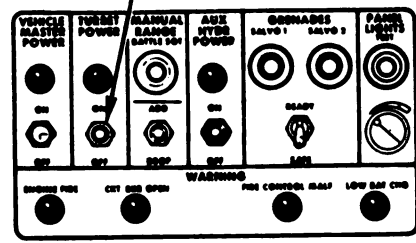
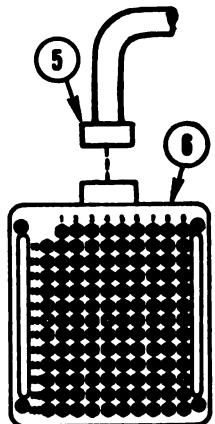
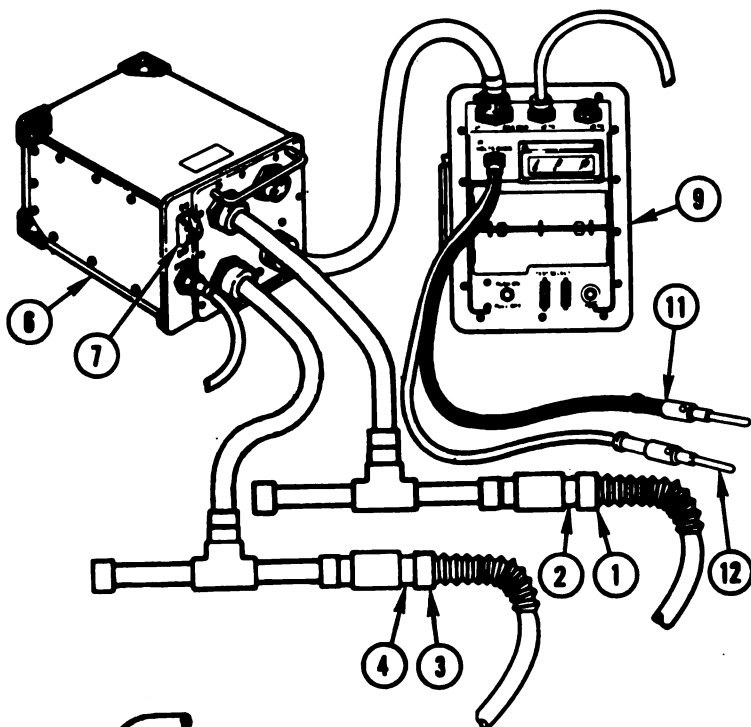
- Set TURRET POWER switch (10) to ON.
- Connect black test probe (11) to test point 11 on breakout box (8).

NOTE

If VTM display does not show between 4.5 and 5.5, go immediately to block 8.

- Test for 4.5 to 5.5 Vdc by connecting red test probe (12) to each test point on breakout box (8) listed below:
 - 97 through 100

Does VTM display show between 4.5 and 5.5?



- 8
- Replace branched wiring harness 1W104.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

YES NO

Figure 10-82 (Sheet 2 of 4)
Volume II
Para. 10-3

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

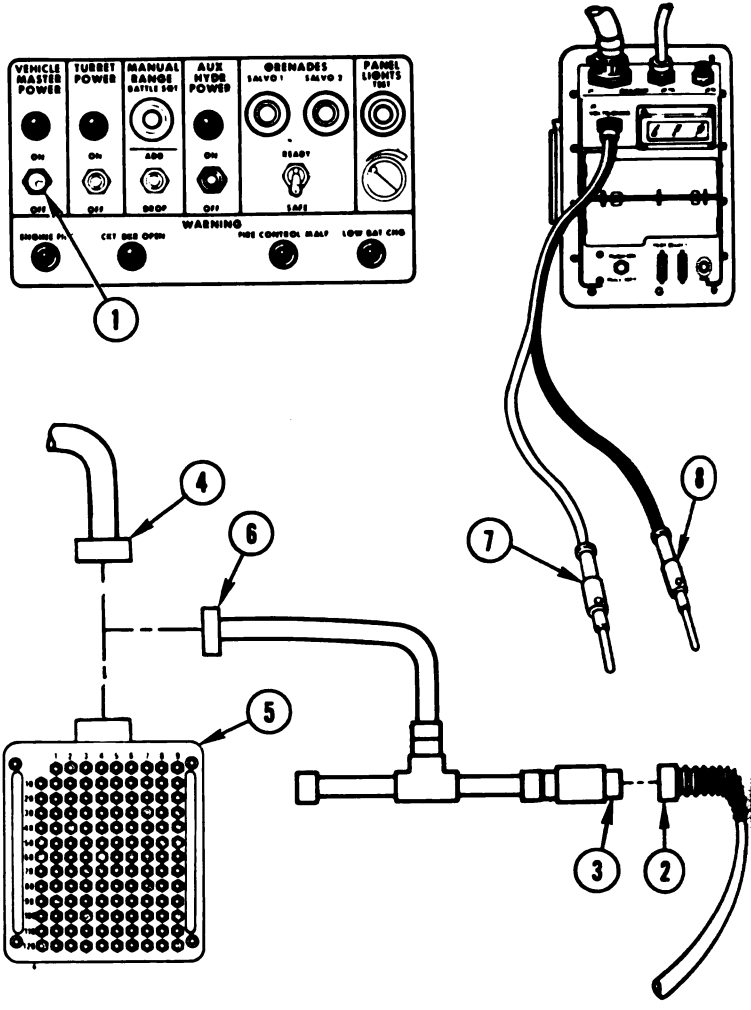
- 9
- Set VEHICLE MASTER POWER switch (1) to OFF.
 - Disconnect 1W104-P1 from J9 on turret networks box.
 - See figure 16-5.
 - Connect 1W104-P1 (2) to CA518-P1 (3).

- 10
- Disconnect CX208-P2 (4) from breakout box (5).
 - Disconnect CX305-P2 from CIB-J1.
 - See figure 10-52.
 - Connect CX305-P2 (6) to breakout box (5).

- 11
- Prepare VTM for measuring resistance between 0 and 500 ohms.
 - Refer to para. 10-1.

- 12
- Connect red test probe (7) to test point 27 on breakout box (5).
- NOTE**
- If VTM display shows between 0 and 5, go immediately to block 14.
- Test for 0 to 5 ohms by connecting black test probe (8) to each test point on breakout box (5) listed below:
 - 7 through 26
 - 28 through 39
 - 62, 74 and 75
 - 89 through 113

Does VTM display show between 0 and 5?



*Figure 10-82 (Sheet 3 of 4)
Volume II
Para. 10-3*

ARR62-44

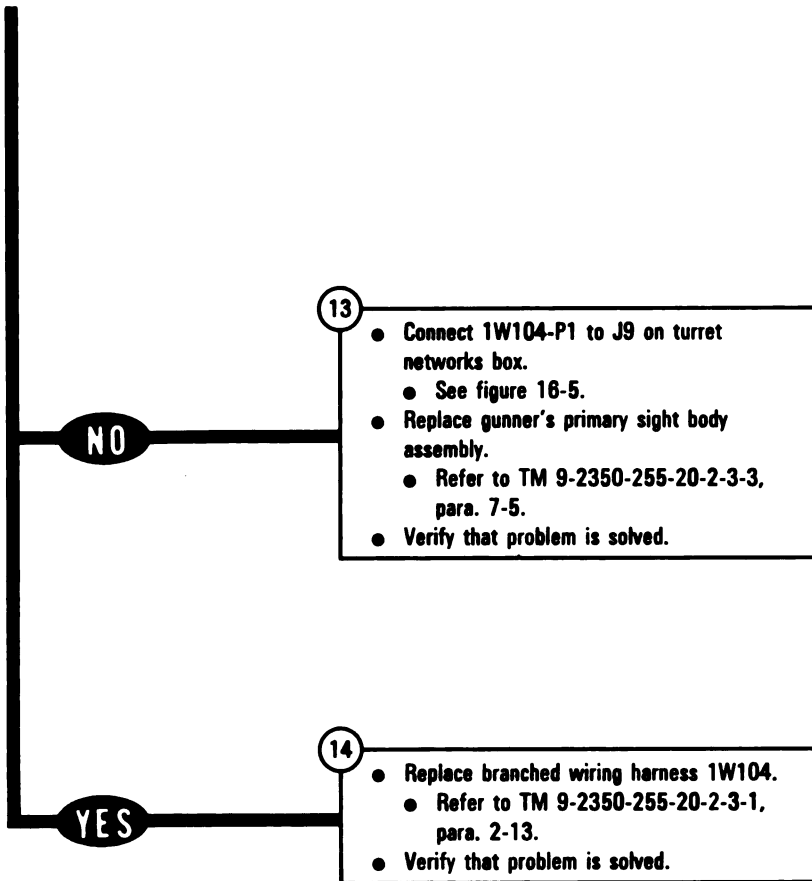


Figure 10-82 (Sheet 4 of 4)
Volume II
Para. 10-3

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS -
FAULTY CEU OR
1W201** **143818**

**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

- Change STE power hookup from turret networks box to power distribution box.
- See figure 10-89.

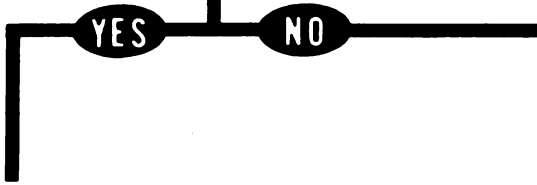
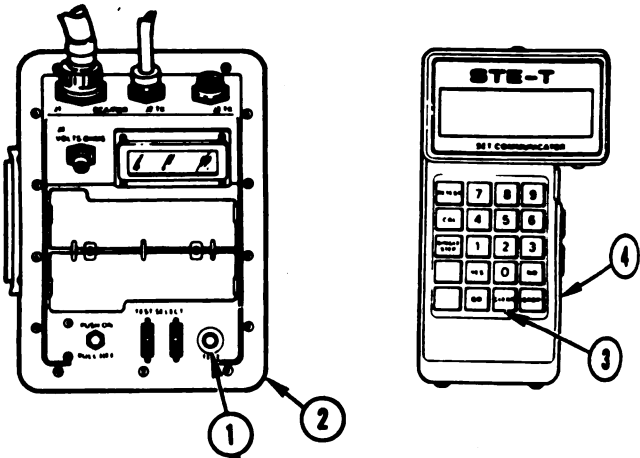
2

- Disconnect CA501-P2 from CX307-P2.
- See figure 10-43.
- Disconnect CA518-P2 from CX307-P1.
- See figure 10-45.
- Disconnect CA517-P2 from CX307-P2.
- See figure 10-45.
- Disconnect 1W201-P2 from J1 on computer electronics unit.
- See figure 18-6.

3

- 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.
- See figure 15-5.

Does SETCOM display show GOOD?



4

- Connect 1W104-P1 to J9 on turret networks box.
- See figure 18-5.
- Replace branched wiring harness 1W201.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

*Figure 10-83 (Sheet 1 of 3)
Volume II
Para. 10-3*

APR82-414

- Disconnect 1W201-P2 (1) from CA418-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 reset VTM (8).
 - Set PWR switch (6) to ON.
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 10-1.

NOTE

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

- Test for 0 to 5 ohms by connecting jumper and test probes between test points on breakout box listed in table A.
- Connect jumper (9) between test points on breakout box (5) listed in table A.
- Connect red test probe (10) to each test point on breakout box (5) listed in table A.
- Connect black test probe (11) to each test point on breakout box (5) listed in table A.

Does VTM display show between 0 and 5?

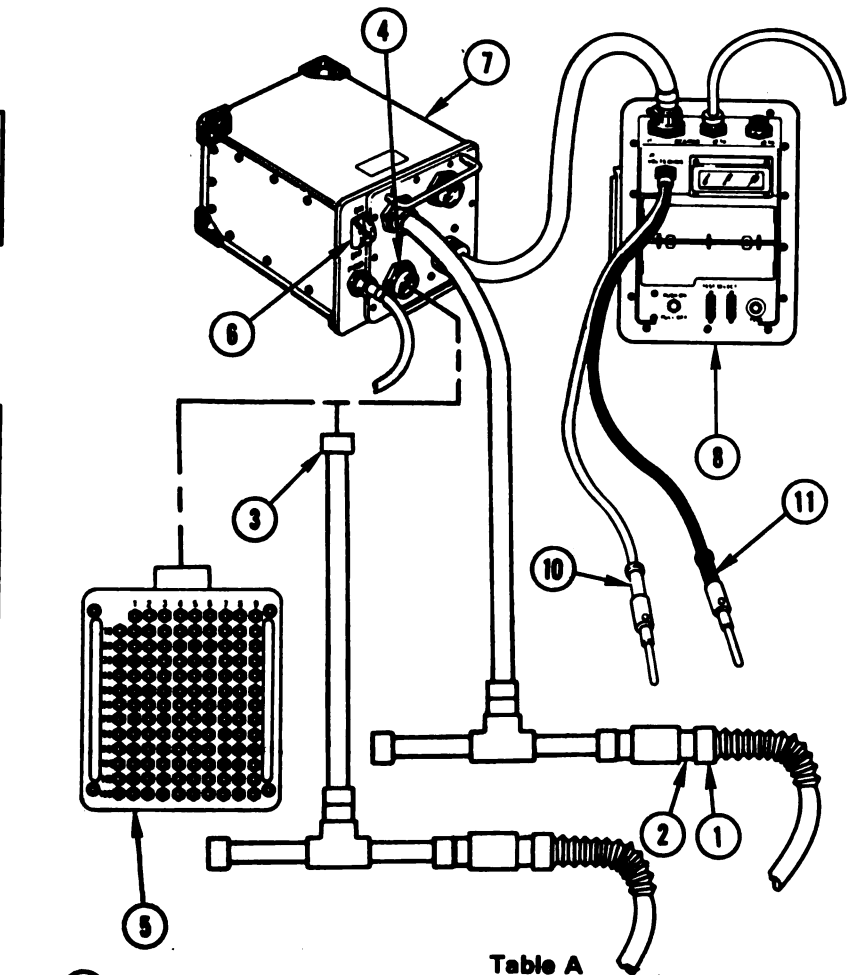


Table A

Jumper	Red Test Probe	Black Test Probe
7 and 8	7	9 through 39 62, 74, 75 89 through 113
9 and 10	9	7, 8, 11 through 39 62, 74, 75 89 through 113
11 and 32	11	7 through 10 12 through 31 33 through 39 62, 74, 75 89 through 113
33 and 34	33	7 through 32 35 through 39 62, 74, 75 89 through 113

Figure 10-83 (Sheet 2 of 3)
Volume II
Para. 10-3

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

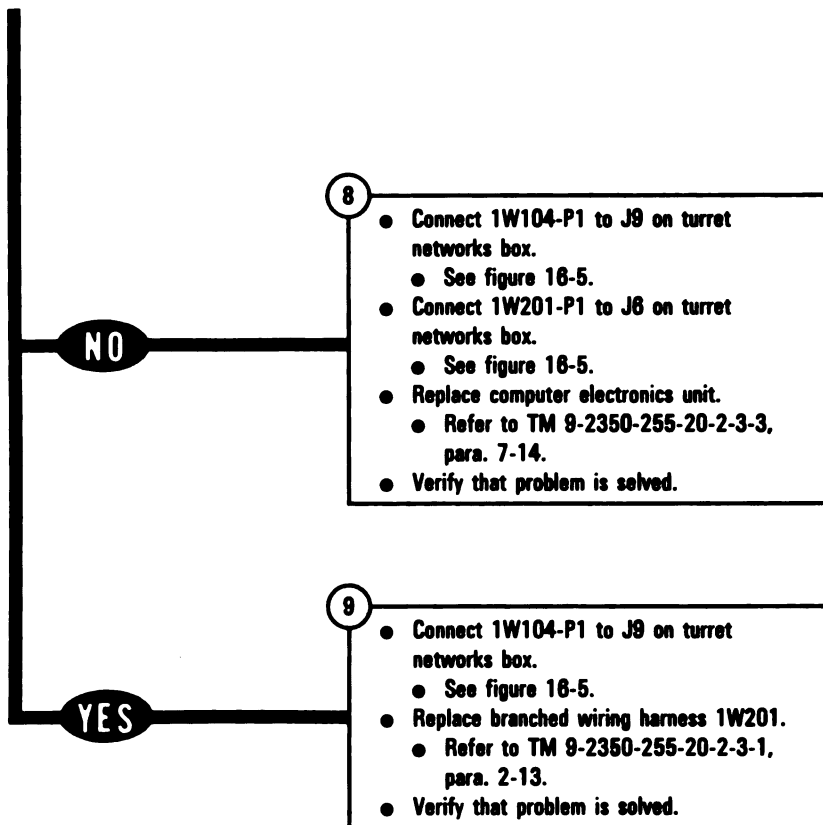


Figure 10-83 (Sheet 3 of 3)
Volume II
Para. 10-3

DISPLAY SHOWS -
FAULTY GPS OR
1W104

143840

Additional Test

Equipment/Special Tools:

- Breakout Box Tool Kit, 12311068

Equipment Condition:

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

- Change STE power hookup from turret networks box to power distribution box.
 - See figure 10-89.

- Disconnect CX305-P2 from CIB-J2.
 - See figure 10-52.
- Disconnect CA517-P2 from CX307-P2.
 - See figure 10-45.
- Connect CX305-P2 (1) to breakout box (2).
- Connect 1W104-P1 (3) to CA518-P1 (4).

- Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 10-1.

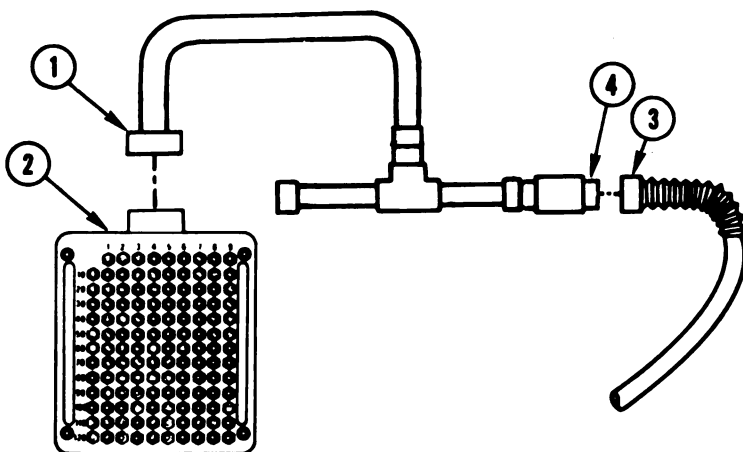


Figure 10-84 (Sheet 1 of 2)
Volume II
Para. 10-3

ARR82-6418

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

NOTE

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

- Test for 0 to 5 ohms by connecting jumper and test probes between test points on breakout box listed in table A.
- Connect jumper (1) between test points on breakout box (2) listed in table A.
- Connect red test probe (3) to test point on breakout box (2) listed in table A.
- Connect black test probe (4) to each test point on breakout box (2) listed in table A.

Does VTM display show between 0 and 5?

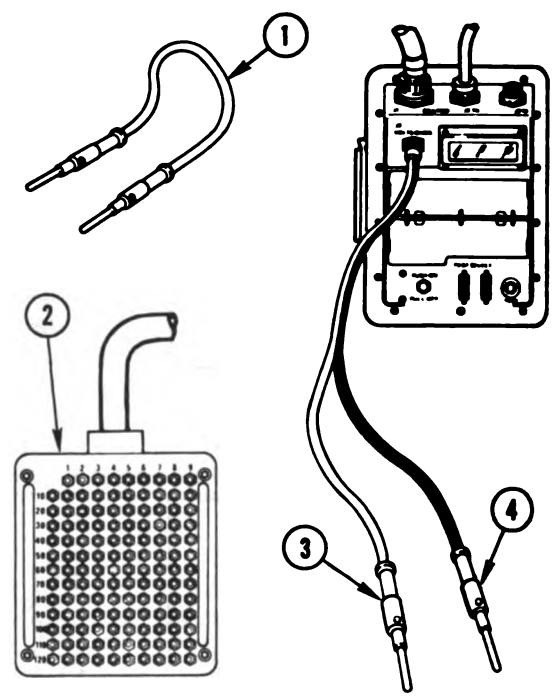


Table A

Jumper	Red Test Probe	Black Test Probe
101 and 102	101	7 through 39 62, 74, and 75 89 through 100 103 through 113
103 and 104	103	7 through 39 62, 74, and 75 89 through 102 105 through 113

YES

5

- Connect 1W201-P1 to J8 on turret networks box.
 - See figure 16-5.
- Replace branched wiring harness 1W104.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

NO

6

- Connect 1W201-P1 to J8 on turret networks box.
 - See figure 16-5.
- Connect 1W104-P1 to J9 on turret networks box.
 - See figure 16-5.
- 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 10-84 (Sheet 2 of 2)
Volume II
Para. 10-3

ARR82-64'S

DISPLAY SHOWS -
SEE -20 MANUAL

143843

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
- Change STE power hookup from turret networks box to power distribution box.
 - See figure 10-89.
 - Disconnect 1W104-P1 from J9 on turret networks box.
 - See figure 16-5.

- 2
- 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).

- 3
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 10-1.

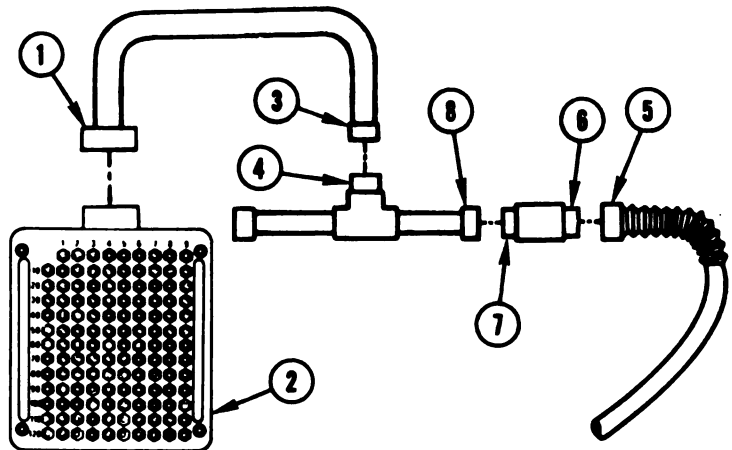
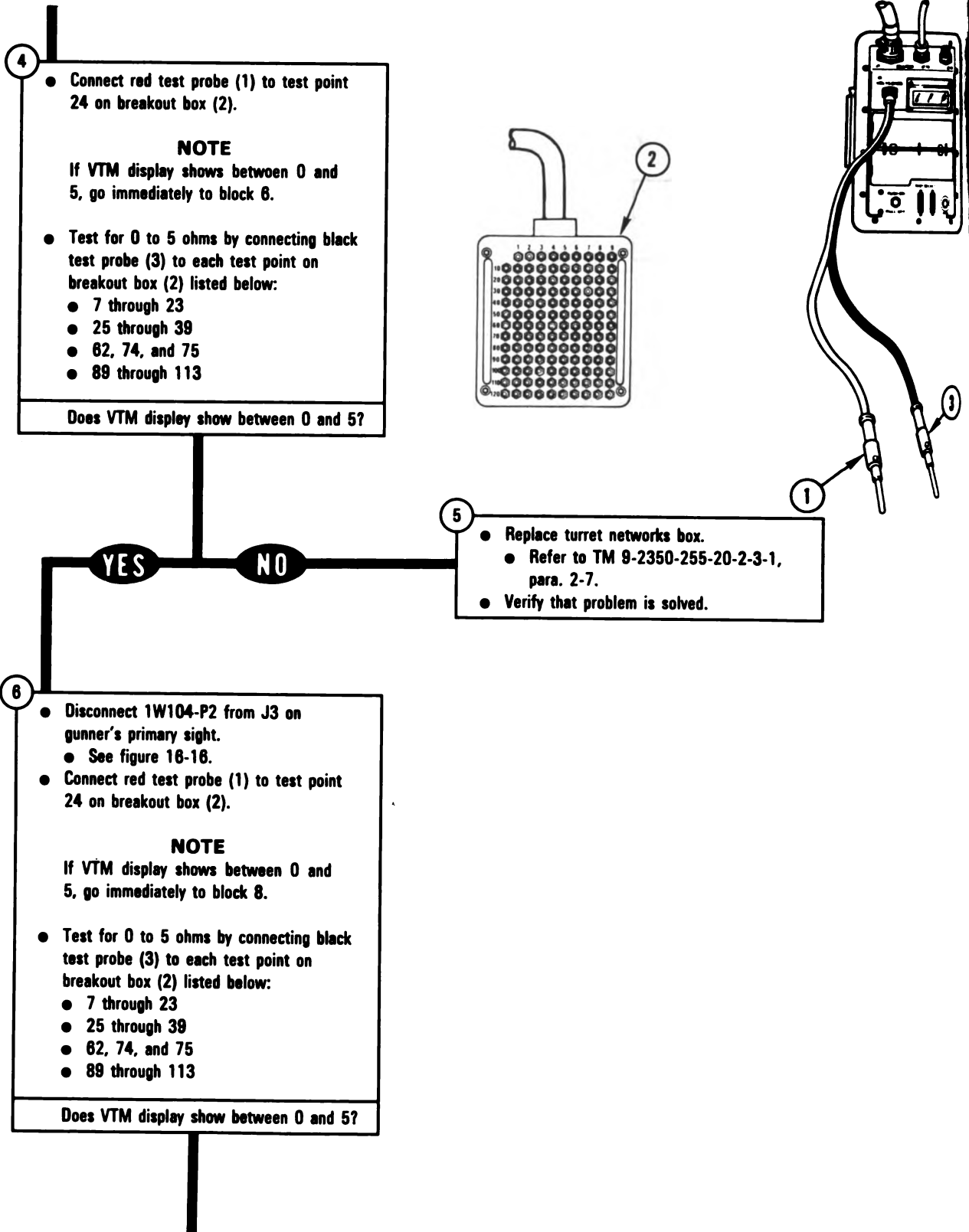


Figure 10-85 (Sheet 1 of 3)
Volume II
Para. 10-3

ARR82-6420

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**



*Figure 10-85 (Sheet 2 of 3)
Volume II
Para. 10-3*

ARR82-6421

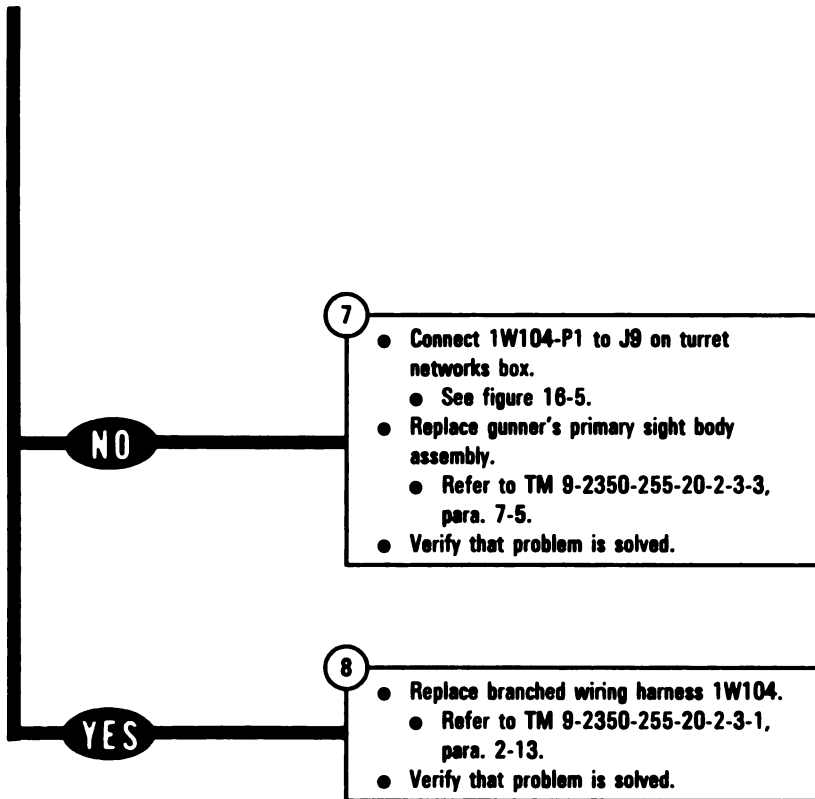


Figure 10-85 (Sheet 3 of 3)
Volume II
Para. 10-3

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS -
SEE -20 MANUAL**

143847

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
- Change STE power hookup from turret networks box to power distribution box.
 - See figure 10-89.

- 2
- Disconnect CX208-P2 from CIB-J2.
 - See figure 10-53.
 - Disconnect 1W104-P1 from J9 on turret networks box.
 - See figure 16-5.
 - Disconnect 1W104-P2 from J3 on gunner's primary sight.
 - See figure 16-16.

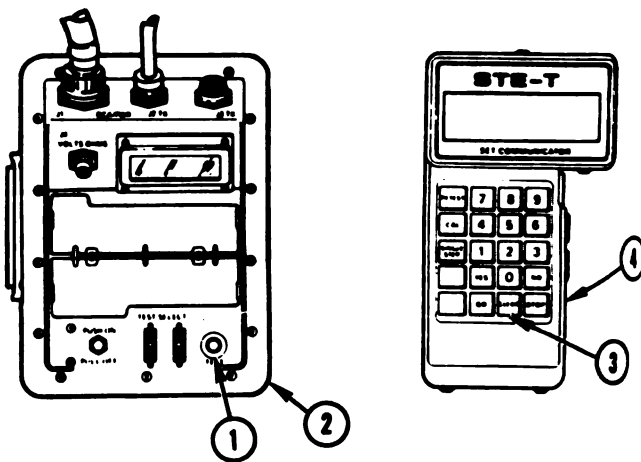
- 3
- Prepare STE to run cable test 1390.
 - Press TEST button (1) on VTM (2).
 - Press CLEAR key (3) on SETCOM (4).
 - Enter test number 1390 on SETCOM (4).
 - Run test on 1W104 between P1 and P2.
 - See figure 15-5.

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.



*Figure 10-86 (Sheet 1 of 2)
Volume II
Para. 10-3*

ARR8244

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

- Connect CX208-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. 10-1.

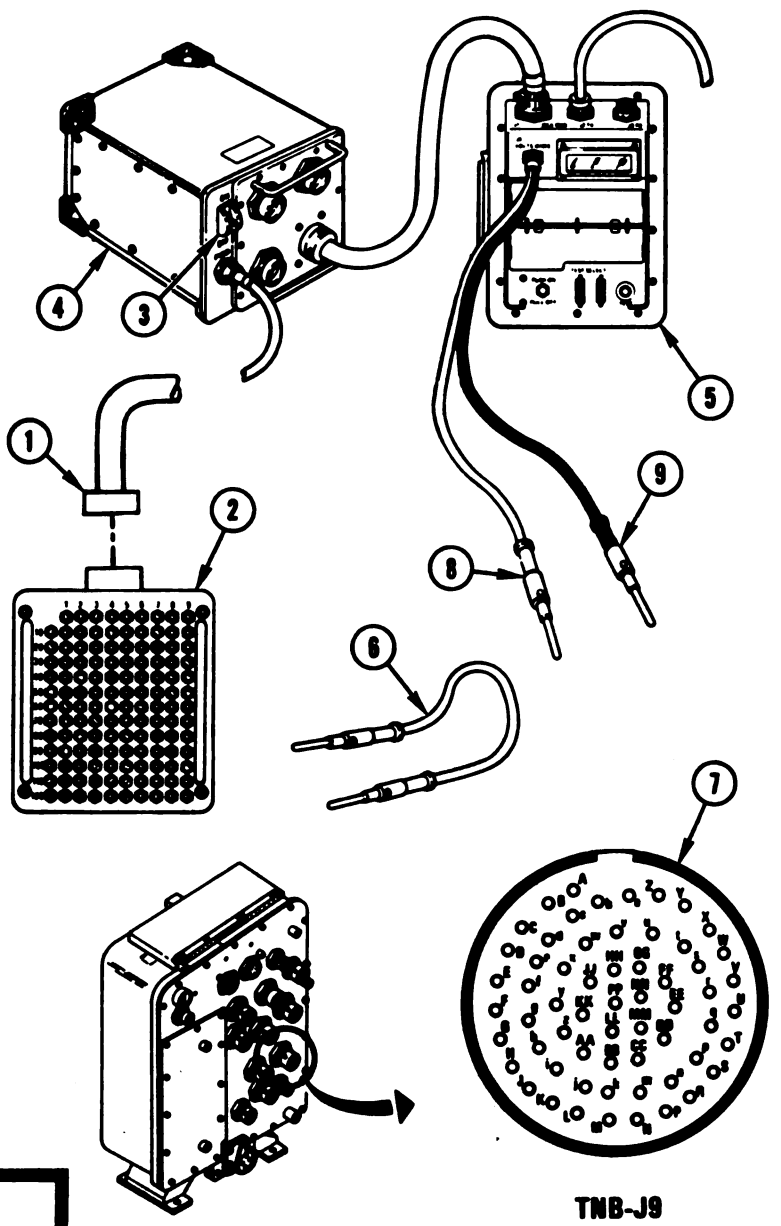
- Connect jumper (6) between contacts U and V on turret networks box J9 (7).
- Test for continuity between test points 8 and 89 on breakout box.
 - Connect red test probe (8) to test point 8 on breakout box (2).
 - Connect black test probe (9) to test point 89 on breakout box (2).

Does VTM display show between 0 and 5?

YES

NO

- Connect 1W104-P1 to J9 on turret networks box.
 - See figure 16-5.
- 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.



- Connect 1W104-P2 to J3 on gunner's primary sight.
 - See figure 16-16.
- Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
- Verify that problem is solved.

Figure 10-86 (Sheet 2 of 2)
Volume II
Para. 10-3

ARR82-6423

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS -
SEE -20 MANUAL** **143849**

**Additional Test
Equipment/Special Tools:**

- Breakout Box Tool Kit, 12311066

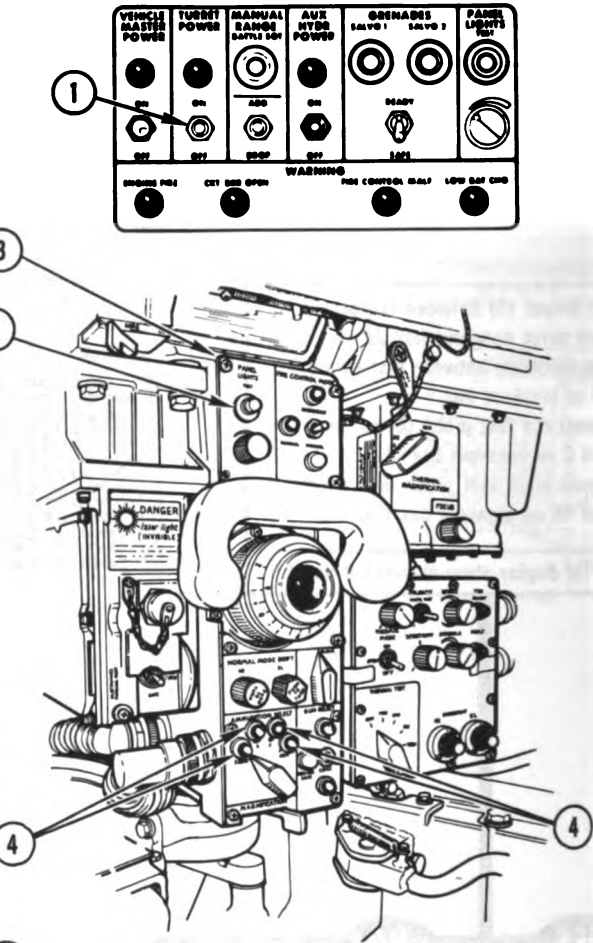
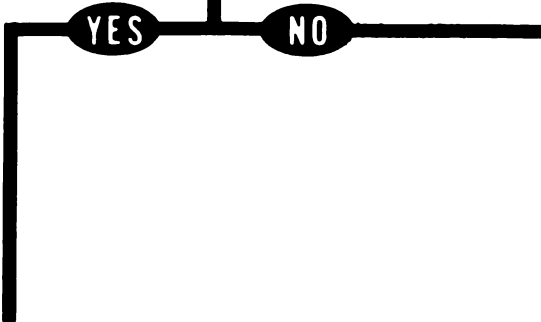
Equipment Condition:

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

1

- Set **TURRET POWER** switch (1) to ON.
- Push **PANEL LIGHTS TEST** pushbutton (2) on gunner's primary sight lower panel (3).
- Check to see if any **AMMUNITION SELECT** lights (4) come on.
- Release **PANEL LIGHTS TEST** pushbutton (2).

Did any **AMMUNITION SELECT** lights come on?

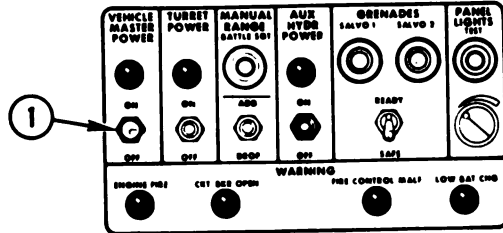


2

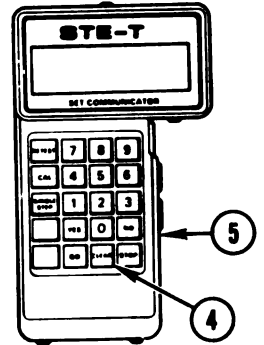
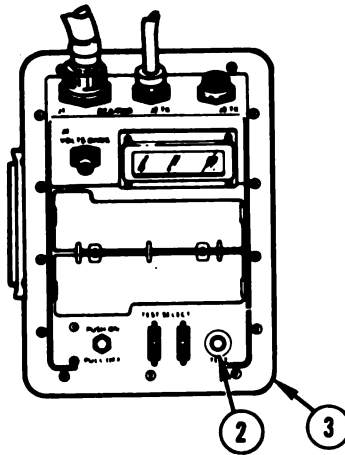
- Do procedure for symptom **PLDS-8** (gunner's primary sight and image control unit panel lights do not come on when **PANEL LIGHTS TEST** pushbutton is pressed).
- Refer to TM 9-2350-255-20-2-2-1, figure 8-70.

*Figure 10-87 (Sheet 1 of 3)
Volume II
Para. 10-3*

- Set VEHICLE MASTER POWER switch (1) to OFF.
- Change STE power hookup from turret networks box to power distribution box.
- See figure 10-89.



- Disconnect CX208-P2 from CIB-J2.
 - See figure 10-53.
- Disconnect 1W104-P1 from J9 on turret networks box.
 - See figure 16-5.
- Disconnect 1W104-P2 from J3 on gunner's primary sight.
 - See figure 16-16.



- 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 P2.
 - See 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.

Figure 10-87 (Sheet 2 of 3)
Volume II
Para. 10-3

ARR82-6425

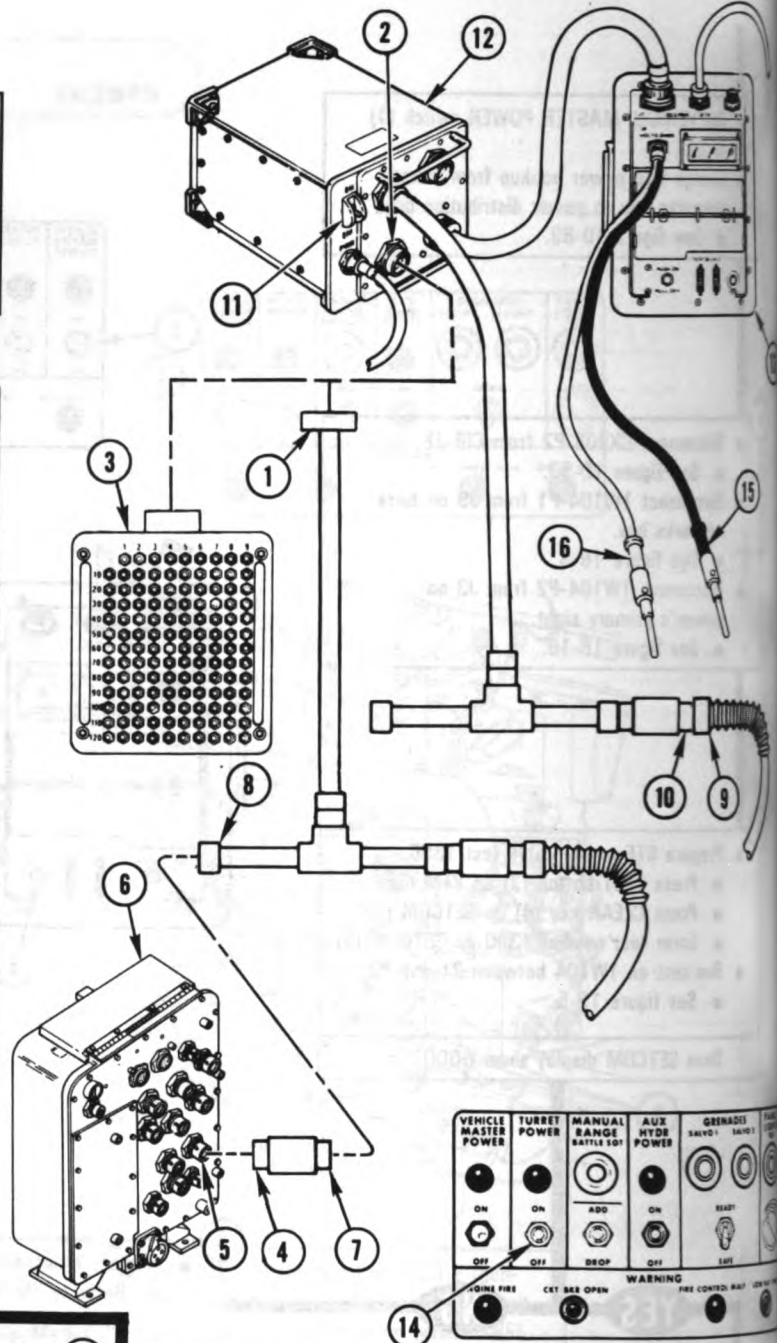
TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

- 7**
- Disconnect CX305-P2 (1) from CIB-J1 (2).
 - Connect CX305-P2 (1) to breakout box (3).
 - Connect CA517-P1 (4) to J9 (5) on turret networks box (6).
 - Connect CA517-P2 (7) to CX307-P2 (8).
 - Disconnect 1W104-P2 (9) from CA511-P2 (10).

- 8**
- Connect 1W104-P2 to J3 on gunner's primary sight.
 - See figure 16-16.
 - 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 dc Voltage.
 - Refer to para. 10-1.

- 9**
- Set TURRET POWER switch (14) to ON.
 - Connect black test probe (15) to test point 23 on breakout box (3).
- NOTE**
- If VTM display shows less than 2, go immediately to block 10.
- Test for less than 2 V dc by connecting red test probe (16) to each test point on breakout box (3) listed below:
 - 101 through 104
- Does VTM display show less than 2?

- YES**
- 10**
- Connect 1W104-P1 to J9 on turret networks box.
 - See figure 16-5.
 - 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.



- NO**
- 11**
- Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
 - Verify that problem is solved.

Figure 10-87 (Sheet 3 of 3)
 Volume II
 Para. 10-3

DISPLAY SHOWS -
 FAULTY TNB, CEU, OR
 1W201

143851

Additional Test

Equipment/Special Tools:

- Breakout Box Tool Kit, 12311066

Equipment Condition:

- Tank parked.
 - Parking brake set.
 - Engine shut down.
 - Vehicle master power off.
- Change STE power hookup from turret networks box to power distribution box.
 - See figure 10-89.

- Disconnect CA501-P2 from CX307-P2.
- See figure 10-43.
- Disconnect CA501-P1 from J6 on turret networks box.
- See figure 10-43.
- Connect 1W201-P1 (1) to CA502-P1 (2).
- Connect CA502-P2 (3) to CX307-P1 (4).

- Disconnect CX304-P2 (5) from CIB-J1 (6).
- Connect CX304-P2 (5) to breakout box (7).
- Disconnect 1W201-P2 from J1 on computer electronic unit.
- See figure 18-6.

- Prepare VTM for measuring resistance between 0 and 1500 ohms.
- Refer to para. 10-1.

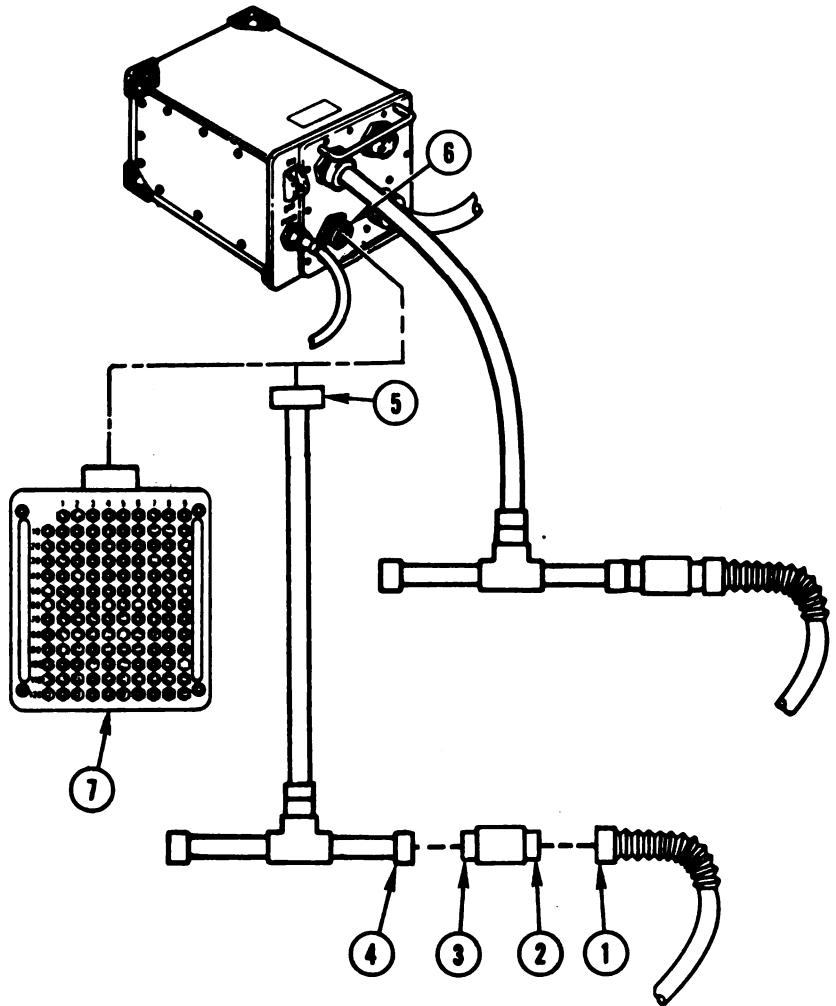


Figure 10-88 (Sheet 1 of 3)
 Volume II
 Para. 10-3

ARR82-6427

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

5

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

- Test for 0 to 5 ohms by connecting jumper and test probes between test points on breakout box listed in table A.
- Connect jumper (1) between test points on breakout box (2) listed in table A.
- Connect red test probe (3) to test point on breakout box (2) listed in table A.
- Connect black test probe (4) to each test point on breakout box (2) listed in table A.

Does VTM display show between 0 and 5?

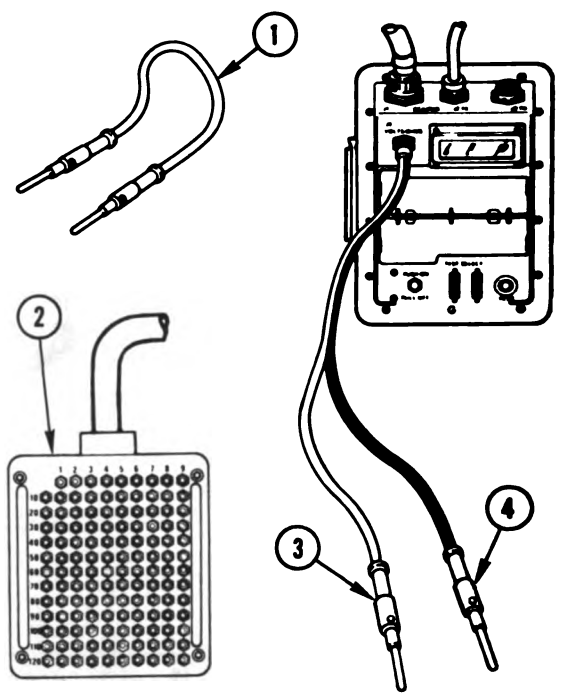
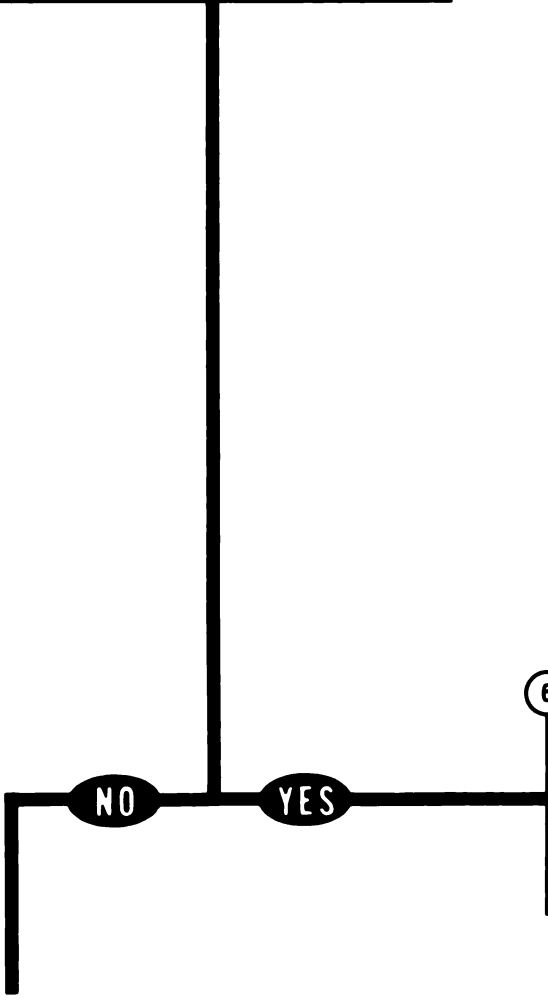


Table A

Jumper	Red Test Probe	Black Test Probe
9 and 34	9	7, 8 10 through 33 35 through 39 62, 74, 75 89 through 113
10 and 11	10	7 through 9 12 through 39 62, 74, and 75 89 through 113



6

- Connect 1W104-P1 to J9 on turret networks box.
- See figure 16-5.
- Replace branched wiring harness 1W201.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

Figure 10-88 (Sheet 2 of 3)
Volume II
Para. 10-3

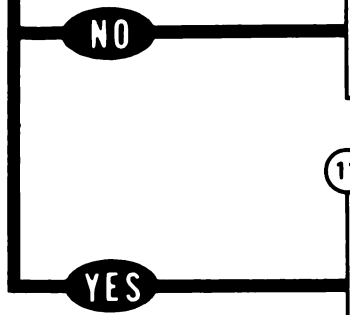
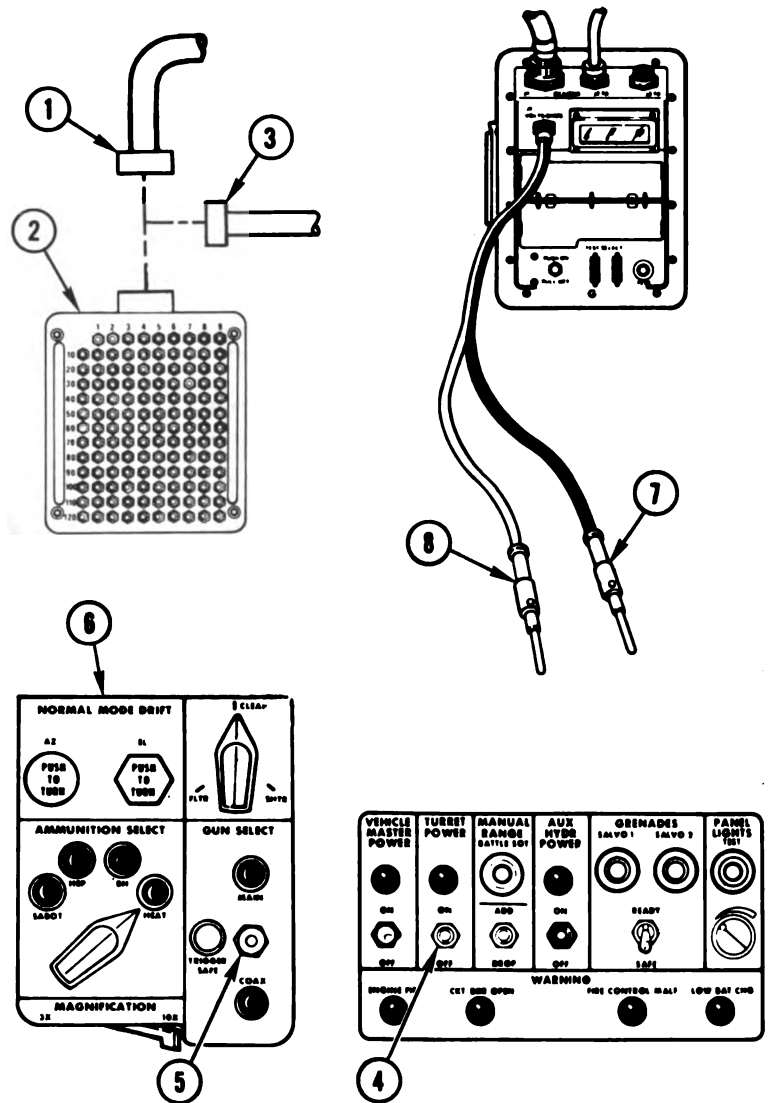
TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

- Disconnect CX304-P2 (1) from breakout box (2).
- Connect CX208-P2 (3) to breakout box (2).
- Disconnect CA517-P1 from turret networks box J9.
 - See figure 10-45.
- Connect 1W104-P1 to J9 on turret networks box.
 - See figure 16-5.

- Prepare VTM for measuring dc voltage.
 - Refer to para. 10-1.

- Set TURRET POWER switch (4) to ON.
- Set GUN SELECT switch (5) on gunner's primary sight (6) to COAX.
- Test for 4.5 to 5.5 V dc between test points 84 (-) and 47 (+) on breakout box.
 - Connect black test probe (7) to test point 84 on breakout box (2).
 - Connect red test probe (8) to test point 47 on breakout box (2).

Does VTM display show between 4.5 and 5.5?



- 10
- Replace computer electronics unit.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-14.
 - Verify that problem is solved.

- 11
- Connect 1W201-P2 to J1 on computer electronics unit.
 - See figure 16-6.
 - Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
 - Verify that problem is solved.

Figure 10-88 (Sheet 3 of 3)
Volume II
Para. 10-3

ARR82-6429

**CHANGE STE POWER HOOKUP FROM
 TURRET NETWORKS BOX TO POWER
 DISTRIBUTION BOX**

- 1
- Set PWR switch (1) on CIB (2) to OFF.
 - Set UTILITY OUTLET switch (3) on turret networks box (4) to OFF.
 - Change STE 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).
 - Take off slave receptacle cover (8).
 - Plug NATO adapter (7) into slave receptacle (9) on power distribution box (10).
 - Set PWR switch (1) on CIB (2) to ON.

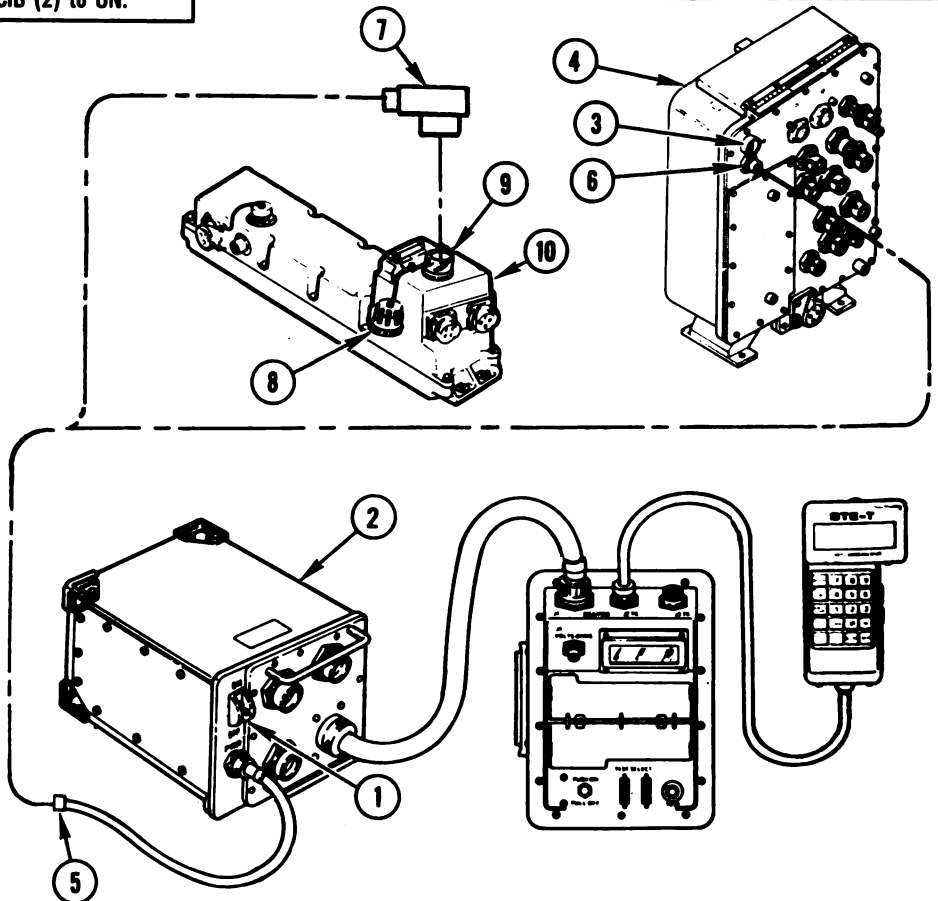
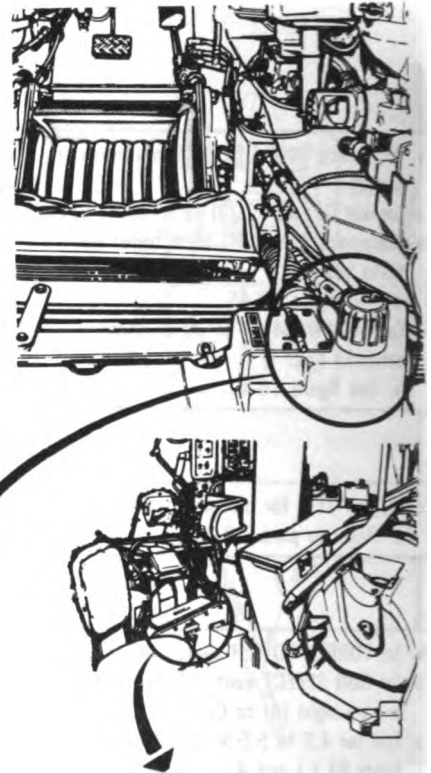


Figure 10-89
Volume II
Para. 10-3

ARR82-6430

DISPLAY SHOWS -
SEE -20 MANUAL

144502

Additional Test

Equipment/Special Tools:

- Breakout Box Tool Kit, 12311086

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Turret power on.

- Set AUX HYDR POWER switch (1) on commander's control panel (2) to OFF.

WARNING

Bilge pump can discharge debris that will injure personnel. Check that personnel are not near bilge pump discharge nozzle before turning bilge pump on.

- Reduce hydraulic pressure to zero by operating bilge pump.
- Set BILGE PUMP switch (3) to ON.
- When dial pressure gage (4) indicates 0 psi, set BILGE PUMP switch (3) to OFF.

- Remove CX205 from CIB and tank.
- See figure 10-38.
- Connect breakout box to TEST 2 on turret networks box using CABLE NO. 1 and ADAPTER NO. 1.
- Connect CABLE NO. 1-P1 (5) to breakout box (8).
- Connect ADAPTER NO. 1-P1 (7) to TEST 2 (8) on turret networks box (9).
- Connect CABLE NO. 1-P2 (10) to ADAPTER NO. 1-J1 (11).

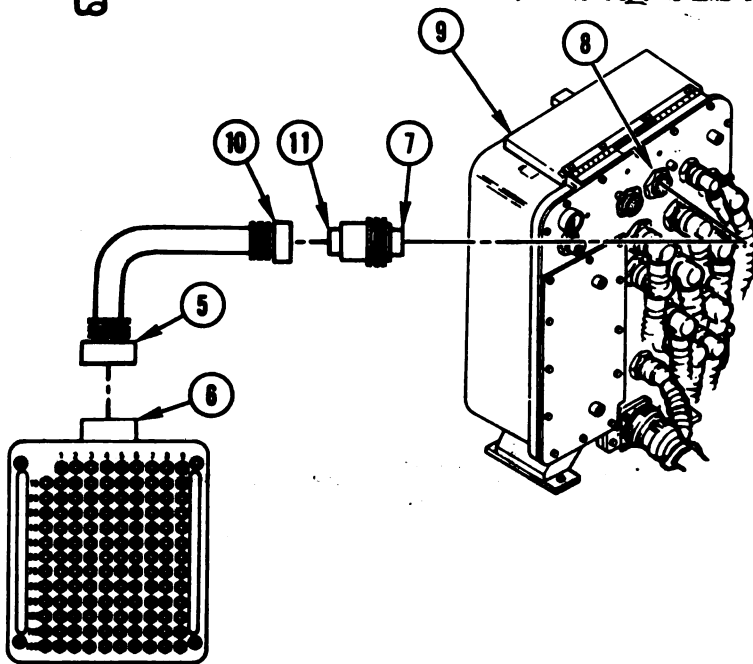
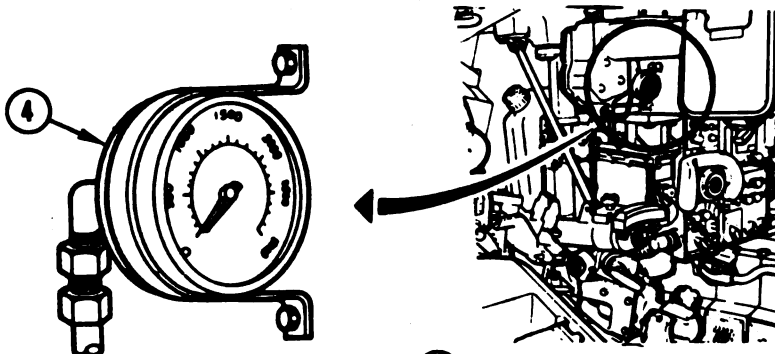
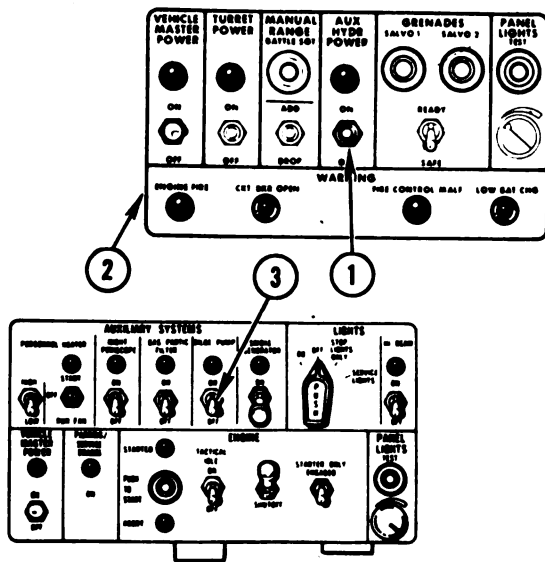


Figure 10-90 (Sheet 1 of 59)
Volume II
Para. 10-3

ARR82-8431

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

Table A

Red Test Probe	Action
11, 57, 77, 81, 91	Go to block 197
12, 85, 97	Go to block 144
82, 83	Go to block 28
84	Go to block 94
92, 93	Go to block 99
98, 99	Go to block 121

4

- 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. 10-1.

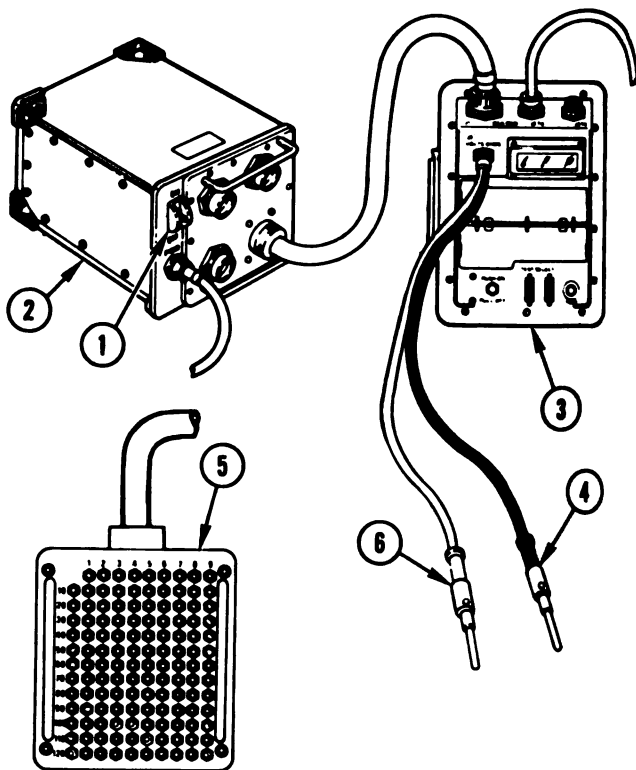
5

- Connect black test probe (4) to test point 9 on breakout box (5).

NOTE
If VTM display does not show between -12 and 12, go immediately to block 6.

- Test for -12 to 12 V dc by connecting red test probe (6) to each test point on breakout box (5) listed in table A.

Does VTM display show between -12 and 12 at each test point?



YES NO

6 Go to table A and do action for test point that failed.

*Figure 10-90 (Sheet 2 of 59)
Volume II
Para. 10-3*

ARR82445

Table B

Red Test Probe	Action
11, 57, 77, 81, 91	Go to block 197
12, 85, 97	Go to block 144
82, 83	Go to block 34
84	Go to block 94
92, 93	Go to block 105
98, 99	Go to block 127

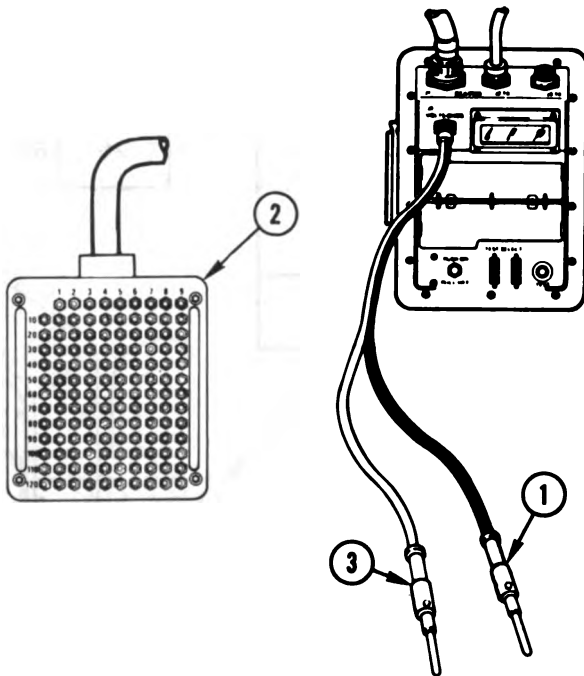
Prepare VTM for measuring ac voltage.
 ● Refer to para. 10-1.
 Connect black test probe (1) to test point 9 on breakout box (2).

NOTE

If VTM display does not show less than 12, go immediately to block 8.

Test for less than 12 V ac by connecting red test probe (3) to each test point on breakout box (2) listed in table B.

Does VTM display show less than 12 at each test point?



YES

NO

8

Go to table B and do action for test point that failed.

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

- 9
- Disconnect ADAPTER NO. 1-P1 (1) from TEST 2 (2).
 - Connect ADAPTER NO. 1-P1 (1) to J4 (3) on gunner's primary sight (4).

10

NOTE

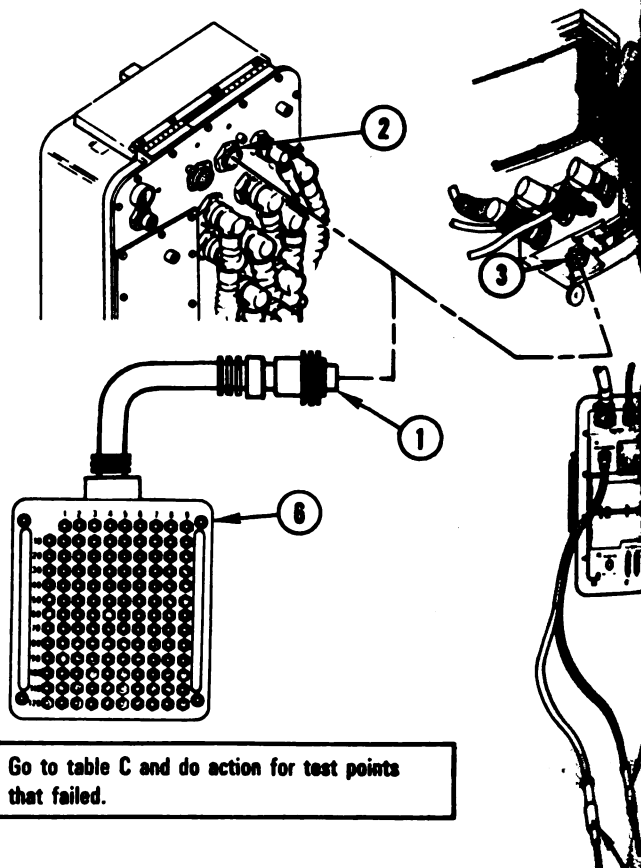
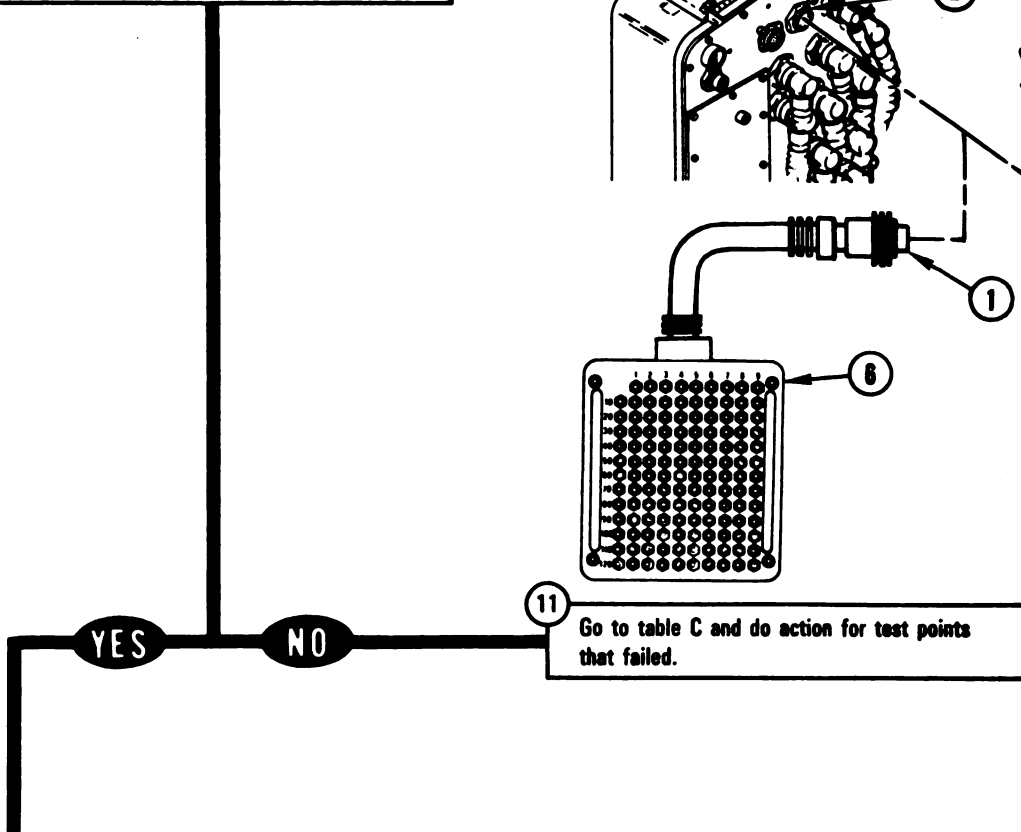
If VTM display does not show less than 12, go immediately to block 11.

- Test for less than 12 V ac between test points on breakout box listed in table C.
- Connect black test probe (5) to test points on breakout box (6) listed in table C.
- Connect red test probe (7) to test points on breakout box (6) listed in table C.

Does VTM display show less than 12 at each pair of test points?

Table C

Black Test Probe	Red Test Probe	Action
11	1	<ul style="list-style-type: none"> ● Replace gunner's primary sight body assembly. ● Refer to TM 9-2350-255-20-3, para. 7-5. ● Run self test on STE. ● See figure 15-3, block 18. ● Verify that problem is solved.
129	11	Go to block 197
129	26	Go to block 54
11	77	Go to block 105
11	78	Go to block 34
11	83	Go to block 215
26	87, 93, 94	Go to block 197



*Figure 10-90 (Sheet 4 of 59)
Volume II
Para. 10-3*

Table D

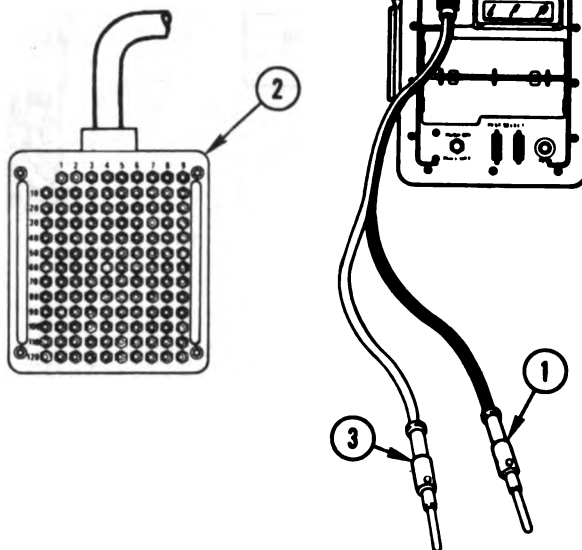
Black Test Probe	Red Test Probe	Action
11	1	<ul style="list-style-type: none"> ● Replace gunner's primary sight body assembly. ● Refer to TM 9-2350-255-20- 2-3-3, para. 7-5. ● Run self test on STE. ● See figure 15-3, block 19. ● Verify that problem is solved.
129	11	Go to block 197
129	26	Go to block 54
11	77	Go to block 99
11	78	Go to block 28
11	83	Go to block 215
26	87, 93, 94	Go to block 197

NOTE

If VTM display does not show between -12 and 12, go immediately to block 14.

- Test for -12 to 12 V dc between test points on breakout box listed in table O.
- Connect black test probe (1) to test points on breakout box (2) listed in table D.
- Connect red test probe (3) to test points on breakout box (2) listed in table D.

Does VTM display show between -12 and 12 at each pair of test points?



YES

NO

14

Go to table O and do action for test points that failed.

Figure 10-90 (Sheet 5 of 59)
 Volume II
 Para. 10-3

ARR82-8435

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

- 15
- Disconnect ADAPTER NO. 1-P1 (1) from J4 (2).
 - Connect ADAPTER NO. 1-P1 (1) to J3 (3) on line-of-sight electronics unit (4).

18

NOTE

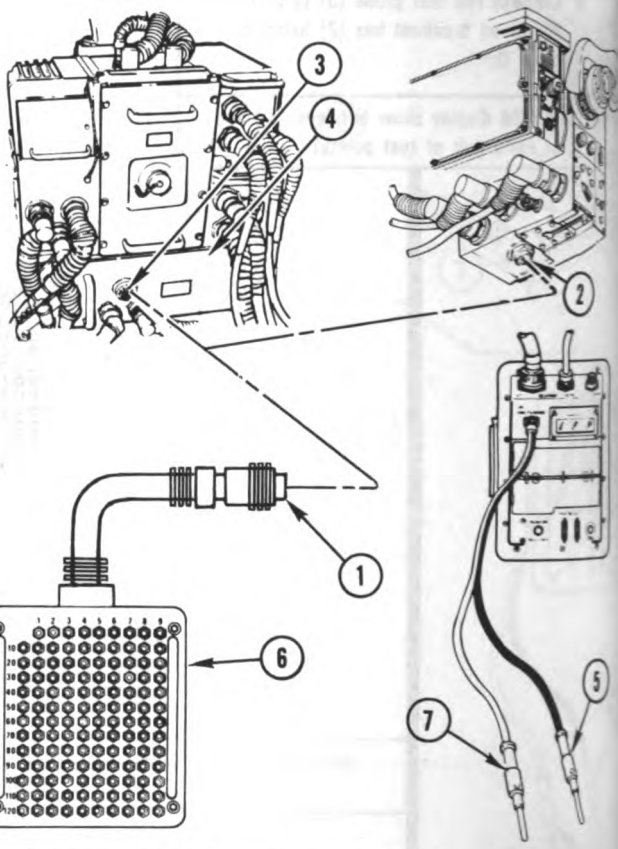
If VTM display does not show between -12 and 12, go immediately to block 17.

- Test for -12 to 12 V dc between test points on breakout box listed in table E.
- Connect black test probe (5) to test points on breakout box (6) listed in table E.
- Connect red test probe (7) to test points on breakout box (6) listed in table E.

Does VTM display show between -12 and 12 at each pair of test points?

Table E

Black Test Probe	Red Test Probe	Action
33	6	<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. ● Run self test on STE. ● See figure 15-3, block 19. ● Verify that problem is solved.
33	54	Go to block 54
33	77	Go to block 99
33	78	Go to block 28
33	83	Go to block 215
19	21	Go to block 144
19	87, 93, 94	Go to block 197



17 Go to table E and do action for test points that failed.

YES NO

Figure 10-90 (Sheet 6 of 59)
 Volume II
 Para. 10-3

ARR82-6436

Table F

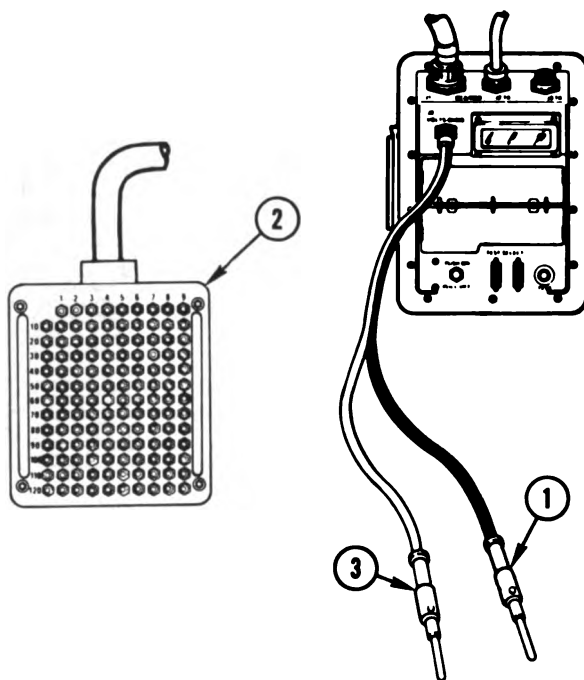
Black Test Probe	Red Test Probe	Action
33	6	<ul style="list-style-type: none"> ● Replace line-of-sight electronics unit. ● Refer to TM 9-2350-255-20-2-3-3, para. 7-8. ● Run self test on STE. ● See figure 15-3, block 19. ● Verify that problem is solved.
33	54	Go to block 54
33	77	Go to block 105
33	78	Go to block 34
33	83	Go to block 215
19	21	Go to block 144
19	87, 93, 94	Go to block 197

NOTE

If VTM display does not show less than 12, go immediately to block 20.

- Test for less than 12 V ac between test points on breakout box listed in table F.
- Connect black test probe (1) to test points on breakout box (2) listed in table F.
- Connect red test probe (3) to test points on breakout box (2) listed in table F.

Does VTM display show less than 12 at each pair of test points?



20

Go to table F and do action for test points that failed.

YES

NO

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

- 21
- Disconnect ADAPTER NO. 1-P1 (1) from J3 (2).
 - Connect ADAPTER NO. 1-P1 (1) to J4 (3) on electronic unit (4).

22

NOTE

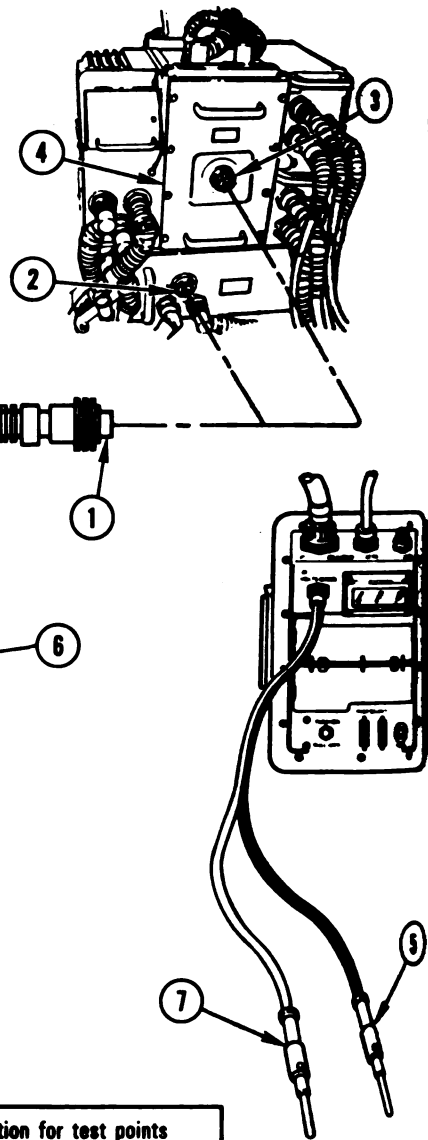
If VTM display does not show less than 12, go immediately to block 23.

- Test for less than 12 V ac between test points on breakout box listed in table G.
- Connect black test probe (5) to test points on breakout box (6) listed in table G.
- Connect red test probe (7) to test points on breakout box (6) listed in table G.

Does VTM display show less than 12 at each pair of test points?

Table G

Black Test Probe	Red Test Probe	Action
26	91	Go to block 94
26	93	Go to block 34
26	110	Go to block 127
129	16, 95, 124	Go to block 144



23

Go to table G and do action for test points that failed.

YES **NO**

Figure 10-90 (Sheet 8 of 59)
Volume II
Para. 10-3

ARR8240

Table H

Black Test Probe	Red Test Probe	Action
26	91	Go to block 94
26	93	Go to block 28
26	110	Go to block 121
129	16, 95, 124	Go to block 144

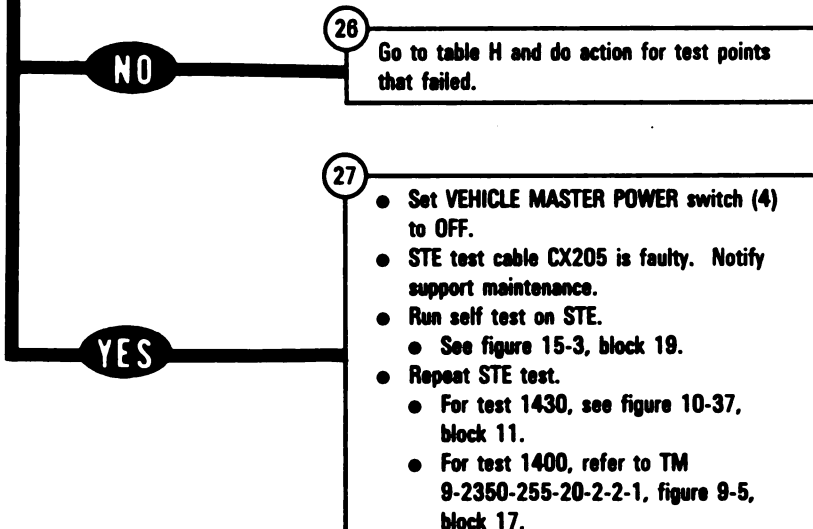
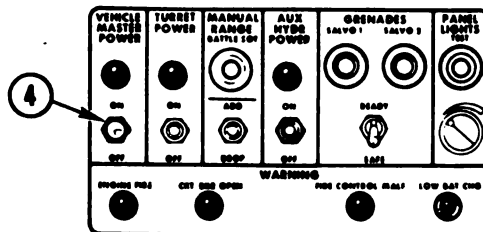
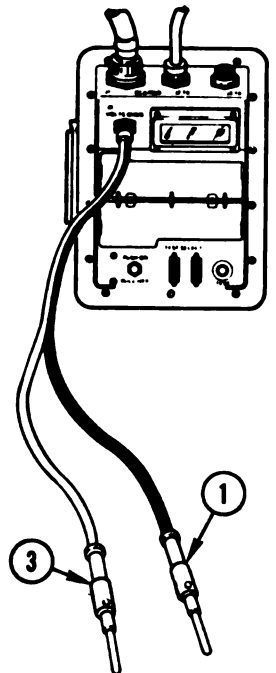
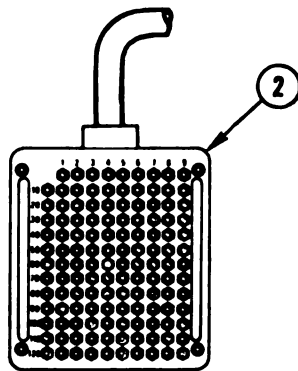
Prepare VTM for measuring dc voltage.
 ● Refer to para. 10-1.

NOTE

If VTM display does not show between -12 and 12, go immediately to block 26.

- Test for -12 to 12 V dc between test points on breakout box listed in table H.
- Connect black test probe (1) to test points on breakout box (2) listed in table H.
- Connect red test probe (3) to test points on breakout box (2) listed in table H.

Does VTM display show between -12 and 12 at each pair of test points?



26 Go to table H and do action for test points that failed.

- 27**
- Set VEHICLE MASTER POWER switch (4) to OFF.
 - STE test cable CX205 is faulty. Notify support maintenance.
 - Run self test on STE.
 - See figure 15-3, block 19.
 - Repeat STE test.
 - For test 1430, see figure 10-37, block 11.
 - For test 1400, refer to TM 9-2350-255-20-2-2-1, figure 9-5, block 17.

**Figure 10-90 (Sheet 9 of 59)
Volume II
Para. 10-3**

ARR82-6439

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

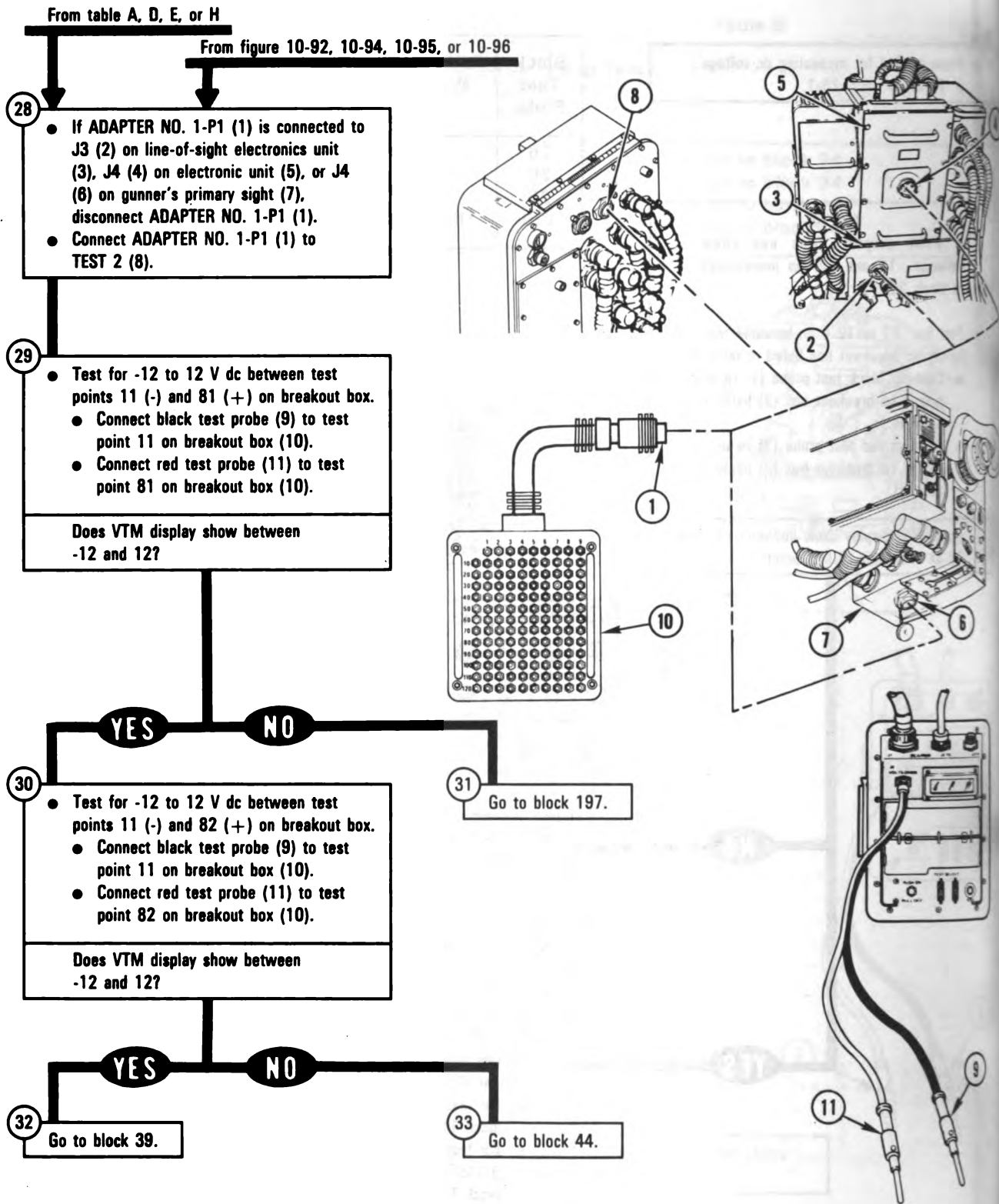


Figure 10-90 (Sheet 10 of 59)
Volume II
Para. 10-3

ARR82-6440

From table B, C, F, or G

From figure 10-92, 10-94, 10-95, or 10-96

If ADAPTER NO. 1-P1 (1) is connected to J3 (2) on line-of-sight electronics unit (3), J4 (4) on electronic unit (5), or J4 (6) on gunner's primary sight (7), disconnect ADAPTER NO. 1-P1 (1). Connect ADAPTER NO. 1-P1 (1) to TEST 2 (8).

Test for less than 12 V ac between test points 11 and 81 on breakout box.

- Connect black test probe (9) to test point 11 on breakout box (10).
- Connect red test probe (11) to test point 81 on breakout box (10).

Does VTM display show less than 12?

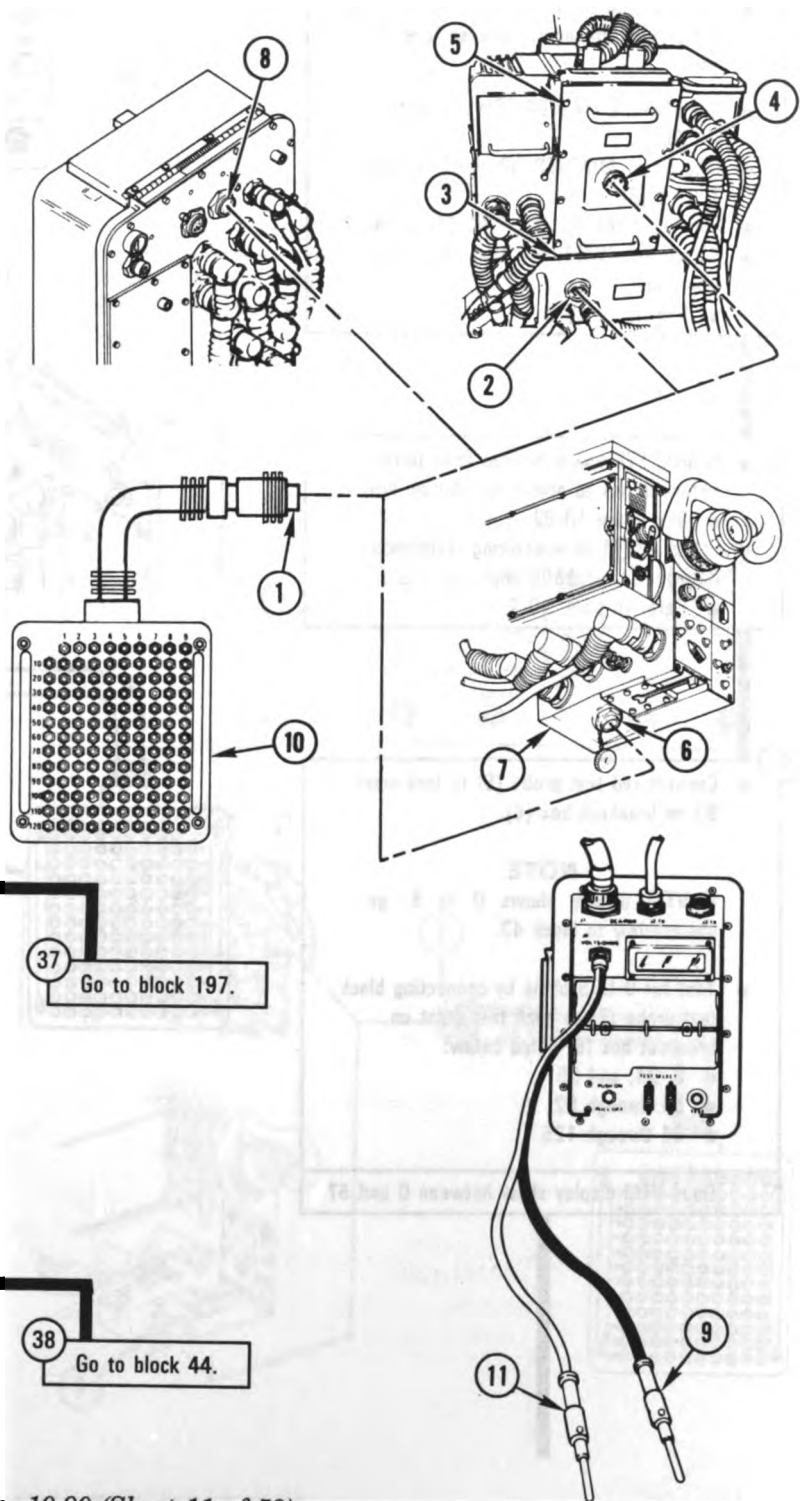
YES NO

Test for less than 12 V ac between test points 11 and 82 on breakout box.

- Connect black test probe (9) to test point 11 on breakout box (10).
- Connect red test probe (11) to test point 82 on breakout box (10).

Does VTM display show less than 12?

YES NO



37 Go to block 197.

38 Go to block 44.

Figure 10-90 (Sheet 11 of 59)
Volume II
Para. 10-3

ARR82-6441

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

From block 32

39

- If any switch or control is being held from the primary procedure, release it at this time.
- Set **VEHICLE MASTER POWER** switch (1) to OFF.
- Disconnect **ADAPTER NO. 1-P1** (2) from **TEST 2** (3).
- Connect **ADAPTER NO. 1-P1** (2) to **J4** (4).
- Disconnect **1W200-P4** from **J3** on electronic unit.
- See figure 16-6.

40

- Change **STE** power hookup from turret networks box to power distribution box.
- See figure 10-89.
- Prepare **VTM** for measuring resistance between 0 and 1500 ohms.
- Refer to para. 10-1.

41

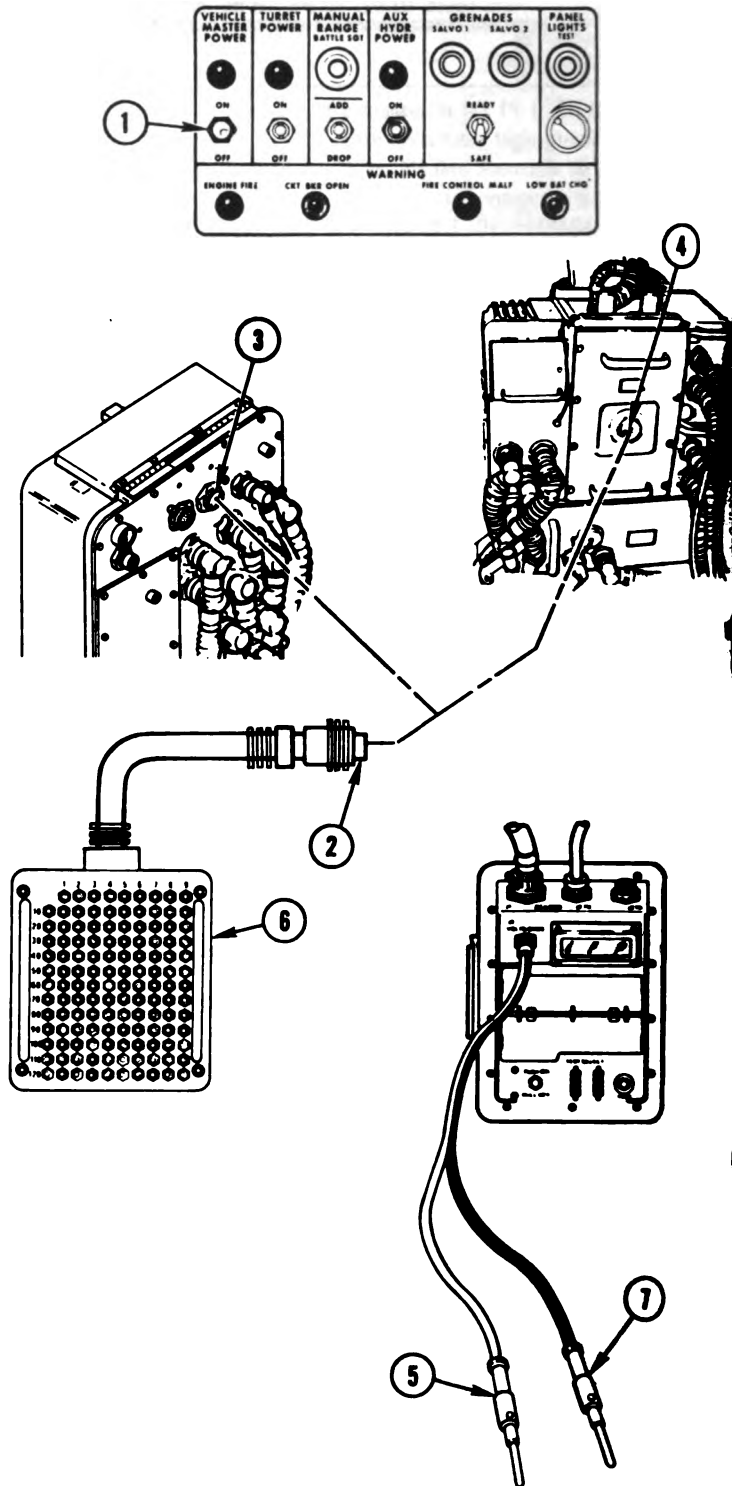
- Connect red test probe (5) to test point 93 on breakout box (6).

NOTE

If **VTM** display shows 0 to 5, go immediately to block 43.

- Test for 0 to 5 ohms by connecting black test probe (7) to each test point on breakout box (6) listed below:
 - 8, 24, and 35
 - 55 through 92
 - 94 through 125

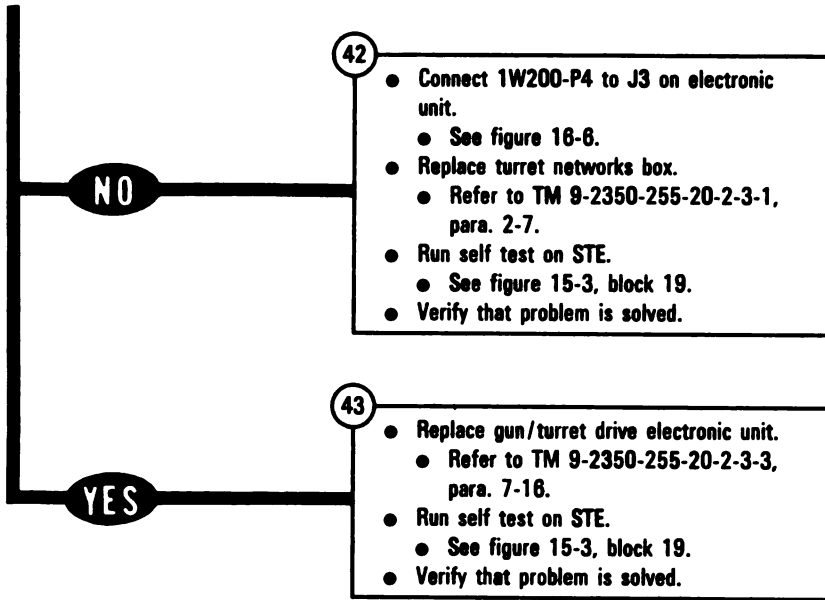
Does **VTM** display show between 0 and 5?



*Figure 10-90 (Sheet 12 of 59)
Volume II
Para. 10-3*

ARR82-6442

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**



block 33 or 38

If any switch or control is being held from the primary procedure, release it at this time.

Set **VEHICLE MASTER POWER** switch (1) to OFF.

Disconnect **ADAPTER NO. 1-P1** (2) from **TEST 2** (3).

Connect **ADAPTER NO. 1-P1** (2) to **J4** (4).

Disconnect 1W206-P1 from J2 on line-of-sight electronics unit.

- See figure 16-14.

Change STE power hookup from turret networks box to power distribution box.

- See figure 10-89.

Prepare VTM for measuring resistance between 0 and 1500 ohms.

- Refer to para. 10-1.

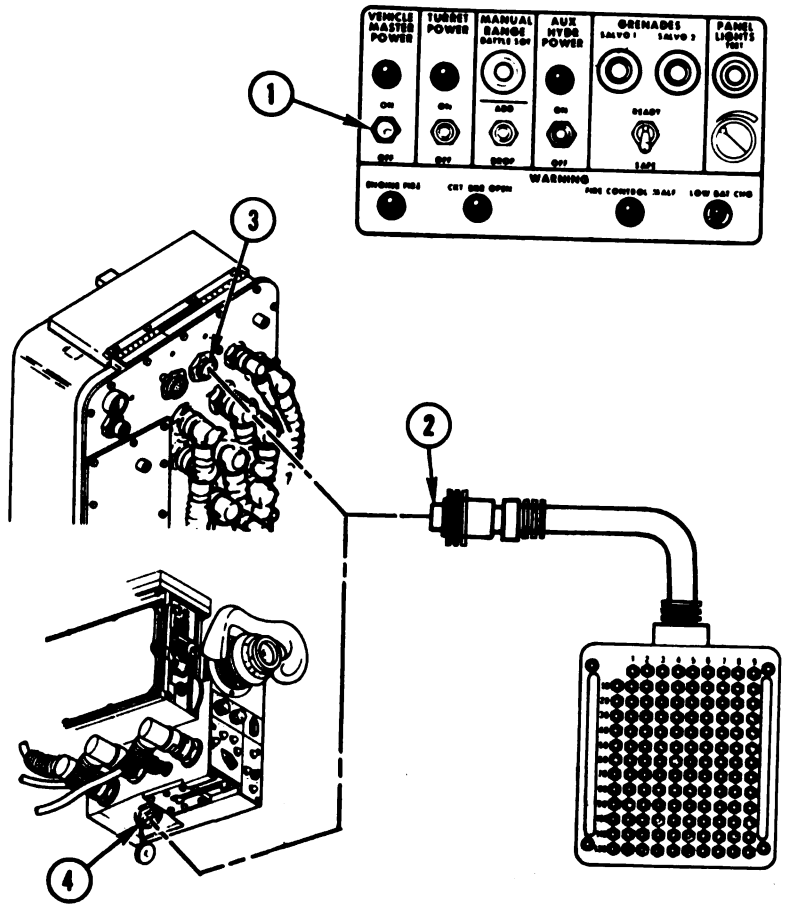


Figure 10-90 (Sheet 13 of 59)
Volume II
Para. 10-3

ARR82-6443

46

- Connect red test probe (1) to test point 78 on breakout box (2).

NOTE

If VTM display shows 0 to 5, go immediately to block 47.

- Test for 0 to 5 ohms by connecting black test probe (3) to each test point on breakout box (2) listed below:
 - 1 through 35
 - 53
 - 69 through 77
 - 79 through 94
 - 102 through 128

Does VTM display show between 0 and 5?

NO **YES**

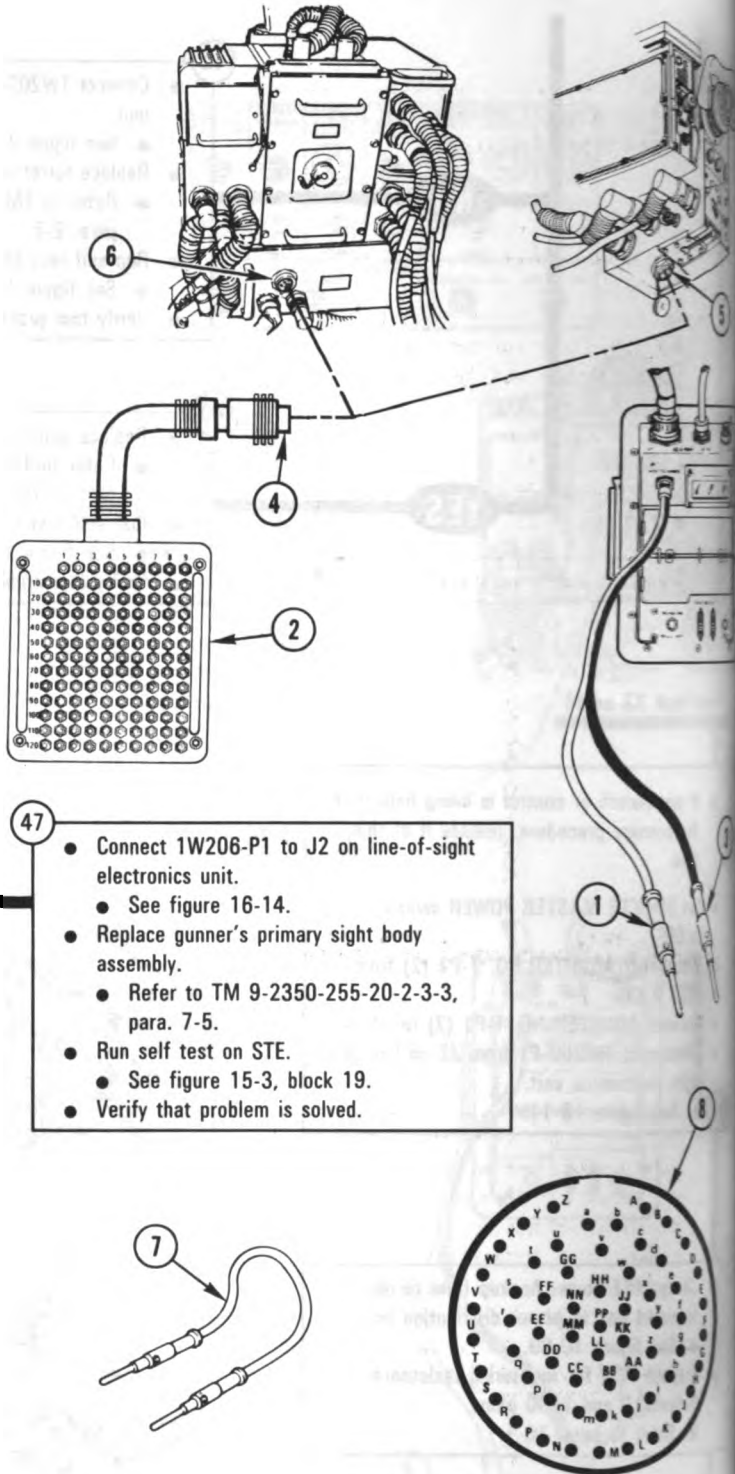
46

- Disconnect 1W202-P3 from J1 on line-of-sight electronics unit.
 - See figure 16-14.
- Disconnect 1W202-P1 from J7 on turret networks box.
 - See figure 16-5.
- Disconnect ADAPTER NO. 1-P1 (4) from J4 (5).
- Connect ADAPTER NO. 1-P1 (4) to J3 (6).

NOTE

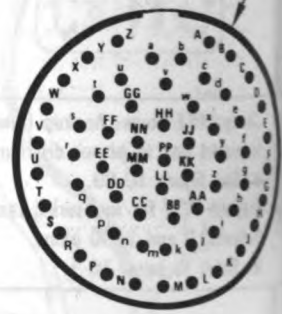
Leave jumper connected for remainder of tests.

- Connect jumper (7) between contact BB on line-of-sight electronics unit J1 (8) and test point 78 on breakout box (2).



47

- Connect 1W206-P1 to J2 on line-of-sight electronics unit.
 - See figure 16-14.
- Replace gunner's primary sight body assembly.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-5.
- Run self test on STE.
 - See figure 15-3, block 19.
- Verify that problem is solved.



LOS-J1

Figure 10-90 (Sheet 14 of 59)
 Volume II
 Para. 10-3

ARR82-6444

- Connect red test probe (1) to test point 78 on breakout box (2).

NOTE

If VTM display shows 0 to 5, go immediately to block 50.

- Test for 0 to 5 ohms by connecting black test probe (3) to each test point on breakout box (2) listed below:
 - 11, 13, and 20
 - 22 through 35
 - 60 through 77
 - 79 through 109
 - 123 through 127

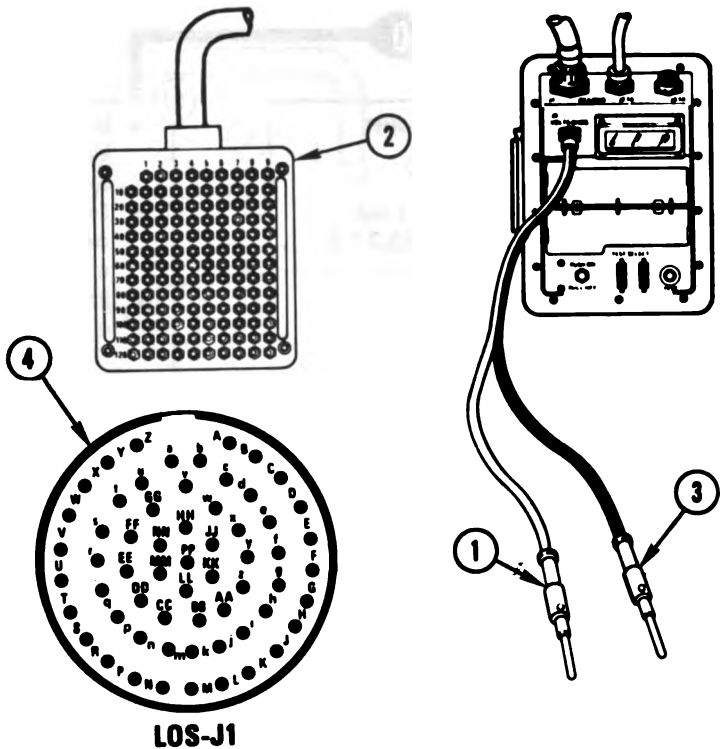
Does VTM display show between 0 and 5?

NO

YES

- Test for 0 to 5 ohms between test point 78 on breakout box and contact B on line-of-sight electronics unit J1.
 - Connect red test probe (1) to test point 78 on breakout box (2).
 - Connect black test probe (3) to contact B on J1 (4).

Does VTM display show between 0 and 5?



50

- Connect 1W202-P1 to J7 on turret networks box.
 - See figure 16-5.
- Replace line-of-sight electronics unit.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-8.
- Run self test on STE.
 - See figure 15-3, block 19.
- Verify that problem is solved.

Figure 10-90 (Sheet 15 of 59)
Volume II
Para. 10-3

ARR82-6445

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

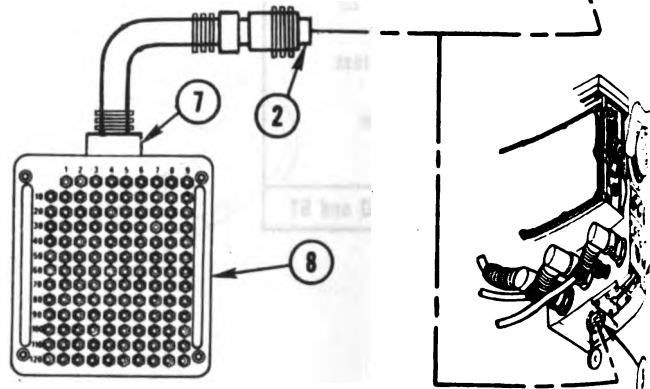
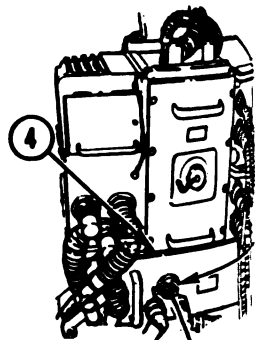
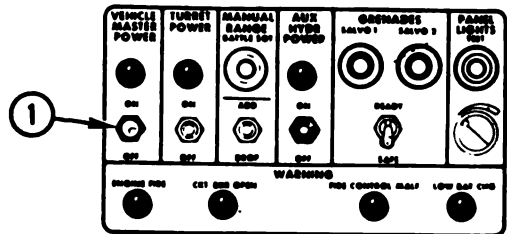
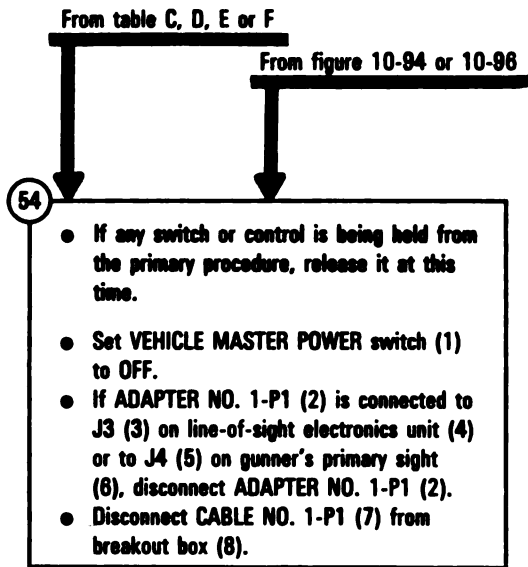
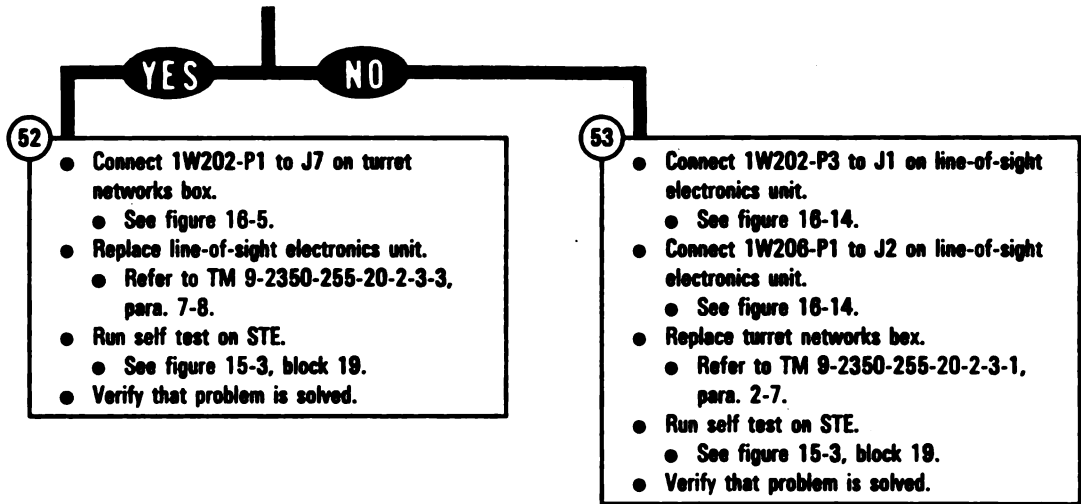


Figure 10-90 (Sheet 16 of 59)
Volume II
Para. 10-3

- Disconnect 1W204-P2 from J2 on laser rangefinder.
 - See figure 16-16.
- Disconnect 1W204-P3 from J1 on cant unit.
 - See figure 16-8.

- Connect CX305-P2 (1) to breakout box (2).
- Connect CX305-P1 (3) to CX307-P3 (4).
- Disconnect 1W204-P1 from J3 on computer electronics unit.
 - See figure 16-8.
- Connect 1W204-P1 (5) to CA513-P1 (6).
- Connect CA513-P2 (7) to CX307-P1 (8).

- Change STE power hookup from turret networks box to power distribution box.
 - See figure 10-89.
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 10-1.

- Test for 0 to 5 ohms between test points 27 and 30 on breakout box.
 - Connect red test probe (9) to test point 27 on breakout box (2).
 - Connect block test probe (10) to test point 30 on breakout box (2).

Does VTM display show between 0 and 5?

NO

YES

- 59
- Replace branched wiring harness 1W204.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Run self test on STE.
 - See figure 15-3, block 19.
 - Verify that problem is solved.

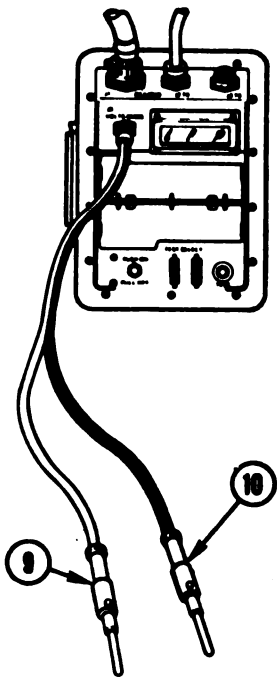
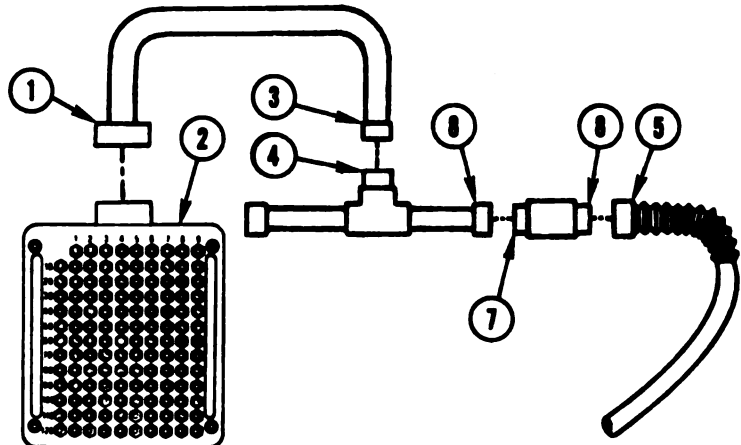


Figure 10-90 (Sheet 17 of 59)
Volume II
Para. 10-3

ARR82-6447

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

60

- Test for 0 to 5 ohms between contacts B and H on 1W204-P3.
- Connect red test probe (1) to contact B on P3 (2).
- Connect black test probe (3) to contact H on P3 (2).

Does VTM display show between 0 and 5?

NO **YES**

62

- Disconnect CX305-P1 (4) from CX307-P3 (5).
- Connect CX305-P1 (4) to CX308-P3 (6).
- Disconnect crosswind sensor (1A253)-P1 from 1W205-J2.
- See figure 16-23.
- Connect crosswind sensor (1A253)-P1 (7) to CA549-P1 (8).
- Connect CA549-P2 (9) to CX308-P1 (10).

63

- Test for 0 to 5 ohms between test points 8 and 16 on breakout box.
- Connect red test probe (1) to test point 8 on breakout box (11).
- Connect black test probe (3) to test point 16 on breakout box (11).

Does VTM display show between 0 and 5?

61

- Replace branched wiring harness 1W204.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Run self test on STE.
- See figure 15-3, block 19.
- Verify that problem is solved.

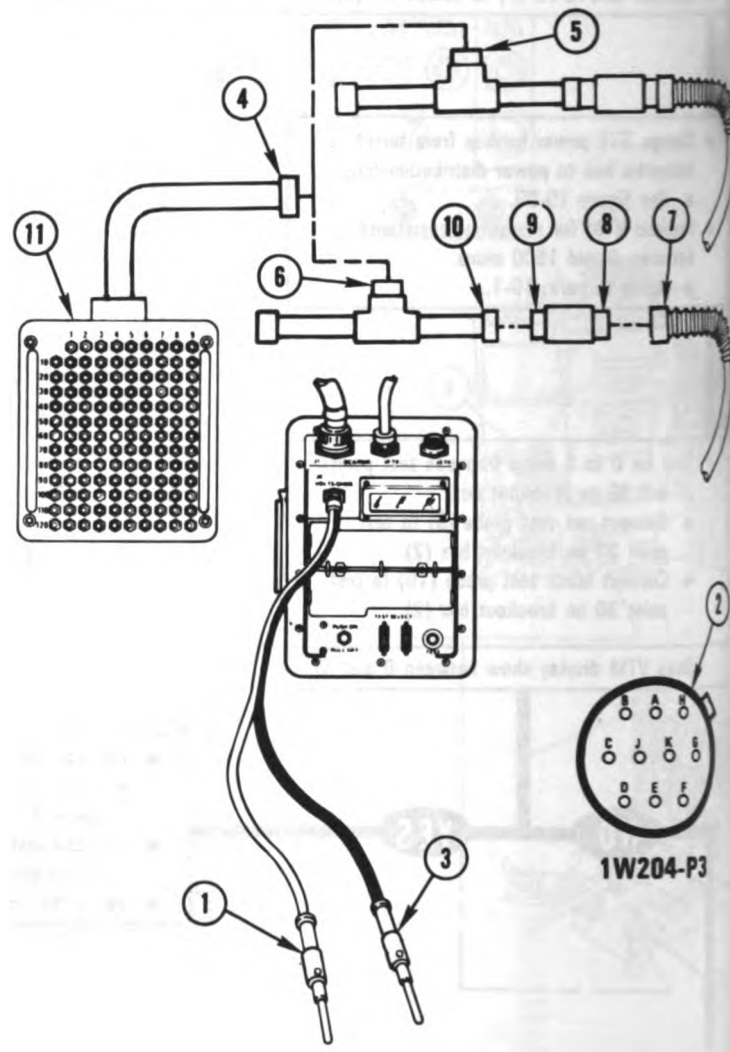


Figure 10-90 (Sheet 18 of 59)
Volume II
Para. 10-3

ARR82-6446

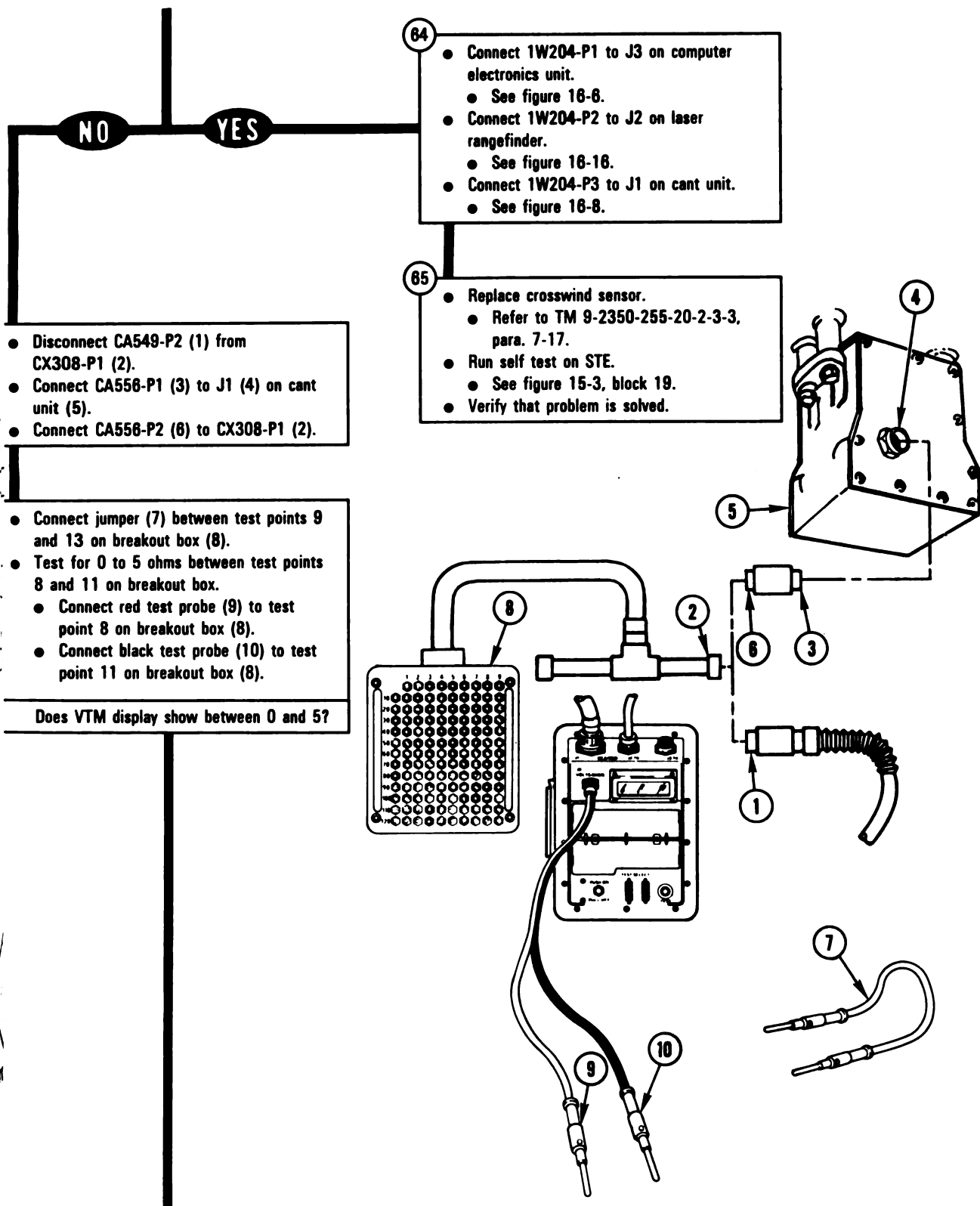
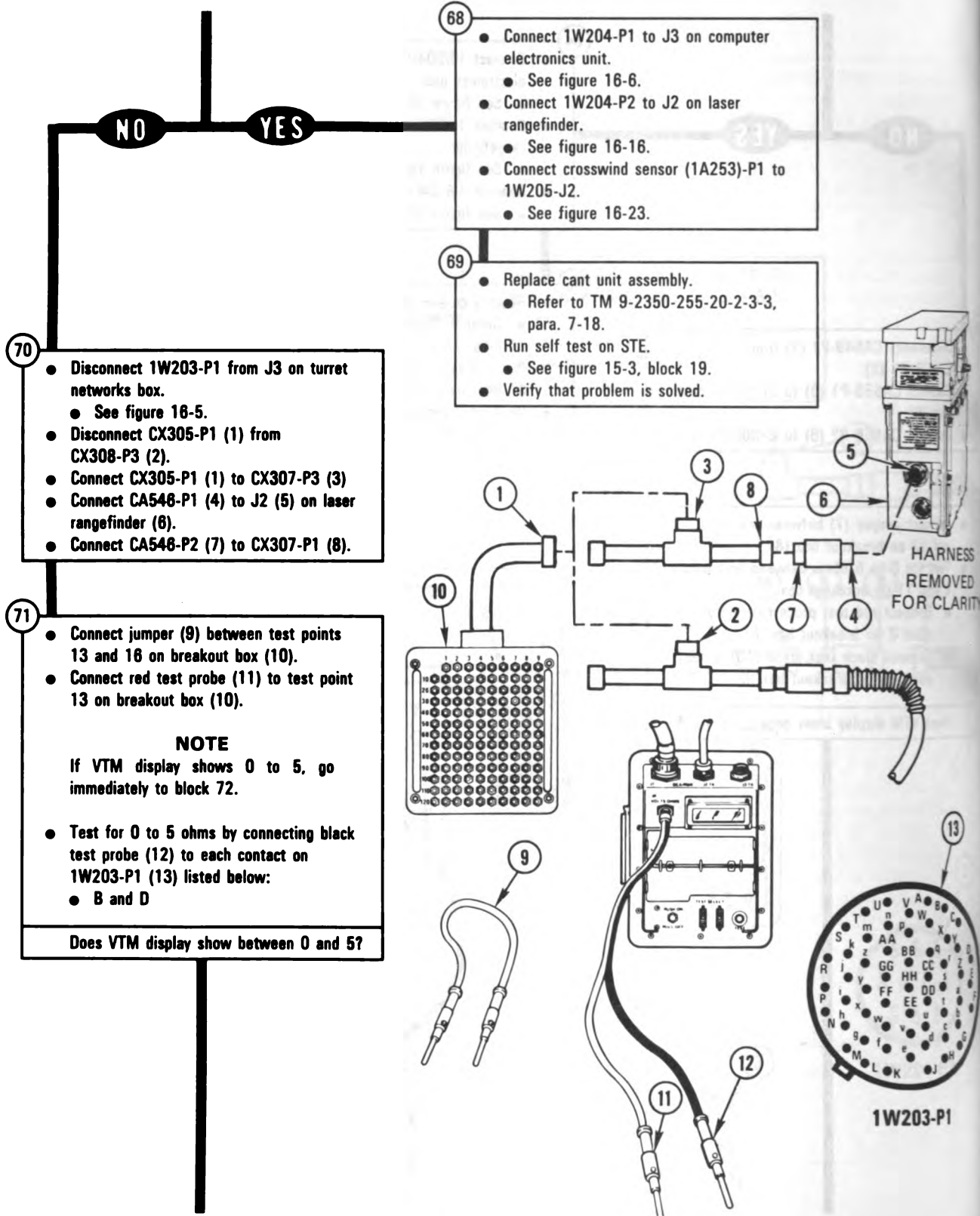


Figure 10-90 (Sheet 19 of 59)
Volume II
Para. 10-3

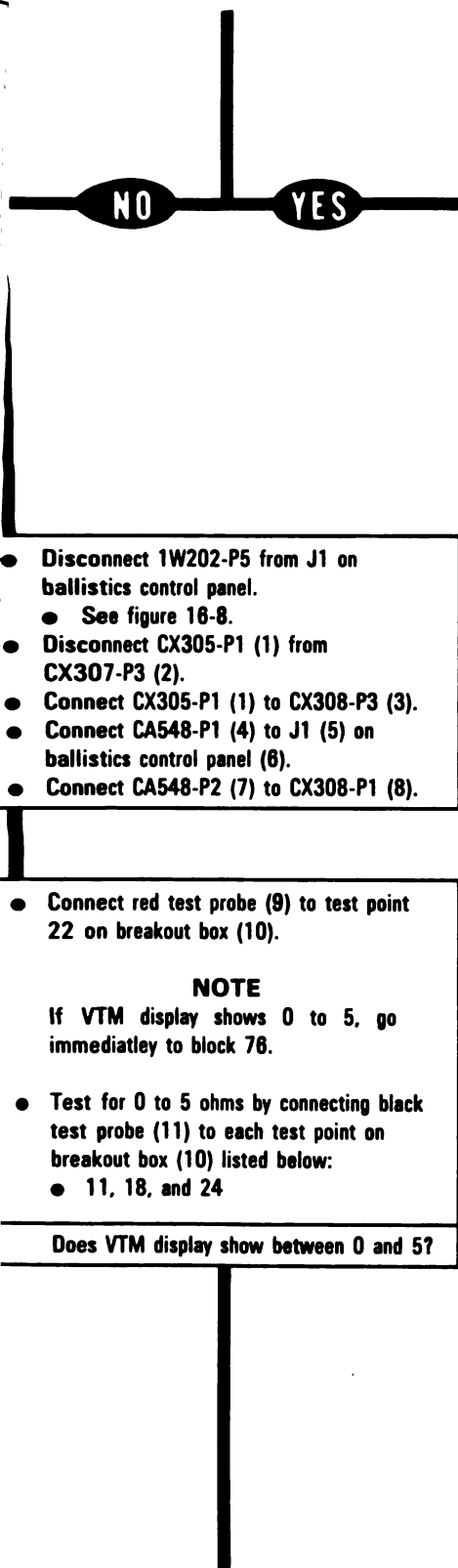
ARR82-6449

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**



**Figure 10-90 (Sheet 20 of 59)
Volume II
Para. 10-3**

ARR82-6450



- 72
- Connect 1W204-P1 to J3 on computer electronics unit.
 - See figure 16-6.
 - Connect 1W203-P1 to J3 on turret networks box.
 - See figure 16-5.
 - Connect 1W204-P3 to J1 on cant unit.
 - See figure 16-8.
 - Connect crosswind sensor (1A253)-P1 to 1W205-J2.
 - See figure 16-23.

- 73
- Replace laser rangefinder.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-23.
 - Run self test on STE.
 - See figure 15-3, block 19.
 - Verify that problem is solved.

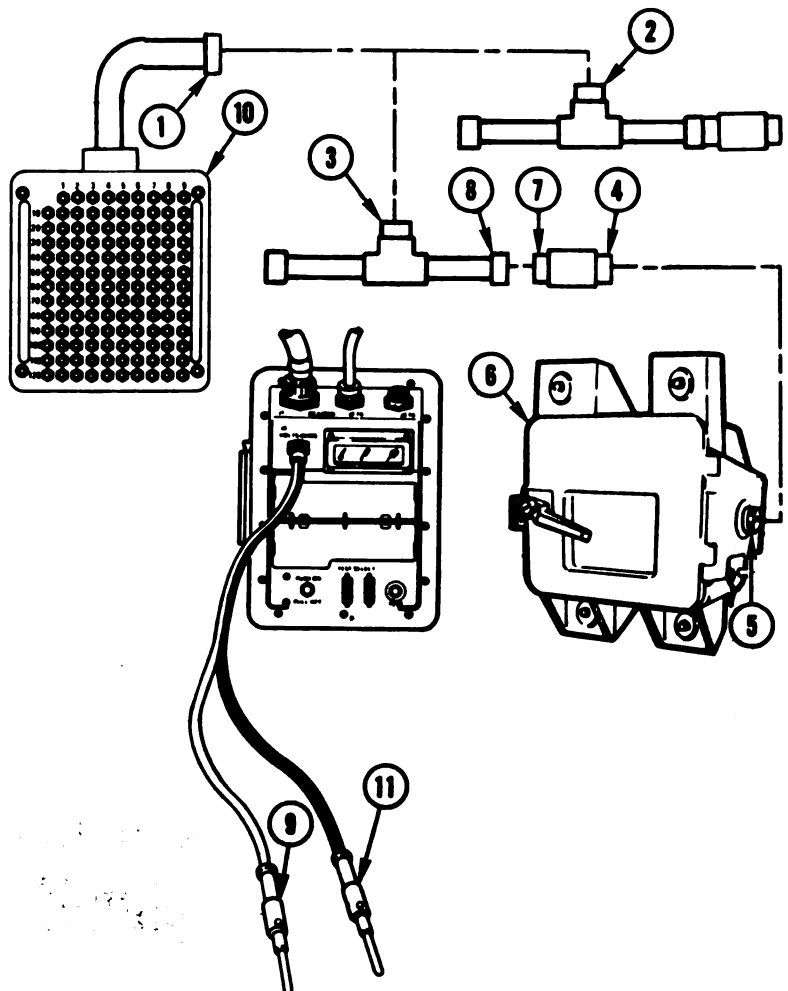


Figure 10-90 (Sheet 21 of 59)
Volume II
Para. 10-3

ARR82-6451

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

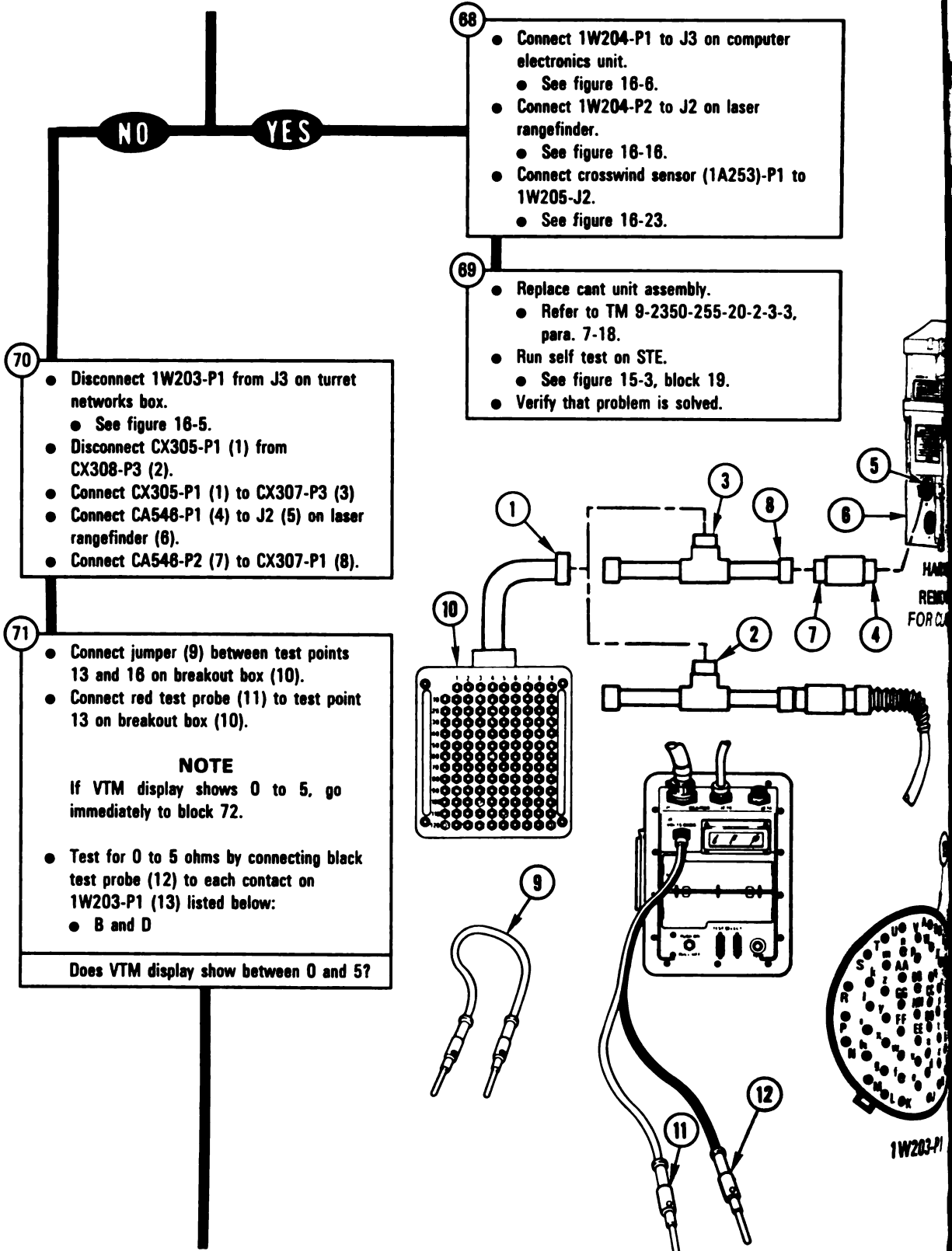
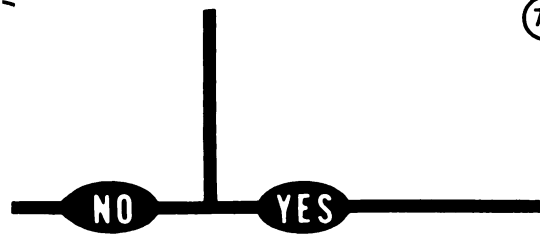


Figure 10-90 (Sheet 20 of 59)
 Volume II
 Para. 10-3



- 72
- Connect 1W204-P1 to J3 on computer electronics unit.
 - See figure 16-6.
 - Connect 1W203-P1 to J3 on turret networks box.
 - See figure 16-5.
 - Connect 1W204-P3 to J1 on cant unit.
 - See figure 16-8.
 - Connect crosswind sensor (1A253)-P1 to 1W205-J2.
 - See figure 16-23.

- 73
- Replace laser rangefinder.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-23.
 - Run self test on STE.
 - See figure 15-3, block 19.
 - Verify that problem is solved.

Disconnect 1W202-P5 from J1 on ballistics control panel.

- See figure 16-8.

Disconnect CX305-P1 (1) from CX307-P3 (2).

Connect CX305-P1 (1) to CX308-P3 (3).

Connect CA548-P1 (4) to J1 (5) on ballistics control panel (8).

Connect CA548-P2 (7) to CX308-P1 (8).

Connect red test probe (9) to test point 22 on breakout box (10).

NOTE

If VTM display shows 0 to 5, go immediately to block 76.

- Test for 0 to 5 ohms by connecting black test probe (11) to each test point on breakout box (10) listed below:
 - 11, 18, and 24

Does VTM display show between 0 and 5?

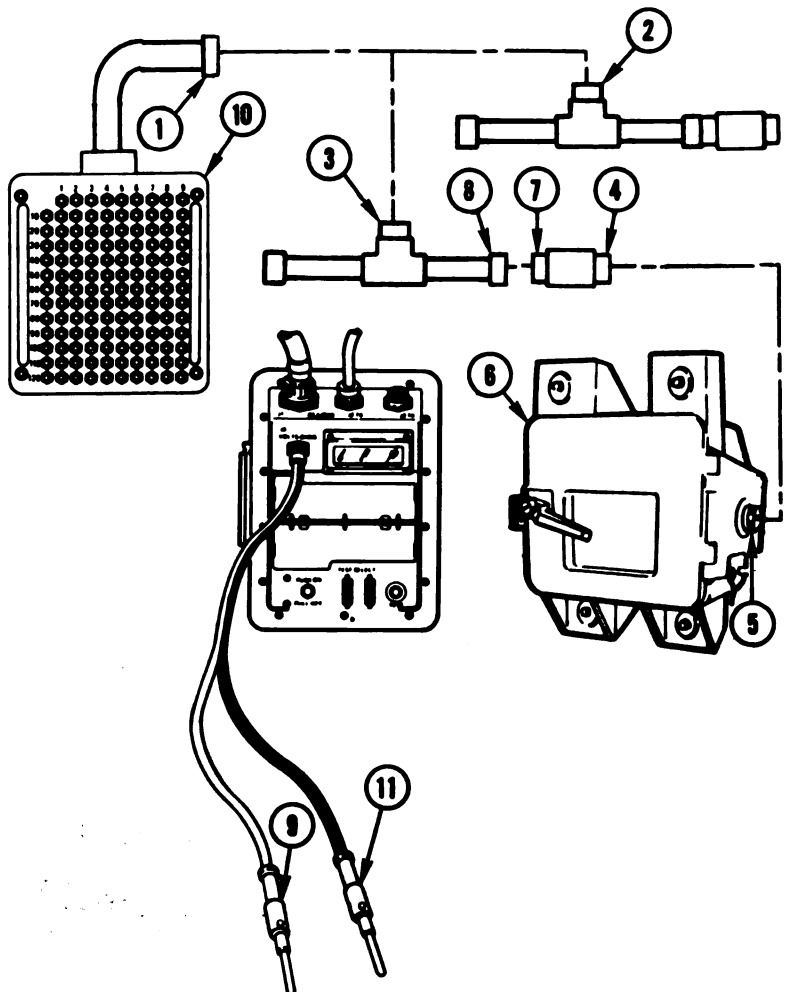


Figure 10-90 (Sheet 21 of 59)
Volume II
Para. 10-3

ARR82-6451

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

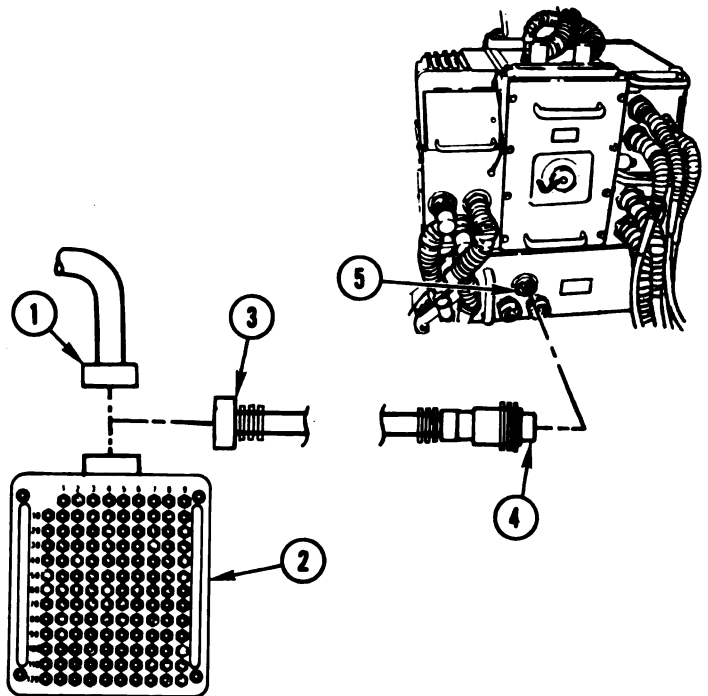
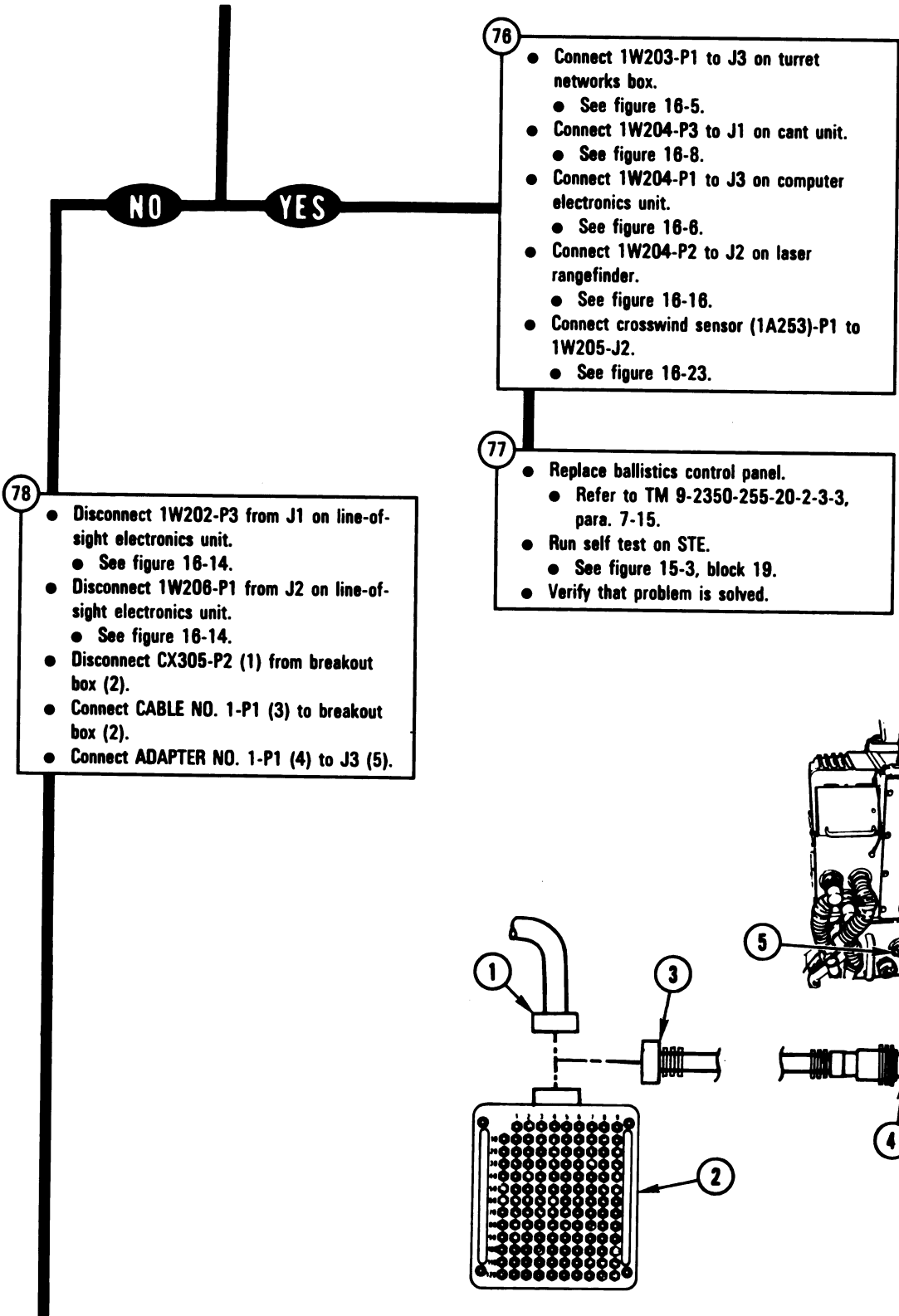
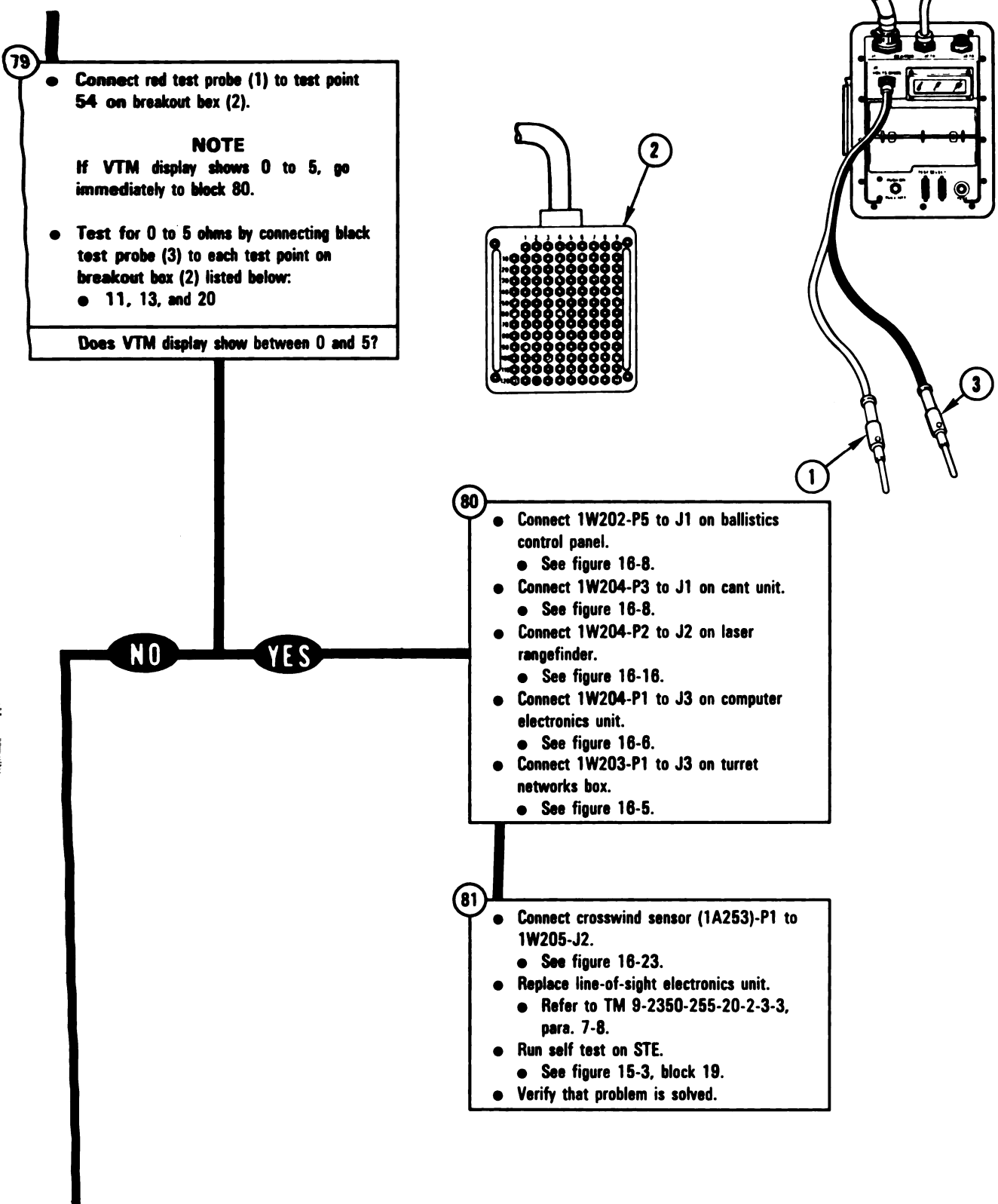


Figure 10-90 (Sheet 22 of 59)
Volume II
Para. 10-3

ARR82-6452



79

- Connect red test probe (1) to test point 54 on breakout box (2).

NOTE
If VTM display shows 0 to 5, go immediately to block 80.

- Test for 0 to 5 ohms by connecting black test probe (3) to each test point on breakout box (2) listed below:
 - 11, 13, and 20

Does VTM display show between 0 and 5?

80

- Connect 1W202-P5 to J1 on ballistics control panel.
 - See figure 16-8.
- Connect 1W204-P3 to J1 on cant unit.
 - See figure 16-8.
- Connect 1W204-P2 to J2 on laser rangefinder.
 - See figure 16-16.
- Connect 1W204-P1 to J3 on computer electronics unit.
 - See figure 16-6.
- Connect 1W203-P1 to J3 on turret networks box.
 - See figure 16-5.

81

- Connect crosswind sensor (1A253)-P1 to 1W205-J2.
 - See figure 16-23.
- Replace line-of-sight electronics unit.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-8.
- Run self test on STE.
 - See figure 15-3, block 19.
- Verify that problem is solved.

Figure 10-90 (Sheet 23 of 59)
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ARR82-6453

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

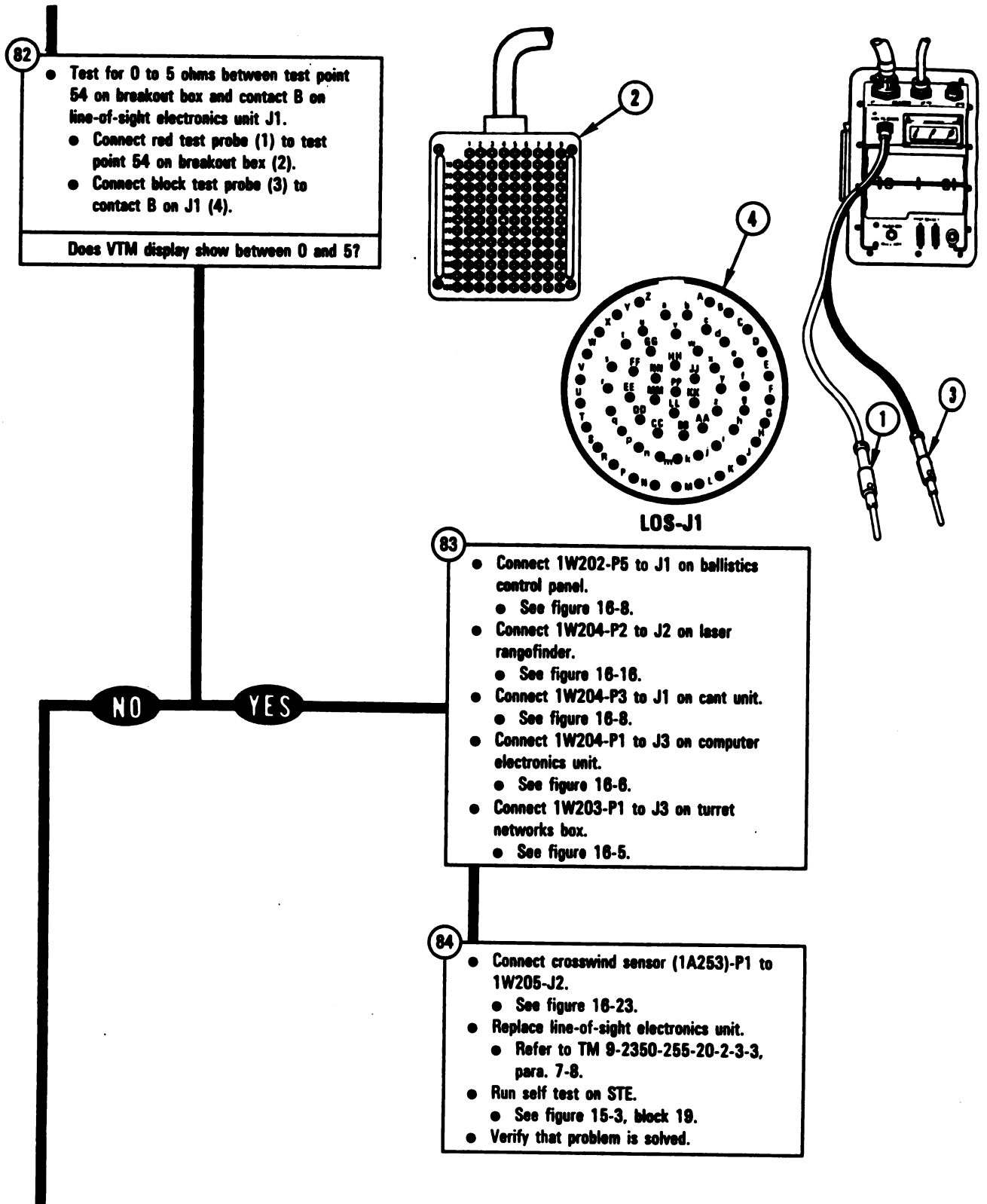


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Volume II
Para. 10-3

ARR82-6454

- 85
- Disconnect 1W203-P2 from J1 on gunner's primary sight.
 - See figure 16-16.
 - Disconnect 1W206-P2 from J2 on gunner's primary sight.
 - See figure 16-16.
 - Disconnect 1W104-P2 from J3 on gunner's primary sight.
 - See figure 16-16.
 - Disconnect ADAPTER NO. 1-P1 (1) from J3 (2).
 - Connect ADAPTER NO. 1-P1 (1) to J4 (3).

- 86
- Connect jumper (4) between test points 26 and 85 on breakout box (5).
 - Connect red test probe (8) to test point 26 on breakout box (5).
- NOTE**
 If VTM display shows 0 to 5, go immediately to block 87.
- Test for 0 to 5 ohms by connecting black test probe (7) to each test point on breakout box (5) listed below:
 - 8, 13, 20, and 22
- Does VTM display show between 0 and 5?

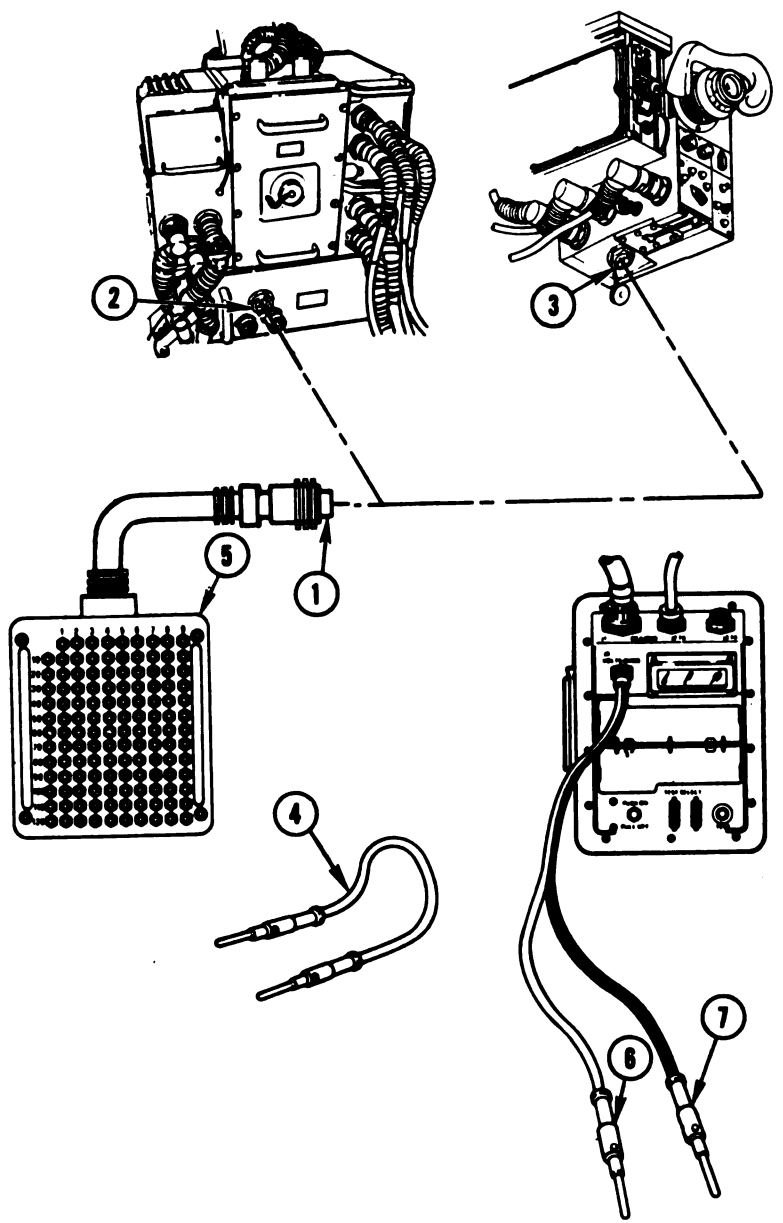


Figure 10-90 (Sheet 25 of 59)
 Volume II
 Para. 10-3

ARR82-6455

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

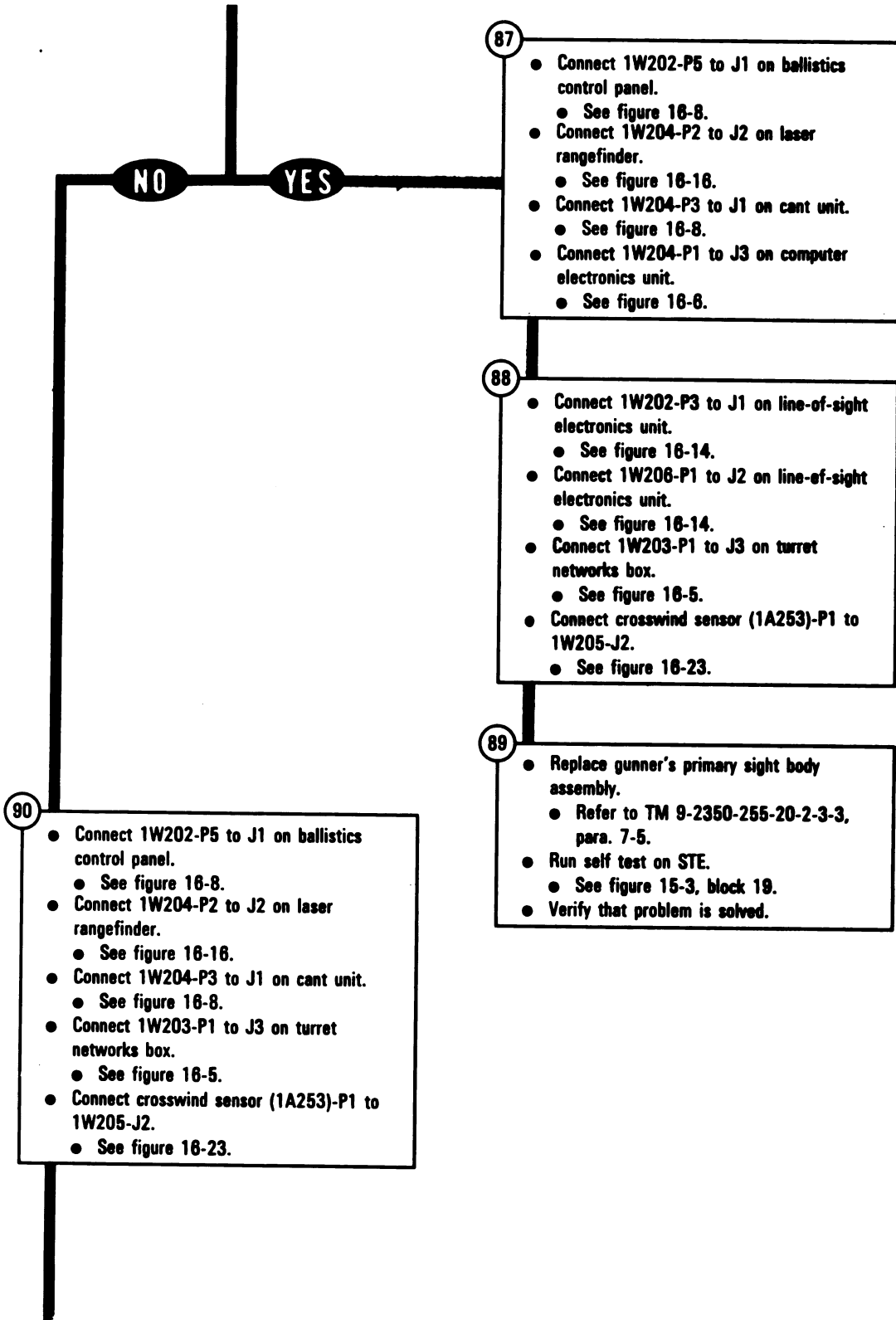


Figure 10-90 (Sheet 26 of 59)
Volume II
Para. 10-3

- Connect 1W202-P3 to J1 on line-of-sight electronics unit.
 - See figure 16-14.
- Connect 1W206-P1 to J2 on line-of-sight electronics unit.
 - See figure 16-14.
- Connect 1W203-P2 to J1 on gunner's primary sight.
 - See figure 16-16.
- Connect 1W206-P2 to J2 on gunner's primary sight.
 - See figure 16-16.
- Connect 1W104-P2 to J3 on gunner's primary sight.
 - See figure 16-16.

- Replace computer electronics unit.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-14.
- Run self test on STE.
 - See figure 15-3, block 19.
- Verify that problem is solved.

Is problem solved?

NO

93

- Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
- Run self test on STE.
 - See figure 15-3, block 19.
- Verify that problem is solved.

YES

Problem solved.

Figure 10-90 (Sheet 27 of 59)
Volume II
Para. 10-3

**TM 9-2350-255-20-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

From table A, B, G, or H

From figure 10-91 or 10-95

94

- If any switch or control is being held from the primary procedure, release it at this time.
- Set VEHICLE MASTER POWER switch (1) to OFF.
- If ADAPTER NO. 1-P1 (2) is connected to TEST 2 (3), disconnect ADAPTER NO. 1-P1 (2).
- Connect ADAPTER NO. 1-P1 (2) to J4 (4) on electronic unit (5).

95

- Change STE power hookup from turret networks box to power distribution box.
 - See figure 10-89.
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 10-1.

96

- Connect red test probe (6) to test point 91 on breakout box (7).

NOTE

If VTM display shows 0 to 5, go immediately to block 98.

- Test for 0 to 5 ohms by connecting black test probe (8) to each test point on breakout box (7) listed below:
 - 8, 24, and 35
 - 55 through 87
 - 92 through 125

Does VTM display show between 0 and 5?

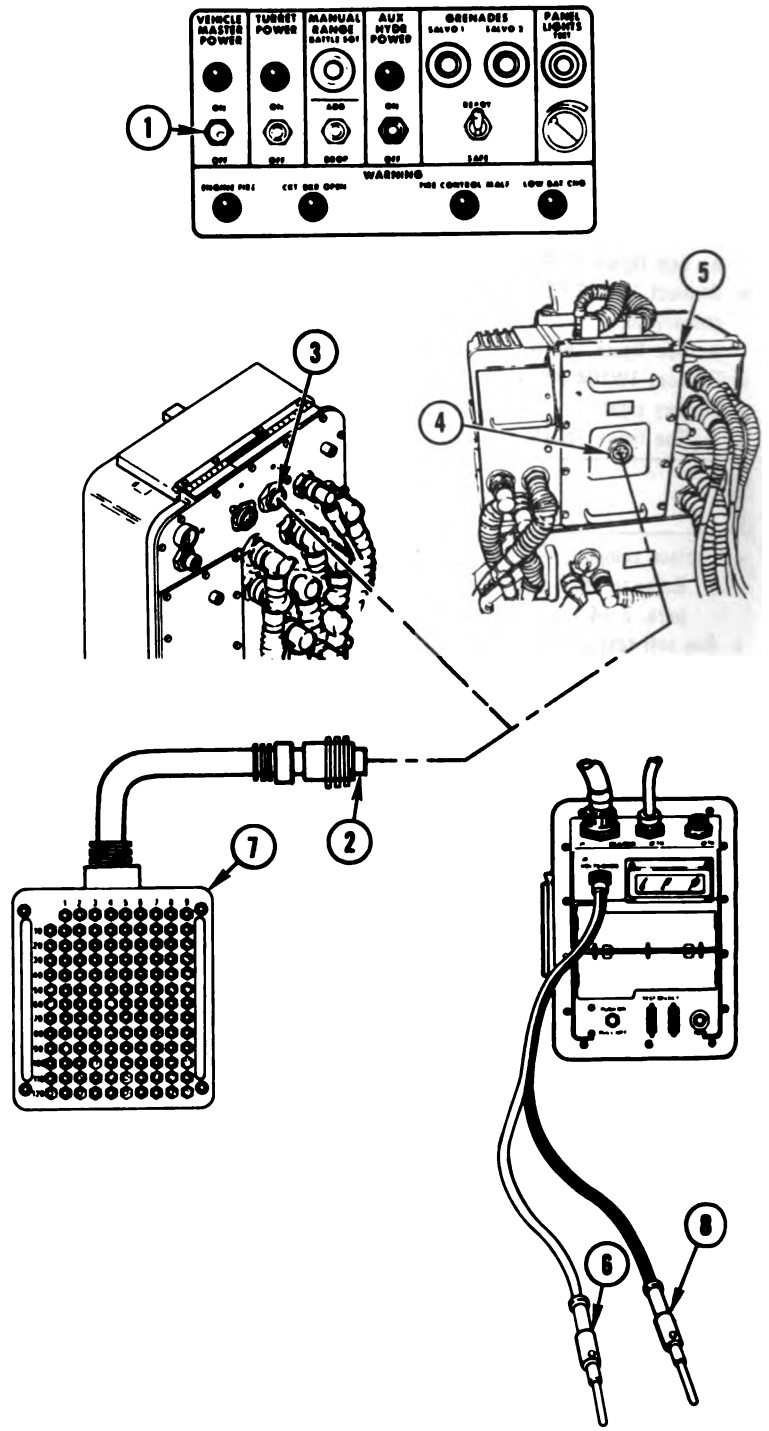


Figure 10-90 (Sheet 28 of 59)
Volume II
Para. 10-3

ARR82-6456

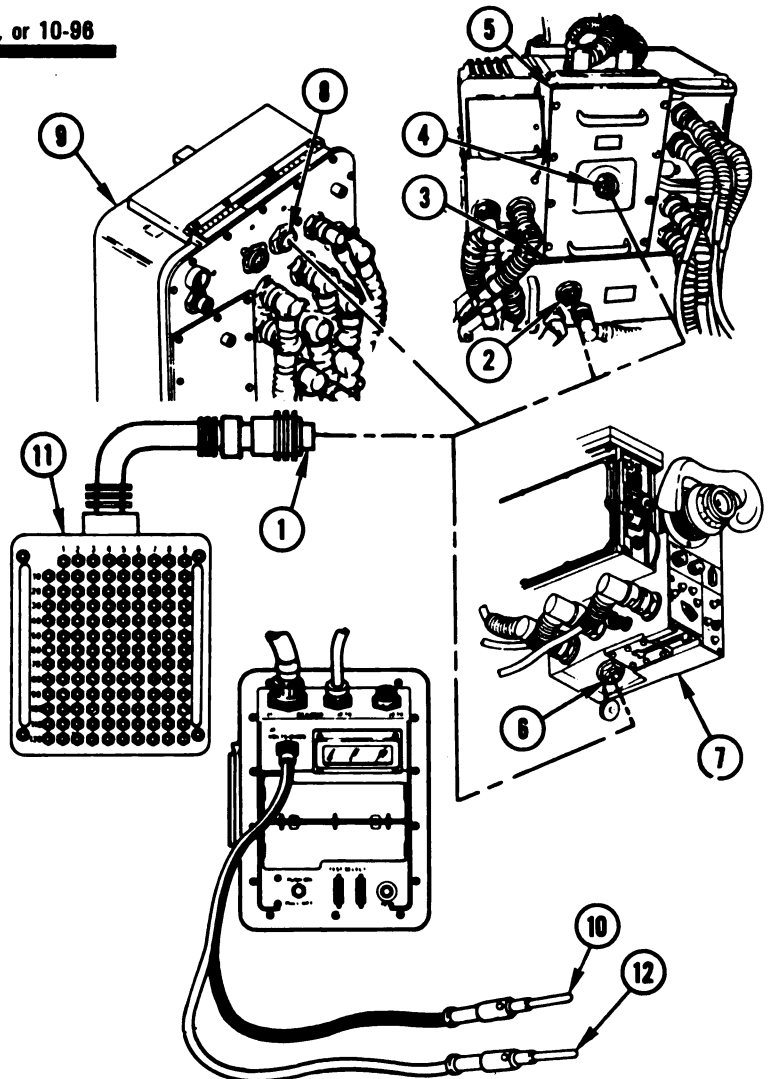
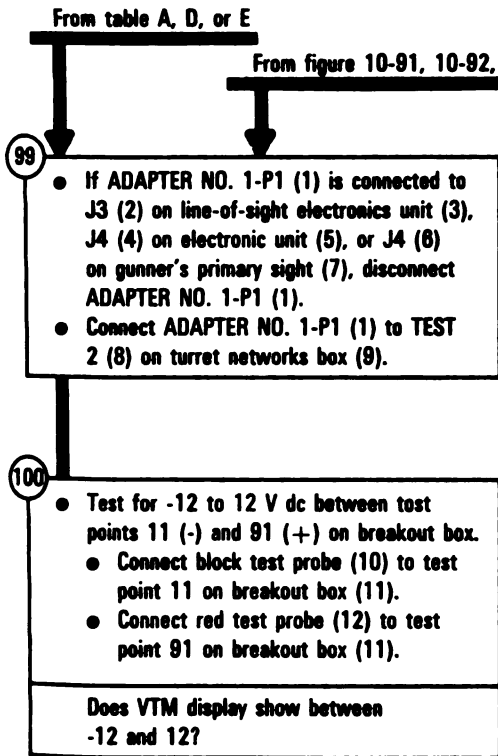
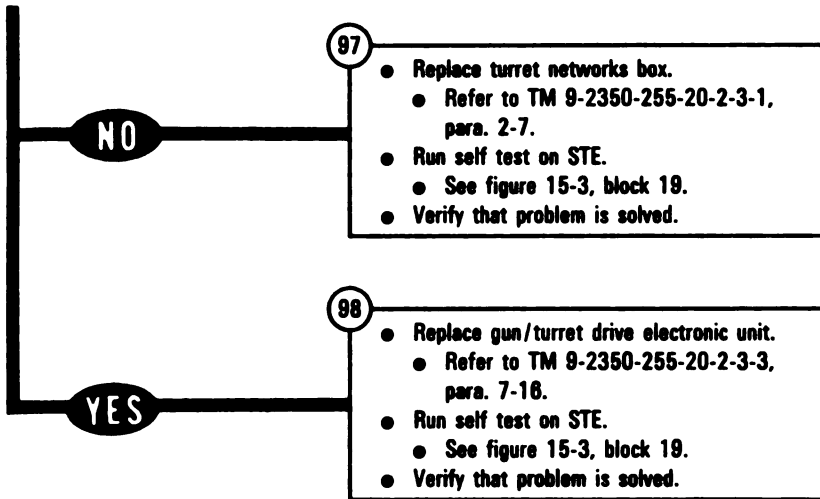
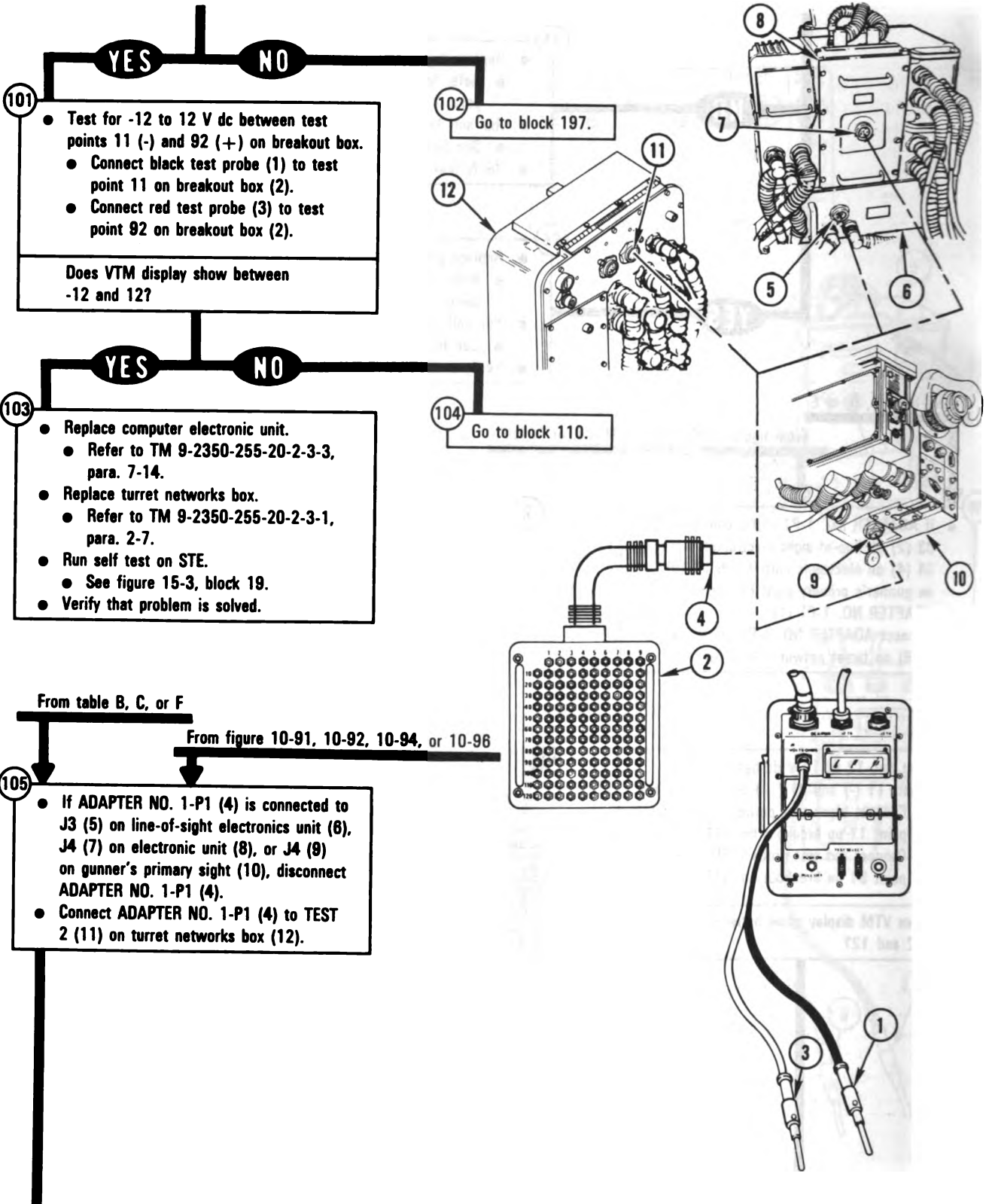


Figure 10-90 (Sheet 29 of 59)
Volume II
Para. 10-3

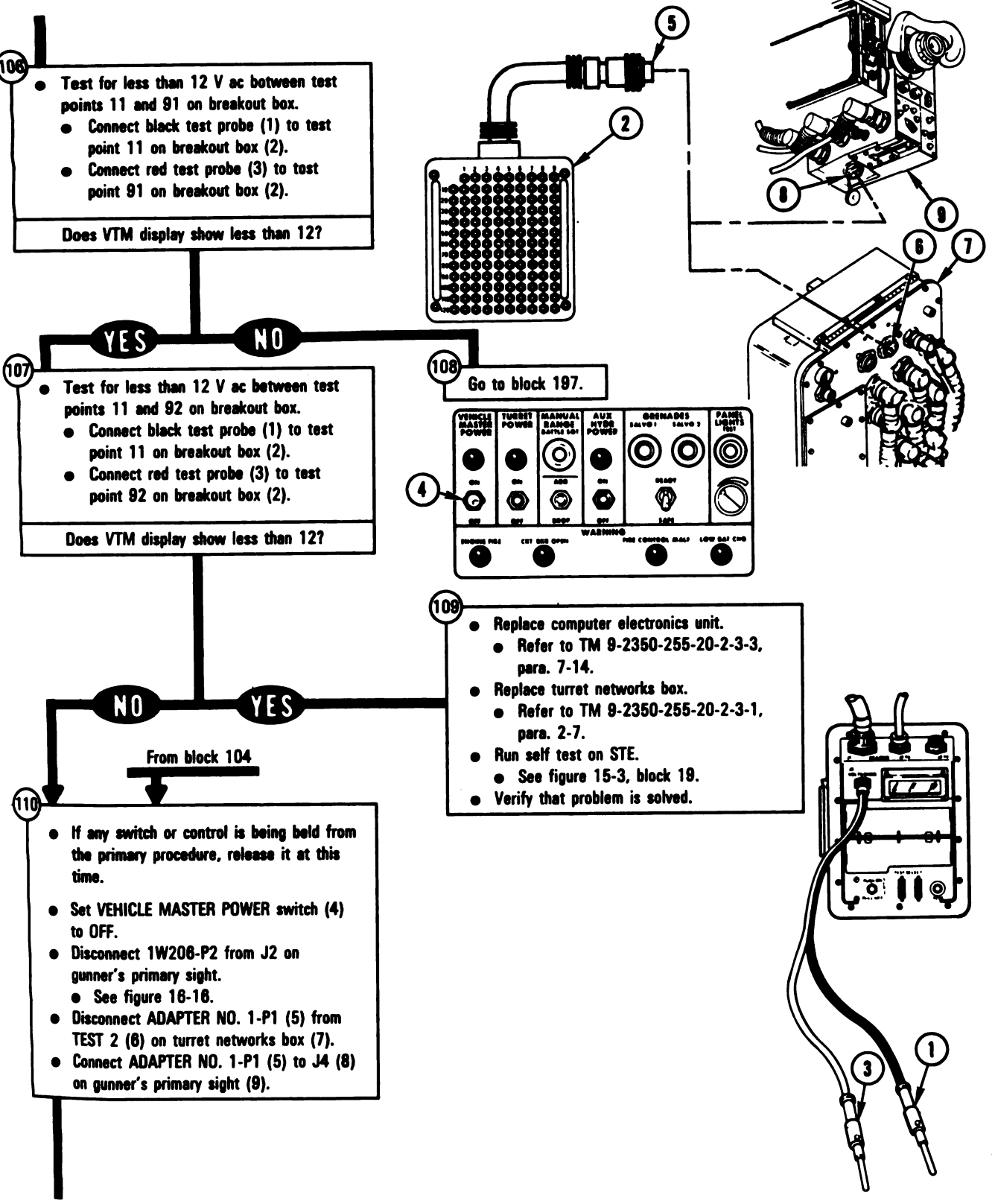
ARR82-8457

**TM 9-2350-255-20-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**



*Figure 10-90 (Sheet 30 of 59)
Volume II
Para. 10-3*

ARR82-6458



106

- Test for less than 12 V ac between test points 11 and 91 on breakout box.
- Connect black test probe (1) to test point 11 on breakout box (2).
- Connect red test probe (3) to test point 91 on breakout box (2).

Does VTM display show less than 12?

YES NO

107

- Test for less than 12 V ac between test points 11 and 92 on breakout box.
- Connect black test probe (1) to test point 11 on breakout box (2).
- Connect red test probe (3) to test point 92 on breakout box (2).

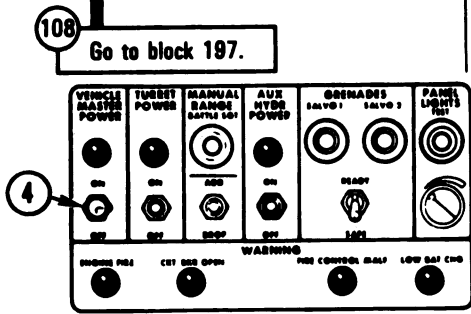
Does VTM display show less than 12?

NO YES

From block 104

110

- If any switch or control is being held from the primary procedure, release it at this time.
- Set VEHICLE MASTER POWER switch (4) to OFF.
- Disconnect 1W208-P2 from J2 on gunner's primary sight.
 - See figure 16-16.
- Disconnect ADAPTER NO. 1-P1 (5) from TEST 2 (6) on turret networks box (7).
- Connect ADAPTER NO. 1-P1 (5) to J4 (8) on gunner's primary sight (9).



109

- Replace computer electronics unit.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-14.
- Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
- Run self test on STE.
 - See figure 15-3, block 19.
- Verify that problem is solved.

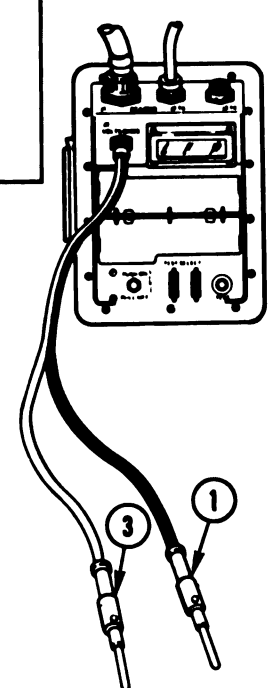


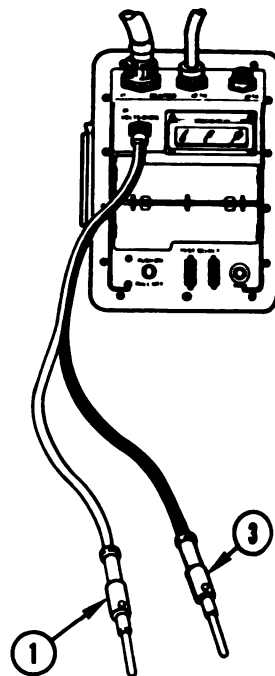
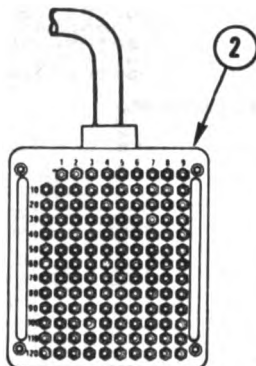
Figure 10-90 (Sheet 31 of 59)
Volume II
Para. 10-3

ARR82-6459

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

- 111**
- Change STE power hookup from turret networks box to power distribution box.
 - See figure 10-89.
 - Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 10-1.

- 112**
- Connect red test probe (1) to test point 77 on breakout box (2).
- NOTE**
- If VTM display shows 0 to 5, go immediately to block 113.
- Test for 0 to 5 ohms by connecting black test probe (3) to each test point on breakout box (2) listed below:
 - 1 through 35
 - 53
 - 69 through 76
 - 78 through 94
 - 102 through 128
- Does VTM display show between 0 and 5?



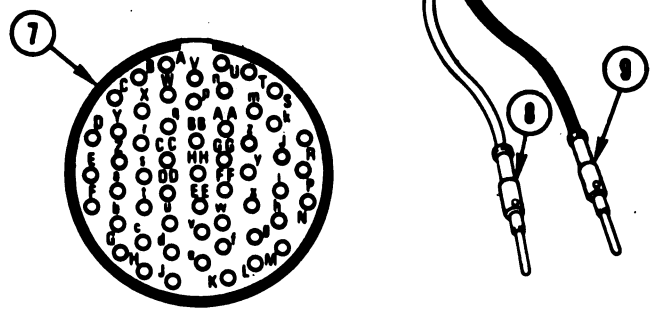
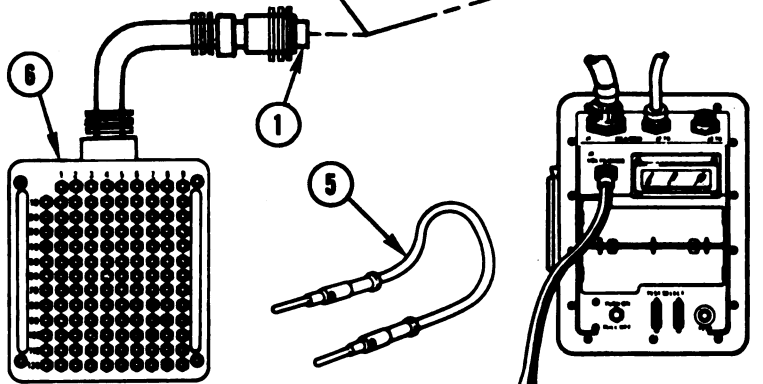
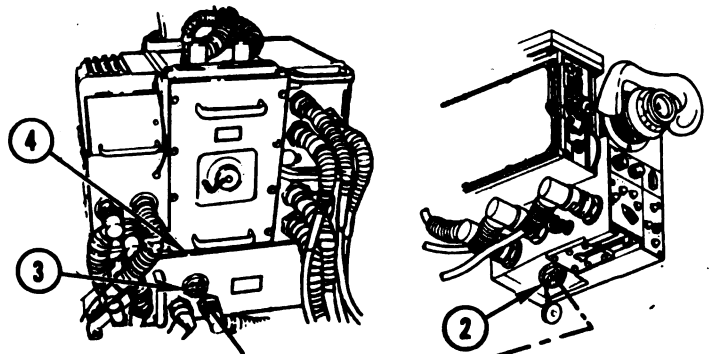
NO **YES**

- 113**
- Replace gunner's primary sight body assembly.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-5.
 - Run self test on STE.
 - See figure 15-3, block 19.
 - Verify that problem is solved.

*Figure 10-90 (Sheet 32 of 59)
Volume II
Para. 10-3*

ARR82-6460

- 114
- Disconnect 1W208-P1 from J2 on line-of-sight electronics unit.
 - See figure 16-14.
 - Disconnect 1W202-P3 from J1 on line-of-sight electronics unit.
 - See figure 16-14.
 - Disconnect ADAPTER NO. 1-P1 (1) from J4 (2).
 - Connect ADAPTER NO. 1-P1 (1) to J3 (3) on line-of-sight electronics unit (4).
 - Connect jumper (5) between test points 77 on breakout box (6) and contact e on line-of-sight electronics unit J2 (7).



LOS-J2

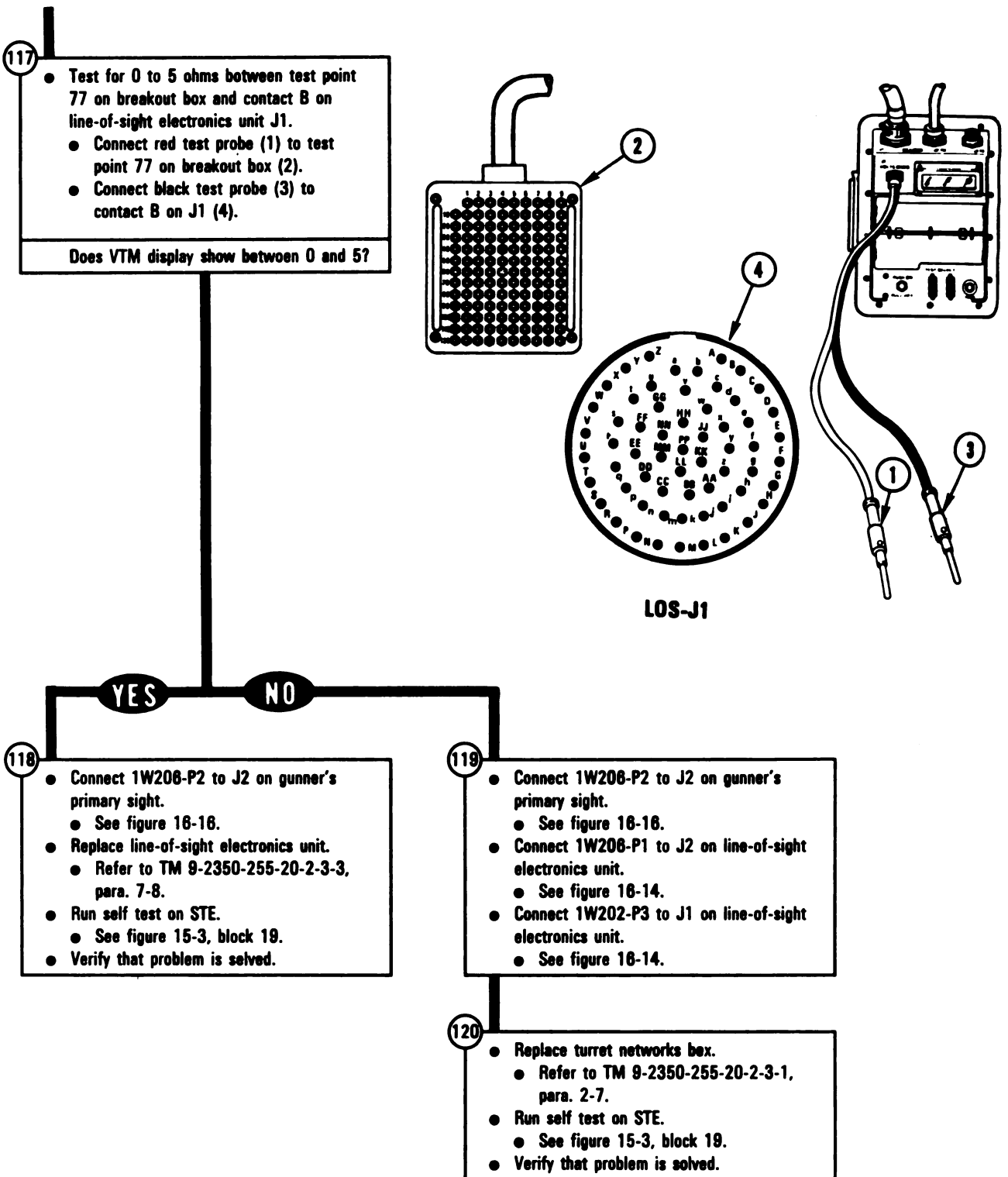
- 115
- Connect red test probe (8) to test point 77 on breakout box (6).
- NOTE**
If VTM display shows 0 to 5, go immediately to block 118.
- Test for 0 to 5 ohms by connecting black test probe (9) to each test point on breakout box (8) listed below:
 - 11, 13, and 20
 - 22 through 35
 - 60 through 78
 - 78 through 109
 - 123 through 127
- Does VTM display show between 0 and 5?

NO YES

- 116
- Connect 1W208-P2 to J2 on gunner's primary sight.
 - See figure 16-16.
 - Replace line-of-sight electronics unit.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-8.
 - Run self test on STE.
 - See figure 15-3, block 19.
 - Verify that problem is solved.

Figure 10-90 (Sheet 33 of 59)
Volume II
Para. 10-3

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**



*Figure 10-90 (Sheet 34 of 59)
Volume II
Para. 10-3*

ARR82-6462

table A or H

From figure 10-92, 10-94, or 10-96

ADAPTER NO. 1-P1 (1) is connected to 3 (2) on line-of-sight electronics unit (3), 4 (4) on electronic unit (5), or J4 (6) on gunner's primary sight (7), disconnect ADAPTER NO. 1-P1 (1). Connect ADAPTER NO. 1-P1 (1) to TEST (8) on turret networks box (9).

Test for -12 to 12 V dc between test points 11 (-) and 97 (+) on breakout box.
 • Connect black test probe (10) to test point 11 on breakout box (11).
 • Connect red test probe (12) to test point 97 on breakout box (11).

Does VTM display show between -12 and 12?

YES

NO

Test for -12 to 12 V dc between test points 11 (-) and 98 (+) on breakout box.
 • Connect black test probe (10) to test point 11 on breakout box (11).
 • Connect red test probe (12) to test point 98 on breakout box (11).

Does VTM display show between -12 and 12?

YES

NO

Go to block 132.

124 Go to block 144.
126 Go to block 139.

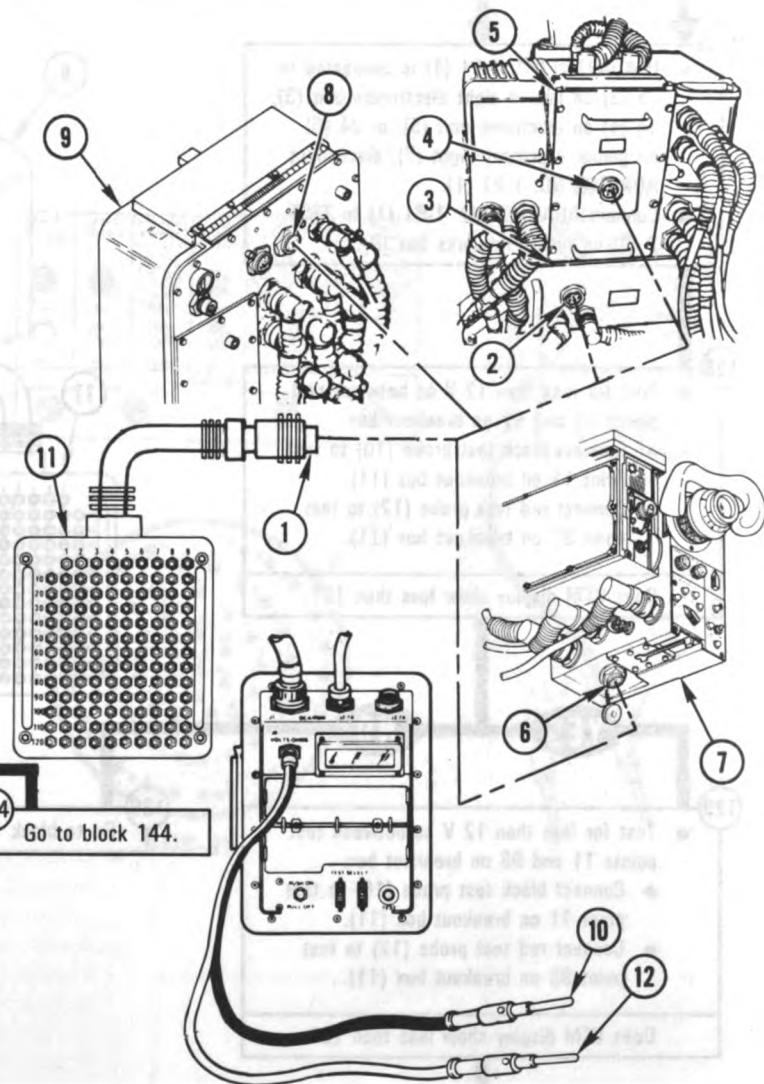


Figure 10-90 (Sheet 35 of 59)
**Volume II
 Para. 10-3**

ARR82-6463

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

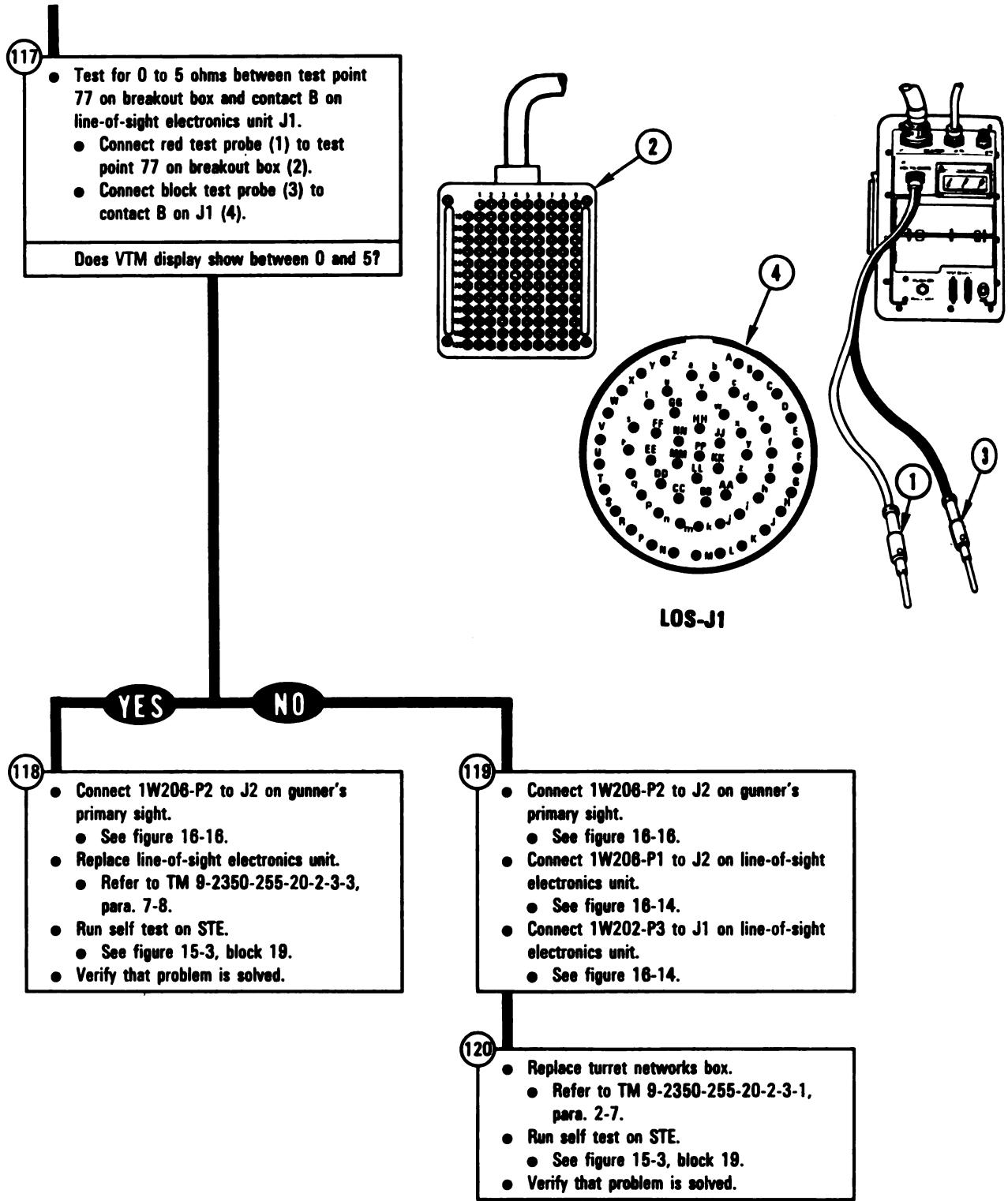


Figure 10-90 (Sheet 34 of 59)
Volume II
Para. 10-3

ARR82-6462

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

From table A or H

From figure 10-92, 10-94, or 10-96

- If ADAPTER NO. 1-P1 (1) is connected to J3 (2) on line-of-sight electronics unit (3), J4 (4) on electronic unit (5), or J4 (6) on gunner's primary sight (7), disconnect ADAPTER NO. 1-P1 (1).
- Connect ADAPTER NO. 1-P1 (1) to TEST 2 (8) on turret networks box (9).

- Test for -12 to 12 V dc between test points 11 (-) and 97 (+) on breakout box.
- Connect black test probe (10) to test point 11 on breakout box (11).
- Connect red test probe (12) to test point 97 on breakout box (11).

Does VTM display show between -12 and 12?

YES

NO

- Test for -12 to 12 V dc between test points 11 (-) and 98 (+) on breakout box.
- Connect black test probe (10) to test point 11 on breakout box (11).
- Connect red test probe (12) to test point 98 on breakout box (11).

Does VTM display show between -12 and 12?

YES

NO

125 Go to block 132.

126 Go to block 139.

124 Go to block 144.

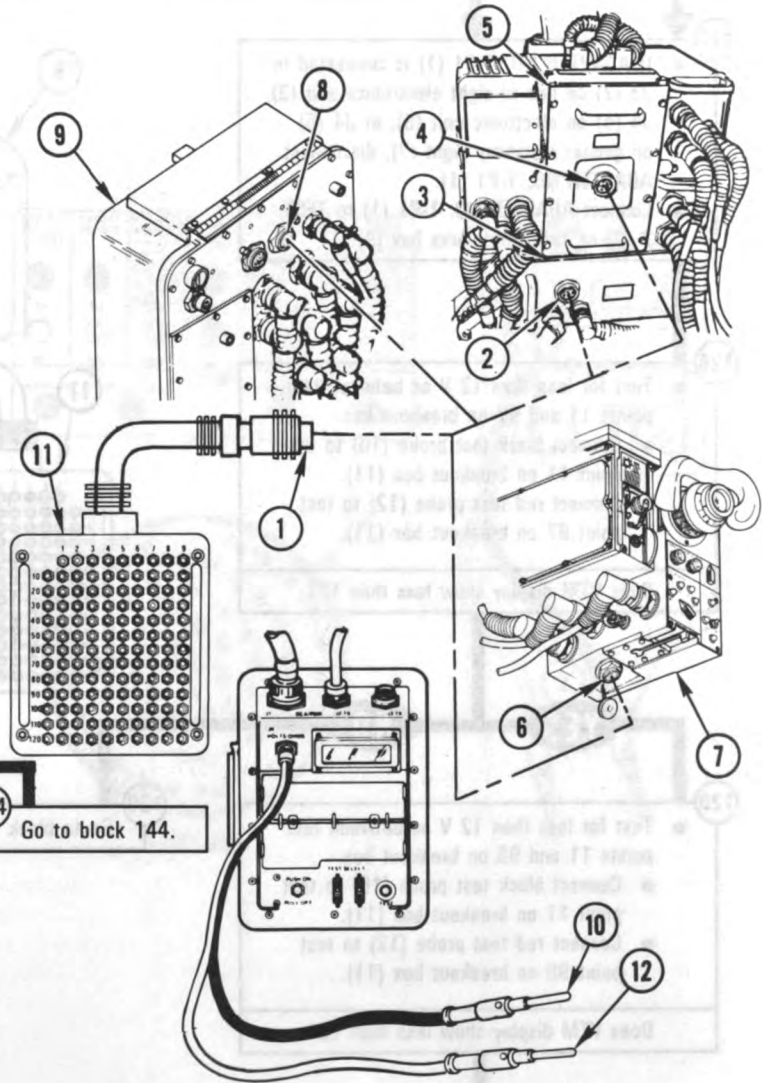


Figure 10-90 (Sheet 35 of 59)
**Volume II
Para. 10-3**

ARR82-6463

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

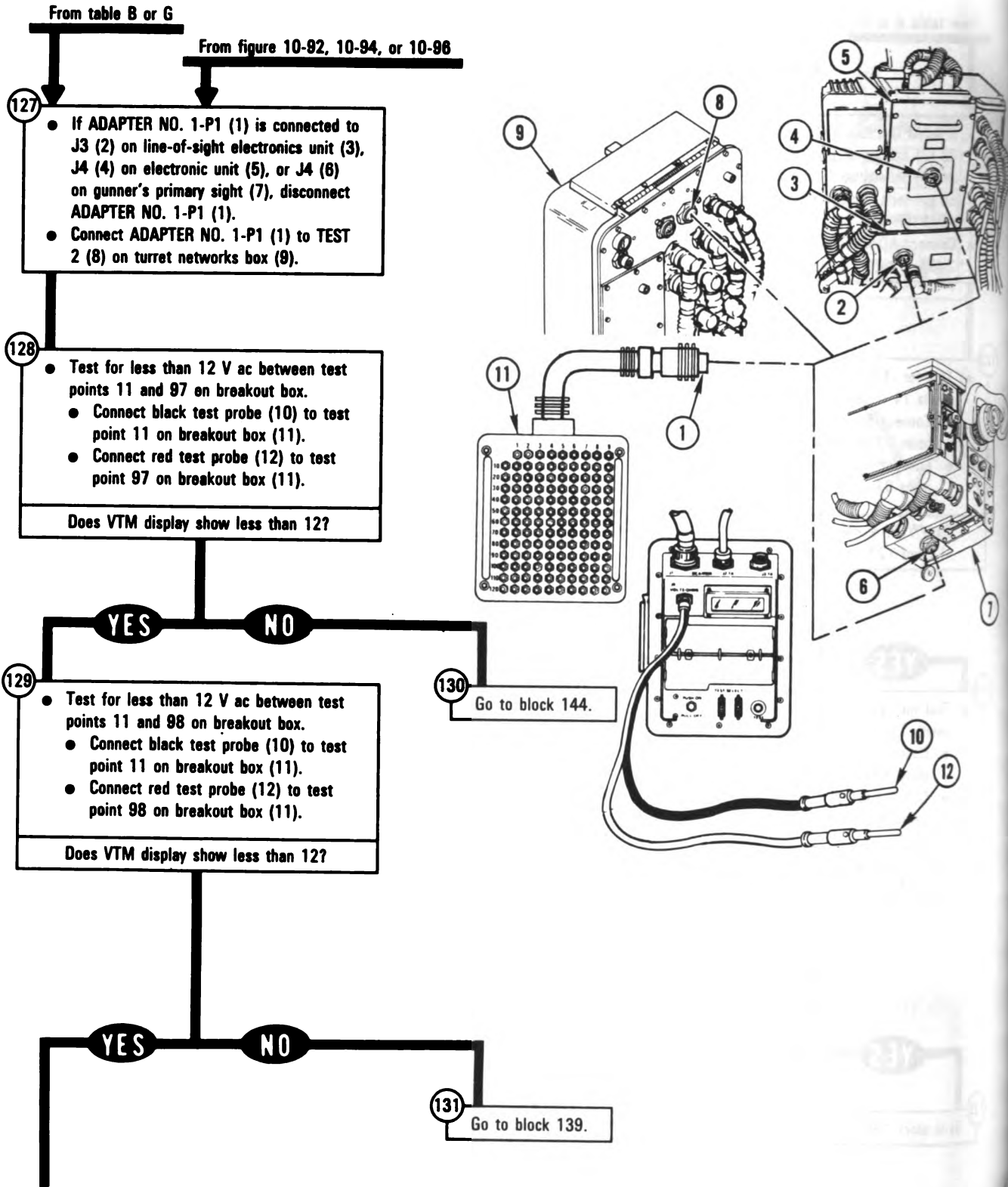
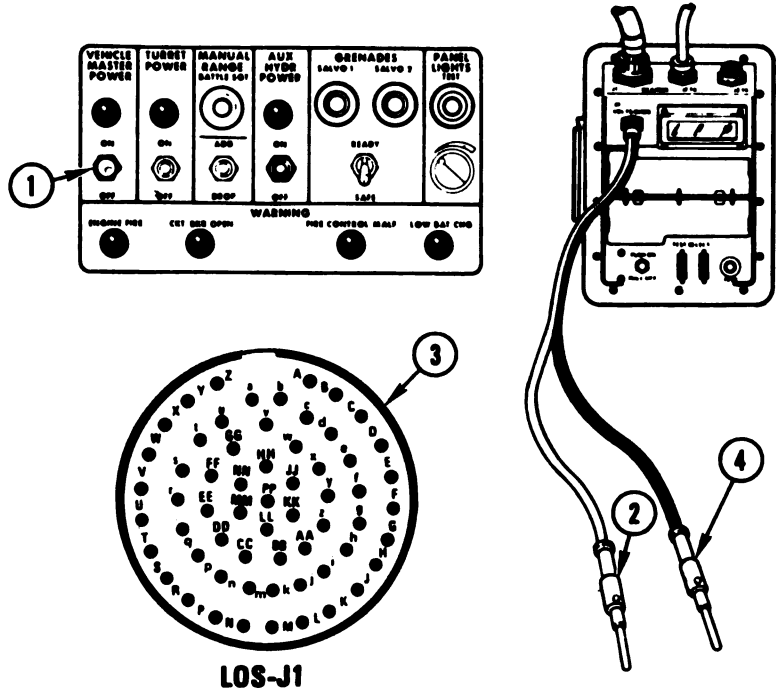


Figure 10-90 (Sheet 36 of 59)
Volume II
Para. 10-3

ARR82-6464

From block 125

- 132
- If any switch or control is being held from the primary procedure, release it at this time.
 - Set VEHICLE MASTER POWER switch (1) to OFF.
 - Disconnect 1W202-P3 from J1 on line-of-sight electronics unit.
 - See figure 16-14.
 - Change STE power hookup from turret networks box to power distribution box.
 - See figure 10-89.



- 133
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 10-1.
 - Test for 0 to 5 ohms between contacts d and B on line-of-sight electronics unit J1.
 - Connect red test probe (2) to contact d on J1 (3).
 - Connect black test probe (4) to contact B on J1 (3).
- Does VTM display show between 0 and 5?

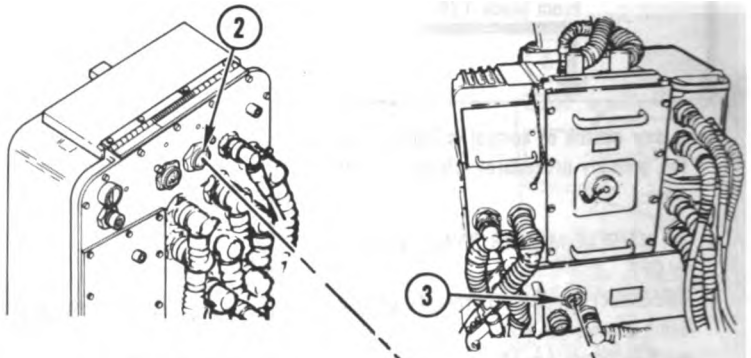
NO YES

- 134
- Replace line-of-sight electronics unit.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-8.
 - Run self test on STE.
 - See figure 15-3, block 19.
 - Verify that problem is solved.

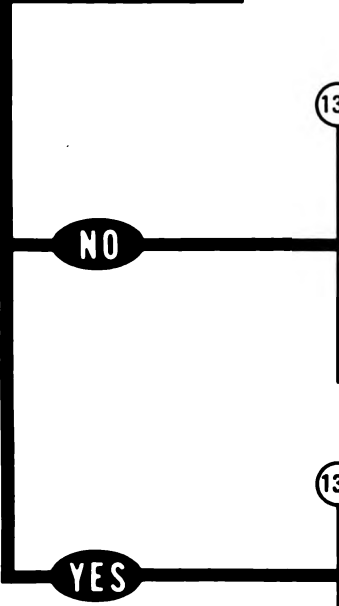
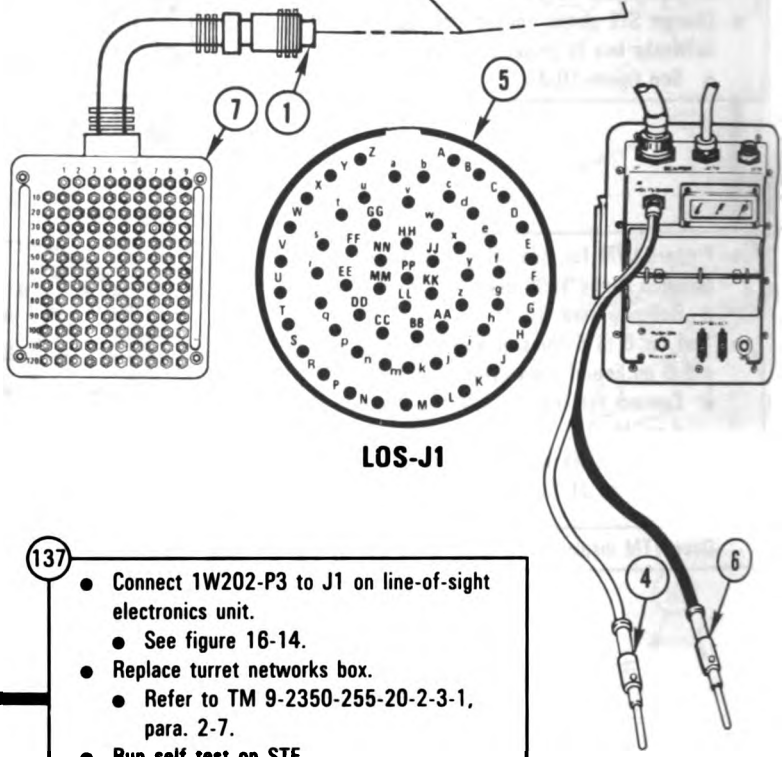
Figure 10-90 (Sheet 37 of 59)
Volume II
Para. 10-3

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

- 135**
- Disconnect ADAPTER NO. 1-P1 (1) from TEST 2 (2).
 - Connect ADAPTER NO. 1-P1 (1) to J3 (3).



- 136**
- Connect red test probe (4) to contact d on line-of-sight electronics unit J1 (5).
- NOTE**
- If VTM display shows 0 to 5, go immediately to block 138.
- Test for 0 to 5 ohms by connecting black test probe (6) to each test point on breakout box (7) listed below:
 - 11, 13, and 20
 - 22 through 35
 - 60 through 109
 - 123 through 127
- Does VTM display show between 0 and 5?



- 137**
- Connect 1W202-P3 to J1 on line-of-sight electronics unit.
 - See figure 16-14.
 - Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
 - Run self test on STE.
 - See figure 15-3, block 19.
 - Verify that problem is solved.

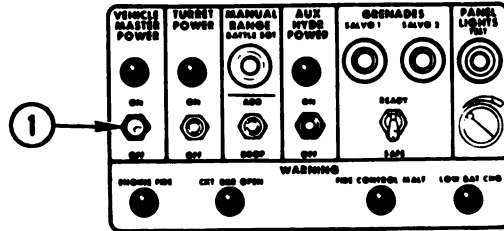
- 138**
- Replace line-of-sight electronics unit.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-8.
 - Run self test on STE.
 - See figure 15-3, block 19.
 - Verify that problem is solved.

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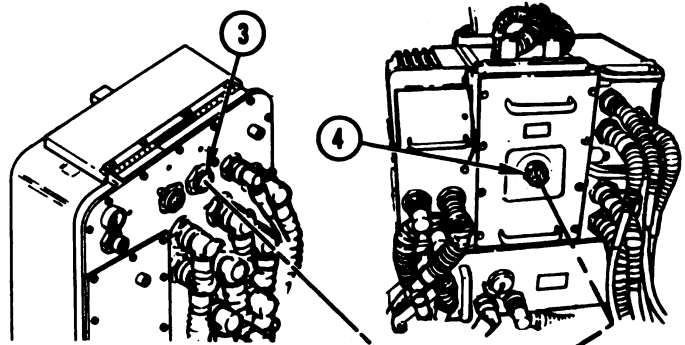
ARR82-6466

From block 126 or 131

- 139
- If any switch or control is being held from the primary procedure, release it at this time.
 - Set VEHICLE MASTER POWER switch (1) to OFF.
 - Disconnect ADAPTER NO. 1-P1 (2) from TEST 2 (3).
 - Connect ADAPTER NO. 1-P1 (2) to J4 (4).
 - Disconnect 1W200-P4 from J3 on electronic unit.
 - See figure 16-6.



- 140
- Change STE power hookup from turret networks box to power distribution box.
 - See figure 10-89.
 - Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 10-1.



- 141
- Connect red test probe (5) to test point 110 on breakout box (6).
- NOTE**
If VTM display shows 0 to 5, go immediately to block 142.
- Test for 0 to 5 ohms by connecting black test probe (7) to each test point on breakout box (6) listed below:
 - 8, 24, and 35
 - 55 through 109
 - 111 through 125
- Does VTM display show between 0 and 5?

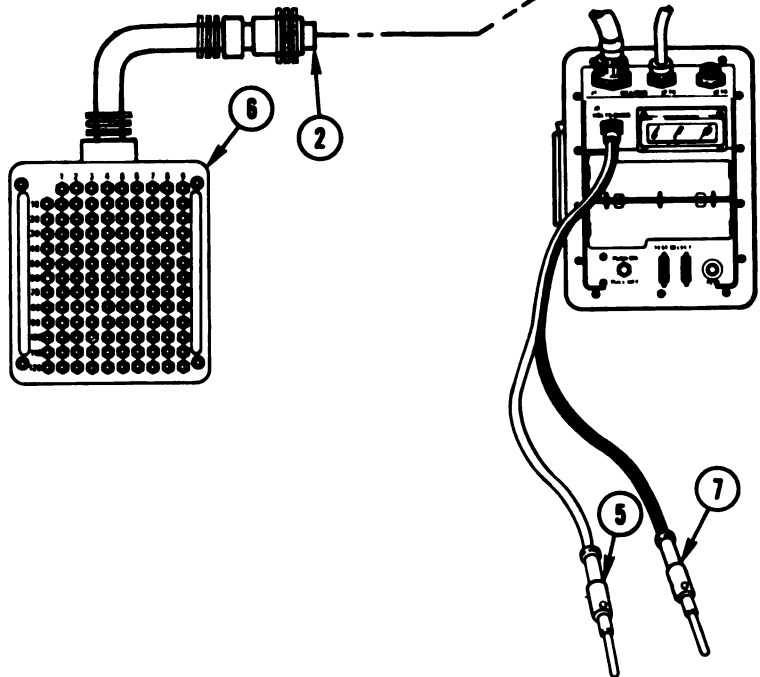


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ARR82-6467

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

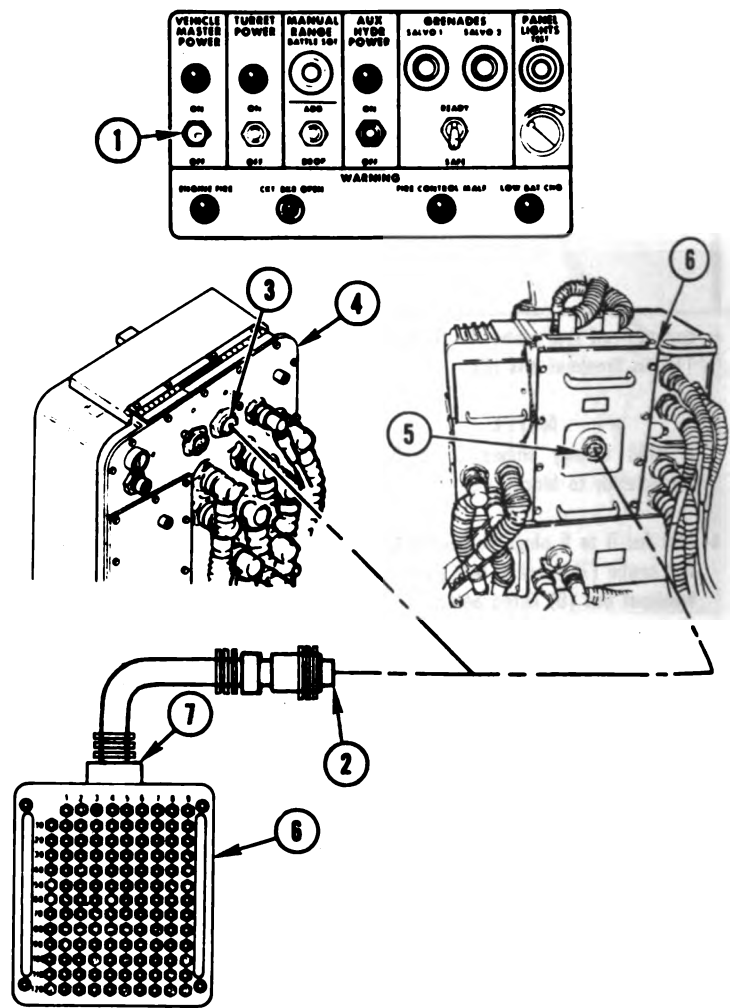
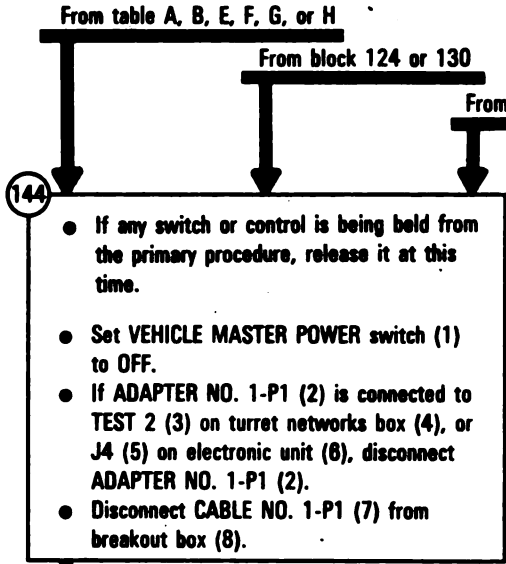
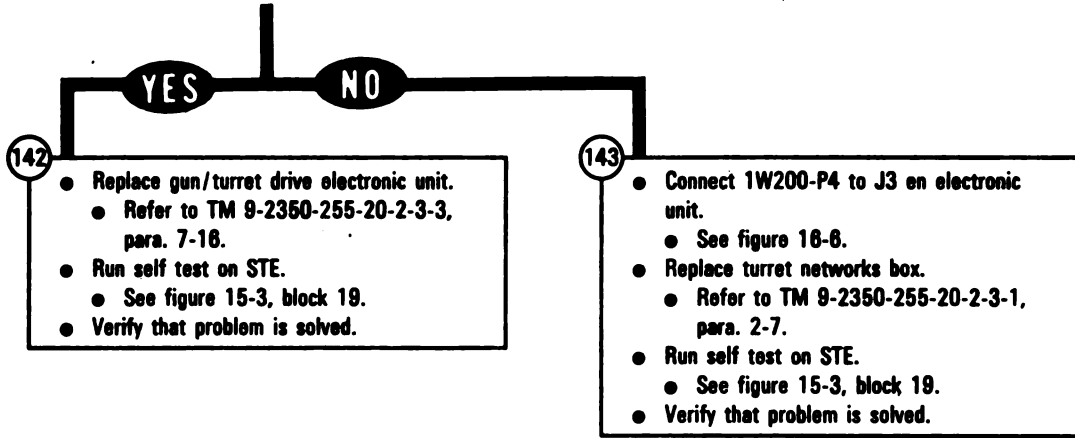


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ARR82-6468

- Disconnect 1W200-P2 from J1 on electronic unit.
 - See figure 18-8.
- Disconnect 1W200-P4 from J3 on electronic unit.
 - See figure 18-8.
- Disconnect 1W200-P1 from J5 on turret networks box.
 - See figure 18-5.
- Disconnect 1W200-P8 from J1 on feed forward gyroscope.
 - See figure 18-12.

- Disconnect 1W200-P5 from J1 on reference gyroscope.
 - See figure 18-13.
- Disconnect 1W200-P12 from J1 on elevation servomechanism.
 - See figure 18-15.
- Disconnect 1W200-P14 from J3 on elevation servomechanism.
 - See figure 18-15.
- Disconnect 1W200-P7 from J1 on commander's control.
 - See figure 18-8.
- Disconnect 1W200-P6 from J1 on gunner's control.
 - See figure 18-8.

- 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 18-8.
- Connect 1W200-P3 (5) to CA523-P1 (8).
- Connect CA523-P2 (7) to CX307-P1 (8).

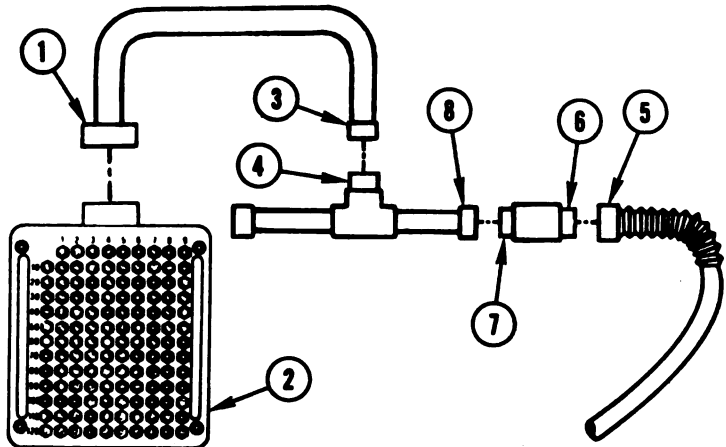


Figure 10-90 (Sheet 41 of 59)
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ARR82-6469

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

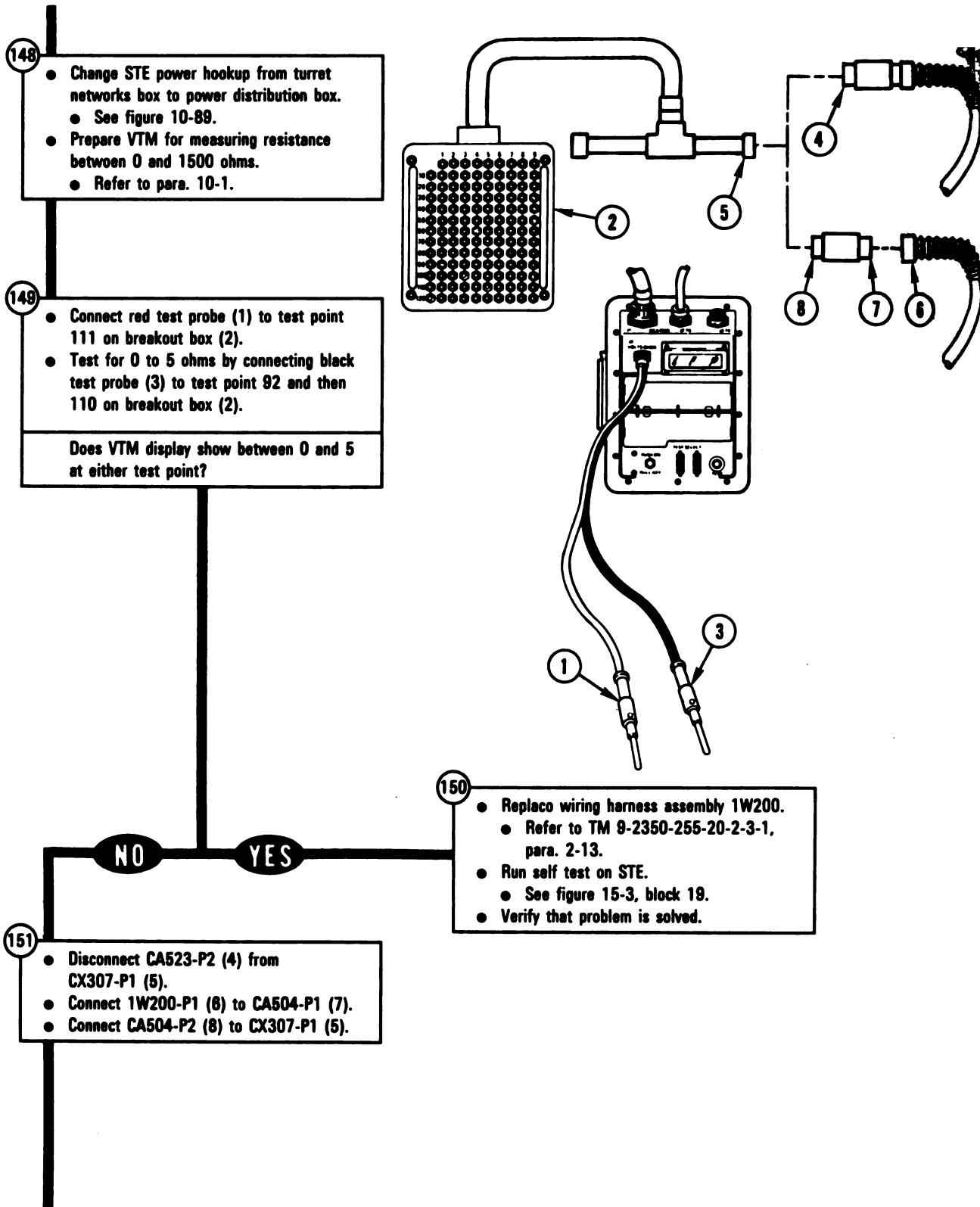


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ARR82-8470

Connect red test probe (1) to test point 99 on breakout box (2).

NOTE

If VTM display shows 0 to 5, go immediately to block 153.

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

- 31, 33, 39, and 62
- 100 through 103
- 108, 110, and 111

Does VTM display show between 0 and 5?

NO

YES

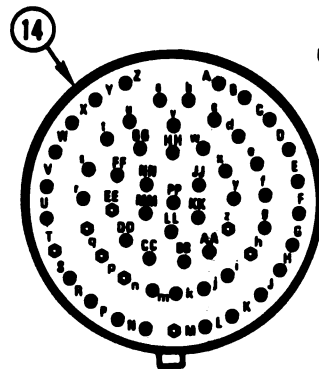
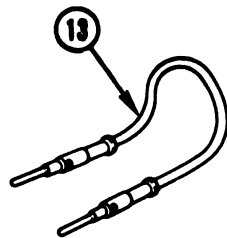
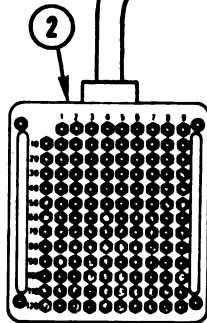
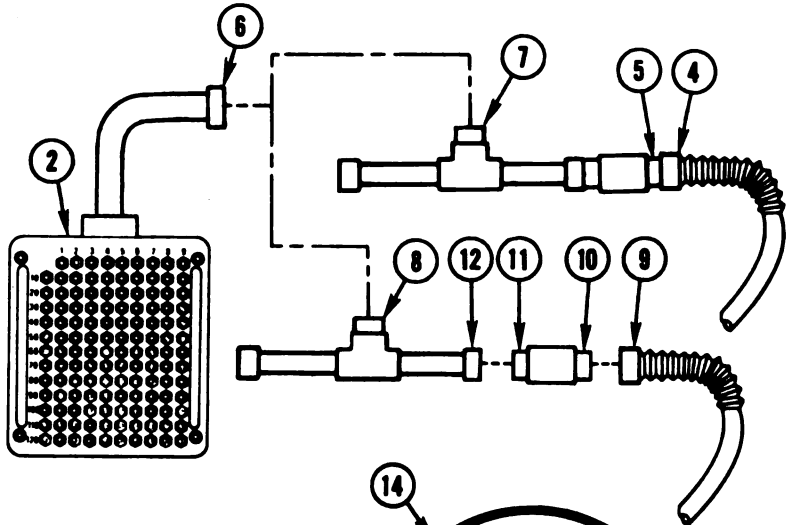
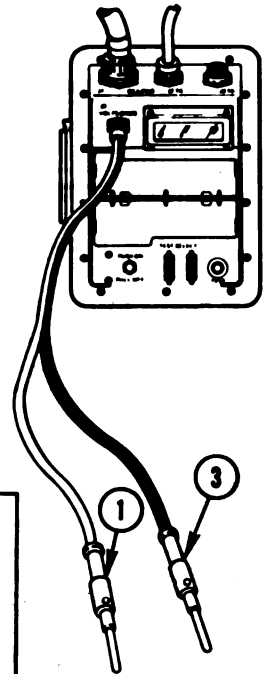
- Disconnect 1W200-P1 (4) from CA504-P1 (5).
- Disconnect CX305-P1 (6) from CX307-P3 (7).
- Connect CX305-P1 (6) to CX308-P3 (8).
- Connect 1W200-P2 (9) to CA435-P1 (10).
- Connect CA435-P2 (11) to CX308-P1 (12).

- Connect jumper (13) between contacts a and c on 1W200-P1 (14).
- Connect red test probe (1) to test point 7 on breakout box (2).
- Test for 0 to 5 ohms by connecting black test probe (3) to test point 8 and then 10 on breakout box (2).

Does VTM display show between 0 and 5 at either test point?

153

- Replace wiring harness assembly 1W200.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Run self test on STE.
- See figure 15-3, block 19.
- Verify that problem is solved.

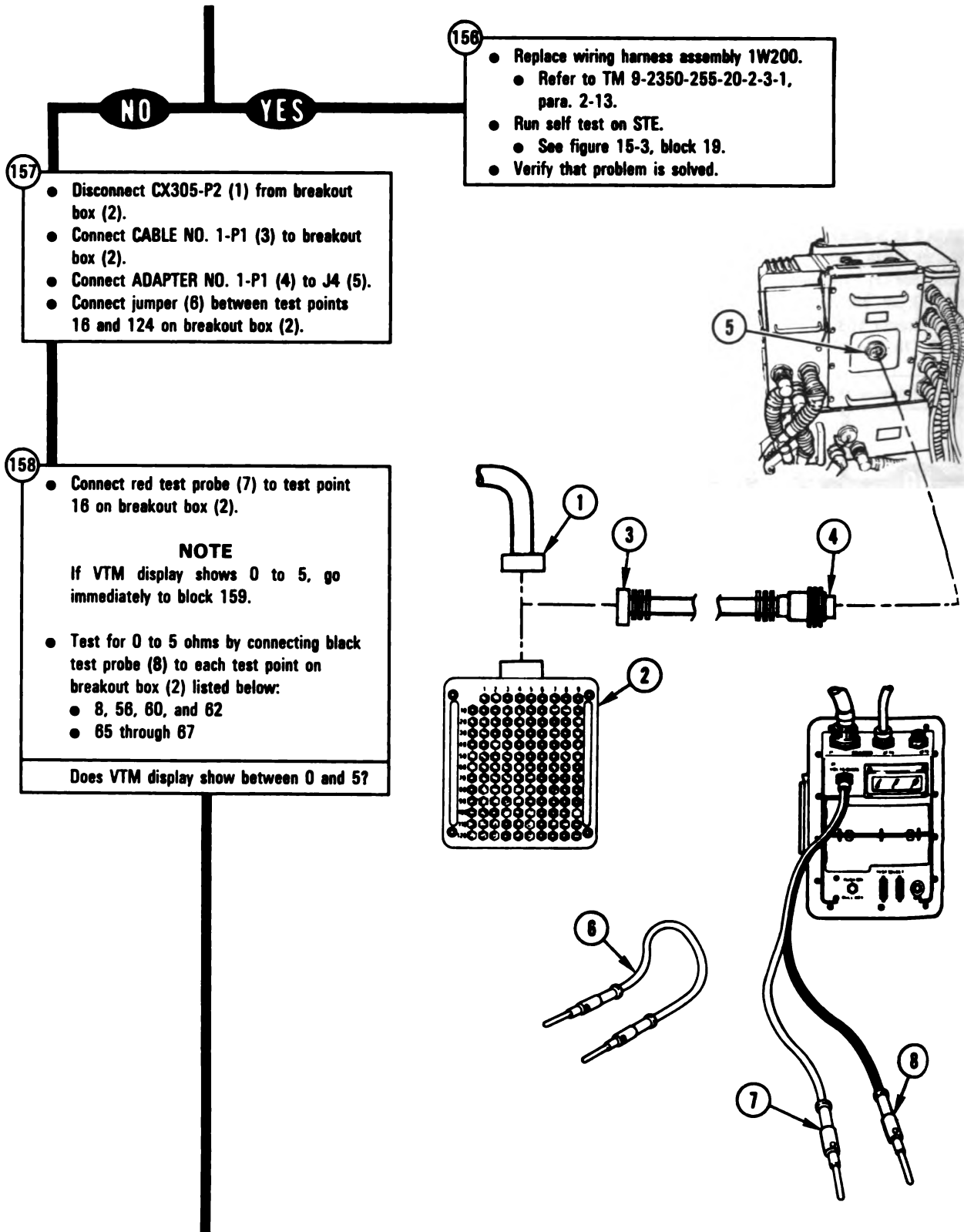


1W200-P1

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ARR82-6471

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING



157

- Disconnect CX305-P2 (1) from breakout box (2).
- Connect CABLE NO. 1-P1 (3) to breakout box (2).
- Connect ADAPTER NO. 1-P1 (4) to J4 (5).
- Connect jumper (6) between test points 16 and 124 on breakout box (2).

158

- Connect red test probe (7) to test point 16 on breakout box (2).

NOTE
 If VTM display shows 0 to 5, go immediately to block 159.

- Test for 0 to 5 ohms by connecting black test probe (8) to each test point on breakout box (2) listed below:
 - 8, 58, 60, and 62
 - 65 through 67

Does VTM display show between 0 and 5?

159

- Replace wiring harness assembly 1W200.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Run self test on STE.
- See figure 15-3, block 19.
- Verify that problem is solved.

Figure 10-90 (Sheet 44 of 59)
 Volume II
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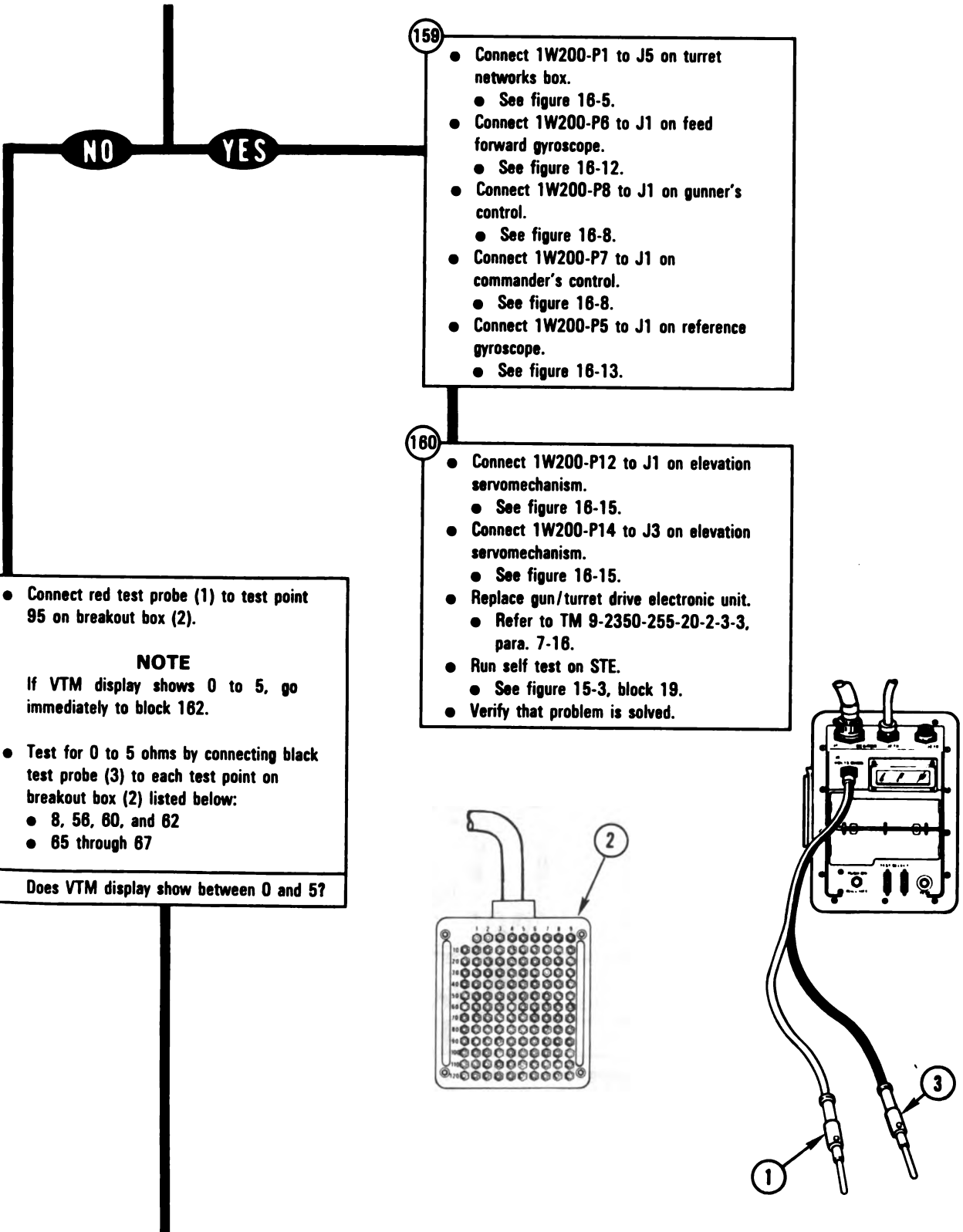


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ARR82-6473

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

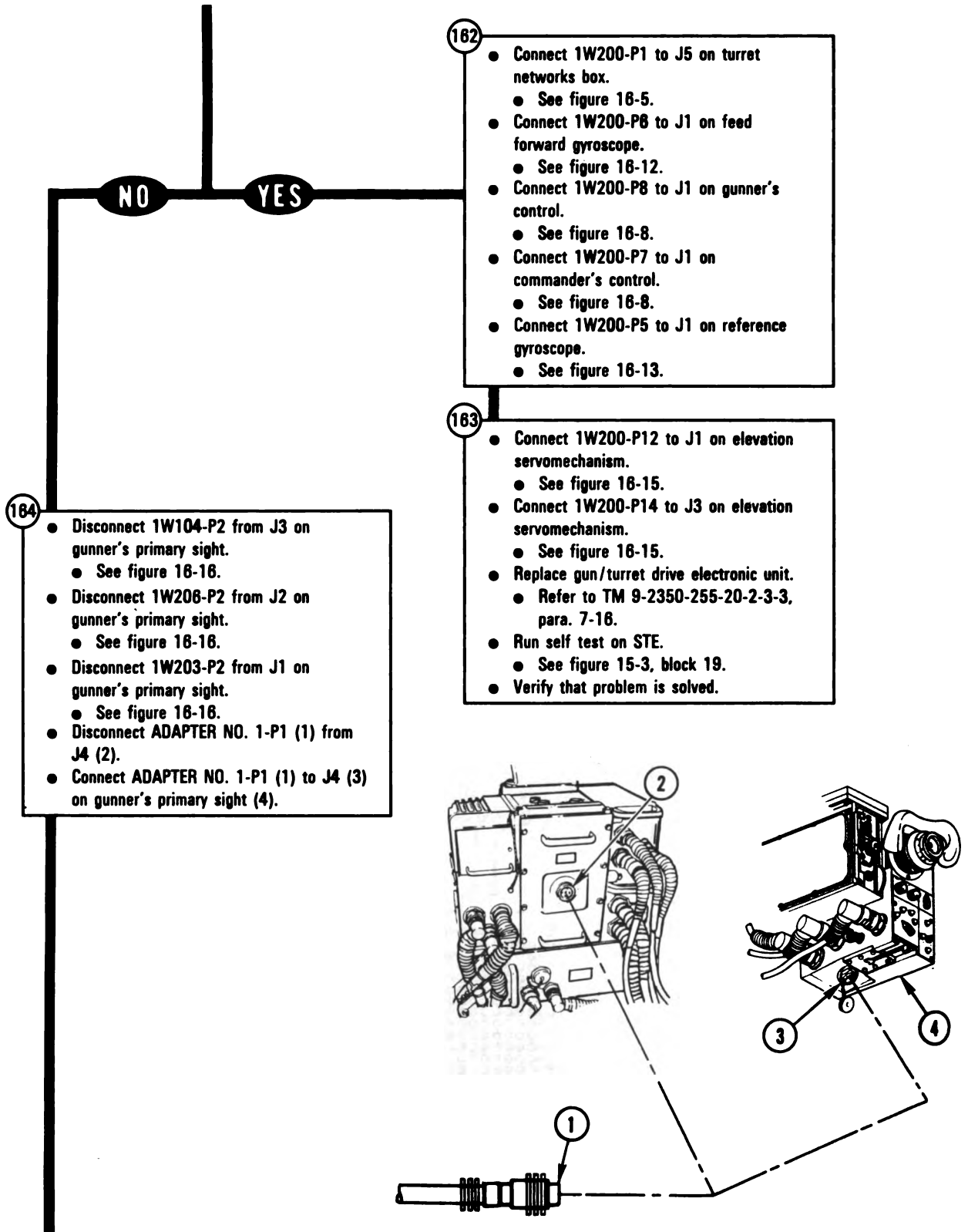
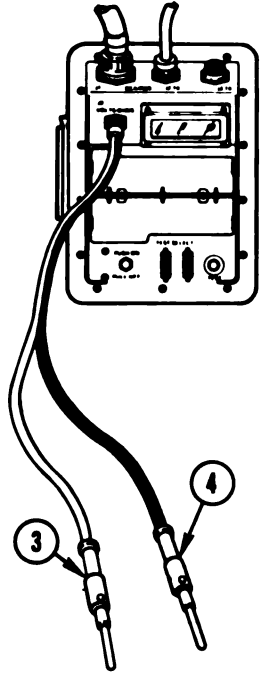
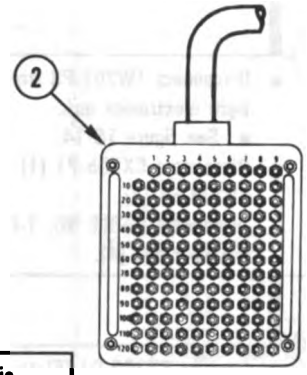
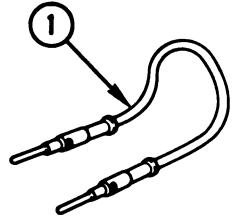


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Para. 10-3

ARR82-6474

- Connect jumper (1) between test points 33 and 73 on breakout box (2).
 - Connect red test probe (3) to test point 33 on breakout box (2).
- NOTE**
- If VTM display shows 0 to 5, go immediately to block 166.
- Test for 0 to 5 ohms by connecting black test probe (4) to each test point on breakout box (2) listed below:
 - 8, 13, 20, and 22
- Does VTM display show between 0 and 5?



NO **YES**

- 166**
- Connect 1W200-P2 to J1 on electronic unit.
 - See figure 16-6.
 - Connect 1W200-P3 to J2 on electronic unit.
 - See figure 16-6.
 - Connect 1W200-P4 to J3 on electronic unit.
 - See figure 16-6.
 - Connect 1W200-P1 to J5 on turret networks box.
 - See figure 16-5.
 - Connect 1W200-P8 to J1 on feed forward gyroscope.
 - See figure 16-12.

- 167**
- Connect 1W200-P8 to J1 on gunner's control.
 - See figure 16-8.
 - Connect 1W200-P7 to J1 on commander's control.
 - See figure 16-8.
 - Connect 1W200-P5 to J1 on reference gyroscope.
 - See figure 16-13.
 - Connect 1W200-P12 to J1 on elevation servomechanism.
 - See figure 16-15.
 - Connect 1W200-P14 to J3 on elevation servomechanism.
 - See figure 16-15.

- 168**
- Replace gunner's primary sight body assembly.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-5.
 - Run self test on STE.
 - See figure 15-3, block 19.
 - Verify that problem is solved.

Figure 10-90 (Sheet 47 of 59)
Volume II
Para. 10-3

ARR82-6475

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

- 169**
- Disconnect 1W202-P3 from J1 on line-of-sight electronics unit.
 - See figure 16-14.
 - Disconnect CX305-P1 (1) from CX308-P3 (2).
 - Disconnect CABLE NO. 1-P1 (3) from breakout box (4).

- 170**
- Connect CX305-P2 (5) to breakout box (4).
 - Connect CX305-P1 (1) to CX307-P3 (6).
 - Connect CA418-P1 (7) to J1 (8) on line-of-sight electronics unit (9).
 - Connect CA418-P2 (10) to CX307-P1 (11).

- 171**
- Connect red test probe (12) to test point 92 on breakout box (4).
- NOTE**
- If VTM display shows 0 to 5, go immediately to block 172.
- Test for 0 to 5 ohms by connecting block test probe (13) to each test point on breakout box (4) listed below:
 - 8, 10, 111, and 112
- Does VTM display show between 0 and 5?

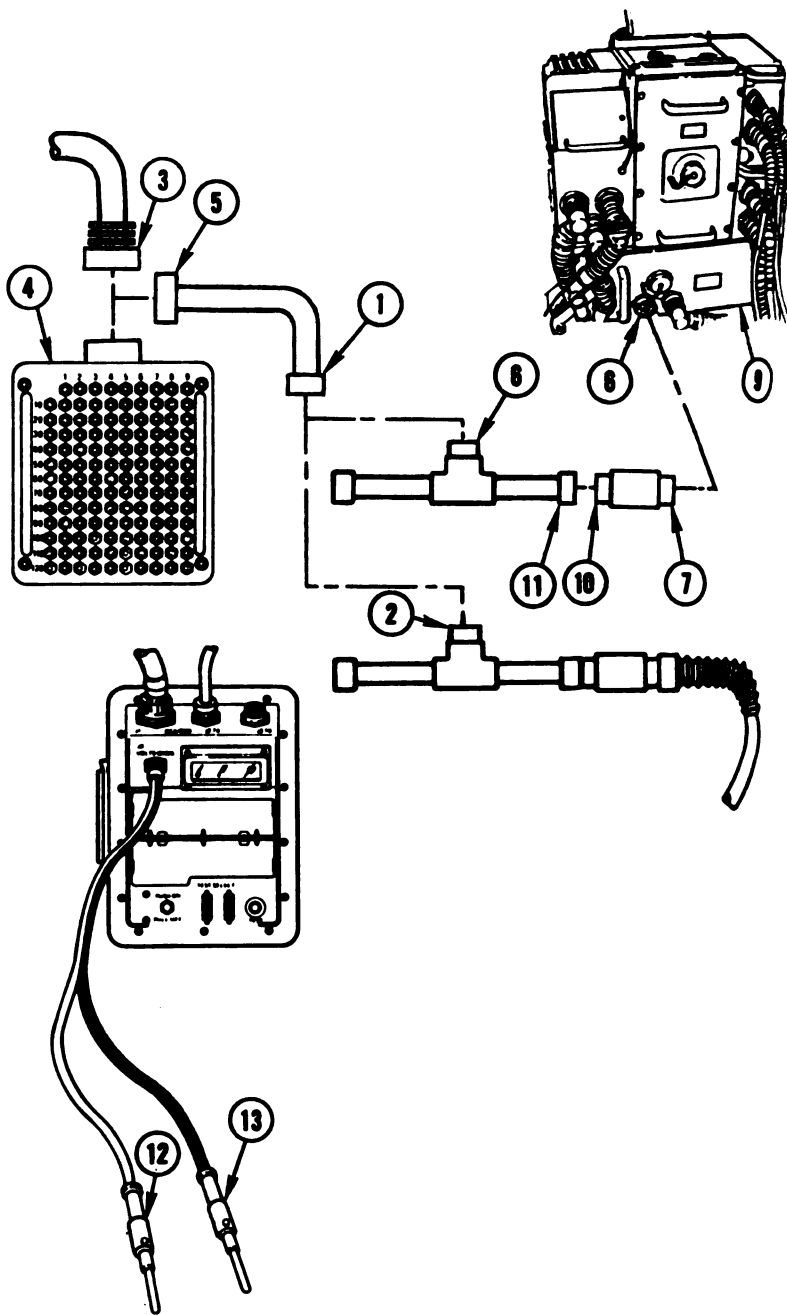


Figure 10-90 (Sheet 48 of 59)
Volume II
Para. 10-3

ARR82-6476

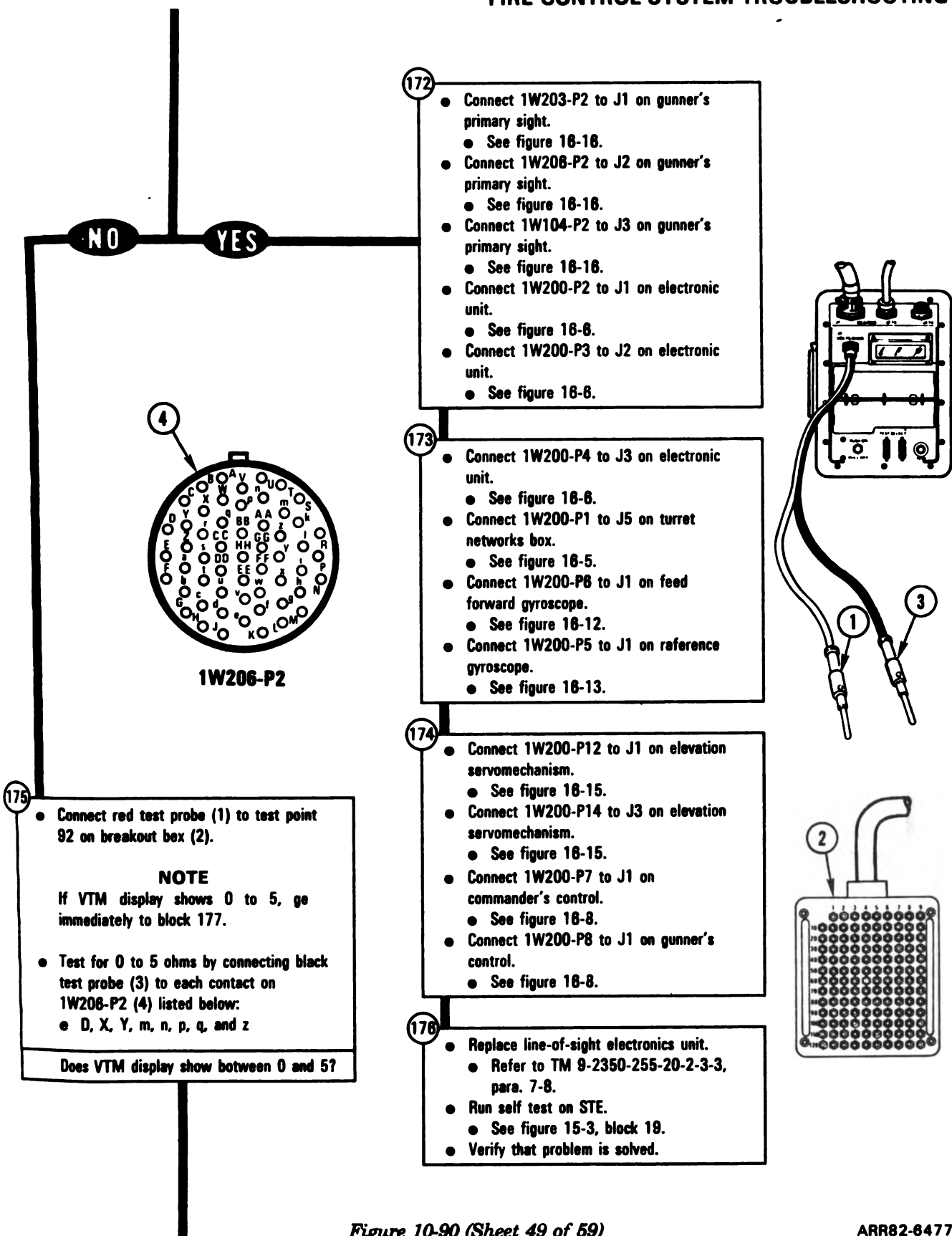
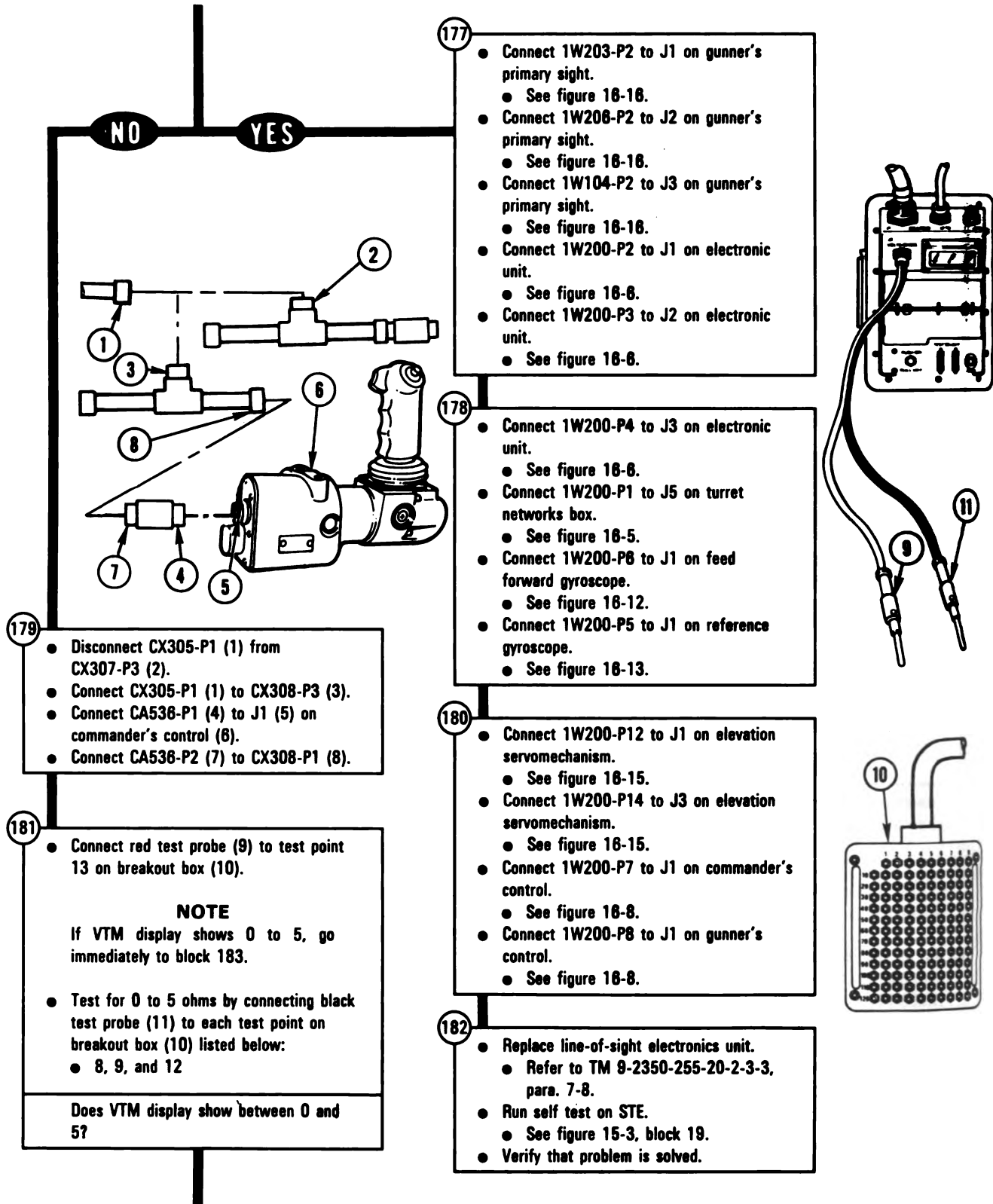


Figure 10-90 (Sheet 49 of 59)
Volume II
Para. 10-3

ARR82-6477



- 177
- Connect 1W203-P2 to J1 on gunner's primary sight.
 - See figure 16-16.
 - Connect 1W206-P2 to J2 on gunner's primary sight.
 - See figure 16-16.
 - Connect 1W104-P2 to J3 on gunner's primary sight.
 - See figure 16-16.
 - Connect 1W200-P2 to J1 on electronic unit.
 - See figure 16-6.
 - Connect 1W200-P3 to J2 on electronic unit.
 - See figure 16-6.

- 178
- Connect 1W200-P4 to J3 on electronic unit.
 - See figure 16-6.
 - Connect 1W200-P1 to J5 on turret networks box.
 - See figure 16-5.
 - Connect 1W200-P8 to J1 on feed forward gyroscope.
 - See figure 16-12.
 - Connect 1W200-P5 to J1 on reference gyroscope.
 - See figure 16-13.

- 180
- Connect 1W200-P12 to J1 on elevation servomechanism.
 - See figure 16-15.
 - Connect 1W200-P14 to J3 on elevation servomechanism.
 - See figure 16-15.
 - Connect 1W200-P7 to J1 on commander's control.
 - See figure 16-8.
 - Connect 1W200-P8 to J1 on gunner's control.
 - See figure 16-8.

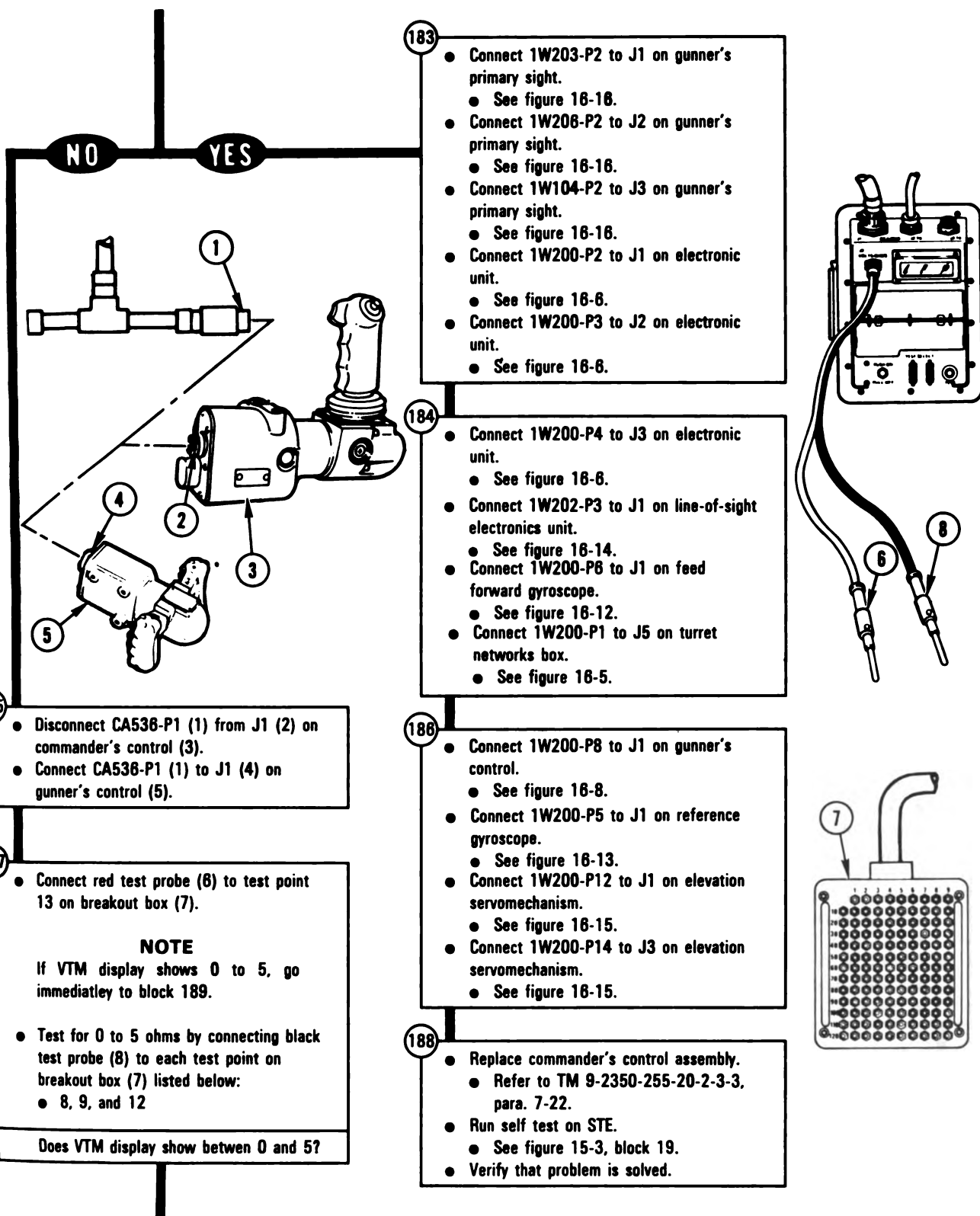
- 182
- Replace line-of-sight electronics unit.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-8.
 - Run self test on STE.
 - See figure 15-3, block 19.
 - Verify that problem is solved.

- 179
- Disconnect CX305-P1 (1) from CX307-P3 (2).
 - Connect CX305-P1 (1) to CX308-P3 (3).
 - Connect CA538-P1 (4) to J1 (5) on commander's control (6).
 - Connect CA538-P2 (7) to CX308-P1 (8).

- 181
- Connect red test probe (9) to test point 13 on breakout box (10).
- NOTE**
- If VTM display shows 0 to 5, go immediately to block 183.
- Test for 0 to 5 ohms by connecting black test probe (11) to each test point on breakout box (10) listed below:
 - 8, 9, and 12
- Does VTM display show between 0 and 5?

Figure 10-90 (Sheet 50 of 59)
Volume II
Para. 10-3

ARR82-6478



183

- Connect 1W203-P2 to J1 on gunner's primary sight.
 - See figure 16-16.
- Connect 1W206-P2 to J2 on gunner's primary sight.
 - See figure 16-16.
- Connect 1W104-P2 to J3 on gunner's primary sight.
 - See figure 16-16.
- Connect 1W200-P2 to J1 on electronic unit.
 - See figure 16-6.
- Connect 1W200-P3 to J2 on electronic unit.
 - See figure 16-6.

184

- Connect 1W200-P4 to J3 on electronic unit.
 - See figure 16-6.
- Connect 1W202-P3 to J1 on line-of-sight electronics unit.
 - See figure 16-14.
- Connect 1W200-P6 to J1 on feed forward gyroscope.
 - See figure 16-12.
- Connect 1W200-P1 to J5 on turret networks box.
 - See figure 16-5.

185

- Disconnect CA536-P1 (1) from J1 (2) on commander's control (3).
- Connect CA536-P1 (1) to J1 (4) on gunner's control (5).

187

- Connect red test probe (6) to test point 13 on breakout box (7).

NOTE
If VTM display shows 0 to 5, go immediately to block 189.

- Test for 0 to 5 ohms by connecting black test probe (8) to each test point on breakout box (7) listed below:
 - 8, 9, and 12

Does VTM display show between 0 and 5?

186

- Connect 1W200-P8 to J1 on gunner's control.
 - See figure 16-8.
- Connect 1W200-P5 to J1 on reference gyroscope.
 - See figure 16-13.
- Connect 1W200-P12 to J1 on elevation servomechanism.
 - See figure 16-15.
- Connect 1W200-P14 to J3 on elevation servomechanism.
 - See figure 16-15.

188

- Replace commander's control assembly.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-22.
- Run self test on STE.
 - See figure 15-3, block 19.
- Verify that problem is solved.

Figure 10-90 (Sheet 51 of 59)
Volume II
Para. 10-3

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

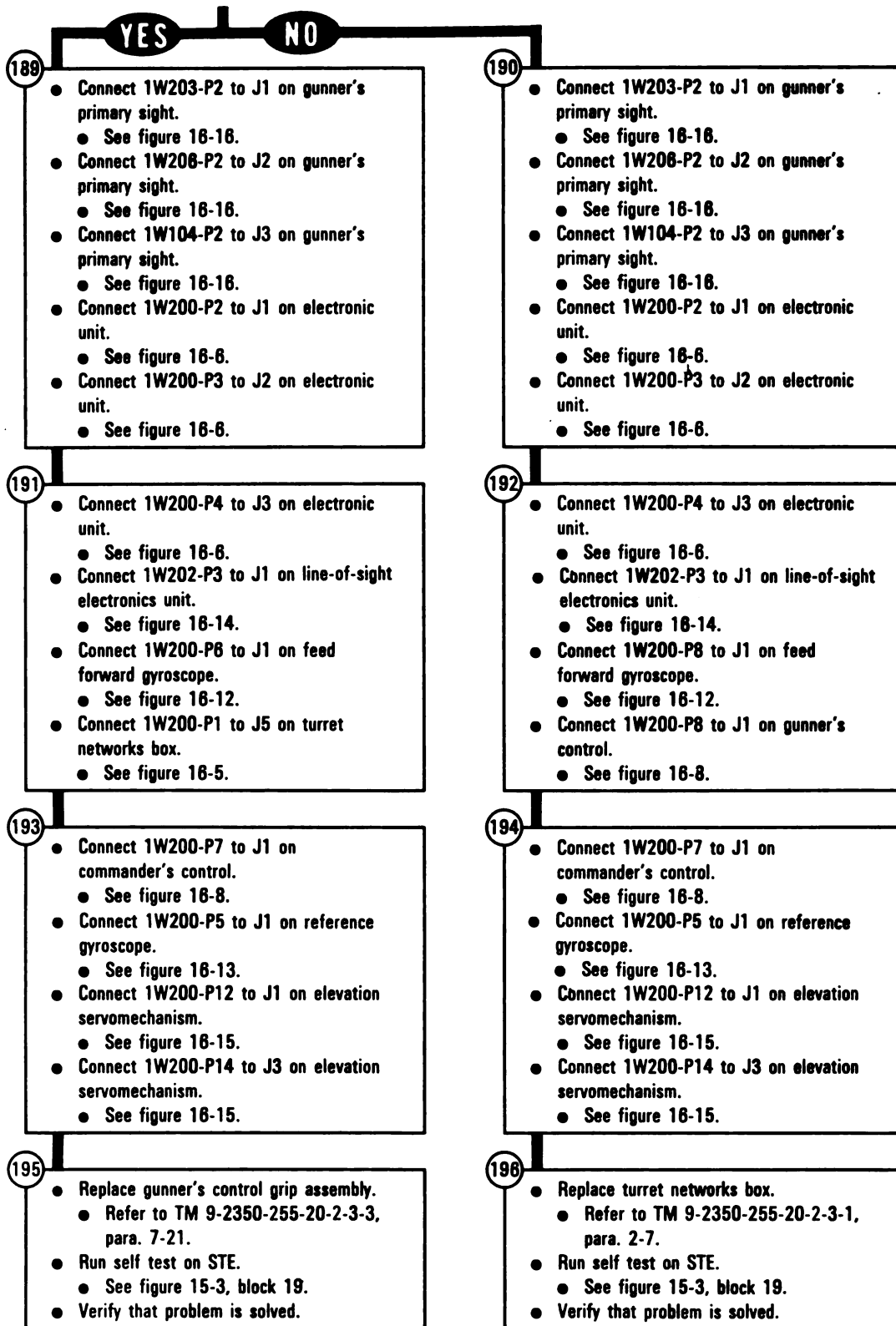


Figure 10-90 (Sheet 52 of 59)

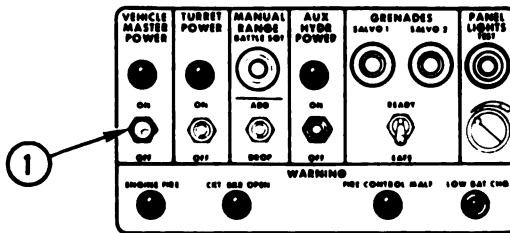
Volume II
Para. 10-3

From table A, B, C, D, E, or F

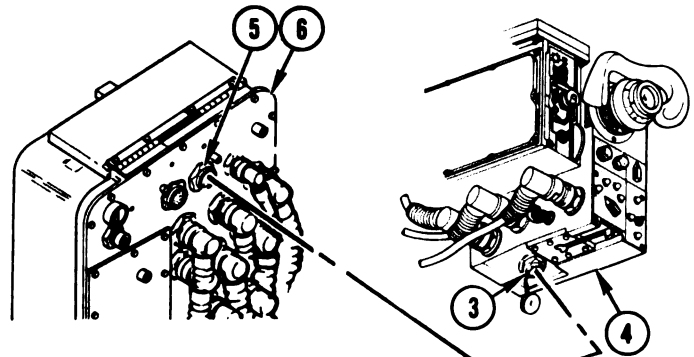
From block 31, 37, 102, or 108

From figure 10-91, 10-92, 10-94, 10-95, or 10-98

- 197
- If any switch or control is being held from the primary procedure, release it at this time.
 - Set VEHICLE MASTER POWER switch (1) to OFF.
 - If ADAPTER NO. 1-P1 (2) is connected to J4 (3) on gunner's primary sight (4), or TEST 2 (5) on turret networks box (6), disconnect ADAPTER NO. 1-P1 (2).
 - Disconnect CABLE NO. 1-P1 (7) from breakout box (8).
 - Disconnect 1W202-P1 from J7 on turret networks box.
 - See figure 18-5.



- 198
- Connect CX305-P2 (9) to breakout box (8).
 - Connect CX305-P1 (10) to CX307-P3 (11).
 - Disconnect 1W202-P3 from J1 on line-of-sight electronics unit.
 - See figure 18-14.
 - Connect 1W202-P3 (12) to CA417-P1 (13).
 - Connect CA417-P2 (14) to CX307-P1 (15).



- 199
- Change STE power hookup from turret networks box to power distribution box.
 - See figure 10-89.
 - Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 10-1.

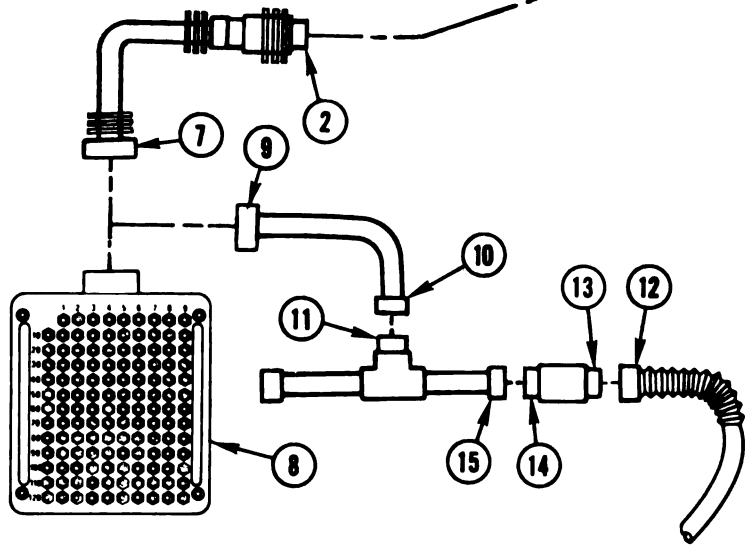


Figure 10-90 (Sheet 53 of 59)
Volume II
Para. 10-3

ARR82-6480

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

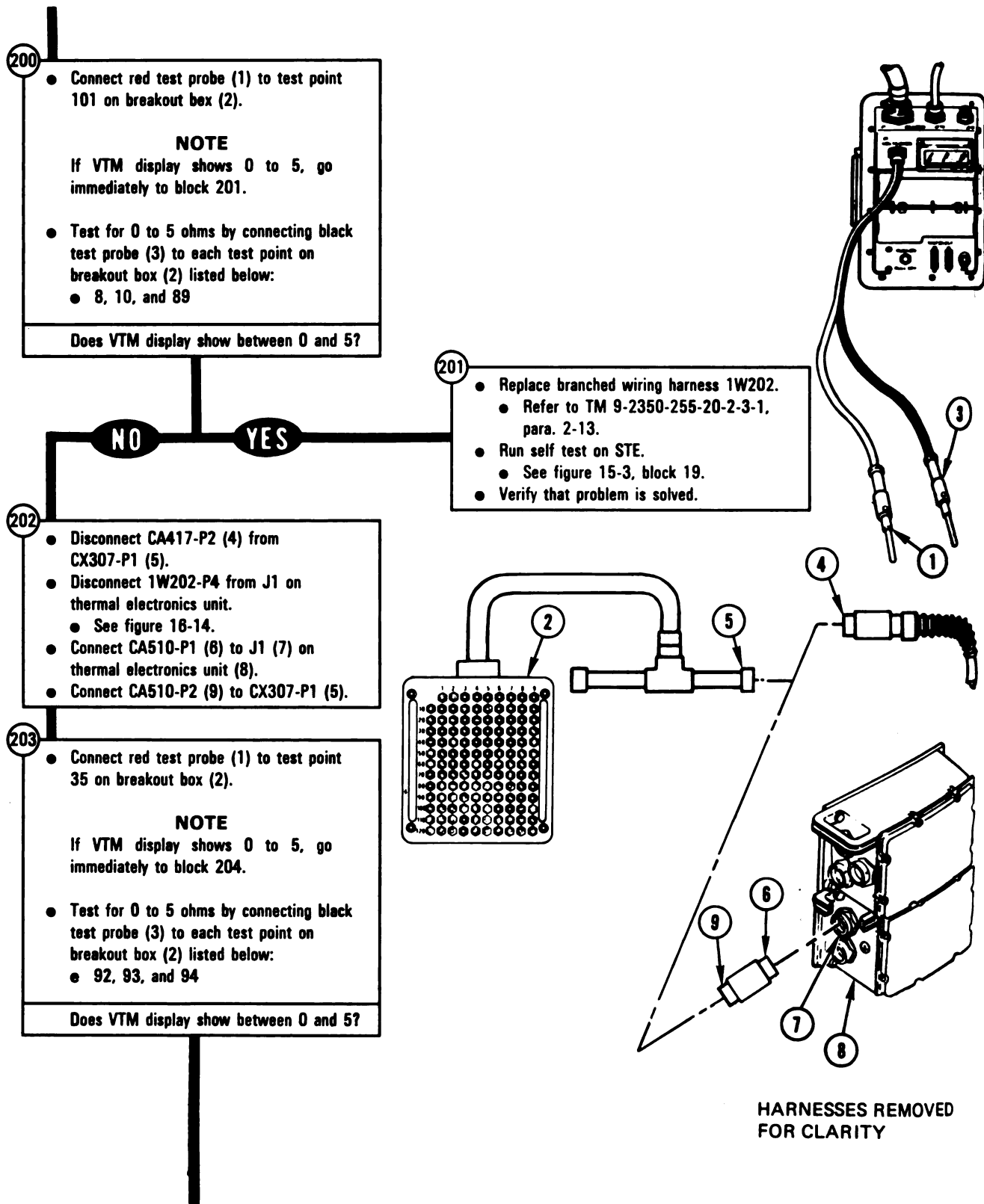
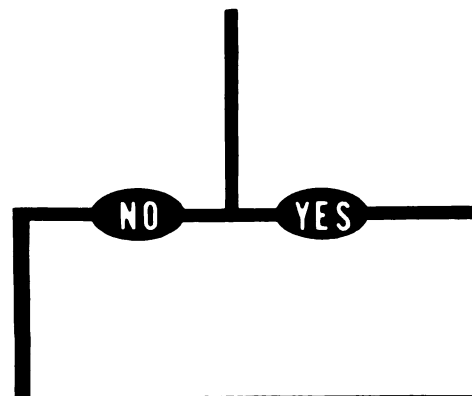
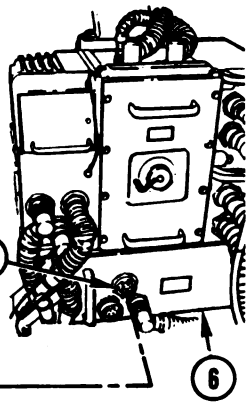


Figure 10-90 (Sheet 54 of 59)
Volume II
Para. 10-3

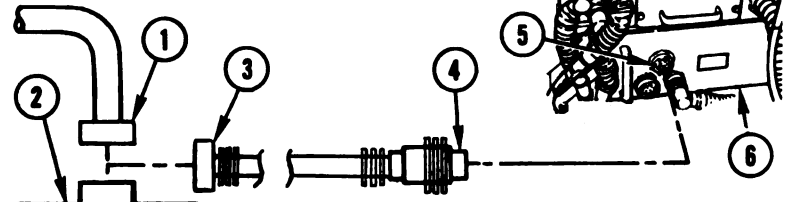
ARR82-6481



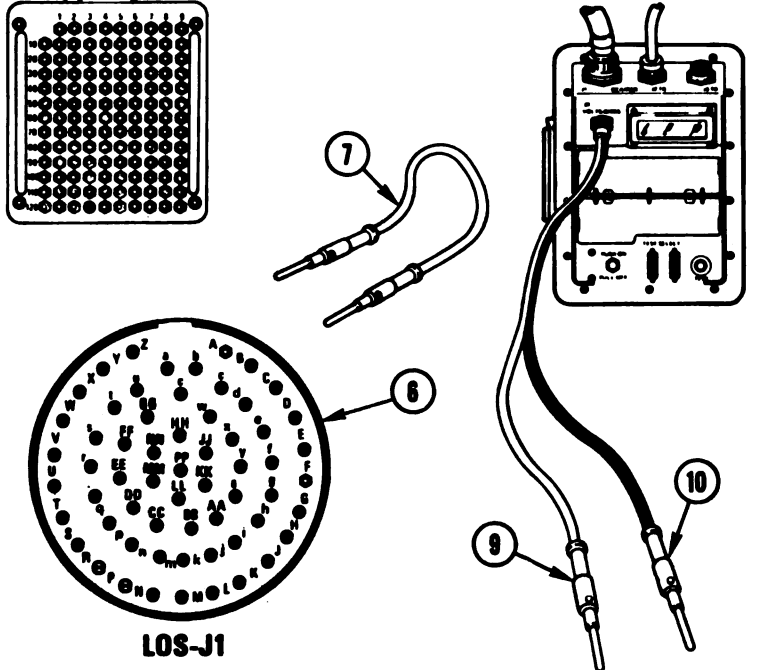
- 204
- Connect 1W202-P1 to J7 on turret networks box.
 - See figure 16-5.
 - Connect 1W202-P3 to J1 on line-of-sight electronics unit.
 - See figure 16-14.
 - Replace thermal electronics unit.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-24.
 - Run self test on STE.
 - See figure 15-3, block 19.
 - Verify that problem is solved.



- Disconnect 1W206-P1 from J2 on line-of-sight electronics unit.
 - See figure 16-14.
- Disconnect CX305-P2 (1) from breakout box (2).
- Connect CABLE NO. 1-P2 (3) to breakout box (2).
- If disconnected, connect ADAPTER NO. 1-P1 (4) to J3 (5) on line-of-sight electronics unit (6).
- Connect jumper (7) between contacts B and HH on line-of-sight electronics unit J1 (8).



- NOTE**
If VTM display shows 0 to 5, go immediately to block 207.
- Test for 0 to 5 ohms between test points on breakout box listed in table I.
 - Connect red test probe (9) to test points on breakout box (2) listed in table I.
 - Connect black test probe (10) to test points on breakout box (2) listed in table I.
- Does VTM display show between 0 and 5?



LOS-J1

Table I

Red Test Probe	Black Test Probe
21, 87, 93, 94	11, 13, 20 22, 23 24, 34, 35

Figure 10-90 (Sheet 55 of 59)
Volume II
Para. 10-3

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

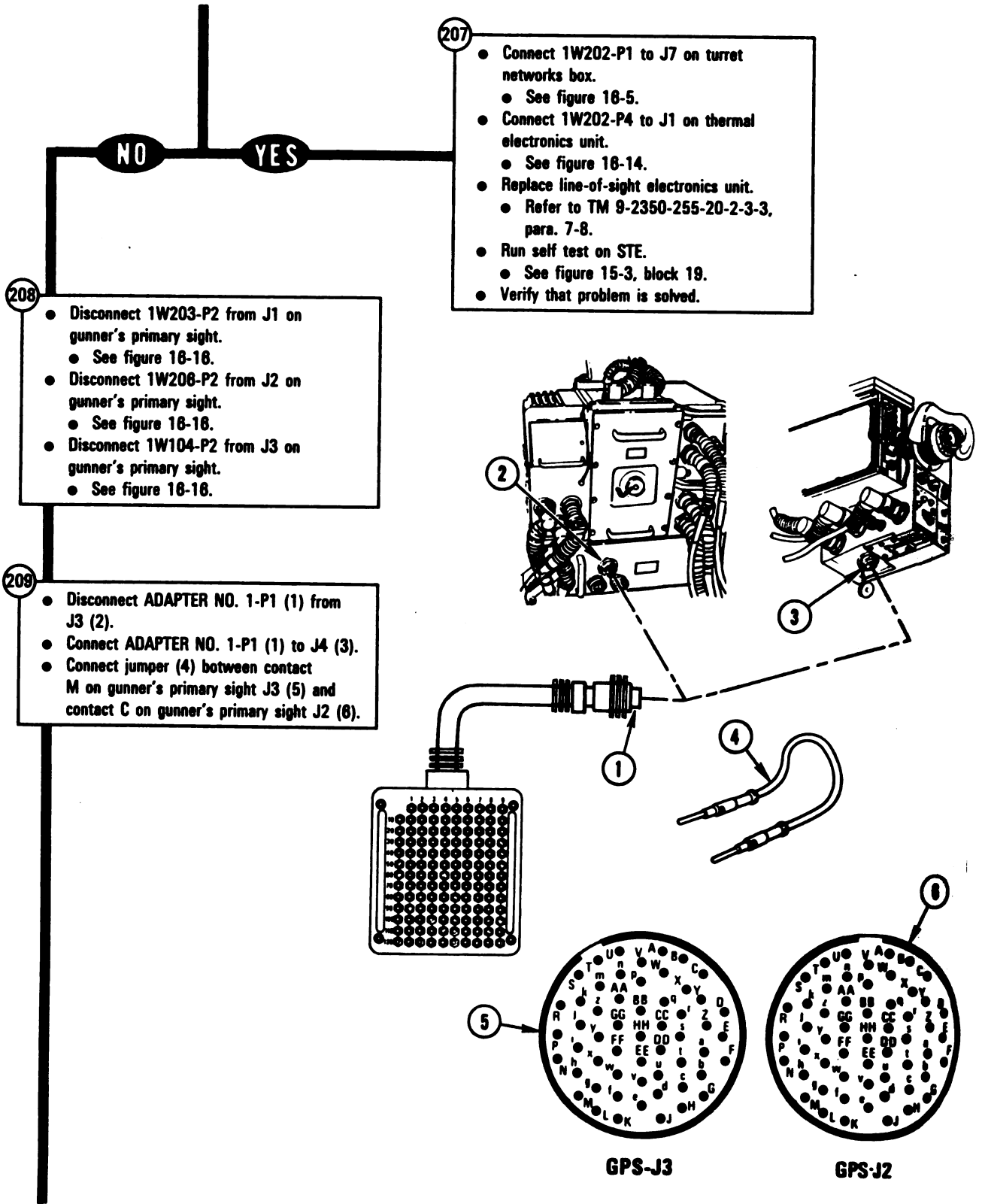


Figure 10-90 (Sheet 56 of 59)
Volume II
Para. 10-3

ARR82-4483

Table J

Red Test Probe	Black Test Probe
11, 87, 93, 94, 120, 124	8, 13, 15, 20, 22, 23, 24, 25, 34, 35

NOTE

If VTM display shows 0 to 5, go immediately to block 211.

- Test for 0 to 5 ohms between test points on breakout box listed in table J.
- Connect red test probe (1) to test points on breakout box (2) listed in table J.
- Connect black test probe (3) to test points on breakout box (2) listed in table J.

Does VTM display show between 0 and 5?

YES

NO

- 211
- Connect 1W202-P4 to J1 on thermal electronics unit.
 - See figure 16-14.
 - Connect 1W202-P3 to J1 on line-of-sight electronics unit.
 - See figure 16-14.
 - Connect 1W206-P1 to J2 on line-of-sight electronics unit.
 - See figure 16-14.
 - Connect 1W202-P1 to J7 on turret networks box.
 - See figure 16-5.

- 213
- Replace gunner's primary sight body assembly.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-5.
 - Run self test on STE.
 - See figure 15-3, block 19.
 - Verify that problem is solved.

- 212
- Connect 1W202-P4 to J1 on thermal electronics unit.
 - See figure 16-14.
 - Connect 1W202-P3 to J1 on line-of-sight electronics unit.
 - See figure 16-14.
 - Connect 1W206-P1 to J2 on line-of-sight electronics unit.
 - See figure 16-14.
 - Connect 1W203-P2 to J1 on gunner's primary sight.
 - See figure 16-16.
 - Connect 1W206-P2 to J2 on gunner's primary sight.
 - See figure 16-16.

- 214
- Connect 1W104-P2 to J3 on gunner's primary sight.
 - See figure 16-16.
 - Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
 - Run self test on STE.
 - See figure 15-3, block 19.
 - Verify that problem is solved.

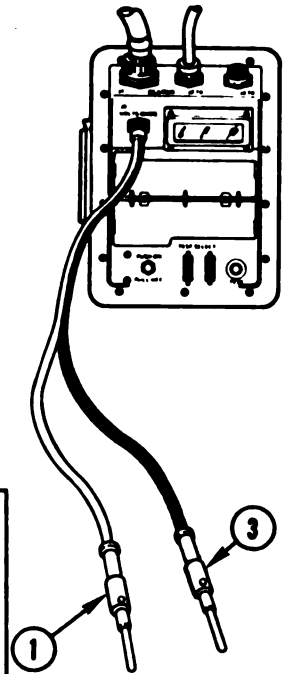
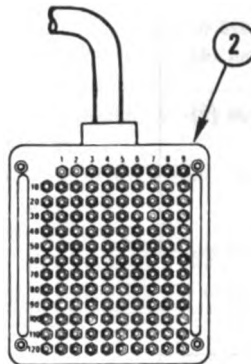
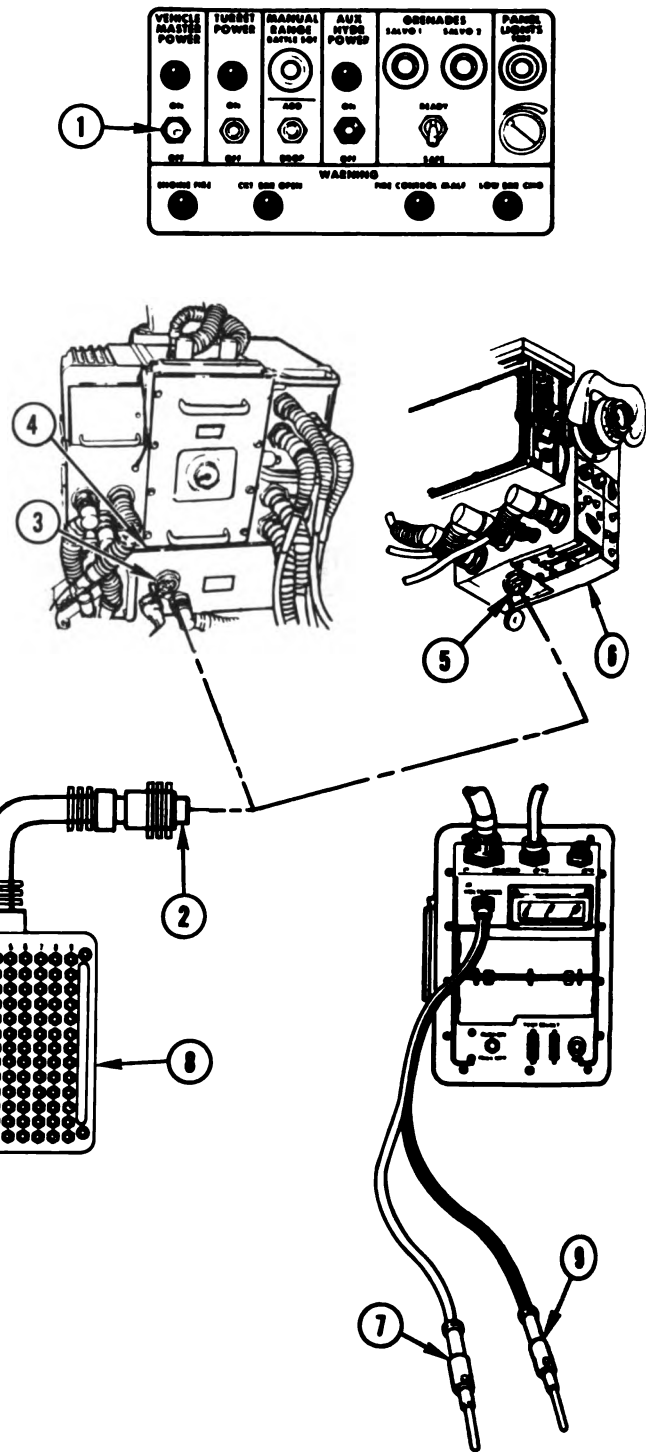
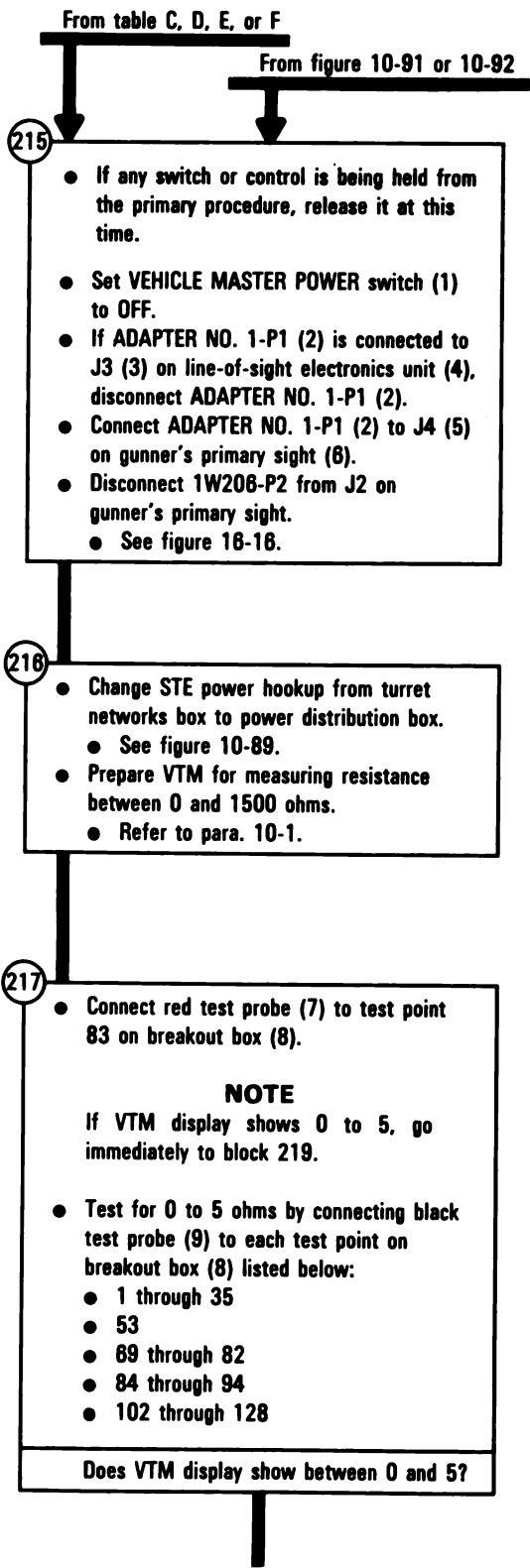


Figure 10-90 (Sheet 57 of 59)
Volume II
Para. 10-3

ARR82-6484

**TM 9-2350-255-20-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**



*Figure 10-90 (Sheet 58 of 59)
Volume II
Para. 10-3*

ARR82-6485

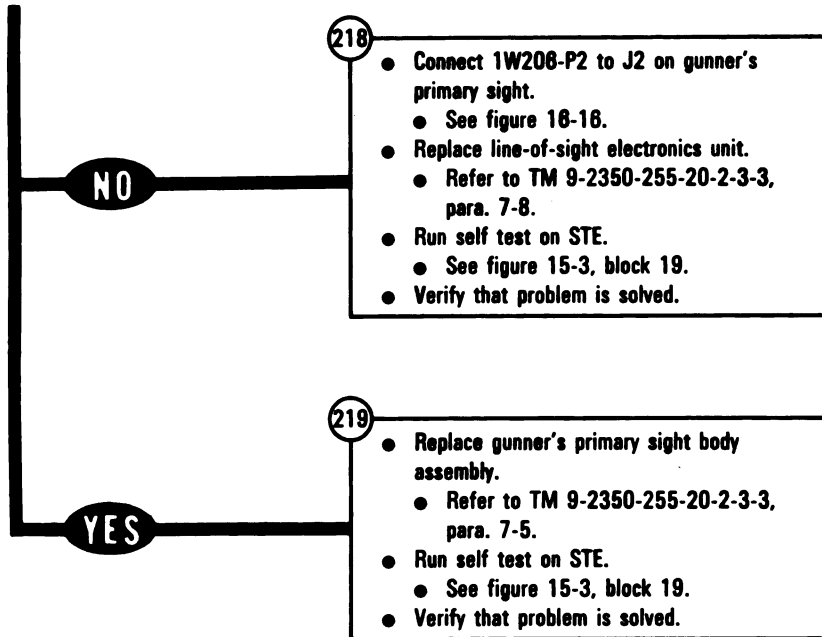


Figure 10-90 (Sheet 59 of 59)
Volume II
Para. 10-3

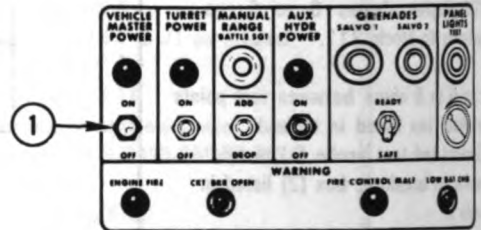
TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

From table C, D, E, or F

From figure 10-91 or 10-92

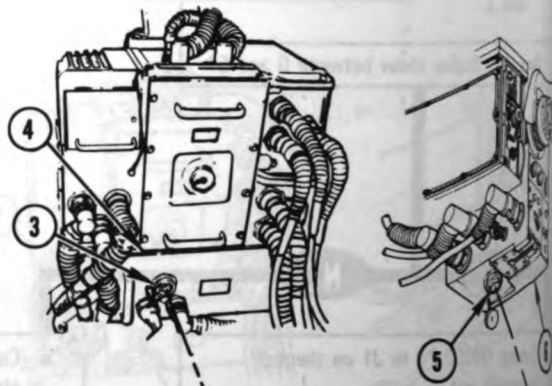
215

- If any switch or control is being held from the primary procedure, release it at this time.
- Set VEHICLE MASTER POWER switch (1) to OFF.
- If ADAPTER NO. 1-P1 (2) is connected to J3 (3) on line-of-sight electronics unit (4), disconnect ADAPTER NO. 1-P1 (2).
- Connect ADAPTER NO. 1-P1 (2) to J4 (5) on gunner's primary sight (6).
- Disconnect 1W206-P2 from J2 on gunner's primary sight.
- See figure 16-16.



216

- Change STE power hookup from turret networks box to power distribution box.
- See figure 10-89.
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
- Refer to para. 10-1.



217

- Connect red test probe (7) to test point 83 on breakout box (8).

NOTE

If VTM display shows 0 to 5, go immediately to block 219.

- Test for 0 to 5 ohms by connecting black test probe (9) to each test point on breakout box (8) listed below:
 - 1 through 35
 - 53
 - 69 through 82
 - 84 through 94
 - 102 through 128

Does VTM display show between 0 and 5?

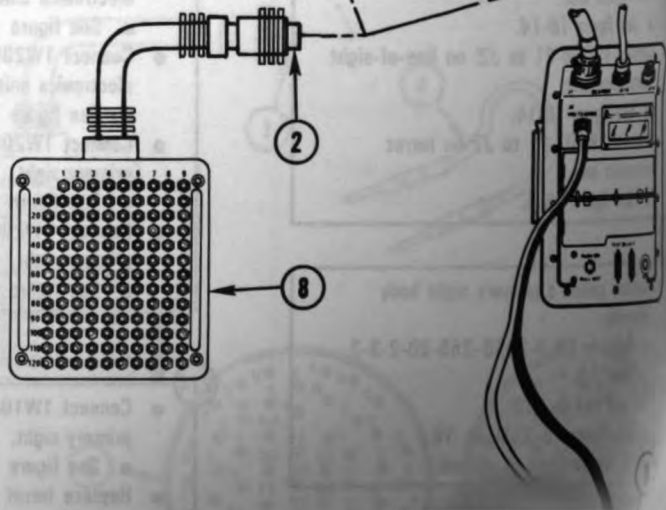
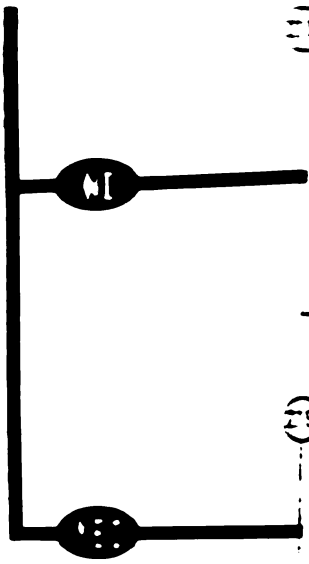
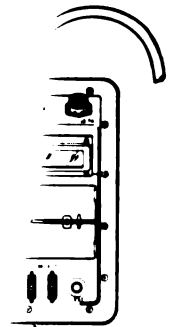


Figure 10-92

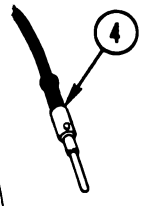


- 28
- Measure voltage to J2 on gunner's primary panel.
 - See figure 16-1B.
 - Measure on-a-c input electronics unit.
 - Refer to TM 9-2350-255-20-2-2-2 para. 7-4.
 - Run self test on STE.
 - See figure 15-2 para. 12.
 - Verify that problem is solved.

- 29
- Replace gunner's primary apt. amp assembly.
 - Refer to TM 9-2350-255-20-2-2-2 para. 7-5.
 - Run self test on STE.
 - See figure 15-2 para. 1.
 - Verify that problem is solved.



3



4



0-2-3-1,

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS -
SEE -20 MANUAL**

144506

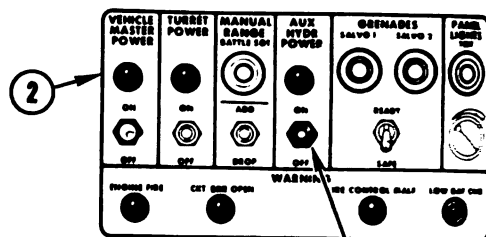
Additional Test

Equipment/Special Tools:

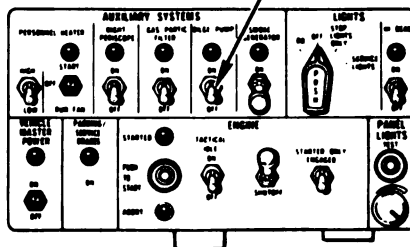
- Breakout Box Tool Kit, 12311086

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Turret power on.



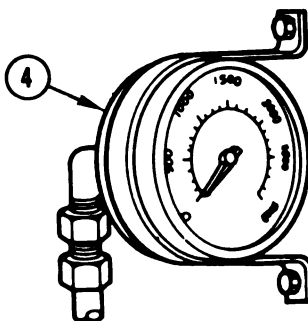
- 1
- Set AUX HYDR POWER switch (1) on commander's control panel (2) to OFF.



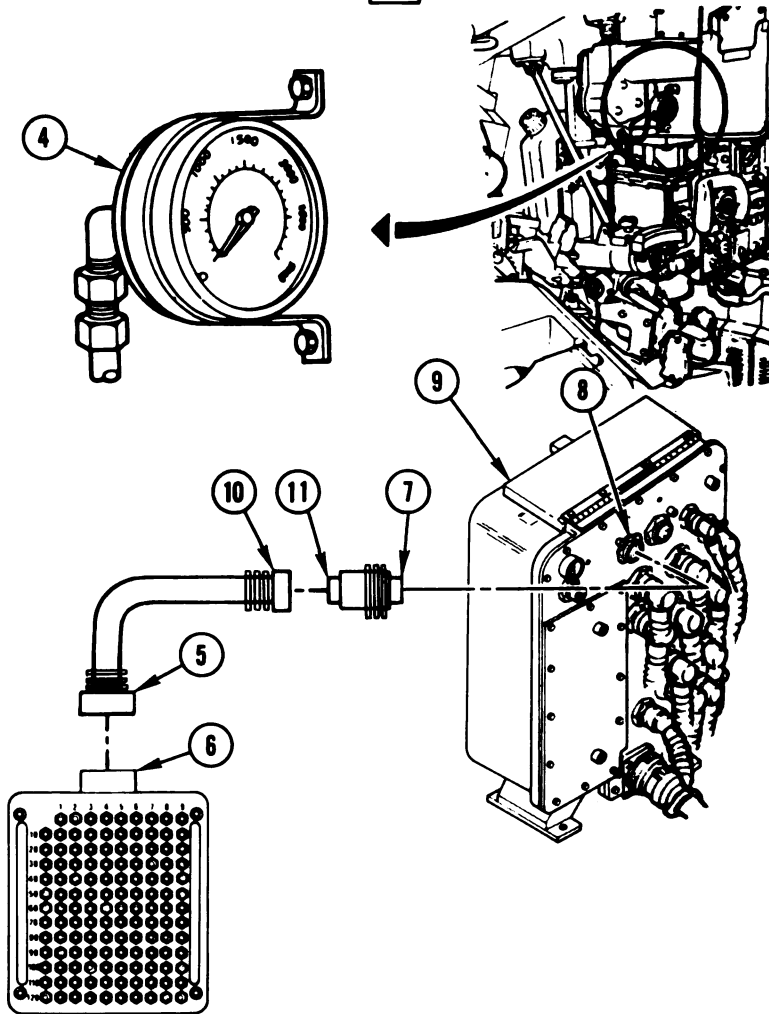
WARNING

Bilge pump can discharge debris that will injure personnel. Check that personnel are not near bilge pump discharge nozzle before turning bilge pump on.

- 2
- Reduce hydraulic pressure to zero by operating bilge pump.
 - Set BILGE PUMP switch (3) to ON.
 - When dial pressure gage (4) indicates 0 psi, set BILGE PUMP switch (3) to OFF.



- 3
- Remove CX205 from CIB and tank.
 - See figure 10-38.
 - Connect breakout box to TEST 1 on turret networks box using CABLE NO. 1 and ADAPTER NO. 1.
 - Connect CABLE NO. 1-P1 (5) to breakout box (6).
 - Connect ADAPTER NO. 1-P1 (7) to TEST 1 (8) on turret networks box (9).
 - Connect CABLE NO. 1-P2 (10) to ADAPTER NO. 1-J1 (11).



*Figure 10-91 (Sheet 1 of 11)
Volume II
Para. 10-3*

ARR62-6486

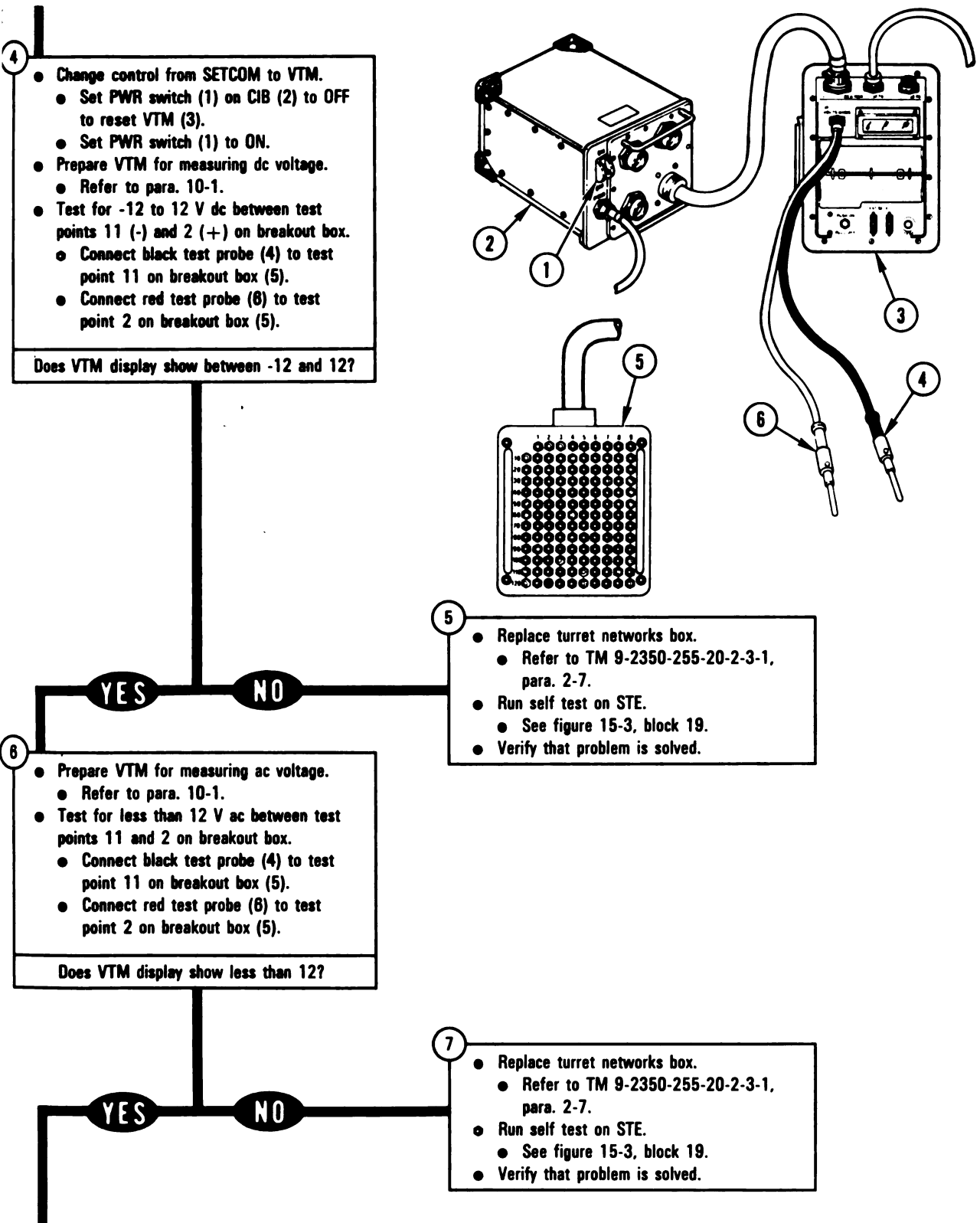


Figure 10-91 (Sheet 2 of 11)
Volume II
Para. 10-3

ARR82-6487

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

8

- Disconnect ADAPTER NO. 1-P1 (1) from TEST 1 (2).
- Connect ADAPTER NO. 1-P1 (1) to J4 (3) on electronic unit (4).
- Connect black test probe (5) to test point 18 on breakout box (8).

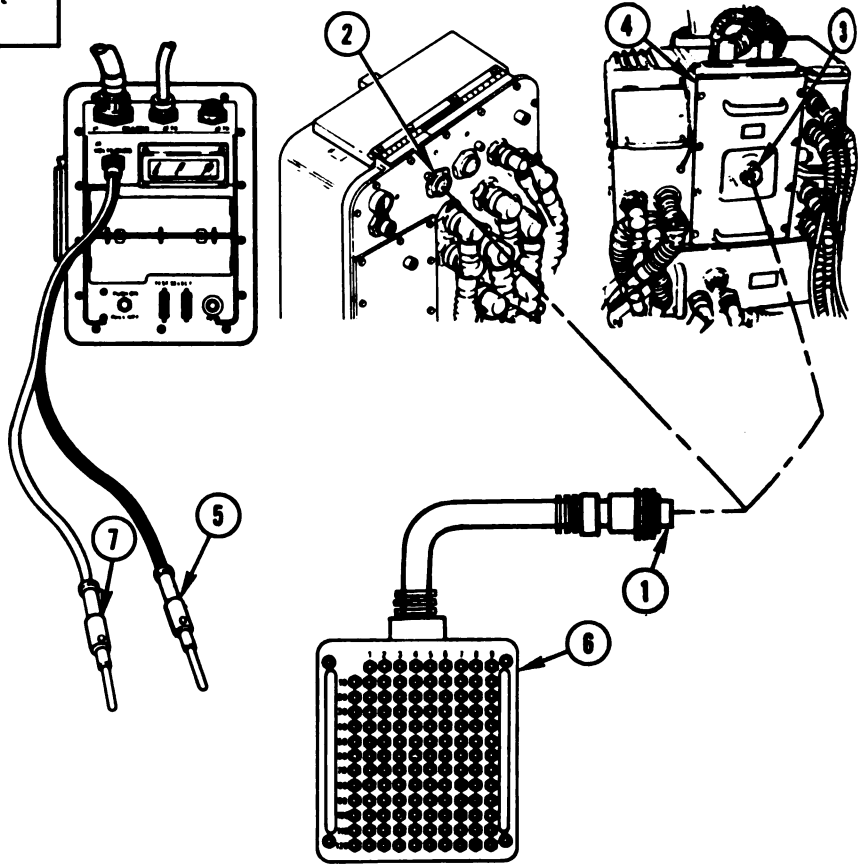
NOTE
If VTM display does not show less than 12, go immediately to block 9.

- Test for less than 12 V ac by connecting red test probe (7) to each test point on breakout box (8) listed in table A.

Does VTM display show less than 12 at each test point?

Table A

Red Test Probe	Action
91 109, 119 124 3	Go to figure 10-90, block 94. Go to block 21. Go to figure 10-90, block 144. ● Replace gun/turret drive electronic unit. ● Refer to TM 9-2350-255-20-2-3-3, para. 7-16. ● Run self test on STE. ● See figure 15-3, block 19. ● Verify that problem is solved.



YES **NO**

9 Go to table A and do action for test point that failed.

*Figure 10-91 (Sheet 3 of 11)
Volume II
Para. 10-3*

ARR82-6488

Table B

Red Test Probe	Action
91 109, 119 124 3	Go to figure 10-90, block 94. Go to block 21. Go to figure 10-90, block 144. ● Replace gun/turret drive electronic unit. ● Refer to TM 9-2350-255-20-2-3-3, para. 7-16. ● Run self test on STE. ● See figure 15-3, block 19. ● Verify that problem is solved.

- Prepare VTM for measuring dc voltage.
- Refer to para. 10-1.
- Connect black test probe (1) to test point 16 on breakout box (2).

NOTE

If VTM display does not show between -12 and 12, go immediately to block 11.

- Test for -12 to 12 V dc by connecting red test probe (3) to each test point on breakout box (2) listed in table B.

Does VTM display show between -12 and 12 at each test point?

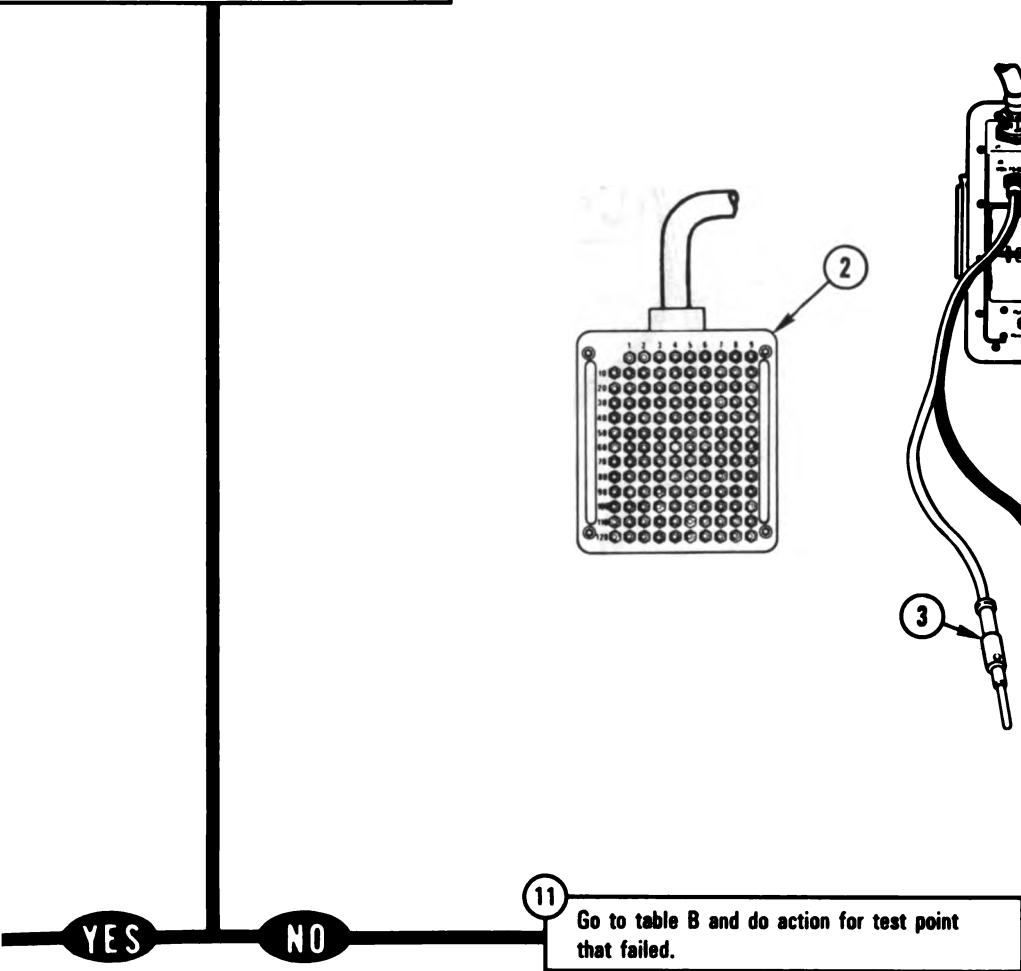
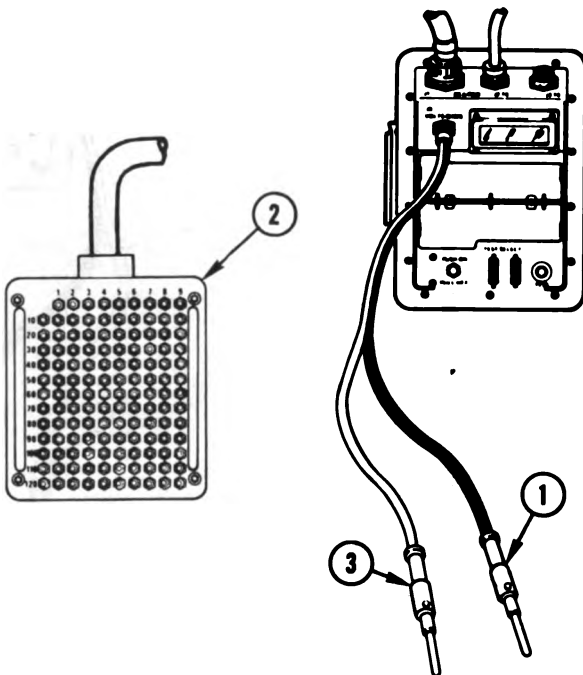


Figure 10-91 (Sheet 4 of 11)
Volume II
Para. 10-3

ARR82-6489

12

- Disconnect ADAPTER NO. 1-P1 (1) from J4 (2).
- Connect ADAPTER NO. 1-P1 (1) to J3 (3) on line-of-sight electronics unit (4).
- Connect block test probe (5) to test point 33 on breakout box (6).

NOTE

If VTM display does not show between -12 and 12, go immediately to block 13.

- Test for -12 to 12 V dc by connecting red test probe (7) to each test point on breakout box (6) listed in table C.

Does VTM display show between -12 and 12 at each test point?

YES

NO

13

Go to table C and do action for test point that failed.

Table C

Red Test Probe	Action
19 21 57	Go to block 26. Go to figure 10-90, block 144. ● Replace line-of-sight electronics unit. ● Refer to TM 9-2350-255-20-2-3-3, para. 7-8. ● Run self test on STE. ● See figure 15-3, block 19. ● Verify that problem is solved.

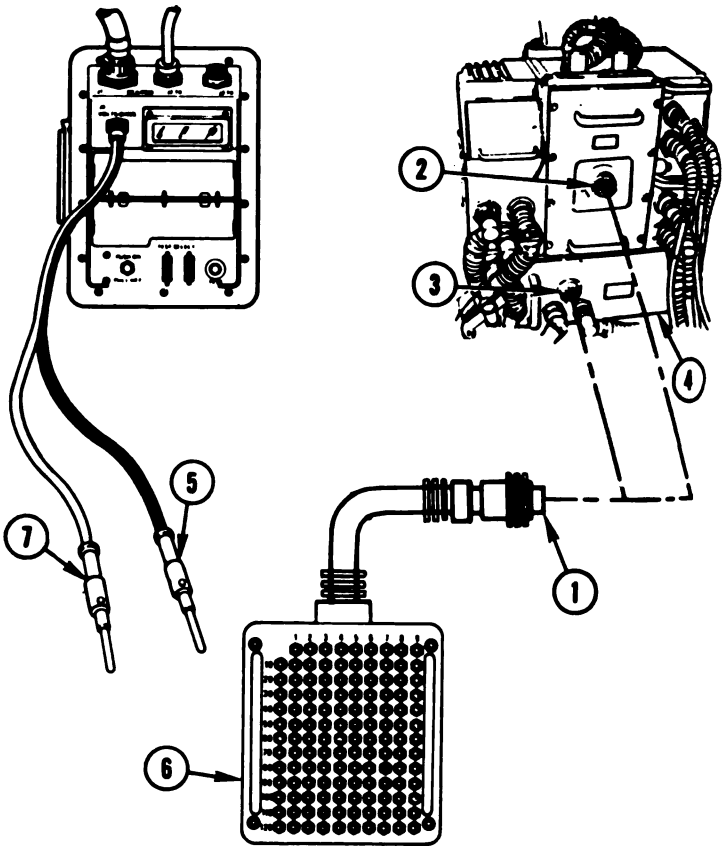


Figure 10-91 (Sheet 5 of 11)
 Volume II
 Para. 10-3

ARR82-6490

Table D

Red Test Probe	Action
19 21 57	Go to block 26. Go to figure 10-90, block 144. ● Replace line-of-sight electronics unit. ● Refer to TM 9-2350-255-20-2-3-3, para. 7-8. ● Run self test on STE. ● See figure 15-3, block 19. ● Verify that problem is solved.

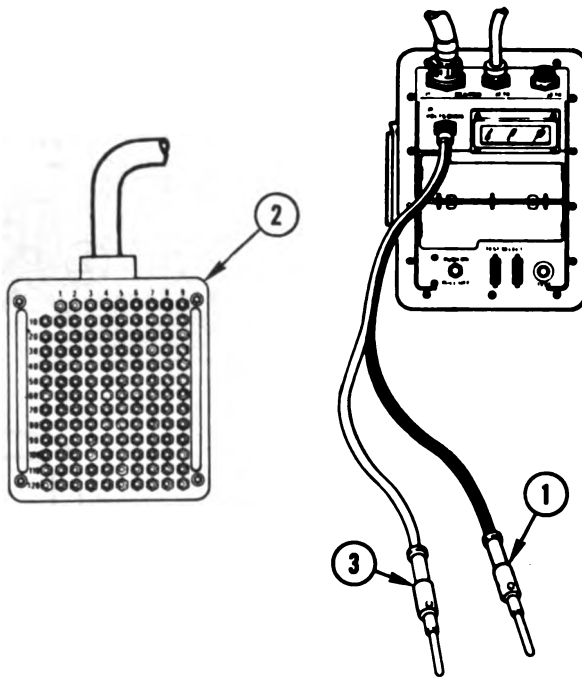
14

- Prepare VTM for measuring ac voltage.
 - Refer to para. 10-1.
- Connect black test probe (1) to test point 33 on breakout box (2).

NOTE
If VTM display does not show less than 12, go immediately to block 15.

- Test for less than 12 V ac by connecting red test probe (3) to each test point on breakout box (2) listed in table D.

Does VTM display show less than 12 at each test point?



15

Go to table D and do action for test point that failed.

YES NO

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

18

- Disconnect ADAPTER NO. 1-P1 (1) from J3 (2).
- Connect ADAPTER NO. 1-P1 (1) to J4 (3) on gunner's primary sight (4).
- Connect black test probe (5) to test point 11 on breakout box (6).

NOTE

If VTM display does not show less than 12, go immediately to block 17.

- Test for less than 12 V ac by connecting red test probe (7) to each test point on breakout box (6) listed in table E.

Does VTM display show less than 12 at each test point?

YES NO

17 Go to table E and do action for test point that failed.

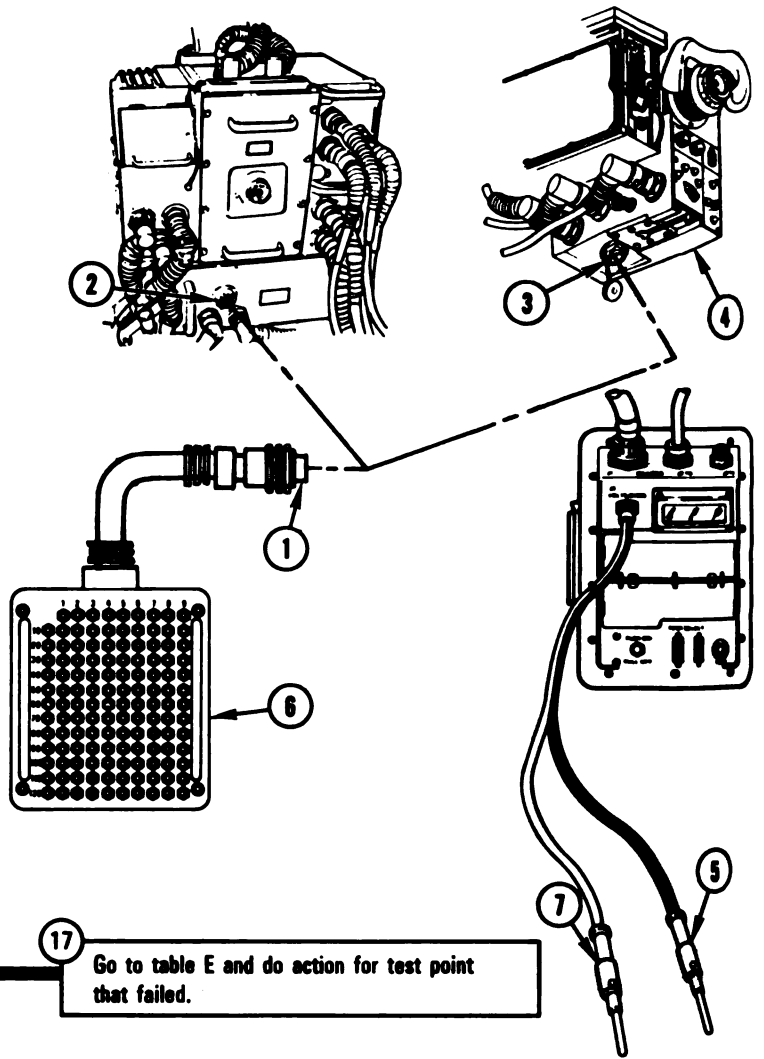


Table E

Red Test Probe	Action
1	<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. ● Run self test on STE. ● See figure 15-3, block 19. ● Verify that problem is solved.
77	Go to figure 10-90, block 105.
83	Go to figure 10-90, block 215.
87, 93	Go to figure 10-90, block 197.

*Figure 10-91 (Sheet 7 of 11)
Volume II
Para. 10-3*

ARR82-8492

Table F

Red Test Probe	Action
1	<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. ● Run self test on STE. ● See figure 15-3, block 19. ● Verify that problem is solved.
77	Go to figure 10-90, block 99.
83	Go to figure 10-90, block 215.
87, 93	Go to figure 10-90, block 197.

18

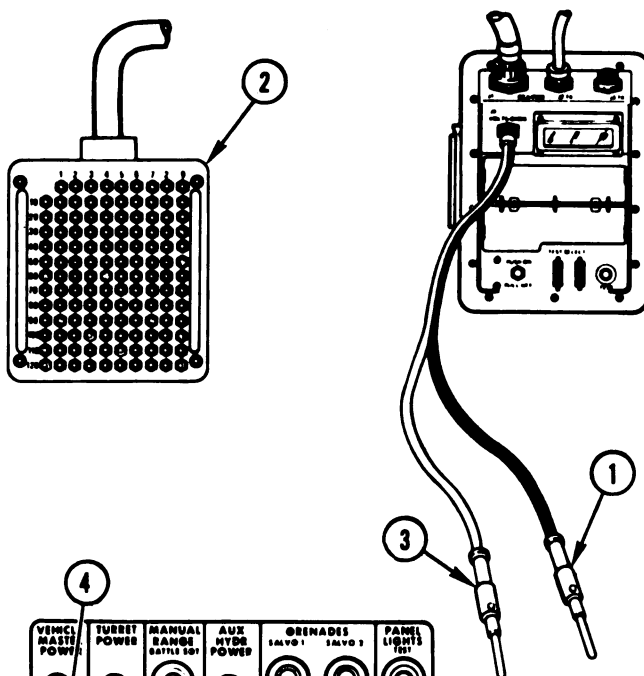
- Prepare VTM for measuring dc voltage.
 - Refer to para. 10-1.
- Connect black test probe (1) to test point 11 on breakout box (2).

NOTE

If VTM display does not show between -12 and 12, go immediately to block 20.

- Test for -12 to 12 V dc by connecting red test probe (3) to each test point on breakout box (2) listed in table F.

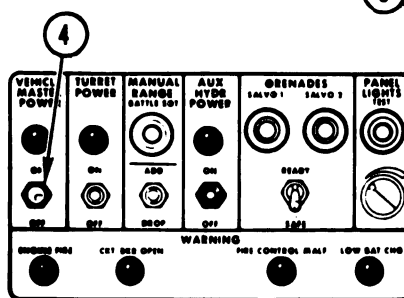
Does VTM display show between -12 and 12 at each test point?



YES NO

19

- Set VEHICLE MASTER POWER switch (4) to OFF.
- STE test cable CX205 is faulty. Notify support maintenance.
- Run self test on STE.
 - See figure 15-3, block 19.
- Repeat STE test.
 - For test 1430, see figure 10-37, block 11.
 - For test 1400, refer to TM 9-2350-255-20-2-2-1, figure 9-5, block 17.



20 Go to table F and do action for test point that failed.

Figure 10-91 (Sheet 8 of 11)
Volume II
Para. 10-3

ARR82-6493

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

From table A or B

- 21
- If any switch or control is being held from the primary procedure, release it at this time.
 - Set VEHICLE MASTER POWER switch (1) to OFF.
 - Disconnect CABLE NO. 1-P1 (2) from breakout box (3).
 - Connect CX305-P2 (4) to breakout box (3).
 - Connect CX305-P1 (5) to CX308-P3 (6).

- 22
- Disconnect 1W200-P7 from J1 on commander's control.
 - See figure 16-8.
 - Connect CA536-P1 (7) to J1 (8) on commander's control (9).
 - Connect CA536-P2 (10) to CX308-P1 (11).
 - Change STE power hookup from turret networks box to power distribution box.
 - See figure 10-89.

- 23
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 10-1.
- NOTE**
- If VTM display shows 0 to 5, go immediately to block 25.
- Test for 0 to 5 ohms between test points on breakout box listed in table G.
 - Connect red test probe (12) to test points on breakout box (3) listed in table G.
 - Connect black test probe (13) to test points on breakout box (3) listed in table G.
- Does VTM display show between 0 and 5?

Table G

Red Test Probe	Black Test Probe
10, 11	7, 13, 20, 21, and 23

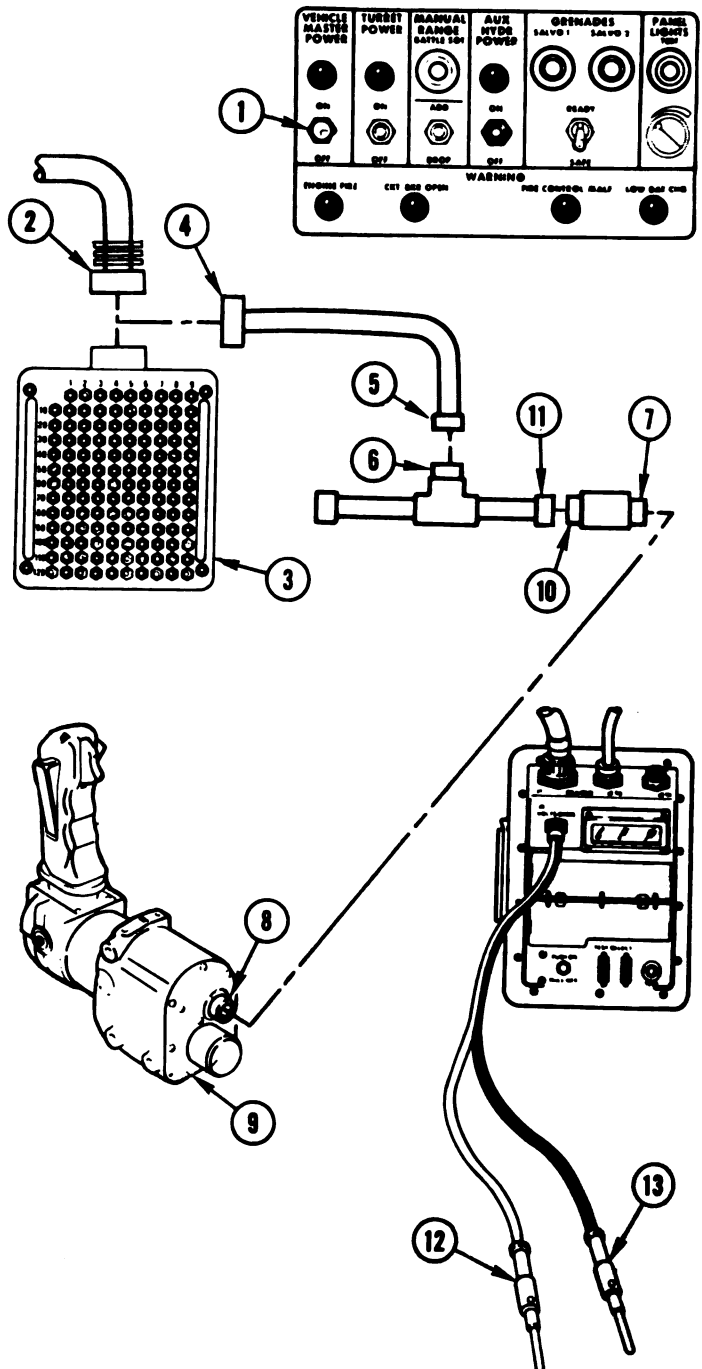
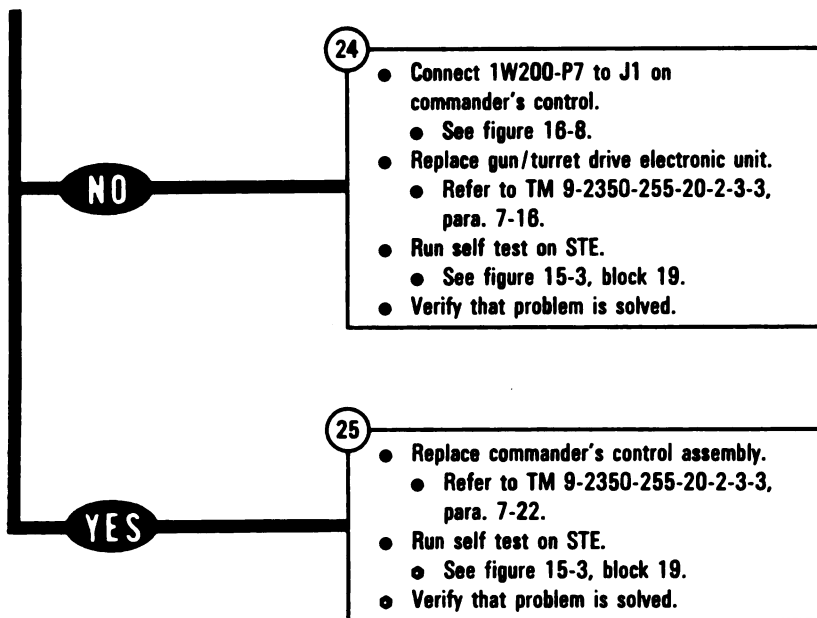


Figure 10-91 (Sheet 9 of 11)
 Volume II
 Para. 10-3

ARR82-6494



From table C or D

- 26**
- If any switch or control is being held from the primary procedure, release it at this time.
 - Set VEHICLE MASTER POWER switch (1) to OFF.
 - Disconnect 1W202-P3 from J1 on line-of-sight electronics unit.
 - See figure 16-14.
 - Change STE power hookup from turret networks box to power distribution box.
 - See figure 10-89.
 - Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 10-1.

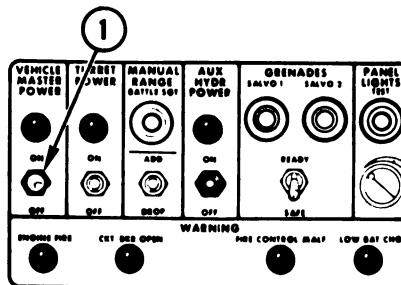


Figure 10-91 (Sheet 10 of 11)
Volume II
Para. 10-3

ARR82-6495

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

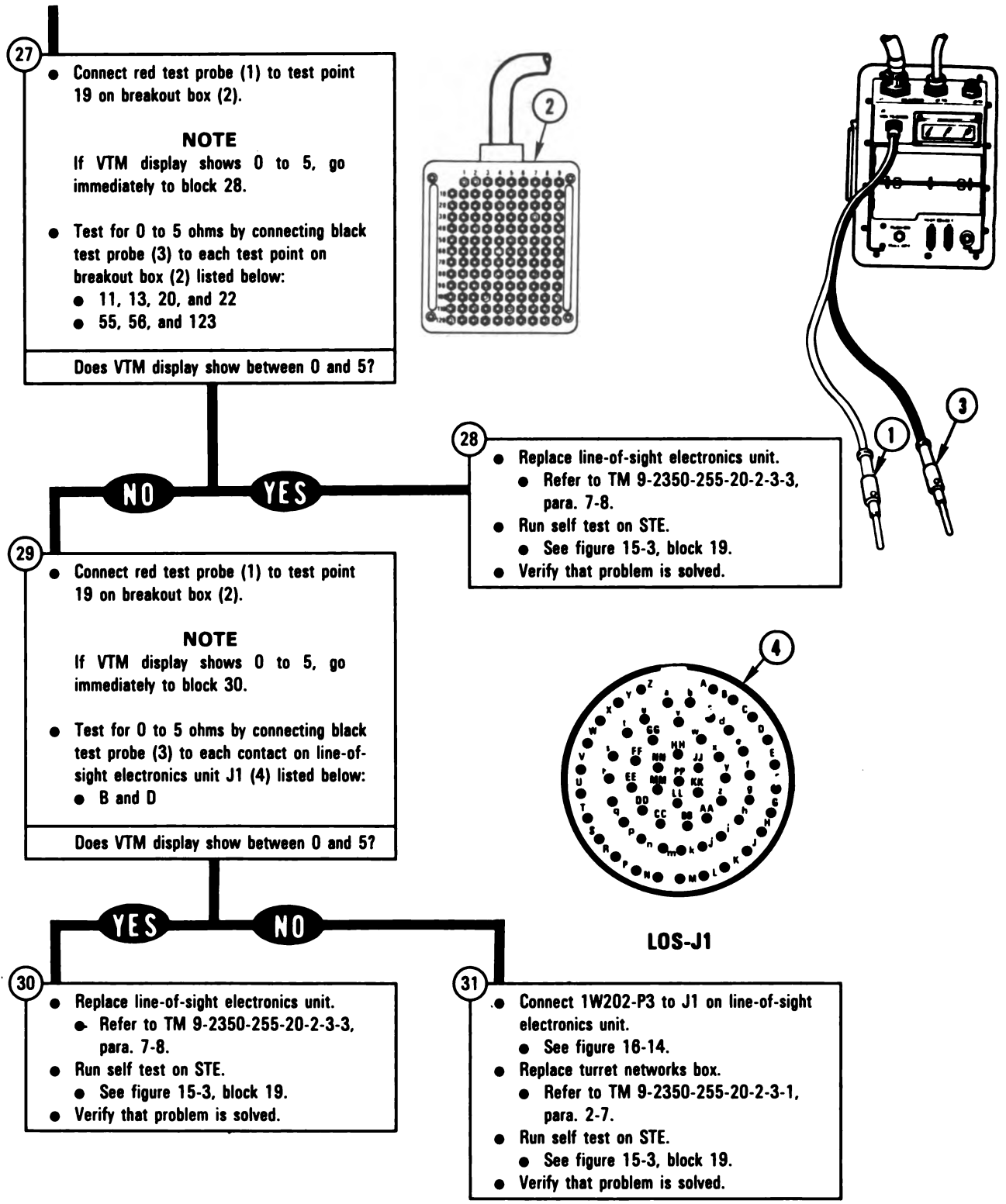


Figure 10-91 (Sheet 11 of 11)
Volume II
Para. 10-3

ARR82-6496

**DISPLAY SHOWS -
 SEE -20 MANUAL**

144507

Additional Test

Equipment/Special Tools:

- Breakout Box Tool Kit, 12311088

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Turret power on.

- Set AUX HYDR POWER switch (1) on commander's control panel (2) to OFF.

WARNING

Bilge pump can discharge debris that will injure personnel. Check that personnel are not near bilge pump discharge nozzle before turning bilge pump on.

- Reduce hydraulic pressure to zero by operating bilge pump.
 - Set BILGE PUMP switch (3) to ON.
 - When dial pressure gage (4) indicates 0 psi, set BILGE PUMP switch (3) to OFF.

NOTE

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

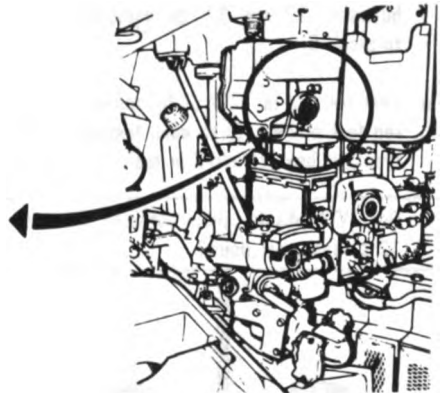
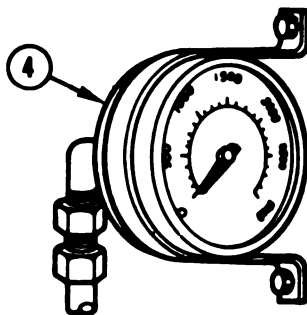
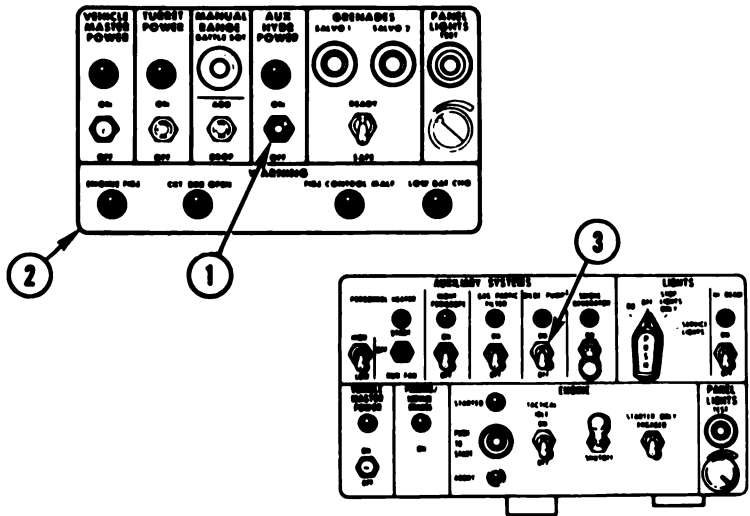


Figure 10-92 (Sheet 1 of 11)
Volume II
Para. 10-3

ARR82-6497

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

- 3
- Remove CX205 from CIB and tank.
 - See figure 10-38.
 - Connect breakout box to J4 on electronic unit 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 electronic unit (5).
 - Connect CABLE NO. 1-P2 (6) to ADAPTER NO. 1-J1 (7).

- 4
- Change control from SETCOM to VTM.
 - Set PWR switch (8) on CIB (9) to OFF to reset VTM (10).
 - Set PWR switch (8) to ON.
 - Prepare VTM for measuring dc voltage.
 - Refer to para. 10-1.

- 5
- Connect black test probe (11) to test point 28 on breakout box (2).
- NOTE**
- If VTM display does not show between -12 and 12, go immediately to block 6.
- Test for -12 to 12 V dc by connecting red test probe (12) to each test point on breakout box (2) listed in table A.

Does VTM display show between -12 and 12 at each test point?

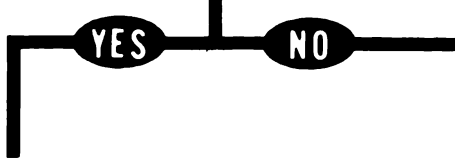
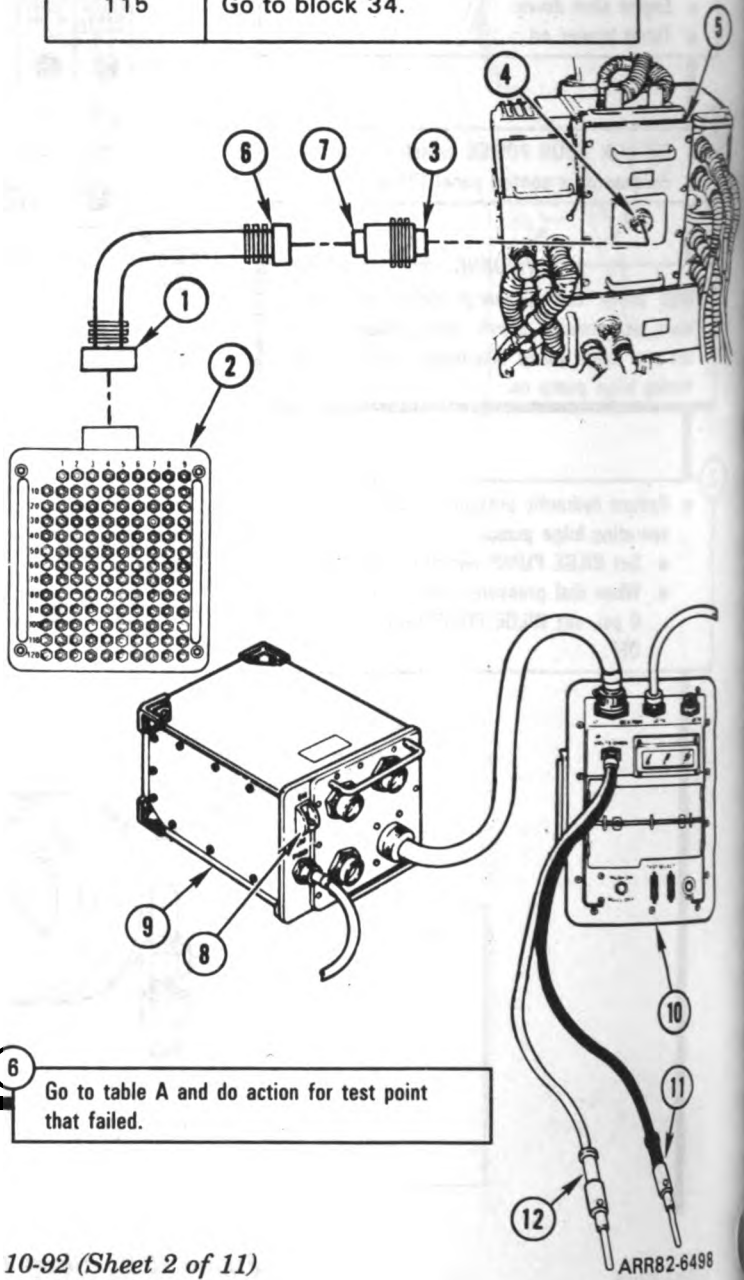


Table A

Red Test Probe	Action
92	Go to block 16.
93	Go to figure 10-90, block 28.
94	Go to block 20.
95	Go to figure 10-90, block 144.
105	Go to block 24.
110	Go to figure 10-90, block 121.
111	Go to block 29.
115	Go to block 34.



6 Go to table A and do action for test point that failed.

Figure 10-92 (Sheet 2 of 11)
Volume II
Para. 10-3

Table B

Red Test Probe	Action
92	Go to block 16.
93	Go to figure 10-90, block 34.
94	Go to block 20.
95	Go to figure 10-90, block 144.
105	Go to block 24.
110	Go to figure 10-90, block 127.
111	Go to block 29.
115	Go to block 34.

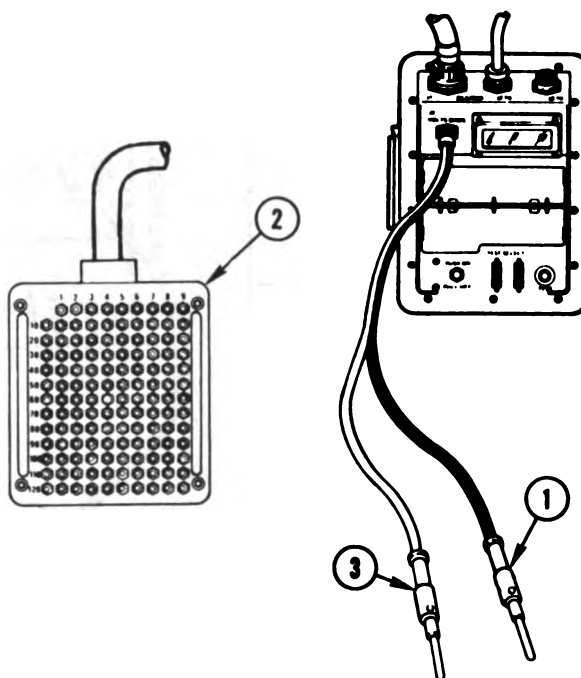
- 7
- Prepare VTM for measuring ac voltage.
 - Refer to para. 10-1.
 - Connect black test probe (1) to test point 26 on breakout box (2).

NOTE

If VTM display does not show less than 12, go immediately to block 8.

- Test for less than 12 V ac by connecting red test probe (3) to each test point on breakout box (2) listed in table B.

Does VTM display show less than 12 at each test point?



8 Go to table B and do action for test point that failed.

YES

NO

Table C

Black Test Probe	Red Test Probe	Action
33	77	Go to figure 10-90, block 105. Go to figure 10-90, block 34. ● Replace line-of-sight electronics unit. ● Refer to TM 9-2350-255-20-2-3-3, para. 7-8. ● Run self test on STE. ● See figure 15-3, block 19. ● Verify that problem is solved.
33	78	
33	79	
33	83	Go to figure 10-90, block 215. Go to figure 10-90, block 197.
19	87,93,94	

9

- Disconnect ADAPTER NO. 1-P1 (1) from J4 (2).
- Connect ADAPTER NO. 1-P1 (1) to J3 (3) on line-of-sight electronic unit (4).

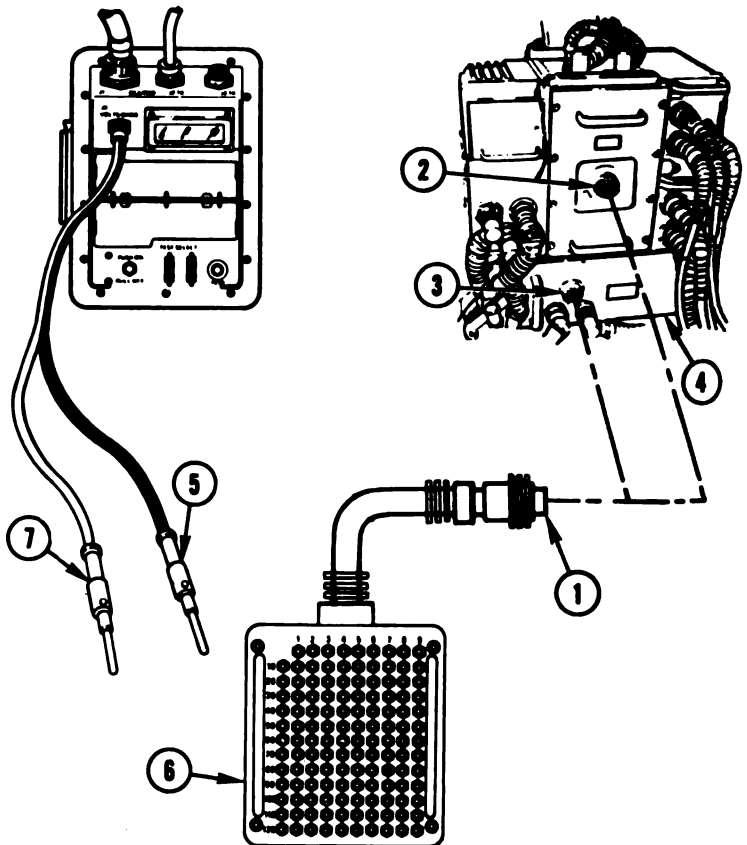
10

NOTE

If VTM display does not show less than 12, go immediately to block 11.

- Test for less than 12 V ac between test points on breakout box listed in table C.
- Connect black test probe (5) to test points on breakout box (6) listed in table C.
- Connect red test probe (7) to test points on breakout box (6) listed in table C.

Does VTM display show less than 12 at each pair of test points?



11

Go to table C and do action for test points that failed.

YES NO

Figure 10-92 (Sheet 4 of 11)
Volume II
Para. 10-3

Table D

Black Test Probe	Red Test Probe	Action
33	77	Go to figure 10-90, block 99. Go to figure 10-90, block 28. ● Replace line-of-sight electronics unit. ● Refer to TM 9-2350-255-20-2-3-3, para. 7-8. ● Run self test on STE. ● See figure 15-3, block 19. ● Verify that problem is solved.
33	78	
33	79	
33	83	Go to figure 10-90, block 215.
19	87,93,94	Go to figure 10-90, block 197.

NOTE

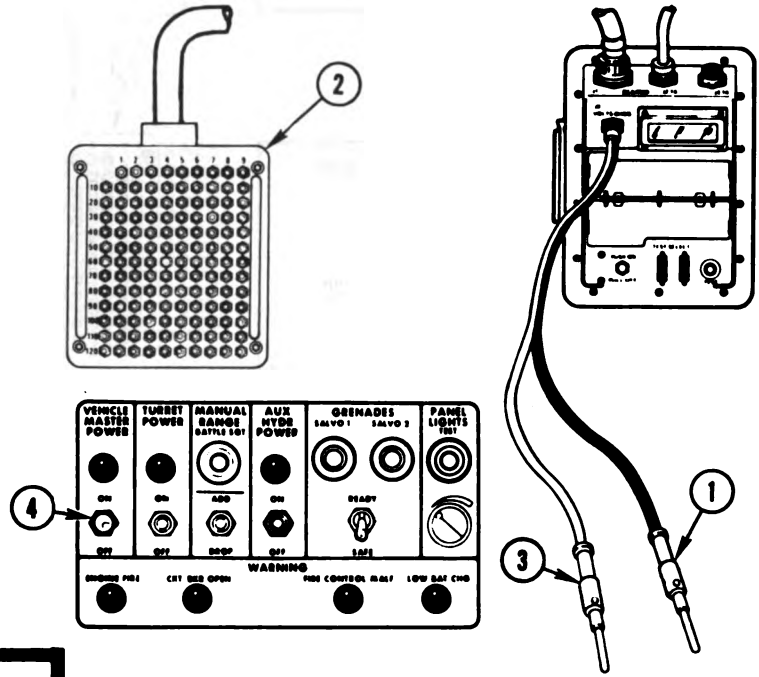
If VTM display does not show between -12 and 12, go immediately to block 15.

- Test for -12 to 12 V dc between test points on breakout box listed in table D.
- Connect black test probe (1) to test points on breakout box (2) listed in table D.
- Connect red test probe (3) to test points on breakout box (2) listed in table D.

Does VTM display show between -12 and 12 at each pair of test points?

YES **NO**

- Set VEHICLE MASTER POWER switch (4) to OFF.
- STE test cable CX205 is faulty. Notify support maintenance.
- Run self test on STE.
 - See figure 15-3, block 19.
- Repeat STE test.
 - For test 1430, see figure 10-37, block 11.
 - For test 1400, refer to TM 9-2350-255-20-2-2-1, figure 9-5, block 17.



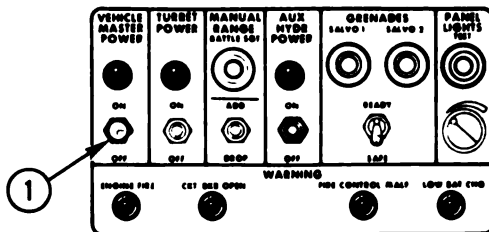
15 Go to table D and do action for test points that failed.

Figure 10-92 (Sheet 5 of 11)
Volume II
Para. 10-3

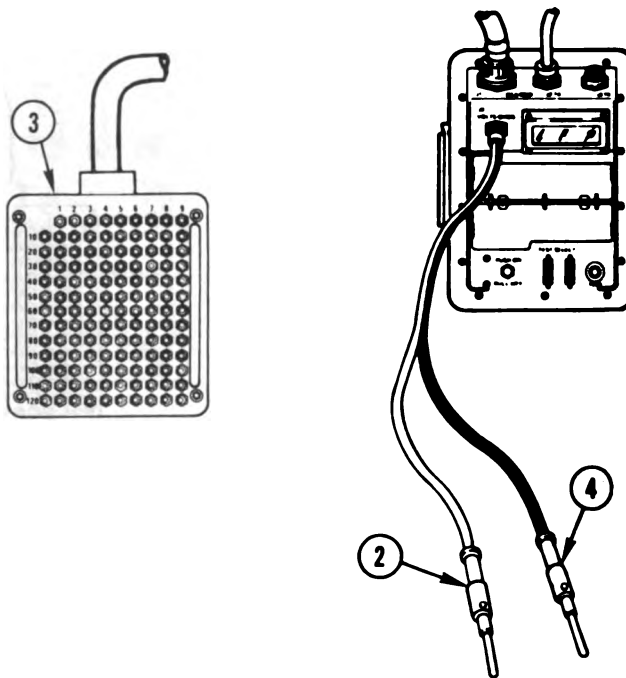
TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

From table A or B

- 16
- If any switch or control is being held from the primary procedure, release it at this time.
 - Set VEHICLE MASTER POWER switch (1) to OFF.
 - Disconnect 1W200-P4 from J3 on electronic unit.
 - See figure 16-6.
 - Change STE power hookup from turret networks box to power distribution box.
 - See figure 10-89.
 - Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 10-1.



- 17
- Connect red test probe (2) to test point 92 on breakout box (3).
- NOTE**
- If VTM display shows 0 to 5, go immediately to block 18.
- Test for 0 to 5 ohms by connecting black test probe (4) to each test point on breakout box (3) listed below:
 - 1 through 35
 - 53
 - 69 through 91
 - 93 through 128
- Does VTM display show between 0 and 5?



- YES
- 18
- Replace gun/turret drive electronic unit.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-16.
 - Run self test on STE.
 - See figure 15-3, block 19.
 - Verify that problem is solved.

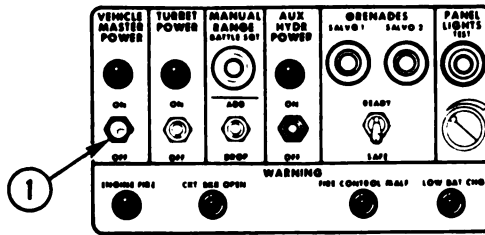
- NO
- 19
- Connect 1W200-P4 to J3 on electronic unit.
 - See figure 16-6.
 - Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
 - Run self test on STE.
 - See figure 15-3, block 19.
 - Verify that problem is solved.

Figure 10-92 (Sheet 6 of 11)
 Volume II
 Para. 10-3

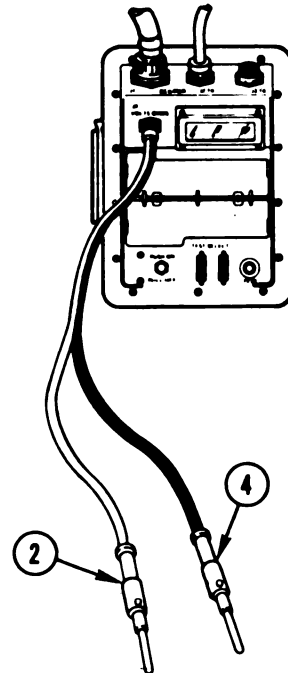
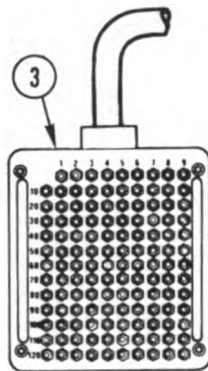
ARR82-6502

From table A or B

- 20
- If any switch or control is being held from the primary procedure, release it at this time.
 - Set VEHICLE MASTER POWER switch (1) to OFF.
 - Disconnect 1W200-P4 from J3 on electronic unit.
 - See figure 16-6.
 - Change STE power hookup from turret networks box to power distribution box.
 - See figure 10-89.
 - Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 10-1.



- 21
- Connect red test probe (2) to test point 94 on breakout box (3).
- NOTE**
If VTM display shows 0 to 5, go immediately to block 22.
- Test for 0 to 5 ohms by connecting black test probe (4) to each test point on breakout box (3) listed below:
 - 1 through 35
 - 53
 - 69 through 93
 - 95 through 128
- Does VTM display show between 0 and 5?



- 22
- YES** **NO**
- Replace gun/turret drive electronic unit.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-16.
 - Run self test on STE.
 - See figure 15-3, block 19.
 - Verify that problem is solved.

- 23
- Connect 1W200-P4 to J3 on electronic unit.
 - See figure 16-6.
 - Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
 - Run self test on STE.
 - See figure 15-3, block 19.
 - Verify that problem is solved.

Figure 10-92 (Sheet 7 of 11)
Volume II
Para. 10-3

ARR82-6503

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

From table A or B

- 24**
- If any switch or control is being held from the primary procedure, release it at this time.
 - Set VEHICLE MASTER POWER switch (1) to OFF.
 - Disconnect CABLE NO. 1-P1 (2) from breakout box (3).
 - Connect CX305-P2 (4) to breakout box (3).
 - Connect CX305-P1 (5) to CX307-P3 (6).

- 25**
- Disconnect 1W200-P3 from J2 on electronic unit.
 - See figure 16-6.
 - Connect 1W200-P3 (7) to CA523-P1 (8).
 - Connect CA523-P2 (9) to CX307-P1 (10).

- 26**
- Change STE power hookup from turret networks box to power distribution box.
 - See figure 10-89.
 - Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer para. 10-1.
 - Test for 0 to 5 ohms between test points 17 and 18 on breakout box.
 - Connect red test probe (11) to test point 17 on breakout box (3).
 - Connect black test probe (12) to test point 18 on breakout box (3).

Does VTM display show between 0 and 5?

YES

NO

- 27**
- Connect 1W200-P3 to J2 on electronic unit.
 - See figure 16-6.
 - Replace feed forward gyroscope .
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-19.
 - Run self test on STE.
 - See figure 15-3, block 19.
 - Verify that problem is solved.

- 28**
- Replace gun/turret drive electronic unit.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-16.
 - Run self test on STE.
 - See figure 15-3, block 19.
 - Verify that problem is solved.

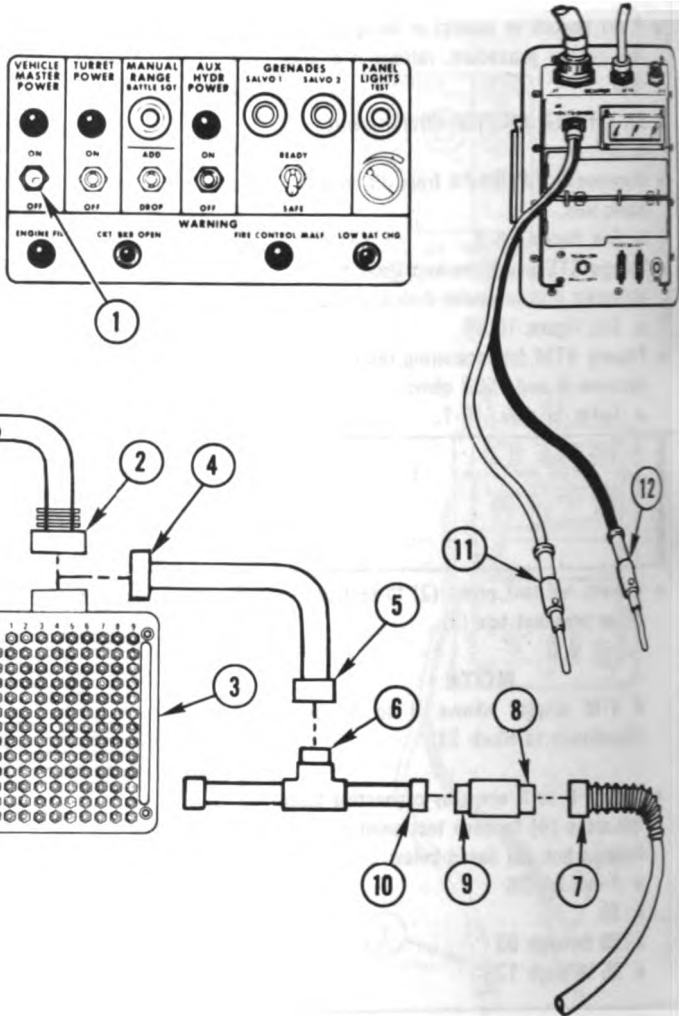


Figure 10-92 (Sheet 8 of 11)
Volume II
Para. 10-3

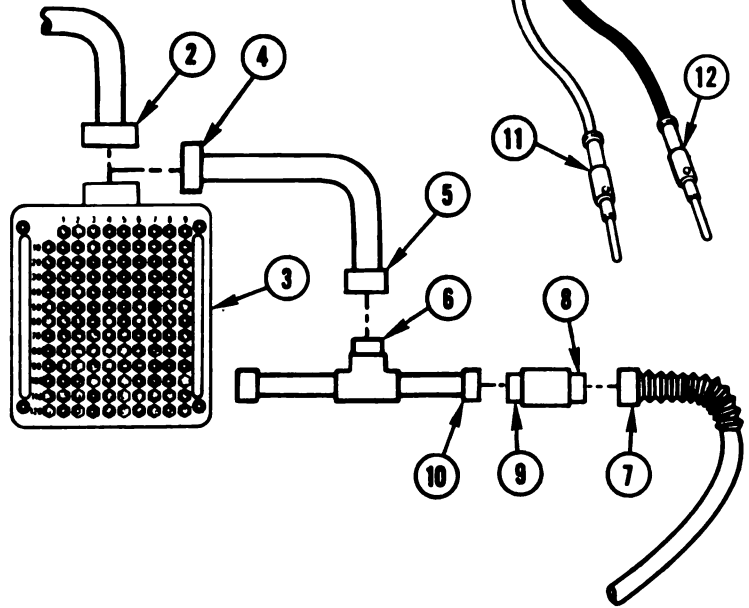
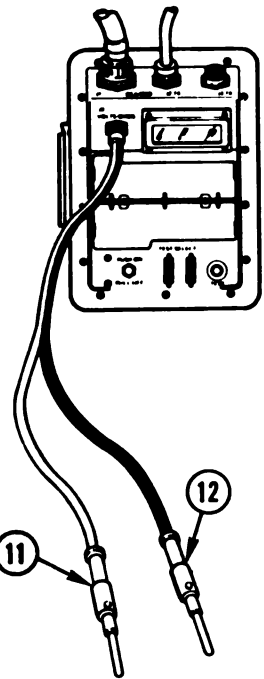
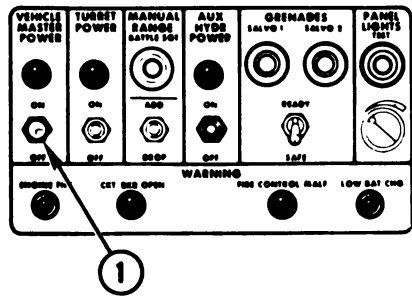
ARR82-654

From table A or B

- If any switch or control is being held from the primary procedure, release it at this time.
- Set VEHICLE MASTER POWER switch (1) to OFF.
- Disconnect CABLE NO. 1-P1 (2) from breakout box (3).
- Connect CX305-P2 (4) to breakout box (3).
- Connect CX305-P1 (5) to CX307-P3 (6).

- Disconnect 1W200-P3 from J2 on electronic unit.
 - See figure 16-6.
- Connect 1W200-P3 (7) to CA523-P1 (8).
- Connect CA523-P2 (9) to CX307-P1 (10).

- Change STE power hookup from turret networks box to power distribution box.
 - See figure 10-89.
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 10-1.
- Test for 0 to 5 ohms between test points 14 and 15 on breakout box.
 - Connect red test probe (11) to test point 14 on breakout box (3).
 - Connect black test probe (12) to test point 15 on breakout box (3).



Does VTM display show between 0 and 5?

YES

NO

- Connect 1W200-P3 to J2 on electronic unit.
 - See figure 16-6.
- Replace reference gyroscope.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-19.
- Run self test on STE.
 - See figure 15-3, block 19.
- Verify that problem is solved.

33

- Replace gun/turret drive electronic unit.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-16.
- Run self test on STE.
 - See figure 15-3, block 19.
- Verify that problem is solved.

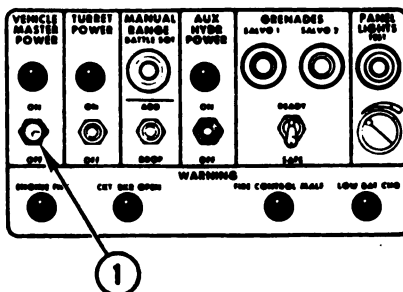
Figure 10-92 (Sheet 9 of 11)
Volume II
Para. 10-3

ARR82-6505

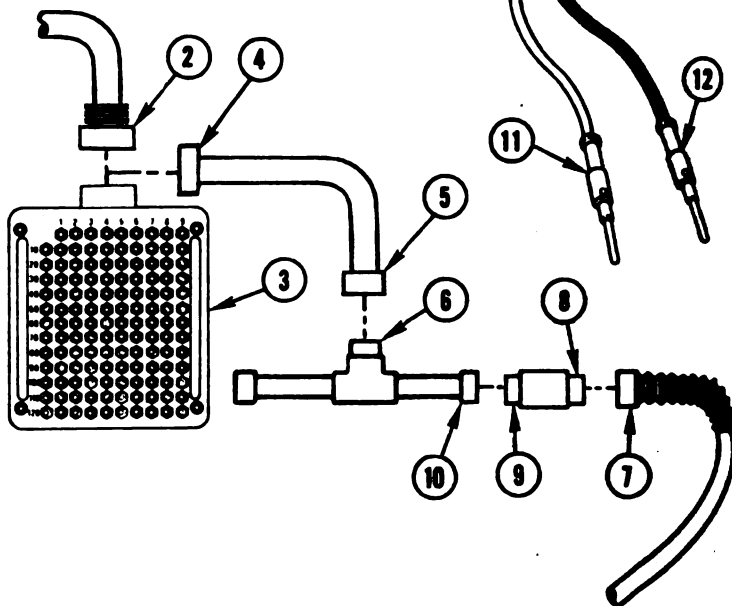
**TM 9-2350-255-20-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

From table A or B

- 34
- If any switch or control is being held from the primary procedure, release it at this time.
 - Set VEHICLE MASTER POWER switch (1) to OFF.
 - Disconnect CABLE NO. 1-P1 (2) from breakout box (3).
 - Connect CX305-P2 (4) to breakout box (3).
 - Connect CX305-P1 (5) to CX307-P3 (6).



- 35
- Disconnect 2W109-P1 from J3 on hull/turret slipring.
 - See figure 16-9.
 - Connect 2W109-P1 (7) to CA421-P1 (8).
 - Connect CA421-P2 (9) to CX307-P1 (10).



- 36
- Change STE power hookup from turret networks box to power distribution box.
 - See figure 10-89.
 - Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 10-1.
 - Test for 0 to 5 ohms between test points 9 and 11 on breakout box.
 - Connect red test probe (11) to test point 9 on breakout box (3).
 - Connect black test probe (12) to test point 11 on breakout box (3).

Does VTM display show between 0 and 5?

NO

YES

- 37
- Connect 2W109-P1 to J3 on hull/turret slipring.
 - See figure 16-9.
 - Replace hull gyroscope.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-19.
 - Run self test on STE.
 - See figure 15-3, black 19.
 - Verify that problem is solved.

Figure 10-92 (Sheet 10 of 11)
Volume II
Para. 10-3

ARR82-6506

- Disconnect CX305-P2 (1) from breakout box (2).
- Connect CABLE NO. 1-P1 (3) to breakout box (2).
- Disconnect 1W200-P4 from J3 on electronic unit.
- See figure 16-8.

- Connect red test probe (4) to test point 115 on breakout box (2).

NOTE

If VTM display shows 0 to 5, go immediately to block 40.

- Test for 0 to 5 ohms by connecting black test probe (5) to each test point on breakout box (2) listed below:
 - 1 through 35
 - 53
 - 89 through 114
 - 116 through 128

Does VTM display show between 0 and 5?

YES

NO

- Connect 2W109-P1 to J3 on hull/turret slipring.
 - See figure 16-9.
- Replace gun/turret drive electronic unit.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-16.
- Run self test on STE.
 - See figure 15-3, block 19.
- Verify that problem is solved.

41

- Connect 1W200-P4 to J3 on electronic unit.
 - See figure 16-8.
- Replace hull/turret slipring assembly.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-8.
- Run self test on STE.
 - See figure 15-3, block 19.
- Verify that problem is solved.

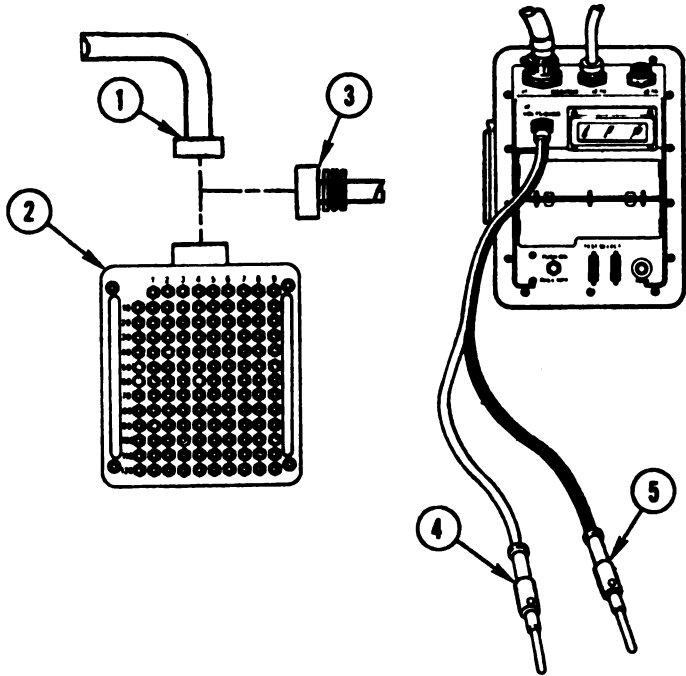


Figure 10-92 (Sheet 11 of 11)
Volume II
Para. 10-3

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS -
SEE -20 MANUAL** **144508**

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

Equipment Condition:
● Tank parked.
● Parking brake set.
● Engine shut down.
● Turret power on.

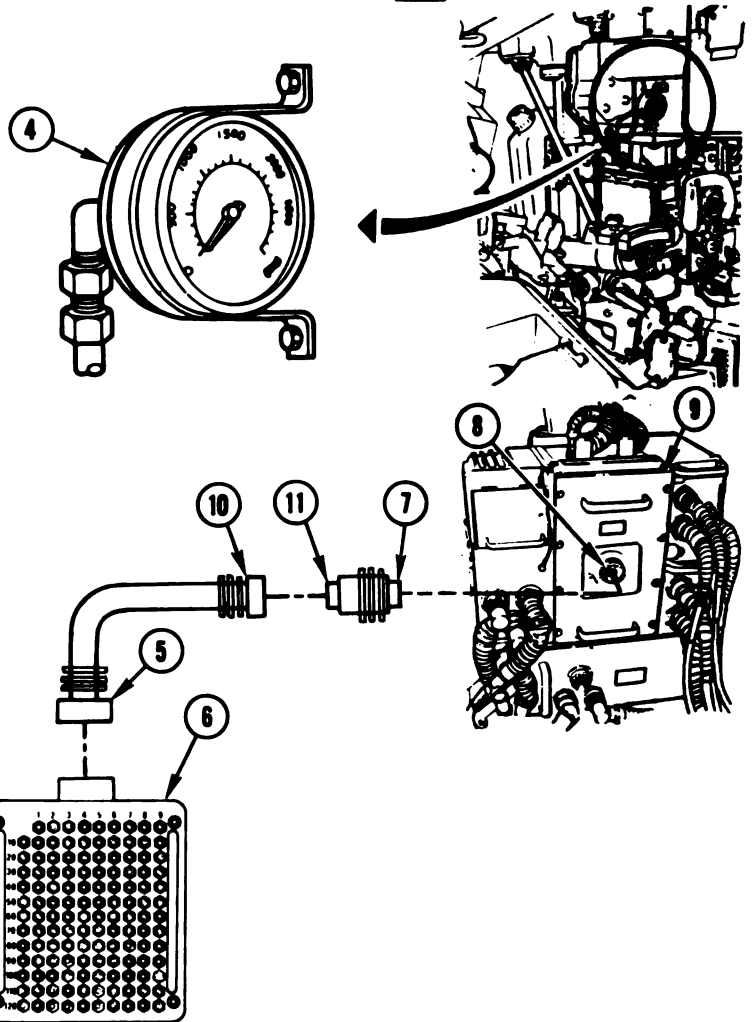
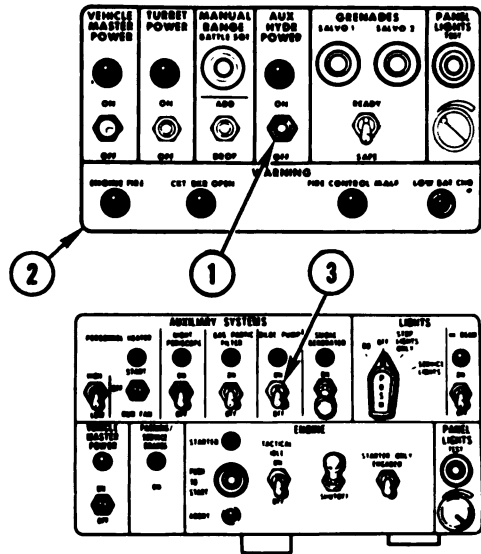
1
● Set AUX HYDR POWER switch (1) on commander's control panel (2) to OFF.

WARNING

Bilge pump can discharge debris that will injure personnel. Check that personnel are not near bilge pump discharge nozzle before turning bilge pump on.

2
● Reduce hydraulic pressure to zero by operating bilge pump.
● Set BILGE PUMP switch (3) to ON.
● When dial pressure gage (4) indicates 0 psi, set BILGE PUMP switch (3) to OFF.

3
● Remove CX205 from CIB and tank.
● See figure 10-38.
● Connect breakout box to J4 on electronic unit using CABLE NO. 1 and ADAPTER NO. 1.
● Connect CABLE NO. 1-P1 (5) to breakout box (6).
● Connect ADAPTER NO. 1-P1 (7) to J4 (8) on electronic unit (9).
● Connect CABLE NO. 1-P2 (10) to ADAPTER NO. 1-J1 (11).



*Figure 10-93 (Sheet 1 of 8)
Volume II
Para. 10-3*

ARR82-6508

Table A

Black Test Probe	Red Test Probe	Action
129	16	Go to figure 10-90, block 144.
26	80,82	Go to block 16.
26	99,101	Go to block 21.

- 4
- 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. 10-1.

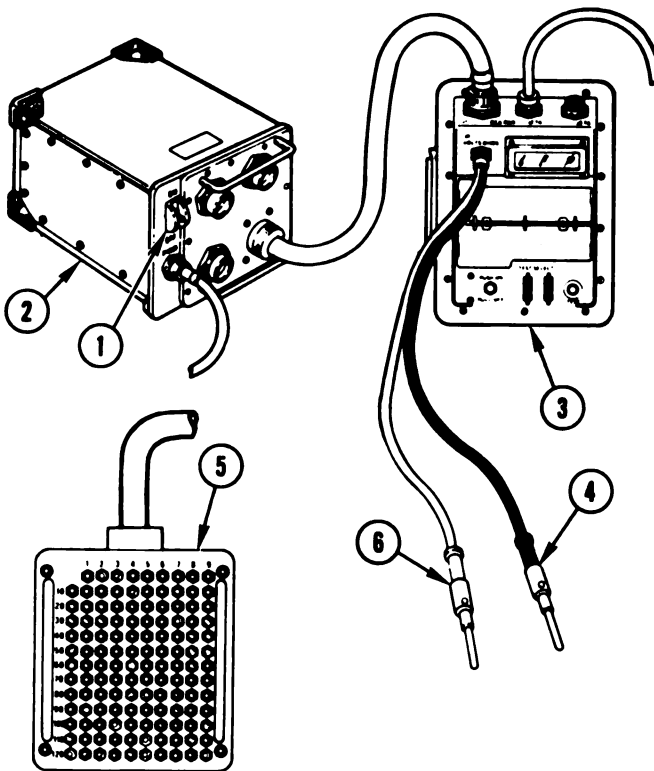
5

NOTE

If VTM display does not show between -12 and 12, go immediately to block 6.

- Test for -12 to 12 V dc between test points on breakout box listed in table A.
- Connect black test probe (4) to test points on breakout box (5) listed in table A.
- Connect red test probe (6) to test points on breakout box (5) listed in table A.

Does VTM display show between -12 and 12 at each pair of test points?



YES NO

6

Go to table A and do action for test points that failed.

Figure 10-93 (Sheet 2 of 8)
Volume II
Para. 10-3

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

7

- Prepare VTM for measuring ac voltage.
- Refer to para. 10-1.

8

NOTE

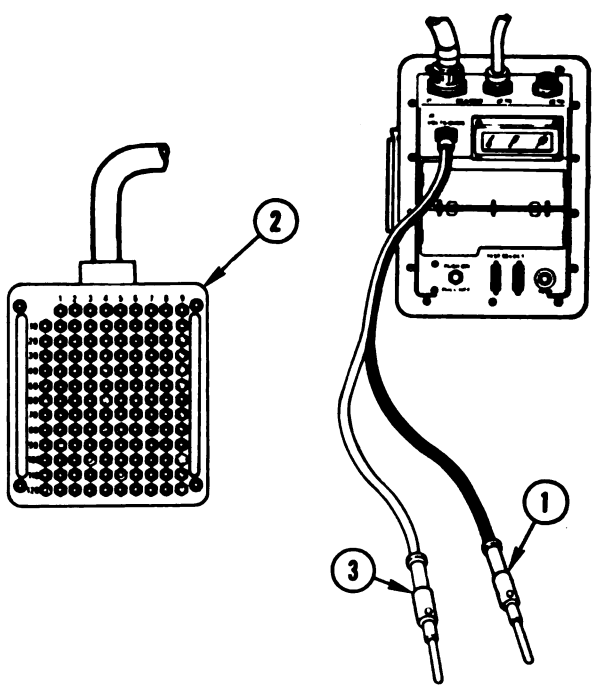
If VTM display does not show less than 12, go immediately to block 9.

- Test for less than 12 V ac between test points on breakout box listed in table B.
- Connect black test probe (1) to test points on breakout box (2) listed in table B.
- Connect red test probe (3) to test points on breakout box (2) listed in table B.

Does VTM display show less than 12 at each pair of test points?

Table B

Black Test Probe	Red Test Probe	Action
129	16	Go to figure 10-90, block 144.
26	80,82	Go to block 16.
26	99,101	Go to block 21.



9

Go to table B and do action for test points that failed.



Figure 10-93 (Sheet 3 of 8)
Volume II
Para. 10-3

ARR82-8510

- Disconnect ADAPTER NO. 1-P1 (1) from J4 (2).
- Connect ADAPTER NO. 1-P1 (1) to J3 (3) on line-of-sight electronics unit (4).

- Connect black test probe (5) to test point 33 on breakout box (6).

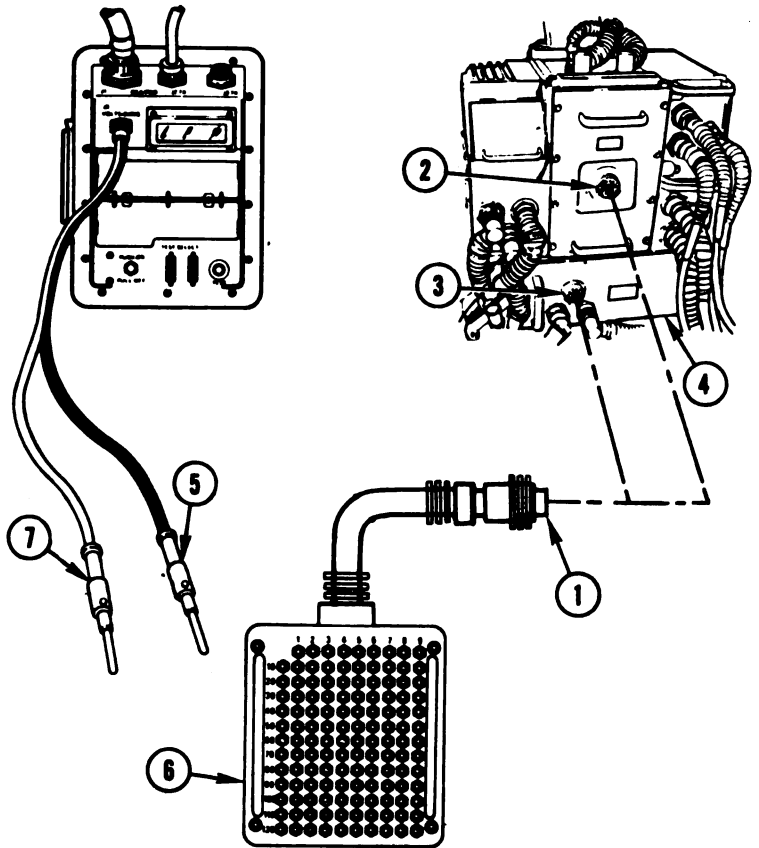
NOTE

If VTM display does not show less than 12, go immediately to block 12.

- Test for less than 12 V ac, by connecting red test probe (7) to each test point on breakout box (6) listed below:

- 10 and 12
- 73, 74, and 76
- 86

Does VTM display show less than 12 at each test point?



YES

NO

- 12
- Replace line-of-sight electronics unit.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-8.
 - Run self test on STE.
 - See figure 15-3, block 19.
 - Verify that problem is solved.

Figure 10-93 (Sheet 4 of 8)
Volume II
Para. 10-3

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

13

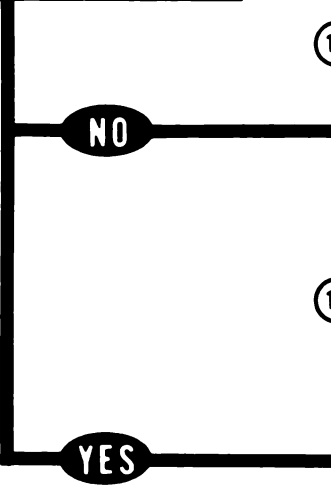
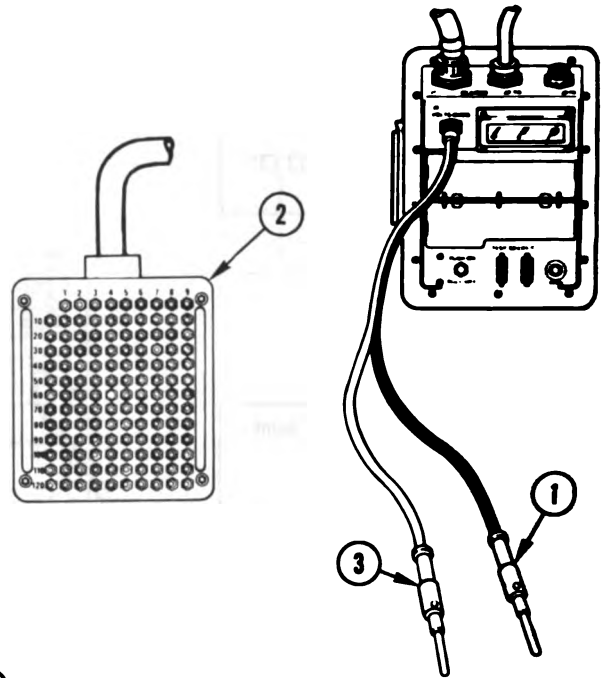
- Prepare VTM for measuring dc voltage.
 - Refer to para. 10-1.
- Connect black test probe (1) to test point 33 on breakout box (2).

NOTE

If VTM display does not show between -12 and 12, go immediately to block 14.

- Test for -12 to 12 V dc, by connecting red test probe (3) to each test point on breakout box (2) listed below:
 - 10 and 12
 - 73, 74, and 76
 - 88

Does VTM display show between -12 and 12 at each test point?

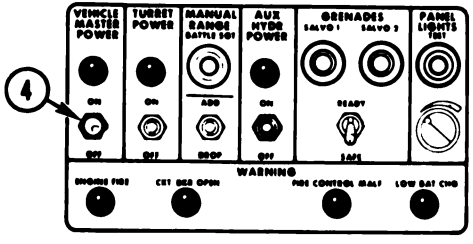


14

- Replace line-of-sight electronics unit.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-8.
- Run self test on STE.
 - See figure 15-3, block 19.
- Verify that problem is solved.

15

- Set VEHICLE MASTER POWER switch (4) to OFF.
- STE test cable CX205 is faulty. Notify support maintenance.
- Run self test on STE.
 - See figure 15-3, block 19.
- Repeat STE test.
 - For test 1430, see figure 10-37, block 11.
 - For test 1400, refer to TM 9-2350-255-20-2-2-1, figure 9-5, block 17.



*Figure 10-93 (Sheet 5 of 8)
Volume II
Para. 10-3*

From table A or B

Table C

Red Test Probe	Black Test Probe
10	11, 13, and 30
12	10, 11, 13, 28 through 32, 95 and 98
31	10 through 13, 28, 29, 30, 32, 95 and 98

- 16
- If any switch or control is being held from the primary procedure, release it at this time.
 - Set VEHICLE MASTER POWER switch (1) to OFF.
 - Disconnect CABLE NO. 1-P1 (2) from breakout box (3).
 - Connect CX305-P2 (4) to breakout box (3).
 - Connect CX305-P1 (5) to CX307-P3 (6).

- 17
- Disconnect 1W200-P3 from J2 on electronic unit.
 - See figure 16-6.
 - Connect 1W200-P3 (7) to CA523-P1 (8).
 - Connect CA523-P2 (9) to CX307-P1 (10).
 - Change STE power hookup from turret networks box to power distribution box.
 - See figure 10-89.
 - Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 10-1.

- 18
- NOTE**
- If VTM display shows 0 to 5, go immediately to block 20.
- Test for 0 to 5 ohms between test points on breakout box listed in table C.
 - Connect red test probe (11) to test points on breakout box (3) listed in table C.
 - Connect black test probe (12) to test points on breakout box (3) listed in table C.
- Does VTM display show between 0 and 5?

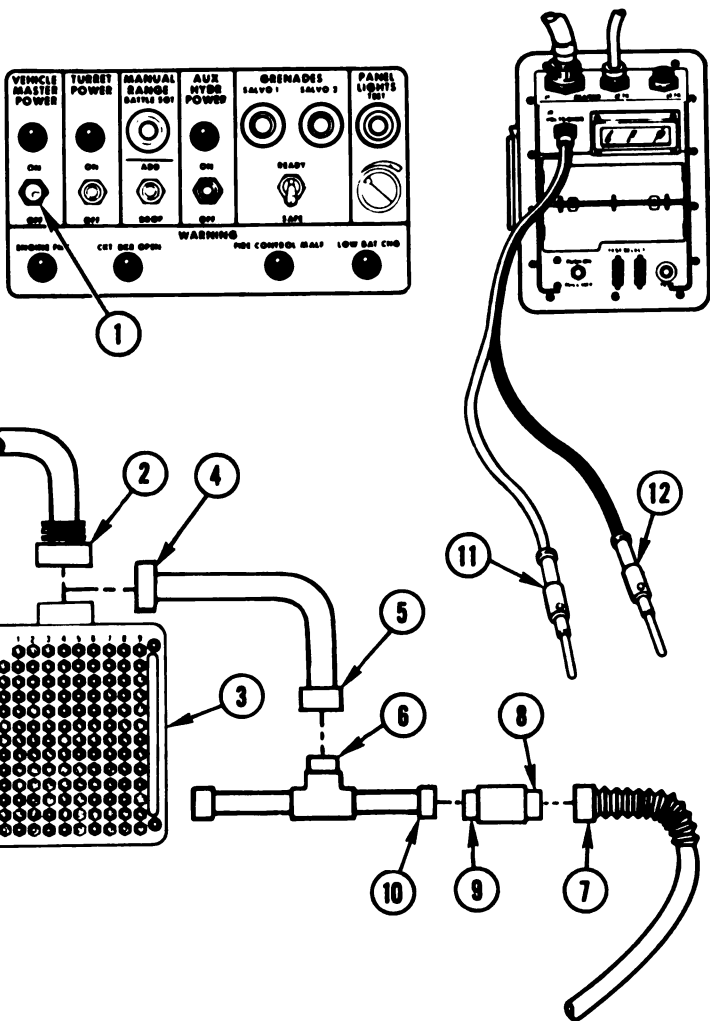
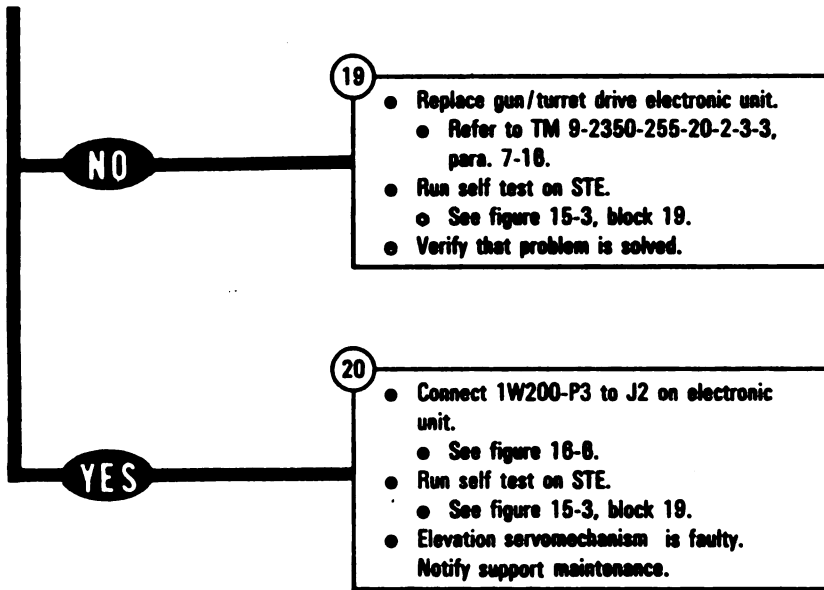


Figure 10-93 (Sheet 6 of 8)
Volume II
Para. 10-3

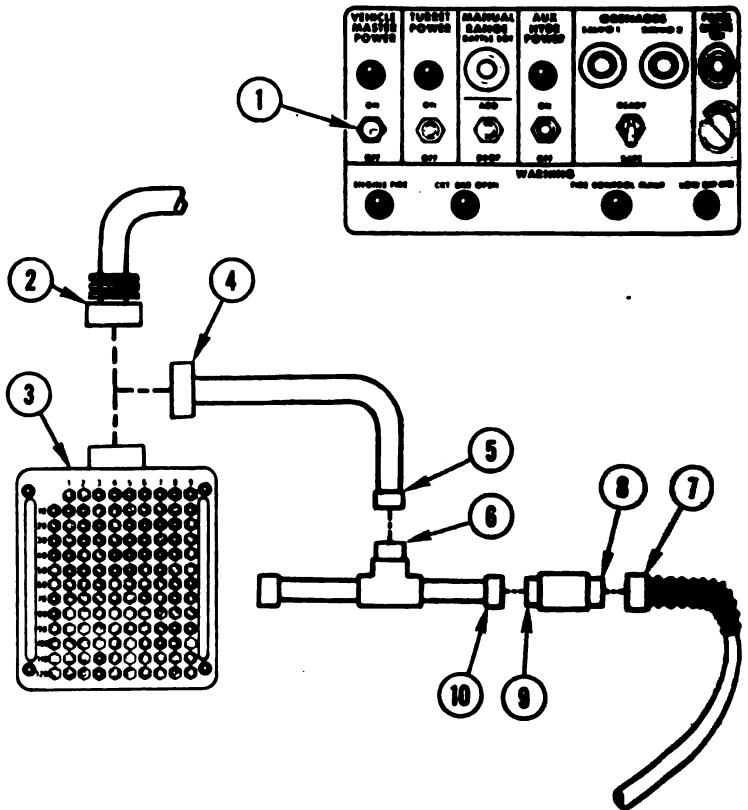
**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**



From table A or B

- 21**
- If any switch or control is being held from the primary procedure, release it at this time.
 - Set VEHICLE MASTER POWER switch (1) to OFF.
 - Disconnect CABLE NO. 1-P1 (2) from breakout box (3).
 - Connect CX305-P2 (4) to breakout box (3).
 - Connect CX305-P1 (5) to CX307-P3 (8).

- 22**
- Disconnect 1W200-P4 from J3 on electronic unit.
 - See figure 16-6.
 - Connect 1W200-P4 (7) to CA515-P1 (8).
 - Connect CA515-P2 (9) to CX307-P1 (10).
 - Change STE power hookup from turret networks box to power distribution box.
 - See figure 10-89.
 - Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 10-1.



*Figure 10-93 (Sheet 7 of 8)
Volume II
Para. 10-3*

ARR82-6514

Table D

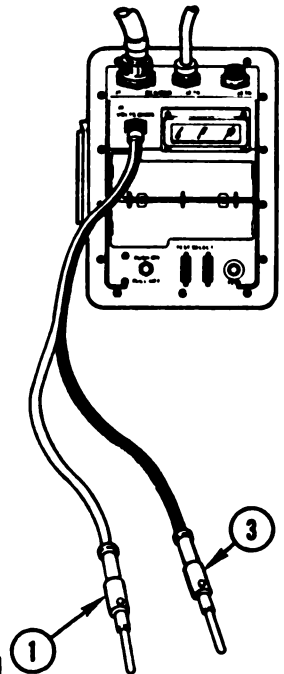
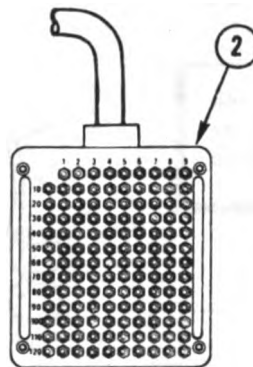
Red Test Probe	Black Test Probe
12	11, 13, 28 through 32, 95 through 97
31	11, 13, 28 through 30, 32, 95 through 97
96	11, 28 and 30

NOTE

If VTM display shows 0 to 5 ohms, go immediately to block 25.

- Test for 0 to 5 ohms between test points on breakout box listed in table D.
- Connect red test probe (1) to test points on breakout box (2) listed in table D.
- Connect black test probe (3) to test points on breakout box (2) listed in table D.

Does VTM display show between 0 and 5?



NO

24

- Replace gun/turret drive electronic unit.
- Refer to TM 9-2350-255-20-2-3-3, para. 7-16.
- Run self test on STE.
- See figure 15-3, block 19.
- Verify that problem is solved.

YES

25

- Connect 1W200-P4 to J3 on electronic unit.
- See figure 16-6.
- Run self test on STE.
- See figure 15-3, block 19.
- Traverse servomechanism is faulty. Notify support maintenance.

Figure 10-93 (Sheet 8 of 8)
Volume II
Para. 10-3

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS -
SEE -20 MANUAL**

144509

Additional Test

Equipment/Special Tools:

- Breakout Box Tool Kit, 12311068

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Turret power on.

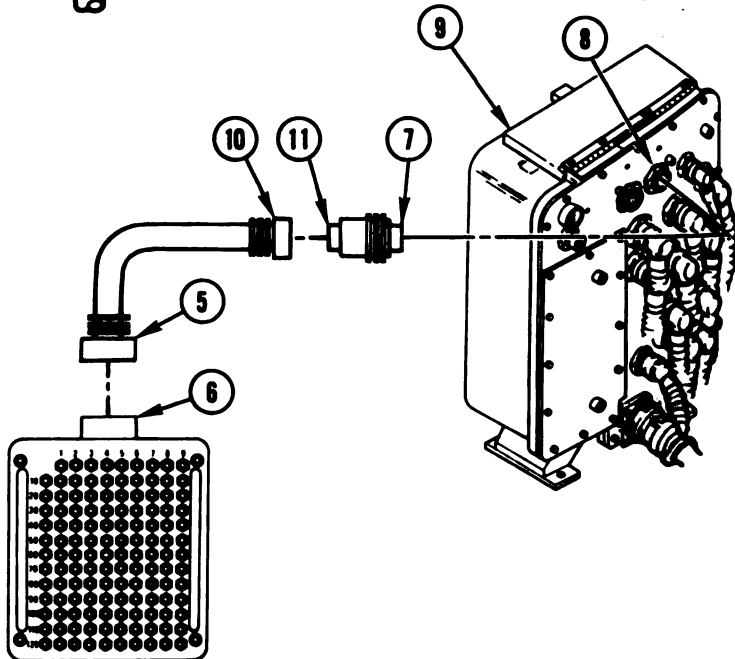
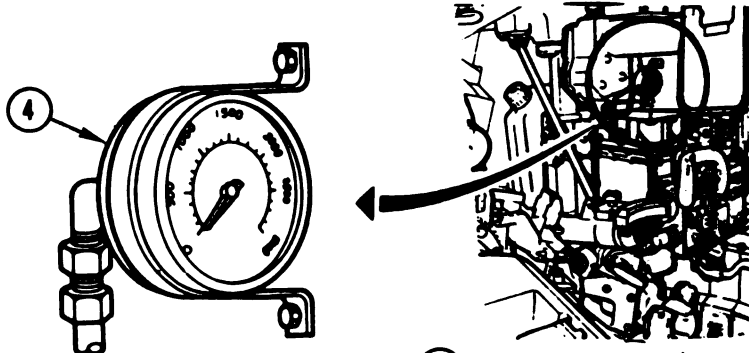
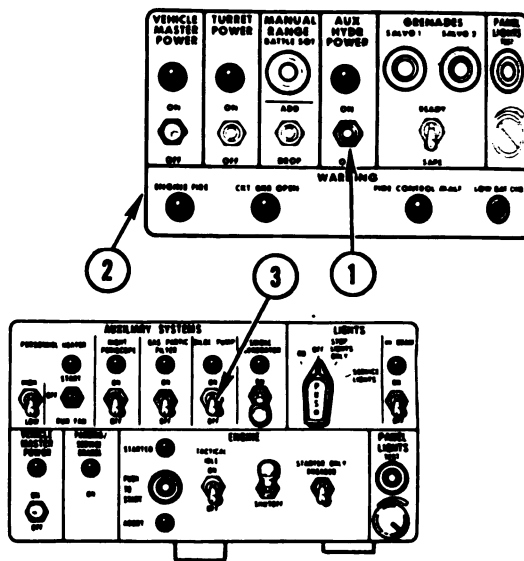
- 1
- Set AUX HYDR POWER switch (1) on commander's control panel (2) to OFF.

WARNING

Bilge pump can discharge debris that will injure personnel. Check that personnel are not near bilge pump discharge nozzle before turning bilge pump on.

- 2
- Reduce hydraulic pressure to zero by operating bilge pump.
 - Set BILGE PUMP switch (3) to ON.
 - When dial pressure gage (4) indicates 0 psi, set BILGE PUMP switch (3) to OFF.

- 3
- Remove CX205 from CIB and tank.
 - See figure 10-38.
 - Connect breakout box to TEST 2 on turret networks box using CABLE NO. 1 and ADAPTER NO. 1.
 - Connect CABLE NO. 1-P1 (5) to breakout box (8).
 - Connect ADAPTER NO. 1-P1 (7) to TEST 2 (8) on turret networks box (9).
 - Connect CABLE NO. 1-P2 (10) to ADAPTER NO. 1-J1 (11).



*Figure 10-94 (Sheet 1 of 14)
Volume II
Para. 10-3*

ARR82-6516

Table A

Red Test Probe	Action
91	Go to figure 10-90, block 197.
92	Go to figure 10-90, block 99.
97	Go to figure 10-90, block 144.
98	Go to figure 10-90, block 121.

- 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. 10-1.

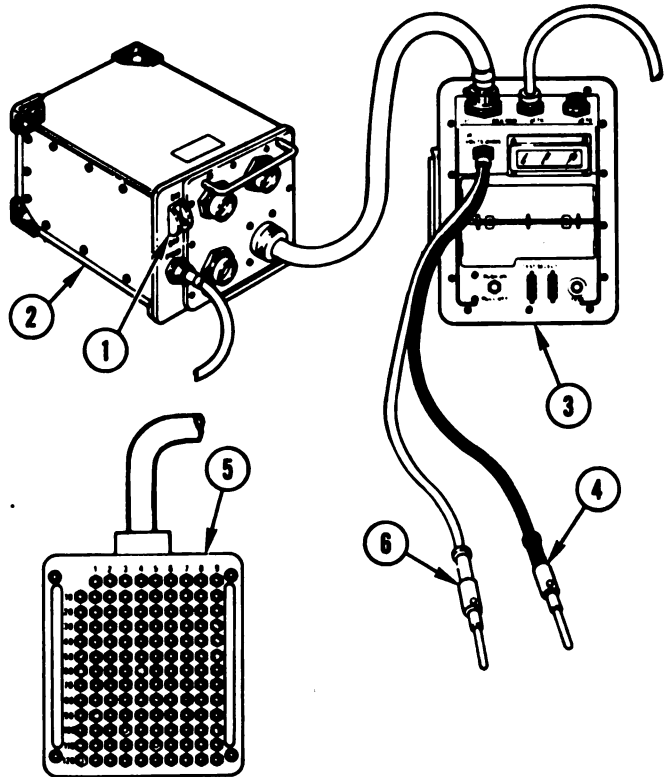
- Connect black test probe (4) to test point 9 on breakout box (5).

NOTE

If VTM display does not show between -12 and 12, go immediately to block 8.

- Test for -12 to 12 V dc by connecting red test probe (6) to each test point on breakout box (5) listed in table A.

Does VTM display show between -12 and 12 at each test point?



YES

NO

6 Go to table A and do action for test point that failed.

Figure 10-94 (Sheet 2 of 14)
Volume II
Para. 10-3

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

7

- Prepare VTM for measuring ac voltage.
- Refer to para. 10-1.
- Connect black test probe (1) to test point 9 on breakout box (2).

NOTE

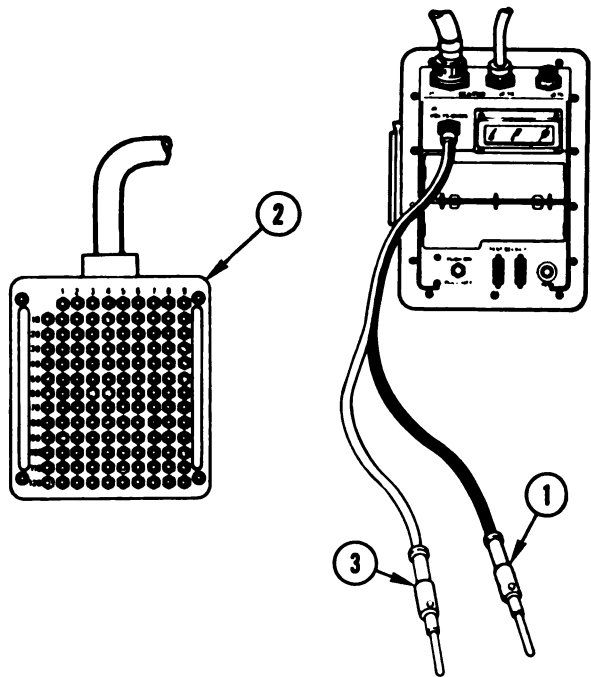
If VTM display does not show less than 12, go immediately to block 8.

- Test for less than 12 V ac by connecting red test probe (3) to each test point on breakout box (2) listed in table B.

Does VTM display show less than 12 at each test point?

Table B

Red Test Probe	Action
91	Go to figure 10-90, block 197.
92	Go to figure 10-90, block 105.
97	Go to figure 10-90, block 144.
98	Go to figure 10-90, block 127.



8

Go to table B and do action for test point that failed.

YES

NO

Figure 10-94 (Sheet 3 of 14)
Volume II
Para. 10-3

ARR82-8518

Table C

Red Test Probe	Action
6	<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. ● Run self test on STE. <ul style="list-style-type: none"> ● See figure 15-3, block 19. ● Verify that problem is solved.
41,43,45	<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. ● Replace computer electronics unit. <ul style="list-style-type: none"> ● Refer to TM 9-2350-255-20-2-3-3, para. 7-14. ● Run self test on STE. <ul style="list-style-type: none"> ● See figure 15-3, block 19. ● Verify that problem is solved.

- Disconnect ADAPTER NO. 1-P1 (1) from TEST 2 (2).
- Connect ADAPTER NO. 1-P1 (1) to J3 (3) on line-of-sight electronics unit (4).

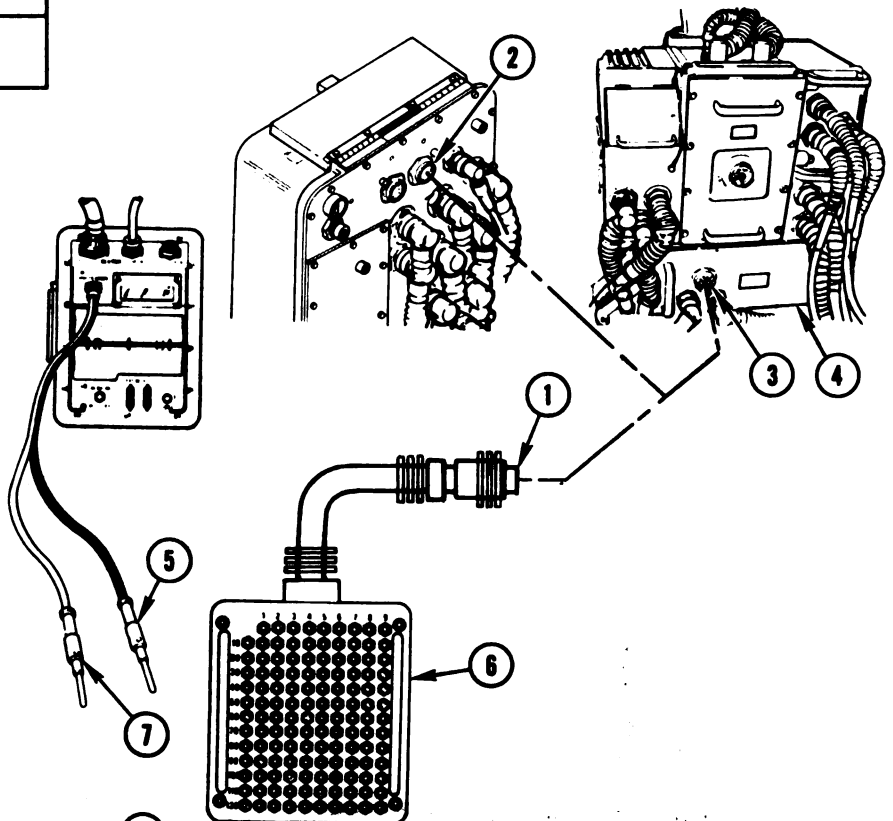
- Connect black test probe (5) to test point 33 on breakout box (8).

NOTE

If VTM display does not show less than 12, go immediately to block 11.

- Test for less than 12 V ac by connecting red test probe (7) to each test point on breakout box (8) listed in table C.

Does VTM display show less than 12 at each test point?



YES

NO

11 Go to table C and do action for test point that failed.

Figure 10-94 (Sheet 4 of 14)
Volume II
Para. 10-3

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

12

- Prepare VTM for measuring dc voltage.
 - Refer to para. 10-1.
- Connect black test probe (1) to test point 33 on breakout box (2).

NOTE

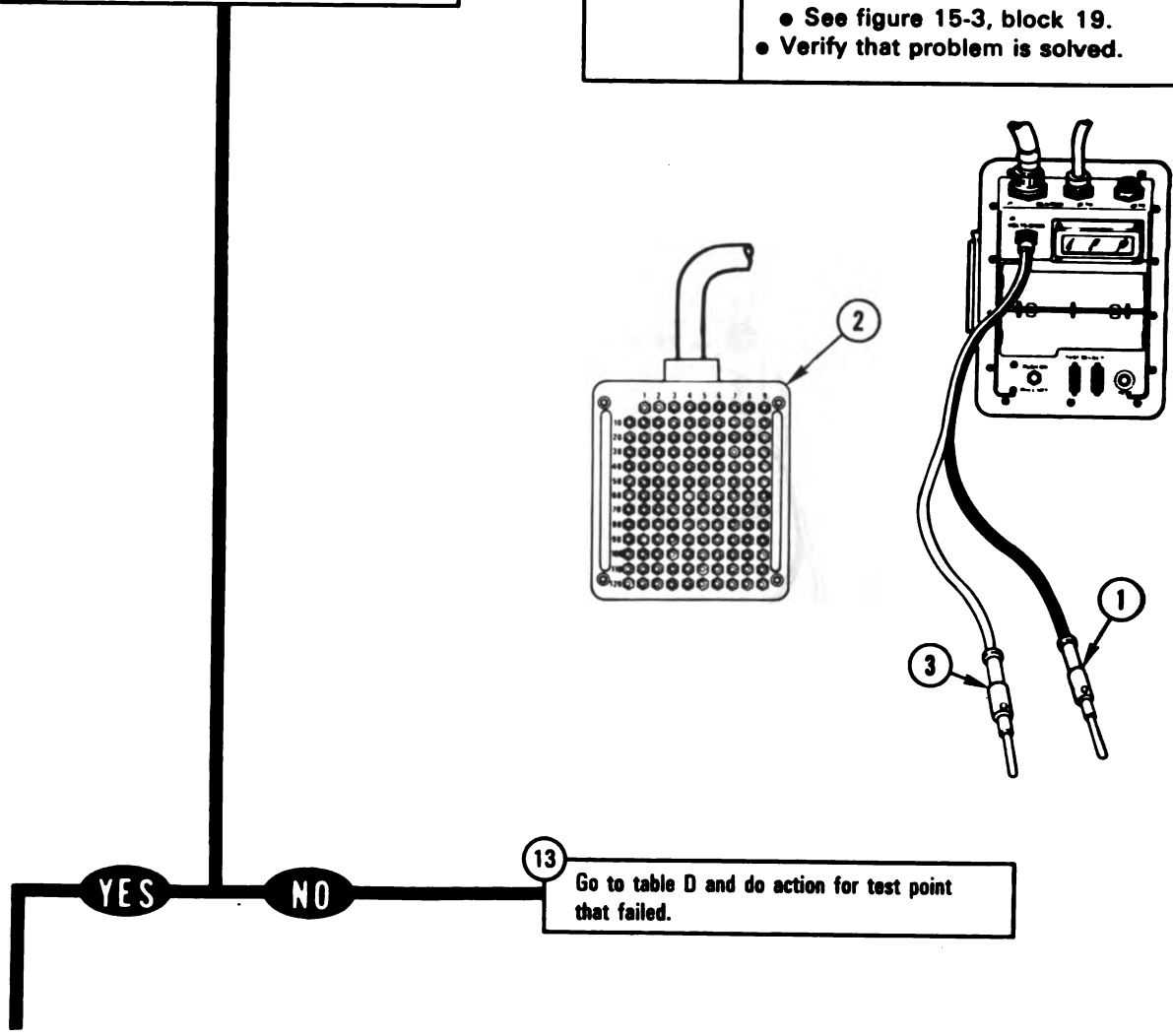
If VTM display does not show between -12 and 12, go immediately to block 13.

- Test for -12 to 12 V dc by connecting red test probe (3) to each test point on breakout box (2) listed in table D.

Does VTM display show between -12 and 12 at each test point?

Table D

Red Test Probe	Action
6	<ul style="list-style-type: none"> ● Replace line-of-sight electronics unit ● Refer to TM 9-2350-255-20-2-33, para. 7-8. ● Run self test on STE. ● See figure 15-3, block 19.
41,43,45	<ul style="list-style-type: none"> ● Verify that problem is solved. ● Replace line-of-sight electronics unit ● Refer to TM 9-2350-255-20-2-33, para. 7-8. ● Replace computer electronics unit ● Refer to TM 9-2350-255-20-2-33, para. 7-14. ● Run self test on STE. ● See figure 15-3, block 19. ● Verify that problem is solved.



13 Go to table D and do action for test point that failed.

*Figure 10-94 (Sheet 5 of 14)
Volume II
Para. 10-3*

Table E

Black Test Probe	Red Test Probe	Action
129	11	Go to figure 10-90, block 197.
129	26	Go to figure 10-90, block 54.
11	53	Leave test probes connected and go to block 21.
11	55	<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.
11	78	<ul style="list-style-type: none"> ● Run self test on STE. ● See figure 15-3, block 19.
11	79	Go to figure 10-90, block 28.
11	94	Go to block 41.
26	103	<ul style="list-style-type: none"> ● Go to figure 10-90, block 197. ● Replace gunner's primary sight body assembly. ● Refer to TM 9-2350-255-20-2-3-3, para. 7-5. ● Run self test on STE. ● See figure 15-3, block 19. ● Verify that problem is solved.

NOTE

If VTM display does not show between -12 and 12, go immediately to block 16.

- Test for -12 to 12 V dc between test points on breakout box listed in table E.
- Connect black test probe (5) to test points on breakout box (6) listed in table E.
- Connect red test probe (7) to test points on breakout box (6) listed in table E.

Does VTM display show between -12 and 12 at each pair of test points?

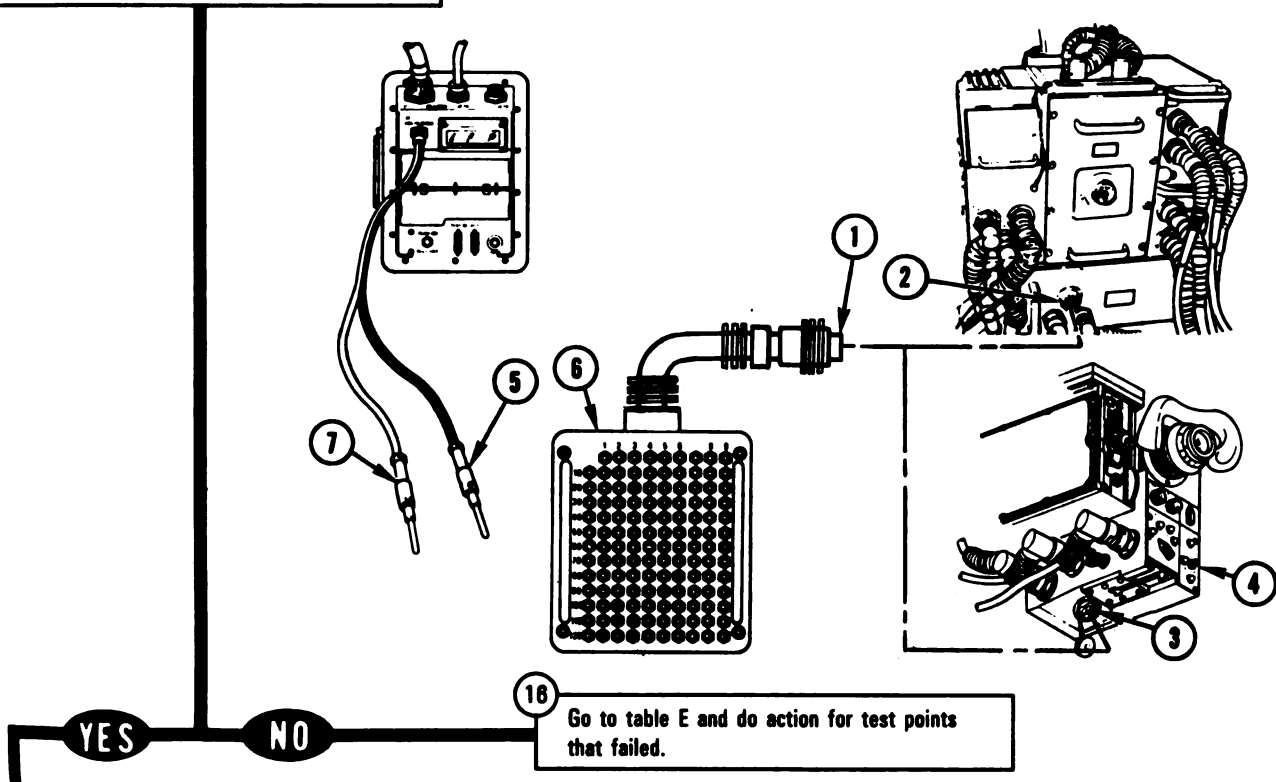


Figure 10-94 (Sheet 6 of 14)
Volume II
Para. 10-3

ARR82-6521

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

- 17
- Prepare VTM for measuring ac voltage.
 - Refer to para. 10-1.

18

NOTE

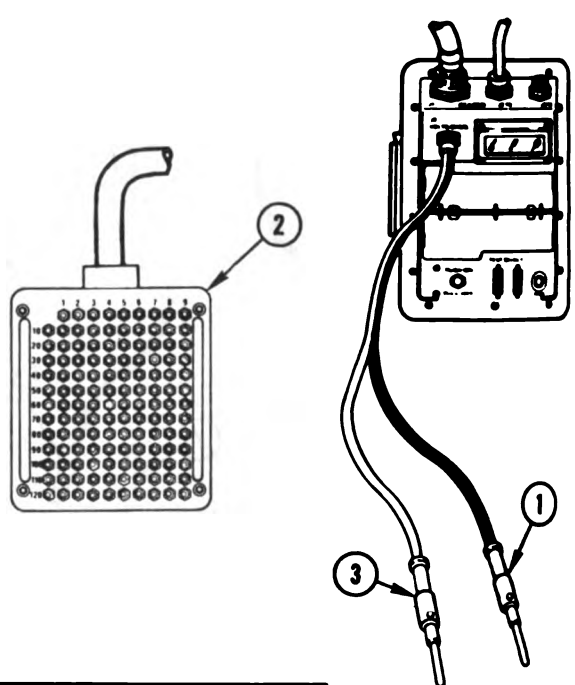
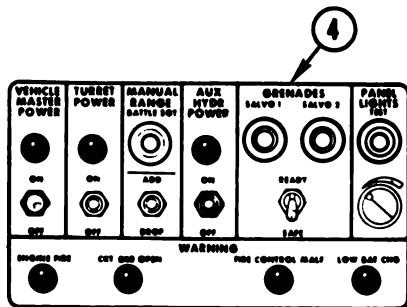
If VTM display does not show less than 12, go immediately to block 20.

- Test for less than 12 V ac between test points on breakout box listed in table F.
- Connect black test probe (1) to test points on breakout box (2) listed in table F.
- Connect red test probe (3) to test points on breakout box (2) listed in table F.

Does VTM display show less than 12 at each pair of test points?

Table F

Black Test Probe	Red Test Probe	Action
129	11	Go to figure 10-90, block 197. Go to figure 10-90, block 54. Leave test probes connected and go to block 24.
129	26	
11	53	
11	55	● Replace gunner's primary sight body assembly. ● Refer to TM 9-2350-255-20-2-3-3, para. 7-5.
		● Run self test on STE. ● See figure 15-3, block 19.
11	78	● Verify that problem is solved.
11	79	Go to figure 10-90, block 34. Go to block 41.
11	94	Go to figure 10-90, block 197.
26	103	● Replace gunner's primary sight body assembly. ● Refer to TM 9-2350-255-20-2-3-3, para. 7-5.
		● Run self test on STE. ● See figure 15-3, block 19.
		● Verify that problem is solved.



- 19
- YES** **NO**
- Set VEHICLE MASTER POWER switch (4) to OFF.
 - STE test cable CX205 is faulty. Notify support maintenance.
 - Run self test on STE.
 - See figure 15-3, block 19.
 - Repeat STE test.
 - For test 1430, see figure 10-37, block 11.
 - For test 1400, refer to TM 9-2350-255-20-2-2-1, figure 9-5, block 17.

20

Go to table F and do action for test points that failed.

Figure 10-94 (Sheet 7 of 14)
Volume II
Para. 10-3

ARR82-6522

From table E

21

- Disconnect 1W201-P2 from J1 on computer electronics unit.
- See figure 16-8.
- Test for -12 to 12 V dc between test points 11 (-) and 53 (+) on breakout box.

Does VTM display show between -12 and 12?

YES

NO

22

- Replace computer electronics unit.
- Refer to TM 9-2350-255-20-2-3-3, para. 7-14.
- Run self test on STE.
- See figure 15-3, block 19.
- Verify that problem is solved.

23

Go to block 26.

From table F

24

- Disconnect 1W201-P2 from J1 on computer electronics unit.
- See figure 16-8.
- Test for less than 12 V ac between test points 11 and 53 on breakout box.

Does VTM display show less than 12?

NO

YES

25

- Replace computer electronics unit.
- Refer to TM 9-2350-255-20-2-3-3, para. 7-14.
- Run self test on STE.
- See figure 15-3, block 19.
- Verify that problem is solved.

Figure 10-94 (Sheet 8 of 14)
Volume II
Para. 10-3

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

From block 23

26

- If any switch or control is being held from the primary procedure, release it at this time.
- Set VEHICLE MASTER POWER switch (1) to OFF.
- Disconnect 1W203-P1 from J3 on turret networks box.
 - See figure 16-5.
- Disconnect 1W203-P2 from J1 on gunner's primary sight.
 - See figure 16-16.
- Disconnect CABLE NO. 1-P1 (2) from breakout box (3).

27

- Connect CX305-P2 (4) to breakout box (3).
- Connect CX305-P1 (5) to CX307-P3 (8).
- Connect 1W203-P1 (7) to CA528-P1 (8).
- Connect CA528-P2 (9) to CX307-P1 (10).
- Change STE power hookup from turret networks box to power distribution box.
 - See figure 10-89.

28

- Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 10-1.
- Connect red test probe (11) to test point 92 on breakout box (3).

NOTE

If VTM display shows 0 to 5, go immediately to block 29.

- Test for 0 to 5 ohms by connecting black test probe (12) to each test point on breakout box (3) listed below:
 - 7 through 38
 - 89 through 91
 - 93 through 111

Does VTM display show between 0 and 5?

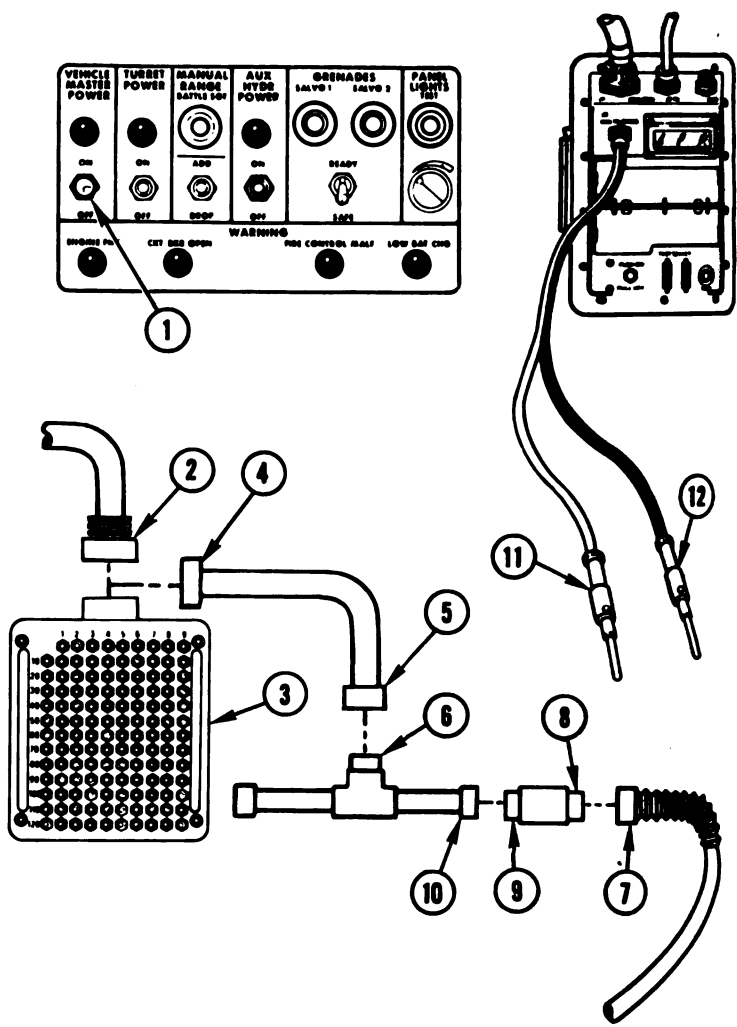
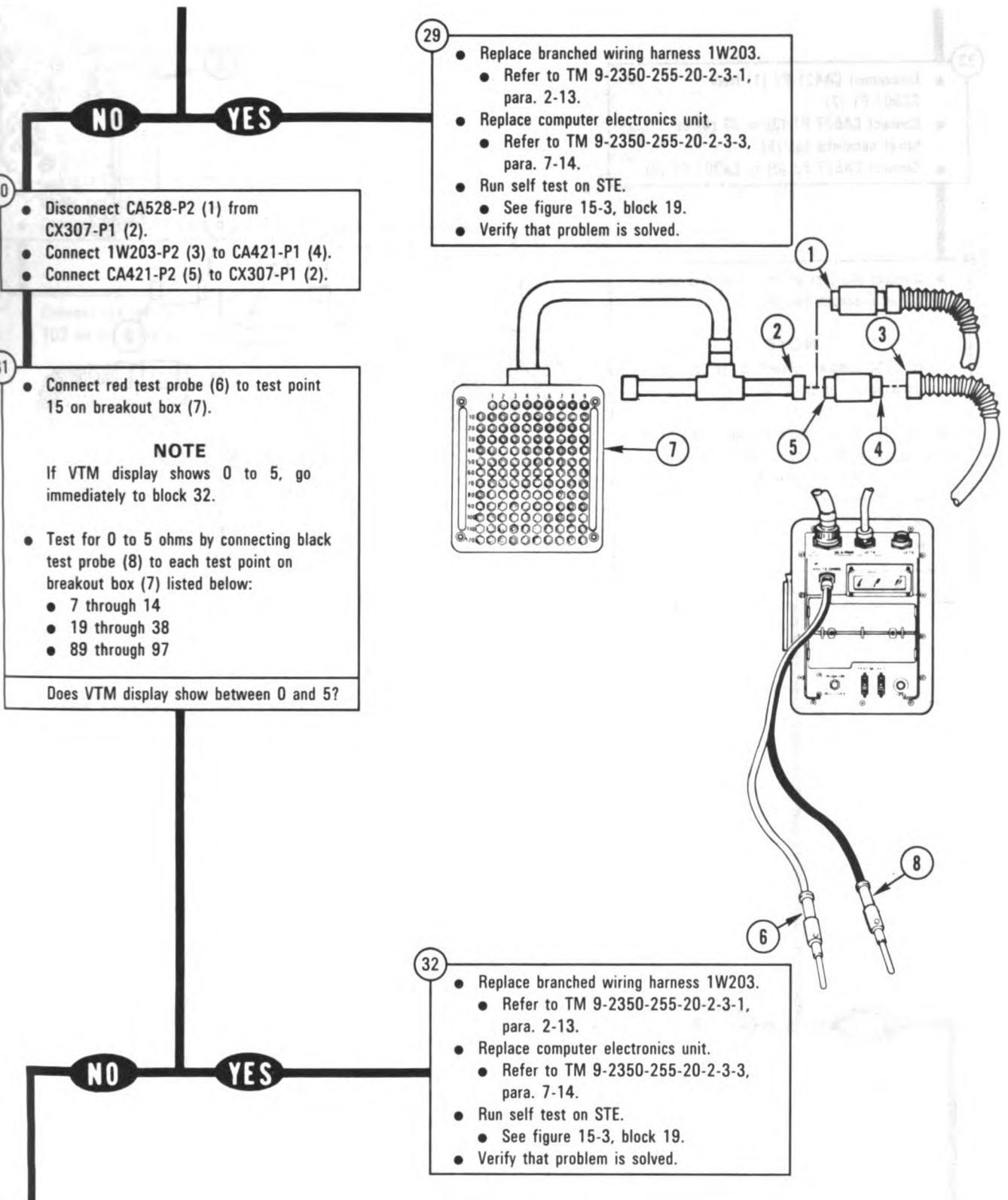


Figure 10-94 (Sheet 9 of 14)
Volume II
Para. 10-3

ARR82-6524



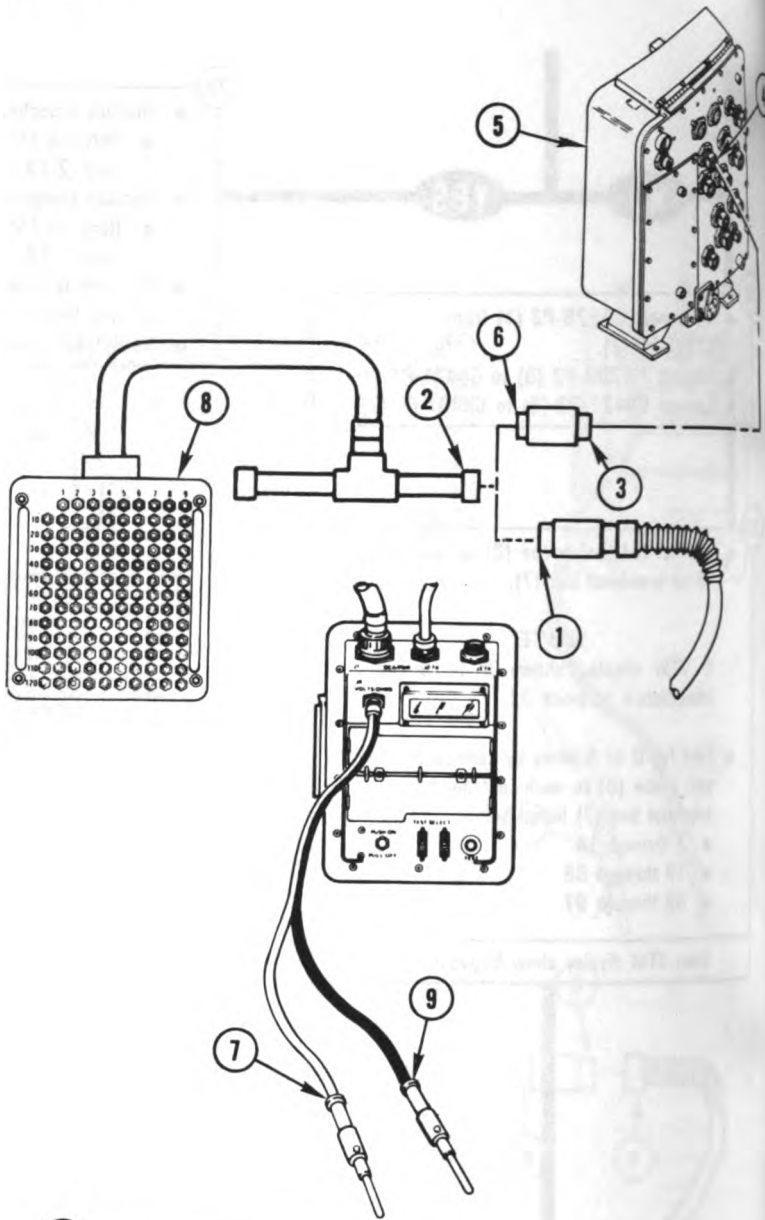
**Figure 10-94 (Sheet 10 of 14)
Volume II
Para. 10-3**

ARR82-6525

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

- 33**
- Disconnect CA421-P2 (1) from CX307-P1 (2).
 - Connect CA527-P1 (3) to J3 (4) on turret networks box (5).
 - Connect CA527-P2 (6) to CX307-P1 (2).

- 34**
- Connect red test probe (7) to test point 92 on breakout box (8).
- NOTE**
 If VTM display shows 0 to 5, go immediately to block 35.
- 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
 - 93 through 111
- Does VTM display show between 0 and 5?



- 35**
- Connect 1W203-P2 to J1 on gunner's primary sight.
 - See figure 16-16.
 - Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
 - Replace computer electronics unit.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-14.
 - Run self test on STE.
 - See figure 15-3, block 19.
 - Verify that problem is solved.

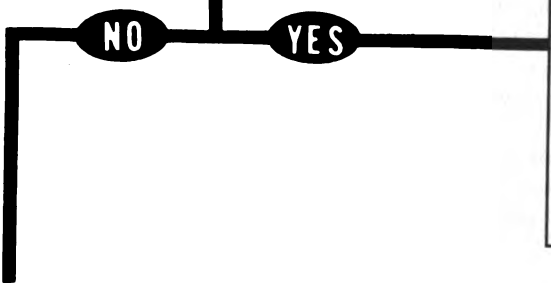
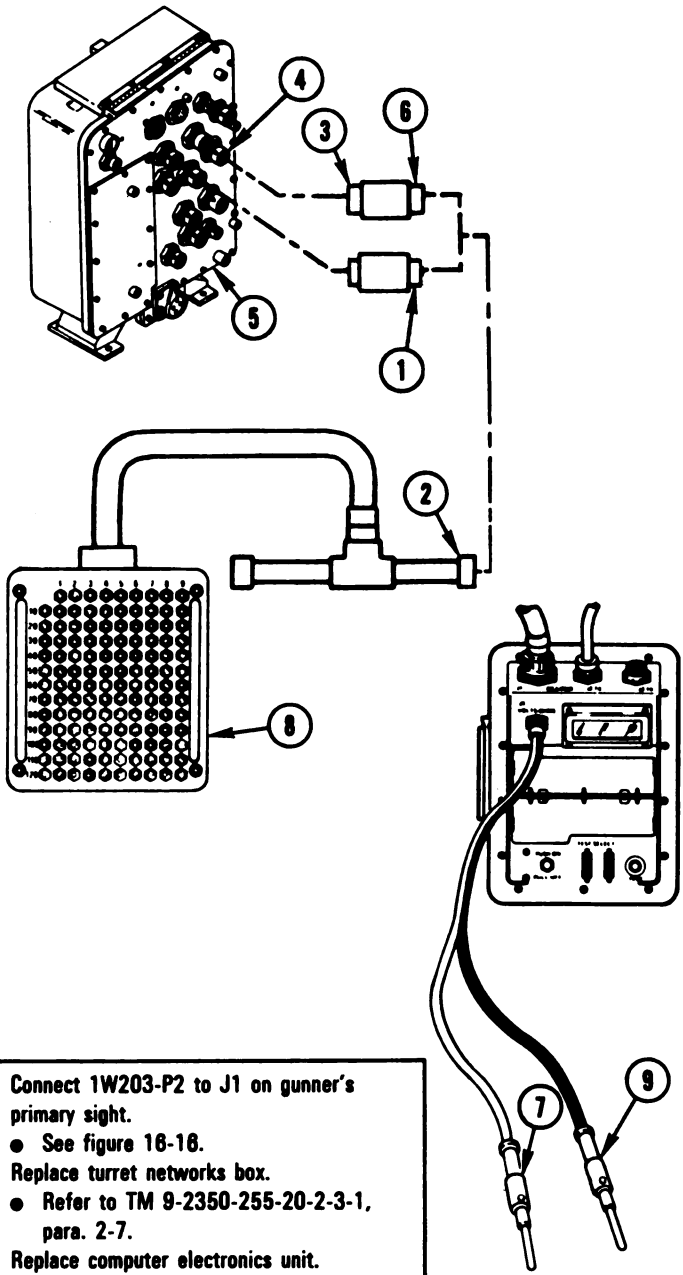


Figure 10-94 (Sheet 11 of 14)
Volume II
Para. 10-3

- 8
- Disconnect 1W201-P1 from J6 on turret networks box.
 - See figure 16-5.
 - Disconnect CA527-P2 (1) from CX307-P1 (2).
 - Connect CA501-P1 (3) to J6 (4) on turret networks box (5).
 - Connect CA501-P2 (6) to CX307-P1 (2).



- 7
- Connect red test probe (7) to test point 103 on breakout box (8).
- NOTE**
If VTM display shows 0 to 5, go immediately to block 39.
- Test for 0 to 5 ohms by connecting black test probe (9) to each test point on breakout box (8) listed below:
 - 7 through 39
 - 62, 74, and 75
 - 89 through 102
 - 104 through 113
- Does VTM display show between 0 and 5?

- NO** **YES**
- 38
- Connect 1W201-P1 to J6 on turret networks box.
 - See figure 16-5.
 - Connect 1W203-P1 to J3 on turret networks box.
 - See figure 16-5.
 - Replace gunner's primary sight body assembly.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-5.
 - Replace computer electronics unit.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-14.

- 39
- Connect 1W203-P2 to J1 on gunner's primary sight.
 - See figure 16-18.
 - Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
 - Replace computer electronics unit.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-14.
 - Run self test on STE.
 - See figure 15-3, block 19.
 - Verify that problem is solved.

- 40
- Run self test on STE.
 - See figure 15-3, block 19.
 - Verify that problem is solved.

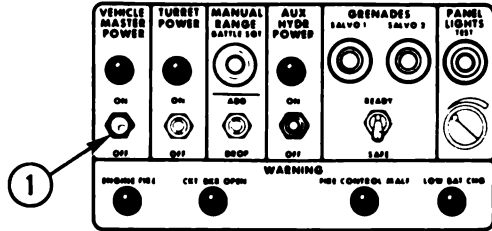
Figure 10-94 (Sheet 12 of 14)
Volume II
Para. 10-3

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

From table E or F

41

- If any switch or control is being held from the primary procedure, release it at this time.
- Set **VEHICLE MASTER POWER** switch (1) to OFF.
- Disconnect 1W201-P1 from J6 on turret networks box.
 - See figure 16-5.
- Change STE power hookup from turret networks box to power distribution box.
 - See figure 10-89.
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 10-1.



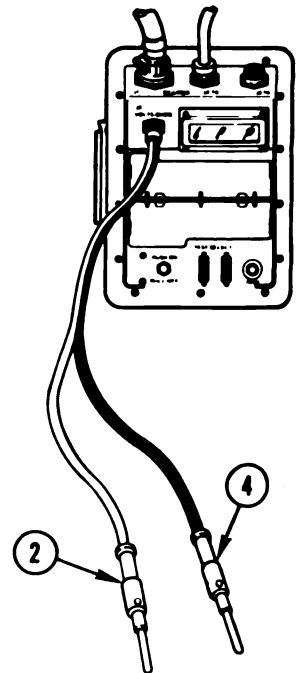
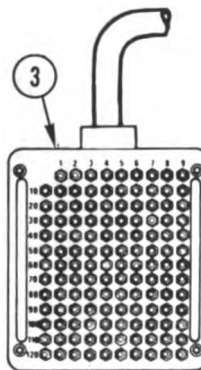
42

- Connect red test probe (2) to test point 79 on breakout box (3).

NOTE

If VTM display shows 0 to 5, go immediately to block 44.

- Test for 0 to 5 ohms by connecting black test probe (4) to each test point on breakout box (3) listed below:
 - 8, 13, 15 and 20
 - 22 through 25
 - 34 and 35



Does VTM display between 0 and 5?

YES

NO

43

- Connect 1W201-P1 to J6 on turret networks box.
 - See figure 16-5.
- Replace computer electronics unit.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-14.
- Run self test on STE.
 - See figure 15-3, block 19.
- Verify that problem is solved.

Figure 10-94. (Sheet 13 of 14)
Volume II
Para. 10-3

ARR82-8528

- 4**
- Disconnect 1W203-P1 from J3 on turret networks box.
 - See figure 18-5.
 - Connect red test probe (1) to test point 79 on breakout box (2).
- NOTE**
- If VTM display shows 0 to 5, go immediately to block 46.
- Test for 0 to 5 ohms by connecting black test probe (3) to each test point on breakout box (2) listed below:
 - 8, 13, 15, and 20
 - 22 through 25
 - 34 and 35

Does VTM display show between 0 and 5?

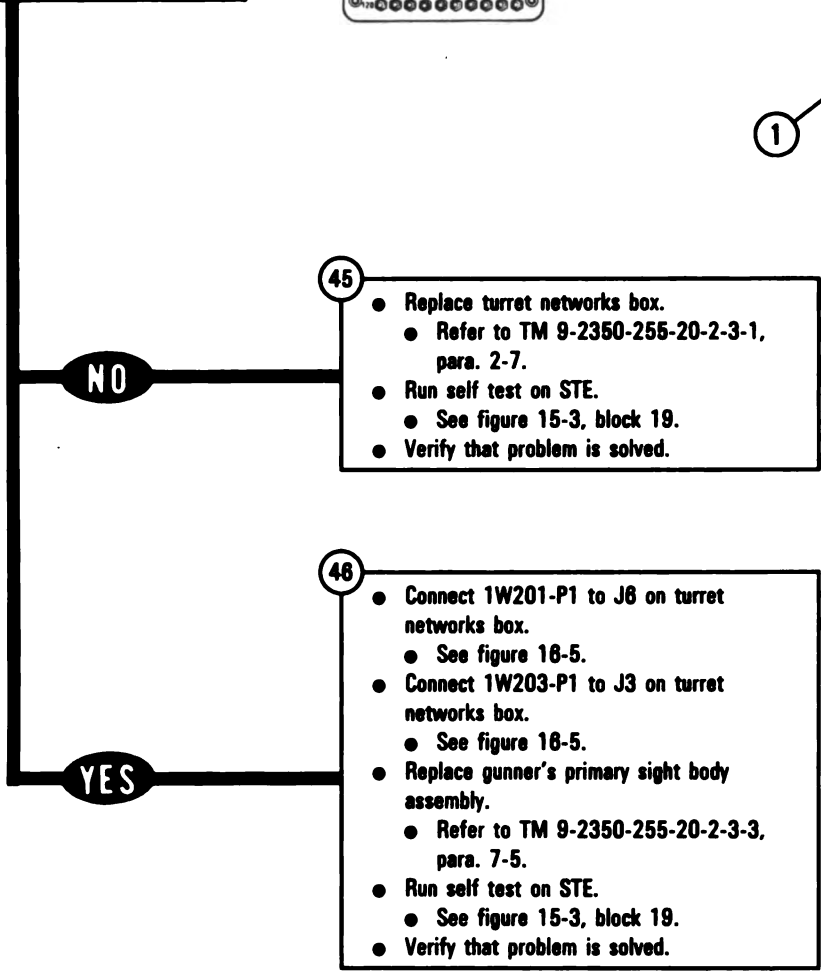
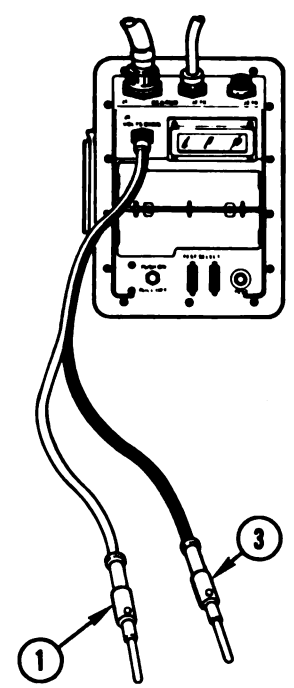
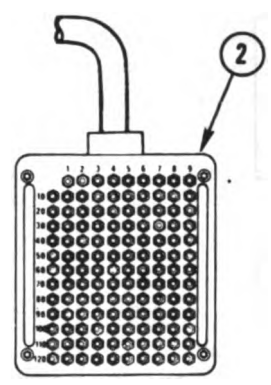


Figure 10-94 (Sheet 14 of 14)
Volume II
Para. 10-3

DISPLAY SHOWS -
 SEE -20 MANUAL

144510

Additional Test Equipment/Special Tools:

- Breakout Box Tool Kit, 12311086

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Turret power on.

- 1
- Set AUX HYDR POWER switch (1) on commander's control panel (2) to OFF.

WARNING

Bilge pump can discharge debris that will injure personnel. Check that personnel are not near bilge pump discharge nozzle before turning bilge pump on.

- 2
- Reduce hydraulic pressure to zero by operating bilge pump.
 - Set BILGE PUMP switch (3) to ON.
 - When dial pressure gage (4) indicates 0 psi, set BILGE PUMP switch (3) to OFF.

- 3
- Remove CX205 from CIB and tank.
 - See figure 10-38.
 - Connect breakout box to TEST 2 on turret networks box using CABLE NO. 1 and ADAPTER NO. 1.
 - Connect CABLE NO. 1-P1 (5) to breakout box (6).
 - Connect ADAPTER NO. 1-P1 (7) to TEST 2 (8) on turret networks box (9).
 - Connect CABLE NO. 1-P2 (10) to ADAPTER NO. 1-J1 (11).

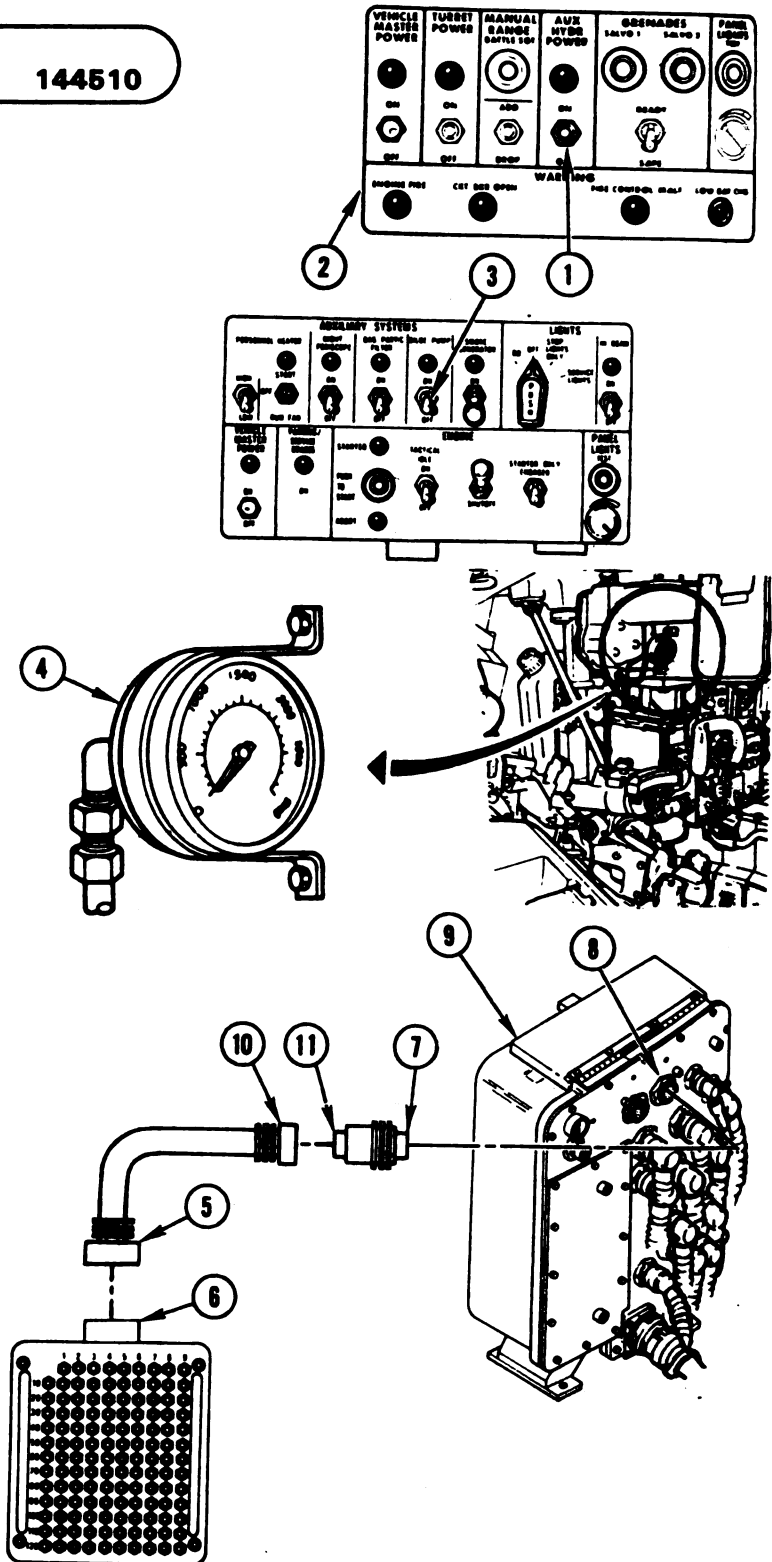


Figure 10-95 (Sheet 1 of 13)
 Volume II
 Para. 10-3

ARR82-6529

Table A

Red Test Probe	Action
56	Go to block 15.
57,77,81	Go to figure 10-90, block 197.
78	Go to block 29.
82	Go to figure 10-90, block 28.
84	Go to figure 10-90, block 94.
85	Go to figure 10-90, block 144.

4

- Change control from SETCOM to VTM.
- Set PWR switch (1) on C1B (2) to OFF to reset VTM (3).
- Set PWR switch (1) to ON.
- Prepare VTM for measuring dc voltage.
- Refer to para. 10-1.

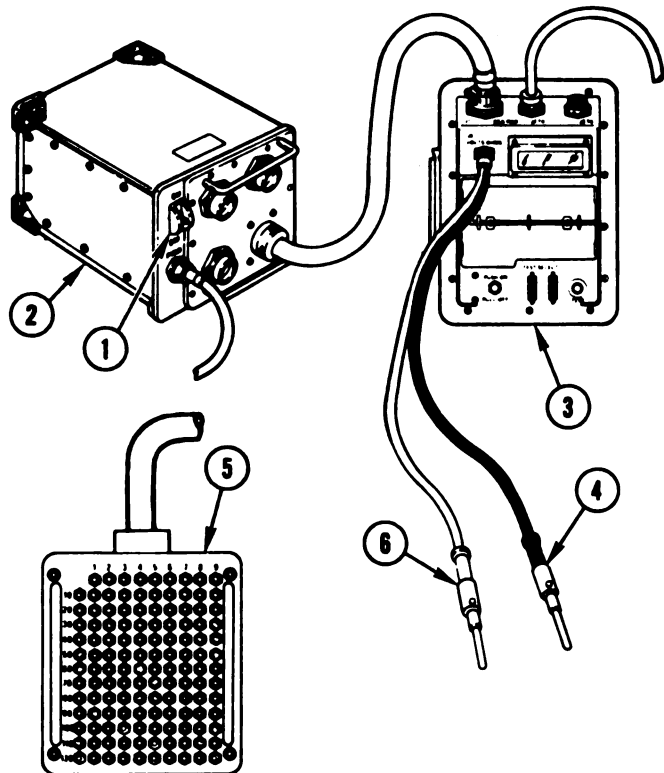
5

- Connect black test probe (4) to test point 11 on breakout box (5).

NOTE
If VTM display does not show between -12 and 12, go immediately to block 6.

- Test for -12 to 12 V dc by connecting red test probe (6) to each test point on breakout box (5) listed in table A.

Does VTM display show between -12 and 12 at each test point?



YES NO

6 Go to table A and do action for test point that failed.

Figure 10-95 (Sheet 2 of 13)
Volume II
Para. 10-3

ARR82-6530

7

- Prepare VTM for measuring ac voltage.
 - Refer to para. 10-1.
- Connect black test probe (1) to test point 11 on breakout box (2).

NOTE

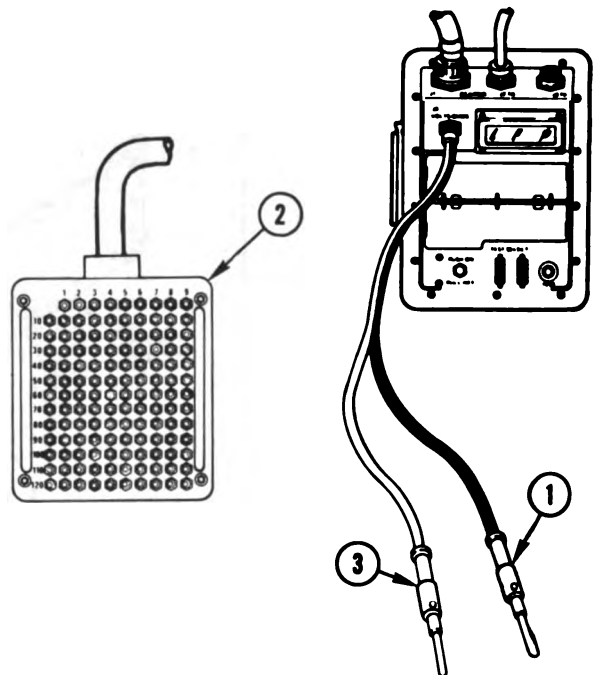
If VTM display does not show less than 12, go immediately to block 8.

- Test for less than 12 V ac by connecting red test probe (3) to each test point on breakout box (2) listed in table B.

Does VTM display show less than 12 at each test point?

Table B

Red Test Probe	Action
56	Go to block 19.
57,77,81	Go to figure 10-90, block 197.
78	Go to block 29.
82	Go to figure 10-90, block 34.
84	Go to figure 10-90, block 94.
85	Go to figure 10-90, block 144.



YES

NO

8

Go to table B and do action for test point that failed.

Figure 10-95 (Sheet 3 of 13)
 Volume II
 Para. 10-3

ARR82-6531

Disconnect ADAPTER NO. 1-P1 (1) from TEST 2 (2).
Connect ADAPTER NO. 1-P1 (1) to J3 (3) on line-of-sight electronics unit (4).

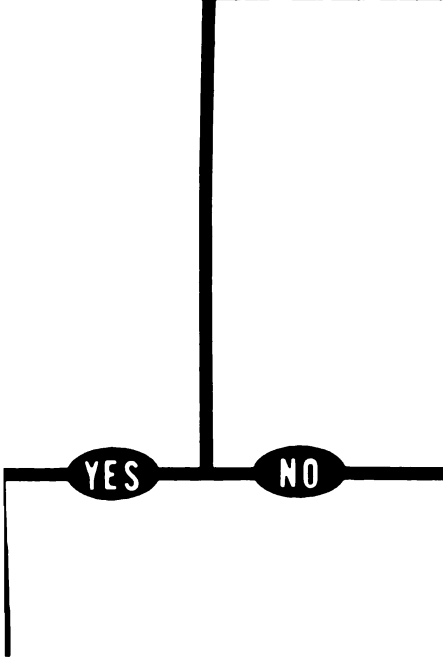
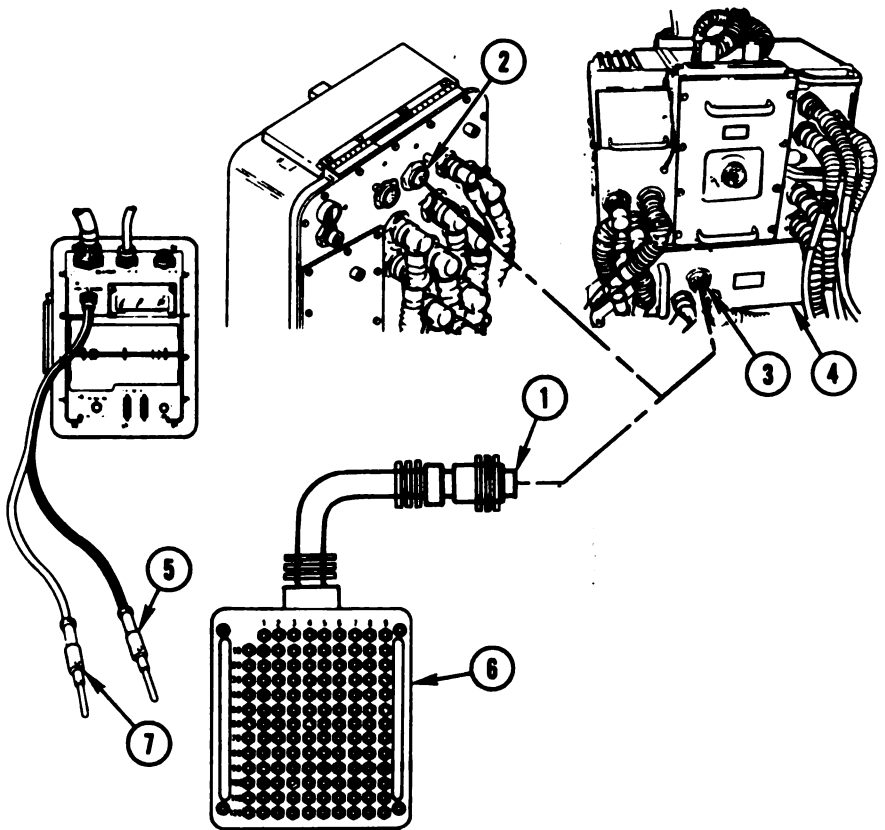
Connect black test probe (5) to test point 33 on breakout box (8).

NOTE
If VTM display does not show less than 12, go immediately to block 11.

Test for less than 12 V ac by connecting red test probe (7) to each test point on breakout box (8) listed below:

- 40, 42, and 44
- 46 through 49
- 51

Does VTM display show less than 12 at each test point?



- 11
- Replace computer electronics unit.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-14.
 - Replace line-of-sight electronics unit.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-8.
 - Run self test on STE.
 - See figure 15-3, block 19.
 - Verify that problem is solved.

Figure 10-95 (Sheet 4 of 13)
Volume II
Para. 10-3

ARR82-6532

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

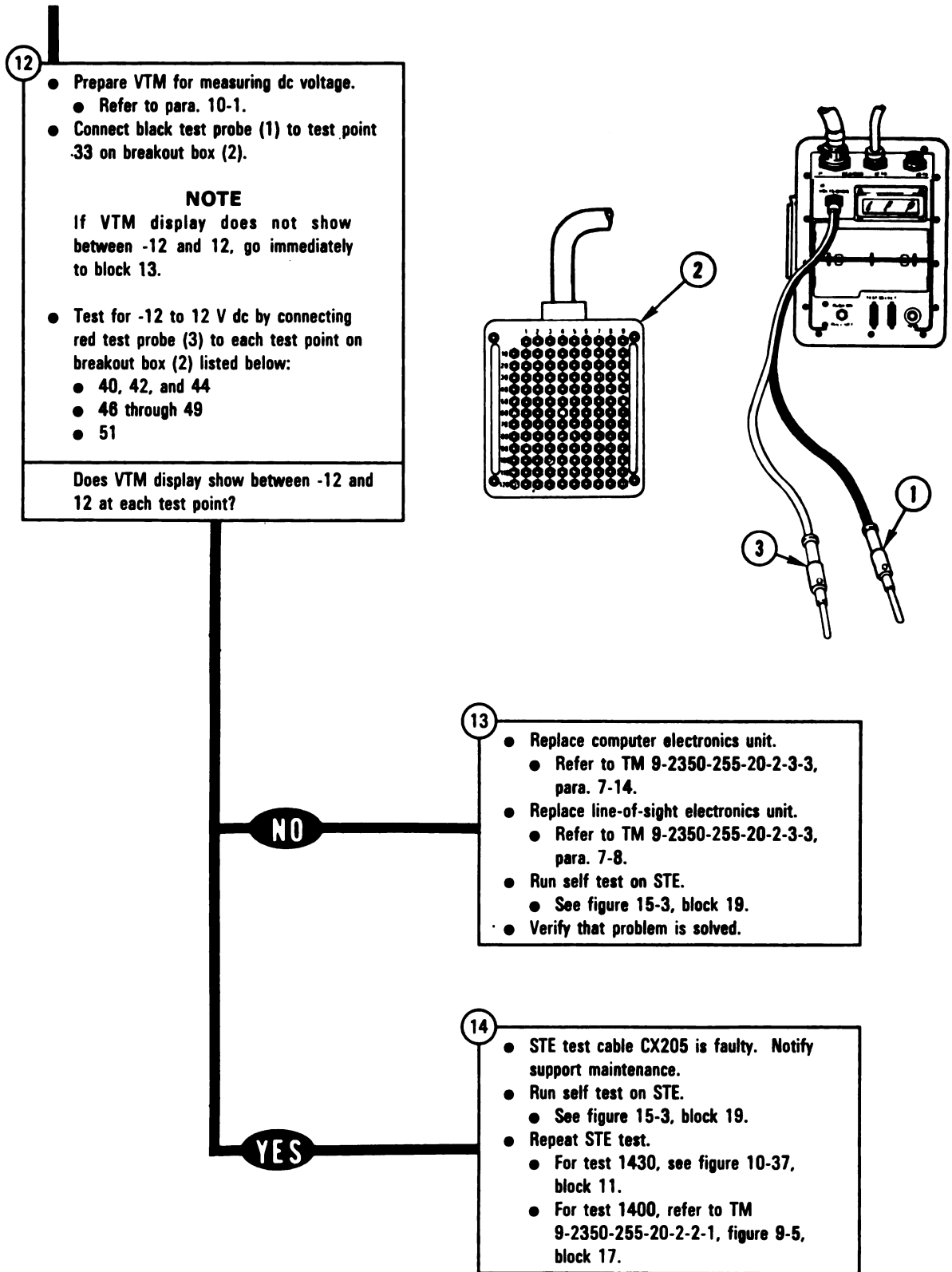


Figure 10-95 (Sheet 5 of 13)
**Volume II
Para. 10-3**

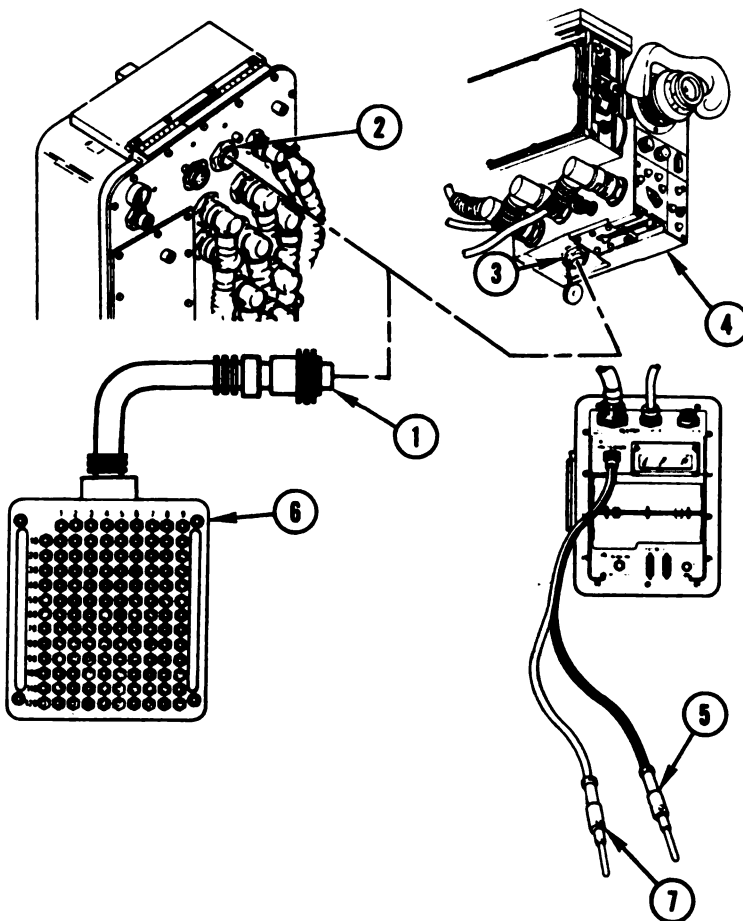
ARR82-6533

from table A

- Disconnect ADAPTER NO. 1-P1 (1) from TEST 2 (2).
- Connect ADAPTER NO. 1-P1 (1) to J4 (3) on gunner's primary sight (4).

- Test for -12 to 12 V dc between test points 11 (-) and 75 (+) on breakout box.
- Connect black test probe (5) to test point 11 on breakout box (8).
- Connect red test probe (7) to test point 75 on breakout box (8).

Does VTM display show between -12 and 12?



NO

YES

- Replace gunner's primary sight body assembly.
- Refer to TM 9-2350-255-20-2-3-3, para. 7-5.
- Run self test on STE.
- See figure 15-3, block 19.
- Verify that problem is solved.

18 Go to block 21.

Figure 10-95 (Sheet 6 of 13)
 Volume II
 Para. 10-3

ARR82-8534

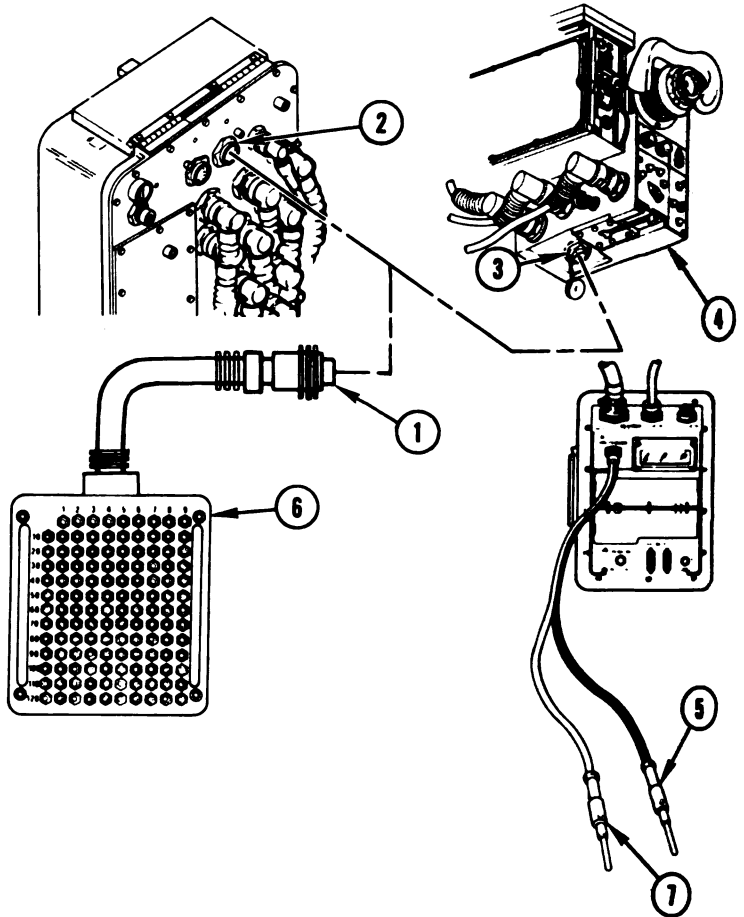
TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

From table B

19

- Disconnect ADAPTER NO. 1-P1 (1) from TEST 2 (2).
- Connect ADAPTER NO. 1-P1 (1) to J4 (3) on gunner's primary sight (4).
- Test for less than 12 V ac between test points 11 (-) and 75 (+) on breakout box.
- Connect black test probe (5) to test point 11 on breakout box (6).
- Connect red test probe (7) to test point 75 on breakout box (6).

Does VTM display show less than 12?



20

- Replace gunner's primary sight body assembly.
- Refer to TM 9-2350-255-20-2-3-3, para. 7-5.
- Run self test on STE.
- See figure 15-3, block 19.
- Verify that problem is solved.

NO

YES

Figure 10-95 (Sheet 7 of 13)
Volume II
Para. 10-3

ARR82-6535

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

From block 18

NOTE

Release any control or switch being held at this time.

Set VEHICLE MASTER POWER switch (1) to OFF.

Disconnect 1W203-P2 from J1 on gunner's primary sight.

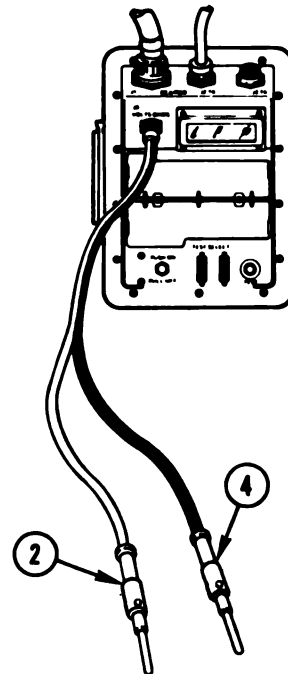
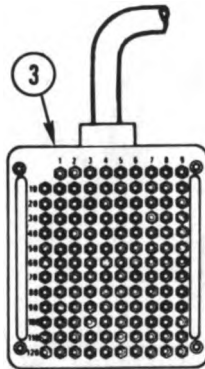
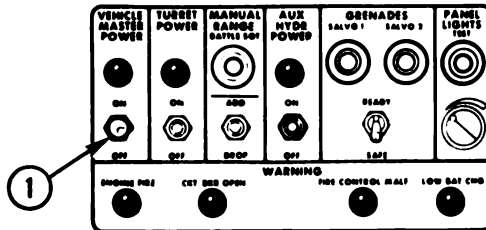
- See figure 16-16.

Change STE power hookup from turret networks box to power distribution box.

- See figure 10-89.

Prepare VTM for measuring resistance between 0 and 1500 ohms.

- Refer to para. 10-1.



Connect red test probe (2) to test point 76 on breakout box (3).

NOTE

If VTM display shows 0 to 5, go immediately to block 23.

Test for 0 to 5 ohms by connecting black test probe (4) to all other test points on breakout box (5).

Does VTM display show between 0 and 5?

NO

YES

23

- Replace gunner's primary sight body assembly.
- Refer to TM 9-2350-255-20-2-3-3, para. 7-5.
- Run self test on STE.
 - See figure 15-3, block 19.
- Verify that problem is solved.

Figure 10-95 (Sheet 8 of 13)
**Volume II
Para. 10-3**

ARR82-6536

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

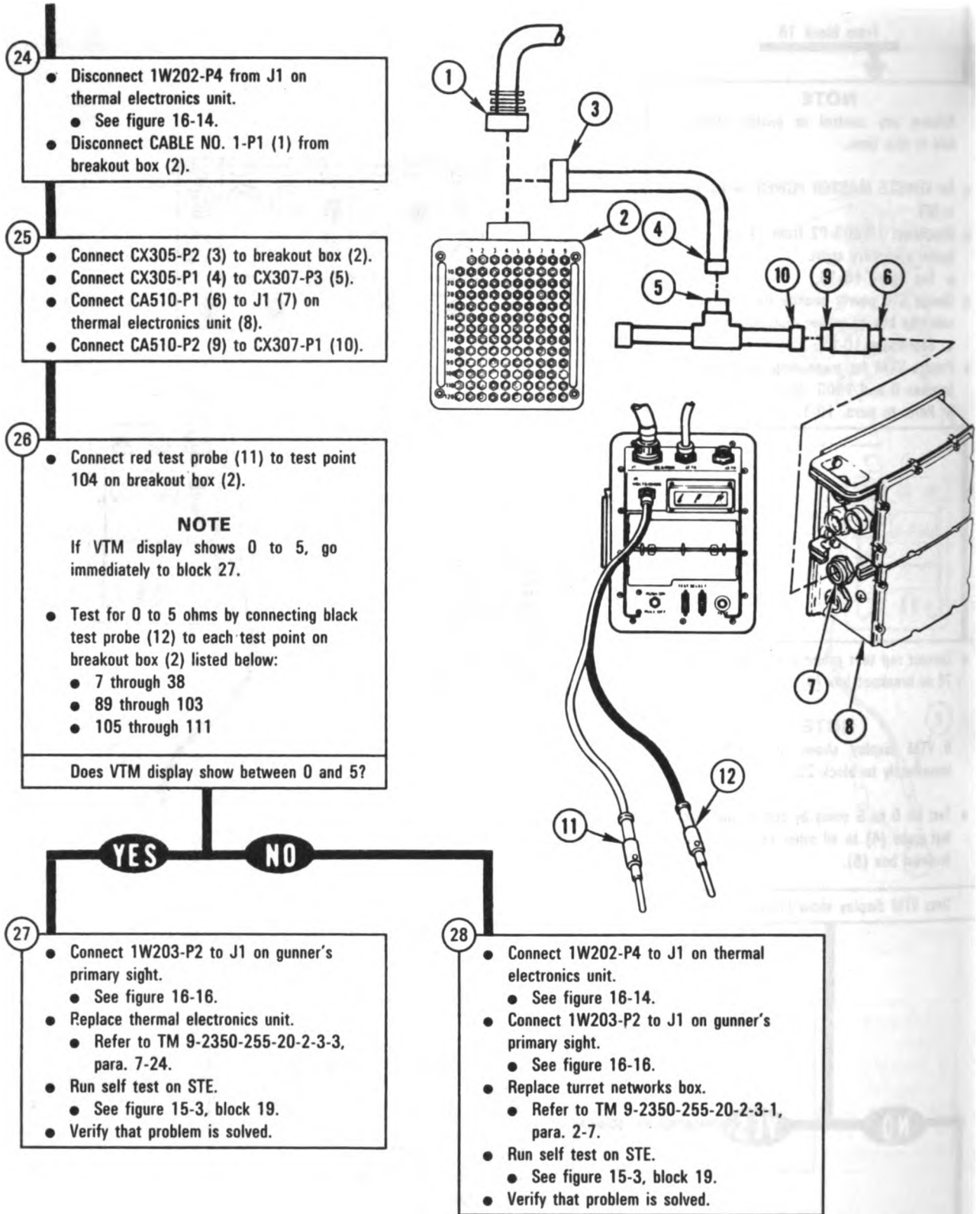


Figure 10-95 (Sheet 9 of 13)
Volume II
Para. 10-3

ARR82-8537

from table A or B

- If any switch or control is being held from the primary procedure, release it at this time.
- Set VEHICLE MASTER POWER switch (1) to OFF.
- Disconnect 1W202-P2 from J2 on computer electronics unit.
- See figure 18-6.
- Disconnect 1W201-P2 from J1 on computer electronics unit.
- See figure 18-6.
- Disconnect CABLE NO. 1-P1 (2) from breakout box (3).

- Connect CX305-P2 (4) to breakout box (3).
- Connect CX305-P1 (5) to CX307-P3 (8).
- Connect CA512-P1 (7) to J2 (8) on computer electronics unit (9).
- Connect CA512-P2 (10) to CX307-P1 (11).

- Change STE power hookup from turret networks box to power distribution box.
- See figure 10-89.
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
- Refer to para. 10-1.

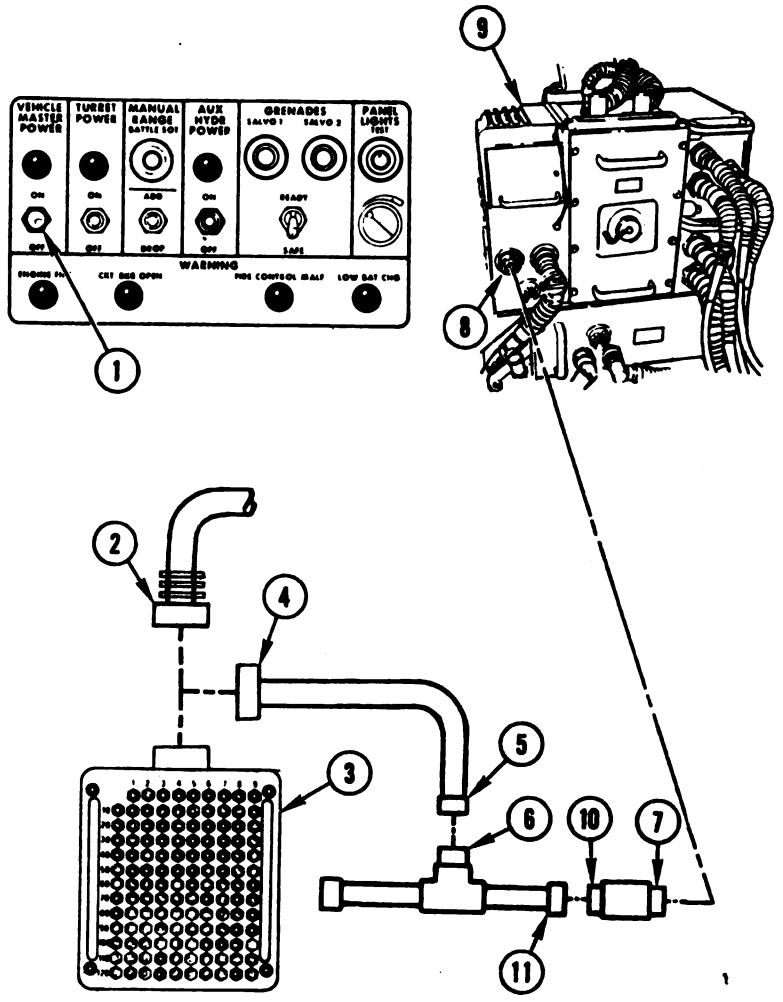


Figure 10-95 (Sheet 10 of 13)
Volume II
Para. 10-3

ARR82-6538

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

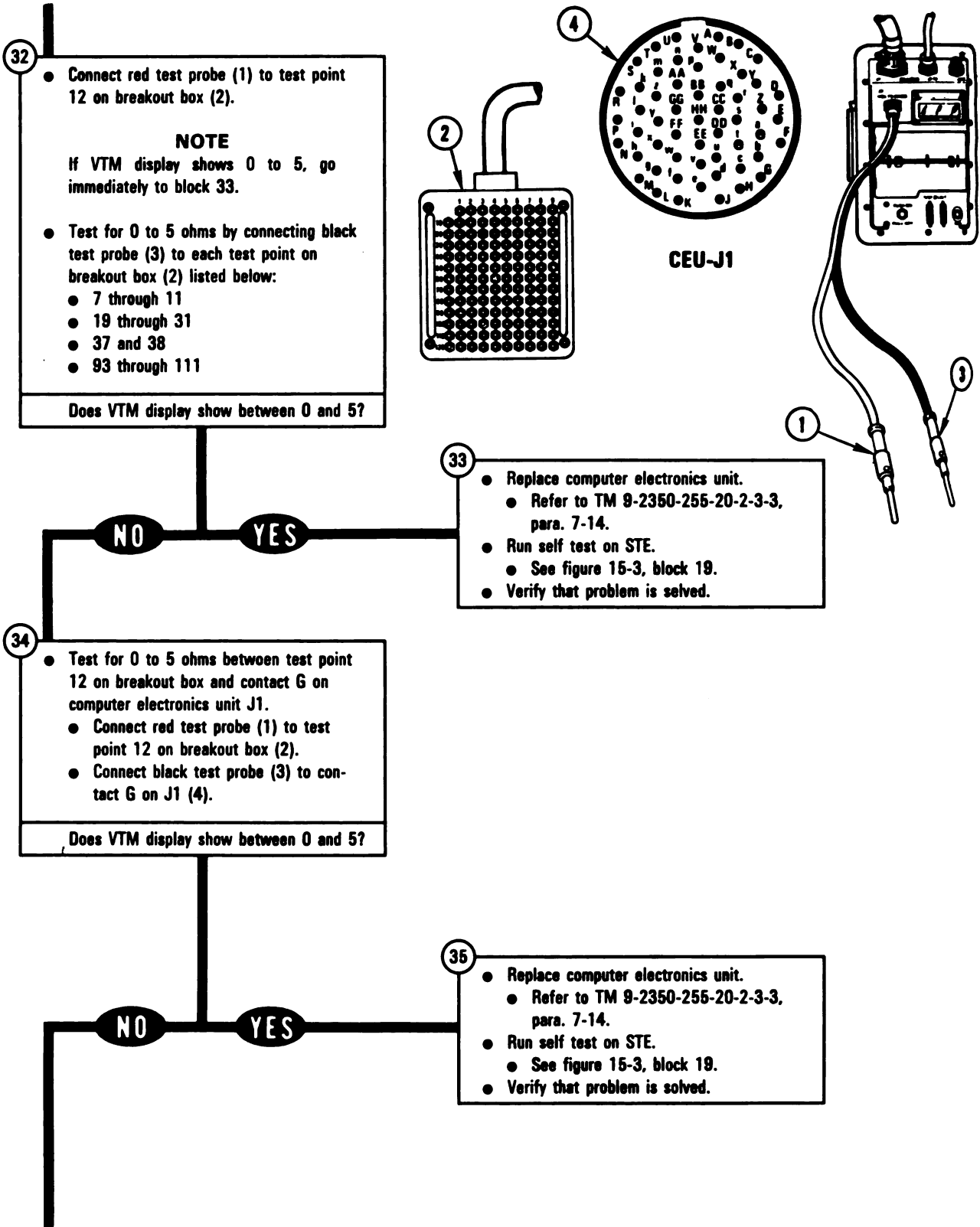
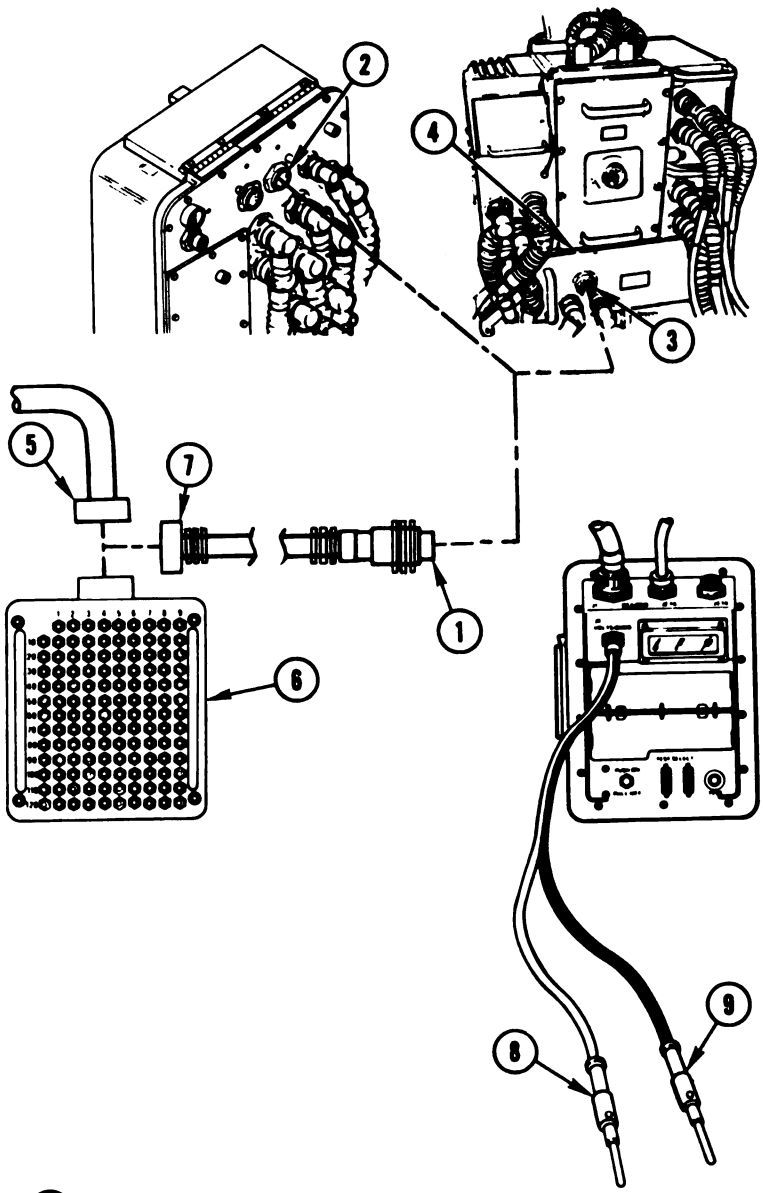


Figure 10-95 (Sheet 11 of 13)
Volume II
Para. 10-3

ARR82-6539

- 36
- Disconnect ADAPTER NO. 1-P1 (1) from TEST 2 (2).
 - Connect ADAPTER NO. 1-P1 (1) to J3 (3) on line-of-sight electronics unit (4).
 - Disconnect CX305-P2 (5) from breakout box (8).
 - Connect CABLE NO. 1-P1 (7) to breakout box (8).



- 37
- Connect red test probe (8) to test point 83 on breakout box (8).
- NOTE**
If VTM display shows 0 to 5, go immediately to block 38.
- Test for 0 to 5 ohms by connecting black test probe (9) to each test point on breakout box (8) listed below:
 - 10 and 11
 - 19 through 24
 - 33, 34, and 35
 - 40 through 61

- 70 through 81
 - 84, 86, 87, 93, and 94
 - 105 through 109
 - 122 through 128
- Does VTM display show between 0 and 5?

- 38
- Connect 1W201-P2 to J1 on computer electronics unit.
 - See figure 16-6.
 - Connect 1W202-P2 to J2 on computer electronics unit.
 - See figure 16-6.
 - Replace line-of-sight electronics unit.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-8.
 - Run self test on STE.
 - See figure 15-3, block 19.
 - Verify that problem is solved.

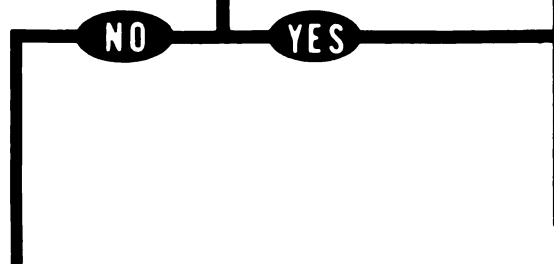


Figure 10-95 (Sheet 12 of 13)
Volume II
Para. 10-3

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

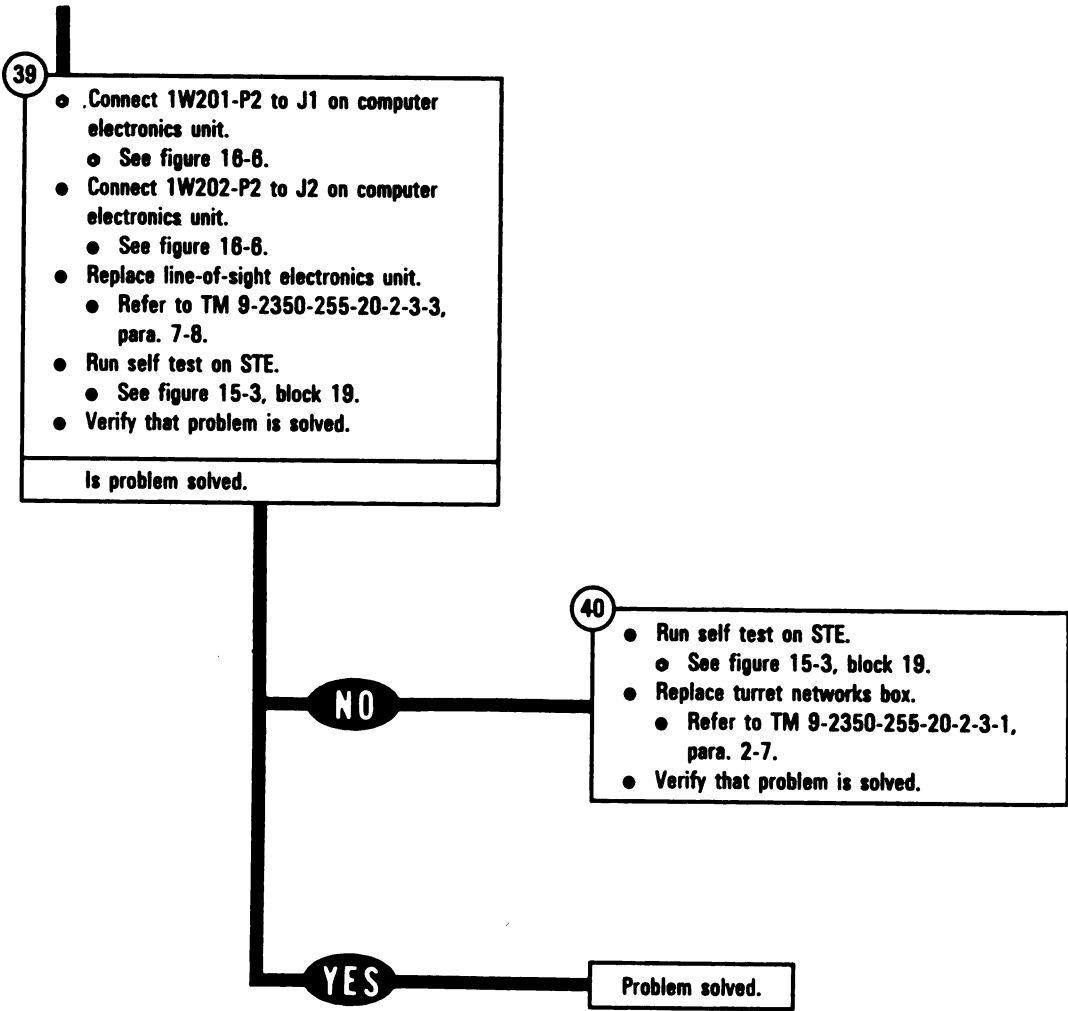


Figure 10-95 (Sheet 13 of 13)
Volume II
Para. 10-3

DISPLAY SHOWS -
SEE -20 MANUAL

144511

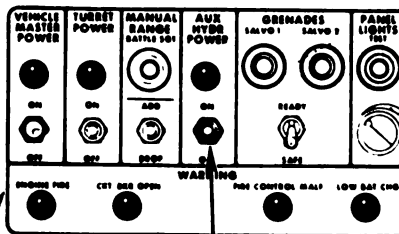
Additional Test

Equipment/Special Tools:

- Breakout Box Tool Kit, 12311088

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Turret power on.



- 1
- Set AUX HYDR POWER switch (1) on commander's control panel (2) to OFF.

WARNING

Bilge pump can discharge debris that will injure personnel. Check that personnel are not near bilge pump discharge nozzle before turning bilge pump on.

- 2
- Reduce hydraulic pressure to zero psi, by operating bilge pump.
 - Refer to TM 9-2350-255-10.

- 3
- Disconnect CX205 from CIB and tank.
 - See figure 10-38.
 - Connect breakout box to TEST 2 on turret networks box.
 - Connect CABLE NO. 1-P1 (3) to breakout box (4)
 - Connect ADAPTER NO. 1-P1 (5) to TEST 2 (6) on turret networks box (7)
 - Connect CABLE NO. 1-P2 (8) to ADAPTER NO. 1-J1 (9).

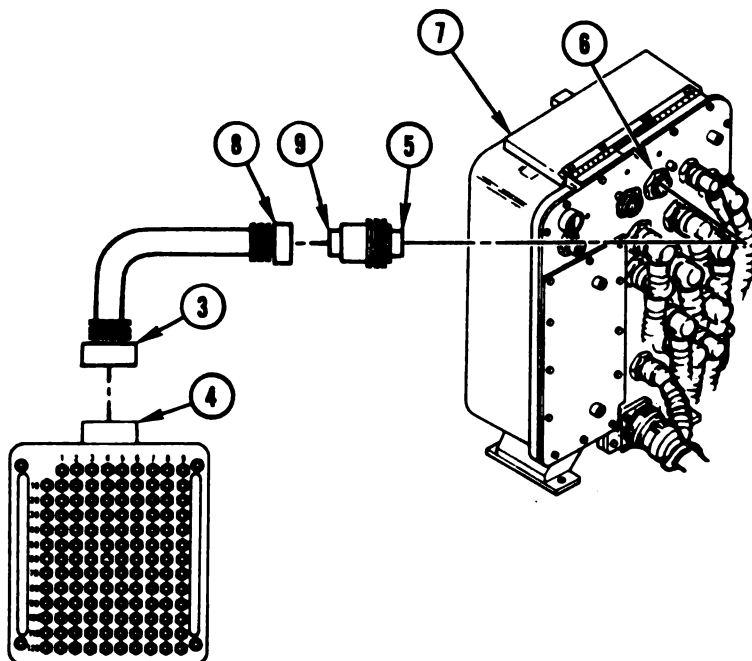


Figure 10-96 (Sheet 1 of 28)
Volume II
Para. 10-3

ARR82-8541

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

4

- 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. 10-1.

5

- Connect black test probe (4) to test point 9 on breakout box (5).

NOTE

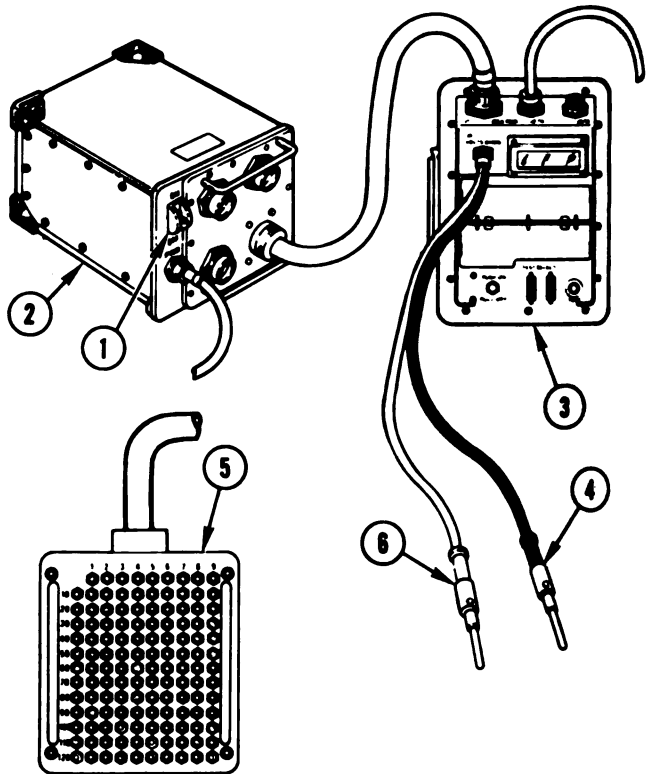
If VTM display does not show between -12 and 12, go immediately to block 6.

- Test for -12 to 12 V dc by connecting red test probe (6) to each test point on breakout box (5) listed in table A.

Does VTM display show between -12 and 12 at each test point?

Table A

Red Test Probe	Action
11	Go to figure 10-90, block 197.
12	Go to figure 10-90, block 144.
17	Go to block 15.
79	Go to block 109.
83	Go to figure 10-90, block 28.
93	Go to figure 10-90, block 99.
99	Go to figure 10-90, block 121.



YES **NO**

6 Go to table A and do action for test point that failed.

Figure 10-96 (Sheet 2 of 28)
Volume II
Para. 10-3

ARR82-6542

Table B

Red Test Probe	Action
11	Go to figure 10-90, block 197.
12	Go to figure 10-90, block 144.
17	Go to block 15.
79	Go to block 109.
83	Go to figure 10-90, block 34.
93	Go to figure 10-90, block 105.
99	Go to figure 10-90, block 127.

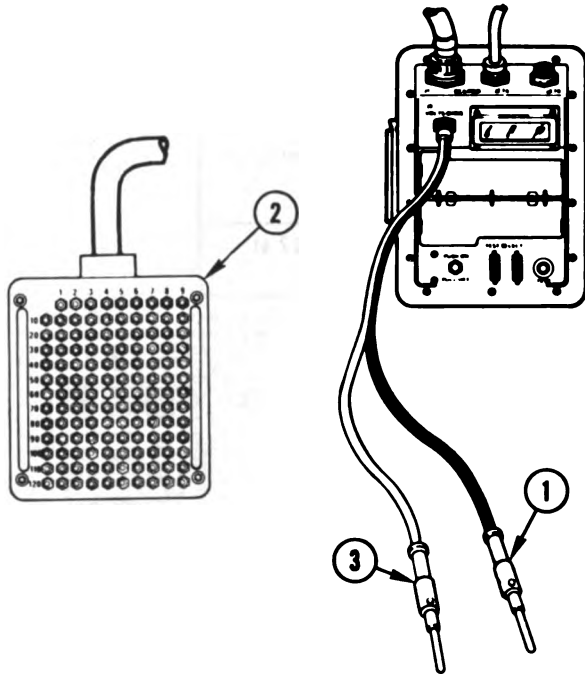
- Prepare VTM for measuring ac voltage.
- Refer to para. 10-1.
- Connect black test probe (1) to test point 9 on breakout box (2).

NOTE

If VTM display does not show less than 12, go immediately to block 8.

- Test for less than 12 V ac by connecting red test probe (3) to each test point on breakout box (2) listed in table B.

Does VTM display show less than 12 at each test point?



YES

NO

8

Go to table B and do action for test point that failed.

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

9

- Disconnect ADAPTER NO. 1-P1 (1) from TEST 2 (2).
- Connect ADAPTER NO. 1-P1 (1) to J3 (3) on line-of-sight electronics unit (4).

10

- Connect black test probe (5) to test point 33 on breakout box (6).

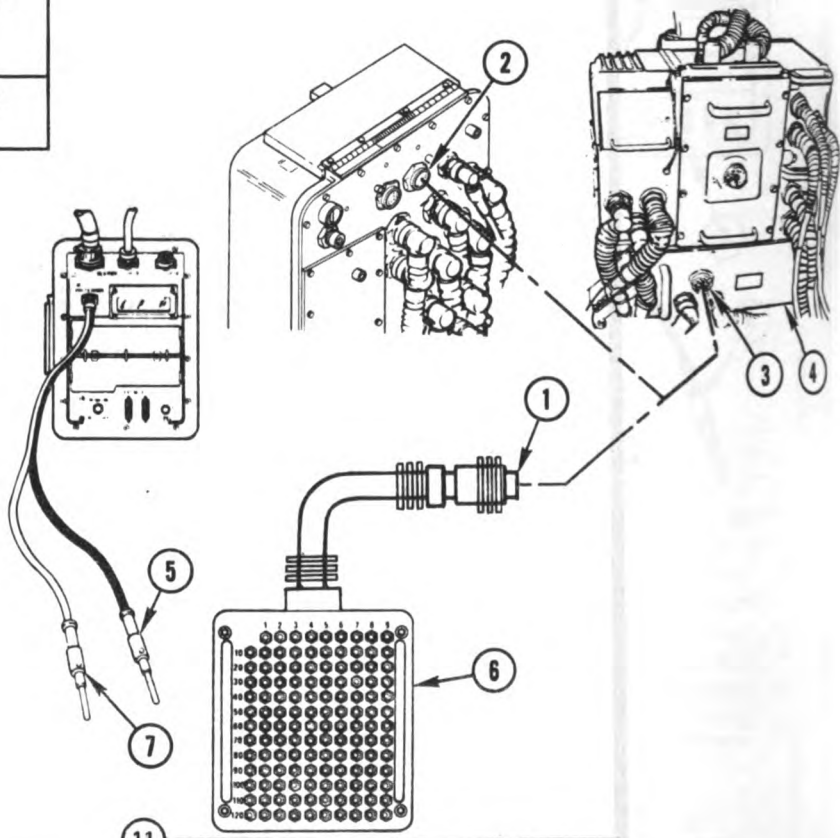
NOTE
 If VTM display does not show less than 12, go immediately to block 11.

- Test for less than 12 V ac by connecting red test probe (7) to each test point on breakout box (6) listed in table C.

Does VTM display show less than 12 at each test point?

Table C

Red Test Probe	Action
50, 52	<ul style="list-style-type: none"> ● Replace computer electronics unit. <ul style="list-style-type: none"> ● Refer to TM 9-2350-255-20-2-3-3, para. 7-14. ● 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. ● Run self test on STE. <ul style="list-style-type: none"> ● See figure 15-3, block 19. ● Verify that problem is solved.
54	Go to figure 10-90, block 54.



11
 Go to table C and do action for test point that failed.

YES **NO**

Figure 10-96 (Sheet 4 of 28)
Volume II
Para. 10-3

ARR82-6544

Table D

Red Test Probe	Action
50, 52	<ul style="list-style-type: none"> ● Replace computer electronics unit. ● Refer to TM 9-2350-255-20-2-3-3, para. 7-14. ● Replace line-of-sight electronics unit. ● Refer to TM 9-2350-255-20-2-3-3, para. 7-8. ● Run self test on STE. ● See figure 15-3, block 19. ● Verify that problem is solved.
54	Go to figure 10-90, block 54.

- 12
- Prepare VTM for measuring dc voltage.
 - Refer to para. 10-1.
 - Connect black test probe (1) to test point 33 on breakout box (2).

NOTE

If VTM display does not show between -12 and 12, go immediately to block 13.

- Test for -12 to 12 V dc by connecting red test probe (3) to each test point on breakout box (2) listed in table D.

Does VTM display show between -12 and 12 at each test point?

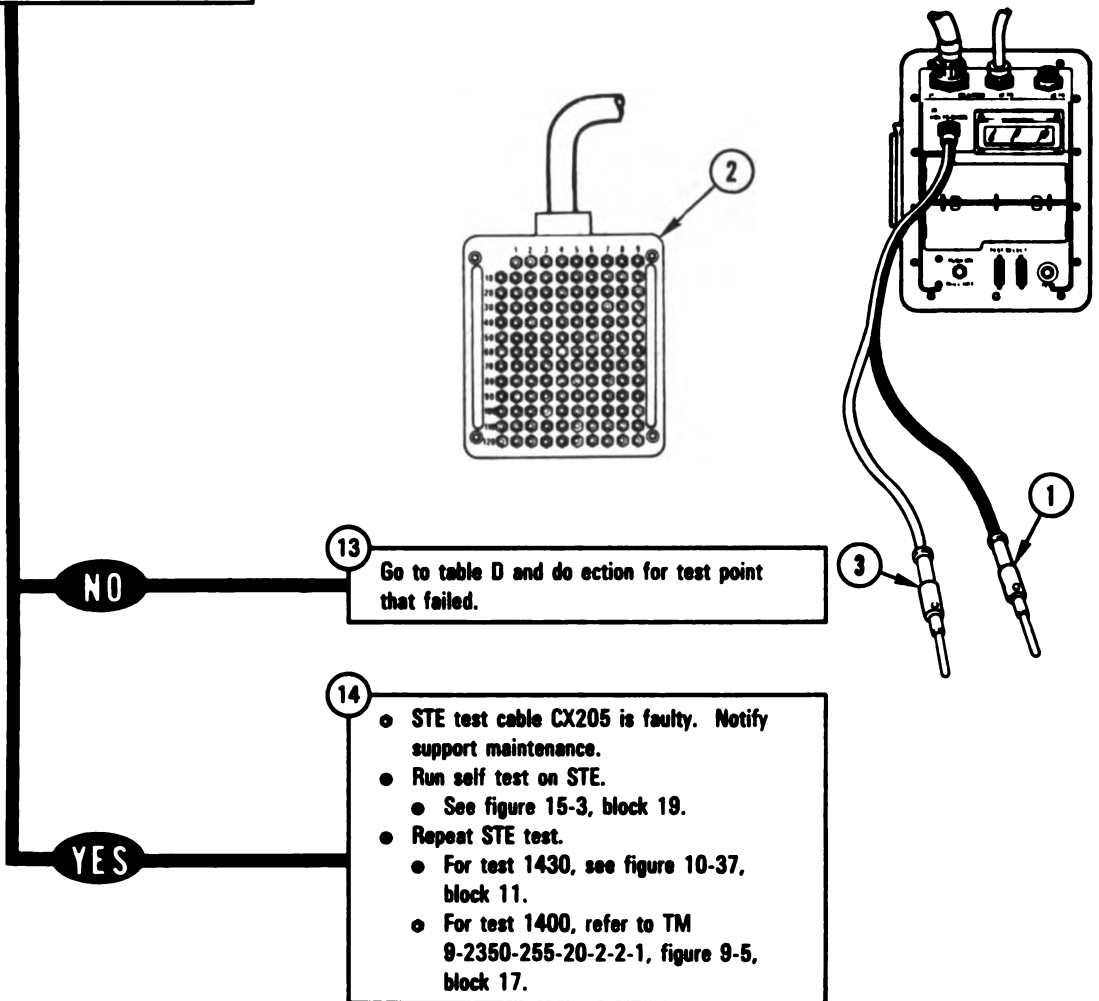


Figure 10-96 (Sheet 5 of 28)
**Volume II
Para. 10-3**

ARR82-6545

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

From table A or B

- 15
- If any switch or control is being held from the primary procedure, release it at this time.
 - Set VEHICLE MASTER POWER switch (1) to OFF.
 - Disconnect CABLE NO. 1-P1 (2) from breakout box (3).
 - Connect CX305-P2 (4) to breakout box (3).
 - Connect CX305-P1 (5) to CX307-P3 (6).

- 16
- Disconnect 1W107-P1 from J4 on turret networks box.
 - See figure 16-5.
 - Connect 1W107-P1 (7) to CA522-P1 (8).
 - Connect CA522-P2 (9) to CX307-P1 (10).

- 17
- Change STE power hookup from turret networks box to power distribution box.
 - See figure 10-89.
 - Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 10-1.

- 18
- Connect red test probe (11) to test point 7 on breakout box (3).
- NOTE**
- If VTM display shows 0 to 5, go immediately to block 20.
- Test for 0 to 5 ohms by connecting black test probe (12) to each test point on breakout box (3) listed below:
 - 8 through 18
 - 20 through 38
 - 89 through 97
- Does VTM display show between 0 and 5?

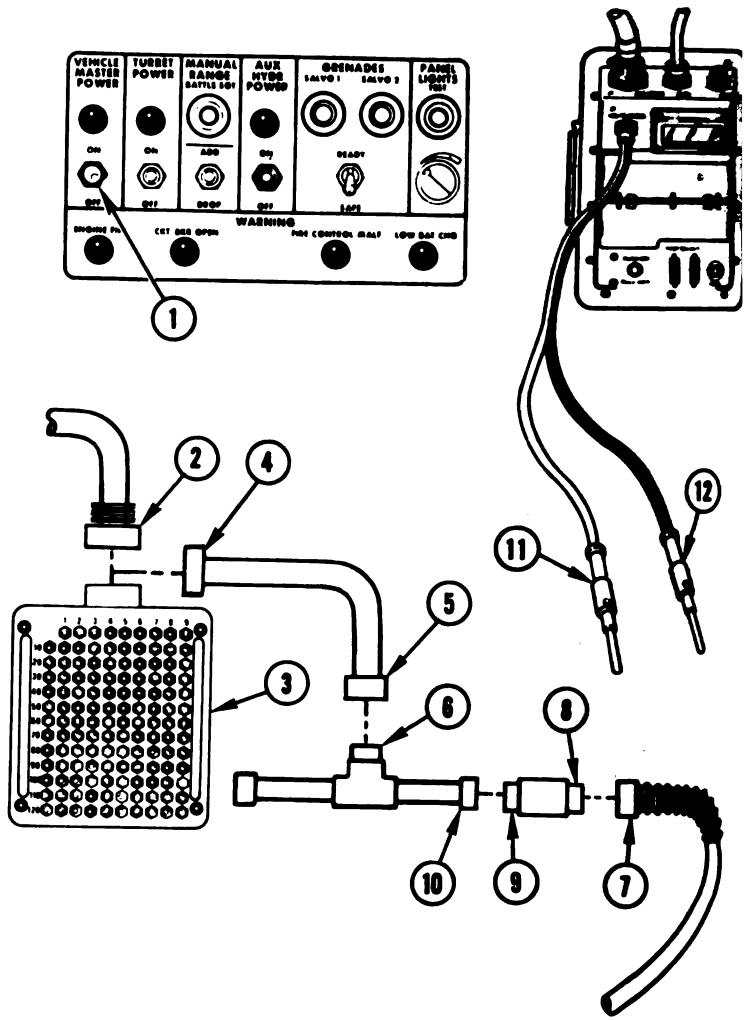


Figure 10-96 (Sheet 6 of 28)
 Volume II
 Para. 10-3

ARR82-6546

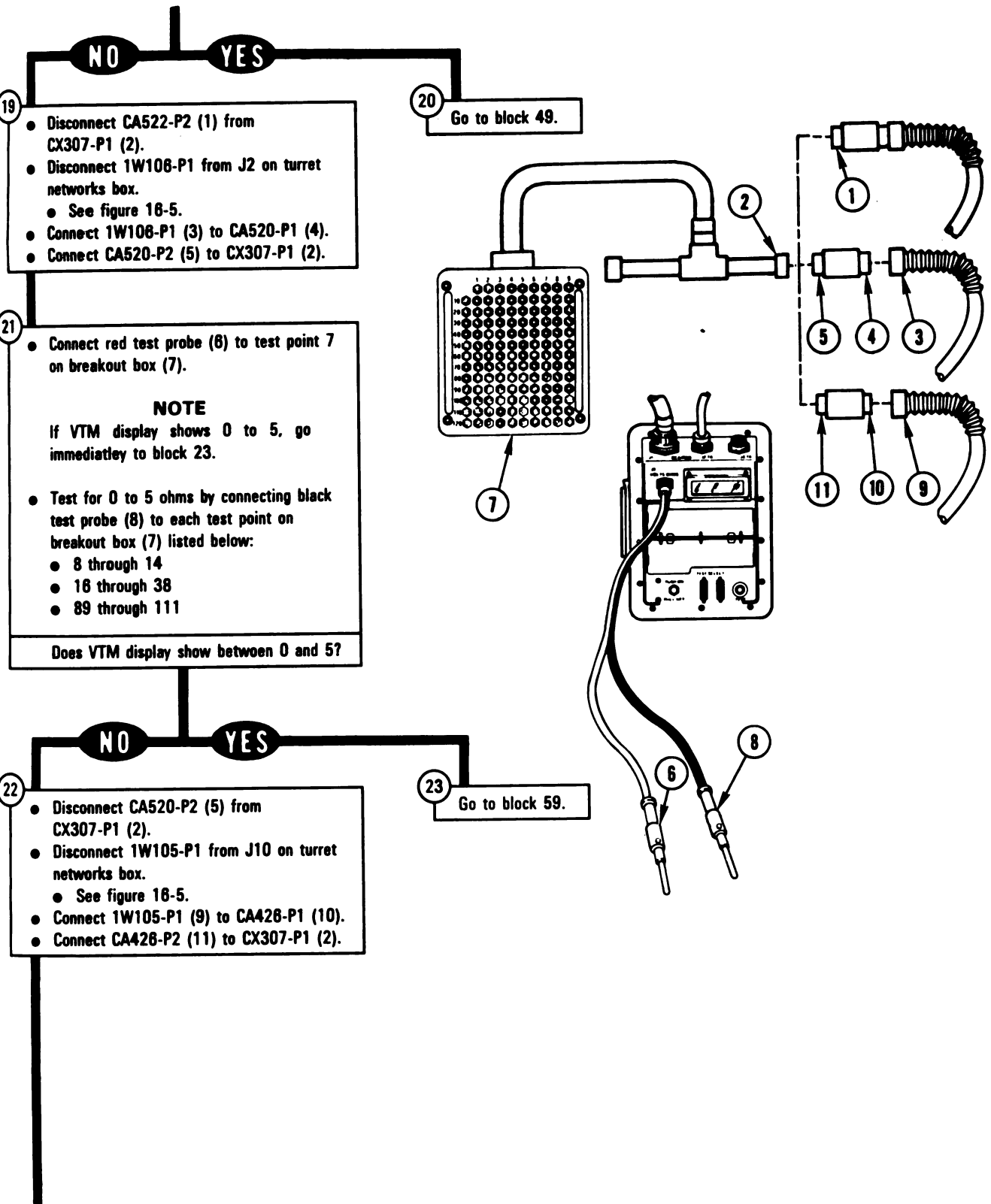


Figure 10-96 (Sheet 7 of 28)
Volume II
Para. 10-3

ARR82-6547

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

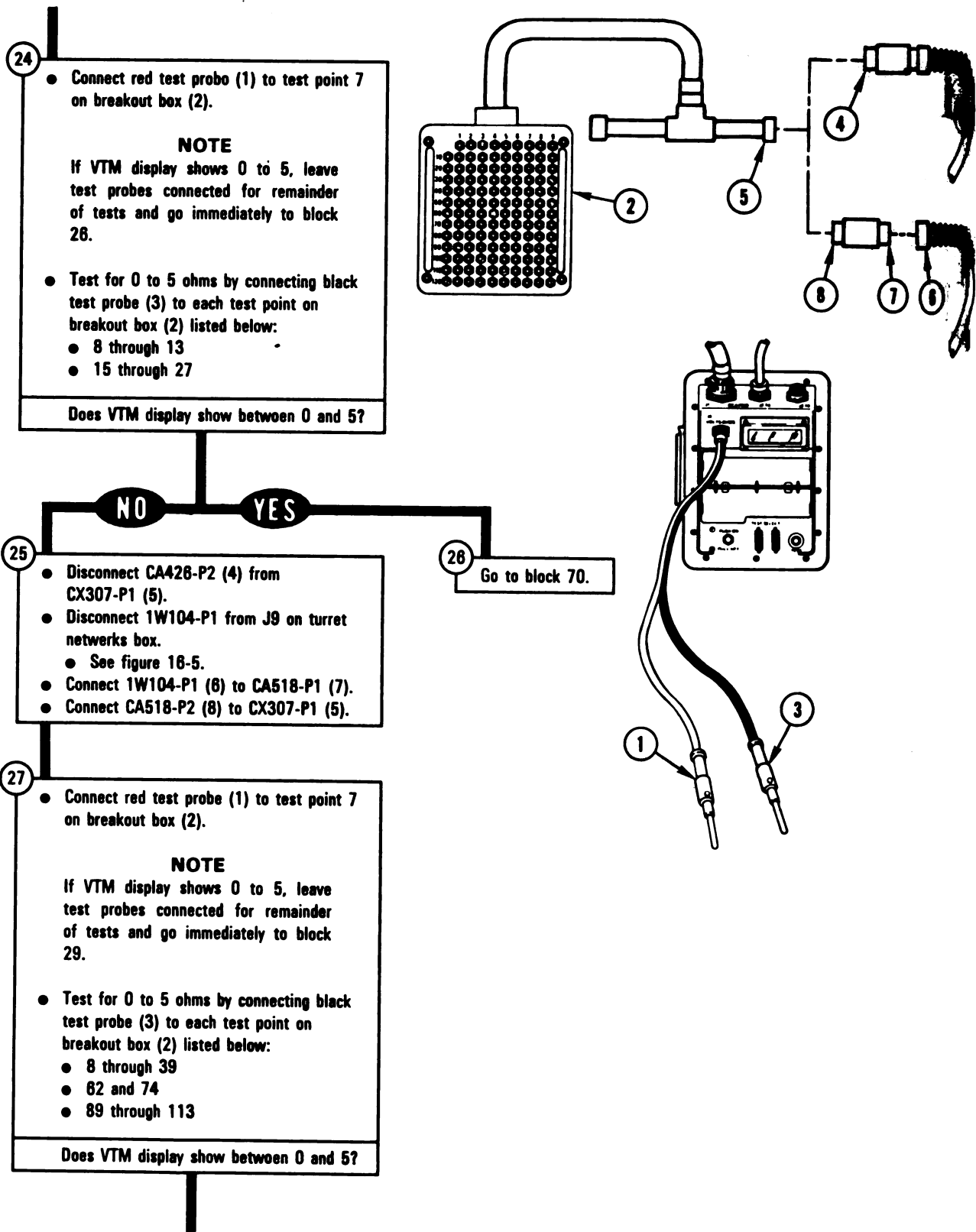


Figure 10-96 (Sheet 8 of 28)
Volume II
Para. 10-3

ARR82-8548

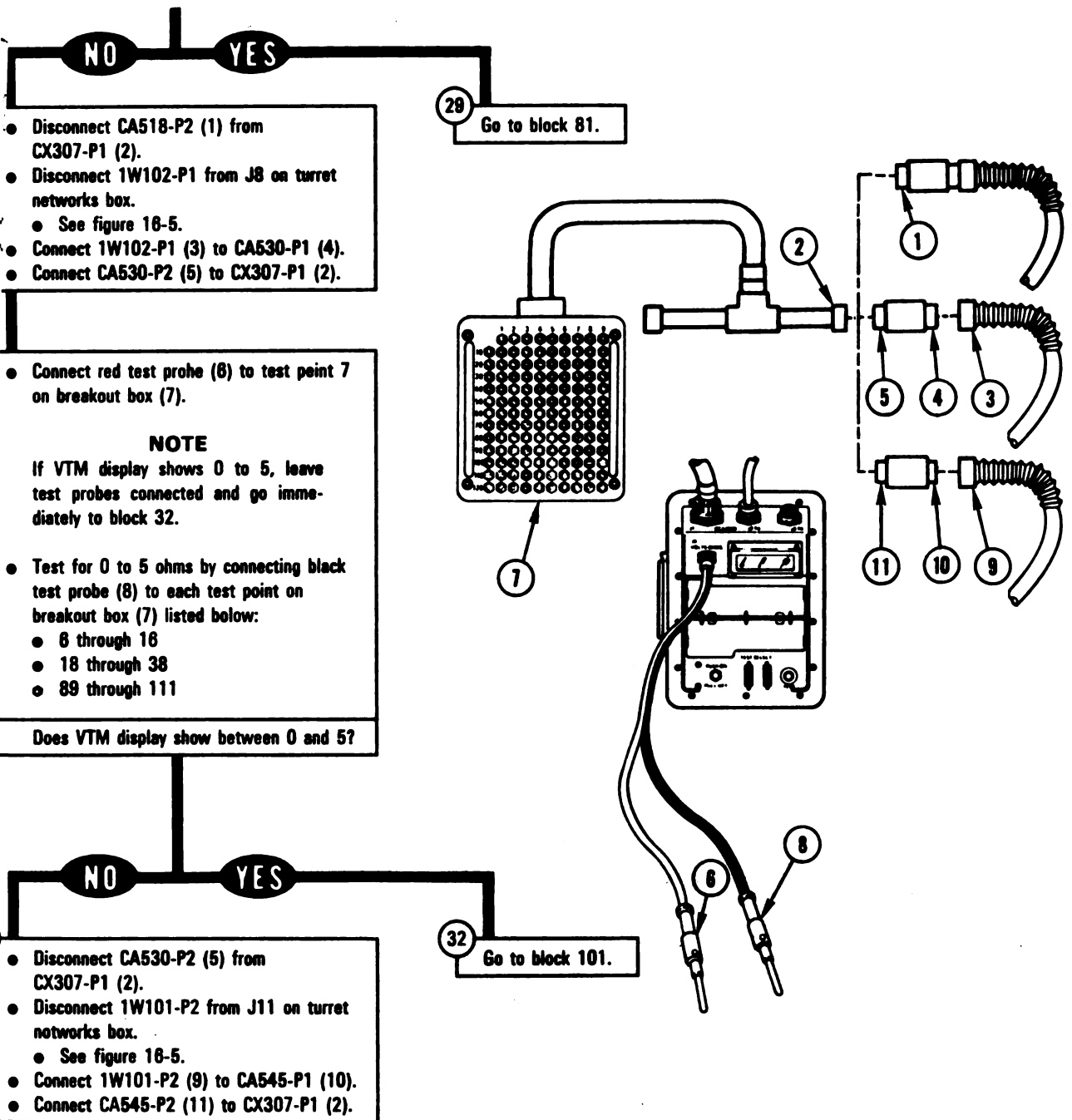


Figure 10-96 (Sheet 9 of 28)
Volume II
Para. 10-3

ARR82-6549

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

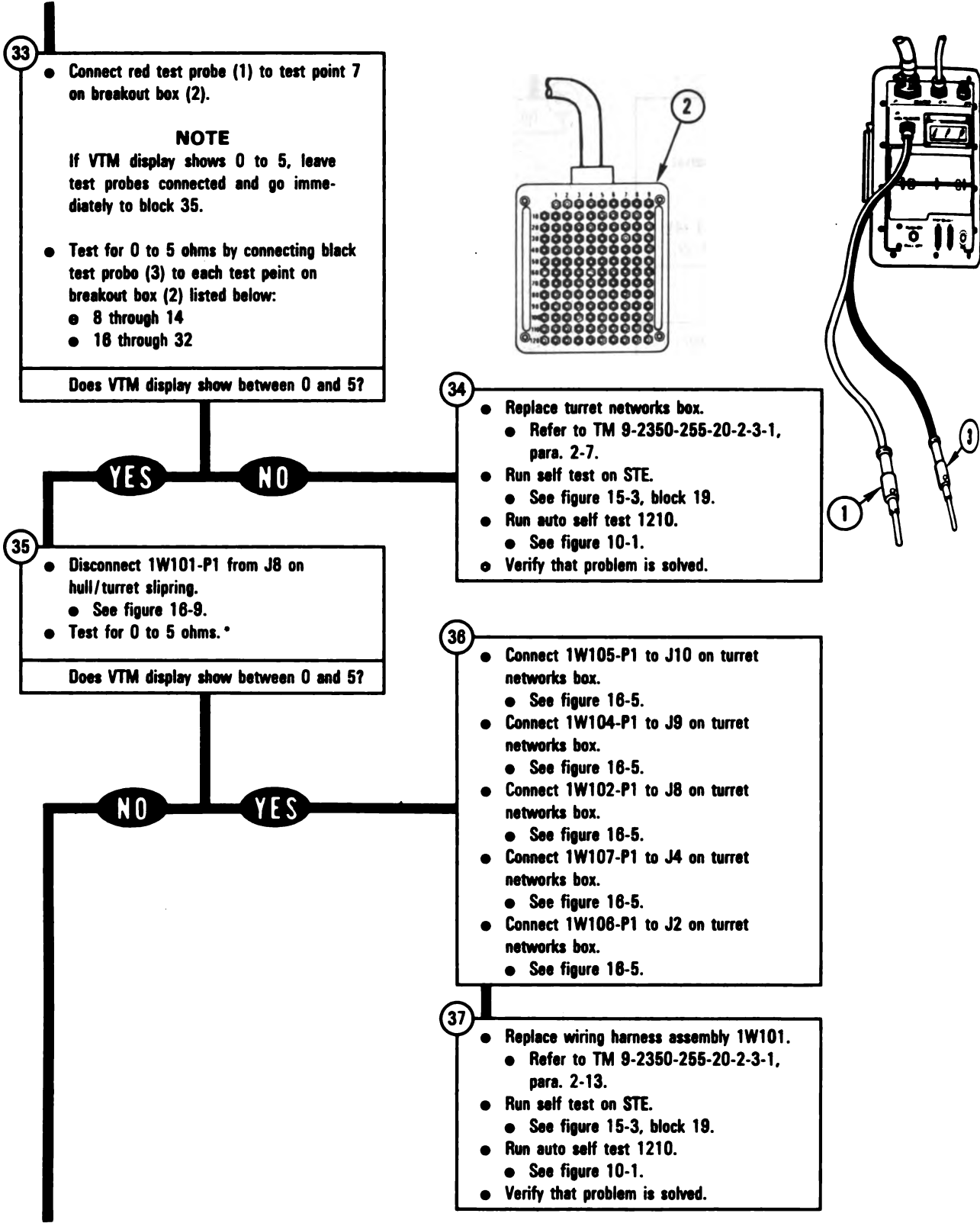


Figure 10-96 (Sheet 10 of 28)
Volume II
Para. 10-3

ARR82-6550

* Between contacts found in block 3-3

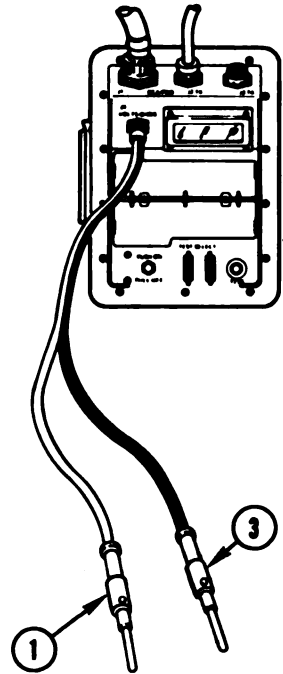
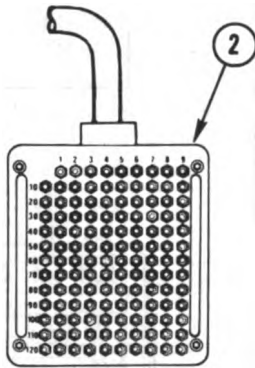
- Connect red test probe (1) to test point 15 on breakout box (2).

NOTE

If VTM display shows 0 to 5, go immediately to block 39.

- Test for 0 to 5 ohms by connecting black test probe (3) to each test point on breakout box (2) listed below:
 - B through 14
 - 16 through 32

Does VTM display show between 0 and 5?



NO

YES

39

- Connect 1W105-P1 to J10 on turret networks box.
 - See figure 18-5.
- Connect 1W104-P1 to J9 on turret networks box.
 - See figure 18-5.
- Connect 1W102-P1 to J8 on turret networks box.
 - See figure 18-5.
- Connect 1W107-P1 to J4 on turret networks box.
 - See figure 18-5.
- Connect 1W108-P1 to J2 on turret networks box.
 - See figure 18-5.

40

- Replace wiring harness assembly 1W101.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Run self test on STE.
 - See figure 15-3, block 19.
- Run auto self test 1210.
 - See figure 10-1.
- Verify that problem is solved.

Figure 10-96 (Sheet 11 of 28)
 Volume II
 Para. 10-3

ARR82-8551

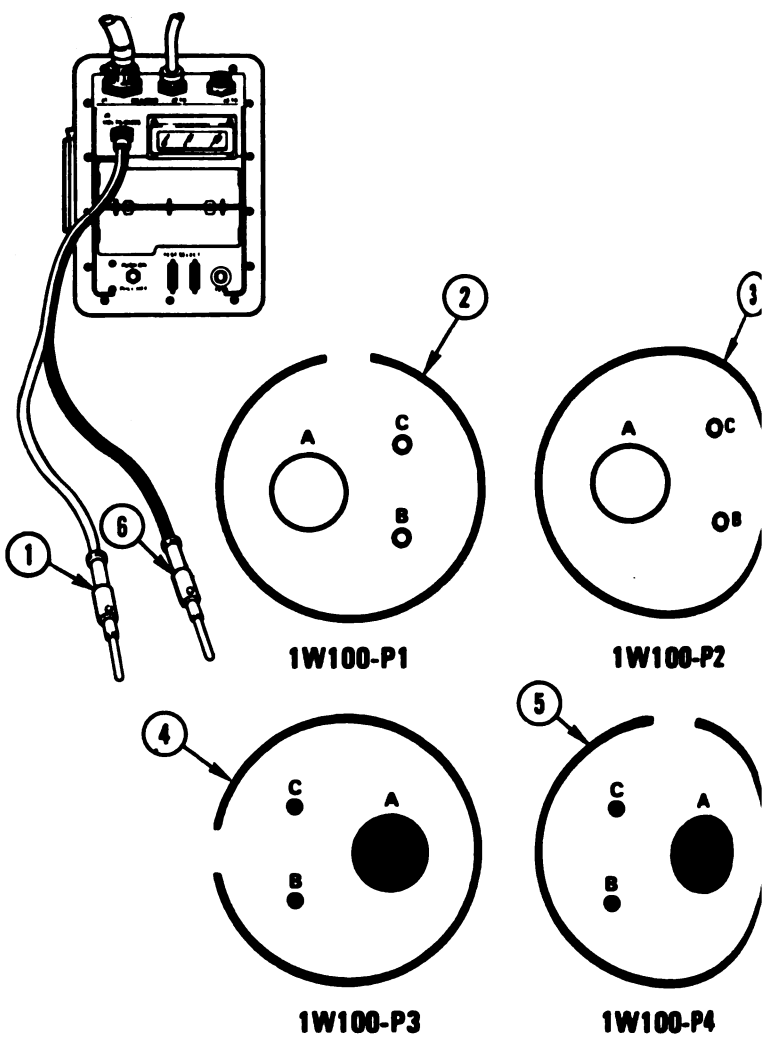
**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

- 41
- Disconnect 1W100-P1 from J8 on hull/turret slipring.
● See figure 16-9.
 - Disconnect 1W100-P2 from J10 on hull/turret slipring.
● See figure 16-9.
 - Disconnect 1W100-P3 from J9 on hull/turret slipring.
● See figure 16-9.
 - Disconnect 1W100-P4 from J7 on hull/turret slipring.
● See figure 16-9.

- 42
- Connect red test probe (1) to contact on 1W100-P1 (2), P2 (3), P3 (4), and P4 (5) listed in table E.
- NOTE**
If VTM display shows 0 to 5, go immediately to block 43.
- Test for 0 to 5 ohms by connecting black test probe (6) to contacts on 1W100-P1 (2), P2 (3), P3 (4), and P4 (5) listed in table E.
- Does VTM display show between 0 and 5?

Table E

1W100-	Red Test Probe	Black Test Probe
P1	B	all other contacts
P2	B	all other contacts
P3	B	all other contacts
P4	B	all other contacts



*Figure 10-96 (Sheet 12 of 28)
Volume II
Para. 10-3*

ARR82-4552

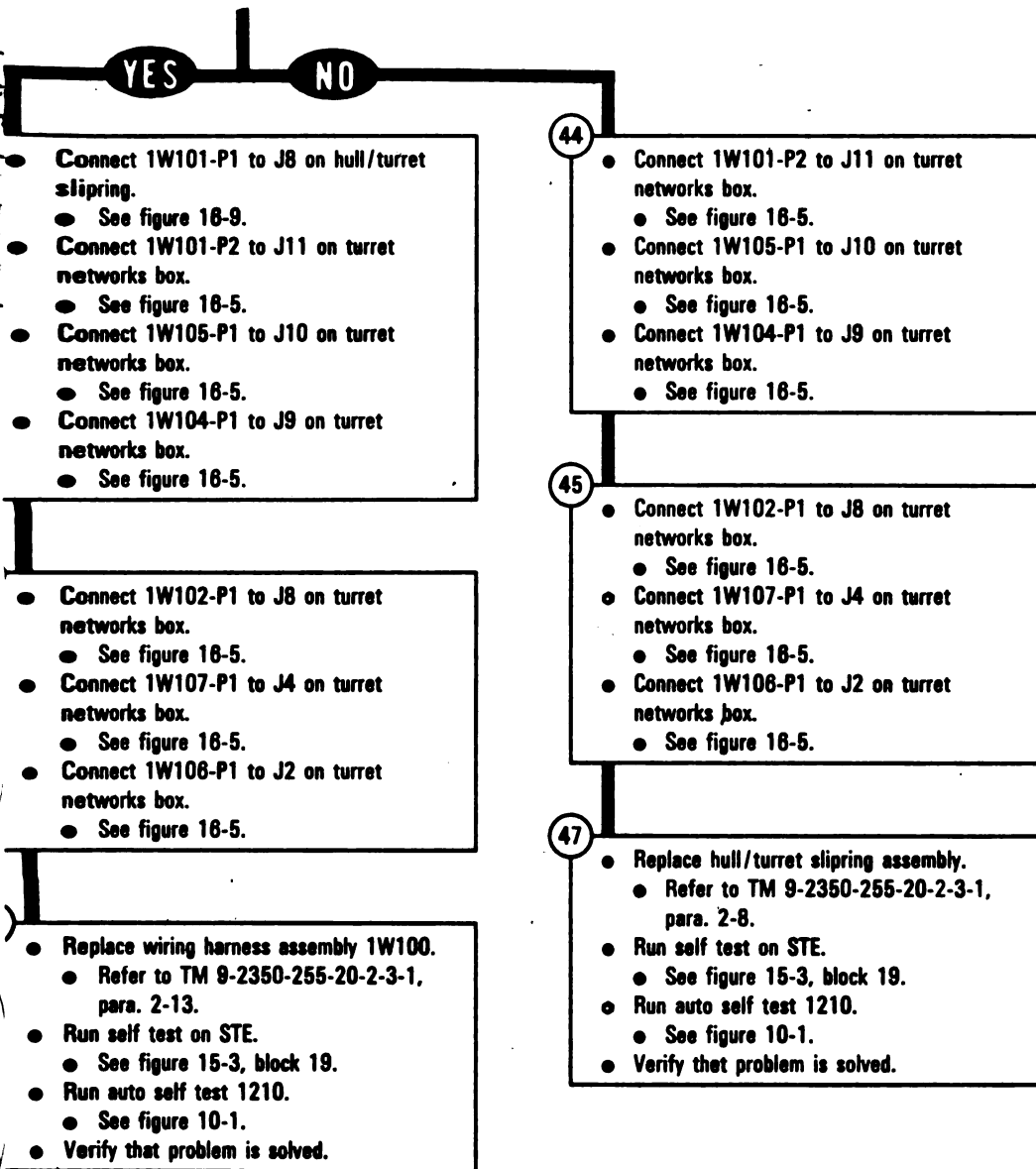


Figure 10-96 (Sheet 13 of 28)
 Volume II
 Para. 10-3

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

From block 20

49

- Disconnect zero degree elevation switch (1S230)-P1 from 1W107-J2.
- See figure 16-13.

NOTE

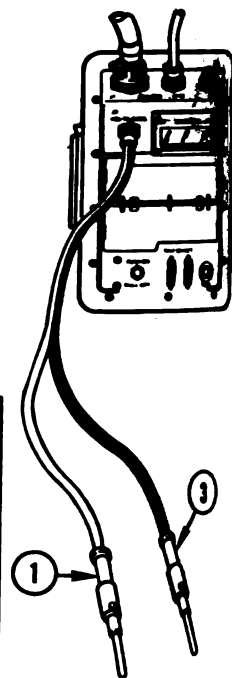
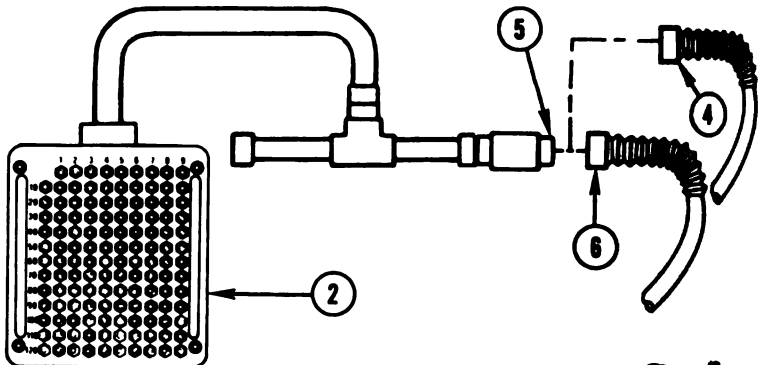
If VTM display shows 0 to 5, go immediately to block 51.

- Test for 0 to 5 ohms between test points on breakout box listed in table F.
- Connect red test probe (1) to test points on breakout box (2) listed in table F.
- Connect black test probe (3) to test points on breakout box (2) listed in table F.

Does VTM display show between 0 and 5?

Table F

Red Test Probe	Black Test Probe
7, 19	8 through 18 20 through 38 89 through 97



50

- Connect 1W107-P1 to J4 on turret networks box.
- See figure 16-5.
- Replace zero degree elevation switch.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-14.
- Run self test on STE.
- See figure 15-3, block 19.
- Run auto self test 1210.
- See figure 10-1.
- Verify that problem is solved.

YES NO

51

- Disconnect 1W107-P1 (4) from CA522-P1 (5).
- Disconnect 1W108-P1 from 1W107-J1.
- See figure 16-13.
- Connect 1W108-P1 (6) to CA522-P1 (5).

Figure 10-96 (Sheet 14 of 28)
Volume II
Para. 10-3

ARR82-6553

52

- 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 54.

- Test for 0 to 5 ohms by connecting black test probe (3) to each test point on breakout box (2) listed below:
 - 16 and 17
 - 21 through 25
 - 30, 32, 90, 92, and 93

Does VTM display show between 0 and 5?

53

- Replace branched wiring harness 1W107.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Run self test on STE.
 - See figure 15-3, block 19.
- Run auto self test 1210.
 - See figure 10-1.
- Verify that problem is solved.

YES **NO**

54

- Disconnect main gun safety switch (1S100)-P1 from 1W108-J1.
 - See figure 16-13.

NOTE

If VTM display shows 0 to 5, go immediately to block 55.

- Test for 0 to 5 ohms between contact G and all other contacts except J on main gun safety switch P1.
 - Connect red test probe (1) to contact G on P1 (4).
 - Connect black test probe (3) to all other contacts except J on P1 (4).

Does VTM display show between 0 and 5?

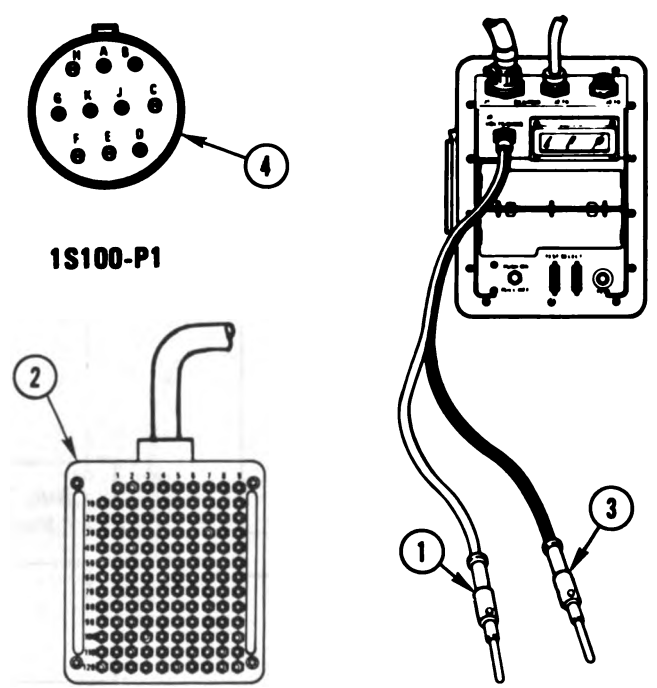


Figure 10-96 (Sheet 15 of 28)
Volume II
Para. 10-3

ARR82-6554

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

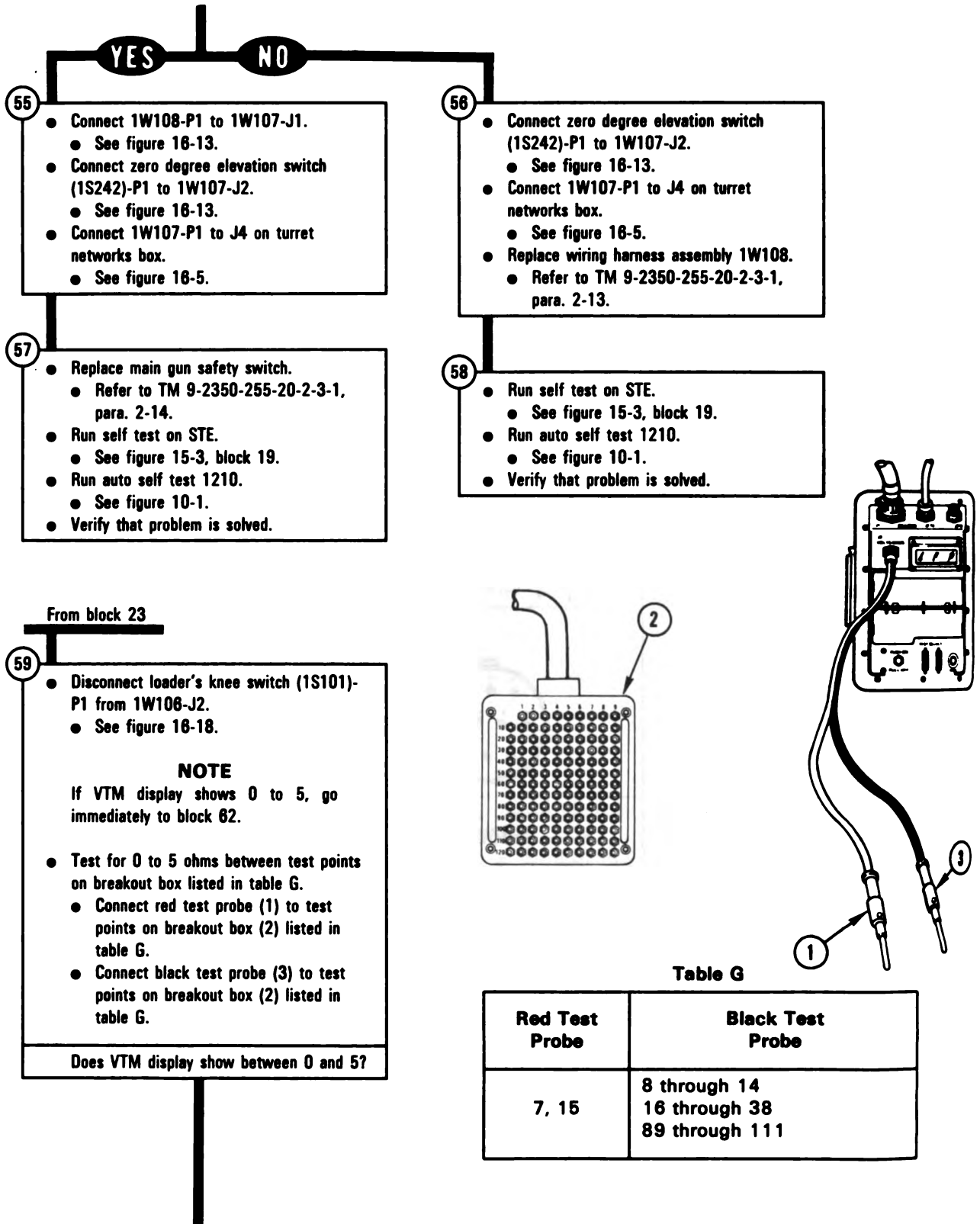
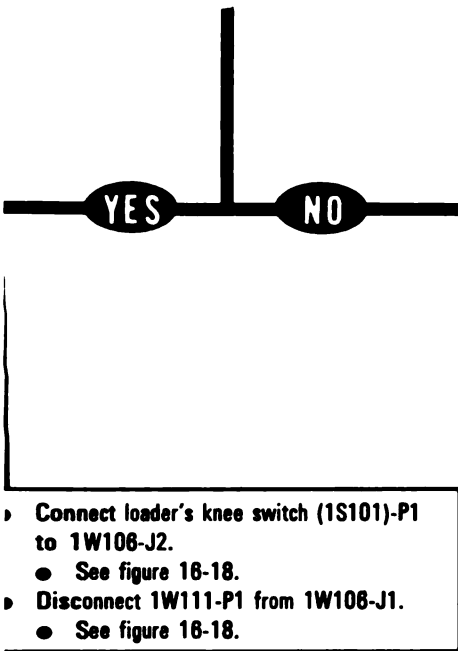


Figure 10-96 (Sheet 16 of 28)
Volume II
Para. 10-3

ARR82-6555



- 60
- Connect 1W106-P1 to J2 on turret networks box.
 ● See figure 16-5.
 - Connect 1W107-P1 to J4 on turret networks box.
 ● See figure 16-5.
 - Replace loader's knee switch.
 ● Refer to TM 9-2350-255-20-2-3-1, para. 2-14.

- 61
- Run self test on STE.
 ● See figure 15-3, block 19.
 - Run auto self test 1210.
 ● See figure 10-1.
 - Verify that problem is solved.

NOTE

If VTM display shows 0 to 5, go immediately to block 85.

- Test for 0 to 5 ohms between test points on breakout box listed in table H.
 ● Connect red test probe (1) to test points on breakout box (2) listed in table H.
 ● Connect black test probe (3) to test points on breakout box (2) listed in table H.

Does VTM display show between 0 and 5?

Table H

Red Test Probe	Black Test Probe
7, 15	8 through 14 16 through 38 89 through 111

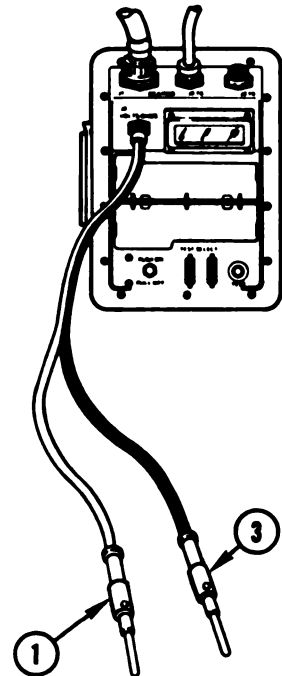
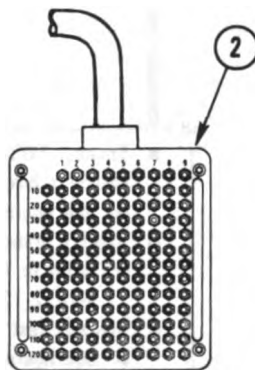


Figure 10-96 (Sheet 17 of 28)
Volume II
Para. 10-3

ARR82-6556

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

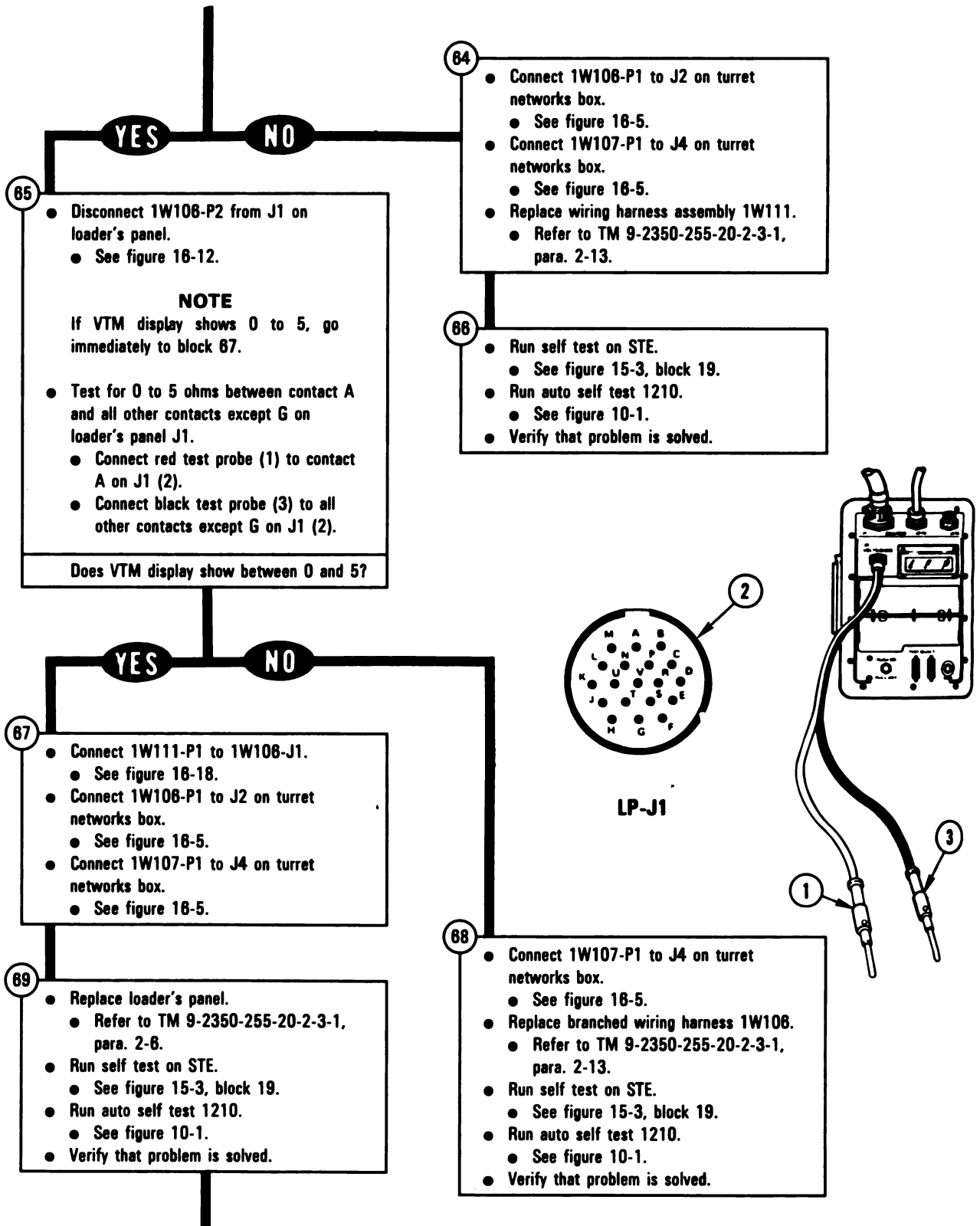


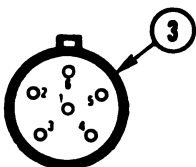
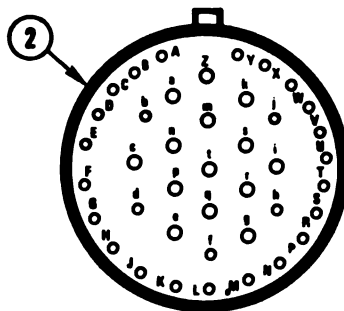
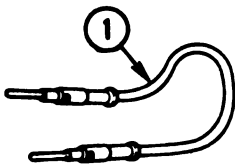
Figure 10-96 (Sheet 18 of 28)
Volume II
Para. 10-3

ARR82-4557

From block 26

- Disconnect 1W105-P3 from J1 on power control unit.
- See figure 16-7.
- Connect jumper (1) between contacts Y and f on 1W105-P3 (2).
- Test for 0 to 5 ohms. *

Does VTM display show between 0 and 5?



1W105-P6

1W105-P3

YES

NO

- Connect 1W105-P3 to J1 on power control unit.
- See figure 16-7.
- Disconnect 1W105-P6 from gearbox switch (1S230) - J1.
- See figure 16-21.
- Connect jumper (1) between contacts 5 and 6 on 1W105-P6 (3).
- Test for 0 to 5 ohms. *

Does VTM display show between 0 and 5?

- 71
- Connect 1W105-P1 to J10 on turret networks box.
 - See figure 16-5.
 - Connect 1W107-P1 to J4 on turret networks box.
 - See figure 16-5.
 - Connect 1W106-P1 to J2 on turret networks box.
 - See figure 16-5.

- 73
- Replace power control unit.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-12.
 - Run self test on STE.
 - See figure 15-3, block 19.
 - Run auto self test 1210.
 - See figure 10-1.
 - Verify that problem is solved.

Figure 10-96 (Sheet 19 of 28)
Volume II
Para. 10-3

ARR82-6558

*between contacts found in block 24.

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

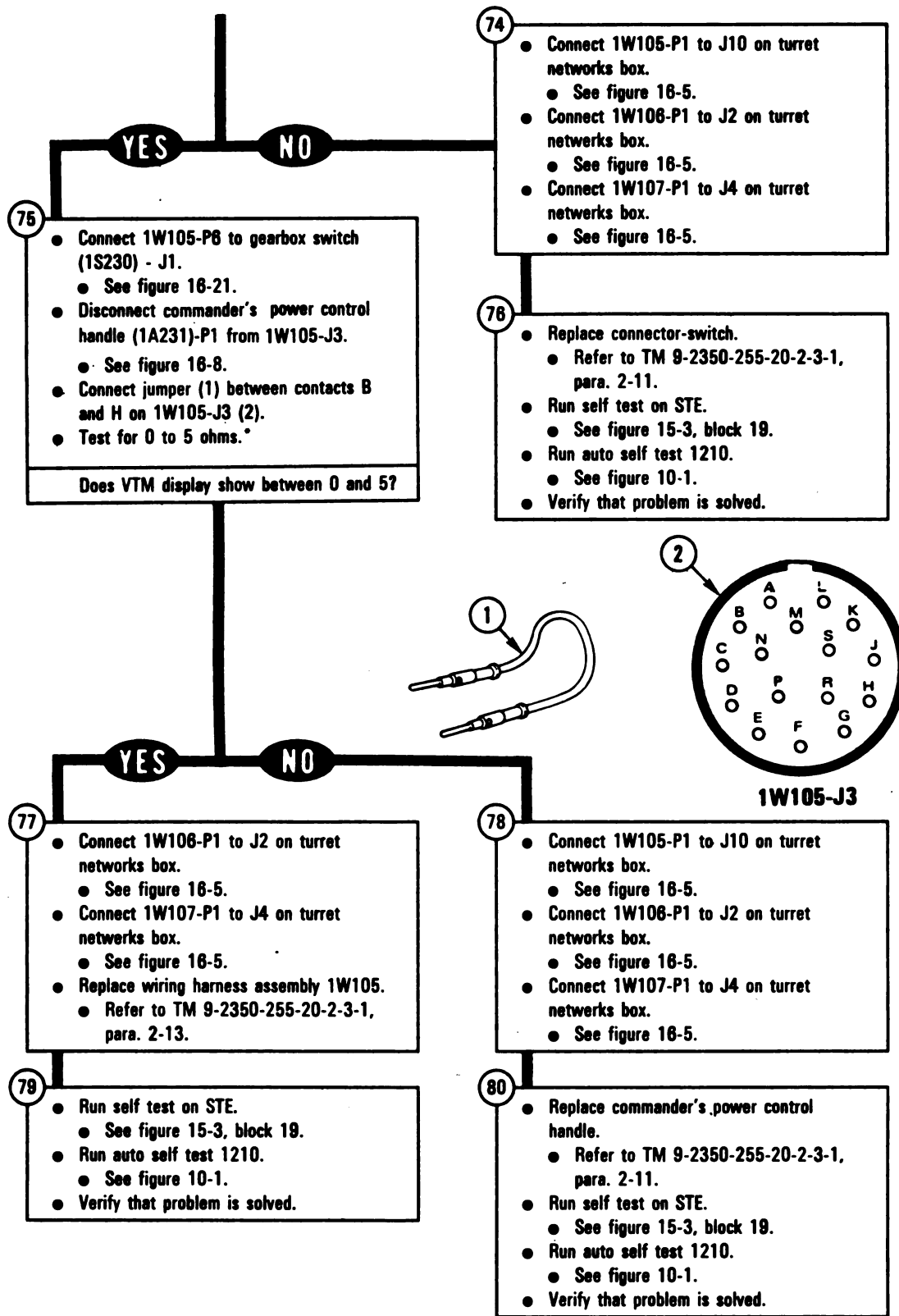


Figure 10-96 (Sheet 20 of 28)
Volume II
Para. 10-3

* Between contacts found in block 24

from block 29

Disconnect 1W104-P2 from J3 on gunner's primary sight.
 ● See figure 16-16.
 Connect jumper (1) between contacts A and K on 1W104-P2.
 Test for 0 to 5 ohms.*

Does VTM display show between 0 and 5?

YES **NO**

Connect 1W104-P2 to J3 on gunner's primary sight.
 ● See figure 16-16.
 Disconnect 1W104-P8 from J3 on hydraulic turret valve.
 ● See figure 16-10.
 Connect jumper (1) between contacts 4 and 5 on 1W104-P8 (3).
 Test for 0 to 5 ohms.*

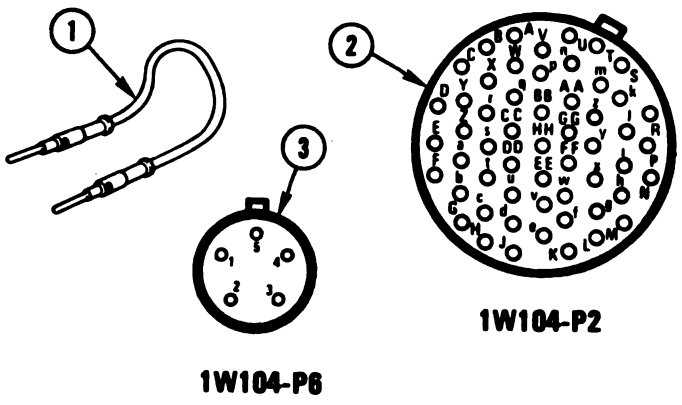
Does VTM display show between 0 and 5?

82

- Connect 1W105-P1 to J10 on turret networks box.
 ● See figure 16-5.
- Connect 1W104-P1 to J9 on turret networks box.
 ● See figure 16-5.
- Connect 1W107-P1 to J4 on turret networks box.
 ● See figure 16-5.
- Connect 1W108-P1 to J2 on turret networks box.
 ● See figure 16-5.

64

- Replace gunner's primary sight body assembly.
 ● Refer to TM 9-2350-255-20-2-3-3, para. 7-5.
- Run self test on STE.
 ● See figure 15-3, block 19.
- Run auto self test 1210.
 ● See figure 10-1.
- Verify that problem is solved.

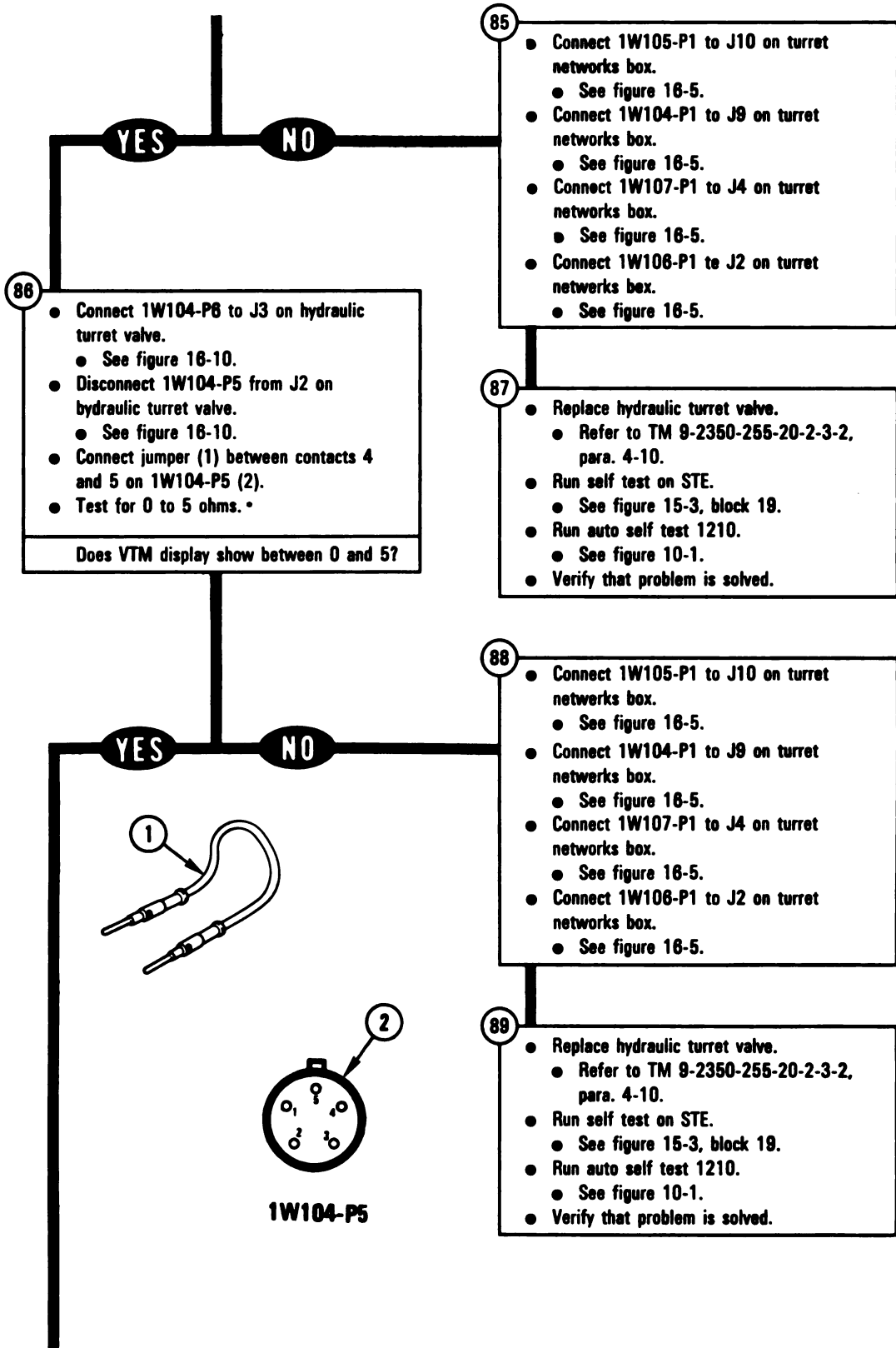


*between contacts found in block 27

Figure 10-96 (Sheet 21 of 28)
Volume II
Para. 10-3

ARR82-6560

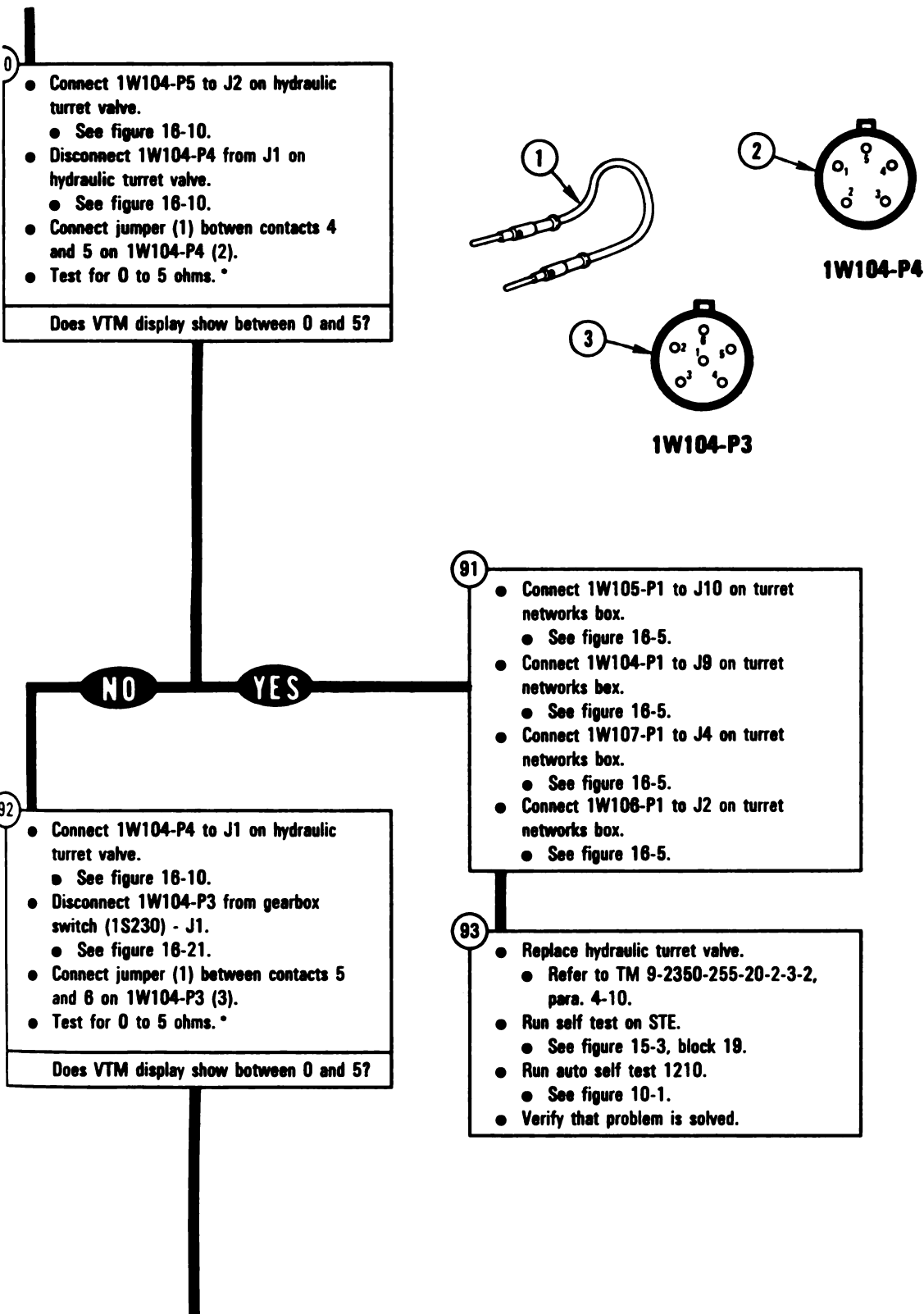
TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING



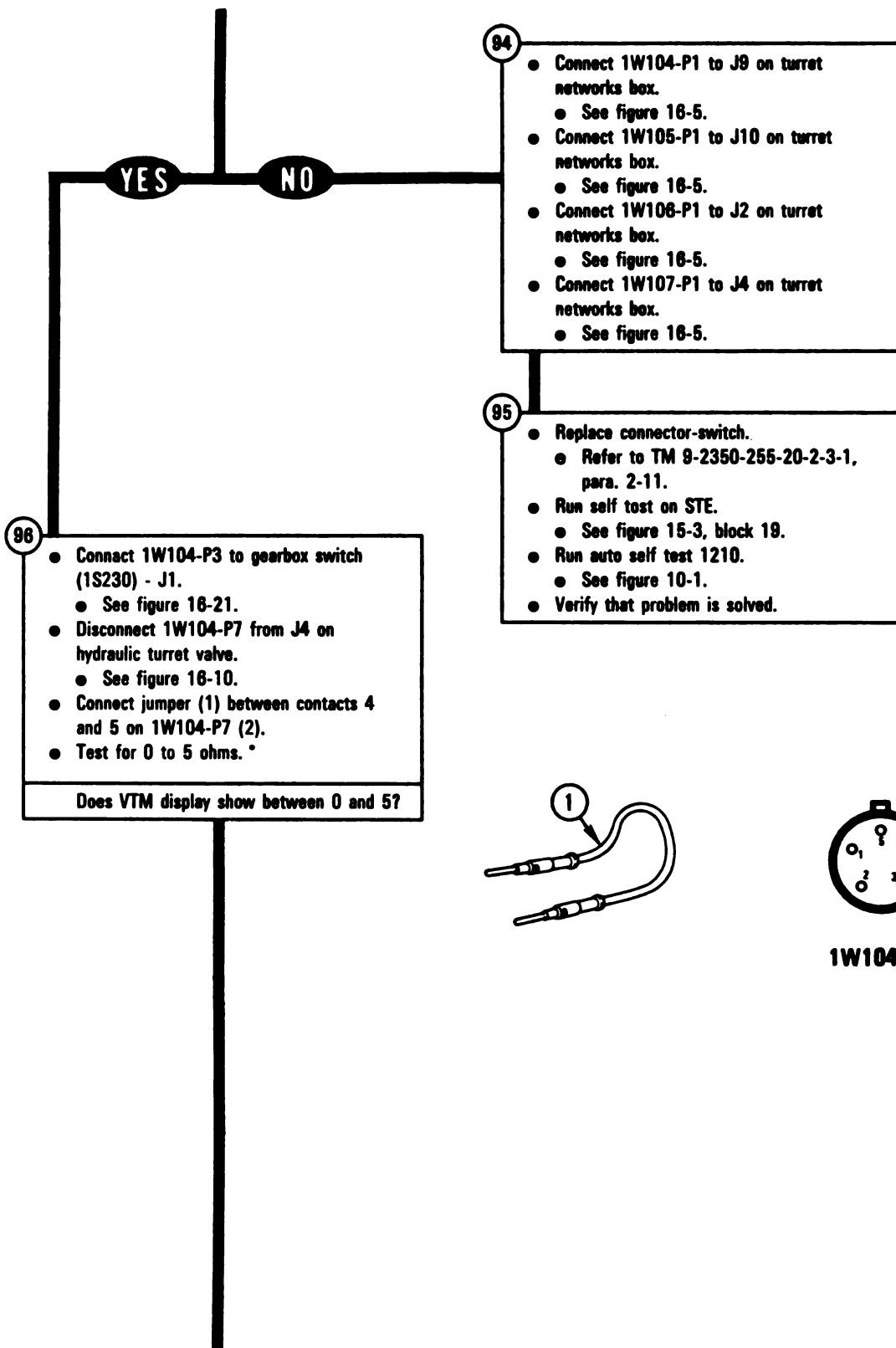
* Between contacts found in block 27

Figure 10-96 (Sheet 22 of 28)
Volume II
Para. 10-3

AR882-455



TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING



96

- Connect 1W104-P3 to gearbox switch (1S230) - J1.
 - See figure 16-21.
- Disconnect 1W104-P7 from J4 on hydraulic turret valve.
 - See figure 16-10.
- Connect jumper (1) between contacts 4 and 5 on 1W104-P7 (2).
- Test for 0 to 5 ohms.*

Does VTM display show between 0 and 5?

94

- Connect 1W104-P1 to J9 on turret networks box.
 - See figure 16-5.
- Connect 1W105-P1 to J10 on turret networks box.
 - See figure 16-5.
- Connect 1W106-P1 to J2 on turret networks box.
 - See figure 16-5.
- Connect 1W107-P1 to J4 on turret networks box.
 - See figure 16-5.

95

- Replace connector-switch.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-11.
- Run self test on STE.
 - See figure 15-3, block 19.
- Run auto self test 1210.
 - See figure 10-1.
- Verify that problem is solved.

* Between contacts found in block 27

Figure 10-96 (Sheet 24 of 28)
Volume II
Para. 10-3

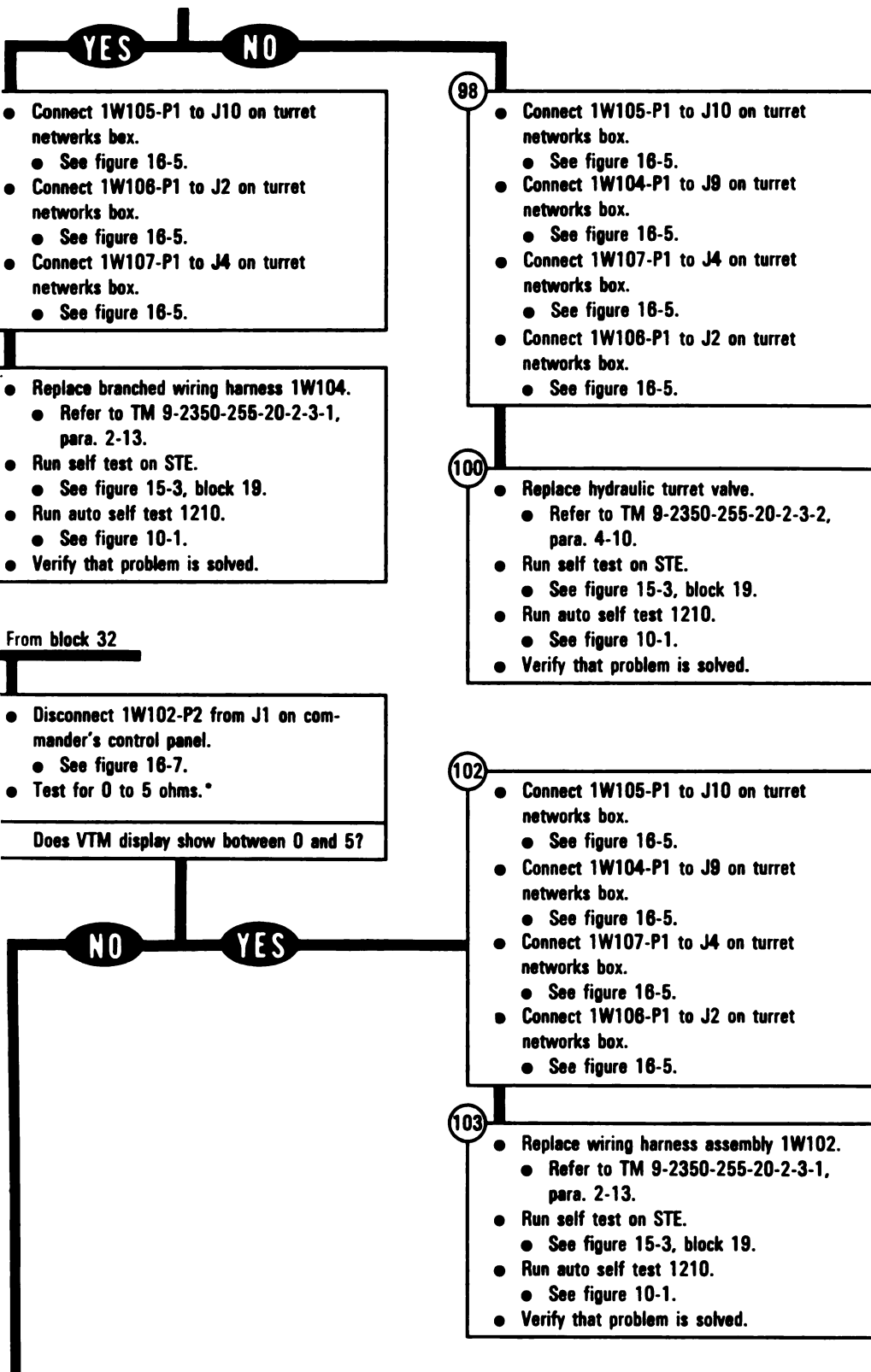


Figure 10-96 (Sheet 25 of 28)

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

104

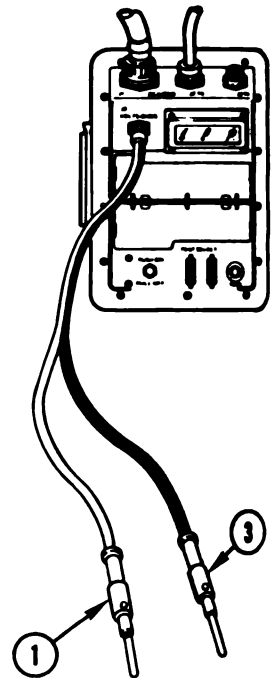
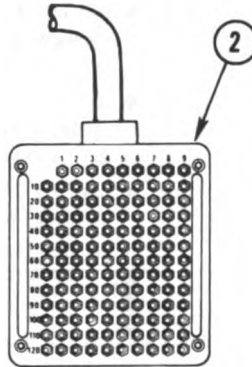
- Connect red test probe (1) to test point 17 on breakout box (2).

NOTE

If VTM display shows 0 to 5, go immediately to block 105.

- Test for 0 to 5 ohms by connecting black test probe (3) to each test point on breakout box (2) listed below:
 - 8 through 16
 - 18 through 38
 - 89 through 111

Does VTM display show between 0 and 5?



YES

NO

105

- Connect 1W105-P1 to J10 on turret networks box.
 - See figure 16-5.
- Connect 1W104-P1 to J9 on turret networks box.
 - See figure 16-5.
- Connect 1W107-P1 to J4 on turret networks box.
 - See figure 16-5.
- Connect 1W106-P1 to J2 on turret networks box.
 - See figure 16-5.

106

- Connect 1W105-P1 to J10 on turret networks box.
 - See figure 16-5.
- Connect 1W104-P1 to J9 on turret networks box.
 - See figure 16-5.
- Connect 1W107-P1 to J4 on turret networks box.
 - See figure 16-5.
- Connect 1W106-P1 to J2 on turret networks box.
 - See figure 16-5.

107

- Replace wiring harness assembly 1W102.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Run self test on STE.
 - See figure 15-3, block 19.
- Run auto self test 1210.
 - See figure 10-1.
- Verify that problem is solved.

108

- Replace commander's control panel assembly.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-5.
- Run self test on STE.
 - See figure 15-3, block 19.
- Run auto self test 1210.
 - See figure 10-1.
- Verify that problem is solved.

Figure 10-96 (Sheet 26 of 28)
Volume II
Para. 10-3

ARR82-8564

from table A or B

- If any switch or control is being held from the primary procedure, release it at this time.
- Set VEHICLE MASTER POWER switch (1) to OFF.
- Disconnect CABLE NO. 1-P1 (2) from breakout box (3).
- Connect CX305-P2 (4) to breakout box (3).
- Connect CX305-P1 (5) to CX307-P3 (6).

- Disconnect 1W200-P1 from J5 on turret networks box.
 - See figure 18-5.
- Connect 1W200-P1 (7) to CA504-P1 (8).
- Connect CA504-P2 (9) to CX307-P1 (10).
- Change STE power hookup from turret networks box to power distribution box.
 - See figure 10-89.
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
 - Refer to para. 10-1.

- Connect red test probe (11) to test point 92 on breakout box (3).

NOTE

If VTM display shows 0 to 5, go immediately to block 113.

- Test for 0 to 5 ohms by connecting black test probe (12) to each test point on breakout box (3) listed below:
 - 7 through 38
 - 62 and 74
 - 89 through 91
 - 93 through 113

Does VTM display show between 0 and 5?

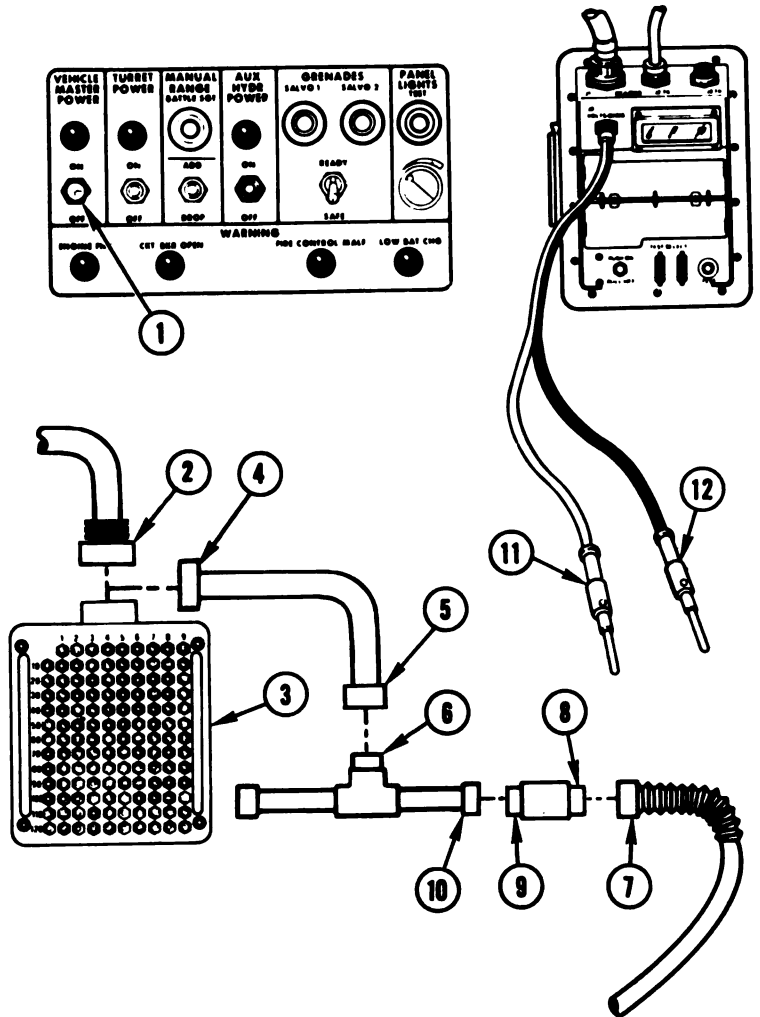


Figure 10-96 (Sheet 27 of 28)
Volume II
Para. 10-3

ARR82-6565

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

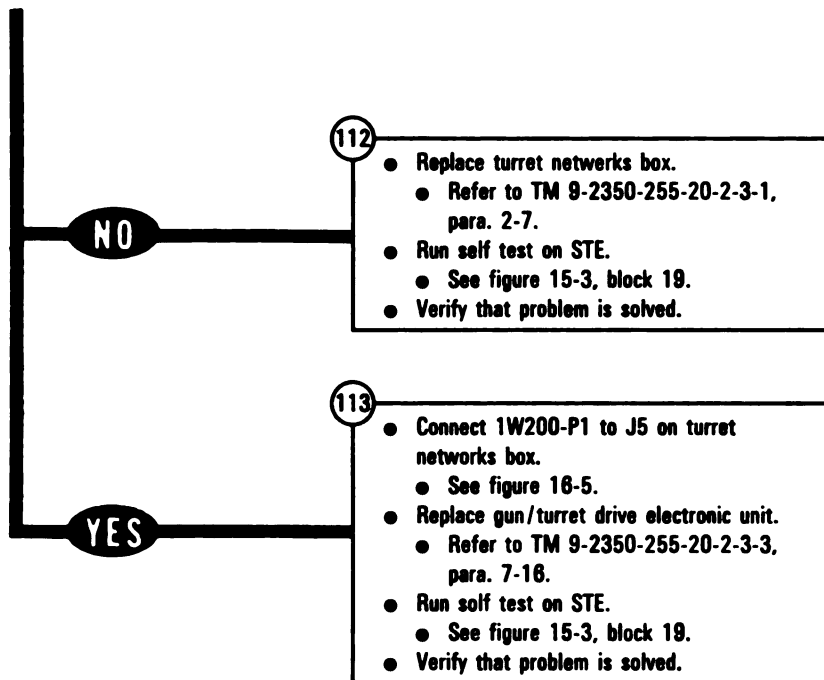


Figure 10-96 (Sheet 28 of 28)
Volume II
Para. 10-3

DISPLAY SHOWS -
SEE -20 MANUAL 143112

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 CA422-P1 from J1 on gunner's primary sight.
● See figure 10-41.
● Disconnect CX305-P2 from C1B-J1.
● See figure 10-52.

● Connect 1W201-P2 to J1 on computer electronics unit.
● See figure 18-6.
● Connect CX305-P2 (1) to breakout box (2).
● Connect 1W203-P2 (3) to CA421-P1 (4).

● Change STE power hookup from turret networks box to power distribution box.
● See figure 10-89.
● Prepare VTM for measuring dc voltage.
● Refer to para. 10-1.

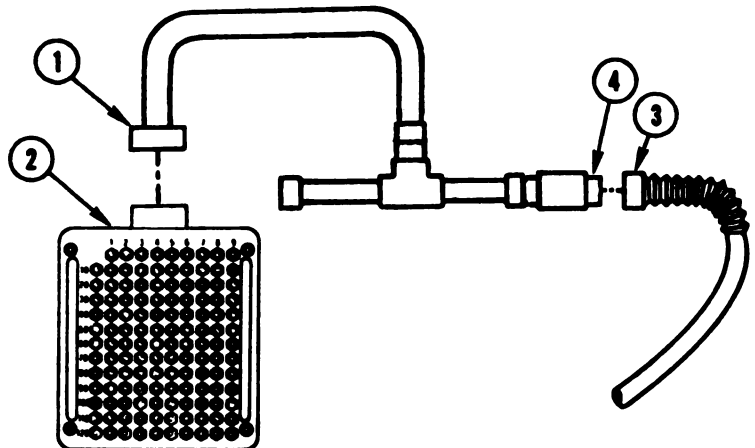


Figure 10-97 (Sheet 1 of 2)
Volume II
Para. 10-3

ARR82-6566

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

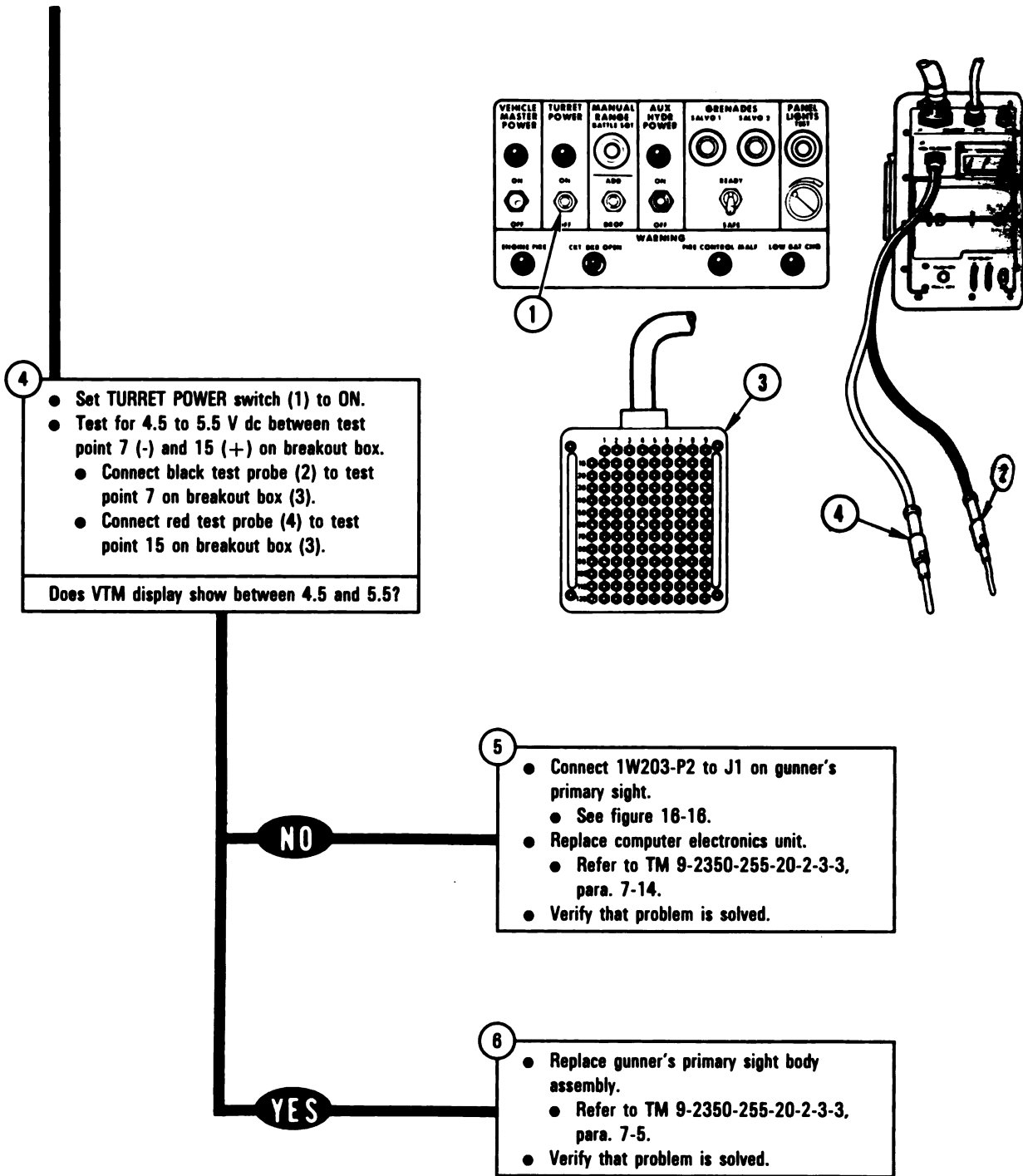


Figure 10-97 (Sheet 2 of 2)
Volume II
Para. 10-3

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 10-38.

- 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 10-89.

- Prepare VTM for measuring dc voltage.

- Refer to para. 10-1.

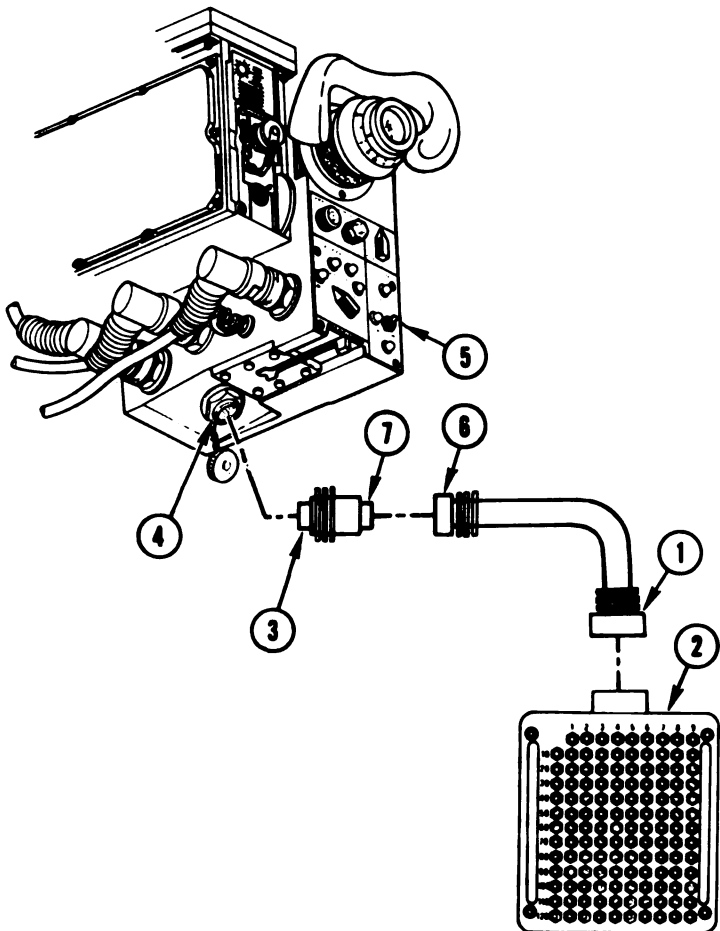


Figure 10-98 (Sheet 1 of 5)
 Volume II
 Para. 10-3

ARR82-6568

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

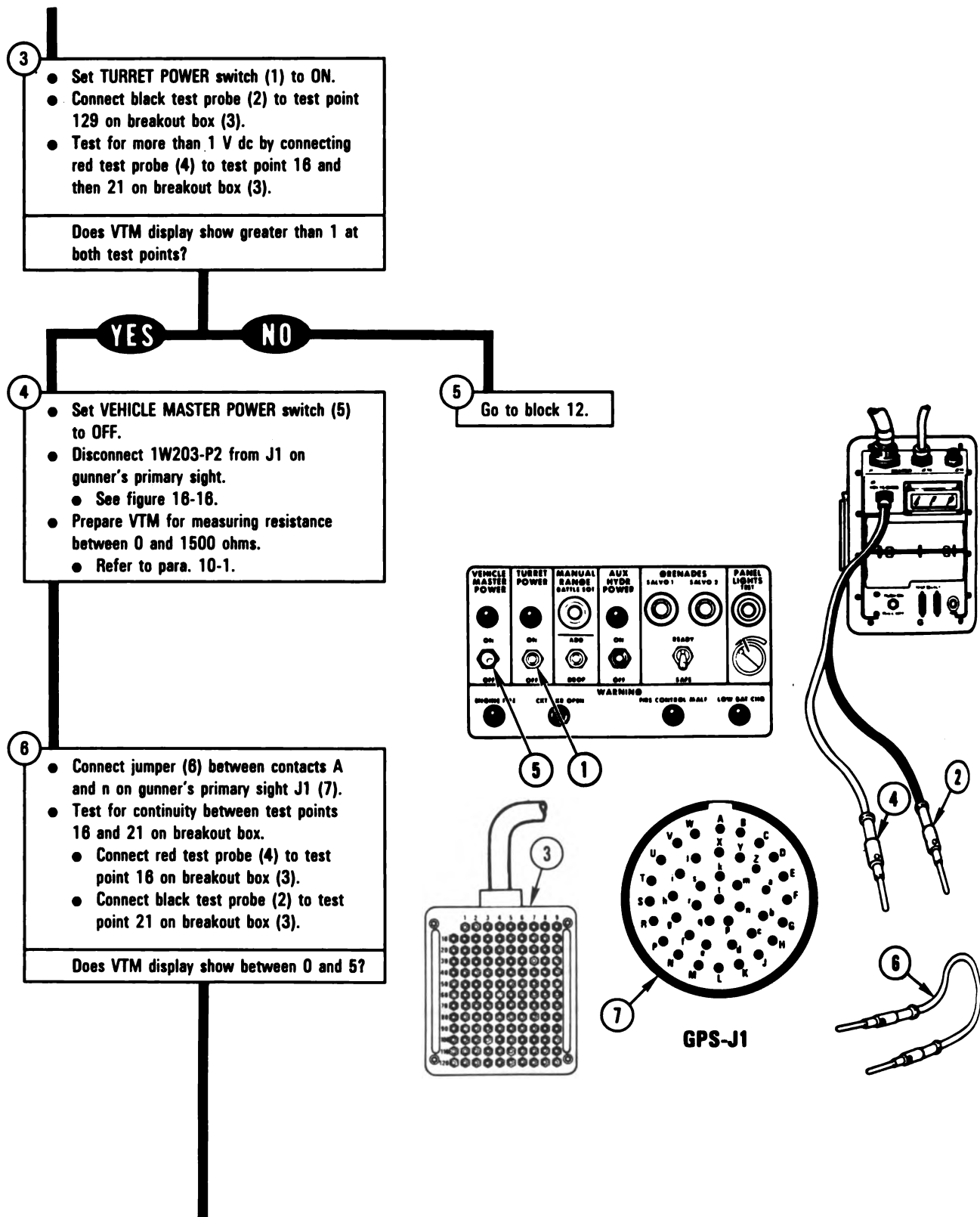


Figure 10-98 (Sheet 2 of 5)
Volume II
Para. 10-3

ARR82-6569

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

YES **NO**

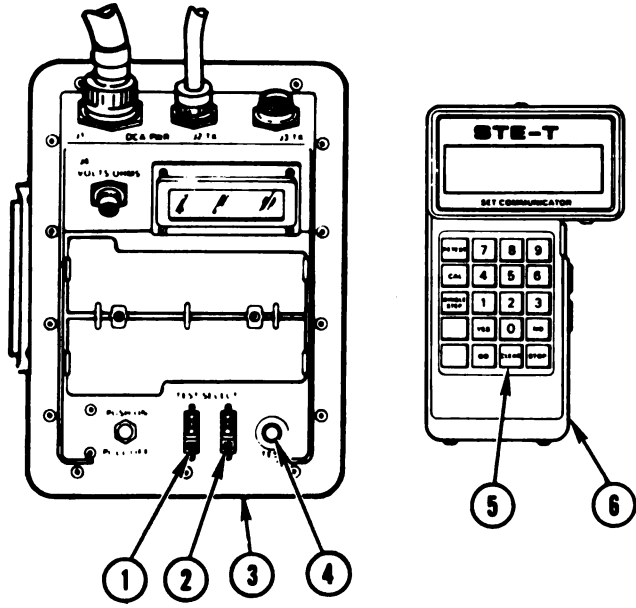
- Disconnect CX205-P1 from C1B-J1.
 - See figure 10-38.
- Disconnect CX205-P2 from C1B-J2.
 - See figure 10-38.
- Disconnect 1W203-P1 from J3 on turret networks box.
 - See figure 16-5.

- Prepare STE to run cable test 1390.
 - Set TEST SELECT switches (1, 2) on VTM (3) to 00.
 - Press TEST button (4) on VTM (3).
 - Press CLEAR key (5) on SETCOM (6).
 - Enter test number 1390 on SETCOM (6).
- Run test on 1W203 between P1 and P2.
 - See figure 15-5.

Does SETCOM display show GOOD?

7

- 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.



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

- Connect 1W203-P2 to J1 on gunner's primary sight.
 - See figure 16-16.
- Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
- Verify that problem is solved.

Figure 10-98 (Sheet 3 of 5)
Volume II
Para. 10-3

ARR82-6570

TM 9-2350-255-20-2-2-2
FIRE CONTROL 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?

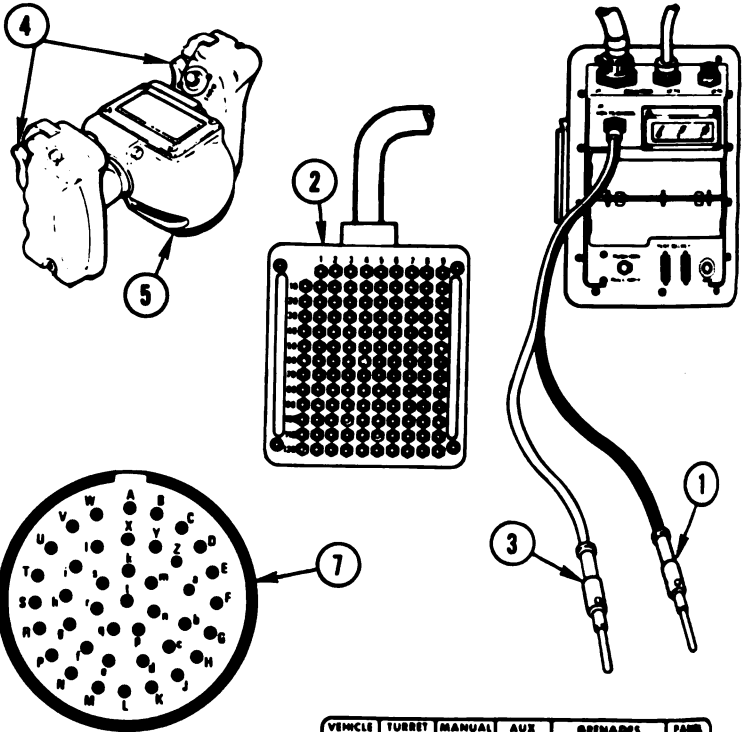
13

- Set VEHICLE MASTER POWER switch (6) to OFF.
- STE test cable CX205 is faulty. Notify support maintenance.

NO YES

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 16-16.
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
- Refer to para. 10-1.



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?

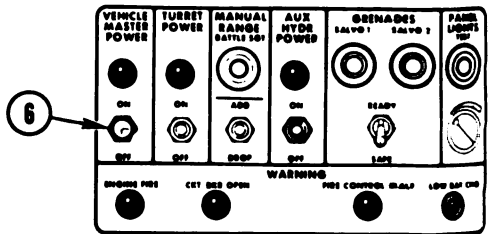
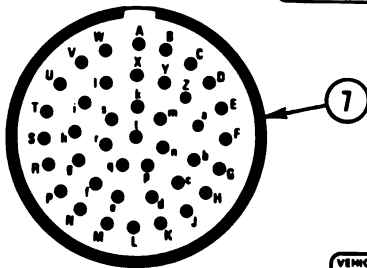
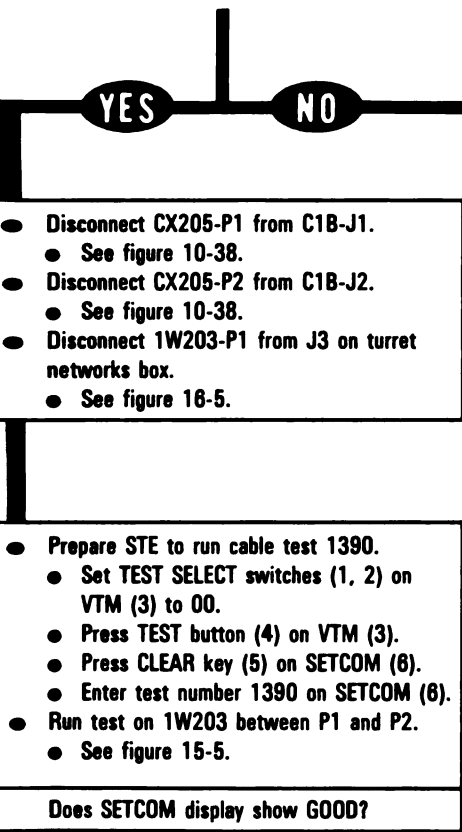


Figure 10-98 (Sheet 4 of 5)
 Volume II
 Para. 10-3

ARR82-6571

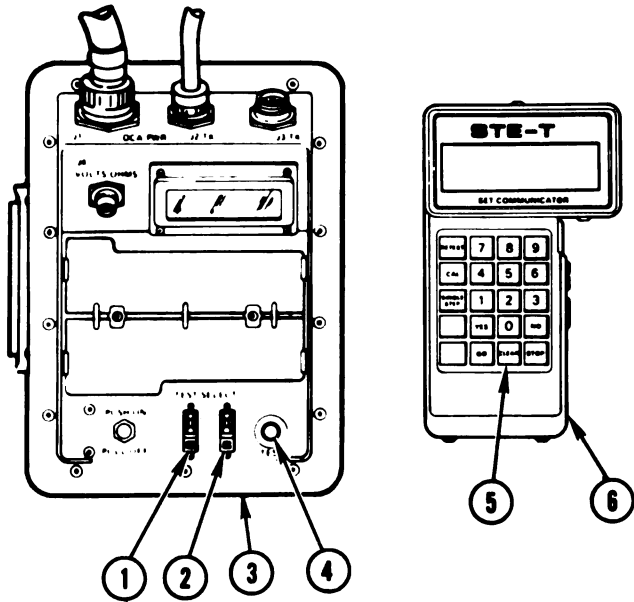


- 16**
- Replace gunner's primary sight body assembly.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-5.
 - Verify that problem is solved.

- Disconnect CX205-P1 from C1B-J1.
- See figure 10-38.
- Disconnect CX205-P2 from C1B-J2.
- See figure 10-38.
- Disconnect 1W203-P1 from J3 on turret networks box.
- See figure 16-5.

- Prepare STE to run cable test 1390.
- Set TEST SELECT switches (1, 2) on VTM (3) to 00.
- Press TEST button (4) on VTM (3).
- Press CLEAR key (5) on SETCOM (6).
- Enter test number 1390 on SETCOM (6).
- Run test on 1W203 between P1 and P2.
- See figure 15-5.

Does SETCOM display show GOOD?



- 19**
- Replace branched wiring harness 1W203.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

- 20**
- Connect 1W203-P2 to J1 on gunner's primary sight.
 - See figure 18-16.
 - Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
 - Verify that problem is solved.

Figure 10-98 (Sheet 5 of 5)
Volume II
Para. 10-3

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-P6 from J4 on gunner's primary sight.
- See figure 10-38.
- 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 10-89.
- Prepare VTM for measuring resistance between 0 and 1500 ohms.
- Refer to para. 10-1.

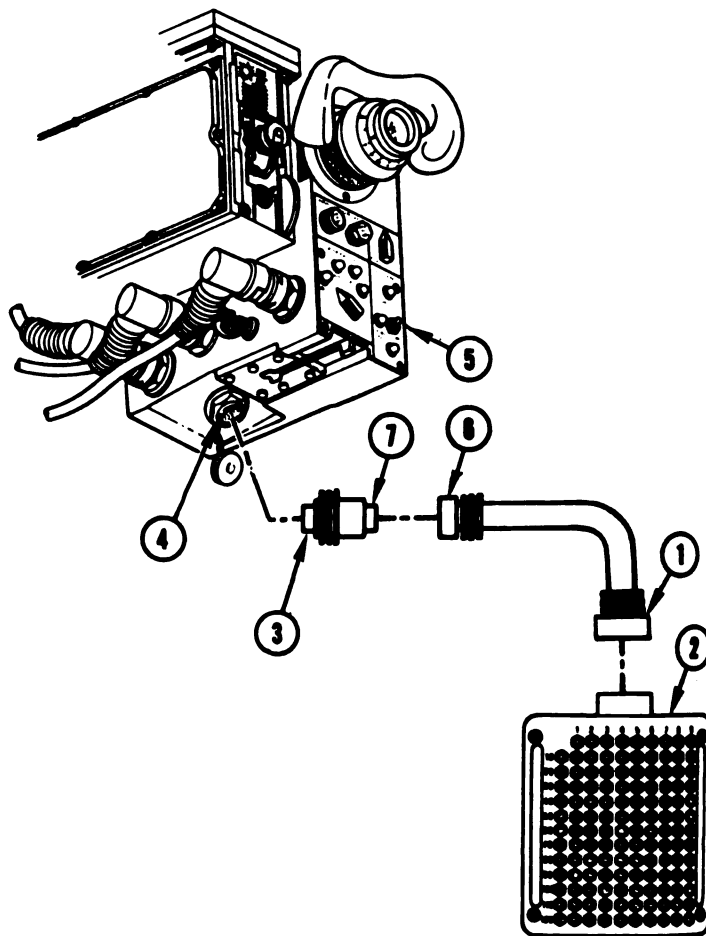


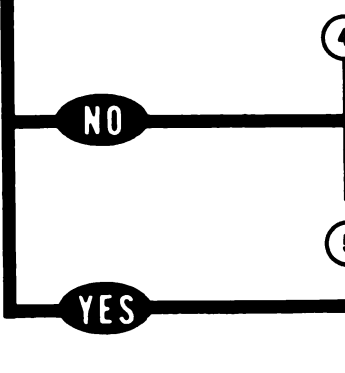
Figure 10-99 (Sheet 1 of 2)
Volume II
Para. 10-3

ARR82-6573

3

- Test for less than 25 ohms between test points 127 and 128 on breakout box.
- Connect red test probe (1) to test point 127 on breakout box (2).
- Connect black test probe (3) to test point 128 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

- Set VEHICLE MASTER POWER SWITCH (4) to OFF.
- STE test cable CX205 is faulty. Notify support maintenance.

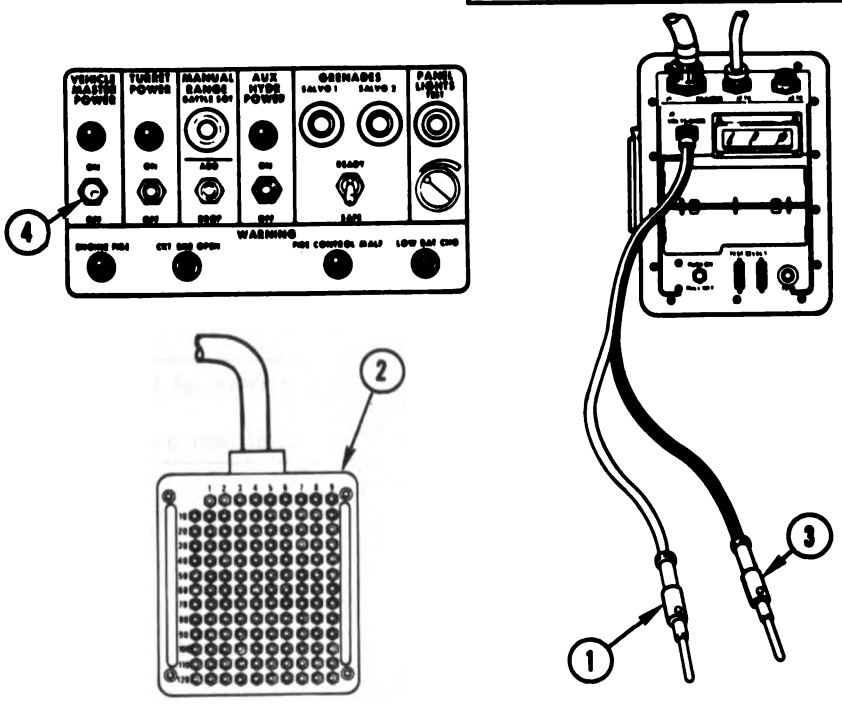


Figure 10-99 (Sheet 2 of 2)
Volume II
Para. 10-3

ARR82-8574

10-4. Gunner's Primary Sight Defroster Subsystem Troubleshooting Procedures.

Table 10-4. Gunner's Primary Sight Defroster (GPSD) 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
GPSD-1	Gunner's Primary Sight Window Defroster Does Not Work. DEFROSTER Light On	Figure 10-100	1240	Figure 18-91
GPSD-2	Gunner's Primary Sight Window Defroster Does Not Work. DEFROSTER Light Off	Figure 10-100	1240	Figure 18-92
GPSD-3	DEFROSTER Light Does Not Come On. Gunner's Primary Sight Window Defroster Works OK	Figure 10-100	1240	Figure 18-93

SYMPTOMS GPSD-1, GPSD-2, AND GPSD-3

**GUNNER'S PRIMARY SIGHT DEFROSTER
SUBSYSTEM FOUND FAULTY DURING
TANK OPERATION**

Common Tools:

- Pliers, slip joint, 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 Test Set, 12322400

Equipment Condition:

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

NOTE

Read para. 10-1 before doing any work.

1

- Set up tank controls for standard initial test conditions.
- Refer to para. 16-6, table 16-2.

Figure 10-100 (Sheet 1 of 6)
Volume II
Para. 10-4

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

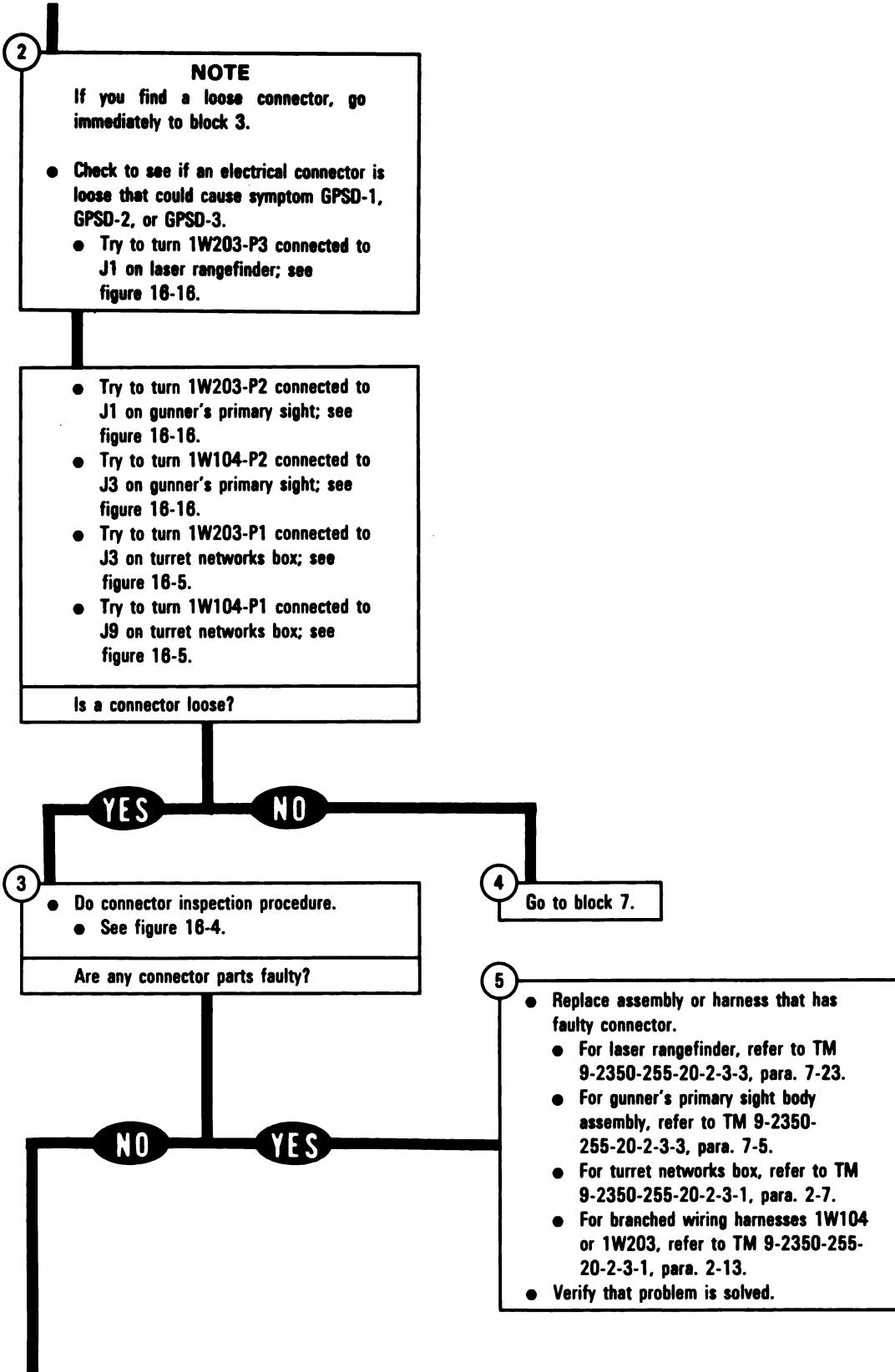


Figure 10-100 (Sheet 2 of 6)
Volume II
Para. 10-4

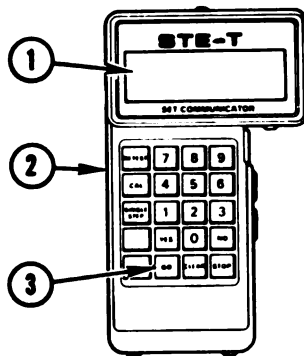
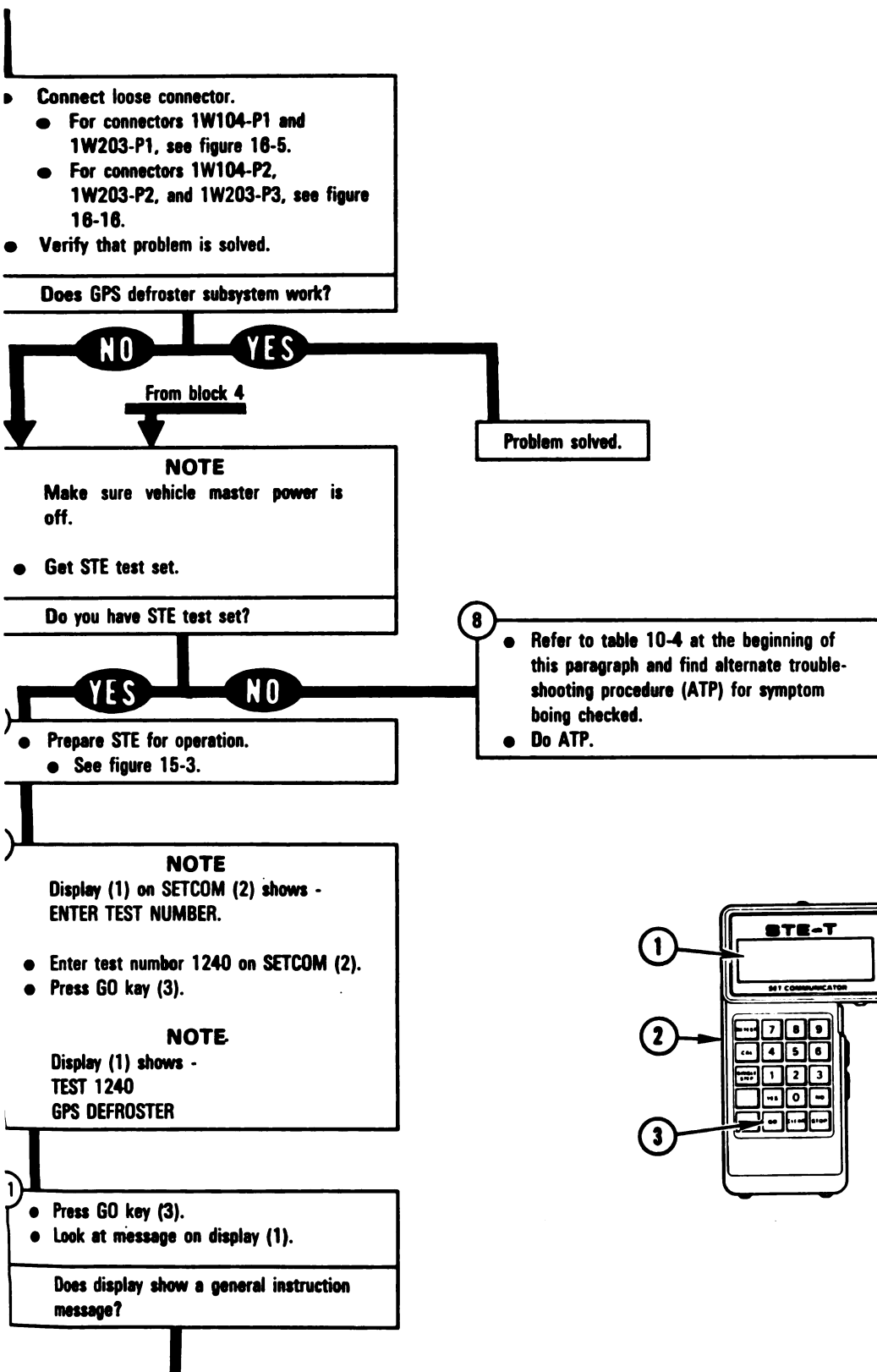


Figure 10-100 (Sheet 3 of 6)
 Volume II
 Para. 10-4

ARR82-6575

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

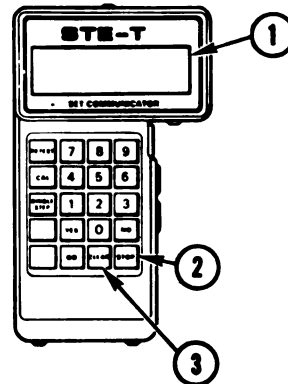
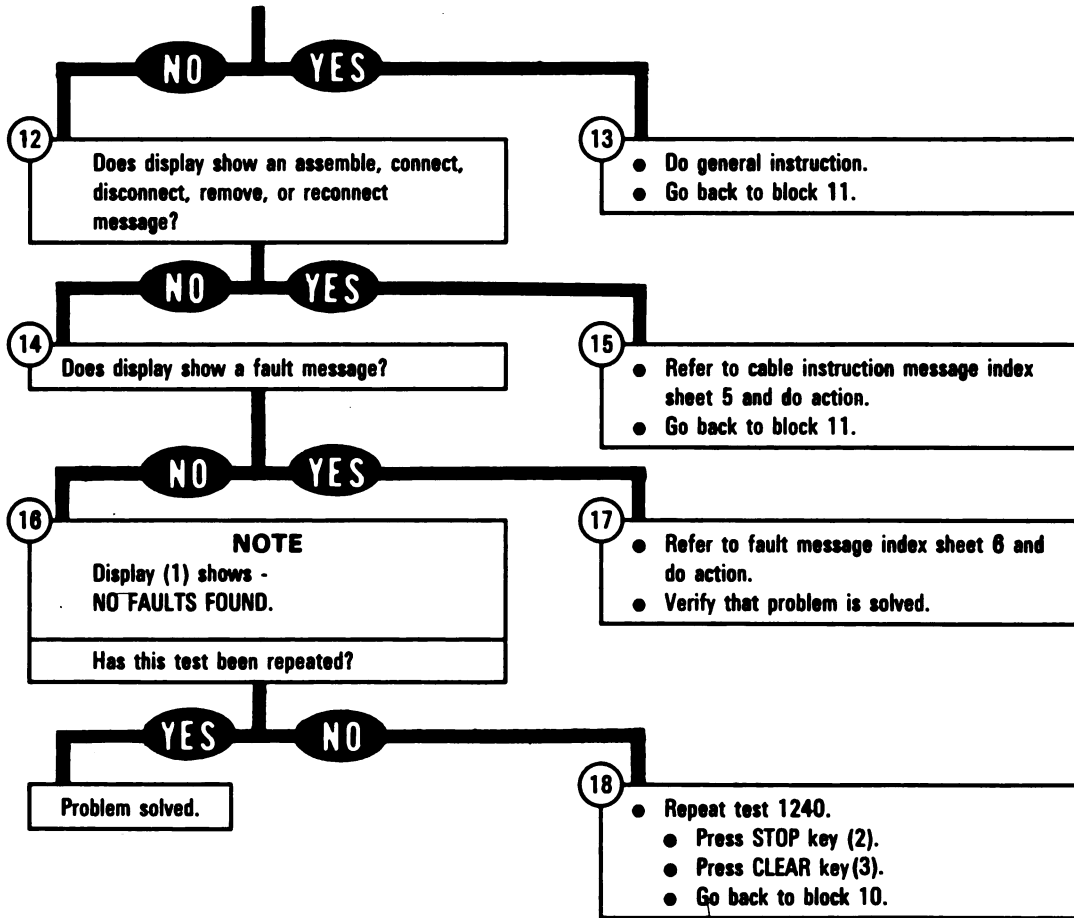


Figure 10-100 (Sheet 4 of 6)
Volume II
Para. 10-4

ARR82-6576

Gunner's Primary Sight Defroster Subsystem Cable Instruction Message Index

Cable Instruction Message	Action
ASSEMBLE CX304 CX307 AND CA527/28	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX304 to P3 on DBA CX307. ● Connect P2 on adapter CA527 to P2 on DBA CX307. ● Connect P2 on adapter CA528 to P1 on DBA CX307. ● See figure 10-103.
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 10-102. ● Connect P2 on CIB cable CX305 to J1 on CIB. ● See figure 10-101.
CONNECT CIB J2 (CX304) TO GPS J4 (CA207)	<ul style="list-style-type: none"> ● Connect P1 on adapter CA207 to J4 on gunner's primary sight. ● Connect P1 on CIB cable CX304 to P2 on adapter CA207. ● See figure 10-104. ● Connect P2 on CIB cable CX304 to J2 on CIB. ● See figure 10-101.
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 10-102. ● Connect P2 on CIB cable CX208 to J2 on CIB. ● See figure 10-101.
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 10-103.
DISCONNECT 1W203 ←-→ TNB J3	<ul style="list-style-type: none"> ● Disconnect 1W203-P1 from J3 on turret networks box. ● See figure 16-5.
REMOVE CX208 FROM TNB TJ2 AND CIB	<ul style="list-style-type: none"> ● Disconnect P1 on CIB cable CX208 from TEST 2 on turret networks box. ● See figure 10-102. ● Disconnect P2 on CIB cable CX208 from J2 on CIB. ● See figure 10-101.
REMOVE CX304 AND ADAPTER AT GPS J4	<ul style="list-style-type: none"> ● Disconnect P1 on adapter CA207 from J4 on gunner's primary sight. ● Disconnect P1 on CIB cable CX304 from P2 on adapter CA207. ● See figure 10-104.

Figure 10-100 (Sheet 5 of 6)
Volume II
Para. 10-4

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

Gunner's Primary Sight Defroster Subsystem Fault Message Index

Fault Message	Action
FAULTY BATTERY/ CHARGING SYS 109916	<ul style="list-style-type: none"> ● Charge batteries. ● Refer to TM 9-2350-255-10. ● Go back to block 9.
FAULTY GPS 124006	<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.
FAULTY GPS OR 1W203 124004 124008	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 10-105. ● See figure 10-105.
FAULTY PANEL LGT SUPPLIES 133202	<ul style="list-style-type: none"> ● Test set found a panel lights problem. ● Correct panel lights problem. ● Refer to panel lights symptom index, TM 9-2350-255-20-2-2-1, para. 6-1. ● Verify that problem is solved.
FAULTY TNB 124001 124003 124009	<ul style="list-style-type: none"> ● Replace turret networks box. ● Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
FAULTY VEH/TURRET POWER CNTL 109917	<ul style="list-style-type: none"> ● Run vehicle/turret power control test number 1200. ● Refer to TM 9-2350-255-20-2-2-1, figure 8-1.
SYSTEM ERROR 109902	<ul style="list-style-type: none"> ● Run STE self-test number 666. ● See figure 15-3, block 26. ● Repeat GPS defroster test number 1240. ● 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 10-100 (Sheet 6 of 6)
Volume II
Para. 10-4

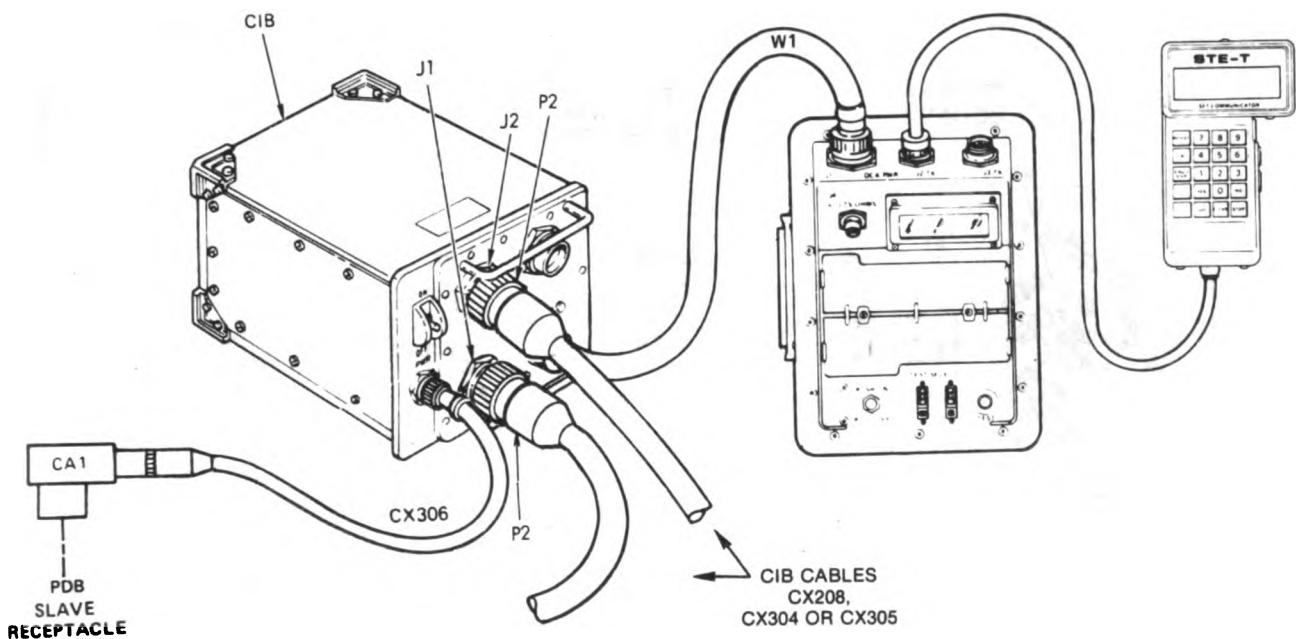
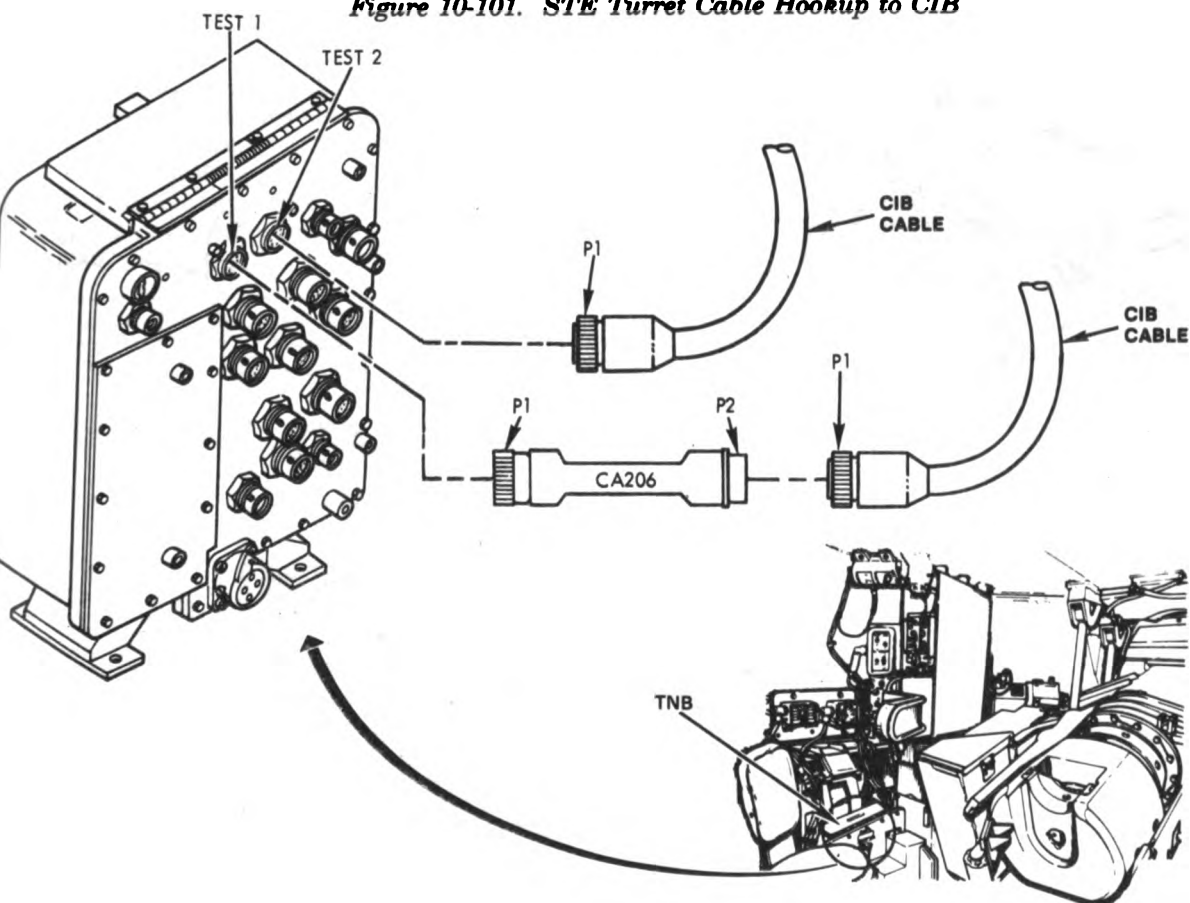


Figure 10-101. STE Turret Cable Hookup to CIB



**Figure 10-102. STE Turret Cable Hookup to TNB TEST 1 and TEST 2
Volume II
Para. 10-4**

ARR82-6577

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

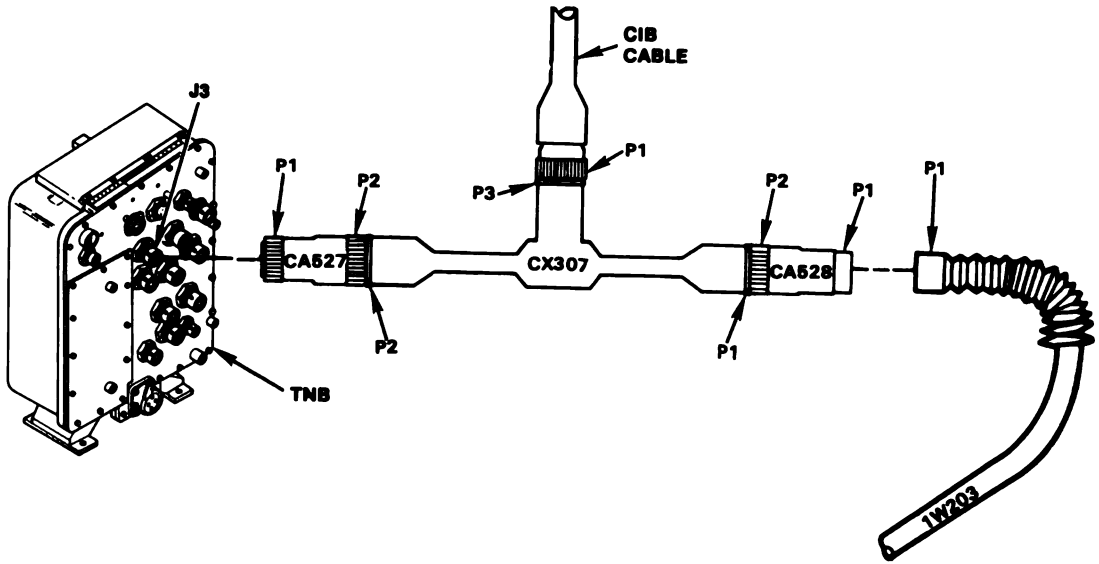


Figure 10-103. STE Turret Cable Hookup Between TNB-J3 and 1W203-P1

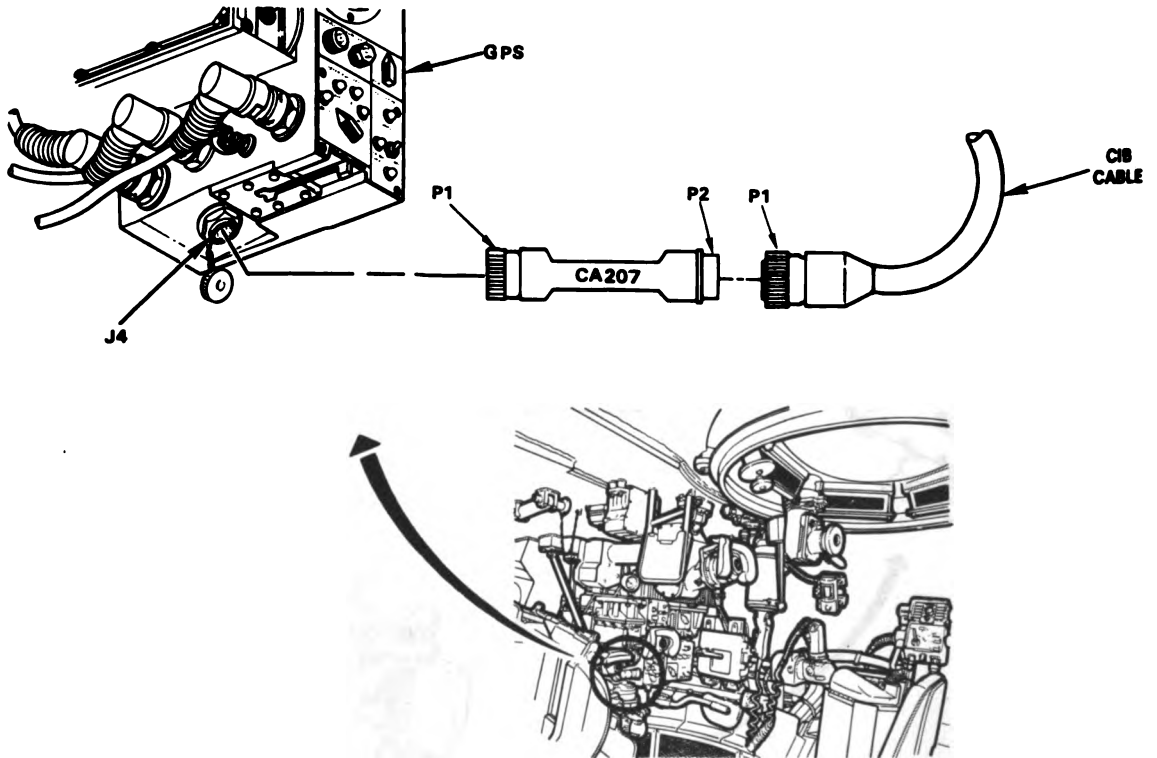


Figure 10-104. STE Turret Cable Hookup to GPS-J4
Volume II
Para. 10-4

ARR82-8578

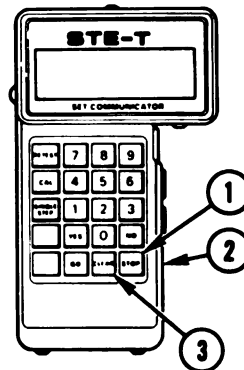
**DISPLAY SHOWS -
 FAULTY GPS
 OR 1W203** *

***124004
 124008**

Equipment Condition:

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

- 1
- Disconnect CX305-P1 from CA206-P2.
 - See figure 10-102.
 - Disconnect CA527-P2 from CX307-P2.
 - See figure 10-103.
 - Disconnect 1W203-P2 from J1 on gunner's primary sight.
 - See figure 16-16.



- 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 1W203 between P1 and P2.
 - See figure 15-5.

Does SETCOM display show GOOD?

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.

YES

- 4
- Connect 1W203-P1 to J3 on turret networks box.
 - See figure 16-5.
 - 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 10-105
Volume II
Para. 10-4

ARR82-6579

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

10-5. Gunner's Auxiliary Sight Reticle Subsystem Troubleshooting Procedure.

Table 10-5. Gunner's Auxiliary Sight (GAS) Reticle Subsystem Fault Symptom Index

Fault Symptom No.	Fault Symptom	Primary Troubleshooting Procedure (PTP)
GAS-1	Gunner's Auxiliary Sight Reticles Do Not Light	Figure 10-106

SYMPTOM GAS-1

**BUNNER'S AUXILIARY SIGHT RETICLES
DO NOT LIGHT**

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. 10-1 before doing any work.

- Set up tank controls for standard initial test conditions.
 - Refer to para. 16-6, table 16-2.

Figure 10-106 (Sheet 1 of 6)
Volume II
Para. 10-5

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

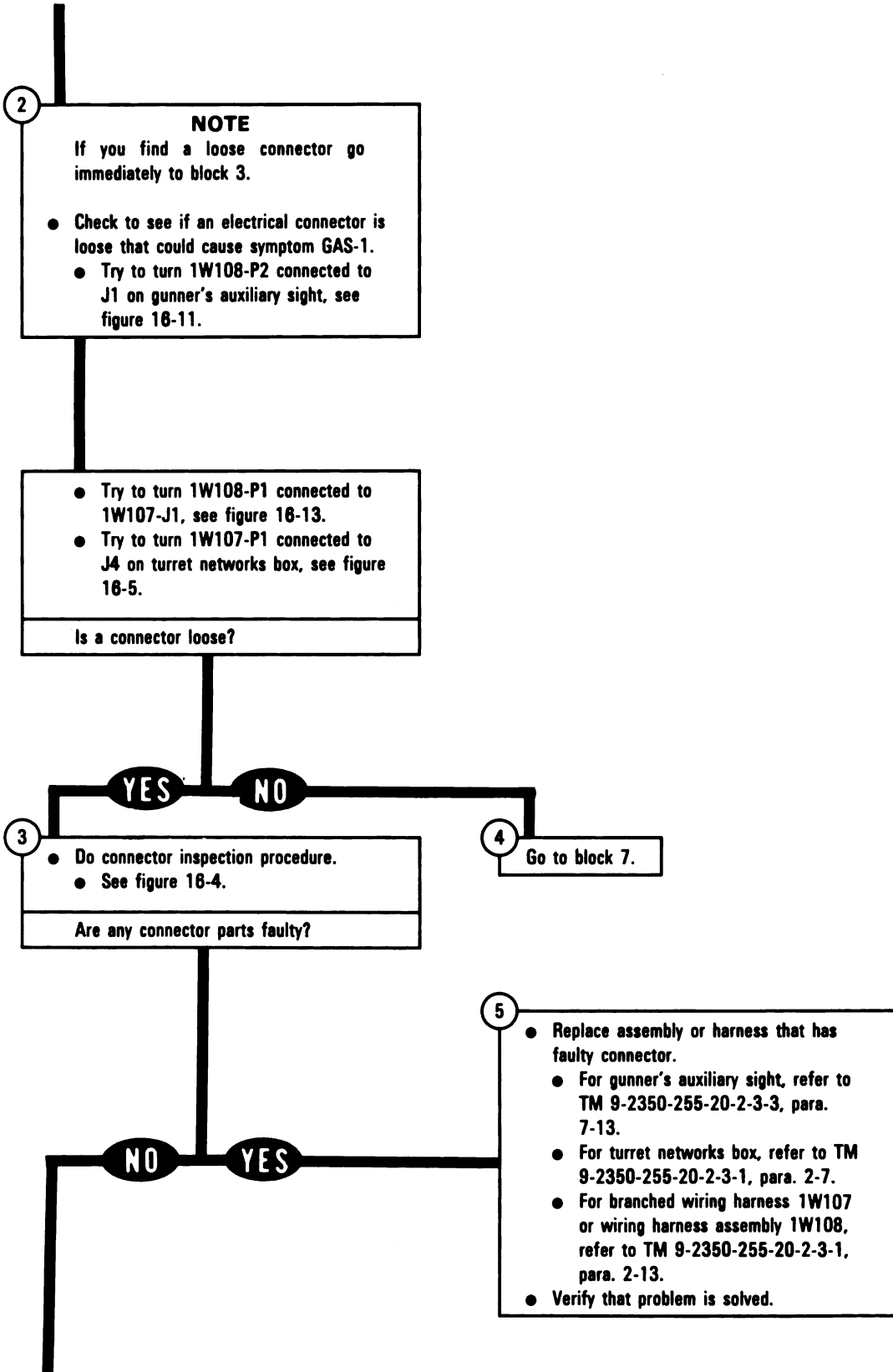


Figure 10-106 (Sheet 2 of 6)
Volume II
Para. 10-5

Connect loose connector.

- For connector 1W108-P2, see figure 16-11.
- For connector 1W108-P1, see figure 16-13.
- For connector 1W107-P1, see figure 16-5.

Verify that problem is solved.

Did gunner's auxiliary sight reticles light?

NO YES

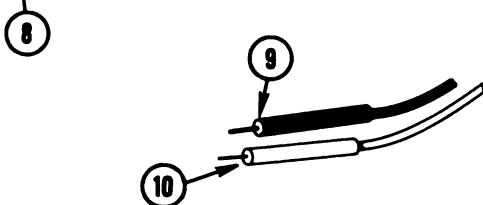
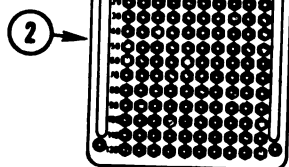
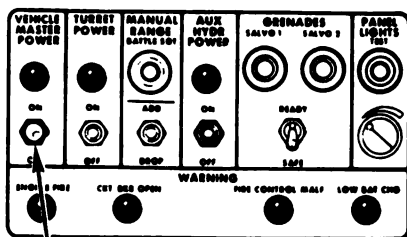
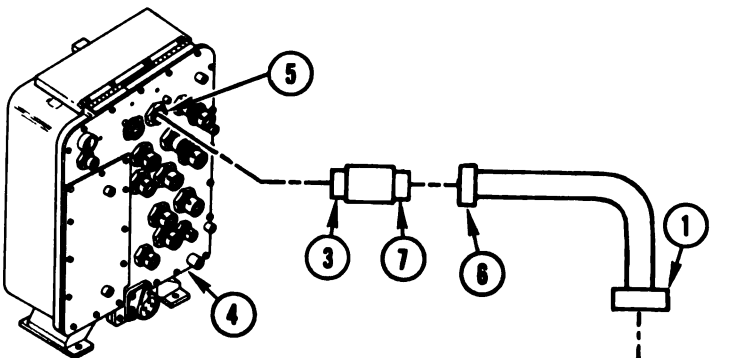
From block 4

NOTE

Make sure vehicle master power is off.

- Connect breakout box to TEST 2 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 2 (4) on turret networks box (5).
- Connect CABLE NO. 1-P2 (6) to ADAPTER NO. 1-J1 (7).

Problem solved.



- Prepare multimeter for dc voltage test.
- See figure 15-3.
- Set VEHICLE MASTER POWER switch (8) to ON.

NOTE

If multimeter does not show 5 V dc, leave test probes connected for remainder of tests.

- Test for 5 V dc between test points 41 (-) and 40 (+) on breakout box.
- Connect black test probe (9) to test point 41 on breakout box (2).
- Connect red test probe (10) to test point 40 on breakout box (2).

Does multimeter show 5 V dc?

Figure 10-106 (Sheet 3 of 6)
Volume II
Para. 10-5

ARR82-6580

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

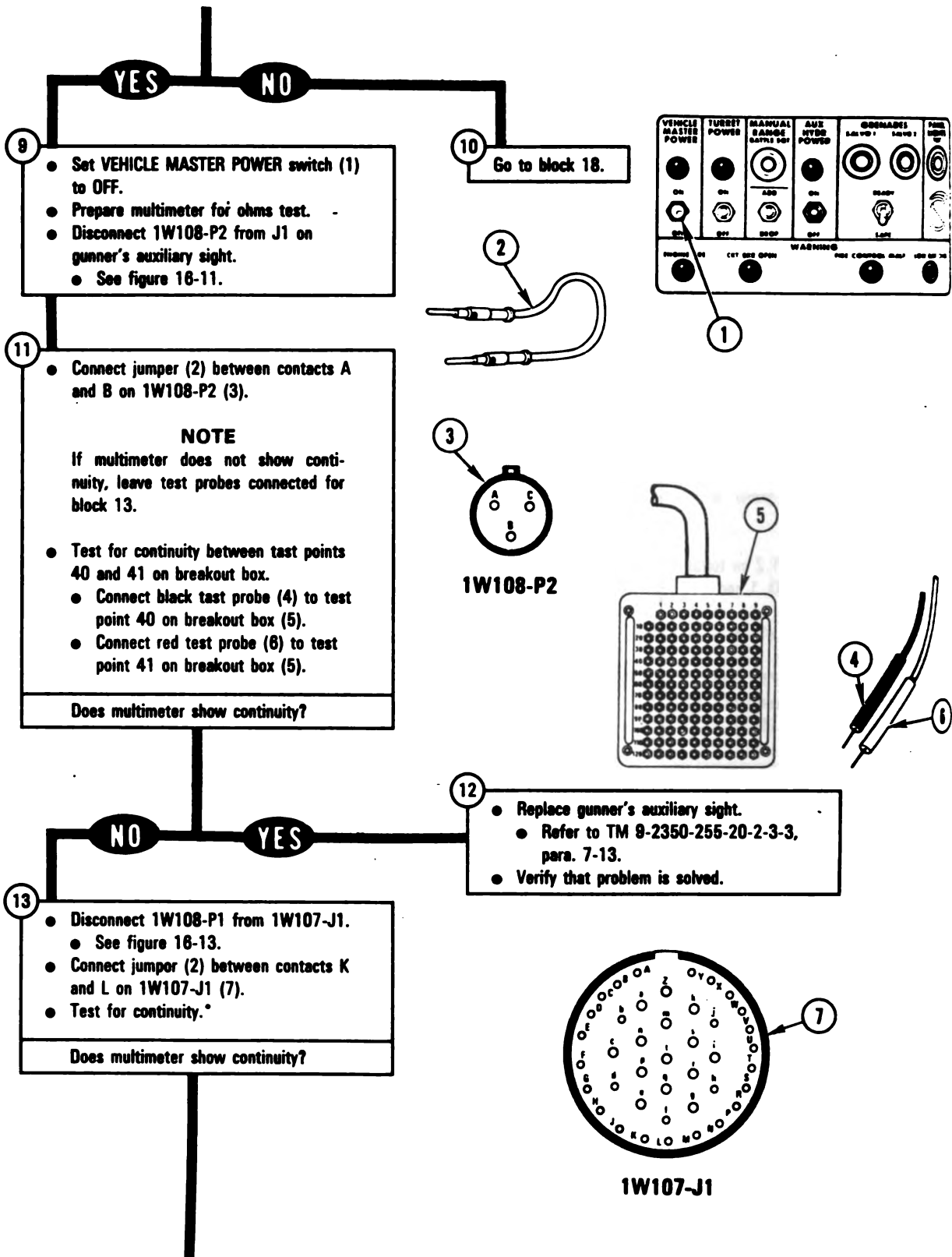


Figure 10-106 (Sheet 4 of 6)
 Volume II
 Para. 10-5

*Between contacts found in block 11.

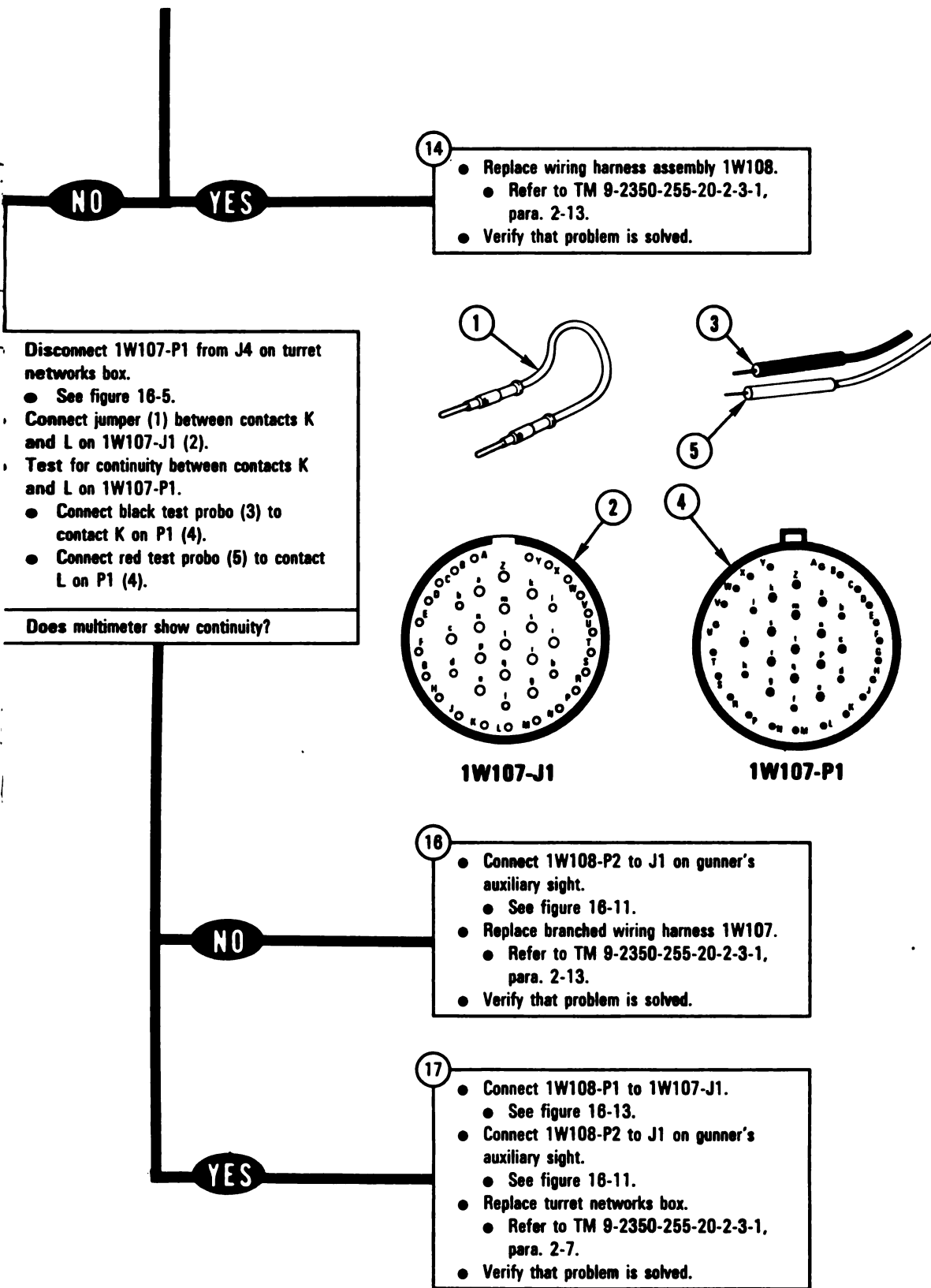


Figure 10-106 (Sheet 5 of 6)
Volume II
Para. 10-5

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

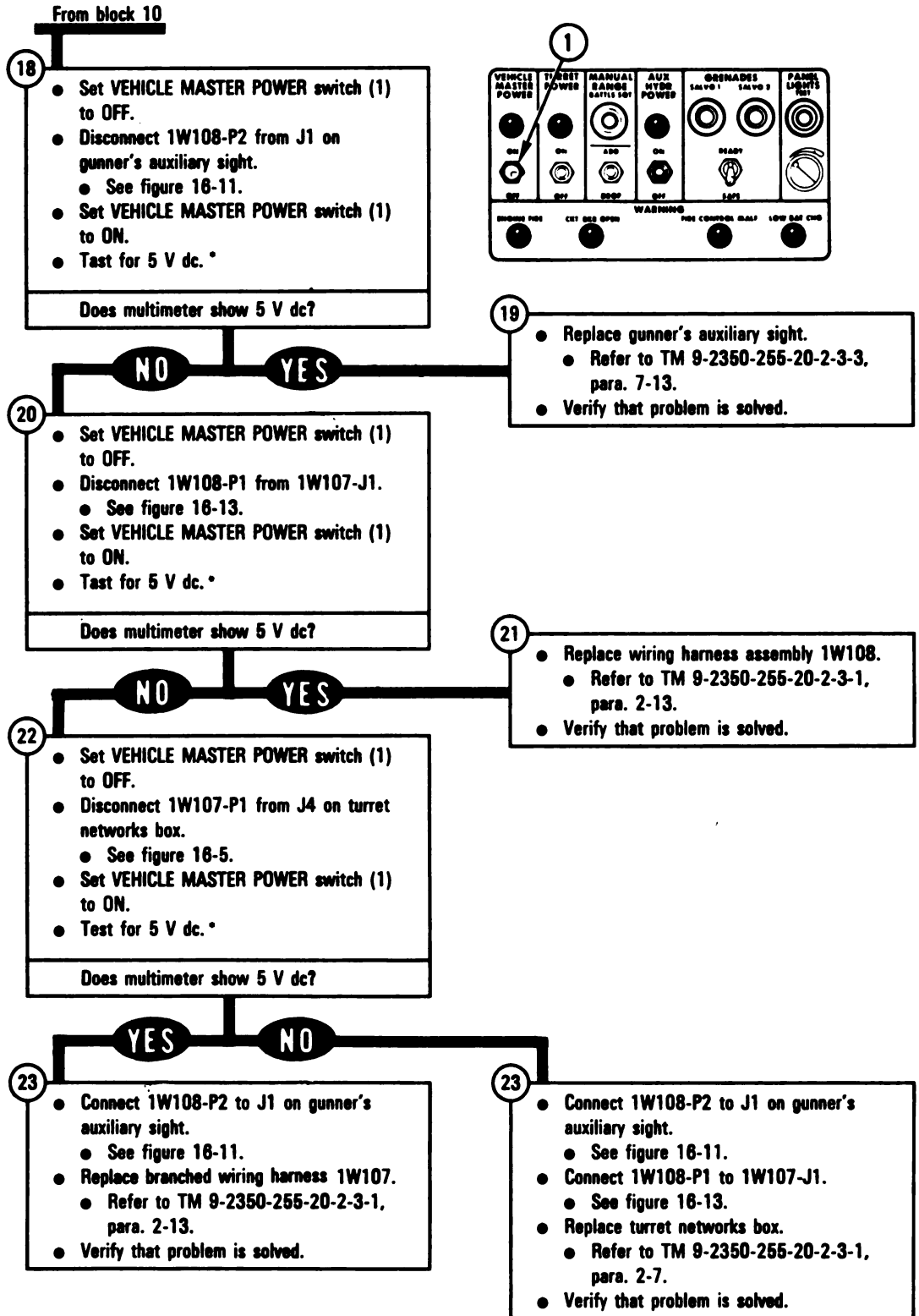


Figure 10-106 (Sheet 6 of 6)
Volume II
Para. 10-5

* Between contacts found in block 8
10-462

0-6. Laser Rangefinder Subsystem Troubleshooting Procedures.

Table 10-6. Laser Rangefinder (LRF) 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
LRF-1	Commander Can Fire Laser Rangefinder But Gunner Cannot	Figure 10-107	1450	Figure 18-94
LRF-2	Gunner Can Fire Laser Rangefinder But Commander Cannot	Figure 10-107	1450	Figure 18-95
LRF-3	Neither Gunner Nor Commander Can Fire Laser Rangefinder	Figure 10-107	1450	Figure 18-96
LRF-4	FIRE CONTROL MALF Light And F Symbol Come On. Computer Manual Self Test Shows Failure Number 8	Figure 10-107	1450	Figure 18-97
LRF-5	Gunner's Primary Sight Reticle Does Not Come On	Figure 10-130	-	-
LRF-6	Range Displayed In Gunner's Primary Sight Eyepiece Does Not Follow Ballistics Control Panel Range Display	Figure 10-131	-	-

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

SYMPTOMS LRF-1, LRF-2, LRF-3, AND LRF-4.

**COMMANDER CAN FIRE LASER RANGE-
FINDER BUT GUNNER CANNOT**

OR

**GUNNER CAN FIRE LASER RANGEFINDER
BUT COMMANDER CANNOT**

OR

**NEITHER GUNNER NOR COMMANDER
CAN FIRE LASER RANGEFINDER**

OR

**FIRE CONTROL MALF LIGHT AND F SYM-
BOL COME ON. COMPUTER MANUAL
SELF TEST SHOWS FAILURE NUMBER 8**

Common Tools:

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

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.

WARNING

Laser beam can cause serious eye damage. Refer to TM 9-2350-255-10 before operating laser rangefinder.

NOTE

Read para. 10-1 before doing any work.

Figure 10-107 (Sheet 1 of 12)
Volume II
Para. 10-6

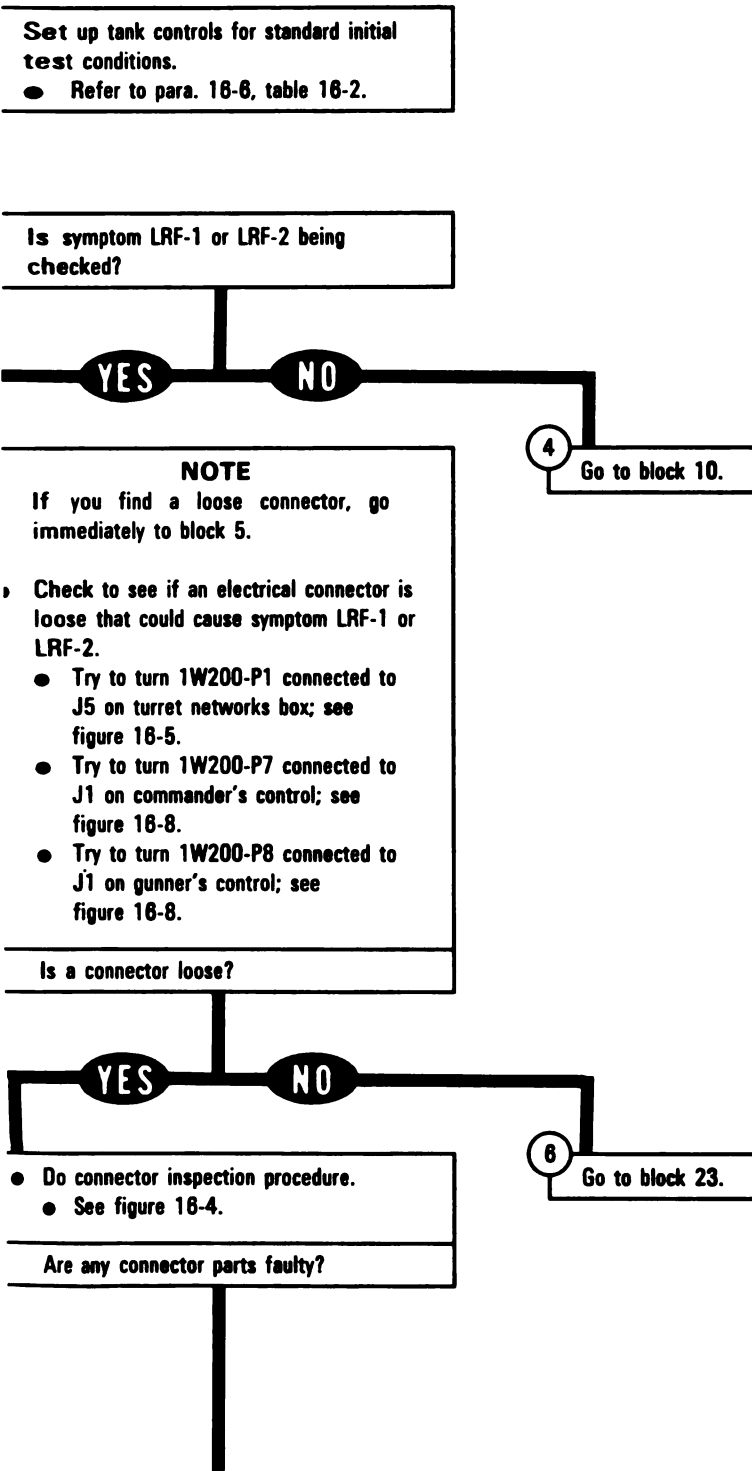


Figure 10-107 (Sheet 2 of 12)
Volume II
Para. 10-6

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

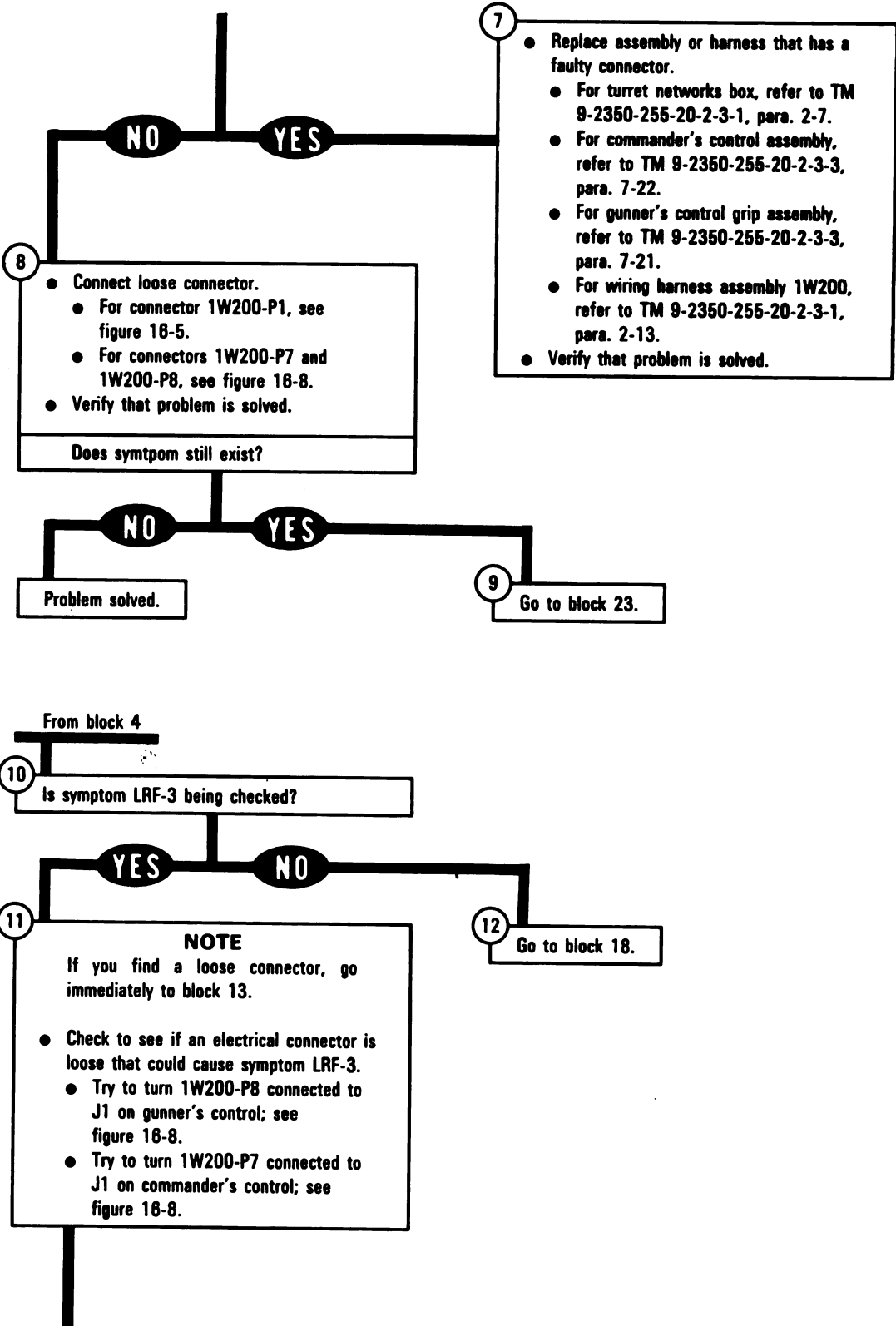


Figure 10-107 (Sheet 3 of 12)
Volume II
Para. 10-6

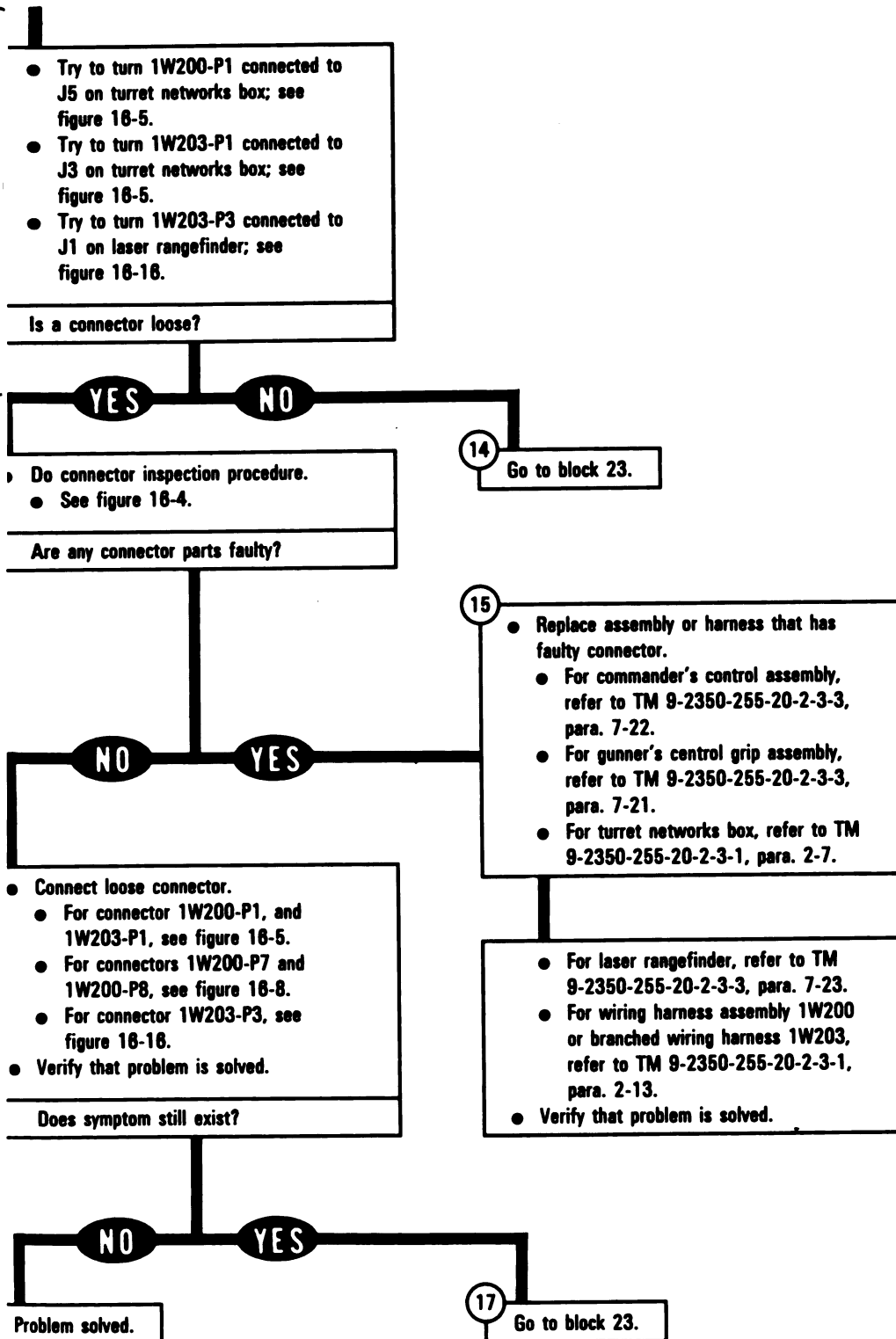


Figure 10-107 (Sheet 4 of 12)
 Volume II
 Para. 10-6

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

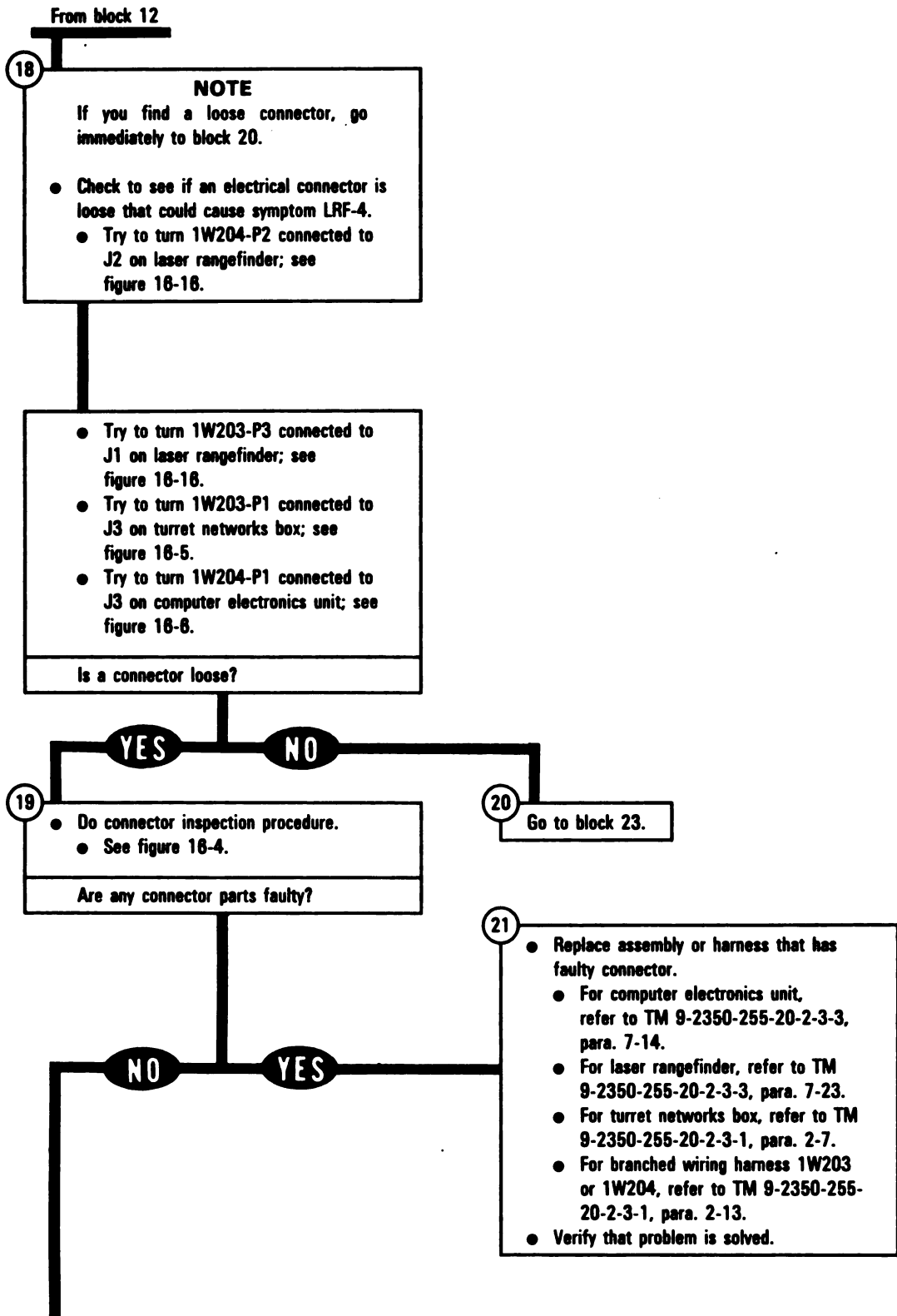


Figure 10-107 (Sheet 5 of 12)
Volume II
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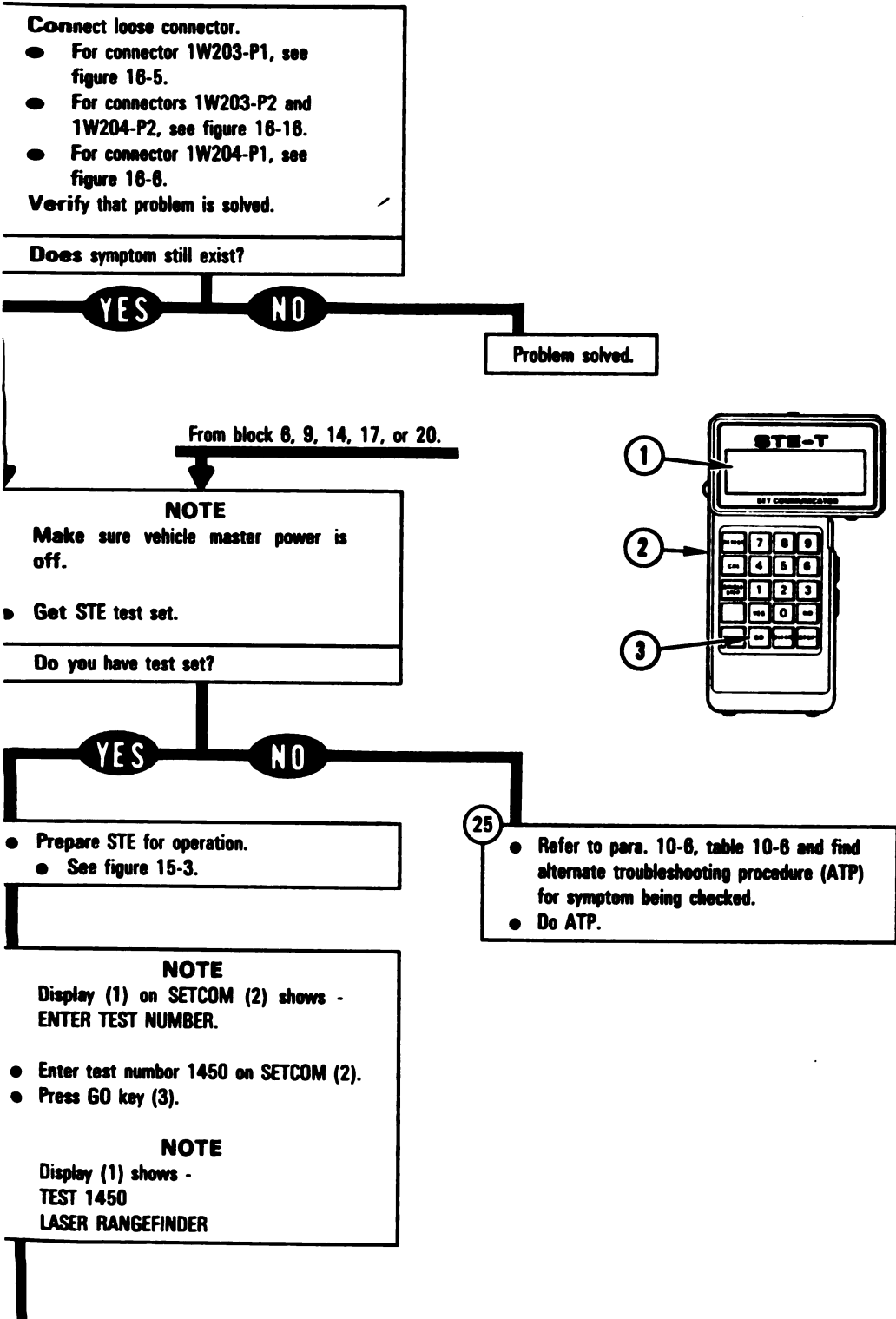


Figure 10-107 (Sheet 6 of 12)
 Volume II
 Para. 10-6

ARR82-6583

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

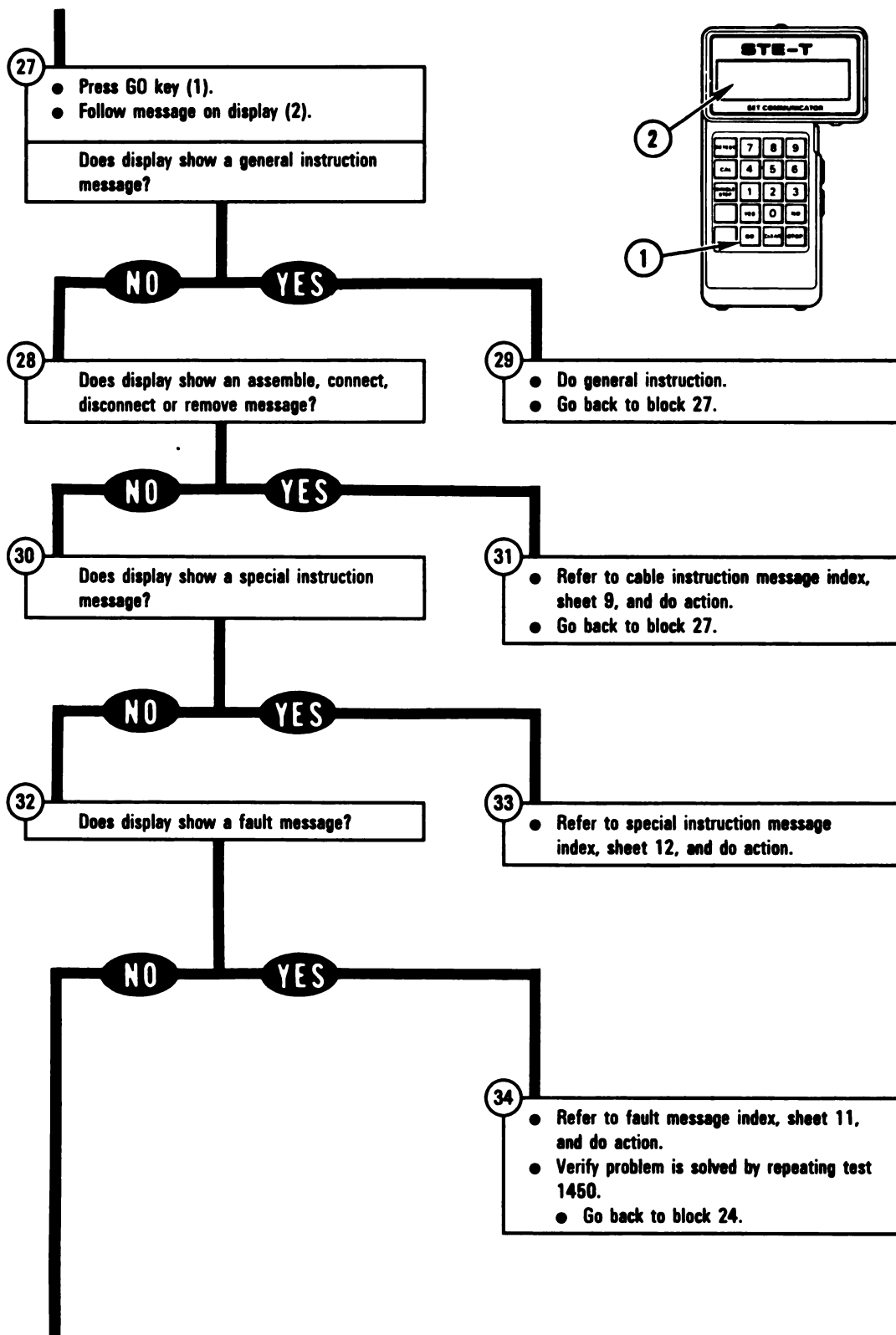


Figure 10-107 (Sheet 7 of 12)
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Para. 10-6

ARR82-6584

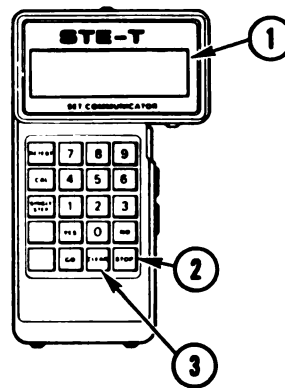
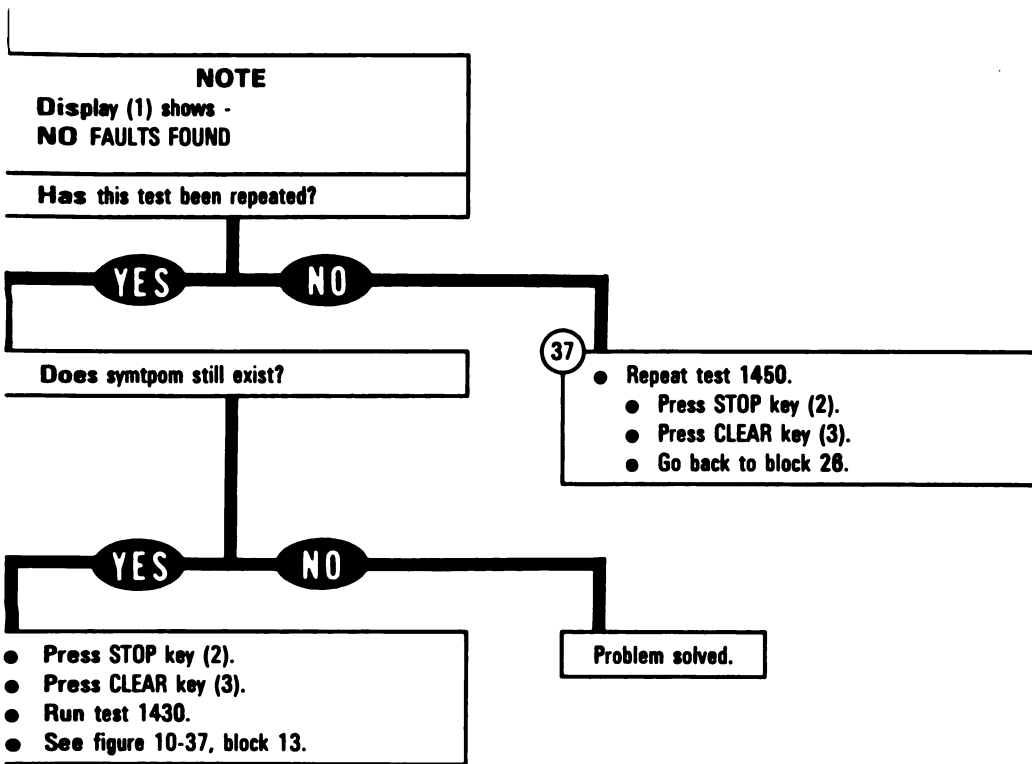


Figure 10-107 (Sheet 8 of 12)
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ARR82-6585

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

Laser Rangefinder Subsystem Cable Instruction Message Index for Test 1450

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 10-110 or figure 10-111.
ASSEMBLE CX305 CX308 and CA539/40	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX305 to P3 on DBA CX308. ● Connect P2 on adapter CA539 to P1 on DBA CX308. ● Connect P2 on adapter CA540 to P2 on DBA CX308. ● See figure 10-114.
ASSEMBLE DBA CX308 AND CA535/36	<ul style="list-style-type: none"> ● Connect P2 on adapter CA535 to P1 on DBA CX308. ● Connect P2 on adapter CA536 to P2 on DBA CX308. ● See figure 10-112 or figure 10-113.
CONNECT CIB J1 (CX304) 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 CX304 to P2 on adapter CA206. ● Connect P2 on CIB cable CX304 to CIB-J1. ● See figure 10-108.
CONNECT CIB J2 TO TNB TJ2 (USE CX208)	<ul style="list-style-type: none"> ● If connected, disconnect P2 on CIB cable CX305 from CIB-J2. ● See figure 10-115. ● Connect P1 on CIB cable CX208 to TEST 2 on turret networks box. ● Connect P2 on CIB cable CX208 to CIB-J2. ● See figure 10-109.
CONNECT CX305 P2 TO CIB J2	<ul style="list-style-type: none"> ● Connect P2 on CIB cable CX305 to CIB-J2. ● See figure 10-115.
CONNECT DBA BETWEEN 1W200 ← → 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 10-110.
CONNECT DBA BETWEEN 1W200 ← → 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 10-111.
CONNECT DBA BETWEEN 1W203 ← → LRF J1	<ul style="list-style-type: none"> ● Connect P1 on adapter CA540 to J1 on laser rangefinder. ● Connect 1W203-P3 to P1 on adapter CA539. ● See figure 10-114.
CONNECT DBA TO GCH J1	<ul style="list-style-type: none"> ● Connect P1 on adapter CA536 to J1 on gunner's control. ● See figure 10-112.

Figure 10-107 (Sheet 9 of 12)

**Volume II
Para. 10-6**

Laser Rangefinder Subsystem Cable Instruction Message Index for Test 1450 (Continued)

Cable Instruction Message	Action
CONNECT DBA TO J1	<ul style="list-style-type: none"> ● Connect P1 on adapter CA536 to J1 on commander's control. ● See figure 10-113.
CONNECT DBA TO 200 P7	<ul style="list-style-type: none"> ● Connect 1W200-P7 to P1 on adapter CA535. ● See figure 10-112.
CONNECT DBA TO 200 P8	<ul style="list-style-type: none"> ● Connect 1W200-P8 to P1 on adapter CA535. ● See figure 10-113.
CONNECT DBA FROM 203 ↔ LRF J1	<ul style="list-style-type: none"> ● Disconnect 1W203-P3 from P1 on adapter CA539. ● Disconnect P1 on adapter CA540 from J1 on laser rangefinder. ● See figure 10-114. ● Disconnect P2 on CIB cable CX305 from CIB-J2. ● See figure 10-115.
CONNECT 200 ↔ GCH J1	<ul style="list-style-type: none"> ● Disconnect 1W200-P8 from J1 on gunner's control. ● See figure 16-8.
CONNECT 200 ↔ GTD J3	<ul style="list-style-type: none"> ● Disconnect 1W200-P4 from J3 on electronic unit. ● See figure 16-6.
CONNECT 200 ↔ TCH J1	<ul style="list-style-type: none"> ● Disconnect 1W200-P7 from J1 on commander's control. ● See figure 16-8.
CONNECT 203 ↔ LRF J1	<ul style="list-style-type: none"> ● Disconnect 1W203-P3 from J1 on laser rangefinder. ● See figure 16-16.
CONNECT 203 ↔ TNB J3	<ul style="list-style-type: none"> ● Disconnect 1W203-P1 from J3 on turret networks box. ● See figure 16-5.
MOVE CX208 FROM B TJ2 AND CIB	<ul style="list-style-type: none"> ● Disconnect P1 on CIB cable CX208 from TEST 2 on turret networks box. ● Disconnect P2 on CIB cable CX208 from CIB-J2. ● See figure 10-109.

Figure 10-107 (Sheet 10 of 12)
Volume II
Para. 10-6

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

Laser Rangefinder Subsystem Fault Message Index for Test 1450

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 24.
FAULTY GCH 145019 145026 145035	<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 GTD 145058	<ul style="list-style-type: none"> ● Replace gun/turret drive electronic unit. ● Refer to TM 9-2350-255-20-2-3-3, para. 7-16.
FAULTY LRF 145014 145015 145033 145044 145046	<ul style="list-style-type: none"> ● Replace laser rangefinder. ● Refer to TM 9-2350-255-20-2-3-3, para. 7-23.
FAULTY LRF OR 1W203 145028	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 10-116.
FAULTY LRF OR 1W204 145011 145039	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 10-118. ● See figure 10-117.
FAULTY LRU'S AND CABLES 145013	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 10-129.
FAULTY TCH 145022 145025 145048 145054	<ul style="list-style-type: none"> ● Replace commander's control assembly. ● Refer to TM 9-2350-255-20-2-3-3, para. 7-22.
FAULTY TNB 145016 145023 145034 145051 145056	<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 OR 1W200 145021 145037 145040 145041 145042 145043 145050 145052 145055	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 10-121. ● See figure 10-125. ● See figure 10-122. ● See figure 10-124. ● See figure 10-124. ● See figure 10-123. ● See figure 10-128. ● See figure 10-128. ● See figure 10-128.

Figure 10-107 (Sheet 11 of 12)

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Laser Rangefinder Subsystem Fault Message Index for Test 1450 (Continued)

Fault Message	Action
TY TNB OR D3 145012 145018 145030 145038 145045	<ul style="list-style-type: none"> ● Do follow-on procedure. <ul style="list-style-type: none"> ● See figure 10-126. ● See figure 10-127. ● See figure 10-126. ● See figure 10-127. ● See figure 10-127.
TY TNB, 1W200 W203 145032	<ul style="list-style-type: none"> ● Do follow-on procedure. <ul style="list-style-type: none"> ● See figure 10-120.
TY TNB, 1W202, 145027	<ul style="list-style-type: none"> ● Do follow-on procedure. <ul style="list-style-type: none"> ● See figure 10-119.
TY VEH/TURRET CNTL 109922 120703 120803	<ul style="list-style-type: none"> ● Run vehicle/turret power control test number 1200. <ul style="list-style-type: none"> ● Refer to TM 9-2350-255-20-2-1, figure 8-1.

Laser Rangefinder Subsystem Special Instruction Message Index for Test 1450

Special Instruction Message	Action
STEM ERROR 109902	<ul style="list-style-type: none"> ● Run STE/M1 self-test number 666. <ul style="list-style-type: none"> ● See figure 15-3, block 26. ● Repeat laser rangefinder subsystem test number 1450. <ul style="list-style-type: none"> ● Press STOP key on SETCOM. ● Press CLEAR key on SETCOM. ● Go back to block 26. ● If same error message appears on SETCOM display, notify support maintenance that test set is faulty.

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

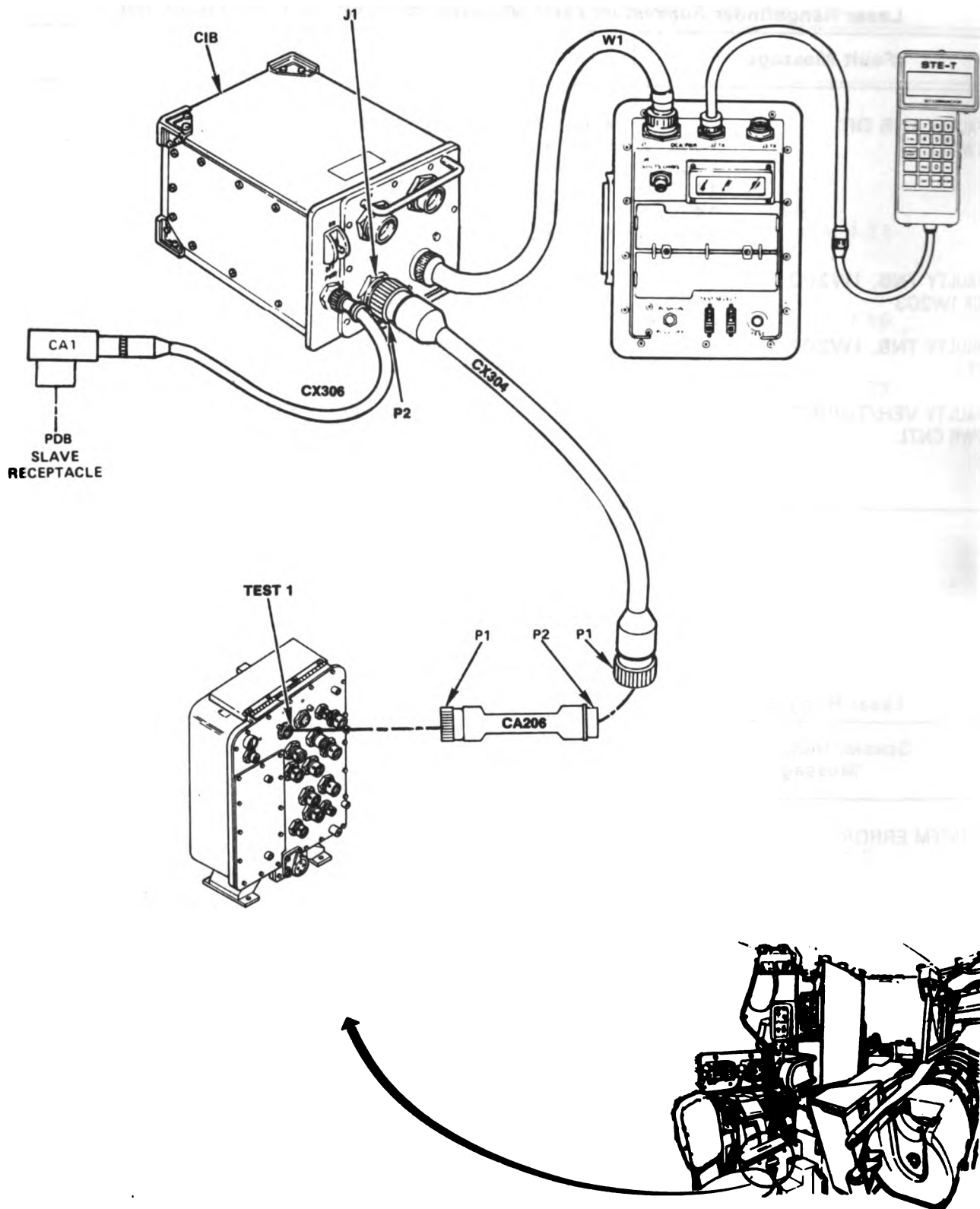
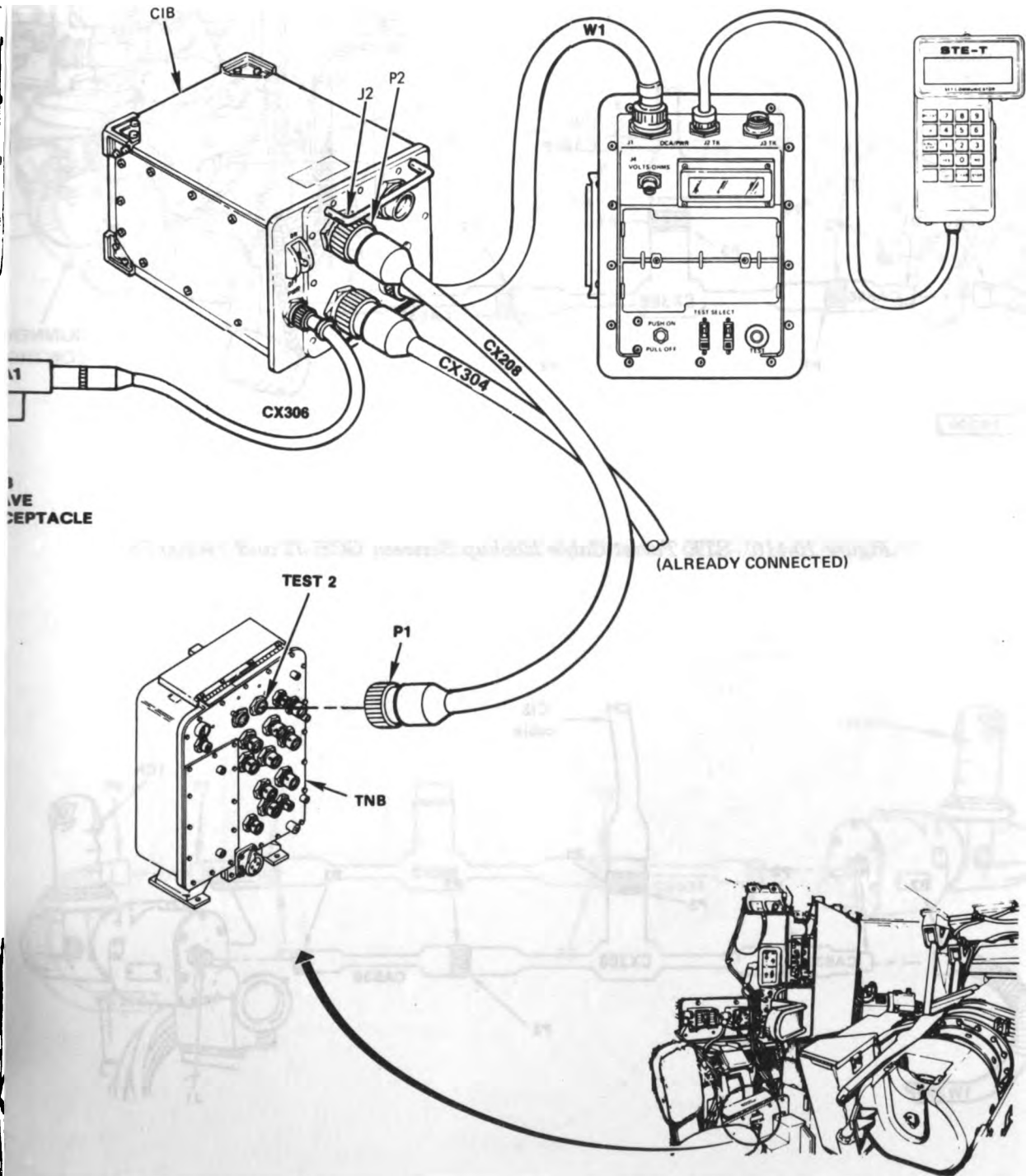


Figure 10-108. STE Turret Cable Hookup to TNB TEST 1
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Para. 10-6

ARR82-6586

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**



**Figure 10-109. STE Turret Cable Hookup to TNB TEST 2
Volume II
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ARR82-6587

**TM 9-2350-255-20-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

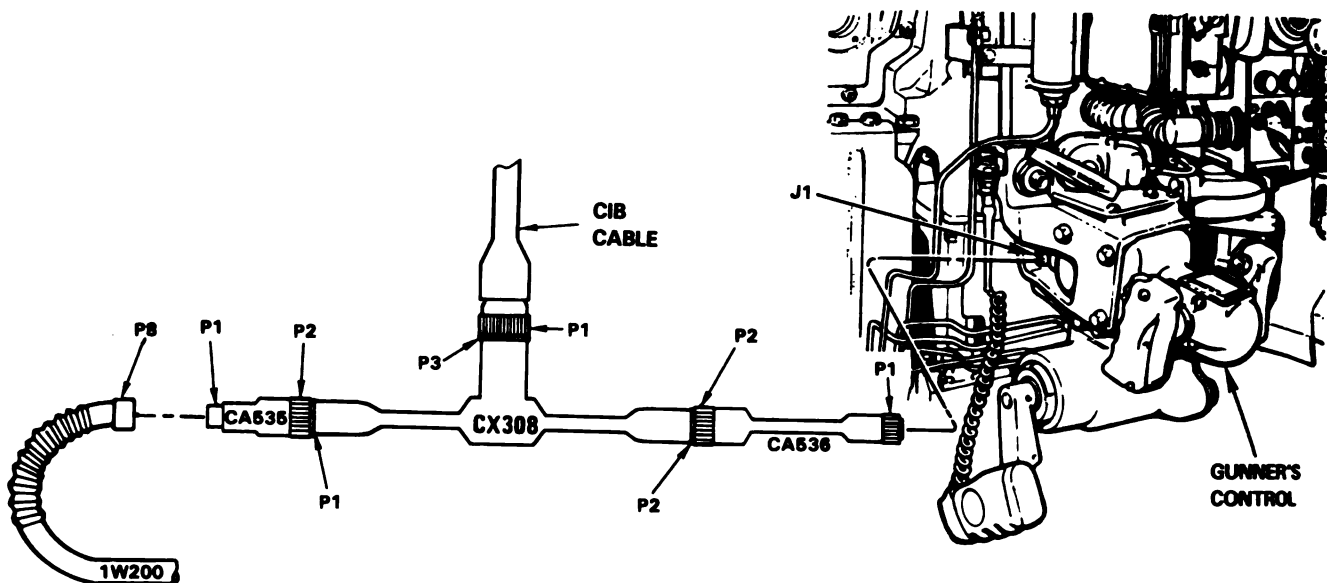


Figure 10-110. STE Turret Cable Hookup Between GCH-J1 and 1W200-P8

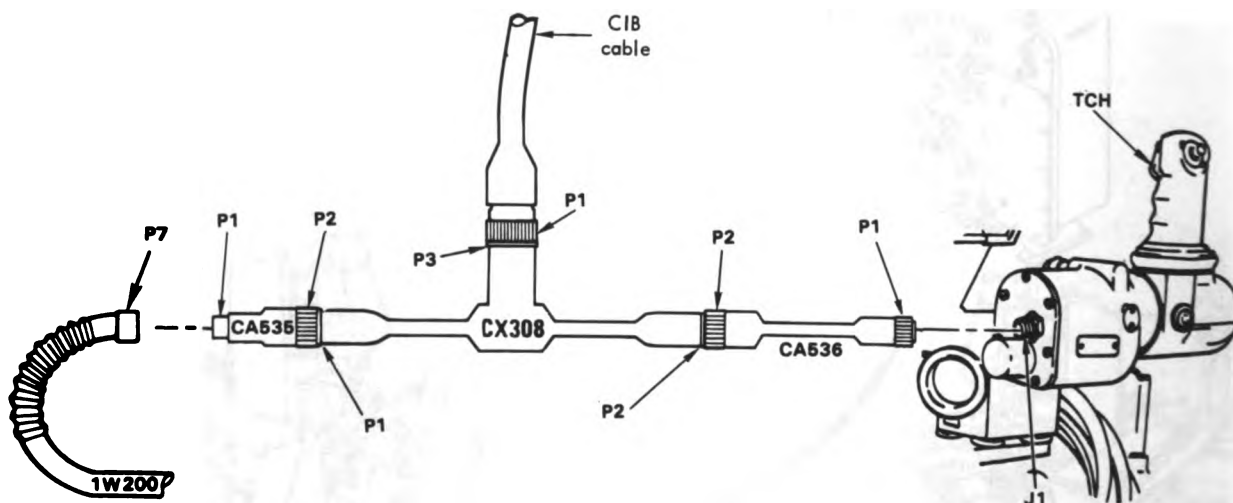


Figure 10-111. STE Turret Cable Hookup Between TCH-J1 and 1W200-P7
**Volume II
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ARR82-8588

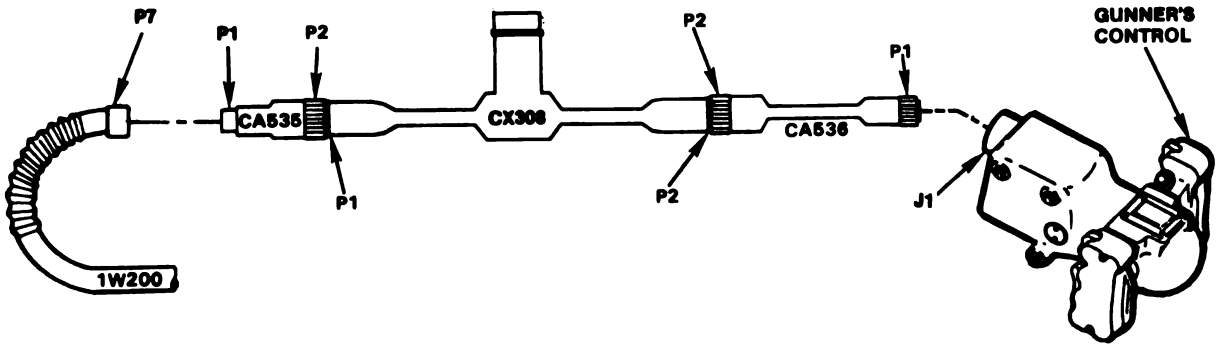


Figure 10-112. STE Turret Cable Hookup Between GCH-J1 and 1W200-P7

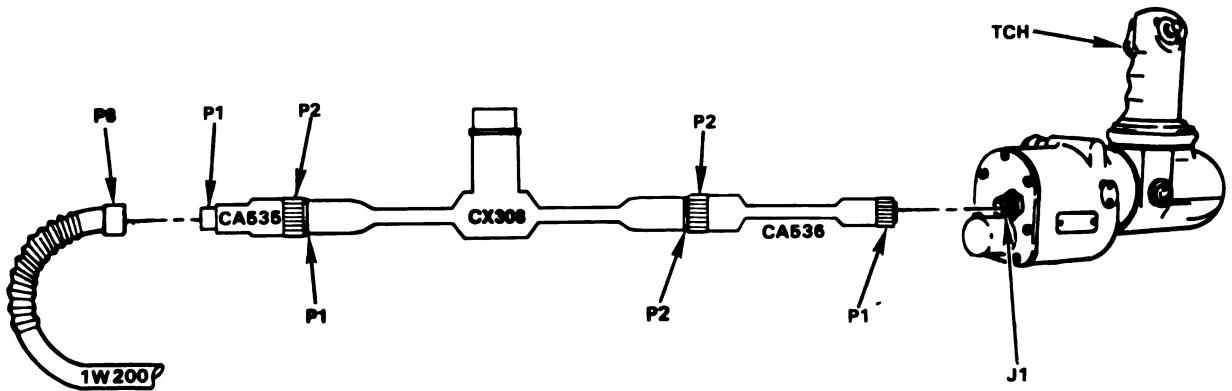


Figure 10-113. STE Turret Cable Hookup Between TCH-J1 and 1W200-P8

ARR82-6589

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TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

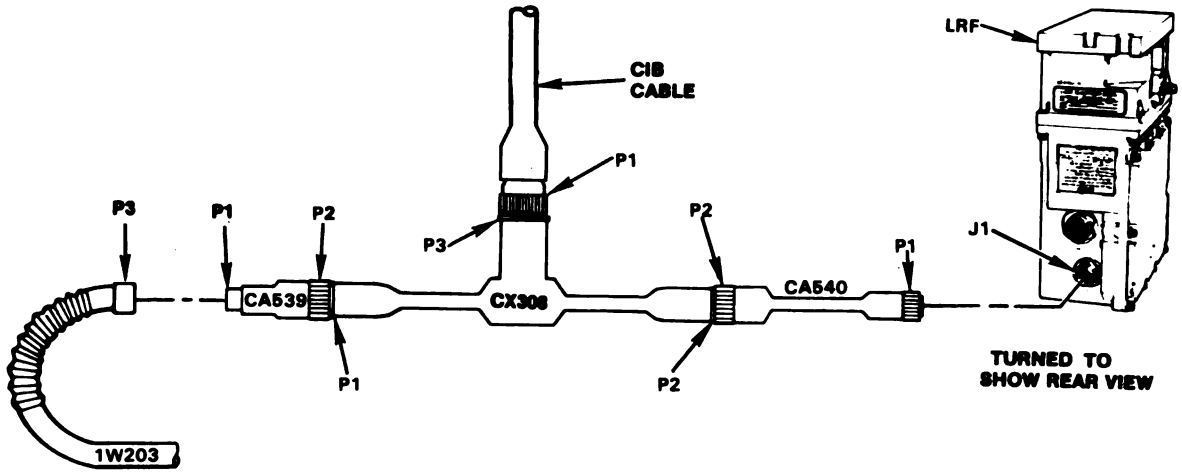


Figure 10-114. STE Turret Cable Hookup Between LRF-J1 and 1W203-P3

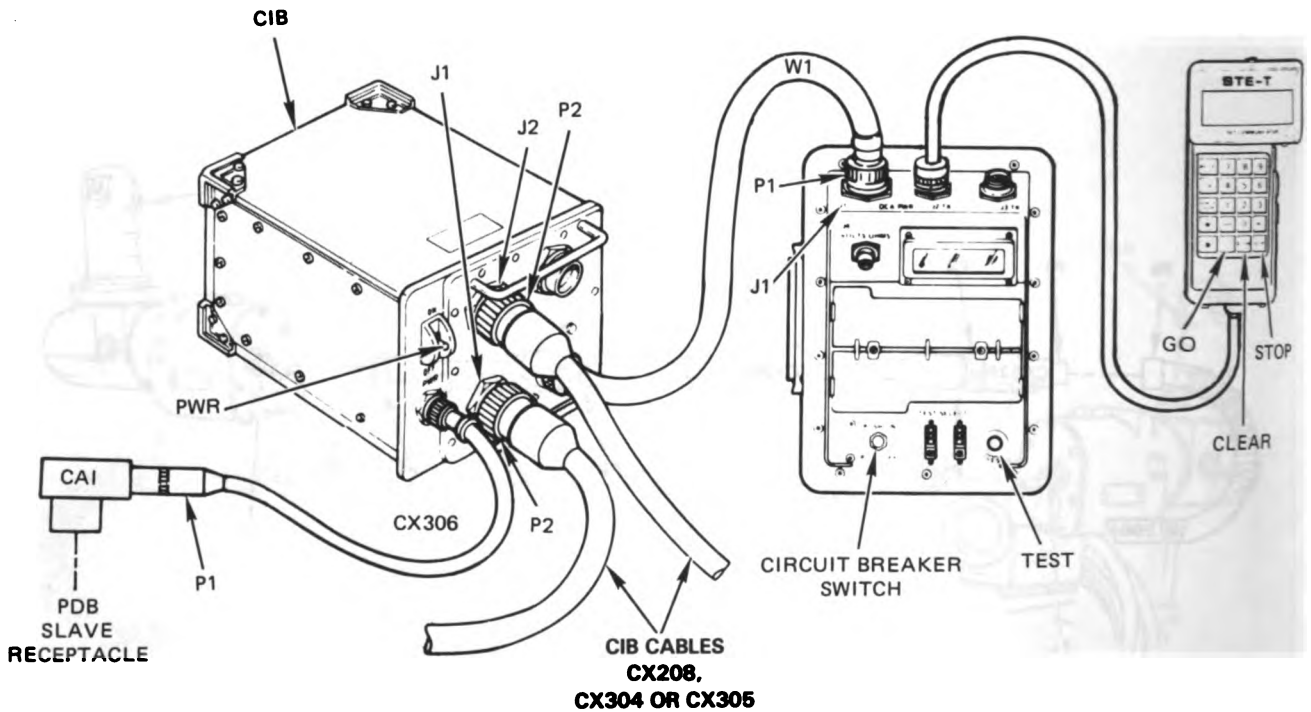


Figure 10-115. STE Turret Cable Hookup To CIB
Volume II
Para. 10-6

ARR82-6590

DISPLAY SHOWS -
FAULTY LRF OR
1W203

145028

**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 1W203-P3 from J1 on laser rangefinder.
 - See figure 16-16.
 - Connect CX305-P2 (1) to breakout box (2).
 - Connect CX305-P1 (3) to CX307-P3 (4).
 - Connect 1W203-P1 (5) to CA528-P1 (6).
 - Connect CA528-P2 (7) to CX307-P2 (8).

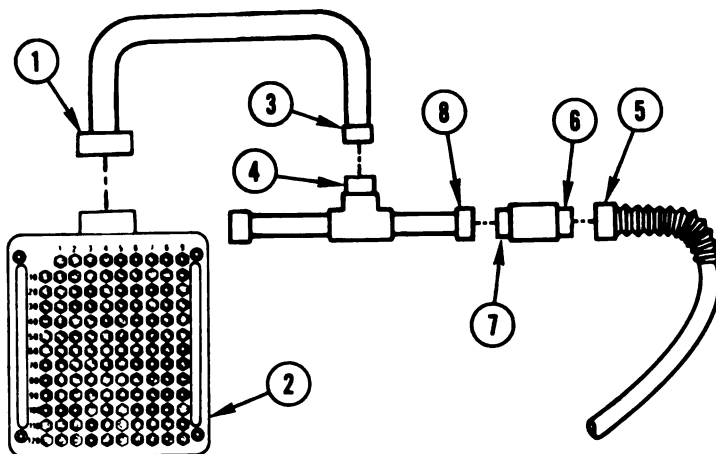


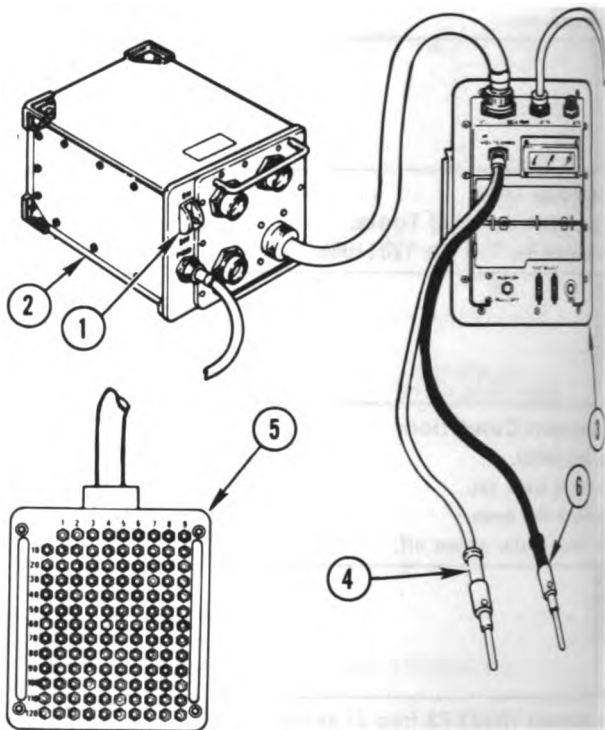
Figure 10-116 (Sheet 1 of 2)
Volume II
Para. 10-6

ARR82-6591

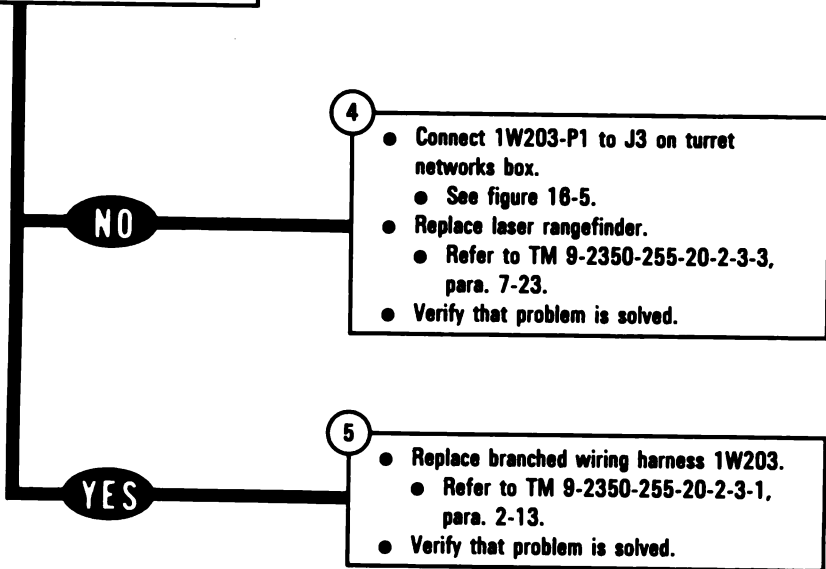
10-481

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

- 2**
- 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. 10-1.



- 3**
- Connect red test probe (4) to test point 28 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 (8) to each test point on breakout box (5) listed below:
 - 7 through 25
 - 27 through 39
 - 82, 74 and 75
 - 89 through 110
 - 112 and 113
- Does VTM display show between 0 and 5?



- 4**
- Connect 1W203-P1 to J3 on turret networks box.
 - See figure 16-5.
 - Replace laser rangefinder.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-23.
 - Verify that problem is solved.

- 5**
- Replace branched wiring harness 1W203.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

Figure 10-116 (Sheet 2 of 2)
Volume II
Para. 10-6

DISPLAY SHOWS -
FAULTY LRF OR
1W204

145039

**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-J2.
 - See figure 10-115.
 - Disconnect CX305-P1 from CX308-P3.
 - See figure 10-114.

- 2
- Connect CX305-P2 (1) to breakout box (2).
 - Connect CX305-P1 (3) to CX307-P3 (4).
 - Disconnect 1W204-P2 from J2 on laser rangefinder.
 - See figure 16-16.
 - Connect 1W204-P2 (5) to CA545-P1 (6).
 - Connect CA545-P2 (7) to CX307-P2 (8).

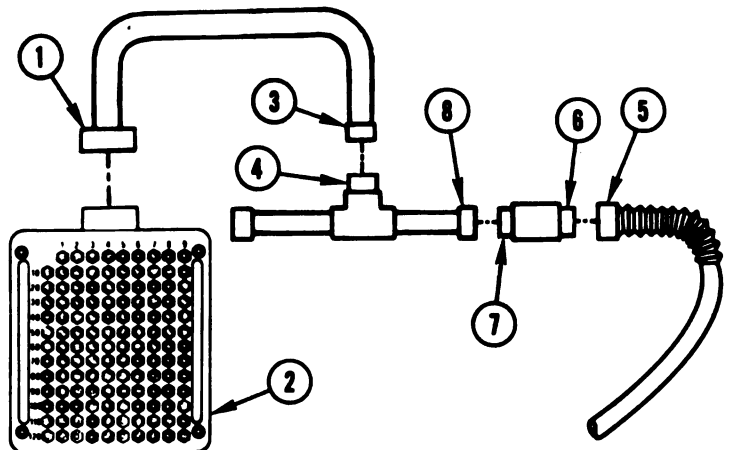


Figure 10-117 (Sheet 1 of 2)
Volume II
Para. 10-6

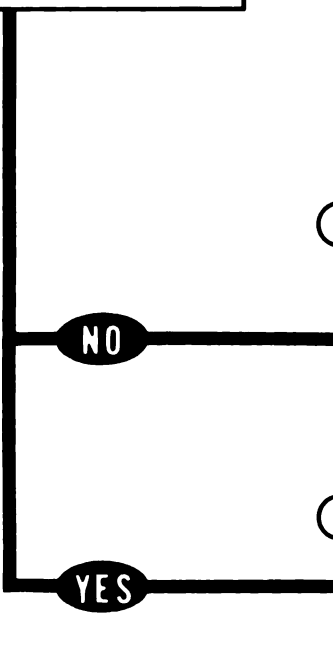
ARR82-8593

**TM 9-2350-255-20-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

- 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. 10-1.

- 4**
- Test for continuity between test points 8 and 12 on breakout box.
 - Connect red test probe (4) to test point 8 on breakout box (5).
 - Connect black test probe (6) to test point 12 on breakout box (5).

Does VTM display show between 0 and 5?



- 5**
- Connect 1W203-P3 to J1 on laser rangefinder.
 - See figure 16-16.
 - Replace branched wiring harness 1W204.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

- 6**
- Replace laser rangefinder.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-23.
 - Verify that problem is solved.

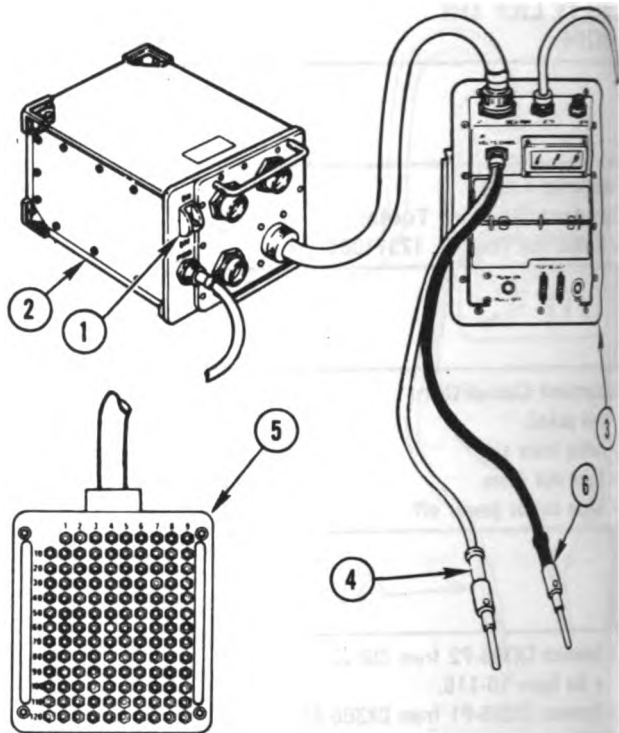


Figure 10-117 (Sheet 2 of 2)
**Volume II
Para. 10-6**

**DISPLAY SHOWS -
FAULTY LRF OR
1W204** **145011**

**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 CX308-P3.
● See figure 10-114.
● Connect CX305-P2 (1) to breakout box (2).
● Connect CX305-P1 (3) to CX307-P3 (4).

● Disconnect 1W204-P2 from J2 on laser
rangefinder.
● See figure 16-16.
● Connect 1W204-P2 (5) to CA545-P1 (6).
● Connect CA545-P2 (7) to CX307-P2 (8).

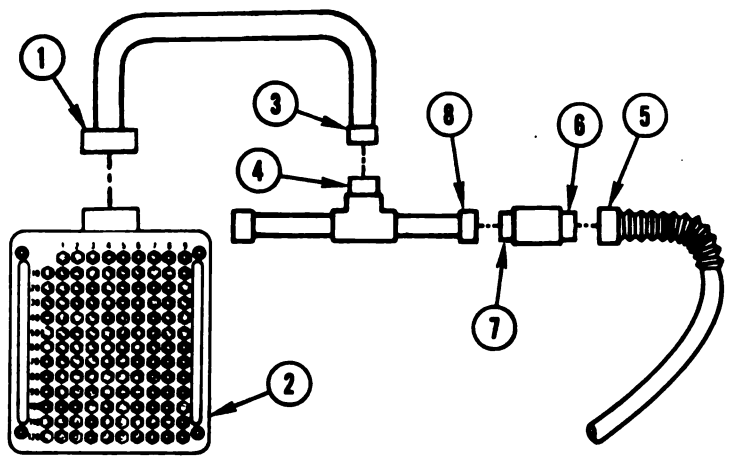


Figure 10-118 (Sheet 1 of 2)
Volume II
Para. 10-6

ARR82-6595

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

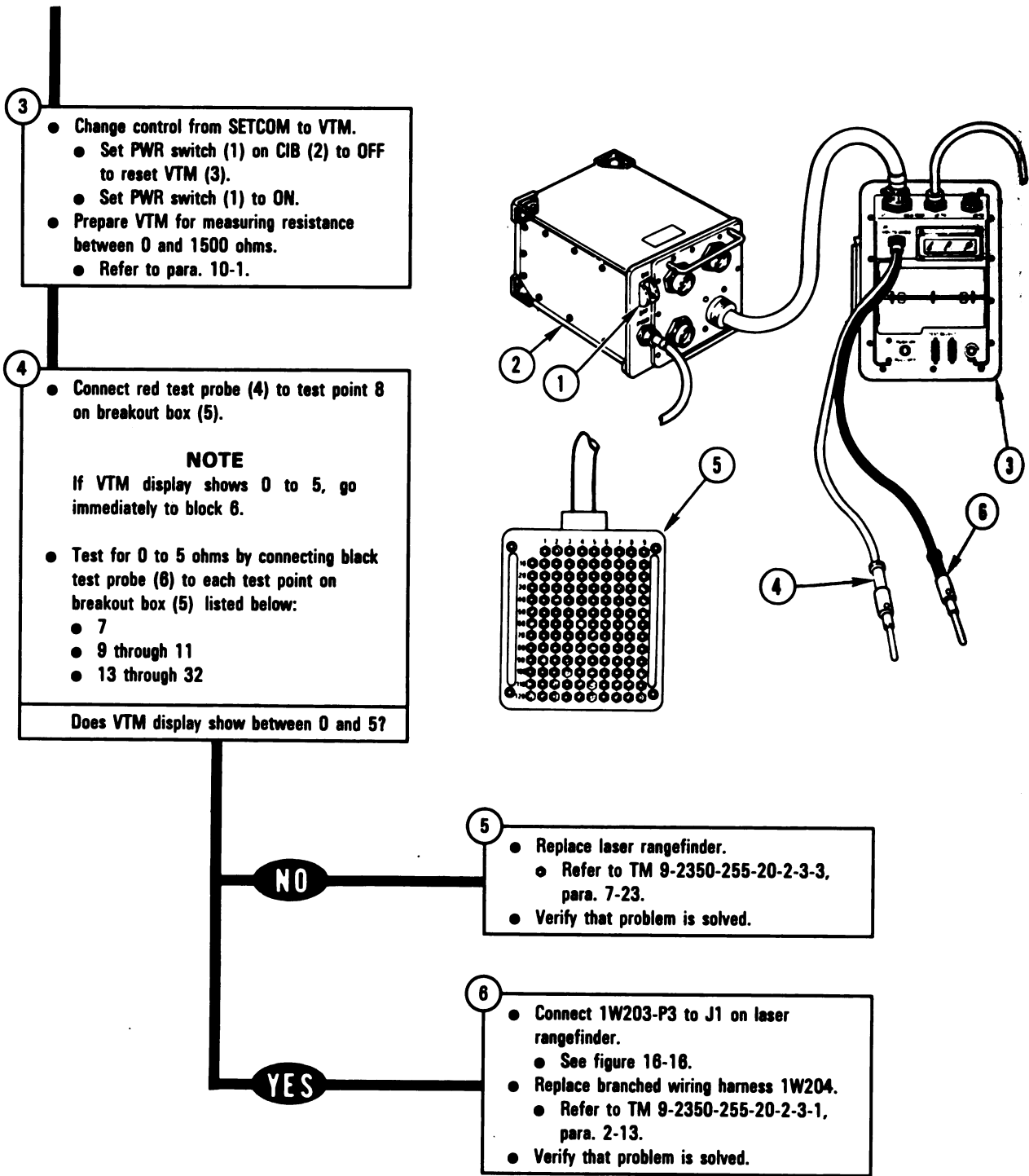


Figure 10-118 (Sheet 2 of 2)
 Volume II
 Para. 10-6

ARR82-6596

DISPLAY SHOWS -
FAULTY TNB, 1W202,
TEU 145027

**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-P4 from J1 on thermal electronics unit.
● See figure 16-14.
● 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 16-5.
● Connect 1W202-P1 (5) to CA506-P1 (6).
● Connect CA506-P2 (7) to CX307-P2 (8).

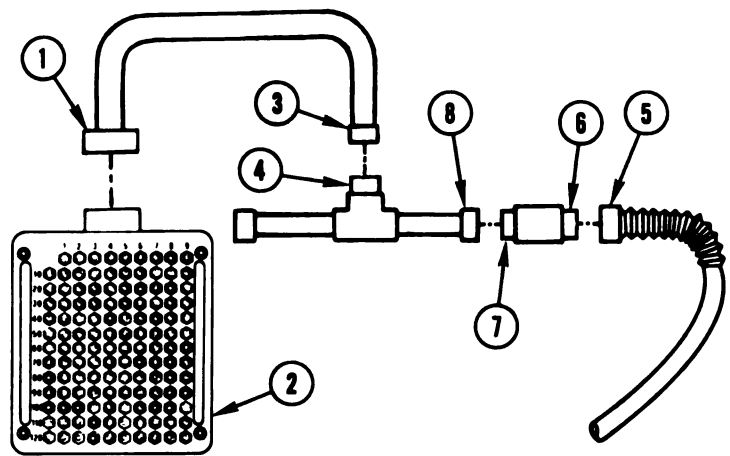


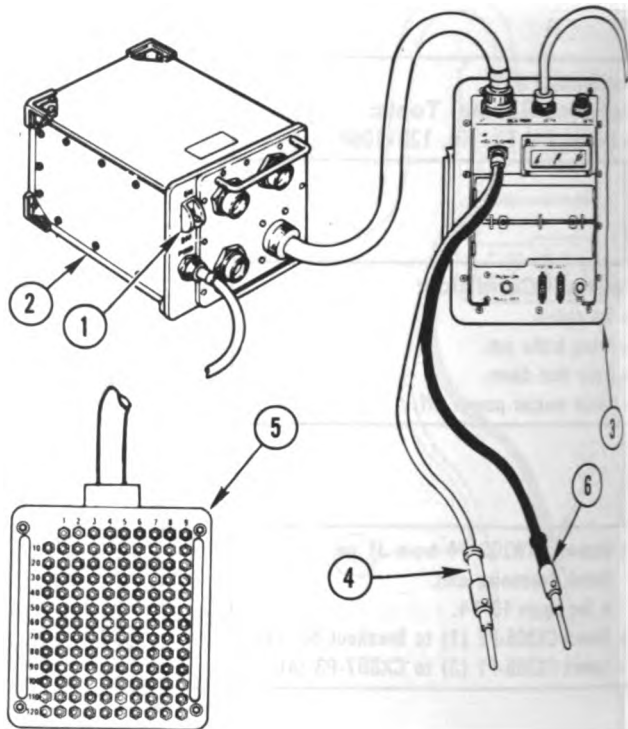
Figure 10-119 (Sheet 1 of 3)
Volume II
Para. 10-6

ARR82-6597

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

- 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. 10-1.

- 4**
- Connect red test probe (4) to test point 38 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 (8) to each test point on breakout box (5) listed below:
 - 7 through 37
 - 39, 62, 74 and 75
 - 89 through 113
- Does VTM display show between 0 and 5?



- 5**
- Connect 1W203-P1 to J3 on turret networks box.
 - See figure 16-5.
 - 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 10-119 (Sheet 2 of 3)
**Volume II
Para. 10-6**

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

Disconnect CA508-P2 (1) from CX307-P2 (2).
 Connect CA505-P1 (3) to J7 (4) on turret networks box (5).
 Connect CA505-P2 (6) to CX307-P2 (2).

Connect red test probe (7) to test point 38 on breakout box (8).

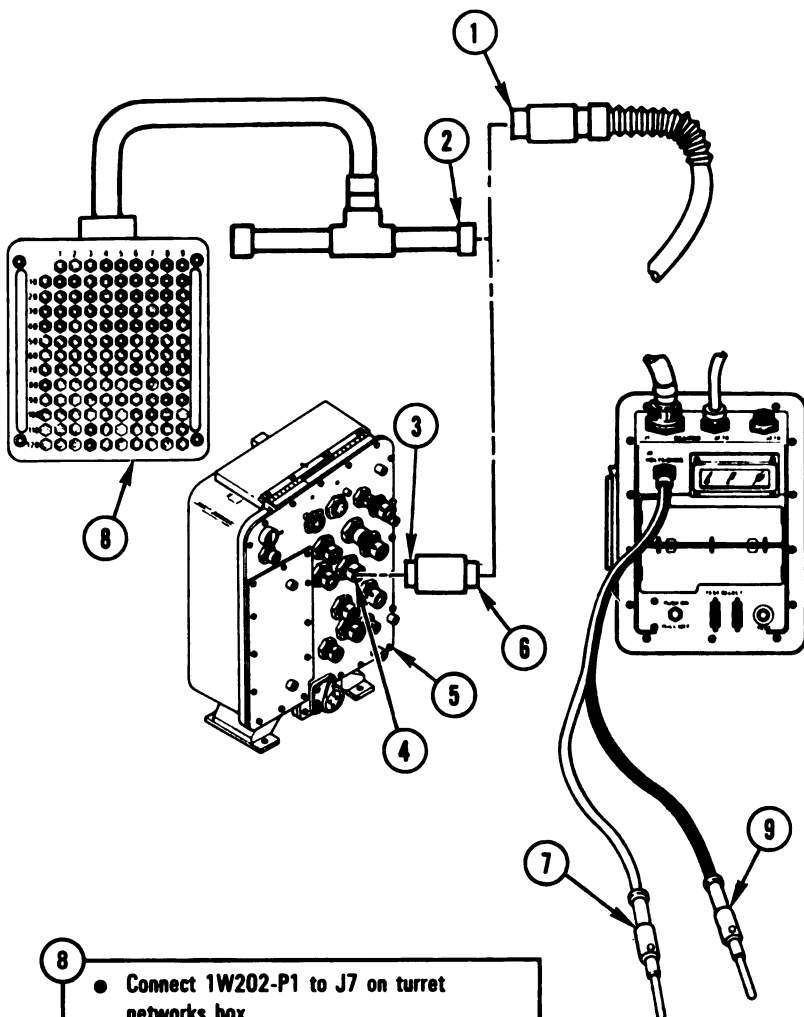
NOTE

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

Test for 0 to 5 ohms by connecting black test probe (9) to each test point on breakout box (8) listed below:

- 7 through 37
- 39, 62, 74 and 75
- 89 through 113

Does VTM display show between 0 and 5?



NO

- 8
- Connect 1W202-P1 to J7 on turret networks box.
 - See figure 16-5.
 - Connect 1W203-P1 to J3 on turret networks box.
 - See figure 16-5.
 - Replace thermal electronics unit.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-24.
 - Verify that problem is solved.

YES

- 9
- Connect 1W202-P4 to J1 on thermal electronics unit.
 - See figure 16-14.
 - Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
 - Verify that problem is solved.

Figure 10-119 (Sheet 3 of 3)
Volume II
Para. 10-6

ARR82-6599

DISPLAY SHOWS -
FAULTY TNB, 1W200
OR 1W203

145032

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-P2 from CIB-J1.
 - See figure 10-108.
- Connect CX304-P2 (1) to breakout box (2).
- Disconnect 1W203-P1 from J3 on turret networks box.
 - See figure 16-5.

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. 10-1.

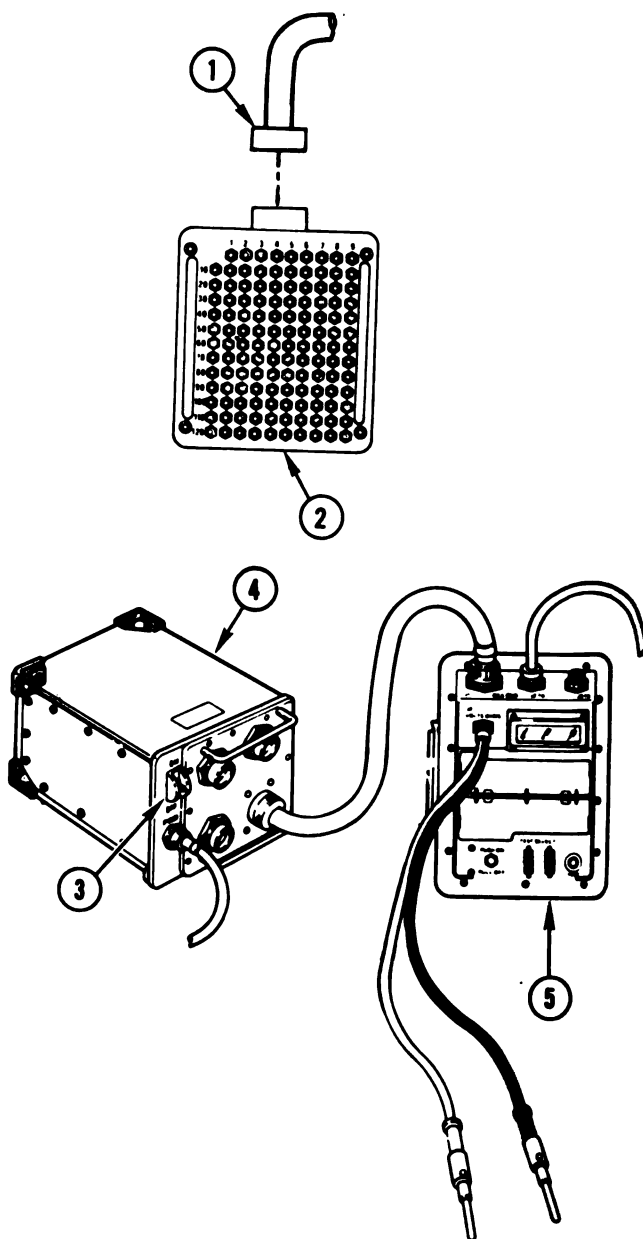


Figure 10-120 (Sheet 1 of 2)
Volume II
Para. 10-6

▲RR62-6600

Set TURRET POWER switch (1) to ON.

NOTE

If VTM display does not show between -1.0 and +1.0, leave test probes connected.

Test for -1.0 to +1.0 volt between test points 11 (-) and 37 (+) on breakout box.

- Connect black test probe (2) to test point 11 on breakout box (3).
- Connect red test probe (4) to test point 37 on breakout box (3).

Does VTM display show between -1.0 and +1.0?

NO

YES

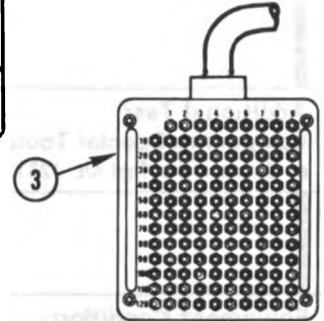
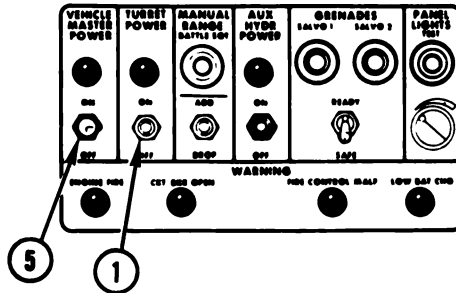
- Set VEHICLE MASTER POWER switch (5) to OFF.
- Disconnect 1W200-P1 from J5 on turret networks box.
 - See figure 16-5.
- Set TURRET POWER switch (1) to ON.
- Test for -1.0 to +1.0 volt between test points 11 (-) and 37 (+) on breakout box.

Does VTM display show between -1.0 and +1.0?

NO

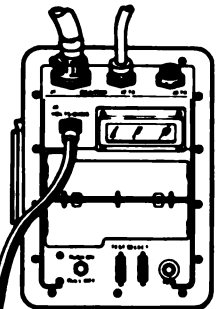
YES

- Connect 1W200-P8 to J1 on gunner's control.
 - See figure 16-8.
- Connect 1W203-P3 to J1 on laser rangefinder.
 - See figure 16-16.
- Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
- Verify that problem is solved.



4

- Connect 1W200-P8 to J1 on gunner's control.
 - See figure 16-8.
- Replace branched wiring harness 1W203.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.



4

2

7

- Connect 1W203-P3 to J1 on laser rangefinder.
 - See figure 16-16.
- Connect 1W203-P1 to J3 on turret networks box.
 - See figure 16-5.
- Replace wiring harness assembly 1W200.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

Figure 10-120 (Sheet 2 of 2)
Volume II
Para. 10-6

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

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

145021

**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-P1 from J5 on turret networks box.
- See figure 10-5.

2

Go to figure 10-123, block 2.

Figure 10-121
Volume II
Para. 10-6

**DISPLAY SHOWS -
FAULTY TNB OR
W200**

145040

**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-P1 from J5 on turret
networks box.**
● See figure 10-5.
Disconnect 1W200-P7 from CA535-P1.
● See figure 10-112.

io to figure 10-123, block 2.

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

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

145043

Additional Test

Equipment/Special Tools:

- Breakout Box Tool Kit, 12311086

Equipment Condition:

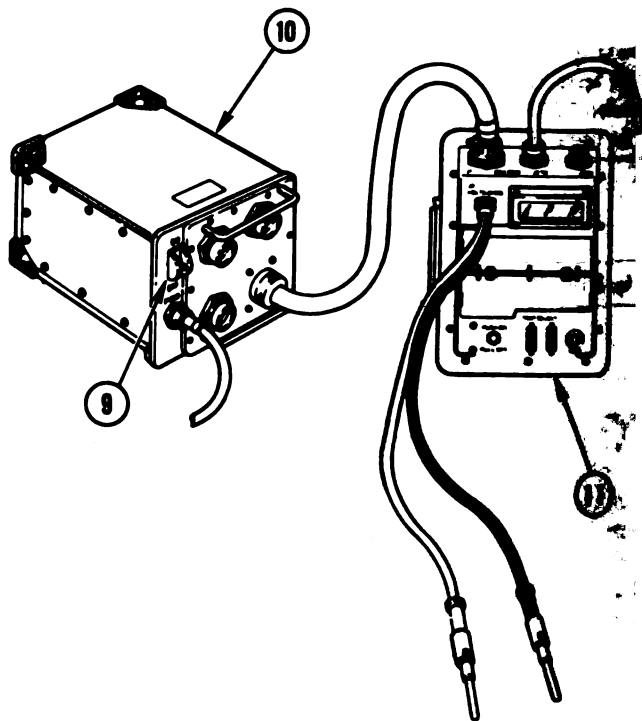
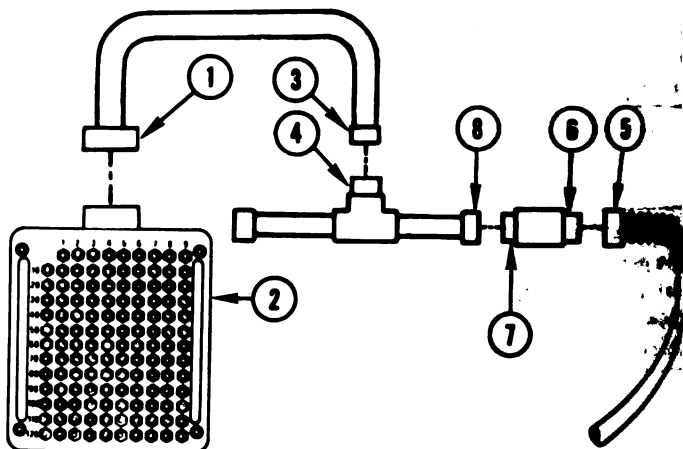
- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.

- 1
- Disconnect 1W200-P1 from J5 on turret networks box.
 - See figure 16-5.
 - Disconnect 1W200-P7 from J1 on commander's control.
 - See figure 16-8.

From figure 10-121, block 2
or figure 10-122, block 2.

- 2
- Connect CX305-P2 (1) to breakout box (2).
 - Connect CX305-P1 (3) to CX307-P3 (4).
 - Connect 1W200-P1 (5) to CA504-P1 (8).
 - Connect CA504-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. 10-1.



*Figure 10-123 (Sheet 1 of 3)
Volume II
Para. 10-6*

ARR82-46C

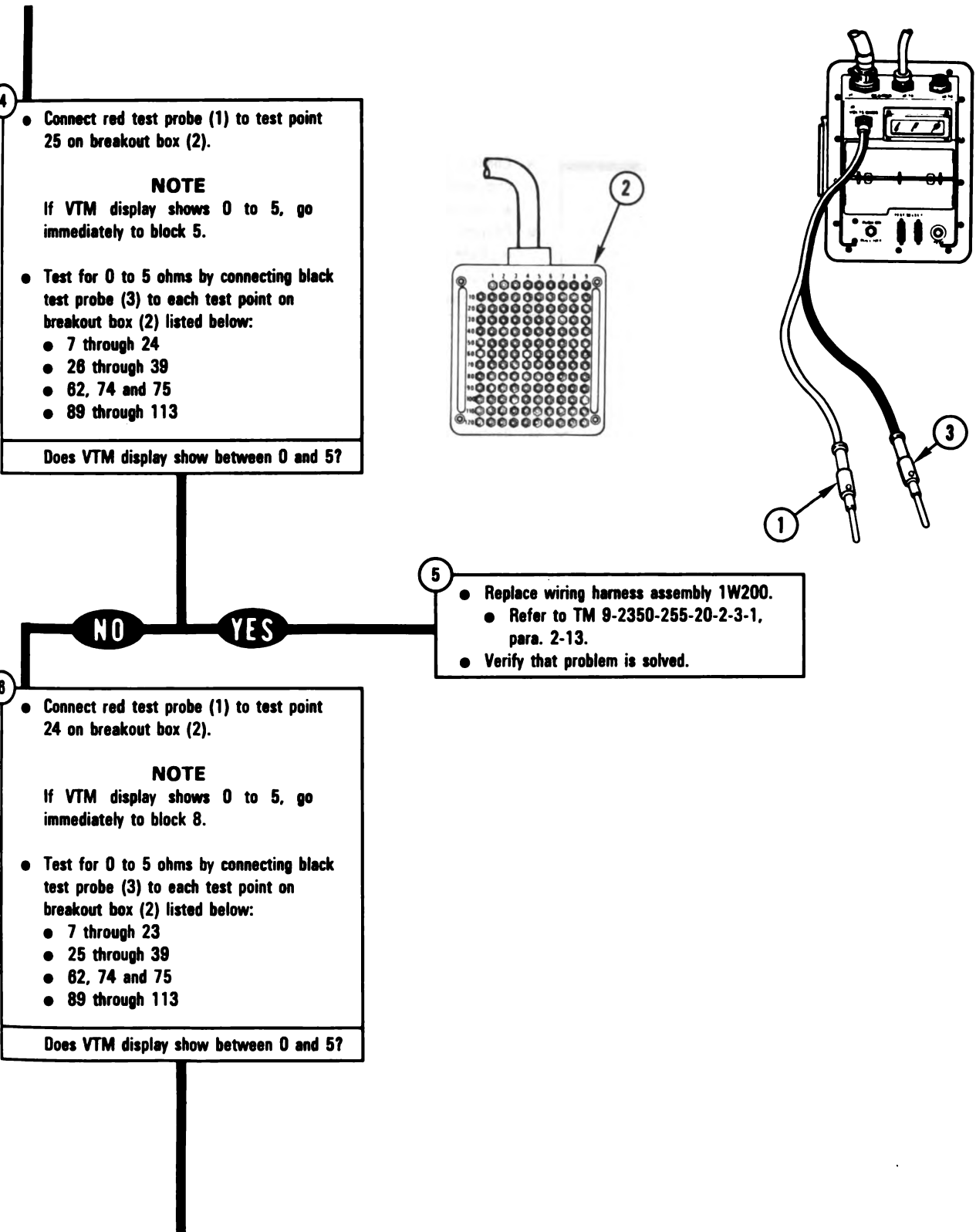


Figure 10-123 (Sheet 2 of 3)
 Volume II
 Para. 10-6

ARR82-8603

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

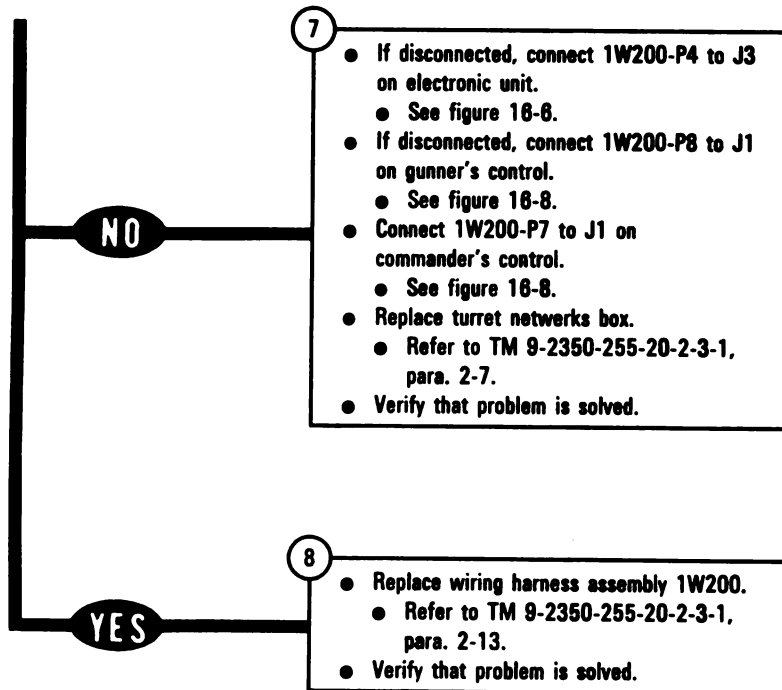


Figure 10-123 (Sheet 3 of 3)
Volume II
Para. 10-6

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

• 145041
145042

Equipment Condition:

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

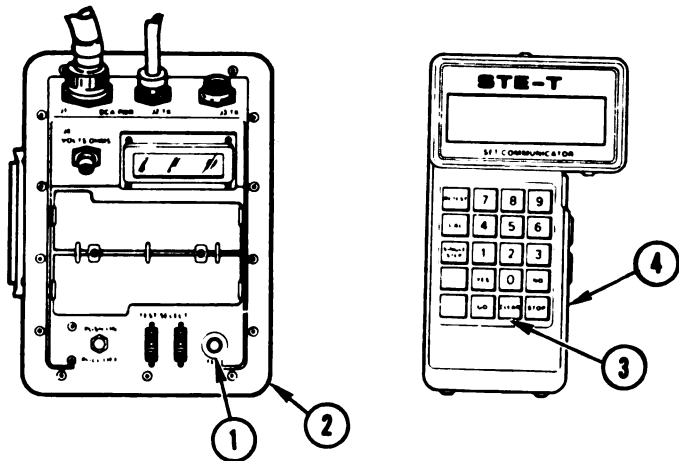
Disconnect 1W200-P1 from J5 on turret networks box.

- See figure 16-5.
- Disconnect CA536-P2 from CX308-P2.**
- See figure 10-110.
- Disconnect CX304-P1 from CA206-P2.**
- See figure 10-108.
- Disconnect CX208-P2 from CIB -J2.**
- See figure 10-109.

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.
- See 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-P8 to J1 on gunner's control.
 - See to figure 16-8.
 - Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
 - Verify that problem is solved.

Figure 10-124
Volume II
Para. 10-6

ARR82-6604

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

DISPLAY SHOWS -
FAULTY TNB OR
1W200

145037

Supplies:
Electrical Jumper

**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-P8 from CA535-P1.
● See figure 10-113.
 - Disconnect CX304-P1 from CA206-P2.
● See figure 10-108.
 - Disconnect CX304-P2 from CIB-J1.
● See figure 10-108.

- 2
- 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 16-5.
 - Connect 1W200-P1 (5) to CA504-P1 (6).
 - Connect CA504-P2 (7) to CX307-P2 (8).

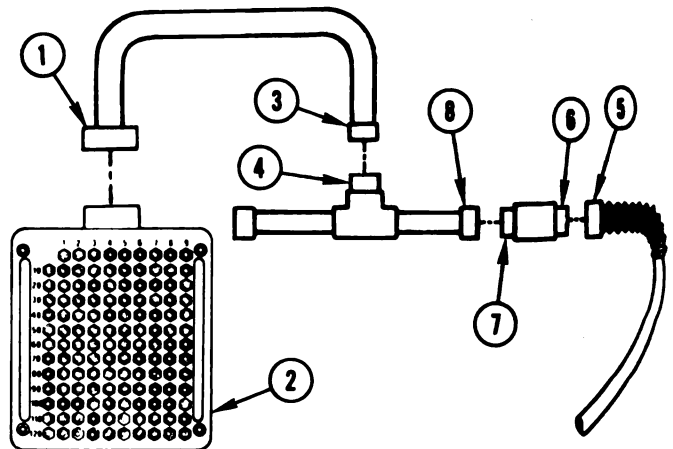


Figure 10-125 (Sheet 1 of 2)
Volume II
Para. 10-6

ARR82-6605

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. 10-1.

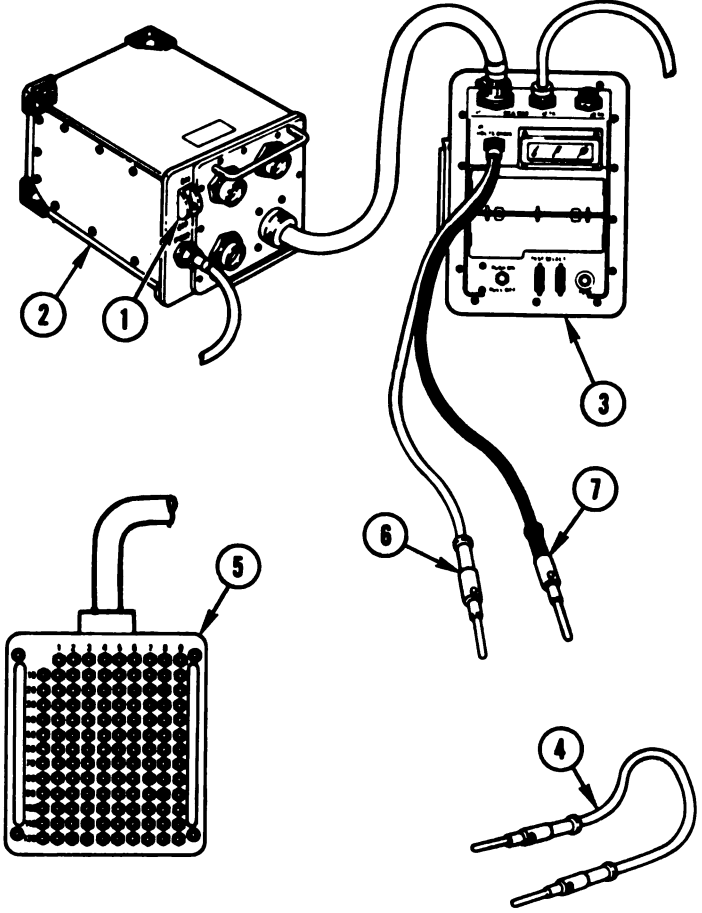
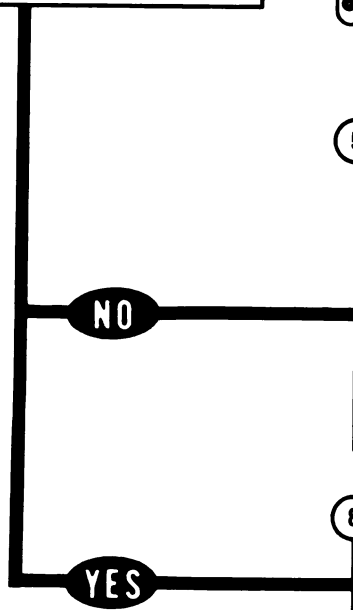
Connect jumper (4) between test points 111 and 113 on breakout box (5).
 Connect red test probe (6) to test point 111 on breakout box (5).

NOTE

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

Test for 0 to 5 ohms by connecting black test probe (7) to each test point on breakout box (5) listed below:
 ● 7 through 39
 ● 62, 74 and 75
 ● 89 through 110
 ● 112

Does VTM display show between 0 and 5?



5

- Connect 1W200-P7 to J1 on commander's control.
 ● See figure 16-8.
- Connect 1W200-P8 to J1 on gunner's control.
 ● See figure 16-8.
- Replace turret networks box.
 ● Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
- 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 10-125 (Sheet 2 of 2)
Volume II
Para. 10-6

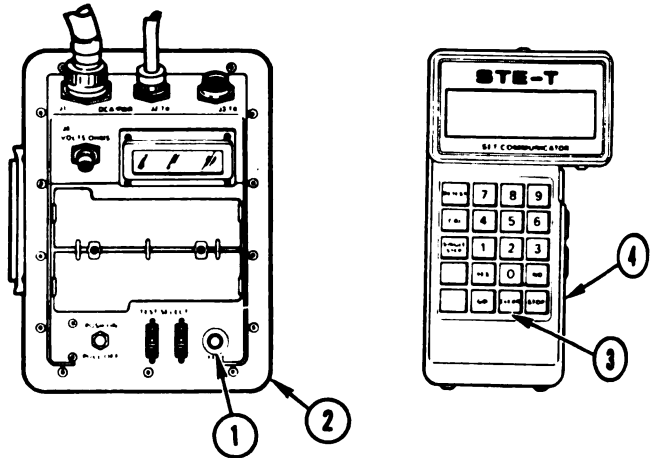
**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

• 145012
• 145030

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

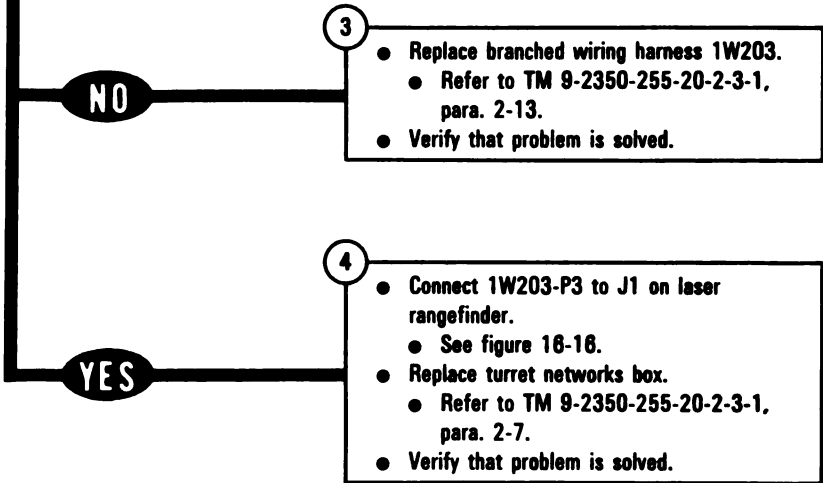
- Equipment Condition:**
- Tank parked.
 - Parking brake set.
 - Engine shut down.
 - Vehicle master power off.

- 1
- Disconnect CA540-P2 from CX308-P2.
 - See figure 10-114.
 - Disconnect CX304-P1 from CA208-P2.
 - See figure 10-108.
 - Disconnect 1W203-P1 from J3 on turret networks box.
 - See figure 16-5.



- 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 P3.
 - See 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-P3 to J1 on laser rangefinder.
 - See figure 16-16.
 - Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
 - Verify that problem is solved.

Figure 10-126
Volume II
Para. 10-6

ARR82-6607

DISPLAY SHOWS -
 FAULTY TNB OR
 W203

• 145018
 145038
 145045

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 1W203-P1 from J3 on turret
 networks box.
 • See figure 16-5.
 Connect 1W203-P1 (5) to CA528-P1 (6).
 Connect CA528-P2 (7) to CX307-P2 (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. 10-1.

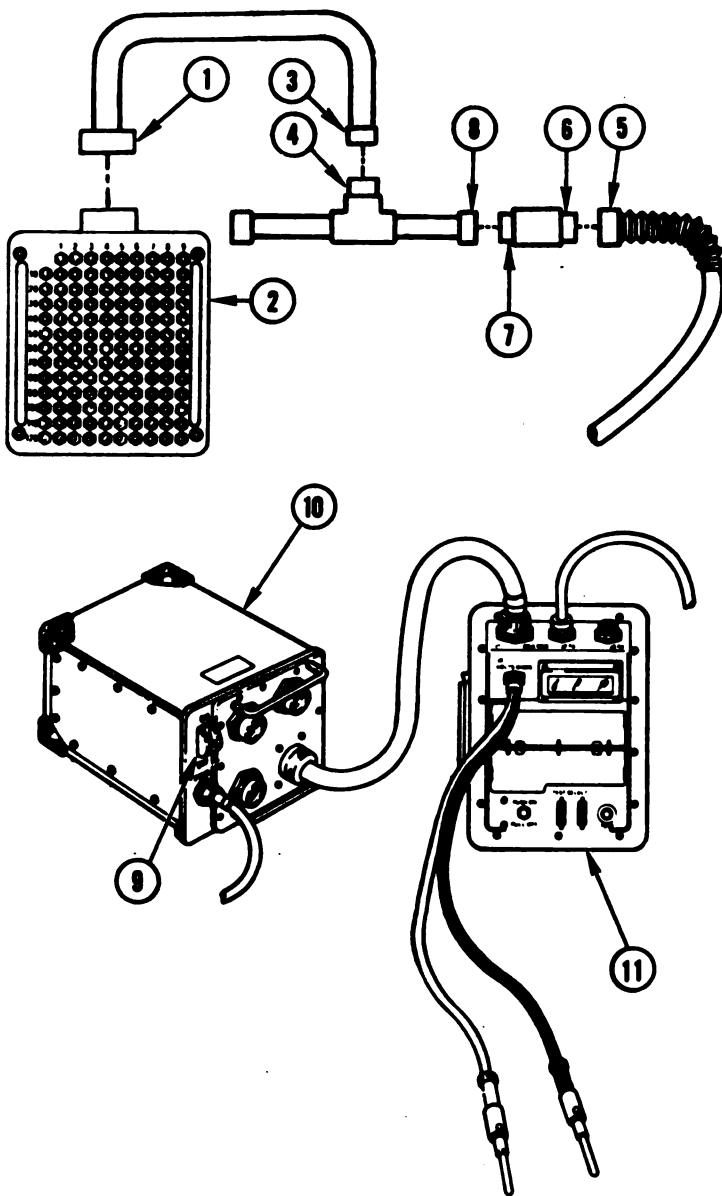


Figure 10-127 (Sheet 1 of 2)
 Volume II
 Para. 10-6

ARR82-6608

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

Table A

Fault Number	Red Test Probe
145018	10
145038	104
145045	94

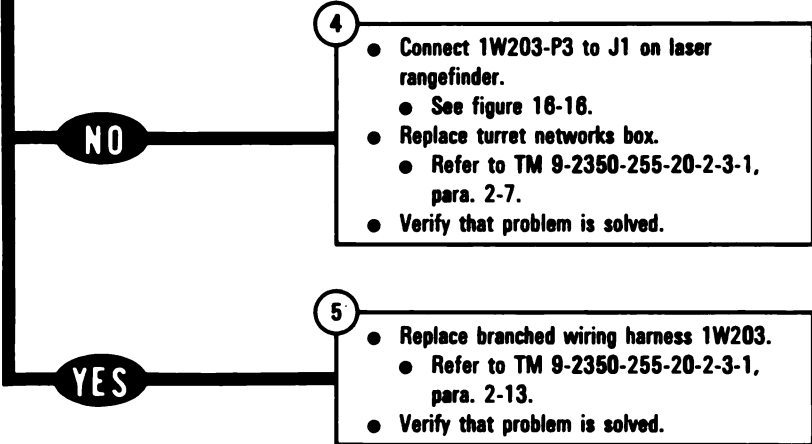
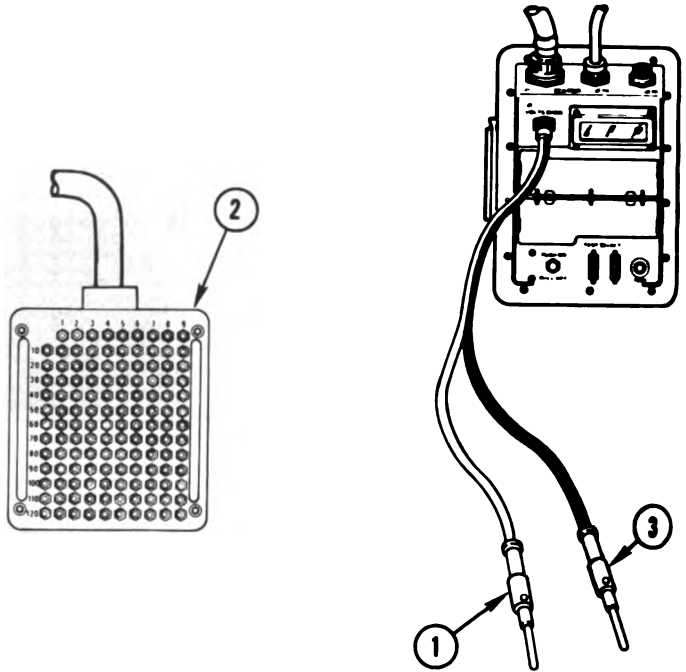
3

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

NOTE
If VTM 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, except for test point where red test probe (1) is connected.
 - 7 through 39
 - 62, 74 and 75
 - 89 through 113

Does VTM display show between 0 and 5?



*Figure 10-127 (Sheet 2 of 2)
Volume II
Para. 10-6*

ARR82-660

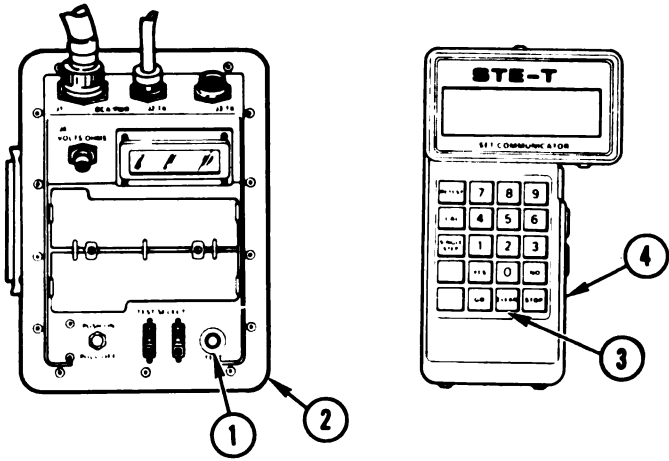
**DISPLAY SHOWS -
 FAULTY TNB OR
 1W200**

- 145050
- 145052
- 145055

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

Disconnect CA536-P2 from CX308-P2.
 • See figure 10-111.
 Disconnect 1W200-P1 from J5 on turret networks box.
 • See figure 18-5.
 Disconnect CX304-P1 from CA208-P2.
 • See figure 10-108.

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.
 • See figure 15-5.



Does SETCOM display show GOOD?

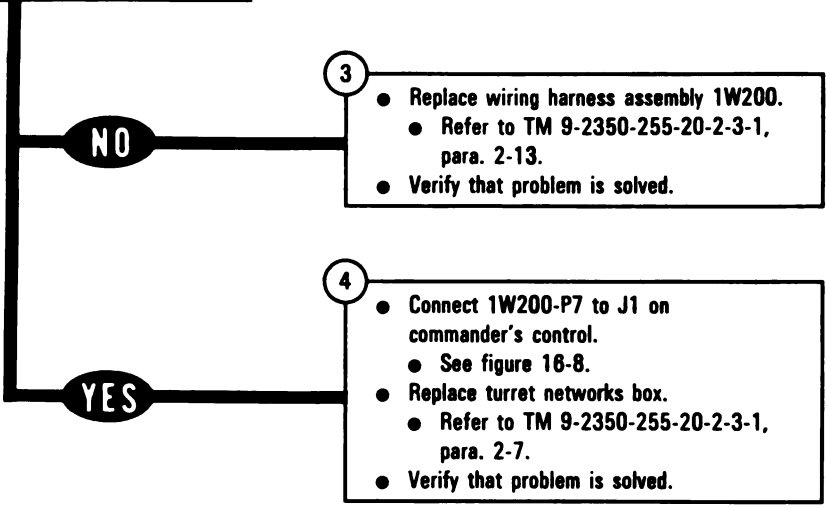


Figure 10-128
 Volume II
 Para. 10-6

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

**DISPLAY SHOWS -
FAULTY LRU'S AND
CABLES**

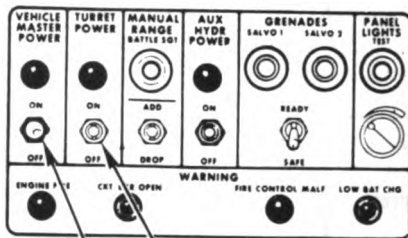
145013

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Internal gun travel lock locked.
- Turret lock locked.
- Vehicle master power off.

1

- 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 CA208-P1 from TEST 1 on turret networks box.
 - See figure 10-108.
- Disconnect CX208-P1 from TEST 2 on turret networks box.
 - See figure 10-109.
- Disconnect 1W200-P8 from J1 on gunner's control.
 - See figure 18-8.



2

- Set circuit breaker 30 (2) on turret networks box (3) to ON.
- Set TURRET POWER switch (4) to ON.

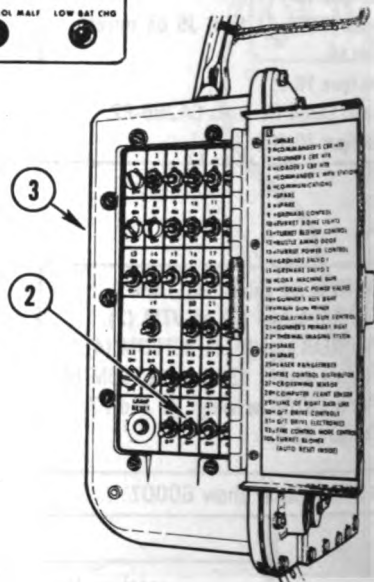
Does circuit breaker 30 shut off?

YES

NO

3

- 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 10-129 (Sheet 1 of 8)
Volume II
Para. 10-6**

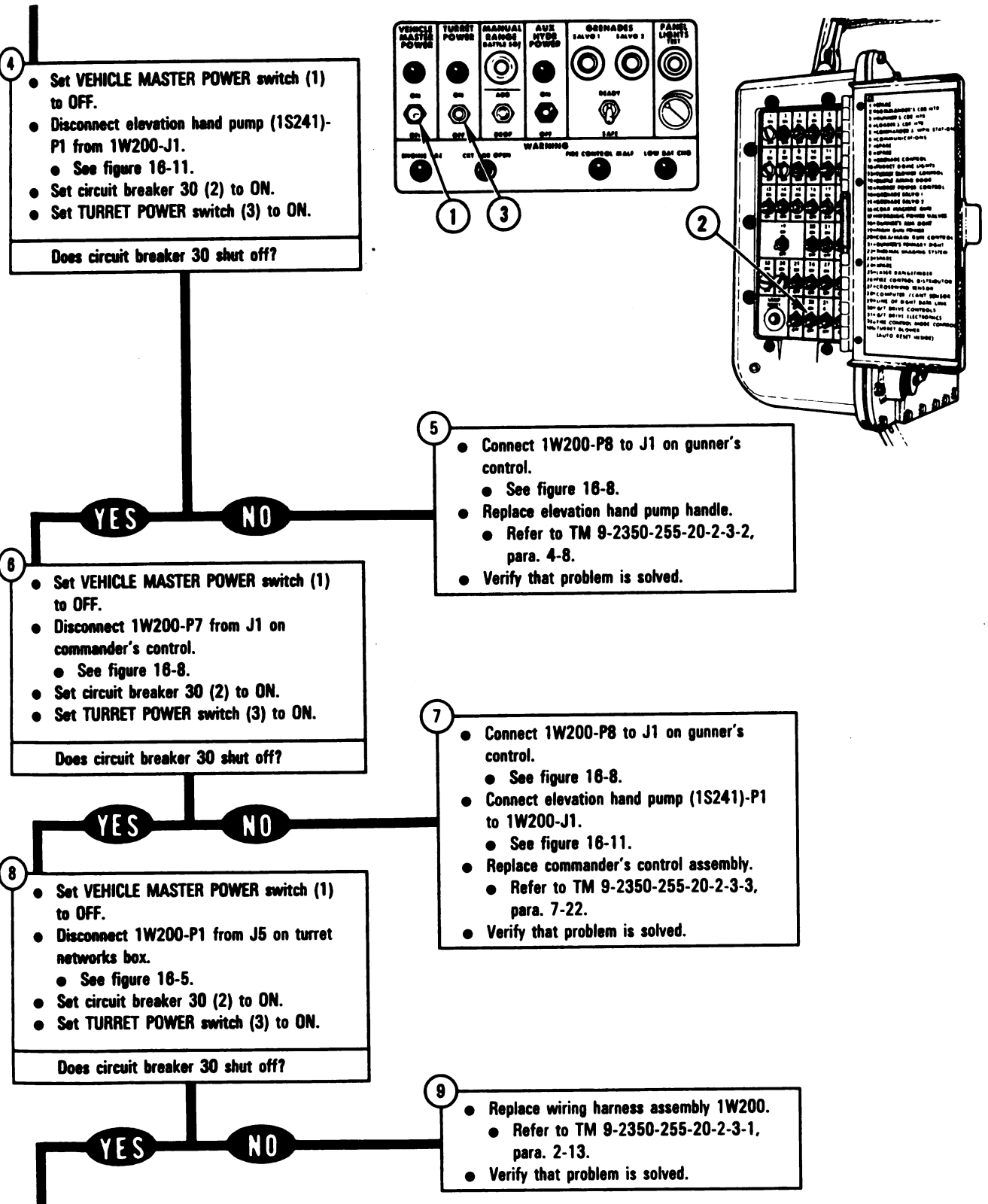
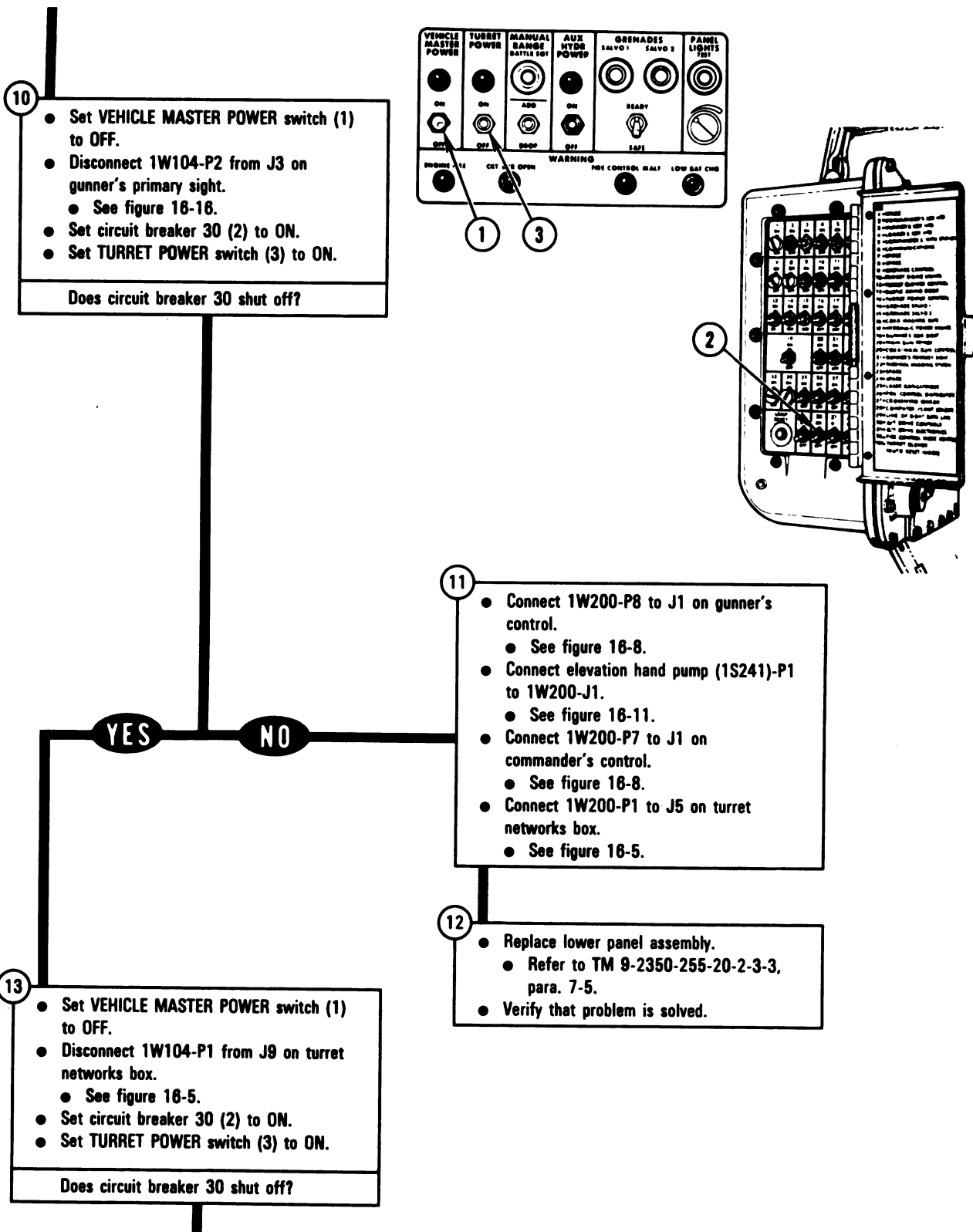


Figure 10-129 (Sheet 2 of 8)
Volume II
Para. 10-6

ARR82-6612

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**



*Figure 10-129 (Sheet 3 of 8)
Volume II
Para. 10-6*

ARR82-6613

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

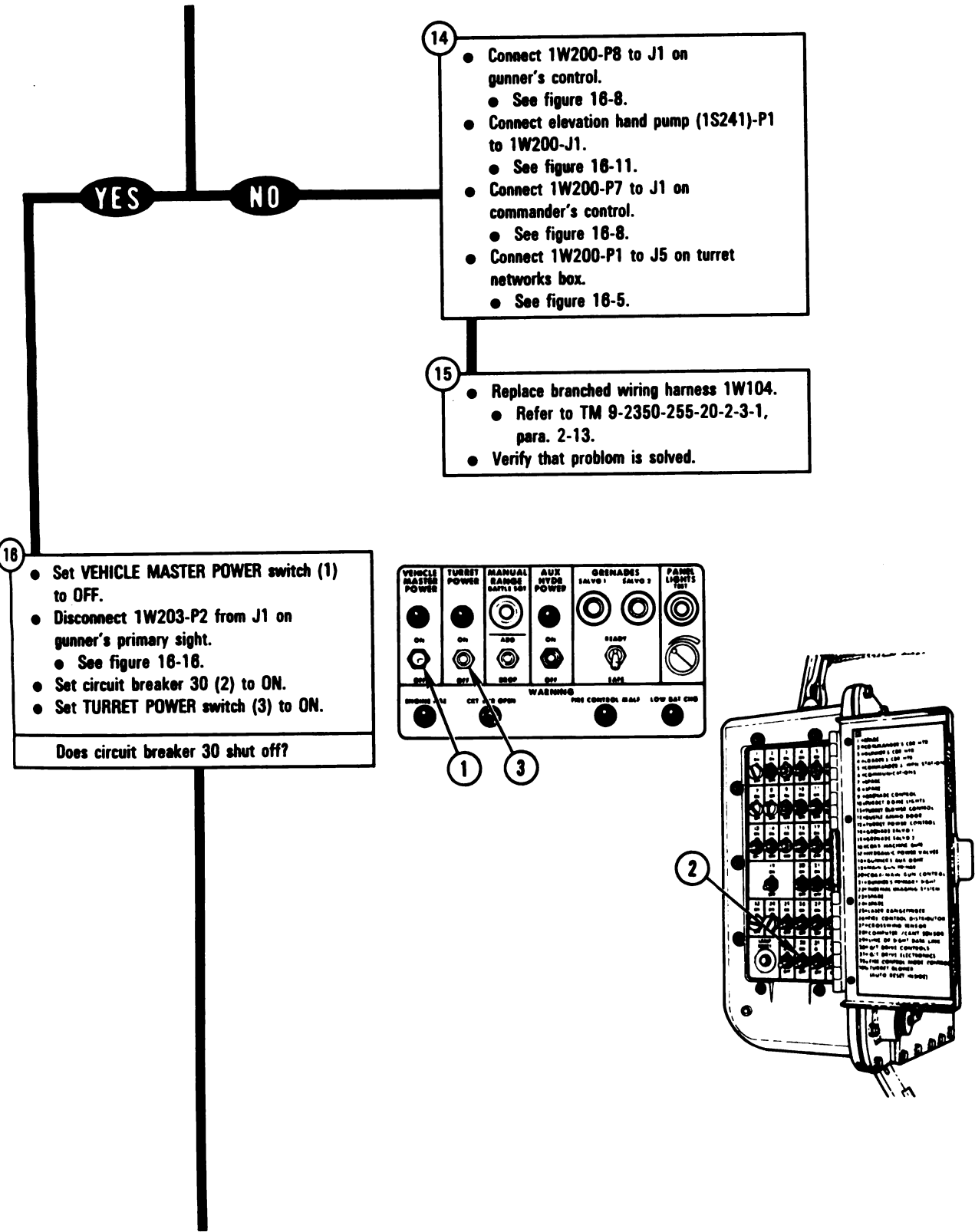


Figure 10-129 (Sheet 4 of 8)
**Volume II
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ARR82-6614

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

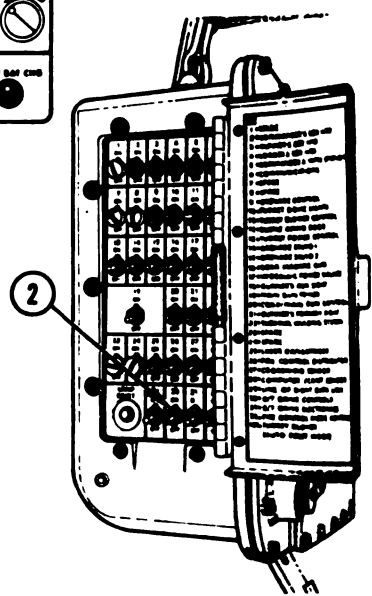
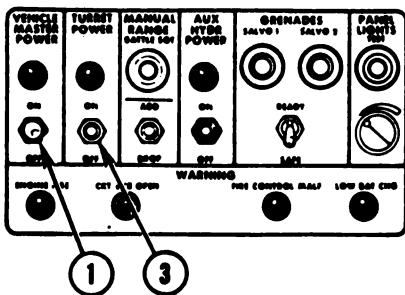
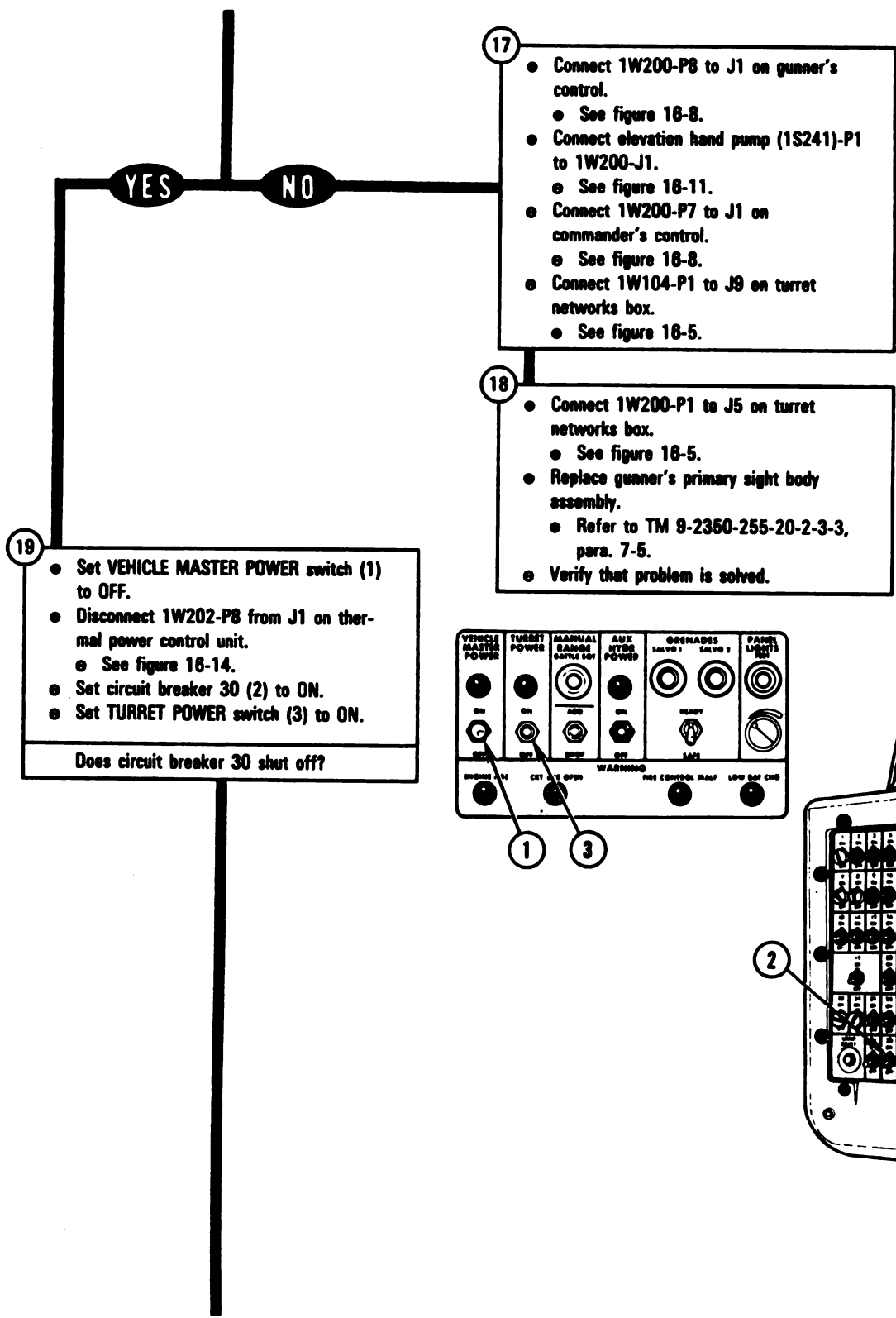


Figure 10-129 (Sheet 5 of 8)
Volume II
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ARR82-6615

20

- Connect 1W200-P8 to J1 on gunner's control.
 - See figure 16-8.
- Connect elevation hand pump (1S241)-P1 to 1W200-J1.
 - See figure 16-11.
- Connect 1W200-P7 to J1 on commander's control.
 - See figure 16-8.
- Connect 1W203-P2 to J1 on gunner's primary sight.
 - See figure 16-16.
- Connect 1W104-P2 to J3 on gunner's primary sight.
 - See figure 16-16.

21

- Connect 1W104-P1 to J9 on turret networks box.
 - See figure 16-5.
- Connect 1W200-P1 to J5 on turret networks box.
 - See figure 16-5.
- Replace thermal power control unit.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-24.
- Verify that problem is solved.

Set VEHICLE MASTER POWER switch (1) to OFF.
 Disconnect 1W203-P1 from J3 on turret networks box.
 ● See figure 16-5.
 Set circuit breaker 30 (2) to ON.
 Set TURRET POWER switch (3) to ON.

Does circuit breaker 30 shut off?

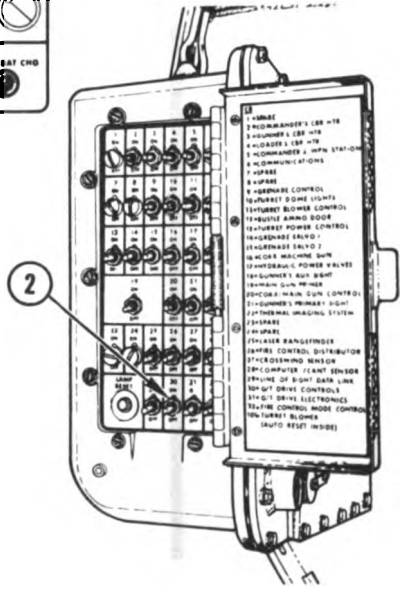
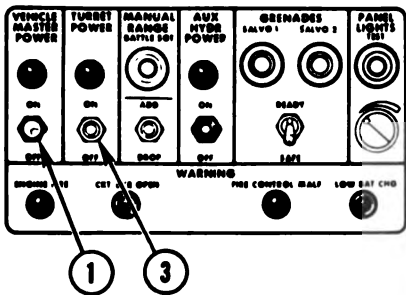


Figure 10-129 (Sheet 6 of 8)
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Para. 10-6

ARR82-6616

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

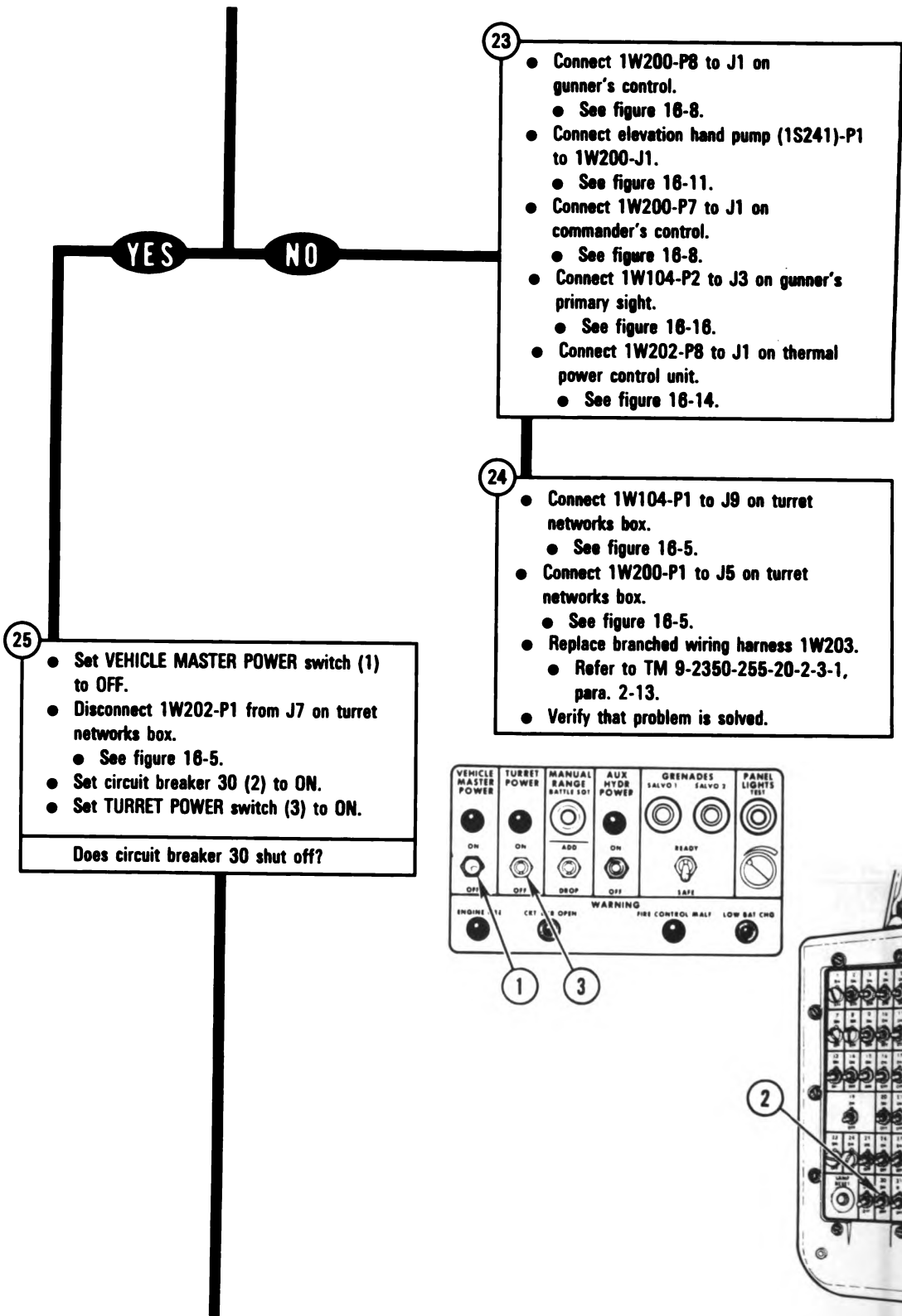


Figure 10-129 (Sheet 7 of 8)
Volume II
Para. 10-6

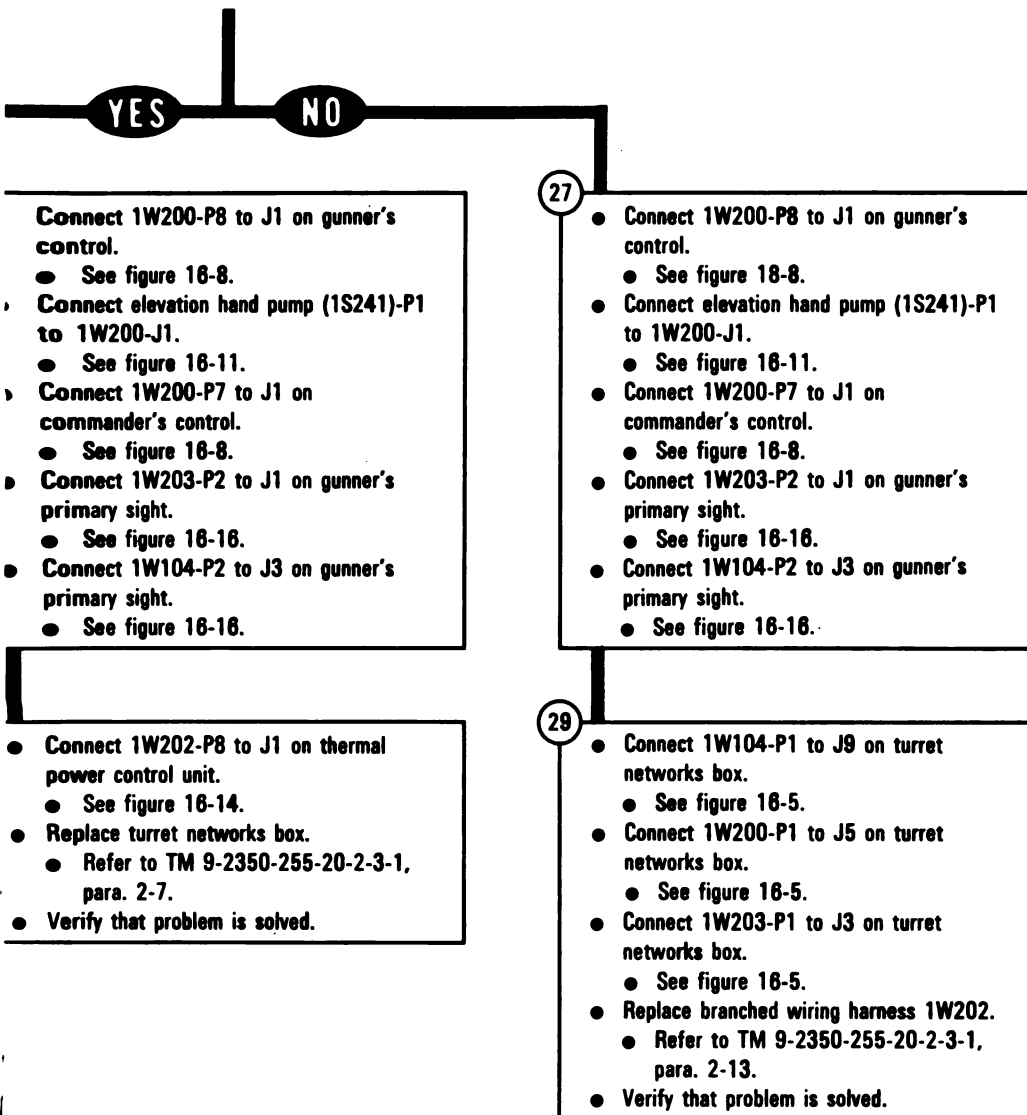


Figure 10-129 (Sheet 8 of 8)
Volume II
Para. 10-6

SYMPTOM LRF-5

**GUNNER'S PRIMARY SIGHT RETICLE
DOES NOT COME ON**

Common Tools:

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

Supplies:

- Connector Pin/Socket Adapters
- Electrical Jumper

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. 10-1 before doing any work.

1

- Set up tank controls for standard initial test conditions.
- Refer to para. 16-6, table 16-2.

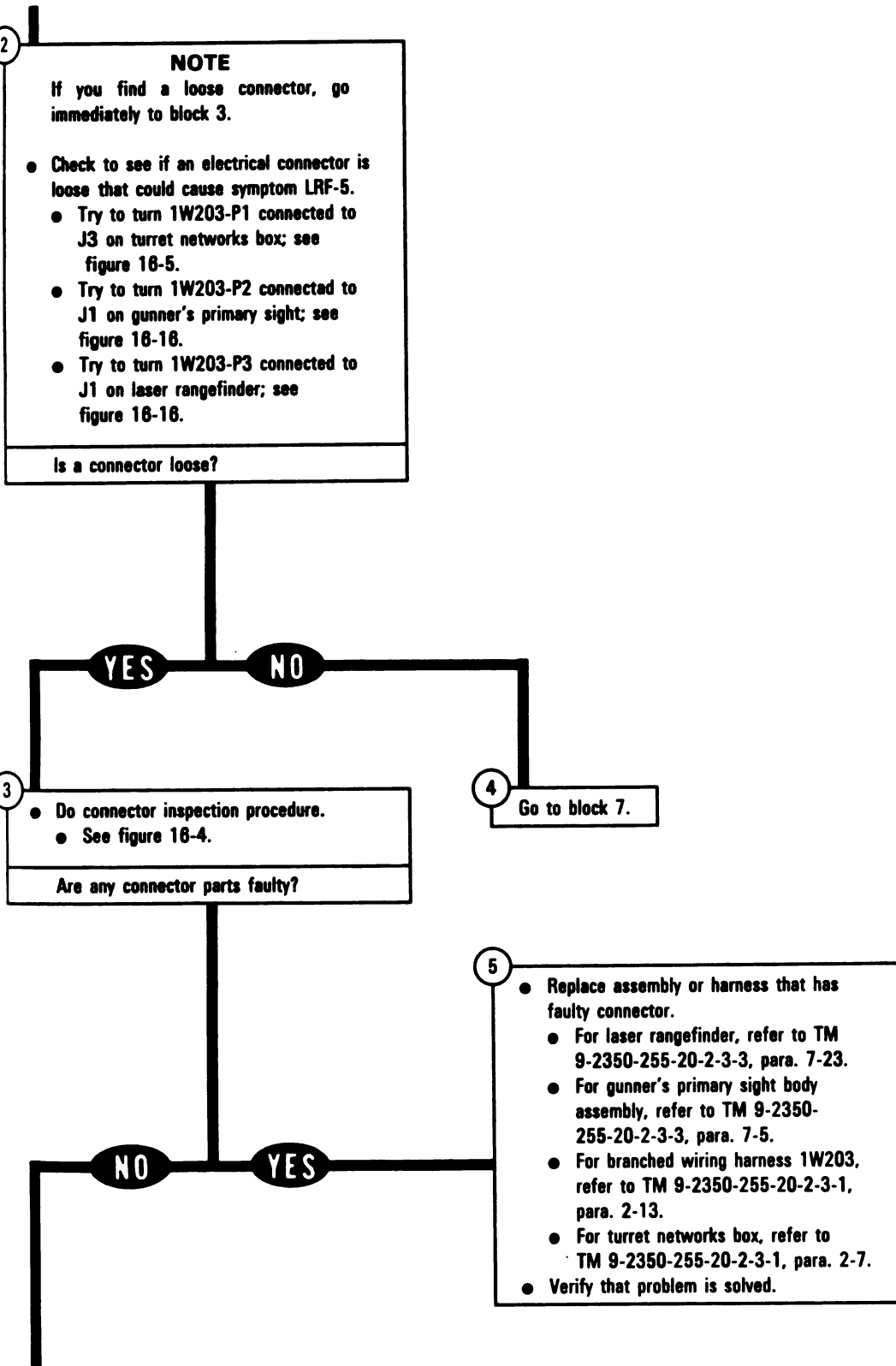


Figure 10-130 (Sheet 2 of 9)
Volume II
Para. 10-6

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

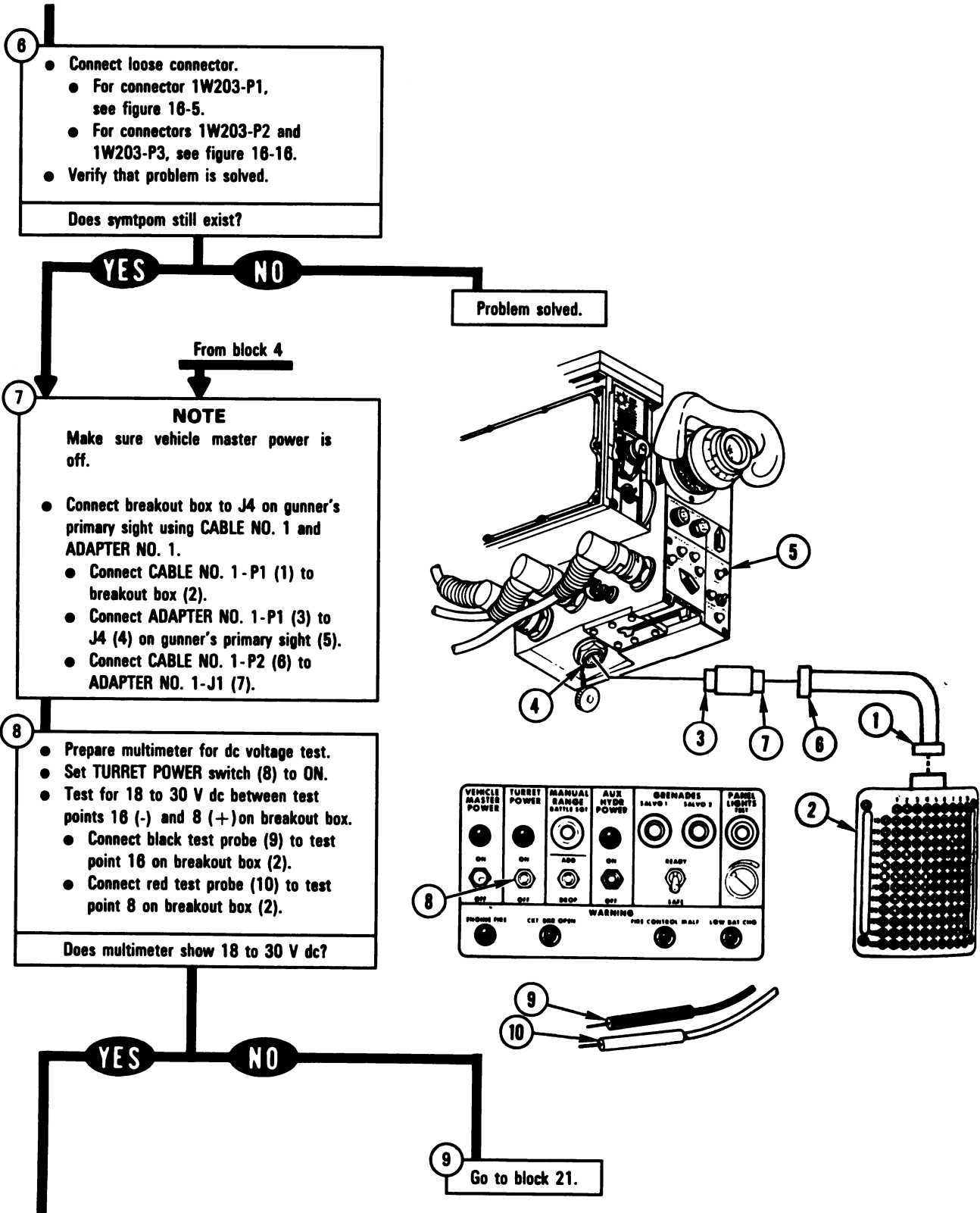
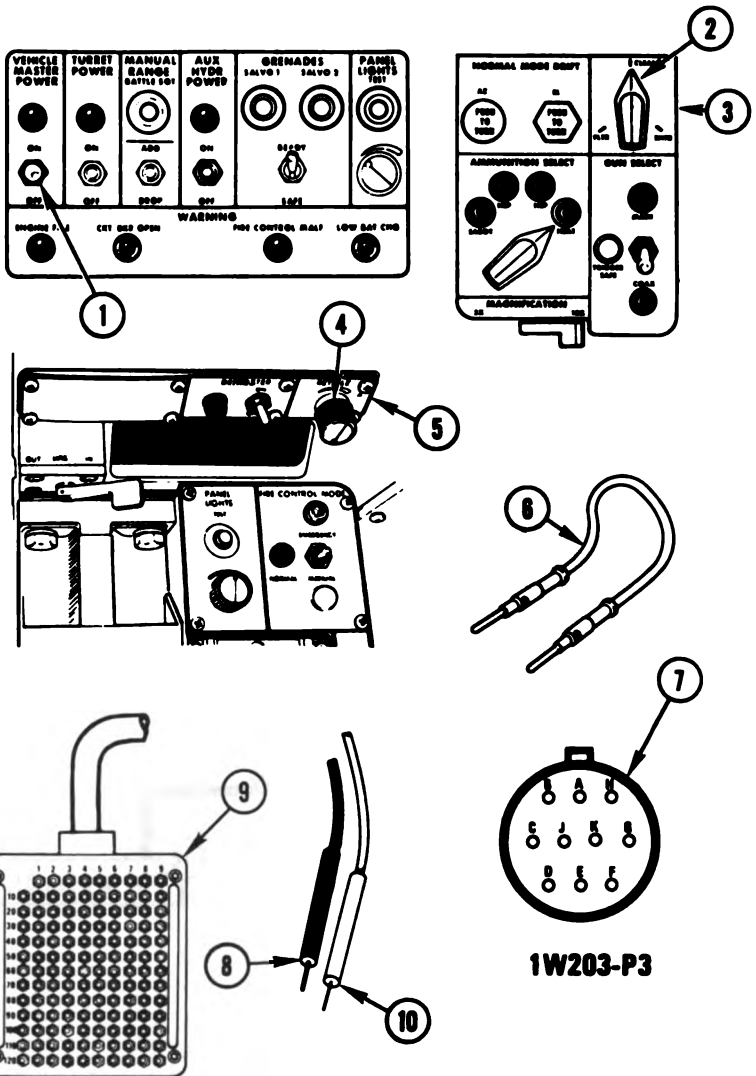


Figure 10-130 (Sheet 3 of 9)
 Volume II
 Para. 10-6

ARR82-8618

Set **VEHICLE MASTER POWER** switch (1) to **OFF**.
 Set **FLTR/CLEAR/SHTR** switch (2) on gunner's primary sight lower panel (3) to **CLEAR**.
 Turn **RETICLE** knob (4) on gunner's primary sight upper panel (5) fully clockwise.
 Disconnect 1W203-P3 from J1 on laser rangefinder.
 ● See figure 16-16.
 Prepare multimeter for ohms test.



Connect jumper (8) between contacts D and E on 1W203-P3 (7).

NOTE
 If multimeter does not show continuity, leave jumper connected.

Test for continuity between test points 8 and 70 on breakout box.

- Connect black test probe (8) to test point 8 on breakout box (9).
- Connect red test probe (10) to test point 70 on breakout box (9).

Does multimeter show continuity?

*Figure 10-130 (Sheet 4 of 9)
 Volume II
 Para. 10-6*

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

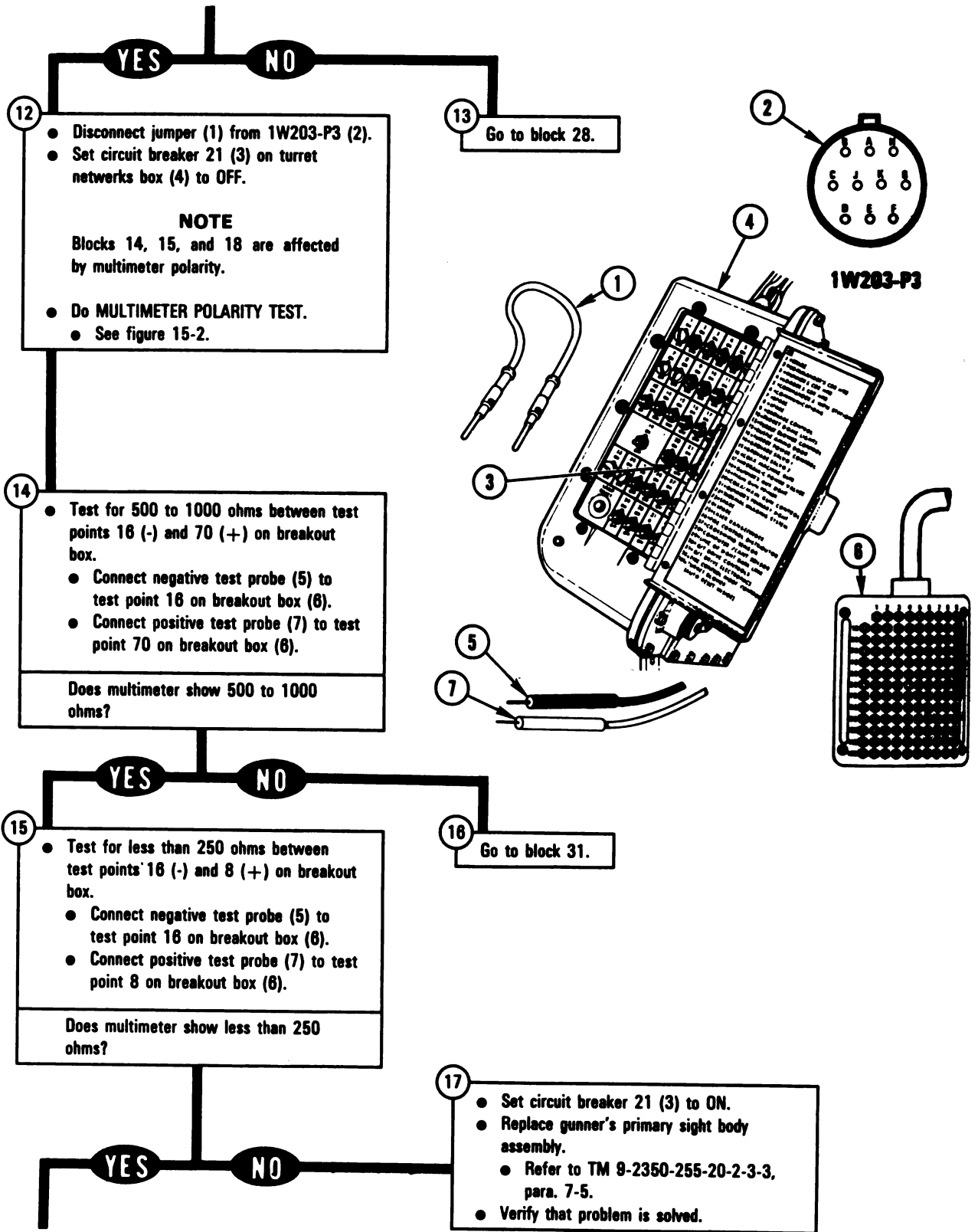


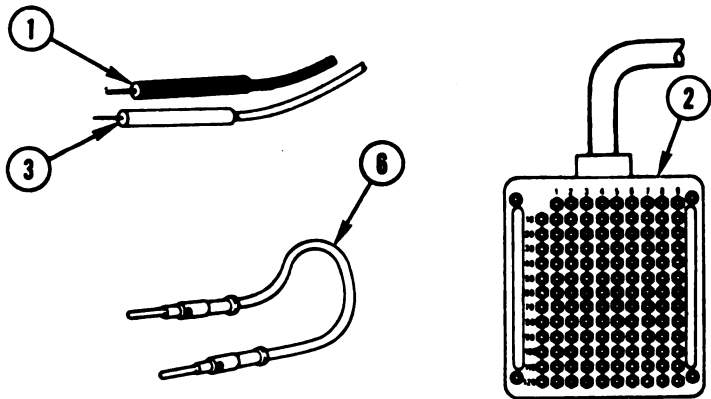
Figure 10-130 (Sheet 5 of 9)
Volume II
Para. 10-6

ARR82-6620

18

- Test for greater than 1000 ohms between test points 8 (-) and 16 (+) on breakout box.
- Connect negative test probe (1) to test point 8 on breakout box (2).
- Connect positive test probe (3) to test point 16 on breakout box (2).

Does multimeter show greater than 1000 ohms?



YES NO

19

- Set circuit breaker 21 (4) to ON.
- Replace laser rangefinder.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-23.
- Verify that problem is solved.

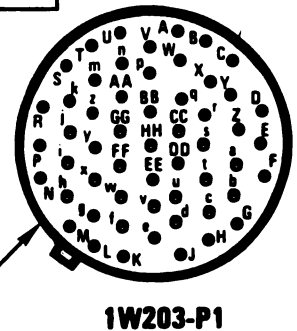
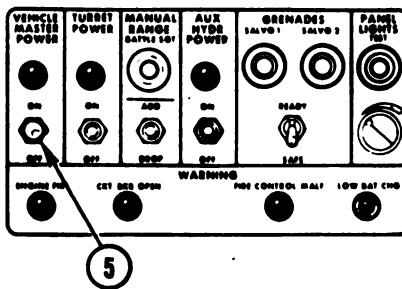
20

- Set circuit breaker 21 (4) to ON.
- Connect 1W203-P3 to J1 on laser rangefinder.
 - See figure 18-18.
- 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.

From block 9

21

- Set VEHICLE MASTER POWER switch (5) to OFF.
- Disconnect 1W203-P1 from J3 on turret networks box.
 - See figure 18-5.
- Prepare multimeter for ohms test.



22

- Connect jumper (8) between contacts A and B on 1W203-P1 (7).

NOTE
Leave jumper connected for remainder of tests.

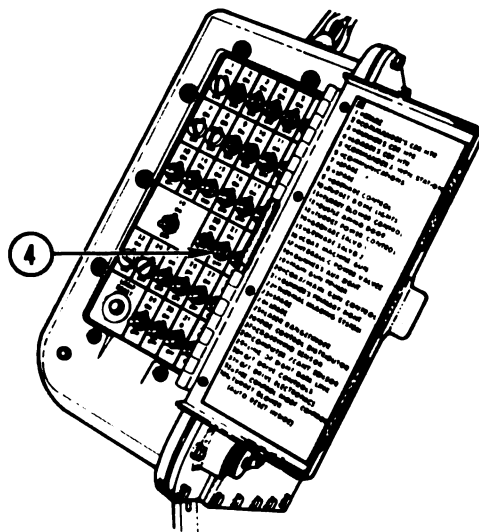
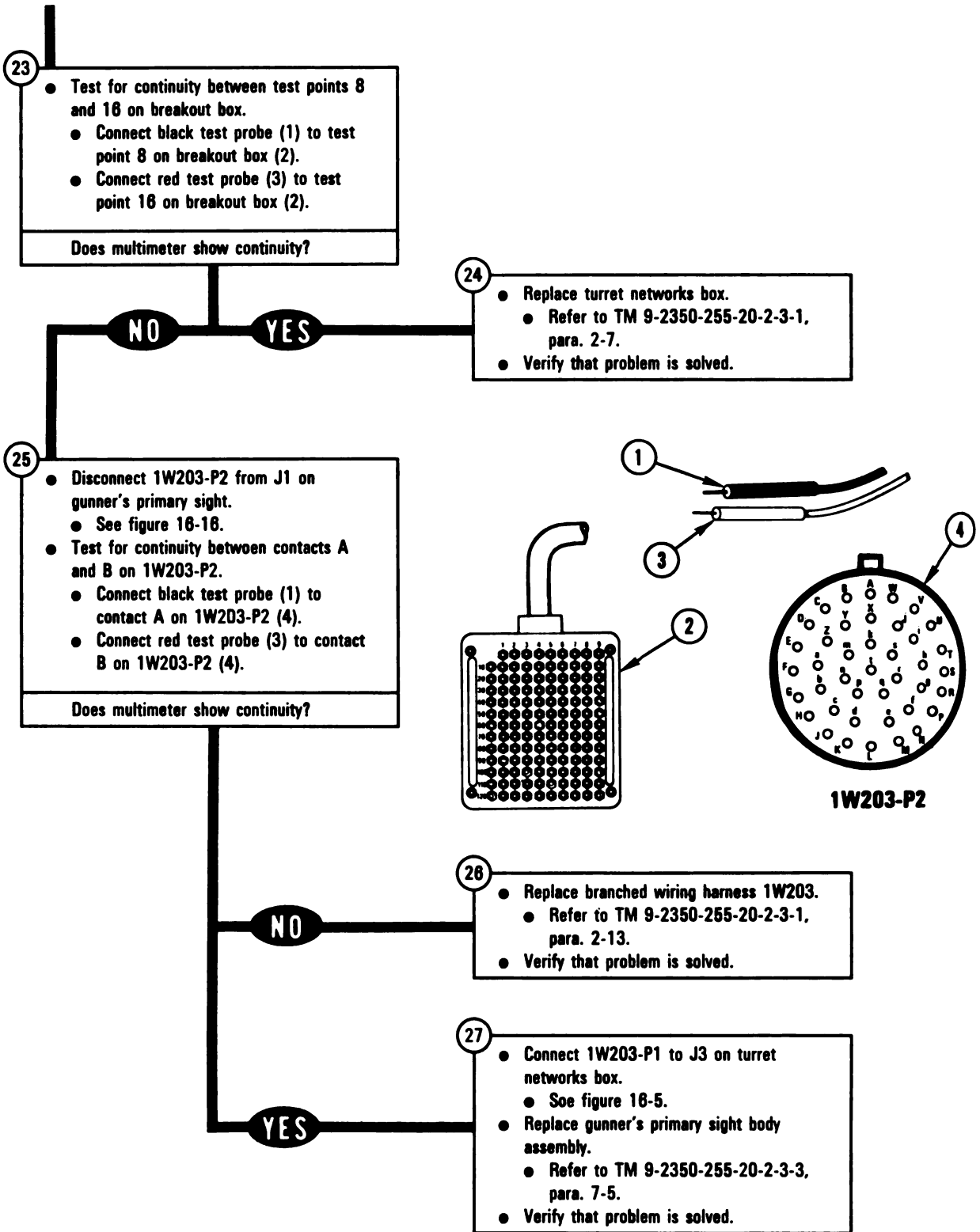


Figure 10-130 (Sheet 6 of 9)
Volume II
Para. 10-6

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**



*Figure 10-130 (Sheet 7 of 9)
Volume II
Para. 10-6*

ARR82-8622

From block 13

28

- Disconnect 1W203-P2 from J1 on gunner's primary sight.
- See figure 16-16.
- Test for continuity between contacts d and e on 1W203-P2.
- Connect black test probe (1) to contact d on 1W203-P2 (2).
- Connect red test probe (3) to contact e on 1W203-P2 (2).

Does multimeter show continuity?

NO

29

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

YES

30

- Connect 1W203-P3 to J1 on laser rangefinder.
- See figure 16-16.
- 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.

From block 16

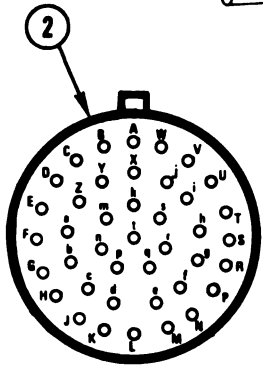
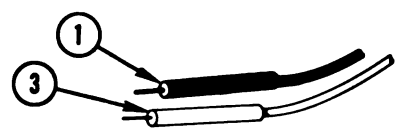
31

- Disconnect 1W203-P2 from J1 on gunner's primary sight.
- See figure 16-16.

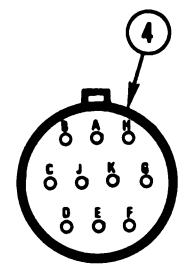
NOTE
If multimeter shows less than 5 ohms, go immediately to block 32.

- Test for less than 5 ohms between contact D and all other contacts on 1W203-P3.
- Connect black test probe (1) to contact D on 1W203-P3 (4).
- Connect red test probe (3) to all other contacts on 1W203-P3 (4).

Does multimeter show less than 5 ohms?



1W203-P2



1W203-P3

Figure 10-130 (Sheet 8 of 9)
Volume II
Para. 10-6

ARR82-6623

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

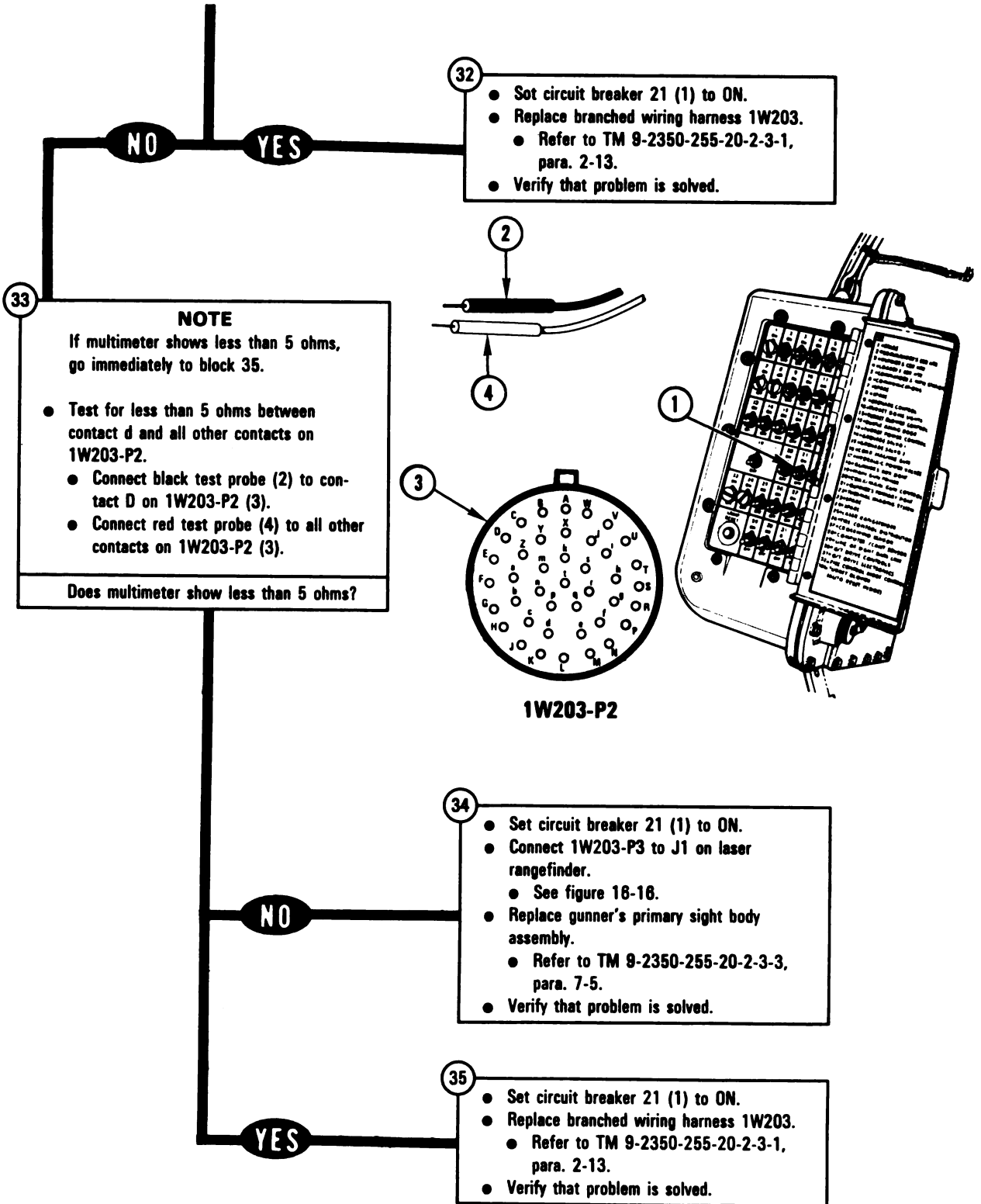


Figure 10-130 (Sheet 9 of 9)
 Volume II
 Para. 10-6

ARR82-8624

SYMPTOM LRF-6

RANGE DISPLAYED IN GUNNER'S PRIMARY SIGHT EYEPIECE DOES NOT FOLLOW BALLISTICS CONTROL PANEL RANGE DISPLAY

Common Tools:

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

Supplies:

- Connector Pin/Socket Adapters
- Electrical Jumper

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. 10-1 before doing any work.

- Set up tank controls for standard initial test conditions.
 - Refer to para. 16-6, table 16-2.
- Set TURRET POWER switch (1) to ON.
- Open door (2) on ballistics control panel (3).
- Set power switch (4) to ON.
- Loosen 2 screws (5) and open cover (6).

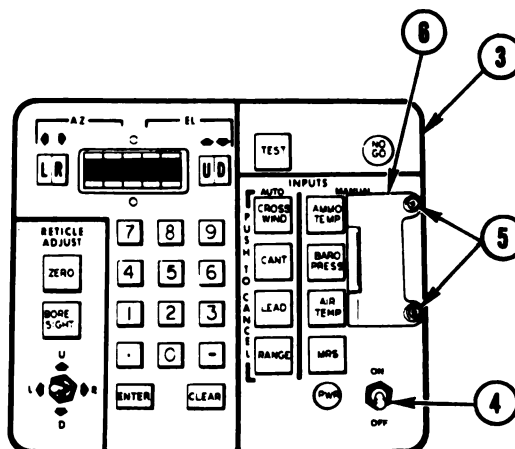
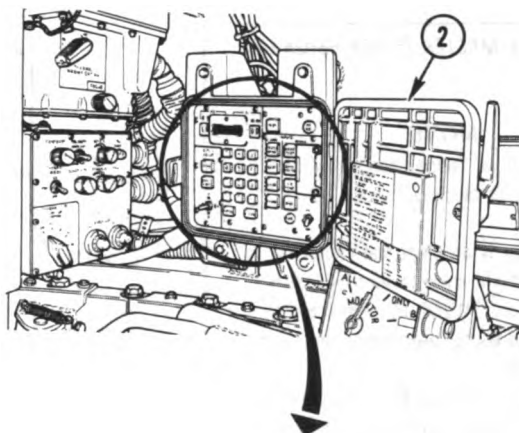
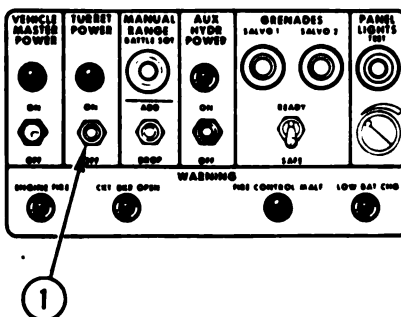


Figure 10-131 (Sheet 1 of 5)
Volume II
Para. 10-6

ARR82-6625

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

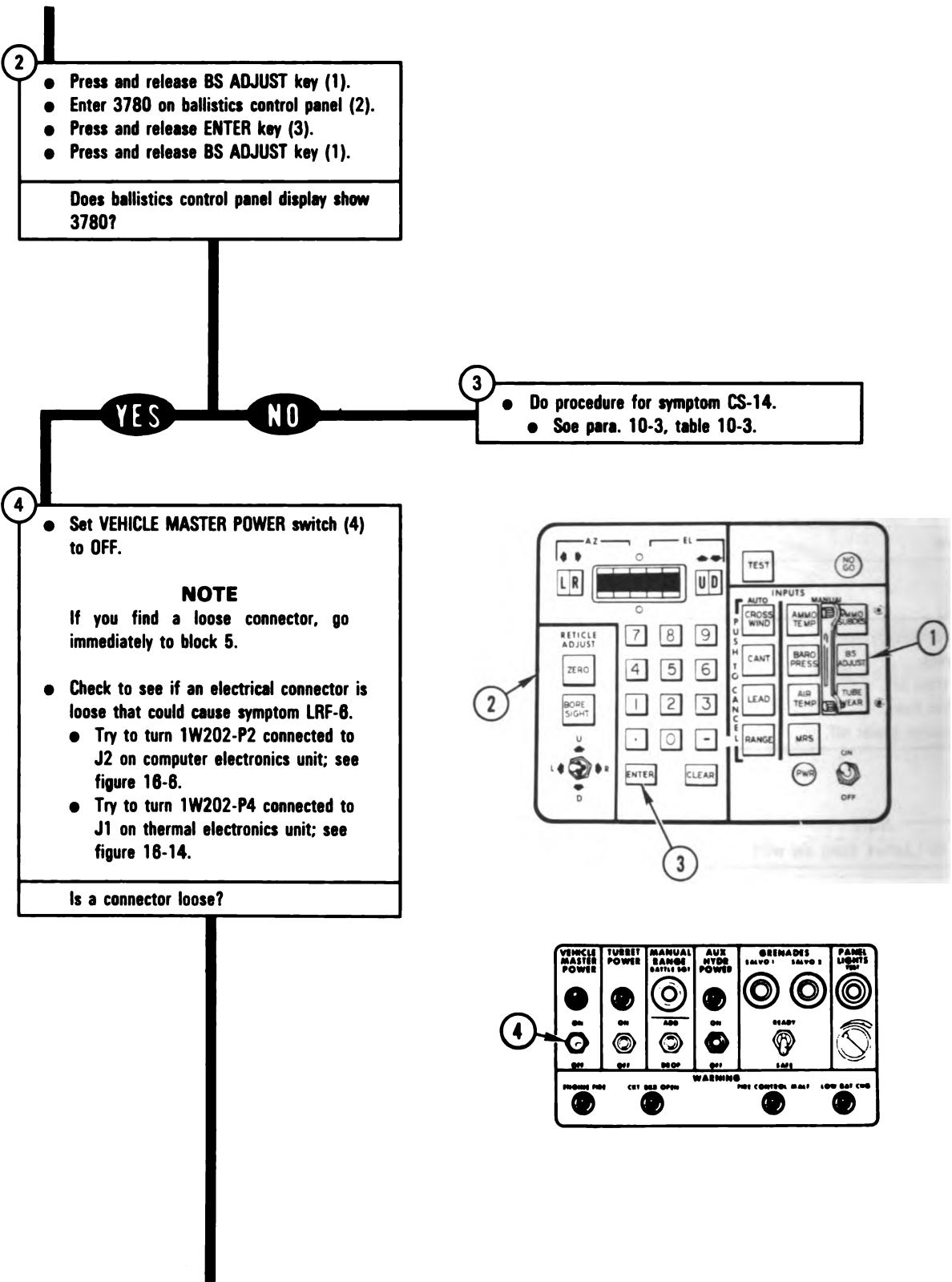


Figure 10-131 (Sheet 2 of 5)
Volume II
Para. 10-6

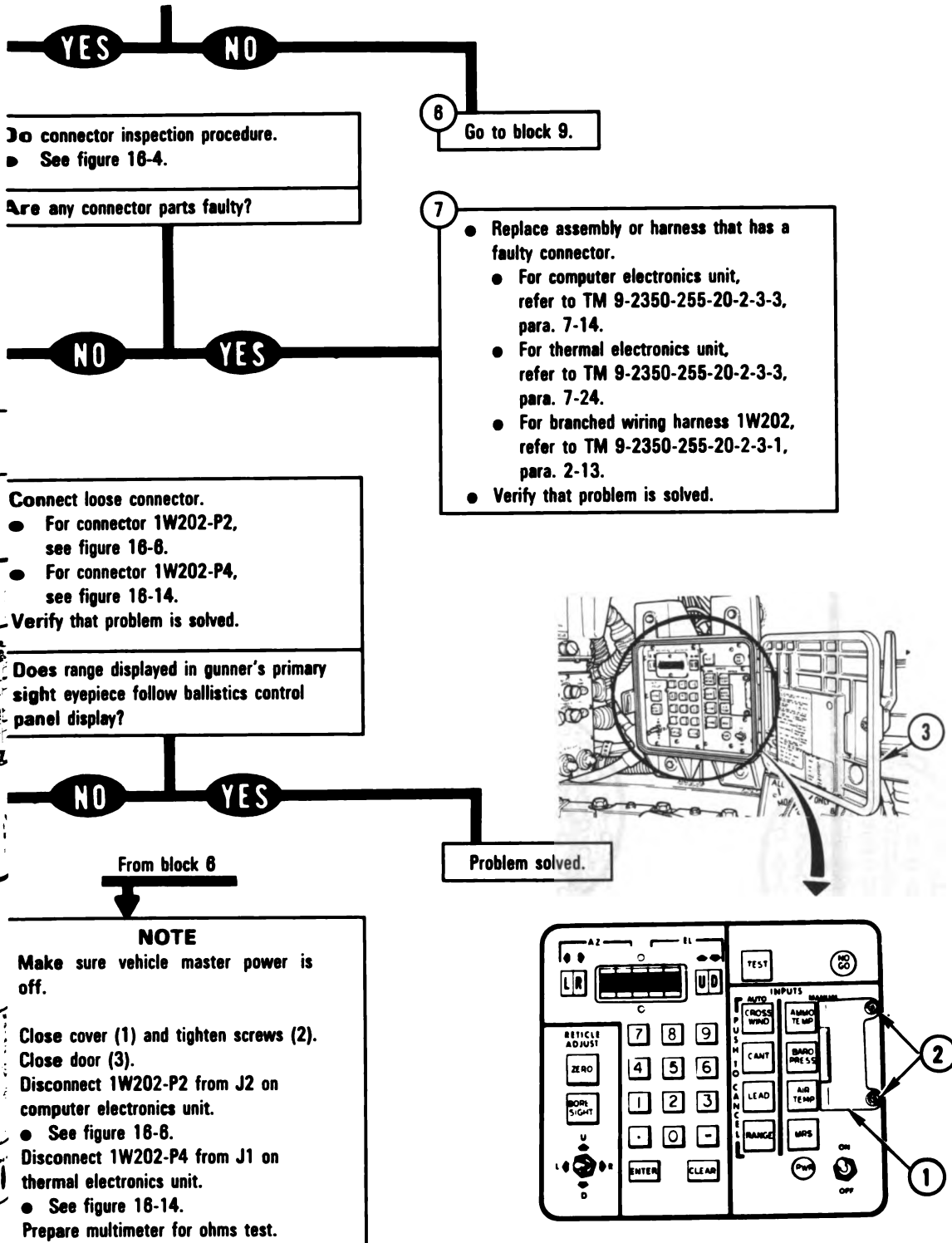


Figure 10-131 (Sheet 3 of 5)
**Volume II
 Para. 10-6**

ARR82-6627

10-523

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

10

- Connect jumper (1) between contacts on 1W202-P2 (2) listed in table A.

NOTE

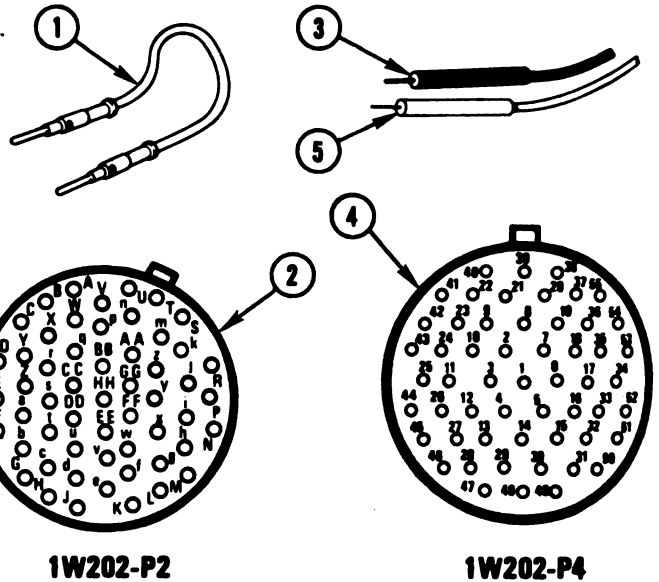
If multimeter does not show continuity, go immediately to block 11.

- Test for continuity between contacts on 1W202-P4 listed in table A.
- Connect black test probe (3) to contact on P4 (4) listed in table A.
- Connect red test probe (5) to contacts on P4 (4) listed in table A.

Does multimeter show continuity?

Table A

Jumper	Black test probe	Red test probe
m and H	33	52
m and J	33	53
m and d	33	34
m and e	33	35



YES

NO

11

- Replace branched wiring harness 1W202.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

*Figure 10-131 (Sheet 4 of 5)
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Para. 10-6*

ARR82-6621

TABLE B

Black test probe	Rad test probe
d	H
e	J
m	H
m	J
m	d
m	e

12

NOTE

If multimeter shows less than 5 ohms, go immediately to block 13.

- Test for 0 to 5 ohms between contacts on 1W202-P2 listed in table B.
- Connect black test probe (1) to contacts on 1W202-P2 (2) listed in table B.
- Connect red test probe (3) to contacts on 1W202-P2 (2) listed in table B.

Does multimeter show less than 5 ohms?

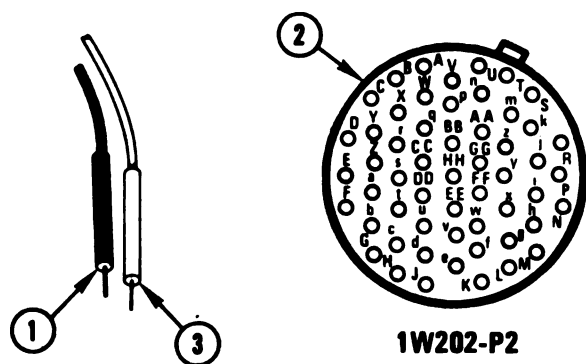
13

- Replace branched wiring harness 1W202.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

14

- Connect 1W202-P4 to J1 on thermal electronics unit.
- See figure 16-14.
- Replace computer electronics unit.
- Refer to TM 9-2350-255-20-2-3-3, para. 7-14.
- Verify that problem is solved.

Does range displayed in gunner's primary sight eyepiece follow ballistics control panel display?



15

- Replace thermal electronics unit.
- Refer to TM 9-2350-255-20-2-3-3, para. 7-24.
- Verify that problem is solved.

Problem solved.

Figure 10-131 (Sheet 5 of 5)
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Para. 10-6

ARR82-6629

10-7. Thermal Imaging System Troubleshooting Procedures.

Table 10-7. Thermal Imaging System (TIS) Fault Symptom Index

Fault Symptom No.	Fault Symptom	Primary Troubleshooting Procedure (PTP)
TIS-1	Thermal Imaging System Picture Is Bad	Figure 10-132
TIS-2	Range, Ready To Fire, Multiple Returns, And F Symbols Do Not Appear In Gunner's Primary Sight	Figure 10-133
TIS-3	Ready To Fire Symbol Will Not Appear In Gunner's Primary Sight	Figure 10-134
TIS-4	Ready To Fire Symbol Is Present In Gunner's Primary Sight Whenever Turret Power Is On	Figure 10-135
TIS-5	Laser Rangefinder Multiple Returns Symbol Does Not Appear In Gunner's Primary Sight When Multiple Returns Are Received	Figure 10-136
TIS-6	Laser Rangefinder Multiple Returns Symbol Is Present In Gunner's Primary Sight Whenever Turret Power Is On	Figure 10-137
TIS-7	F Symbol Is Not Present In Gunner's Primary Sight When Fire Control Malfunction Exists	Figure 10-138
TIS-8	F Symbol Is Present In Gunner's Primary Sight When No Fire Control Malfunction Exists	Figure 10-139
TIS-9	Thermal Imaging System FAULT Light Stays On Or TRU READY Light Stays Off	Figure 10-140
TIS-10	Cannot Align Thermal Imaging System Reticle With Gunner's Primary Sight Boresighting Aiming Point	Figure 10-141
TIS-11	CONTRAST Control On Thermal Imaging System Image Control Unit Does Not Provide Proper Contrast Adjustment	Figure 10-142
TIS-12	Thermal Imaging System Reticle Does Not Provide Proper Lead Angle	Figure 10-143
TIS-13	Thermal Imaging System Thermal Receiver Makes Noises When THERMAL MODE Switch Is Set To OFF	Figure 16-1
TIS-14	Thermal Imaging System Has Black, Flashing, Or Flickering Lines	Figure 16-1
TIS-15	No Thermal Imaging System Picture	Figure 16-1

SYMPTOM TIS-1

**HERMAL IMAGING SYSTEM PICTURE IS
FAD**

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

NOTE
 Read para. 10-1 before doing any work.

Set up tank controls for standard initial test conditions.
 ● Refer to para. 16-6, table 16-2.

Open ballistic door (1) with thermal handle (2).
 Check thermal window (3) for cracks or deep scratches.

Is thermal window cracked or scratched?

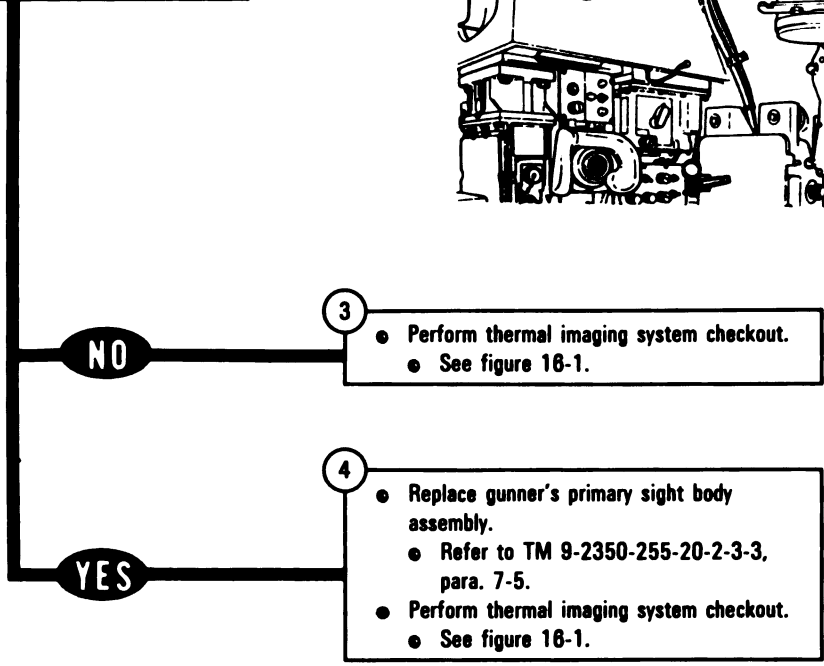
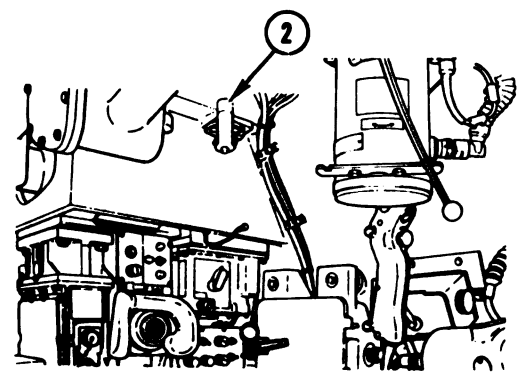
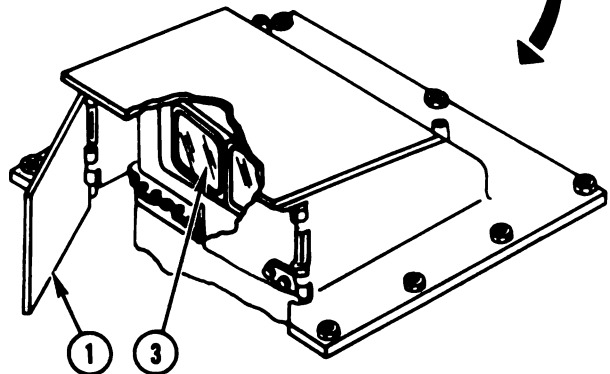
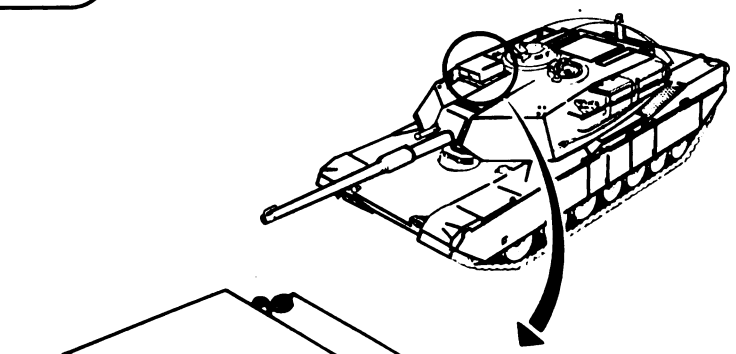


Figure 10-132
Volume II
Para. 10-7

ARR82-6630

SYMPTOM TIS-2

RANGE, READY TO FIRE, MULTIPLE RETURNS, AND F SYMBOLS DO NOT APPEAR IN GUNNER'S PRIMARY SIGHT

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. 10-1 before doing any work.

1

- Set up tank controls for standard initial test conditions.
- Refer to para. 16-6, table 16-2.

Figure 10-133 (Sheet 1 of 4)
Volume II
Para. 10-7

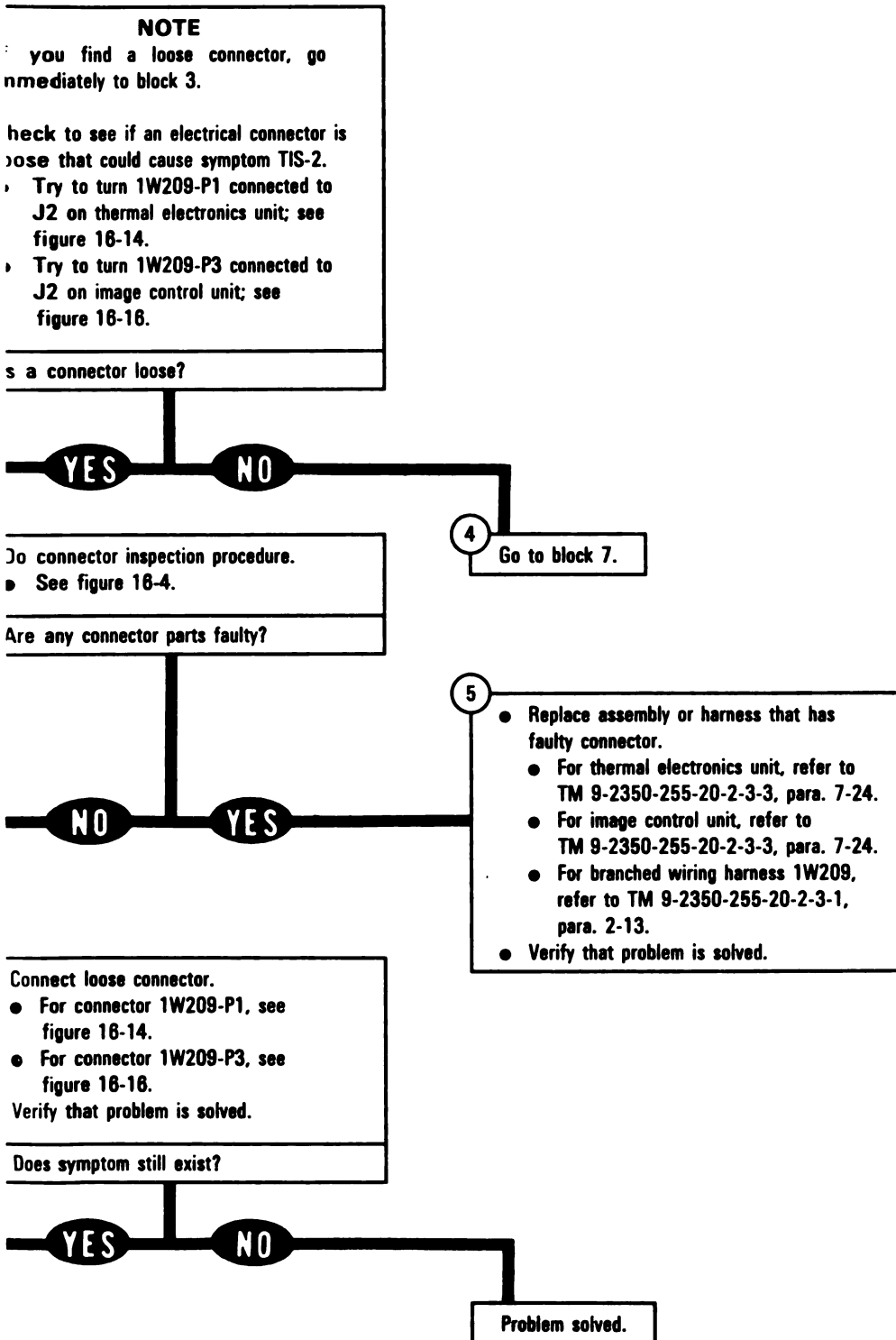


Figure 10-133 (Sheet 2 of 4)
 Volume II
 Para. 10-7

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

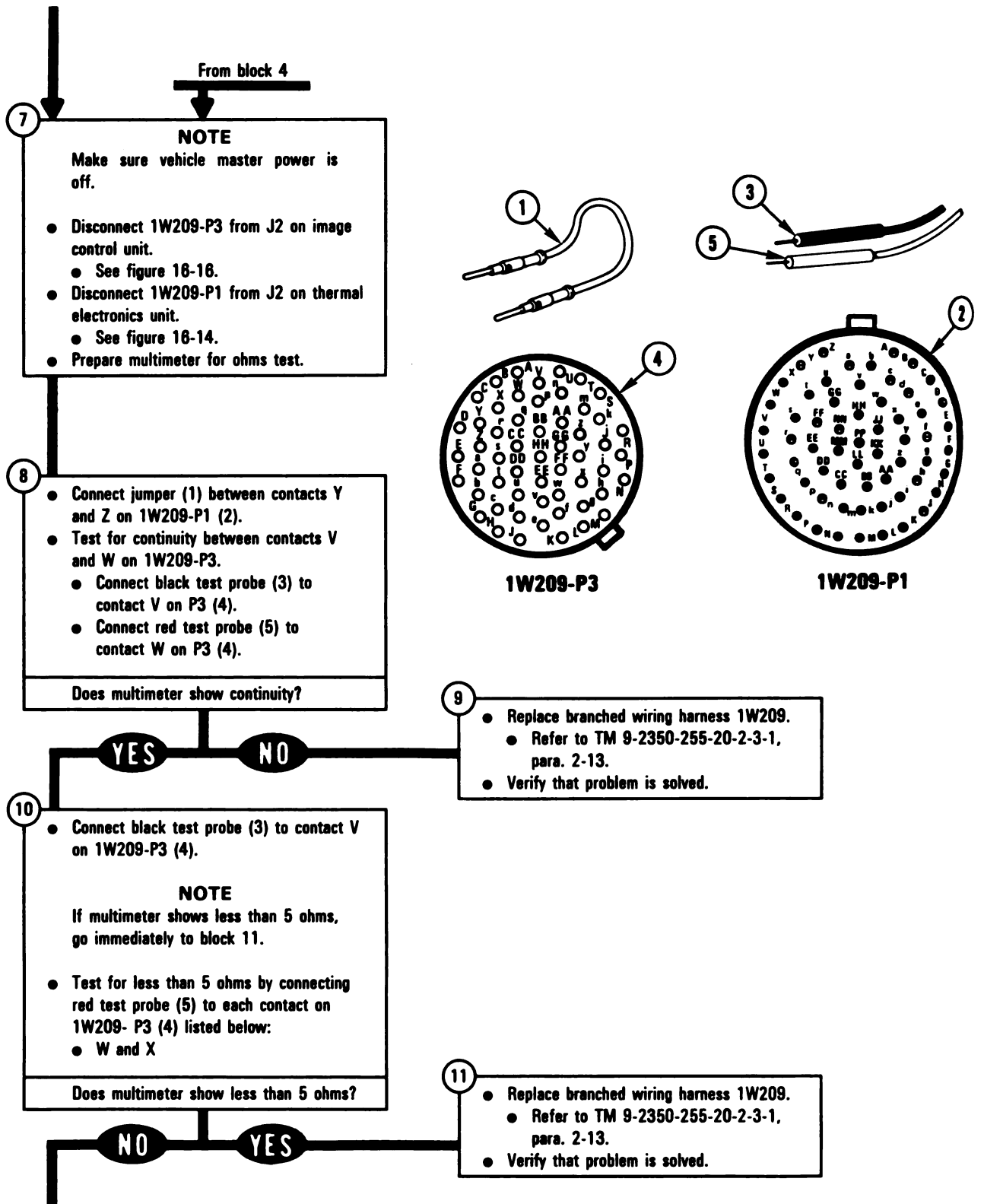


Figure 10-133 (Sheet 3 of 4)
Volume II
Para. 10-7

ARR82-8631

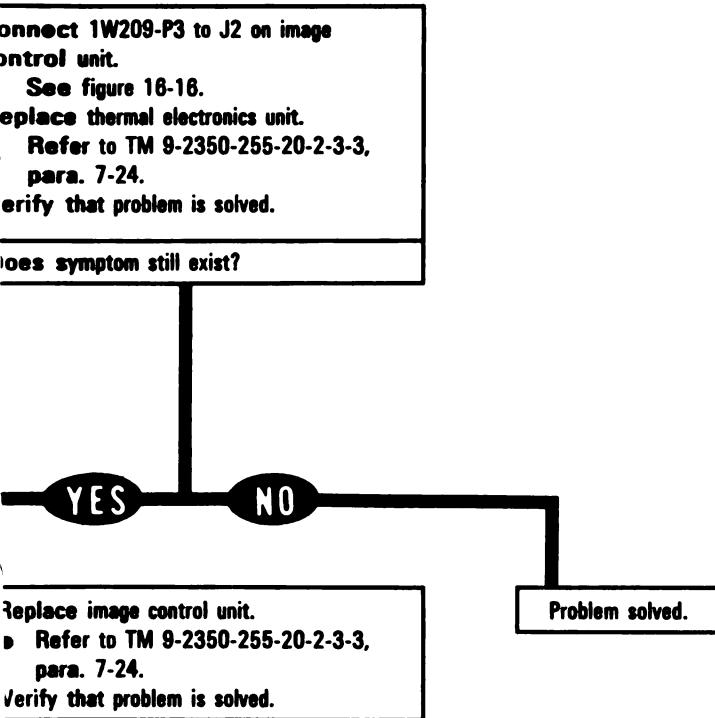


Figure 10-133 (Sheet 4 of 4)
Volume II
Para. 10-7

SYMPTOM TIS-3

**READY TO FIRE SYMBOL WILL NOT
APPEAR IN GUNNER'S PRIMARY SIGHT**

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.

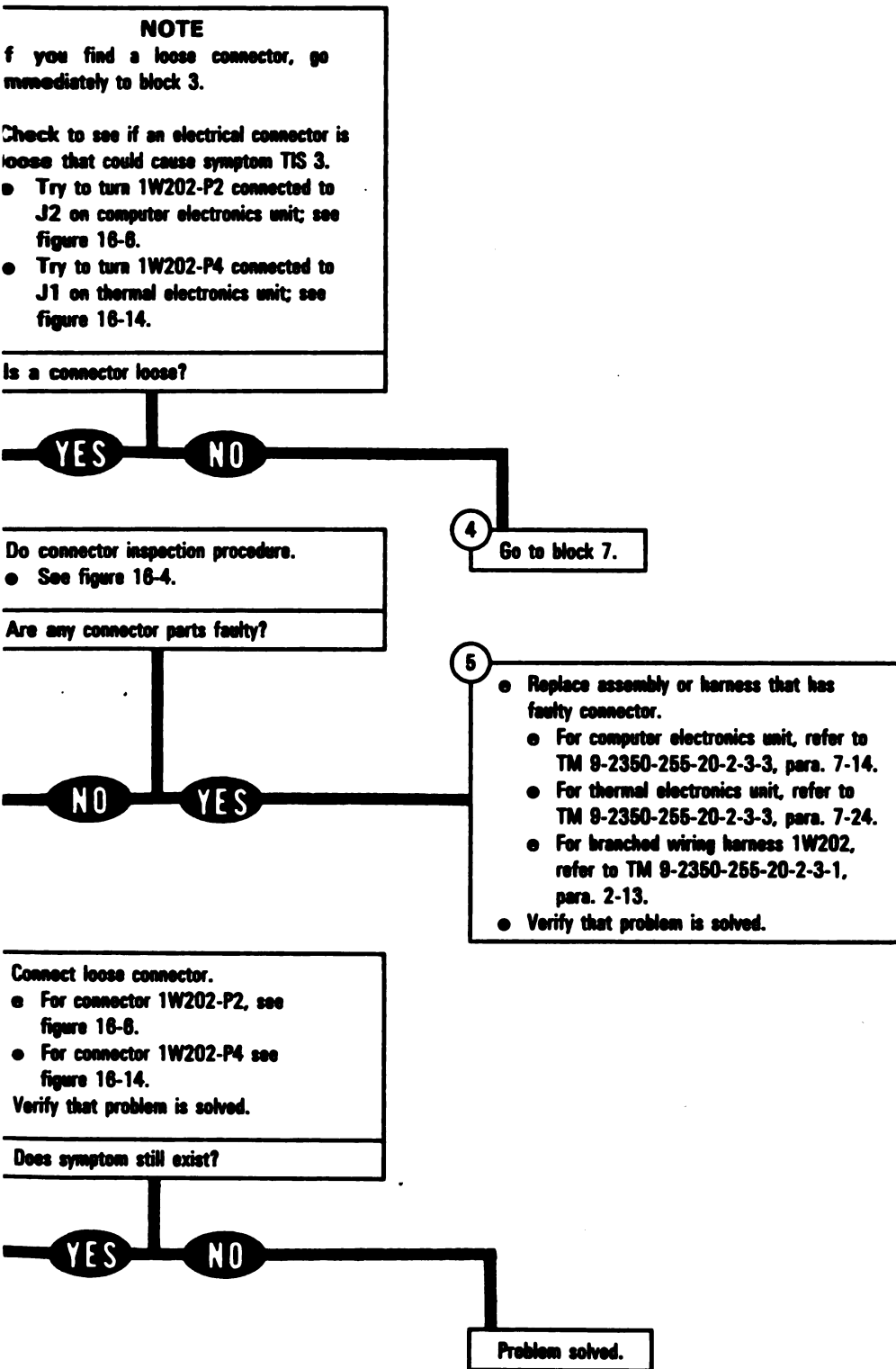
NOTE

Read para. 10-1 before doing any work.

1

- Set up tank controls for standard initial test conditions.
- Refer to para. 16-6, table 16-2.

Figure 10-134 (Sheet 1 of 3)
Volume II
Para. 10-7



**Figure 10-134 (Sheet 2 of 3)
Volume II
Para. 10-7**

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

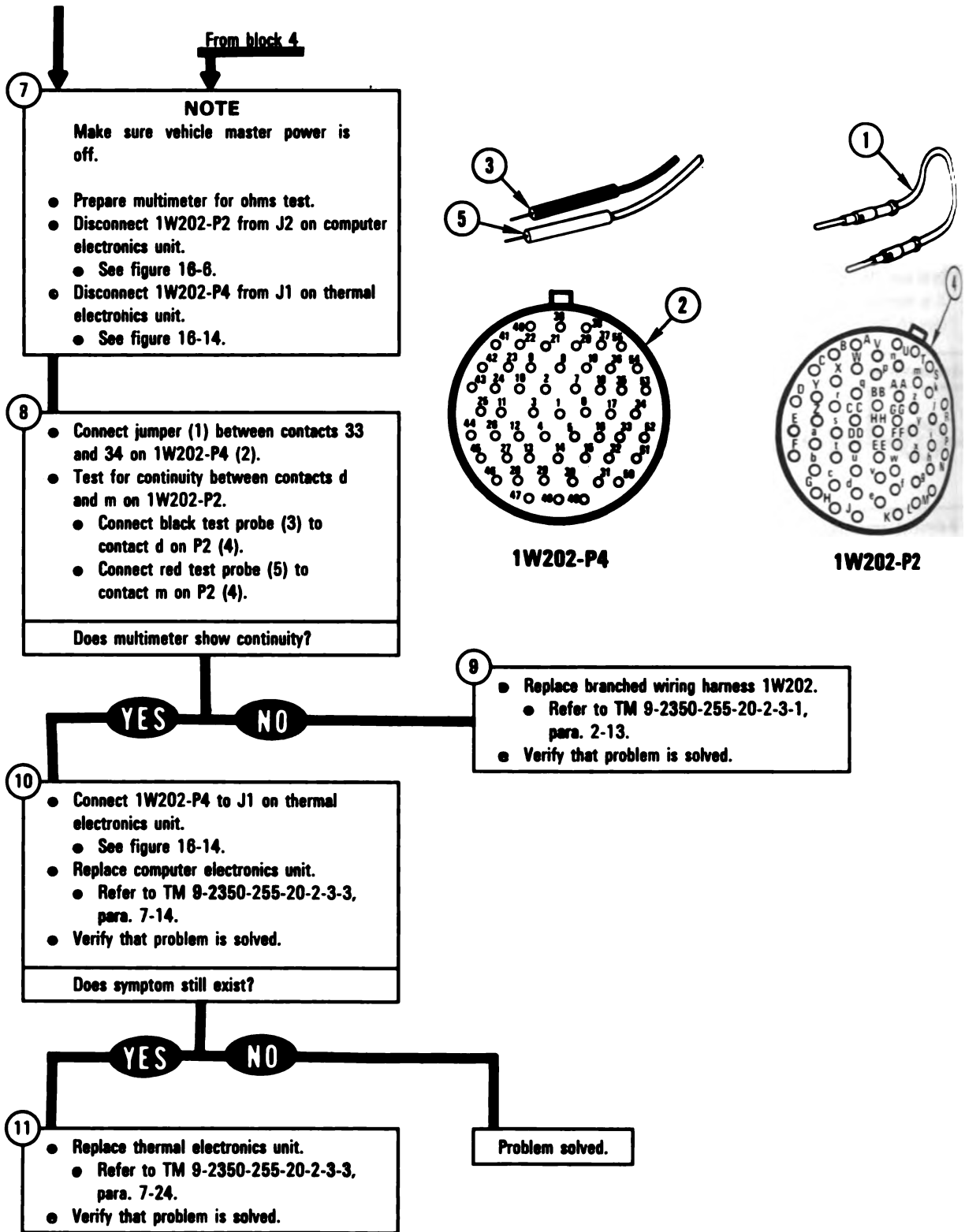


Figure 10-134 (Sheet 3 of 3)
 Volume II
 Para. 10-7

APR 2 1961

SYMPTOM TIS-4

**READY TO FIRE SYMBOL IS PRESENT IN
GUNNER'S PRIMARY SIGHT WHENEVER
CURRENT POWER IS ON**

Common Tools:

Pliers, slip joint, conduit style with plastic
jaw inserts

Supplies:

Connector Pin/Socket Adapters

Test Equipment/Special Tools:

Multimeter

Equipment Condition:

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

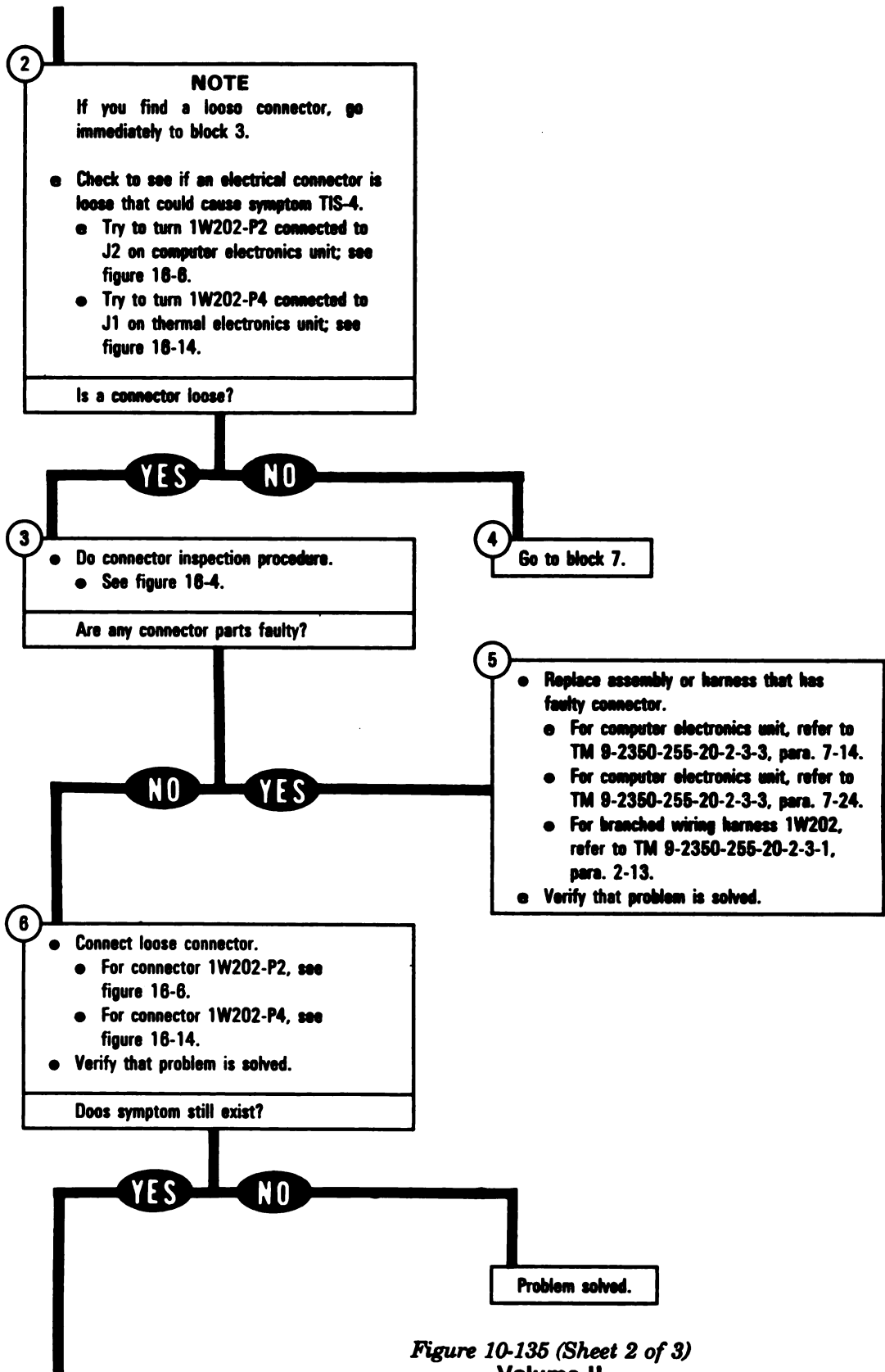
NOTE

Read para. 10-1 before doing any work.

Set up tank controls for standard initial
test conditions.

- Refer to para. 16-6, table 16-2.

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**



*Figure 10-135 (Sheet 2 of 3)
Volume II
Para. 10-7*

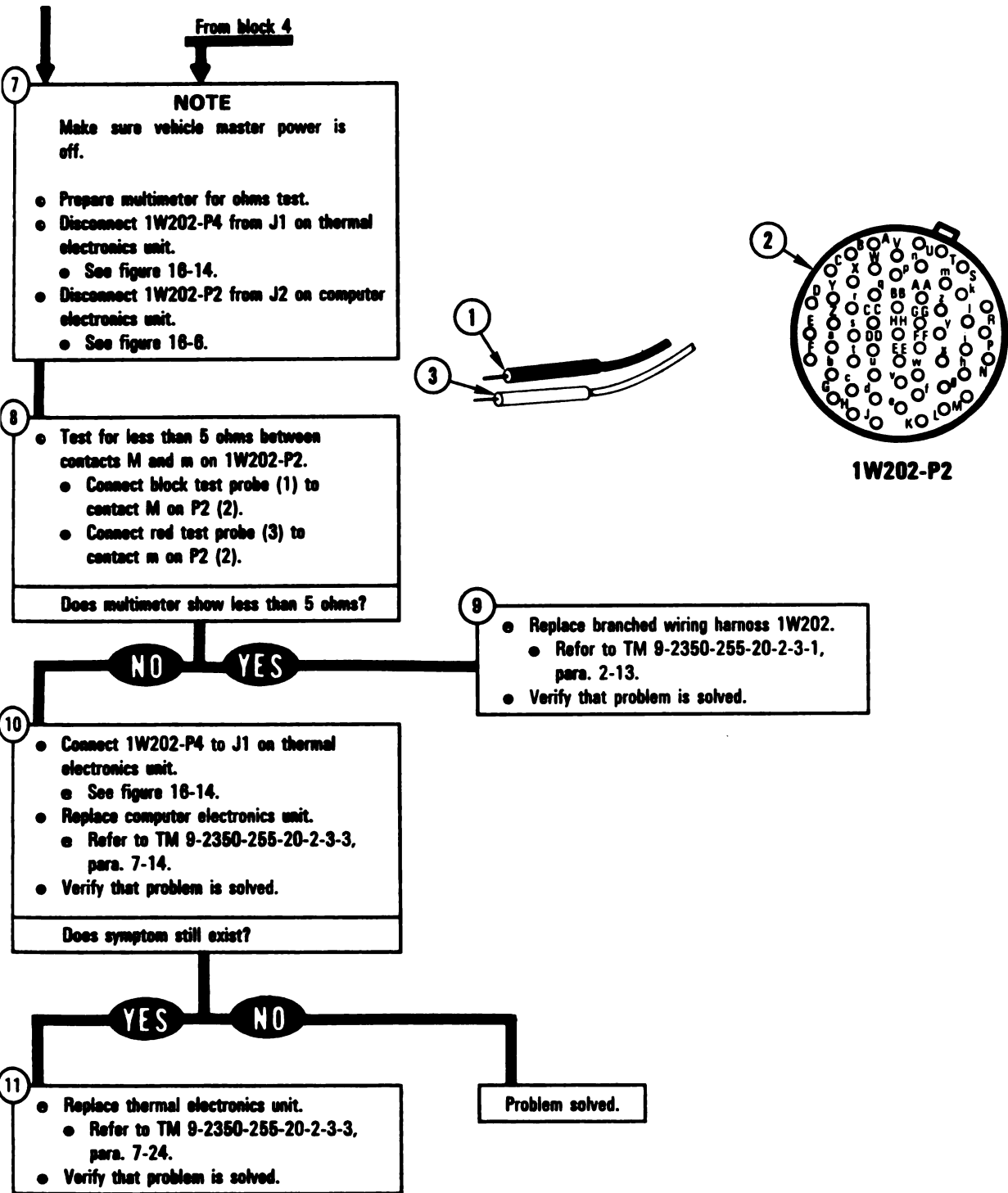


Figure 10-135 (Sheet 3 of 3)
Volume II
Para. 10-7

ARR82-8633

SYMPTOM TIS-5

LASER RANGEFINDER MULTIPLE RETURNS SYMBOL DOES NOT APPEAR IN GUNNER'S PRIMARY SIGHT WHEN MULTIPLE RETURNS ARE RECEIVED

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. 10-1 before doing any work.

1

- Set up tank controls for standard initial test conditions.
- Refer to para. 16-6, table 16-2.

Figure 10-136 (Sheet 1 of 5)
Volume II
Para. 10-7

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 TIS-5.
- Try to turn 1W202-P1 connected to J7 on turret networks box; see figure 16-5.
- Try to turn 1W203-P1 connected to J3 on turret networks box; see figure 16-5.

- Try to turn 1W202-P4 connected to J1 on thermal electronics unit; see figure 16-14.
- Try to turn 1W203-P3 connected to J1 on laser rangefinder; see figure 16-16.

Is a connector loose?

YES

NO

- Do connector inspection procedure.
- See figure 16-4

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 thermal electronics unit, refer to TM 9-2350-255-20-2-3-3, para. 7-24.
- For laser rangefinder, refer to TM 9-2350-255-20-2-3-3, para. 7-23.
- For branched wiring harness 1W202 or 1W203, refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

Figure 10-136 (Sheet 2 of 5)
Volume II
Para. 10-7

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

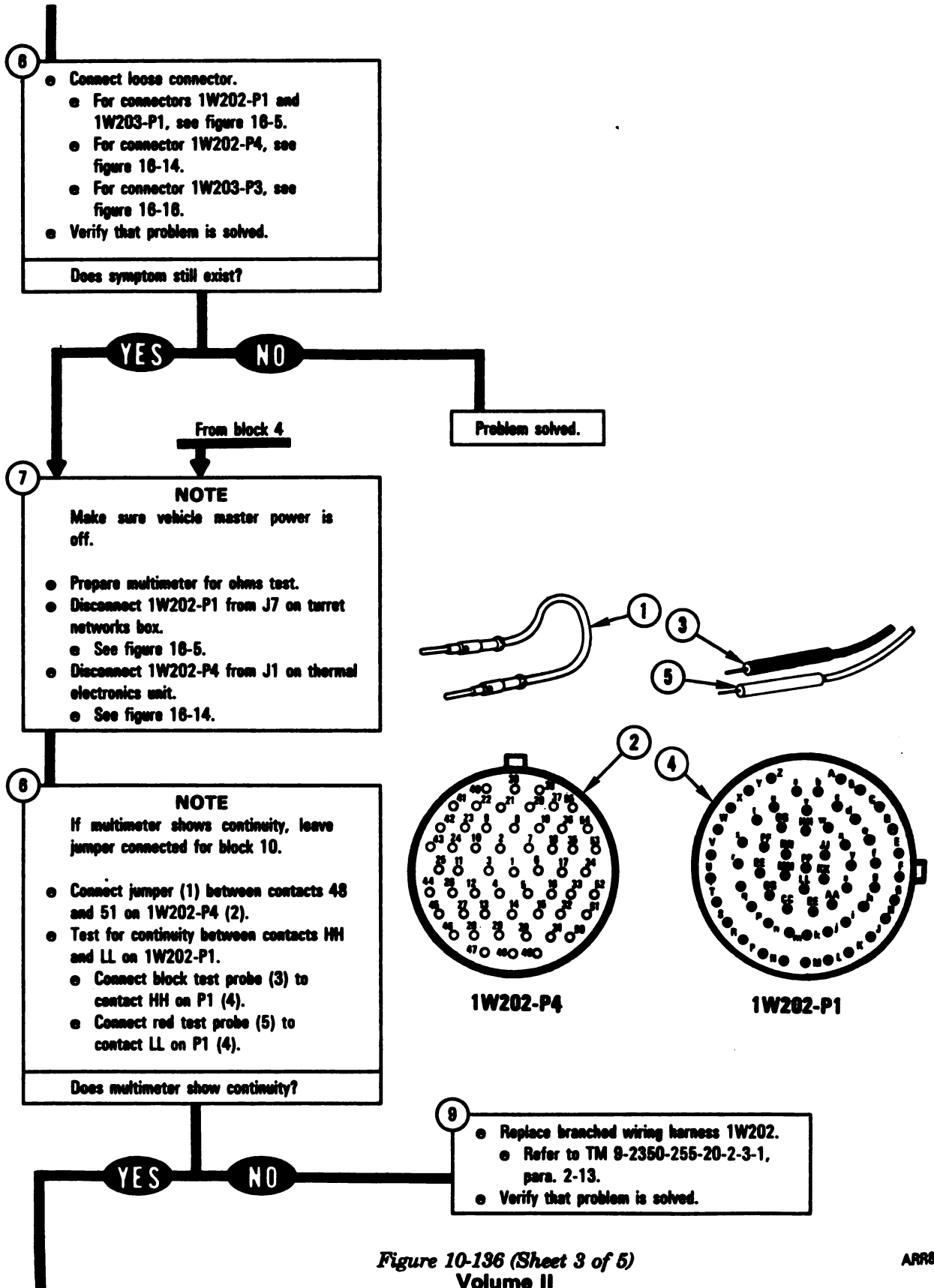
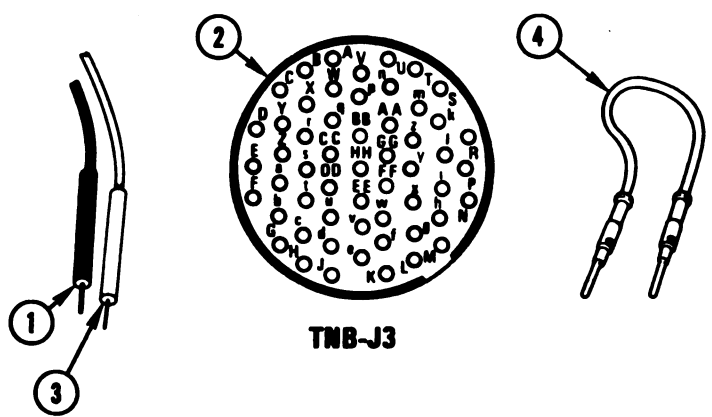


Figure 10-136 (Sheet 3 of 5)
Volume II
Para. 10-7

ARR82-863

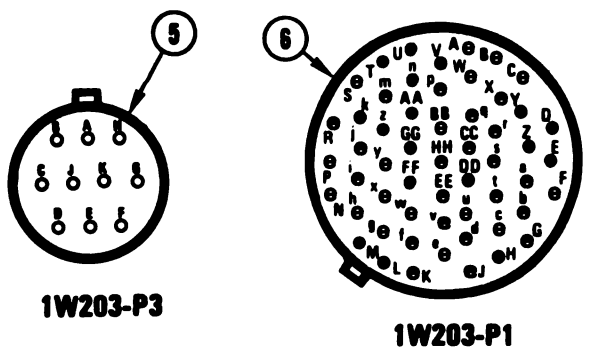
Disconnect 1W203-P1 from J3 on turret networks box.
 ● See figure 16-5.
 Connect 1W202-P1 to J7 on turret networks box.
 ● See figure 16-5.
 Test for continuity between contacts HH and W on turret networks box J3.
 ● Connect black test probe (1) to contact HH on J3 (2).
 ● Connect red test probe (3) to contact W on J3 (2).



Does multimeter show continuity?
YES **NO**

11 ● Connect 1W202-P4 to J1 on thermal electronics unit.
 ● See figure 16-14.
 ● Replace turret networks box.
 ● Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
 ● Verify that problem is solved.

● Disconnect 1W203-P3 from J1 on laser rangefinder.
 ● See figure 16-18.
 ● Connect jumper (4) between contacts F and G on 1W203-P3 (5).
 ● Test for continuity between contacts d and W on 1W203-P1.
 ● Connect black test probe (1) to contact d on P1 (8).
 ● Connect red test probe (3) to contact W on P1 (6).



Does multimeter show continuity?
YES **NO**

13 ● Connect 1W202-P4 to J1 on thermal electronics unit.
 ● See figure 16-14.
 ● Replace branched wiring harness 1W203.
 ● Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 ● Verify that problem is solved.

Figure 10-136 (Sheet 4 of 5)
Volume II
Para. 10-7

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

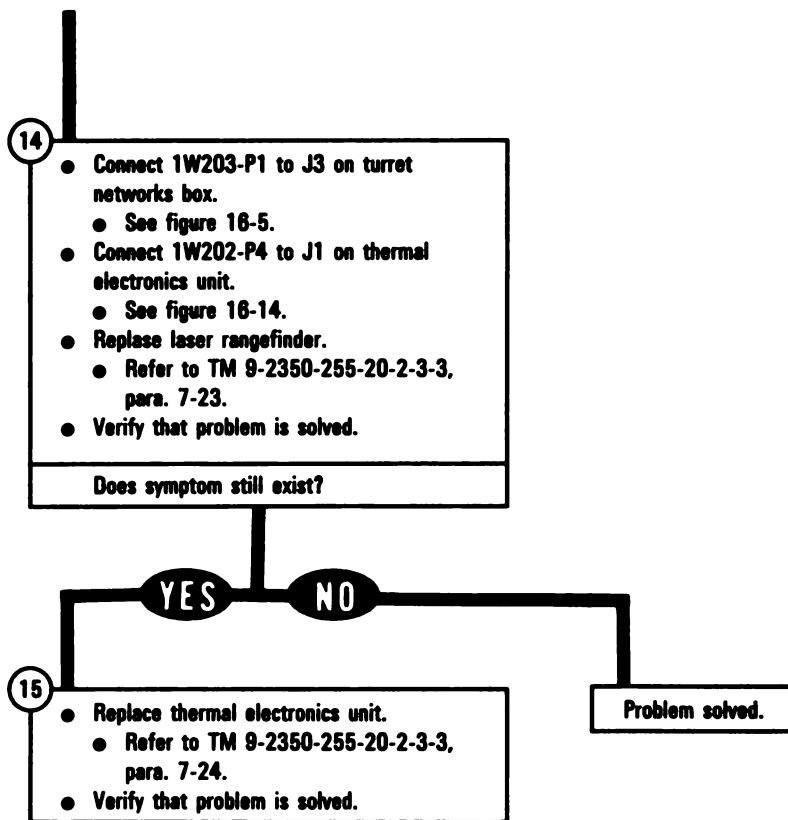


Figure 10-136 (Sheet 5 of 5)
Volume II
Para. 10-7

SYMPTOM TIS-6

LASER RANGEFINDER MULTIPLE RETURNS SYMBOL IS PRESENT IN GUNNER'S PRIMARY SIGHT WHENEVER TURRET POWER IS ON

Common Tools:

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

Supplies:

Connector Pin/Socket Adapters

Test Equipment/Special Tools:

- Multimeter

Equipment Condition:

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

NOTE

Read para. 10-1 before doing any work.

- Set up tank controls for standard initial test conditions.
- Refer to para. 16-6, table 16-2.

Figure 10-137 (Sheet 1 of 5)
Volume II
Para. 10-7

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

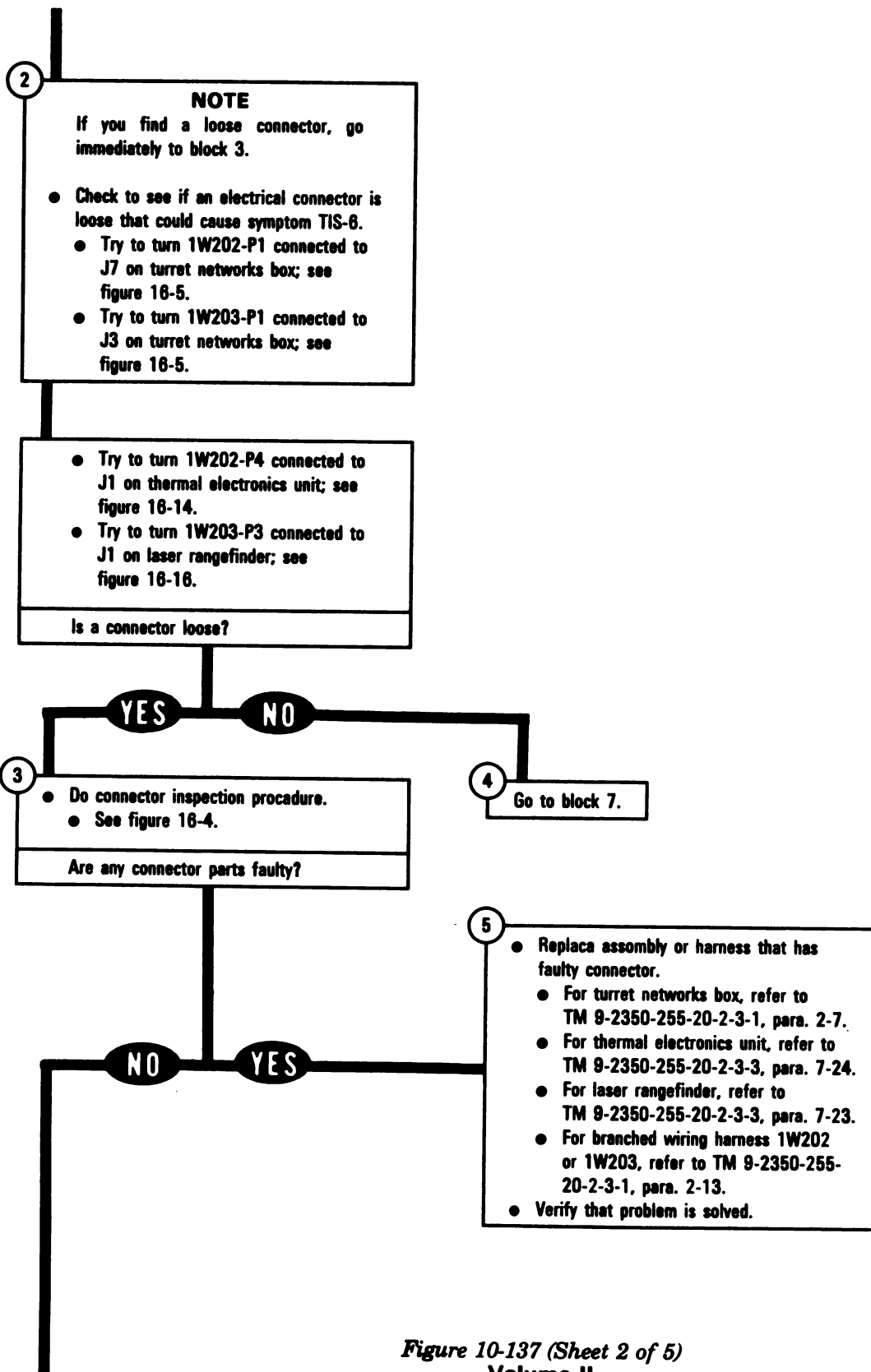


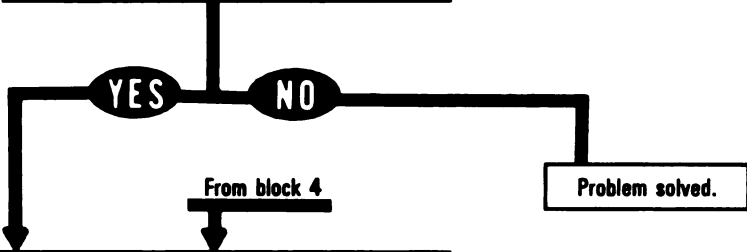
Figure 10-137 (Sheet 2 of 5)
Volume II
Para. 10-7

Connect loose connector.

- For connectors 1W202-P1 and 1W203-P1, see figure 16-5.
- For connector 1W202-P4, see figure 16-14.
- For connector 1W203-P3, see figure 16-16.

Verify that problem is solved.

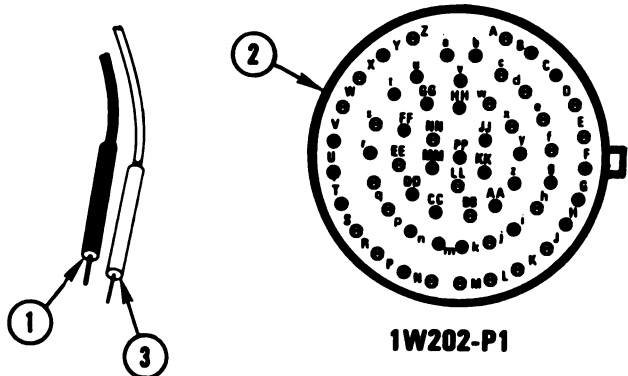
Does symptom still exist?



NOTE
Make sure vehicle master power is off.

- Disconnect 1W202-P4 from J1 on thermal electronics unit.
 - See figure 16-14.
- Disconnect 1W202-P1 from J7 on turret networks box.
 - See figure 16-5.
- Prepare multimeter for ohms test.

- Test for less than 5 ohms between contacts KK and LL on 1W202-P1.
 - Connect black test probe (1) to contact KK on P1 (2).
 - Connect red test probe (3) to contact LL on P1 (2).



Does multimeter show less than 5 ohms?

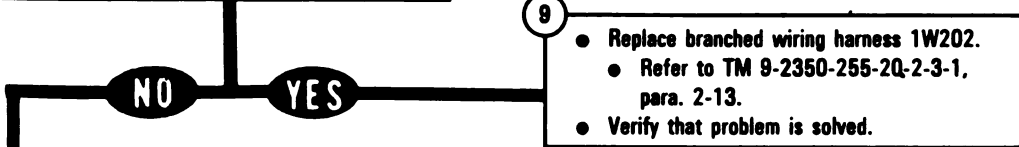


Figure 10-137 (Sheet 3 of 5)
Volume II
Para. 10-7

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

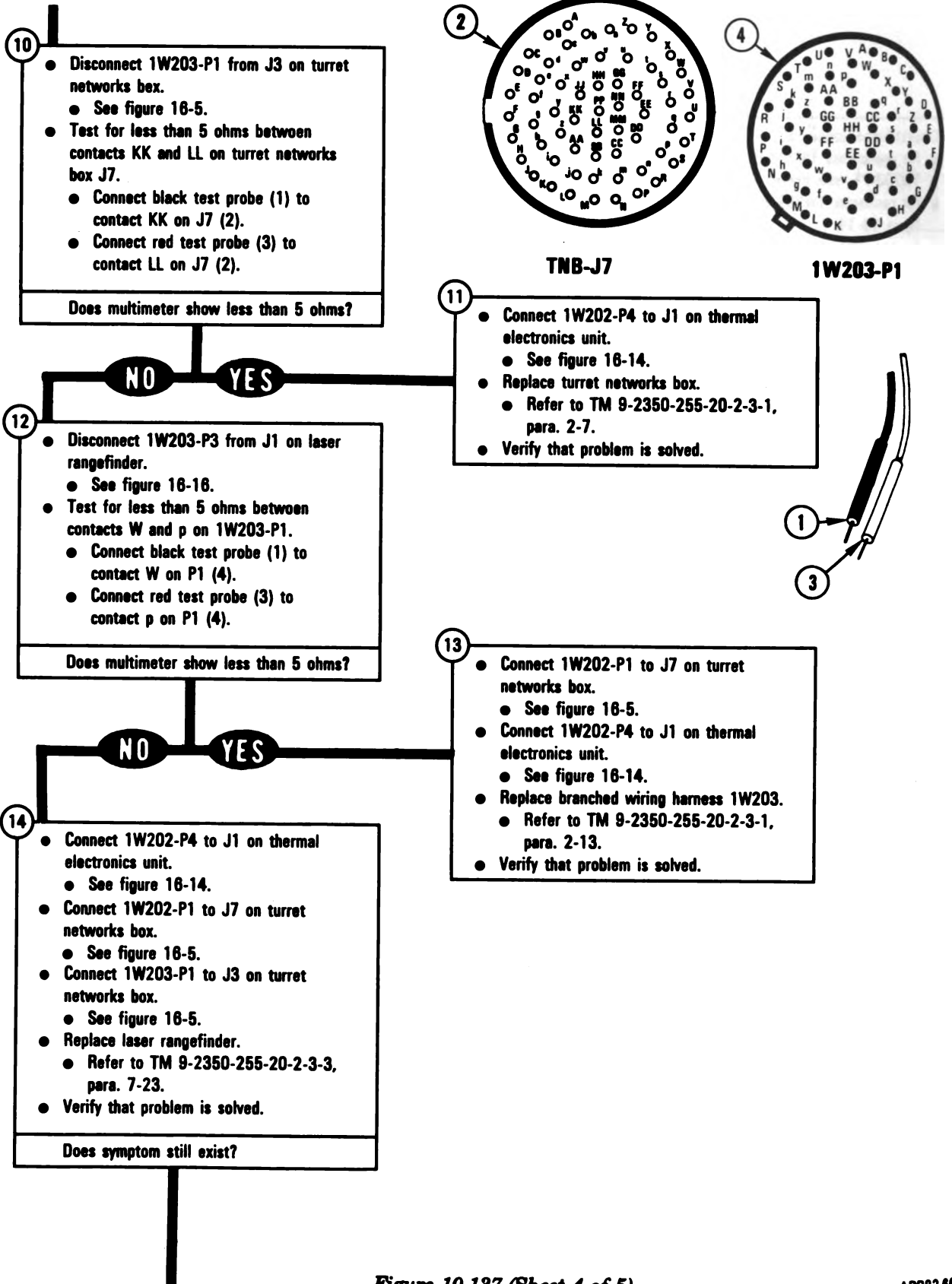


Figure 10-137 (Sheet 4 of 5)
**Volume II
Para. 10-7**

ARR82-8837

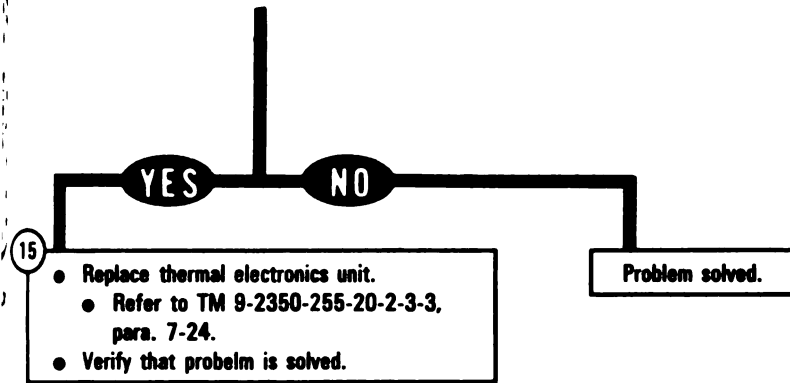


Figure 10-137 (Sheet 5 of 5)
Volume II
Para. 10-7

SYMPTOM TIS-7

**F SYMBOL IS NOT PRESENT IN GUNNER'S
PRIMARY SIGHT WHEN FIRE CONTROL
MALFUNCTION EXISTS**

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. 10-1 before doing any work.

1

- Set up tank controls for standard initial test conditions.
- Refer to para. 16-6, table 16-2.

Figure 10-138 (Sheet 1 of 4)
Volume II
Para. 10-7

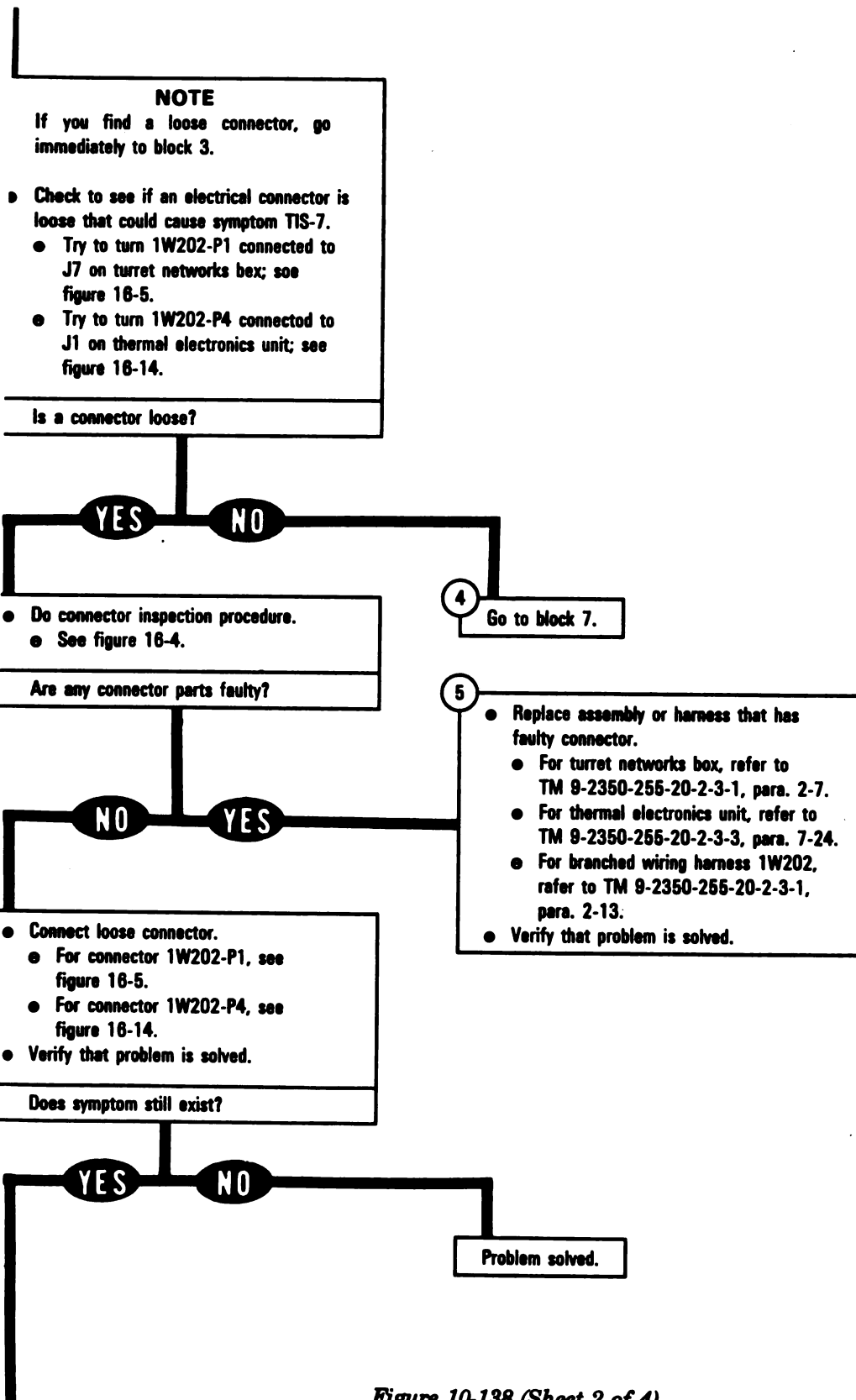


Figure 10-138 (Sheet 2 of 4)
 Volume II
 Para. 10-7

SYMPTOM TIS-7

**F SYMBOL IS NOT PRESENT IN GUNNER'S
PRIMARY SIGHT WHEN FIRE CONTROL
MALFUNCTION EXISTS**

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. 10-1 before doing any work.

1

- Set up tank controls for standard initial test conditions.
- Refer to para. 16-6, table 16-2.

Figure 10-138 (Sheet 1 of 4)
Volume II
Para. 10-7

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 TIS-7.
 - Try to turn 1W202-P1 connected to J7 on turret networks box; see figure 16-5.
 - Try to turn 1W202-P4 connected to J1 on thermal electronics unit; see figure 16-14.

Is a connector loose?

YES NO

- Do connector inspection procedure.
 - See figure 16-4.

4 Go to block 7.

Are any connector parts faulty?

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 thermal electronics unit, refer to TM 9-2350-255-20-2-3-3, para. 7-24.
 - For branched wiring harness 1W202, refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

- Connect loose connector.
 - For connector 1W202-P1, see figure 16-5.
 - For connector 1W202-P4, see figure 16-14.
- Verify that problem is solved.

Does symptom still exist?

YES NO

Problem solved.

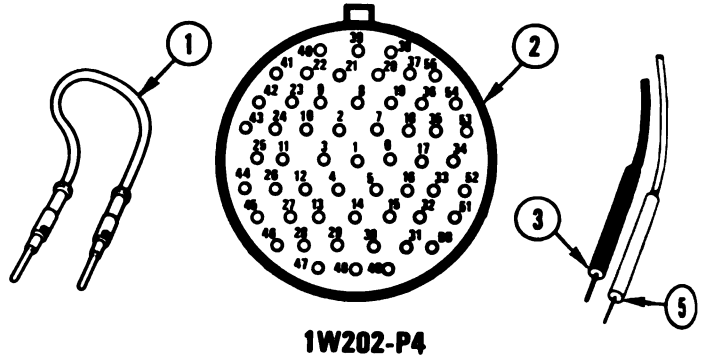
Figure 10-138 (Sheet 2 of 4)
 Volume II
 Para. 10-7

**TM 9-2350-255-20-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

From block 4

NOTE
Make sure vehicle master power is off.

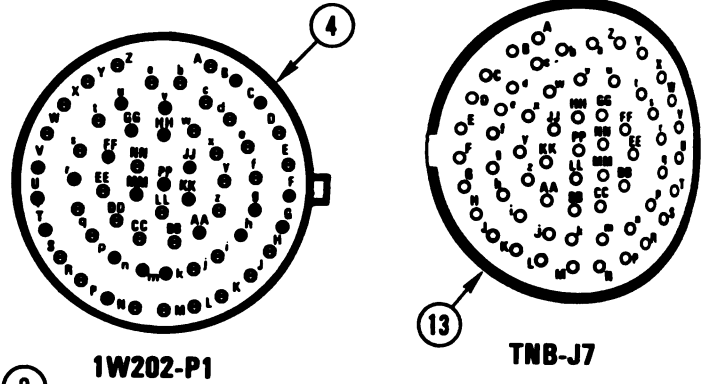
- Prepare multimeter for ohms test.
- Disconnect 1W202-P1 from J7 on turret networks box.
 - See figure 18-5.
- Disconnect 1W202-P4 from J1 on thermal electronics unit.
 - See figure 18-14.



8

- Connect jumper (1) between contacts 29 and 32 on 1W202-P4 (2).
- Test for continuity between contacts z and JJ on 1W202-P1.
 - Connect block test probe (3) to contact z on P1 (4).
 - Connect red test probe (5) to contact JJ on P1 (4).

Does multimeter show continuity?



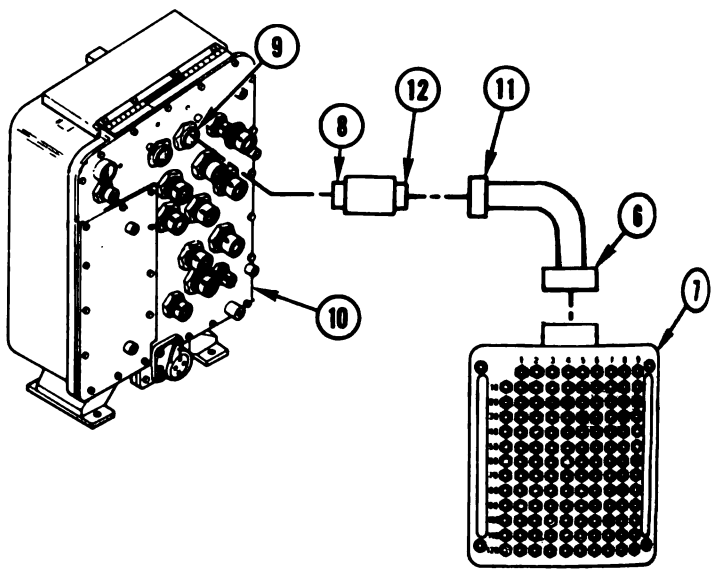
9

- Replace branched wiring harness 1W202.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

YES **NO**

10

- Connect breakout box to TEST 2 on turret networks box using CABLE NO. 1 and ADAPTER NO. 1.
 - Connect CABLE NO. 1-P1 (8) to breakout box (7).
 - Connect ADAPTER NO. 1-P1 (8) to TEST 2 (9) on turret networks box (10).
 - Connect CABLE NO. 1-P2 (11) to ADAPTER NO. 1-J1 (12).



11

- Test for continuity between test point 30 on breakout box and contact z on turret networks box J7.
 - Connect black test probe (3) to test point 30 on breakout box (7).
 - Connect red test probe (5) to contact z on J7 (13).

Does multimeter show continuity?

Figure 10-138 (Sheet 3 of 4)
Volume II
Para. 10-7

ARR82-6638

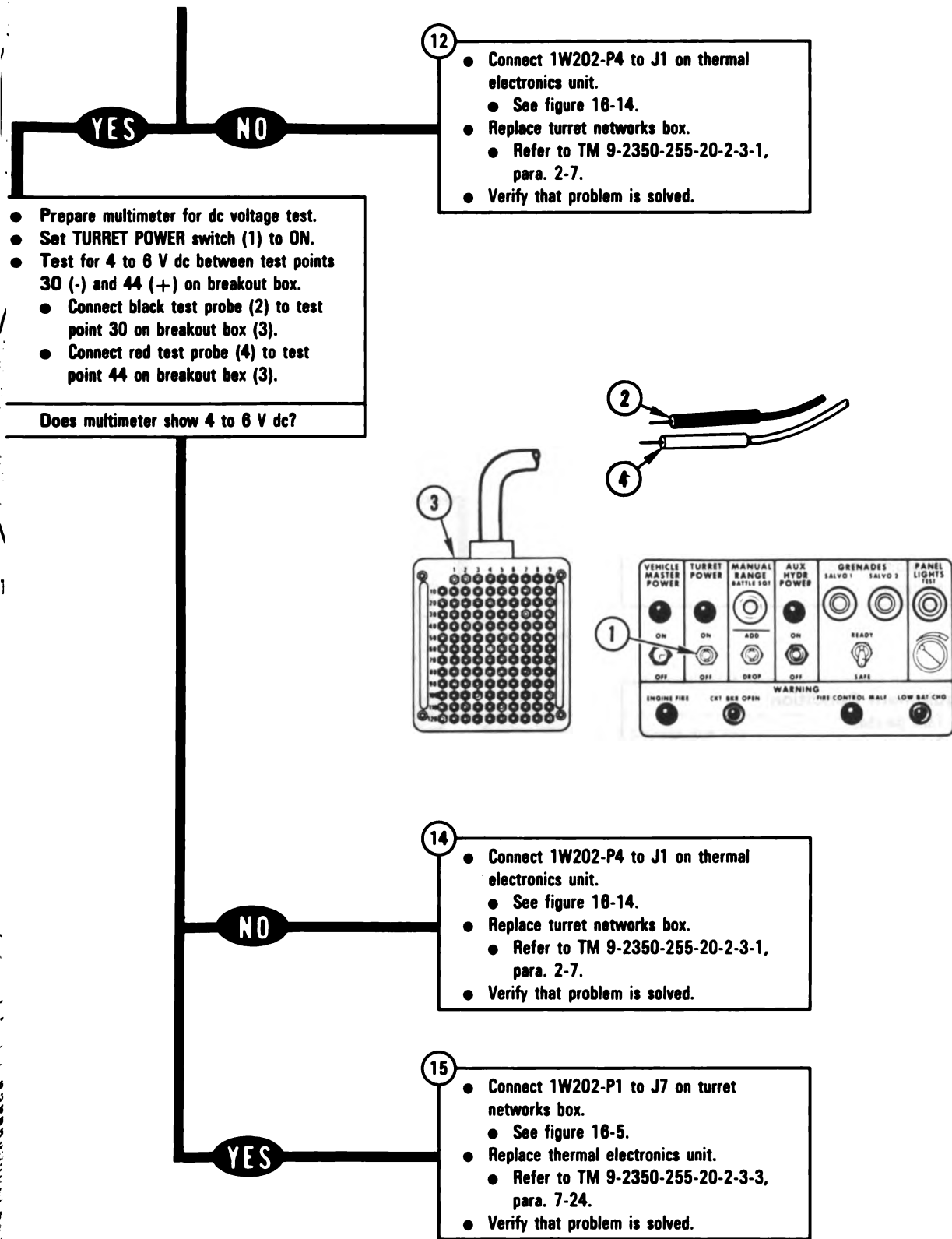


Figure 10-138 (Sheet 4 of 4)
Volume II
Para. 10-7

SYMPTOM TIS-8

**F SYMBOL IS PRESENT IN GUNNER'S
PRIMARY SIGHT WHEN NO FIRE CON-
TROL MALFUNCTION EXISTS**

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.

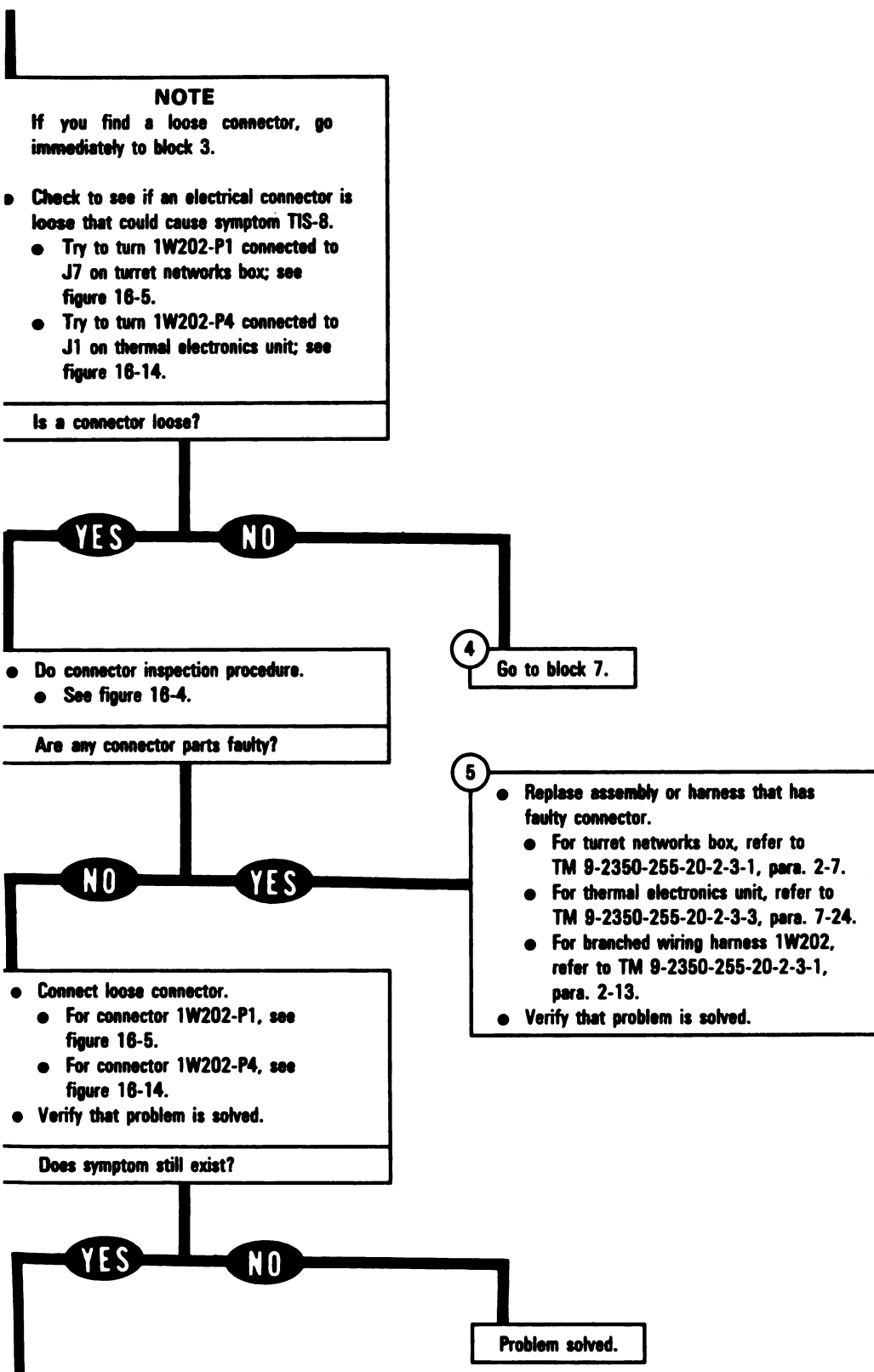
NOTE

Read para. 10-1 before doing any work.

1

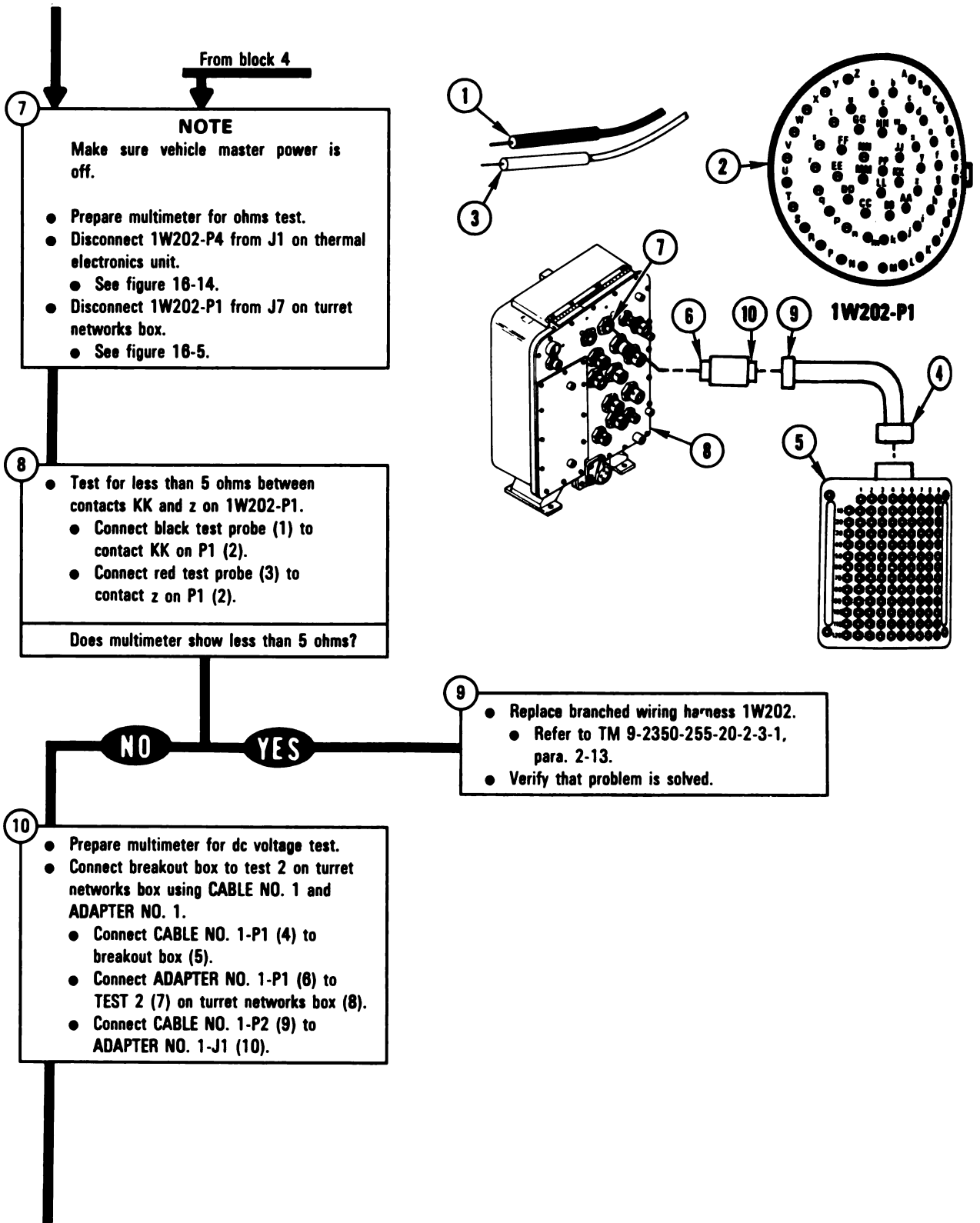
- Set up tank controls for standard initial test conditions.
- Refer to para. 16-8, table 16-2.

Figure 10-139 (Sheet 1 of 4)
Volume II
Para. 10-7



**Figure 10-139 (Sheet 2 of 4)
Volume II
Para. 10-7**

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

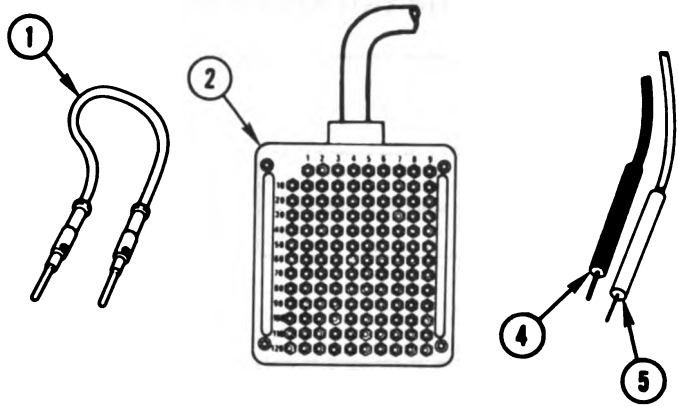


*Figure 10-139 (Sheet 3 of 4)
Volume II
Para. 10-7*

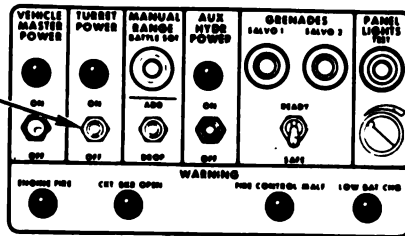
ARR62-6640

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

- Connect jumper (1) to test points 11 and 28 on breakout box (2).
- Set TURRET POWER switch (3) to ON.
- Test for 4 to 6 V dc between test points 30 (-) and 44 (+) on breakout box.
- Connect black test probe (4) to test point 30 on breakout box (2).
- Connect red test probe (5) to test point 44 on breakout box (2).



Does multimeter show 4 to 6 V dc?



NO

- 12
- Connect 1W202-P1 to J7 on turret networks box.
 - See figure 16-5.
 - Replace thermal electronics unit.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-24.
 - Verify that problem is solved.

YES

- 13
- Connect 1W202-P4 to J1 on thermal electronics unit.
 - See figure 16-14.
 - Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
 - Verify that problem is solved.

Figure 10-139 (Sheet 4 of 4)
Volume II
Para. 10-7

ARR82-6641

SYMPTOM TIS-9

**THERMAL IMAGING SYSTEM FAULT
LIGHT STAYS ON OR TRU READY LIGHT
STAYS OFF**

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. 10-1 before doing any work.

1

- Set up tank controls for standard initial test conditions.
- Refer to para. 16-6, table 16-2.

Figure 10-140 (Sheet 1 of 7)
Volume II
Para. 10-7

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 TIS-9.

- Try to turn 1W210-P1 connected to J2 on thermal power control unit; see figure 16-14.
- Try to turn 1W210-P3 connected to J4 on thermal receiver unit; see figure 16-16.

Is a connector loose?

YES

NO

- Do connector inspection procedure.
- See figure 16-4.

Are any connector parts faulty?

NO

YES

4

Go to block 7.

5

- Connect loose connector.
- For connector 1W210-P1, see figure 16-14.
- For connector 1W210-P3, see figure 16-16.
- Do thermal imaging system checkout.
- See figure 16-1.

6

- Replace assembly or harness that has faulty connector.
- For thermal power control unit, refer to TM 9-2350-255-20-2-3-3, para. 7-24.
- For thermal receiver unit, refer to TM 9-2350-255-20-2-3-3, para. 7-24.
- For branched wiring harness 1W210, refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Do thermal imaging system checkout.
- See figure 16-1.

Figure 10-140 (Sheet 2 of 7)
Volume II
Para. 10-7

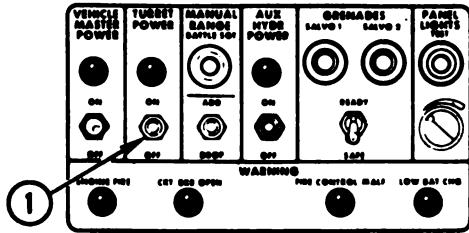
TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

From block 4

7

- Set TURRET POWER switch (1) to ON.
- Set FLTR/CLEAR/SHTR switch (2) on gunner's primary sight lower panel (3) to SHTR.
- Set THERMAL MODE switch (4) to STBY.
- Set UNIT TEST PATTERN switch (5) on image control unit (8) to PCU.
- Check FAULT light (7) after a 5 second delay.

Does FAULT light stay on?



NO YES

9

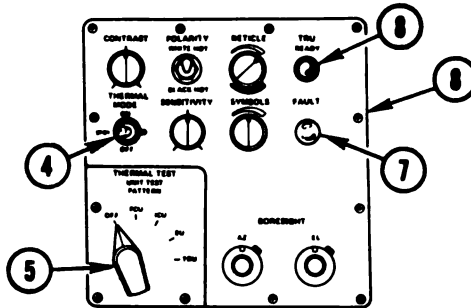
NOTE
Check the time and write it down for later use.

- Set UNIT TEST PATTERN switch (5) to ICU.
- Check FAULT light (7) after a 5 second delay.

Does FAULT light stay on?

8

- Replace thermal power control unit.
- Refer to TM 9-2350-255-20-2-3-3, para. 7-24.
- Do thermal imaging system checkout.
- See figure 16-1.



NO YES

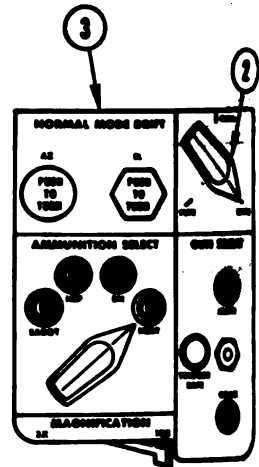
10

- Set THERMAL MODE switch (4) to ON.
- Set UNIT TEST PATTERN switch (5) to EU.
- Check FAULT light (7) after a 5 second delay.

Does FAULT light stay on?

11

Go to block 21.



NO YES

13

NOTE
Make sure 15 minutes have passed, since completing block 9.

- Check TRU READY light (8).

Is TRU READY light on?

12

- Replace thermal electronics unit.
- Refer to TM 9-2350-255-20-2-3-3, para. 7-24.
- Do thermal imaging system checkout.
- See figure 16-1.

Figure 10-140 (Sheet 3 of 7)
Volume II
Para. 10-7

ARR82-6642

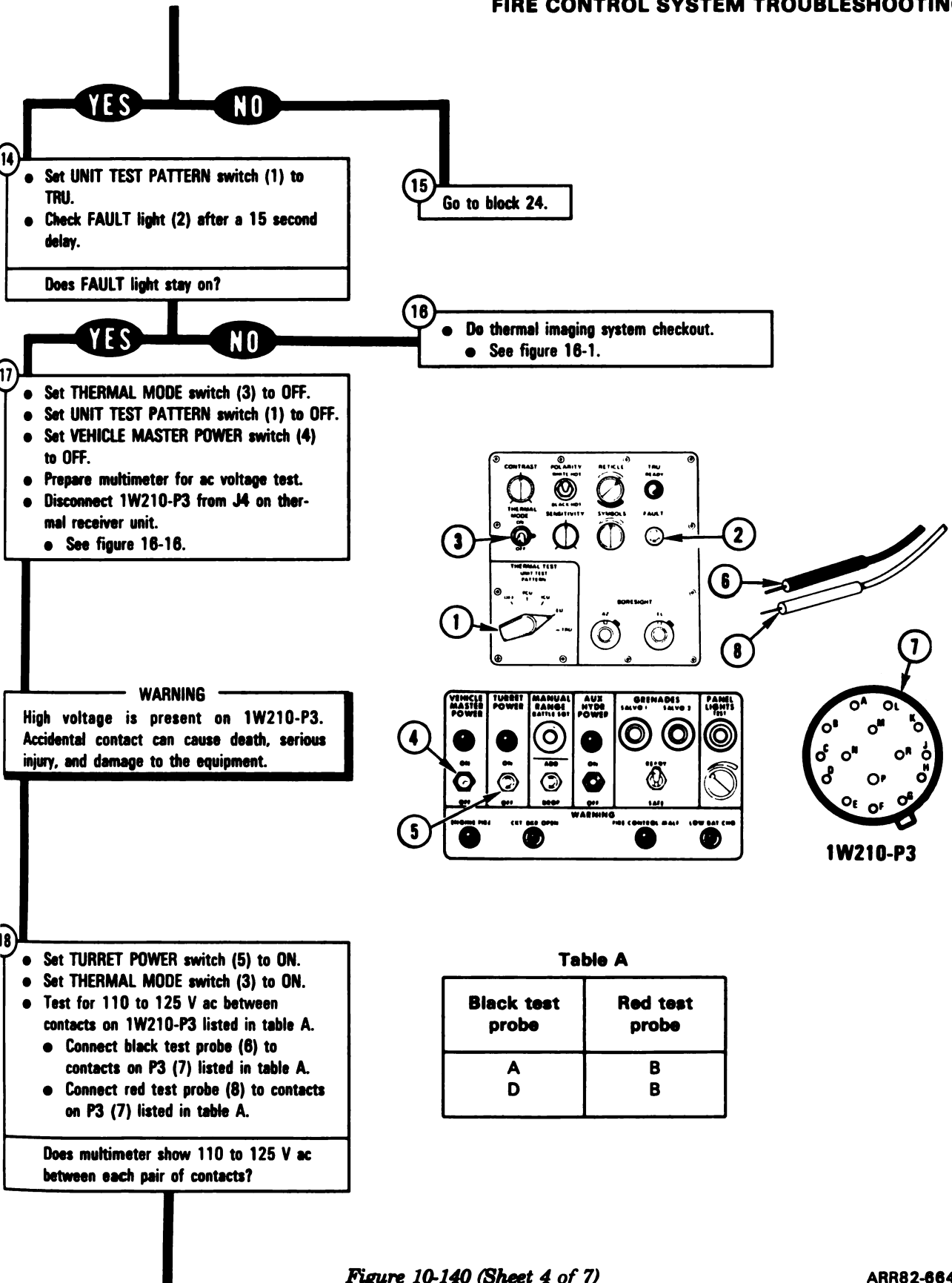


Figure 10-140 (Sheet 4 of 7)
Volume II
Para. 10-7

ARR82-6643

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

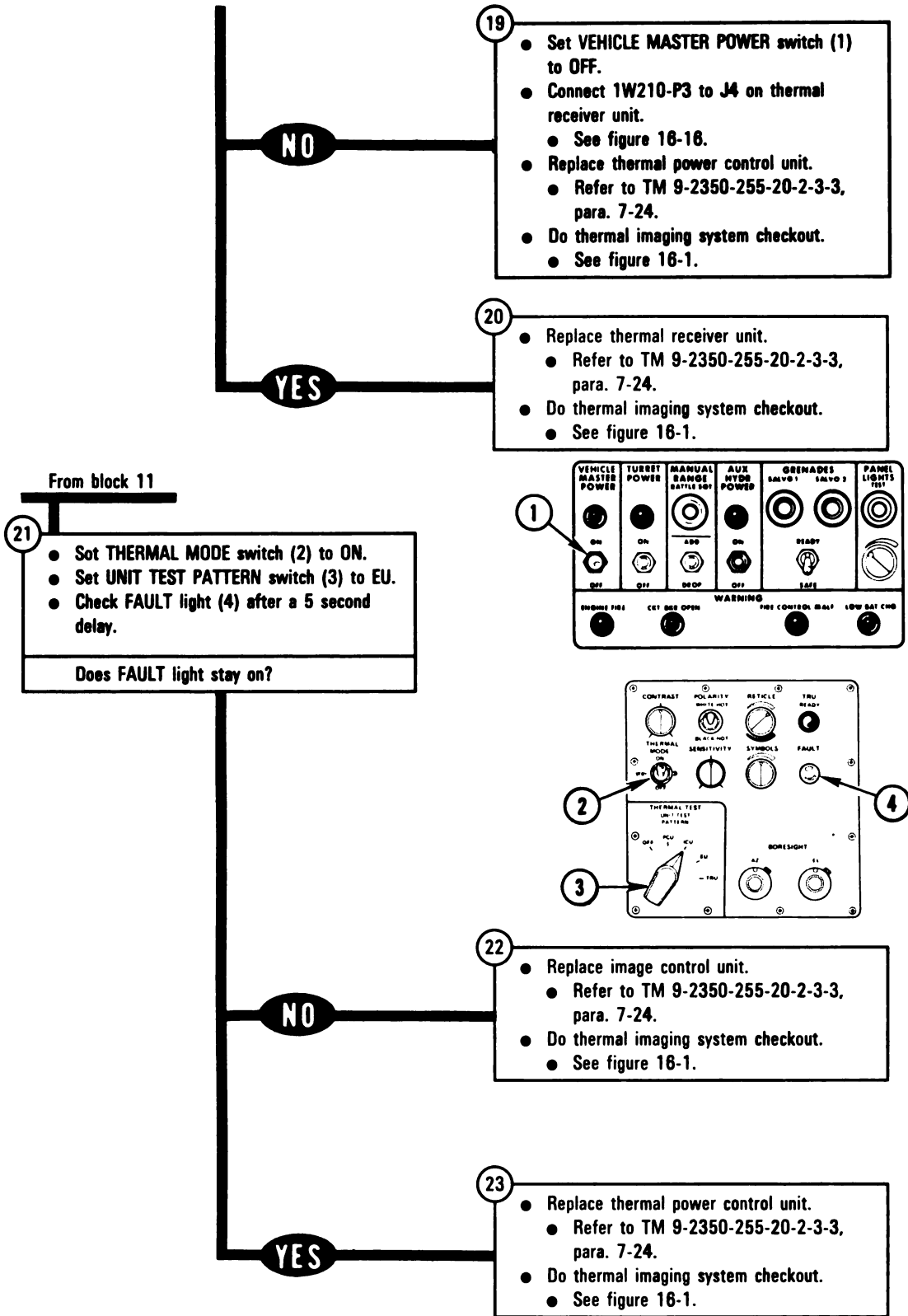


Figure 10-140 (Sheet 5 of 7)
Volume II
Para. 10-7

ARR82-6644

Block 15

Check FAULT light (1) after a 15 second delay.

Does FAULT light stay on?

NO **YES**

- 25
- Replace thermal power control unit.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-24.
 - Do thermal imaging system checkout.
 - See figure 16-1.

Set THERMAL MODE switch (2) to OFF.

Set vehicle MASTER POWER switch (3) to OFF.

Prepare multimeter for ohms test.

Disconnect 1W210-P1 from J2 on thermal power control unit.

- See figure 16-14.

Disconnect 1W210-P3 from J4 on thermal receiver unit.

- See figure 16-16.

Table B

Jumper	Black test probe	Red test probe
A and B	A	C
C and D	B	W
K and L	S	T
M and N	U	V

Connect jumper (4) between contacts on 1W210-P3 (5) listed in table A.

NOTE

If multimeter does not show continuity, go immediately to block 28.

Test for continuity between contacts on 1W210-P1 listed in table B.

- Connect black test probe (6) to contacts on P1 (7) listed in table B.
- Connect red test probe (8) to contacts on P1 (7) listed in table B.

Does multimeter show continuity between each pair of contacts?

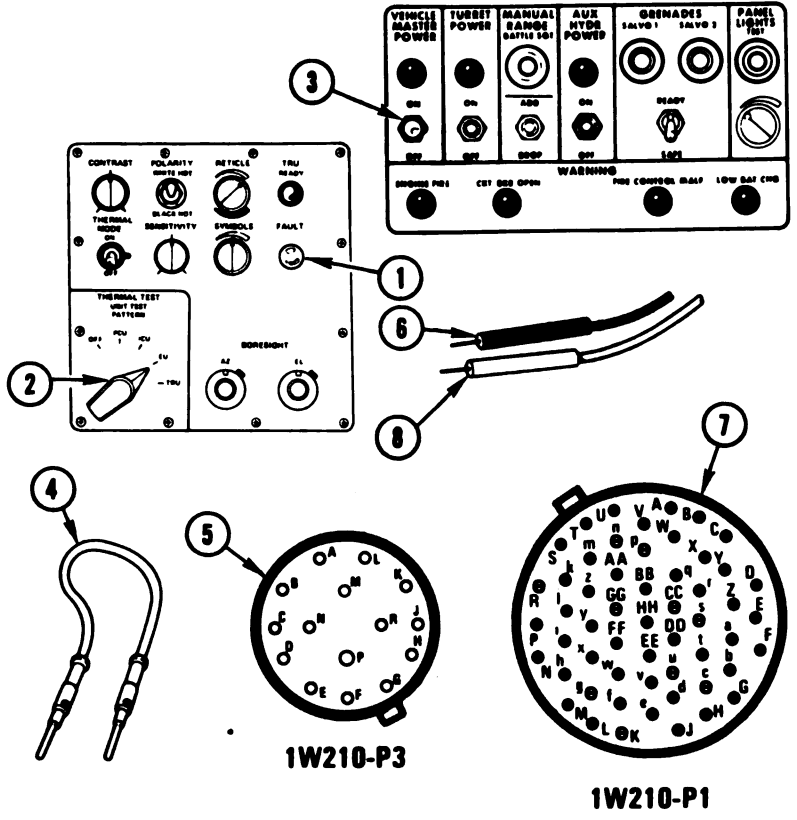


Figure 10-140 (Sheet 6 of 7)
Volume II
Para. 10-7

ARR82-6645

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

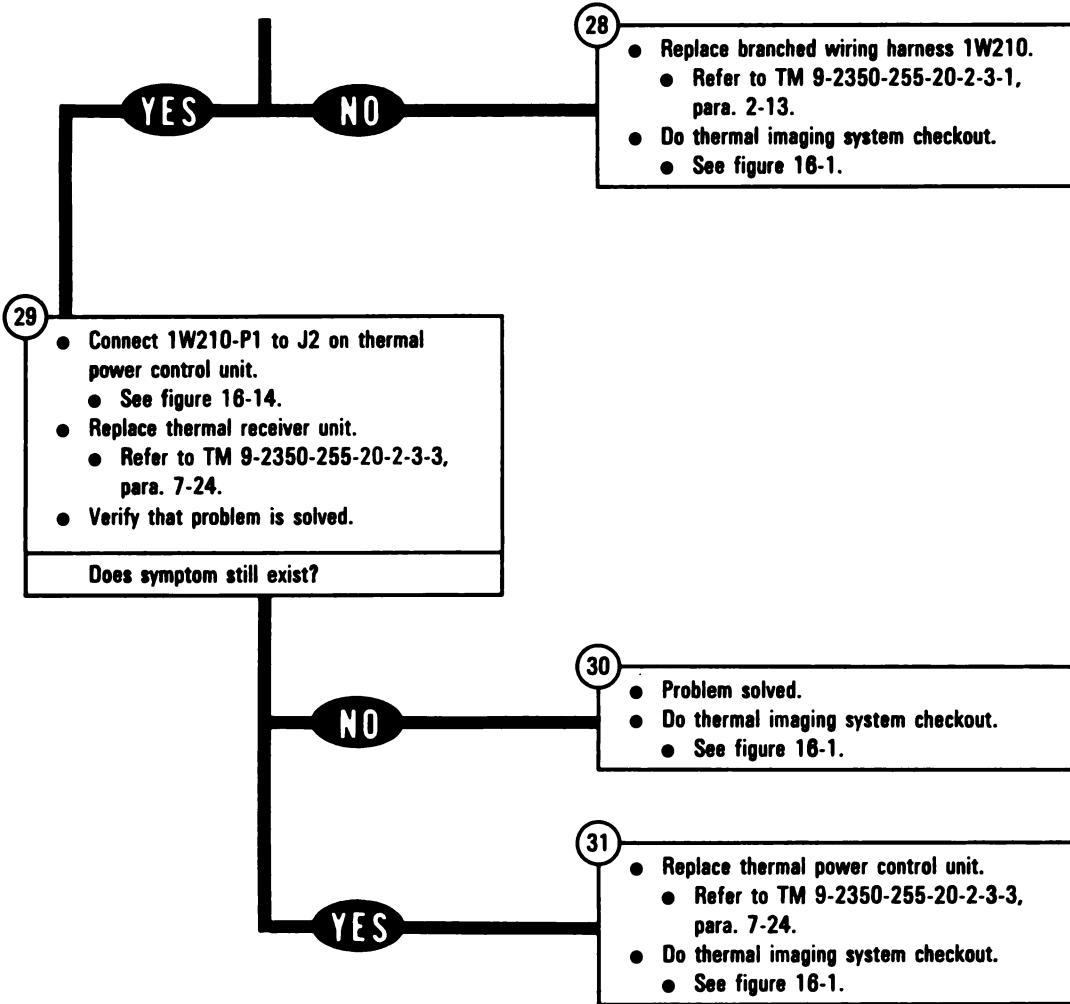


Figure 10-140 (Sheet 7 of 7)
Volume II
Para. 10-7

SYMPTOM TIS-10

CANNOT ALIGN THERMAL IMAGING SYSTEM RETICLE WITH GUNNER'S PRIMARY SIGHT BORESIGHT AIMING POINT

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.

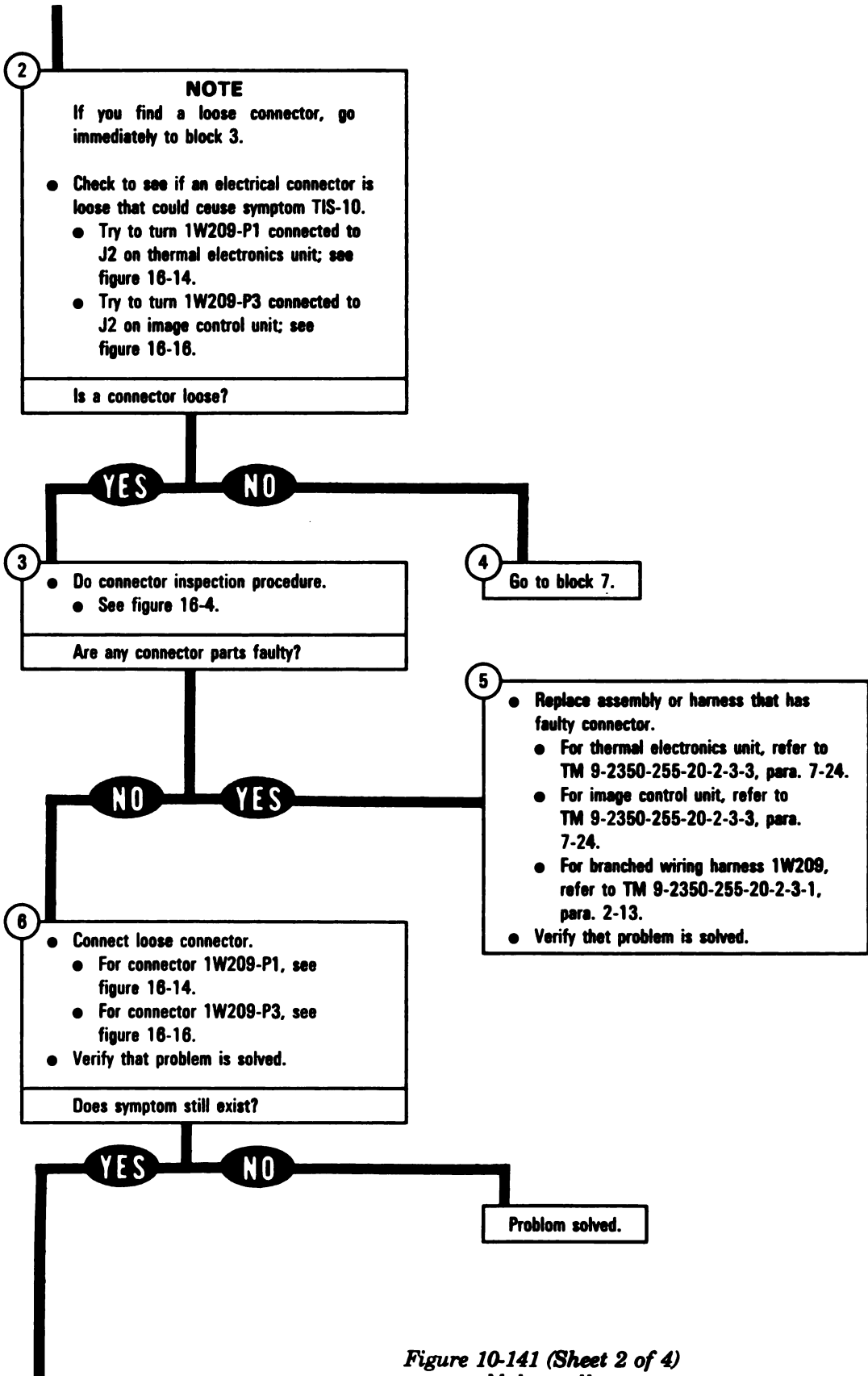
NOTE

Read para. 10-1 before doing any work.

- Set up tank controls for standard initial test conditions.
- Refer to para. 16-6, table 16-2.

Figure 10-141 (Sheet 1 of 4)
Volume II
Para. 10-7

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**



*Figure 10-141 (Sheet 2 of 4)
Volume II
Para. 10-7*

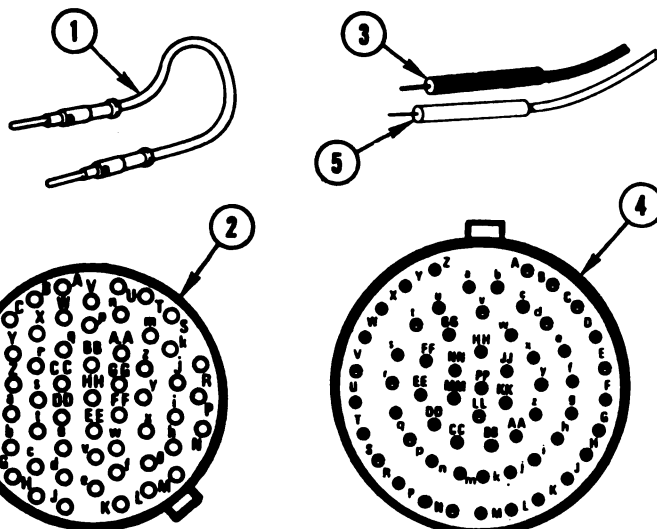
From block 4

NOTE

Make sure vehicle master power is off.

Prepare multimeter for ohms test.
Disconnect 1W209-P1 from J2 on thermal electronics unit.

- See figure 16-14.
- Disconnect 1W209-P3 from J2 on image control unit.
- See figure 16-16.



1W209-P3

Table A

1W209-P1

Jumper	Black test probe	Red test probe
CC and DD EE and FF GG and HH	J AA i	L j K

Connect jumper (1) between contacts on 1W209-P3 (2) listed in table A.

Test for continuity between contacts on 1W209-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?

YES

NO

9

- Replace branched wiring harness 1W209.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

Prepare multimeter for ohms test.

NOTE

If multimeter shows less than 5 ohms, go immediately to block 11.

Test for less than 5 ohms between contacts on 1W209-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 less than 5 ohms?

Table B

Black test probe	Red test probe
J	AA
K	AA
L	AA
L	J
i	AA
j	AA
j	J
j	L

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

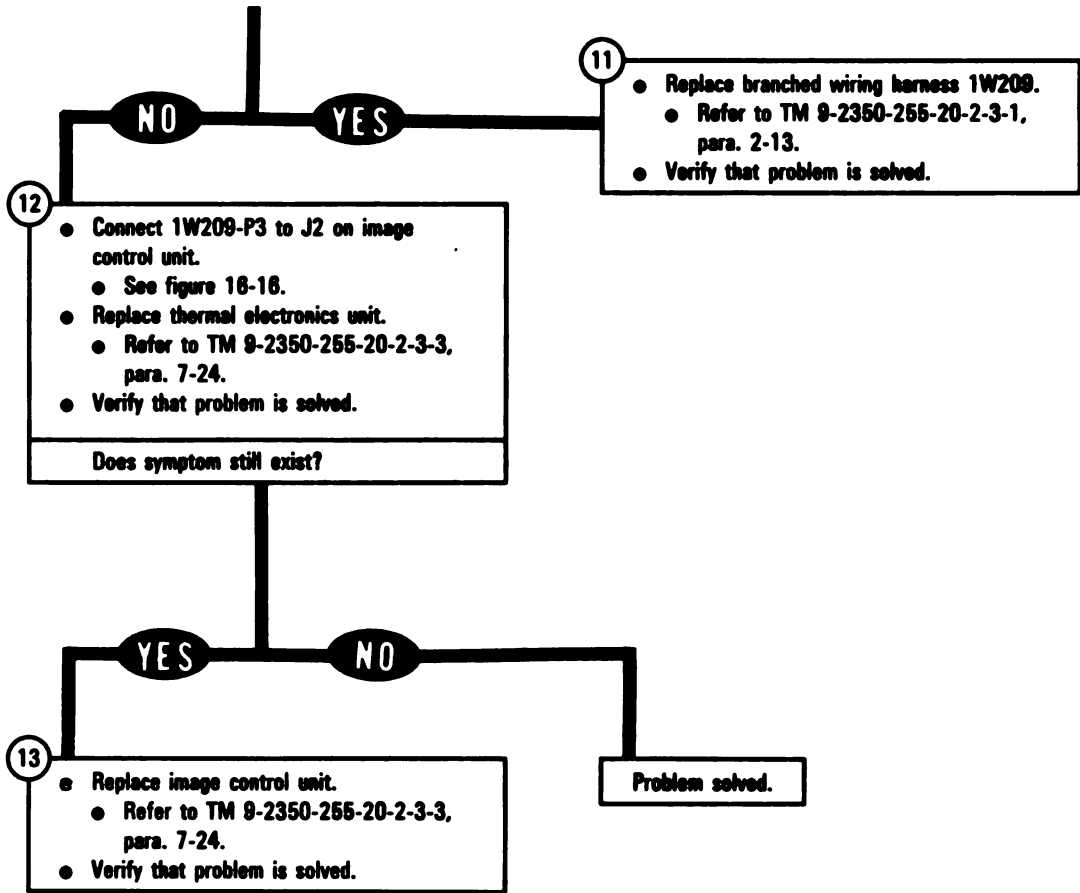


Figure 10-141 (Sheet 4 of 4)
Volume II
Para. 10-7

SYMPTOM TIS-11

**CONTRAST CONTROL ON THERMAL
IMAGING SYSTEM IMAGE CONTROL UNIT
DOES NOT PROVIDE PROPER CONTRAST
ADJUSTMENT**

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. 10-1 before doing any work.

- 1
- Set up tank controls for standard initial test conditions.
 - Refer to para. 16-6, table 16-2.

Figure 10-142 (Sheet 1 of 4)
Volume II
Para. 10-7

**TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING**

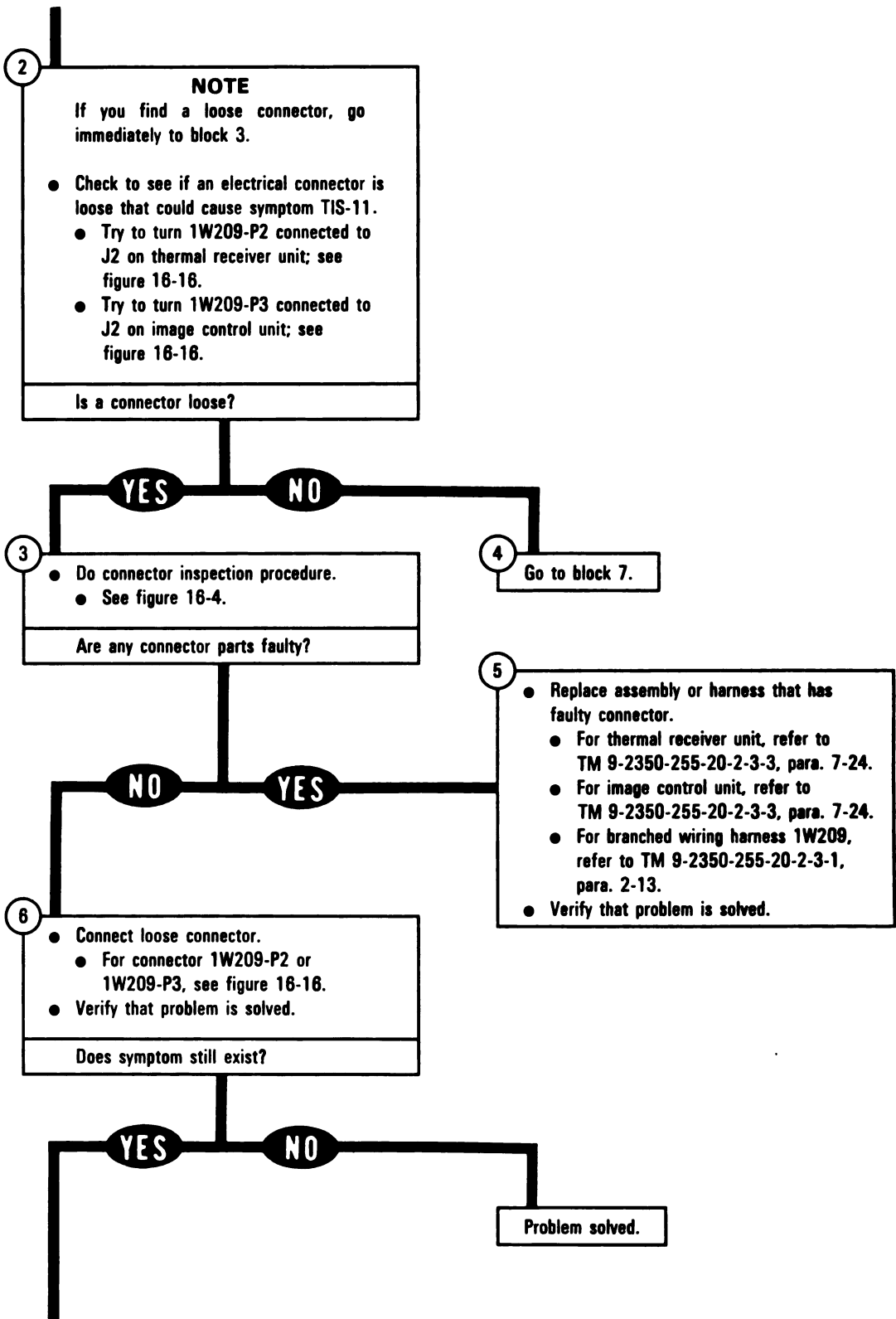
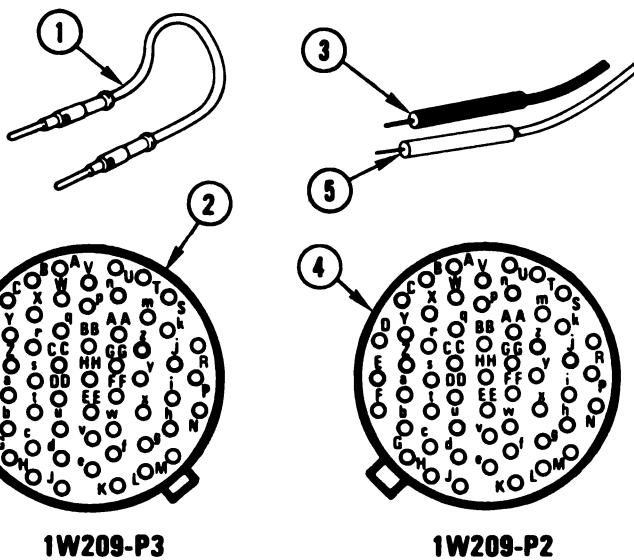


Figure 10-142 (Sheet 2 of 4)
**Volume II
Para. 10-7**

From block 4

NOTE
Make sure vehicle master power is off.

- Prepare multimeter for ohms test.
- Disconnect 1W209-P2 from J2 on thermal receiver unit.
 - See figure 16-16.
- Disconnect 1W209-P3 from J2 on image control unit.
 - See figure 16-16.



8

- Connect jumper (1) between contacts on 1W209-P3 (2) listed in table A.
- Test for continuity between contacts on 1W209-P2 listed in table A.
 - Connect black test probe (3) to contacts on P2 (4) listed in table A.
 - Connect red test probe (5) to contacts on P2 (4) listed in table A.

Does multimeter show continuity between each pair of contacts?

Table A

Jumper	Black test probe	Red test probe
w and x y and z	C B	FF X

YES **NO**

9

- Replace branched wiring harness 1W209.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

10

- Prepare multimeter for ohms test.

NOTE
If multimeter shows less than 5 ohms, go immediately to block 11.

- Test for less than 5 ohms between contacts on 1W209-P2 listed in table B.
 - Connect black test probe (3) to contacts on P2 (4) listed in table B.
 - Connect red test probe (5) to contacts on P2 (4) listed in table B.

Does multimeter show less than 5 ohms?

Table B

Black test probe	Red test probe
B	C
B	X
C	X
h	B
h	C
h	X

Figure 10-142 (Sheet 3 of 4)
Volume II
Para. 10-7

ARR82-6647

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

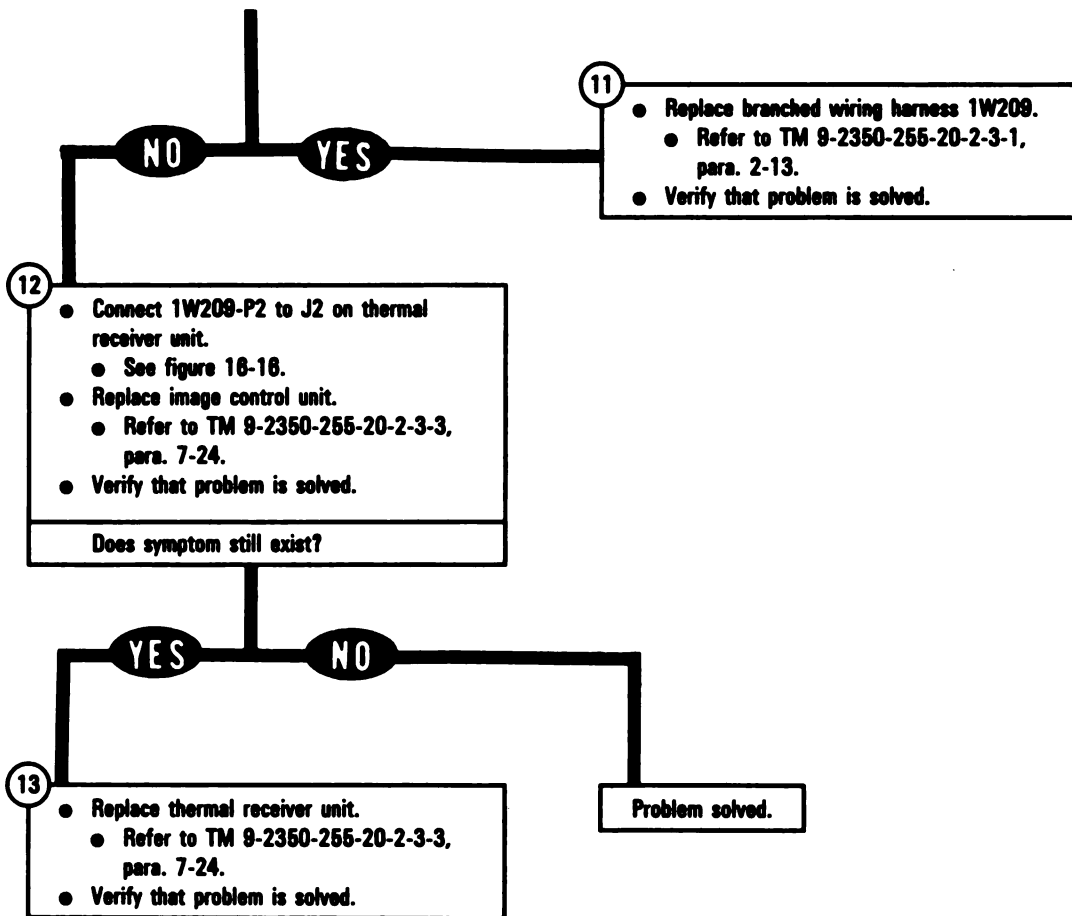


Figure 10-142 (Sheet 4 of 4)
Volume II
Para. 10-7

SYMPTOM TIS-12

**THERMAL IMAGING SYSTEM RETICLE
DOES NOT PROVIDE PROPER LEAD
ANGLE**

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. 10-1 before doing any work.

- Set up tank controls for standard initial test conditions.
- Refer to para. 16-6, table 16-2.

Figure 10-143 (Sheet 1 of 4)
Volume II
Para. 10-7

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

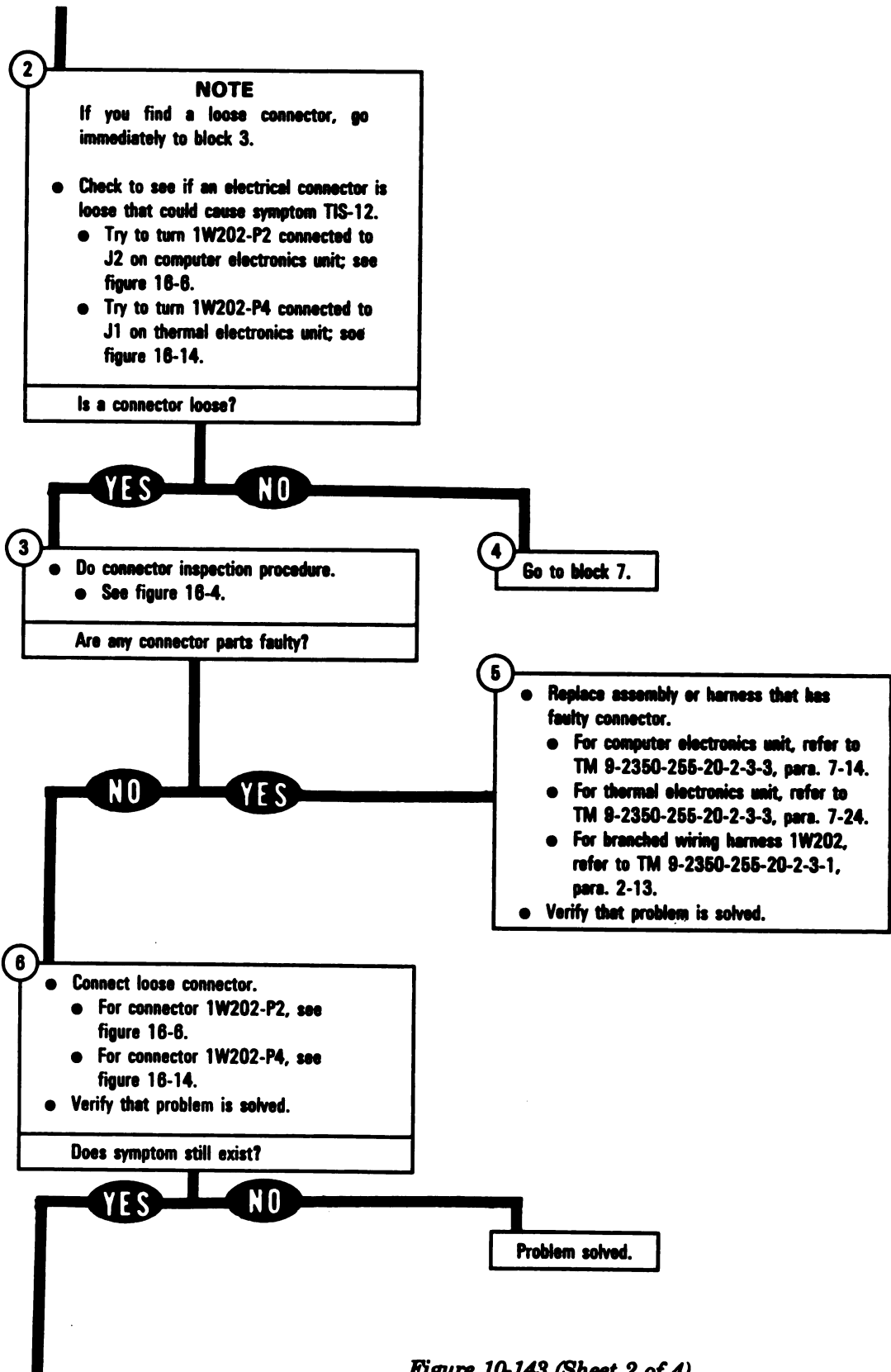


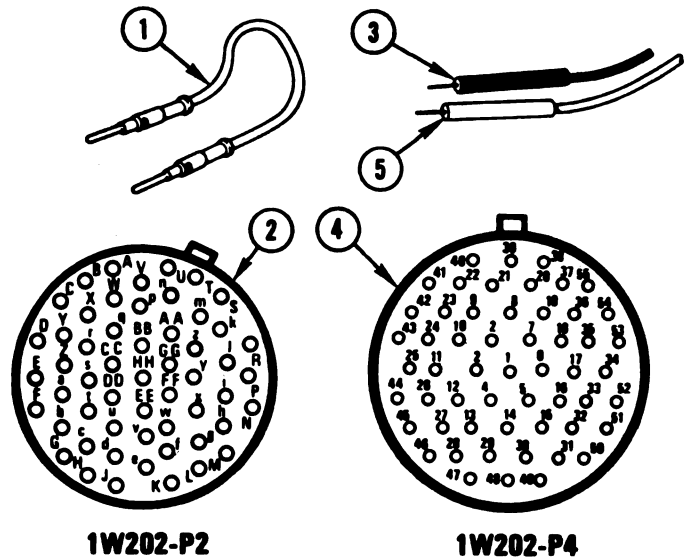
Figure 10-143 (Sheet 2 of 4)
Volume II
Para. 10-7

From block 4

7

NOTE
Make sure vehicle master power is off.

- Prepare multimeter for ohms test.
- Disconnect 1W202-P4 from J1 on thermal electronics unit.
 - See figure 18-14.
- Disconnect 1W202-P2 from J2 on computer electronics unit.
 - See figure 18-8.



8

- Connect jumper (1) to contacts on 1W202-P2 (2) listed in table A.
- Test for continuity between contacts on 1W202-P4 listed in table A.
 - Connect black test probe (3) to contacts on P4 (4) listed in table A.
 - Connect red test probe (5) to contacts on P4 (4) listed in table A.

Does multimeter show continuity between each pair of contacts?

Table A

Jumper	Black test probe	Red test probe
K and f	30	49
L and g	31	50

YES NO

9

- Replace branched wiring harness 1W202.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

10

- Prepare multimeter for ohms test.

NOTE
If multimeter shows less than 5 ohms, go immediately to block 11.

- Test for less than 5 ohms between contacts on 1W202-P2 listed in table B.
 - Connect black test probe (3) to contacts on P2 (2) listed in table B.
 - Connect red test probe (5) to contacts on P2 (2) listed in table B.

Does multimeter show less than 5 ohms?

Table B

Black test probe	Red test probe
K	f
L	g
M	K
M	L
M	f
M	g

Figure 10-143 (Sheet 3 of 4)
Volume II
Para. 10-7

TM 9-2350-255-20-2-2-2
FIRE CONTROL SYSTEM TROUBLESHOOTING

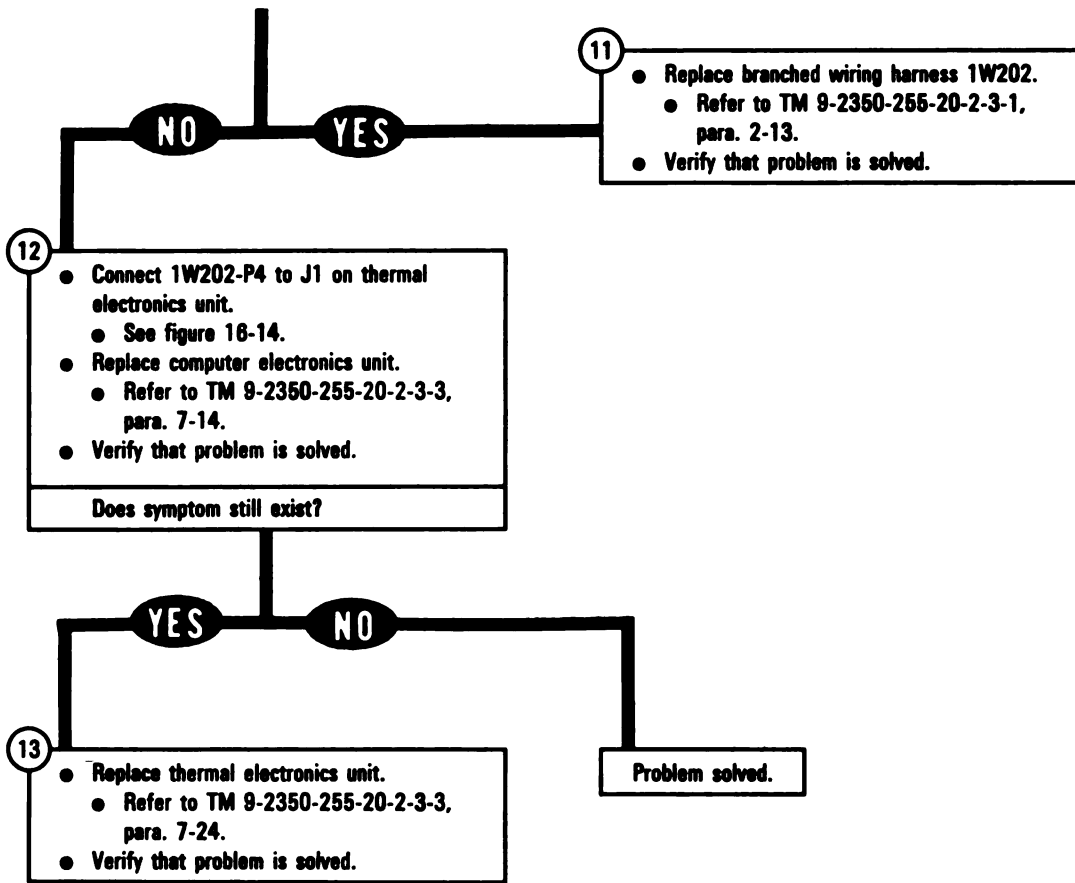


Figure 10-143 (Sheet 4 of 4)
Volume II
Para. 10-7

CHAPTER 11
COMMANDER'S WEAPON STATION SYSTEM TROUBLESHOOTING

- General.** This chapter tells you how to troubleshoot the commander's weapon station system.
- STE-M1/FVS test set (referred to as STE),** is used to troubleshoot the entire commander's weapon station system. For a detailed description of the STE test set, refer to paragraph 15-4.
- Alt symptom index** is located at the beginning of paragraph 11-2. The index identifies the primary alternate procedure used to troubleshoot a known fault symptom. The primary procedure is listed within the paragraph. When the STE test set is not available, use the alternate procedure listed 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.
- Of eight types of messages** will be displayed on the STE test set communicator (SETCOM). Cable function 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 paragraph 15-4. STE test set hookup diagrams show how the test set is connected to the tank for 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:
 - 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.
 - If the same symptom exists** after replacing a tank component, repeat the troubleshooting procedure.
 - Look for obvious damage** to harnesses and all surrounding components while checking for loose electrical connectors.
 - Use slip joint conduit style pliers** with plastic jaw inserts to loosen connectors that cannot be loosened by hand.
 - 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.
 - Connect all cables and harnesses** that were disconnected in order to get at the connector being checked.
 - Use care when hooking up all connectors** to avoid bending or breaking pins. Use hands only to tighten connectors.
 - Cap all electrical connectors** that are taken off during troubleshooting.
 - Be sure to close grille doors** and access panels before traversing the turret.
 - Be sure tank is parked** where it is safe to start engine and traverse the turret.
 - Be sure vehicle master power is off** before connecting or disconnecting any electrical cable or harness.

TM 9-2350-255-20-2-2-2
COMMANDER'S WEAPON STATION SYSTEM TROUBLESHOOTING

11-1 General (Continued)

- 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 para. 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, 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 commander's weapon station 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.

Commander's Weapon Station System Troubleshooting Procedures

**Table 11-1. Commander's Weapon Station (CWS) System
 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
VS-1	Commander's Weapon Station Does Not Traverse In POWER Mode. MANUAL Mode OK	Figure 11-1	1300	Figure 18-98
VS-2	Commander's Weapon Station Traverses With Only Commander's Power Control Handle Palm Switch Pressed	Figure 11-1	1300	Figure 18-99
VS-3	Commander's Weapon Station Traverse Speed Increases To A High Rate With Slight Movement Of Commander's Power Control Handle Thumb Control	Figure 11-1	1300	Figure 18-100
VS-4	Commander's Weapon Station Does Not Track Smoothly At Low Speeds	Figure 11-1	1300	Figure 18-101
VS-5	Commander's Weapon Station Traverses In Only One Direction In POWER MODE	Figure 11-1	1300	Figure 18-102
VS-6	Commander's Weapon Station Traverses With Only Commander's Power Control Handle Thumb Control Moved	Figure 11-1	1300	Figure 18-103
VS-7	Commander's Weapon Station Does Not Move or Move Smoothly In MANUAL Mode. POWER Mode OK	Figure 11-1		

SYMPTOMS CWS-1 THROUGH CWS-7

COMMANDER'S WEAPON STATION SYSTEM FOUND FAULTY DURING TANK OPERATION

Common Tools:

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

Supplies:

Electrical Jumpers (two required)

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

WARNING

Make sure area around commander's weapon station is clear of personnel and loose equipment before traversing. When traversing commander's weapon, be careful not to hit loader's weapon or loader's hatch if open. Injury to personnel or damage to equipment could occur.

NOTE

Read para. 11-1 before doing any work.

1

- Set up tank controls for standard initial test conditions.
- Refer to para. 16-6, table 16-2.

Figure 11-1 (Sheet 1 of 15)
Volume II
Para. 11-2

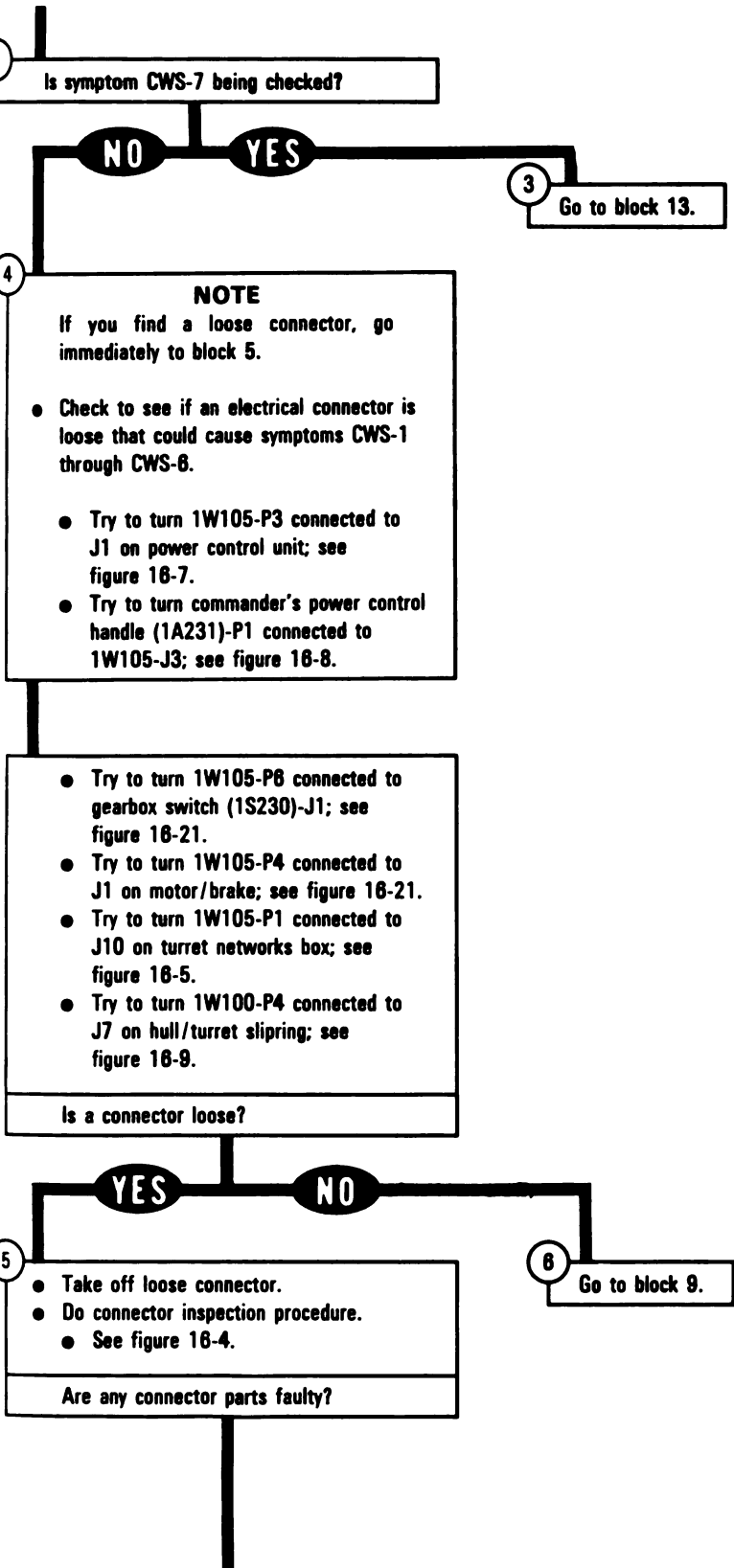


Figure 11-1 (Sheet 2 of 15)
Volume II
Para. 11-2

**TM 9-2350-255-20-2-2-2
COMMANDER'S WEAPON STATION SYSTEM TROUBLESHOOTING**

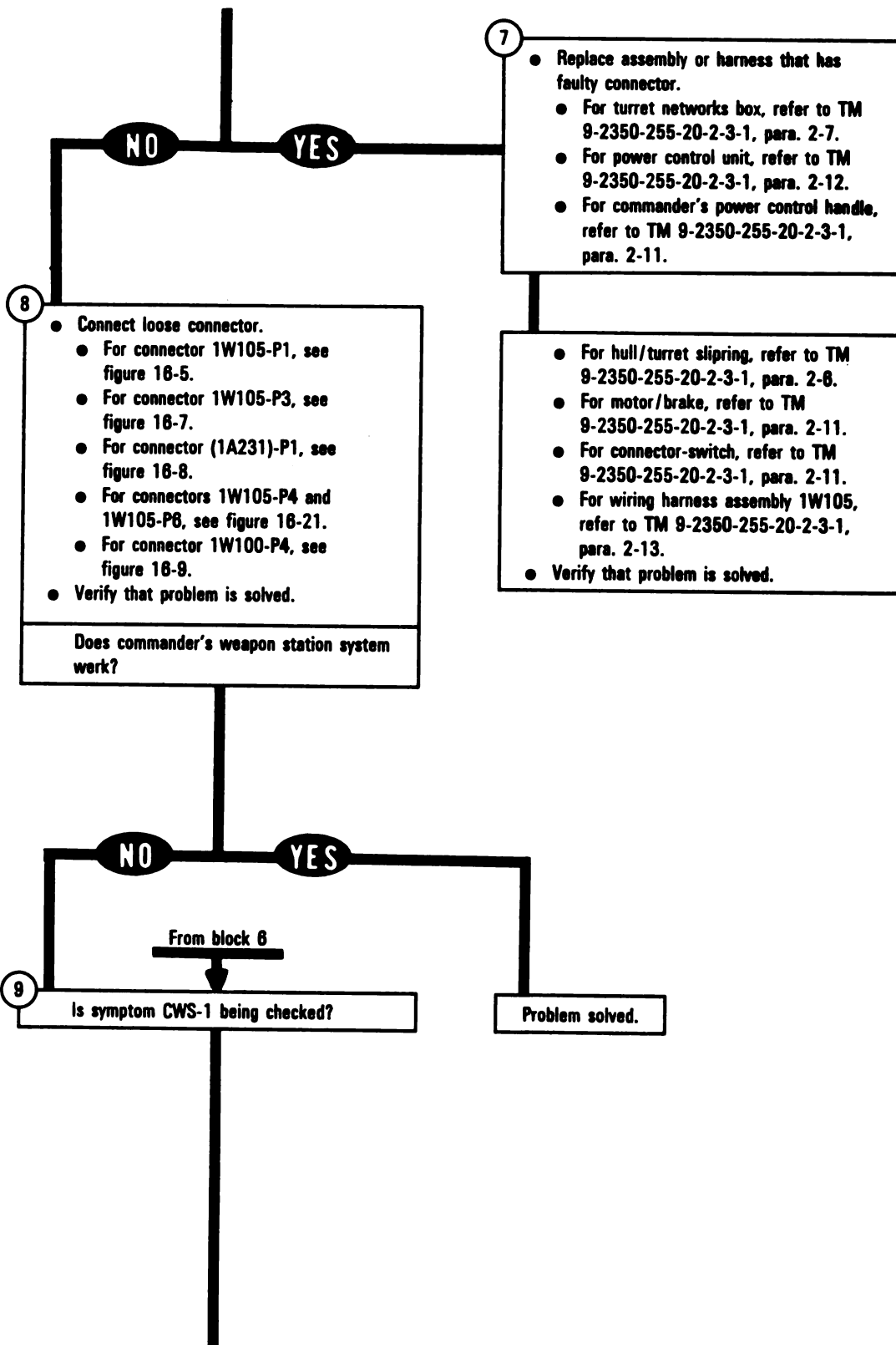


Figure 11-1 (Sheet 3 of 15)
Volume II
Para. 11-2

TM 9-2350-255-20-2-2-2
COMMANDER'S WEAPON STATION SYSTEM TROUBLESHOOTING

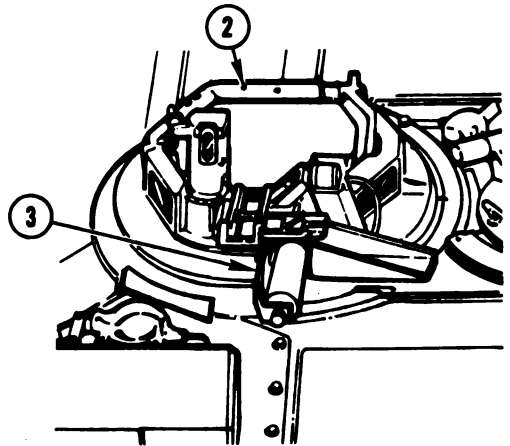
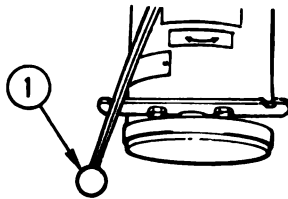
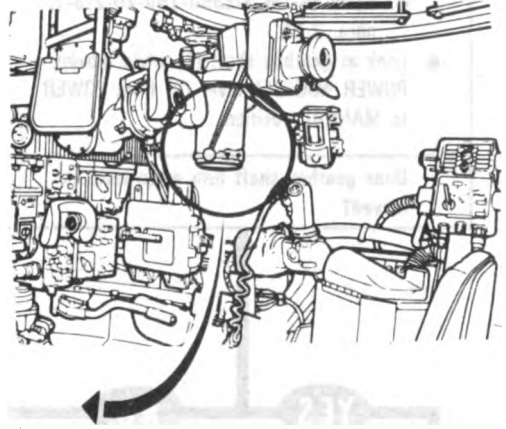
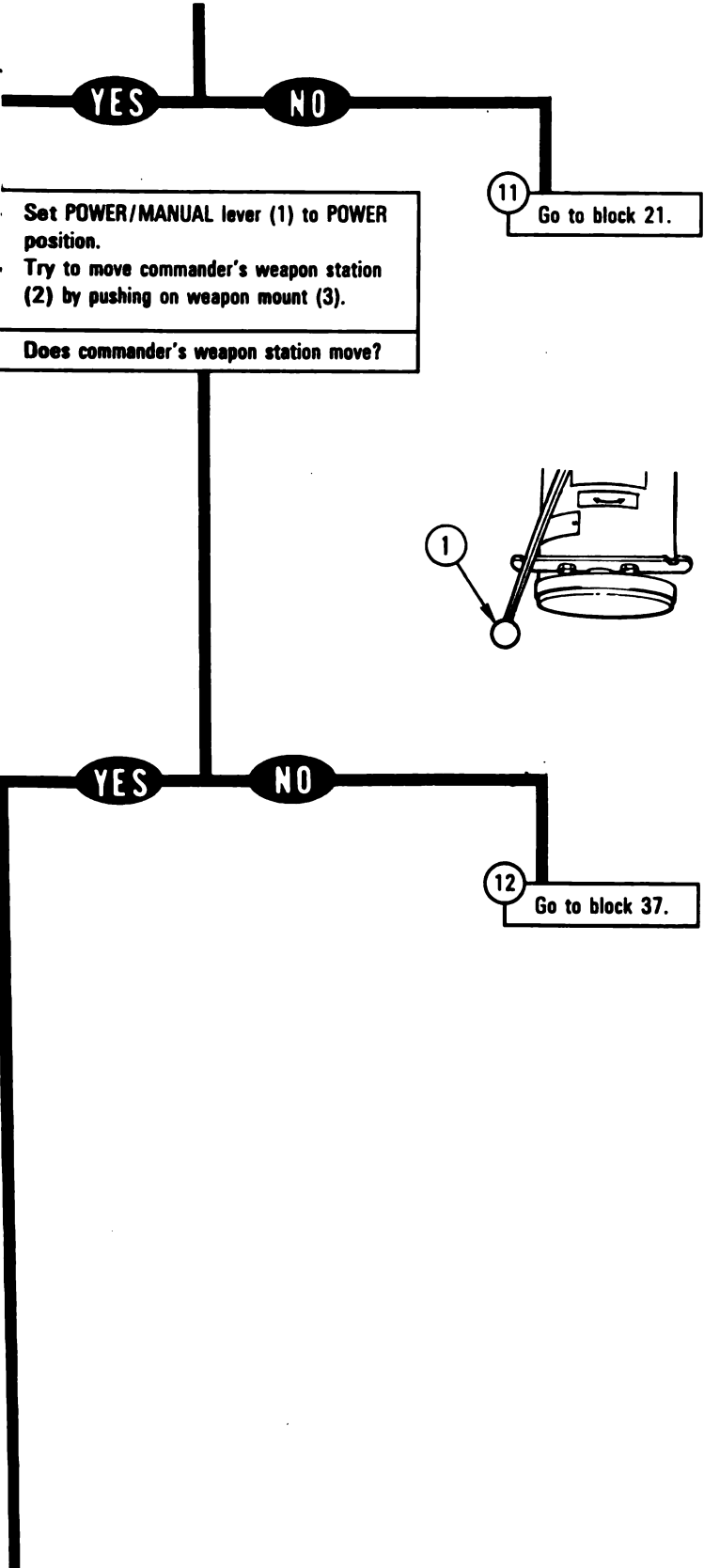


Figure 11-1 (Sheet 4 of 15)
Volume II
Para. 11-2

ARR82-6649

**TM 9-2350-255-20-2-2-2
COMMANDER'S WEAPON STATION SYSTEM TROUBLESHOOTING**

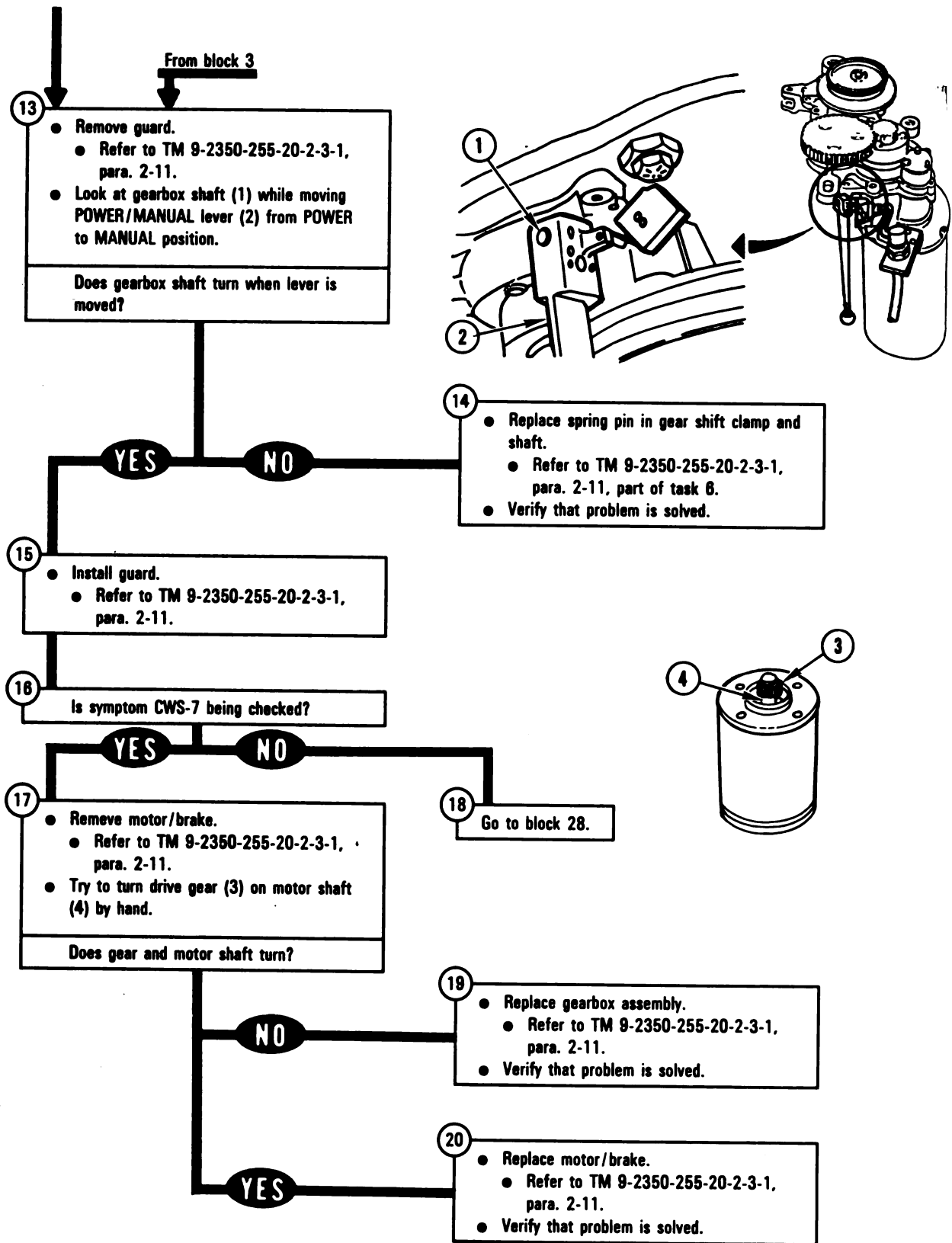


Figure 11-1 (Sheet 5 of 15)
Volume II
Para. 11-2

ARR82-6650

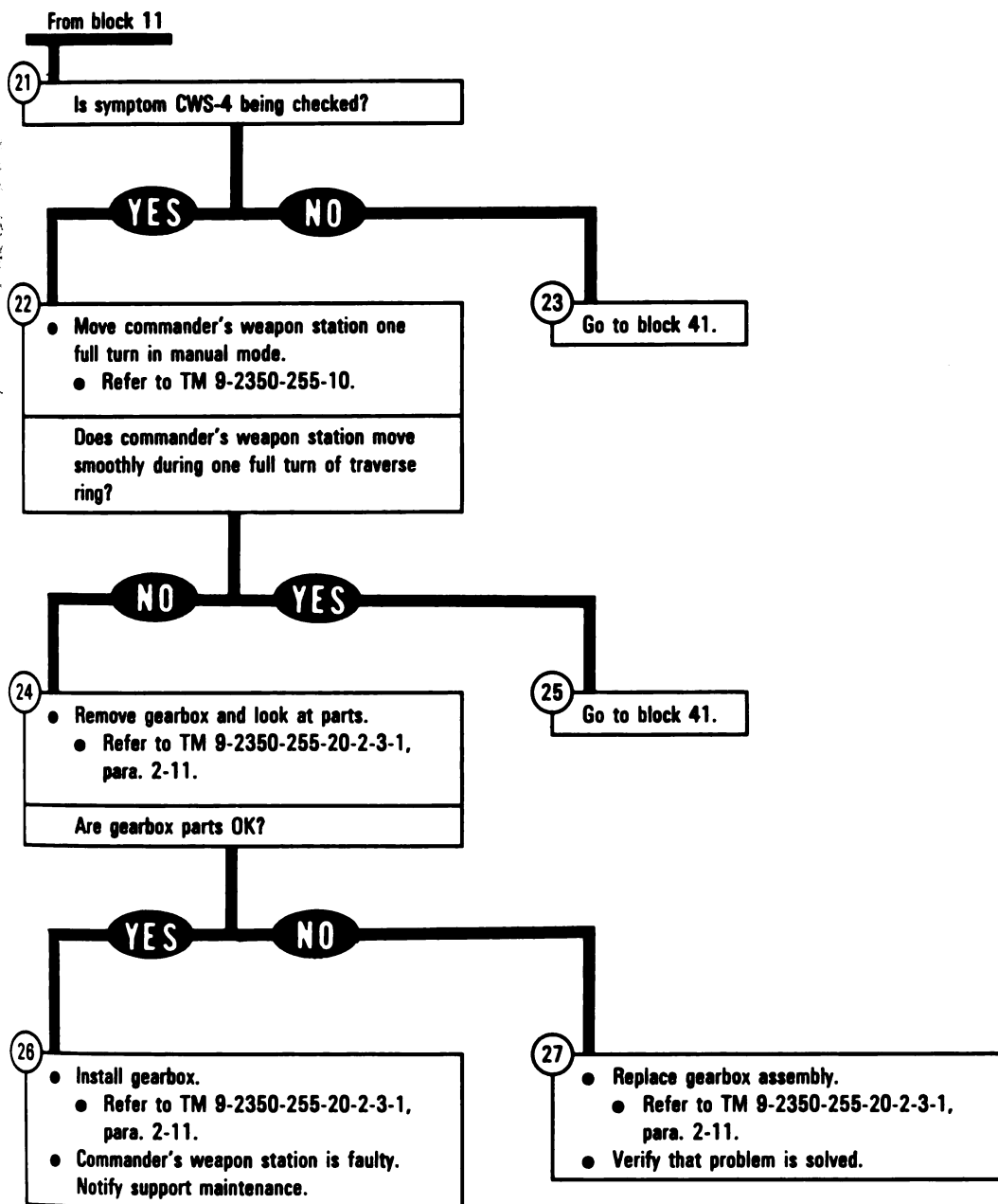
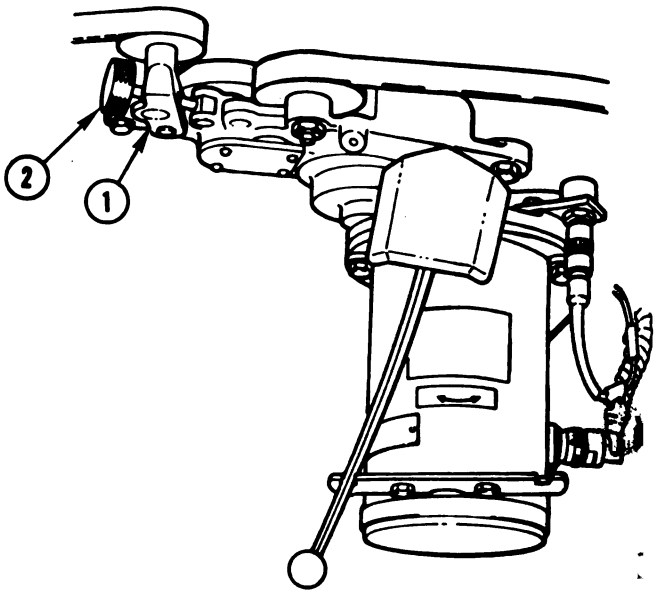


Figure 11-1 (Sheet 6 of 15)
Volume II
Para. 11-2

**TM 9-2350-255-20-2-2-2
COMMANDER'S WEAPON STATION SYSTEM TROUBLESHOOTING**

From block 18

28 ● Look at connecting link (1) while knob (2) is rotated clockwise and then counter-clockwise.
Does connecting link move?



YES NO
30 ● Remove and check gearbox.
● Refer to TM 9-2350-255-20-2-3-1, para. 2-11.
Are gearbox parts OK?

29 ● Remove and check rigid connecting link, headed straight pin, and knob.
● Refer to TM 9-2350-255-20-2-3-1, para. 2-11.
● Verify that problem is solved.

YES NO
31 ● Replace gearbox assembly.
● Refer to TM 9-2350-255-20-2-3-1, para. 2-11.
● Verify that problem is solved.

Figure 11-1 (Sheet 7 of 15)
Volume II
Para. 11-2

TM 9-2350-255-20-2-2-2
COMMANDER'S WEAPON STATION SYSTEM TROUBLESHOOTING

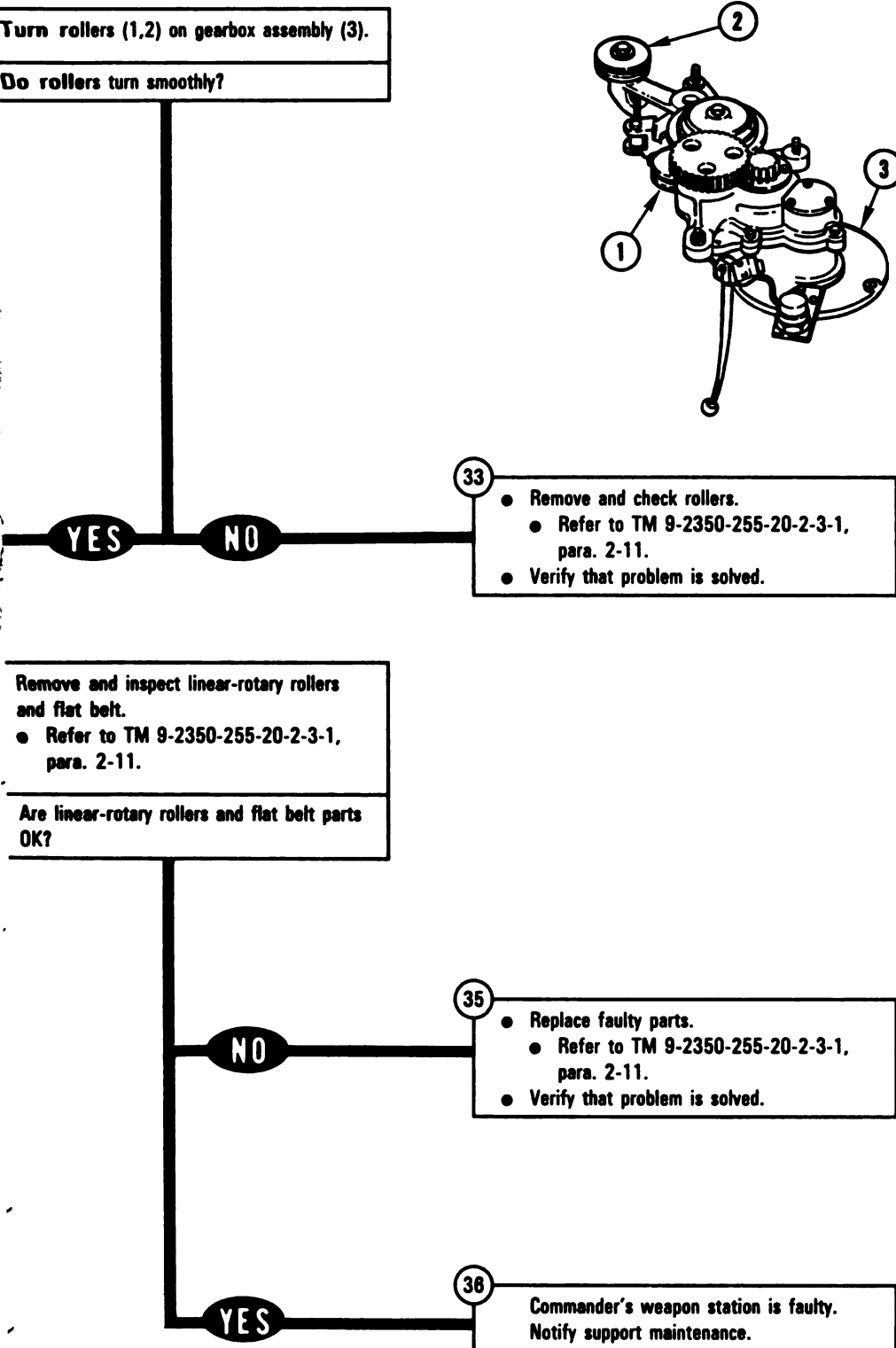


Figure 11-1 (Sheet 8 of 15)
Volume II
Para. 11-2

ARR82-8783

TM 9-2350-255-20-2-2-2
COMMANDER'S WEAPON STATION SYSTEM TROUBLESHOOTING

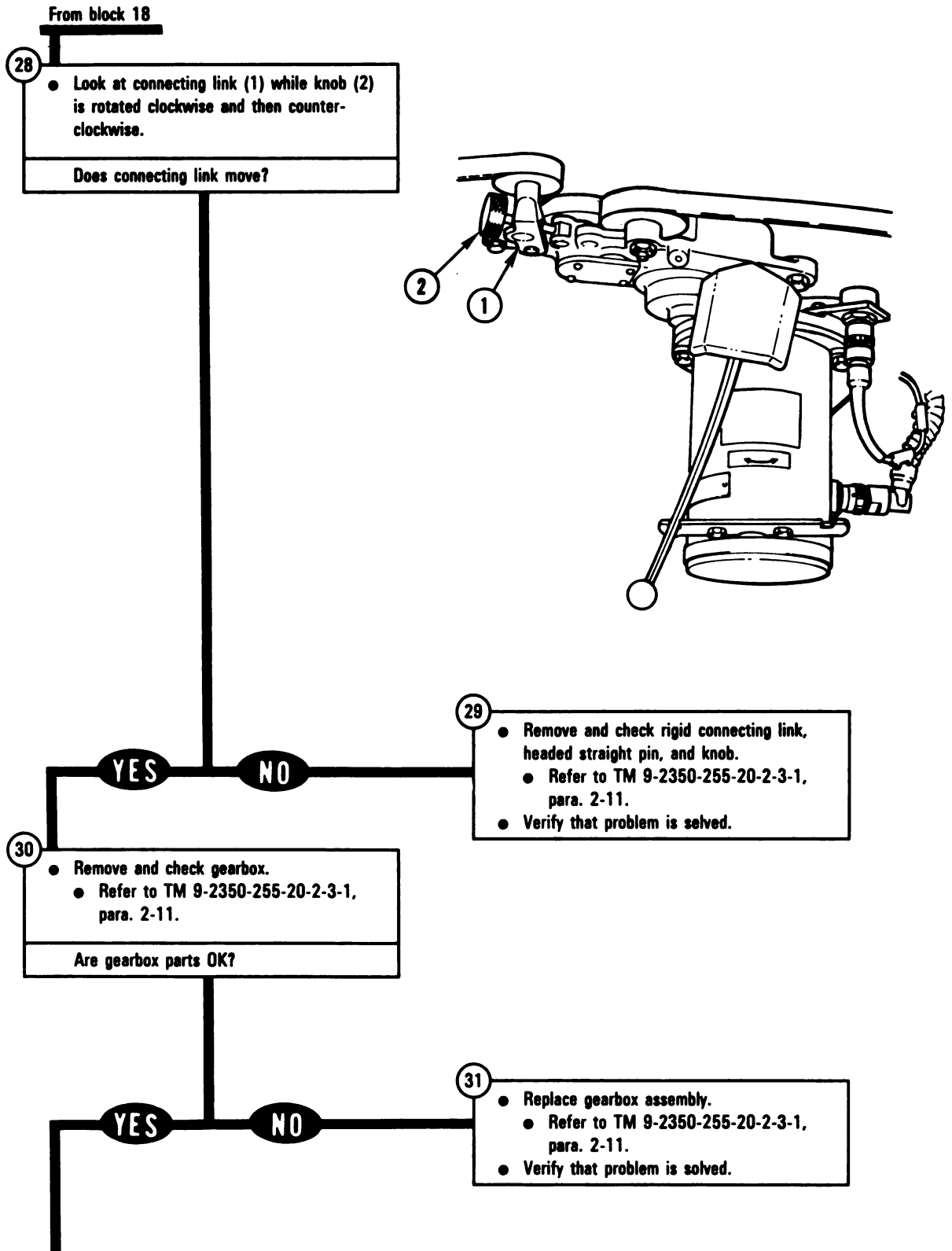


Figure 11-1 (Sheet 7 of 15)
Volume II
Para. 11-2

ARR82-0651

TM 9-2350-255-20-2-2-2
COMMANDER'S WEAPON STATION SYSTEM TROUBLESHOOTING

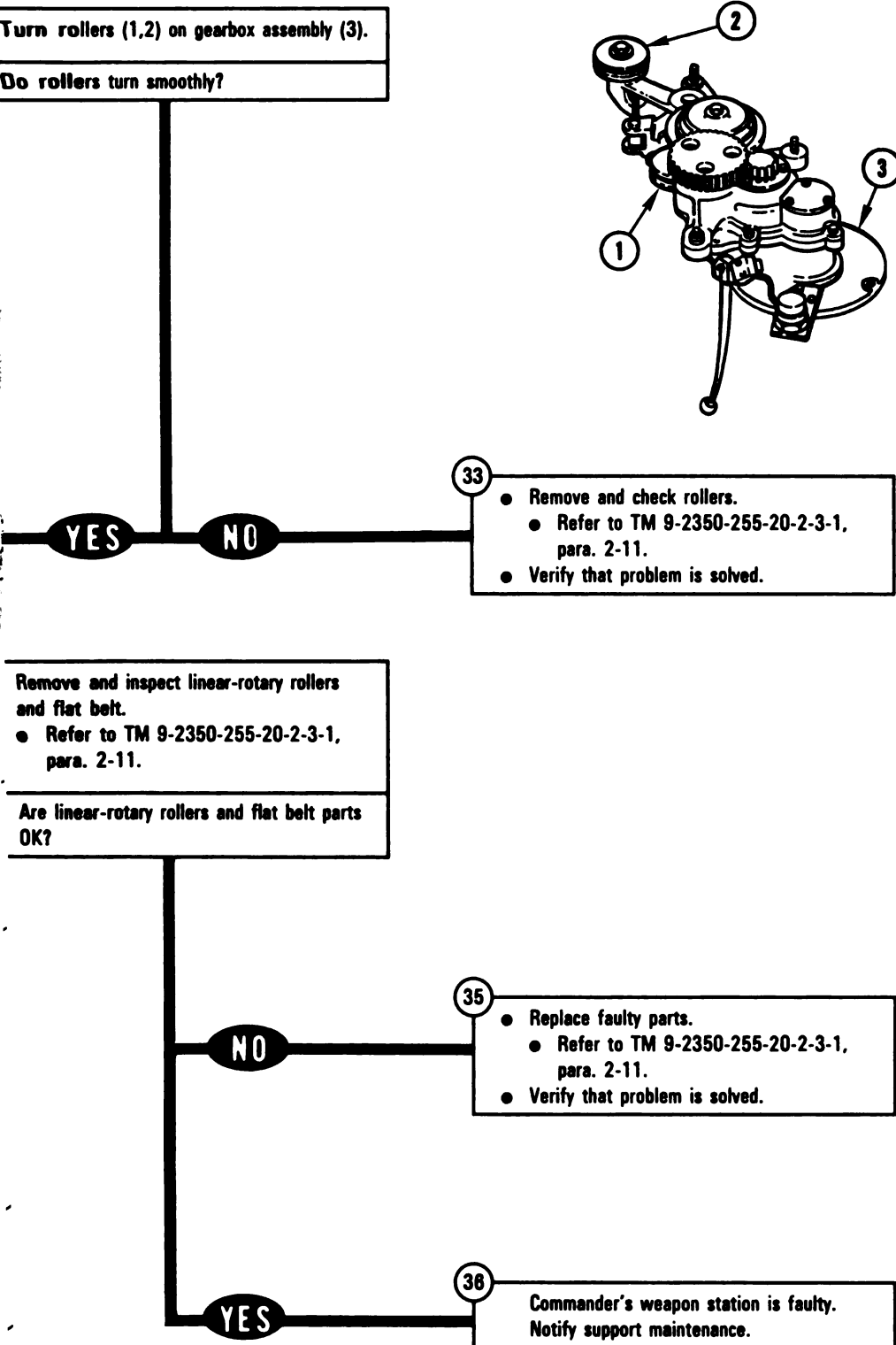


Figure 11-1 (Sheet 8 of 15)
Volume II
Para. 11-2

ARR82-6783

TM 9-2350-255-20-2-2-2
COMMANDER'S WEAPON STATION SYSTEM TROUBLESHOOTING

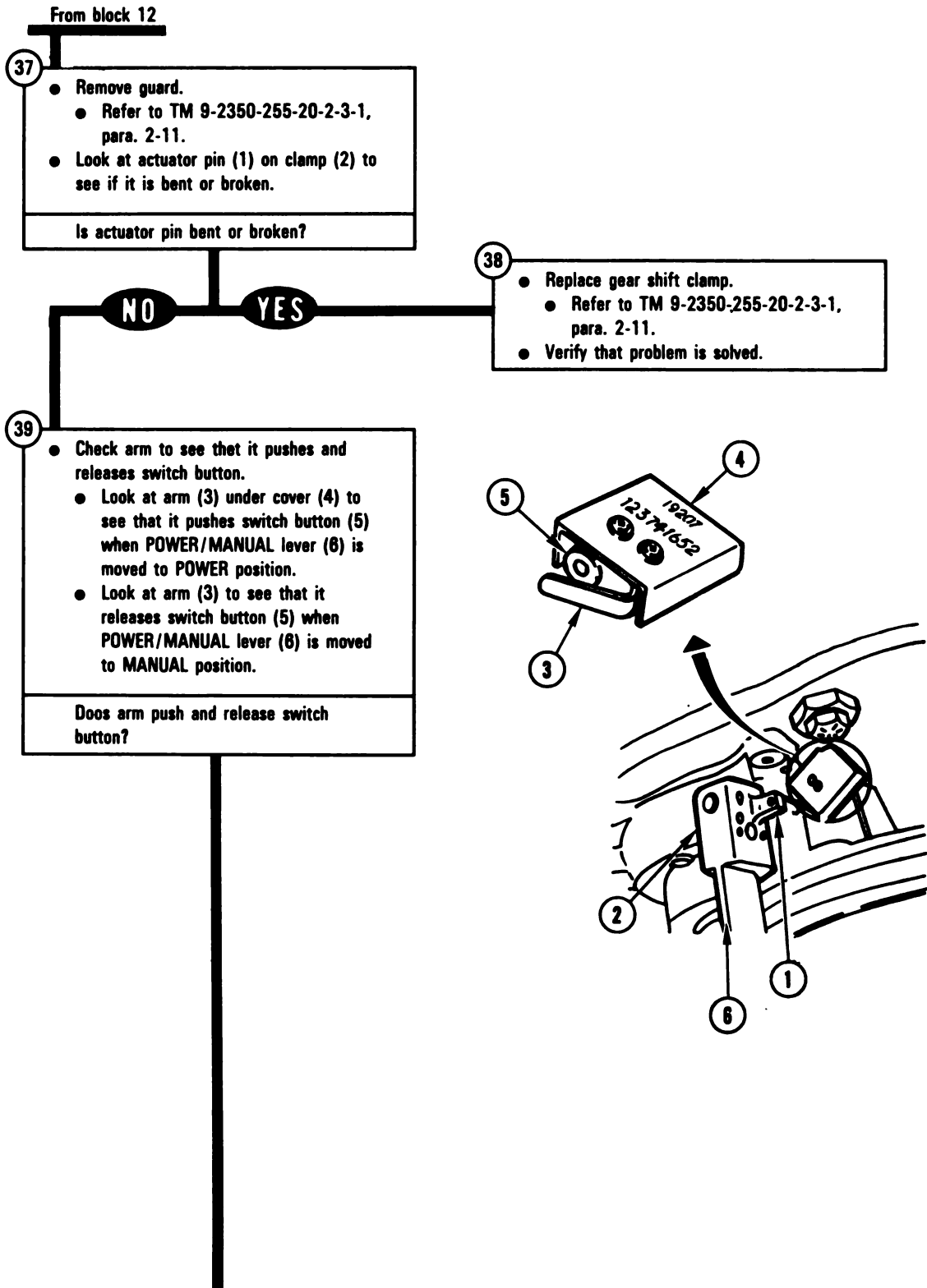


Figure 11-1 (Sheet 9 of 15)
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Para. 11-2

ARR82-6652

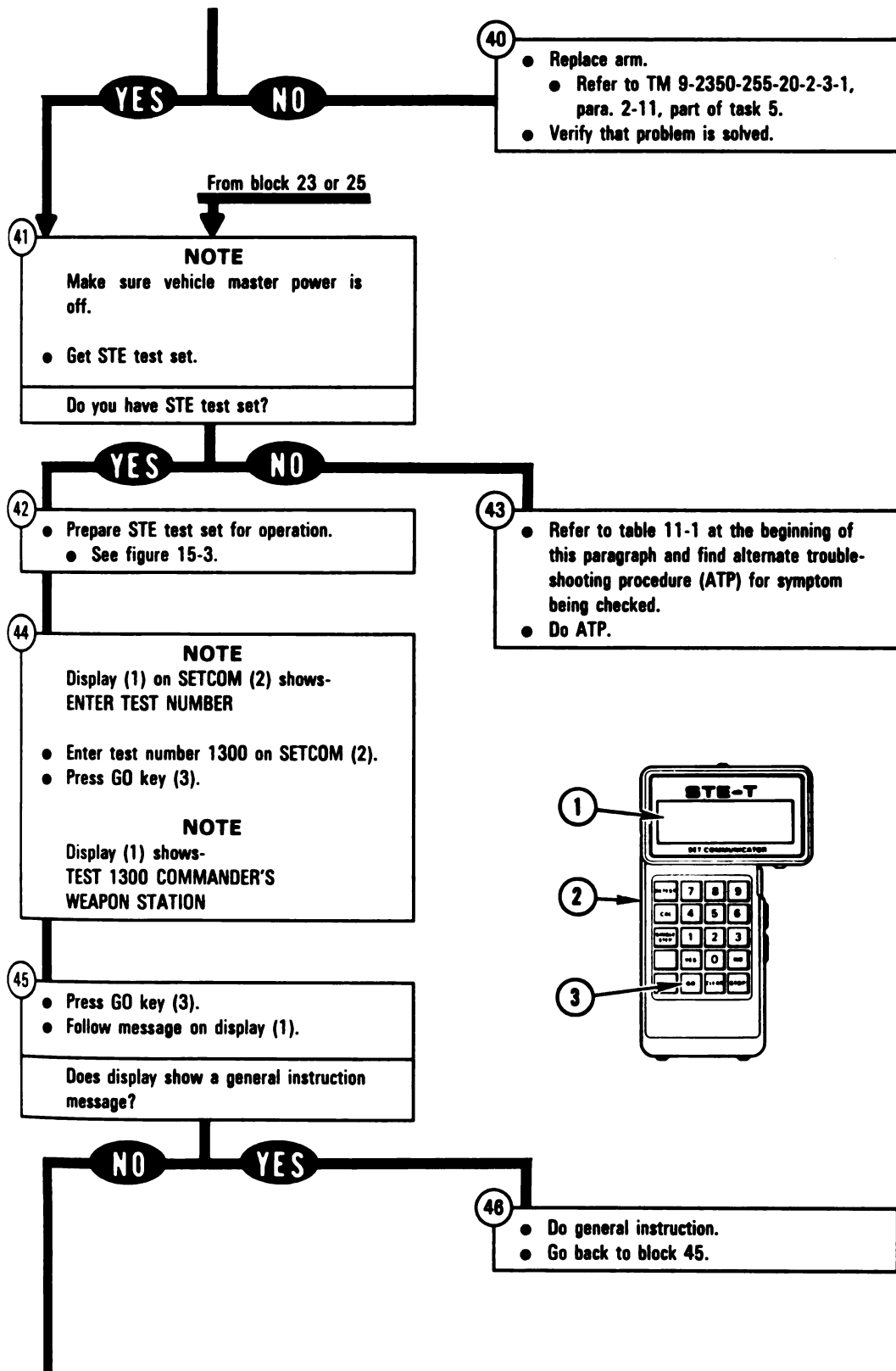
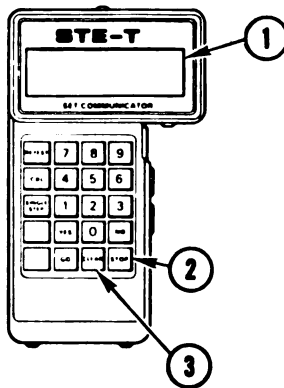
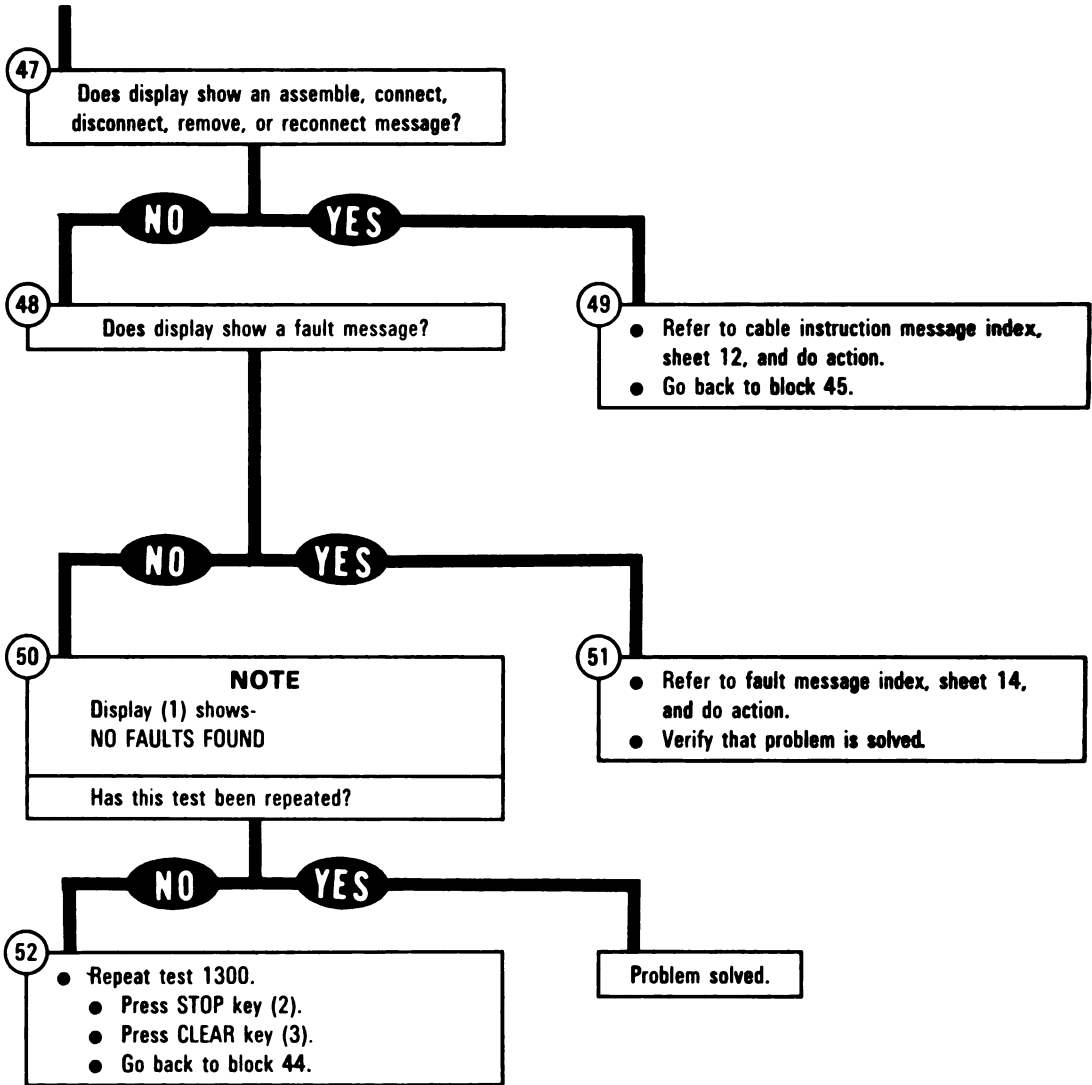


Figure 11-1 (Sheet 10 of 15)
 Volume II
 Para. 11-2

ARR82-6653

**TM 9-2350-255-20-2-2-2
COMMANDER'S WEAPON STATION SYSTEM TROUBLESHOOTING**



*Figure 11-1 (Sheet 11 of 15)
Volume II
Para. 11-2*

Commander's Weapon Station System Cable Instruction Message Index

Instruction Message	Action
ABLE CX304, AND CA423	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CA304 to P3 on DBA CX307. ● Connect P2 on adapter CA423 to P1 on DBA CX307. ● See figure 11-7.
ABLE CX304, AND CA425	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX304 to P3 on DBA CX307. ● Connect P2 on adapter CA425 to P1 on DBA CX307. ● See figure 11-5.
ABLE CX304, AND CA427	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX304 to P3 on DBA CX308. ● Connect P2 on adapter CA427 to P1 on DBA CX308. ● See figure 11-8.
ABLE CX305, AND CA431	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX305 to P3 on DBA CX307. ● Connect P2 on adapter CA431 to P1 on DBA CX307. ● See figure 11-6.
ABLE CX305, AND CA427	<ul style="list-style-type: none"> ● Connect P1 on CIB cable CX305 to P3 on DBA CX308. ● Connect P2 on adapter CA427 to P1 on DBA CX308. ● See figure 11-8.
ECT CIB J1 (CX305) IB 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 11-2. ● Connect P2 on CIB cable CX305 to CIB-J1. ● See figure 11-4.
ECT CIB J2 (CX304) NSPU TJ1 (CA208)	<ul style="list-style-type: none"> ● Connect P1 on adapter CA208 to TJ1 on power control unit. ● Connect P1 on CIB cable CX304 to P2 on adapter CA208. ● See figure 11-3. ● Connect P2 on CIB cable CX304 to CIB-J2. ● See figure 11-4
ECT DBA TO J10	<ul style="list-style-type: none"> ● Connect P1 on adapter CA425 to J10 on turret networks box. ● See figure 11-5.
ECT DBA TO 05-J3	<ul style="list-style-type: none"> ● Connect P1 on adapter CA431 to 1W105-J3. ● See figure 11-6.

Figure 11-1 (Sheet 12 of 15)
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Para. 11-2

**TM 9-2350-255-20-2-2-2
COMMANDER'S WEAPON STATION SYSTEM TROUBLESHOOTING**

Commander's Weapon Station System Cable Instruction Message Index (Continued)

Cable Instruction Message	Action
CONNECT DBA to 1W105-P3	<ul style="list-style-type: none"> ● Connect 1W105-P3 to P1 on adapter CA423. ● See figure 11-7.
CONNECT DBA to 1W105-P4	<ul style="list-style-type: none"> ● Connect 1W105-P4 to P1 on adapter CA427. ● See figure 11-8.
DISCONNECT 1W105 ←-→ CWSGB J1	<ul style="list-style-type: none"> ● Disconnect 1W105-P6 from gearbox switch (1S230)J1. ● See figure 16-21.
DISCONNECT 1W105 ←-→ CWSMB J1	<ul style="list-style-type: none"> ● Disconnect 1W105-P4 from J1 on motor/brake. ● See figure 16-21.
DISCONNECT 1W105 ←-→ CWSH P1	<ul style="list-style-type: none"> ● Disconnect commander's power control handle (1A231)P1 from 1W105-J3. ● See figure 16-8.
DISCONNECT 1W105 ←-→ CWSPU J1	<ul style="list-style-type: none"> ● Disconnect 1W105-P3 from J1 on power control unit ● See figure 16-7.
DISCONNECT 1W105 ←-→ TNB J10	<ul style="list-style-type: none"> ● Disconnect 1W105-P1 from J10 on turret networks box. See figure 16-5.
REMOVE CX304 AND ADAPTER AT CWSPU	<ul style="list-style-type: none"> ● Disconnect P1 on CIB cable CX304 from P2 on adapter CA208. ● Disconnect P1 on adapter CA208 from TJ1 on power control unit. ● See figure 11-3.
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 network box. ● See figure 11-2.

Figure 11-1 (Sheet 13 of 16)
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Para. 11-2**

Commander's Weapon Station System Fault Message Index

Fault Message	Action
BATTERY/ CHARGING SYS	<ul style="list-style-type: none"> ● Charge batteries. ● Refer to TM 9-2350-255-10. ● Go back to block 42.
109921 109924	
CWSGB	<ul style="list-style-type: none"> ● Replace connector-switch. ● Refer to TM 9-2350-255-20-2-3-1, para. 2-11.
130040	
CWSGB CWSH	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 11-9.
130022	
CWSGB 105	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 11-16.
130037	
CWSH	<ul style="list-style-type: none"> ● Replace commander's power control handle. ● Refer to TM 9-2350-255-20-2-3-1, para. 2-11.
130016 130031 130036 130042	
CWSH 105	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 11-13.
130032	
CWSMB	<ul style="list-style-type: none"> ● Replace motor/brake. ● Refer to TM 9-2350-255-20-2-3-1, para. 2-11.
130048 130047 130054	
CWSPU	<ul style="list-style-type: none"> ● Replace power control unit. ● Refer to TM 9-2350-255-20-2-3-1, para. 2-12.
130006 130008 130011 130013 130015 130017 130019 130020 130034 130038 130043 130044 130056	
CWSMB OR PART	<ul style="list-style-type: none"> ● Do follow-on procedure. ● See figure 11-20.
130021	

Figure 11-1 (Sheet 14 of 15)
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Para. 11-2

TM 9-2350-255-20-2-2-2
COMMANDER'S WEAPON STATION SYSTEM TROUBLESHOOTING

Commander's Weapon Station System Fault Message Index (Continued)

Fault Message	Action
FAULTY CWSPU OR 1W105 130024 130025 130027 130029 130030 130033 130035 130039 130041 130046 130050 130051 130052 130053 130058	<ul style="list-style-type: none"> ● Do follow-on procedure. <ul style="list-style-type: none"> ● See figure 11-15. ● See figure 11-12. ● See figure 11-12. ● See figure 11-12. ● See figure 11-12. ● See figure 11-15. ● See figure 11-18. ● See figure 11-10. ● See figure 11-14. ● See figure 11-19. ● See figure 11-17. ● See figure 11-19. ● See figure 11-17. ● See figure 11-17. ● See figure 11-17. ● See figure 11-11.
FAULTY STAB SYS 130026 130028	<ul style="list-style-type: none"> ● Run stabilization system test number 1400. <ul style="list-style-type: none"> ● Refer to TM 9-2350-255-20-2-2-1, figure 9-5.
FAULTY TNB 130023	<ul style="list-style-type: none"> ● Replace turret networks box. <ul style="list-style-type: none"> ● Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
FAULTY VEH/TURRET PWR CNTL 109922 120703 120803	<ul style="list-style-type: none"> ● Run vehicle/turret power control test number 1200. <ul style="list-style-type: none"> ● Refer to TM 9-2350-255-20-2-2-1, figure 8-1.
SYSTEM ERROR 109902	<ul style="list-style-type: none"> ● Run STE self-test number 666. <ul style="list-style-type: none"> ● See figure 15-3, block 26. ● Repeat commander's weapon station test number 1300. <ul style="list-style-type: none"> ● Press STOP and CLEAR keys on SETCOM. ● Go back to block 44. ● If some error message appears on SETCOM display, notify support maintenance that test set is faulty.

Figure 11-1 (Sheet 15 of 15)
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Para. 11-2

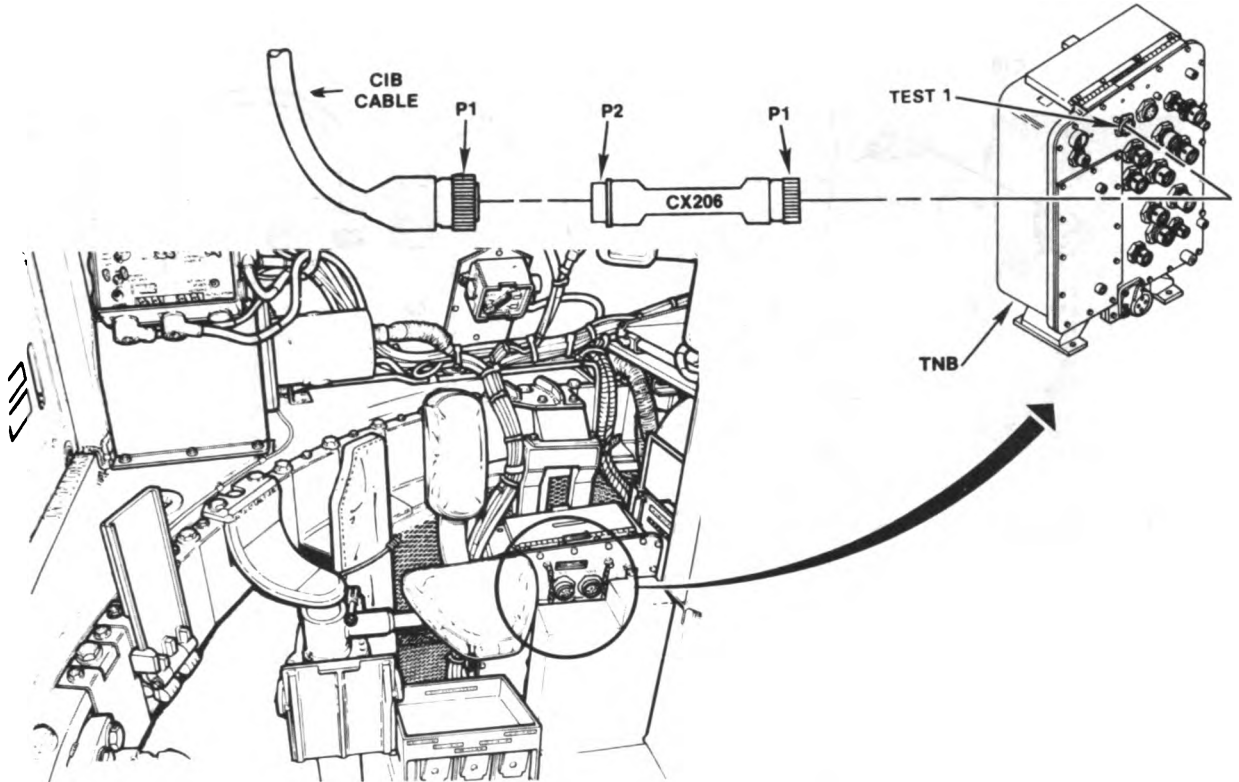


Figure 11-2. STE Turret Cable Hookup to TNB-TEST 1

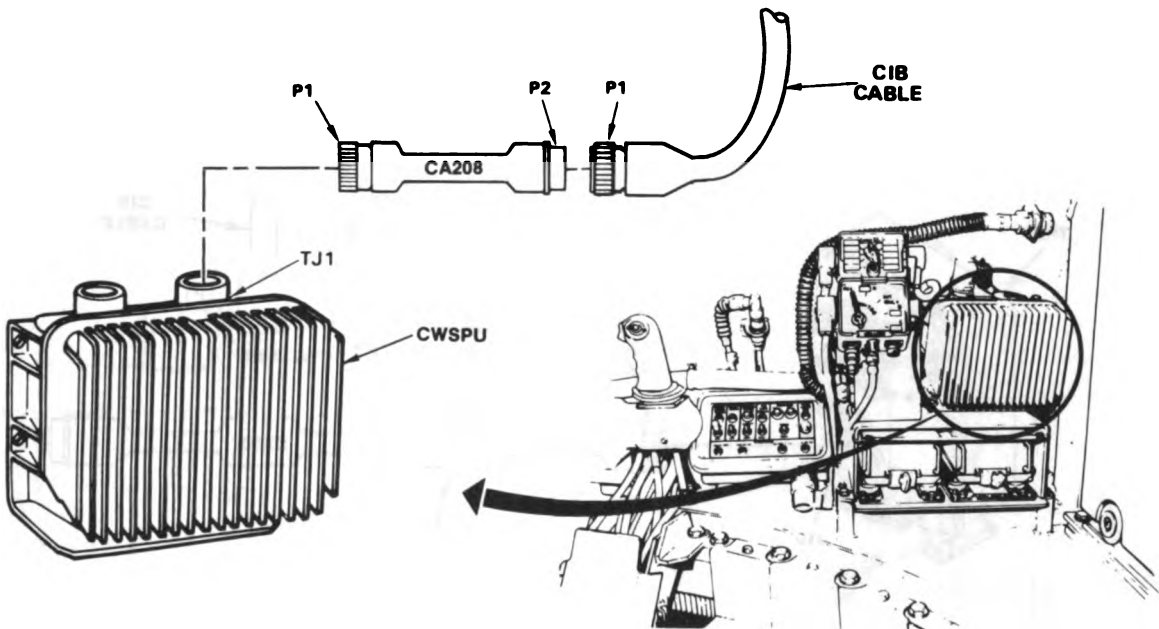


Figure 11-3. STE Turret Cable Hookup to CWSPU-TJ1
Volume II
Para. 11-2

ARR82-6656

TM 9-2350-255-20-2-2-2
COMMANDER'S WEAPON STATION SYSTEM TROUBLESHOOTING

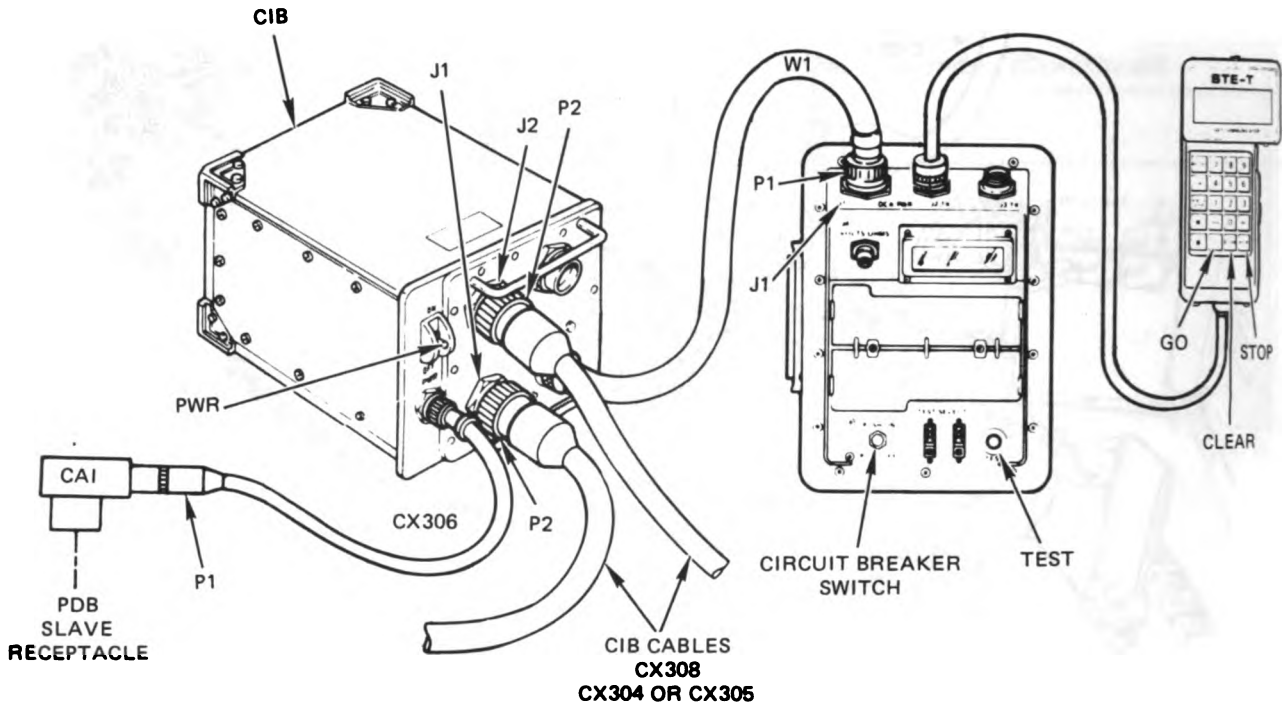


Figure 11-4. STE Turret Cable Hookup to CIB-J1 and J2

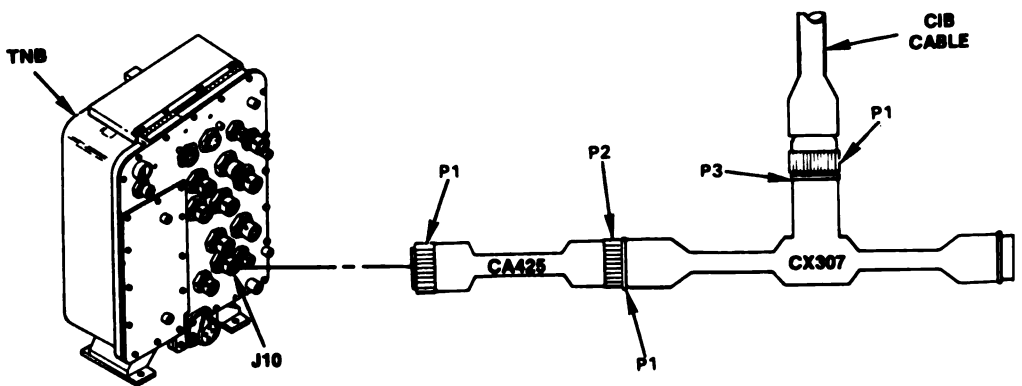


Figure 11-5. STE Turret Cable Hookup Between DBA and TNB-J10
Volume II
Para. 11-2

ARR82-6657

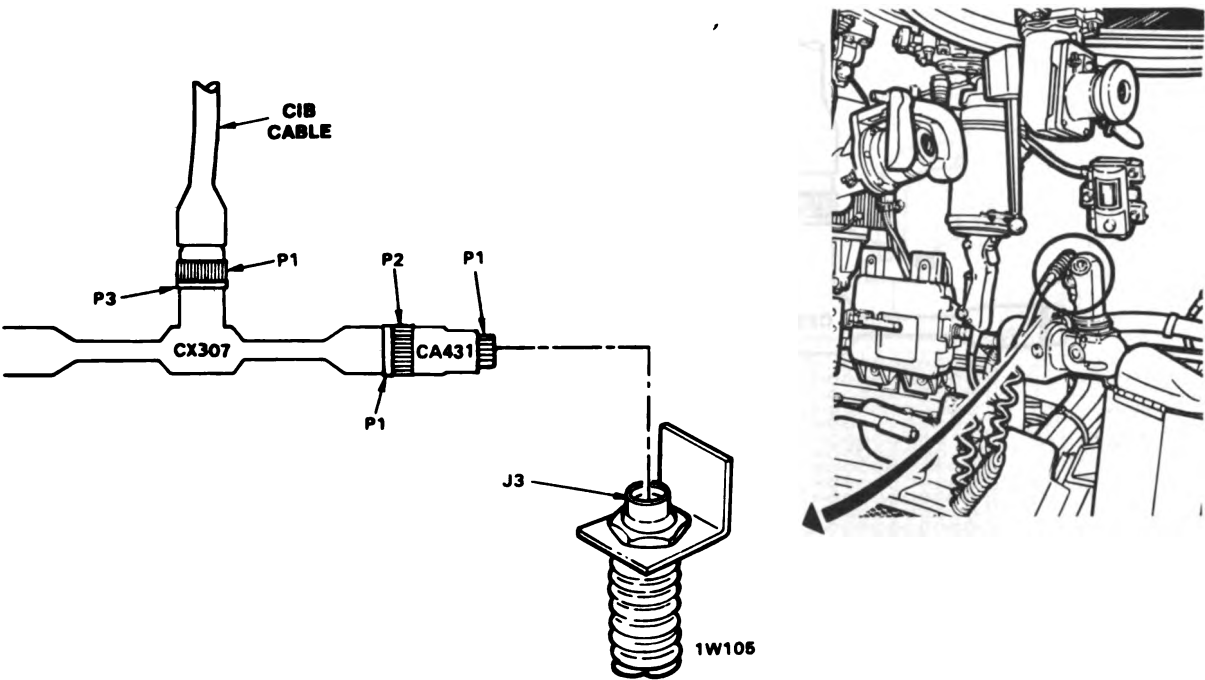


Figure 11-6. STE Turret Cable Hookup Between DBA and 1W105-J3

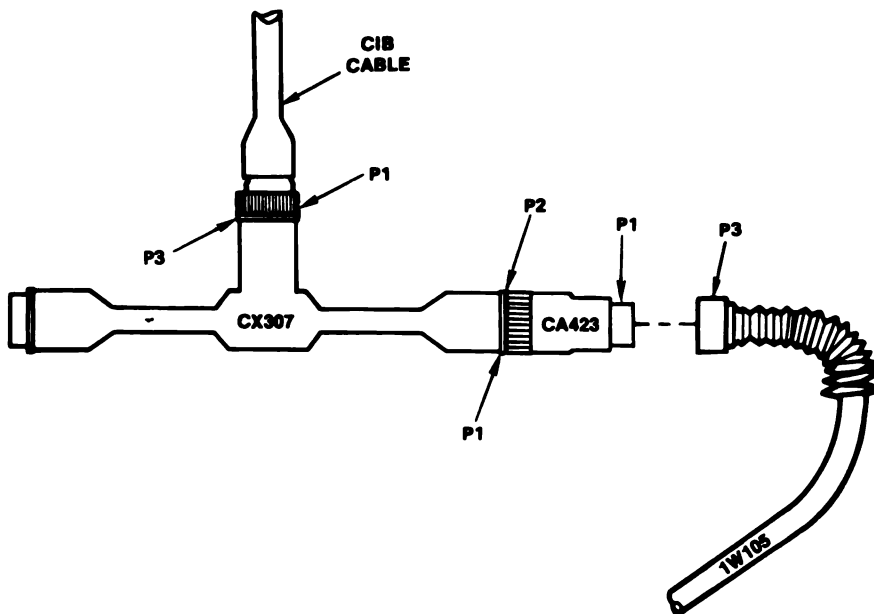


Figure 11-7. STE Turret Cable Hookup Between DBA and 1W105-P3
Volume II
Para. 11-2

ARR82-6658

TM 9-2350-255-20-2-2-2
COMMANDER'S WEAPON STATION SYSTEM TROUBLESHOOTING

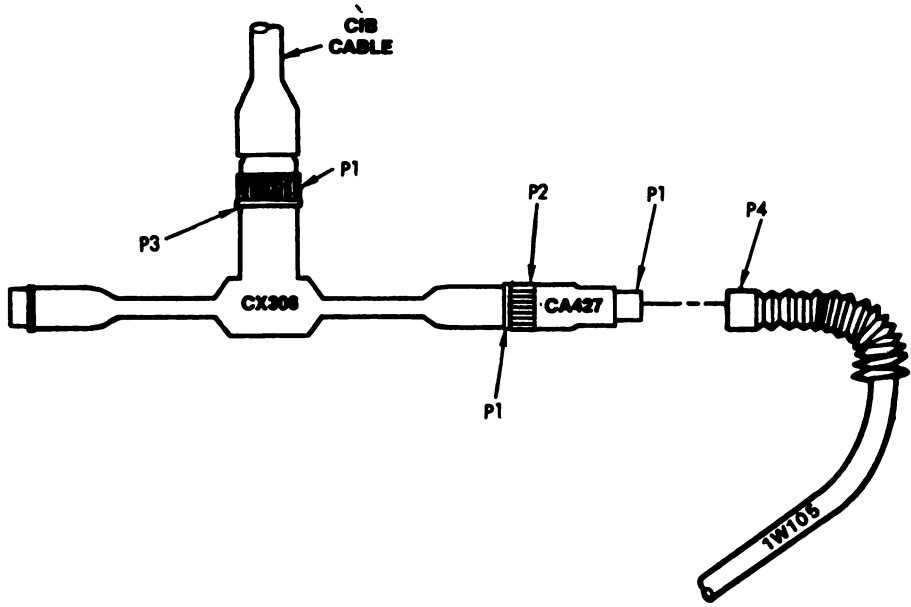


Figure 11-8. STE Turret Cable Hookup Between DBA and 1W105-P4

**DISPLAY SHOWS -
 MULTY CWSGB
 & CWSH**

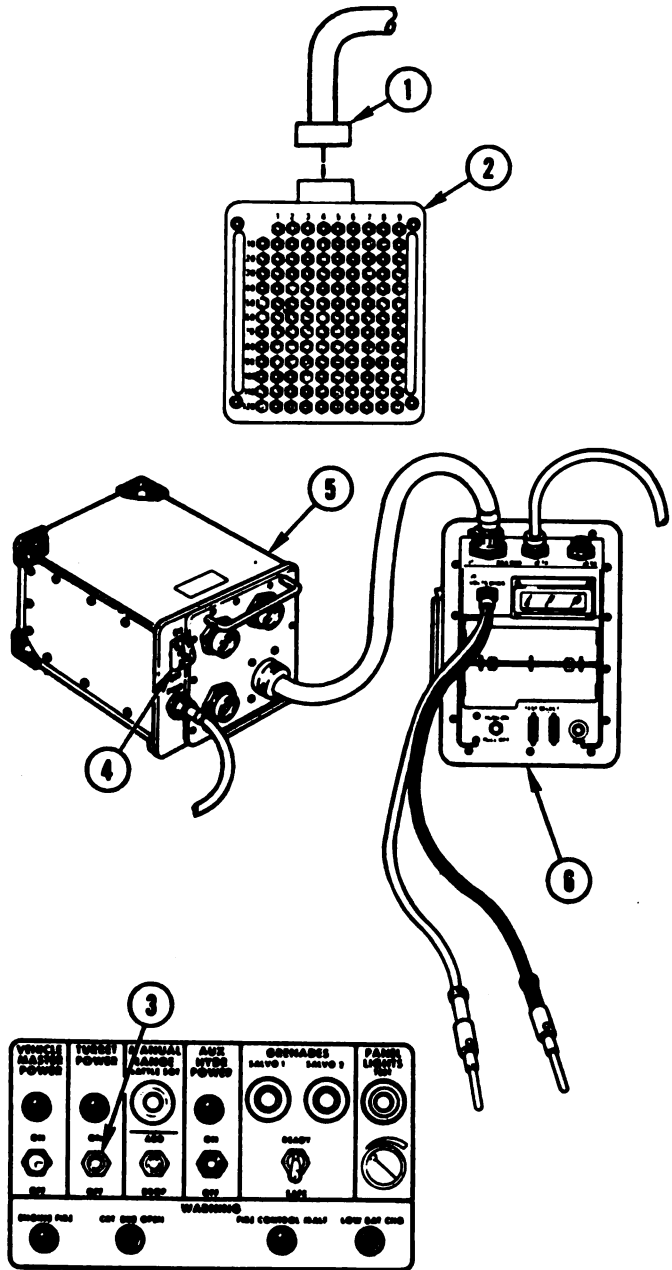
130022

**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 CX304-P2 from CIB-J2.
 • See figure 11-4.
 Connect CX304-P2 (1) to breakout box (2).
 Connect commander's power control handle (1A231) -P1 to 1W105-J3.
 • See figures 16-8.
 Set TURRET POWER switch (3) to on.**

**Change control from SETCOM to VTM.
 • Set PWR switch (4) on CIB (5) to OFF
 to reset VTM (8).
 • Set PWR switch (4) to ON.
 Prepare VTM for measuring dc voltage.
 • Refer to para. 11-1.**



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

ARR82-6660

**TM 9-2350-255-20-2-2-2
COMMANDER'S WEAPON STATION SYSTEM TROUBLESHOOTING**

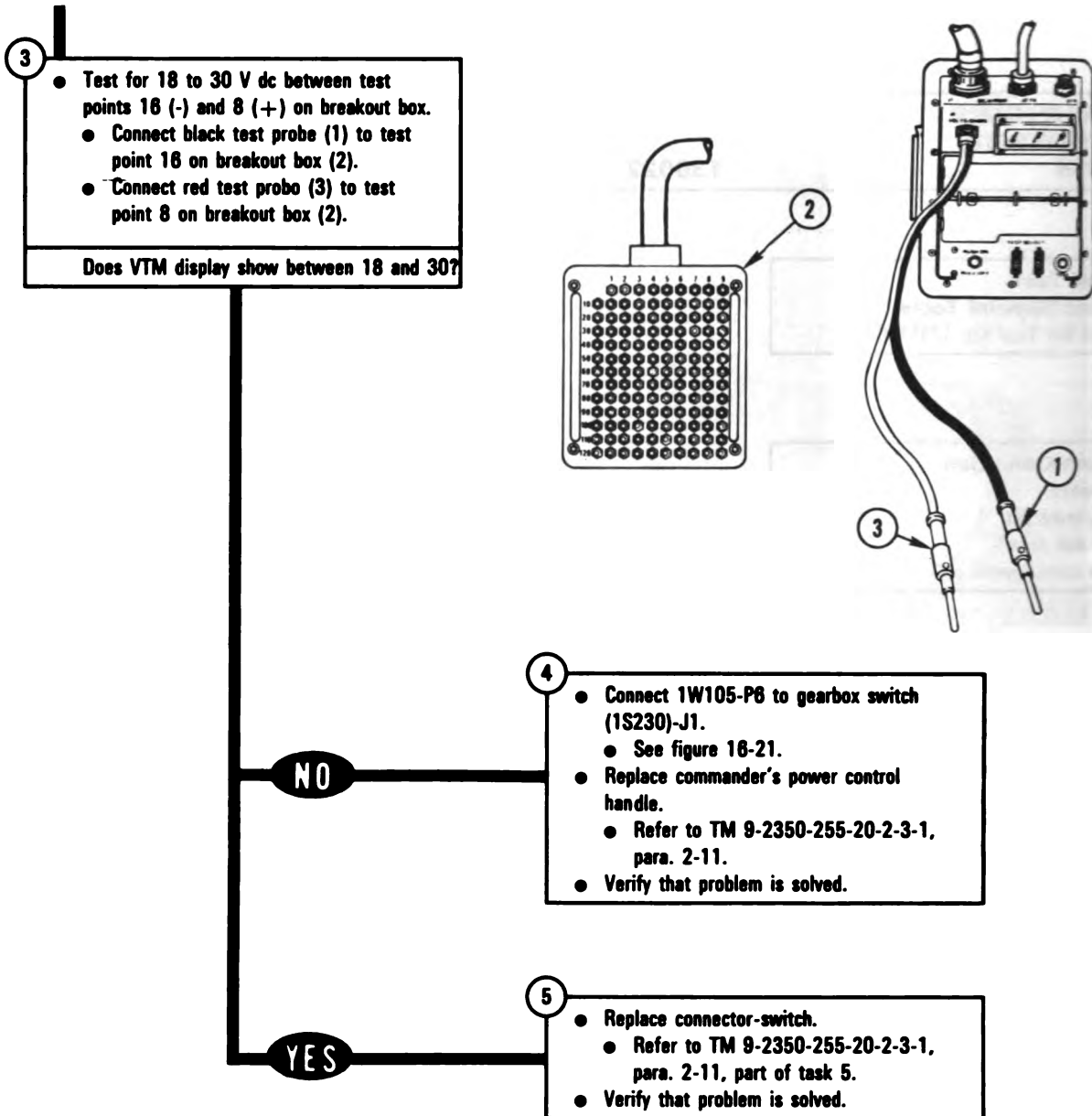


Figure 11-9 (Sheet 2 of 2)
Volume II
Para. 11-2

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

130035

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 11-4.

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

- Disconnect 1W105-P3 from J1 on power control unit.
- See figure 16-7.

- 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. 11-1.

- Test for 0 to 5 ohms between test points 7 and 21 on breakout box.

- Connect red test probe (6) to test point 7 on breakout box (2).
- Connect black test probe (7) to test point 21 on breakout box (2).

- Connect black test probe (7) to test point 21 on breakout box (2).

Does VTM display show between 0 and 5?

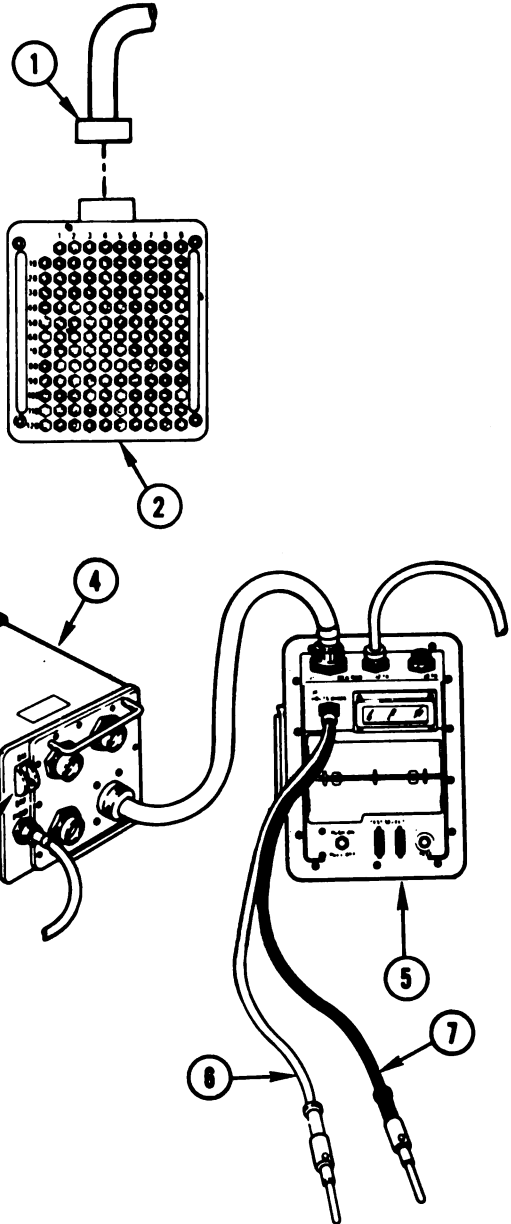
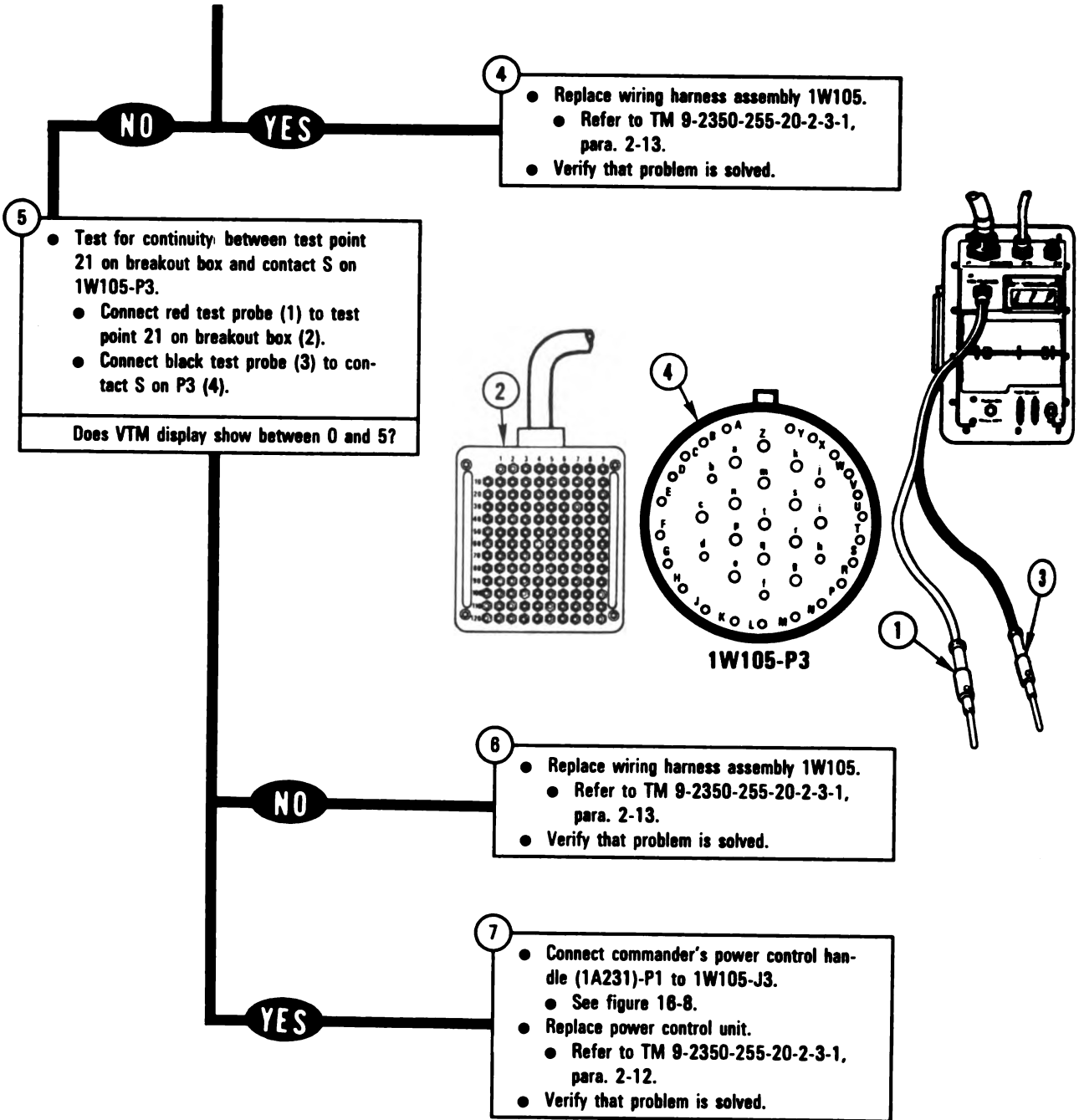


Figure 11-10 (Sheet 1 of 2)
Volume II
Para. 11-2

ARR82-6781

**TM 9-2350-255-20-2-2-2
COMMANDER'S WEAPON STATION SYSTEM TROUBLESHOOTING**



*Figure 11-10 (Sheet 2 of 2)
Volume II
Para. 11-2*

ARR82-6662

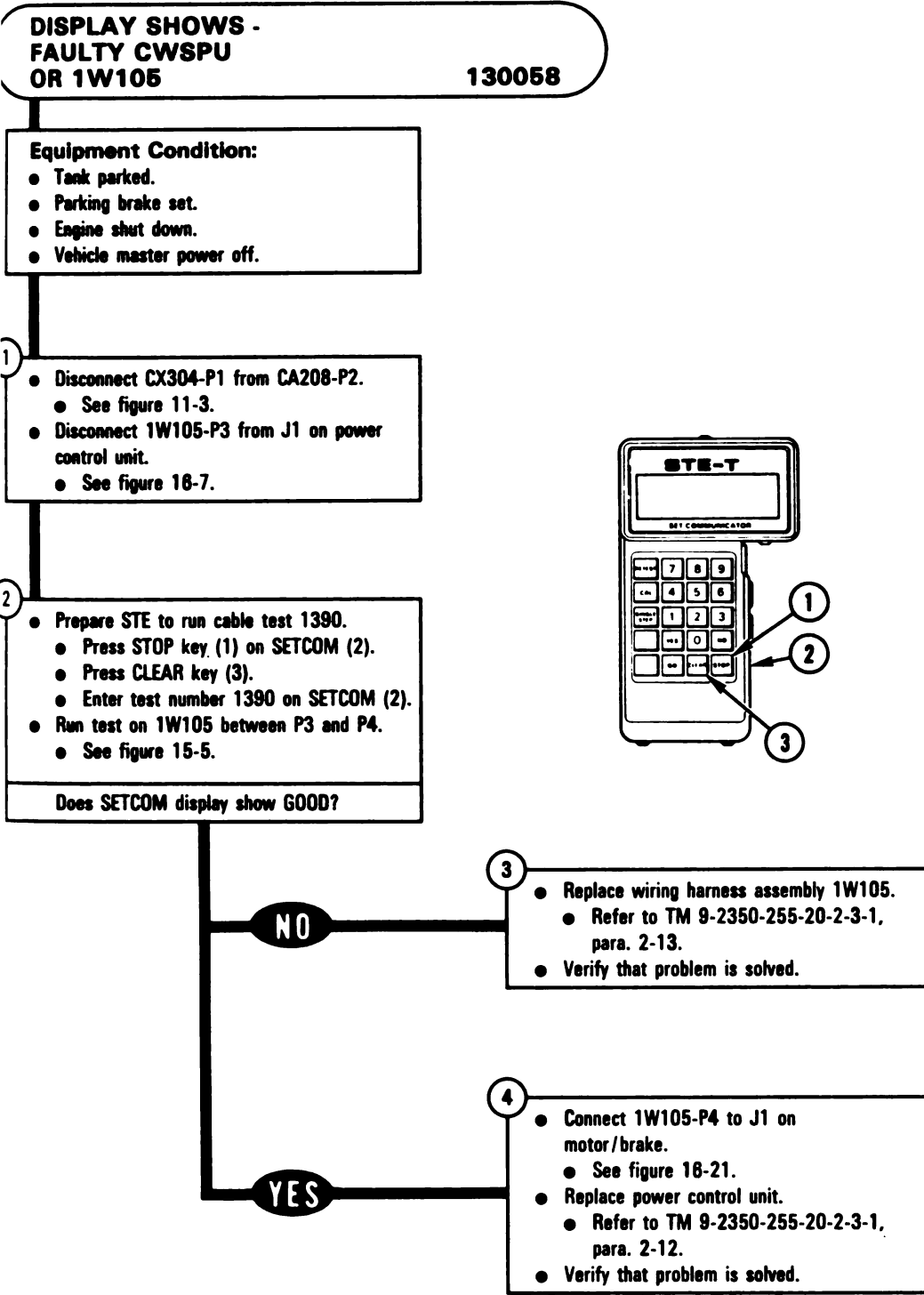


Figure 11-11
Volume II
Para. 11-2

**TM 9-2350-255-20-2-2-2
COMMANDER'S WEAPON STATION SYSTEM TROUBLESHOOTING**

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

- 130025
- 130027
- 130029

**Additional Test
Equipment/Special Tools:**

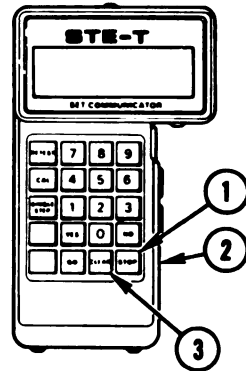
- Breakout Box Tool Kit, 12311088

Equipment Condition:

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

1

- Disconnect CX305-P1 from CA206-P2.
 - See figure 11-2.
- If connected, disconnect CA425-P2 from CX307-P1.
 - See figure 11-5.
- Disconnect 1W105-P3 from J1 on power control unit.
 - See figure 16-7.



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 1W105 between P1 and P3.
 - See figure 15-5.

Does VTM display show GOOD?

Figure 11-12 (Sheet 1 of 2)
**Volume II
Para. 11-2**

ARR82-6664

TM 9-2350-255-20-2-2-2
COMMANDER'S WEAPON STATION SYSTEM TROUBLESHOOTING

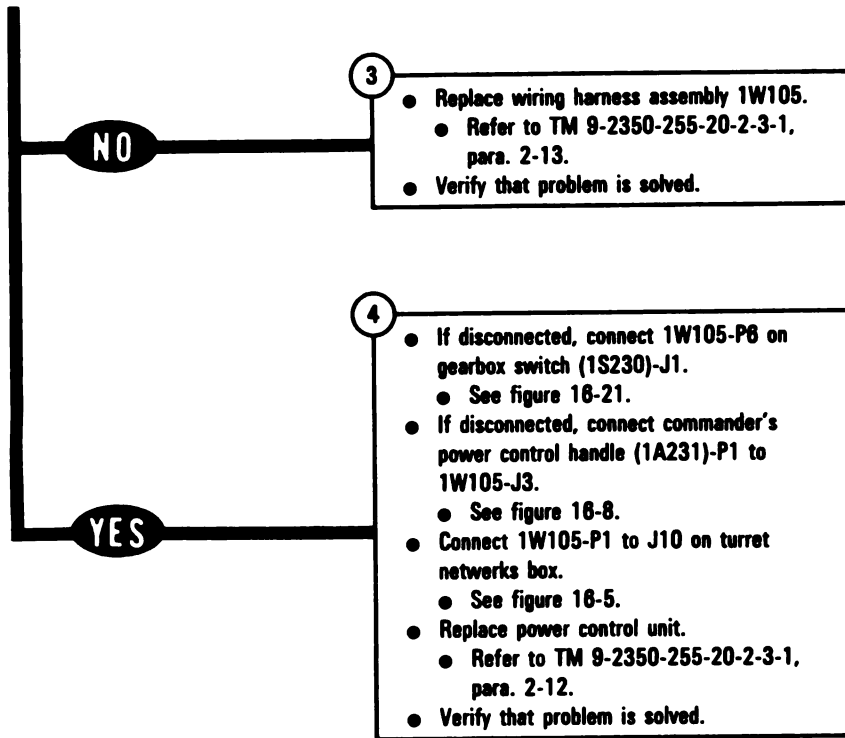


Figure 11-12 (Sheet 2 of 2)
Volume II
Para. 11-2

**TM 9-2350-255-20-2-2-2
COMMANDER'S WEAPON STATION SYSTEM TROUBLESHOOTING**

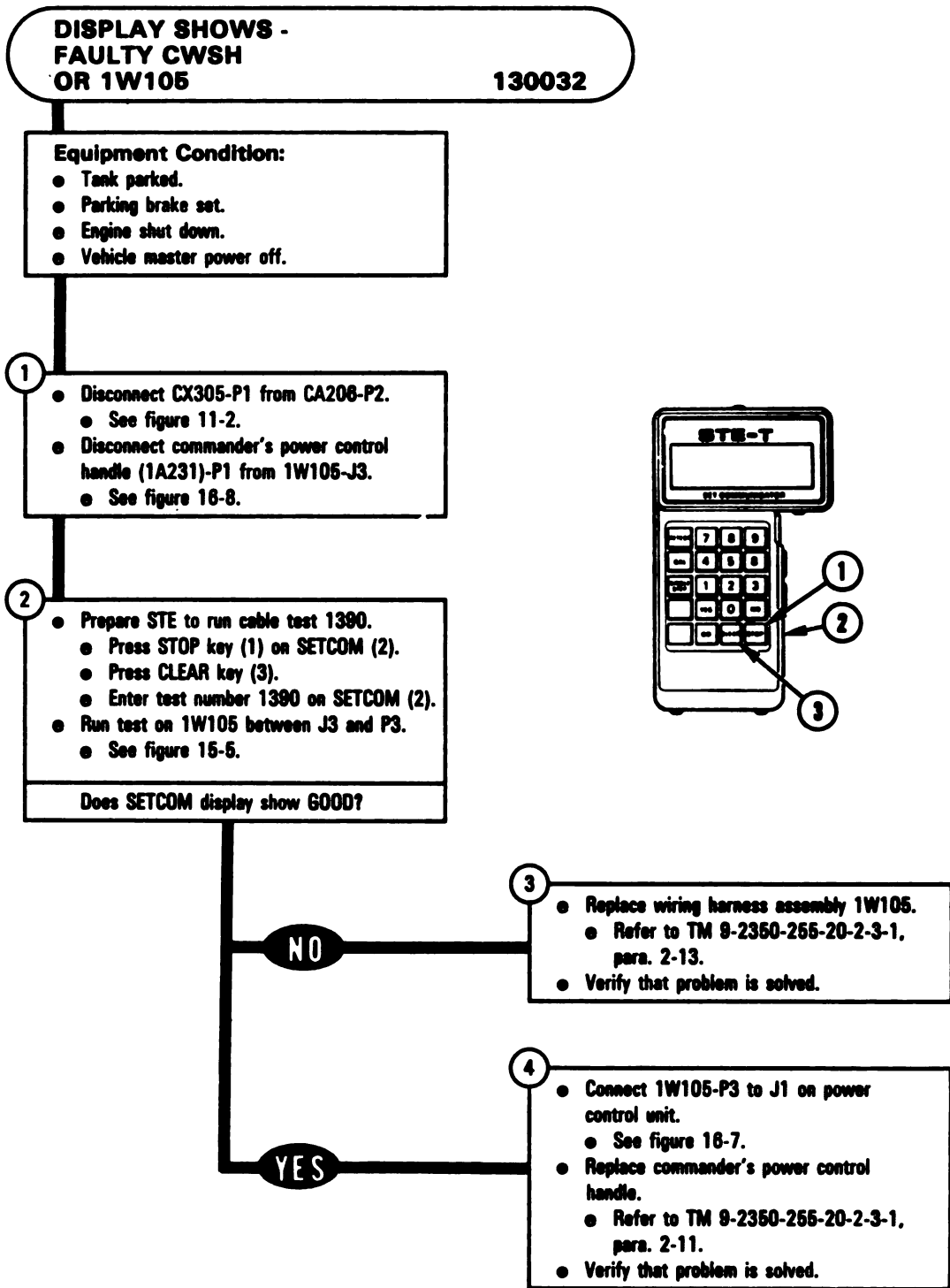


Figure 11-13
**Volume II
Para. 11-2**

AR

**DISPLAY SHOWS -
 MULTY CWSPU
 1W105** 130039

**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 CA208-P2.
 ● See figure 11-3.
 Disconnect CX304-P2 from CIB-J2.
 ● See figure 11-4.
 Disconnect 1W105-P3 from J1 on power
 control unit.
 ● See figure 18-7.**

**Connect CX304-P2 (1) to breakout box (2).
 Connect CX304-P1 (3) to CX307-P3 (4).
 Connect 1W105-P3 (5) to CA423-P1 (6).
 Connect CA423-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. 11-1.**

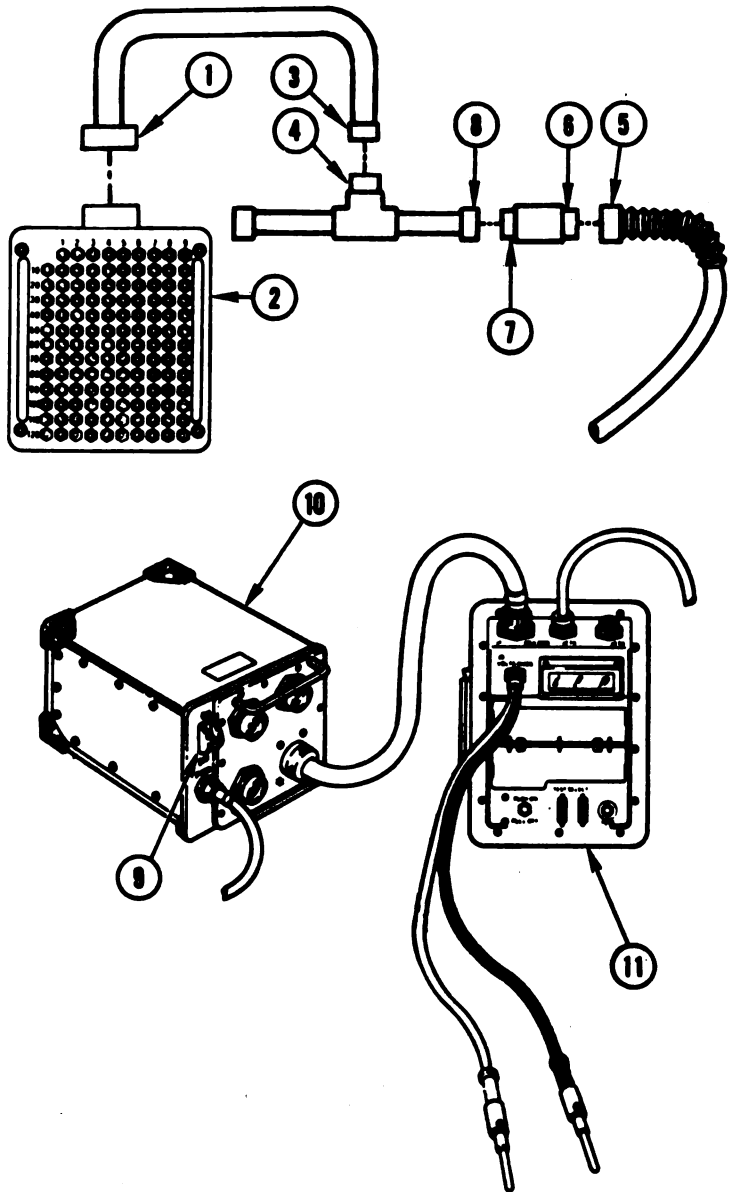


Figure 11-14 (Sheet 1 of 2)
**Volume II
 Para. 11-2**

ARR82-6666

TM 9-2350-255-20-2-2-2
COMMANDER'S WEAPON STATION SYSTEM TROUBLESHOOTING

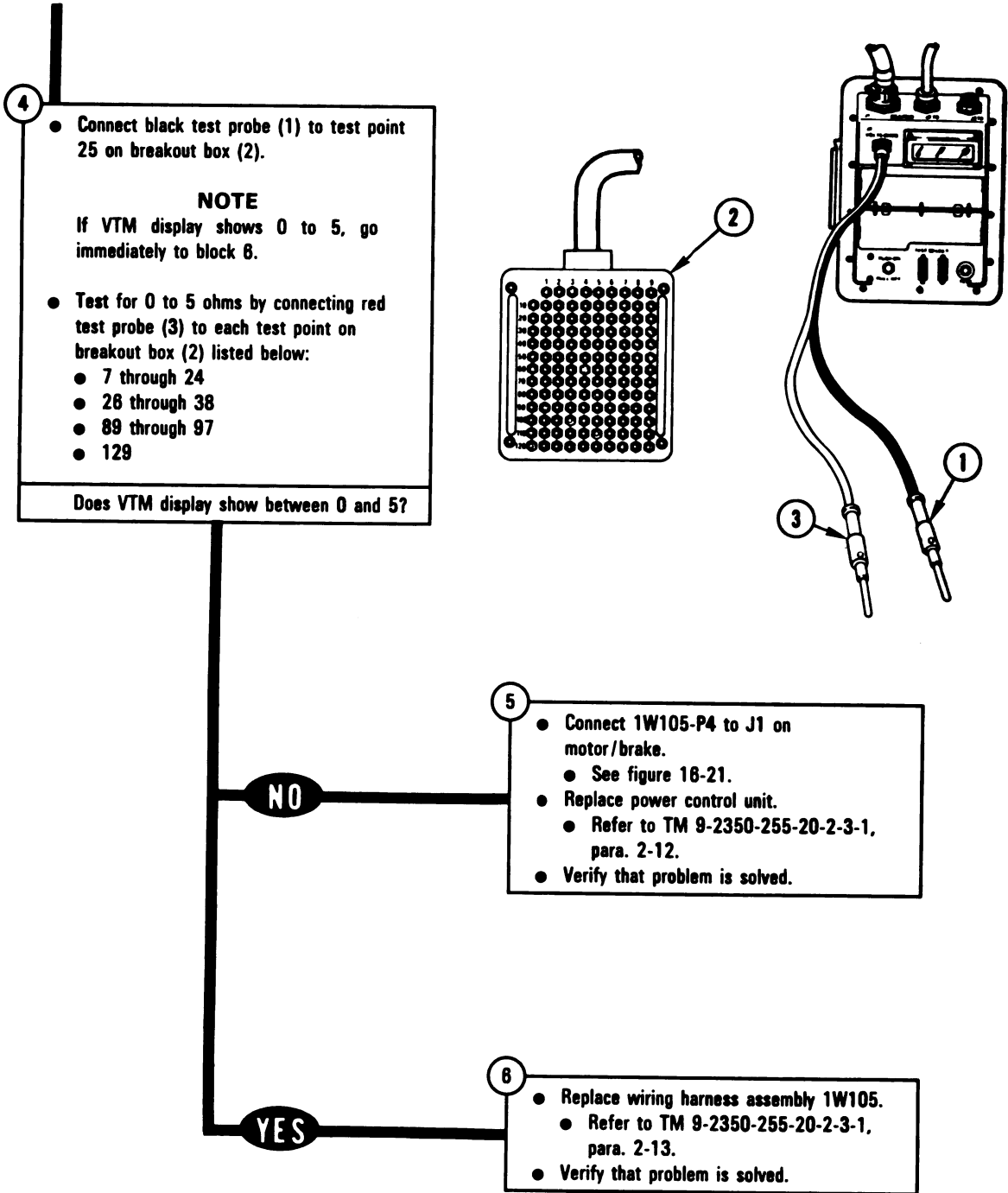


Figure 11-14 (Sheet 2 of 2)
Volume II
Para. 11-2

ARR82-8687

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

• 130024
 130030

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
- If disconnected, connect 1W105-P4 to J1 on motor/brake.
 - See figure 18-21.
 - If disconnected, connect commander's power control handle (1A231)-P1 to 1W105-J3.
 - See figure 18-8.
 - Disconnect CX304-P2 from CIB J2.
 - See figure 11-4.
 - Connect CX304-P2 (1) to breakout box (2).

- 2
- Disconnect CX304-P1 from CA208-P2.
 - See figure 11-3.
 - Connect CX304-P1 (3) to CX307-P3 (4).
 - Disconnect 1W105-P3 from J1 on power control unit.
 - See figure 18-7.
 - Connect 1W105-P3 (5) to CA423-P1 (6).
 - Connect CA423-P2 (7) to CX307-P1 (8).

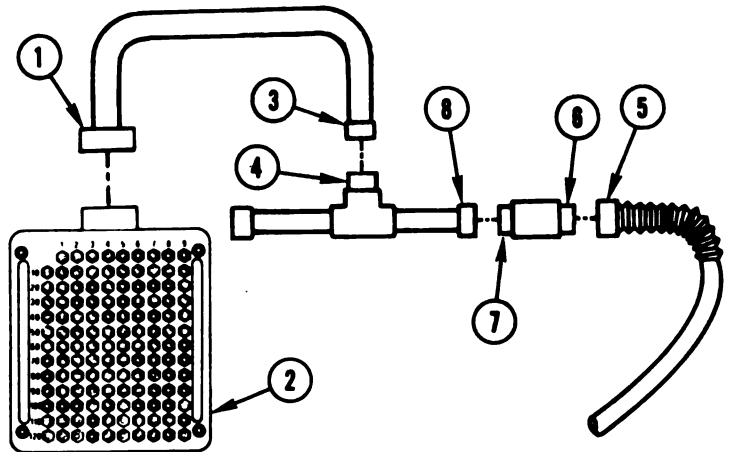


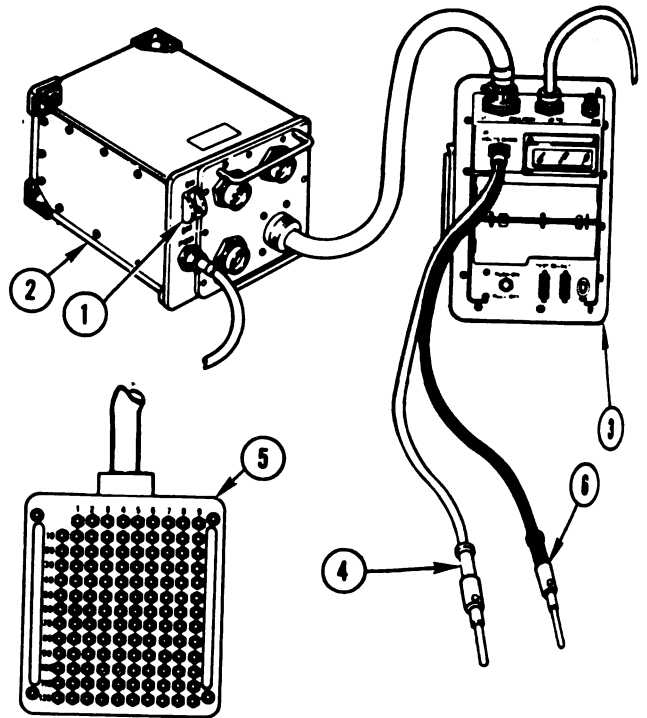
Figure 11-15 (Sheet 1 of 3)
Volume II
Para. 11-2

ARR82-8668

**TM 9-2350-255-20-2-2-2
COMMANDER'S WEAPON STATION SYSTEM TROUBLESHOOTING**

- 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. 11-1.

- 4
- Connect red test probe (4) to test point 27 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 28
 - 28 through 38
 - 89 through 97
 - 129
- Does VTM display show between 0 and 5?



- 5
- Replace wiring harness assembly 1W105.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

NO

YES

Figure 11-15 (Sheet 2 of 3)
**Volume II
Para. 11-2**

ARR82-8689

6

- Connect red test probe (1) to test point 31 on breakout box (2).

NOTE
 If VTM display shows 0 to 5, go immediately to black 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 30
 - 32 through 38
 - 89 through 97
 - 129

Does VTM display show between 0 and 5?

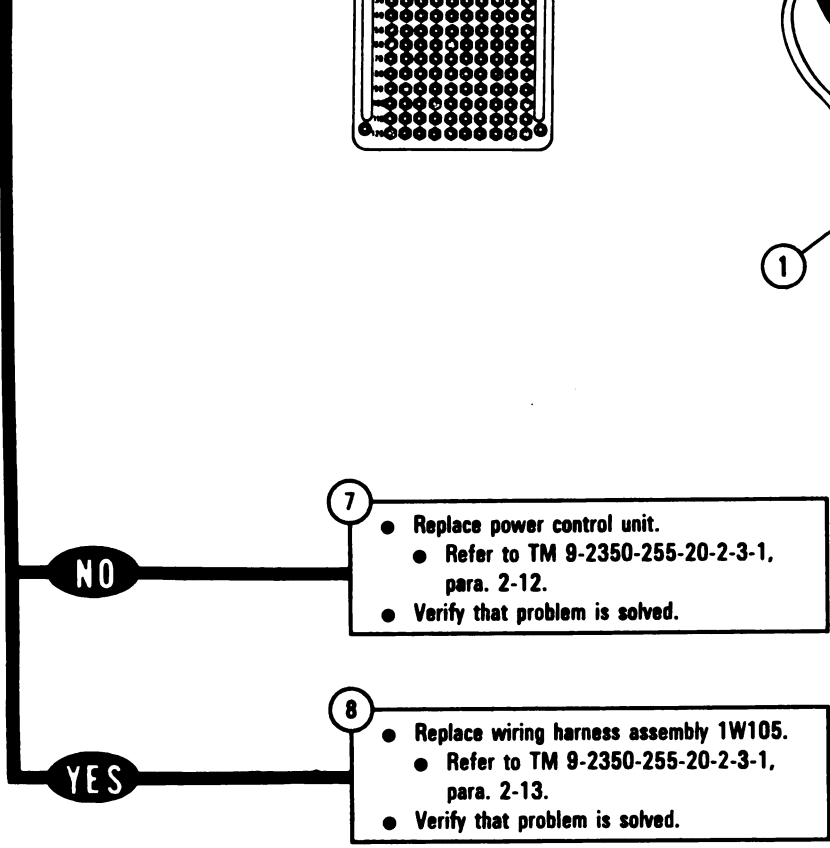
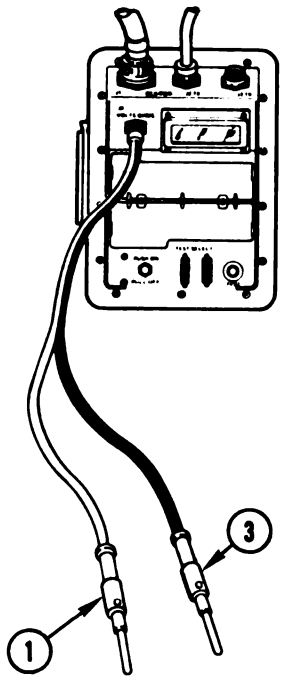
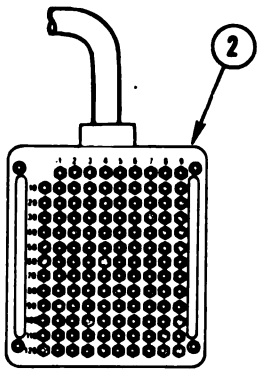


Figure 11-15 (Sheet 3 of 3)
 Volume II
 Para. 11-2

TM 9-2350-255-20-2-2-2
COMMANDER'S WEAPON STATION SYSTEM TROUBLESHOOTING

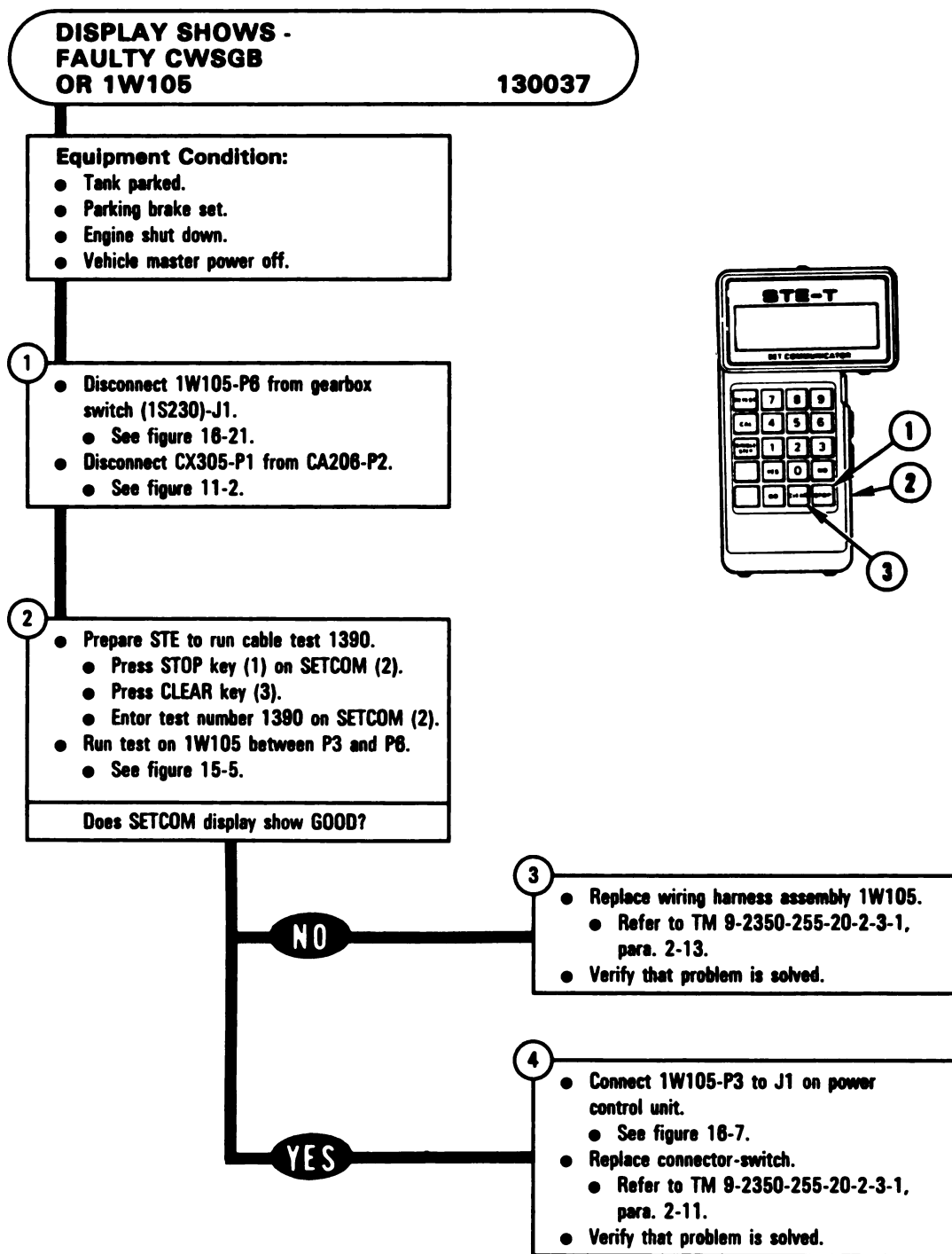


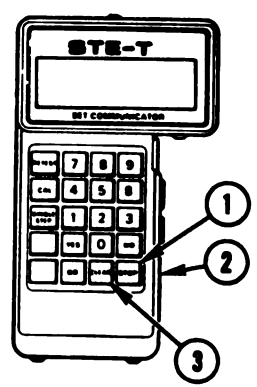
Figure 11-16
Volume II
Para. 11-2

**DISPLAY SHOWS -
 FAULTY CWSPU
 R 1W105**

- 130046
- 130051
- 130052
- 130053

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

Disconnect CX305-P1 from CA206-P2.
 ● See figure 11-2.
Disconnect 1W105-P3 from J1 on power control unit.
 ● See figure 16-7.



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 1W105 between P3 and P4.
 ● See figure 15-5.

Does SETCOM display show GOOD?

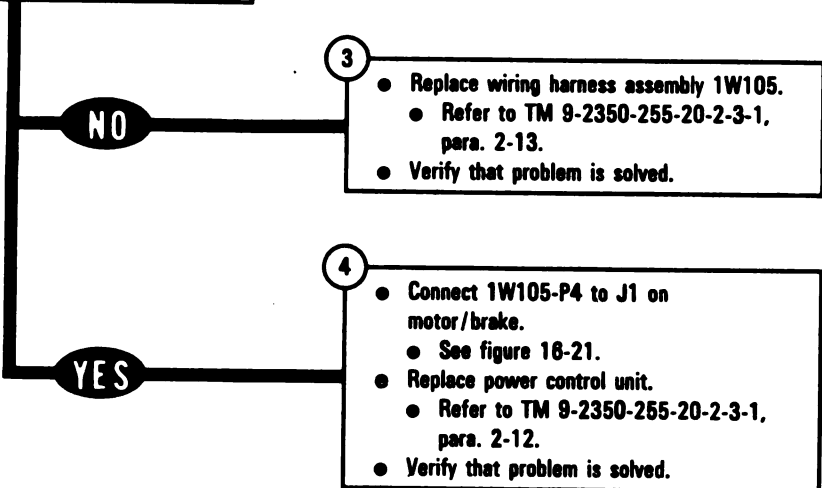


Figure 11-17
Volume II
Para. 11-2

ARR82-6672

**TM 9-2350-255-20-2-2-2
COMMANDER'S WEAPON STATION SYSTEM TROUBLESHOOTING**

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

130033

Supplies:

Electrical Jumpers (two required)

Additional Test

Equipment/Special Tools:

- Breakout Box Tool Kit, 12311066

Equipment Condition:

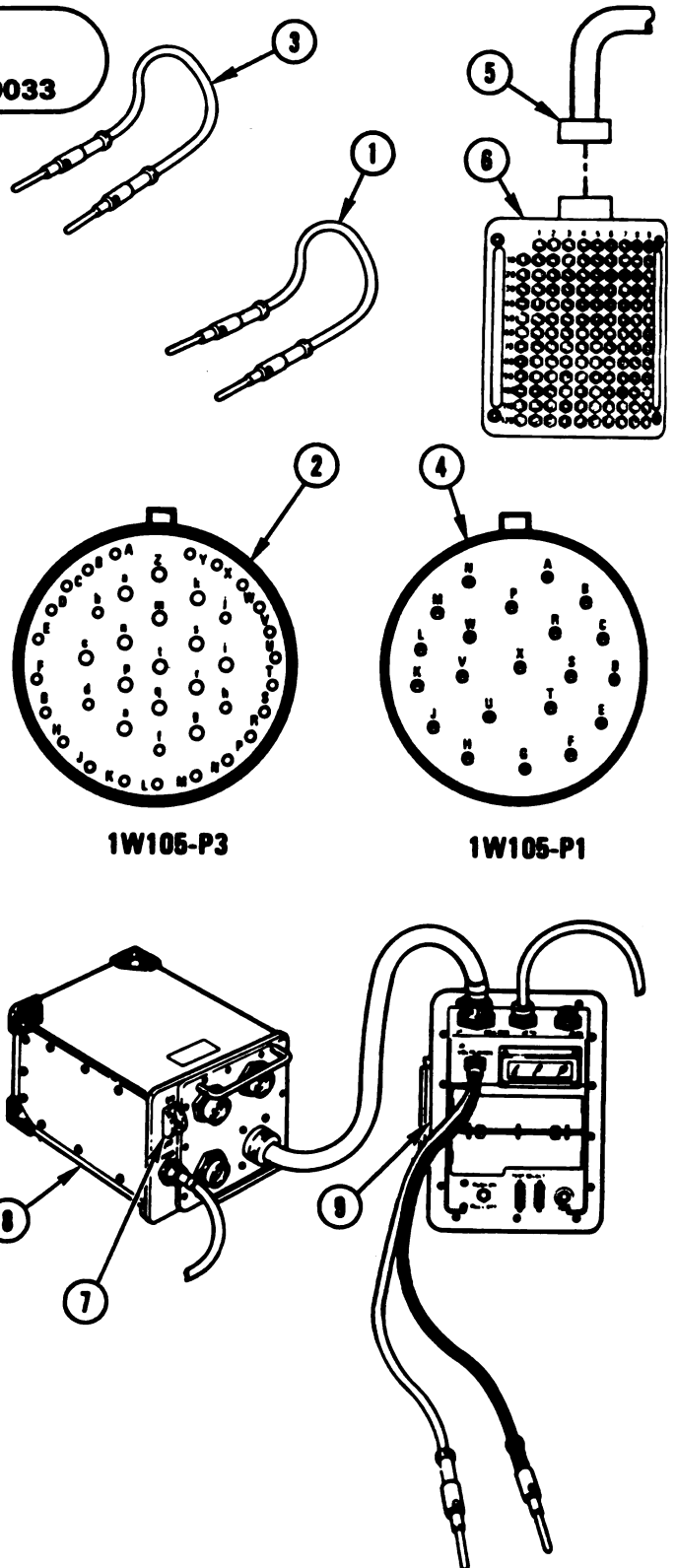
- Tank parked.
- Parking brake set.
- Engine shut down,
- Vehicle master power off.

1

- Disconnect 1W105-P3 from J1 on power control unit.
 - See figure 16-7.
- Connect jumper (1) between contacts C and W on 1W105-P3 (2).
- Disconnect 1W105-P1 from J10 on turret networks box.
 - See figure 16-5.
- Connect jumper(3) between contacts F and G on 1W105-P1 (4).

2

- Disconnect CX305-P2 from CIB-J1.
 - See figure 11-4.
- Connect CX305-P2 (5) to breakout box (6).
- 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. 11-1.



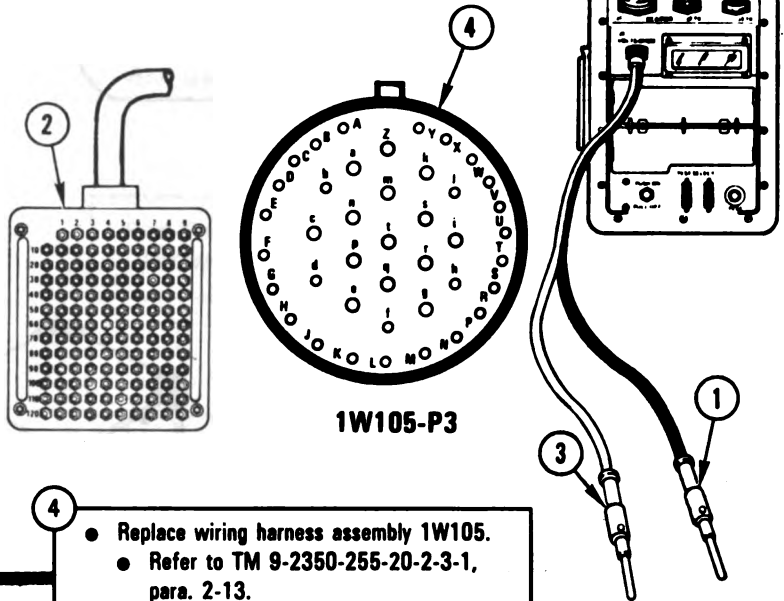
*Figure 11-18 (Sheet 1 of 2)
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Para. 11-2*

ARR82-6673

Test for continuity between test points 9 and 10 on breakout box.

- Connect black test probe (1) to test point 9 on breakout box (2).
- Connect red test probe (3) to test point 10 on breakout box (2).

Does VTM display show between 0 and 5?



NO

YES

4

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

Test for continuity between test point 10 on breakout box and contact X on 1W105-P3.

- Connect black test probe (1) to test point 10 on breakout box (2).
- Connect red test probe (3) to contact X on 1W105-P3 (4).

Does VTM display show between 0 and 5?

NO

YES

6

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

7

- Connect 1W105-P1 to J10 on turret networks box.
- See figure 16-5
- Connect 1W105-P4 to J1 on motor/brake.
- See figure 16-21.
- Replace power control unit.
- Refer to TM 9-2350-255-20-2-3-1, para. 2-12.
- Verify that problem is solved.

Figure 11-18 (Sheet 2 of 2)
Volume II
Para. 11-2

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

• 130041
 130050

**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 1W105-P3 from J1 on power control unit.
 - See figure 18-7.
 - 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. 11-1.

- 2
- Disconnect CX305-P2 from CIB-J1.
 - See figure 11-4.
 - Connect CX305-P2 (4) to breakout box (5).
 - Connect black test probe (8) to test point 12 on breakout box (5).
- NOTE**
 If VTM display shows 0 to 5 ohms, go immediately to block 3.
- Test for 0 to 5 ohms by connecting red test probe (7) to breakout box (5) listed below:
 - 7 and 13

Does VTM display show between 0 and 5?

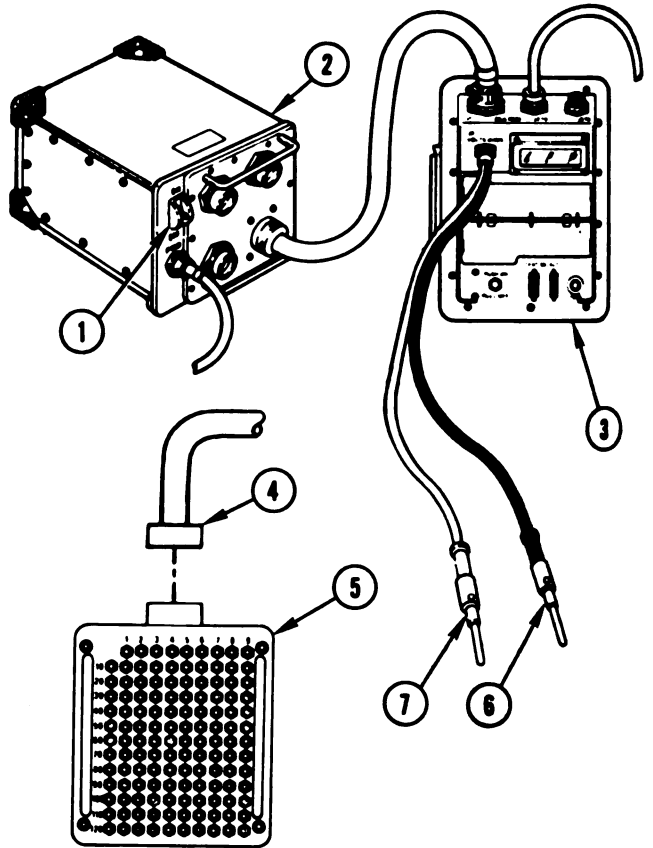


Figure 11-19 (Sheet 1 of 2)
 Volume II
 Para. 11-2

ARR82-6674

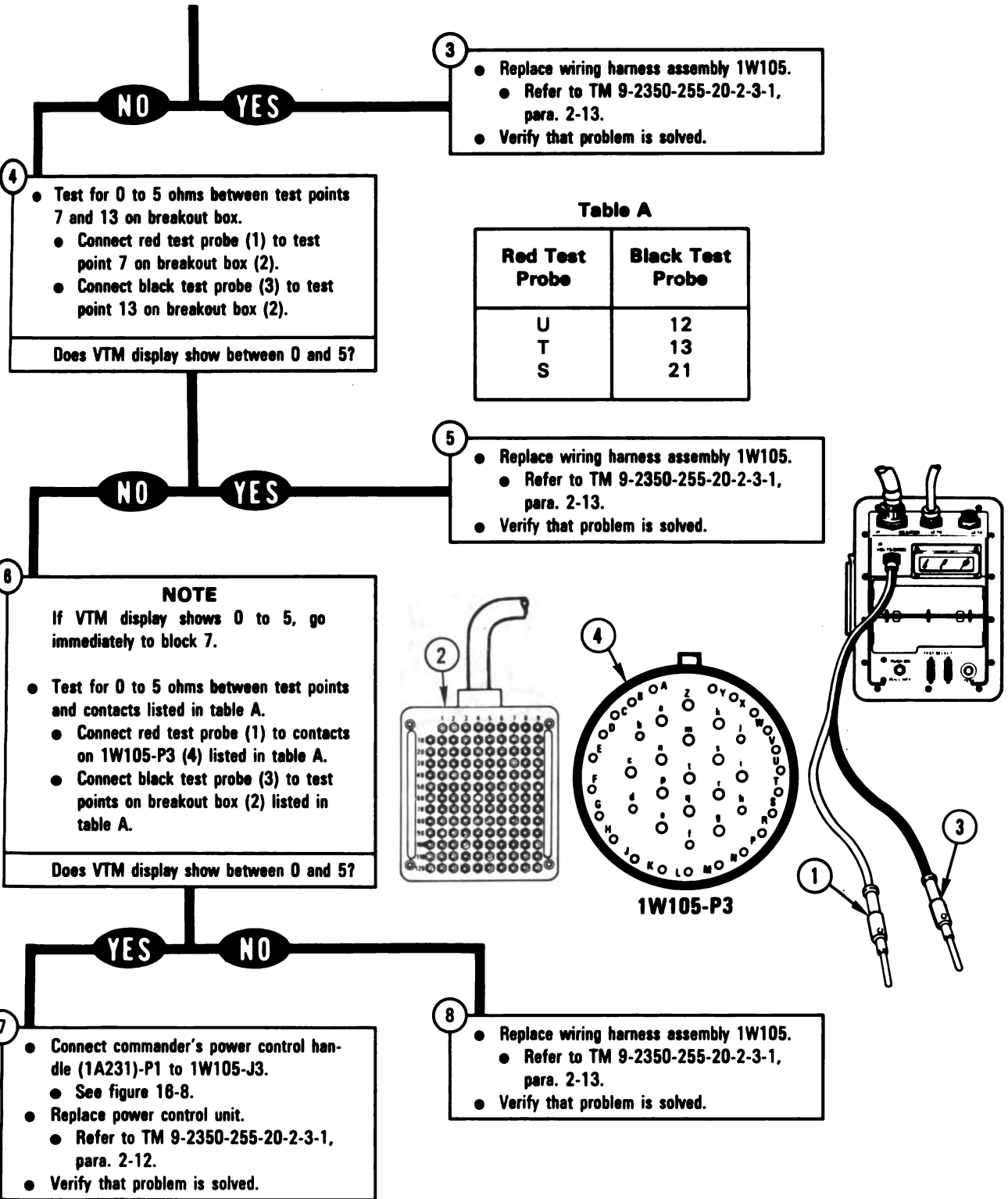


Figure 11-19 (Sheet 2 of 2)
 Volume II
 Para. 11-2

ARR82-6675

**TM 9-2350-255-20-2-2-2
COMMANDER'S WEAPON STATION SYSTEM TROUBLESHOOTING**

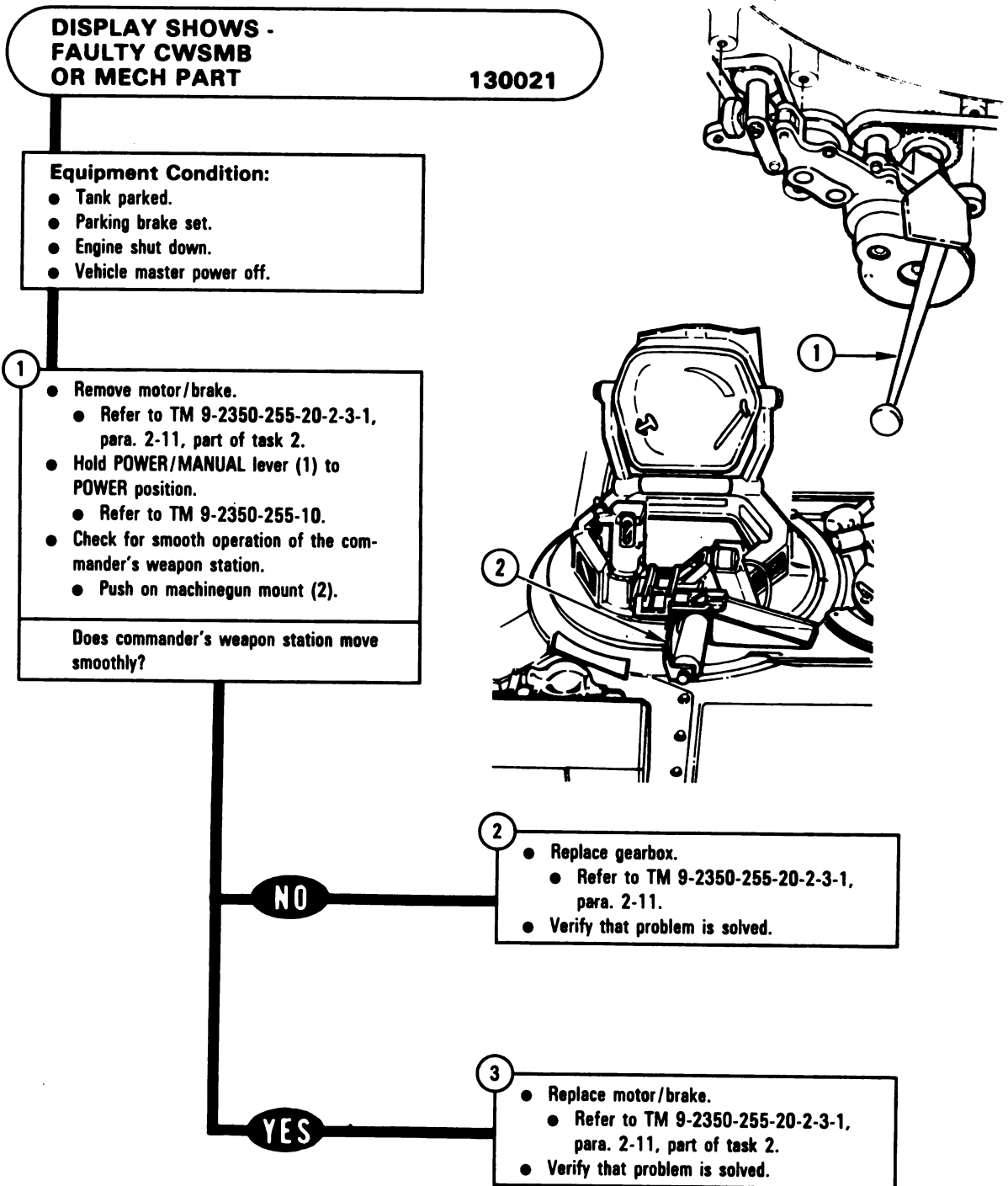


Figure 11-20
Volume II
Para. 11-2

ARR82-6676

CHAPTER 12

SMOKE GRENADE SYSTEM TROUBLESHOOTING

12-1. General. This chapter tells you how to troubleshoot the smoke grenade system.

A fault symptom index is located at the beginning of paragraph 12-2. The index identifies the primary procedure used to troubleshoot a known fault symptom. The primary procedures are located in paragraph 12-2.

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 performing troubleshooting procedures.
- 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 to gain access to the connector being checked.
- g. Use care when hooking up all connectors to avoid bending or breaking pins. Tighten connectors by hand only.
- 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 the multimeter and/or electrical jumpers, it will be necessary to attach pin/socket adapters to the multimeter probes or to the ends of the jumpers. For information on these items, refer to figure 15-2.
- m. When using electrical jumpers or multimeter test probes, remove them from contacts after completing each test unless otherwise noted by troubleshooting procedure. When connecting test probes where jumpers are already connected, lift jumper slightly so test probe can make contact.
- n. Before performing steps in replacement blocks, read preliminary procedures in maintenance manual to avoid connecting or installing unnecessary equipment.

**TM 9-2350-255-20-2-2-2
SMOKE GRENADE SYSTEM TROUBLESHOOTING**

12-2. Smoke Grenade System Troubleshooting Procedures.

Table 12-1. Smoke Grenade System (SGRS) Fault Symptom Index

Fault Symptom No.	Fault Symptom	Primary Troubleshooting Procedure (PTP)
SGRS-1	Neither Smoke Grenade Launcher Fires When SALVO 1 Or 2 Pushbutton Is Pressed	Figure 12-1
SGRS-2	Smoke Grenades Do Not Fire From Right Launcher When SALVO 1 Pushbutton Is Pressed. Left Launcher OK	Figure 12-2
SGRS-3	Smoke Grenades Do Not Fire From Left Launcher When SALVO 1 Pushbutton Is Pressed. Right Launcher OK	Figure 12-3
SGRS-4	Smoke Grenades Do Not Fire From Right Launcher When SALVO 2 Pushbutton Is Pressed. Left Launcher OK	Figure 12-4
SGRS-5	Smoke Grenades Do Not Fire From Left Launcher When SALVO 2 Pushbutton Is Pressed. Right Launcher OK	Figure 12-5
SGRS-6	Neither Launcher Fires Smoke Grenades When SALVO 1 Pushbutton Is Pressed	Figure 12-6
SGRS-7	Neither Launcher Fires Smoke Grenades When SALVO 2 Pushbutton Is Pressed	Figure 12-7
SGRS-8	All Smoke Grenades Fire When Only One SALVO Pushbutton Is Pressed	Figure 12-8
SGRS-9	Left Launcher Fires An Incorrect Number Of Smoke Grenades	Figure 12-9
SGRS-10	Right Launcher Fires An Incorrect Number Of Smoke Grenades	Figure 12-10
SGRS-11	One Salvo Of Smoke Grenades Fires Without Pressing SALVO Pushbuttons	Figure 12-11

MPTOM SGRS-1

**OTHER SMOKE GRENADE LAUNCHER
TESTS WHEN SALVO 1 OR 2 PUSH-
BUTTON IS PRESSED**

Common Tools:

Wrenches, slip joint, conduit style with plastic
w/ inserts

Supplies:

Selector Pin/Socket Adapters
Terminal jumpers

Test Equipment/Special Tools:

Breakout Box Tool Kit, 12311088
Multimeter

Equipment Conditions:

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

WARNING

To prevent injury, make sure launchers are
red. Grenades can accidentally fire and
injure you.

NOTE

Read para. 12-1 before doing any work.

Set up tank controls for standard initial
test conditions.

- Refer to para. 16-8, table 16-2.

**TM 9-2350-255-20-2-2-2
SMOKE GRENADE SYSTEM TROUBLESHOOTING**

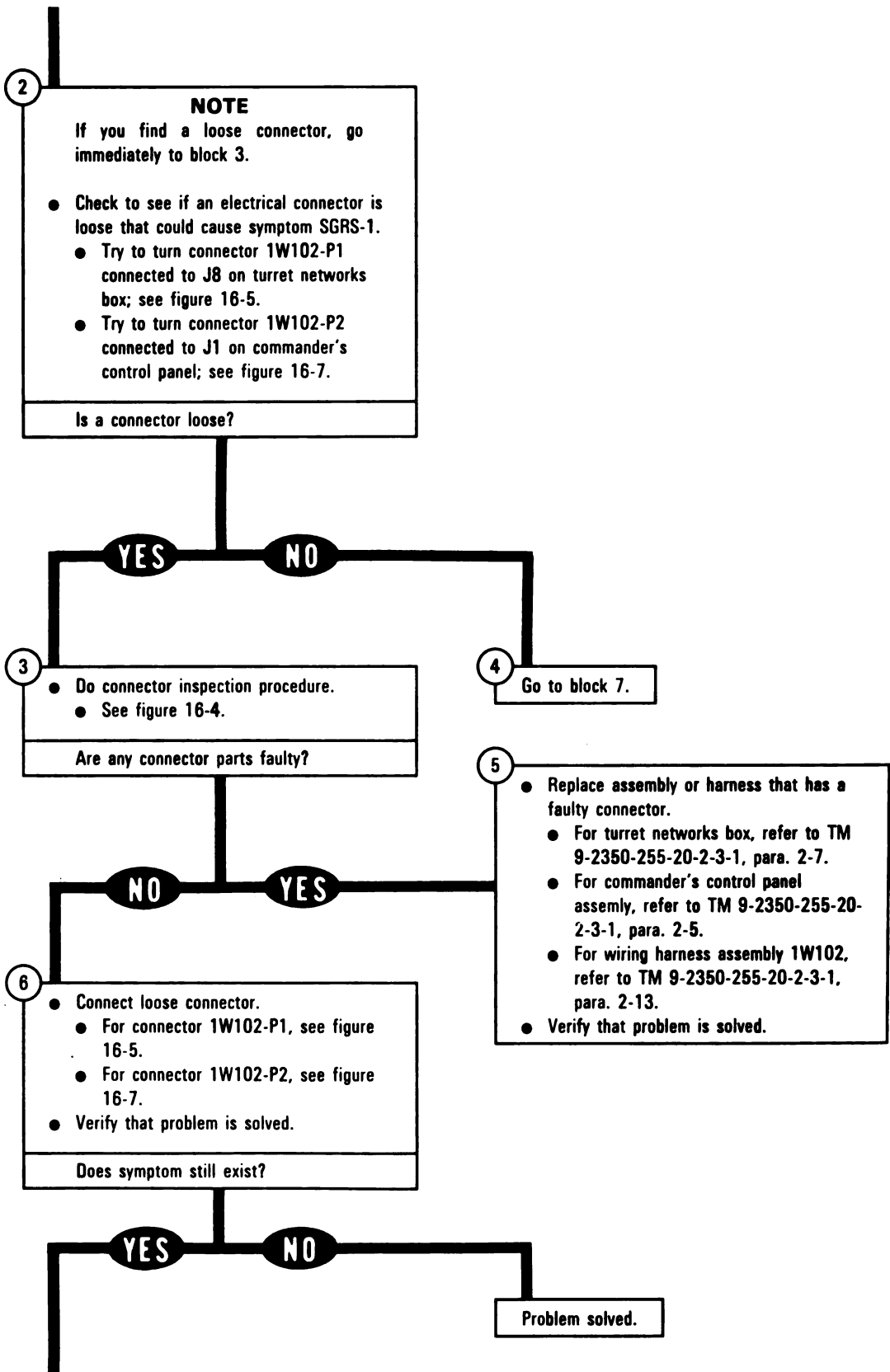


Figure 12-1 (Sheet 2 of 5)
**Volume II
Para. 12-2**

TM 9-2350-255-20-2-2-2
SMOKE GRENADE SYSTEM TROUBLESHOOTING

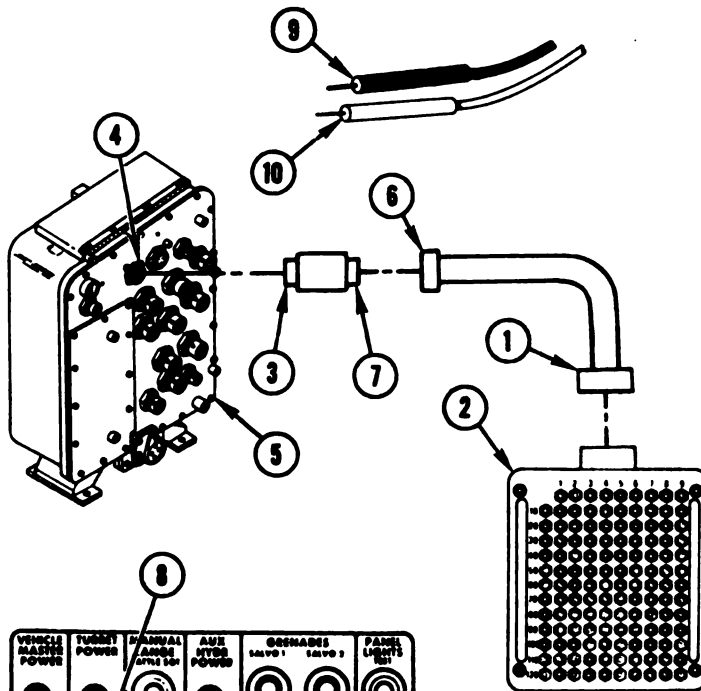
From block 4

NOTE

Make sure vehicle master power is off.

Connect breakout box to TEST 1 on turret networks box.

- ▶ 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 TURRET POWER switch (8) to ON.

Test for 18 to 30 V dc between test points 9 (-) and 84 (+) on breakout box.

- Connect black test probe (9) to test point 9 on breakout box (2).
- Connect red test probe (10) to test point 84 on breakout box (2).

Does multimeter show 18 to 30 V dc?

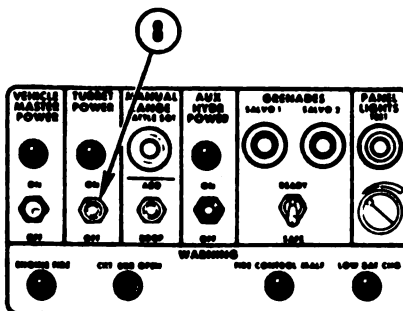


Figure 12-1 (Sheet 3 of 5)
Volume II
Para. 12-2

ARR82-8677

TM 9-2350-255-20-2-2-2
SMOKE GRENADE SYSTEM TROUBLESHOOTING

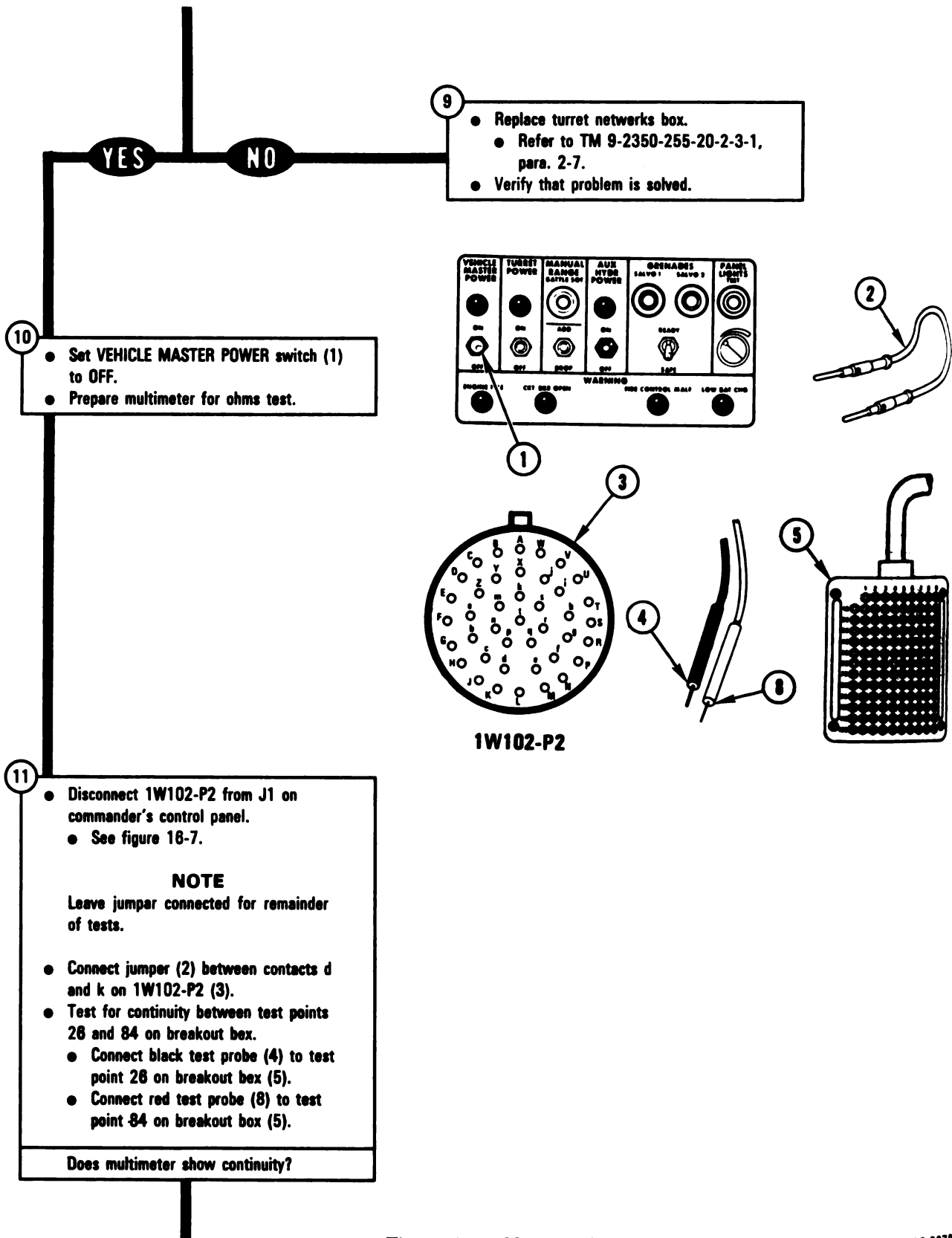
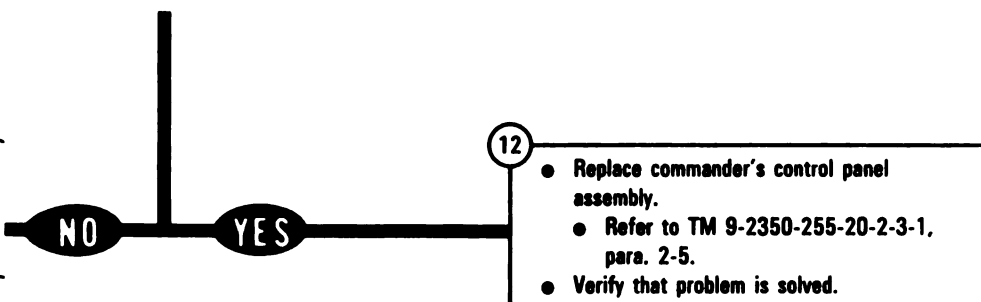


Figure 12-1 (Sheet 4 of 5)
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Para. 12-2

ARR82-6678

**TM 9-2350-255-20-2-2-2
SMOKE GRENADE SYSTEM TROUBLESHOOTING**



Disconnect 1W102-P1 from J8 on turret networks box.
See figure 16-5.
Test for continuity between contacts d and k on 1W102-P1.
Connect black test probe (1) to contact d on P1 (2).
Connect red test probe (3) to contact k on P1 (2).

Does multimeter show continuity?

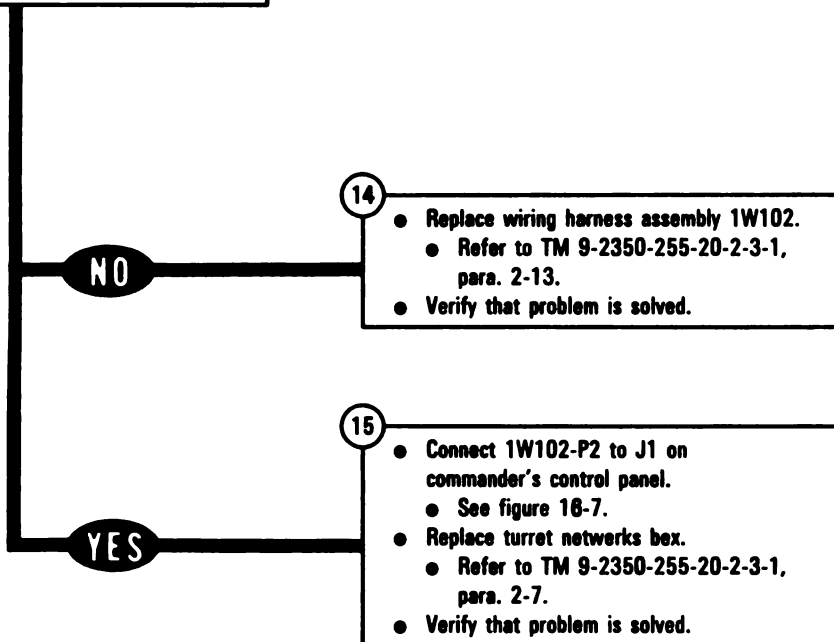
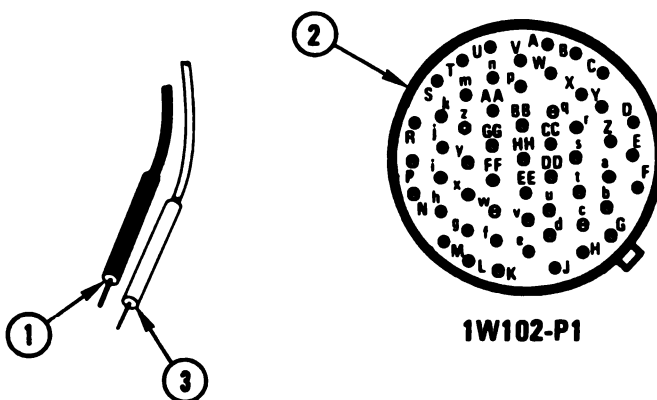


Figure 12-1 (Sheet 5 of 5)
Volume II
Para. 12-2

ARR82-6679

TM 9-2350-255-20-2-2-2
SMOKE GRENADE SYSTEM TROUBLESHOOTING

SYMPTOM SGRS-2

**SMOKE GRENADES DO NOT FIRE FROM
RIGHT LAUNCHER WHEN SALVO 1 PUSH-
BUTTON IS PRESSED. LEFT LAUNCHER OK**

Common Tools:

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

Supplies:

- Connector Pin/Socket Adapters
- Electrical Jumpers

Test Equipment/Special Tools:

- Multimeter

Equipment Conditions:

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

WARNING

To prevent injury, make sure launchers are unloaded. Grenades can accidentally fire and kill you.

NOTE

Read para. 12-1 before doing any work.

1

- Set up tank controls for standard initial test conditions.
- Refer to para. 16-6, table 16-2.

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

NOTE

you find a loose connector, go immediately to block 3.

Check to see if an electrical connector is loose that could cause symptom SGRS-2.

Try to turn connector 1W105-P1 connected to J10 on turret networks box; see figure 18-5.

Try to turn connector 1W109-P1 connected to 1W105-J1; see figure 18-24.
Try to turn connector 1W109-P2 connected to J1 on right launcher; see figure 18-24.

Is a connector loose?

YES

NO

Go to connector inspection procedure. See figure 18-4.

Are any connector parts faulty?

NO

YES

Connect loose connector.
• For connector 1W105-P1, see figure 18-5.
• For connectors 1W109-P1 and P2, see figure 18-24.
Verify that problem is solved.

Does symptom still exist?

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 right smoke grenade launcher, refer to TM 9-2350-255-20-2-3-3, para. 8-5.
- For wiring harness assembly 1W105 or branched wiring harness 1W109, refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

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

TM 9-2350-255-20-2-2-2
SMOKE GRENADE SYSTEM TROUBLESHOOTING

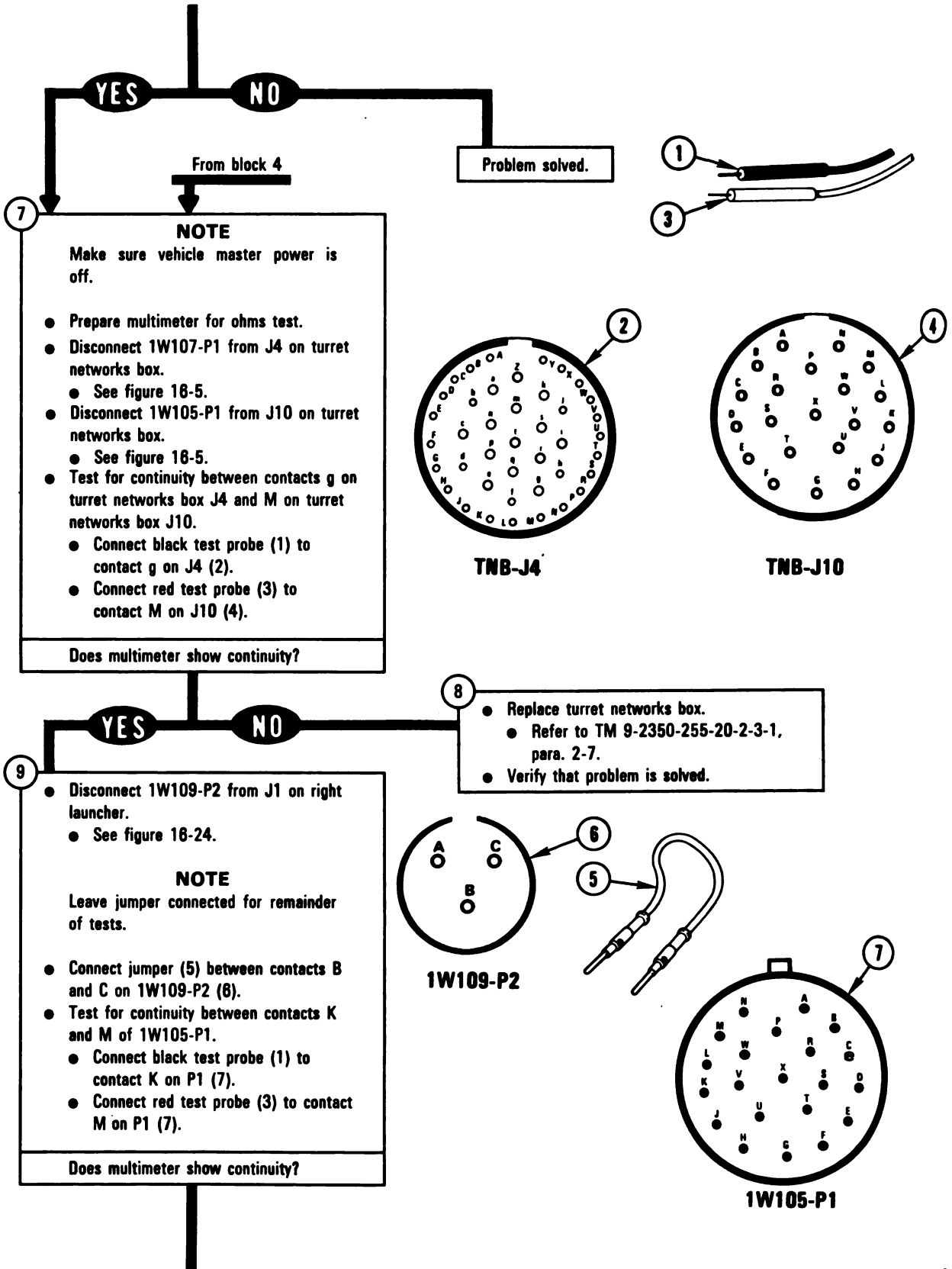


Figure 12-2 (Sheet 3 of 4)
 Volume II
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ARR82-6680

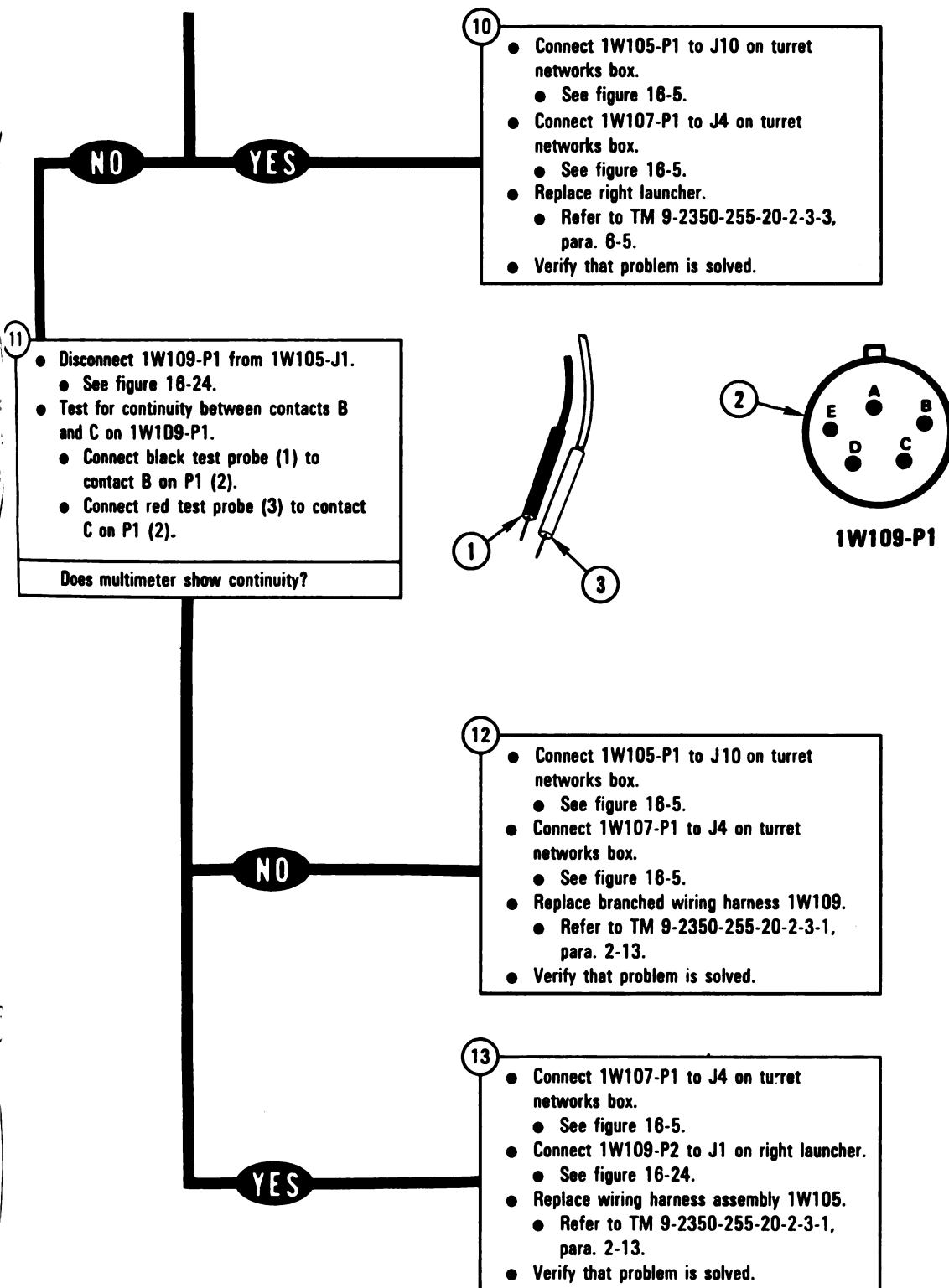


Figure 12-2 (Sheet 4 of 4)
Volume II
Para. 12-2

SYMPTOM SGRS-3

SMOKE GRENADES DO NOT FIRE FROM LEFT LAUNCHER WHEN SALVO 1 PUSH-BUTTON IS PRESSED. RIGHT LAUNCHER OK

Common Tools:

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

Supplies:

Connector Pin/Socket Adapters
Electrical Jumpers

Test Equipment/Special Tools:

- Multimeter

Equipment Conditions:

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

WARNING

To prevent injury, make sure launchers are unloaded. Grenades can accidentally fire and kill you.

NOTE

Read para. 12-1 before doing any work.

1

- Set up tank controls for standard initial test conditions.
- Refer to para. 16-6, table 16-2.

Figure 12-3 (Sheet 1 of 4)
Volume II
Para. 12-2

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 SGRS-3.

- Try to turn connector 1W107-P1 connected to J4 on turret networks box; see figure 16-5.

- Try to turn connector 1W110-P1 connected to 1W107-J3; see figure 16-25.
- Try to turn connector 1W110-P2 connected to J1 on left launcher; see figure 16-25.

Is a connector loose?

YES

NO

Do connector inspection procedure.

- See figure 16-4.

Are any connector parts faulty?

NO

YES

Connect loose connector.

- For connector 1W107-P1, see figure 16-5.
 - For connector 1W110-P1 and P2, see figure 16-25.
- Verify that problem is solved.

Does symptom still exist?

4

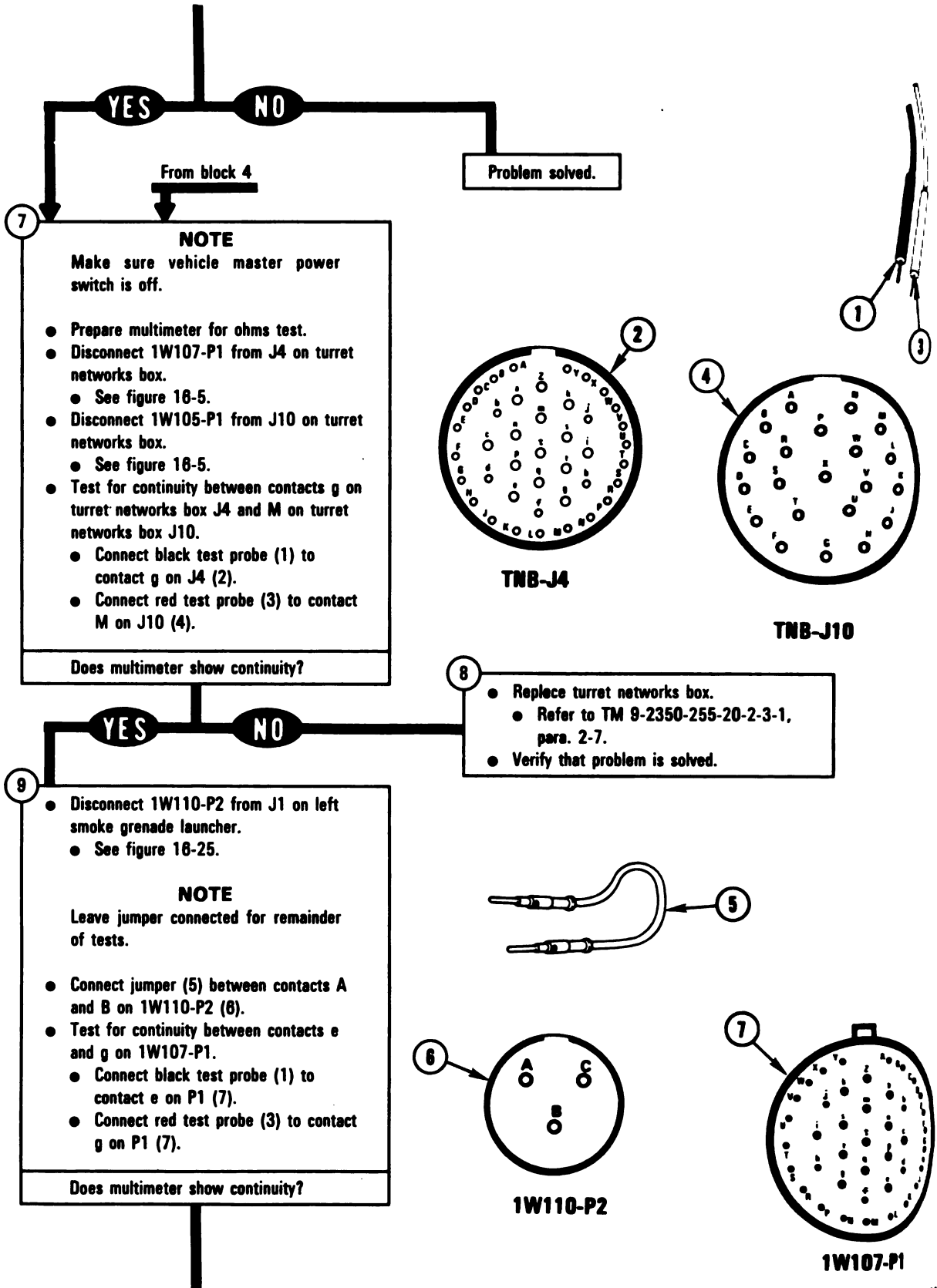
Go to block 7.

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 left smoke grenade launcher, refer to TM 9-2350-255-20-2-3-3, para. 6-5.
 - For branched wiring harness 1W107 or wiring harness assembly 1W110, refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

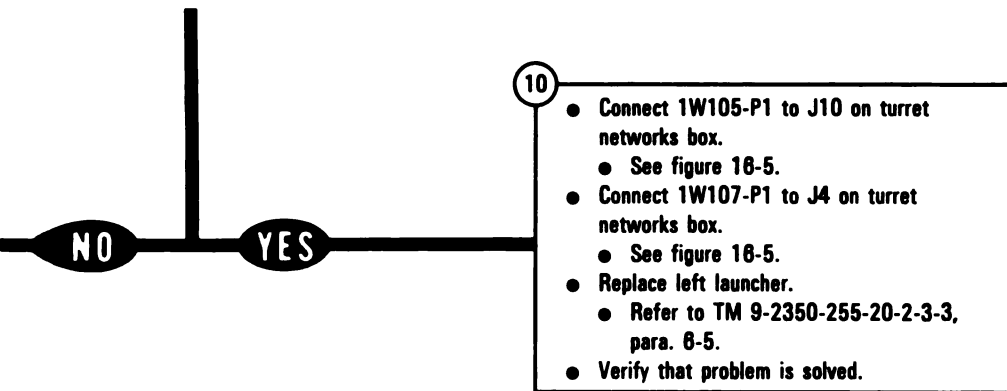
Figure 12-3 (Sheet 2 of 4)
Volume II
Para. 12-2

**TM 9-2350-255-20-2-2-2
SMOKE GRENADE SYSTEM TROUBLESHOOTING**



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

TM 9-2350-255-20-2-2-2
SMOKE GRENADE SYSTEM TROUBLESHOOTING



Disconnect 1W110-P1 from 1W107-J3.
 ● See figure 18-25.
 Test for continuity between contacts A and B on 1W110-P1.
 ● Connect black test probe (1) to contact A on P1 (2).
 ● Connect red test probe (3) to contact B on P1 (2).

Does multimeter show continuity?

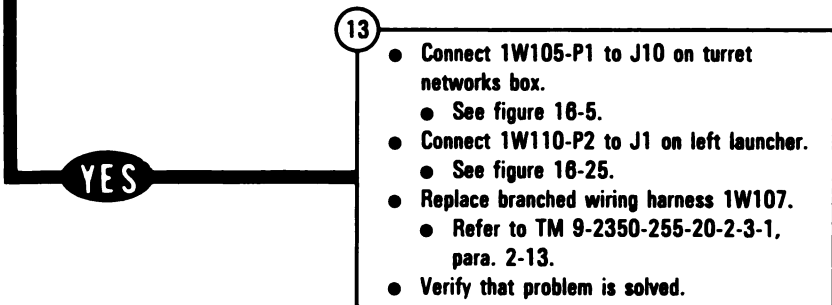
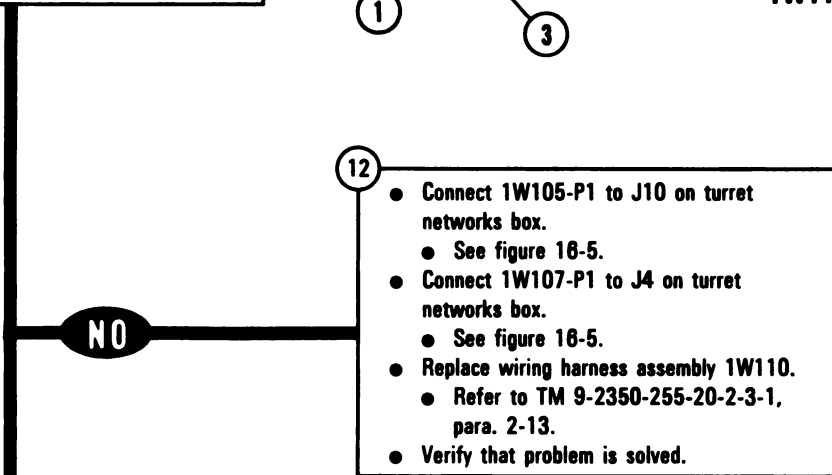
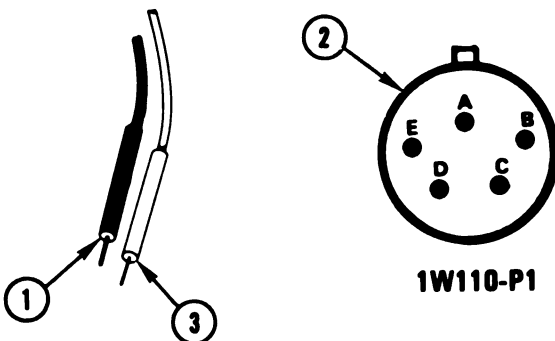


Figure 12-3 (Sheet 4 of 4)
Volume II
Para. 12-2

ARR82-6683

SYMPTOM SGRS-4

SMOKE GRENADES DO NOT FIRE FROM RIGHT LAUNCHER WHEN SALVO 2 PUSH-BUTTON IS PRESSED. LEFT LAUNCHER OK

Common Tools:

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

Supplies:

- Connector Pin/Socket Adapters
- Electrical Jumpers

Test Equipment/Special Tools:

- Multimeter

Equipment Conditions:

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

WARNING

To prevent injury, make sure launchers are unloaded. Grenades can accidentally fire and kill you.

NOTE

Read para. 12-1 before doing any work.

1

- Set up tank controls for standard initial test conditions.
- Refer to para. 16-6, table 16-2.

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

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 SGRS-4.

- Try to turn connector 1W105-P1 connected to J10 on turret networks box; see figure 16-5.

- Try to turn connector 1W109-P1 connected to 1W105-J1; see figure 16-24.
- Try to turn connector 1W109-P2 connected to J1 on right launcher; see figure 16-24.

Is a connector loose?

YES

NO

- Do connector inspection procedure.
- See figure 16-4.

Are any connector parts faulty?

NO

YES

- Connect loose connector.
- For connector 1W105-P1, see figure 16-5.
- For connectors 1W109-P1 and P2, see figure 16-24.
- Verify that problem is solved.

Does symptom still exist?

4

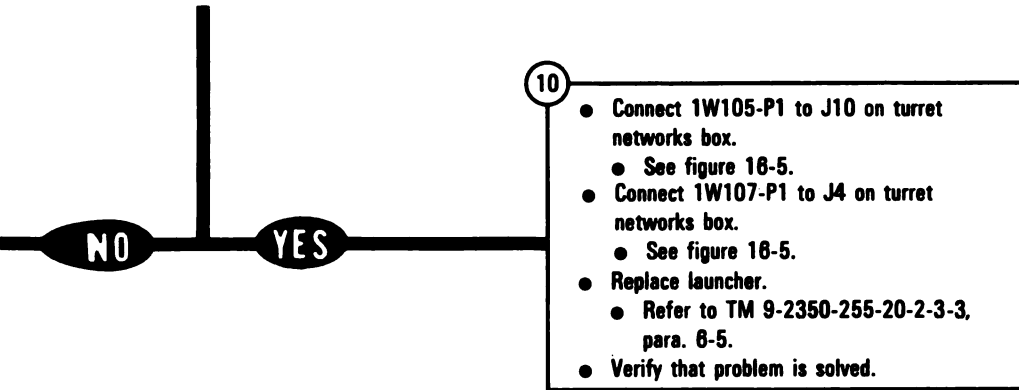
Go to block 7.

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 right launcher, refer to TM 9-2350-255-20-2-3-3, para. 6-5.
- For wiring harness assembly 1W105 or branched wiring harness 1W109, refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

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

TM 9-2350-255-20-2-2-2
SMOKE GRENADE SYSTEM TROUBLESHOOTING



Disconnect 1W109-P1 from 1W105-J1.

- See figure 18-24.

Test for continuity between contacts A and B on 1W109-P1.

- Connect black test probe (1) to contact A on P1 (2).
- Connect red test probe (3) to contact B on P1 (2).

Does multimeter show continuity?

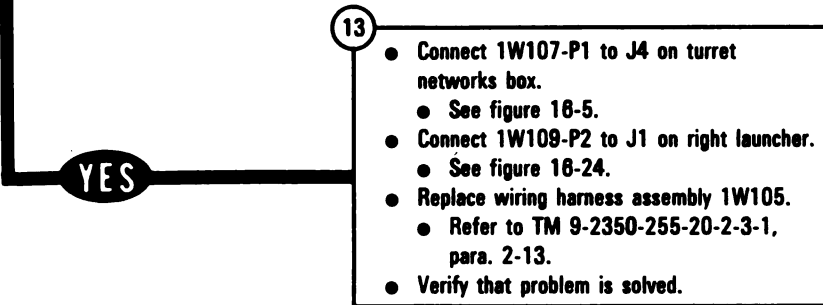
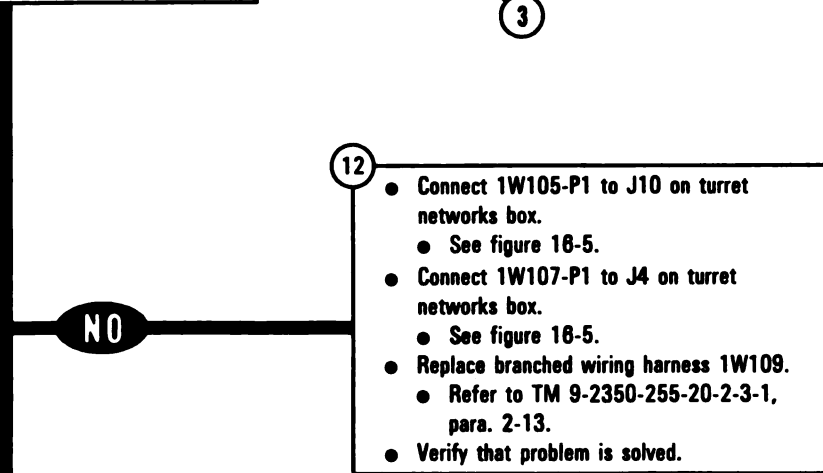
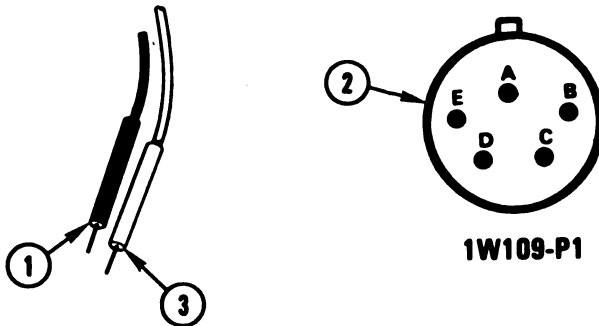


Figure 12-4 (Sheet 4 of 4)
Volume II
Para. 12-2

ARR82-6685

SYMPTOM SGRS-5

SMOKE GRENADES DO NOT FIRE FROM LEFT LAUNCHER WHEN SALVO 2 PUSH-BUTTON IS PRESSED. RIGHT LAUNCHER OK

Common Tools:

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

Supplies:

- Connector Pin/Socket Adapters
- Electrical Jumpers

Test Equipment/Special Tools:

- Multimeter

Equipment Conditions:

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

WARNING

To prevent injury, make sure launchers are unloaded. Grenades can accidentally fire and kill you.

NOTE

Read para. 12-1 before doing any work.

1

- Set up tank controls for standard initial test conditions.
- Refer to para. 16-6, table 16-2.

Figure 12-5 (Sheet 1 of 4)
Volume II
Para. 12-2

NOTE

you find a loose connector, go immediately to block 3.

Check to see if an electrical connector is loose that could cause symptom SGRS-5.

- Try to turn connector 1W107-P1 connected to J4 on turret networks box; see figure 16-5.

- Try to turn connector 1W110-P1 connected to 1W107-J3; see figure 16-25.
- Try to turn connector 1W110-P2 connected to J1 on left launcher; see figure 16-25.

Is a connector loose?

YES

NO

Do connector inspection procedure.
• See figure 16-4.

Are any connector parts faulty?

NO

YES

- Connect loose connector.
 - For connector 1W107-P1, see figure 16-5.
 - For connector 1W110-P1 and P2, see figure 16-25.
- Verify that problem is solved.

Does symptom still exist?

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 left launcher, refer to TM 9-2350-255-20-2-3-3, para. 6-5.
 - For branched wiring harness 1W107 or wiring harness assembly 1W110, refer to TM 9-2350-255-20-2-3-1, para. 2-13.
- Verify that problem is solved.

Figure 12-5 (Sheet 2 of 4)
Volume II
Para. 12-2

**TM 9-2350-255-20-2-2
SMOKE GRENADE SYSTEM TROUBLESHOOTING**

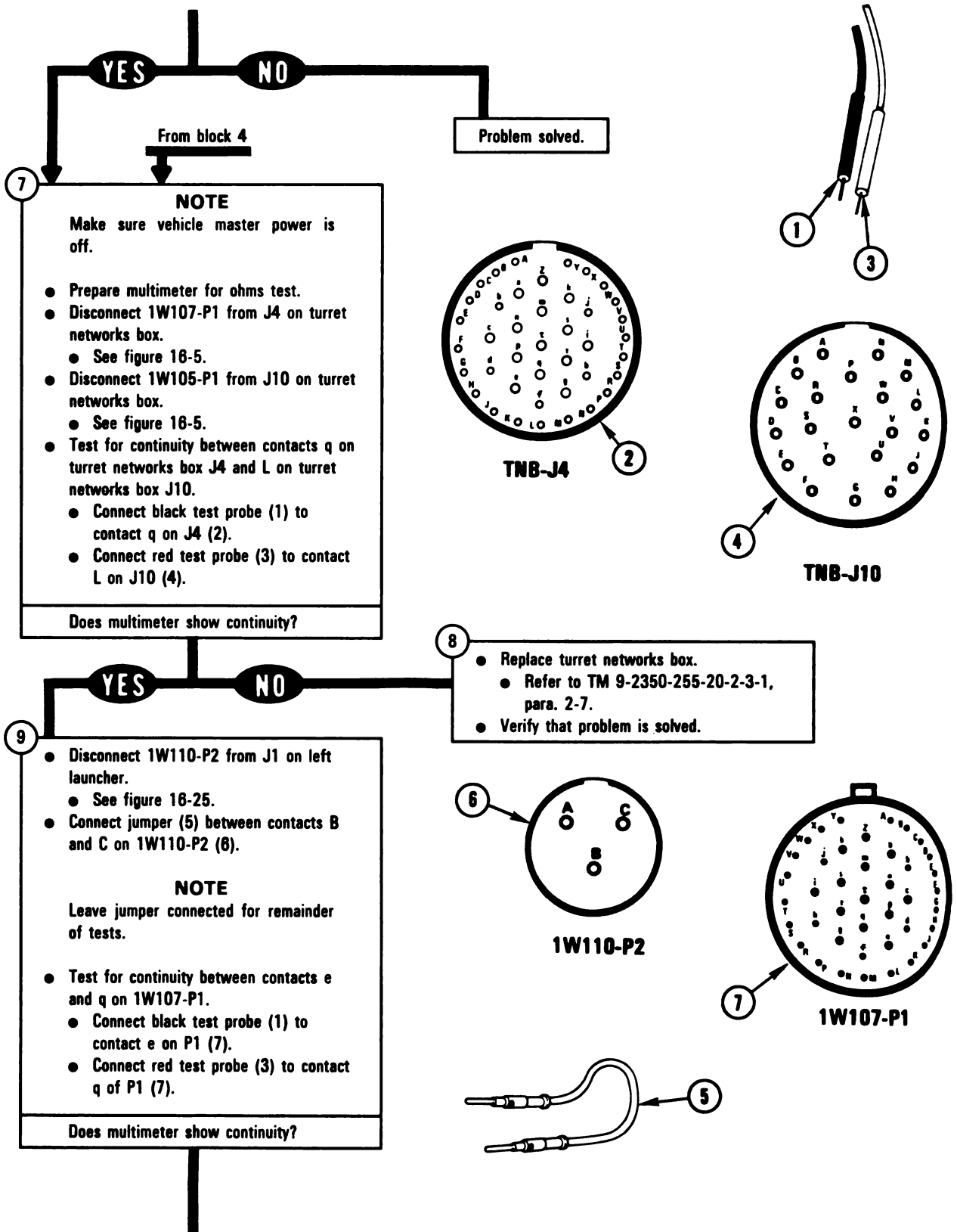


Figure 12-5 (Sheet 3 of 4)
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Para. 12-2

ARR82-6686

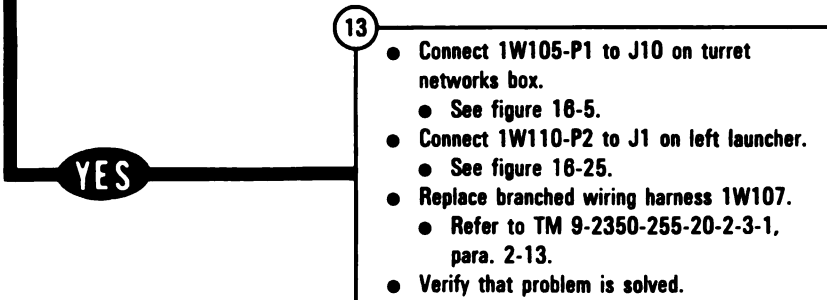
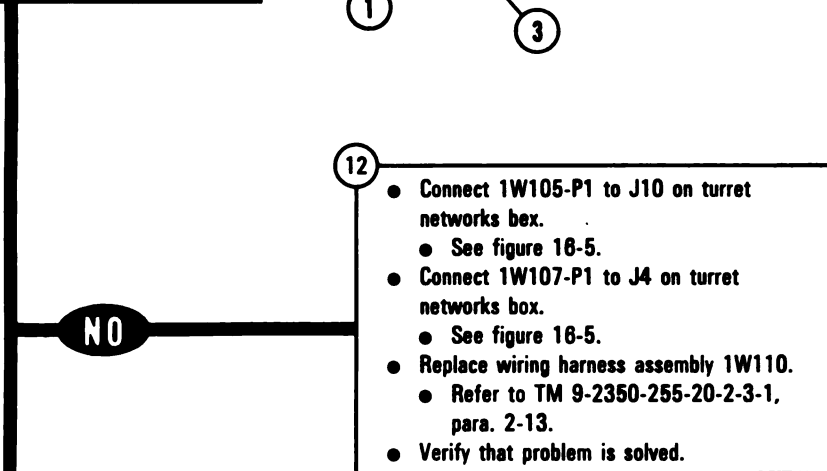
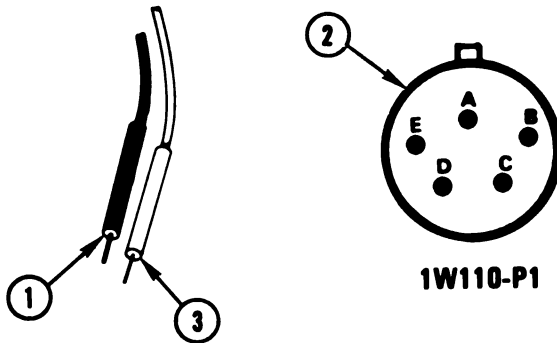
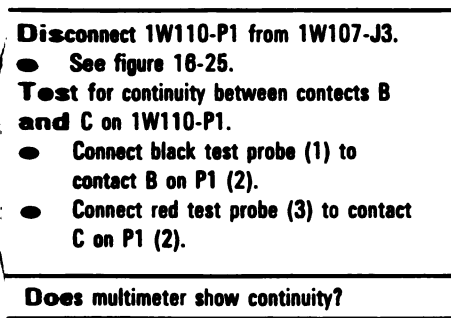
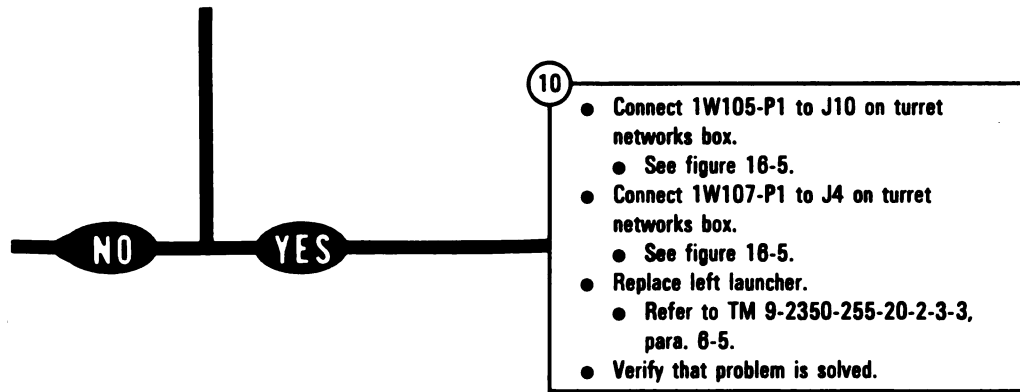


Figure 12-5 (Sheet 4 of 4)
Volume II
Para. 12-2

ARR82-6687

SYMPTOM SGRS-6

NEITHER LAUNCHER FIRES SMOKE GRENADES WHEN SALVO 1 PUSH-BUTTON IS PRESSED

Common Tools:

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

Supplies:

Connector Pin/Seckat Adapters
Electrical Jumpers

Test Equipment/Special Tools:

- Multimeter

Equipment Conditions:

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

WARNING

To prevent injury, make sure launchers are unloaded. Grenades can accidentally fire and kill you.

NOTE

Read para. 12-1 before doing any work.

1

- Set up tank controls for standard initial test conditions.
- Refer to para. 16-6, table 16-2.

Figure 12-6 (Sheet 1 of 4)
Volume II
Para. 12-2

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 SGRS-6.

Try to turn connector 1W102-P1 connected to J8 on turret networks box; see figure 16-5.

Try to turn connector 1W102-P2 connected to J1 on commander's control panel; see figure 16-7.

Is a connector loose?

YES

NO

Do connector inspection procedure.

- See figure 16-4.

Are any connector parts faulty?

NO

YES

Connect loose connector.

- For connector 1W102-P1, see figure 16-5.
- For connector 1W102-P2, see figure 16-7.
- Verify that problem is solved.

Does symptom still exist?

YES

NO

Problem solved.

4

Go to block 7.

5

- Replace assembly or harness that has a 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.

Figure 12-6 (Sheet 2 of 4)
Volume II
Para. 12-2

**TM 9-2350-255-20-2-2-2
SMOKE GRENADE SYSTEM TROUBLESHOOTING**

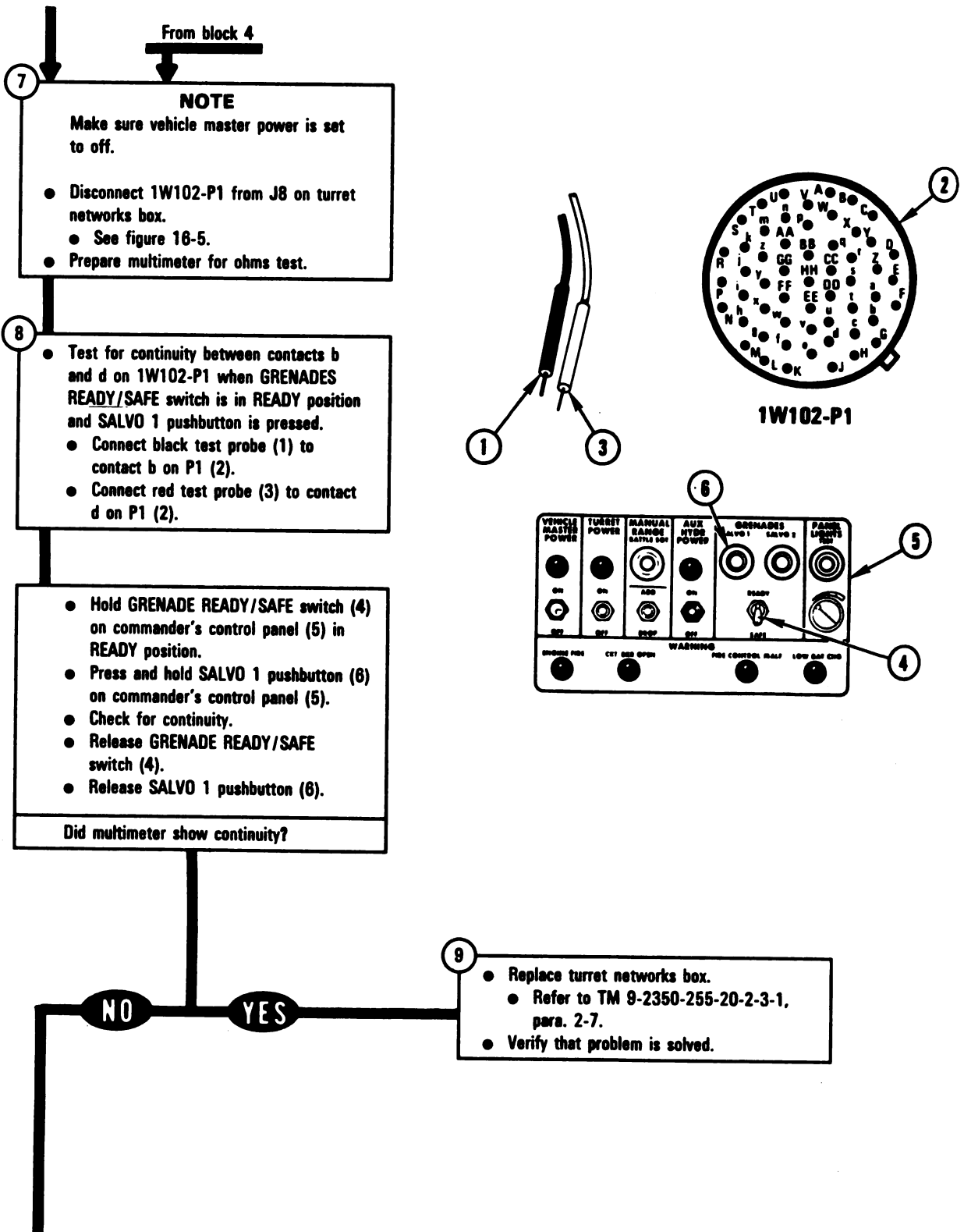
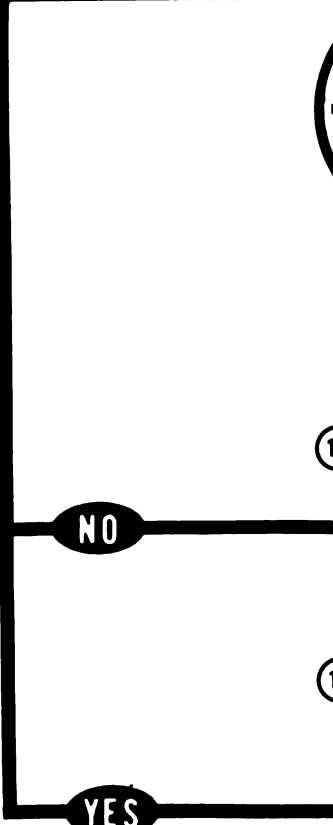
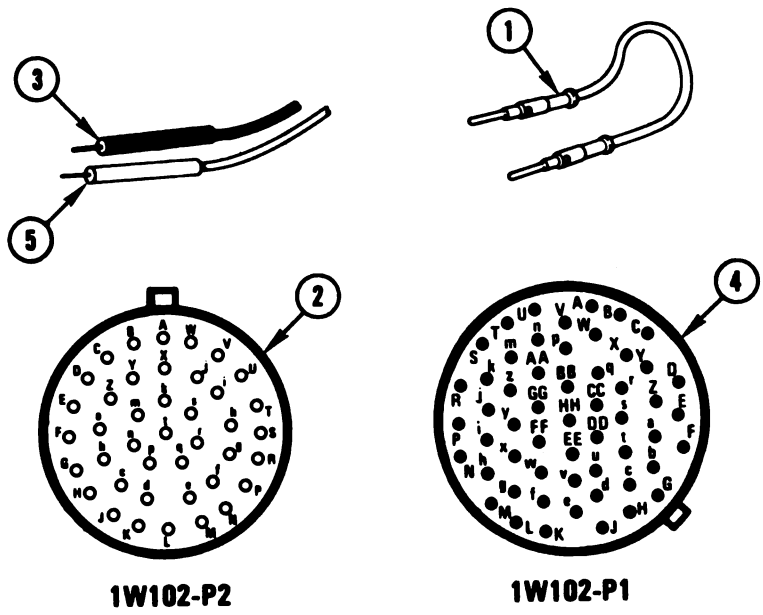


Figure 12-6 (Sheet 3 of 4)
Volume II
Para. 12-2

ARR82-6688

- 10
- Disconnect 1W102-P2 from J1 on commander's control panel.
 - See figure 16-7.
 - Connect jumper (1) between contacts b and d on 1W102-P2 (2).
 - Test for continuity between contacts b and d on 1W102-P1.
 - Connect black test probe (3) to contact b on P1 (4).
 - Connect red test probe (5) to contact d on P1 (4).
- Does multimeter show continuity?



- 11
- Replace wiring harness assembly 1W102.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

- 12
- Connect 1W102-P1 to J8 on turret networks box.
 - See figure 16-5.
 - 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 12-6 (Sheet 4 of 4)
Volume II
Para. 12-2

ARR82-6689

SYMPTOM SGRS-7

NEITHER LAUNCHER FIRES SMOKE GRENADES WHEN SALVO 2 PUSH-BUTTON 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 Conditions:

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

WARNING

To prevent injury, make sure launchers are unloaded. Grenades can accidentally fire and kill you.

NOTE

Read para. 12-1 before doing any work.

1

- Set up tank controls for standard initial test conditions.
- Refer to para. 16-8, table 16-2.

Figure 12-7 (Sheet 1 of 4)
Volume II
Para. 12-2

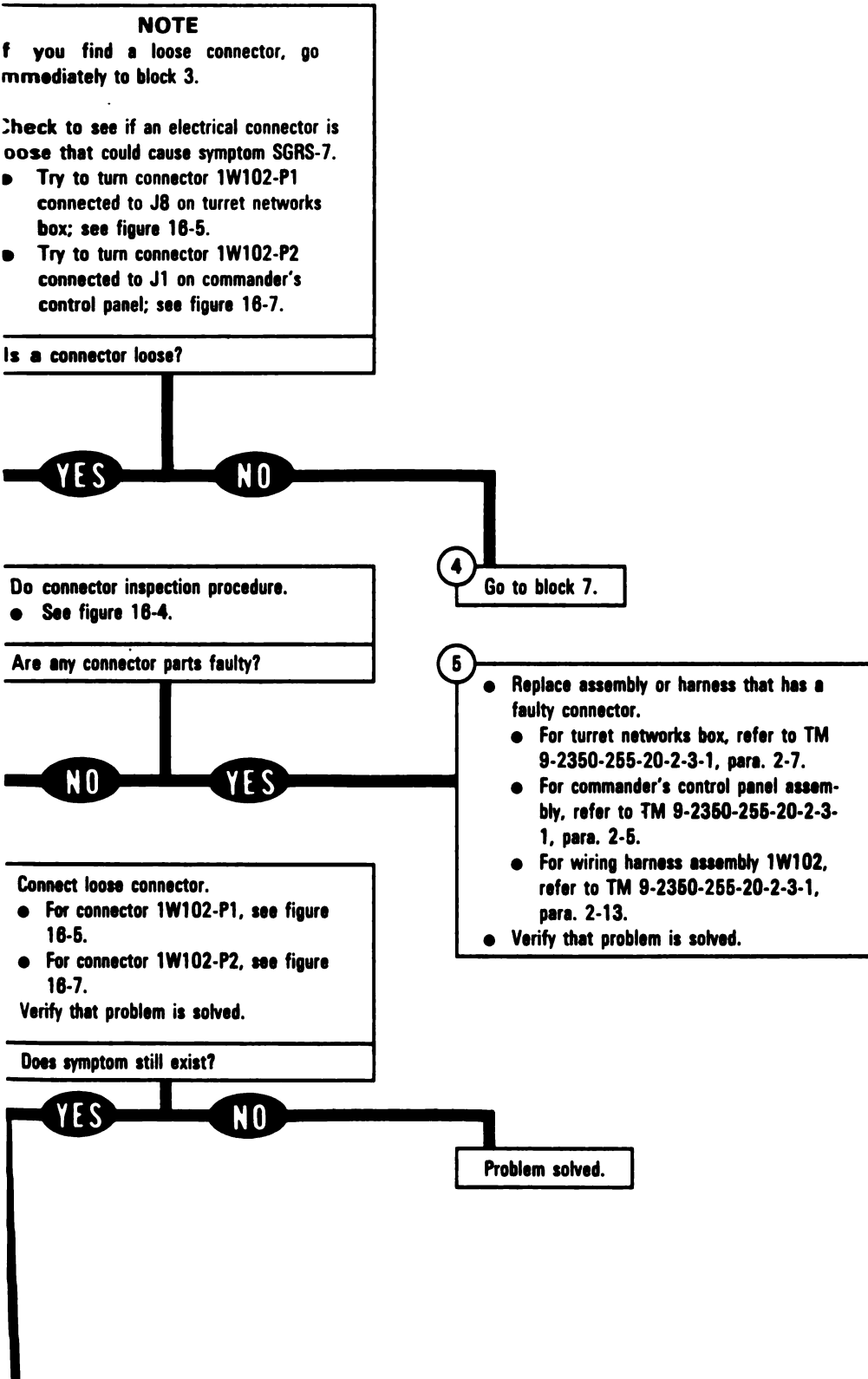


Figure 12-7 (Sheet 2 of 4)
Volume II
Para. 12-2

**TM 9-2350-255-20-2-2-2
SMOKE GRENADE SYSTEM TROUBLESHOOTING**

From block 4

7

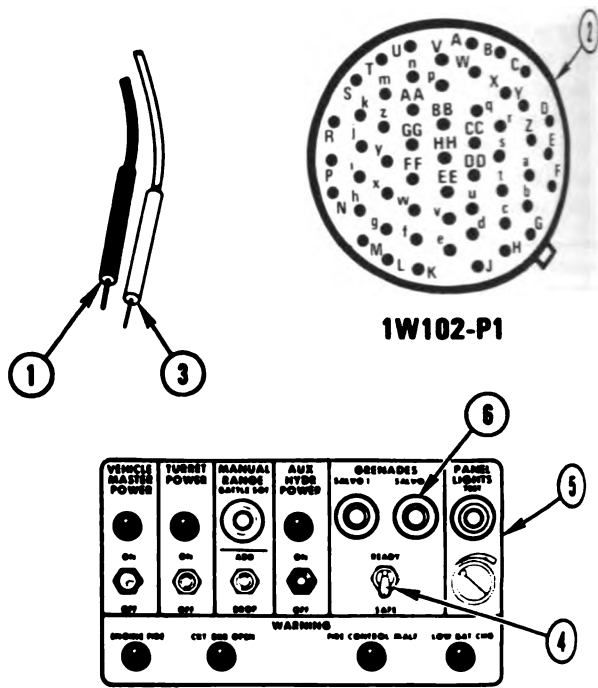
NOTE

Make sure vehicle master power is off.

- Disconnect 1W102-P1 from J8 on turret networks box.
 - See figure 18-5.
 - Prepare multimeter for ohms test.

8

- Test for continuity between contacts c and d on 1W102-P1 when GRENADES READY/SAFE switch is in READY position and SALVO 2 pushbutton is pressed.
 - Connect black test probe (1) to contact c on P1 (2).
 - Connect red test probe (3) to contact d on P1 (2).



- Hold GRENADE READY/SAFE switch (4) on commander's control panel (5) in READY position.
- Press and hold SALVO 2 pushbutton (8) on commander's control panel (5).
- Check for continuity.
- Release GRENADE READY/SAFE switch (4).
- Release SALVO 2 pushbutton (8).

Did multimeter show continuity?

NO **YES**

9

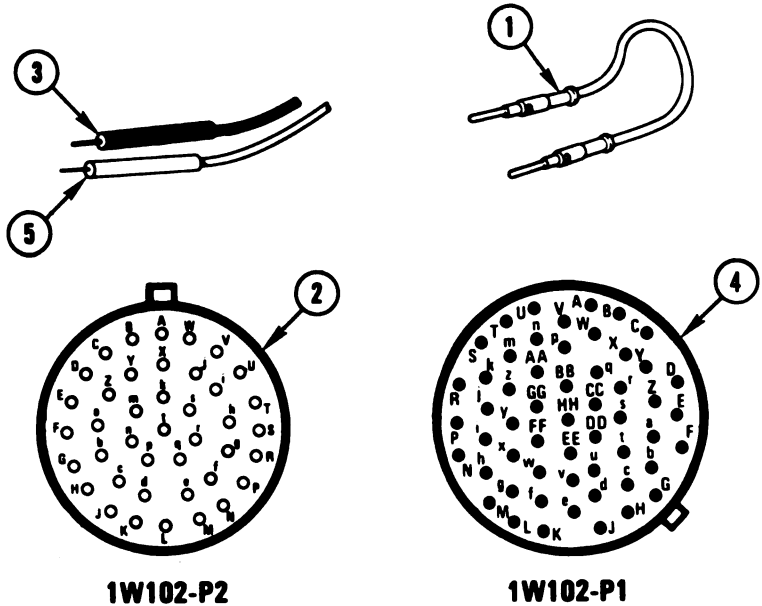
- Replace turret networks box.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-7.
 - Verify that problem is solved.

**Figure 12-7 (Sheet 3 of 4)
Volume II
Para. 12-2**

10

- Disconnect 1W102-P2 from J1 on commander's control panel.
 - See figure 18-7.
- Connect jumper (1) between contacts c and d on 1W102-P2 (2).
- Test for continuity between contacts c and d on 1W102-P1.
 - Connect black test probe (3) to contact c on P1 (4).
 - Connect red test probe (5) to contact d on P1 (4).

Does multimeter show continuity?



NO

- 11
- Replace wiring harness assembly 1W102.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-13.
 - Verify that problem is solved.

YES

- 12
- Connect 1W102-P1 to J8 on turret networks box.
 - See figure 18-5.
 - 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 12-7 (Sheet 4 of 4)
Volume II
Para. 12-2

TM 9-2350-255-20-2-2-2
SMOKE GRENADE SYSTEM TROUBLESHOOTING

SYMPTOM SGRS-8

ALL SMOKE GRENADES FIRE WHEN ONLY ONE SALVO PUSHBUTTON IS PRESSED

Common Tools:

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

Supplies:

Connector Pin/Socket Adapters

Test Equipment/Special Tools:

- Multimeter

Equipment Conditions:

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

WARNING

To prevent injury, make sure launchers are unloaded. Grenades can accidentally fire and kill you.

NOTE

Read para. 12-1 before doing any work.

1

- Set up tank controls for standard initial test conditions.
- Refer to para. 16-6, table 16-2.

Figure 12-8 (Sheet 1 of 3)
Volume II
Para. 12-2

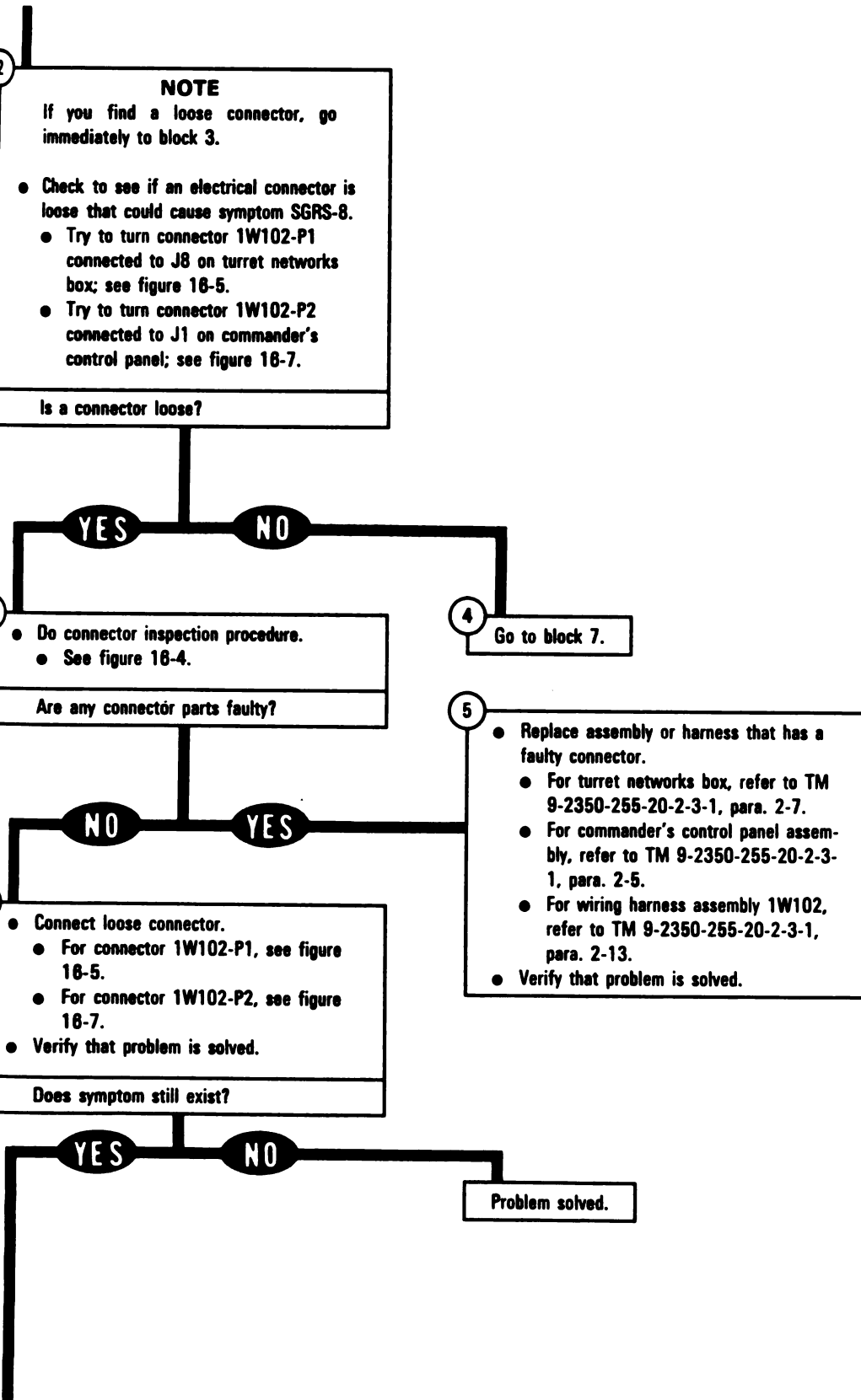


Figure 12-8 (Sheet 2 of 3)
Volume II
Para. 12-2

**TM 9-2350-255-20-2-2-2
SMOKE GRENADE SYSTEM TROUBLESHOOTING**

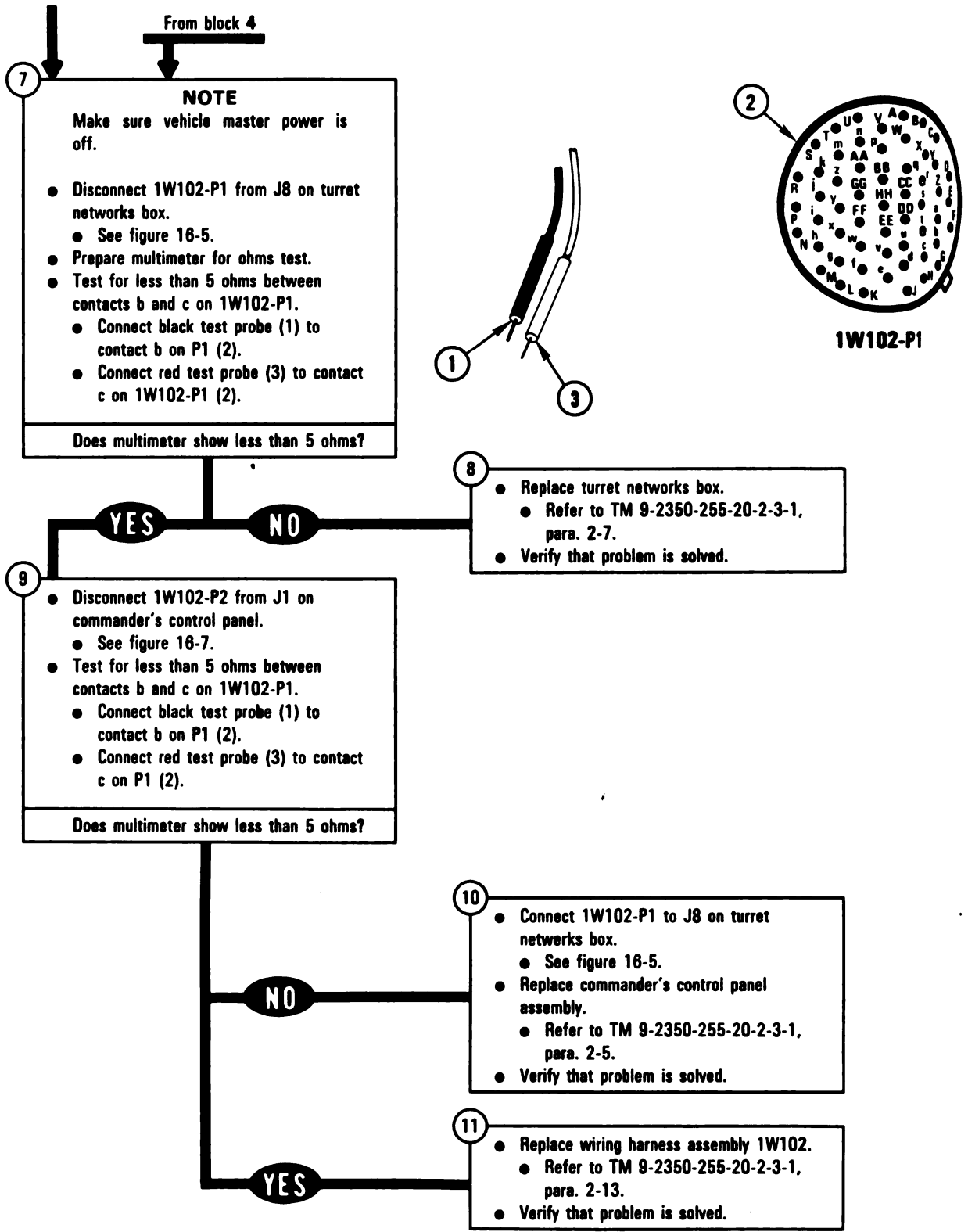


Figure 12-8 (Sheet 3 of 3)
Volume II
Para. 12-2

ARR82-869Z

SYMPTOM SGRS-9

**LEFT LAUNCHER FIRES AN INCORRECT
NUMBER OF SMOKE GRENADES**

Test Equipment/Special Tools:

- Multimeter

Equipment Conditions:

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

WARNING

To prevent injury, make sure launchers are unloaded. Grenades can accidentally fire and kill you.

NOTE

Read para. 12-1 before doing any work.

- Set up tank controls for standard initial test conditions.
- Refer to para. 16-6, table 18-2.

Figure 12-9 (Sheet 1 of 2)
Volume II
Para. 12-2

TM 9-2350-255-20-2-2-2
SMOKE GRENADE SYSTEM TROUBLESHOOTING

2

- Prepare multimeter for ohms test.
- Test for 10 to 20 ohms between body and contact pin in bottom of each barrel of left launcher.
- Connect and hold black test probe (1) to inside or outside (unpainted surface) of grenade launcher (2).
- Connect red test probe (3) to center contact (4) inside each of the six barrels.

Does multimeter show 10 to 20 ohms at each contact?

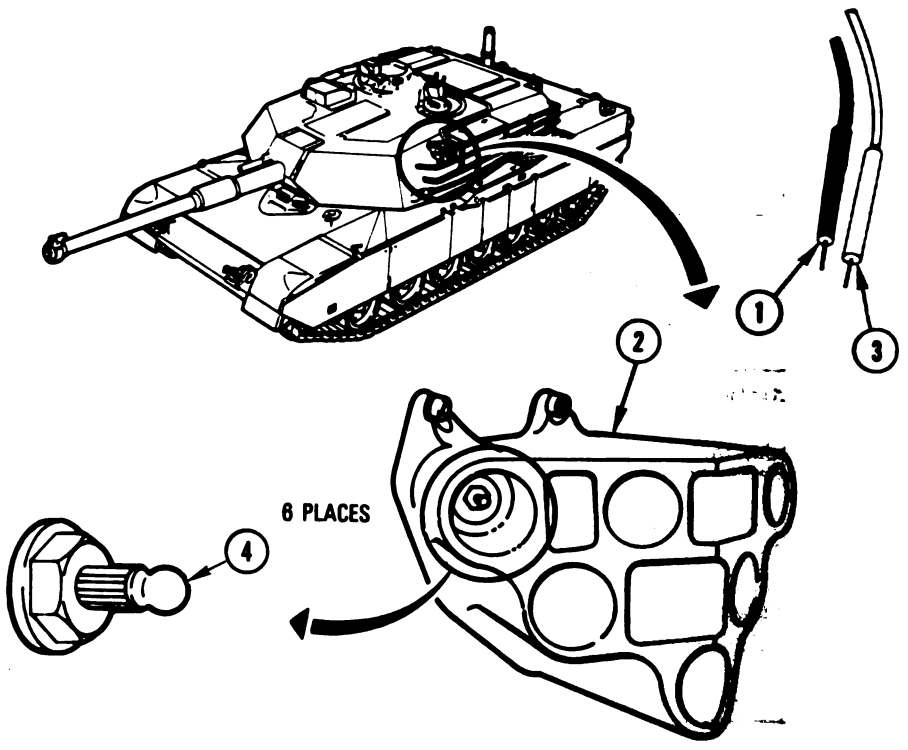
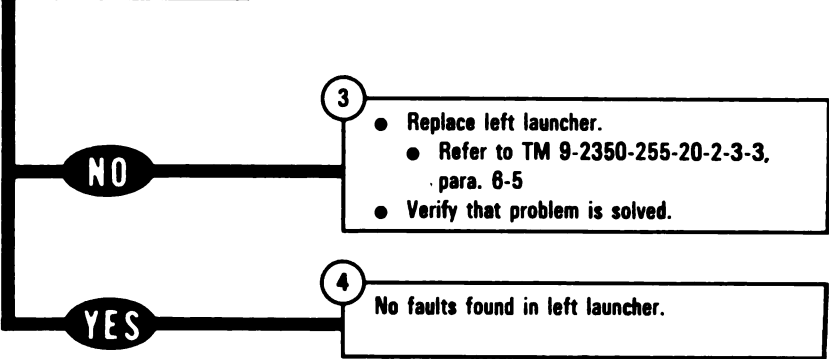


Figure 12-9 (Sheet 2 of 2)
Volume II
Para. 12-2

SYMPTOM SGRS-10

RIGHT LAUNCHER FIRES AN INCORRECT NUMBER OF SMOKE GRENADES

Test Equipment/Special Tools:

- Multimeter

Equipment Conditions:

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

WARNING

To prevent injury, make sure launchers are unloaded. Grenades can accidentally fire and kill you.

NOTE

Read para. 12-1 before doing any work.

- Set up tank controls for standard initial test conditions.
- Refer to para. 16-6, table 16-2.

Figure 12-10 (Sheet 1 of 2)
Volume II
Para. 12-2

TM 9-2350-255-20-2-2-2
SMOKE GRENADE SYSTEM TROUBLESHOOTING

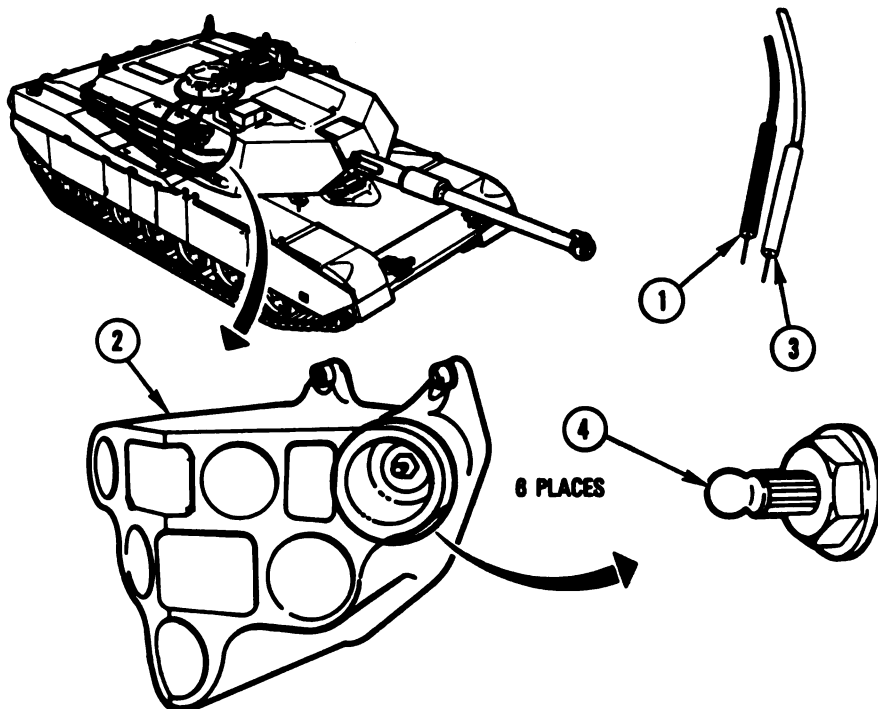
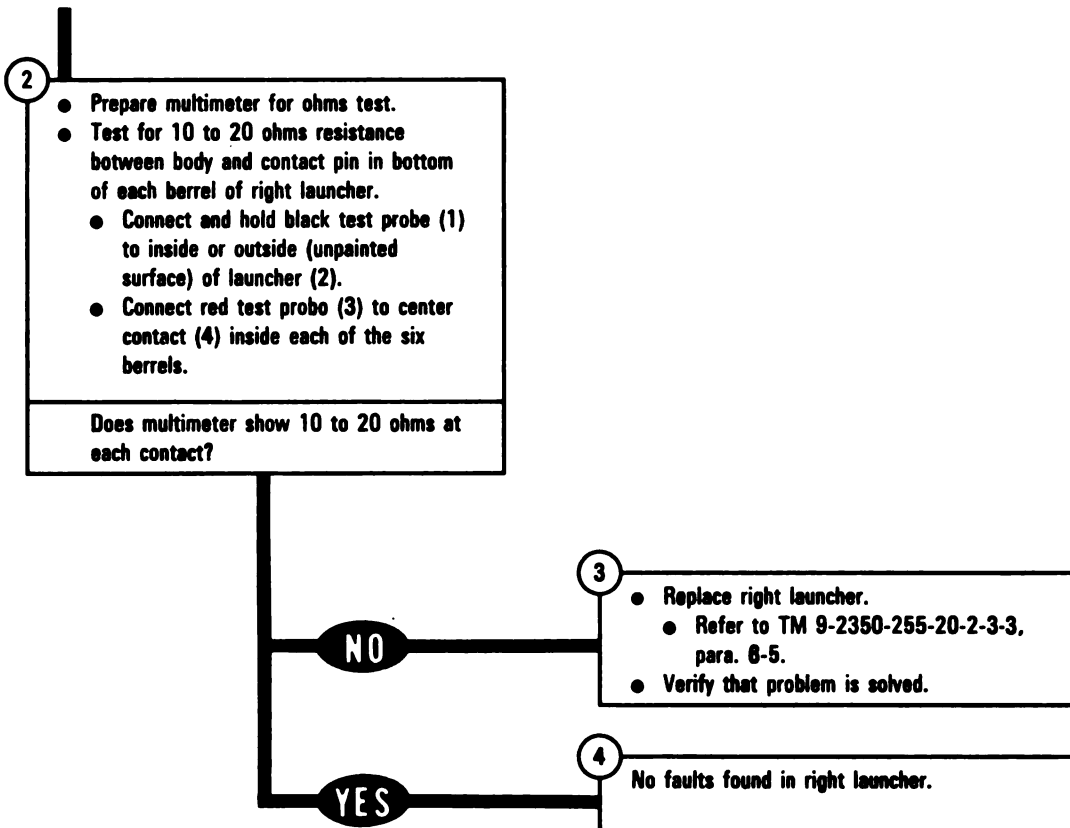


Figure 12-10 (Sheet 2 of 2)
Volume II
Para. 12-2

ARR02-6694

SYMPTOM SGRS-11

ONE SALVO OF SMOKE GRENADES FIRES WITHOUT PRESSING SALVO PUSH-BUTTONS

Common Tools:

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

Supplies:

Connector Pin/Socket Adapters

Test Equipment/Special Tools:

- Multimeter

Equipment Conditions:

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

WARNING

To prevent injury, make sure launchers are unloaded. Grenades can accidentally fire and kill you.

NOTE

Read para. 12-1 before doing any work.

- Set up tank controls for standard initial test conditions.
- Refer to para. 16-6, table 16-2.

Figure 12-11 (Sheet 1 of 4)
Volume II
Para. 12-2

**TM 9-2350-255-20-2-2-2
SMOKE GRENADE SYSTEM TROUBLESHOOTING**

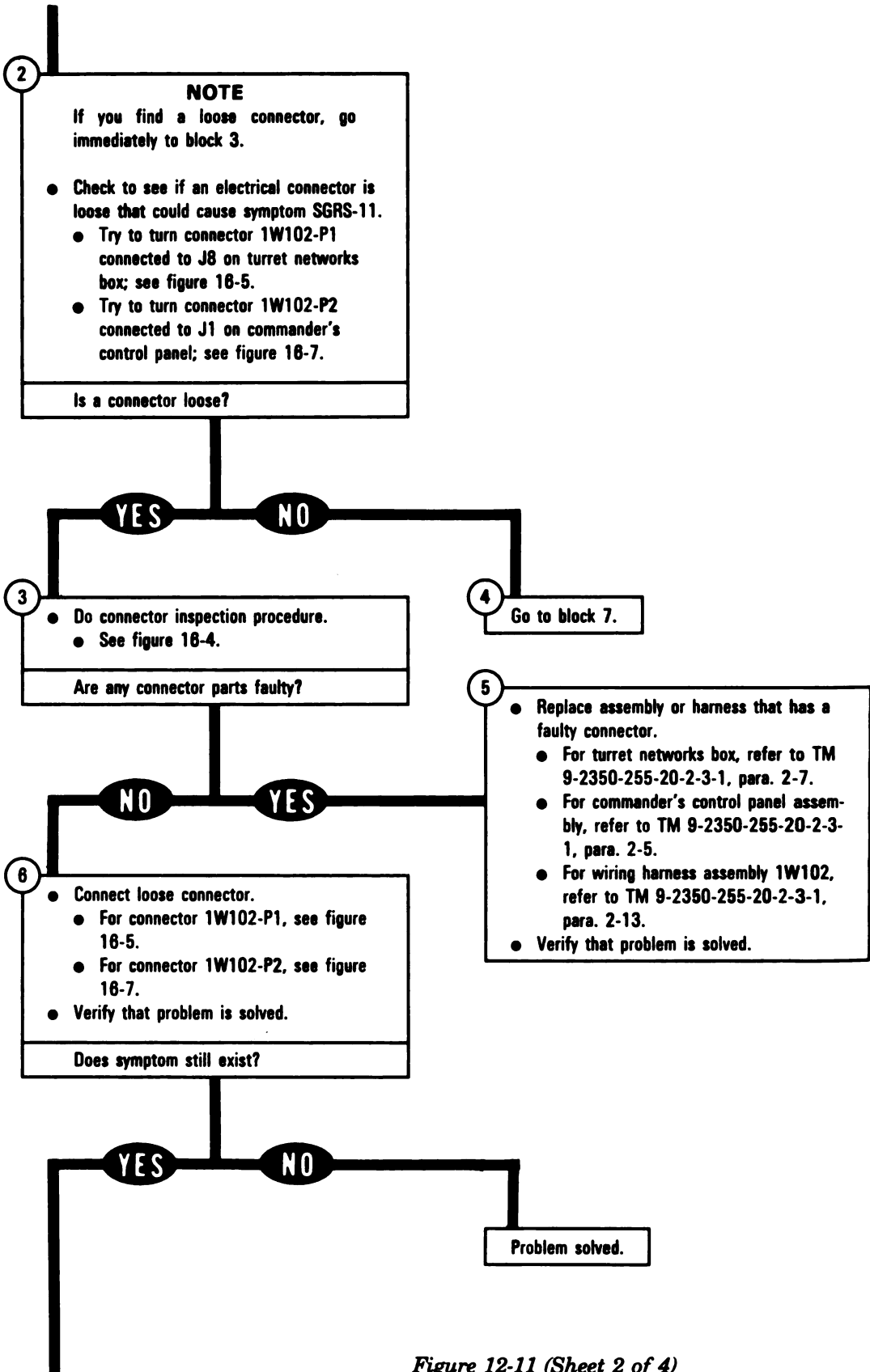


Figure 12-11 (Sheet 2 of 4)
**Volume II
Para. 12-2**

From block 4

NOTE

Make sure vehicle master power is off.

- Disconnect 1W102-P1 from J8 on turret networks box.
 - See figure 16-5.
- Prepare multimeter for ohms test.

Table A

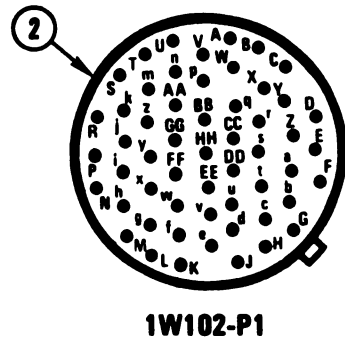
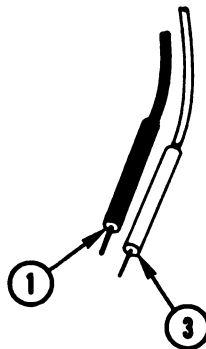
Black Test Probe	Red Test Probe
b	all other contacts
c	all other contacts

NOTE

If multimeter shows less than 5 ohms, leave test probes connected and go immediately to block 9.

- Test for less than 5 ohms between contacts listed in table A on 1W102-P1.
- Connect black test probe (1) to contacts on P1 (2) listed in table A.
- Connect red test probe (3) to all other contacts on P1 (2) listed in table A.

Does multimeter show less than 5 ohms?



YES **NO**

10 Go to block 13.

9

- Disconnect 1W102-P2 from J1 on commander's control panel.
 - See figure 16-7.
- Test for less than 5 ohms.

Does multimeter show less than 5 ohms?

YES **NO**

1 12

- Connect 1W102-P1 to J8 on turret networks box.
 - See figure 16-5.
- Replace commander's control panel assembly.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-5.
- Verify that problem is solved.

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

Figure 12-11 (Sheet 3 of 4)
Volume II
Para. 12-2

**TM 9-2350-255-20-2-2
SMOKE GRENADE SYSTEM TROUBLESHOOTING**

From block 10

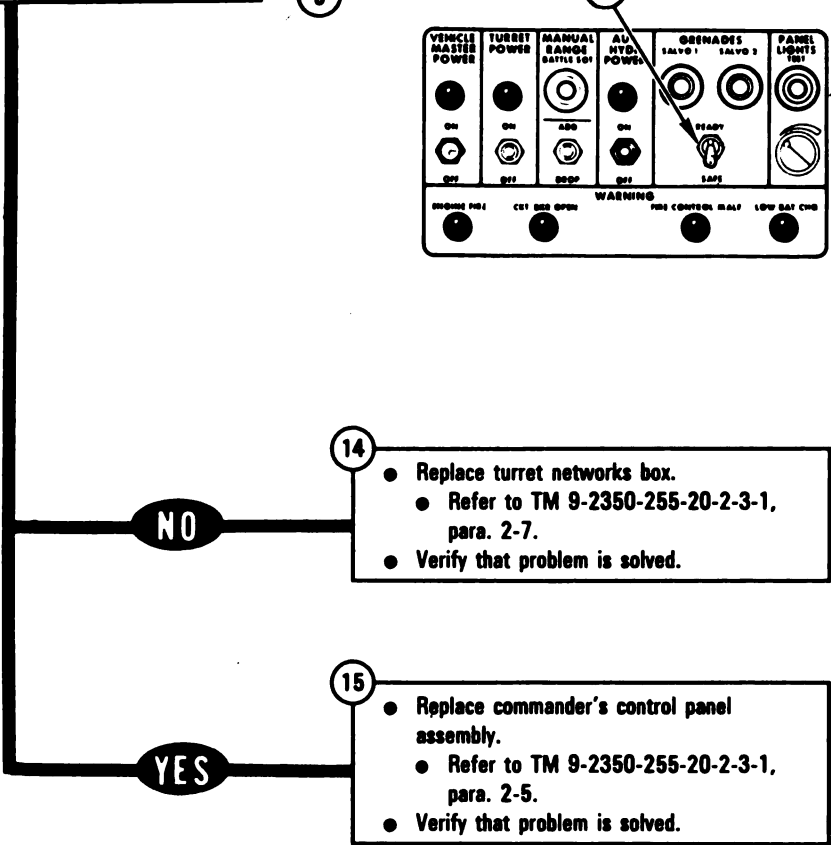
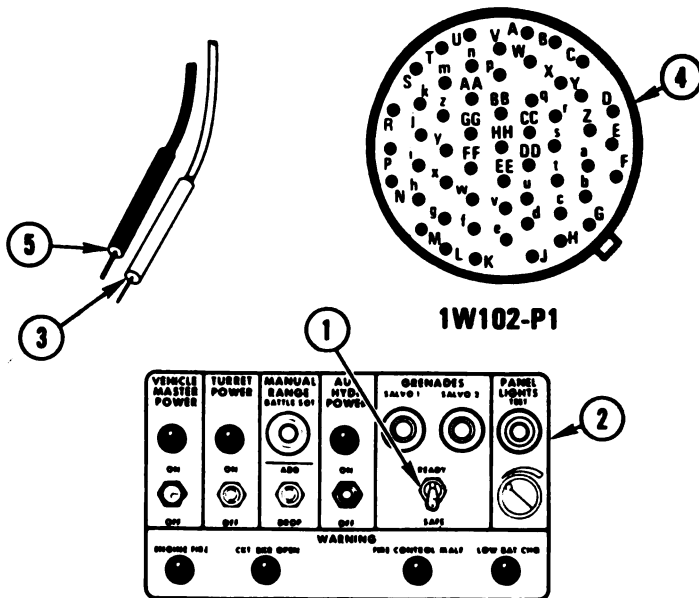
13

- Hold READY/SAFE switch (1) on commander's control panel (2) in READY position.
- Connect red test probe (3) to contact d on 1W102-P1 (4).

NOTE
If multimeter shows less than 5, go immediately to block 15.

- Test for less than 5 ohms by connecting black test probe (5) to each contact on 1W102-P1 (4) listed below:
 - b and c
- Release READY/SAFE switch (1).

Did multimeter show less than 5 ohms?



14

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

15

- 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 12-11 (Sheet 4 of 4)
Volume II
Para. 12-2

CHAPTER 13
NUCLEAR, BIOLOGICAL, CHEMICAL (NBC) SYSTEM TROUBLESHOOTING

13-1. General. This chapter tells you how to troubleshoot the nuclear, biological, chemical system.

A fault symptom index is located at the beginning of paragraph 13-2. The index identifies the primary procedure used to troubleshoot a known fault symptom. The primary procedure is included within paragraph 13-2.

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 performing troubleshooting procedures.
- 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 to gain access to the connector being checked.
- g. Use care when hooking up all connectors to avoid bending or breaking pins. Tighten connectors by hand only.
- 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.

When using the multimeter and/or electrical jumpers, it will be necessary to attach pin/socket adapters to the multimeter probes or to the ends of the jumpers. For information on these items refer to paragraph 15-2.

When using electrical jumpers or multimeter test probes, remove them from contacts after completing each test unless otherwise noted by troubleshooting procedure. When connecting test probes where jumpers are already connected, lift jumper slightly so test probe can make contact.

Before performing steps in replacement blocks, read preliminary procedures in maintenance manual to avoid connecting or installing unnecessary equipment.

13-2. Nuclear, Biological, Chemical System Troubleshooting Procedures

Table 13-1. Nuclear, Biological, Chemical (NBC) System Fault Symptom Index

Fault Symptom No.	Fault Symptom	Primary Troubleshooting Procedure (PTP)
NBC-1	Driver's Electric Air Heater Does Not Work. GAS PARTIC FILTER Light Comes On	Figure 13-1
NBC-2	GAS PARTIC FILTER Light Does Not Come On. All Heaters Work	Figure 13-2
NBC-3	GAS PARTIC FILTER Light Does Not Come On. Gas Particulate Blower Does Not Work. No Heaters Work	Figure 13-3
NBC-4	Gas Particulate Blower Does Not Work. GAS PARTIC FILTER Light Comes On	Figure 13-4
NBC-5	Gunner's Heater Does Not Work. Commander's And Loader's Heaters OK	Figure 13-5
NBC-6	Commander's Heater Does Not Work. Gunner's And Loader's Heaters OK	Figure 13-6
NBC-7	Loader's Heater Does Not Work. Commander's And Gunner's Heaters OK	Figure 13-7
NBC-8	Gas Particulate Blower And GAS PARTIC FILTER Light Stay On When GAS PARTIC FILTER Switch Is Set To OFF Position	Figure 13-8

SYMPTOM NBC-1

DRIVER'S ELECTRIC AIR HEATER DOES NOT WORK. GAS PARTIC FILTER LIGHT COMES ON

Common Tools:

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

NOTE

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

Supplies:

Connector Pin/Socket Adapters

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. 13-1 before doing any work.

- Set up tank controls for standard initial test conditions.
- Refer to para. 16-6, table 16-2.

TM 9-2350-255-20-2-2-2
NUCLEAR, BIOLOGICAL, CHEMICAL SYSTEM TROUBLESHOOTING

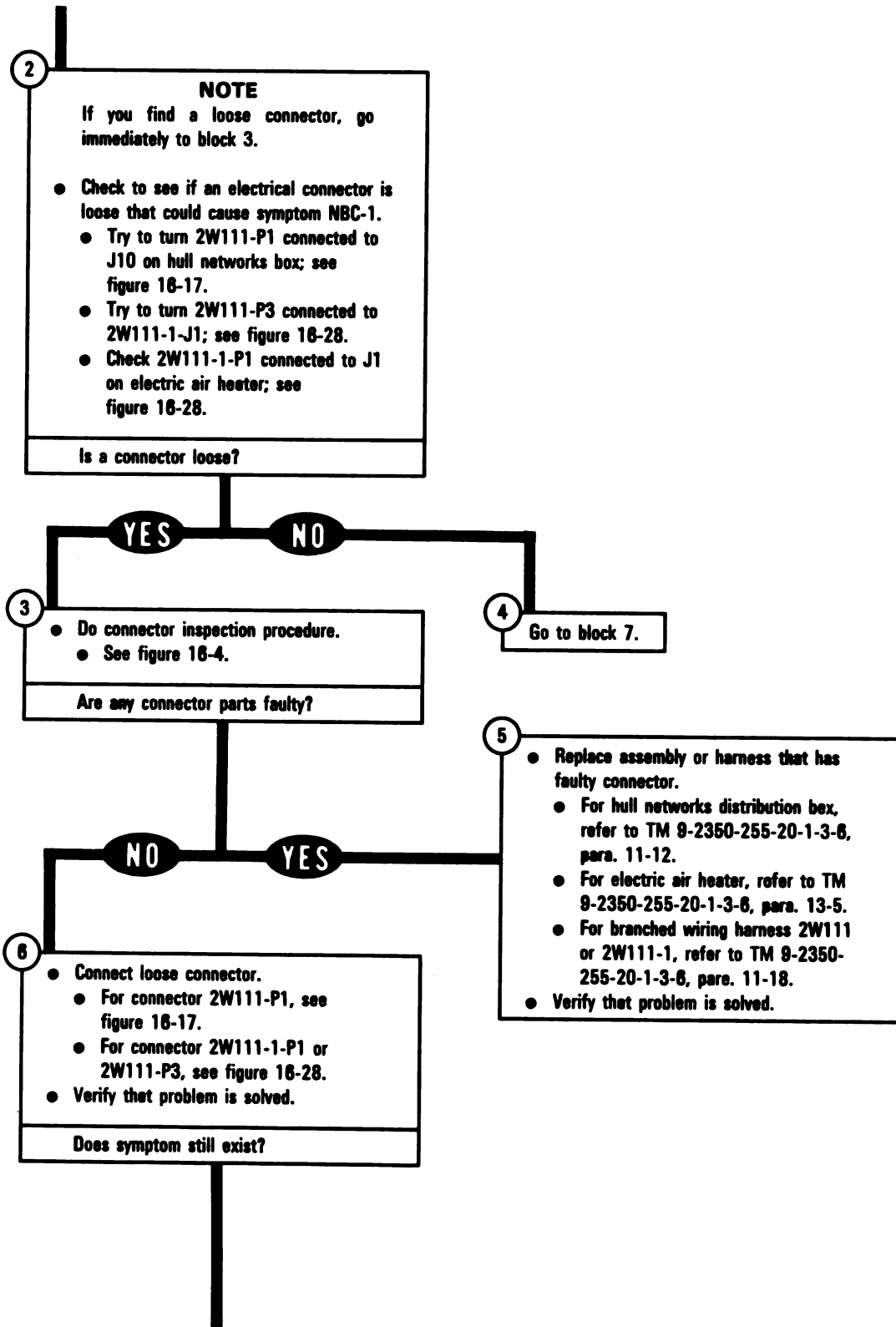


Figure 13-1 (Sheet 2 of 5)
Volume II
Para. 13-2

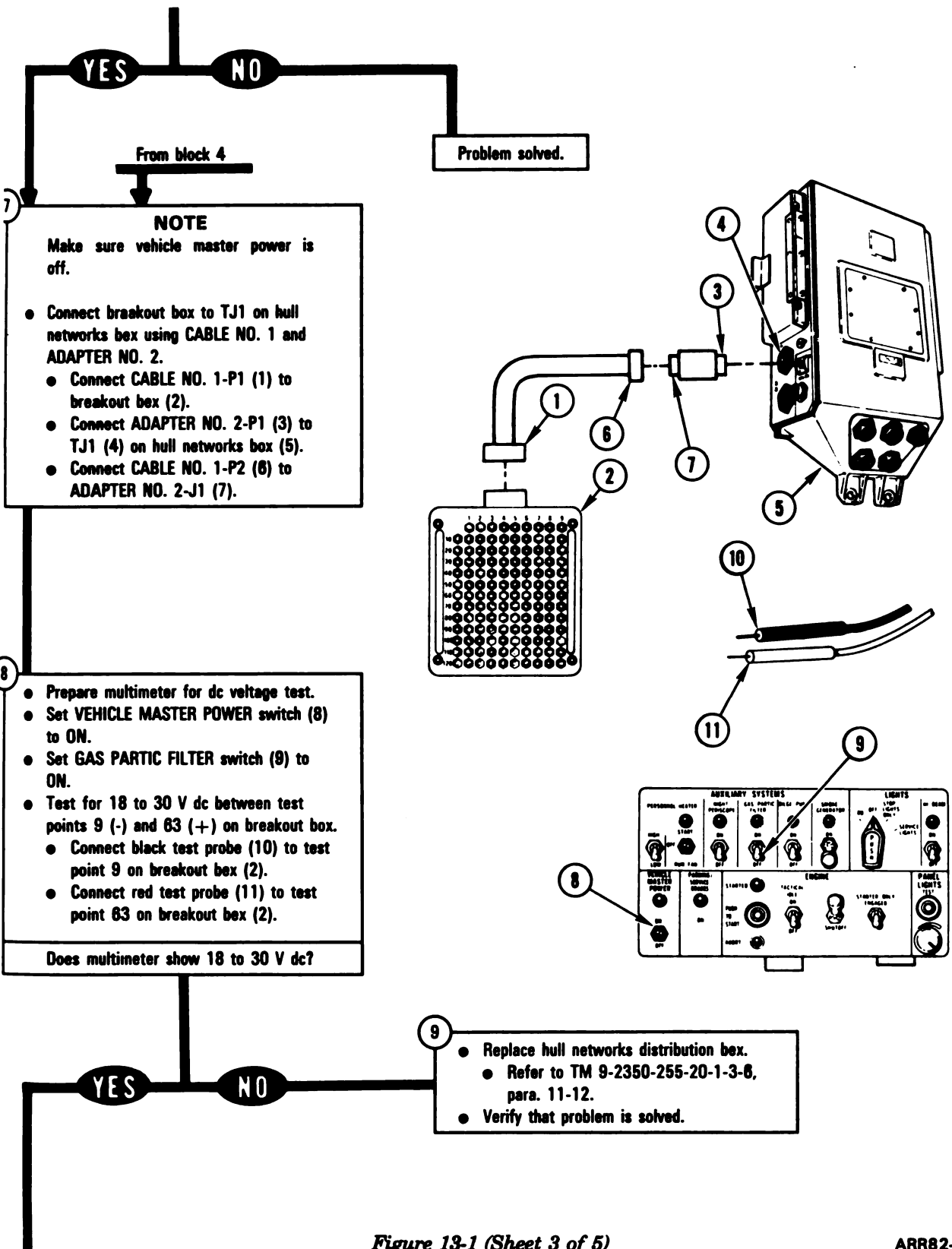


Figure 13-1 (Sheet 3 of 5)
Volume II
Para. 13-2

ARR82-6697

TM 9-2350-255-20-2-2-2
NUCLEAR, BIOLOGICAL, CHEMICAL SYSTEM TROUBLESHOOTING

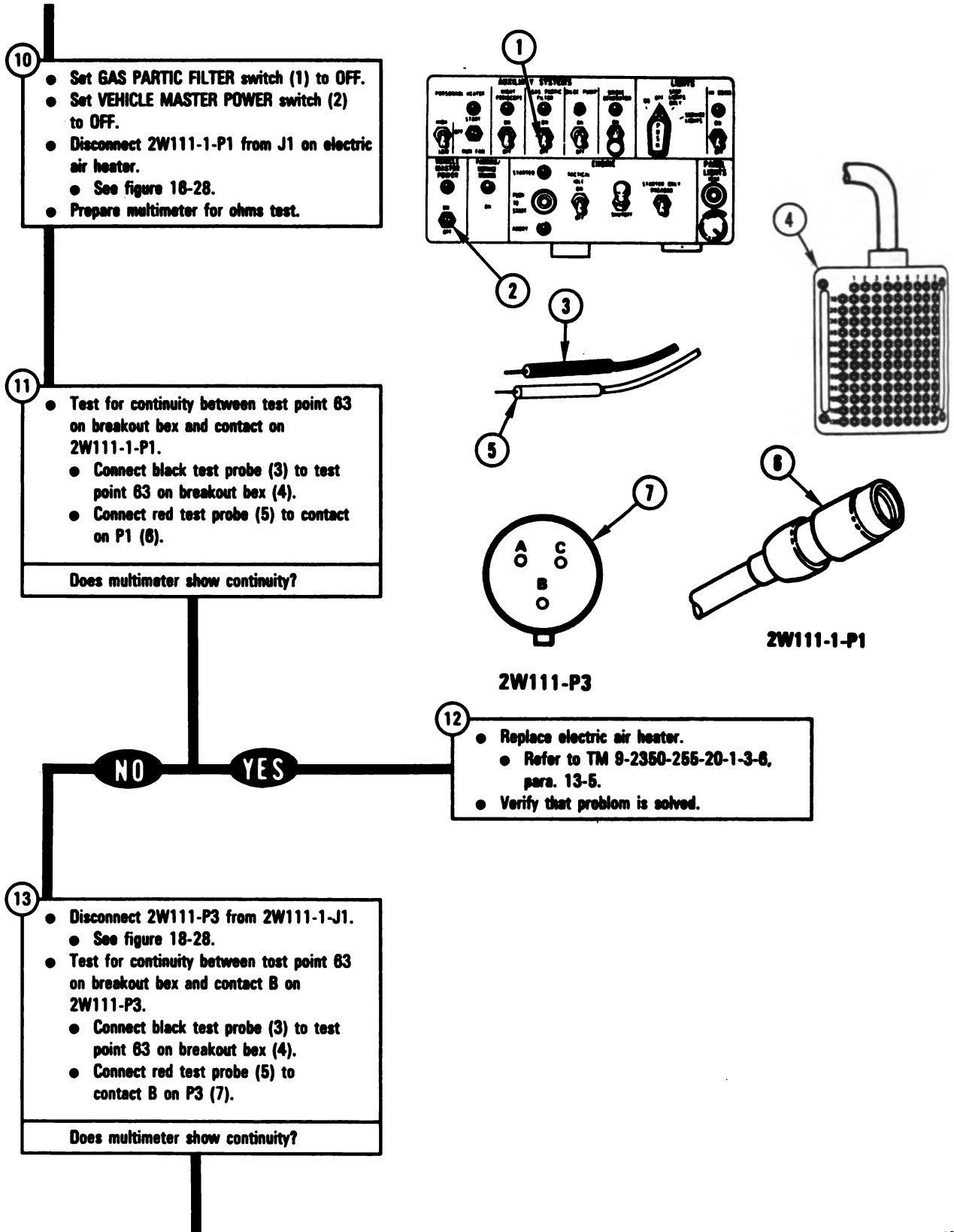


Figure 13-1 (Sheet 4 of 5)
Volume II
Para. 13-2

APR62-6899

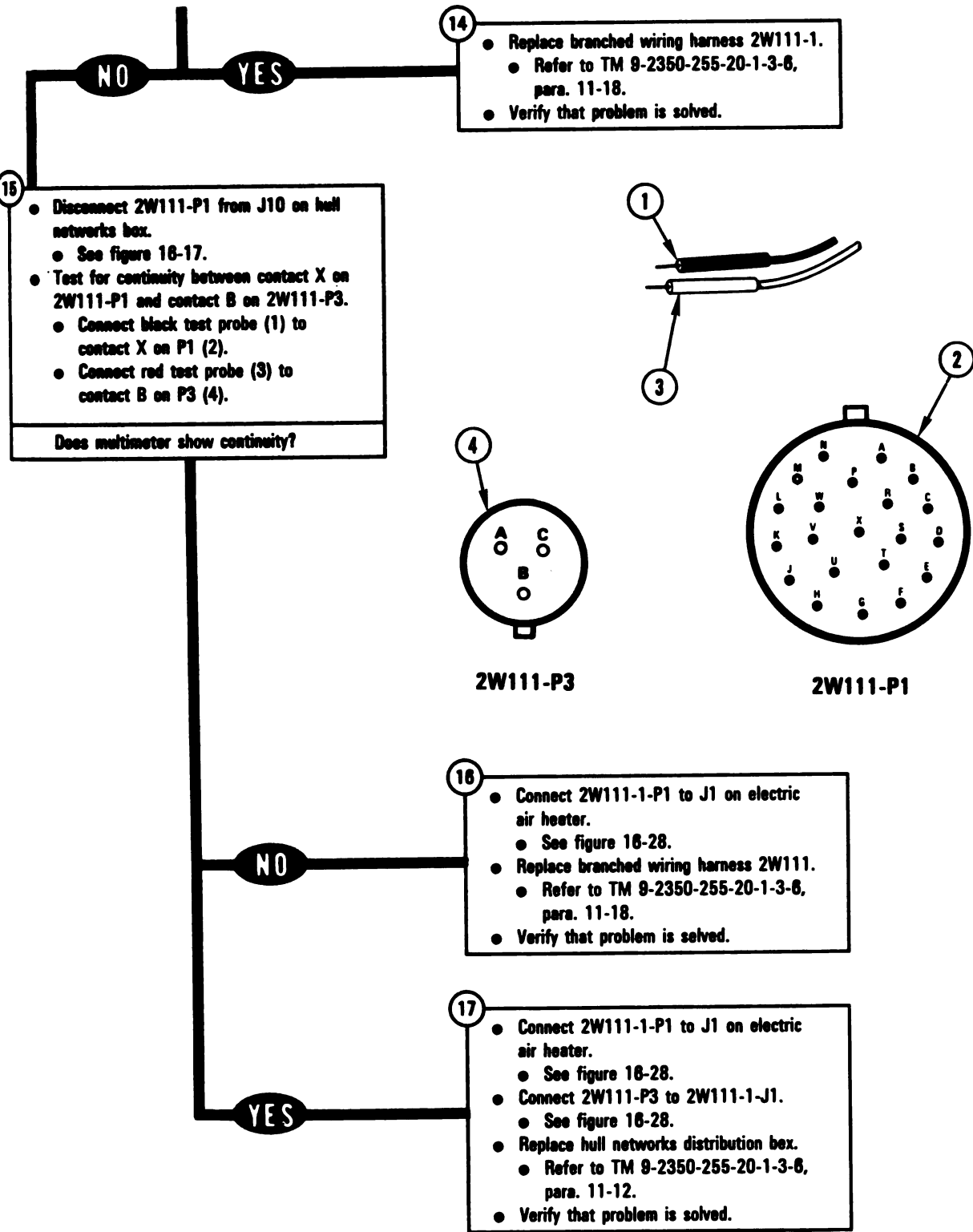


Figure 13-1 (Sheet 5 of 5)
Volume II
Para. 13-2

ARR82-6699

SYMPTOM NBC-2

**GAS PARTIC FILTER LIGHT DOES NOT
COME ON. ALL HEATERS WORK**

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. 13-1 before doing any work.

NOTE

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

1

- Set up tank controls for standard initial test conditions.
- Refer to para. 16-6, table 16-2.

Figure 13-2 (Sheet 1 of 5)
Volume II
Para. 13-2

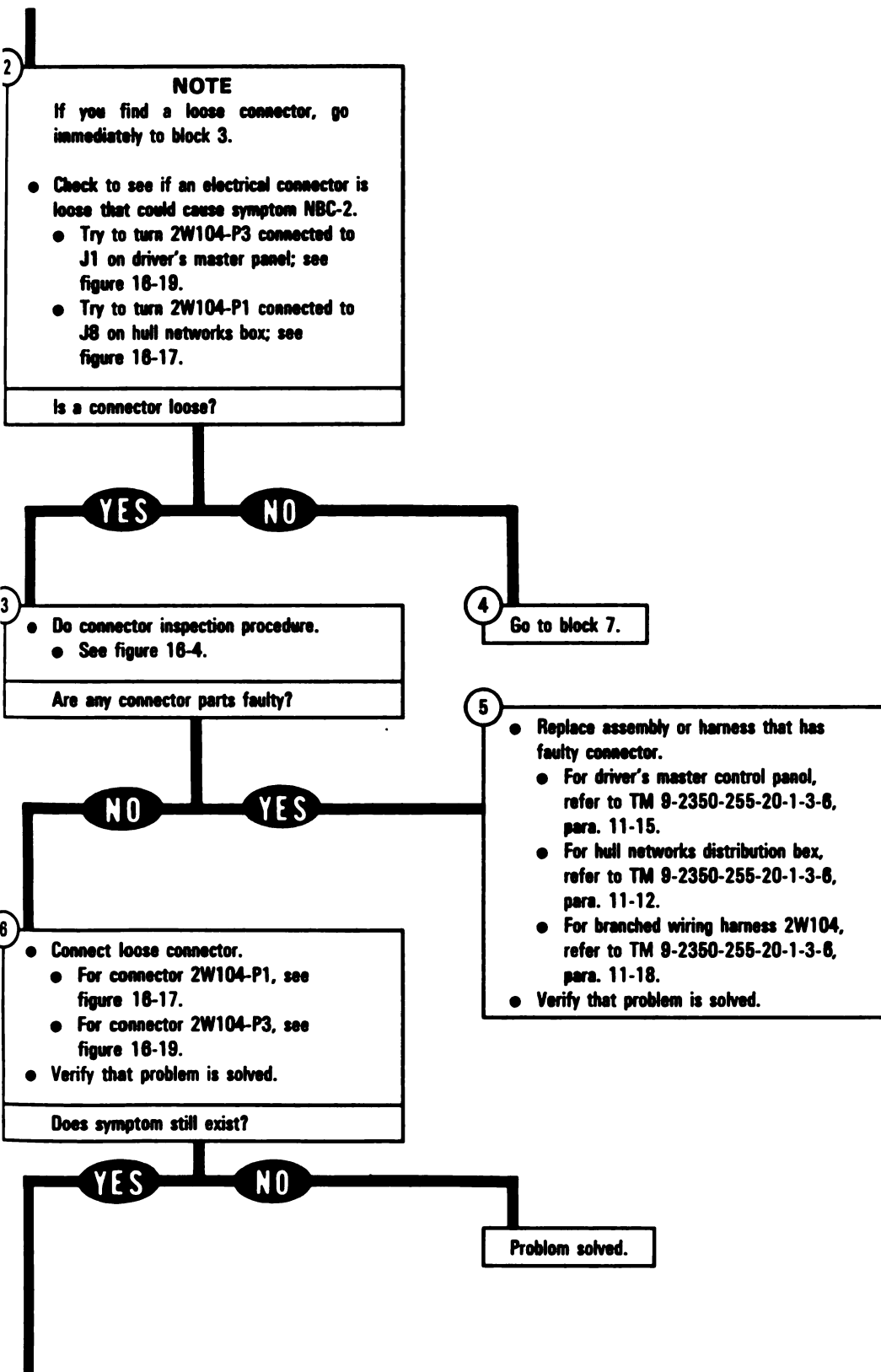


Figure 13-2 (Sheet 2 of 5)
Volume II
Para. 13-2

**TM 9-2350-255-20-2-2
NUCLEAR, BIOLOGICAL, CHEMICAL SYSTEM TROUBLESHOOTING**

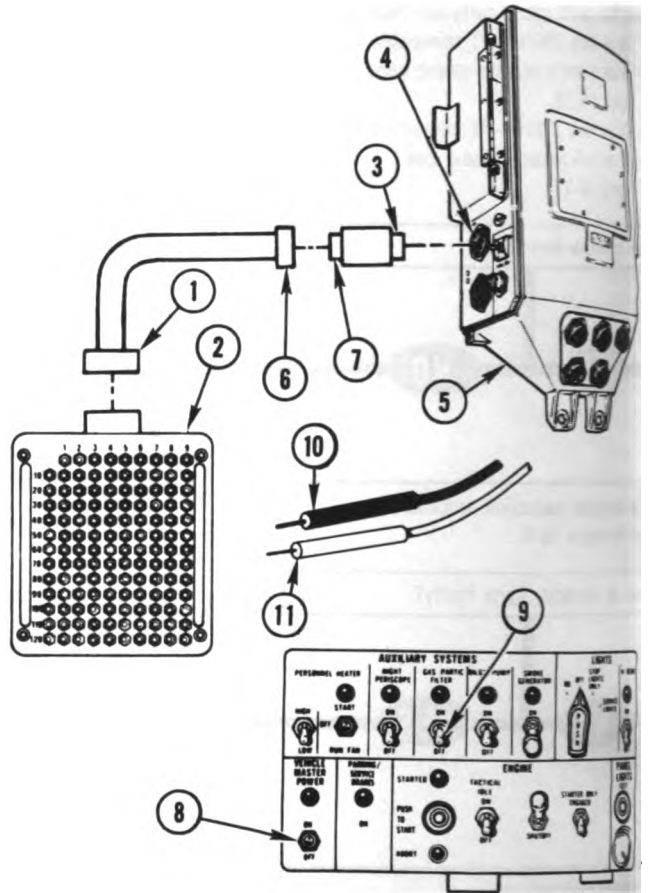
From black 4

7

NOTE

Make sure vehicle master power is off.

- Connect breakout box to Tj1 on hull networks box using CABLE NO. 1 and ADAPTER NO. 2.
- Connect CABLE NO. 1-P1 (1) to breakout box (2).
- Connect ADAPTER NO. 2-P1 (3) to Tj1 (4) on hull networks box (5).
- Connect CABLE NO. 1-P2 (6) to ADAPTER NO. 2-J1 (7).
- Prepare multimeter for dc voltage test.



8

- Set VEHICLE MASTER POWER switch (8) to ON.
- Set GAS PARTIC FILTER switch (9) to ON.
- Test for 18 to 30 V dc between test points 9 (-) and 19 (+) on breakout box.
 - Connect black test probe (10) to test point 9 on breakout box (2).
 - Connect red test probe (11) to test point 19 on breakout box (2).

Does multimeter show 18 to 30 V dc?

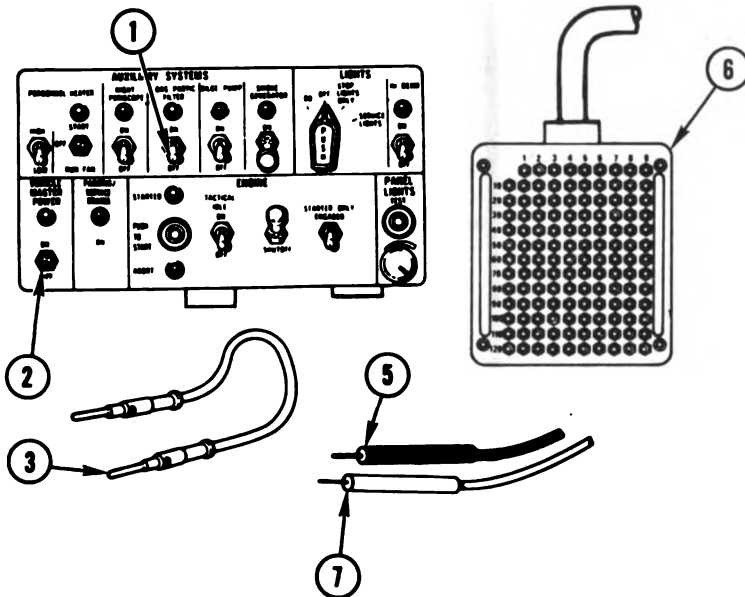
NO **YES**

9

- Replace hull networks distribution box.
- Refer to TM 9-2350-255-20-1-3-6, para. 11-12.
- Verify that problem is solved.

Figure 13-2 (Sheet 3 of 5)
Volume II
Para. 13-2

- 10**
- Set GAS PARTIC FILTER switch (1) to OFF.
 - Set VEHICLE MASTER POWER switch (2) to OFF.
 - Disconnect 2W104-P3 from J1 on driver's master panel.
 - See figures 18-19.
 - Prepare multimeter for ohms test.



- 11**
- Connect jumper (3) between contacts BB and CC on 2W104-P3 (4).
 - Test for continuity between test points 19 and 37 on breakout box.
 - Connect black test probe (5) to test point 19 on breakout box (6).
 - Connect red test probe (7) to test point 37 on breakout box (6).
- Does multimeter show continuity?

NO **YES**

- 12**
- Replace driver's master control panel.
 - Refer to TM 9-2350-255-20-1-3-6, para. 11-15.
 - Verify that problem is solved.

- 13**
- Disconnect 2W104-P1 from J8 on hull networks box.
 - See figure 18-17.
 - Connect jumper (3) between contacts KK and LL on 2W104-P1 (8).
 - Test for continuity between contacts BB and CC on 2W104-P3.
 - Connect black test probe (5) to contact BB on P3 (4).
 - Connect red test probe (7) to contact CC on P3 (4).
- Does multimeter show continuity?

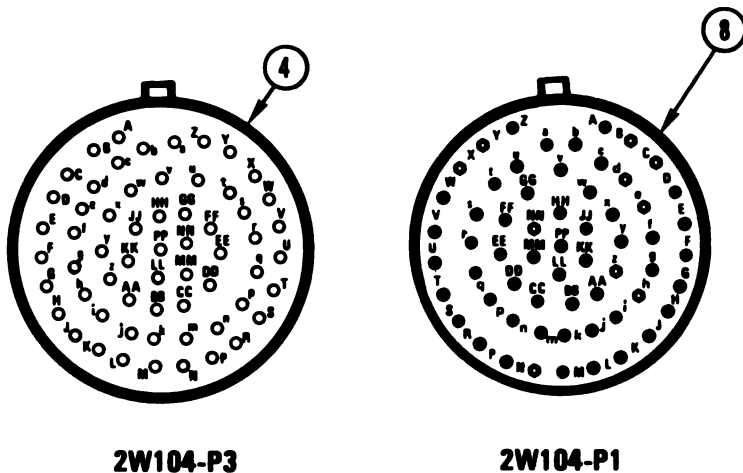


Figure 13-2 (Sheet 4 of 5)
Volume II
Para. 13-2

ARR82-6701

TM 9-2350-255-20-2-2-2
NUCLEAR, BIOLOGICAL, CHEMICAL SYSTEM TROUBLESHOOTING

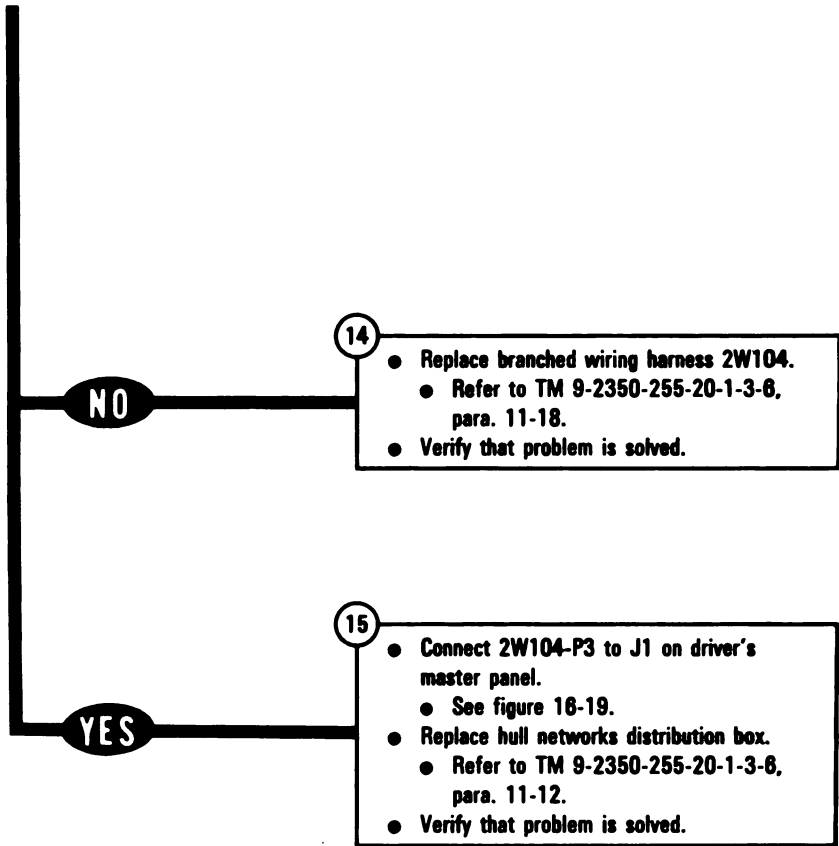


Figure 13-2 (Sheet 5 of 5)
Volume II
Para. 13-2

SYMPTOM NBC-3

**GAS PARTIC FILTER LIGHT DOES NOT
COME ON. GAS PARTICULATE BLOWER
DOES NOT WORK. NO HEATERS WORK**

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. 13-1 before doing any work.

- Set up tank controls for standard initial test conditions.
- Refer to para. 16-6, table 16-2.

NOTE

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

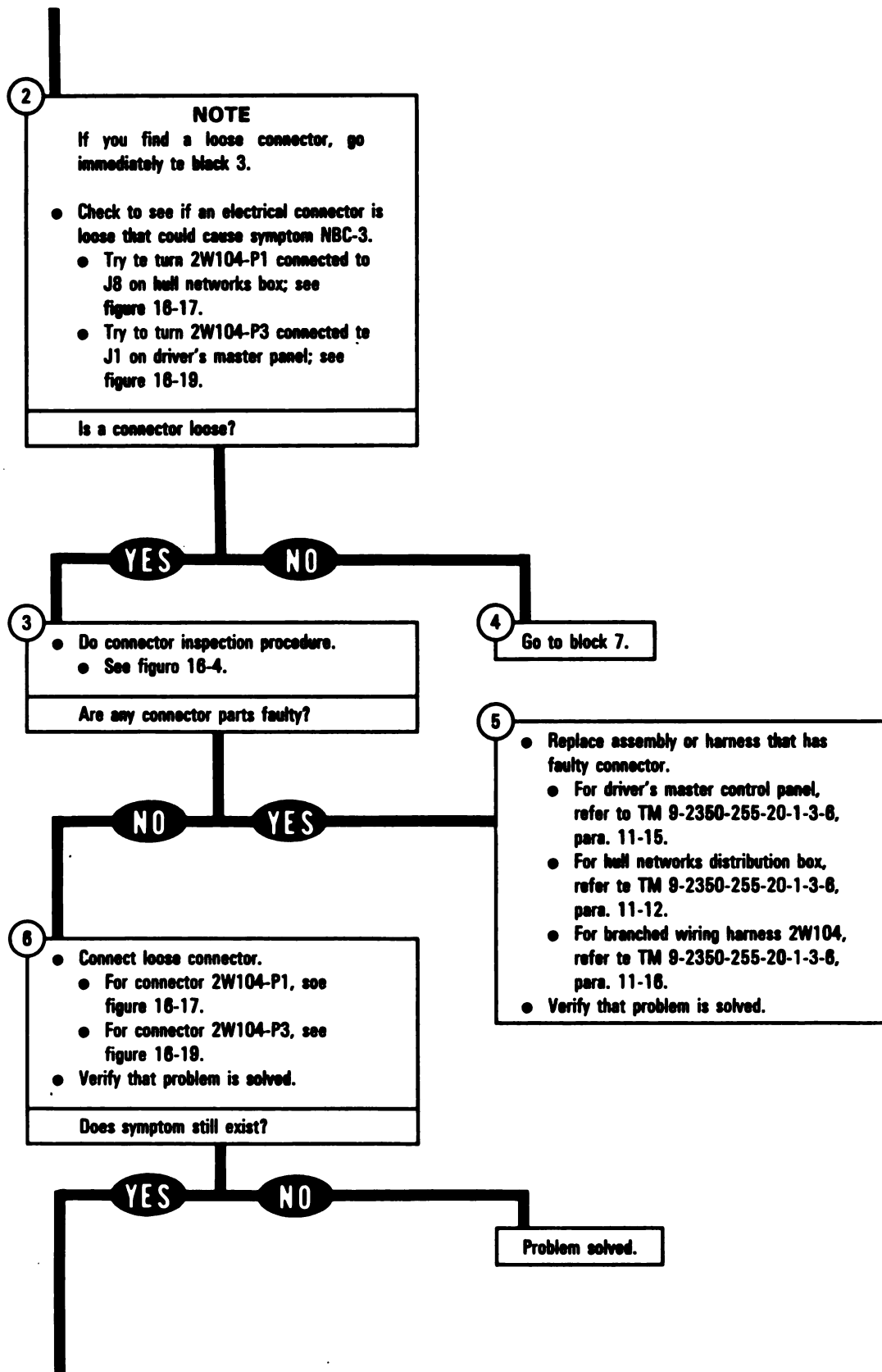
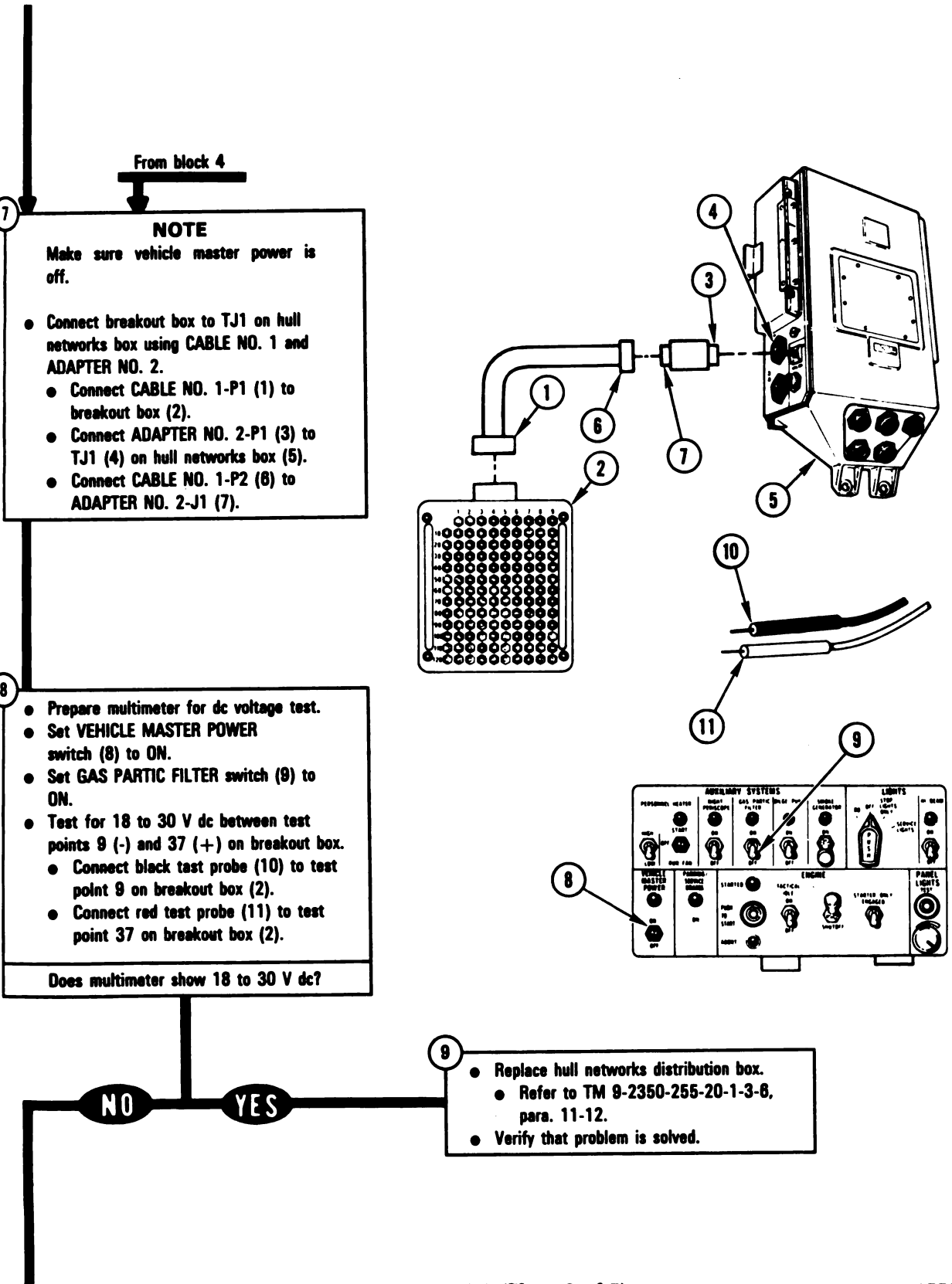


Figure 13-3 (Sheet 2 of 5)
 Volume II
 Para. 13-2



From block 4

NOTE

Make sure vehicle master power is off.

- Connect breakout box to TJ1 on hull networks box using CABLE NO. 1 and ADAPTER NO. 2.
- Connect CABLE NO. 1-P1 (1) to breakout box (2).
- Connect ADAPTER NO. 2-P1 (3) to TJ1 (4) on hull networks box (5).
- Connect CABLE NO. 1-P2 (6) to ADAPTER NO. 2-J1 (7).

- Prepare multimeter for dc voltage test.
- Set VEHICLE MASTER POWER switch (8) to ON.
- Set GAS PARTIC FILTER switch (9) to ON.
- Test for 18 to 30 V dc between test points 9 (-) and 37 (+) on breakout box.
- Connect black test probe (10) to test point 9 on breakout box (2).
- Connect red test probe (11) to test point 37 on breakout box (2).

Does multimeter show 18 to 30 V dc?

NO

YES

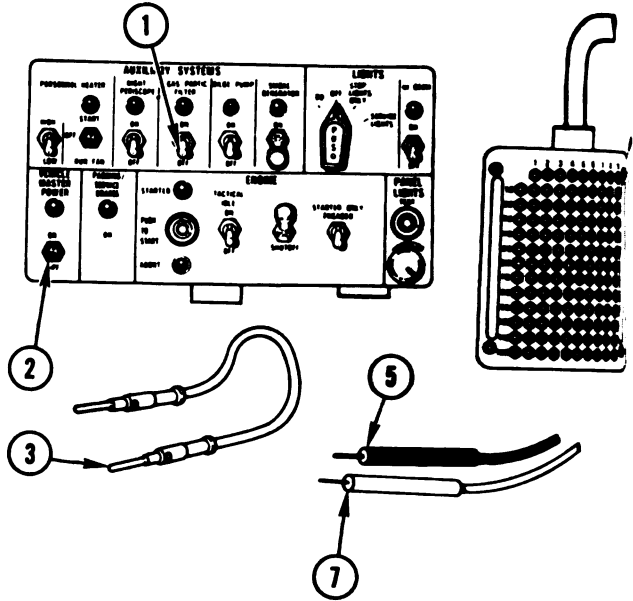
- Replace hull networks distribution box.
- Refer to TM 9-2350-255-20-1-3-8, para. 11-12.
- Verify that problem is solved.

Figure 13-3 (Sheet 3 of 5)
 Volume II
 Para. 13-2

ARR82-8702

TM 9-2350-255-20-2-2-2
NUCLEAR, BIOLOGICAL, CHEMICAL SYSTEM TROUBLESHOOTING

- 10
- Set GAS PARTIC FILTER switch (1) to OFF.
 - Set VEHICLE MASTER POWER switch (2) to OFF.
 - Disconnect 2W104-P3 from J1 on driver's master panel.
 - See figure 18-19.
 - Prepare multimeter for ohms test.



- 11
- Connect jumper (3) between contacts BB and CC on 2W104-P3 (4).
 - Test for continuity between test points 19 and 37 on breakout box.
 - Connect black test probe (5) to test point 19 on breakout box (6).
 - Connect red test probe (7) to test point 37 on breakout box (6).
- Does multimeter show continuity?

NO **YES**

- 12
- Replace driver's master control panel.
 - Refer to TM 9-2350-255-20-1-3-8, para. 11-15.
 - Verify that problem is solved.

- 13
- Disconnect 2W104-P1 from J8 on hull networks box.
 - See figure 18-17.
 - Connect jumper (3) between contacts KK and LL on 2W104-P1 (8).
 - Test for continuity between contacts BB and CC on 2W104-P3.
 - Connect black test probe (5) to contact BB on P3 (4).
 - Connect red test probe (7) to contact CC on P3 (4).
- Does multimeter show continuity?

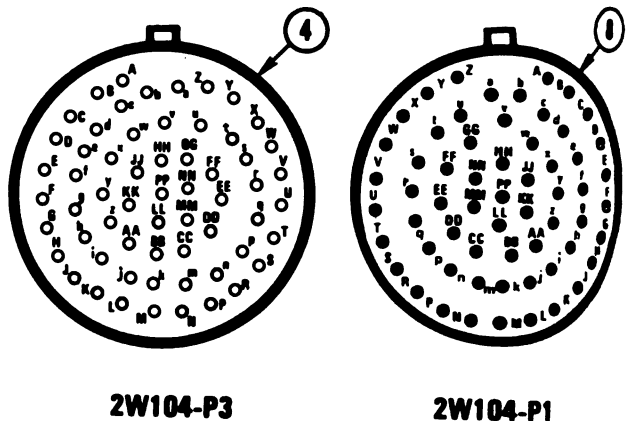


Figure 13-3 (Sheet 4 of 5)
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Para. 13-2

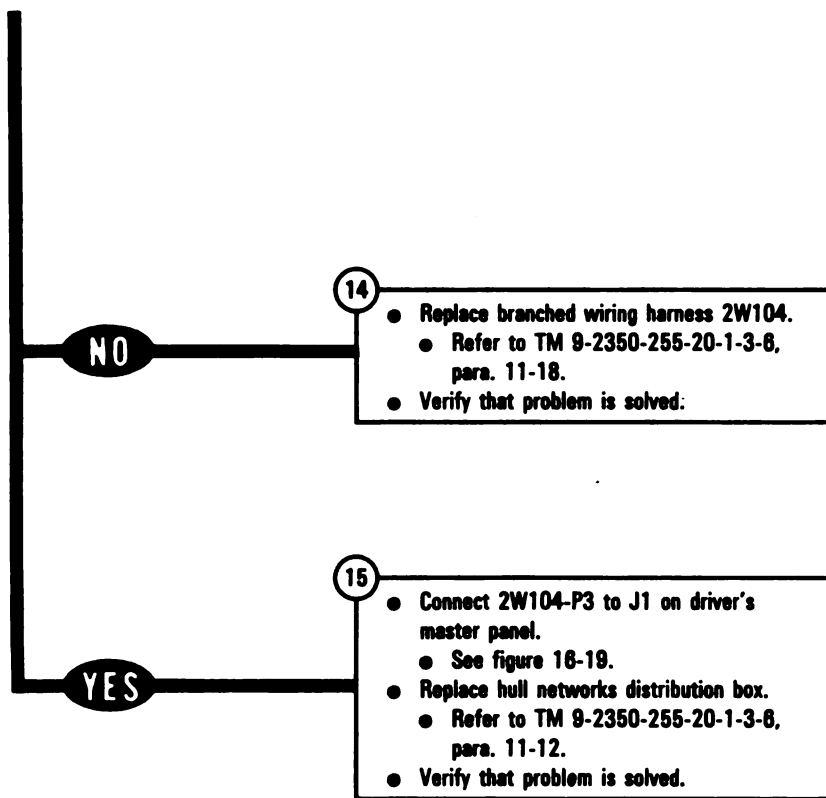


Figure 13-3 (Sheet 5 of 5)
Volume II
Para. 13-2

SYMPTOM NBC-4

GAS PARTICULATE BLOWER DOES NOT WORK. GAS PARTIC FILTER LIGHT COMES ON

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.

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. 13-1 before doing any work.

1

- Set up tank controls for standard initial test conditions.
- Refer to para. 16-8, table 16-2.

Figure 13-4 (Sheet 1 of 9)
Volume II
Para. 13-2

2

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 NBC-4.
- Try to turn 2W109-P3 connected to J7 on hull networks box; see figure 18-17.
- Try to turn 1W107-P1 connected to J4 on turret networks box; see figure 18-5.

- Try to turn 1W101-P2 connected to J11 on turret networks box; see figure 18-5.
- Try to turn 1W107-P3 connected to 1W107-2-J1; see figure 18-20.
- Try to turn 1W107-2-P1 connected to J1 on precleaner and particulate filter assembly; see figure 18-20.
- Try to turn 1W101-P1 connected to J8 on hull/turret slipring; see figure 18-9.
- Try to turn 2W109-P1 connected to J3 on hull/turret slipring; see figure 18-9.

Is a connector loose?

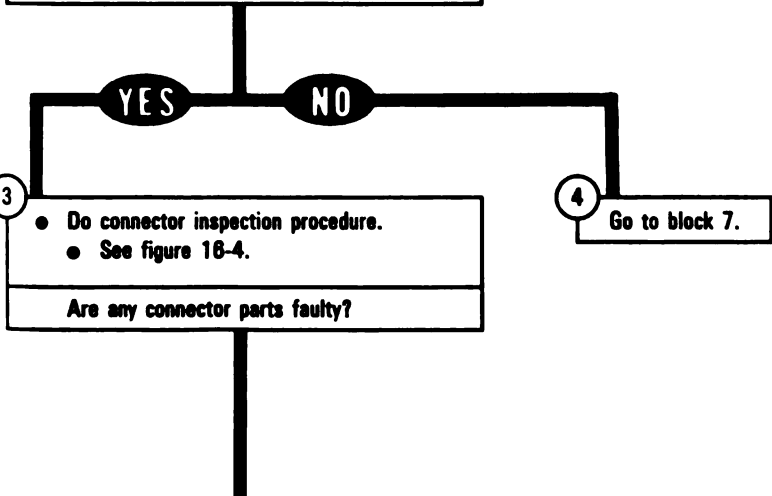
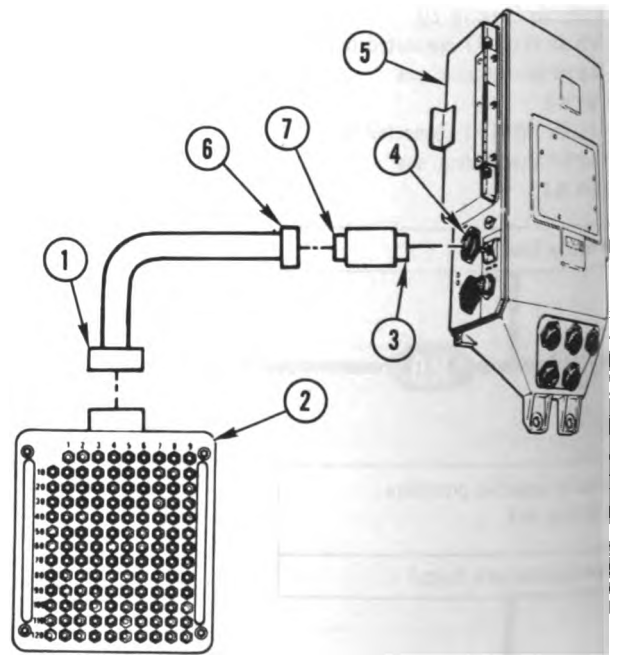
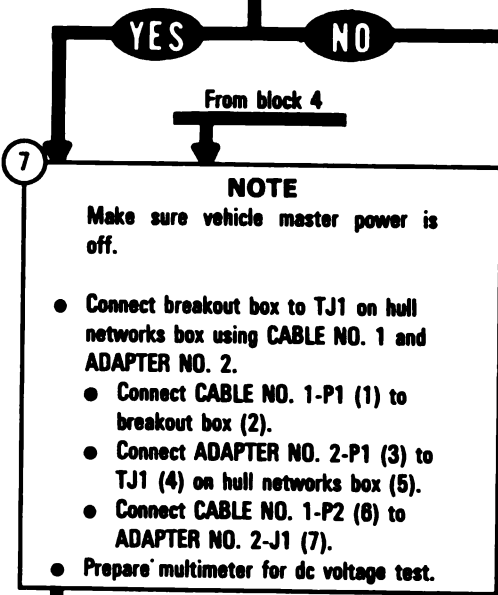
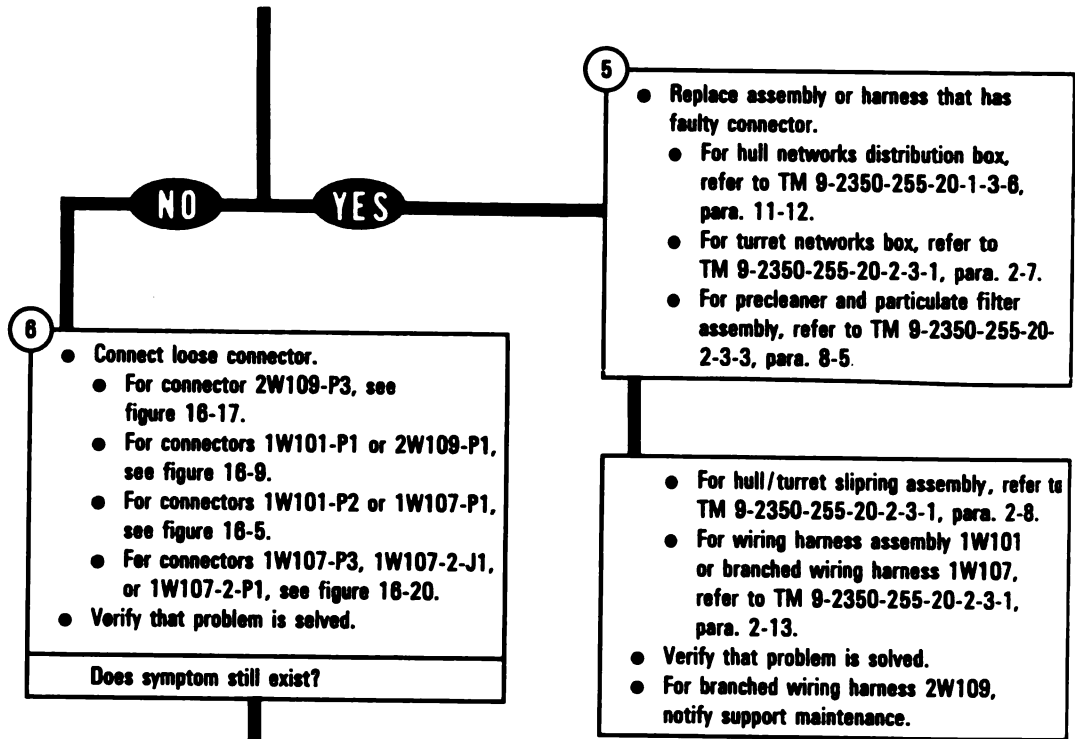


Figure 13-4 (Sheet 2 of 9)
Volume II
Para. 13-2

**TM 9-2350-255-20-2-2-2
NUCLEAR, BIOLOGICAL, CHEMICAL SYSTEM TROUBLESHOOTING**



*Figure 13-4 (Sheet 3 of 9)
Volume II
Para. 13-2*

8

- Set **VEHICLE MASTER POWER** switch (1) to **ON**.
- Set **GAS PARTIC FILTER** switch (2) to **ON**.
- Test for 18 to 30 V dc between test points 9 (-) and 61 (+) on breakout box.
- Connect black test probe (3) to test point 9 on breakout box (4).
- Connect red test probe (5) to test point 61 on breakout box (4).

Does multimeter show 18 to 30 V dc?

YES

NO

9

- Replace hull networks distribution box.
- Refer to TM 9-2350-255-20-1-3-8, para. 11-12.
- Verify that problem is solved.

10

- Set **GAS PARTIC FILTER** switch (2) to **OFF**.
- Set **VEHICLE MASTER POWER** switch (1) to **OFF**.
- Prepare multimeter for ohms test.

11

- Disconnect 2W109-P1 from J3 on hull/turret slipping.
- See figure 16-9.
- Connect jumper (6) between contacts A and P on 2W109-P1 (7).
- Test for continuity between test points 50 and 61 on breakout box.
- Connect black test probe (3) to test point 50 on breakout box (4).
- Connect red test probe (5) to test point 61 on breakout box (4).

Does multimeter show continuity?

YES

NO

12

- Connect 2W109-P1 to J3 on hull/turret slipping.
- See figure 16-9.
- Prepare multimeter for dc voltage test.

13 Go to block 25.

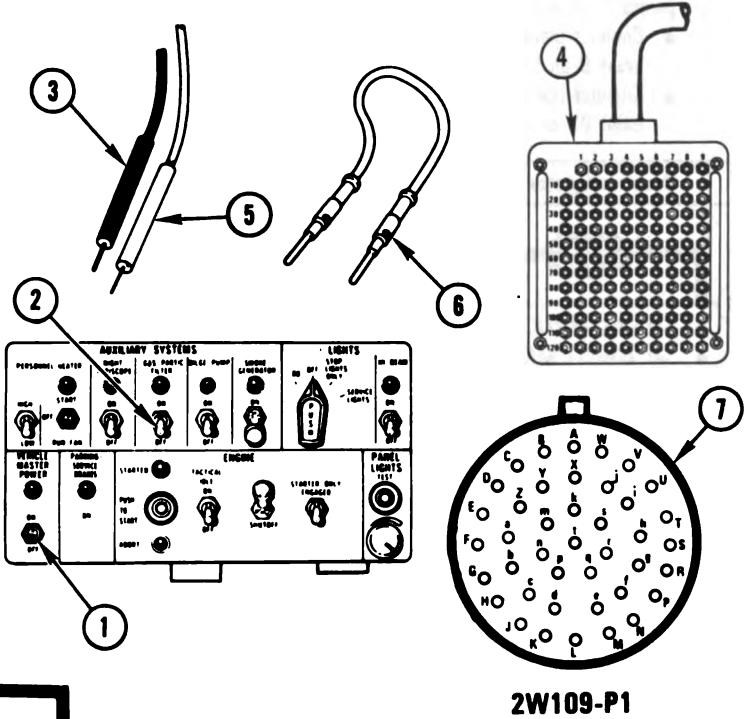


Figure 13-4 (Sheet 4 of 9)
Volume II
Para. 13-2

ARR82-6705

TM 9-2350-255-20-2-2-2
NUCLEAR, BIOLOGICAL, CHEMICAL SYSTEM TROUBLESHOOTING

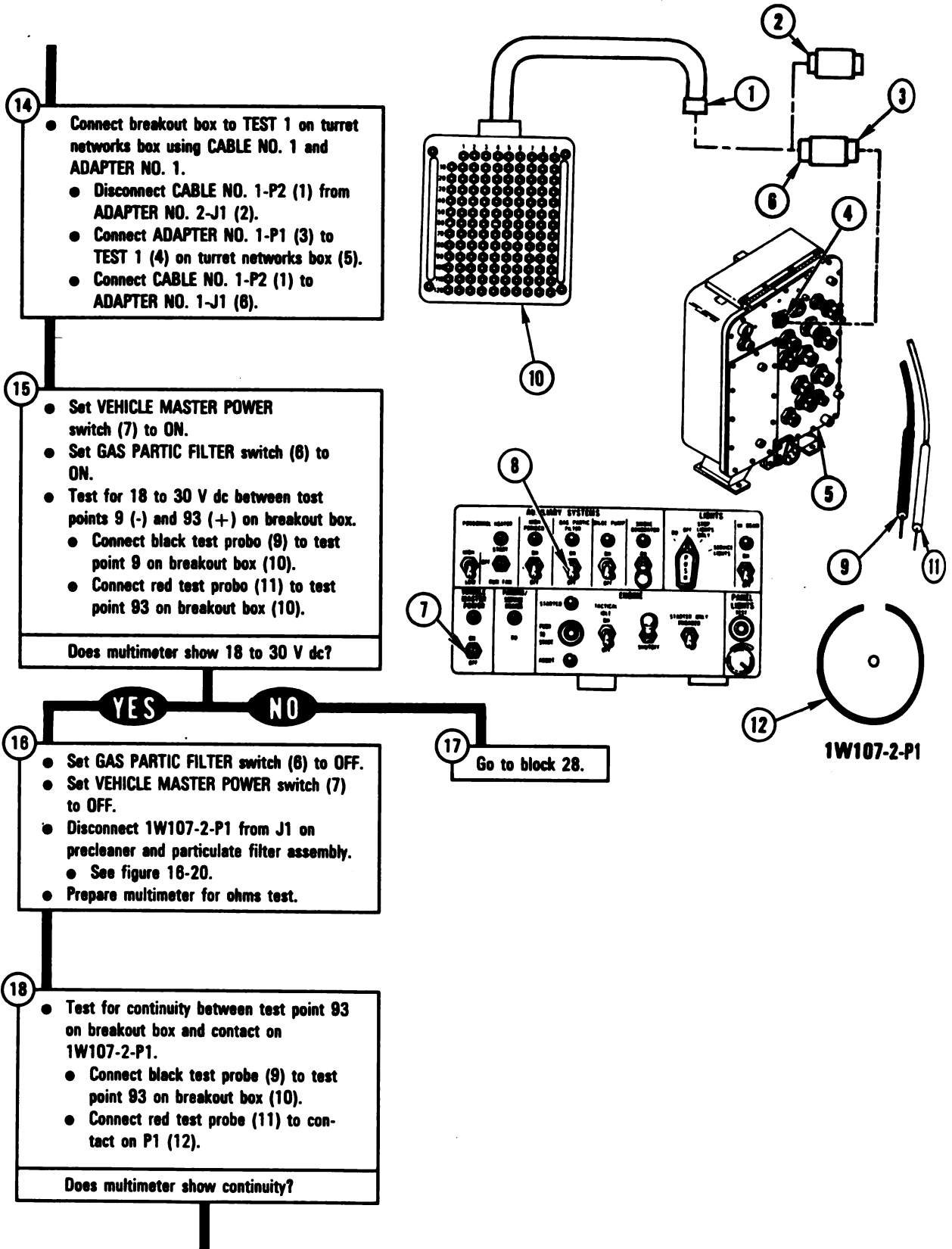


Figure 13-4 (Sheet 5 of 9)
Volume II
Para. 13-2

ARR82-6708

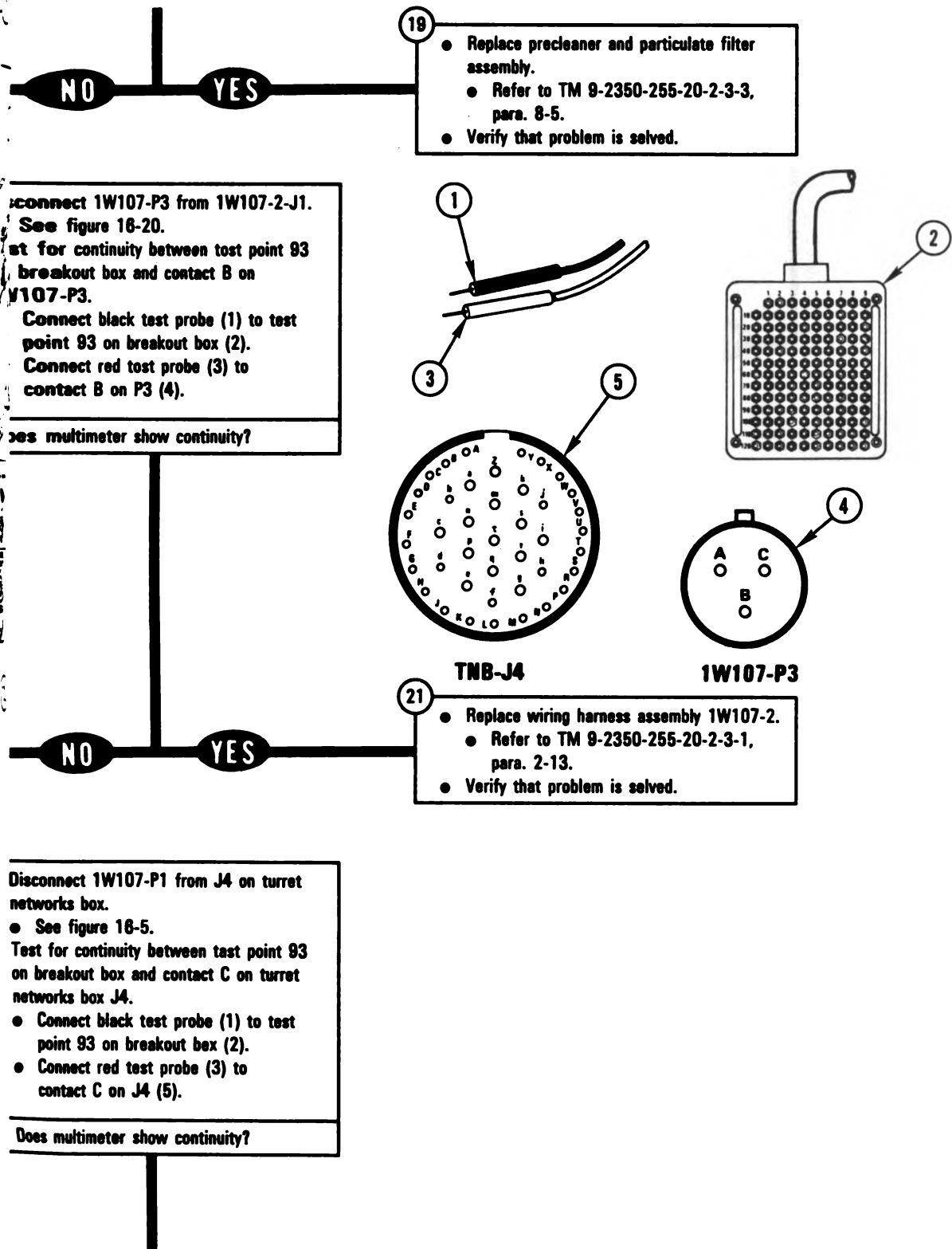
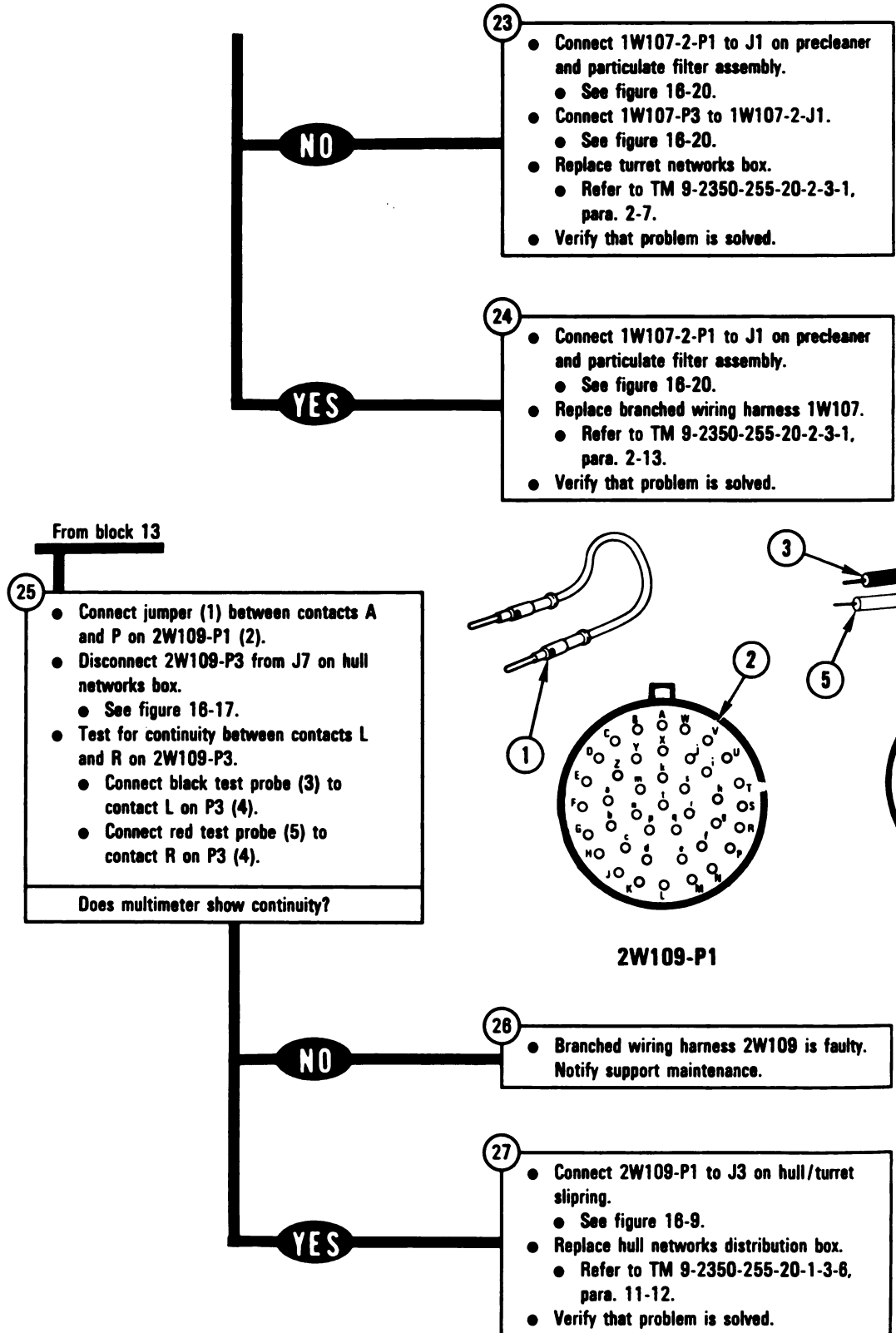


Figure 13-4 (Sheet 6 of 9)
 Volume II
 Para. 13-2

ARR82-6707

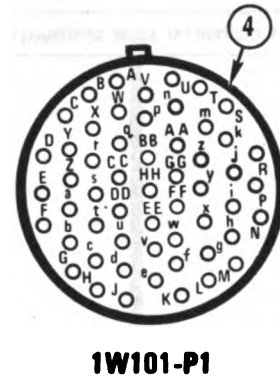
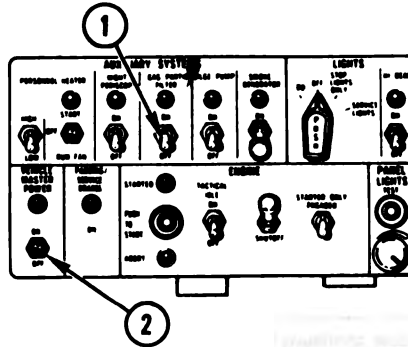
**TM 9-2350-255-20-2-2-2
NUCLEAR, BIOLOGICAL, CHEMICAL SYSTEM TROUBLESHOOTING**



**Figure 13-4 (Sheet 7 of 9)
Volume II
Para. 13-2**

From block 17

- 28
- Set GAS PARTIC FILTER switch (1) to OFF.
 - Set VEHICLE MASTER POWER switch (2) to OFF.
 - Prepare multimeter for ohms test.

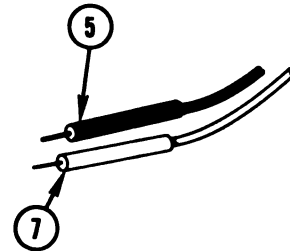
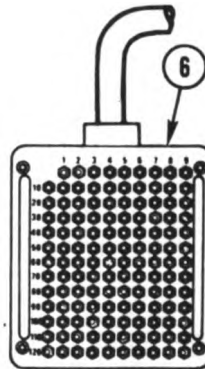


- 29
- Disconnect 1W101-P1 from J8 on hull/turret slipping.
 - See figure 18-9.
 - Connect jumper (3) between contacts J and P on 1W101-P1 (4).

NOTE

If multimeter does not show continuity, leave jumper connected.

- Test for continuity between test points 17 and 93 on breakout box.
- Connect black test probe (5) to test point 17 on breakout box (6).
- Connect red test probe (7) to test point 93 on breakout box (6).



Does multimeter show continuity?

NO

YES

- 30
- Replace hull/turret slipping assembly.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-8.
 - Verify that problem is solved.

*Figure 13-4 (Sheet 8 of 9)
Volume II
Para. 13-2*

ARR82-6709

TM 9-2350-255-20-2-2-2
NUCLEAR, BIOLOGICAL, CHEMICAL SYSTEM TROUBLESHOOTING

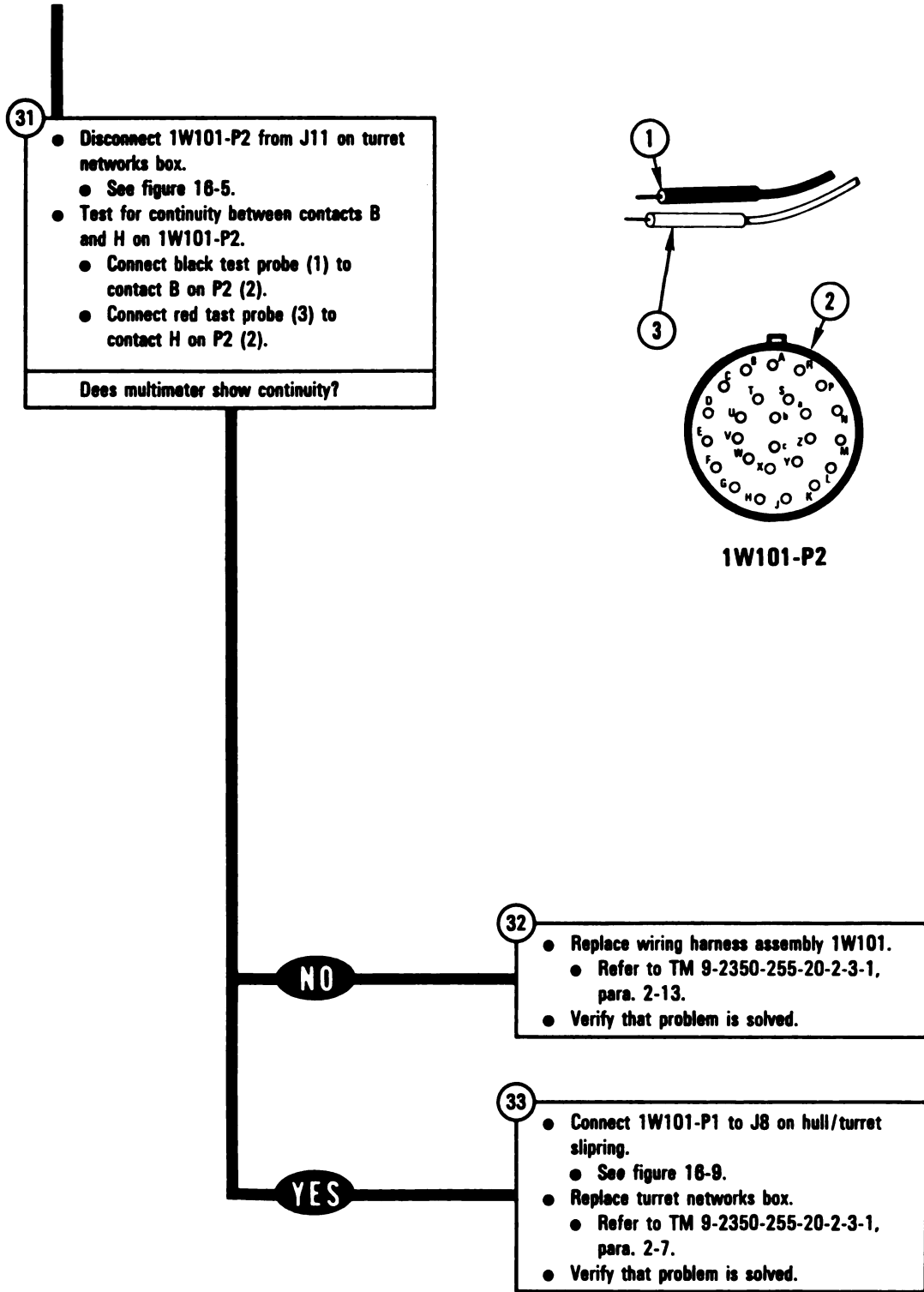


Figure 13-4 (Sheet 9 of 9)
Volume II
Para. 13-2

ARR82-8710

SYMPTOM NBC-5

**GUNNER'S HEATER DOES NOT WORK.
COMMANDER'S AND LOADER'S HEATERS
OK**

Common Tools:

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

Supplies:

Connector Pin/Socket Adapters

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. 13-1 before doing any work.

- Set up tank controls for standard initial test conditions.
 - Refer to para. 16-6, table 16-2.

Figure 13-5 (Sheet 1 of 5)
Volume II
Para. 13-2

TM 9-2350-255-20-2-2
NUCLEAR, BIOLOGICAL, CHEMICAL SYSTEM TROUBLESHOOTING

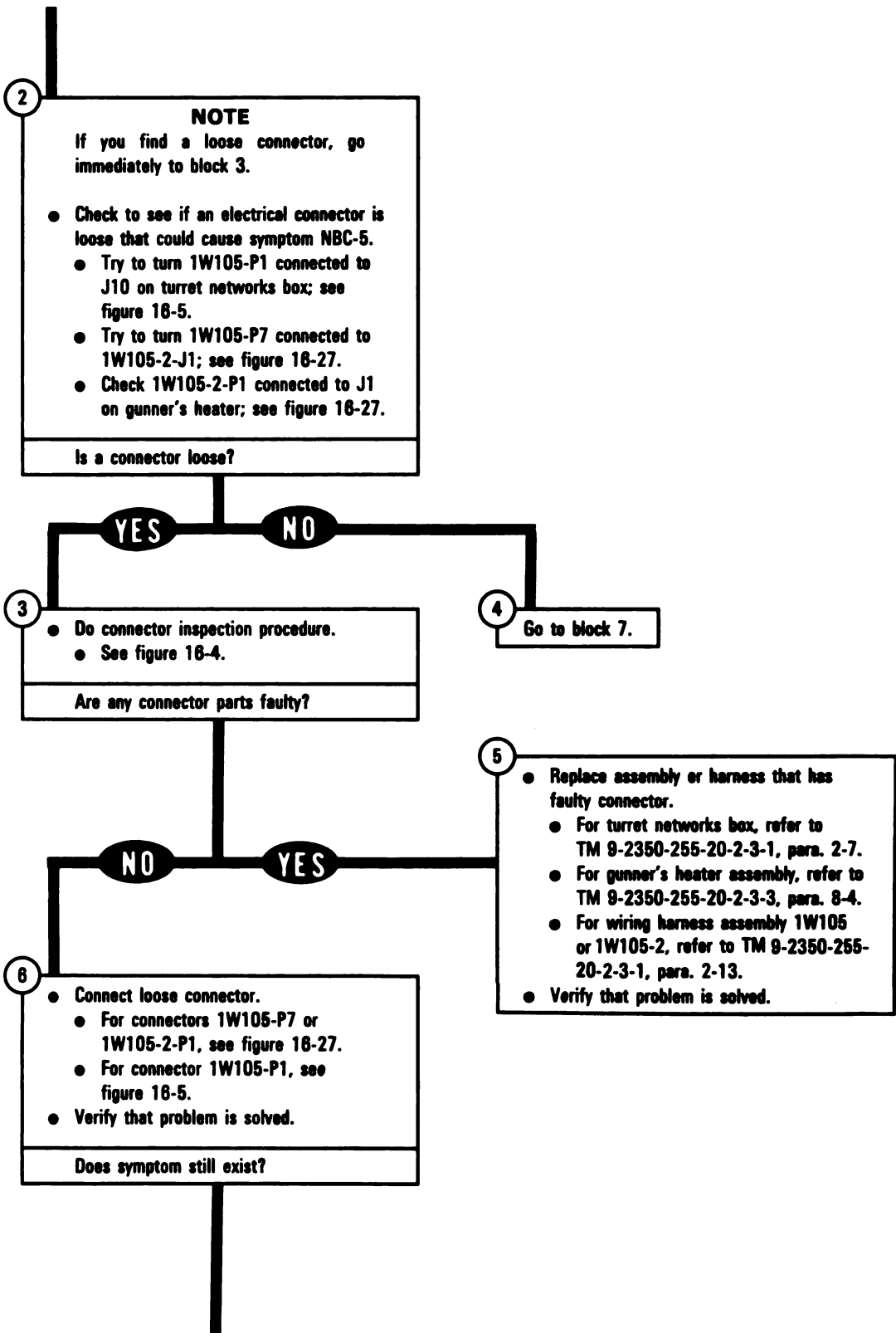


Figure 13-5 (Sheet 2 of 5)
Volume II
Para. 13-2

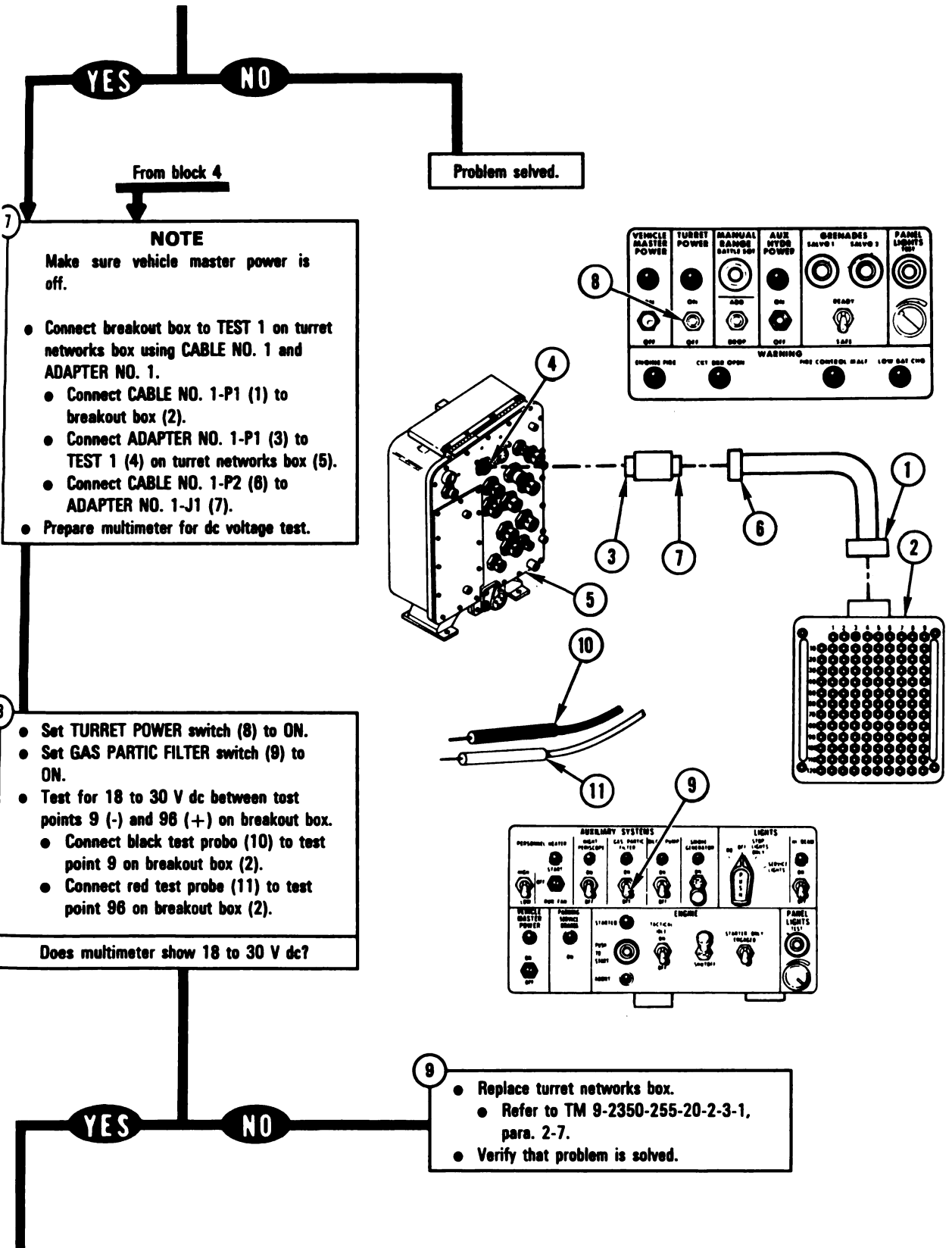


Figure 13-5 (Sheet 3 of 5)
 Volume II
 Para. 13-2

ARR82-8711

**TM 9-2350-255-20-2-2-2
NUCLEAR, BIOLOGICAL, CHEMICAL SYSTEM TROUBLESHOOTING**

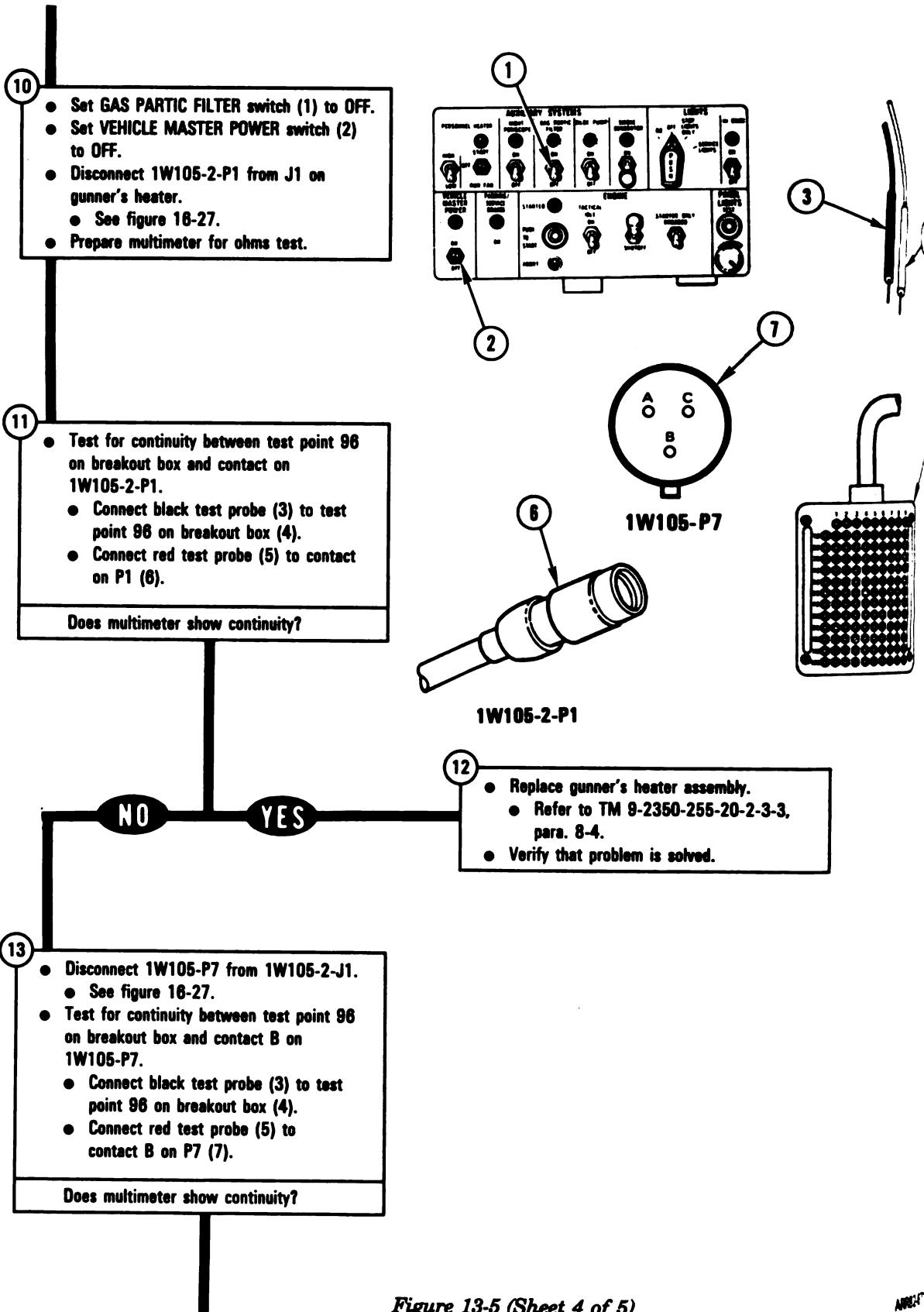


Figure 13-5 (Sheet 4 of 5)
Volume II
Para. 13-2

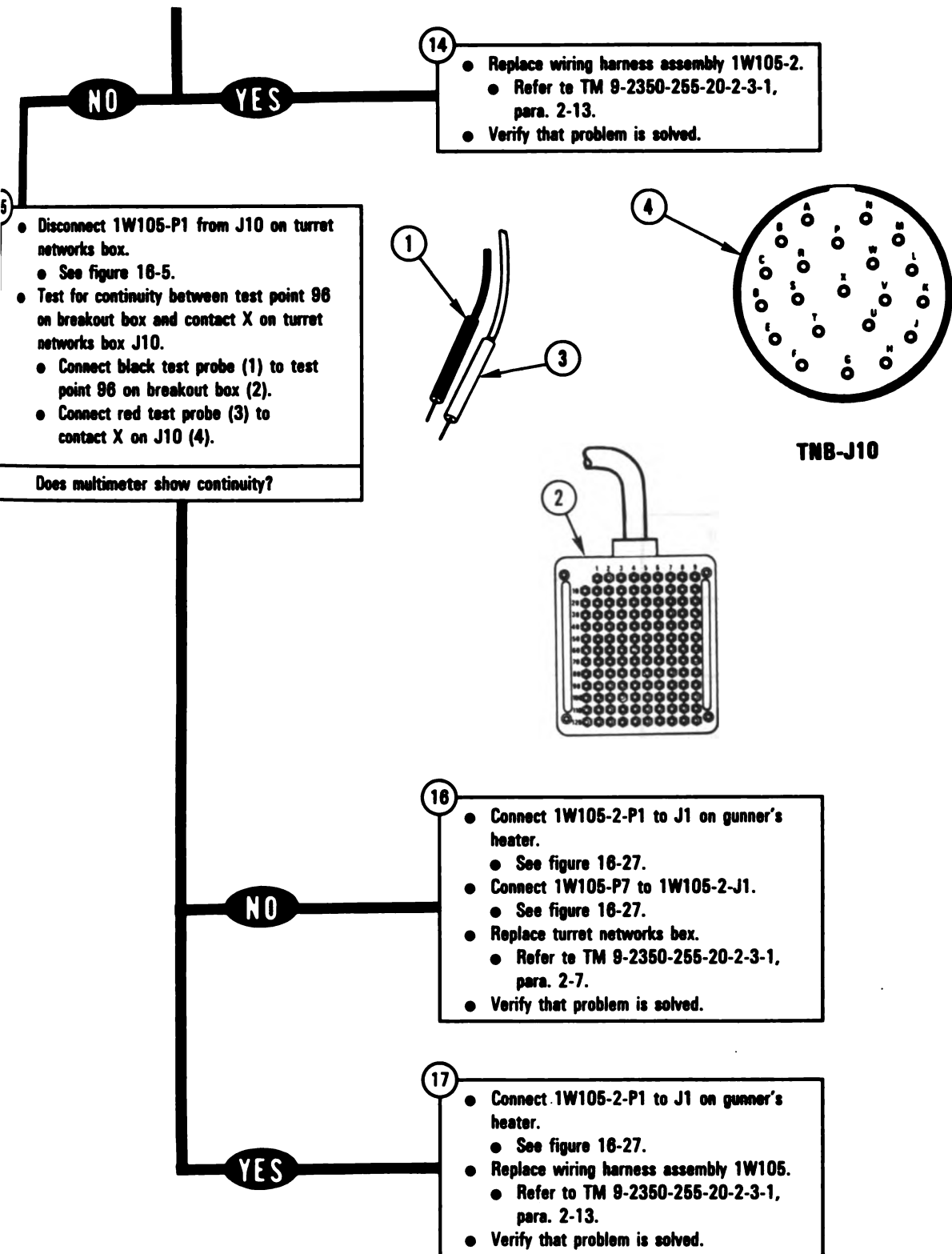


Figure 13-5 (Sheet 5 of 5)
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Para. 13-2

SYMPTOM NBC-6

COMMANDER'S HEATER DOES NOT WORK. GUNNER'S AND LOADER'S HEATERS OK

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. 13-1 before doing any work.

1

- Set up tank controls for standard initial test conditions.
- Refer to para. 16-6, table 16-2.

Figure 13-6 (Sheet 1 of 5)
Volume II
Para. 13-2

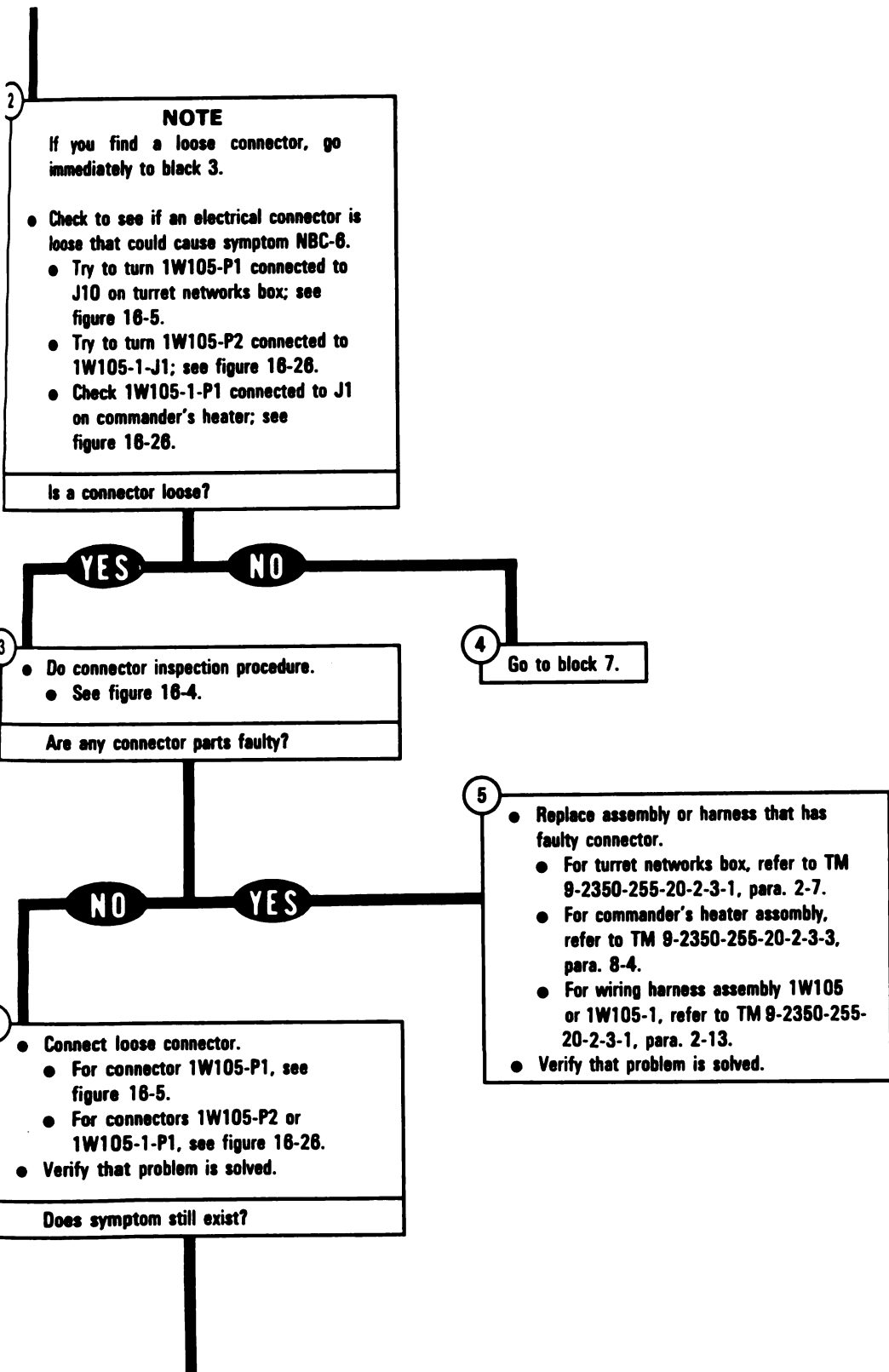


Figure 13-6 (Sheet 2 of 5)
Volume II
Para. 13-2

**TM 9-2350-255-20-2-2-2
NUCLEAR, BIOLOGICAL, CHEMICAL SYSTEM TROUBLESHOOTING**

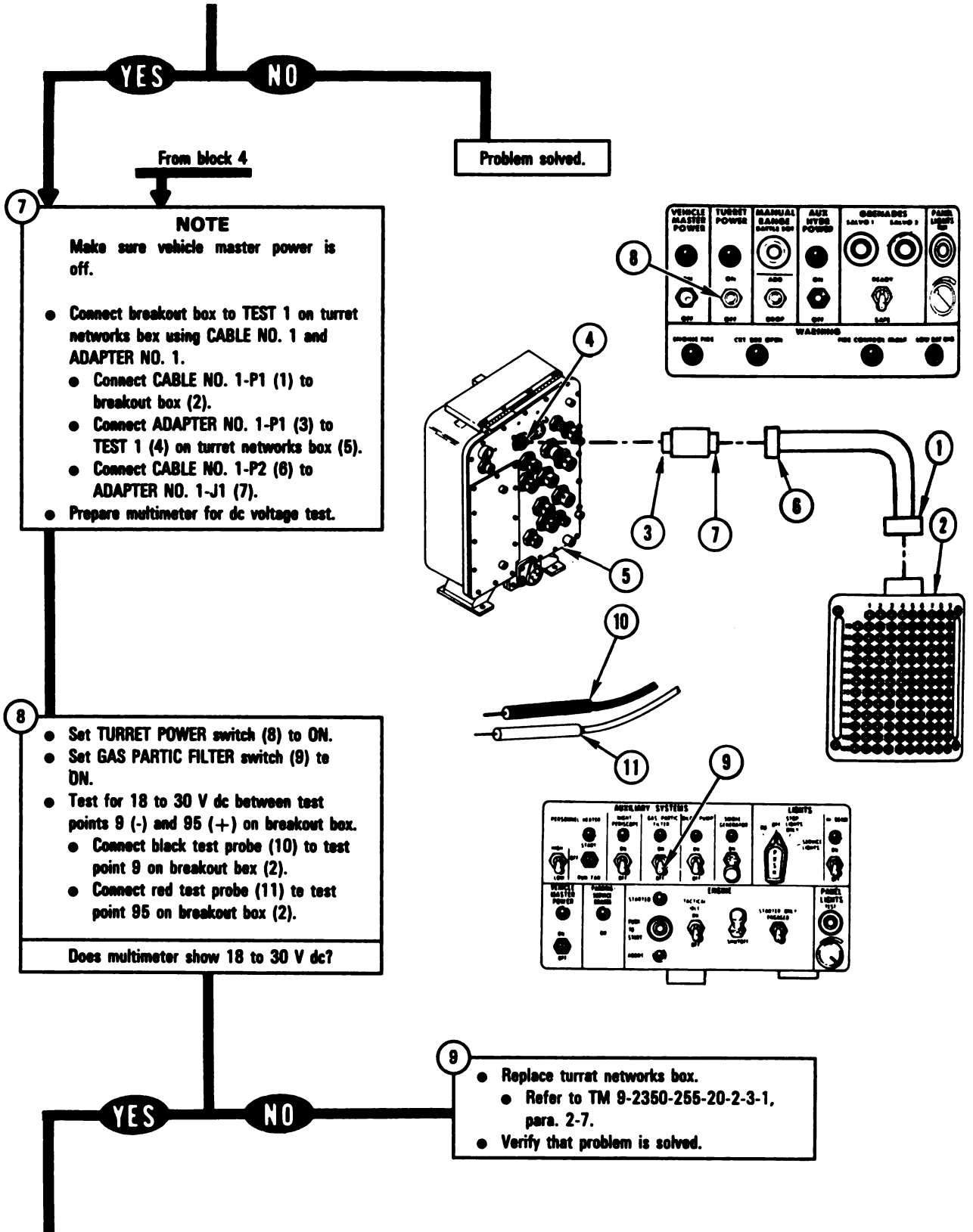


Figure 13-6 (Sheet 3 of 5)
Volume II
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ARR82-6714

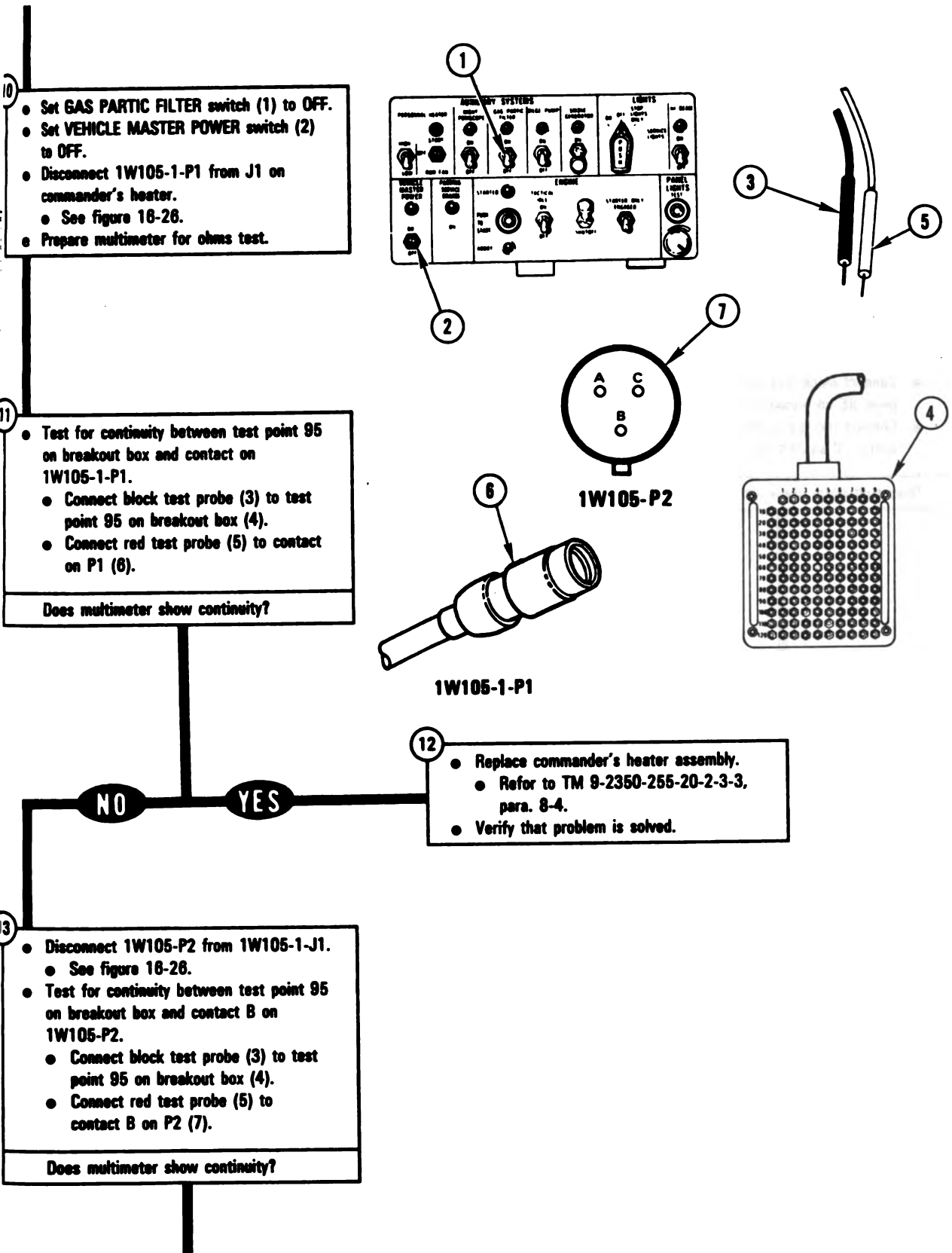


Figure 13-6 (Sheet 4 of 5)
Volume II
Para. 13-2

TM 9-2350-255-20-2-2-2
NUCLEAR, BIOLOGICAL, CHEMICAL SYSTEM TROUBLESHOOTING

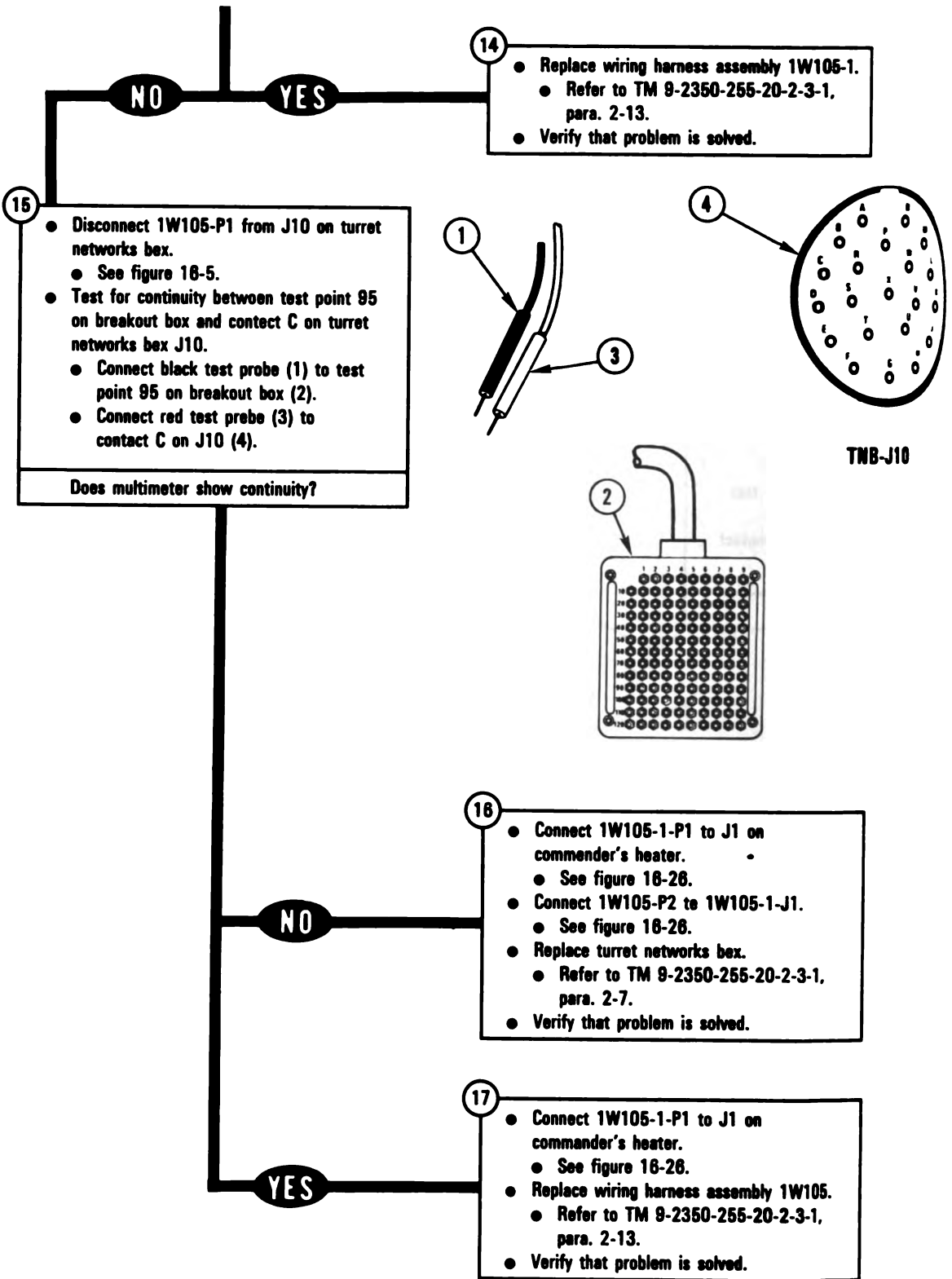


Figure 13-6 (Sheet 5 of 5)
Volume II
Para. 13-2

SYMPTOM NBC-7

**AMMUNITION HEATER DOES NOT WORK.
AMMUNITION HEATER'S AND GUNNER'S HEATERS**

Common Tools:

Wrench, slip joint, conduit style with plastic
inserts

Supplies:

Connector Pin/Socket Adapters

Test Equipment/Special Tools:

Breakout Box Tool Kit, 12311086
Multimeter

Equipment Condition:

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

NOTE

Read para. 13-1 before doing any work.

Set up tank controls for standard initial
test conditions.

- Refer to para. 16-6, table 16-2.

TM 9-2350-255-20-2-2-2
NUCLEAR, BIOLOGICAL, CHEMICAL SYSTEM TROUBLESHOOTING

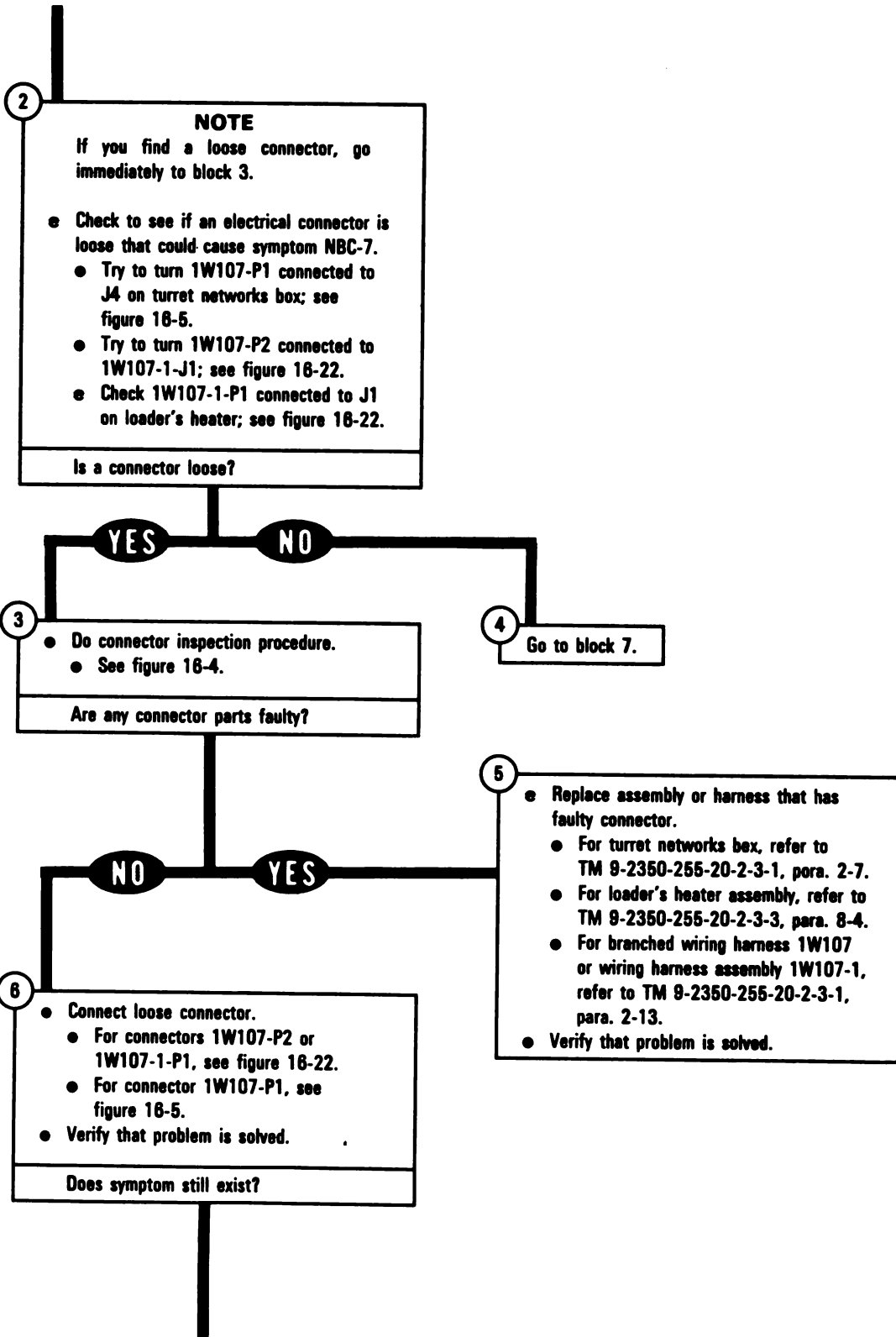


Figure 13-7 (Sheet 2 of 5)
Volume II
Para. 13-2

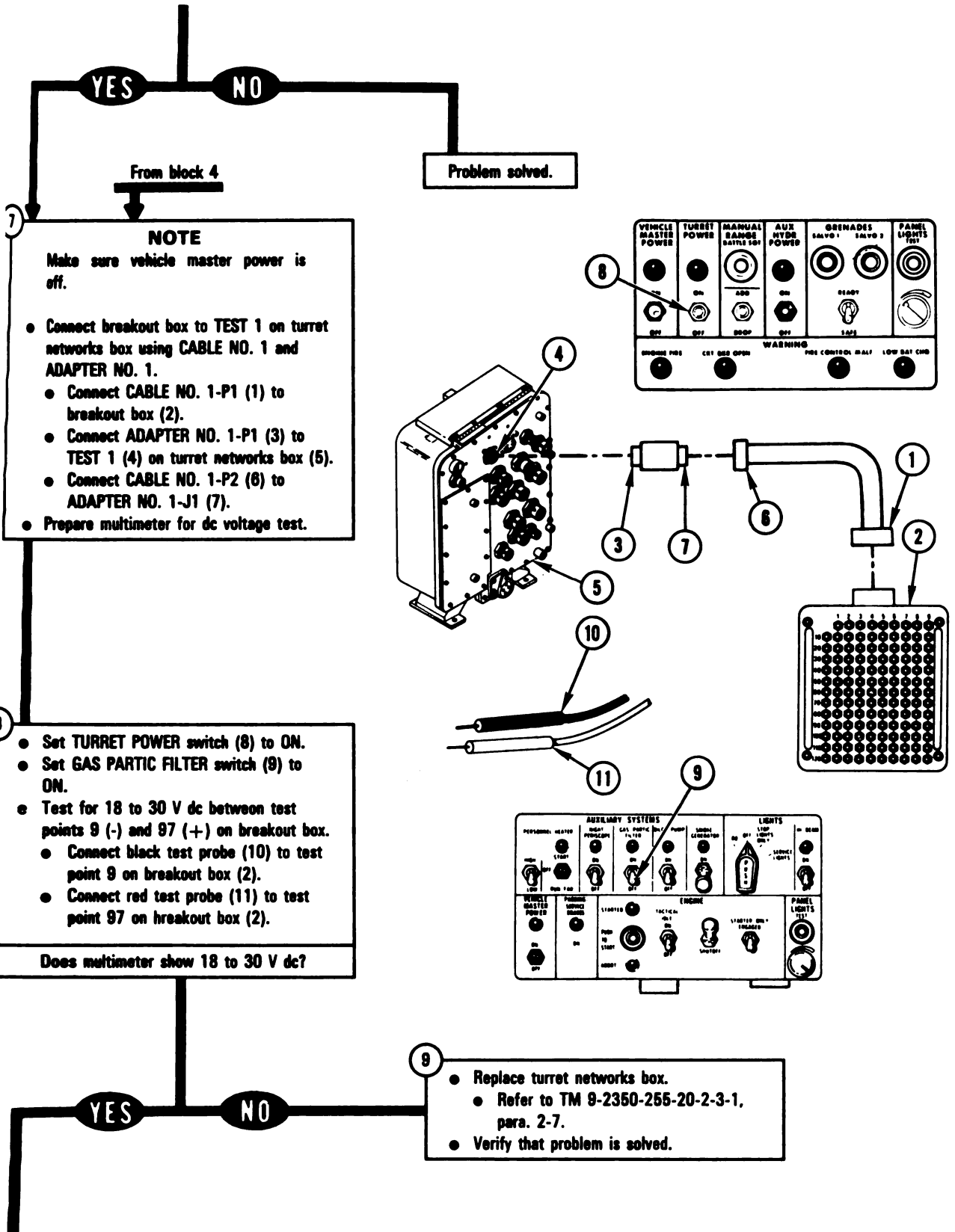


Figure 13-7 (Sheet 3 of 5)
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Para. 13-2

ARR82-6717

TM 9-2350-255-20-2-2-2
NUCLEAR, BIOLOGICAL, CHEMICAL SYSTEM TROUBLESHOOTING

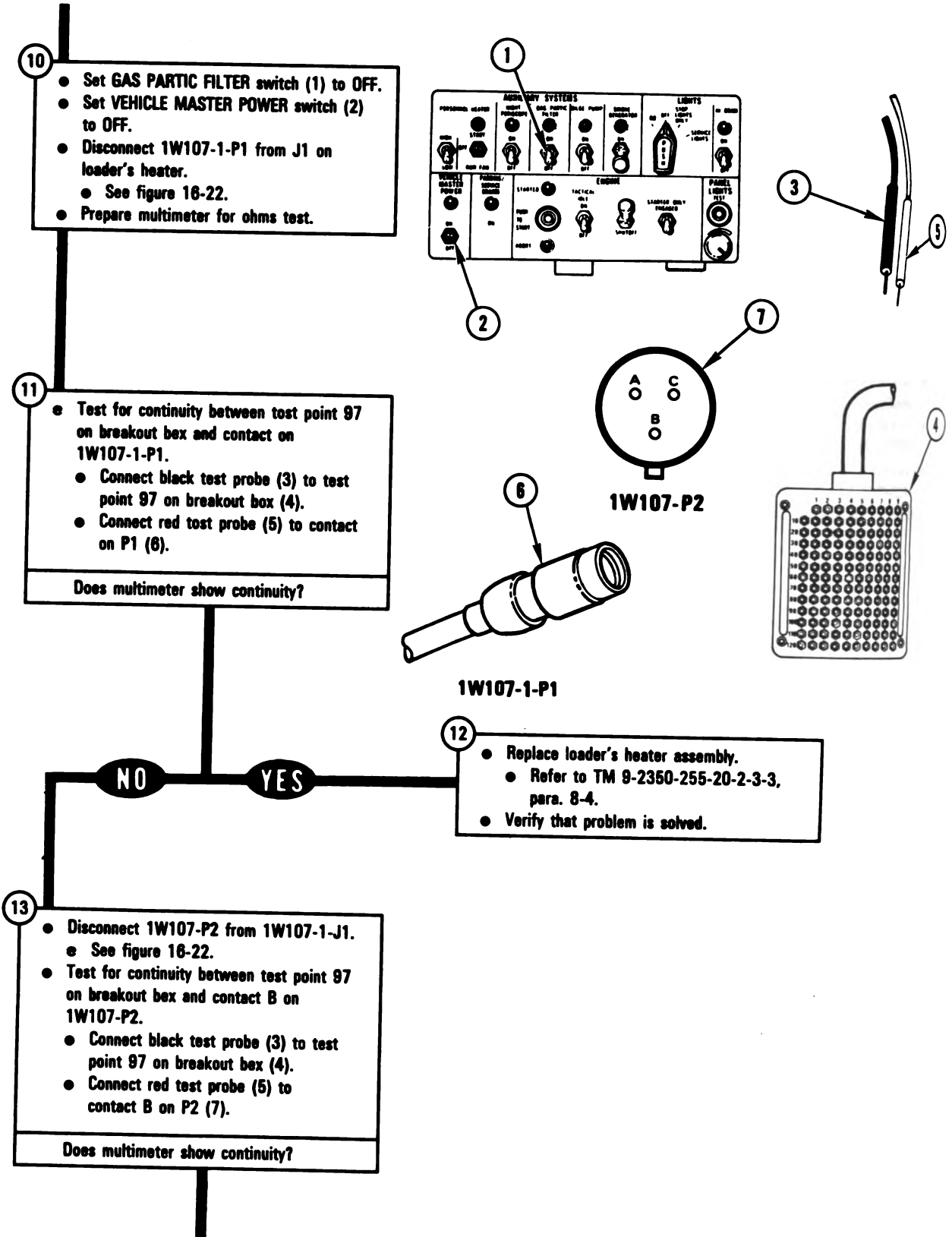


Figure 13-7 (Sheet 4 of 5)
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ARR82-8710

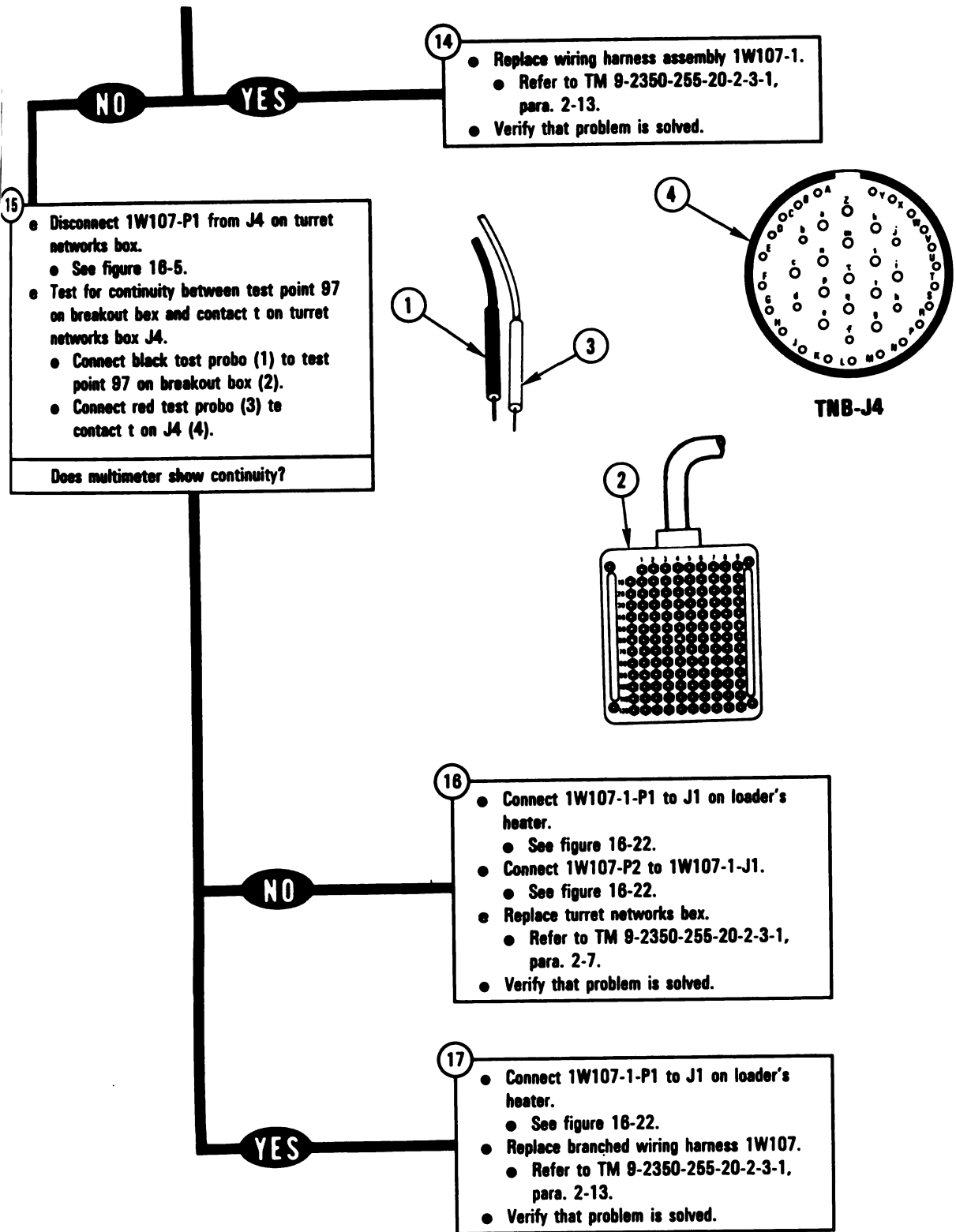


Figure 13-7 (Sheet 5 of 5)
Volume II
Para. 13-2

ARR82-6719

SYMPTOM NBC-8

GAS PARTICULATE BLOWER AND GAS PARTIC FILTER LIGHT STAY ON WHEN GAS PARTIC FILTER SWITCH IS SET TO OFF POSITION

Common Tools:

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

Supplies:

Connector Pin/Socket Adapters

Test Equipment/Special Tools:

- Multimeter

Equipment Condition:

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

NOTE

Read para. 13-1 before doing any work.

1

- Set up tank controls for standard initial test conditions.
- Refer to para. 16-6, table 16-2.

2

- Check to see if an electrical connector is loose that could cause symptom NBC-8.
- Try to turn 2W104-P3 connected to J1 on driver's master panel; see figure 16-19.
- Try to turn 2W104-P1 connected to J8 on hull networks box; see figure 16-17.

Is a connector loose?

NOTE

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

Figure 13-8 (Sheet 1 of 4)
Volume II
Para. 13-2

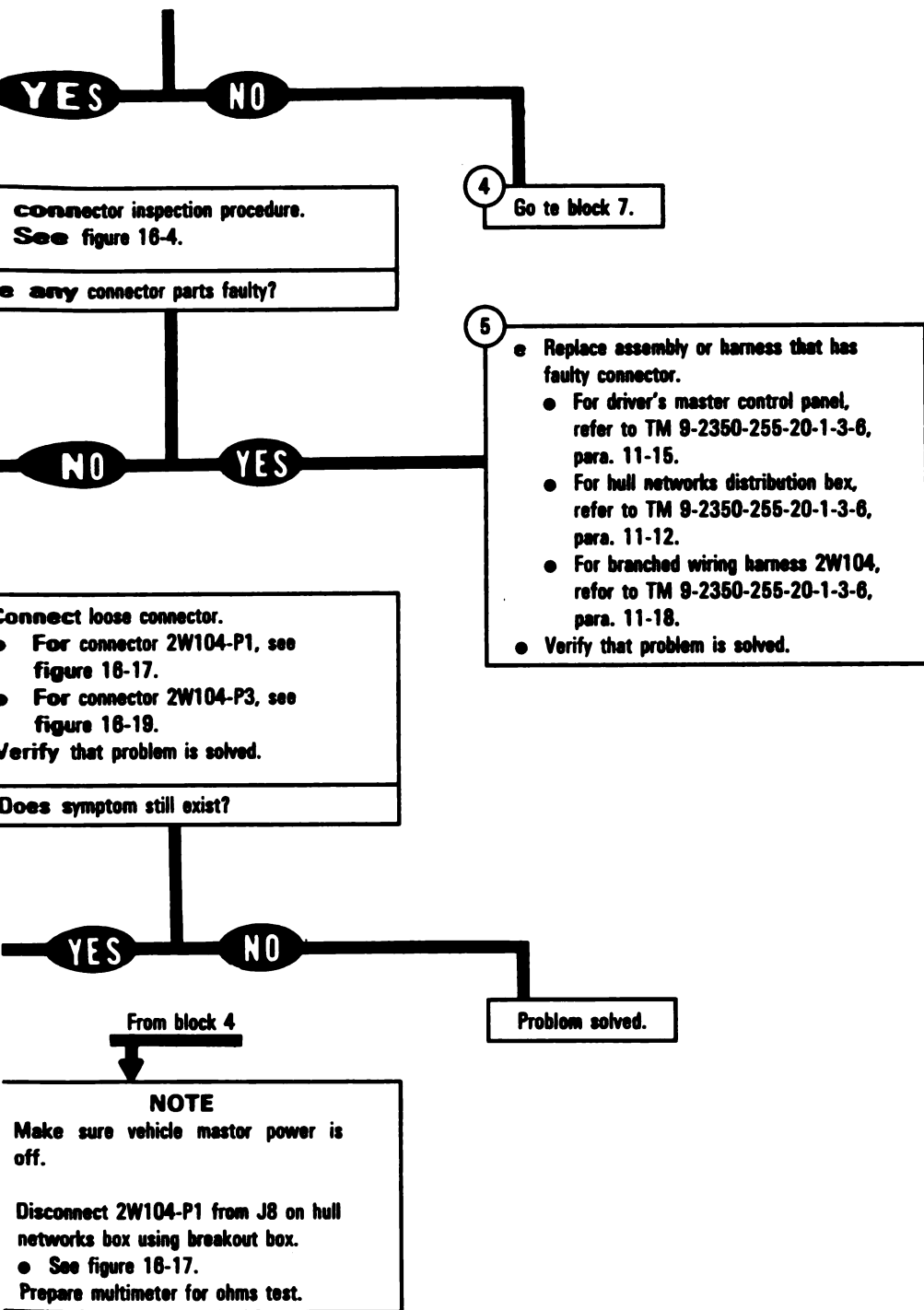


Figure 13-8 (Sheet 2 of 4)
 Volume II
 Para. 13-2

TM 9-2350-255-20-2-2-2
NUCLEAR, BIOLOGICAL, CHEMICAL SYSTEM TROUBLESHOOTING

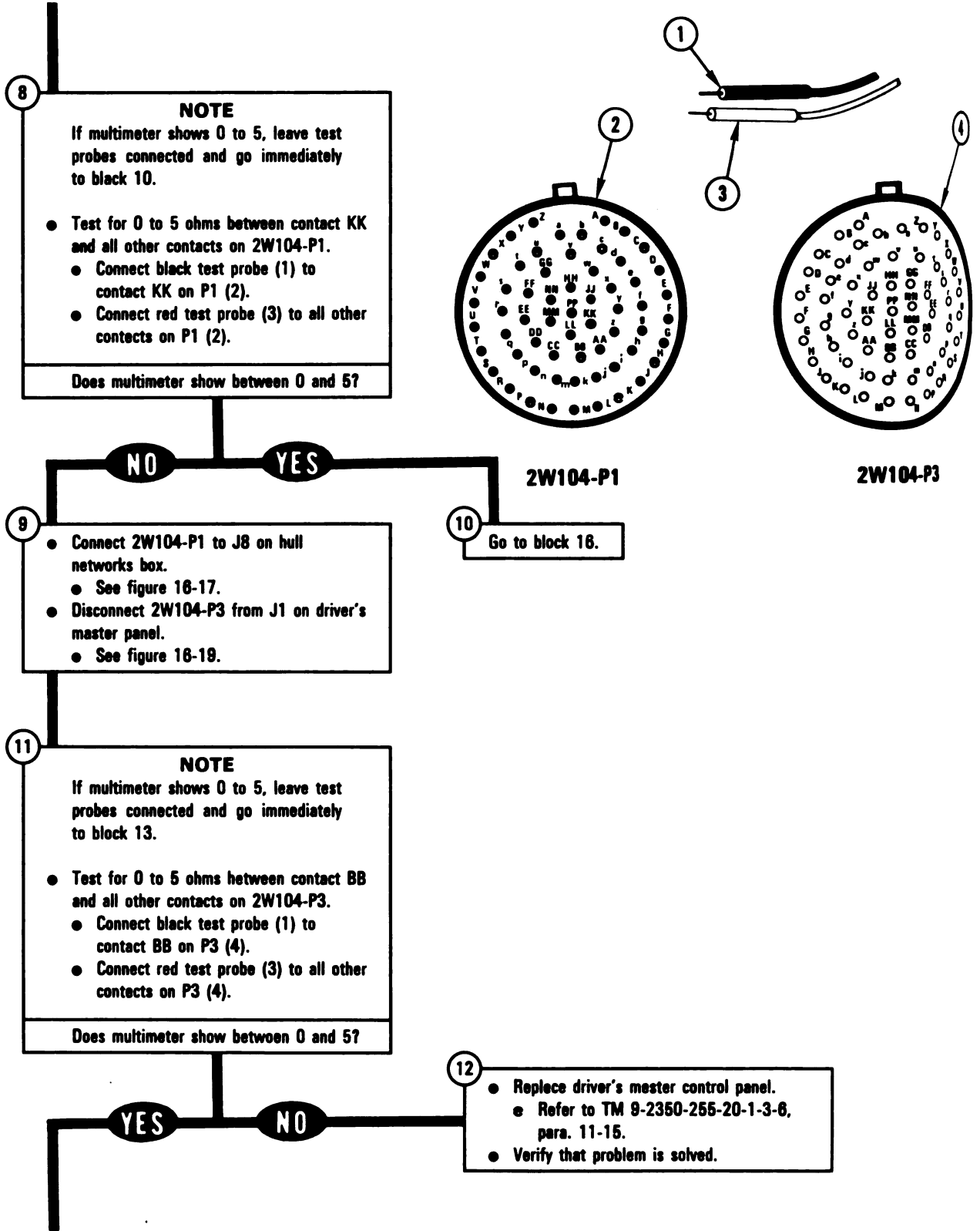
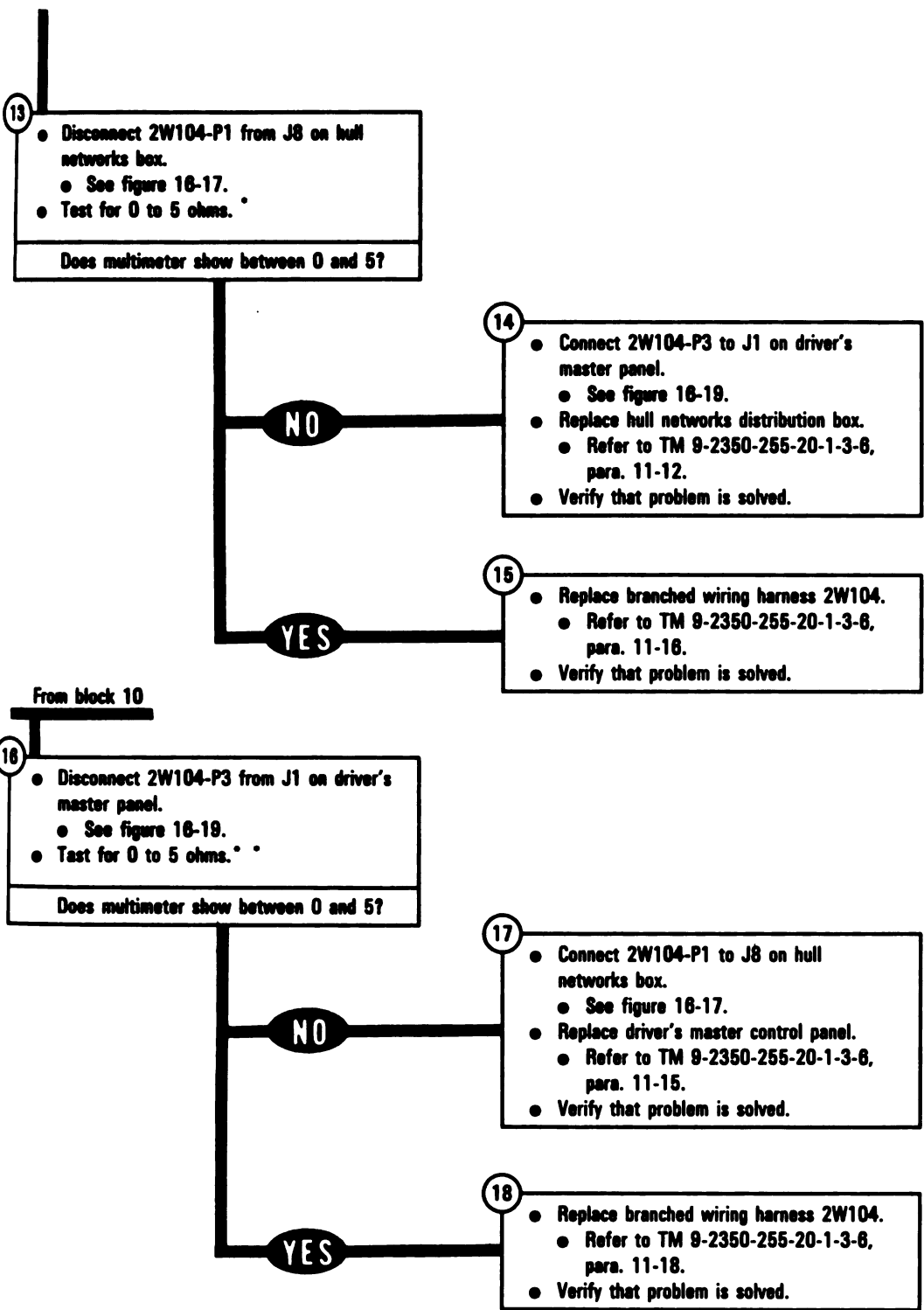


Figure 13-8 (Sheet 3 of 4)
 Volume II
 Para. 13-2

ARR82-8720



*Between contacts found in block 11

**Between contacts found in block 8

Figure 13-8 (Sheet 4 of 4)
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Para. 13-2

CHAPTER 14

COMMUNICATION SYSTEM TROUBLESHOOTING

14-1. General. This chapter tells you how to troubleshoot the communication system.

A fault symptom index is located at the beginning of paragraph 14-2. The index identifies the primary procedure used to troubleshoot a known fault symptom. The primary procedure is located in paragraph 14-2.

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 performing troubleshooting procedures.
- 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 to gain access to the connector being checked.
- g. Use care when hooking up all connectors to avoid bending or breaking pins. Tighten connectors by hand only.
- h. Cap all electrical connectors that were 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 the multimeter and/or electrical jumpers, it will be necessary to attach pin/socket adapters to the multimeter probes or to the ends of the jumpers. For information on these items, refer to paragraph 15-2.
- m. When using electrical jumpers or multimeter test probes, remove them from contacts after completing each test unless otherwise noted by troubleshooting procedure. When connecting test probes where jumpers are already connected, lift jumper slightly so test probe can make contact.
- n. Before performing steps in replacement blocks, read preliminary procedures in maintenance manual to avoid connecting or installing unnecessary equipment.

TM 9-2350-255-20-2-2-2
COMMUNICATION SYSTEM TROUBLESHOOTING

14-2. Communication System Troubleshooting Procedure.

Table 14-1. Communication (COMM) System Fault Symptom Index

Fault Symptom No.	Fault Symptom	Primary Troubleshooting Procedure (PTP)
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.	Figure 14-1

MPTOM COMM-1

**DO NOT COMMUNICATE ON RADIO OR
PERCOM. AMPLIFIER POWER INDICATOR
LIGHT AND RECEIVER-TRANSMITTER
DIAL LIGHTS DO NOT COME ON**

Common Tools:

Pliers, slip joint, conduit style with plastic
saw 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

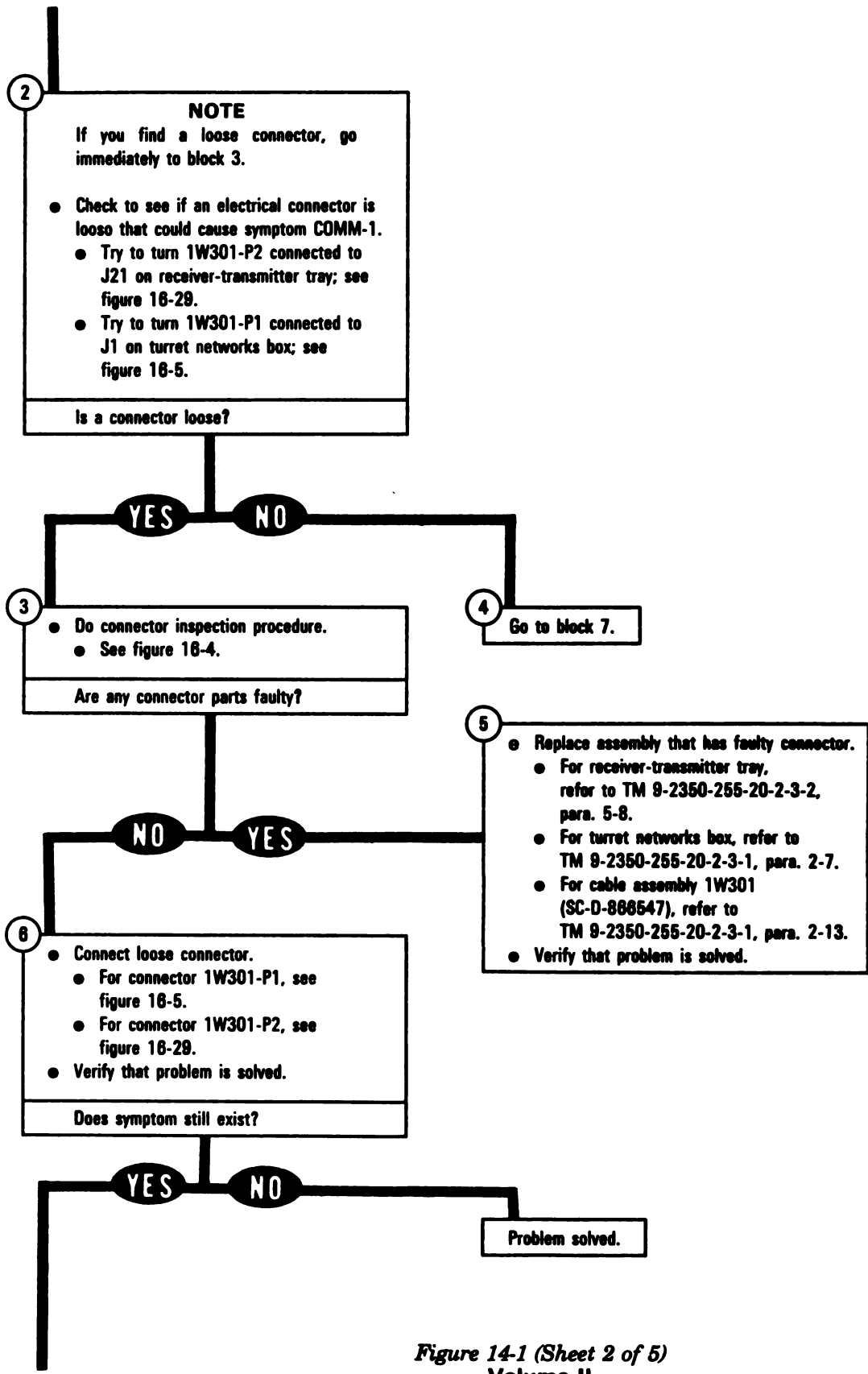
Read para. 14-1 before doing any work.

Set up tank controls for standard initial
test conditions.

- Refer to para. 16-6, table 16-2.

Figure 14-1 (Sheet 1 of 5)
Volume II
Para. 14-2

**TM 9-2350-255-20-2-2-2
COMMUNICATION SYSTEM TROUBLESHOOTING**



*Figure 14-1 (Sheet 2 of 5)
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Para. 14-2*

TM 9-2350-255-20-2-2-2
COMMUNICATION SYSTEM TROUBLESHOOTING

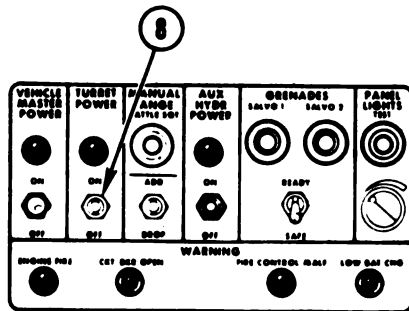
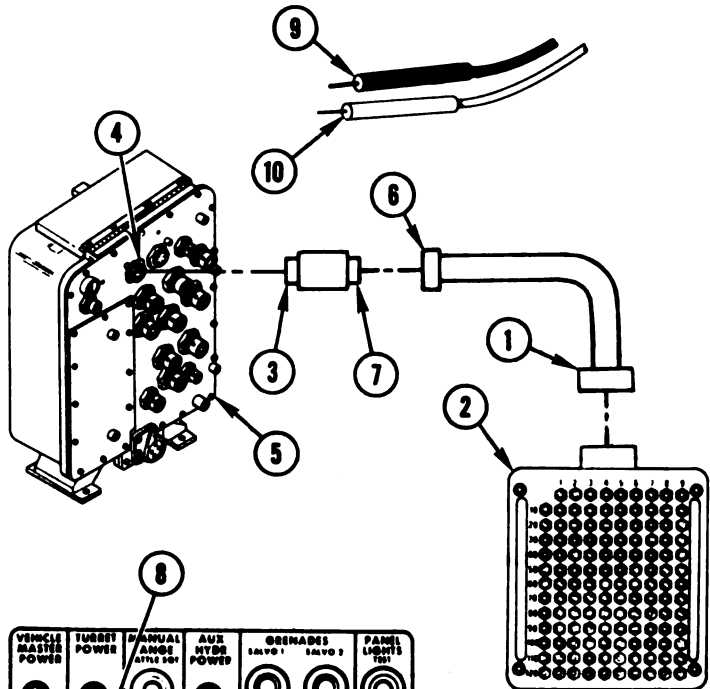
From block 4

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.

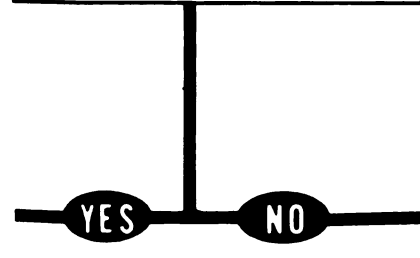
- Connect CABLE NO. 1-P1 (1) to breakout box (2).
- Connect ADAPTER NO. 1-P1 (3) to TEST 1 (4) on turret networks box (5).
- Connect CABLE NO. 1-P2 (6) to ADAPTER NO. 1-J1 (7).



Prepare multimeter for dc voltage test.
Set TURRET POWER switch (8) to ON.
Test for 18 to 30 V dc between test points 9 (-) and 105 (+) on breakout box.

- Connect black test probe (9) to test point 9 on breakout box (2).
- Connect red test probe (10) to test point 105 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.

Figure 14-1 (Sheet 3 of 5)
Volume II
Para. 14-2

ARR82-6721

**TM 9-2350-255-20-2-2
COMMUNICATION SYSTEM TROUBLESHOOTING**

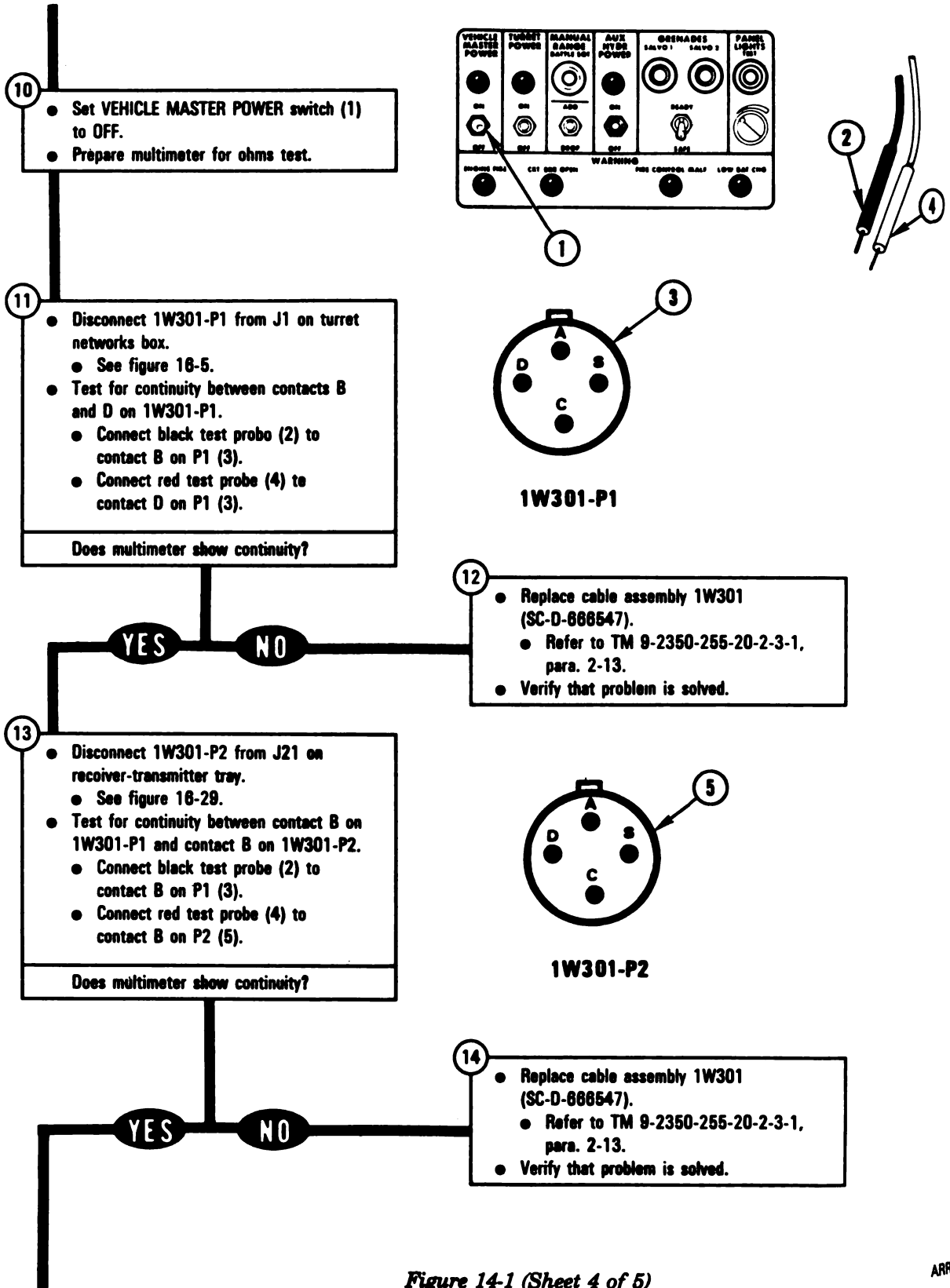
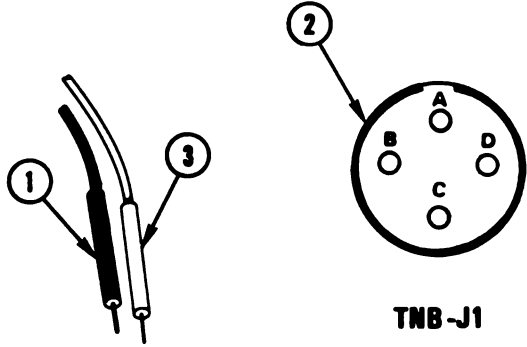


Figure 14-1 (Sheet 4 of 5)
Volume II
Para. 14-2

15

- Connect 1W301-P2 to J21 on receiver-transmitter tray.
- See figure 16-29.
- Test for continuity between contacts B and D on turret networks box J1.
- Connect black test probe (1) to contact B on J1 (2).
- Connect red test probe (3) to contact D on J1 (2).

Does multimeter show continuity?



NO

16

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

YES

17

- Connect 1W301-P1 to J1 on turret networks box.
- See figure 16-5.
- Replace receiver-transmitter tray.
- Refer to TM 9-2350-255-20-2-3-2, para. 5-8.
- Verify that problem is solved.

Figure 14-1 (Sheet 5 of 5)
Volume II
Para. 14-2

ARR82-6723

Ge
228th
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CHAPTER 15
TEST EQUIPMENT PROCEDURES

15-1. General. This chapter contains instructions for using the test equipment called out in the troubleshooting procedures. All test equipment needed for troubleshooting is covered in separate paragraphs including visual inspections, hookup, and operation. This test equipment is listed in table 15-1 by figure and page number.

Table 15-1. Test Equipment

Item	Figure	Page
Accessories		
Breakout Box	15-1	15-2
Continuity Test Probe Assy. TA-1	15-1	15-2
Universal Test Lead Kit	15-1	15-2
Multimeter	•	
Multimeter Polarity Test	15-2	15-4
STE-M1/FVS Test Set		
Description		15-6
Turret Test Routines		15-10
Preparation for Operation	15-3	15-11
Shutdown and Stow	15-4	15-19
Cable Test	15-5	15-21

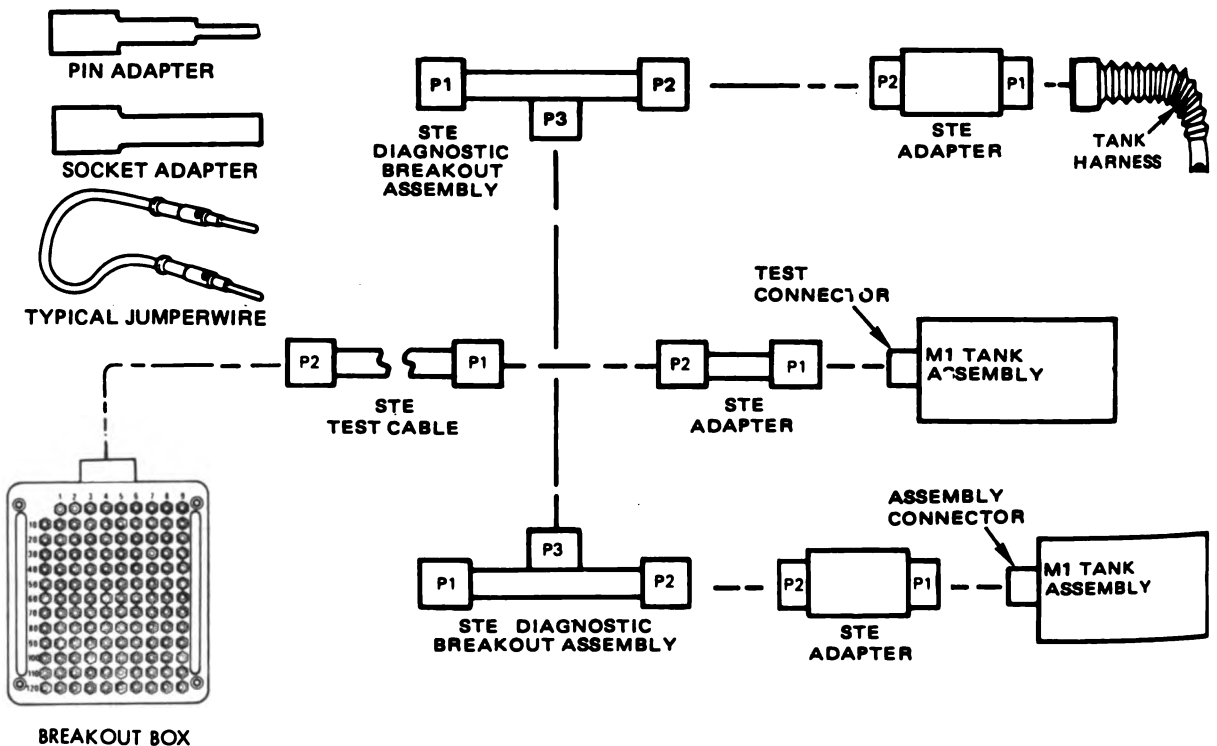
Refer to the operator's manual for the multimeter you are using.

TM 9-2350-255-20-2-2-2
TEST EQUIPMENT PROCEDURES

15-2. ACCESSORIES. The breakout box, associated adapters, and test accessories provide access to electrical connector contacts and aid troubleshooting. They are used when measurements are required at connectors on tank components, cable harness connectors, or at component test jacks. Test accessories contain pin/socket adapters, jumpers, and other items required to make test set-ups. The breakout box, when used with STE adapters and DBA's, can be connected to any electrical connector on the tank. When the STE test set is not available, the breakout box can only be connected to assembly test connectors using the cable and adapters of the breakout box tool kit. Figure 15-1 lists the test accessories and shows common configurations of the breakout box and adapters.

Continuity Test Probe Assy. TA-1
 Universal Test Lead Kit (2 Required)

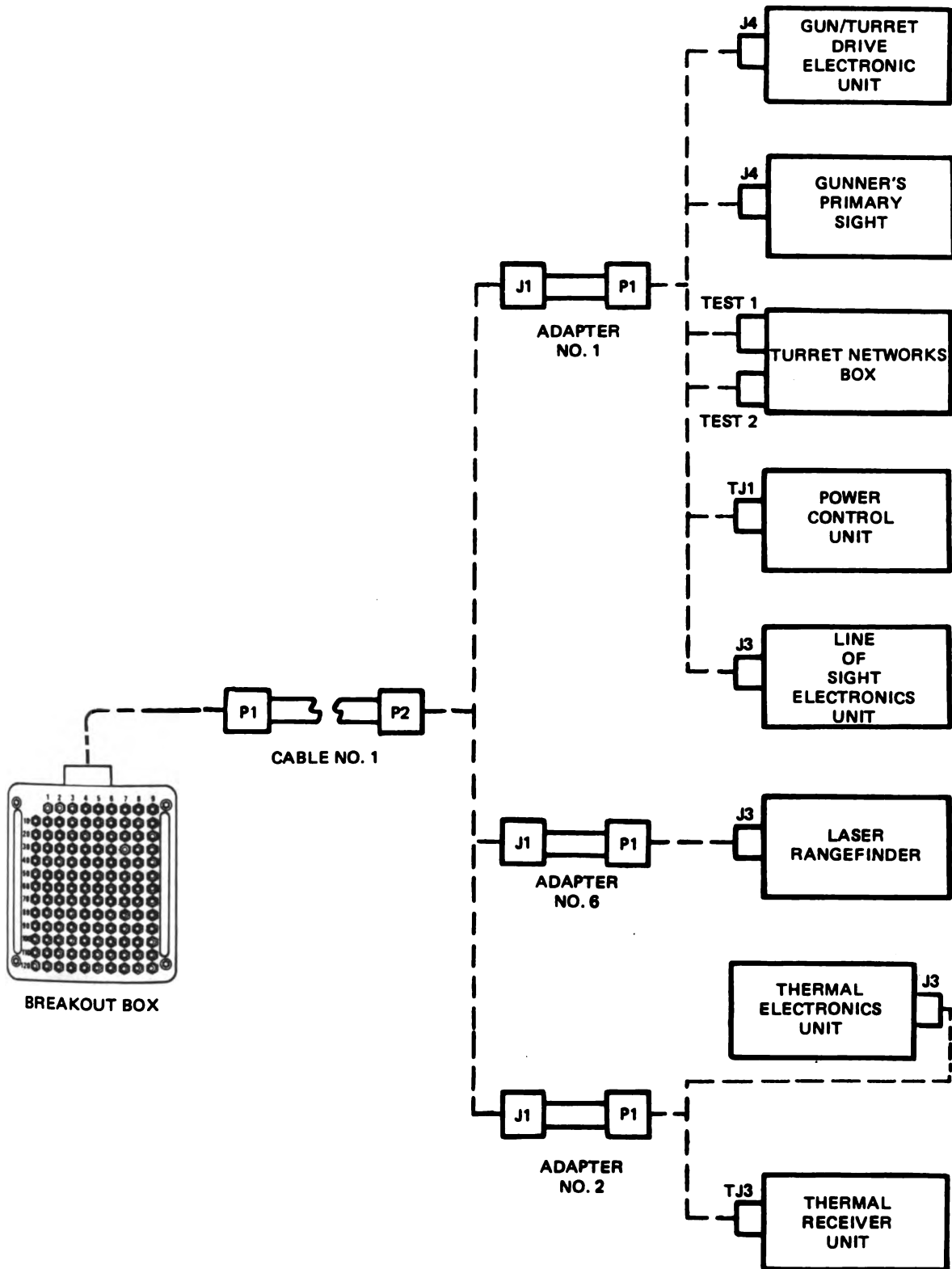
6625-01-102-6878
 6625-00-444-4041



Breakout Box STE Configurations

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

ARR82-6170



Breakout Box Tool Kit Configurations

15-3. Multimeter Polarity Test.

MULTIMETER POLARITY TEST

NOTE

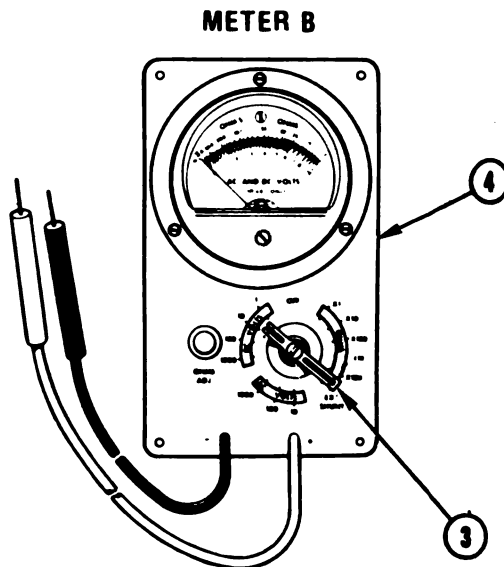
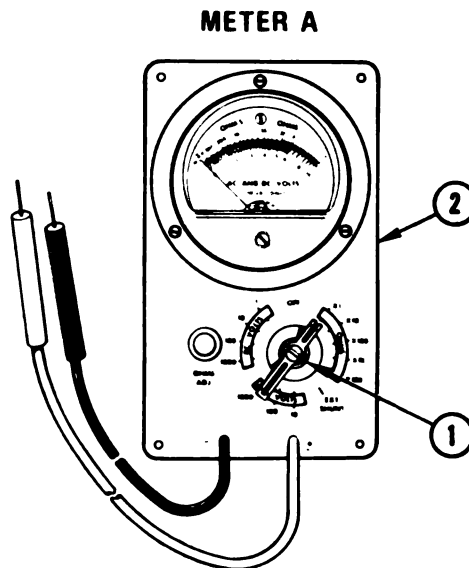
Some multimeters, when used in the ohms positions, reverse polarity so the normally positive red lead becomes negative and the normally negative black lead becomes positive. When taking resistance and continuity measurements, in circuits that have diodes, it is important to know the polarity of the multimeter being used.

NOTE

Refer to the operators manual for the multimeter being used to find its polarity in the ohms positions. If meter polarity is normal (red lead positive) go to block 3. If its polarity is reversed (red lead negative) go to block 4. If polarity is not specified in the operators manual, go to next block.

NOTE

- Two multimeters are needed for this test.
- The multimeter used, for the troubleshooting procedure is referred to as meter A. The multimeter used to determine the polarity of meter A is referred to as meter B.



- 1
- Set selector switch (1) on meter A (2) to OHMS X1 position.
 - Set selector switch (3) on meter B (4) to measure DC voltage between 1 and 10 volts.

Figure 15-2 (Sheet 1 of 2)
Volume II
Para. 15-3

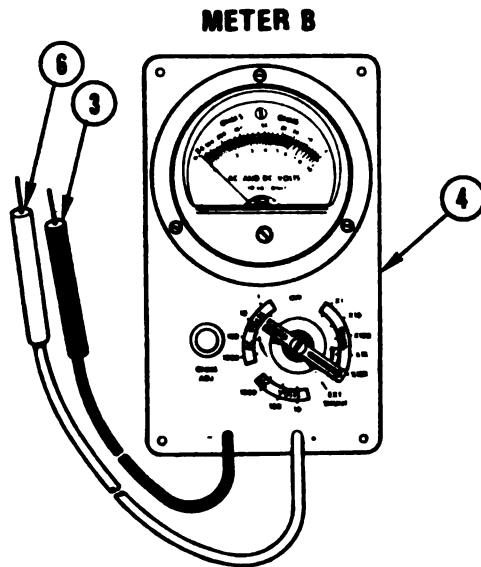
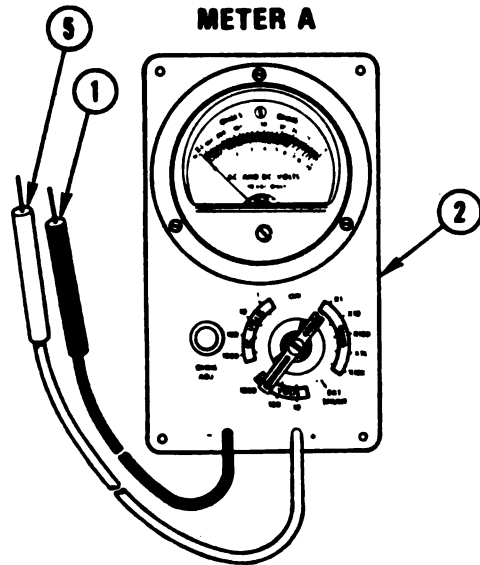
ARR82-8172

Connect black test probe (1) on meter A to black test probe (3) on meter B (4).

NOTE
Touch red test probes momentarily in this step to avoid pegging needle in negative direction and possibly damaging the meter.

Check for a positive voltage reading on meter B (4) by touching red test probe on meter A (2) to red test probe (8) on meter B (4).

Does meter B show a positive voltage?



YES

NO

NOTE
Red test probe (5) on meter A (2) is positive (+).

Perform troubleshooting procedure as written.

4

NOTE
Red test probe (5) on meter A (2) is negative (-).

- Reverse red and black test probes in blocks indicated in troubleshooting procedure being performed.

Figure 15-2 (Sheet 2 of 2)
Volume II
Para. 15-3

TM 9-2350-255-20-2-2-2
TEST EQUIPMENT PROCEDURES

15-4. Simplified Test Equipment. The STE/M1/FVS test set, referred to as STE, is a computerized testing device for checking out and locating faults in the M1 hull and turret systems. It consists of a vehicle test meter (VTM), a controllable interface box (CIB), a set communicator (SETCOM), and various cables and adapters. The components which make up the STE test set are stored in transit cases.

The STE test set is normally used at the organizational maintenance level to check out or troubleshoot the various tank systems. Test status and operator instruction messages are supplied by an alphanumeric character display on the SETCOM. The test set determines this information by comparing measurements taken on the system being tested with data stored in the computer memory. A complete description of the STE is contained in TM 9-4910-751- 14-1.

a. Test Routines. The STE troubleshooting program consists of test routines identified by digital numbers. Table T5-2 lists the test routines and test numbers for the turret subsystems.

b. Operation. The STE test set is operated in an automated mode or in a standard STE/ICE mode.

1. Automated Mode.

(a) Find the number of the test from the fault symptom index of the system that you want to test. Enter the test number using the SETCOM keyboard. The test number will appear on the SETCOM display as it is entered. If the wrong number is entered, push the CLEAR key and enter the right number. When the complete test number is entered, push the GO key to start the automated test sequence.

(b) The SINGLE STEP key is used to display a single test measurement. Do not push this key unless you are instructed to do so in the test procedure. Pushing the SINGLE STEP key during certain test sequences can cause faulty information to be displayed on the SETCOM.

(c) There are eight types of messages displayed on the SETCOM during automated testing. It is important that you understand what the messages tell you.

(1) Test Start Messages. A test start message is displayed every time an automated mode test number is entered on the SETCOM (see example, figure A). Read the message to make sure the right test number is displayed. If it is correct, push the GO key to start the test.



TEST 1234
AMMO TEST

Figure A

(2) General Instruction Messages. General instruction messages tell you to do something to the tank equipment or the test equipment. The messages are simple and do not need explaining (see example, figure B). Press the GO key to continue testing after doing the instruction.



TURN ON
MASTER POWER



SHIFT TRANSMISSION
TO NEUTRAL (N)

Figure B

(3) **Cable Instruction Messages.** Cable instruction messages tell you to do something. For example, figure C shows typical cable instruction messages which require you to connect cables, assemble test adapters and to disconnect a tank harness. An inexperienced operator should go to the Cable Instruction Message Index located at the end of each troubleshooting procedure to find out exactly how to do the cable hookup, assembly, or disconnect. After completing the cable instruction, you must press the GO key to continue testing.



Figure C

(4) **Special Instruction Messages.** Special instruction messages usually tell you to do something to the equipment to help the test. Figure D shows several examples. In many cases, the messages



Figure D

are short and it is difficult to determine exactly what action is required. Therefore, you should look at the Special Instruction Index located at the back of each troubleshooting procedure to find out what the message requires. Figure E shows a special instruction message that is frequently shown. The meaning of this message varies from test to test. Always consult the Special Instruction Message Index when you see this message. Push the GO key to continue the test after you have done the action requested by the message.



Figure E

(5) **Question Messages.** Question messages ask the operator about various components in the tank. For example, in figure F the operator must check to see if turret power is on. The operator must answer the question by pushing the YES or NO key to continue testing.



Figure F

(6) **Information Messages.** Figure G shows typical information messages provided to the operator during the test. Push the GO key after reading the information messages to continue testing.

VTM PROBES WILL BE USED IN VOLTS CHECK	TURRET WILL ROTATE AND MAIN GUN ...
---	--

Figure G

(7) **Test Termination Messages.** Three kinds of messages signal the end of a test.

a. The message shown in figure H is displayed when no faults are found by the test. The STOP and CLEAR keys must be pushed before repeating a test or beginning a new test.

NO FAULTS FOUND

Figure H

b. The message shown in figure I is displayed when the test set isolates the problem to a faulty part. If the display lists more than one faulty part as shown in figure J, a follow-on procedure must be performed to find out which of the listed units is faulty. Follow-on procedures are listed in the Fault Message Index located at the end of each troubleshooting procedure.

FAULTY HNB 116224

Figure I

FAULTY PCU OR 1W105 130014

Figure J

c. The message shown in figure K is used to end a test after special information has been given. The information message will be repeated by pushing the GO key. Push the STOP and CLEAR keys to begin a new test.

TEST FINISHED PUSH STOP AND CLEAR

Figure K

(8) Error Messages. During testing, the error messages listed below may be displayed on the SETCOM. These messages tell the operator that the test procedures have not been followed correctly or that there is a possible test set problem.

ILLEGAL CAL TEST - displayed when a calibration test is initiated on a nonexistent measurement. The test number should be verified and reentered.

TEST NOT FOUND - displayed when the operator enters a nonexistent automatic test number. The test number should be verified and reentered.

INVALID SINGLE POINT MEASUREMENT - displayed when the operator enters a nonexistent single-point test number. The test number should be verified and reentered.

THIS TEST DOES NOT USE CAL - displayed when a calibration test is initiated on a measurement that is not necessary. The test number should be verified and reentered.

CAL REQUIRED FOR THIS TEST - displayed if a test tries to perform an uncalibrated measurement which should be calibrated. The measurement must be calibrated and the test must then be restarted.

CHECK FOR PROPER CONNECTIONS - displayed if the required connections are not made. Check for a wrong test connection. If test connections are OK, perform a self test on the test set cables, adapters, and test set.

NOTE

If a message is displayed repeatedly after everything has been checked, notify support maintenance. Also, if a similar type message not listed is displayed repeatedly, refer to TM 9-4910-751-14-1.

2. Standard STE/ICE Mode. The VTM in the STE test set may be used as a multimeter to measure ac or dc voltages, frequencies, resistances, and continuity. Refer to TM 9-4910-751-14-1 for information on how to use the test set in this mode.

TM 9-2350-255-20-2-2-2
TEST EQUIPMENT PROCEDURES

Table 15-2. STE Turret Test Routines

Test No.	Test Description	Test No.	Test Description
66	VTM CONFIDENCE TEST	1270*	TEST 1270 AMMO DOOR
99	VTM CONFIDENCE TEST	1300*	TEST 1300 COMMANDERS WEAPON STATION
666	TEST 666 SELF TEST	1390*	TEST 1390 CABLE TEST
667	TEST 667 ADAPTER TEST	1400*	TEST 1400 GENERAL STAB TEST
1040*	TEST 1040 AUX HYDR ELECT TEST	1430*	TEST 1430 COMPUTER SYSTEM
1200*	TEST 1200 VEH/ TURRET PWR CNTL	1438*	TEST 1438 AMMO LAMPS CIRCUIT TEST (M1)
1210*	TEST 1210 AUTO SELF TEST	1449	TEST 1449 ZDESW ADJUSTMENT
1220*	TEST 1220 FIRING CIRCUITS	1450*	TEST 1450 LASER RANGEFINDER
1240*	TEST 1240 GPS DEFROSTER		

* Test will end with NO FAULT FOUND message if tank system is good.

5-5. STE Preparation and Shutdown Procedures.

PREPARE STE FOR OPERATION

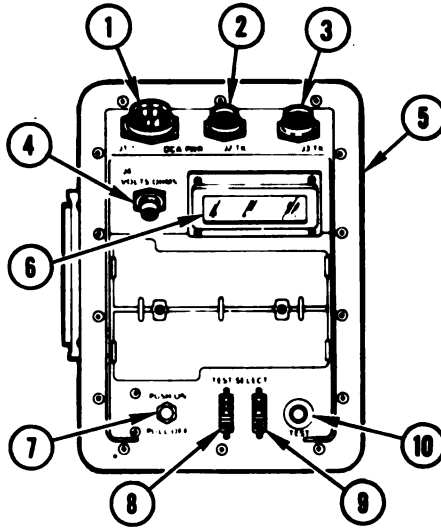
NOTE

- Read paragraph 15-4 before doing any work.
- An internal temperature sensing device stops test set operation outside the limits of +20°F to 125°F (-7°C to 52°C).

NOTE

If test set has already been checked for serviceability, go to block 7.

- Check vehicle test meter (VTM) for serviceability.
 - Look at J1 (1), J2 (2), J3 (3), and J4 (4) on VTM (5) for bent or broken pins, dented or cracked shells, and dirt.
 - Look at display window (8) for cracks.
 - Make sure circuit breaker (7), TEST SELECT (8, 9), and TEST (10) switches on VTM (5) operate freely.
 - Pull circuit breaker switch (7) to OFF.



- Check set communicator (SETCOM) for serviceability.
 - Look at display window (11) on SETCOM (12) for cracks.
 - Look at keys (13) for cracks or missing keys (13).
 - Make sure cable (14) is not cut or frayed.
 - Look at connector (15) for bent or broken pins, dented or cracked shell, and dirt.

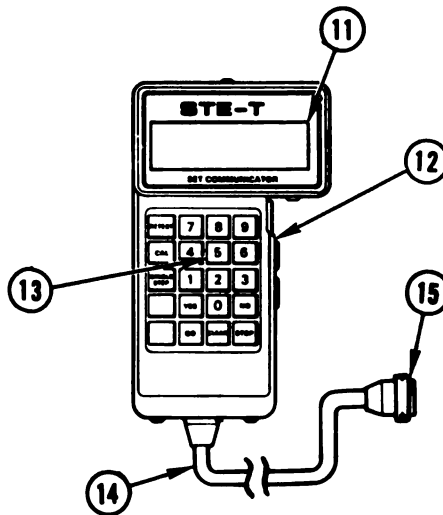


Figure 15-3 (Sheet 1 of 8)
Volume II
Para. 15-5

ARR82-6174

TM 9-2350-255-20-2-2-2
TEST EQUIPMENT PROCEDURES

- 3**
- Check controllable interface box (CIB) for serviceability.
 - Look at J1 (1), J2 (2), J3 (3), J4 (4), and J5 (5) on CIB (6) for bent or broken pins, dented or cracked shells, and dirt.
 - Make sure PWR switch (7) operates freely.

- 4**
- Check test cables and NATO adapter CA1 for serviceability.
 - Make sure cables CX309 (8), W1 (9), and CX306 (10) are not cut or frayed.
 - Look at cables CX309 (8), W1 (9), and CX306 (10) and NATO adapter CA1 (11) for bent or broken connector pins, cracked or dented connector shells, and dirt.

- 5**
- Check CIB cables CX304, CX305 and shorting plug TA301 for serviceability.
 - Make sure cables CX304 (12) and CX305 (13) are not cut or frayed.
 - Look at cables CX304 (12), CX305 (13), and shorting plug TA301 (14) for bent or broken connector pins, cracked or dented connector shells, and dirt.

- 6**
- Turn in any component that cannot be repaired by straightening bent pins or by cleaning.
 - Refer to TM 9-2350-255-20-2-3-1, para. 2-4.

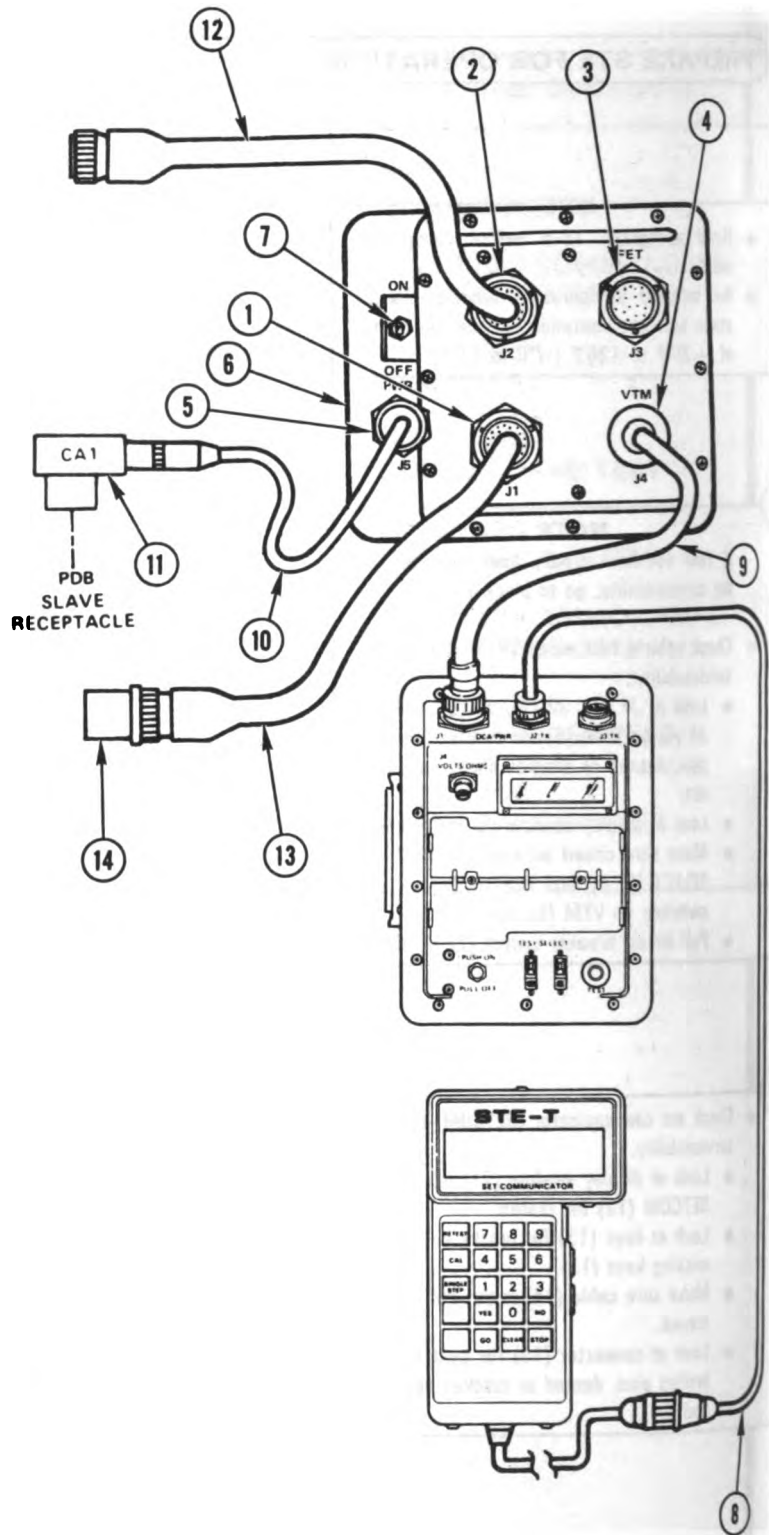


Figure 15-3 (Sheet 2 of 8)
Volume II
Para. 15-5

ARR82-6175

- 7
- Make standard cable hook-up for turret test.
 - Place CIB (1), VTM (2), SETCOM (3), CX309 (4), W1 (5) and CX306 (8) inside turret.
 - Connect W1-P1 (7) to J1 (8) on VTM (2).
 - Connect W1-P2 (9) to J4 (10) on CIB (1).

NOTE

Cable CX309 (4) is a 25-foot extension cable. If not required, connect SETCOM cable (11) directly to J2 (12) on VTM. (This is an option to the operator).

- Connect CX306-P2 (13) to J5 (14) on CIB (1).
- Connect CX309-P1 (15) to J2 (12) on VTM (2).
- Connect SETCOM cable (11) on SETCOM (3) to CX309-P2 (16).

NOTE

It is not recommended that a battery charger be connected to the tank during STE testing. If a battery charger must be used, make sure no heavy duty machinery or motors are operated during testing as they may affect test set operation.

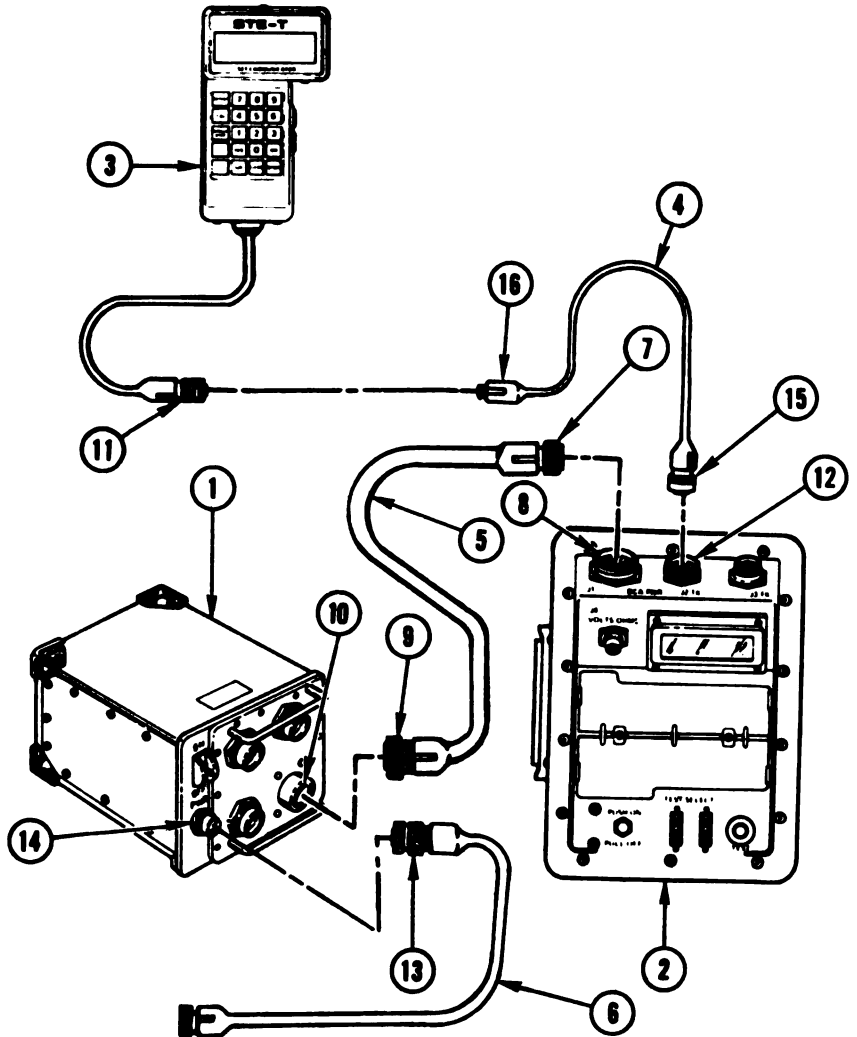


Figure 15-3 (Sheet 3 of 8)
Volume II
Para. 15-5

ARR82-6176

TM 9-2350-255-20-2-2-2
TEST EQUIPMENT PROCEDURES

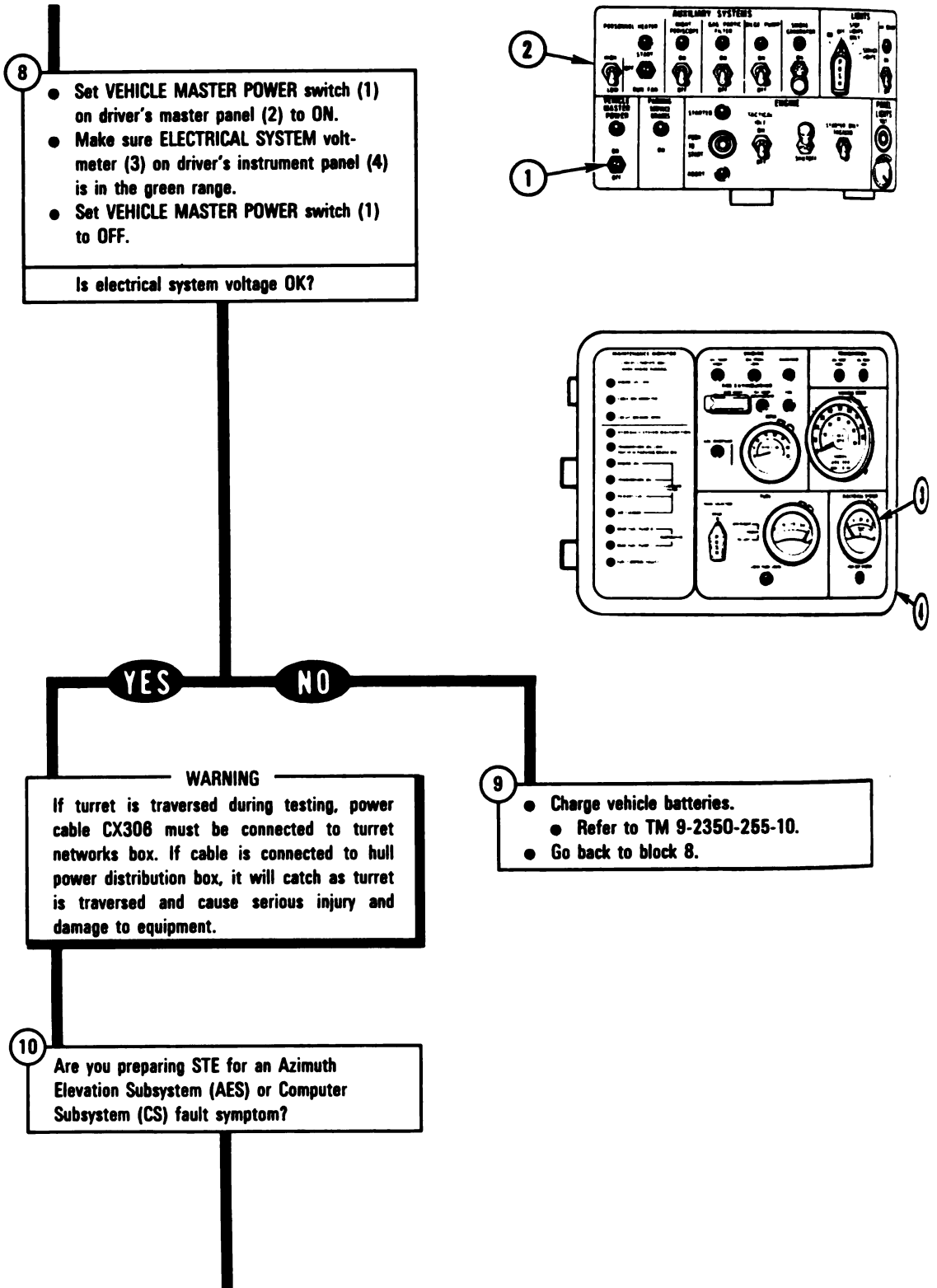


Figure 15-3 (Sheet 4 of 8)
Volume II
Para. 15-5

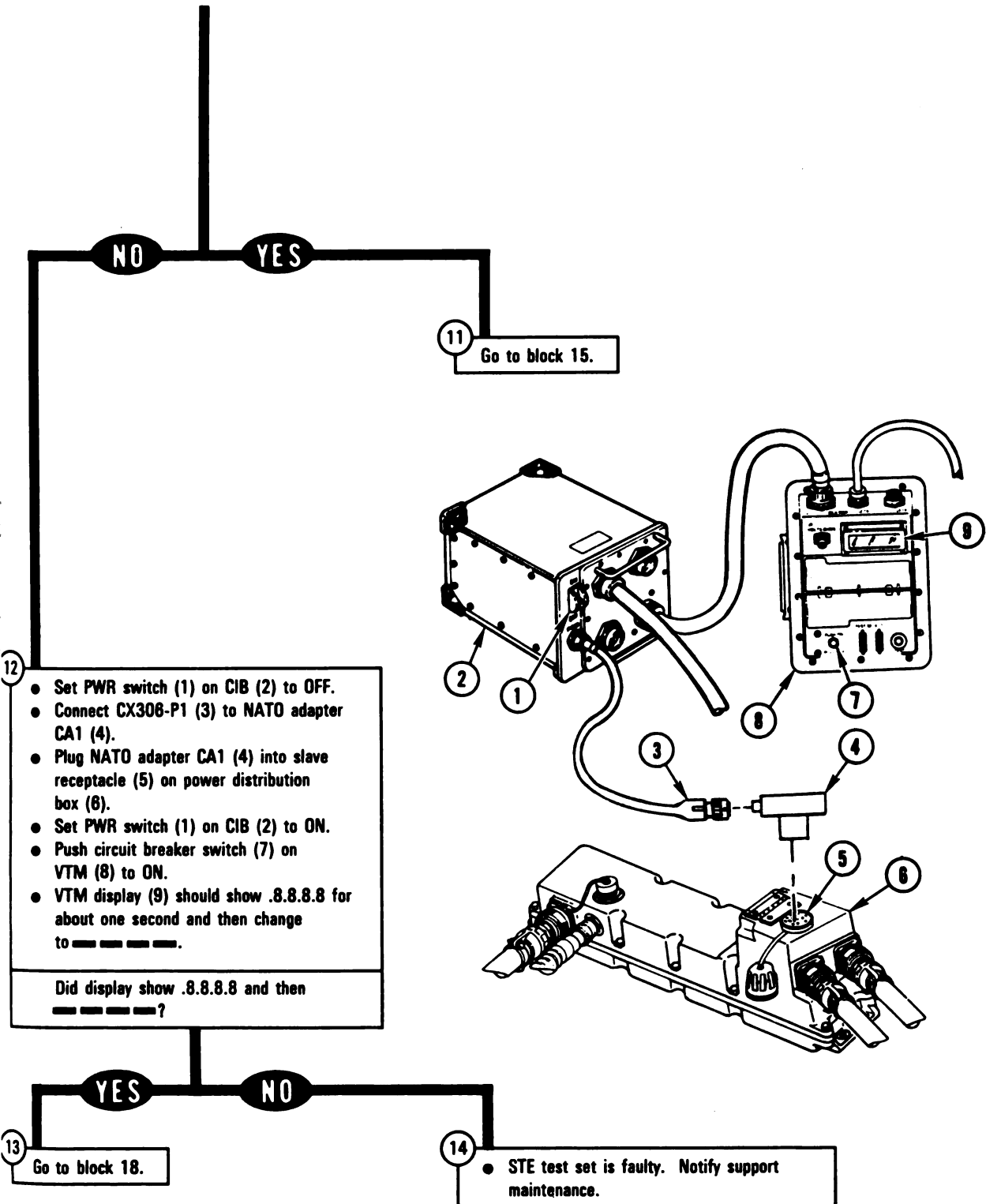


Figure 15-3 (Sheet 5 of 8)
Volume II
Para. 15-5

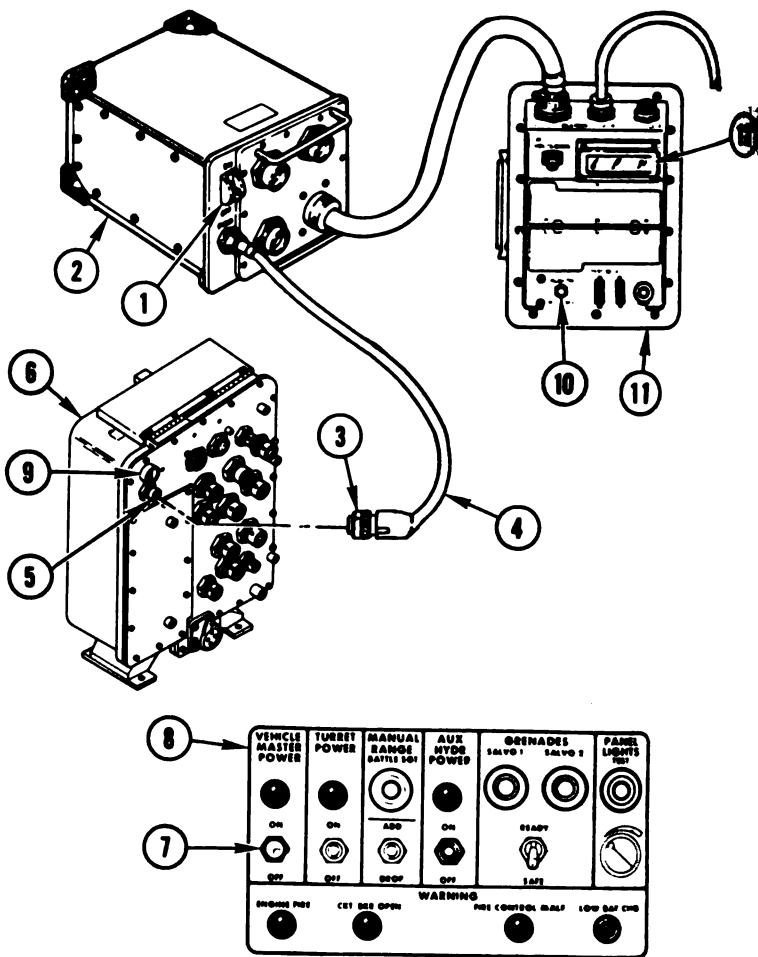
ARR82-6178

TM 9-2350-255-20-2-2-2
TEST EQUIPMENT PROCEDURES

From block 11

- 15
- Set PWR switch (1) on CIB (2) to OFF.
 - Connect P1 connector (3) on cable CX306 (4) to UTILITY OUTLET (5) on turret networks box (6).
 - Set VEHICLE MASTER POWER switch (7) on commander's control panel (8) to ON.
 - Set UTILITY OUTLET switch (9) on turret networks box (6) to ON.

- 16
- Set PWR switch (1) on CIB (2) to ON.
 - Push circuit breaker switch (10) on VTM (11) to ON.
 - VTM display (12) should read .8.8.8.8 for about one second and then change to .
- Did display show .8.8.8.8 and then ?



- 17
- Set VEHICLE MASTER POWER switch (7) to OFF.
 - STE test set is faulty. Notify support maintenance.

YES

NO

Figure 15-3 (Sheet 6 of 8)
Volume II
Para. 15-5

ARR82-6179

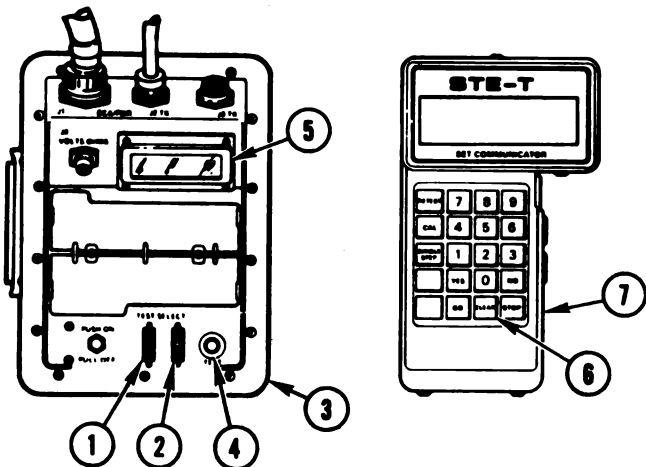
From block 13

Set being prepared to either repeat a
continue testing using a new STE test

NO **YES**

TEST SELECT switches (1, 2) on VTM
to 00.
Press TEST button (4) on VTM (3).
Display (5) should show 0066.
Does display show -
36?

- 20
- Set TEST SELECT switches (1, 2) on VTM (3) to 00.
 - Press TEST button (4) on VTM (3).
 - Press CLEAR key (6) on SETCOM (7).
 - Go to block 28.



YES **NO**

Set TEST SELECT switches (1, 2) on VTM
(3) to 99.
Press TEST button (4) on VTM (3).
Display (5) should flash some numbers
and then show PASS.
Does display show -
PASS?

- 21
- Set VEHICLE MASTER POWER switch (8) to OFF.
 - STE test set is faulty. Notify support maintenance.

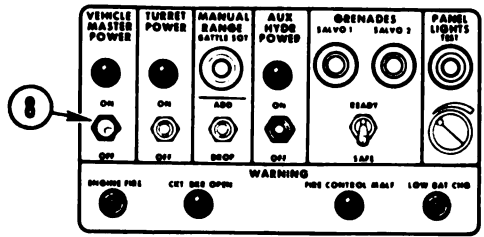


Figure 15-3 (Sheet 7 of 8)
Volume II
Para. 15-5

ARR82-6180

TM 9-2350-255-20-2-2
TEST EQUIPMENT PROCEDURES

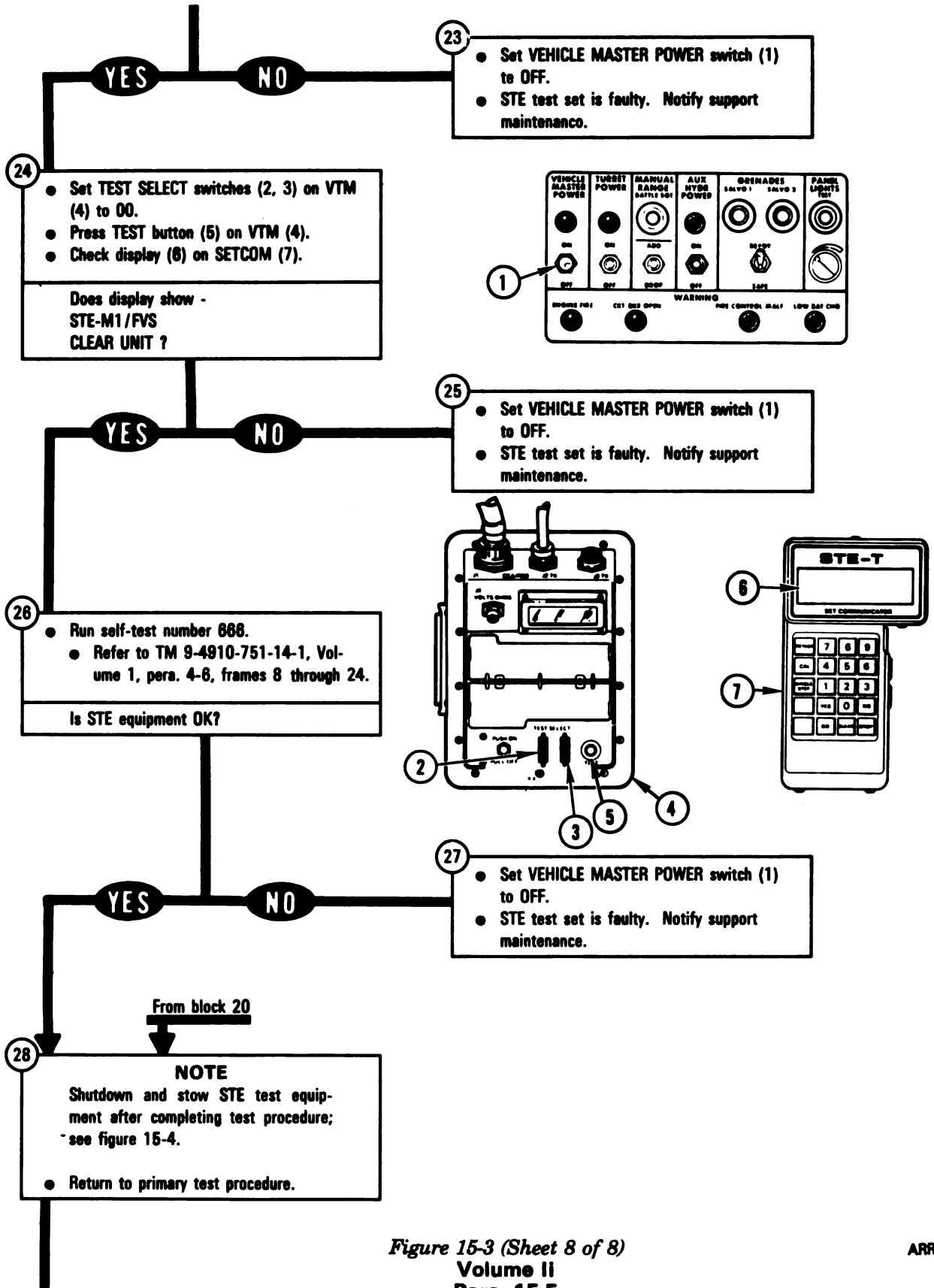


Figure 15-3 (Sheet 8 of 8)
 Volume II
 Para. 15-5

ARR82-6181

SHUTDOWN AND STOW STE.

1 ● **Shutdown STE.**

- Set PWR switch (1) on CIB (2) to OFF.
- Pull circuit breaker switch (3) on VTM (4) to OFF.
- Disconnect CX306-P1 (5) from NATO adapter (6), or disconnect P1 (5) from utility outlet (7) on turret networks box (8).
- If connected, disconnect NATO adapter (6) from power distribution box (9).

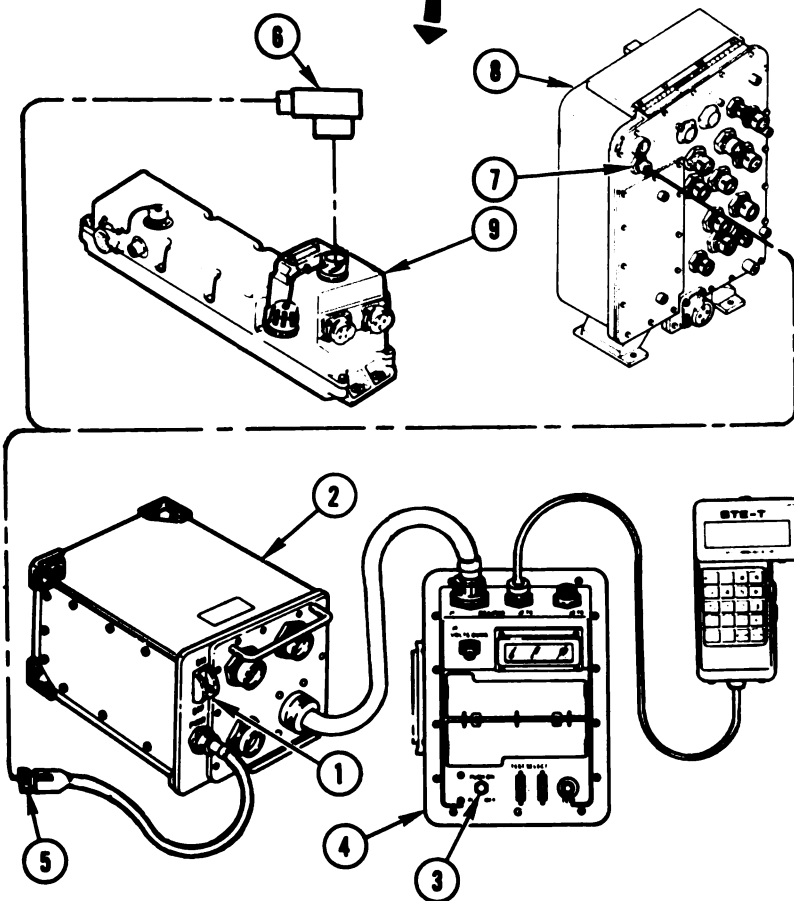
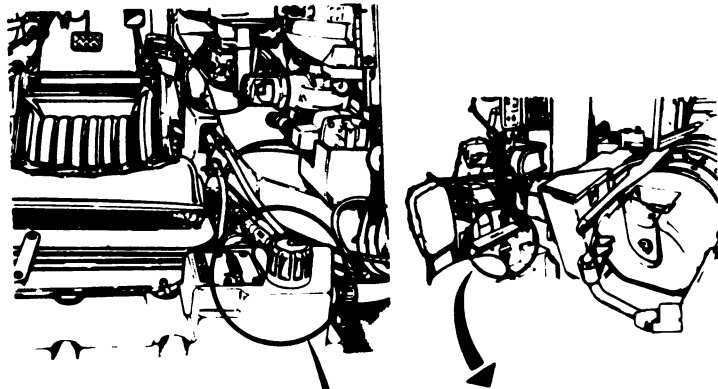


Figure 15-4 (Sheet 1 of 2)
Volume II
Para. 15-5

ARR82-6182

TM 9-2350-255-20-2-2-2
TEST EQUIPMENT PROCEDURES

- 2
- Set **VEHICLE MASTER POWER** switch (1) on commander's control panel (2) to **OFF**.
 - Disconnect all test cables and adapters from tank.
 - Disconnect all adapters and diagnostic breakout assemblies (DBAs) from test cables.
 - Disconnect all test cables from CIB, VTM, and SETCOM.

- 3
- Stow STE.
 - Put CIB, VTM, SETCOM, cables, DBAs, and adapters in transit cases.
 - Latch covers on transit cases.

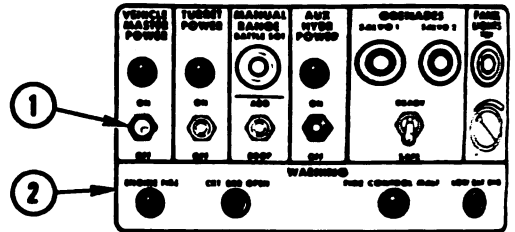


Figure 15-4 (Sheet 2 of 2)
Volume II
Para. 15-5

15-6. 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.

**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.

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 ?

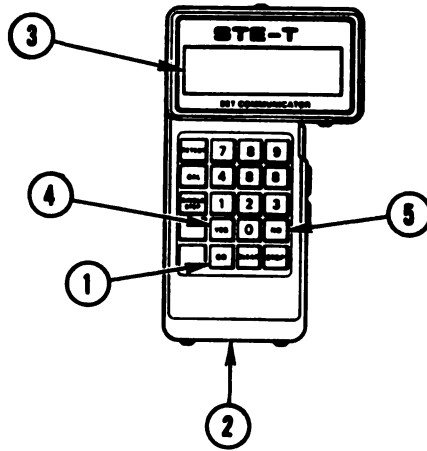
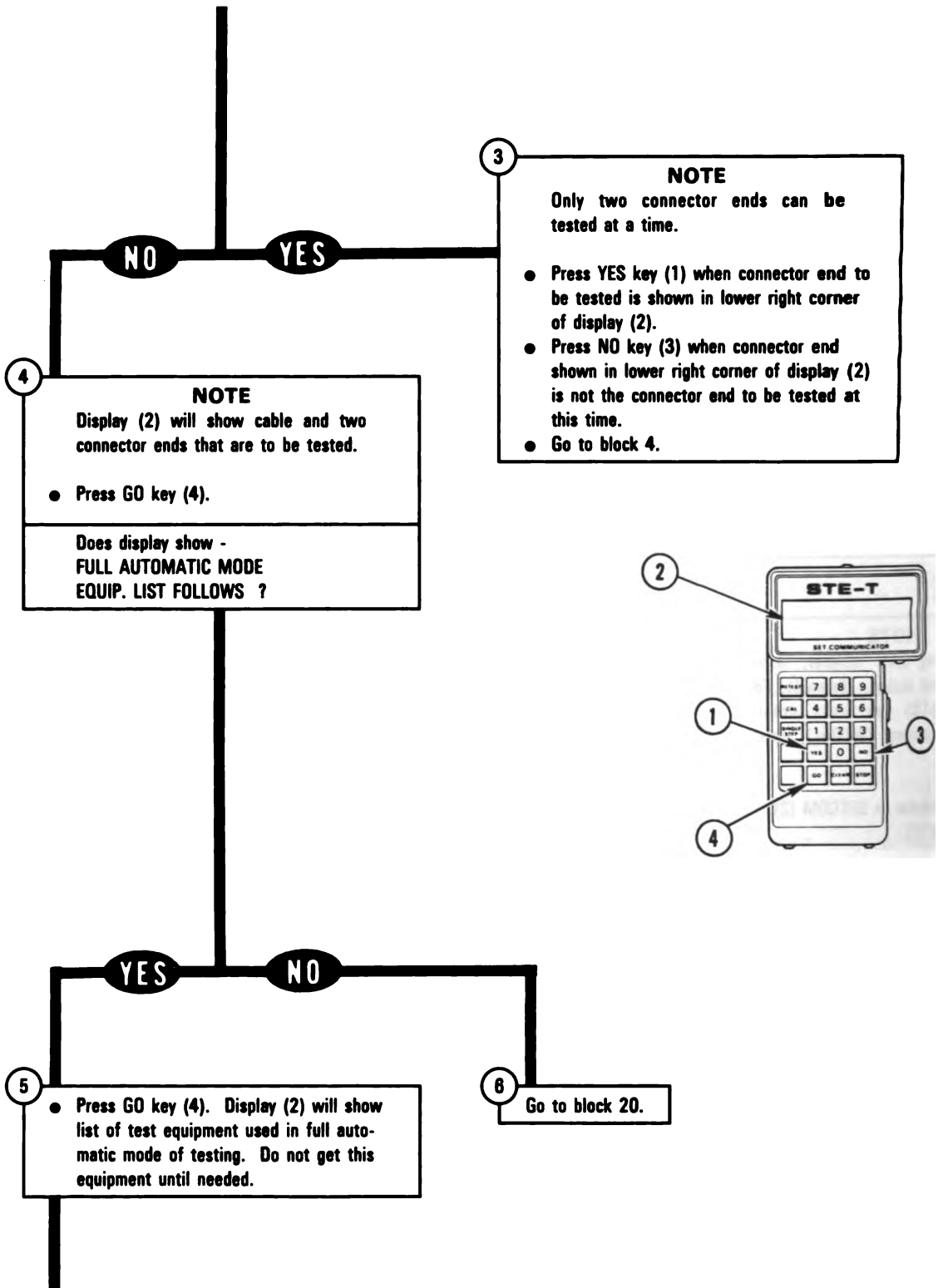


Figure 15-5 (Sheet 1 of 15)
Volume II
Para. 15-6

ARR82-6184

**TM 9-2350-255-20-2-2-2
TEST EQUIPMENT PROCEDURES**

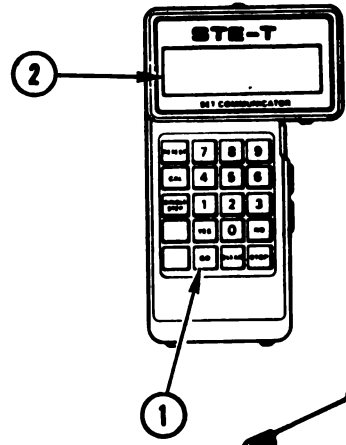


*Figure 15-5 (Sheet 2 of 15)
Volume II
Para. 15-6*

7

- Press GO key (1). Display (2) will show assemble message.
- Connect P1 on CIB cable to P3 on DBA; see figure A.
- Connect P2 on adapter to P1 on DBA; see figure A.

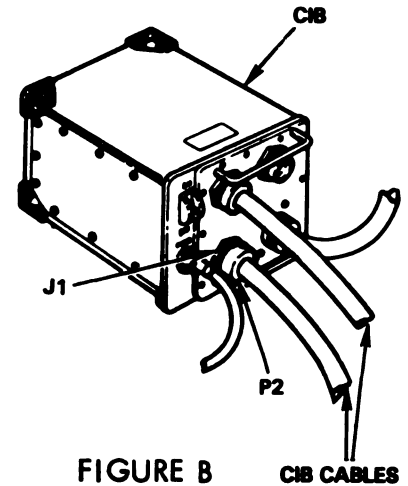
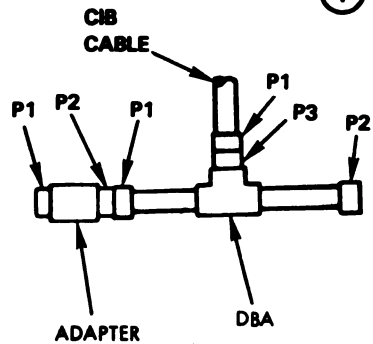
NOTE
If already assembled, go to block 8.



8

- Press GO key (1). Display (2) will show CIB cable message.
- Connect P2 on CIB cable to J1 on CIB; see figure B.

NOTE
If CIB cable is already connected to J1 on CIB, go to block 9.



9

- Press GO key (1).

Does display show -
WRONG ASSEMBLY
CONNECTED TO CIB-J1 ?

FIGURE A

FIGURE B

CIB CABLES

NO YES

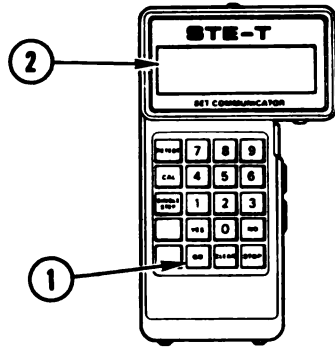
10

- Display (2) will show harness disconnect message.
- Tank harness is already disconnected, go to block 12.

11

- Disconnect tank harness from adapter assembled in block 7.
- Go back to block 9.

- 12
- Press GO key (1). Display (2) will show assemble message.
 - Connect tank harness end shown on display (2) to adapter; see figure C.
- NOTE**
- Component location diagrams are located in back of each troubleshooting manual.
 - If tank harness is already connected to adapter, go to block 13.



- 13
- Press GO key (1). Display (2) will show another assemble message.
 - Connect P1 on other CIB cable to P3 on other DBA; see figure D.
 - Connect P2 on adapter to P1 on DBA; see figure D.
- NOTE**
- If already assembled, go to block 14.

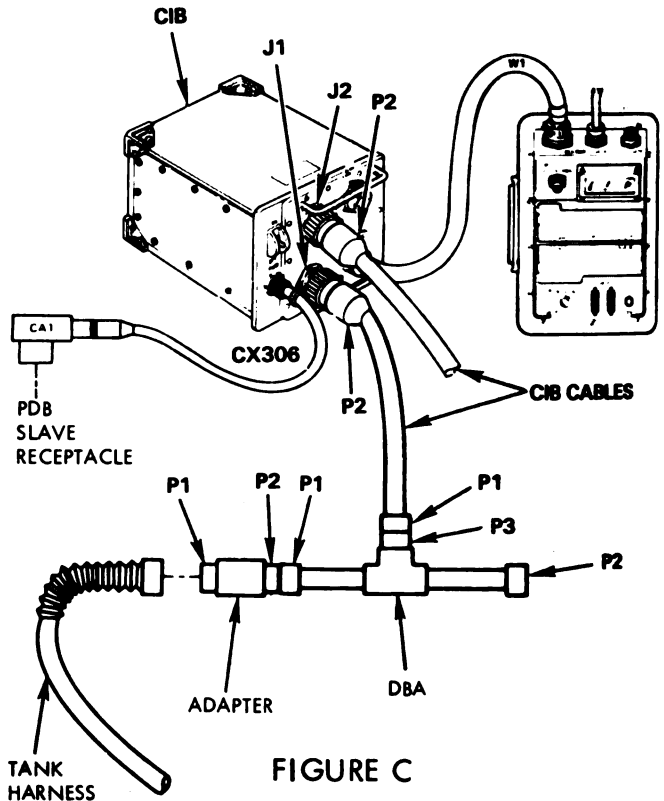


FIGURE C

- 14
- Press GO key (1). Display (2) will show CIB cable message.
 - Connect P2 on CIB cable to J2 on CIB; see figure C.
- NOTE**
- If CIB cable is already connected to J2 on CIB, go to block 15.

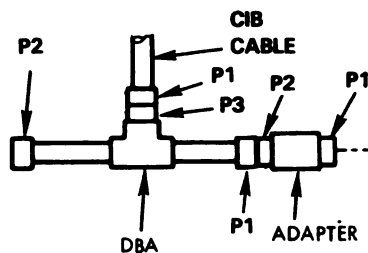


FIGURE D

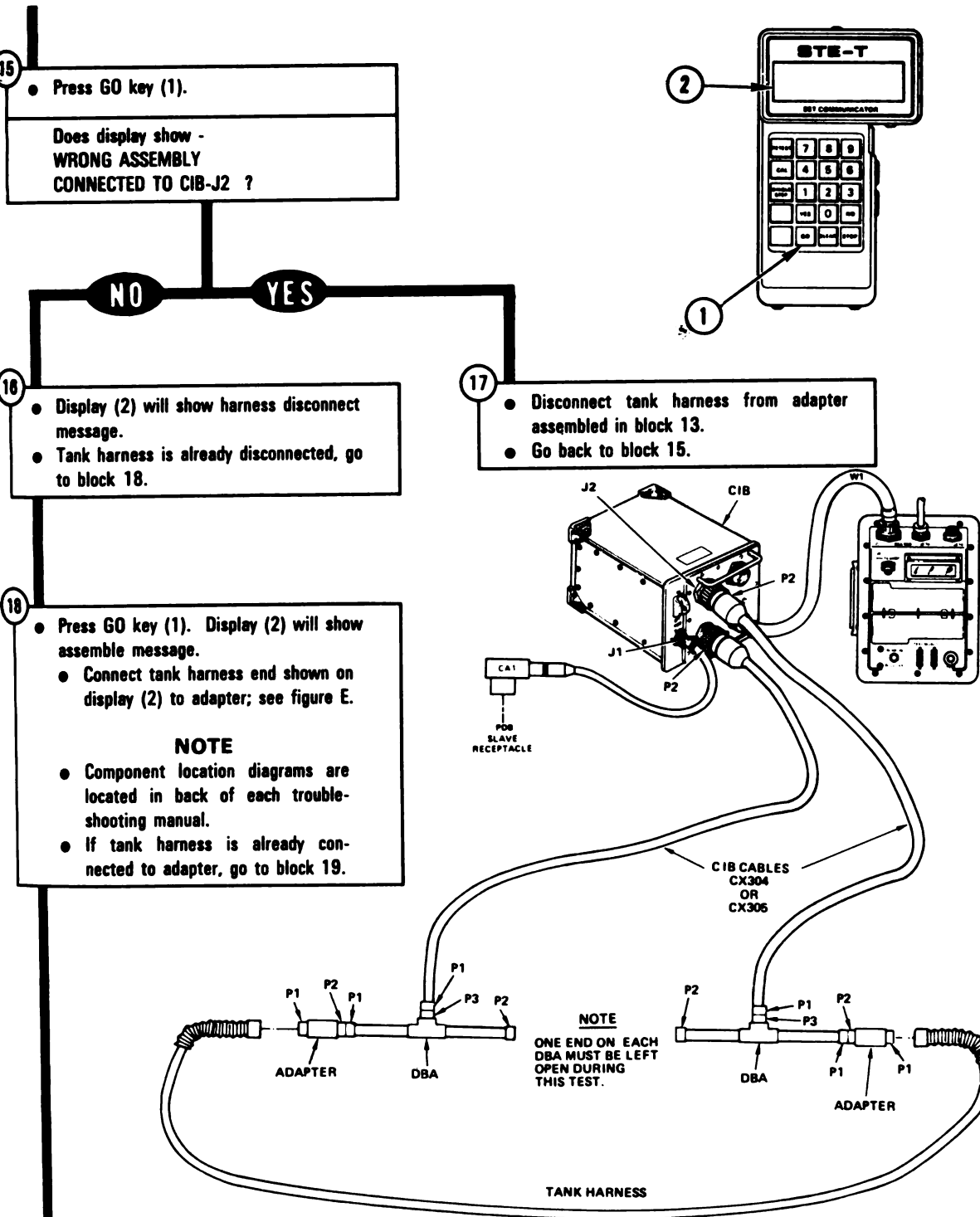


FIGURE E

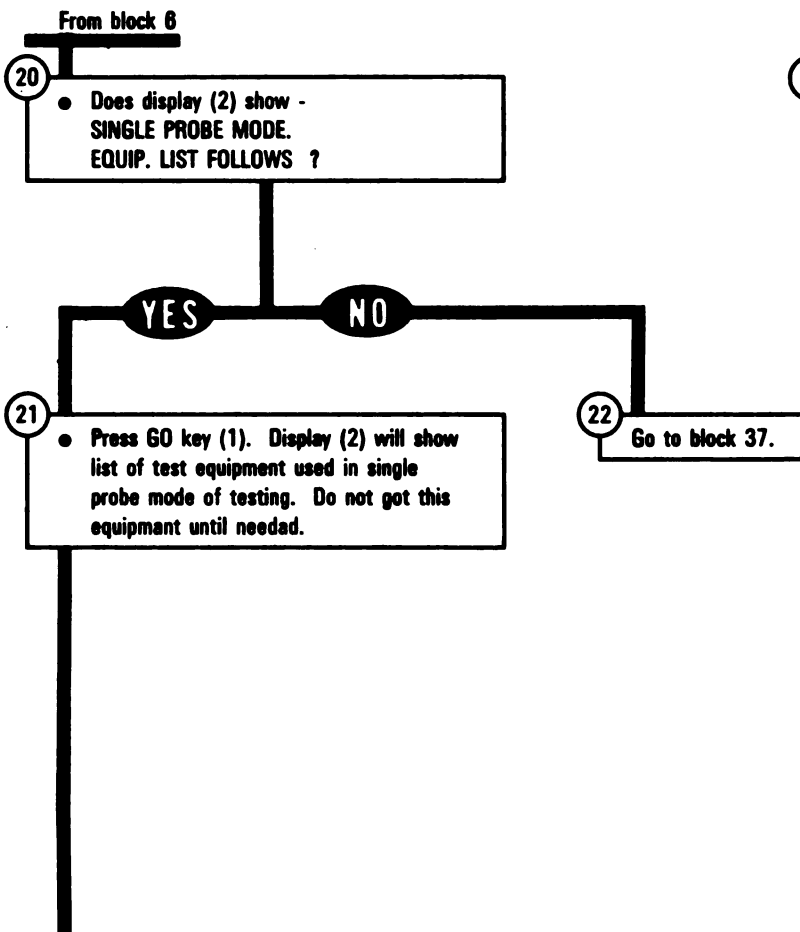
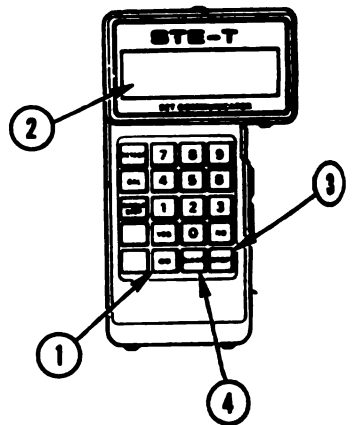
Full Automatic Mode
Typical Hookup

Figure 15-5 (Sheet 5 of 15)
Volume II
Para. 15-6

ARR82-6188

**TM 9-2350-255-20-2-2-2
TEST EQUIPMENT PROCEDURES**

- 19
- Press GO key (1).
 - If display (2) shows "GOOD", press STOP key (3) and CLEAR key (4).
 - If display (2) shows "BAD:n" (n = number of bad wires), press GO key (1) if you want a detailed report; refer to sheet 12.
 - Go back to test procedure being performed.



*Figure 15-5 (Sheet 6 of 15)
Volume II
Para. 15-8*

**TM 9-2350-255-20-2-2-2
TEST EQUIPMENT PROCEDURES**

Press GO key (1). Display (2) will show
assembly message.
Connect P1 on CIB cable to P3 on
DBA; see figure F.
Connect P2 on adapter to P1 on DBA;
see figure F.

NOTE

If already assembled, go to block 24.

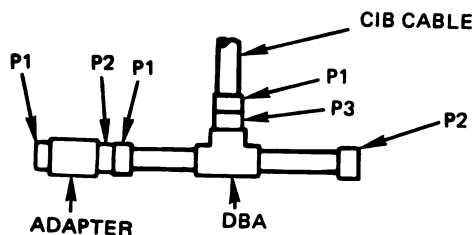
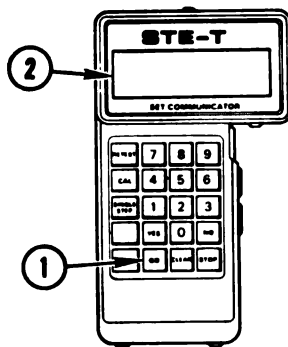


FIGURE F

Press GO key (1). Display (2) will show
assembly message.
Connect P2 on CIB cable to J1 on
CIB; see figure G.

NOTE

If CIB cable is already connected on
Block B, go to block 25.

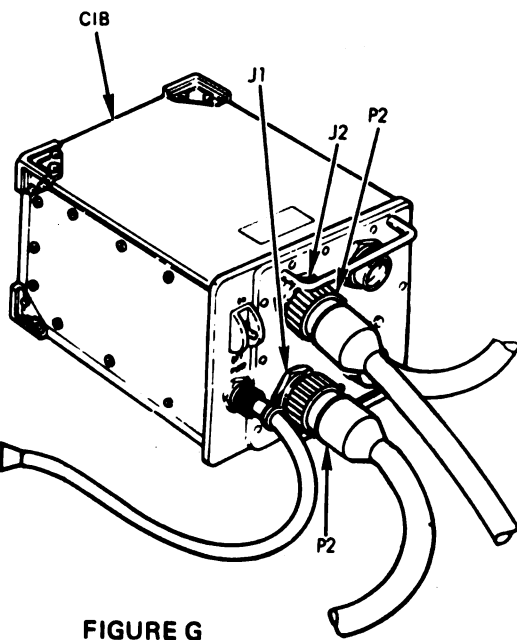


FIGURE G

Press GO key (1).

Does display (2) show -
WRONG ASSEMBLY
CONNECTED TO CIB-J1 (or CIB-J2) ?

NO

YES

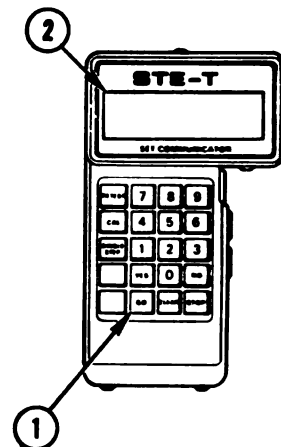
Display (2) will show harness disconnect
message.
Tank harness is already disconnected, go
to block 28.

27

- Disconnect tank harness from adapter assembled in block 23.
- Go back to block 25.

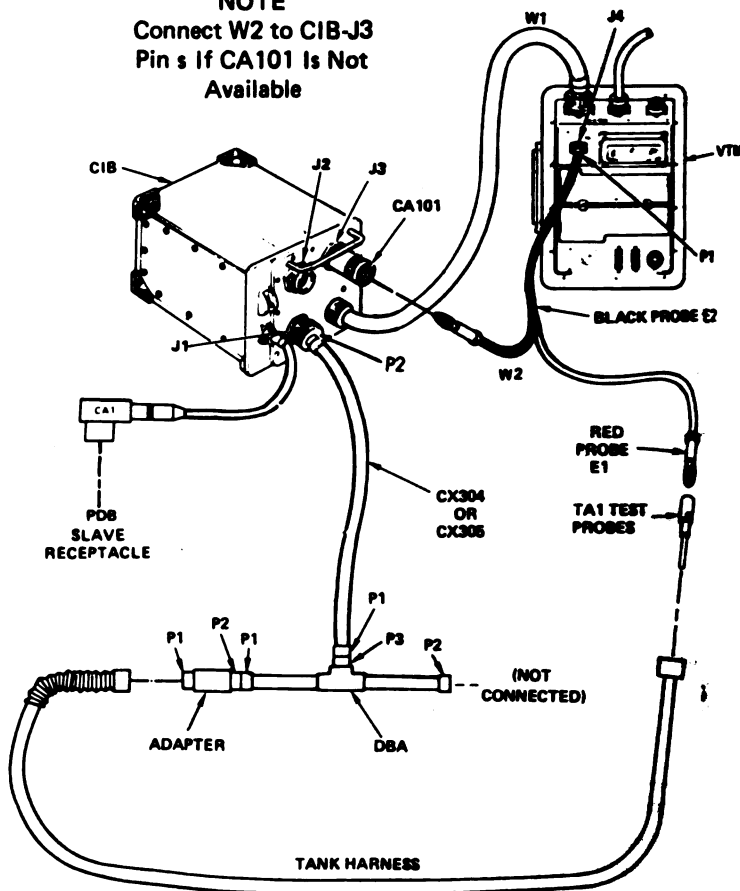
**TM 9-2350-255-20-2-2-2
TEST EQUIPMENT PROCEDURES**

- 28
- Press GO key (1). Display (2) will show assemble message.
 - Connect tank harness end shown on display (2) to P1 on adapter; see figure H.
- NOTE**
- Component location diagrams are located in back of each troubleshooting manual.
 - If tank harness is already connected to adapter, go to block 29.



- 29
- Press GO key (1). Display (2) will show connect CA101 message.
 - Connect CA101 to J3 on CIB; see figure H.

NOTE
Connect W2 to CIB-J3
Pins if CA101 is Not
Available



- 30
- Press GO key (1). Display (2) will show connect W2 cable message.
 - Connect P1 on W2 cable to J4 on VTM; see figure H.

- 31
- Press GO key (1). Display (2) will show connect black probe message.
 - Connect black probe on W2 cable to pins on CA101; see figure H.

FIGURE H
Single Probe Mode
Typical Hookup

12

- Press GO key (1). Display (2) will show connect probe message.
- Connect TA1 pin or socket probe selected in your troubleshooting procedure to red lead on W2 cable; see figure 1.

13

- Press GO key (1). Display (2) will show harness disconnect message.
- Tank harness is already disconnected, go to block 34.

14

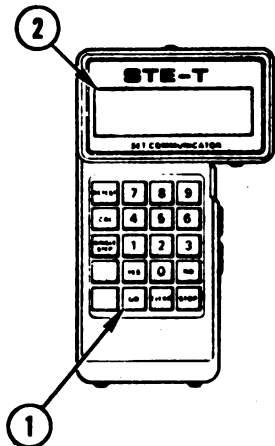
- Press GO key (1). Display (2) will show connect probe to harness message.
- Connect TA1 probe on red W2 lead to contact on harness end shown on display (2); see figure 1.

15

- Press GO key (1). Display (2) will show condition of wire being tested as "GOOD" or "BAD".

16

- Repeat blocks 34 and 35 until display (2) shows - TEST FINISHED PRESS STOP AND CLEAR
- Go back to test procedure being performed.



NOTE
Connect W2 to CIB-J3
Pin s If CA101 Is Not
Available

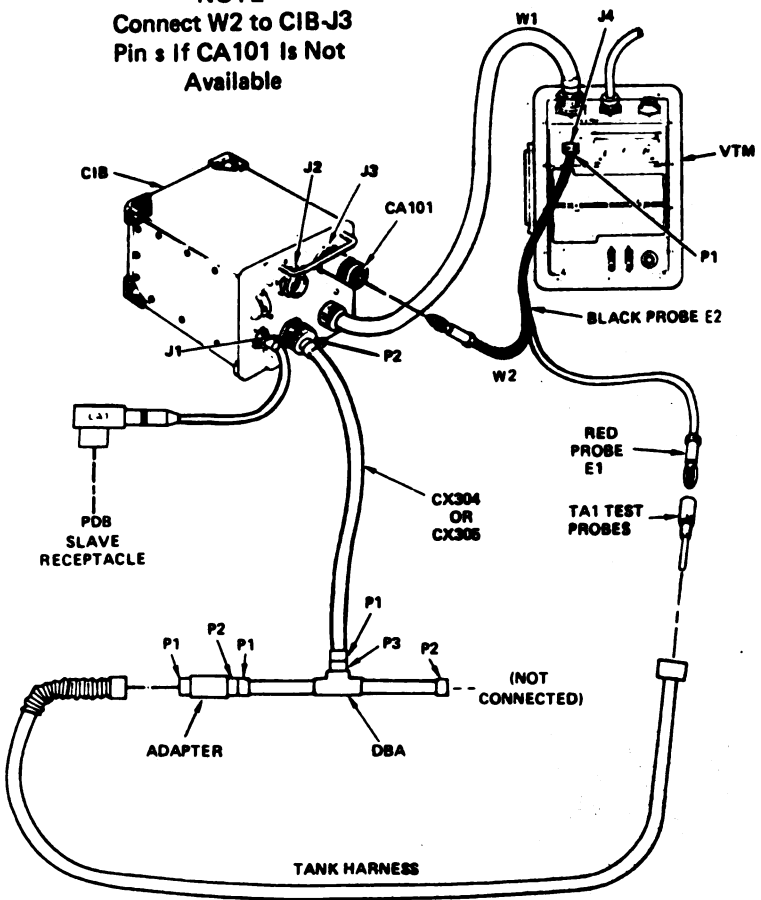


FIGURE I
Single Probe Mode
Typical Hookup

TM 9-2350-255-20-2-2-2
TEST EQUIPMENT PROCEDURES

From block 22

- 37
- Display (1) will show -
DOUBLE PROBE MODE.
EQUIP. LIST FOLLOWS
 - Press GO key (2). Display (1) will show list of test equipment used in double probe mode of testing. Do not get this equipment until needed.

- 38
- Press GO key (2). Display (1) will show connect W2 cable message.
 - Connect P1 on W2 cable to J4 on VTM; see figure J.

- 39
- Press GO key (2). Display (1) will show connect probe message.
 - Connect TA1 pin/socket probe selected in your troubleshooting procedure to red lead on W2 cable; see figure J.

- 40
- Press GO key (2). Display (1) will show harness disconnect message.
 - Tank harness is already disconnected, go to block 41.

- 41
- Press GO key (2). Display (1) will show connect probe to harness message.
 - Connect TA1 probe on red W2 lead to contact on harness end shown on display (1); see figure J.

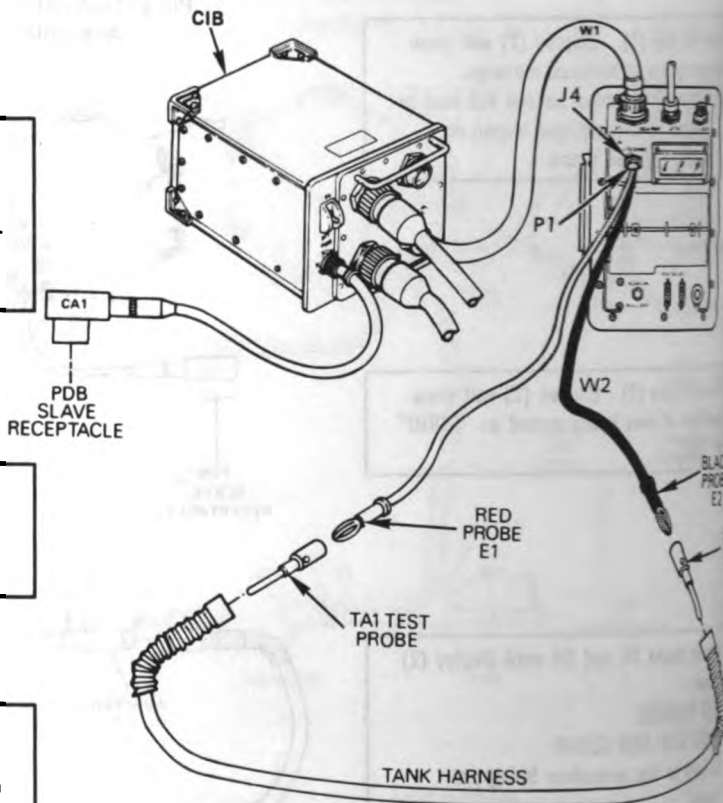
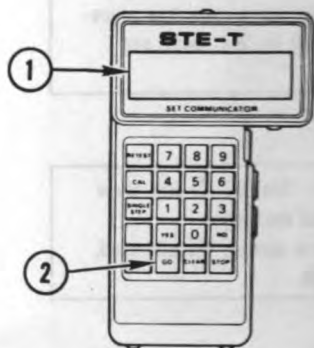
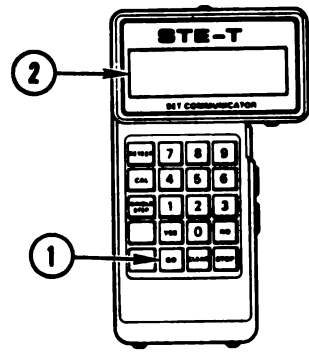


FIGURE J
Double Probe Mode
Typical Hookup

Figure 15-5 (Sheet 10 of 15)
Volume II
Para. 15-6

42

- Press GO key (1). Display (2) will show connect probe message.
- Connect TA1 pin/socket probe selected in your troubleshooting procedure to black lead on W2 cable; see figure K.



43

- Press GO key (1). Display (2) will show harness disconnect message.
- Tank harness is already disconnected, go to block 44.

44

- Press GO key (1). Display (2) will show connect probe to harness message.
- Connect TA1 probe on black W2 lead to contact on harness shown on display (2); see figure K.

45

- Press GO key (1). Display (2) will show condition of wire being tested as "GOOD" or "BAD".

48

- Repeat blocks 41, 44 and 45 until display (2) shows - TEST FINISHED PRESS STOP AND CLEAR
- Go back to test procedure being performed.

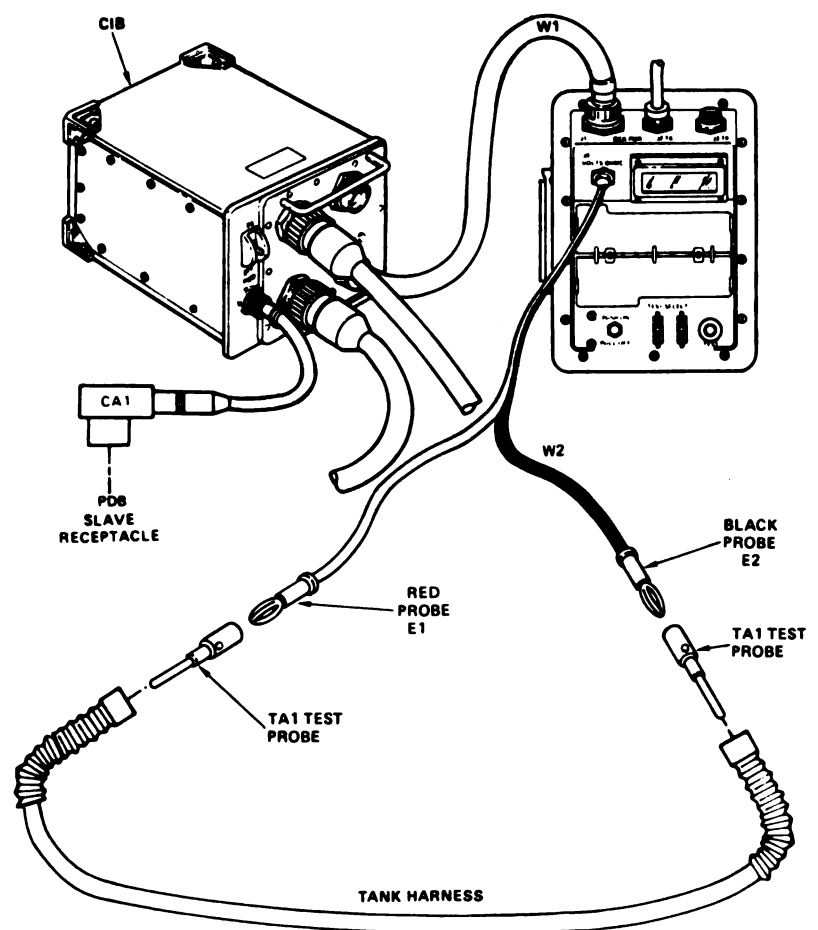


FIGURE K
Double Probe Mode
Typical Hookup

TEST 1390
CABLE TEST NOTES

FULL AUTOMATIC MODE

1. All wires found BAD during this test mode should be verified with a multimeter.

Connector and pin or socket identification for each bad wire is available on your SETCOM display at the end of each test. The operator must request the **DETAIL REPORT** and record all information as it is displayed. A wire open between connector P2-A and connector P5-C would be displayed as

P2A <- -> P5C

The **DETAIL REPORT** will be displayed by performing the following actions:

- Press GO key when display shows BAD (number of open wires in cable).
 - Press YES key.
 - Press GO key (record displayed wire information).
 - Continue pressing GO key and record wire information until the display shows **END: REPEAT REPORT?**
 - Press YES key if report is to be repeated.
 - Press STOP key.
 - Test wires with multimeter to verify open.
2. STE cable test for harness connector pairs listed in table 15-3 (Sheet 13) requires that a third harness connector be disconnected before starting test.
3. The cable adapter and diagnostic breakout assembly (DBA) required for each tank harness connector end in the STE cable test is listed in table 15-4 (Sheet 14).

Table 15-3. Connectors to Disconnect Before Testing Tank Harnesses

Cable	Test Between Connector Pairs	Disconnect Connector
1W105	J3 - P5	P8
1W206	P2 - P3	P1
2W105	J1 - P4	P5
2W105	J2 - P1	P2
2W105	J2 - P2	P1
2W108	P1 - P2	J1
2W109	P1 - P4	J1
2W159	J1 - P13	P8
3W104	J1 - P1	P4
3W104	TJ1 - P4	P1

Figure 15-5 (Sheet 13 of 15)
Volume II
Para. 15-6

Table 15-4. Tank Harness and STE Adapter Reference

Tank Harness	Tank Harness End	STE		Tank Harness	Tank Harness End	STE			
		Cable Adapter	DBA			Cable Adapter	DBA		
1W101	J2	CA433	CX308	1W200	P8	CA535	CX308		
	P1	CA419	CX307		P9	CA539	CX308		
	P2	CA545	CX307		P10	CA543	CX308		
	P3	CA441	CX308		P11	CA541	CX308		
	P4	CA441	CX308		P12	CA539	CX308		
	P5	CA441	CX308		P13	CA543	CX308		
1W102	P1	CA530	CX307		P14	CA541	CX308		
	P2	CA421	CX307		1W201	P1	CA502	CX307	
1W103	P1	CA560	CX308			P2	CA419	CX307	
	P2	CA429	CX308			1W202	P1	CA506	CX307
1W104	P1	CA518	CX307				P2	CA511	CX307
	P2	CA511	CX307				P3	CA417	CX307
	P3	CA541	CX308				P4	CA509	CX307
1W105	J3	CA431	CX307				P5	CA547	CX308
	P1	CA426	CX307	P6			CA507	CX307	
	P3	CA423	CX307	1W203			P1	CA528	CX307
	P4	CA427	CX308				P2	CA421	CX307
P6	CA463	CX308	P3				CA539	CX308	
1W106	J1	CA563	CX308				1W204	P1	CA513
	J2	CA557	CX308	P2				CA545	CX307
	P1	CA520	CX307	P3				CA555	CX308
	P2	CA535	CX308	P4	CA549			CX308	
1W107	J1	CA521	CX307	1W205	J1		CA550	CX308	
	J2	CA557	CX308		J2	CA551	CX308		
	P1	CA522	CX307	1W206	P1	CA520	CX307		
1W108	J1	CA557	CX308		P2	CA419	CX307		
	P1	CA522	CX307		P3	CA537	CX308		
1W111	J1	CA563	CX308	1W207	J1	CA538	CX308		
	P1	CA564	CX308		P1	CA537	CX308		
1W200	J1	CA561	CX308	1W208	P1	CA532	CX307		
	P1	CA504	CX307		P2	CA417	CX307		
	P2	CA435	CX308	1W209	P1	CA518	CX307		
	P3	CA523	CX307		P2	CA515	CX307		
	P4	CA515	CX307		P3	CA513	CX307		
		P5	CA541	CX308	1W210	P1	CA526	CX307	
		P6	CA541	CX308		P2	CA533	CX307	
	P7	CA535	CX308	P3		CA553	CX308		

Figure 15-5 (Sheet 14 of 15)
 Volume II
 Para. 15-6

Table 15-4. Tank Harness and STE Adapter Reference (Continued)

Tank Harness	Tank Harness End	STE		Tank Harness	Tank Harness End	STE	
		Cable Adapter	DBA			Cable Adapter	DBA
2W101	P1	CA456	CX308	2W109	P1	CA421	CX307
	P2	CA457	CX308		P2	CA541	CX308
2W103	P1	CA426	CX307		P3	CA448	CX308
	P2	CA445	CX307		P4	CA537	CX308
2W104	J1	CA424	CX307	2W110	J1	CA433	CX308
	P1	CA518	CX307		P1	CA409	CX307
	P3	CA417	CX307		P2	CA441	CX308
	P5	CA541	CX308		P4	CA535	CX308
	P7	CA535	CX308	2W111	P1	CA426	CX307
	P8	CA435	CX308		P4	CA449	CX307
	P9	CA437	CX308	2W112	P1	CA462	CX307
2W105	J1	CA406	CX307		P4	CA429	CX308
	J2	CA415	CX307	2W114	J1	CA413	CX307
	P1	CA402	CX307		P1	CA520	CX307
	P2	CA452	CX308	2W115	P1	CA441	CX308
	P4	CA423	CX307	2W156	P1	CA429	CX308
	P5	CA421	CX307	2W159	J1	CA424	CX307
	P7	CA435	CX308		P2	CA437	CX308
2W105-1	J1	CA542	CX308		P3	CA543	CX308
2W106	P1	CA404	CX307	2W160	J1	CA538	CX308
	P2	CA419	CX307		P1	CA441	CX308
	P4	CA419	CX307		P2	CA441	CX308
	P5	CA417	CX307		P3	CA441	CX308
	P6	CA539	CX308	3W103	P1	CA460	CX308
	P7	CA541	CX308	3W104	P1	CA416	CX307
	P8	CA427	CX308		P2	CA463	CX308
2W106-1	J1	CA542	CX308		P3	CA441	CX308
2W107	J1	CA420	CX307		P4	CA445	CX307
	J2	CA411	CX307		P5	CA441	CX308
	P1	CA522	CX307		TJ1	CA407	CX307
	P2	CA423	CX307	3W105	P32	CA414	CX307
	P3	CA405	CX307		P33	CA409	CX307
2W108	J1	CA459	CX308		P37	CA439	CX308
	P1	CA432	CX307	3W105-1	J37	CA440	CX308
	P2	CA449	CX307	3W107	P2	CA412	CX307
2W109	J1	CA410	CX307				

**CHAPTER 16
CHECKOUT PROCEDURES**

16-1. General. This chapter contains checkout procedures for the turret systems. The procedures are listed in table 16-1 with paragraph and page numbers.

Table 16-1. Checkout Procedures for Turret Systems

Procedure	Use STE	Para.	Page
Thermal Imaging System Checkout	No	16-2	16-2
Stabilization System Checkout	Yes	16-3	16-18

The thermal imaging system checkout is used with troubleshooting procedures contained in chapter 10, paragraph 10-7. Perform the thermal imaging system checkout in an area that has been designated for boresighting.

NOTE

It is important that the thermal imaging system (TIS) picture is correctly adjusted. Target acquisition and identification can be seriously degraded with an incorrectly adjusted TIS picture. Misuse of some controls on the image control unit can cause the TIS picture to disappear.

The STE test set is used for the stabilization system checkout. For a detailed description of the STE test set, refer to chapter 15, paragraph 15-4.

The stabilization system checkout is used during scheduled maintenance of the turret. Perform the stabilization system checkout in an area where it is safe to start the engine and traverse the turret. Move the tank outside of the maintenance building to perform the pivot and lurch tests.

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

- a. Use slip joint conduit style pliers with plastic jaw inserts to loosen connectors that cannot be loosened by hand.
- b. Use care when hooking up all connectors to avoid bending or breaking pins. Tighten connectors by hand only.
- c. Cap all electrical connectors that were taken off during troubleshooting.
- d. Be sure to close grille doors and access panels before traversing the turret.

**TM 9-2350-255-20-2-2-2
CHECKOUT PROCEDURES**

16-2. Thermal Imaging System Checkout Procedure.

THERMAL IMAGING SYSTEM CHECKOUT

AND

SYMPTOMS TIS-13, TIS-14, OR TIS-15

THERMAL IMAGING SYSTEM THERMAL RECEIVER MAKES NOISES WHEN THERMAL MODE SWITCH IS SET TO OFF

OR

THERMAL IMAGING SYSTEM HAS BLACK, FLASHING, OR FLICKERING LINES

OR

NO THERMAL IMAGING SYSTEM PICTURE

Supplies:

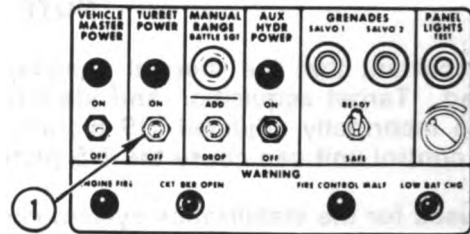
Wristwatch

Equipment Condition:

- Tank parked.
- Parking brake set.
- Engine shut down.
- Vehicle master power off.
- Unit test pattern switch off.
- Ballistic doors closed.

NOTE

- Read para. 16-1 before doing any work.
- When thermal imaging system is on, the (clatter) sound can be heard.



1

- Set up tank controls for standard initial test conditions.
 - Refer to para. 16-6, table 16-2.
- Set TURRET POWER switch (1) to ON.

Did (clatter) sound of thermal imaging system come on?

NO

YES

2

- Replace thermal power control unit.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-24.
- Go back to block 1 and repeat checkout procedure.

NOTE

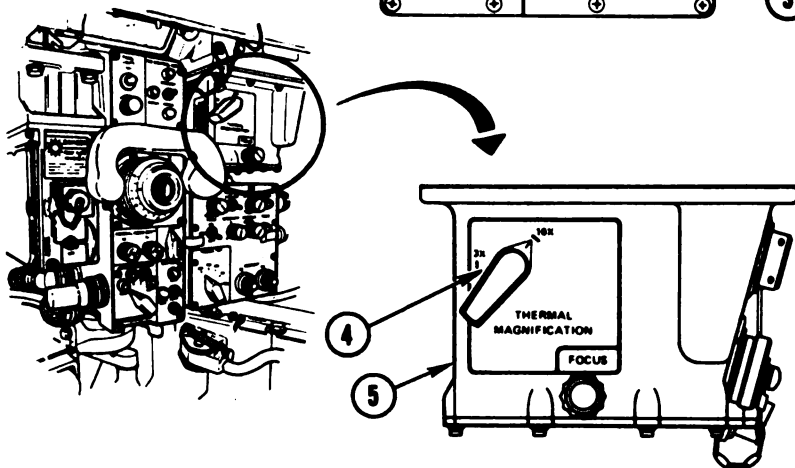
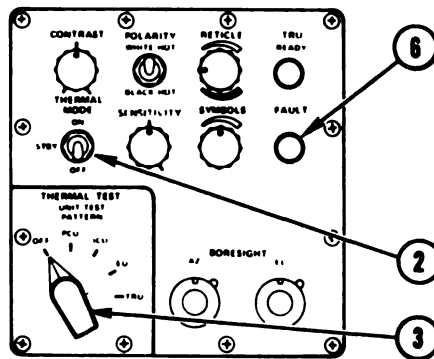
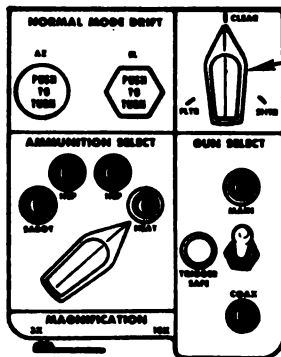
Do the following steps if you come to this point a second time.

- Replace image control unit.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-24.
- Go back to block 1 and repeat checkout procedure.

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

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- 3
- Set FLTR/CLEAR/SHTR switch (1) to SHTR.
 - Set THERMAL MODE switch (2) to STBY.
 - Set UNIT TEST PATTERN switch (3) to PCU.
 - Set THERMAL MAGNIFICATION lever (4) on thermal receiver unit (5) to 3X.
 - Check FAULT light (6) after a 5 second delay.
- Does FAULT light stay on?



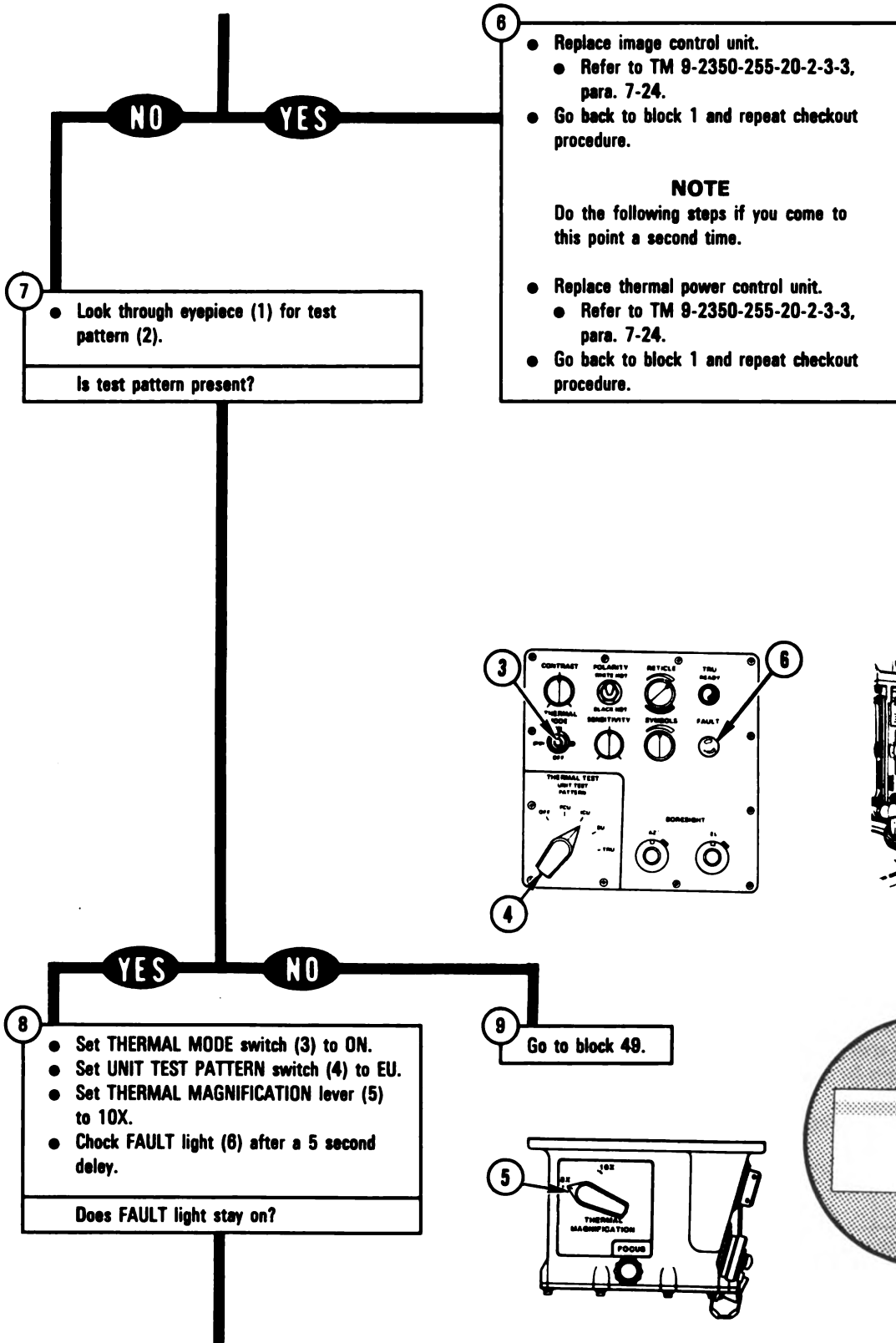
- 4
- Replace thermal power control unit.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-24.
 - Go back to block 1 and repeat checkout procedure.

- NO
- YES
- 5
- Note what time it is after completing this block and write it down for use in block 14.
 - Set UNIT TEST PATTERN switch (3) to ICU.
 - Check FAULT light (6) after a 5 second delay.
- Does FAULT light stay on?

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

ARR82-6725

**TM 9-2350-255-20-2-2-2
CHECKOUT PROCEDURES**



*Figure 16-1 (Sheet 3 of 16)
Volume II
Para. 16-2*

ARR82-6726

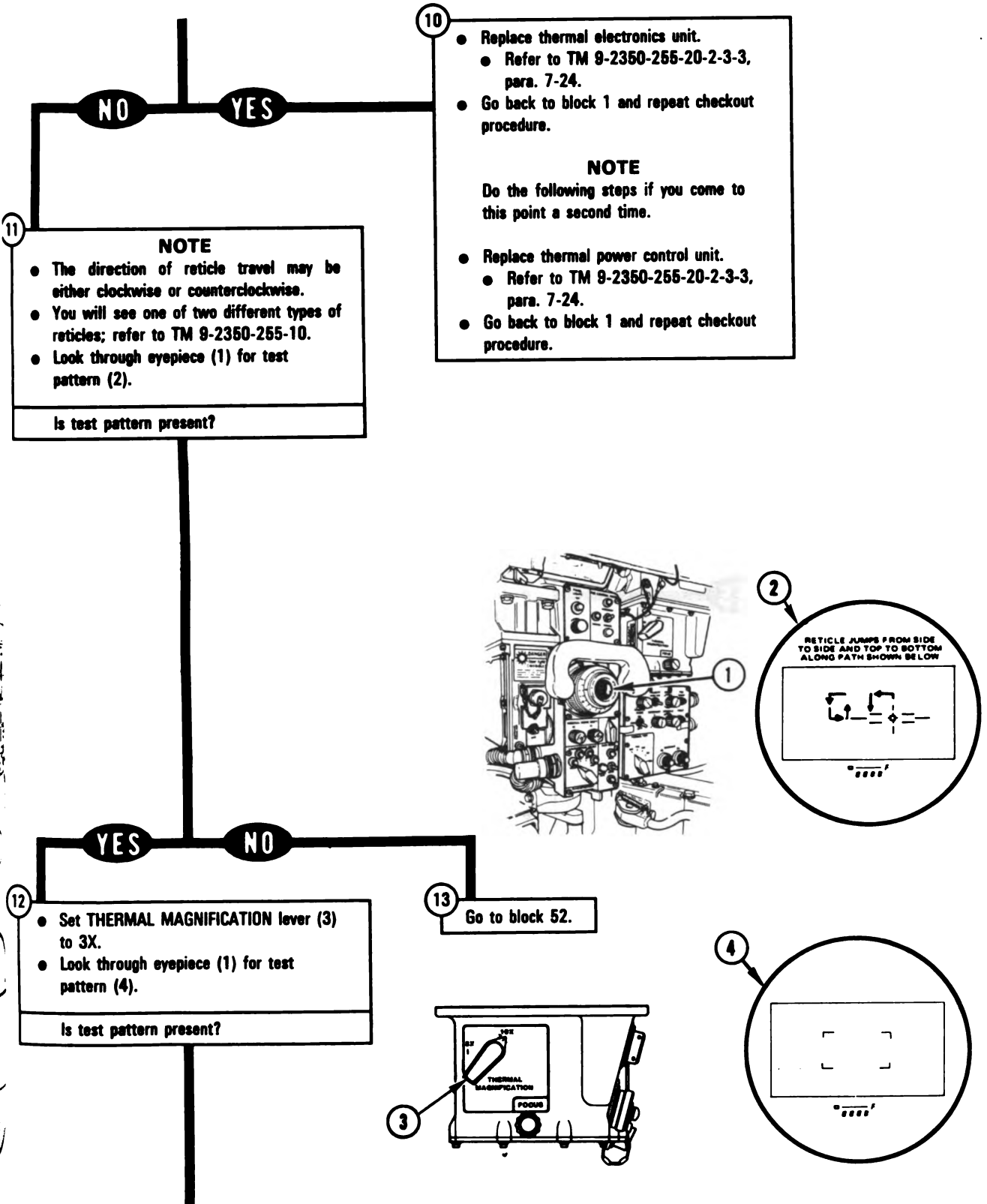
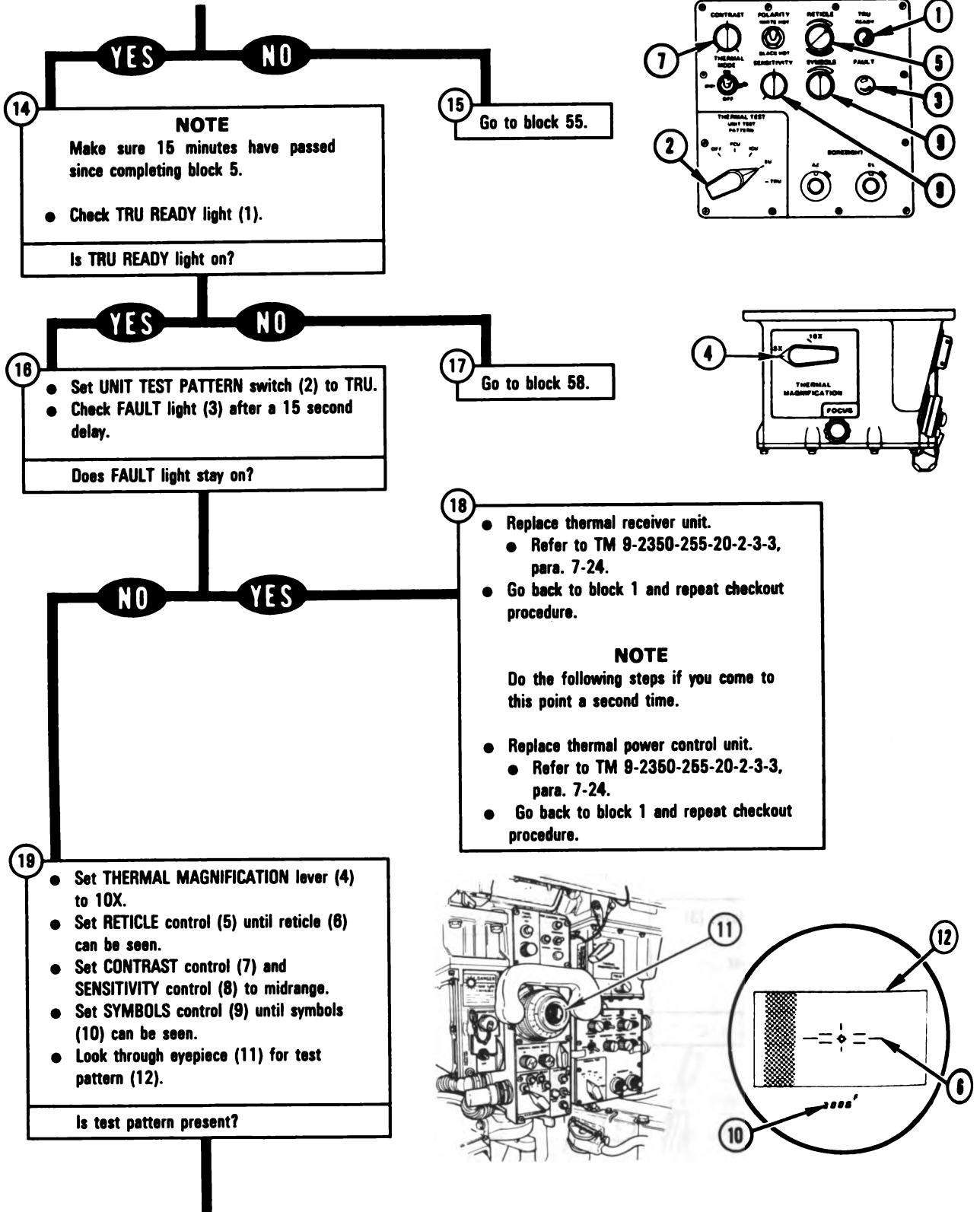


Figure 16-1 (Sheet 4 of 16)
Volume II
Para. 16-2

ARR82-6727

**TM 9-2350-255-20-2-2-2
CHECKOUT PROCEDURES**



*Figure 16-1 (Sheet 5 of 16)
Volume II
Para. 16-2*

ARR82-6728

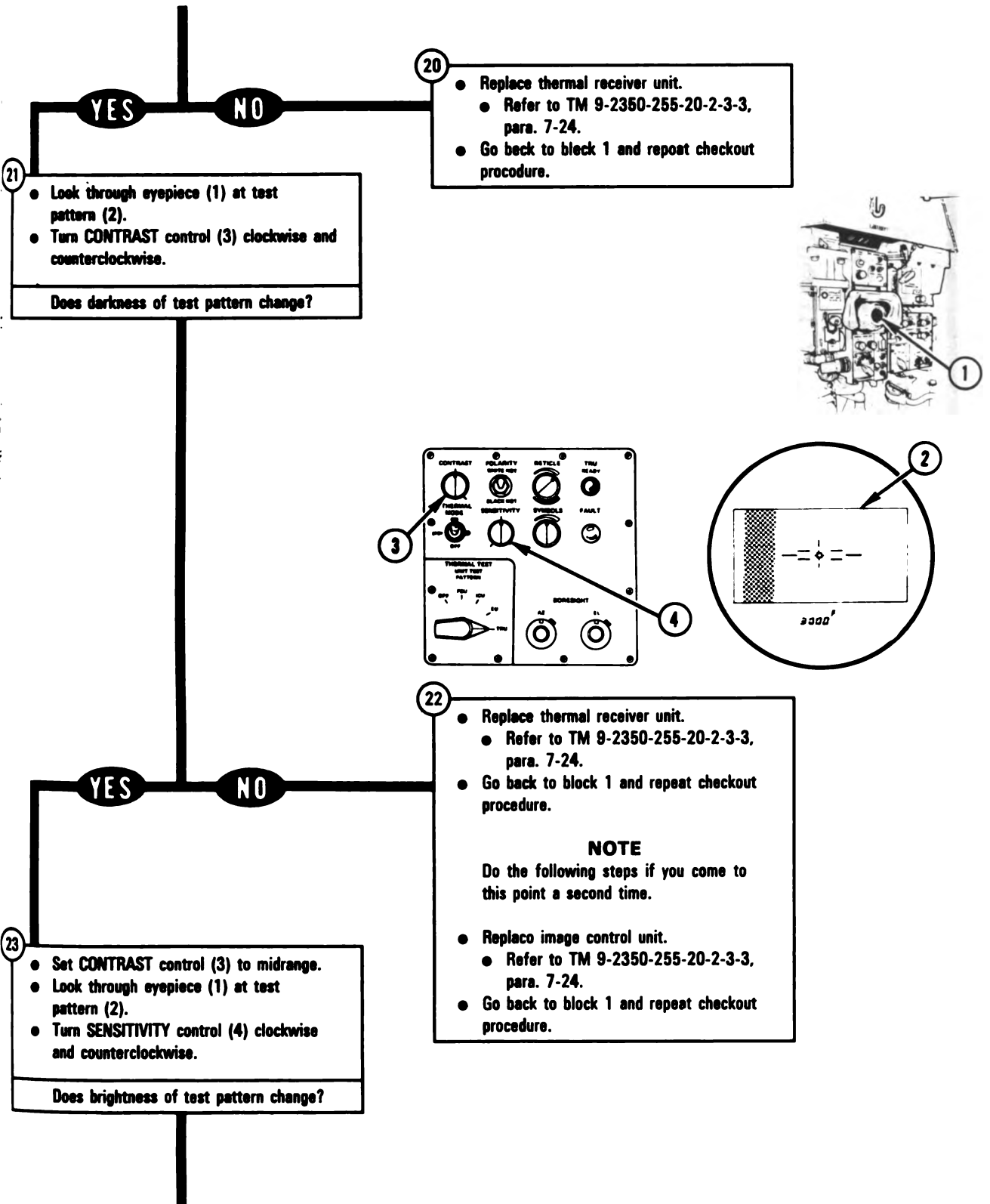
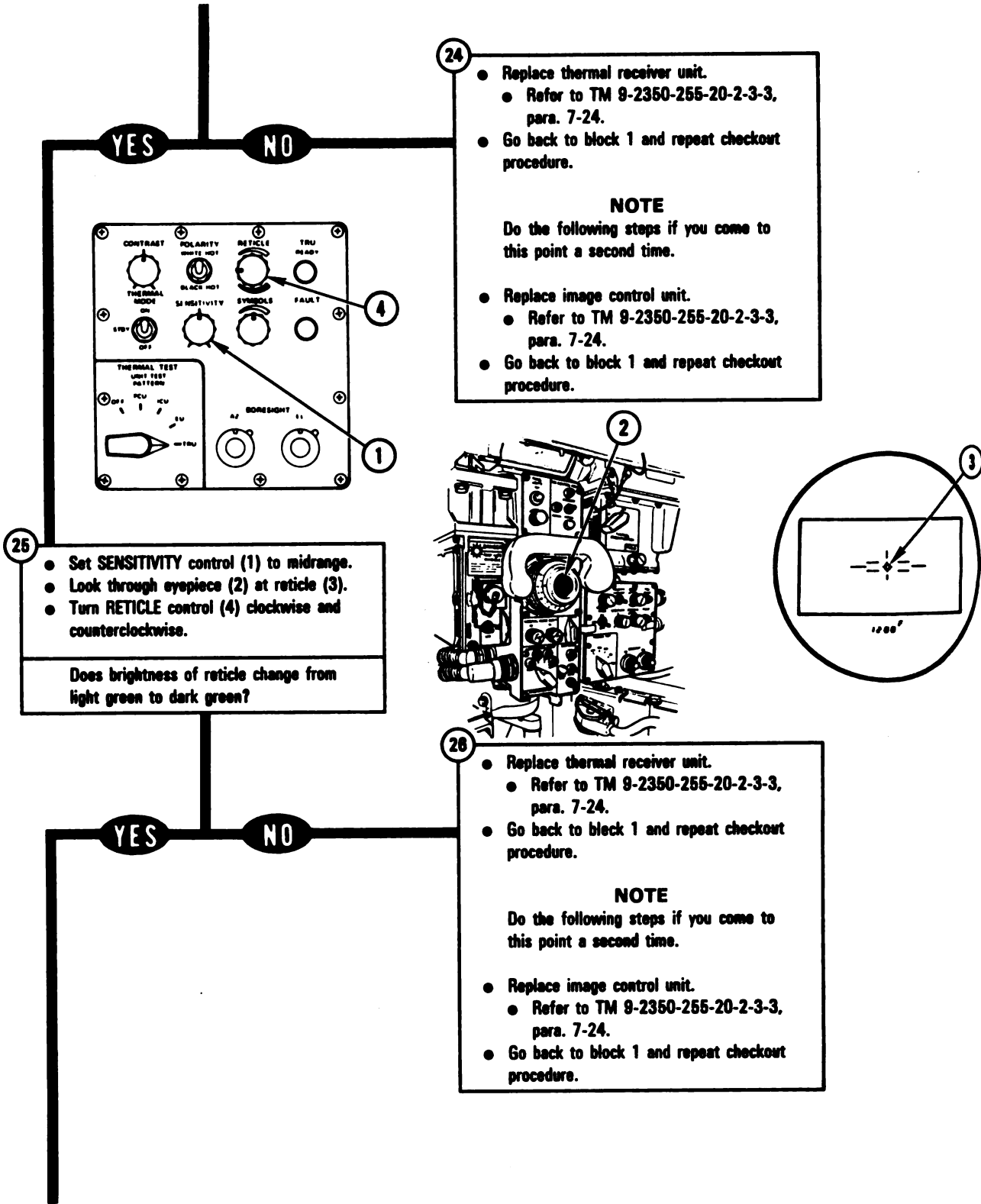


Figure 16-1 (Sheet 6 of 16)
Volume II
Para. 16-2

ARR82-6729

**TM 9-2350-255-20-2-2-2
CHECKOUT PROCEDURES**

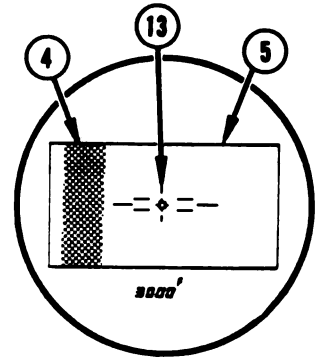
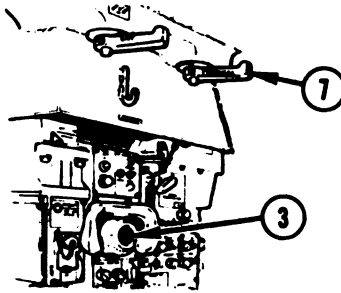


*Figure 16-1 (Sheet 7 of 16)
Volume II
Para. 16-2*

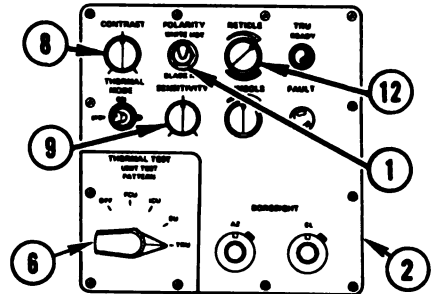
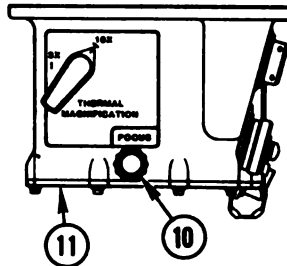
ARR82-8730

**TM 9-2350-255-20-2-2-2
CHECKOUT PROCEDURES**

- 27
- Make sure POLARITY switch (1) on image control unit (2) is set to WHITE HOT.
 - Look through eyepiece (3) at bar (4) in test pattern (5).
 - Set POLARITY switch (1) to BLACK HOT then back to WHITE HOT.



Did bar in test pattern change from light green to dark green and back to light green?



YES

NO

- 28
- Replace thermal receiver unit.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-24.
 - Go back to block 1 and repeat checkout procedure.
- NOTE**
Do the following steps if you come to this point a second time.
- Replace image control unit.
 - Refer to TM 9-2350-255-20-2-3-3, para. 7-24.
 - Go back to block 1 and repeat checkout procedure.

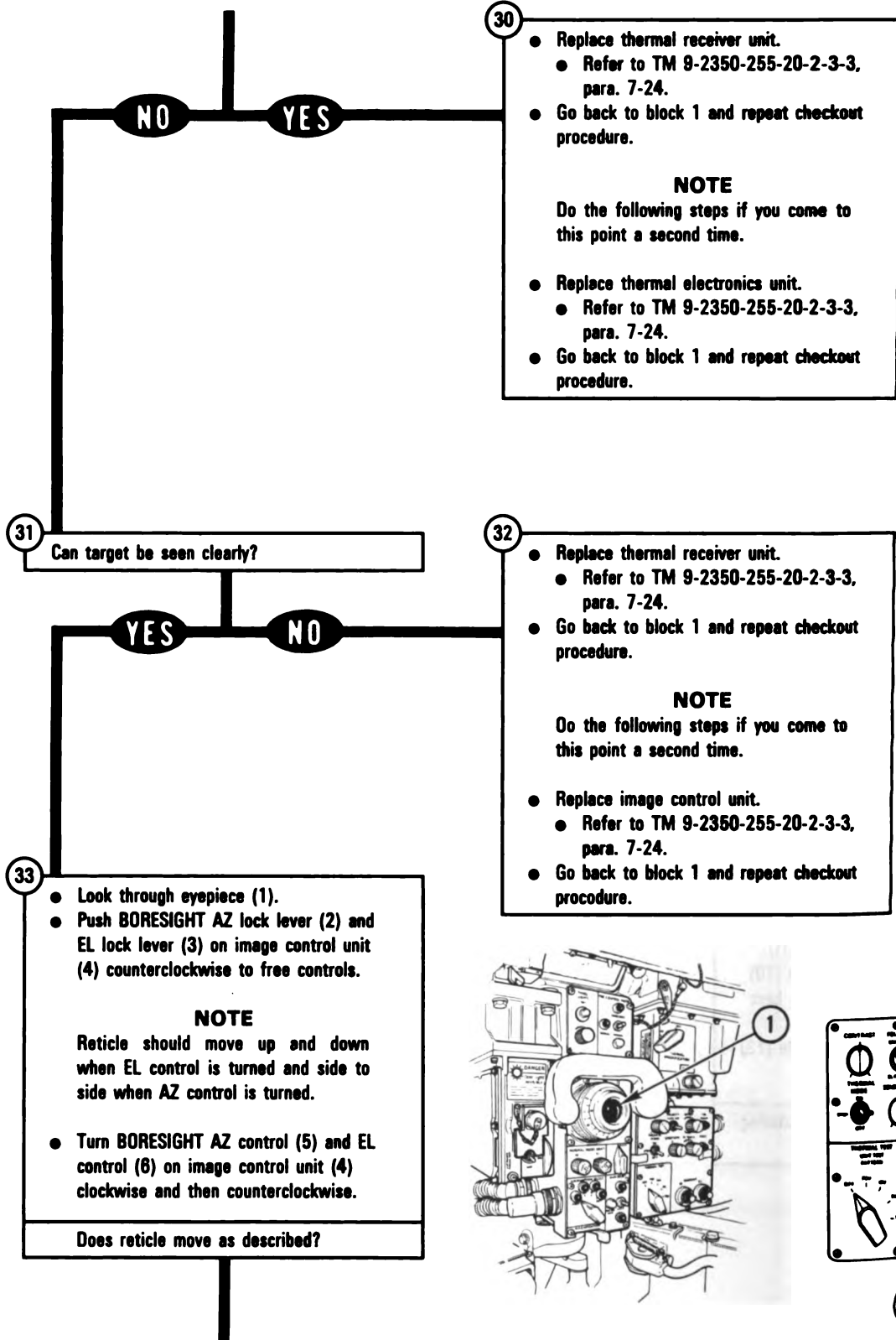
- 29
- Set UNIT TEST PATTERN switch (6) to OFF.
 - Open thermal ballistic door with handle (7).
 - Look through eyepiece at a selected boresight target 1000 meters or more.
 - Refer to TM 9-2350-255-10.
 - Adjust CONTRAST control (8), SENSITIVITY control (9), and FOCUS control (10) on thermal receiver unit (11) to get best picture.
 - Set RETICLE control (12) until reticle (13) can be seen.

Are there any black, flashing, or flickering lines in middle of test pattern?

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

ARR82-6731

**TM 9-2350-255-20-2-2-2
CHECKOUT PROCEDURES**



*Figure 16-1 (Sheet 9 of 16)
Volume II
Para. 16-2*

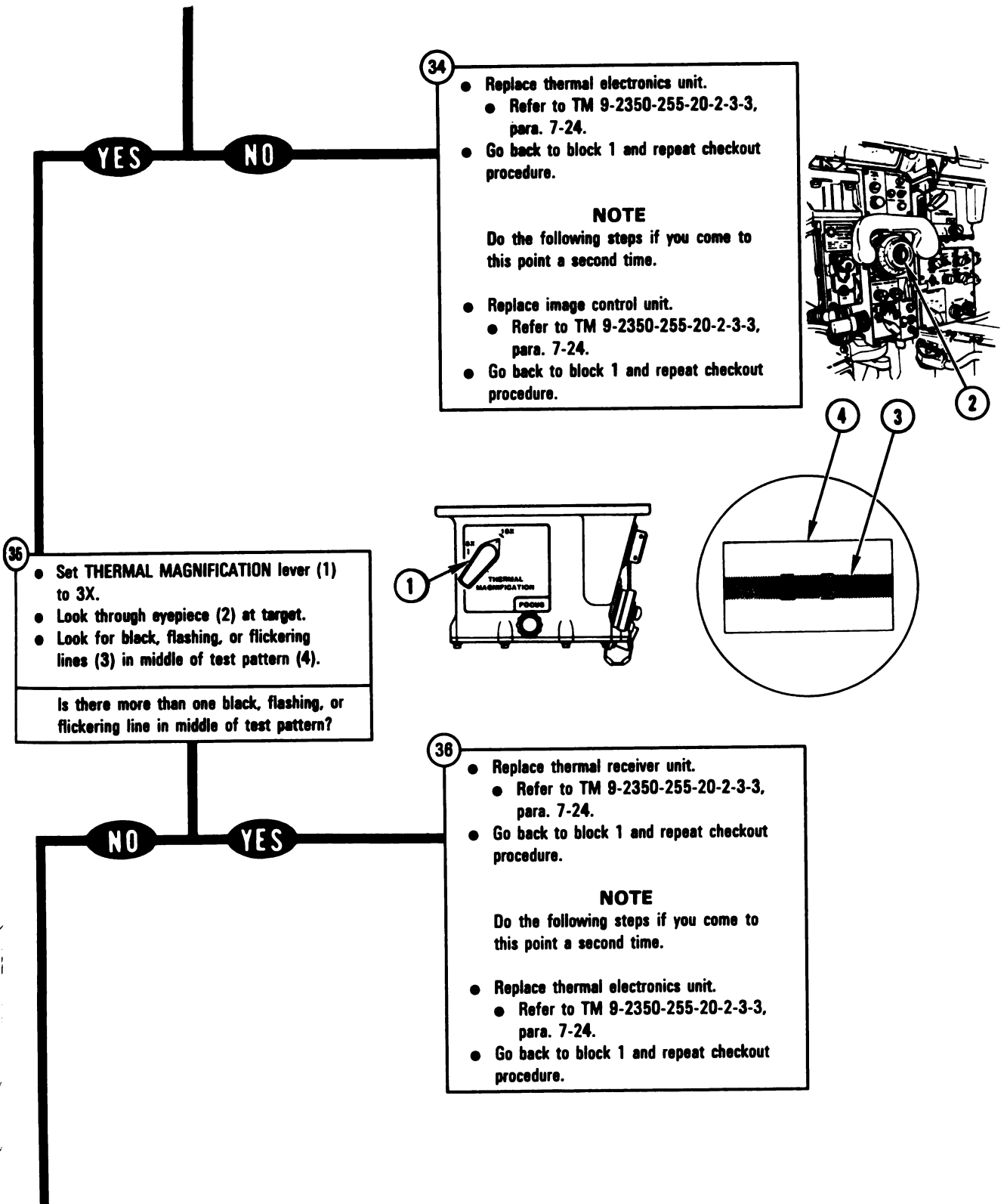
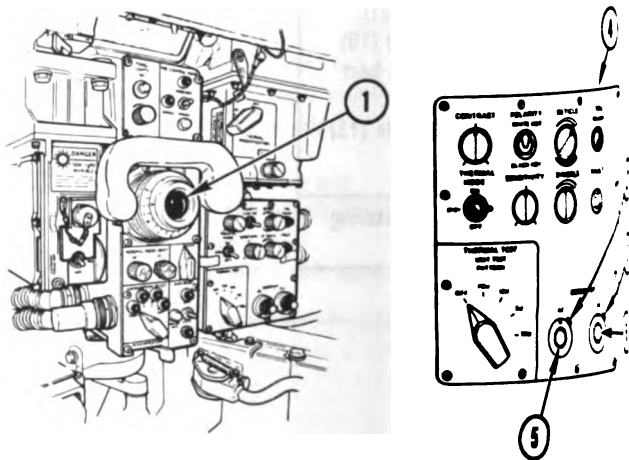
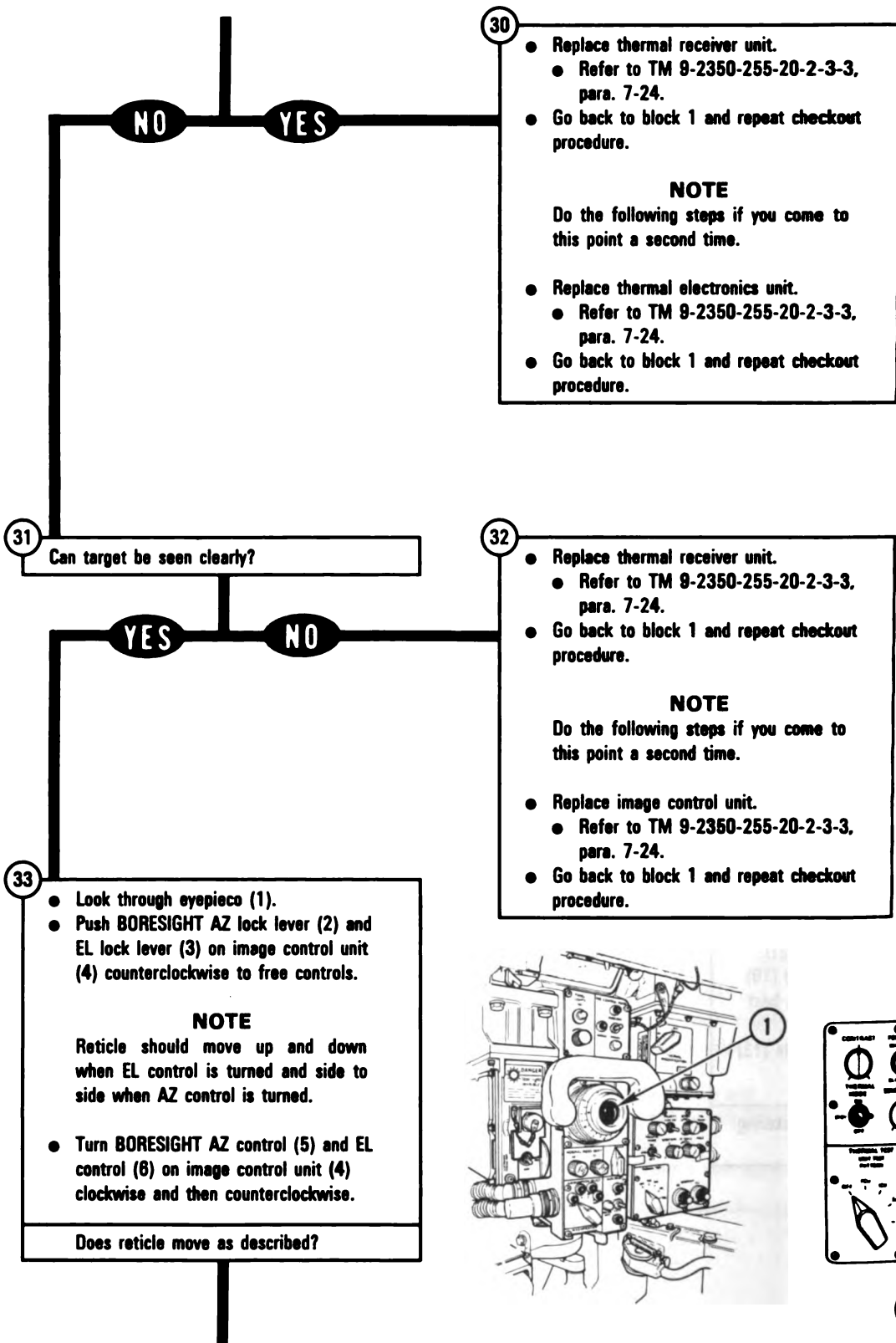


Figure 16-1 (Sheet 10 of 16)
Volume II
Para. 16-2

ARR82-6733

**TM 9-2350-255-20-2-2
CHECKOUT PROCEDURES**



*Figure 16-1 (Sheet 9 of 16)
Volume II
Para. 16-2*

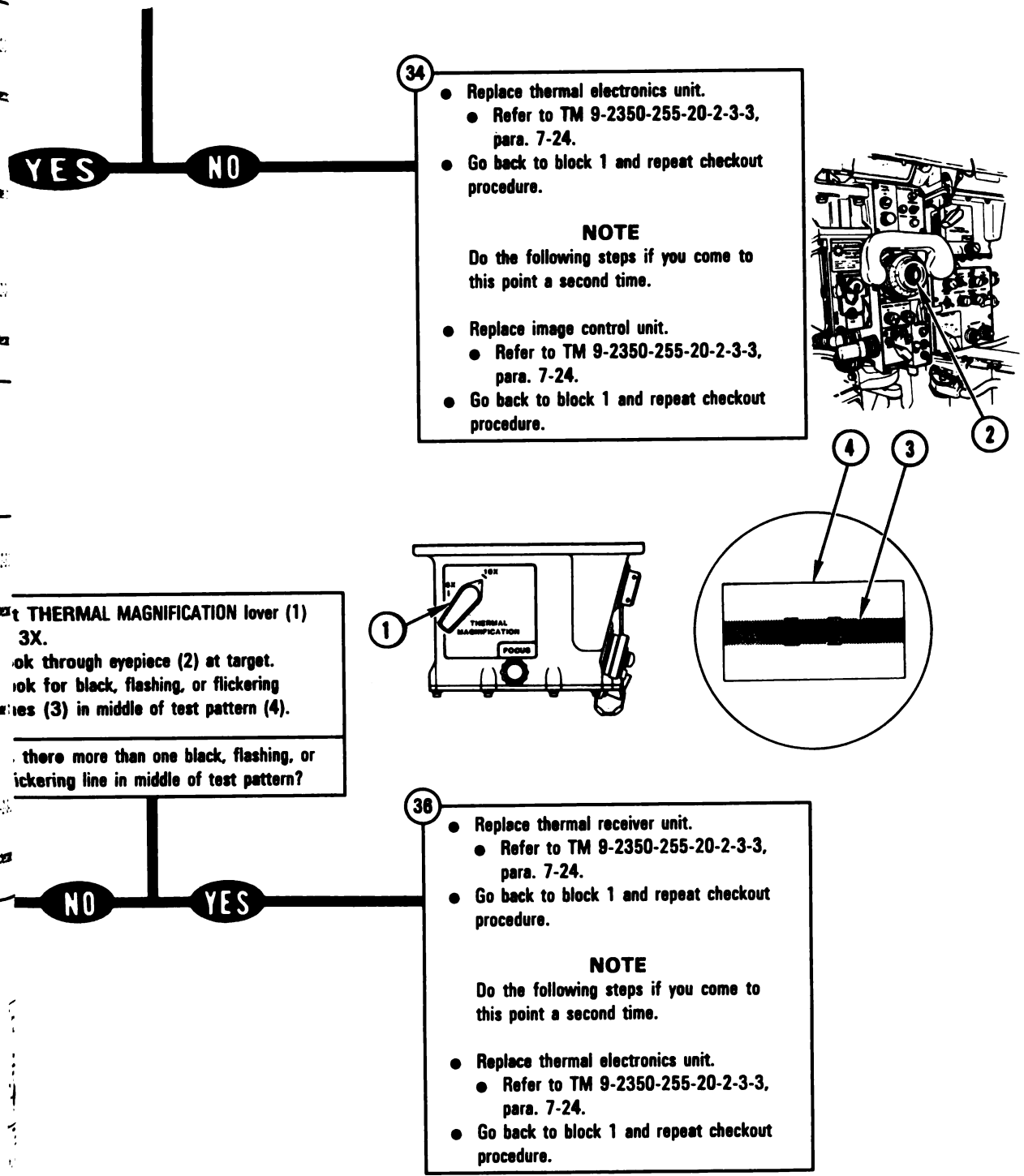
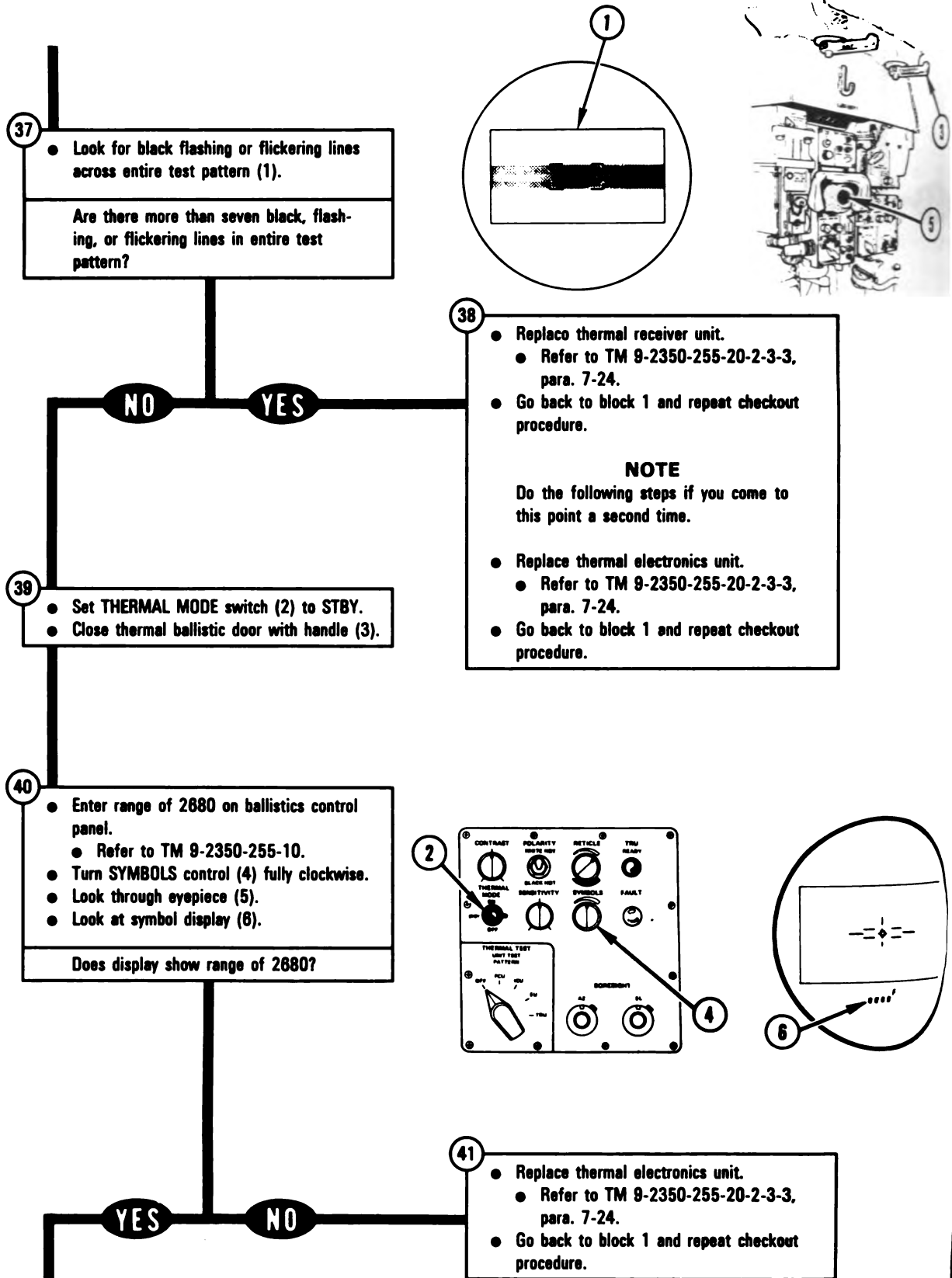


Figure 16-1 (Sheet 10 of 16)
Volume II
Para. 16-2

ARR82-6733

**TM 9-2350-255-20-2-2-2
CHECKOUT PROCEDURES**



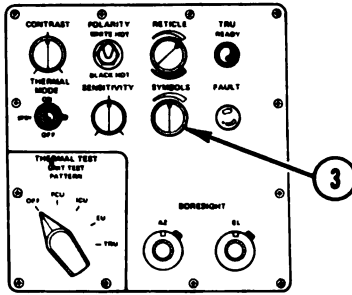
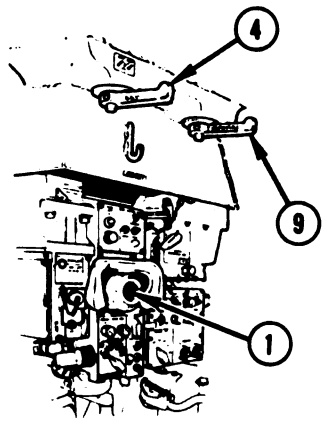
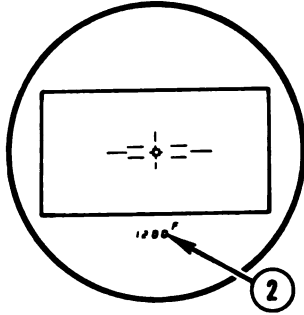
*Figure 16-1 (Sheet 11 of 16)
Volume II
Para. 16-2*

AMSL-7

42

- Look through eyepiece (1) at symbols display (2).
- Turn SYMBOLS control (3) clockwise and counterclockwise.

Does brightness of symbols change?



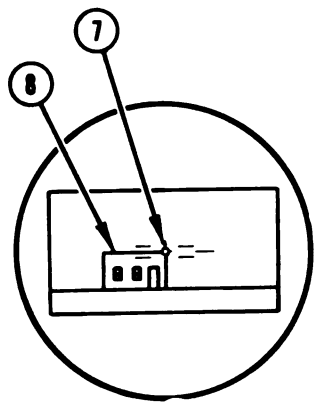
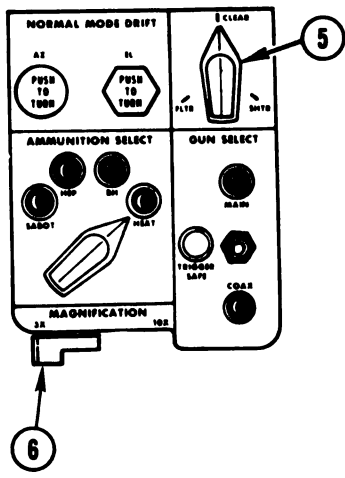
43

- Replace image control unit.
- Refer to TM 9-2350-255-20-2-3-3, para. 7-24.
- Go back to block 1 and repeat checkout procedure.

YES NO

44

- Open day ballistic door with handle (4).
- Set FLTR/CLEAR/SHTR switch (5) to FLTR or CLEAR.
- Set MAGNIFICATION lever (6) to 10X.
- Look through eyepiece (1) and note position of daysight reticle (7) on corner of selected boresight target (8).



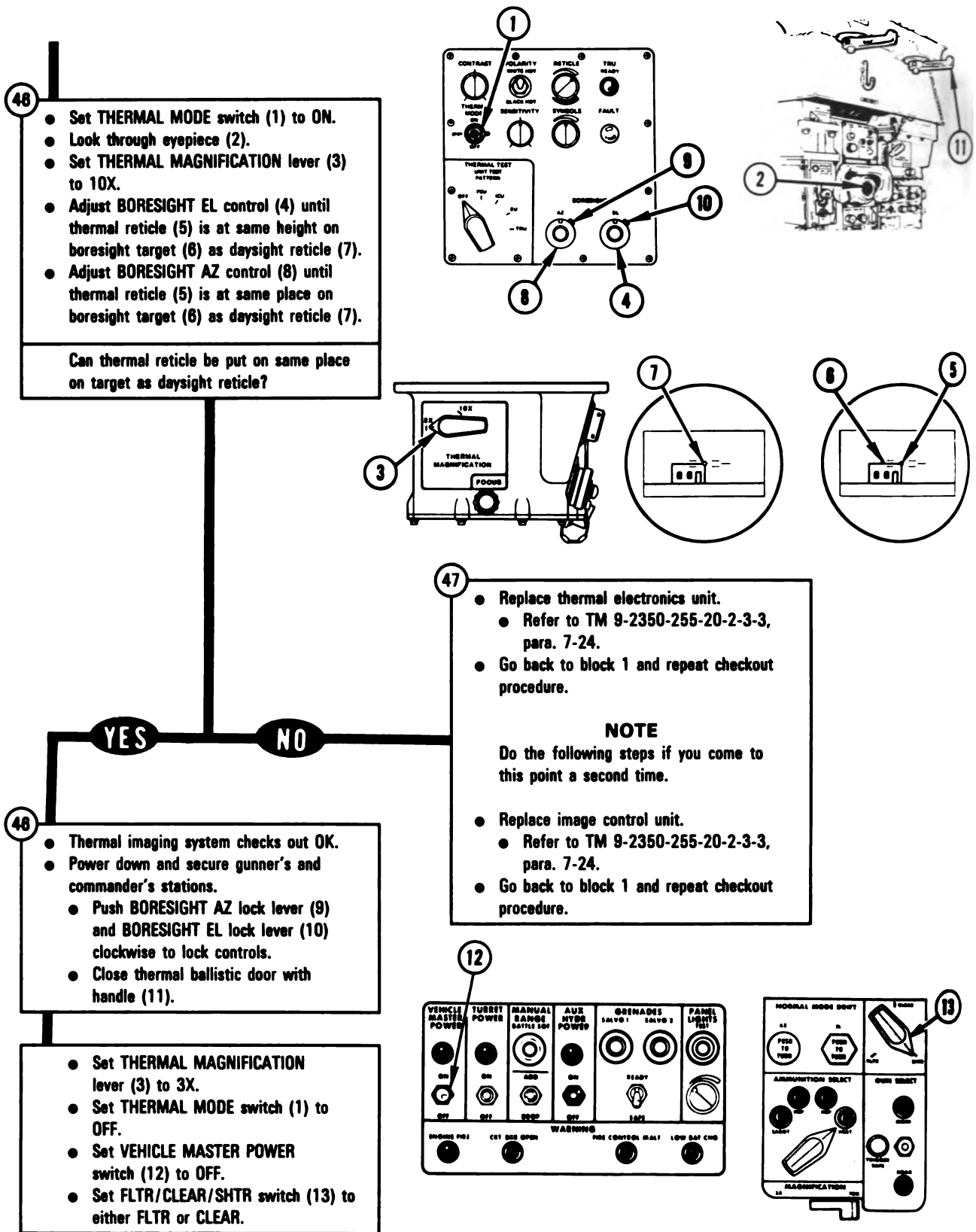
45

- Shut day ballistic door with handle (4).
- Set FLTR/CLEAR/SHTR switch (5) to SHTR.
- Open thermal ballistic door with handle (9).

Figure 16-1 (Sheet 12 of 16)
Volume II
Para. 16-2

ARR82-6735

**TM 9-2350-255-20-2-2
CHECKOUT PROCEDURES**



46

- Set THERMAL MODE switch (1) to ON.
- Look through eyepiece (2).
- Set THERMAL MAGNIFICATION lever (3) to 10X.
- Adjust BORESIGHT EL control (4) until thermal reticle (5) is at same height on boresight target (6) as daysight reticle (7).
- Adjust BORESIGHT AZ control (8) until thermal reticle (5) is at same place on boresight target (6) as daysight reticle (7).

Can thermal reticle be put on same place on target as daysight reticle?

YES **NO**

48

- Thermal imaging system checks out OK.
- Power down and secure gunner's and commander's stations.
- Push BORESIGHT AZ lock lever (9) and BORESIGHT EL lock lever (10) clockwise to lock controls.
- Close thermal ballistic door with handle (11).

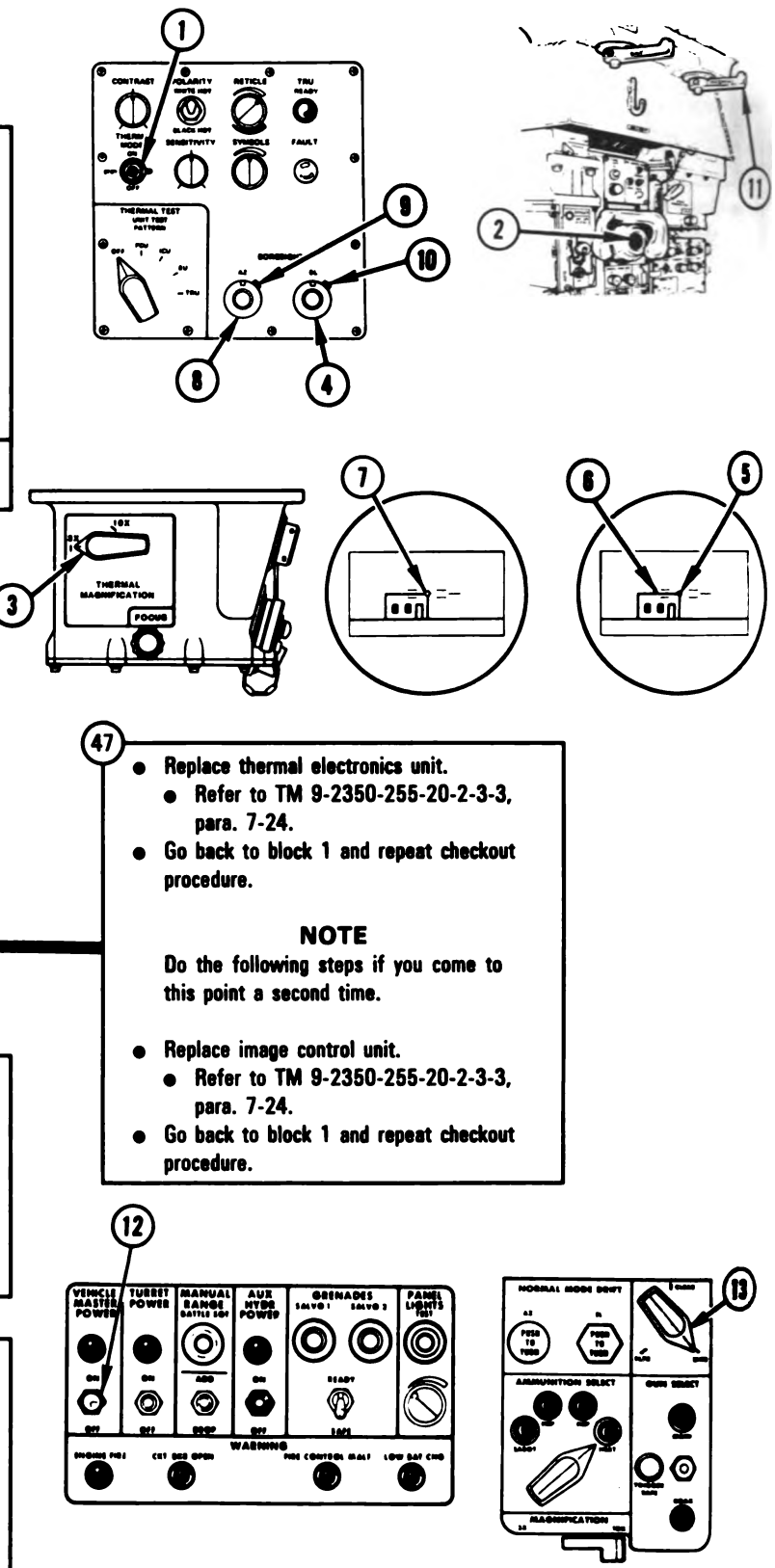
- Set THERMAL MAGNIFICATION lever (3) to 3X.
- Set THERMAL MODE switch (1) to OFF.
- Set VEHICLE MASTER POWER switch (12) to OFF.
- Set FLTR/CLEAR/SHTR switch (13) to either FLTR or CLEAR.

47

- Replace thermal electronics unit.
- Refer to TM 9-2350-255-20-2-3-3, para. 7-24.
- Go back to block 1 and repeat checkout procedure.

NOTE
Do the following steps if you come to this point a second time.

- Replace image control unit.
- Refer to TM 9-2350-255-20-2-3-3, para. 7-24.
- Go back to block 1 and repeat checkout procedure.



*Figure 16-1 (Sheet 13 of 16)
Volume II
Para. 16-2*

ARR82-6736

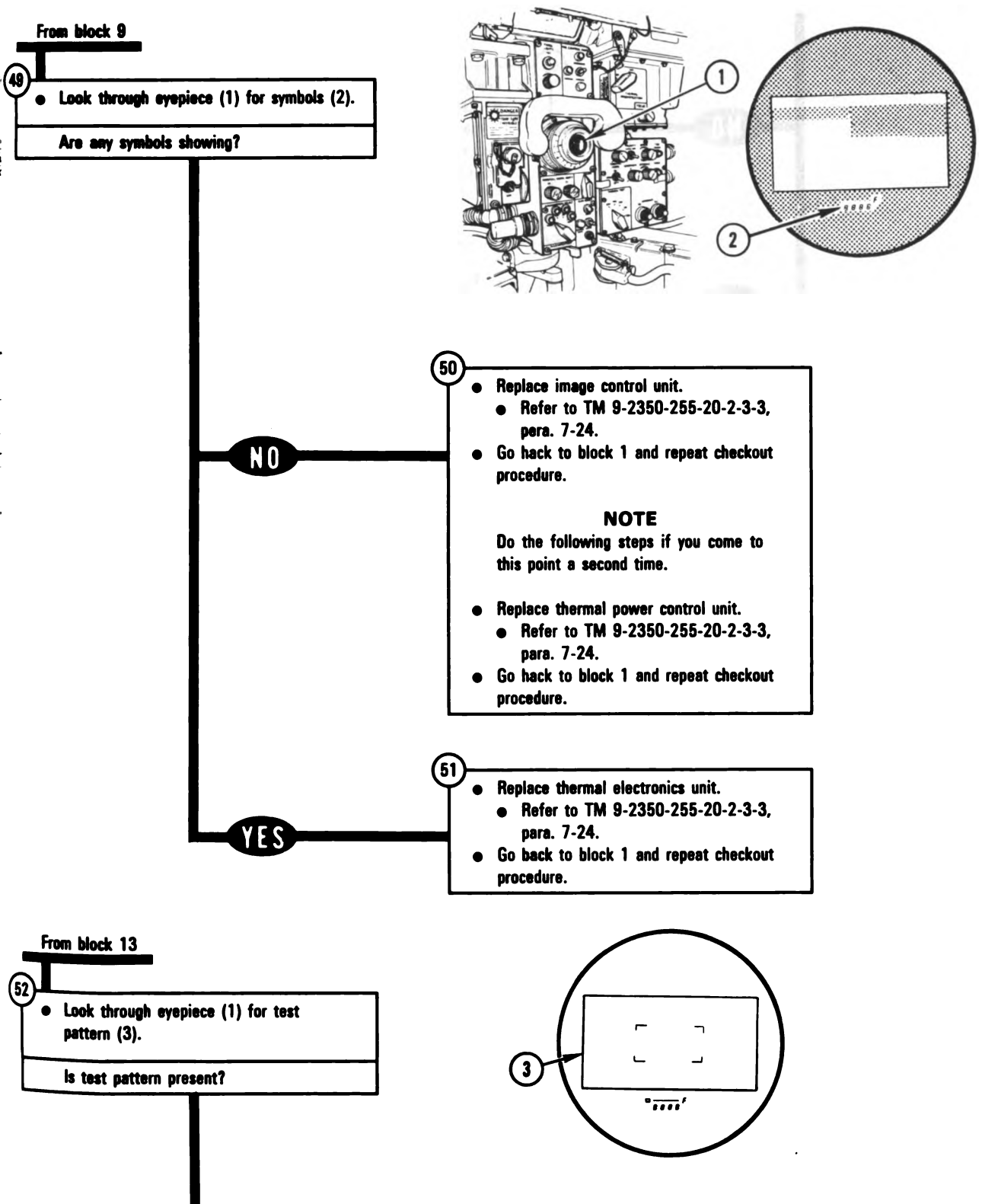
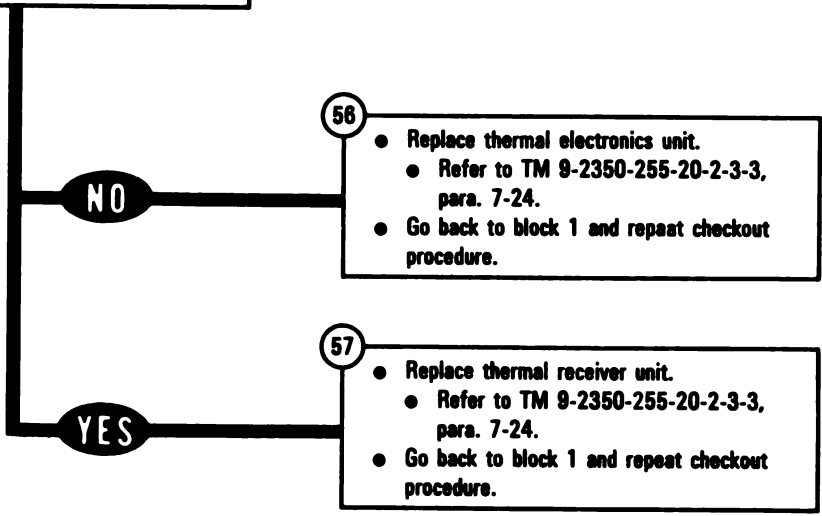
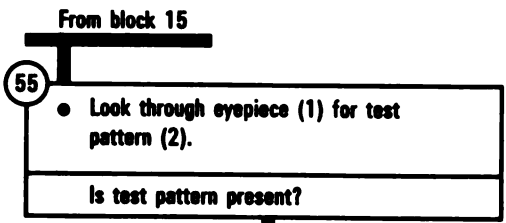
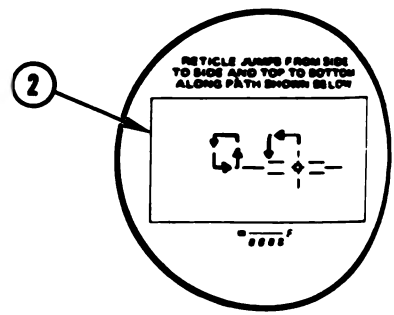
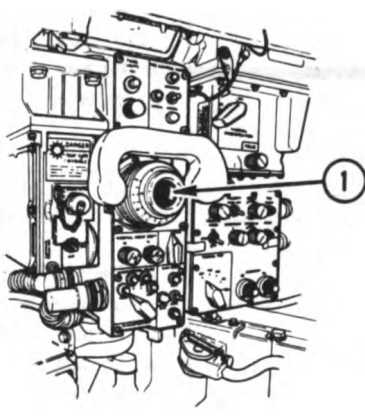
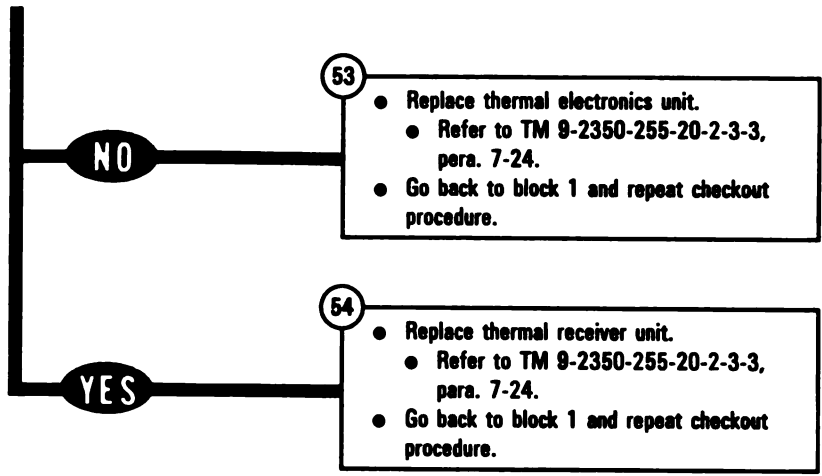


Figure 16-1 (Sheet 14 of 16)
Volume II
Para. 16-2

ARR82-6737

**TM 9-2350-255-20-2-2-2
CHECKOUT PROCEDURES**



*Figure 16-1 (Sheet 15 of 16)
Volume II
Para. 16-2*

ARR82-8738

From block 17

58

- Set UNIT TEST PATTERN switch (1) to TRU.
- Check FAULT light (2) after a 15 second delay.

Does FAULT light stay on?

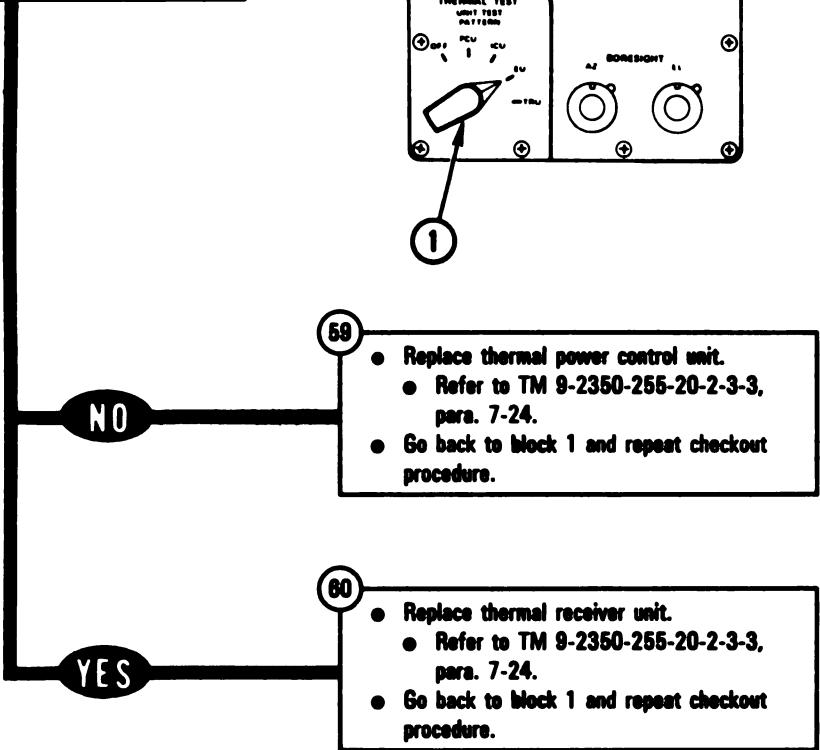
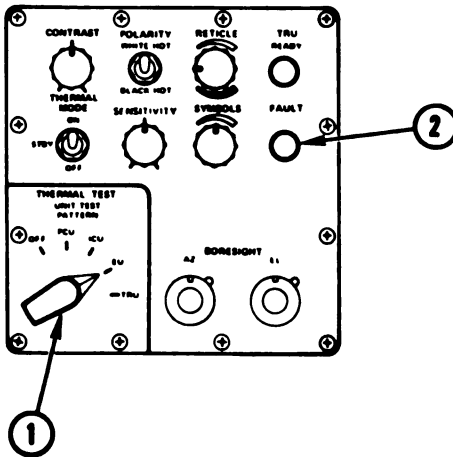


Figure 16-1 (Sheet 16 of 16)
Volume II
Para. 16-2

TM 9-2350-255-20-2-2-2
CHECKOUT PROCEDURES

16-3. Stabilization System Checkout Procedure.

STABILIZATION SYSTEM CHECKOUT

Test Equipment/Special Tools:

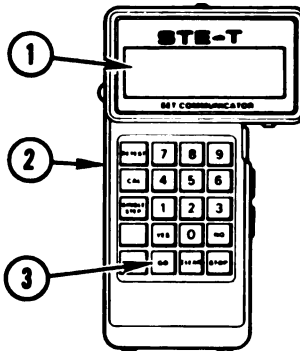
- STE-M1/FVS Test Set, 12322400
- Quadrant, gunner's, M1A1, 7197156

Equipment Condition:

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

NOTE

Read para. 16-1 before doing any work.



1

- Set up tank controls for standard initial test conditions.
 - Refer to para. 16-6, table 16-2.

2

- Prepare STE test set for operation.
 - See figure 15-3.

3

NOTE

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

- Enter test number 1400 on SETCOM (2).
- Press GO key (3).

NOTE

Display (1) shows -
TEST 1400
GENERAL STAB TEST

NOTE

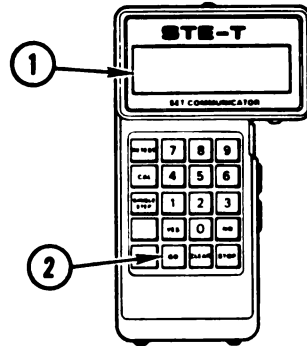
During this test, display (1) will show special instruction messages. Refer to TM 9-2350-255-20-2-2-1, figure 9-5, sheet 36, special instruction message index.

Figure 16-2 (Sheet 1 of 6)
Volume II
Para. 16-3

ARR82-6740

NOTE

- If display (1) shows a fault message any time during test, determine fault symptom. If there is no observable fault symptom, test set has measured an out-of-tolerance condition. Refer to TM 9-2350-255-20-2-2-1, figure 9-5, sheet 22, fault message index.
- Refer to Table A for meanings of abbreviations displayed on SETCOM.



- 4
- Press GO key (2).
 - Follow general (operating) instruction messages on display (1) before going to next block.

NOTE

Display (1) shows -
CONNECT CX205 TO
CIB AND TANK

- Connect CX205-P1 to CIB-J1.
 - See figure 16-3.
- Connect CX205-P2 to CIB-J2.
 - See figure 16-3.
- Connect CX205-P3 to CIB-J3.
 - See figure 16-3.
- Connect CX205-P4 to TEST 1 on turret networks box.
 - See figure 16-3.

- 6
- Connect CX205-P5 to TEST 2 on turret networks box.
 - See figure 16-3.
 - Connect CX205-P6 to J4 on gunner's primary sight.
 - See figure 16-3.
 - Connect CX205-P7 to J3 on line-of-sight electronics unit.
 - See figure 16-3.
 - Connect CX205-P8 to J4 on electronic unit.
 - See figure 16-3.

Table A

Abbreviation	Explanation
AZ	Azimuth
CB	Circuit breaker
CCP	Ballistics control panel
CCW	Counterclockwise
CW	Clockwise
ELEV	Elevation
EMER	Emergency
GPS	Gunner's primary sight
GCH	Gunner's control
GTD	Gun/turret drive
GNR	Gunner
LP	Loader's panel
MAG	Magnification
MECH	Mechanism
NORM	Normal
RET	Reticle
SBDS	SUBDES
SW	Switch
TCH	Commander's control
TCP	Commander's control panel
TNB	Turret networks box
TRIG	Trigger
VBLOW	Fan assembly
X WIND	Crosswind

TM 9-2350-255-20-2-2-2
CHECKOUT PROCEDURES

- 7
- Press GO key (1).
 - Follow general (operating) instruction messages on display (2) before going to next block.

- 8
- NOTE**
- Display (2) shows -
FIRE CONTROL MODE SW
CIRCUITS OK
- Press GO key (1).
 - Follow general (operating) instruction messages on display (2) before going to next block.

- 9
- NOTE**
- Display (2) shows -
NO FAULTS FOUND IN
LP GTD CONTROLS
- Press GO key (1).
 - Follow general (operating) instruction messages on display (2) before going to next block.

- 10
- NOTE**
- Display (2) shows -
NO FAULTS FOUND IN
TRAVERSE MECH SW
- Press GO key (1).
 - Follow general (operating) instruction messages on display (2) before going to next block.

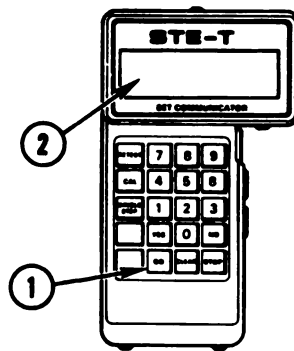


Figure 16-2 (Sheet 3 of 6)
Volume II
Para. 16-3

ARR82-6742

11

NOTE

Display (1) shows -
TEST ELEV NORMAL
MODE DRIFT?

- Press YES key (2).
- Follow general (operating) instruction messages on display (1) before going to next block.

12

NOTE

Display (1) shows -
DO YOU WANT TO TEST
SUPER ELEVATION?

- Press YES key (2).
- Follow general (operating) instruction messages on display (1) before going to next block.

13

NOTE

Display (1) shows -
DISCONNECT
1W103 <- -> VBLOW

- Disconnect 1W103-P2 from J1 on fan assembly.
- See figure 16-12.

14

- Press GO key (3).
- Follow general (operating) instruction messages on display (1) before going to next block.

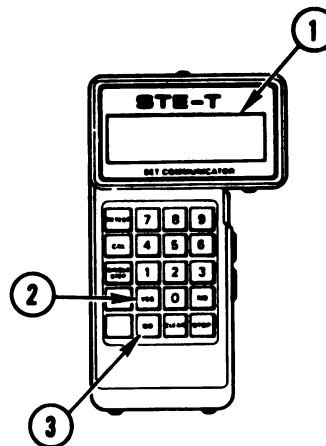


Figure 16-2 (Sheet 4 of 6)
Volume II
Para. 16-3

ARR82-8743

**TM 9-2350-255-20-2-2-2
CHECKOUT PROCEDURES**

15

NOTE

Display (1) shows -
DO YOU WANT TO TEST
FULL AZ FRICTION?

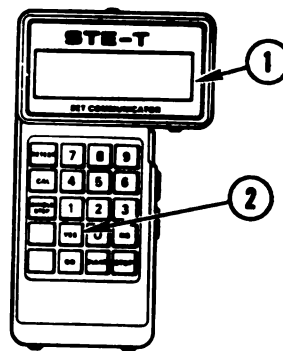
- Press YES key (2).
- Follow general (operating) instruction messages on display (1) before going to next block.

16

NOTE

Display (1) shows -
DO YOU WANT TO TEST
GYRO (PIVOT TEST)?

- Press YES key (2).
- Follow general (operating) instruction messages on display (1) before going to next block.



CAUTION

Secure STE equipment before doing lurch test.

17

NOTE

Display (1) shows -
DO YOU WANT TO TEST
GYRO (LURCH TEST)?

- Press YES key (2).

NOTE

When display on SETCOM shows -
STOP TANK HARD, service brake must
be pressed hard enough to cause tank
to rock when stopping.

*Figure 16-2 (Sheet 5 of 6)
Volume II
Para. 16-3*

ARR82-6744

18

- Follow general (operating) instruction messages on display (1) before going to next block.

19

NOTE

Display (1) shows -
STAB SYSTEM
TEST FINISHED

- Press GO key (2).

NOTE

Display (1) shows -
NO FAULTS FOUND

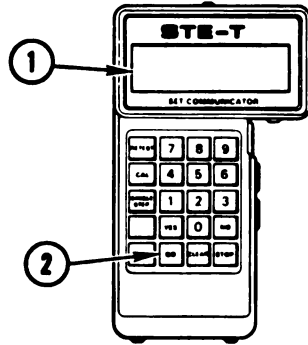
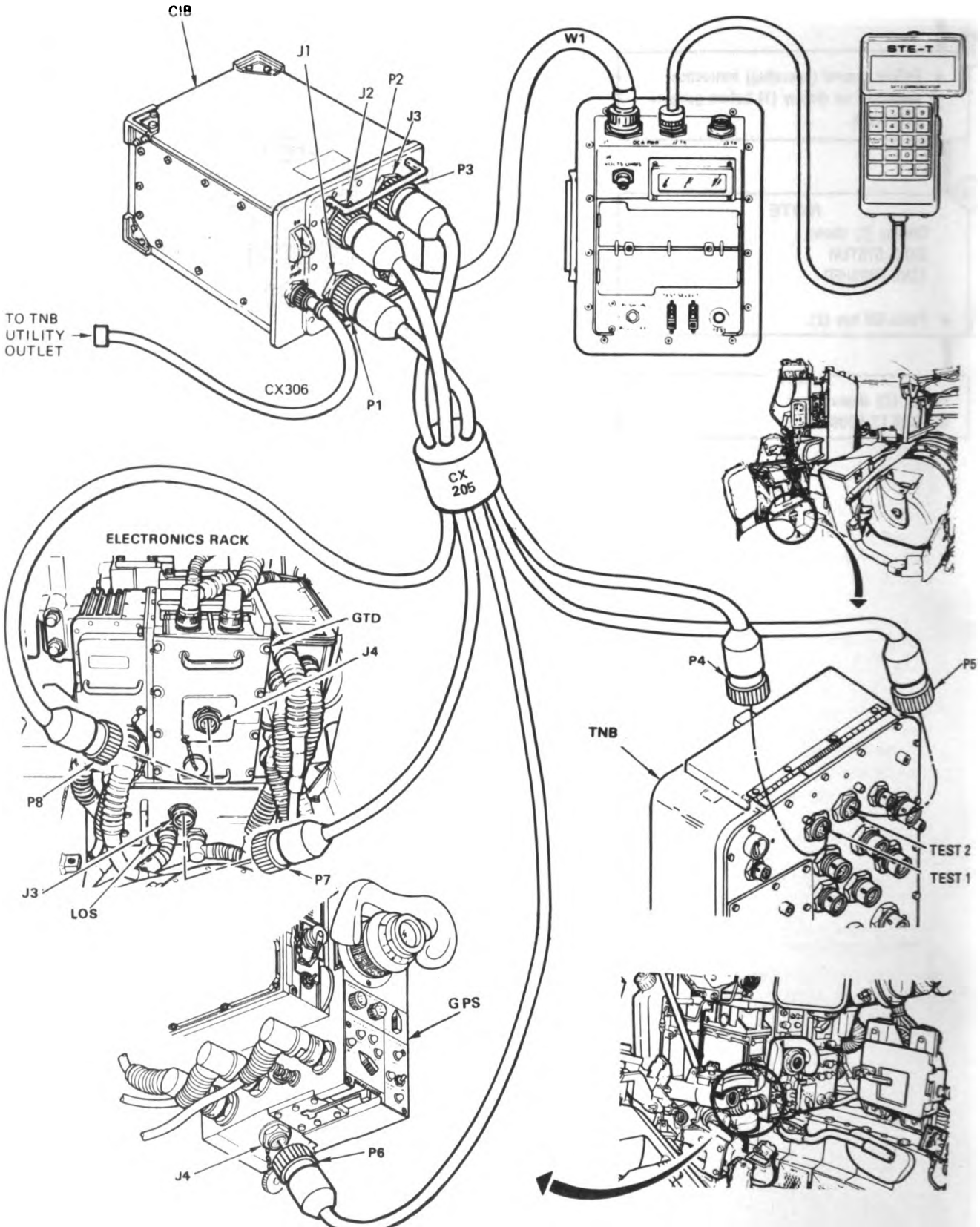


Figure 16-2 (Sheet 6 of 6)
Volume II
Para. 16-3

ARR82-6745

**TM 9-2350-255-20-2-2-2
CHECKOUT PROCEDURES**



**Figure 16-3. STE Turret Cable Hookup Between CIB and Tank
Volume II
Para. 16-3**

ARR82-6746

16-4. Turret System Connector Inspection Procedure.

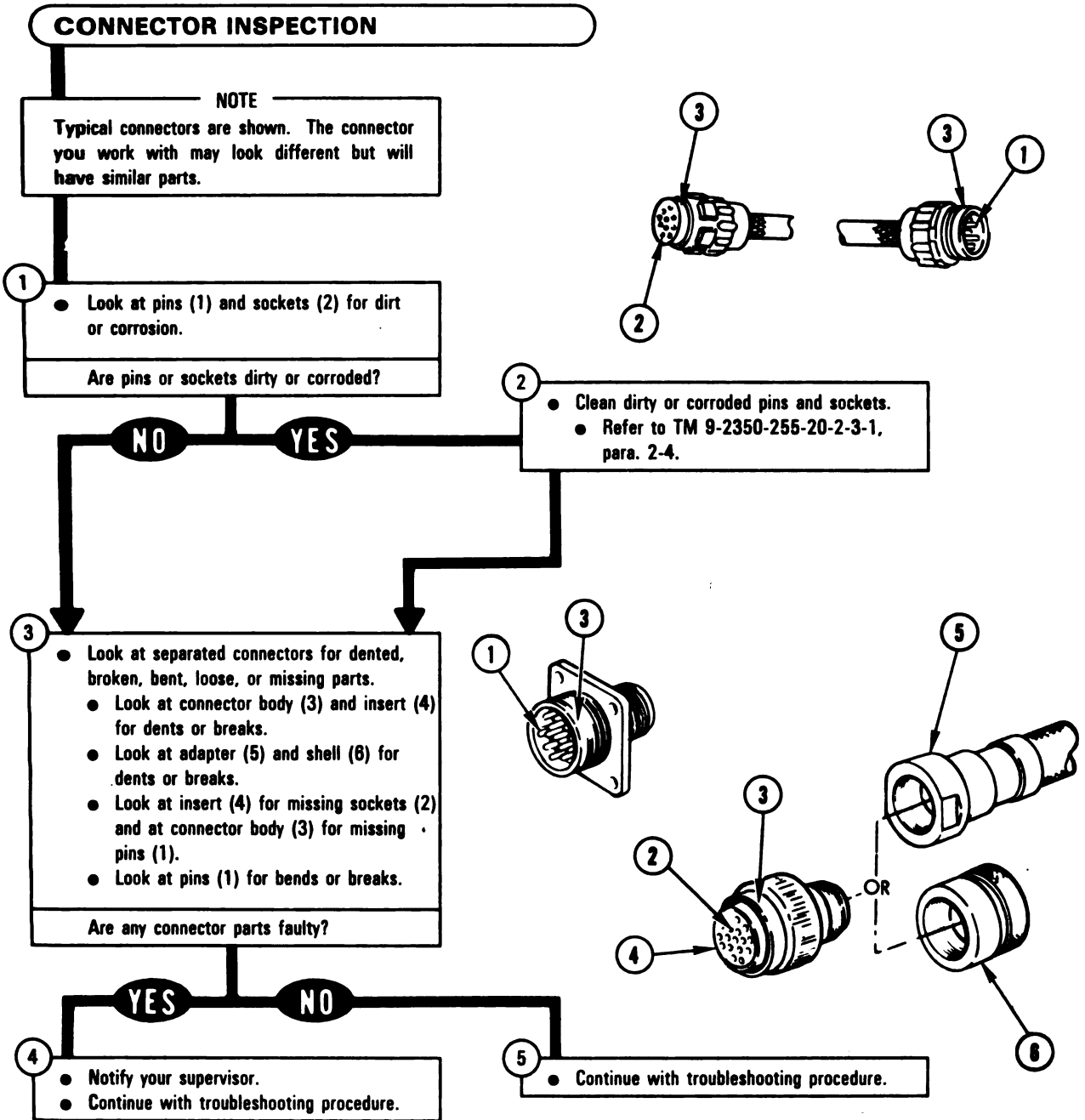
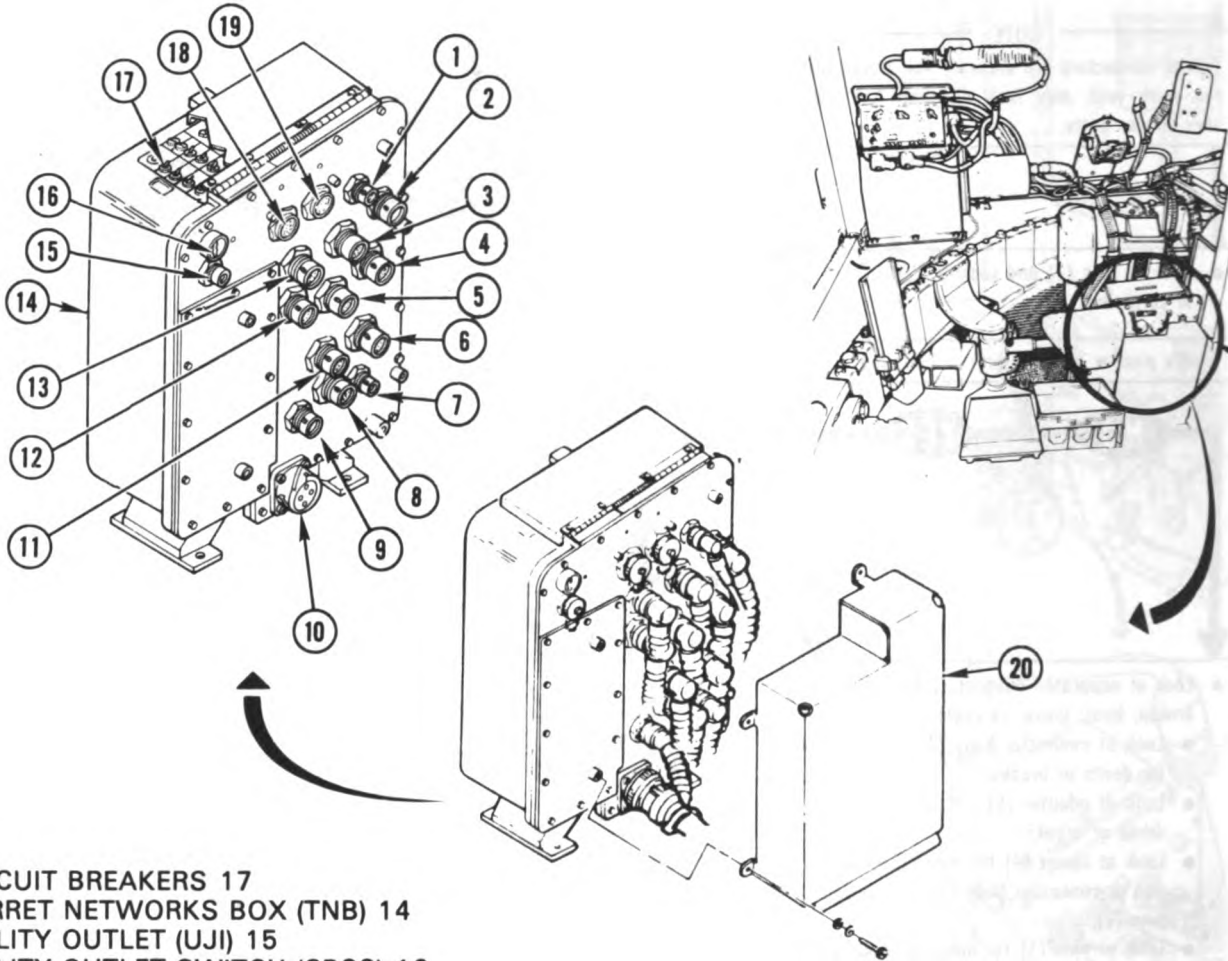


Figure 16-4
Volume II
Para. 16-4

ARR82-6747

16-5. 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 16-5 through figure 16-29. These tasks are required when troubleshooting the turret for loose vehicle harness connections and for identifying component locations during troubleshooting.



CIRCUIT BREAKERS 17
 TURRET NETWORKS BOX (TNB) 14
 UTILITY OUTLET (UJI) 15
 UTILITY OUTLET SWITCH (CB33) 16

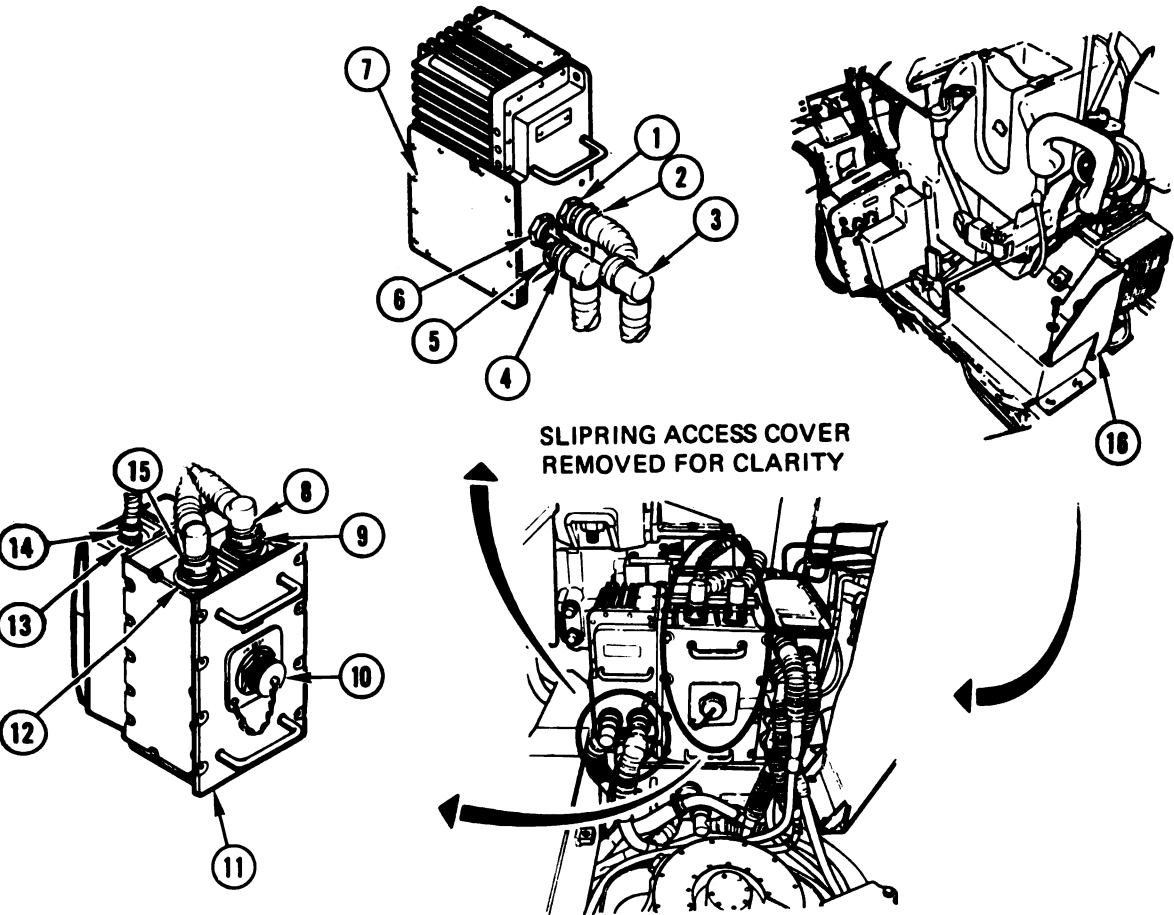
Harness Connector	Connects to	Item	Harness Connector	Connects to	Item
1W100-P5	TNB-J13	10	1W107-P1	TNB-J4	3
1W101-P2	TNB-J11	7	1W200-P1	TNB-J5	12
1W102-P1	TNB-J8	11	1W201-P1	TNB-J6	4
1W103-P1	TNB-J12	9	1W202-P1	TNB-J7	5
1W104-P1	TNB-J9	6	1W203-P1	TNB-J3	13
1W105-P1	TNB-J10	8	1W301-P1	TNB-J1	1
1W106-P1	TNB-J2	2		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 16-5. Turret System Component Location Diagrams
 Volume II
 Para. 16-5

ARR82-6748



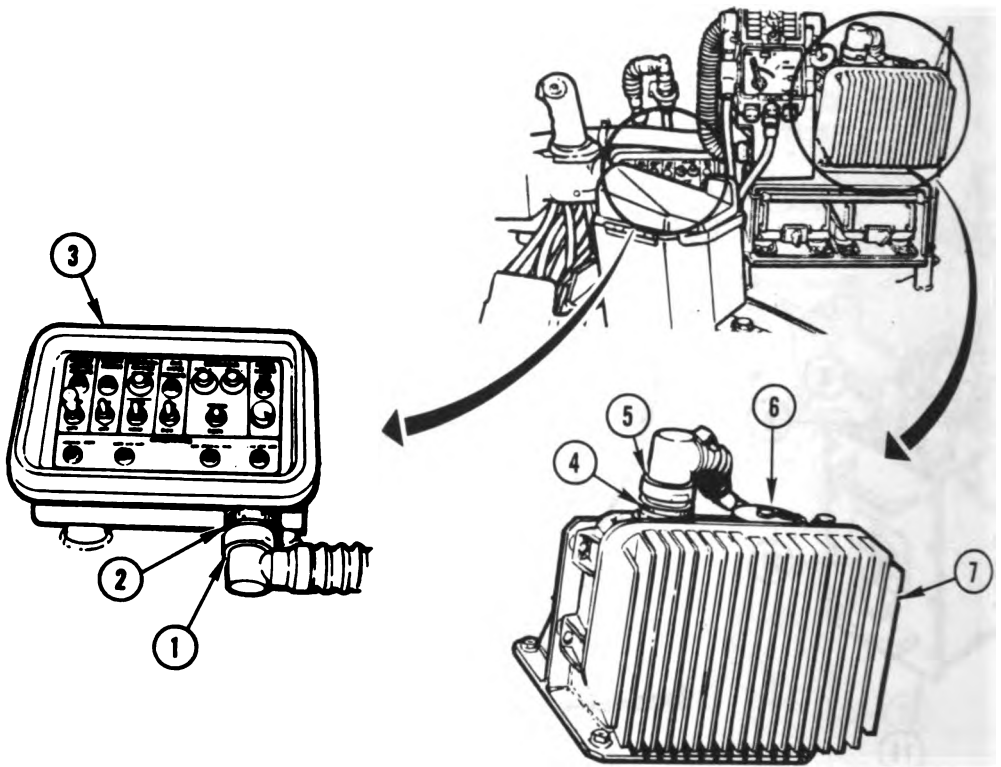
COMPUTER ELECTRONICS UNIT (CEU) 7
 ELECTRONIC UNIT (GTD) 11

Harness Connector	Item	Connects to	Item
W200-P2	14	GTD-J1	13
W200-P3	8	GTD-J2	9
W200-P4	15	GTD-J3	12
W201-P2	4	CEU-J1	5
W202-P2	3	CEU-J2	6
W204-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. Reinstall shield when troubleshooting is complete.

Figure 16-6. Turret System Component Location Diagrams
 Volume II
 Para. 16-5

ARR82-8749

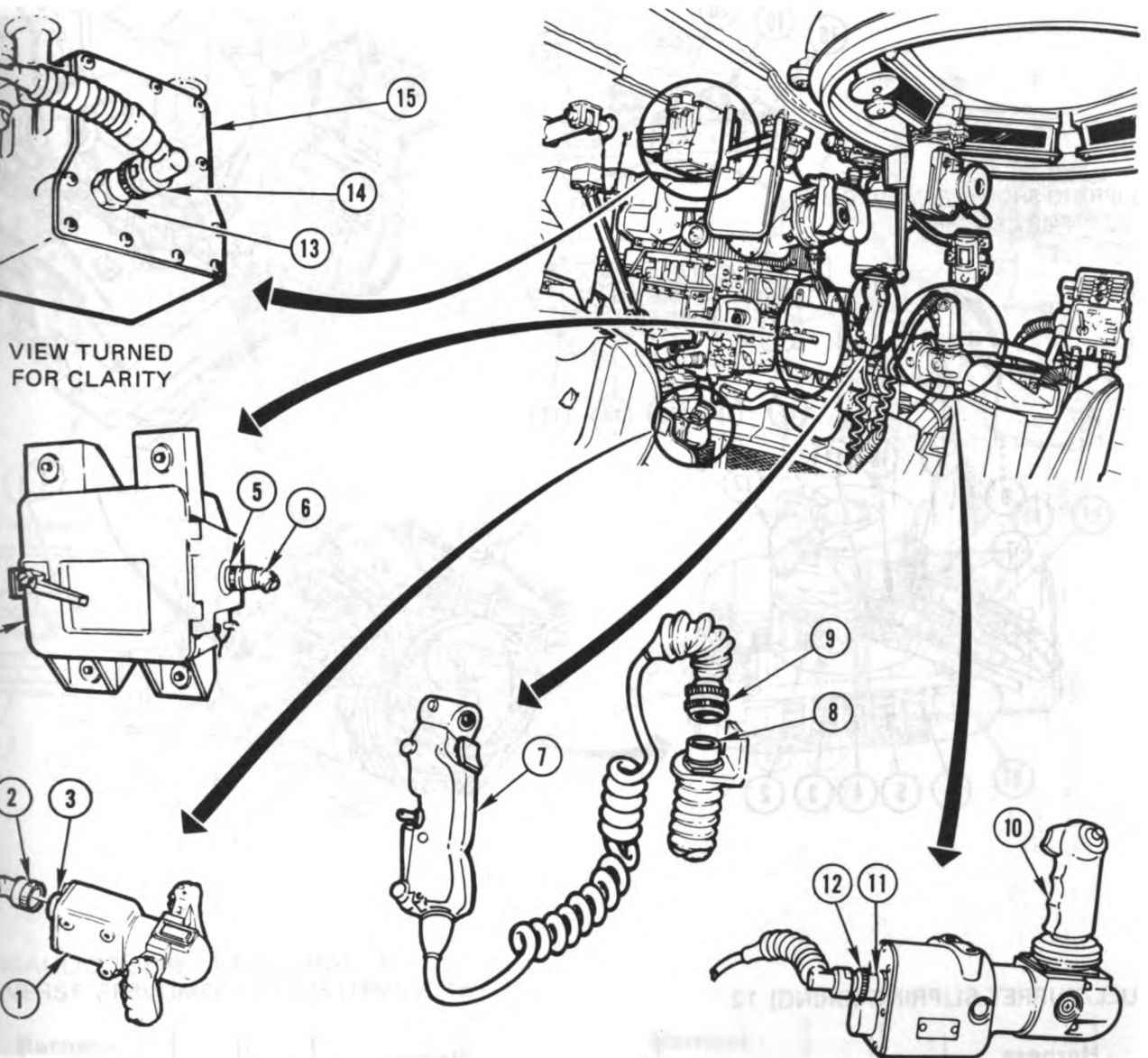


COMMANDER'S CONTROL PANEL (TCP) 3
POWER CONTROL UNIT (CWSPU) 7

Harness Connector	Item	Connects to	Item
1W102-P2	1	TCP-J1	2
1W105-P3	5	CWSPU-J1	4
		CWSPU-TJ1	6

Figure 16-7. Turret System Component Location Diagrams
Volume II
Para. 16-5

APR 24 75

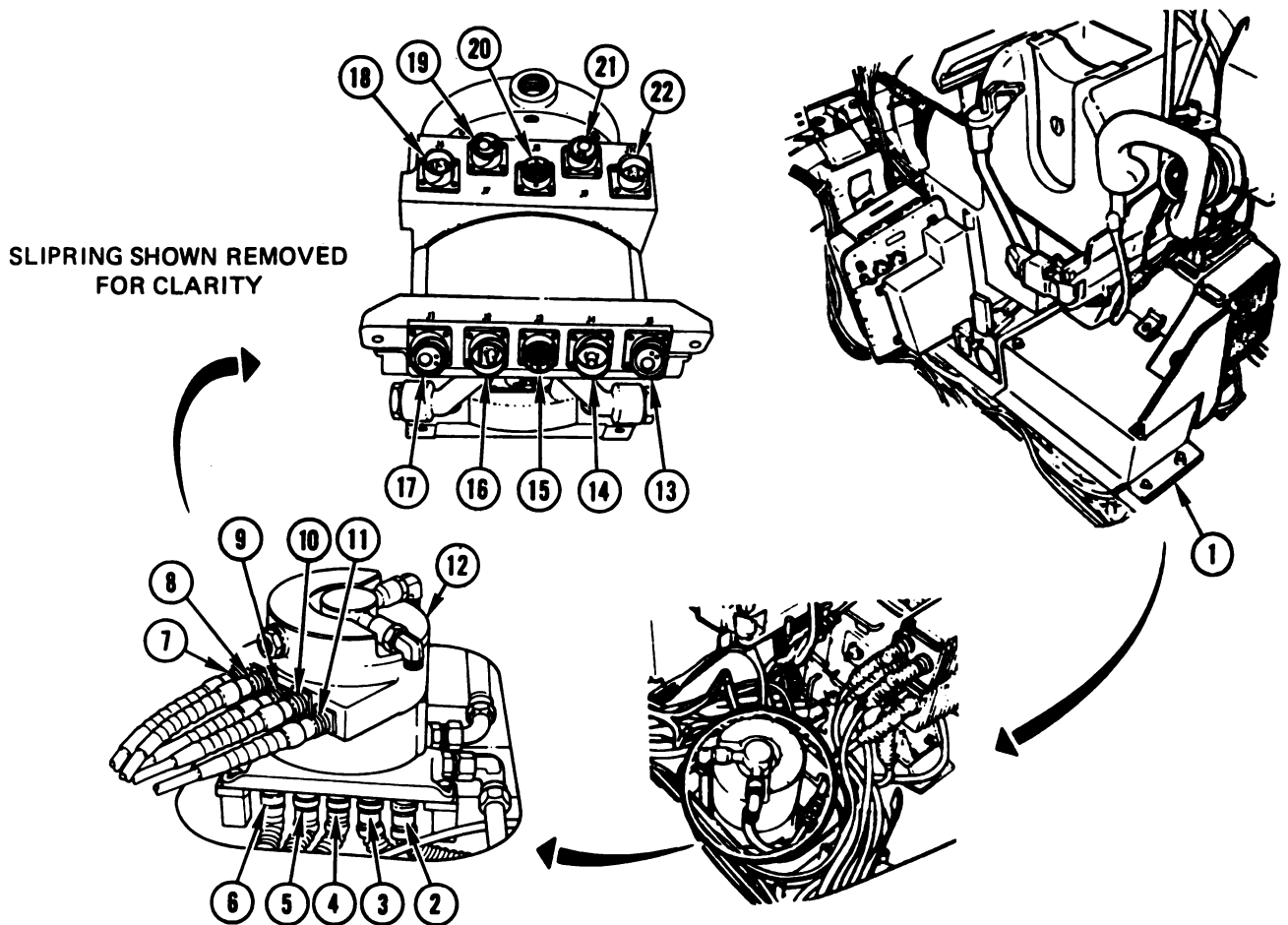


STATISTICS CONTROL PANEL (CCP) 4
 UNIT (CANT) 15
 COMMANDER'S CONTROL (TCH) 10
 COMMANDER'S POWER CONTROL HANDLE (1A231) 7
 COMMANDER'S CONTROL (GCH) 1

Harness Connector	Item	Connects to	Item
1A231-P1	9	1W105-J3	8
W200-P7	12	TCH-J1	11
W200-P8	2	GCH-J1	3
W202-P5	6	CCP-J1	5
W204-P3	14	CANT-J1	13

Figure 16-8. Turret System Component Location Diagrams
 Volume II
 Para. 16-5

ARR82-8751



HULL/TURRET SLIPRING (SRING) 12

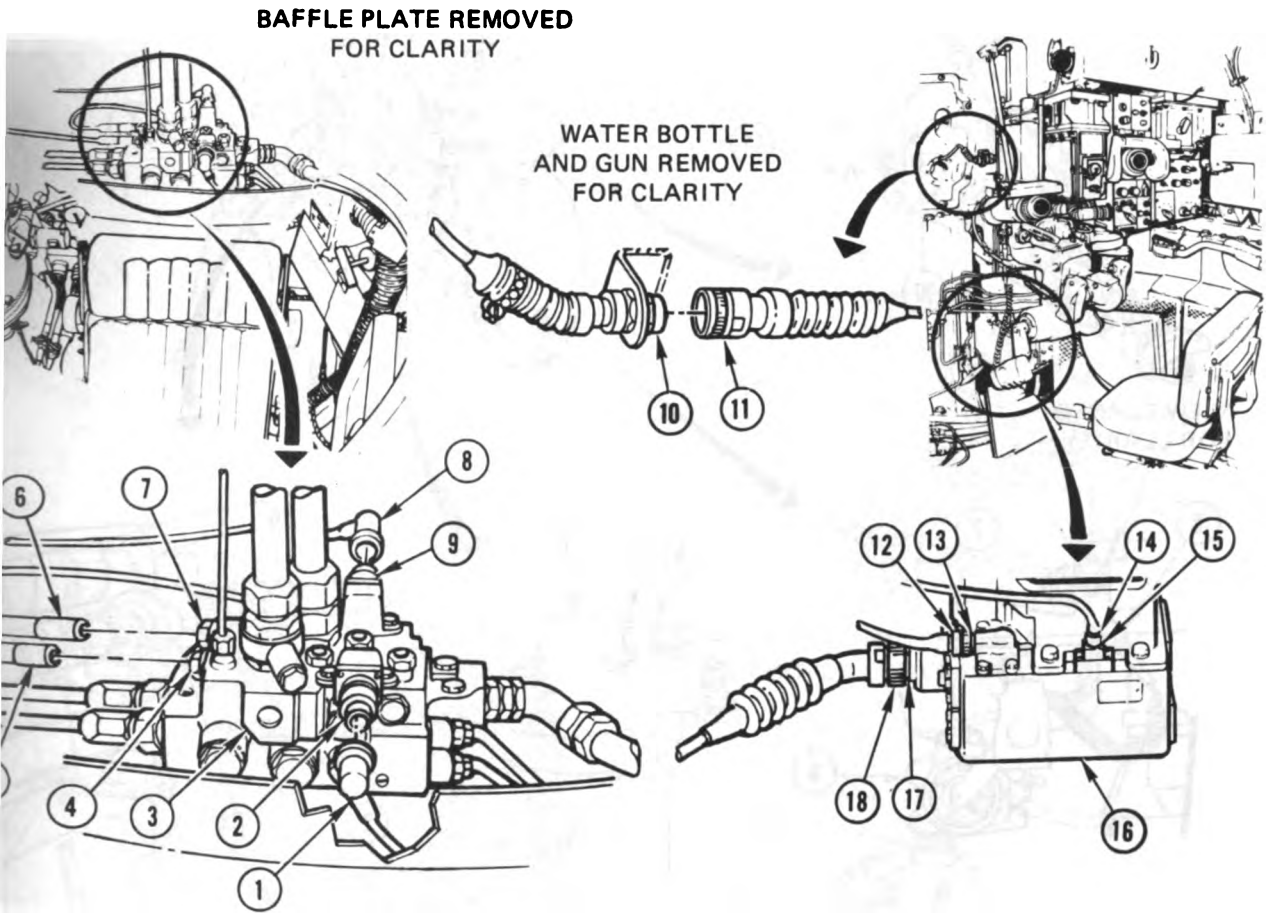
Harness Connector	Item	Connects to	Item	Harness Connector	Item	Connects to	Item
1W100-P1	7	SRING-J6	18	2W102-P2	6	SRING-J1	17
1W100-P2	11	SRING-J10	22	2W102-P3	5	SRING-J2	16
1W100-P3	10	SRING-J9	21	2W102-P4	3	SRING-J4	14
1W100-P4	8	SRING-J7	19	2W102-P5	2	SRING-J5	13
1W101-P1	9	SRING-J8	20	2W109-P1	4	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 16-9. Turret System Component Location Diagrams
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Para. 16-5

ARR82-6752



**RAULIC TURRET VALVE (HDV) 3
VERSE 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

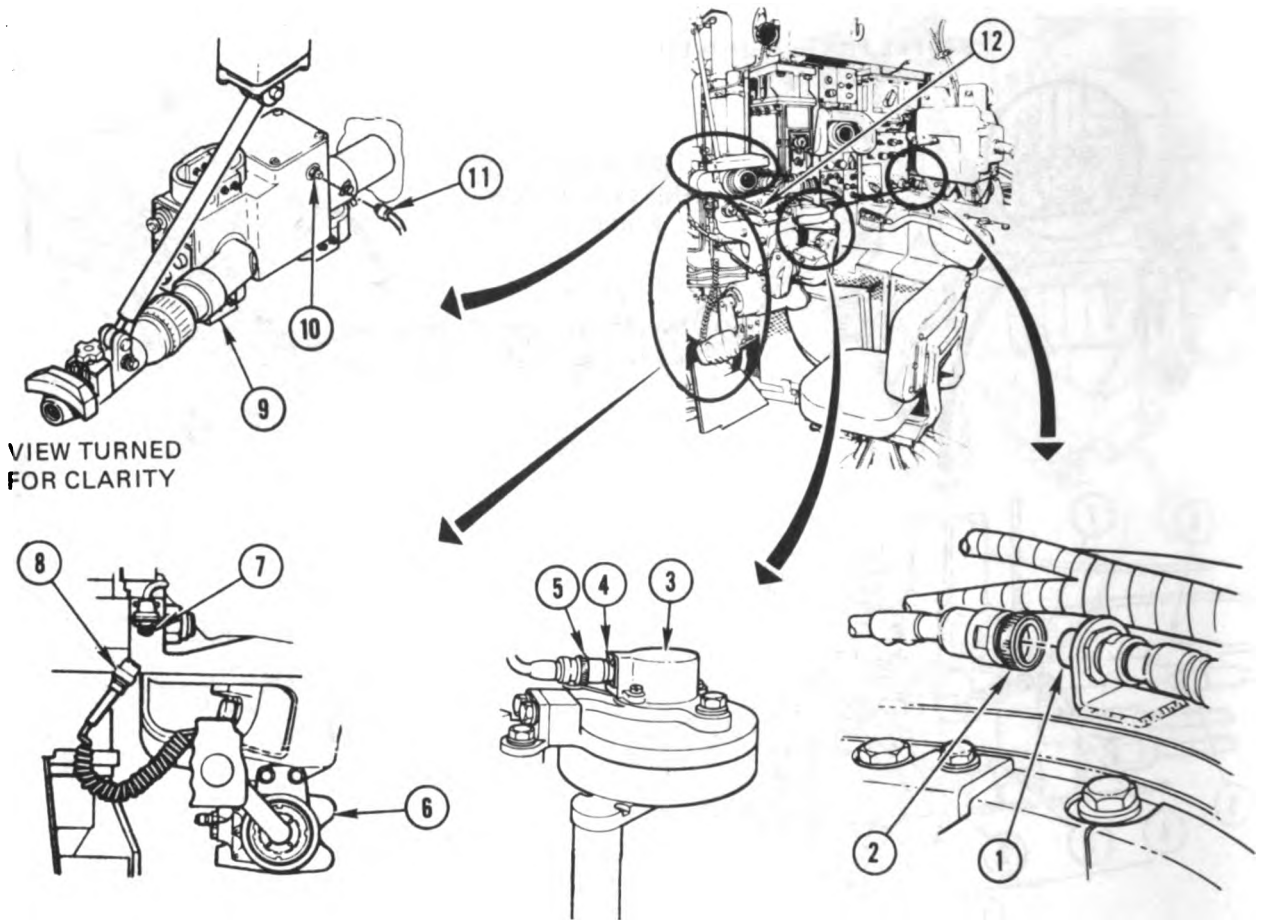
gain access to items 1 through 9 from driver's compartment:

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.
- all plate when troubleshooting is complete.

gain access to items 10 and 11, elevate main gun to maximum; refer to TM 9-2350-255-10.

Figure 16-10. Turret System Component Location Diagrams
Volume II
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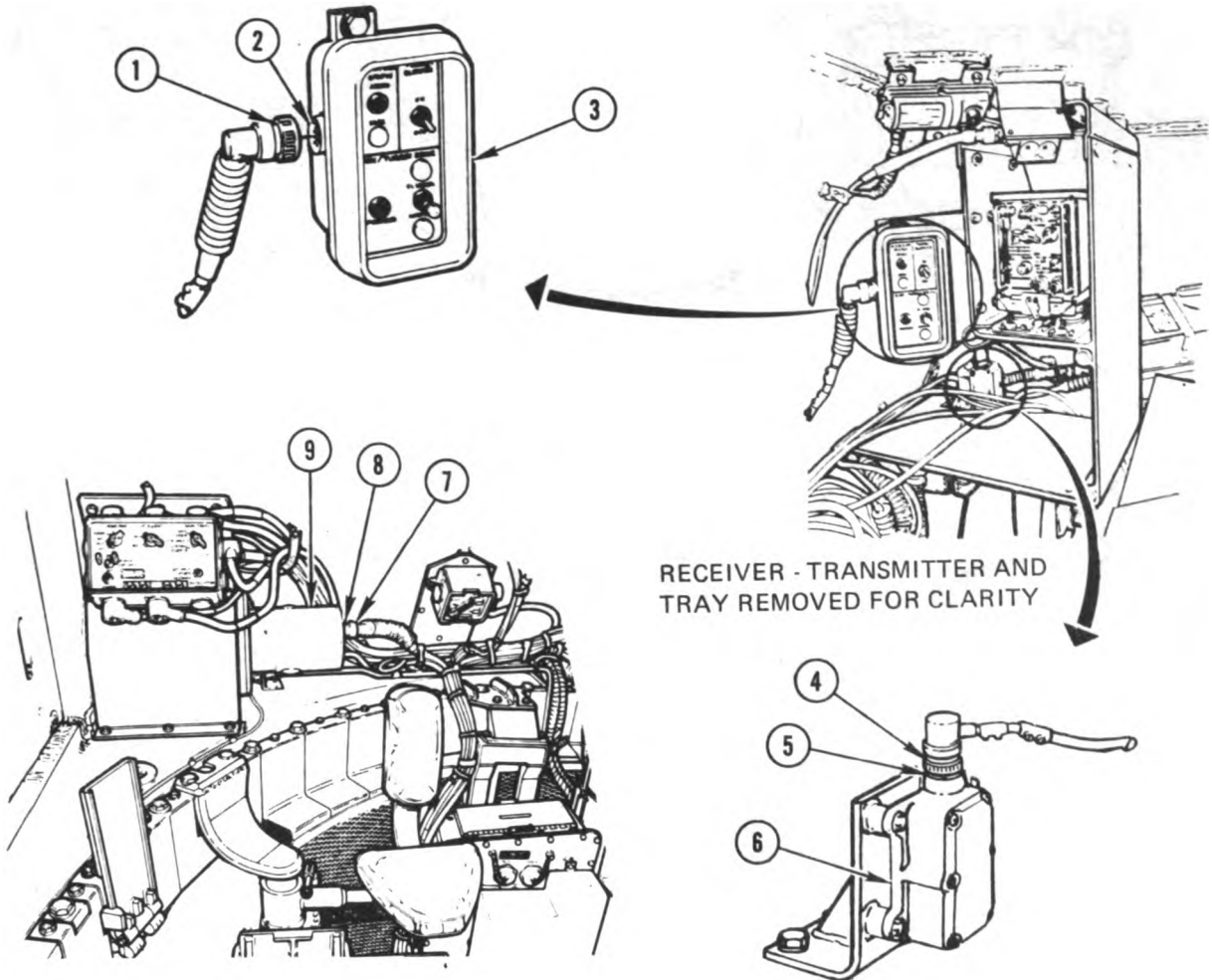
ARR82-8753



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 16-11. Turret System Component Location Diagrams
 Volume II
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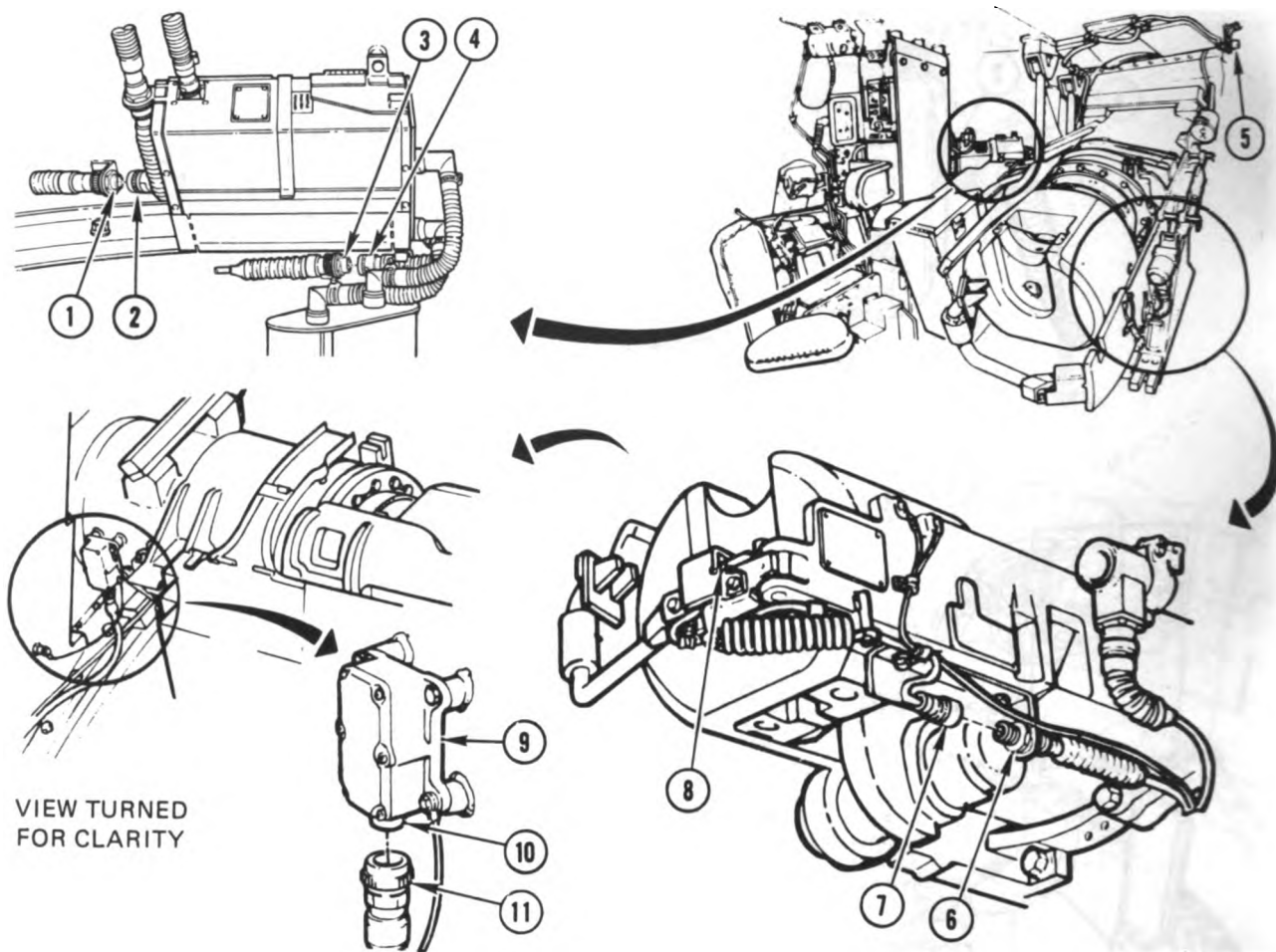
RECEIVER - TRANSMITTER AND TRAY REMOVED FOR CLARITY

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 16-12. Turret System Component Location Diagrams
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ARR82-6755



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

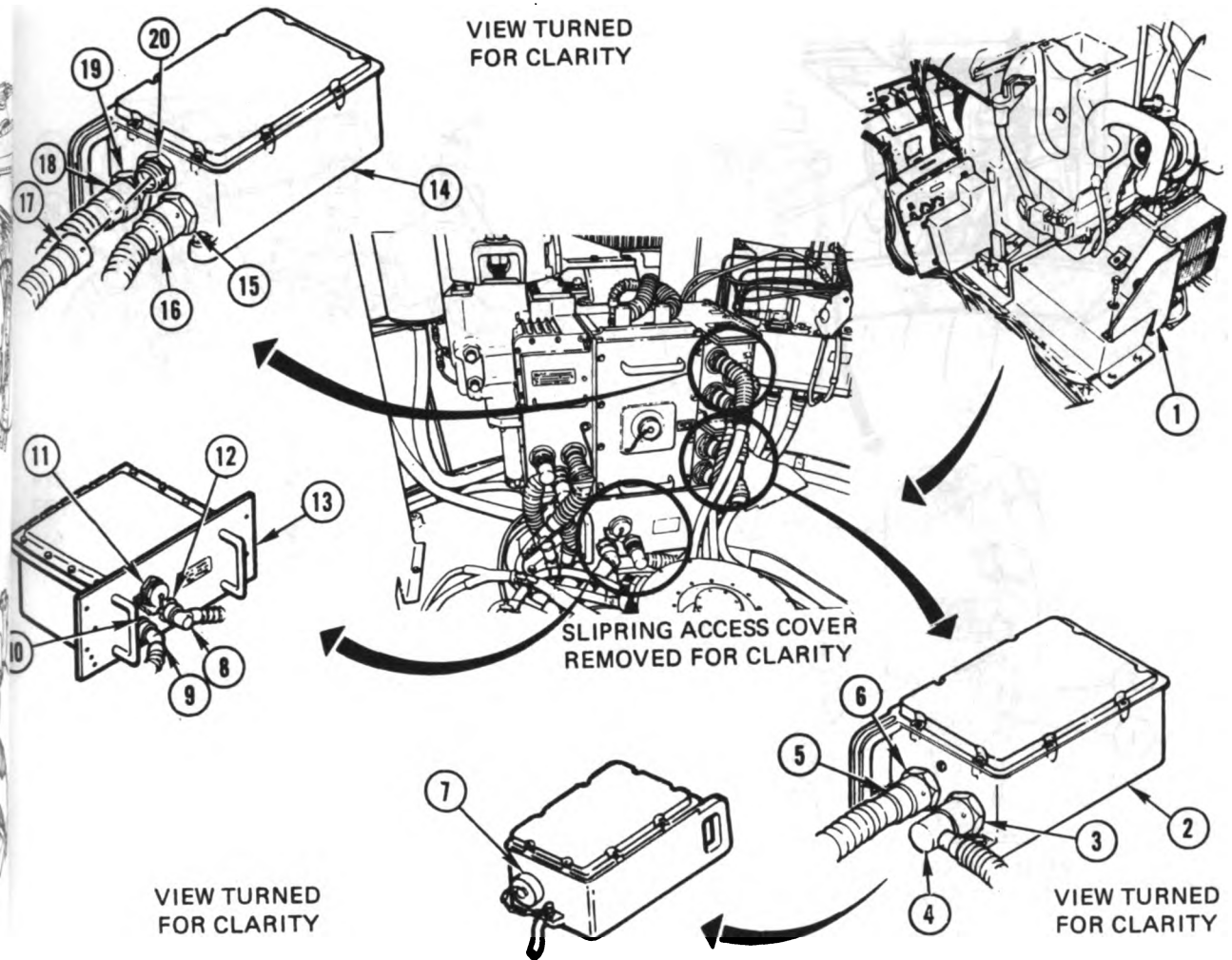
To gain access to items 1 through 4, 9, 10, and 11 from driver's compartment:

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 16-13. Turret System Component Location Diagrams
 Volume II
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ARR82-6756



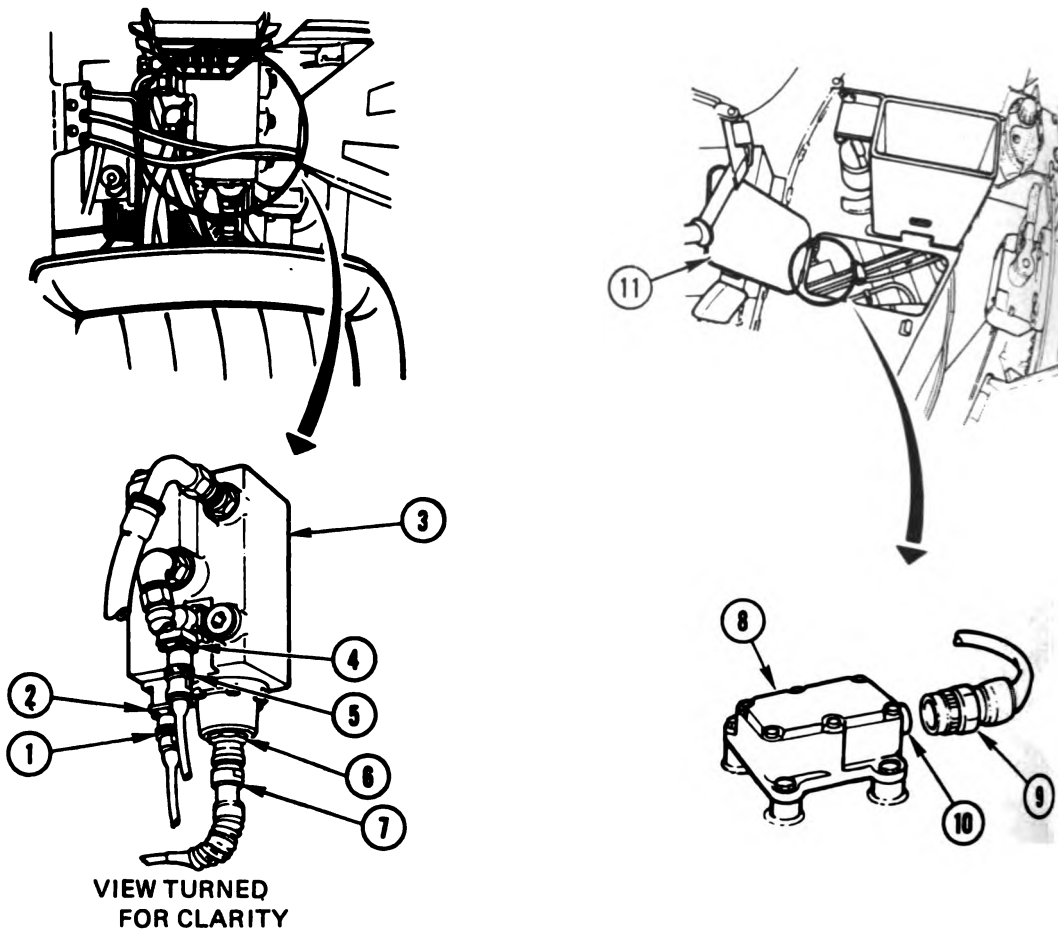
LINE-OF-SIGHT ELECTRONICS UNIT (LOS) 13
 THERMAL ELECTRONICS UNIT (TEU) 2
 THERMAL POWER CONTROL UNIT (TPCU) 14

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 16-14. Turret System Component Location Diagrams
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 Para. 16-5

ARR82-8757



**ELEVATION SERVOMECHANISM (ELSVO) 3
HULL 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

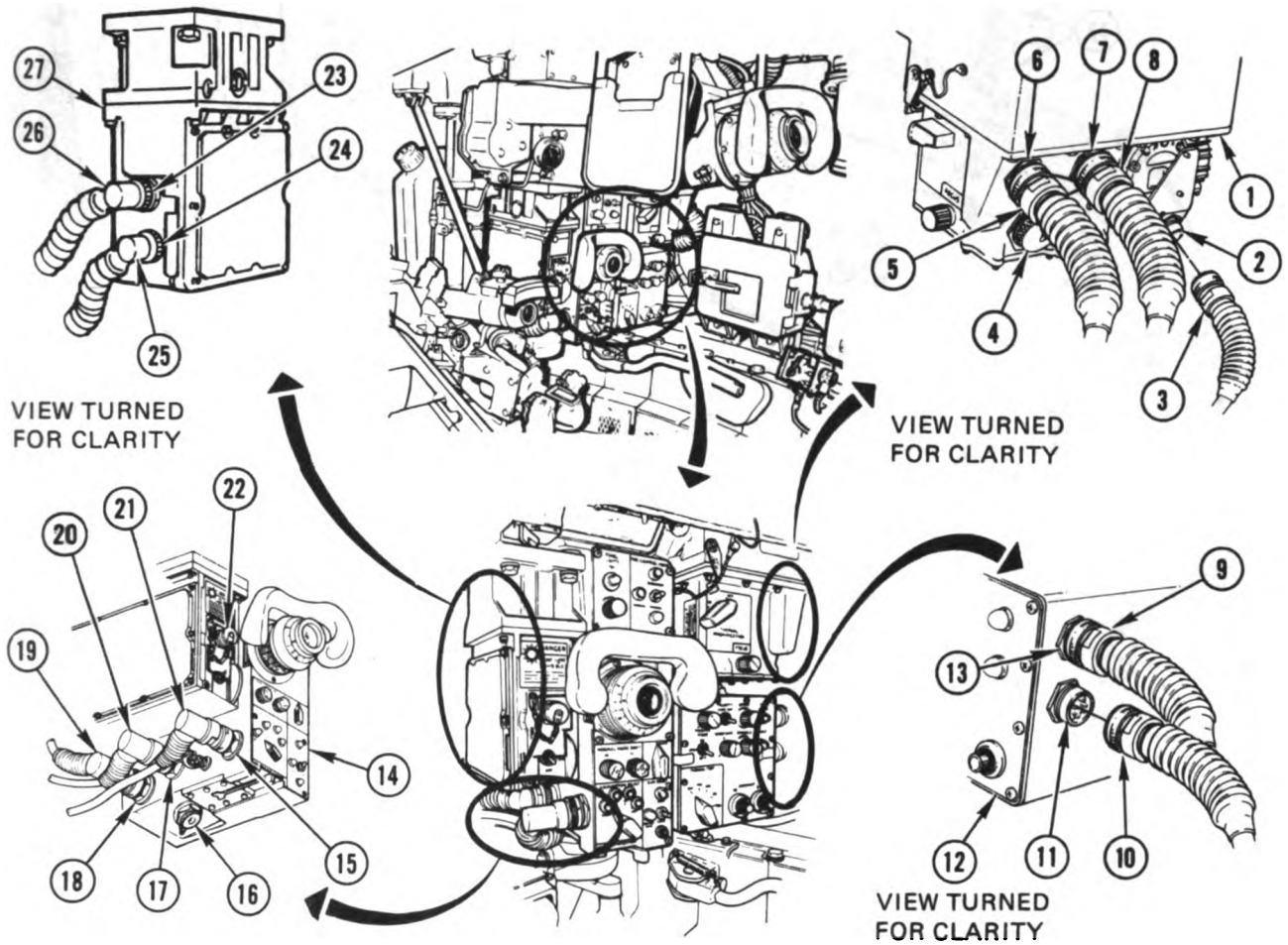
To gain access to items 1 through 7 from driver's compartment:

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 16-15. Turret System Component Location Diagrams
Volume II
Para. 16-5*



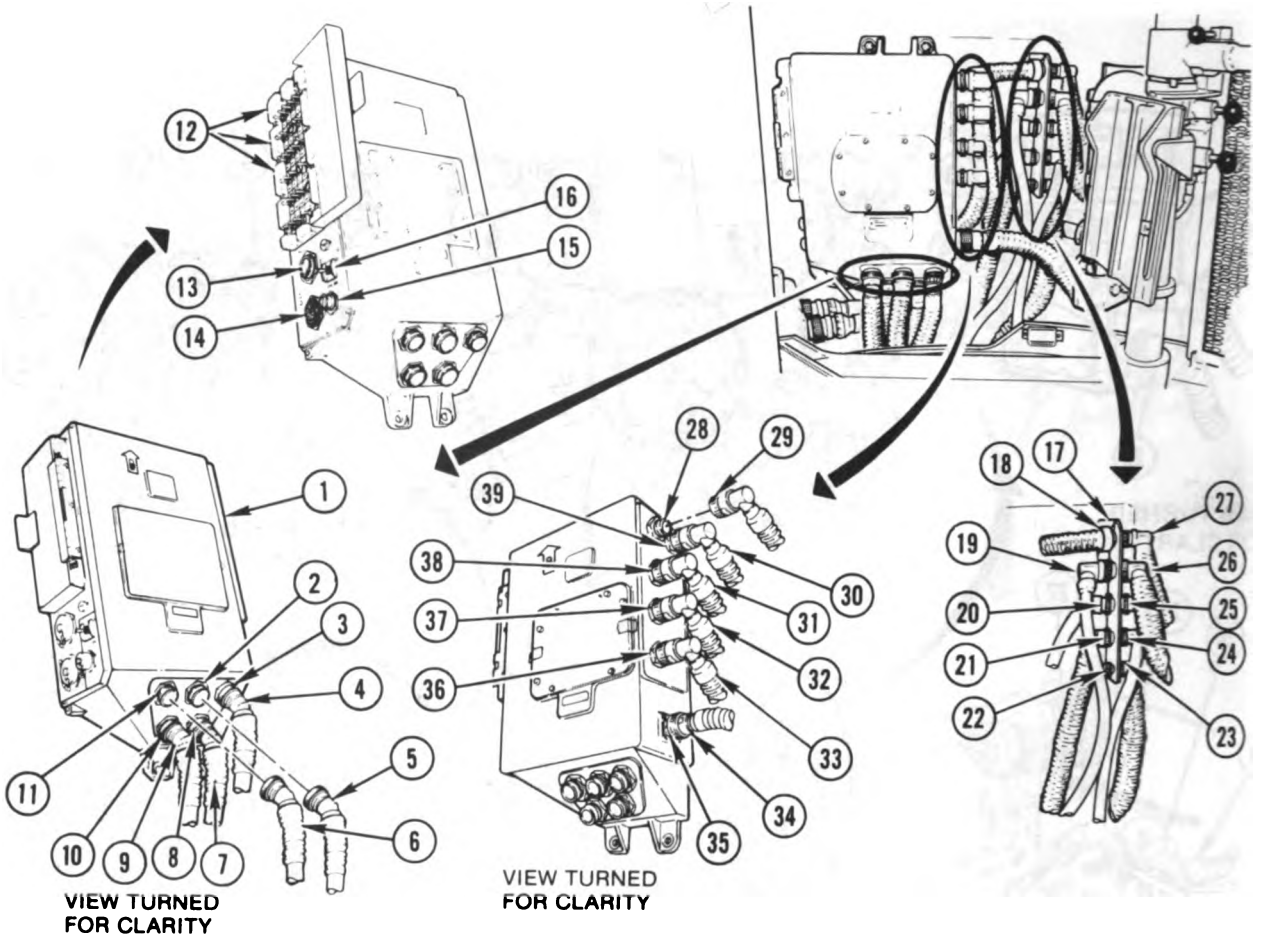
GUNNER'S PRIMARY SIGHT (GPS) 14
 IMAGE CONTROL UNIT (ICU) 12
 LASER RANGEFINDER (LRF) 27
 THERMAL RECEIVER UNIT (TRU) 1

Harness Connector	Item	Connects to	Item
1W104-P2	21	GPS-J3	15
1W203-P2	19	GPS-J1	18
1W203-P3	25	LRF-J1	24
1W204-P2	26	LRF-J2	23
1W206-P2	20	GPS-J2	17
1W208-P2	9	ICU-J1	13

Harness Connector	Item	Connects to	Item
1W209-P2	8	TRU-J2	7
1W209-P3	10	ICU-J2	11
1W210-P2	5	TRU-J1	6
1W210-P3	3	TRU-J4	2
		GPS-J4	16
		LRF-J3	22
		TRU-J3	4

Figure 16-16. Turret System Component Location Diagrams
 Volume II
 Para. 16-5

ARR82-8759



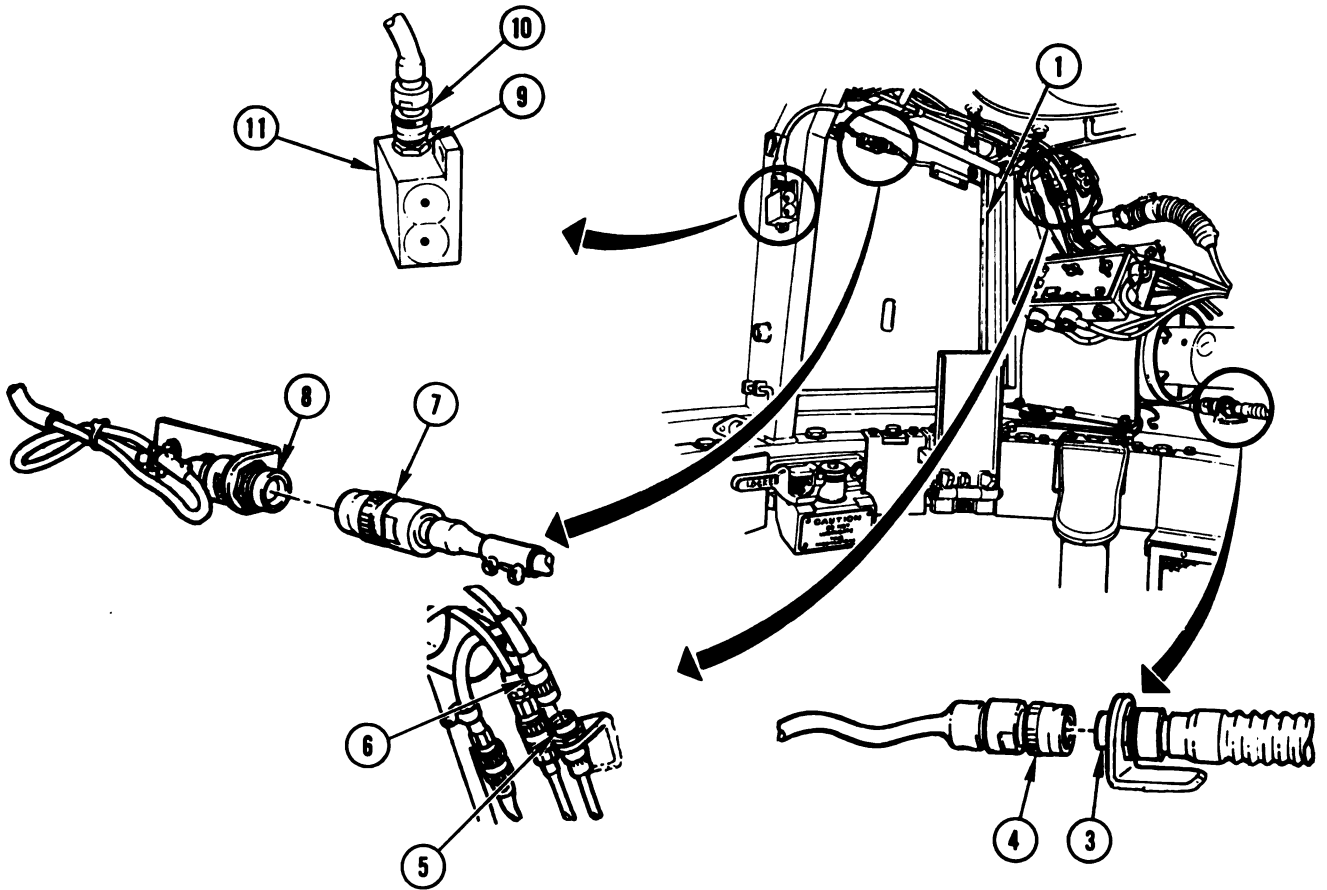
- CABLE JUNCTION BRACKET 17
- CIRCUIT BREAKERS 12
- HULL NETWORKS BOX (HNB) 1
- UTILITY OUTLET (UJ1) 15
- UTILITY OUTLET SWITCH (CB-30) 16

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 16-17. Turret System Component Location Diagrams
Volume II
Para. 16-5

ARR82-6760

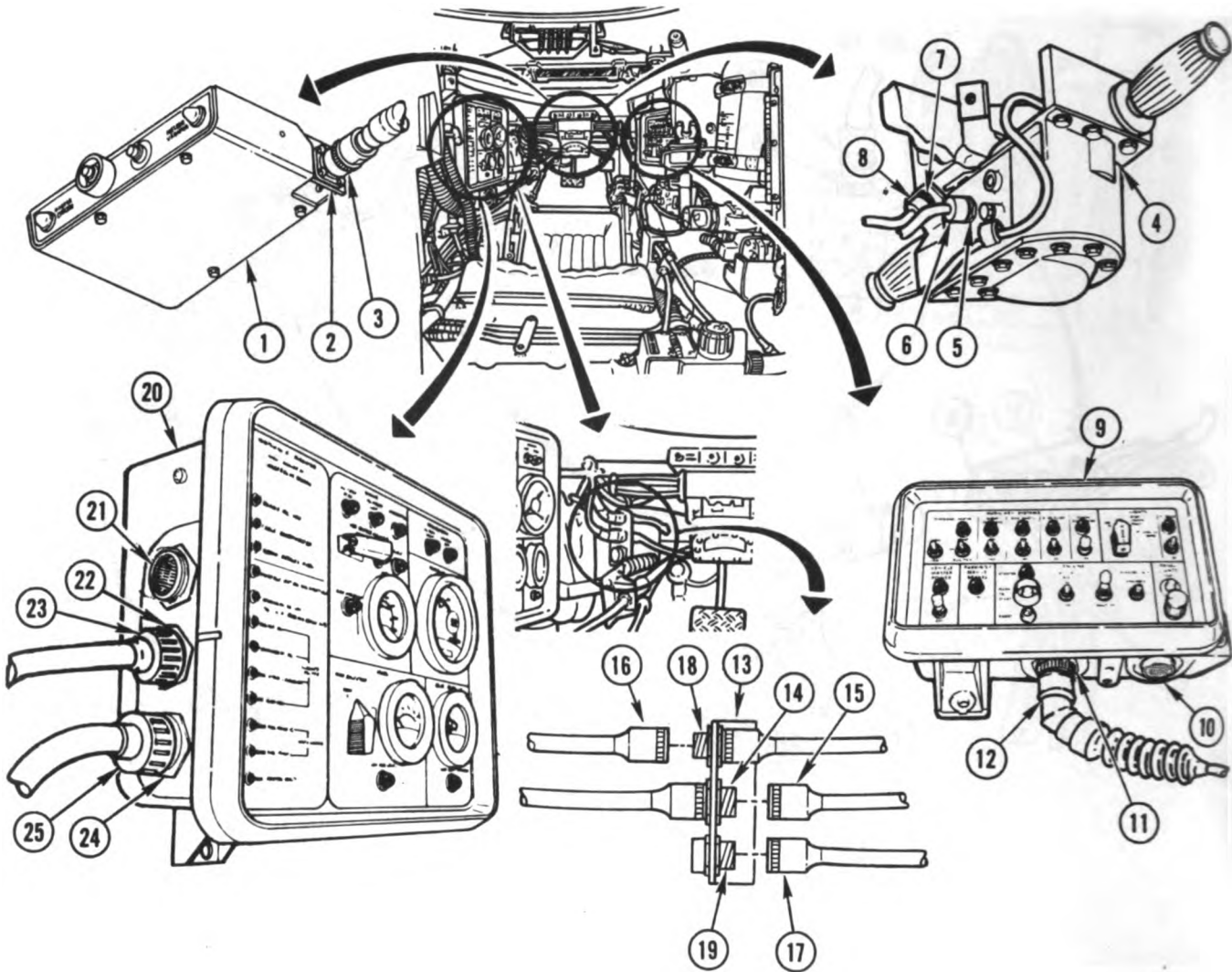


CREW CFIRE SENSOR (CFIRE) 11
 LOADER'S KNEE SWITCH (1S101) 2
 READY AMMUNITION DOOR SAFETY SWITCH (1S104) 1

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 16-18. Turret System Component Location Diagrams
 Volume II
 Para. 16-5

ARR82-8761

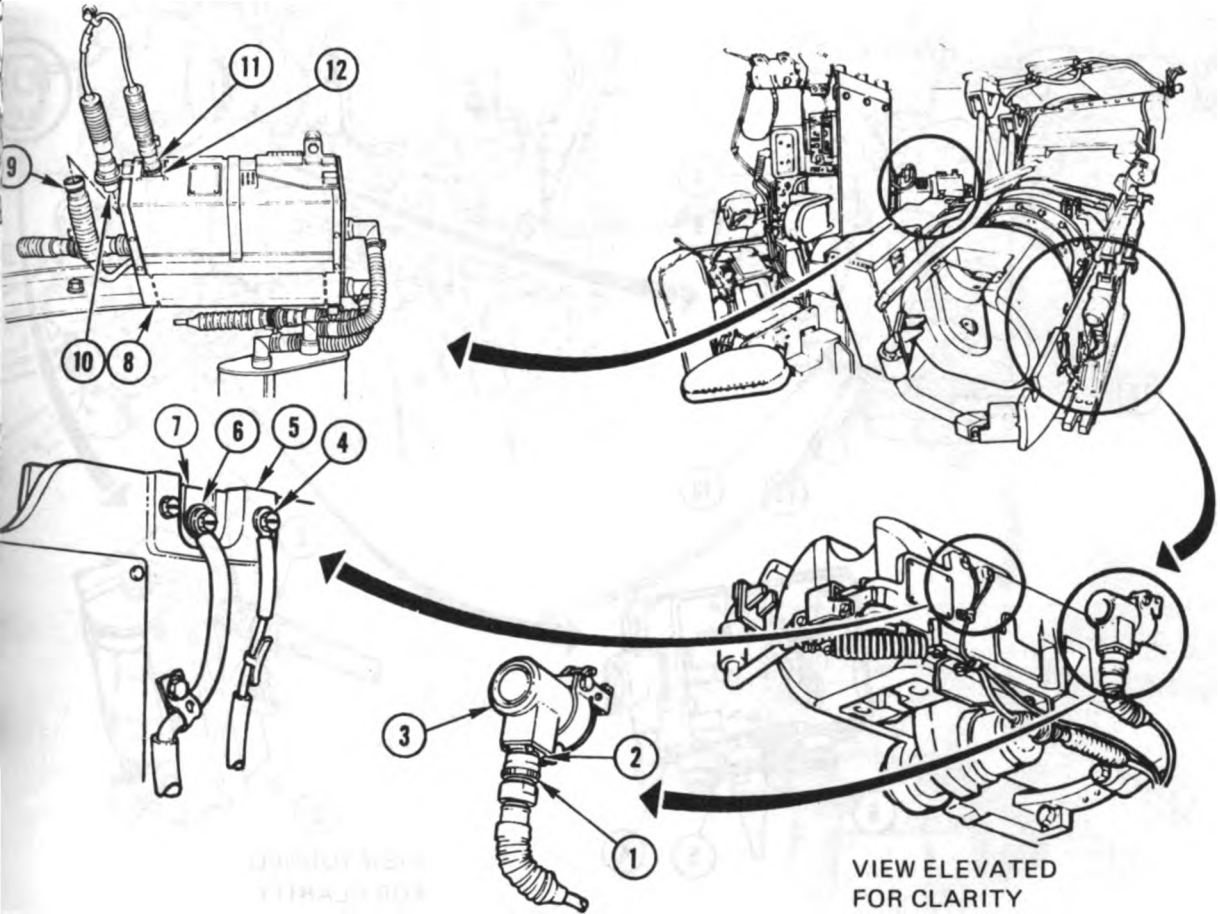


- DRIVER'S ALERT PANEL (DAP) 1
- DRIVER'S COMPARTMENT BRACKET ASSEMBLY 13
- DRIVER'S INSTRUMENT PANEL (DIP) 20
- DRIVER'S MASTER PANEL (DMP) 9
- SHIFT CONTROL ASSEMBLY/THROTTLE STEERING ASSEMBLY (SHIFT) 4

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 16-19. Turret System Component Location Diagrams
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ARR82-6762



ELECTRICAL SOLENOID (COAXS) 3
 ELECTRICAL CONTACT (GUNC +) 7
 CLEANER AND PARTICULATE FILTER ASSEMBLY (GPFLT) 8
 GUN BRACKET CONTACT (GUNC -) 5

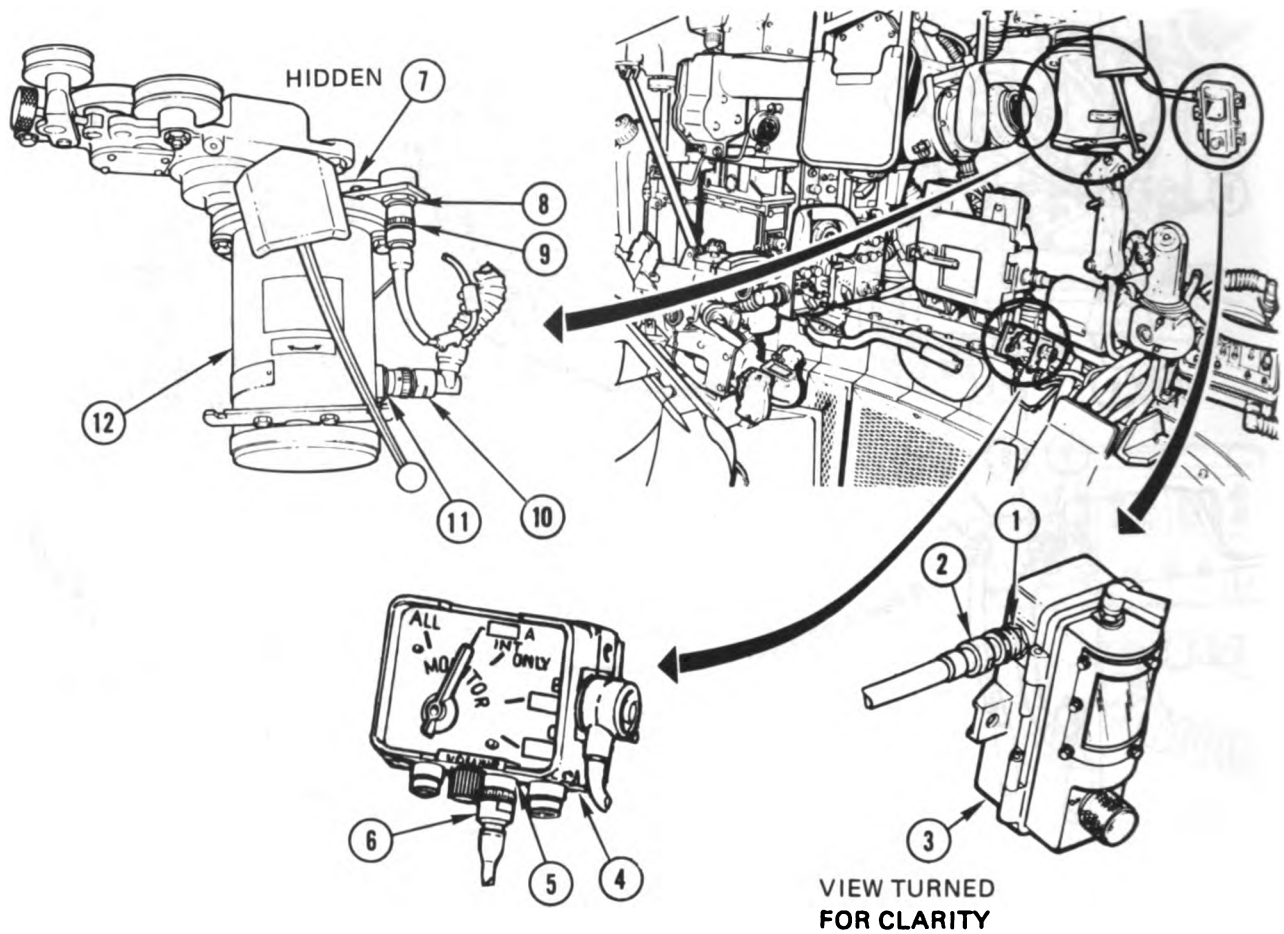
Wiring Harness Connector	Item	Connects to	Item
V107-P3	9	1W107-2-J1	10
V107-2-P1	11	GPFLT-J1	12
V108-E1(-)	4	GUNC (-)	5
V108-E2(+)	6	GUNC (+)	7
V108-P3	1	COAXS-J1	2

To gain access to items 8 through 12, raise main gun to maximum; see TM 9-2350-255-10.

To connect or connect items 4 and 6, use flat tip screwdriver.

Figure 16-20. Turret System Component Location Diagrams
 Volume II
 Para. 16-5

ARR82-8763

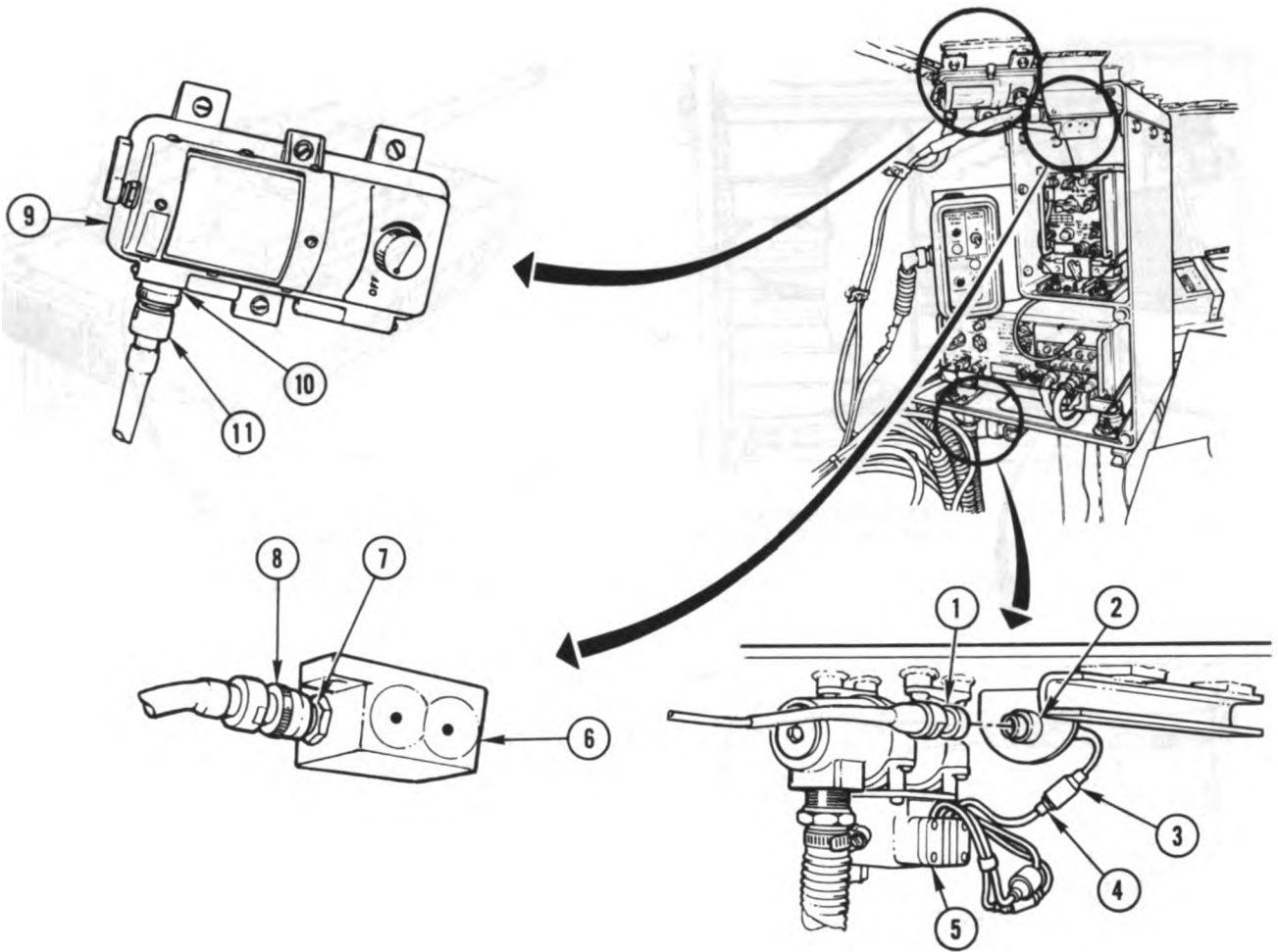


COMMANDER'S DOMELIGHT (CDOME) 3
 GEARBOX SWITCH (1S230) 7
 GUNNER'S INTERCOM CONTROL BOX (GINT) 4
 MOTOR/BRAKE (CWSMB) 12

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 16-21. Turret System Component Location Diagrams
 Volume II
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ARR82-8764

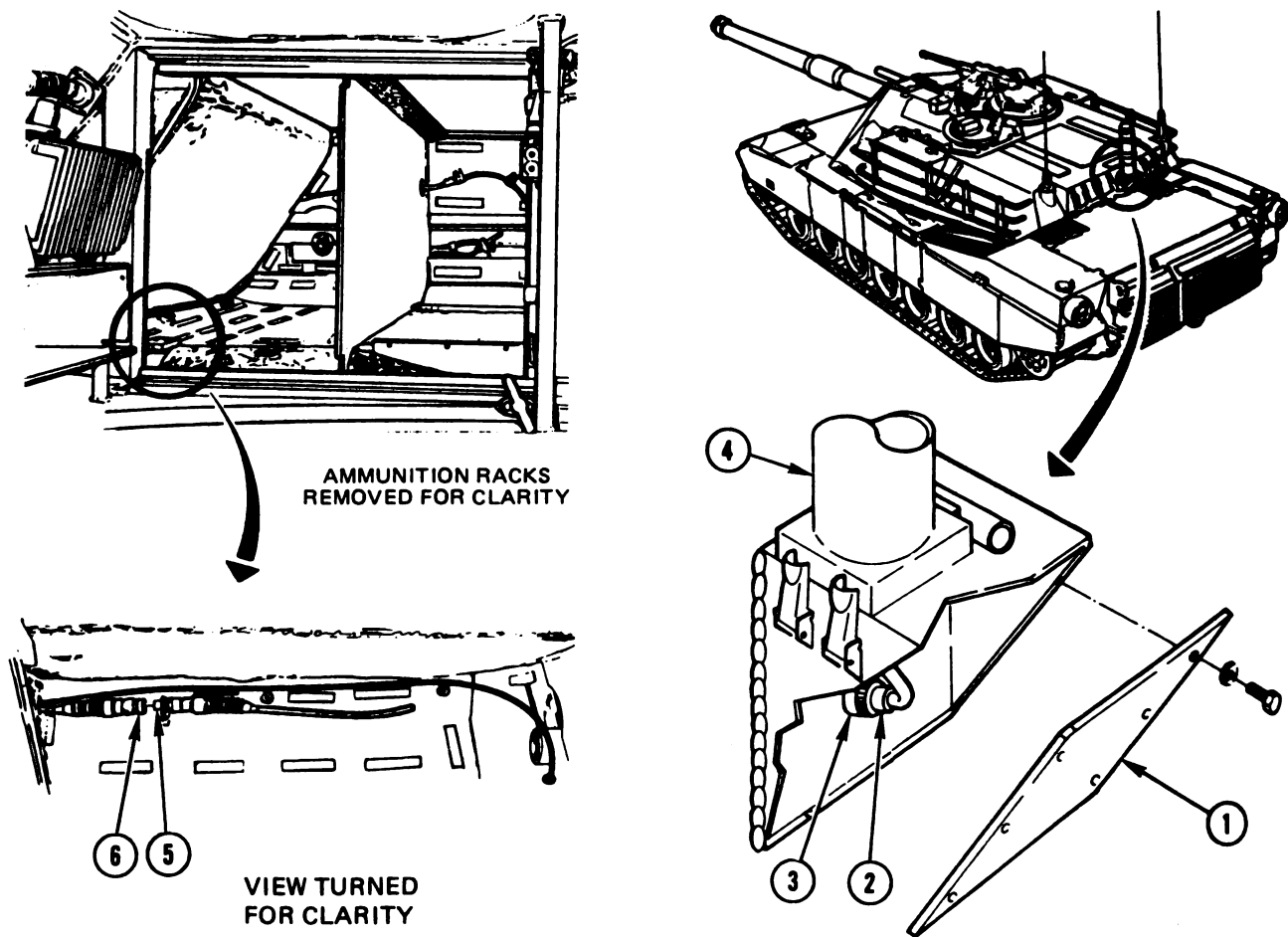


CREW RFIRE SENSOR (RFIRE) 6
 LOADER'S DOMELIGHT (LDOME) 9
 LOADER'S HEATER (NBCHL) 5

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 16-22. Turret System Component Location Diagrams
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ARR82-6765



CROSSWIND SENSOR (1A253) 4

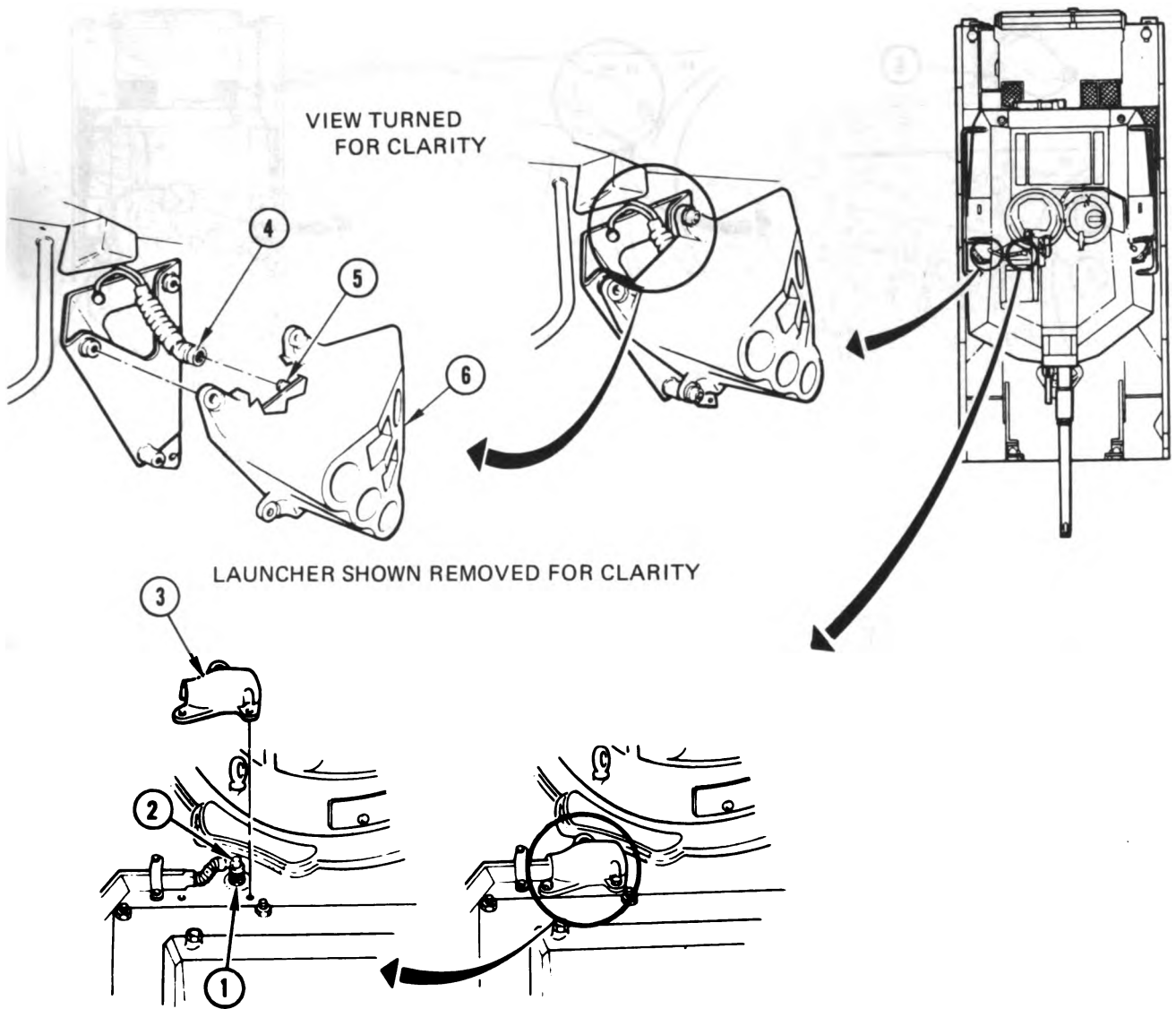
Harness Connector	Item	Connects to	Item
1A253-P1	2	1W205-J2	3
1W204-P4	6	1W205-J1	5

To gain access to items 2 and 3, remove cover (1); refer to TM 9-2350-255-20-2-3-3, para. 7-17. Install cover when troubleshooting is complete.

To gain access to items 5 and 6, remove right side rotary ammunition rack; refer to TM 9-2350-255-20-2-3-2, para. 3-13. Install rack when troubleshooting is complete.

Figure 16-23. Turret System Component Location Diagrams
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ARR82-8766



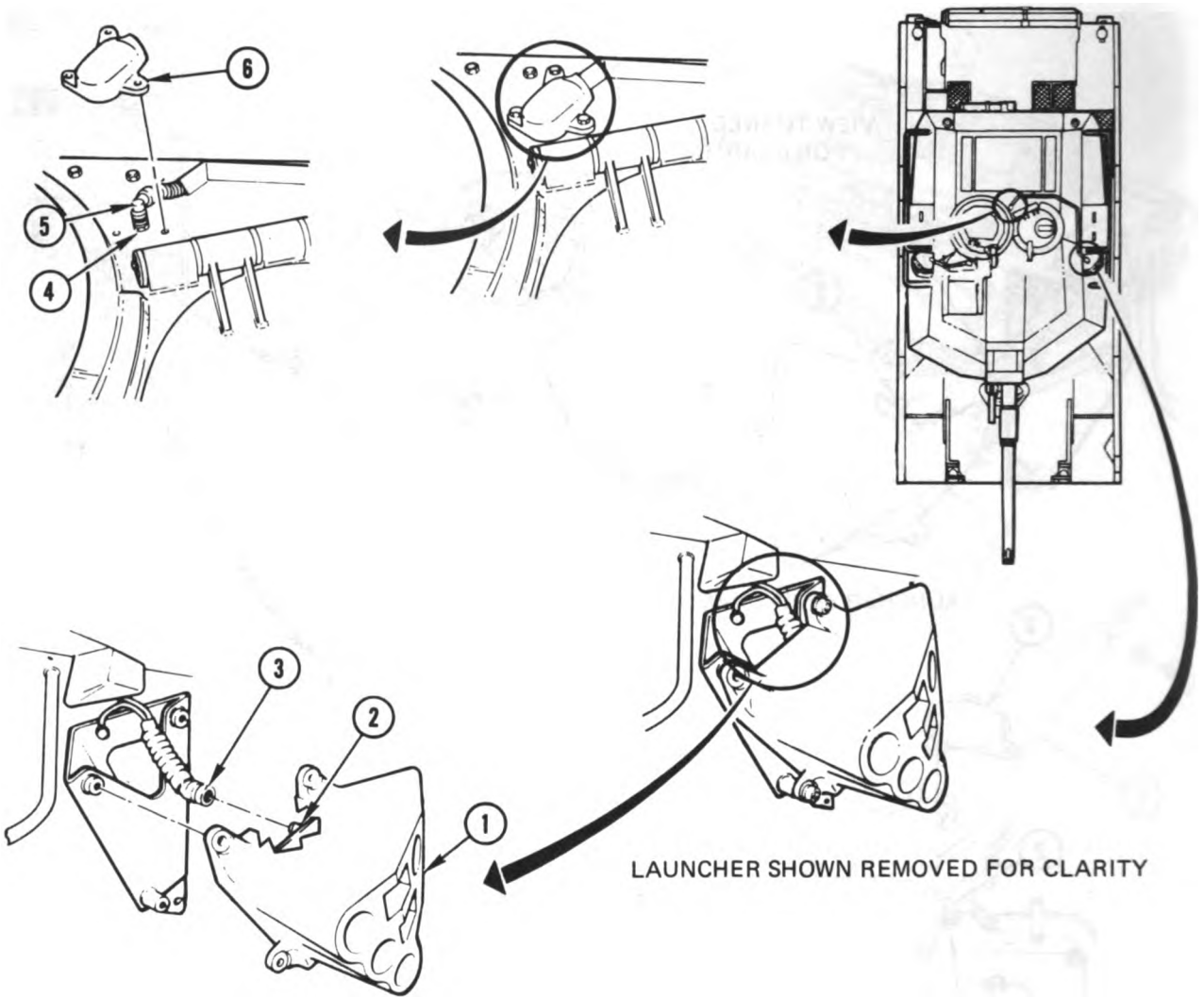
RIGHT LAUNCHER (RGREN) 6

Harness Connector	Item	Connects to	Item
1W109-P1	2	1W105-J1	1
1W109-P2	4	RGREN-J1	5

To gain access to items 1 and 2, remove cover (3); refer to TM 9-2350-255-20-2-3-1, para. 2-13. Install cover when troubleshooting is complete.

Figure 16-24. Turret System Component Location Diagrams
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ARR82-6767



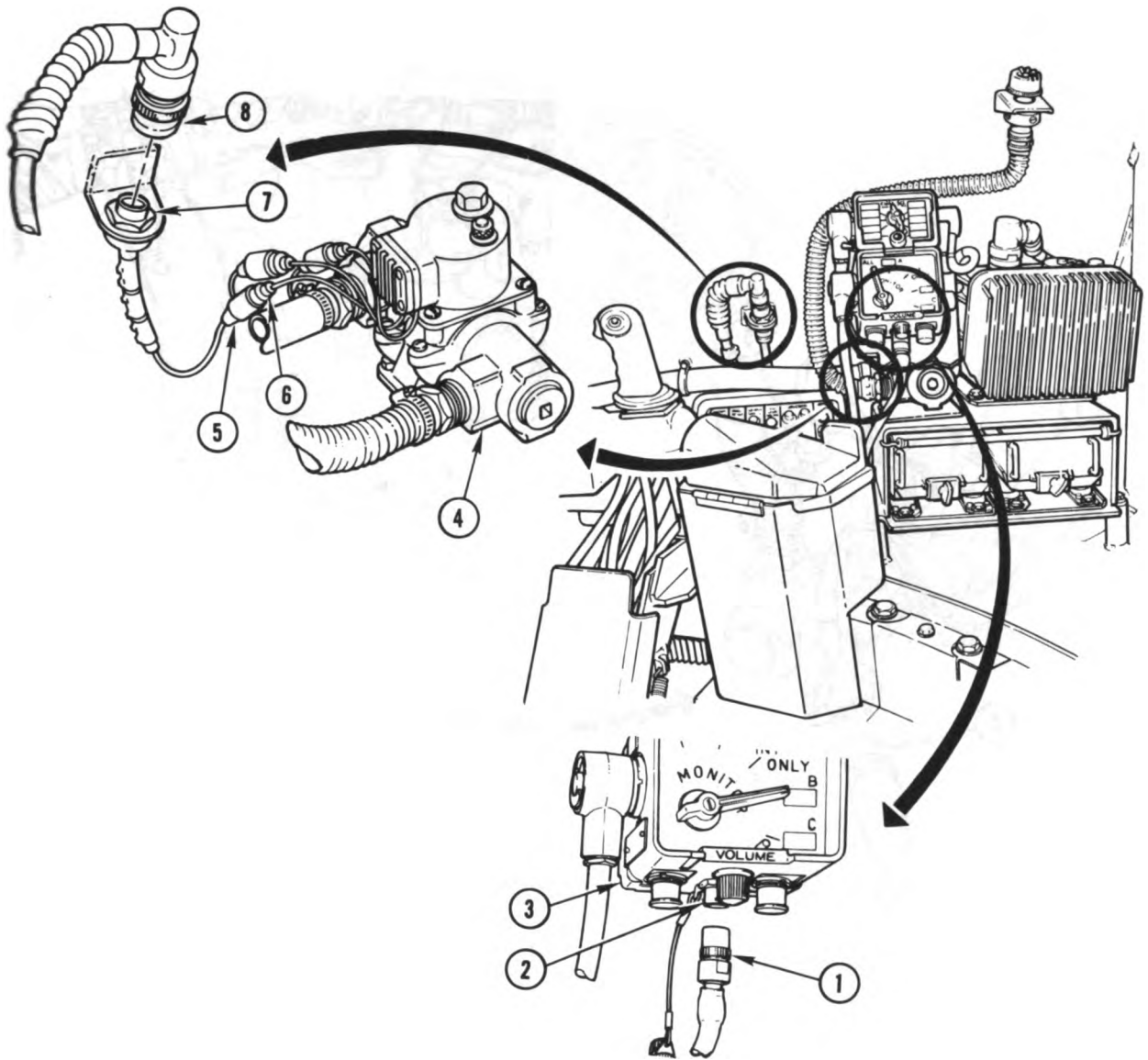
LEFT LAUNCHER (LGREN) 1

Harness Connector	Item	Connects to	Item
1W110-P1	5	1W107-J3	4
1W110-P2	3	LGREN-J1	2

To gain access to items 4 and 5, remove cover (6); refer to TM 9-2350-255-20-2-3-1, para. 2-13. Install cover when troubleshooting is complete.

Figure 16-25. Turret System Component Location Diagrams
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ARR82-6768

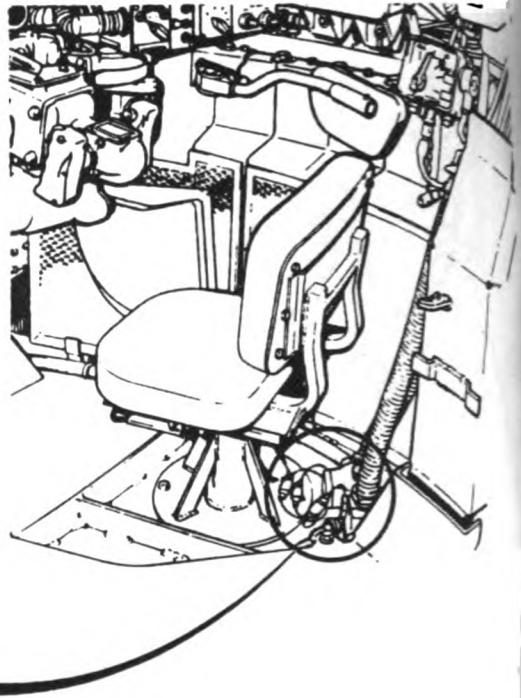
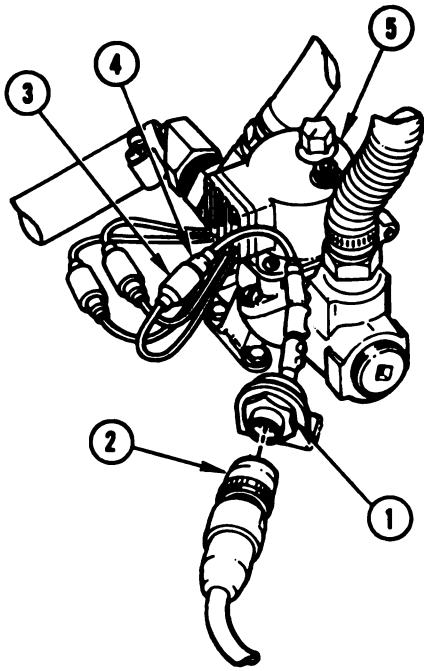


COMMANDER'S INTERCOM CONTROL BOX (CINT) 3
 COMMANDER'S HEATER (NBCHC) 4

Harness Connector	Item	Connects to	Item
1W105-P2	8	1W105-1-J1	7
1W105-P8	1	CINT-J804	2
1W105-1-P1	5	NBCHC-J1	6

Figure 16-26. Turret System Component Location Diagrams
 Volume II
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ARR82-8789

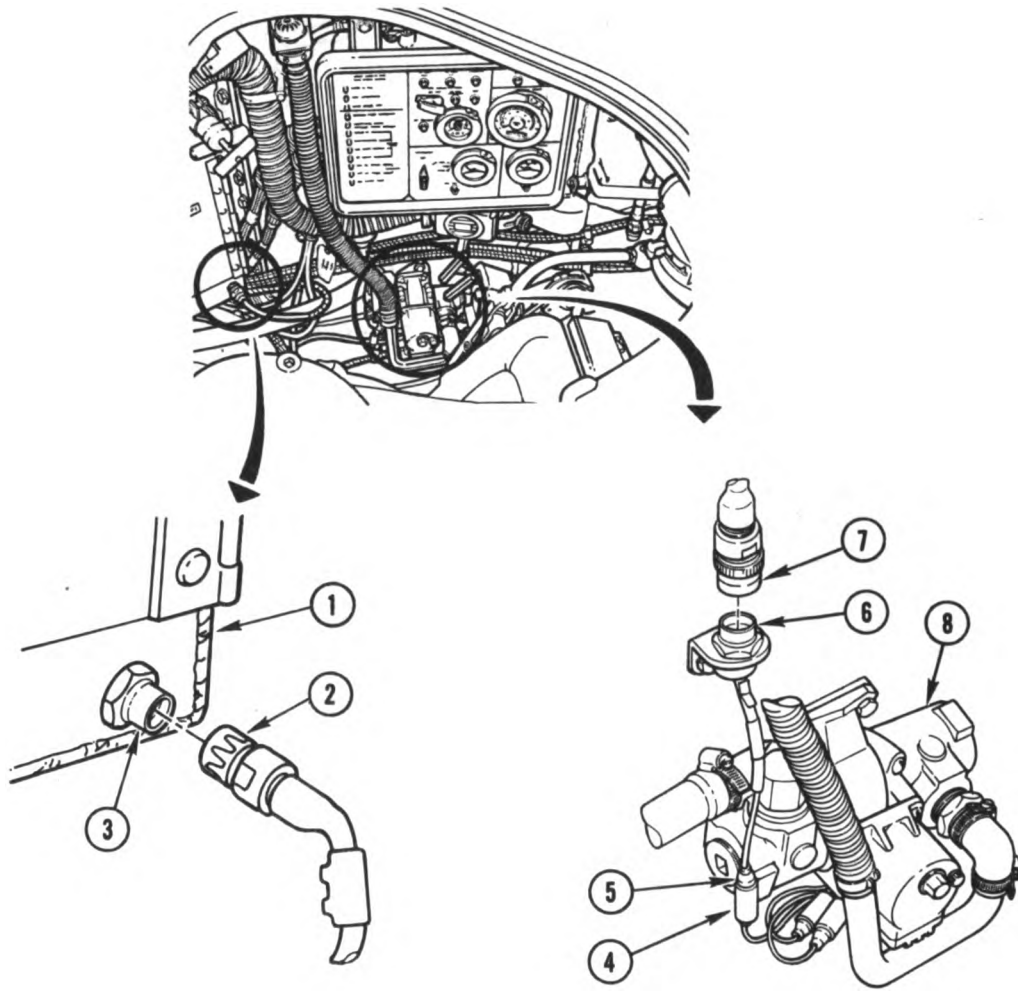


GUNNER'S HEATER (NBCHG) 5

Harness Connector	Item	Connects to	Item
1W105-P7	2	1W105-2-J1	1
1W105-2-P1	4	NBCHG-J1	3

*Figure 16-27. Turret System Component Location Diagrams
Volume II
Para. 16-5*

ARR82-6770

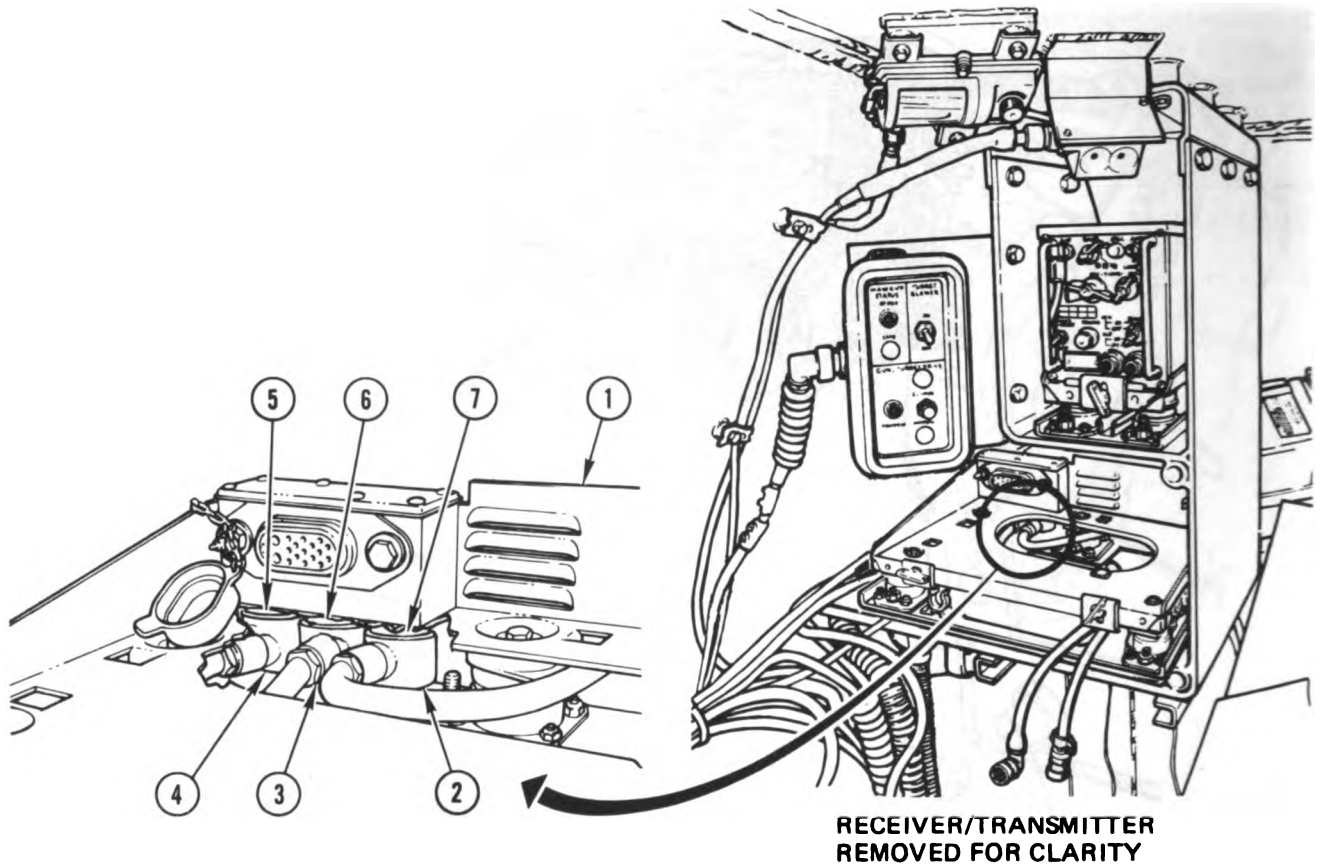


**BASIC ISSUE ITEMS STORAGE BOX 1
ELECTRIC AIR HEATER (NBCHD) 8**

Harness Connector	Item	Connects to	Item
2W110-P3	2	DUMMY RECEPTICLE-J1	3
2W111-P3	7	2W111-1-J1	6
2W111-1-P1	5	NBCHD-J1	4

**Figure 16-28. Turret System Component Location Diagrams
Volume II
Para. 16-5**

ARR82-6771



RECEIVER/TRANSMITTER TRAY (R/T TRAY) 1

Harness Connector	Item	Connects to	Item
*1W301-P2	4	R/T TRAY-J21	5
**1W303-P1	2	R/T TRAY-J23	7
***1W311-P1	3	R/T TRAY-J22	6

To gain access to items 2 through 7, remove receiver-transmitter tray; refer to TM 9-2350-255-20-2-3-2, para. 5-8. Install tray when troubleshooting is complete.

- *Also referred to as SC-D-866547.
- **Also referred to as CX-4721/VCR.
- ***Also referred to as CX-4723/VCR.

Figure 16-29. Turret System Component Location Diagrams
Volume II
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ARR82-8772

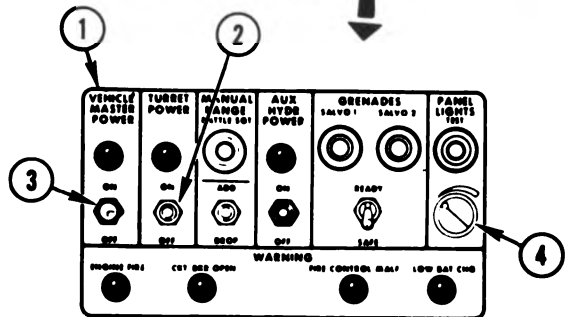
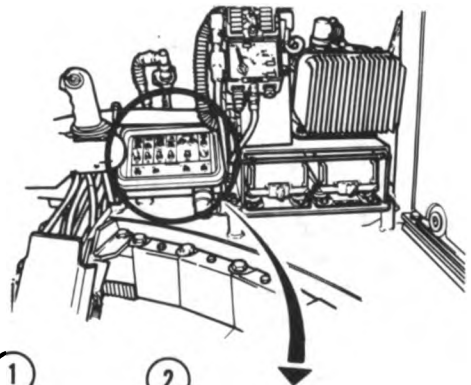
16-6. Turret Standard Initial Test Conditions. This paragraph tells you what the test conditions of the tank should be before you begin troubleshooting the turret systems. The conditions are listed in table 16-2. Initial test conditions are included for the commander's, gunner's, loader's, and driver's stations.

Table 16-2. 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.

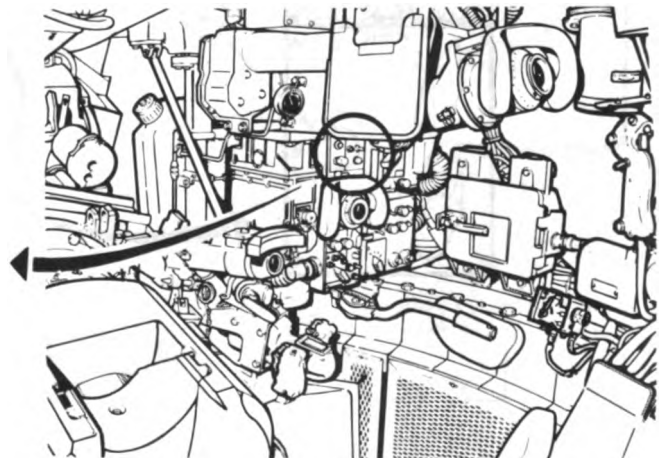
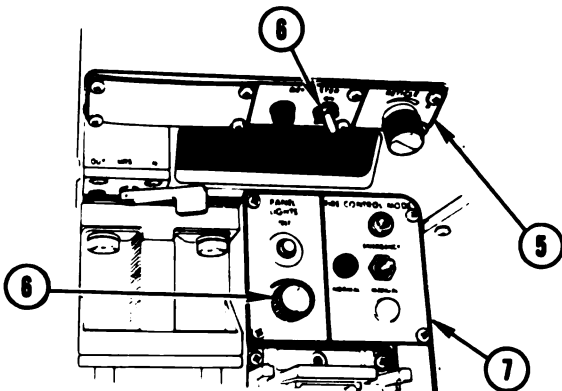


Table 16-2. Turret Standard Initial Test Conditions (Continued)

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.

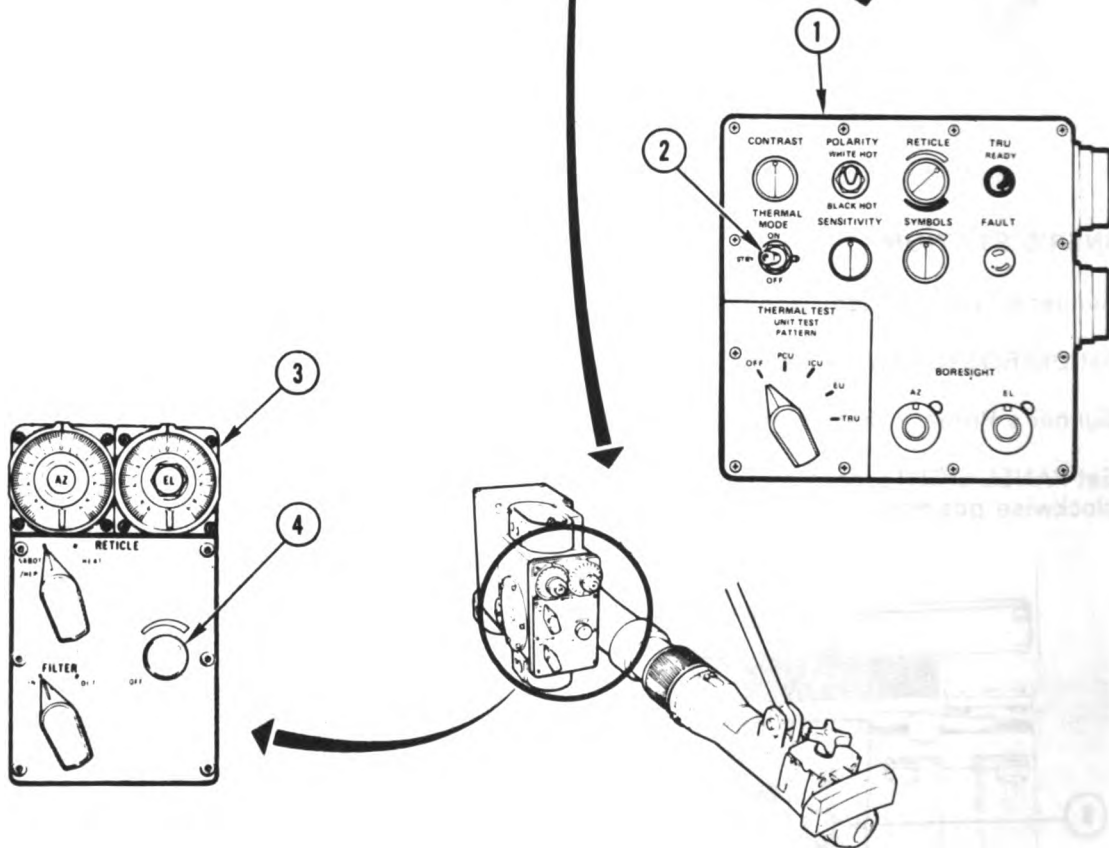
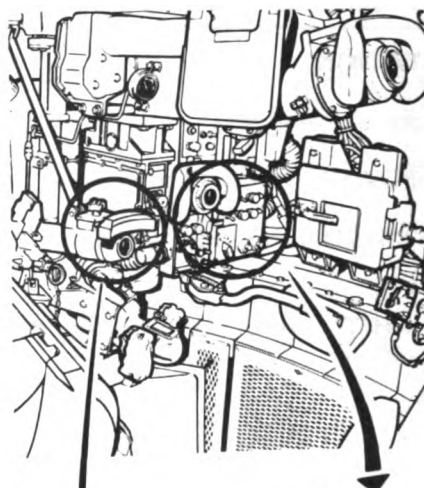


Table 16-2. Turret Standard Initial Test Conditions (Continued)

GUNNER'S STATION (Continued)

F. Ballistics Control Panel (1)

Set PWR switch (2) to OFF.

G. Laser Rangefinder (3)

1. Set laser rangefinder switch (4) to SAFE.
2. Install laser guard (5); refer to TM 9-2350-255-10.

H. 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.

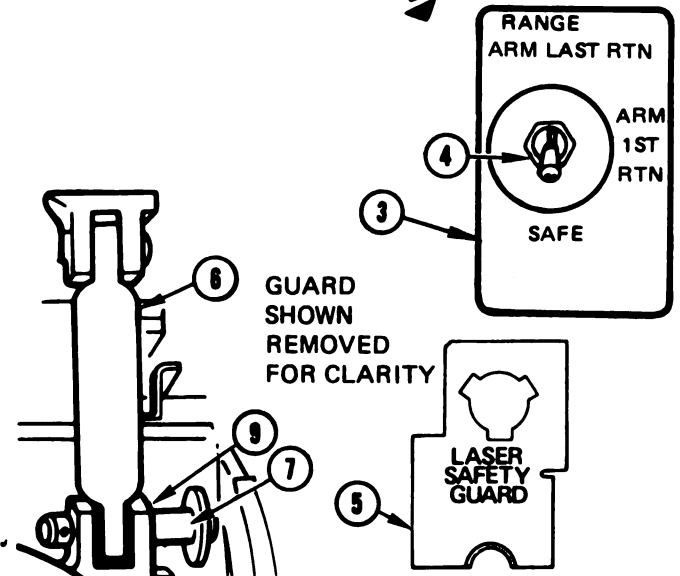
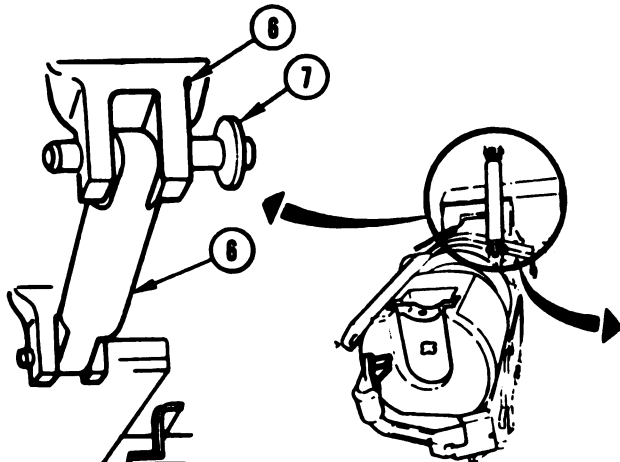
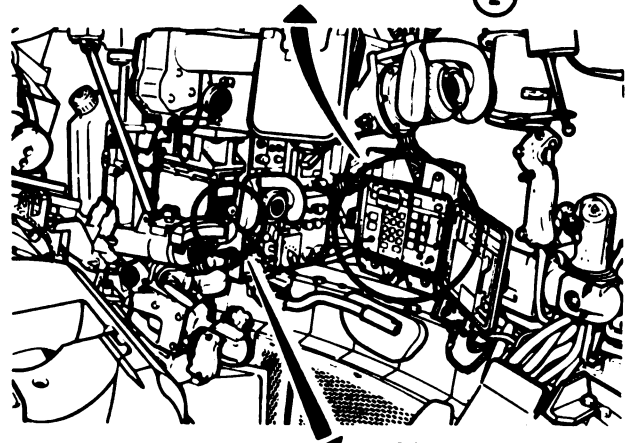
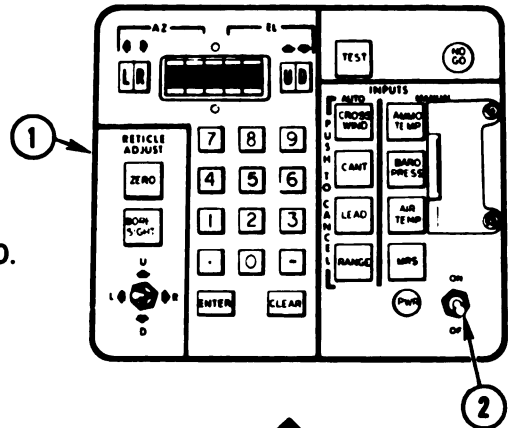


Table 16-2. Turret Standard Initial Test Conditions (Continued)

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.

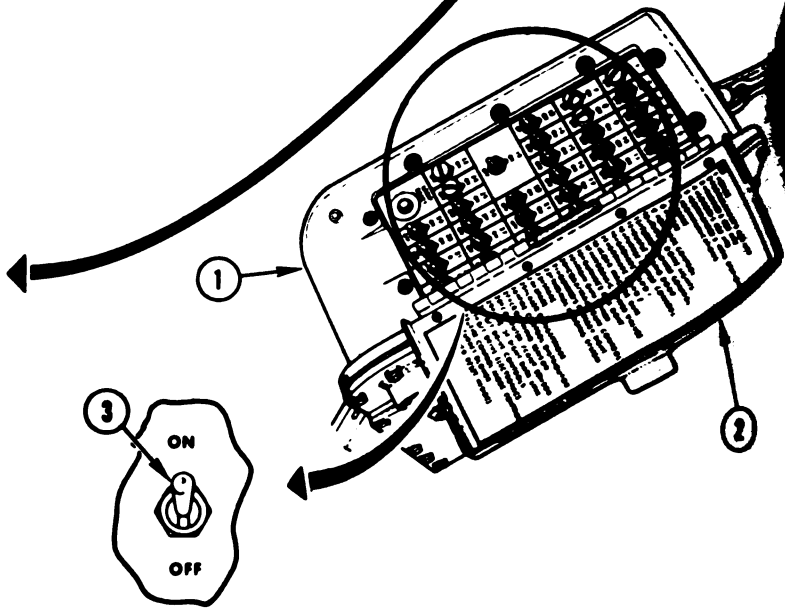
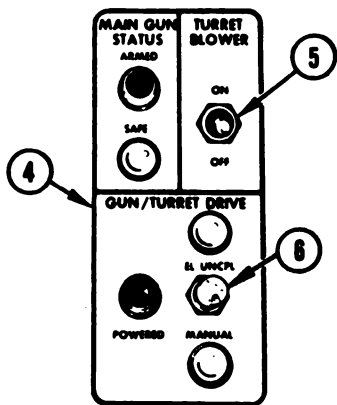
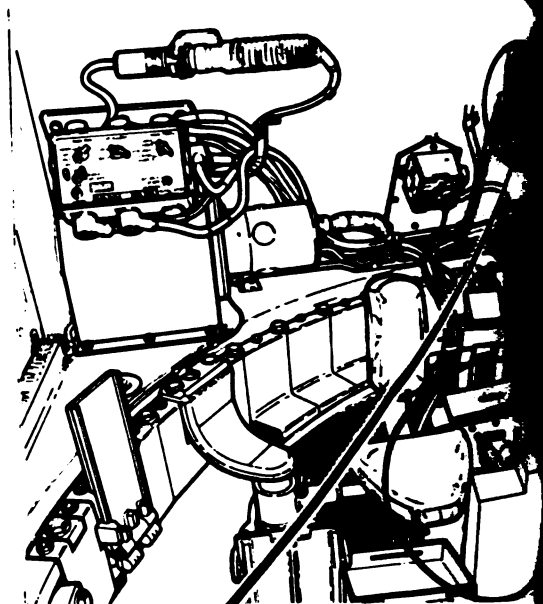


Table 16-2. Turret Standard Initial Test Conditions (Continued)

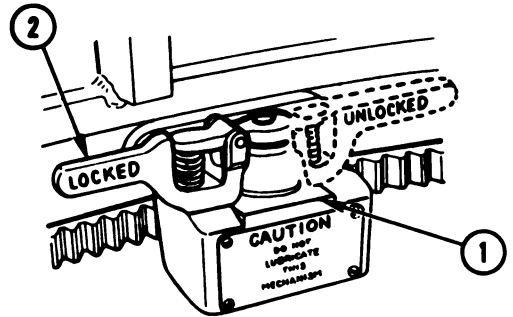
LOADER'S STATION (Continued)

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.

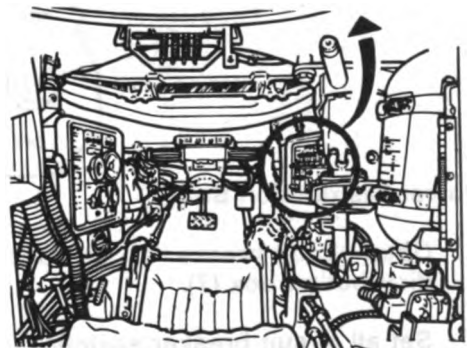
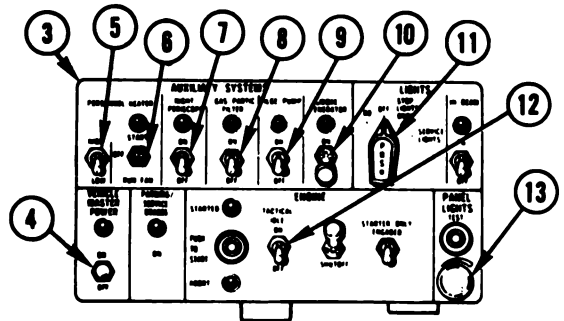
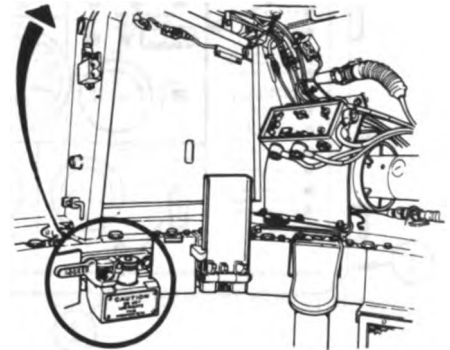
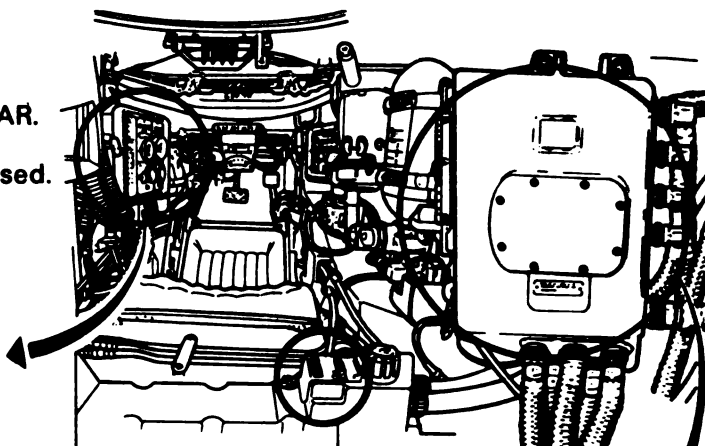
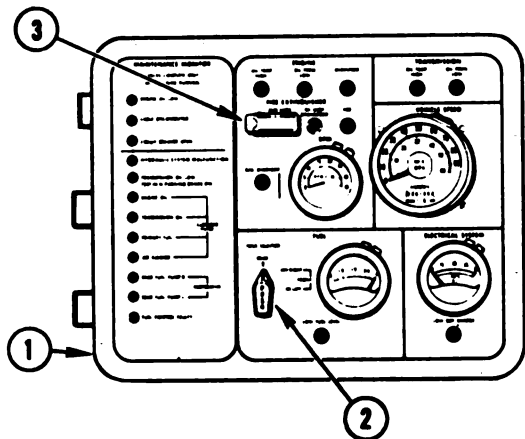


Table 16-2. Turret Standard Initial Test Conditions (Continued)

DRIVER'S STATION (Continued)

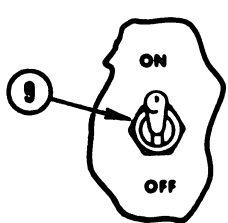
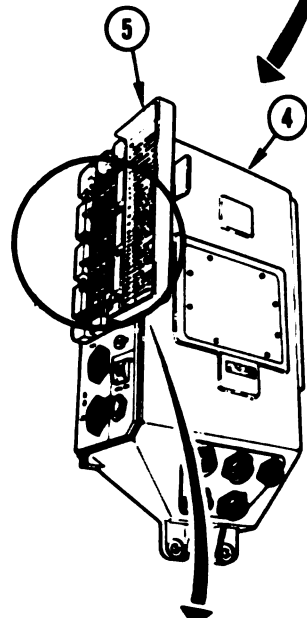
M. Driver's Instrument Panel (1)

1. Set TANK SELECTOR switch (2) to REAR.
2. Make sure 2ND SHOT guard (3) is closed.



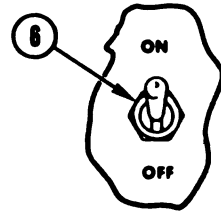
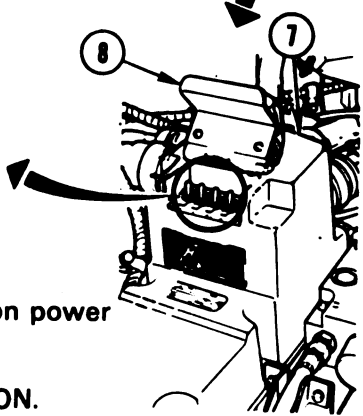
N. Hull Networks Box (4)

1. Open circuit breaker access 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 access cover (8) on power distribution box (7).
2. Set all circuit breaker switches (9) to ON.



By Order of the Secretary of the Army:

JOHN A. WICKHAM, JR.
General, United States Army
Chief of Staff

Official:

ROBERT M. JOYCE
Major General, United States Army
The Adjutant General

Distribution:

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APO 09830 NY, NY.

DATE SENT

4 September 1983

PUBLICATION NUMBER

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

PUBLICATION DATE

21 May 1984

PUBLICATION TITLE

Organizational Troubleshooting
Tank, Combat Full-Tracked:
105-MM Gun, M1, Turret

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PAGE NO	PARA-GRAPH	FIGURE NO	TABLE NO
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10-2		10-2	
10-52		12-20	

IN THIS SPACE TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT:

ATP reference to figure 17-128 not correct. It should be 17-127.

Block 17 has wrong reference. It should be TM 9-2350-255-20-2-3-2, para. 4-22.

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THE METRIC SYSTEM AND EQUIVALENTS

LINEAR MEASURE

1 Centimeter = 10 Millimeters = 0.01 Meters = 0.3937 Inches
 1 Meter = 100 Centimeters = 1000 Millimeters = 39.37 Inches
 1 Kilometer = 1000 Meters = 0.621 Miles

WEIGHTS

1 Gram = 0.001 Kilograms = 1000 Milligrams = 0.035 Ounces
 1 Kilogram = 1000 Grams = 2.2 Lb.
 1 Metric Ton = 1000 Kilograms = 1 Megagram = 1.1 Short Tons

LIQUID MEASURE

1 Milliliter = 0.001 Liters = 0.0338 Fluid Ounces
 1 Liter = 1000 Milliliters = 33.82 Fluid Ounces

SQUARE MEASURE

1 Sq. Centimeter = 100 Sq. Millimeters = 0.155 Sq. Inches
 1 Sq. Meter = 10,000 Sq. Centimeters = 10.76 Sq. Feet
 1 Sq. Kilometer = 1,000,000 Sq. Meters = 0.386 Sq. Miles

CUBIC MEASURE

1 Cu. Centimeter = 1000 Cu. Millimeters = 0.06 Cu. Inches
 1 Cu. Meter = 1,000,000 Cu. Centimeters = 35.31 Cu. Feet

TEMPERATURE

$\frac{5}{9}(^{\circ}\text{F} - 32) = ^{\circ}\text{C}$
 212° Fahrenheit is equivalent to 100° Celsius
 90° Fahrenheit is equivalent to 32.2° Celsius
 32° Fahrenheit is equivalent to 0° Celsius
 $\frac{9}{5}^{\circ}\text{C} + 32 = ^{\circ}\text{F}$

APPROXIMATE CONVERSION FACTORS

TO CHANGE	TO	MULTIPLY BY
Inches	Centimeters	2.540
Feet	Meters	0.305
Yards	Meters	0.914
Miles	Kilometers	1.609
Square Inches	Square Centimeters	6.451
Square Feet	Square Meters	0.093
Square Yards	Square Meters	0.836
Square Miles	Square Kilometers	2.590
Acres	Square Hectometers	0.405
Cubic Feet	Cubic Meters	0.028
Cubic Yards	Cubic Meters	0.765
Fluid Ounces	Milliliters	29.573
Pints	Liters	0.473
Quarts	Liters	0.946
Gallons	Liters	3.785
Ounces	Grams	28.349
Pounds	Kilograms	0.454
Short Tons	Metric Tons	0.907
Pound-Feet	Newton-Meters	1.356
Pounds per Square Inch	Kilopascals	6.895
Miles per Gallon	Kilometers per Liter	0.425
Miles per Hour	Kilometers per Hour	1.609

TO CHANGE	TO	MULTIPLY BY
Centimeters	Inches	0.394
Meters	Feet	3.280
Meters	Yards	1.094
Kilometers	Miles	0.621
Square Centimeters	Square Inches	0.155
Square Meters	Square Feet	10.764
Square Meters	Square Yards	1.196
Square Kilometers	Square Miles	0.386
Square Hectometers	Acres	2.471
Cubic Meters	Cubic Feet	35.315
Cubic Meters	Cubic Yards	1.308
Milliliters	Fluid Ounces	0.034
Liters	Pints	2.113
Liters	Quarts	1.057
Liters	Gallons	0.264
Grams	Ounces	0.035
Kilograms	Pounds	2.205
Metric Tons	Short Tons	1.102
Newton-Meters	Pound-Feet	0.738
Kilopascals	Pounds per Square Inch	0.145
Kilometers per Liter	Miles per Gallon	2.354
Kilometers per Hour	Miles per Hour	0.621

