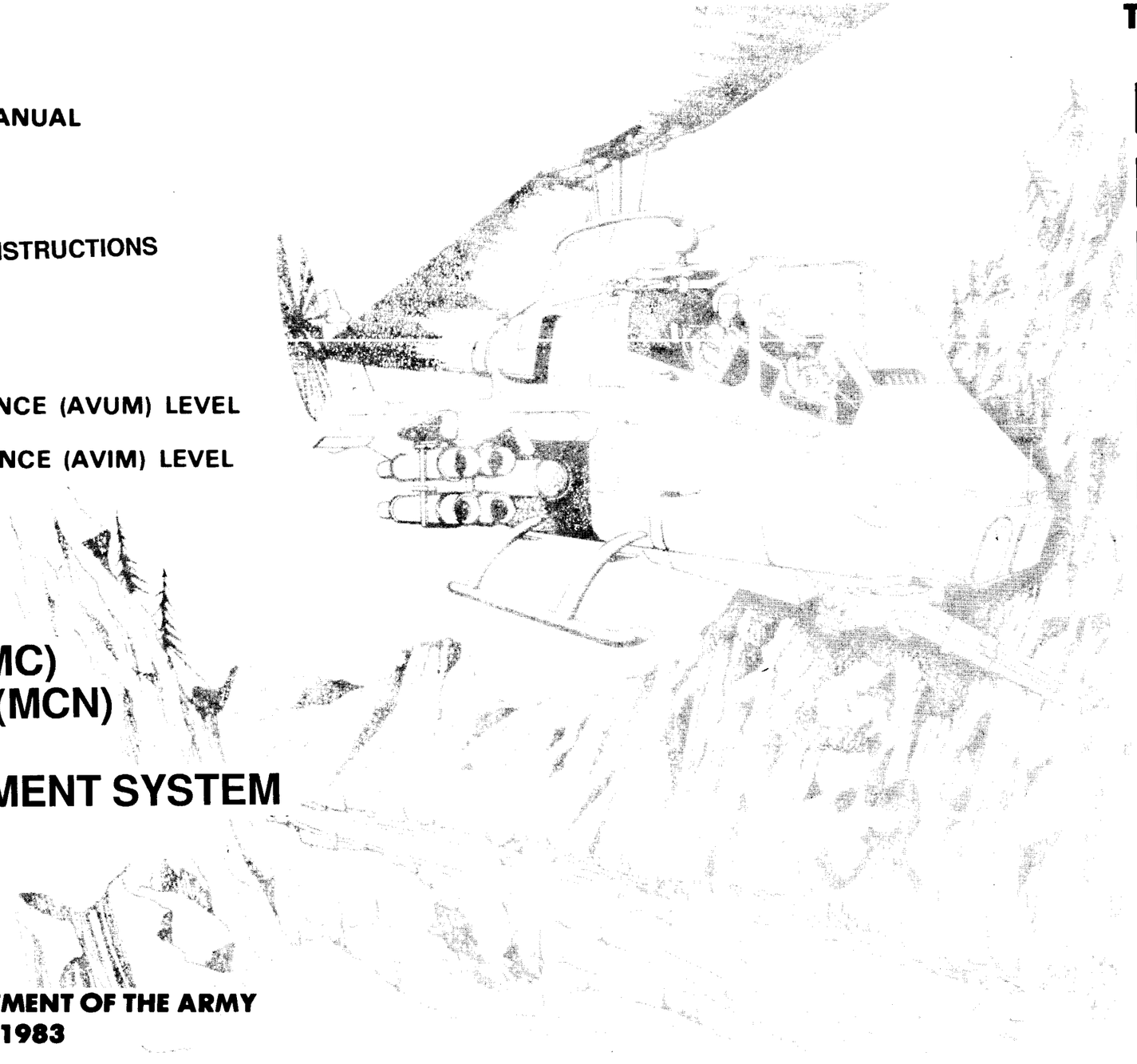
TM 55-1520-236-T-1

TECHNICAL MANUAL

TROUBLESHOOTING INSTRUCTIONS

AVIATION UNIT MAINTENANCE (AVUM) LEVEL
AND
INTERMEDIATE MAINTENANCE (AVIM) LEVEL



AH–1F (MC)
AND AH–1F (MCN)

INTEGRATED ARMAMENT SYSTEM

HEADQUARTERS, DEPARTMENT OF THE ARMY
15 JUNE 1983

INTRODUCTION
HEAD UP DISPLAY SUBSYSTEM (HUDS)
FIRE CONTROL COMPUTER (FCC)
AIR DATA SUBSYSTEM (ADS)
ROCKET MANAGEMENT SUBSYSTEM (RMS)
UNIVERSAL TURRET SUBSYSTEM (UTS)
HELMET SIGHT SYSTEM (HSS)
TOW MISSILE SUBSYSTEM
ARMAMENT POWER
JETTISON

CHANGE

NO. 4

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., 31 AUGUST 1994

Technical Manual

Troubleshooting Instructions

Aviation Unit Maintenance (AVUM) Level

and

Intermediate Maintenance (AVIM) Level

AH-1F (MC) AND AH-1F (MCN)

INTEGRATED ARMAMENT SYSTEM

By Order of the Secretary of the Army:

GORDONR.SULLIVAN
General, United States Army
Chief of Staff

Official:

MILTON H. HAMILTON
Administrative Assistant to the
Secretary of the Army
07480

1. DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

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1. Remove and insert pages as indicated below. New or changed text material is indicated by a vertical bar in the margin. An illustration change is indicated by a miniature pointing hand.

Remove pages	Insert pages
a and b	a and b
i and ii	i and ii
1-1 and 1-2	1-1 and 1-2
1-5 and 1-6	1-5 and 1-6
1-27 through 1-29/(1-30 blank)	1-27 through 1-29/(1-30 blank)

2. Retain this sheet in front of manual for reference purposes.

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CHANGE

NO. 3

Technical Manual

Troubleshooting Instructions

Aviation Unit Maintenance (AVUM) Level

and

Intermediate Maintenance (AVIM) Level

AH-1F (MC) AND AH-1F (MCN)

INTEGRATED ARMAMENT SYSTEM

TM 55-1520-236-T-1, 15 June 1983, is changed as follows:

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Remove pages	Insert pages
i and ii	i and ii
1-1 and 1-2	1-1 and 1-2
1-15 and 1-16	1-15 and 1-16
2-3 and 2-4	2-3 and 2-4
2-33 and 2-34	2-33 and 2-34
2-37 and 2-38	2-37 and 2-38
2-43 through 2-46	2-43 through 2-46
2-63 and 2-64	2-63 and 2-64
2-67 and 2-68	2-67 and 2-68
3-3 and 3-4	3-3 and 3-4
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3-37 and 3-38	3-37 and 3-38
3-51 through 3-68	3-51 through 3-68
3-71 through 3-78	3-71 through 3-78
3-81 and 3-82	3-81 and 3-82
3-85 through 3-110	3-85 through 3-110
3-125 and 3-126	3-125 and 3-126
3-133 and 3-134	3-133 and 3-134
5-109 and 5-110	5-109 and 5-110
5-113 and 5-114	5-113 and 5-114
5-117 and 5-118	5-117 and 5-118
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5-125 and 5-126	5-125 and 5-126
5-129 through 5-136	5-129 through 5-136
5-143 through 5-146	5-143 through 5-146
5-149 through 5-152	5-149 through 5-152

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TM 55-1520-236-T-1
C 3
HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., 29 April 1994

Remove pages	Insert pages
5-159 and 5-160	5-159 and 5-160
5-163 through 5-172	5-163 through 5-172

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Chief of Staff

Official:

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Administrative Assistant to the Secretary of the Army
06729

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CHANGE NO. 2

Technical Manual

Troubleshooting Instructions

Aviation Unit Maintenance (AVUM) Level

and

Intermediate Maintenance (AVIM) Level

AH-1S (MC)

Integrated Armament and Fire Control System

TM 55-1520-236-T-1, 15 June 1983, is changed as follows:

1. Remove and insert pages as indicated below. New or changed text material is indicated by a vertical bar in the margin. An illustration change is indicated by a miniature pointing hand.

Remove Pages	Insert Pages
c/d	c/d
i and ii	i and ii
1-1 and 1-2	1-1 and 1-2
1-5 and 1-6	1-5 and 1-6
1-21 through 1-24	1-21 through 1-24
---	1-24.1/1-24.2
2-97 through 2-100	2-97 through 2-100
---	2-100.1 and 2-100.2
2-145/2-146	2-145 and 2-146
3-13 and 3-14	3-13 and 3-14
5-181 and 5-182	5-181 and 5-182

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Chief of Staff

Official:

WILLIAM J. MEEHAN II
Brigadier General, United States Army
The Adjutant General

DISTRIBUTION:
To be distributed in accordance with DA Form 12-31, AVUM and AVIM Maintenance Requirements for AH-1F, Helicopter Attack, Aircraft.

TM 55-1520-236-T-1
C 1

CHANGE NO. 1

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., 20 June 1988

Technical Manual

Troubleshooting Instructions

Aviation Unit Maintenance (AVUM) Level

and

Intermediate Maintenance (AVIM) Level

AH-1S (MC)

Integrated Armament and Fire Control System

TM 55-1520-236-T-1, 15 June 1983, is changed as follows:

1. Remove and insert pages as indicated below. New or changed text material is indicated by a vertical bar in the margin. An illustration change is indicated by a miniature pointing hand.

Remove pages	Insert pages
1-19 and 1-20	1-19 and 1-20
2-57 through 2-60	2-57 through 2-60
3-51 and 3-52	3-51 and 3-52
4-1 and 4-2	4-1 and 4-2
----	5-56.1 and 5-56.2
5-57 through 5-70	5-57 through 5-70

2. Retain this sheet in front of manual for reference purposes.

By Order of the Secretary of the Army:

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Brigadier General, United States Army
The Adjutant General

DISTRIBUTION:
To be distributed in accordance with DA FORM 12-31, AVUM and AVIM Maintenance Requirements for AH-1S, Helicopter, Attack Aircraft.

WARNING



The AIM- l/EXL laser beam is dangerous and can cause blindness if it enters the eye either directly or reflected from a shiny surface. Ensure that the laser protective cover is kept over the emitter and that the AIM power switch is off at all times when the laser is not in use. The laser shall be used only in controlled areas by qualified personnel, Night goggles are required during operation.

The laser beam is dangerous and can cause blindness if it enters the eye either directly or reflected from a shiny surface. Laser light leakage due to improper mounting of the Telescopic Sight Unit (TSU) window cover may cause injury to the eye. For ground operation, ensure that both window covers are correctly mated to the TSU window prior to firing the laser with the LASER switch on the Left Hand Grip (LHG).

12,500 VOLTS DC
IS USED IN THE OPERATION OF THIS EQUIPMENT

DEATH ON CONTACT

MAY RESULT IF PERSONNEL FAIL TO OBSERVE SAFETY PRECAUTIONS . PERSONNEL MUST AT ALL TIMES OBSERVE ALL SAFETY REGULATIONS. BE CAREFUL NOT TO CONTACT AC HIGH-VOLTAGE CONNECTIONS WHEN INSTALLING OR OPERATING THIS EQUIPMENT. WHEN WORKING INSIDE THE EQUIPMENT, TURN OFF POWER AND GROUND POINTS OF HIGH POTENTIAL BEFORE TOUCHING THEM.

WARNINGS, CAUTIONS, AND NOTES.

Personnel performing troubleshooting procedures, and practices which are included or implied in this technical manual shall observe the following warnings.

WARNING

An operating procedure, practice, etc., which if not correctly followed, could result in personal injury or loss of life.

CAUTION

An operating procedure, practice, etc., which if not strictly observed, could result in damage to or destruction of equipment.

NOTE

An operating procedure, condition, etc., which it is essential to highlight.

WARNING

Five SAFETY STEPS to follow if someone is the victim of electrical shock (FM 21-11).

1. Do not try to pull or grab the individual.
2. If possible, turn off electrical power.
3. If you cannot turn off the electrical power, push, pull, or lift the person to safety using a wooden pole, a rope, or some other insulating material.
4. Send for help as soon as possible.
5. After the injured person is free of contact with the source of electrical shock, move the person a short distance away and immediately start artificial resuscitation.

WARNING

The helicopter contains high voltage and should be electrically grounded when parked. Serious burns and electrical shock can result from contact with exposed electrical wires or connectors.

WARNING

The pitot tube assembly is very hot during and immediately after operation, Keep your hands and other parts of your body away from this area.

WARNING

The airspeed and direction sensor (AADS) is very hot during and immediately after operation. Keep your hands and other parts of your body away from this area.

WARNING

Corrosive Battery Electrolyte (Potassium Hydroxide) requires rubber gloves, apron, and face shield when handling leaking batteries. Potassium hydroxide spilled on clothing, or other material shall be washed immediately with clean water. If spilled on personnel, immediately start flushing the affected area with clean water until medical assistance arrives.

WARNINGS , CAUTIONS, AND NOTES (CONTINUED).

WARNING

Self-luminous instrument dials contain radioactive materials. If glass is broken or case becomes unsealed, avoid personal contact. Forceps or gloves made of rubber or polyethylene shall be used to pick up contaminated material. Place material and gloves in a plastic bag, seal bag, and dispose of it as radioactive waste in accordance with AR 755-15 and TM 3-261 (TB 55-1500-314-25). Repair procedure shall conform to requirements in AR 700-52.

WARNING

Prior to helicopter maintenance that requires external stores be removed, jettison cartridge shall be removed. Remove jettison cartridges from pylon stores ejection device prior to placing helicopter in a hanger. Insert safety pins.

WARNING

Ground safety pins must be installed in pilot and gunner arming/ firing handles of canopy removal system whenever the helicopter is on the ground. Pins should be installed by ground crew.

WARNING

When working on, or near an armed helicopter, take all possible precautions to avoid accidental firing of armament. Personnel shall not occupy possible firing pattern in front of or up to 20 feet behind rocket pods. Munitions shall be handled by authorized personnel only. All weapons shall be dry-fired. Dummy ammunition shall not be used.

WARNING



RADIATION HAZARD MCN
Thorium Fluoride

Some of the FLIR optics inside the C-NITE telescopic sight unit (TSU) have a coating that is slightly radioactive. Accidental inhaling or swallowing of thiS material is hazardous to health If the C-NITE TSU has-been ruptured (by crash damage, etc.), dispose of broken optics in accordance with AR 385-11 and TB 750-237.

Troubleshooting Instructions
Aviation Unit Maintenance (AVUM) Level and Intermediate Maintenance (AVIM) Level
AH-1F (MC) AND AH-1F (MCN)
INTEGRATED ARMAMENT SYSTEM

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS.

You can help improve this manual. If you find any mistakes of if you know of a way to improve the procedures, please let us know. Mail your letter, or the DA Form 2028-2 located in the back of this manual direct to:

Commandcr, US Army Aviation and Troop Command, ATTN: AMSAT-I-MP,
4300 Goodfellow Blvd., St. Louis, Mo. 63120-1798.

A reply will be furnished to you.

TABLE OF CONTENTS

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Section III	Maintenance Action Precise Symptoms (MAPS).	1-5
CHAPTER 2	HEAD UP DISPLAY SUBSYSTEM (HUDS)	2-1
CHAPTER 3	FIRE CONTROL COMPUTER (FCC).	3-1
CHAPTER 4	AIR DATA SUBSYSTEM (ADS).	4-1
CHAPTER 5	ROCKET MANAGEMENT SUBSYSTEM (RMS)	5-1
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CHAPTER 7	HELMET SIGHT SUBSYSTEM (HSS)	7-1
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CHAPTER 9	ARMAMENT POWER SUPPLY AND DISTRIBUTION	9-1
CHAPTER 10	WING STORES JETTISON SYSTEM	10-1
CHAPTER 11	AIM-1/EXL IR LASER GUNSIGHT SYSTEM...	11-1

HOW TO USE THIS MANUAL.

This troubleshooting manual is as easy to use as a road map. You must leave a given location (problem) and proceed along a desired route (troubleshooting) and arrive at your destination (solution).

Keep in mind that this manual assumes that "ONLY ONE PROBLEM EXISTS AT A TIME". However, a problem may appear in many ways. For example, a symbol is missing, out of shape, inverted, indicator pointer incorrect, lamp out, etc. Also, the problem may be discovered in several ways, such as pilot/gunner writeup, during maintenance, operational check, etc. In some cases there may be several symptom indications, for a single problem.

The technician must be able to quickly find the particular portion of the manual that contains the needed information.

The front cover, index, table of contents, Maintenance Action Precise Symptoms (MAPS) list, and text (highlighted with a box) provide information for major topic and subtopic breakdown and some locations.

Troubleshooting is designed to promote rapid fault isolation. This allows you to quickly remedy the problem and return the helicopter to operational status. Quick turnaround, with accurate solution, is the essence of troubleshooting.

The troubleshooting is test and fault-isolation oriented and the data will get you directly from the symptom to the proper solution using minimum information. It divides troubleshooting into three major steps:

1. Recreate or maintain the condition that led you or the operator to the problem.

2. Find needed information by referring to the Maintenance Action Precise Systems (MAPS) list, table of contents, front cover,etc.

3. Acommplish troubleshooting using logic trees, wiring diagrams, reference data, etc.

If these troubleshooting procedures are not successful, references are provided that will allow the troubleshooting to be continued within the appropriate subsystem manual (see paragraph 1-1) . The logic tree, when used with built-in-test (BIT) troubleshooting, will lead you to the faulty part or wiring with a high degree of certainty.

Entry into Logic Trees. Logic trees are designed to be entered directly from a specific location in the operational check. The operational check sets all switches, circuit breakers, etc. in the proper position for that logic tree. In some cases a logic tree is entered directly from another logic tree. A logic tree entered directly from another logic tree shall be considered a continuation of the first logic tree. In the block which sends the user to a referenced logic tree, all additional switches, circuit breakers, etc. must be pre-positioned to be compatible with the referenced logic tree. If the referenced logic tree is in another chapter, instructions are given to work the referenced logic tree (including the operational check called out in the referenced logic tree) and then perform the operational check of the originating logic tree chapter.

Example:

Set PLT ORIDE switch to PLT ORIDE.

Set MASTER ARM switch to OFF.

Accomplish paragraph 8-15.

Then go to paragraph 2-2.

Trouble Discovered by Operator. Read the problem statement (write-up), in the aircraft form, very carefully and whenever possible debrief the operator (flight crew) to get a general idea of the problem.

1. Determine which subsystem has a fault.

2. Find symptom description in the MAPS list which correlates the symptom to a precise troubleshooting procedure.

3. Perform the subsystem operational check to verify the fault.

Trouble Discovered by Technician. When the trouble is found during normal maintenance, your choices for finding the appropriate data are as follows:

Use the MAPS list (this manual) to find the required torubleshooting data and operational check.

2. Use troubleshooting procedures within the subsystem manual being used to perform the maintenance.

3. Use troubleshooting data in other subsystem manual (s).

NOTE

Some logic trees in this manual cannot be reached from the operational check. If a defined symptom does not appear during the operational check, refer directly to the MAPS and comply with the action specified for that symptom.

Logic Tree. The Logic PROBLEM EXISTS AT A TIME. It is a programmed method that involves user-logic tree interaction. The user is given a particular instruction, then is asked a YES-NO question about the result of his or her action. Based on

HOW TO USE THIS MANUAL (CONTINUED).

the answer, the user is directed to another block of instruction. Faults that occur on a rare or random basis are excluded and the technician may elect to refer to another troubleshooting aid such as a simplified circuit or wiring diagram.

Large Logic Trees. Large logic trees are broken into logical segments (parts). This isolates systems using common switches, circuit breakers, etc. and are identified as parts A, B, C, etc.

Each logic tree with its locator illustrations stand alone and are broken into smaller page size segments with single flow arrows. A block “Go to paragraph_ "directs the continuation of the logic.

Each continuation of the logic tree has locator illustrations on the facing page identifying items on that portion of the logic tree. Each continuation has the same format as a regular logic tree except that the initial setup, tools, personnel and references are not repeated.

A total electrical schematic for the MAPS problem is included with the starting logic tree. Each continuing subparagraph has only the portion of the total electrical schematic applicable to the logic tree in this paragraph.

Verification of Symptom. When a particular symptom is found, reverify that the symptom. is present before proceeding to the repair action procedure. This precludes unnecessary maintenance in the event an erroneous symptom occurs.

Verification of Repair. Under certain circumstances, a fault may be exhibited during the accomplishment of the Operational Check in one chapter and the troubleshooting and repair logic tree for that fault in another chapter. Also, some logic trees refer to another chapter or logic tree within another chapter for continuation of troubleshooting. After location and repair of the fault, rerun the operational check in which the fault appeared.

CHAPTER 1. INTRODUCTION

SECTION I. GENERAL

SECTION CONTENT — PAGE

SCOPE 1-1
MAINTENANCE FORMS AND RECORDS 1-1
NOMENCLATURE CROSS REFERENCE 1-1
REPORTING EQUIPMENT IMPROVEMENT RECONNENDATION (EIR) 1-2

1-1. SCOPE.

The AH-1S (MC) and AH-1S (MCN) Integrated Armament and Fire Control System is a network of seven specific subsystems which are linked together throughout the helicopter with wires, connectors, terminal boards, and other airframe components. Each subsystem has its own maintenance manual which includes troubleshooting procedures. The various subsystems and their respective maintenance manuals are as follows:

HEAD UP DISPLAY SUBSYSTEM (HUDS)	TM 9-1270-220-13&P
FIRE CONTROL COMPUTER (FCC)	TM 9-1270-218-13&P
AIR DATA SUBSYSTEM (ADS)	TM 9-1270-219-13&P
ROCKET MANAGEMENT SUBSYSTEM (RMS)	TM 9-1090-207-13&P
UNIVERSAL TURRET SUBSYSTEM (UTS)	TM 9-1090-206-20-1 TM 9-1090-206-30
HELMET SIGHT SUBSYSTEM (HSS)	TM 9-1270-212-14&P
TOW MISSILE SYSTEM (TMS)	TM 9-1425-473-20 TM 9-1425-473-34

These separate manuals troubleshoot only to the specific subsystem. A problem caused by airframe components, wiring, or assemblies cannot be detected using the separate manuals. Each of the subsystems send signals to, or receive signals from one or more of the other subsystems .

This manual troubleshoots all of these interfaces.

This manual covers Troubleshooting Instructions (AVUM/AVIM) for Helicopter Models AH-1F Modernized Cobra (MC) and AH-1F Modernized Cobra with C-NITE (MCN) , Integrated Armament and Fire Control Systems utilizing the following Military Occupational Specialty (MOS) numbers:

CAREER MANAGEMENT FIELD (CMF) 67

Title	MOS
Aircraft Fire Control Repairer	68J
Aircraft Electrician	68F

1-2. MAINTENANCE FORMS AND RECORDS .

Department of the Army forms and procedures used for equipment maintenance will be those prescribed by TM38-750, The Army Maintenance Management System (TAMMS).

Accidents involving injury to personnel or damage to material will be reported on DA Form 285 (Accident Report) in accordance with AR385-40. Explosives and ammunition malfunctions will be reported in accordance with AR75-1.

1-3. NOMENCLATURE CROSS REFERENCE .

The following cross-reference index lists the military nomenclature (when assigned) or manufacturer's (contractor's) nomenclature with the simplified (common name) nomenclature. The official and simplified nomenclature (acronym) are applied to first usage. Thereafter, the simplified nomenclature is used, except where use of the official nomenclature may aid understanding.

1 - 3 . NOMENCLATURE CROSS REFERENCE (CONTINUED).

Nomenclature Cross Reference List.

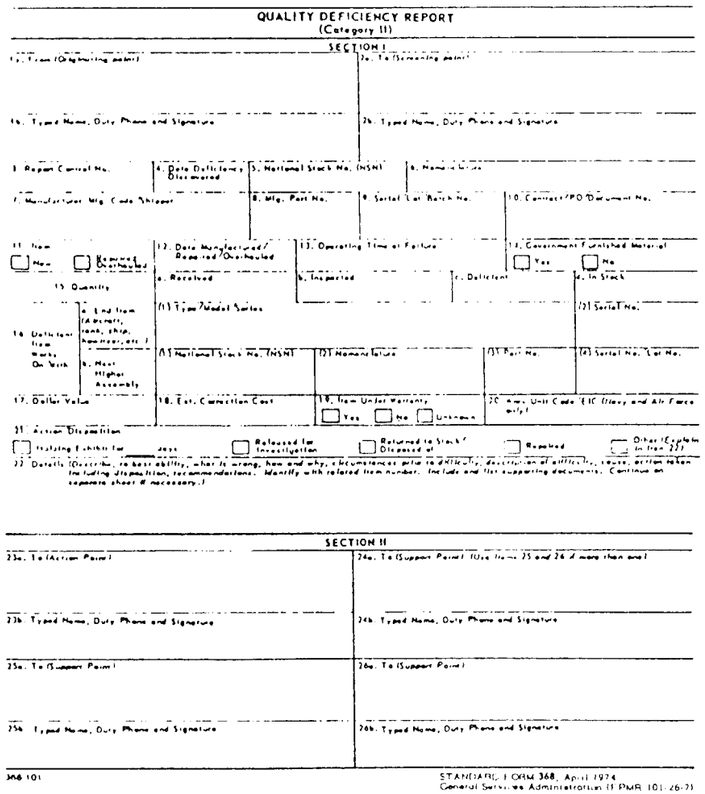
Official Name (Common Name)	Acronym
Digital Fire Control Computer, XM 22	FCC
Fire and Flight Air Data Subsystem XM143	
Air Data Subsystem	ADS
Airspeed and Direction Sensor	AADS
Electronics Processor Unit	EPU
Low Airspeed Indicator	LAI
Headup Helicopter Sight Subsystem	HUDS
Head-up Display Unit	HUD
Signal Processor	SP
Helmet-Directed Fire Control Subsystem, XM136 (Helmet Sight Subsystem)	HSS
Electronic Interface Assembly	EIA
Helmet Sight Assembly	HSA
Rocket Management Subsystem, XM128	RMS
Display Unit	DU
Operations Unit	OU
TOW Guided Missile Armament Subsystem, M65	TMS
Electronic Control Amplifier. (Missile Command Amplifier)	MCA
Electronic Control Amplifier. (Stabilization Control Amplifier)	SCA
Electronic Power Supply.	EPS
Laser Electronic Unit.	LEU
Sight Hand Control	SHC
Telescopic SightU nit.	TSU
TOW Control Panel	TCP
TOW Missile Launcher.	TML
MCN FLIRControl Panel.	FCP
MCN FLIR Power Supply.	FPS
MCN FLIR Missile Tracker	FMT
Left Hand grip	LHG
20 MM Automatic Gun Armament Subsystem (Universal Turret Subsystem)	UTS
Gunner Control Panel.	
Interface Control Unit.	IFCU
Logic Relay Assembly.	
Pilot Control Panel...	
Turret Buffer Amplifier.	------
AIM-1/EXL IR Laser Gunsight System	AIM

1-4. REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR).

If your equipment needs improvement , let us know. Send us an EIR. You, the uscr, are the only one who can tell us what you don't likc about your equipment . Let us know why you don't like the design. Put it on an SF 368 (Quality Deficiency Report). Mail it to us at Commander, US Army Aviation and TROOP Command, ATTN:AMSAT-I-MDO, 4300 Goodfellow Blvd., St. Louis, MO. 63120-1798). We'll send you a reply.

1-4.1. DESIGNATOR SYMBOL.

A designator symbol is used in conjunction with operational checks, troubleshooting contents, paragraph headings, and component nomenclatures to indicate limited effectivity of the data. AH–1F (MC) peculiar data has an MC designator symbol. AH–1IF (MCN) peculiar data has an MCN designator symbol. No desig–nator symbols are used when data applies to both AH-1F (MC) and AH-1F (MCN) helicopter configurations.


QUALITY DEFICIENCY REPORT
(Category II)
SECTION I
SECTION II
STANDARD FORM 368, April 1974
General Services Administration (FPMR 101-26.2)

SECTION II. EQUIPMENT DESCRIPTION AND DATA

SECTION CONTENT

	PAGE
EQUIPMENT PURPOSE	1-3
AIRFRAME COMPONENTS AND SYMBOLS	1-3

1-5. EQUIPMENT PURPOSE.

The Integrated Armament and Fire Control System results from interfacing all of the following Armament and Fire Control subsystems:

1. Head-up Display Subsystems (HUDS).
Fire Control Computer (FCC)
Air Data Subsystem (ADS)
Rocket Management Subsystem (RMS).
5. Universal Turret Subsystem (UTS).
Helmet Sight Subsystem (HSS)
TOW Missile Subsystem (TMS)

These troubleshooting procedures apply mostly to airframe components and wiring between the subsystems (interface).

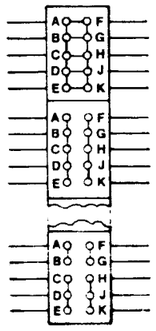
EXAMPLE:

An airframe component, terminal board (16TB1), exists between the Fire Control Computer (16A1) and the Head-up Display signal processor (16A2).

1-6. AIRFRAME COMPONENTS AND SYMBOLS .

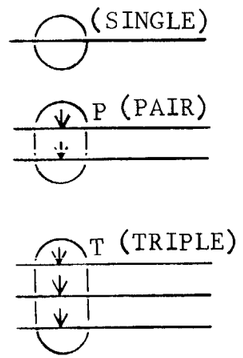
Airframe components, as they physically exist, cannot easily be illustrated. Therefore, a series of convenient symbols have been developed and standardized for that purpose. These symbols can be looked upon as "a graphic shorthand," to show the functions or interconnections of a circuit or wiring diagram There are many electrical symbols, but the ones you will be dealing with, for the most part, in this manual are illustrated as follows:

a. Terminal Board. A terminal board consists of one or more insulated terminals and/or modules to form a convenient connect/disconnect junction for signal, power, and ground wiring. The terminal board serves as a point where signals can become integrated or interfaced between subsystems. It can also be used for power distribution and a central ground return point.



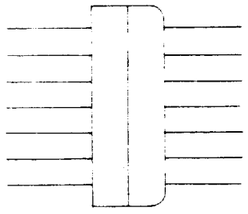
TERMINAL BOARD (TB)

b. Shields. A shield consists of wire strands braided together, and insulated, to form a flexible tube that covers the entire length of one or more insulated wires. The shield is used, when required, to eliminate Electromagnetic Interference (EMI) .



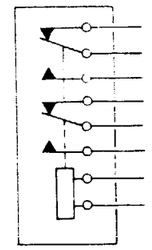
SHIELDED WIRE (K)

c. Connector. A connector is a device composed of mating halves called plugs and receptacles. Each of these halves has a coupling member and electrical contacts separated by insulating material. This provides a convenient means for connecting and disconnecting single or multiconductor cables.



CONNECTOR (J) (P)

d. Relay. A relay is a switching device used to control one or more circuits. Using an electromagnetic coil, to which control power is supplied, it provides mechanical motion to actuate the contacts of other circuits.



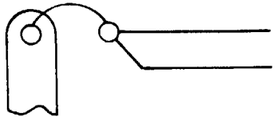
RELAY (K)

e. Splice. A splice is a device designed to physically join two or more conductors.



SPLICE

f. Circuit Breaker. A circuit breaker is a device designed to separate its contacts under abnormal conditions that exceed the rated current without damage.



CIRCUIT BREAKER (CB)

AIRFRAME COMPONENTS AND SYMBOLS (CONTINUED).

g. Diode. A diode is a semiconductor device with two electrodes. The semiconductor junction permits current flow in one direction and restricts current flow in the opposite direction. Therefore, attention to polarity, when connecting diode leads, is VERY important.



DIODE (CR)

h. Resistor. A resistor is an electrical component which serves as a circuit element, used to provide bi-directional opposition to current flow.



RESISTOR (R)

i. Ground. A ground is a conducting connection point of an electrical circuit that is at zero potential with respect to the earth or large conducting body, used as a return for electric current at zero voltage level. (This symbol is not a component.)



GROUND

The airframe component is also identified by its reference designation number such as:

TB=terminal board, K=relay, CB=circuit breaker, CR=diode, R=resistor, etc.

The location of a component can be found in the appropriate troubleshooting procedure or fault logic tree illustration. However, keep in mind that an airframe component (such as the terminal board in our example) can appear in many logic tree illustrations.

SECTION III. MAINTENANCE ACTION PRECISE SYMPTOMS (MAPS)

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1-7. HEAD UP DISPLAY SUBSYSTEM (HUDS) - MAPS.

FAILURE SYMPTOM	ACTION	REFERENCE
1. Mechanical failure of HUD operating controls or optics.	Replace HUD.	TM9-1270-220-13
2. HUD boresight mount failed.	Replace boresight mount.	TM9-1270-220-13
3. HUD PWR circuit breaker will not remain closed.	Troubleshoot.	Paragraph 2-4
4. HUD BLWR circuit breaker will not remain closed.	Troubleshoot.	Paragraph 2-5
5. Edge lit panel lamps on HUD do not light.	Troubleshoot.	Paragraph 2-6
6. HUD display does not respond to manual brightness control.	Replace HUD.	TM9-1270-220-13
7. HUD display does not dim in NVG mode.	Troubleshoot.	Paragraph 2-7
8. HUD AUTO BRT control inoperative.	Replace HUD.	TM9-1270-220-13
9. HUD INOP segment on pilot caution panel is lit when HUDS is in STBY or ON.	Troubleshoot.	Paragraph 2-8
10. HUD INOP segment on pilot caution panel is not lit with HUDS OFF.	Troubleshoot.	Paragraph 2-9
11. Signal processor BIT is white but HUD INOP segment of caution panel is off.	Troubleshoot.	Paragraph 2-10
12. Signal processor fan inoperative.	Troubleshoot.	Paragraph 2-11
13. HUD INOP lit and HUD bit is white but with display showing.	Replace HUD.	TM9-1270-220-13
14. HUD INOP lit and signal processor BIT is white but with display showing.	Replace signal processor.	TM9-1270-220-13
15. HUD shows no display or shows an incorrect pattern.	Troubleshoot.	Paragraph 2-12
16. Magnetic heading numeric display does not change.	Troubleshoot.	Paragraph 2-13
17. Radar altitude numeric display does not change.	Troubleshoot.	Paragraph 2-14
18. Range numeric display does not change when “F” precedes range display.	Troubleshoot.	paragraph 3-2
19. Range numeric display does not change when “L” precedes range display.	Troubleshoot.	Paragraph 8-2
20. Engine torque, magnetic heading, and radar altimeter numerics are all missing with “L” preceding range numeric.	Troubleshoot.	Paragraph 2-15

1-7. HEAD UP DISPLAY SUBSYSTEM (HUDS) - MAPS (CONTINUED).

FAILURE SYMPTOM	ACT ION	REFERENCE
21. Stadiametric reticle missing or incorrect.	Replace HUD.	TM9-1270-220-13
22. Fixed gun reticle not positioned correctly.	Troubleshoot,	Paragraph 2-16
23. Backup direct rocket reticle does not move when “L” precedes range numeric display.	Troubleshoot.	Paragraph 2-17
24. No reticle movement and no updating of numeric with “F” ceding range numeric display.	Omit operational check. Go directly to paragraph 2-13.	Paragraph 2-13
25. Line-of-sight reticle has ran- boresight reference and does not move in TOW mode with “F” preceding range numeric display.	Troubleshoot.	Paragraph 3-2
26. Line-of-sight reticle has random movement with “F” preceding range numeric display.	Troubleshoot.	Paragraph 3-2
27. Line-of-sight reticle does not move in azimuth with “L” preceding range numeric.	Troubleshoot.	Paragraph 2-18
28. Line-of-sight reticle does not move in elevation with “L” preceding range numeric.	Troubleshoot.	Paragraph 2-19
29. Line-of-sight reticle jitters with “L” preceding range numeric display.	Troubleshoot.	Paragraph 8-2
30. Coarse azimuth pointer does not move with “L” preceding range numeric display.	Troubleshoot.	Paragraph 2-20
31. Coarse azimuth pointer jitters with “L” preceding range numeric display.	Troubleshoot.	Paragraph 8-2
32. Radar altitude upper limit arrow not displayed on HUD.	Troubleshoot.	Paragraph 2-21
33. Radar altitude lower limit arrow not displayed on HUD.	Troubleshoot.	Paragraph 2-22
34. Radar altitude upper limit arrow appears when it should not.	Troubleshoot.	Paragraph 2-23
35. Radar altitude lower limit arrow appears when it should not.	Troubleshoot.	Paragraph 2-24
36. None of the prelaunch symbols appear on HUD with TOW BIT held down.	Troubleshoot.	Paragraph 2-25 MC Paragraph 2-25.1 MCN
37. TOW postlaunch window not displayed.	Troubleshoot.	Paragraph 2-26
38. Right TOW missile symbol missing for launcher positions 2, 4, 6, or 8.	Troubleshoot.	Paragraph 2-27
39. Left TOW missile symbol missing for launcher positions 1, 3, 5, or 7.	Troubleshoot.	Paragraph 2-28
40. TOW ascend steering arrow is the only prelaunch symbol missing.	Troubleshoot.	Paragraph 2-29
41. TOW descend steering arrow is the only prelaunch symbol missing.	Troubleshoot.	Paragraph 2-30
42. Direct or indirect rocket reticle jitters while lasing with “F” preceding range numeric.	Troubleshoot.	Paragraph 8-2
43. Direct or indirect rocket reticle erratic with “F” preceding range numeric.	Troubleshoot.	Paragraph 2-31
44. HUD display is compressed or distorted.	Troubleshoot.	Paragraph 2-32
45. Normal and test pattern display appears with PWR switch in STBY.	Troubleshoot.	Paragraph 2-33

1-7. HEAD UP DISPLAY SUBSYSTEM(HUDS) - MAPS (CONTINUED).

FAILURE SYMPTOM	ACT ION	REFERENCE
46. Elapsed time meter on HUD does not operate.	Omit operational check. Go directly to paragraph 2-34.	Paragraph 2-34
47. Direct rocket reticle appears with RKT switch in IND.	Troubleshoot.	Paragraph 2-35
48. HUD normal display appears with MODE switch in STAD and PWR switch in ON.	Troubleshoot.	Paragraph 2-36
49. HUD test pattern appears with MODE switch in NORM.	Troubleshoot.	Paragraph 2-37
50. Right TOW missile symbol appears on HUD when it should not.	Troubleshoot.	Paragraph 2-38
51. Left TOW missile symbol appears on HUD when it should not.	Troubleshoot.	Paragraph 2-39

1-8. FIRE CONTROL COMPUTER (FCC) - MAPS.

FAILURE SYMPTOM	ACTION	REFERENCE
1. FCC INOP segment on pilot caution panel is not lit with FCC circuit breaker open.	Troubleshoot.	Paragraph 3-5
2. FCC INOP segment on pilot caution panel is lit with FCC circuit breaker closed.	Troubleshoot.	Paragraph 3-6
3. FCC INOP segment on pilot caution panel is lit when ENTER COMPUTE button on boresight controller is pressed.	Troubleshoot.	Paragraph 3-6
4. Direct rocket reticle does not appear on HUD.	Troubleshoot.	Paragraph 2-2
5. Range numeric of 1400 does not appear on HUD when RNG-KM is set to 1.4.	Troubleshoot.	Paragraph 3-7
6. Range numeric on HUD does not agree with RNG-KM setting.	Troubleshoot.	Paragraph 3-7
7. Direct rocket reticle on HUD does not move downward when RNG-KM is changed from 1.4 to 4.0.	Troubleshoot.	Paragraph 5-6
8. Direct rocket reticle on HUD does not move or change appearance when RKT switch on HUD is changed from DIR to IND.	Troubleshoot,	Paragraph 3-8
9. Magnetic heading numerics on HUD do not change or read the same as the HSI.	Troubleshoot.	Paragraph 3-9
10. OFF flag on radar altimeter does not retract from view.	Troubleshoot.	Paragraph 4-17
11. Radar altitude numerics do not appear or change value on HUD.	Troubleshoot,	Paragraph 3-10
120 Direct rocket reticle on HUD does not move when pilot collective stick is moved.	Troubleshoot.	Paragraph 3-11
13. TOW mode indicator on TCP (TOW control panel) does not indicate correctly.	Troubleshoot.	Paragraph 8-2
14. Gun will not align with TSU line-of-sight when ACTION switch is pressed.	Troubleshoot.	Paragraph 6-2
15. Coarse azimuth pointer on HUD stays at O degrees when moving TSU with track control stick.	Troubleshoot.	Paragraph 3-12
16. Coarse azimuth pointer on HUD stays at + 90 degrees when moving TSU with track control stick.	Troubleshoot.	Paragraph 3-13
17. LOS reticle on HUD stays at O degrees elevation when moving TSU with track control stick.	Troubleshoot.	Paragraph 3-14
18, Gun does not move approximately 7 inches to the right when pointing at a forward target with GUN-TSU selected and ENTER COMPUTE button pressed on boresight controller.	Troubleshoot.	Paragraph 3-15
19. Gun does not move approximately 7 inches to the right when pointing at a 90 degree right target with GUN-TSU selected and ENTER COMPUTE botton pressed on boresight controller.	Troubleshoot.	Paragraph 3-16
20. Gun does not move approximately 7 inches in elevation when pointing at a forward target with GUN -TSU selected and ENTER COMPUTE button pressed on boresight controller.	Troubleshoot.	Paragraph 3-17
21. Gun will not align with GHS position。	Troubleshoot.	Paragraph 7-2
22. Gun will not align with PHS position.	Troubleshoot.	Paragraph 7-2
23. Gun does not move with GHS-GUN selected and ENTER COMPUTE button pressed on boresight controller.	Troubleshoot.	Paragraph 3-18

1-8. FIRE CONTROL COMPUTER (FCC) - MAPS (CONTINUED)

FAILURE SYMPTOM	ACTION	REFERENCE
24. Gun does not move with PHS-GUN selected and ENTER COMPUTE button pressed on boresight controller.	Troubleshoot.	Paragraph 3-19
25. TSU will not align with GHS position.	Troubleshoot.	Paragraph 8-2
26. TSU will not align with PHS position.	Troubleshoot.	Paragraph 8-2
27. TSU does not move with GHS-TSU selected and ENTER COMPUTE button pressed on boresight controller.	Troubleshoot.	Paragraph 3-20
28. TSU target does not move outside the TSU circle in azimuth when pointing at a forward target with PHS-TSU selected and ENTER COMPUTE button pressed on boresight controller.	Troubleshoot.	Paragraph 3-21
29. TSU target does not move outside the TSU circle in azimuth when pointing at a 90 degree right target with PHS-TSU selected and ENTER COMPUTE button pressed on boresight controller	Troubleshoot.	Paragraph 3-22
30. TSU target does not move outside the TSU circle in elevation when pointing at forward target with PHS-TSU selected and ENTER COMPUTE button pressed on boresight controltoller.	Troubleshoot.	Paragraph 3-23
31, Coarse azimuth pointer on HUD stays at O degrees when moving TSU in azimuth with PHS.	Troubleshoot.	Paragraph 3-24
32. Coarse azimuth pointer on HUD stays at + 90 degrees when moving TSU in azimuth with PHS.	Troubleshoot.	Paragraph 3-25
33. LOS reticle on HUD stays at O degrees elevation when moving TSU in elevation with PHS.	Troubleshoot.	Paragraph 3-26
34. Gun does not respond to manual range changes from gunner.	Troubleshoot.	Paragraph 3-27
35. Gun does not respond to manual range changes from pilot.	Troubleshoot.	Paragraph 3-28
36. MAL lamp on DPLR NAV control panel is lit when doppler is turned on.	Troubleshoot.	Paragraph 3-29
37. MEM lamp on DPLR NAV control panel does not light when doppler is turned on.	Troubleshoot.	TM 11-1520-236-34
38. MEM lamp on DPLR NAV control panel does not go out in response to moving object below doppler antenna.	Troubleshoot.	TM 11-1520-236-34
39. Gun moves erratically with MB-1A tester set to 100 knots.	Troubleshoot.	Paragraph 4-10
40. Gun does not move rearward approximately 5 inches with MB-1A tester set to 100 knots.	Troubleshoot.	Paragraph 4-11
41. Gun does not move forward in response to moving object below doppler antenna.	Troubleshoot.	Paragraph 3-30
42. Engine torque numerics do not appear or change on HUD.	Troubleshoot.	Paragraph 3-31
43. Laser numerics do not appear or change on HUD with FCC on.	Troubleshoot.	Paragraph 3-32
44. LOS reticle on HUD has random movement with “F” preceding range numeric.	Troubleshoot.	Paragraph 3-33
45 . Gun or rockets fire inaccurately.	Troubleshoot.	Paragraph 3-34
46. ARMED indicator on pilot ARMT control panel not lit with MASTER ARM switch in the ARM position.	Troubleshoot.	Paragraph 9-2

1-8. FIRE CONTROL COMPUTER (FCC) - MAPS (CONTINUED).

FAILURE SYMPTOM	ACTION	REFERENCE
47. PLT IN CONT indicator on gunner armament control panel not lit when WPN CONTR switch set to PILOT.	Troubleshoot.	Paragraph 9-27
48. FCC circuit breaker will not stay closed.	Troubleshoot.	Paragraph 3-35
49. TMS BLWR circuit breaker will not stay closed.	Troubleshoot.	Paragraph 8-2
50. TURRET PWR circuit breaker will not stay closed.	Troubleshoot.	Paragraph 6-2
51. HSS PWR circuit breaker will not stay closed.	Troubleshoot.	Paragraph 7-4
52. WPN CONTR circuit breaker will not stay closed.	Troubleshoot.	Paragraph 9-11
53. WPN FIRE circuit breaker will not stay closed.	Troubleshoot.	Paragraph 9-2
54. ARMT CONTR circuit breaker will not stay closed.	Troubleshoot.	Paragraph 9-2

1-9. AIR DATA SUBSYSTEM (ADS) - MAPS.

FAILURE SYMPTOM	ACT ION	REFERENCE
1. SELF TEST lamp is lit before SELF TEST switch is pressed.	Replace EPU.	TM 9-1270-219-13
2. SELF TEST lamp fails to light when SELF TEST switch is pressed.	Troubleshoot.	Paragraph 4-18
3. BIT flags do not show white when SELF TEST switch is pressed.	Replace EPU.	TM9-1270-219-13
4. BIT flags do not show black when RESET switch is pressed.	Replace EPU.	TM9-1270-219-13
5. SELF TEST lamp fails to go out after RESET switch is pressed.	Replace EPU.	TM9-1270-219-13
6. Low airspeed indicator fail flag (red and black diagonal stripes) does not appear when RESET switch is pressed.	Troubleshoot.	Paragraph 4-4
7* EPU BIT indicator shows white and low airspeed indicator fail flag appears.	Replace EPU.	TM 9-1270-219-13
8. LAI BIT indicator shows white and low airspeed indicator fail flag appears.	Troubleshoot.	Paragraph 4-5
9. AADS BIT indicator shows white and low airspeed indicator fail flag appears.	Replace AADS.	TM 9-1270-219-13
10. EPU and AADS BIT indicators show white and LAI flag shows fail after self test lamp goes out.	Troubleshoot.	Paragraph 4-6
11. EPU, AADS and LAI BIT indicators show white but LAI flag does not show fail after self test lamp goes out l	Replace EPU.	TM 9-1270-219-13
12. LAI BIT indicator shows white but low airspeed indicator fail flag does not appear.	Replace LAI.	TM 9-1270-219-13
13. Fore-aft bar on low airspeed indicator does not go to 40K forward during self test.	Replace LAI.	TM 9-1270-219-13
14. Lateral bar on low airspeed indicator does not go to 10K right during self test.	Replace LAI.	TM9-1270-219-13
15. Fore-aft bar does not go to 40K foward and lateral bar does not go to 10K right on low airspeed indicator during self test.	Replace LAI.	TM 9-1270-219-13
16. Low airspeed indicator bars do not return to zero at completion of self test.	Replace LAI.	TM 9-1270-219-13
17. Lateral bar on low airspeed indicator will not move when probe is moved.	Troubleshoot.	Paragraph 4-7
18. Fore-aft bar on low airspeed indicator will not move when probe is moved.	Troubleshoot.	Paragraph 4-8
19. All BIT indicators show black but LAI flag shows fail after self test lamp goes out.	Troubleshoot.	Paragraph 4-9
20. Direct rocket reticle on HUD moves erratically.	Troubleshoot.	Paragraph 4-10
21. Direct rocket reticle on HUD does not track AADS movement.	Troubleshoot.	Paragraph 4-11
22. Direct rocket reticle on HUD does not move with radar altimeter in SELF TEST .	Troubleshoot.	Paragraph 4-12
23. AADS heater will not heat.	Troubleshoot.	Paragraph 4-13

1-9. AIR DATA SUBSYSTEM (ADS) - MAPS (CONTINUED).

FAILURE SYMPTOM	ACT ION	REFERENCE
24. No low airspeed indicator lighting.	Troubleshoot.	Paragraph 4-14
25. Lighting on low airspeed indicator does not dim in the NVG mode.	Troubleshoot NVG lighting.	TM 55-1520-236-23
26. Out of range flag does not appear at foreward airspeed above 50 knots.	Troubleshoot.	TM 9-1270-219-13
27. Out of range flag appears at forward airspeed less than 50 knots.	Replace LAI.	TM 9-1270-219-13
28. ADS ANTI ICE circuit breaker will not remain closed.	Troubleshoot.	Paragraph 4-15
29. ADS PWR circuit breaker will not remain closed.	Troubleshoot.	Paragraph 4-16
30. When ADS PWR circuit breaker is closed, low airspeed indicator fore-aft bar moves rapidly to top of scale and lateral bar moves rapidly to left side of scale.	Continue operational check.	
31. OFF flag on radar altimeter does not retract from view.	Troubleshoot.	Paragraph 4-17
32. Radar altimeter does not respond to self test.	Troubleshoot.	TM11-1520-236-34

1-10. ROCKET MANAGEMENT SUBSYSTEM (RMS) - MAPS.

FAILURE SYMPTOM	ACTION	REFERENCE
1. RND REM displays incorrect inventory in one or more zones.	Troubleshoot.	Paragraph 5-4
2. RND REM does not re-inventory when MASTER ARM switch is set to OFF and then back to STBY or MASTER ARM.	Replace ROCKETS display unit.	TM 9-1090-207-13
3. RND REM does not show zeros with simulators not installed.	Troubleshoot.	Paragraph 5-5
4. RND REM display does not indicate all 8's during self test.	Replace ROCKETS display unit.	TM 9-1090-207-13
5. One or more ZONE ARM brackets do not light during self test.	Replace ROCKETS display unit.	TM 9-1090-207-13
6. ROCKETS display unit fails ("7" does not light) during self test.	Replace ROCKETS display unit.	TM 9-1090-207-13
7. Right outboard operations unit fails ("7" does not light) during RMS self test.	Troubleshoot.	Paragraph 5-6
8. Right inboard operations unit fails ("7" does not light) during RMS self test.	Troubleshoot.	Paragraph 5-7
9. Left outboard operations unit fails ("7" does not light) during RMS self test.	Troubleshoot.	Paragraph 5-8
10. Left inboard operations unit fails ("7" does not light) during RMS self test.	Troubleshoot.	Paragraph 5-9
11. Right inboard and right outboard operations units fail ("7" does not light) during RMS self test.	Troubleshoot.	Paragraph 5-10
12. Left inboard and left outboard operations units fail ("7" does not light) during RMS self test.	Troubleshoot.	Paragraph 5-11
13. All operations units fail ("7" does not light) during RMS self test.	Troubleshoot.	Paragraph 5-12
14. During operation of system (after self test) RND REM displays all 8's, and RMS will not function.	Troubleshoot.	Paragraph 5-19
15. Zone will not arm when its ZONE ARM switch is pressed.	Troubleshoot.	Paragraph 5-13
16. Edge lit panel lights on ROCKETS display unit do not increase in brightness as CONSOLE lighting control is rotated from OFF to BRT.	Troubleshoot.	Paragraph 5-14
17. RND REM, ZONE ARM and thumbwheel lights do not go off and then increase in brightness as CONSOLE lighting control is rotated from OFF to BRT .	Troubleshoot.	Paragraph 5-15
18. Lighting on ROCKETS display unit does not go out or dim in the NVG MODE.	Troubleshoot.	Paragraph 5-16
19. RND REM display not lit with MASTER ARM switch in STBY.	Troubleshoot.	Paragraph 5-17
20. ZONE ARM switch bracket light for one or more zones does not go out when zone inventory reads 0.	Replace ROCKETS display unit.	TM 9-1090-207-13

1-10. ROCKET MANAGEMENT SUBSYSTEM (RMS) - MAPS (CONTINUED).

FAILURE SYMPTOM	ACTION	REFERENCE
21. Zones with the same rocket type selected do not arm simultaneously when one zone is armed.	Replace ROCKETS display unit.	TM 9-1090-207-13
22. Pilot can not fire rockets in SNG mode.	Troubleshoot.	Paragraph 5-18
23. RND REM display does not decrease while in the PRS mode.	Troubleshoot.	Paragraph 5-18
24. Pilot can not fire rockets in PRS mode.	Troubleshoot.	Paragraph 5-19
25. RND REM display does not decrease while in the PRS mode.	Troubleshoot.	Paragraph 5-19
26. Pilot can not fire rockets in QAD mode.	Troubleshoot.	Paragraph 5-20
27. RND REM display does not decrease while in the QAD mode.	Troubleshoot.	Paragraph 5-20
28. Gunner can not fire rockets in PLT ORIDE.	Troubleshoot.	Paragraph 5-21
29. RND REM display does not decrease when gunner is in PLT ORIDE.	Troubleshoot.	Paragraph 5-21
30. Neither pilot nor gunner can fire rockets.	Troubleshoot.	Paragraph 5-22
31. RND REM display does not decrease when pilot or gunner WING ARM FIRE switch is pressed.	Troubleshoot.	Paragraph 5-22
32. Rockets will fire when turret is not in stow position.,	Troubleshoot.	Paragraph 5-23
33. RND REM display decreases with gun turret out of stow position.	Troubleshoot.	Paragraph 5-23
34. Gun turret will not stow when pilot WING ARM FIRE switch is pressed.	Troubleshoot.	Paragraph 5-24
35. Direct rocket reticle on HUD display will not respond to manual RMS RNG input.	Troubleshoot.	Paragraph 5-25
36. WING STORE PWR circuit breaker will not stay closed with MASTER ARM switch in ARM.	Troubleshoot.	Paragraph 5-26
37. WING STORE PWR circuit breaker will not stay closed with MASTER ARM switch in STBY.	Troubleshoot.	Paragraph 5-27
38. ARMT CONTR circuit breaker will not stay closed with MASTER ARM switch in STBY or ARM.		Paragraph 1-14
39. WPN CONTR circuit breaker will not stay closed with MASTER ARM switch in STBY or ARM.		Paragraph 1-14

1-10. ROCKET MANAGEMENT SUBSYSTEM (RMS) - MAPS (CONTINUED).

FAILURE SYMPTOM	ACTION	REFERENCE
40. WPN CONTR circuit breaker will not stay closed when PLT ORIDE switch is placed in PLT ORIDE.		Paragraph 1-14
41. WPN CONTR circuit breaker will not stay closed when MASTER ARM switch is OFF and PLT ORIDE switch OFF.		Paragraph 1-14
42. Pilot STBY (green) indicator will not light with MASTER ARM switch is in STBY.		
43. Gunner STBY (green) indicator will not light with MASTER ARM switch in STBY.		Paragraph 1-14
44. Pilot and gunner STBY (green) indicators will not light when MASTER ARM switch is in STBY.		Paragraph 1-14
45. Pilot ARMED (red) indicator will not light when MASTER ARM switch is in ARM.		Paragraph 1-14
46. Gunner ARMED (red) indicator will not light with MASTER ARM switch in ARM.		Paragraph 1-14
47. Pilot and gunner ARMED (red) indicators will not light when MASTER ARM switch is in ARM.		Paragraph 1-14
48. Pilot and gunner ARMED (red) indicators-will not light when MASTER ARM switch is OFF and PLT ORIDE switch is in PLT ORIDE position.		Paragraph 1-14

1-11. UNIVERSAL TURRET SUBSYSTEM (UTS) - MAPS.

FAILURE SYMPTOM	ACTION	REFERENCE
1. Pilot and/or gunner STBY indicator does not light when MASTER ARM switch is set to STBY.	Troubleshoot.	Paragraph 9-2
2. EIA segment on PLT/GNR/EIA/GO indicator is lit.	Troubleshoot.	Paragraph 7-2
3. HSS fails BIT check.	Troubleshoot.	Paragraph 7-2
4. Pilot and/or gunner ARMED indicater does not light when MASTER ARM switch is set to ARM.	Troubleshoot.	Paragraph 9-2
5. Turret does not follow gunner helmet sight when left hand grip ACTION switch is pressed.	Troubleshoot.	Paragraph 6-4
6. Turret will not follow gunner helmet sight in azimuth (either remains stationary or drifts) .	Troubleshoot.	Paragraph 6-5
7. Turret tries to follow gunner helmet sight but is sluggish and out of coincidence.	Troubleshoot.	Paragraph 6-6
8. Turret will not follow gunner helmet sight in elevation (either remains stationary or drifts) .	Troubleshoot.	Paragraph 6-7
9. Retitles not present when any ACTION switch is pressed.	Troubleshoot.	Paragraph 6-8
10. Turret follows sight in coincidence but reticle flashes continuously.	Troubleshoot.	Paragraph 6-9
11. Gunner and pilot retitles do not flash.	Troubleshoot.	Paragraph 6-10
12. Turret drive motor continues to run (producing a loud noise) after contacting the mechanical stop.	Troubleshoot.	TM 9-1090-206-20-1
13. Turret slew rate does not decrease with TUR SLEW switch set to GND TEST.	Troubleshoot.	Paragraph 6-11
14. Turret drives thru depression limit.	Troubleshoot.	Paragraph 6-12
15. Gun barrels do not rotate in response to TRIGGER switch on left hand grip.	Troubleshoot.	Paragraph 6-13
16. Gun barrels rotate continuously when TRIGGER switch is pressed to first detent.	Troubleshoot.	Paragraph 6-14
17. Pressing TRIGGER switch to first detent opens WPN FIRE circuit breaker.	Troubleshoot.	Paragraph 6-15
18. Pressing TRIGGER switch to second detent opens WPN FIRE circuit breaker.	Troubleshoot.	Paragraph 6-16
19. Gun barrels rotate when turret is in a limit.	Troubleshoot.	TM 9-1090-206-12
20. Turret has no control; drifts in both azimuth and elevation.	Troubleshoot.	Paragraph 6-17
21. Pilot and gunner ARMED indicaters do not light when PLT ORIDE switch is set to PLT ORIDE .	Troubleshoot.	Paragraph 9-2
22. Gun barrels do not rotate in response to TRIGGER TURRET FIRE switch on the gunner cyclic grip.	Troubleshoot.	Paragraph 6-18
23. Turret will not move to the fixed forward position when pilot selects FIXED.	Troubleshoot.	Paragraph 6-19
24. PILOT IN CONT indicator on gunner armament control panel does not light when WPN CONTR switch is set to PILOT or FIXED.	Troubleshoot.	Paragraph 6-20

1-11. UNIVERSAL TURRET SUBSYSTEM (UTS) - MAPS. (CONTINUED).

FAILURE SYMPTOM	ACTION	REFERENCE
25. ARMED (red) indicator on pilot ARMT control panel goes out when WPN CONTR switch is set to PILOT or FIXED.	Troubleshoot.	Paragraph 9-2
26. Gun barrels do not rotate in response to TRIGGER TURRET FIRE switch on pilot cyclic stick.	Troubleshoot.	Paragraph 6-21
27. Gun feeder solenoid will not engage feeder.	Troubleshoot.	Paragraph 6-22
28. Ammo boost motor fails to run with TRIGGER switch pressed.	Troubleshoot.	Paragraph 6-23
29. Turret does not respond to pilot TRIGGER ACTION switch.	Troubleshoot.	Paragraph 6-24
30. "G" battle flag indicator does not appear in TSU.	Troubleshoot.	Paragraph 8-2
31. TSU does not respond to sight hand control.	Troubleshoot.	Paragraph 8-2
32. Turret does not align with TSU.	Troubleshoot.	Paragraph 6-25
33. Turret will not move to the fixed forward position when in a TOW mode.	Troubleshoot.	Paragraph 6-26
34. Gun turret will not move to stow position when TRIGGER on left hand grip is pressed in TOW mode.	Troubleshoot.	Paragraph 6-27
35. PILOT IN CONT indicator lights immediately after relase of left hand grip TRIGGER switch in TOW MODE.	Troubleshoot.	Paragraph 6-28
36. Gun turret will not stow when pilot WING ARM FIRE switch is pressed.	Troubleshoot.	Paragraph 5-2
37. Turret emergency stow fails.	Troubleshoot.	Paragraph 6-29
38. GUN ELEV STOWED segment on pilot caution panel does not light.	Troubleshoot.	Paragraph 6-30
39. RD RMNG indicator does not decrease.	Troubleshoot.	Paragraph 6-31
40. TURRET PWR circuit breaker opens when RECOIL COMPEN switch is set to RECOIL COMPEN .	Troubleshoot.	Paragraph 6-32
41. Roll compensation voltage greater than 0.9 V dc when RECOIL COMP selector switch is in HI position.	Troubleshoot.	Paragraph 6-33
42. Roll compensation voltage less than 0.5 V dc when RECOIL COMP selector switch is in HI position.	Troubleshoot.	Paragraph 6-34
43. Roll compensation voltage greater than 0.75 V dc or less than 0.35 V dc when RECOIL COMP selector switch is in MED position.	Troubleshoot.	Paragraph 6-35
44. Roll compensation voltage greater than 0.65 V dc or less than 0.25 V dc when RECOIL COMP selector switch is in LOW position.	Troubleshoot.	Paragraph 6-36
45. Yaw compensation voltage greater than 1.5 V dc when RECOIL COMP selector switch is in HI position.	Troubleshoot.	Paragraph 6-37
46. Yaw compensation voltage less than 1.1 V dc when RECOIL COMP selector switch is in HI position.	Troubleshoot.	Paragraph 6-38
47. Yaw compensation voltage greater than 1.25 V dc or less than 0.85 V dc when RECOIL COMP selector switch is in MED position.	Troubleshoot.	Paragraph 6-39

1-11. UNIVERSAL TURRET SUBSYSTEM (UTS) - MAPS. (CONTINUED).

FAILURE SYMPTOM	ACTION	REFERENCE
48. Yaw compensation voltage greater than 1.0 V dc or less than 0.6 V dc when RECOIL COMP selector switch is in LOW position.	Troubleshoot.	Paragraph 6-40
49. Pitch compensation voltage reading is between - 1.25 V dc and - 5.0 V dc when RECOIL COMP selector switch is in HI position.	Troubleshoot.	Paragraph 6-41
50. Pitch compensation voltage reads 0 ± 0.2 V dC when RECOIL COMP selector switch is in HI position.	Troubleshoot.	Paragraph 6-42
51. Pitch compensation voltage reading is between - 0.90 V dc and - 5.0 V dc or reads 0 ± 0.2 V dc when RECOIL COMP selector switch is in MED position.	Troubleshoot.	Paragraph 6-43
52. Pitch compensation voltage reading is between - 0.75 V dc and 5 V dc or reads 0 ± 0.2 V dc when RECOIL COMP selector switch is in LOW position.	Troubleshoot.	Paragraph 6-44
53. Roll compensation voltage too high when RECOIL COMP selector switch is in any position.	Troubleshoot.	Paragraph 6-45
54. Yaw compensation voltage too high when RECOIL COMP selector switch is in any position.	Troubleshoot.	Paragraph 6-46
55. Pitch compensation voltage too high when RECOIL COMP selector switch is in any position.	Troubleshoot.	Paragraph 6-47
56. No roll or yaw compensation voltage, pitch compensation voltage normal.	Troubleshoot.	Paragraph 6-48
57. No armament compensation voltage in any axis.	Troubleshoot.	Paragraph 6-49
58. No firing voltage.	Troubleshoot.	Paragraph 6-50
59. Unfired rounds dump overboard.	Troubleshoot.	Paragraph 6-50
60. Gun fails to clear after firing.	Troubleshoot.	Paragraph 6-22
61. Turret is not in stow position with MASTER ARM switch in STBY.	Troubleshoot.	Paragraph 6-51
62. Gun barrels do not rotate continuously from left hand grip TRIGGER switch second detent.	Troubleshoot.	Paragraph 6-52
63. Gun barrels do not rotate continuously from gunner cyclic stick TURRET TRIGGER FIRE switch second detent.	Troubleshoot.	Paragraph 6-53
64. Gun barrels do not rotate continuously from pilot cyclic stick TURRET TRIGGER FIRE switch second detent.	Troubleshoot.	Paragraph 6-54
65. Gun barrels do not rotate in response to pilot TRIGGER in TOW mode.	Troubleshoot.	Paragraph 6-55
66. Turret does not respond to gunner cyclic stick TRIGGER ACTION switch.	Troubleshoot.	Paragraph 6-56
67. TURRET STOW circuit breaker will not stay closed.	Troubleshoot.	Paragraph 6-29
68. Retitles do not appear in pilot and gunner eyepieces.	Troubleshoot.	Paragraph 7-2

1-12. HELMET SIGHT SUBSYSTEM (HSS) - MAPS.

FAILURE SYMPTOM	ACTION	REFERENCE
1. HSS PWR circuit breaker will not stay closed.	Troubleshoot.	Paragraph 7-4
2. STBY light is not lit with MASTER ARM switch in STBY.	Troubleshoot.	Paragraph 9-16
3. PLT/GNR/EIA/GO BIT indicater segments do not all light during PRESS TO TEST.	Troubleshoot.	Paragraph 7-5
4. EIA segment of BIT indicater remains lit after HSS BIT check.	Troubleshoot.	Paragraph 7-6
5. EIA segment on BIT indicater stays lit.	Troubleshoot.	Paragraph 7-7
6. PLT segment of BIT indicater remains lit after HSS BIT check.	Troubleshoot.	Paragraph 7-8
7. GNR segment of BIT indicater remains lit after HSS BIT check.	Troubleshoot.	Paragraph 7-9
8. No segment on PLT/GNR/EIA/GO BIT indicator will light after BIT check.	Troubleshoot.	Paragraph 7-10
9. GO segment on PLT/GNR/EIA/GO BIT indicator remains lit longer than 10 seconds.	Replace electronic interface assembly (EIA).	TM 9-1270-212-14
10. Gunner or pilot linkage assembly binds or has restricted movement.	Repair.	TM 9-1270-212-14
11. Gunner or pilot helmet eyepiece can not be rotated down.	Repair.	TM 9-1270-212-14
12. Gunner helmet eyepiece will not latch.	Troubleshoot.	Paragraph 7-11
13. Pilot helmet eyepiece will not latch.	Repair.	TM 9-1270-212-14
14. Gunner or pilot helmet eyepiece does not maintain vertical position.	Repair.	TM 9-1270-212-14
15. Gunner or pilot helmet eyepiece does not maintain lateral position.	Repair.	TM 9-1270-212-14
16. No reticle in pilot eyepiece during HSS reticle test.	Troubleshoot.	Paragraph 7-12
17. No reticle in gunner eyepiece during HSS reticle test.	Troubleshoot.	Paragraph 7-13
18. No reticle in pilot helmet eyepiece.	Troubleshoot.	Paragraph 7-14
19. No reticle in gunner helmet eyepiece.	Troubleshoot.	Paragraph 7-15
20. EIA segment on BIT indicator not lit when HSS PWR circuit breaker is open.	Troubleshoot.	Paragraph 7-16
21. Turret will not follow pilot helmet movement in elevation.	Troubleshoot.	Paragraph 7-17
22. Turret will not follow pilot helmet movement in elevation or azimuth.	Troubleshoot.	Paragraph 7-18
23. No pilot or gunner HSS reticle with pilot or gunner ACTION switch pressed.	Troubleshoot.	Paragraph 7-19
24. Pilot and gunner HSS reticle not flashing while turret is out of coincidence.	Troubleshoot.	Paragraph 7-20
25. Pilot and gunner reticle flashes when turret is in coincidence with either HSS or TSU sight.	Troubleshoot.	Paragraph 6-2
26. Turret will not follow gunner helmet movement in elevation.	Troubleshoot.	Paragraph 7-21

1-12. HELMET SIGHT (HSS) MAPS (CONTIUED).

FAILURE SYMPTOM	ACTION	REFERENCE
27. Turret will not follow gunner helmet movement.	Troubleshoot t.	Paragraph 7-22
28. TSU will not follow gunner helmet movement.	Troubleshoot.	Paragraph 8-2
29. Gunner helmet eyepiece will not retract when ACQ/TRK/ STOW switch is released.	Troubleshoot.	Paragraph 7-23
30. TSU is not on same target acquired through gunner helmet eyepiece.	Troubleshoot.	Paragraph 3-2
31. TSU will not follow pilot helmet movement.	Troubleshoot.	Paragraph 8-2
32. Gunner eyepiece will not retract when ACQ switch is held in PHS.	Troubleshoot.	Paragraph 7-24
33. TOW si ht does not coincide with target in GHS acquisition mode.	Troubleshoot.	Paragraph 3-2
34. ESNTL BUS circuit breaker will not stay closed.	Troubleshoot.	Paragraph 9-38
35. ESNTL BUS circuit breaker open when GPU connected.	Troubleshoot.	Paragraph 9-39
36. EXT PWR circuit breaker open when GPU connected.	Troubleshoot.	Paragraph 9-40
37. REF XMFR circuit breaker opens immediately after being closed.	Troubleshoot.	Paragraph 9-6
38. WPN CONTR circuit breaker opens immediately after being closed.	Troubleshoot.	Paragraph 9-11
39. WPN FIRE circuit breaker opens when MASTER ARM switch set to STBY.	Troubleshoot.	Paragraph 9-12
40. ARMT CONTR circuit breaker opens when MASTER ARM switch is set to STBY.	Troubleshoot.	Paragraph 9-13
41. Pilot STBY indicator does not light when MASTER ARM switch is set to STBY.	Troubleshoot.	Paragraph 9-16
42. Gunner STBY indicator does not light when MASTER ARM switch is set to STBY.	Troubleshoot.	Paragraph 9-17
43. Gunner STBY-ARMED indicator does not light during PUSH-TO-TEST while in STBY.	Troubleshoot.	Paragraph 9-23
44. No 28 V dc on essential bus from GPU.	Troubleshoot.	Paragraph 9-5
45. Pilot HSS reticle flashes continuously while action switch is depressed. Turret follows sight in coincidence.	Troubleshoot.	Paragraph 7-25
46. Gunner HSS reticle flashes continuously while action switch is depressed. Turret follows sight in coincidence.	Troubleshoot.	Paragraph 7-26

1-13. TOW MISSILE SUBSYSTEM (TMS) - MAPS

FAILURE SYMPTOM	ACTION	REFERENCE
1. Battery terminal voltage is less than 22 V dc.	Troubleshoot.	TM55-1520-236-23
2. No 28 V dc on essential bus from GPU.	Troubleshoot.	Paragraph 9-2
3. EMER HYD PUMP circuit breaker opens.	Troubleshoot.	TM 55-1520-236-23
4. HYD CONTR circuit breaker opens.	Troubleshoot.	TM 55-1520-236-23
5. INV circuit breaker opens.	Troubleshoot.	TM 55-1520-236-23
6. CAUT LT circuit breaker opens.	Troubleshoot.	TM 55-1520-236-23
7. PLT INST LT circuit breaker opens.	Troubleshoot.	TM 55-1520-236-23
8. GNR INST LT circuit breaker opens.	Troubleshoot.	TM 55-1520-236-23
9. ICS PLT circuit breaker opens.	Troubleshoot.	TM 55-1520-236-23
10. ICS GNR circuit breaker opens.	Troubleshoot.	TM 55-1520-236-23
11. REF XFMR circuit breaker opens immediately after being closed.	Troubleshoot.	Paragraph 9-2
12. TMS BLWR circuit breaker opens.	Troubleshoot.	TM 55-1520-236-23
13. TURRET PWR circuit breaker opens.	Troubleshoot.	Paragraph 6-2
14. HSS PWR circuit breaker opens.	Troubleshoot.	Paragraph 7-2
15. SECU PWR circuit breaker opens.	Troubleshoot.	Paragraph 8-4
16. TMS PWR circuit breaker on AC/ARMT circuit breaker panel will not stay closed,	Troubleshoot.	Paragraph 8-5 MC Paragraph 8-5.1 MCN
17. TURRET DRIVE MOTOR circuit breaker opens.	Troubleshoot.	Paragraph 6-2
18. TURRET GUN MOTOR circuit breaker opens.	Troubleshoot.	Paragraph 6-2
19. WPN CONTR circuit breaker opens.	Troubleshoot.	Paragraph 9-2
20. WPN FIRE circuit breaker opens when MASTER ARM switch is set to ARM.	Troubleshoot.	Paragraph 9-2
21. ARMT CONTR circuit breaker opens when MASTER ARM switch is set to ARM.	Troubleshoot.	Paragraph 9-2
22. TOW PWR circuit breaker in battery compartment will not stay closed.	Troubleshoot.	Paragraph 8-6
22.1. FPS PWR circuit breaker in battery compartment will not stay closed.	Troubleshoot.	Paragraph 8-6.1 MCN
23. TCP (TOW control panel) lighting inoperative.	Troubleshoot.	Paragraph 8-7
23.1. FCP (FLIR control panel) lighting inoperative.	Troubleshoot.	Paragraph 8-7.1 MCN
24. ARMED indicator will not light.	Troubleshoot.	Paragraph 9-2
25. ARMED not indicated on TCP (TOW control panel).	Troubleshoot	Paragraph 8-8
26. TEST not indicated on TCP.	Troubleshoot.	Paragraph 8-9 MC Paragraph 8-9.1 MCN
27. PWR ON not indicated on TCP .	Troubleshoot.	Paragraph 8-10 MC Paragraph 8-10.1 MCN
28. OFF reappears on TCP shortly after turn on.	Troubleshoot.	Paragraph 8-11 MC Paragraph 8-11.1 MCN
29. Gun will not move to fixed forward position.	Troubleshoot.	Paragraph 6-2

1-13. TOW MISSILE SUBSYSTEM (TMS)- MAPS (CONTINUED)

	FAILURE SYMPTOM	ACTION	REFERENCE
30.	TSU will not stow or TSU oscillates in stow.	Troubleshoot.	Paragraph 8-12
31.	Image in TSU does not stay upright (rotates).	Troubleshoot.	Paragraph 8-13
32.	TSU BIT indicator (TOW control panel) shows white.	Troubleshoot.	Paragraph 8-14 MC Paragraph 8-14.1 MCN
33.	SCA BIT indicator on TCP shows white.	Troubleshoot.	Paragraph 8-15 MC Paragraph 8-15.1 MCN
34.	MCA BIT indicator on TCP shows white.	Troubleshoot.	Paragraph 8-16 MC Paragraph 8-16.1 MCN
35.	EPS BIT indicator on TCP shows white.	Replace electronic power supply (EPS).	TM 9-1425-473-20
36.	Two or more BIT indicators on TCP show white.	Troubleshoot.	Paragraph 8-45
37.	Reticle in TSU eyepiece will not light.	Troubleshoot.	Paragraph 8-17
38.	One or more TSU battle flags do not appear with BIT switch pressed.	Troubleshoot.	Paragraph 8-18 MC Paragraph 8-18.1 MCN
39.	Battle flags intensity will not vary with BF knob on TCP.	Replace TCP (TOW control panel) .	TM 9-1425-473-20
40.	"G" battle flag does not appear in TSU GUN mode.	Troubleshoot.	Paragraph 8-19
41.	TSU image will not change in magnification.	Troubleshoot.	Paragraph 8-20 MC Paragraph 8-20.1 MCN
42.	Gunner helmet eyepiece will not retract.	Troubleshoot.	Paragraph 7-2
43.	TSU will not align with or follow pilot helmet sight.	Troubleshoot.	Paragraph 8-21
44.	TSU will not align to target selected with gunner helmet sight.	Troubleshoot.	Paragraph 8-22
45.	TSU will not follow track control stick commands in azimuth.	Troubleshoot.	Paragraph 8-23 MC Paragraph 8-23.1-
46.	TSU will not follow track control stick commands in elevation.	Troubleshoot.	Paragraph 8-24 Paragraph 8-24.1 MCN
47.	TSU will not follow track control stick commands in azimuth.	Troubleshoot.	Paragraph 8-23
48.	TSU will not follow track control stick commands in elevation.	Troubleshoot.	Paragraph 8-24.
49.	TSU does not move at a faster rate when LO magnification is selected.	Troubleshoot.	TM 9-1425-473-34
50.	Gun turret will not follow telescopic sight unit (TSU)	Troubleshoot.	Paragraph 8-25
51.	Turret goes past depression limit.	Troubleshoot.	Paragraph 6-2
52.	No motion compensation.	Troubleshoot.	TM 9-1425-473-34
53.	MSL present not indicated in position 1.	Troubleshoot.	Paragraph 8-26
54.	MSL present not indicated in position 2.	Troubleshoot.	Paragraph 8-27
55.	MSL present not indicated in position 3.	Proceed to logic tree.	Paragraph 8-28
56.	MSL present not indicated in position 4.	Proceed to logic tree.	Paragraph 8-29
57.	MSL present not indicated in position 5.	Proceed to logic tree.	Paragraph 8-30

1-13. TOW MISSILE SUBSYSTEM (TMS) - MAPS (CONTINUED).

FAILURE SYMPTOM	ACTION	REFERENCE
58. MSL present not indicated in position 6.	Proceed to logic tree	Paragraph 8-31
59. MSL present not indicated in position 7.	Proceed to logic tree	Paragraph 8-32
60. MSL present not indicated in position 8.	Proceed to logic tree	Paragraph 8-33
61. "A" battle flag will not appear, when ACTION switch pressed.	Troubleshoot.	TM 9-1425-473-34
62. EMERG HYD PUMP ON segment will light on gunner caution panel.	Troubleshoot.	TM 55-1520-236-23
63. Left launcher will not align with TSU (TSU at 0 degrees elevation).	Troubleshoot.	Paragraph 8-34
64. Left launcher oscillates violently.	Troubleshoot.	Paragraph 8-35
65. Neither TOW missile launcher will align with TSU (TSU at 0 degrees elevation) .	Troubleshoot.	Paragraph 8-36
66. "R" battle flag will not appear when TOW launcher is aligned.	Troubleshoot.	TM 9-1425-473-34
67. Left launcher stays at 0 degrees elevation.	Troubleshoot.	Paragraph 8-37
68. Neither launcher will move from 0 degrees elevation.	Troubleshoot.	Paragraph 8-38
69. "R" battle flag does not go out when TSU is above or below launcher limits.	Troubleshoot.	Paragraph 8-39
70. Left TOW launcher will not stow.	Troubleshoot.	Paragraph 8-40
71. Right launcher will not align with TSU (TSU at 0 degrees elevation).	Troubleshoot.	Paragraph 8-41
72. Right launcher oscillates violently.	Troubleshoot.	Paragraph 8-42
73. Right launcher stays at 0 degrees elevation.	Troubleshoot.	Paragraph 8-43
74. Right TOW launcher will not stow.	Troubleshoot.	Paragraph 8-44
75. Turret will not follow pilot helmet sight.	Troubleshoot.	Paragraph 7-2
76. Gun barrels will not rotate.	Troubleshoot.	Paragraph 6-2
77. Gun barrels will not stop rotating when TRIGGER on left hand grip is pressed in TOW mode.	Troubleshoot.	Paragraph 6-2
78. Gun turret will not move to fixed forward when TRIGGER on left hand grip is pressed in TOW mode.	Troubleshoot.	Paragraph 6-2
79. No missile wire cut from TCP .	Troubleshoot.	TM 9-1425-473-34
80. No missile wire cut from pilot collective stick.	Proceed to logic tree.	Paragraph 8-46
81. HUD display is incorrect.	Troubleshoot.	Paragraph 2-2
82. TOW missile malfunctions.	Troubleshoot.	TM 9-1425-473-34
83. Laser range finder malfunctions.	Troubleshoot.	TM 9-1425-473-34
84. TSU image will not change between-day and night mode	Troubleshoot.	Paragraph 8-47 MCN

1-13. TOW MISSILE SUBSYSTEM (TMS) - MAPS (Continued).

FAILURE SYMPTOM	ACTION	REFERENCE
85. TEST not indicated on FCP.	Troubleshoot.	Paragraph 8-48 MCN
86. FCP indicates DET HOT.	Troubleshoot.	Paragraph 8-49 MCN
87. FPS BIT indicator on FCP shows white.	Troubleshoot.	Paragraph 8-50 MCN
88. FMT BIT indicator on FCP shows white.	Troubleshoot.	Paragraph 8-51 MCN
89. TSU\TOW 2 BIT indicator on FCP shows white.	Troubleshoot.	Paragraph 8-52 MCN
90. Vertical bar is not displayed in TSU eyepiece when FCP OFF/ON/BIT switch is held in BIT position.	Troubleshoot.	Paragraph 8-53 MCN
91. Center 20% of FLIR scene contains dead or noisy channels.	Replace TSU.	TM 9-1425-473-34 MCN
92. FLIR scene contains more than six dead or noisy channels.	Replace TSU.	TM 9-1425-473-34 MCN
93. Dead or noisy channels in FLIR scene separated by less than four channels.	Replace TSU.	TM 9-1425-473-34 MCN
94. FLIR scene does not dim when ARMT LTS control on gunner miscellaneous control panel is rotated to BRT.	Replace TSU.	TM 9-1425-473-34 MCN
95. FOCUS control on left hand grip inoperative.	Troubleshoot.	TM 9-1425-473-34 MCN
96. Reticle not present in FLI scene.	Replace TSU.	TM 9-1425-473-34 MCN
97. RET BRT, IR GAIN, IR LEVEL or POLARITY controls on FCP inoperative.	Troubleshoot.	TM 9-1425-473-34 MCN
98. TSU Symbology generator unit (SGU) heading indicator does not indicate HOOO ± 10 when FCP (FLIR control panel) OFF/ON/BIT switch is held to BIT position.	Replace TSU.	TM 9-1425-473-34 MCN
99. TSU symbology generator unit (SGU) heading indicator does not indicate H030 + 2° when FCP (FLIR control panel) OFF/ ON/BIT switch is held to BIT position and azimuth pointer is aligned with first mark right of center.	Replace TSU.	TM 9-1425-473-34 MCN
100. TSU symbology generator unit (SGU) heading indicator does not indicate same as directional gyro ± 20 with TSU in STOW.	Troubleshoot.	Paragraph 8-54 MCN
101. TSU symbology generator unit (SGU) elevation and/or azimuth pointers do not respond to inputs from sight hand control track control stick.	Replace TSU.	TM 9-1425-473-34 MCN
102. TSU symbology generator unit (SGU) elevation and/or azimuth pointers do not indicate O degrees with TSU in STOW.	Replace TSU.	TM 9-1425-473-34 MCN
103. FLIR BIT is not interrupted when TCP (TOW control panel) MODE SELECT switch is set to ARMED MAN.	Troubleshoot.	Paragraph 8-55 MCN
104. Two or more BIT indicators on FCP show white.	Troubleshoot.	Paragraph 8-56 MCN

1-14. ARMAMENT POWER SUPPLY AND DISTRIBUTION - MAPS.

FAILURE SYMPTOM	ACT ION	REFERENCE
1. No 28 V dc at the essential bus.	Troubleshoot.	Paragraph 9-5
2. Master caution panel segments do not illuminate.	Troubleshoot.	TM55-1520-236-23
3. REF XFMR circuit breaker opens immediately after being closed.	Troubleshoot.	Paragraph 9-6
4. Attitude (ATT) flag on pilot attitude direction indicator (ADI) does not disappear.	Troubleshoot.	Paragraph 9-7
5. Heading (HDG) flag on horizontal situation indicator (HSI) does not disappear.	Troubleshoot.	Paragraph 9-8
6. Airspeed and direction sensor (AADS) probe does not get hot.	Troubleshoot.	Paragraph 9-9
7. FUEL QTY circuit breaker opens immediately after being closed.	Troubleshoot.	TM55-1520-236-23
8. Fuel quantity pointer does not rotate.	Troubleshoot.	Paragraph 9-10
9. WPN CONTR circuit breaker opens immediately after being closed.	Troubleshoot.	Paragraph 9-11
10. WPN FIRE circuit breaker opens when MASTER ARM switch is set to STBY .	Troubleshoot.	Paragraph 9-12
11. ARMT CONTR circuit breaker opens when MASTER ARM switch is set to STBY .	Troubleshoot.	Paragraph 9-13
12. Short on 22A3P1-j.	Troubleshoot.	Paragraph 9-14
13. WPN CONTR circuit breaker opens with MASTER ARM switch set to STBY .	Troubleshoot.	Paragraph 9-15
14. Pilot STBY (green) indicator will not light when MASTER ARM switch is set to STBY.	Troubleshoot.	Paragraph 9-16
15. Gunner STBY (green) indicator will not light with MASTER ARM switch in STBY.	Troubleshoot.	Paragraph 9-17
16. No 28 V dc on armament bus in AC/ARMT circuit breaker panel.	Troubleshoot.	Paragraph 9-18
17. No 28 V dc on power transfer bus from ground power unit.	Troubleshoot.	Paragraph 9-19
18. No 28 V dc on armament bus.	Troubleshoot.	Paragraph 9-20
19. No 28 V dc on non essential bus.	Troubleshoot.	Paragraph 9-21
20. ARMT CONTR circuit breaker opens when MASTER ARM switch is in ARM .	Troubleshoot.	Paragraph 9-22
21. Gunner STBY and ARMED indicators do not light during push-to-test while in STBY.	Troubleshoot.	Paragraph 9-23
22. WPN FIRE circuit breaker opens when MASTER ARM switch is in ARM.	Troubleshoot.	Paragraph 9-24
23. Pilot ARMED (red) indicator will not light with MASTER ARM switch in ARM.	Troubleshoot.	Paragraph 9-25
24. Gunner ARMED (red) indicator will not light with MASTER ARM switch in ARM.	Troubleshoot.	Paragraph 9-26
25. PILOT IN CONT indicator on gunner armament control panel does not light when WPN CONTR switch is set to PILOT or FIXED.	Troubleshoot.	Paragraph 9-27
26. ARMED (red) indicator on pilot ARMT control panel goes out when WPN CONTR switch is set to PILOT or FIXED.	Troubleshoot.	Paragraph 9-28
27. WPN CONTR circuit breaker will not stay closed with PLT ORIDE switch in PLT ORIDE.	Troubleshoot.	Paragraph 9-29

1-14. ARMAMENT POWER SUPPLY AND DISTRIBUTION - MAPS.(CONTINUED).

FAILURE SYMPTOM	ACTION	REFERENCE
28. WPN CONTR circuit breaker opens when PLT ORIDE switch is set to ORIDE .	Troubleshoot.	Paragraph 9-29
29. No 28 V dc present on one or more of the following circuit breakers - ALT POWER, LRF PWR, TURRET DRIVE MOTOR, TURRET GUN MOTOR, LH GUN, RH GUN, WPN FIRE, ARMT CONTR.	Troubleshoot.	Paragraph 9-18
30. No 28 V dc present on one or more of the following circuit breakers - TMS BLWR, ADS PWR, HUD PWR, WPN CONTR, FCC.	Troubleshoot.	Paragraph 9-30
31. No 28 V dc present on one or more of the following circuit breakers - TURRET STOW, PLT JETT, GNR JETT.	Troubleshoot.	Paragraph 9-31
32. No 28 V dc present on one or more of the following terminals - 19TB4-5A, 5B, 5C, 5D, 5E, 5G, 5H, 5J, 5K.	Troubleshoot.	Paragraph 9-32
33. No 28 V dc present on one or more of the following terminals - 19TB4-4A, 4B, 4C, 4D, 4E, 4F, 4G, 4H, 4K.	Troubleshoot.	Paragraph 9-33
34. No 28 V dc present on one or more of the following terminals - 19TB3-3B, 3C, 3D, 3F, 3G .	Troubleshoot.	Paragraph 9-34
35. No 28 V dc present at 19XK 90-A2 (TMS power control relay).	Troubleshoot.	Paragraph 9-35
36. GEN light flickers momentarily when turret is slewed.	Troubleshoot.	Paragraph 9-36
37. Armament system will not function properly on generator and/or alternator power.	Troubleshoot.	TM55-1520-236-23
38. Armament system will not function properly on external power.	Troubleshoot.	TM55-1520-236-23
39. No ac power.	Troubleshoot.	Paragraph 9-37
40. Battery terminal voltage is less than 22 V dc.	Troubleshoot.	TM55-1520-236-23
41. ESNTL BUS circuit breaker will not stay closed with battery on and ground power unit off.	Troubleshoot.	Paragraph 9-38
42. ESNTL BUS circuit breaker opens when ground power unit is connected.	Troubleshoot.	Paragraph 9-39
43. EXT PWR circuit breakers opens when ground power unit is connected.	Troubleshoot.	Paragraph 9-40
44. INV circuit breaker will not remain closed.	Troubleshoot,	TM55-1520-236-23
45. ATTD IND PLT circuit breaker opens immediately after being closed.	Troubleshoot.	TM11-1520-236-20
46. GYRO CMPS circuit breaker opens immediately after being closed.	Troubleshoot.	TM11-1520-236-20
47. ADS ANTI ICE circuit breaker opens after being closed.	Troubleshoot.	Paragraph 4-15
480 Pilot and gunner STBY indicator lights do not light when MASTER ARM switch is set to STBY.	Troubleshoot.	Paragraph 9-16
49. Pilot and gunner ARMED indicators will not light with MASTER ARM switch in ARM.	Troubleshoot.	Paragraph 9-41
50 . Pilot and gunner ARMED indicator lights do not light when PLT ORIDE switch is set to PLT ORIDE .	Troubleshoot.	Paragraph 9-42
51. DC GEN segment on MASTER CAUTION panel is illuminated during ground run.	Troubleshoot.	TM55-1520-236-23
52. Inverter does not supply 115 V ac when ALTNR switch is in the OFF-RESET position.	Troubleshoot.	TM55-1520-236-23

1-14. ARMAMENT POWER SUPPLY AND DISTRIBUTION - MAPS. (CONTINUED).

FAILURE SYMPTOM	ACTION	REFERENCE
53. RECT segment on MASTER CAUTION panel is illuminated during ground run.	Troubleshoot.	TM55-1520-236-23
54. ALTER segment on MASTER CAUTION panel is illuminated during ground run.	Troubleshoot.	TM55-1520-236-23
55. Alternator does not supply 115 V ac.	Troubleshoot.	TM55-1520-236-23
56. 22 to 24 V dc at essential bus (instead of 28 V dc) during ground run.		TM55-1520-236-23
57. No 28 V dc at essential bus during ground run.	Troubleshoot.	TM55-1520-236-23
58. No 28 V dc at power transfer bus during ground run.	Troubleshoot.	TM55-1520-236-23
59. No 28 V dc at nonessential bus during ground run.	Troubleshoot.	TM55-1520-236-23
60. No 28 V dc at armament bus during ground run.	Troubleshoot.	TM55-1520-236-23
61. No 28 V dc at TRU bus during ground run.	Troubleshoot.	TM55-1530-236-23
62. ATT flag on ADI or HDG flag on HSI will not move from view.	Troubleshoot.	Paragraph 9-43.
63. ATT and/or HDG flag do not retract.	Troubleshoot.	Paragraph 9-43.
64. ALTER and/or MASTER CAUTION segments do not light when ALTNR switch is turned CFF while operating during ground run.	Troubleshoot.	TM55-1520-236-23
65. No 28 V dc present on nonessential bus during ground run when ALTNR switch is turned to OFF.	Troubleshoot.	TM55-1520-236-23
66. DC GEN and/or MASTER CAUTION segments do not light when GEN switch is turned OFF while operating during ground run.	Troubleshoot.	TM55-1520-236-23
67. No 28 V dc present on TRU bus and/or armament busses when GEN switch is turned OFF while operating during ground run.	Troubleshoot.	TM55-1520-236-23
68. RECT and/or MASTER CAUTION segments do not light when GEN switch is turned to OFF while operating during ground run.	Troubleshoot.	TM55-1520-236-23
69. Pilot and gunner STBY (green) indicators do not light when MASTER ARM switch is in STBY during ground run.	Troubleshoot.	TM55-1520-236-23
70. Pilot and gunner ARMED (red) indicators do not light when MASTER ARM switch is in ARM during ground run.	Troubleshoot.	TM55-1520-236-23
71. Pilot and gunner ARMED (red) indicators do not light when PLT ORIDE switch is in PLT ORIDE during ground run.	Troubleshoot.	TM55-1520-236-23
72. WPN FIRE circuit breaker opens when WPN CONTR switch is set to PILOT or FIXED.	Troubleshoot.	Paragraph 9-12
73. No 10 V ac power.	Troubleshoot.	Paragraph 9-44

1-15. WING STORES JETTISON SYBSYSTEM - MAPS.

FAILURE SYMPTOM	ACTION	REFERENCE
1. WING STORE PLT JETT circuit breaker will not stay closed.	Troubleshoot.	Paragraph 10-4
2. WING STORE GNR JETT circuit breaker will not stay closed.	Troubleshoot.	Paragraph 10-5
3. Test set indicators are lit with switches off.	Replace 21K3 and pilot miscellaneous control panel.	TM 55-1520-236-23
4. Test set indicators are lit with switches off and pilot JETTISON switch pressed.	Replace pilot miscellaneous control panel.	TM55-1520-236-23
5. WING STORE PLT JETT circuit breaker opens when JETTISON switch is pressed, with both pilot JETTISON SELECT switches set to OFF.	Troubleshoot.	Paragraph 10-13
6. Pilot can not jettison left outboard wing stores only.	Troubleshoot.	Paragraph 10-6
7. Pilot can not jettison right outboard wing stores only.	Troubleshoot.	Paragraph 10-7
8. Pilot can not jettison inboard stores.	Troubleshoot.	Paragraph 10-8
9. Pilot can not jettison inboard or outboard stores.	Troubleshoot.	Paragraph 10-9
10. Pilot inboard stores do not lag 0.5 seconds after outboard stores.	Replace 21K4.	TM55-1520-236-23
11. Test set lights do not remain lighted for approximately 1 second after release of pilot JETTISON switch.	Replace 21K3.	TM55-1520-236-23
12. Gunner can not jettison either outboard stores.	Troubleshoot.	Paragraph 10-10
13. Gunner can not jettison either inboard stores.	Troubleshoot.	Paragraph 10-11
14. Gunner can not jettison inboard or outboard stores.	Troubleshoot.	Paragraph 10-12
15. Gunner inboard stores do not lag 0.5 seconds after outboard stores.	Replace 21K5.	TM55-1520-236-23
16. Gunner can not jettison left outboard stores only.	Troubleshoot.	Paragraph 10-15
17. Gunner can not jettison right outboard stores only.	Troubleshoot.	Paragraph 10-16
18. Gunner can not jettison left inboard stores only.	Troubleshoot.	Paragraph 10-17
19. Gunner can not jettison right inboard stores only.	Troubleshoot.	Paragraph 10-18
20. WING STORE PLT JETT circuit breaker opens with INBD selected when JETTISON switch is pressed.	Troubleshoot.	Paragraph 10-20
21. Outboard stores will not jettison but inboard stores will jettison when pilot selects INBD stores only and lower TOW launchers are installed.	Troubleshoot.	Paragraph 10-14
22. WING STORE GNR JETT circuit breaker opens with BOTH selected and WING STORES JETTISON switch set to up position.	Troubleshoot.	Paragraph 10-21
23. WING STORE PLT JETT circuit breaker opens with JETTISON SELECT switches set to OUTBD and INBD and JETTISON switch pressed.	Troubleshoot.	Paragraph 10-19

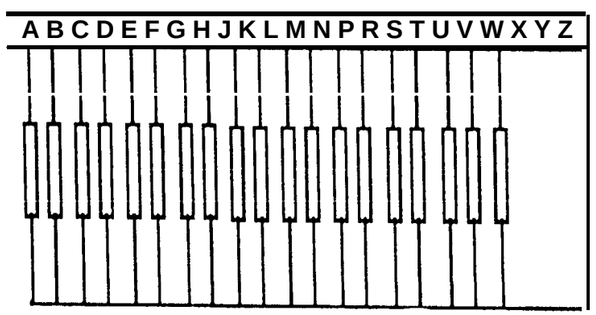
1-15.1. AIM-1/EXL IR LASER GUNSIGHT SYSTEM – MAPS.

FAILURE SYMPTOM	ACTION	REFERENCE
1. Aiming light has laser beam in NORM, No laser beam in CONT.	Troubleshoot.	Paragraph 11-4
2. Aiming light has laser beam in CONT, No laser beam in NORM.	Troubleshoot.	Paragraph 11-5

1-16. FABRICATED EQUIPMENT.

Some troubleshooting procedures require installation of simulator(s). This equipment shall be used ONLY for testing and troubleshooting. Equipment shall be locally manufactured.

ROCKET LAUNCHER SIMULATOR



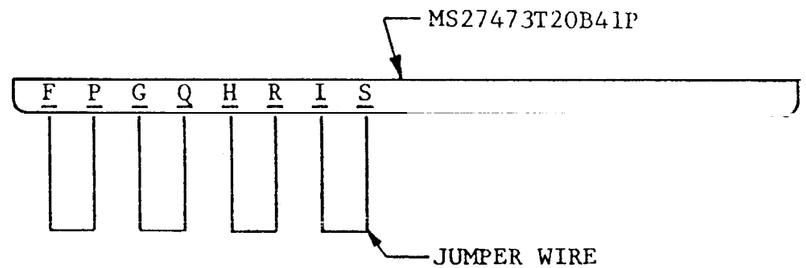
SHRINK TUBING ON EACH LEAD FROM CONNECTOR TO RESISTOR

(1) MS3120E16-26P OR MS3110E16-26P MAY BE USED AS AN ALTERNATE

PARTS REQUIRED

QUANTITY	DESCRIPTION	PART NUMBER
1	CONNECTOR	MS3470L16-26P
19	RESISTORS, 1 OHM 1/2 WATT	

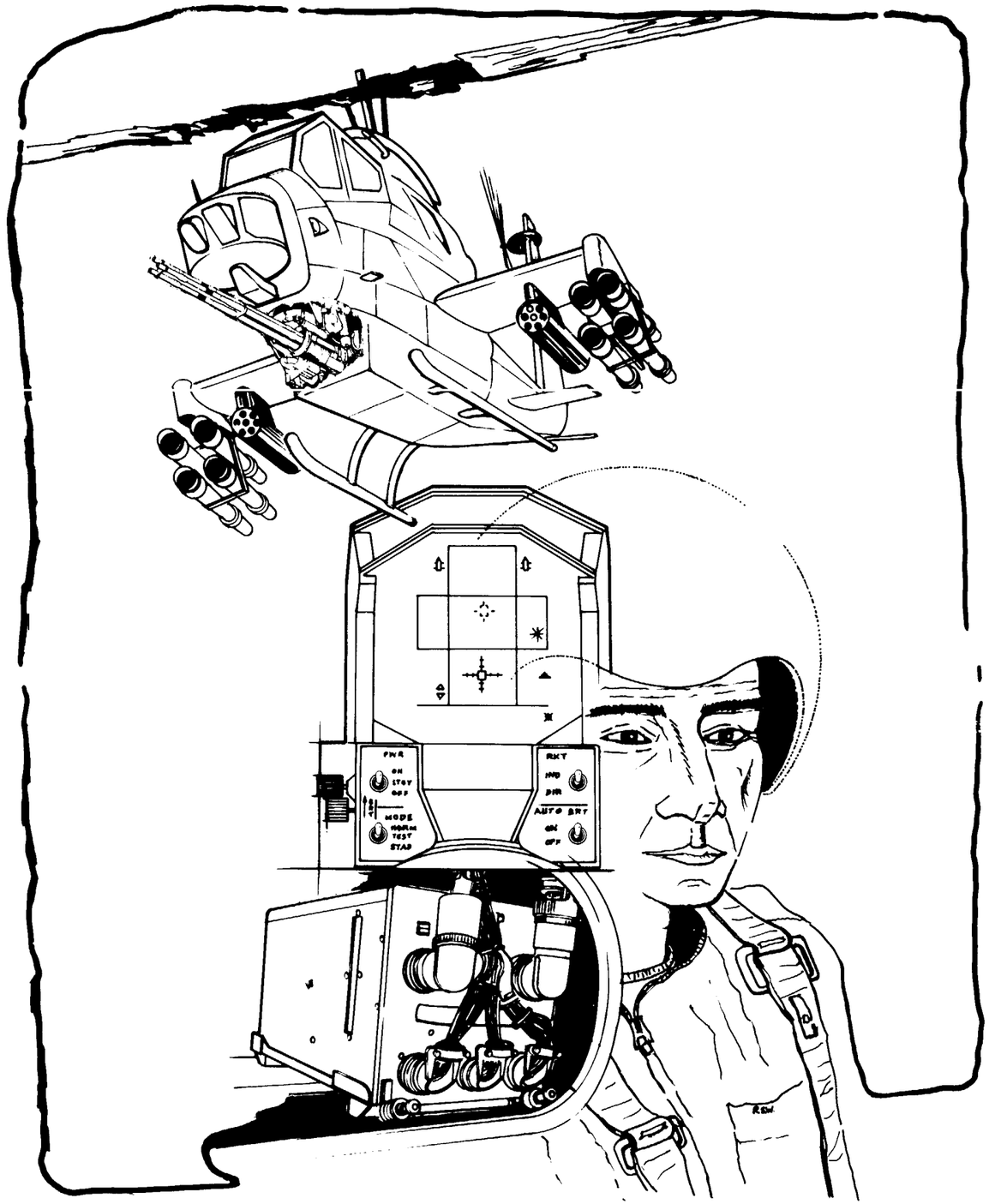
TOW MISSILE PRESENT SIMULATOR



PARTS REQUIRED

QUANTITY	DESCRIPTION	PART NUMBER
1	CONNECTOR	MS27473T20B41P
4	JUMPER WIRES	

*U.S. COVER-WENT PRINTING OFFICE: 1995-653-121,/20005



CHAPTER 2

HEAD UP DISPLAY SUBSYSTEM (HUDS) TROUBLESHOOTING

OVERVIEW

This chapter contains the HUDS operational check and logic tree troubleshooting procedures.

If a fault occurs during the operational check, stop the check, leave switches and circuit breakers in position, and refer to MAPS in Chapter 1 for that symptom. The MAPS will refer to a specific troubleshooting or repair procedure for that fault.

WARNING

Turn off all electrical power when removing equipment or disconnecting electrical connectors unless otherwise noted in the procedures.

NOTE

TM 55-1520-239-23 maintenance manual may be used instead of TM 55-1520-236-23 maintenance manual referenced throughout this chapter.

2-1. HUDS PRE-OPERATIONAL CHECK SETUP.

INITIAL SETUP

Applicable Configuration

All

Personnel Required

68J (1)

a. Open (OFF) all circuit breakers on AC/ARMT circuit breaker panel.

b. Open all circuit breakers on DC circuit breaker panel.

c. Set pilot ARMT control panel switches:

(1) MASTER ARM to OFF.

(2) WPN CONTR to GUNNER.

d. Set HUD switches:

(1) PWR to OFF.

(2) MODE to STAD.

(3) RKT to DIR.

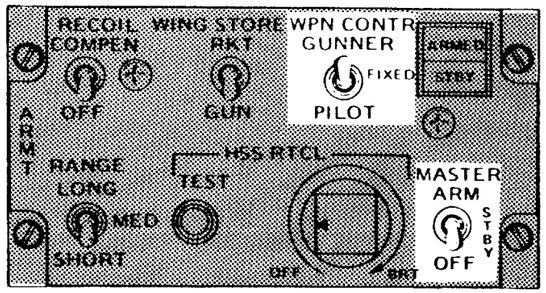
(4) AUTO BRT to OFF.

CAUTION

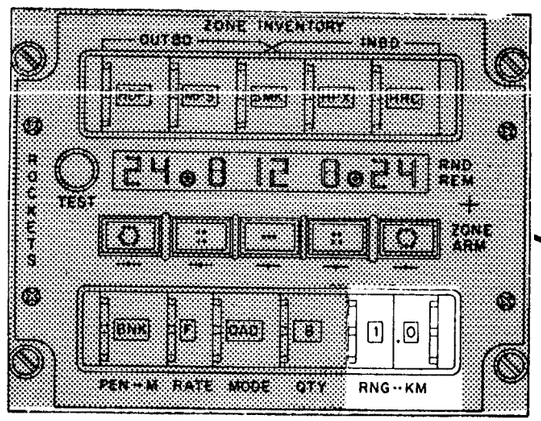
Constant exposure to direct sunlight will damage the red night filter.

(5) NIGHT FILTER control fully clockwise.

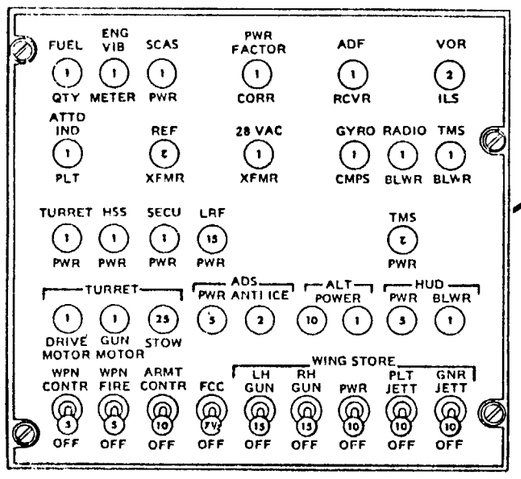
e. Set ROCKETS display unit switches RNG — KM to 1.0.



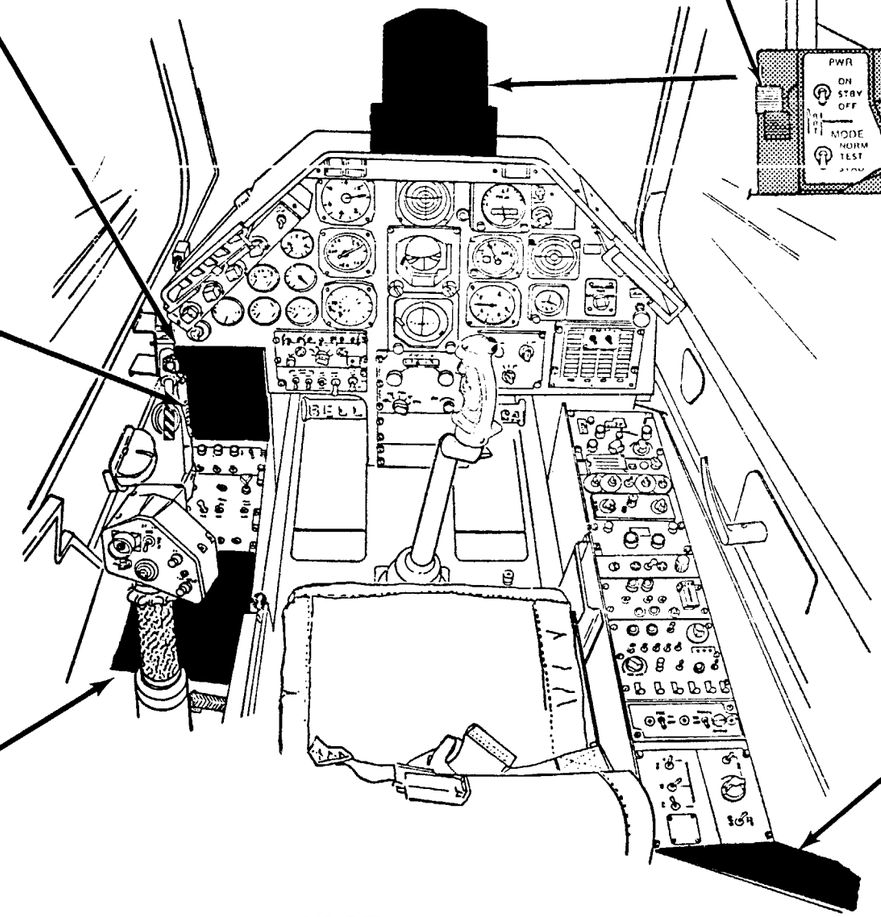
PILOT ARMT CONTROL PANEL



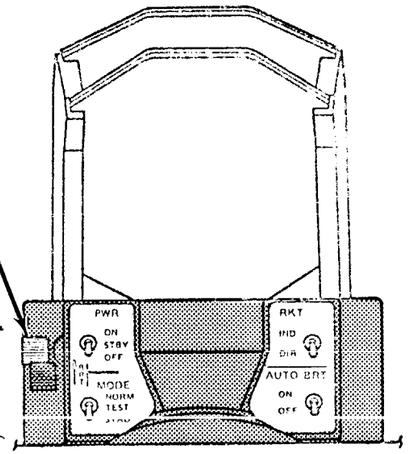
ROCKETS DISPLAY UNIT



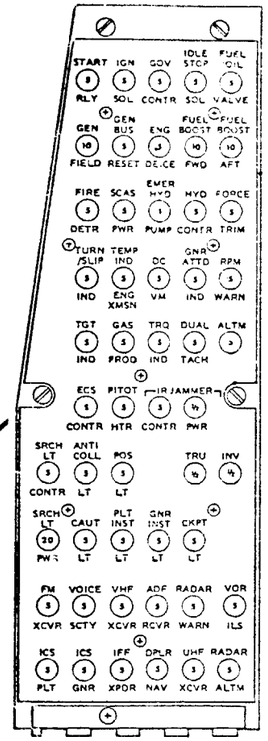
AC/ARMT CIRCUIT BREAKER PANEL



PILOT STATION



HUD



DC CIRCUIT BREAKER PANEL

2-1. HUDS PRE-OPERATIONAL CHECK SETUP (CONTINUED).

f. Set TCP (TOW control panel) switches:

(1) LASER ARM to OFF.

(2) MODE SELECT to OFF.

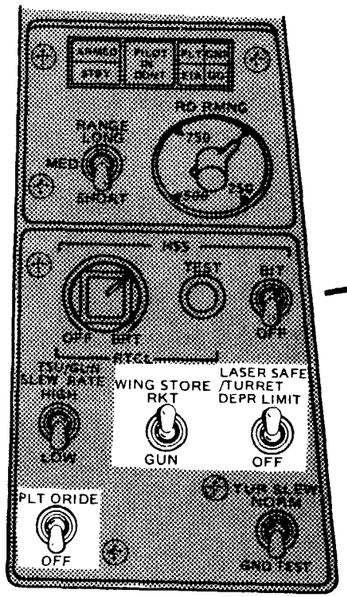
g. Set ACQ/TRK/STOW switch on sight hand control to STOW.

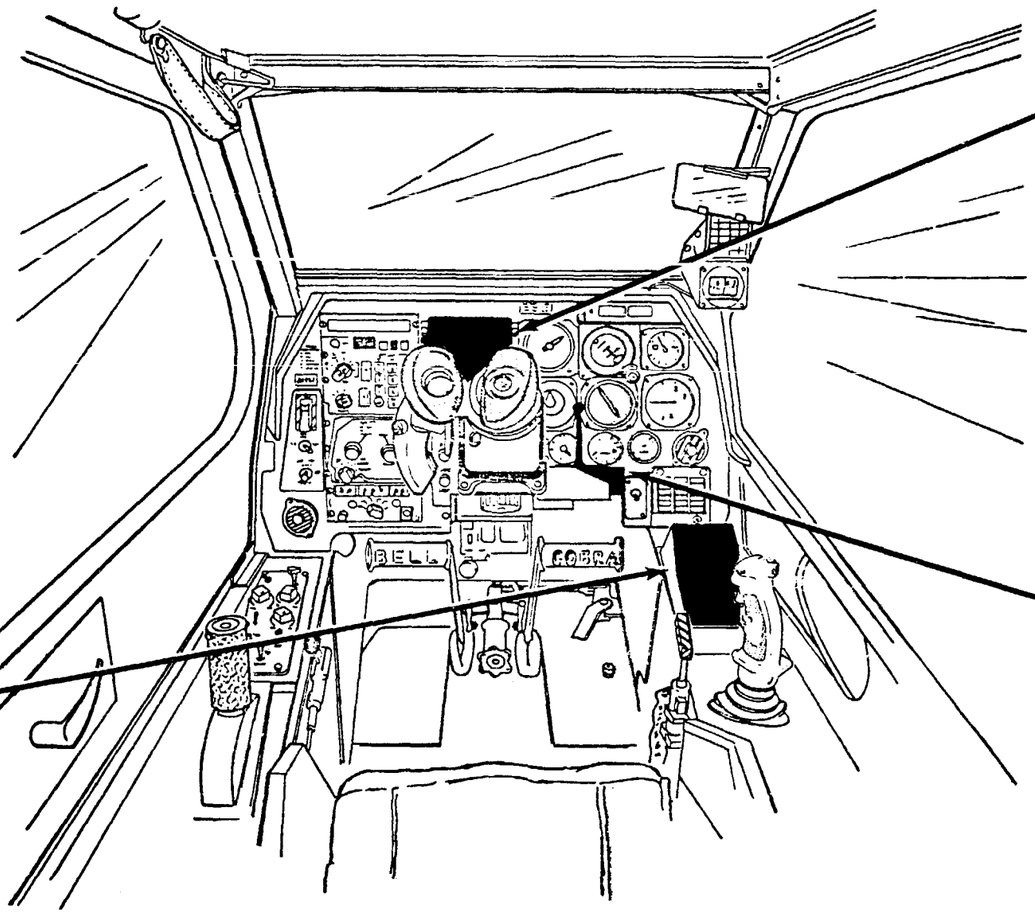
h. Set gunner armament control panel switches:

(1) LASER SAFE/TURRET DEPR LIMIT to TURRET DEPR LIMIT.

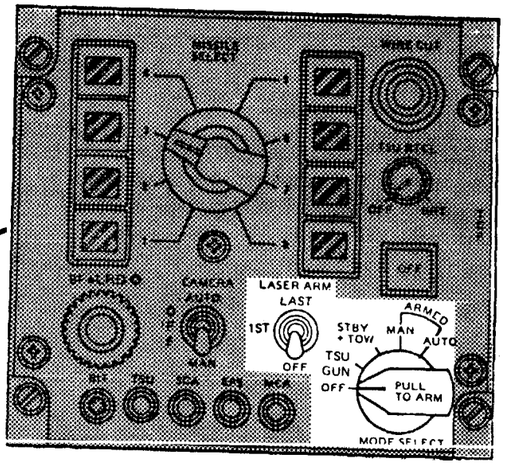
(2) WING STORE to RKT

(3) PLT ORIDE to OFF.

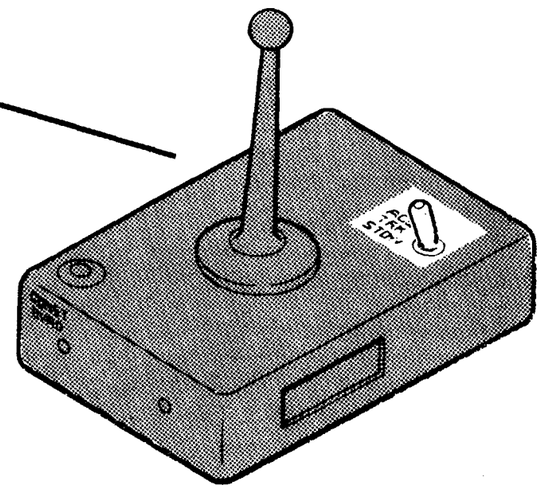




GUNNER STATION



TCP (TOW CONTROL PANEL)



SIGHT HAND CONTROL

2-2. HUDS OPERATIONAL CHECK.

NOTE

Complete HUDS PRE-OPERATIONAL CHECK SET-UP, paragraph 2-1, before continuing with operational check

INITIAL SETUP

Applicable Configuration

All

Tools. Test. and Support Equipment

Multimeter

Test Set Evaluation Missile (TSEM) 11499037
or
TOW Missile Present Simulator (Local Manufacture)

Tool Set, A/C Armament Repairman

Ground Power Unit

Personnel Required

68J (2)

Equipment Condition

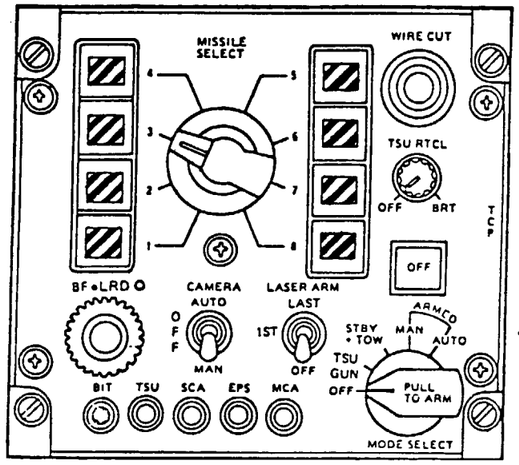
Gun Safed/Barricade Erected (TM 9-1090-206-20-1/30)

References

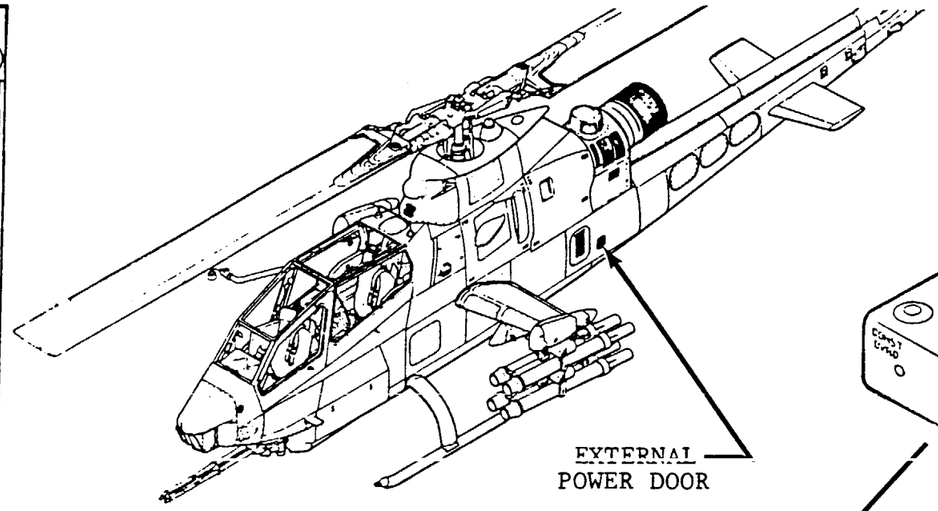
TM 9-1 090-206-20-1/30
TM 9-1270-220-13
TM 55-1520-236-10
TM 55-1520-236-23

Access Panels

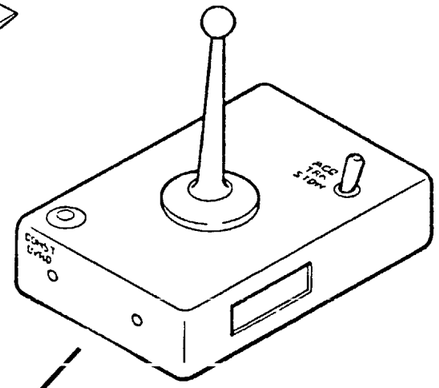
Battey Compartment - Removed
External Power Door - Open



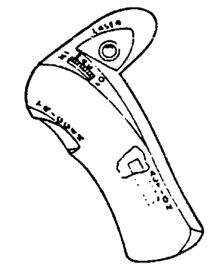
TCP (TOW CONTROL PANEL)



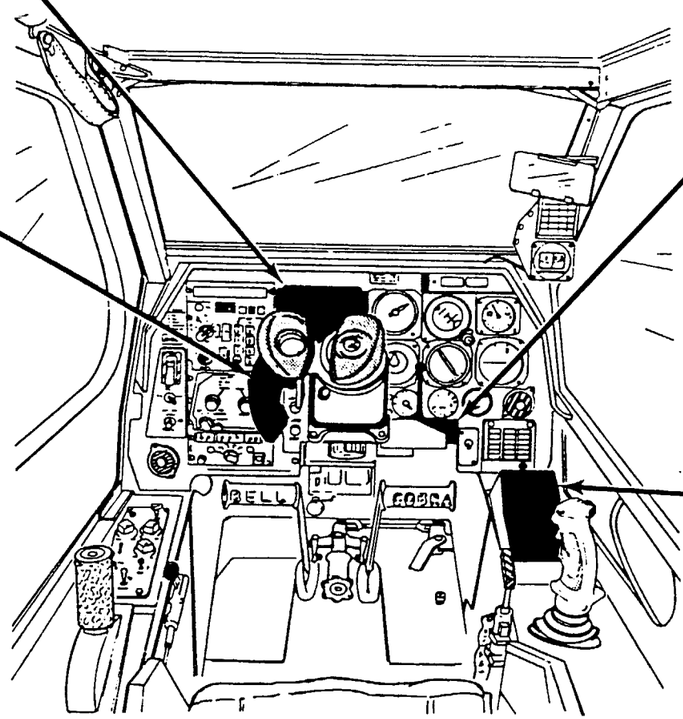
EXTERNAL POWER DOOR



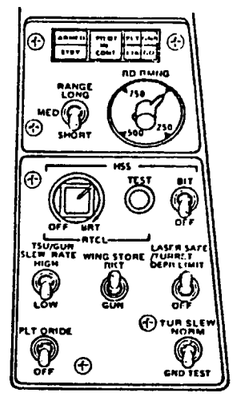
SIGHT HAND CONTROL



LEFT HAND GRIP

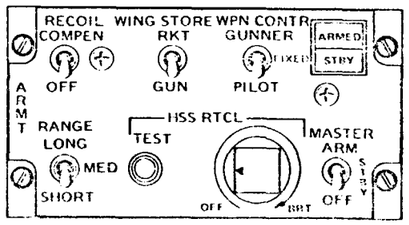


GUNNER STATION

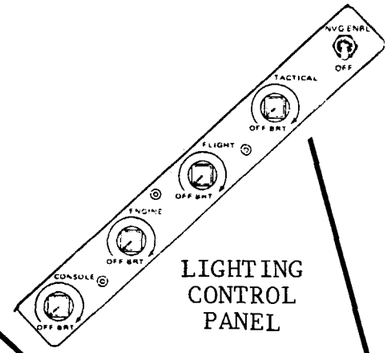


GUNNER ARMAMENT CONTROL PANEL

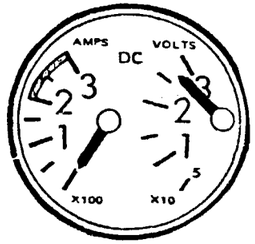
2-2. HUDS OPERATIONAL CHECK (CONTINUED).



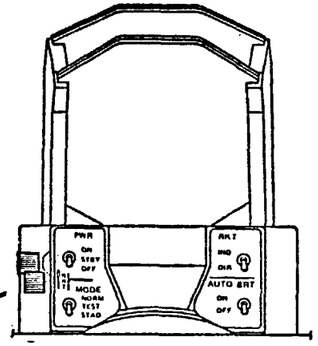
PILOT ARMT CONTROL PANEL



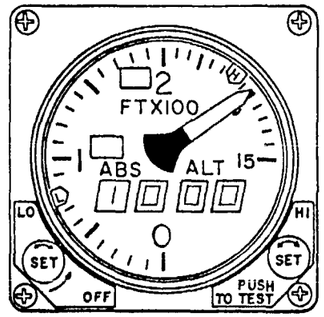
LIGHTING CONTROL PANEL



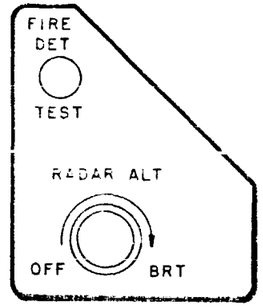
DC VOLTMETER



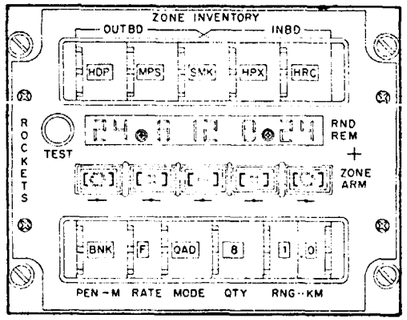
HUD



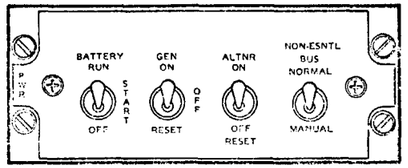
RADAR ALTIMETER



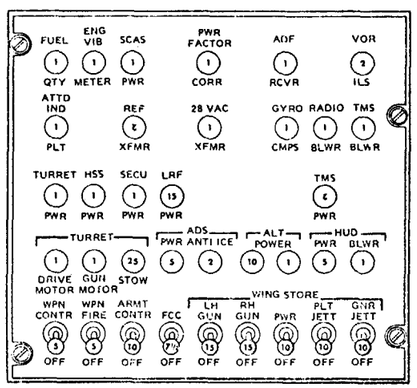
RADAR ALTIMETER LIGHTING PANEL



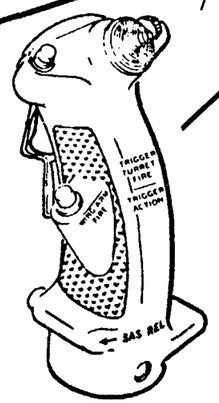
ROCKETS DISPLAY UNIT



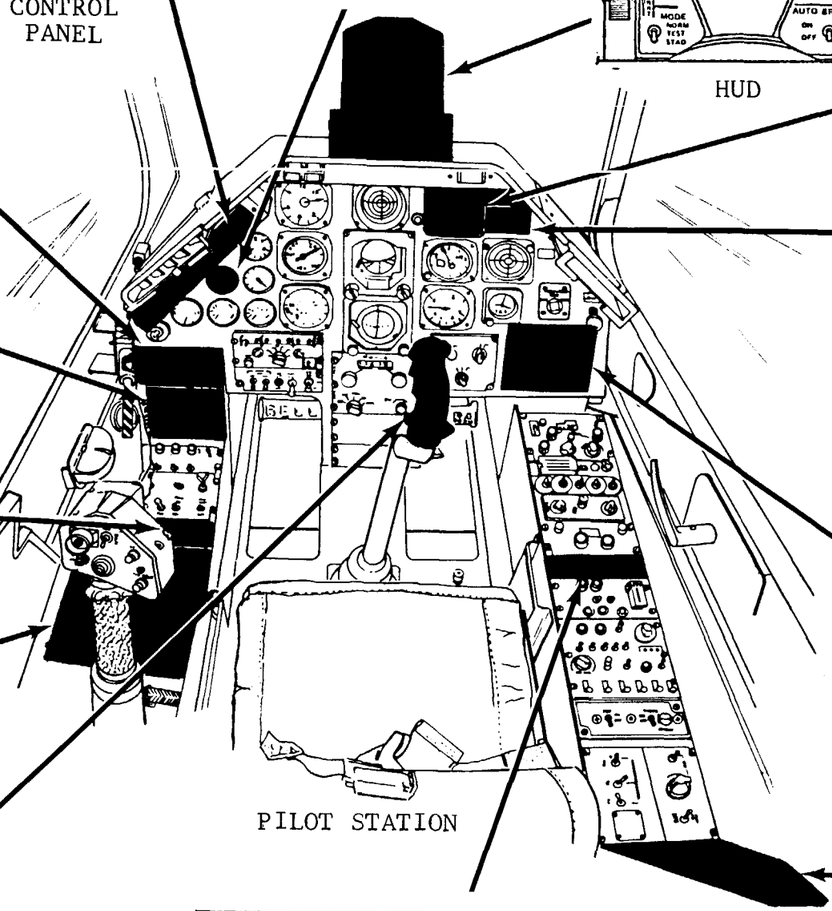
ELECTRICAL PWR CONTROL PANEL



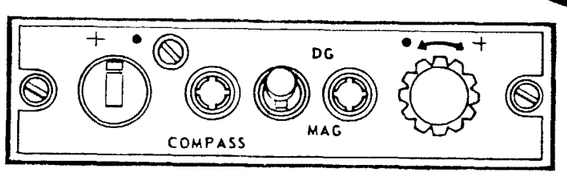
AC/ARMT CIRCUIT BREAKER PANEL



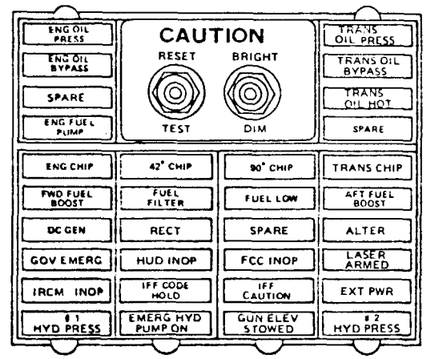
PILOT CYCLIC STICK



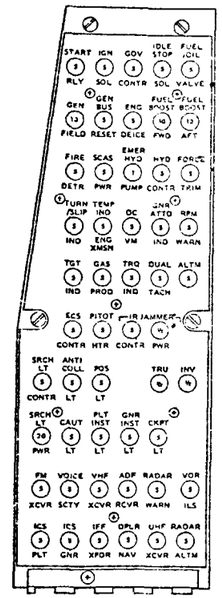
PILOT STATION



COMPASS CONTROL PANEL

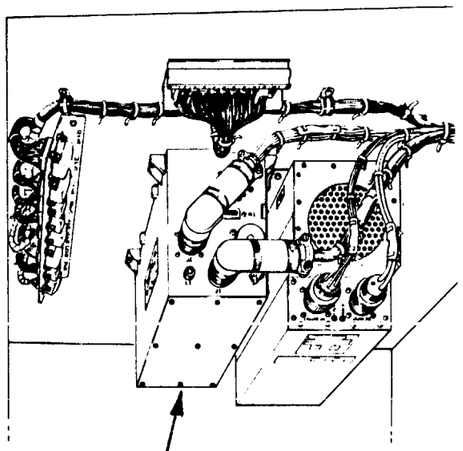


PILOT CAUTION PANEL

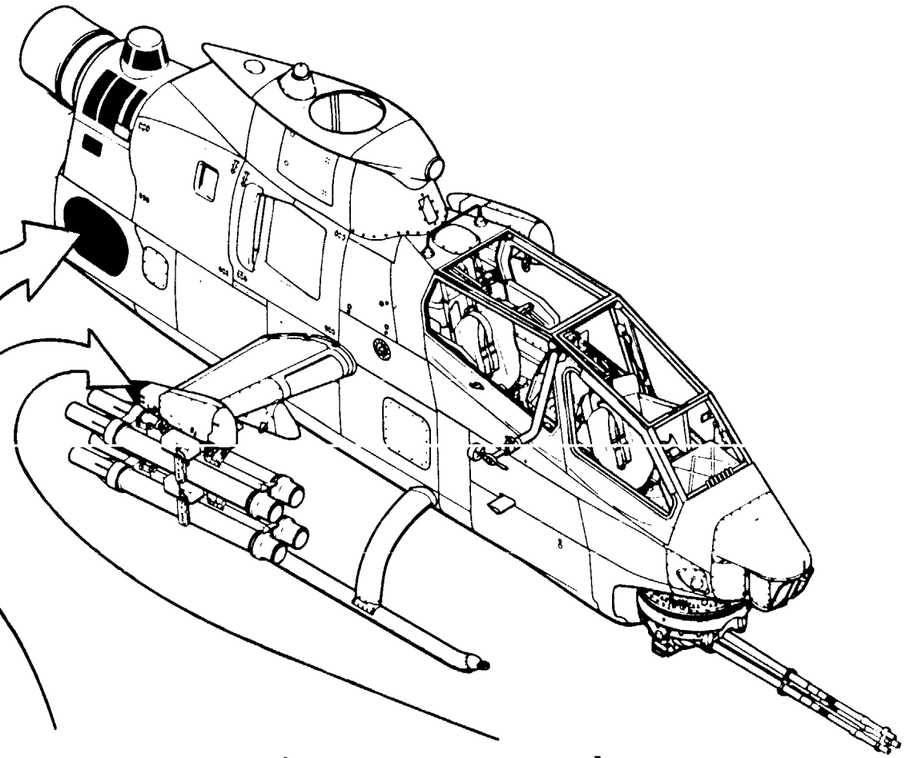


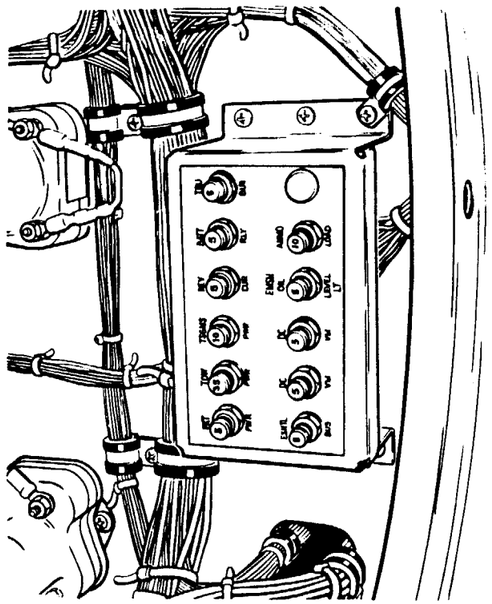
DC CIRCUIT BREAKER PANEL

2-2.HUDS OPERATIONAL CHECK (CONTINUED).

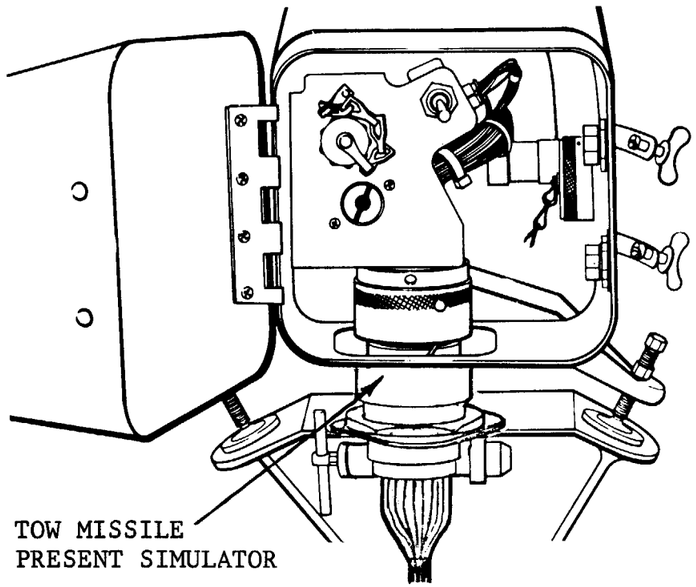


SIGNAL PROCESSOR





CIRCUIT BREAKER PANEL



WING FAIRING ACCESS DOOR

APPLYING ELECTRICAL POWER

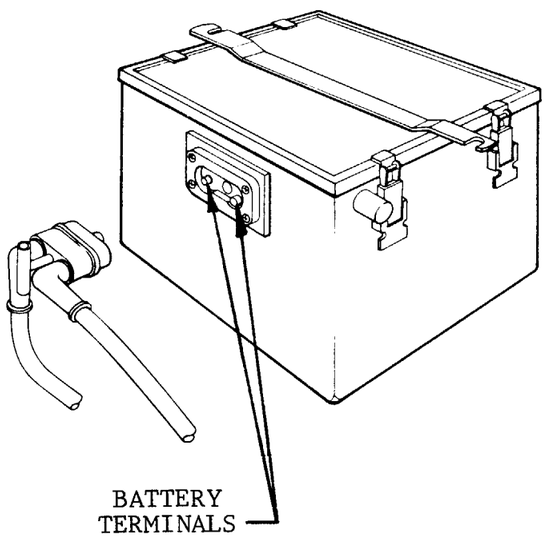
WARNING

Warn people working on or near helicopter before you apply electrical power.

CAUTION

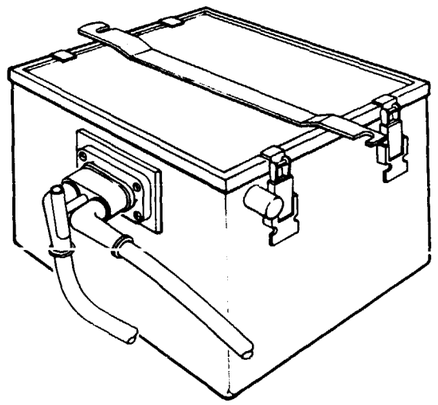
Minimum acceptable battery voltage is 22 V dc. Low battery voltage may result in excessive battery over-heating (thermal runaway) after external power is applied.

Check battery voltage. Minimum battery voltage shall be 22 V dc measured at battery terminals.



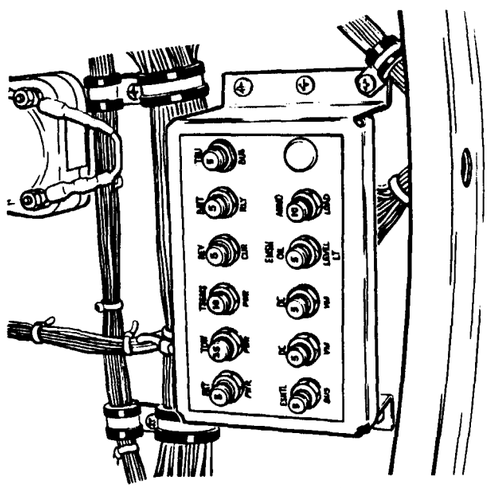
2-2. HUDS OPERATIONAL CHECK (CONTINUED).

b. Connect battery.



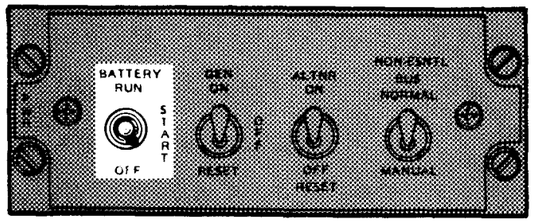
BATTERY

c. Close all circuit breakers on circuit breaker panel in battery compartment.



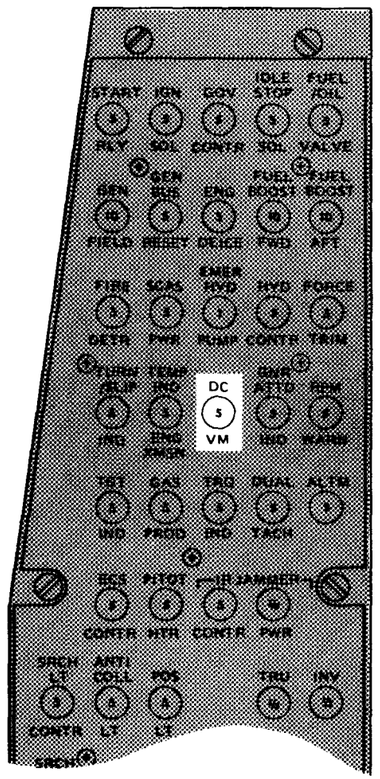
CIRCUIT BREAKER PANEL

d. Set BATTERY switch on electrical PWR control panel to START.



ELECTRICAL PWR CONTROL PANEL

e. Close DC VM circuit breaker on DC circuit breaker panel.

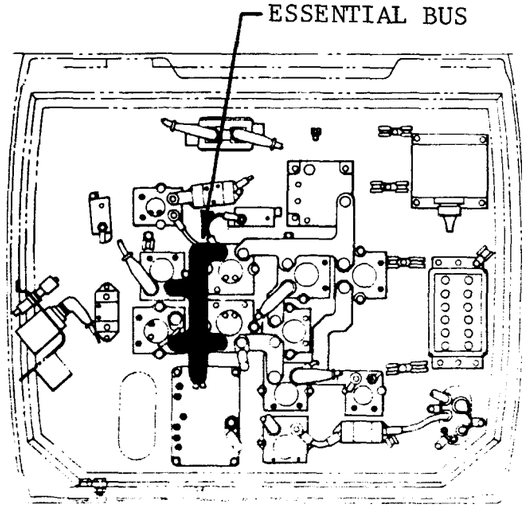


DC CIRCUIT BREAKER PANEL

CAUTION

Do not exceed 30 V dc output on ground power unit.

f. Apply external power to helicopter. (Refer to TM 55-1520-236-23, Chapter 1, Section III.) Adjust ground power unit to provide 28 to 30 V dc measured at the essential bus with a multimeter.

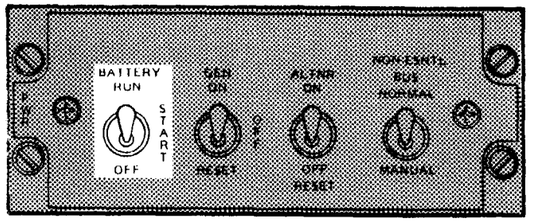


FORWARD BULKHEAD OF BATTERY COMPARTMENT

NOTE

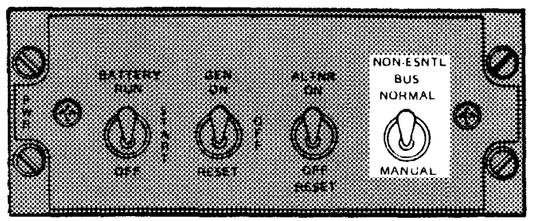
28 to 30 V dc is required for the following operational checks. The DC voltmeter can be observed to assure correct voltage is present.

g. Set BATTERY switch on electrical PWR control panel to RUN.



ELECTRICAL PWR CONTROL PANEL

h. Set NON-ESNTL BUS switch on pilot electrical PWR control panel to NORMAL.



ELECTRICAL PWR CONTROL PANEL

2-2. HUDS OPERATIONAL CHECK (CONTINUED) I

i. Close the following circuit breakers on DC circuit breaker panel:

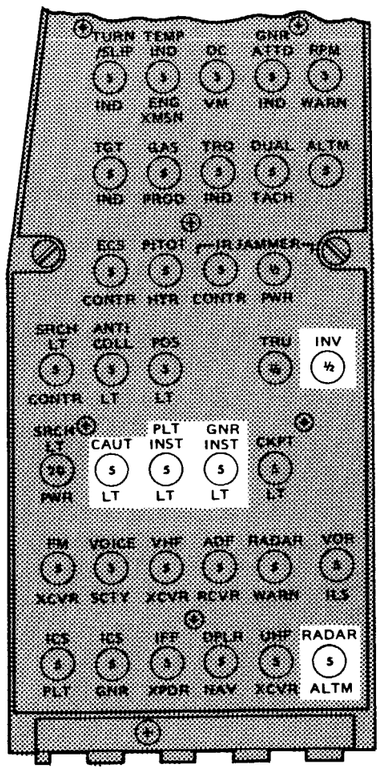
(1) INV

(2) CAUT LT

(3) PLT INST LT

(4) GNR INST LT

(5) RADAR ALTM



DC CIRCUIT BREAKER PANEL

j. Close the following circuit breakers on AC/ARMT circuit breaker panel:

(1) ATTD IND PLT

(2) REF XMFR

(3) GYRO CMPS

(4) TMS BLWR

(5) TURRET PWR

(6) HSS PWR

(7) LRF PWR

(8) TMS PWR

(9) TURRET DRIVE MOTOR

(10) ADS PWR

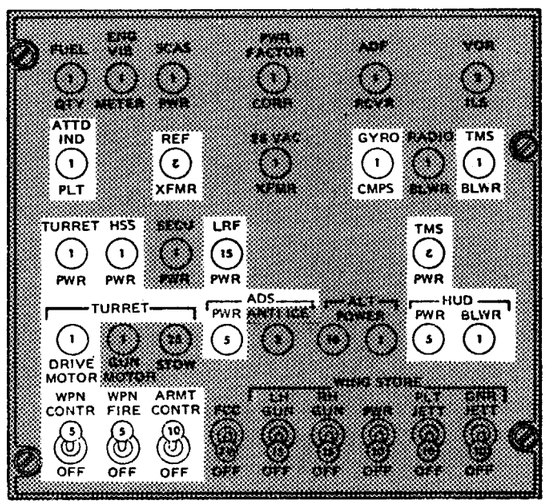
(11) HUD PWR

(12) HUD BLWR

(13) WPN CONTR

(14) WPN FIRE

(15) ARMT CONTR



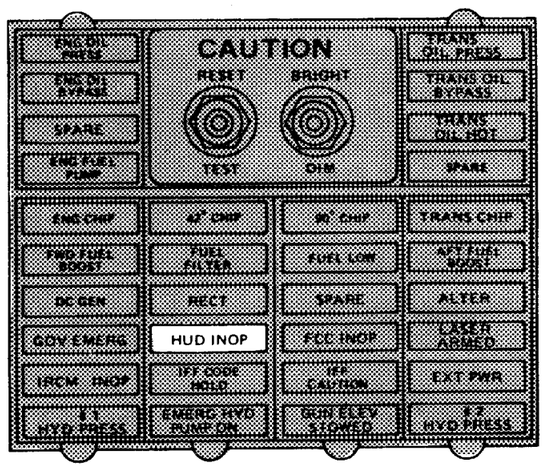
AC/ARMT CIRCUIT BREAKER PANEL

NOTE

Completion of the following check verifies that HUDS is operational. If ANY step of this check indicates a failure, STOP OPERATIONAL CHECK, leave switches and circuit breakers in position where failure occurred, and refer to MAPS for troubleshooting procedure.

If HUD or signal processor BIT indicator shows white during any step of this check, reset it by turning indicator housing counterclockwise. If it will not reset, refer to MAPS for troubleshooting procedure.

k. Observe that HUD INOP segment on pilot caution panel is lit.



PILOT CAUTION PANEL

l. On HUD:

(1) Turn BRIGHTNESS CONTROL to mid–range,

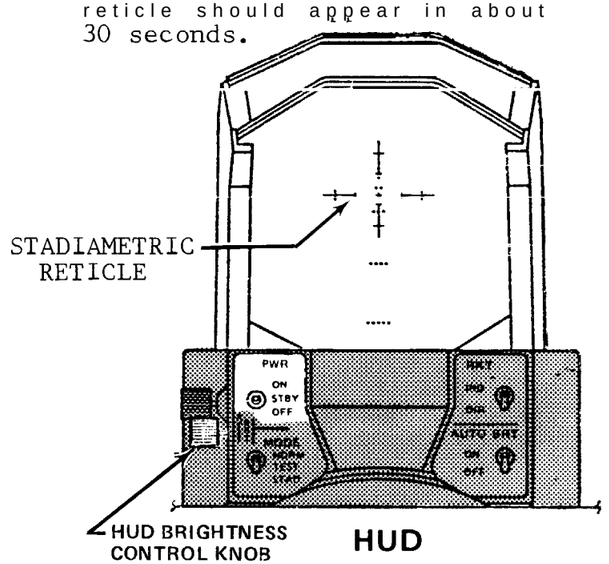
(2) Set PWR switch to STBY

(a) HUD INOP segment on pilot caution panel should go out.

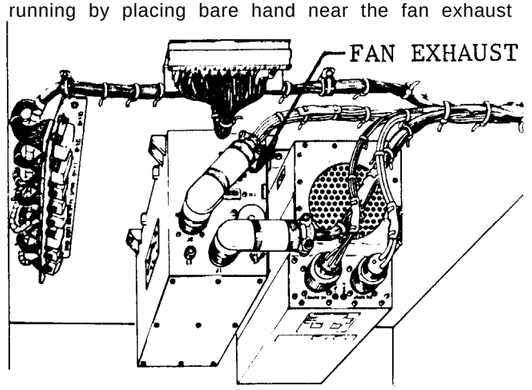
NOTE

HUD and signal processor BIT indicators should not be white.

(b) Stadiametric reticle should appear in about 30 seconds.



m. Check that signal processor fan is running by placing bare hand near the fan exhaust

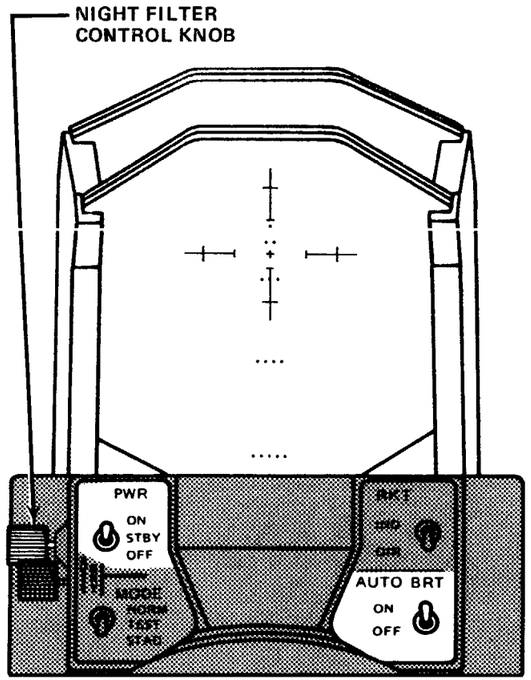


SIGNAL PROCESSOR

2-2. HUDS OPERATIONAL CHECK (CONTINUED).

n. **On HUD:**

(1) Set PWR switch to ON. Check that Stadiametric reticle is still displayed.



HUD

CAUTION

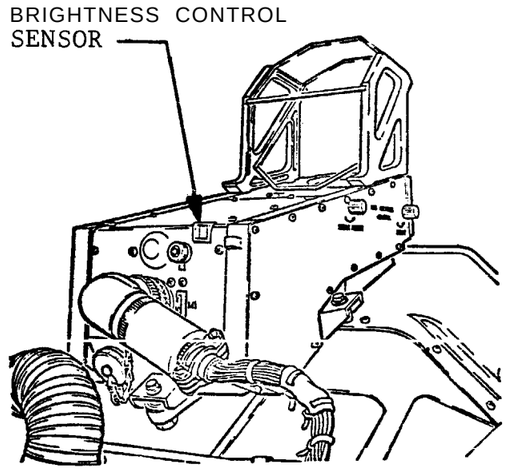
Constant exposure to direct sunlight will damage red night filter.

(2) Turn NIGHT FILTER control fully counterclockwise. Display should change from green to red.

(3) Return NIGHT FILTER control to full clockwise. Display should change back to green.

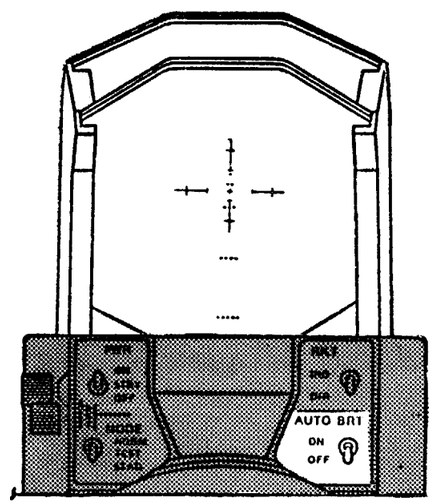
(4) Set AUTO BRT switch to ON. Display should dim or disappear.

(5) Shine flashlight on brightness control sensor. Display should brighten



REAR VIEW OF HUD

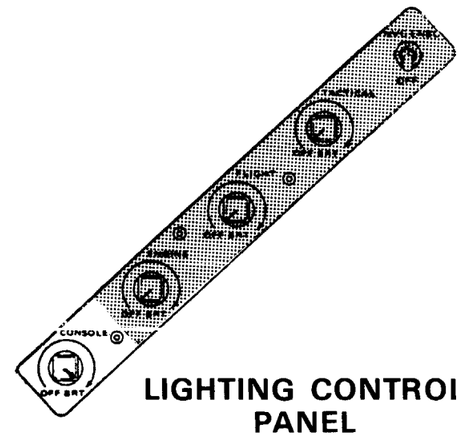
(6) Set AUTO BRT switch to OFF. Display should return to normal brightness.



HUD

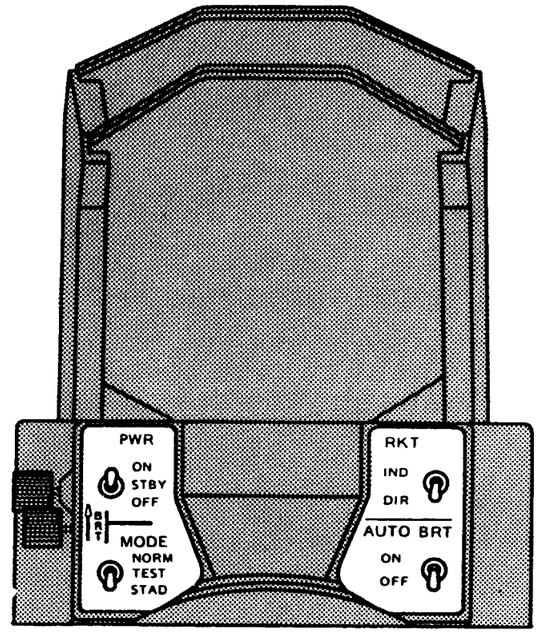
(7) Check HUD edge lit panel lighting.

(a) Turn CONSOLE lights control on lighting control panel to BRT.



LIGHTING CONTROI PANEL

(b) Observe that HUD edge lit panel lamps are lit.



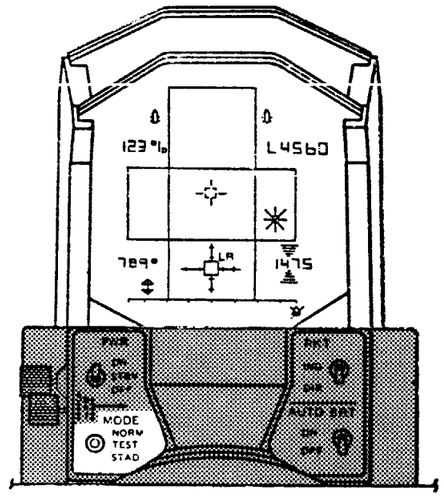
HUD

(8) Set MODE switch to TEST. Check that TEST symbology appears on HUD.

NOTE

HUD and signal processor BIT indicators should not be white.

Symbols should appear bright, steady and without jitter in all modes of operation.

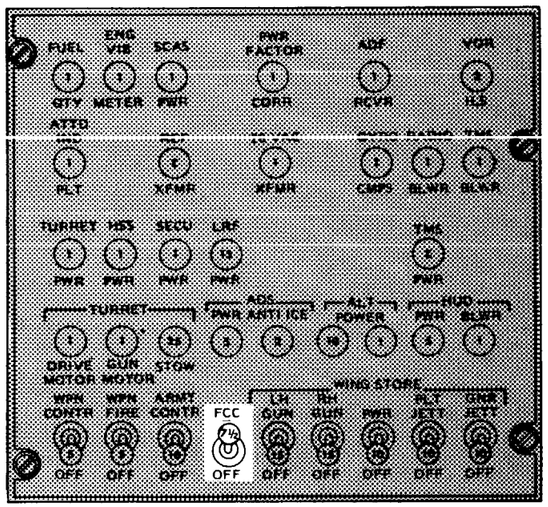


HUD

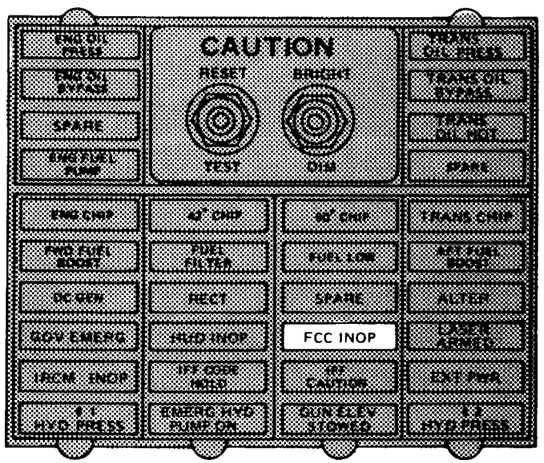
(9) Set MODE switch to NORM.

2-2. HUDS OPERATIONAL CHECK (CONTINUED) .

(10) Close FCC circuit breaker on AC/ARMT circuit breaker panel. FCC INOP light on pilot caution panel should go out. Check that normal symbology appears on HUD. (If display fails to appear, open then close FCC circuit breaker.)



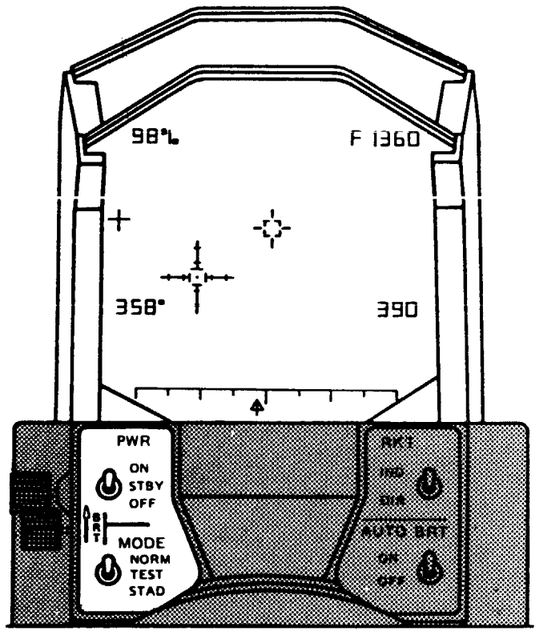
AC/ARMT CIRCUIT BREAKER PANEL



PILOT CAUTION PANEL

NOTE

When in NORM position, the **HUD** should have an engine torque, range, magnetic heading, and radar altitude numeric display at all times.



HUD

TYPICAL NORMAL DISPLAY

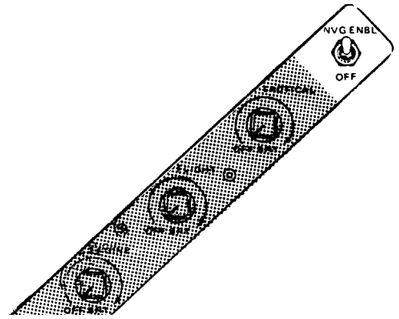
(a) Set PWR switch to STBY, normal display should disappear, and test pattern should not appear in TEST mode.

(b) Return PWR switch to ON.

(c) Return MODE switch to NORM.

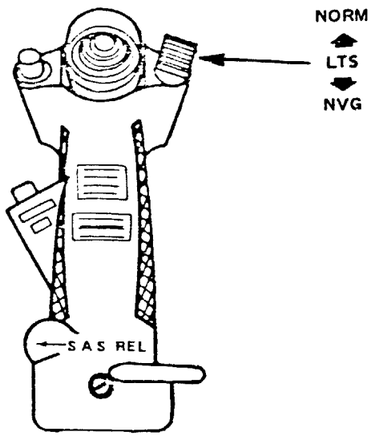
(11) Check HUD for NVG lighting.

(a) Set NVG ENBL switch on lighting control panel to NVG ENBL.



LIGHTING CONTROL PANEL

(b) Set LTS switch on pilot cyclic stick to NVG. Observe that HUD display flickers and dims and HUD edge lit panel lamps go out. Return switch to NORM. Observe that HUD display and edge lit panel lamps return to original brightness.



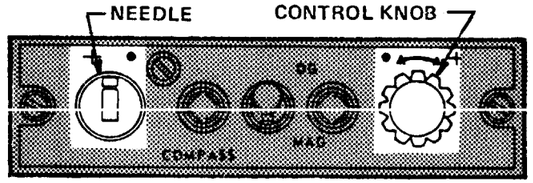
PILOT CYCLIC STICK

(c) Return NVG ENBL switch to OFF.

o. On COMPASS control panel:

(1) Set compass control knob so needle deflects slightly to the left. Observe that magnetic heading display on HUD changes.

(2) Set compass control knob so needle deflects slightly to the right. Observe that magnetic heading display on HUD changes.



COMPASS CONTROL PANEL

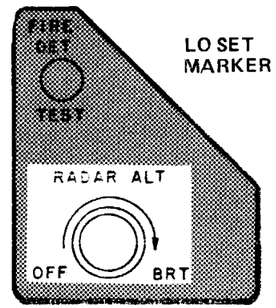
(3) Return needle to center position.

p. On radar altimeter indicator and radar altimeter lighting panel:

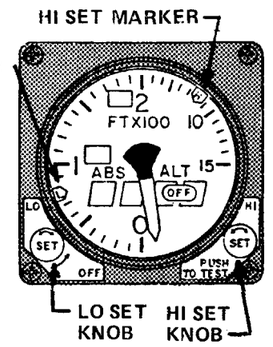
(1) Turn radar altimeter lighting panel control to BRT . Turn LO SET marker from OFF to 0. The OFF flag should disappear from view in less than two minutes.

(2) Set LO SET marker to 80 feet.

(3) Set HI SET marker to 800 feet.



RADAR ALTIMETER LIGHTING PANEL



RADAR ALTIMETER

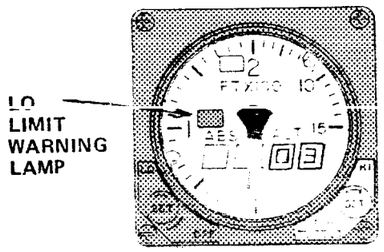
2-2. HUDS OPERATIONAL CHECK (CONTINUED) .

(4) Observe the following on radar altimeter:

(a) Pointer indicates O to 5 feet.

(b) Digital display indicates O to 3 feet.

(c) LO limit warning lamp lights.

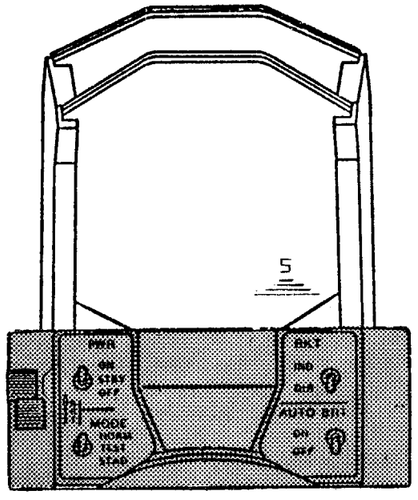


RADAR ALTIMETER

(5) Observe the following on HUD:

(a) Altitude numeric display indicates O or 5 feet.

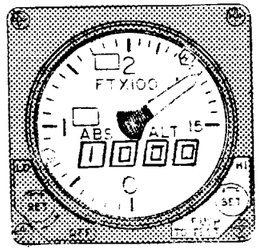
(b) Radar altitude lower limit arrow appears.



HUD

q. Press and hold PUSH TO TEST button on radar altimeter.

r. Check that pointer on radar altimeter goes to 825 to 1175 feet.



RADAR ALTIMETER

(1) As pointer goes above LO SET marker:

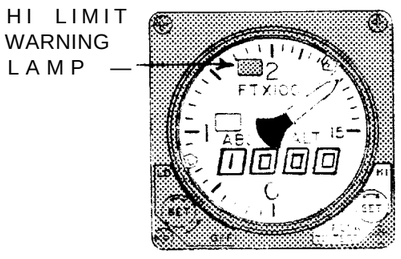
(a) Lower limit arrow on HUD goes out.

(b) LO limit warning lamp on radar altimeter goes out.

(2) As pointer goes above HI SET marker:

(a) Upper limit arrow on HUD appears.

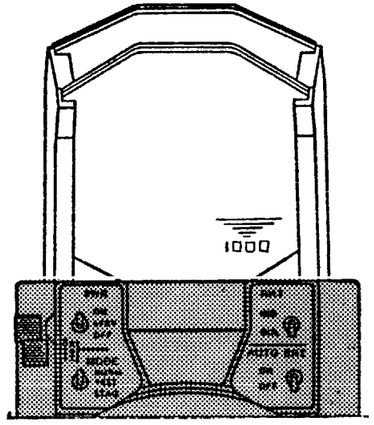
(b) HI limit warning lamp on radar altimeter lights.



RADAR ALTIMETER

s. Check that digital display on radar altimeter reads 900 to 1100.

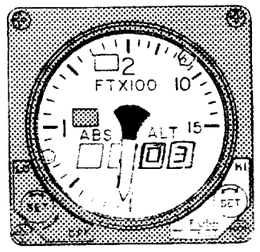
t. Check that altitude numeric on HUD reads 900 to 1100.



HUD

u. Release PUSH TO TEST button on radar altimeter.

v. Check that pointer on radar altimeter returns to 5 feet.



RADAR ALTIMETER

(1) As pointer goes below HI SET marker:

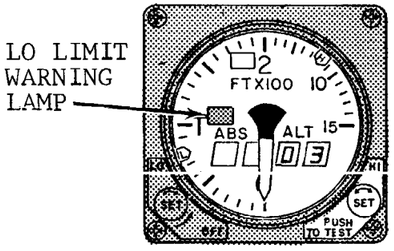
(a) Upper limit arrow on HUD goes out.

(b) HI limit warning lamp on radar altimeter goes out.

(2) As pointer goes below LO SET marker:

(a) Lower limit arrow on HUD appears.

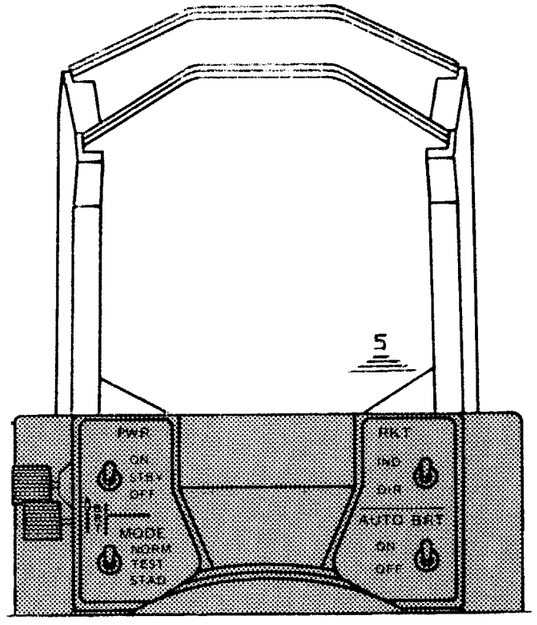
(b) LO limit warning lamp on radar altimeter lights.



RADAR ALTIMETER

w. Check that digital display on radar altimeter reads O to 3 feet.

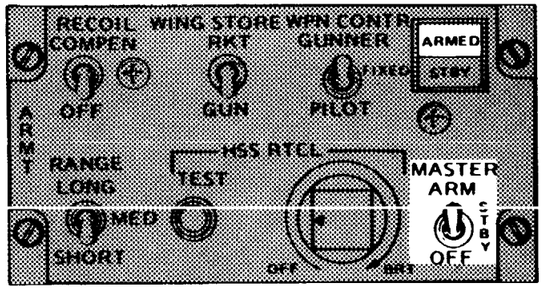
x. Check that altitude numeric on HUD reads O or 5 feet.



HUD

2-2. HUDS OPERATIONAL CHECK (CONTINUED).

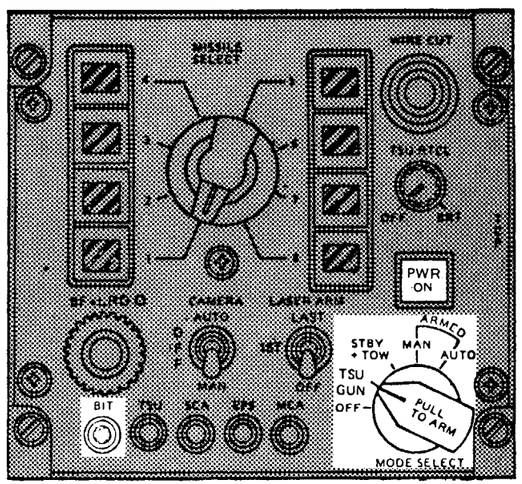
Set MASTER ARM switch on pilot ARMT control panel to ARM. ARMED indicator should light.



PILOT ARMT CONTROL PANEL

z. On TCP (TOW control panel):

(1) Set MODE SELECT switch to TSU GUN. After self test is complete , PWR ON indicator will appear.



TCP (TOW CONTROL PANEL)

(2) Press and hold BIT button. Check that all the following prelaunch symbols are displayed on HUD. Check that the LOS reticle is steady (not flashing).

(a) Ascend symbol

(b) Descend symbol.

(c) Prelaunch rectangle.

(d) LOS reticle centered over ADL reticle (inside prelaunch rectangle).

NOTE

When BIT button is released, the symbols listed below will move rapidly on HUD. Repeat test until all the symbols have been observed. You may have to repeat the test several times.

(3) Release BIT button. Observe all the following post-launch symbols on HUD:

(a) Coarse azimuth pointer moves.

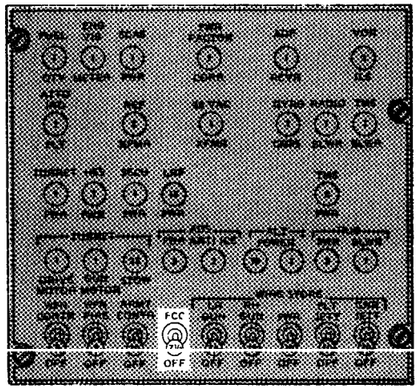
(b) Postlaunch rectangle is seen momentarily.

+ (c) LOS reticle moves in both elevation and azimuth.

(d) Caution symbol overlays LOS reticle.

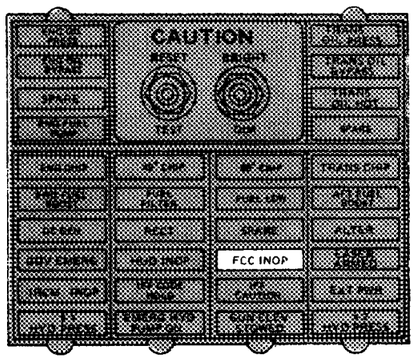
(e) Caution symbol overlays coarse azimuth pointer.

aa. Open (OFF) FCC circuit breaker on AC/ARMT circuit breaker panel. Check the following:



AC/ARMT CIRCUIT BREAKER PANEL

(1) FCC INOP segment on pilot caution panel lights.



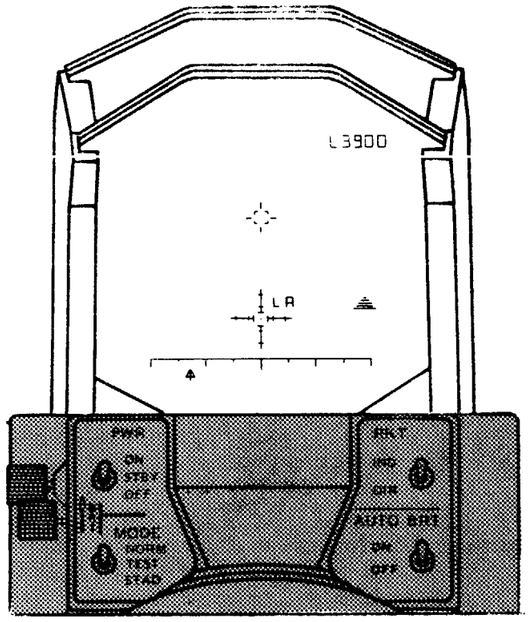
PILOT CAUTION PANEL

NOTE

This is a Fire Control System backup mode. If a laser range finder is not installed, then the HUD symbology shown, may contain some distortionsor erroneous information.

(2) Letter in front of range readout on HUD changes from F to L. (This indicates that range information is now fed directly from the laser range finder.)

(3) An LA appears in upper right section of HUD reticle.



HUD

(4) Press and hold BIT button on TCP (TOW control panel). Check that all the following prelaunch symbols are displayed on HUD.

(a) Ascend symbol.

(b) Descend symbol.

(c) Prelaunch rectangle.

(d) LOS reticle centered over ADL reticle (inside prelaunch rectangle).

2-2. HUDS OPERATIONAL CHECK (CONTINUED)

NOTE

When BIT button is released, the symbols listad below will mova rapidly on HUD. Repeat test until all the symbols have been observed. You may have to repeat tha test several times.

(5) Release BIT button. Observe all the following post-launch symbols on HUD:

(a) Coarse azimuth pointer moves.

(b) Postlaunch rectangle is seen momentarily.

+ (c) LOS reticle moves in both azimuth and elevation.

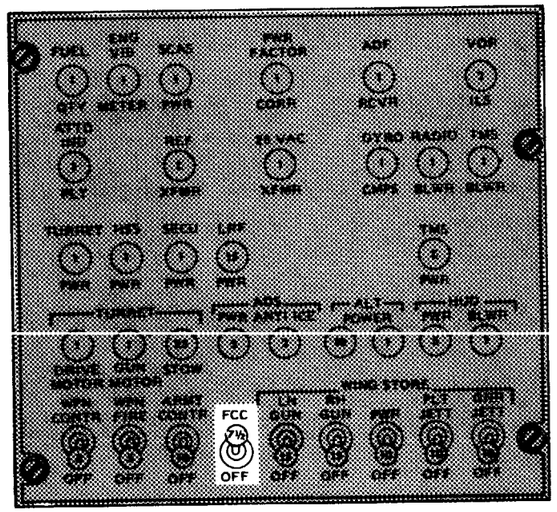
NOTE

Caution symbol may or may not appear.

(d) caution symbol overlays LOS reticle.

(e) Coarse azimuth pointer appears at the extreme right of scale overlayed by caution symbol.

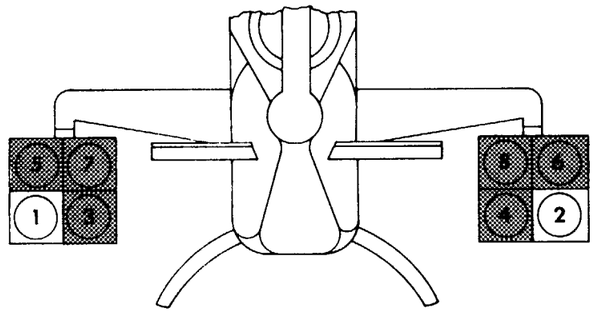
(6) Close FCC circuit breaker on AC/ARMT circuit panel.



AC/ARMT CIRCUIT BREAKER PANEL

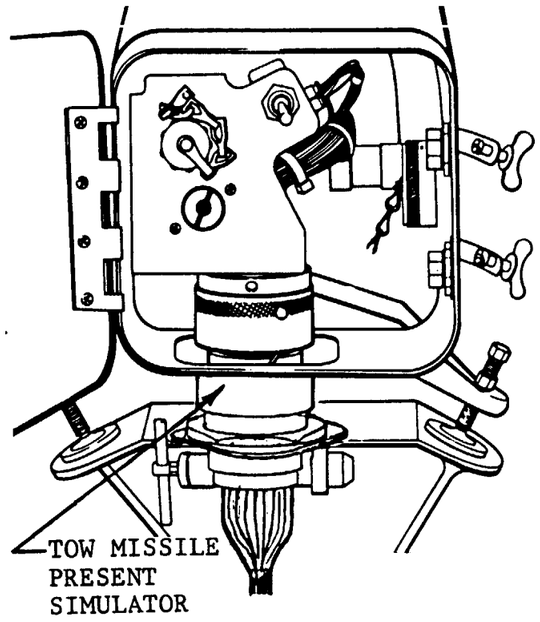
NOTE

The following test checks HUD missile present symbols. This check will test only TOW launcher positions 1 and 2. If launcher positions 3 thru 8 are to be checked, the TSEM must be moved to the position to be checked and the proper missile selected on the TCP (TOW control panel).



ab. Check for right and left missile symbols on HUD as follows:

(1) Ensure turret area is clear. Install TSEM in left TOW missile launcher, position 1 per TM 9-1425-473-34 or connect TOW missile present simulator (local manufacture) to 20P8J01 on left wing fairing.

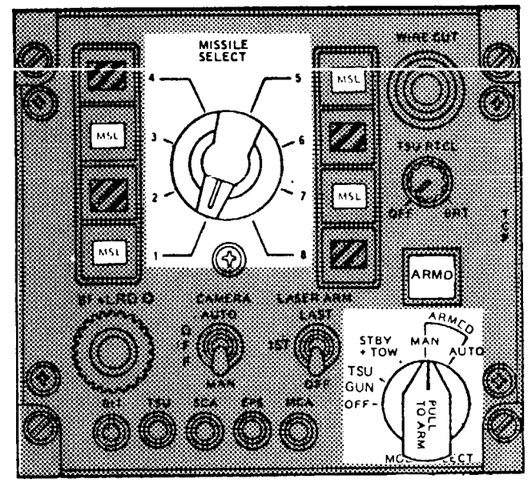


WING FAIRING ACCESS DOOR

(2) On TCP(TOW control panel):

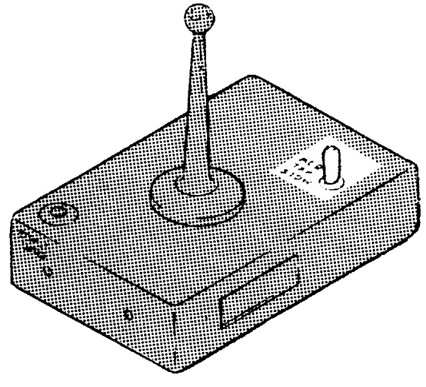
(a) Set MODE SELECT switch to ARMED MAN. Observe that gun moves to fixed forward position and mode indicator shows ARM D.

(b) Set MISSILE SELECT switch to 1. (TOW missile present simulator will show missile in positions 1, 3, 5, and 7. TSEM will show missile in position 1 only.) Observe that MSL appears in window to left of MISSILE SELECT switch position 1.



TCP (TOW CONTROL PANEL)

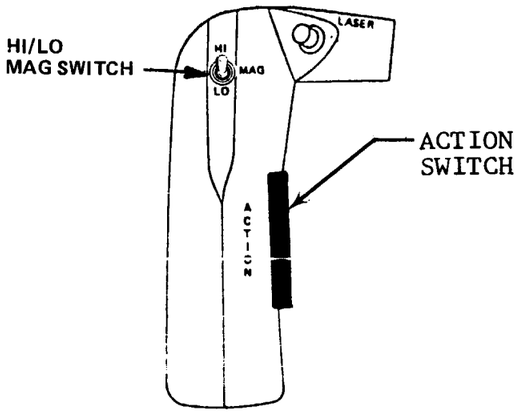
(3) On sight hand control: Set ACQ/TRK/STOW switch to TRK.



SIGHT HAND CONTROL

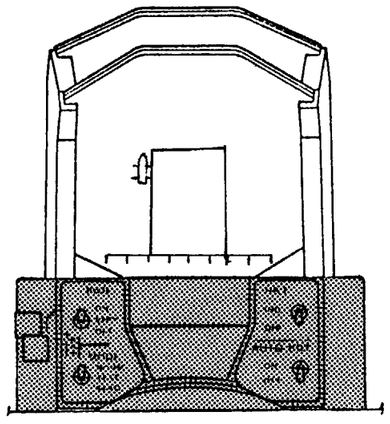
2-2. HUDS OPERATIONAL CHECK (CONTINUED).

(4) On TSU left handgrip: Set HI/LO MAG switch to HI.



LEFT HAND GRIP

(5) On left hand grip: Press and hold ACTION switch. Check that left missile symbol only is displayed on HUD.

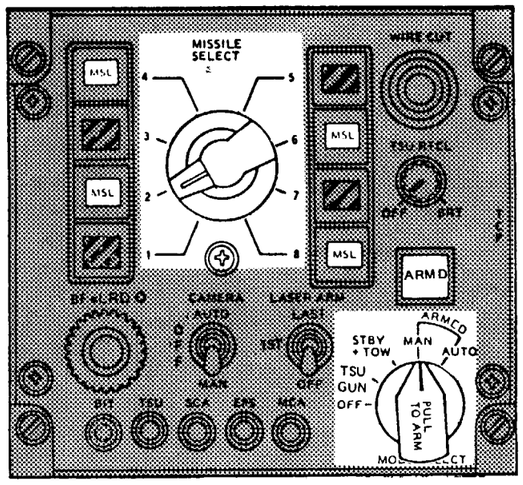


HUD

(6) Install TSEM in right TOW missile launcher position 2 per TM 9-1425-473-34 or connect TOW missile present simulator (local manufacture) to 20S8J01 on right wing fairing.

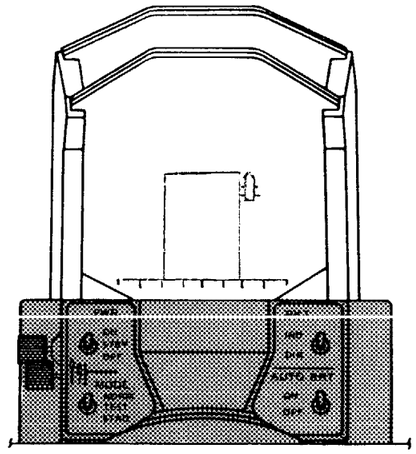
(7) On TCP (TOW control panel): Set MISSILE SELECT switch to 2. (TOW missile present simulator will show missile in positions 2, 4, 6, and 8. TSEM will show missile in position 2 only.)

Observe that MSL appears in window to left of MISSILE SELECT switch position 2.



TCP (TOW CONTROL PANEL)

(8) On left hand grip: Press ACTION switch. Check that right missile symbol only is displayed on HUD.

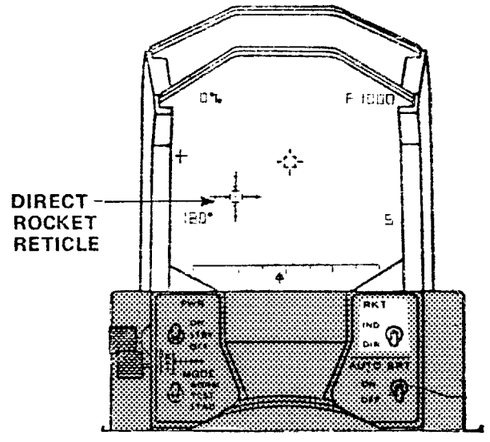


HUD

(9) On TCP (TOW control panel): Set MODE SELECT switch to OFF.

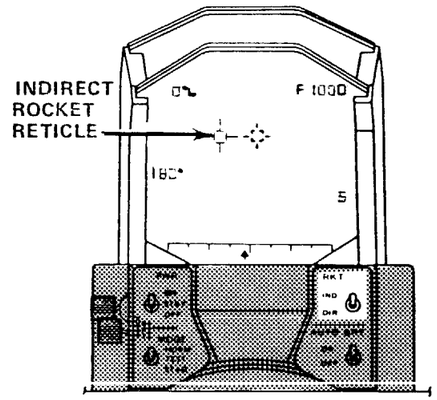
ac. On HUD:

(1) Check that RKT switch is set to DIR. Observe direct rocket reticle on HUD.



HUD

(2) Set RKT switch to IND. Observe that reticle moves and changes to indirect rocket reticle.



HUD

(3) Check for fixed forward gun reticle.

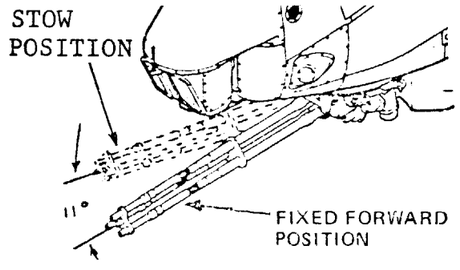
(a) Ensure turret area is clear.

(b) Set MASTER ARM switch on pilot ARMT control panelto STBY. Observe that STBY indicator lights.

(c) Set WPN CONTR switch on pilot ARMT control panel to FIXED. Observe that gun is in fixed forward position.



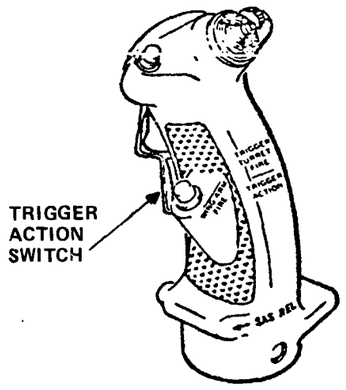
PILOT ARMT CONTROL PANEL



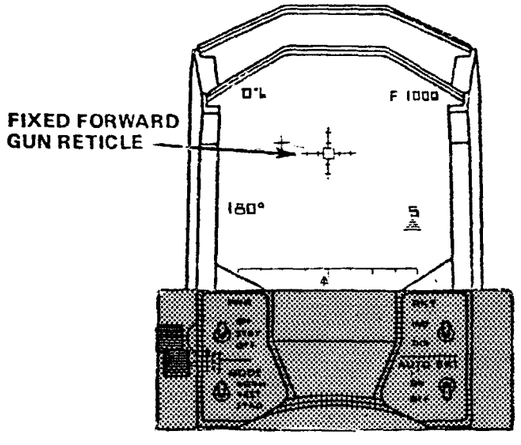
2-2. HUDS OPERATIONAL CHECK (CONTINUED)

(d) Press and hold TRIGGER ACTION switch on pilot cyclic stick. Check that rocket reticle overlays boresight reticle and becomes the fixed forward gun reticle.

(e) Release TRIGGER ACTION switch on pilot cyclic stick.



PILOT CYCLIC STICK



HUD

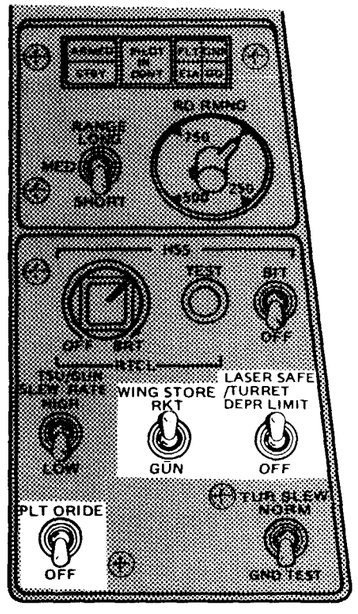
ad. Ensure turret area is clear

ae. Ensure that gunner armament control panel switches are set as follows:

(1) LASER SAFE/TURRET DEPR LIMIT to TURRET DEPR LIMIT.

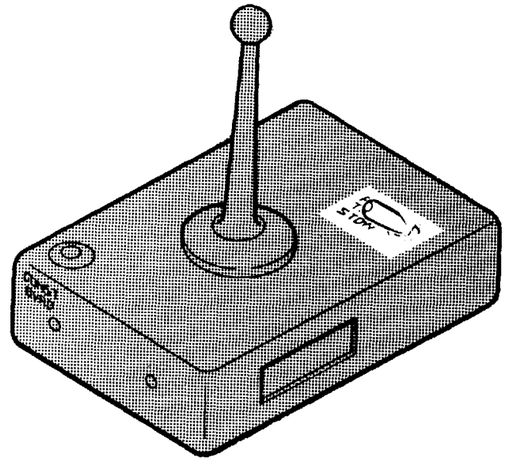
(2) WING STORE to RKT.

(3) PLT ORIDE to OFF.



GUNNER ARMAMENT CONTROL PANEL

af. Set ACQ/TRK/STOW switch on sight hand control to STOW.

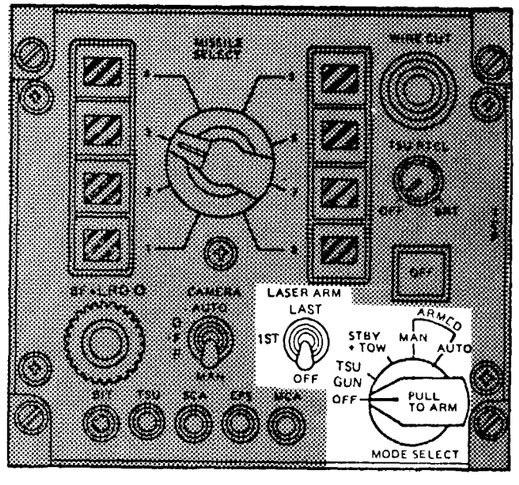


SIGHT HAND CONTROL

ag. Set TCP (TOW control panel) switches:

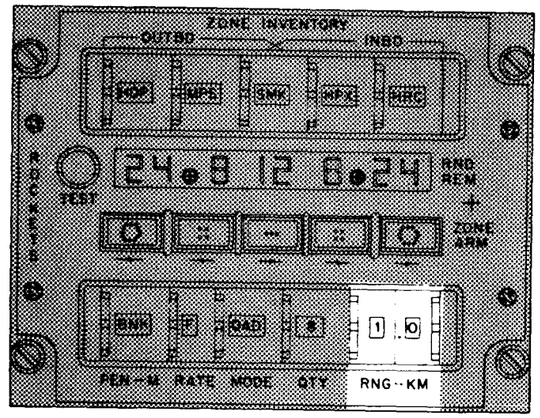
(1) LASER ARM to OFF.

(2) MODE SELECT to OFF.



TCP (TOW CONTROL PANEL)

ah. Set ROCKETS display unit switches RNG-KM to 1.0.



ROCKETS DISPLAY UNIT

ai. Set HUD switches:

(1) PWR to OFF.

(2) MODE to STAD.

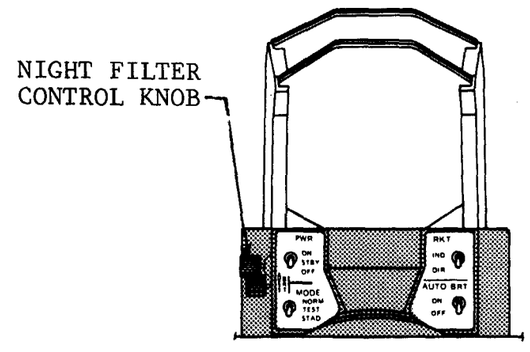
(3) RKT to DIR.

(4) AUTO BRT to OFF.

CAUTION

Constant exposure to direct sunlight will damage the red night filter.

(5) NIGHT FILTER control fully clockwise.



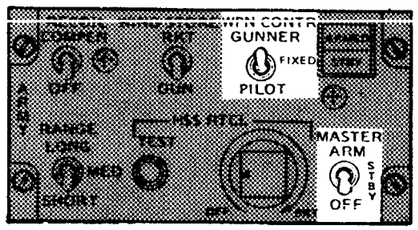
HUD

2-2. HUDS OPERATIONAL CHECK (CONTINUED)

aj. Set pilot ARMT control panel switches:

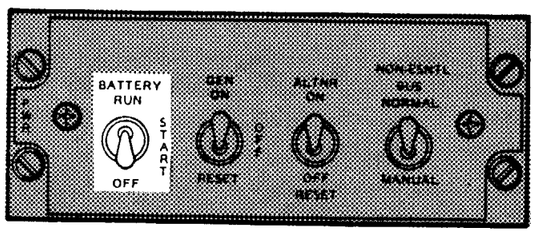
(1) MASTER ARM to OFF.

(2) WPN CONTR to GUNNER.



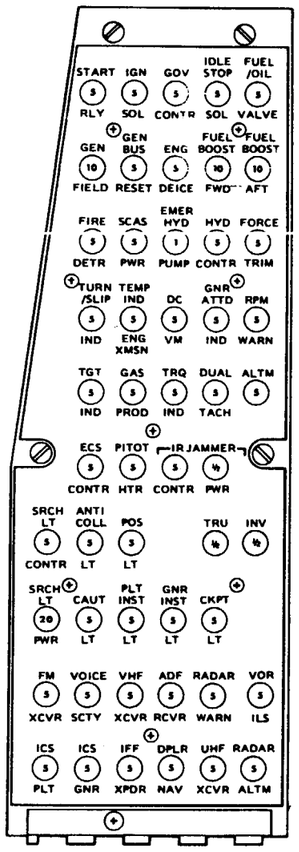
PILOT ARMT CONTROL PANEL

ak. Set BATTERY switch on electrical PWR control panel to OFF.



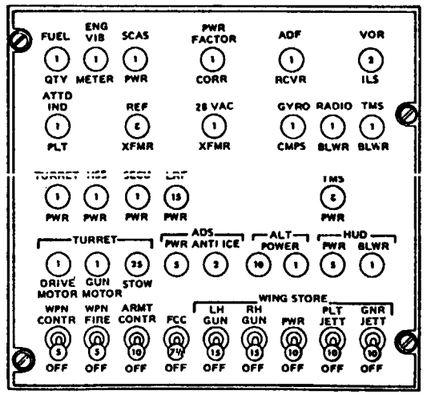
ELECTRICAL PWR CONTROL PANEL

al. Open all circuit breakers on DC circuit breaker panel.



DC CIRCUIT BREAKER PANEL

am. Open (OFF) all circuit breakers on AC/ARMT circuit breaker panel.

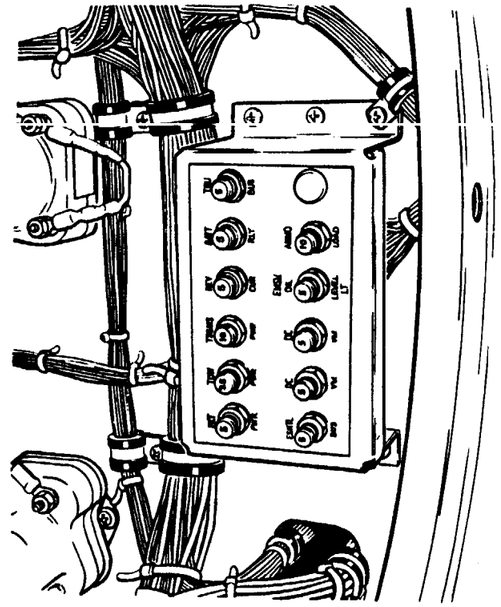


AC/ARMT CIRCUIT BREAKER PANEL

an. Remove TSEM and/or TOW missile present simulator(s).

ao. Disconnect ground power unit.

ap. Open all circuit breakers on circuit breaker panel in battery compartment.



aq. Disconnect battery.

2-3. POWER OFF/POWER ON PROCEDURES.

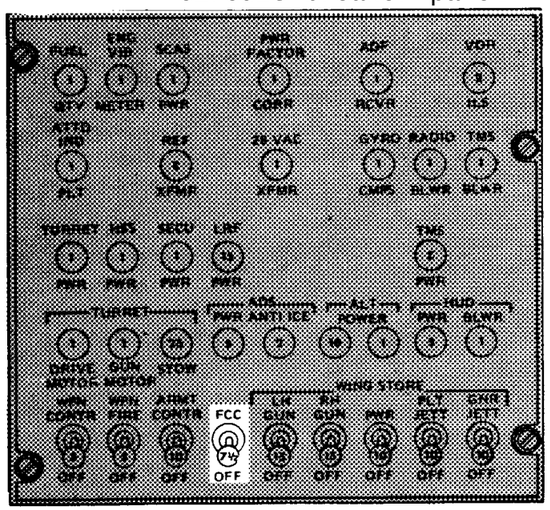
INITIAL SETUP

Applicable Configuration
All

Personnel Required
68J (1)

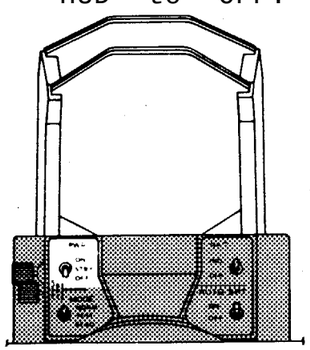
Turn off electrical power when specified in trouble-shooting procedure as follows:

(1) Open (OFF) FCC circuit breaker on AC/ARMT circuit breaker panel.



AC/ARMT CIRCUIT BREAKER PANEL

(2) Set PWR switch on HUD to OFF.

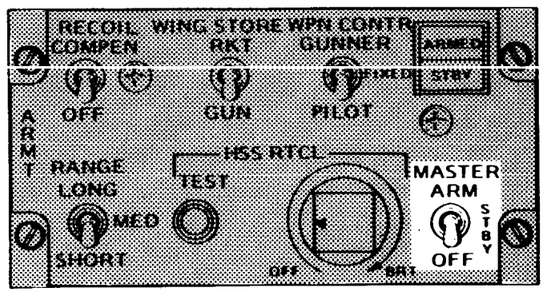


HUD

NOTE

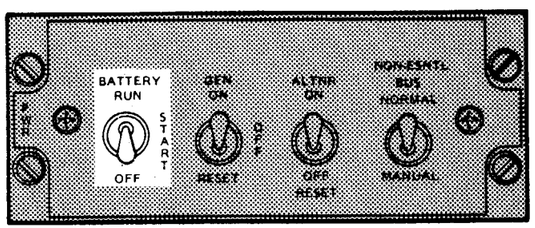
Note the position that the MASTER ARM switch is in. The MASTER ARM switch must be set to the same position during the Power On Procedure.

(3) Set MASTER ARM switch on pilot ARMT control panel to OFF.



PILOT ARMT CONTROL PANEL

(4) Set BATTERY switch on pilot electrical PWR control panel to OFF.



ELECTRICAL PWR CONTROL PANEL

(5) Turn off ground power unit.

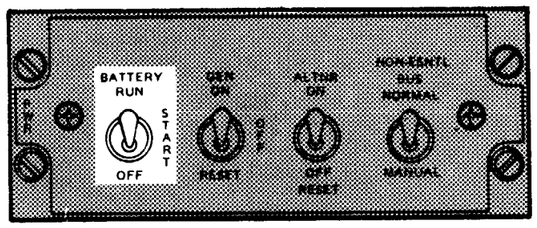
(6) Disconnect battery.

b. Turn on electrical power when specified in troubleshooting procedure as follows:

(1) Connect battery.

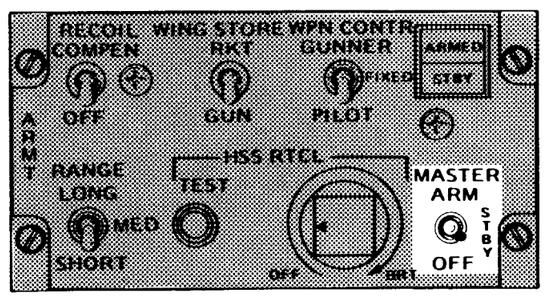
(2) Turn on ground power unit.

(3) Set BATTERY switch on pilot electrical PWR control panel to RUN.



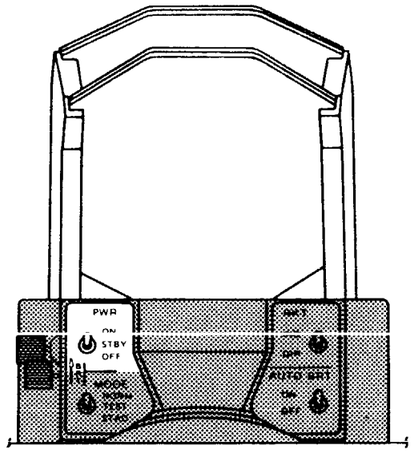
ELECTRICAL PWR CONTROL PANEL

(4) Set MASTER ARM switch on pilot ARMT control panel to the same position the switch was in prior to Power Off Procedure.



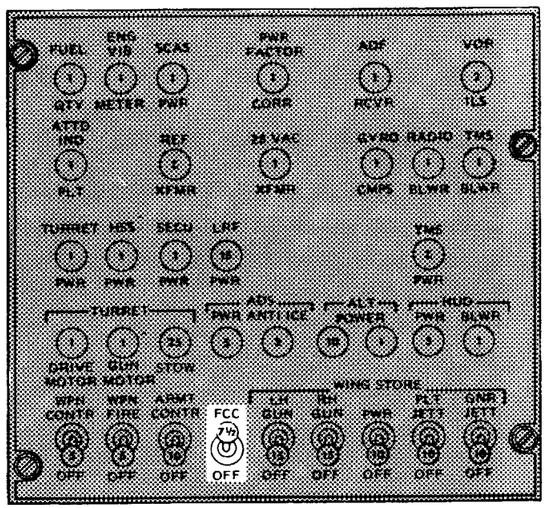
PILOT ARMT CONTROL PANEL

(5) Set PWR switch on HUD to ON.



HUD

(6) Close FCC circuit breaker on AC/ARMT circuit breaker panel.



AC/ARMT CIRCUIT BREAKER PANEL

2-4. HUD PWR CIRCUIT BREAKER WILL NOT REMAIN CLOSED.

INITIAL SETUP

Applicable Configuration
All

Tools/Test and Support Equipment
Multimeter

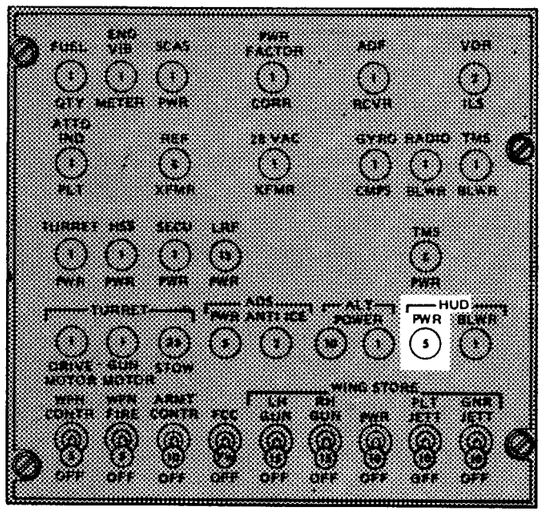
Tool Set, A/C Armament Repairman

Personnel Required
68J (2)

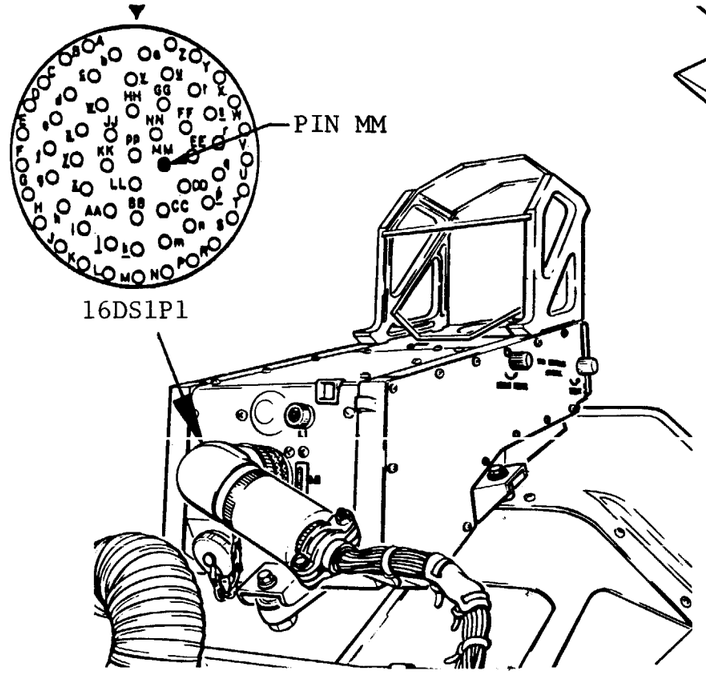
References
M 9-1270-220-13
TM 55-1520-236-23

Access Panels
Battery Compartment - Removed

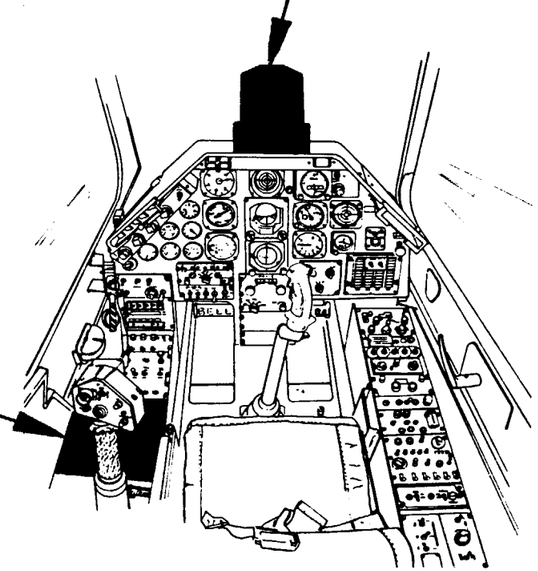
Left Side Control Linkage - Removed



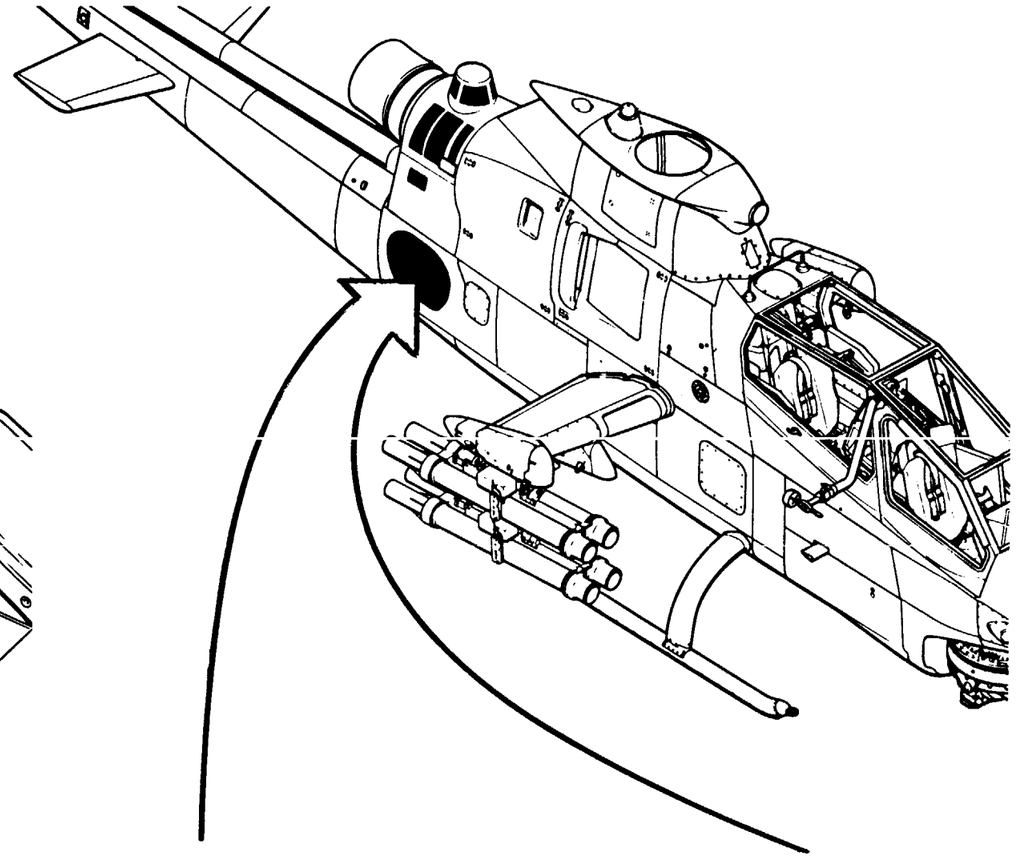
AC/ARMT CIRCUIT BREAKER PANEL

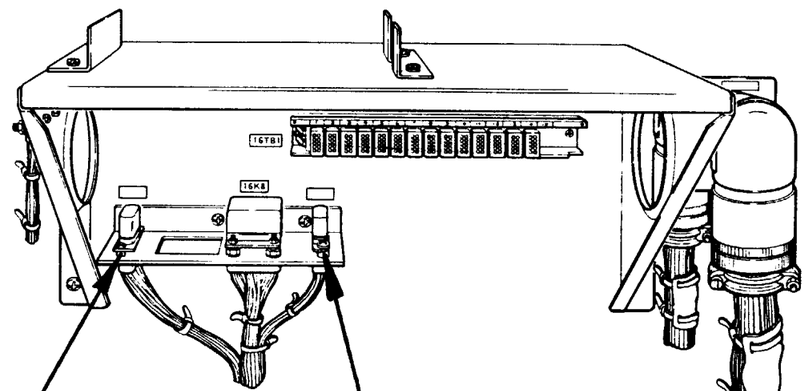


HUD (REAR VIEW)



PILOT STATION

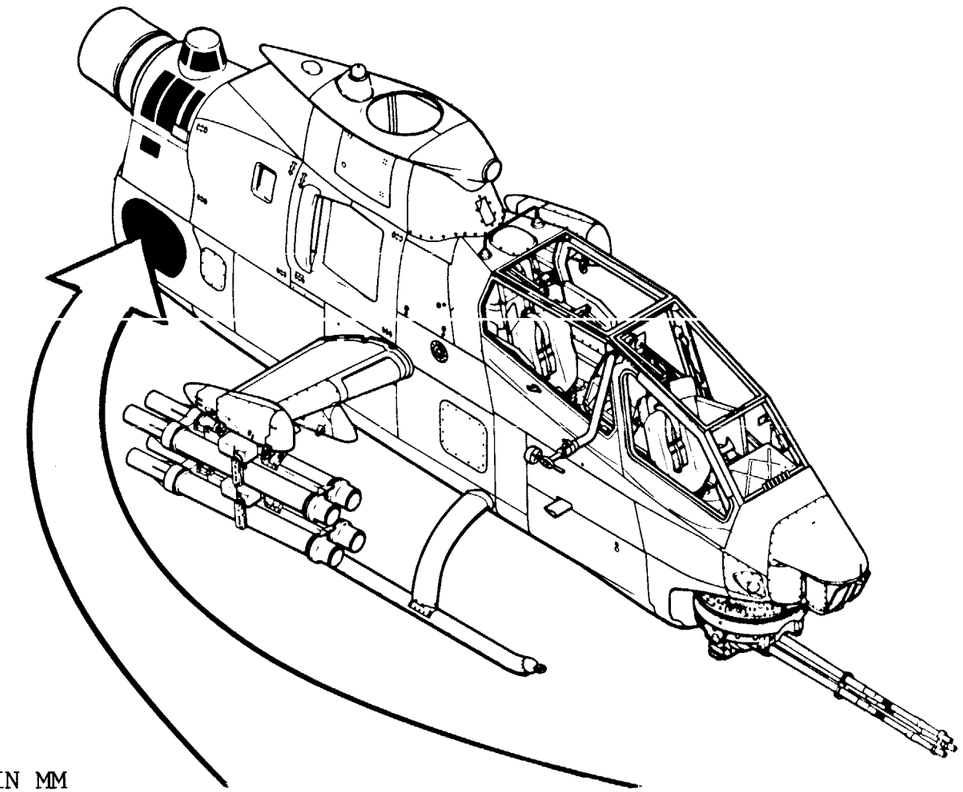


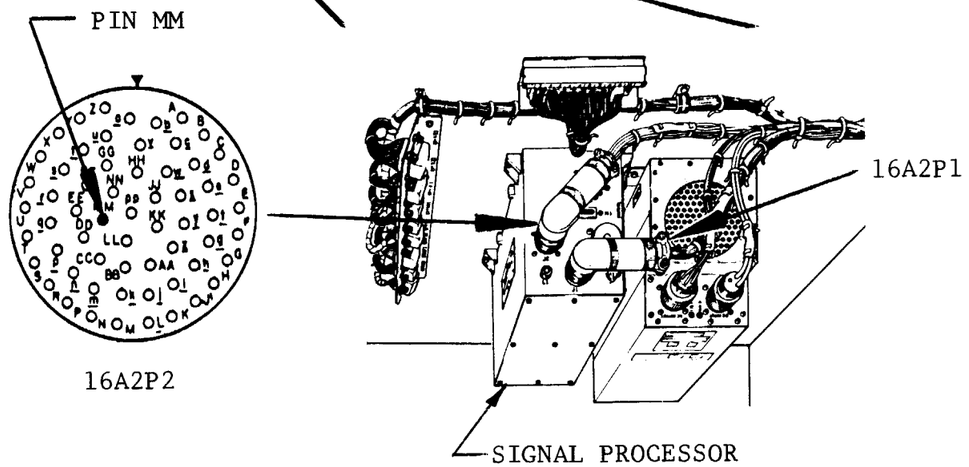


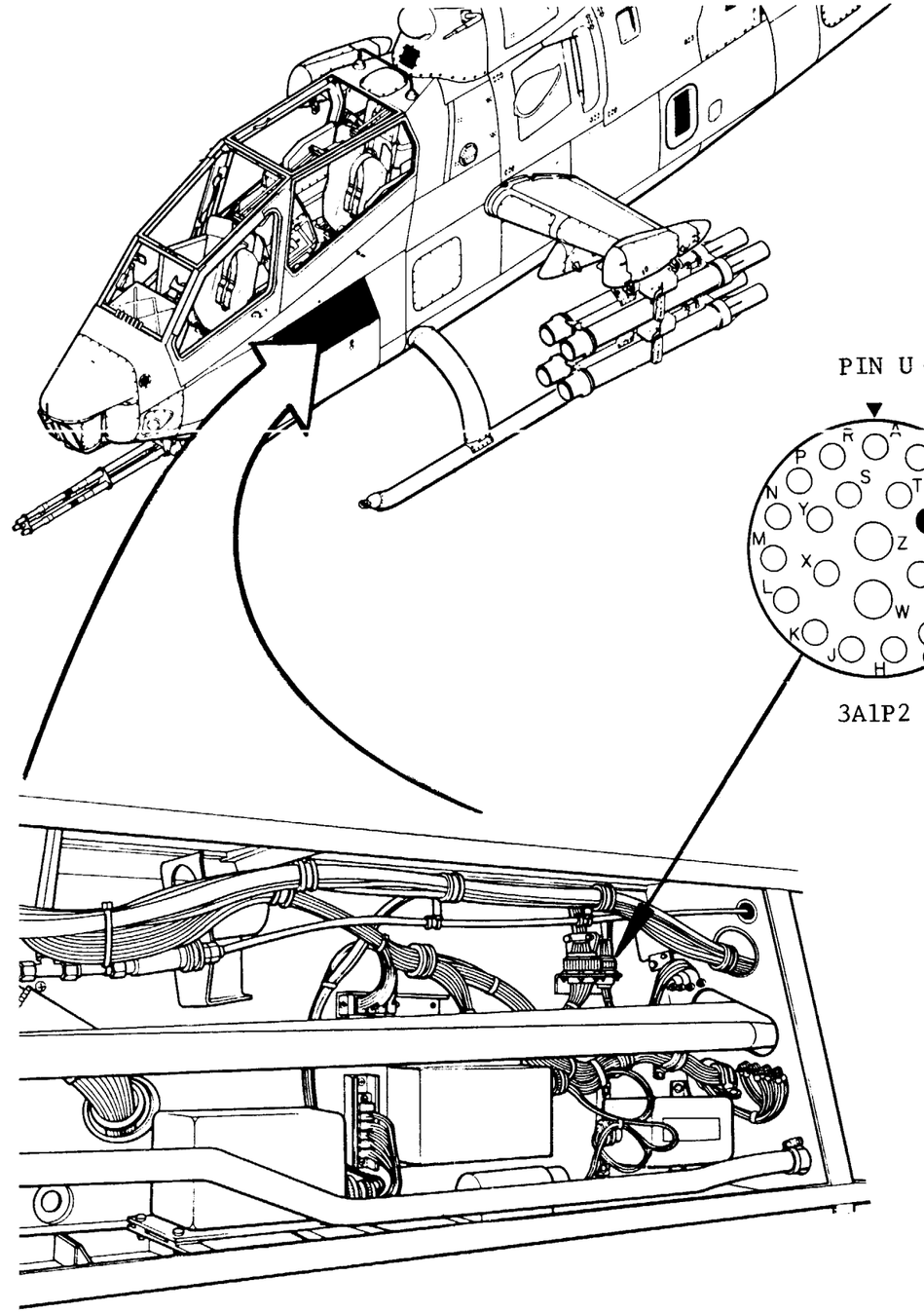
RADAR ALTIMETER HIGH LIMIT RELAY (16K7)

RADAR ALTIMETER LOW LIMIT RELAY (16K6)

2-4. HUD PWR CIRCUIT BREAKER WILL NOT REMAIN CLOSED (CONTINUED).







2-4. HUD PWR CIRCUIT BREAKER WILL NOT REMAIN CLOSED (CONTINUED).

[redacted]
electrical power per paragraph 2-3.

t 16A2P1.

lectrical power per paragraph 2-3.

I circuit breaker panel:

PWR circuit breaker remain

YES

Turn off electrical power per paragraph 2-3.

Connect 16A2P1.

Check for continuity from 16A2P2-MM to airframe ground.

Is continuity present?

YES

Repair wire A1132A22(BLU) between 16DS1P1-MM and 16A2P2-MM to eliminate short.

Then go to paragraph 2-2.

NO

Replace signal processor per TM9-1270-220-13, Chapter 3, Section I.

Then go to paragraph 2-2.

NO

Turn off electrical power per paragraph 2-3.

Check for continuity from 3A1P2-U to airframe ground.

Is continuity present?

YES

Repair wire A1138A20 between 3A1P2-U and HUD PWR circuit breaker to eliminate short.

Connect 16A2P1.

Then go to paragraph 2-2.

NO

Remove radar altimeter high limit relay (16K7) per TM 55-1520-236-23, Chapter 9, Section I.

Close HUD PWR circuit breaker.

Turn on electrical power per paragraph 2-3.

Does HUD PWR circuit breaker remain closed?

YES

Turn off electrical power per paragraph 2-3.

Replace radar altimeter high limit relay (16K7) per TM55-1520-236-23, Chapter 9, Section I.

Connect 16A2P1.

Then go to paragraph 2-2.

NO

NO

2-4. HUD PWR CIRCUIT BREAKER WILL NOT REMAIN CLOSED (CONTINED).

NO

Turn off electrical power per paragraph 2-3.

Remove radar altimeter low limit relay (16K6) per TM55-1520-236-23, Chapter 9, Section I.

Turn on electrical power per paragraph 2-3.

Close HUD PWR circuit breaker.

Does HUD PWR circuit breaker remain closed?

YES

Turn off electrical power per paragraph 2-3.

Replace radar altimeter low limit relay (16K6) per TM55-1520-236-23, Chapter 9, Section I.

Connect 16A2P1.

Then go to paragraph 2-2.

NO

Turn off electrical power per paragraph 2-3.

Remove splice joining wires A1138B20 (WHT), A1138C20, A1138D20, and A1138E22.

Check only wires A1138B20(WHT), A1138C20 and A1138D20 for continuity to airframe ground.

Is continuity present on any wire?

YES

Repair wire where continuity is present to eliminate short.

Install splice joining wires A1138B20(WHT), A1138C20, A1138D20, and A1138E22 per TM 55-1520-236-23, Chapter 9, Section I.

Install radar altimeter low limit relay (16K6) and radar altimeter high limit relay (16K7) per TM55-1520-236-23, Chapter 9, Section I.

Connect 16A2P1.

Then go to paragraph 2-2.

NO

Remove splice joining wires A1138F22, A1138G22, and A1138E22.

Check wires A1138E22, A1138F22, and A1138G22 for continuity to airframe ground.

Is continuity present on any wire?

YES

Repair wire where continuity is present to eliminate short.

Install splice joining wires A1138B20(WHT), A1138C20, A1138D20, and A1138E22 per TM 55-1520-236-23, Chapter 9, Section I.

Install splice joining wires A1138F22, A1138G22 and A1138E22 per TM55-1520-236-23, Chapter 9, Section I.

Install radar altimeter low limit relay (16K6) and radar altimeter high limit relay (16K7) per TM55-1520-236-23, Chapter 9, Section I.

Connect 16A2P1.

Then go to paragraph 2-2.

NO

Replace HUD PWR circuit breaker per TM 55-1520-236-23, Chapter 9, Section I.

Install splice joining wires A1138B20(WHT), A1138C20, A1138D20, and A1138E22 per TM 55-1520-236-23, Chapter 9, Section i.

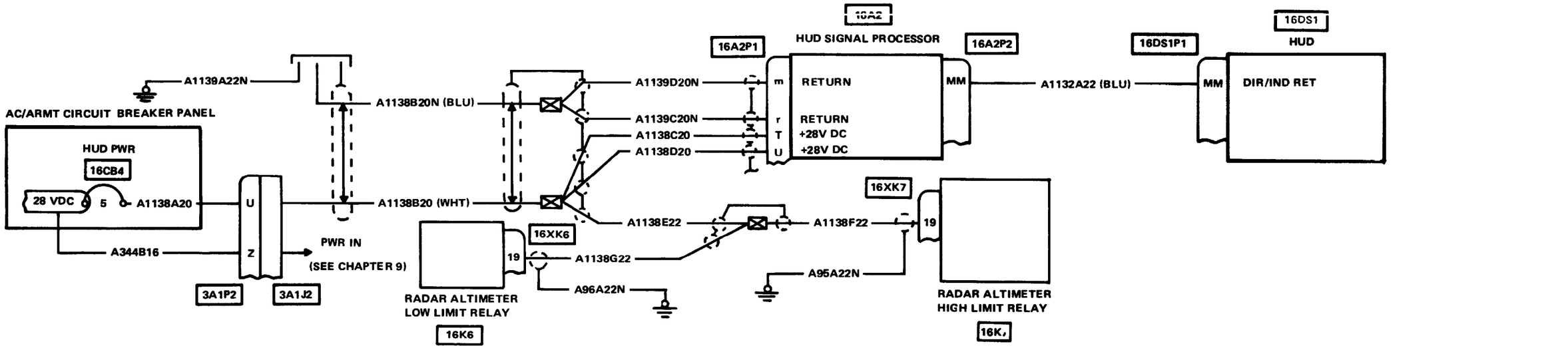
Install splice joining wires A1138E22, A1138F22, and A1138G22 per TM 55-1520-236-23, Chapter 9, Section I.

Install radar altimeter low limit relay (16K6) and radar altimeter high limit relay (16K7) per TM 55-1520-236-23, Chapter 9, Section I.

Connect 16A2P1.

Then go to paragraph 2-2.

2-4. HUD PWR CIRCUIT BREAKER WILL NOT REMAIN CLOSED (CONTINED).



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2-5. HUD BLWR CIRCUIT BREAKER WILL NOT REMAIN CLOSED.

INITIAL SETUP

Applicable Configuration
All

Tools/Test and Support Equipment
Multimeter

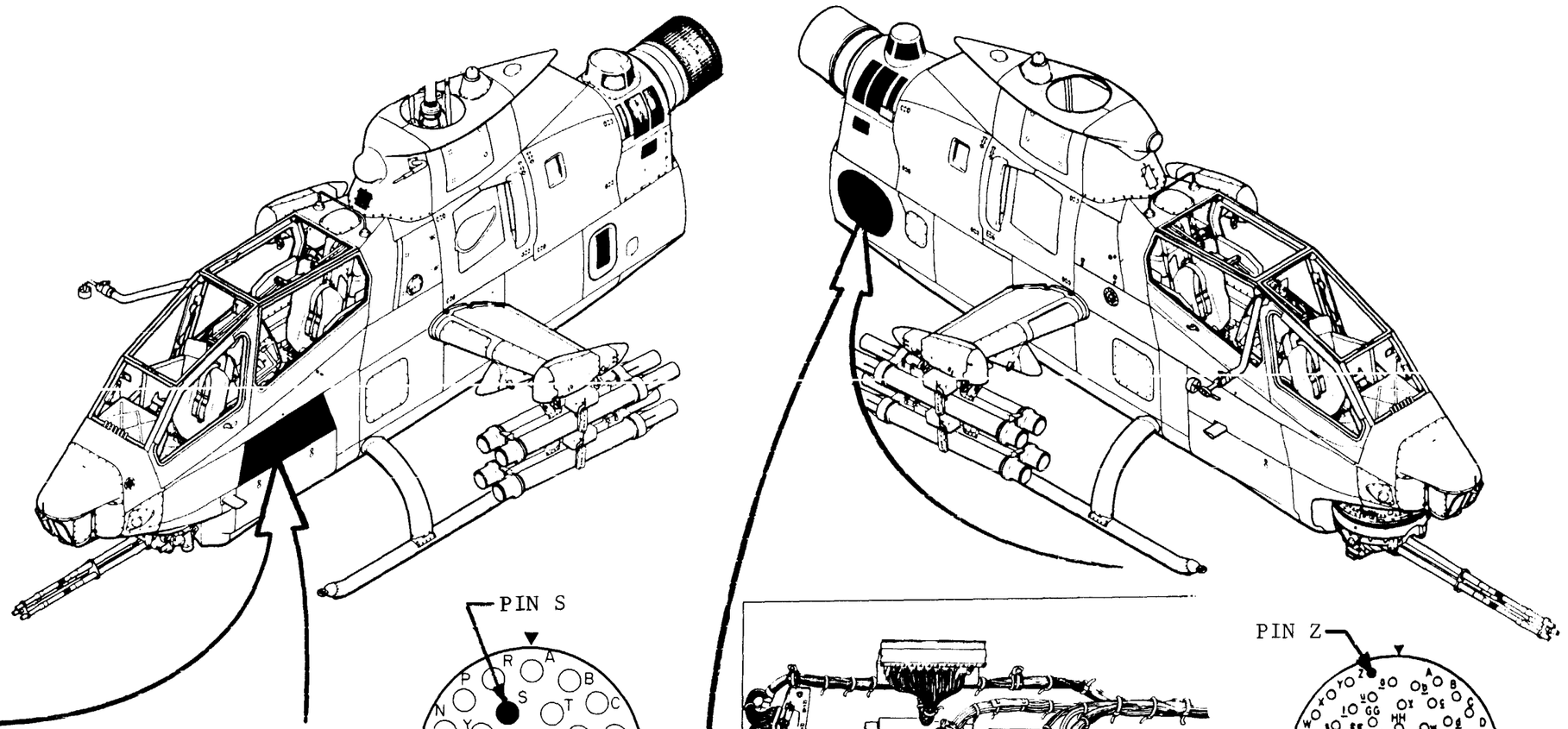
Tool Set, A/C Armament Repairman

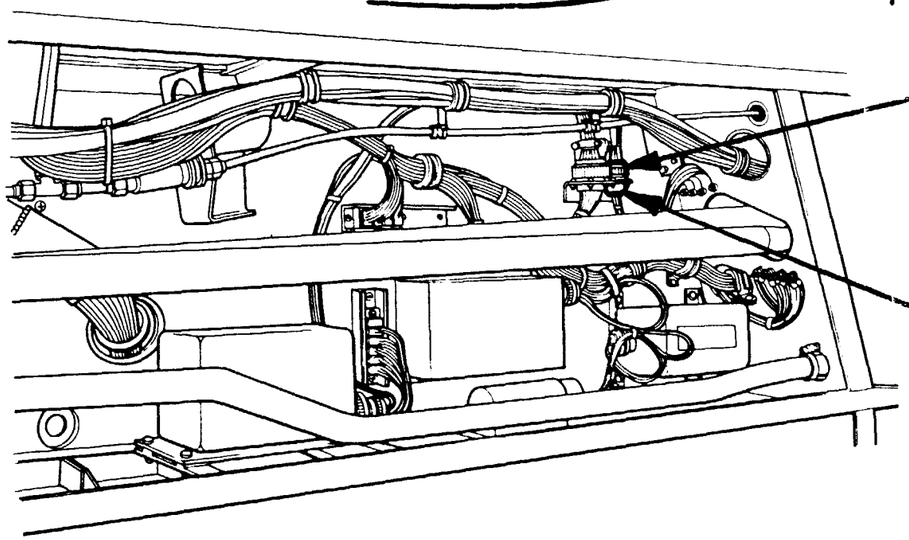
Personnel Required
68J (1)

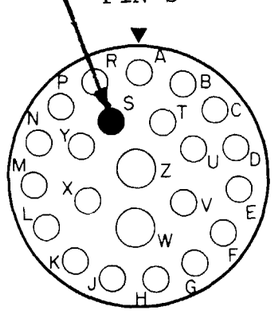
References
TM 9-1270-220-13
TM 55-1520-236-23

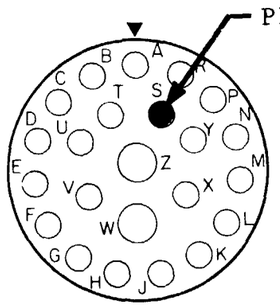
Access Panels
Battery Compartment - Removed

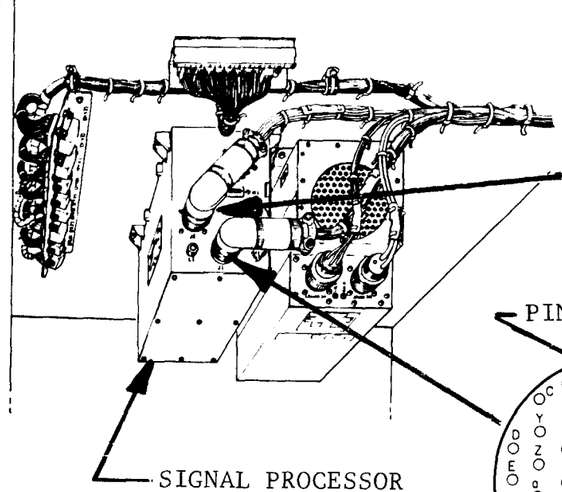
Left Side Control Linkage - Removed

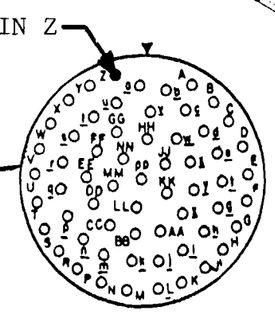


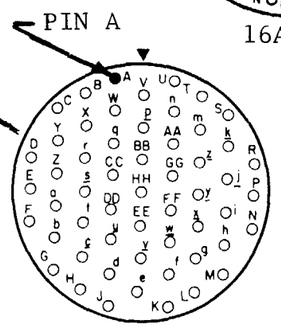




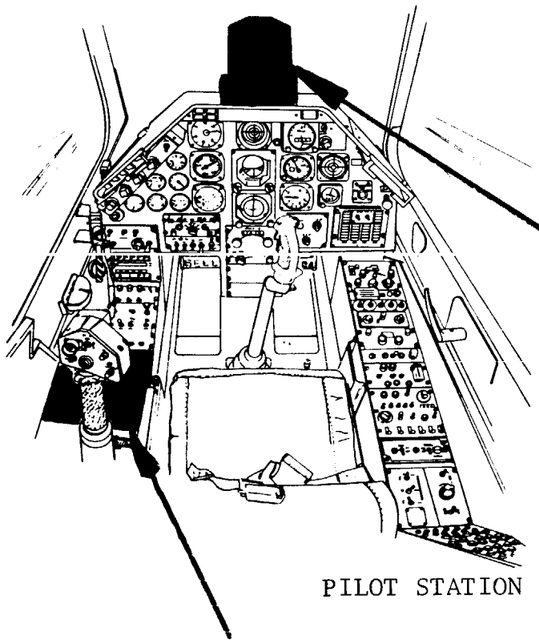




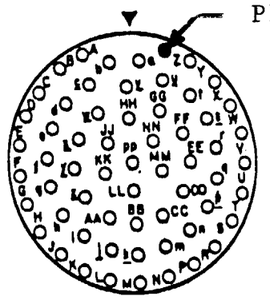


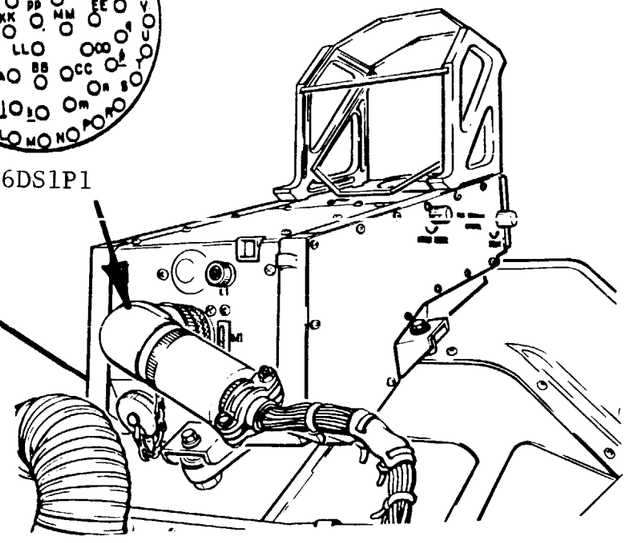


2-5. HUD BLWR CIRCUIT BREAKER WILL NOT REMAIN CLOSED (CONTINUED).

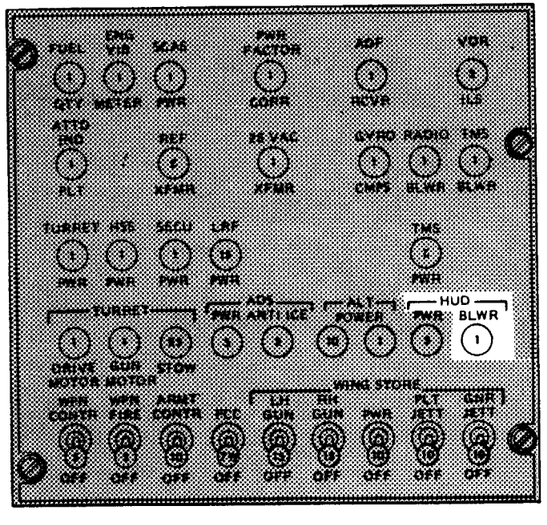


PILOT STATION





HUD (REAR VIEW)



AC/ARMT CIRCUIT BREAKER PANEL

Turn off electrical power per paragraph 2-3.

Disconnect 16A2P1.

Turn on electrical power per paragraph 2-3.

On AC/ARMT circuit breaker panel:

Close HUD BLWR circuit breaker.

Does HUD BLWR circuit breaker remain closed?

YES →

NO ↓

Turn off electrical power per paragraph 2-3.

Disconnect 3A1P2.

Turn on electrical power per paragraph 2-3.

Close HUD BLWR circuit breaker.

Does HUD BLWR circuit breaker remain closed?

YES →

NO ↓

Turn off electrical power per paragraph 2-3.

Check for continuity from 3A1P2-S to airframe ground.

Is continuity present?

YES →

NO ↓

Replace HUD BLWR circuit breaker per TM55-1520-236-23, Chapter 9, Section I.

Connect 3A1P2 and 16A2P1.

Then go to paragraph 2-2.

2-5. HUD BLWR CIRCUIT BREAKER WILL NOT REMAIN CLOSED (CONTINUED).

YES

Turn off electrical power per paragraph 2-3.

Check for continuity from 16DS1P1-Z to airframe ground.

Is continuity present?

YES

Repair wire A1129A22 (WHT) between 16A2P2-Z and 16DS1P1-Z.

Connect 16A2P1.

Then go to paragraph 2-2.

NO

Replace signal processor per TM9-1270-220-13, Chapter 3, Section I.

Then go to paragraph 2-2.

YES

Turn off electrical power per paragraph 2-3.

Repair wire A1135B22 (WHT) between 3A1J2-S and 16A2P1-A.

Connect 3A1P2 and 16A2P1.

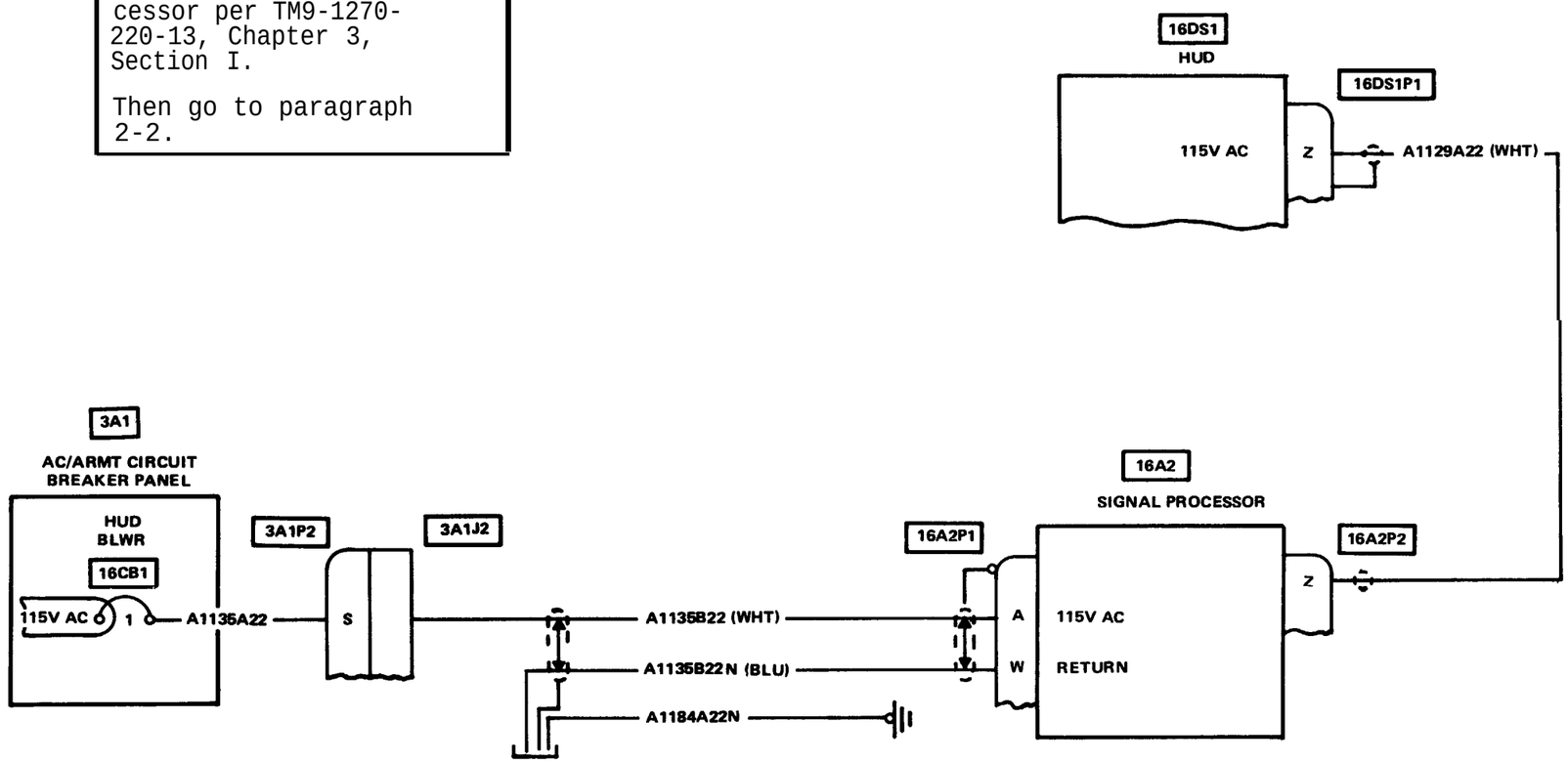
Then go to paragraph 2-2.

YES

Repair wire A1135A22 (WHT) between 3A1P2-S and HUD BLWR circuit breaker.

Connect 3A1P2 and 16A2P1.

Then go to paragraph 2-2.



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2-6. EDGE LIT PANEL LAMPS ON HUD DO NOT LIGHT.

INITIAL SETUP

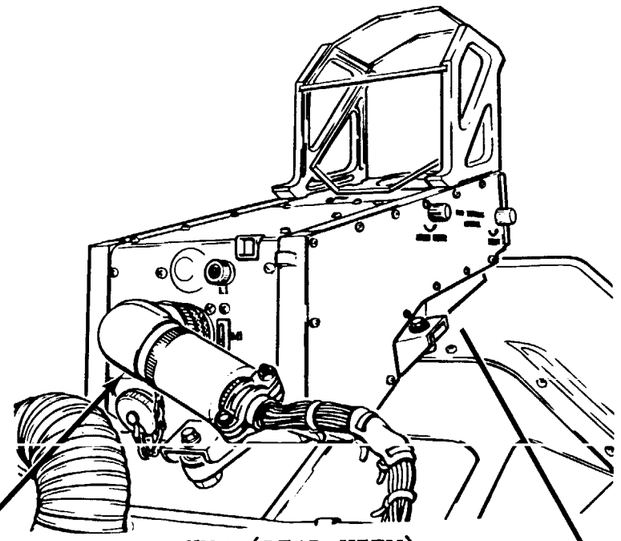
Applicable Configuration
All

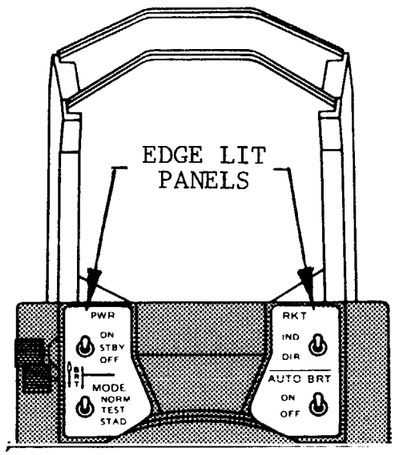
Tools/Test and Support Equipment
Multimeter

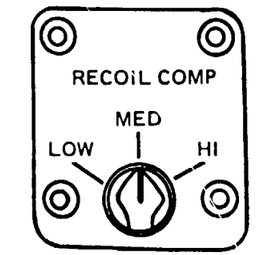
Tool Set, A/C Armament Repairman

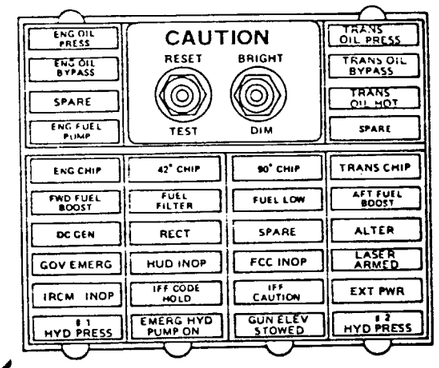
Personnel Required
68J (1)

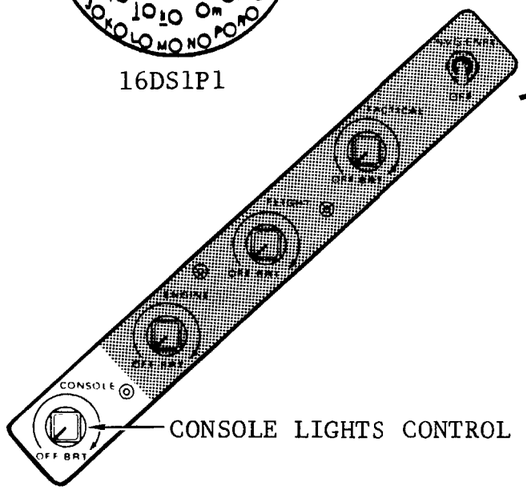
References
TM 9-1270-220-13
TM 55-1520-236-23

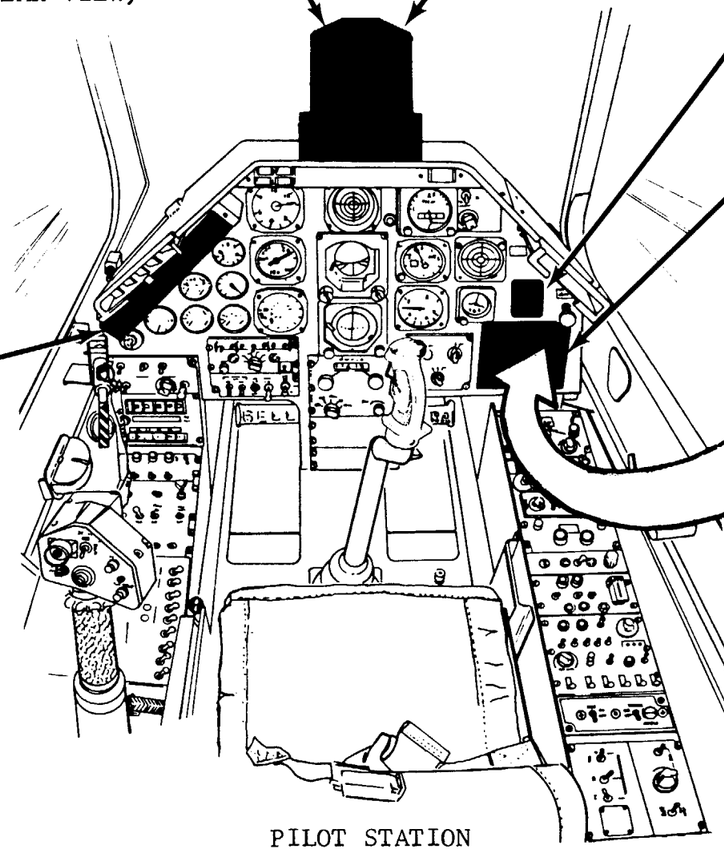


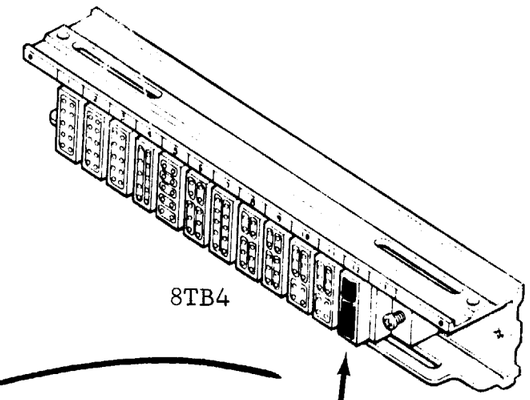


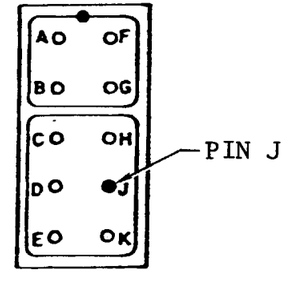












2-6. EDGE LIT PANEL LAMPS ON HUD DO NOT LIGHT (CONTINUED).

On lighting control panel:

Rotate CONSOLE lights control clockwise from OFF toward BHT.

Is the RECOIL COMP switch panel lit?

NO

Turn off electrical power per paragraph 2-3.

Repair console lights dimming circuit per TM55-1520-236-23, Chapter 9, Section VI.

Then go to paragraph 2-2.

On HUD:

Check both edge lit panels for mechanical damage or defects.

Is there any damage or defects?

YES

Turn off electrical power per paragraph 2-3.

Replace HUD edge lit panel per TM9-1270-220-13, Chapter 3, Section IV.

Then go to paragraph 2-2.

NO

Turn off electrical power per paragraph 2-3.

Disconnect 16DS1P1.

Turn on electrical power per paragraph 2-3.

Check for 28 V dc at 16DS1P1-W.

Is 28 V dc present?

YES

Turn off electrical power per paragraph 2-3.

Replace HUD edge lit panel per TM9-1270-220-13, Chapter 3, Section IV.

Connect 16DS1P1.

Then go to paragraph 2-2.

NO

Turn off electrical power per paragraph 2-3.

Remove pilot caution panel to gain access to 8TB4.

Turn on electrical power per paragraph 2-3.

Check for 28V dc at 8TB4-12J,

Is 28 V dc present?

YES

Turn off electrical power per paragraph 2-3.

Repair wire A1117A22 between 16DS1P1-W and 8TB4-12J.

Install pilot caution panel.

Connect 16DS1P1.

Then go to paragraph 2-2.

NO

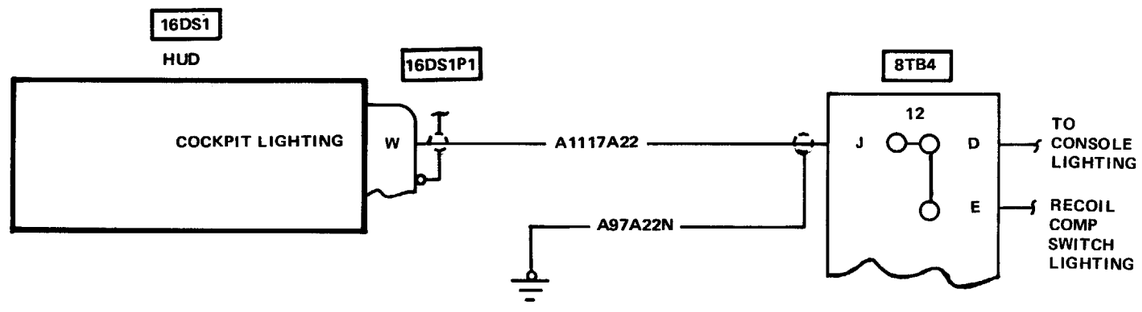
Turn off electrical power per paragraph 2-3.

Replace module 12 of 8TB4 per TM 55-1520-236-23, Chapter 9, Section I.

Install pilot caution panel.

Connect 16DS1P1.

Then go to paragraph 2-2.



2-7. HUD DISPLAY DOES NOT DIM IN NVG MODE.

INITIAL SETUP

Applicable Configuration
All

Tools/Test and Support Equipment
Multimeter

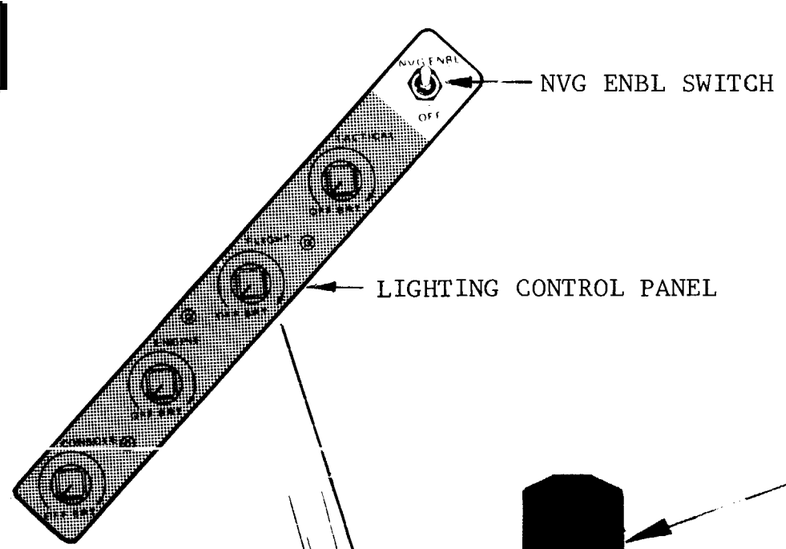
Tool set, A/C Armament Repairman

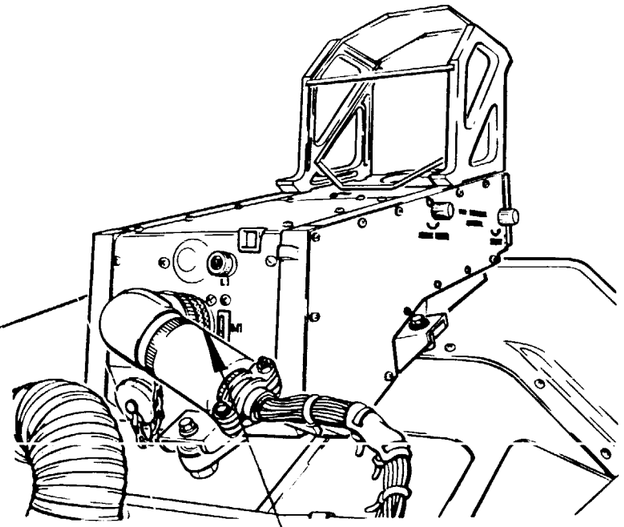
Personnel Required
68J (2)

References
TM 9-1270-220-13
TM 55-1520-236-23

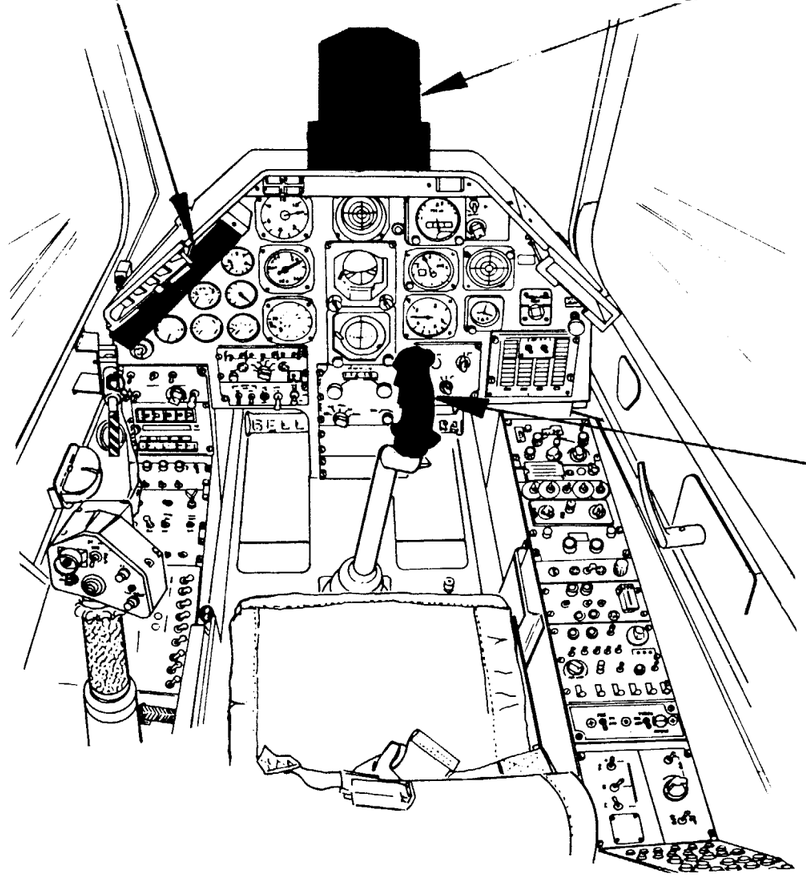
Access Panels
Forward Belly Armament and Lighting - Removed

Left Side Control Linkage - Removed



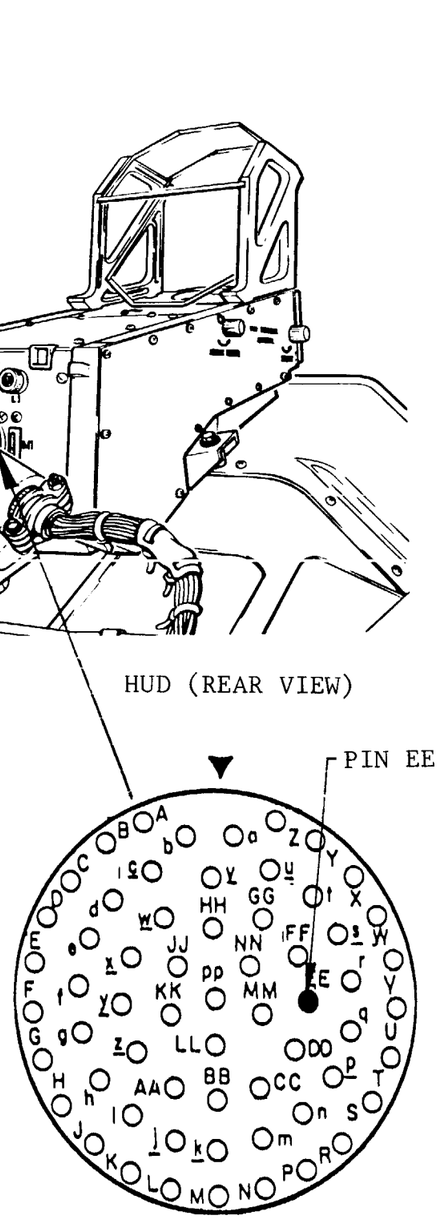


HUD (REAR VIEW)



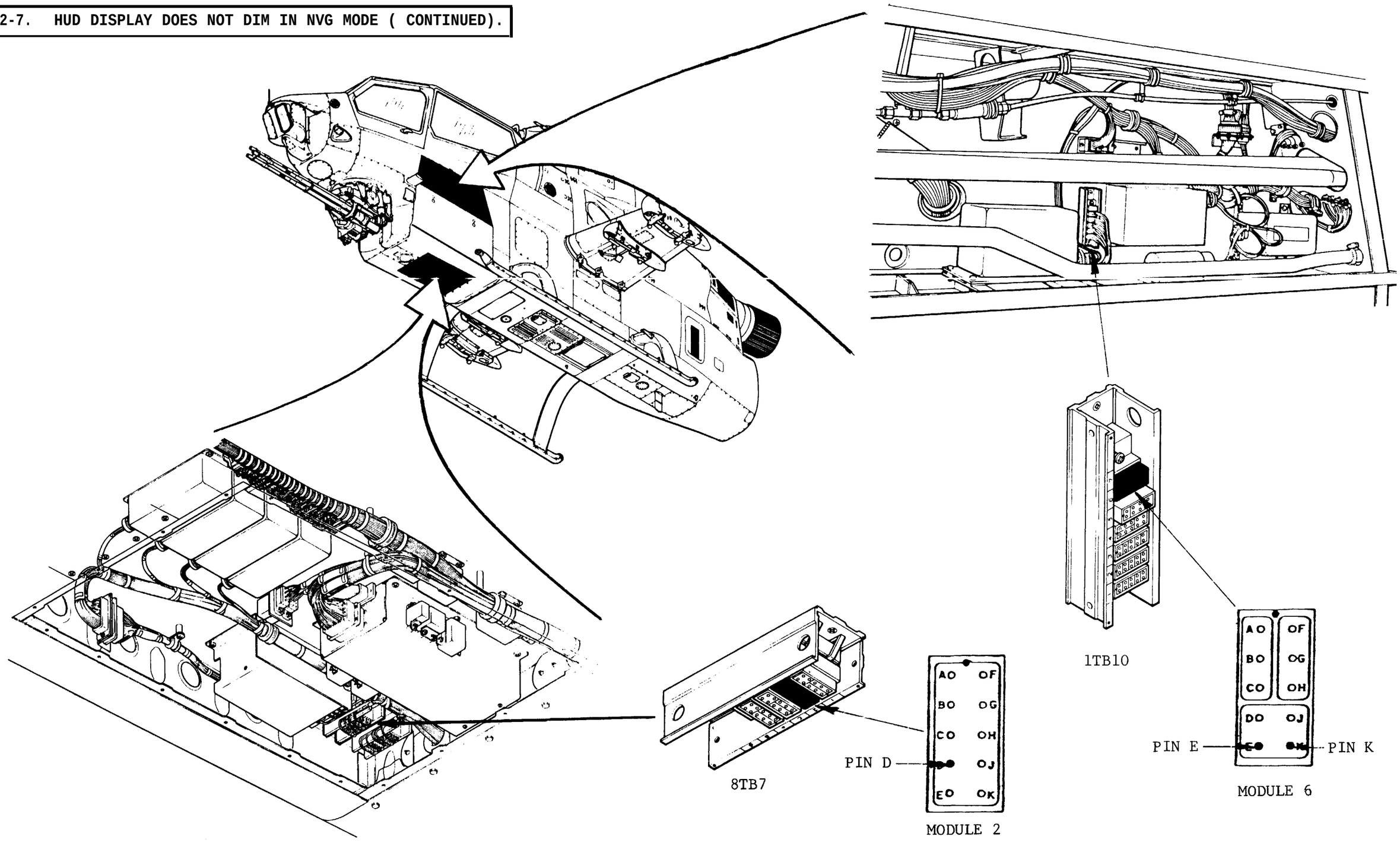


PILOT CYCLIC STICK



16DS1P1

2-7. HUD DISPLAY DOES NOT DIM IN NVG MODE (CONTINUED).



2-7. HUD DISPLAY DOES NOT DIM IN NVG MODE, (CONTINUED).

On lighting control panel:

Set NVG ENBL switch to NVG ENBL.

On pilot cyclic stick:

Set LTS switch to NVG.

Do HUD edge lit panel lights go out or go very dim?

NO

Turn off electrical power per paragraph 2-3.

Repair NVG ENBL lighting circuits per TM55-1520-236-23, Chapter 9, Section VI.

Then go to paragraph 2-2.

Turn off electrical power per paragraph 2-3.

Disconnect 16DS1P1.

Turn on electrical power per paragraph 2-3.

Check for 28 V dc at 16 DSIP1-EE.

Is 28 V dc present?

YES

Turn off electrical power per paragraph 2-3.

Replace HUD per TM9-1270-220-13 Chapter 3, Section I.

Then go to paragraph 2-2.

NO

Turn off electrical power per paragraph 2-3.

Connect 16DS1P1.

Turn on electrical power per paragraph 2-3.

Check for 28 V dc at 1TB10-6E.

Is 28 V dc present?

YES

Turn off electrical power per paragraph 2-3.

Repair wire A1116A22 between 16DS1P1-EE and 1TB10-6E.

Then go to paragraph 2-2.

NO

Check for 28V dc at 1TB10-6K.

Is 28 V dc present?

YES

Turn off electrical power per paragraph 2-3.

Replace module 6 of 1TB10 per TM55-1520-236-23, Chapter 9, Section I.

Then go to paragraph 2-2.

NO

Check for 28 V dc at 8TB7-2D.

Is 28 V dc present?

YES

Turn off electrical power per paragraph 2-3.

Repair wire L197J22 between 1TB10-6K and 8TB7-2D.

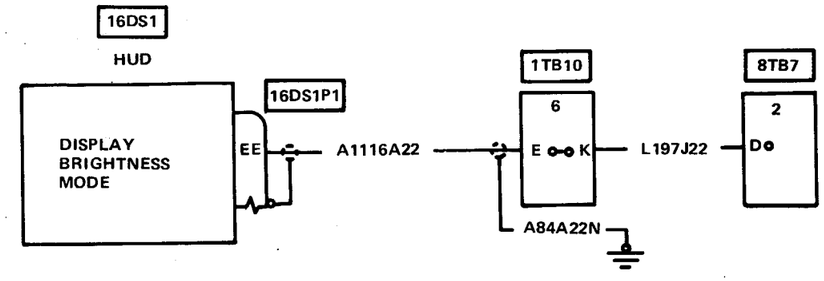
Then go to paragraph 2-2.

NO

Turn off electrical power per paragraph 2-3.

Replace module 2 of 8TB7 per TM55-1520-236-23, Chapter 9, Section I.

Then go to paragraph 2-2.



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2-8. HUD INOP SEGMENT ON PILOT CAUTION PANEL IS LIT WHEN HUDS IS IN STBY OR ON.

INITIAL SETUP

Applicable Configuration
All

Tools/Test and Support Equipment
Multimeter

Tool Set, A/C Armament Repairman

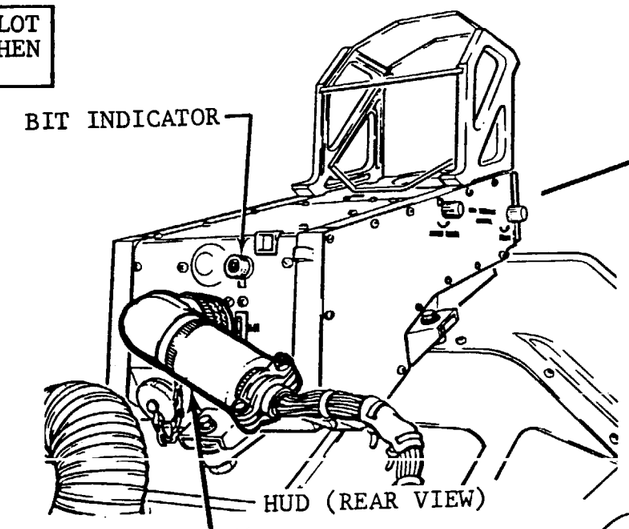
Personnel Required
68J (2)

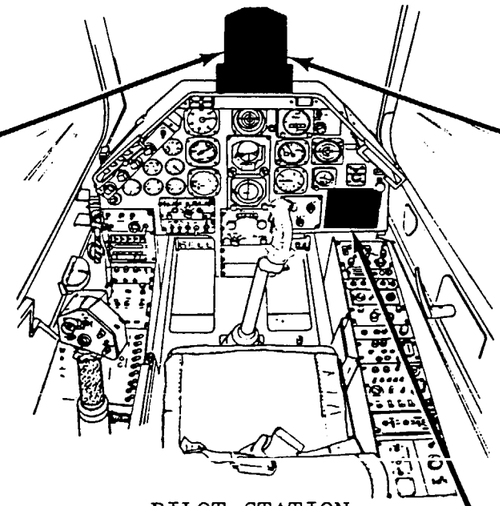
Reference
TM 9-1090-206-20-1
TM 9-1270-220-13
TM 55-1520-236-23

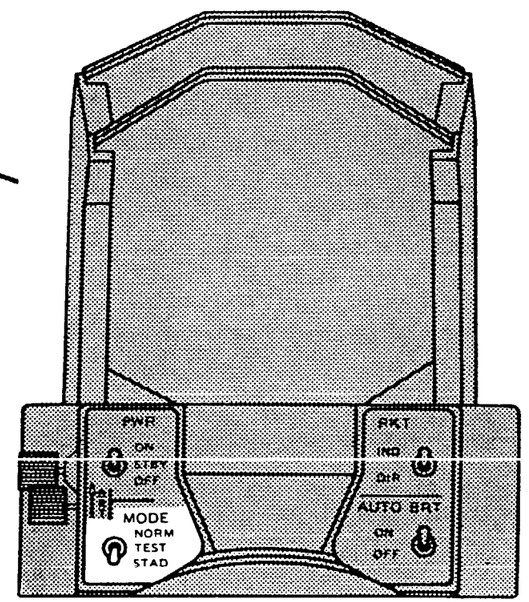
Access Panels
Battery Compartment - Removed

Forward Belly Armament and Lighting - Removed

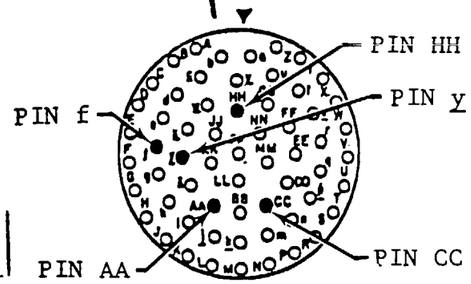
A. TROUBLESHOOTING LOGIC PART ONE.



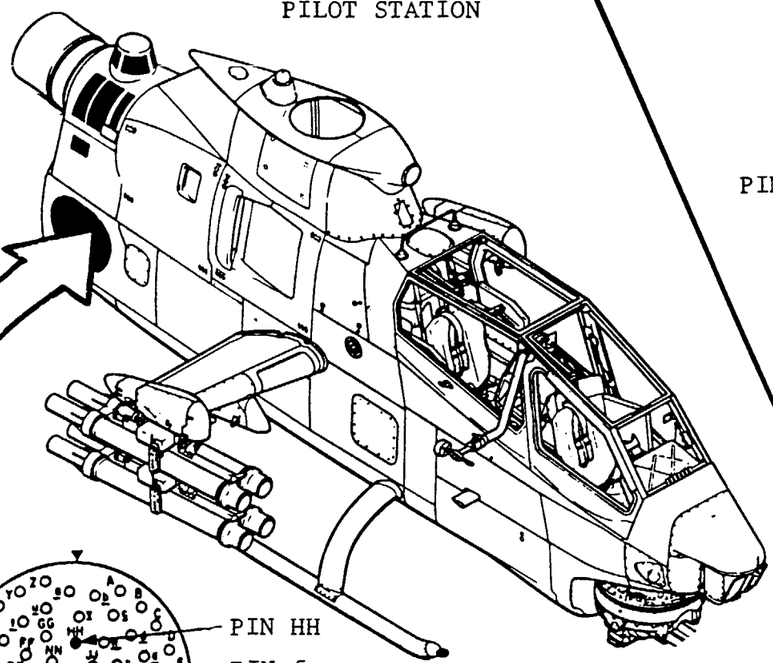


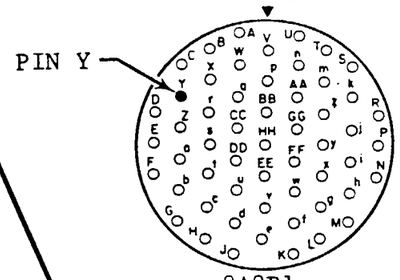


HUD

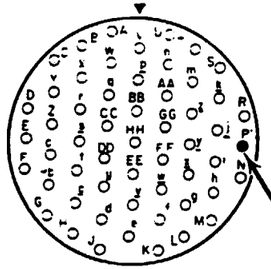


16DS1P1

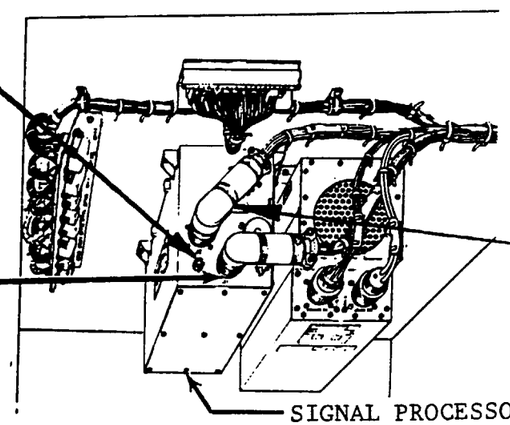


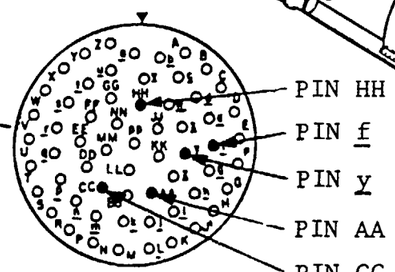


8A2P1

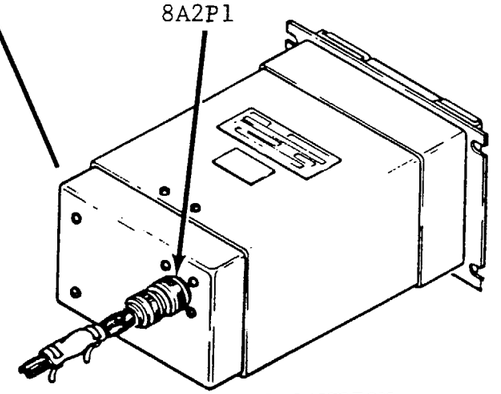


16A2P1



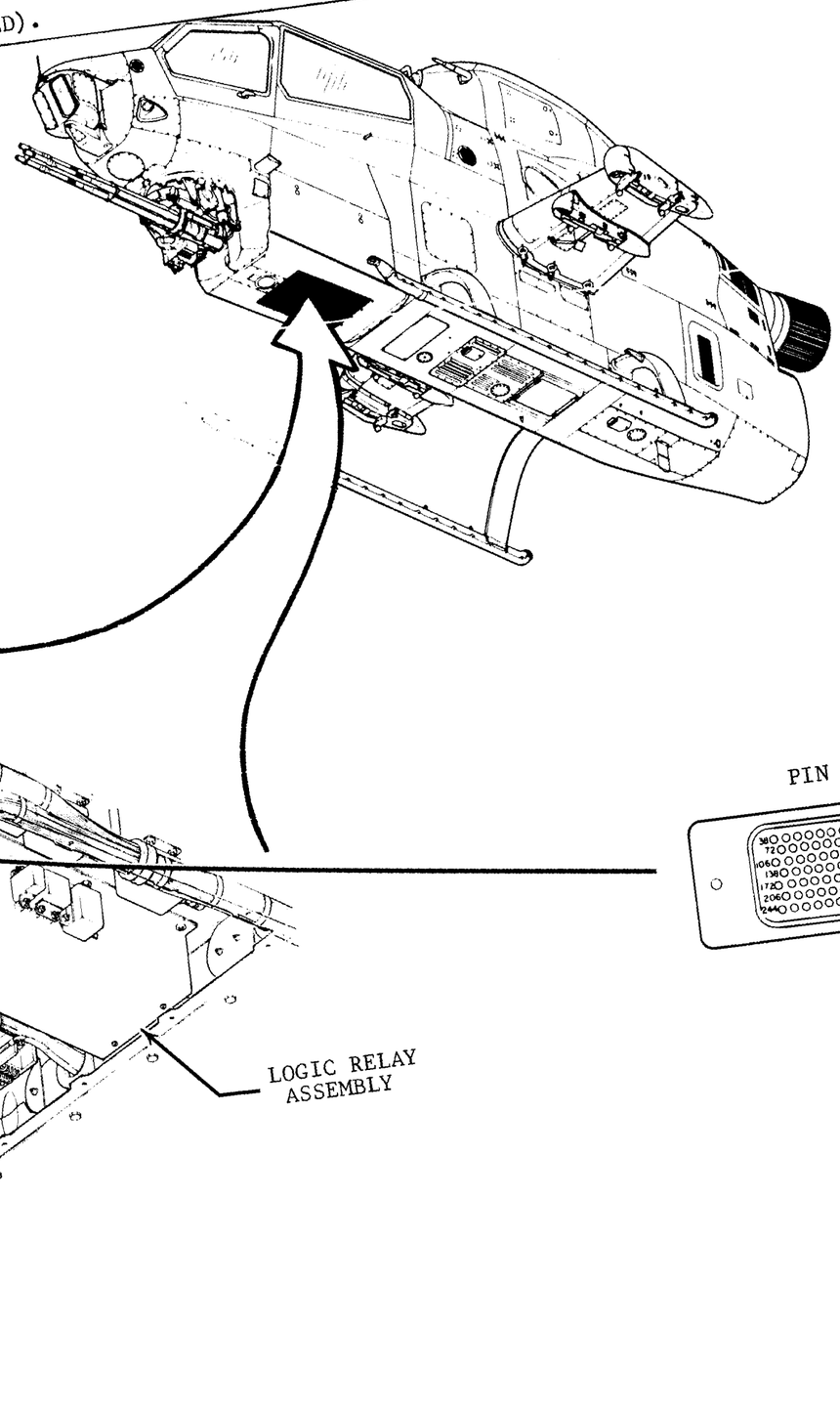


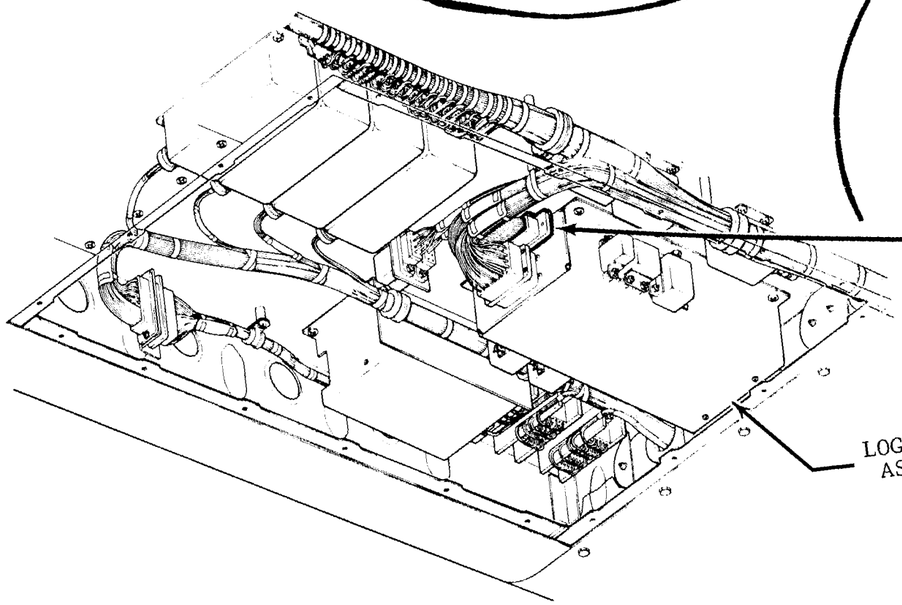
16A2P2

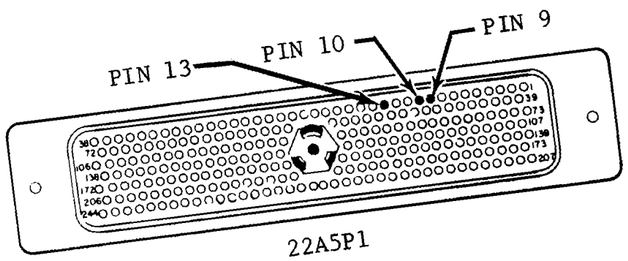

PILOT CAUTION PANEL (REAR VIEW)

2-8. HUD INOP SEGMENT ON PILOT CAUTION PANEL IS LIT WHEN HUDS IS IN STBY OR ON (CONTINUED).

A. TROUBLESHOOTING LOGIC PART ONE (CONTINUED).







2-8. HUD INOP SEGMENT ON PILOT CAUTION PANEL IS LIT WHEN HUDS IS IN STBY OR ON (CONTINUED).

A. TROUBLESHOOTING LOGIC PART ONE (CONTINUED).

On HUD and Signal Processor:

Check BIT indicators.

Is either indicator white?

YES → Turn off electrical power per paragraph 2-3.

Check for continuity from 16DS1P1-f to 16A2P2-f.

Is continuity present?

YES → Check wire A1123A22(ORN) for continuity to 16A2P2-f and 16DS1P1-f connector backshells.

Is continuity present?

YES → Repair wire A1123A22(ORN) between 16DS1P1-f and 16A2P2-f to eliminate short.

Then go to paragraph 2-2.

NO → Test signal processor using test set per TM9-1270-220-13, Chapter 4, Section X.

Does signal processor pass test?

YES → Replace HUD per TM9-1270-220-13, Chapter 3, Section I.

Then go to paragraph 2-2.

NO → Replace signal processor per TM 9-1270-220-13, Chapter 3, Section I.

Then go to paragraph 2-2.

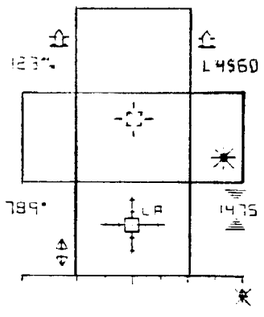
NO → Repair wire A1123A22(ORN) between 16DS1P1-f and 16A2P2-f.

Then go to paragraph 2-2.

NO → On HUD:

Set MODE switch to TEST.

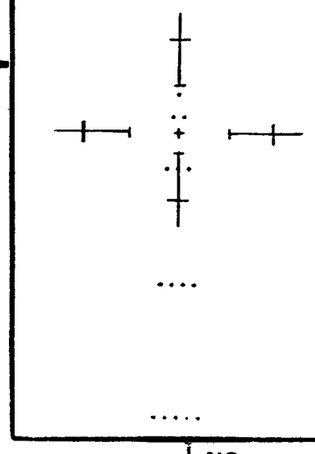
Do all symbols appear on HUD?



YES → On HUD:

Set MODE switch to STAD.

Does stadiametric reticle appear on HUD?



YES → Go to Troubleshooting Logic Part Two (sub-paragraph B).

NO → Turn off electrical power per paragraph 2-3.

Replace signal processor per TM 9-1270-220-13, Chapter 3, Section I.

Then go to paragraph 2-2.

NO → Turn off electrical power per paragraph 2-3.

Check the following wires for continuity:

WIRE NUMBER	FROM	TO
A1124A22(WHT)	16DS1P1-HH	16A2P2-HH
A1130A22(WHT)	16DS1P1-CC	16A2P2-CC
A1130A22(BLU)	16DS1P1-AA	16A2P2-AA

Is continuity present on each wire?

YES → Check the following wires for continuity to connector backshell:

WIRE NUMBER	FROM	TO
A1124A22(WHT)	16DS1P1-HH	16A2P2-HH
A1130A22(WHT)	16DS1P1-CC	16A2P2-CC
A1130A22(BLU)	16DS1P1-AA	16A2P2-AA

Is continuity present on any wire to connector backshell?

YES → Repair wire(s) to eliminate short to connector backshell.

Then go to paragraph 2-2.

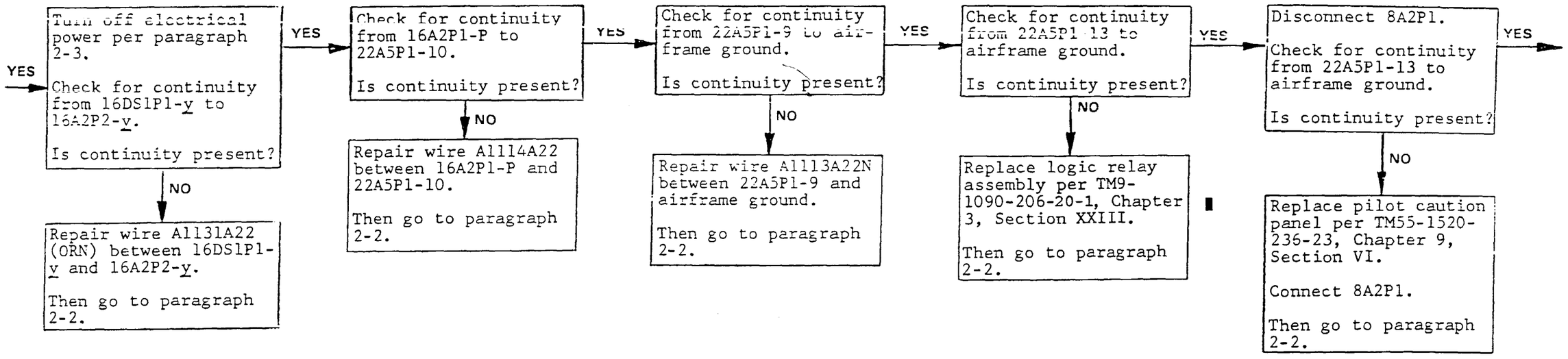
NO → Go to Troubleshooting Logic Part Two (sub-paragraph B).

NO → Repair defective wire(s).

Then go to paragraph 2-2.

2-8. HUD INOP SEGMENT ON PILOT CAUTION PANEL IS LIT WHEN HUDS IS IN STBY OR ON (CONTINUED).

A. TROUBLESHOOTING LOGIC PART ONE(CONTINUED).



2-8. HUD INOP SEGMENT ON PILOT CAUTION PANEL IS LIT WHEN HUDS IS IN STBY OR ON (CONTINUED).

A. TROUBLESHOOTING LOGIC PART ONE (CONTINUED).

YES

Check for continuity from 22A5P1-13 to 8A2P1-Y.

Is continuity present?

YES

Replace signal processor per TM 9-1270-220-13, Chapter 3, Section I.

Connect 8A2P1.

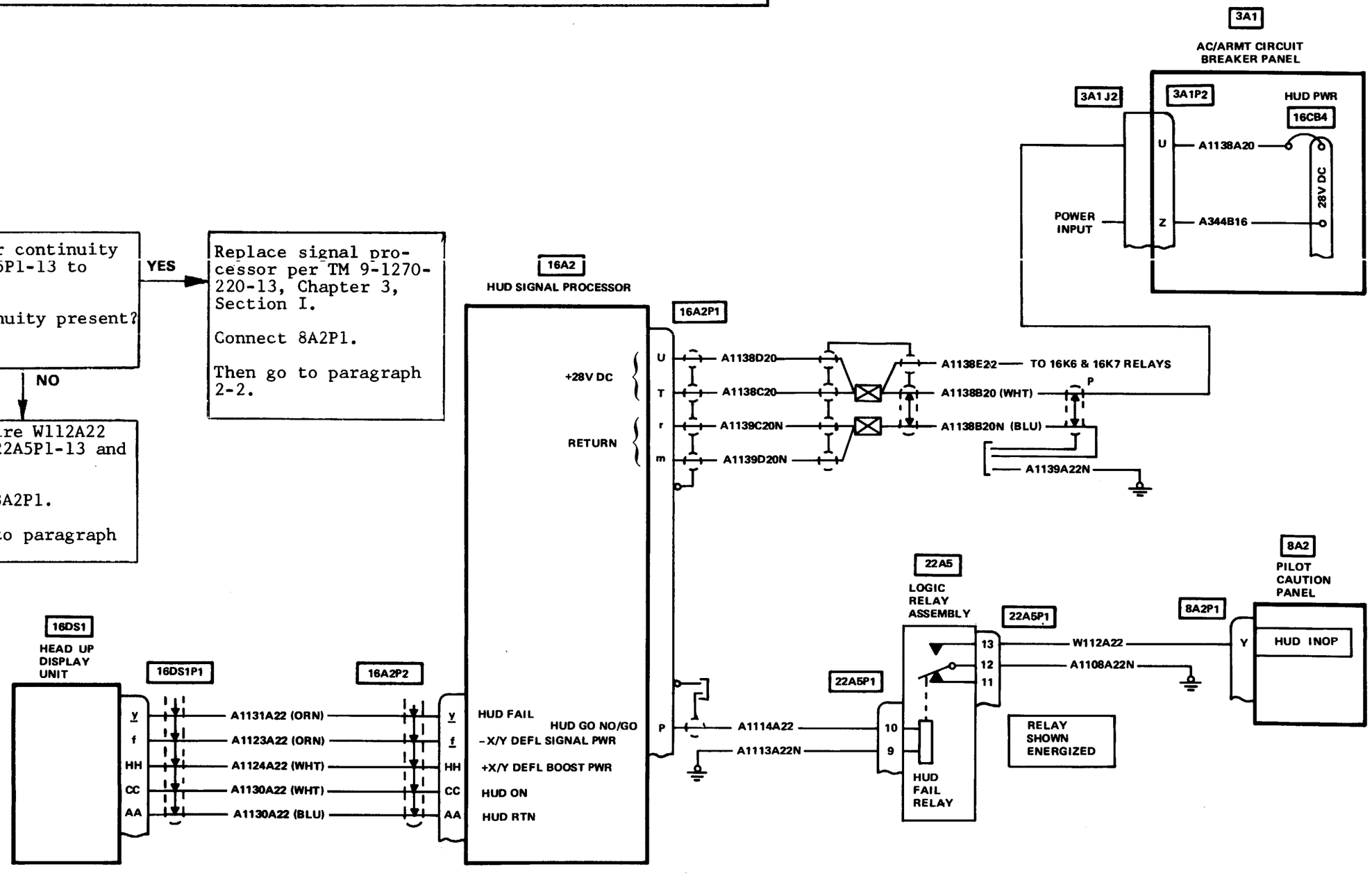
Then go to paragraph 2-2.

NO

Repair wire W112A22 between 22A5P1-13 and 8A2P1-Y.

Connect 8A2P1.

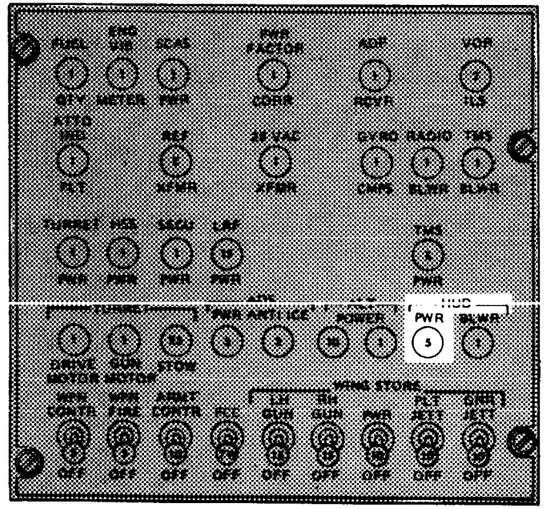
Then go to paragraph 2-2.



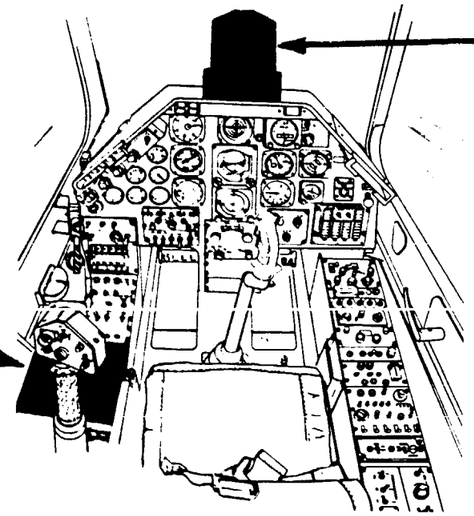
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2-8. HUD INOP SEGMENT ON PILOT CAUTION PANEL IS LIT WHEN HUDS IS IN STBY OR ON (CONTINUED).

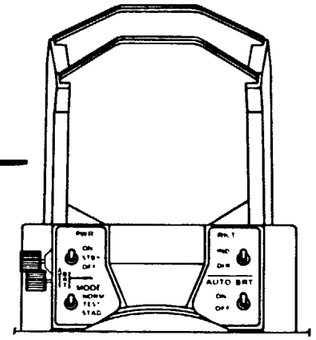
B. TROUBLESHOOTING LOGIC PART TWO.



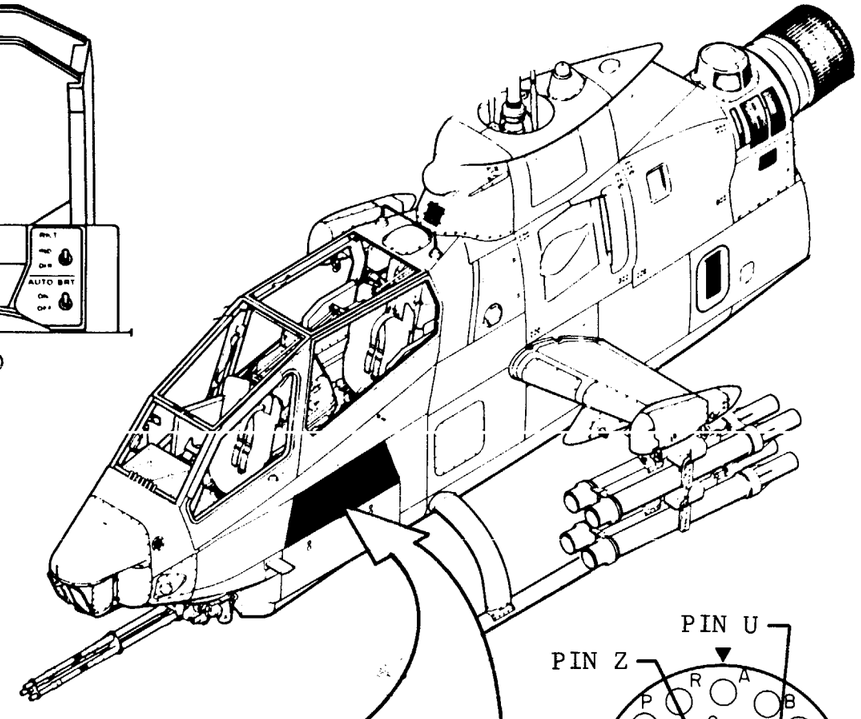
AC/ARMT CIRCUIT BREAKER PANEL

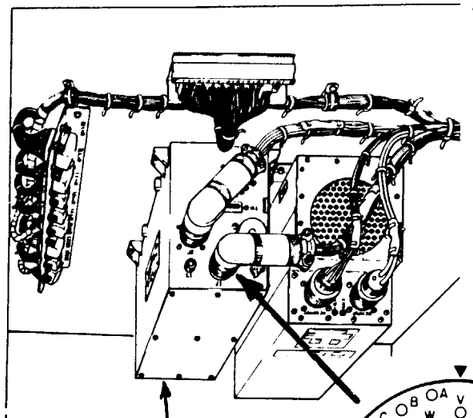


PILOT STATION

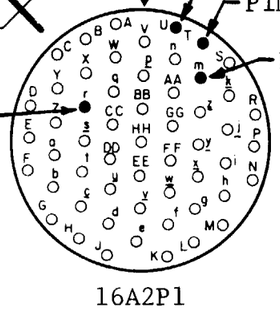


HUD

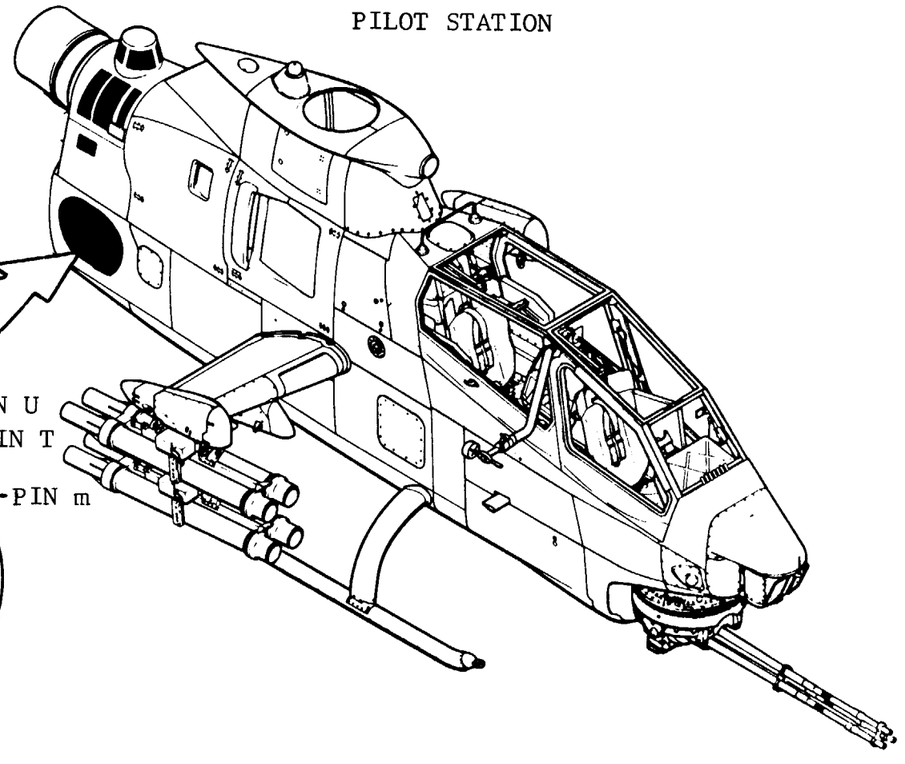


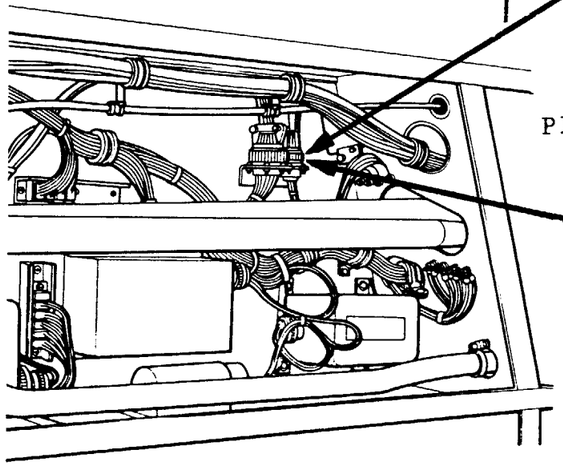


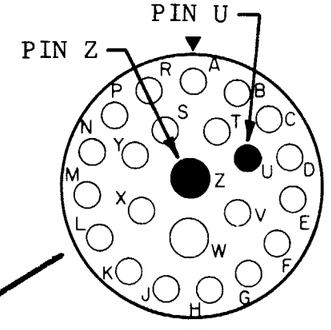
SIGNAL PROCESSOR



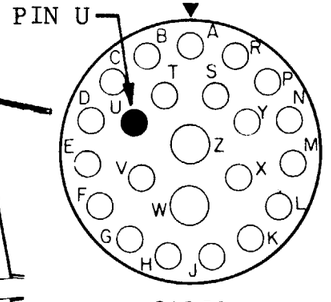
16A2P1







3A1P2



3A1J2

2-8. HUD INOP SEGMENT ON PILOT CAUTION PANEL IS LIT WHEN HUDS IS IN STBY OR ON (CONTINUED).

B. TROUBLESHOOTING LOGIC PART TWO (CONTINUED).

Disconnect 16A2P1.

Turn on electrical power per paragraph 2-3.

Check for 28 V dc at 16A2P1-T.

Is 28 V dc present?

YES

Check for 28 V dc at 16A2P1-U.

Is 28 V dc present?

YES

Turn off electrical power per paragraph 2-3.

Check for continuity from 16A2P1-m to airframe ground.

Is continuity present?

YES

NO

Check for continuity from 16A2P1-r to airframe ground.

Is continuity present?

YES

NO

Check for continuity from 16A2P1 backshell to airframe ground.

NOTE

16A2P1 disconnected.

Is continuity present?

YES

NO

Repair wire A1139A22N between airframe and splice.

Then continue troubleshooting.

YES

NO

Turn off electrical power per paragraph 2-3.

Repair wire A1138D20 between 16A2P1-U and splice.

Then continue troubleshooting.

YES

NO

Turn off electrical power per paragraph 2-3.

Repair wire A1138C20 between 16A2P1-T and splice.

Then continue troubleshooting.

YES

NO

Turn off electrical power per paragraph 2-3.

On AC/ARMT circuit breaker panel:

Close HUD PWR circuit breaker.

Check for continuity between 3A1P2-Z and 3A1P2-U.

Is continuity present?

YES

Check for continuity from 16A2P1-T to 16A2P1-U.

Is continuity present?

YES

Repair wire A1138B20 (WHT) between 3A1J2-U and splice.

Connect 16A2P1.

Then go to paragraph 2-2.

NO

Repair wire(s) A1138C20 and/or A1138D20 between 16A2P1 and splice.

Connect 16A2P1.

Then go to paragraph 2-2.

NO

Remove AC/ARMT circuit breaker panel per TM 55-1520-236-23, Chapter 9, Section I.

Check for continuity from 3A1P1-U to HUD PWR circuit breaker.

Is continuity present?

YES

NO

Repair wire A1138A20 between 3A1P2-U and HUD PWR circuit breaker.

Install AC/ARMT circuit breaker panel per TM 55-1520-236-23, Chapter 9, Section I.

Connect 16A2P1.

Then go to paragraph 2-2.

2-8. HUD INOP SEGMENT ON PILOT CAUTION PANEL IS LIT WHEN HUDS IS IN STBY OR ON (CONTINUED).

B. TROUBLESHOOTING LOGIC PART TWO (CONTINUED).

YES → Check for continuity from 16A2P1-r to airframe ground. Is continuity present?

YES → Repair wire A1139C20N between 16A2P1-r and splice. Then continue troubleshooting.

YES → Repair wire A1139D20N between 16A2P1-m and splice. Then continue troubleshooting.

YES → Repair wire A1138B20N(BLU) between splices. Then go to paragraph 2-2.

NO → YES → Test signal processor using test set per TM 9-1270-220-13, Chapter 4, Section X. Does signal processor pass test?

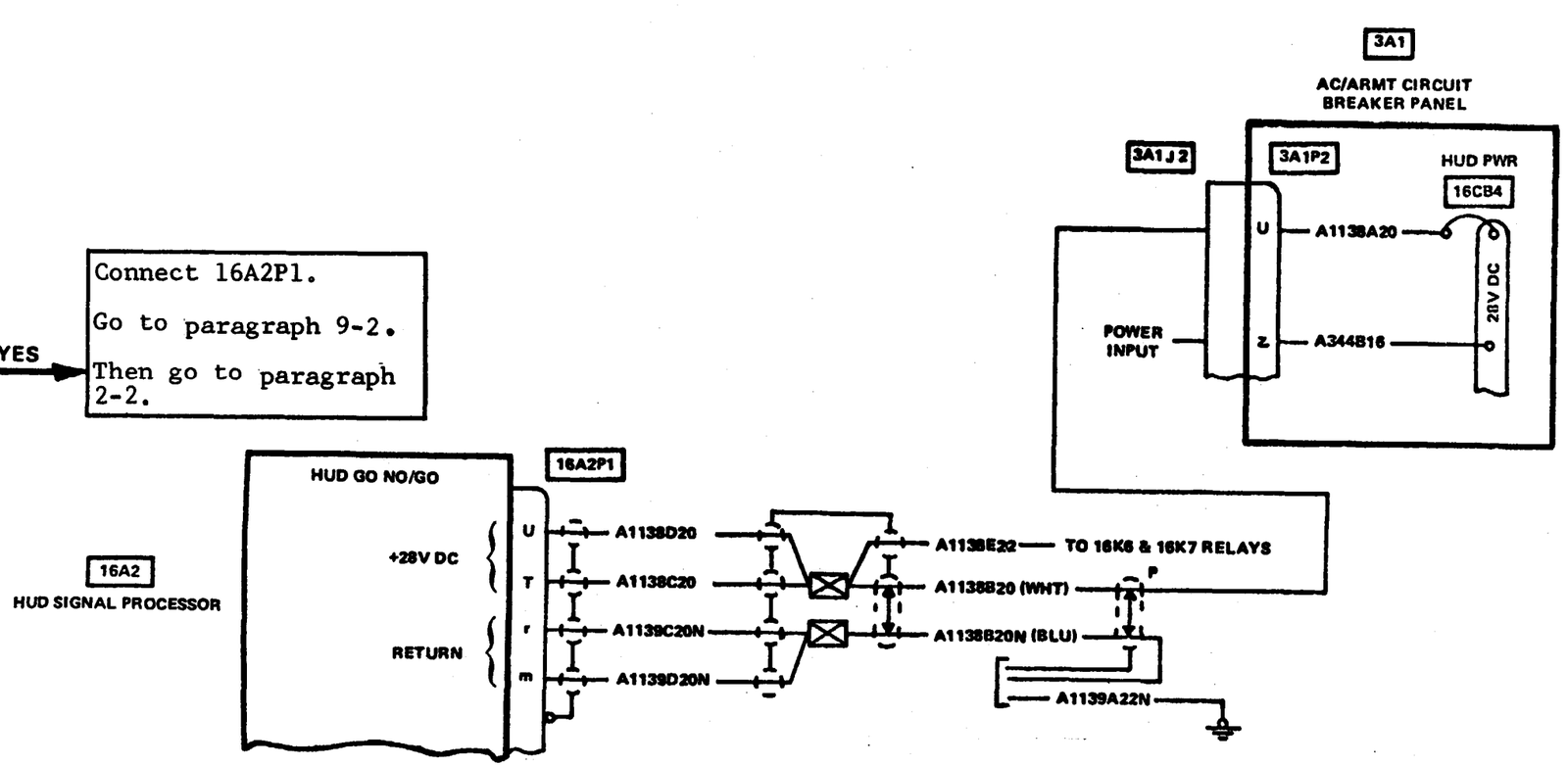
YES → Replace HUD per TM 9-1270-220-13, Chapter 3, Section I. Connect 16A2P1. Then go to paragraph 2-2.

NO → Replace signal processor per TM 9-1270-220-13, Chapter 3, Section I. Then go to paragraph 2-2.

YES → Check for continuity across HUD PWR circuit breaker. Is continuity present?

YES → Connect 16A2P1. Go to paragraph 9-2. Then go to paragraph 2-2.

NO → Replace HUD PWR circuit breaker per TM 55-1520-236-23, Chapter 9, Section I. Install AC/ARMT circuit breaker panel per TM 55-1520-236-23, Chapter 9, Section I. Connect 16A2P1. Then go to paragraph 2-2.



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2-9. HUDS INOP SEGMENT ON PILOT CAUTION PANEL IS NOT LIT WITH HUDS OFF.

INITIAL SETUP

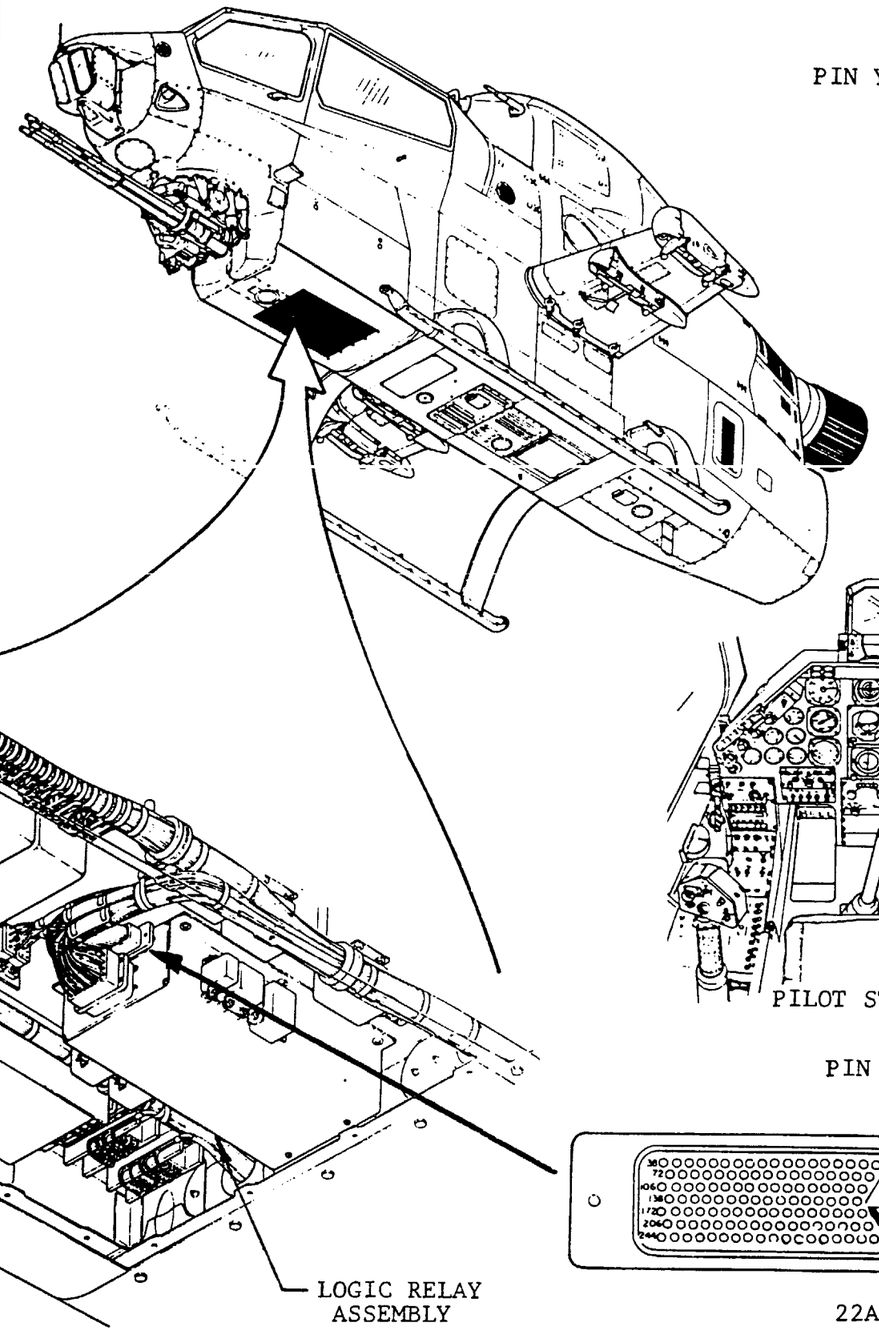
Applicable Configuration
All

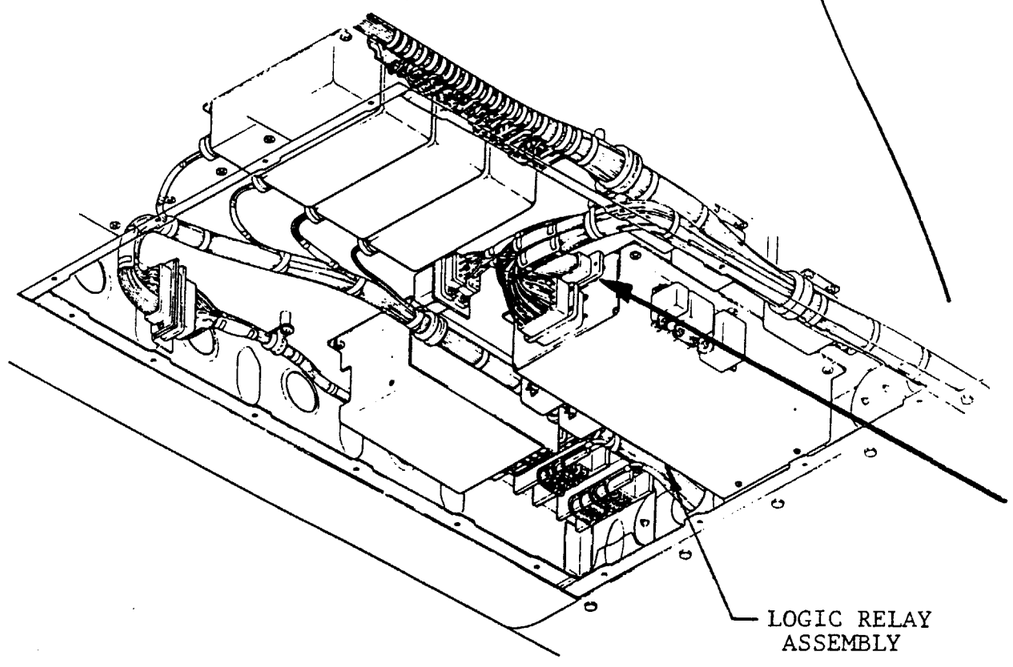
Tools/Test and Support Equipment
Multimeter
Tool Set, A/C Armament Repairman

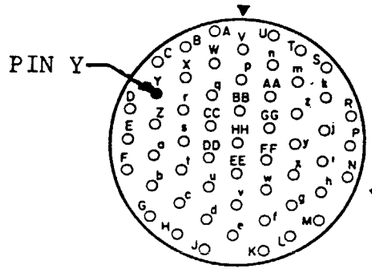
Personnel Required
68J (2)

References
TM 9-1090-206-20-1
TM 55-1520-236-23

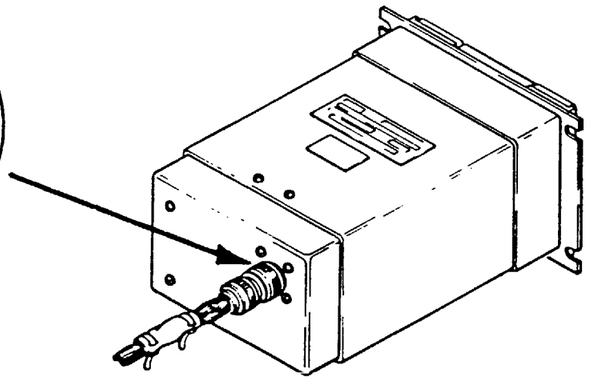
Access Panels
Forward Belly Armament and Lighting - Removed



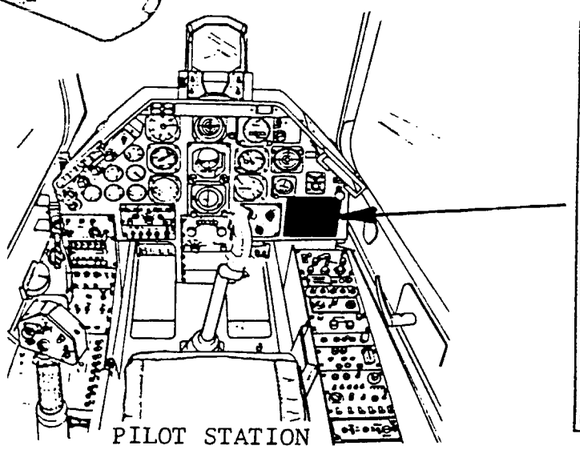




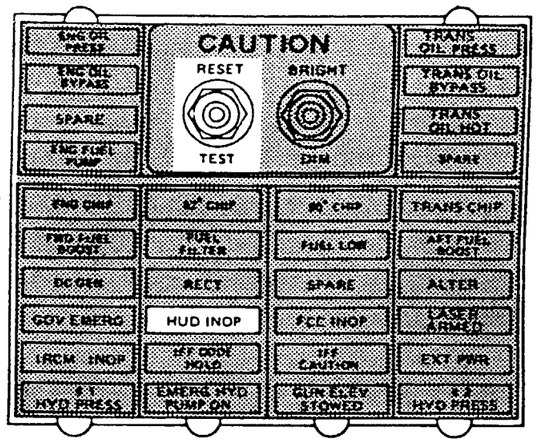
8A2P1



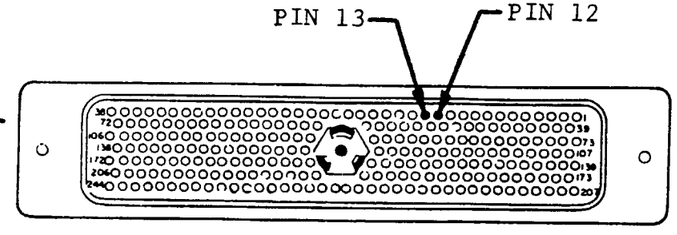
PILOT CAUTION PANEL
(REAR VIEW)



PILOT STATION



PILOT CAUTION PANEL



22A5P1

2-9. HUD INOP SEGMENT ON PILOT CAUTION PANEL IS NOT LIT WITH HUDS OFF (CONTINUED).

On pilot CAUTION PANEL:

Press TEST switch.

Is HUD INOP segment lit?

YES → Turn off electrical power per paragraph 2-3.

Check for continuity from 8A2P1-Y to airframe ground.

Is continuity present?

YES → Troubleshoot pilot caution panel circuit per TM55-1520-236-23, Chapter 9, Section VI.

Then go to paragraph 2-2.

NO → Check for continuity from 22A5P1-13 to 8A2P1-Y.

Is continuity present?

YES → Check for continuity from 22A5P1-12 to airframe ground.

Is continuity present?

YES → Replace logic relay assembly per TM 9-1090-206-20-1, Chapter 3, Section XXIII.

Then go to paragraph 2-2.

NO → Repair wire A1108A22N from 22A5P1-12 to airframe ground.

Then go to paragraph 2-2.

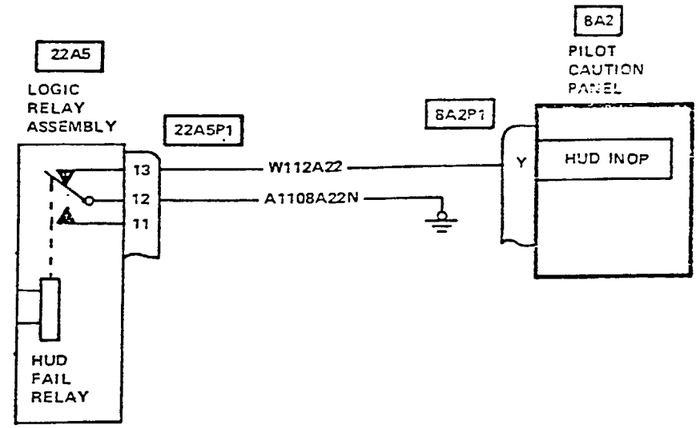
NO → Repair wire W112A22 from 22A5P1-13 to 8A2P1-Y.

Then go to paragraph 2-2.

NO → Turn off electrical power per paragraph 2-3.

Troubleshoot pilot caution panel circuit per TM55-1520-236-23, Chapter 9, Section VI.

Then go to paragraph 2-2.



2-10.	SIGNAL PROCESSOR BIT IS WHITE BUT HUD INOP SEGMENT OF CAUTION PANEL IS OFF.

INITIAL SETUP

Applicable Configuration
All

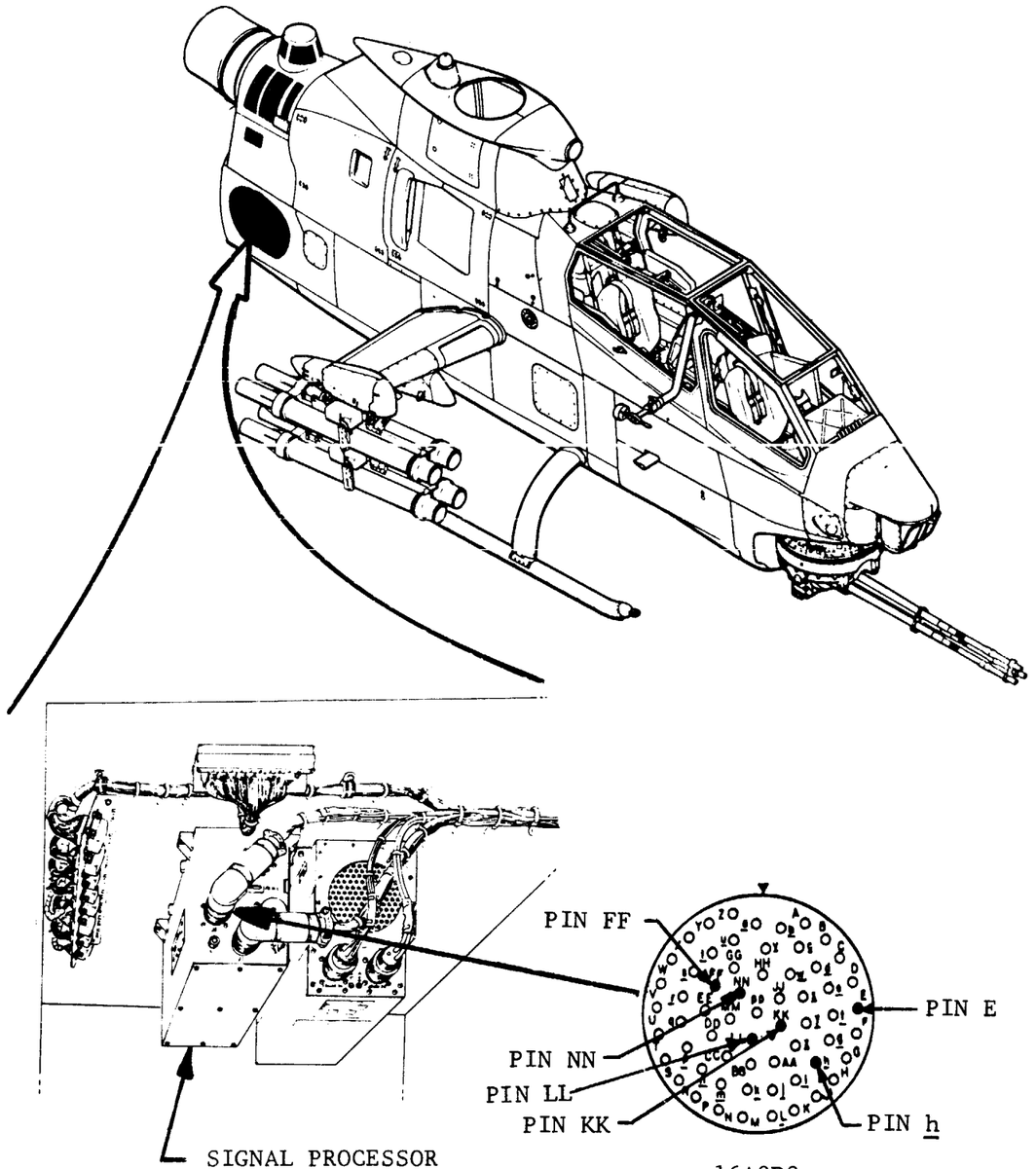
Tools/Test and Support Equipment
Multimeter

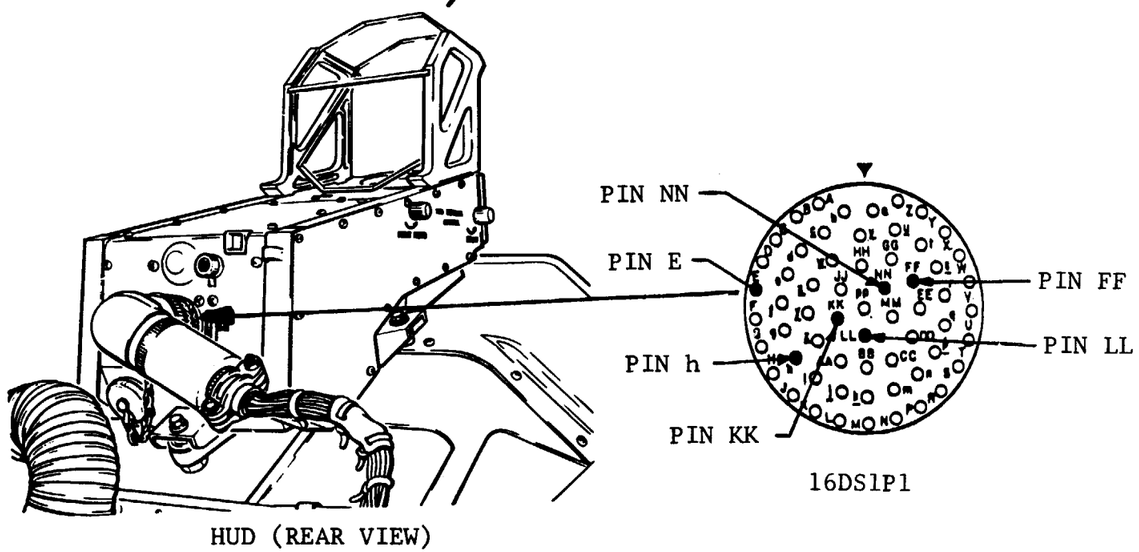
Tool Set, A/C Armament Repairman

Personnel Required
68J (2)

References
TM 9-1270-220-13

Access Panels
Battery Compartment - Removed





2-10. SIGNAL PROCESSOR BIT IS WHITE BUT HUD INOP SEGMENT OF CAUTION PANEL IS OFF (CONTINUED).

Turn off electrical power per paragraph 2-3.

Check the following wires for continuity:

WIRE NO.	FROM	TO
A1123A22(BLU)	16DS1P1-E	16A2P2-E
A1124A22(BLU)	16DS1P1-NN	16A2P2-NN
A1124A22(ORN)	16DS1P1-FF	16A2P2-FF
A1130A22(ORN)	16DS1P1-LL	16A2P2-LL
A1131A22(WHT)	16DS1P1-h	16A2P2-h
A1132A22(WHT)	16DS1P1-KK	16A2P2-KK

Is continuity present on every wire?

YES → Check the following wires for continuity to connector backshell:

WIRE NO.	FROM	TO
A1123A22(BLU)	16DS1P1-E	16A2P2-E
A1124A22(BLU)	16DS1P1-NN	16A2P2-NN
A1124A22(ORN)	16DS1P1-FF	16A2P2-FF
A1130A22(ORN)	16DS1P1-LL	16A2P2-LL
A1131A22(WHT)	16DS1P1-h	16A2P2-h
A1132A22(WHT)	16DS1P1-KK	16A2P2-KK

Is continuity present on any wire to connector backshell?

YES → Repair wire(s) where continuity is present to eliminate short.

Then go to paragraph 2-2.

NO → Test signal processor using test set per TM9-1270-220-13, Chapter 4, Section I.

Does signal processor pass test?

YES → Replace HUD per TM9-1270-220-13, Chapter 3, Section I.

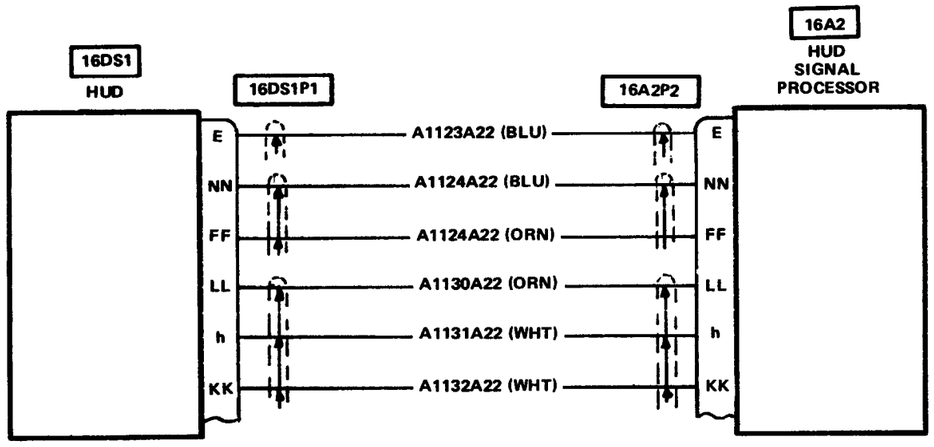
Then go to paragraph 2-2.

NO → Replace signal processor per TM9-1270-220-13, Chapter 3, Section I.

Then go to paragraph 2-2.

NO → Repair wire(s) where continuity is not present.

Then go to paragraph 2-2.



2-11. SIGNAL PROCESSOR FAN INOPERATIVE.

INITIAL SETUP

Applicable Configuration
All

Tools/Test and Support Equipment
Multimeter

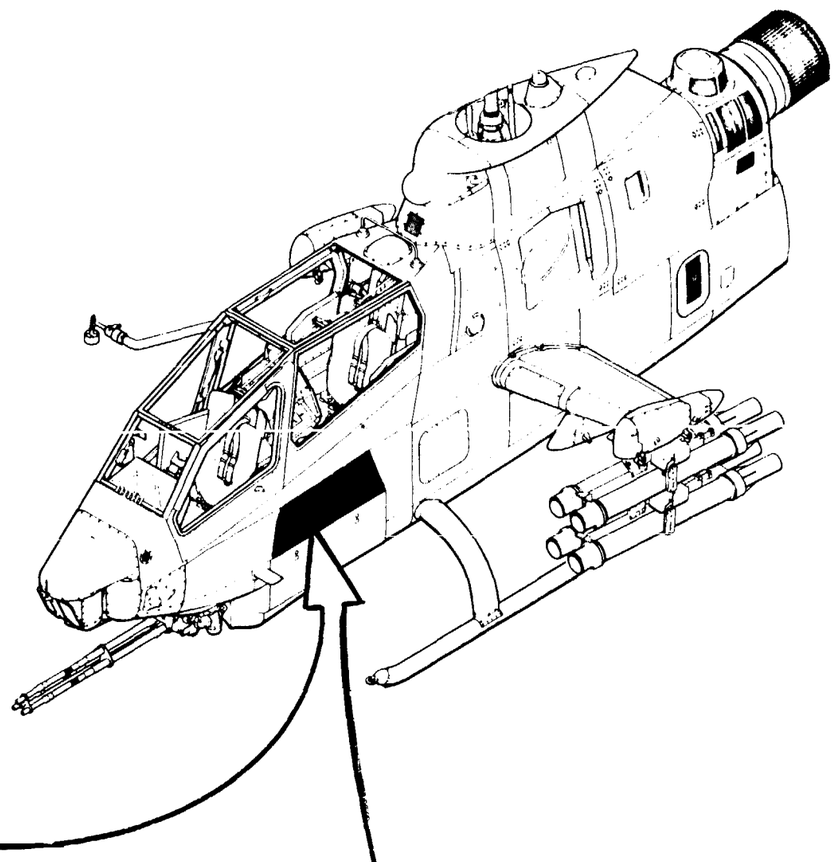
Tool Set, A/C Armament Repairman

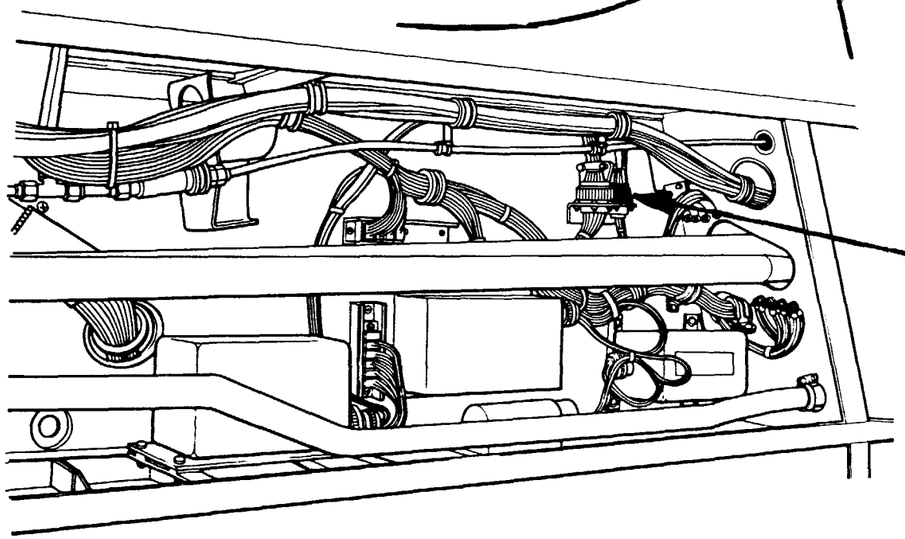
Personnel Required
68J (2)

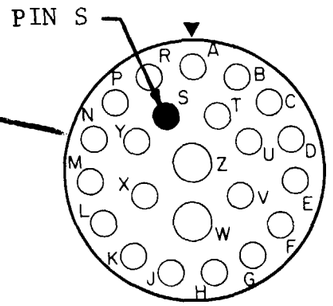
References
TM 9-1270-220-13
TM 55-1520-236-23

Access Panels
Battery Compartment - Removed

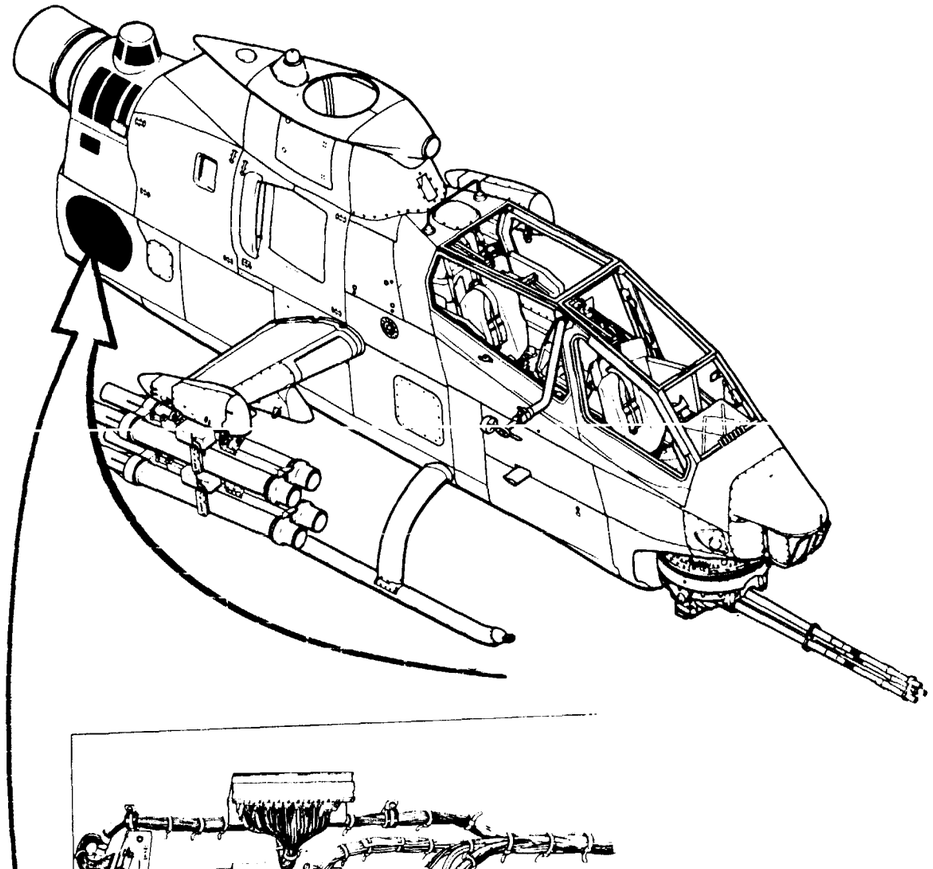
Left Side Control Linkage - Removed

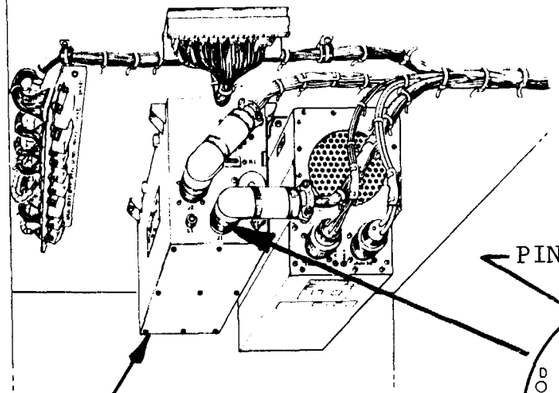




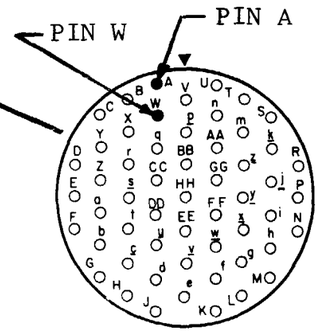


3A1P2



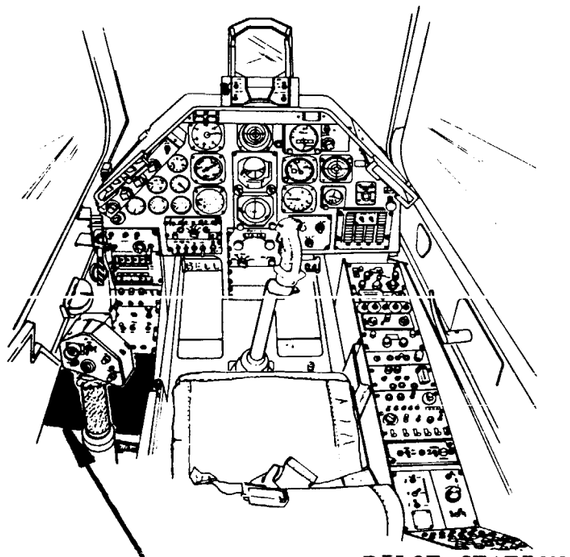


SIGNAL PROCESSOR

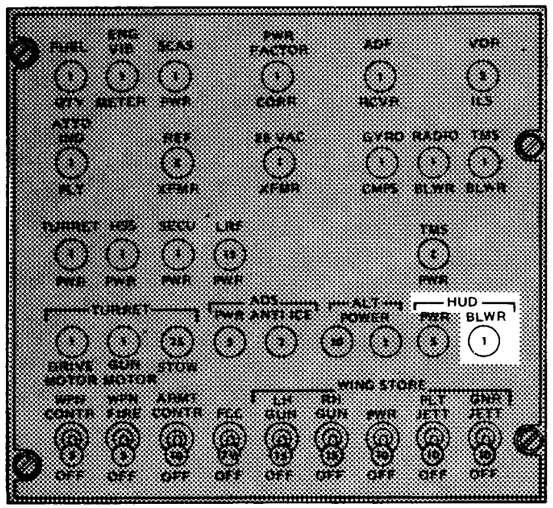


16A2P1

2-11. SIGNAL PROCESSOR FAN INOPERATIVE (CONTINUED).



PILOT STATION



AC/ARMT CIRCUIT BREAKER PANEL

Turn off electrical power per paragraph 2-3.

Disconnect 16A2P1.

Turn on electrical power per paragraph 2-3.

Check for 115 V ac at 16A2P1-A.

Is 115 V ac present?

YES → YES

NO ↓

Turn off electrical power per paragraph 2-3.

Disconnect 3A1P2.

Turn on electrical power per paragraph 2-3.

Check for 115 V ac at 3A1P2-S.

Is 115 V ac present?

YES → Turn off electrical power per paragraph 2-3.

Repair wire A1135B22(WHT) between 16A2P1-A and 3A1J2-S to obtain continuity.

Connect 16A2P1 and 3A1P2.

Then go to paragraph 2-2.

NO ↓

Turn off electrical power per paragraph 2-3.

Remove AC/ARMT circuit breaker panel per TM55-1520-236-23, Chapter 9, Section I.

Open HUD BLWR circuit breaker.

Check for continuity from 3A1P2-S to HUD BLWR circuit breaker.

Is continuity present?

YES → Replace HUD BLWR circuit breaker per TM55-1520-236-23, Chapter 9, Section I.

Install AC/ARMT circuit breaker panel per TM55-1520-236-23, Chapter 9, Section I.

Connect 16A2P1.

Then go to paragraph 2-2.

NO ↓

Repair wire A1135A22 between 3A1P2-S and HUD BLWR circuit breaker.

Install AC/ARMT circuit breaker panel per TM55-1520-236-23, Chapter 9, Section I.

Connect 16A2P1.

Then go to paragraph 2-2.

2-11. SIGNAL PROCESSOR FAN INOPERATIVE (CONTINUED).

YES

Turn off electrical power per paragraph 2-3.

On AC/ARMT circuit breaker panel:

Open HUD BLWR circuit breaker.

Check continuity from 16A2P1-W to airframe ground.

Is continuity present?

YES

Replace signal processor per TM 9-1270-220-13, Chapter 3, Section I.

Connect 16A2P1.

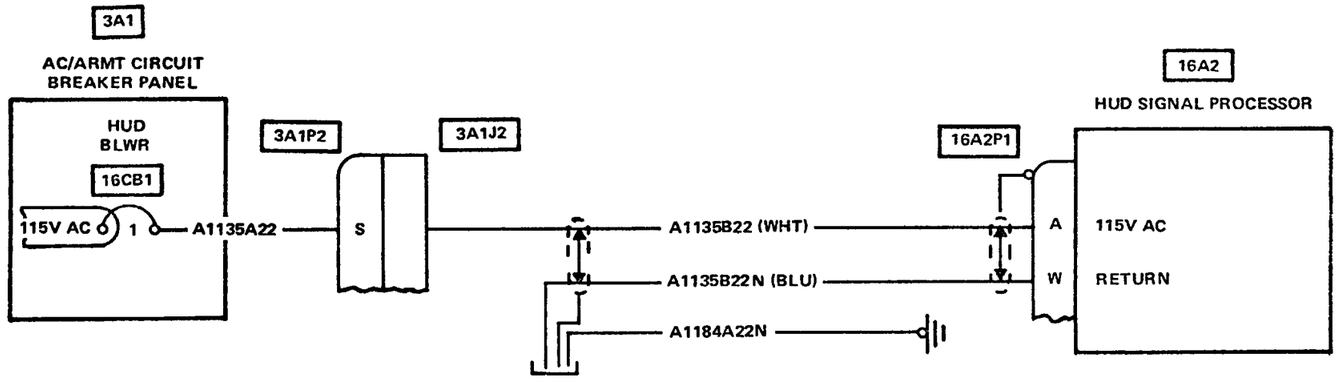
Then go to paragraph 2-2.

NO

Repair wire A1135B22N (BLU) or wire A1184A22N between 16A2P1-W and airframe ground.

Connect 16A2P1.

Then go to paragraph 2-2.



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2-12. HUD SHOWS NO DISPLAY OR SHOWS AN INCORRECT PATTERN.

INITIAL SETUP

Applicable Configuration
All

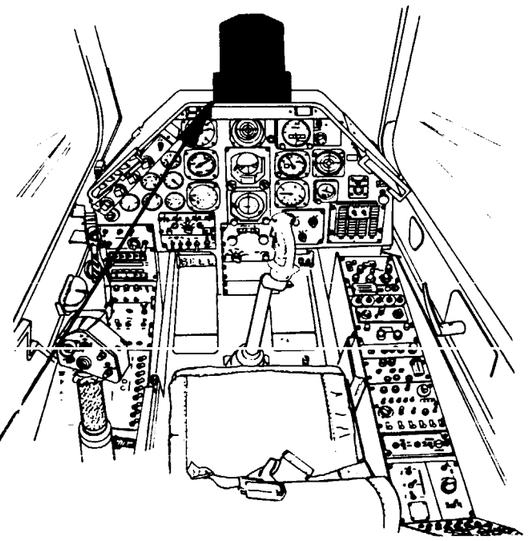
Tools/Test and Support Equipment
Multimeter

Tool Set, A/C Armament Repairman

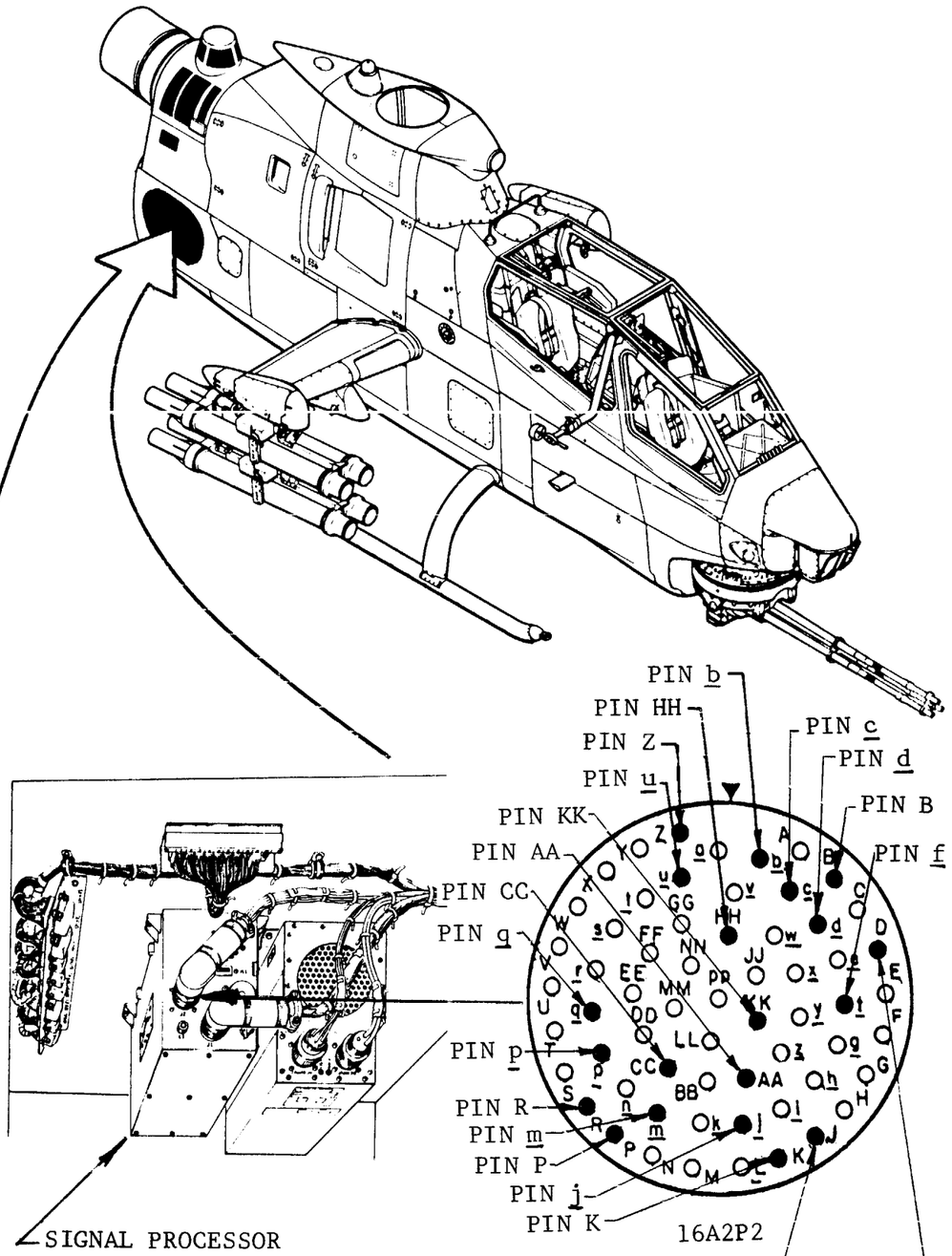
Personnel Required
68J (2)

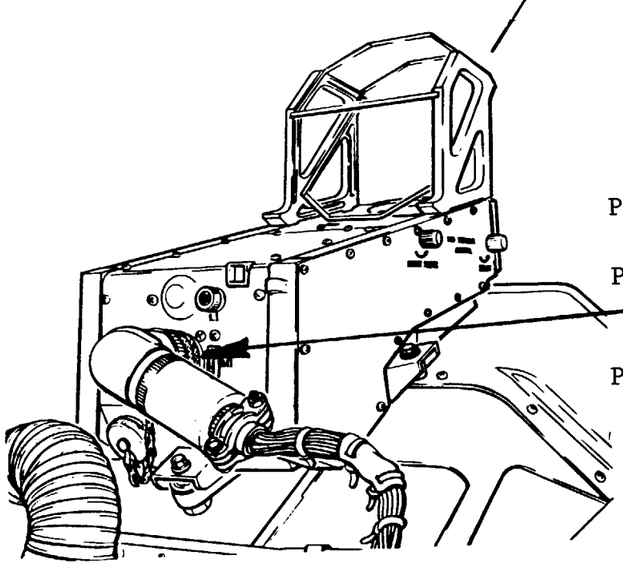
References
TM 9-1270-220-13

Access Panels
Battery Compartment - Removed

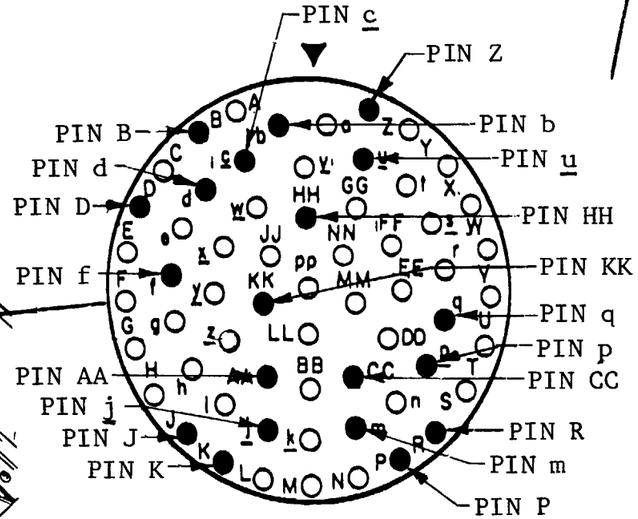


PILOT STATION





HUD (REAR VIEW)



2-12. HUD SHOWS NO DISPLAY OR SHOWS AN INCORRECT PATTERN (CONTINUED).

Turn off electrical power per paragraph 2-3.

Check the following wires for continuity:

WIRE NUMBER	FROM	TO
A1121A22(WHT)	16DS1P1-B	16A2P2-B
A1123A22(WHT)	16DS1P1-D	16A2P2-D
A1125A22(WHT)	16DS1P1-J	16A2P2-J
A1125A22(BLU)	16DS1P1-K	16A2P2-K
A1126A22(BLU)	16DS1P1-P	16A2P2-P
A1126A22(WHT)	16DS1P1-R	16A2P2-R
A1120A22(WHT)	16DS1P1-b	16A2P2-b
A1120A22(BLU)	16DS1P1-c	16A2P2-c
A1121A22(BLU)	16DS1P1-d	16A2P2-d
A1123A22(ORN)	16DS1P1-f	16A2P2-f
A1127A22(WHT)	16DS1P1-j	16A2P2-j
A1127A22(BLU)	16DS1P1-m	16A2P2-m
A1128A22(WHT)	16DS1P1-p	16A2P2-p
A1128A22(BLU)	16DS1P1-q	16A2P2-q
A1122A22(WHT)	16DS1P1-u	16A2P2-u
A1129A22(WHT)	16DS1P1-Z	16A2P2-Z
A1130A22(BLU)	16DS1P1-AA	16A2P2-AA
A1130A22(WHT)	16DS1P1-CC	16A2P2-CC
A1124A22(WHT)	16DS1P1-HH	16A2P2-HH

Is continuity present on every wire?

YES →

Check the following wires for continuity to connector backshell:

WIRE NUMBER	FROM	TO
A1121A22(WHT)	16DS1P1-B	16A2P2-B
A1123A22(WHT)	16DS1P1-D	16A2P2-D
A1125A22(WHT)	16DS1P1-J	16A2P2-J
A1125A22(BLU)	16DS1P1-K	16A2P2-K
A1126A22(BLU)	16DS1P1-P	16A2P2-P
A1126A22(WHT)	16DS1P1-R	16A2P2-R
A1120A22(WHT)	16DS1P1-b	16A2P2-b
A1120A22(BLU)	16DS1P1-c	16A2P2-c
A1121A22(BLU)	16DS1P1-d	16A2P2-d
A1123A22(ORN)	16DS1P1-f	16A2P2-f
A1127A22(WHT)	16DS1P1-j	16A2P2-j
A1127A22(BLU)	16DS1P1-m	16A2P2-m
A1128A22(WHT)	16DS1P1-p	16A2P2-p
A1128A22(BLU)	16DS1P1-q	16A2P2-q
A1122A22(WHT)	16DS1P1-u	16A2P2-u
A1129A22(WHT)	16DS1P1-Z	16A2P2-Z
A1130A22(BLU)	16DS1P1-AA	16A2P2-AA
A1130A22(WHT)	16DS1P1-CC	16A2P2-CC
A1124A22(WHT)	16DS1P1-HH	16A2P2-HH
A1132A22(WHT)	16DS1P1-KK	16A2P2-KK

Is continuity present on any wire to connector backshell?

YES →

Repair wires where continuity is present to connector backshell.

Then go to paragraph 2-2.

NO ↓

Repair wire(s) where continuity is not present.

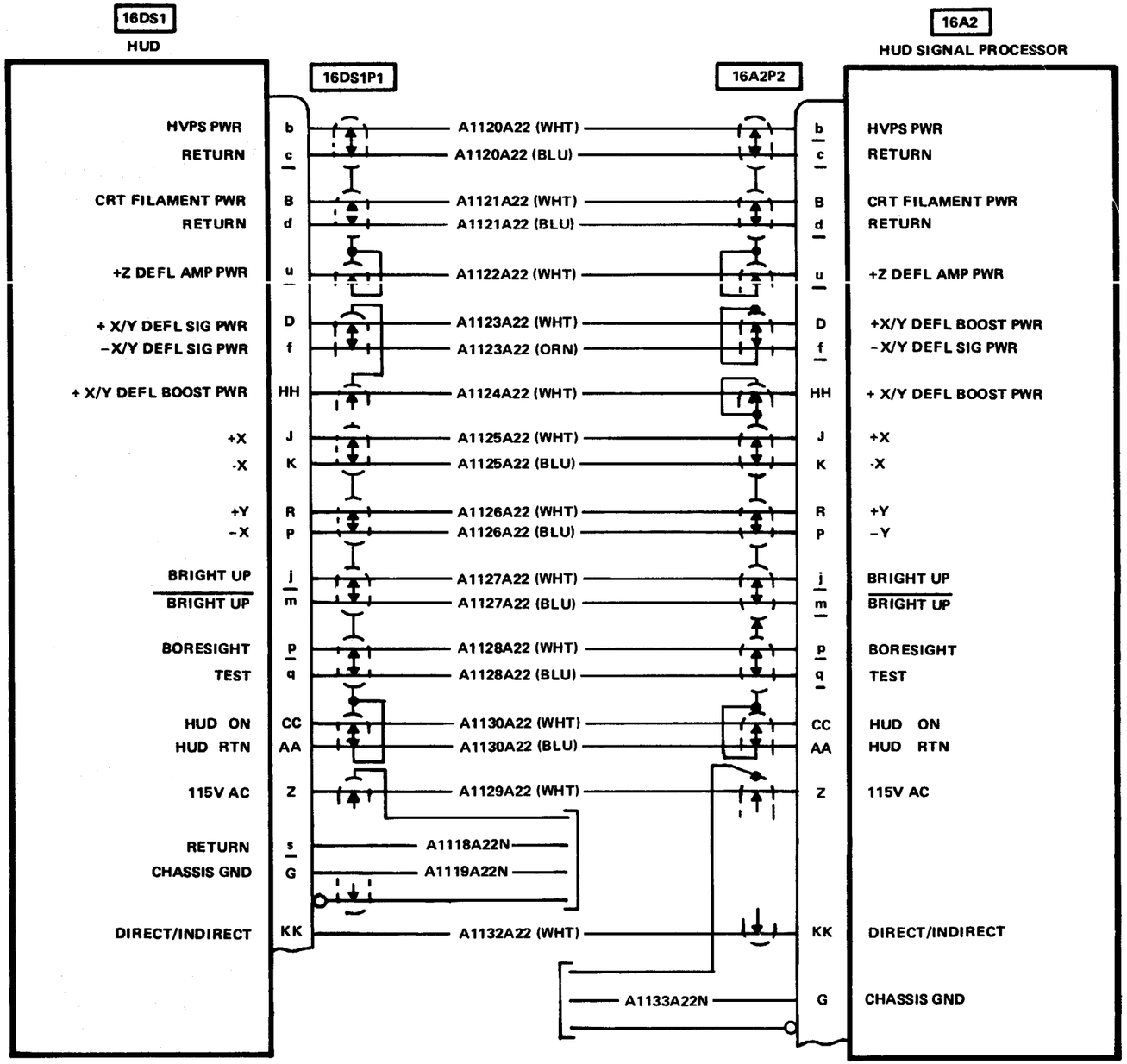
Then go to paragraph 2-2.

NO ↓

Troubleshoot HUDS per TM 9-1270-220-13, Chapter 3, Section V.

Then go to paragraph 2-2.

2-12. HUD SHOWS NO DISPLAY OR SHOWS AN INCORRECT PATTERN (CONTINUED).



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2-13. MAGNETIC HEADING NUMERIC DISPLAY DOES NOT CHANGE.

INITIAL SETUP

Applicable Configuration
All

Tools/Test and Support Equipment
Multimeter

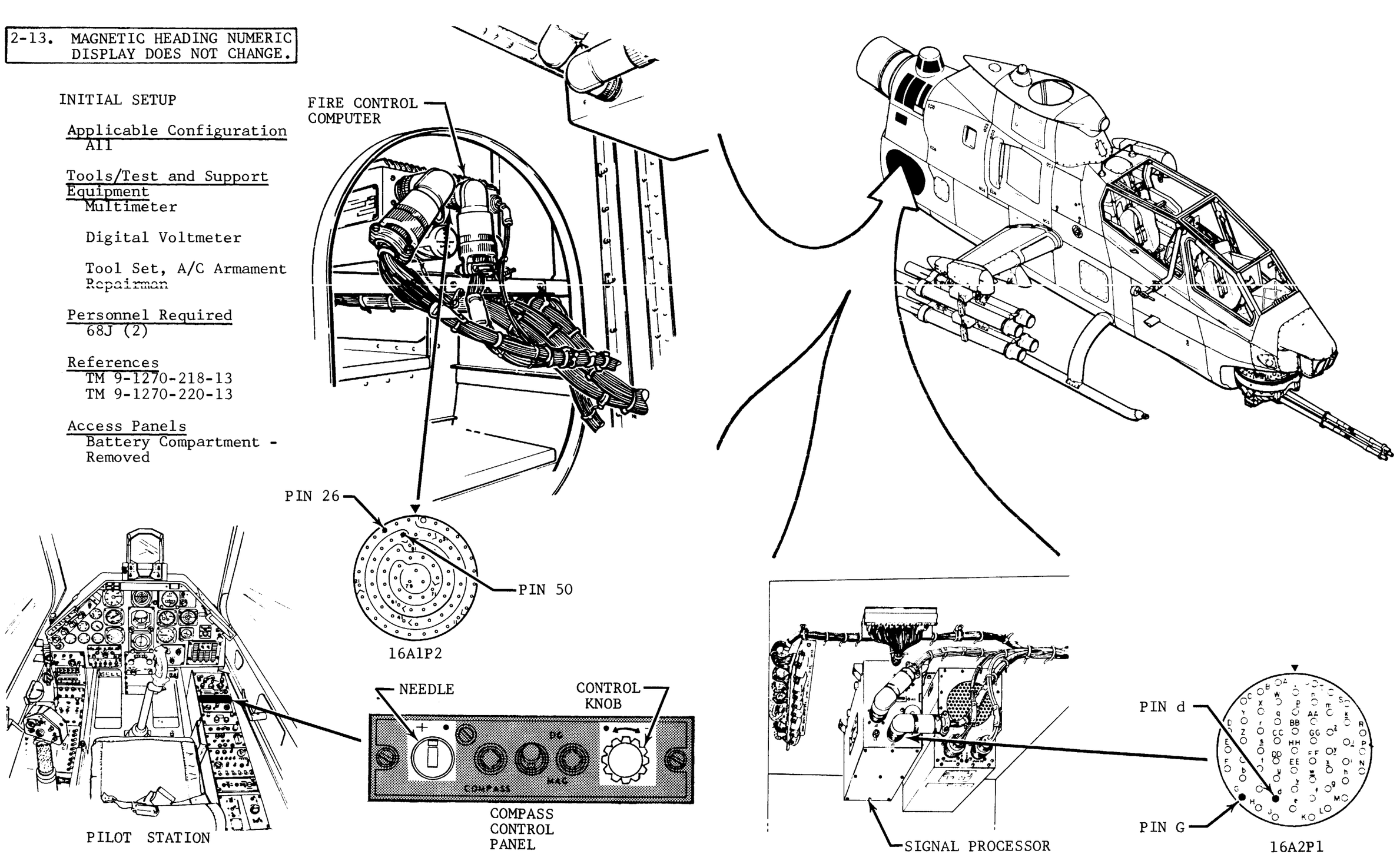
Digital Voltmeter

Tool Set, A/C Armament Repairman

Personnel Required
68J (2)

References
TM 9-1270-218-13
TM 9-1270-220-13

Access Panels
Battery Compartment - Removed



2-13. MAGNETIC HEADING NUMERIC DISPLAY DOES NOT CHANGE (CONTINUED).

On COMPASS control panel:

Set compass control knob so needle deflects slightly.

Does magnetic heading display on HUD change?

YES → Go to paragraph 3-9.

NO ↓

Turn off electrical power per paragraph 2-3.

Disconnect 16A2P1.

Connect digital voltmeter between 16A2P1-d and 16A2P1-G.

Turn on electrical power per paragraph 2-3.

Is 3 V ac or more present?

YES → Turn off electrical power per paragraph 2-3.

Replace signal processor per TM9-1270-220-13, Chapter 3, Section I.

Then go to paragraph 2-2.

NO ↓

Turn off electrical power per paragraph 2-3.

Check for continuity from 16A1P2-26 to 16A2P1-G and for continuity from 16A2P1-G to airframe ground.

Do both of the following conditions exist?

(1) Continuity is present from 16A1P2-26 to 16A2P1-G.

and

(2) Continuity is not present from 16A2P1-G to airframe ground.

YES → Repair wire A1187A22(WHT) between 16A1P2-26 and 16A2P1-G to eliminate open or short circuit.

Then continue troubleshooting.

NO ↓

Check for continuity from 16A1P2-50 to 16A2P1-d and for continuity from 16A2P1-d to airframe ground.

Do both of the following conditions exist?

(1) Continuity is present from 16A1P2-50 to 16A2P1-d.

and

(2) Continuity is not present from 16A2P1-d to airframe ground.

YES → Replace fire control computer per TM9-1270-218-13, Chapter 4, Section IV.

Connect 16A2P1.

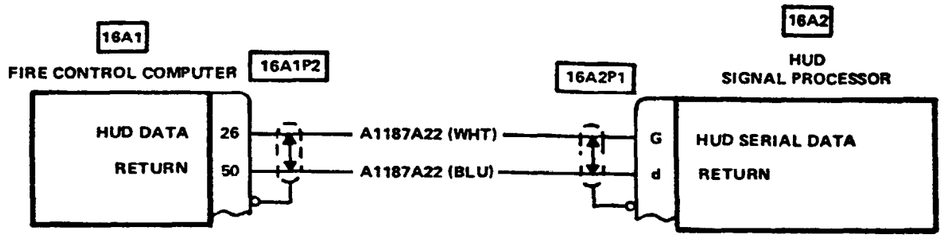
Then go to paragraph 2-2.

NO ↓

Repair wire A1187A22 (BLU) between 16A1P2-50 and 16A2P1-d to eliminate open or short circuit.

Connect 16A2P1.

Then go to paragraph 2-2.



2-14. RADAR ALTITUDE NUMERIC DISPLAY DOES NOT CHANGE.

INITIAL SETUP

Applicable Configuration
All

Tools/Test and Support Equipment
Multimeter

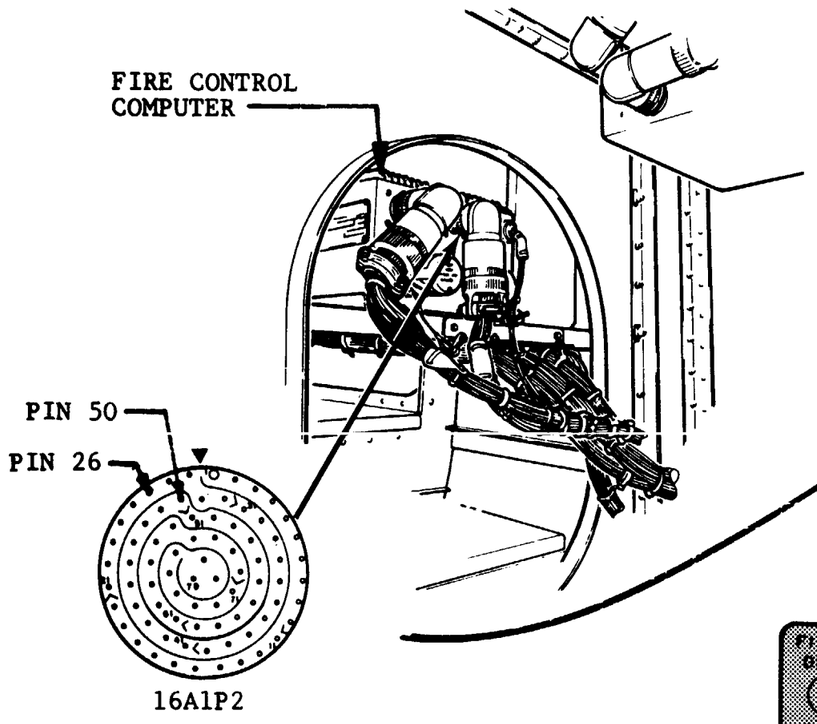
Digital Voltmeter

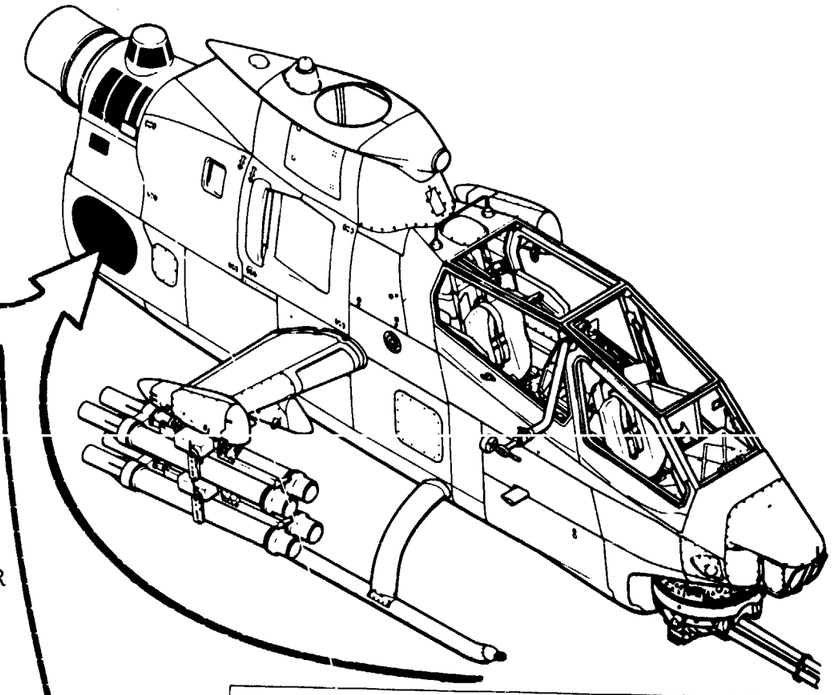
Tool Set, A/C Armament Repairman

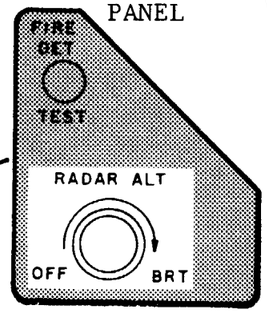
Personnel Required
68J (2)

References
TM 9-1270-218-13
TM 9-1270-220-13

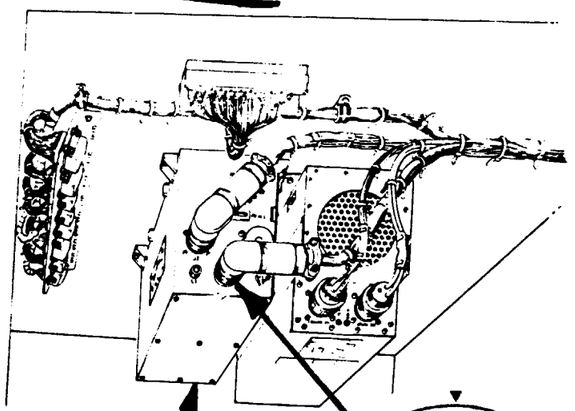
Access Panels
Battery Compartment - Removed





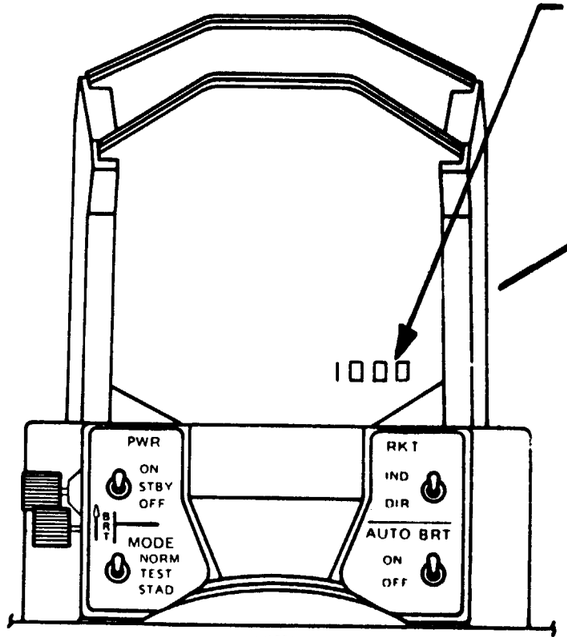


RADAR ALTIMETER LIGHTING PANEL



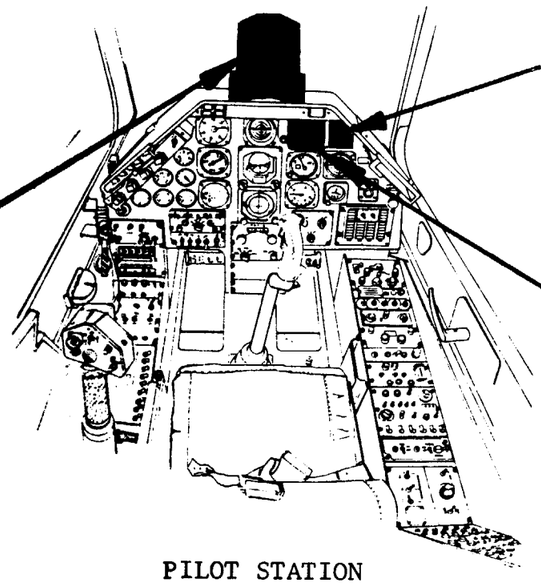
SIGNAL PROCESSOR

16A2P1

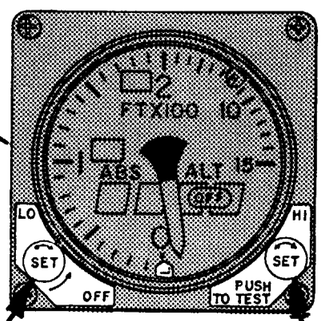


HUD

RADAR ALTITUDE NUMERIC



PILOT STATION



LO SET KNOB

RADAR ALTIMETER INDICATOR

PUSH TO TEST/HI SET KNOB.

2-14. RADAR ALTITUDE NUMERIC DISPLAY DOES NOT CHANGE (CONTINUED).

On radar altimeter lighting panel:

Turn lighting control to BRT.

On radar altimeter:

Turn LO SET knob from OFF to 0 feet. After two minutes the OFF flag should disappear.

Press and hold PUSH TO TEST/HI SET knob on radar altimeter.

Does radar altitude numeric on HUD read 900 to 1100?

YES → Go to paragraph 3-10.

NO →

Turn off electrical power per paragraph 2-3.

Disconnect 16A2P1.

Connect digital voltmeter between 16A2P1-d and 16A2P1-G.

Turn on electrical power per paragraph 2-3.

Is 3 V ac or more present?

YES →

Turn off electrical power per paragraph 2-3.

Replace signal processor per TM9-1270-220-13, Chapter 3, Section I.

Then go to paragraph 2-2.

NO →

Turn off electrical power per paragraph 2-3.

Check for continuity from 16A1P2-26 to 16A2P1-G.

Check for continuity from 16A2P1-G to airframe ground.

Do both of the following conditions exist?

(1) Continuity is present from 16A1P2-26 to 16A2P1-G.

and

(2) Continuity is not present from 16A2P1-G to airframe ground.

YES →

NO →

Repair wire A1187A22 (WHT) between 16A1P2-26 and 16A2P1-G to eliminate open or short circuit.

Then continue troubleshooting.

2-14. RADAR ALTITUDE NUMERIC DISPLAY DOES NOT CHANGE (CONTINUED).

Check for continuity from 16A1P2-50 to 16A2P1-d and for continuity from 16A2P1-d to airframe ground.

Do both of the following conditions exist?

(1) Continuity is present from 16A1P2-50 to 16A2P1-d.

and

(2) Continuity is not present from 16A2P1-d to airframe ground.

YES → Replace fire control computer per TM9-1270-218-13, Chapter 4, Section IV.

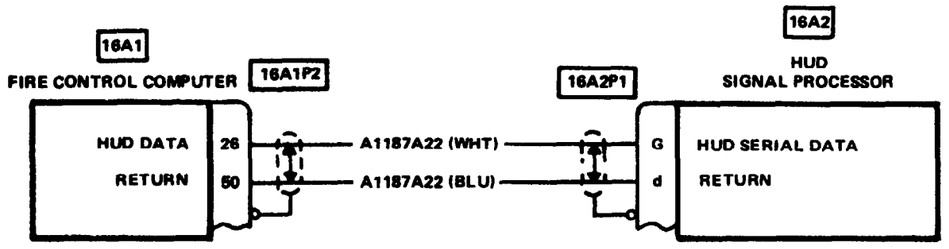
Connect 16A2P1.

Then go to paragraph 2-2.

NO → Repair wire A1187A22 (BLU) between 16A1P2-50 and 16A2P1-d to eliminate open or short circuit.

Connect 16A2P1.

Then go to paragraph 2-2.



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2-15. ENGINE TORQUE, MAGNETIC HEADING, AND RADAR ALTIMETER NUMERICS ARE ALL MISSING WITH "L" PRECEDING RANGE NUMERIC.

INITIAL SETUP

Applicable Configuration
All

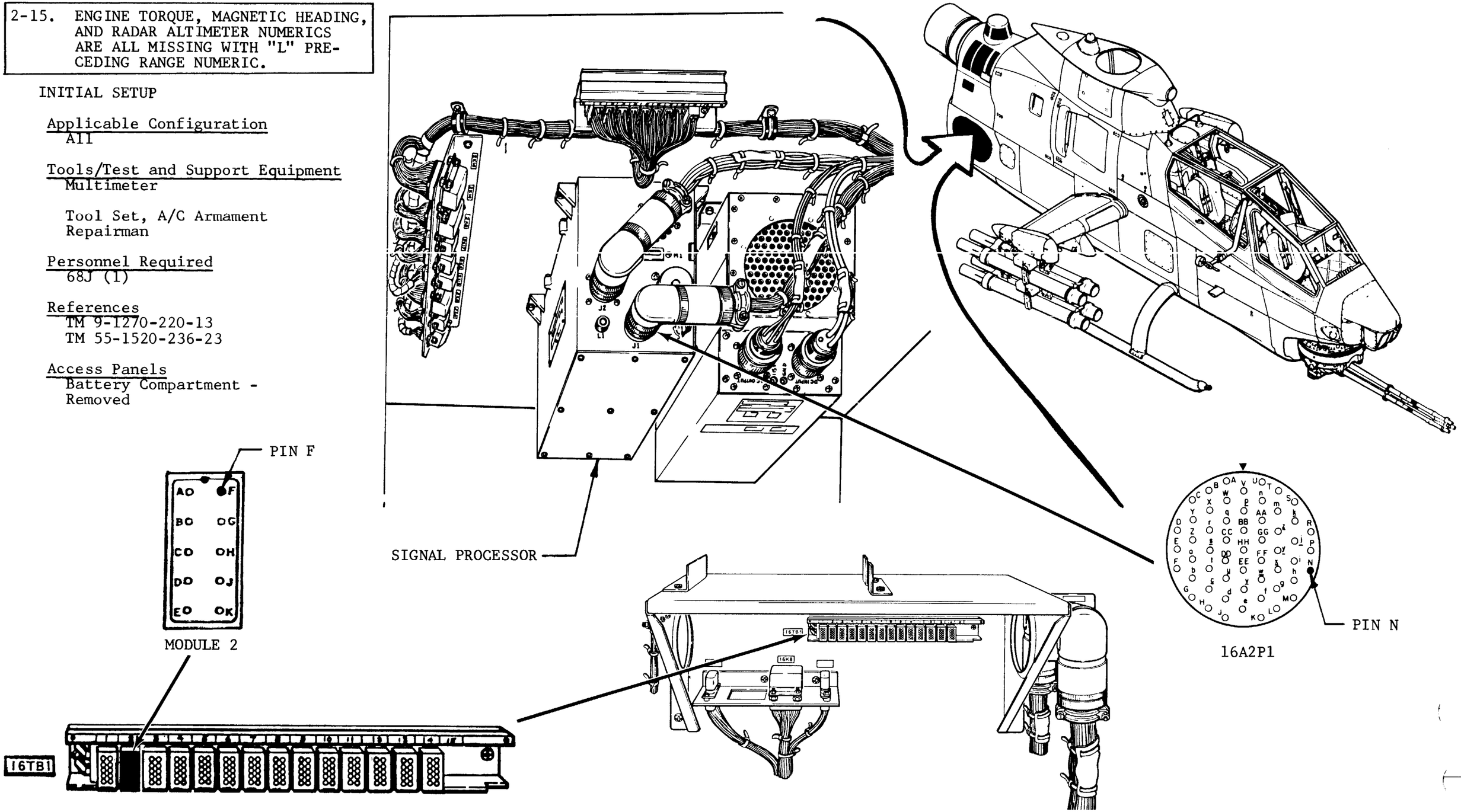
Tools/Test and Support Equipment
Multimeter

Tool Set, A/C Armament Repairman

Personnel Required
68J (1)

References
TM 9-1270-220-13
TM 55-1520-236-23

Access Panels
Battery Compartment - Removed



2-15. ENGINE TORQUE, MAGNETIC HEADING, AND RADAR ALTIMETER NUMERICS ARE ALL MISSING WITH "L" PRECEDING RANGE NUMERIC (CONTINUED).

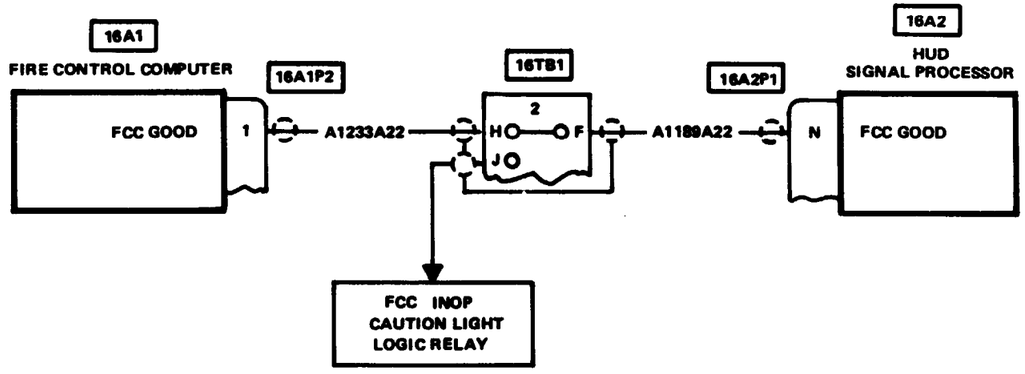
Turn off electrical power per paragraph 2-3.
Disconnect 16A2P1.
Turn on electrical power per paragraph 2-3.
Check for 28 V dc at 16A2P1-N.
Is 28 V dc present?

YES → Turn off electrical power per paragraph 2-3.
Replace signal processor per TM 9-1270-220-13, Chapter 3, Section I.
Connect 16A2P1.
Then go to paragraph 2-2.

NO → Check for 28 V dc at 16TB1-2F.
Is 28 V dc present?

YES → Turn off electrical power per paragraph 2-3.
Repair wire A1189A22 between 16A2P1-N and 16TB1-2F.
Connect 16A2P1.
Then go to paragraph 2-2.

NO → Turn off electrical power per paragraph 2-3.
Replace module 2 of 16TB1 per TM55-1520-236-23, Chapter 9, Section I.
Connect 16A2P1.
Then go to paragraph 2-2.



2-16. FIXED GUN RETICLE NOT POSITIONED CORRECTLY.

INITIAL SETUP

Applicable Configuration
All

Tools/Test and Support Equipment
Multimeter
Tool Set, A/C Armament
Repairman

Personnel Required
68J (2)

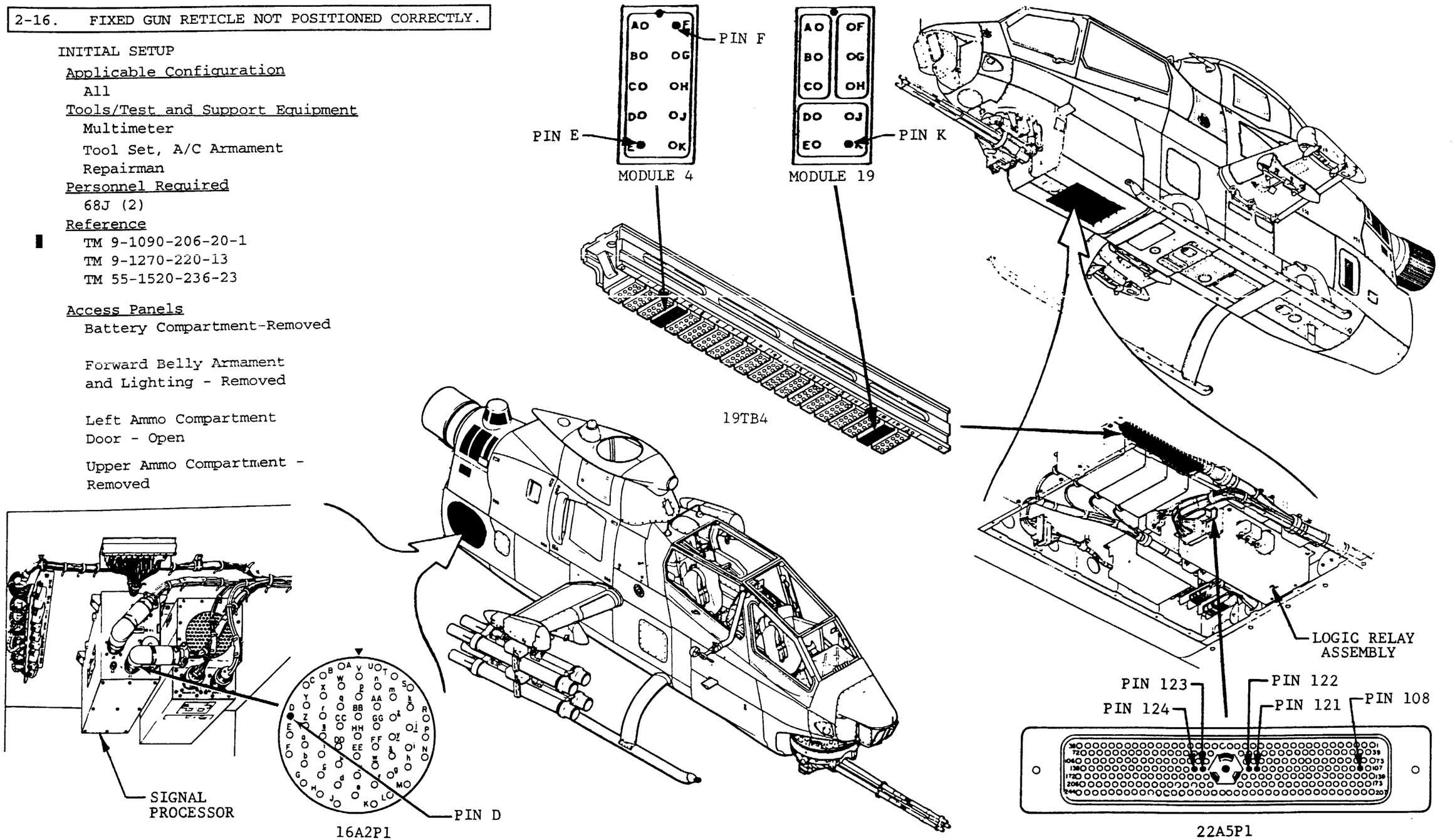
Reference
TM 9-1090-206-20-1
TM 9-1270-220-13
TM 55-1520-236-23

Access Panels
Battery Compartment-Removed

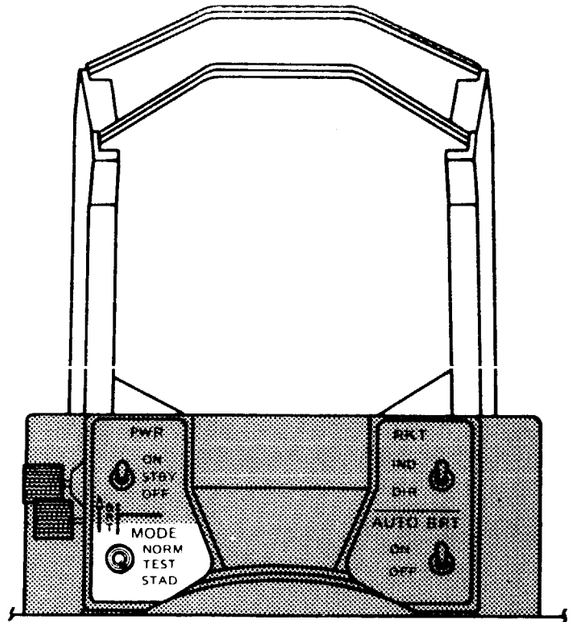
Forward Belly Armament and Lighting - Removed

Left Ammo Compartment Door - Open

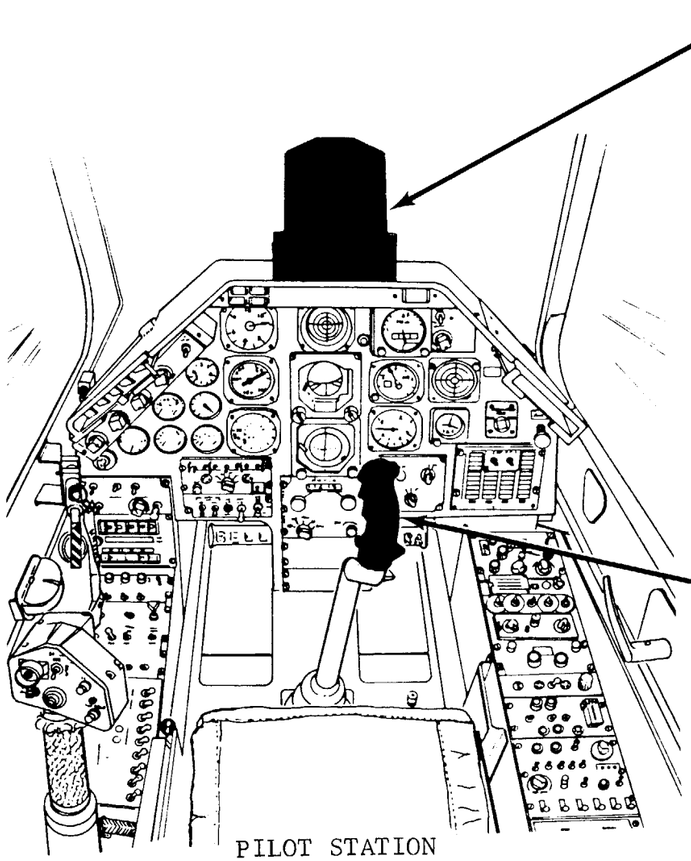
Upper Ammo Compartment - Removed



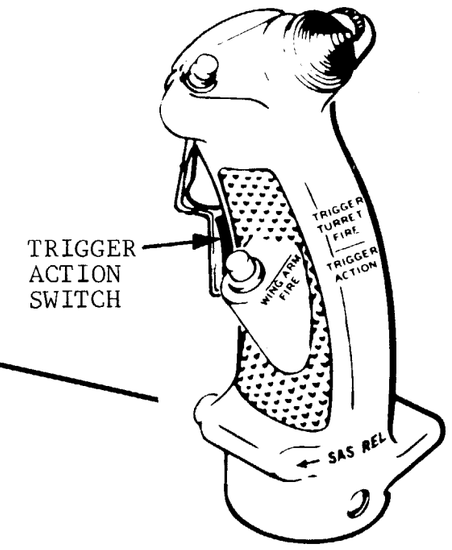
2-16. FIXED GUN RETICLE NOT POSITIONED CORRECTLY (CONTINUED).



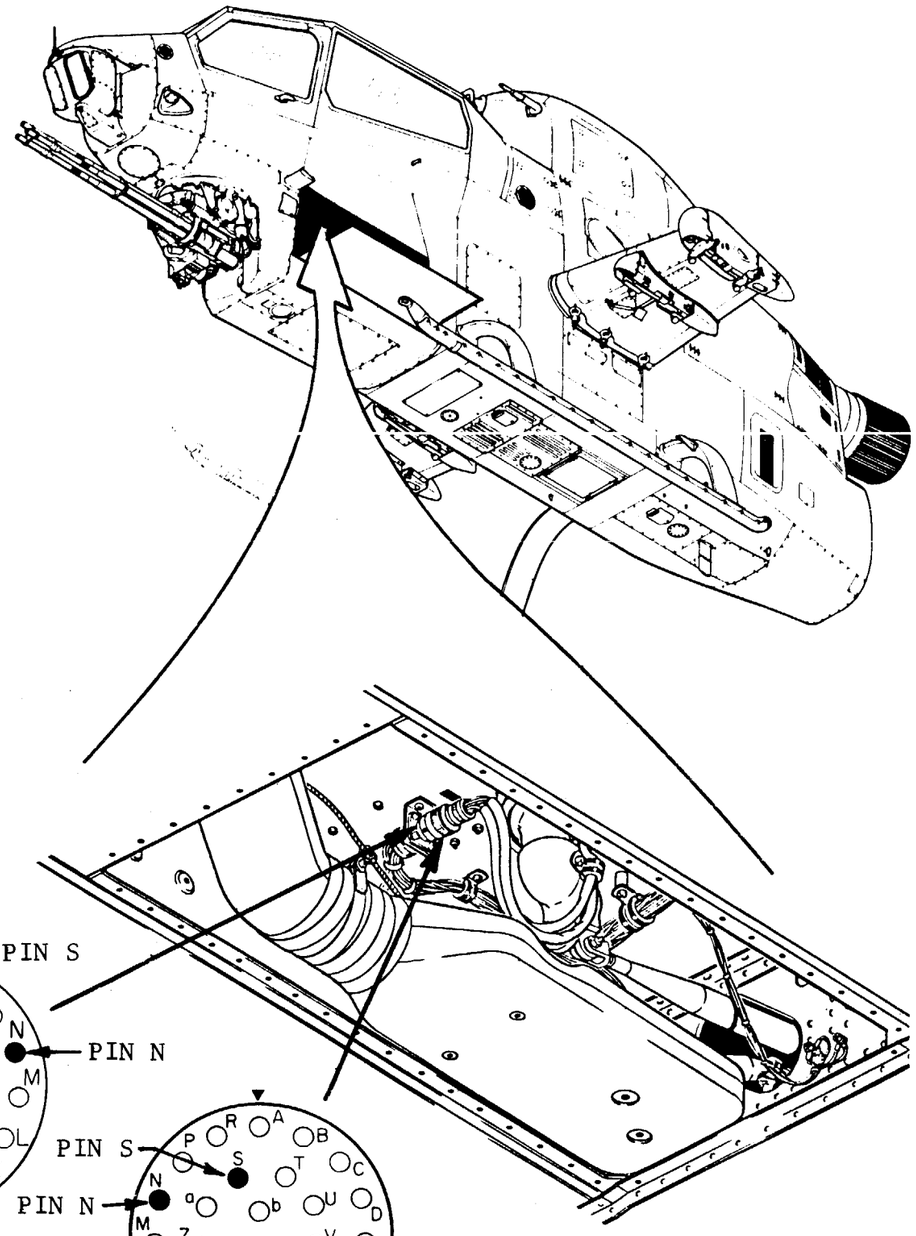
HUD

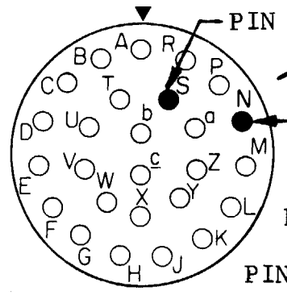


PILOT STATION

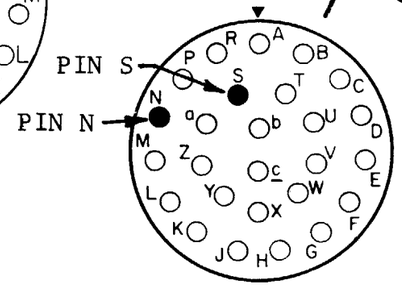


PILOT CYCLIC STICK





4A3J1



4A3P1

2-16. FIXED GUN RETICLE NOT POSITIONED CORRECTLY (CONTINUED).

Observe gun.

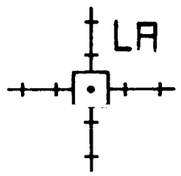
Is gun in fixed forward position?

YES

On HUD:

Set MODE switch to TEST.

Does fixed gun reticle appear on HUD?



YES

Turn off electrical power per paragraph 2-3.

Disconnect 16A2P1.

Turn on electrical power per paragraph 2-3.

On pilot cyclic stick:

Press and hold TRIGGER ACTION switch.

Check for 28 V dc at 16A2P1-D.

Is 28 V dc present?

YES

Turn off electrical power per paragraph 2-3.

Replace signal processor per TM 9-1270-220-13, Chapter 3, Section I.

Then go to paragraph 2-2.

NO

Go to paragraph 6-2 .

Then go to paragraph 2-2.

NO

Troubleshoot HUDS per TM 9-1270-220-13, Chapter 3, Section V.

Then go to paragraph 2-2.

NO

Check for 28 V dc at 19TB4-19K.

Is 28 V dc present?

YES

Turn off electrical power per paragraph 2-3.

Check for continuity from 22A5P1-124 to 16A2P1-D.

Is continuity present?

YES

NO

Turn off electrical power per paragraph 2-3.

Replace module 19 of 19TB4 per TM 55-1520-236-23, Chapter 9, Section I.

Connect 16A2P1.

Then go to paragraph 2-2.

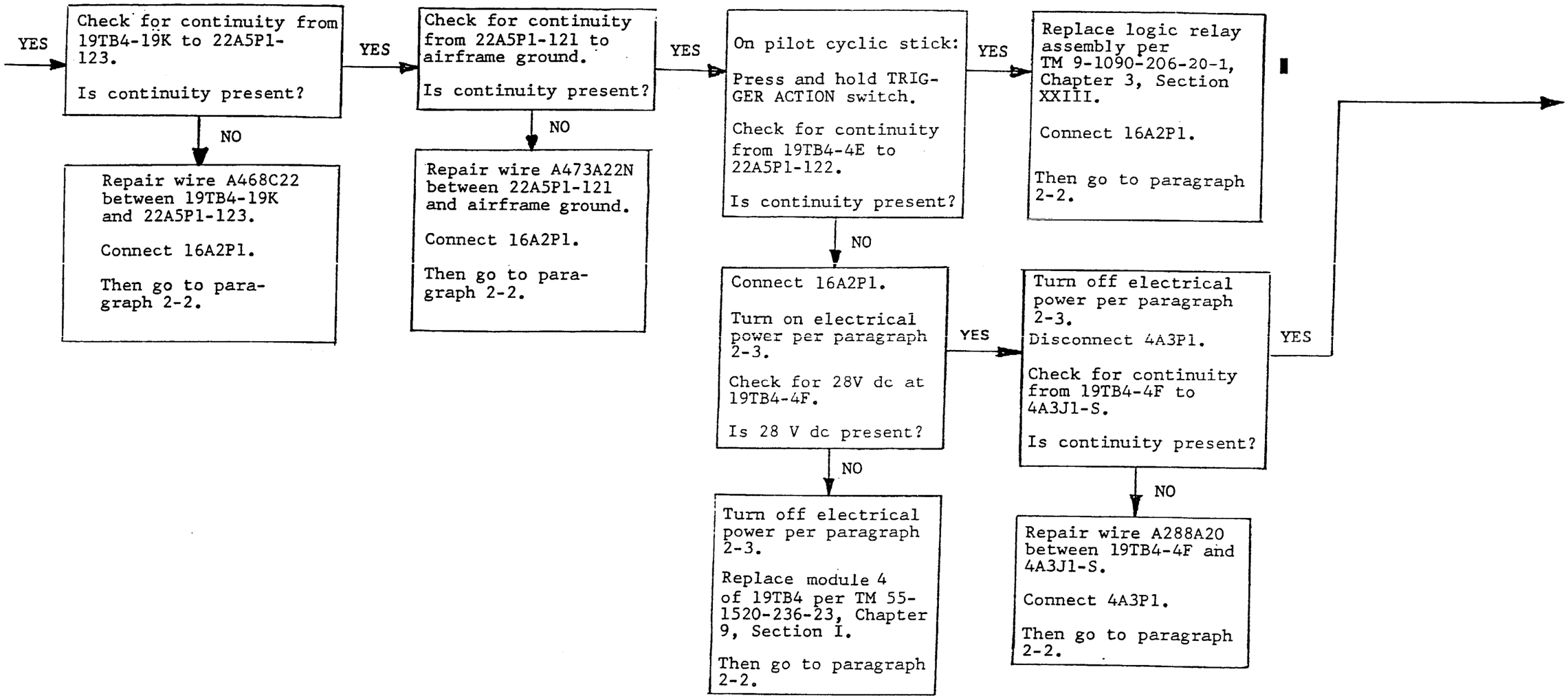
NO

Repair wire A471A22 between 22A5P1-124 and 16A2P1-D.

Connect 16A2P1.

Then go to paragraph 2-2.

2-16. FIXED GUN RETICLE NOT POSITIONED CORRECTLY (CONTINUED).



2-16. FIXED GUN RETICLE NOT POSITIONED CORRECTLY (CONTINUED).

YES

On pilot cyclic stick:

Press and hold TRIGGER ACTION switch.

Check for continuity from 4A3P1-S to 4A3P1-N.

Is continuity present?

YES

Check for continuity from 4A3J1-N to 22A5P1-108.

Is continuity present?

YES

Repair wire A337C22 between 22A5P1-122 and splice.

Connect 4A3P1.

Then go to paragraph 2-2.

NO

Repair wire A337A22 between 4A3J1-N and splice.

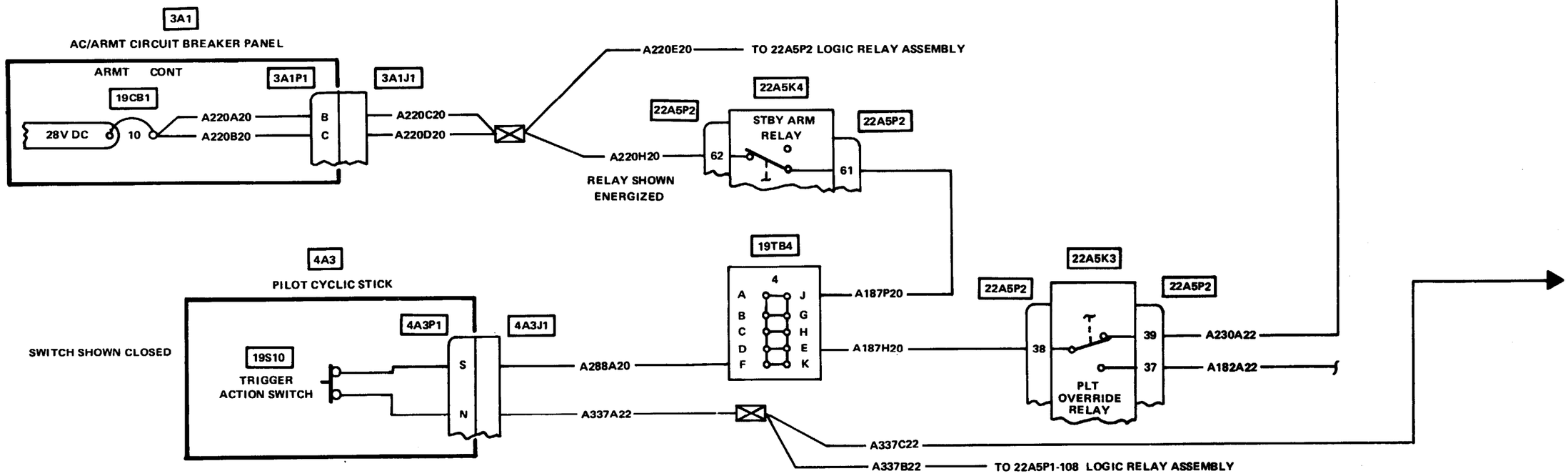
Connect 4A3P1.

Then go to paragraph 2-2.

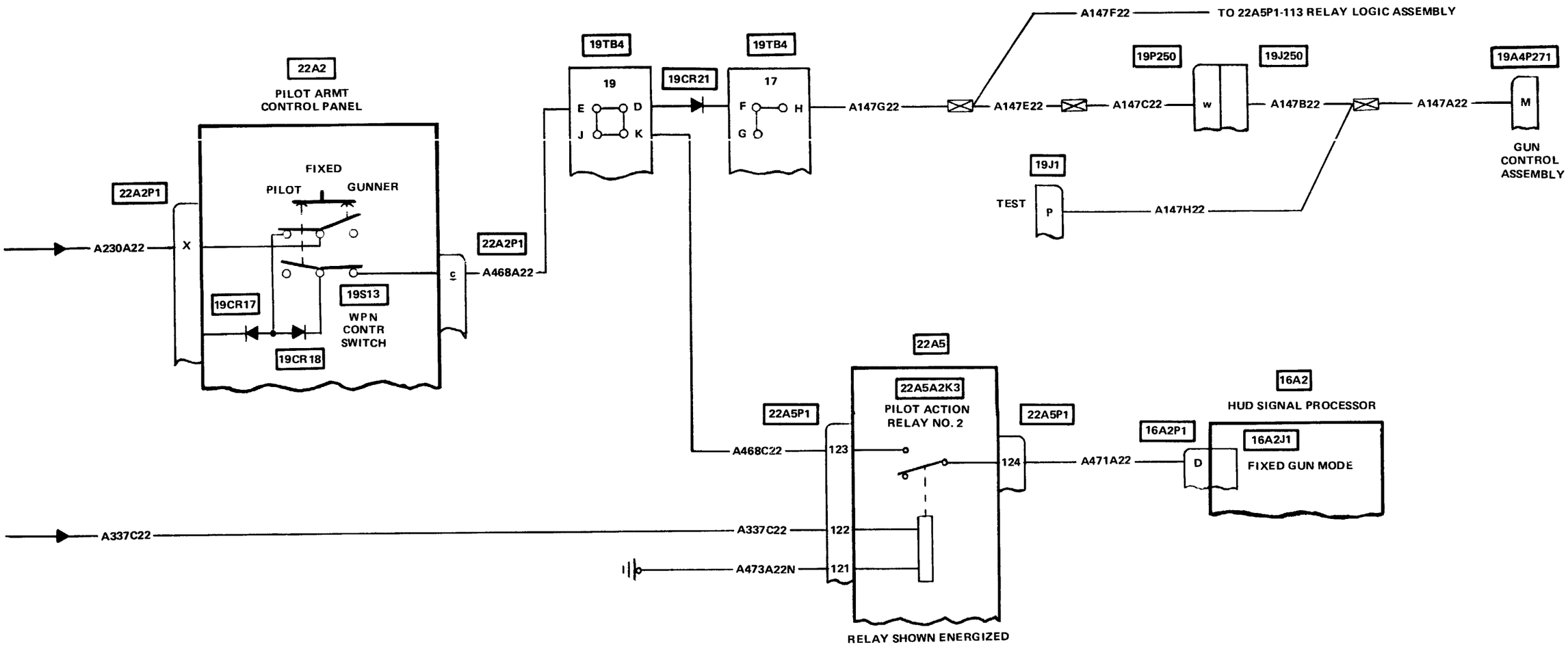
NO

Replace pilot cyclic stick per TM 55-1520-236-23, Chapter 11, Section I.

Then go to paragraph 2-2.



2-16. FIXED GUN RETICLE NOT POSITIONED CORRECTLY (CONTINUED).



2-17. BACKUP DIRECT ROCKET RETICLE DOES NOT MOVE WHEN "L" PRECEDES RANGE NUMERIC DISPLAY.

INITIAL SETUP

Applicable Configuration
All

Tools/Test and Support Equipment
Multimeter

Digital Voltmeter

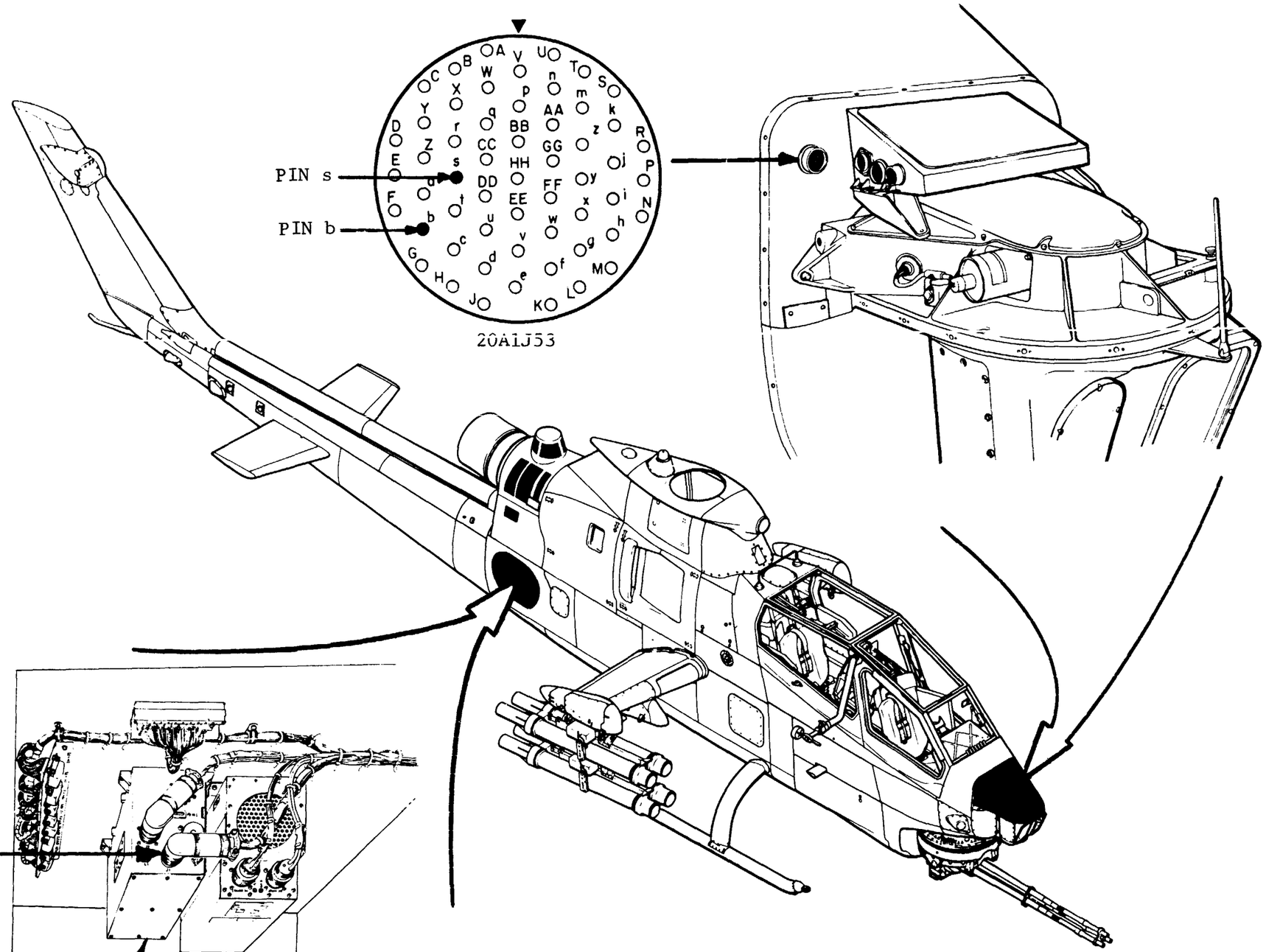
Tool Set, A/C Armament Repairman

Personnel Required
68J (2)

References
TM 9-1270-220-13
TM 9-1425-473-34

Access Panels
Battery Compartment - Removed

TSU Fairing - Removed



2-17. BACKUP DIRECT ROCKET RETICLE DOES NOT MOVE WHEN "L" PRECEDES RANGE NUMERIC DISPLAY (CONTINUED).

Turn off electrical power per paragraph 2-3.

Disconnect 16A2P1.

Connect digital voltmeter between 16A2P1-K and 16A2P1-J.

Turn on electrical power per paragraph 2-3.

Is 3 V ac or more present?

YES → Turn off electrical power per paragraph 2-3.

Replace signal processor per TM9-1270-220-13, Chapter 3, Section I.

Then go to paragraph 2-2.

NO → Turn off electrical power per paragraph 2-3.

Check for continuity from 16A2P1-K to 20A1J53-s.

Is continuity present?

YES → Check for continuity from 16A2P1-J to 20A1J53-b.

Is continuity present?

YES → Connect 16A2P1.

Troubleshoot laser augmented airborne TOW (LAAT) per TM9-1425-473-34, Chapter 3, Table 3-70.13.

Then go to paragraph 2-2.

NO → Repair wire A1026A22 (BLU) between 16A2P1-J and 20A1J53-b.

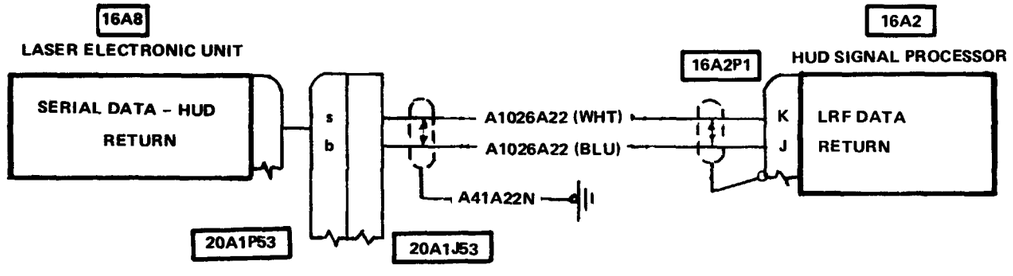
Connect 16A2P1.

Then go to paragraph 2-2.

NO → Repair wire A1026A22 (WHT) between 16A2P1-K and 20A1J53-s.

Connect 16A2P1.

Then go to paragraph 2-2.



2-18. LINE-OF-SIGHT RETICLE DOES NOT MOVE IN AZIMUTH WITH "L" PRECEDING RANGE NUMERIC.

INITIAL SETUP

Applicable configuration
All

Tools/Test and Support Equipment
Multimeter

Digital Voltmeter

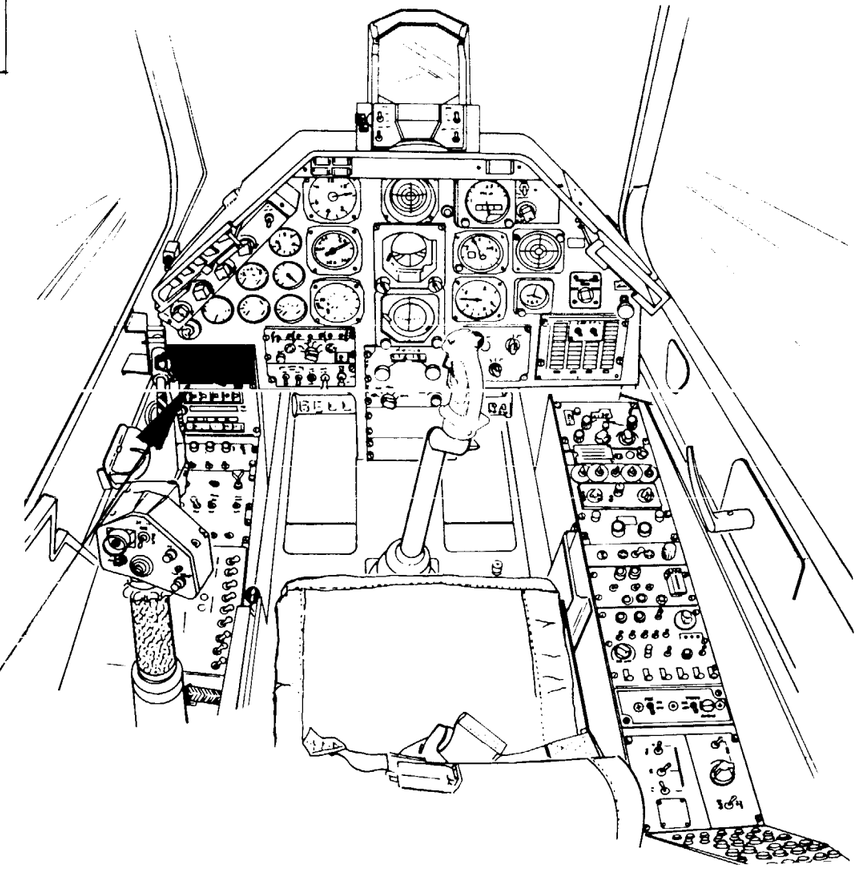
Tool Set, A/C Armament Repairman

Personnel Required
68J (2)

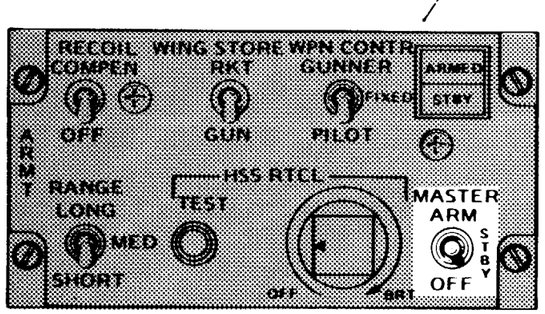
References
TM 9-1270-220-13
TM 9-1425-473-20

Access Panels
Battery Compartment - Removed

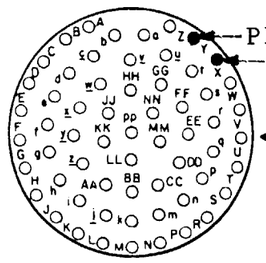
Middle Electronics (Tailboom) - Removed



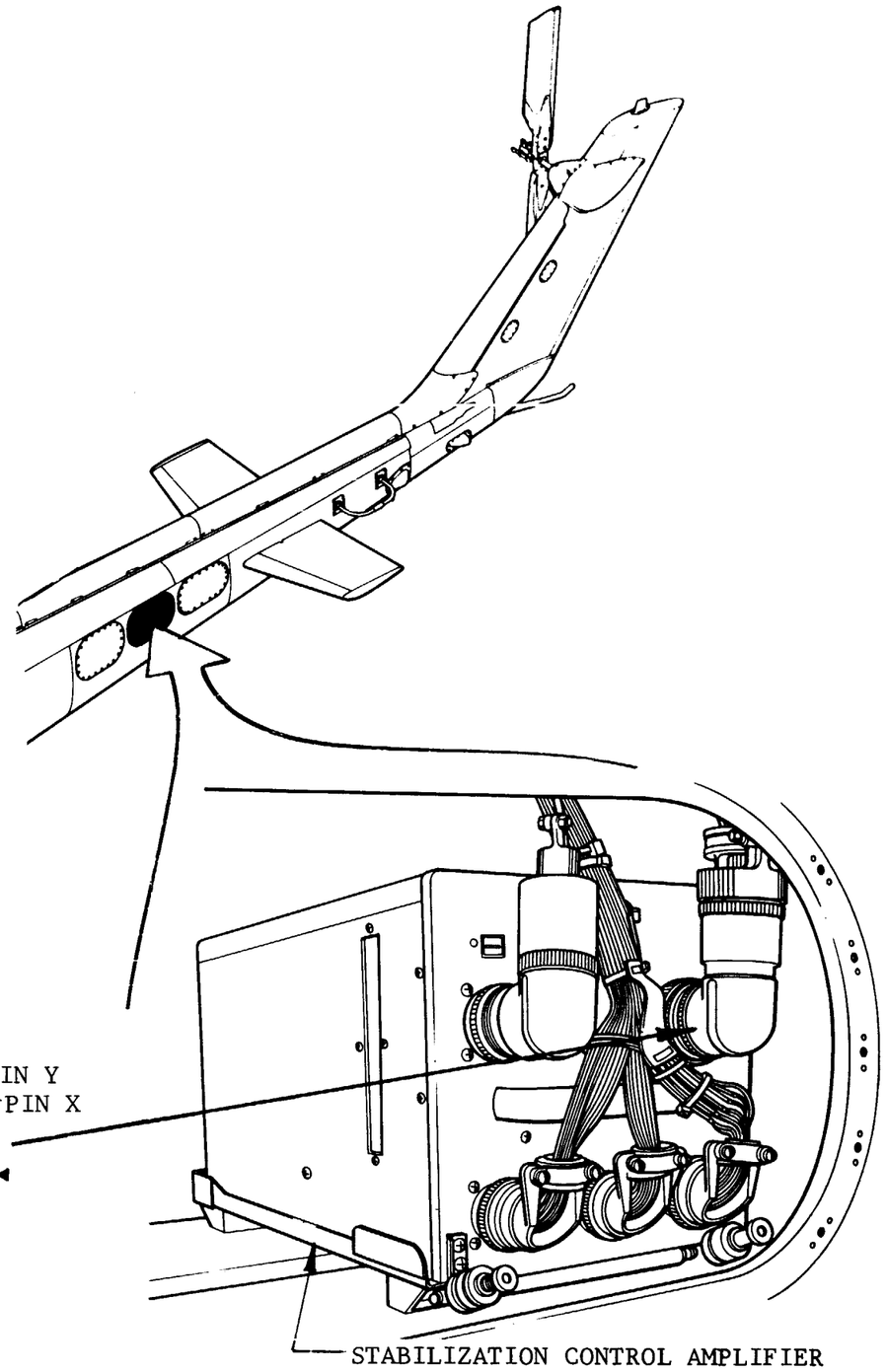
PILOT STATION



PILOT ARMT CONTROL PANEL

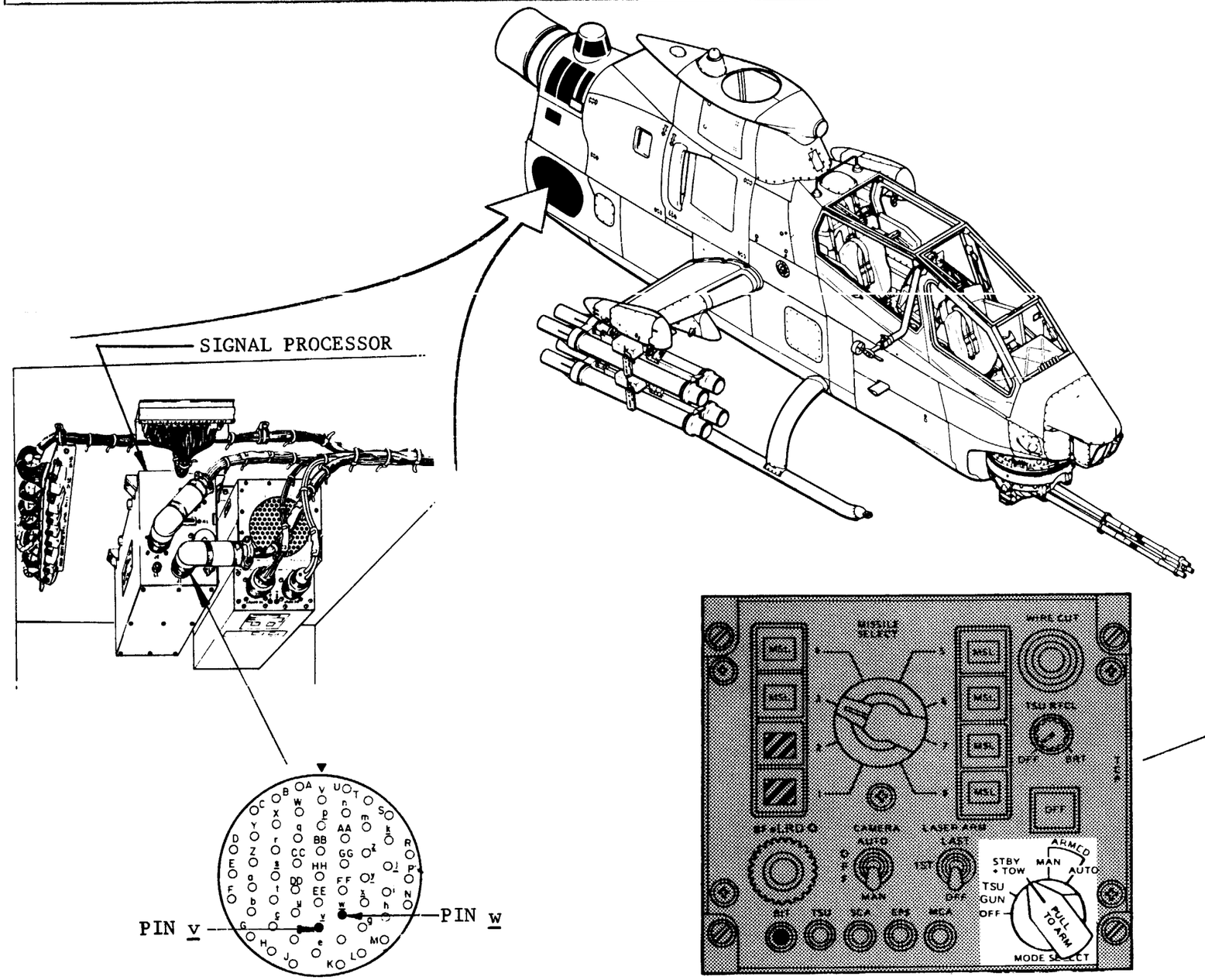


20A2P04

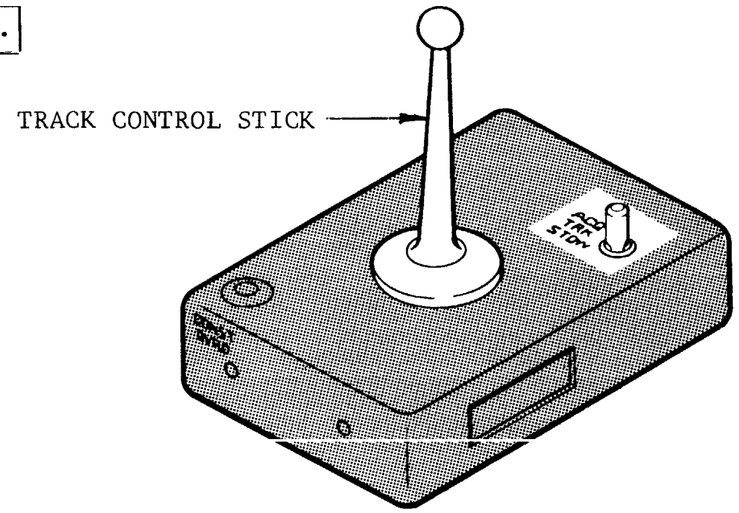


STABILIZATION CONTROL AMPLIFIER

2-18. LINE-OF-SIGHT RETICLE DOES NOT MOVE IN AZIMUTH WITH "L" PRECEDING RANGE NUMERIC (CONTINUED).

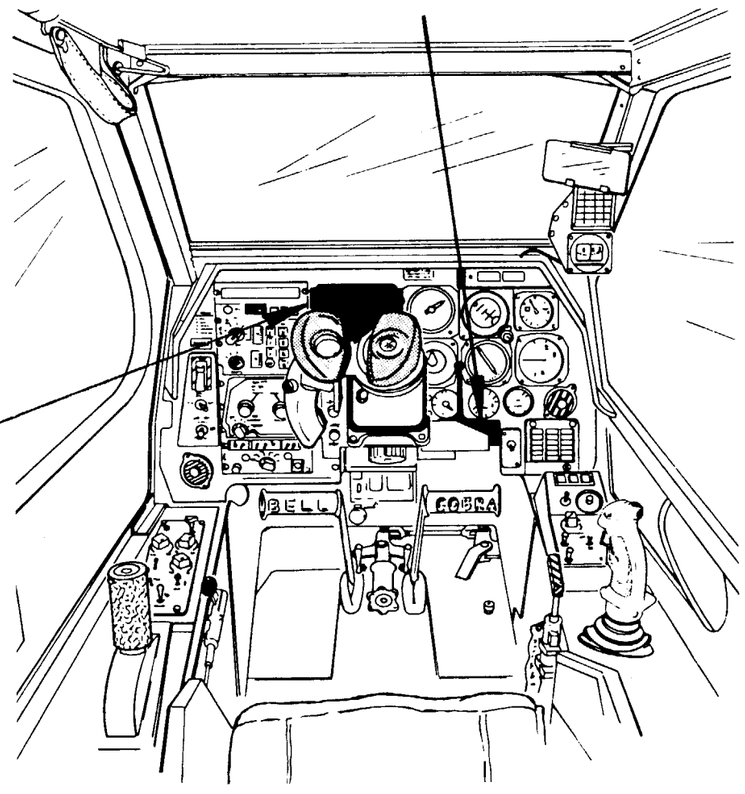


16A2P1



SIGHT HAND CONTROL

TCP (TOW CONTROL PANEL)



GUNNER STATION

2-18. LINE-OF-SIGHT RETICLE DOES NOT MOVE IN AZIMUTH WITH "L" PRECEDING RANGE NUMERIC (CONTINUED).

On pilot ARMT control panel:

Set MASTER ARM switch to STBY.

On TCP (TOW control panel):

Set MODE SELECT switch to STBY TOW.

On sight hand control:

Set ACQ/TRK/STOW switch to TRK.

Turn off electrical power per paragraph 2-3.

Disconnect 16A2P1.

Connect digital voltmeter to read dc voltage between 16A2P1-v (+) and 16A2P1-w (-).

Turn on electrical power per paragraph 2-3.

Position track control stick on sight hand control to drive telescopic sight unit in azimuth from center to the right and observe that voltage increases.

Does voltage increase?

YES → Turn off electrical power per paragraph 2-3.

Replace signal processor per TM9-1270-220-13, Chapter 3, Section I.

Then go to paragraph 2-2.

NO →

Turn off electrical power per paragraph 2-3.

Check for continuity from 16A2P1-v to 20A2P04-X.

Is continuity present?

YES → Check for continuity from 16A2P1-w to 20A2P04-Y.

Is continuity present?

YES → Replace stabilization control amplifier per TM9-1425-473-20, Chapter 2, Section V.

Connect 16A2P1.

Then go to paragraph 2-2.

NOTE

Perform TOW missile system operational check per paragraph 8-2 after replacement of stabilization control amplifier.

NO →

Repair wire TG299A22 (BLU) between 16A2P1-w and 20A2P04-Y.

Connect 16A2P1.

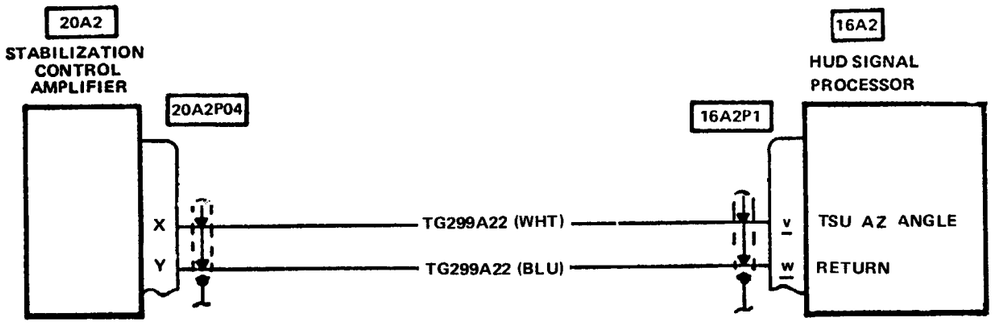
Then go to paragraph 2-2.

NO →

Repair wire TG299A22 (WHT) between 16A2P1-v and 20A2P04-X.

Connect 16A2P1.

Then go to paragraph 2-2.



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2-19. LINE-OF-SIGHT RETICLE DOES NOT MOVE IN ELEVATION WITH "L" PRECEDING RANGE NUMERIC.

INITIAL SETUP

Applicable Configuration
All

Tools/Test and Support Equipment
Multimeter

Digital Voltmeter

Tool Set, A/C Armament Repairman

Personnel Required
68J (2)

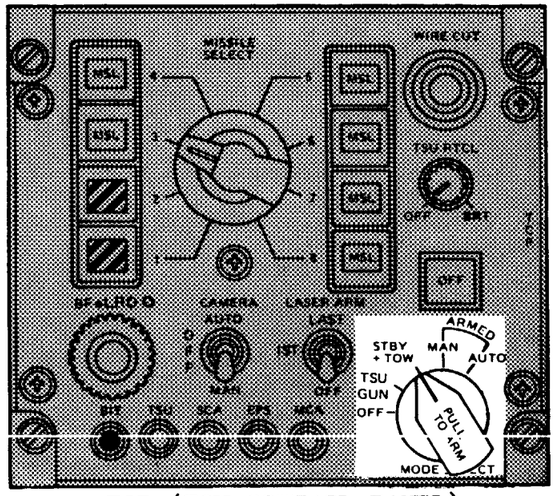
References
TM 9-1270-220-13
TM 9-1425-473-20

Access Panels
Battery Compartment - Removed

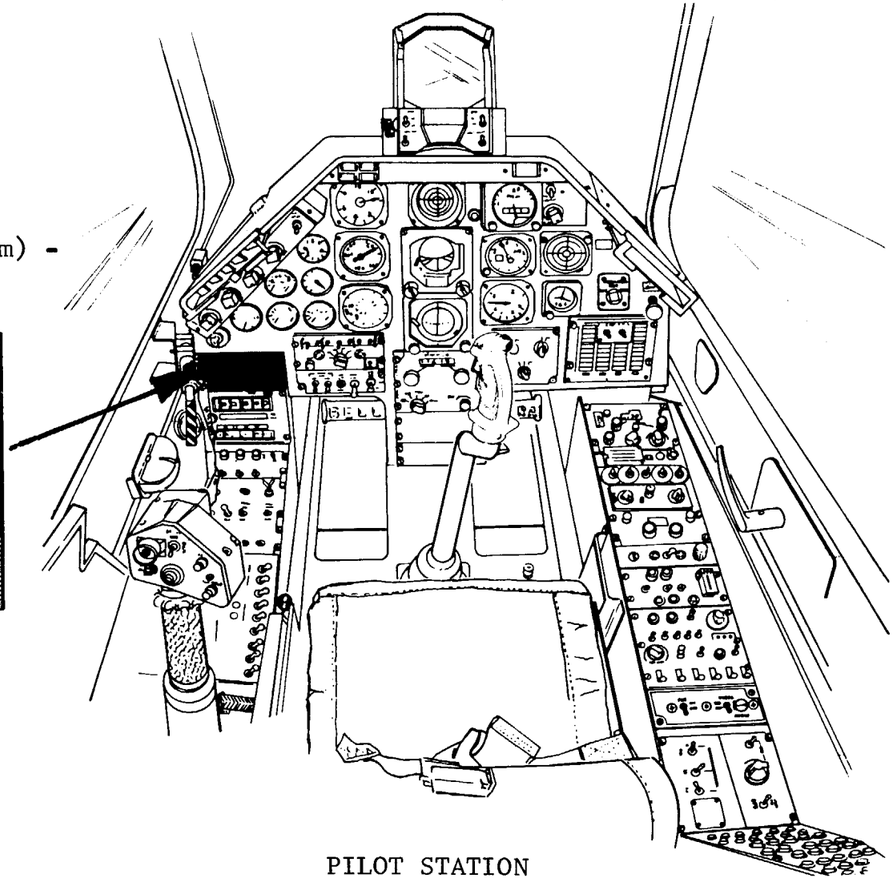
Middle Electronics (tailboom) - Removed

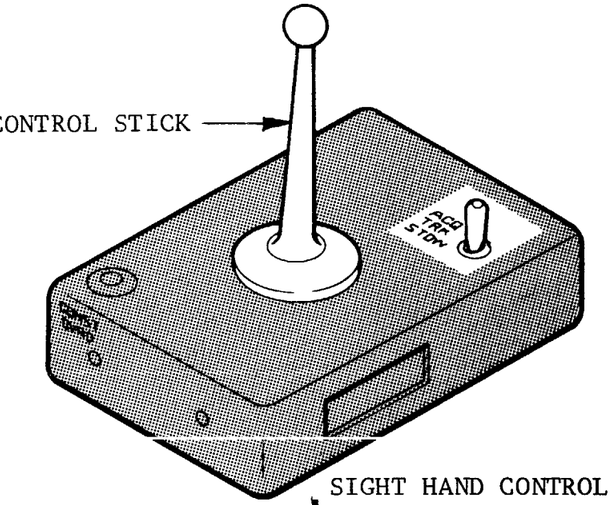


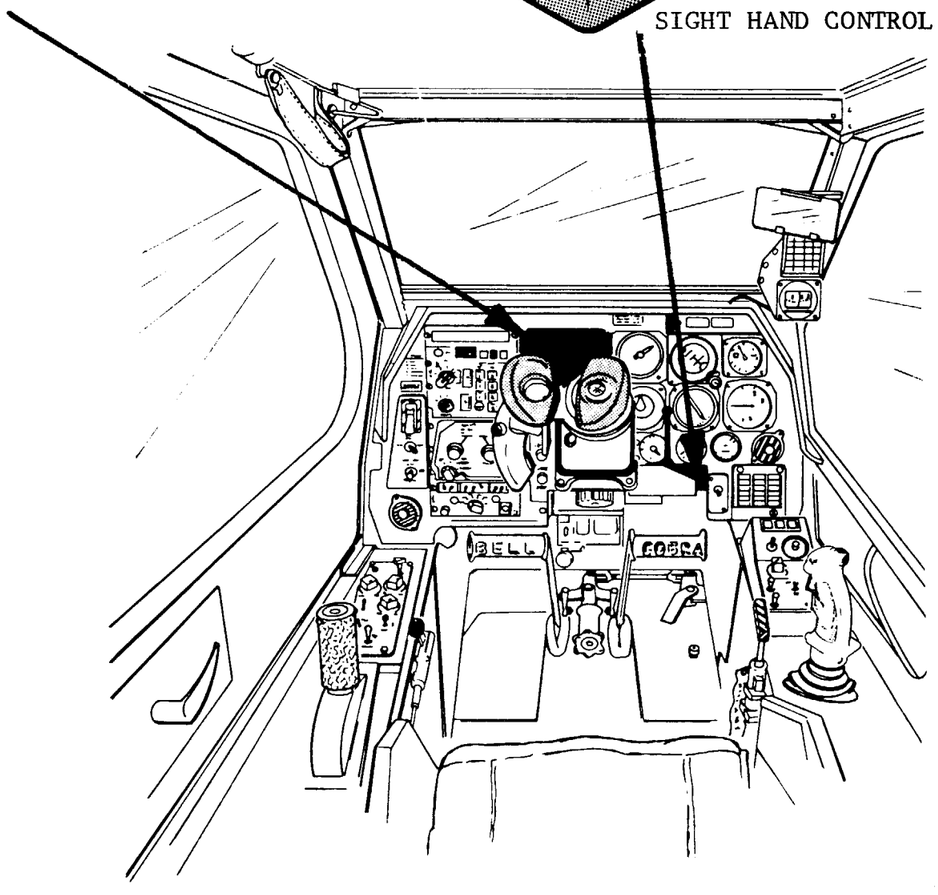
PILOT ARMT CONTROL PANEL



TCP (TOW CONTROL PANEL)

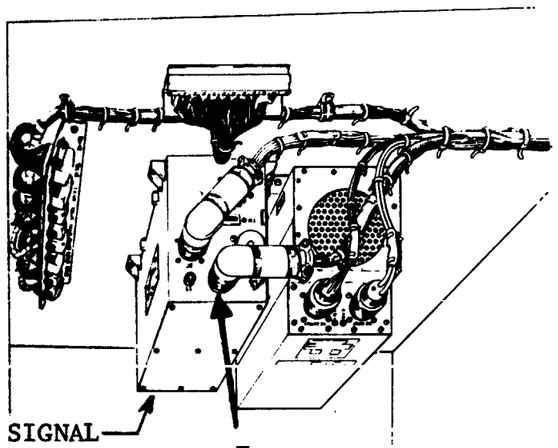

PILOT STATION

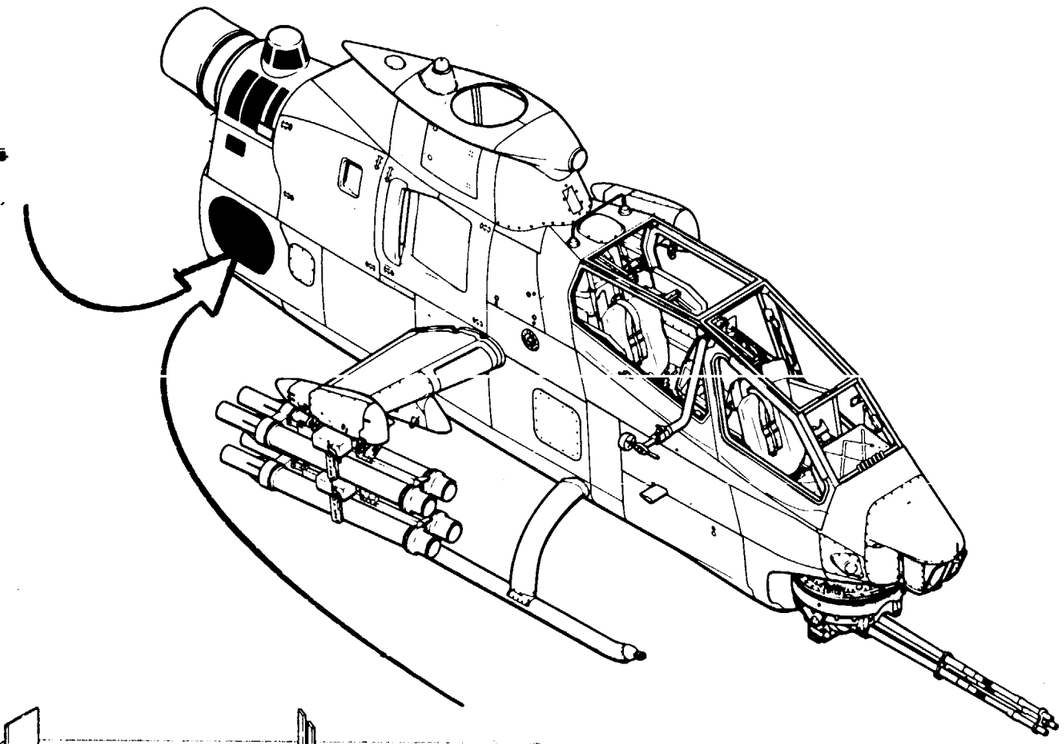


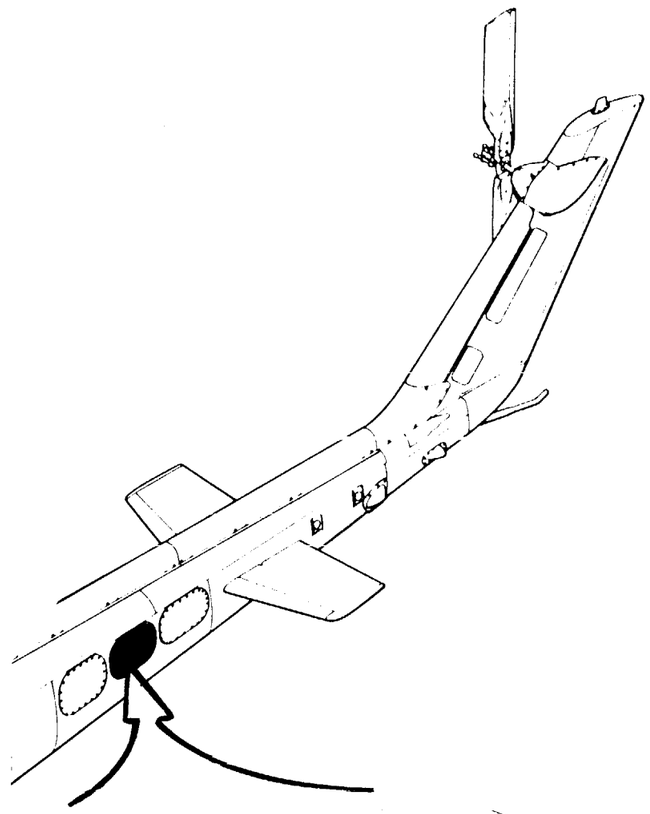


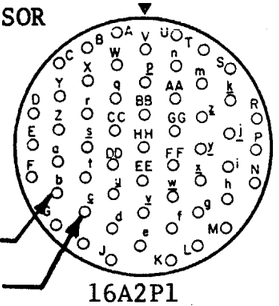
GUNNER STATION

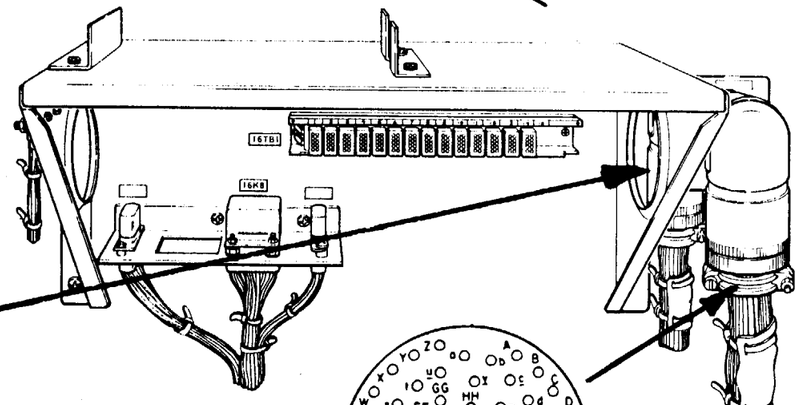
2-19. LINE-OF-SIGHT RETICLE DOES NOT MOVE IN ELEVATION WITH "L" PRECEDING RANGE NUMERIC (CONTINUED).

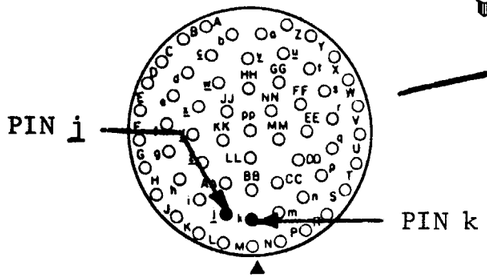


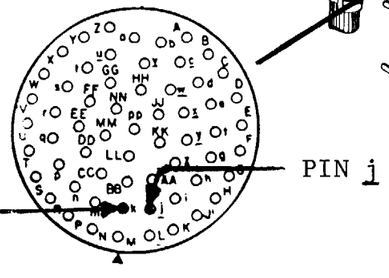


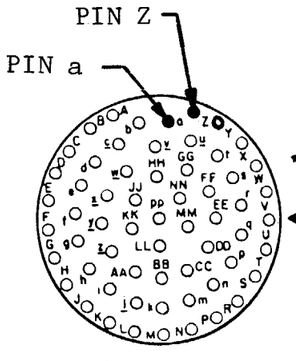


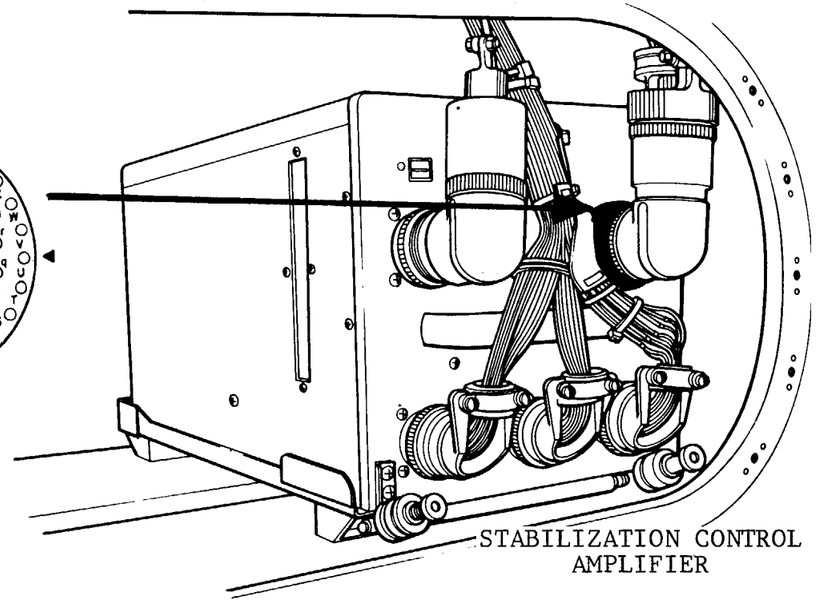












2-19. LINE-OF-SIGHT RETICLE DOES NOT MOVE IN ELEVATION WITH "L" PRECEDING RANGE NUMERIC (CONTINUED).

On pilot ARMT control panel:

Set MASTER ARM switch to STBY.

On TCP (TOW control panel):

Set MODE SELECT switch to STBY TOW.

On sight hand control:

Set ACQ/TRK/STOW switch to TRK.

Turn off electrical power per paragraph 2-3.

Connect digital voltmeter to read dc voltage between 16A2P1-b (+) and 16A2P1-c (-).

Turn on electrical power per paragraph 2-3.

Position track control stick on sight hand control to drive telescopic sight unit in elevation from center to up and observe that voltage increases.

Does voltage increase?

YES → Turn off electrical power per paragraph 2-3.

Replace signal processor per TM 9-1270-220-13, Chapter 3, Section I.

Then go to paragraph 2-2.

NO → Turn off electrical power per paragraph 2-3.

Check for continuity from 20A2P04-a to 20J327-j.

Is continuity present?

YES → Check for continuity from 20A2P04-Z to 20J327-k.

Is continuity present?

YES → Check for continuity from 16A2P1-c to 20P327-j.

Is continuity present?

YES → Check for continuity from 16A2P1-b to 20P327-k.

Is continuity present?

YES →

NO → Repair wire TG301B22(BLU) between 20A2P04-a and 20J327-j.

Then continue troubleshooting.

NO → Repair wire TG301B22 (WHT) between 20A2P04-Z and 20J327-k.

Then go to paragraph 2-2.

NO → Repair wire TG301A22 (BLU) between 16A2P1-c and 20P327-j.

Then continue troubleshooting.

NO → Repair wire TG301A22 (WHT) between 16A2P1-b and 20P327-k.

Then go to paragraph 2-2.

2-19. LINE-OF-SIGHT RETICLE DOES NOT MOVE IN ELEVATION WITH "L" PRECEDING RANGE NUMERIC (CONTINUED).

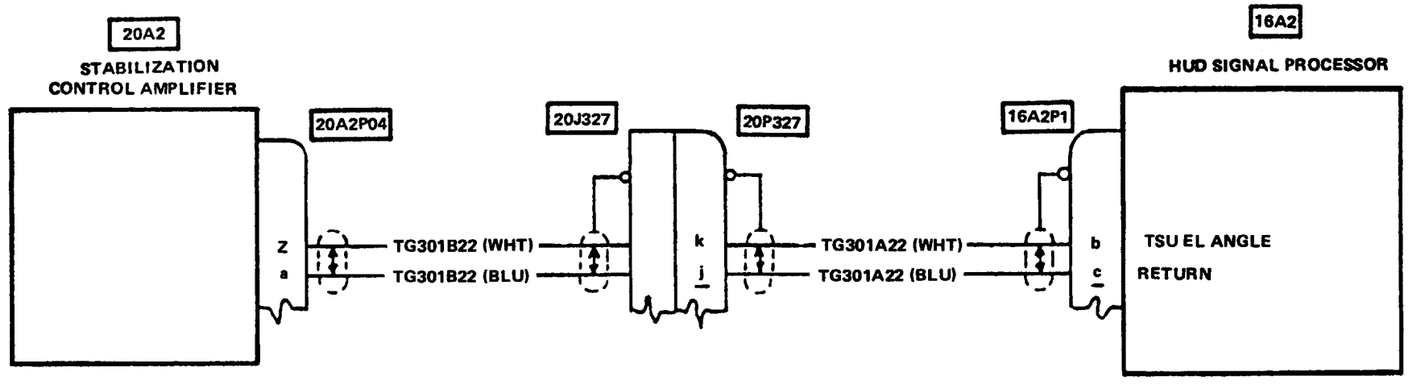
YES →

Replace stabilization control amplifier per TM 9-1425-473-20, Chapter 2, Section V.

Then go to paragraph 2-2.

NOTE

Perform TOW missile system operational check per paragraph 8-2 after replacement of stabilization control amplifier.



2-20. COARSE AZIMUTH POINTER DOES NOT MOVE WITH "L" PRECEDING RANGE NUMERIC.

INITIAL SETUP

Applicable Configuration
All

Tools/Test and Support Equipment
Multimeter

Digital Voltmeter

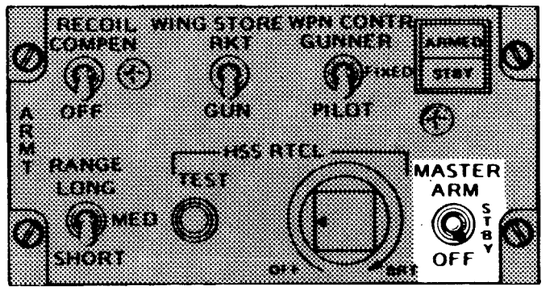
Tool Set, A/C Armament Repairman

Personnel Required
68J (2)

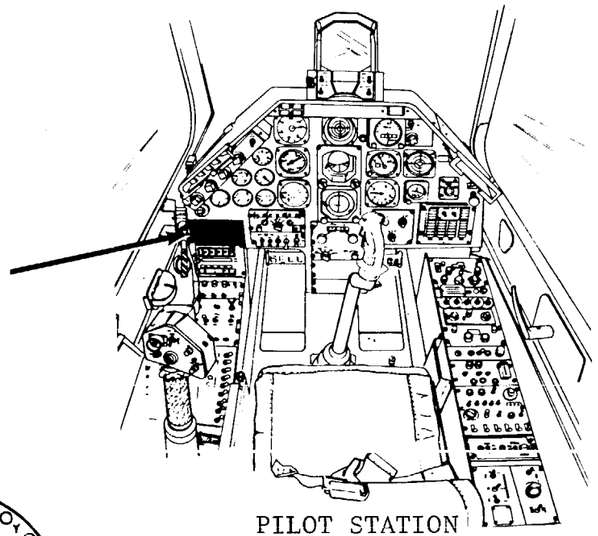
References
TM 9-1270-220-13
TM 9-1425-473-20

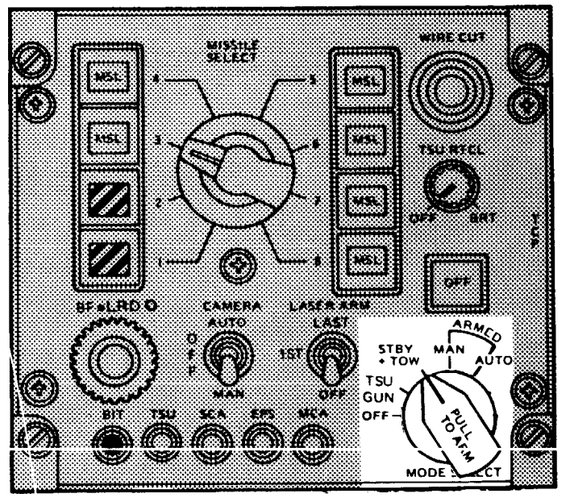
Access Panels
Battery Compartment - Removed

Middle Electronics (Tailboom) - Removed

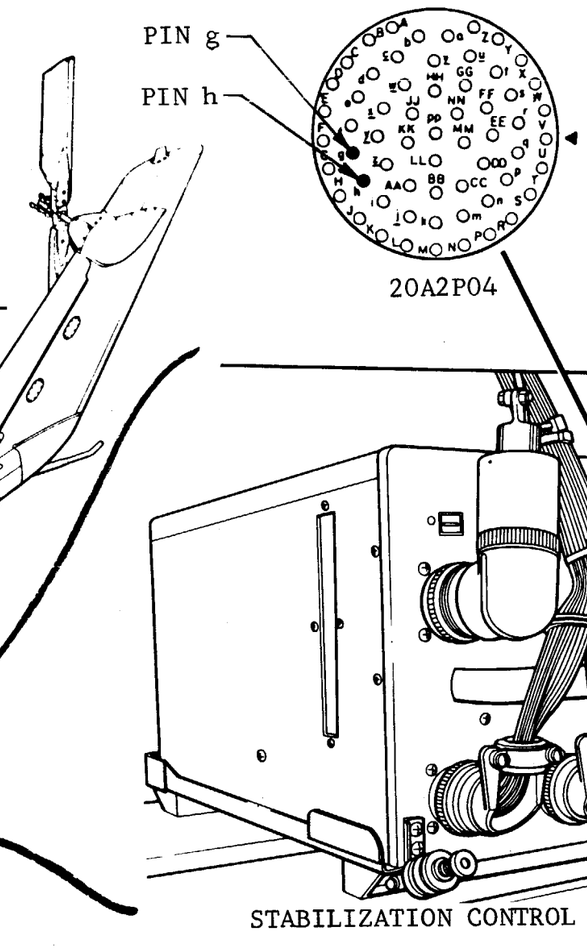


PILOT ARMT CONTROL PANEL

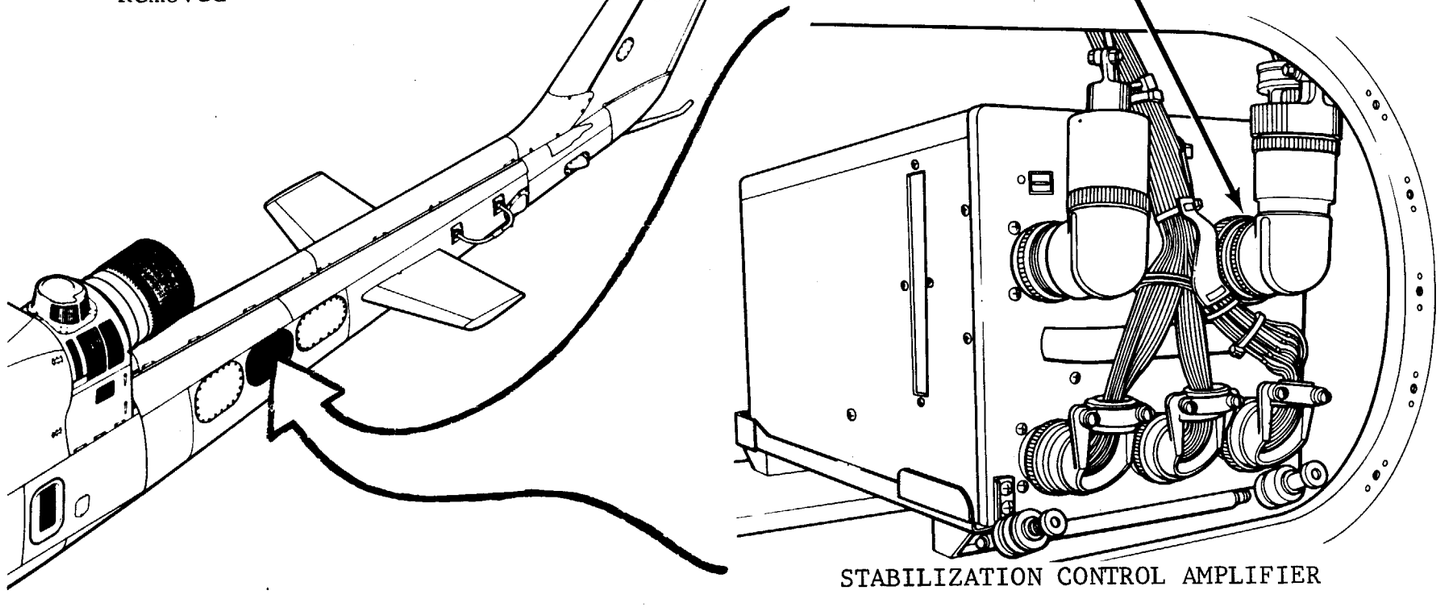

PILOT STATION

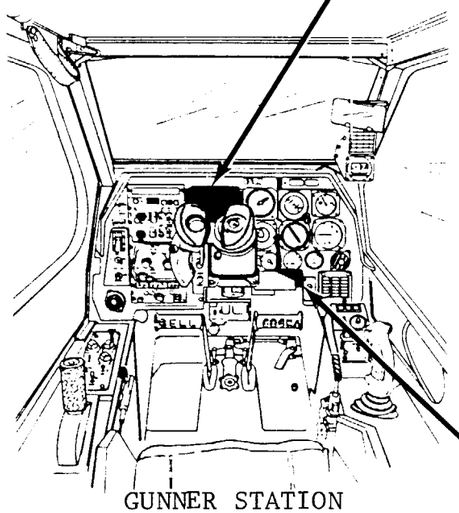


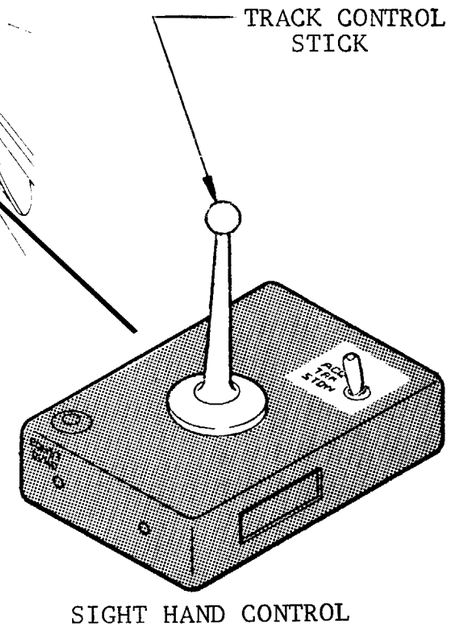
TCP (TOW CONTROL PANEL)



20A2P04

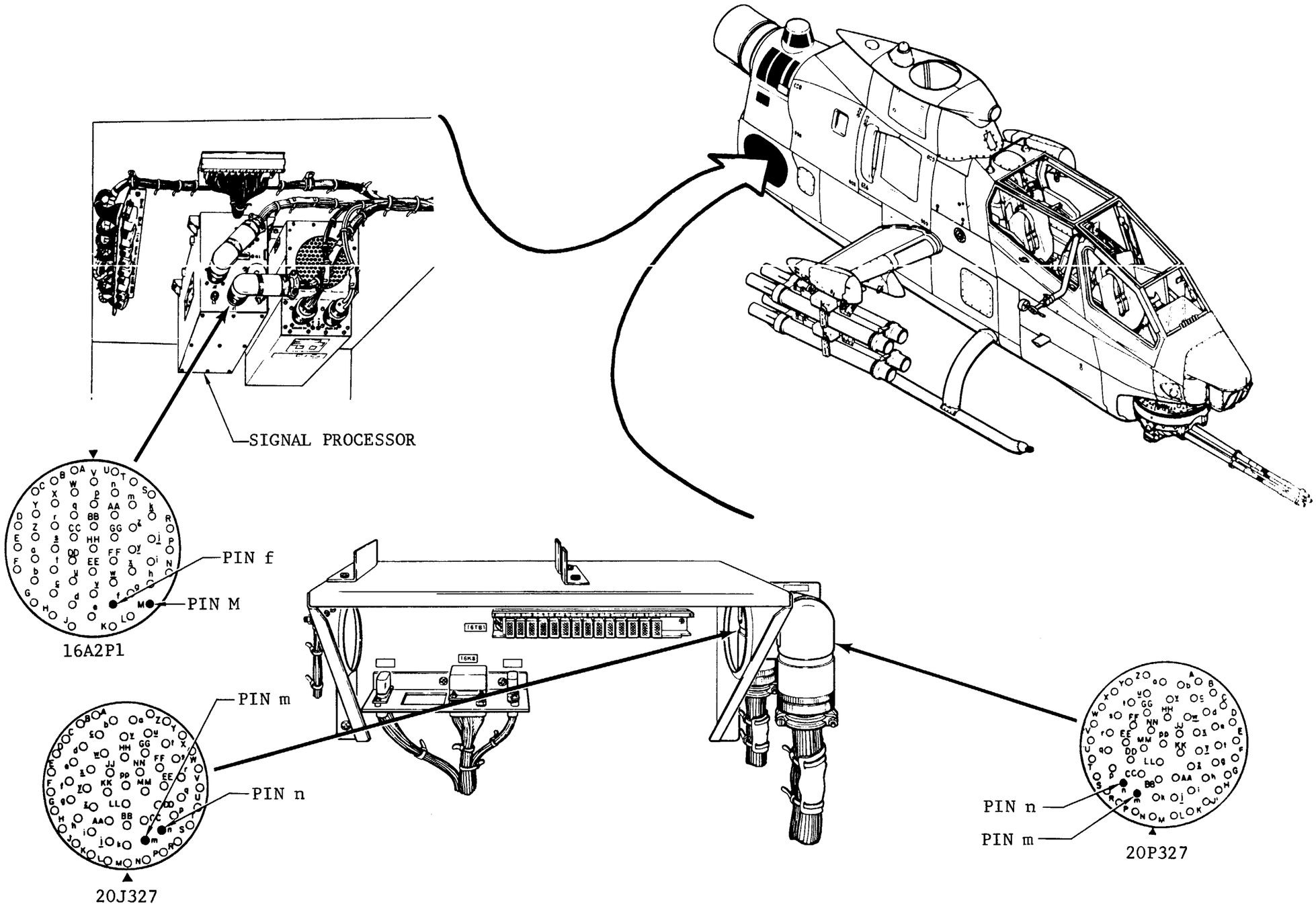

STABILIZATION CONTROL AMPLIFIER


GUNNER STATION



SIGHT HAND CONTROL

2-20. COARSE AZIMUTH POINTER DOES NOT MOVE WITH "L" PRECEDING RANGE NUMERIC (CONTINUED).



2-20. COARSE AZIMUTH POINTER DOES NOT MOVE WITH "L" PRECEDING RANGE NUMERIC (CONTINUED).

On pilot ARMT control panel:

Set MASTER ARM switch to STBY.

On TCP (TOW control panel):

Set MODE SELECT switch to STBY TOW.

On sight hand control:

Set ACQ/TRK/STOW switch to TRK.

Turn off electrical power per paragraph 2-3.

Connect digital voltmeter to read dc voltage between 16A2P1-f (+) and 16A2P1-M (-).

Turn on electrical power per paragraph 2-3.

Position track control stick on sight hand control to drive telescopic sight unit in azimuth from center to the right and observe that voltage increases.

Does voltage increase?

YES → Turn off electrical power per paragraph 2-3.

Replace signal processor per TM 9-1270-220-13, Chapter 3, Section I.

Then go to paragraph 2-2.

NO

Turn off electrical power per paragraph 2-3.

Check for continuity from 20A2P04-h to 20J327-m.

Is continuity present?

YES → Check for continuity from 20J327-n to 20A2P04-g.

Is continuity present?

YES → Check for continuity from 16A2P1-M to 20P327-m.

Is continuity present?

YES → Check for continuity from 20P327-n to 16A2P1-f.

Is continuity present?

YES →

NO

Repair wire TG309B22 (BLU) between 20A2P04-h and 20J327-m.

Then continue troubleshooting.

NO

Repair wire TG309B22 (WHT) between 20J327-n and 20A2P04-g.

Then go to paragraph 2-2.

NO

Repair wire TG309A22 (BLU) between 16A2P1-M and 20P327-m.

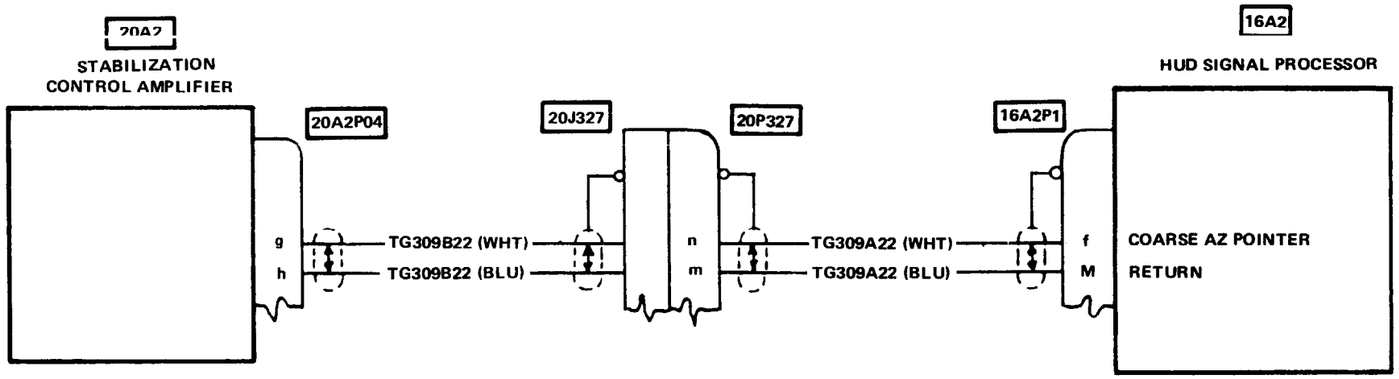
Then continue troubleshooting.

NO

Repair wire TG309A22 (WHT) between 20P327-n and 16A2P1-f.

Then go to paragraph 2-2.

2-20. COARSE AZIMUTH POINTER DOES NOT MOVE WITH "L" PRECEDING RANGE NUMERIC (CONTINUED).



YES →

Replace stabilization control amplifier per TM 9-1425-473-20, Chapter 2, Section V.

Then go to paragraph 2-2.

NOTE

Perform TOW missile system operational check per paragraph 8-2 after replacing stabilization control amplifier.

2-21. RADAR ALTITUDE UPPER LIMIT ARROW NOT DISPLAYED ON HUD.

INITIAL SETUP

Applicable Configuration
All

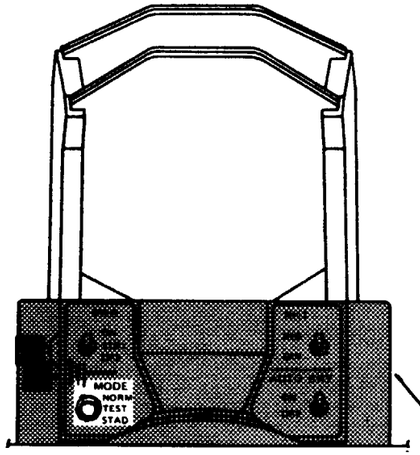
Tools/Test and Support Equipment
Multimeter

Tool Set, A/C Armament Repairman

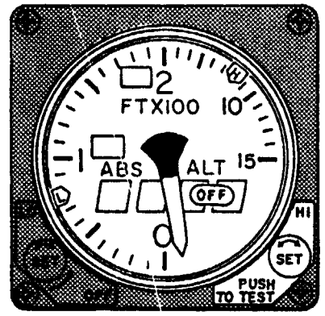
Personnel Required
68J (2)

References
TM 9-1270-220-13
TM 11-1520-236-20
TM 11-1520-236-34
TM 55-1520-236-23

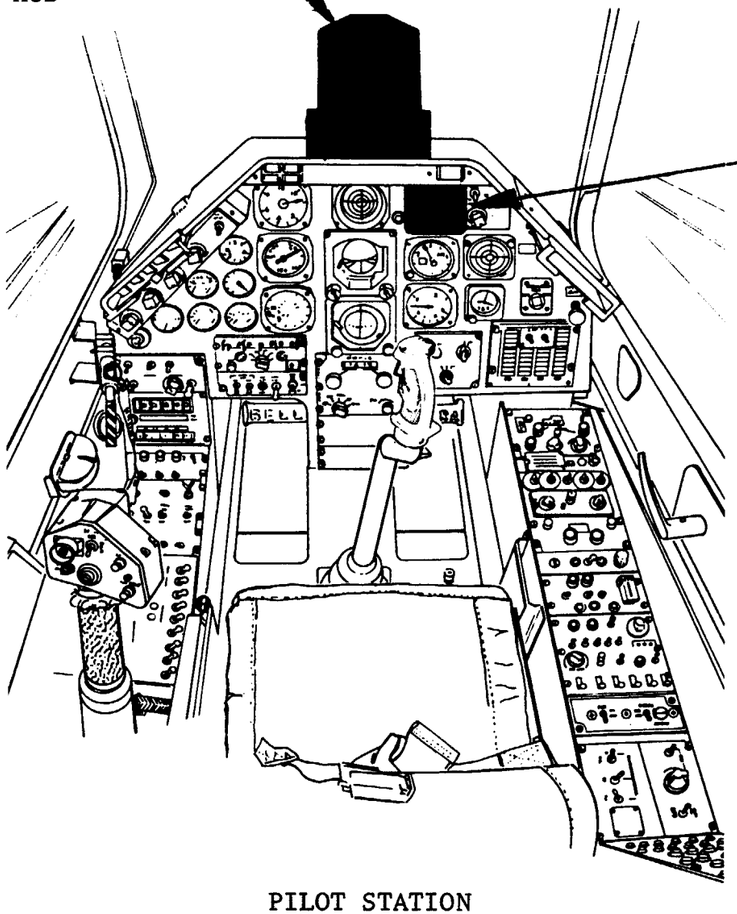
Access Panels
Battery Compartment - Removed

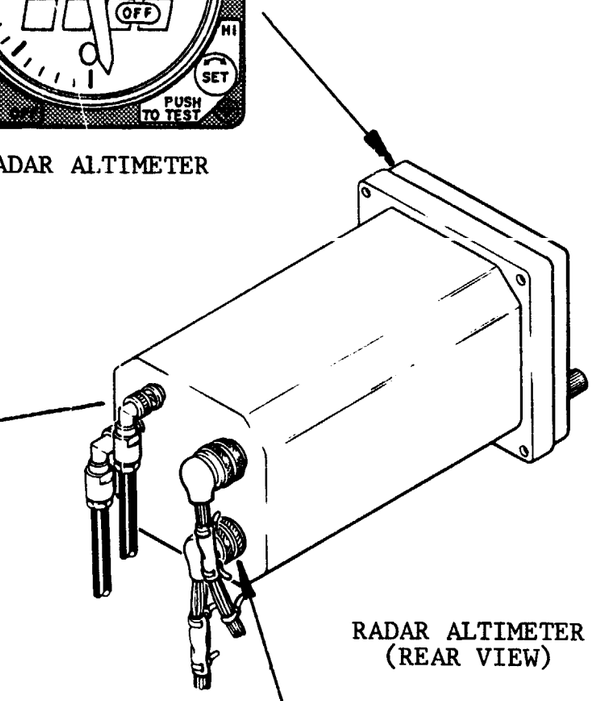


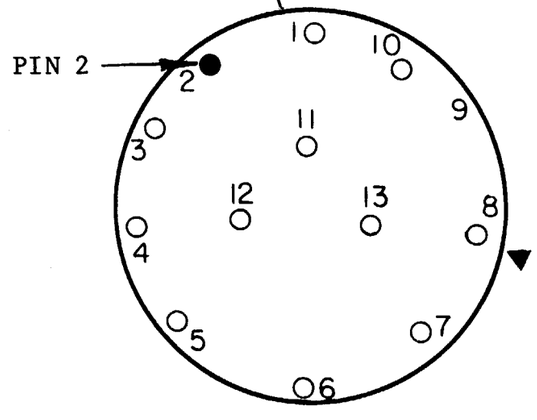
HUD



RADAR ALTIMETER

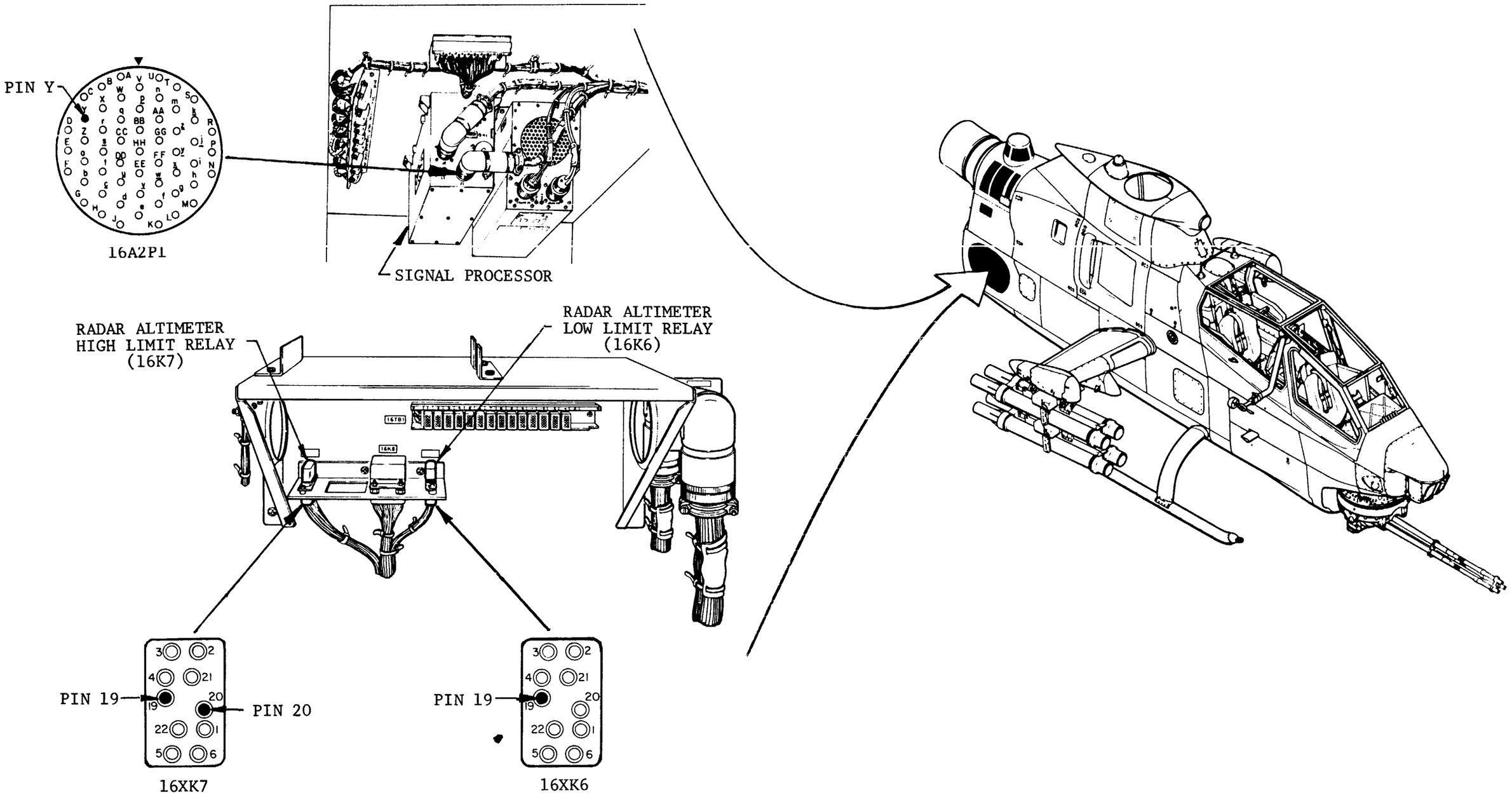

PILOT STATION


RADAR ALTIMETER (REAR VIEW)



3408DS1P1

2-21. RADAR ALTITUDE UPPER LIMIT ARROW NOT DISPLAYED ON HUD (CONTINUED).



2-21. RADAR ALTITUDE UPPER LIMIT ARROW NOT DISPLAYED ON HUD (CONTINUED).

On HUD:

Set MODE switch to TEST.

Does upper limit arrow appear on HUD?

YES

Perform radar altimeter self test procedure per TM 11-1520-236-34, Chapter 3, Section II.

Did radar altimeter pass self test?

YES

Turn off electrical power per paragraph 2-3.

Disconnect 16A2P1.

Turn on electrical power per paragraph 2-3.

CAUTION

28 V DC IS PRESENT ON 16A2P1.

Press and hold radar altimeter PUSH TO TEST switch while checking for continuity from 16A2P1-Y to airframe ground.

Is continuity present?

YES

Turn off electrical power per paragraph 2-3.

Replace signal processor per TM 9-1270-220-13, Chapter 3, Section I.

Then go to paragraph 2-2.

NO

Troubleshoot HUDS per TM 9-1270-220-13, Chapter 3, Section V.

Then go to paragraph 2-2.

NO

Troubleshoot radar altimeter per TM 11-1520-236-34, Chapter 3, Section II.

Then go to paragraph 2-2.

NO

Turn off electrical power per paragraph 2-3.

Connect 16A2P1.

Remove radar altimeter high limit relay (16K7) per TM 55-1520-236-23, Chapter 9, Section I.

Turn on electrical power per paragraph 2-3.

Check for 28 V dc at 16XK7-19.

Is 28 V dc present?

YES

NO

Turn off electrical power per paragraph 2-3.

Remove radar altimeter low limit relay (16K6) per TM 55-1520-236-23, Chapter 9, Section I.

Turn on electrical power per paragraph 2-3.

Check for 28 V dc at 16XK6-19.

Is 28 V dc present?

YES

Turn off electrical power per paragraph 2-3.

Repair wire A1138F22 between 16XK7-19 and splice.

Install radar altimeter low limit relay (16K6) and radar altimeter high limit relay (16K7) per TM 55-1520-236-23, Chapter 9, Section I.

Then go to paragraph 2-2.

NO

Turn off electrical power per paragraph 2-3.

Repair wire A1138E22 between splices.

Install radar altimeter low limit relay (16K6) and radar altimeter high limit relay (16K7) per TM 55-1520-236-23, Chapter 9, Section I.

Then go to paragraph 2-2.

2-21. RADAR ALTITUDE UPPER LIMIT ARROW NOT DISPLAYED ON HUD (CONTINUED).

CAUTION

28 V DC IS PRESENT ON 16XK7-19.

Press and hold radar altimeter PUSH TO TEST switch while checking for continuity from 16XK7-20 to airframe ground.

Is continuity present?

YES → Turn off electrical power per paragraph 2-3.

Replace radar altimeter high limit relay (16K7) per TM 55-1520-236-23, Chapter 9, Section I.

Then go to paragraph 2-2.

NO ↓

Turn off electrical power per paragraph 2-3.

Check for continuity from 16XK7-20 to 3408DS1P1-2.

Is continuity present?

YES → Replace radar altimeter per TM 11-1520-236-20, Chapter 2, Section IV.

Install radar altimeter high limit relay (16K7) per TM 55-1520-236-23, Chapter 9, Section I.

Then go to paragraph 2-2.

NO ↓

Check for continuity from 16XK7-20 to splice located close to 3408DS1P1-2.

Is continuity present?

YES → Replace connector 3408DS1P1.

Install radar altimeter high limit relay (16K7) per TM 55-1520-236-23, Chapter 9, Section I.

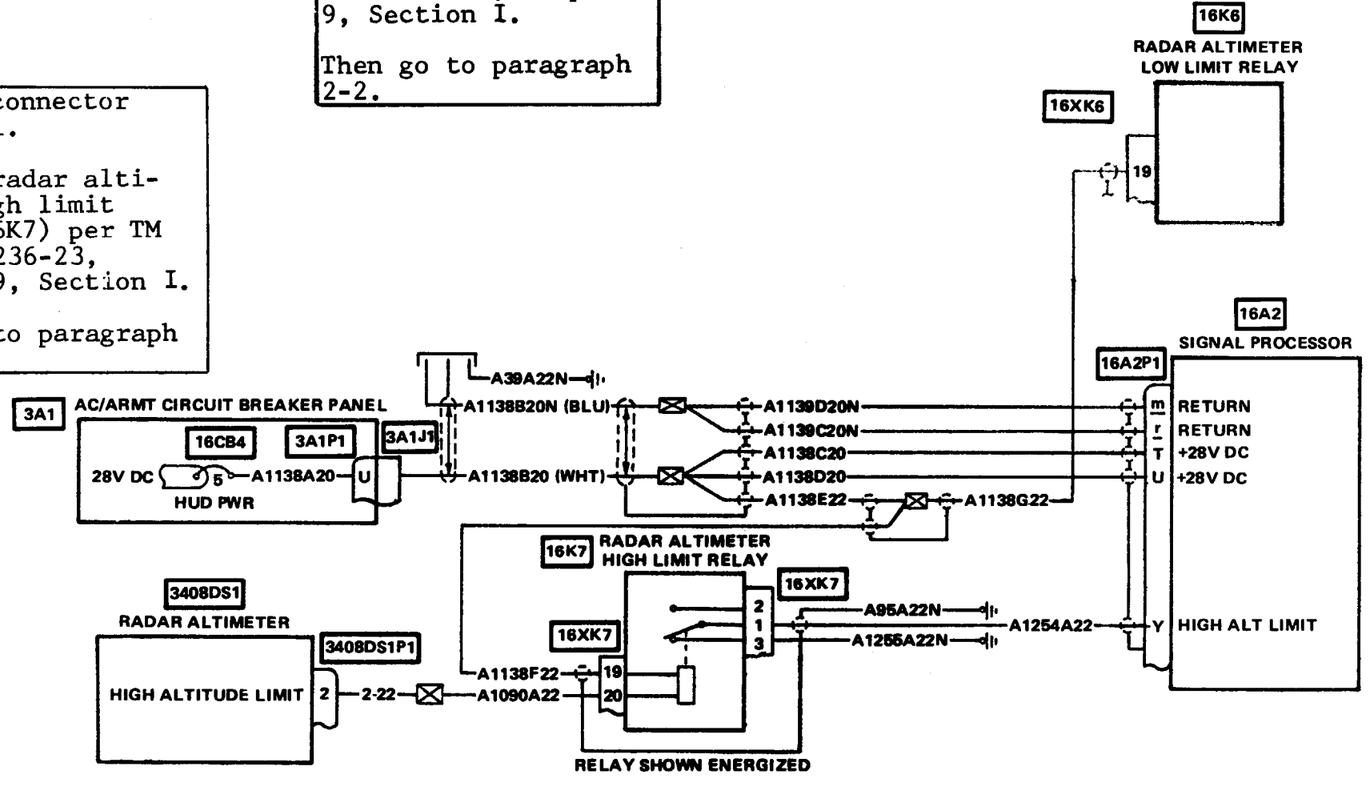
Then go to paragraph 2-2.

NO ↓

Repair wire A1090A22 between 16XK7-20 and splice located close to 3408DS1P1-2.

Install radar altimeter high limit relay (16K7) per TM 55-1520-236-23, Chapter 9, Section I.

Then go to paragraph 2-2.



2-22. RADAR ALTITUDE LOWER LIMIT ARROW NOT DISPLAYED ON HUD.

INITIAL SETUP

Applicable Configuration
All

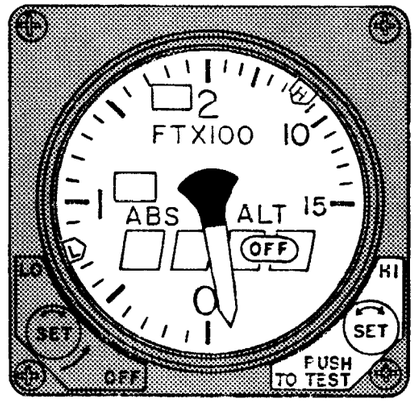
Tools/Test and Support Equipment
Multimeter

Tool Set, A/C Armament Repairman

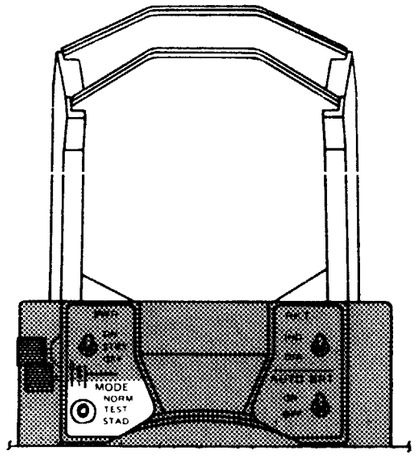
Personnel Required
68J (2)

References
TM 9-12/0-220-13
TM 11-1520-236-20
TM 11-1520-236-34
TM 55-1520-236-23

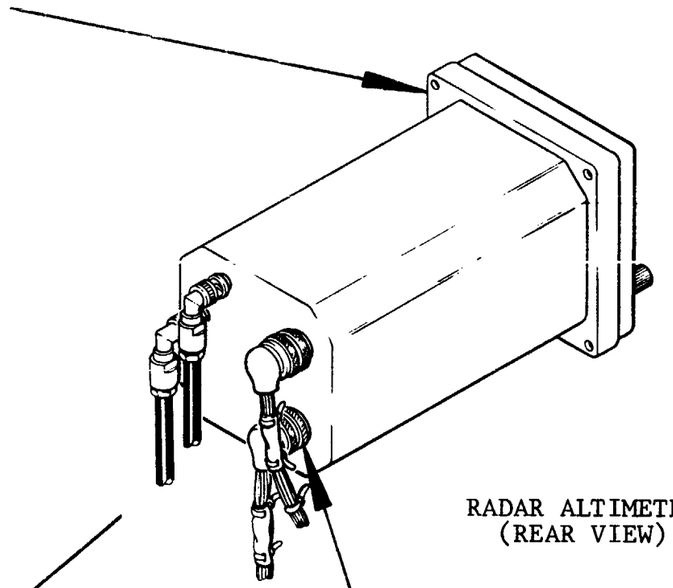
Access Panels
Battery Compartment - Removed



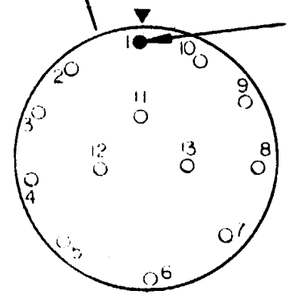
RADAR ALTIMETER



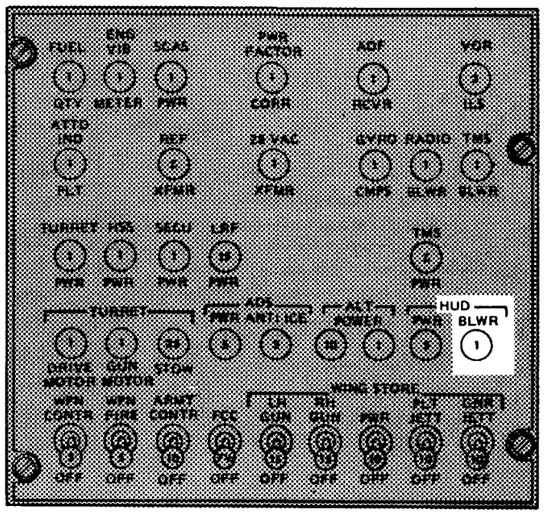
HUD



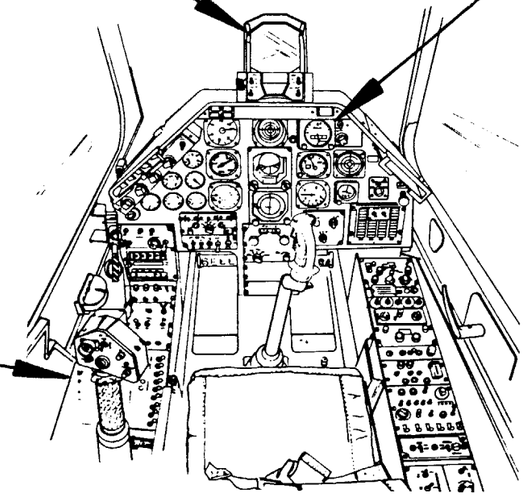
RADAR ALTIMETER (REAR VIEW)



3408DS1P1

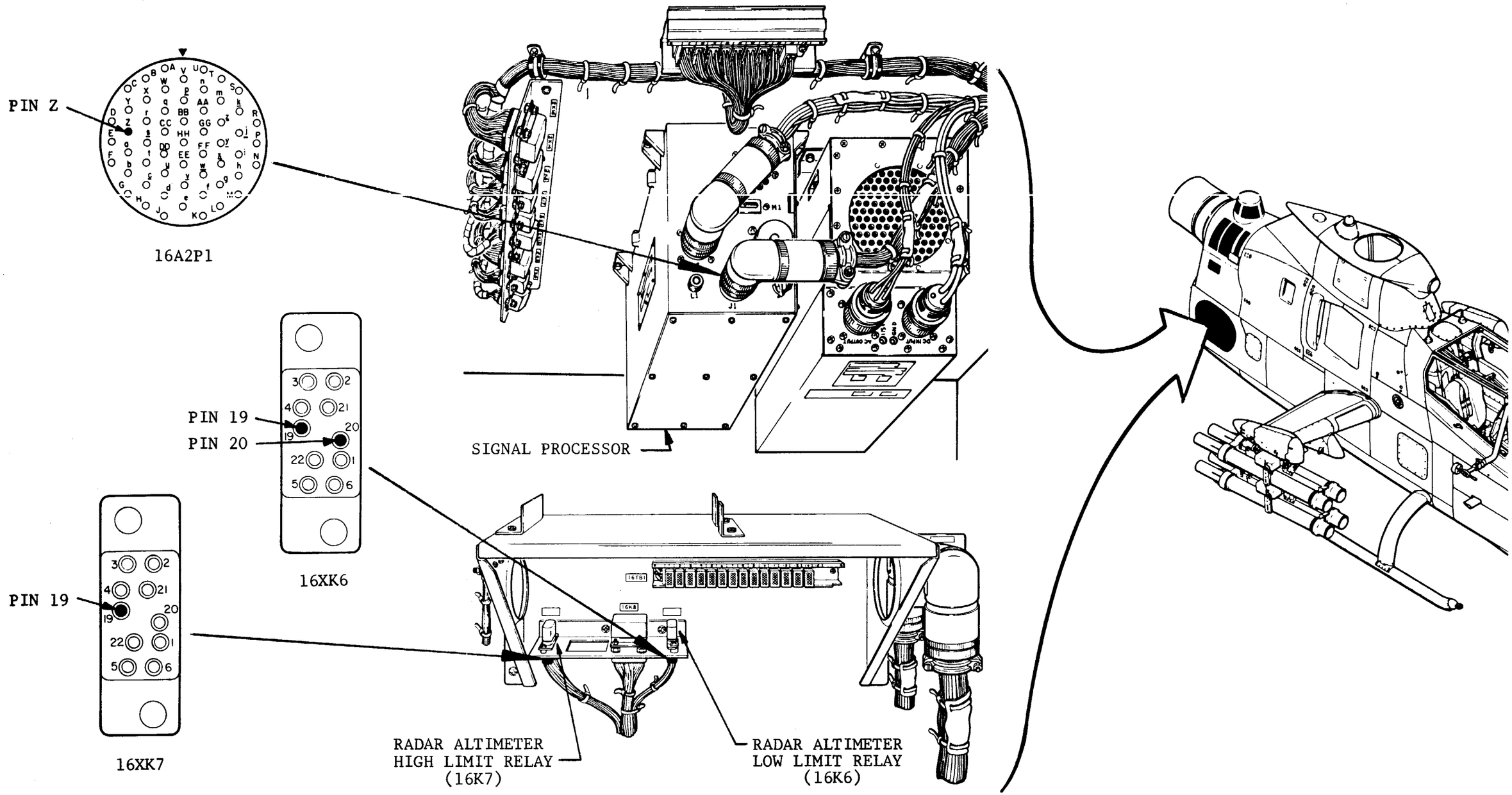


AC/ARMT CIRCUIT BREAKER PANEL



PILOT STATION

2-22. RADAR ALTITUDE LOWER LIMIT ARROW NOT DISPLAYED ON HUD (CONTINUED).



2-22. RADAR ALTITUDE LOWER LIMIT ARROW NOT DISPLAYED ON HUD (CONTINUED).

On HUD:

Set MODE switch to TEST.

Does LOWER LIMIT arrow smear on HUD?

YES

Perform radar altimeter self test procedure per TM 11-1520-236-34, Chapter 3, Section II

Did radar altimeter pass self test?

YES

Turn off electrical power per paragraph 2-3.

On AC/ARMT circuit breaker panel:

Open HUD BLWR circuit breaker.

Disconnect 16A2P1.

Turn on electrical power per paragraph 2-3.

CAUTION

28V DC IS PRESENT ON 16A2P1.

Check for continuity from 16A2P1-Z to airframe ground.

Is continuity present?

YES

Turn off electrical power per paragraph 2-3.

Replace signal processor per TM 9-1270-220-13, Chapter 3, Section I.

Then go to paragraph 2-2.

NO

Troubleshoot radar altimeter per TM 11-1520-236-34, Chapter 3, Section II.

Then go to paragraph 2-2.

NO

Troubleshoot HUDS per TM 9-1270-220-13, Chapter 3, Section V.

Then go to paragraph 2-2.

NO

Turn off electrical power per paragraph 2-3.

Connect 16A2P1.

Close HUD BLWR circuit breaker.

Remove radar altimeter low limit relay (16K6) perTM 55-1520-236-23, Chapter 9, Section I.

Turn on electrical power per paragraph 2-3.

Check for 28 V dc at 16XK6-19.

Is 28 V dc present?

YES

NO

2-22. RADAR ALTITUDE LOWER LIMIT ARROW NOT DISPLAYED ON HUD (CONTINUED).

CAUTION

28V DC IS PRESENT ON 16XK6-19.

Check for continuity from 16XK6-20 to airframe ground.
Is continuity present?

YES → Turn off electrical power per paragraph 2-3.

Replace radar altimeter low limit relay (16K6) per TM 55-1520-236-23, Chapter 9, Section I.

Then go to paragraph 2-2.

NO ↓

Turn off electrical power per paragraph 2-3.

Check for continuity from 16XK6-20 to 3408DS1P1-1.

Is continuity present?

YES → Replace radar altimeter per TM 11-1520-236-20, Chapter 2, Section IV.

Install radar altimeter low limit relay (16K6) per TM 55-1520-236-23, Chapter 9, Section I.

Then go to paragraph 2-2.

NO ↓

Check for continuity from 16XK6-20 to splice located close to 3408DS1P1-1.

Is continuity present?

YES → Replace connector 3408DS1P1.

Install radar altimeter low limit relay (16K6) per TM 55-1520-236-23, Chapter 9, Section I.

Then go to paragraph 2-2.

NO ↓

Repair wire A1089A22 between 16XK6-20 and splice located close to 3408DS1P1-1.

Install radar altimeter low limit relay (16K6) per TM 55-1520-236-23, Chapter 9, Section I.

Then go to paragraph 2-2.

YES ↑

Turn off electrical power per paragraph 2-3.

Remove radar altimeter high limit relay (16K7) per TM 55-1520-236-23, Chapter 9, Section I.

Turn on electrical power per paragraph 2-3.

Check for 28 V dc at 16XK7-19.

Is 28 V dc present?

YES → Turn off electrical power per paragraph 2-3.

Repair wire A1138G22 between 16XK6-19 and splice.

Install radar altimeter low limit relay (16K6) and radar altimeter high limit relay (16K7) per TM 55-1520-236-23, Chapter 9, Section I.

Then go to paragraph 2-2.

NO ↓

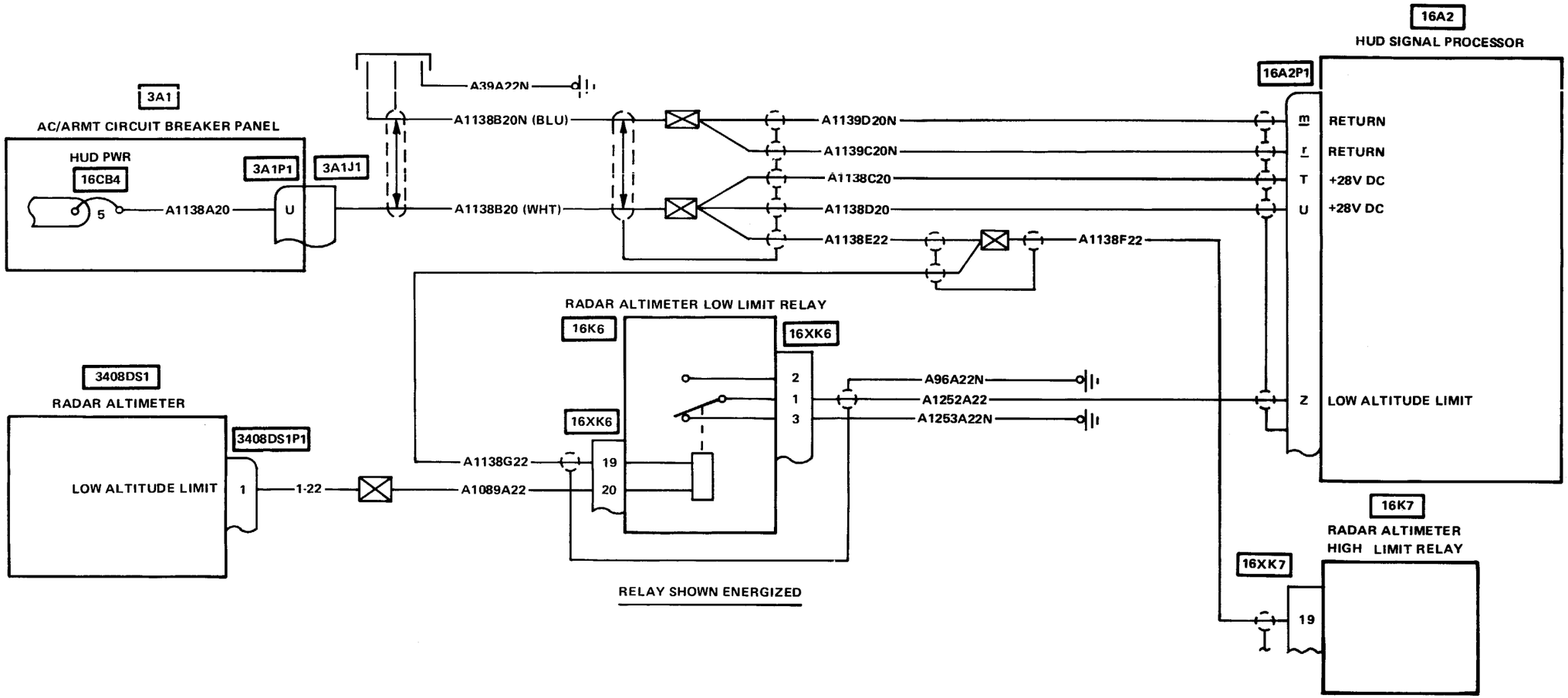
Turn off electrical power per paragraph 2-3.

Repair wire A1138E22 between splices.

Install radar altimeter low limit relay (16K6) and radar altimeter high limit relay (16K7) per TM 55-1520-236-23, Chapter 9, Section I.

Then go to paragraph 2-2.

2-22. RADAR ALTITUDE LOWER LIMIT ARROW NOT DISPLAYED ON HUD (CONTINUED).



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2-23. RADAR ALTITUDE UPPER LIMIT ARROW APPEARS WHEN IT SHOULD NOT.

INITIAL SETUP

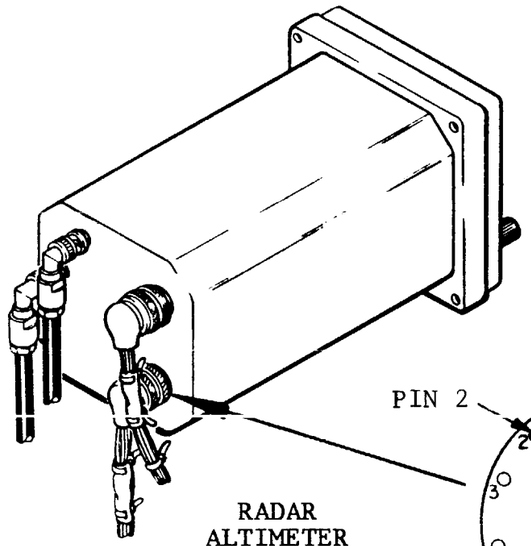
Applicable Configuration
All

Tools/Test and Support Equipment
Multimeter
Tool Set, A/C Armament Repairman

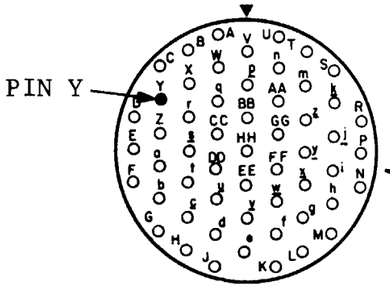
Personnel Required
68J (2)

References
TM 9-1270-220-13
TM 11-1520-236-34
TM 55-1520-236-23

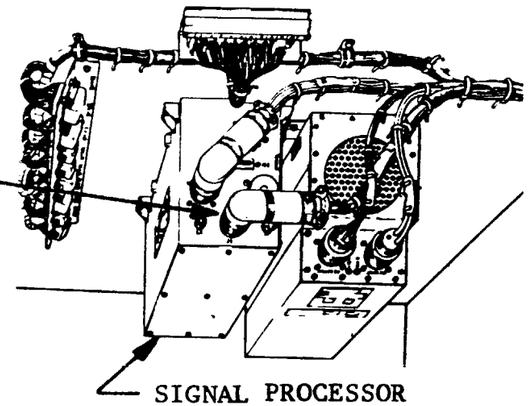
Access Panels
Battery Compartment - Removed



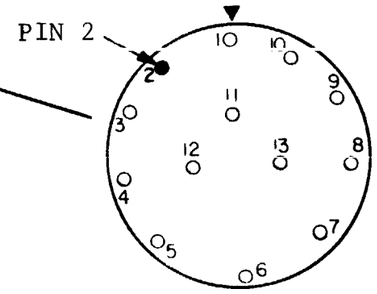
RADAR ALTIMETER (REAR VIEW)



16A2P1

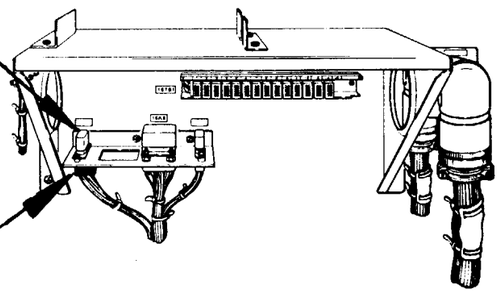


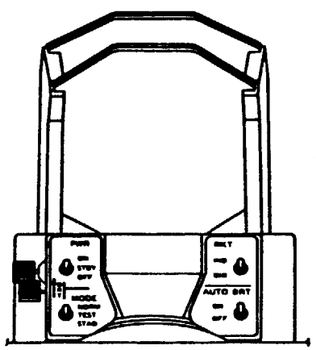
SIGNAL PROCESSOR



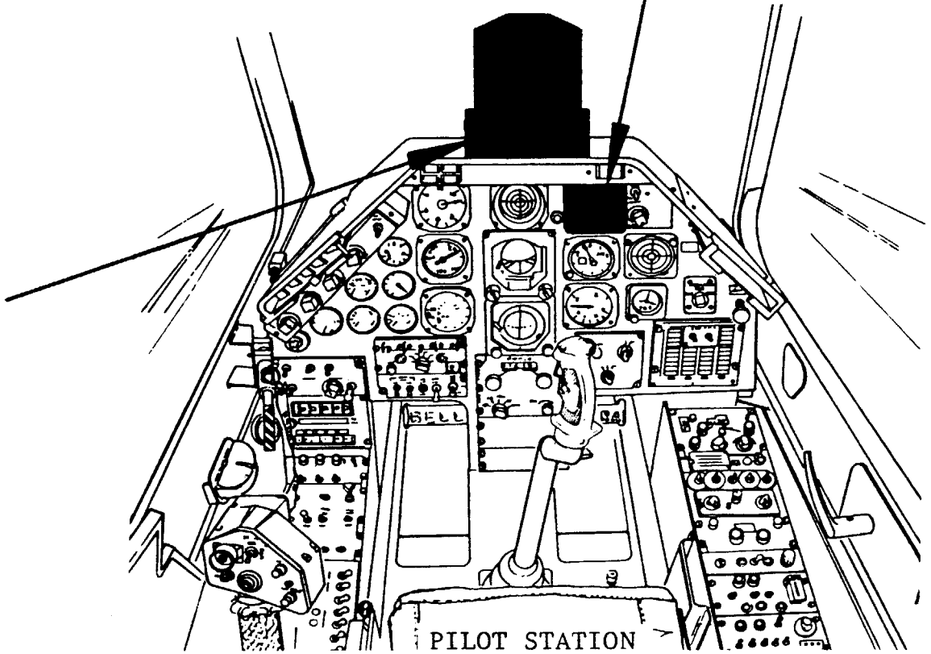
3408DS1P1

RADAR ALTIMETER HIGH LIMIT RELAY (16K7)

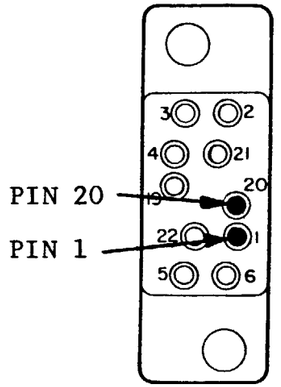




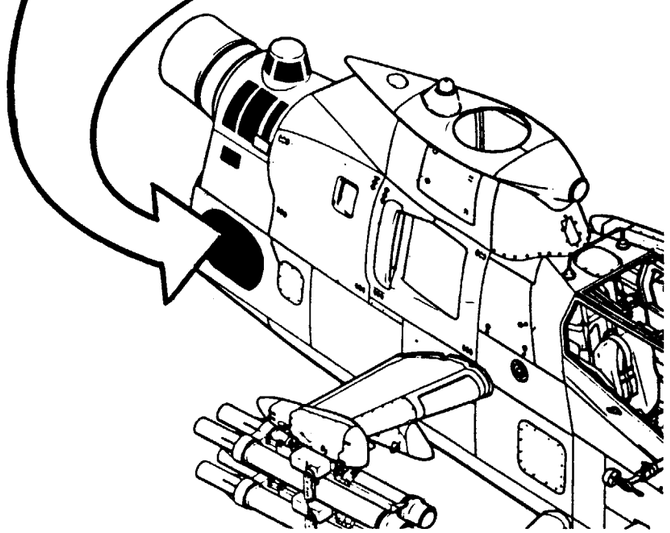
HUD



PILOT STATION



16XK7



2-23. RADAR ALTITUDE UPPER LIMIT ARROW APPEARS WHEN IT SHOULD NOT (CONTINUED).

On radar altimeter:

Perform radar altimeter self-test procedure per TM 11-1520-236-34, Chapter 3, Section II.

Does radar altimeter pass self-test?

YES → Turn off electrical power per paragraph 2-3.

Remove radar altimeter high limit relay (16K7) per TM 55-1520-236-23, Chapter 9, Section I.

Turn on electrical power per paragraph 2-3.

Is upper limit arrow still present on HUD?

YES → Turn off electrical power per paragraph 2-3.

Check for continuity from 16A2P1-Y to airframe ground.

Is continuity present?

YES → Repair wire A1254A22 between 16XK7-1 and 16A2P1-Y to eliminate short.

Install radar altimeter high limit relay (16K7) per TM 55-1520-236-23, Chapter 9, Section I.

Then go to paragraph 2-2.

NO → Troubleshoot radar altimeter per TM 11-1520-236-34, Chapter 3, Section II.

Then go to paragraph 2-2.

NO → Replace signal processor per TM 9-1270-220-13, Chapter 3, Section I.

Install radar altimeter high limit relay (16K7) per TM 55-1520-236-23, Chapter 9, Section I.

Then go to paragraph 2-2.

NO → Turn off electrical power per paragraph 2-3.

Check for continuity from 16XK7-20 to airframe ground.

Is continuity presnet?

YES → Disconnect 3408DS1P1.

Check for continuity from 16XK7-20 to airframe ground.

Is continuity present?

YES → Remove splice between 16XK7-20 and 3408DS1P1-2.

Check for continuity from 16XK7-20 to airframe ground.

Is continuity present?

YES → Repair wire A1090A22 between 16XK7-20 and splice located close to 3408DS1P1-2 to eliminate short.

Connect 3408DS1P1.

Install radar altimeter high limit relay (16K7) per TM 55-1520-236-23, Chapter 9, Section I.

Then go to paragraph 2-2.

NO → Replace connector 3408DS1P1.

Install radar altimeter high limit relay (16K7) per TM 55-1520-236-23, Chapter 9, Section I.

Then go to paragraph 2-2.

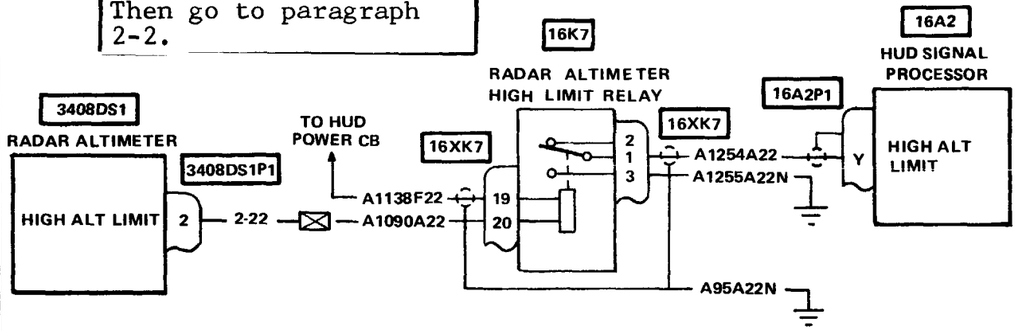
NO → Replace radar altimeter high limit relay (16K7) per TM 55-1520-236-23, Chapter 9, Section I.

Then go to paragraph 2-2.

NO → Replace radar altimeter per TM 11-1520-236-20, Chapter 2, Section IV.

Install radar altimeter high limit relay (16K7) per TM 55-1520-236-23, Chapter 9, Section I.

Then go to paragraph 2-2.



2-24. RADAR ALTITUDE LOWER LIMIT ARROW APPEARS WHEN IT SHOULD NOT.

INITIAL SETUP

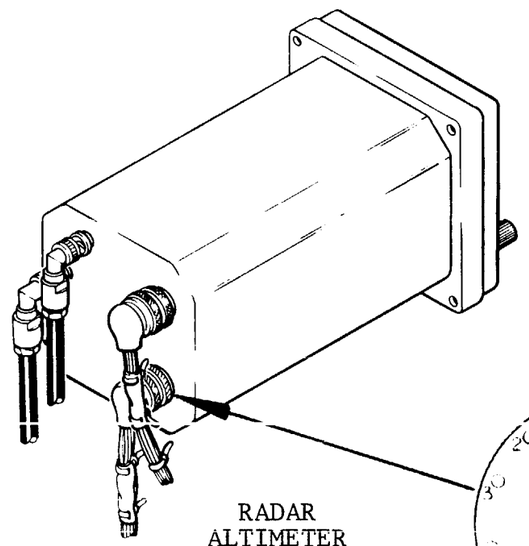
Applicable Configuration
All

Tools/Test and Support Equipment
Multimeter
Tool Set, A/C Armament Repairman

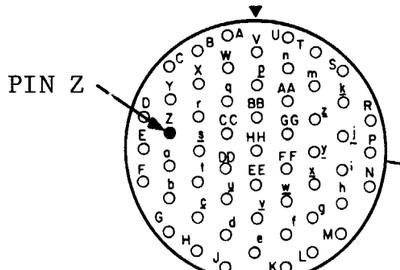
Personnel Required
68J (2)

References
TM 9-1270-220-13
TM 11-1520-236-34
TM 55-1520-236-23

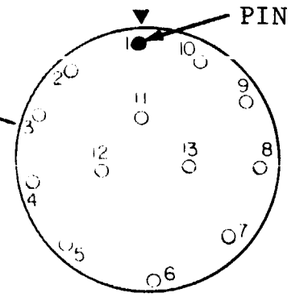
Access Panels
Battery Compartment - Removed



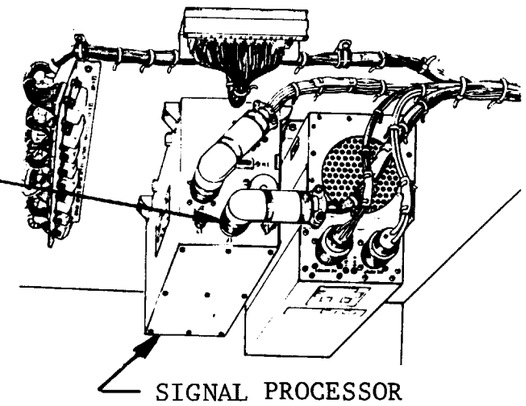
RADAR ALTIMETER (REAR VIEW)

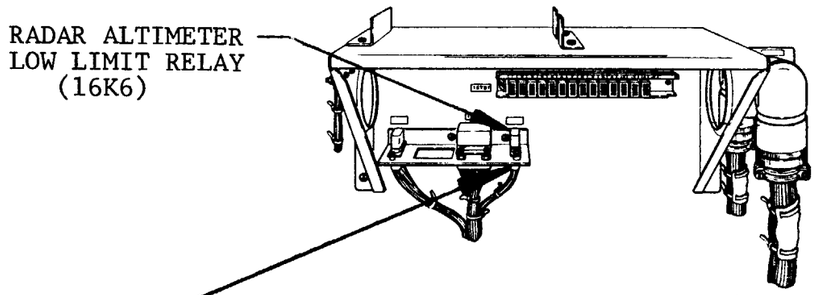


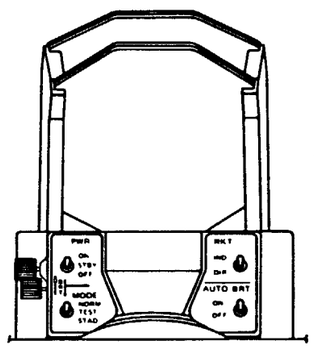
16A2P1



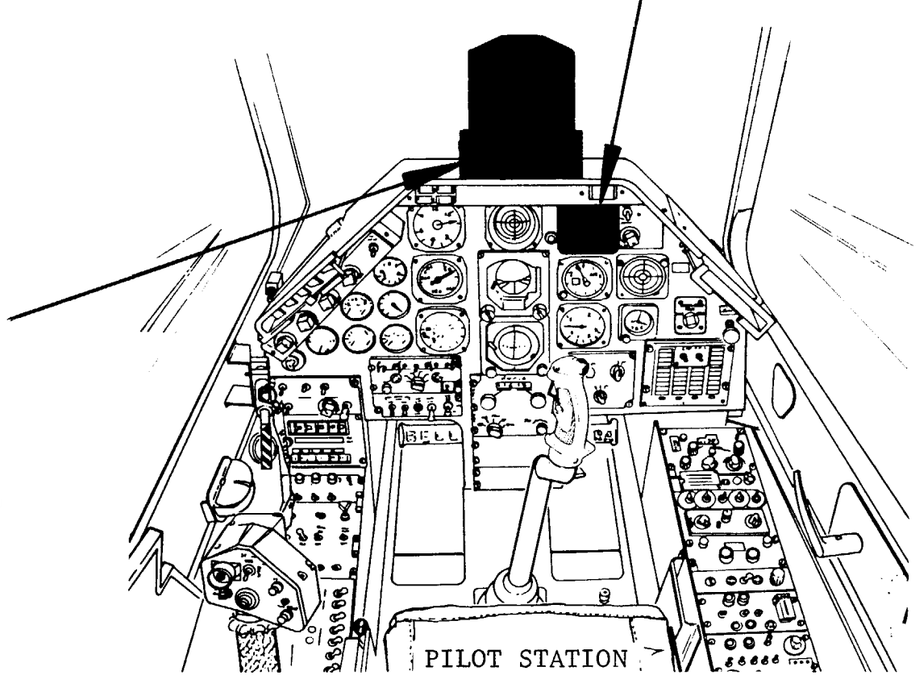
3408DS1P1

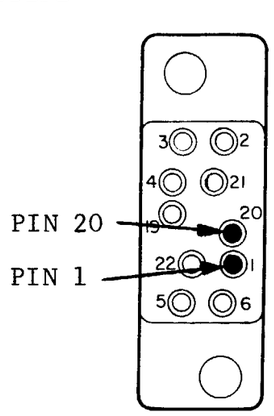




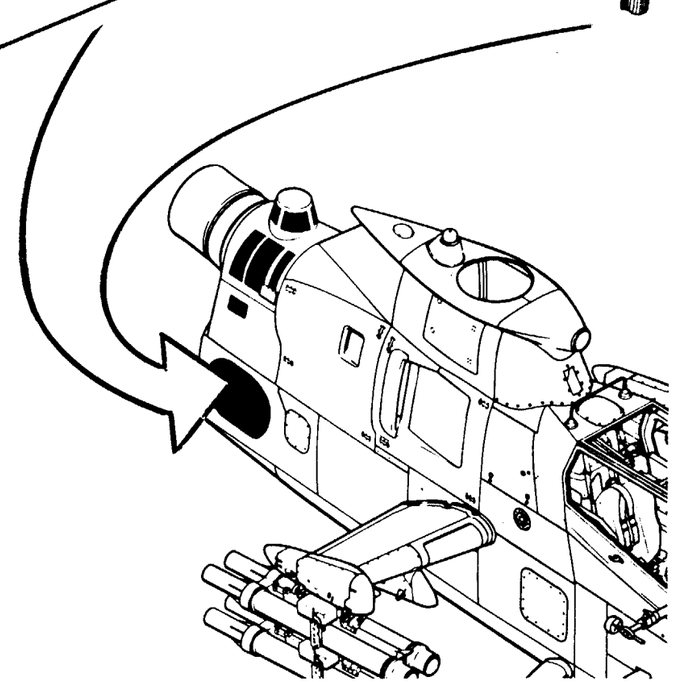


HUD





16XK6



2-24. RADAR ALTITUDE LOWER LIMIT ARROW APPEARS WHEN IT SHOULD NOT (CONTINUED).

On radar altimeter:

Perform radar altimeter self test procedure per TM 11-1520-236-34, Chapter 3, Section II.

Does radar altimeter pass self test?

NO → Troubleshoot radar altimeter per TM 11-1520-236-34, Chapter 3, Section II.

Then go to paragraph 2-2.

YES → Turn off electrical power per paragraph 2-3.

Remove radar altimeter low limit relay (16K6) per TM 55-1520-236-23, Chapter 9, Section I.

Turn on electrical power per paragraph 2-3.

Is lower limit arrow still present on HUD? HUD?

NO → Turn off electrical power per paragraph 2-3.

Check for continuity from 16XK6-20 to airframe ground.

Is continuity present?

NO → Replace radar altimeter low limit relay (16K6) per TM 55-1520-236-23, Chapter 9, Section I.

Then go to paragraph 2-2.

YES → Disconnect 3408DS1P1.

Check for continuity from 16XK6-20 to airframe ground.

Is continuity present?

NO → Replace radar altimeter per TM 11-1520-236-23, Chapter 2, Section IV.

Install radar altimeter low limit relay (16K6) per TM 55-1520-236-23, Chapter 9, Section I.

Then go to paragraph 2-2.

YES → Remove splice between 16XK6-20 and 3408DS1P1-1.

Check for continuity from 16XK6-20 to airframe ground.

Is continuity present?

NO → Replace connector 3408DS1P1.

Install radar altimeter low limit relay (16K6) per TM 55-1520-236-23, Chapter 9, Section I.

Then go to paragraph 2-2.

YES → Repair wire A1089A22 between 16XK6-20 and splice located close to 3408DS1P1-1 to eliminate short.

Connect 3408DS1P1.

Install radar altimeter low limit relay (16K6) per TM 55-1520-236-23, Chapter 9, Section I.

Then go to paragraph 2-2.

YES → Turn off electrical power per paragraph 2-3.

Check for continuity from 16A2P1-Z to airframe ground.

Is continuity present?

NO → Replace signal processor per TM 9-1270-220-13, Chapter 3, Section I.

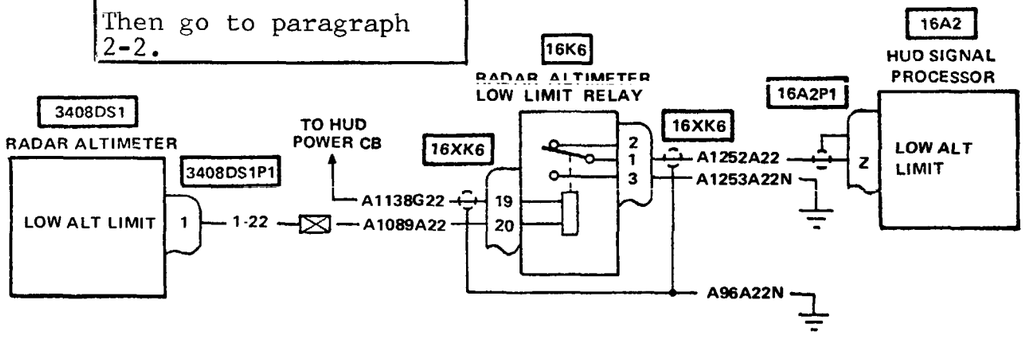
Install radar altimeter low limit relay (16K6) per TM 55-1520-236-23, Chapter 9, Section I.

Then go to paragraph 2-2.

YES → Repair wire A1252A22 between 16XK6-1 and 16A2P1-Z to eliminate short.

Install radar altimeter low limit relay (16K6) per TM 55-1520-236-23, Chapter 9, Section I.

Then go to paragraph 2-2.



2-25. NONE OF THE PRELAUNCH SYMBOLS APPEAR ON HUD WITH TOW BIT BUTTON HELD DOWN.

INITIAL SETUP

Applicable Configuration
AH-1S MC

Tools/Test and Support Equipment
Multimeter

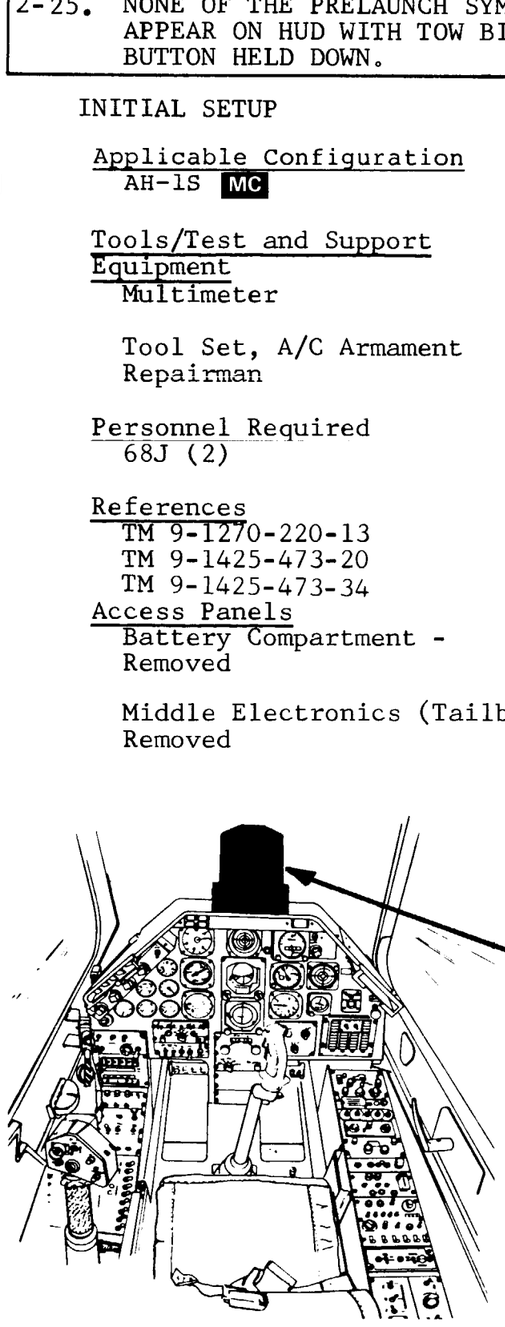
Tool Set, A/C Armament Repairman

Personnel Required
68J (2)

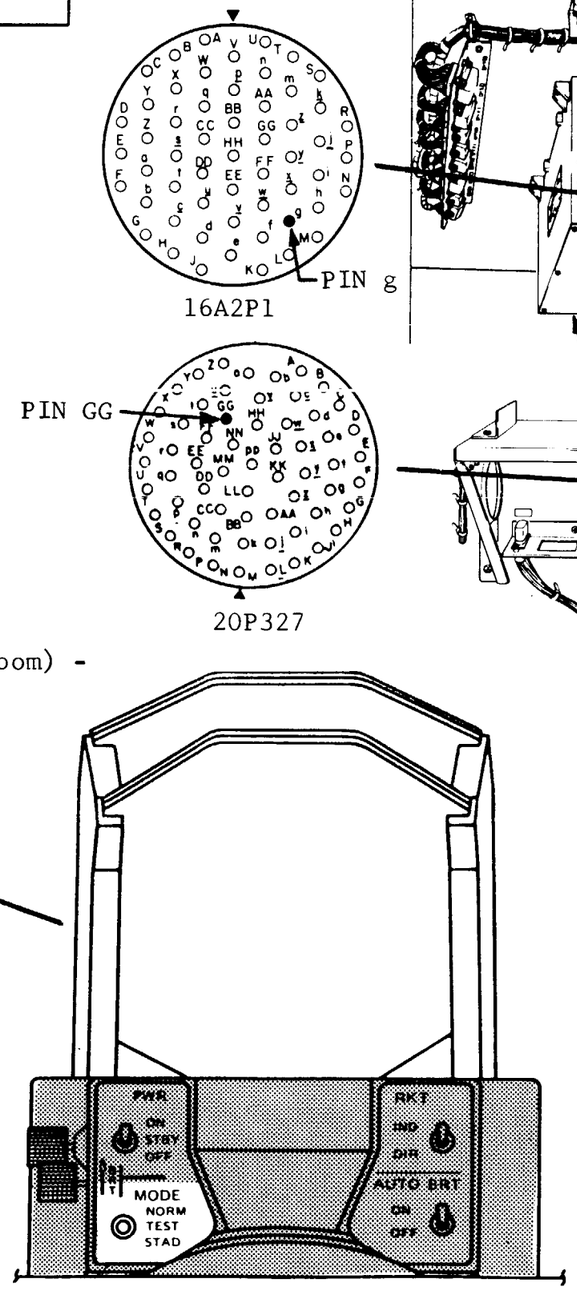
References
TM 9-1270-220-13
TM 9-1425-473-20
TM 9-1425-473-34

Access Panels
Battery Compartment - Removed

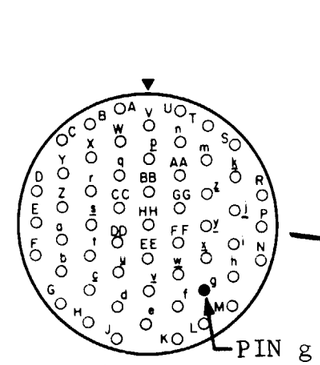
Middle Electronics (Tailboom) - Removed

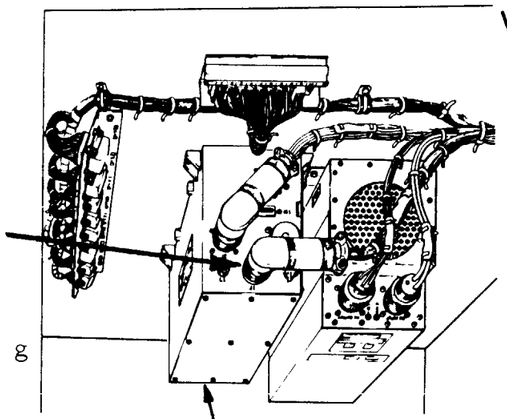


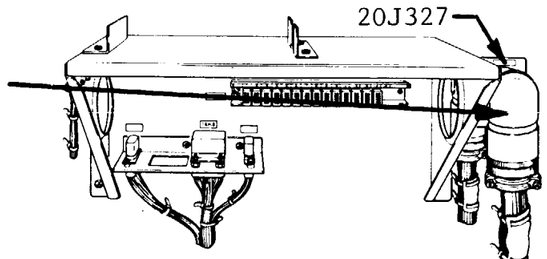
PILOT STATION

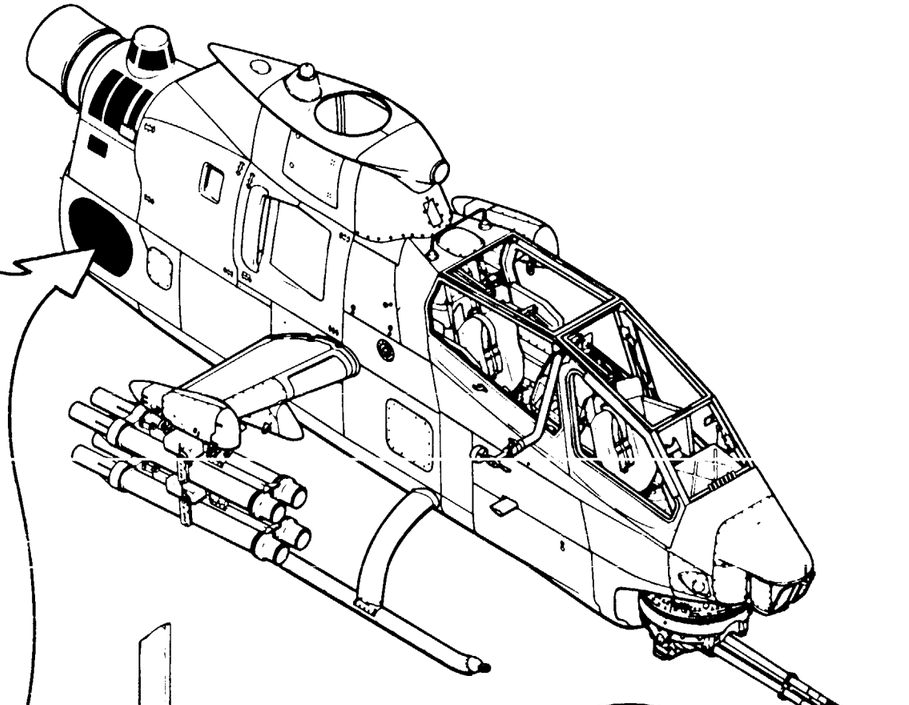


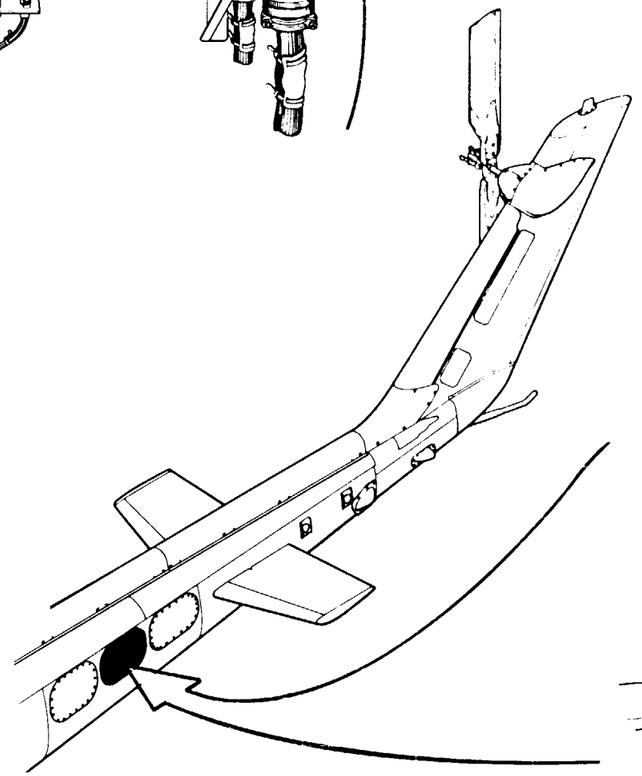
HUD

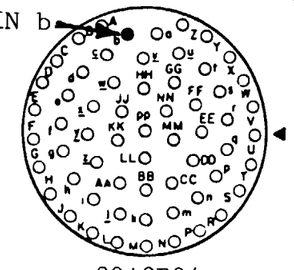


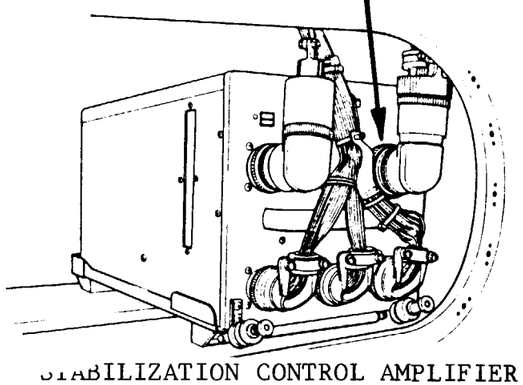






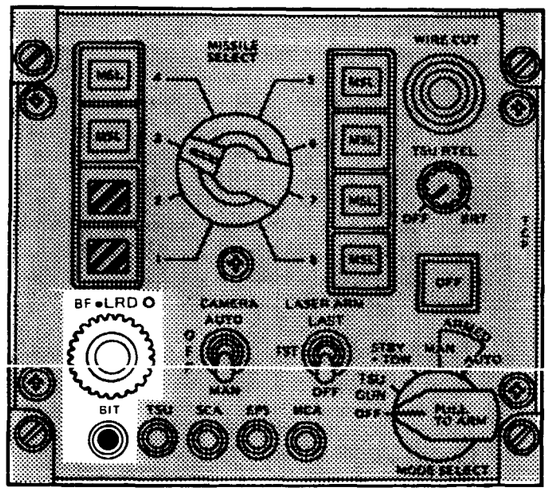




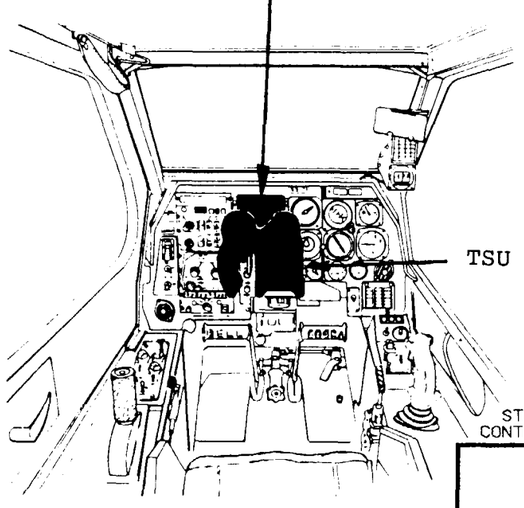


STABILIZATION CONTROL AMPLIFIER

2-25.1. NONE OF THE PRELAUNCH SYMBOLS APPEAR ON HUD WITH TOW BIT BUTTON HELD DOWN (CONTINUED).



TCP (TOW CONTROL PANEL)

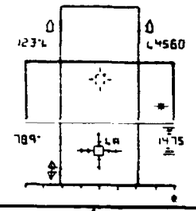


GUNNER STATION

On HUD:

Set MODE switch to TEST.

Do all symbols appear on HUD?



YES

NO

Troubleshoot HUDS per TM 9-1270-220-13, Chapter 3, Section V.

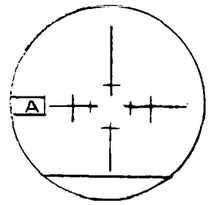
Look through telescopic sight unit.

On TCP (TOW control panel):

Rotate BF knob full clockwise.

Press BIT switch and hold.

Does attack flag appear in telescopic sight unit?



YES

NO

Troubleshoot telescopic sight unit per TM 9-1425-473-34, Chapter 3.

Then go to paragraph 2-2.

Turn off electrical power per paragraph 2-3.

Disconnect 16A2P1.

Turn on electrical power per paragraph 2-3.

Check for 28 Vdc between 16A2P1-g and airframe ground.

Is +28 Vdc present?

YES

NO

Turn off electrical power per paragraph 2-3.

Replace signal processor per TM 9-1270-220-13, Chapter 3, Section I.

Then go to paragraph 2-2.

Turn off electrical power per paragraph 2-3.

Disconnect 20A2P04.

Check for continuity from 16A2P1-g to 20A2P04-b.

Is continuity present?

YES

NO

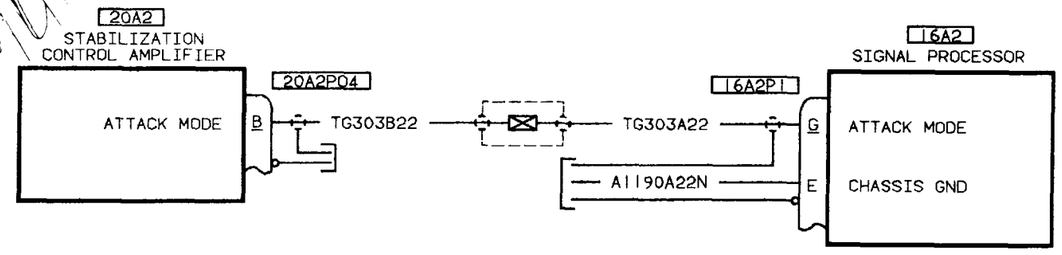
Replace stabilization control amplifier per TM 9-1425-473-20, Chapter 2, Section V.

Connect 16A2P1.

Then go to paragraph 2-2.

Repair wire TG303A22 between 16A2P1-g and splice or wire TG303B22 between splice and 20A2P04-b.

Then go to paragraph 2-2.



209575-93

2-26. TOW POSTLAUNCH WINDOW NOT DISPLAYED.

INITIAL SETUP

Applicable Configuration
All

Tools/Test and Support Equipment
Multimeter

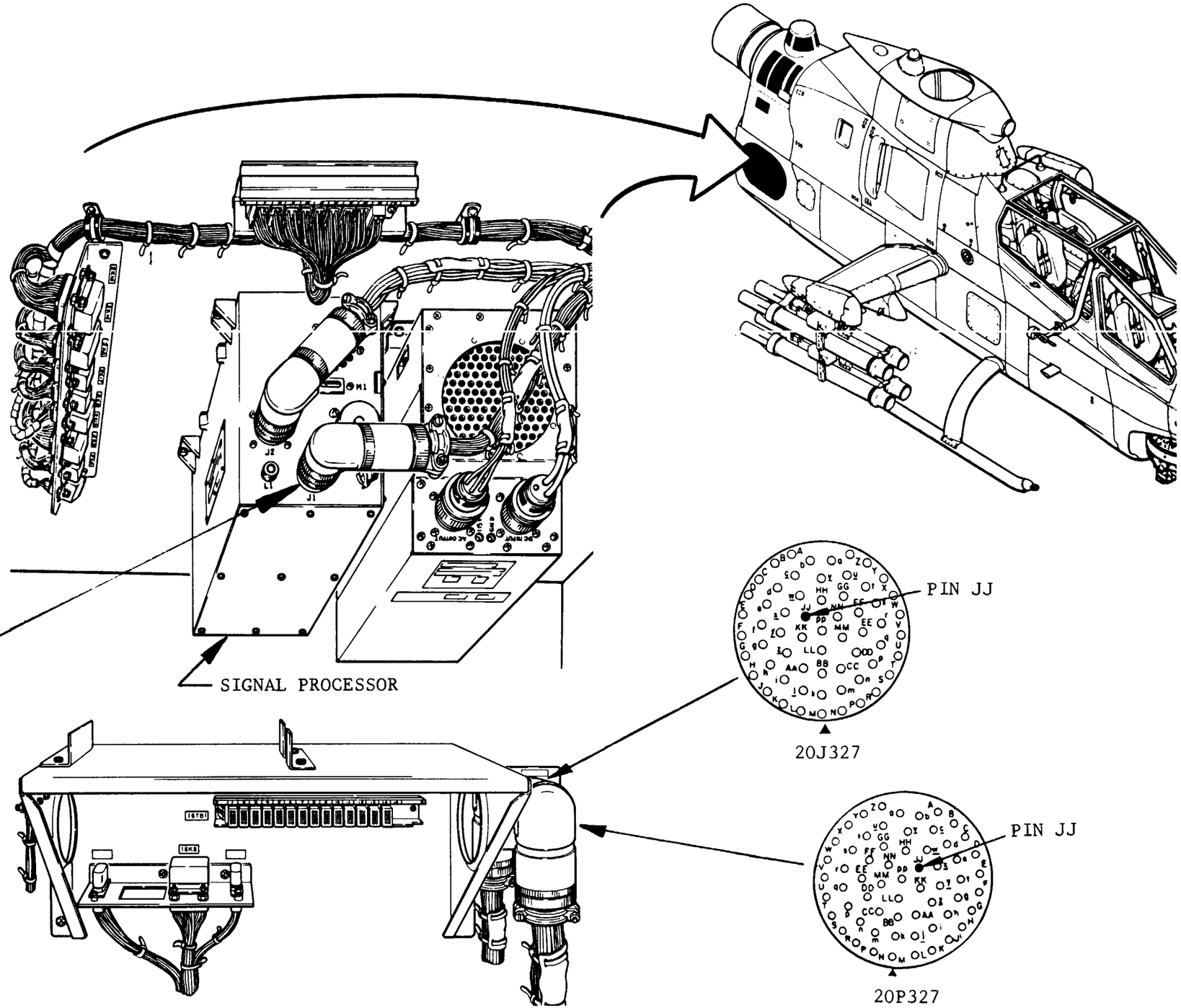
Tool Set, A/C Armament Repairman

Personnel Required
68J (2)

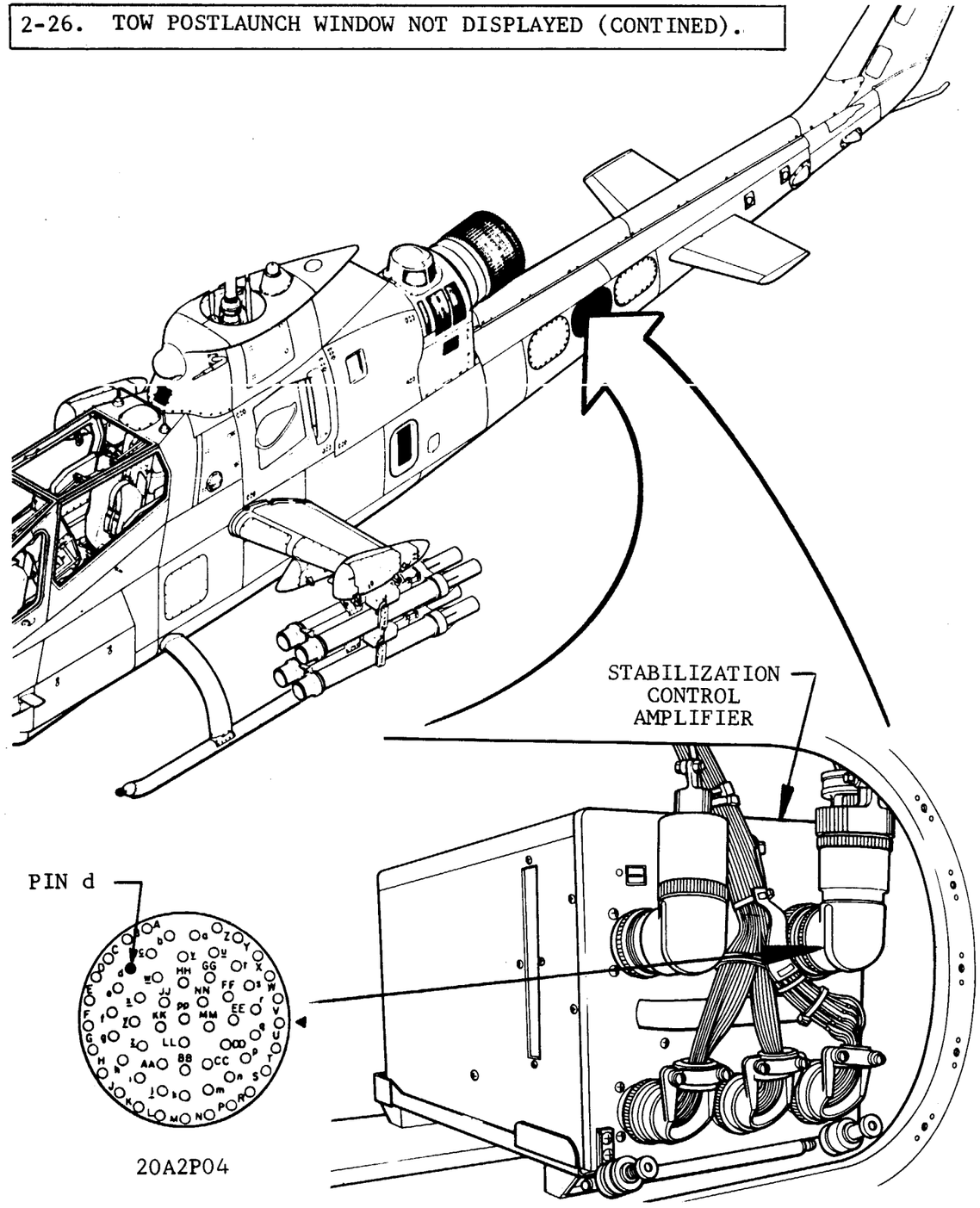
References
TM 9-1270-220-13
TM 9-1425-473-34

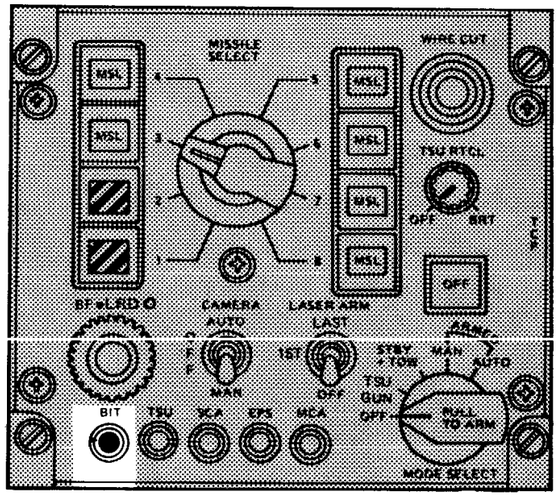
Access Panels
Battery Compartment - Removed

Middle Electronics (Tailboom) - Removed

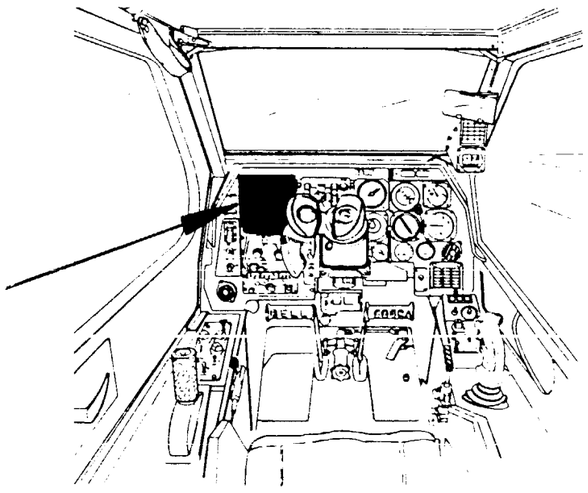


2-26. TOW POSTLAUNCH WINDOW NOT DISPLAYED (CONTINED).

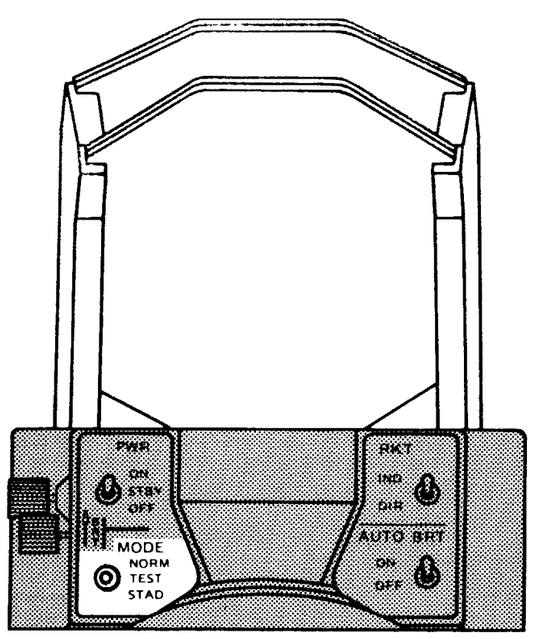




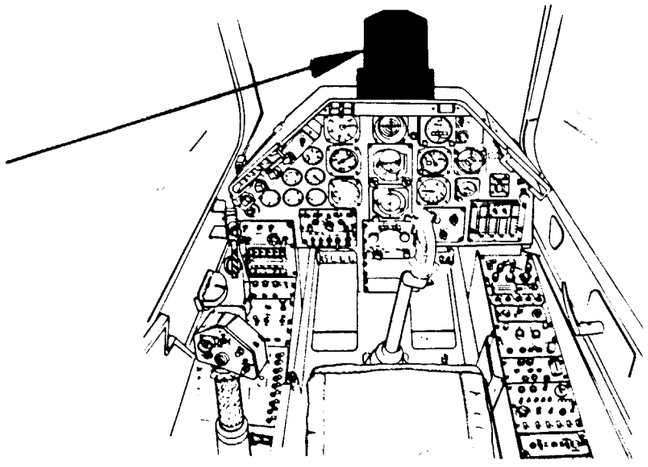
TCP (TOW CONTROL PANEL)



GUNNER STATION



HUD



PILOT STATION

2-26. TOW POSTLAUNCH WINDOW NOT DISPLAYED (CONTINUED).

On HUD:

Set MODE switch to TEST.

Does postlaunch window appear on HUD?

YES → Turn off electrical power per paragraph 2-3.

Disconnect 16A2P1.

Turn on electrical power per paragraph 2-3.

On HUD:

Set MODE switch to NORM.

On TCP (TOW control panel):

Press and hold BIT switch.

Check for 28 V dc at 16A2P1-X.

Is 28 V dc present?

YES → Turn off electrical power per paragraph 2-3.

Replace signal processor per TM 9-1270-220-13, Chapter 3, Section I.

Then go to paragraph 2-2.

NO → Troubleshoot HUDS per TM 9-1270-220-13, Chapter 3, Section IV.

Then go to paragraph 2-2.

NO → Turn off electrical power per paragraph 2-3.

Check for continuity from 16A2P1-X to 20P327-JJ.

Is continuity present?

YES → Check for continuity from 20J327-JJ to 20A2P04-d.

Is continuity present?

YES → Connect 16A2P1.

Troubleshoot TOW circuitry per TM 9-1425-473-34, Chapter 3, Table 3-12.

Then go to paragraph 2-2.

NO → Repair wire TG305A22 between 16A2P1-X and 20P327-JJ.

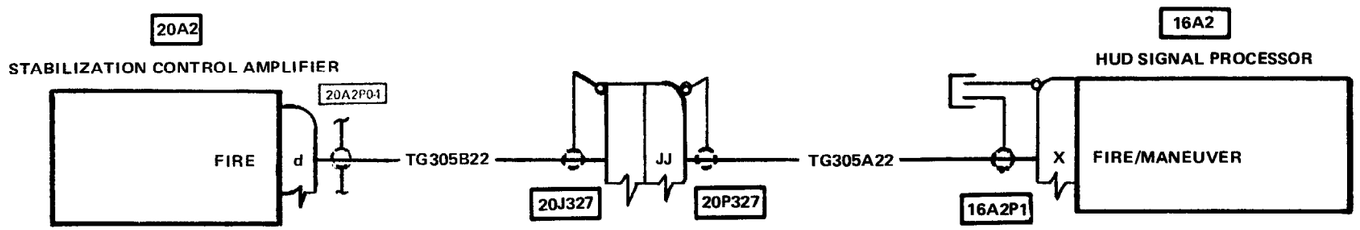
Connect 16A2P1.

Then go to paragraph 2-2.

NO → Repair wire TG305B22 between 20J327-JJ and 20A2P04-d.

Connect 16A2P1.

Then go to paragraph 2-2.



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2-27. RIGHT TOW MISSILE SYMBOL MISSING FOR LAUNCHER POSITIONS 2, 4, 6, OR 8.

INITIAL SETUP

Applicable Configuration
All

Tools/Test and Support Equipment
Multimeter

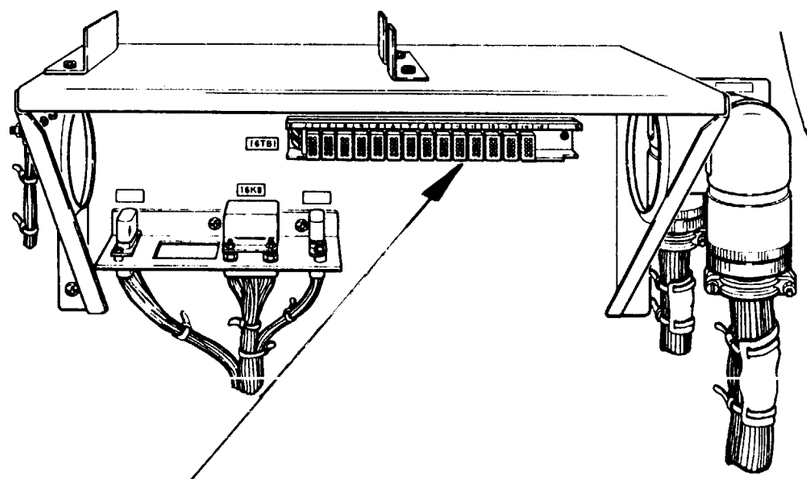
Tool Set, A/C Armament Repairman

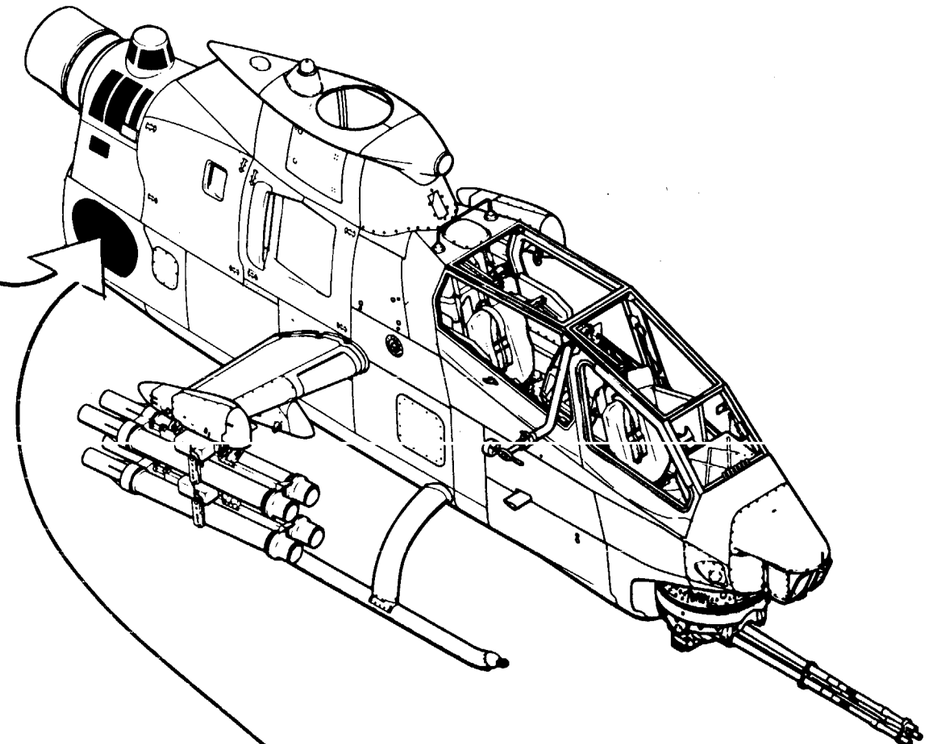
Personnel Required
68J (1)

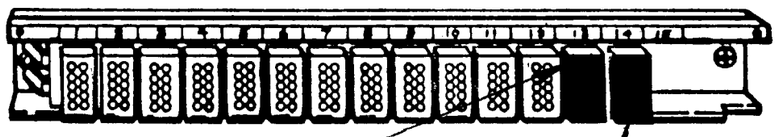
References
TM 9-1425-473-20

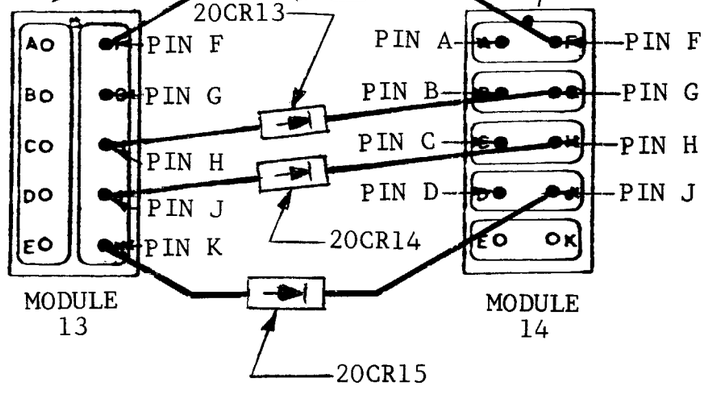
Access Panels

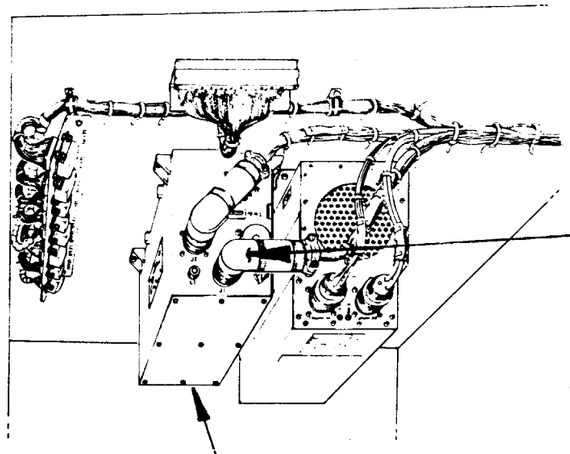
Battery Compartment - Removed

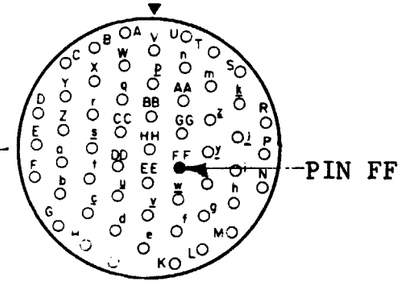




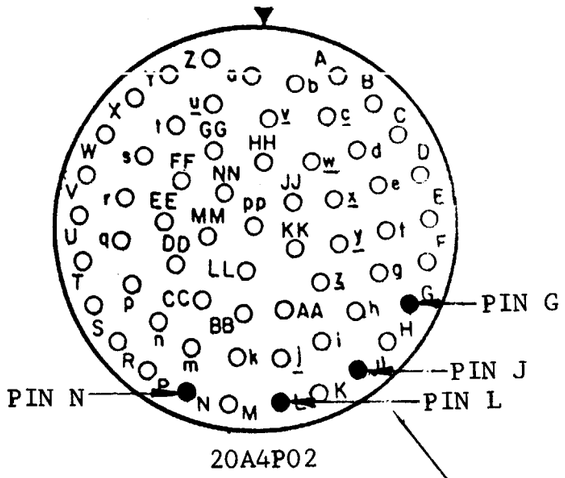




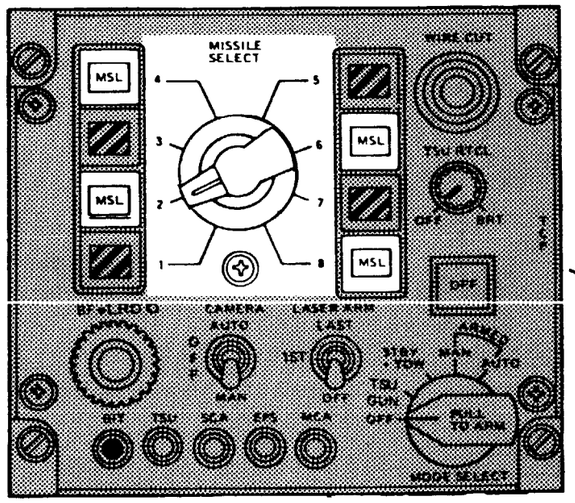




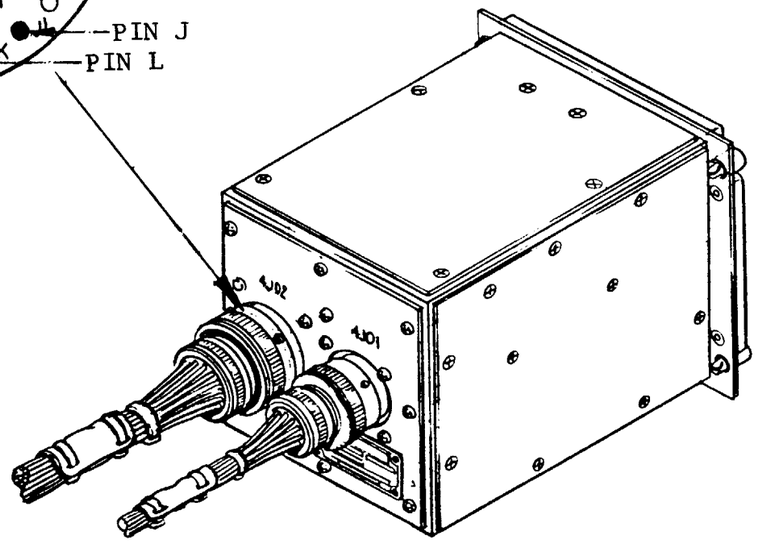
2-27. RIGHT TOW MISSILE SYMBOL MISSING FOR LAUNCHER POSITIONS 2, 4, 6, OR 8 (CONTINUED).



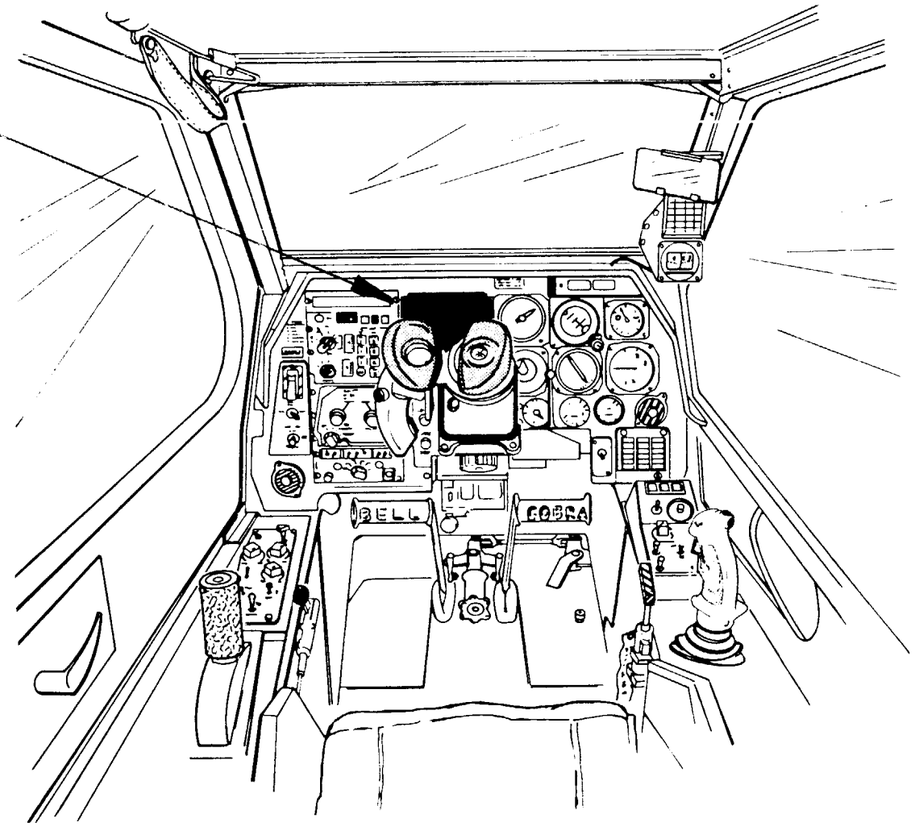
20A4P02



TCP (TOW CONTROL PANEL)



TCP (TOW CONTROL PANEL)
(REARVIEW)



GUNNER STATION

2-27. RIGHT TOW MISSILE SYMBOL MISSING FOR LAUNCHER POSITIONS 2, 4, 6, OR 8 (CONTINUED).

Turn off electrical power per paragraph 2-3.

Check for continuity from 16A2P1-FF to 16TB1-13F.

Is continuity present?

NO

Repair wire TG284A22 between 16A2P1-FF and 16TB1-13F.

Then go to paragraph 2-2.

YES

Check for continuity as follows:

MISSILE SELECT SWITCH POSITION ON TCP	FROM	TO
2	16TB1-13F	16TB1-13G
4	16TB1-13F	16TB1-13H
6	16TB1-13F	16TB1-13J
8	16TB1-13F	16TB1-13K

Is continuity present?

NO

Replace module 13 of 16TB1.

Then go to paragraph 2-2.

YES

Check for continuity as follows:

MISSILE SELECT SWITCH POSITION ON TCP	FROM	TO
2	(+)16TB1-13G	(-)16TB1-14F
4	(+)16TB1-13H	(-)16TB1-14G
6	(+)16TB1-13J	(-)16TB1-14H
8	(+)16TB1-13K	(-)16TB1-14J

Is continuity present?

NO

Replace diode where continuity is not present.

DIODE	FROM	TO
20CR12	(+)16TB1-13G	(-)16TB1-14F
20CR13	(+)16TB1-13H	(-)16TB1-14G
20CR14	(+)16TB1-13J	(-)16TB1-14H
20CR15	(+)16TB1-13K	(-)16TB1-14J

Then go to paragraph 2-2.

YES

2-27. RIGHT TOW MISSILE SYMBOL MISSING FOR LAUNCHER POSITIONS 2, 4, 6, OR 8 (CONTINUED).

YES

Check for continuity as follows:

MISSILE SELECT SWITCH POSITION ON TCP | FROM | TO

2	16TB1-14F	16TB1-14A
4	16TB1-14G	16TB1-14B
6	16TB1-14H	16TB1-14C
8	16TB1-14J	16TB1-14D

Is continuity present?

YES

Check for continuity as follows:

MISSILE SELECT SWITCH POSITION ON TCP | FROM | TO

2	16TB1-14A	20A4P02-G
4	16TB1-14B	20A4P02-J
6	16TB1-14C	20A4P02-L
8	16TB1-14D	20A4P02-N

Is continuity present?

YES

Replace TCP (TOW control panel) per TM9-1425-473-20, Chapter 2, Section V.

Then go to paragraph 2-2.

NO

Replace module 14 of 16TB1.

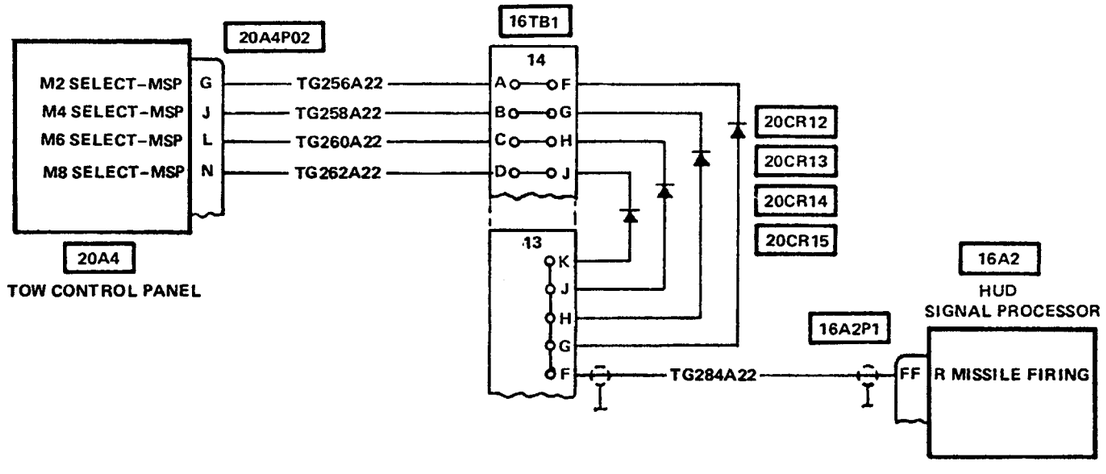
Than go to paragraph 2-2.

NO

Repair wire where continuity is not present.

WIRE NO.	FROM	TO
TG256A22	16TB1-14A	20A4P02-G
TG258A22	16TB1-14B	20A4P02-J
TG260A22	16TB1-14C	20A4P02-L
TG262A22	16TB1-14D	20A4P02-N

Then go to paragraph 2-2.



2-28. LEFT TOW MISSILE SYMBOL MISSING FOR LAUNCHER POSITIONS 1, 3, 5, OR 7.

INITIAL SETUP

Applicable Configuration
All

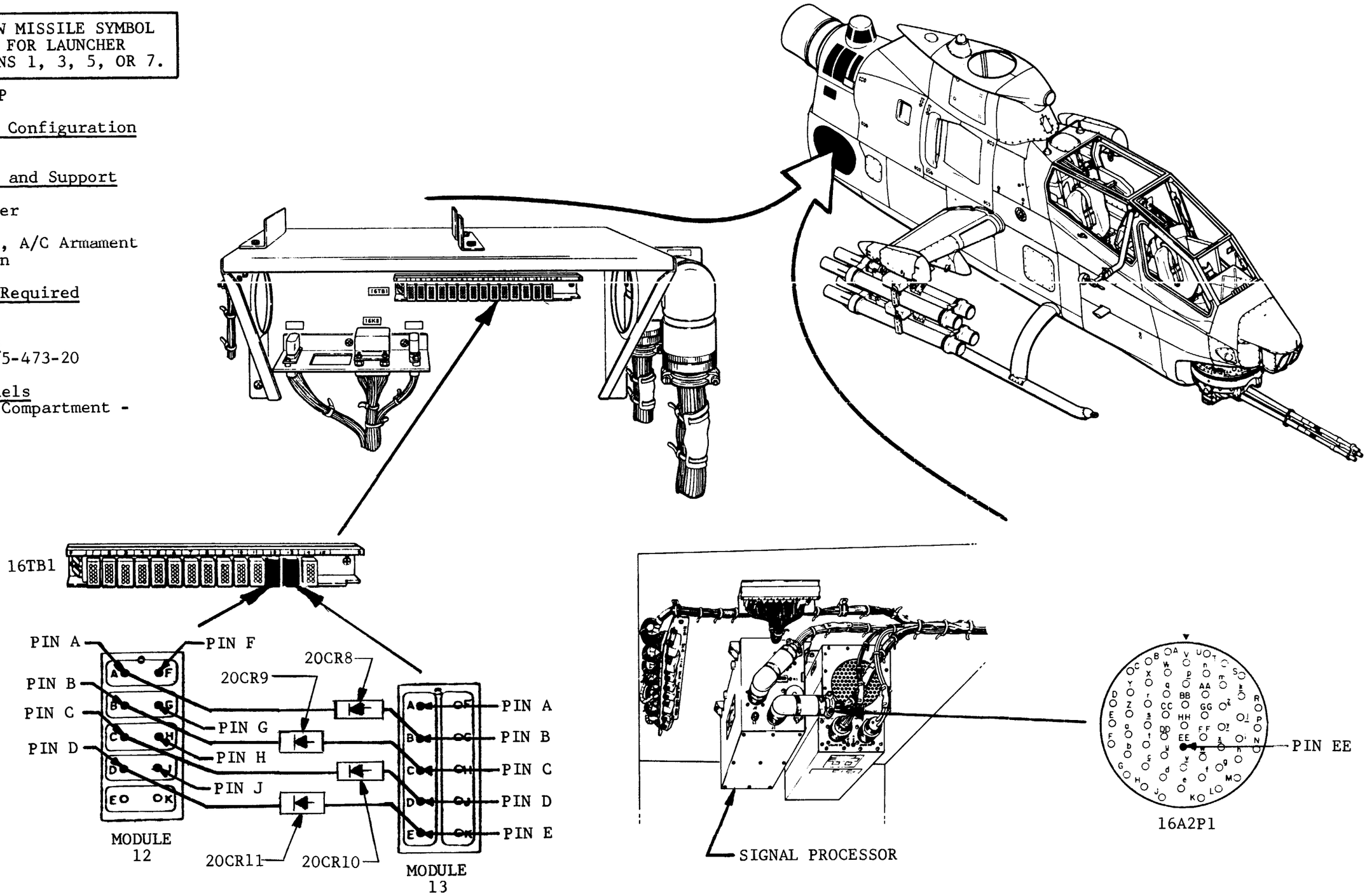
Tools/Test and Support Equipment
Multimeter

Tool Set, A/C Armament Repairman

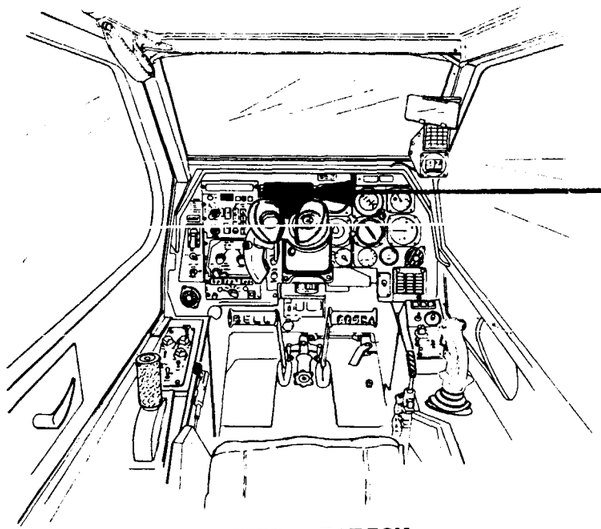
Personnel Required
68J (1)

References
TM 9-1425-473-20

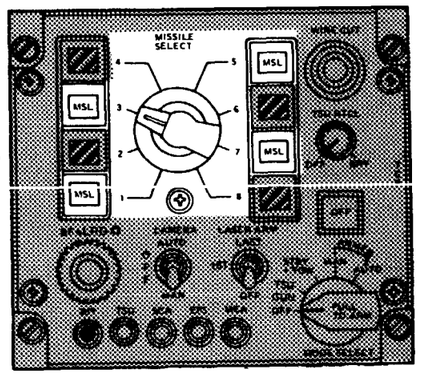
Access Panels
Battery Compartment - Removed



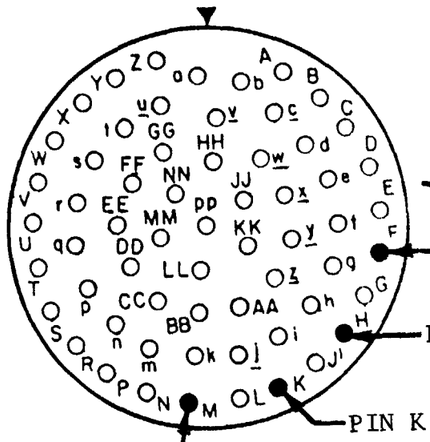
2-28. LEFT TOW MISSILE SYMBOL MISSING FOR LAUNCHER POSITIONS 1, 3, 5, OR 7 (CONTINUED).



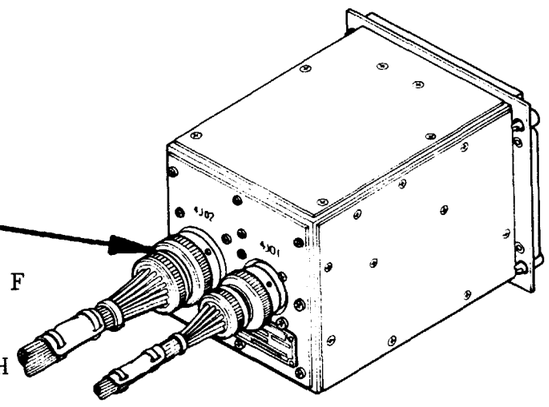
GUNNER STATION



TCP (TOW CONTROL PANEL)



20A4P02



TCP (TOW CONTROL PANEL)
(REAR VIEW)

Turn off electrical power per paragraph 2-3.

Check for continuity from 16A2P1-EE to 16TB1-13A.

Is continuity present?

NO

Repair wire TG283A22 between 16A2P1-EE and 16TB1-13A.

Then go to paragraph 2-2.

YES

Check for continuity as follows:

MISSILE SELECT SWITCH POSITION ON TCP	FROM	TO
1	16TB1-13A	16TB1-13B
3	16TB1-13A	16TB1-13C
5	16TB1-13A	16TB1-13D
7	16TB1-13A	16TB1-13E

Is continuity present?

YES

NO

Replace module 13 of 16TB1.

Then go to paragraph 2-2.

2-28. LEFT TOW MISSILE SYMBOL MISSING FOR LAUNCHER POSITIONS 1, 3, 5, OR 7 (CONTINUED).

YES

Check for continuity as follows:

MISSILE SELECT SWITCH POSITION ON TCP	FROM	TO
1	(+)16TB1-13B	(-)16TB1-12A
3	(+)16TB1-13C	(-)16TB1-12B
5	(+)16TB1-13D	(-)16TB1-12C
7	(+)16TB1-13E	(-)16TB1-12D

Is continuity present?

NO

Replace diode where continuity is not present.

DIODE	FROM	TO
20CR8	(+)16TB1-13B	(-)16TB1-12A
20CR9	(+)16TB1-13C	(-)16TB1-12B
20CR10	(+)16TB1-13D	(-)16TB1-12C
20CR11	(+)16TB1-13E	(-)16TB1-12D

Then go to paragraph 2-2.

YES

Check for continuity as follows:

MISSILE SELECT SWITCH POSITION ON TCP	FROM	TO
1	16TB1-12A	16TB1-12F
3	16TB1-12B	16TB1-12G
5	16TB1-12C	16TB1-12H
7	16TB1-12D	16TB1-12J

Is continuity present?

NO

Replace module 12 of 16TB1.

Then go to paragraph 2-2.

YES

Check for continuity as follows:

MISSILE SELECT SWITCH POSITION ON TCP	FROM	TO
1	16TB1-12F	20A4P02-F
3	16TB1-12G	20A4P02-H
5	16TB1-12H	20A4P02-K
7	16TB1-12J	20A4P02-M

Is continuity present?

NO

Repair wire where continuity is not present.

WIRE NO.	FROM	TO
TG255A22	16TB1-12F	20A4P02-F
TG257A22	16TB1-12G	20A4P02-H
TG259A22	16TB1-12H	20A4P02-K
TG261A22	16TB1-12J	20A4P02-M

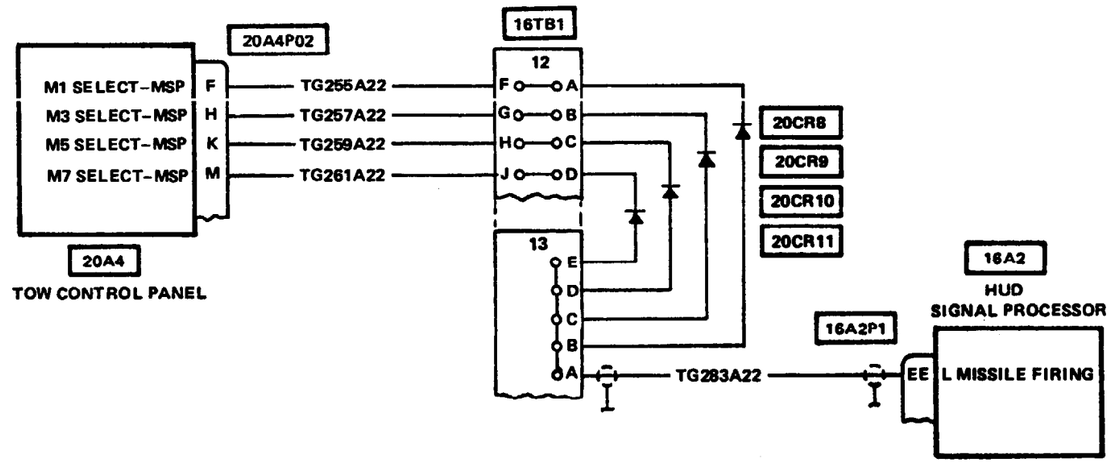
Then go to paragraph 2-2.

YES

2-28. LEFT TOW MISSILE SYMBOL MISSING FOR LAUNCHER POSITIONS 1, 3, 5, OR 7 (CONTINUED).

Replace TCP (TOW control panel) per TM9-1425-473-20, Chapter 2, Section V.

Then go to paragraph 2-2.



2-29. TOW ASCEND STEERING ARROW IS THE ONLY PRELAUNCH SYMBOL MISSING.

INITIAL SETUP

Applicable Configuration
All

Tools/Test and Support Equipment
Multimeter

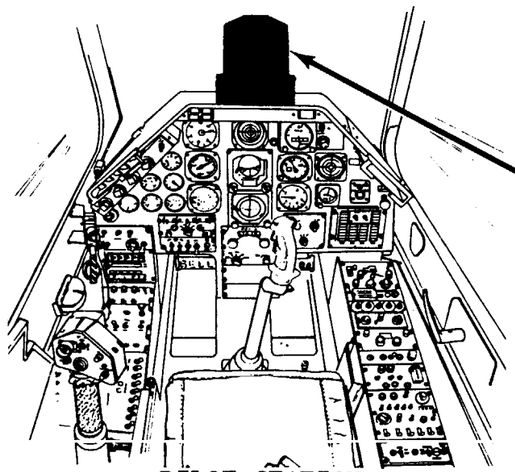
Tool Set, A/C Armament Repairman

Personnel Required
68J (2)

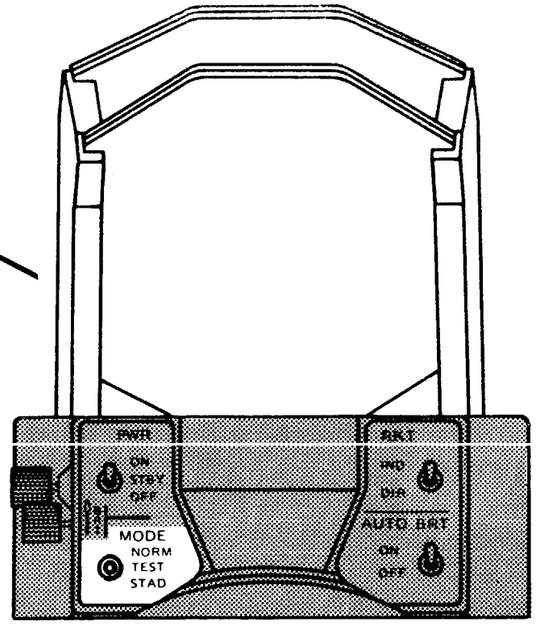
References
TM 9-1270-220-13
TM 9-1425-473-20

Access Panels
Battery Compartment - Removed

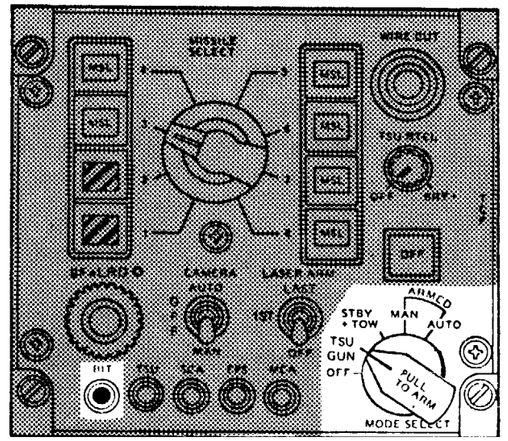
Middle electronic (Tailboom) - Removed



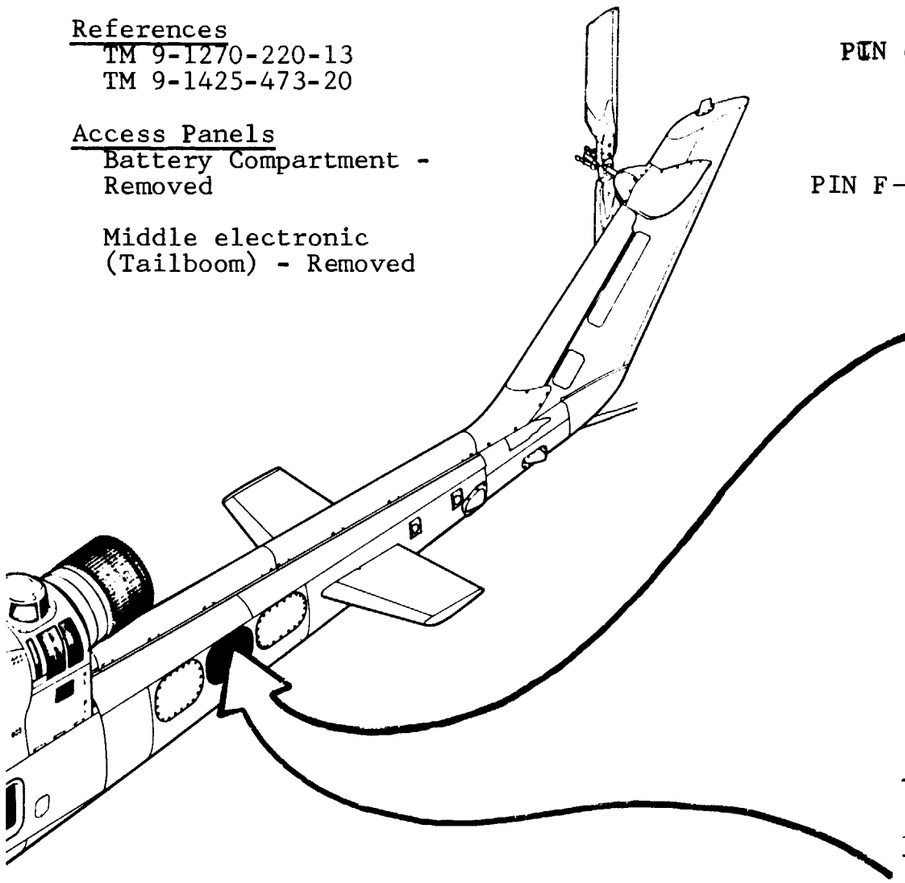
PILOT STATION

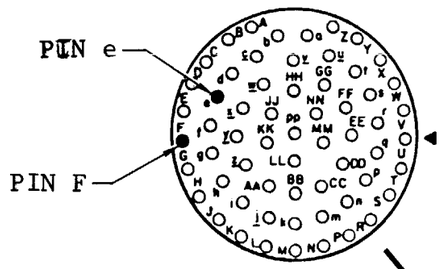


HUD

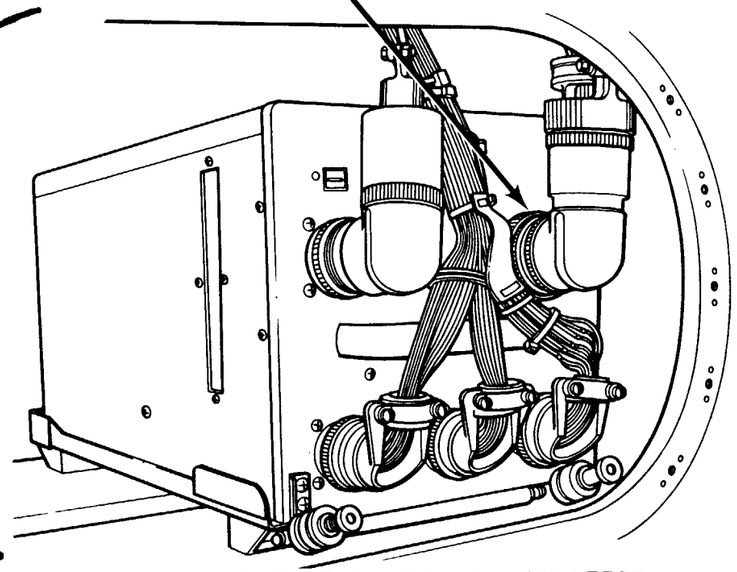


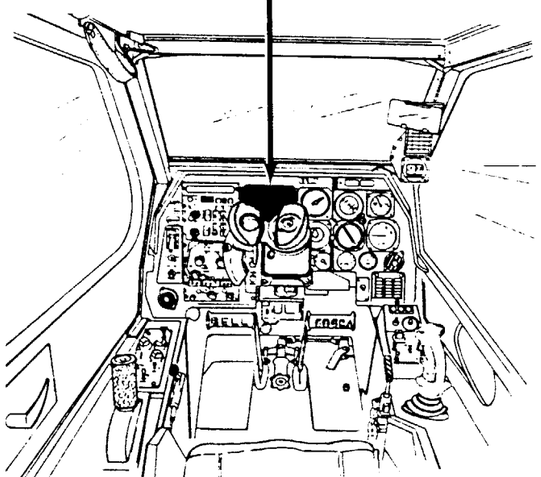
TCP (TOW CONTROL PANEL)



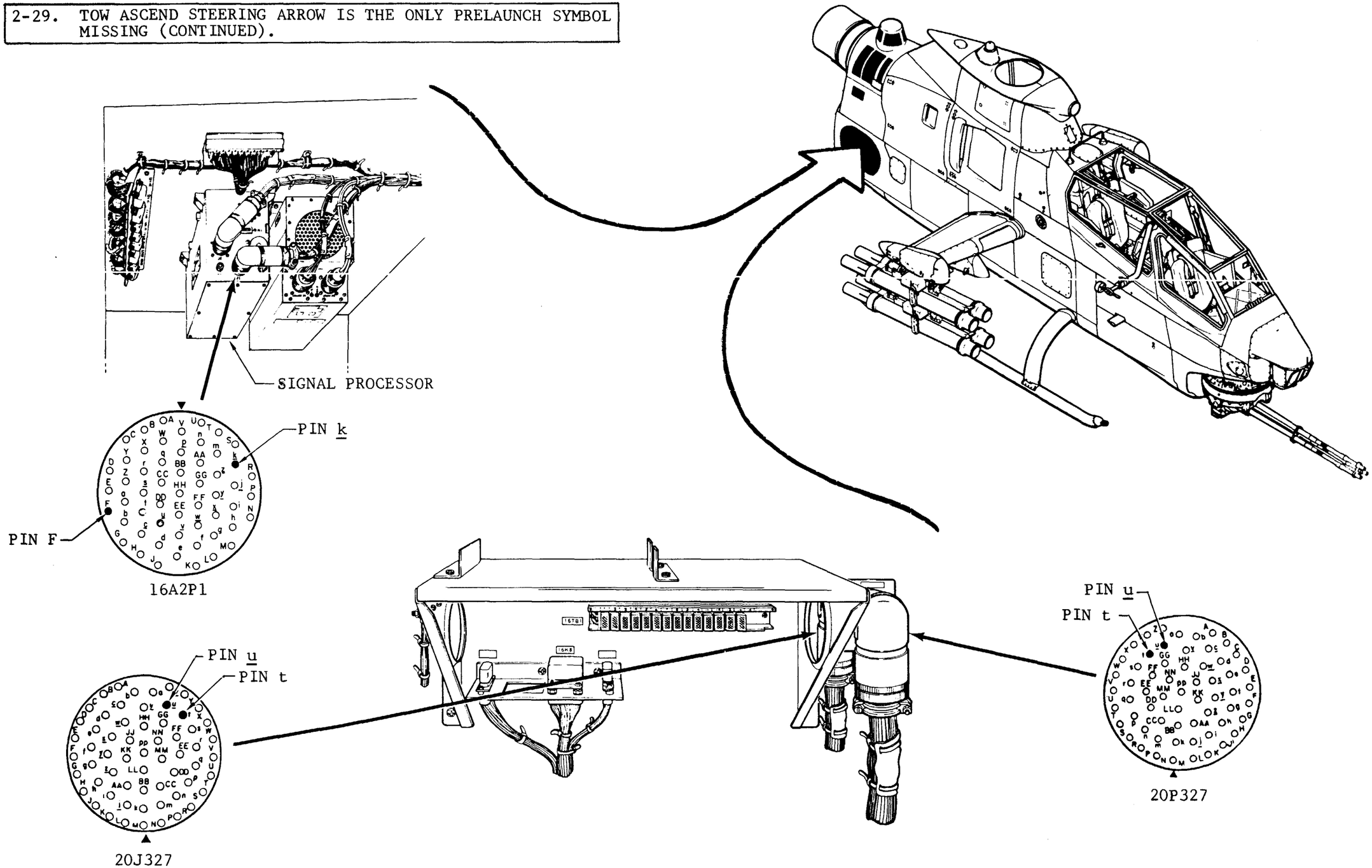


20A2P04





2-29. TOW ASCEND STEERING ARROW IS THE ONLY PRELAUNCH SYMBOL MISSING (CONTINUED).



2-29. TOW ASCEND STEERING ARROW IS THE ONLY PRELAUNCH SYMBOL MISSING (CONTINUED).

On HUD:

Set MODE switch to TEST.

Does ascend steering arrow appear on HUD?

YES

On TCP (TOW control panel):

Set MODE SELECT switch to TSU/GUN.

Turn off electrical power per paragraph 2-3.

Disconnect 16A2P1.

Turn on electrical power per paragraph 2-3.

Press and hold BIT button.

Check for 28 Vdc at 16A2P1-k.

Is 28 Vdc present?

YES

Turn off electrical power per paragraph 2-3.

Replace signal processor per TM 9-1270-220-13, Chapter 3, Section I.

Then go to paragraph 2-2.

NO

Go to paragraph 2-15.

NO

Turn off electrical power per paragraph 2-3.

Check for continuity from 16A2P1-F to 20A2P04-F.

Is continuity present?

YES

Check for continuity from 16A2P1-k to 20A2P04-e.

Is continuity present?

YES

Replace stabilization control amplifier per TM 9-1425-473-20, Chapter 2, Section V.

Then go to paragraph 2-2.

NO

Check for continuity from 16A2P1-F to 20P327-u.

Is continuity present?

YES

Repair wire TG306B22 (ORN) between 20J327-u and 20A2P04-F.

Then go to paragraph 2-2.

NO

Repair wire TG306A22(ORN) between 16A2P1-F and 20P327-u.

Then go to paragraph 2-2.

NO

Check for continuity from 20J327-t to 20A2P04-e.

Is continuity present?

YES

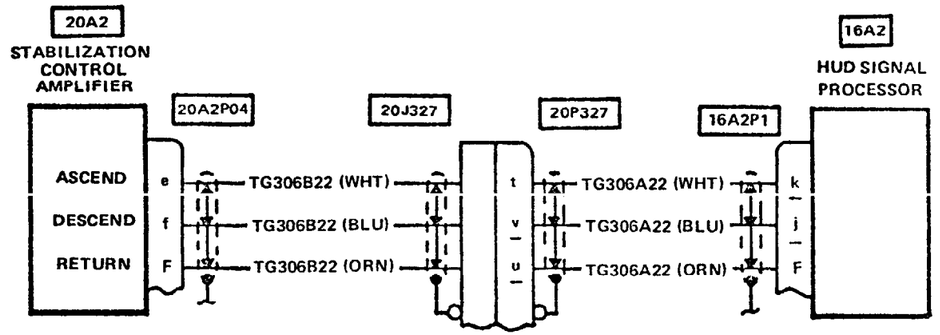
Repair wire TG306A22 (WHT) between 16A2P1-k and 20P327-t.

Then go to paragraph 2-2.

NO

Repair wire TG306B22 (WHT) between 20J327-t and 20A2P04-e.

Then go to paragraph 2-2.



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2-30. TOW DESCEND STEERING ARROW IS THE ONLY PRELAUNCH SYMBOL MISSING.

INITIAL SETUP

Applicable Configuration
All

Tools/Test and Support Equipment
Multimeter

Tool Set, A/C Armament Repairman

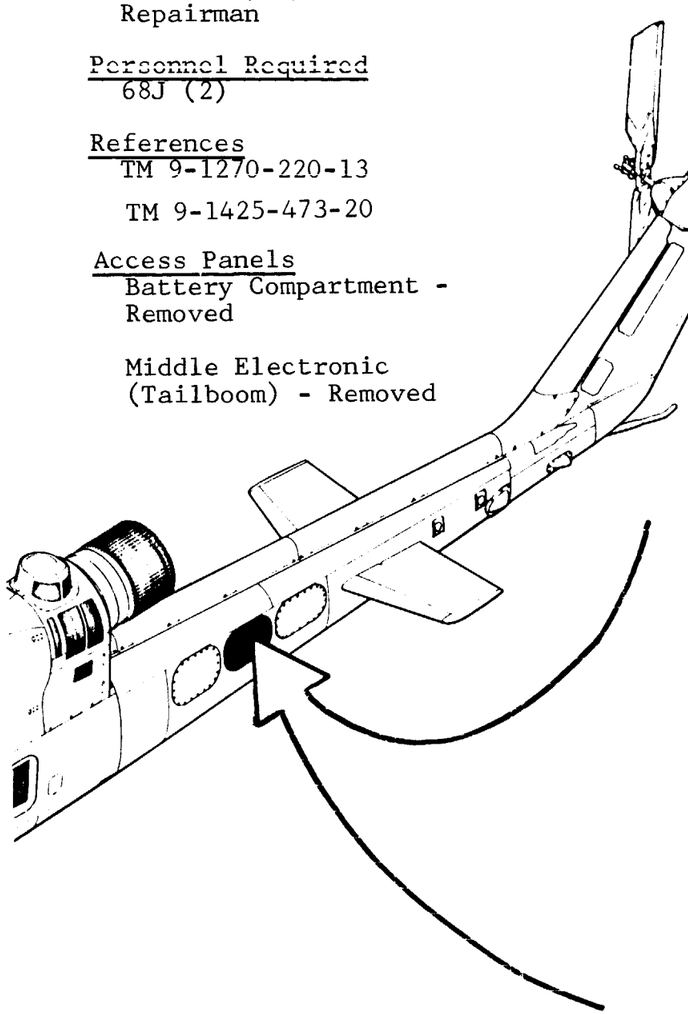
Personnel Required
68J (2)

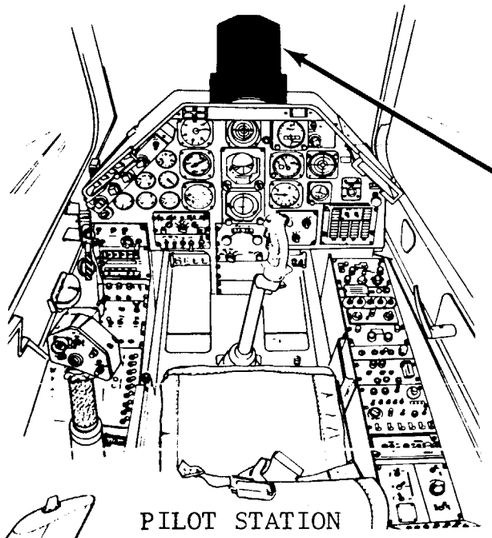
References
TM 9-1270-220-13

TM 9-1425-473-20

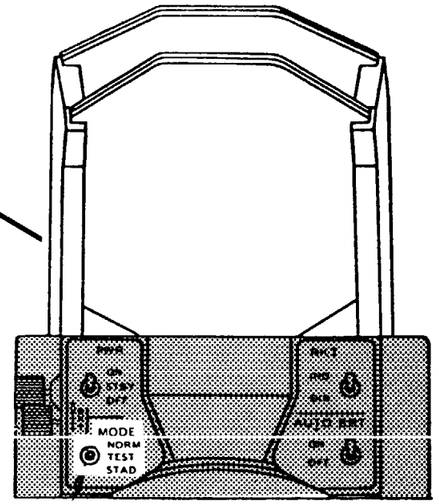
Access Panels
Battery Compartment - Removed

Middle Electronic (Tailboom) - Removed

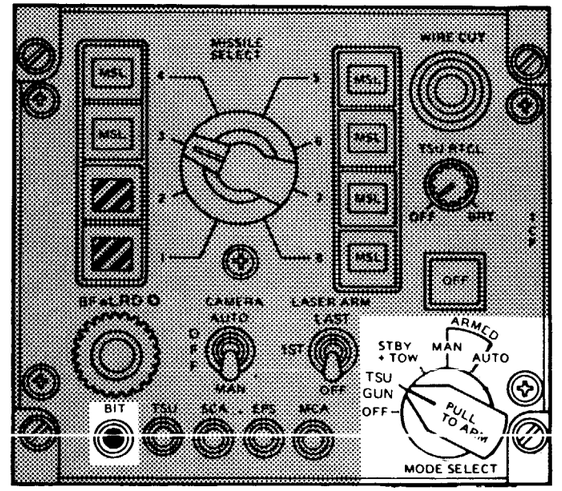




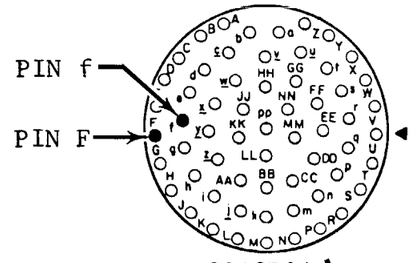
PILOT STATION



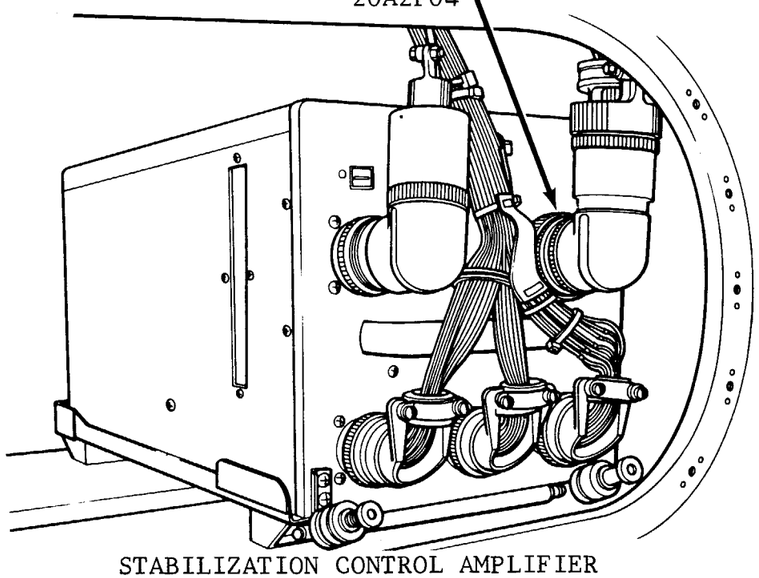
HUD



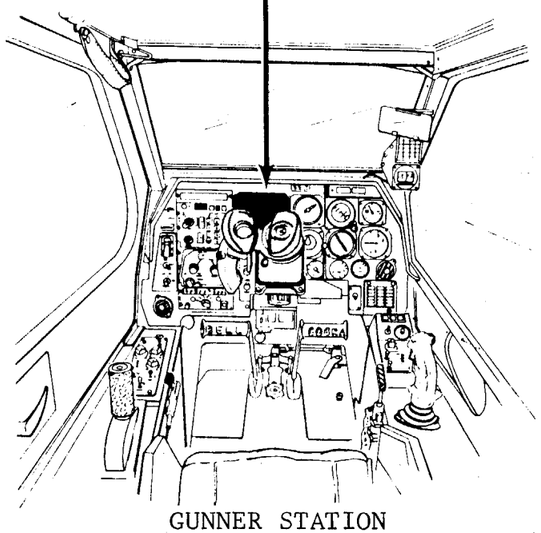
TCP (TOW CONTROL PANEL)



20A2P04

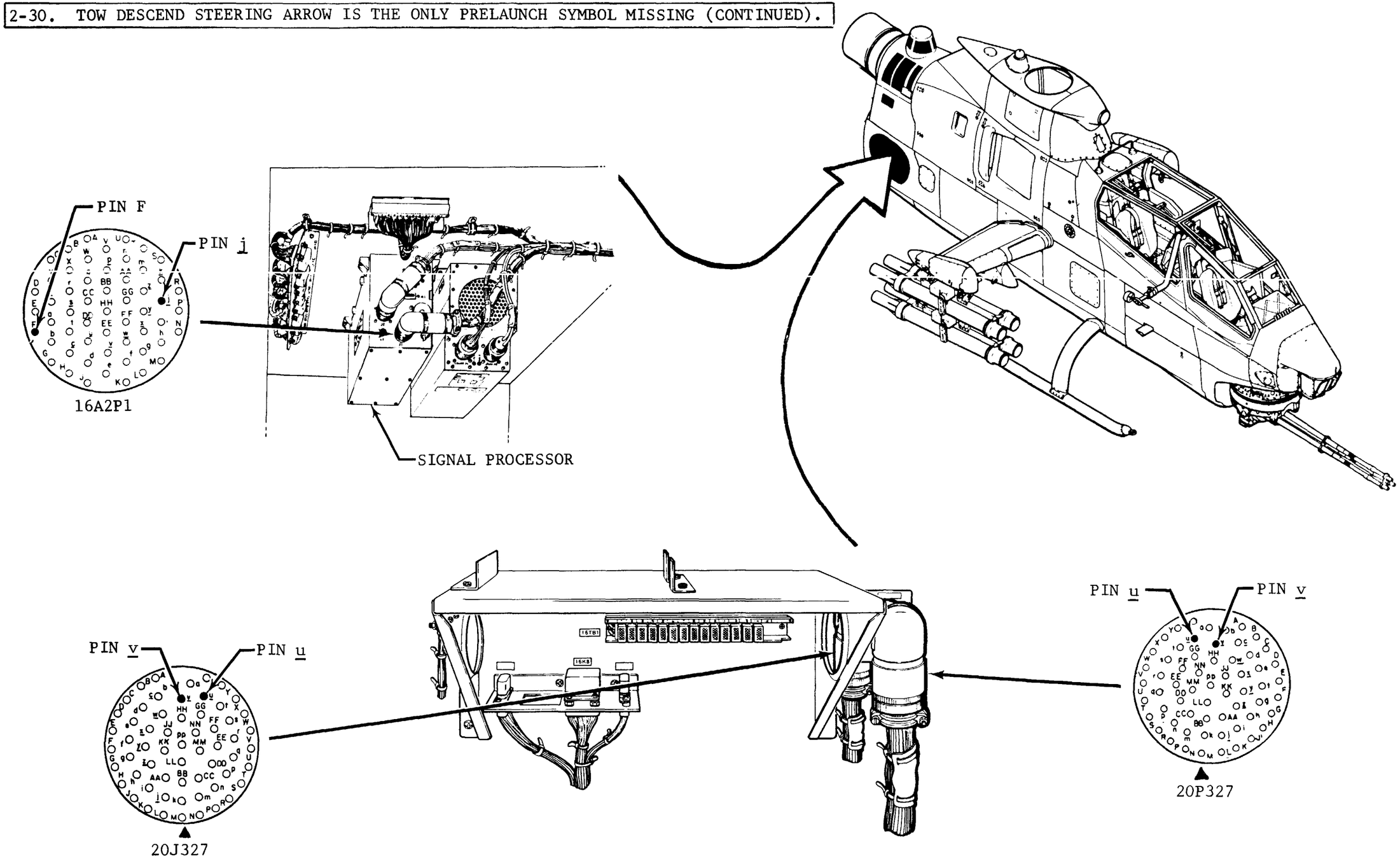


STABILIZATION CONTROL AMPLIFIER



GUNNER STATION

2-30. TOW DESCEND STEERING ARROW IS THE ONLY PRELAUNCH SYMBOL MISSING (CONTINUED).



2-30. TOW DESCEND STEERING ARROW IS THE ONLY PRELAUNCH SYMBOL MISSING (CONTINUED).

On HUD:

Set MODE switch to TEST.

Does descend steering arrow appear on HUD?

YES → Turn off electrical power per paragraph 2-3.

Disconnect 16A2P1.

Turn on electrical power per paragraph 2-3.

On TCP (TOW control panel):

Set MODE SELECT switch to TSU/CUN.

Press and hold BIT button.

Check for 28 V dc at 16A2P1-j.

Is 28 V dc present?

YES → Turn off electrical power per paragraph 2-3.

Replace signal processor per TM 9-1270-220-13, Chapter 3, Section I.

Then go to paragraph 2-2.

NO → Turn off electrical power per paragraph 2-3.

Replace signal processor per TM 9-1270-220-13, Chapter 3, Section I.

Then go to paragraph 2-2.

NO → Turn off electrical power per paragraph 2-3.

Check for continuity from 16A2P1-F to 20A2P04-F.

Is continuity present?

YES → Check for continuity from 16A2P1-j to 20A2P04-f.

Is continuity present?

YES → Replace stabilization control amplifier (SCA) per TM9-1425-473-20, Chapter 2, Section V.

Connect 16A2P1.

Then go to paragraph 2-2.

NO → Check for continuity from 16A2P1-F to 20P327-u.

Is continuity present?

YES → Repair wire TG306B22 (ORN) between 20J327-u and 20A2P04-F.

Then continue troubleshooting.

NO → Repair wire TG306A22(ORN) between 16A2P1-F and 20P327-u.

Then continue troubleshooting.

NO → Check for continuity from 20J327-v to 20A2P04-f.

Is continuity present?

YES → Repair wire TG306A22 (BLU) between 16A2P1-j and 20P327-v.

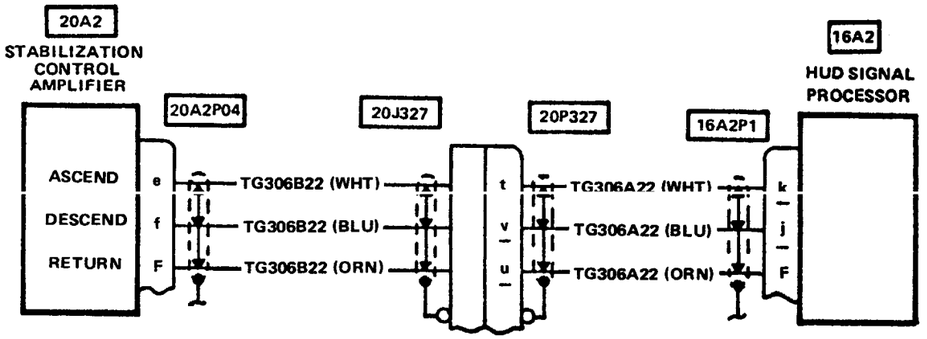
Connect 16A2P1.

Then go to paragraph 2-2.

NO → Repair wire TG306B22 (BLU) between 20J327-v and 20A2P04-f.

Connect 16A2P1.

Then go to paragraph 2-2.



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2-31. DIRECT OR INDIRECT ROCKET RETICLE ERRATIC WITH "F" PRECEDING RANGE NUMERIC.

INITIAL SETUP

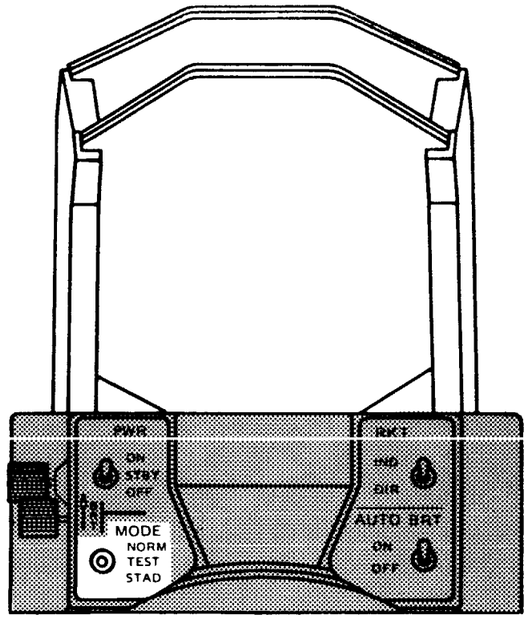
Applicable Configuration
All

Tools/Test and Support Equipment

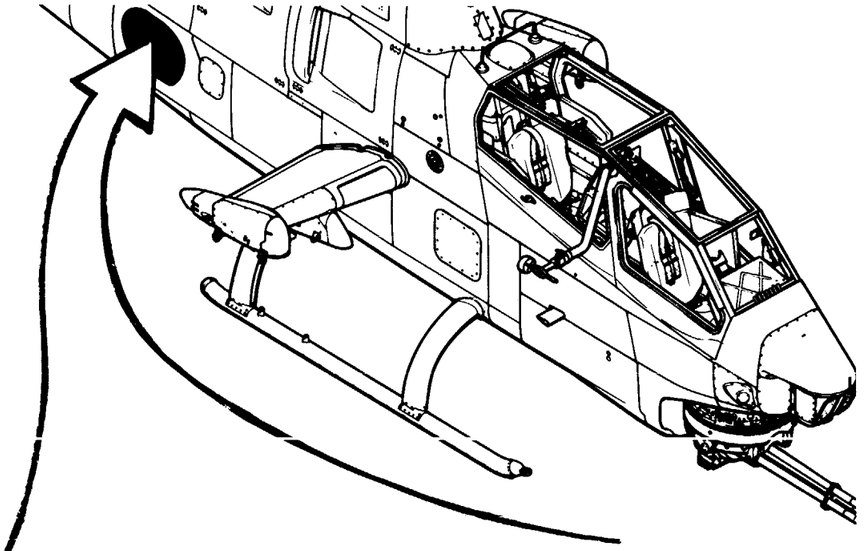
Tool Set, A/C Armament Repairman

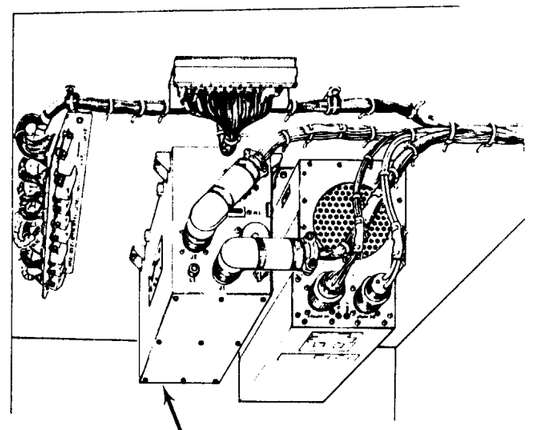
Personnel Required
68L (1)

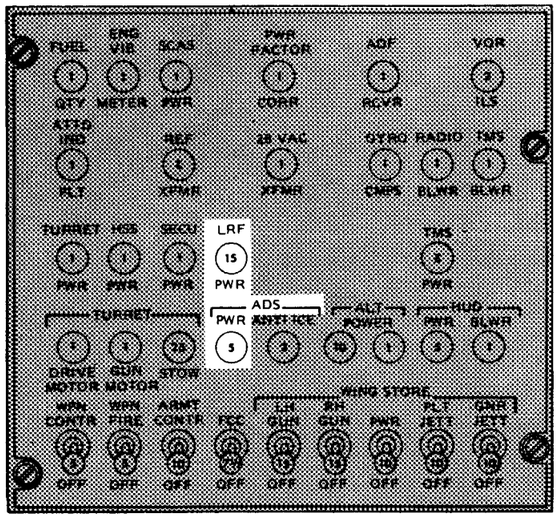
References
TM 9-1270-218-13
TM 9-1270-220-13



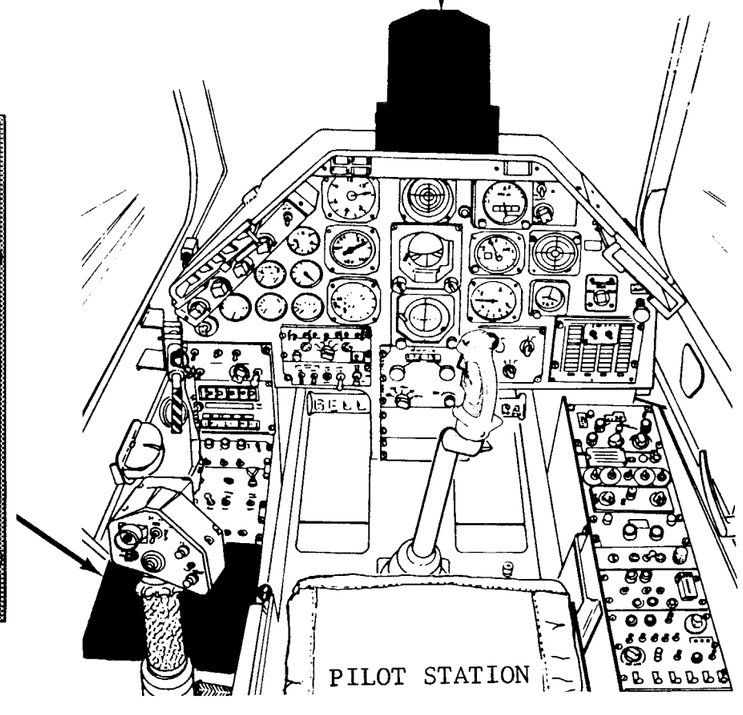
HUD



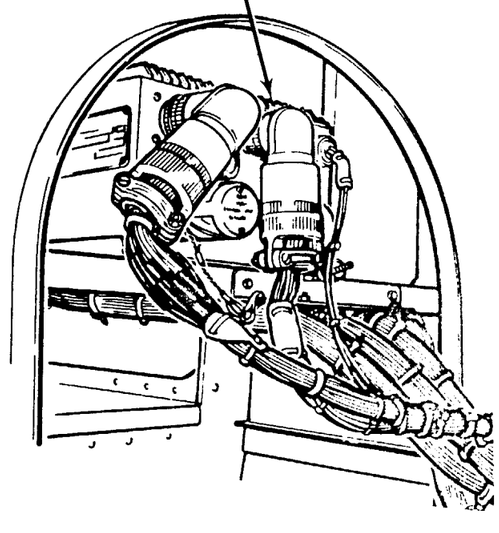




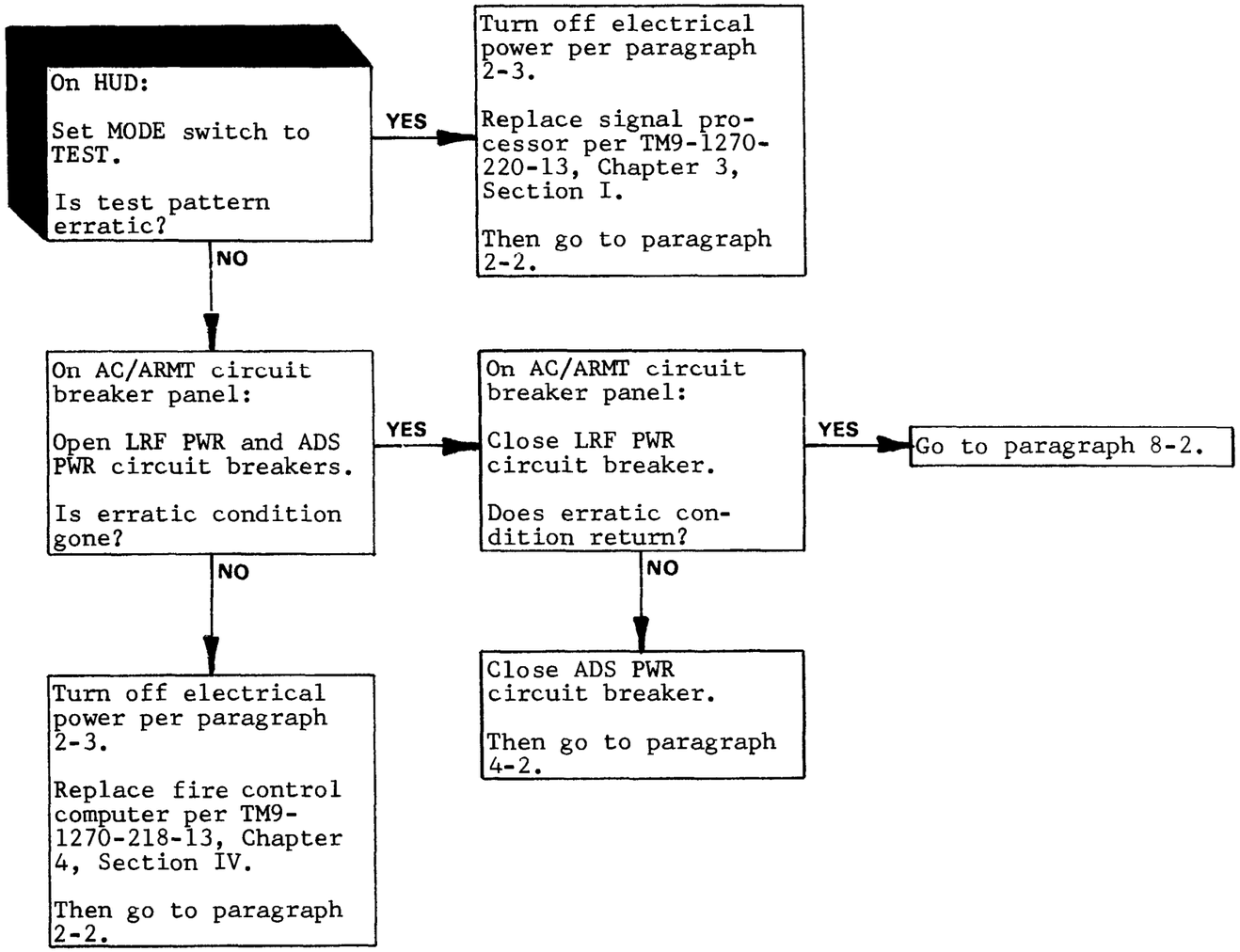
AC/ARMT CIRCUIT BREAKER PANEL



PILOT STATION



2-31. DIRECT OR INDIRECT ROCKET RETICLE ERRATIC WITH "F" PRECEDING RANGE NUMERIC (CONTINUED).



2-32. HUD DISPLAY COMPRESSED OR DISTORTED.

INITIAL SETUP

Applicable Configuration
All

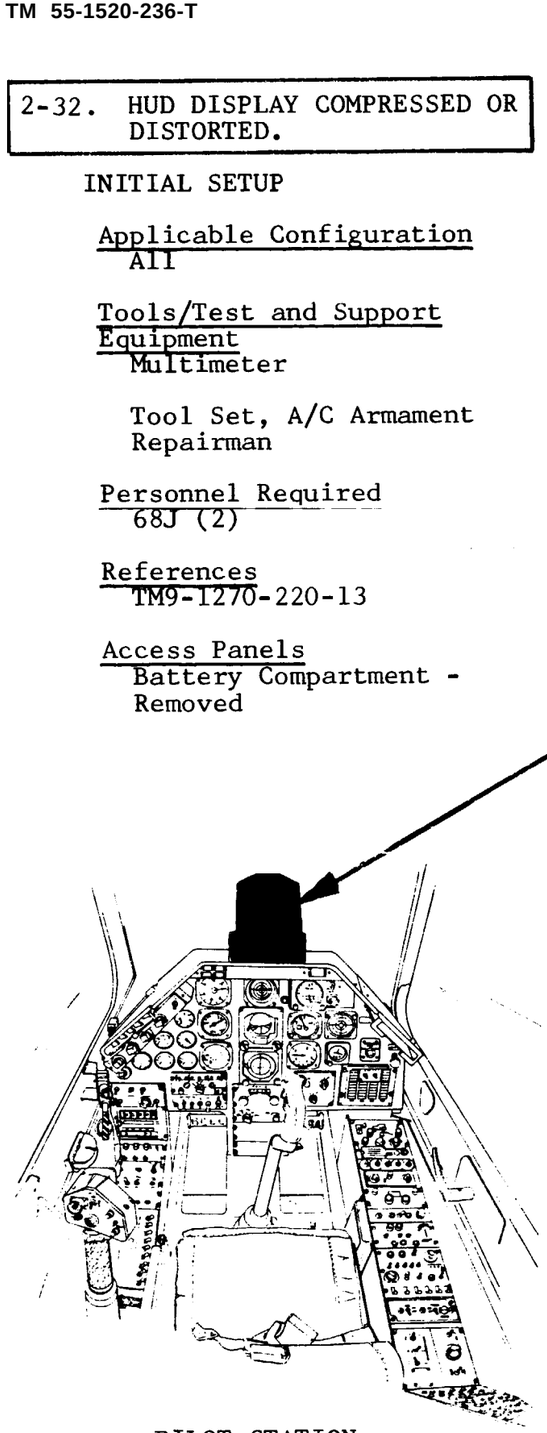
Tools/Test and Support Equipment
Multimeter

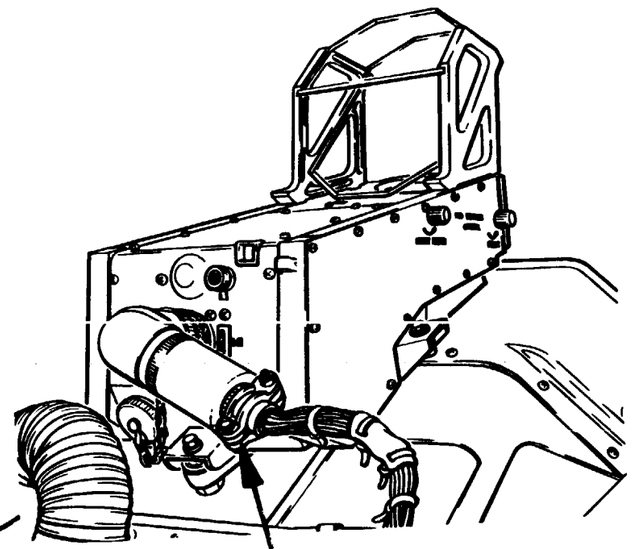
Tool Set, A/C Armament Repairman

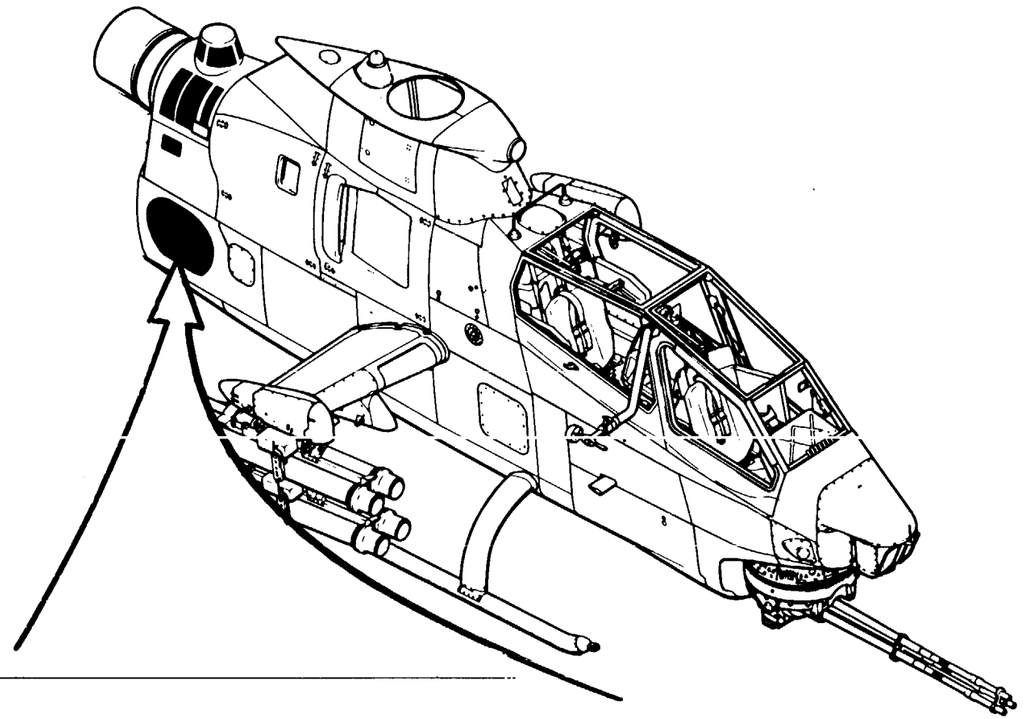
Personnel Required
68J (2)

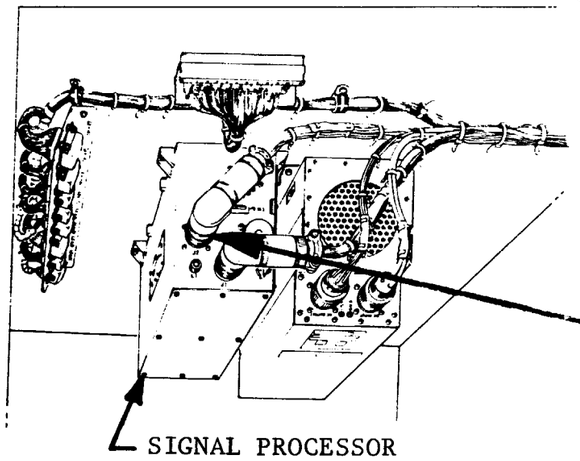
References
TM9-1270-220-13

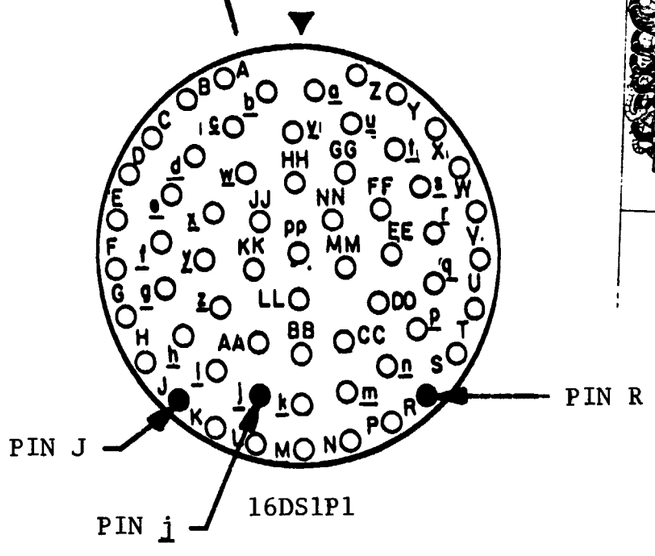
Access Panels
Battery Compartment - Removed

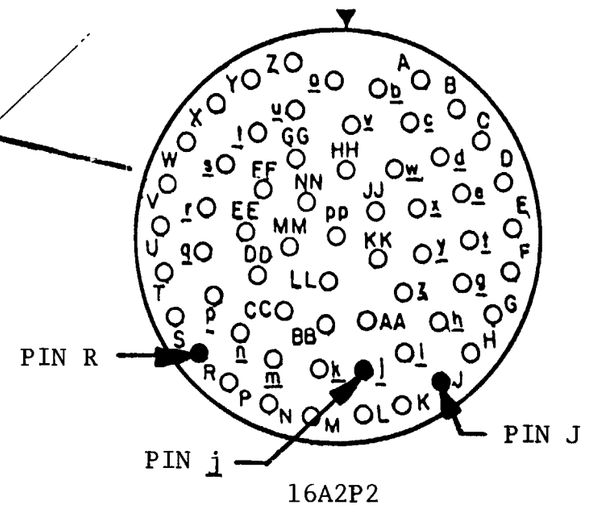












2-32. HUD DISPLAY COMPRESSED OR DISTORTED (CONTINUED).

Turn off electrical power per paragraph 2-3.

Check the following wires for continuity and for short to connector backshell:

WIRE NUMBER	FROM	TO
A1125A22(WHT)	16DS1P1-J	16A2P2-J
A1126A22(WHT)	16DS1P1-R	16A2P2-R
A1127A22(WHT)	16DS1P1-j	16A2P2-j

Is continuity present on each wire and without a short to connector backshell?

YES → Test signal processor using test set per TM9-1270-220-13, Chapter 4, Section I.

Does signal processor pass test?

YES → Replace HUD per TM9-1270-220-13, Chapter 3, Section I.

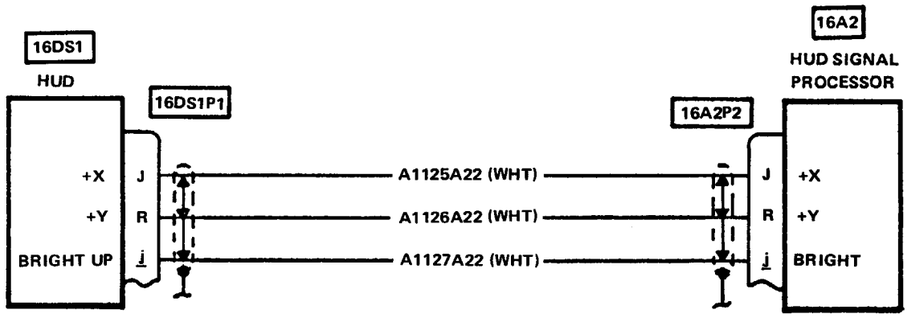
Then go to paragraph 2-2.

NO → Replace signal processor per TM9-1270-220-13, Chapter 3, Section I.

Then go to paragraph 2-2.

NO → Repair wire(s) if shorted to connector backshell or if continuity is not present.

Then go to paragraph 2-2.



2-33. NORMAL AND TEST PATTERN DISPLAY APPEARS WITH PWR SWITCH IN STBY.

INITIAL SETUP

Applicable Configuration
All

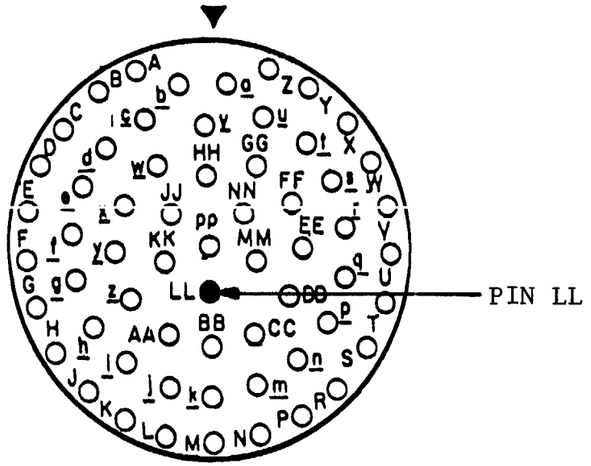
Tools/Test and Support Equipment
Multimeter

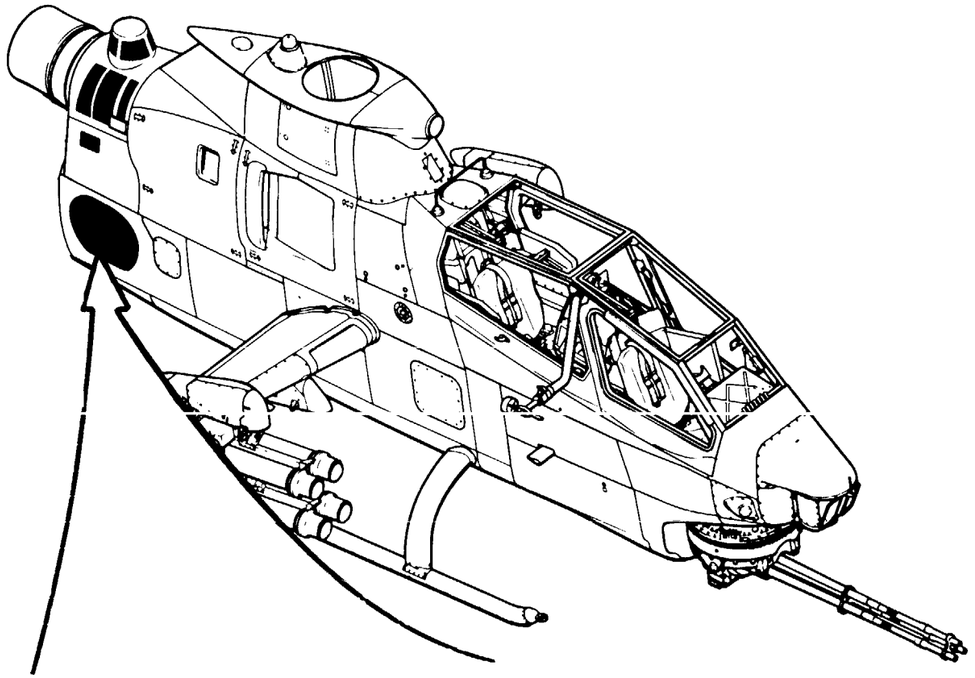
Tool Set, A/C Armament Repairman

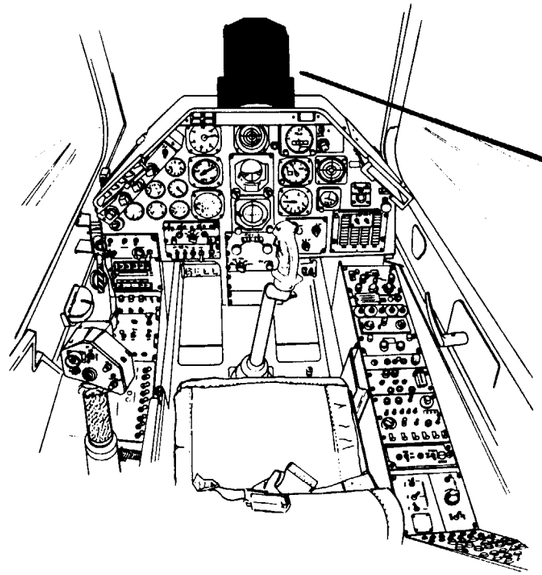
Personnel Required
68J (2)

References
TM9-1270-220-13

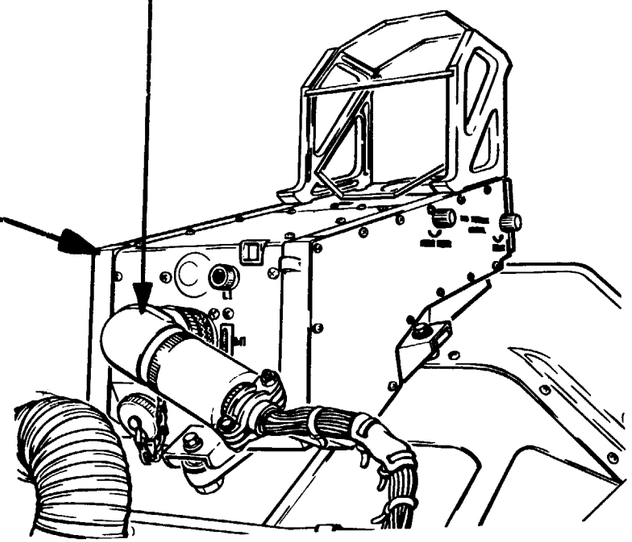
Access Panels
Battery Compartment - Removed



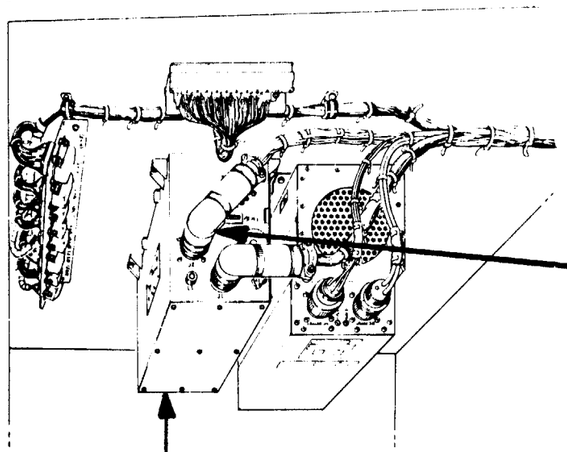


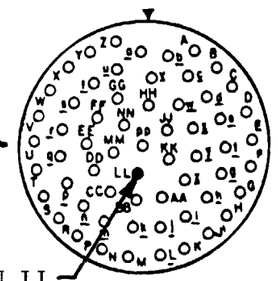


PILOT STATION



HUD (REAR VIEW)





SIGNAL PROCESSOR

2-33. NORMAL AND TEST PATTERN DISPLAY APPEARS WITH PWR SWITCH IN STBY (CONTINUED).

Turn off electrical power per paragraph 2-3.

Check for continuity from 16DS1P1-LL to 16A2P2-LL.

Is continuity present?

YES

Test signal processor using test set per TM9-1270-220-13, Chapter 4, Section I.

Does signal processor pass test?

YES

Replace HUD per TM9-1270-220-13, Chapter 3, Section I.

Then go to paragraph 2-2.

NO

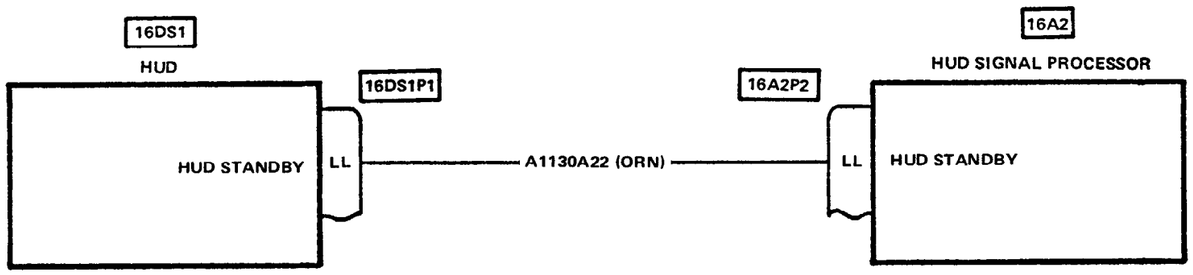
Repair wire A1130A22(ORN) between 16DS1P1-LL and 16A2P2-LL.

Then go to paragraph 2-2.

NO

Replace signal processor per TM9-1270-220-13, Chapter 3, Section I.

Then go to paragraph 2-2.



2-34. ELAPSED TIME METER ON HUD DOES NOT OPERATE

INITIAL SETUP

Applicable Configuration
All

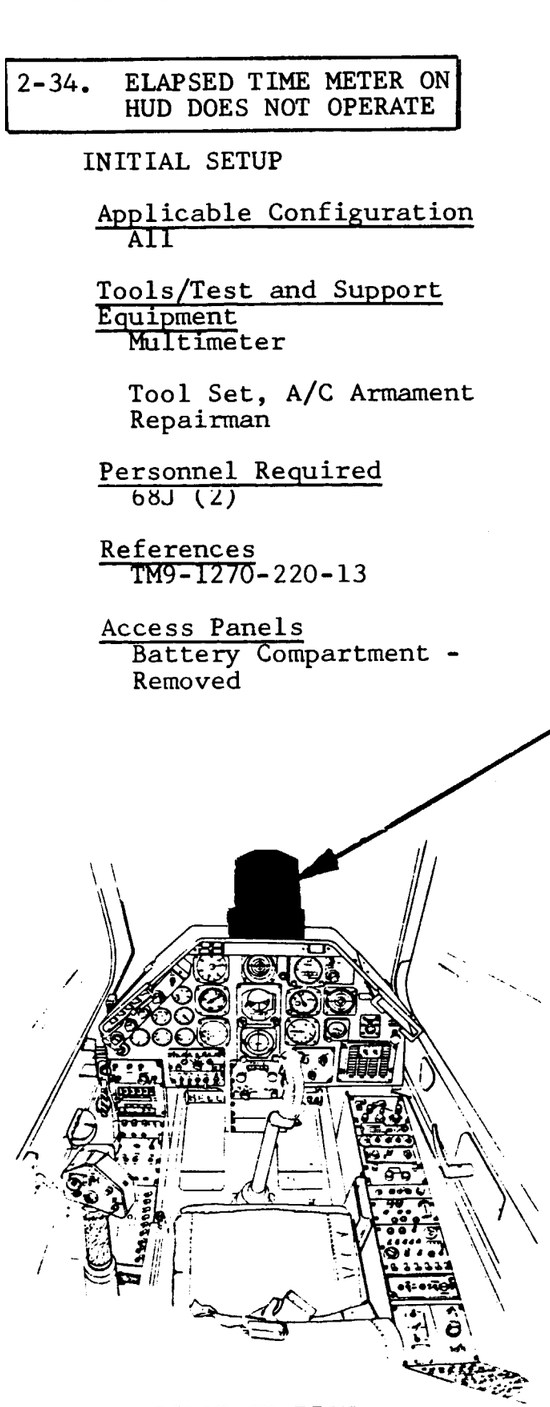
Tools/Test and Support Equipment
Multimeter

Tool Set, A/C Armament Repairman

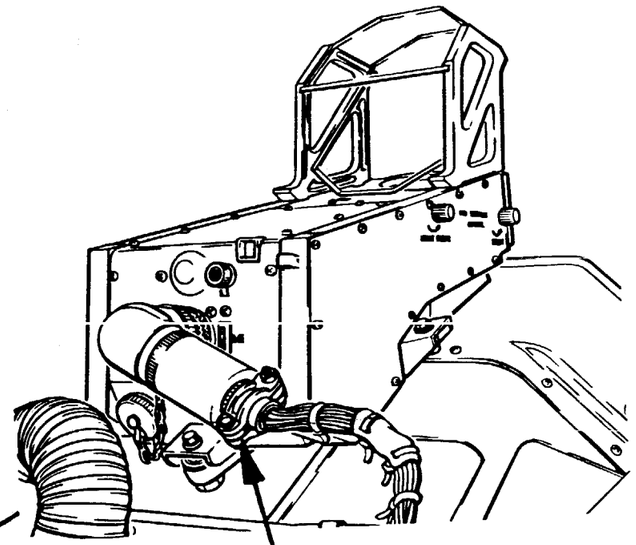
Personnel Required
68J (2)

References
TM9-1270-220-13

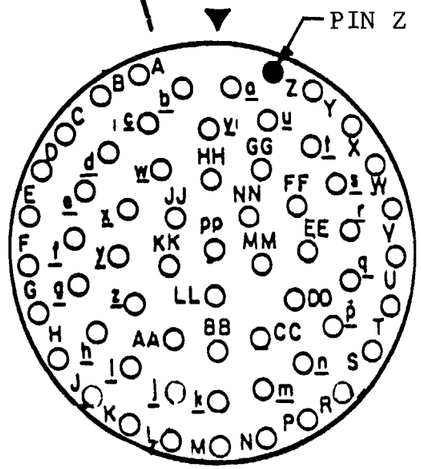
Access Panels
Battery Compartment - Removed



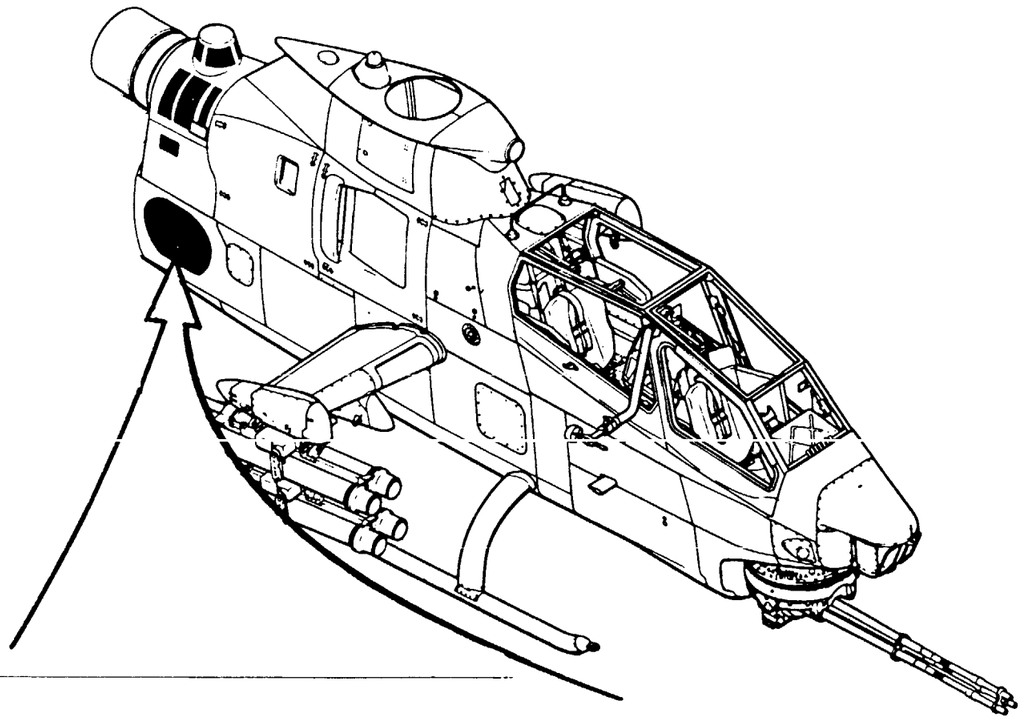
PILOT STATION

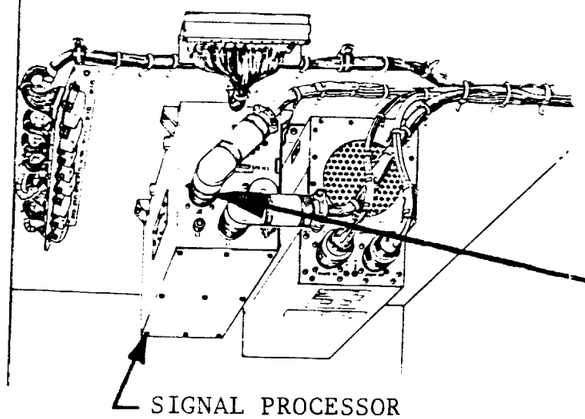


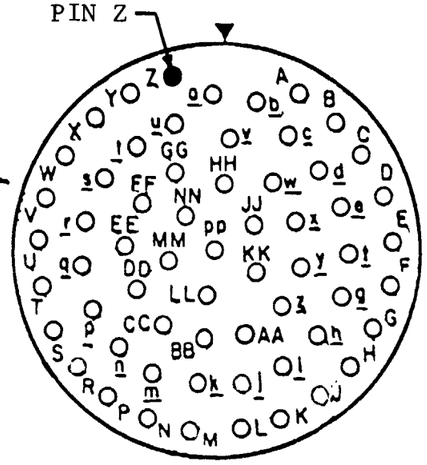
HUD (REAR VIEW)



16DS1P1

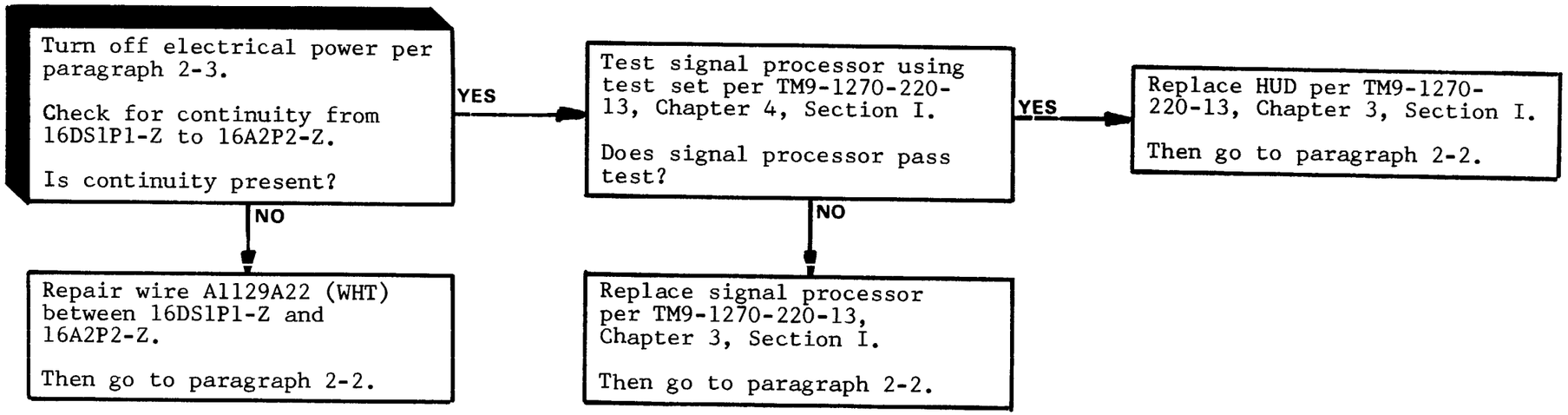


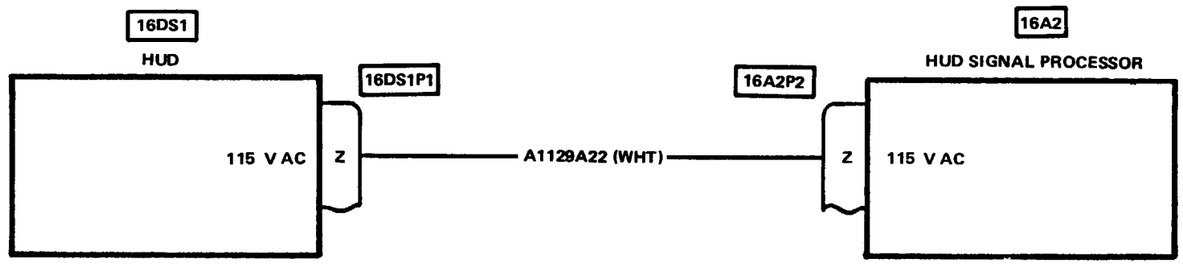




16A2P2

2-34. ELAPSED TIME METER ON HUD DOES NOT OPERATE (CONTINUED).





2-35. DIRECT ROCKET RETICLE APPEARS WITH RKT SWITCH IN IND.

INITIAL SETUP

Applicable Configuration
All

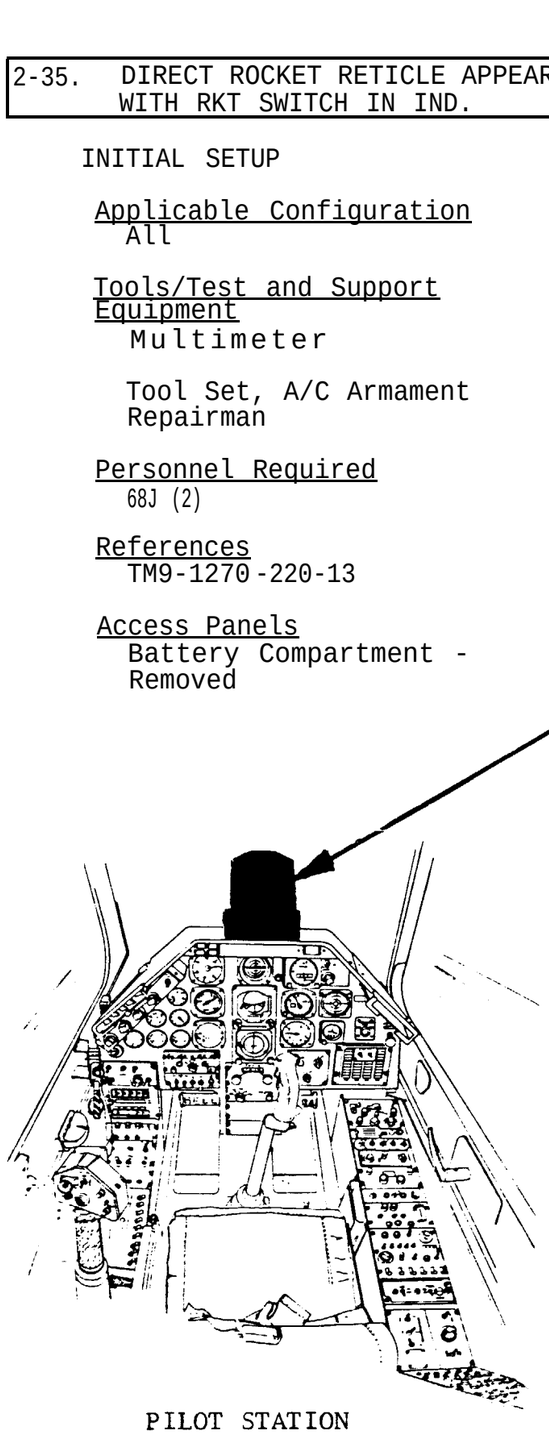
Tools/Test and Support Equipment
Multimeter

Tool Set, A/C Armament Repairman

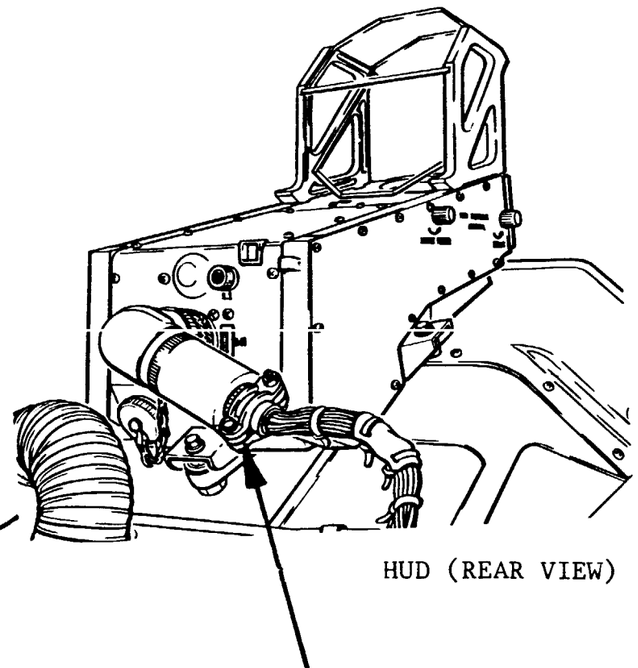
Personnel Required
68J (2)

References
TM9-1270-220-13

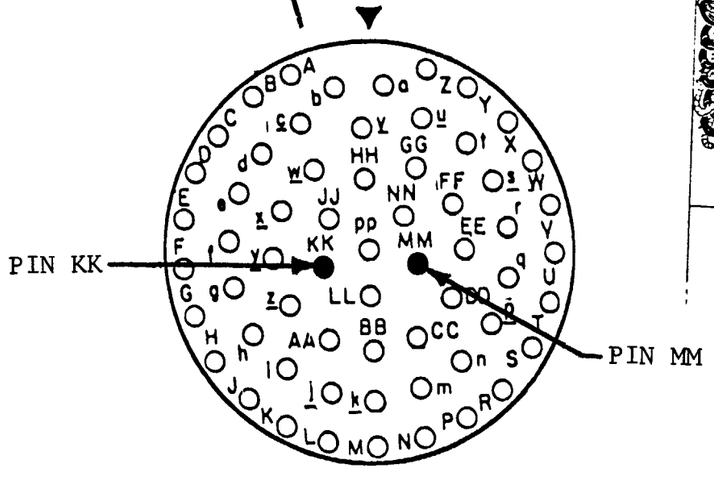
Access Panels
Battery Compartment - Removed



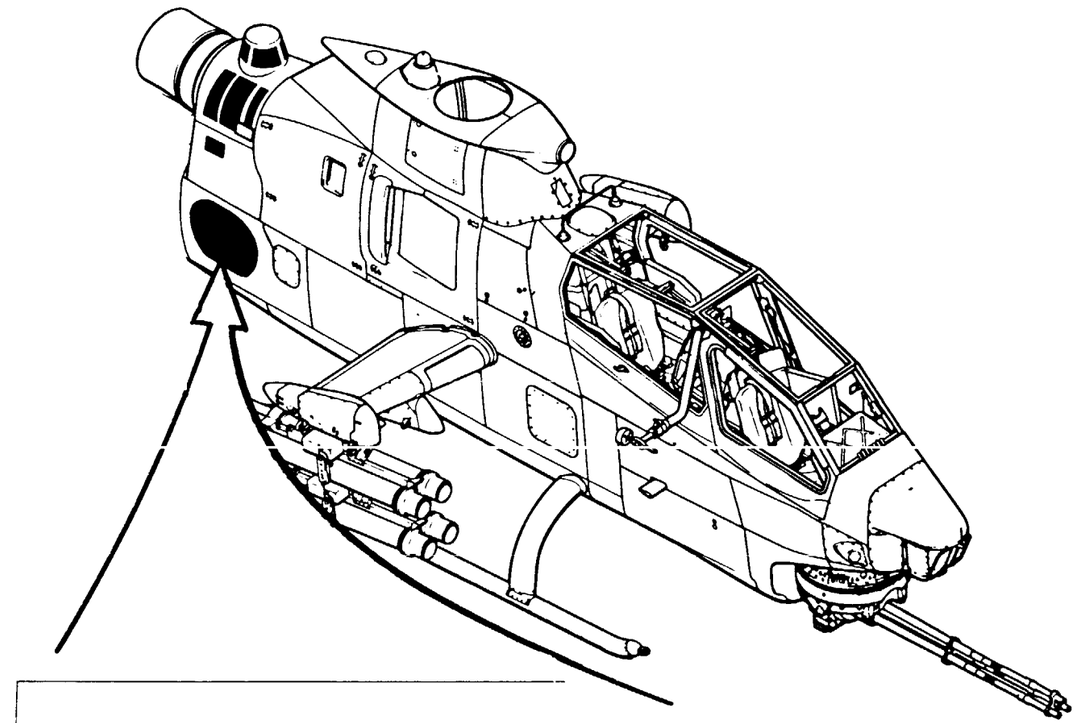
PILOT STATION

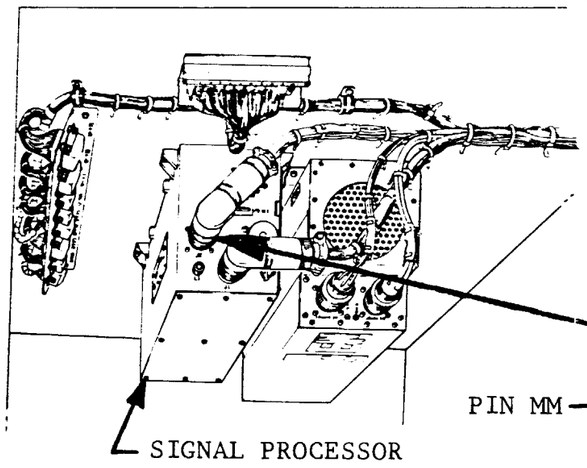


HUD (REAR VIEW)

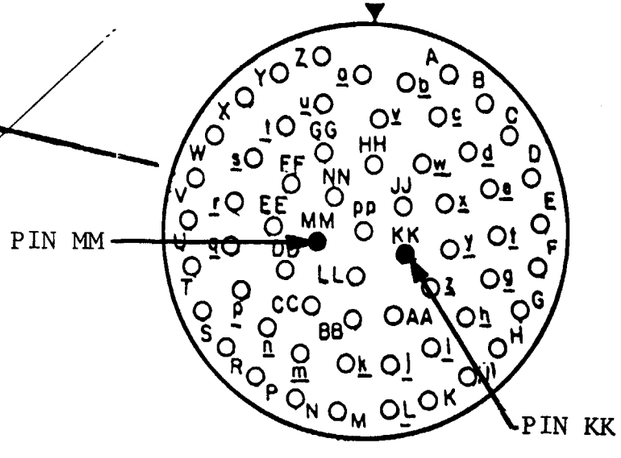


16DS1P1





SIGNAL PROCESSOR



16A2P2

2-35. DIRECT ROCKET RETICLE APPEARS WITH RKT SWITCH IN IND (CONTINUED).

Turn off electrical power per paragraph 2-3.

Check the following wires for continuity and for short to connector backshell:

WIRE NUMBER	FROM	TO
A1132A22(WHT)	16DS1P1-KK	16A2P2-KK
A1132A22(BLU)	16DS1P1-MM	16A2P2-MM

Is continuity present on each wire and without a short to connector backshell?

YES → Test signal processor using test set per TM9-1270-220-13, Chapter 4, Section I.

Does signal processor pass test?

YES → Replace HUD per TM9-1270-220-13, Chapter 3, Section I.

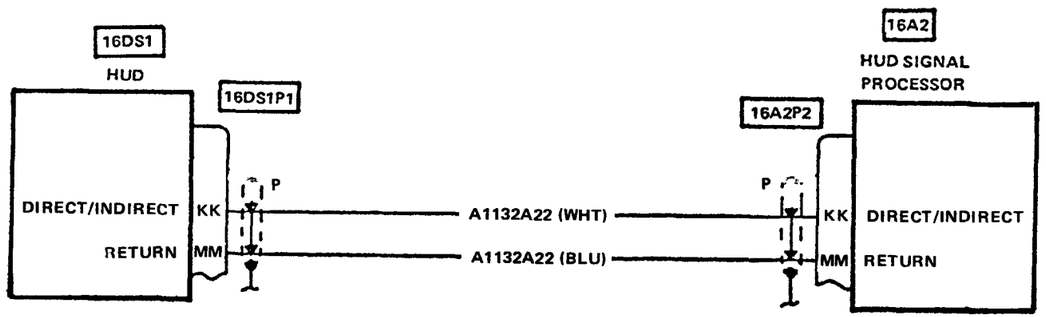
Then go to paragraph 2-2.

NO → Replace signal processor per TM9-1270-220-13, Chapter 3, Section I.

Then go to paragraph 2-2.

NO → Repair wire(s) if shorted to connector backshell or if continuity is not present.

Then go to paragraph 2-2.



2-36. HUD NORMAL DISPLAY APPEARS WITH MODE SWITCH IN STAD AND PWR SWITCH IN ON.

INITIAL SET UP

Applicable Configuration
All

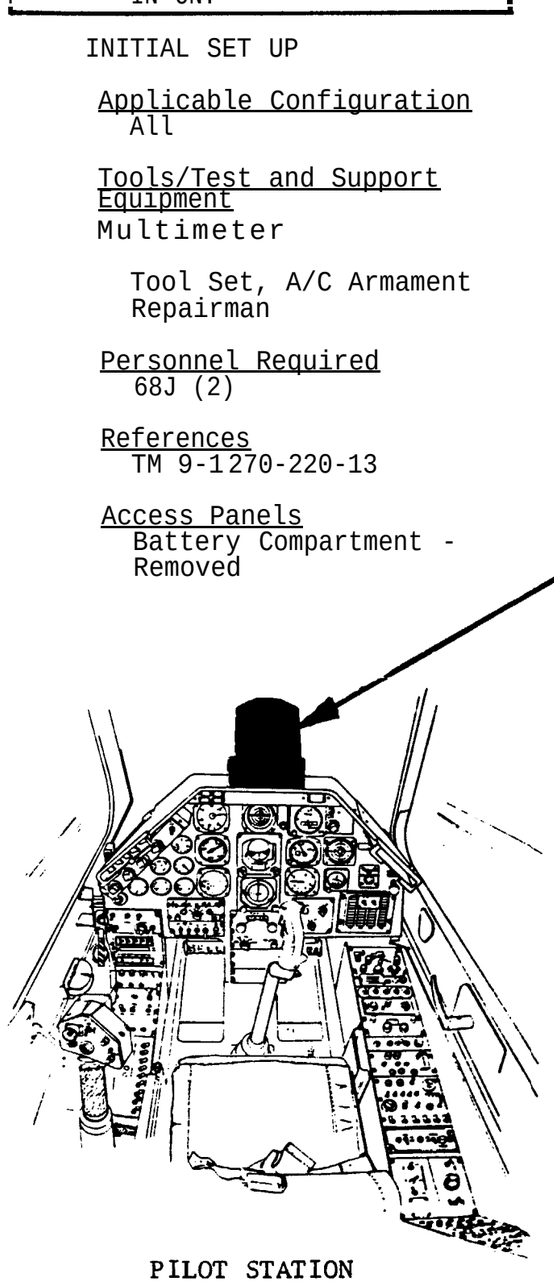
Tools/Test and Support Equipment
Multimeter

Tool Set, A/C Armament Repairman

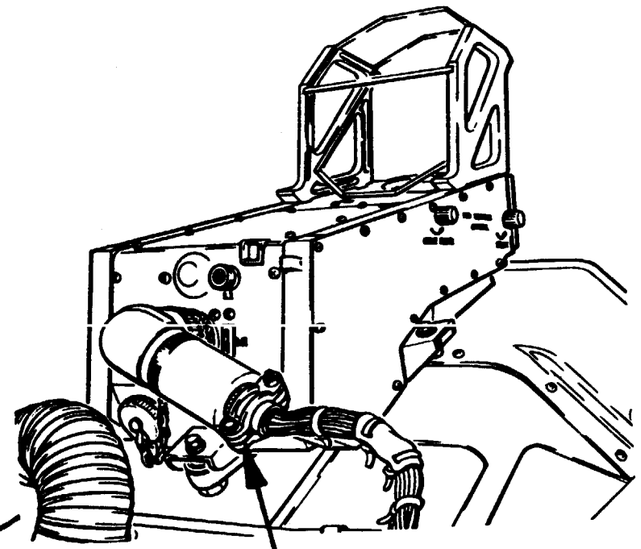
Personnel Required
68J (2)

References
TM 9-1270-220-13

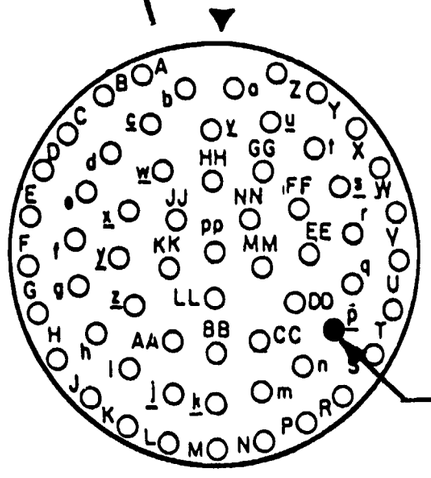
Access Panels
Battery Compartment - Removed



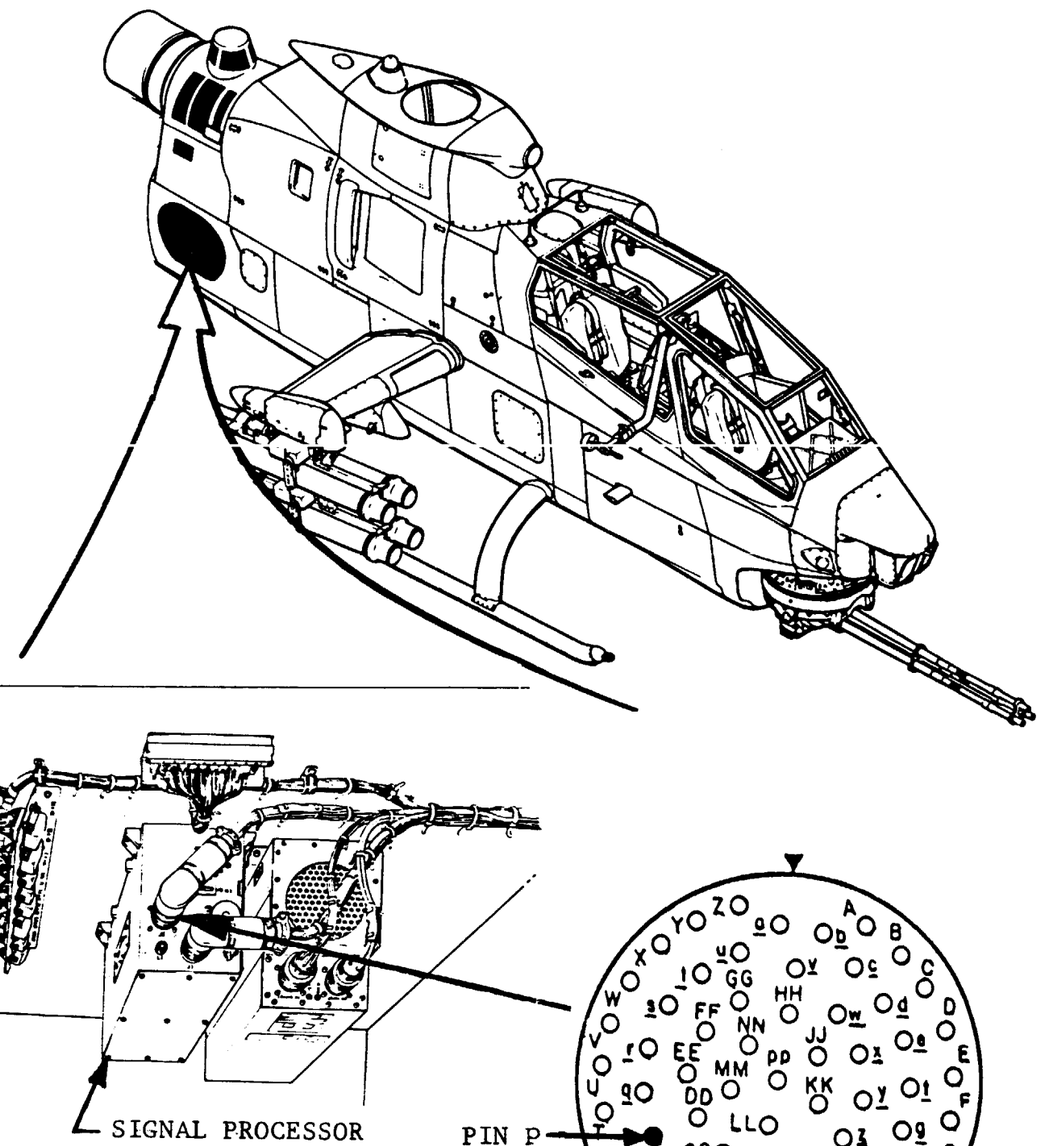
PILOT STATION



HUD (REAR VIEW)



16DS1P1



16A2P2

2-36. HUD NORMAL DISPLAY APPEARS WITH MODE SWITCH IN STAD AND PWR SWITCH IN ON (CONTINUED).

Turn off electrical power per paragraph 2-3.

Check the following wire for continuity and for short to connector backshell:

WIRE NUMBER	FROM	TO
A1128A22(WHT)	16DS1P1-P	16A2P2-P

Is continuity present and without a short to connector backshell?

YES → Test signal processor using test set per TM9-1270-220-13, Chapter 4, Section I.

Does signal processor pass test?

YES → Replace HUD per TM9-1270-220-13, Chapter 3, Section I.

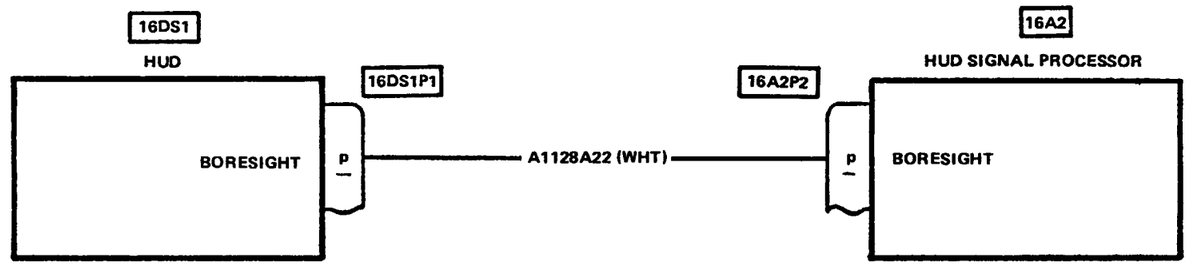
Then go to paragraph 2-2.

NO → Replace signal processor per TM9-1270-220-13, Chapter 3, Section I.

Then go to paragraph 2-2.

NO → Repair wire if shorted to connector backshell or if continuity is not present.

Then go to paragraph 2-2.



2-37. HUD TEST PATTERN APPEARS WITH MODE SWITCH IN NORM.

INITIAL SETUP

Applicable Configuration
All

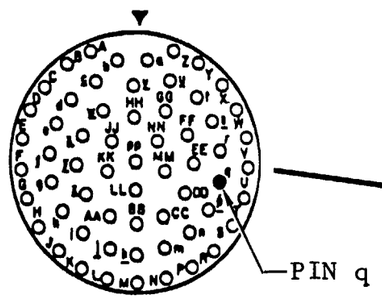
Tools/Test and Support Equipment
Multimeter

Tool Set, A/C Armament Repairman

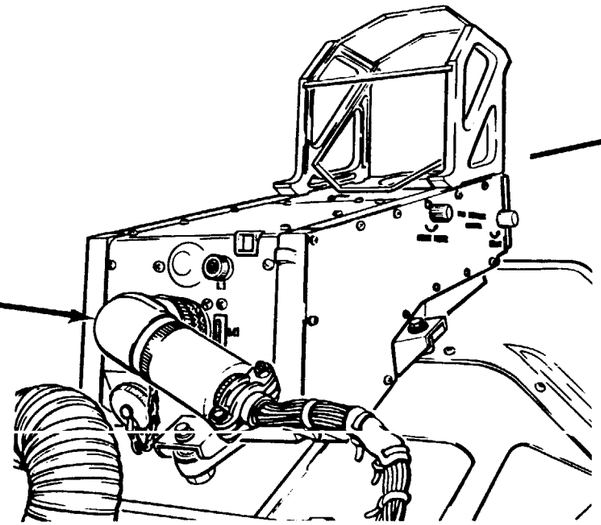
Personnel Required
68J (2)

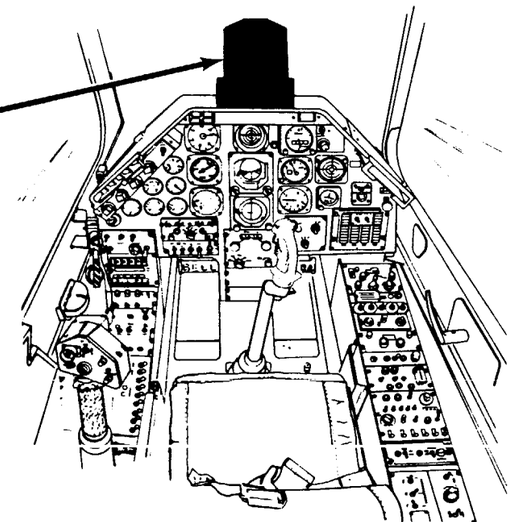
References
TM9-1270-220-13

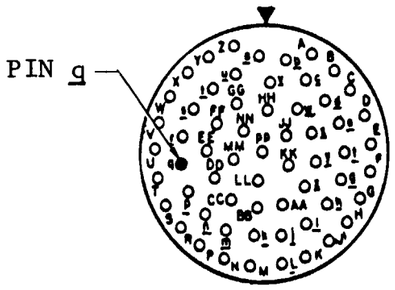
Access Panels
Battery Compartment - Removed



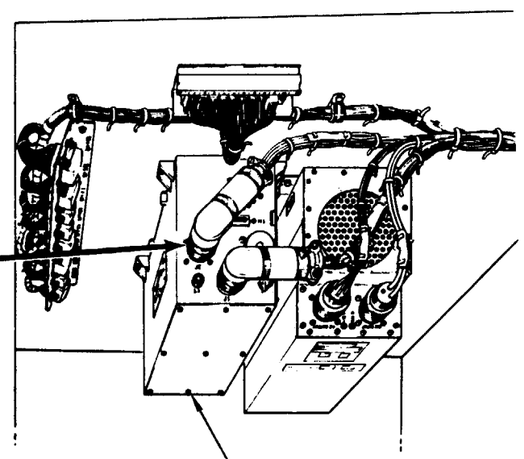
16DS1P1

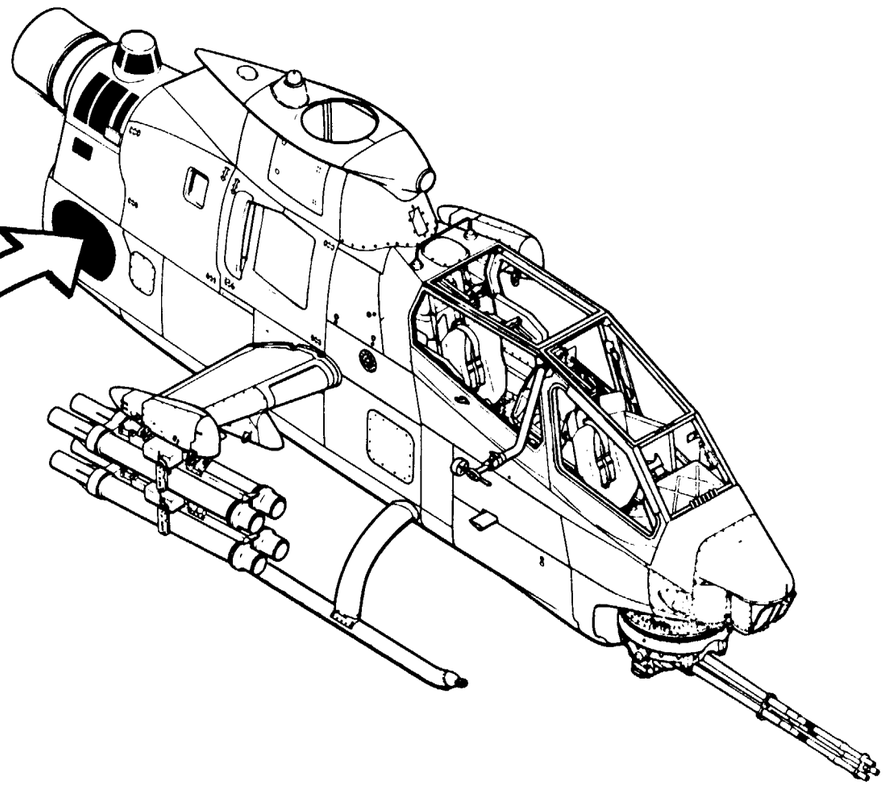

HUD (REAR VIEW)


PILOT STATION



16A2P2


SIGNAL PROCESSOR



2-37. HUD TEST PATTERN APPEARS WITH MODE SWITCH IN NORM (CONTINUED).

Turn off electrical power per paragraph 2-3.

Check the following wire for continuity and for short to connector backshell:

WIRE NUMBER	FROM	TO
A1128A22(BLU)	16DS1P1-q	16A2P2-q

Is continuity present and without a short to connector backshell?

NO →

Repair wire if shorted to connector backshell or if continuity is not present.

Then go to paragraph 2-2.

YES →

Test signal processor using test set per TM9-1270-220-13, Chapter 4, Section I.

Does signal processor pass test?

YES →

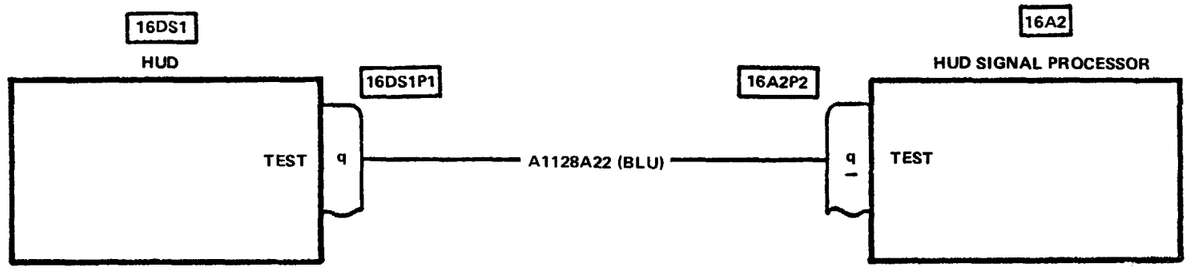
Replace HUD per TM9-1270-220-13, Chapter 3, Section I.

Then go to paragraph 2-2.

NO →

Replace signal processor per TM9-1270-220-13, Chapter 3, Section I.

Then go to paragraph 2-2.



2-38. RIGHT TOW MISSILE SYMBOL APPEARS ON HUD WHEN IT SHOULD NOT.

INITIAL SETUP

Applicable Configuration
All

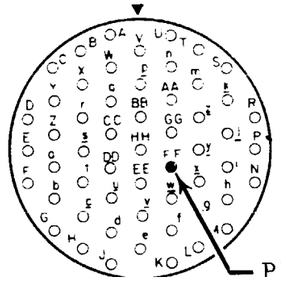
Tools/Test and Support Equipment
Multimeter

Tool Set, A/C Armament Repairman

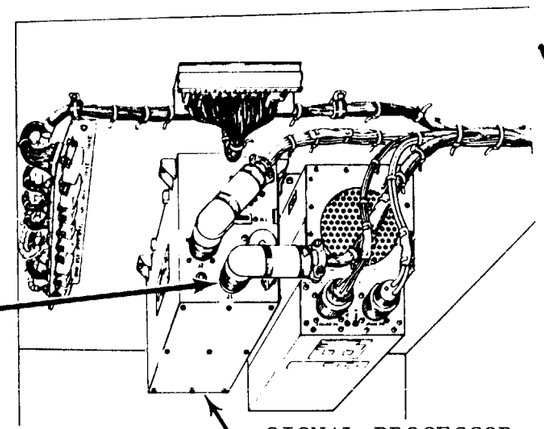
Personnel Required
68J (2)

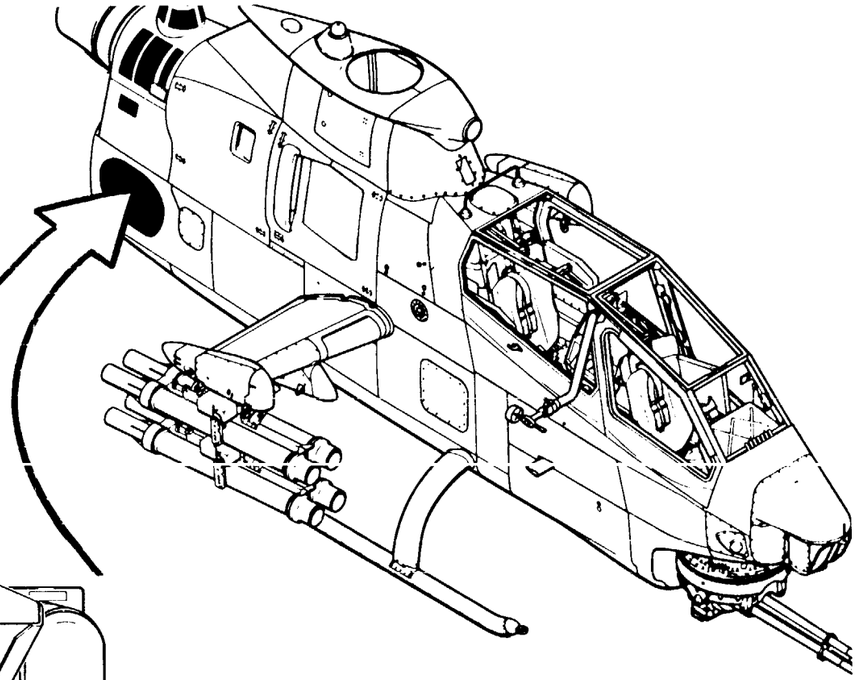
References
TM 9-1425-473-20
TM 9-1270-220-13

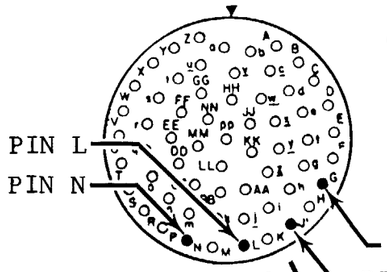
Access Panels
Battery Compartment - Removed



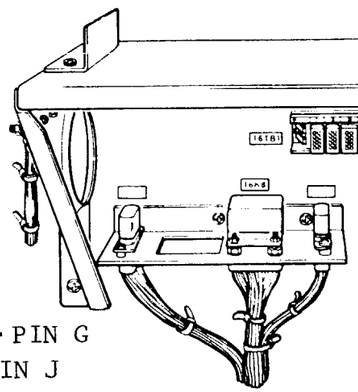
16A2P1

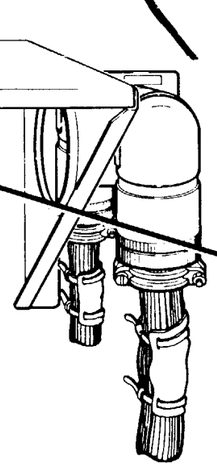






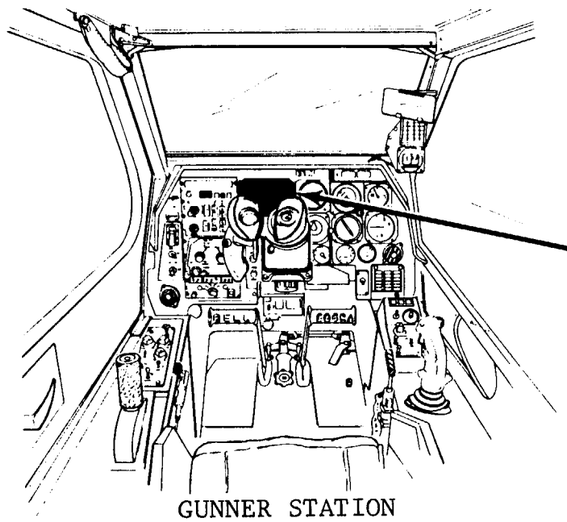
20A4P02

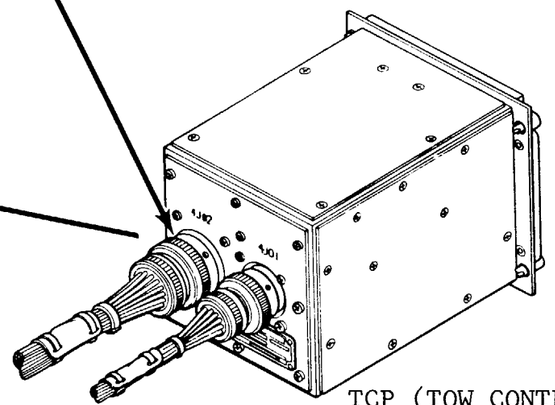


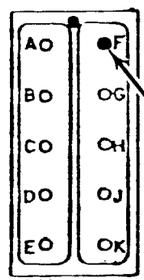




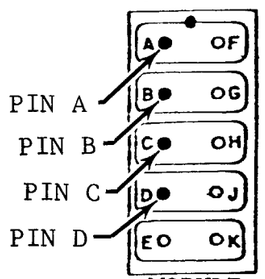
16TB1


GUNNER STATION


TCP (TOW CONTROL PANEL) (REAR VIEW)



MODULE 13



MODULE 14

2-38. RIGHT TOW MISSILE SYMBOL APPEARS ON HUD WHEN IT SHOULD NOT (CONTINUED).

Turn off electrical power per paragraph 2-3.

Remove wire TG284A22 from 16TB1-13F.

Turn on electrical power per paragraph 2-3.

Does right TOW missile symbol appear when it should not?

YES → Turn off electrical power per paragraph 2-3.

Check for continuity from 16A2P1-FF to airframe ground.

Is continuity present?

YES → Repair wire TG284A22 between 16TB1-13F and 16A2P1-FF to eliminate short.

Then go to paragraph 2-2.

NO → Replace signal processor per TM9-1270-220-13, Chapter 3, Section I.

Insert wire TG284A22 into 16TB1-13F.

Then go to paragraph 2-2.

NO → Turn off electrical power per paragraph 2-3.

Disconnect 20A4P02.

Check for continuity from 16TB1-13F to airframe ground.

Is continuity present?

YES → Check the following wires for continuity to airframe ground.

WIRE NO.	FROM	TO
TG256A22	20A4P02-G	16TB1-14A
TG258A22	20A4P02-J	16TB1-14B
TG260A22	20A4P02-L	16TB1-14C

Is continuity present?

YES → Repair wire(s) where continuity is present to eliminate short.

Insert wire TG284A22 into 16TB1-13F.

Connect 20A4P02.

Then go to paragraph 2-2.

NO → Repair wire TG262A22 between 20A4P02-N and 16TB1-14D to eliminate short.

Insert wire TG284A22 into 16TB1-13F.

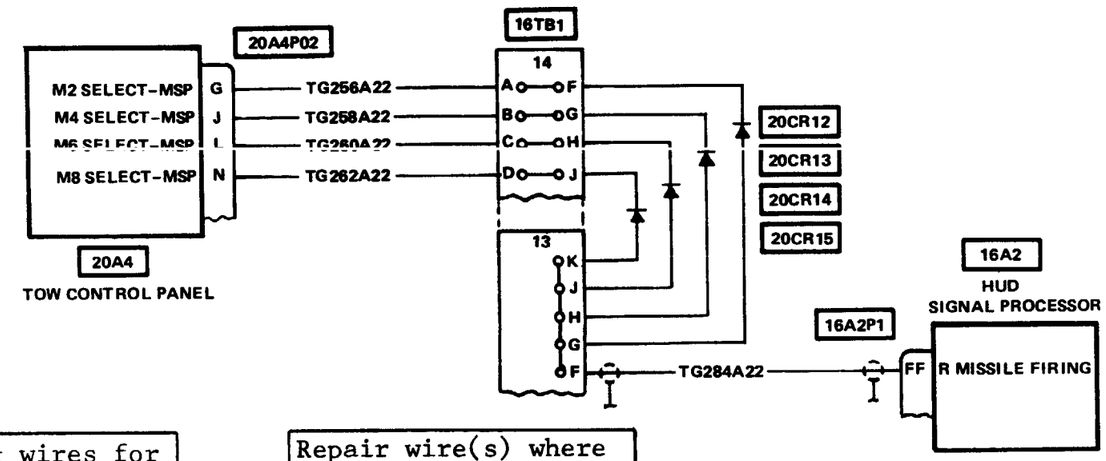
Connect 20A4P02.

Then go to paragraph 2-2.

NO → Replace TCP(TOW control panel) per TM9-1425-473-20, Chapter 2, Section V.

Insert wire TG284A22 into 16TB1-13F.

Then go to paragraph 2-2.



2-39. LEFT TOW MISSILE SYMBOL APPEARS ON HUD WHEN IT SHOULD NOT.

INITIAL SETUP

Applicable Configuration
All

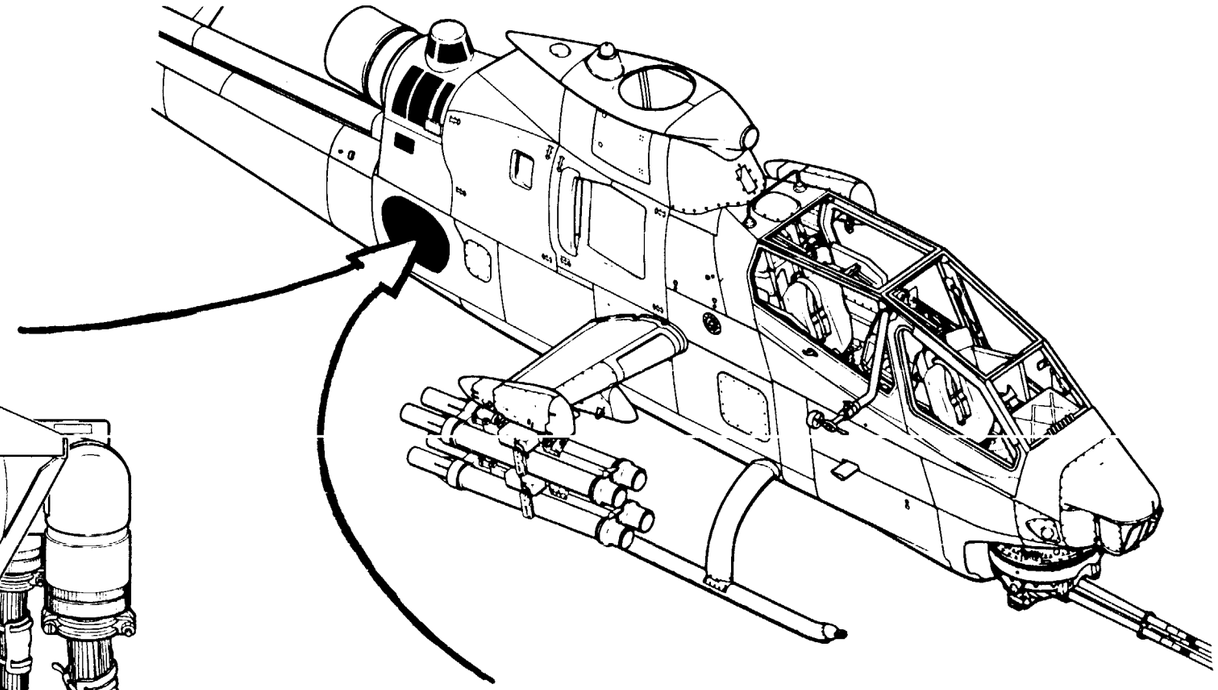
Tools/Test and Support Equipment
Multimeter

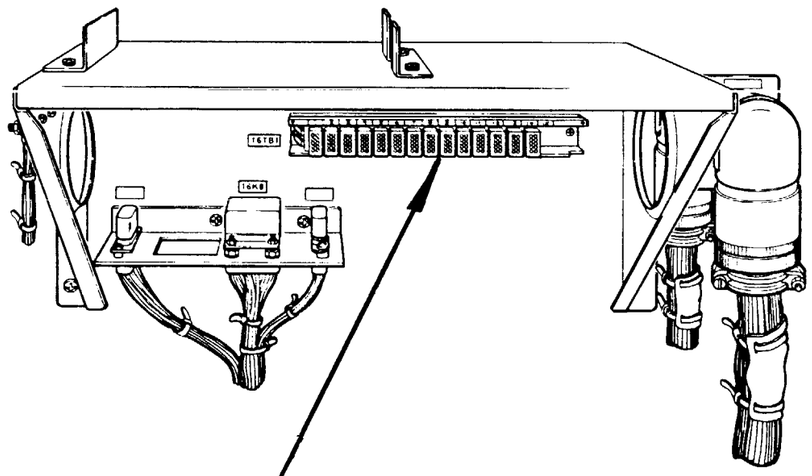
Tool Set, A/C Armament Repairman

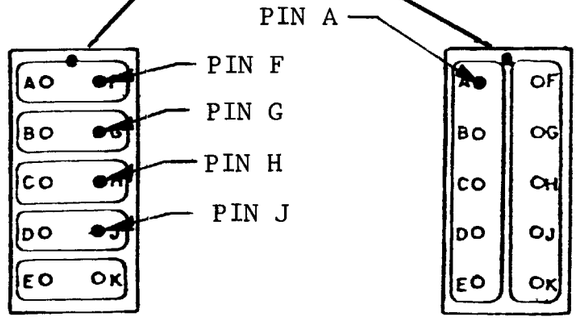
Personnel Required
68J (2)

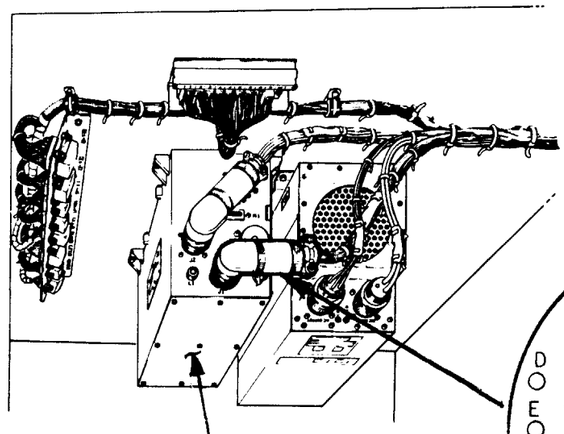
References
TM 9-1425-473-20
TM 9-1270-220-13

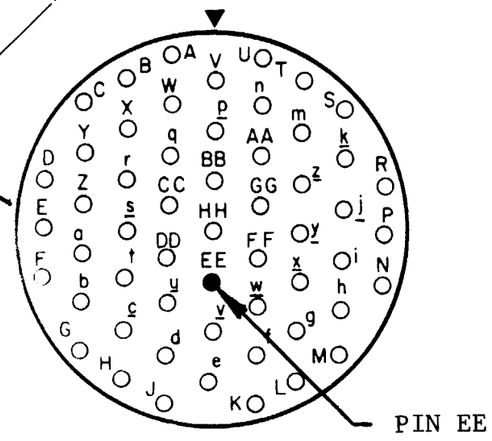
Access Panels
Battery Compartment - Removed



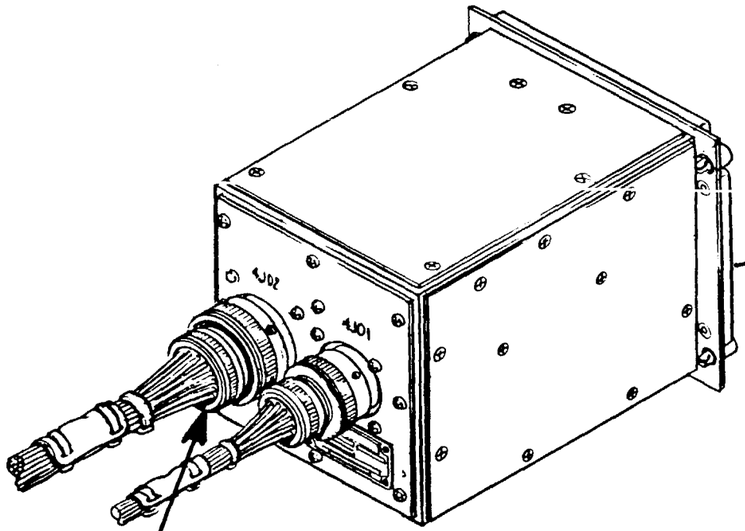




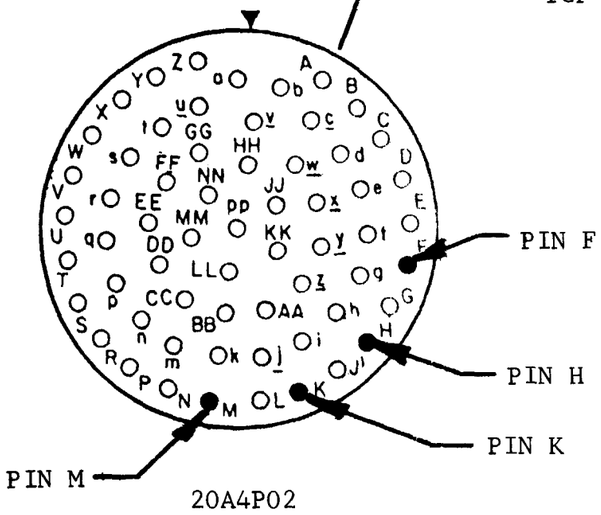




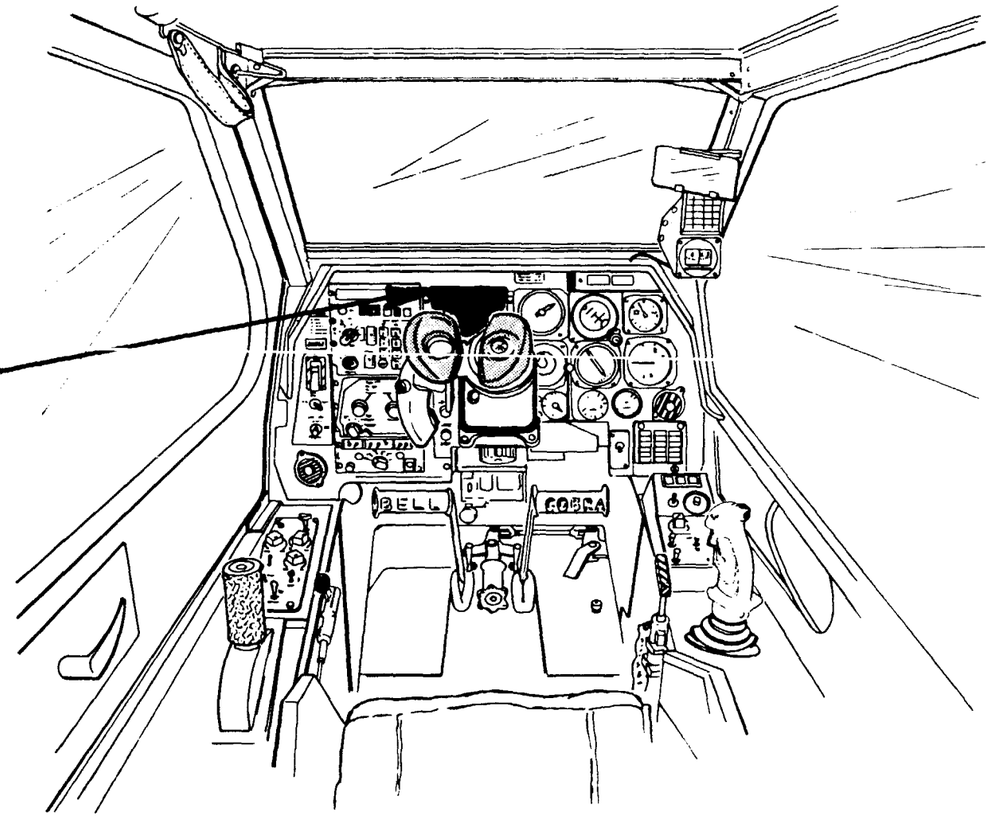
2-39. LEFT TOW MISSILE SYMBOL APPEARS ON HUD WHEN IT SHOULD NOT (CONTINUED).



TCP (TOW CONTROL PANEL)
(REAR VIEW)



20A4P02



GUNNER STATION

2-39. LEFT TOW MISSILE SYMBOL APPEARS ON HUD WHEN IT SHOULD NOT (CONTINUED).

Turn off electrical power per paragraph 2-3.

Disconnect wire TG283A22 from 16TB1-13A.

Turn on electrical power per paragraph 2-3.

Does left TOW missile symbol appear when it should not?

YES

Turn off electrical power per paragraph 2-3.

Check for continuity from 16A2P1-EE to airframe ground.

Is continuity present?

YES

Repair wire TG283A22 between 16TB1-13A and 16A2P1-EE to eliminate short.

Then go to paragraph 2-2.

NO

Replace signal processor per TM9-1270-220-13, Chapter 3, Section I.

Insert wire TG283A22 into 16TB1-13A.

Then go to paragraph 2-2.

NO

Turn off electrical power per paragraph 2-3.

Disconnect 20A4P02.

Check for continuity from 16TB1-13A to airframe ground.

Is continuity present?

YES

Check the following wires for continuity to airframe ground:

WIRE NO.	FROM	TO
TG255A22	20A4P02-F	16TB1-12F
TG257A22	20A4P02-H	16TB1-12G
TG259A22	20A4P02-K	16TB1-12H

Is continuity present?

YES

Repair wire TG261A22 between 20A4P02-M and 16TB1-12J to eliminate short.

Insert wire TG283A22 into 16TB1-13A.

Connect 20A4P02.

Then go to paragraph 2-2.

NO

Repair wire(s) to eliminate short.

Insert wire TG283A22 into 16TB1-13A.

Connect 20A4P02.

Then go to paragraph 2-2.

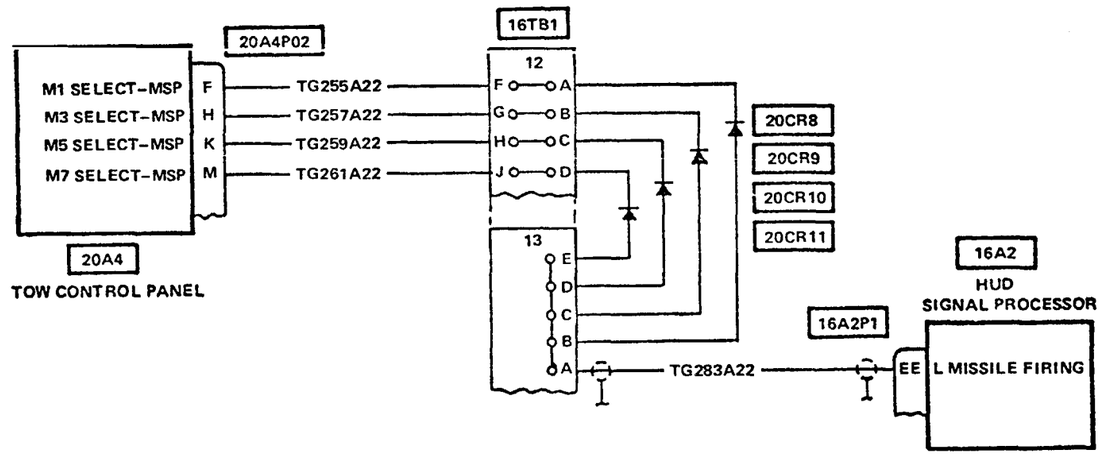
NO

Replace TCP (TOW control panel) per TM9-1425-473-20, Chapter 2, Section V.

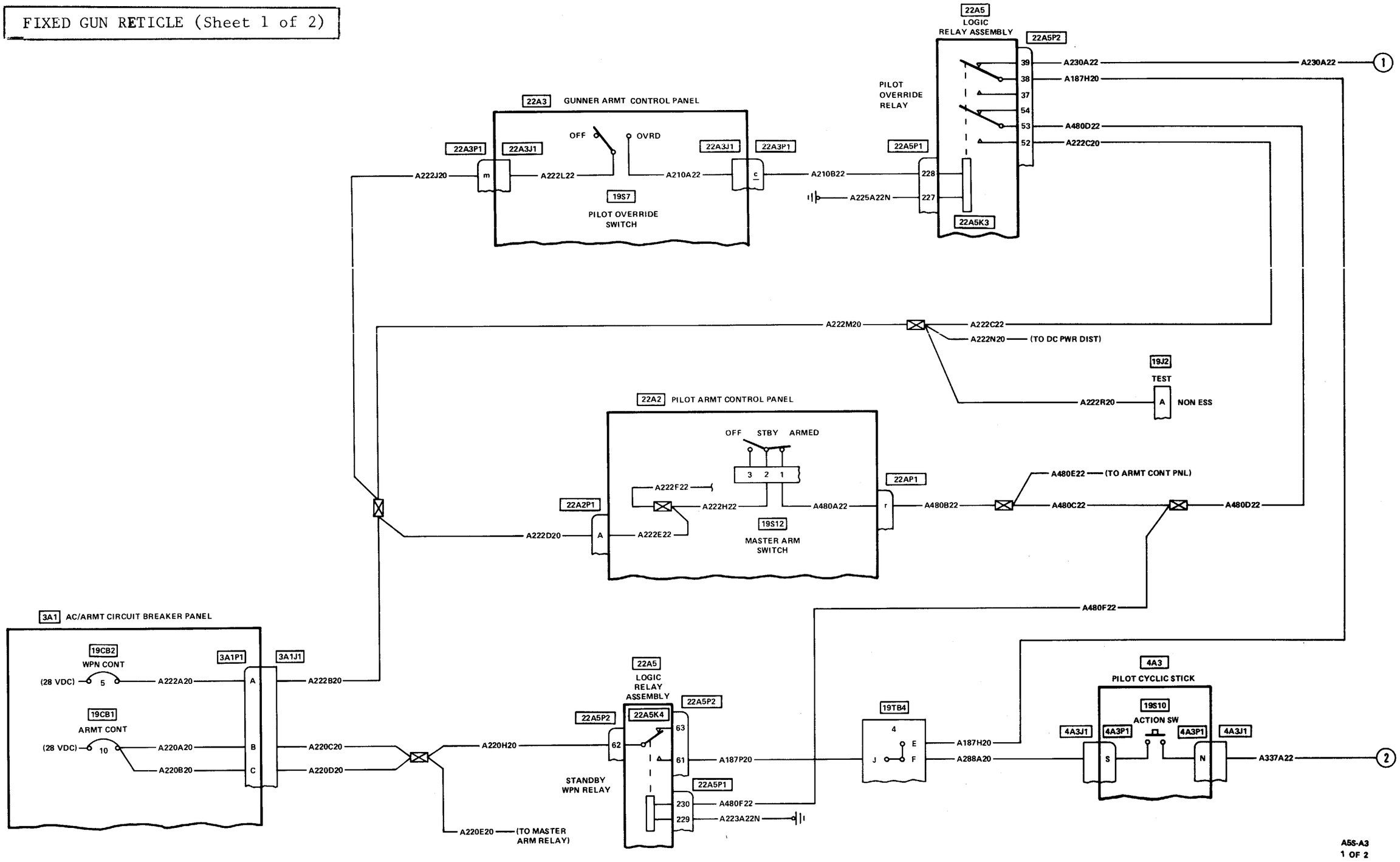
Insert wire TG283A22 into 16TB1-13A.

Then go to paragraph 2-2.

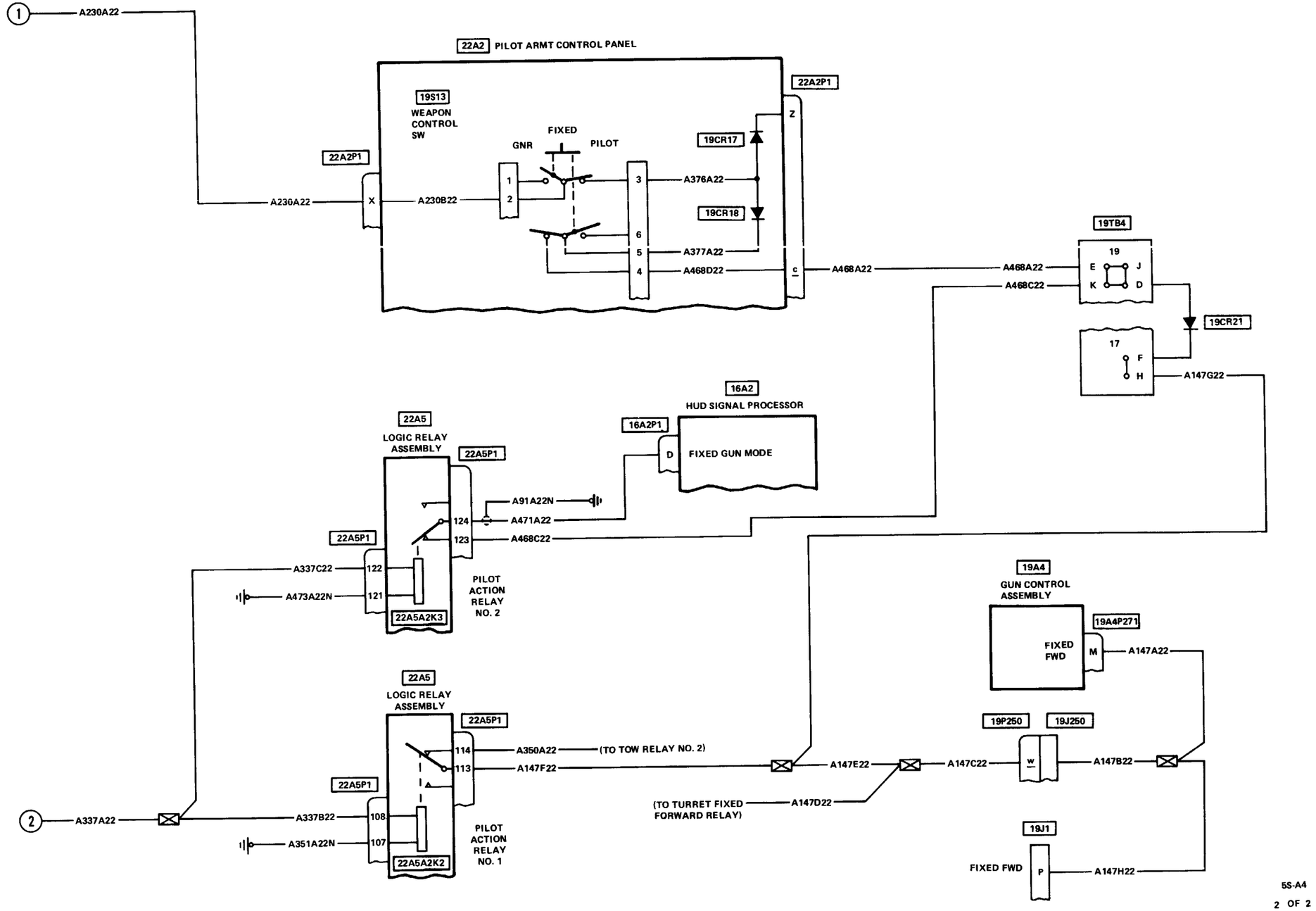
2-39. LEFT TOW MISSILE SYMBOL APPEARS ON HUD WHEN IT SHOULD NOT (CONTINUED).



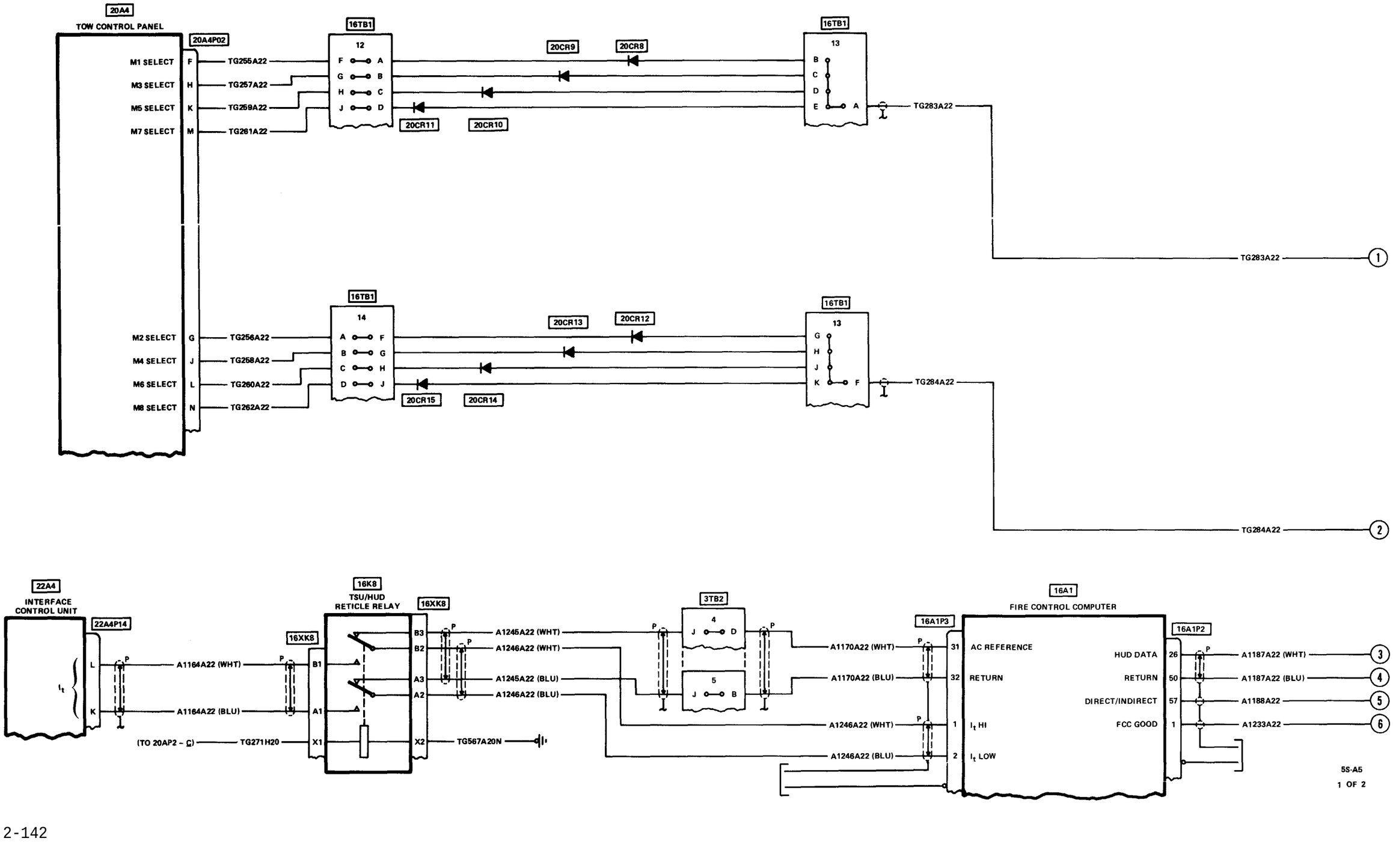
FIXED GUN RETICLE (Sheet 1 of 2)



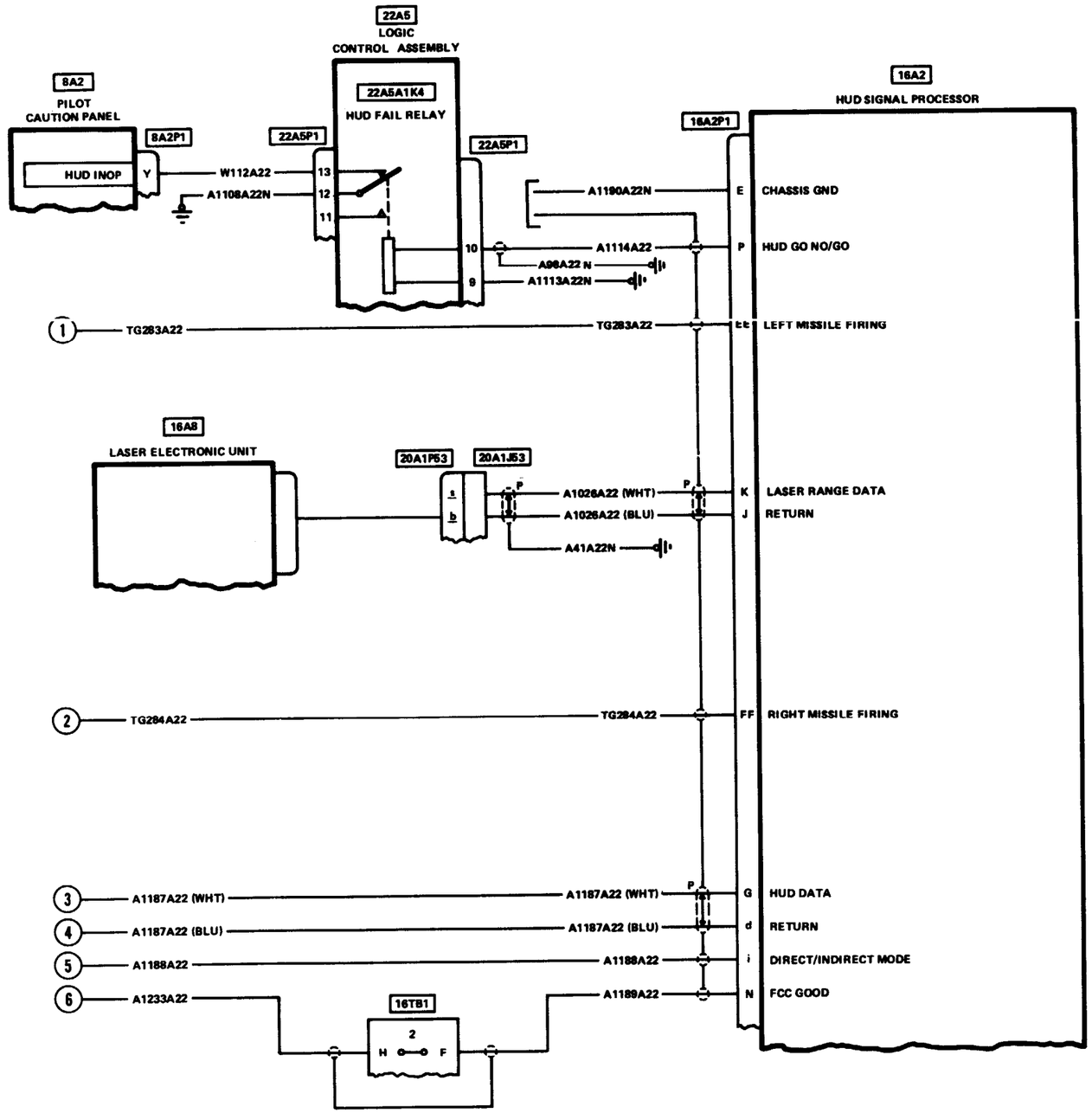
FIXED GUN RETICLE (Sheet 2 of 2)



FIRE CONTROL SYMBOLOGY (Sheet 1 of 2)

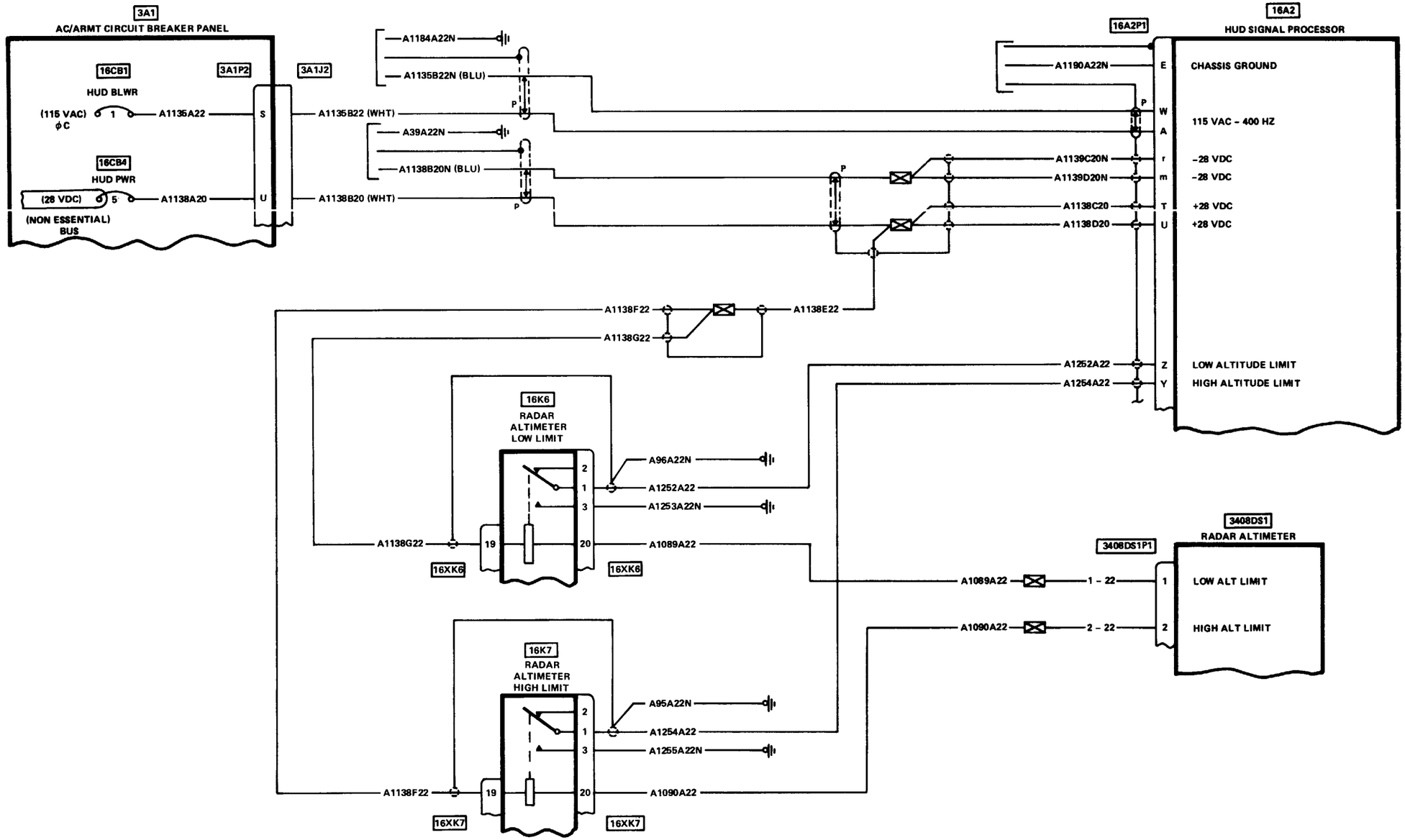


FIRE CONTROL SYMBOLOGY (Sheet 2 of 2)



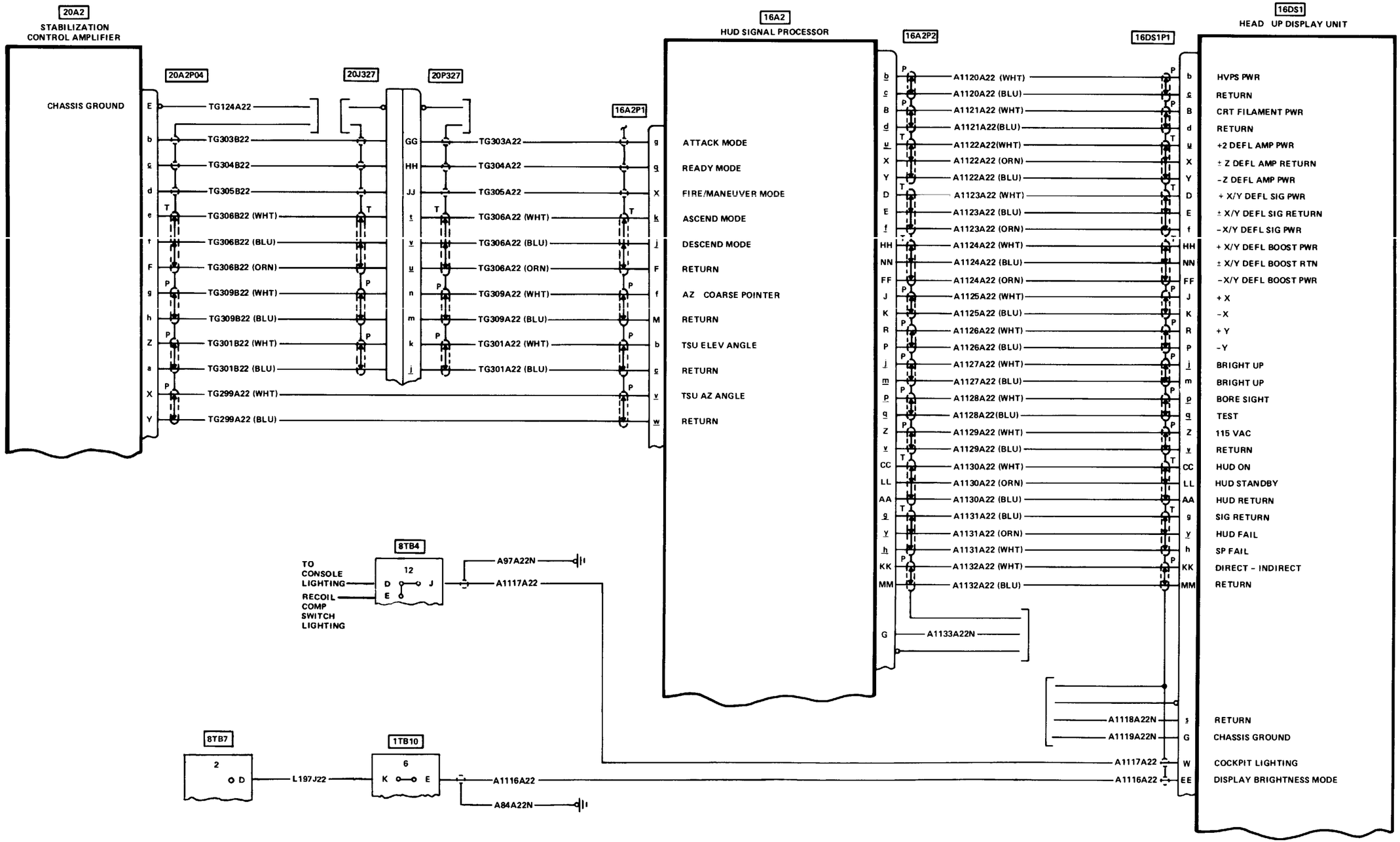
5S-A6
2OF2

POWER AND RADAR ALTIMETER INPUTS (Sheet 1 of 2)

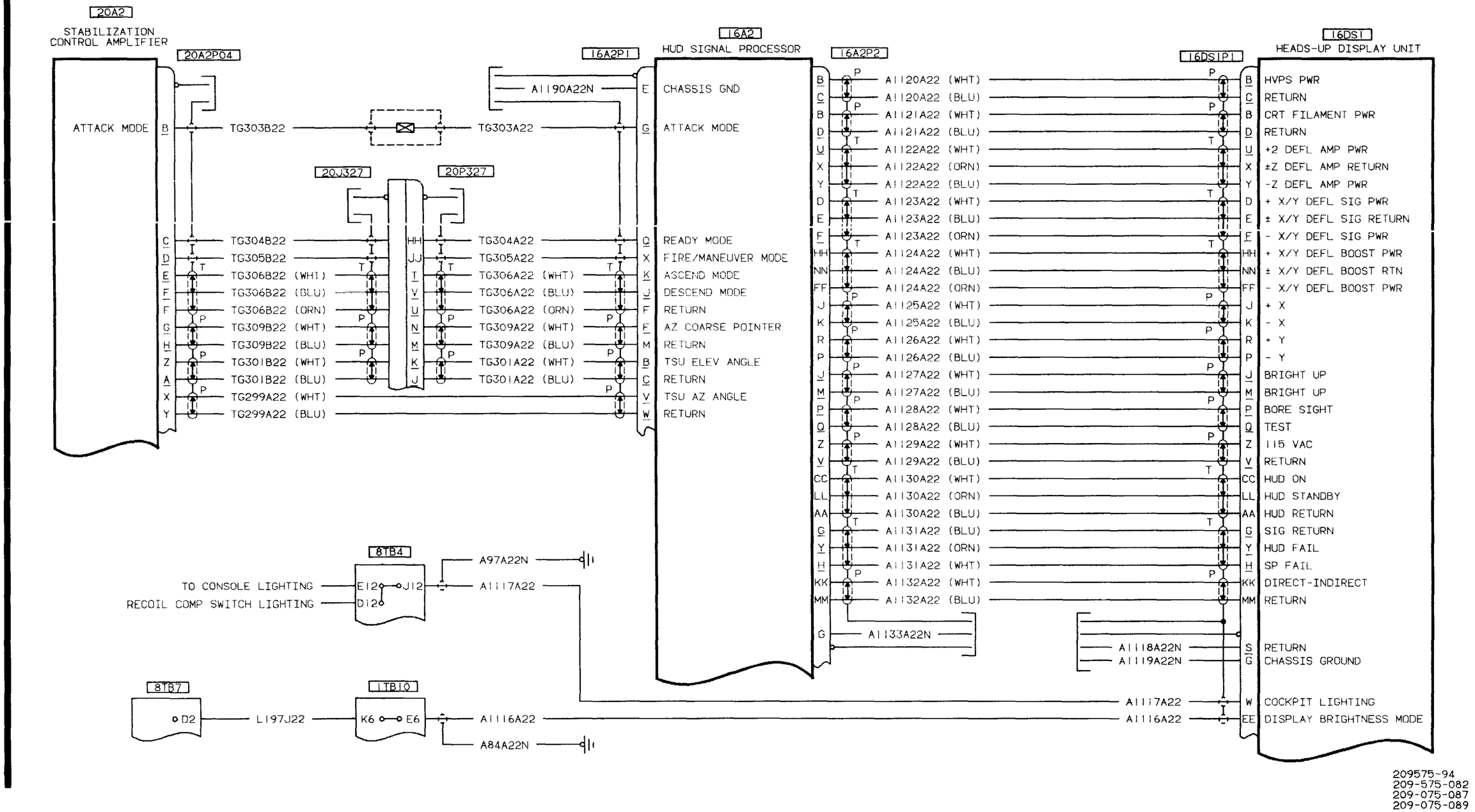


56-A1
10F 2

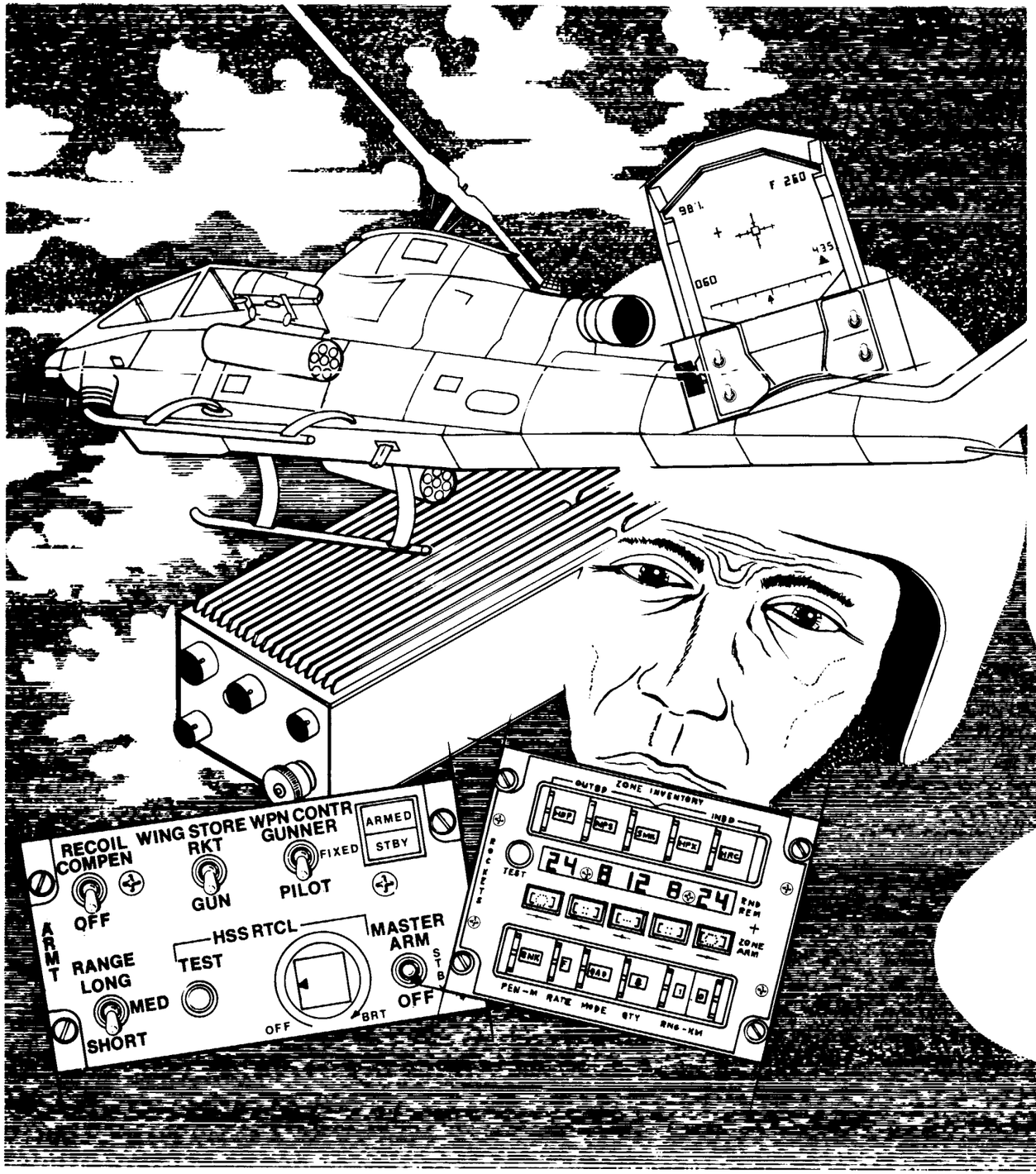
DISPLAY UNIT AND TMS INTERFACES MC



DISPLAY UNIT AND TMS INTERFACES MCN



209575-94
209-575-082
209-075-087
209-075-089



CHAPTER 3

FIRE CONTROL COMPUTER (FCC) TROUBLESHOOTING

OVERVIEW

This chapter contains the FCC operational check and logic tree troubleshooting procedures.

If a fault occurs during the operational check, stop the check, leave switches and circuit breakers in position, and refer to MAPS in Chapter 1 for that symptom. The MAPS will refer to a specific troubleshooting or repair procedure for that fault.

WARNING

Turn off all electrical power when removing equipment or disconnecting electrical connectors unless otherwise noted in the procedures.

NOTE

TM 55-1520-239-23 maintenance manual may be used instead of TM 55-1520-236-23 maintenance manual referenced throughout this chapter.

3-1. FCC PRE-OPERATIONAL CHECK SETUP.

INITIAL SETUP

Applicable Configuration
All

Personnel Required
68J (1)

a. Open (oFF) all circuit breakers on AC/ARMT circuit breaker panel.

b. Open all circuit breakers on DC circuit breaker panel.

c. Set pilot ARMT control panel switches:

(1) MASTER ARM to OFF.

(2) WPN CONTR to GUNNER.

(3) WING STORE to RKT.

(4) RANGE to MED.

d. Set HUD switches:

(1) PWR to OFF.

(2) MODE to NORM.

(3) RKT to DIR.

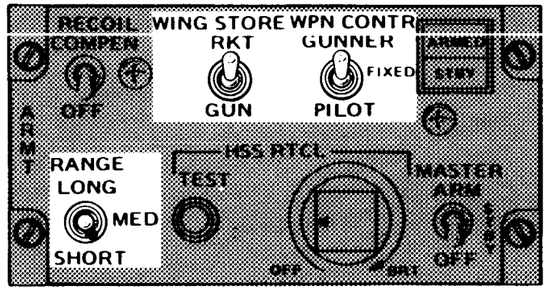
(4) AUTO BRT to OFF.

(5) BRIGHTNESS CONTROL to off (full counter-clockwise).

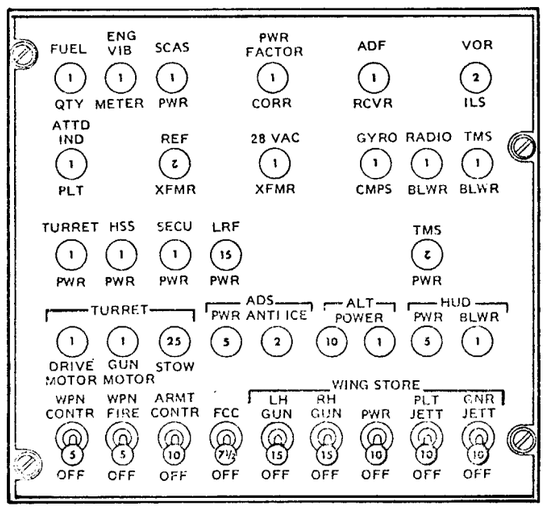
CAUTION

Constant exposure to direct sunlight will damage the red night filter.

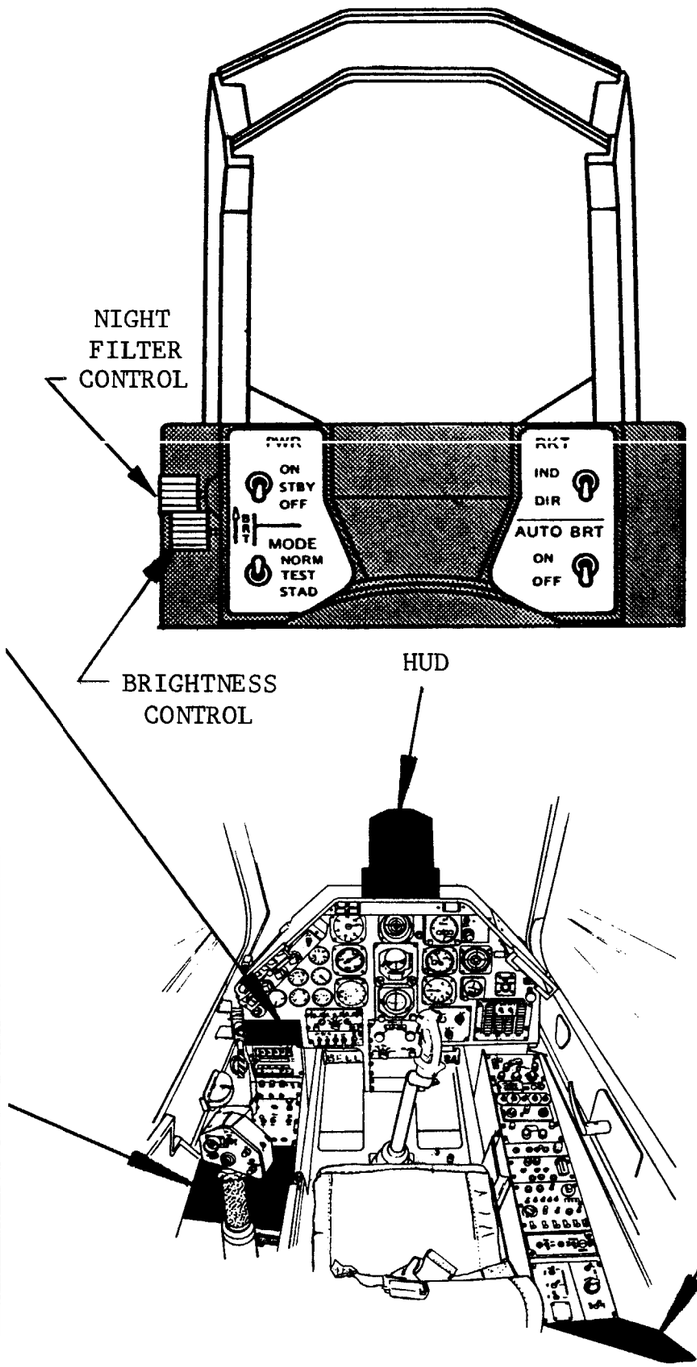
(6) NIGHT FILTER control fully clockwise.



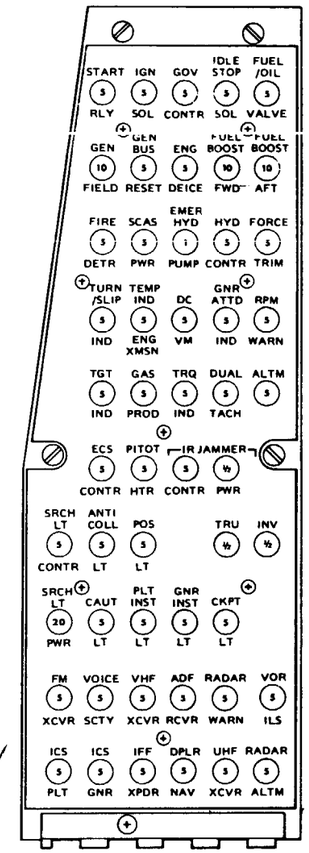
PILOT ARMT CONTROL PANEL



AC/ARMT CIRCUIT BREAKER PANEL



PILOT SECTION



DC CIRCUIT BREAKER PANEL

3-1. FCC PRE-OPERATIONAL CHECK SETUP (continued).

e. Set TCP (TOW control panel) switches:

(1) LASER ARM to OFF.

(2) MODE SELECT to OFF.

f. Set ACQ/TRK/STOW switch on sight hand control to STOW.

g. Set gunner armament control panel switches:

(1) LASER SAFE/TURRET DEPR LIMIT to LASER SAFE/TURRET DEPR LIMIT.

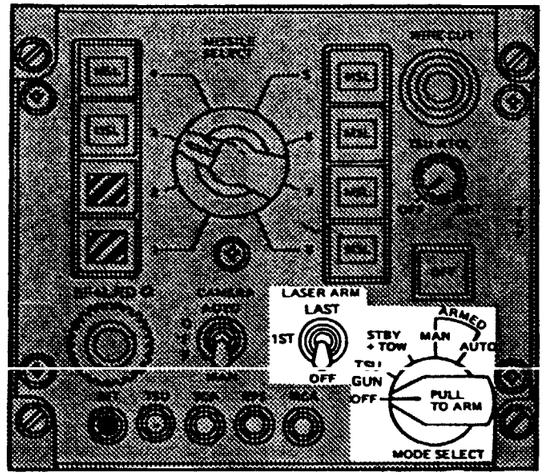
(2) TSU/GUN SLEW RATE to HIGH.

(3) PLT ORIDE to OFF.

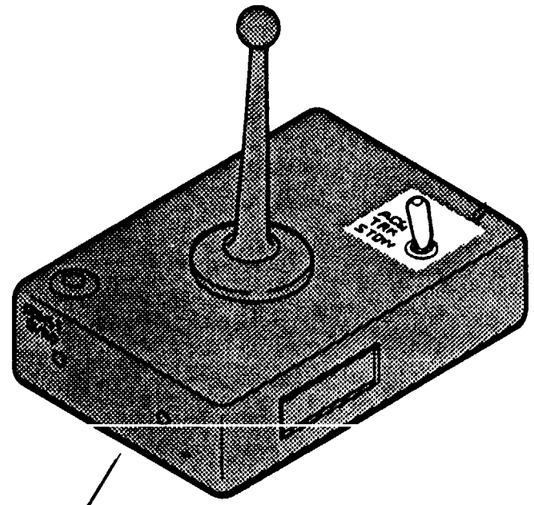
(4) TUR SLEW to GND TEST.

(5) RANGE to MED.

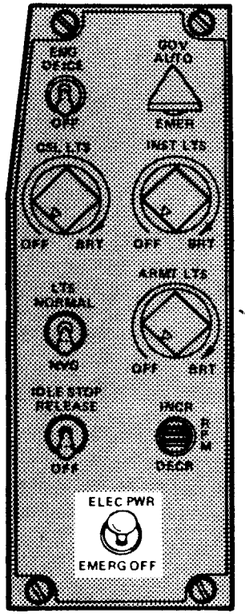
h. Set ELEC PWR/EMERG OFF switch on gunner miscellaneous control panel to ELEC PWR.



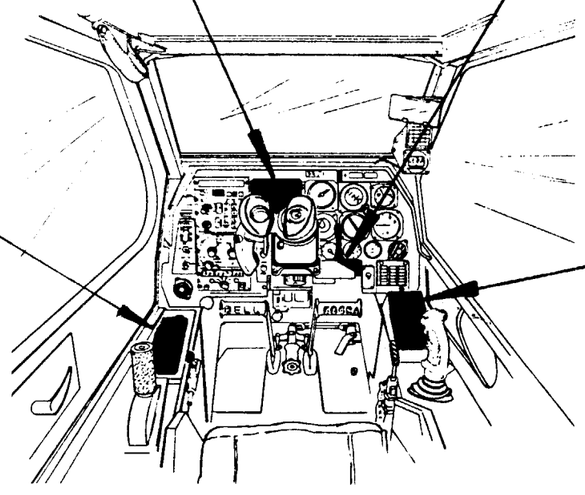
TOW CONTROL PANEL



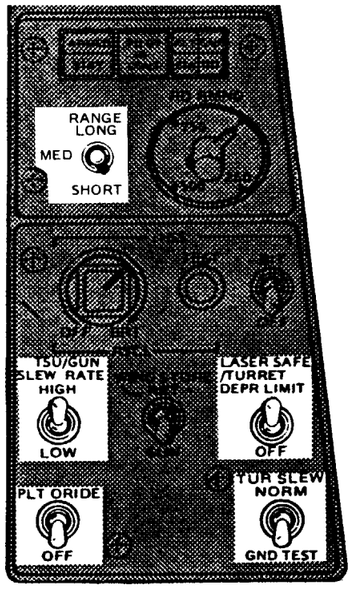
SIGHT HAND CONTROL



GUNNER MISCELLANEOUS CONTROL PANEL



GUNNER STATION



GUNNER ARMAMENT CONTROL PANEL

3-2. FCC OPERATION CHECK.

NOTE

Complete PRE-OPERATIONAL CHECK SETUP, paragraph 3-1 before continuing with operational check.

INITIAL SETUP

Applicable Configuration
All

Tools/Test and Support Equipment
Multimeter

Helmet with Sights (2)

MB-1A Tester, Pitot-Static systems

Tank, Dual Purpose Capacity (per TM 9-1270-219-13)

Tool Set, A/C Armament Repairman

Ground Power Unit

Boresight Controller (XM34)

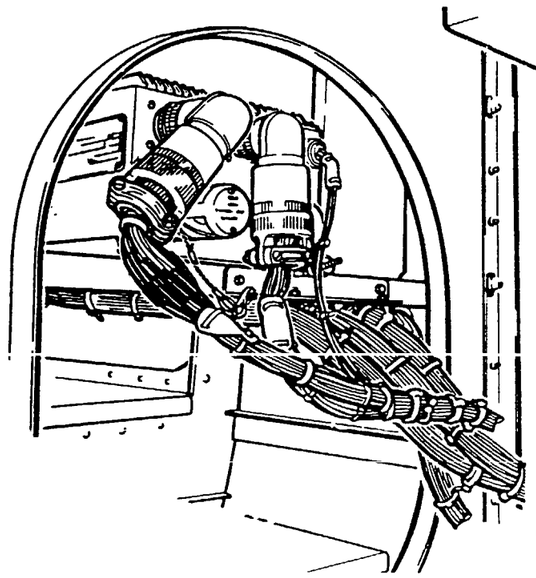
Personnel Required
68J (3)

Equipment Condition
Gun Safed/Barricade Erected (TM 9-1090-206-20-1/30)

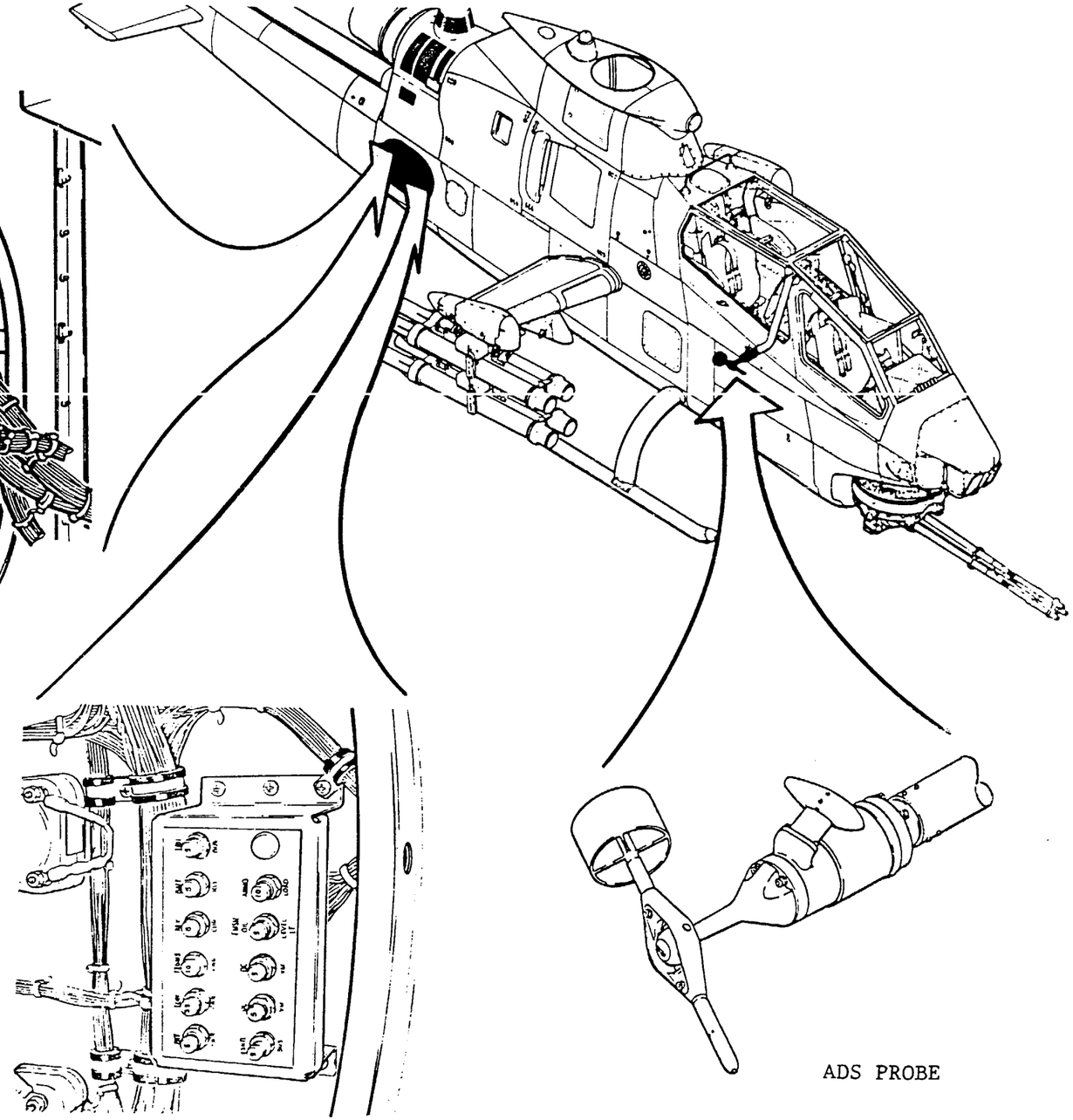
Reference
TM 9-1090-206-20-1
TM 9-1090-206-30
TM 9-1270-218-13
TM 9-1270-219-13
TM 9-4931-367-13
TM 55-1520-236-10
TM 55-1520-236-23

Access Panels
External Power Door - Open

Battery Compartment - Removed



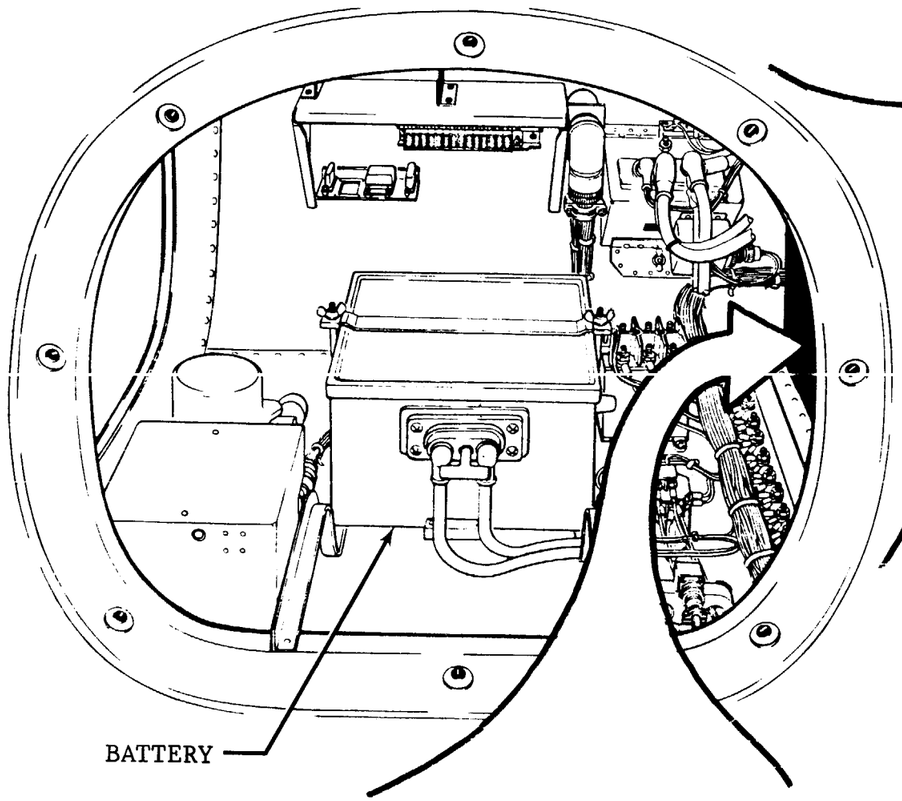
FIRE CONTROL COMPUTER

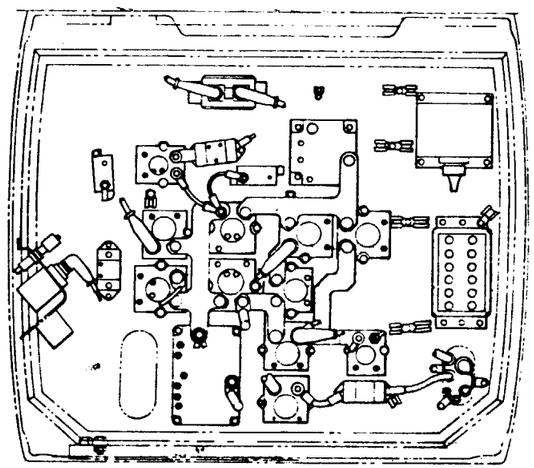


CIRCUIT BREAKER PANEL

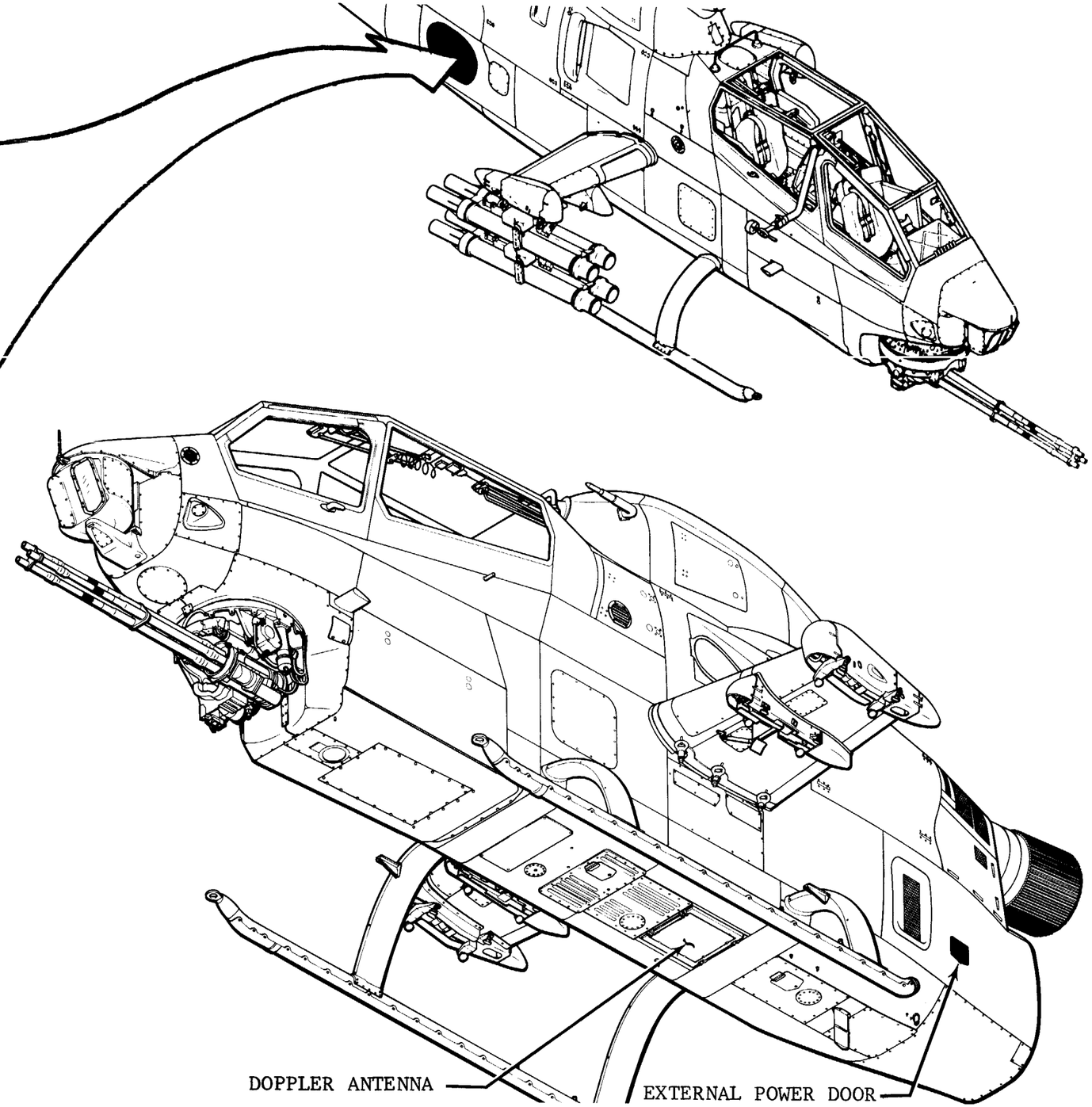
ADS PROBE

3-2. FCC OPERATIONAL CHECK (CONTINUED).

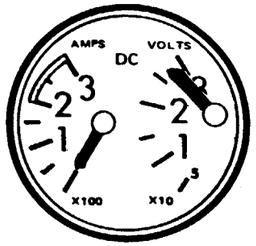




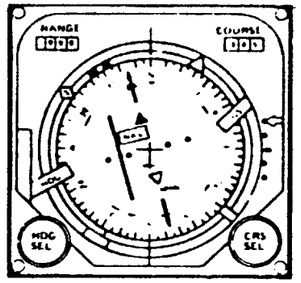
FORWARD COMPARTMENT OF BATTERY BULKHEAD



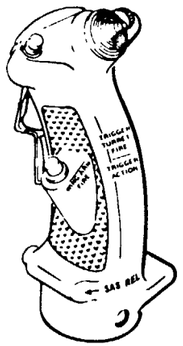
3-2. FCC OPERATIONAL CHECK (CONTINUED).



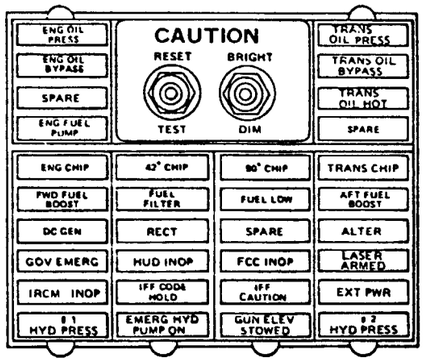
DC VOLTMETER



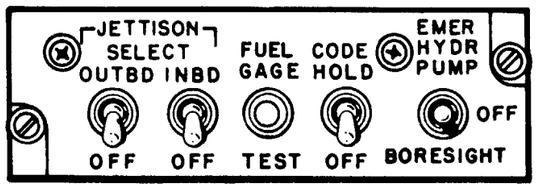
HORIZONTAL SITUATION INDICATOR



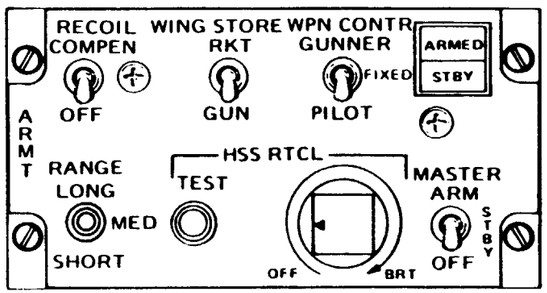
PILOT CYCLIC STICK



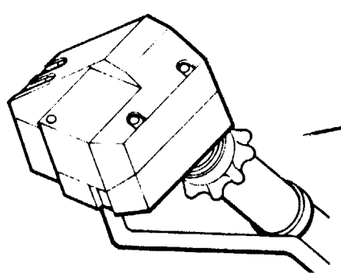
PILOT CAUTION PANEL



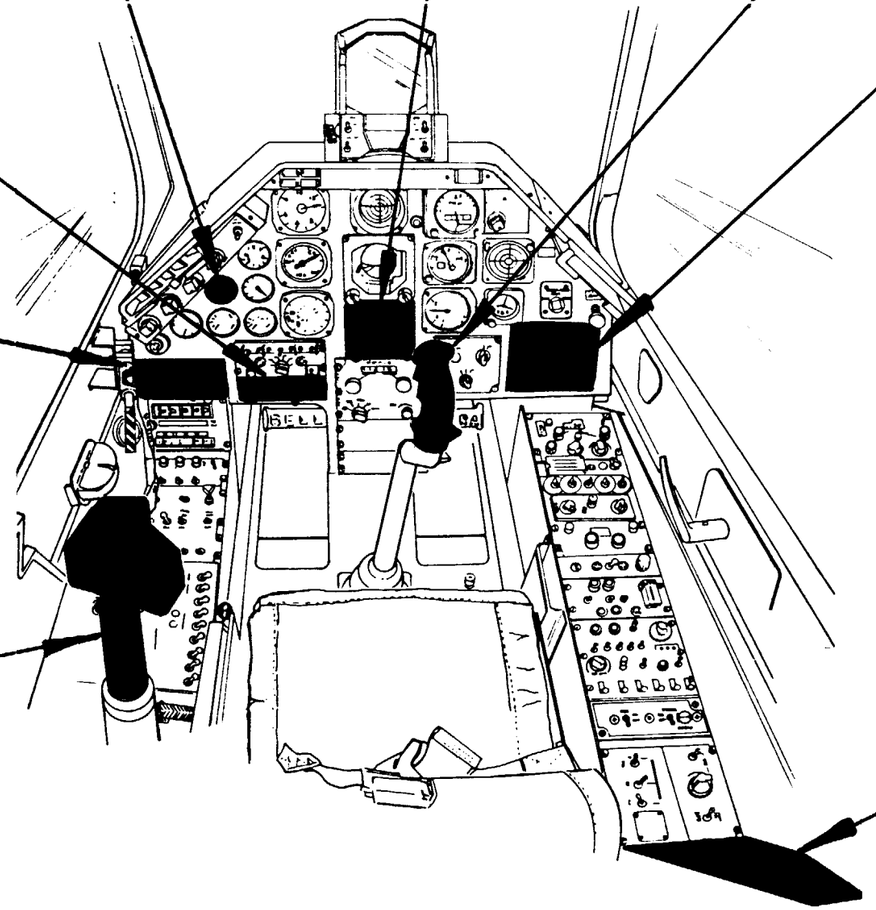
PILOT MISCELLANEOUS CONTROL PANEL



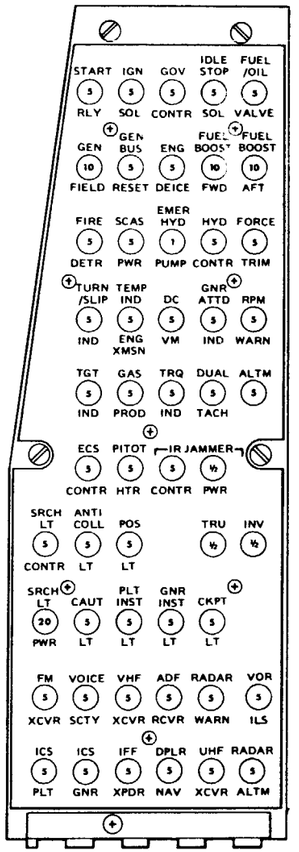
PILOT ARMT CONTROL PANEL



PILOT COLLECTIVE STICK

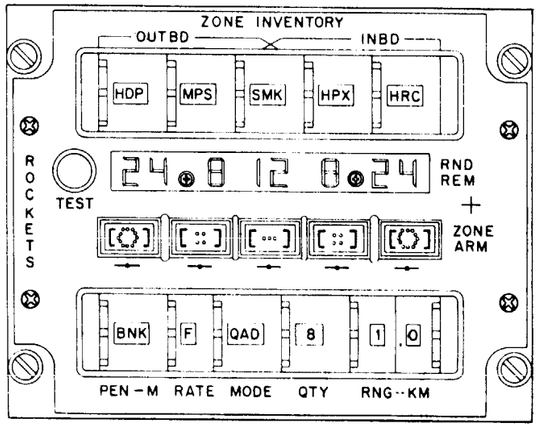


PILOT STATION

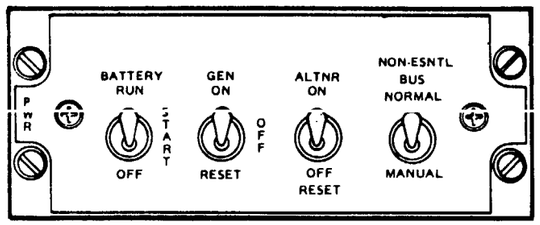


DC CIRCUIT BREAKER PANEL

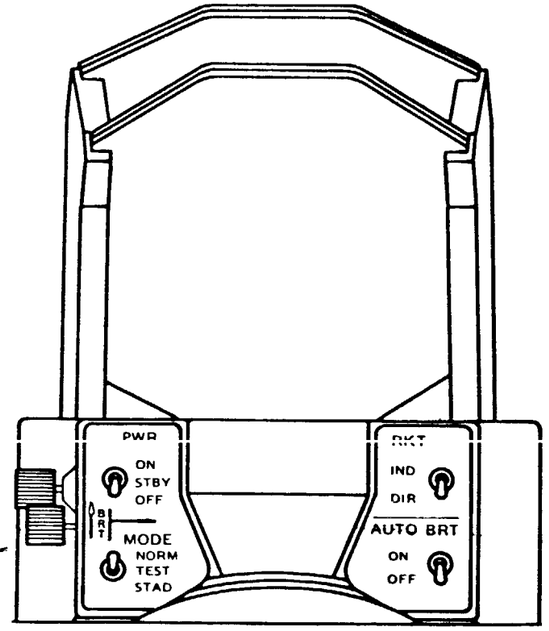
3-2. FCC OPERATIONAL CHECK (CONTINUED).



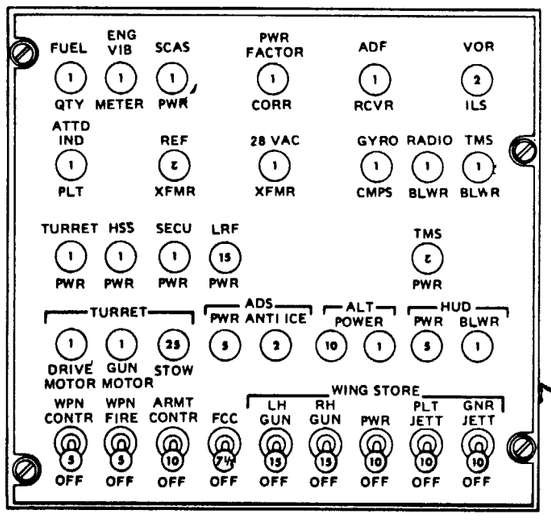
ROCKETS DISPLAY UNIT



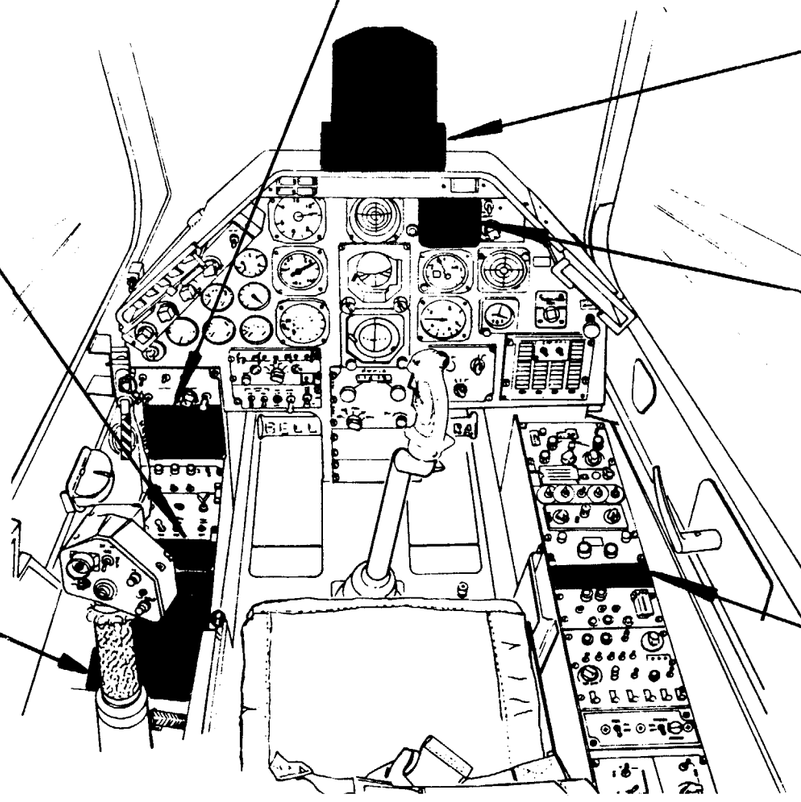
ELECTRICAL PWR CONTROL PANEL



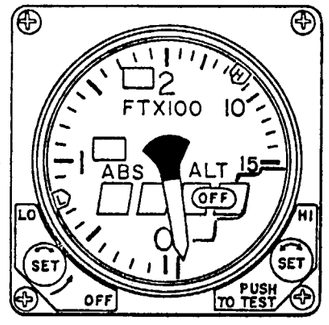
HUD



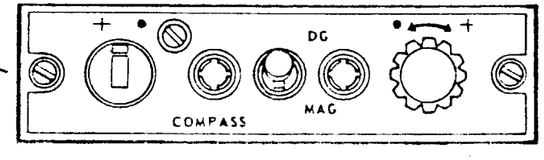
AC/ARMT CIRCUIT BREAKER PANEL



PILOT STATION

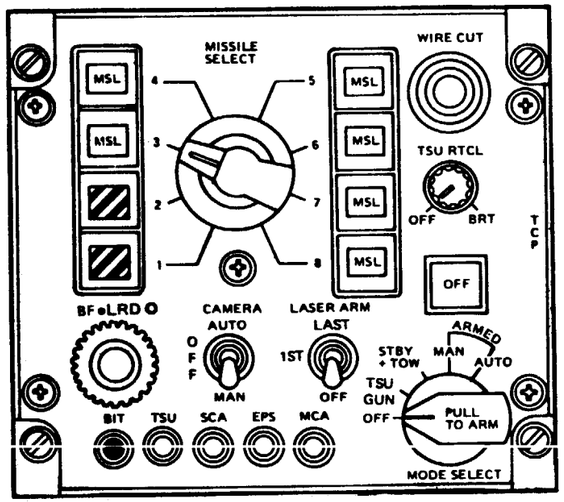


RADAR ALTIMETER

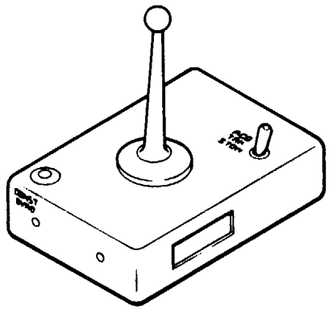


COMPASS CONTROL PANEL

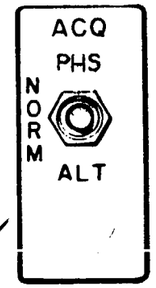
3-2. FCC OPERATIONAL CHECK (CONTINUED).



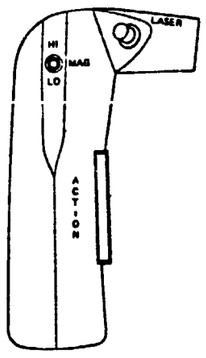
TCP (TOW CONTROL PANEL)



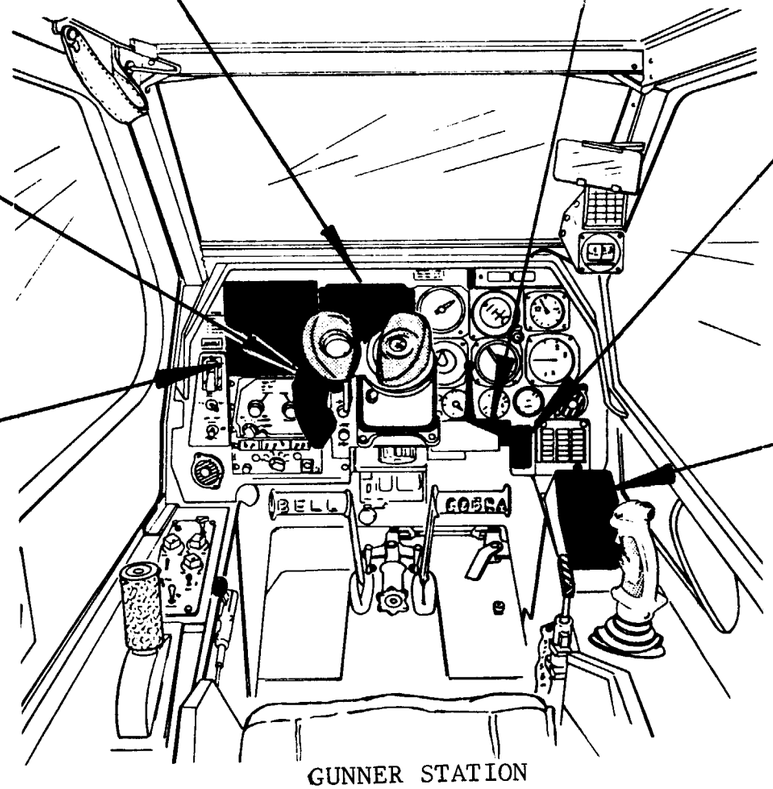
SIGHT HAND CONTROL



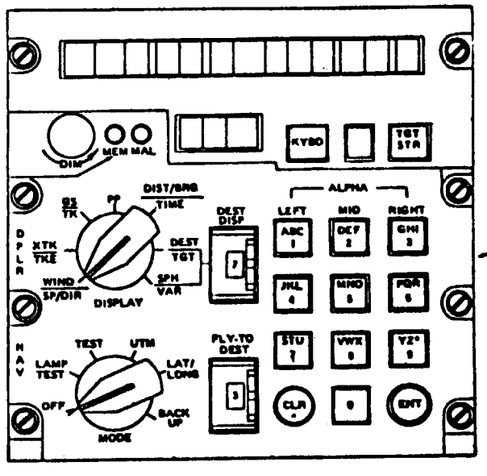
ACQ SWITCH PANEL



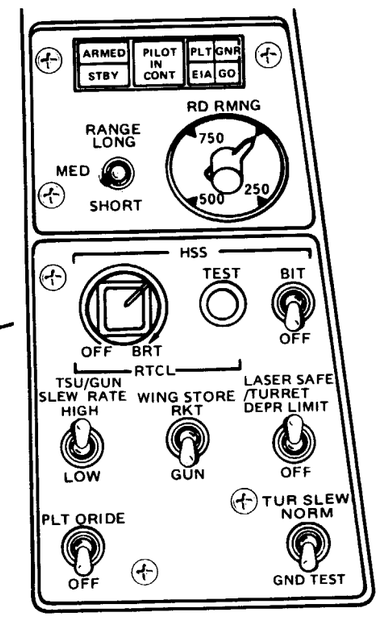
LEFT HAND GRIP



GUNNER STATION



DPLR NAV CONTROL PANEL



GUNNER ARMAMENT CONTROL PANEL

3-2. FCC OPERATIONAL CHECK (CONTINUED).

APPLYING ELECTRICAL POWER

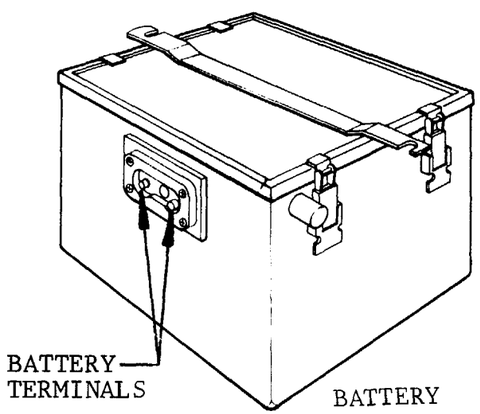
WARNING

Warn people working on or near helicopter before you apply electrical power.

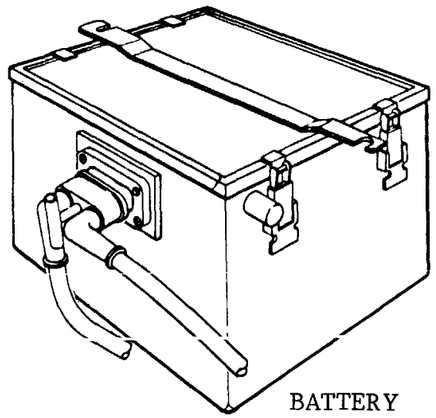
CAUTION

Minimum acceptable battery voltage is 22 V dc. Low battery voltage may result in excessive battery overheating (thermal runaway) after external power is applied.

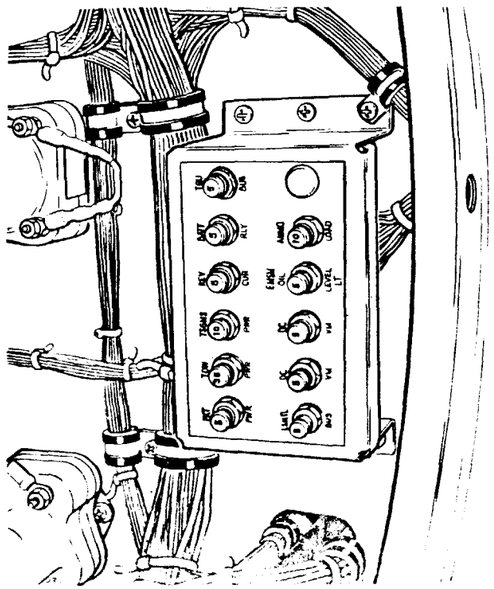
a. Check battery voltage. Minimum battery voltage shall be 22 V dc measured at battery terminals.



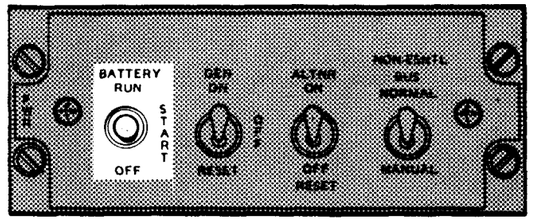
b. Connect battery.


BATTERY

c. Close all circuit breakers on circuit breaker panel in battery compartment.

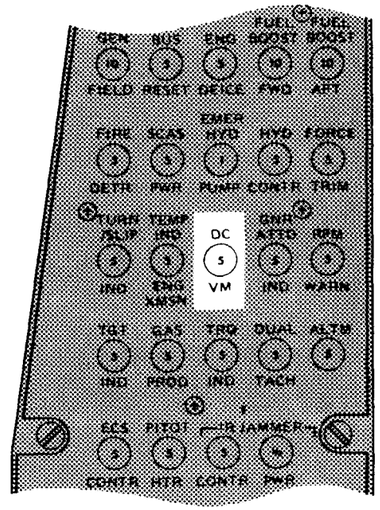

CIRCUIT BREAKER PANEL

d. Set BATTERY switch on electrical PWR control panel to START.



ELECTRICAL PWR CONTROL PANEL

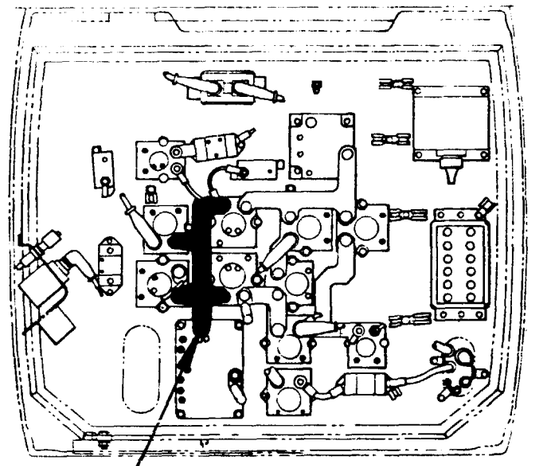
e. Close DC VM circuit breaker on DC circuit breaker panel.



DC CIRCUIT BREAKER PANEL

CAUTION

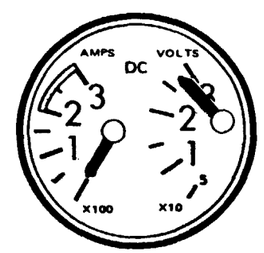
Do not exceed 30 V dc output on ground power unit.


ESSENTIAL BUS

f. Apply external power to helicopter. (Refer to TM 55-1520-236-23, Chapter 1, Section III). Adjust ground power unit to provide 28 to 30 V dc measured at the essential bus with a multimeter.

NOTE

28 to 30 V dc is required for the following operational checks. The DC voltmeter can be observed to assure correct voltage is present.

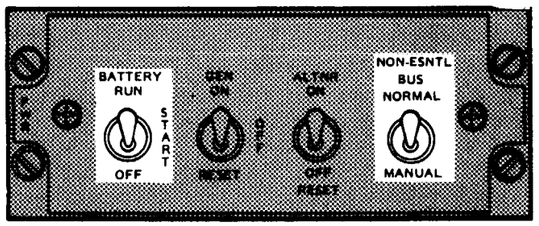


DC VOLTMETER

3-2. FCC OPERATIONAL CHECK (CONTINUED).

g. Set electrical PWR control panel BATTERY switch to RUN.

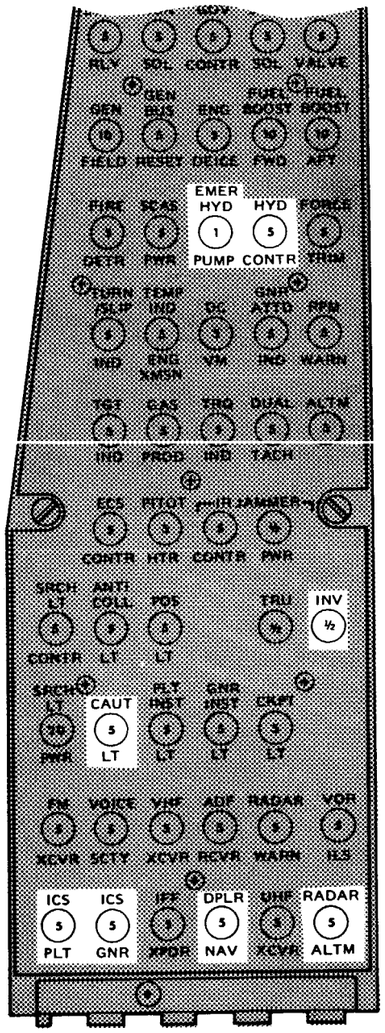
h. Set electrical PWR control panel NON-ESNTL BUS switch to NORMAL.



ELECTRICAL PWR CONTROL PANEL

i. Close the following circuit breakers on DC circuit breaker panel:

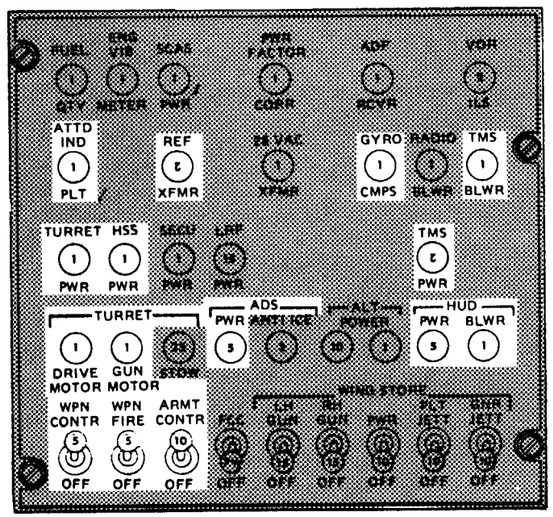
(1) EMER HYD PUMP
(2) HYD CONTR
(3) INV
(4) CAUT LT
(5) DPLR NAV
(6) RADAR ALTM
(7) ICS PLT
(8) ICS GNR



DC CIRCUIT BREAKER PANEL

j. Close the following circuit breakers on AC/ARMT circuit breaker panel:

(1) ATTD IND PLT
(2) REF XFMR
(3) GYRO CMPS
(4) TMS BLWR
(5) TURRET PWR
(6) HSS PWR
(7) TMS PWR
(8) TURRET DRIVE MOTOR
(9) TURRET GUN MOTOR
(10) ADS PWR
(11) HUD PWR
(12) HUD BLWR
(13) WPN CONTR
(14) WPN FIRE
(15) ARMT CONTR

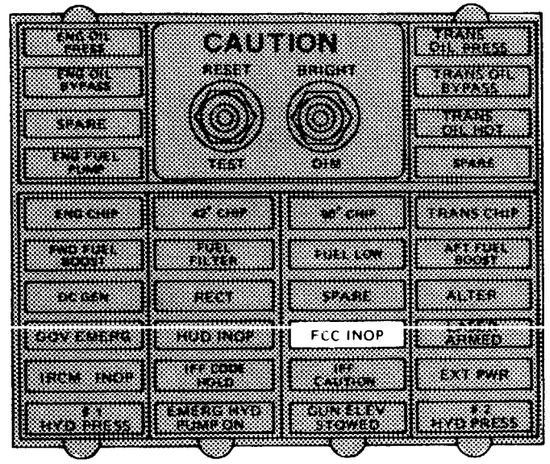


AC/ARMT CIRCUIT BREAKER PANEL

NOTE

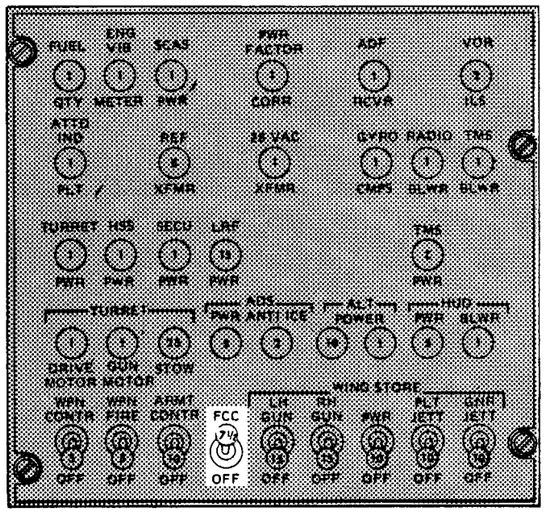
The following check verifies 28 V dc is applied to the fire control computer.

k. Observe that FCC INOP segment on pilot caution panel is lit.



PILOT CAUTION PANEL

1. Close FCC circuit breaker on AC/ARMT circuit breaker panel. FCC INOP segment on pilot caution panel should go out.



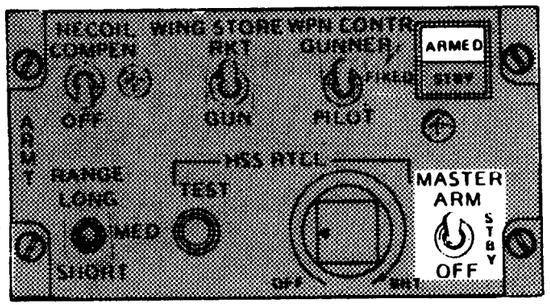
AC/ARMT CIRCUIT BREAKER PANEL

3-2. FCC OPERATIONAL CHECK (CONTINUED).

NOTE

The following checks verify inputs from the compass, radar altimeter. rocket management, and HUD subsystems are being processed through the FCC.

m. Set MASTER ARM switch on pilot ARMT control panel to ARM. ARMED indicator should light.



PILOT ARMT CONTROL PANEL

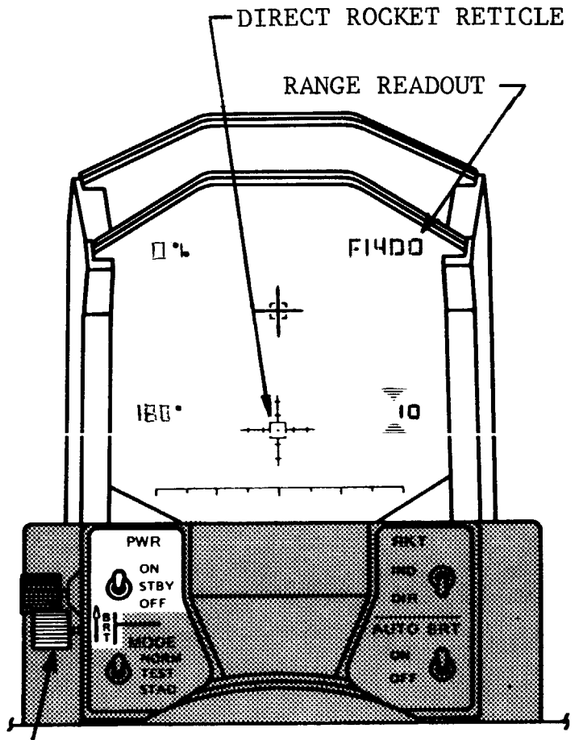
n. On HUD:

(1) Turn BRIGHTNESS CONTROL to mid-range.

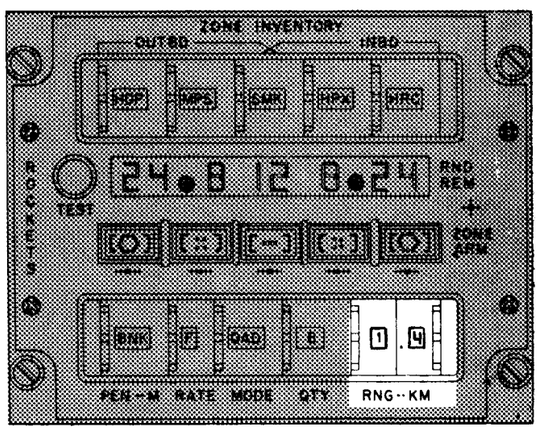
(2) Set PWR switch to STBY.

(3) After 30 seconds, set PWR switch to ON.

(4) Observe that direct rocket reticle appears.

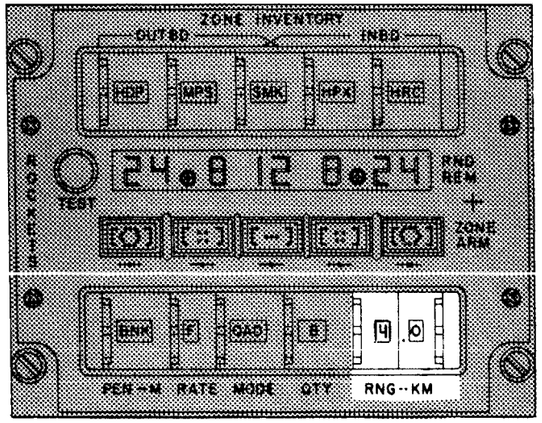


o. Set RNG-KM on ROCKETS display unit to 1.4. Observe that HUD range readout indicates 1400.

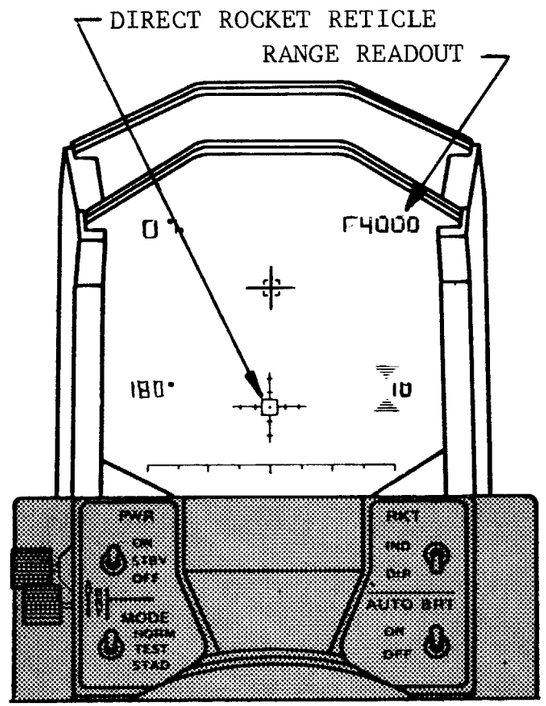


ROCKETS DISPLAY UNIT

p. Set RNG-KM on ROCKETS display unit to 4.0. Observe that the direct rocket reticle moves downward and HUD range readout indicates 4000.

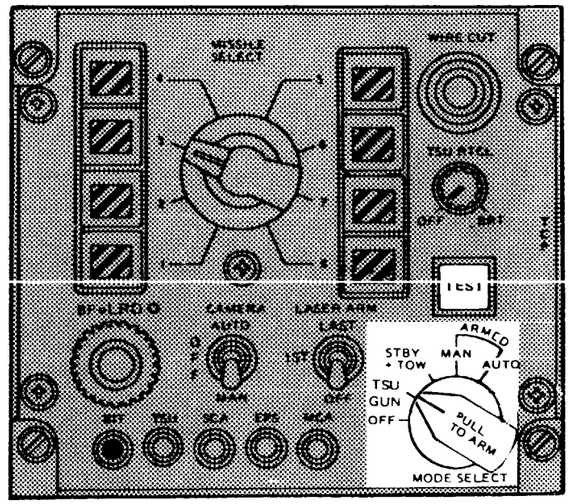


ROCKETS DISPLAY UNIT



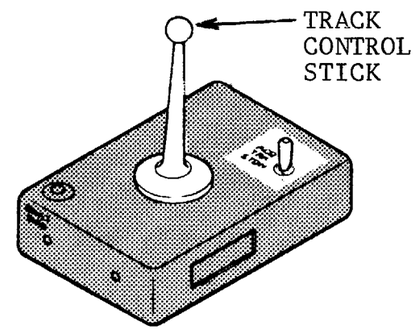
HUD

q. Set MODE SELECT switch on TCP (TOW control panel) to TSU GUN. Mode indicator will show TEST. After test is complete mode indicator will show PWR ON.



TCP (TOW CONTROL PANEL)

r. Set ACQ/TRK/STOW switch on sight hand control to TRK. Move track control stick to drive TSU approximately 45 degrees to the right.

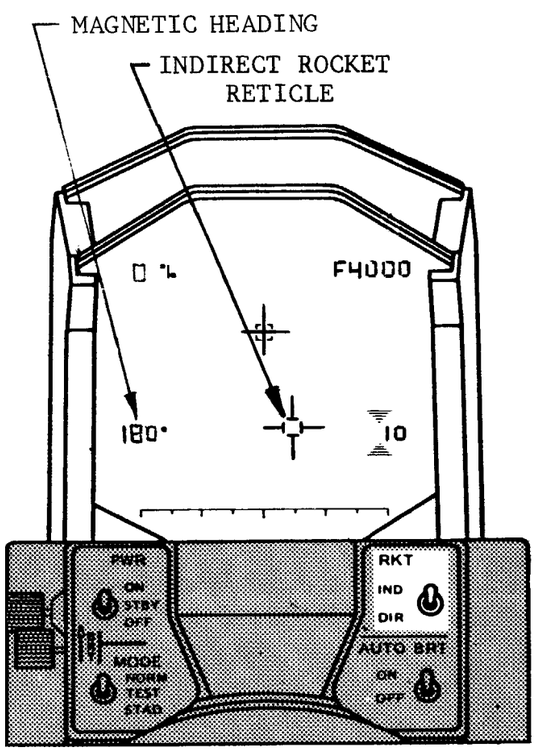


SIGHT HAND CONTROL

3-2. FCC OPERATIONAL CHECK (CONTINUED).

s. On HUD:

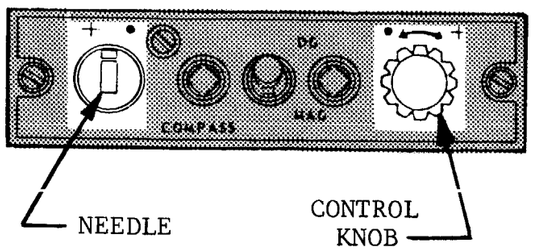
(1) Move RKT switch from DIR to IND and observe that direct rocket reticle moves and changes to indirect rocket reticle.



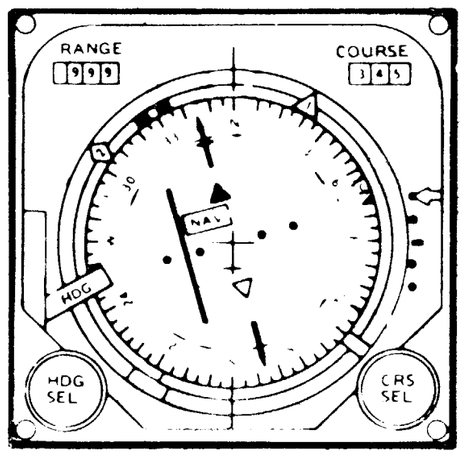
HUD

(2) Set RKT switch to DIR.

t. Turn control knob on COMPASS control panel to deflect needle slightly left or right. Observe that magnetic heading display on HUD changes and indicates the same heading as the HSI.

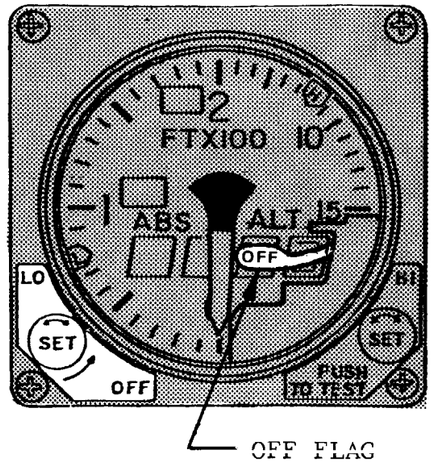


COMPASS CONTROL PANEL



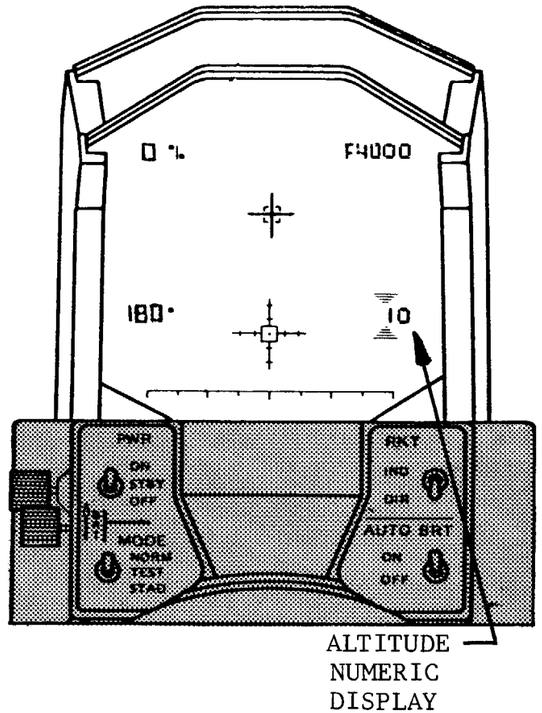
HORIZONTAL SITUATION INDICATOR

u. On radar altimeter: Turn LO SET knob fully clockwise. The OFF flag should retract from view within two minutes.



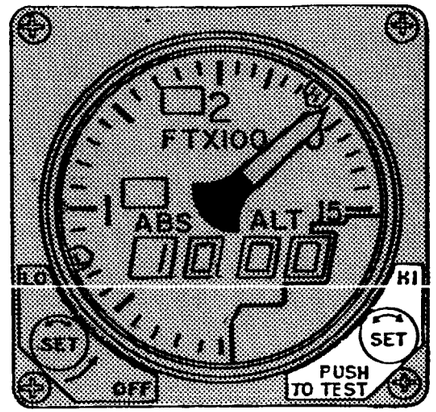
RADAR ALTIMETER

v. Observe that altitude numeric display on HUD indicates 0 or 10 feet.

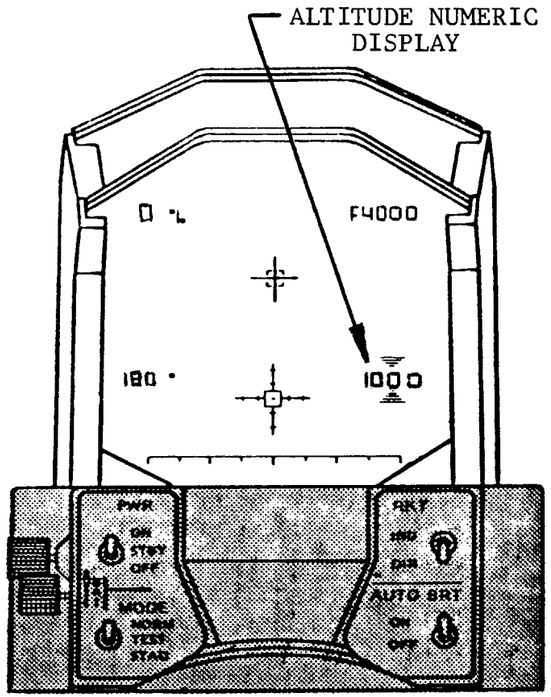


HUD

w. Press and hold PUSH TO TEST/HI SET knob on radar altimeter. Check that the HUD altitude numeric display changes to indicate 900-1100 feet.



RADAR ALTIMETER



HUD

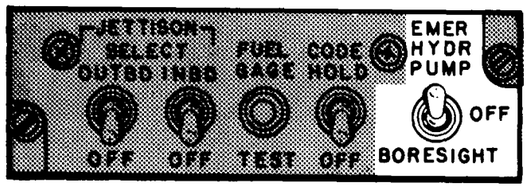
3-2. FCC OPERATIONAL CHECK (CONTINUED).

x. Release PUSH TO TEST/HI SET knob on radar altimeter.

NOTE

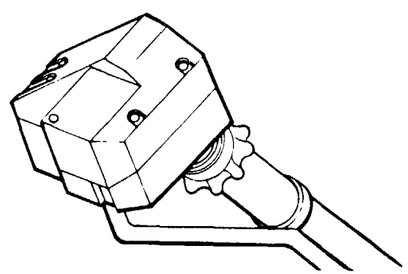
The following check verifies collective transducer inputs to the FCC.

y. Set EMER HYDR PUMP/BORESIGHT switch on pilot miscellaneous control panel to EMER HYDR PUMP.

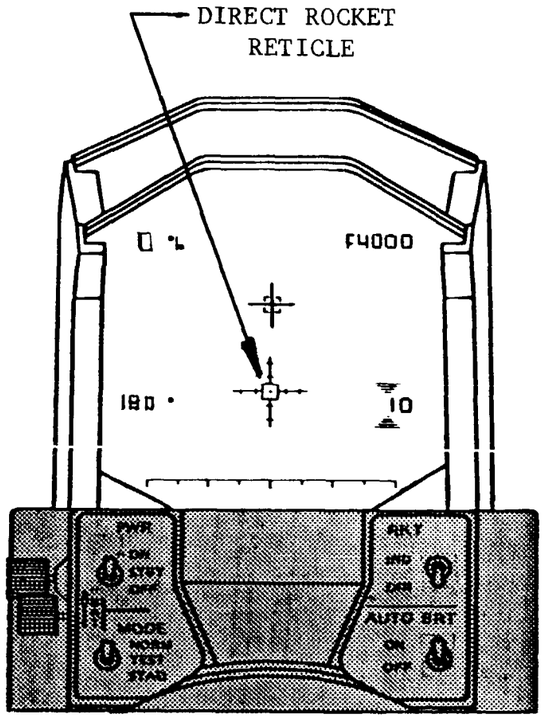


PILOT MISCELLANEOUS CONTROL PANEL

z. Raise the pilot collective stick and observe that direct rocket reticle on HUD moves upward.



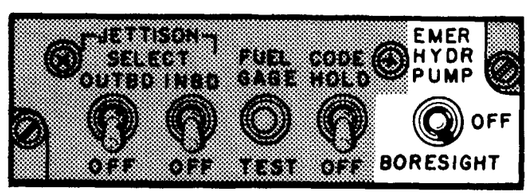
PILOT COLLECTIVE STICK



HUD

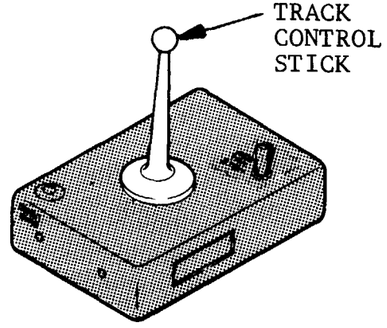
aa. Lower the pilot collective stick and observe that direct rocket reticle on HUD moves down.

ab. Set EMER HYDR PUMP/BORESIGHT switch to OFF.



PILOT MISCELLANEOUS CONTROL PANEL

ac. Move track control stick on sight hand control to drive TSU approximately 45 degrees to the right.



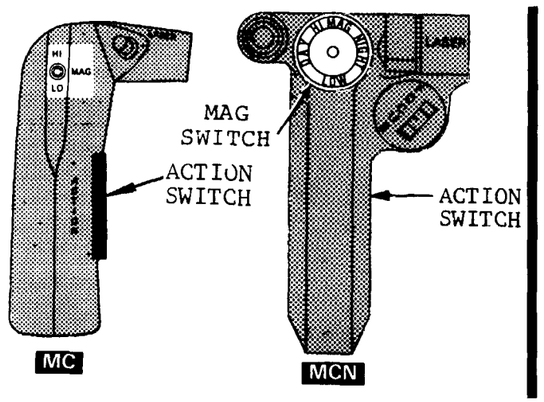
SIGHT HAND CONTROL

ad. On left hand grip:

(1) Press MAG switch to LO and release.

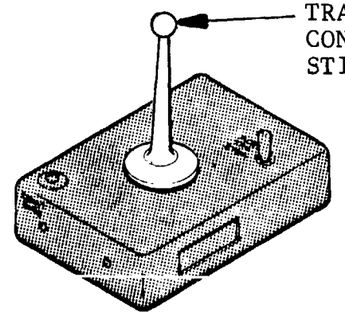
MCN (1.1) Press MAG switch to DAY and release.

(2) Press and hold ACTION switch. Observe that gun aligns with TSU line of sight.

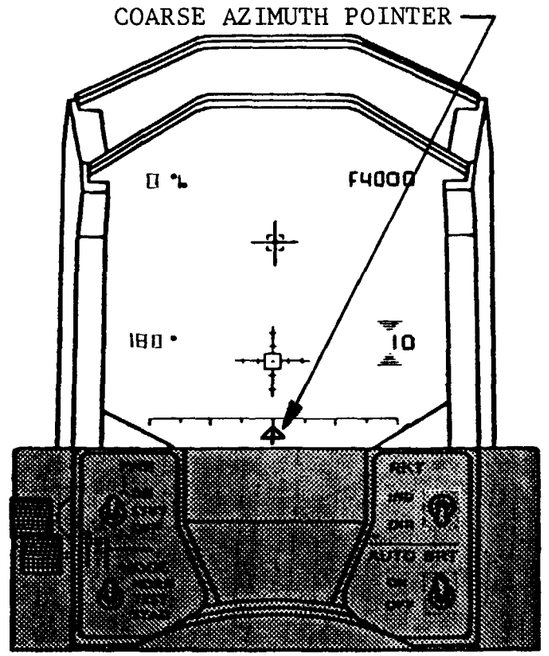


LEFT HAND GRIP

ae. Move TSU in azimuth using track control stick. Observe that TSU coarse azimuth pointer on HUD follows TSU movement, and that pointer does not stay at 0 or 90 degrees.



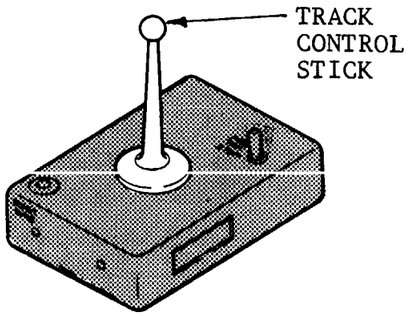
SIGHT HAND CONTROL



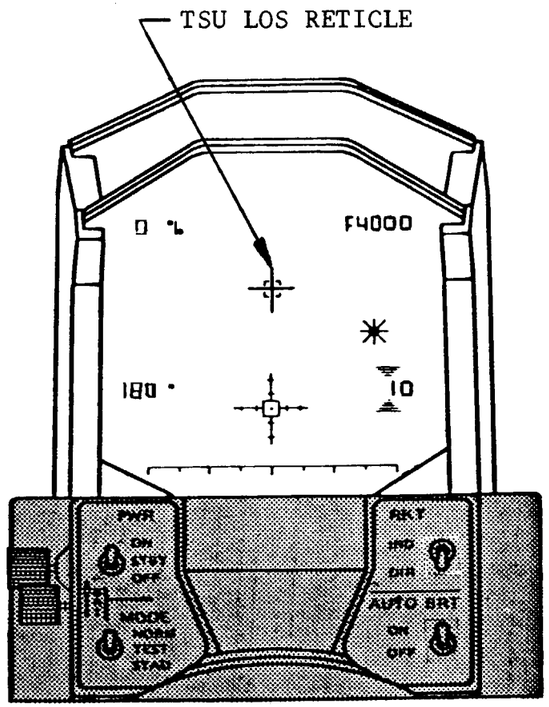
HUD

3-2. FCC OPERATIONAL CHECK (CONTINUED).

af. Move TSU in elevation using track control stick. Observe that TSU LOS reticle follows the movement of TSU and does not stay at ZERO. Release ACTION switch.



SIGHT HAND CONTROL

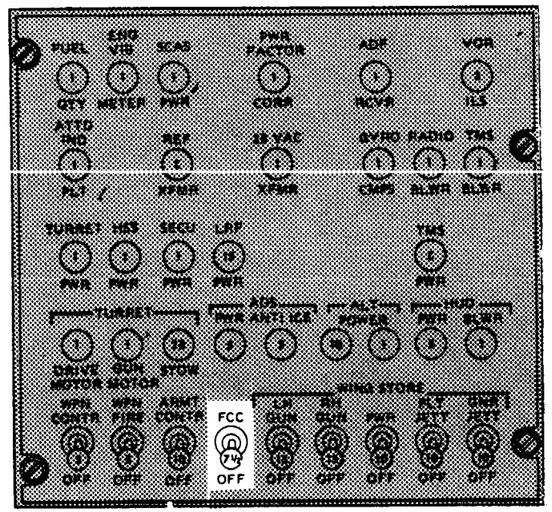


HUD

NOTE

The following steps check the FCC boresight correction circuits.

ag. Open (OFF) FCC circuit breaker on AC/ARMT circuit breaker panel.



AC/ARMT CIRCUIT BREAKER PANEL

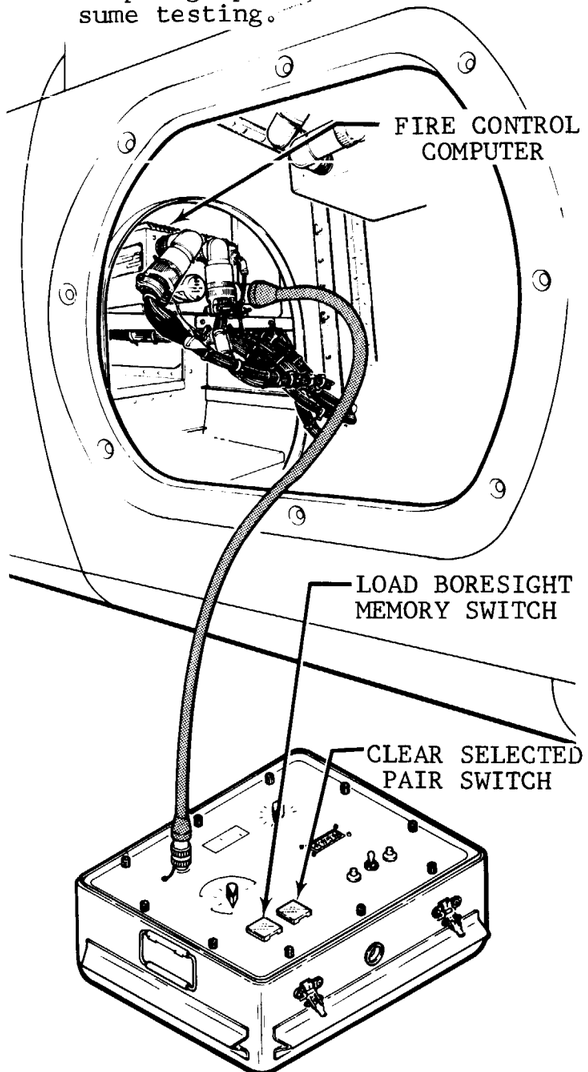
NOTE

Do not disturb CLEAR SELECTED PAIR switch or LOAD BORESIGHT MEMORY switch on boresight controller during the following steps. Ensure FCC circuit breaker is open (OFF) before connecting the boresight controller. Failure to accomplish these checks may result in having to re-boresight helicopter.

ah. Connect boresight controller (XM34) to fire control computer (FCC) per TM 9-4931-376-13 and perform the following:

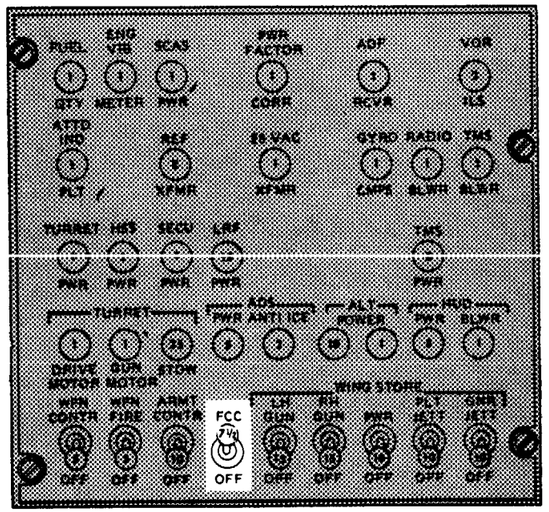
NOTE

When operating the boresight controller, press the ENTER COMPUTE button once for each test specified in the operational check. If the button is accidentally pressed more than once, stop the test and perform the correction procedure, of paragraph 3-4. Then resume testing.

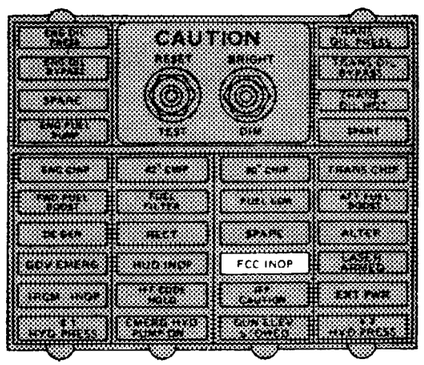


BORESIGHT CONTROLLER (XM34)

(1) Close FCC circuit breaker and observe that FCC INOP segment on pilot caution panel goes out.



AC/ARMT CIRCUIT BREAKER PANEL



PILOT CAUTION PANEL

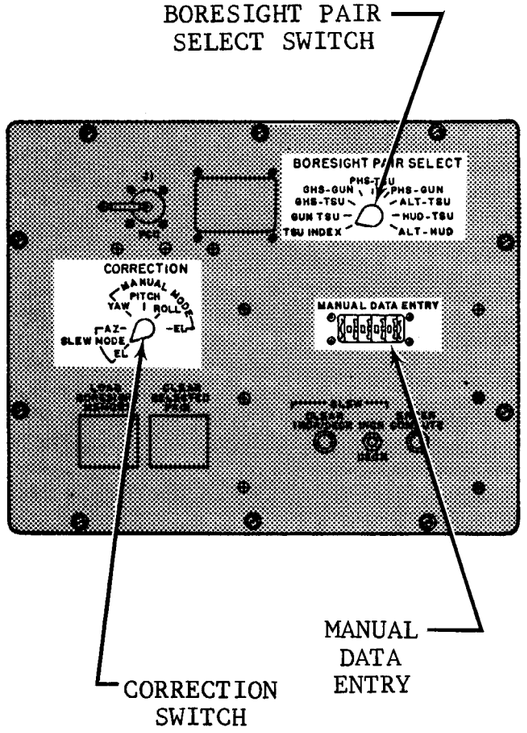
3-2. FCC OPERATIONAL CHECK (CONTINUED).

(2) On BORESIGHT CONTROLLER:

(a) Set BORESIGHT PAIR SELECT switch to GUN-TSU.

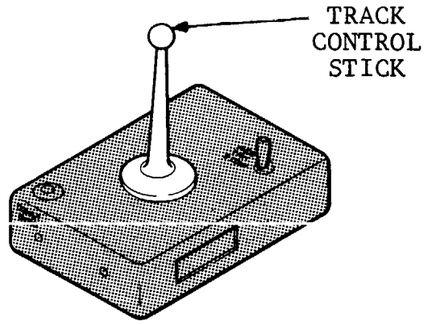
(b) Set CORRECTION switch to YAW.

(c) Set MANUAL DATA ENTRY thumb wheels to +, 9, 9, and 0 (+990).



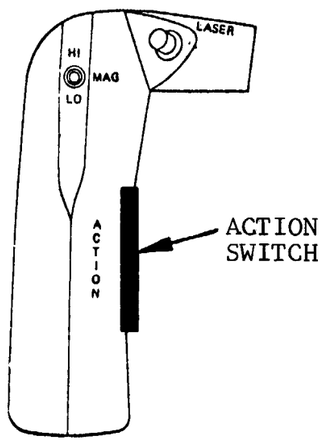
BORESIGHT CONTROLLER (XM34)

(3) Move TSU with track control stick and sight through TSU at a forward target. Hold cross hairs on target.



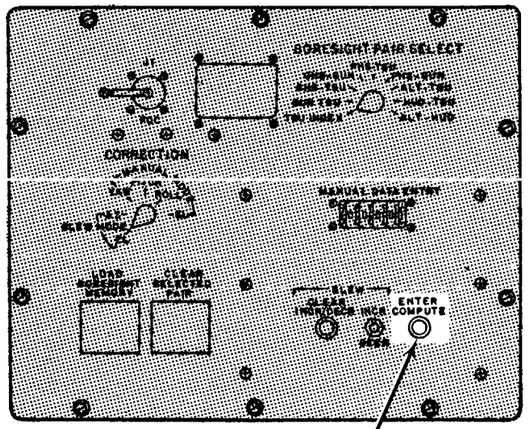
SIGHT HAND CONTROL

(4) Press and hold ACTION switch on left hand grip. Gun line will align in same direction as TSU line-of-sight.

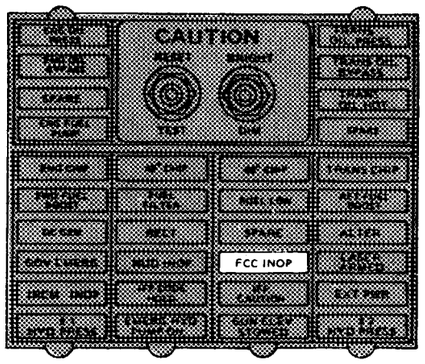


LEFT HAND GRIP

(5) Press and release ENTER COMPUTE button on boresight controller. Observe that gun moves to the right approximately 7 inches and that FCC INOP segment on pilot caution panel does not light.

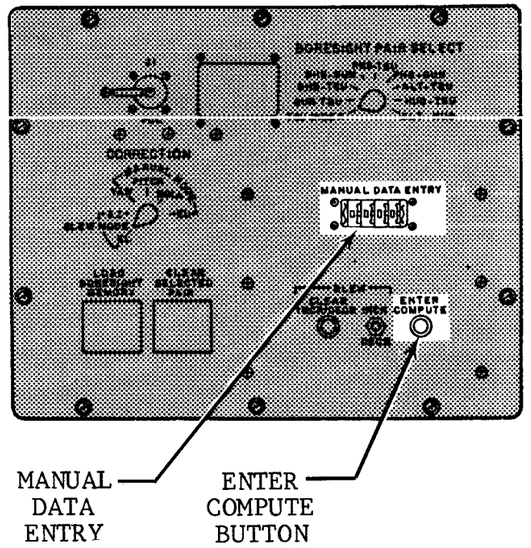


BORESIGHT CONTROLLER (XM34)



PILOT CAUTION PANEL

(6) Set MANUAL DATA ENTRY left thumb wheel to (-). Press and release ENTER COMPUTE button. Observe that gun returns to original position.

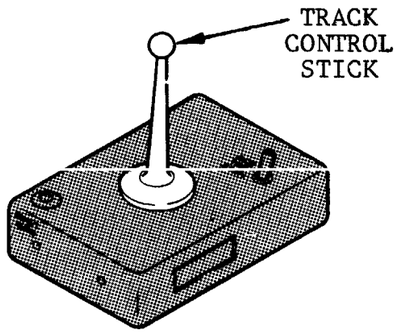


BORESIGHT CONTROLLER (XM34)

(7) Set MANUAL DATA ENTRY left thumb wheel to (+).

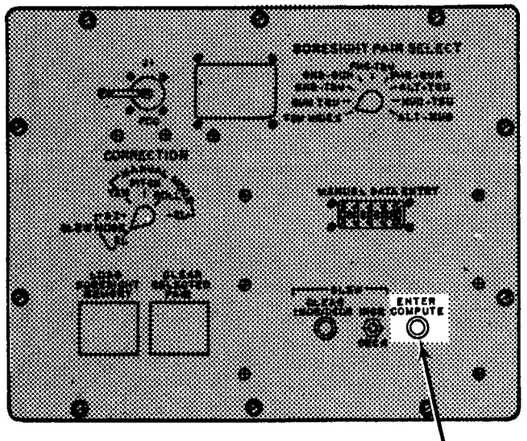
3-2. FCC OPERATIONAL CHECK (CONTINUED).

(8) Move TSU using track control stick and select a target at approximately 90 degrees right. Hold cross hairs on target.

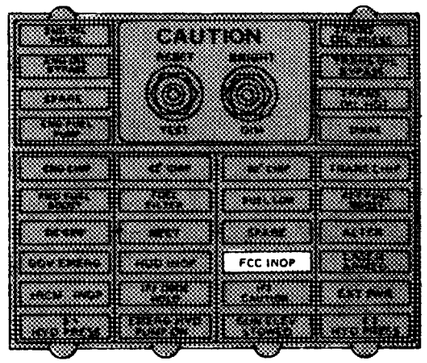


SIGHT HAND CONTROL

(9) Press and release ENTER COMPUTE button. Observe that gun moves to the right approximately 7 inches and that FCC INOP segment on pilot caution panel does not light.

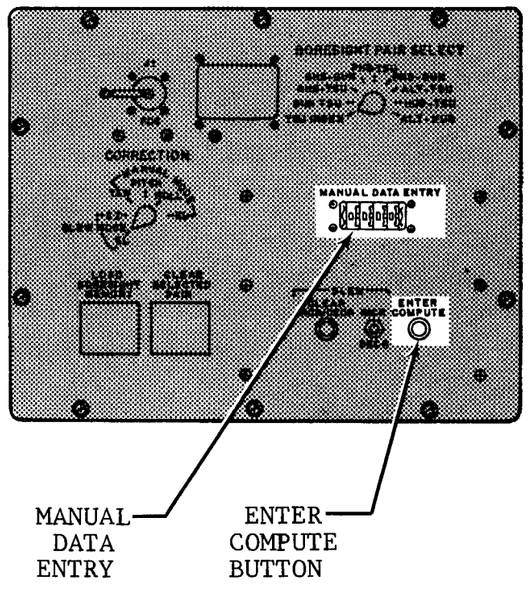


BORESIGHT CONTROLLER (XM34)



PILOT CAUTION PANEL

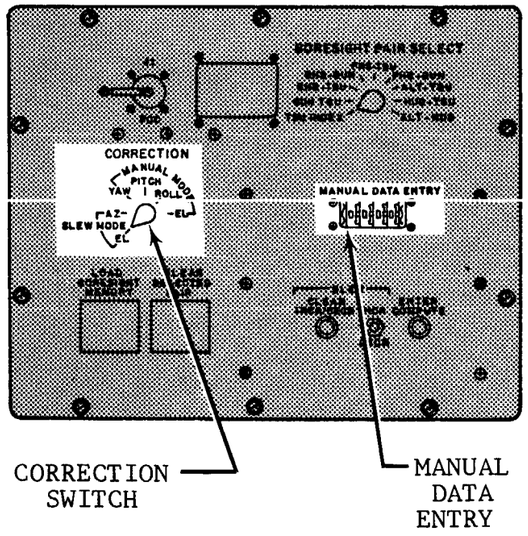
(10) Set MANUAL DATA ENTRY left thumb wheel to (-). Press and release ENTER COMPUTE button and observe that gun returns to original position.



BORESIGHT CONTROLLER (XM34)

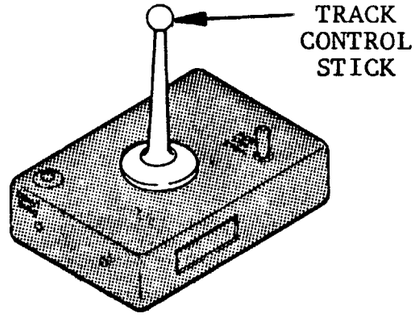
(11) Set CORRECTION switch to MANUAL EL.

(12) Set MANUAL DATA ENTRY left thumb wheel to (+).



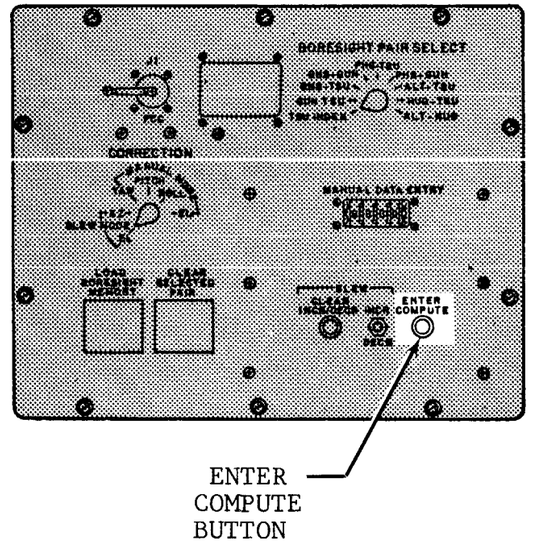
BORESIGHT CONTROLLER (XM34)

(13) Move TSU using track control stick and select a forward target. Hold cross hairs on target.

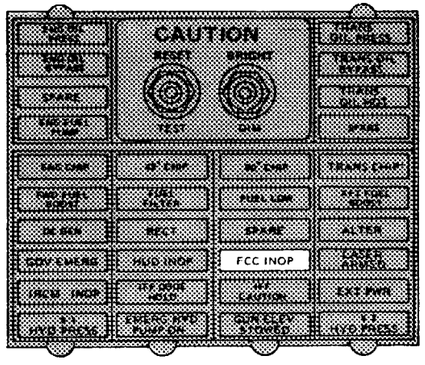


SIGHT HAND CONTROL

(14) Press and release ENTER COMPUTE button. Observe that gun moves in elevation approximately 7 inches and that FCC INOP segment on pilot caution panel does not light.



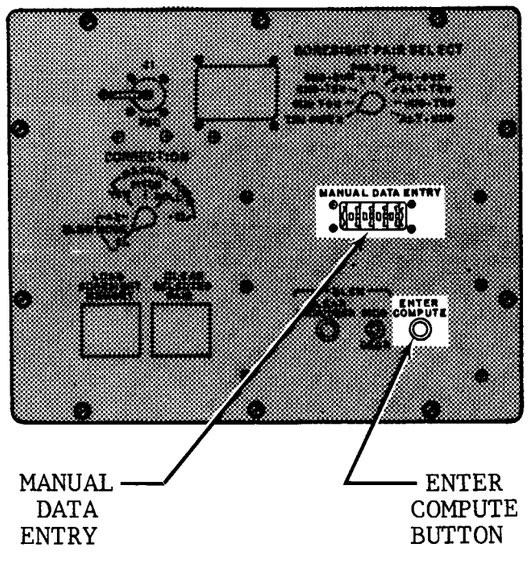
BORESIGHT CONTROLLER (XM34)



PILOT CAUTION PANEL

3-2. FCC OPERATIONAL CHECK (CONTINUED).

(15) Set MANUAL DATA ENTRY. left thumb wheel to (-). Press and release ENTER COMPUTE button and observe that gun returns to original position. Release ACTION switch.

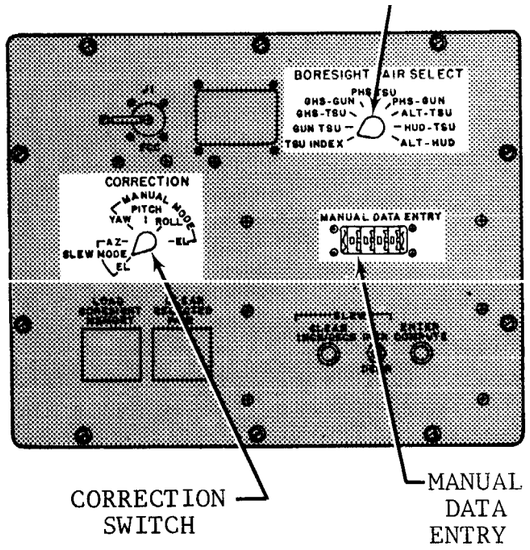


BORESIGHT CONTROLLER (XM34)

(16) Set BORESIGHT PAIR SELECT switch to GHS - TSU.

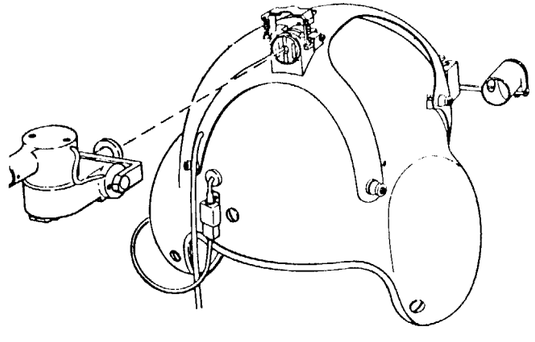
(17) Set CORRECTION switch to YAW.

(18) Set MANUAL DATA ENTRY left thumbwheel to (+).



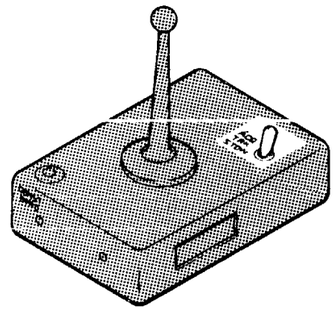
BORESIGHT CONTROLLER (XM34)

(19) Put on pilot and gunner helmets and connect to helicopter electrical connectors and rails. Adjust eyepieces.



PILOT/GUNNER HELMET

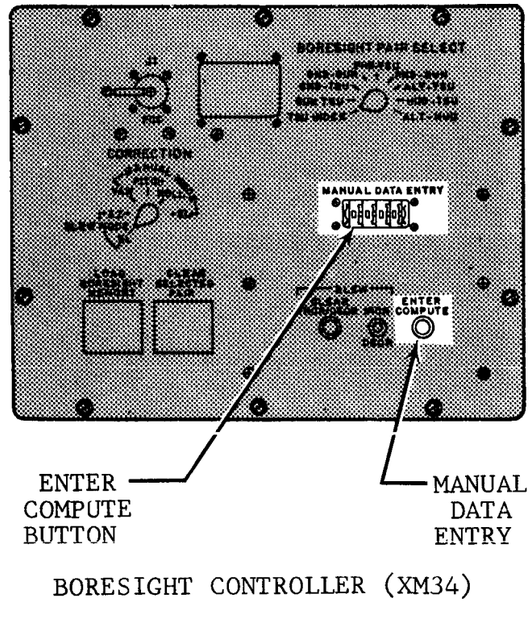
(20) Sight and hold a forward target using gunner helmet sight (GHS). Press and hold ACQ/TRK/STOW switch on sight hand control in ACQ. Observe that TSU aligns to GHS position.



SIGHT HAND CONTROL

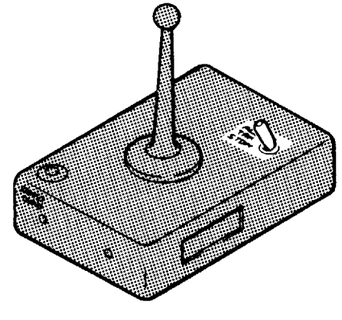
(21) Press and release ENTER COMPUTE button and observe that TSU moves. Set MANUAL DATA ENTRY left thumbwheel to (-).

Press and release ENTER COMPUTE button and observe that TSU returns to previous position.



BORESIGHT CONTROLLER (XM34)

(22) Set ACQ/TRK/STOW switch on sight hand control to STOW.

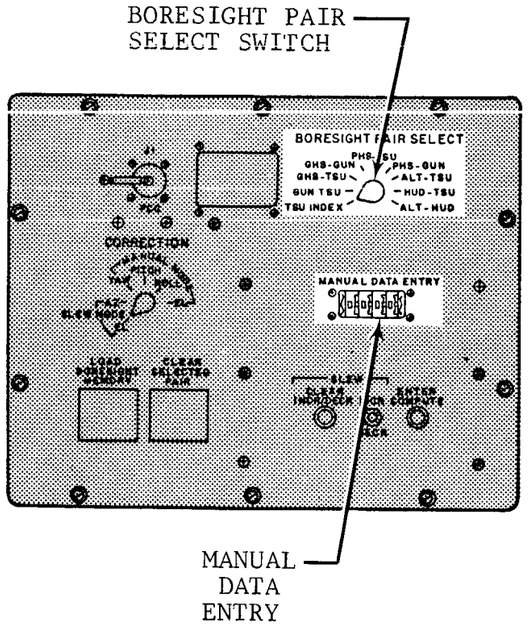


SIGHT HAND CONTROL

3-2. FCC OPERATIONAL CHECK (CONTINUED).

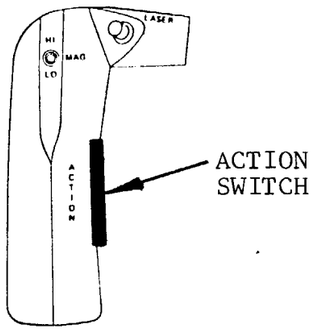
(23) Set BORESIGHT PAIR SELECT switch to GHS - GUN.

(24) Set MANUAL DATA ENTRY left thumbwheel to (+).



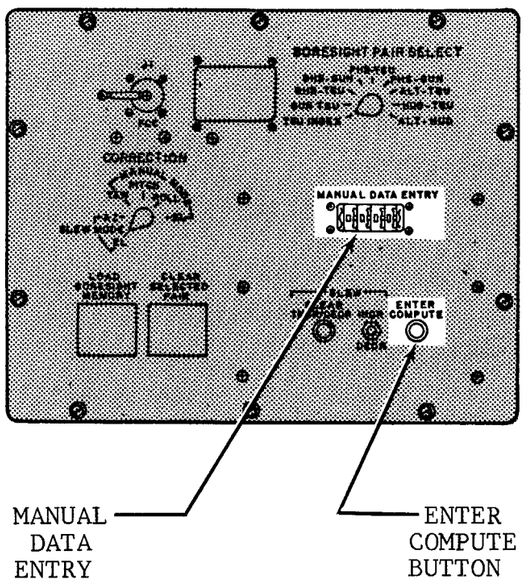
BORESIGHT CONTROLLER (XM34)

(25) Sight and hold forward target using gunner helmet sight. Press and hold ACTION switch on left hand grip. Observe that gun aligns with GHS position.



LEFT HAND GRIP

(26) Press and release ENTER COMPUTE button and observe that gun moves. Set MANUAL DATA ENTRY left thumbwheel to (-). Press and release ENTER COMPUTE button and observe that gun returns to previous position.

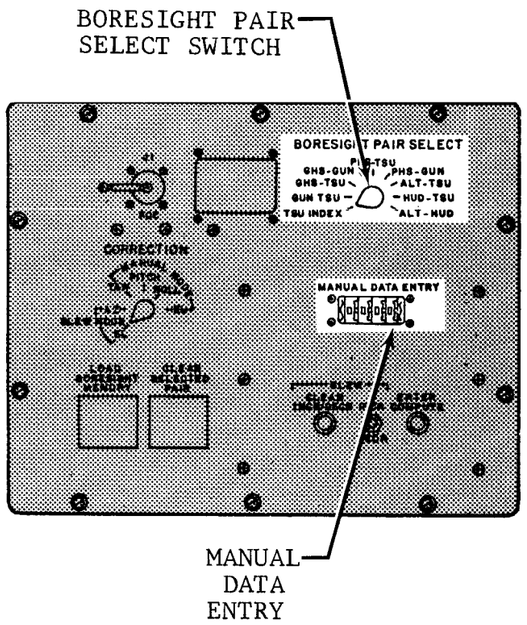


BORESIGHT CONTROLLER (XM34)

(27) Release ACTION switch. Observe that gun returns to the stow position.

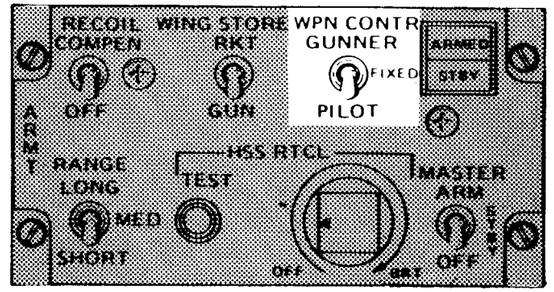
(28) Set BORESIGHT PAIR SELECT switch to PHS - GUN.

(29) Set MANUAL DATA ENTRY left thumbwheel to (+).



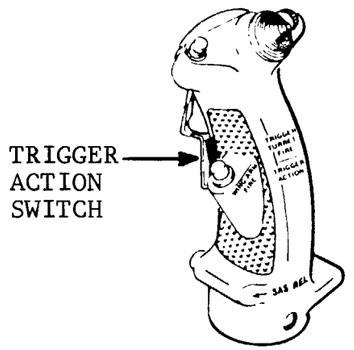
BORESIGHT CONTROLLER (XM34)

(30) Set WPN CONTR switch on pilot ARMT control panel to PILOT. Observe that PILOT IN CONT indicator on gunner armament control panel lights.



PILOT ARMT CONTROL PANEL

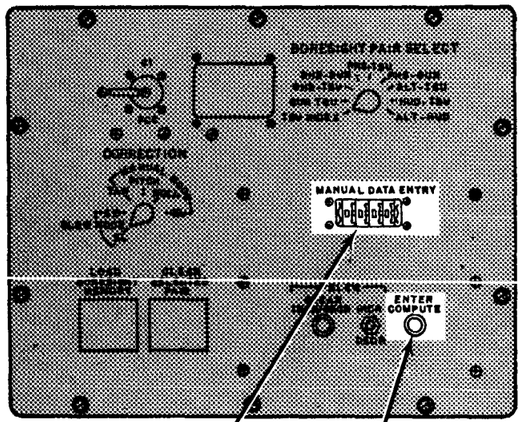
(31) Sight and hold forward target using pilot helmet sight(PHS). Press and hold TRIGGER ACTION switch on pilot cyclic stick. Observe that gun aligns with PHS position.



PILOT CYCLIC STICK

(32) Press and release ENTER COMPUTE button and observe that gun moves. Set MANUAL DATA ENTRY left thumbwheel to (-). Press and release ENTER COMPUTE button and observe that gun returns to previous position.

3-2. FCC OPERATIONAL CHECK (CONTINUED).



BORESIGHT CONTROLLER (XM34)

(33) Release TRIGGER ACTION switch. Observe that gun returns to stow position.

(34) Set MANUAL DATA ENTRY left thumbwheel to (+).

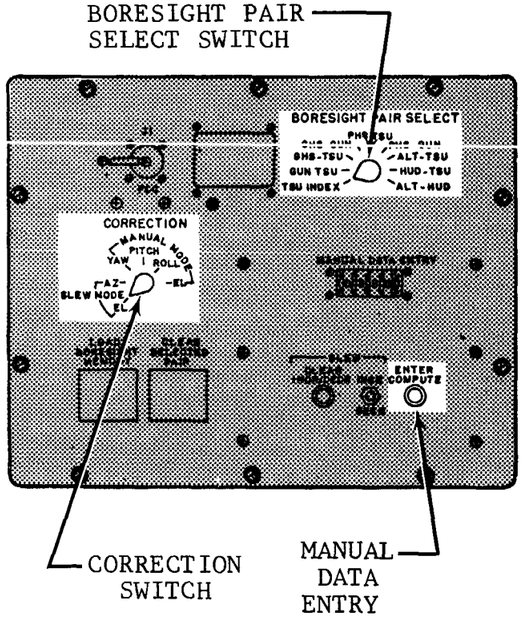
NOTE

The following steps check the FCC-sight devices acquisition modes.

(35) Set BORESIGHT PAIR SELECT switch to PHS-TSU.

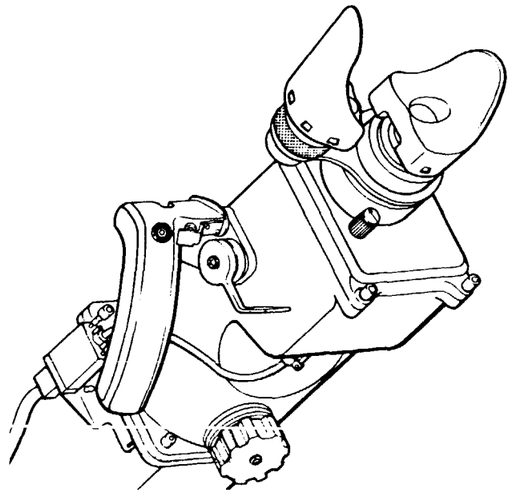
(36) Set CORRECTION switch to YAW.

(37) Set MANUAL DATA ENTRY thumb wheels to +, 6, 0, and 0 (+600).

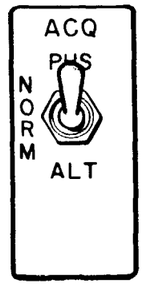


BORESIGHT CONTROLLER (XM34)

(38) Sight and hold forward target using pilot helmet sight. Press and hold ACQ switch on gunner instrument panel in PHS position. View selected target through TSU and note the portion of the target that is in the center of the field-of-view.

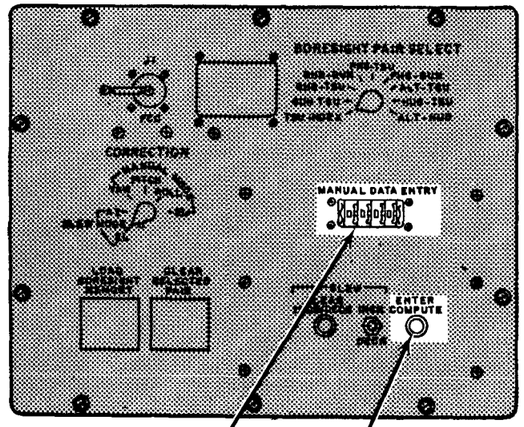


TSU

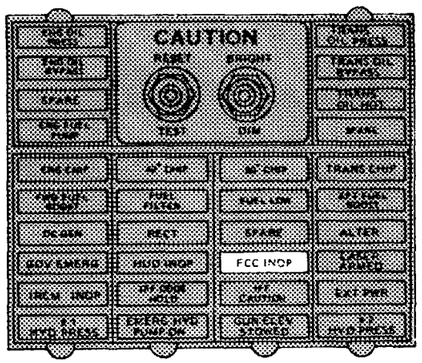


ACQ SWITCH PANEL

(39) Press and release ENTER COMPUTE button. Observe that the previous TSU center of field-of-view has shifted in azimuth and lies outside the TSU circle and that FCC INOP segment on pilot caution panel does not light.



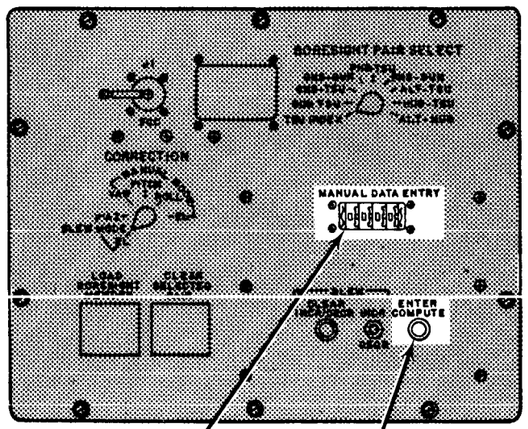
BORESIGHT CONTROLLER (XM34)



PILOT CAUTION PANEL

(40) Set MANUAL DATA ENTRY left thumbwheel to (-). Press and release ENTER COMPUTE button and observe that TSU returns to previous target position. Release ACQ switch.

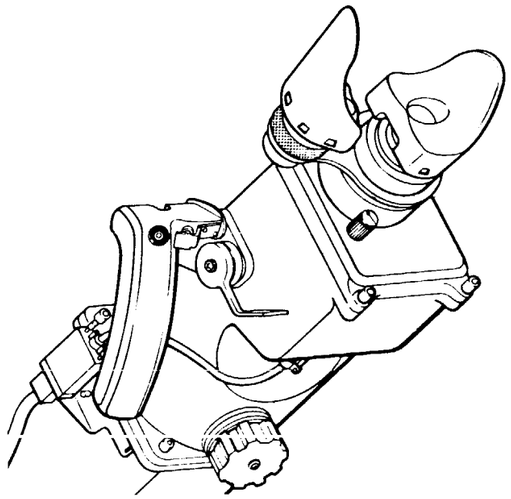
3-2. FCC OPERATIONAL CHECK (CONTINUED).



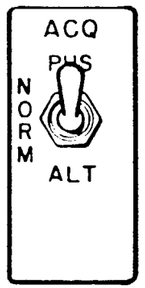
BORESIGHT CONTROLLER (XM34)

(41) Set MANUAL DATA ENTRY left thumb wheel to (+).

(42) Sight and hold a 90 degree target using the pilot helmet sight. Press and hold ACQ switch on gunner instrument panel in the PHS position, view selected target through TSU, and note the portion of the target that is in the center of the field-of-view.

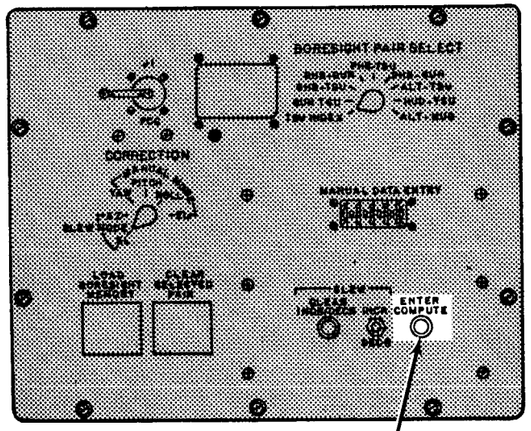


TSU



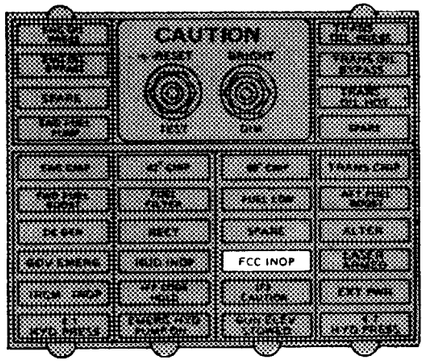
ACQ SWITCH PANEL

(43) Press and release ENTER COMPUTE button. Observe that the previous TSU center of field-of-view has shifted in azimuth and lies outside the TSU circle and that FCC INOP segment on pilot caution panel does not light.



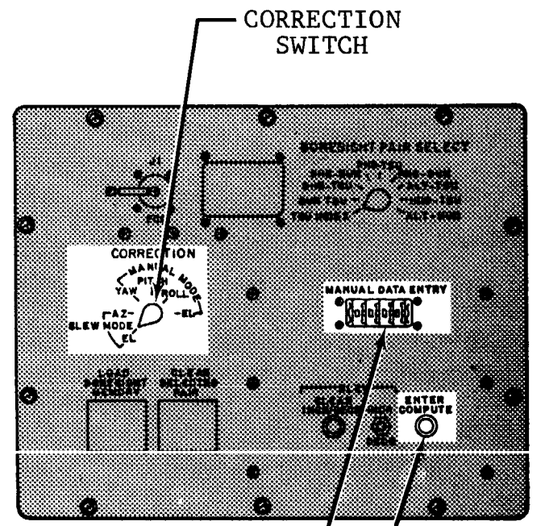
ENTER COMPUTE BUTTON

BORESIGHT CONTROLLER (XM34)



PILOT CAUTION PANEL

(44) Set MANUAL DATA ENTRY left thumb wheel to (-). Press and release ENTER COMPUTE button and observe that TSU target returns to previous position. Release ACQ switch.



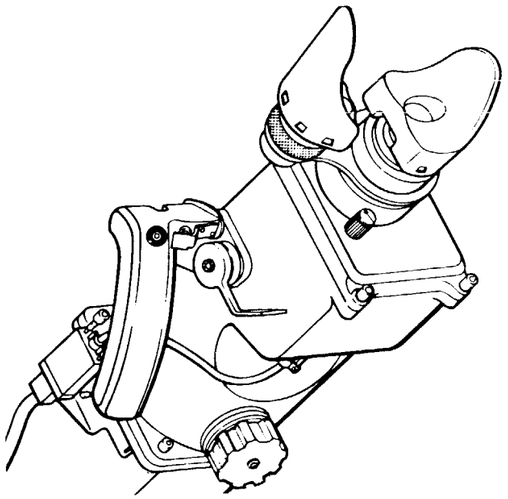
BORESIGHT CONTROLLER (XM34)

(45) Set CORRECTION switch to PITCH.

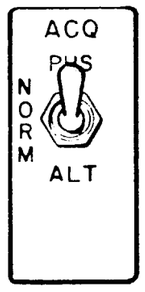
(46) Set MANUAL DATA ENTRY left thumb wheel to (+).

3-2. FCC OPERATIONAL CHECK (CONTINUED).

(47) Sight and hold a forward target using the pilot helmet sight. press and hold ACQ switch on gunner instrument panel in the PHS position. View selected target through the TSU and note the portion of the target that is in the center of the field-of-view.

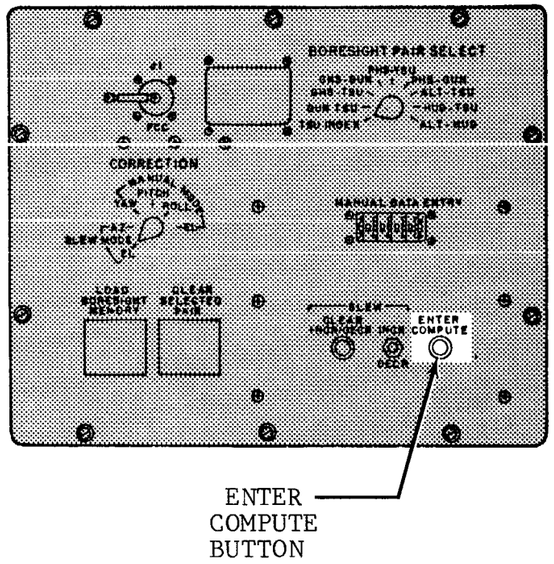


TSU



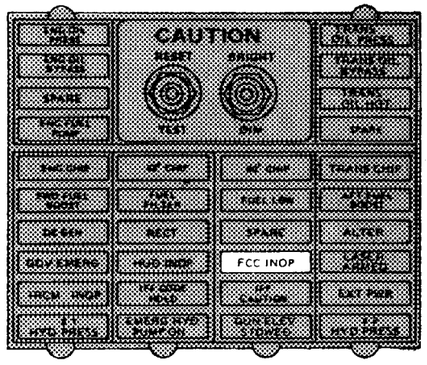
ACQ SWITCH PANEL

(48) Press and release ENTER COMPUTE button. Observe that previous TSU center of field-of-view has shifted in elevation and lies outside the TSU circle and that FCC INOP segment on pilot caution panel does not light.



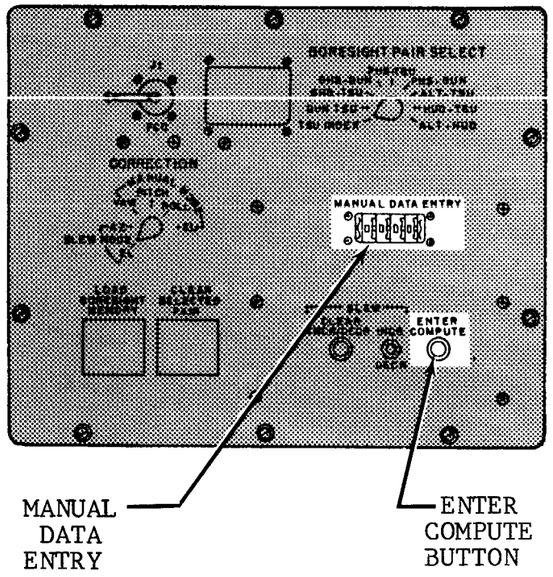
ENTER COMPUTE BUTTON

BORESIGHT CONTROLLER (XM34)



PILOT CAUTION PANEL

(49) Set MANUAL DATA ENTRY left thumb wheel to (-). Press and release ENTER COMPUTE button and observe that TSU returns to previous target position. Release ACQ switch.

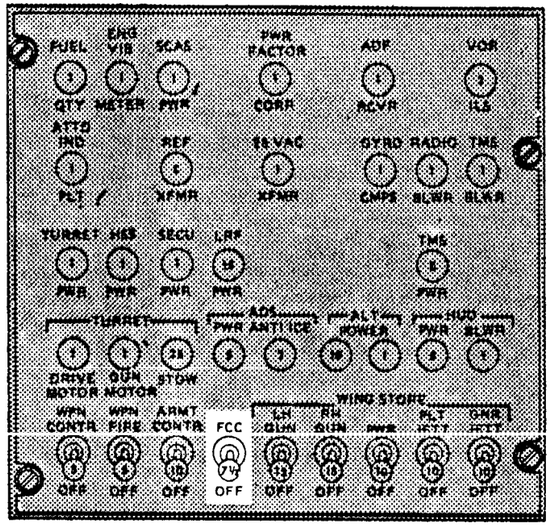


MANUAL DATA ENTRY

ENTER COMPUTE BUTTON

BORESIGHT CONTROLLER (XM34)

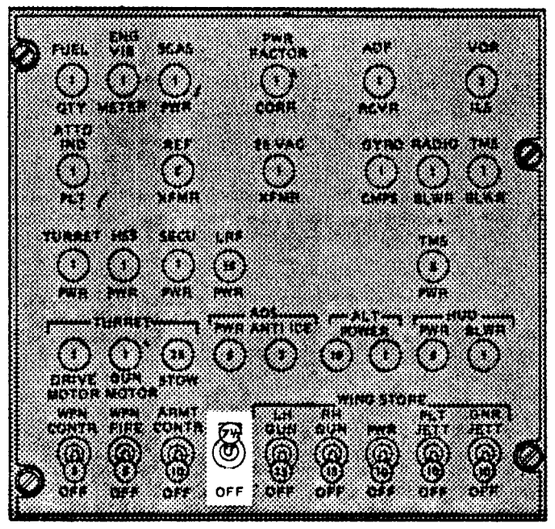
(50) Open (OFF) FCC circuit breaker on AC/ARMT circuit breaker panel.



AC/ARMT CIRCUIT BREAKER PANEL

(51) Disconnect boresight controller from the FCC per TM 9-4931-376-13.

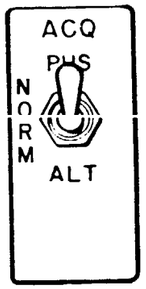
ai. Close FCC circuit breaker on AC/ARMT circuit breaker panel.



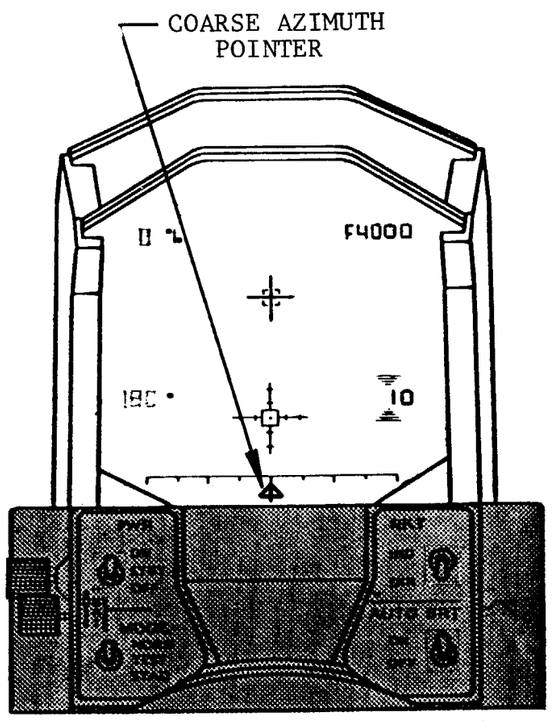
AC/ARMT CIRCUIT BREAKER PANEL

3-2. FCC OPERATIONAL CHECK (CONTINUED).

aj. Press and hold ACQ switch on gunner instrument panel in PHS position. Move pilot helmet in azimuth and observe that the coarse azimuth pointer on HUD follows helmet movement and does not stay at 0 or + 90 degrees azimuth. Release ACQ switch.

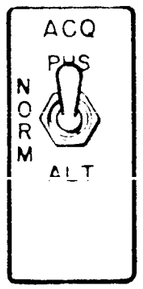


ACQ SWITCH PANEL

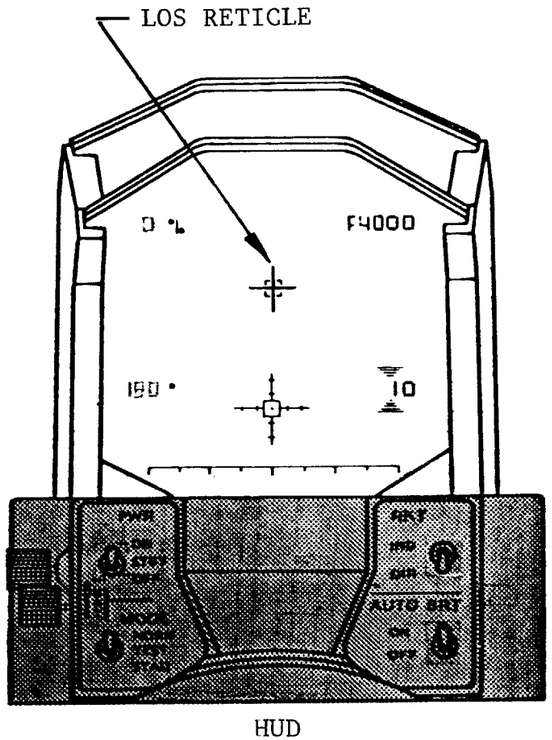


HUD

ak. Press and hold ACQ switch on gunner instrument panel in PHS position. Move pilot helmet in elevation and observe that the LOS reticle on HUD follows helmet sight movement and does not stay at 0 degrees elevation. Release ACQ switch.



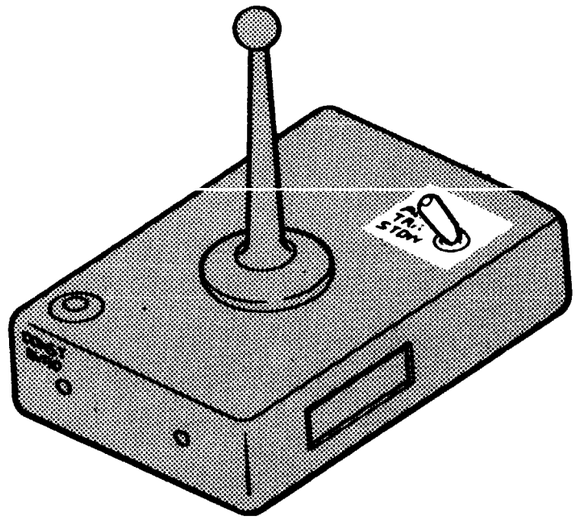
ACQ SWITCH PANEL



HUD

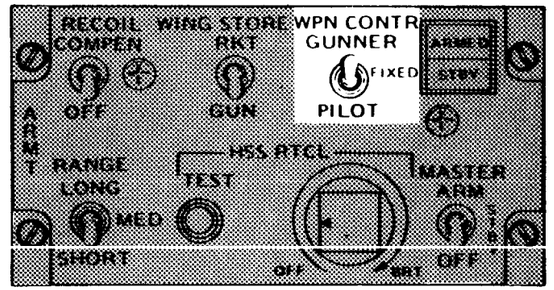
al. Check gun range elevation from gunner station as follows:

(1) Set ACQ/TRK/STOW switch on sight hand control to STOW.



SIGHT HAND CONTROL

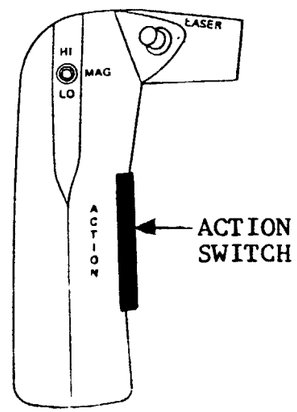
(2) Set WPN CONTR switch on pilot ARMT control panel to GUNNER.



PILOT ARMT CONTROL PANEL

(3) Hold gunner helmet line of sight steady on target.

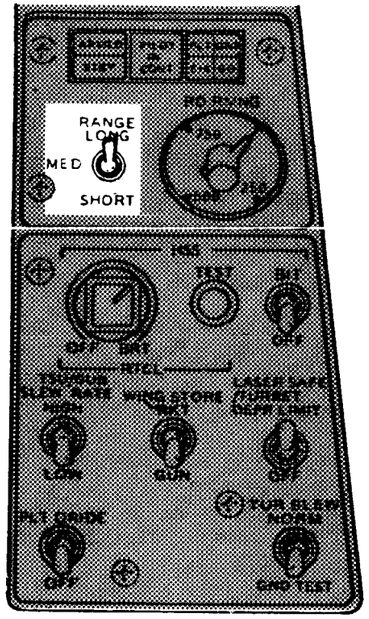
(4) Press and hold ACTION switch on left hand grip (gun will align with gunner helmet line of sight).



LEFT HAND GRIP

3-2. FCC OPERATIONAL CHECK (CONTINUED).

(5) Set RANGE switch on gunner armament control panel to LONG. Observe that gun moves up slightly.



GUNNER ARMAMENT CONTROL PANEL

(6) Set RANGE switch to MED. Observe that gun moves down slightly.

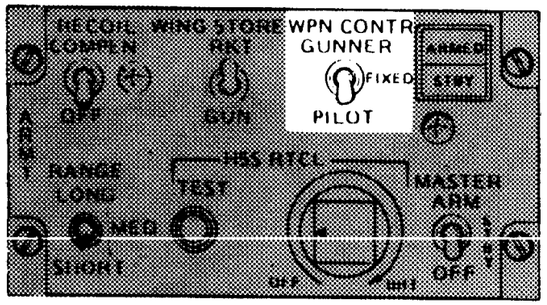
(7) Set RANGE switch to SHORT. Observe that gun moves slightly further down.

(8) Set RANGE switch to MED. Observe that gun moves up slightly.

(9) Release ACTION switch.

am. Check gun range elevation from pilot station as follows:

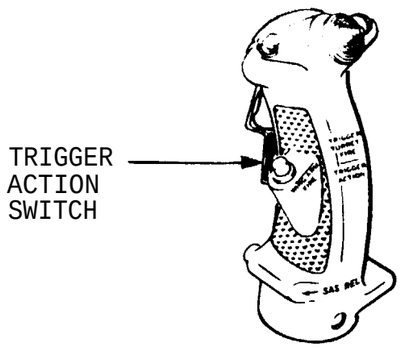
(1) Set WPN CONTR switch on pilot ARMT control panel to PILOT.



PILOT ARMT CONTROL PANEL

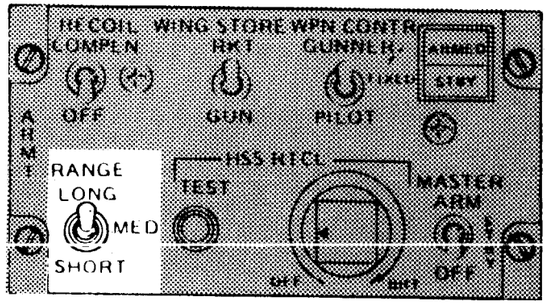
(2) Hold pilot helmet line of sight steady on target.

(3) Press and hold TRIGGER ACTION switch on pilot cyclic stick (gun will align to pilot helmet line of sight).



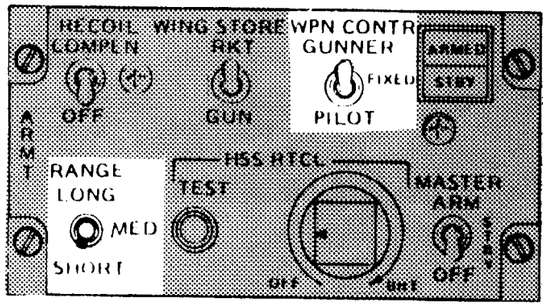
PILOT CYCLIC STICK

(4) Set RANGE switch on pilot ARMT control panel to LONG. Observe that gun moves up.



PILOT ARMT CONTROL PANEL

(5) Set RANGE switch to MED. Observe that gun moves down slightly.



PILOT ARMT CONTROL PANEL

(6) Set RANGE switch to SHORT. observe that gun moves slightly further down.

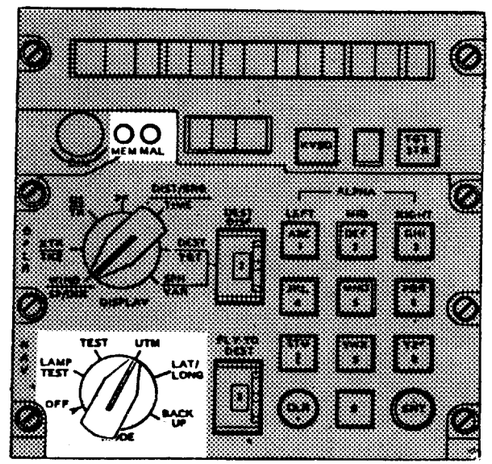
(7) Set RANGE switch to MED. Observe that gun moves up slightly.

an. Set WPN CONTR switch on pilot ARMT control panel to GUNNER.

NOTE

The following steps verify that range compensation data are received by the FCC from Doppler Navigation and Air Data systems.

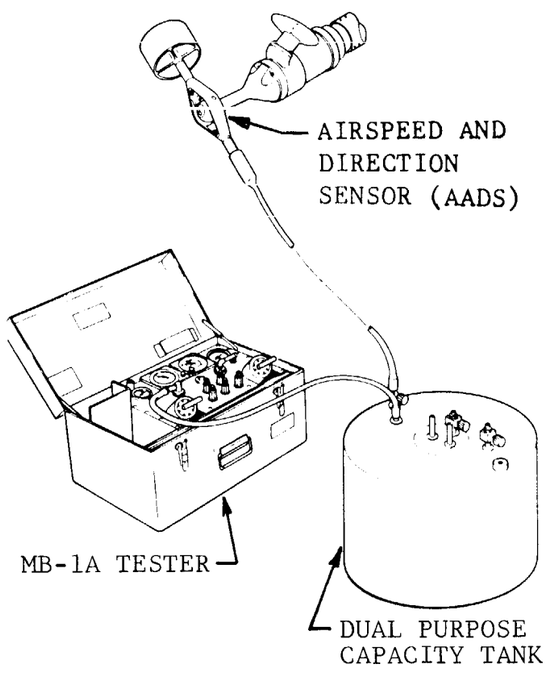
ao. Set MODE select switch on DPLR NAV control panel to UTM. Observe that MEM lamp lights and MAL lamp does not light.



DPLR NAV CONTROL PANEL

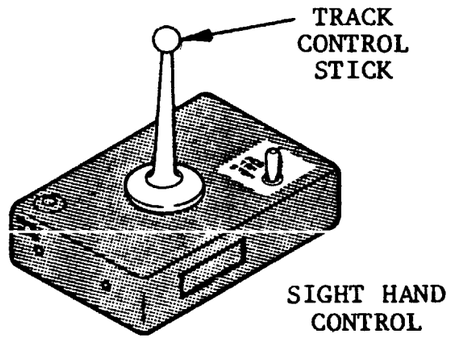
3-2. FCC OPERATIONAL CHECK (CONTINUED).

ap. Connect pitot-static system tester (MB-1A) and dual purpose capacity tank to the AADS probe.

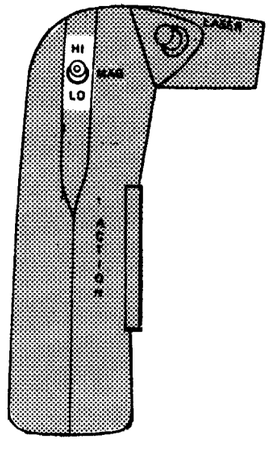


aq. Set the nose of the AADS probe at approximately 0 degrees elevation and 0 degrees azimuth. It can be held in this position by looping the air tube from the MB-1A tester over the back end of the AADS probe.

ar. Set ACQ/TRK/STOW switch on sight hand control to TRK. Position TSU with the track control stick 90 degrees to the right at 0 degrees elevation.

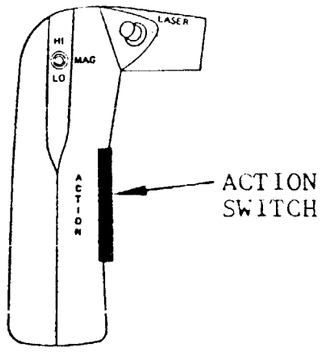


as. Press MAG switch on left hand grip to HI and release. Select a distant target in TSU and hold the cross hairs on target.



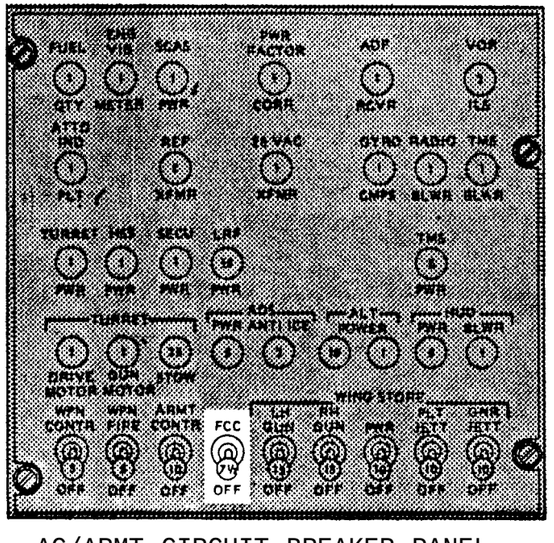
LEFT HAND GRIP

at. Press and hold ACTION switch (gun will align with TSU).

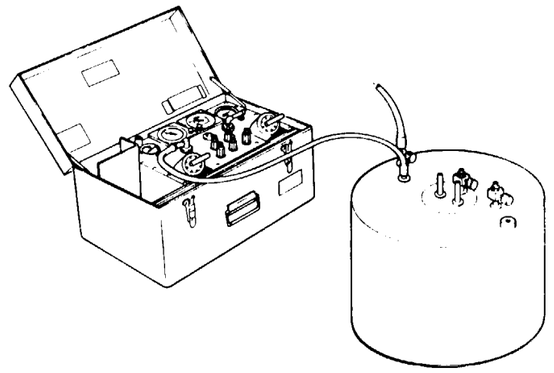


LEFT HAND GRIP

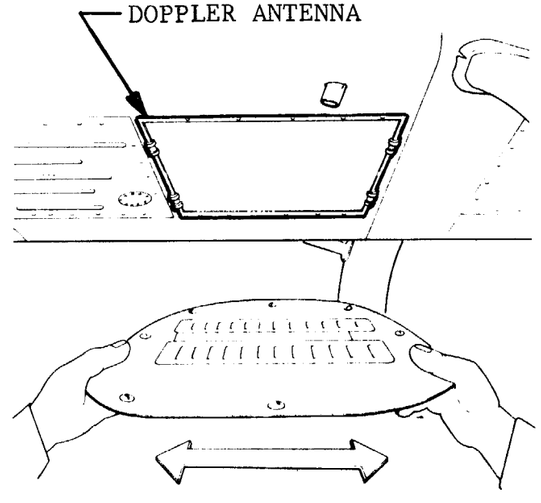
au. Open FCC circuit breaker on AC/ARMT circuit breaker panel. Set airspeed on MB-1A tester to approximately 100 kts (maintain this speed). Close FCC circuit breaker and observe that gun barrels move rearward approximately 5 inches with no erratic movement. The TSU will remain where it is sighted.



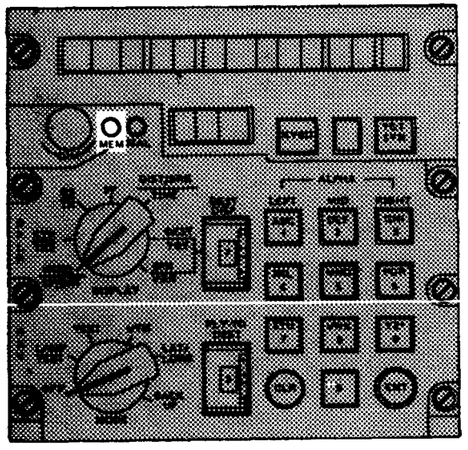
AC/ARMT CIRCUIT BREAKER PANEL



av. Pass the removed battery compartment access panel directly below the Doppler antenna several times. Observe that MEM lamp on the DPLR NAV control panel goes out and the gun barrels move forward as the object is passed directly beneath the antenna.



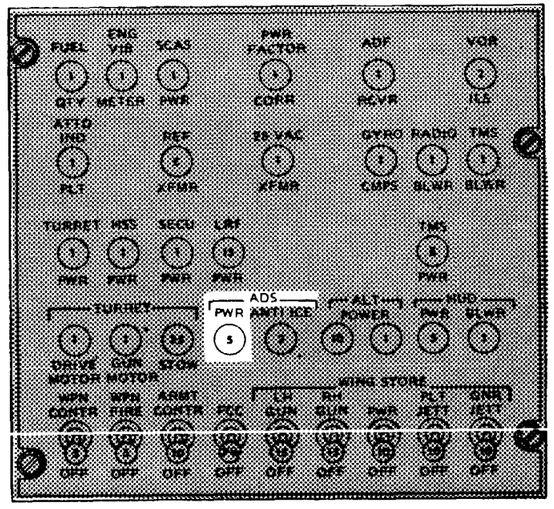
3-2. FCC OPERATIONAL CHECK (CONTINUED).



DPLR NAV CONTROL PANEL

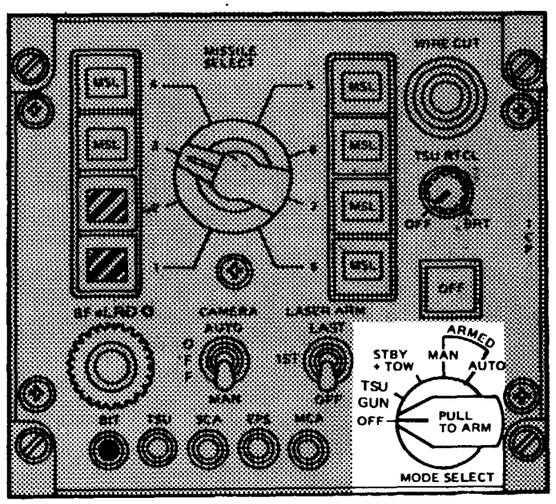
aw. Observe that gun barrels move rearward to the same position as in step au when battery compartment access panel is removed from below the Doppler antenna.

ax. Open ADS PWR circuit breaker. Observe gun barrels move forward and coincide with the line of sight of the TSU.



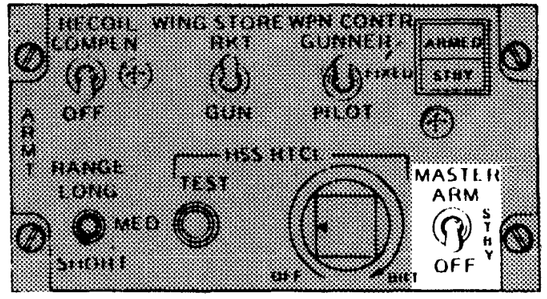
AC/ARMT CIRCUIT BREAKER PANEL

ay. Release ACTION switch. Set MODE SELECT switch on TCP (TOW control panel) to OFF.



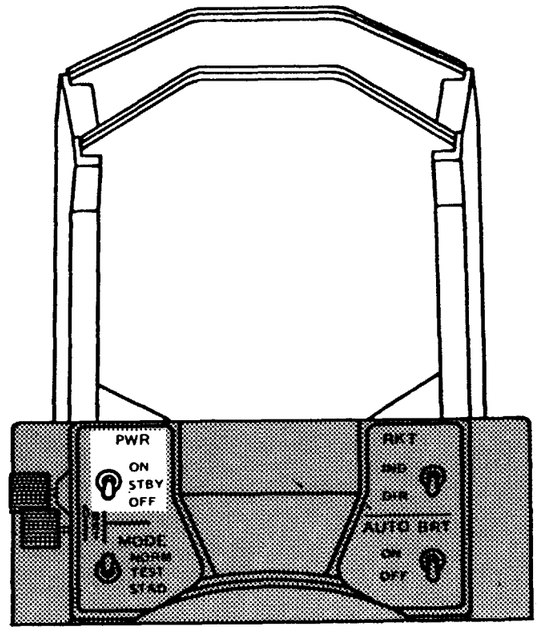
TCP (TOW CONTROL PANEL)

az. Set MASTER ARM switch on pilot ARMT control panel to OFF.



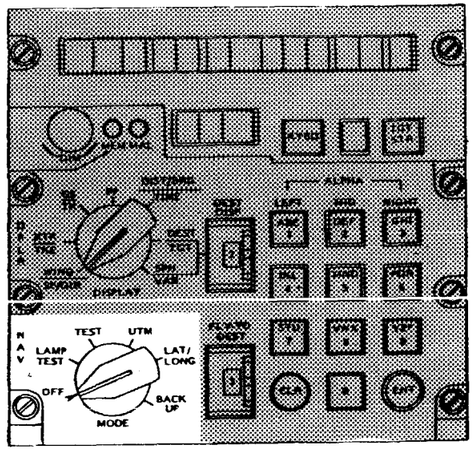
PILOT ARMT CONTROL PANEL

ba. Set PWR switch on HUD to OFF.



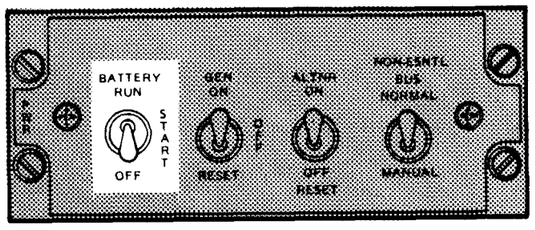
HUD

bb. Set MODE switch on DPLR NAV control panel to OFF.



DPLR NAV CONTROL PANEL

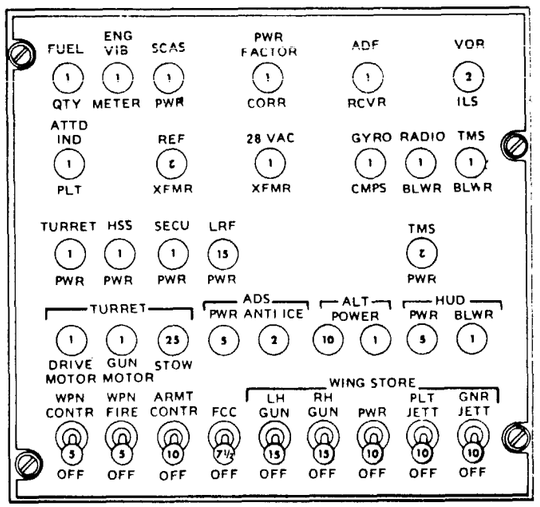
bc. Set BATTERY switch on pilot electrical PWR control panel to OFF.



ELECTRICAL PWR CONTROL PANEL

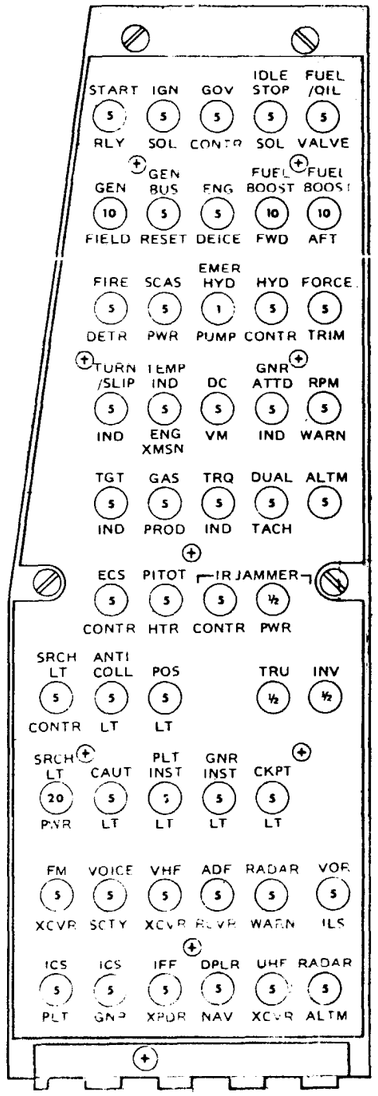
3-2. FCC OPERATIONAL CHECK (CONTINUED).

bd. Open (OFF) all circuit breakers on AC/ARMT circuit breaker panel.



AC/ARMT CIRCUIT BREAKER PANEL

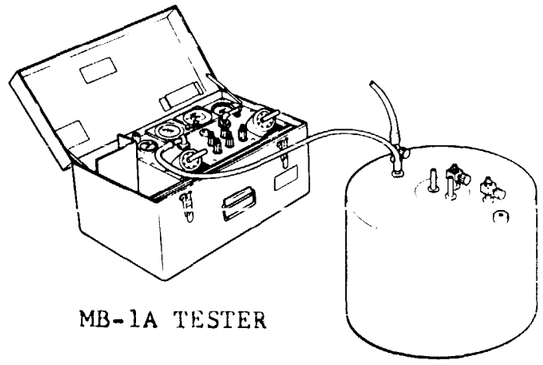
be. Open all circuit breakers on DC circuit breaker panel.



DC CIRCUIT BREAKER PANEL

bf. Turn off and disconnect external power.

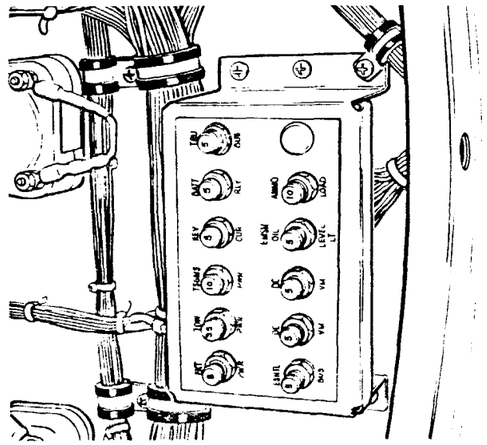
bg. Disconnect pitot-static system tester (MB-1A) and dual purpose capacity tank.



MB-1A TESTER

DUAL PURPOSE CAPACITY TANK

bh. Open all circuit breakers on circuit breaker panel in battery compartment.



CIRCUIT BREAKER PANEL

bi. Disconnect battery.

3-3. POWER OFF/POWER ON PROCEDURES.

INITIAL SETUP

Applicable Configuration
All

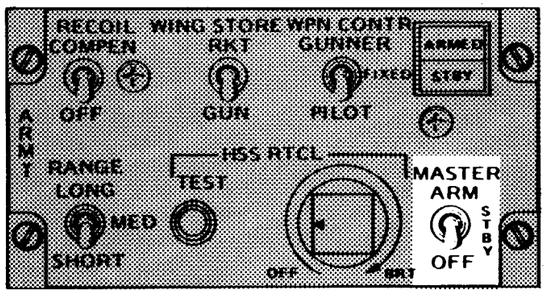
Personnel Required
68J (1)

a. Turn off electrical power when specified in troubleshooting procedure as follows:

NOTE

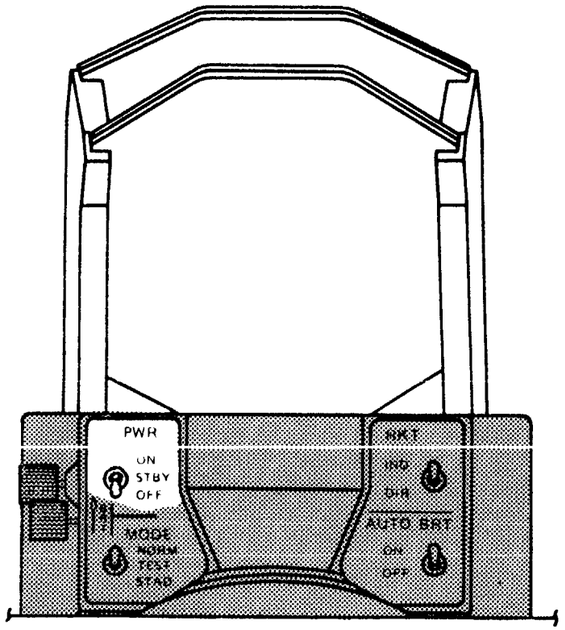
Note the position that the MASTER ARM switch is in. The MASTER ARM switch must be set to the same position during the Power On Procedure.

(1) Set MASTER ARM switch on pilot ARMT control panel to OFF.



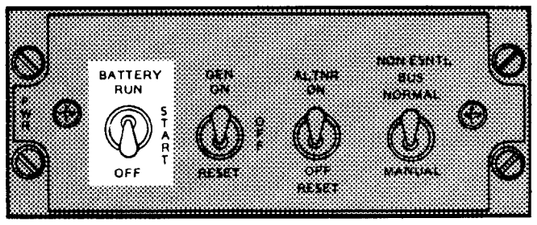
PILOT ARMT CONTROL PANEL

(2) Set PWR switch on HUD to OFF.



HUD

(3) Set BATTERY switch on electrical PWR control panel to OFF.



ELECTRICAL PWR CONTROL PANEL

(4) Turn off ground power unit.

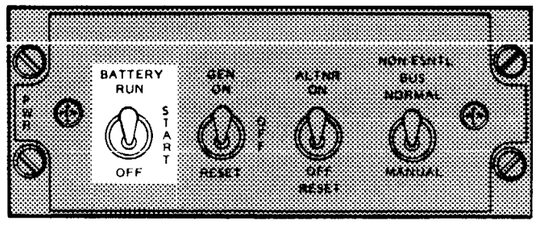
(5) Disconnect battery.

b. Turn on electrical power when specified in troubleshooting procedure as follows:

(1) Connect battery.

(2) Turn on ground power unit.

(3) Set BATTERY switch on electrical PWR control panel to RUN.



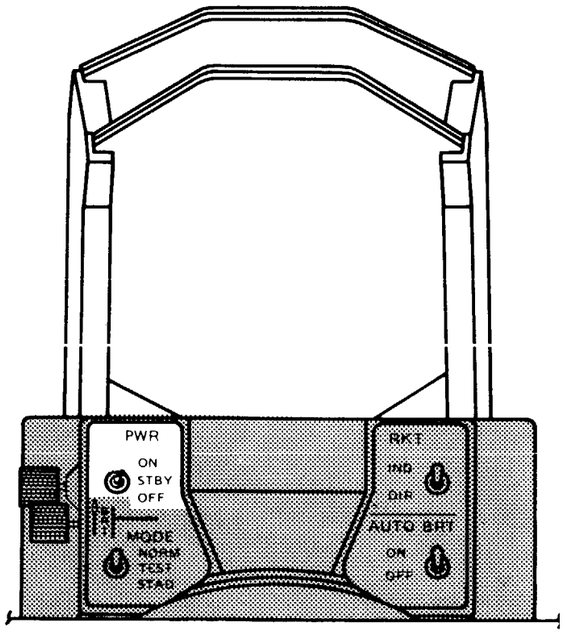
ELECTRICAL PWR CONTROL PANEL

(4) Set MASTER ARM switch on pilot ARMT control panel to the same position the switch was in prior to Power Off Procedure.



PILOT ARMT CONTROL PANEL

(5) Set PWR switch on HUD to STBY. Wait 30 seconds then set PWR switch to ON.



HUD

3-4. BORESIGHT CONTROLLER ERROR CORRECTION PROCEDURE.

a. If a positive (+) entry was input on the MANUAL DATA ENTRY thumbwheels proceed as follows:

(1) Set left MANUAL DATA ENTRY thumbwheel to (-). Do not change the remaining thumbwheel settings.

(2) Press the ENTER COMPUTE button once for each time it was pressed in error.

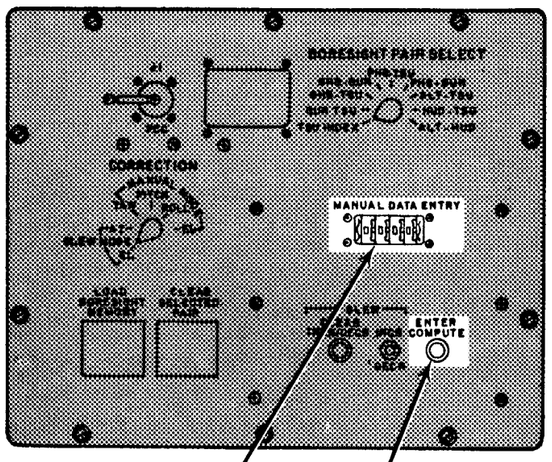
(3) Set left MANUAL DATA ENTRY thumbwheel to (+) and resume testing.

b. If a negative (-) entry was input on the MANUAL DATA ENTRY thumbwheels proceed as follows:

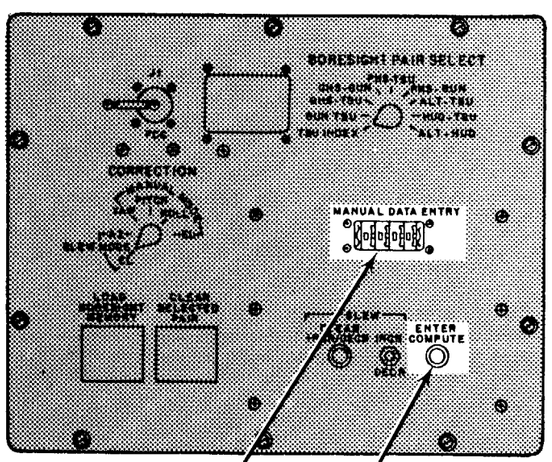
(1) Set left MANUAL DATA ENTRY thumbwheel to (+). Do not change the remaining thumbwheel settings.

(2) Press the ENTER COMPUTE button once for each time it was pressed in error.

(3) Set left MANUAL DATA ENTRY thumbwheel to (-) and resume testing.



BORESIGHT CONTROLLER (XM34)



BORESIGHT CONTROLLER (XM34)

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3-5.	FCC INOP SEGMENT ON PILOT CAUTION PANEL IS NOT LIT WITH FCC CIRCUIT BREAKER OPEN.

INITIAL SETUP

Applicable Configuration
All

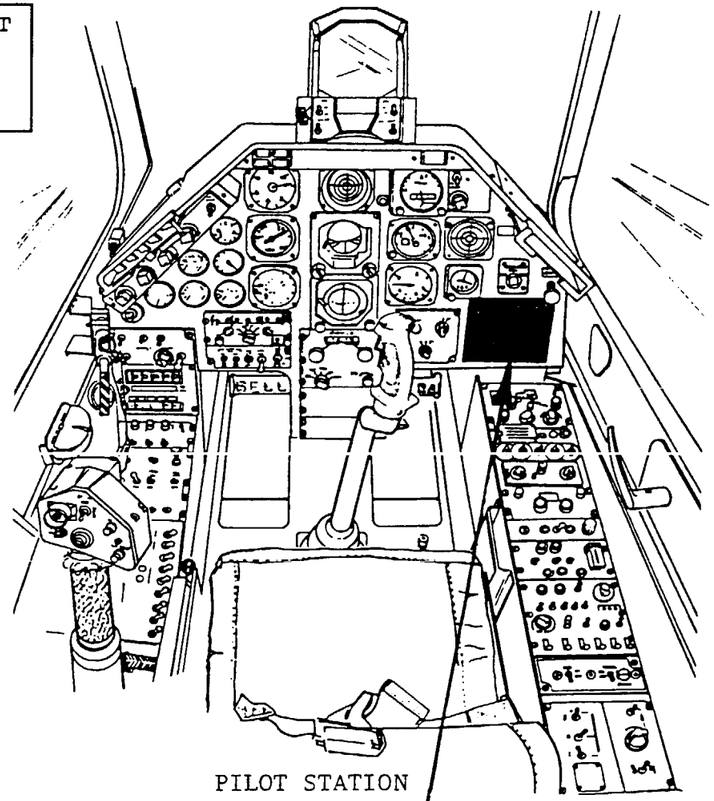
Tools/Test and Support Equipment
Multimeter

Tool Set, A/C Armament Repairman

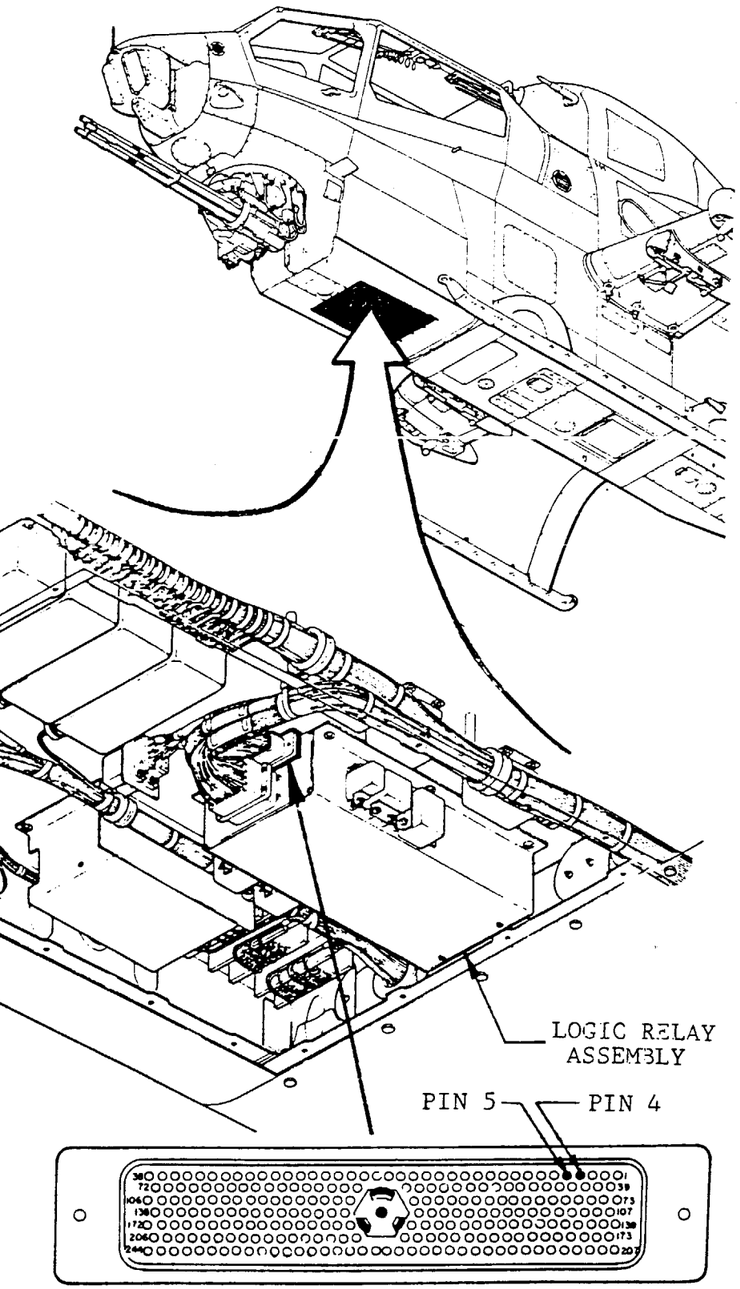
Personnel Required
68J (1)

Reference
TM 9-1090-206-20-1
TM 55-1520-236-23

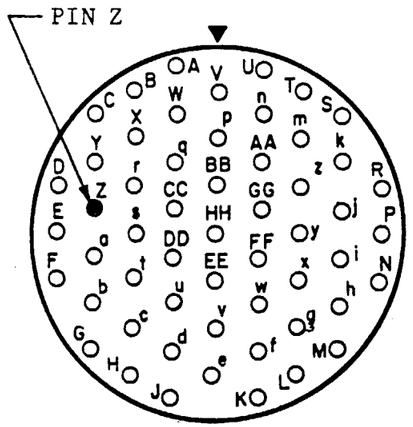
Access Panels
Forward Belly Armament and Lighting - Removed



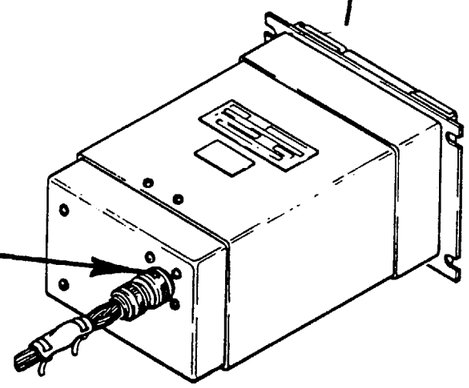
PILOT STATION



22A5P1



8A2P1



PILOT CAUTION PANEL (REAR VIEW)

3-5. FCC INOP SEGMENT ON PILOT CAUTION PANEL IS NOT LIT WITH FCC CIRCUIT BREAKER OPEN (CONTINUED).

Turn off electrical power per paragraph 3-3.

Check for continuity from 8A2P1-Z to airframe ground.

Is continuity present?

YES → Troubleshoot pilot caution panel per TM 55-1520-236-23, Chapter 9, Section VI.

Then go to paragraph 3-2.

NO ↓

Check for continuity from 22A5P1-5 to 8A2P1-Z.

Is continuity present?

YES → Check for continuity from 22A5P1-4 to airframe ground.

Is continuity present?

YES → Replace logic relay assembly per TM 9-1090-206-20-1, Chapter 3, Section XXIII.

Then go to paragraph 3-2.

NO ↓

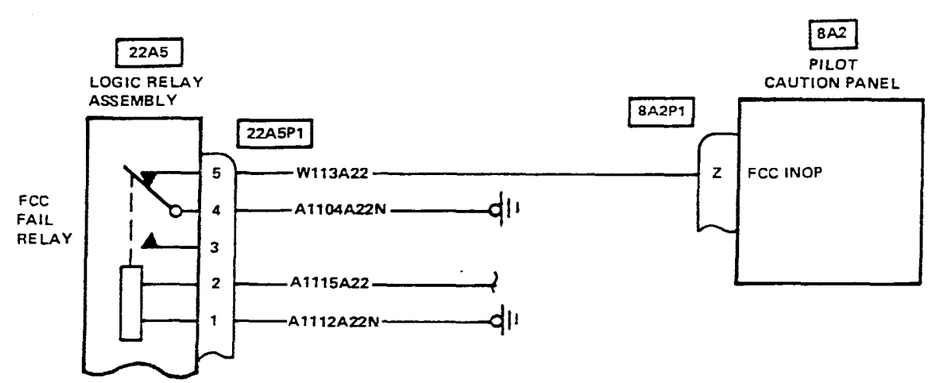
Repair wire W113A22 between 22A5P1-5 and 8A2P1-Z.

Then go to paragraph 3-2.

NO ↓

Repair wire A1104A22N between 22A5P1-4 and airframe ground.

Then go to paragraph 3-2.



3-6.	FCC INOP SEGMENT ON PILOT CAUTION PANEL IS NOT LIT WITH FCC CIRCUIT BREAKER CLOSED.

INITIAL SETUP

Applicable Configuration
All

Tools/Test and Support Equipment
Multimeter

Tool Set, A/C Armament Repairman

Personnel Required
68J (2)

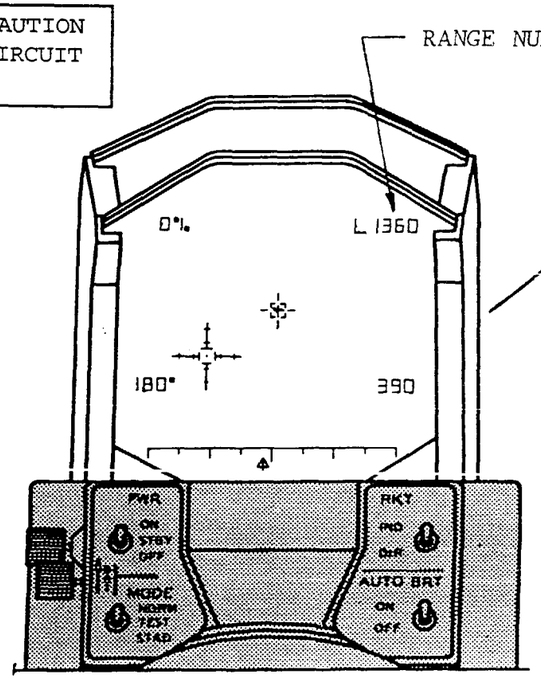
References
TM 9-1090-206-20-1
TM 9-1270-218-13
TM 55-1520-236-23

Access Panels
Forward Belly Armament and Lighting - Removed

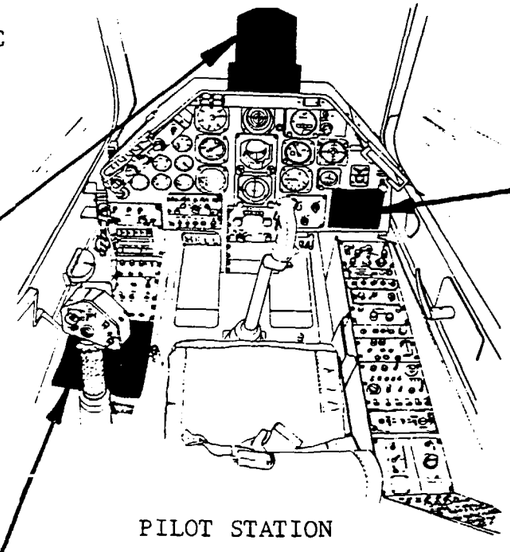
Interface Control Unit - Removed

Battery Compartment - Removed

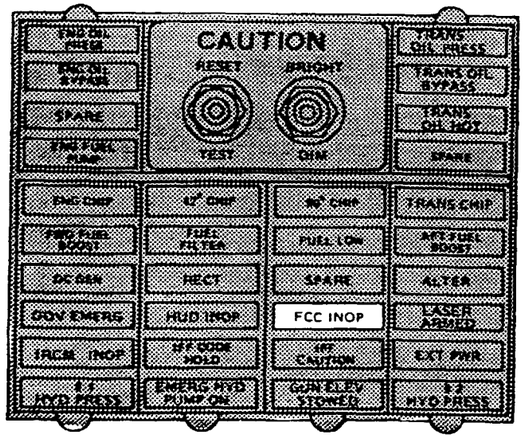
Left Side Control Linkage - Removed



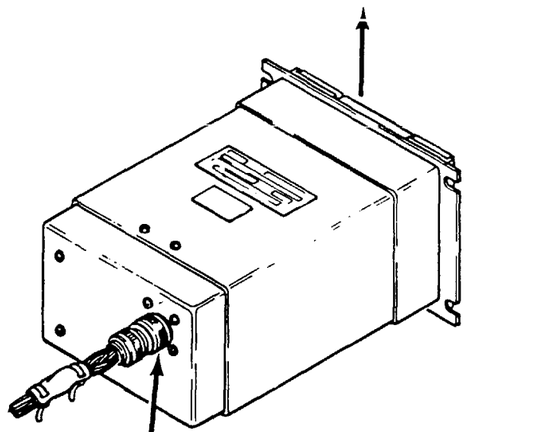
HUD



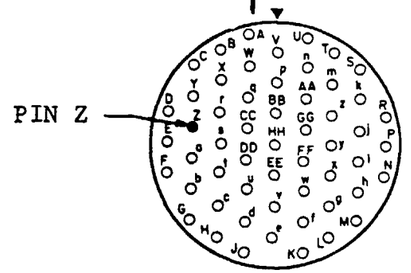
PILOT STATION



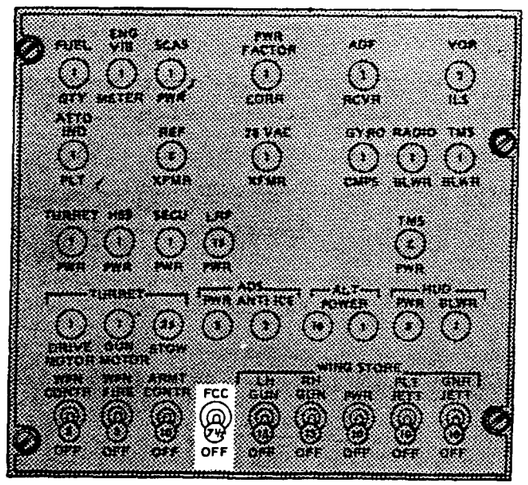
PILOT CAUTION PANEL



PILOT CAUTION PANEL (REAR VIEW)

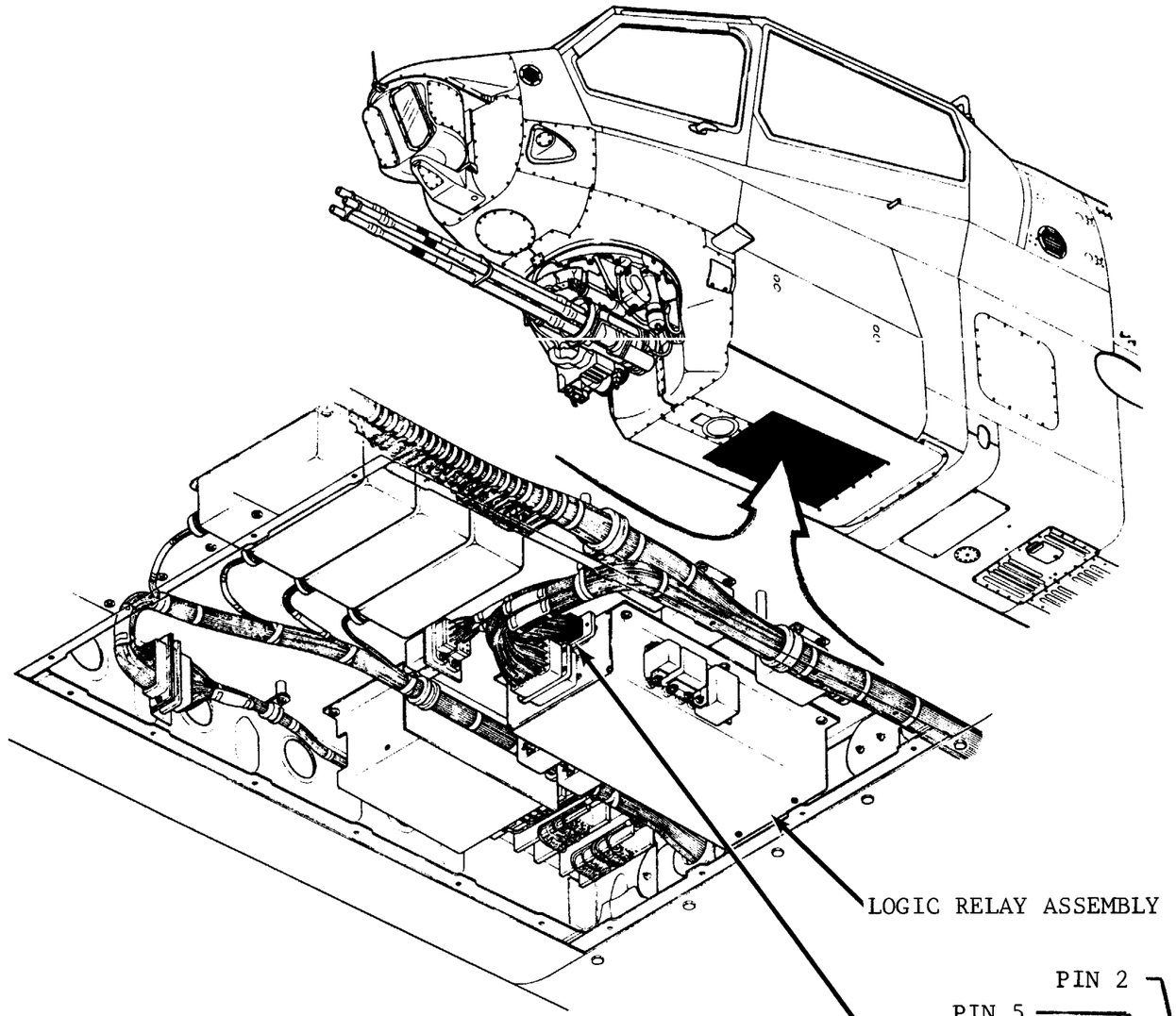


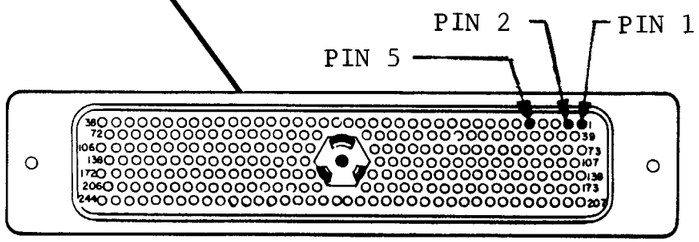
8A2P1



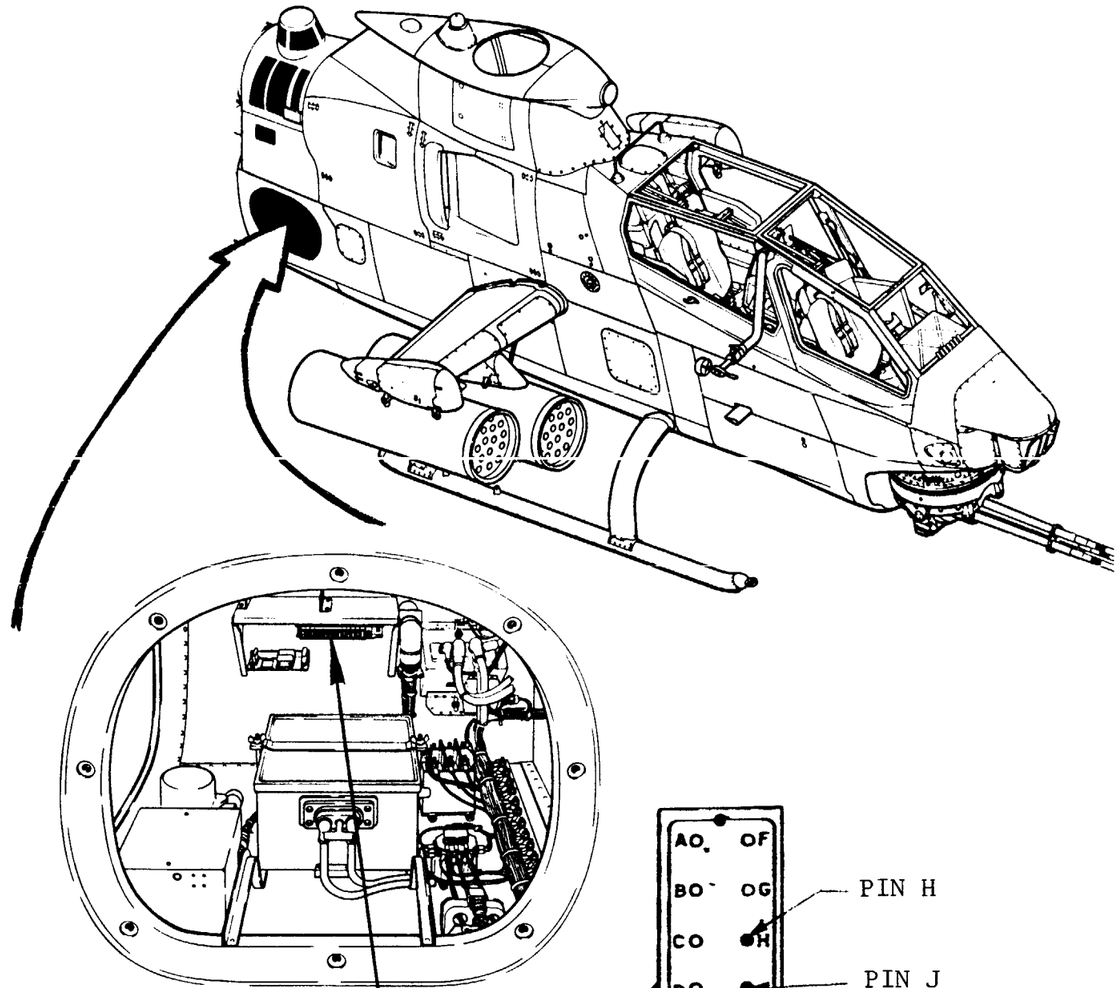
AC/ARMT CIRCUIT BREAKER PANEL

3-6. FCC INOP SEGMENT ON PILOT CAUTION PANEL IS LIT WITH FCC CIRCUIT BREAKER CLOSED (CONTINUED).

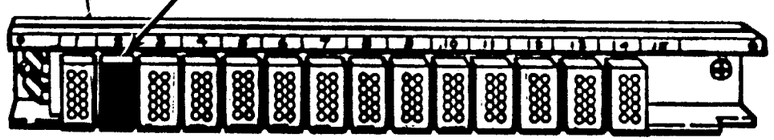




22A5P1

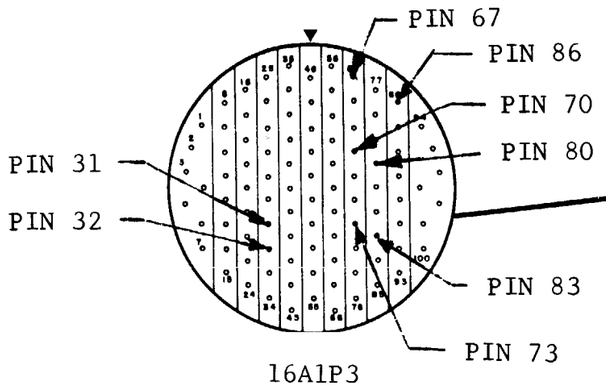


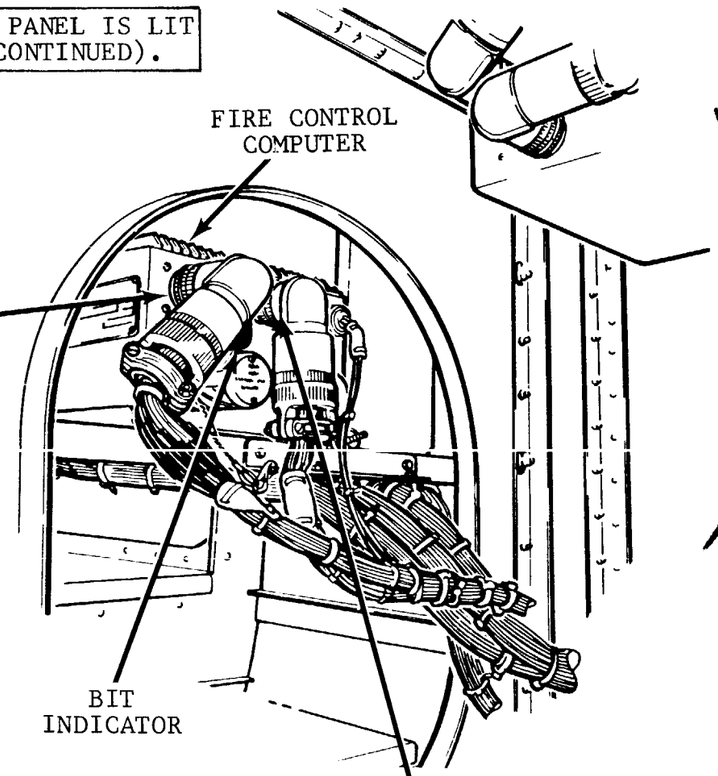
MODULE 2

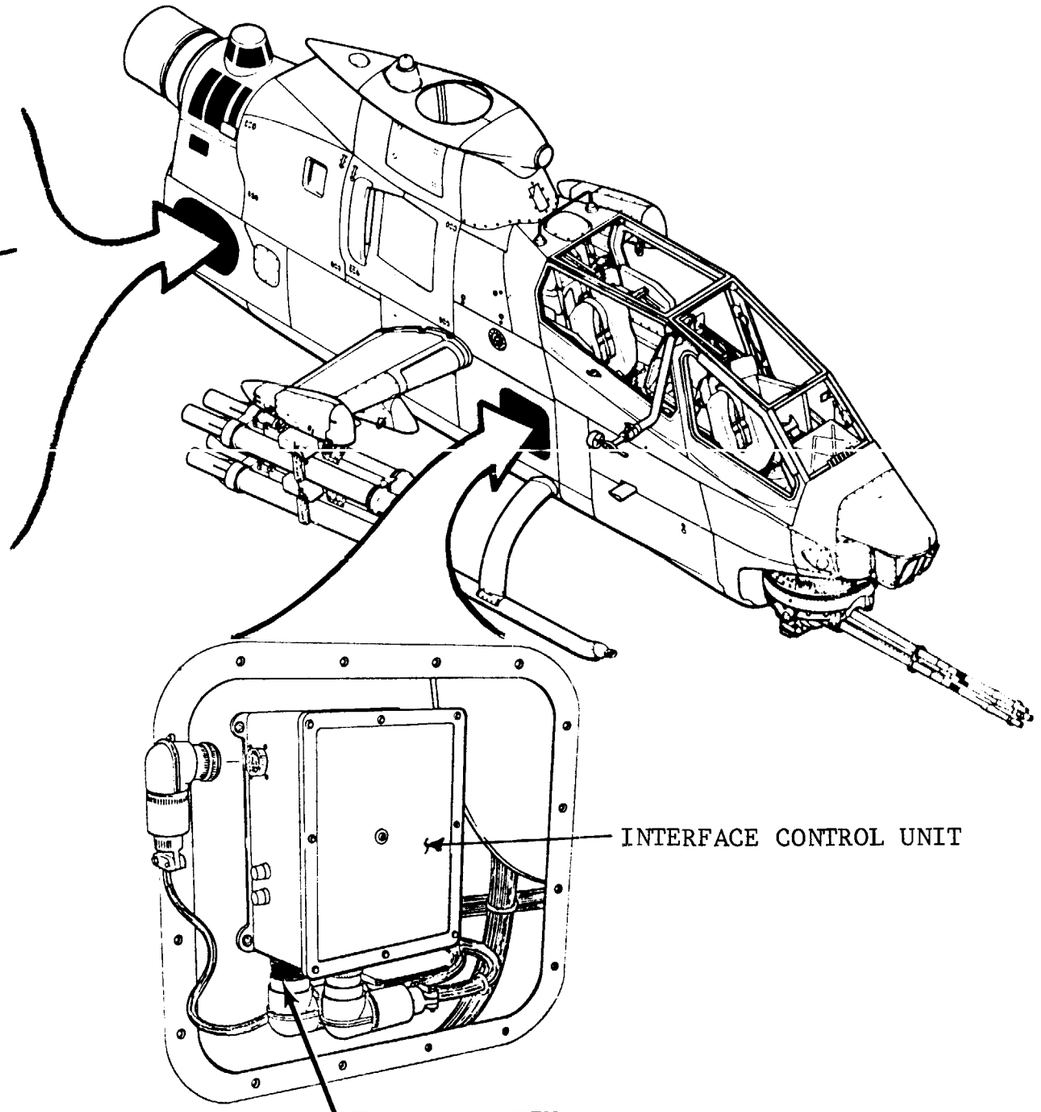


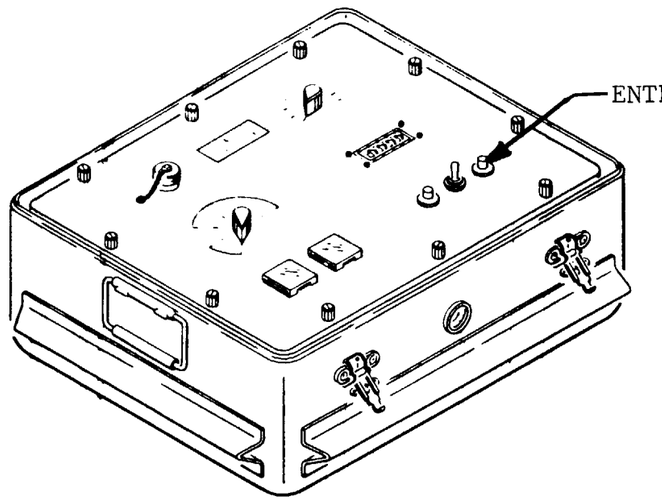
16TB1

3-6 . FCC INOP SEGMENT ON PILOT CAUTION PANEL IS LIT WITH FCC CIRCUIT BREAKER CLOSED (CONTINUED).

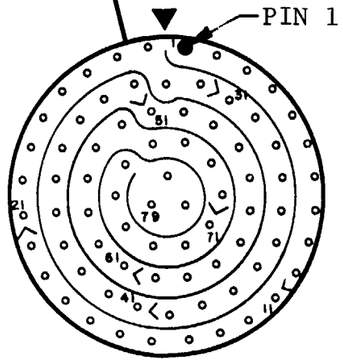


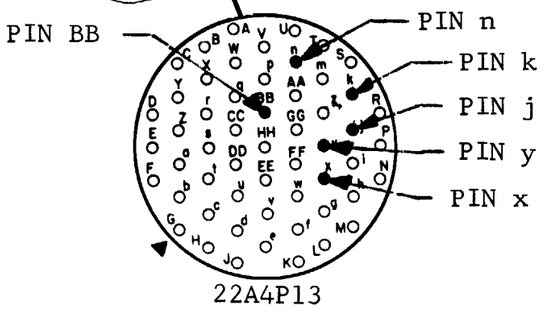




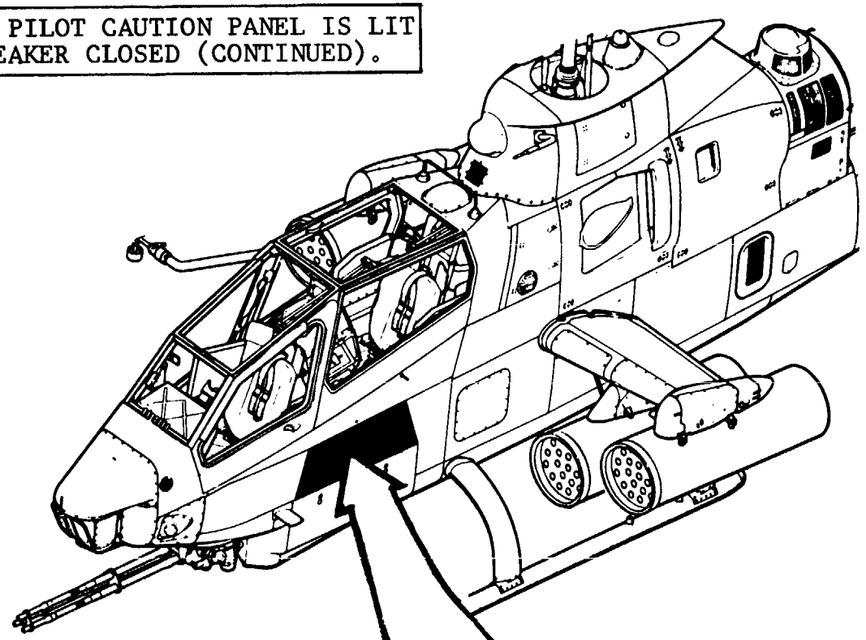


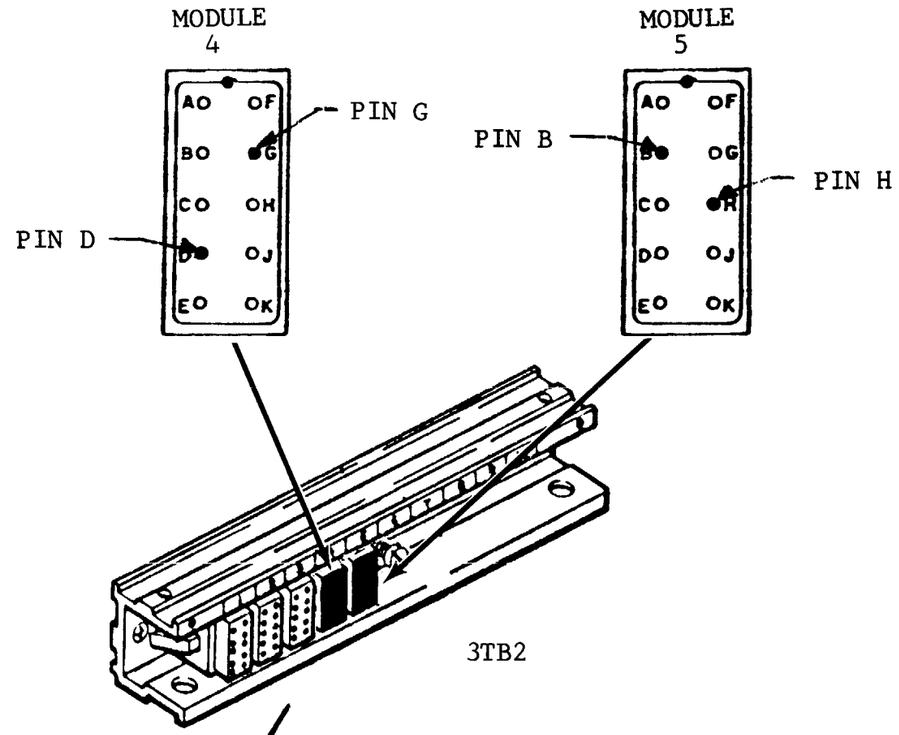
BORESIGHT CONTROLLER (XM34)

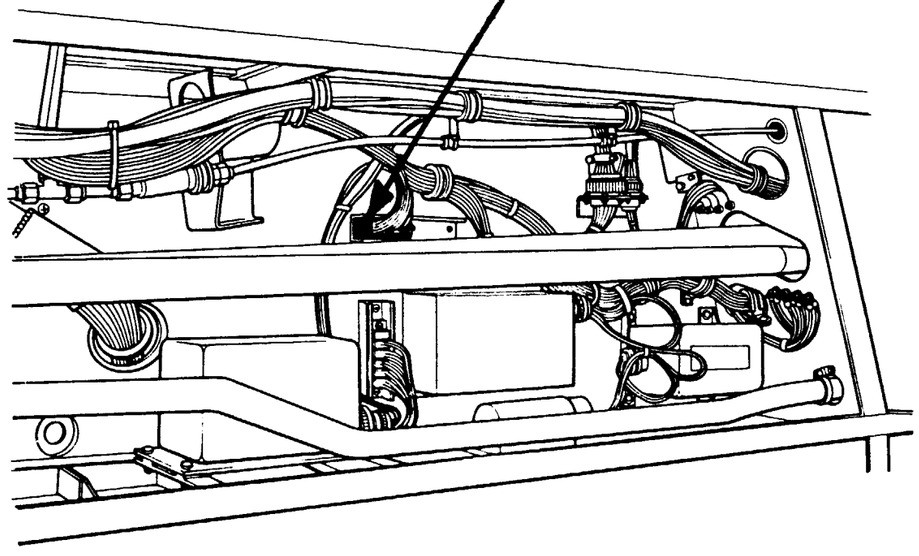




3-6. FCC INOP SEGMENT ON PILOT CAUTION PANEL IS LIT WITH FCC CIRCUIT BREAKER CLOSED (CONTINUED).







3-6. FCC INOP SEGMENT ON PILOT CAUTION PANEL IS LIT WITH FCC CIRCUIT BREAKER CLOSED (CONTINUED).

Was the boresight controller connected to fire control computer (FCC) and the ENTER COMPUTE switch pressed?

YES

Turn off electrical power per paragraph 3-3.

Disconnect 16A1P3 and 22A4P13.

Check the following pins on 16A1P3 for continuity to 16A1P3 backshell.

FROM	TO
16A1P3-67	16A1P3 backshell
16A1P3-70	16A1P3 backshell
16A1P3-73	16A1P3 backshell
16A1P3-80	16A1P3 backshell
16A1P3-83	16A1P3 backshell
16A1P3-86	16A1P3 backshell

Is continuity present from any pin to backshell?

YES

Repair wire(s) where continuity is present to eliminate short(s).

WIRE NUMBER	FROM	TO
A1176A22(WHT)	16A1P3-67	22A4P13-x
A1177A22(WHT)	16A1P3-70	22A4P13-y
A1178A22(WHT)	16A1P3-73	22A4P13-BB
A1179A22(WHT)	16A1P3-80	22A4P13-j
A1180A22(WHT)	16A1P3-83	22A4P13-k
A1181A22(WHT)	16A1P3-86	22A4P13-n

Connect 16A1P3 and 22A4P13.

Then go to paragraph 3-2.

NO

Connect 16A1P3 and 22A4P13.

Turn on electrical power per paragraph 3-3.

Then continue troubleshooting.

NO

On HUD:

Turn BRIGHTNESS CONTROL to mid-range.

Set PWR switch to STBY, after 30 seconds, set PWR switch to ON.

Are the range numerics on HUD display prefaced by an "L" symbol?

YES

NO

Turn off electrical power per paragraph 3-3.

Disconnect 22A5P1.

Check for continuity from 8A2P1-Z to airframe ground.

Is continuity present?

YES

NO

Check for continuity from 22A5P1-1 to airframe ground.

Is continuity present?

YES

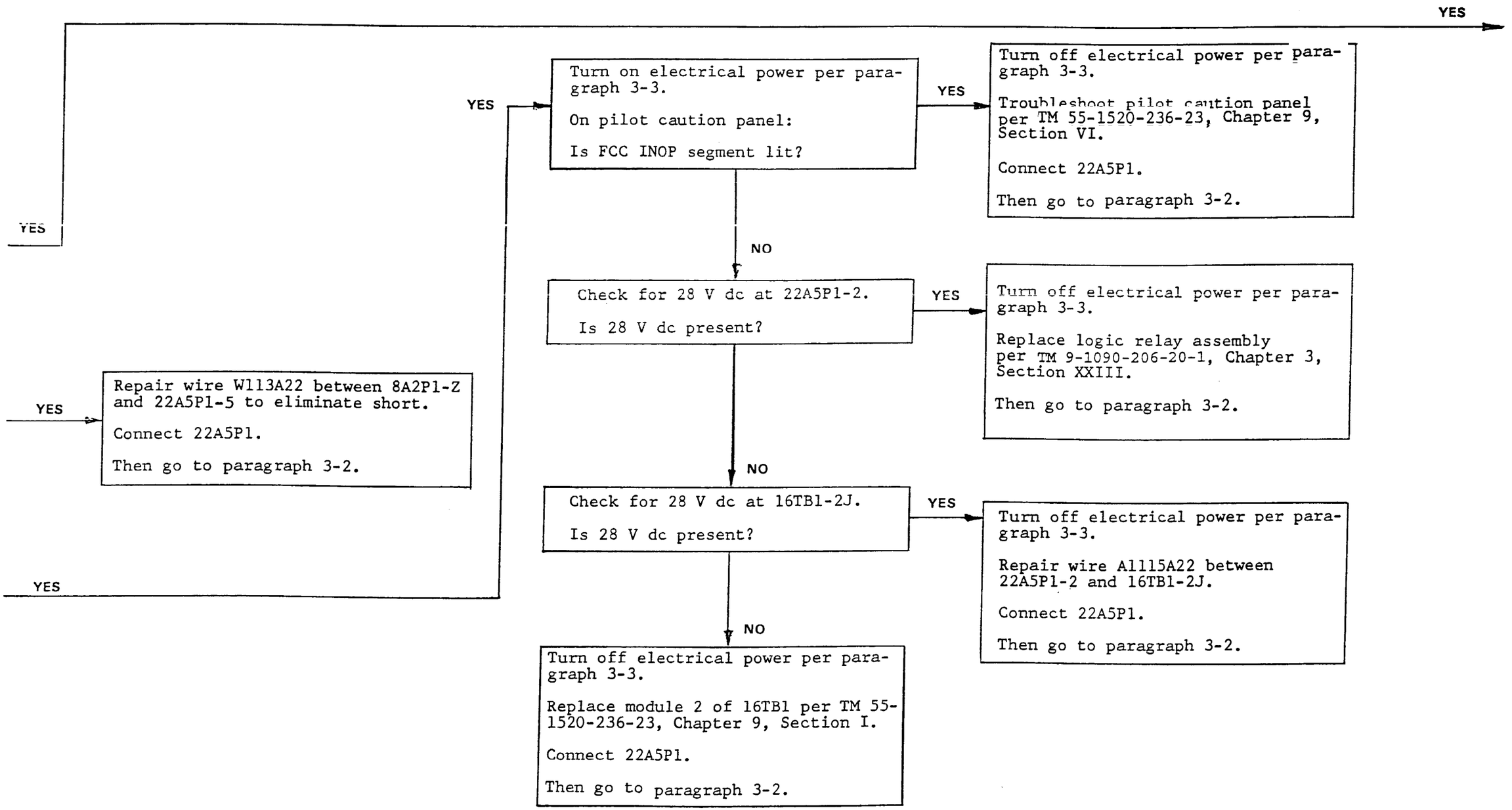
NO

Repair wire A1112A22N between 22A5P1-1 and airframe ground.

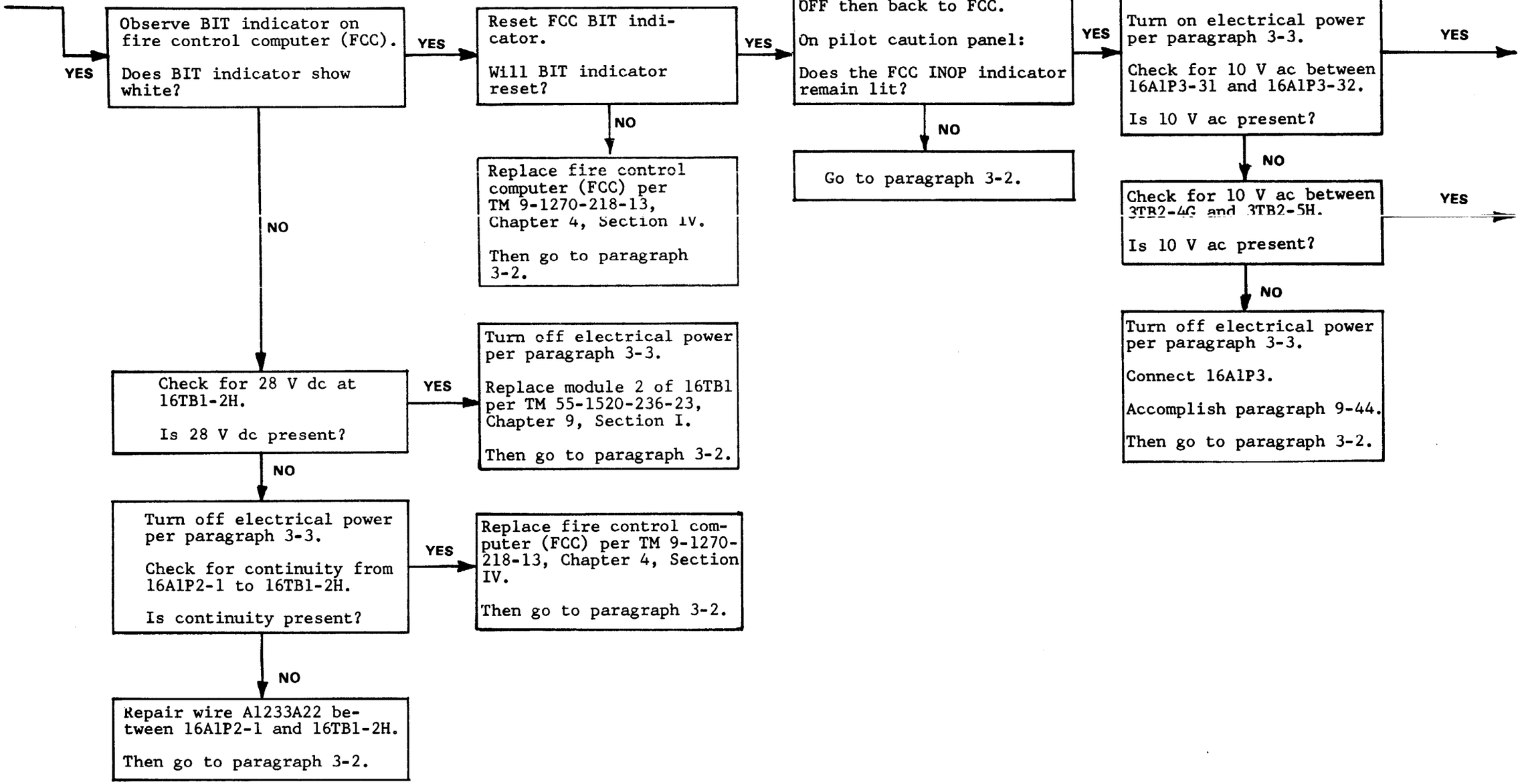
Connect 22A5P1.

Then go to paragraph 3-2.

3-6. FCC INOP SEGMENT ON PILOT CAUTION PANEL IS LIT WITH FCC CIRCUIT BREAKER CLOSED (CONTINUED).



3-6. FCC INOP SEGMENT ON PILOT CAUTION PANEL IS LIT WITH FCC CIRCUIT BREAKER CLOSED (CONTINUED).



3-6. FCC INOP SEGMENT ON PILOT CAUTION PANEL IS LIT WITH FCC CIRCUIT BREAKER CLOSED (CONTINUED).

Turn off electrical power per paragraph 3-3.

Test fire control computer (FCC) per TM 9-1270-218-13, Chapter 5, Section III.

Is FCC fully operational?

YES → Replace boresight memory assembly on fire control computer (FCC) per TM 9-1270-218-13, Chapter 4, Section I.

Perform boresight alignment per TM 9-1090-206-30.

Then go to paragraph 3-2.

NO → Replace fire control computer (FCC) per TM 9-1270-218-13, Chapter 4, Section IV.

Then go to paragraph 3-2.

YES → Check for 10 V ac between 3TB2-4D and 3TB2-5B.

Is 10 V ac present?

YES → Turn off electrical power per paragraph 3-3.

Repair wire A1170A22 (WHT) between 16A1P3-31 and 3TB2-4D.

Connect 16A1P3.

Then go to paragraph 3-2.

NO → Check for 10 V ac between 3TB2-4D and 3TB2-5H.

Is 10 V ac present?

YES → Turn off electrical power per paragraph 3-3.

Replace module 5 of 3TB2 per TM 55-1520-236-23, Chapter 9, Section I.

Connect 16A1P3.

Then go to paragraph 3-2.

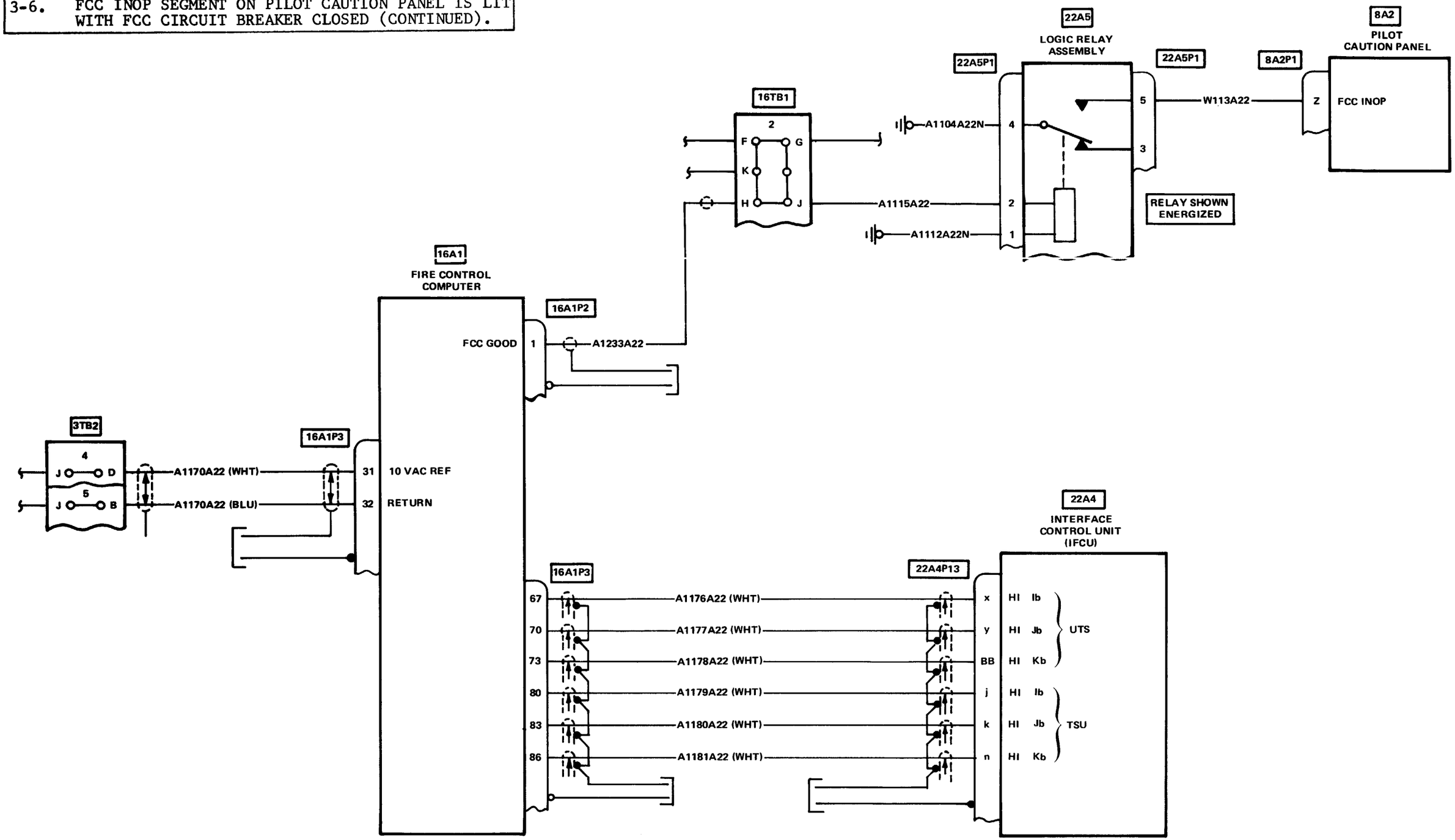
NO → Turn off electrical power per paragraph 3-3.

Replace module 4 of 3TB2 per TM 55-1520-236-23, Chapter 9, Section I.

Connect 16A1P3.

Then go to paragraph 3-2.

3-6. FCC INOP SEGMENT ON PILOT CAUTION PANEL IS LIT WITH FCC CIRCUIT BREAKER CLOSED (CONTINUED).



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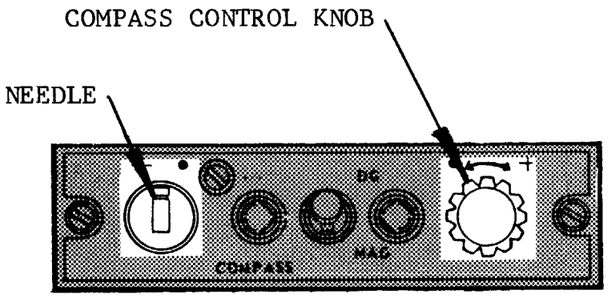
3-7. RANGE NUMERIC ON HUD DOES NOT AGREE WITH RNG-KM SETTING.

INITIAL SETUP

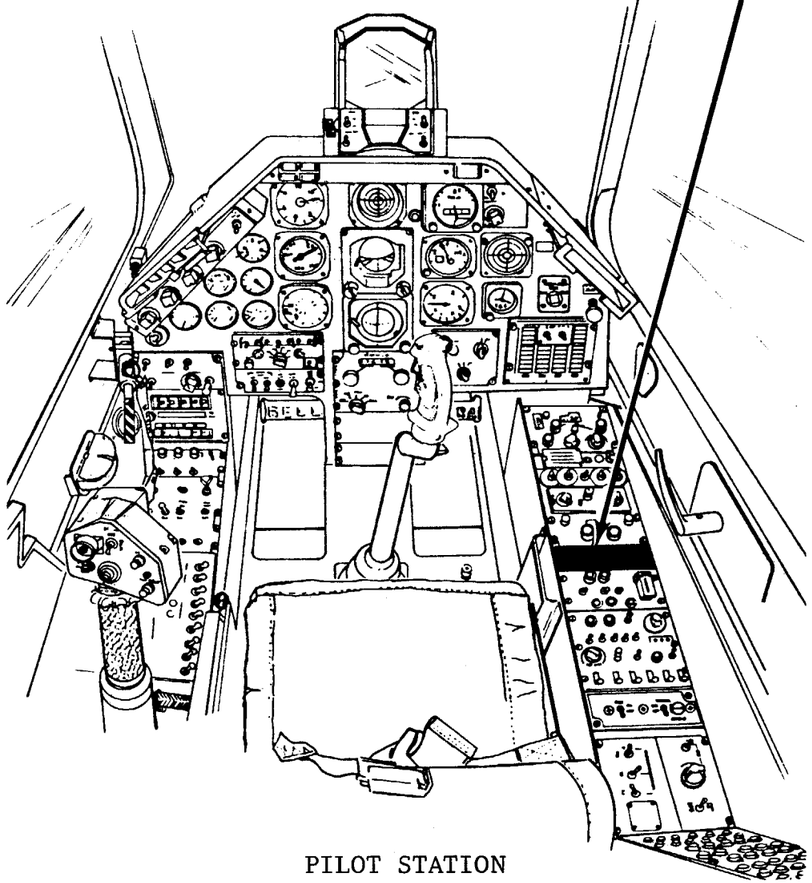
Applicable Configuration
All

Tools/Test and Support Equipment
None

Personnel Required
68F (1)



COMPASS CONTROL PANEL

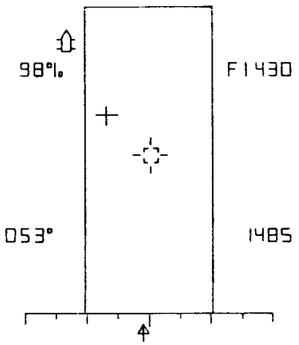

PILOT STATION

On COMPASS control panel:

Turn compass control knob to deflect needle.

On HUD:

Do magnetic heading numerics change?



MAGNETIC HEADING NUMERICS

YES → Accomplish paragraph 5-26.

Then go to paragraph 3-2.

NO → Accomplish paragraph 2-15.

Then go to paragraph 3-2.

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3-8. DIRECT ROCKET RETICLE ON HUD DOES NOT MOVE OR CHANGE APPEARANCE WHEN RKT SWITCH ON HUD IS CHANGED FROM DIR TO IND.

INITIAL SETUP

Applicable Configuration
All

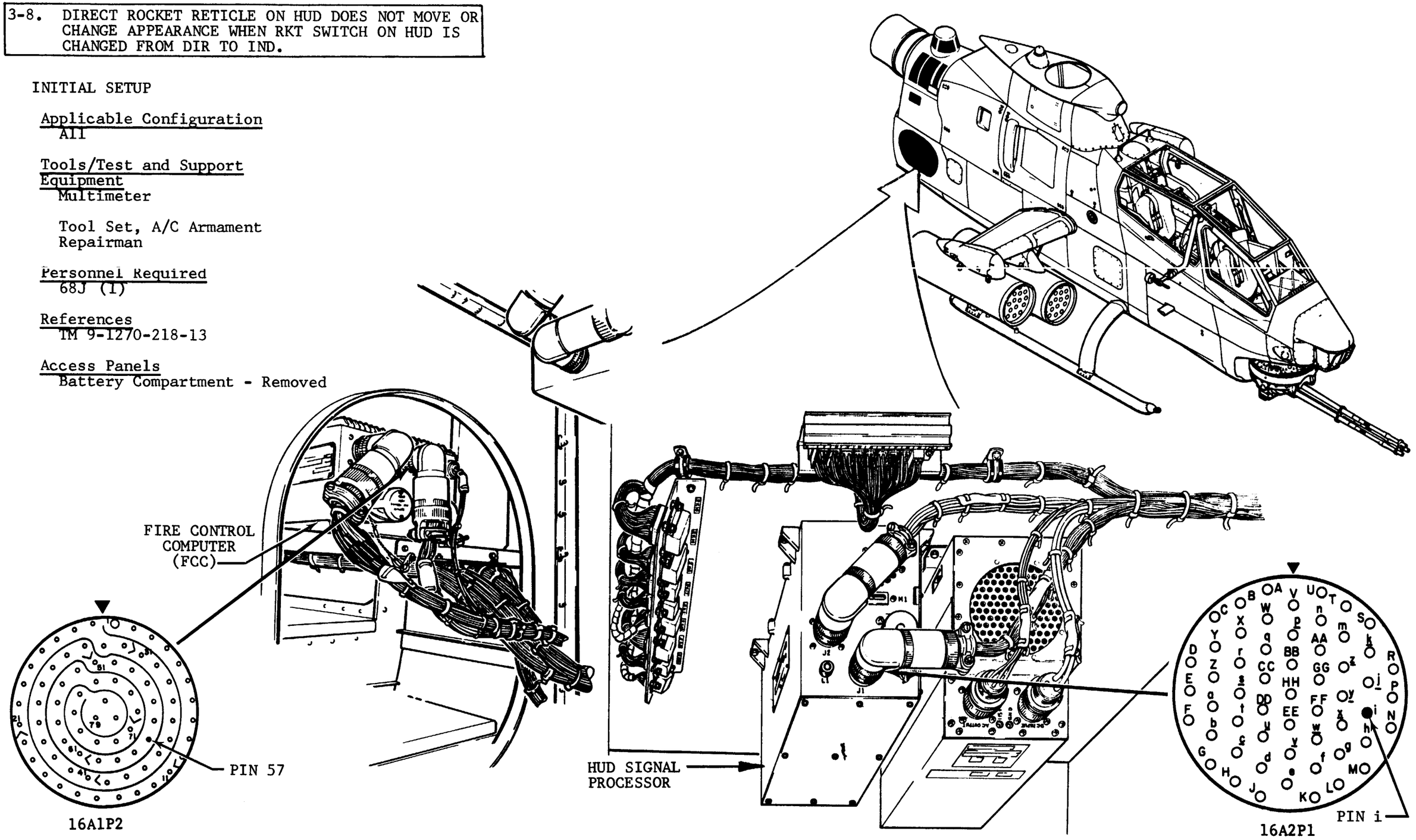
Tools/Test and Support Equipment
Multimeter

Tool Set, A/C Armament Repairman

Personnel Required
68J (1)

References
TM 9-1270-218-13

Access Panels
Battery Compartment - Removed



3-8. DIRECT ROCKET RETICLE ON HUD DOES NOT MOVE OR CHANGE APPEARANCE WHEN RKT SWITCH ON HUD IS CHANGED FROM DIR TO IND (CONTINUED).

Turn off electrical power per paragraph 3-3.

Disconnect 16A1P2.

Turn on electrical power per paragraph 3-3.

Check for 28 V dc at 16A1P2-57.

Is 28 V dc present?

YES →

Turn off electrical power per paragraph 3-3.

Replace fire control computer (FCC) per TM 9-1270-218-13, Chapter 4, Section IV.

Then go to paragraph 3-2.

NO ↓

Turn off electrical power per paragraph 3-3.

Check for continuity from 16A2P1-i to 16A1P2-57.

Is continuity present?

YES →

Connect 16A1P2.

Accomplish paragraph 2-35.

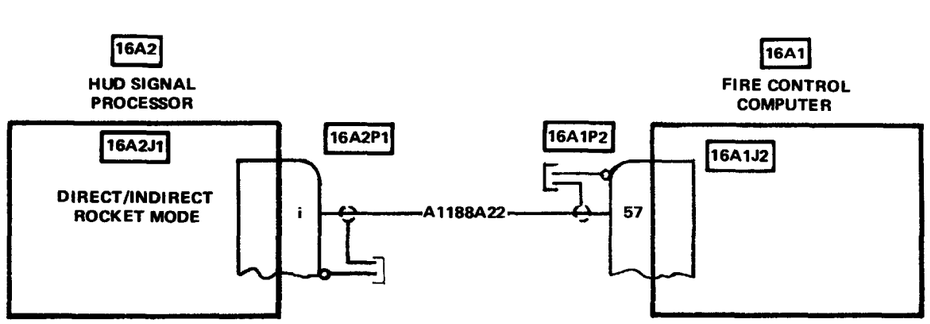
Then go to paragraph 3-2.

NO ↓

Repair wire A1188A22 between 16A2P1-i and 16A1P2-57.

Connect 16A1P2.

Then go to paragraph 3-2.



3-9.	MAGNETIC HEADING NUMERICS ON HUD DO NOT CHANGE OR READ THE SAME AS THE HSI.

INITIAL SETUP

Applicable Configuration
All

Tools/Test and Support Equipment
Multimeter

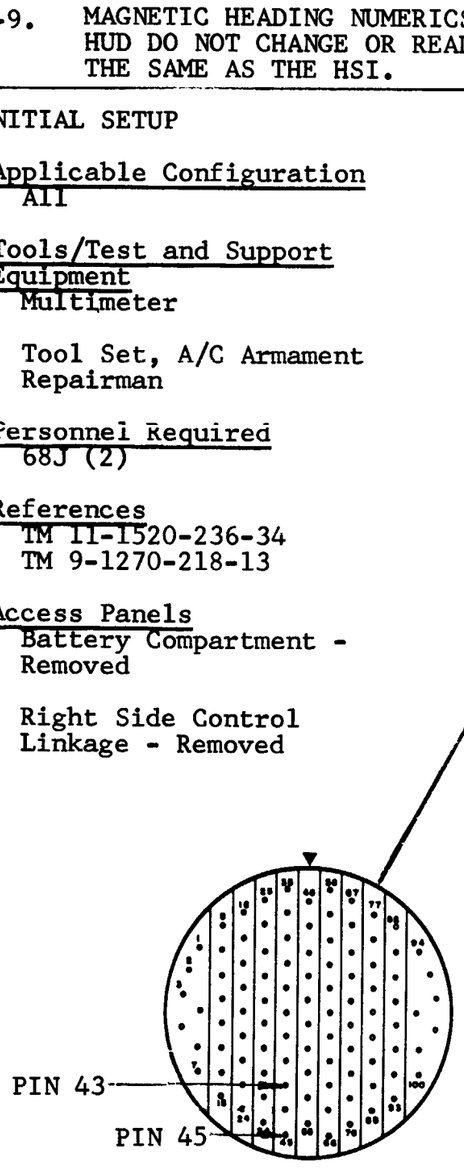
Tool Set, A/C Armament Repairman

Personnel Required
68J (2)

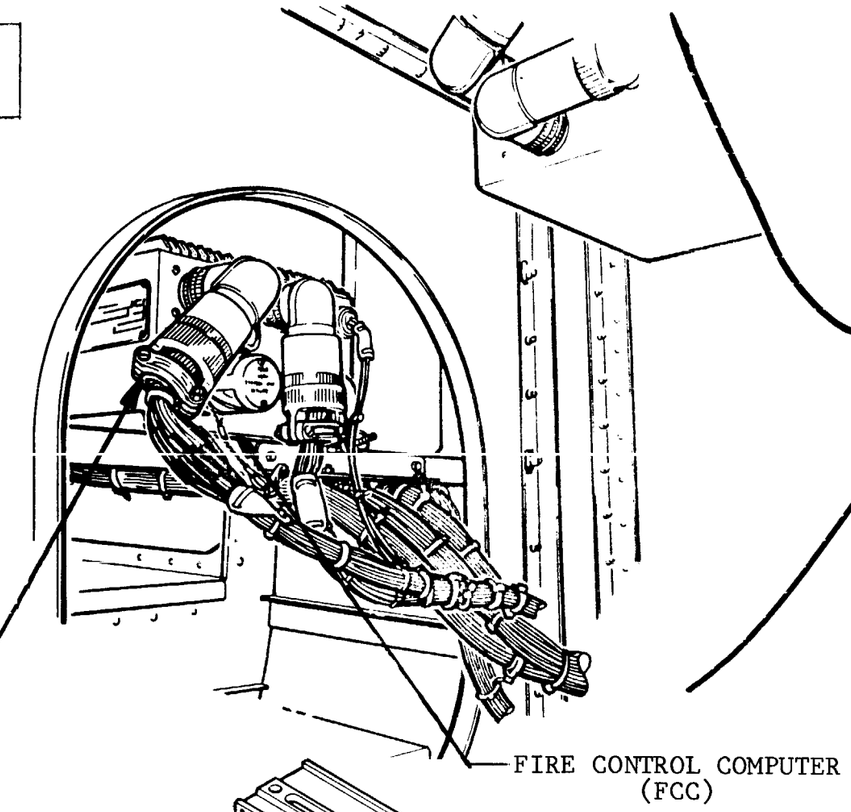
References
TM 11-1520-236-34
TM 9-1270-218-13

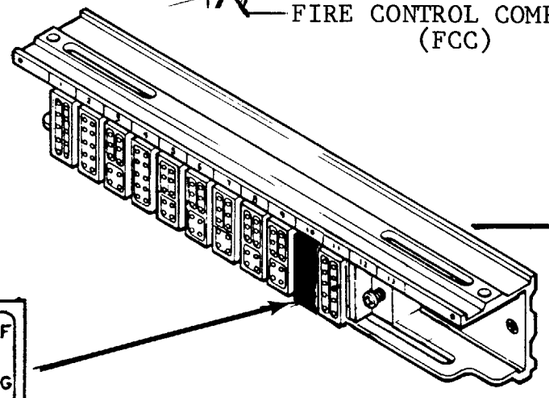
Access Panels
Battery Compartment - Removed

Right Side Control Linkage - Removed



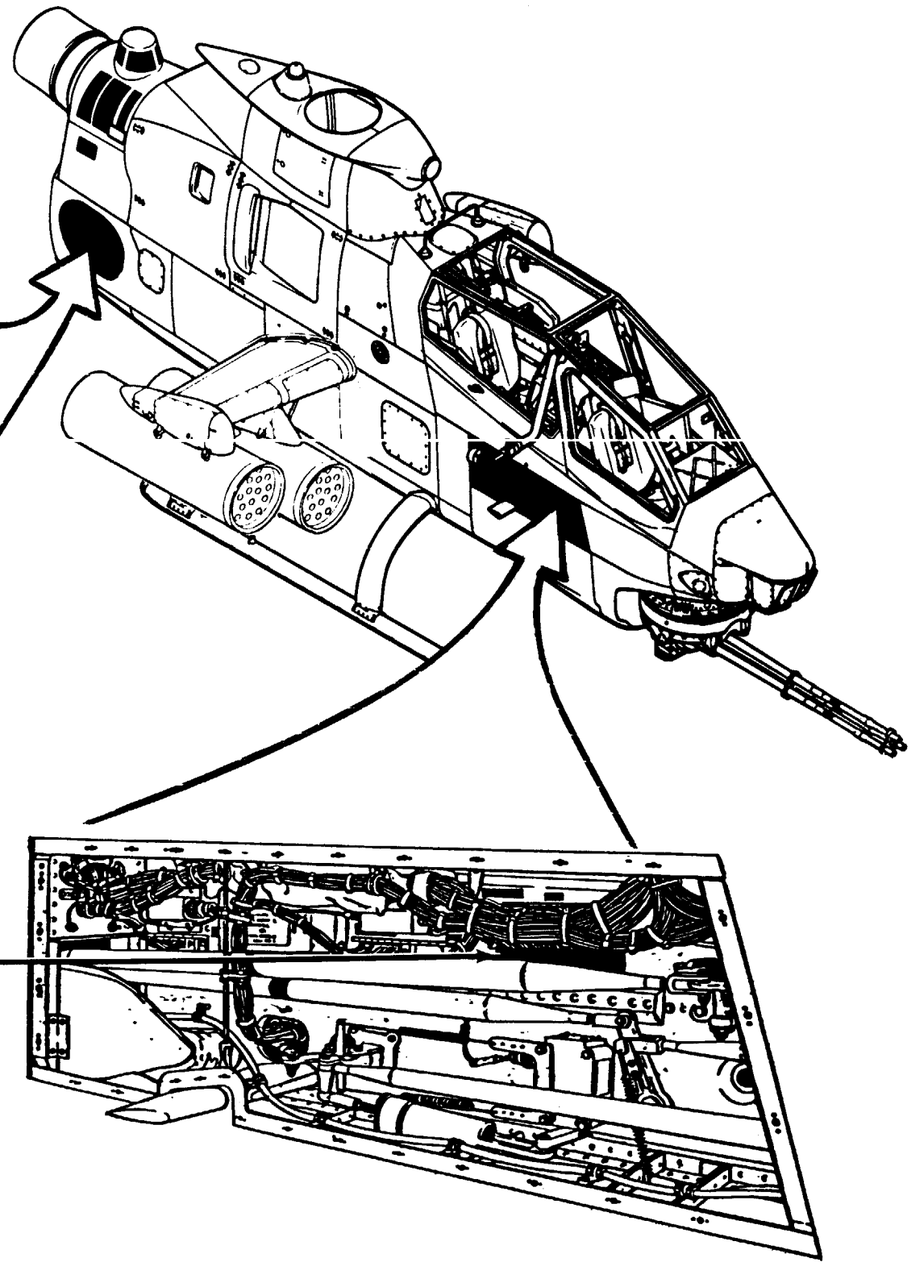
16A1P3



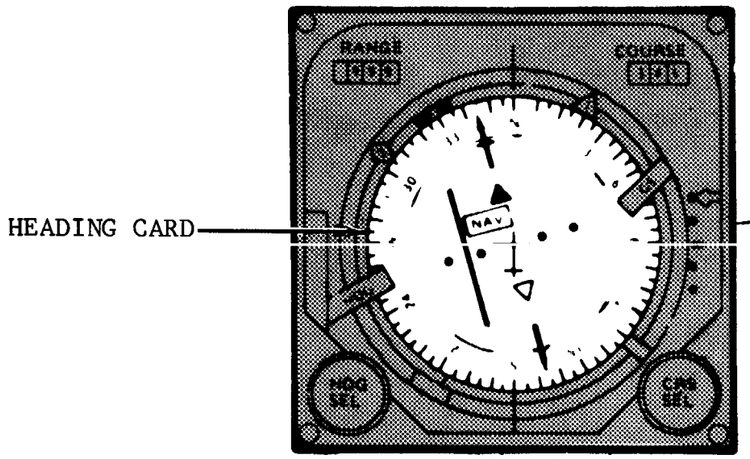


MODULE 10

3400TB1

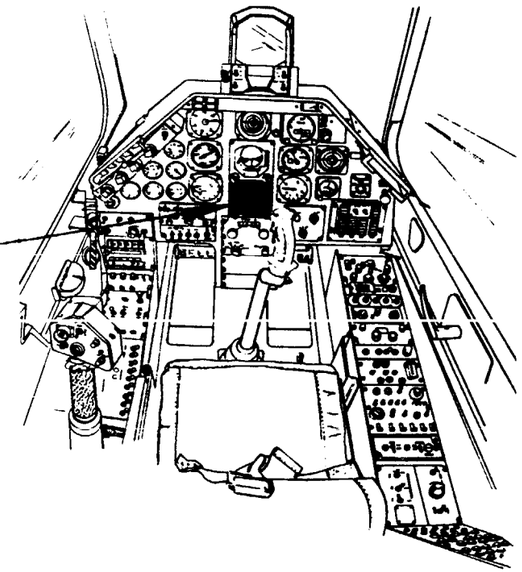


3-9. MAGNETIC HEADING NUMERICS ON HUD DO NOT CHANGE OR READ THE SAME AS THE HSI (CONTINUED).

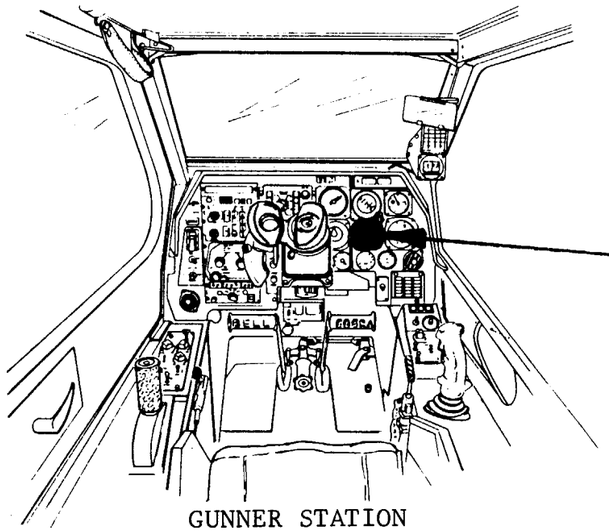


HEADING CARD

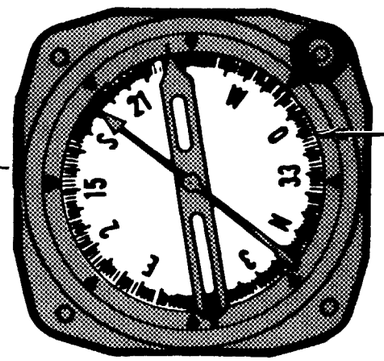
HORIZONTAL SITUATION INDICATOR (HSI)



PILOT STATION



GUNNER STATION



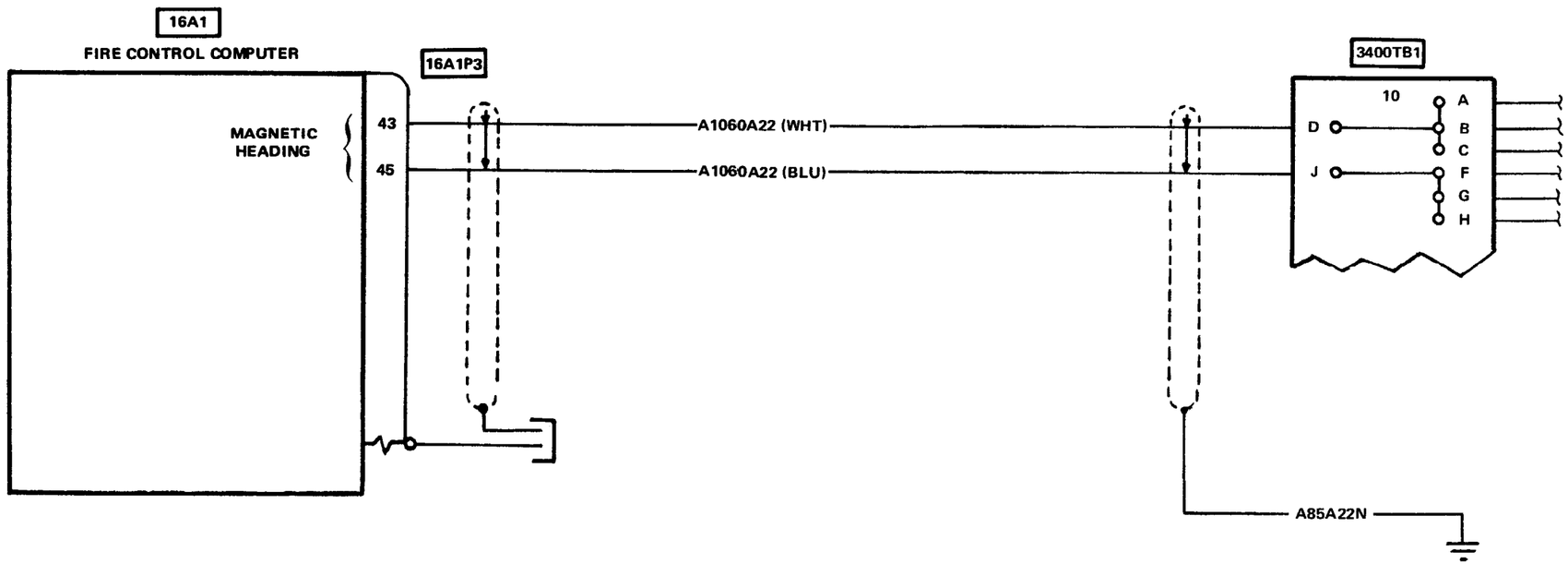
HEADING CARD

RADIO MAGNETIC INDICATOR (RMI)

3-9. MAGNETIC HEADING NUMERICS ON HUD DO NOT CHANGE OR READ THE SAME AS THE HSI (CONTINUED).

Does HSI heading card rotate?

- NO → Turn off electrical power per paragraph 3-3.
  Troubleshoot ASN-43 gyro compass system per TM 11-1520-236-34, Chapter 3, Section II.
  Then go to paragraph 3-2.
- YES → **Does RMI heading card rotate and indicate same heading as HSI?**
  - NO → Turn off electrical power per paragraph 3-3.
    Troubleshoot HSI per TM 11-1520-236-34, Chapter 3, Section II.
    Then go to paragraph 3-2.
  - YES → Turn off electrical power per paragraph 3-3.
    Remove wire A1060A22 (WHT) from 3400TB1-10D.
    Check for continuity from end of wire A1060A22(WHT) to 16A1P3-43.
    Is continuity present?
    - NO → Repair wire A1060A22 (WHT) between 3400TB1-10D and 16A1P3-43.
      Insert wire A1060A22 (WHT) into 3400TB1-10D.
      Then go to paragraph 3-2.
    - YES → Insert wire A1060A22 (WHT) into 3400TB1-10D.
      Remove wire A1060A22 (BLU) from 3400TB1-10J.
      Check for continuity from end of wire A1060A22(BLU) to 16A1P3-45.
      Is continuity present?
      - NO → Repair wire A1060A22 (BLU) between 3400TB1-10J and 16A1P3-45.
        Insert wire A1060A22 (BLU) into 3400TB1-10J.
        Then go to paragraph 3-2.
      - YES → Insert wire A1060A22 (BLU) into 3400TB1-10J.
        Replace fire control computer (FCC) per TM 9-1270-218-13, Chapter 4, Section IV.
        Then go to paragraph 3-2.



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3-10. RADAR ALTITUDE NUMERICS DO NOT APPEAR OR CHANGE VALUE ON HUD.

INITIAL SETUP

Applicable Configuration
All

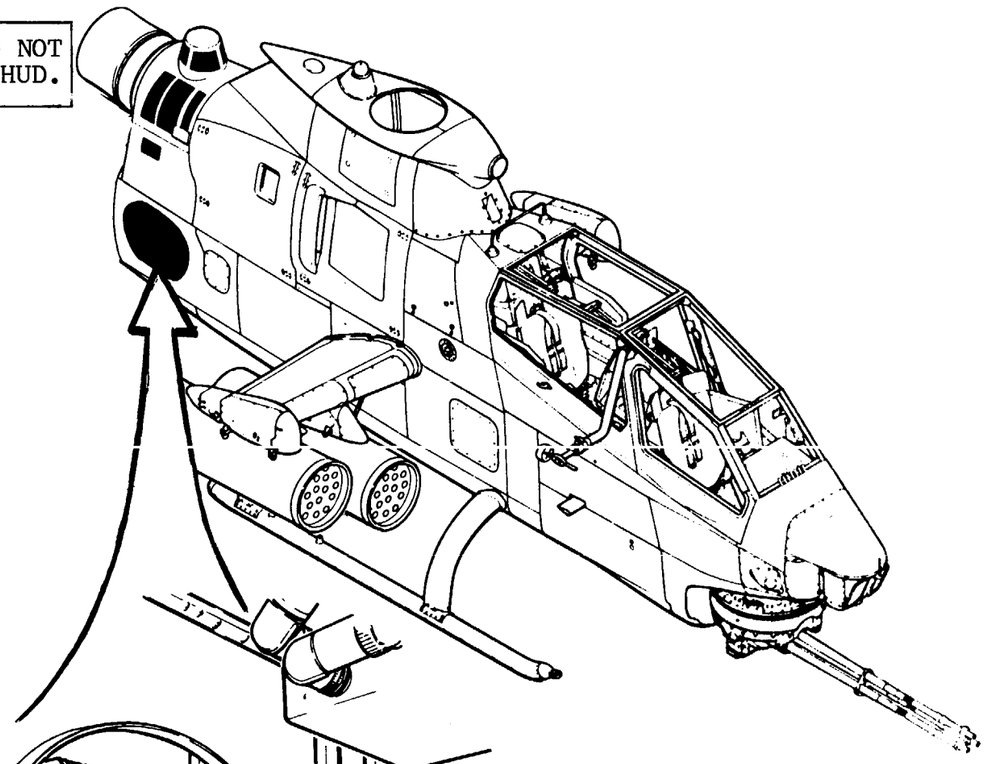
Tools/Test and Support Equipment
Multimeter

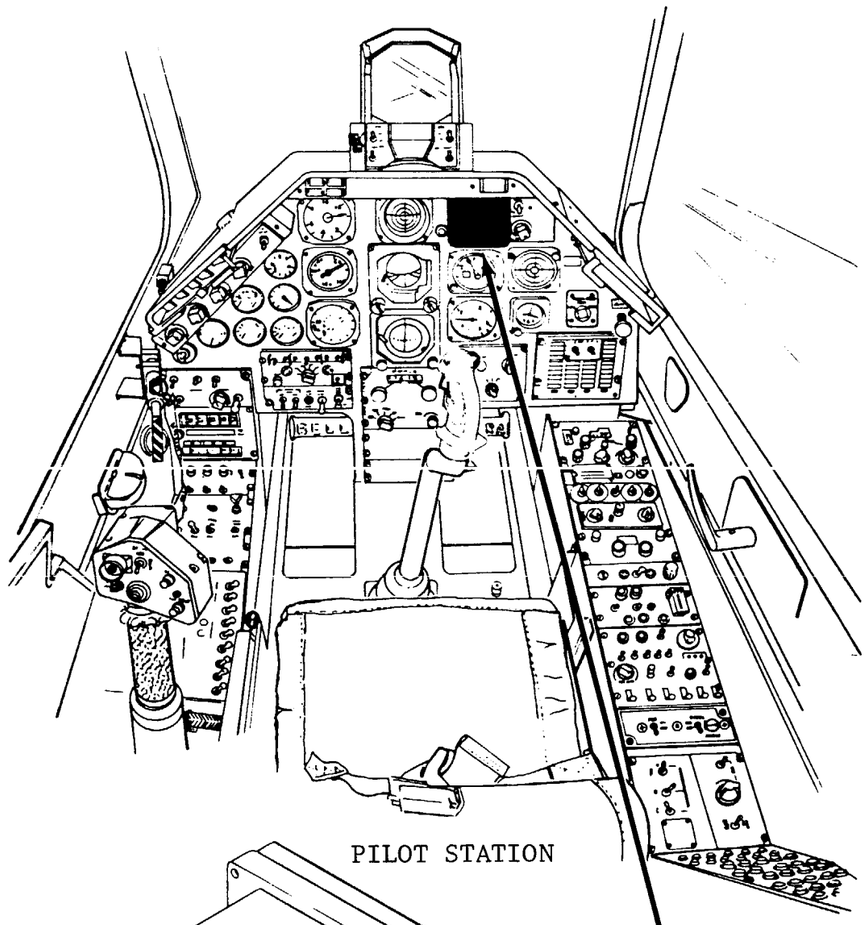
Tool Set, A/C Armament Repairman

Personnel Required
68J (2)

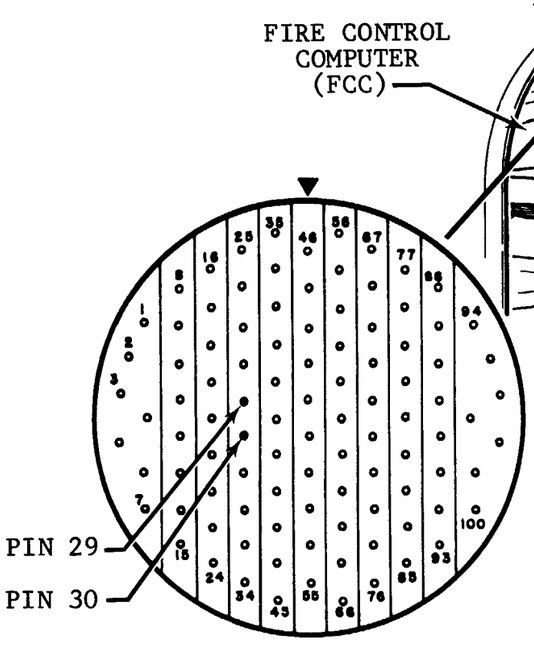
References
TM 11-1520-236-20
TM 9-1270-218-13
TM 11-1520-236-34

Access Panels
Battery Compartment - Removed

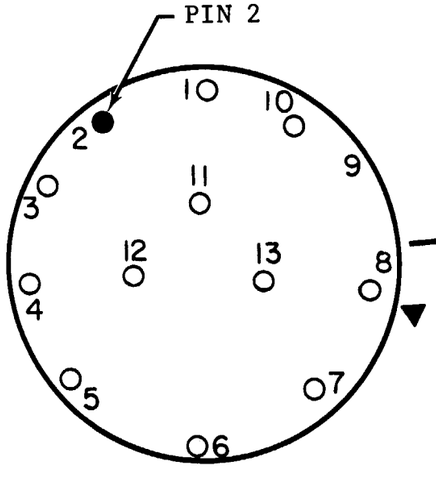




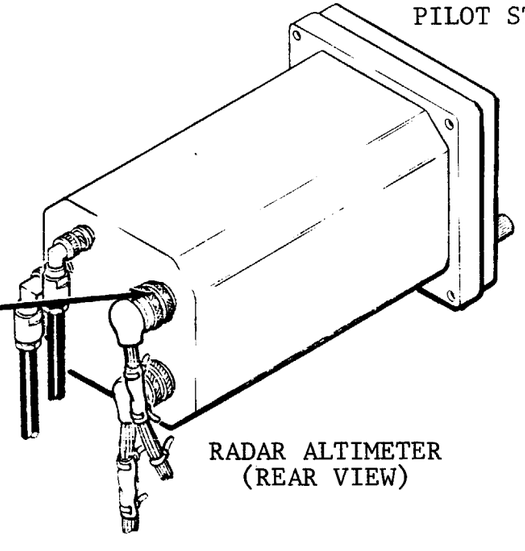
PILOT STATION



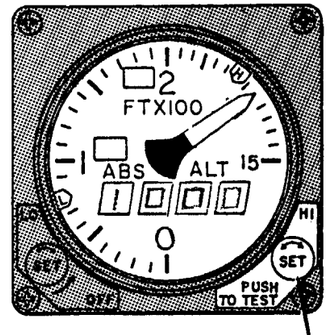
16A1P3



3408DS1P2



RADAR ALTIMETER (REAR VIEW)



PUSH TO TEST BUTTON

RADAR ALTIMETER

3-10. RADAR ALTITUDE NUMERICS DO NOT APPEAR OR CHANGE VALUE ON HUD (CONTINUED)

NOTE:

Check radar altimeter antennas for proper installation, security, and clear drain holes.

On radar altimeter:

Press PUSH TO TEST/HI SET knob.

Does radar altimeter indicate 900 to 1100 feet?

YES

Turn off electrical power per paragraph 3-3.

Disconnect 16A1P3.

Connect multimeter to read dc voltage from 16A1P3-30 (+) to 16A1P3-29 (-).

Turn on electrical power per paragraph 3-3.

On radar altimeter.

Press PUSH TO TEST/HI SET knob.

Does multimeter read greater than 6 V dc?

YES

Turn off electrical power per paragraph 3-3.

Replace fire control computer (FCC) per TM 9-1270-218-13, Chapter 4, Section IV.

Then go to paragraph 3-2.

NO

Turn off electrical power per paragraph 3-3.

Check for continuity from 16A1P3-29 to airframe ground.

Is continuity present?

YES

Repair wire A1088A22 (WHT) between 3408DS1P2-2 and 16A1P3-29 to eliminate short.

Connect 16A1P3.

Then go to paragraph 3-2.

NO

Check for continuity from 3408DS1P2-2 to 16A1P3-29.

Is continuity present?

YES

Replace radar altimeter per TM 11-1520-236-20, Chapter 3, Section IV.

Connect 16A1P3.

Then go to paragraph 3-2.

NO

Repair wire A1088A22 (WHT) between 3408DS1P2-2 and 16A1P3-29.

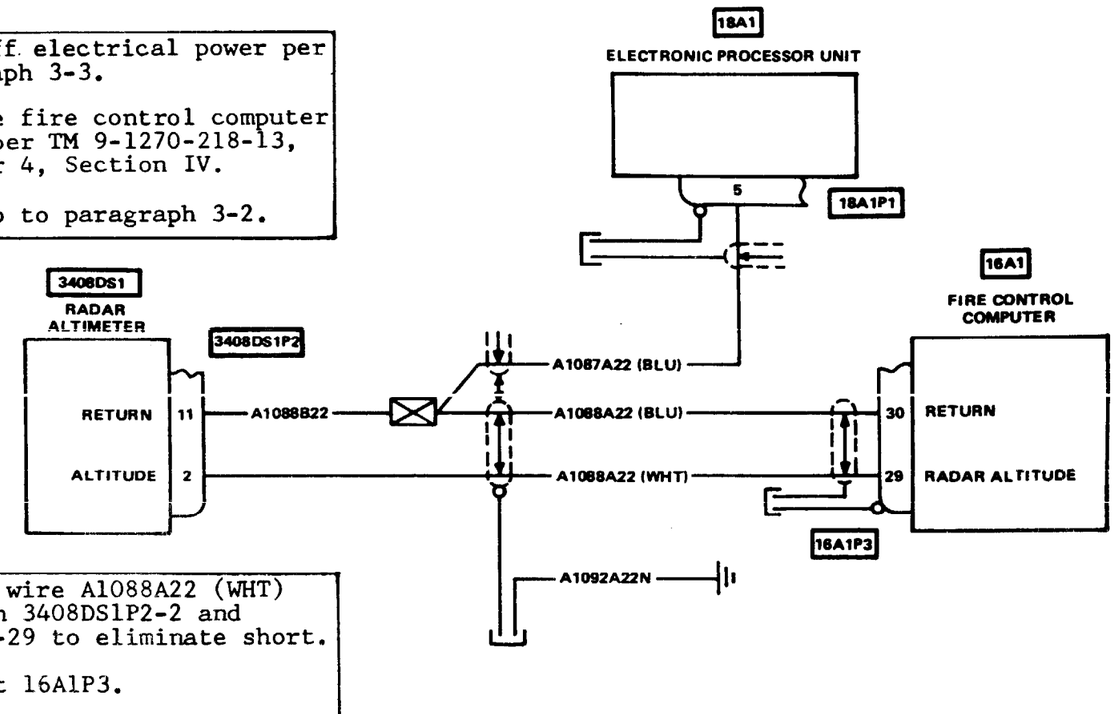
Connect 16A1P3.

Then go to paragraph 3-2.

NO

Check radar altimeter per TM 11-1520-236-34, Chapter 3, Section II.

Then go to paragraph 3-2.



3-11. DIRECT ROCKET RETICLE ON HUD DOES NOT MOVE WHEN PILOT COLLECTIVE STICK IS MOVED.

INITIAL SETUP

Applicable Configuration
All

Tools/Test and Support Equipment
Multimeter

Tool Set, A/C Armament Repairman

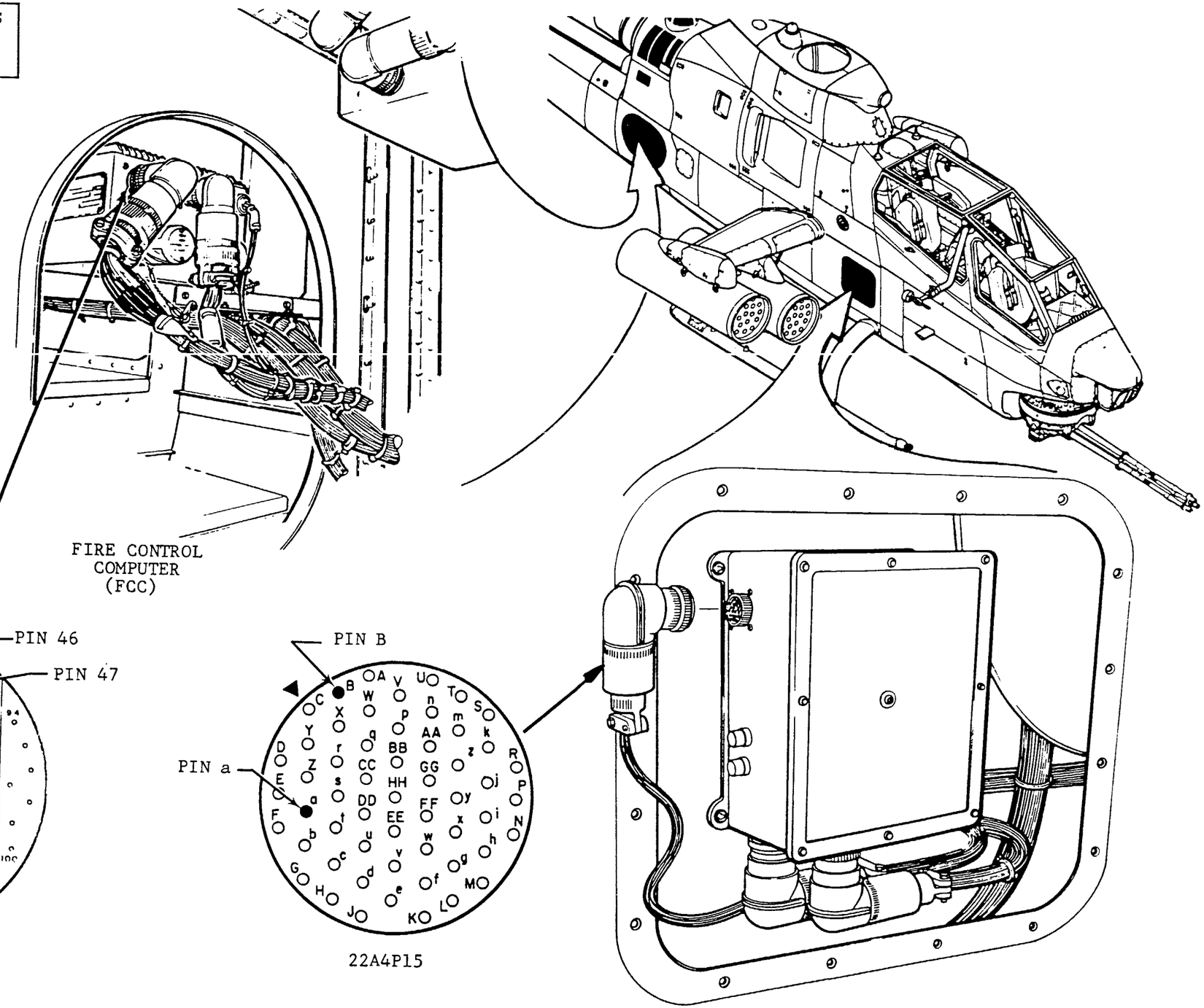
Personnel Required
68J (2)

References
TM 9-1090-206-20-1
TM 9-1270-218-13
TM 55-1520-236-23

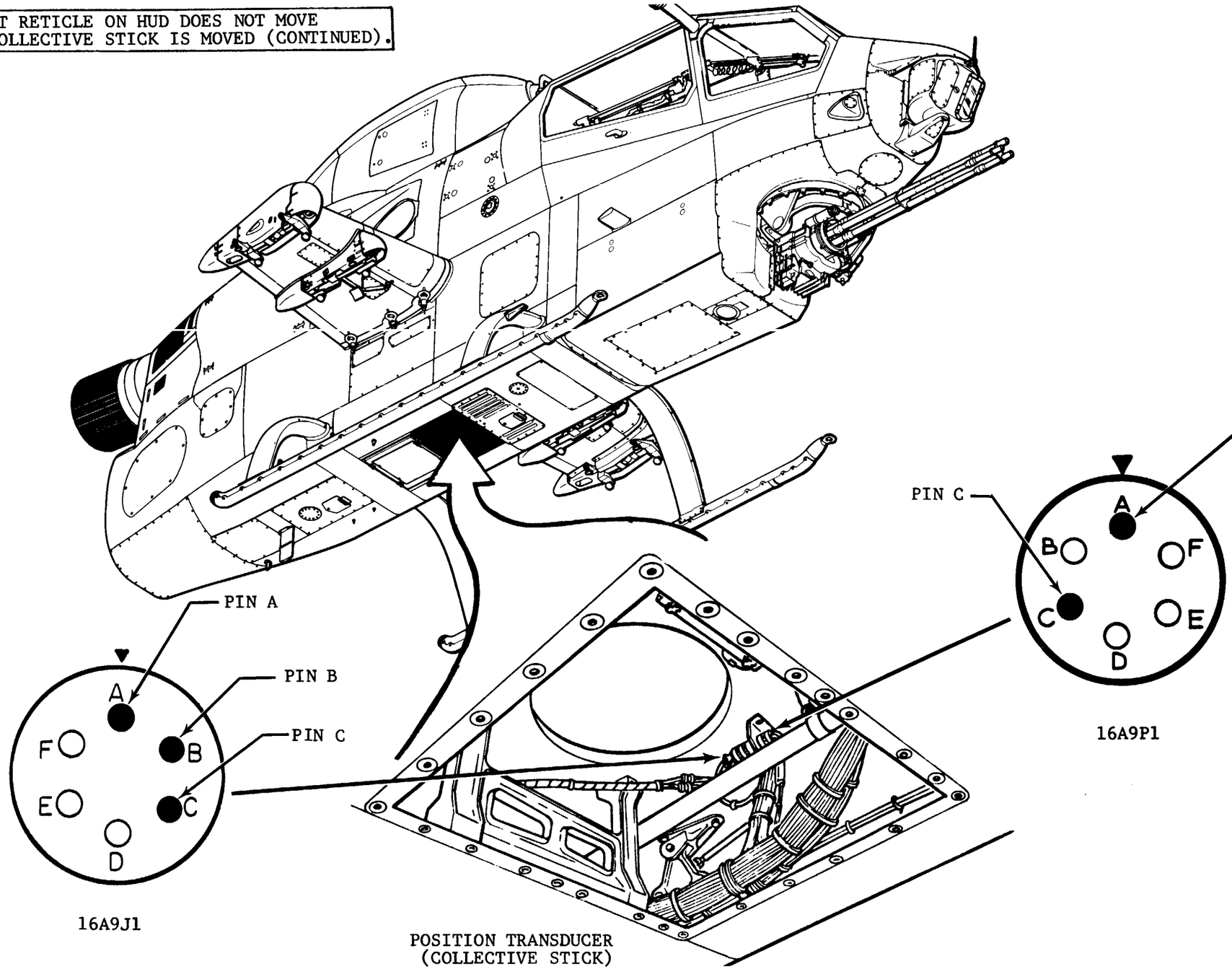
Access Panels
Battery Compartment - Removed

Interface Control Unit - Removed

Forward Radar Altimeter - Removed



3-11. DIRECT ROCKET RETICLE ON HUD DOES NOT MOVE WHEN PILOT COLLECTIVE STICK IS MOVED (CONTINUED).



3-11. DIRECT ROCKET RETICLE ON HUD DOES NOT MOVE WHEN PILOT COLLECTIVE STICK IS MOVED (CONTINUED).

Turn off electrical power per paragraph 3-3.

Disconnect 16A1P3.

Connect dc voltmeter between 16A1P3-46 (+) and 16A1P3-47 (-).

Turn on electrical power per paragraph 3-3.

Raise and lower the pilot collective stick.

Does dc voltage vary?

YES → Turn off electrical power per paragraph 3-3.

Replace fire control computer (FCC) per TM 9-1270-218-13, Chapter 4, Section IV.

Then go to paragraph 3-2.

NO → Turn off electrical power per paragraph 3-3.

Disconnect 22A4P15.

Connect ohm meter between 16A1P3-47 and 16A1P3-46.

Raise and lower the pilot collective stick.

Does resistance vary?

YES → Check for resistance from 22A4P15-B to 22A4P15-a.

Is resistance greater than 800 ohms?

YES → Replace interface control unit (IFCU) per TM 9-1090-206-20-1, Chapter 3, Section XVII.

Connect 16A1P3 and 22A4P15.

Then go to paragraph 3-2.

NO → Repair wire A1183A22 (WHT) between 22A4P15-B and 16A9J1-A.

Connect 16A1P3 and 22A4P15.

Then go to paragraph 3-2.

NO → Check for resistance from 22A4P15-B to 22A4P15-a.

Is 800 to 1200 ohms present?

YES → Disconnect 16A9P1.

Check for continuity from 16A1P3-46 to 16A9J1-B.

Is continuity present?

YES → Replace collective position transducer per TM 55-1520-236-23, Chapter 11, Section I.

Connect 16A1P3, 16A9P1, and 22A4P15.

Then go to paragraph 3-2.

NO → Repair wire A1182A22 (WHT) between 16A1P3-46 and 16A9J1-B.

Connect 16A1P3, 16A9P1, and 22A5P15.

Then go to paragraph 3-2.

NO → Disconnect 16A9P1.

Check for resistance from 16A9P1-A to 16A9P1-C.

Is resistance greater than 800 ohms?

YES → Replace collective position transducer per TM 55-1520-236-23, Chapter 11, Section I.

Connect 16A1P3, 16A9P1, and 22A4P15.

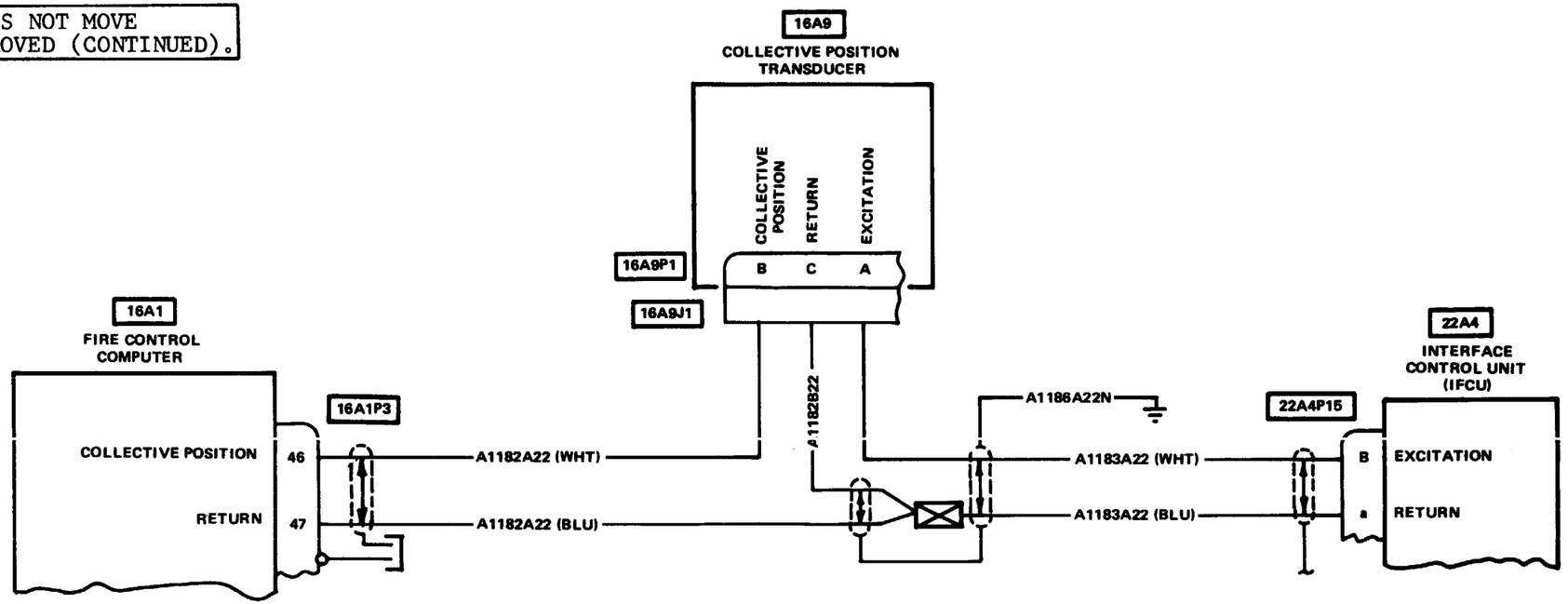
Then go to paragraph 3-2.

NO → Replace collective position transducer per TM 55-1520-236-23, Chapter 11, Section I.

Connect 16A1P3, 16A9P1, and 22A4P15.

Then go to paragraph 3-2.

3-11. DIRECT ROCKET RETICLE ON HUD DOES NOT MOVE WHEN PILOT COLLECTIVE STICK IS MOVED (CONTINUED).



YES →

Repair wire A1182B22 between 16A9J1-C and splice.

Connect 16A1P3, 16A9P1, and 22A4P15.

Then go to paragraph 3-2.

3-12. COARSE AZIMUTH POINTER ON HUD STAYS AT 0 DEGREES WHEN MOVING TSU WITH TRACK CONTROL STICK.

INITIAL SETUP

Applicable Configuration
All

Tools/Test and Support Equipment
Multimeter

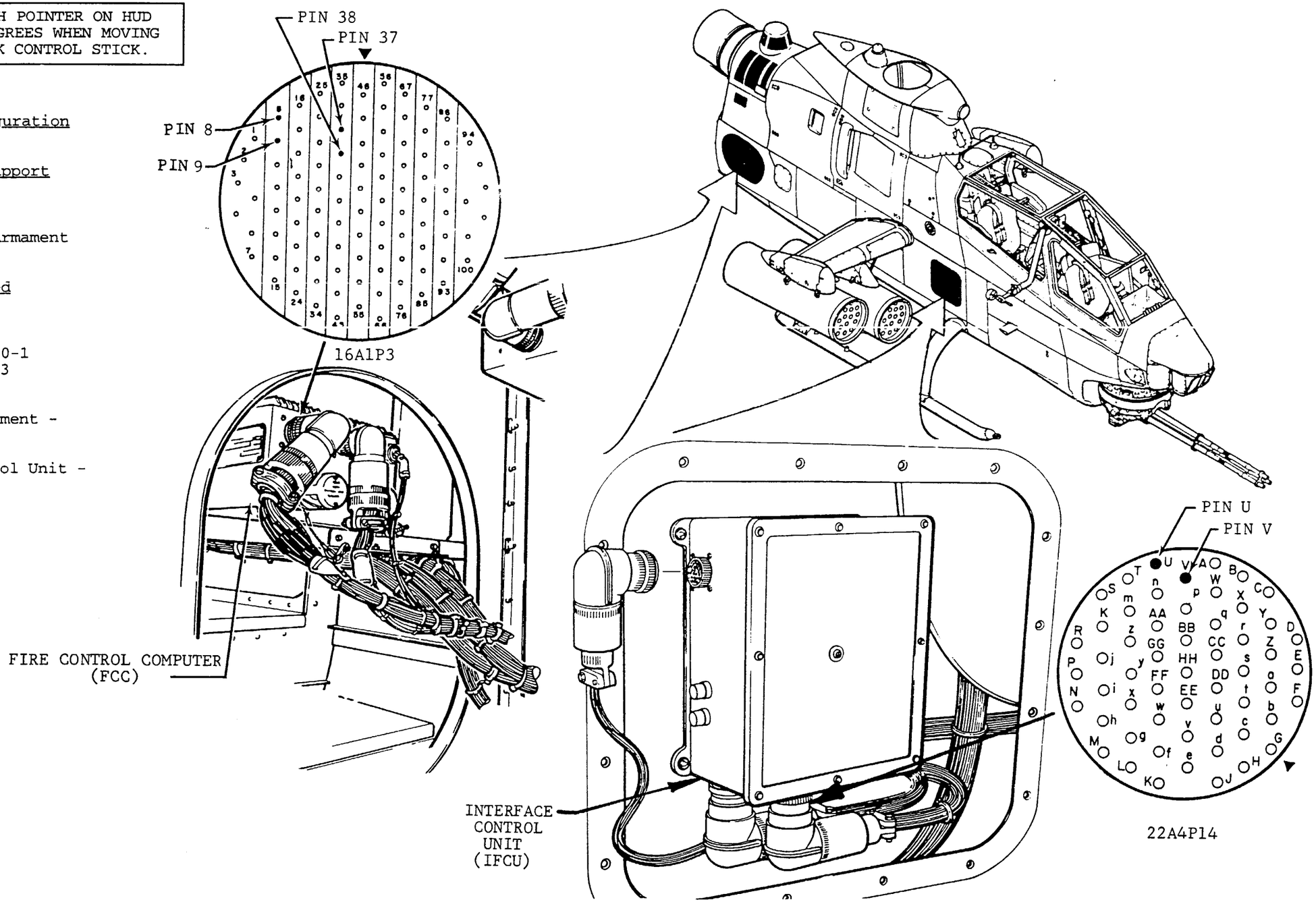
Tool Set, A/C Armament Repairman

Personnel Required
68J (2)

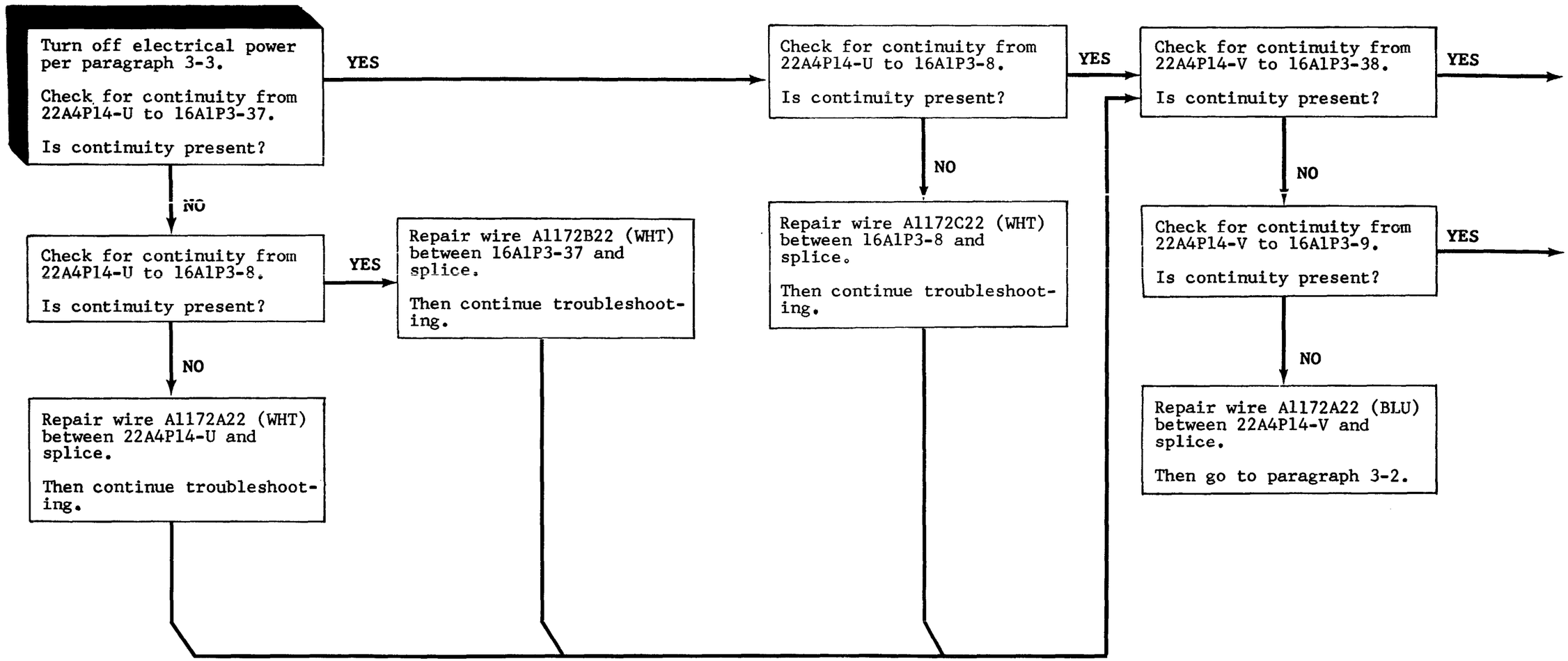
References
TM 9-1090-206-20-1
TM 9-1270-218-13

Access Panels
Battery Compartment - Removed

Interface Control Unit - Removed



3-12. COARSE AZIMUTH POINTER ON HUD STAYS AT 0 DEGREES WHEN MOVING TSU WITH TRACK CONTROL STICK (CONTINUED).



3-12. TSU COARSE AZIMUTH POINTER ON HUD STAYS AT 0 DEGREES WHEN MOVING TSU WITH TRACK CONTROL STICK (CONTINUED).

YES → Check for continuity from 22A4P14-V to 16A1P3-9.

Is continuity present?

YES → Test interface control unit (IFCU) per TM 9-1090-206-20-1, Chapter 3, Section IV.

Does interface control unit (IFCU) pass test?

YES → Replace fire control computer (FCC) per TM 9-1270-218-13, Chapter 4, Section IV.

Then go to paragraph 3-2.

NO → Replace interface control unit (IFCU) per TM 9-1090-206-20-1, Chapter 3, Section XVII.

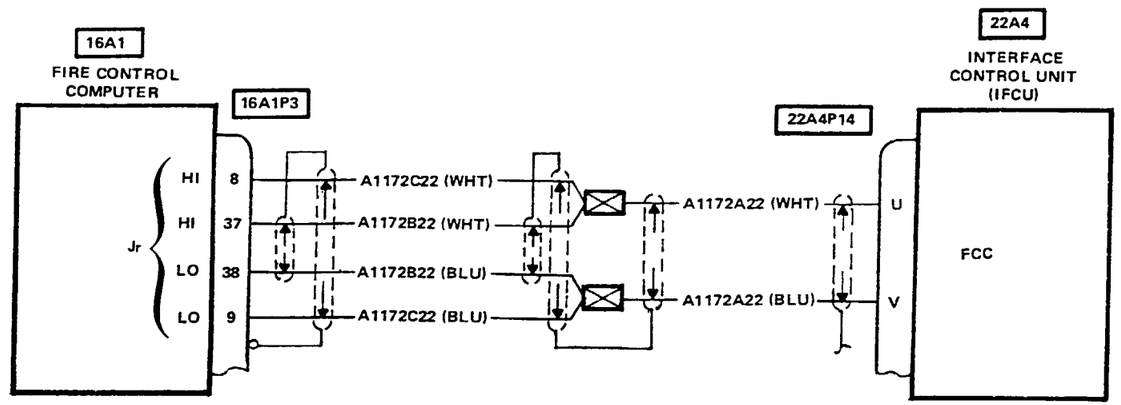
Then go to paragraph 3-2.

NO → Repair wire A1172C22 (BLU) between 16A1P3-9 and splice.

Then go to paragraph 3-2.

YES → Repair wire A1172B22 (BLU) between 16A1P3-38 and splice.

Then go to paragraph 3-2.



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3-13. COARSE AZIMUTH POINTER ON HUD STAYS AT +90 DEGREES WHEN MOVING TSU WITH TRACK CONTROL STICK.

INITIAL SETUP

Applicable Configuration
All

Tools/Test and Support Equipment
Multimeter

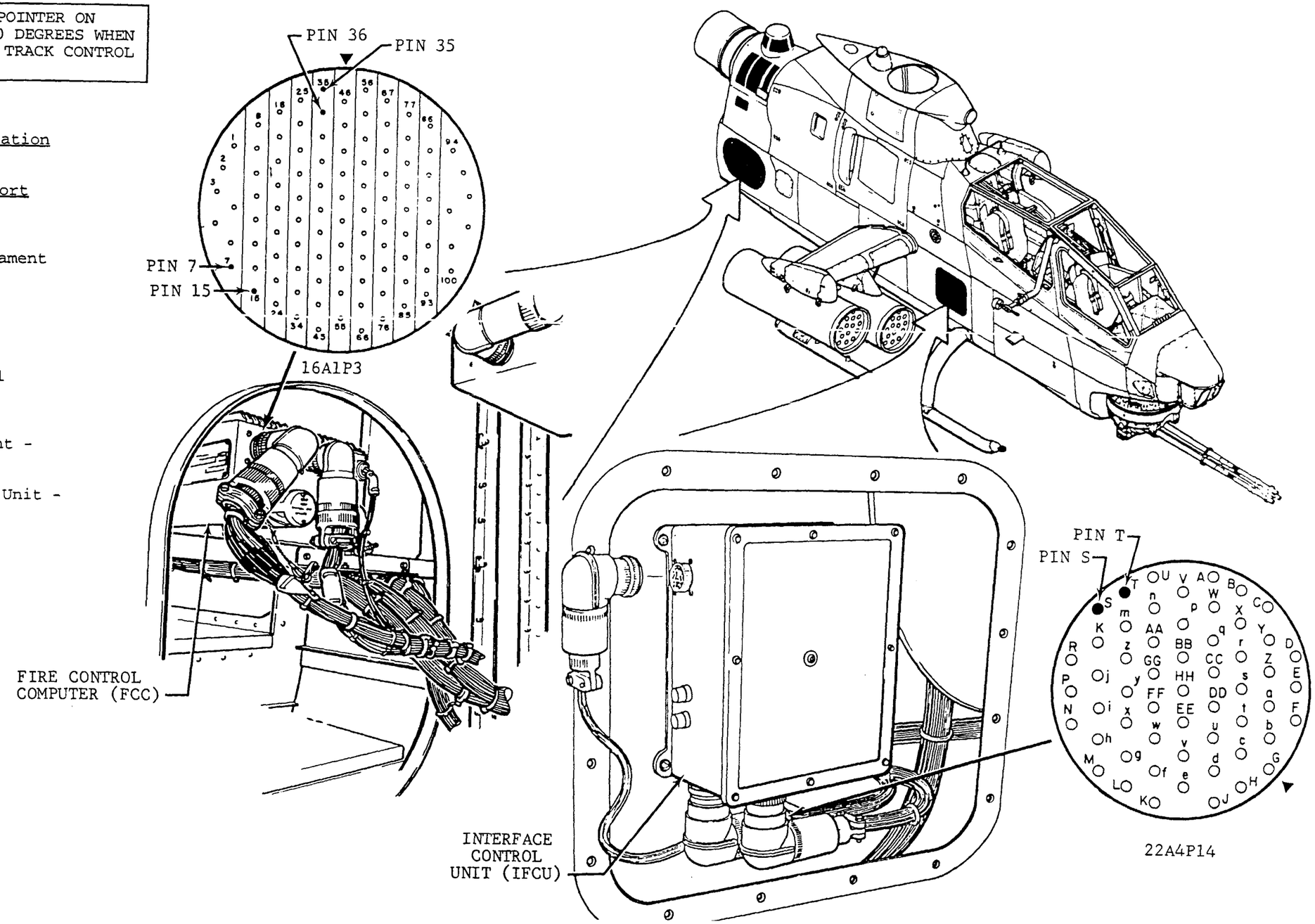
Tool Set, A/C Armament Repairman

Personnel Required
68J (2)

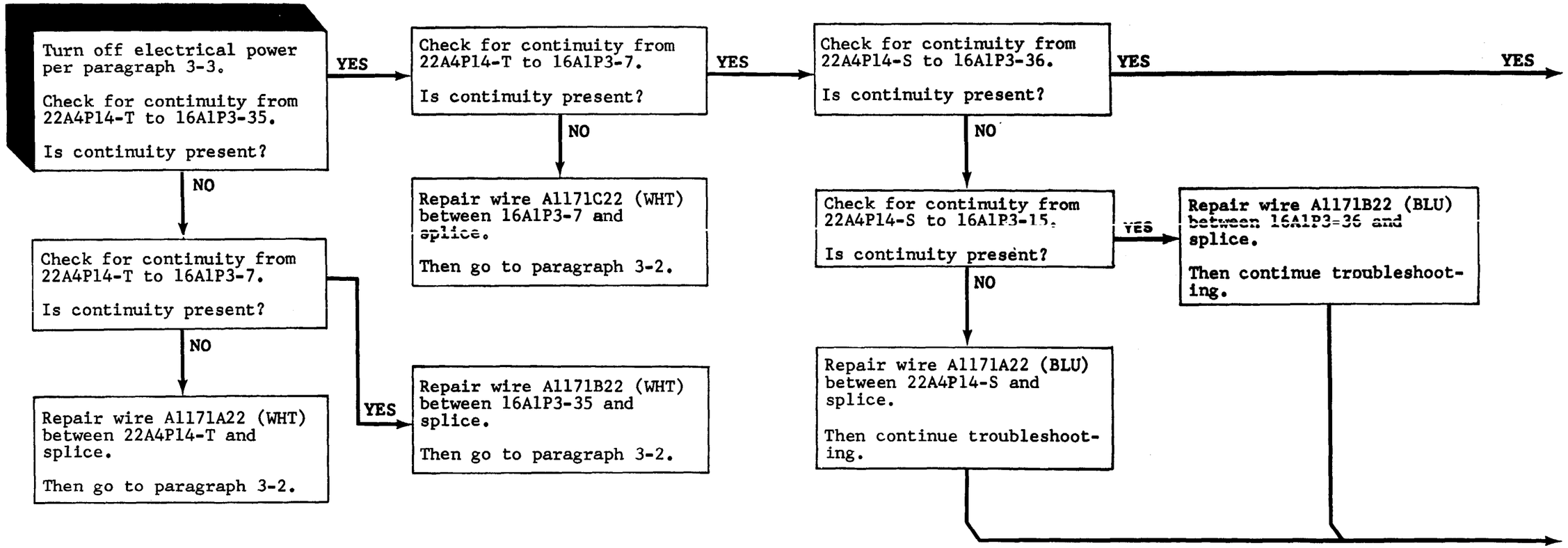
References
TM 9-1090-206-20-1
TM 9-1270-218-13

Access Panels
Battery Compartment - Removed

Interface Control Unit - Removed



3-13. COARSE AZIMUTH POINTER ON HUD STAYS AT +90 DEGREES WHEN MOVING TSU WITH TRACK CONTROL STICK (CONTINUED).



3-13. COARSE AZIMUTH POINTER ON HUD STAYS AT ± 90 DEGREES WHEN MOVING TSU WITH TRACK CONTROL STICK (CONTINUED).

YES → Check for continuity from 22A4P14-S to 16A1P3-15.

Is continuity present?

NC → Repair wire A1171C22 (BLU) between 16A1P3-15 and splice.

Then continue troubleshooting.

YES → Test interface control unit (IFCU) per TM 9-1090-206-20-1, Chapter 3, Section IV.

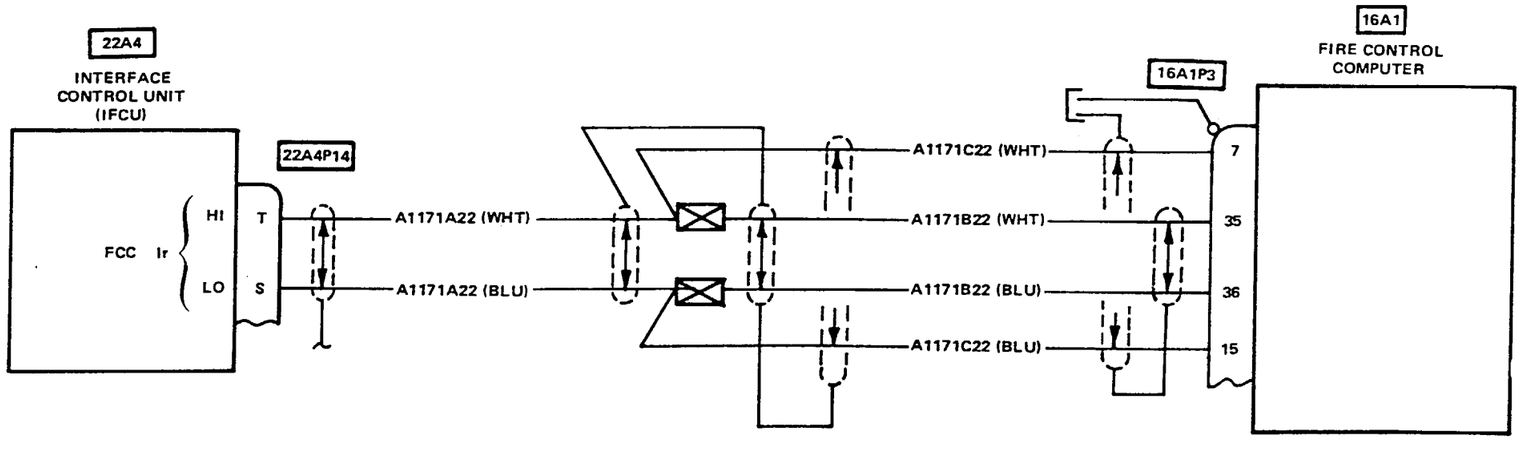
Does interface control unit (IFCU) pass test?

YES → Replace fire control computer (FCC) per TM 9-1270-218-13, Chapter 4, Section IV.

Then go to paragraph 3-2.

NO → Replace interface control unit (IFCU) per TM 9-1090-206-20-1, Chapter 3, Section XVII.

Then go to paragraph 3-2.



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3-14. LOS RETICLE ON HUD STAYS AT 0 DEGREES ELEVATION WHEN MOVING TSU WITH TRACK CONTROL STICK.

INITIAL SETUP

Applicable Configuration
All

Tools/Test and Support Equipment
Multimeter

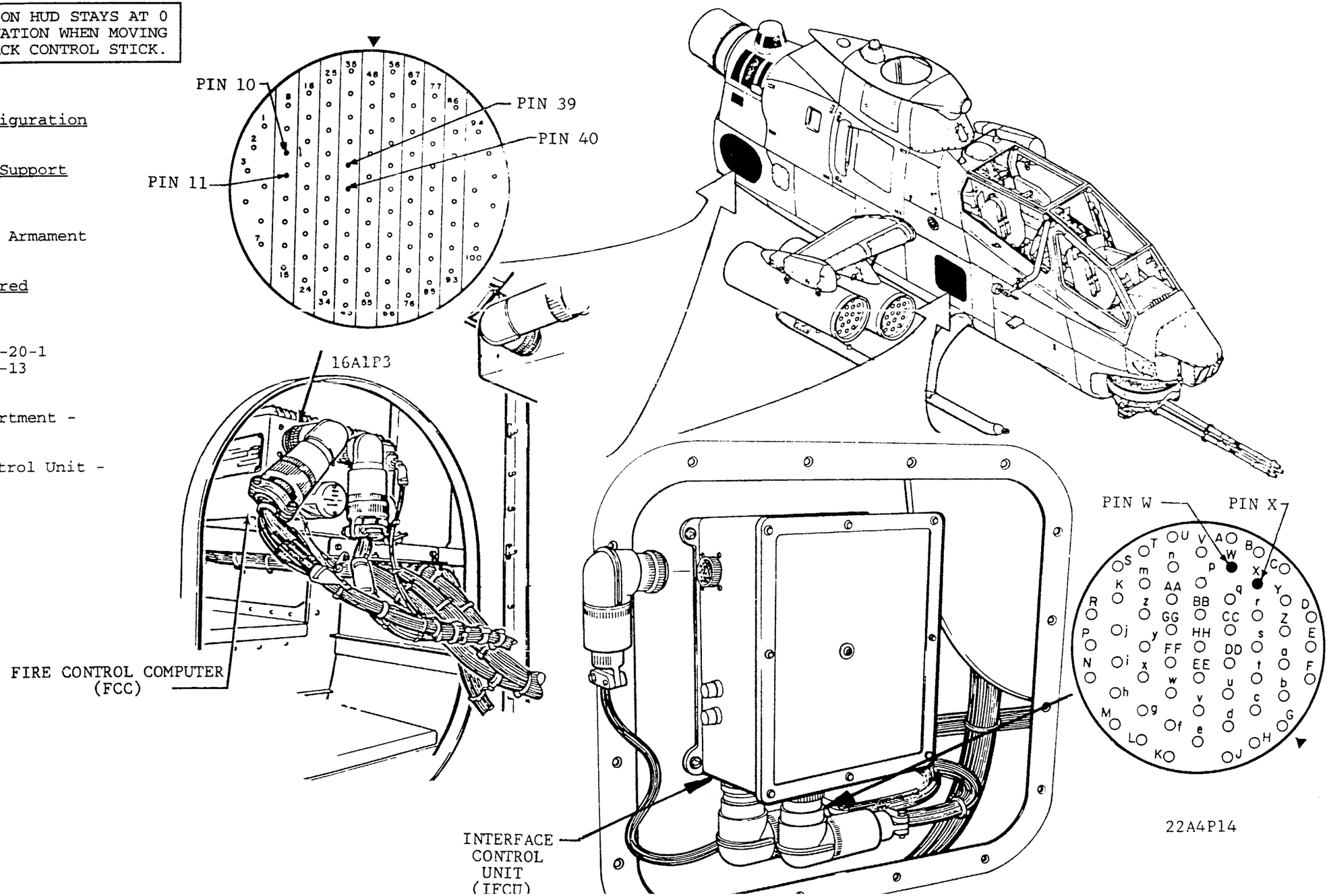
Tool Set, A/C Armament Repairman

Personnel Required
68J (2)

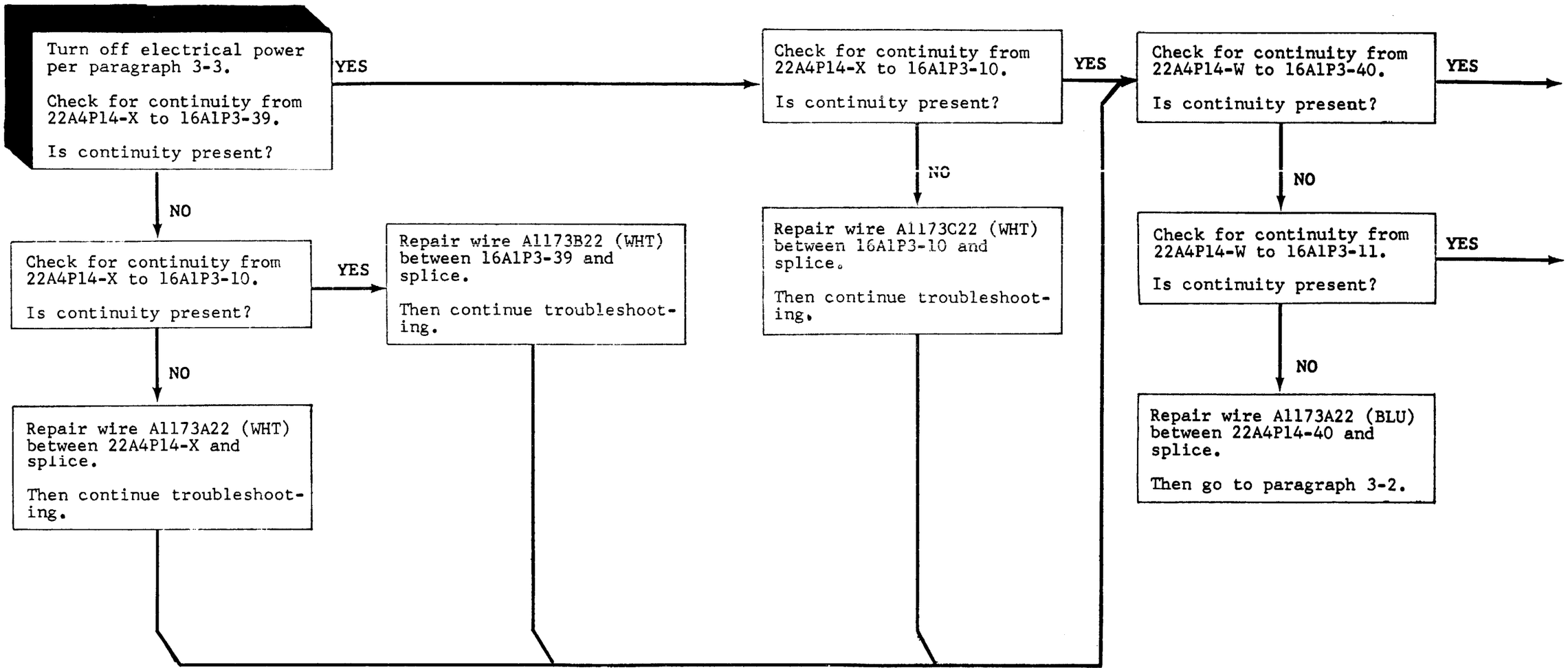
References
TM 9-1090-206-20-1
TM 9-1270-218-13

Access Panels
Battery Compartment - Removed

Interface Control Unit - Removed



3-14. LOS RETICLE ON HUD STAYS AT 0 DEGREES ELEVATION WHEN MOVING TSU WITH TRACK CONTROL STICK (CONTINUED).



3-14. LOS RETICLE ON HUD STAYS AT 0 DEGREES ELEVATION WHEN MOVING TSU WITH TRACK CONTROL STICK (CONTINUED).

YES

Check for continuity from 22A4P14-W to 16A1P3-11.

Is continuity present?

YES

Test interface control unit (IFCU) per TM 9-1090-206-20-1, Chapter 3, Section IV.

Does interface control unit (IFCU) pass test?

YES

Replace fire control computer (FCC) per TM 9-1270-218-13, Chapter 4, Section IV.

Then go to paragraph 3-2.

NO

Repair wire A1173C22 (BLU) between 16A1P3-11 and splice.

Then go to paragraph 3-2.

NO

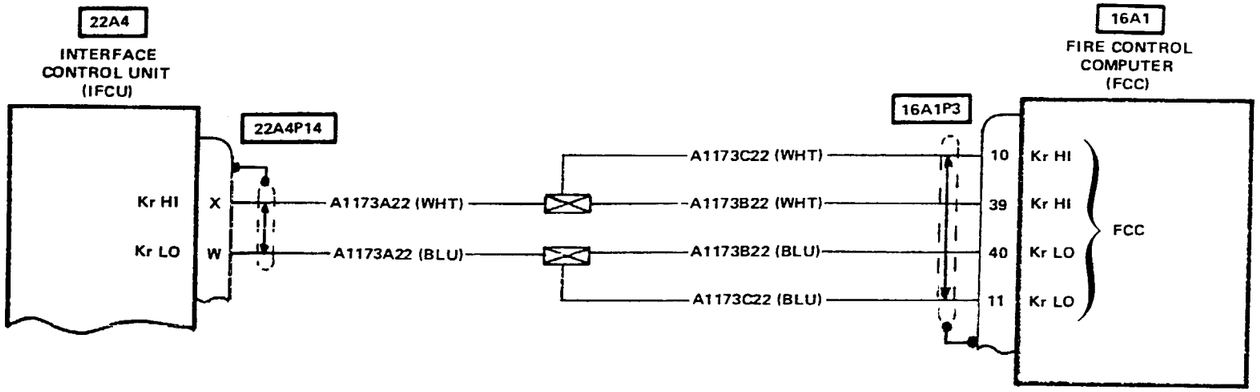
Replace interface control unit (IFCU) per TM 9-1090-206-20-1, Chapter 3, Section XVII.

Then go to paragraph 3-2.

YES

Repair wire A1173B22 (BLU) between 16A1P3-40 and splice.

Then go to paragraph 3-2.



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3-15. GUN DOES NOT MOVE APPROXIMATELY 7 INCHES TO THE RIGHT WHEN POINTING AT A FORWARD TARGET WITH GUN-TSU SELECTED AND ENTER COMPUTE BUTTON PRESSED ON BORESIGHT CONTROLLER.

INITIAL SETUP

Applicable Configuration
All

Tools/Test and Support Equipment
Multimeter

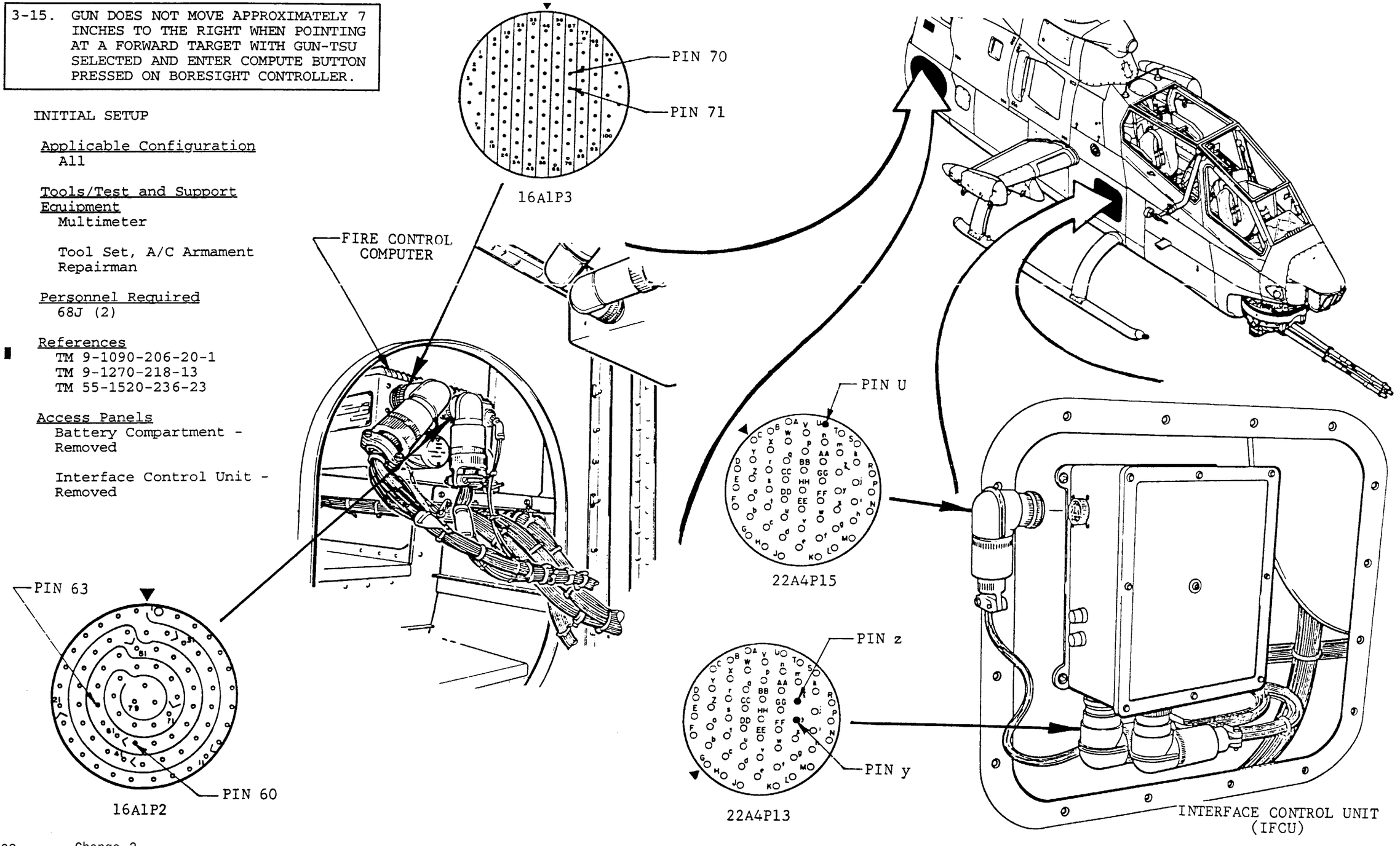
Tool Set, A/C Armament Repairman

Personnel Required
68J (2)

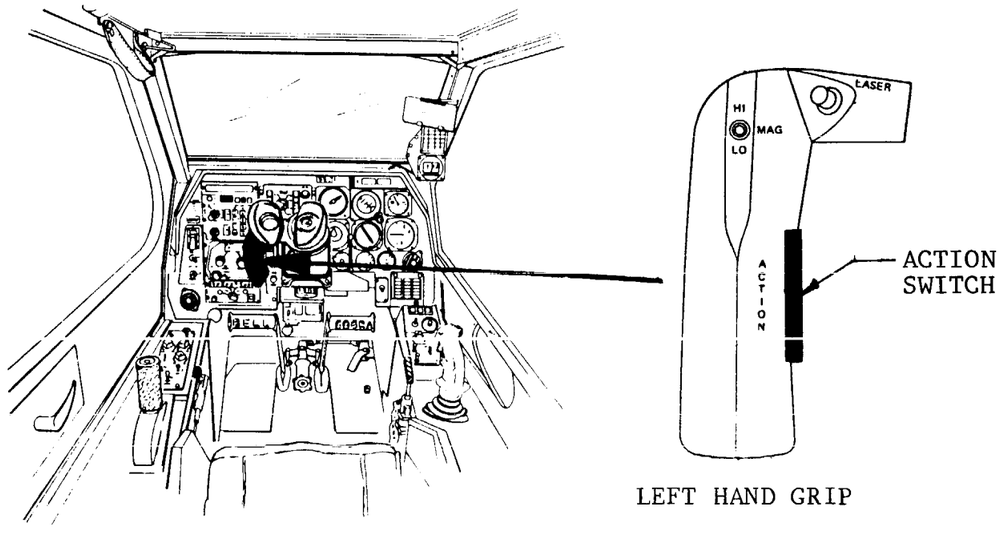
References
TM 9-1090-206-20-1
TM 9-1270-218-13
TM 55-1520-236-23

Access Panels
Battery Compartment - Removed

Interface Control Unit - Removed

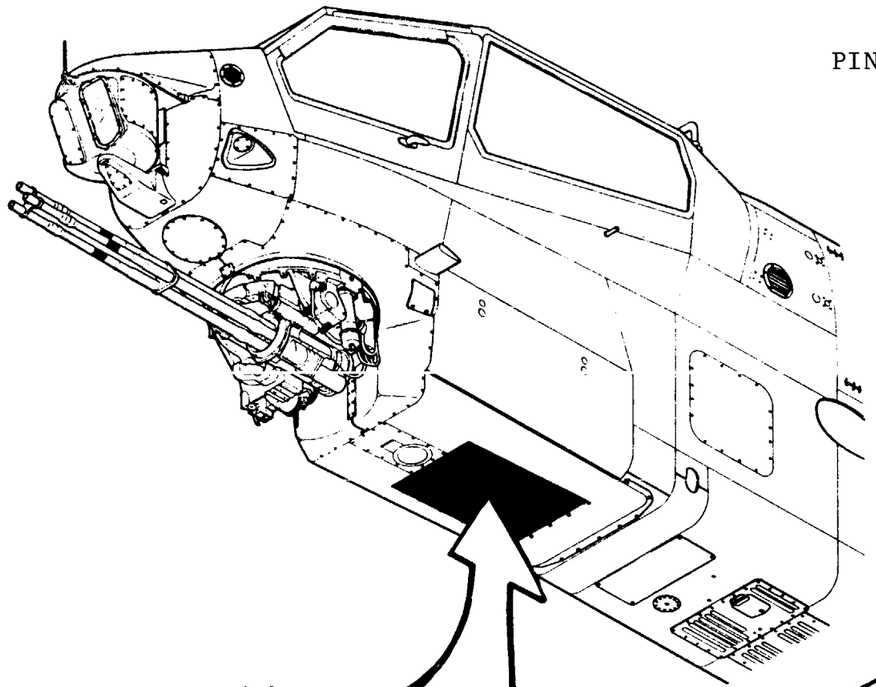


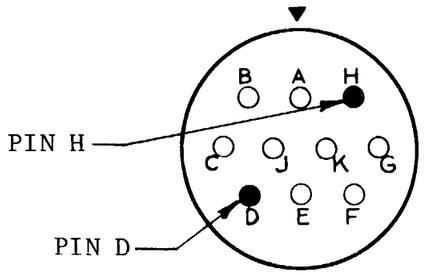
3-15. GUN DOES NOT MOVE APPROXIMATELY 7 INCHES TO THE RIGHT WHEN POINTING AT A FORWARD TARGET WITH GUN-TSU SELECTED AND ENTER COMPUTE BUTTON PRESSED ON BORESIGHT CONTROLLER (CONTINUED).



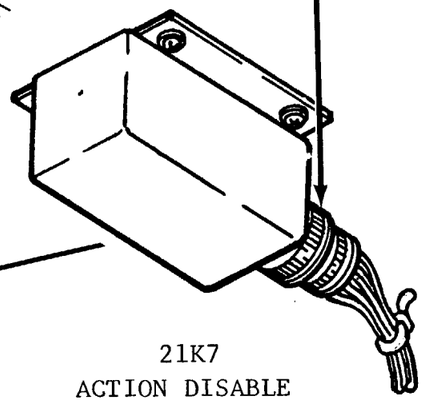
GUNNER STATION

LEFT HAND GRIP

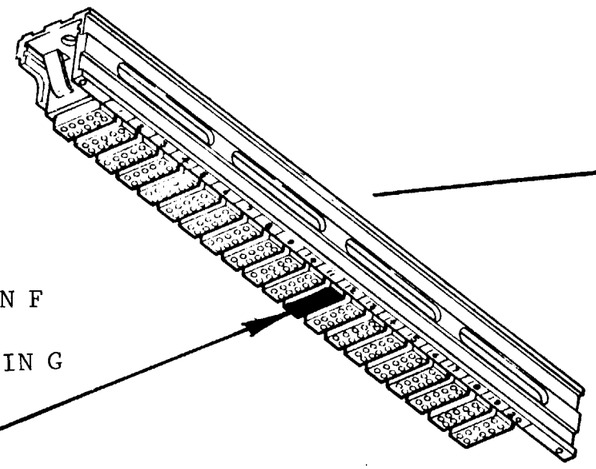




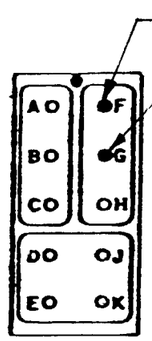
21K7P1



21K7
ACTION DISABLE RELAY

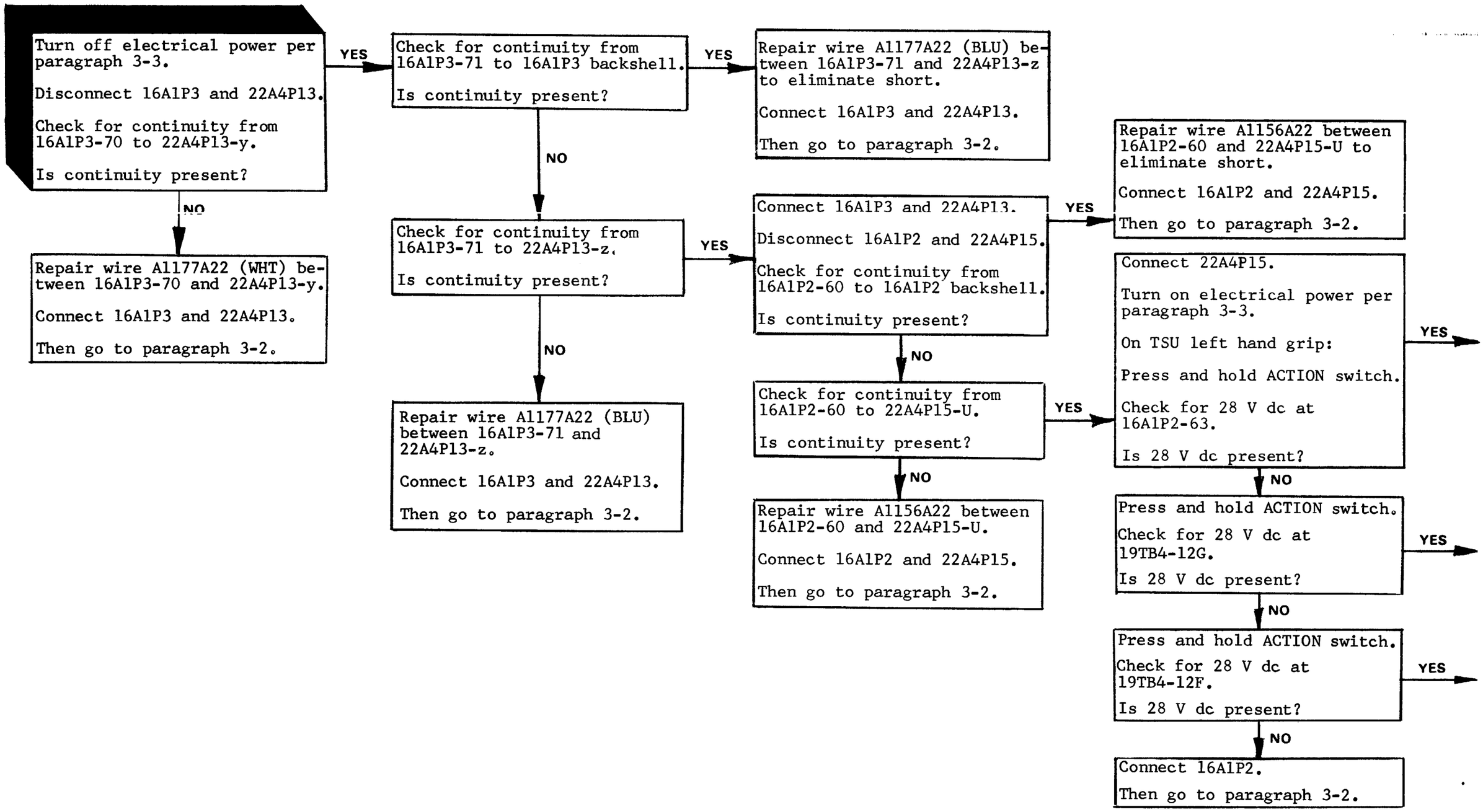


19TB4

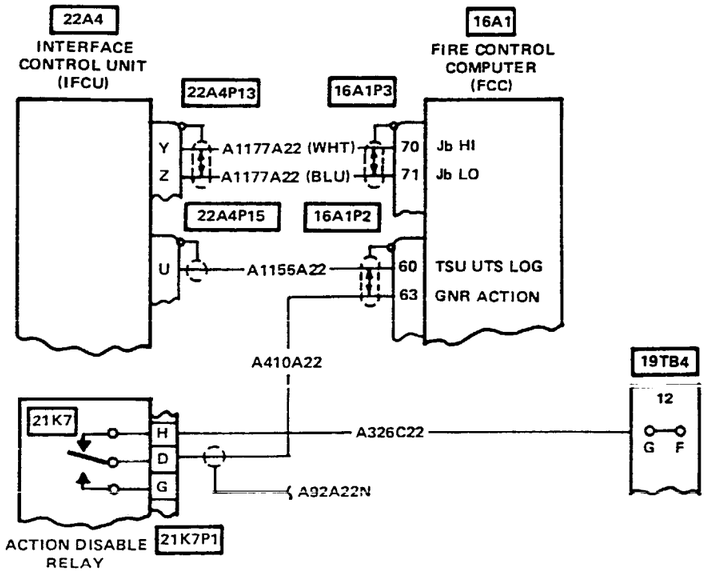


MODULE 12

3-15. GUN DOES NOT MOVE APPROXIMATELY 7 INCHES TO THE RIGHT WHEN POINTING AT A FORWARD TARGET WITH GUN-TSU SELECTED AND ENTER COMPUTE BUTTON PRESSED ON BORESIGHT CONTROLLER (CONTINUED).



3-15. GUN DOES NOT MOVE APPROXIMATELY 7 INCHES TO THE RIGHT WHEN POINTING AT A FORWARD TARGET WITH GUN-TSU SELECTED AND ENTER COMPUTE BUTTON PRESSED ON BORESIGHT CONTROLLER (CONTINUED).



Turn off electrical power per paragraph 3-3.

Test interface control unit (IFCU) per TM 9-1090-206-20-1, Chapter 3, Section IV.

Does IFCU pass tests?

YES → Replace fire control computer (FCC) per TM 9-1270-218-13, Chapter 4, Section IV.

Connect 16A1P2.

Then go to paragraph 3-2.

NO → Replace IFCU per TM 9-1090-206-12, Chapter 3, Section XVII.

Connect 16A1P2.

Then go to paragraph 3-2.

YES → Turn off electrical power per paragraph 3-3.

Replace module 12 of 19TB4 per TM 55-1520-236-23, Chapter 9, Section I.

Connect 16A1P2.

Then go to paragraph 3-2.

YES → Turn off electrical power per paragraph 3-3.

Disconnect 21K7P1.

Check for continuity from 19TB4-12G to 21K7P1-H.

Is continuity present?

NO → Repair wire A326C22 between 19TB4-12G and 21K7P1-H.

Connect 21K7P1.

Connect 16A1P2.

Then go to paragraph 3-2.

YES → Check for continuity from 21K7P1-D to 16A1P2-63.

Is continuity present?

NO → Repair wire A410A22 between 21K7P1-D and 16A1P2-63.

Connect 21K7P1.

Connect 16A1P2.

Then go to paragraph 3-2.

YES → Replace action disable relay (21K7) per TM 55-1520-236-23, Chapter 9, Section I.

Connect 16A1P2.

Then go to paragraph 3-2.

3-16. GUN DOES NOT MOVE APPROXIMATELY 7 INCHES TO THE RIGHT WHEN POINTING AT A 90 DEGREE RIGHT TARGET WITH GUN-TSU SELECTED AND ENTER COMPUTE BUTTON PRESSED ON BORESIGHT CONTROLLER.

INITIAL SETUP

Applicable Configuration
All

Tools/Test and Support Equipment
Multimeter

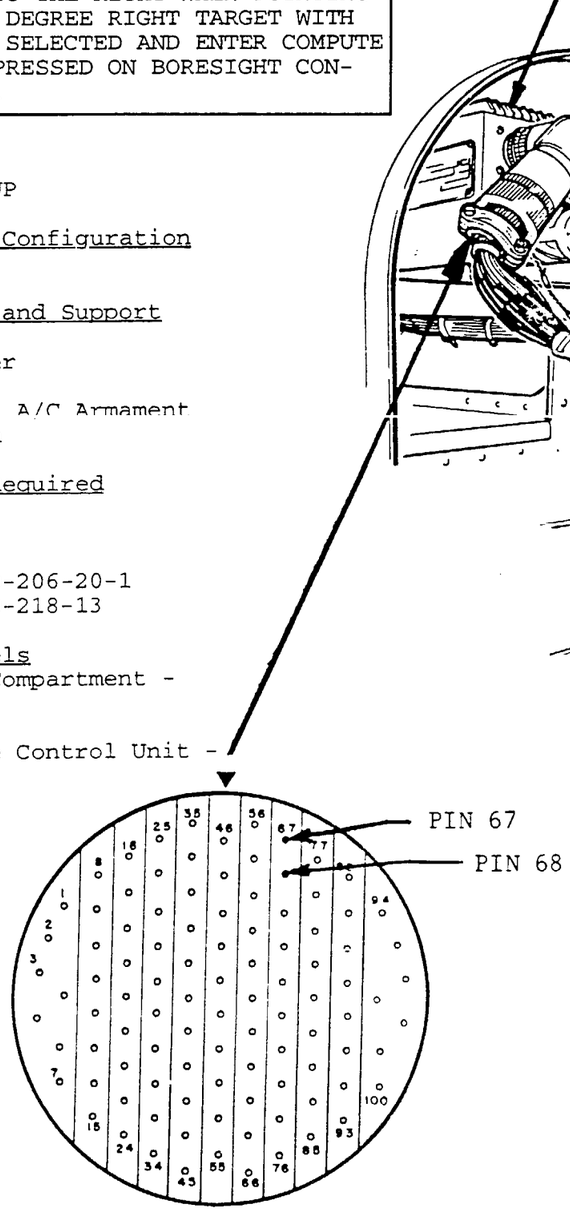
Tool Set, A/C Armament Repairman

Personnel Required
68J (2)

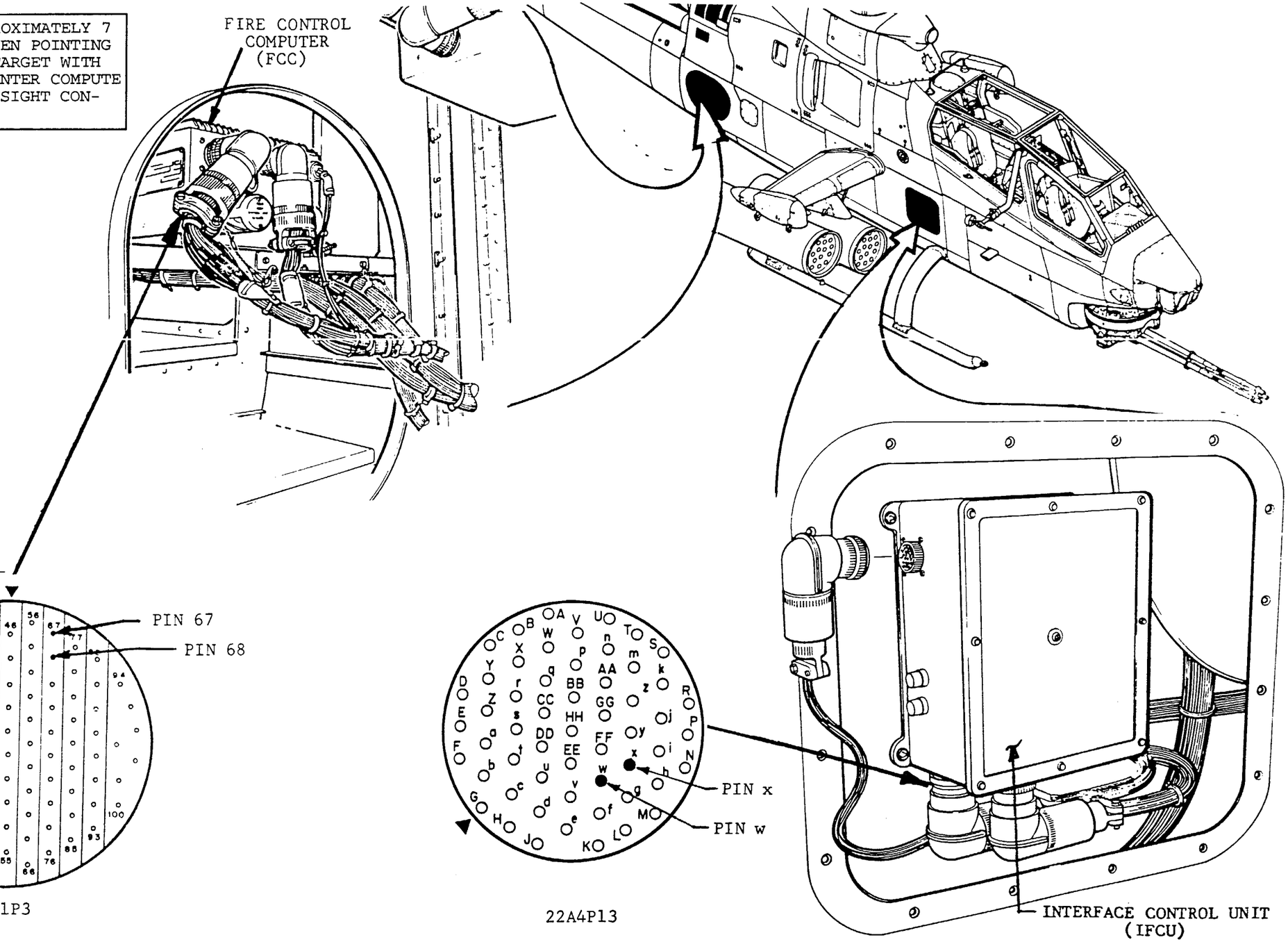
References
TM 9-1090-206-20-1
TM 9-1270-218-13

Access Panels
Battery Compartment - Removed

Interface Control Unit - Removed



16A1P3



22A4P13

3-16. GUN DOES NOT MOVE APPROXIMATELY 7 INCHES TO THE RIGHT WHEN POINTING AT A 90 DEGREE RIGHT TARGET WITH GUN-TSU SELECTED AND ENTER COMPUTE BUTTON PRESSED ON BORESIGHT CONTROLLER (CONTINUED).

Turn off electrical power per paragraph 3-3.

Check for continuity from 16A1P3-67 to 22A4P13-x.

Is continuity present?

YES → Check for continuity from 16A1P3-68 to connector backshell.

Is continuity present?

YES → Repair wire A1176A22 (BLU) between 16A1P3-68 and 22A4P13-w to eliminate short.

Then go to paragraph 3-2.

NO → Repair wire A1176A22 (WHT) between 16A1P3-67 and 22A4P13-x.

Then go to paragraph 3-2.

NO → Check for continuity from 16A1P3-68 to 22A4P13-w.

Is continuity present?

YES → Test interface control unit (IFCU) per TM 9-1090-206-20-1, Chapter 3, Section IV.

Does interface control unit (IFCU) pass test?

YES → Replace fire control computer (FCC) per TM 9-1270-218-13, Chapter 4, Section IV.

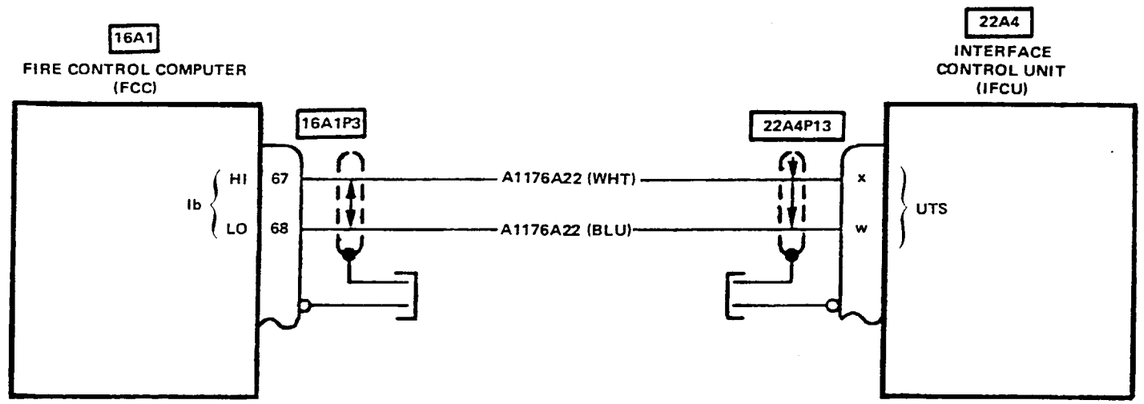
Then go to paragraph 3-2.

NO → Repair wire A1176A22 (BLU) between 16A1P3-68 and 22A4P13-w.

Then go to paragraph 3-2.

NO → Replace interface control unit (IFCU) per TM 9-1090-206-20-1, Chapter 3, Section XVII.

Then go to paragraph 3-2.



3-17. GUN DOES NOT MOVE APPROXIMATELY 7 INCHES IN ELEVATION WHEN POINTING AT A FORWARD TARGET WITH GUN-TSU SELECTED AND ENTER COMPUTE BUTTON PRESSED ON BORESIGHT CONTROLLER.

INITIAL SETUP

Applicable Configuration
All

Tools/Test and Support Equipment
Multimeter

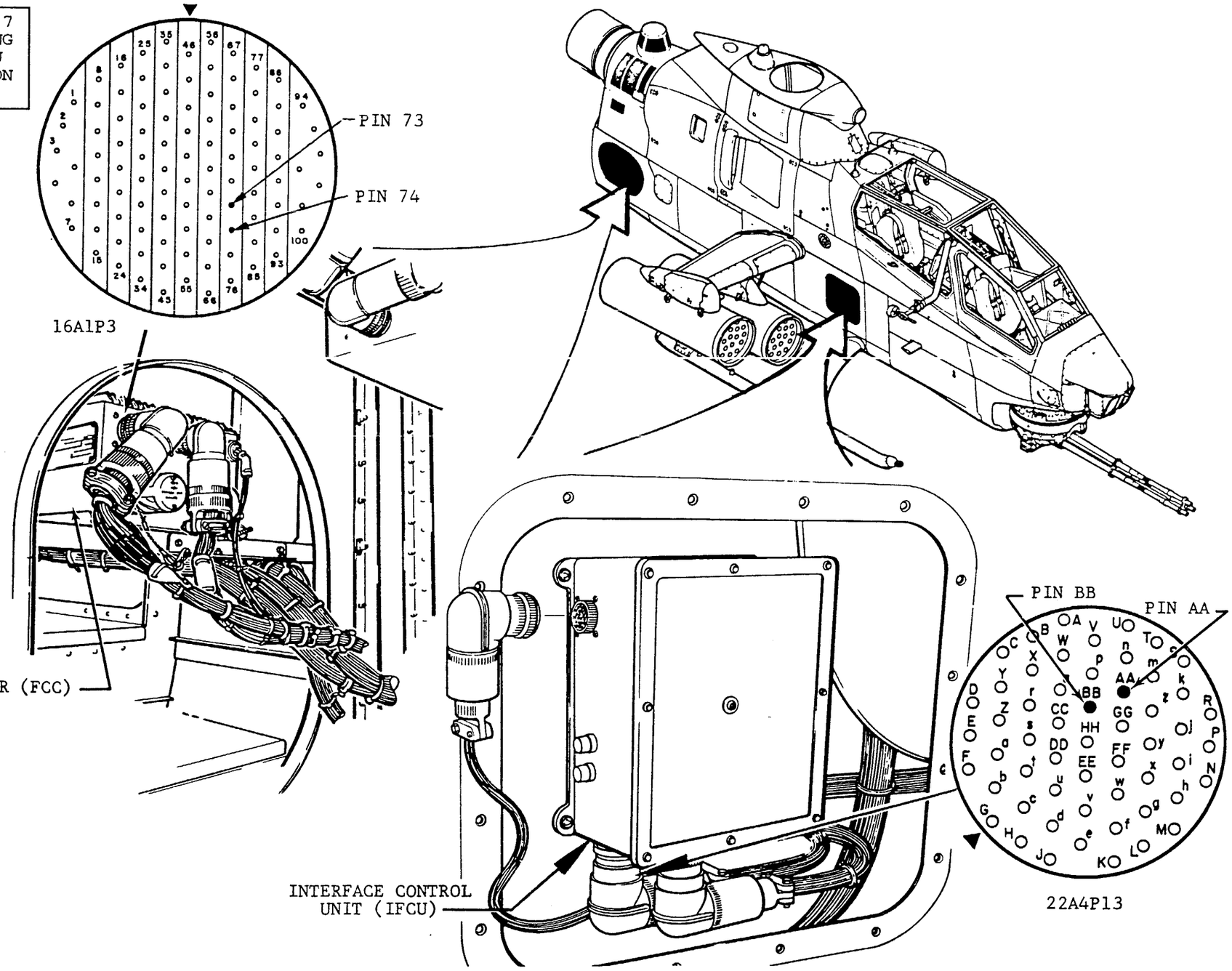
Tool Set, A/C Armament Repairman

Personnel Required
68J (2)

References
TM 9-1090-206-20-1
TM 9-1270-218-13

Access Panels
Battery Compartment - Removed

Interface Control Unit - Removed



3-17. GUN DOES NOT MOVE APPROXIMATELY 7 INCHES IN ELEVATION WHEN POINTING AT A FORWARD TARGET WITH GUN-TSU SELECTED AND ENTER COMPUTE BUTTON PRESSED ON BORESIGHT CONTROLLER (CONTINUED).

Turn off electrical power per paragraph 3-3.

Check for continuity from 16A1P3-73 to 22A4P13-BB.

Is continuity present?

YES → Check for continuity from 16A1P3-74 to connector backshell.

Is continuity present?

YES → Repair wire A1178A22 (BLU) between 16A1P3-74 and 22A4P13-AA to eliminate short.

Then go to paragraph 3-2.

NO → Repair wire A1178A22 (WHT) between 16A1P3-73 and 22A4P13-BB.

Then go to paragraph 3-2.

NO → Check for continuity from 16A1P3-74 to 22A4P13-AA.

Is continuity present?

YES → Test interface control unit (IFCU) per TM 9-1090-206-20-1, Chapter 3, Section IV.

Does interface control unit (IFCU) pass test?

YES → Replace fire control computer (FCC) per TM 9-1270-218-13, Chapter 4, Section IV.

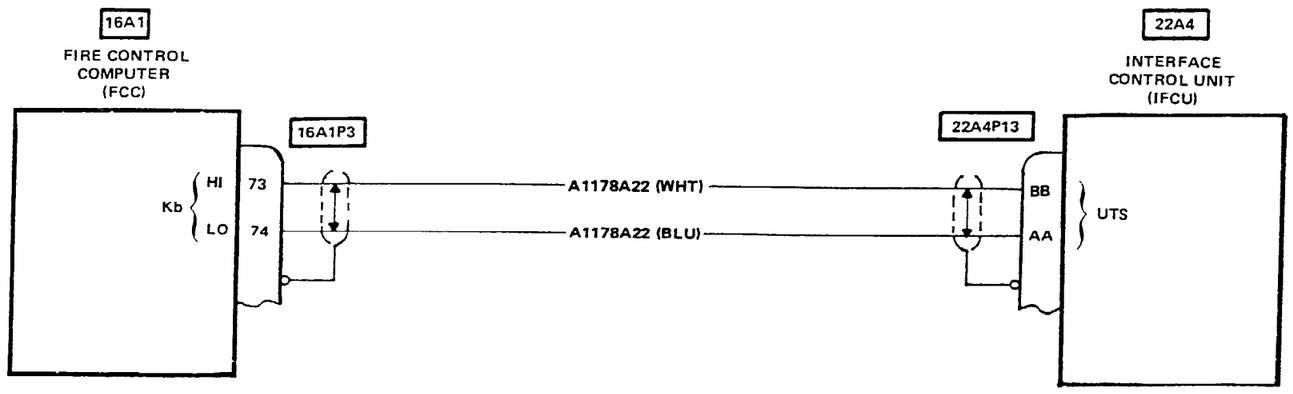
Then go to paragraph 3-2.

NO → Repair wire A1178A22 (BLU) between 16A1P3-74 and 22A4P13-AA.

Then go to paragraph 3-2.

NO → Replace interface control unit (IFCU) per TM 9-1090-206-20-1, Chapter 3, Section XVII.

Then go to paragraph 3-2.



3-18.	GUN DOES NOT MOVE WITH GHS-GUN SELECTED AND ENTER COMPUTE BUTTON PRESSED ON BORESIGHT CONTROLLER.

INITIAL SETUP

Applicable Configuration
All

Tools/Test and Support Equipment
Multimeter

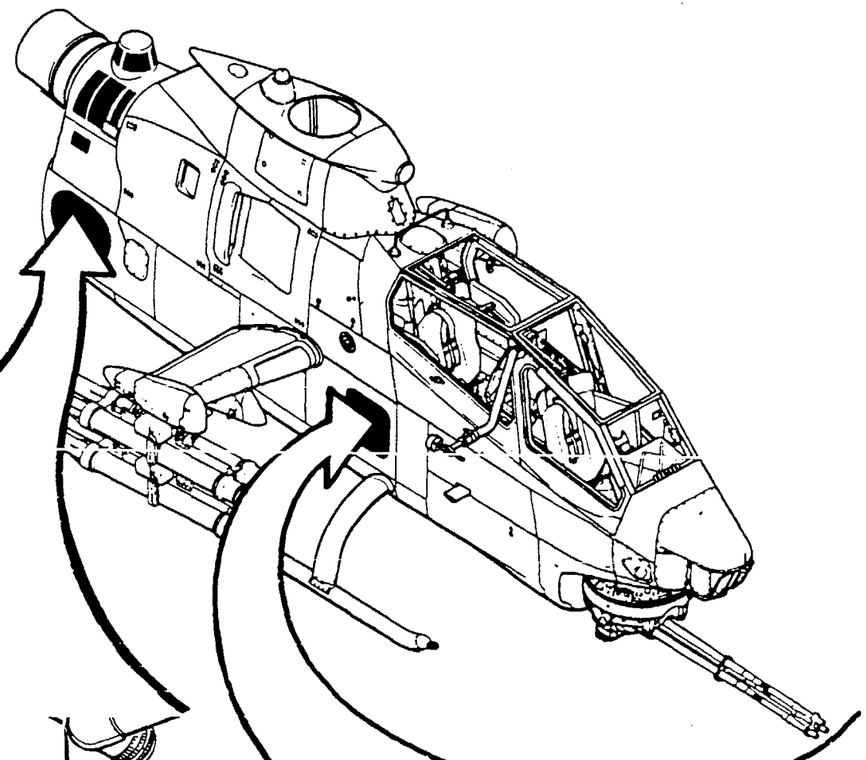
Tool Set, A/C Armament Repairman

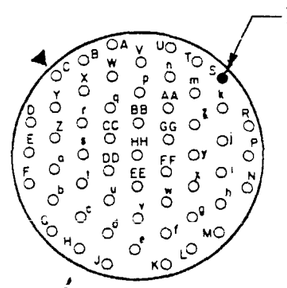
Personnel Required
68J (2)

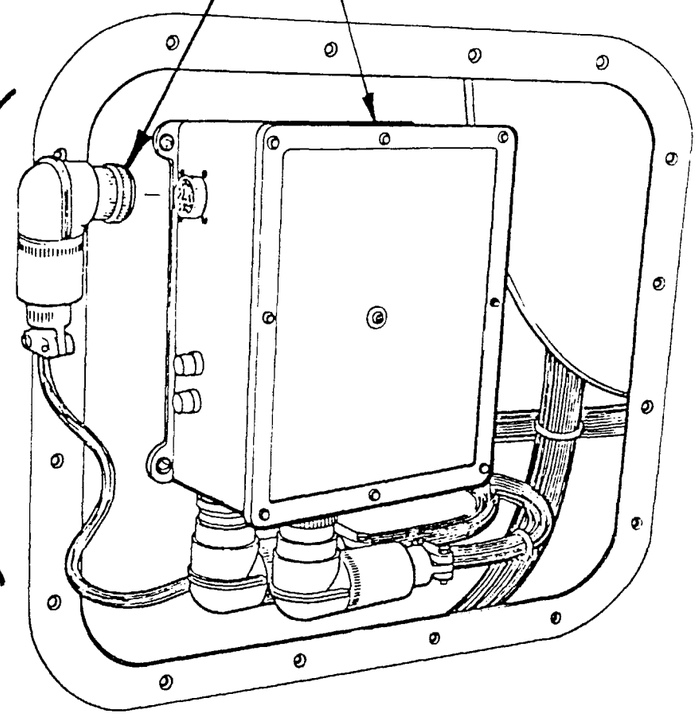
References
TM 9-1090-206-20-1
TM 9-1270-218-13

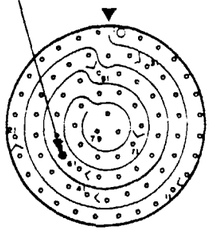
Access Panels
Battery Compartment - Removed

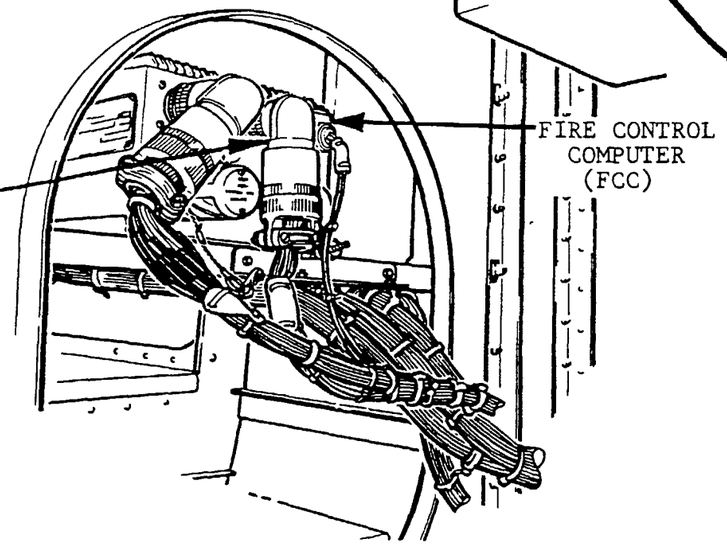
Interface Control Unit - Removed











3-18. GUN DOES NOT MOVE WITH GHS-GUN SELECTED AND ENTER COMPUTE BUTTON PRESSED ON BORESIGHT CONTROLLER (CONTINUED).

Turn off electrical power per paragraph 3-3.

Disconnect 16A1P2.

Turn on electrical power per paragraph 3-3.

Check for 28 V dc at 16A1P2-62.

Is 28 V dc present?

YES → Turn off electrical power per paragraph 3-3.

Replace fire control computer (FCC) per TM 9-1270-218-13, Chapter 4, Section IV.

Then go to paragraph 3-2.

NO → Turn off electrical power per paragraph 3-3.

Check for continuity from 16A1P2-62 to 22A4P15-S.

Is continuity present?

YES → Check for continuity from 16A1P2-62 to 16A1P2 backshell.

Is continuity present?

YES → Repair wire A1157A22 between 16A1P2-62 and 22A4P15-S to eliminate short.

Connect 16A1P2.

Then go to paragraph 3-2.

NO → Repair wire A1157A22 between 16A1P2-62 and 22A4P15-S.

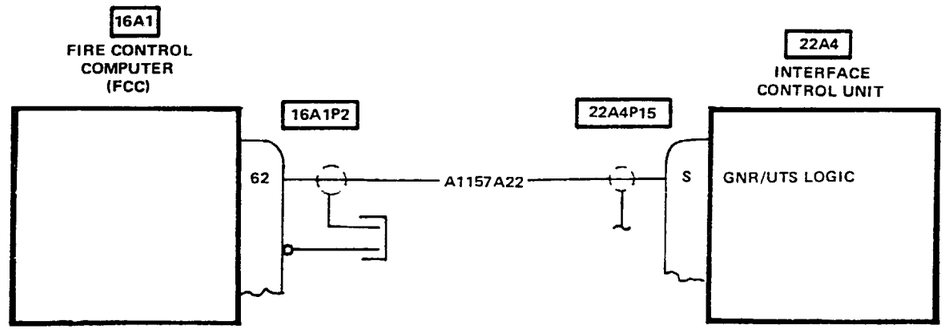
Connect 16A1P2.

Then go to paragraph 3-2.

NO → Replace interface control unit (IFCU) per TM 9-1090-206-20-1, Chapter 3, Section XVII.

Connect 16A1P2.

Then go to paragraph 3-2.



3-19.	GUN DOES NOT MOVE WITH PHS-GUN SELECTED AND ENTER COMPUTE BUTTON PRESSED ON BORESIGHT CONTROLLER.

INITIAL SETUP

Applicable Configuration
All

Tools/Test and Support Equipment
Multimeter

Tool Set, A/C Armament Repairman

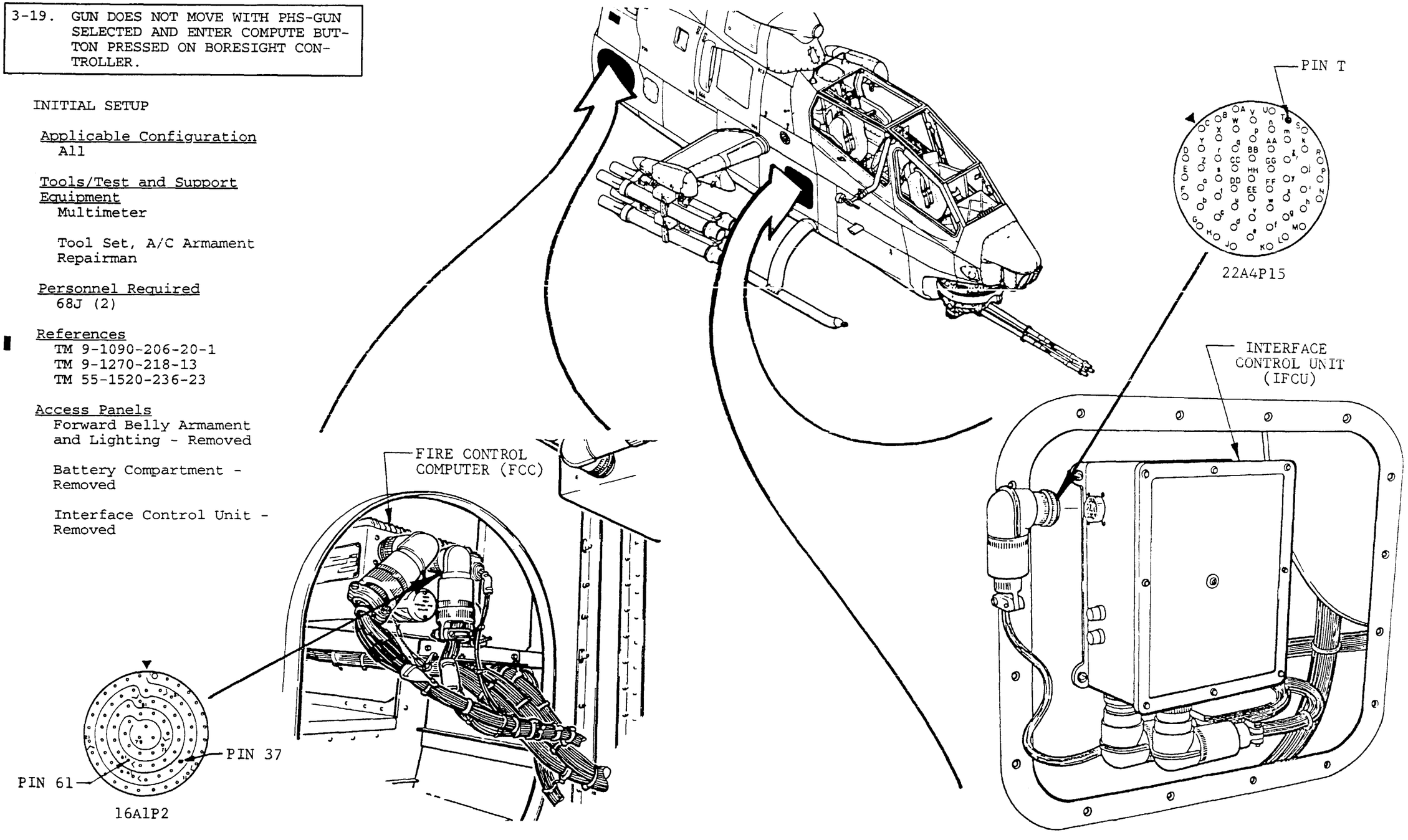
Personnel Required
68J (2)

References
TM 9-1090-206-20-1
TM 9-1270-218-13
TM 55-1520-236-23

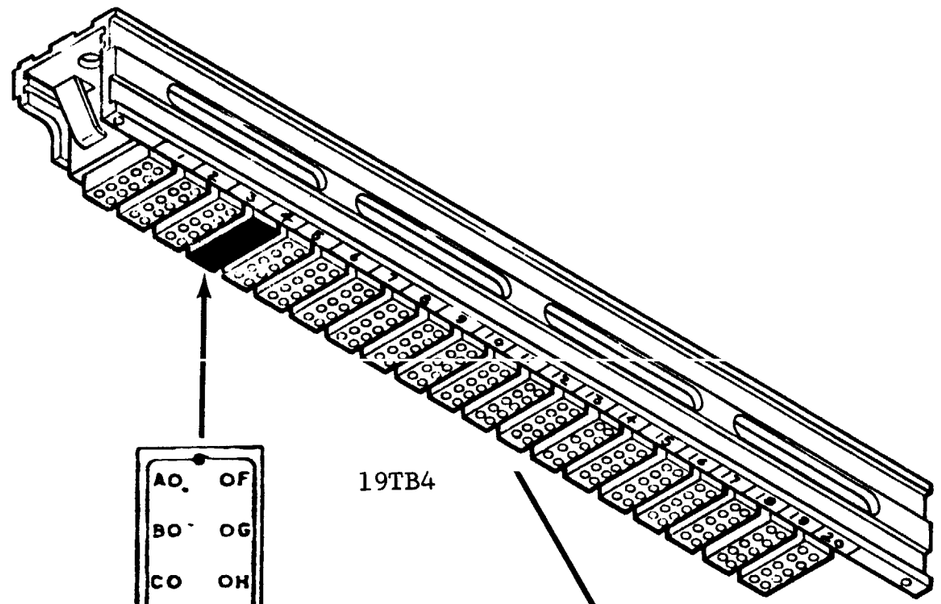
Access Panels
Forward Belly Armament and Lighting - Removed

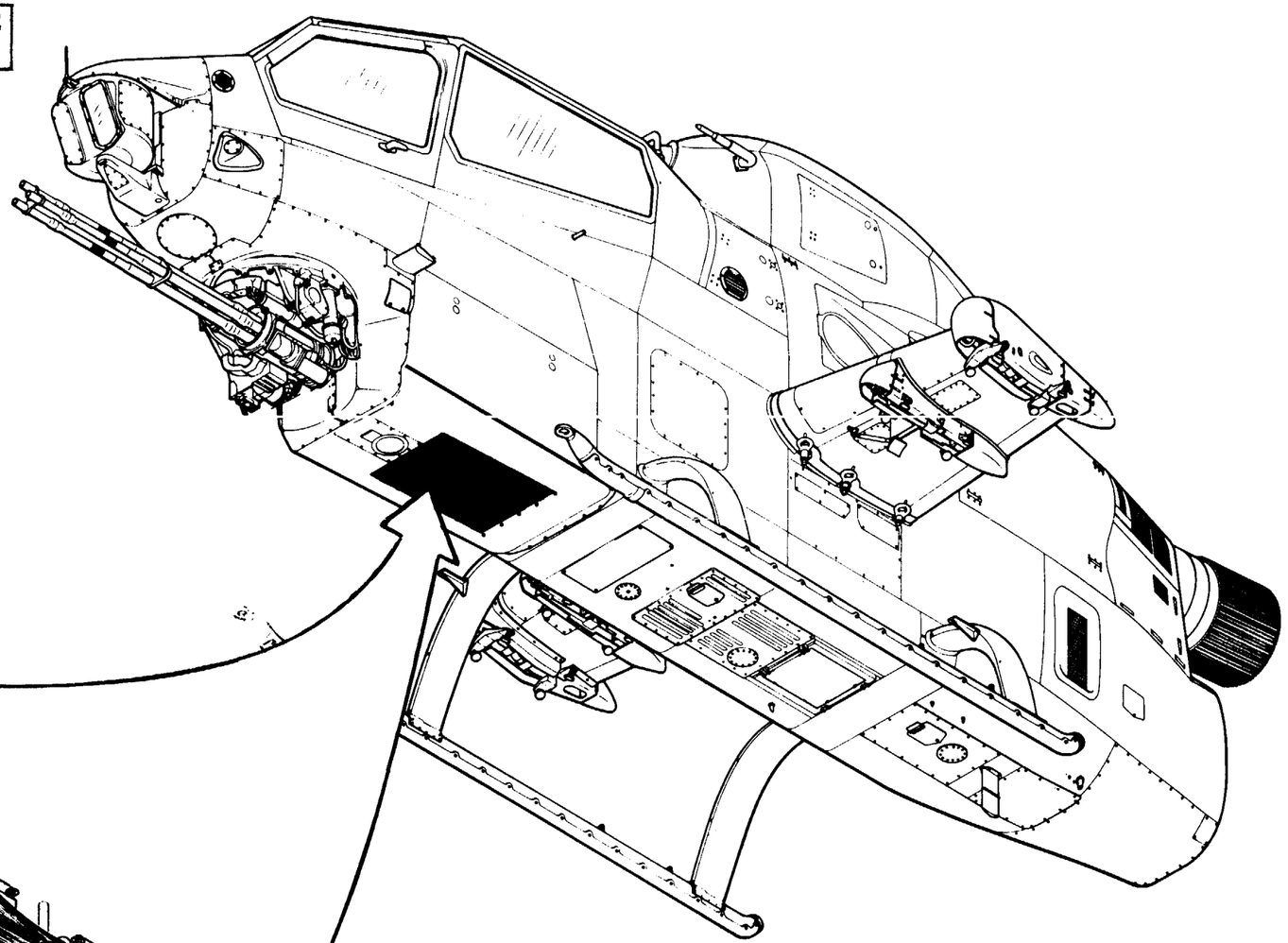
Battery Compartment - Removed

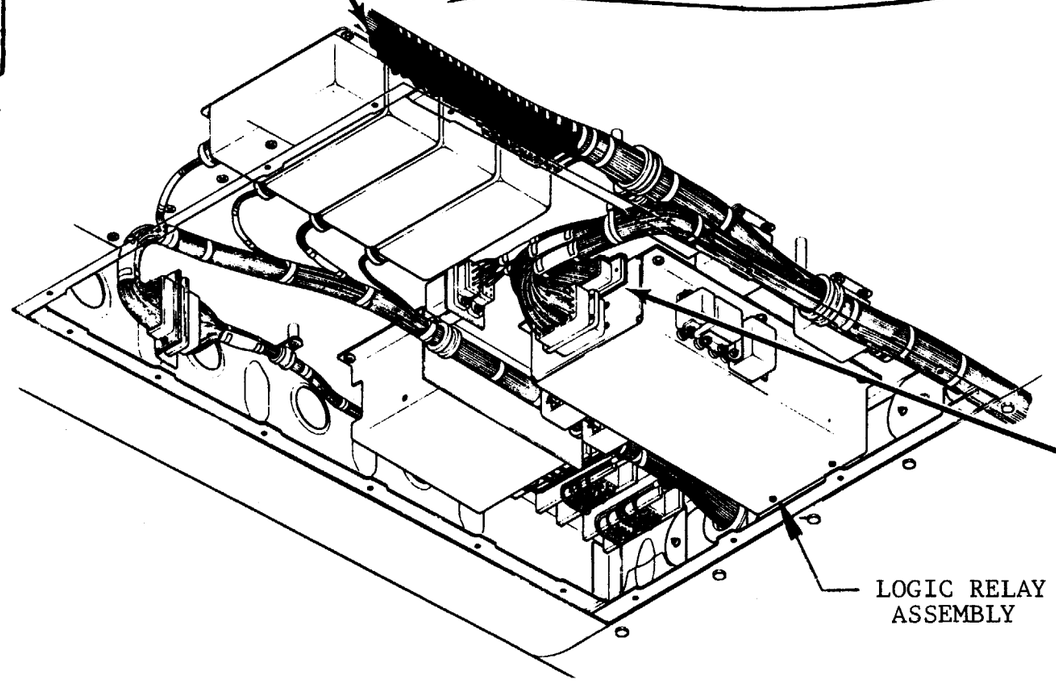
Interface Control Unit - Removed

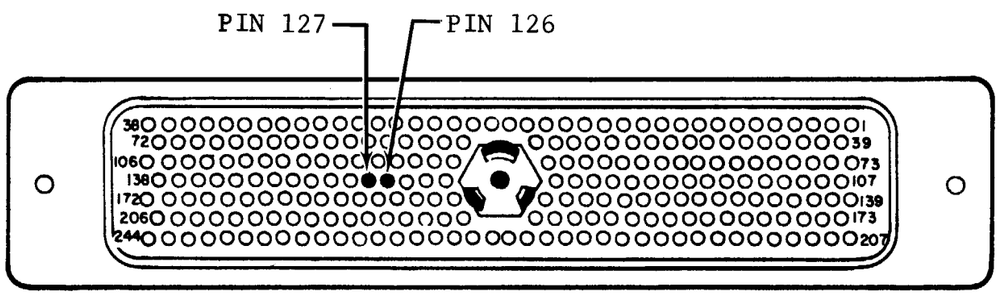


3-19. GUN DOES NOT MOVE WITH PHS-GUN SELECTED AND ENTER COMPUTE BUTTON PRESSED ON BORESIGHT CONTROLLER (CONTINUED).

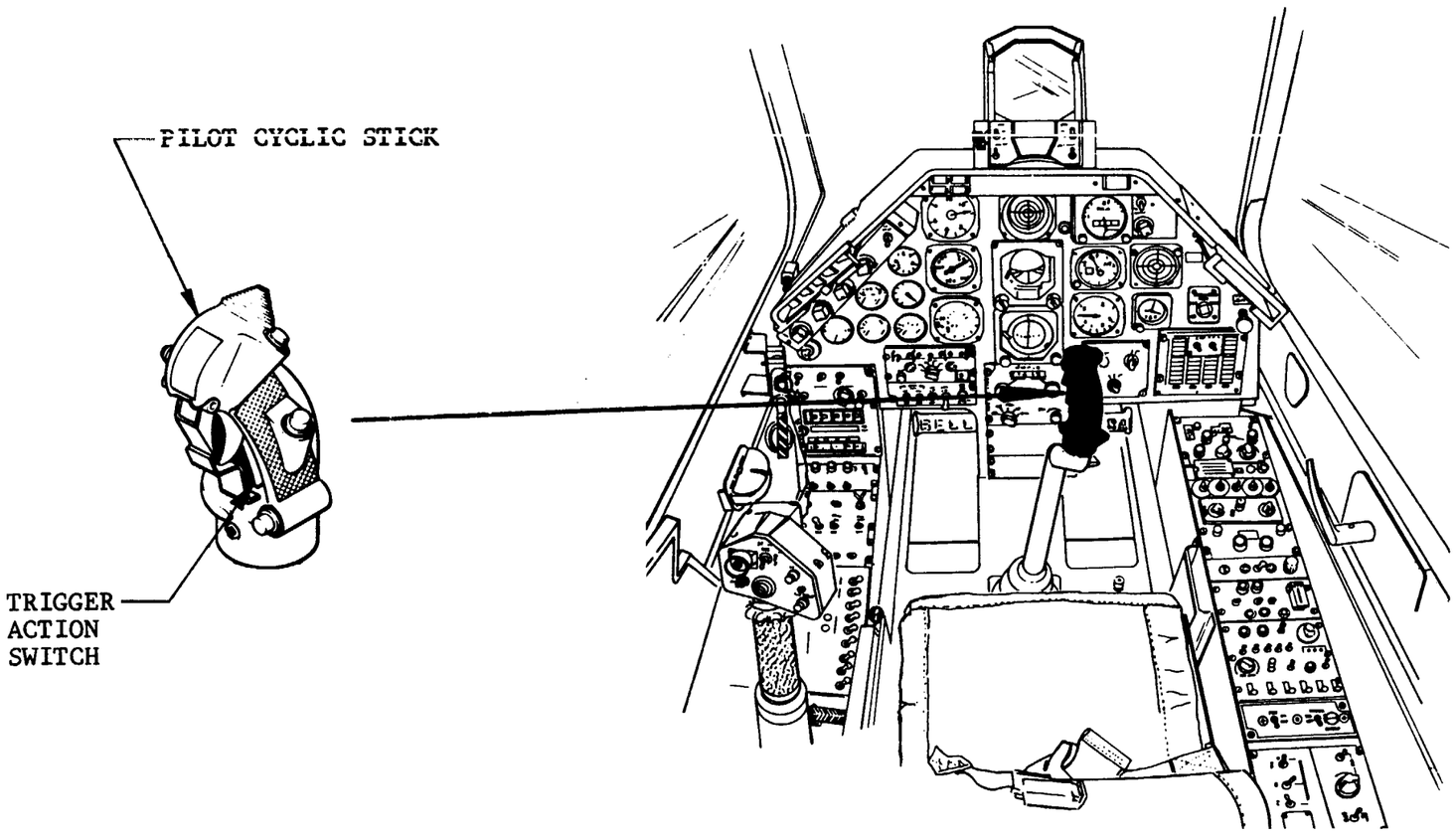








3-19.	GUN DOES NOT MOVE WITH PHS-GUN SELECTED AND ENTER COMPUTE BUTTON PRESSED ON BORESIGHT CONTROLLER (CONTINUED).



PILOT STATION

3-19. GUN DOES NOT MOVE WITH PHS-GUN SELECTED AND ENTER COMPUTE BUTTON PRESSED ON BORESIGHT CONTROLLER (CONTINUED).

Turn off electrical power per paragraph 3-3.

Disconnect 16A1P2.

Turn on electrical power per paragraph 3-3.

Check for 28 V dc at 16A1P2-61.

Is 28 V dc present?

YES

On pilot cyclic stick:

Press and hold TRIGGER ACTION switch.

Check for 28 V dc at 16A1P2-37.

Is 28 V dc present?

YES

Turn off electrical power per paragraph 3-3.

Replace fire control computer (FCC) per TM 9-1270-218-13, Chapter 4, Section IV.

Then go to paragraph 3-2.

NO

Check for 28 V dc at 19TB4-4D.

Is 28 V dc present?

YES

Turn off electrical power per paragraph 3-3.

Check for continuity from 19TB4-4D to 22A5P1-126.

Is continuity present?

YES

Check for continuity from 22A5P1-127 to 16A1P2-37.

Is continuity present?

YES

NO

Repair wire A472A22 between 22A5P1-127 and 16A1P2-37.

Connect 16A1P2.

Then go to paragraph 3-2.

NO

Repair wire(s) A187V22 and A187S20 between 22A5P1-126 and 19TB4-4D.

Connect 16A1P2.

Then go to paragraph 3-2.

NO

Turn off electrical power per paragraph 3-3.

Replace module 4 of 19TB4 per TM 55-1520-236-23, Chapter 9, Section I.

Connect 16A1P2.

Then go to paragraph 3-2.

NO

Turn off electrical power per paragraph 3-3.

Check for continuity from 16A1P2-61 to 22A4P15-T.

Is continuity present?

YES

Check for continuity from 16A1P2-61 to 16A1P2 backshell.

Is continuity present?

YES

Repair wire A1155A22 between 16A1P2-61 and 22A4P15-T to eleminate short.

Connect 16A1P2.

Then go to paragraph 3-2.

NO

Repair wire A1155A22 between 16A1P2-61 and 22A4P15-T.

Connect 16A1P2.

Then go to paragraph 3-2.

NO

Connect 16A1P2.

Replace interface control unit (IFCU) per TM 9-1090-206-20-1, Chapter 3, Section XVII.

Then go to paragraph 3-2.

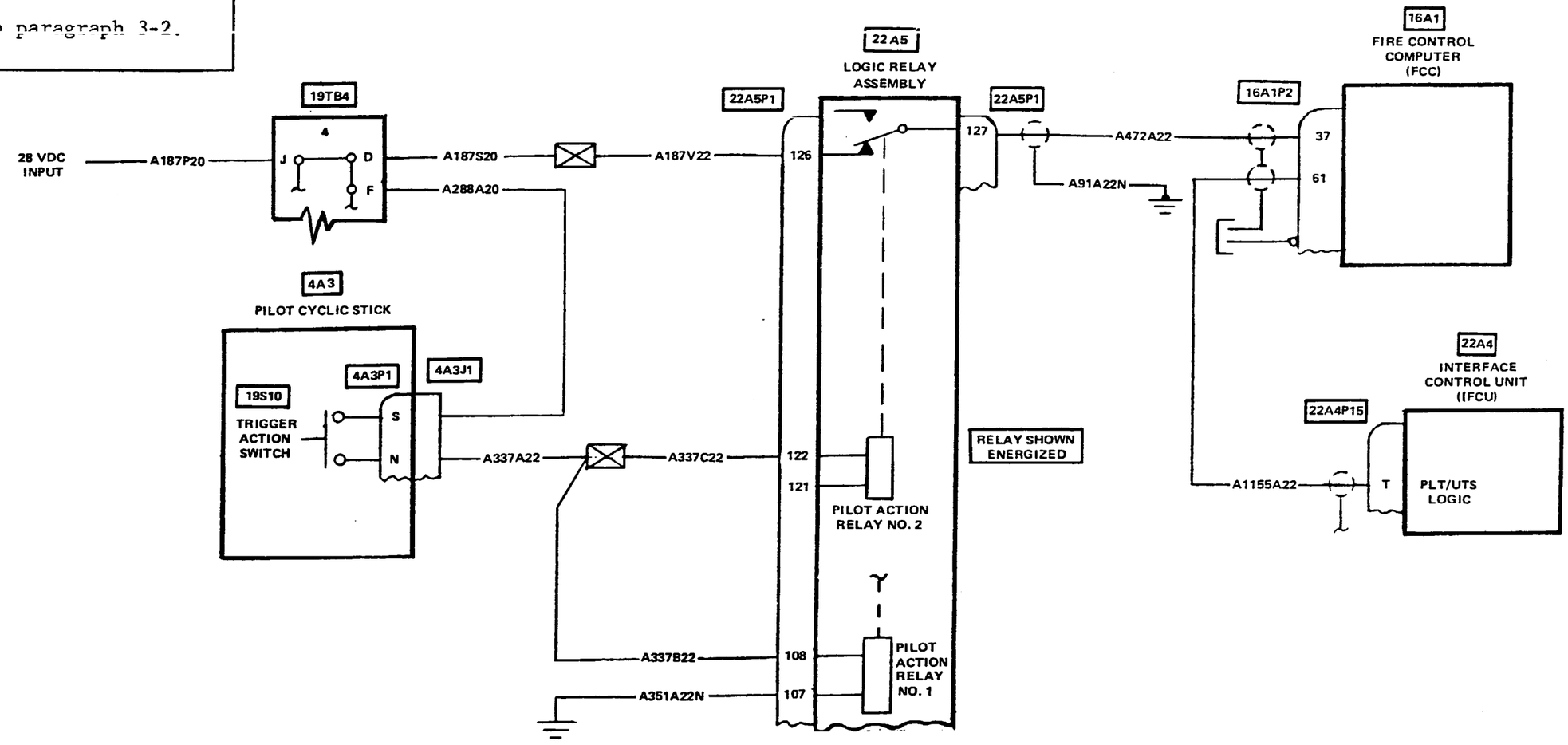
3-19. GUN DOES NOT MOVE WITH PHS-GUN SELECTED AND ENTER COMPUTE BUTTON PRESSED ON BORESIGHT CONTROLLER (CONTINUED).

YES

Replace logic relay assembly (LRA) per TM 9-1090-206-20-1, Chapter 3, Section XXIII.

Connect 16A1P2.

Then go to paragraph 3-2.



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3-20.	TSU DOES NOT MOVE WITH GHS-TSU SELECTED AND ENTER COMPUTE BUTTON PRESSED ON BORESIGHT CONTROLLER.

INITIAL SETUP

Applicable Configuration
All

Tools/Test and Support Equipment
Multimeter

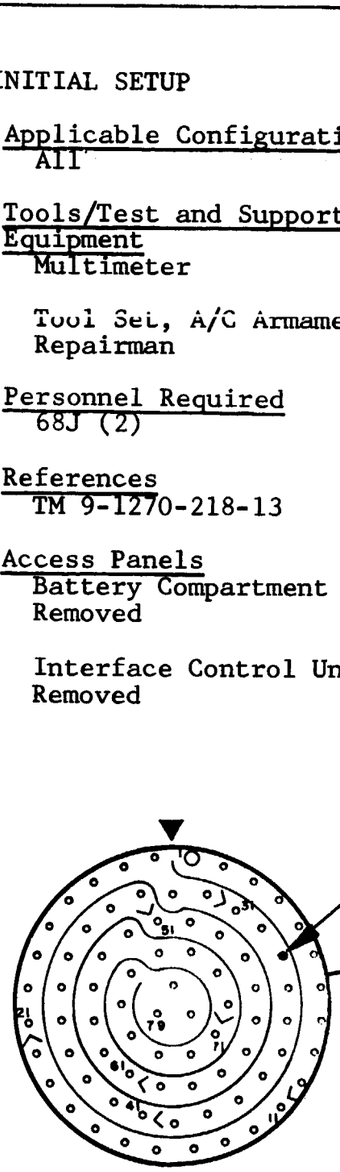
Tool Set, A/C Armament Repairman

Personnel Required
68J (2)

References
TM 9-1270-218-13

Access Panels
Battery Compartment - Removed

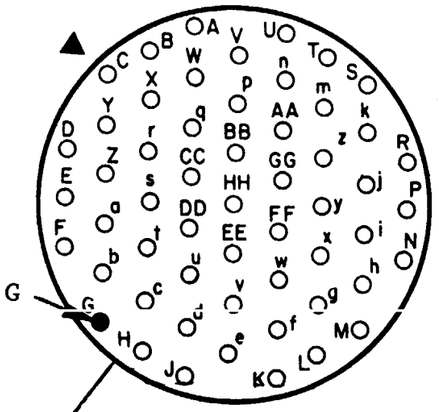
Interface Control Unit - Removed



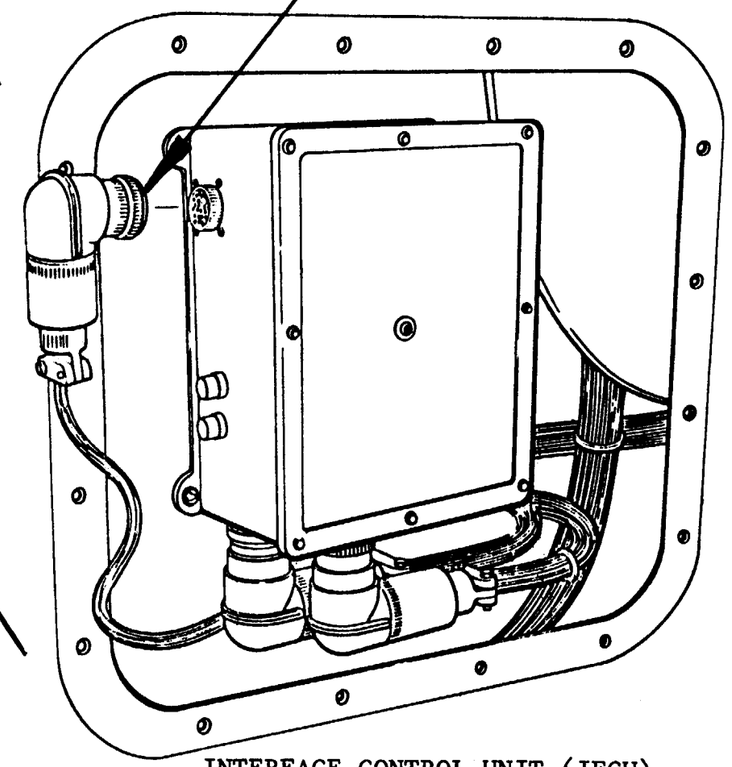
16A1P2



FIRE CONTROL COMPUTER (FCC)



22A4P15



INTERFACE CONTROL UNIT (IFCU)

3-20. TSU DOES NOT MOVE WITH GHS-TSU SELECTED AND ENTER COMPUTE BUTTON PRESSED ON BORESIGHT CONTROLLER (CONTINUED).

Turn off electrical power per paragraph 3-3.

Disconnect 16A1P2.

Turn on electrical power per paragraph 3-3.

Check for 28 V dc at 16A1P2-33.

Is 28 V dc present?

YES → Turn off electrical power per paragraph 3-3.

Replace fire control computer (FCC) per TM 9-1270-218-13, Chapter 4, Section IV.

Then go to paragraph 8-2.

NO → Turn off electrical power per paragraph 3-3.

Check for continuity from 16A1P2-33 to 22A4P15-G.

Is continuity present?

YES → Check for continuity from 16A1P2-33 to 16A1P2 backshell.

Is continuity present?

YES → Repair wire A1152A22 between 16A1P2-33 and 22A4P15-G to eliminate short.

Connect 16A1P2.

Then go to paragraph 3-2.

NO → Repair wire A1152A22 between 16A1P2-33 and 22A4P15-G.

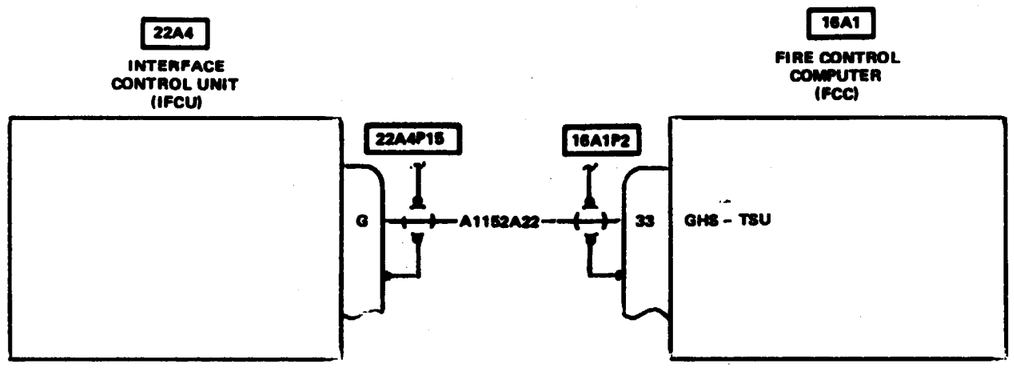
Connect 16A1P2.

Then go to paragraph 3-2.

NO → Connect 16A1P2.

Replace interface control unit (IFCU) per TM 9-1090-206-12, Chapter 3, Section XVII.

Then go to paragraph 3-2.



3-21.	TSU TARGET DOES NOT MOVE OUTSIDE THE TSU CIRCLE IN AZIMUTH WHEN POINTING AT A FORWARD TARGET WITH PHS-TSU SELECTED AND ENTER COMPUTE BUTTON PRESSED ON BORESIGHT CONTROLLER.

INITIAL SETUP

Applicable Configuration
All

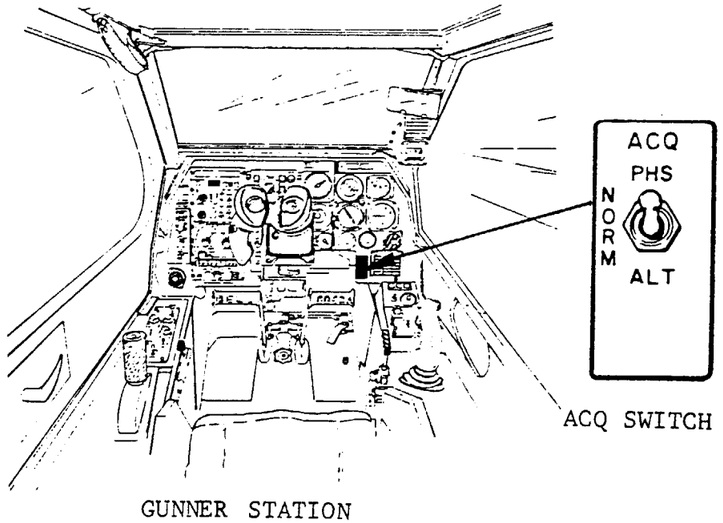
Tools/Test and Support Equipment
Multimeter
Tool Set, A/C Armament Repairman

Personnel Required
68J (2)

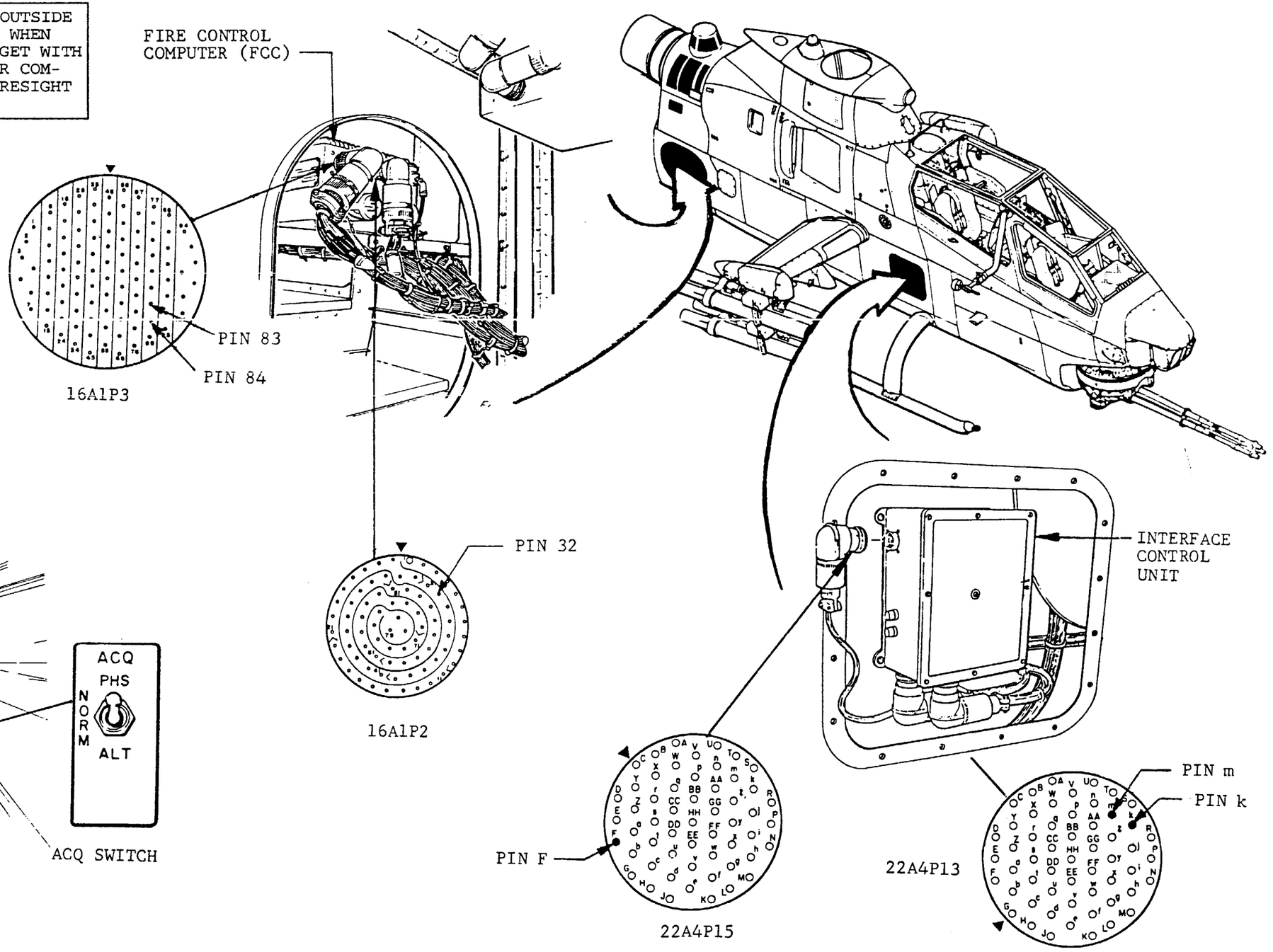
References
TM 9-1090-206-20-1
TM 9-1270-218-13

Access Panels
Battery Compartment - Removed

Interface Control Unit - Removed



GUNNER STATION



3-21. TSU TARGET DOES NOT MOVE OUTSIDE THE TSU CIRCLE IN AZIMUTH WHEN POINTING AT A FORWARD TARGET WITH PHS-TSU SELECTED AND ENTER COMPUTE BUTTON PRESSED ON BORESIGHT CONTROLLER (CONTINUED).

Turn off electrical power per paragraph 3-3.

Disconnect 16A1P2.

Turn on electrical power per paragraph 3-3.

On gunners instrument panel:

Press and hold ACQ switch in PHS.

Check for 28 V dc at 16A1P2-32.

Is 28 V dc present?

YES

Turn off electrical power per paragraph 3-3.

Connect 16A1P2.

Check for continuity from 16A1P3-83 to 22A4P13-k.

Is continuity present?

YES

Check for continuity from 16A1P3-84 to 16A1P3 backshell.

Is continuity present?

YES

NO

Check for continuity from 16A1P3-84 to 22A4P13-m.

Is continuity present?

YES

NO

Repair wire A1180A22 (BLU) between 16A1P3-84 and 22A4P13-m.

Then go to paragraph 3-2.

NO

Repair wire A1180A22 (WHT) between 16A1P3-83 and 22A4P13-k.

Then go to paragraph 3-2.

NO

Turn off electrical power per paragraph 3-3.

Check for continuity from 16A1P2-32 to 22A4P15-F.

Is continuity present?

YES

Connect 16A1P2.

Replace interface control unit (IFCU) per TM 9-1090-206-12, Chapter 3, Section XVII.

Then go to paragraph 3-2.

NO

Repair wire A1153A22 between 16A1P2-32 and 22A4P15-F.

Connect 16A1P2.

Then go to paragraph 3-2.

3-21. TSU TARGET DOES NOT MOVE OUTSIDE THE TSU CIRCLE IN AZIMUTH WHEN POINTING AT A FORWARD TARGET WITH PHS-TSU SELECTED AND ENTER COMPUTE BUTTON PRESSED ON BORESIGHT CONTROLLER (CONTINUED).

YES → Repair wire A1180A22 (BLU) between 16A1P3-84 and 22A4P13-m to eliminate short.

Then go to paragraph 3-2.

YES → Test interface control unit (IFCU) per TM 9-1090-206-20-1, Chapter 3, Section IV.

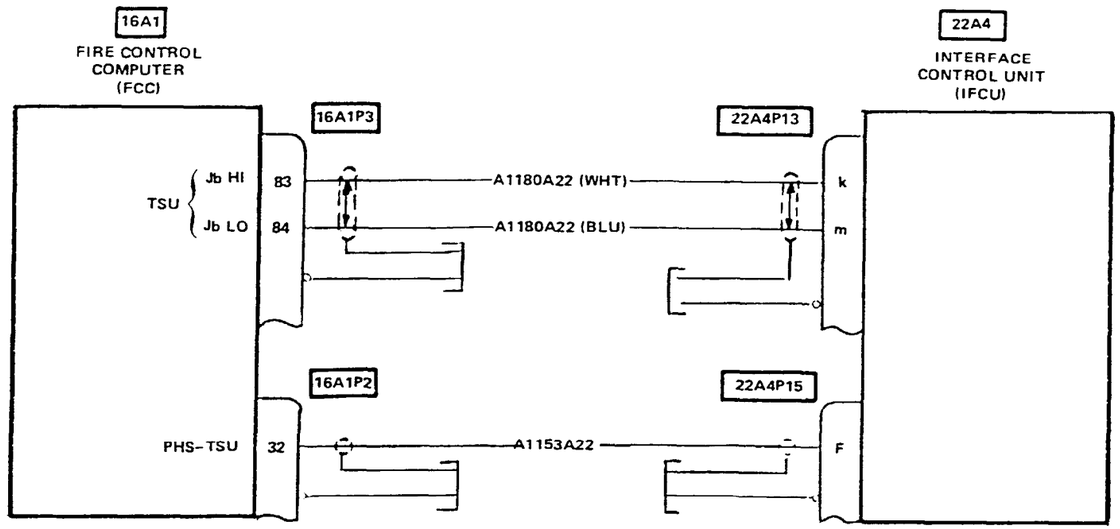
Does interface control unit (IFCU) pass test?

YES → Replace fire control computer (FCC) per TM 9-1270-218-13, Chapter 4, Section IV.

Then go to paragraph 3-2.

NO → Replace interface control unit (IFCU) per TM 9-1090-206-20-1, Chapter 3, Section XVII.

Then go to paragraph 3-2.



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3-22. TSU TARGET DOES NOT MOVE OUTSIDE THE TSU CIRCLE IN AZIMUTH WHEN POINTING AT A 90 DEGREE RIGHT TARGET WITH PHS-TSU SELECTED AND ENTER COMPUTE BUTTON PRESSED ON BORESIGHT CONTROLLER.

INITIAL SETUP

Applicable Configuration
All

Tools/Test and Support Equipment
Multimeter

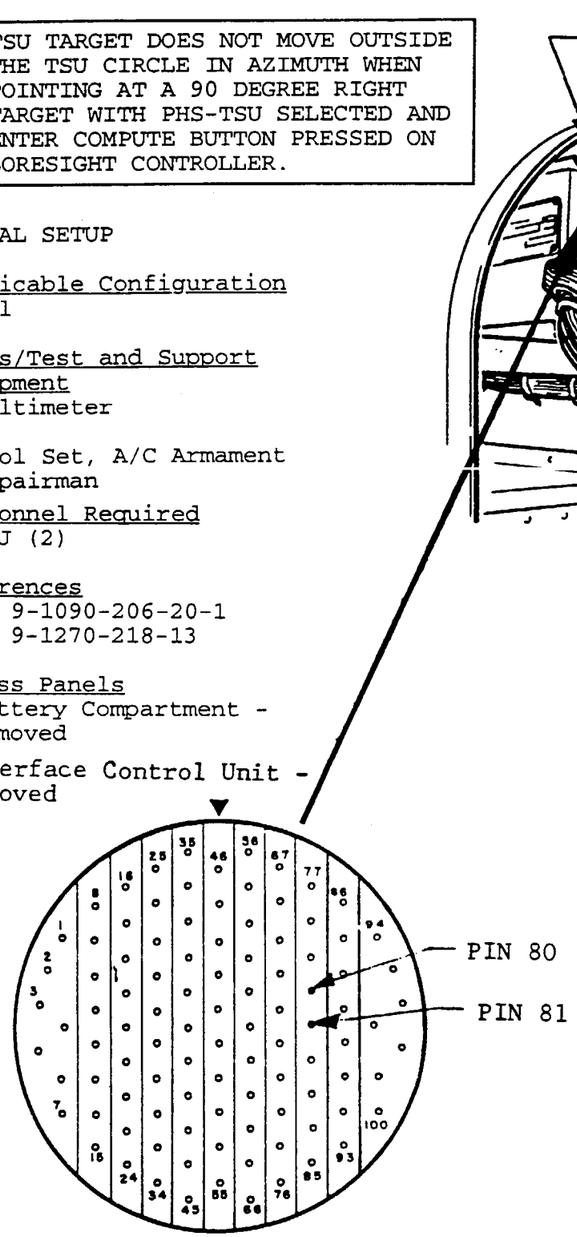
Tool Set, A/C Armament Repairman

Personnel Required
68J (2)

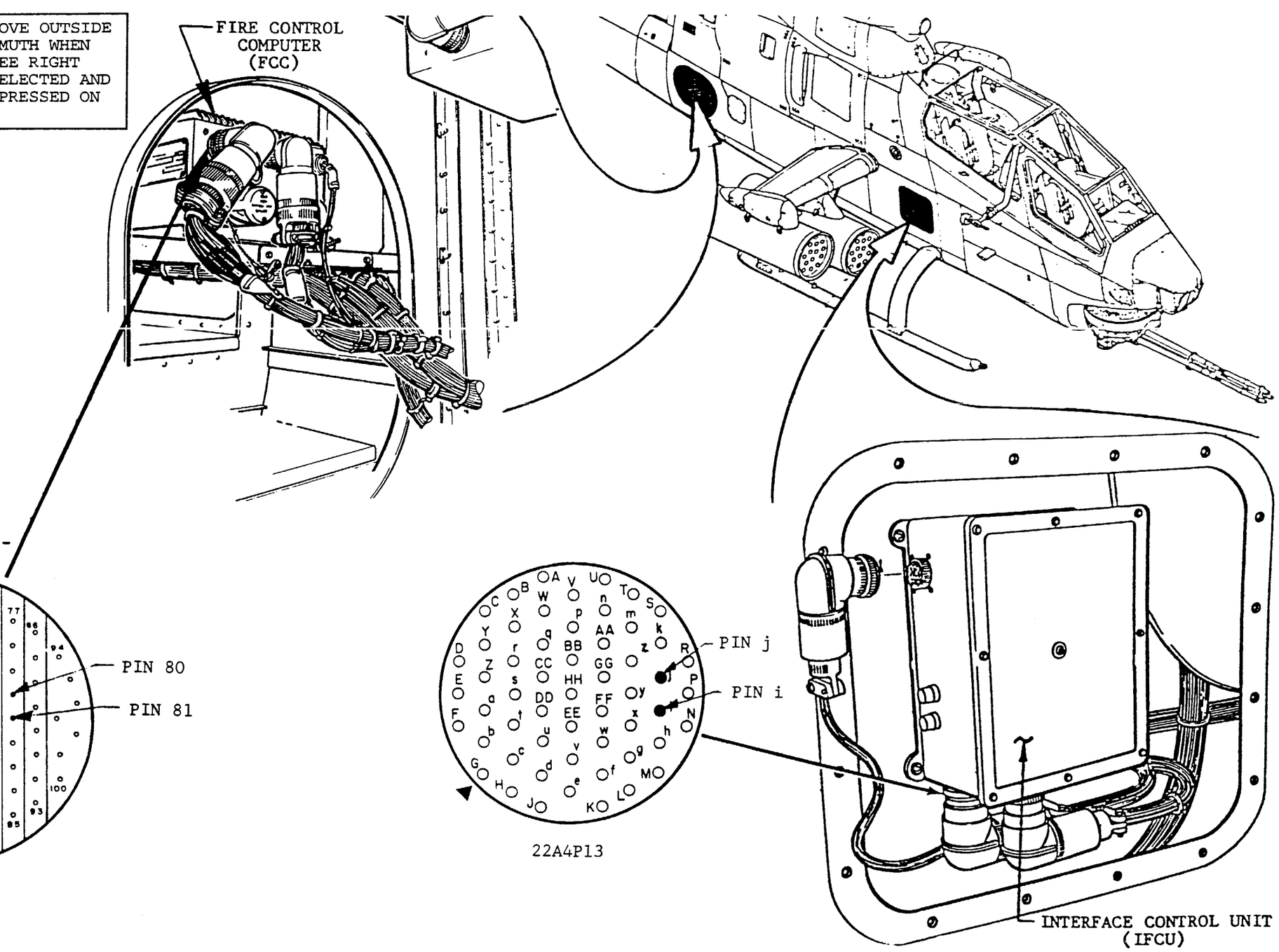
References
TM 9-1090-206-20-1
TM 9-1270-218-13

Access Panels
Battery Compartment - Removed

Interface Control Unit - Removed



16A1P3



22A4P13

3-22. TSU TARGET DOES NOT MOVE OUTSIDE THE TSU CIRCLE IN AZIMUTH WHEN POINTING AT A 90 DEGREE RIGHT TARGET WITH PHS-TSU SELECTED AND ENTER COMPUTE BUTTON PRESSED ON BORESIGHT CONTROLLER (CONTINUED).

Turn off electrical power per paragraph 3-3.

Check for continuity from 16A1P3-80 to 22A4P13-j.

Is continuity present?

YES → Check for continuity from 16A1P3-81 to 16A1P3 backshell.

Is continuity present?

YES → Repair wire A1179A22 (BLU) between 16A1P3-81 and 22A4P13-i to eliminate short.

Then go to paragraph 3-2.

NO → Check for continuity from 16A1P3-81 to 22A4P13-i.

Is continuity present?

YES → Test interface control unit (IFCU) per TM 9-1090-206-12, Chapter 3, Section IV.

Does interface control unit (IFCU) pass test?

YES → Replace fire control computer (FCC) per TM 9-1270-218-13, Chapter 4, Section IV.

Then go to paragraph 3-2.

NO → Replace interface control unit (IFCU) per TM 9-1090-206-20-1, Chapter 3, Section XVII.

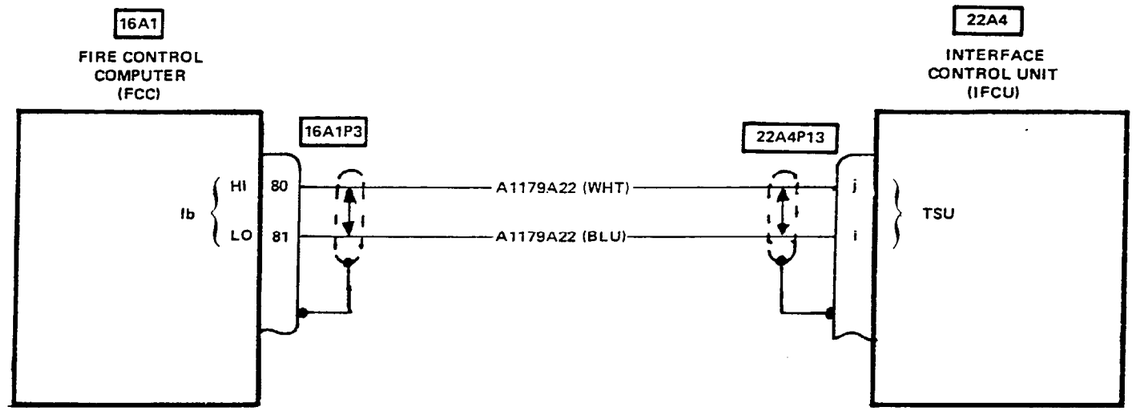
Then go to paragraph 3-2.

NO → Repair wire A1179A22 (BLU) between 16A1P3-81 and 22A4P13-i.

Then go to paragraph 3-2.

NO → Repair wire A1179A22 (WHT) between 16A1P3-80 and 22A4P13-j.

Then go to paragraph 3-2.



3-23.	TSU TARGET DOES NOT MOVE OUTSIDE THE TSU CIRCLE IN ELEVATION WHEN POINTING AT A FORWARD TARGET WITH PHS-TSU SELECTED AND ENTER COMPUTE BUTTON PRESSED ON BORESIGHT CONTROLLER.

INITIAL SETUP

Applicable Configuration
All

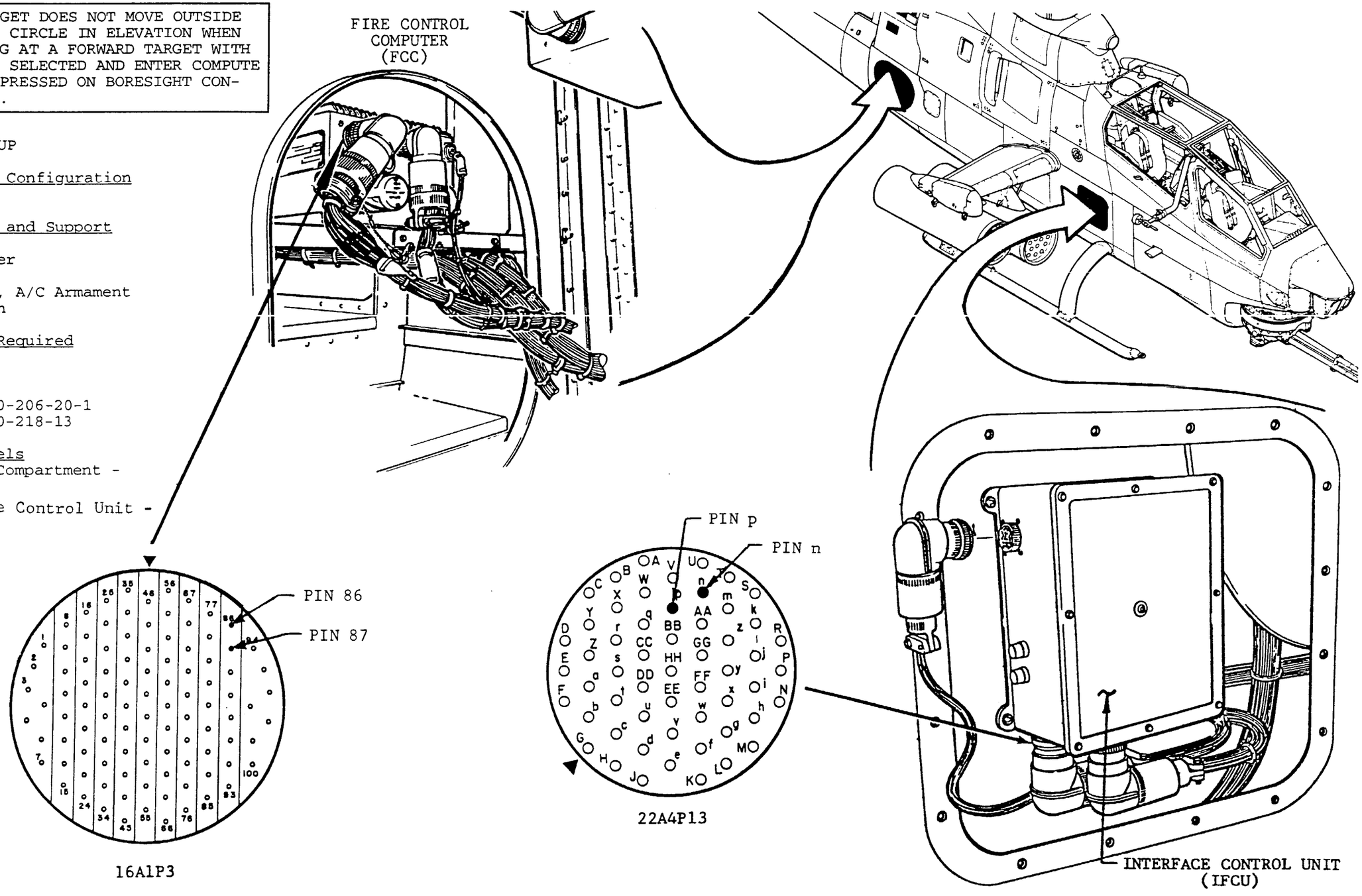
Tools/Test and Support Equipment
Multimeter

Tool Set, A/C Armament Repairman

Personnel Required
68J (1)

References
TM 9-1090-206-20-1
TM 9-1270-218-13

Access Panels
Battery Compartment - Removed
Interface Control Unit - Removed



3-23. TSU TARGET DOES NOT MOVE OUTSIDE THE TSU CIRCLE IN ELEVATION WHEN POINTING AT FORWARD TARGET WITH PHS-TSU SELECTED AND ENTER COMPUTE BUTTON PRESSED ON BORESIGHT CONTROLLER (CONTINUED).

Turn off electrical power per paragraph 3-3.

Check for continuity from 16A1P3-86 to 22A4P13-n.

Is continuity present?

YES → Check for continuity from 16A1P3-87 to 16A1P3 backshell.

Is continuity present?

YES → Repair wire A1181A22 (BLU) between 16A1P3-87 and 22A4P13-p to eliminate short.

Then go to paragraph 3-2.

NO → Repair wire A1181A22 (WHT) between 16A1P3-86 and 22A4P13-n.

Then go to paragraph 3-2.

NO → Check for continuity from 16A1P3-87 to 22A4P13-p.

Is continuity present?

YES → Test interface control unit (IFCU) per TM 9-1090-206-20-1, Chapter 3, Section IV.

Does interface control unit (IFCU) pass test?

YES → Replace fire control computer (FCC) per TM 9-1270-218-13, Chapter 4, Section IV.

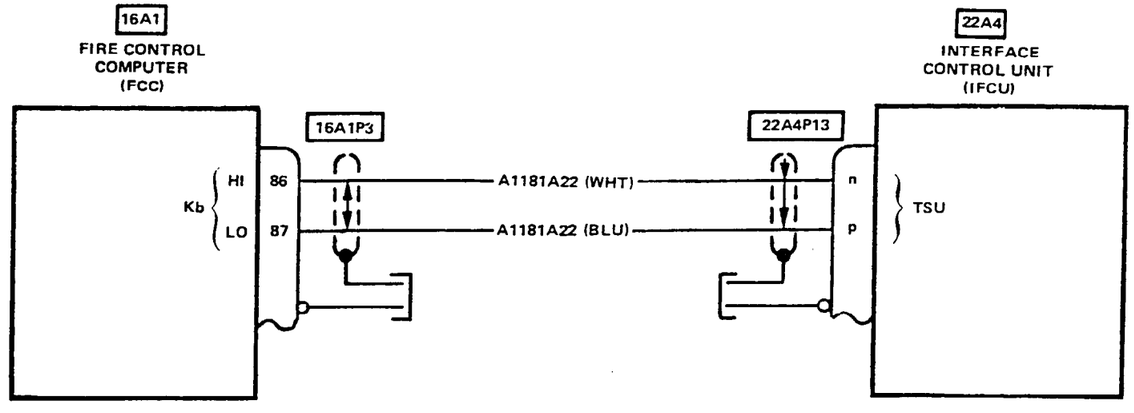
Then go to paragraph 3-2.

NO → Repair wire A1181A22 (BLU) between 16A1P3-87 and 22A4P13-p.

Then go to paragraph 3-2.

NO → Replace interface control unit (IFCU) per TM 9-1090-206-20-1, Chapter 3, Section XVII.

Then go to paragraph 3-2.



3-24. COARSE AZIMUTH POINTER ON HUD STAYS AT 0 DEGREES WHEN MOVING TSU IN AZIMUTH WITH PHS.

INITIAL SETUP

Applicable Configuration
All

Tools/Test and Support Equipment
Multimeter

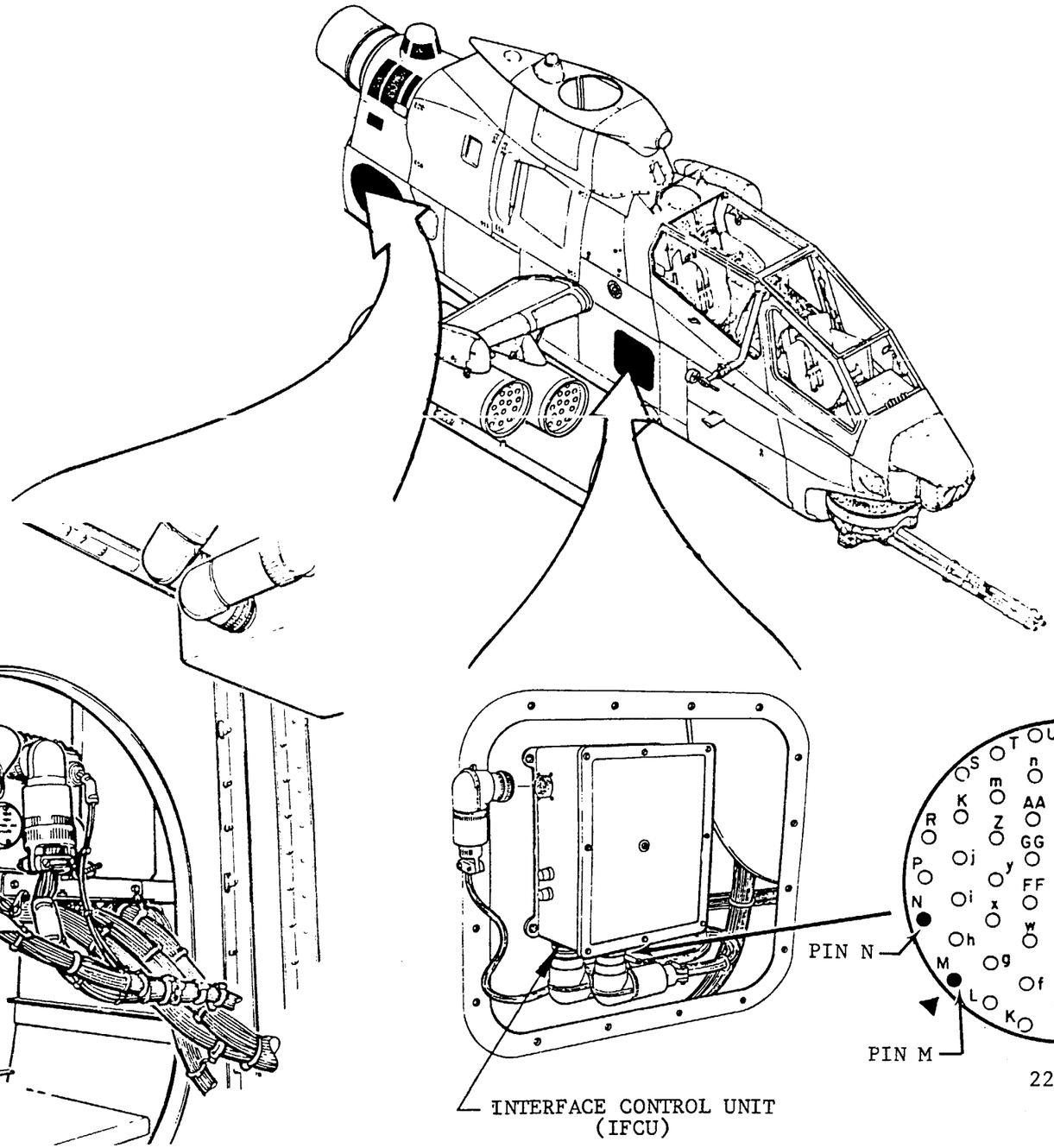
Tool Set, A/C Armament Repairman

Personnel Required
68J (1)

References
TM 9-1090-206-20-1
TM 9-1270-218-13

Access Panels
Battery Compartment - Removed

Interface Control Unit - Removed



3-24. COARSE AZIMUTH POINTER ON HUD STAYS AT O DEGREES WHEN MOVING TSU IN AZIMUTH WITH PHS (CONTINUED).

Turn off electrical power per paragraph 3-3.

Check for continuity from 16A1P3-3 to 22A4P14-M.

Is continuity present

NO

Repair wire A1165A22 (WHT) between 16AIP3-3 and 22A4P14-M.

Then continue trouble-shooting.

YES

Check for continuity from 16A1P3-4 to 22A4P14-N.

Is continuity present?

NO

Repair wire A1165A22 (BLU) between 16AIP3-4 and 22A4P14-N.

Then go to paragraph 3-2.

YES

Test interface control unit (IFCU) per TM 9-1090-206-20-1, Chapter 3, Section IV.

Does interface control unit (IFCU) pass test?

NO

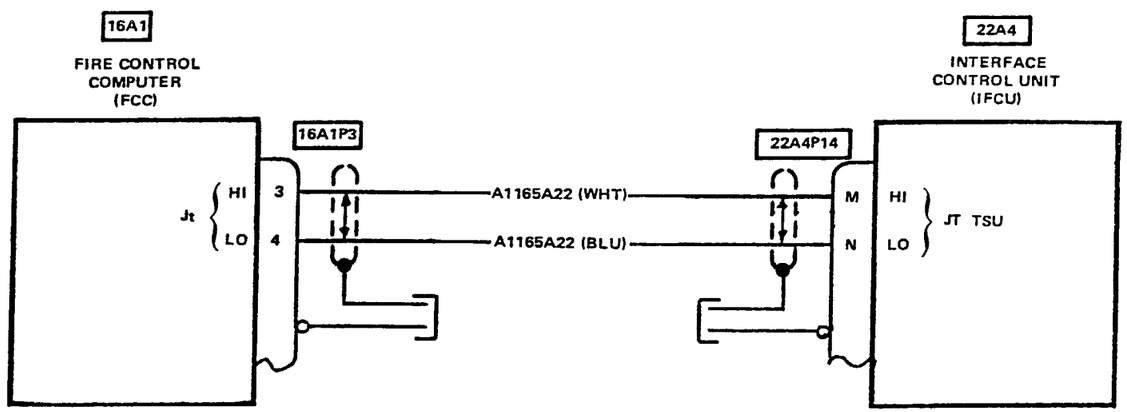
Replace interface control unit (IFCU) per TM 9-1090-206-20-1,Chapter 3, Section XVII.

Then go to paragraph 3-2.

YES

Replace fire control computer (FCC) per TM 9-1270-218-13, Chapter 4, Section IV.

Then go to paragraph 3-2.



3-25. COARSE AZIMUTH POINTER ON HUD STAYS AT ± 90 DEGREES WHEN MOVING TSU IN AZIMUTH WITH PHS.

INITIAL SETUP

Applicable Configuration
All

Tools/Test and Support Equipment
Multimeter

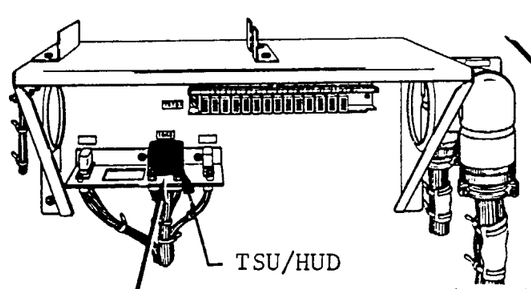
Tool Set, A/C Armament Repairman

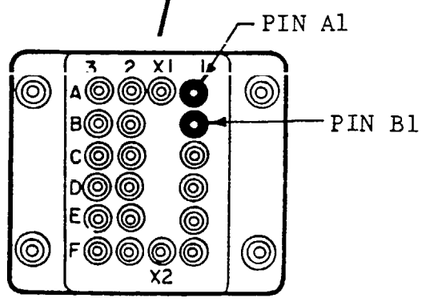
Personnel Required
68J (1)

Preferences
TM 9-1090-206-20-1
TM 9-1270-218-13
TM 55-1520-236-23

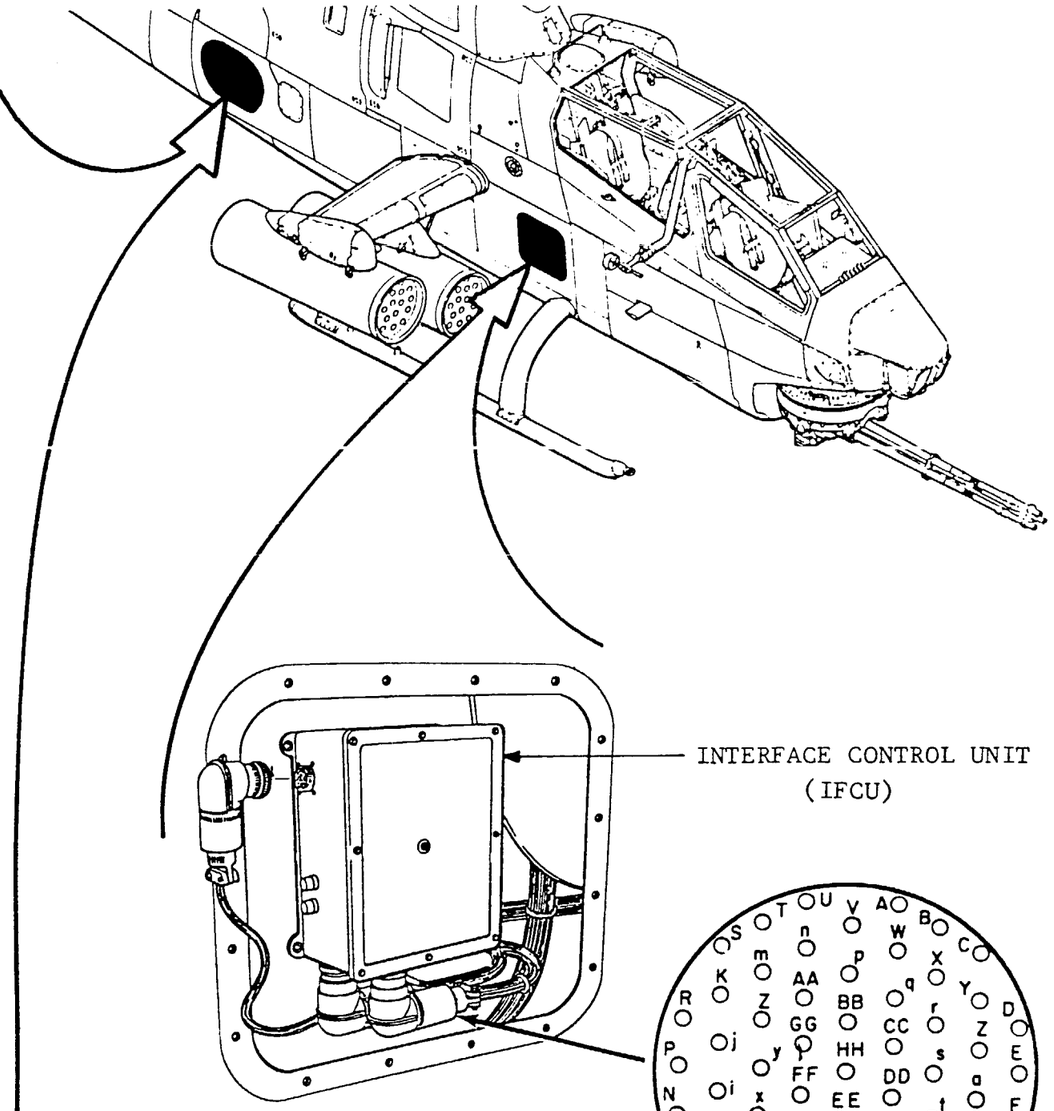
Access Panels
Battery Compartment-Removed

Interface Control Unit-Removed

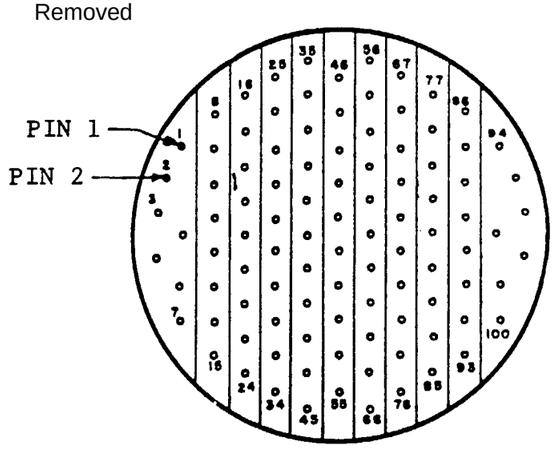




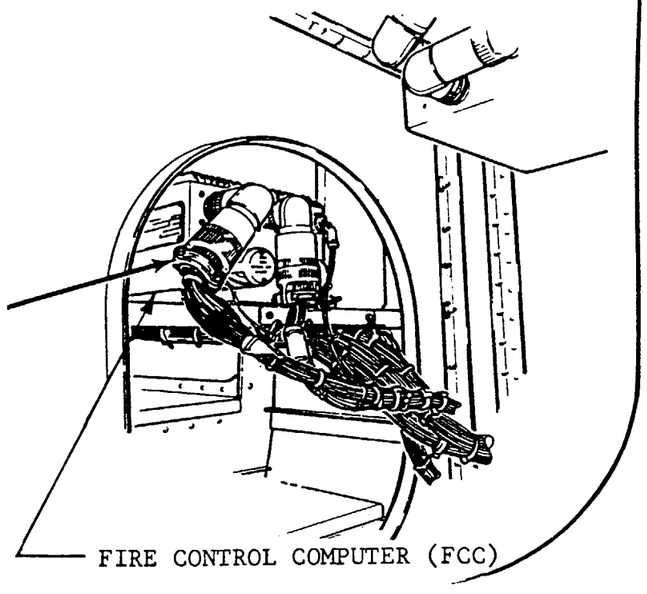
16XK8



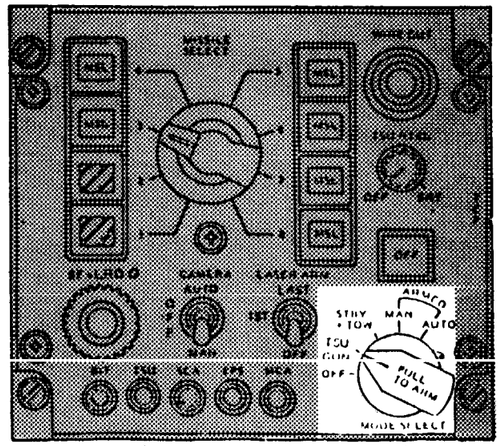
22A4P14



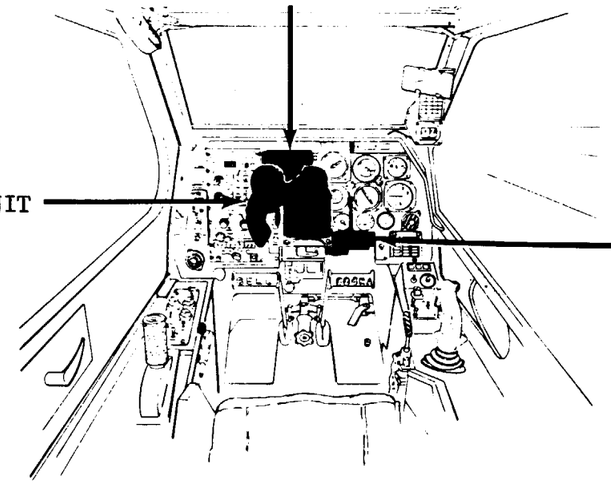
16A1P3



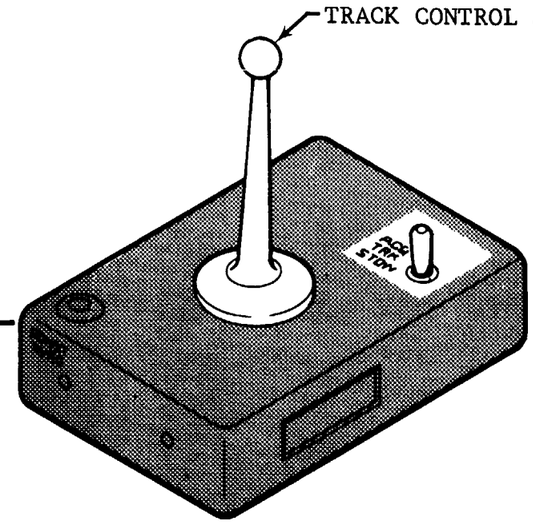
3-25. COARSE AZIMUTH POINTER ON HUD STAYS AT + 90 DEGREES WHEN MOVING TSU IN AZIMUTH WITH PHS (CONTINUED).



TCP (TOW CONTROL PANEL)



GUNNER STATION



SIGHT HAND CONTROL

3-25. COARSE AZIMUTH POINTER ON HUD STAYS AT ± 90 DEGREES WHEN MOVING TSU IN AZIMUTH WITH PHS (CONTINUED).

Turn off electrical power per paragraph 3-3.

Disconnect 16A1P3.

Set multimeter to read ac voltage and connect between 16A1P3-1 and 16A1P3-2.

Turn on electrical power per paragraph 3-3.

On sight hand control:

Set ACQ/TRK/STOW switch to TRK.

Slew TSU in azimuth with track control stick while observing multimeter.

Does ac voltage vary as TSU is slewed?

YES → Replace fire control computer (FCC) per TM 9-1270-218-13, Chapter 4, Section IV.

Then go to paragraph 3-2.

NO → Turn off electrical power per paragraph 3-3.

Check for continuity from 22A4P14-L to 16XK8-B1.

Is continuity present?

YES → Check for continuity from 22A4P14-K to 22A4P14 backshell.

Is continuity present?

YES → Repair wire A1164A22 (BLU) between 22A4P14-K and 16XK8-A1 to eliminate short.

Then continue troubleshooting.

NO → Repair wire A1164A22 (WHT) between 22A4P14-L and 16XK8-B1.

Connect 16A1P3.

Then go to paragraph 3-2.

NO → Check for continuity from 22A4P14-K to 16XK8-A1.

Is continuity present?

YES → Connect 16A1P3.

Test interface control unit (IFCU) per TM 9-1090-206-20-1, Chapter 3, Section IV.

Does interface control unit (IFCU) pass test?

YES → Replace TSU/HUD reticle relay (16K8) per TM 55-1520-236-23, Chapter 9, Section I.

Then go to paragraph 3-2.

NO → Replace interface control unit (IFCU) per TM 9-1090-206-20-1, Chapter 3, Section XVIII.

Then go to paragraph 3-2.

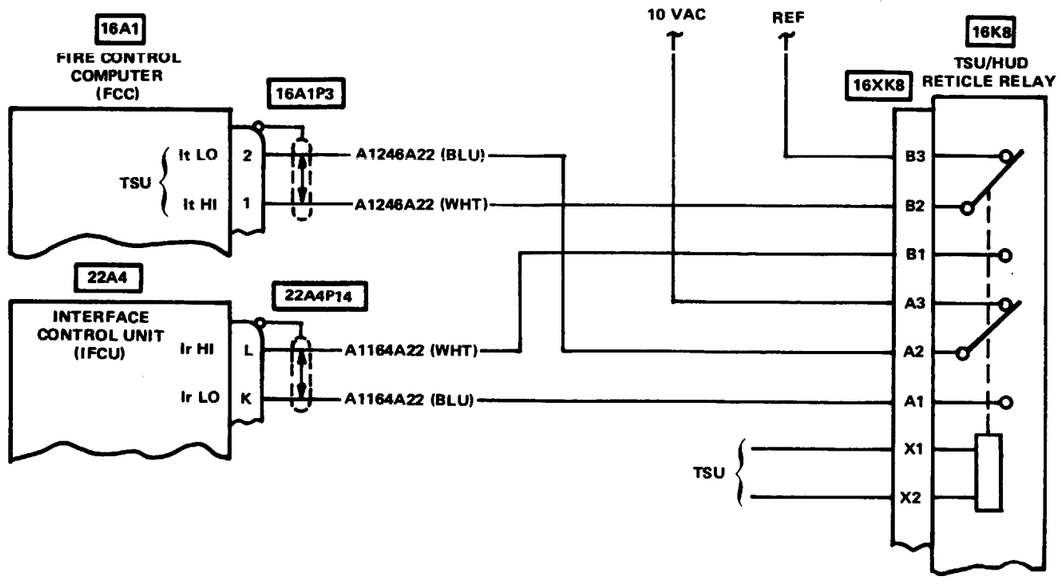
NO → Repair wire A1164A22 (BLU) between 22A4P14-K and 16XK8-A1.

Replace TSU/HUD reticle relay (16K8) per TM 55-1520-236-23, Chapter 9, Section I.

Connect 16A1P3.

Then go to paragraph 3-2.

3-25. COARSE AZIMUTH POINTER ON HUD STAYS AT ± 90 DEGREES WHEN MOVING TSU IN AZIMUTH WITH PHS (CONTINUED).



3-26. LOS RETICLE ON HUD STAYS AT 0 DEGREES ELEVATION WHEN MOVING TSU IN ELEVATION WITH PHS.

INITIAL SETUP

Applicable Configuration
All

Tools/Test and Support Equipment
Multimeter

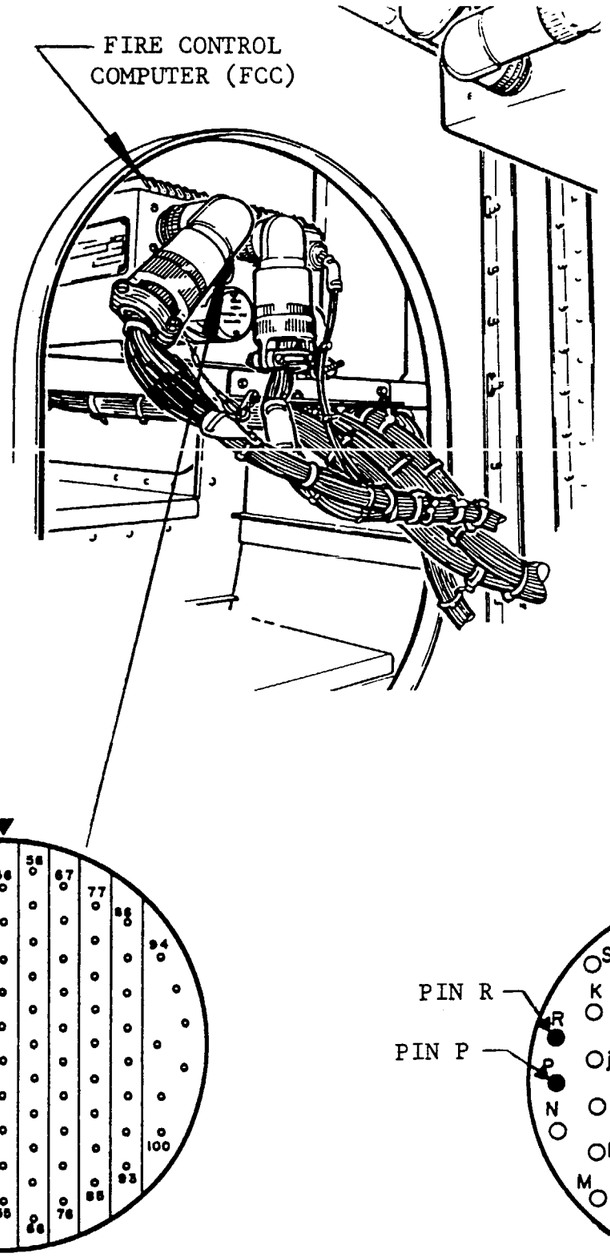
Tool Set, A/C Armament Repairman

Personnel Required
68J (2)

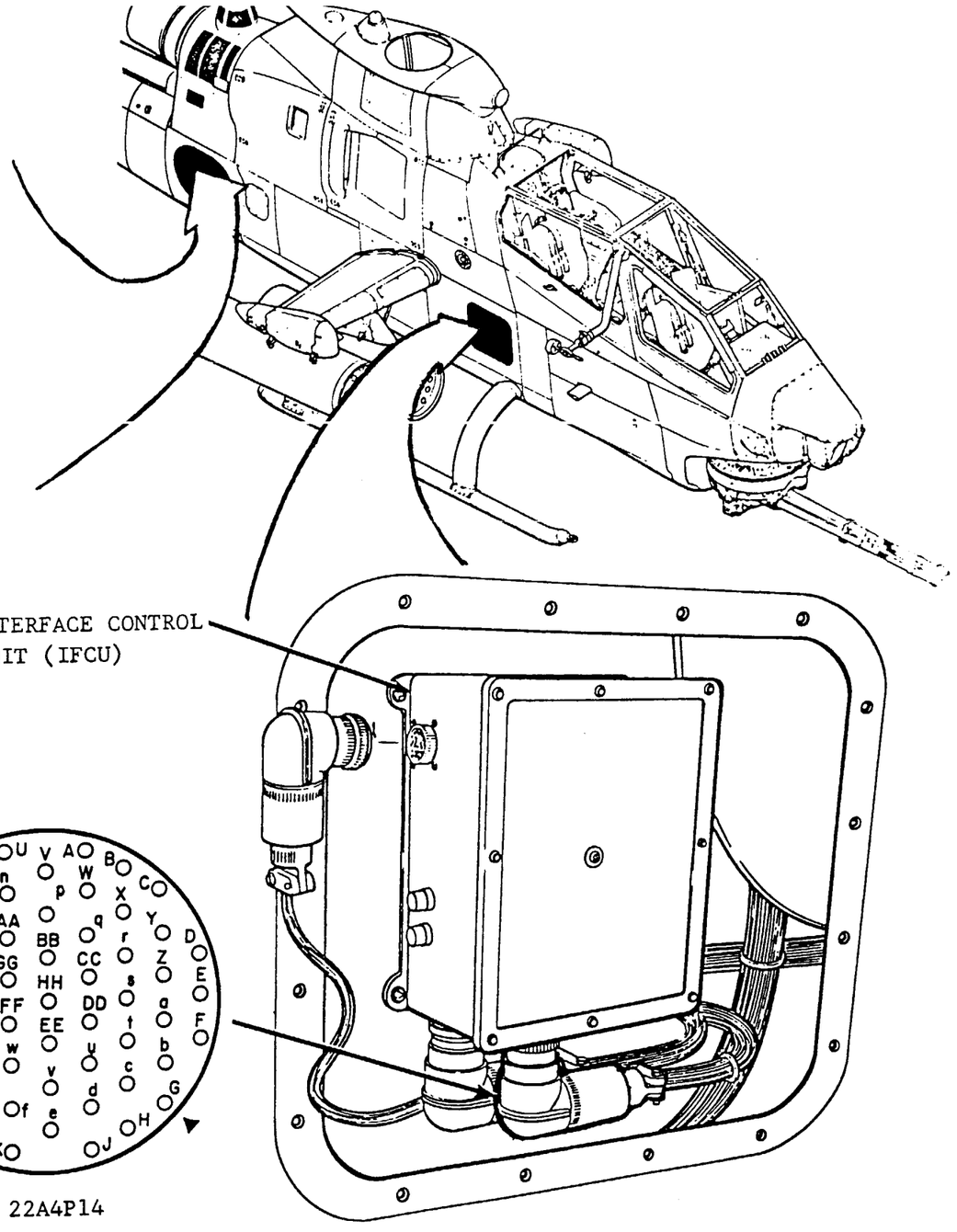
References
TM 9-1090-206-20-1
TM 9-1270-218-13

Access Panels
Battery Compartment - Removed

Interface Control Unit - Removed



16A1P3



22A4P14

3-26. LOS RETICLE ON HUD STAYS AT 0 DEGREES ELEVATION WHEN MOVING TSU IN ELEVATION WITH PHS (CONTINUED).

Turn off electrical power per paragraph 3-3.

Check for continuity from 16A1P3-5 to 22A4P14-P.

Is continuity present?

NO

Repair wire A1166A22 (WHT) between 16A1P3-5 and 22A4P14-P.
Then continue trouble-shooting.

YES

Check for continuity from 16A1P3-6 to 22A4P14-R.

Is continuity present?

NO

Repair wire A1166A22 (BLU) between 16A1P3-6 and 22A4P14-R.

Then go to paragraph 3-2.

YES

Test interface control unit (IFCU) per TM 9-1090-206-20-1, Chapter 3, Section IV.

Does interface control unit (IFCU) pass test?

NO

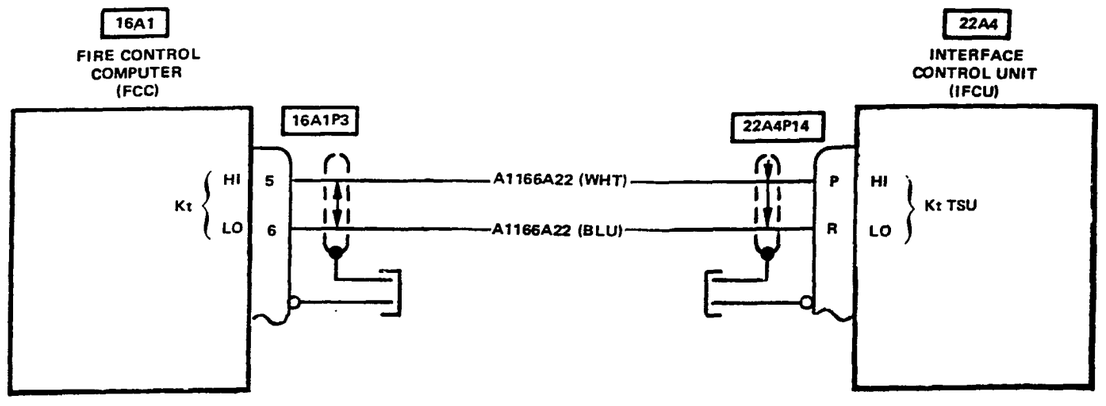
Replace interface control unit (IFCU) per TM 9-1090-206-20-1, Chapter 3, Section XVII.

Then go to paragraph 3-2.

YES

Replace fire control computer (FCC) per TM 9-1270-218-13, Chapter 4, Section IV.

Then go to paragraph 3-2.



3-27. GUN DOES NOT RESPOND TO MANUAL RANGE CHANGES FROM GUNNER.

INITIAL SETUP

Applicable Configuration
All

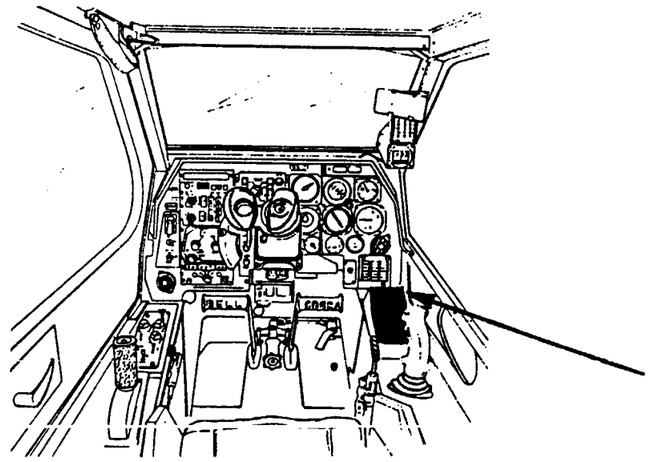
Tools/Test and Support Equipment
Multimeter

Tool Set, A/C Armament Repairman

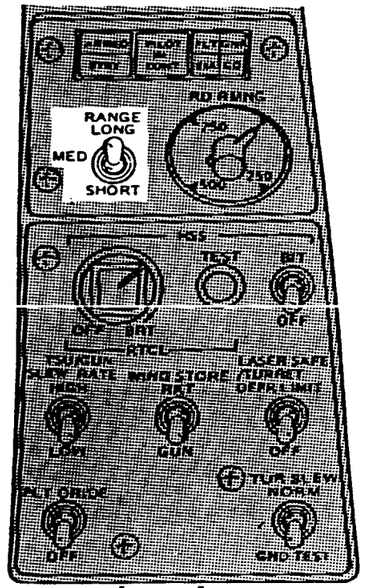
Personnel Required
68J (2)

References
TM 9-1090-206-20-1
TM 9-1270-218-13

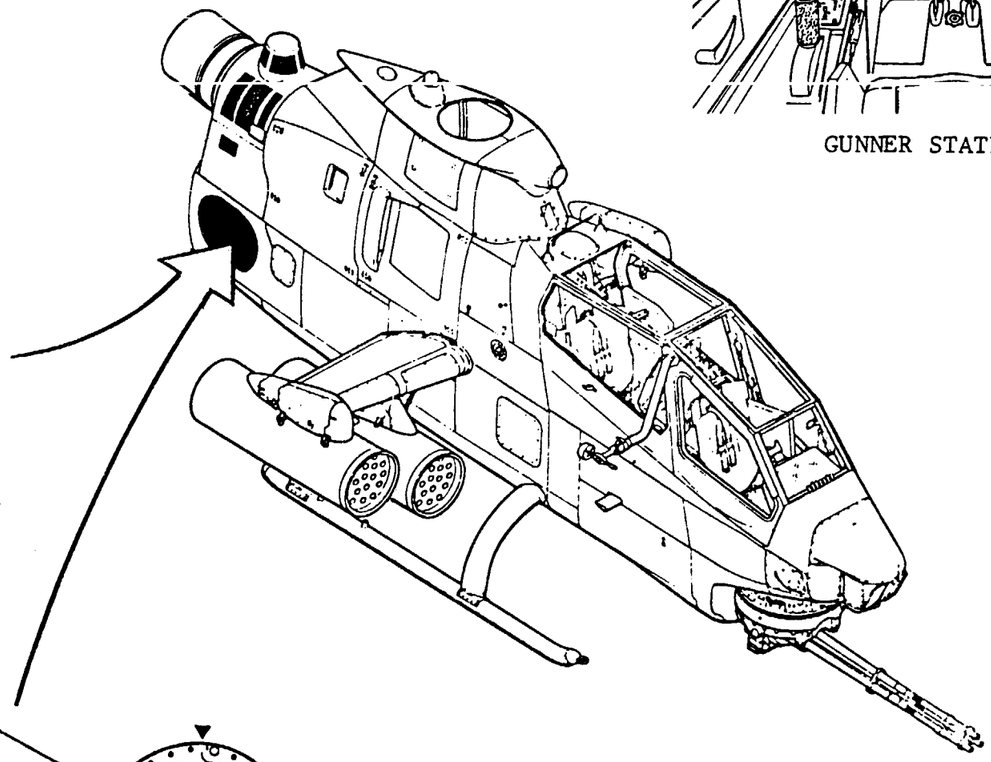
Access Panels
Battery Compartment - Removed

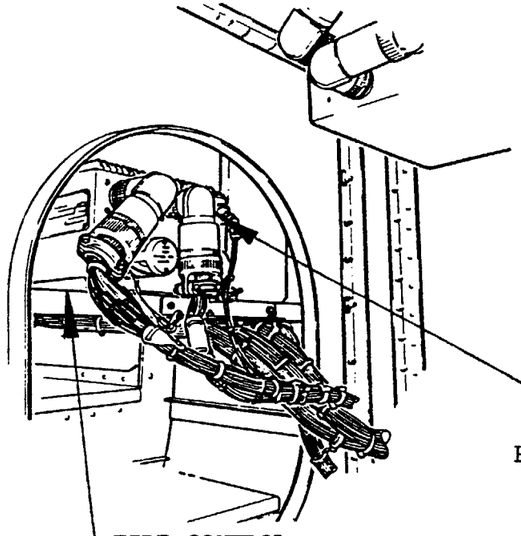


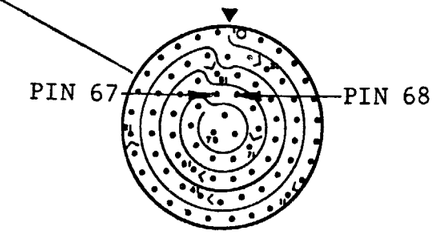
GUNNER STATION



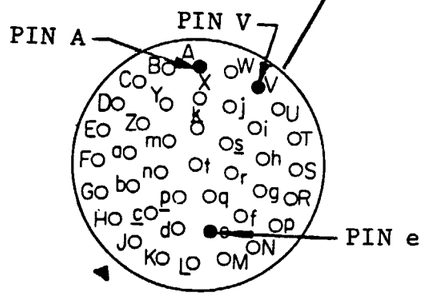
GUNNER ARMAMENT CONTROL PANEL







16A1P2



22A3P1

3-27. GUN DOES NOT RESPOND TO MANUAL RANGE CHANGES FROM GUNNER (CONTINUED).

Turn off electrical power per paragraph 3-3.

Disconnect 22A3P1.

Turn on electrical power per paragraph 3-3.

Check for 28 V dc at 22A3P1-V.

Is 28 V dc present?

YES

Turn off electrical power per paragraph 3-3.

Connect 22A3P1.

Disconnect 16A1P2.

On gunner armament control panel:

Set RANGE switch to SHORT.

Turn on electrical power per paragraph 3-3.

Check for 28 V dc at 16A1P2-68.

Is 28 V dc present?

YES

On gunner armament control panel:

Set RANGE switch to LONG.

Check for 28 V dc at 16A1P2-67.

Is 28 V dc present?

YES

Turn off electrical power per paragraph 3-3.

Replace fire control computer (FCC) per TM 9-1270-218-13, Chapter 4, Section IV.

Then go to paragraph 3-2.

NO

Turn off electrical power per paragraph 3-3.

Connect 22A3P1.

Accomplish paragraph 9-2.

Then go to paragraph 3-2.

NO

Turn off electrical power per paragraph 3-3.

Check for continuity from 22A3P1-A to 16A1P2-68.

Is continuity present?

YES

Replace gunner armament control panel per TM 9-1090-206-20-1, Chapter 3, Section XVIII.

Connect 16A1P2.

Then go to paragraph 3-2.

NO

Repair wire A1035A22 between 22A3P1-A and 16A1P2-68.

Connect 16A1P2.

Then go to paragraph 3-2.

NO

Turn off electrical power per paragraph 3-3.

Check for continuity from 22A3P1-e to 16A1P2-67.

Is continuity present?

YES

Replace gunner armament control panel per TM 9-1090-206-20-1, Chapter 3, Section XVIII.

Connect 16A1P2.

Then go to paragraph 3-2.

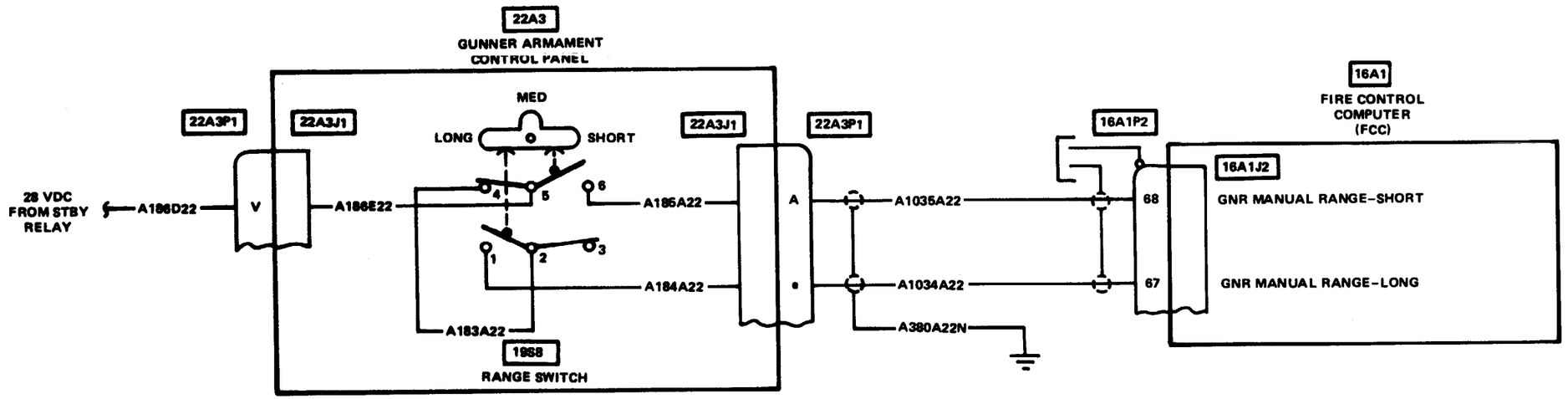
NO

Repair wire A1034A22 between 22A3P1-e and 16A1P2-67.

Connect 16A1P2.

Then go to paragraph 3-2.

3-27. GUN DOES NOT RESPOND TO MANUAL RANGE CHANGES FROM GUNNER (CONTINUED).



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3-28. GUN DOES NOT RESPOND TO MANUAL RANGE CHANGES FROM PILOT.

INITIAL SETUP

Applicable Configuration
All

Tools/Test and Support Equipment
Multimeter

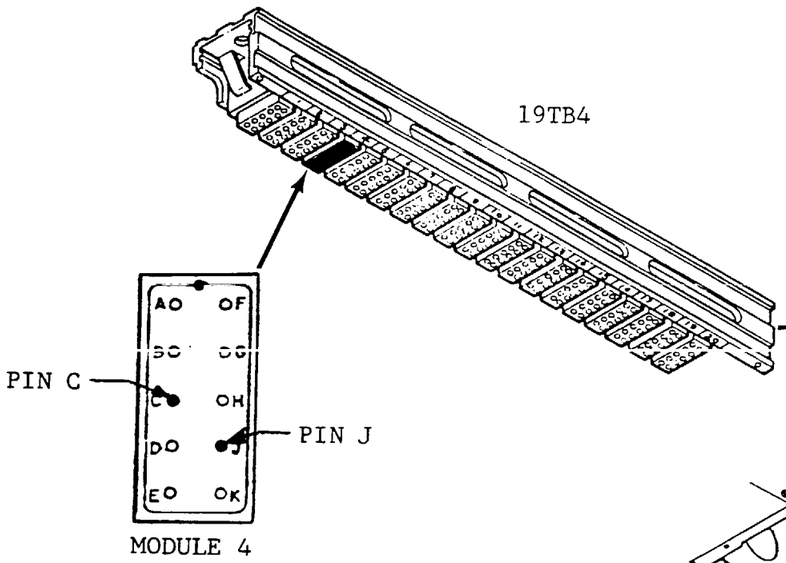
Tool Set, A/C Armament Repairman

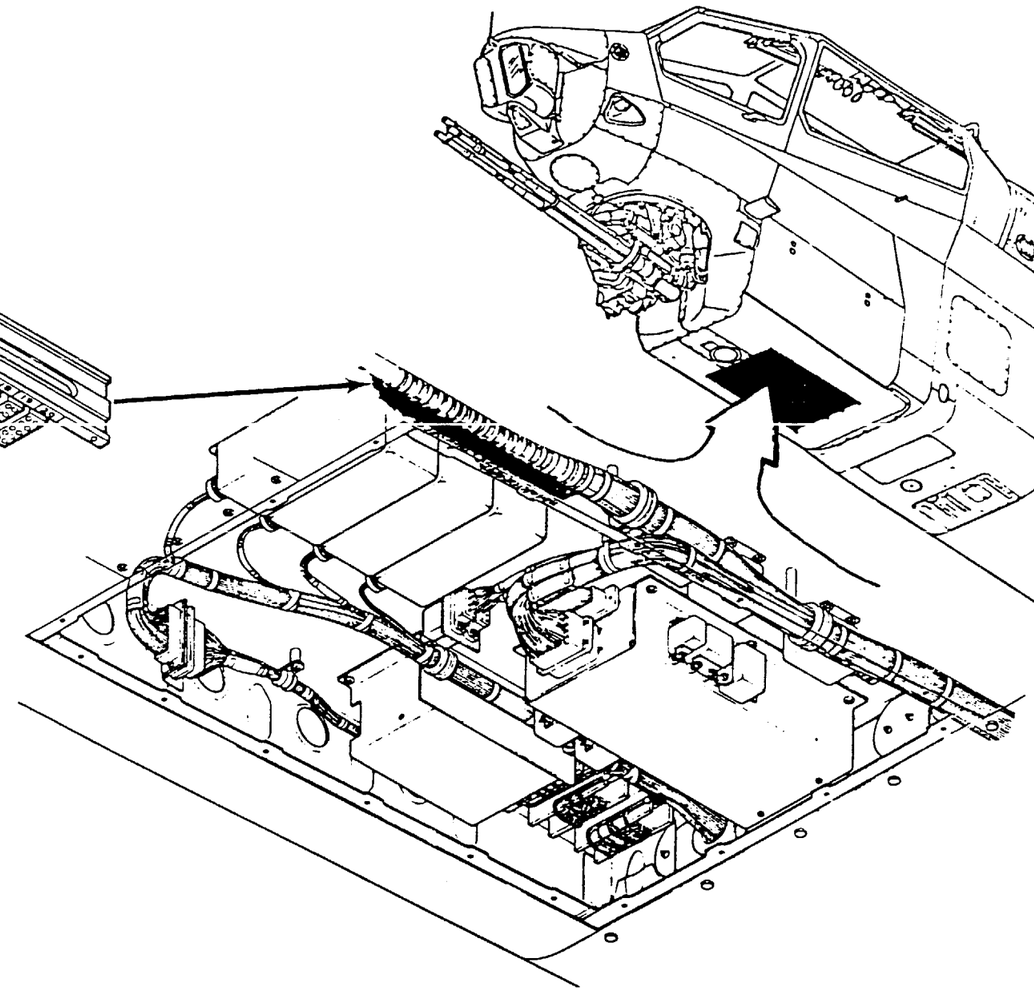
Personnel Required
68J (2)

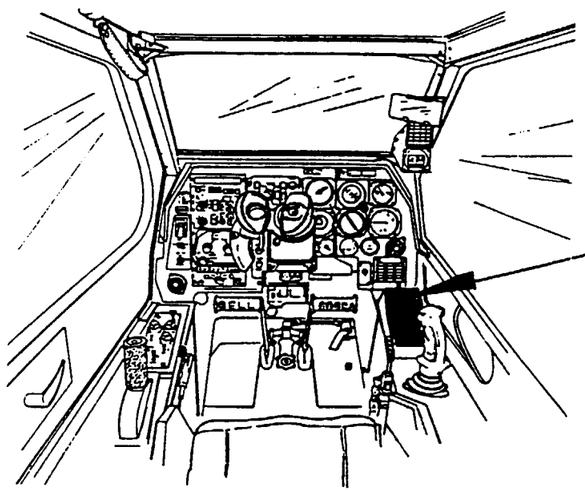
References
TM 9-1090-206-20-1
TM 9-1270-218-13
TM 55-1520-236-23

Access Panels
Battery Compartment - Removed

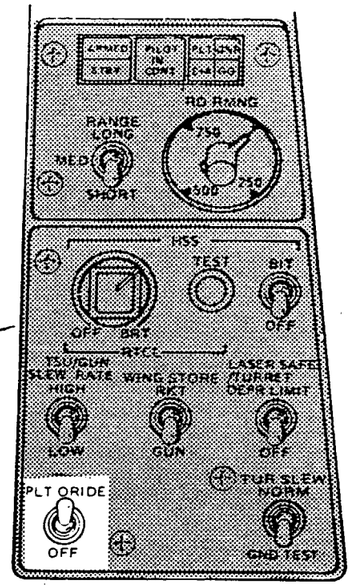
Forward Belly Armament and Lighting - Removed





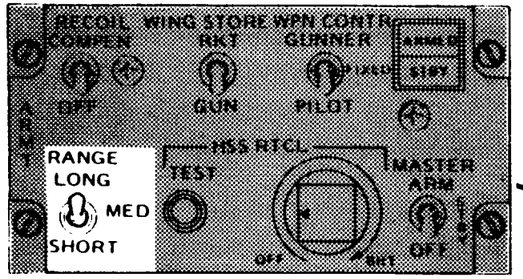


GUNNER STATION

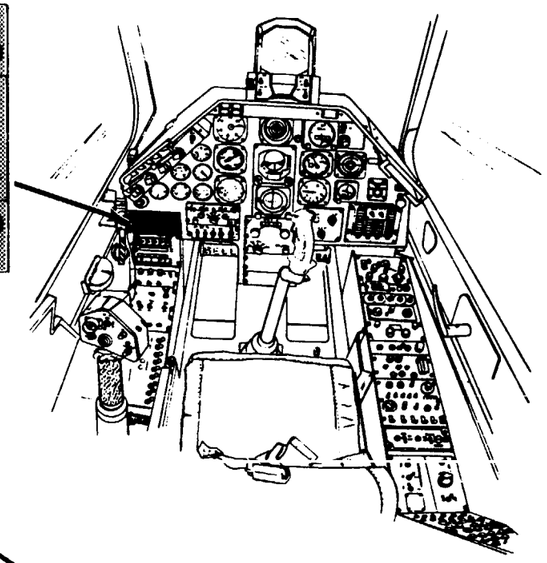


GUNNER ARMAMENT CONTROL PANEL

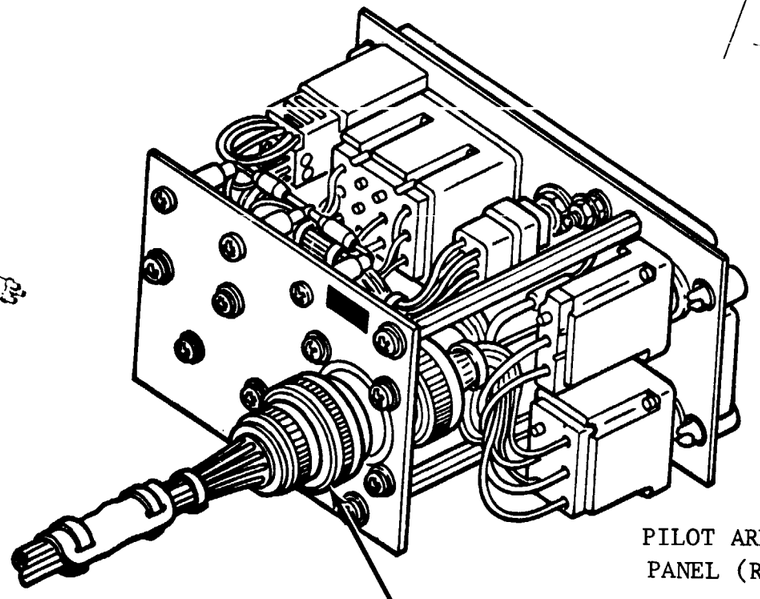
3-28. GUN DOES NOT RESPOND TO MANUAL RANGE CHANGES FROM PILOT (CONTINUED).



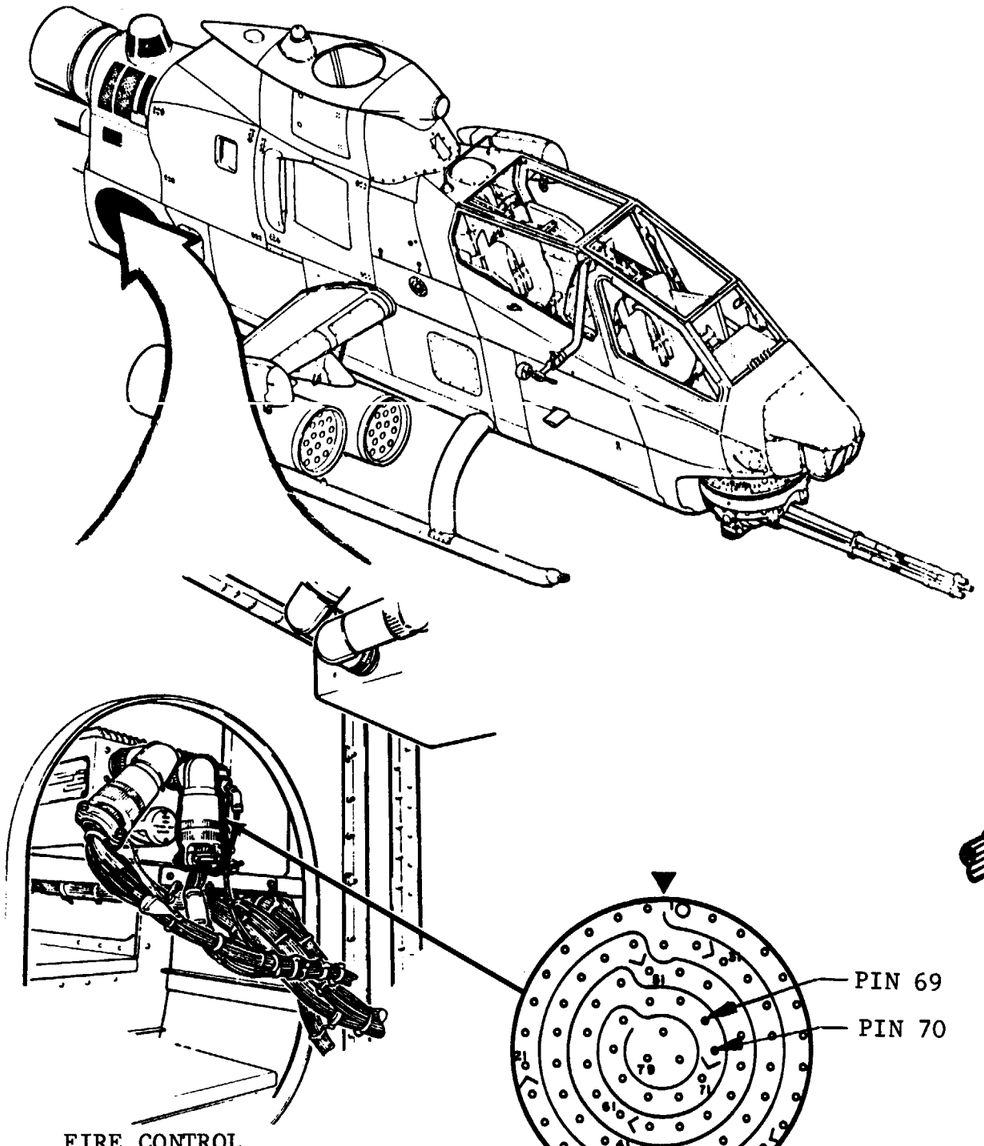
PILOT ARMT CONTROL PANEL



PILOT STATION

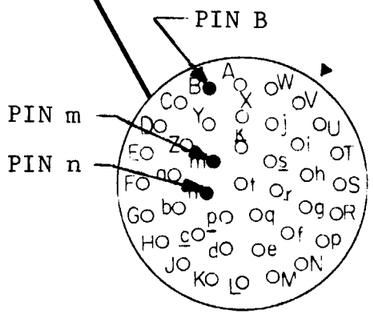


PILOT ARMT CONTROL PANEL (REAR VIEW)



FIRE CONTROL COMPUTER (FCC)

16A1P2



22A2P1

3-28. GUN DOES NOT RESPOND TO MANUAL RANGE CHANGES FROM PILOT (CONTINUED).

Turn off electrical power per paragraph 3-3.

Disconnect 22A2P1.

Turn on electrical power per paragraph 3-3.

On gunner armament control panel:

Set PLT ORIDE switch to PLT ORIDE.

Check for 28 V dc at 22A2P1-B.

Is 28 V dc present?

YES → Turn off electrical power per paragraph 3-3.

On gunner armament control panel:

Set PLT ORIDE switch to OFF.

On pilot ARMT control panel:

Set RANGE switch to LONG.

Connect 22A2P1.

Disconnect 16A1P2.

Turn on electrical power per paragraph 3-3.

Check for 28 V dc at 16A1P2-69.

Is 28 V dc present?

YES → Replace pilot ARMT control panel per TM 9-1090-206-20-1, Chapter 3, Section XIX.

Connect 16A1P2.

Then go to paragraph 3-2.

NO → Turn off electrical power per paragraph 3-3.

Check for continuity from 22A2P1-m to 16A1P2-69.

Is continuity present?

NO → Repair wire A1094A22 between 22A2P1-m and 16A1P2-69.

Connect 16A1P2.

Then go to paragraph 3-2.

NO → Check for 28 V dc at 19TB4-4C.

Is 28 V dc present?

YES → Turn off electrical power per paragraph 3-3.

Repair wire A187E20 between 19TB4-4C and 22A2P1-B.

Connect 22A2P1.

Then go to paragraph 3-2.

NO → Check for 28 V dc at 19TB4-4J.

Is 28 V dc present?

YES → Turn off electrical power per paragraph 3-3.

Replace module 4 of 19TB4 per TM 55-1520-236-23, Chapter 9, Section I.

Connect 22A2P1.

Then go to paragraph 3-2.

NO → Turn off electrical power per paragraph 3-3.

Connect 22A2P1.

Accomplish paragraph 9-33.

Then go to paragraph 3-2.

3-28. GUN DOES NOT RESPOND TO MANUAL RANGE CHANGES FROM PILOT (CONTINUED).

YES →

On pilot ARMT control panel:

Set RANGE switch to SHORT.

Check for 28 V dc at 16A1P2-70.

Is 28 V dc present?

YES →

Turn off electrical power per paragraph 3-3.

Replace fire control computer per TM 9-1270-218-13, Chapter 4, Section IV.

Then go to paragraph 3-2.

NO ↓

Turn off electrical power per paragraph 3-3.

Check for continuity from 22A2P1-n to 16A1P2-70.

Is continuity present?

YES →

Replace pilot ARMT control panel per TM 9-1090-206-20-1, Chapter 3, Section XIX.

Connect 16A1P2.

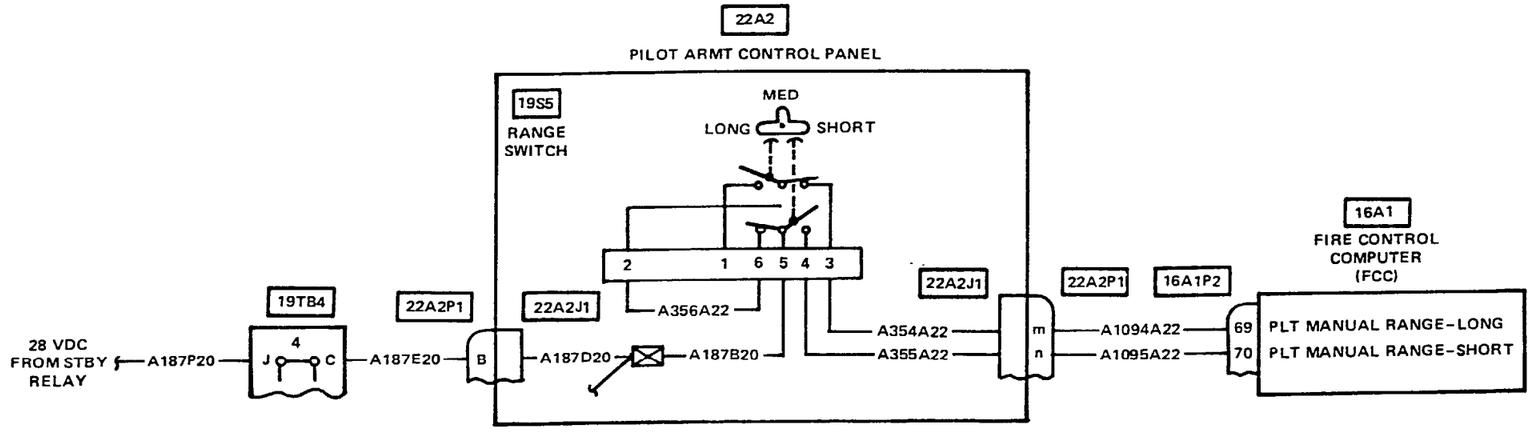
Then go to paragraph 3-2.

NO ↓

Repair wire A1095A22 between 22A2P1-n and 16A1P2-70.

Connect 16A1P2.

Then go to paragraph 3-2.



3-29.	MAL LAMP ON DPLR NAV CONTROL PANEL IS LIT WHEN DOPPLER IS TURNED ON.

INITIAL SETUP

Applicable Configuration
All

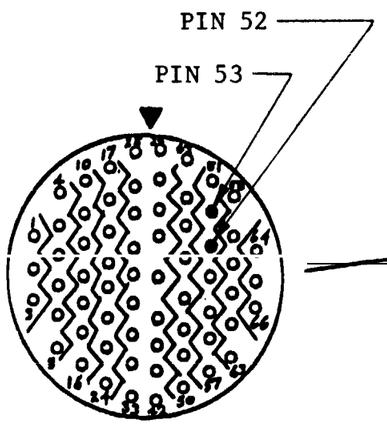
Tools/Test and Support Equipment
Multimeter

Tool Set, A/C Armament Repairman

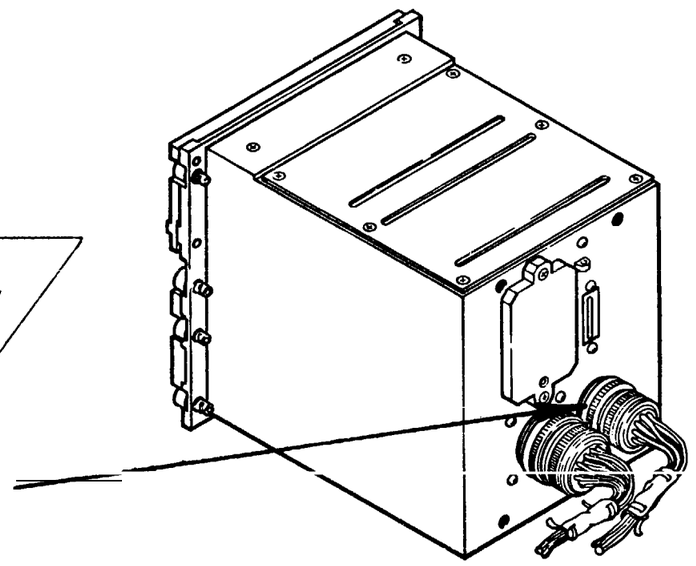
Personnel Required
68J (2)

References
TM 9-1270-218-13
TM 11-1520-236-
TM 55-1520-236-23

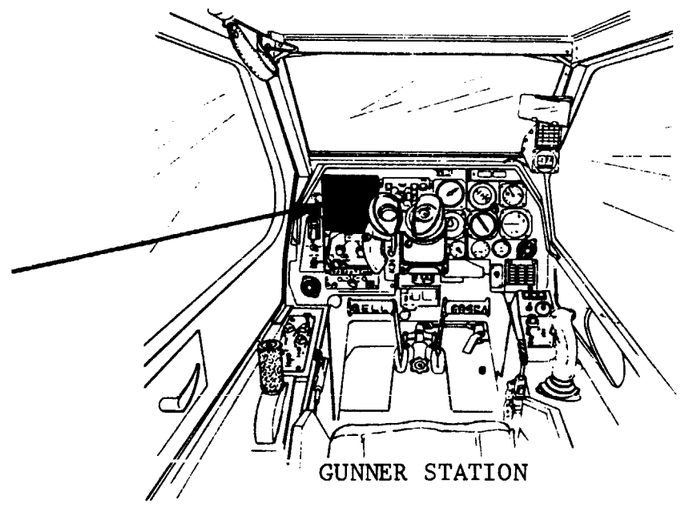
Access Panels
Battery Compartment - Removed



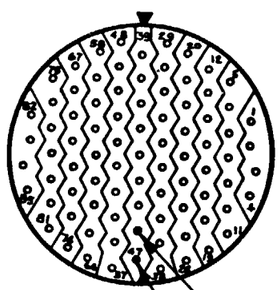
3425DS1P1



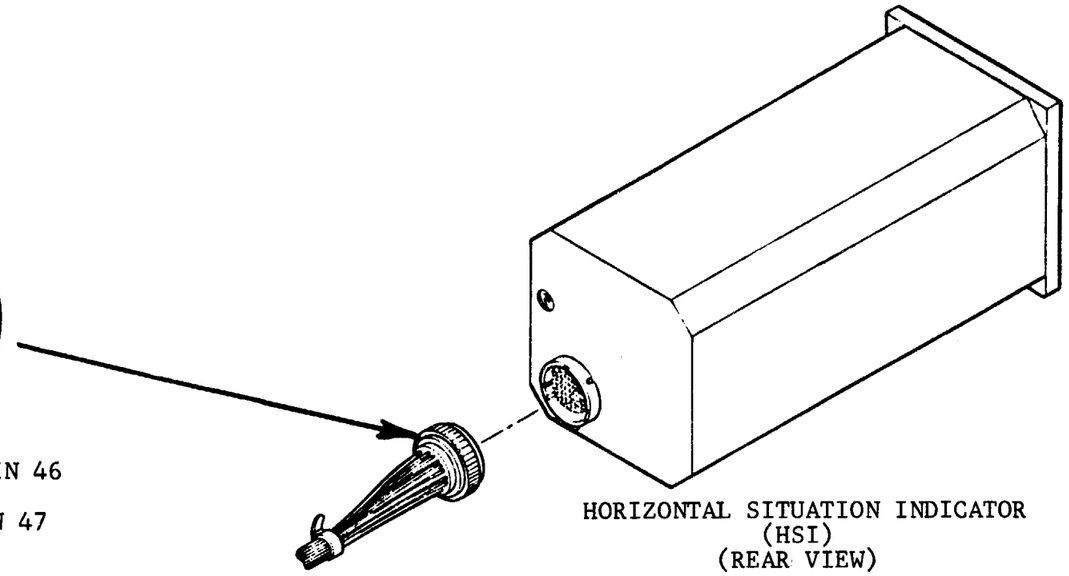
DPLR NAV CONTROL PANEL
(REAR VIEW)



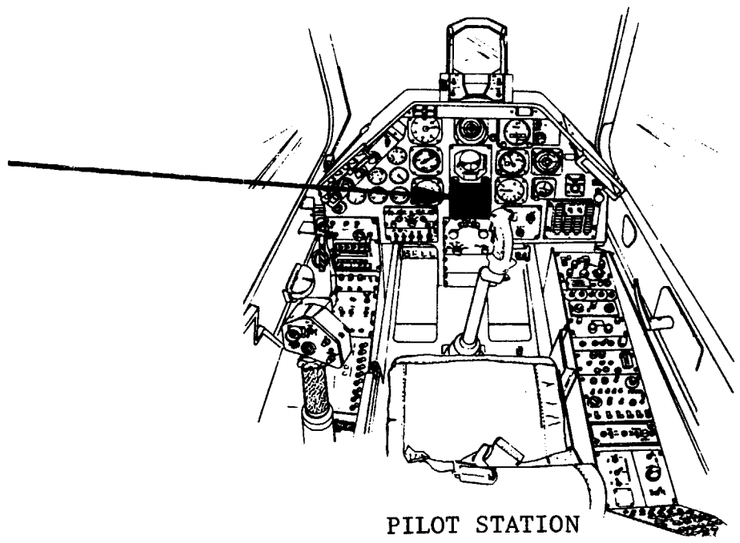
GUNNER STATION



3400DS1P1

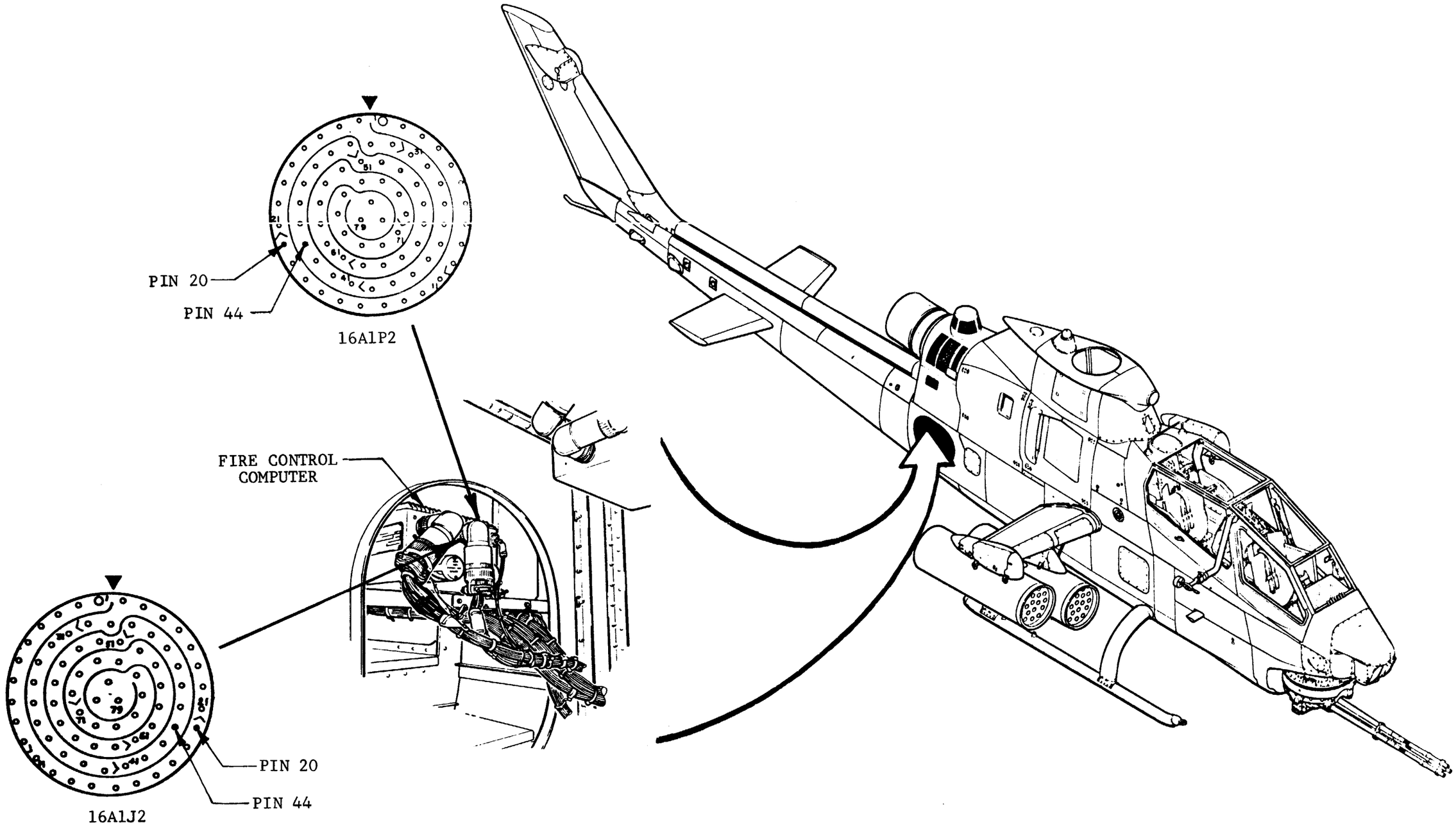


HORIZONTAL SITUATION INDICATOR
(HSI)
(REAR VIEW)



PILOT STATION

3-29. MAL LAMP ON DPLR NAV CONTROL PANEL IS LIT WHEN DOPPLER IS TURNED ON (CONTINUED).



3-29. MAL LAMP ON DPLR NAV CONTROL PANEL IS LIT WHEN DOPPLER IS TURNED ON (CONTINUED).

Turn off electrical power per paragraph 3-3.

Check for continuity from 16A1P2-20 to 16A1P2-44.

Is continuity present?

YES → Disconnect 3425DS1P2.

Check for continuity from 16A1P2-20 to 16A1P2-44.

Is continuity present?

YES → Disconnect 3400DS1P1.

Check for continuity from 16A1P2-20 to 16A1P2-44.

Is continuity present?

YES → Remove splice joining wires ASN128-76A22 (WHT), ASN128-76B22 (WHT), and ASN128-76C22 (WHT).

Remove splice joining wires ASN128-76A22 (BLU), ASN128-76B22 (BLU), and ASN128-76C22 (BLU).

Check for continuity from 16A1P2-20 to 16A1P2-44.

Is continuity present?

YES → Check for continuity from 3400DS1P1-46 to 3400DS1P1-47.

Is continuity present?

YES → Repair wires ASN128-76A22 (WHT) and ASN128-76A22 (BLU) between 3425DS1P2-52, 3425DS1P2-53 and splice.

Replace splice joining wires ASN128-76A22 (WHT), ASN128-76B22 (WHT), and ASN128-76C22 (WHT) per TM 55-1520-236-23, Chapter 9, Section I.

Replace splice joining wires ASN128-76A22 (BLU), ASN128-76B22 (BLU), and ASN128-76C22 (BLU) per TM 55-1520-236-23, Chapter 9, Section I.

Then go to paragraph 3-2.

NO → Connect 3400DS1P1 and 3425DS1P2.

Then go to paragraph 3-2.

NO → Replace DPLR NAV control panel per TM 55-1520-236-23, Chapter 9, Section I.

Then go to paragraph 3-2.

NO → Check for continuity from 16A1J2-20 to 16A1J2-44.

Is continuity present?

YES → Replace fire control computer per TM 9-1270-218-13, Chapter 4, Section IV.

Then go to paragraph 3-2.

NO → Troubleshoot doppler system per TM 11-1520-236-34, Chapter 7, Section III.

Then go to paragraph 3-2.

3-29. MAL LAMP ON DPLR NAV CONTROL PANEL IS LIT WHEN DOPPLER IS TURNED ON (CONTINUED).

YES →

Repair wires ASN128-76B22 (WHT) and ASN128B22 (BLU) between 16A1P2-20, 16A1P2-44 and splice.

Replace splice joining wires ASN128-76A22 (WHT), ASN128-76B22 (WHT), and ASN128-76C22 (WHT) per TM 55-1520-236-23, Chapter 9, Section I.

Replace splice joining wires ASN128-76A22 (BLU), ASN128-76B22 (BLU), and ASN128-76C22 (BLU) per TM 55-1520-236-23, Chapter 9, Section I.

Then go to paragraph 3-2.

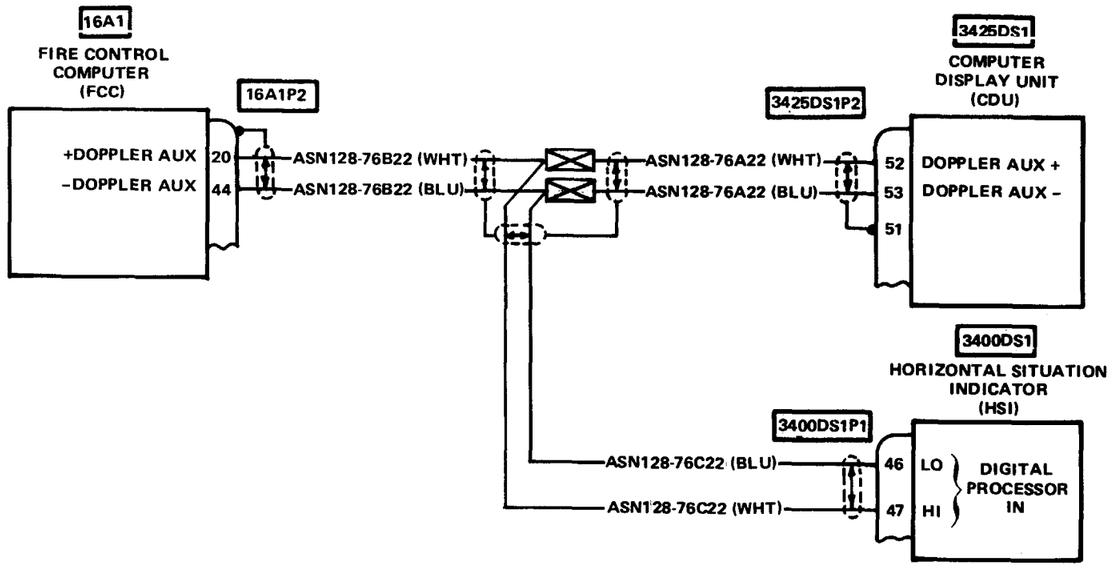
YES →

Repair wires ASN128-76C22 (WHT) and ASN128-76C22 (BLU) between 3400DS1P1-47, 3400DS1P1-46 and splice.

Replace splice joining wires ASN128-76A22 (WHT), ASN128-76B22 (WHT), and ASN128-76C22 (WHT) per TM 55-1520-236-23, Chapter 9, Section I.

Replace splice joining wires ASN128-76A22 (BLU), ASN128-76B22 (BLU), and ASN128-76C22 (BLU) per TM 55-1520-236-23, Chapter 9, Section I.

Then go to paragraph 3-2.



3-30. GUN DOES NOT MOVE FORWARD IN RESPONSE TO MOVING OBJECT BELOW DOPPLER ANTENNA.

INITIAL SETUP

Applicable Configuration
All

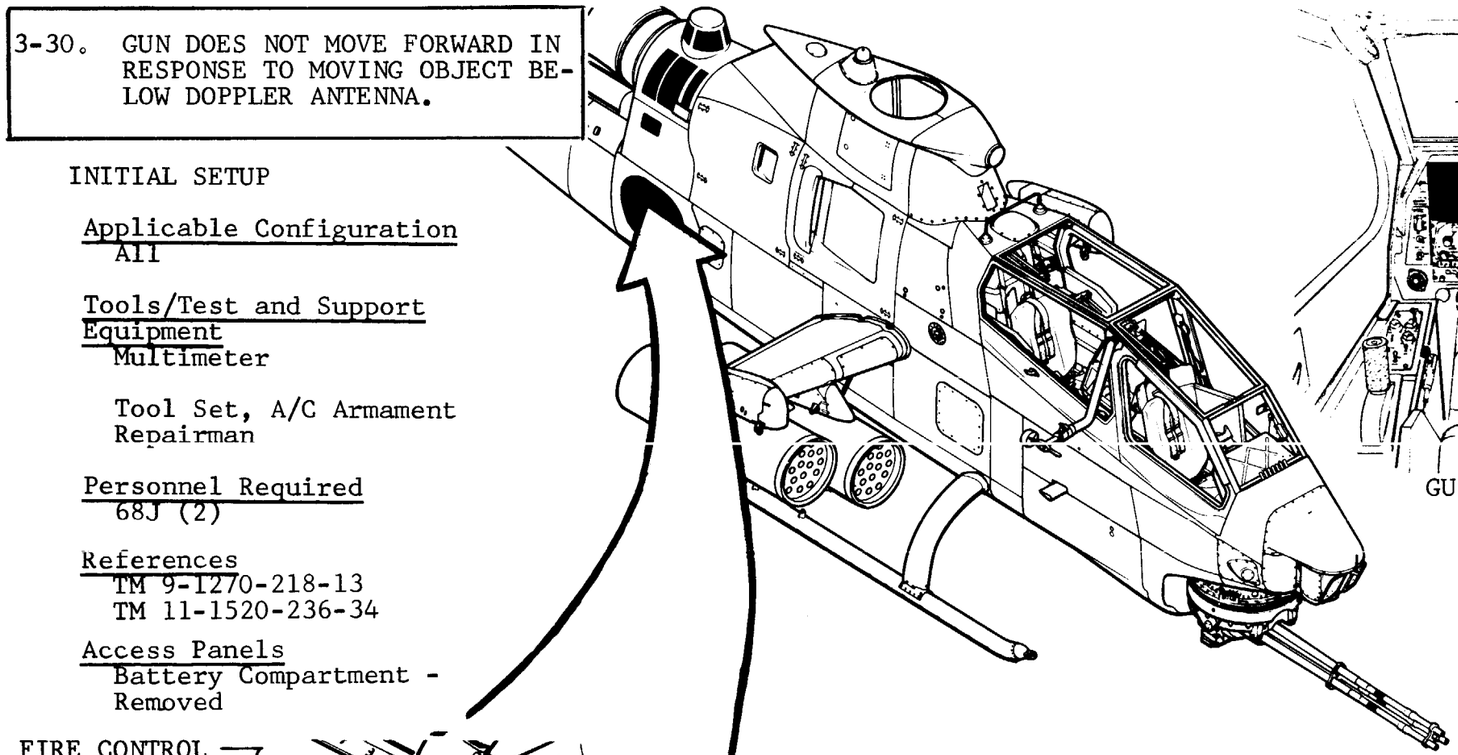
Tools/Test and Support Equipment
Multimeter

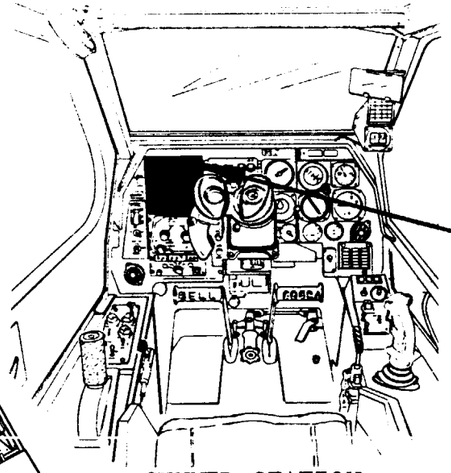
Tool Set, A/C Armament Repairman

Personnel Required
68J (2)

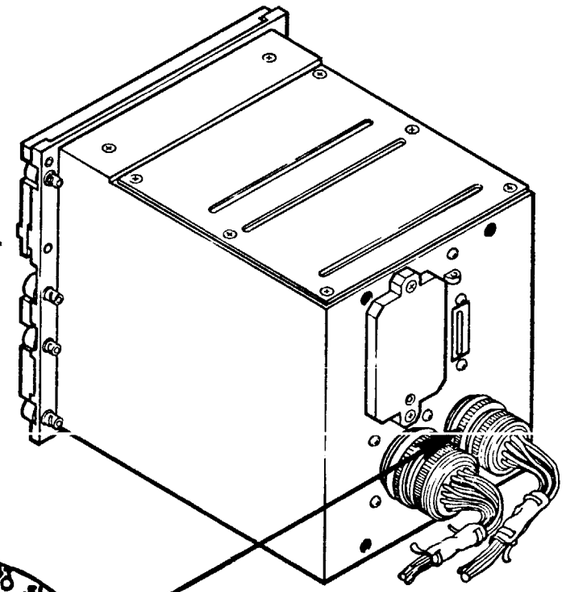
References
TM 9-1270-218-13
TM 11-1520-236-34

Access Panels
Battery Compartment - Removed

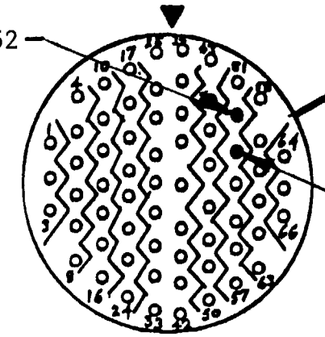




GUNNER STATION

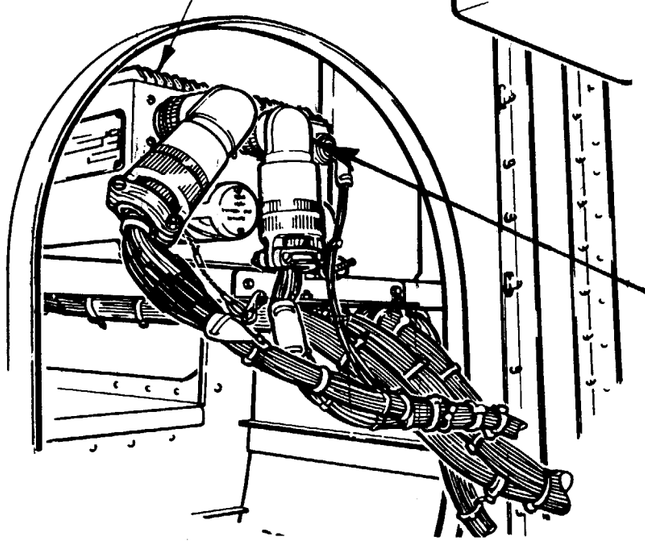


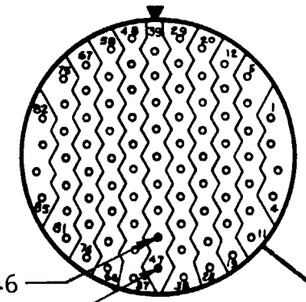
DPLR NAV CONTROL PANEL (REAR VIEW)



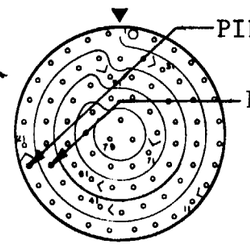
3425DS1P2

FIRE CONTROL COMPUTER (FCC)

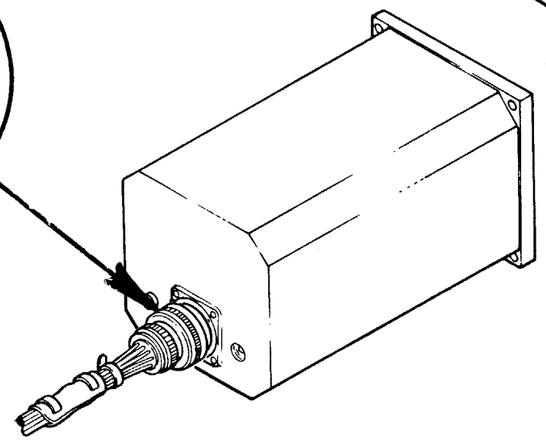




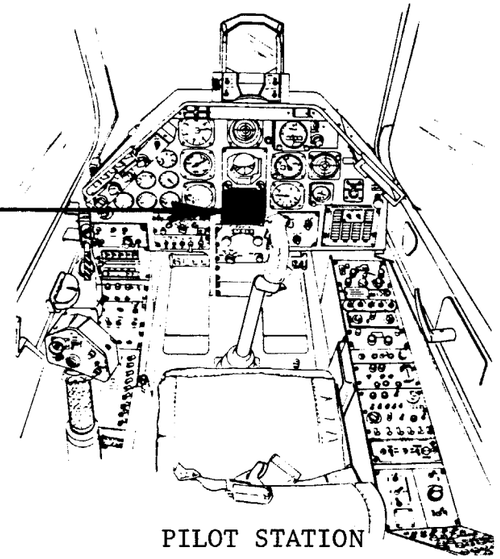
3400DS1P1



16A1P2



HORIZONTAL SITUATION INDICATOR (HSI) (REAR VIEW)



PILOT STATION

3-30. GUN DOES NOT MOVE FORWARD IN RESPONSE TO MOVING OBJECT BELOW DOPPLER ANTENNA (CONTINUED).

Turn off electrical power per paragraph 3-3.

Check for continuity from 16A1P2-20 to 3425DS1P2-52.

Is continuity present?

YES

Check for continuity from 16A1P2-44 to 3425DS1P2-53.

Is continuity present?

YES

NO

Check for continuity from 16A1P2-44 to 3400DS1P1-46.

Is continuity present?

YES

Repair wire ASN128-76A22 (BLU) between 3425DS1P2-53 and splice.

Then go to paragraph 3-2.

NO

Repair wire ASN128-76B22 (BLU) between 16A1P2-44 and splice.

Then go to paragraph 3-2.

NO

Check for continuity from 16A1P2-20 to 3400DS1P1-47.

Is continuity present?

YES

Repair wire ASN128-76A22 (WHT) between 3425DS1P2-52 and splice.

Then go to paragraph 3-2.

NO

Repair wire ASN128-76B22 (WHT) between 16A1P2-20 and splice.

Then go to paragraph 3-2.

3-30. GUN DOES NOT MOVE FORWARD IN RESPONSE TO MOVING OBJECT BELOW DOPPLER ANTENNA (CONTINUED).

YES

Troubleshoot doppler system per TM 11-1520-236-34, Chapter 7, Section III.

Does doppler system pass test?

YES

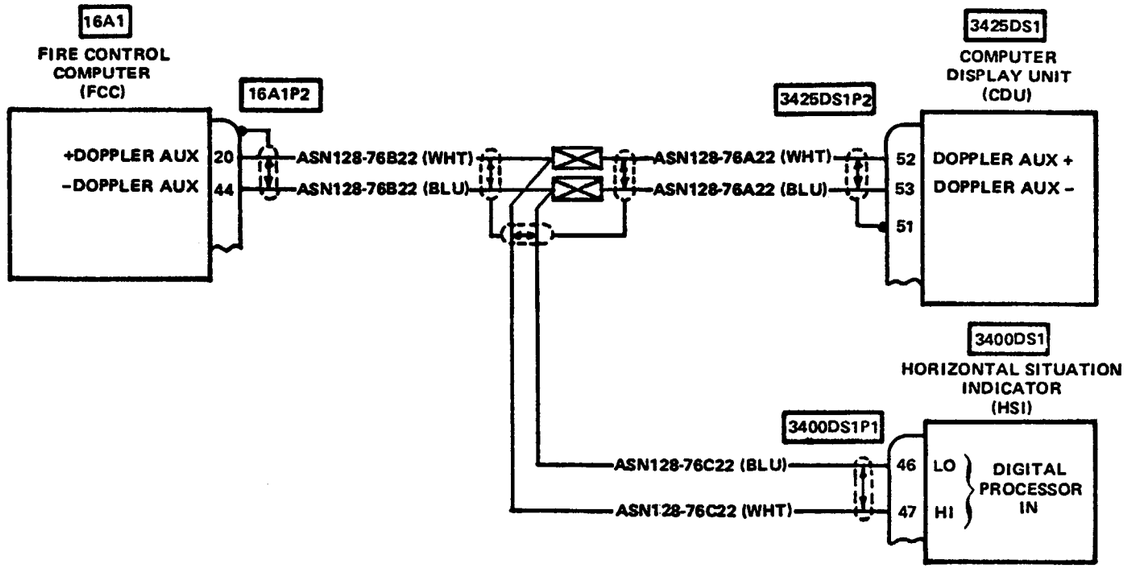
Replace fire control computer (FCC) per TM 9-1270-218-13, Chapter 4, Section IV.

Then go to paragraph 3-2.

NO

Repair doppler system per TM 11-1520-236-34, Chapter 7, Section III.

Then go to paragraph 3-2.



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3-31. ENGINE TORQUE NUMERICS DO NOT APPEAR OR CHANGE ON HUD.

INITIAL SETUP

Applicable Configuration
All

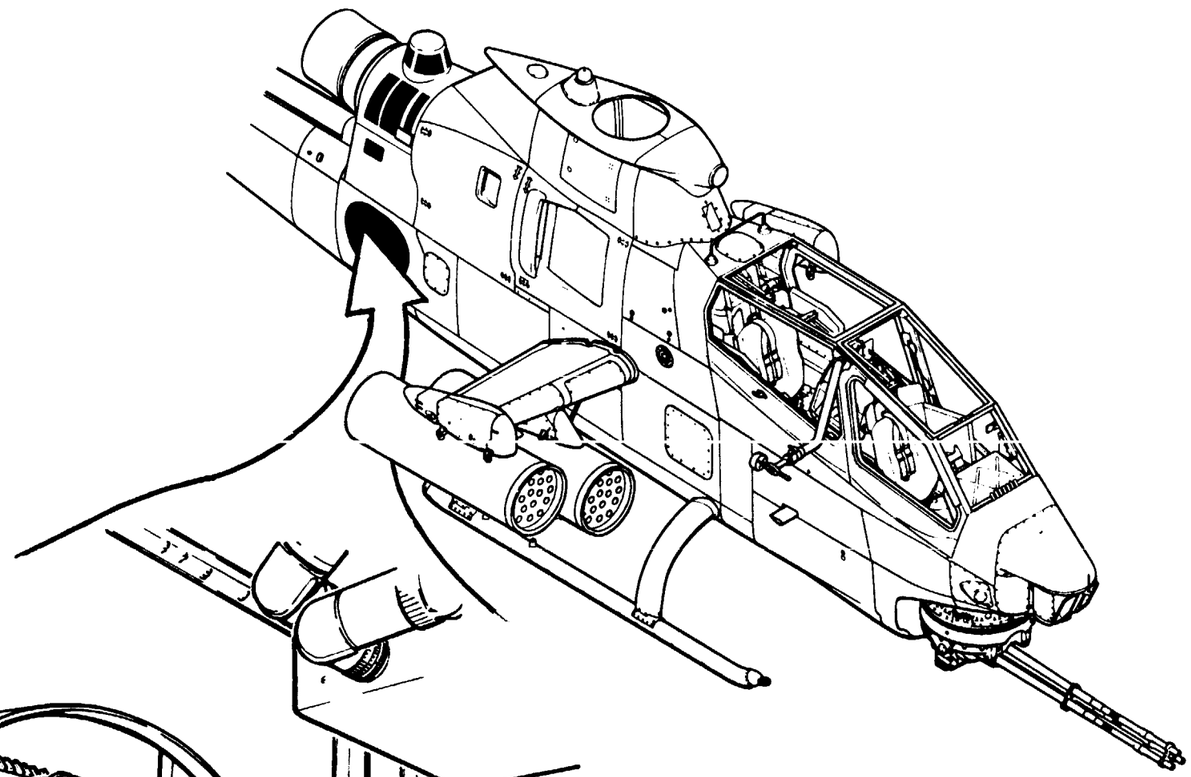
Tools/Test and Support Equipment
Multimeter

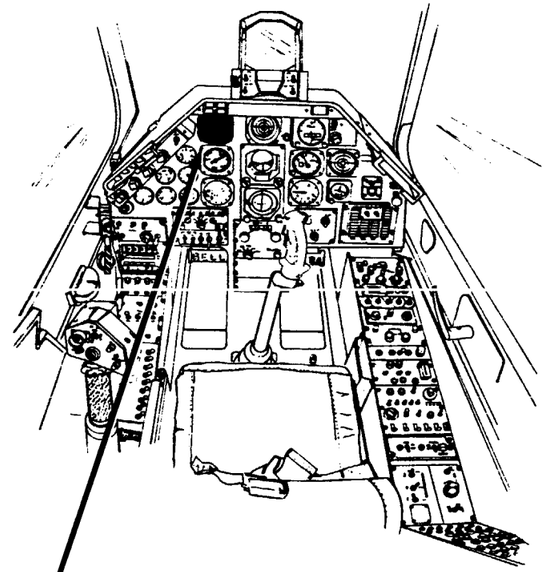
Tool Set, A/C Armament Repairman

Personnel Required
68J (2)

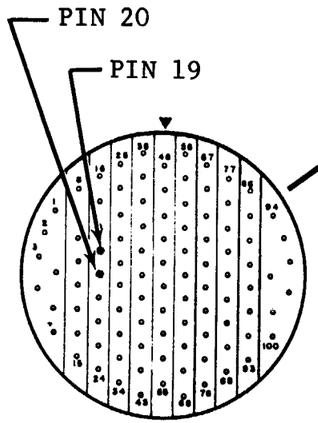
References
TM 9-1270-218-13
TM 55-1520-236-23

Access Panels
Battery Compartment - Removed

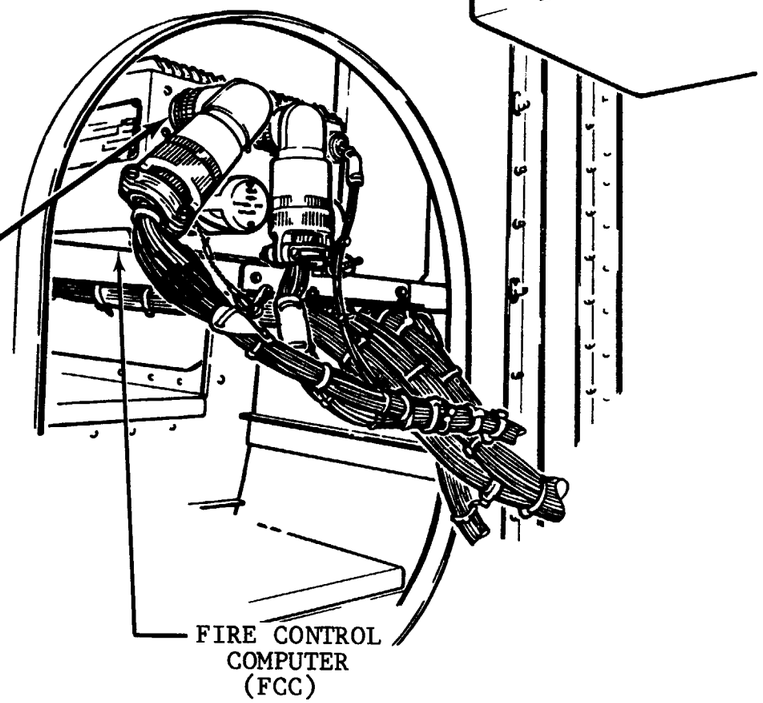




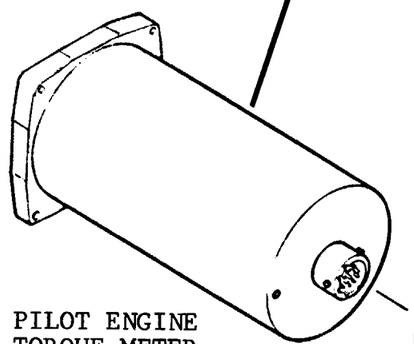
PILOT STATION



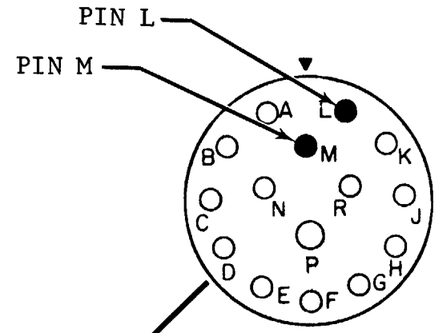
16A1P3



FIRE CONTROL COMPUTER (FCC)



PILOT ENGINE TORQUE METER (REAR VIEW)



1M4P1

3-31. ENGINE TORQUE NUMERICS DO NOT APPEAR OR CHANGE ON HUD (CONTINUED).

Turn off electrical power per paragraph 3-3.

Check for continuity from the following pins on 16A1P3 to 16A1P3 backshell.

FROM	TO
16A1P3-19	16A1P3 backshell
16A1P3-20	16A1P3 backshell

Is continuity present on either pin?

YES →

Repair wire(s) where continuity is present to eliminate short(s):

WIRE NO.	FROM	TO
A1098A22(WHT)	1M4P1-L	16A1P3-19
A1098A22(BLU)	1M4P1-M	16A1P3-20

Then go to paragraph 3-2.

NO ↓

Check the following wires for continuity:

WIRE NO.	FROM	TO
A1098A22(WHT)	1M4P1-L	16A1P3-19
A1098A22(BLU)	1M4P1-M	16A1P3-20

Is continuity present for each wire?

YES →

Test fire control computer (FCC) per TM 9-1270-218-13, Chapter 5, Section III, using Fire Control Subsystem Test Set XM141.

Does fire control computer (FCC) pass test?

YES →

Troubleshoot torque indicating system per TM 55-1520-236-23, Chapter 8, Section II.

Then go to paragraph 3-2.

NO ↓

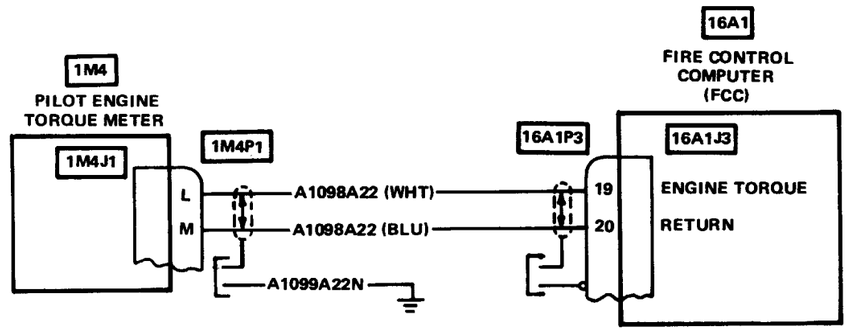
Replace fire control computer (FCC) per TM 9-1270-218-13, Chapter 4, Section IV.

Then go to paragraph 3-2.

NO ↓

Repair wire(s) where continuity is not present.

Then go to paragraph 3-2.



3-32. LASER NUMERICS DO NOT APPEAR OR CHANGE ON HUD WITH FCC ON.

INITIAL SETUP

Applicable Configuration
All

Tools/Test and Support Equipment
Multimeter

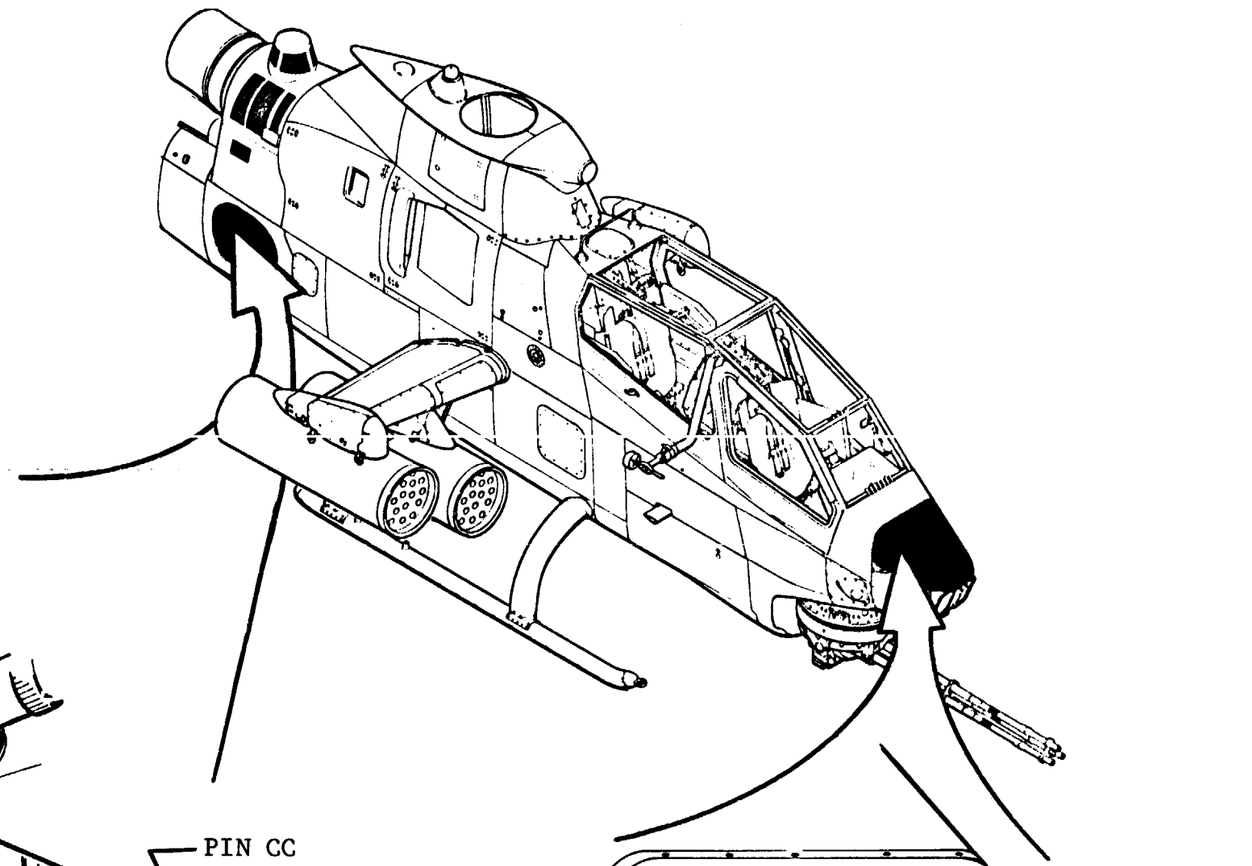
Tool Set, A/C Armament Repairman

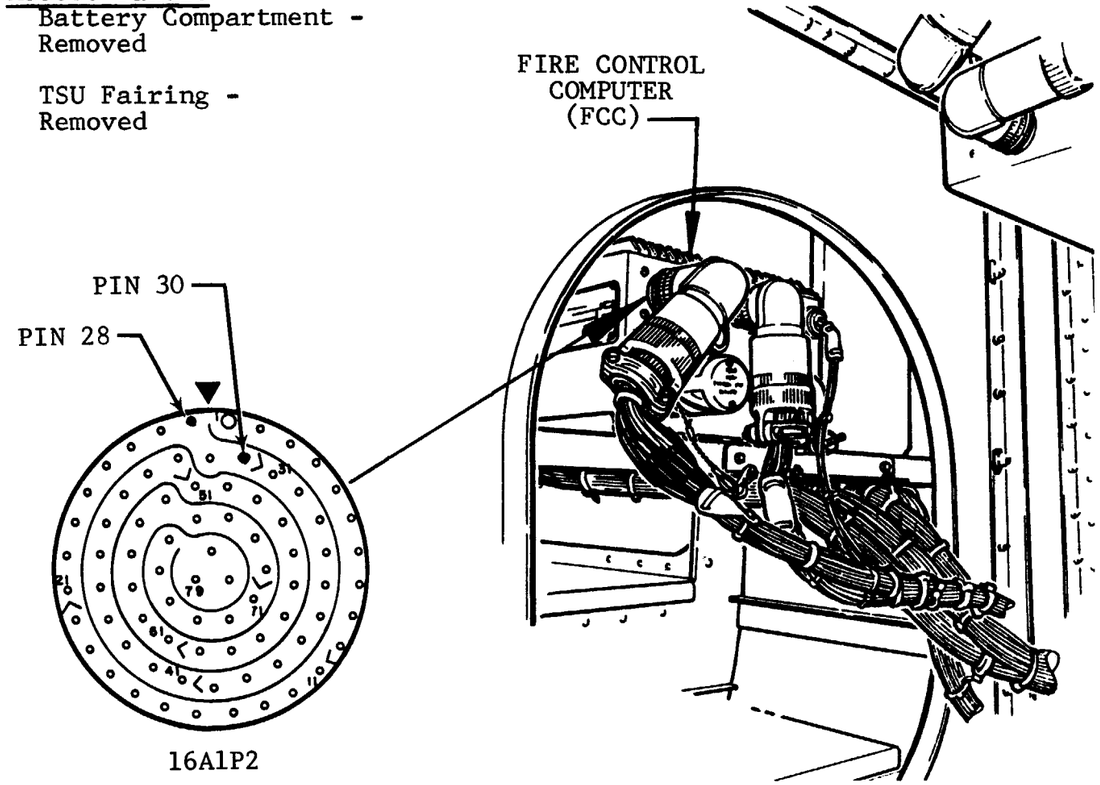
Personnel Required
68J (2)

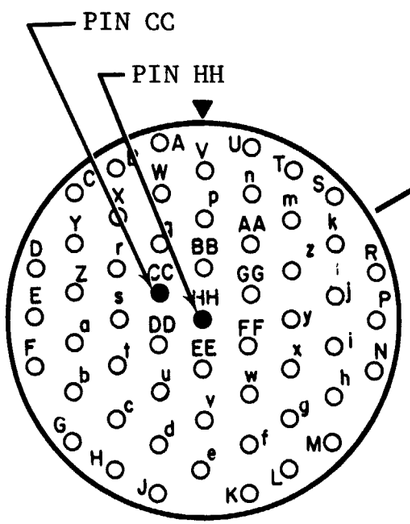
References
TM 9-1270-218-13

Access Panels
Battery Compartment - Removed

TSU Fairing - Removed







3-32. LASER NUMERICS DO NOT APPEAR OR CHANGE ON HUD WITH FCC ON (CONTINUED).

Turn off electrical power per paragraph 3-3.

Check for continuity from the following pins on 16A1P2 to 16A1P2 backshell.

FROM	TO
16A1P2-28	16A1P2 backshell
16A1P2-30	16A1P2 backshell

Is continuity present on either pin?

YES → Repair wire(s) where continuity is present to eliminate short(s):

WIRE NO.	FROM	TO
A1027A22(WHT)	20A1J53-HH	16A1P2-28
A1027A22(BLU)	20A1J53-CC	16A1P2-30

Then go to paragraph 3-2.

NO ↓

Check the following wires for continuity:

WIRE NO.	FROM	TO
A1027A22(WHT)	20A1J53-HH	16A1P2-28
A1027A22(BLU)	20A1J53-CC	16A1P2-30

Is continuity present for each wire?

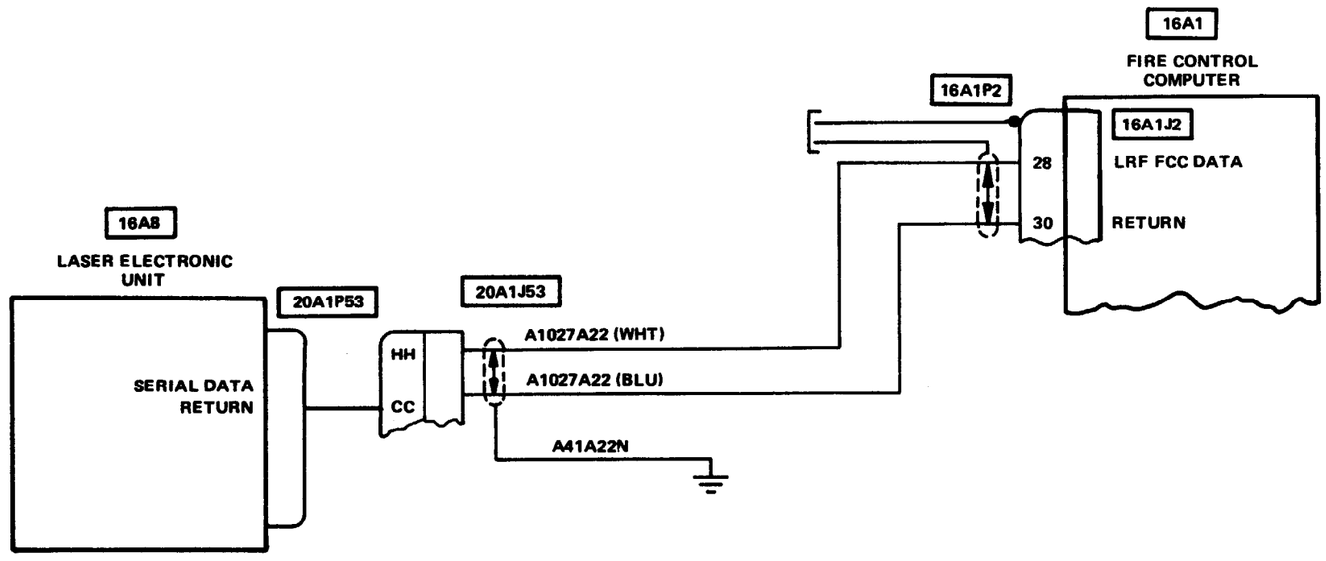
YES → Accomplish paragraph 2-15.

Then go to paragraph 3-2.

NO ↓

Repair wire(s) where continuity is not present.

Then go to paragraph 3-2.



3-33. LOS RETICLE ON HUD HAS RANDOM MOVEMENT WITH F PRECEDING RANGE NUMERIC.

INITIAL SETUP

Applicable Configuration
All

Tools/Test and Support Equipment
Multimeter

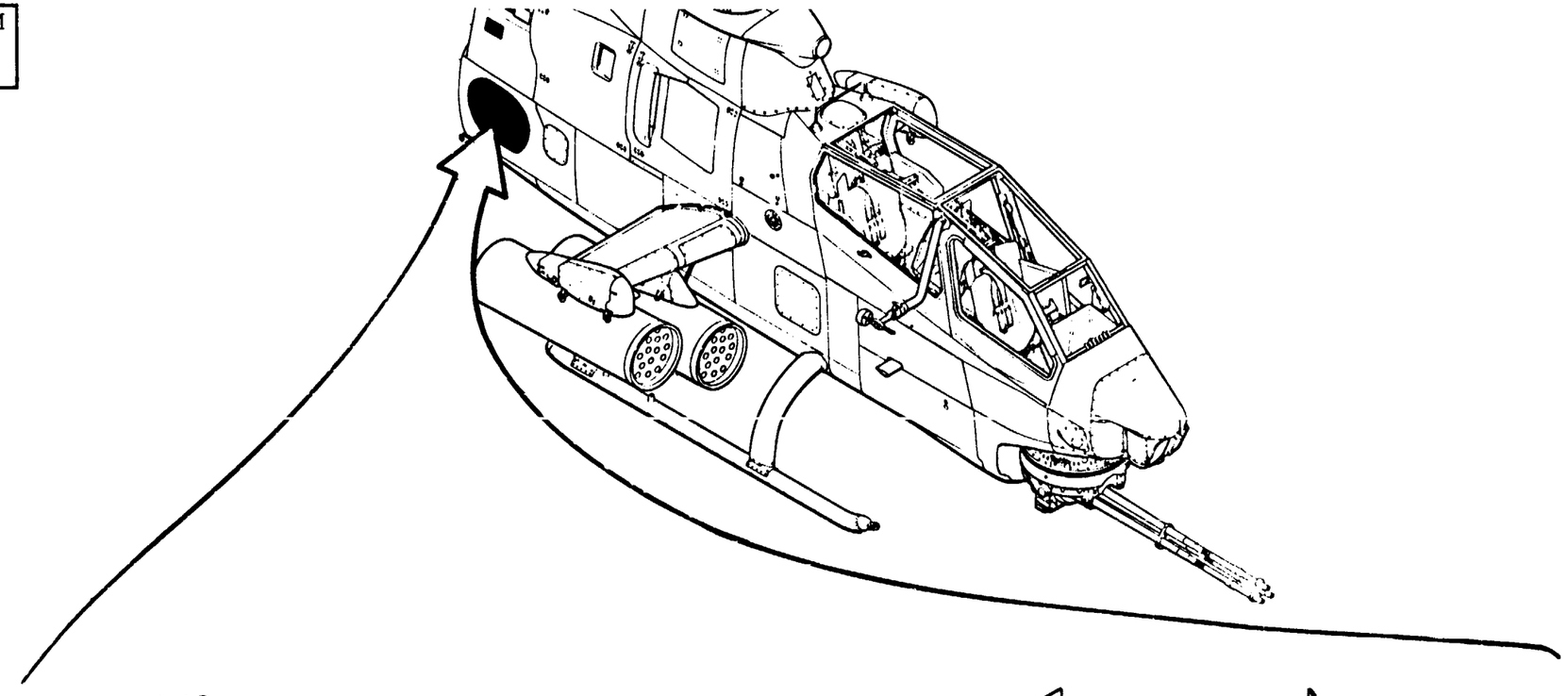
Tool Set, A/C Armament Repairman

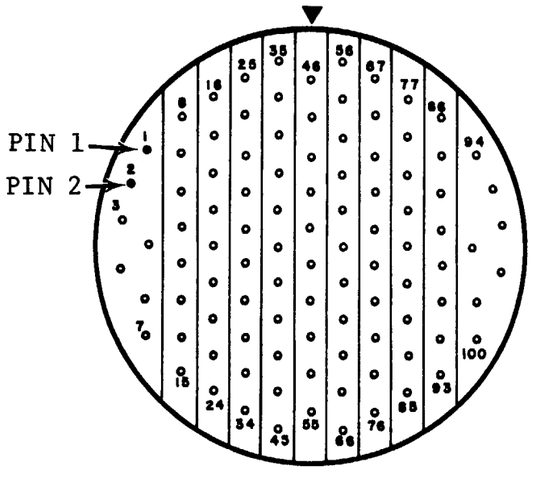
Personnel Required
68J (1)

References
TM 55-1520-236-23
TM 9-1270-218-13

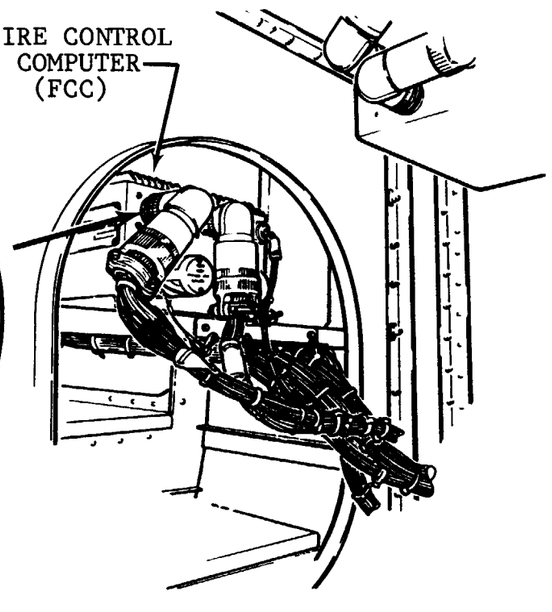
Access Panels
Battery Compartment - Removed

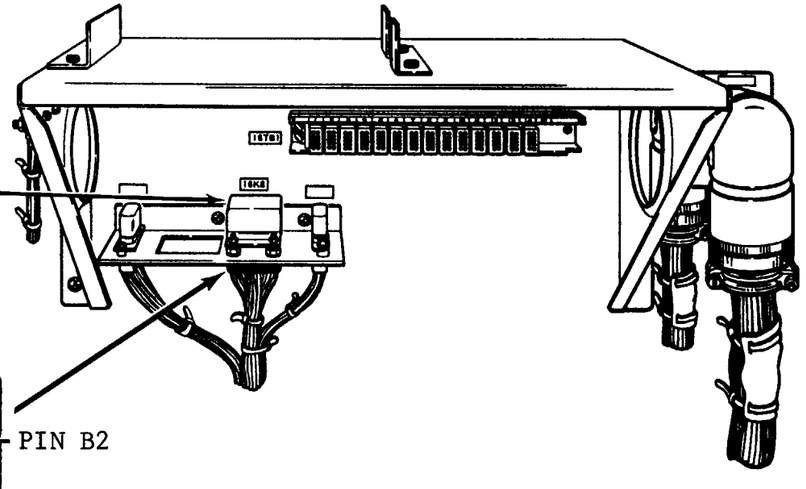
Left Side Control Linkage - Removed

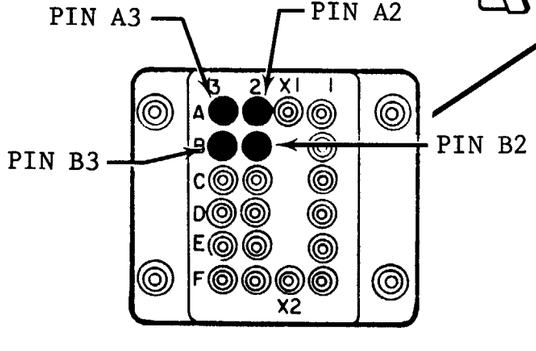




16A1P3

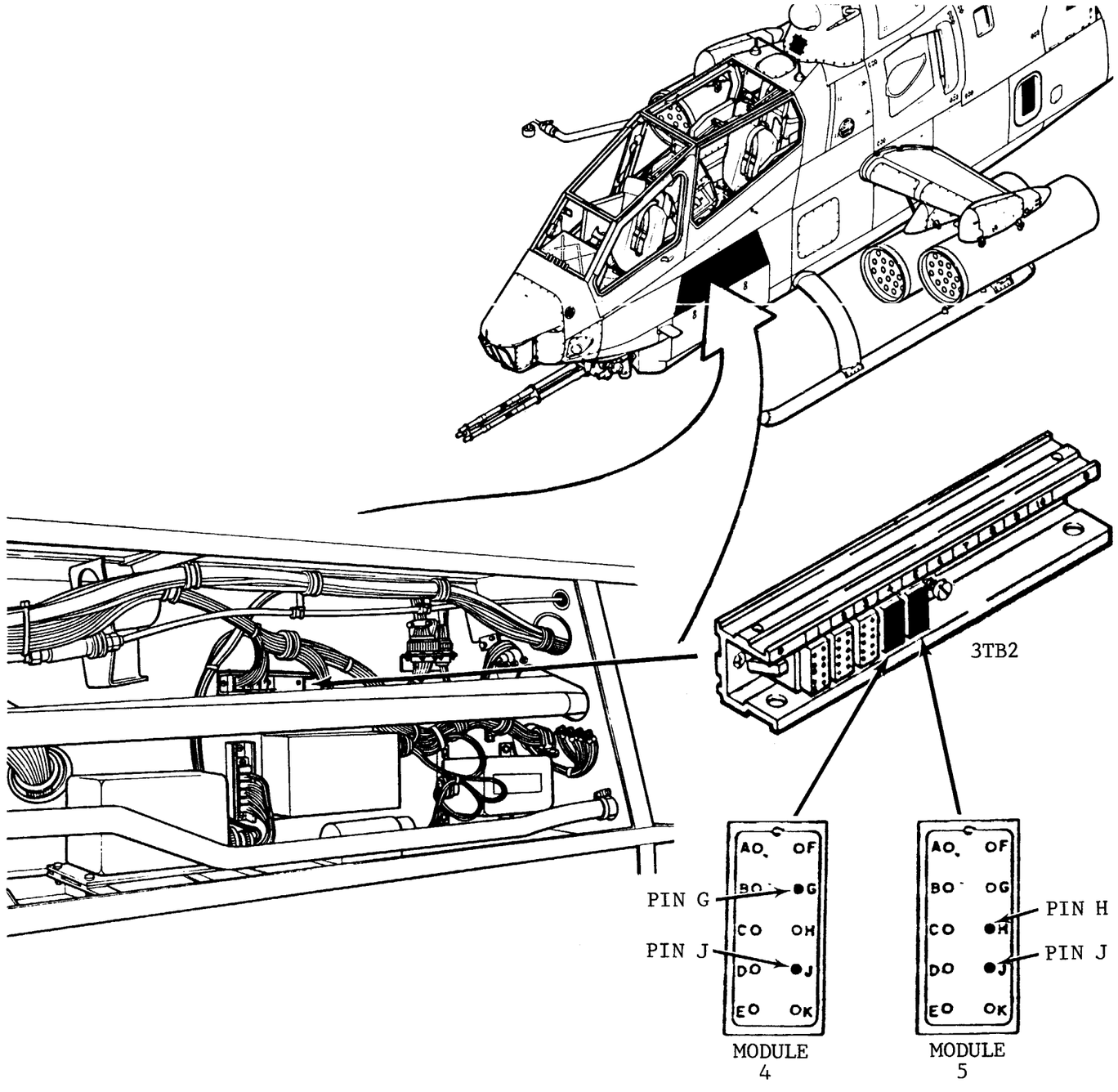






16XK8

3-33. LOS RETICLE ON HUD HAS RANDOM MOVEMENT WITH F PRECEDING RANGE NUMERIC (CONTINUED).



Check for 10 V ac between 3TB2-4J and 3TB2-5J.

Is 10 V ac present?

YES

NO

Check for 10 V ac between 3TB2-4G and 3TB2-5H.

Is 10 V ac present?

YES

NO

Accomplish paragraph 9-44.

Then go to paragraph 3-2.

Check for 10 V ac between 3TB2-4J and 3TB2-5H.

Is 10 V ac present?

YES

NO

Turn off electrical power per paragraph 3-3.

Replace module 4 of 3TB2 per TM 55-1520-236-23, Chapter 9, Section I.

Then go to paragraph 3-2.

3-33. LOS RETICLE ON HUD HAS RANDOM MOVEMENT WITH F PRECEDING RANGE NUMERIC (CONTINUED).

Turn off electrical power per paragraph 3-3.

Disconnect 16A1P3.

Turn on electrical power per paragraph 3-3.

Check for 10 V ac between 16A1P3-1 and 16A1P3-2.

Is 10 V ac present?

YES → Turn off electrical power per paragraph 3-3.

Replace fire control computer (FCC) per TM 9-1270-218-13, Chapter 4, Section IV.

Then go to paragraph 3-2.

NO ↓

YES → Turn off electrical power per paragraph 3-3.

Remove TSU/HUD reticle relay (16K8) per TM 55-1520-236-23, Chapter 9, Section I.

Turn on electrical power per paragraph 3-3.

Check for 10 V ac between 16XK8-B3 and 16XK8-A3.

Is 10 V ac present?

YES → Turn off electrical power per paragraph 3-3.

Check the following wires for continuity:

WIRE NUMBER	FROM	TO
A1246A22(WHT)	16XK8-B2	16A1P3-1
A1246A22(BLU)	16XK8-A2	16A1P3-2

Is continuity present for each wire?

YES → Replace TSU/HUD reticle relay (16K8) per TM 55-1520-236-23, Chapter 9, Section I.

Connect 16A1P3.

Then go to paragraph 3-2.

NO ↓

Repair wire(s) where continuity is not present.

Connect 16A1P3.

Install TSU/HUD reticle relay per TM 55-1520-236-23, Chapter 9, Section I.

Then go to paragraph 3-2.

NO ↓

Turn off electrical power per paragraph 3-3.

Check for continuity from 3TB2-4J to 16XK8-B3.

Is continuity present?

YES → Repair wire A1245A22 (BLU) between 3TB2-5J and 16XK8-A3.

Connect 16A1P3.

Install TSU/HUD reticle relay per TM 55-1520-236-23, Chapter 9, Section I.

Then go to paragraph 3-2.

NO ↓

Repair wire A1245A22 (WHT) between 3TB2-4J and 16XK8-B3.

Connect 16A1P3.

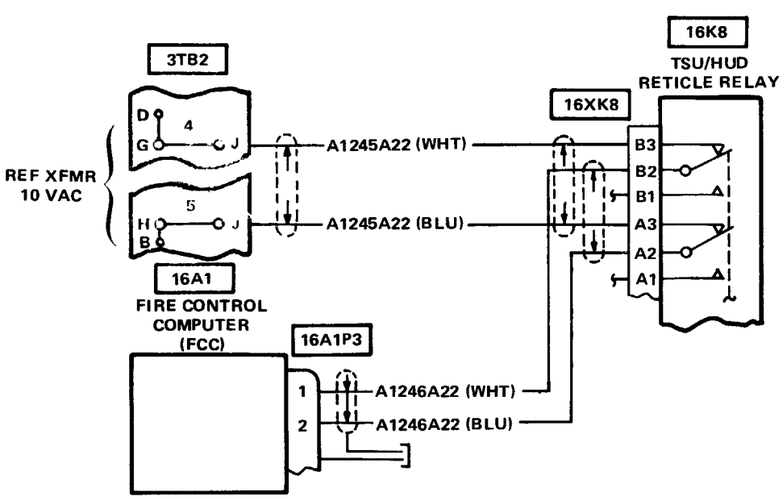
Install TSU/HUD reticle relay per TM 55-1520-236-23, Chapter 9, Section I.

Then go to paragraph 3-2.

YES → Turn off electrical power per paragraph 3-3.

Replace module 5 of 3TB2 per TM 55-1520-236-23, Chapter 9, Section I.

Then go to paragraph 3-2.



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3-34. GUN OR ROCKETS FIRE INACCURATELY.

INITIAL SETUP

Applicable Configuration
All

Tools/Test and Support Equipment
Multimeter

Tool Set, A/C Armament Repairman

Personnel Reauired
68J (2)

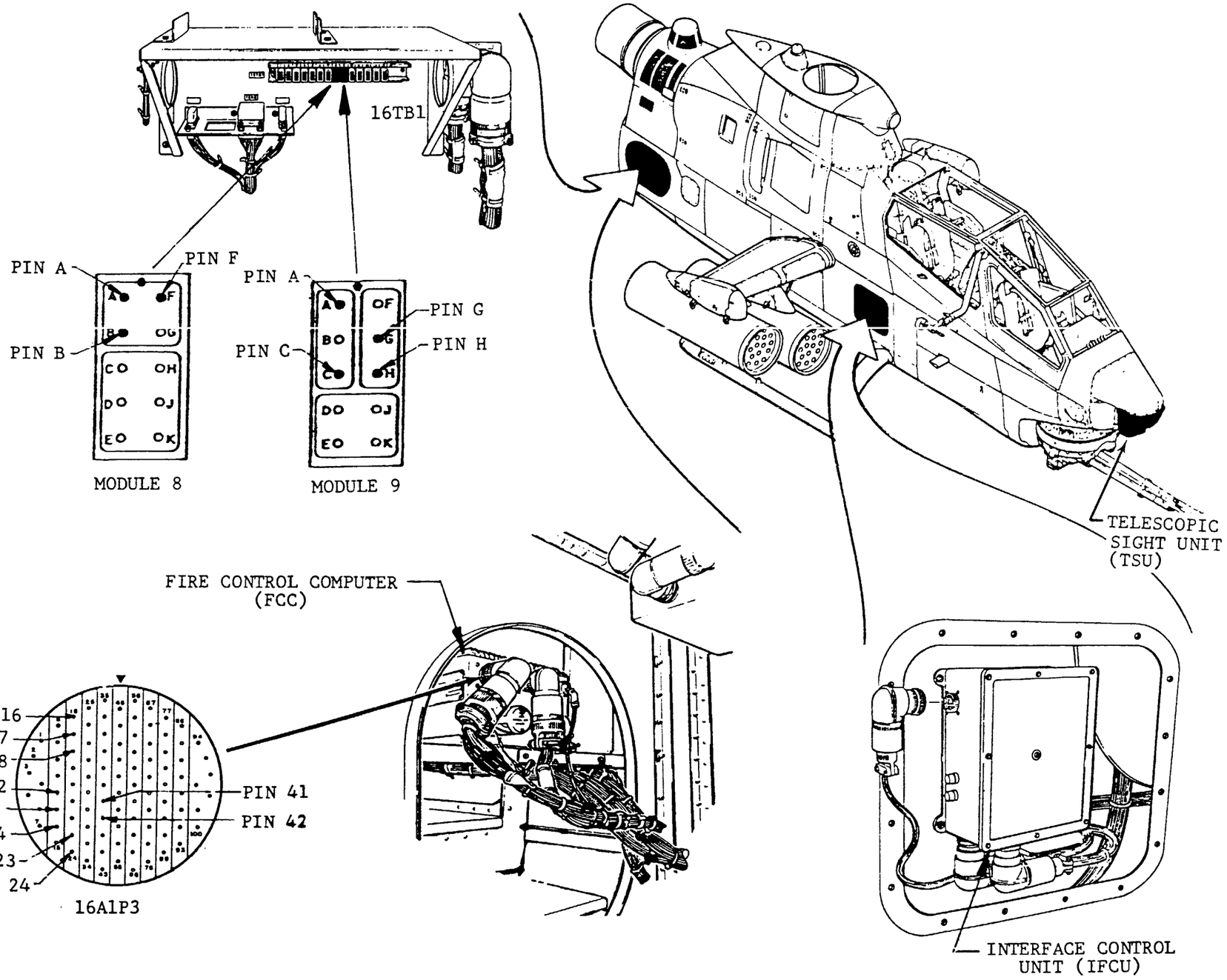
References
TM 9-1090-206-20-1
TM 9-1090-206-30
TM 9-1270-218-13
TM 55-1520-236-23

Access Panels
Battery Compartment - Removed

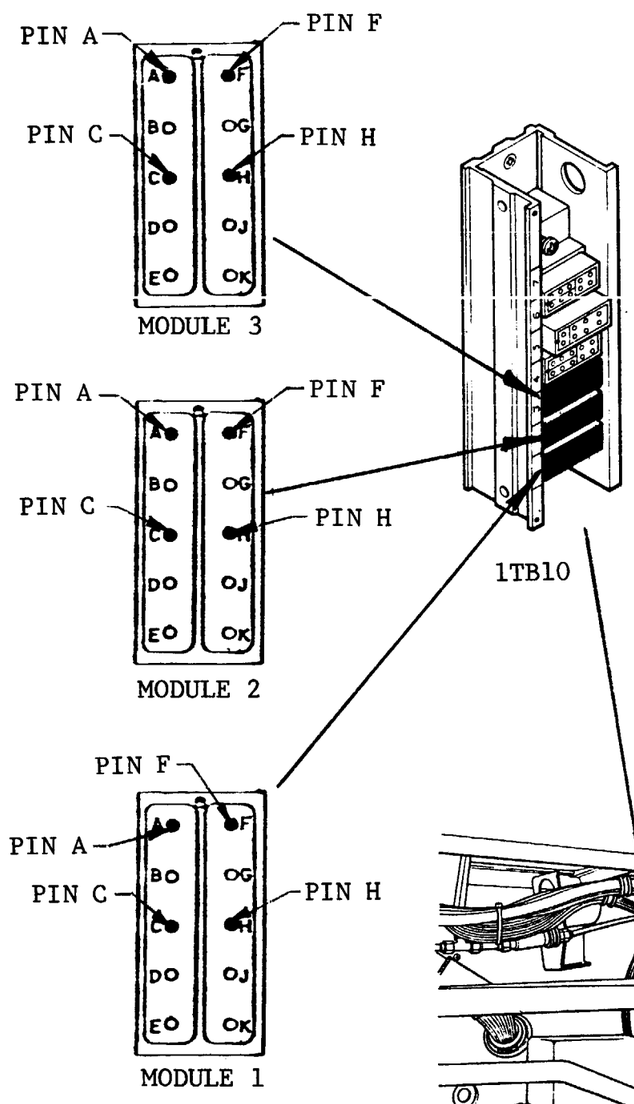
Left Side Control Linkage - Removed

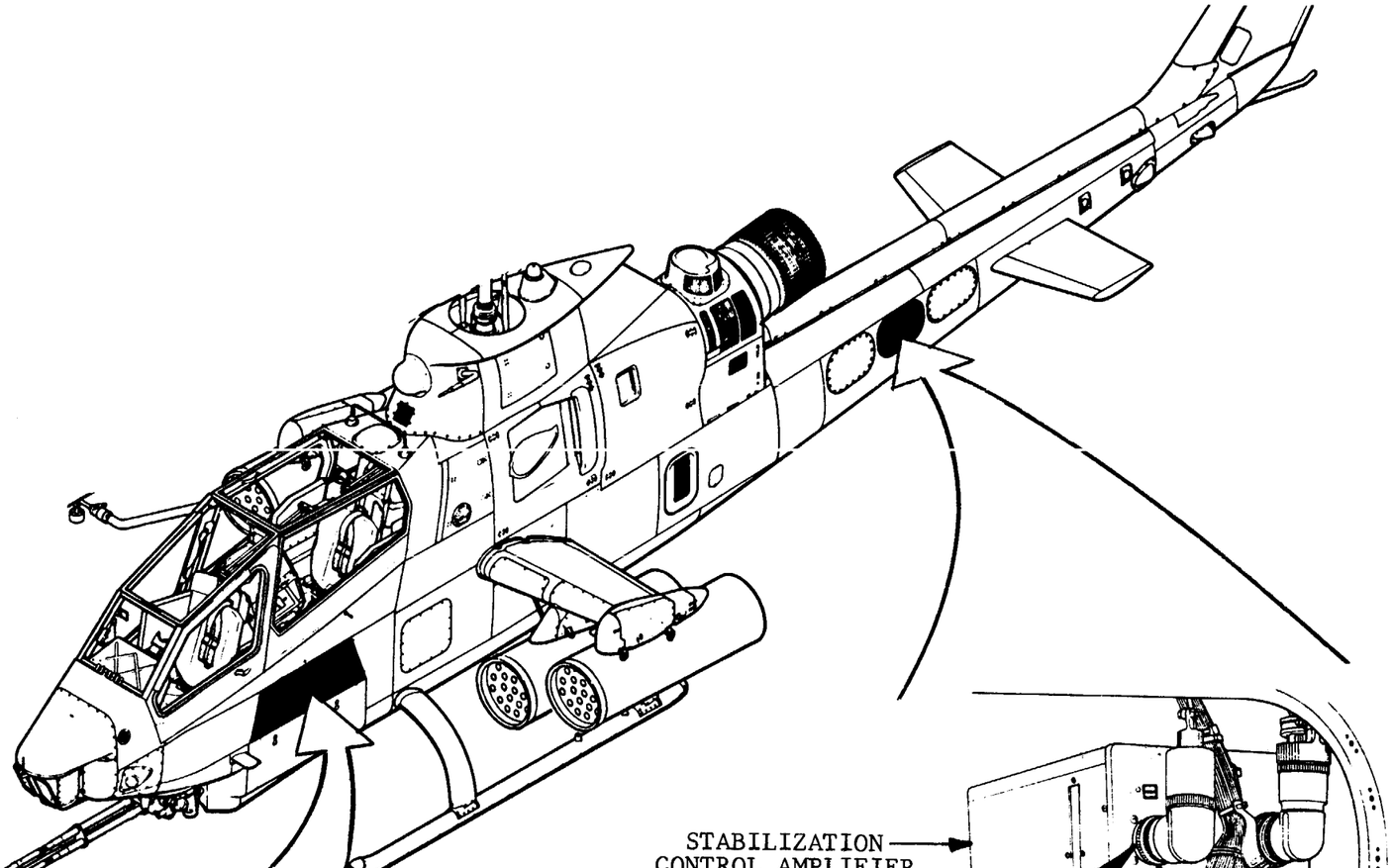
Middle Electronics On Tailboom - Removed

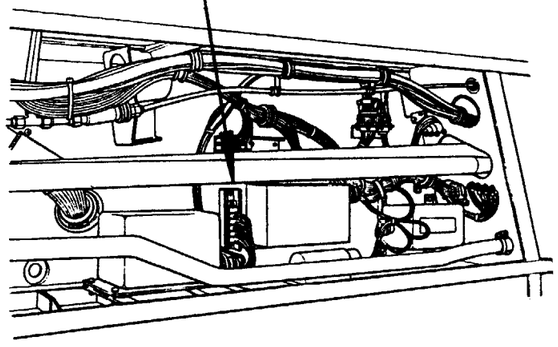
Interface Control Unit - Removed

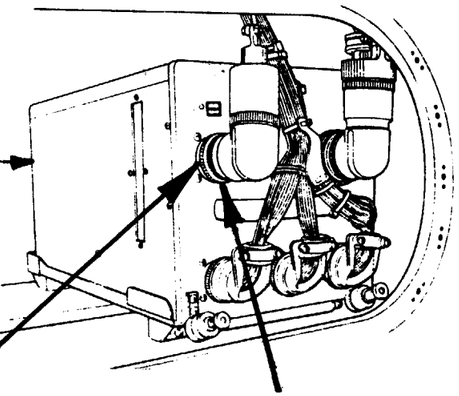


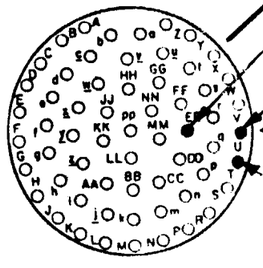
3-34. GUN OR ROCKETS FIRE INACCURATELY (CONTINUED).



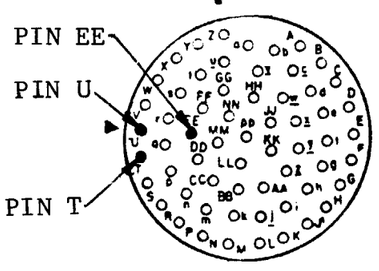






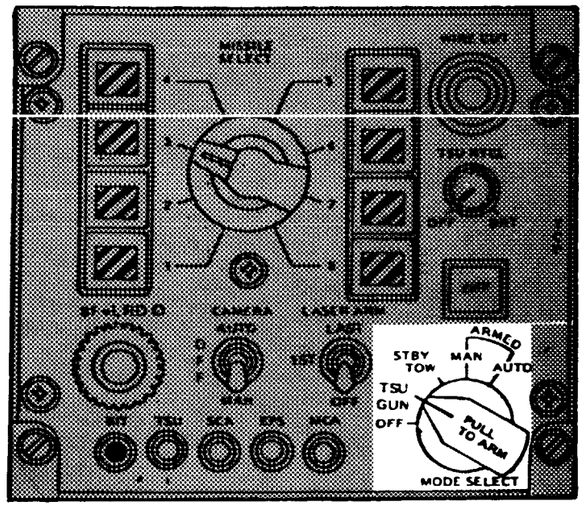


20A2J05

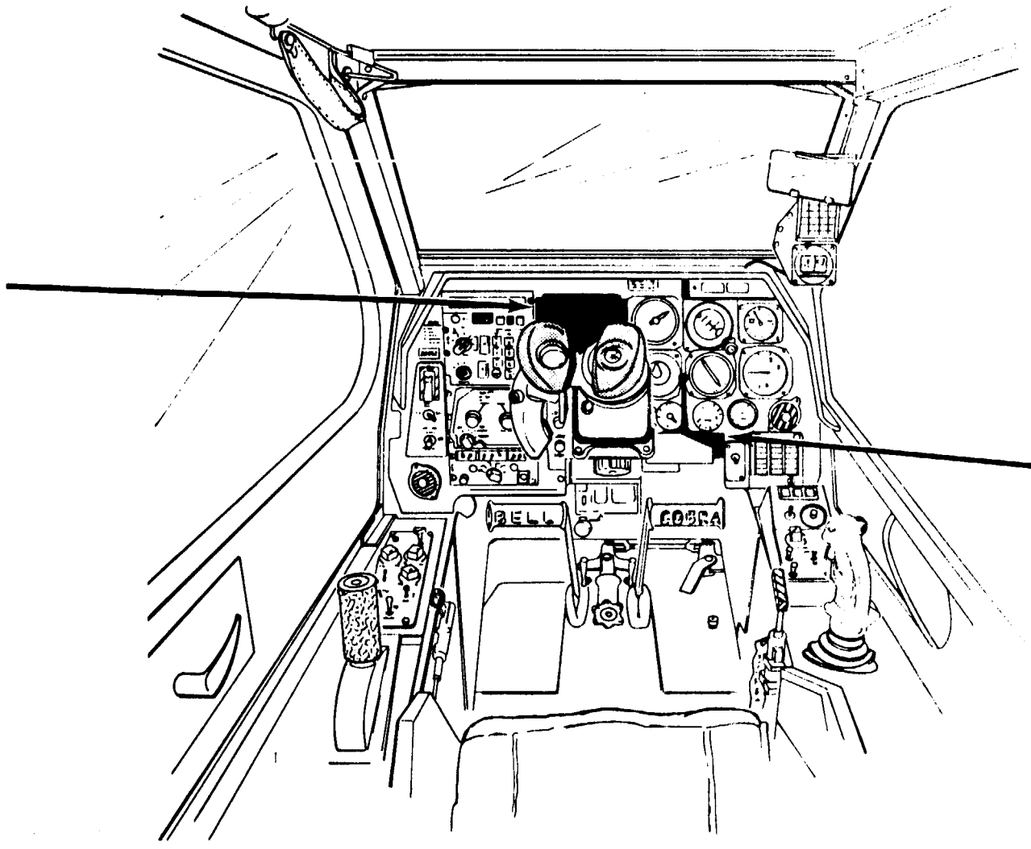


20A2P05

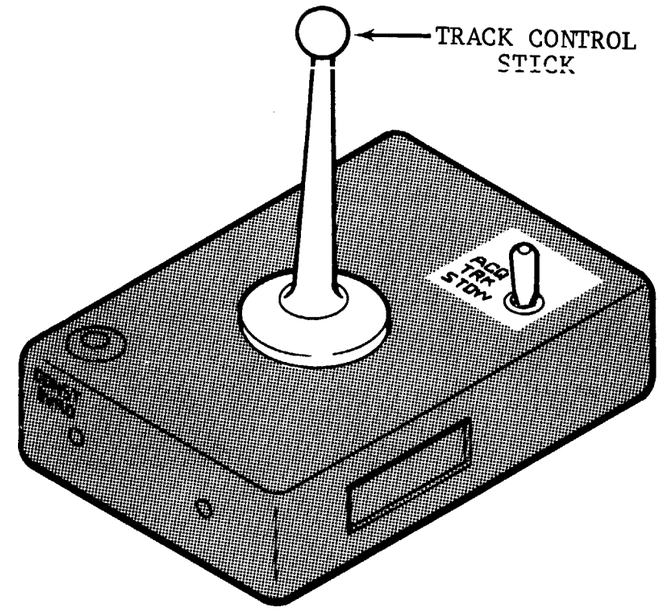
3-34. GUN OR ROCKETS FIRE INACCURATELY (CONTINUED).



TCP (TOW CONTROL PANEL)



GUNNER STATION



SIGHT HAND CONTROL

3-34. GUN OR ROCKETS FIRE INACCURATELY (CONTINUED).

Perform fire control computer (FCC) operational check, paragraph 3-1.through paragraph 3-2, ay.

Did all operations pass required test?

YES

NO

Repair all faults discovered during operational check.

Then go to paragraph 3-2.

Turn off electrical power per paragraph 3-3.

Disconnect 16A1P3.

Connect multimeter to read dc voltage between 16A1P3-12 (+) and 16A1P3-13 (-).

Turn on electrical power per paragraph 3-3.

On TCP (TOW control panel):

Set MODE SELECT switch to TSU GUN.

On sight hand control:

Set ACQ/TRK/STOW switch to TRK.

Move track control stick to left until telescopic sight unit (TSU) line of sight moves to left azimuth limit.

Move track control stick abruptly to the right until TSU line of sight moves to right azimuth limit and observe multimeter (0-10 V dc scale) for a positive voltage.

Does multimeter indicate a positive voltage?

YES

YES

NO

NO

Turn off electrical power per paragraph 3-3.

Disconnect 20A2P05.

Connect multimeter to read dc voltage between 20A2J05-U (+) and 20A2J05-EE (-).

Turn on electrical power per paragraph 3-3.

On sight hand control:

Move track control stick to left until telescopic sight unit (TSU) line of sight moves to left azimuth limit.

Move track control stick abruptly to the right until TSU line of sight moves to right azimuth limit and observe multimeter (0 -10 V dc scale) for a positive voltage.

Does multimeter indicate a positive voltage?

YES

YES

NO

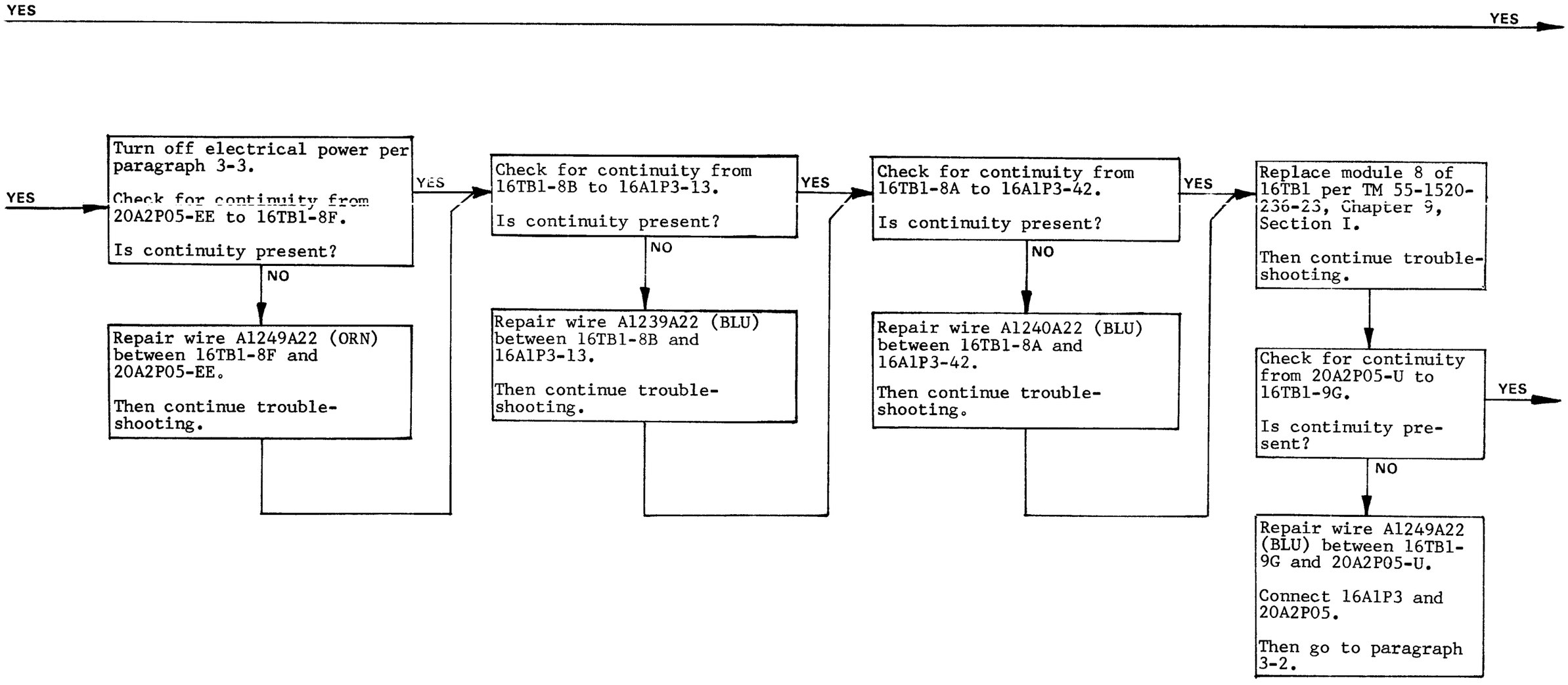
Turn off electrical power per paragraph 3-3.

Connect 16A1P3 and 20A2P05.

Accomplish paragraph 8-2.

Then go to paragraph 3-2.

3-34. GUN OR ROCKETS FIRE INACCURATELY (CONTINUED).



3-34. GUN OR ROCKETS FIRE INACCURATELY (CONTINUED).

YES

Turn off electrical power per paragraph 3-3.

Connect multimeter to read dc voltage between 16A1P3-41 (+) and 16A1P3-42 (-).

Turn on electrical power per paragraph 3-3.

On sight hand control:

Move track control stick forward until telescopic sight unit (TSU) line of sight moves to downward elevation limit.

Move track control stick abruptly to rear until TSU line of sight moves to upward elevation limit and observe multimeter for a positive voltage.

Does multimeter indicate a positive voltage?

YES

NO

Turn off electrical power per paragraph 3-3.

Disconnect 20A2P05.

Connect multimeter to read dc voltage between 20A2J05-T (+) and 20A2J05-EE (-).

Turn on electrical power per paragraph 3-3.

On sight hand control:

Move track control stick forward until telescopic sight unit (TSU) line of sight moves to downward elevation limit.

Move track control stick abruptly to rear until TSU line of sight moves to upward elevation limit and observe multimeter for a positive voltage.

Does multimeter indicate a positive voltage?

YES

NO

Turn off electrical power per paragraph 3-3.

Connect 16A1P3 and 20A2P05.

Accomplish paragraph 8-2.

Then go to paragraph 3-2.

NO

Check for continuity from 16TB1-9H to 16A1P3-12.

Is continuity present?

YES

Replace module 9 of 16TB1 per TM 55-1520-236-23, Chapter 9, Section I.

Connect 16A1P3 and 20A2P05.

Then go to paragraph 3-2.

NO

Repair wire A1239A22 (WHT) between 16TB1-9H and 16A1P3-12.

Connect 16A1P3 and 20A2P05.

Then go to paragraph 3-2.

YES

3-34. GUN OR ROCKETS FIRE INACCURATELY (CONTINUED).

YES

Turn off electrical power per paragraph 3-3.

Check for continuity from the following pins on 16A1P3 to 16A1P3 backshell:

FROM	TO
16A1P3-23	16A1P3 backshell
16A1P3-24	16A1P3 backshell
16A1P3-14	16A1P3 backshell
16A1P3-17	16A1P3 backshell
16A1P3-18	16A1P3 backshell
16A1P3-16	16A1P3 backshell

Is continuity present for any wire?

YES

NO

Check following wires for continuity:

WIRE NO.	FROM	TO
A1238A22(ORN)	1TB10-1C	16A1P3-23
A1238A22(BLU)	1TB10-1H	16A1P3-24
A1238A22(WHT)	1TB10-2C	16A1P3-14
A1237A22(ORN)	1TB10-2H	16A1P3-17
A1237A22(BLU)	1TB10-3C	16A1P3-18
A1237A22(WHT)	1TB10-3H	16A1P3-16

Is continuity present for each wire?

YES

NO

Repair each wire where continuity is not present.

Connect 16A1P3.

Then go to paragraph 3-2.

YES

Turn off electrical power per paragraph 3-3.

Check for continuity from 20A2P05-T to 16TB1-9A.

Is continuity present?

YES

NO

Repair wire A1249A22 (WHT) between 16TB1-9A and 20A2P05-T.

Connect 16A1P3 and 20A2P05.

Then go to paragraph 3-2.

YES

Check for continuity from 16TB1-9C to 16A1P3-41.

Is continuity present?

YES

NO

Repair wire A1240A22 (WHT) between 16TB1-9A and 16A1P3-41.

Connect 16A1P3 and 20A2P05.

Then go to paragraph 3-2.

Replace module 9 of 16TB1 per TM 55-1520-236-23, Chapter 9, Section I.

Connect 16A1P3 and 20A2P05.

Then go to paragraph 3-2.

3-34. GUN OR ROCKETS FIRE INACCURATELY (CONTINUED).

YES → Repair wire(s) where continuity is present to eliminate short(s).

Connect 16A1P3.

Then go to paragraph 3-2.

YES → Check for continuity between terminals of 1TB10 as follows:

FROM	TO
1TB10-1A	1TB10-1C
1TB10-1F	1TB10-1H
1TB10-2A	1TB10-2C
1TB10-2F	1TB10-2H
1TB10-3A	1TB10-3C
1TB10-3F	1TB10-3H

Is continuity present between each pair of terminals?

NO → Replace module of 1TB10 where continuity is not present per TM 55-1520-236-23, Chapter 9, Section I.

Then go to paragraph 3-2.

YES → Test interface control unit (IFCU) per TM 9-1090-206-20-1, Chapter 3, Section IV.

Does interface control unit (IFCU) pass test?

NO → Replace interface control unit (IFCU) per TM 9-1090-206-20-1, Chapter 3, Section XVII.

Then go to paragraph 3-2.

YES → Test fire control computer (FCC) per TM 9-1270-218-13, Chapter 5, Section III.

Does fire control computer (FCC) pass test?

NO → Replace fire control computer (FCC) per TM 9-1270-218-13, Chapter 4, Section IV.

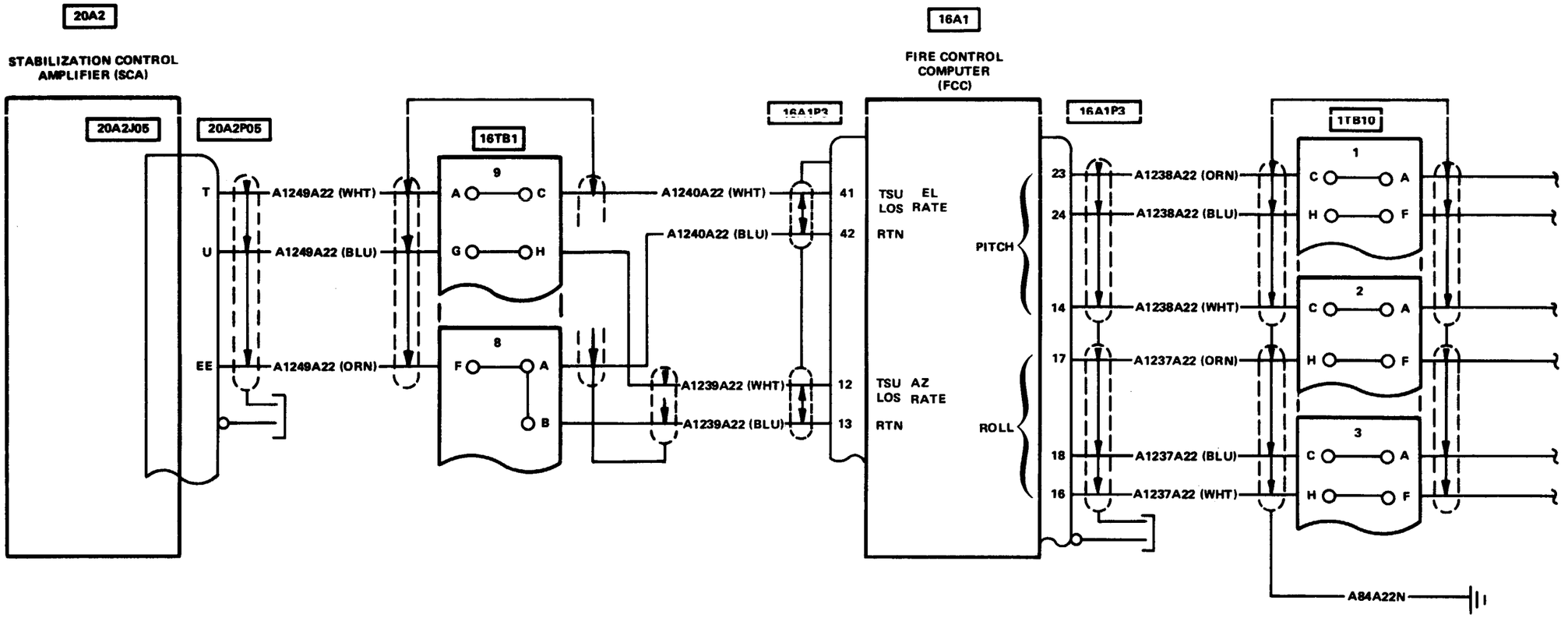
Then go to paragraph 3-2.

YES → Perform boresight alignment of helicopter per TM 9-1090-206-30, Chapter 7, Sections I through 10.

Replace boresight memory module per TM 9-1270-218-13, Chapter 4, Section IV, if descrepencies occur during alignment.

Then go to paragraph 3-2.

3-34. GUN OR ROCKETS FIRE INACCURATELY (CONTINUED).



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3-35. FCC CIRCUIT BREAKER WILL NOT STAY CLOSED.

INITIAL SETUP

Applicable Configuration
All

Tools/Test and Support Equipment
Multimeter

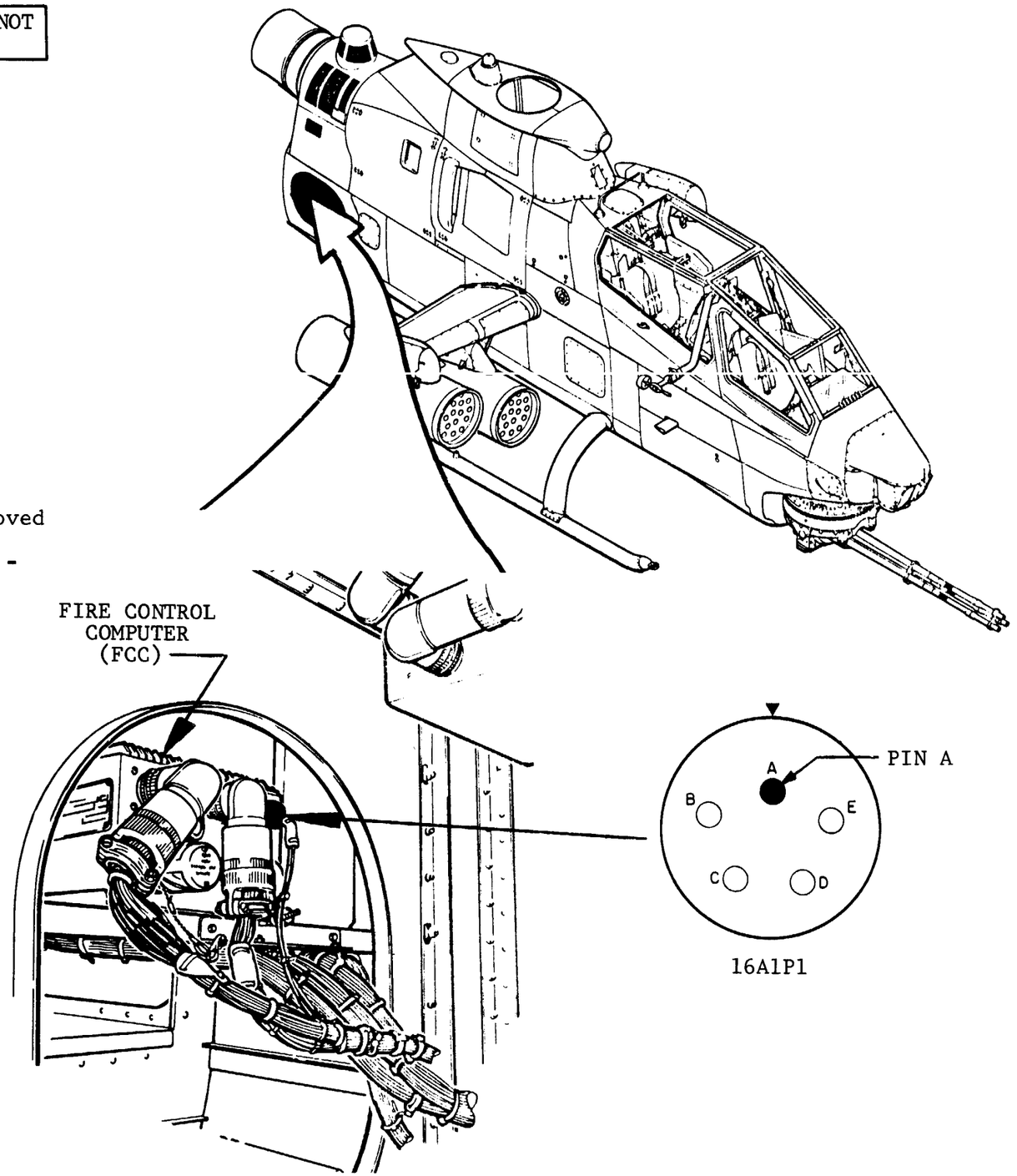
Tool Set, A/C Armament Repairman

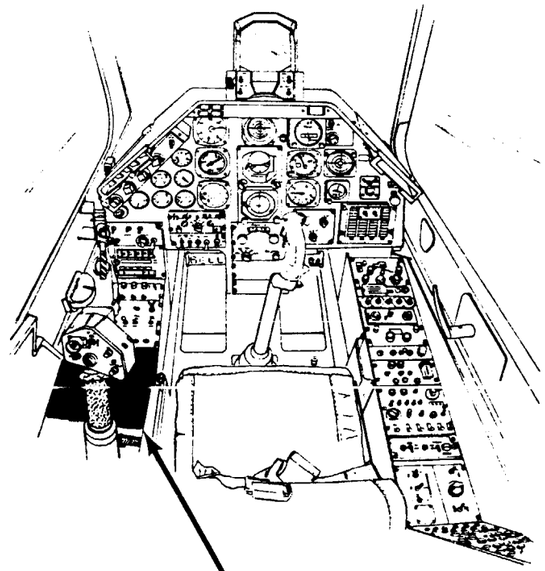
Personnel Required
68J (1)

References
TM 55-1520-236-23
TM 9-1270-218-13

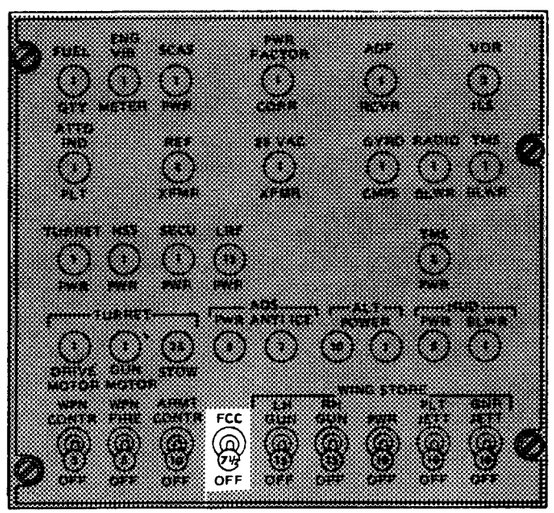
Access Panels
Battery Compartment - Removed

Left Side Control Linkage - Removed



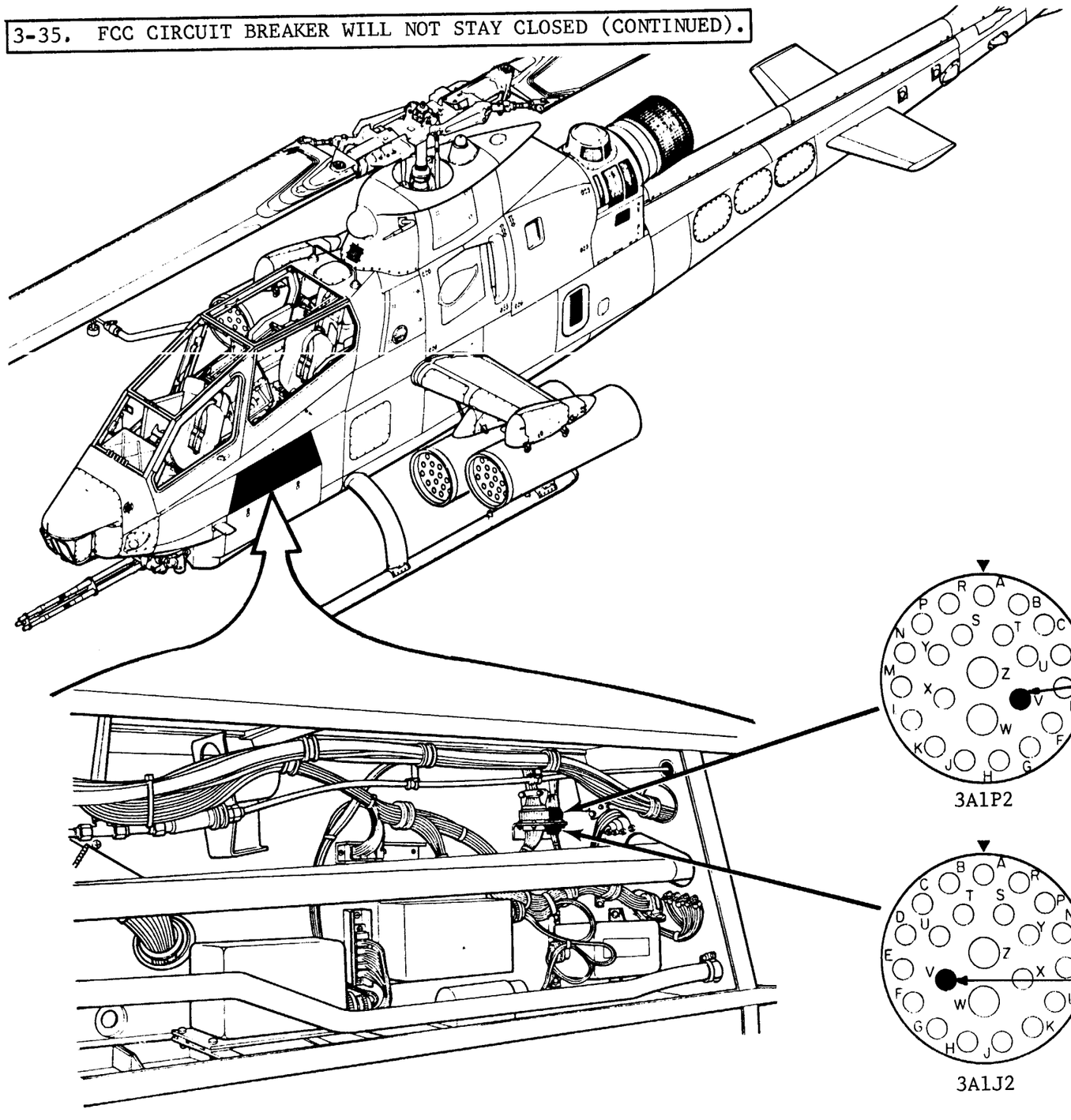


PILOT STATION



AC/ARMT CIRCUIT BREAKER PANEL

3-35. FCC CIRCUIT BREAKER WILL NOT STAY CLOSED (CONTINUED).



Turn off electrical power per paragraph 3-3.

Disconnect 16A1P1.

Turn on electrical power per paragraph 3-3.

On AC/ARMT circuit breaker panel:

Close FCC circuit breaker.

Does FCC circuit breaker remain closed?

YES →

NO ↓

Turn off electrical power per paragraph 3-3.

Check for continuity from 16A1P1-A to airframe ground.

Is continuity present?

YES →

NO ↓

Replace FCC circuit breaker per TM 55-1520-236-23, Chapter 9, Section I.

Connect 16A1P1.

Then go to paragraph 3-2.

3-35. FCC CIRCUIT BREAKER WILL NOT STAY CLOSED (CONTINUED).

Turn off electrical power per paragraph 3-3.

Replace fire control computer (FCC) per TM 9-1270-218-13, Chapter 4, Section IV.

Then go to paragraph 3-2.

YES

Check for continuity from 3A1J2-V to airframe ground.

Is continuity present?

YES

Repair wire A1140B20 between 16A1P1-A and 3A1J2-V to eliminate short.

Connect 16A1P1.

Then go to paragraph 3-2.

NO

Remove AC/ARMT circuit breaker panel per TM 55-1520-236-23, Chapter 9, Section I.

Disconnect wire A1140A20 from FCC circuit breaker.

Check for continuity from 3A1P2-V to chassis ground.

Is continuity present?

YES

Repair wire A1140A20 between 3A1P2-V and FCC circuit breaker to eliminate short.

Install AC/ARMT circuit breaker panel per TM 55-1520-236-23, Chapter 9, Section I.

Connect 16A1P1.

Then go to paragraph 3-2.

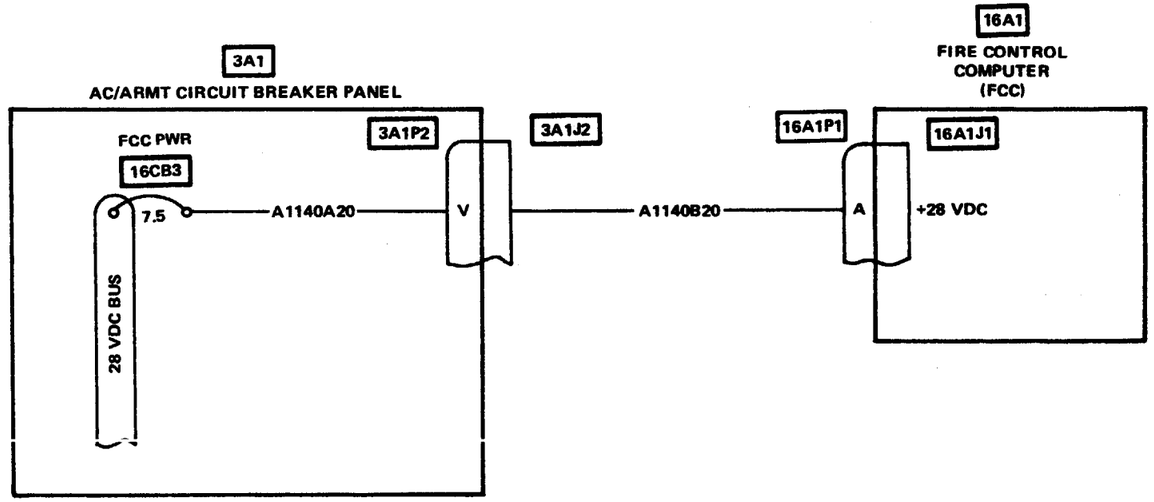
NO

Replace FCC circuit breaker per TM 55-1520-236-23, Chapter 9, Section I.

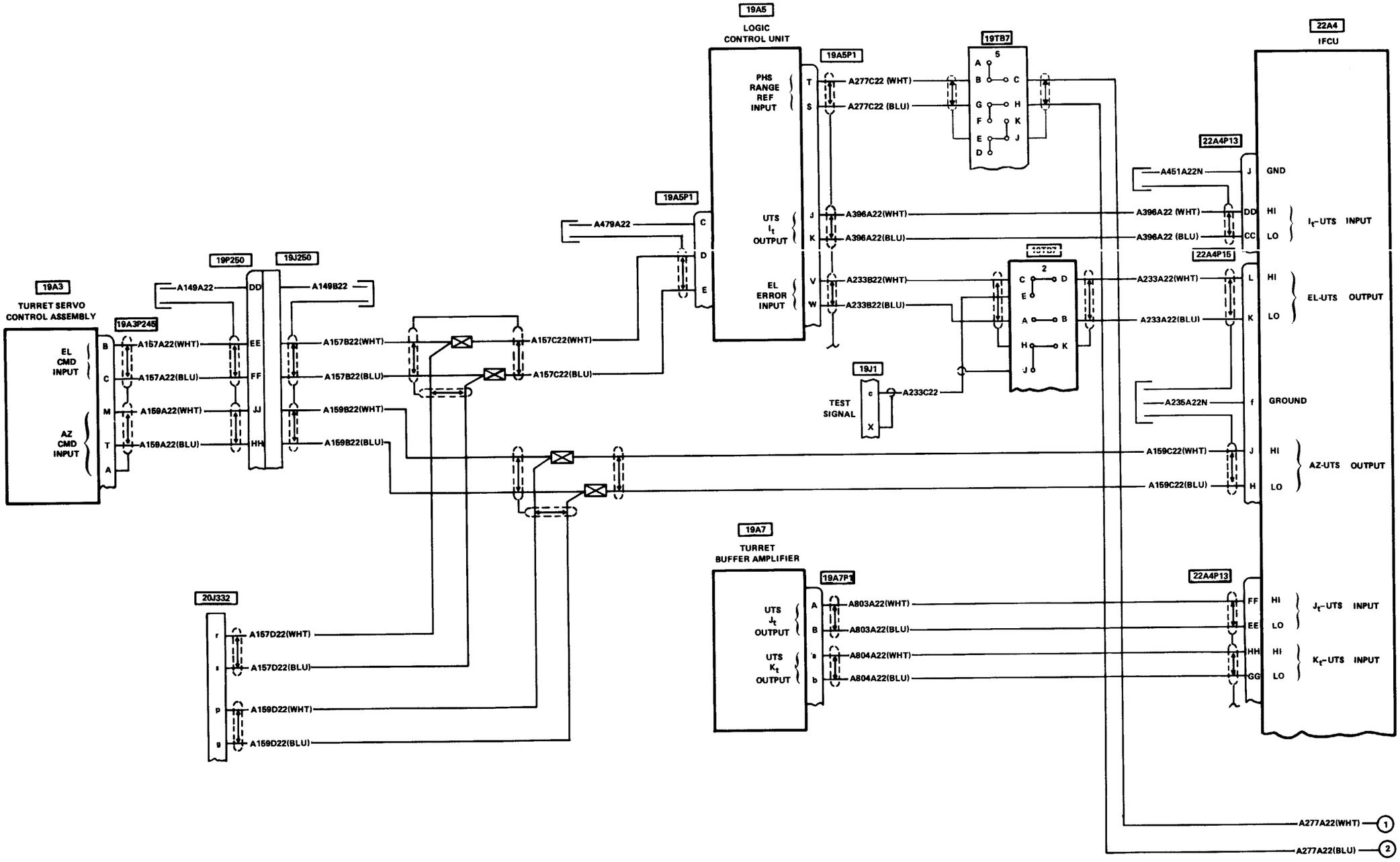
Install AC/ARMT circuit breaker panel per TM 55-1520-236-23, Chapter 9, Section I.

Connect 16A1P1.

Then go to paragraph 3-2.

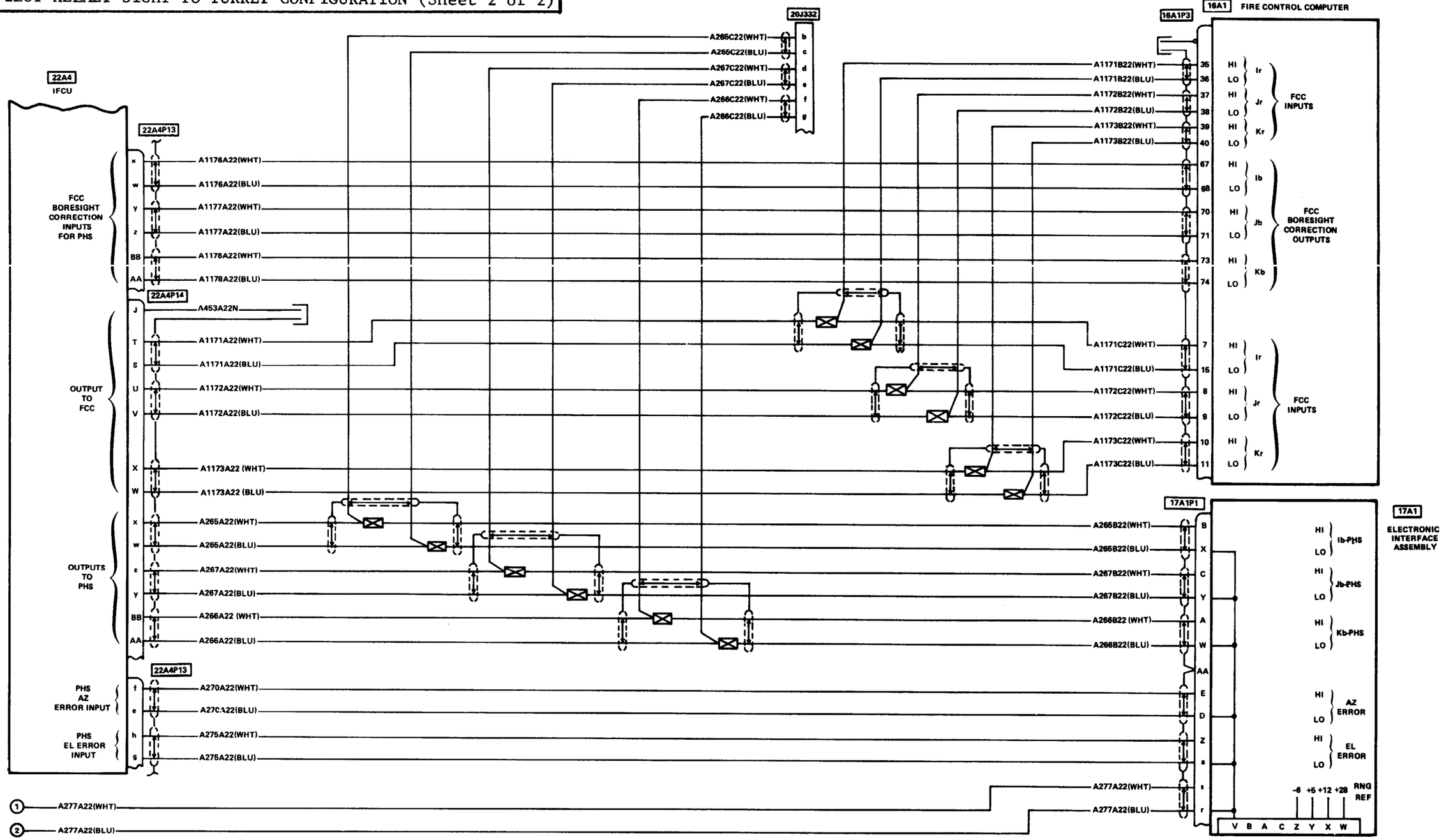


PILOT HELMET SIGHT TO TURRET CONFIGURATION (Sheet 1 of 2)



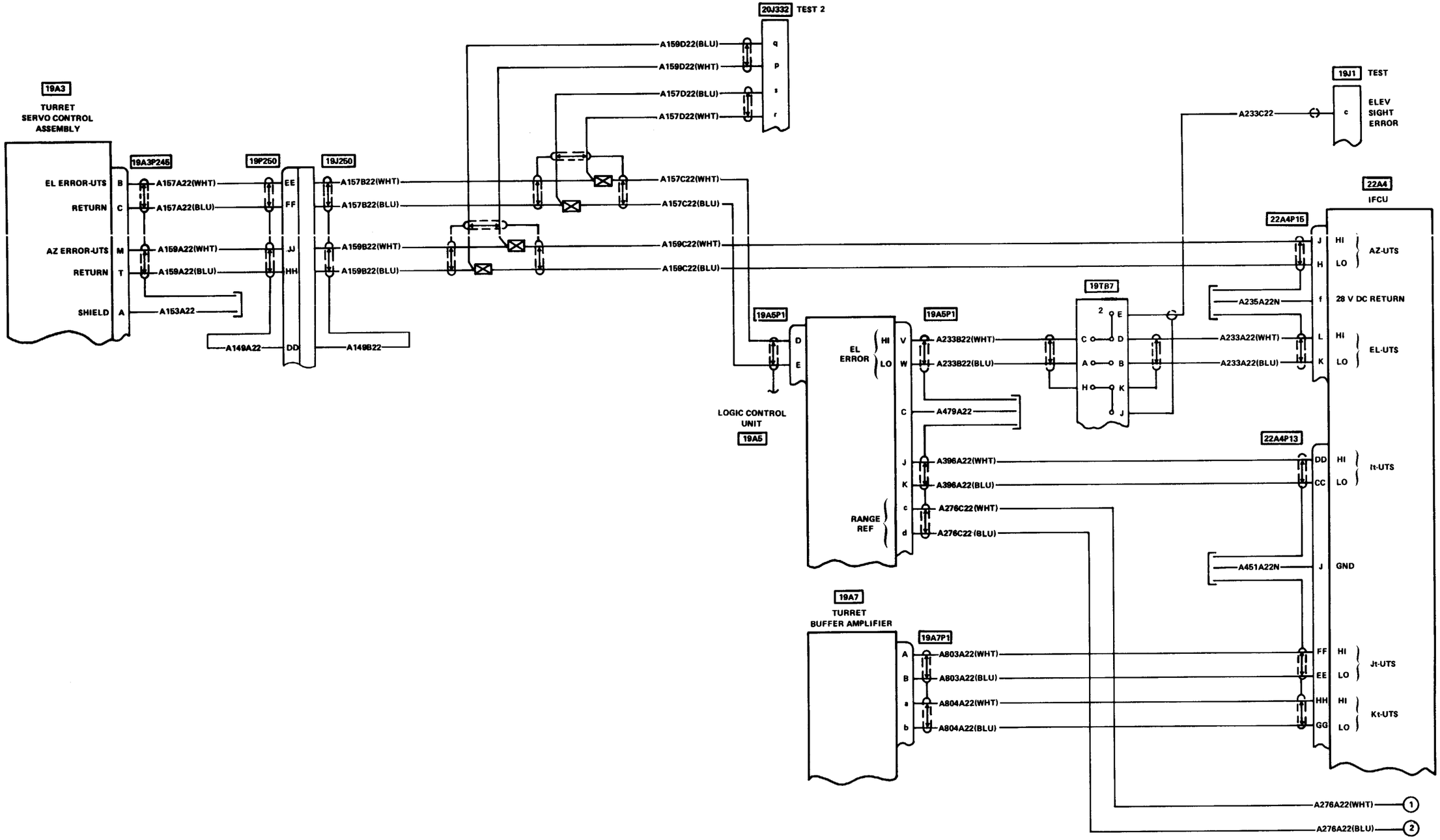
5S-A31

PILOT HELMET SIGHT TO TURRET CONFIGURATION (Sheet 2 of 2)

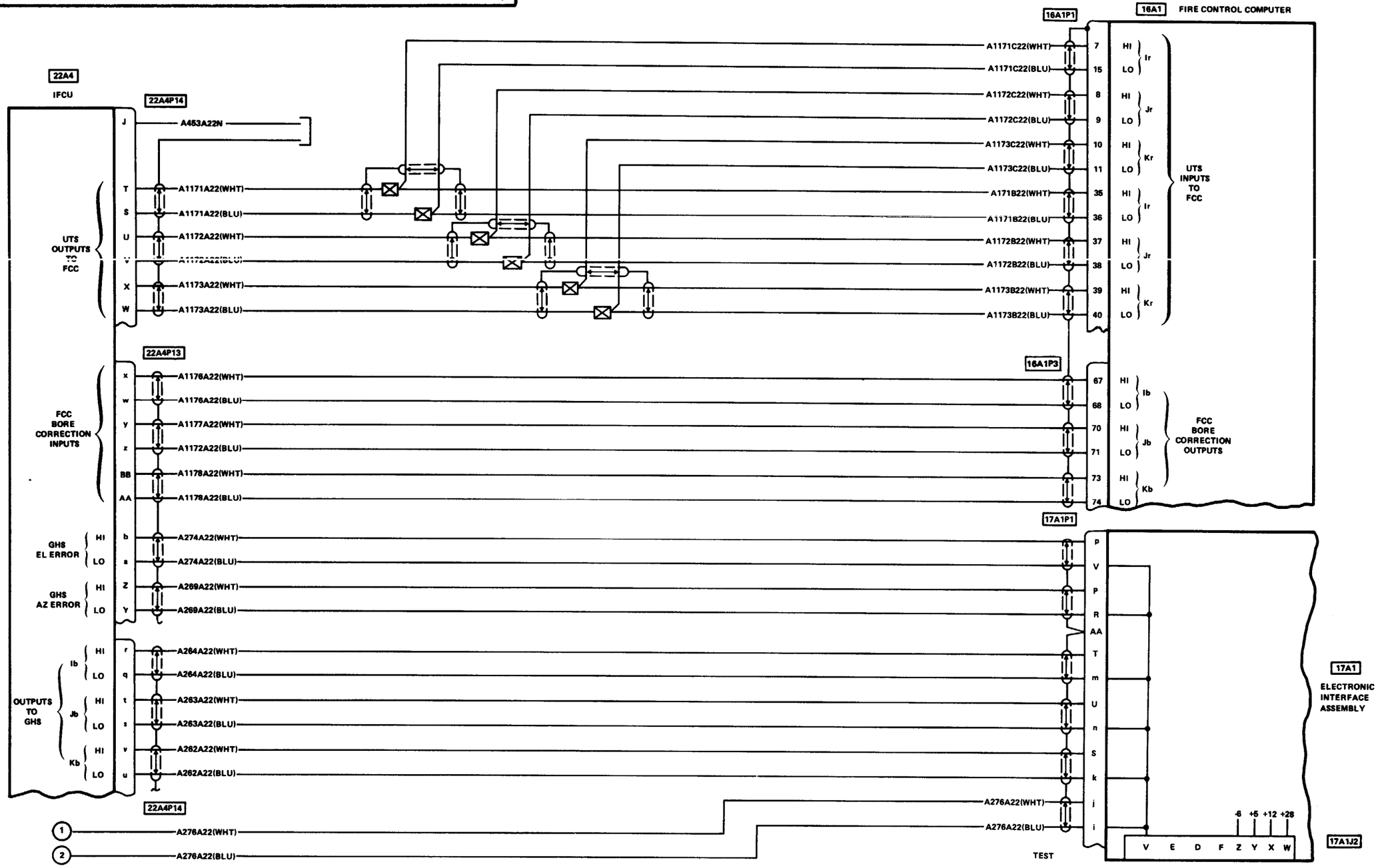


32

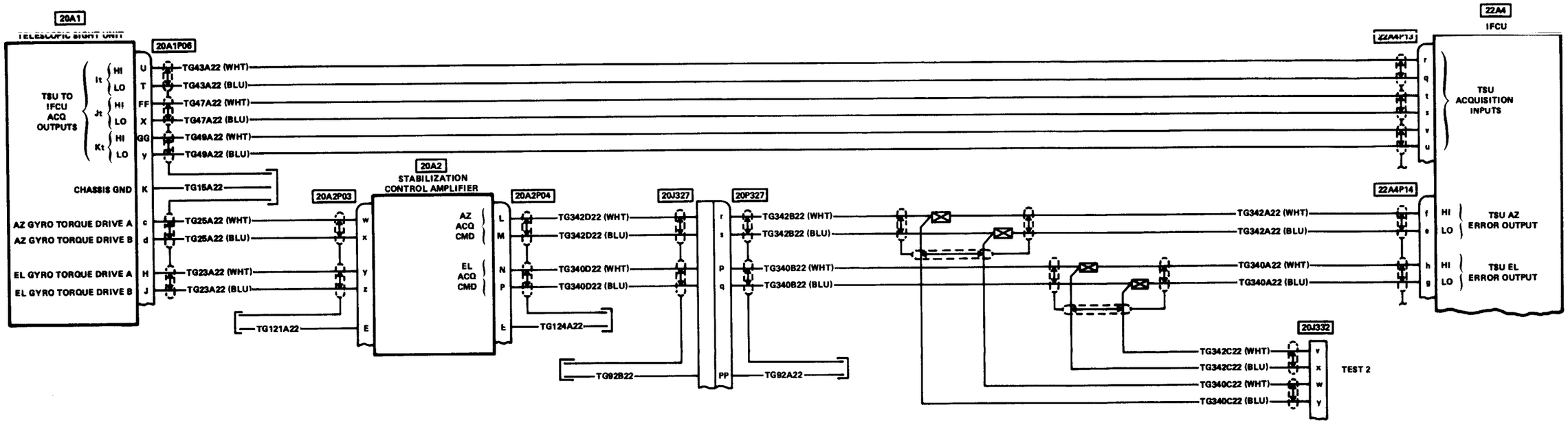
GUNNER HELMET SIGHT TO TURRET CONFIGURATION (Sheet 1 of 2)



GUNNER HELMET SIGHT TO TURRET CONFIGURATION (Sheet 2 of 2)

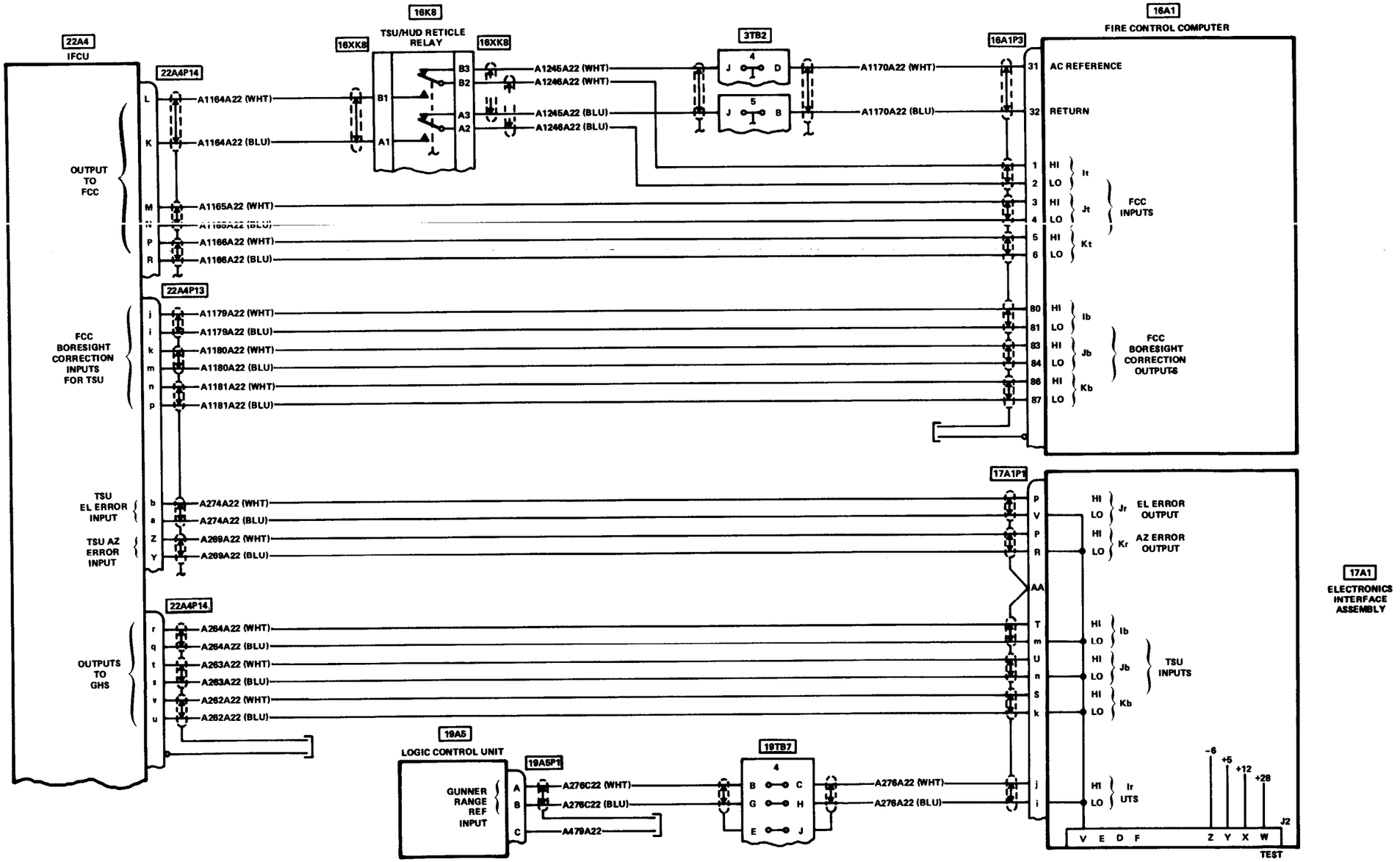


GUNNER HELMET SIGHT ACQUISITION MODE (Sheet 1 of 2)



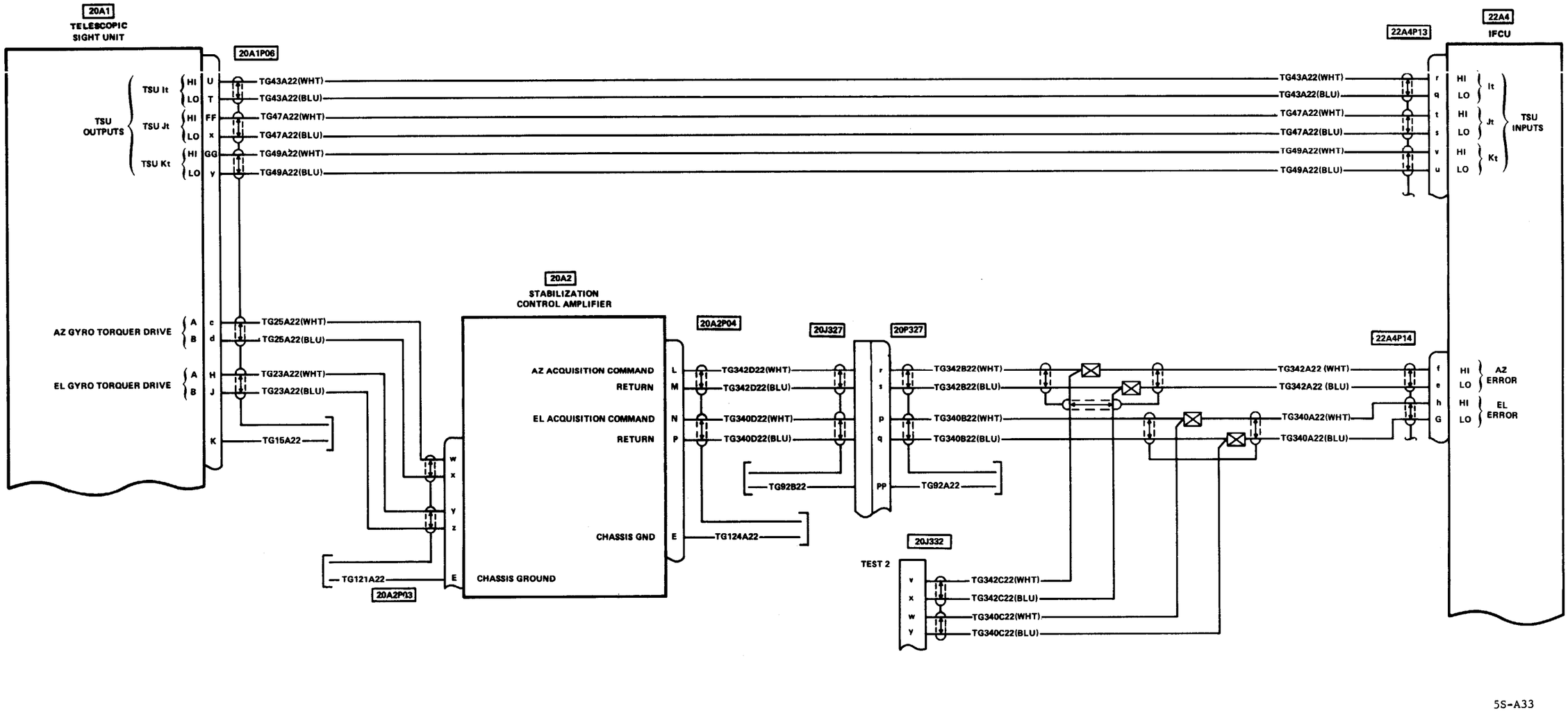
26

GUNNER HELMET SIGHT ACQUISITION MODE (Sheet 2 of 2)



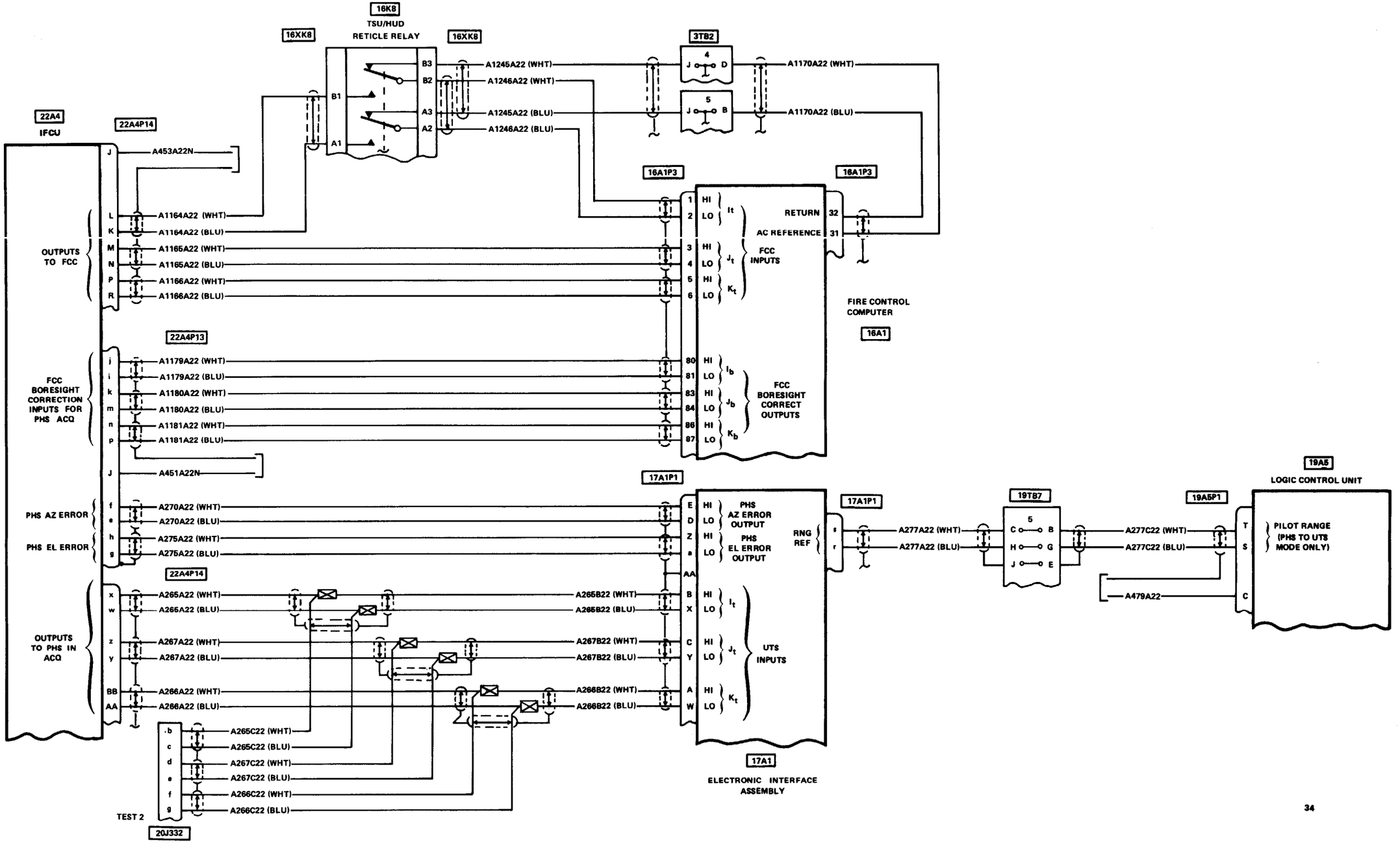
27

PILOT HELMET SIGHT ACQUISITION MODE (Sheet 1 of 2)

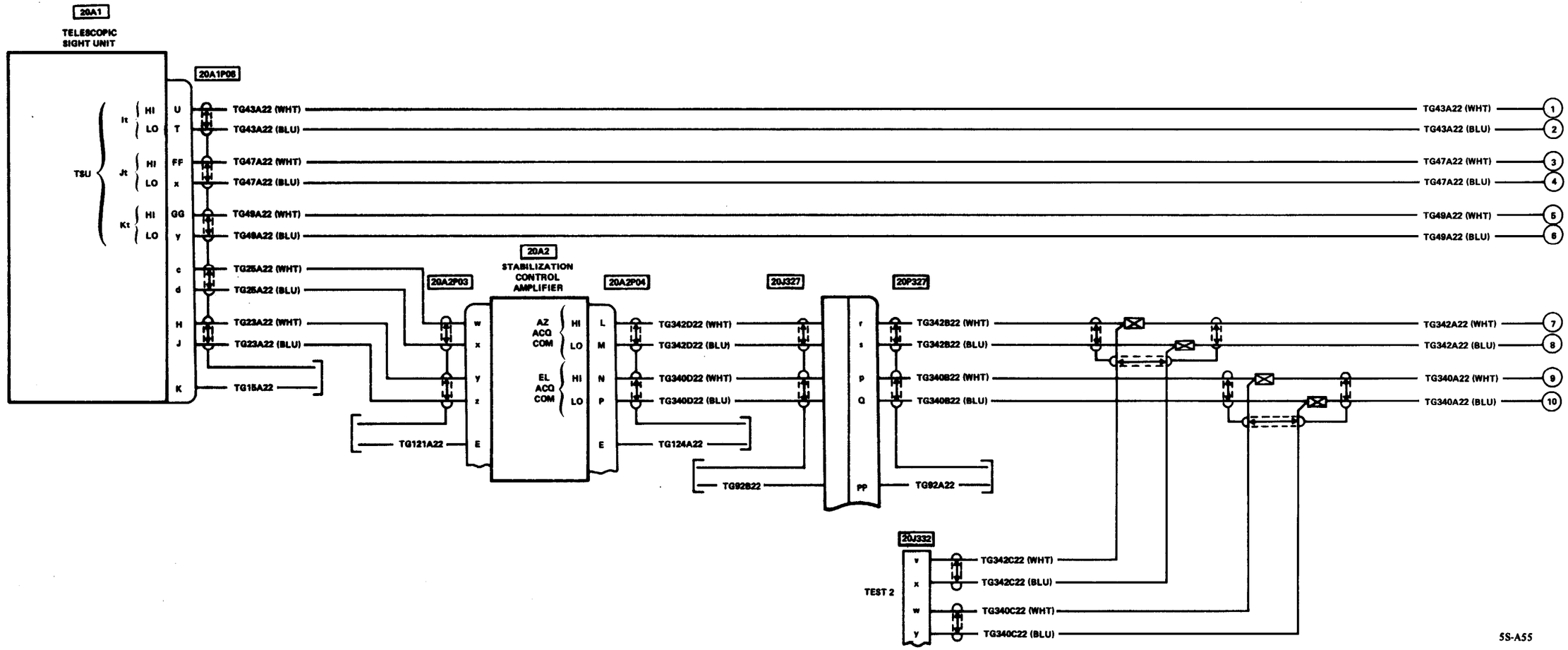


5S-A33

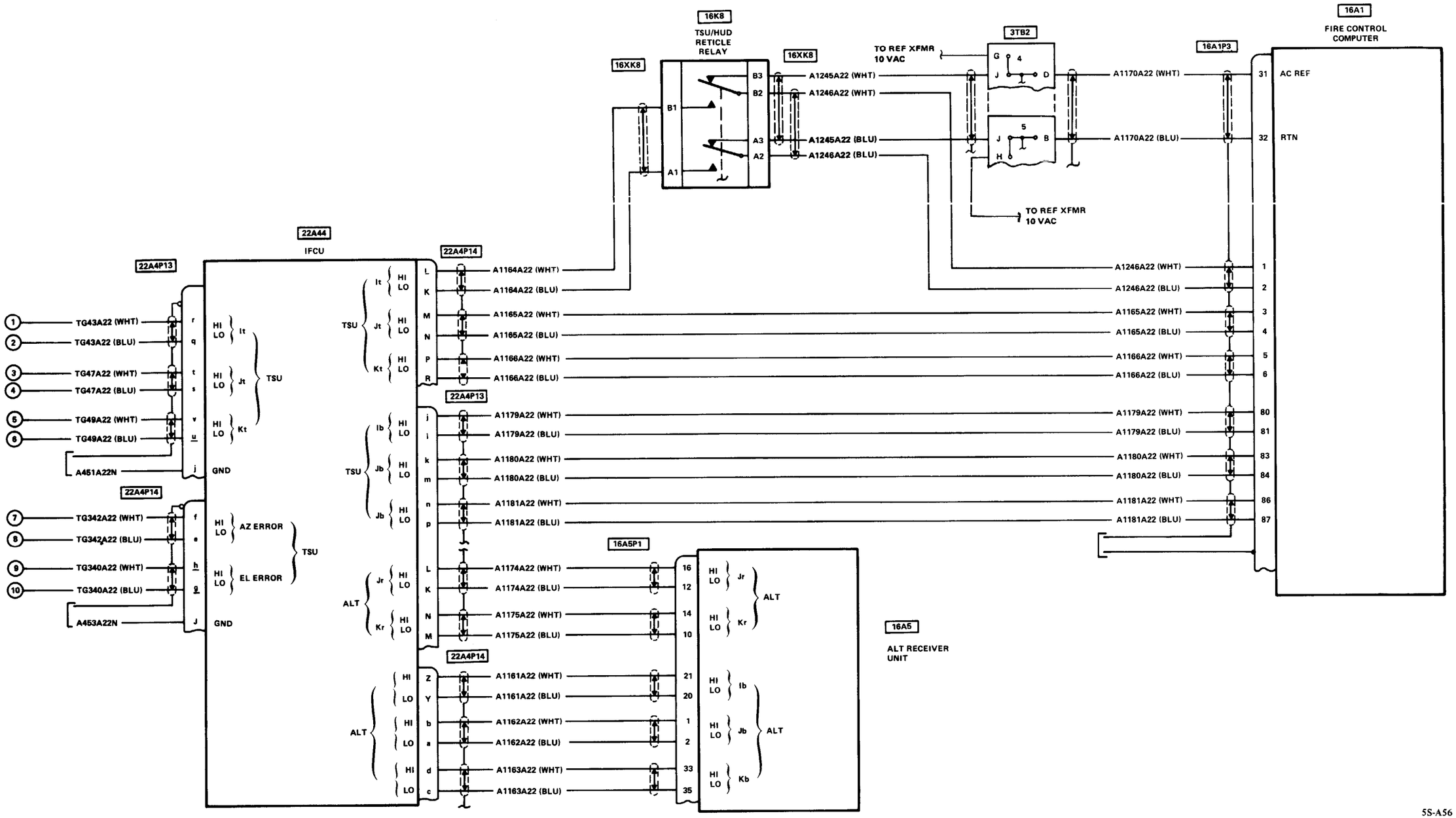
PILOT HELMET SIGHT ACQUISITION MODE (Sheet 2 of 2)



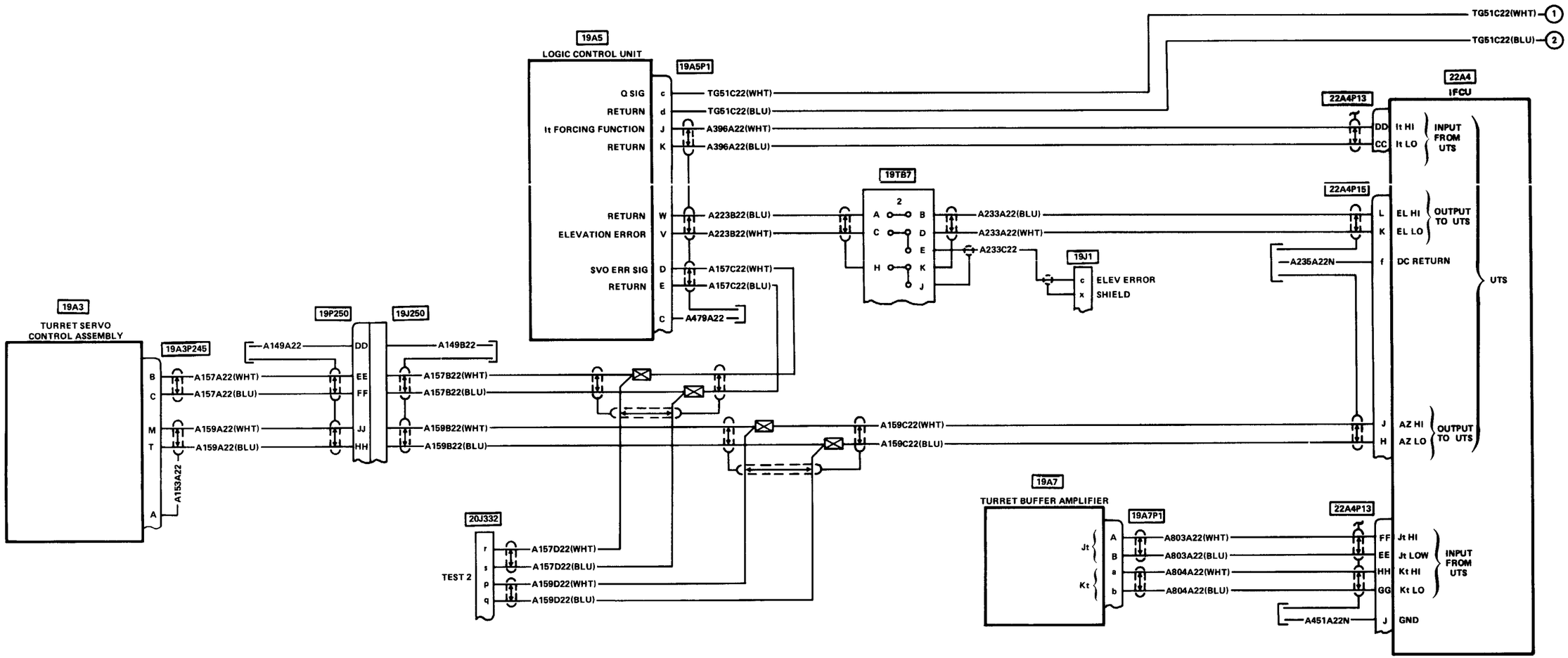
AIRBORNE LASER TRACKER ACQUISITION MODE (Sheet 1 of 2)



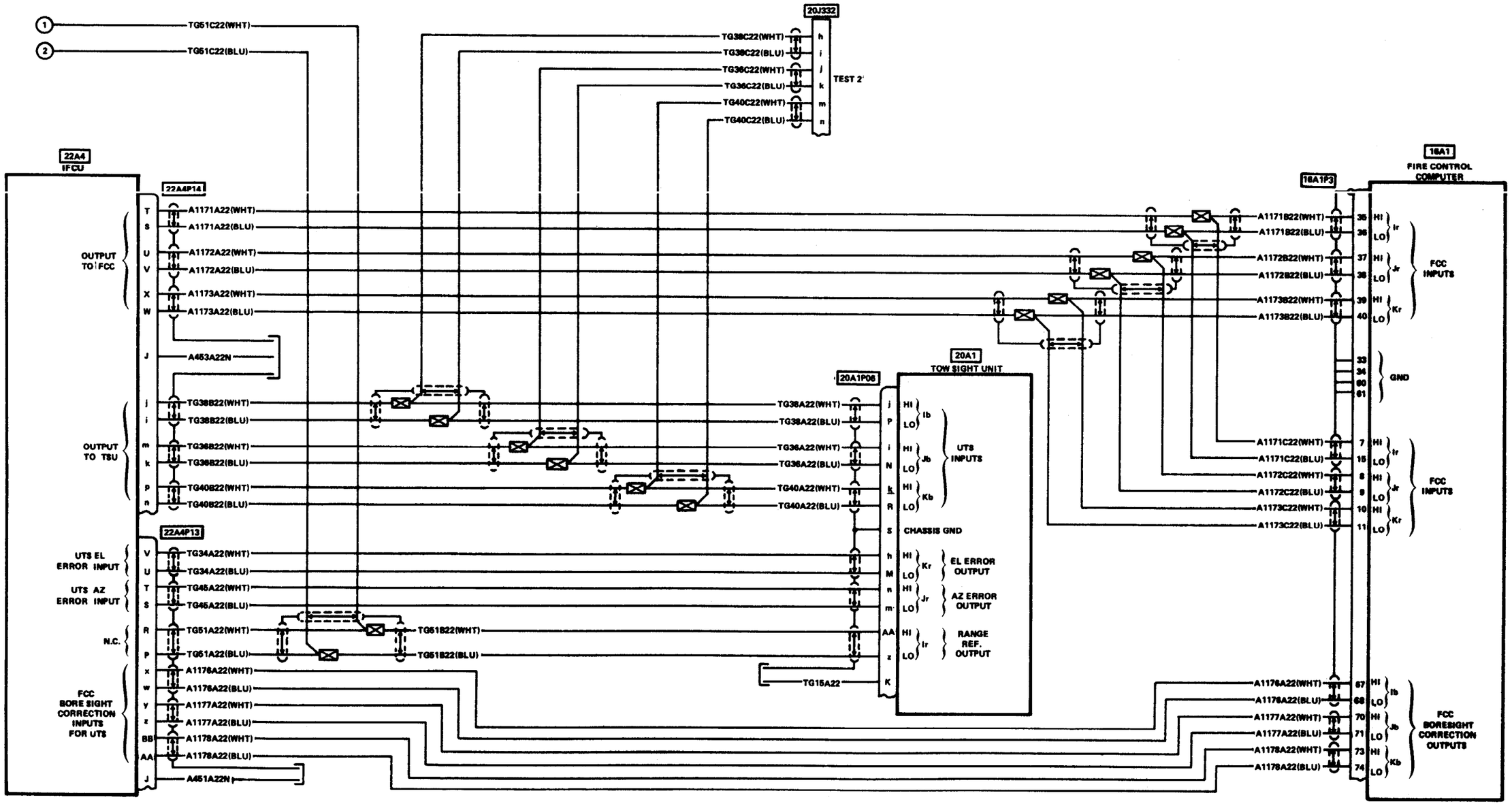
AIRBORNE LASER TRACKER ACQUISITION MODE (Sheet 2 of 2)



TSU TO TURRET CONFIGURATION (Sheet 1 of 2)

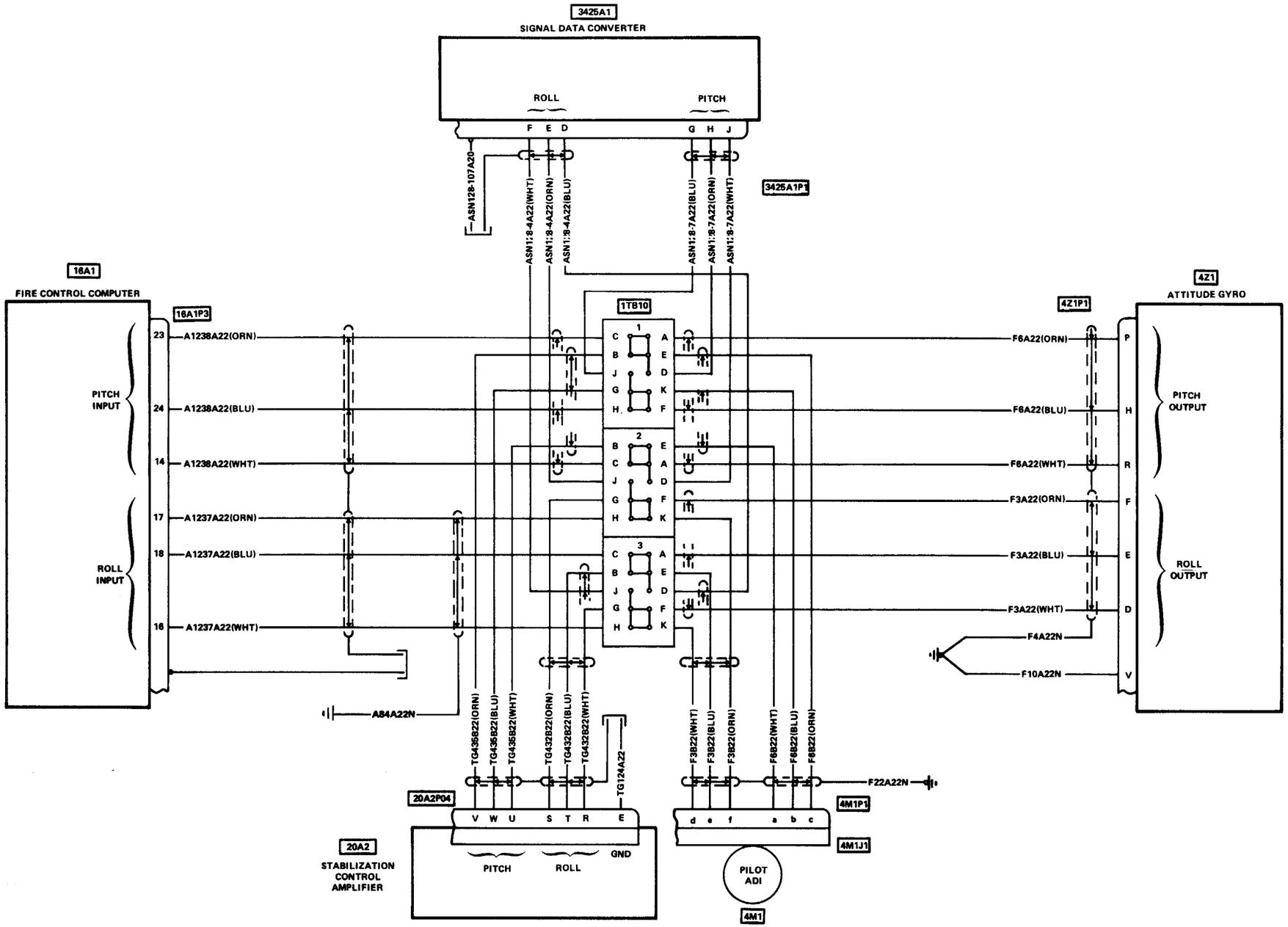


TSU TO TURRET CONFIGURATION (Sheet 2 of 2)

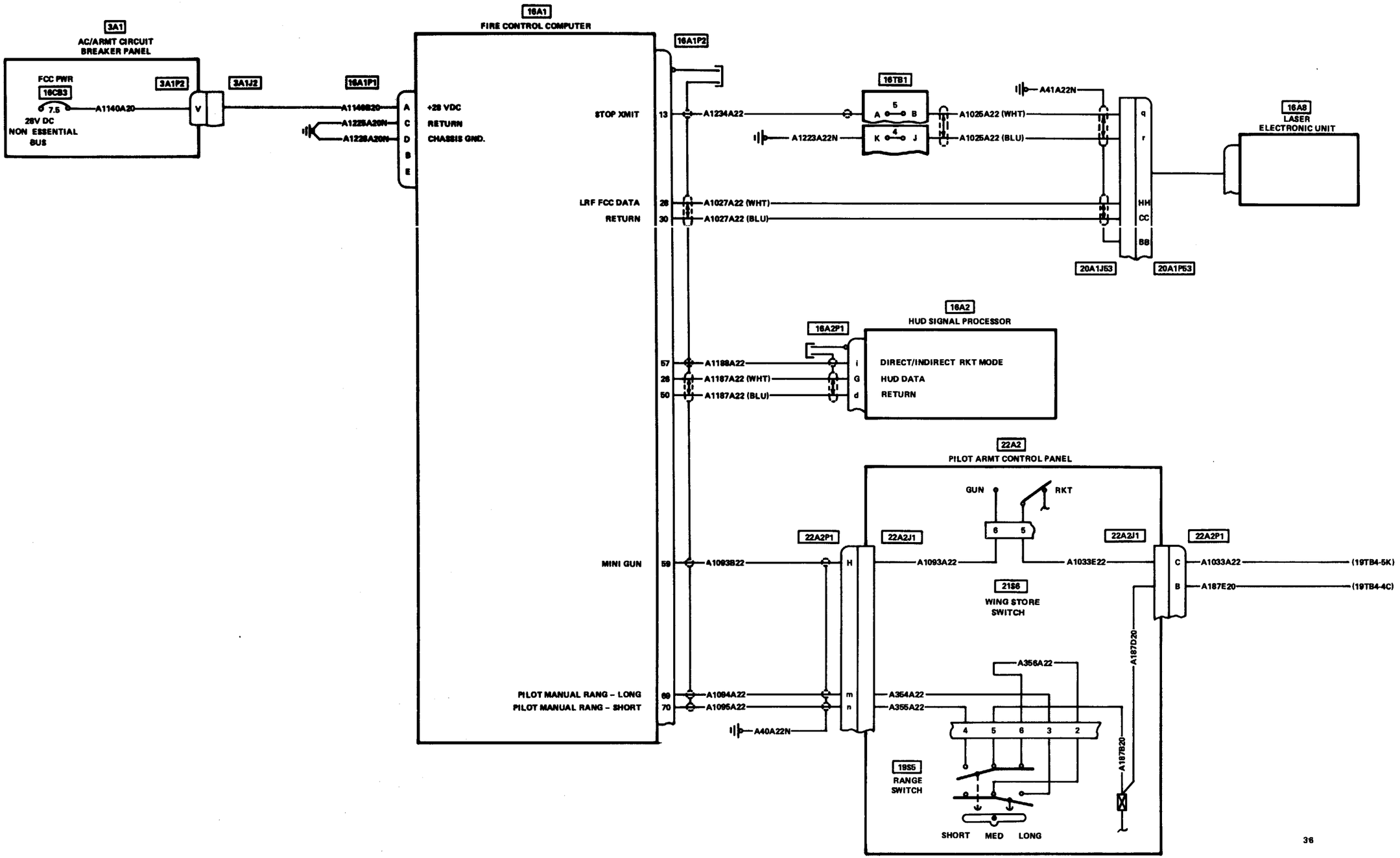


5S-A29

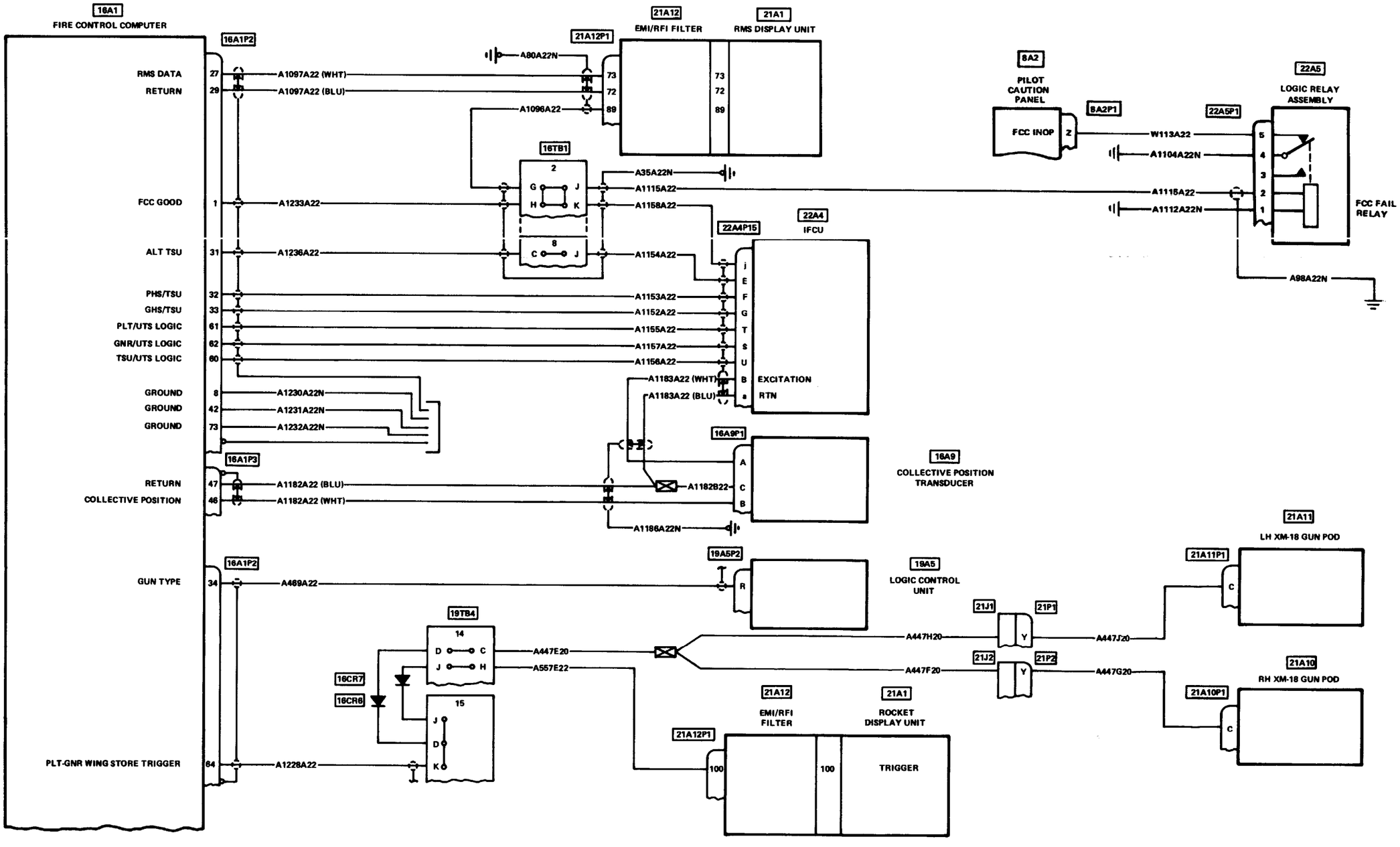
ROLL AND PITCH INPUTS (Sheet 1 of 1)



INPUTS AND OUTPUTS (Sheet 1 of 5)

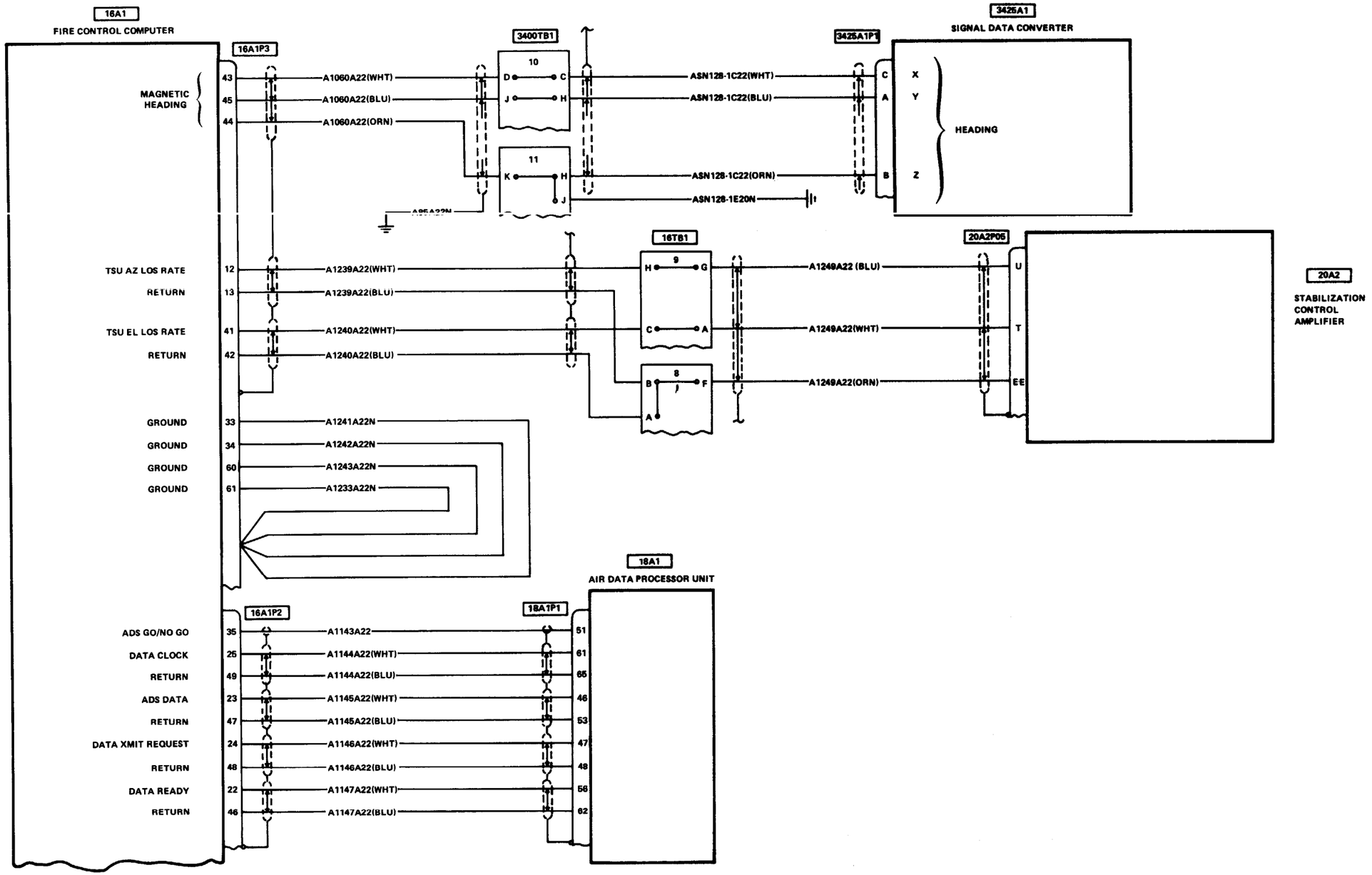


INPUTS AND OUTPUTS (Sheet 2 of 5)



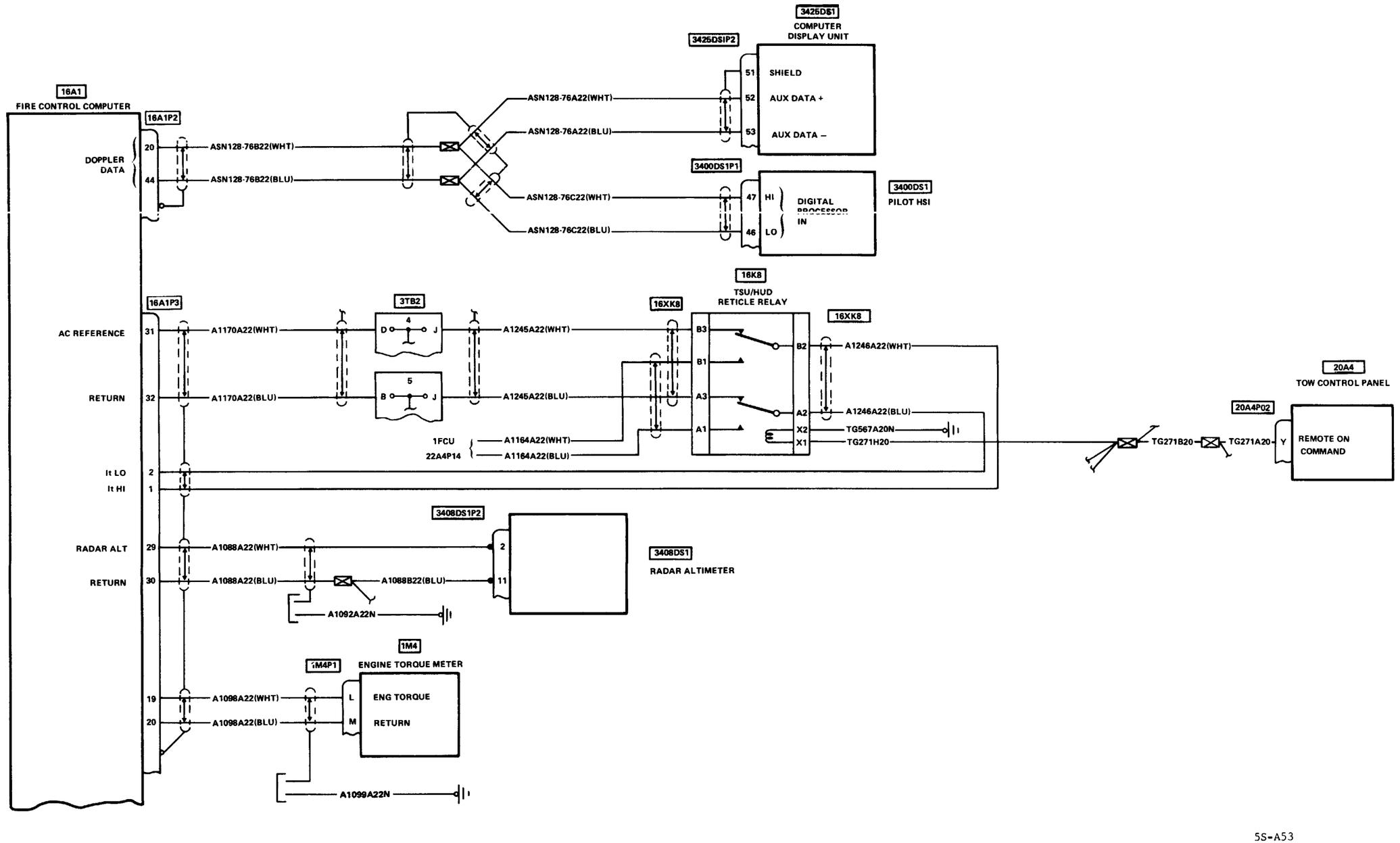
37

INPUTS AND OUTPUTS (Sheet 3 of 5)



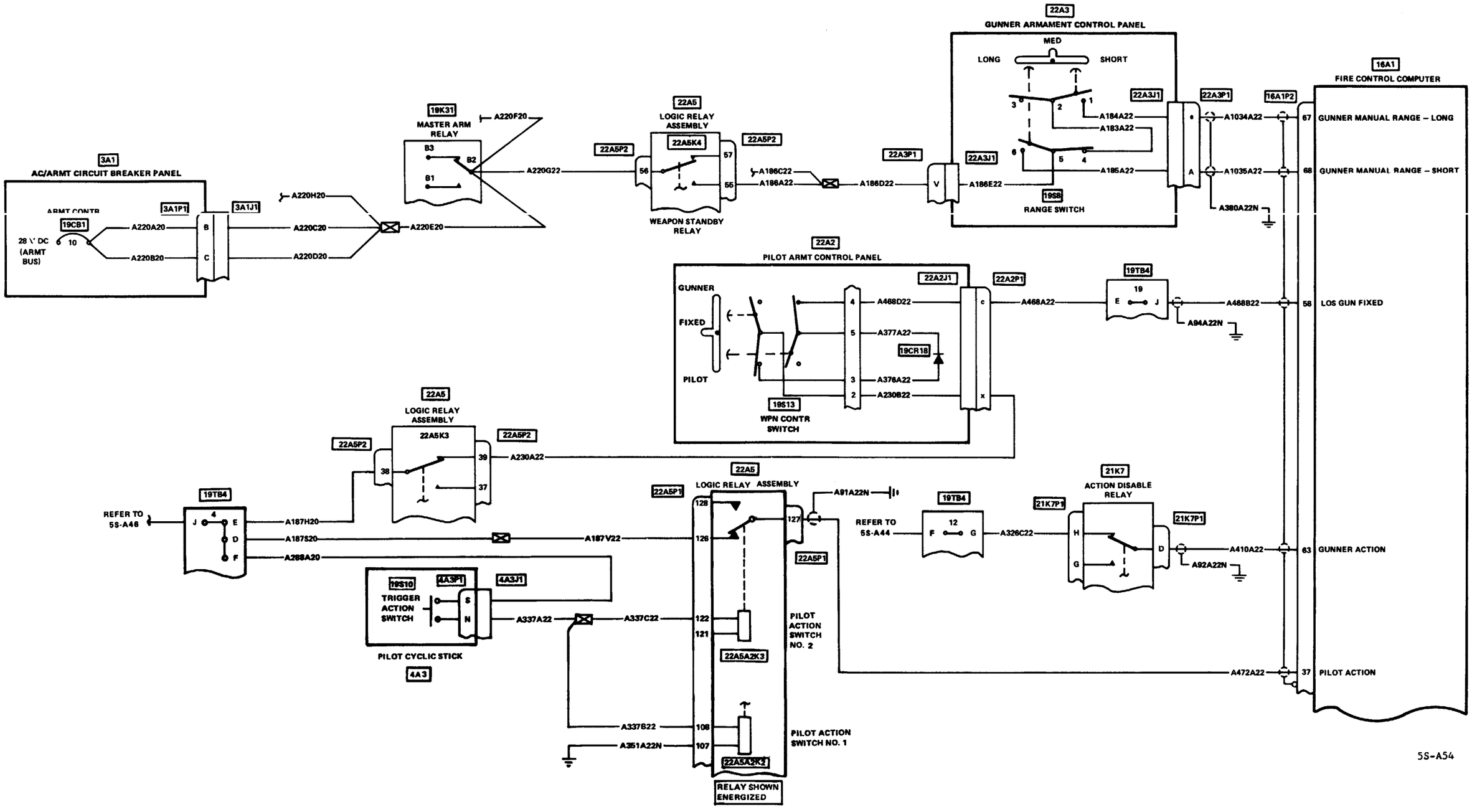
5S-A40

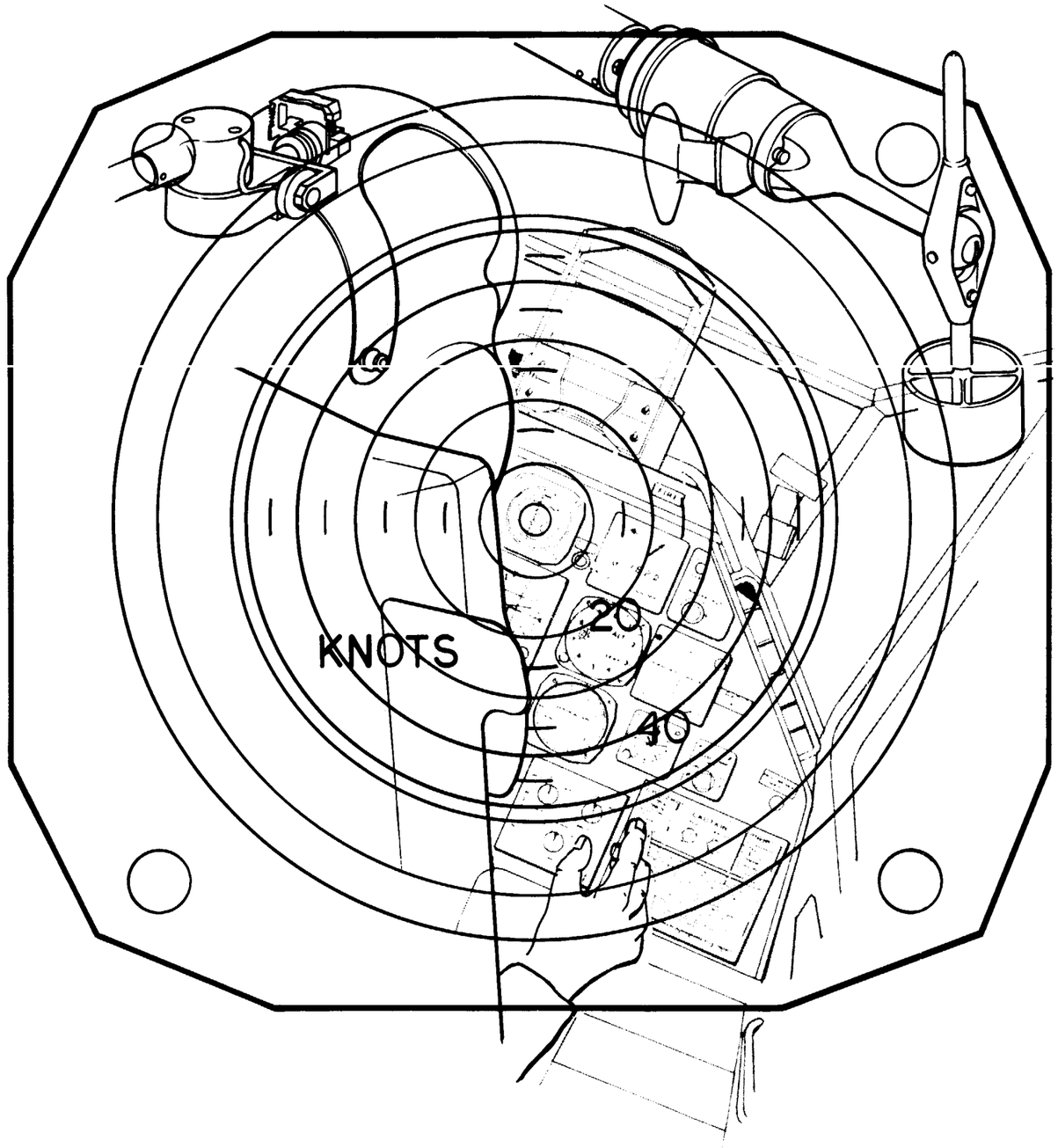
INPUTS AND OUTPUTS (Sheet 4 of 5)



5S-A53

INPUTS AND OUTPUTS (Sheet 5 of 5)





CHAPTER 4

AIR DATA SUBSYSTEM (ADS) TROUBLESHOOTING

OVERVIEW

This chapter contains the ADS operational check and logic tree troubleshooting procedures.

If a fault occurs during the operational check, stop the check, leave switches and circuit breakers in position, and refer to MAPS in Chapter 1 for that symptom. The MAPS will refer to a specific troubleshooting or repair procedure, for that fault.

WARNING

Turn off all electrical power when removing equipment or disconnecting electrical connectors unless otherwise noted in the procedures.

TM 55-1520-239-23 maintenance manual may be used instead of TM 55-1520-236-23 maintenance manual referenced throughout this chapter.

4-1. ADS PRE-OPERATIONAL CHECK SETUP.

INITIAL SETUP

Applicable Configuration
All

Personnel Required
68J (1)

a. Open (OFF) all circuit breakers on AC/ARMT circuit breaker panel.

b. Open all circuit breakers on DC circuit breaker panel.

c. Remove AADS protective cover.

d. Set pilot ARMT control panel switches:

(1) MASTER ARM to OFF.
(2) WING STORE to RKT.
(3) WPN CONTR to GUNNER.

e. Set HUD switches:

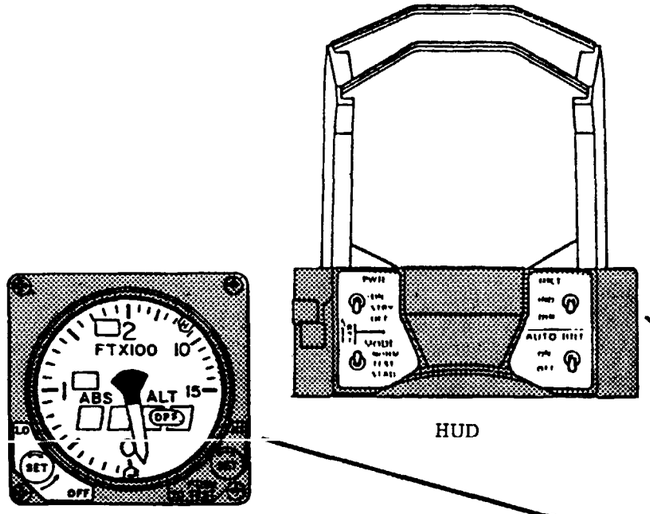
(1) PWR to OFF.
(2) MODE to NORM.
(3) RKT to DIR.
(4) AUTO BRT to OFF.

f. Set LTG/ECS control panel switches:

(1) PITOT/ADS HTR to OFF.
(2) ECU/RAIN RMV to OFF.

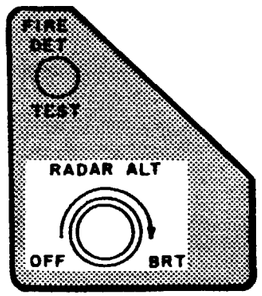
g. Set radar altimeter controls:

(1) LO SET knob to OFF.
(2) RADAR ALT lighting control to OFF.

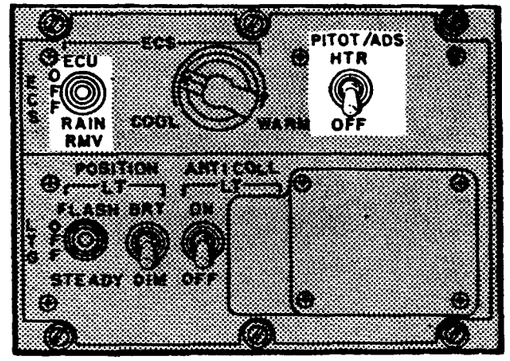


RADAR ALTIMETER

HUD



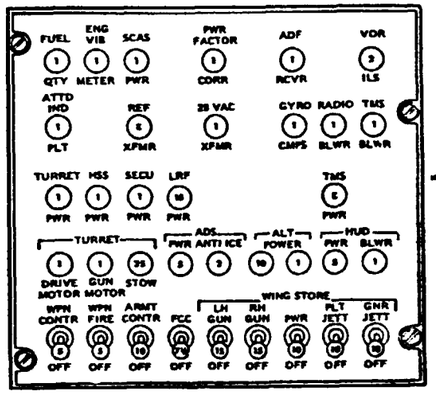
RADAR ALTIMETER LIGHTING CONTROL



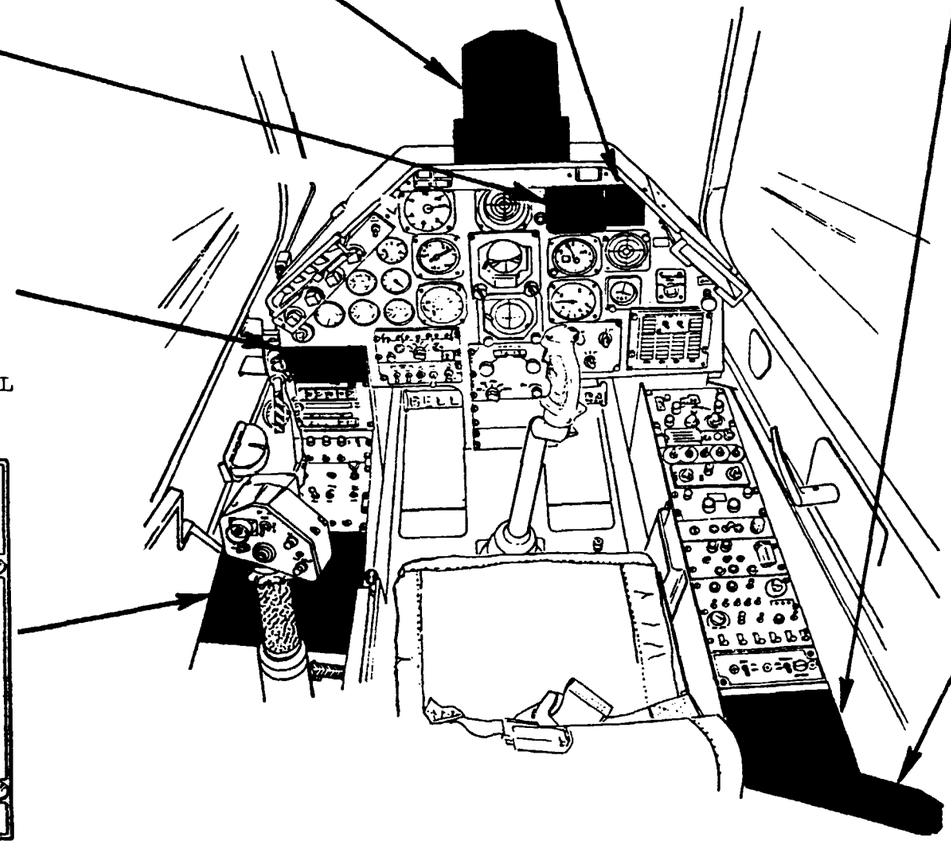
LTG/ECS CONTROL PANEL



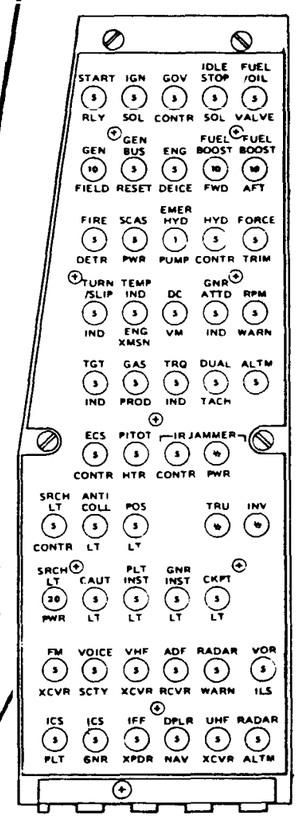
PILOT ARMT CONTROL PANEL



AC/ARMT CIRCUIT BREAKER PANEL



PILOT STATION



DC CIRCUIT BREAKER PANEL

4-2. ADS OPERATIONAL CHECK

INITIAL SETUP

Applicable Configuration
All

Tools/Test and Support Equipment
Multimeter

Tool Kit, A/C Electrician

Ground Power Unit

MB-1A Tester, Pitot-Static Systems

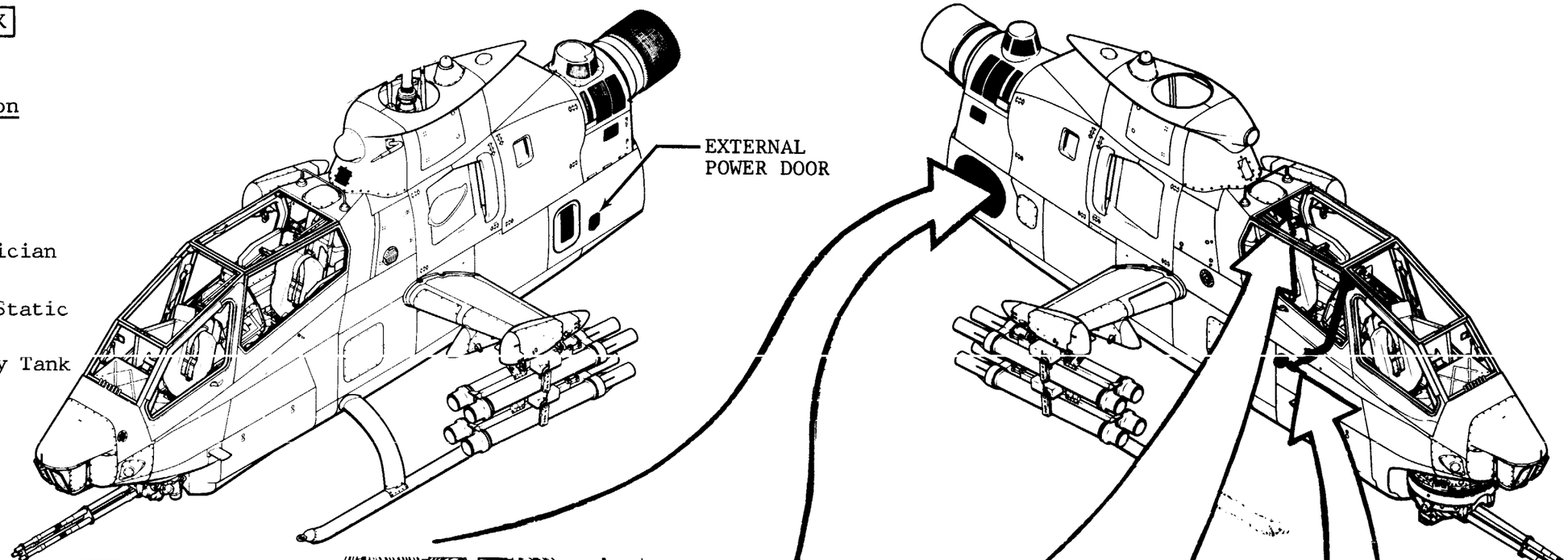
Dual Purpose Capacity Tank (Locally Fabricated)

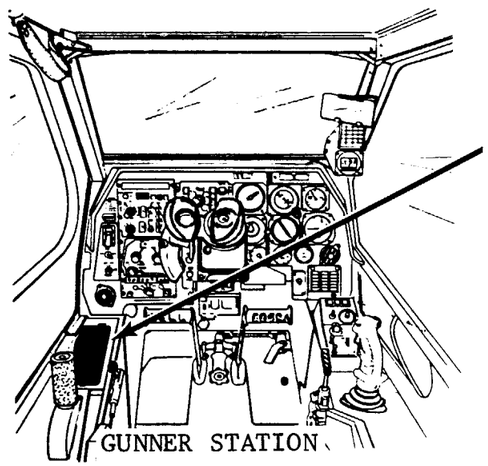
Personnel Required
68F (2)

References
TM 9-1270-219-13
TM 55-1520-236-10
TM 55-1520-236-23
TM 9-1270-219-13
TO 33D2-6-9-11

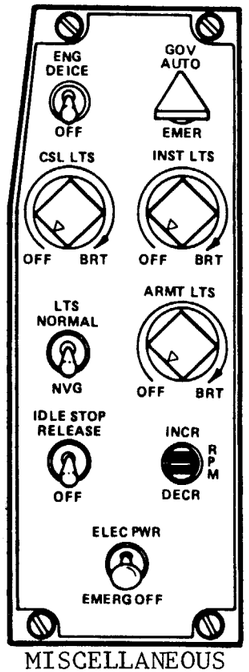
Access Panels
Battery Compartment - Removed

External Power Door - Open

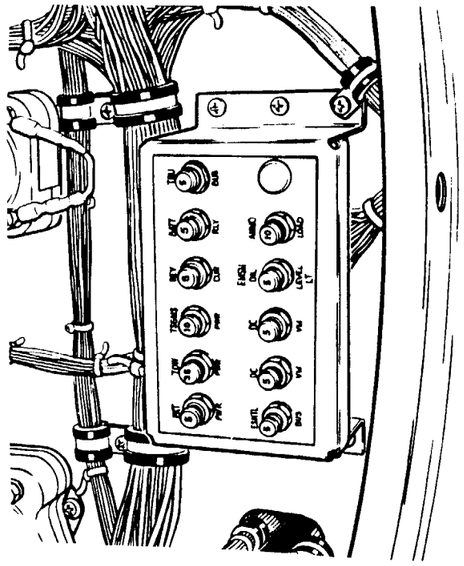




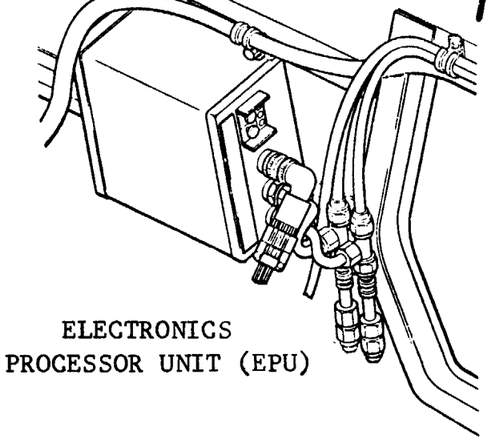
GUNNER STATION



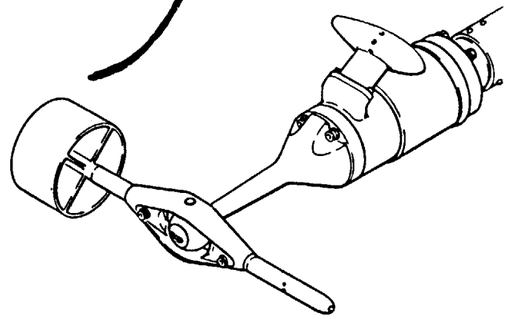
MISCELLANEOUS CONTROL PANEL



CIRCUIT BREAKER PANEL

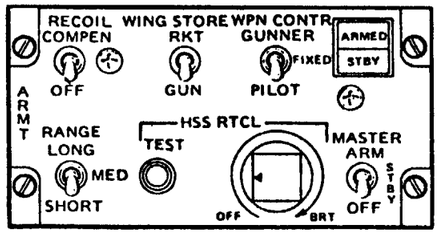


ELECTRONICS PROCESSOR UNIT (EPU)

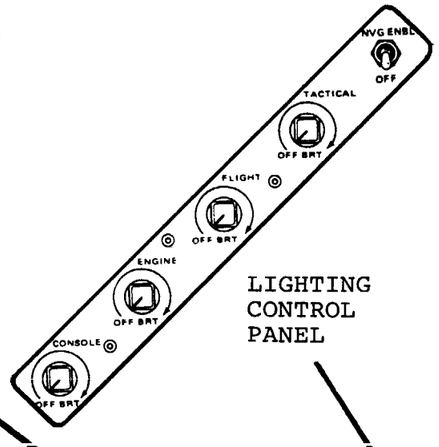


AIRSPEED AND DIRECTION SENSOR (AADS)

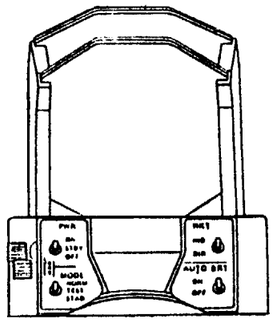
4-2. ADS OPERATIONAL CHECK (CONTINUED).



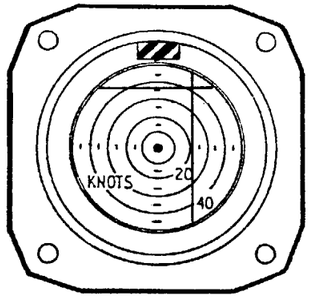
PILOT ARMT CONTROL PANEL



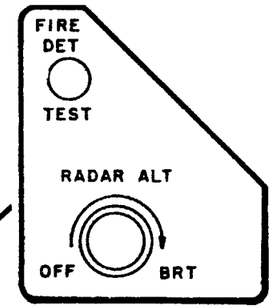
LIGHTING CONTROL PANEL



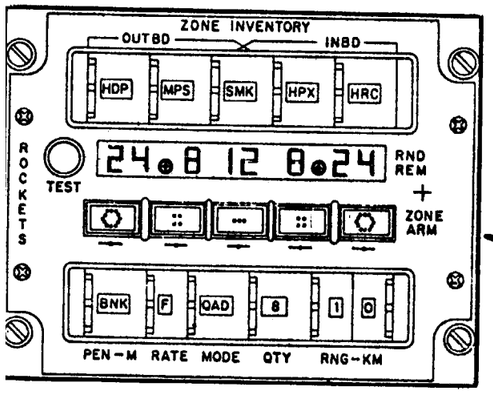
HUD



LOW AIRSPEED INDICATOR (LAI)



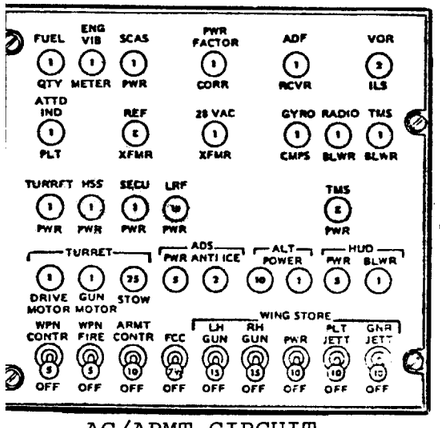
RADAR ALTIMETER LIGHTING CONTROL



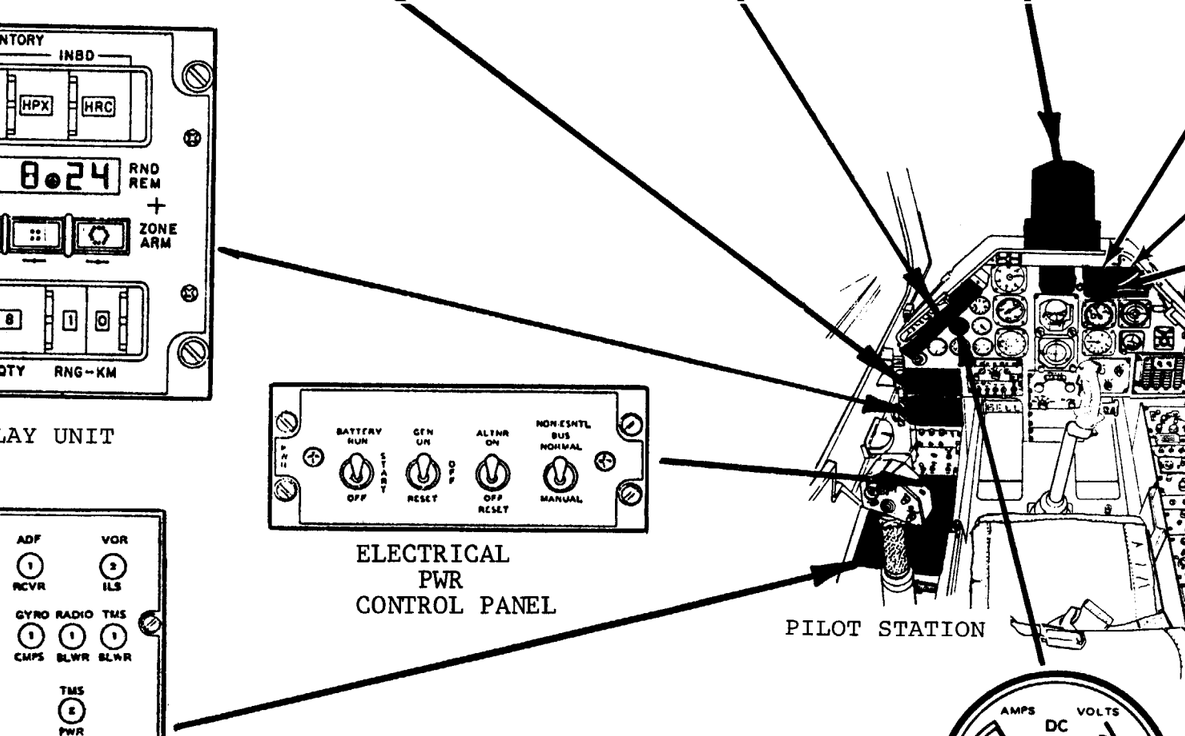
ROCKETS DISPLAY UNIT



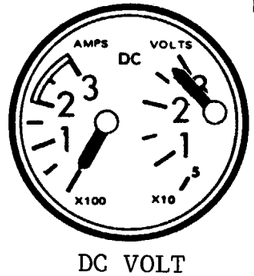
ELECTRICAL PWR CONTROL PANEL



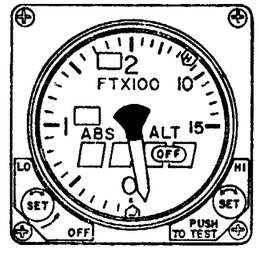
AC/ARMT CIRCUIT BREAKER PANEL



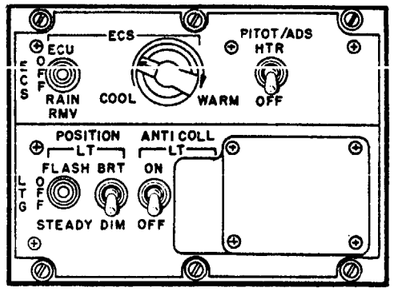
PILOT STATION



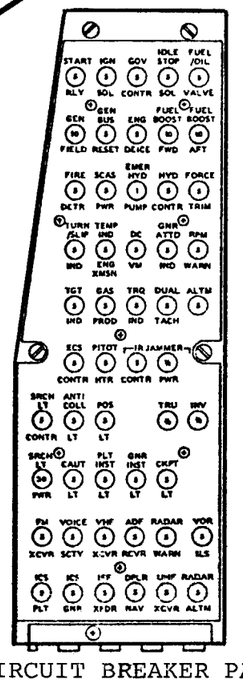
DC VOLT METER



RADAR ALTIMETER



LTG/ECS CONTROL PANEL



DC CIRCUIT BREAKER PANEL

4-2. ADS OPERATIONAL CHECK (CONTINUED).

APPLYING ELECTRICAL POWER

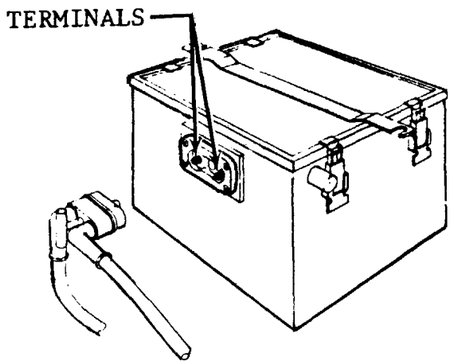
WARNING

Warn people working on or near helicopter before you apply electrical power.

CAUTION

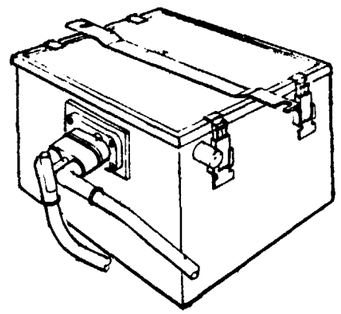
Minimum acceptable battery voltage is 22 V dc. Low battery voltage may result in excessive battery overheating (thermal runaway) after external power is applied.

a. Check battery voltage. Minimum battery voltage shall be 22 V dc measured at battery terminals.



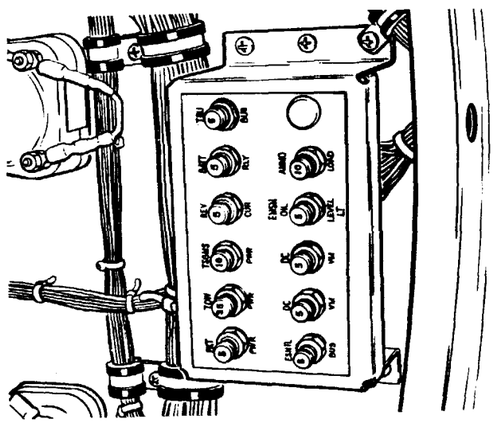
BATTERY

b. Connect battery.



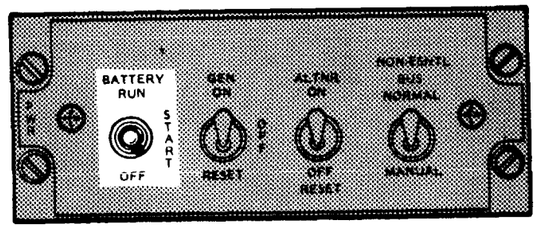
BATTERY

c. Close all circuit breakers on circuit breaker panel in battery compartment.



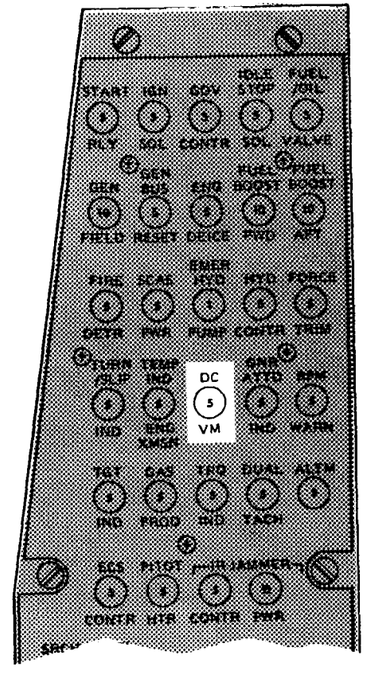
CIRCUIT BREAKER PANEL

d. Set BATTERY switch on electrical PWR control panel to START.



ELECTRICAL PWR CONTROL PANEL

e. Close DC VM circuit breaker on DC circuit breaker panel.

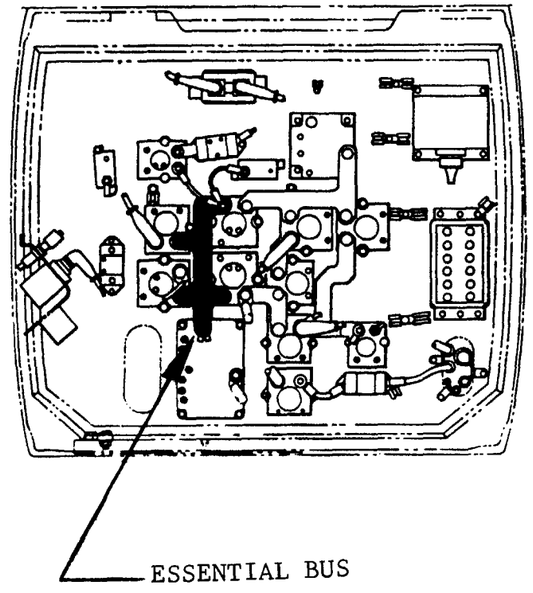


DC CIRCUIT BREAKER PANEL

CAUTION

Do not exceed 30 V dc output on ground power unit.

f. Apply external power to helicopter. (Refer to TM 55-1520-236-23, Chapter 1, Section III.) Adjust ground power unit to provide 28 to 30 V dc measured at the essential bus with a multimeter.



FORWARD BULKHEAD OF BATTERY COMPARTMENT

4-2. ADS OPERATIONAL CHECK (CONTINUED).

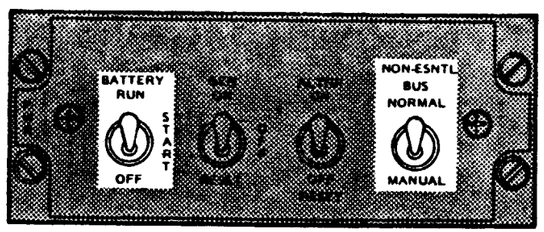
NOTE

28 to 30 V dc is required for the following operational checks. The DC voltmeter can be observed to assure correct voltage is present.

g. Set electrical PWR control panel switches:

(1) BATTERY to RUN.

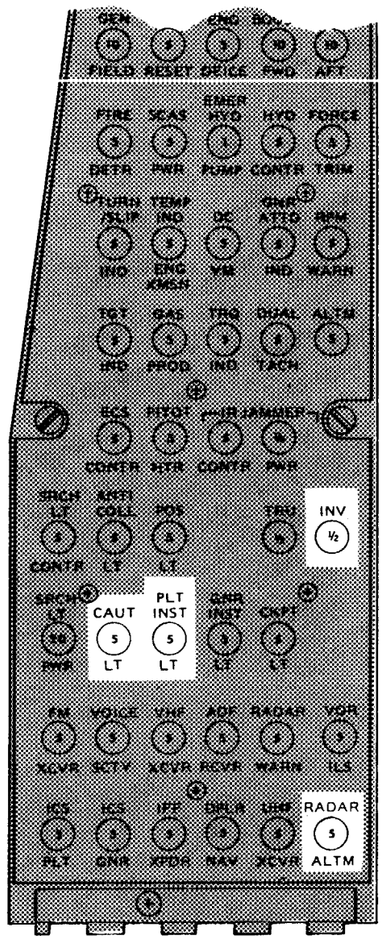
(2) NON-ESNTL BUS to NORMAL.



ELECTRICAL PWR CONTROL PANEL

h. Close the following circuit breakers on the DC circuit breaker panel:

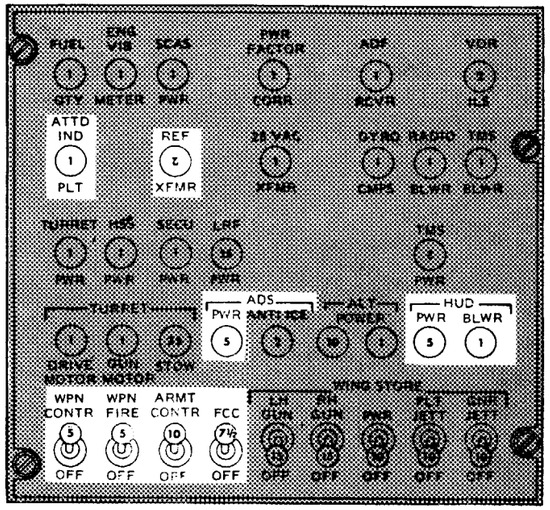
(1) INV
(2) CAUT LT
(3) PLT INST LT
(4) RADAR ALTM



DC CIRCUIT BREAKER PANEL

i. Close the following circuit breakers on AC/ARMT circuit breaker panel:

(1) ATTD IND PLT
(2) REF XFMR
(3) ADS PWR
(4) HUD PWR
(5) HUD BLWR
(6) WPN CONTR
(7) WPN FIRE
(8) ARMT CONTR
(9) FCC

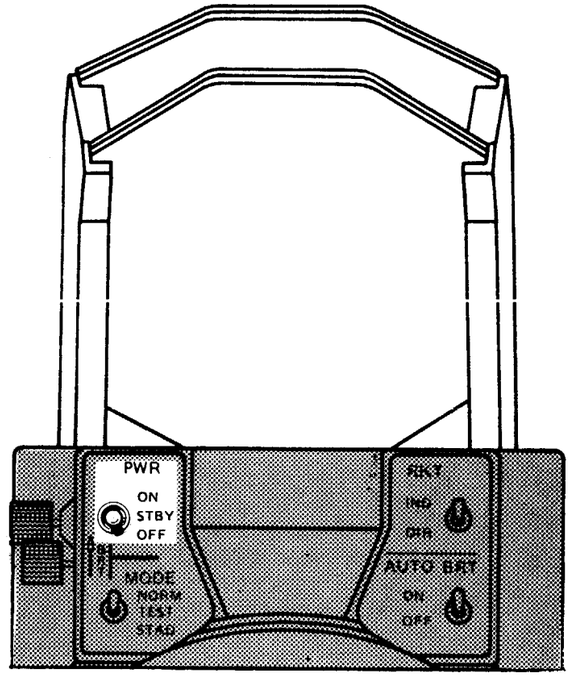


AC/ARMT CIRCUIT BREAKER PANEL

WARNING

ADS ANTI ICE CIRCUIT BREAKER MUST REMAIN OPEN FOR ADS OPERATIONAL CHECK TO PREVENT SERIOUS ACCIDENTAL BURNS TO PERSONNEL.

j. Set PWR switch on HUD to STBY.



HUD

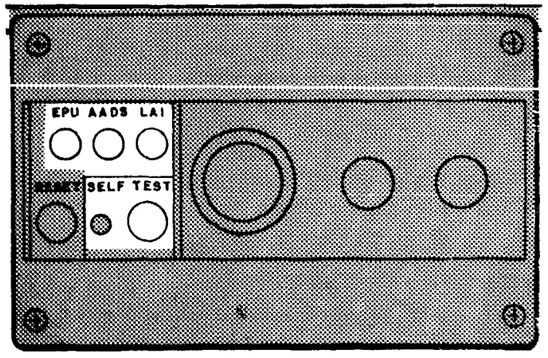
NOTE

Completion of the following check verifies that the ADS is operational. If any step of this check indicates a failure, STOP OPERATIONAL CHECK and refer to MAPS for troubleshooting procedure.

4-2. ADS OPERATIONAL CHECK (CONTINUED).

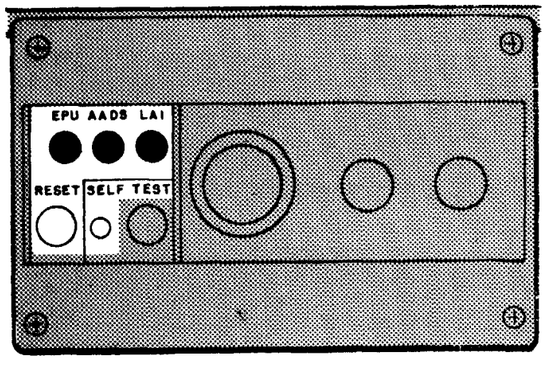
k. Check that SELF TEST lamp on EPU is not lit.

l. Press SELF TEST switch on the EPU, Check that SELF TEST lamp lights and BIT indicators on the EPU show white.



ELECTRONICS PROCESSOR UNIT (EPU)

m. Press RESET switch on the EPU and observe that BIT indicators change from white to black and LAI flag shows red and black (fail).

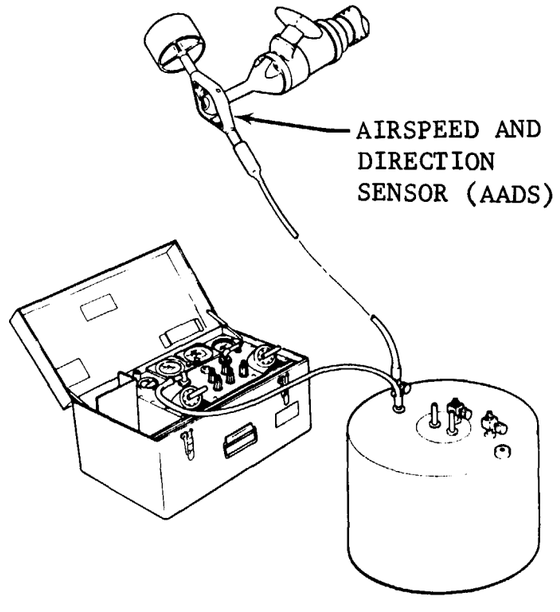


ELECTRONICS PROCESSOR UNIT (EPU)

n. After 10 to 20 seconds SELF TEST lamp should go out. Check that all BIT indicators remain black and LAI flag shows black (good).

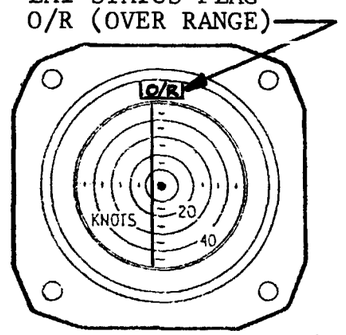
o. Accomplish the following:

(1) Connect MB-1A tester to airspeed and direction sensor (AADS). Adjust tester for 40 knots airspeed per TO 33D2-6-9-11. Slowly rotate airspeed and direction sensor (AADS) through a small circle and observe that both the fore-aft bar and lateral bar on LAI moves in response to airspeed and direction sensor (AADS) movement.

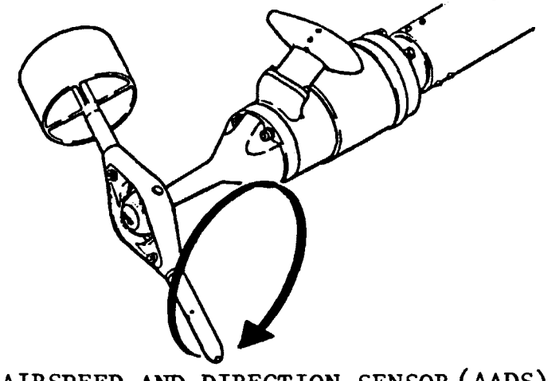


MB-1A TESTER

(2) Adjust MB-1A tester for 60 knots airspeed. Rotate airspeed and direction sensor (AADS) until fore-aft bar on LAI is at the top of the LAI indicator scale. Observe that O/R flag on LAI appears. Reduce airspeed on MB-1A tester to 40 knots and observe that O/R flag disappears.

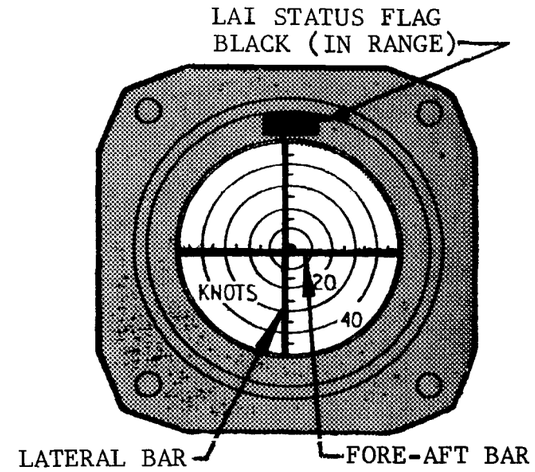


LOW AIRSPEED INDICATOR (LAI)



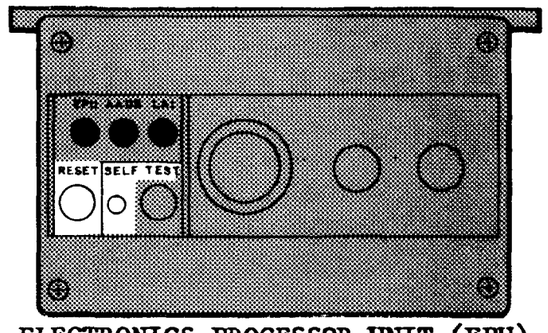
AIRSPEED AND DIRECTION SENSOR (AADS)

(3) Reduce airspeed on MB-1A tester to 0 (zero). Rotate airspeed and direction sensor (AADS) so that fore-aft bar and lateral bar on LAI indicate 0 (zero) knots.

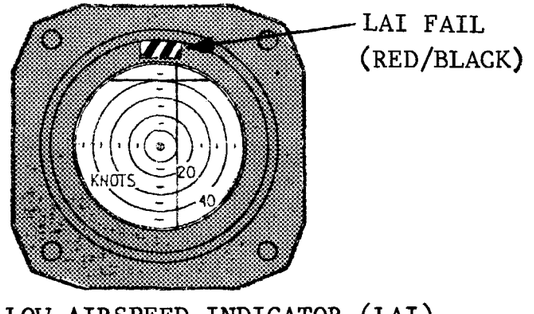


LOW AIRSPEED INDICATOR (LAI)

p. Press SELF TEST switch and then RESET switch on EPU and observe LAI. LAI bars should indicate 40 knots forward and 10 knots right. Status flag should show red and black (fail).



ELECTRONICS PROCESSOR UNIT (EPU)



LOW AIRSPEED INDICATOR (LAI)

4-2. ADS OPERATIONAL CHECK (CONTINUED).

q. After 10-20 seconds, LAI bars will return to zero. Then SELF TEST lamp will go out and LAI status flag will be black (good).

r. Check HUD interface with ADS:

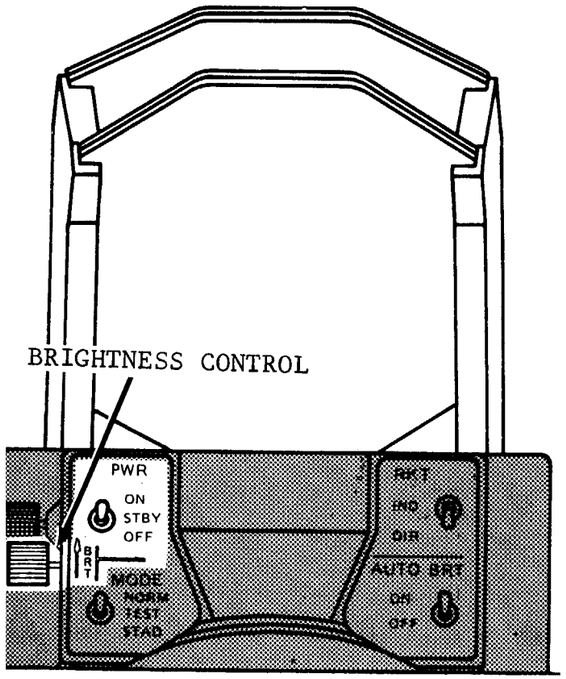
NOTE

The purpose of this test, is to check the response of the HUD reticle when the airspeed and direction sensor (AADS) is moved.

(1) Set HUD switches:

(a) PWR to ON

(b) Brightness control to midrange

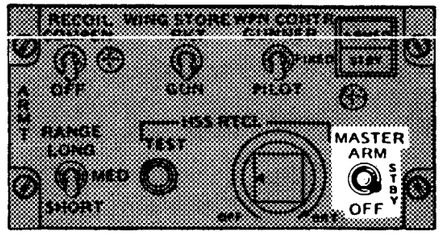


HUD

NOTE

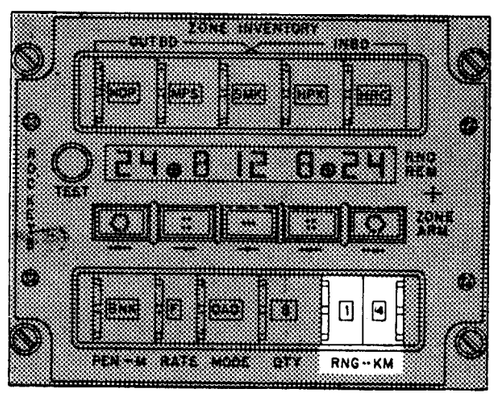
The collective stick must be in the full down position prior to accomplishing the following steps.

(2) Set MASTER ARM switch on pilot ARMT control panel to STBY.



PILOT ARMT CONTROL PANEL

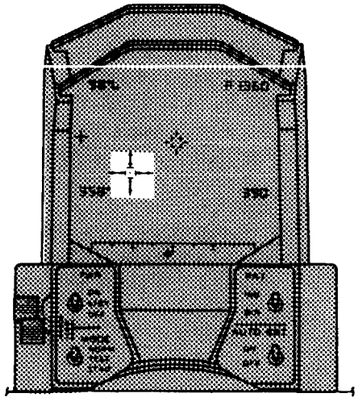
(3) Set RNG-KM on ROCKETS display unit to 1.4.



ROCKETS DISPLAY UNIT

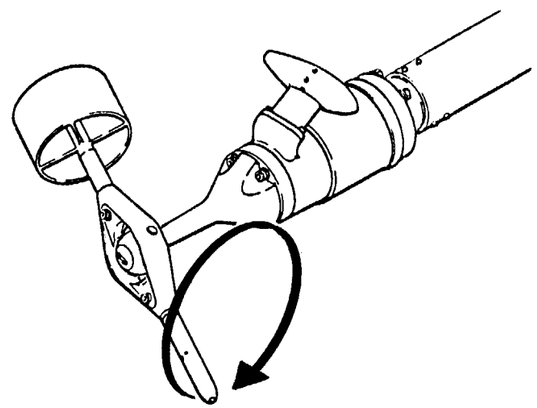
(4) Adjust MB-1A tester for 40 knots airspeed and point airspeed and direction sensor (AADS) straight up.

(5) Direct rocket reticle will appear on HUD. Observe reticle for 30 seconds. Reticle should remain stationary and have no random or erratic movement.



HUD

(6) Slowly rotate airspeed and direction sensor (AADS) through a small circle.

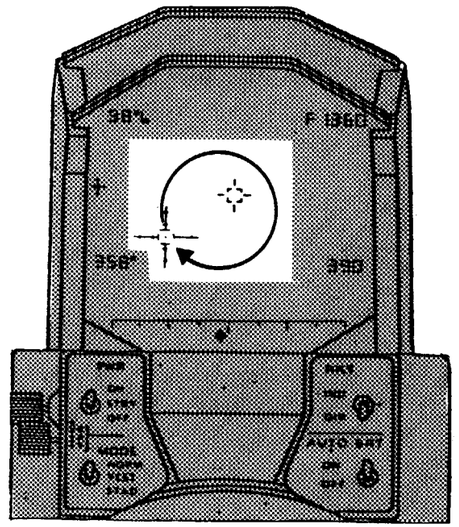


AIRSPEED AND DIRECTION SENSOR (AADS)

CAUTION

DO NOT SPIN AIRSPEED AND DIRECTION SENSOR (AADS). DAMAGE TO SLIP RING ASSEMBLY MAY RESULT.

(7) Observe direct rocket reticle on HUD. It will change position as the airspeed and direction sensor (AADS) is rotated.



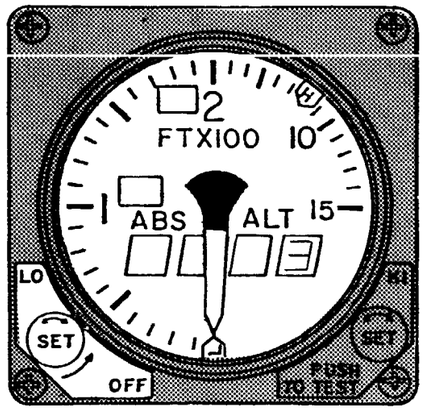
HUD

(8) Reduce airspeed on MB-1A tester to 0 (zero) and remove MB-1A tester from airspeed and direction sensor (AADS).

4-2. ADS OPERATIONAL CHECK (CONTINUED).

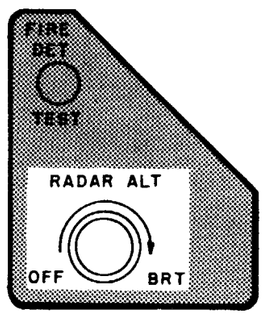
s. Check radar altimeter interface with ADS:

(1) Turn LO SET knob on radar altimeter clockwise to set "L" pointer to 0 feet. The OFF flag should disappear from view in less than two minutes.



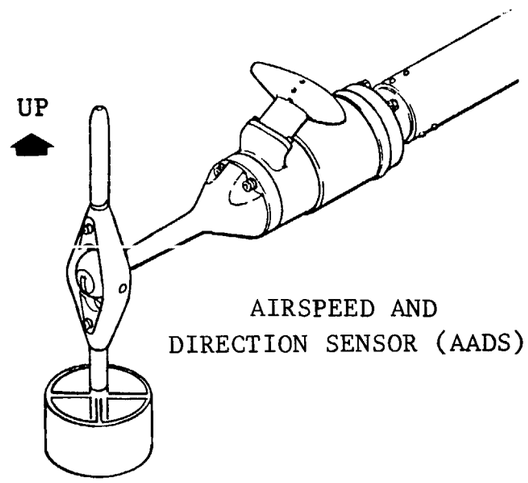
RADAR ALTIMETER

(2) Turn RADAR ALT lighting control to BRT.

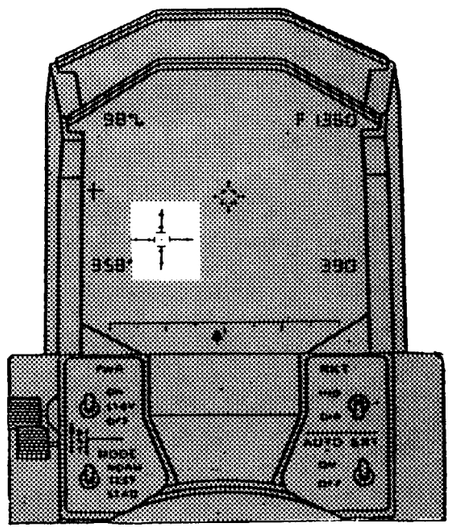


RADAR ALT LIGHTING CONTROL

(3) Point airspeed and direction sensor (AADS) up. Observe position of direct rocket reticle on HUD.

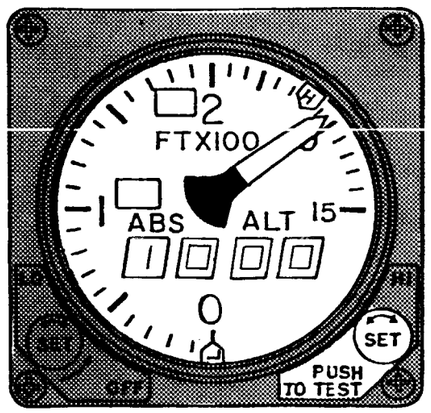


AIRSPEED AND DIRECTION SENSOR (AADS)



HUD

(4) Press PUSH TO TEST/HI SET knob on radar altimeter. Check that pointer on radar altimeter goes to 825 to 1175 feet, and digital display indicates 900 to 1100.

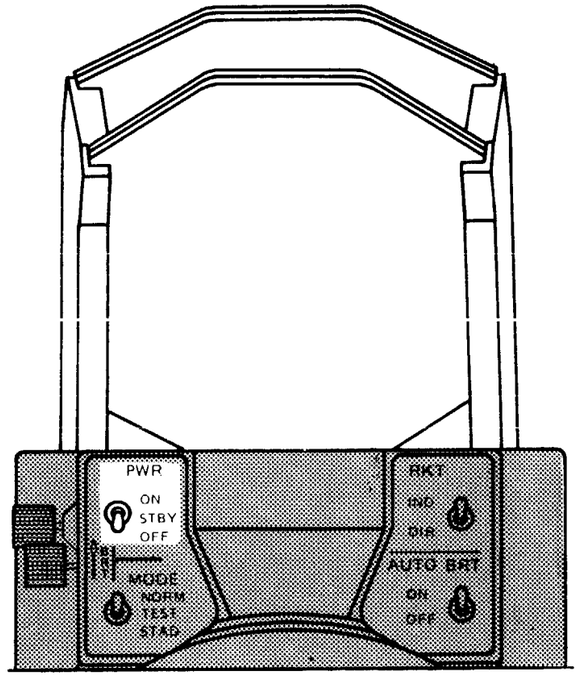


RADAR ALTIMETER

(5) Press and hold PUSH TO TEST/HI SET knob on radar altimeter. Observe that direct rocket reticle on HUD moves slightly from initial position of step (3).

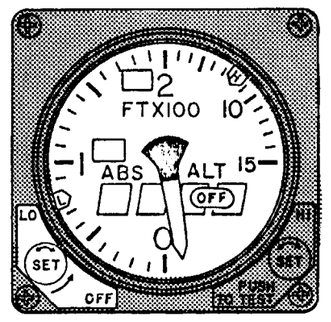
(6) Release PUSH TO TEST/HI SET knob. Observe that direct rocket reticle returns to initial position of step (3).

(7) Set PWR switch on HUD to OFF.



HUD

(8) Turn LO SET knob on radar altimeter to OFF.



RADAR ALTIMETER

4-2. ADS OPERATIONAL CHECK (CONTINUED).

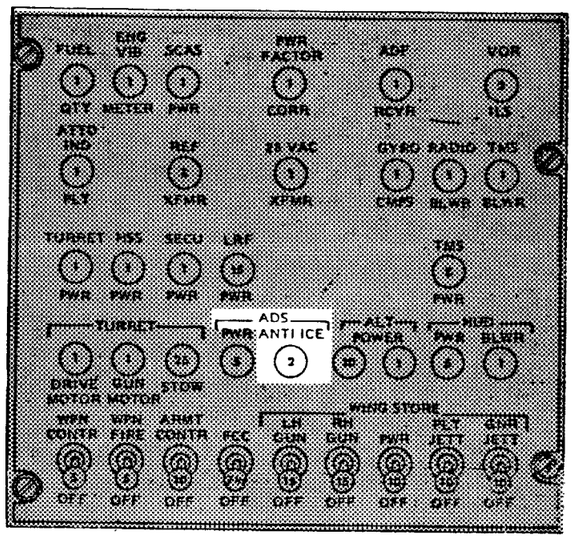
t. Leak test ADS system per TM 9-1270-219-13 Chapter 4, Section II, when EPU or airspeed and direction sensor (AADS) is replaced or re-installed.

u. Airspeed and direction sensor (AADS) heater element check:

NOTE

The purpose of the following check is to test the anti-icing feature of the airspeed and direction sensor (AADS).

(1) Close ADS ANTI ICE circuit breaker on AC/ARMT circuit breaker panel.

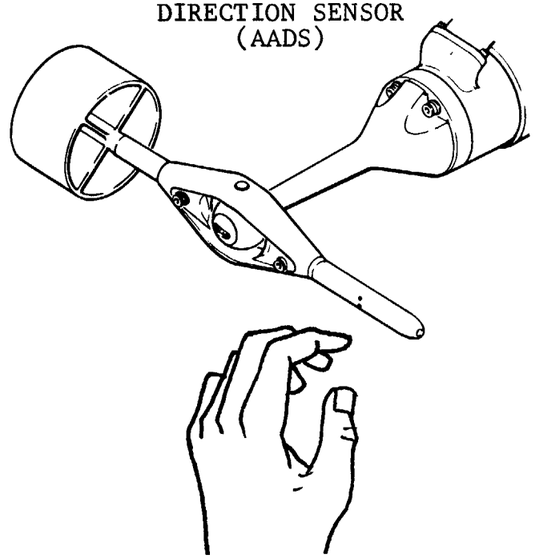


AC ARMT CIRCUIT BREAKER PANEL

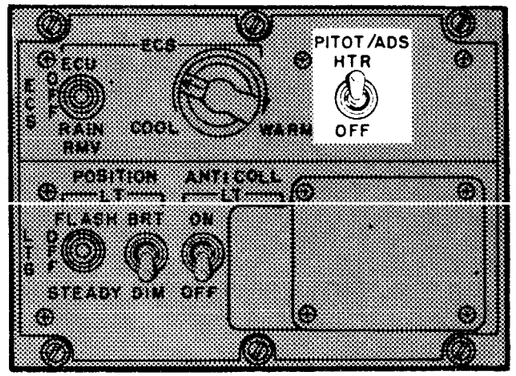
WARNING

Do not touch airspeed and direction sensor (AADS). Airspeed and direction sensor (AADS) can become extremely hot. Care must be taken when working on or near heated airspeed and direction sensor (AADS).

AIRSPEED AND DIRECTION SENSOR (AADS)

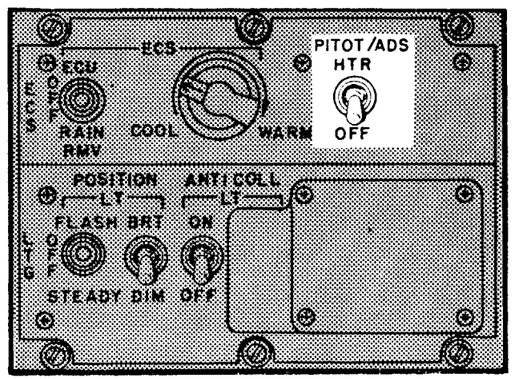


(2) Set PITOT/ADS switch on LTG/ECS control panel to HTR.
Observe that airspeed and direction sensor (AADS) heats up.



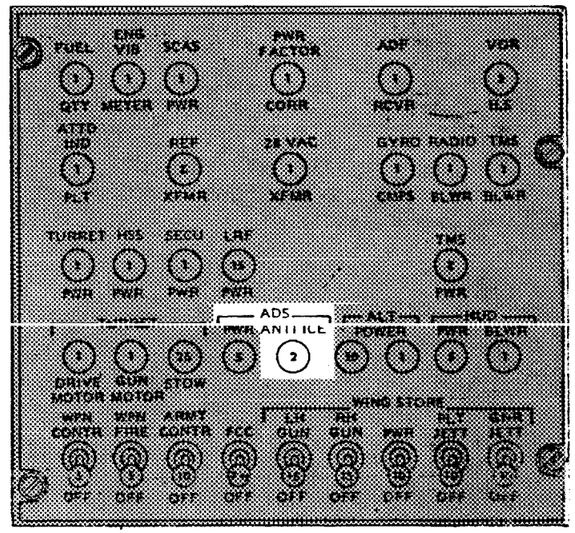
LTG/ECS CONTROL PANEL

(3) Turn PITOT/ADS switch to OFF as soon as airspeed and direction sensor (AADS) feels warm.



LTG/ECS CONTROL PANEL

(4) Open ADS ANTI ICE circuit breaker on AC/ARMT circuit breaker panel.

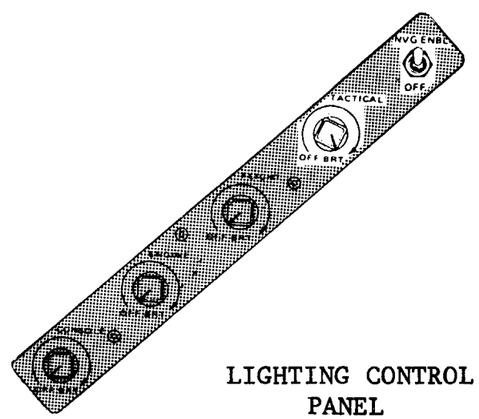


AC/ARMT CIRCUIT BREAKER PANEL

v. On lighting control panel:

(1) **Turn TACTICAL lighting** control from OFF to BRT. Observe LAI internal lighting goes from dim to bright.

(2) Set NVG ENBL switch to NVG ENBL.

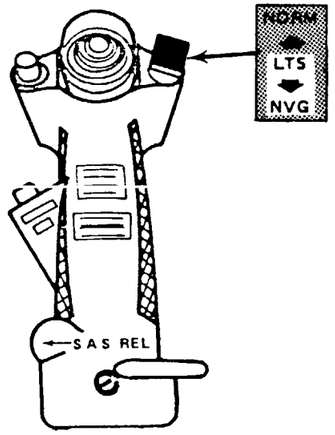


LIGHTING CONTROL PANEL

4-2. ADS OPERATIONAL CHECK (CONTINUED).

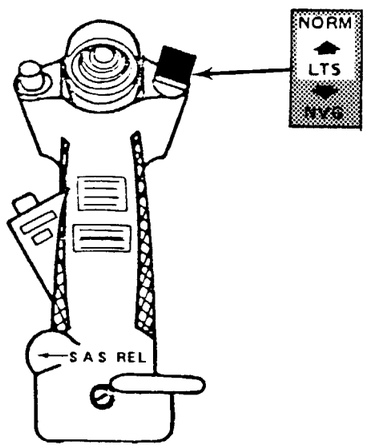
w. On pilot cyclic stick:

(1) Set LTS switch to NVG. Observe that internal lighting on LAI either goes out or becomes very dim.



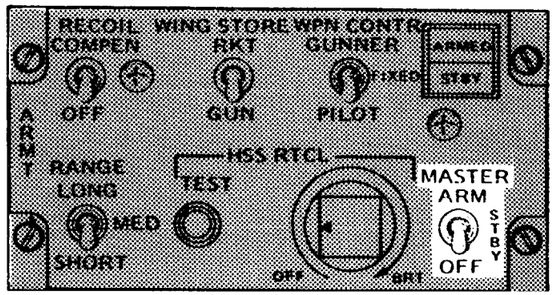
PILOT CYCLIC STICK

(2) Return LTS switch to NORM. LAI internal lights will again become bright.



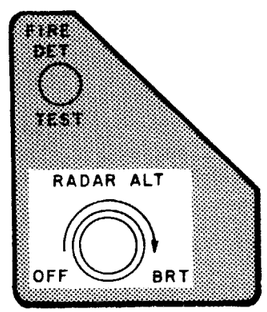
PILOT CYCLIC STICK

x. Set MASTER ARM switch on pilot ARMT control panel to OFF.



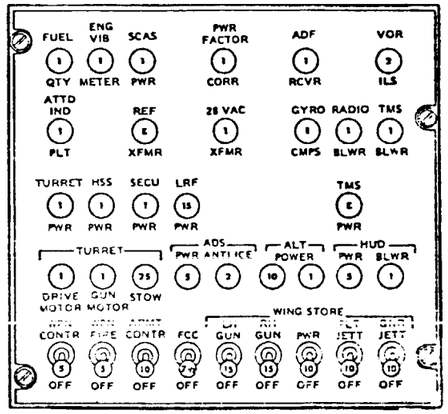
PILOT ARMT CONTROL PANEL

y. Turn RADAR ALT lighting control to OFF.



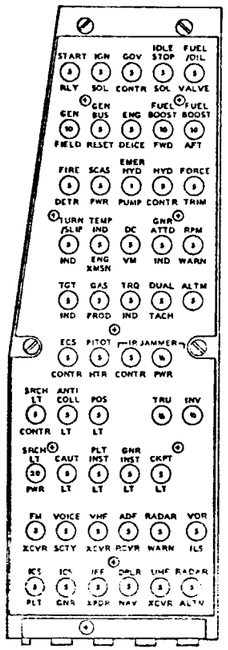
RADAR ALT
LIGHTING CONTROL

z. Open all circuit breakers on AC/ARMT circuit breaker panel.



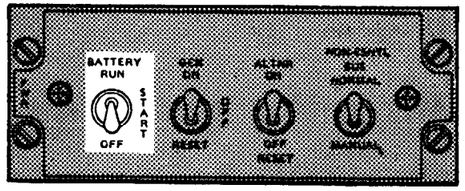
AC/ARMT CIRCUIT BREAKER PANEL

aa. Open all circuit breakers on DC circuit breaker panel.



DC CIRCUIT BREAKER PANEL

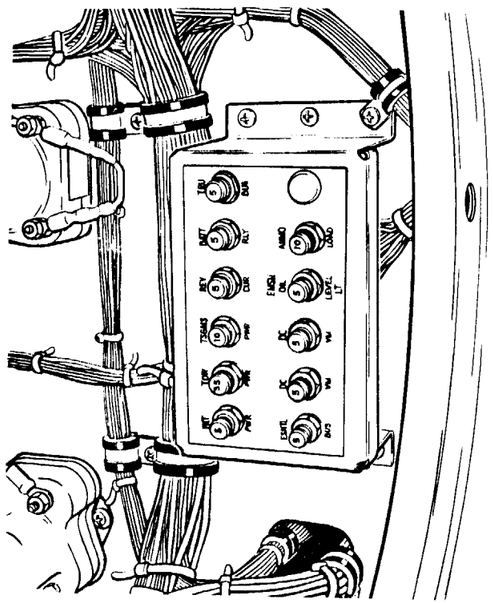
ab. Set BATTERY switch on electrical PWR control panel to OFF.



ELECTRICAL PWR CONTROL PANEL

ac. Turn off and disconnect ground power unit.

ad. Open all circuit breakers on circuit breaker panel in battery compartment.



ae. Disconnect battery.

4-3. POWER OFF/POWER ON PROCEDURES.

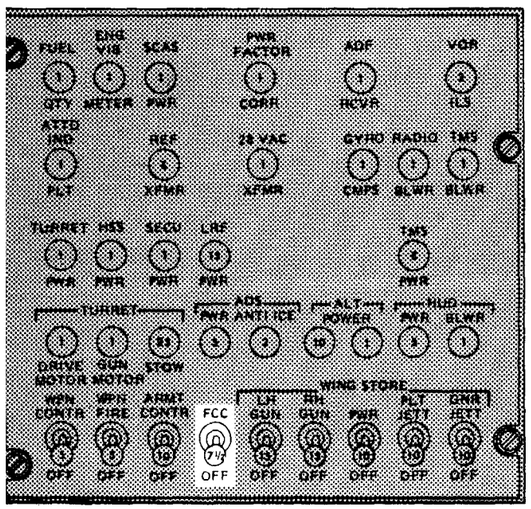
INITIAL SETUP

Applicable Configuration
All

Personnel Required
68F (1)

a. Turn off electrical power when specified in troubleshooting procedures as follows:

(1) Open (OFF) FCC circuit breaker on AC/ARMT circuit breaker panel.

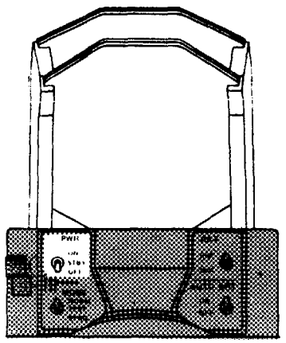


AC/ARMT CIRCUIT BREAKER PANEL

NOTE

Note the position that the PWR switch on HUD is in. The PWR switch must be set to the same position during the Power On Procedure.

(2) Set PWR switch on HUD to OFF.

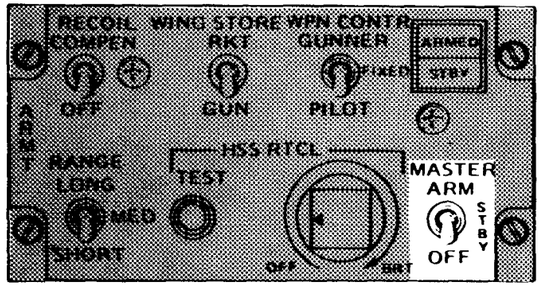


HUD

NOTE

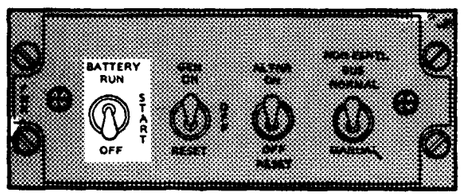
Note the position that the MASTER ARM switch is in. The MASTER ARM switch must be set to the same position during the Power On Procedure.

(3) Set MASTER ARM switch on pilot ARMT control panel to OFF.



PILOT ARMT CONTROL PANEL

(4) Set BATTERY switch on pilot electrical PWR control panel to OFF.



ELECTRICAL PWR CONTROL PANEL

(5) Turn off ground power unit.

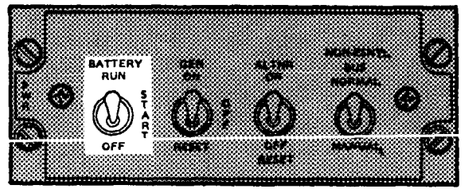
(6) Disconnect battery.

b. Turn on electrical power when specified in troubleshooting procedures as follows:

(1) Connect battery.

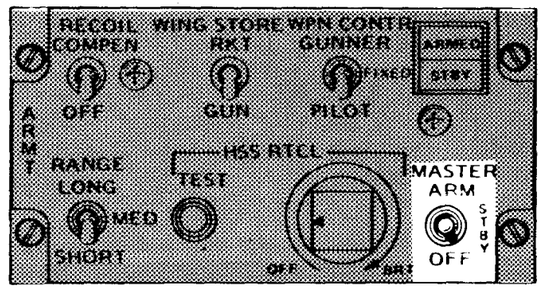
(2) Turn on ground power unit.

(3) Set BATTERY switch on pilot electrical PWR control panel to RUN.



ELECTRICAL PWR CONTROL PANEL

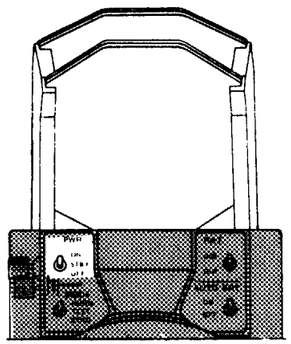
(4) Set MASTER ARM switch on pilot ARMT control panel to the same position the switch was in prior to Power Off Procedure.



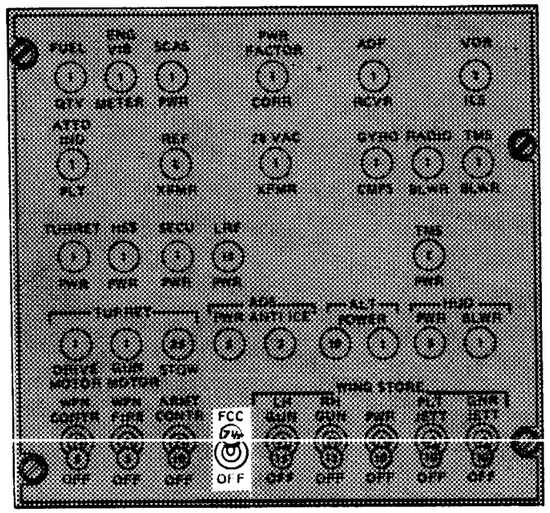
PILOT ARMT CONTROL PANEL

4-3. POWER OFF/POWER ON PROCEDURES (CONTINUED).

(5) Set PWR switch on HUD to the same position the switch was in prior to Power Off Procedure



HUD



AC/ARMT CIRCUIT BREAKER PANEL

(6) Close FCC circuit breaker on AC/ARMT circuit breaker panel.

4-4.	LOW AIRSPEED INDICATOR FAIL FLAG (RED AND BLACK DIAGONAL STRIPES) DOES NOT APPEAR WHEN RESET SWITCH IS PRESSED.

INITIAL SETUP

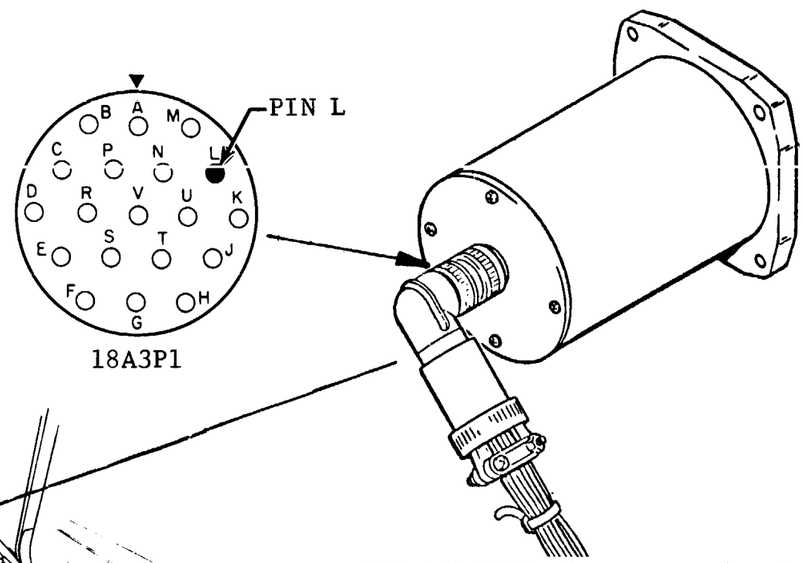
Applicable Configuration
All

Tools/Test and Support Equipment
Multimeter

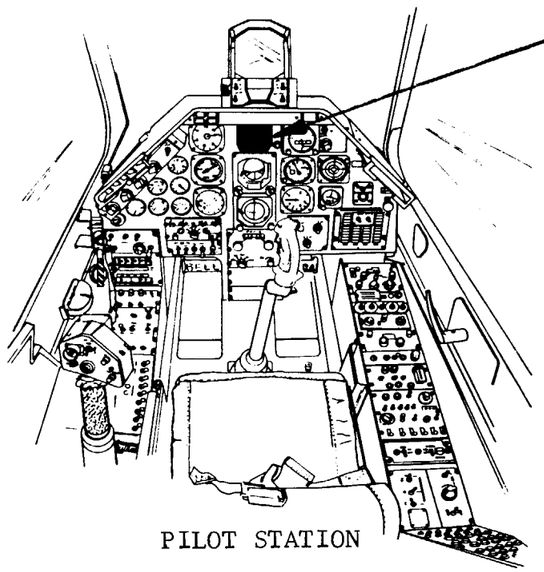
Tool Kit, A/C Electrician

Personnel Required
68F (1)

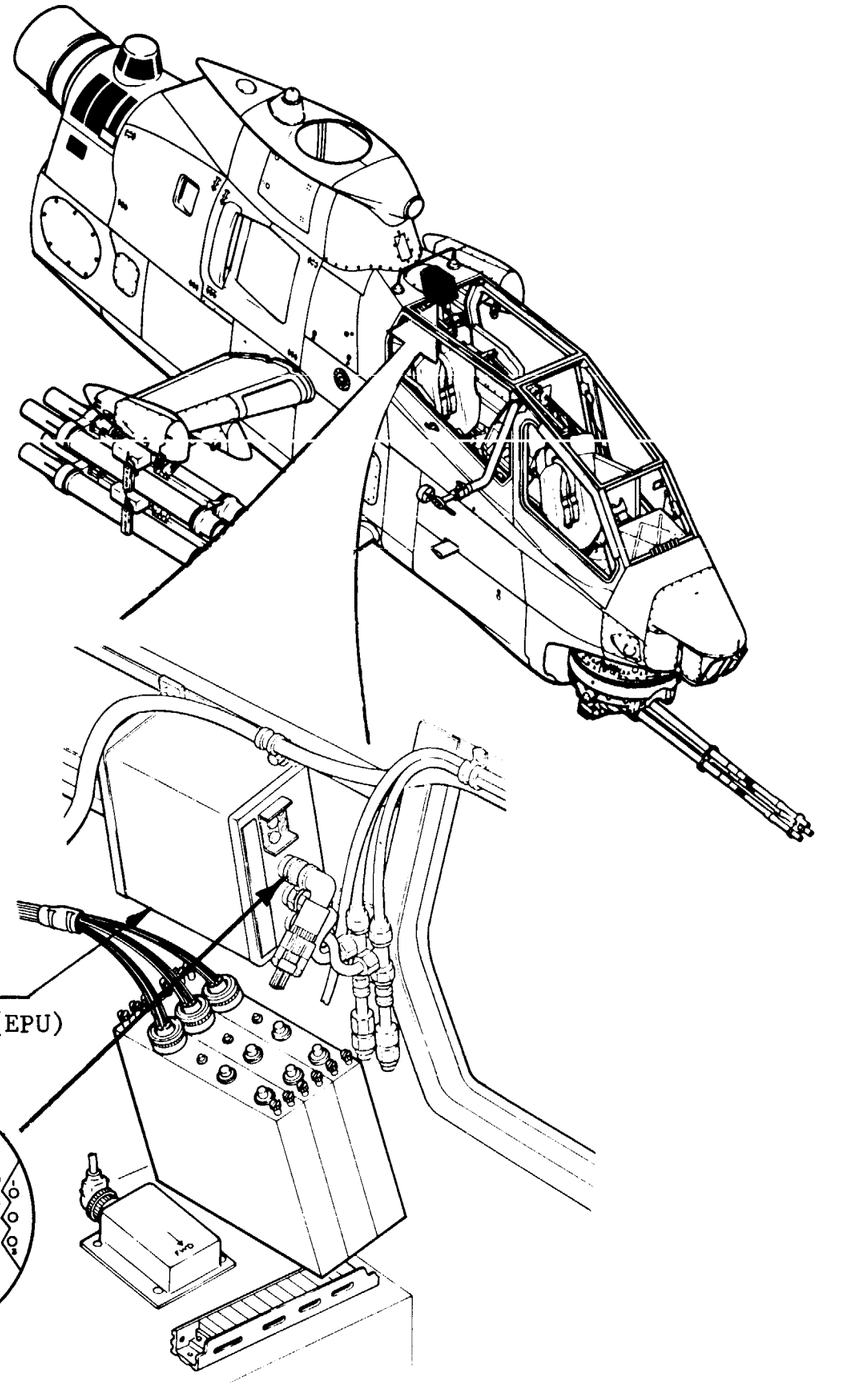
References
TM 9-1270-219-13



LOW AIRSPEED INDICATOR (LAI)
(REAR VIEW)



PILOT STATION



18A1P1

4-4. LOW AIRSPEED INDICATOR FAIL FLAG (RED AND BLACK DIAGONAL STRIPES) DOES NOT APPEAR WHEN RESET SWITCH IS PRESSED (CONTINUED).

Turn off electrical power per paragraph 4-3.

Remove low airspeed indicator (LAI) per TM 9-1270-219-13, Chapter 4, Section I.

Check for continuity from 18A3P1-L to 18A1P1-64.

Is continuity present?

YES → Check for continuity from 18A1P1-64 to connector backshell.

Is continuity present?

YES → Repair wire A1054A22 between 18A3P1-L and 18A1P1-64 to eliminate short.

Install low airspeed indicator (LAI) per TM 9-1270-219-13, Chapter 4, Section I.

Then go to paragraph 4-2.

NO → Test low airspeed indicator (LAI) per TM 9-1270-219-13, Chapter 4, Section III.

Does low airspeed indicator (LAI) pass troubleshooting check?

YES → Replace electronics processor unit (EPU) per TM 9-1270-219-13, Chapter 4, Section I.

Install low airspeed indicator (LAI) per TM 9-1270-219-13, Chapter 4, Section I.

Then go to paragraph 4-2.

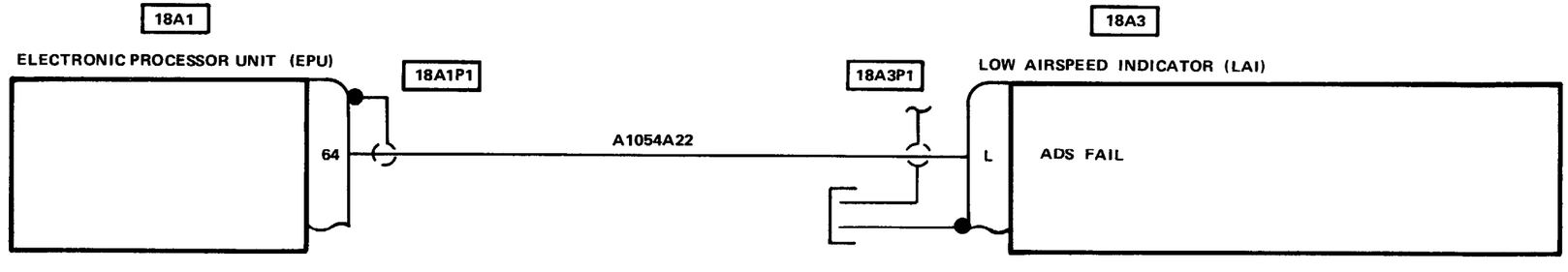
NO → Replace low airspeed indicator (LAI) per TM 9-1270-219-13, Chapter 4, Section I.

Then go to paragraph 4-2.

NO → Repair wire A1054A22 between 18A1P1-64 and 18A3P1-L.

Install low airspeed indicator (LAI) per TM 9-1270-219-13, Chapter 4, Section I.

Then go to paragraph 4-2.



4-5. LAI BIT INDICATOR SHOWS WHITE AND LOW AIRSPEED INDICATOR FAIL FLAG APPEARS.

INITIAL SETUP

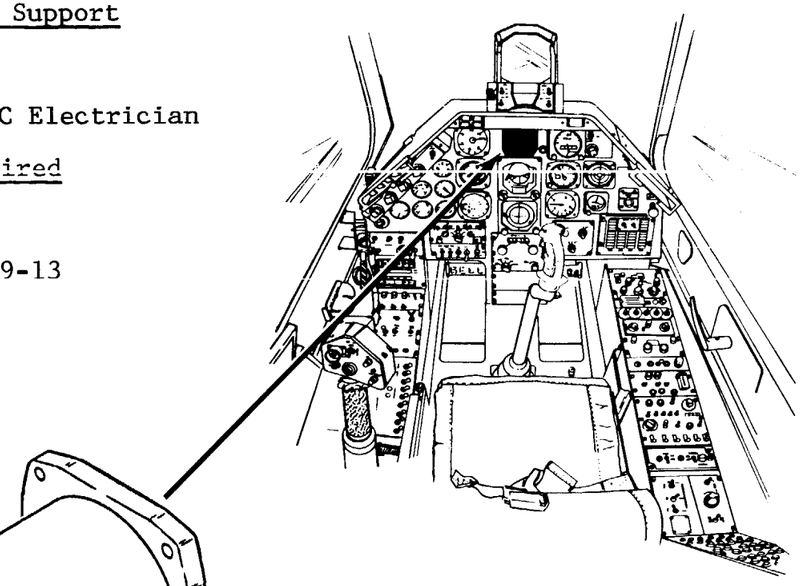
Applicable Configuration
All

Tools/Test and Support Equipment
Multimeter

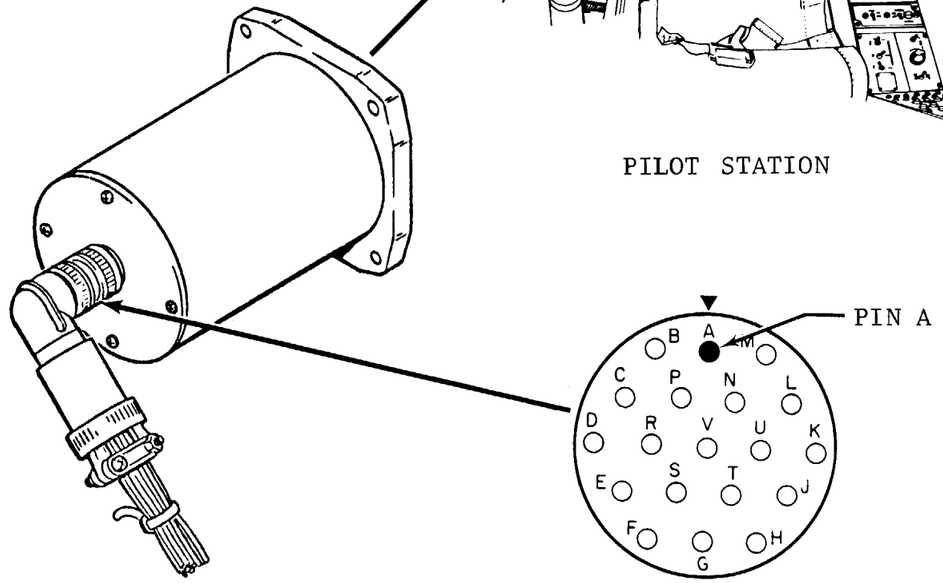
Tool Kit, A/C Electrician

Personnel Required
68F (1)

References
TM 9-1270-219-13

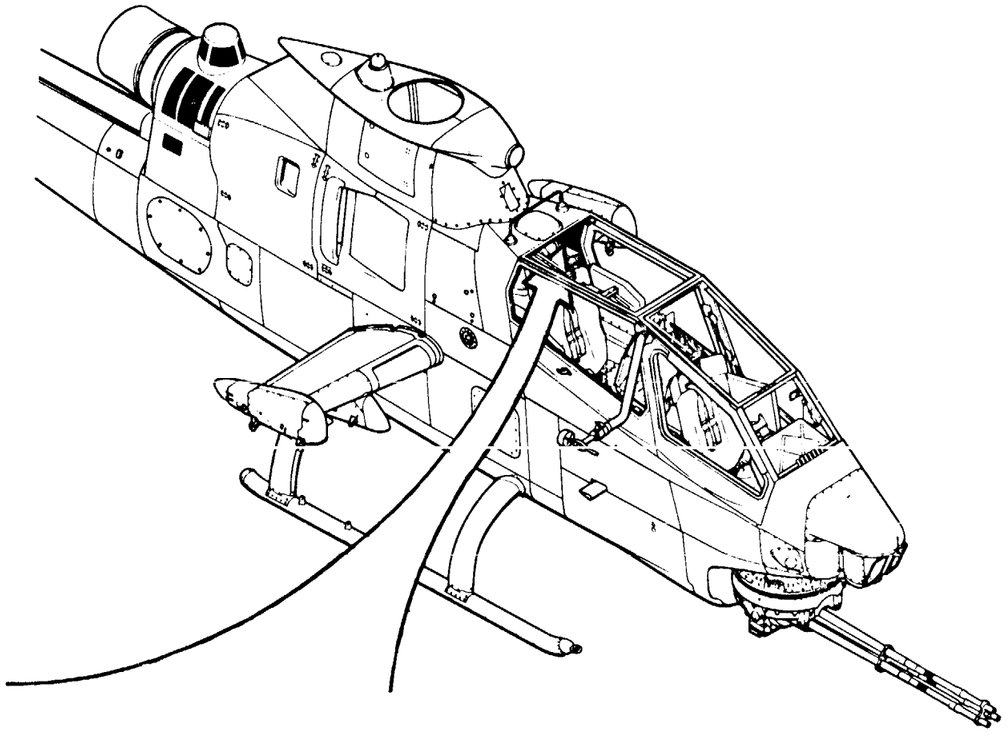


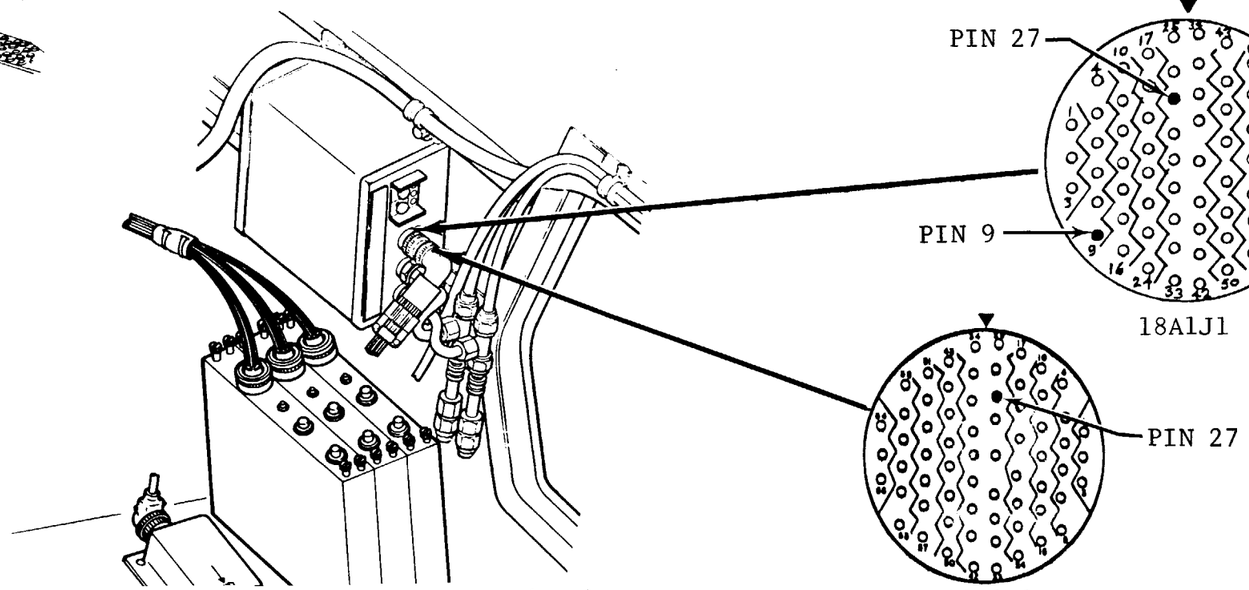
PILOT STATION



18A3P1

LOW AIRSPEED INDICATOR (LAI)
(REAR VIEW)





18A1J1

18A1P1

ELECTRONICS PROCESSOR UNIT (EPU)

4-5. LAI BIT INDICATOR SHOWS WHITE AND LOW AIRSPEED INDICATOR FAIL FLAG APPEARS (CONTINUED).

Turn off electrical power per paragraph 4-3.

Remove low airspeed indicator (LAI) per TM 9-1270-219-13, Chapter 4, Section I.

Check for continuity from 18A3P1-A to 18A1P1-27.

Is continuity present?

YES → Check for continuity from 18A1J1-9 to 18A1J1-27.

Is continuity present?

YES → Replace low airspeed indicator (LAI) per TM 9-1270-219-13, Chapter 4, Section I.

Then go to paragraph 4-2.

NO → Replace electronics processor unit (EPU) per TM 9-1270-219-13, Chapter 4, Section I.

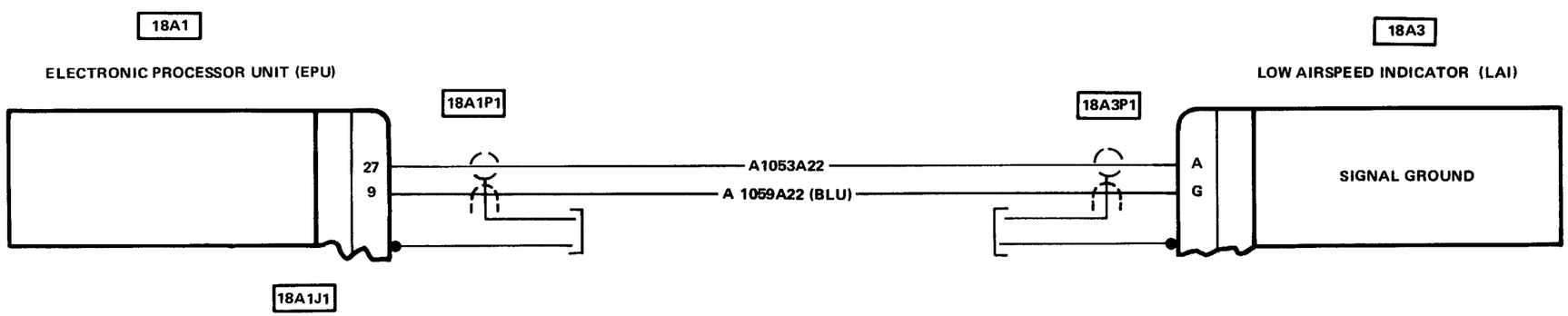
Install low airspeed indicator (LAI) per TM 9-1270-219-13, Chapter 4, Section I.

Then go to paragraph 4-2.

NO → Repair wire A1053A22 between 18A3P1-A and 18A1P1-27.

Install low airspeed indicator (LAI) per TM 9-1270-219-13, Chapter 4, Section I.

Then go to paragraph 4-2.



4-6. EPU AND AADS BIT INDICATORS SHOW WHITE AND LAI FLAG SHOWS FAIL AFTER SELF TEST LAMP GOES OUT.

INITIAL SETUP

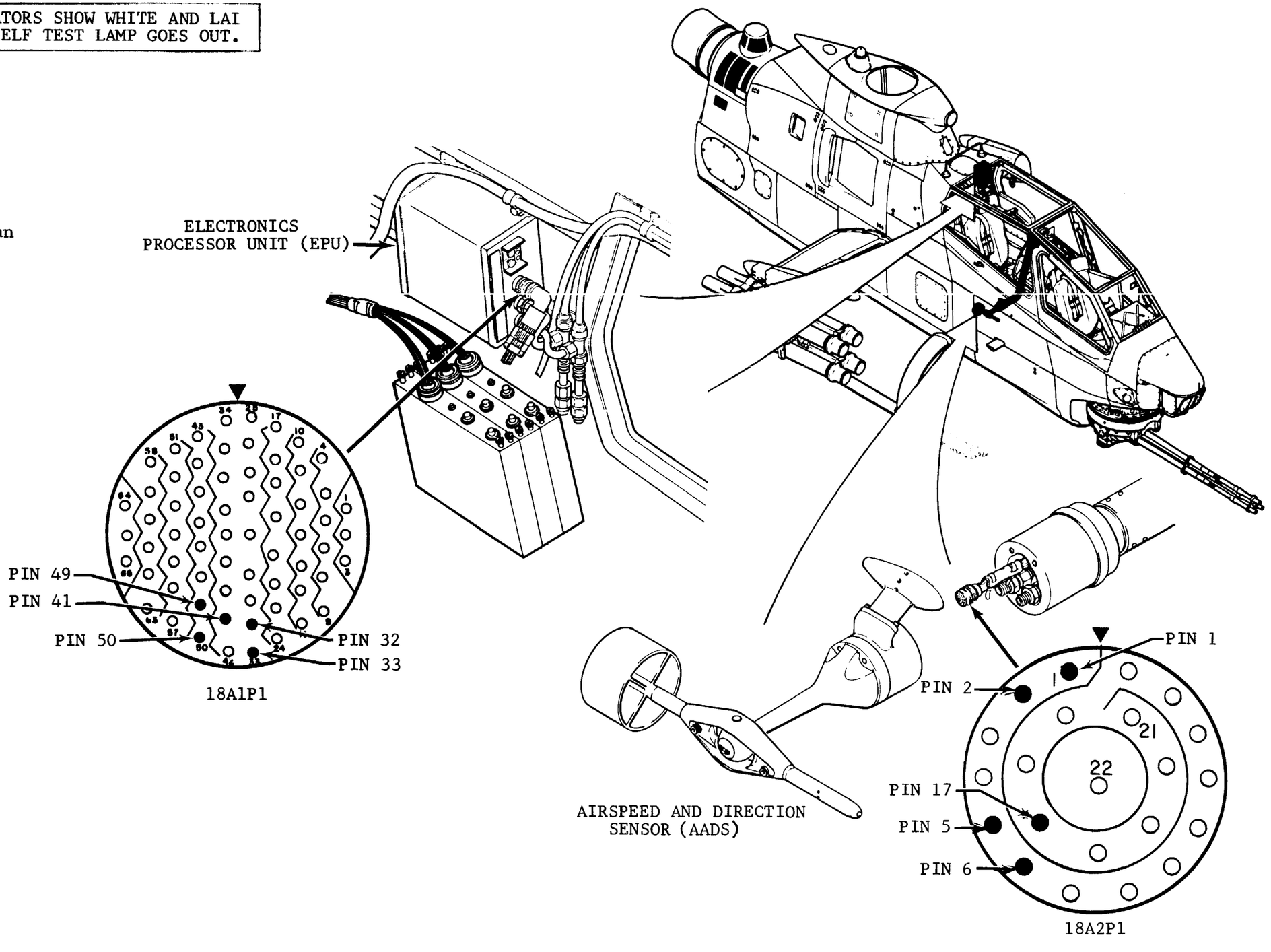
Applicable Configuration
All

Tools/Test and Support Equipment
Multimeter

Tool Kit, A/C Electrician

Personnel Required
68F (2)

References
TM 9-1270-219-13



4-6. EPU AND AADS BIT INDICATORS SHOW WHITE AND LAI FLAG SHOWS FAIL AFTER SELF TEST LAMP GOES OUT (CONTINUED).

Turn off electrical power per paragraph 4-3.

Disconnect 18A1P1.

Check for continuity from 18A1P1-50 to 18A1P1-49.

NOTE

Some resistance will be present.

Is continuity present?

YES → Check for continuity from 18A1P1-32 to 18A1P1-41.

NOTE

Some resistance will be present.

Is continuity present?

YES → Remove airspeed and direction sensor (AADS) per TM 9-1270-219-13, Chapter 4, Section I.

Check for continuity from 18A1P1-32 to 18A2P1-6.

Is continuity present?

YES → Repair wire A1045A22 (WHT) between 18A1P1-32 and 18A2P1-6.

Install airspeed and direction sensor (AADS) per TM 9-1270-219-13, Chapter 4, Section I.

Connect 18A1P1.

Then go to paragraph 4-2.

NO → Remove airspeed and direction sensor (AADS) per TM 9-1270-219-13, Chapter 4, Section I.

Check for continuity from 18A1P1-49 to 18A2P1-1.

Is continuity present?

YES → Check for continuity from 18A1P1-49 to connector backshell.

Is continuity present?

YES → Repair wire A1043A22 (WHT) between 18A1P1-49 and 18A2P1-1 to eliminate short.

Install airspeed and direction sensor (AADS) per TM 9-1270-219-13, Chapter 4, Section I.

Connect 18A1P1.

Then go to paragraph 4-2.

NO → Check for continuity from 18A1P1-50 to 18A2P1-2.

Is continuity present?

YES → Check for continuity from 18A1P1-50 to connector backshell.

Is continuity present?

YES → Repair wire A1043A22 (BLU) between 18A1P1-50 and 18A2P1-2 to eliminate short.

Install airspeed and direction sensor (AADS) per TM 9-1270-219-13, Chapter 4, Section I.

Connect 18A1P1.

Then go to paragraph 4-2.

NO → Replace airspeed and direction sensor (AADS) per TM 9-1270-219-13, Chapter 4, Section I.

Connect 18A1P1.

Then go to paragraph 4-2.

NO → Repair wire A1043A22 (BLU) between 18A1P1-50 and 18A2P1-2.

Install airspeed and direction sensor (AADS) per TM 9-1270-219-13, Chapter 4, Section I.

Connect 18A1P1.

Then go to paragraph 4-2.

NO → Repair wire A1043A22 (WHT) between 18A1P1-49 and 18A2P1-1.

Install airspeed and direction sensor (AADS) per TM 9-1270-219-13, Chapter 4, Section I.

Connect 18A1P1.

Then go to paragraph 4-2.

4-6. EPU AND AADS BIT INDICATORS SHOW WHITE AND LAI FLAG SHOWS FAIL AFTER SELF TEST LAMP GOES OUT (CONTINUED).

YES

Check for continuity from 18A1P1-33 to 18A1P1-41.

NOTE

Some resistance will be present.

Is continuity present?

YES

NO

Remove airspeed and direction sensor (AADS) per TM 9-1270-219-13, Chapter 4, Section I.

Check for continuity from 18A1P1-33 to 18A2P1-5.

Is continuity present?

YES

NO

Repair wire A1045A22 (BLU) between 18A1P1-33 and 18A2P1-5.

Install airspeed and direction sensor (AADS) per TM 9-1270-219-13, Chapter 4, Section I.

Connect 18A1P1.

Then go to paragraph 4-2.

YES

Check for continuity from 18A1P1-32 to connector backshell.

Is continuity present?

YES

Repair wire A1045A22 (WHT) between 18A1P1-32 and 18A2P1-6 to eliminate short.

Install airspeed and direction sensor (AADS) per TM 9-1270-219-13, Chapter 4, Section I.

Connect 18A1P1.

Then go to paragraph 4-2.

NO

Check for continuity from 18A1P1-41 to 18A2P1-17.

Is continuity present?

YES

Check for continuity from 18A1P1-41 to connector backshell.

Is continuity present?

YES

Repair Wire A1045A22 (ORN) between 18A1P1-41 and 18A2P1-17 to eliminate short.

Install airspeed and direction sensor (AADS) per TM 9-1270-219-13, Chapter 4, Section I.

Connect 18A1P1.

Then go to paragraph 4-2.

NO

Repair wire A1045A22 (ORN) between 18A1P1-41 and 18A2P1-17.

Install airspeed and direction sensor (AADS) per TM 9-1270-219-13, Chapter 4, Section I.

Connect 18A1P1.

Then go to paragraph 4-2.

NO

Replace airspeed and direction sensor (AADS) per TM 9-1270-219-13, Chapter 4, Section I.

Connect 18A1P1.

Then go to paragraph 4-2.

4-6. EPU AND AADS BIT INDICATORS SHOW WHITE AND LAI FLAG SHOWS FAIL AFTER SELF TEST LAMP GOES OUT (CONTINUED).

YES → Replace electronics processor unit (EPU) per TM 9-1270-219-13 Chapter 4, Section I.

Then go to paragraph 4-2.

YES → Check for continuity from 18A1P1-33 to connector backshell.

Is continuity present?

YES → Repair wire A1045A22 (BLU) Between 18A1P1-33 and 18A2P1-5 to eliminate short.

Install airspeed and direction sensor (AADS) per TM 9-1270-219-13, Chapter 4, Section I.

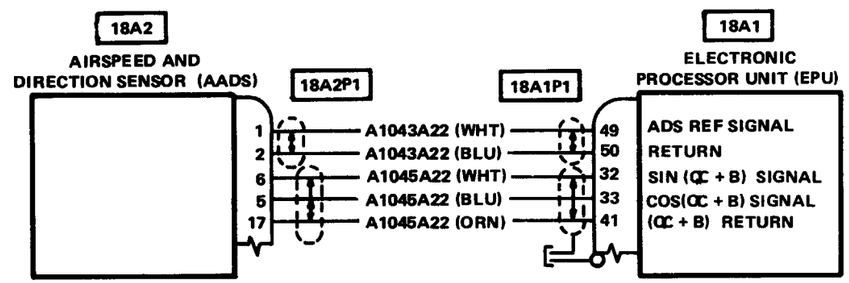
Connect 18A1P1.

Then go to paragraph 4-2.

NO → Replace airspeed and direction sensor (AADS) per TM 9-1270-219-13, Chapter 4, Section I.

Connect 18A1P1.

Then go to paragraph 4-2.



4-7. LATERAL BAR ON LOW AIRSPEED INDICATOR WILL NOT MOVE WHEN PROBE IS MOVED.

INITIAL SETUP

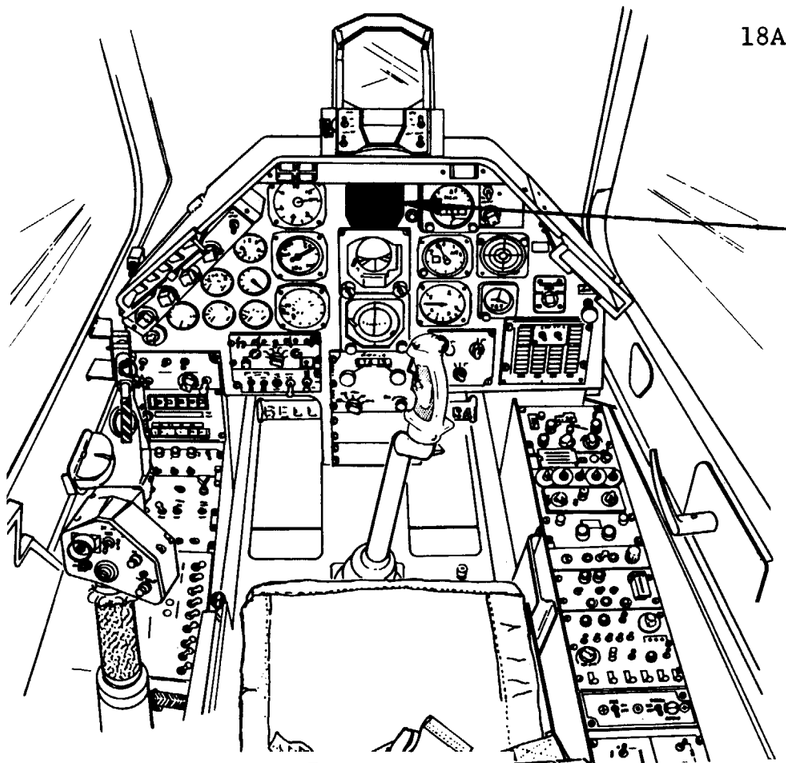
Applicable Configuration
All

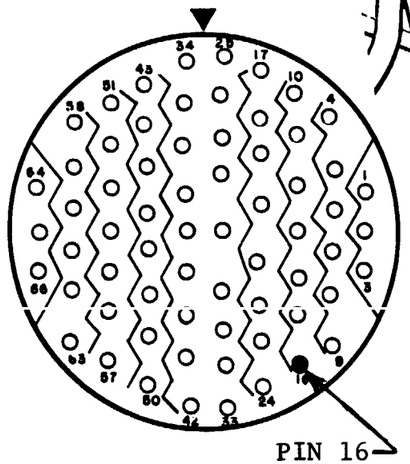
Tools/ Test and Support Equipment
Multimeter

Tool Kit, A/C Electrician

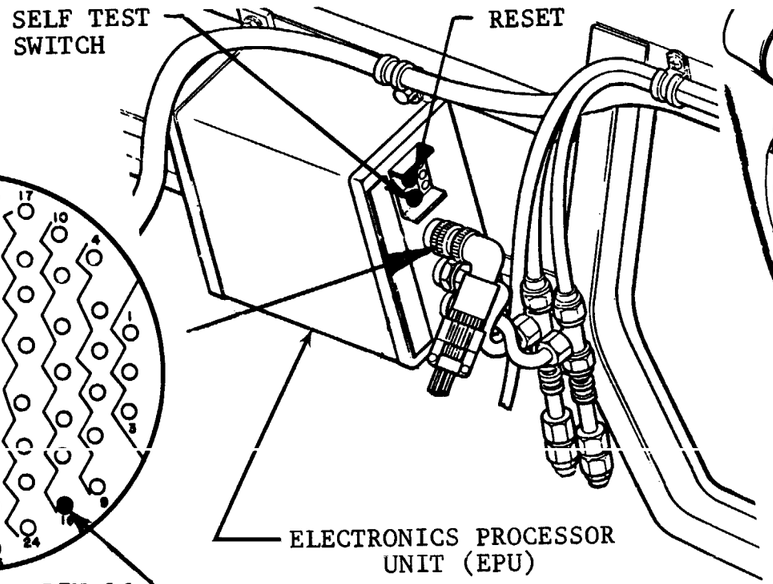
Personnel Required
68F (1)

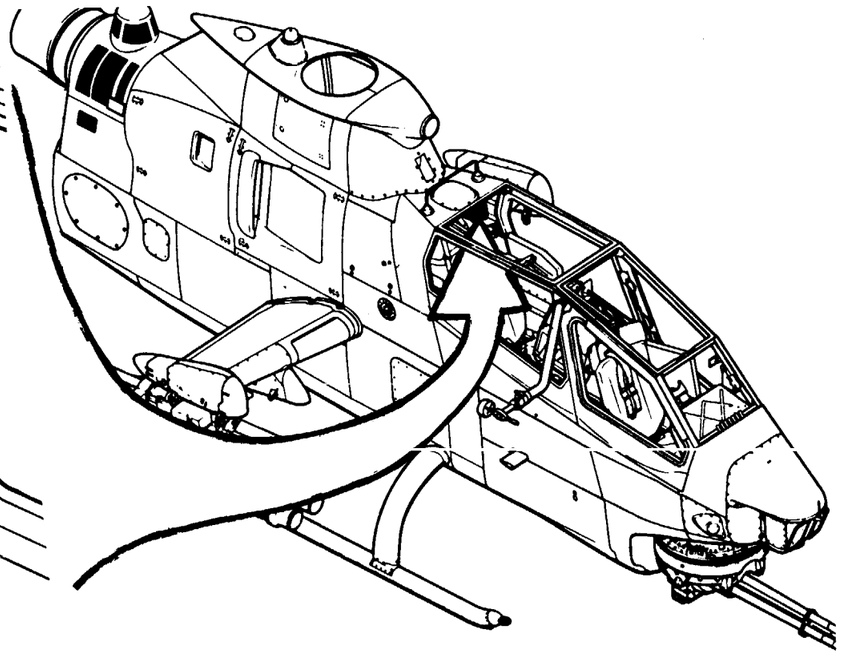
References
TM9-1270-219-13

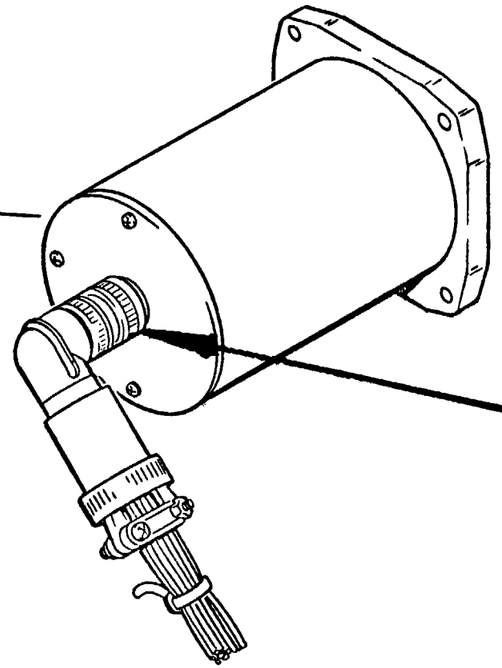




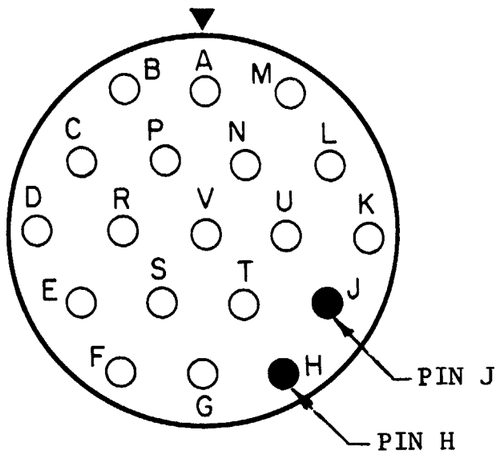
18A1P1







LOW AIRSPEED INDICATOR (LAI)



18A3P1

4-7. LATERAL BAR ON LOW AIRSPEED INDICATOR WILL NOT MOVE WHEN PROBE IS MOVED (CONTINUED).

Turn off electrical power per paragraph 4-3.

Remove low airspeed indicator (LAI) per TM 9-1270-219-13, Chapter 4, Section I.

Set multimeter to 10 V dc scale.

Connect multimeter between 18A3P1-H(+) and 18A3P1-J(-).

Turn on electrical power per paragraph 4-3.

On electronic processor unit (EPU):

Press SELF TEST and RESET switches.

Does voltage rise and then return to zero?

YES → Turn off electrical power per paragraph 4-3.

Replace low airspeed indicator per TM 9-1270-219-13, Chapter 4, Section I.

Then go to paragraph 4-2.

NO

Turn off electrical power per paragraph 4-3.

Check for continuity from 18A3P1-H and 18A1P1-16.

Is continuity present?

NO

Repair wire A1058A22 (WHT) between 18A3P1-H and 18A1P1-16.

Install low airspeed indicator per TM 9-1270-219-13, Chapter 4, Section I.

Then go to paragraph 4-2.

YES → Disconnect 18A1P1.

Check for continuity from 18A3P1-H to airframe ground.

Is continuity present?

YES → Repair wire A1058A22 (WHT) between 18A3P1-H and 18A1P1-16 to eliminate short.

Install low airspeed indicator per TM 9-1270-219-13, Chapter 4, Section I.

Connect 18A1P1.

Then go to paragraph 4-2.

NO

Check for continuity from 18A3P1-J to 18A3P1-H.

Is continuity present?

YES → Repair wire A1058A22 (BLU) or A1058A22 (WHT) to eliminate short between wires.

Install low airspeed indicator per TM 9-1270-219-13, Chapter 4, Section I.

Connect 18A1P1.

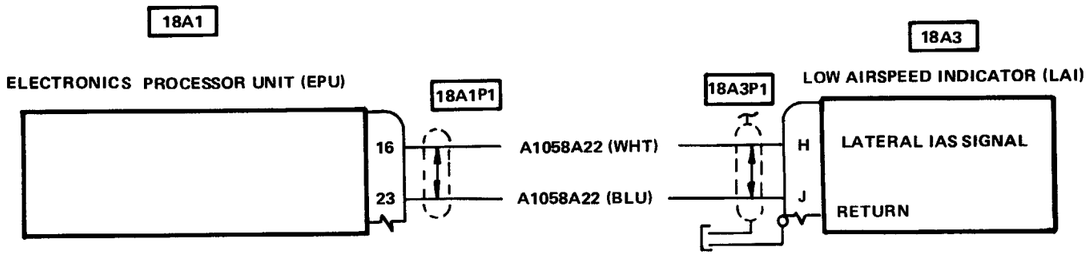
Then go to paragraph 4-2.

NO

Replace electronic processor unit (EPU) per TM 9-1270-219-13, Chapter 4, Section I.

Install low airspeed indicator per TM 9-1270-219-13, Chapter 4, Section I.

Then go to paragraph 4-2.



4-8. FORE-AFT BAR ON LOW AIRSPEED INDICATOR WILL NOT MOVE WHEN PROBE IS MOVED.

INITIAL SETUP

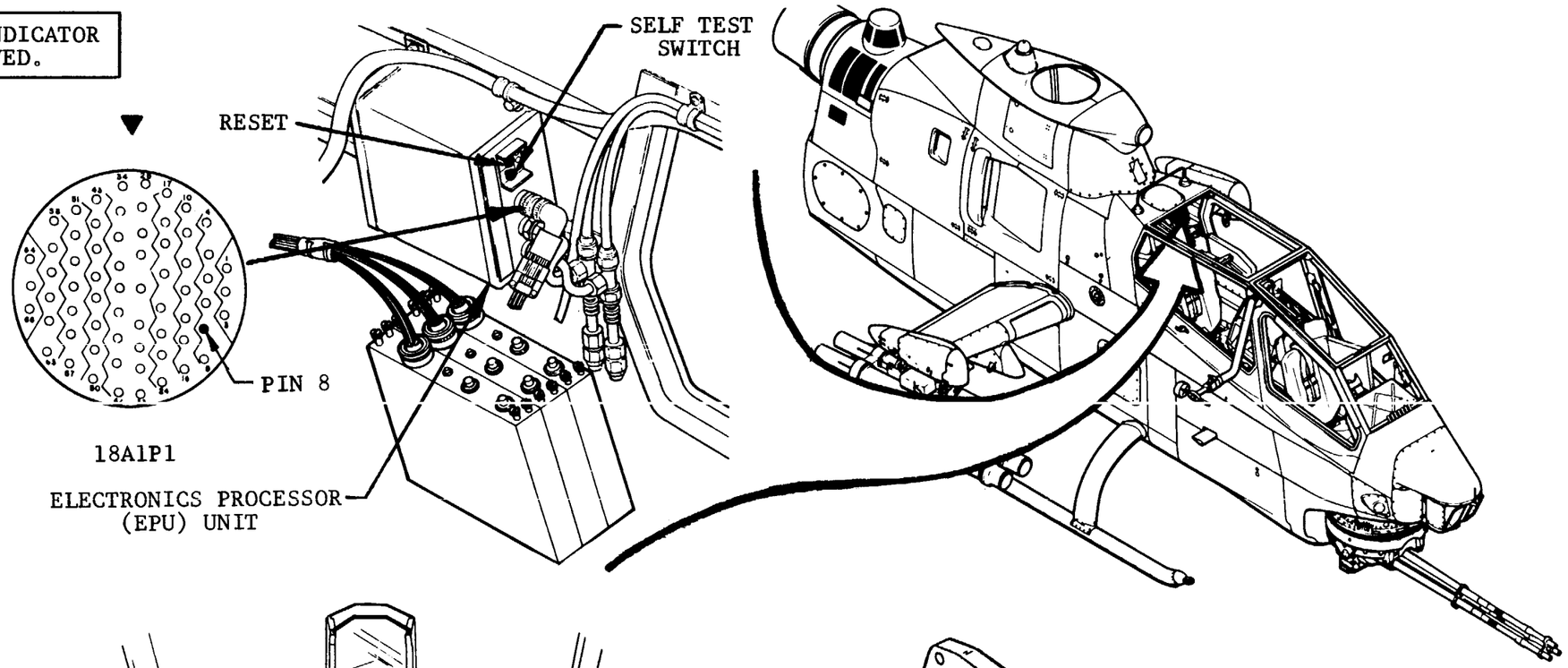
Applicable Configuration
All

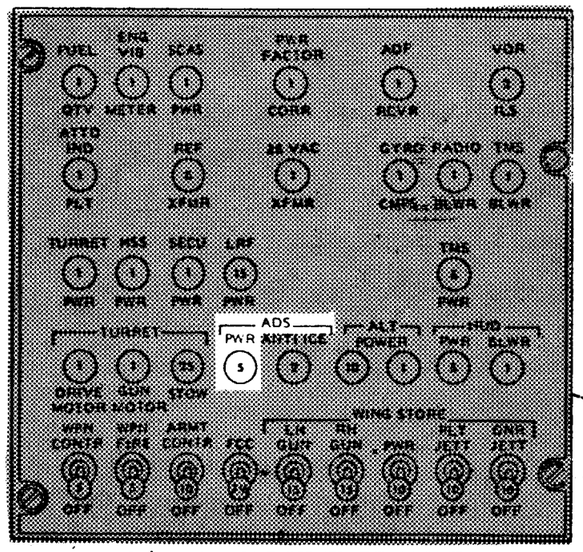
Tools/Test and Support Equipment
Multimeter

Tool Kit, A/C Electrician

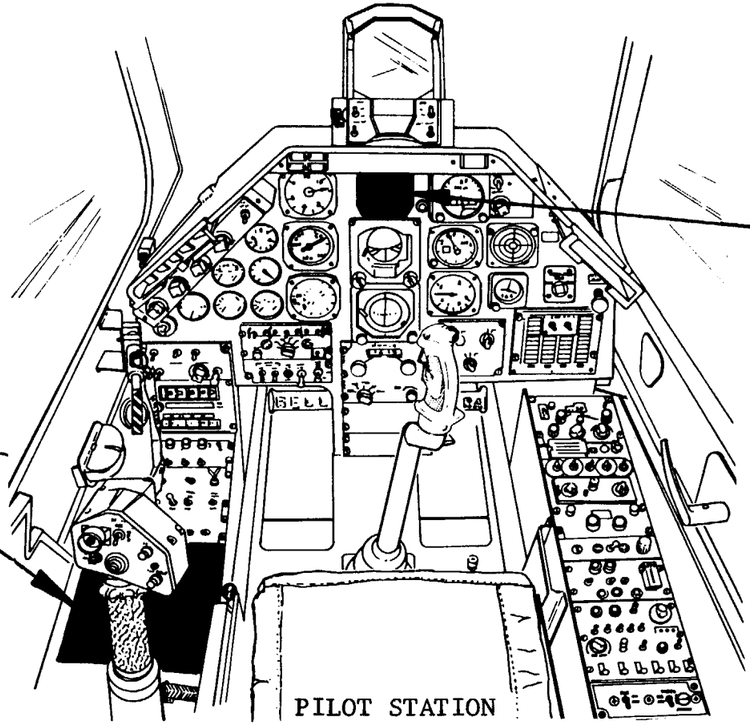
Personnel Required
68F (1)

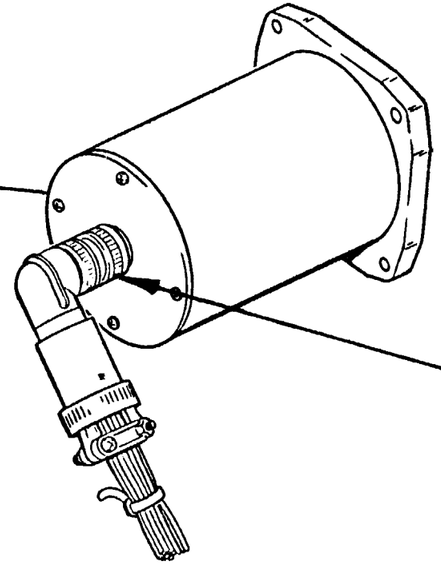
References
TM 9-1270-219-13

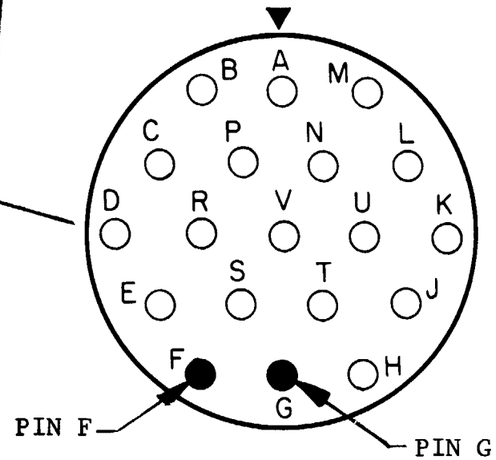




AC/ARMT CIRCUIT BREAKER PANEL


PILOT STATION


LOW AIRSPEED INDICATOR (LAI) (REAR VIEW)



4-8. FORE-AFT BAR ON LOW AIRSPEED INDICATOR WILL NOT MOVE WHEN PROBE IS MOVED (CONTINUED).

Turn off electrical power per paragraph 4-3.

Remove low airspeed indicator (LAI) per TM 9-1270-219-13, Chapter 4, Section I.

Set multimeter to 10 V dc scale.

Connect multimeter between 18A3P1-F(+) and 18A3P1-G(-).

Turn on electrical power per paragraph 4-3.

On electronics processor unit (EPU):

Press SELF TEST and RESET switches and observe multimeter.

Does voltage rise and then return to zero?

YES → Turn off electrical power per paragraph 4-3.

Replace low airspeed indicator per TM 9-1270-219-13, Chapter 4, Section I.

Then go to paragraph 4-2.

NO → Turn off electrical power per paragraph 4-3.

Check for continuity from 18A3P1-F to 18A1P1-8.

Is continuity present?

YES → Disconnect 18A1P1.

Check for continuity from 18A3P1-F to airframe ground.

Is continuity present?

YES → Repair wire A1059A22 (WHT) between 18A3P1-F and 18A1P1-8 to eliminate short.

Install low airspeed indicator per TM 9-1270-219-13, Chapter 4, Section I.

Connect 18A1P1.

Then go to paragraph 4-2.

NO → Check for continuity from 18A3P1-G to 18A3P1-F.

Is continuity present?

YES → **Repair wire A1059A22 (WHT) or A1059A22 (BLU) to eliminate short between wires.**

Install low airspeed indicator per TM 9-1270-219-13, Chapter 4, Section I.

Connect 18A1P1.

Then go to paragraph 4-2.

NO → Replace electronics processor unit (EPU) per TM 9-1270-219-13, Chapter 4, Section I.

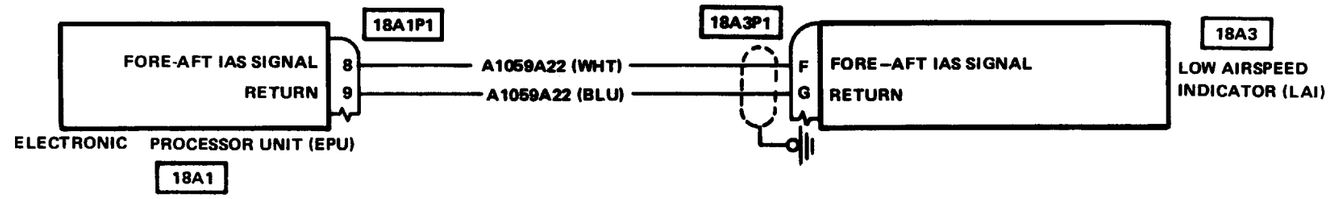
Install low airspeed indicator per TM 9-1270-219-13, Chapter 4, Section I.

Then go to paragraph 4-2.

NO → Repair wire A1059A22 (WHT) between 18A3P1-F and 18A1P1-8.

Install low airspeed indicator per TM 9-1270-219-13, Chapter 4, Section I.

Then go to paragraph 4-2.



4-9. ALL BIT INDICATORS SHOW BLACK BUT LAI FLAG SHOWS FAIL AFTER SELF TEST LAMP GOES OUT.

INITIAL SETUP

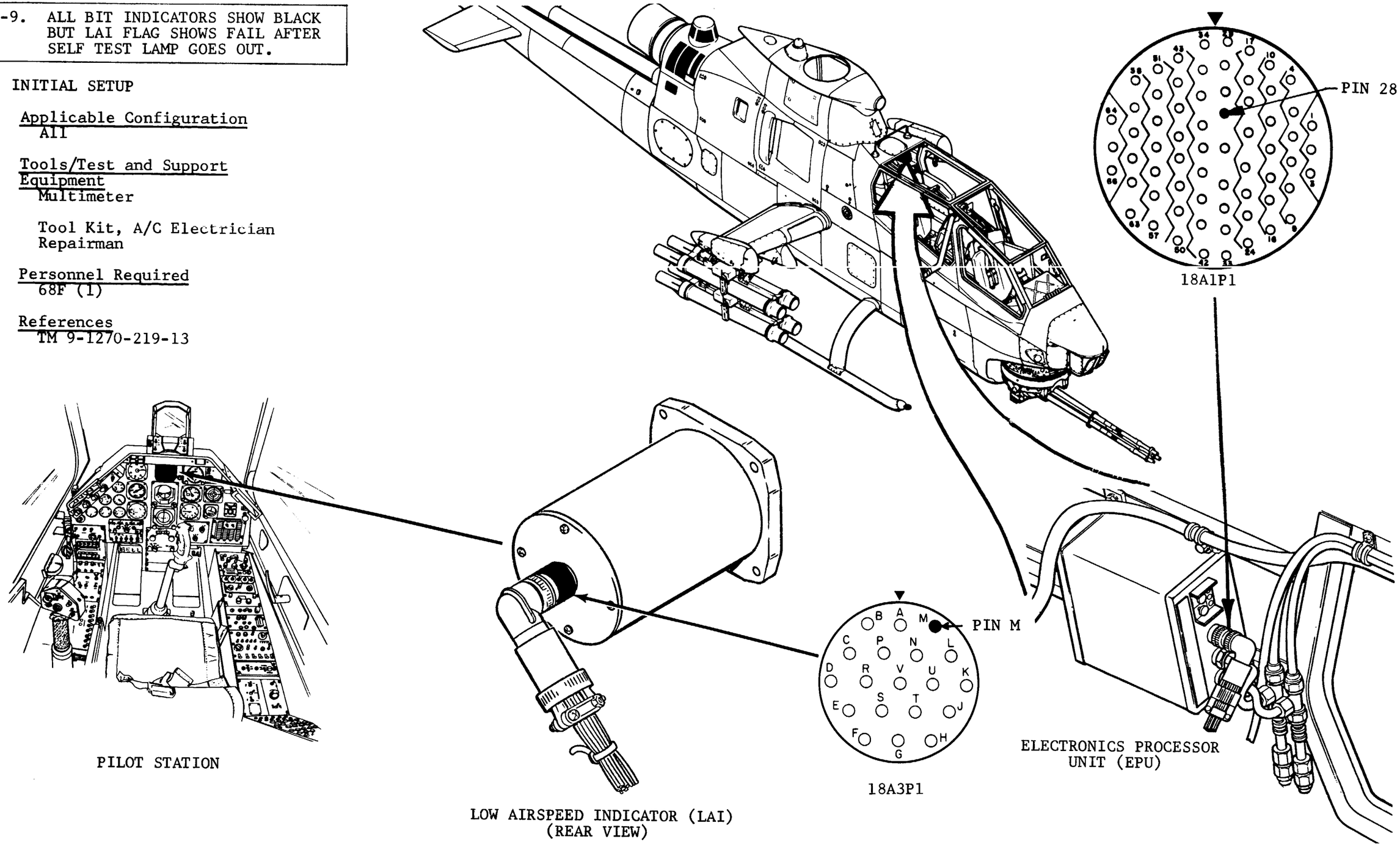
Applicable Configuration
All

Tools/Test and Support Equipment
Multimeter

Tool Kit, A/C Electrician Repairman

Personnel Required
68F (1)

References
TM 9-1270-219-13



4-9. ALL BIT INDICATORS SHOW BLACK BUT LAI FLAG SHOWS FAIL AFTER SELF TEST LAMP GOES OUT (CONTINUED).

Turn off electrical power per paragraph 4-3.

Remove low airspeed indicator per TM 9-1270-219-13, Chapter 4, Section I.

Turn on electrical power per paragraph 4-3.

Check for 15 V dc at 18A3P1-M.

Is 15 V dc present?

YES →

Turn off electrical power per paragraph 4-3.

Replace low airspeed indicator per TM 9-1270-219-13, Chapter 4, Section I.

Then go to paragraph 4-2.

NO ↓

Turn off electrical power per paragraph 4-3.

Check for continuity from 18A3P1-M to 18A1P1-28.

Is continuity present?

YES →

Check for continuity from 18A1P1-28 to connector backshell.

Is continuity present?

YES →

Repair wire A1056A22 between 18A1P1-28 and 18A3P1-M to eliminate short.

Replace low airspeed indicator per TM 9-1270-219-13, Chapter 4, Section I.

Then go to paragraph 4-2.

NO ↓

Repair wire A1056A22 between 18A3P1-M and 18A1P1-28.

Install low airspeed indicator per TM 9-1270-219-13, Chapter 4, Section I.

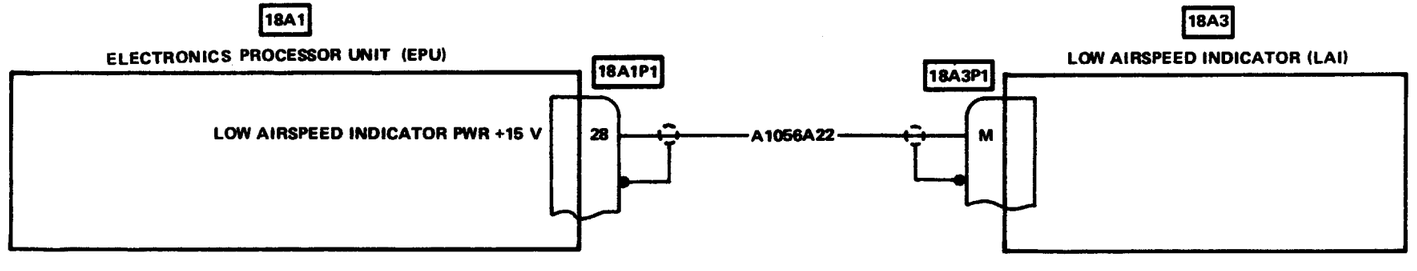
Then go to paragraph 4-2.

NO ↓

Replace electronic processor unit per TM 9-1270-219-13, Chapter 4, Section I.

Install low airspeed indicator per TM 9-1270-219-13, Chapter 4, Section I.

Then go to paragraph 4-2.



4-10. DIRECT ROCKET RETICLE ON HUD MOVES ERRATICALLY.

INITIAL SETUP

Applicable Configuration
All

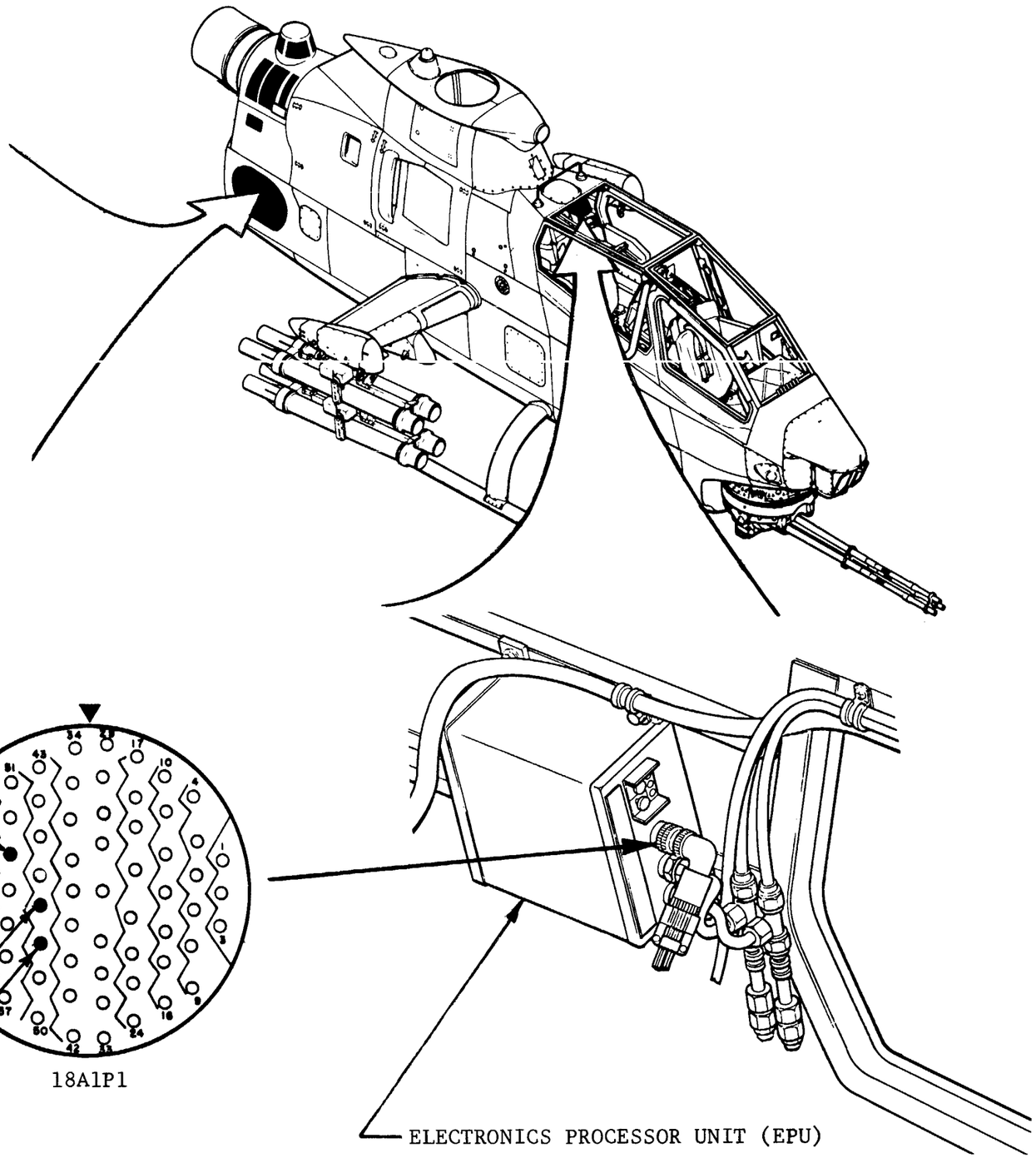
Tools/Test and Support Equipment
Multimeter

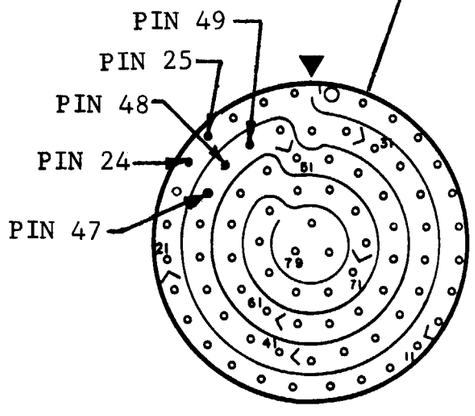
Tool Kit, A/C Electrician

Personnel Required
68F (2)

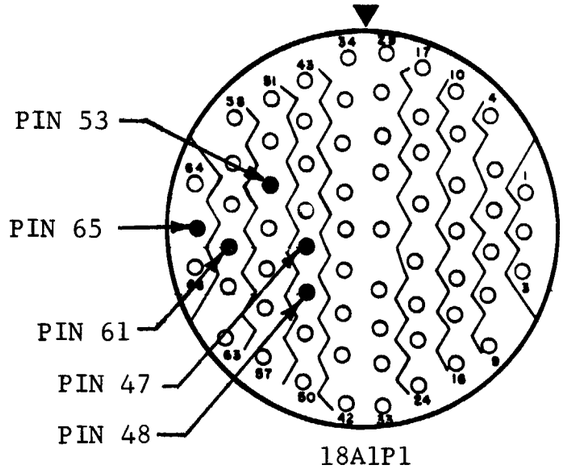
References
TM 9-1270-219-13
TM 9-1270-218-13

Access Panels
Battery Compartment - Removed



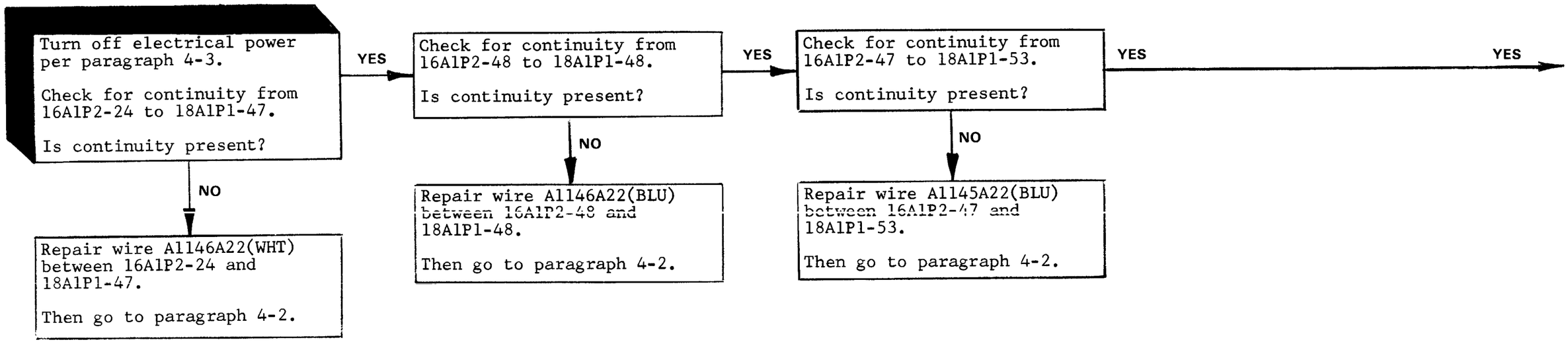


16A1P2



18A1P1

4-10. DIRECT ROCKET RETICLE ON HUD MOVES ERRATICALLY (CONTINUED).



4-10. DIRECT ROCKET RETICLE ON HUD MOVES ERRATICALLY (CONTINUED).

YES → Check for continuity from 16A1P2-49 to connector backshell.

Is continuity present?

YES → Repair wire A1144A22(BLU) between 16A1P2-49 and 18A1P1-65 to eliminate short.

Then go to paragraph 4-2.

NO ↓

Check for continuity from 16A1P2-25 to connector backshell.

Is continuity present?

YES → Repair wire A1144A22(WHT) between 16A1P2-25 and 18A1P1-61 to eliminate short.

Then go to paragraph 4-2.

NO ↓

Test fire control computer (FCC) per TM 9-1270-218-13, Chapter 5, Section III.

Does fire control computer (FCC) pass test?

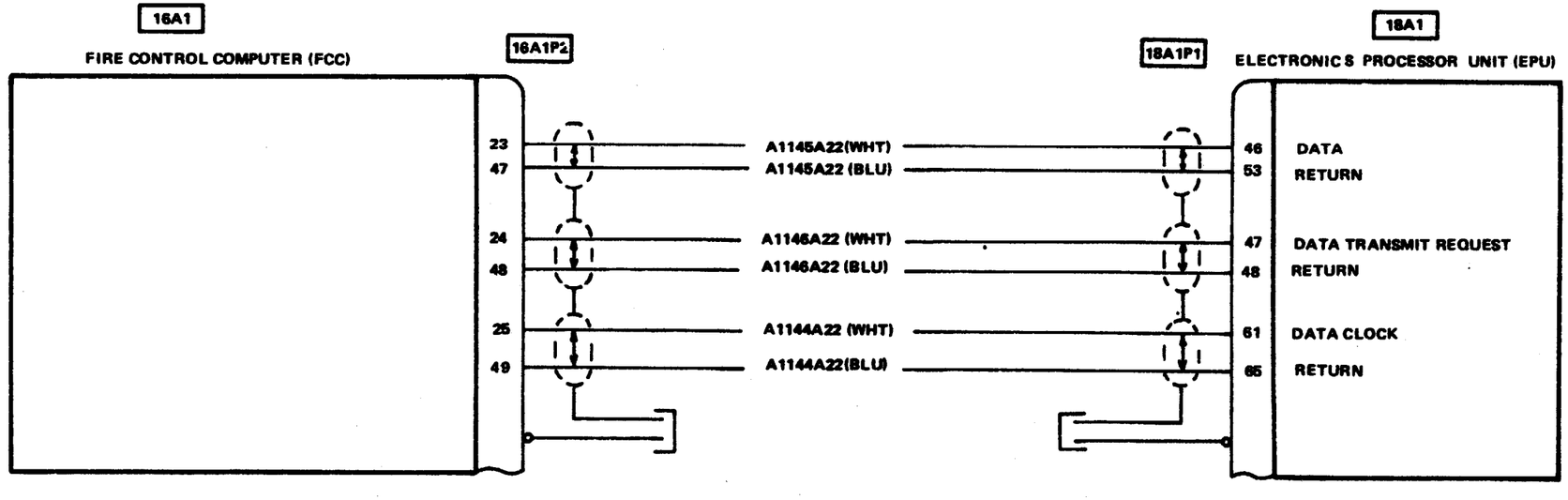
YES → Replace electronics processor unit (EPU) per TM 9-1270-219-13, Chapter 4, Section I.

Then go to paragraph 4-2.

NO ↓

Replace fire control computer (FCC) per TM 9-1270-218-13, Chapter 4, Section IV.

Then go to paragraph 4-2.



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4-11. DIRECT ROCKET RETICLE ON HUD DOES NOT TRACK AADS MOVEMENT.

INITIAL SETUP

Applicable Configuration
All

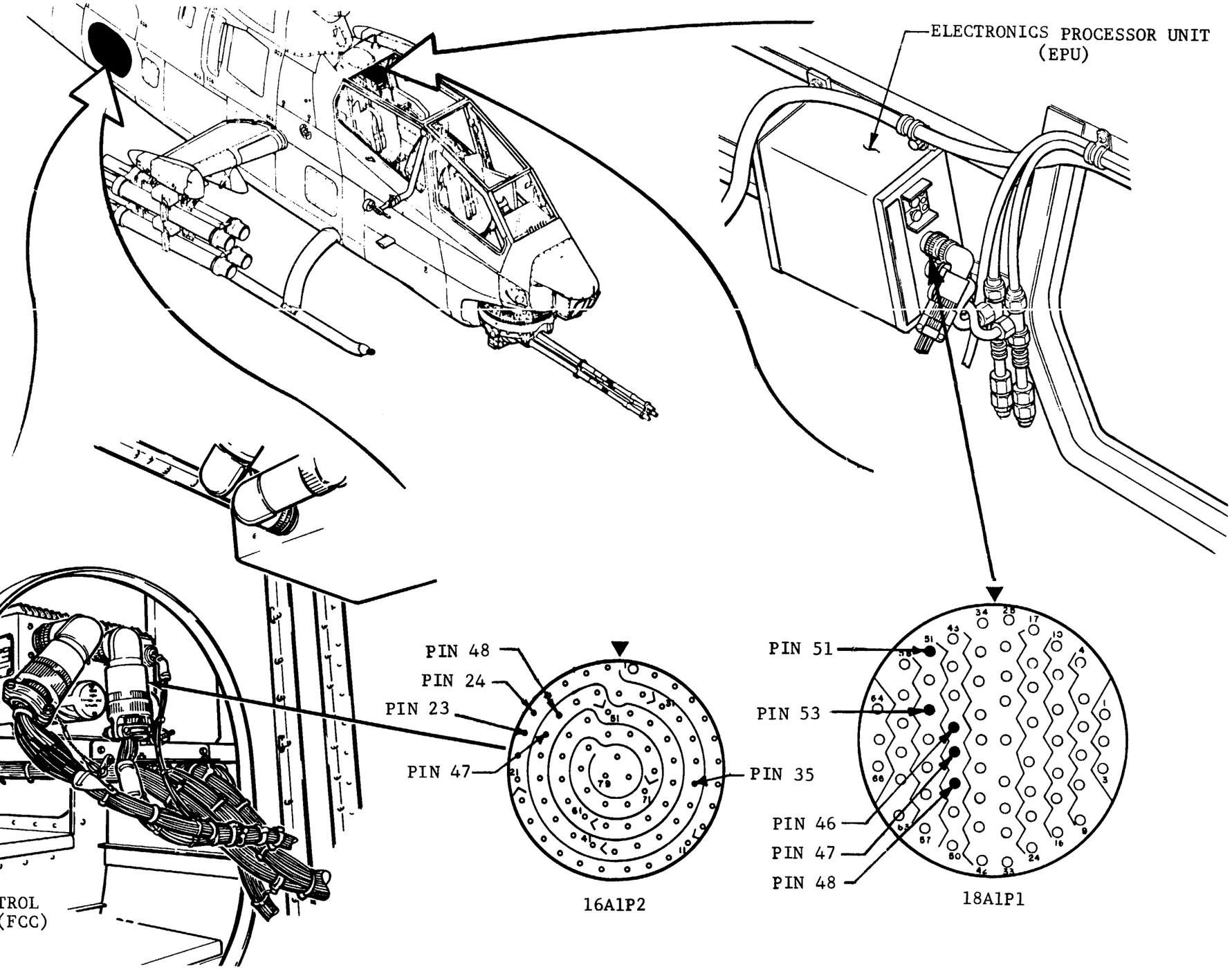
Tools/Test and Support Equipment
Multimeter

Tool Kit, A/C Electrician

Personnel Required
68F (2)

References
TM 9-1270-218-13
TM 9-1270-219-13

Access Panels
Battery Compartment - Removed



4-11. DIRECT ROCKET RETICLE ON HUD DOES NOT TRACK AADS MOVEMENT (CONTINUED).

Turn off electrical power per paragraph 4-3.

Disconnect 16A1P2.

Turn on electrical power per paragraph 4-3.

Check for 28 V dc at 16A1P2-35.

Is 28 V dc present?

YES → Turn off electrical power per paragraph 4-3.

Check for continuity from 18A1P1-47 to connector backshell.

Is continuity present?

YES → Repair wire A1146A22 (WHT) between 18A1P1-47 and 16A1P2-24 to eliminate short.

Connect 16A1P2.

Then go to paragraph 4-2.

NO → Check for continuity from 18A1P1-48 to connector backshell.

Is continuity present?

YES → Repair wire A1146A22 (BLU) between 16A1P2-48 and 18A1P1-48 to eliminate short.

Connect 16A1P2.

Then go to paragraph 4-2.

NO → Check for continuity from 16A1P2-23 to connector backshell.

Is continuity present?

YES → Repair wire A1145A22 (WHT) between 16A1P2-23 and 18A1P1-46 to eliminate short.

Connect 16A1P2.

Then go to paragraph 4-2.

NO → Check for continuity from 16A1P2-47 to connector backshell.

Is continuity present?

YES → Repair wire A1145A22 (BLU) between 16A1P2-47 and 18A1P1-53 to eliminate short.

Connect 16A1P2.

Then go to paragraph 4-2.

NO → Turn off electrical power per paragraph 4-3.

Check for continuity from 16A1P2-35 to 18A1P1-51.

Is continuity present?

YES → Check for continuity from 16A1P2-35 to connector backshell.

Is continuity present?

YES → Repair wire A1143A22 between 16A1P2-35 and 18A1P1-51 to eliminate short.

Connect 16A1P2.

Then go to paragraph 4-2.

NO → Replace electronics processor unit (EPU) per TM 9-1270-219-13, Chapter 4, Section I.

Connect 16A1P2.

Then go to paragraph 4-2.

NO → Repair wire A1143A22 between 16A1P2-35 and 18A1P1-51.

Connect 16A1P2.

Then go to paragraph 4-2.

4-11. DIRECT ROCKET RETICLE ON HUD DOES NOT TRACK AADS MOVEMENT (CONTINUED).

Check for continuity from 16A1P2-47 to 16A1P2-23.

Is continuity present?

YES → Repair wire A1145A22 (WHT) or A1145A22 (BLU) to eliminate short between wires.

Connect 16A1P2.

Then go to paragraph 4-2.

NO ↓

Test fire control computer (FCC) per TM 9-1270-218-13, Chapter 5.

Does fire control computer (FCC) pass test?

YES → Replace electronics processor unit (EPU) per TM 9-1270-219-13, Chapter 4, Section I.

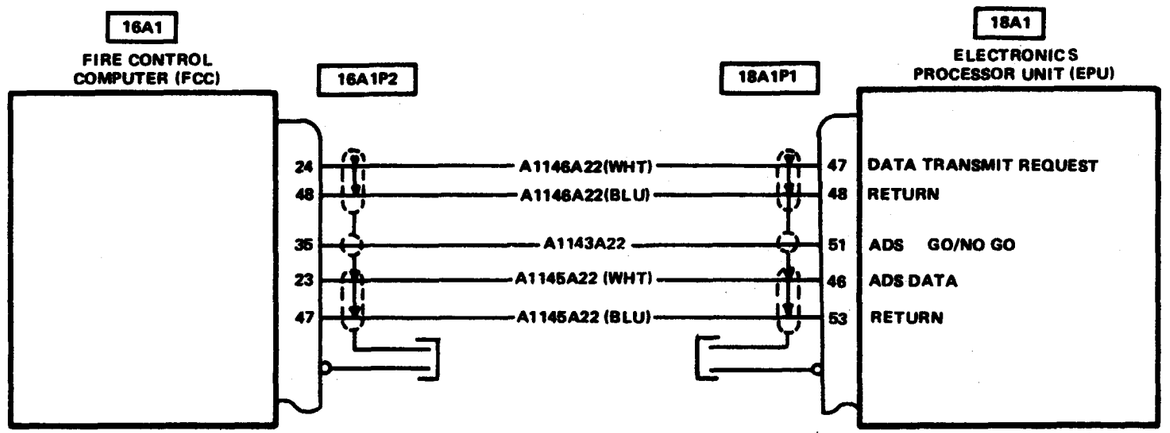
Connect 16A1P2.

Then go to paragraph 4-2.

NO ↓

Replace fire control computer (FCC) per TM 9-1270-218-13, Chapter 4, Section IV.

Then go to paragraph 4-2.



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4-12.	DIRECT ROCKET RETICLE ON HUD DOES NOT MOVE WITH RADAR ALTIMETER IN SELF TEST.

INITIAL SETUP

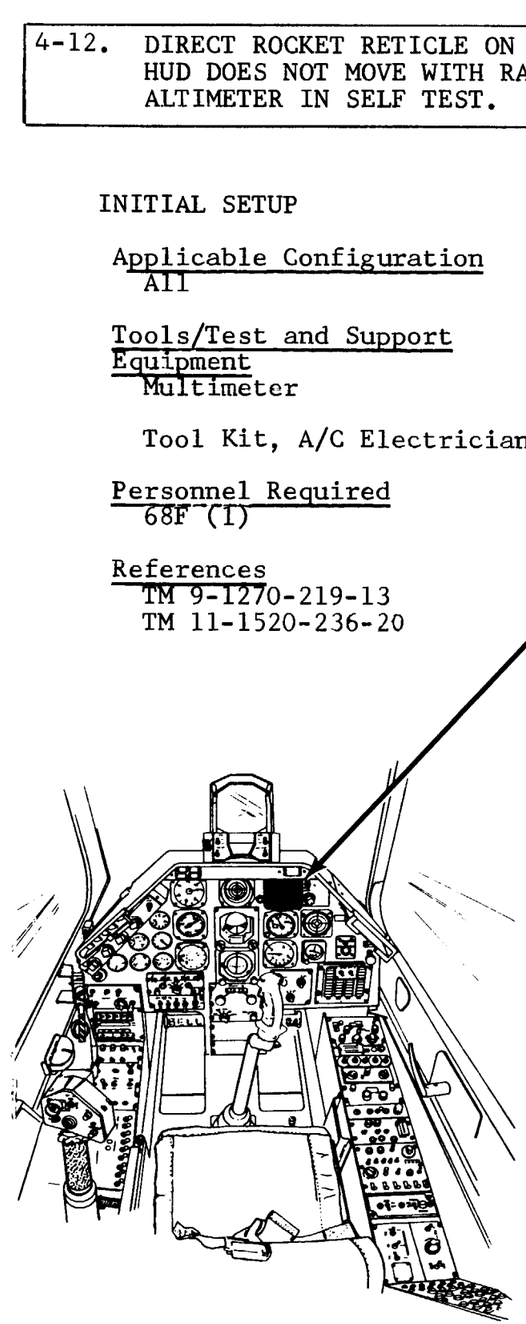
Applicable Configuration
All

Tools/Test and Support Equipment
Multimeter

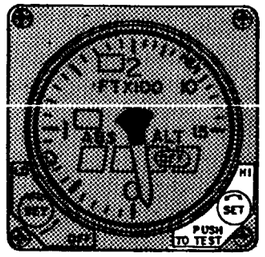
Tool Kit, A/C Electrician

Personnel Required
68F (1)

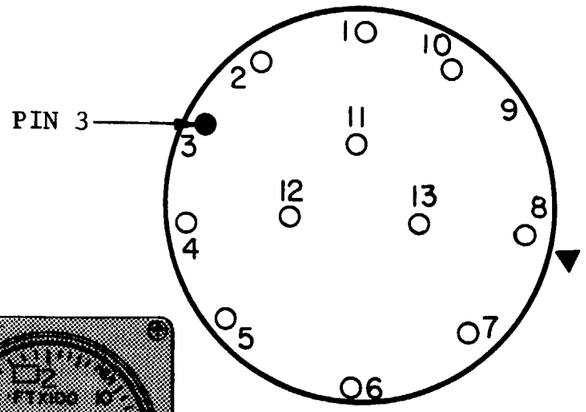
References
TM 9-1270-219-13
TM 11-1520-236-20

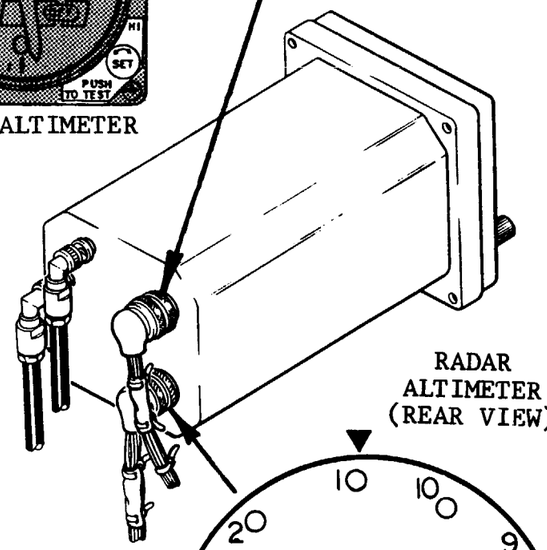


PILOT STATION

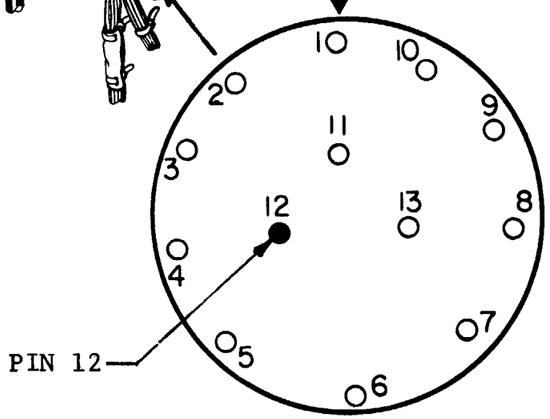


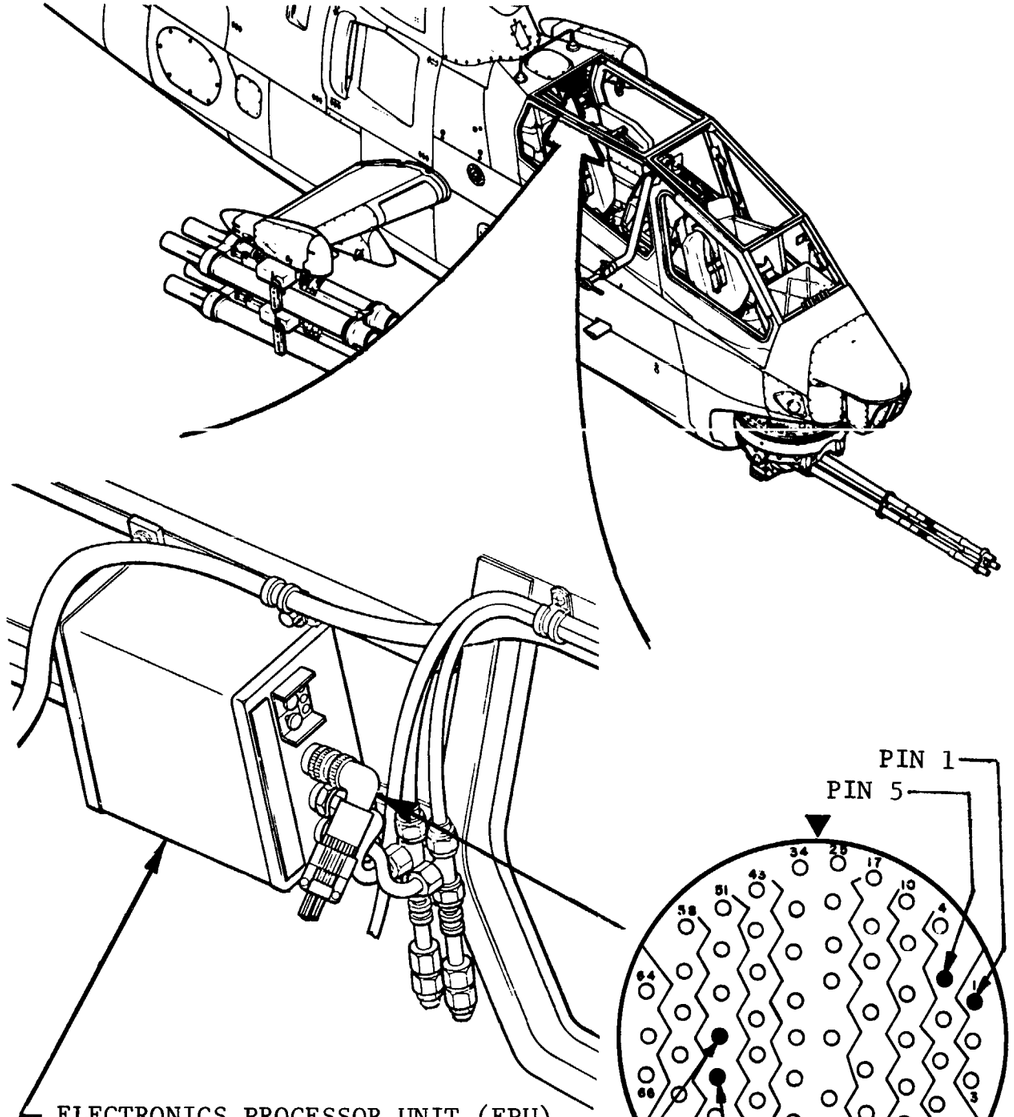
RADAR ALTIMETER



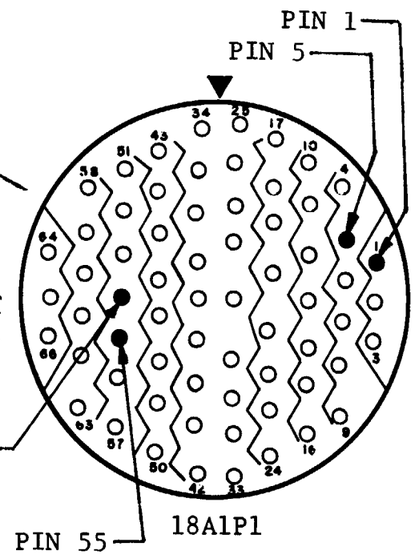


RADAR ALTIMETER (REAR VIEW)





ELECTRONICS PROCESSOR UNIT (EPU)



4-12. DIRECT ROCKET RETICLE ON HUD DOES NOT MOVE WITH RADAR ALTIMETER IN SELF TEST (CONTINUED).

Turn off electrical power per paragraph 4-3.

Disconnect 18A1P1.

Connect multimeter between 18A1P1-54(+) and 18A1P1-55(-).

Turn on electrical power per paragraph 4-3.

Check for 3.5 to 5.5 V dc.

Is 3.5 to 5.5 V dc present?

YES → Turn off electrical power per paragraph 4-3.

Connect multimeter between 18A1P1-5(+) and 18A1P1-1(-).

Turn on electrical power per paragraph 4-3.

Press and hold PUSH TO TEST/HI SET knob on radar altimeter.

Check for approximately 7 V dc.

Is approximately 7 V dc present?

YES → Turn off electrical power per paragraph 4-3.

Replace electronics processor unit (EPU) per TM 9-1270-219-13, Chapter 4, Section I.

Then go to paragraph 4-2.

NO → Turn off electrical power per paragraph 4-3.

Check for continuity from 18A1P1-54 to 3408DS1P1-12.

Is continuity present?

YES → Replace radar altimeter per TM 55-1520-236-20, Chapter 2, Section IV.

Connect 18A1P1.

Then go to paragraph 4-2.

NO → Remove splice joining wires A1091A22 (WHT) and 12-22.

Check for continuity from end of wire 12-22 to 3408DS1P1-12.

Is continuity present?

YES → Repair wire A1091A22 (WHT) between splice and 18A1P1-54.

Install splice joining wires A1091A22(WHT) and 12-22 per TM 55-1520-236-23, Chapter 9, Section I.

Connect 18A1P1.

Then go to paragraph 4-2.

NO → Replace connector 3408DS1P1 per TM 55-1520-236-23, Chapter 9, Section I.

Install splice joining wires A1091A22(WHT) and 12-22 per TM 55-1520-236-23, Chapter 9, Section I.

Connect 18A1P1.

Then go to paragraph 4-2.

NO → Turn off electrical power per paragraph 4-3.

Check for continuity from 18A1P1-1 to 3408DS1P2-3.

Is continuity present?

YES → Check for continuity from 18A1P1-1 to airframe ground.

Is continuity present?

YES →

NO → Replace radar altimeter per TM 11-1520-236-20, Chapter 2, Section IV.

Connect 18A1P1.

Then go to paragraph 4-2.

NO → Repair wire A1087A22 (WHT) between 18A1P1-1 and 3408DS1P2-3.

Connect 18A1P1.

Then go to paragraph 4-2.

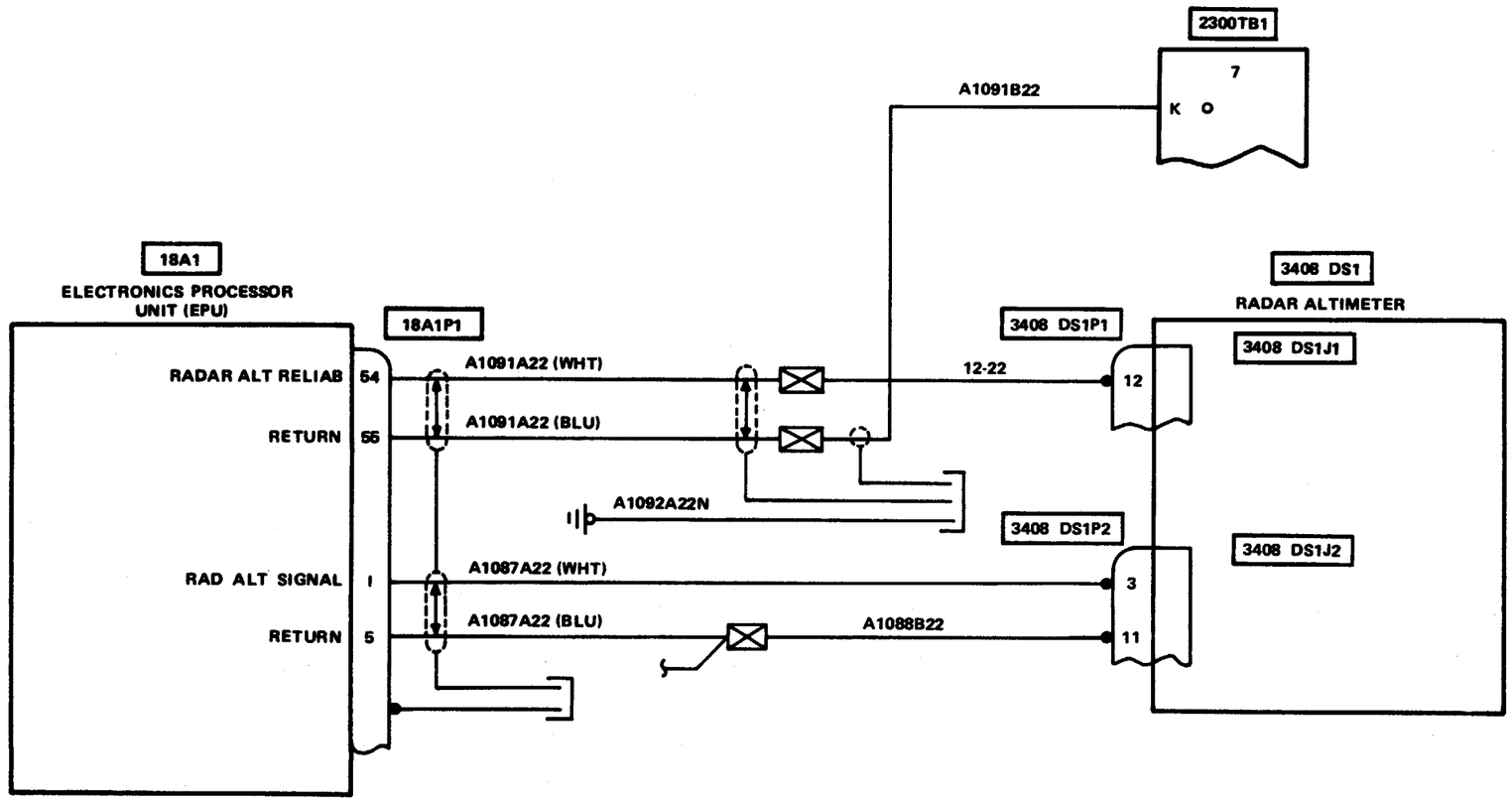
4-12. DIRECT ROCKET RETICLE ON HUD DOES NOT MOVE WITH RADAR ALTIMETER IN SELF TEST (CONTINUED).

YES →

Repair wire A1087A22 (WHT) between 18A1P1-1 and 3408DS1P2-3.

Connect 18A1P1.

Then go to paragraph 4-2.



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4-13. AADS HEATER WILL NOT HEAT.

4-13. AADS HEATER WILL NOT HEAT.

INITIAL SETUP

Applicable Configuration
All

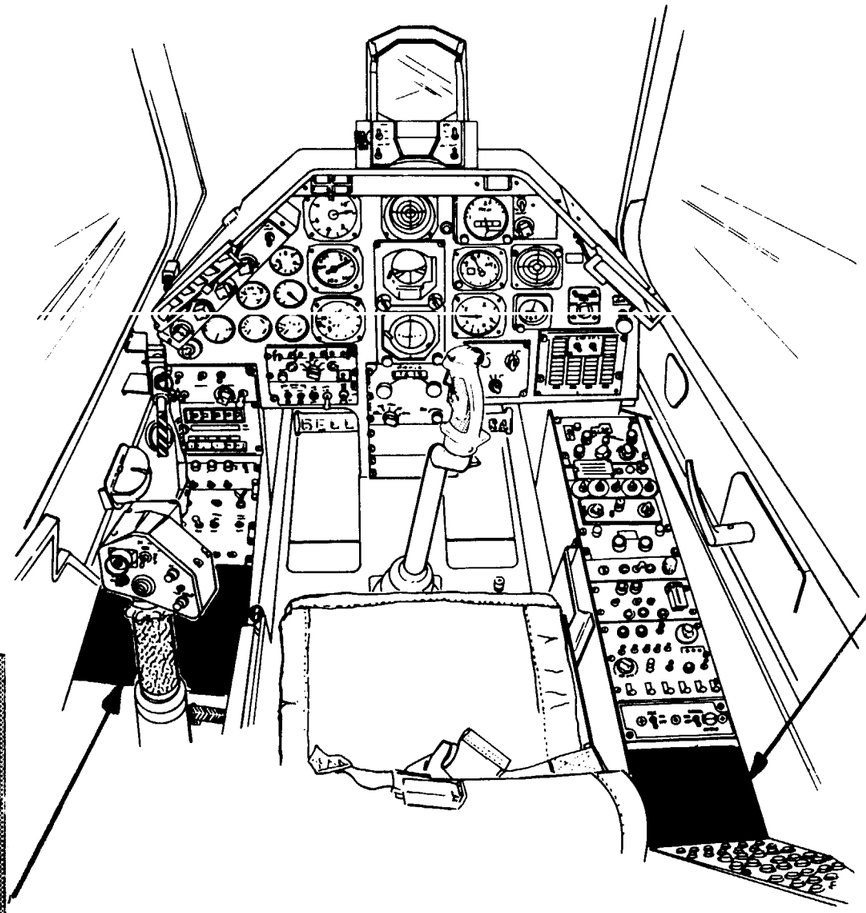
Tools/Test and Support Equipment
Multimeter

Tool Kit, A/C Electrician

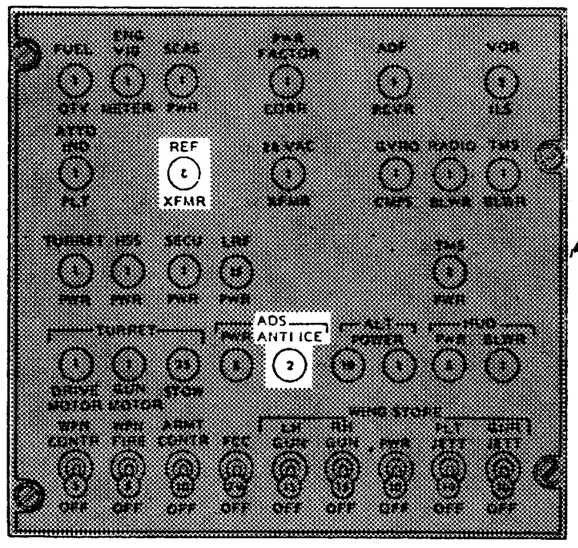
Personnel Required
68F (1)

References
TM 9-1270-219-13
TM 55-1520-236-23

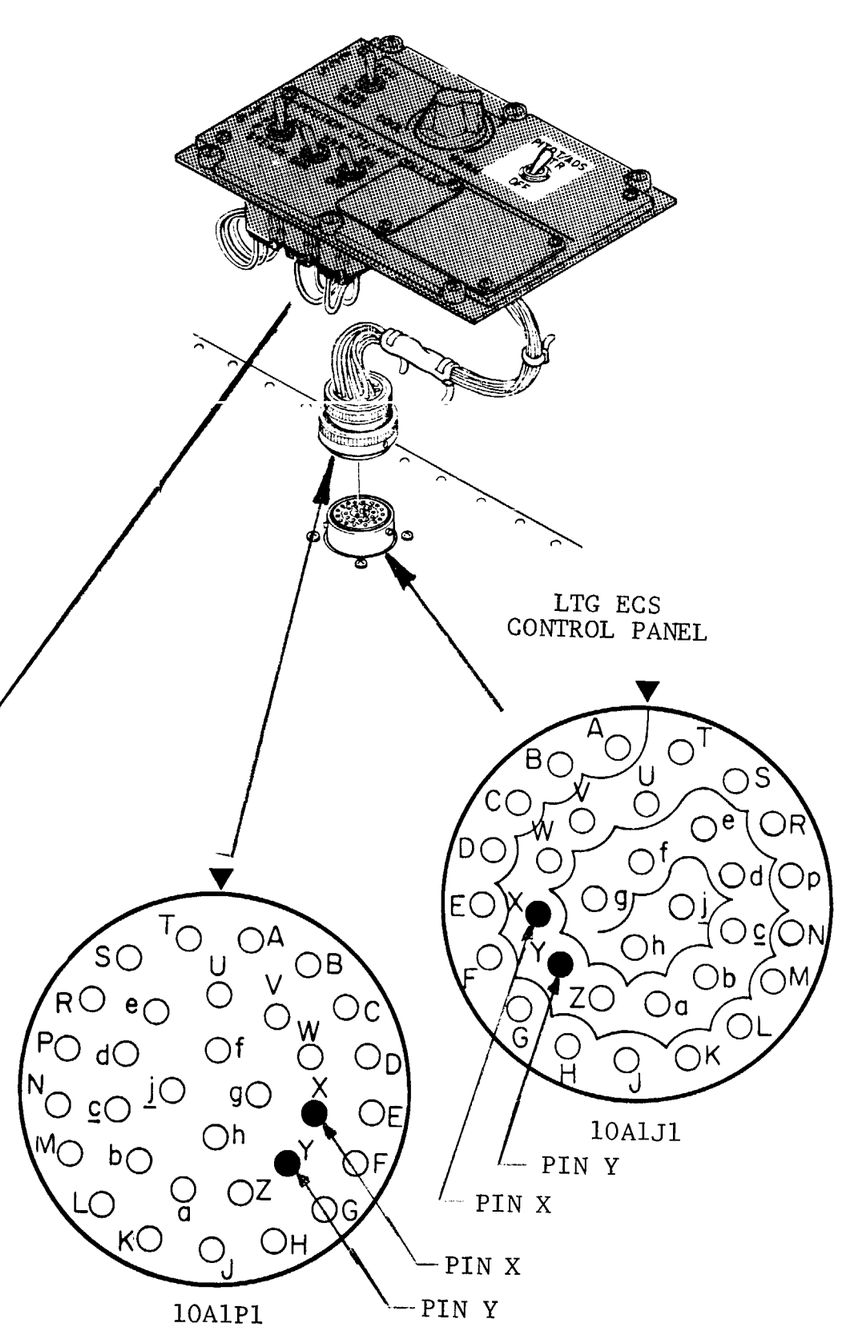
Access Panels
Left Side Control Linkage - Removed



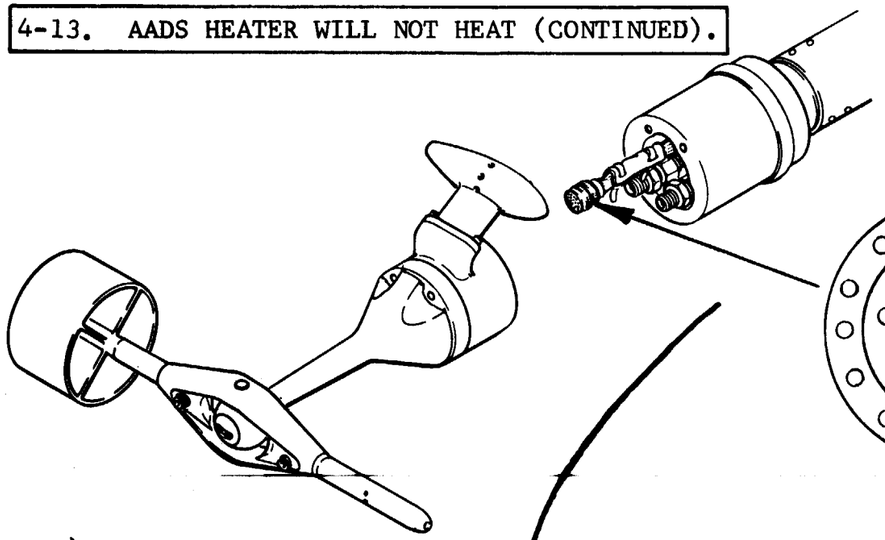
PILOT STATION

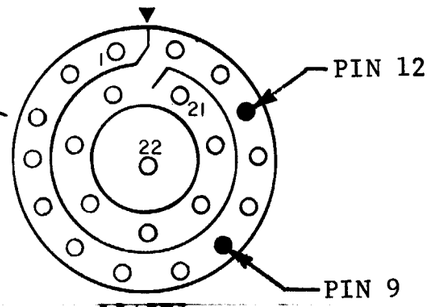


AC/ARMT CIRCUIT BREAKER PANEL

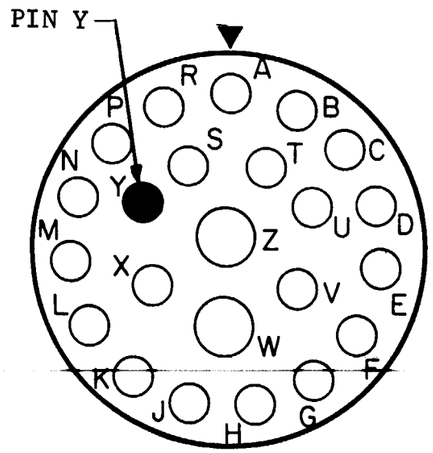


4-13. AADS HEATER WILL NOT HEAT (CONTINUED).

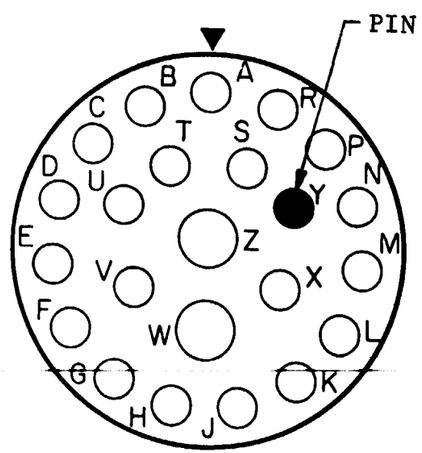




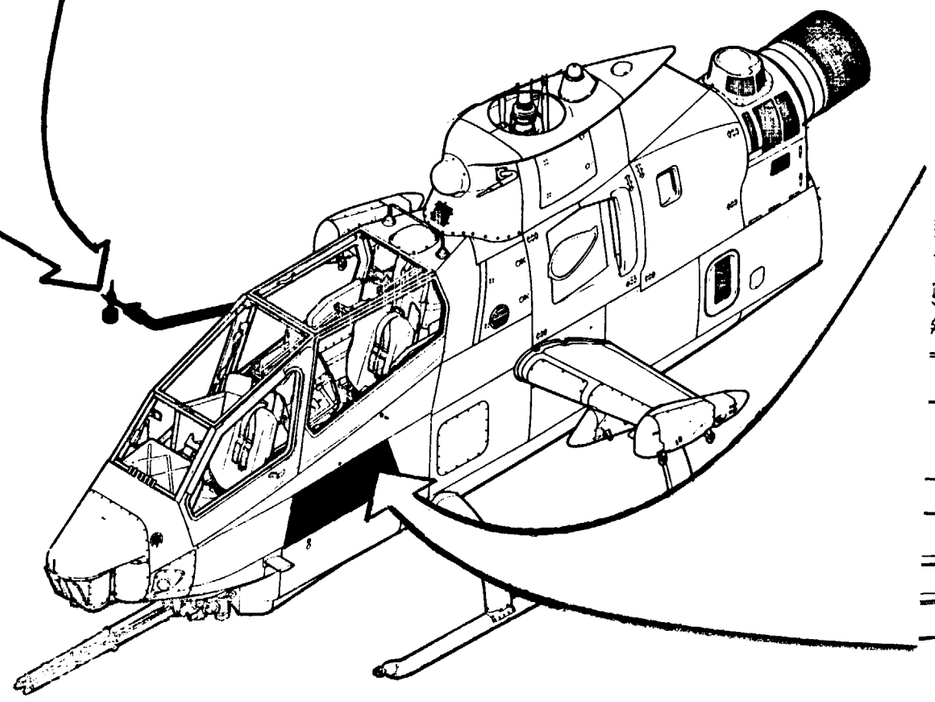
18A2P1



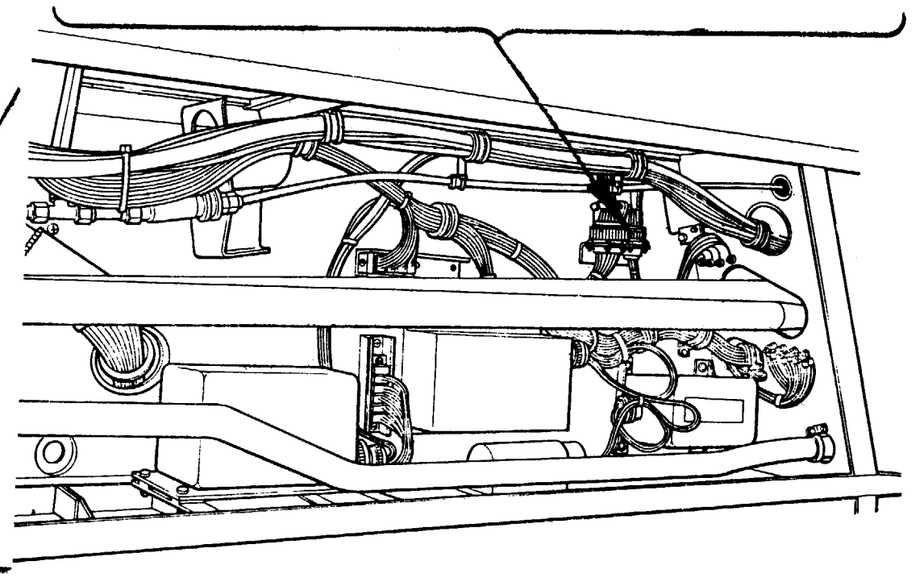
3A1P2



3A1J2



AIRSPEED AND DIRECTION SENSOR (AADS)



4-13. AADS HEATER WILL NOT HEAT (CONTINUED).

Turn off electrical power per paragraph 4-3.

Remove LTG/ECS control panel per TM 55-1520-236-23, Chapter 9, Section I.

Set PITOT/ADS switch to HTR.

Check for continuity from 10A1P1-X to 10A1P1-Y.

Is continuity present?

YES

Connect multimeter between 10A1J1-X and airframe ground.

Turn on electrical power per paragraph 4-3.

Check for 115 V ac.

Is 115 V ac present?

YES

Turn off electrical power per paragraph 4-3.

Check for continuity between 10A1J1-Y and 18A2P1-12.

Is continuity present?

YES

NO

Repair wires A1256B22 and A1256C22 joined by splice between 10AJ1-Y and 18A2P1-12.

Install LTG/ECS control panel per TM 55-1520-236-23, Chapter 9, Section I.

Then go to paragraph 4-2.

NO

Replace LTG/ECS control panel per TM 55-1520-236-23, Chapter 9, Section I.

Then go to paragraph 4-2.

NO

Repair wire A1049B22 between 3A1J2-Y and 10A1J1-X.

Install LTG/ECS control panel per TM 55-1520-236-23, Chapter 9, Section I.

Then go to paragraph 4-2.

YES

Remove AC/ARMT circuit breaker panel per TM 55-1520-236-23, Chapter 9, Section I.

On AC/ARMT circuit breaker panel:

Close ADS ANTI ICE circuit breaker.

Check for continuity from 3A1P2-Y to output side of ADS ANTI ICE circuit breaker.

Is continuity present?

YES

NO

Repair wire A1049A22 between 3A1P2-Y and ADS ANTI ICE circuit breaker.

Install AC/ARMT circuit breaker panel and LTG/ECS control panel per TM 55-1520-236-23, Chapter 9, Section I.

Then go to paragraph 4-2.

4-13. AADS HEATER WILL NOT HEAT (CONTINUED).

YES

Check for continuity from 18A2P1-9 to airframe ground.

Is continuity present?

YES → Replace AADS probe per TM 9-1270-219-13, Chapter 4, Section I.

Install LTG/ECS control panel per TM 55-1520-236-23, Chapter 9, Section I.

Then go to paragraph 4-2.

NO → Repair wires A1050D22N and A1050B22N joined by splice between 18A2P1-9 and airframe ground.

Install LTG/ECS control panel per TM 55-1520-236-23, Chapter 9, Section I.

Then go to paragraph 4-2.

YES

Check for continuity between output side and bus side of ADS ANTI ICE circuit breaker.

Is continuity present?

YES → Check for continuity from bus side of ADS ANTI ICE circuit breaker to bus side (center section) of REF XFMR circuit breaker.

Is continuity present?

YES → Install AC/ARMT circuit breaker panel and LTG/ECS control panel per TM 55-1520-236-23, Chapter 9, Section I.

Accomplish paragraph 9-9.

Then go to paragraph 4-2.

NO → Repair wire A463A22 between ADS ANTI ICE and REF XFMR circuit breaker.

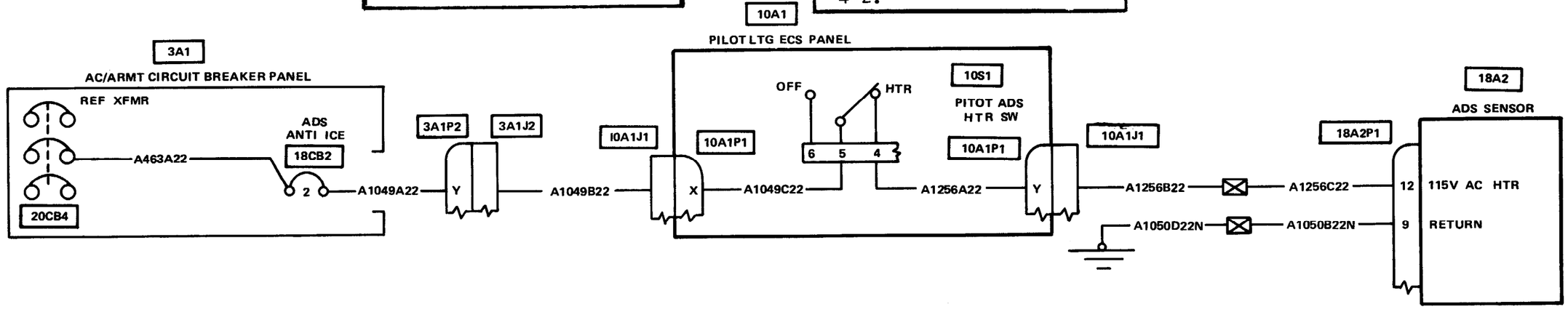
Install AC/ARMT circuit breaker panel per TM 55-1520-236-23, Chapter 9, Section I.

Then go to paragraph 4-2.

NO → Replace ADS ANTI ICE circuit breaker per TM 55-1520-236-23, Chapter 9, Section I.

Install AC/ARMT circuit breaker panel and LTG/ECS control panel per TM 55-1520-236-23, Chapter 9, Section I.

Then go to paragraph 4-2.



4-14. NO LOW AIRSPEED INDICATOR LIGHTING.

INITIAL SETUP

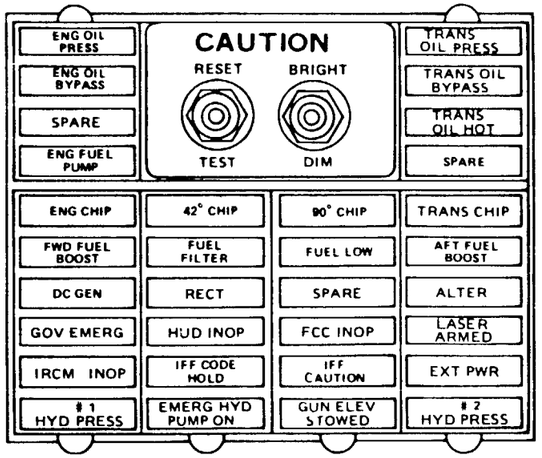
Applicable Configuration
All

Tools/Test and Support Equipment
Multimeter

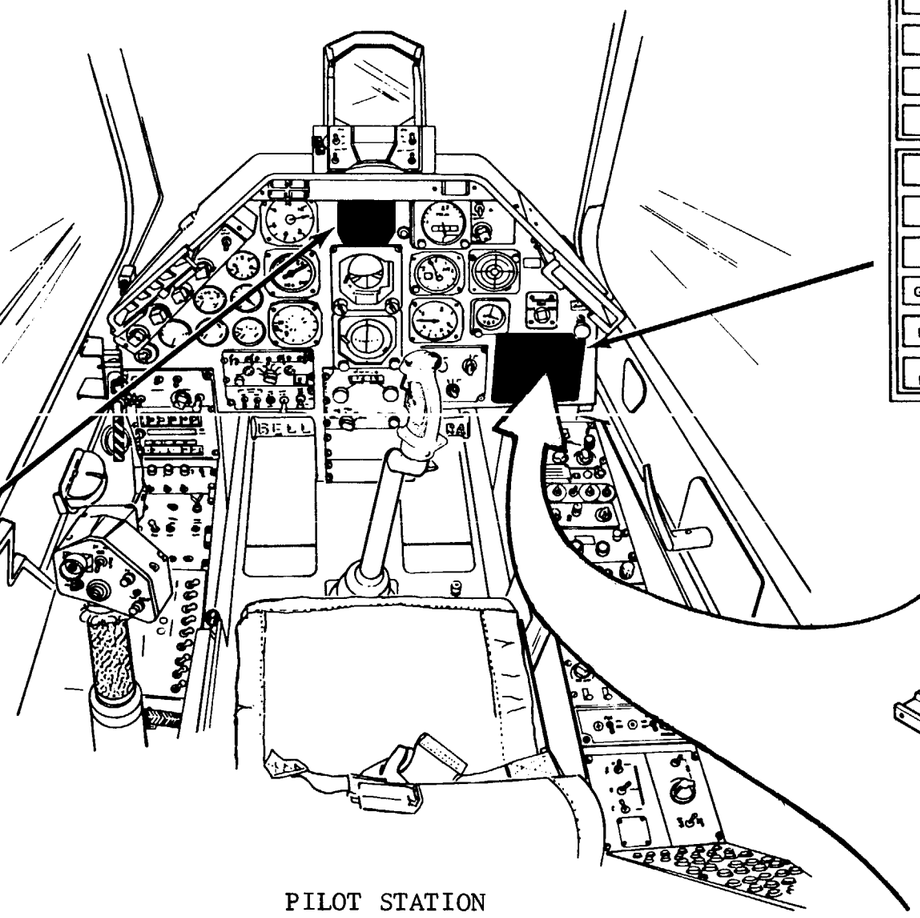
Tool Kit, A/C Electrician

Personnel Required
68F (1)

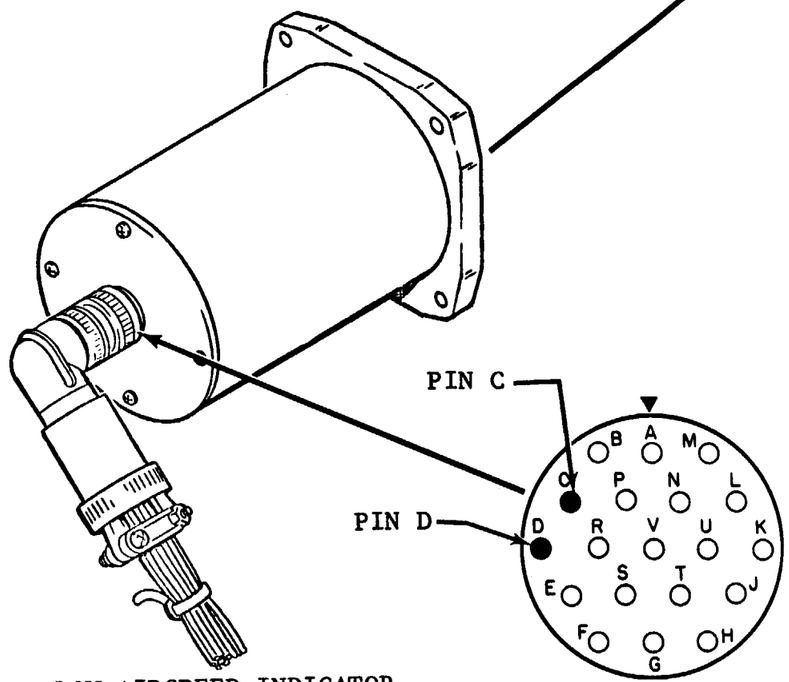
References
TM 55-1520-236-23
TM 9-1270-219-13



PILOT CAUTION PANEL

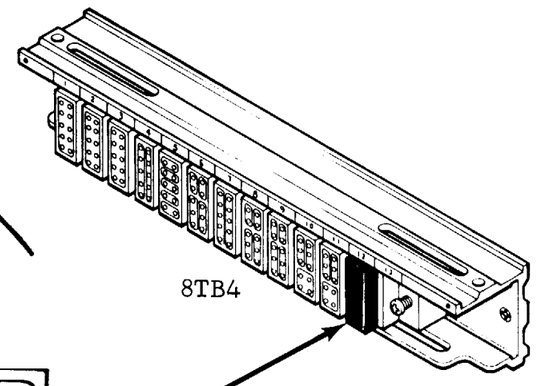


PILOT STATION

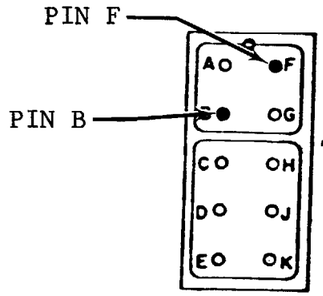


LOW AIRSPEED INDICATOR (REAR VIEW)

18A3P1



8TB4



MODULE 12

4-14. NO LOW AIRSPEED INDICATOR LIGHTING (CONTINUED).

Turn off electrical power per paragraph 4-3.

Remove pilot CAUTION panel per TM 55-1520-236-23, Chapter 9, Section VI.

Turn on electrical power per paragraph 4-3.

Check for 5 V dc at 8TB4-12B.

Is 5 V dc present?

YES → Check for 5 V dc at 8TB4-12F.

Is 5 V dc present?

YES → Turn off electrical power per paragraph 4-3.

Check for continuity from 18A3P1-D to 8TB4-12F.

Is continuity present?

YES → Check for continuity from 18A3P1-D to connector backshell.

Is continuity present?

YES → Repair wire A1051A22 between 18A3P1-D and 8TB4-12F to eliminate short.

Then go to paragraph 4-2.

NO → Check for continuity from 18A3P1-C to connector backshell.

Is continuity present?

YES → Replace low airspeed indicator (LAI) per TM 9-1270-219-13, Chapter 4, Section I.

Then go to paragraph 4-2.

NO → Repair wire A1052A22N between 18A3P1-C and connector backshell.

Then go to paragraph 4-2.

NO → Repair wire A1051A22 between 18A3P1-D and 8TB4-12F.

Then go to paragraph 4-2.

NO → Turn off electrical power per paragraph 4-3.

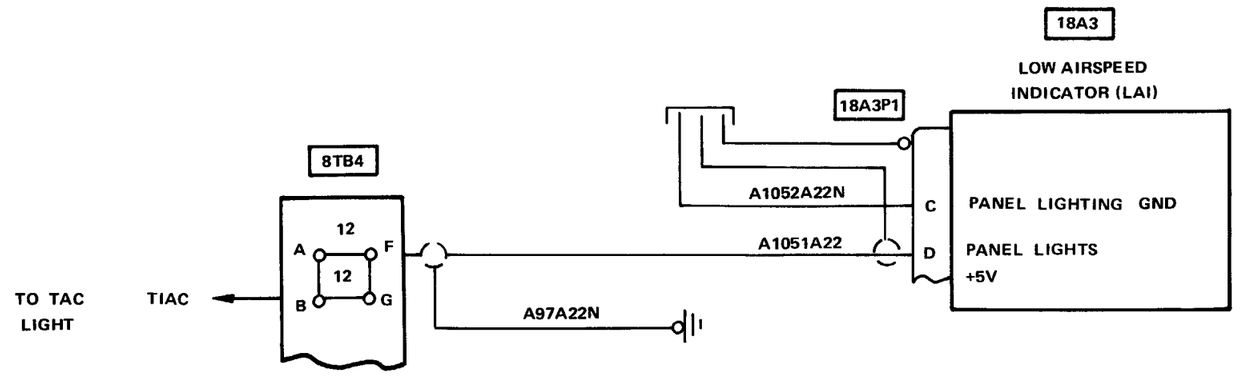
Replace module 12 of 8TB4 per TM 55-1520-236-23, Chapter 9, Section I.

Then go to paragraph 4-2.

NO → Turn off electrical power per paragraph 4-3.

Troubleshoot Tactical Lighting per TM 55-1520-236-23, Chapter 9, Section VI.

Then go to paragraph 4-2.



4-15. ADS ANTI ICE CIRCUIT BREAKER WILL NOT REMAIN CLOSED.

INITIAL SETUP

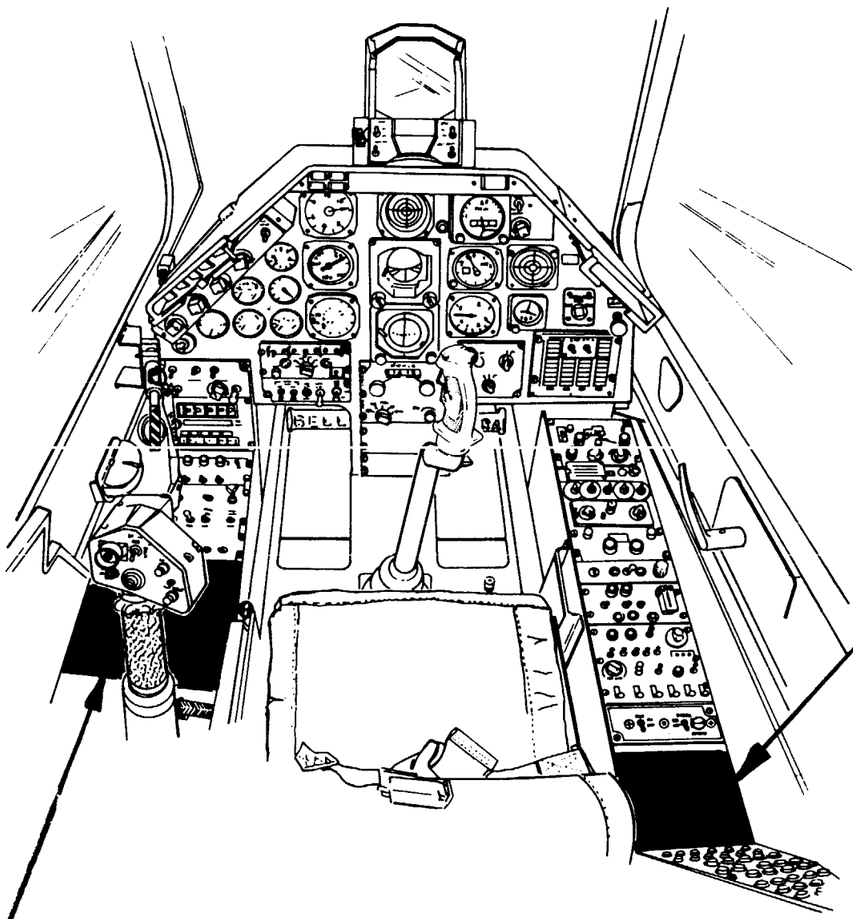
Applicable Configuration
All

Tools/Test and Support Equipment
Multimeter
Tool Kit, A/C Electrician

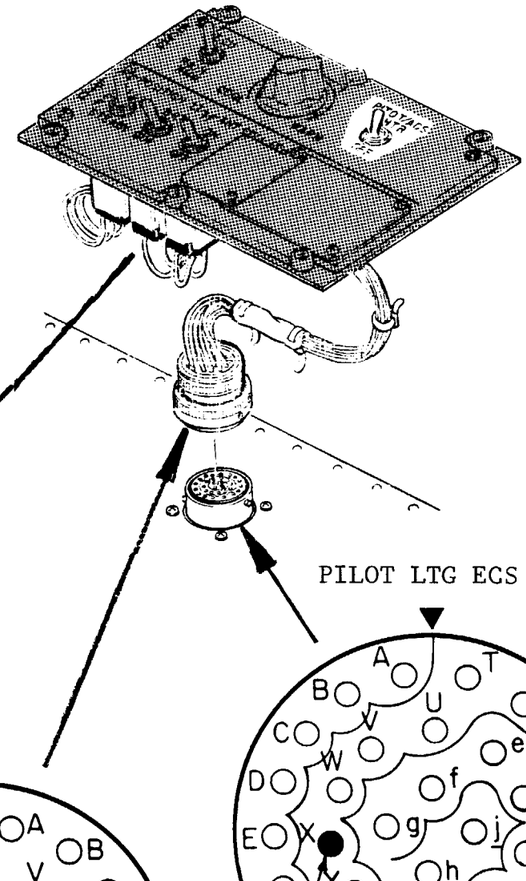
Personnel Required
68F (1)

References
TM9-1270-219-13
TM55-1520-236-23

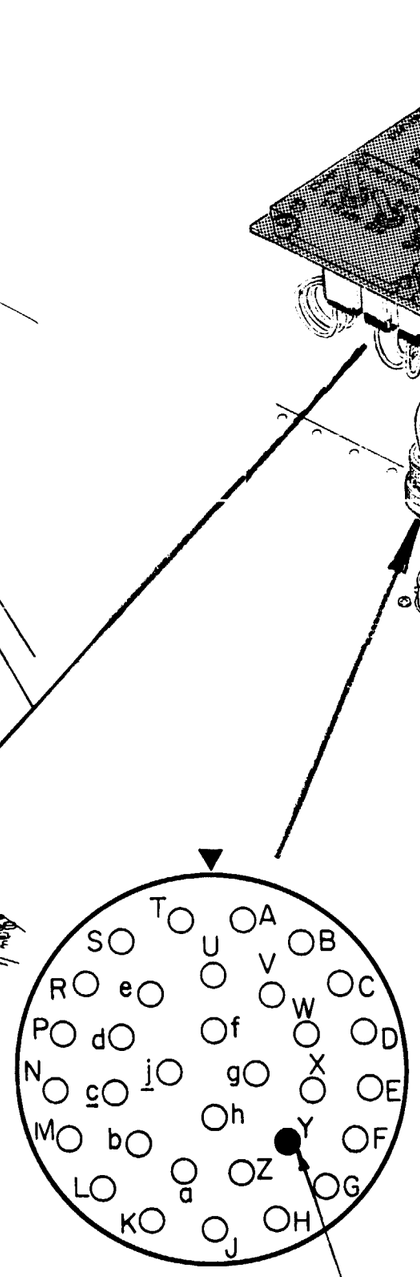
Access Panels
Left Side Control Linkage-Removed



PILOT STATION

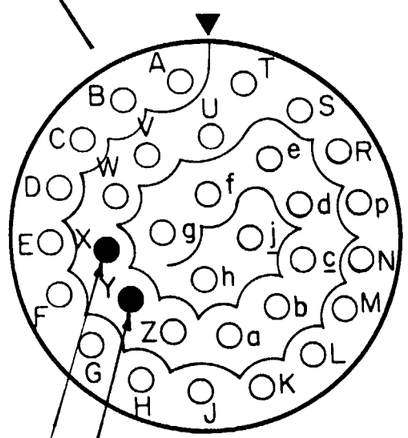


PILOT LTG ECS PANEL



10A1P1

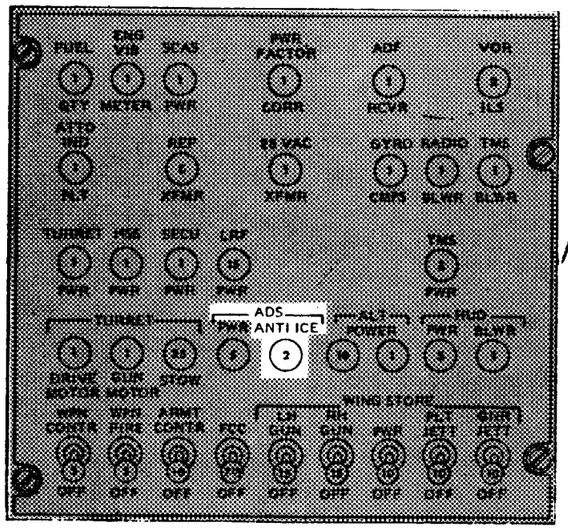
PIN Y



10A1J1

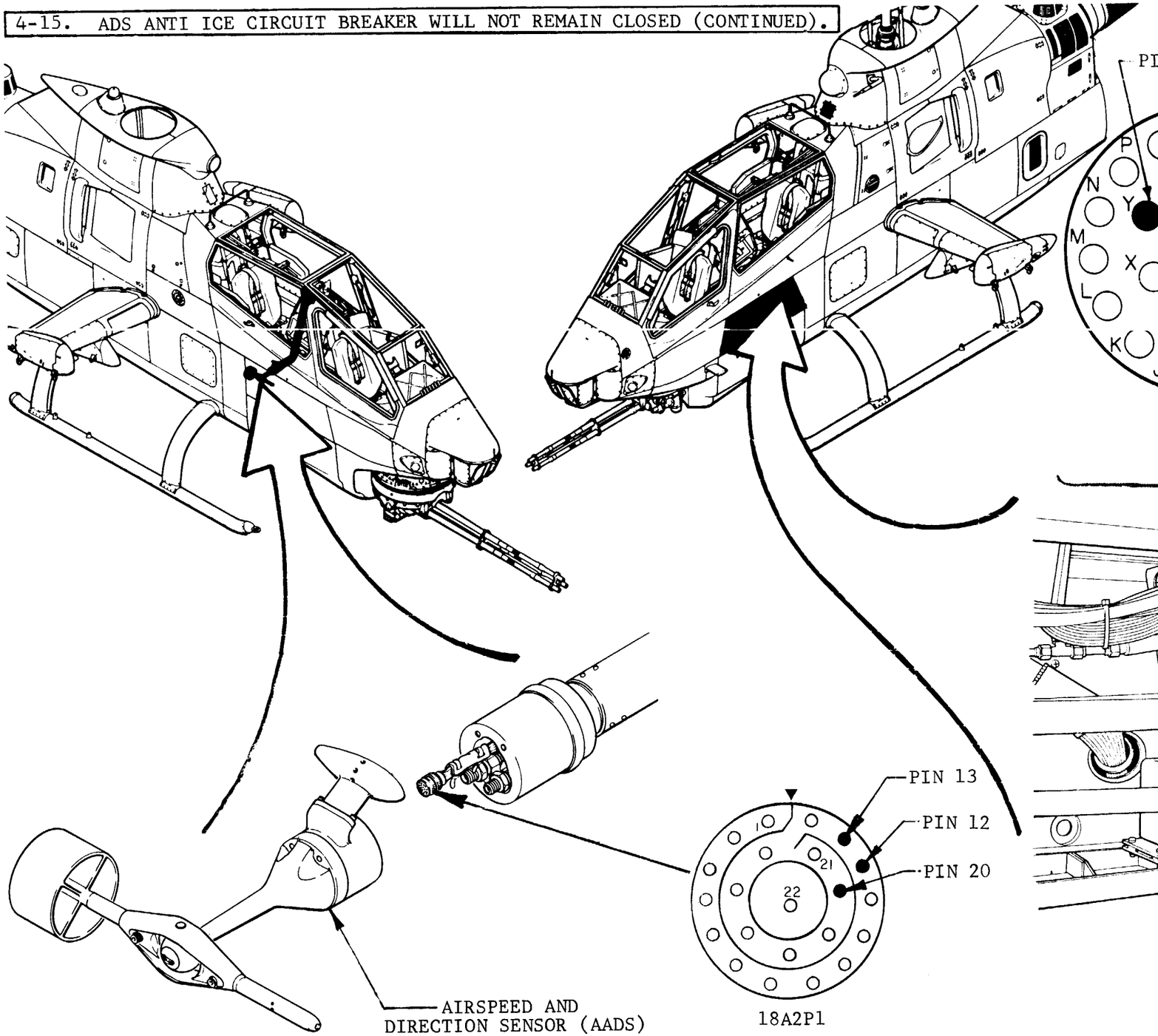
PIN Y

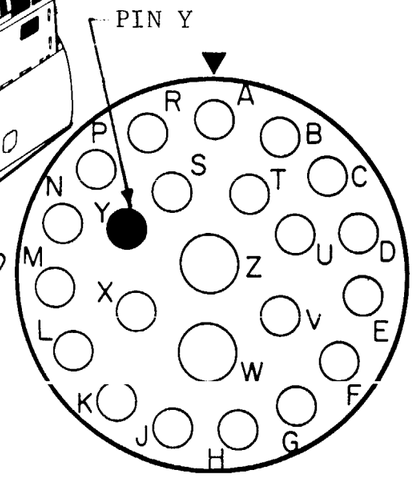
PIN X



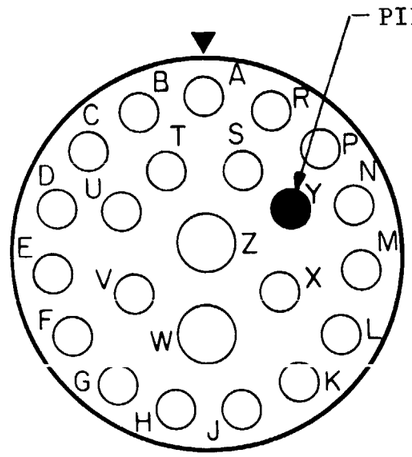
AC/ARMT CIRCUIT BREAKER PANEL

4-15. ADS ANTI ICE CIRCUIT BREAKER WILL NOT REMAIN CLOSED (CONTINUED).



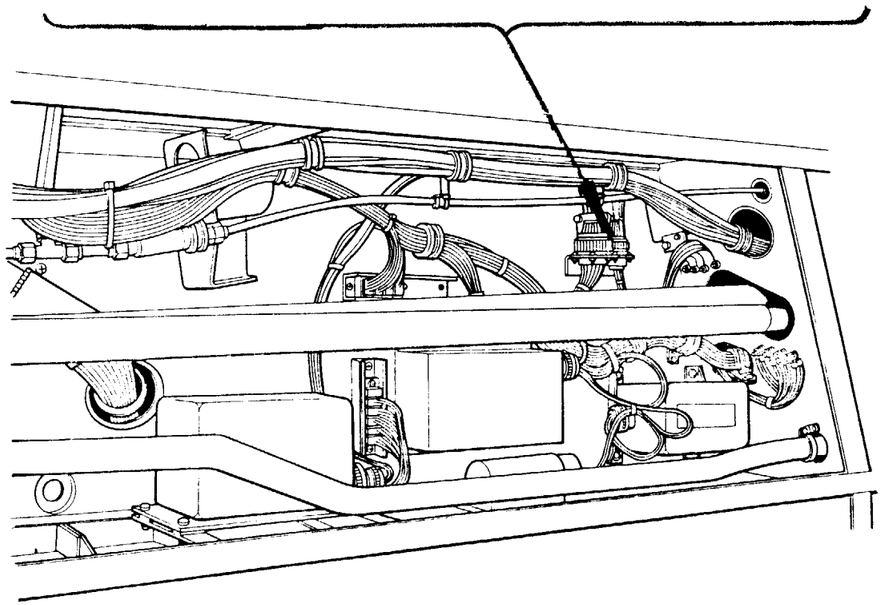


3A1P2



3A1J2

18A2P1



CONTROL LINKAGE ACCESS

4-15. ADS ANTI ICE CIRCUIT BREAKER WILL NOT REMAIN CLOSED (CONTINUED).

Turn off electrical power per paragraph 4-3.

Remove pilot LTG/ECS panel per TM 55-1520-236-23, Chapter 9, Section I.

Set PITOT/ADS HTR switch to PITOT/ADS HTR.

Check for continuity between 10A1P1-Y and case ground.

Is continuity present?

YES → Replace pilot LTG ECS panel per TM 55-1520-236-23, Chapter 9, Section I.

Then go to paragraph 4-2.

NO → Check for continuity from 3A1J2-Y to airframe ground.

Is continuity present?

YES → Repair wire A1049B22 between 3A1J2-Y and 10A1J1-X to eliminate short.

Install pilot LTG ECS panel per TM 55-1520-236-23, Chapter 9, Section I.

Then go to paragraph 4-2.

NO → Check for continuity from 3A1P2-Y to airframe ground.

Is continuity present?

YES → Repair wire A1049A22 between 3A1P2-Y and ADS ANTI ICE circuit breaker to eliminate short.

Install pilot LTG ECS panel per TM 55-1520-236-23, Chapter 9, Section I.

Then go to paragraph 4-2.

NO → Remove airspeed and direction sensor (AADS) per TM 9-1270-219-13, Chapter 4, Section I.

Check for continuity from 10A1J1-Y to airframe ground.

Is continuity present?

YES → Remove splice joining wires A1256B22, A1256C22, A1256D22, and A1256E22.

Check for continuity from 10A1J1-Y and airframe ground.

Is continuity present?

YES → (to next step)

NO → Check for continuity from 18A2P1-12 to airframe ground.

Is continuity present?

YES → (to next step)

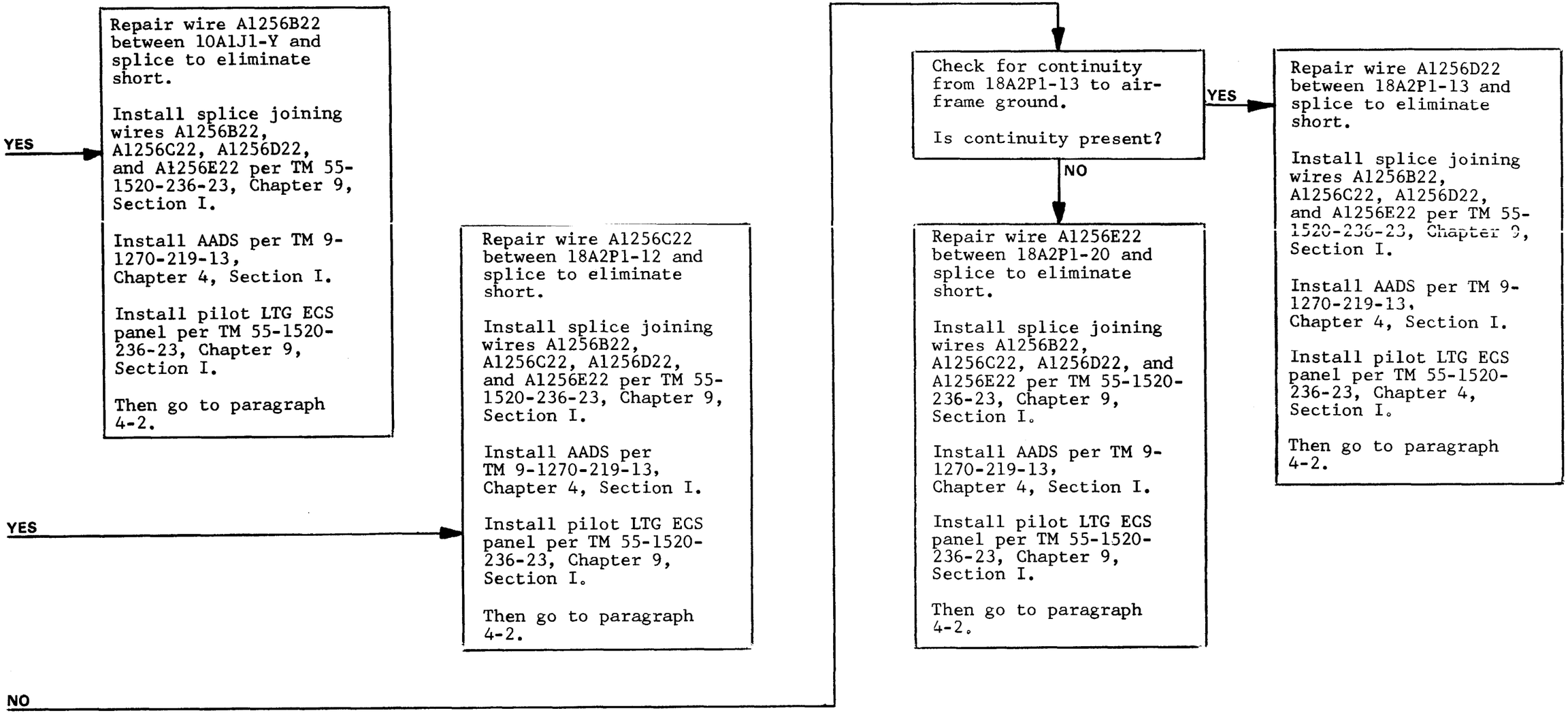
NO → (to next step)

NO → Replace AADS per TM 9-1270-219-13, Chapter 4, Section I.

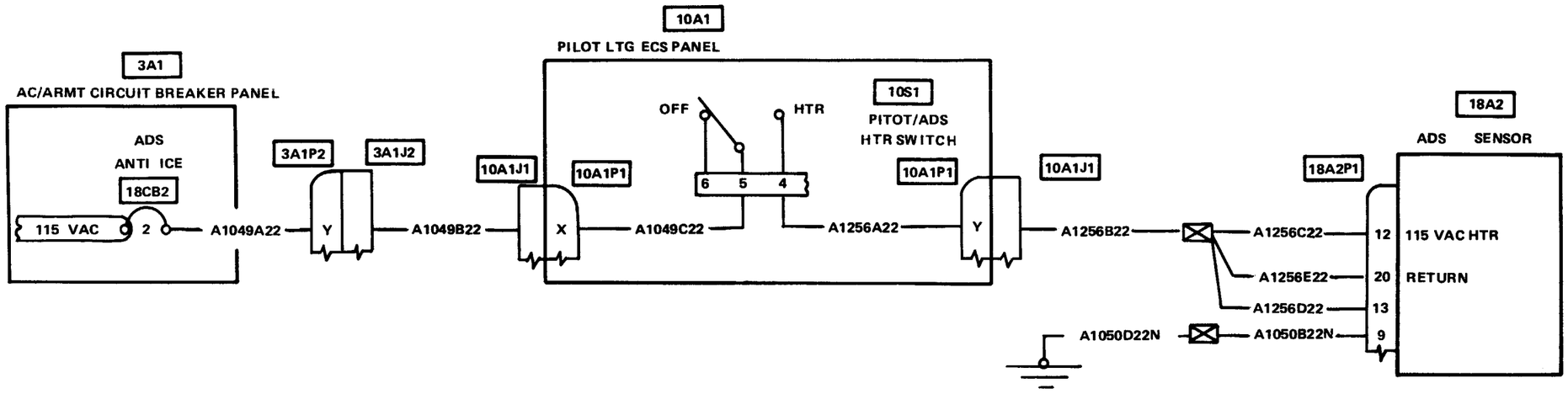
Install pilot LTG ECS panel per TM 55-1520-236-23, Chapter 9, Section I.

Then go to paragraph 4-2.

4-15. ADS ANTI ICE CIRCUIT BREAKER WILL NOT REMAIN CLOSED (CONTINUED).



4-15. ADS ANTI ICE CIRCUIT BREAKER WILL NOT REMAIN CLOSED (CONTINUED).



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4-16. ADS PWR CIRCUIT BREAKER WILL NOT REMAIN CLOSED.

INITIAL SETUP

Applicable Configuration
All

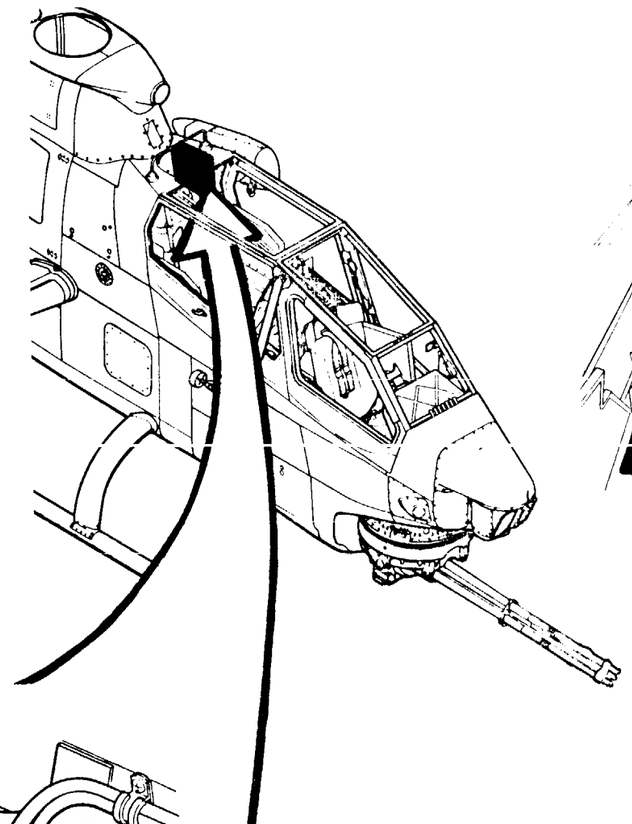
Tools/Test and Support Equipment
Multimeter

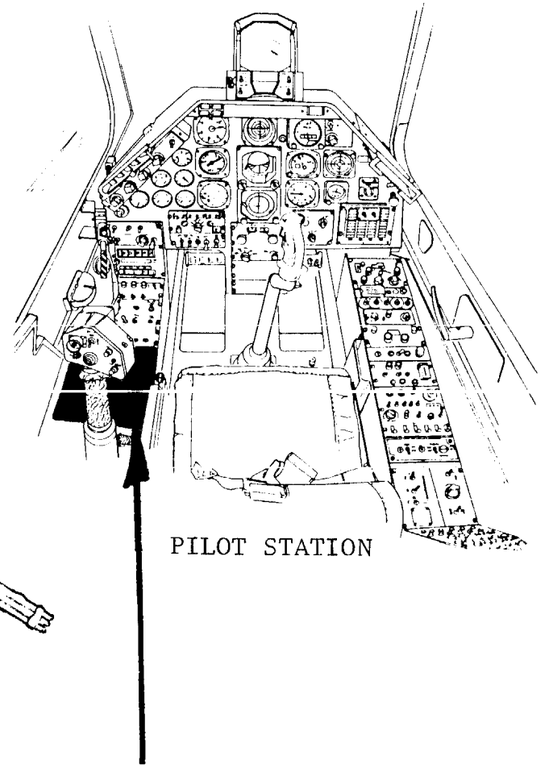
Tool Kit, A/C
Electrician

Personnel Required
68F (1)

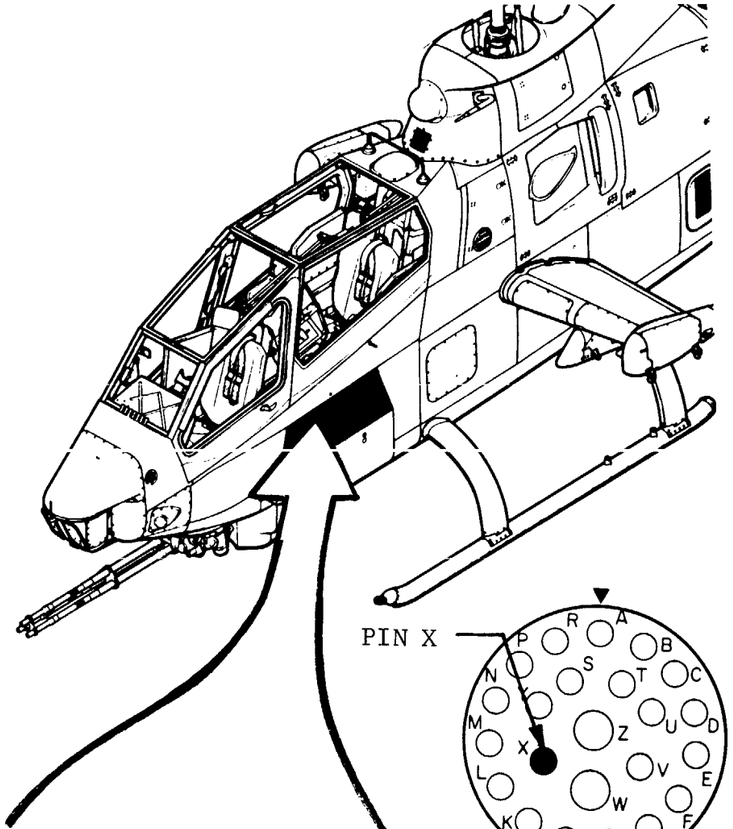
References
TM9-1270-219-13
TM55-1520-236-23

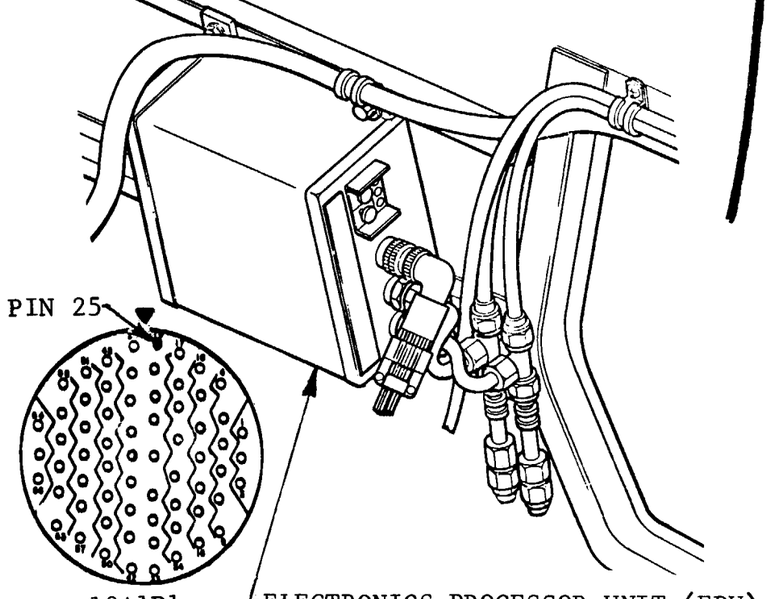
Access Panels
Left Side Control Linkage-Removed

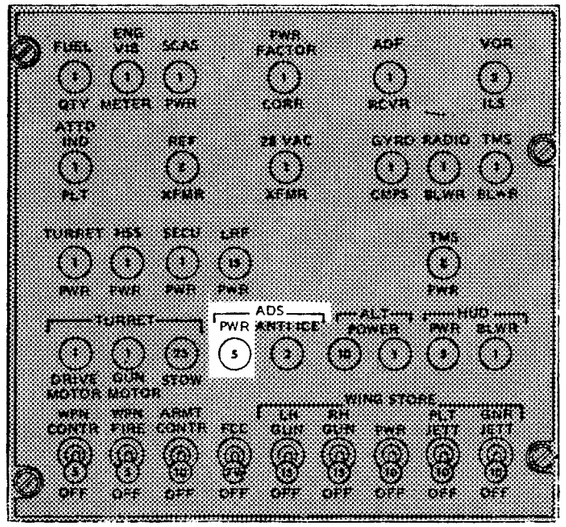




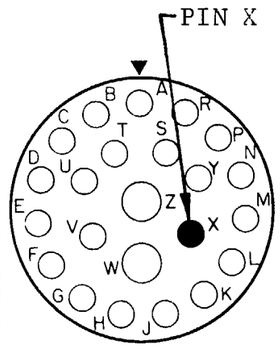
PILOT STATION

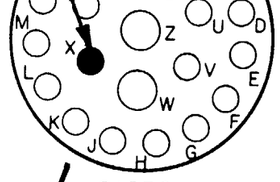


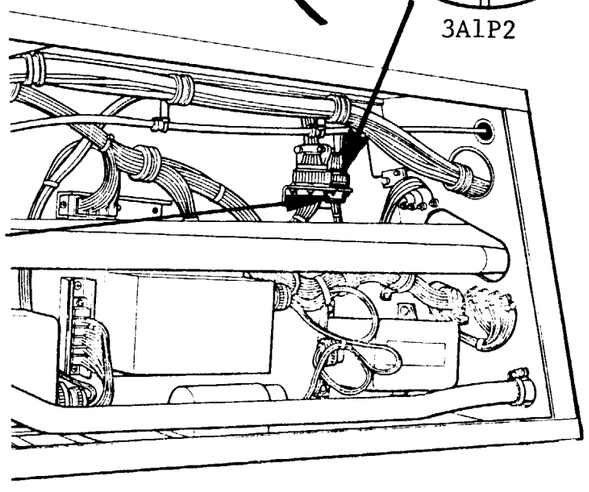




AC/ARMT CIRCUIT BREAKER PANEL







4-16. ADS PWR CIRCUIT BREAKER WILL NOT REMAIN CLOSED (CONTINUED).

Turn off electrical power per paragraph 4-3.

Disconnect 18A1P1.

On AC/ARMT circuit breaker panel:

Close ADS PWR circuit breaker.

Turn on electrical power per paragraph 4-3.

Does circuit breaker remain closed?

YES →

Turn off electrical power per paragraph 4-3.

Replace electronics processor unit (EPU) per TM 9-1270-219-13, Chapter 4, Section I.

Then go to paragraph 4-2.

NO ↓

Turn off electrical power per paragraph 4-3.

Check for continuity from 3A1J2-X to 18A1P1-25.

Is continuity present?

YES →

Remove splice joining wires A1141B22, A1141C22, A1141D22, and A1141E22.

Check each wire for continuity to airframe ground.

Repair wire(s) A1141B22, A1141C22, A1141D22 or A1141E22 between 3A1J2 and 18A1P1 to eliminate short.

Replace splice joining wires A1141B22, A1141C22, A1141D22, and A1141E22 per TM 55-1520-236-23, Chapter 9, Section I.

Connect 18A1P1.

Then go to paragraph 4-2.

NO ↓

Check for continuity from 3A1P2-X to airframe ground.

Is continuity present?

YES →

Repair wire A1141A22 between 3A1P2-X and ADS PWR circuit breaker to eliminate short.

Connect 18A1P1.

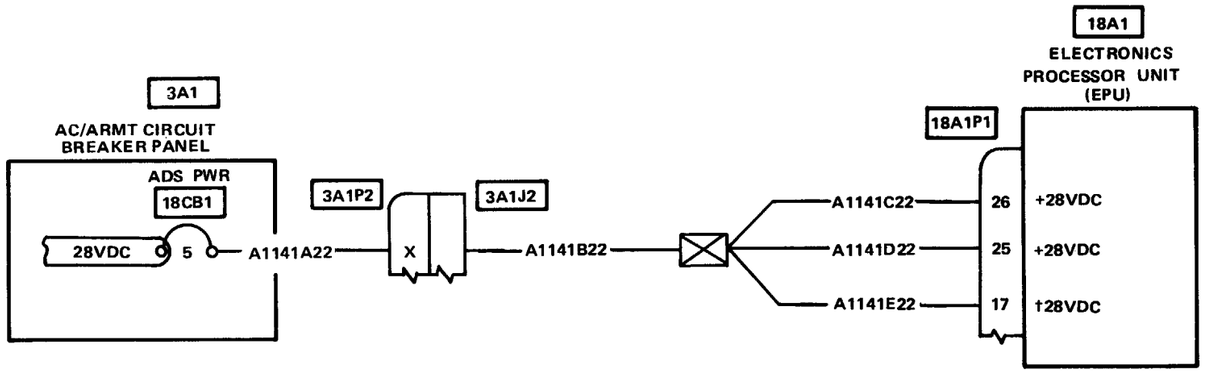
Then go to paragraph 4-2.

NO ↓

Replace ADS PWR circuit breaker per TM 55-1520-236-23, Chapter 9, Section I.

Connect 18A1P1.

Then go to paragraph 4-2.



4-17. OFF FLAG ON RADAR ALTIMETER DOES NOT RETRACT FROM VIEW.

INITIAL SETUP

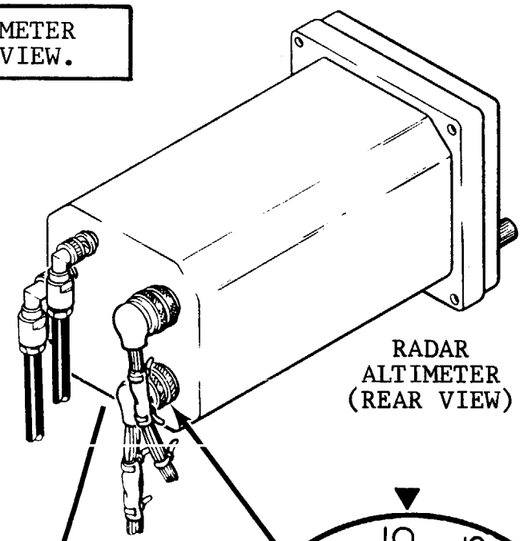
Applicable Configuration
All

Tools/Test and Support Equipment
Multimeter

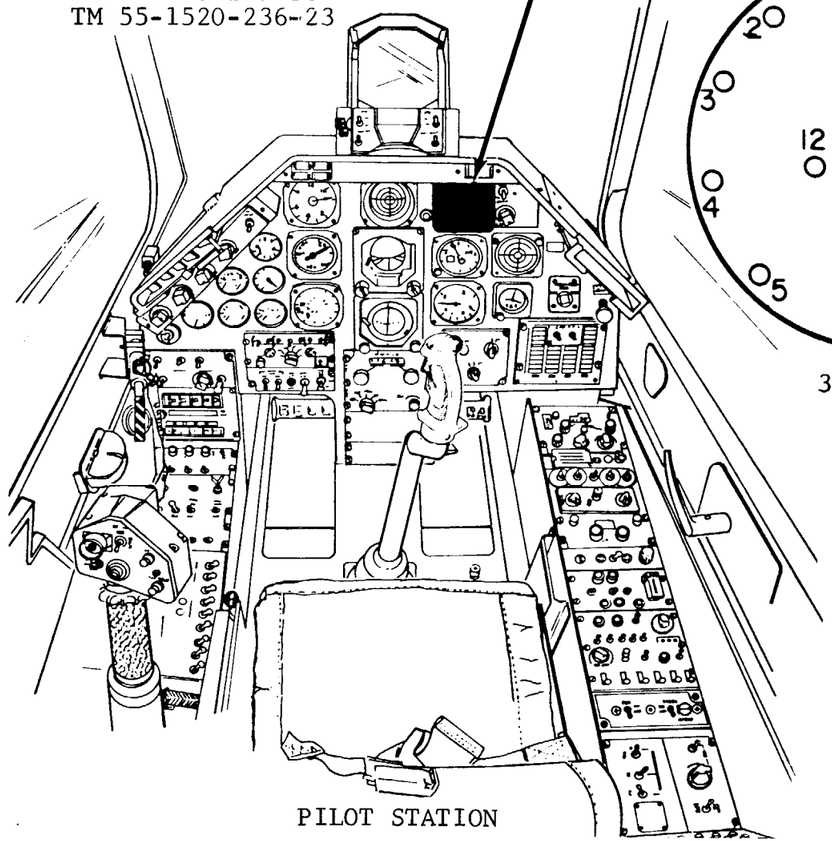
Tool Kit, A/C Electrician

Personnel Required
68F (1)

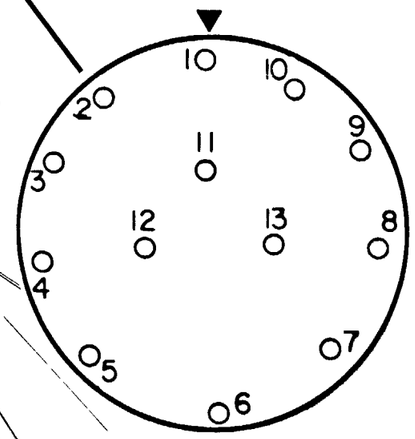
References
TM 9-1270-219-13
TM 55-1520-236-23



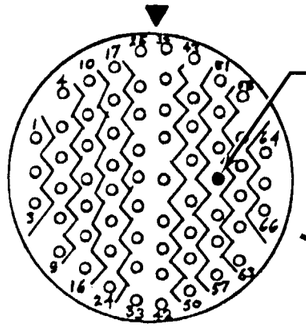
RADAR ALTIMETER (REAR VIEW)



PILOT STATION

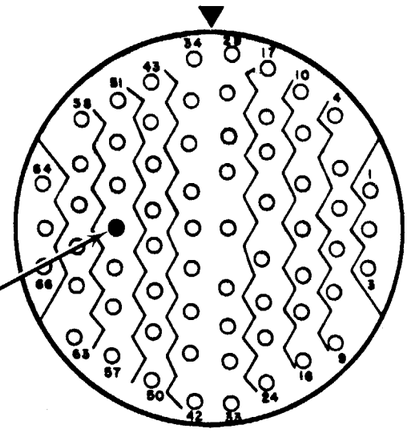


3408DS1P1



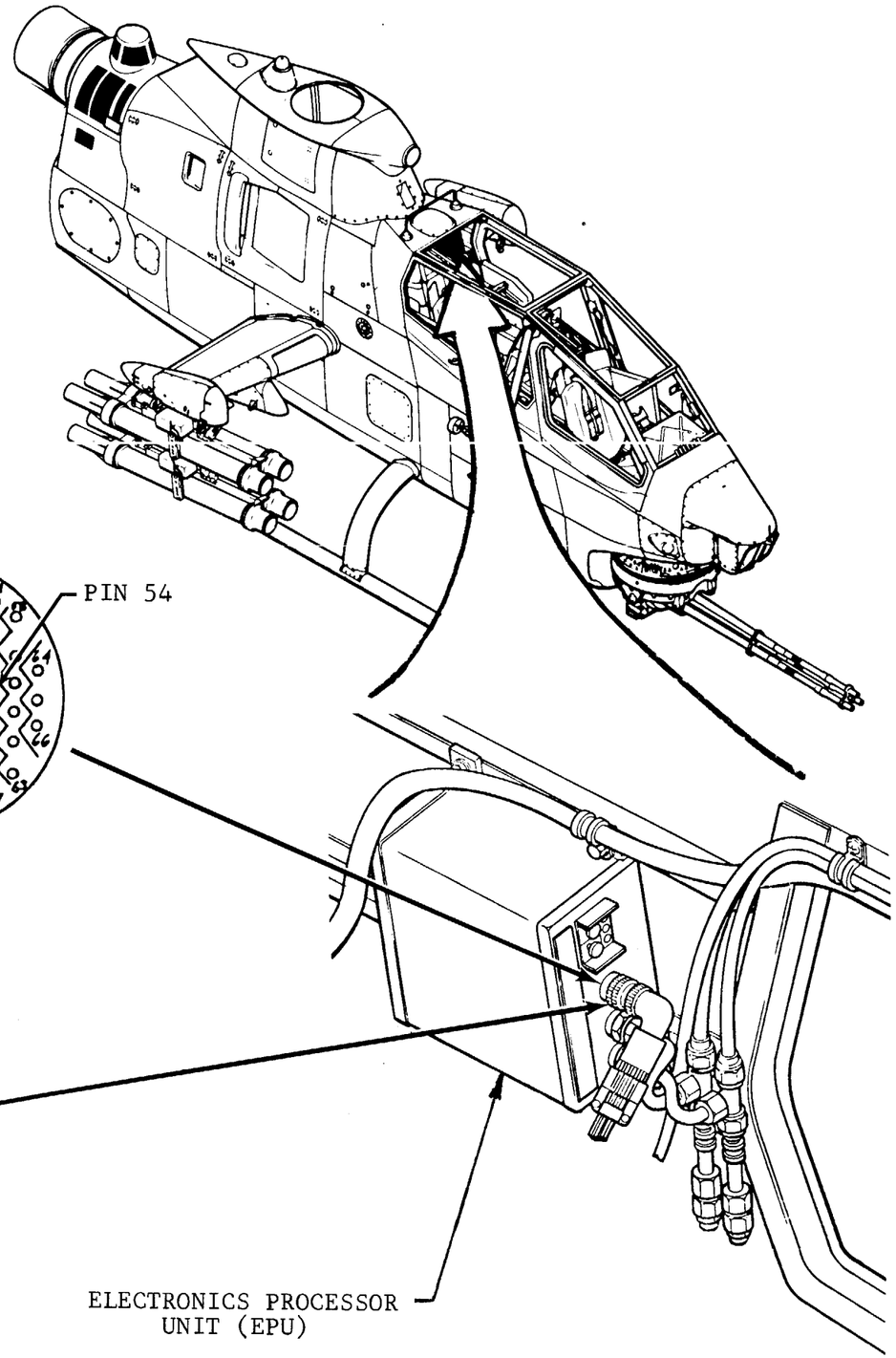
18A1J1

PIN 54



PIN 54

18A1P1



ELECTRONICS PROCESSOR UNIT (EPU)

4-17. OFF FLAG ON RADAR ALTIMETER DOES NOT RETRACT FROM VIEW (CONTINUED).

Turn off electrical power per paragraph 4-3.

Check for continuity from 18A1P1-54 to airframe ground.

Is continuity present?

YES → Disconnect 3408DS1P1.

Check for continuity from 18A1P1-54 to airframe ground.

Is continuity present?

NO → Replace radar altimeter per TM 11-1520-236-20, Chapter 2, Section IV.

Then go to paragraph 4-2.

YES → Remove splice joining wires A1091A22 (WHT) and 12-22.

Check for continuity from 18A1P1-54 to airframe ground.

Is continuity present?

NO → Replace 3408DS1P1 per TM 55-1520-236-23, Chapter 9, Section I.

Then go to paragraph 4-2.

YES → Repair wire A1091A22 (WHT) between 18A1P1-54 and splice to eliminate short.

Connect 3408DS1P1.

Then go to paragraph 4-2.

NO

Check for continuity from 18A1J1-54 to airframe ground.

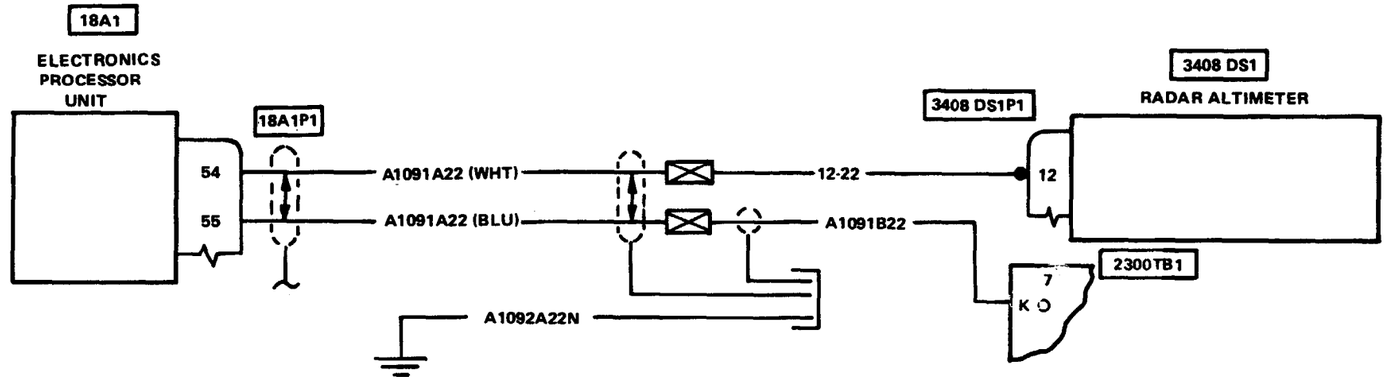
Is continuity present?

YES → Replace electronic processor unit per TM 9-1270-219-13, Chapter 4, Section I.

Then go to paragraph 4-2.

NO → Troubleshoot radar altimeter per TM 11-1520-236-34, Chapter 3, Section II.

Then go to paragraph 4-2.



4-18. SELF TEST LAMP FAILS TO LIGHT WHEN SELF TEST SWITCH IS PRESSED.

INITIAL SETUP

Applicable Configuration
All

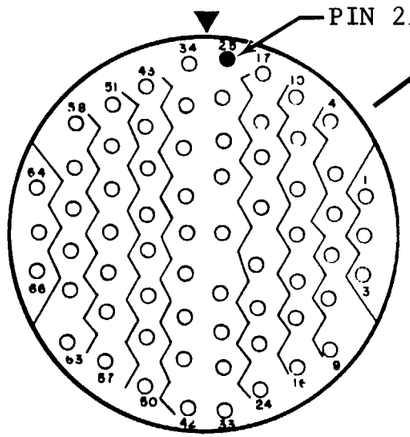
Tools/Test and Support Equipment
Multimeter

Tool Kit, A/C Electrician

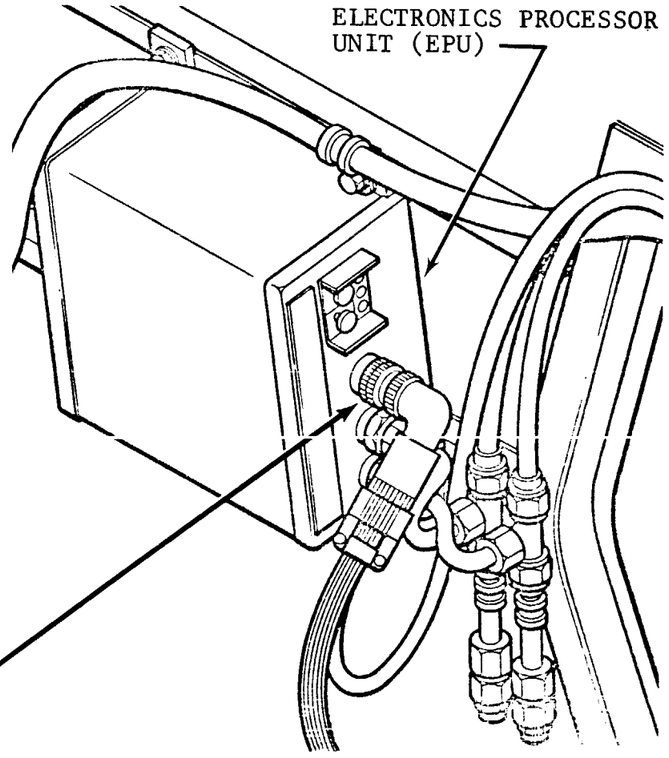
Personnel Required
68F (1)

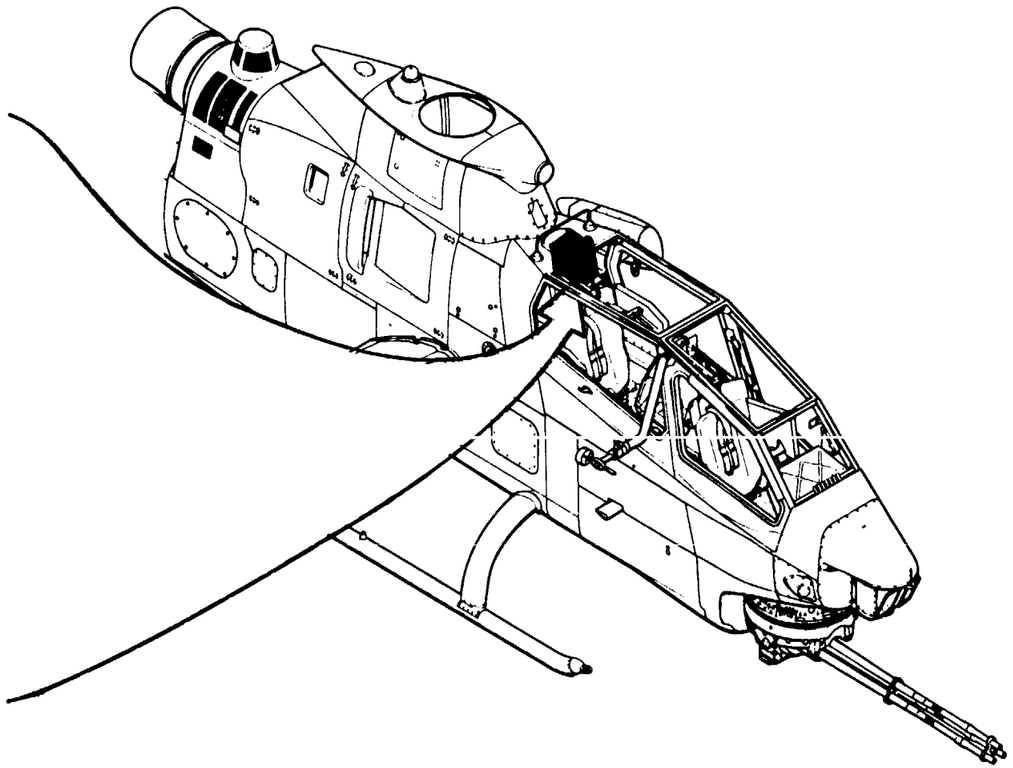
References
TM 9-1270-219-13
TM 55-1520-236-23

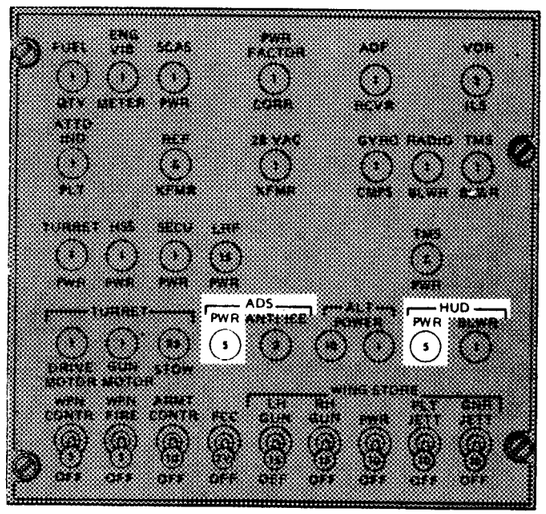
Access Panels
Left Side Control Linkage - Removed



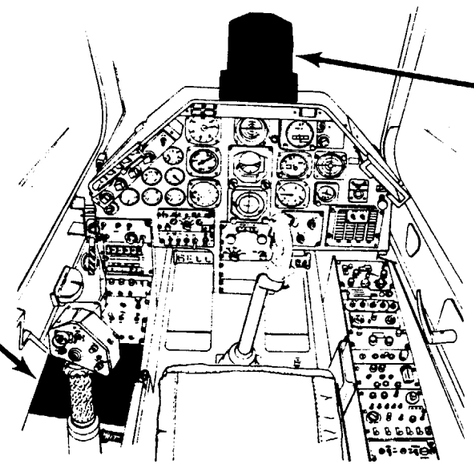
18A1P1



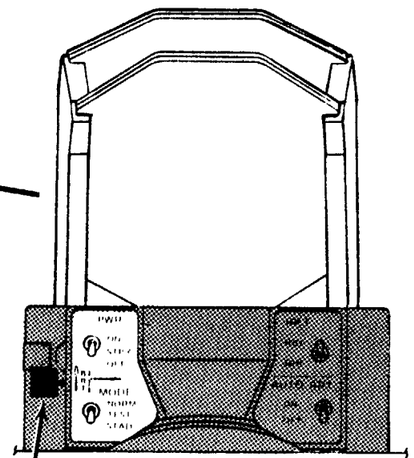




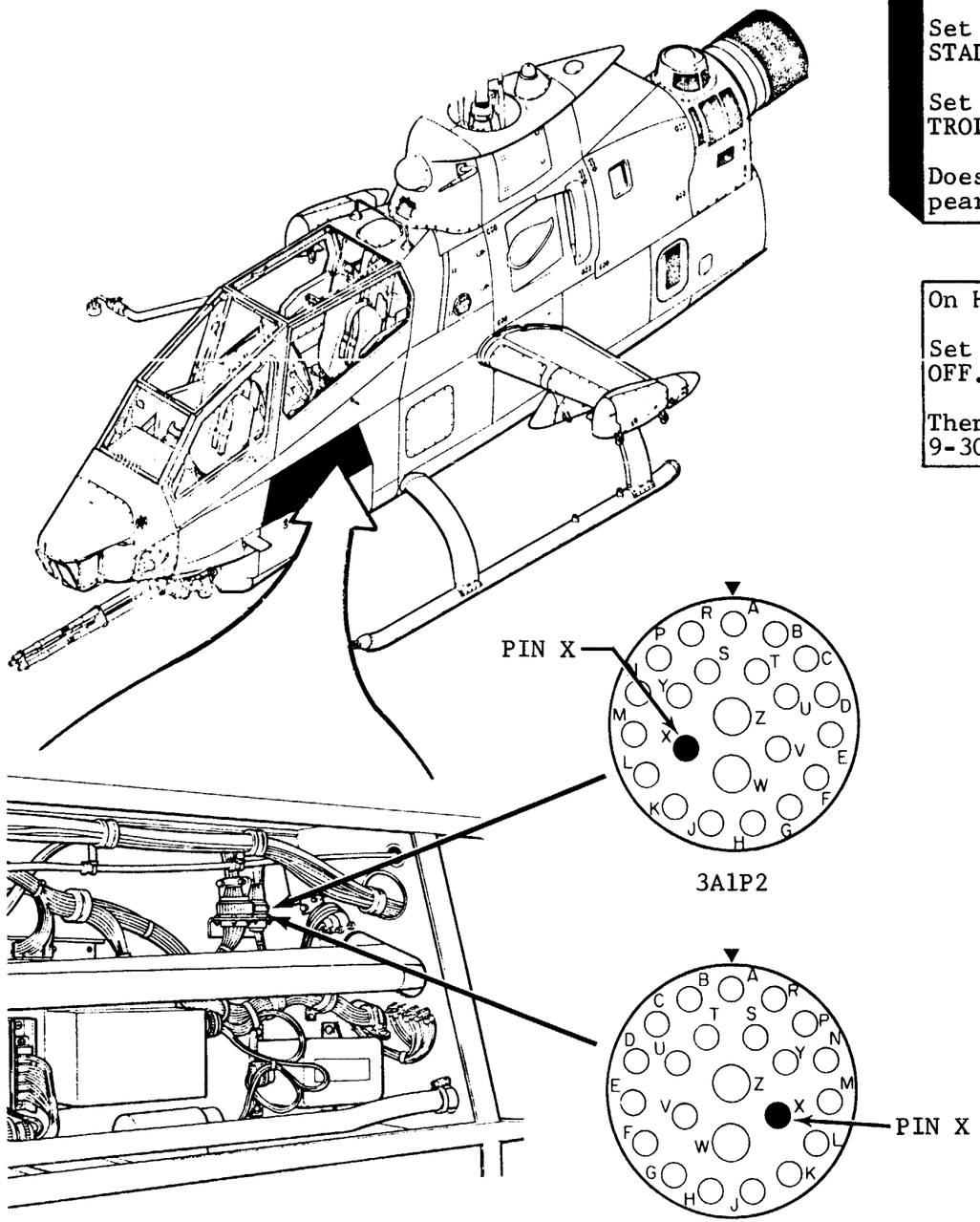
AC/ARMT CIRCUIT BREAKER PANEL



PILOT STATION



4-18. SELF TEST LAMP FAILS TO LIGHT WHEN SELF TEST SWITCH IS PRESSED (CONTINUED).



On HUD:

Set MODE switch to STAD.

Set BRIGHTNESS CONTROL to mid range.

Does a display appear on HUD?

YES

Turn off electrical power per paragraph 4-3.

Disconnect 18A1P1.

Turn on electrical power per paragraph 4-3.

Check for 28 V dc at 18A1P1-25.

Is 28 V dc present?

YES

Replace electronics processor unit (EPU) per TM 9-1270-219-13, Chapter 4, Section I.

Then go to paragraph 4-2.

NO

Turn off electrical power per paragraph 4-3.

Check for continuity from 3A1J2-X to 18A1P1-25.

Is continuity present?

YES

Remove AC/ARMT circuit breaker panel per TM 55-1520-236-23, Chapter 9, Section I.

Check for continuity from 3A1P2-X to output side of ADS PWR circuit breaker.

Is continuity present?

YES

NO

Repair wire A1141A22 between 3A1P2-X and output side of ADS PWR circuit breaker.

Connect 18A1P1.

Install AC/ARMT circuit breaker panel per TM 55-1520-236-23, Chapter 9, Section I.

Then go to paragraph 4-2.

NO

Repair wire A1141B22 between 3A1J2-X and splice.

Connect 18A1P1.

Then go to paragraph 4-2.

On HUD:

Set PWR switch to OFF.

Then go to paragraph 9-30.

NO

4-18. SELF TEST LAMP FAILS TO LIGHT WHEN SELF TEST SWITCH IS PRESSED (CONTINUED).

YES → Check for continuity from ADS PWR circuit breaker to HUD PWR circuit breaker.

Is continuity present?

YES → Replace ADS PWR circuit breaker per TM 55-1520-236-23, Chapter 9, Section I.

Connect 18A1P1.

Install AC/ARMT circuit breaker panel per TM 55-1520-236-23, Chapter 9, Section I.

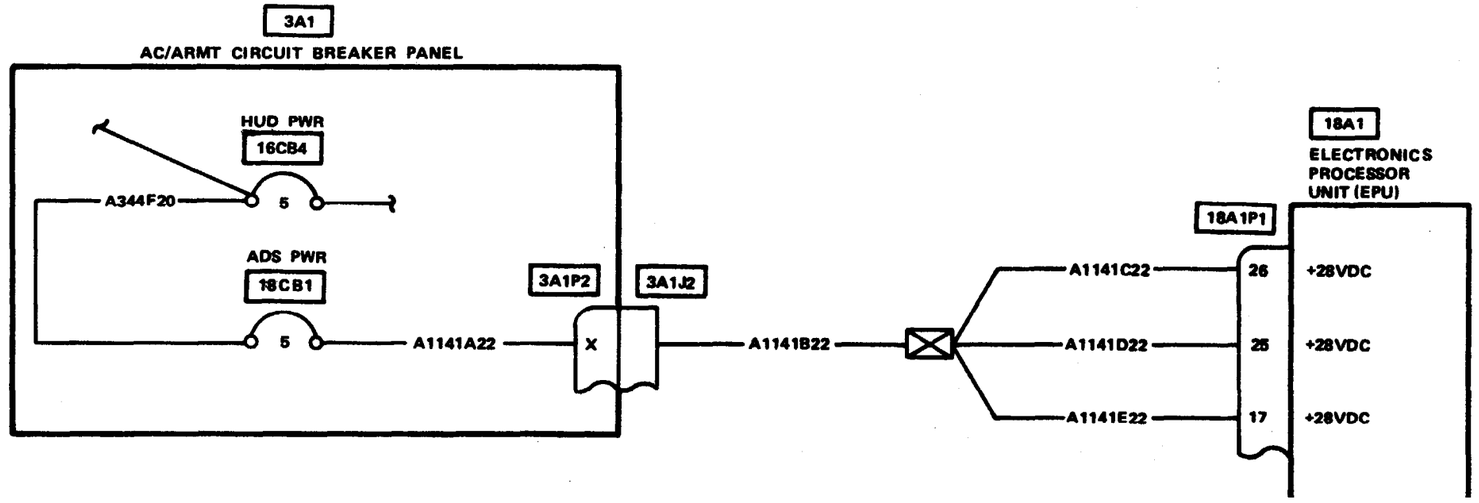
Then go to paragraph 4-2.

NO → Repair wire A344F20 between input sides of ADS PWR and HUD PWR circuit breakers.

Connect 18A1P1.

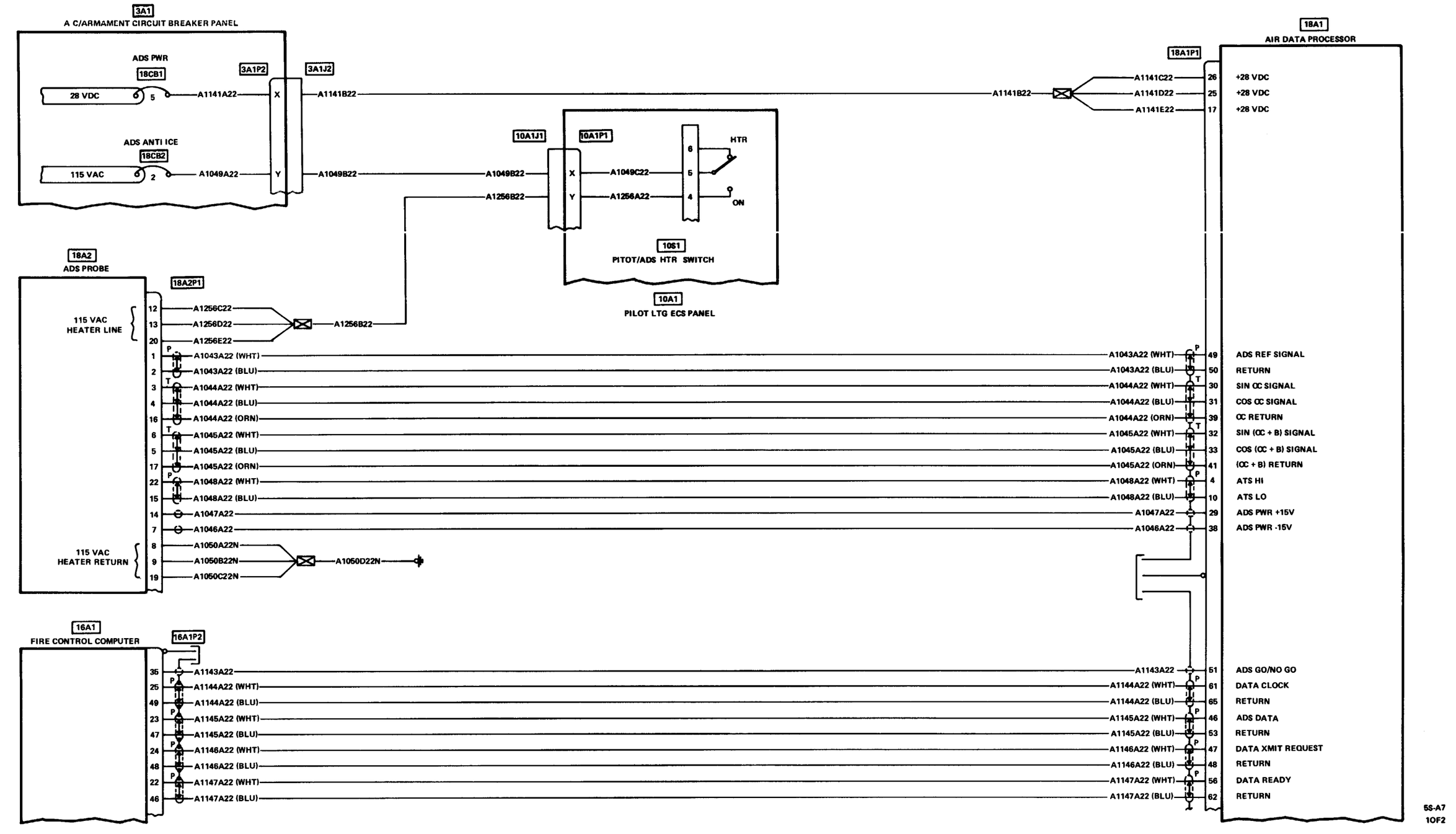
Install AC/ARMT circuit breaker panel per TM 55-1520-236-23, Chapter 9, Section I.

Then go to paragraph 4-2.

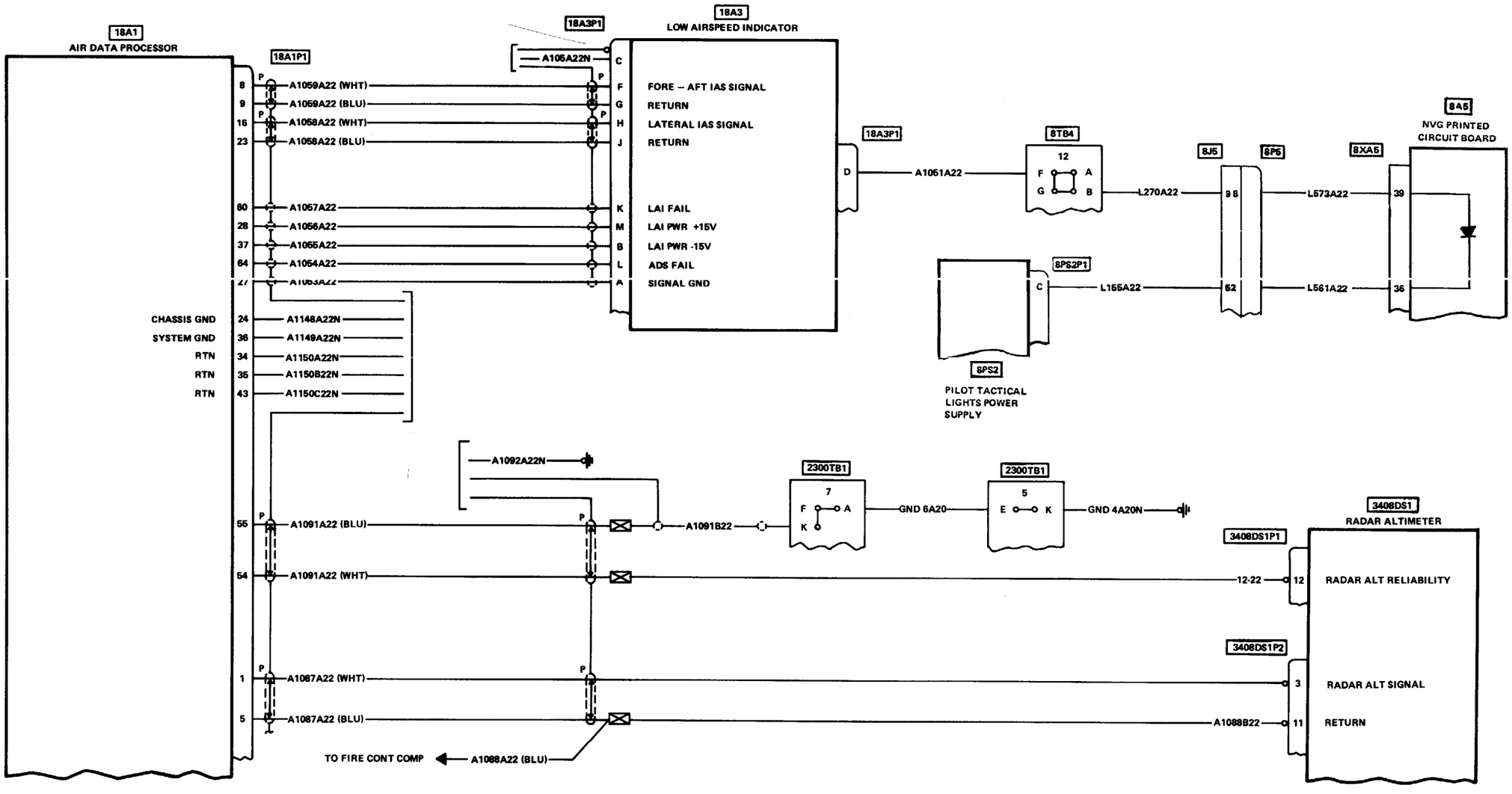


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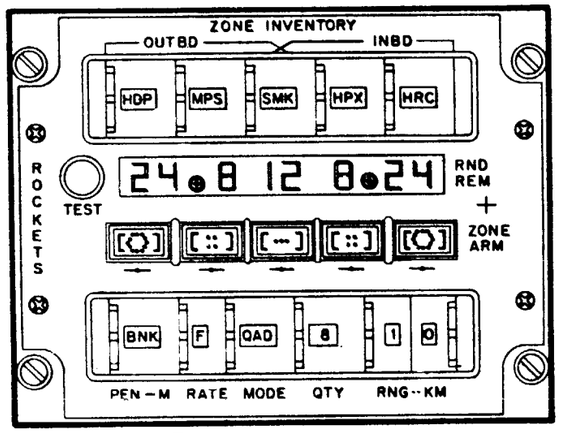
AIR DATA SYSTEM (Sheet 1 of 2)



AIR DATA SYSTEM (Sheet 2 of 2)



5S-A8
2OF2



CHAPTER 5

ROCKET MANAGEMENT SUBSYSTEM (RMS) TROUBLESHOOTING

OVERVIEW

This chapter contains the RMS operational check and logic tree troubleshooting procedures.

If a fault occurs during the operational check, stop the check, leave switches and circuit breakers in position, and refer to MAPS in Chapter 1 for that symptom. The MAPS will refer to a specific troubleshooting or repair procedure for that fault.

WARNING

Turn off all electrical power when removing equipment or disconnecting electrical connectors unless otherwise noted in the procedures.

NOTE

TM55-1520-239-23 maintenance manual may be used instead of TM55-1520-236-23 maintenance manual referenced throughout this chapter.

5-1. RMS PRE-OPERATIONAL CHECK SETUP.

INITIAL SETUP

Applicable Configuration
All

Personnel Required
68J (1)

a. Open (OFF) all circuit breakers on AC/ARMT circuit breaker panel.

b. Open all circuit breakers on DC circuit breaker panel.

c. Set pilot ARMT control panel switches:

(1) MASTER ARM to OFF.

(2) WING STORE to RKT.

d. Set HUD PWR switch to OFF.

e. Set CONSOLE lights control on lighting control panel to OFF.

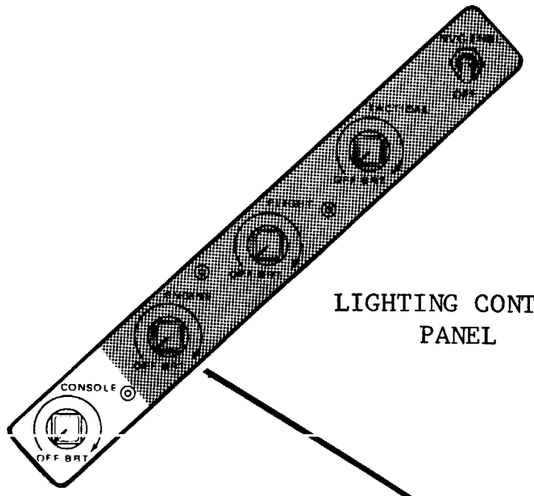
f. Set gunner armament control panel switches:

(1) PLT ORIDE to OFF.

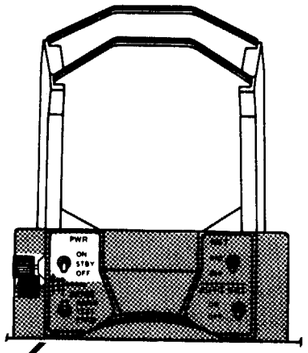
(2) WING STORE to RKT.

(3) TUR SLEW to GND TEST

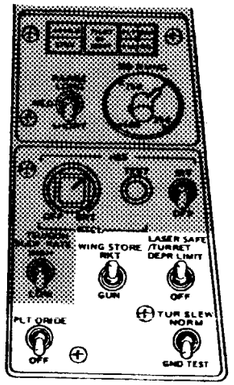
(4) LASER SAFE/TURRET DEPR LIMIT to LASER SAFE/TURRET DEPR LIMIT.



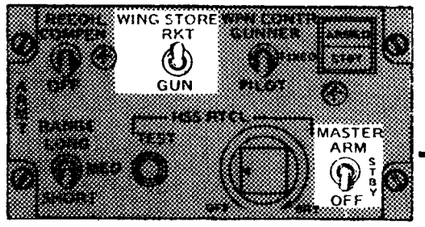
LIGHTING CONTROL PANEL



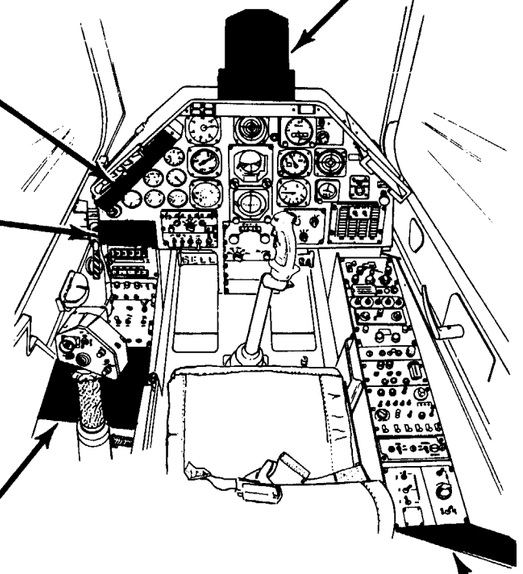
HUD



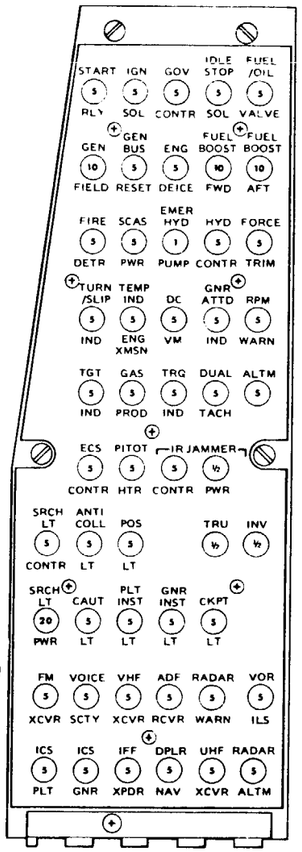
GUNNER ARMAMENT CONTROL PANEL



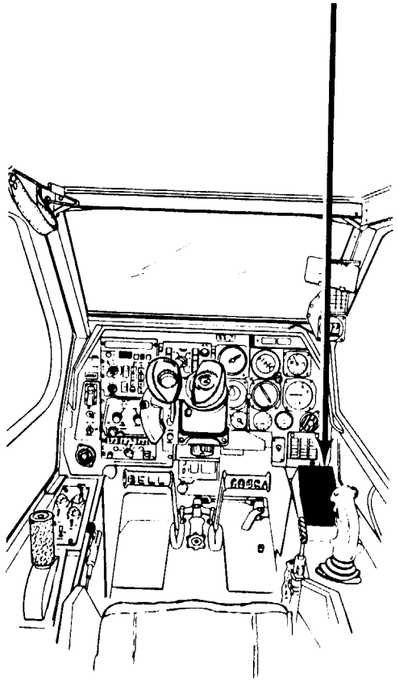
PILOT ARMT CONTROL PANEL



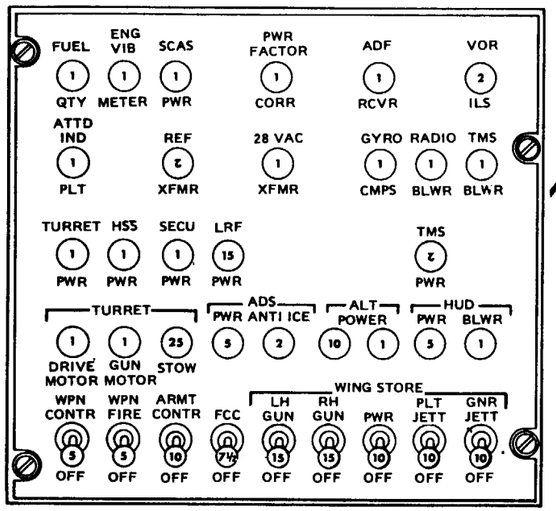
PILOT STATION



DC CIRCUIT BREAKER PANEL



GUNNER STATION



AC/ARMT CIRCUIT BREAKER PANEL

5-2. RMS OPERATIONAL CHECK.

NOTE

Complete RMS PRE-OPERATIONAL CHECK SETUP, paragraph 5-1, before continuing with operational check.

INITIAL SETUP

Applicable Configuration
All

Tools/Test and Support Equipment
Multimeter

Tool Set, A/C Armament Repairman

Rocket-Present Simulator (4) (Local Manufacture)

Ground Power Unit

Personnel Required
68J (2)

Equipment Condition
Gun Safed/Barricade Erected (TM 9-1090-206-12)

References
TM 9-1090-207-13
TM 55-1520-236-10
TM 55-1520-236-23

Access Panels
Nose Fairing on Right Wing Inboard Pylon - Removed

Nose Fairing on Right Wing Outboard Pylon - Removed (as required)

Nose Fairing on Left Wing Inboard Pylon - Removed

Nose Fairing on Left Wing Outboard Pylon - Removed (as required)

Battery Compartment - Removed

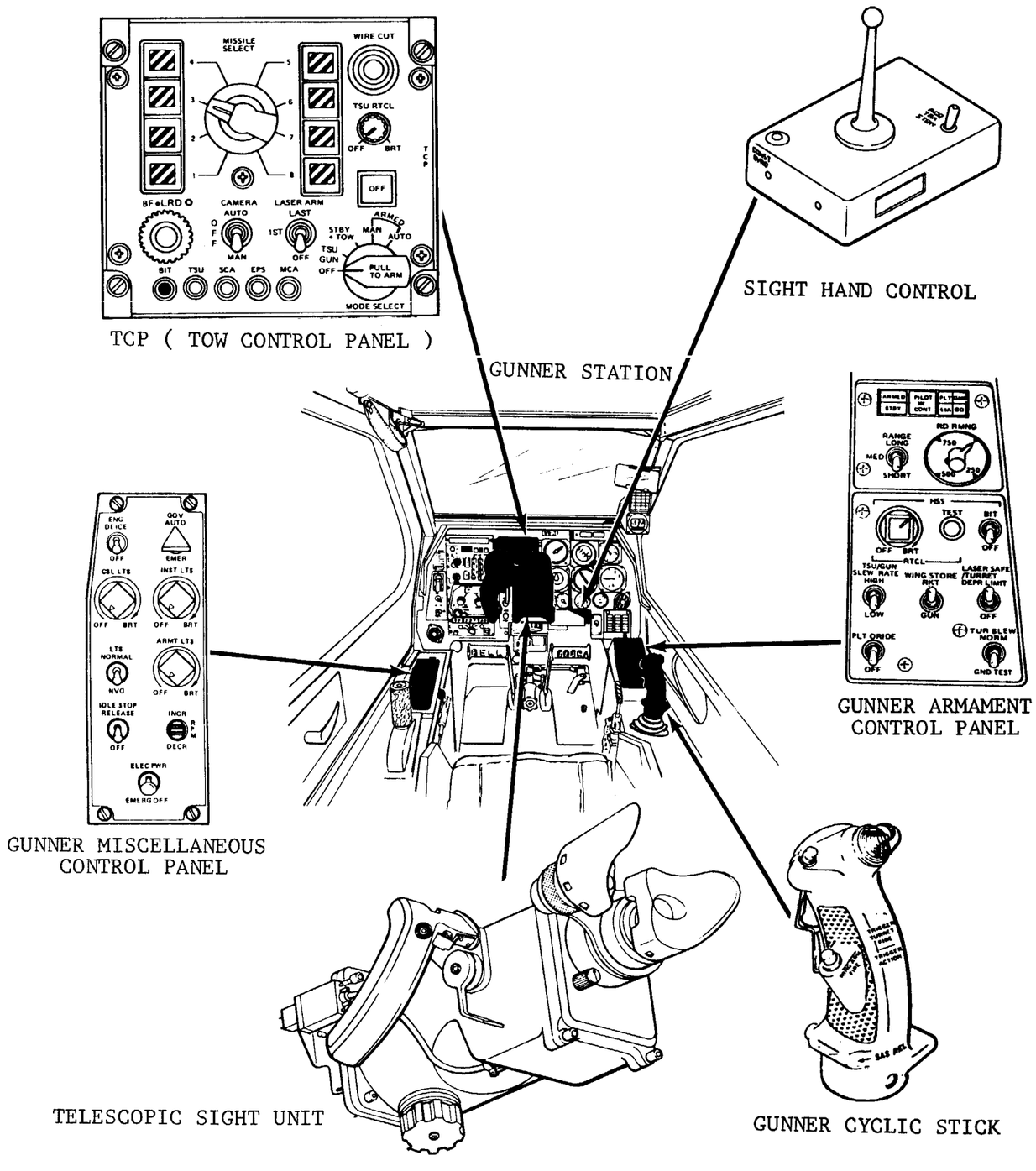
External Power Door - Open

WARNING

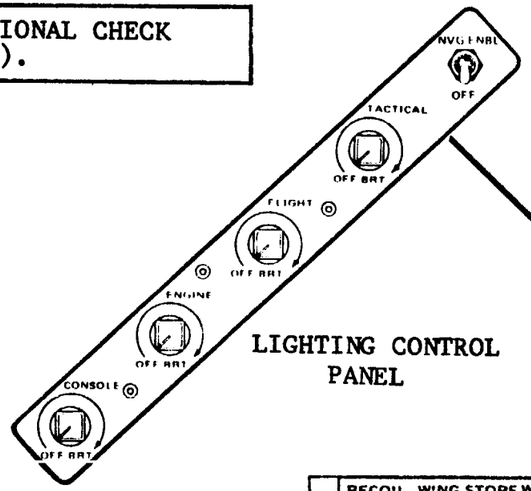
Prior to performing the following procedures, observe safing precautions and ensure that rockets are unloaded in accordance with TM 9-1055-460-13.

Ensure that jettison explosive cartridges are removed from ejector racks in accordance with TM 55-1520-236-23.

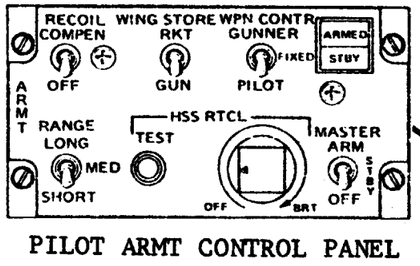
Clear turret area of any obstructions and warn personnel to stand clear. Erect a safety barrier around area that gun barrels sweep.



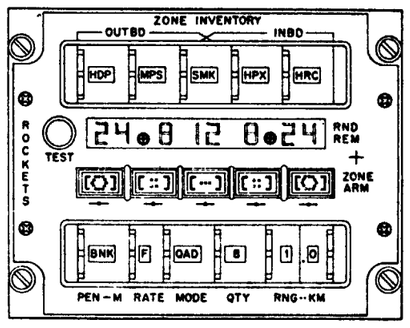
5-2. RMS OPERATIONAL CHECK (CONTINUED).



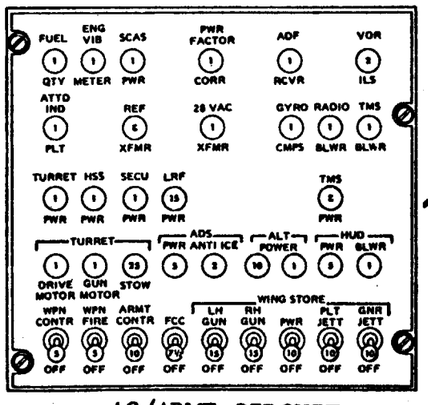
LIGHTING CONTROL PANEL



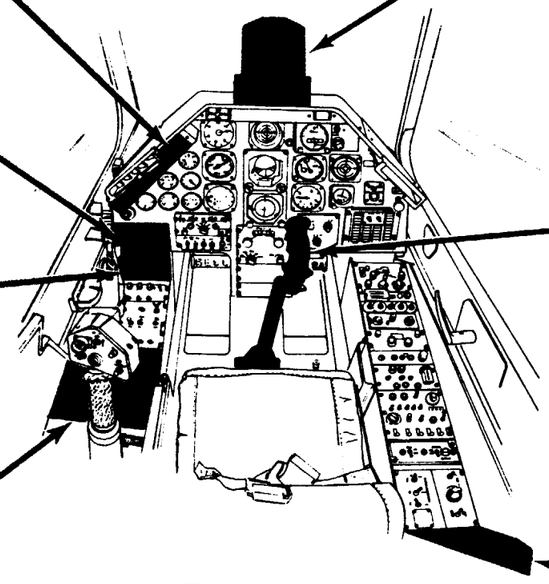
PILOT ARMT CONTROL PANEL



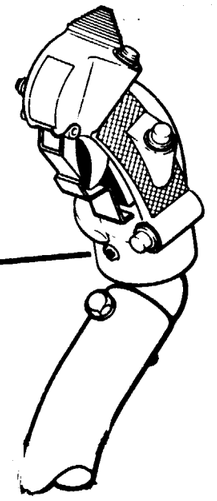
ROCKETS DISPLAY UNIT



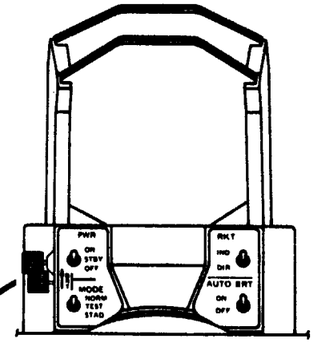
AC/ARMT CIRCUIT BREAKER PANEL



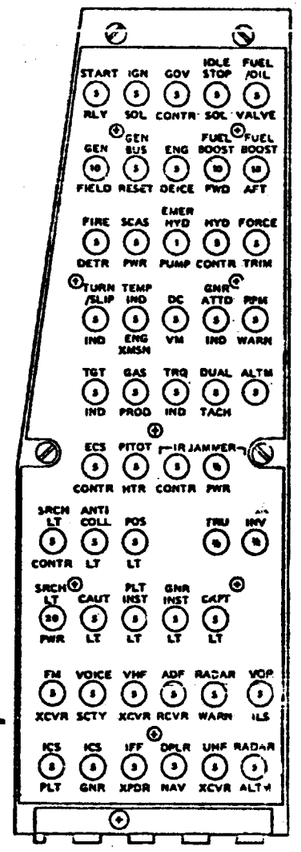
PILOT STATION



PILOT CYCLIC STICK

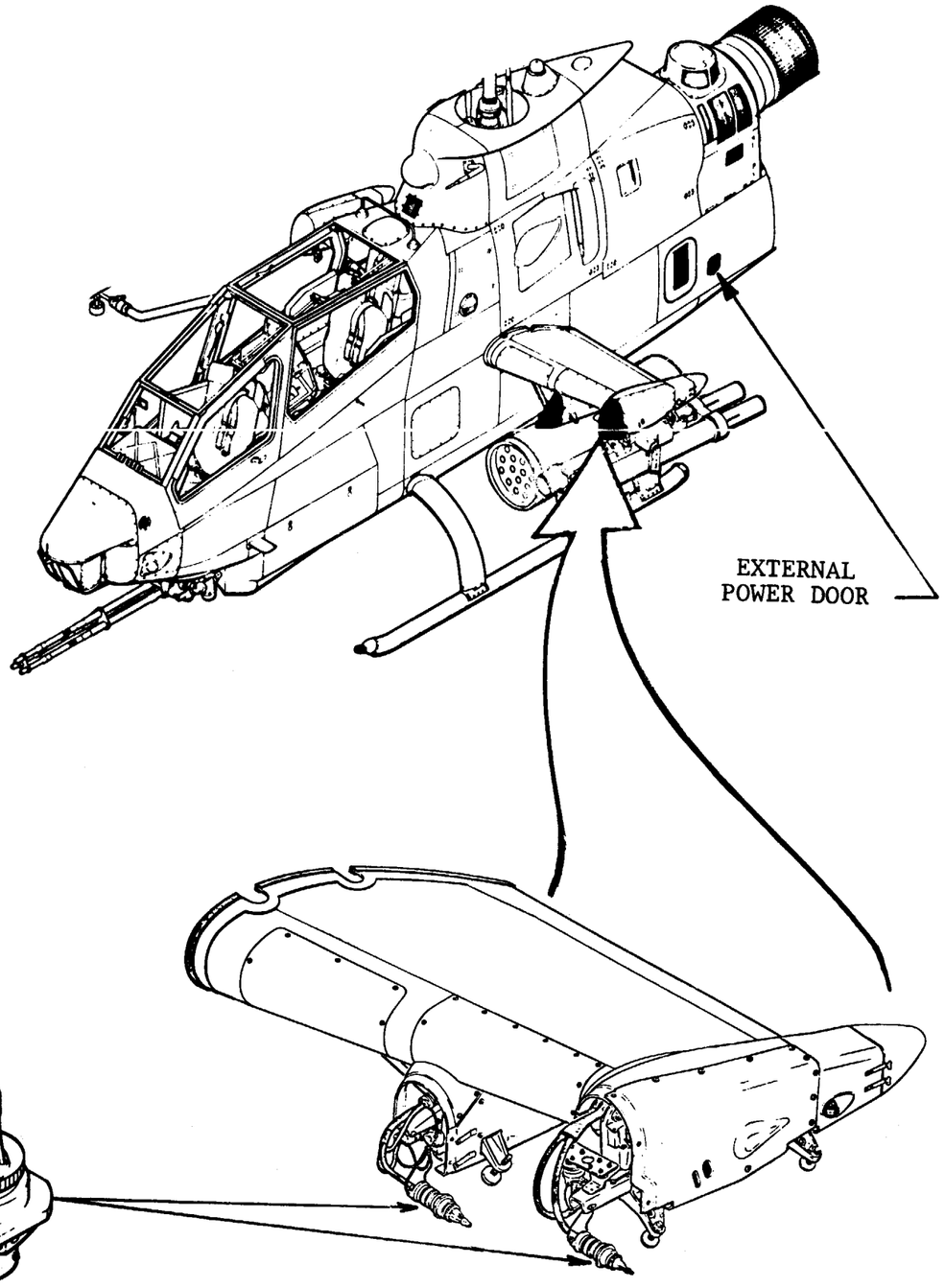


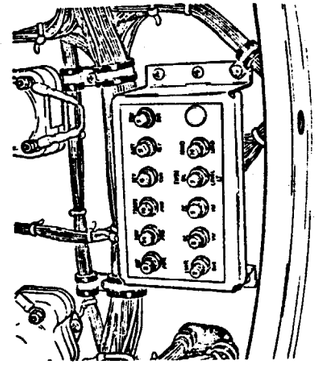
HUD



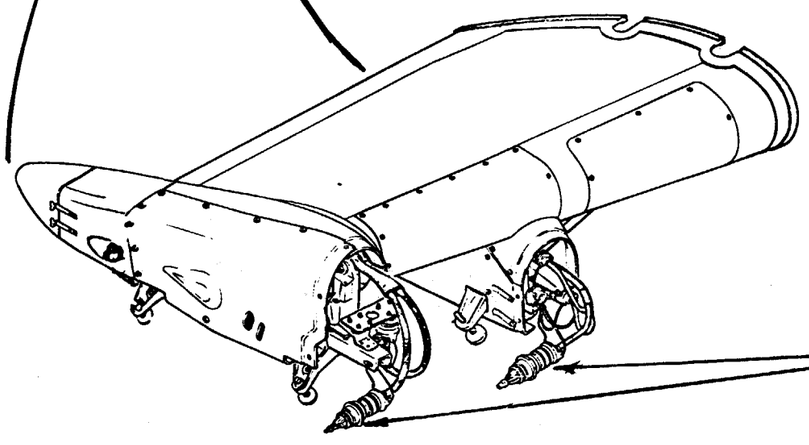
DC CIRCUIT BREAKER PANEL

5-2. RMS OPERATIONAL CHECK (CONTINUED).

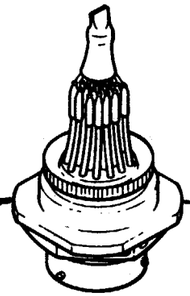




CIRCUIT BREAKER PANEL



RIGHT WING ASSEMBLY



ROCKET PRESENT SIMULATOR

LEFT WING ASSEMBLY

5-2. RMS OPERATIONAL CHECK (CONTINUED).

APPLYING ELECTRICAL POWER

WARNING

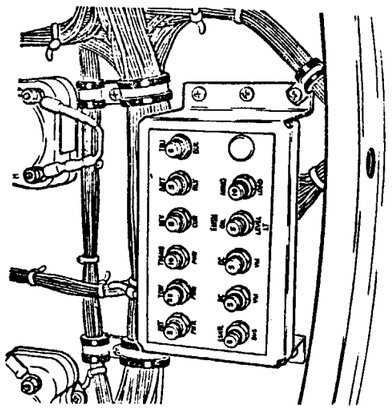
Warn people working on or near helicopter before you apply electrical power.

CAUTION

Mimimum acceptable battery voltage is 22.0 V dc. If battery voltage is below 22.0 V dc, the battery must be replaced before you apply external power (TM 55-1520-236-23, Chapter 9, Section II). Low battery voltage may result in excessive battery overheating (thermal runaway).

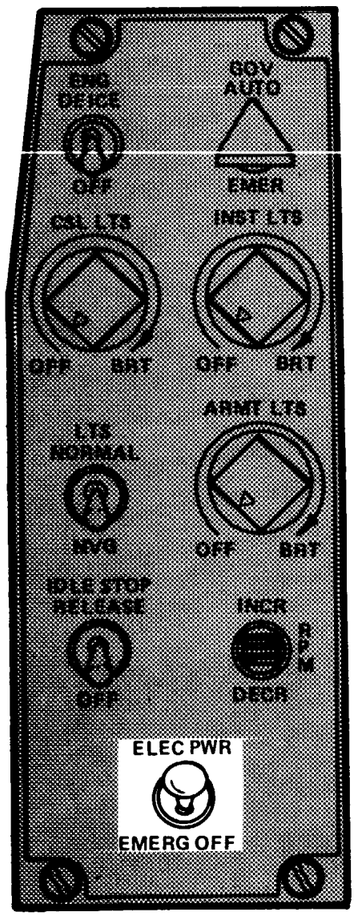
a. Connect battery.

b. Close all circuit breakers on circuit breaker panel in battery compartment.



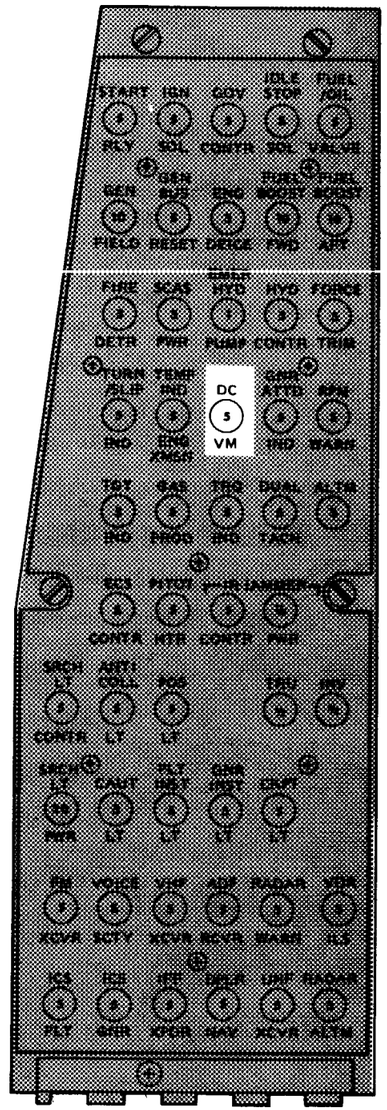
CIRCUIT BREAKER PANEL

c. Set ELEC PWR/EMERG OFF switch on gunner miscellaneous control panel to ELEC PWR.



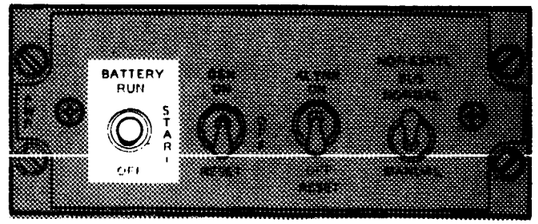
MISCELLANEOUS CONTROL PANEL

d. Close DC VM circuit breaker on DC circuit breaker panel.

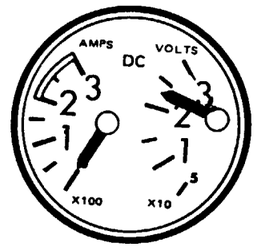


DC CIRCUIT BREAKER PANEL.

e. Set BATTERY switch on electrical PWR control panel to START. Helicopter dc voltmeter should indicate 22.0 to 24.0 V dc.

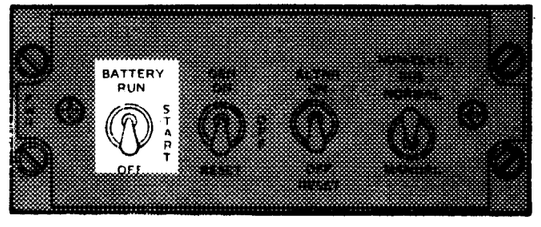


ELECTRICAL PWR CONTROL PANEL



DC VOLTMETER

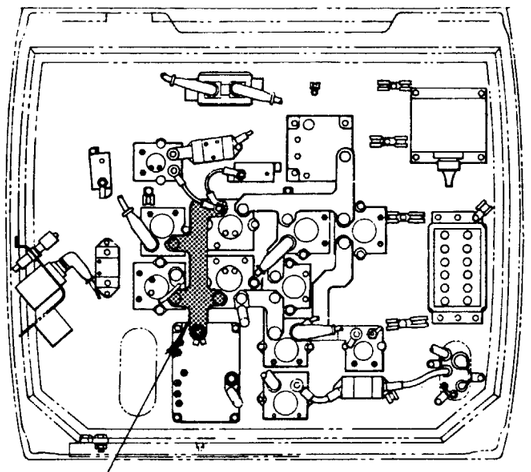
f. Set BATTERY switch on electrical PWR control panel to OFF.



ELECTRICAL PWR CONTROL PANEL

5-2. RMS OPERATIONAL CHECK (CONTINUED).

g. Apply external power to helicopter. (Refer to TM 55-1520-236-23, Chapter 1, Section III.) Adjust ground power unit to provide 28.0 to 30.0 V dc measured at the essential bus with a multimeter.

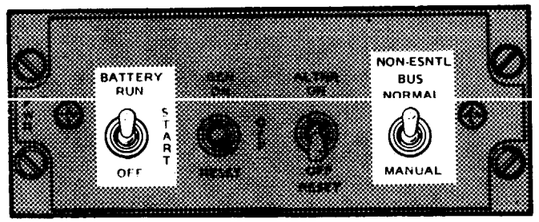


FORWARD BULKHEAD OF BATTERY COMPARTMENT

h. Set pilot electrical PWR control panel switches.

(1) BATTERY to RUN

(2) NON-ESNTL BUS to NORMAL



ELECTRICAL PWR CONTROL PANEL

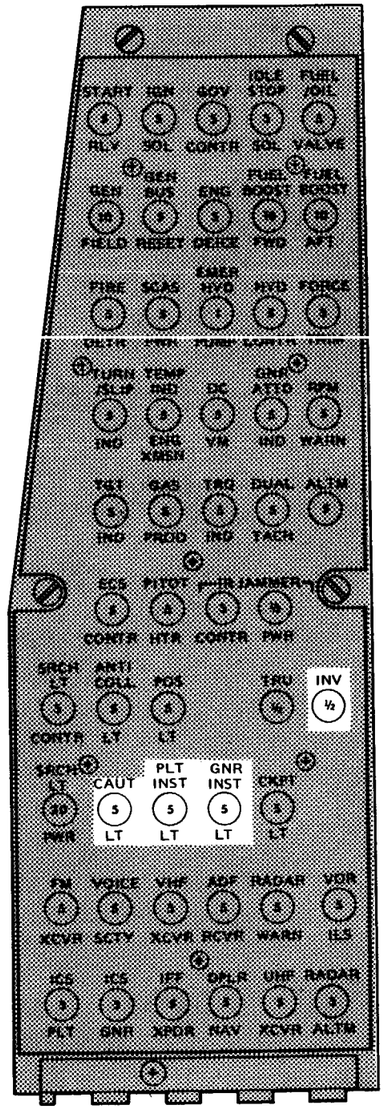
i. Close the following circuit breakers on DC circuit breaker panel:

(1) INV

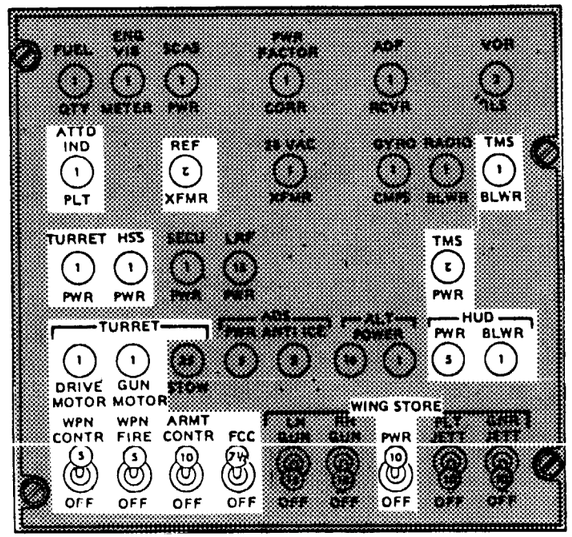
(2) CAUT LT

(3) PLT INST LT

(4) GNR INST LT



DC CIRCUIT BREAKER PANEL



AC/ARMT CIRCUIT BREAKER PANEL

j. Close the following circuit breakers on AC/ARMT circuit breaker panel:

(1) ATTD IND PLT

(2) REF XFMR

(3) TMS BLWR

(4) TURRET PWR

(5) HSS PWR

(6) TMS PWR

(7) TURRET DRIVE MOTOR

(8) TURRET GUN MOTOR

(9) HUD PWR

(10) HUD BLWR

(11) WPN CONTR

(12) WPN FIRE

(13) ARMT CONTR

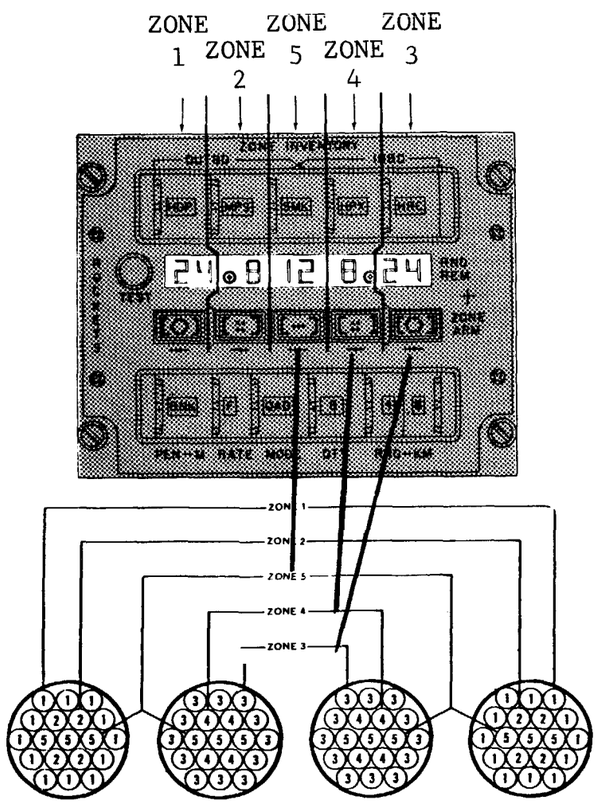
(14) FCC

(15) WING STORE PWR

5-2. RMS OPERATIONAL CHECK (CONTINUED).

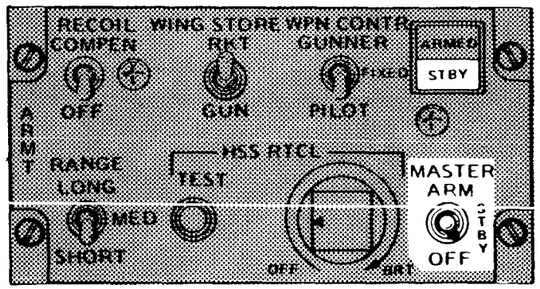
NOTE

For explanation of rockets display unit terminology and zone inventory refer to TM 9-1090-207-13, Chapter 2, Section II.

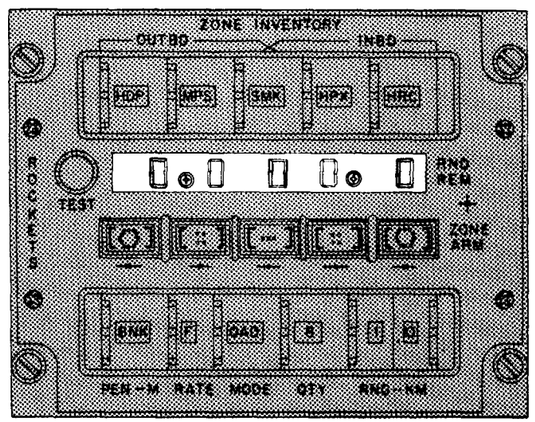


ZONE INVENTORY EXPLANATION

k. Set MASTER ARM switch on pilot ARMT control panel to STBY. STBY (green) indicator will light. STBY indicator on gunner armament control panel will also light. RND REM on ROCKETS display unit should indicate all zeros.



PILOT ARMT CONTROL PANEL

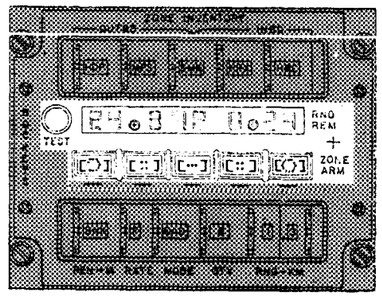


ROCKETS DISPLAY UNIT

l. Perform RMS self-test as follows.

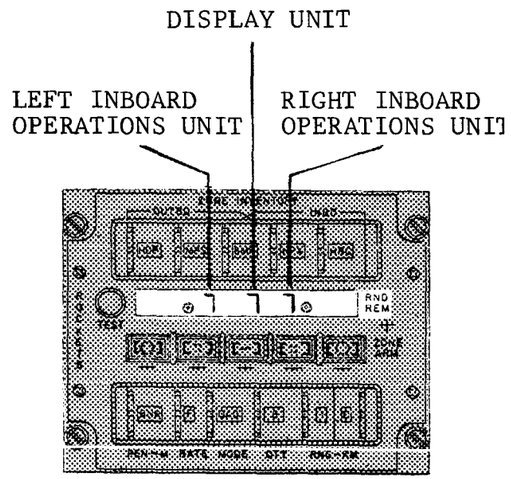
(1) Press TEST switch on ROCKETS display unit. RND REM lights will indicate eights in each zone momentarily and ZONE ARM brackets will light.

There will be a total of eight 8's displayed (88 8 88 8 88).



ROCKETS DISPLAY UNIT

(2) If operations units and rockets display unit are functional, the ROCKETS display unit will automatically display the number 7 in zones 2, 5, and 4. The 7 in zone 2 indicates the left inboard operations unit is working correctly, the 7 in zone 5 indicates the display unit is working correctly, and the 7 in zone 4 indicates the right inboard operations unit is working correctly.

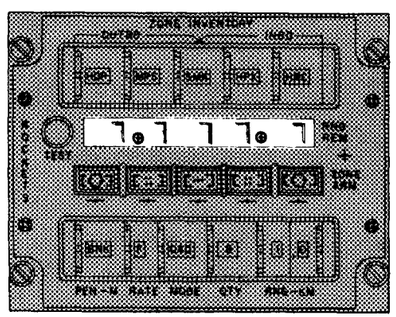


ROCKETS DISPLAY UNIT

NOTE

When four operations units are installed in the aircraft, two additional 7's will appear in zones 1 and 3 representing that the left and right outboard operations units are functioning correctly.

(3) Observe that the 7's disappear, RND REM will indicate ZERO's.



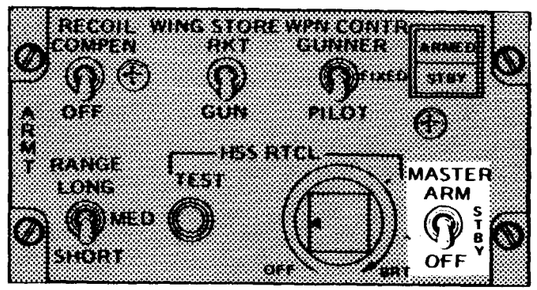
ROCKETS DISPLAY UNIT

5-2. RMS OPERATIONAL CHECK (CONTINUED).

NOTE

Failure of the ROCKETS display unit is indicated if the display unit displays all 8's when not performing self-test of RMS subsystem. Refer to MAPS.

m. Set MASTER ARM switch on pilot ARMT control panel to OFF.



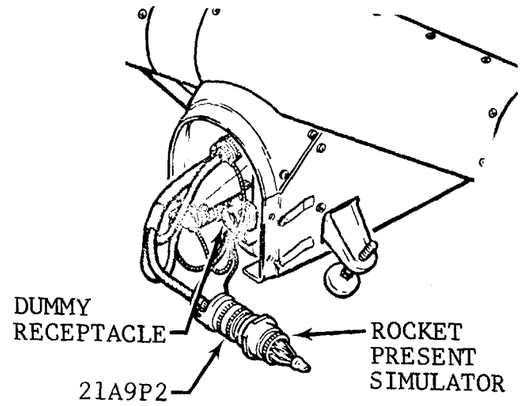
PILOT ARMT CONTROL PANEL

n. Install RMS rocket present simulators as follows:

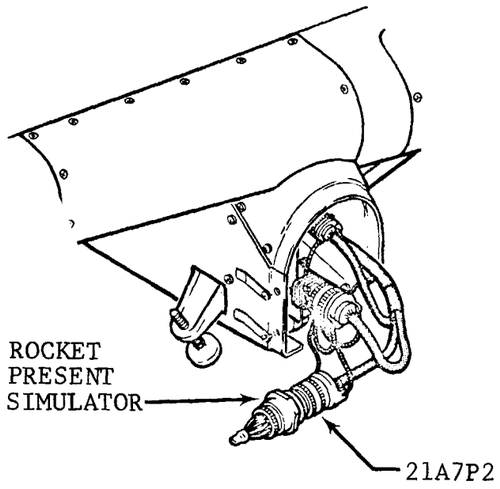
NOTE

If rocket launchers are installed, 21A7P2 and 21A9P2 will be installed on the rocket launchers and not on the dummy receptacles.

(1) Disconnect electrical connector 21A9P2 from dummy connector on left wing inboard pylon. Connect RMS rocket present simulator to 21A9P2.



(2) Disconnect electrical connector 21A7P2 from dummy connector on right wing inboard pylon. Connect RMS rocket present simulator to 21A7P2.



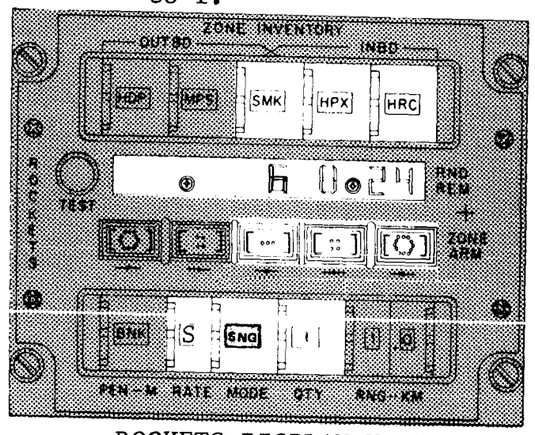
o. On ROCKETS display unit:

(1) Set ZONE INVENTORY INBD thumbwheels in zones 5, 4 and 3 to different rocket types.

(2) Set RATE thumbwheel to S.

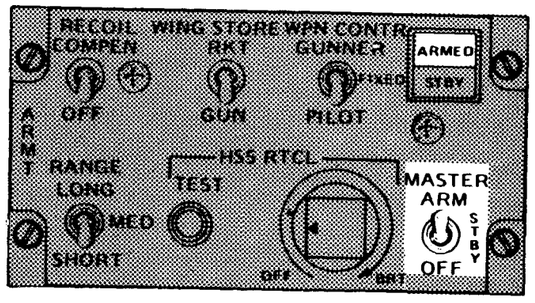
(3) Set MODE thumbwheel to SNG.

(4) Set QTY thumbwheel to 1.

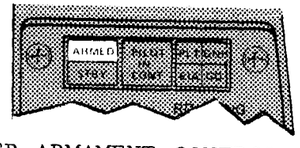


ROCKETS DISPLAY UNIT

(5) Set MASTER ARM switch on pilot ARMT control panel to ARM. ARMED (red) indicator will light. ARMED (red) indicator on gunner armament control panel will also light.



PILOT ARMT CONTROL PANEL

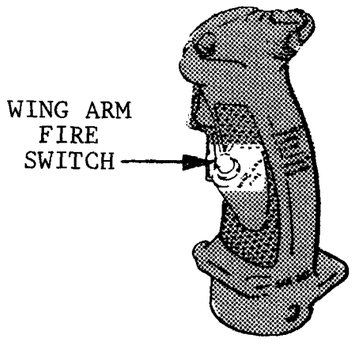


GUNNER ARMAMENT CONTROL PANEL

(6) On ROCKETS display unit, RND REM will indicate zone 3 with 24 rockets, zone 4 with 8 rockets and zone 5 with 6 rockets.

(7) Press ZONE ARM switch for zone 3. Zone 3 switch bracket should light. Repeat procedures for zones 4 and 5. As each switch is pressed, the bracket around it should light and the other switch bracket light should go out.

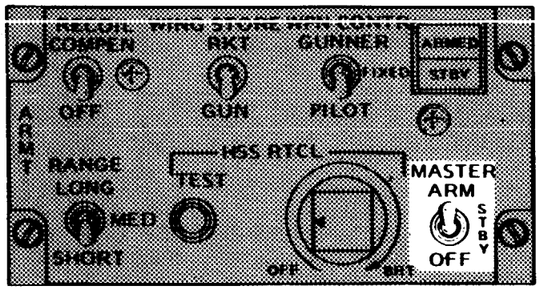
(8) Press WING ARM FIRE switch on pilot cyclic stick six times. Observe that RND REM for zone 5 is decreased by one each time the switch is pressed. After the last round is fired the RND REM for zone 5 will indicate zero and the switch bracket light for zone 5 will go out.



PILOT CYCLIC STICK

5-2. RMS OPERATIONAL CHECK (CONTINUED).

(9) Set MASTER ARM switch on pilot ARMT control panel to OFF and then back to ARM to simulate reloading of rockets.



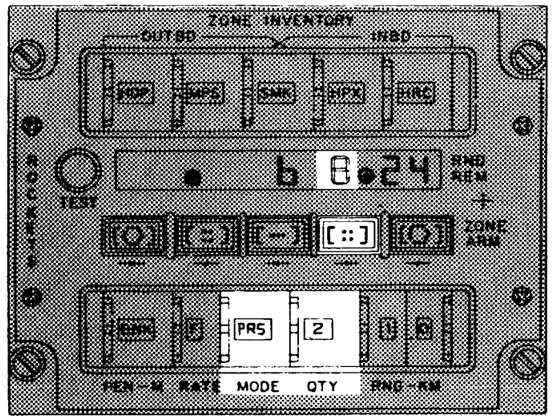
PILOT ARMT CONTROL PANEL

p. On ROCKETS display unit:

(1) Set MODE thumbwheel to PRS.

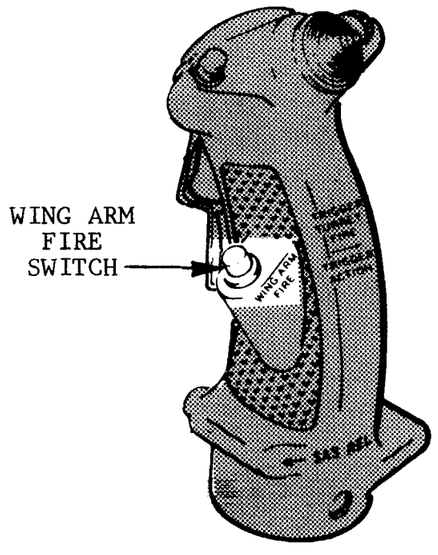
(2) Set QTY thumbwheel to 2.

(3) Press ZONE ARM switch for zone 4.



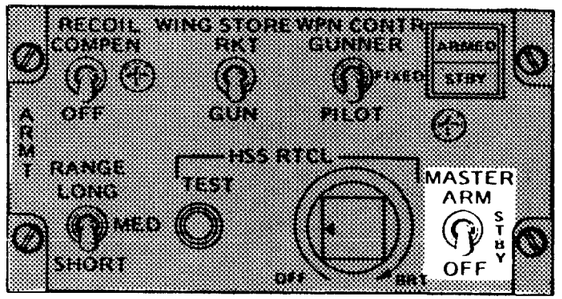
ROCKETS DISPLAY UNIT

(4) Press WING ARM FIRE switch on pilot cyclic stick. Observe that RND REM for zone 4 is decreased by four.



PILOT CYCLIC STICK

(5) Set MASTER ARM switch on pilot ARMT control panel to OFF.



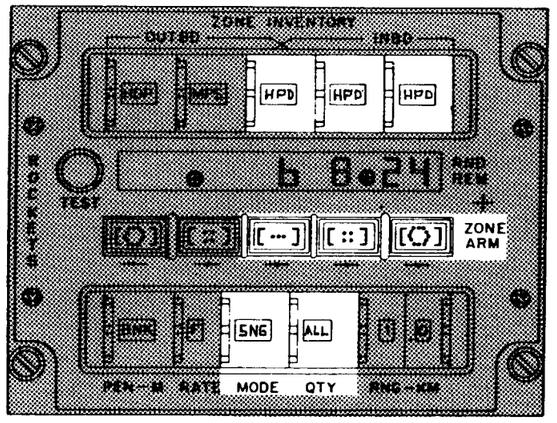
PILOT ARMT CONTROL PANEL

q. On ROCKETS display unit:

(1) Set zone INVENTORY INBD thumbwheel (zones 3, 4, and 5) to HPD.

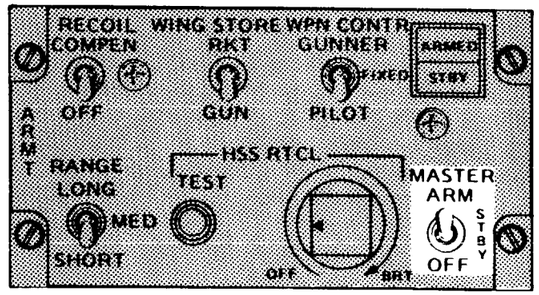
(2) Set MODE thumbwheel to SNG.

(3) Set QTY to ALL.



ROCKETS DISPLAY UNIT

(4) Set MASTER ARM switch on pilot ARMT control panel to ARM.



PILOT ARMT CONTROL PANEL

(5) On ROCKET display unit, press ZONE ARM switch for zone 3. Zones 4 and 5 will also arm.

NOTE

When ZONE INVENTORY thumbwheels are all set to same type rocket, arming one zone will arm all zones.

(6) Press and hold WING ARM FIRE switch on pilot cyclic stick. All rockets at all stations should fire. Zone 3 rockets will be fired first, followed by zone 4 and then zone 5.

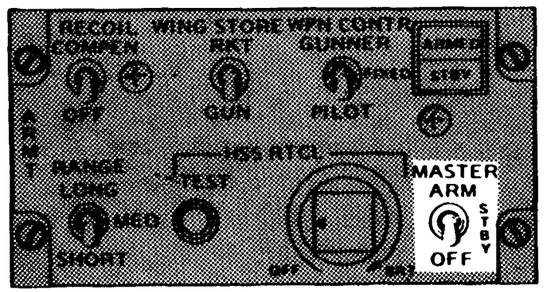
5-2. RMS OPERATIONAL CHECK (CONTINUED).

NOTE

The following check verifies that the gunner has the ability to fire rockets from the gunner station. Rockets can only be armed from the pilot station.

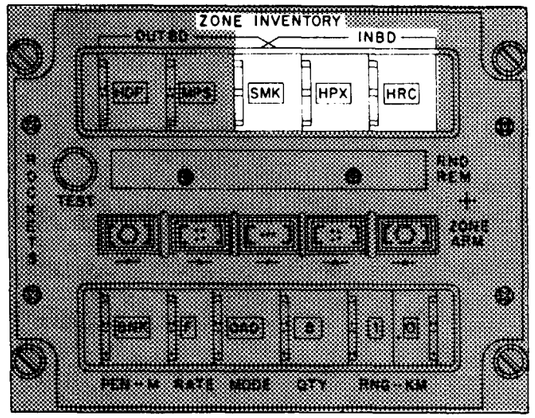
r. Check that gunner can fire rockets as follows:

(1) Set MASTER ARM switch on pilot ARMT control panel to OFF.



PILOT ARMT CONTROL PANEL

(2) On ROCKETS display unit, set ZONE INVENTORY INBD thumbwheels for zones 3, 4 and 5 to different types of rockets.



ROCKETS DISPLAY UNIT

s. On gunner armament control panel:

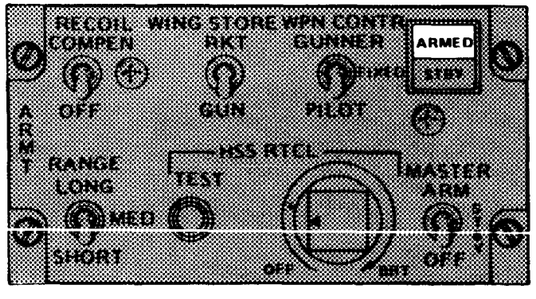
(1) Set PLT ORIDE switch to PLT ORIDE.

(2) Set WING STORE switch to RKT.



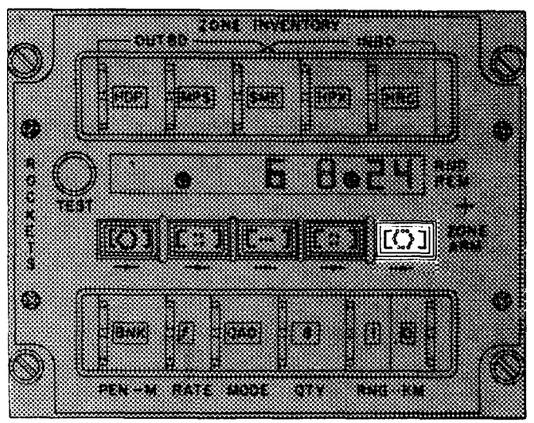
GUNNER ARMAMENT CONTROL PANEL

(3) Observe that gunner ARMED (red) indicator lights and that ARMED (red) indicator on pilot ARMT control panel lights.



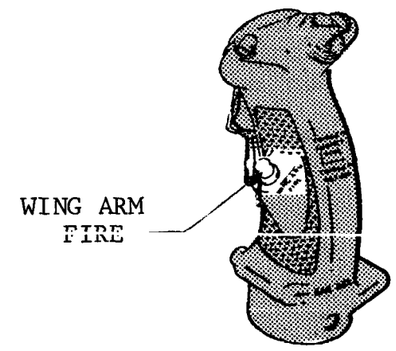
PILOT ARMT CONTROL PANEL

(4) On ROCKETS display unit, press ZONE ARM switch for zone 3.



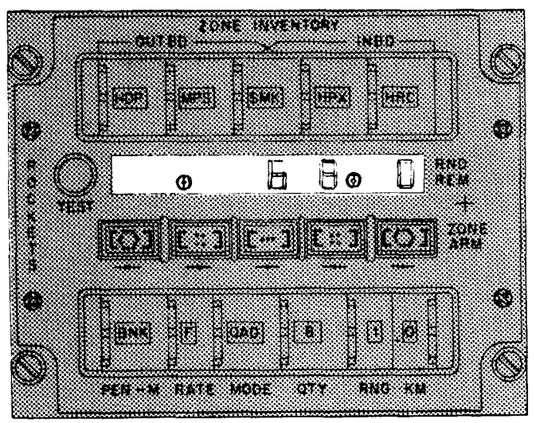
ROCKETS DISPLAY UNIT

(5) Press and hold WING ARM FIRE switch on pilot cyclic stick. Observe that RND REM on ROCKETS display unit does not decrease.



PILOT CYCLIC STICK

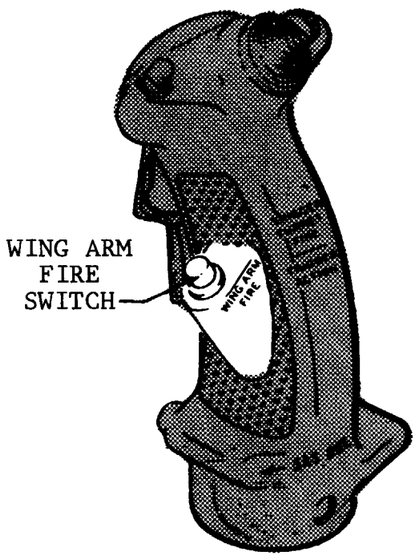
(6) Press and hold WING ARM FIRE switch on gunner cyclic stick. Observe that RND REM on ROCKETS display unit decreases to zero and ZONE ARM bracket lights for zone 3 go OUT.



ROCKETS DISPLAY UNIT

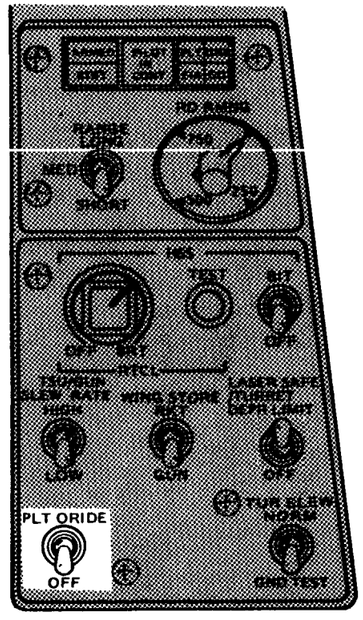
5-2. RMS OPERATIONAL CHECK (CONTINUED).

(7) Press WING ARM FIRE switch on gunner cyclic stick two or three times. Observe that RND REM on ROCKETS display unit remains the same.



GUNNER CYCLIC STICK

t. Set PLT ORIDE switch on gunner armament control panel to OFF.

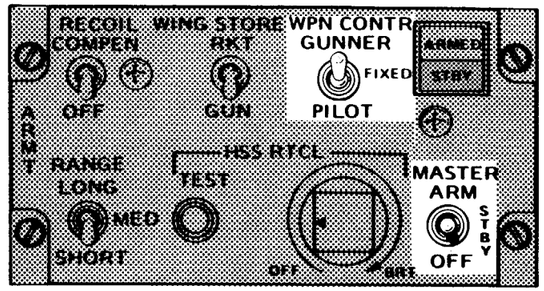


GUNNER ARMAMENT CONTROL PANEL

u. Set pilot ARMT control panel switches:

(1) WPN CONTR to GUNNER.

(2) MASTER ARM to STBY.

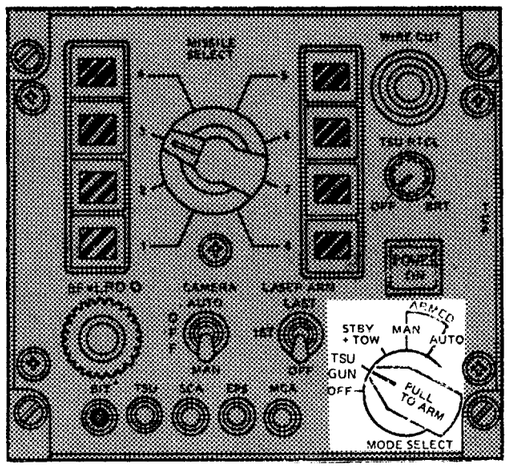


PILOT ARMT CONTROL PANEL

NOTE

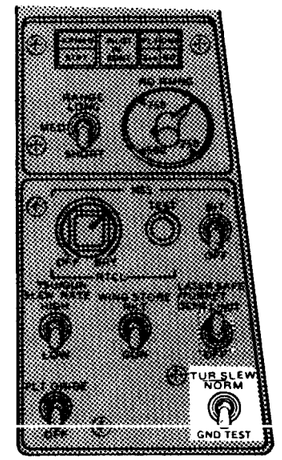
The following test is to make sure that rockets cannot be fired until the turret gun has cleared the rocket flight path.

(3) Set MODE SELECT switch on TCP (TOW control panel) to TSU GUN.



TCP (TOW CONTROL PANEL)

(4) Set TUR SLEW on gunner armament control panel to GND TEST.

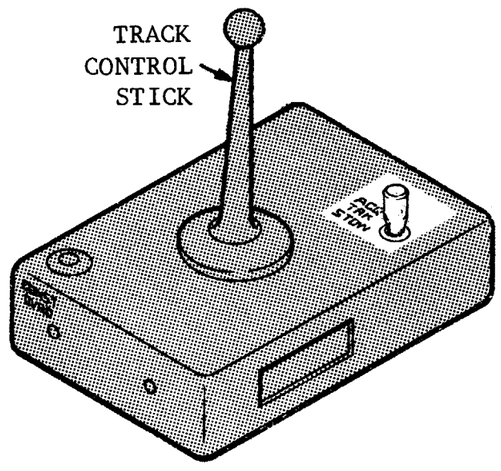


GUNNER ARMAMENT CONTROL PANEL

(5) On sight hand control:

(6) Set ACQ/TRK/STOW switch to TRK.

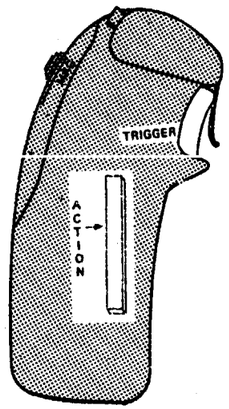
(7) Slew the TSU to the right approximately 45^{o} azimuth and 0^{o} elevation with the track control stick.



SIGHT HAND CONTROL

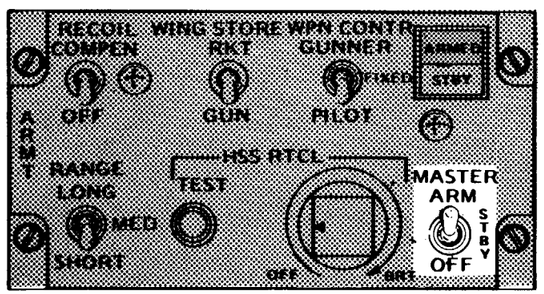
5-2. RMS OPERATIONAL CHECK (CONTINUED).

(8) Press and hold ACTION switch on TSU left-hand grip. Turret will go to the position where the TSU is pointing.



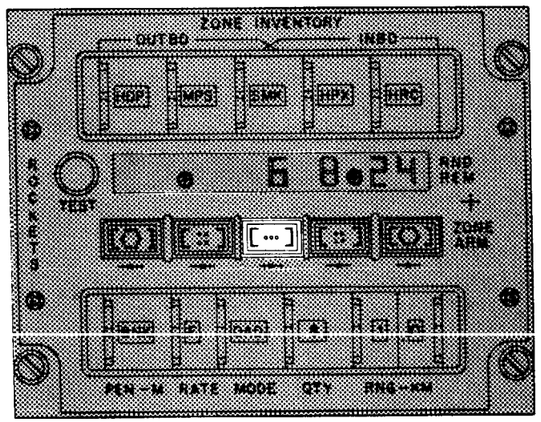
LEFT HAND GRIP

(9) Set MASTER ARM switch on pilot ARMT control panel to ARM.



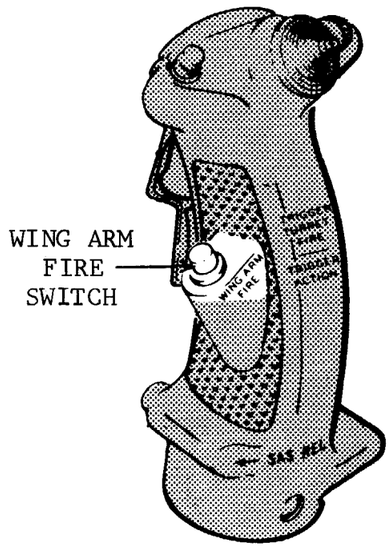
PILOT ARMT CONTROL PANEL

(10) Press ZONE ARM switch on ROCKETS display unit for zone 5.



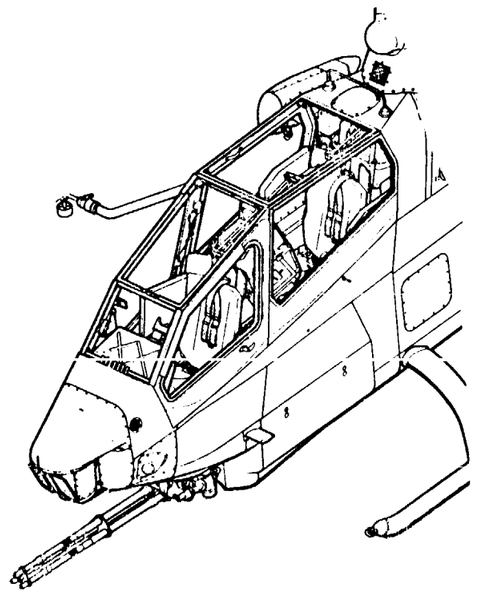
ROCKETS DISPLAY UNIT

(11) Press and hold WING ARM FIRE switch on pilot cyclic stick and observe the following:

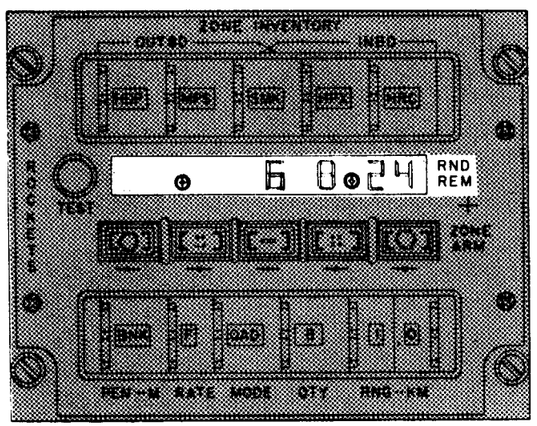


PILOT CYCLIC STICK

(a) Turret will return to STOW position.

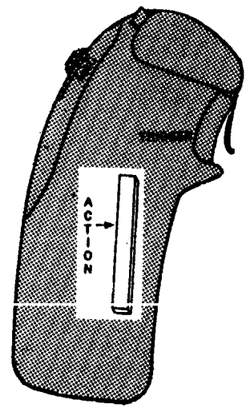


(b) RND REM will not decrease on ROCKETS display unit until turret is in stow position, then rockets will fire.



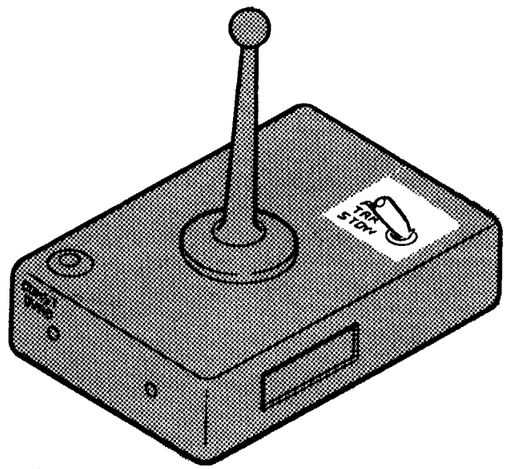
ROCKETS DISPLAY UNIT

(12) Release ACTION switch on TSU left hand grip.



LEFT HAND GRIP

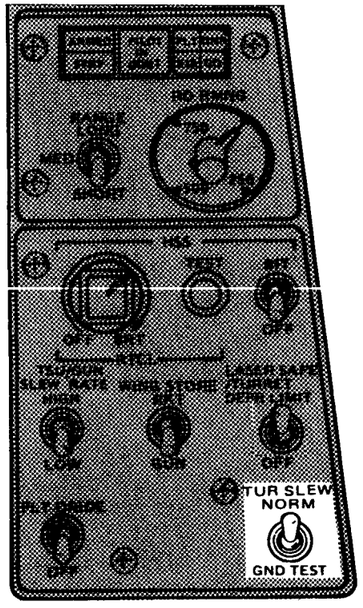
v. Set ACQ/TRK/STOW switch on sight hand control to STOW.



SIGHT HAND CONTROL

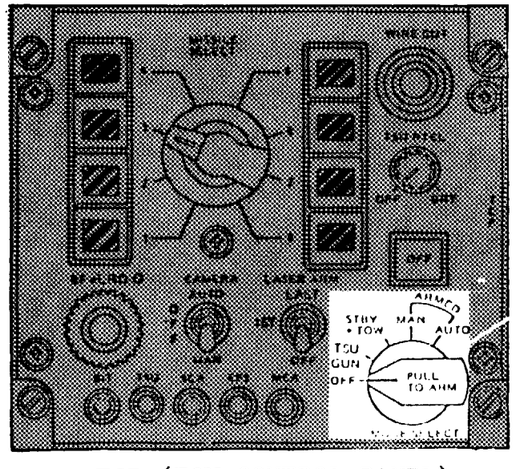
5-2. RMS OPERATIONAL CHECK (CONTINUED).

w. Set TUR SLEW switch on gunner armament control panel to NORM.



GUNNER ARMAMENT CONTROL PANEL

x. Set MODE SELECT switch on TCP (TOW control panel) to OFF.



TCP (TOW CONTROL PANEL)

NOTE

The collective stick must be in the full down position prior to accomplishing the following steps.

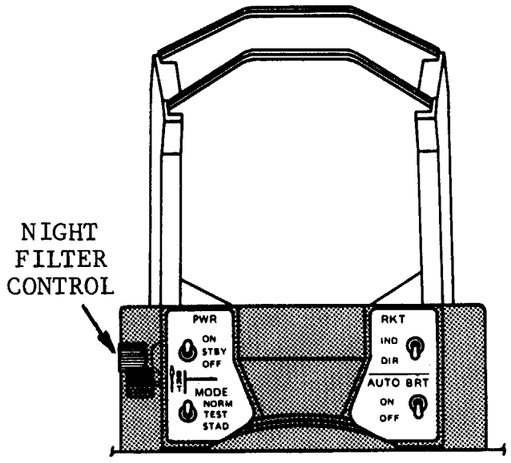
y. Set HUD switches:

(1) PWR to STBY, after 30 seconds set to ON.

(2) MODE to NORM.

(3) RKT to DIR.

(4) AUTO BRT to OFF.



HUD

CAUTION

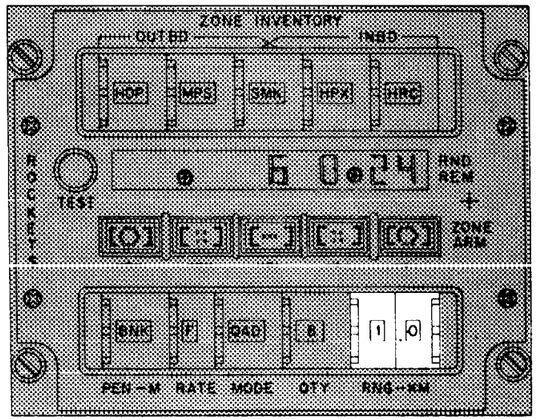
Constant exposure to direct sunlight will damage the red night filter.

(5) NIGHT FILTER control fully clockwise.

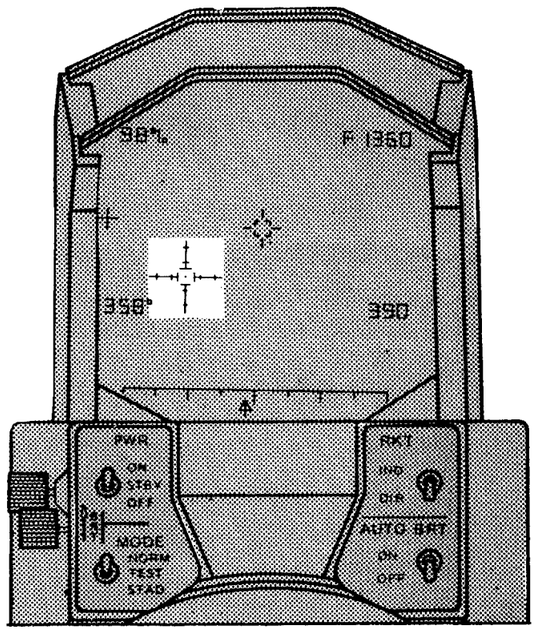
NOTE

The following check verifies manual range input from ROCKETS display unit changes position of direct rocket reticle on HUD.

z. Set RNG-KM on ROCKETS display unit to 1.0. Observe position of direct rocket reticle on HUD.

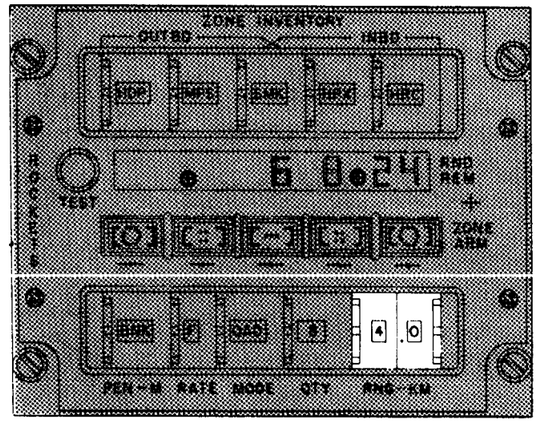


ROCKETS DISPLAY UNIT

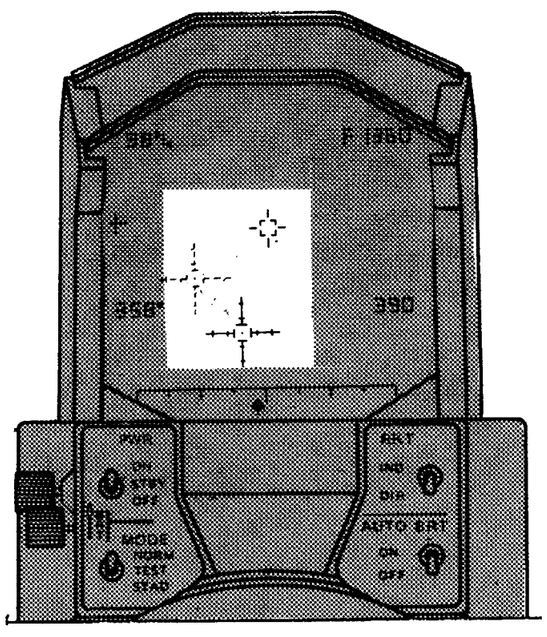


HUD

aa. Set RNG-KM on ROCKETS display unit to 4.0. Direct rocket reticle on HUD should move downward.



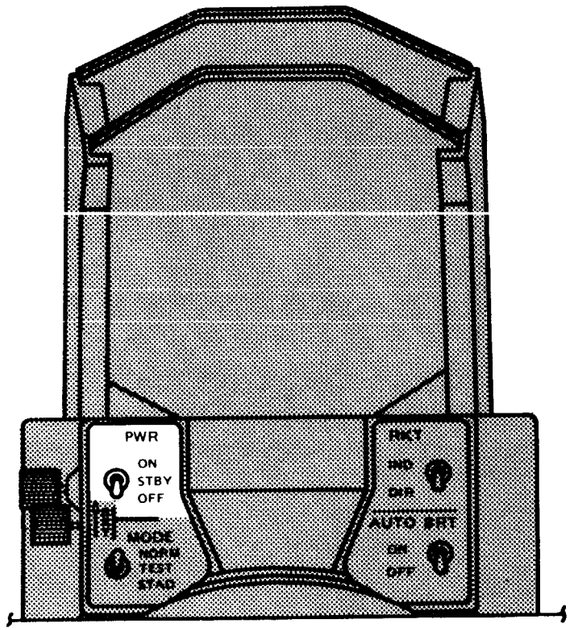
ROCKETS DISPLAY UNIT



HUD

5-2. RMS OPERATIONAL CHECK (CONTINUED).

ab. Set PWR switch on HUD to OFF.



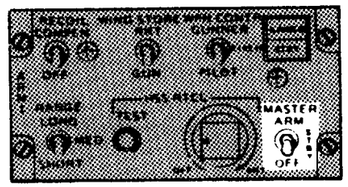
HUD

NOTE

When only two operational units are installed, proceed directly to step ap. Do not accomplish steps ac. thru ao.

ADDITIONAL CHECK WHEN FOUR OPERATION UNITS ARE INSTALLED (NO TOW).

ac. Set MASTER ARM switch on pilot ARMT control panel to OFF.



PILOT ARMT CONTROL PANEL

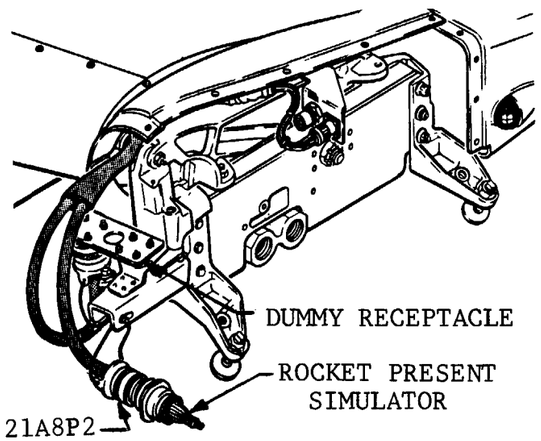
ad. Install RMS rocket present simulators on outboard pylons as follows:

(1) Remove nose fairings from outboard pylon on right and left wings.

NOTE

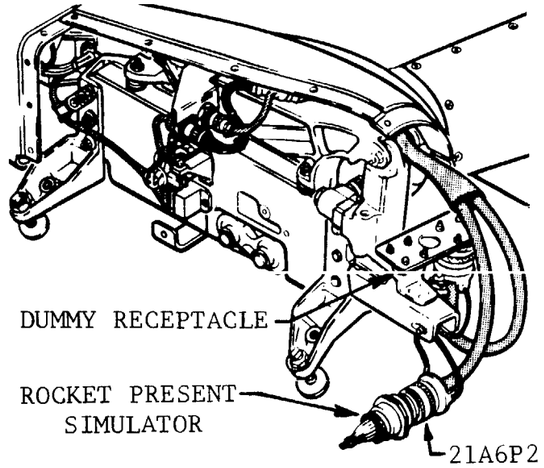
If rocket launchers are installed, 21A6P2 and 21A8P2 will be connected to the rocket launchers and not the dummy receptacles.

(2) Disconnect 21A8P2 from dummy connectors on left wing pylon. Connect RMS rocket present simulator to 21A8P2.



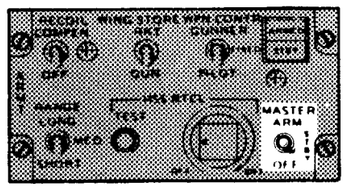
LEFT WING PYLON

(3) Disconnect 21A6P2 from dummy connector on right wing pylon. Connect RMS rocket present simulator to 21A6P2.



RIGHT WING PYLON

ae. Set MASTER ARM switch on pilot ARMT control panel to STBY.



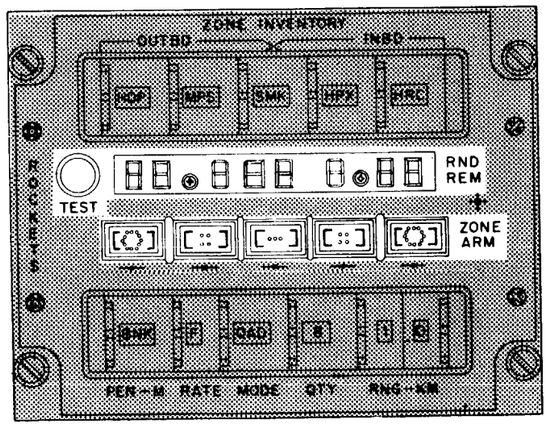
PILOT ARMT CONTROL PANEL

af. Perform RMS self test and observe the following sequence:

(1) Press TEST switch on ROCKETS display unit.

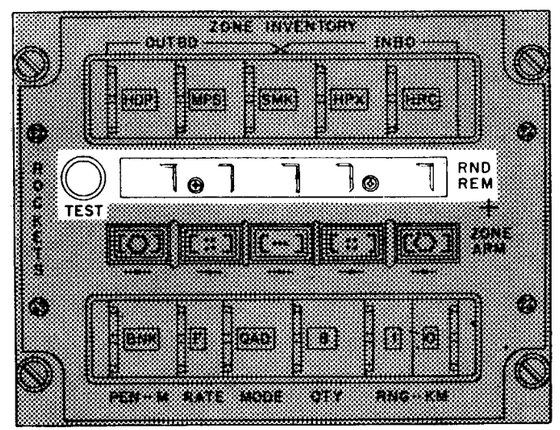
(2) RND REM lights will indicate eights in each zone momentarily.

(3) ZONE ARM lights will come on.



ROCKETS DISPLAY UNIT

(4) RND REM will automatically indicate 7 in all five zones if operations units and display unit are functional. Each 7 indicates that a particular operations unit is good. The middle 7 indicates the ROCKETS display unit is good.

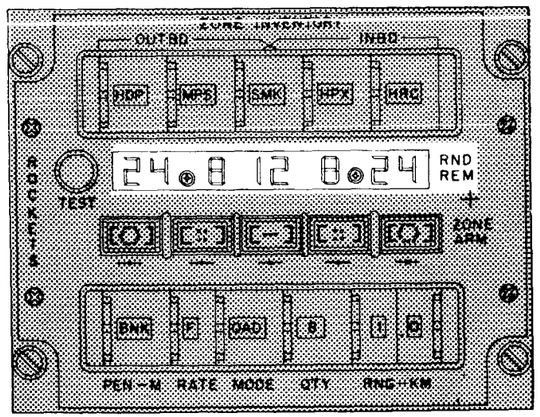


ROCKETS DISPLAY UNIT

5-2. RMS OPERATIONAL CHECK (CONTINUED).

(5) All the 7's will disappear.

(6) RND REM will display a full inventory of 76 rockets (24+8+12+8+24=76).



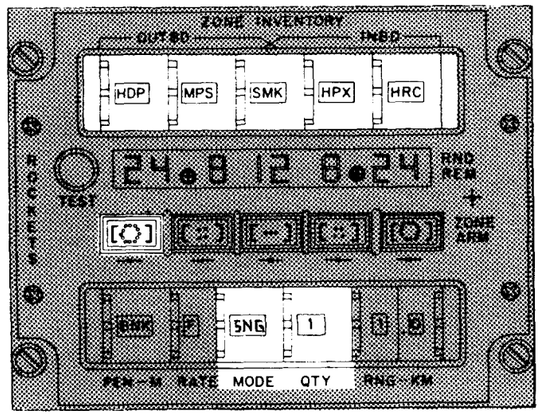
ROCKETS DISPLAY UNIT

ag. On ROCKETS display unit:

(1) Set ZONE INVENTORY OUTBD and INBD thumbwheels in all five zones to a different rocket type.

(2) Set MODE thumbwheel to SNG.

(3) Set QTY thumbwheel to 1.



ROCKETS DISPLAY UNIT

ah. Set MASTER ARM switch on pilot ARMT control panel to OFF and then to ARM.

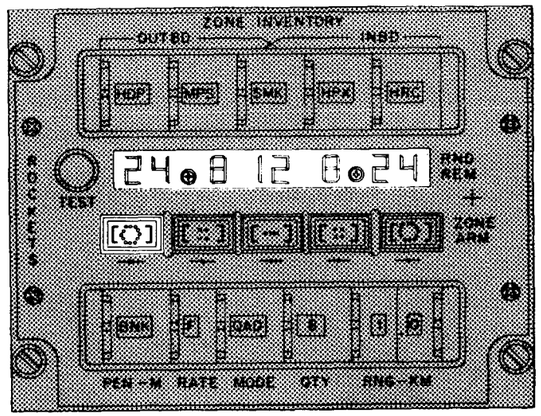


PILOT ARMT CONTROL PANEL

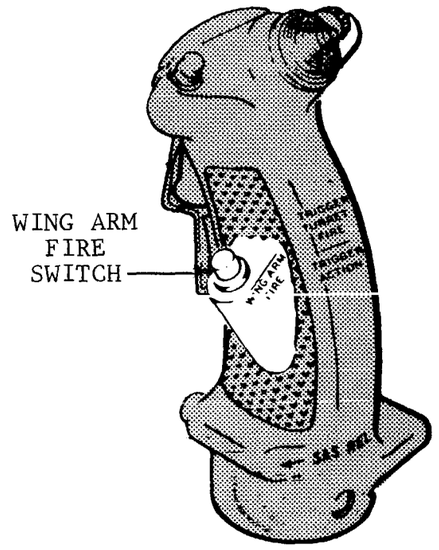
ai. On ROCKETS display unit:

(1) Press ZONE ARM switch for zone 1. ZONE 1 ARM bracket should light. Repeat for zone 2, zone 5, zone 4 and zone 3. As each ZONE ARM switch is pressed the other bracket light should go out.

(2) Press ZONE ARM switch for zone 1.

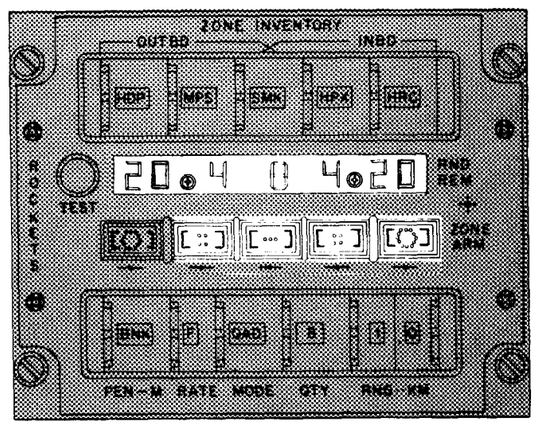


ROCKETS DISPLAY UNIT



PILOT CYCLIC STICK

(3) Press WING ARM FIRE switch on pilot cyclic stick four times. Observe that RND REM for zone 1 is decreased by one each time switch is pressed. Arm zones 2, 5, 4, and 3 in sequence and repeat test. After test is complete, RND REM should indicate (20+4+8+4+20).



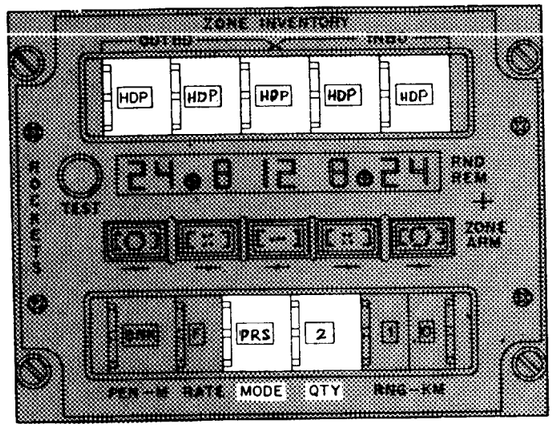
ROCKETS DISPLAY UNIT

5-2. RMS OPERATIONAL CHECK (CONTINUED).

(4) Set ZONE INVENTORY OUTBD and INBD thumbwheels in all five zones to the same rocket type.

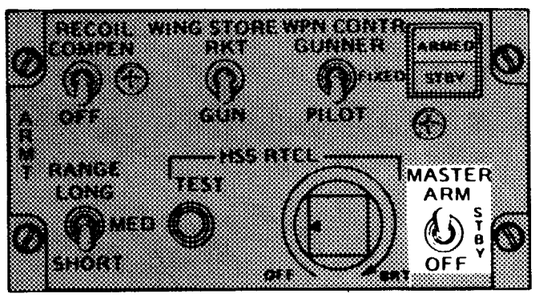
(5) Set MODE to PRS.

(6) Set QTY to 2.



ROCKETS DISPLAY UNIT

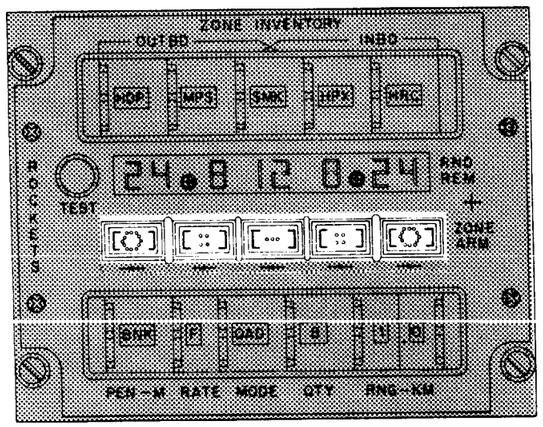
aj. Set MASTER ARM switch on pilot ARMT control panel to OFF and then back to ARM.



PILOT ARMT CONTROL PANEL

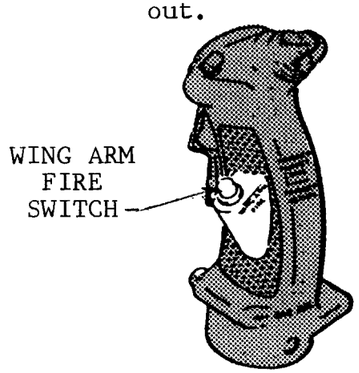
ak. On ROCKETS display unit:

(1) Press ZONE ARM switch for zone 1. All zones will arm.



ROCKETS DISPLAY UNIT

(2) Press and hold WING ARM FIRE switch on pilot cyclic stick. RND REM on ROCKETS display unit will decrease by four. Repeat until RND REM indicates 0. Observe that OUTBD zones reach 0 before any INBD zones begin to decrease. RND REM should indicate 0's and all ZONE ARM bracket lights go out.



PILOT CYCLIC STICK

al. Set MASTER ARM switch on pilot ARMT control panel to OFF and then back to ARM.

am. On ROCKETS display unit:

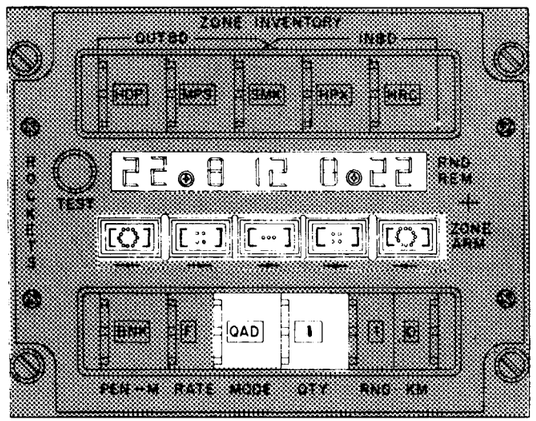
(1) RND REM should indicate (24+8+12+8+24).

(2) Set MODE to QAD.

(3) Set QTY to 1.

(4) Press ZONE ARM switch for zone 1. All zones will arm.

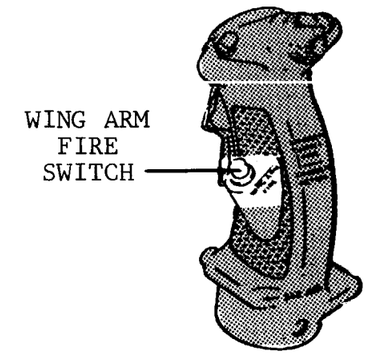
(5) Press WING ARM FIRE switch on pilot cyclic stick. RND REM on ROCKETS display unit will decrease by two in zones 1 and 3. RND REM will indicate (22+8+12+8+22).



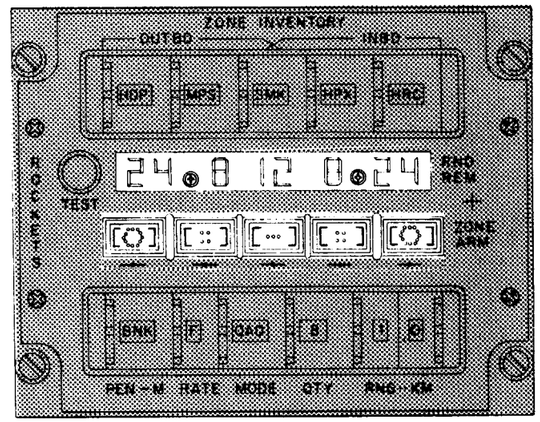
ROCKETS DISPLAY UNIT

(6) Set QTY to 4.

(7) Press and hold WING ARM FIRE switch on pilot cyclic stick. Repeat until RND REM on ROCKETS display unit indicates that all rockets have been fired. Observe zones 1 and 3 empty first, then zones 2 and 4, and lastly, zone 5.



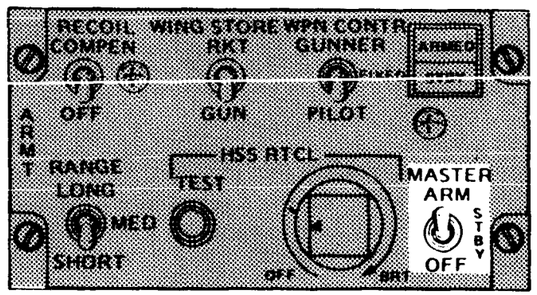
PILOT CYCLIC STICK



ROCKETS DISPLAY UNIT

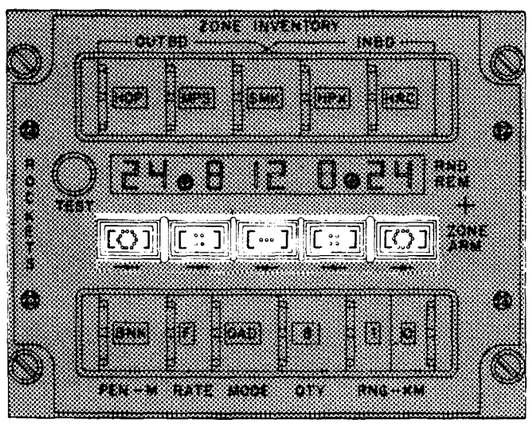
5-2. RMS OPERATIONAL CHECK (CONTINUED).

an. Set MASTER ARM switch on pilot ARMT control panel to OFF and then back to ARM.



PILOT ARMT CONTROL PANEL

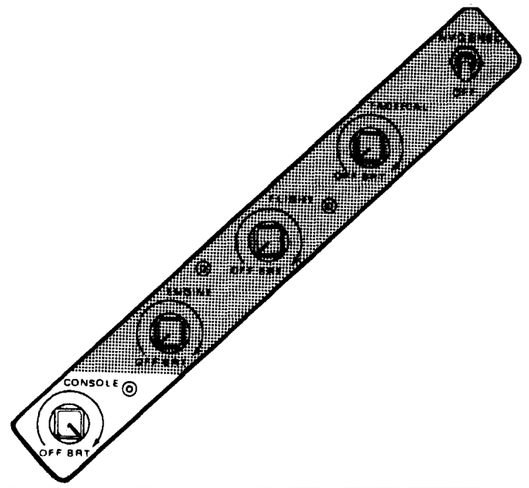
ao. Press ZONE ARM switch for zone 1 on ROCKETS display unit. All brackets should light.

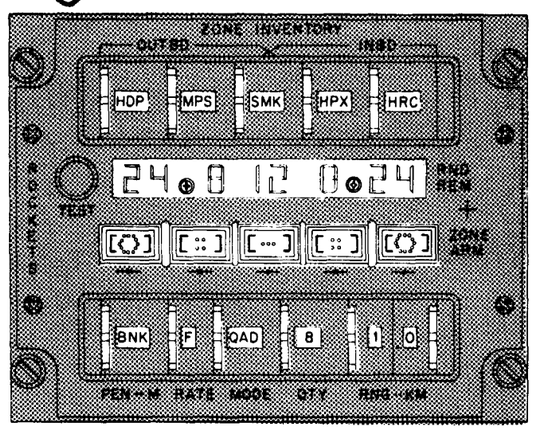


ap. Slowly turn CONSOLE lights control on lighting control panel from OFF to BRT and observe the following:

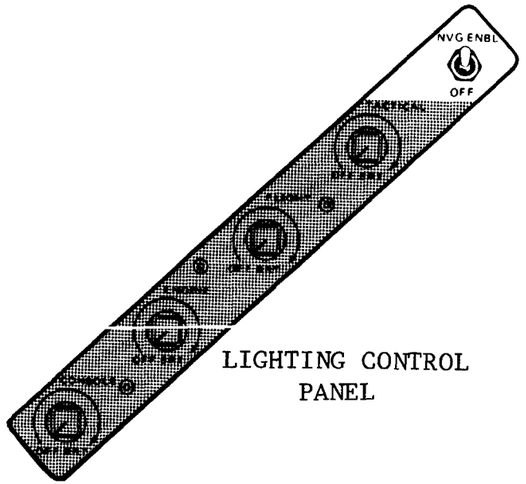
(1) RND REM, ZONE ARM and thumbwheel switch lights on ROCKETS display unit initially go off and then increase in brightness.

(2) Edge lit panel lights on ROCKETS display unit increase in brightness from off to full bright.



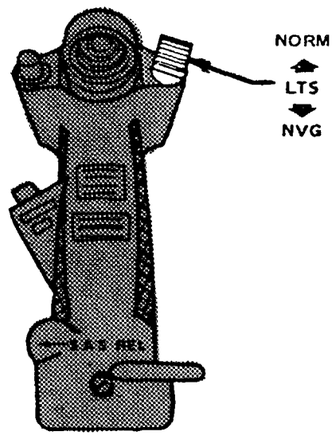


aq. Set NVG ENBL switch on lighting control panel to NVG ENBL.



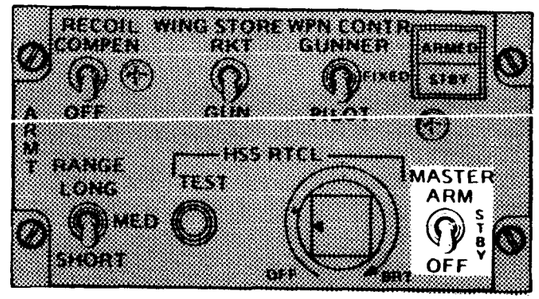
LIGHTING CONTROL PANEL

ar. Set LTS switch on pilot cyclic stick to NVG. Observe that all lighting on ROCKETS display unit goes out or becomes very dim. Set LTS switch to NORM. Observe that all lighting returns to original brightness.



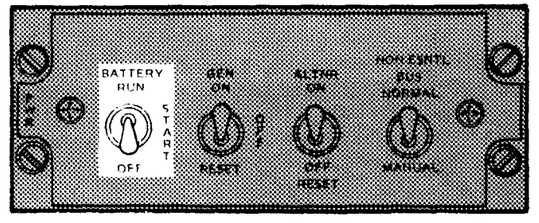
PILOT CYCLIC STICK

as. Set MASTER ARM switch on pilot ARMT control panel to OFF.



PILOT ARMT CONTROL PANEL

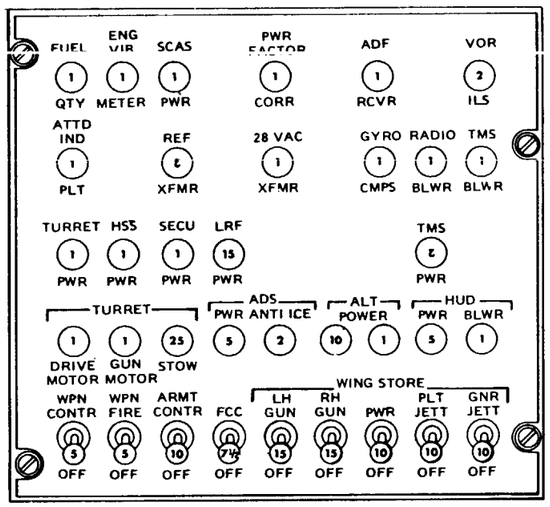
at. Set BATTERY switch on electrical PWR control panel to OFF.



ELECTRICAL PWR CONTROL PANEL

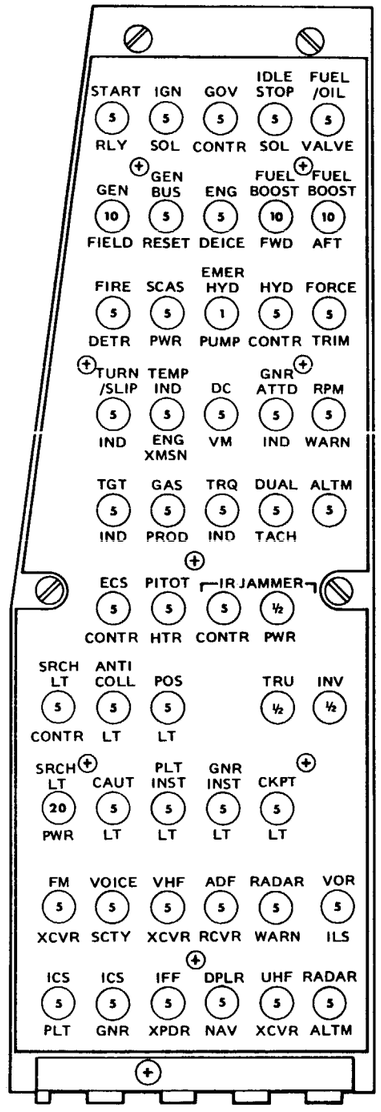
5-2. RMS OPERATIONAL CHECK (CONTINUED).

au. Open (OFF) all circuit breakers on AC/ARMT circuit breaker panel.



AC/ARMT CIRCUIT BREAKER PANEL

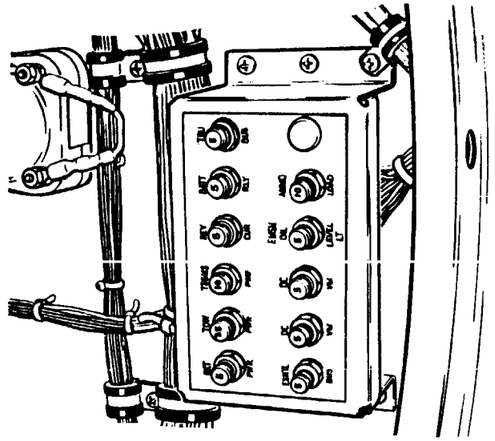
av. Open all circuit breakers on DC circuit breaker panel.



DC CIRCUIT BREAKER PANEL

aw. Turn off and disconnect ground power unit.

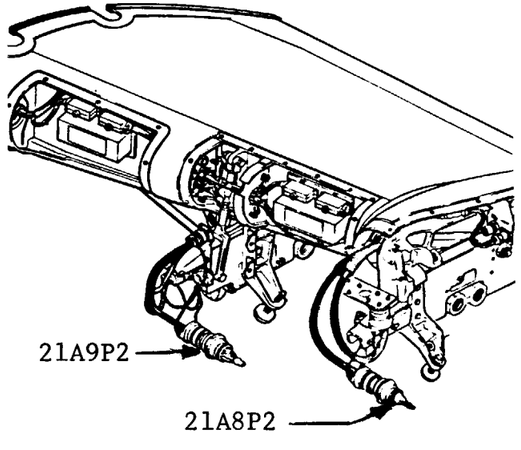
ax. Open all circuit breakers on circuit breaker panel in battery compartment.



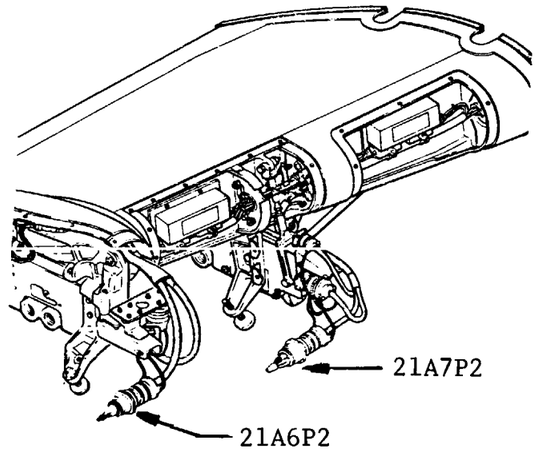
CIRCUIT BREAKER PANEL

ay. Disconnect battery.

az. Remove RMS rocket present simulators from electrical connector 21A8P2 and 21A9P2. Stow connectors on respective dummy receptacles.



ba. Remove RMS rocket present simulators from electrical connectors 21A6P2 and 21A7P2. Stow connectors on respective dummy receptacles.



5-3. POWER OFF/POWER ON PROCEDURES.

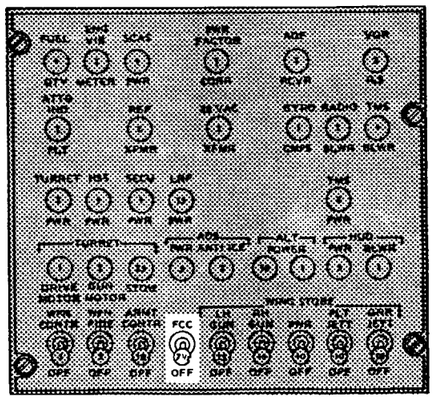
INITIAL SETUP

Applicable Configuration
All

Personnel Required
68J (1)

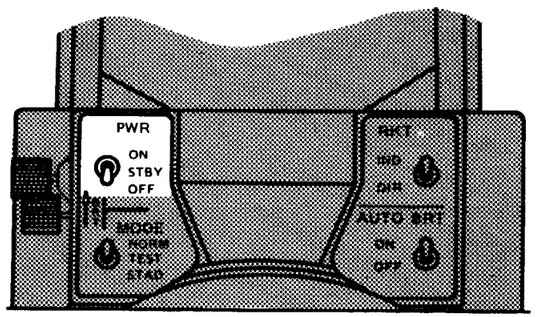
a. Turn off electrical power when specified in troubleshooting procedure as follows:

(1) Open (OFF) FCC circuit breaker on AC/ARMT circuit breaker panel.



AC/ARMT CIRCUIT BREAKER PANEL

(2) Set PWR switch on HUD to OFF.

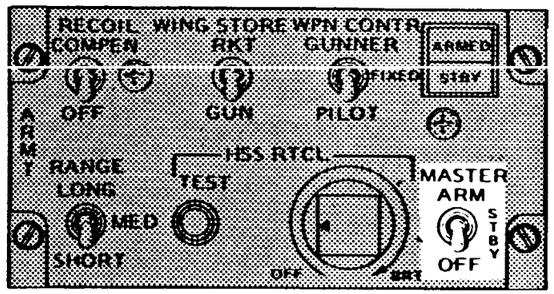


HUD

NOTE

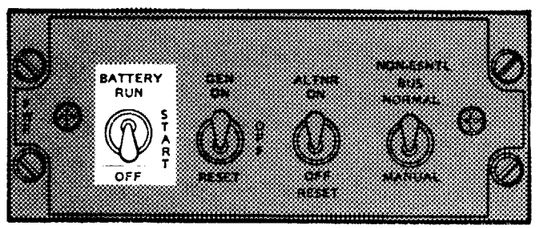
Note the position that the MASTER ARM switch is in. The MASTER ARM switch must be set to the same position during the Power On Procedure.

(3) Set MASTER ARM switch on pilot ARMT control panel to OFF.



PILOT ARMT CONTROL PANEL

(4) Set BATTERY switch on pilot electrical PWR control panel to OFF.



ELECTRICAL PWR CONTROL PANEL

(5) Turn off ground power unit.

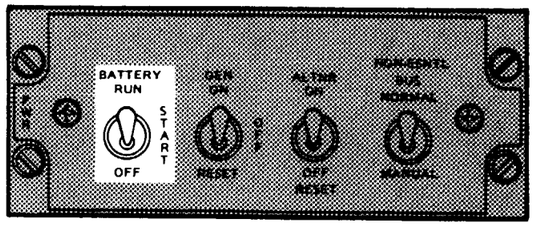
(6) Disconnect battery.

b. Turn on electrical power when specified in troubleshooting procedure as follows:

(1) Connect battery.

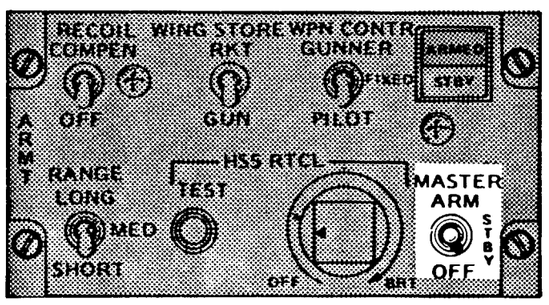
(2) Turn on ground power unit.

(3) Set BATTERY switch on pilot electrical PWR control panel to RUN.



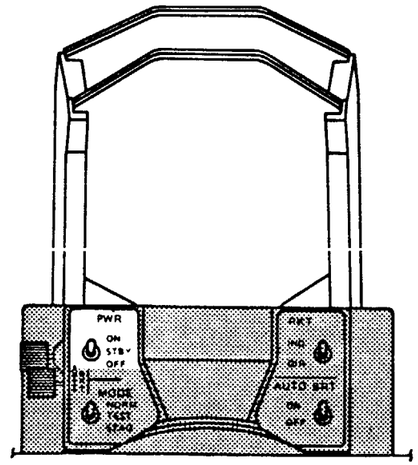
ELECTRICAL PWR CONTROL PANEL

(4) Set MASTER ARM switch on pilot ARMT control panel to the same position the switch was in prior to Power Off Procedure.



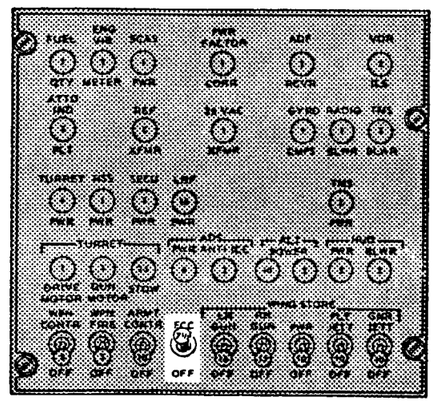
PILOT ARMT CONTROL PANEL

(5) Set PWR switch on HUD to ON.



HUD

(6) Close FCC circuit breaker on AC/ARMT circuit breaker panel.



AC/ARMT CIRCUIT BREAKER PANEL

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5-4. RND REM DISPLAYS INCORRECT INVENTORY IN ONE OR MORE ZONES.

INITIAL SETUP

Applicable Configuration
All

Tools/Test and Support Equipment
Multimeter

Tool Set, A/C Armament Repairman

Personnel Required
68J (2)

References
TM 9-1090-207-13

Access Panels
Nose Fairing on Right Wing Inboard Pylon - Removed

Nose Fairing on Right Wing Outboard Pylon - Removed

Right Wing Outboard Leading Edge Cover - Removed

Right Wing Inboard Leading Edge Cover - Removed

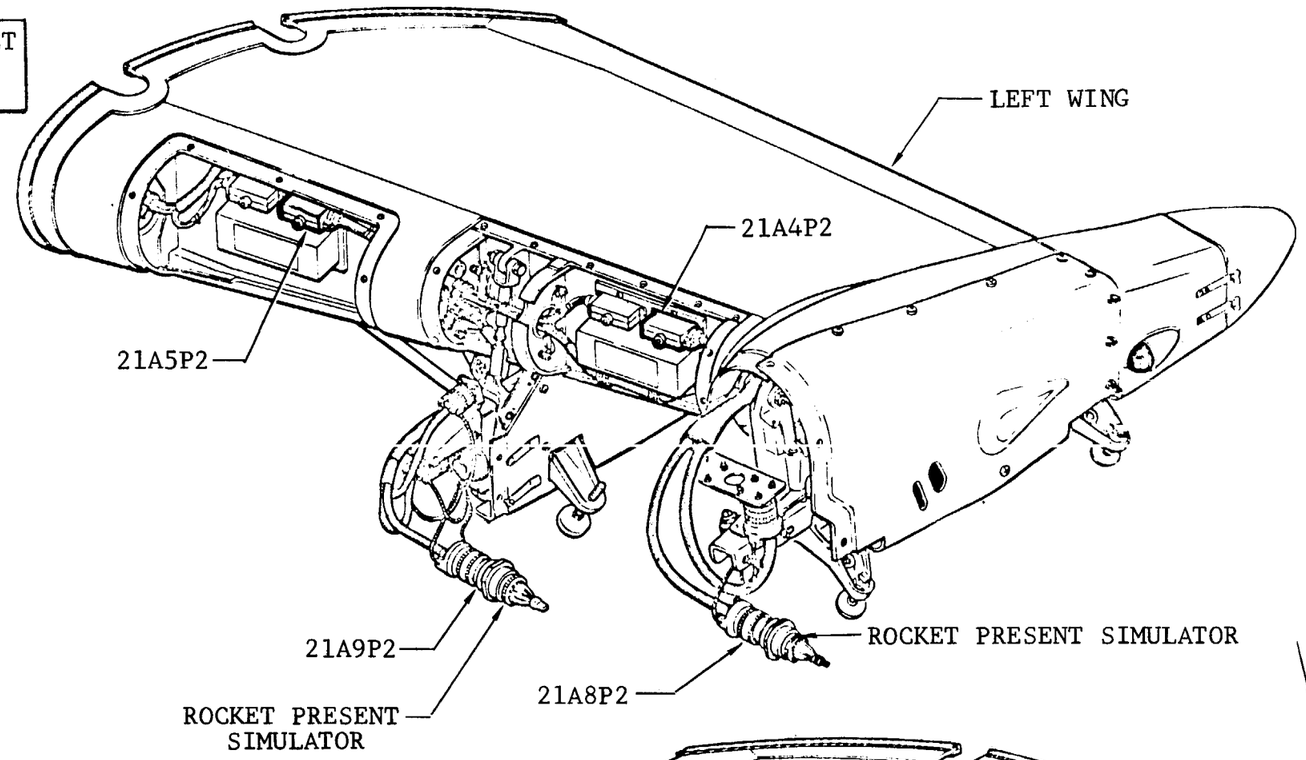
Nose Fairing on Left Wing Inboard Pylon - Removed

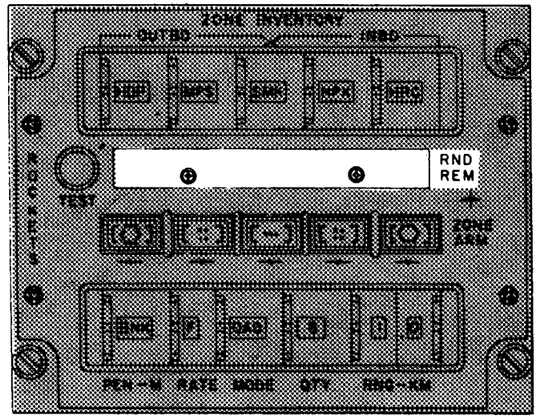
Nose Fairing on Left Wing Outboard Pylon - Removed

Left Wing Outboard Leading Edge Cover - Removed

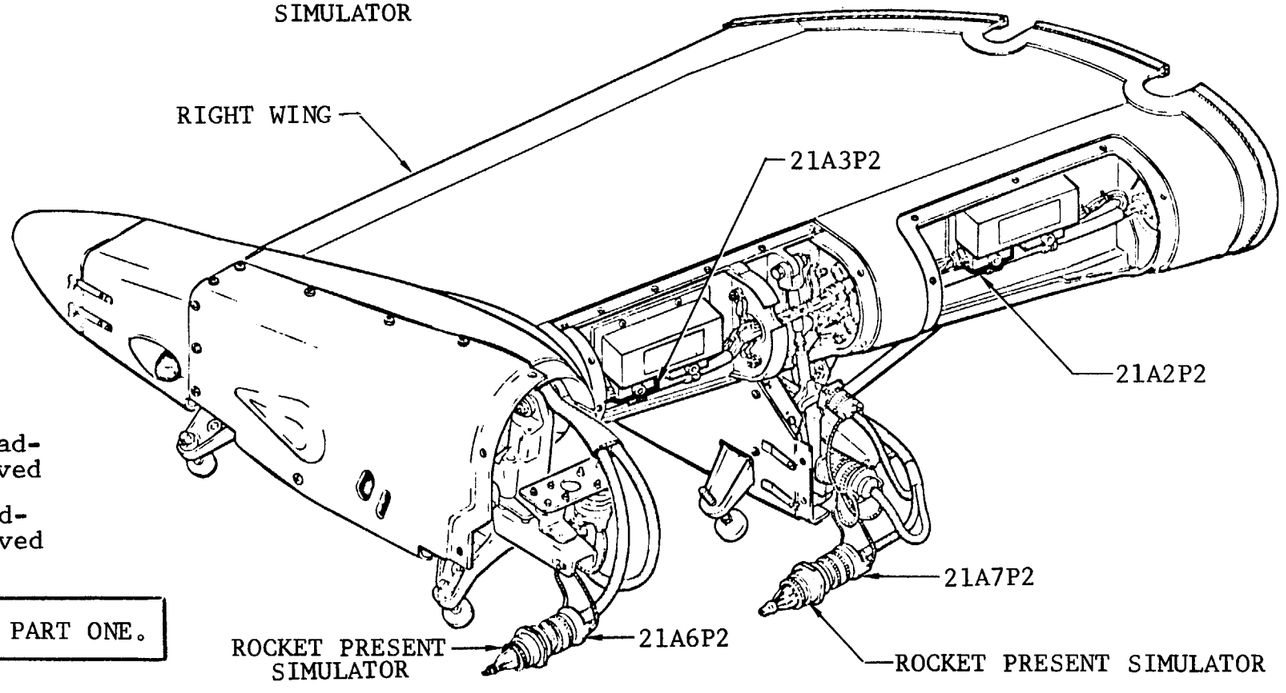
Left Wing Inboard Leading Edge Cover - Removed

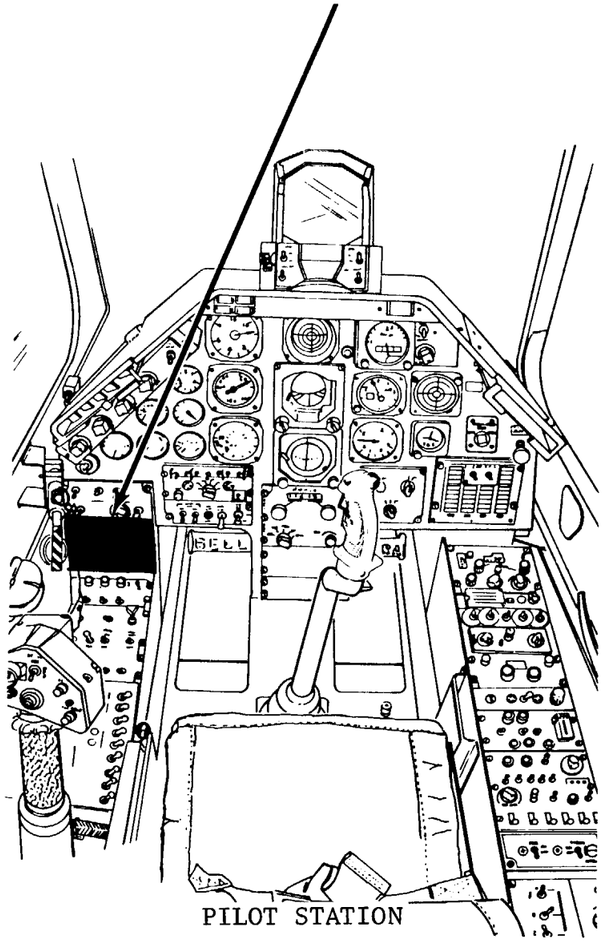
A. TROUBLESHOOTING LOGIC PART ONE.





ROCKETS DISPLAY UNIT

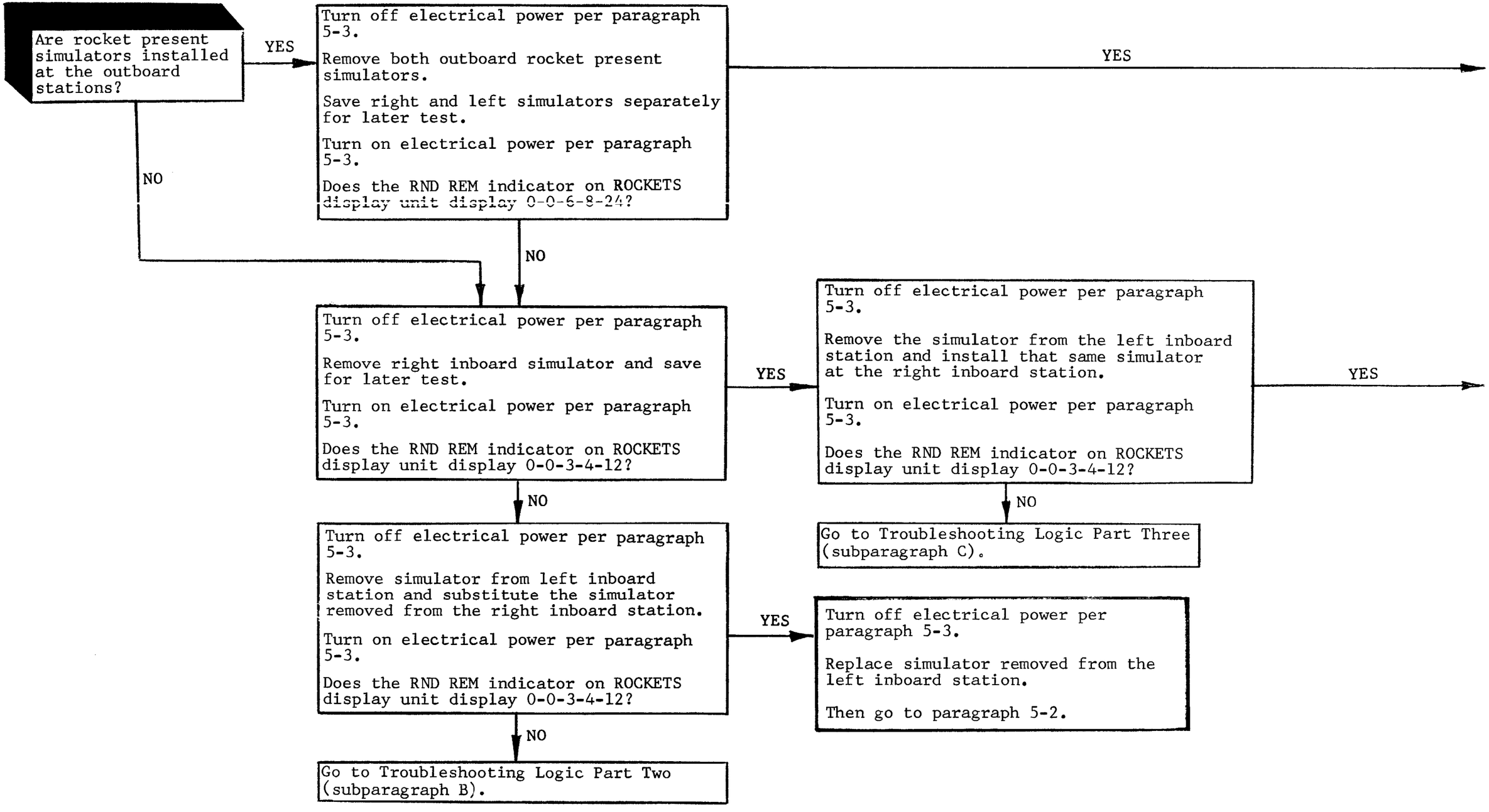




PILOT STATION

5-4. RND REM DISPLAYS INCORRECT INVENTORY IN ONE OR MORE ZONES (CONTINUED).

A. TROUBLESHOOTING LOGIC PART ONE (CONTINUED).



5-4. RND REM DISPLAYS INCORRECT INVENTORY IN ONE OR MORE ZONES (CONTINUED).
A. TROUBLESHOOTING LOGIC PART ONE (CONTINUED).

YES

Turn off electrical power per paragraph 5-3.

Install the left outboard simulator.

Remove both inboard simulators and keep separate.

Turn on electrical power per paragraph 5-3.

Does RND REM indicator on ROCKETS display unit display 12-4-3-0-0?

YES

NO

YES

Turn off electrical power per paragraph 5-3.

Replace the simulator removed from the right inboard station.

Then go to paragraph 5-2.

Turn off electrical power per paragraph 5-3.

Remove simulator from left outboard station and substitute the simulator removed from the right outboard station.

Turn on electrical power per paragraph 5-3.

Does the RND REM indicator on ROCKETS display unit display 12-4-3-0-0?

YES

Turn off electrical power per paragraph 5-3.

Replace the simulator removed from left outboard station.

Then go to paragraph 5-2.

NO

Go to Troubleshooting Logic Part Four (subparagraph D).

5-4. RND REM DISPLAYS INCORRECT INVENTORY IN ONE OR MORE ZONES (CONTINUED).

A. TROUBLESHOOTING LOGIC PART ONE (CONTINUED).

YES

Turn off electrical power per paragraph 5-3.

Remove the left outboard simulator and install that same simulator at the right outboard station.

Turn on electrical power per paragraph 5-3.

Does the RND REM indicator on ROCKETS display unit display 12-4-3-0-0?

YES

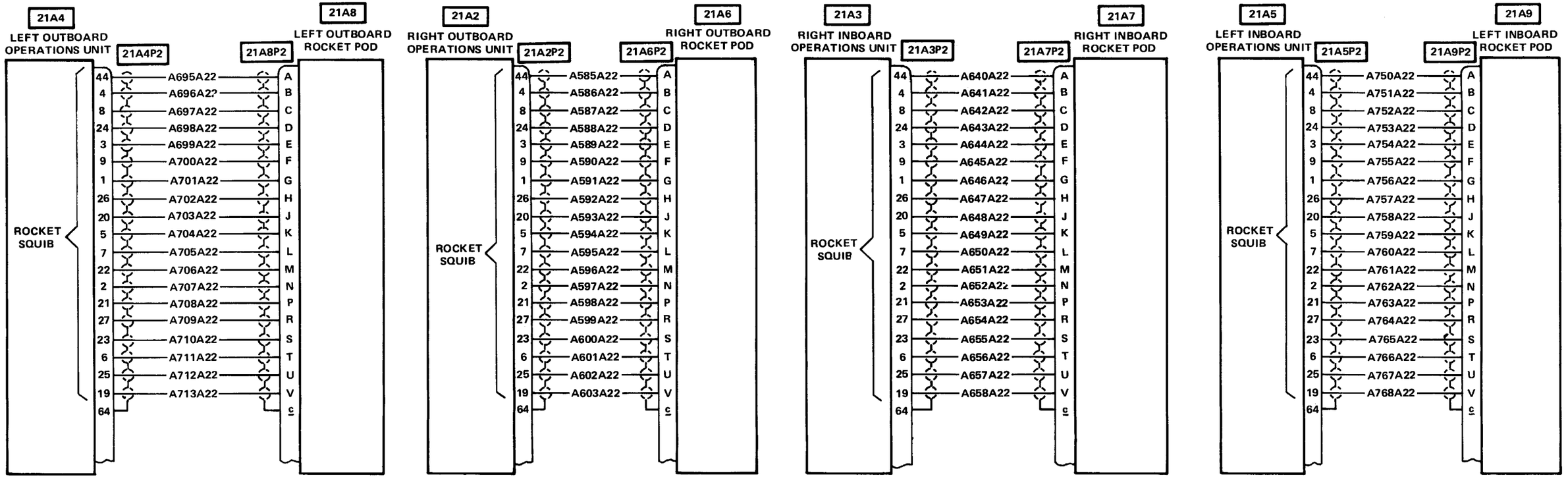
Turn off electrical power per paragraph 5-3.

Replace the simulator removed from the right outboard station.

Then go to paragraph 5-2.

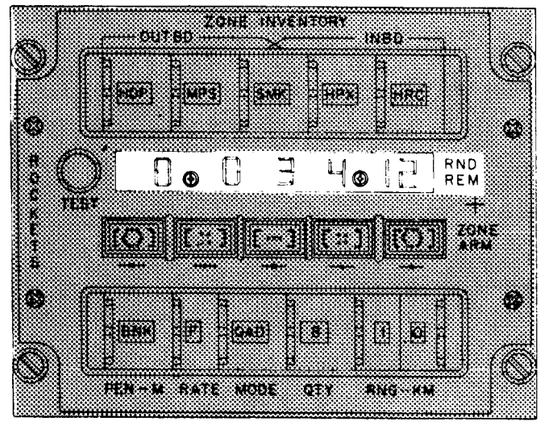
NO

Go to Troubleshooting Logic Part Five (subparagraph E).

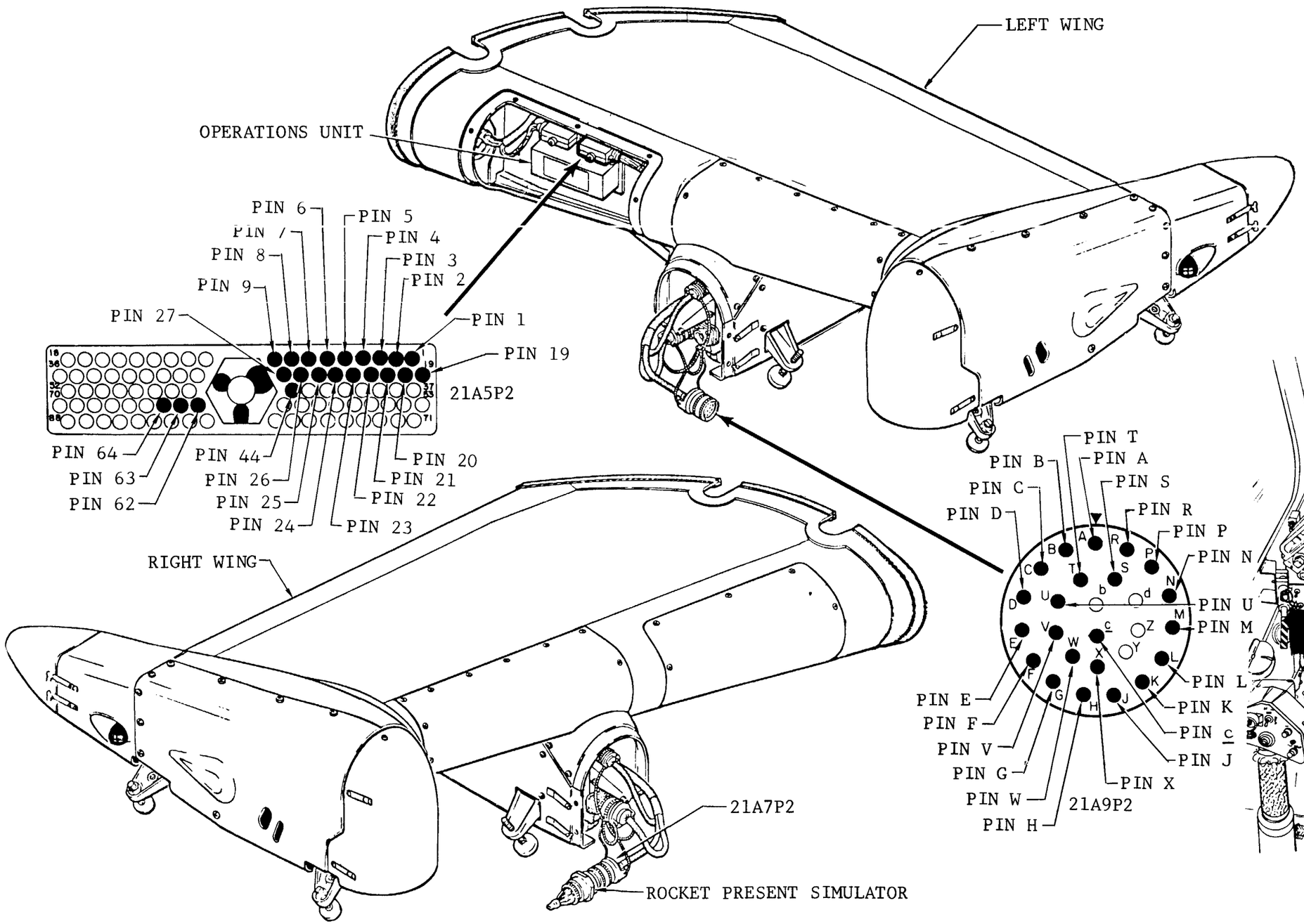


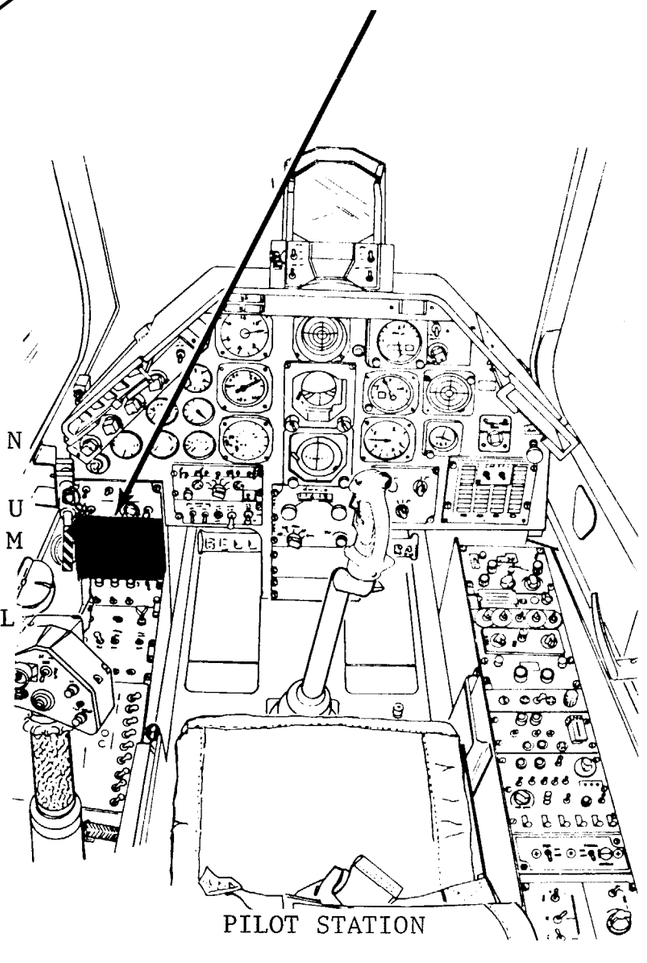
5-4. RND REM DISPLAYS INCORRECT INVENTORY IN ONE OR MORE ZONES (CONTINUED).

B. TROUBLESHOOTING LOGIC PART TWO.



ROCKETS DISPLAY UNIT





5-4. RND REM DISPLAYS INCORRECT INVENTORY IN ONE OR MORE ZONES (CONTINUED).

B. TROUBLESHOOTING LOGIC PART TWO (CONTINUED).

Turn off electrical power per paragraph 5-3.

Remove rocket present simulator from left inboard station and install at the right inboard station.

Turn on electrical power per paragraph 5-3.

Does the RND REM indicator on ROCKETS display unit display 0-0-3-4-12?

YES

Turn off electrical power per paragraph 5-3.

Remove simulator from the right inboard station.

Check the following wires for continuity:

WIRE NO.	FROM 21A5P2 PIN NO.	TO 21A9P2 PIN NO.
A750A22	-44	-A
A751A22	-4	-B
A752A22	-8	-C
A753A22	-24	-D
A754A22	-3	-E
A755A22	-9	-F
A756A22	-1	-G
A757A22	-26	-H
A758A22	-20	-J
A759A22	-5	-K
A760A22	-7	-L
A761A22	-22	-M
A762A22	-2	-N
A763A22	-21	-P
A764A22	-27	-R
A765A22	-23	-S
A766A22	-6	-T
A767A22	-25	-U
A768A22	-19	-V
A769A22	-62	-W
A770A22	-63	-X
Shield	-64	-c

Is continuity present at all wires?

YES

Check the following pins for continuity to connector backshell and to airframe ground.

ON 21A5P2 CHECK PIN	WIRE NO.	GOES TO 21A9P2, PIN
-62	A769A22	-W
-63	A770A22	-X
-64	SHIELDS	-c

Is continuity present at any of above tests?

YES

NO

NO

Repair defective wire(s).

Then go to paragraph 5-2.

NO

Turn off electrical power per paragraph 5-3.

Replace the ROCKETS display unit per TM 9-1090-207-13, Chapter 4, Section IV.

Then go to paragraph 5-2.

5-4. RND REM DISPLAYS INCORRECT INVENTORY IN ONE OR MORE ZONES (CONTINUED).
B. TROUBLESHOOTING LOGIC PART TWO (CONTINUED).

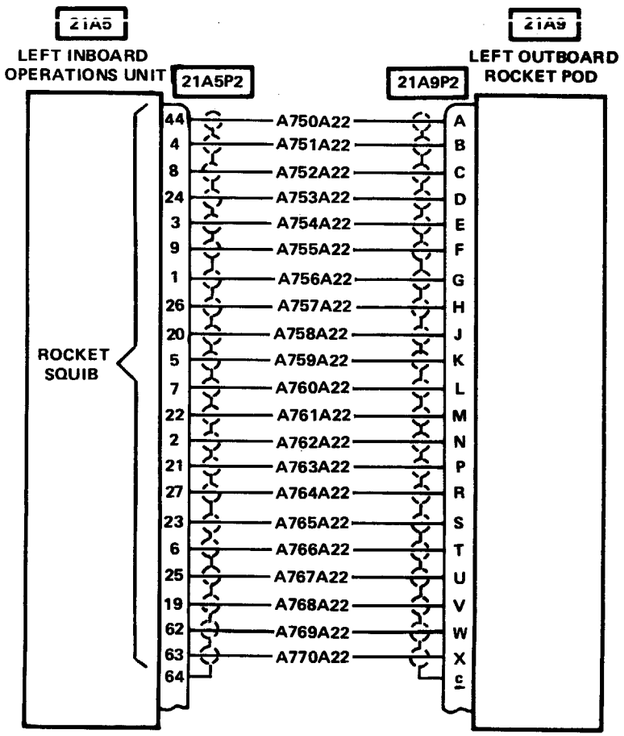
Check for continuity to 21A5P2-64 from each of the following pins on 21A5P2:

ON 21A5P2 CHECK PIN	WIRE NO.	GOES TO 21A9P2, PIN
-44	A750A22	-A
-4	A751A22	-B
-8	A752A22	-C
-24	A753A22	-D
-3	A754A22	-E
-9	A755A22	-F
-1	A756A22	-G
-26	A757A22	-H
-20	A758A22	-J
-5	A759A22	-K
-7	A760A22	-L
-22	A761A22	-M
-2	A762A22	-N
-21	A763A22	-P
-27	A764A22	-R
-23	A765A22	-S
-6	A766A22	-T
-25	A767A22	-U
-19	A768A22	-V
-62	A769A22	-W
-63	A770A22	-X

Is continuity present in any of above tests?

YES → Repair defective wire(s) to eliminate short(s).
Then go to paragraph 5-2.

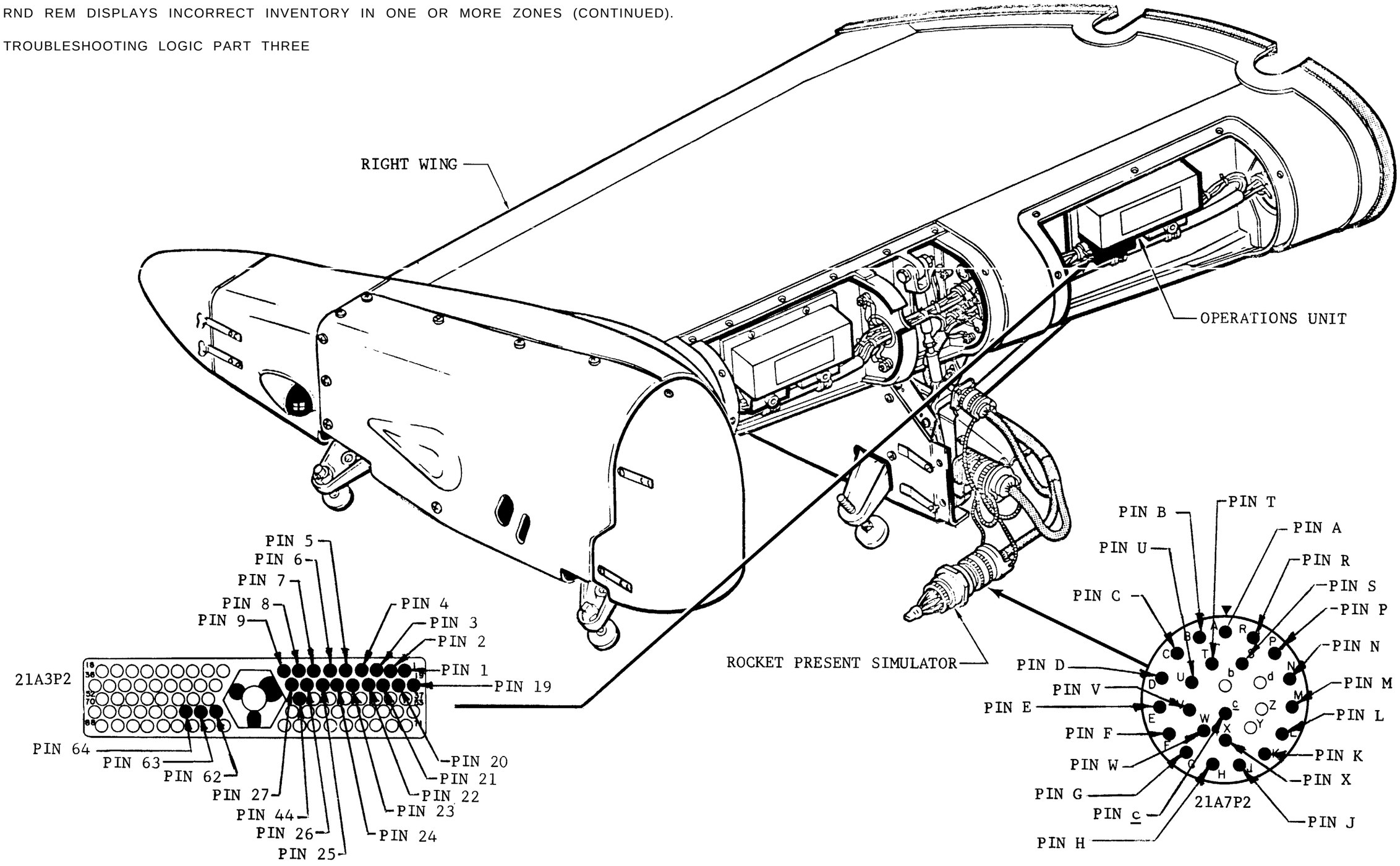
NO → Replace left inboard operations unit per TM 9-1090-207-13, Chapter 4, Section IV.
Then go to paragraph 5-2.



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5-4. RND REM DISPLAYS INCORRECT INVENTORY IN ONE OR MORE ZONES (CONTINUED).

C. TROUBLESHOOTING LOGIC PART THREE



5-4. RND REM DISPLAYS INCORRECT INVENTORY IN ONE OR MORE ZONES (CONTINUED).

C. TROUBLESHOOTING LOGIC PART THREE (CONTINUED).

Turn off electrical power per paragraph 5-3.

Remove rocket present simulator from the right inboard station.

Check the following wires for continuity:

WIRE NO.	FROM 21A3P2 PIN NO.	TO 21A7P2 PIN NO.
A640A22	-44	-A
A641A22	-4	-B
A642A22	-8	-C
A643A22	-24	-D
A644A22	-3	-E
A645A22	-9	-F
A646A22	-1	-G
A647A22	-26	-H
A648A22	-20	-J
A649A22	-5	-K
A650A22	-7	-L
A651A22	-22	-M
A652A22	-2	-N
A653A22	-21	-P
A654A22	-27	-R
A655A22	-23	-S
A656A22	-6	-T
A657A22	-25	-U
A658A22	-19	-V
A659A22	-62	-W
A660A22	-63	-X
SHIELD	-64	-c

Is continuity present on all wires?

YES → Check the following pins for continuity to connector backshell and to airframe ground.

ON 21A3P2 CHECK PIN	WIRE NO.	GOES TO 21A7P2, PIN
-62	A659A22	-W
-63	A660A22	-X
-64	SHIELDS	-c

Is continuity present in any of above tests?

YES → Repair defective wire(s) to eliminate short(s).
Then continue troubleshooting.

NO → Check for continuity to 21A3P2-64 from each of the following pins on 21A3P2.

CHECK PIN	WIRE NO.	GOES TO 21A7P2, PIN
-44	A640A22	-A
-4	A641A22	-B
-8	A642A22	-C
-24	A643A22	-D
-3	A644A22	-E
-9	A645A22	-F
-1	A646A22	-G
-26	A647A22	-H
-20	A648A22	-J
-5	A649A22	-K
-7	A650A22	-L
-22	A651A22	-M
-2	A652A22	-N
-21	A653A22	-P
-27	A654A22	-R
-23	A655A22	-S
-6	A656A22	-T
-25	A657A22	-U
-19	A658A22	-V
-62	A659A22	-W
-63	A660A22	-X

Is continuity present in any of above tests?

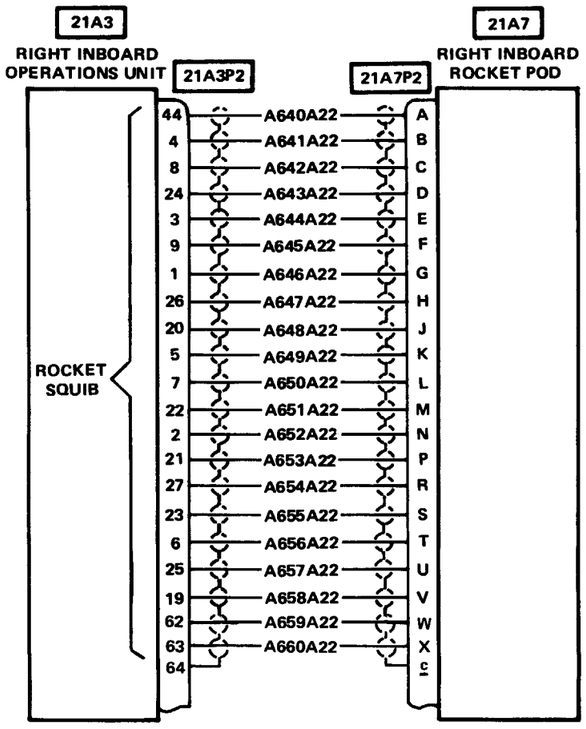
YES → Repair defective wire(s) to eliminate short(s).
Then go to paragraph 5-2.

NO → Repair right inboard operations unit per TM 9-1090-207-13, Chapter 4, Section IV.

Then go to paragraph 5-2.

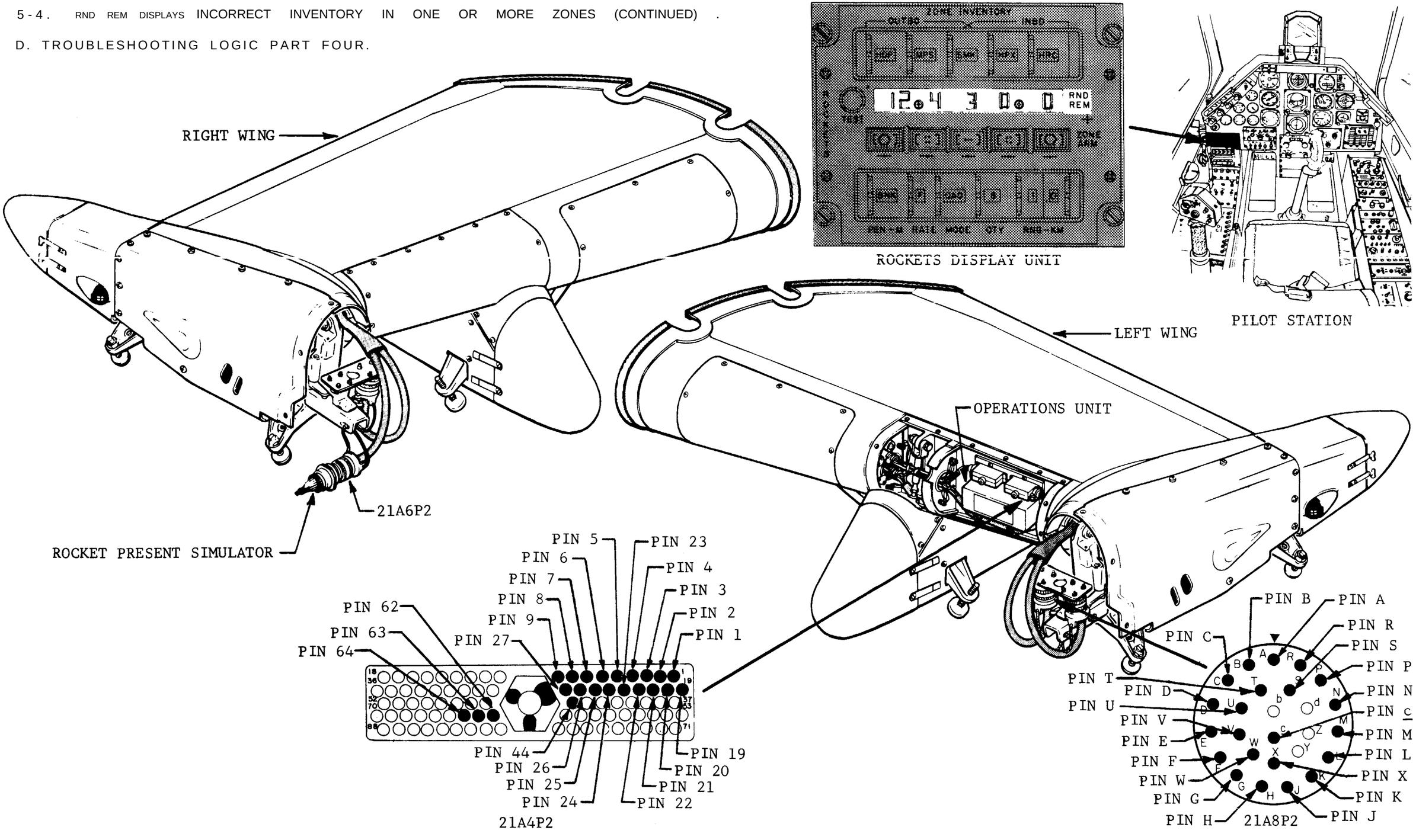
NO → Repair defective wire(s).

Then go to paragraph 5-2.



5-4. RND REM DISPLAYS INCORRECT INVENTORY IN ONE OR MORE ZONES (CONTINUED) .

D. TROUBLESHOOTING LOGIC PART FOUR.



5-4. RND REM DISPLAYS INCORRECT INVENTORY IN ONE OR MORE ZONES (CONTINUED).

D. TROUBLESHOOTING LOGIC PART FOUR (CONTINUED).

Turn off electrical power per paragraph 5-3.

Remove rocket present simulator from left outboard station and install that same simulator at the right outboard station.

Turn on electrical power per paragraph 5-3.

Does the RND REM indicator on ROCKETS display unit display 12-4-3-0-0?

YES

Turn off electrical power per paragraph 5-3.

Check the following wires for continuity.

WIRE NO.	FROM 21A4P2 PIN NO.	TO 21A8P2 PIN NO.
A695A22	-44	-A
A696A22	-4	-B
A697A22	-8	-C
A698A22	-24	-D
A699A22	-3	-E
A700A22	-9	-F
A701A22	-1	-G
A702A22	-26	-H
A703A22	-20	-J
A704A22	-5	-K
A705A22	-7	-L
A706A22	-22	-M
A707A22	-2	-N
A708A22	-21	-P
A709A22	-27	-R
A710A22	-23	-S
A711A22	-6	-T
A712A22	-25	-U
A713A22	-19	-V
A714A22	-62	-W
A715A22	-63	-X
SHIELD	-64	-c

Is continuity present on all wires?

YES

Check the following pins for continuity to connector backshell and to airframe ground.

ON 21A4P2 CHECK PIN	WIRE NO.	GOES TO 21A8P2, PIN
-62	A714A22	-W
-63	A715A22	-X
-64	SHIELDS	-c

Is continuity present in any of above tests?

YES

NO

Turn off electrical power per paragraph 5-3.

Replace the ROCKETS display unit per TM 9-1090-207-13, Chapter 4, Section IV.

Then go to paragraph 5-2.

NO

Repair defective wire(s).

Then go to paragraph 5-2.

5-4. RND REM DISPLAYS INCORRECT INVENTORY IN ONE OR MORE ZONES (CONTINUED).
D. TROUBLESHOOTING LOGIC PART FOUR (CONTINUED) .

YES → Repair defective wire(s) to eliminate short(s).
Then continue troubleshooting.

NO →

Check for continuity to 21A4P2-64 from each of the following pins on 21A8P2.

CHECK PIN	WIRE NO.	GOES TO 21A8P2, PIN
-44	A695A22	-A
-4	A696A22	-B
-8	A697A22	-C
-24	A698A22	-D
-3	A699A22	-E
-9	A700A22	-F
-1	A701A22	-G
-26	A702A22	-H
-20	A703A22	-J
-5	A704A22	-K
-7	A705A22	-L
-22	A706A22	-M
-2	A707A22	-N
-21	A708A22	-P
-27	A709A22	-R
-23	A710A22	-S
-6	A711A22	-T
-25	A712A22	-U
-19	A713A22	-V
-62	A714A22	-W
-63	A715A22	-X

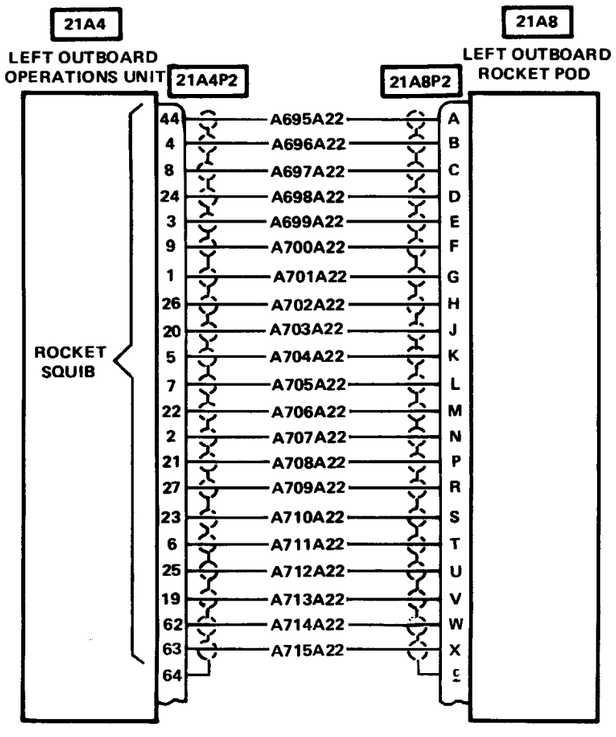
Is continuity present in any of above tests?

YES → Replace left outboard operations unit per TM 9-1090-207-13, Chapter 4, Section IV.

Then go to paragraph 5-2.

NO →

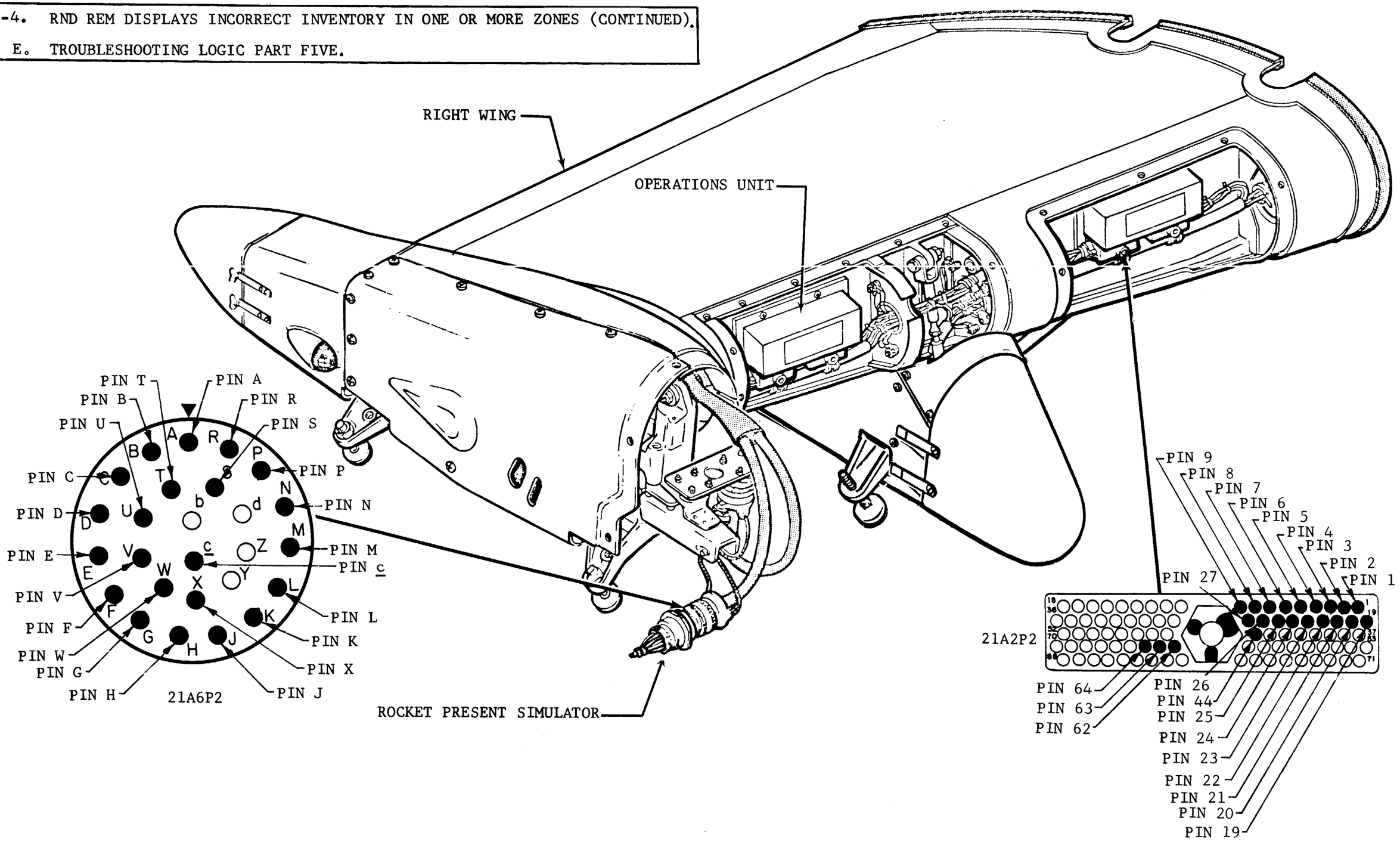
Repair defective wire(s) to eliminate short(s).
Then go to paragraph 5-2.



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5-4. RND REM DISPLAYS INCORRECT INVENTORY IN ONE OR MORE ZONES (CONTINUED).

E. TROUBLESHOOTING LOGIC PART FIVE.



5-4. RND REM DISPLAYS INCORRECT INVENTORY IN ONE OR MORE ZONES (CONTINUED).

E. TROUBLESHOOTING LOGIC PART FIVE (CONTINUED).

Turn off electrical power per paragraph 5-3.

Remove the rocket present simulator from right outboard station.

Check the following wires for continuity:

WIRE NO.	FROM 21A2P2 PIN	TO 21A6P2 PIN
A585A22	-44	-A
A586A22	-4	-B
A587A22	-8	-C
A588A22	-24	-D
A589A22	-3	-E
A590A22	-9	-F
A591A22	-1	-G
A592A22	-26	-H
A593A22	-20	-J
A594A22	-5	-K
A595A22	-7	-L
A596A22	-22	-M
A597A22	-2	-N
A598A22	-21	-P
A599A22	-27	-R
A600A22	-23	-S
A601A22	-6	-T
A602A22	-25	-U
A603A22	-19	-V
A604A22	-62	-W
A605A22	-63	-X
SHIELD	-64	-c

Is continuity present on all wires?

YES

Check the following pins for continuity to connector backshell and to airframe ground.

ON 21A2P2 CHECK PIN	WIRE NO.	GOES TO 21A6P2, PIN
-62	A604A22	-W
-63	A605A22	-X
-64	SHIELDS	-c

Is continuity present in any of above tests?

YES

NO

NO

Repair defective wire(s).

Then go to paragraph 5-2.

5-4. RND REM DISPLAYS INCORRECT INVENTORY IN ONE OR MORE ZONES (CONTINUED).

E. TROUBLESHOOTING LOGIC PART FIVE (CONTINUED).

YES → Repair defective wire(s) to eliminate short(s).
Then continue troubleshooting.

NO →

Check for continuity to 21A2P2-64 from each of the following pins on 21A2P2.

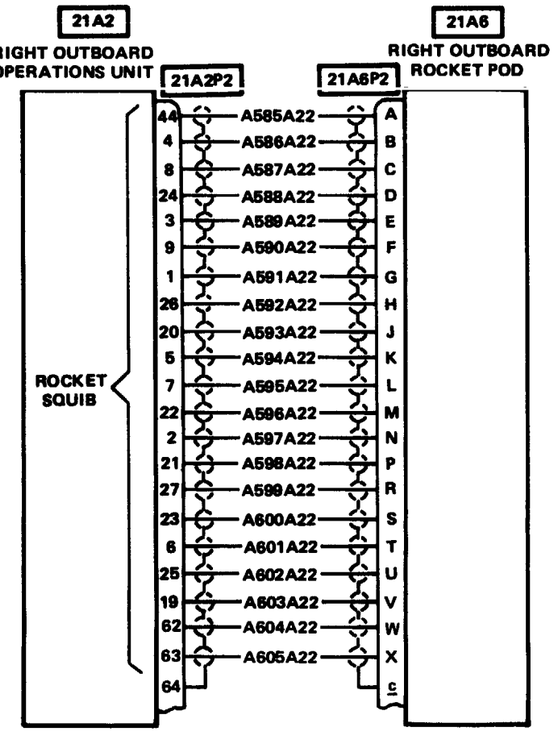
CHECK PIN	WIRE NO.	GOES TO 21A6P2, PIN
-44	A585A22	-A
-4	A586A22	-B
-8	A587A22	-C
-24	A588A22	-D
-3	A589A22	-E
-9	A590A22	-F
-1	A591A22	-G
-26	A592A22	-H
-20	A593A22	-J
-5	A594A22	-K
-7	A595A22	-L
-22	A596A22	-M
-2	A597A22	-N
-21	A598A22	-P
-27	A599A22	-R
-23	A600A22	-S
-6	A601A22	-T
-25	A602A22	-U
-19	A603A22	-V
-62	A604A22	-W
-63	A605A22	-X

Is continuity present in any of above tests?

YES → Repair defective wire(s) to eliminate short(s).
Then go to paragraph 5-2.

NO →

Replace right outboard operations unit per TM 9-1090-207-13, Chapter 4, Section IV.
Then go to paragraph 5-2.



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5-5. RND REM DOES NOT SHOW ZEROS WITH SIMULATORS NOT INSTALLED.

INITIAL SETUP

Applicable Configuration
All

Tools/Test and Support Equipment
Multimeter

Tool Set, A/C Armament Repairman

Personnel Required
68J (1)

References
TM 9-1055-460-14
TM 9-1090-207-13

Access Panels
Nose Fairing on Right Wing Inboard Pylon - Removed

Nose Fairing on Right Wing Outboard Pylon - Removed

Right Wing Outboard Leading Edge Cover - Removed

Right Wing Inboard Leading Edge Cover - Removed

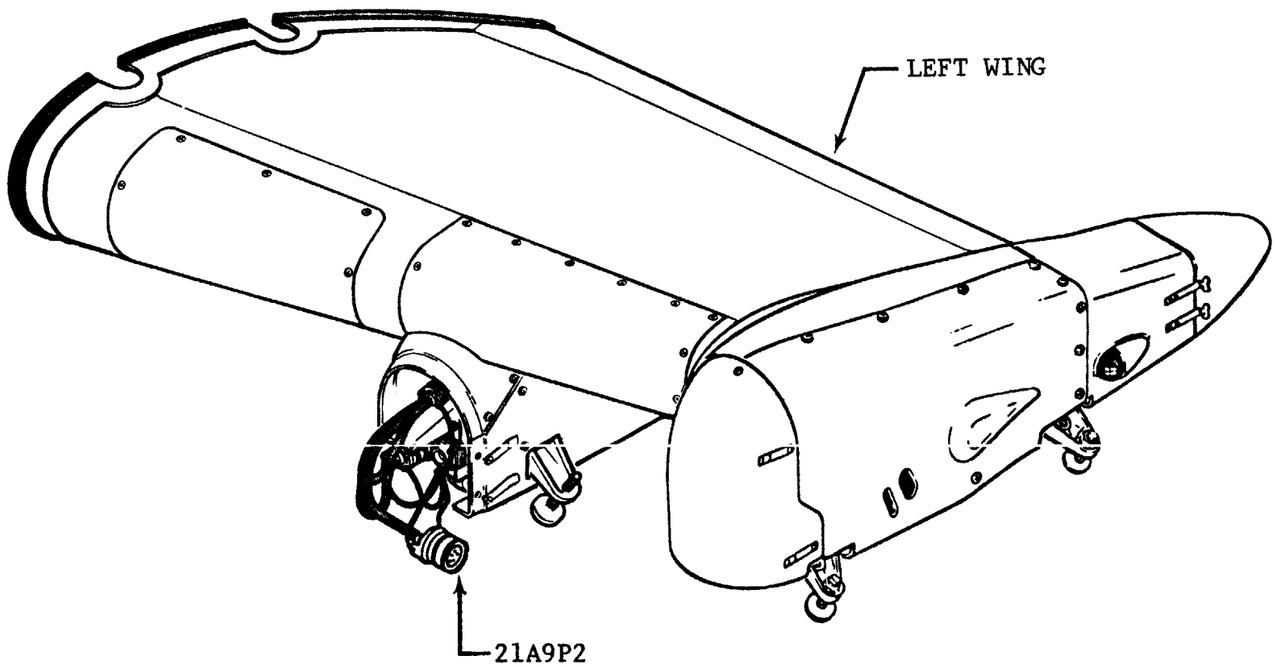
Nose Fairing on Left Wing Inboard Pylon - Removed

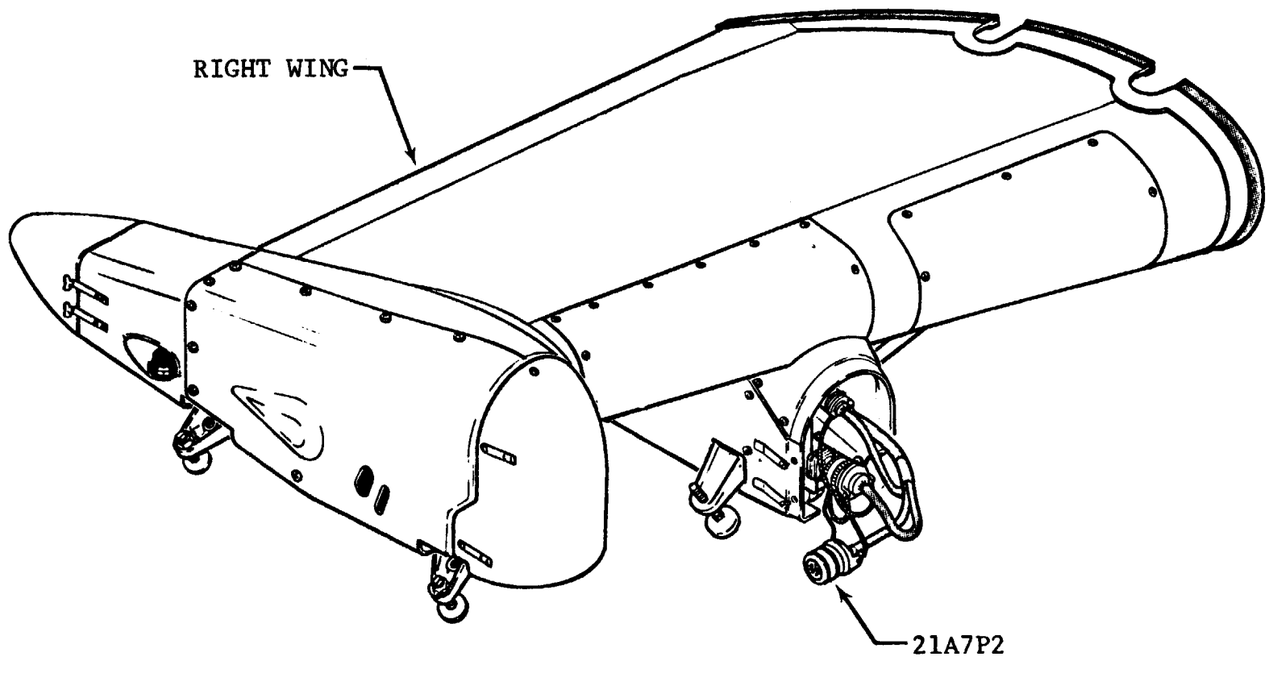
Nose Fairing on Left Wing Outboard Pylon - Removed

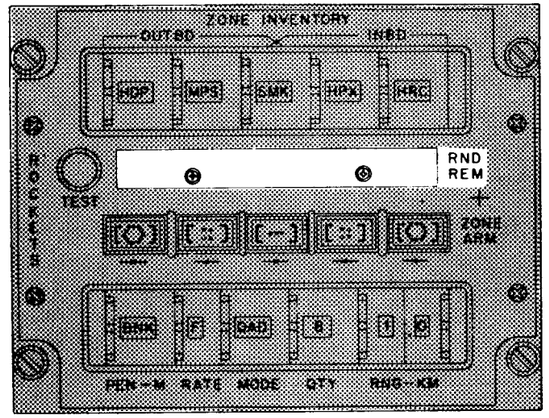
Left Wing Outboard Leading Edge Cover - Removed

Left Wing Inboard Leading Edge Cover - Removed

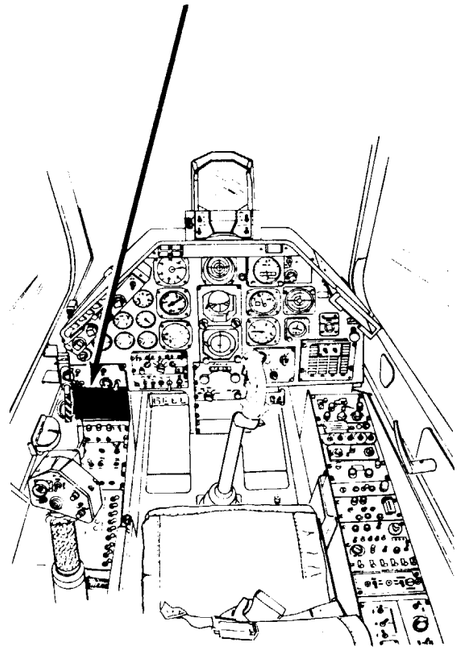
A. TROUBLESHOOTING LOGIC PART ONE.







ROCKETS DISPLAY UNIT



PILOT STATION

5-5. RND REM DOES NOT SHOW ZEROS WITH SIMULATORS NOT INSTALLED (CONTINUED).

A. TROUBLESHOOTING LOGIC PART ONE (CONTINUED).

On ROCKETS display unit:

Is RND REM display blank?

YES → Go to paragraph 5-17.

NO ↓

Observe zones 1 and 2 on RND REM display.

Is a zero present in both zones?

YES → Turn off electrical power per paragraph 5-3.

Are inboard launchers installed and connected?

YES → Disconnect 21A7P2 and 21A9P2.

Turn on electrical power per paragraph 5-3.

Does RND REM display all zeros?

YES →

NO ↓

Turn off electrical power per paragraph 5-3.

Then go to Troubleshooting Logic Part Three (subparagraph C).

NO ↓

Go to Troubleshooting Logic Part Two (subparagraph B).

NO ↓

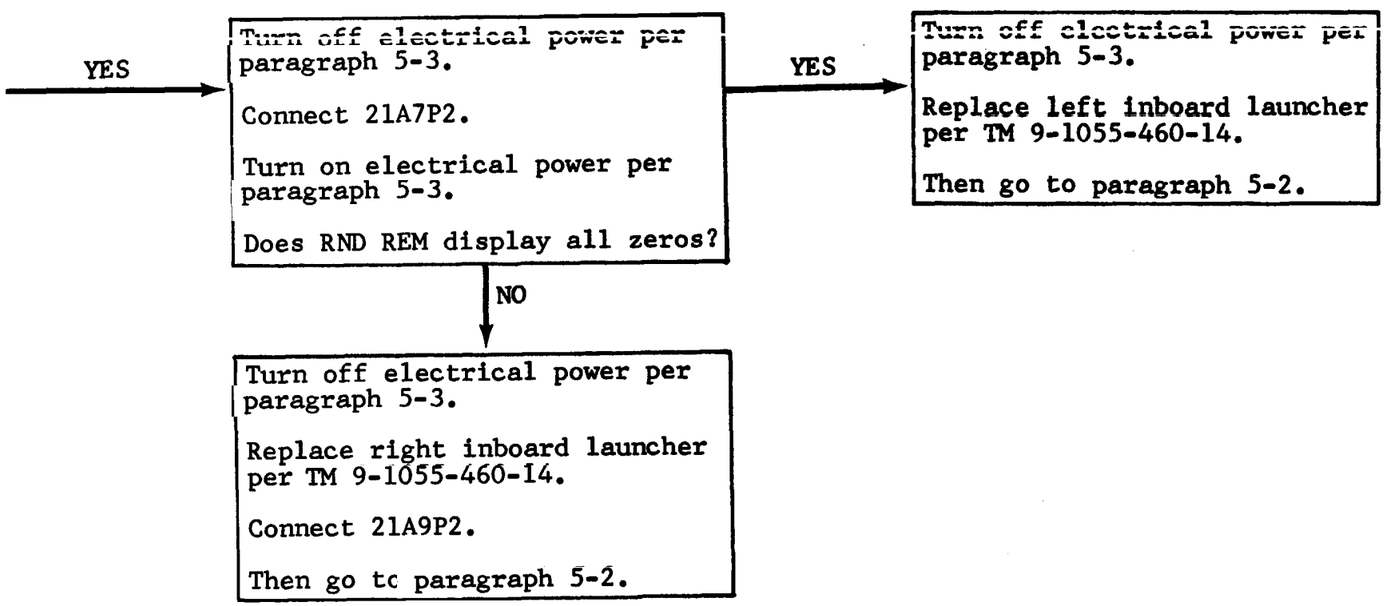
Turn off electrical power per paragraph 5-3.

Connect 21A7P2 and 21A9P2.

Then go to Troubleshooting Logic Part Two (subparagraph B).

5-5. RND REM DOES NOT SHOW ZEROS WITH SIMULATORS NOT INSTALLED (CONTINUED).

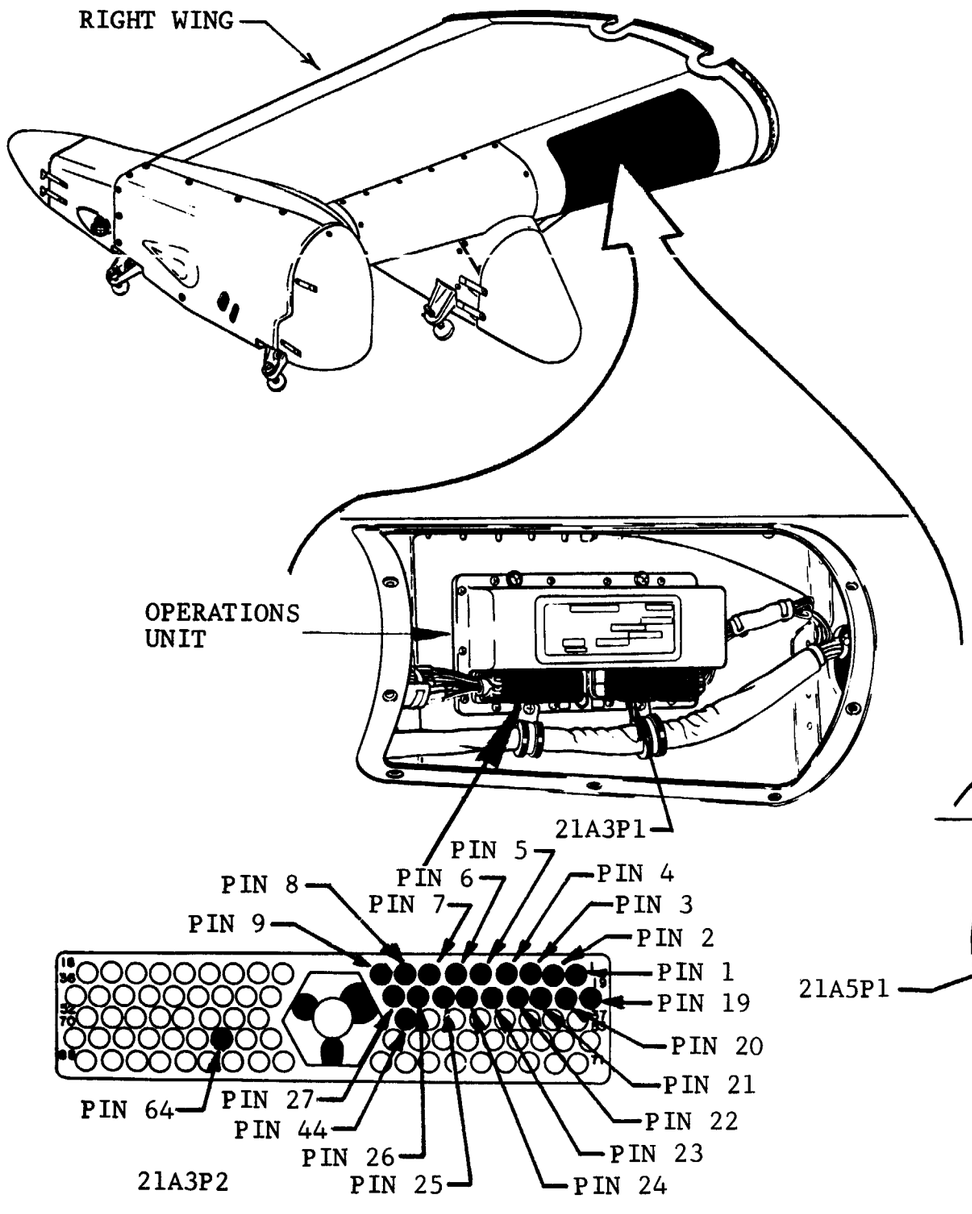
A. TROUBLESHOOTING LOGIC PART ONE (CONTINUED).

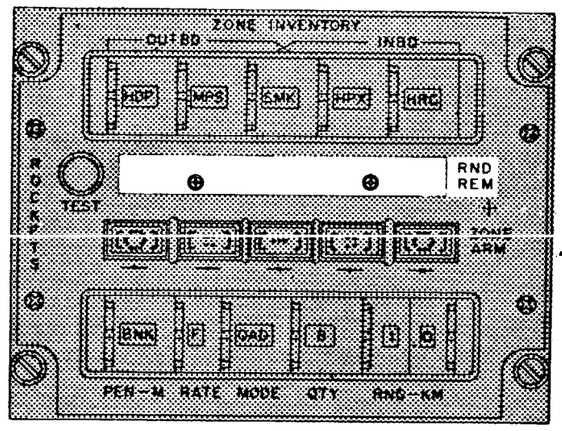


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5-5. RND REM DOES NOT SHOW ZEROS WITH SIMULATIONS NOT INSTALLED (CONTINUED).

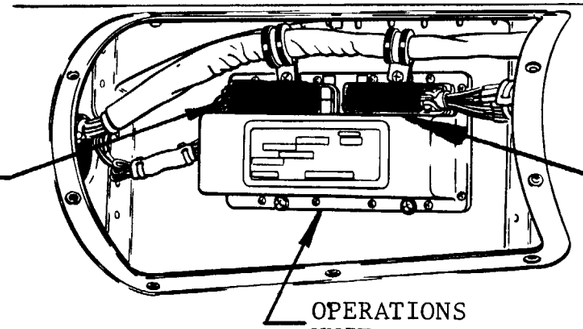
B. TROUBLESHOOTING LOGIC PART TWO.

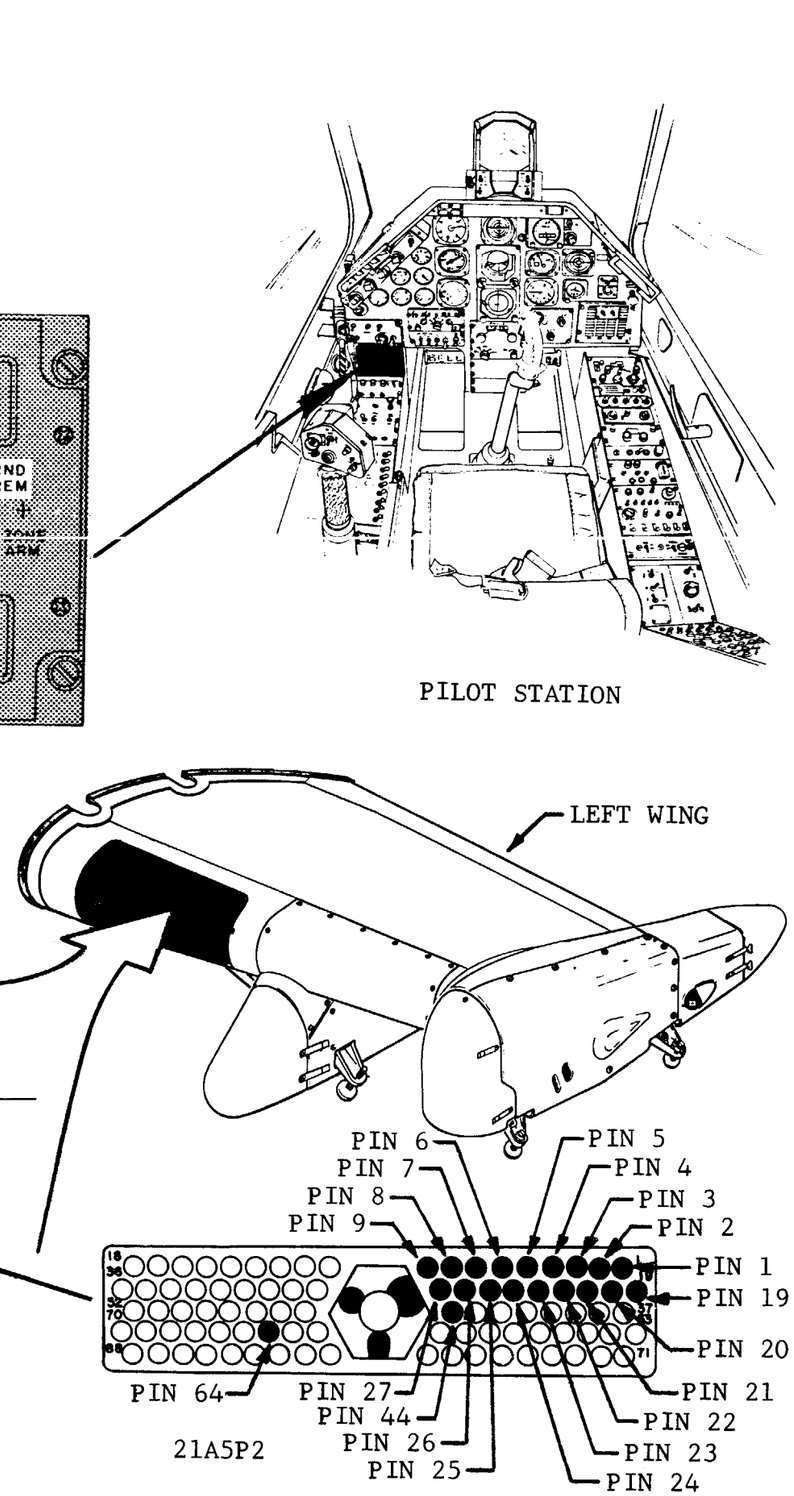




ROCKETS DISPLAY UNIT

PILOT STATION





5-5. RND REM DOES NOT SHOW ZEROS WITH SIMULATORS NOT INSTALLED (CONTINUED).

B. TROUBLESHOOTING LOGIC PART TWO (CONTINUED).

Disconnect 21A3P1.

Turn on electrical power per paragraph 5-3.

Does RND REM display all zeros?

NO

Turn off electrical power per paragraph 5-3.

Disconnect 21A5P1.

Turn on electrical power per paragraph 5-3.

Does RND REM display all zeros?

NO

Turn off electrical power per paragraph 5-3.

Connect 21A3P1 and 21A5P1.

Then go to Troubleshooting Logic Part Three (subparagraph C).

YES

Turn off electrical power per paragraph 5-3.

Check for continuity from each of the following pins on 21A3P2 to:

(1) 21A3P2-64.
(2) 21A3P2 backshell.
(3) Airframe ground.

PIN	WIRE NUMBER
-44	A640A22
-4	A641A22
-8	A642A22
-24	A643A22
-3	A644A22
-9	A645A22
-1	A646A22
-26	A647A22
-20	A648A22
-5	A649A22
-7	A650A22
-22	A651A22
-2	A652A22
-21	A653A22
-27	A654A22
-23	A655A22
-6	A656A22
-25	A657A22
-19	A658A22

Is continuity present in any of the above checks?

NO

Replace right inboard operations unit per TM 9-1090-207-13, Chapter 4, Section IV.

Then go to paragraph 5-2.

YES

Repair defective wire(s) to eliminate short(s).

Connect 21A3P1.

Then go to paragraph 5-2.

YES

5-5. RND REM DOES NOT SHOW ZEROS WITH SIMULATORS NOT INSTALLED (CONTINUED).

B. TROUBLESHOOTING LOGIC PART TWO (CONTINUED).

Turn off all electrical power per paragraph 5-3.

Check for continuity from each of the following pins on 21A5P2 to:

(1) 21A5P2-64.
(2) 21A5P2 backshell.
(3) Airframe ground.

PIN	WIRE NUMBER
-44	A750A22
-4	A751A22
-8	A752A22
-24	A753A22
-3	A754A22
-9	A755A22
-1	A756A22
-26	A757A22
-20	A758A22
-5	A759A22
-7	A760A22
-22	A761A22
-2	A762A22
-21	A763A22
-27	A764A22
-23	A765A22
-6	A766A22
-25	A767A22
-19	A768A22

Is continuity present in any of the above checks?

YES → Repair defective wire(s) to eliminate short(s).

Connect 21A3P1 and 21A5P1.

Then go to paragraph 5-2.

NO → Replace left inboard operations unit per TM 9-1090-207-13, Chapter 4, Section IV.

Connect 21A3P1.

Then go to paragraph 5-2.

YES → Turn off all electrical power per paragraph 5-3.

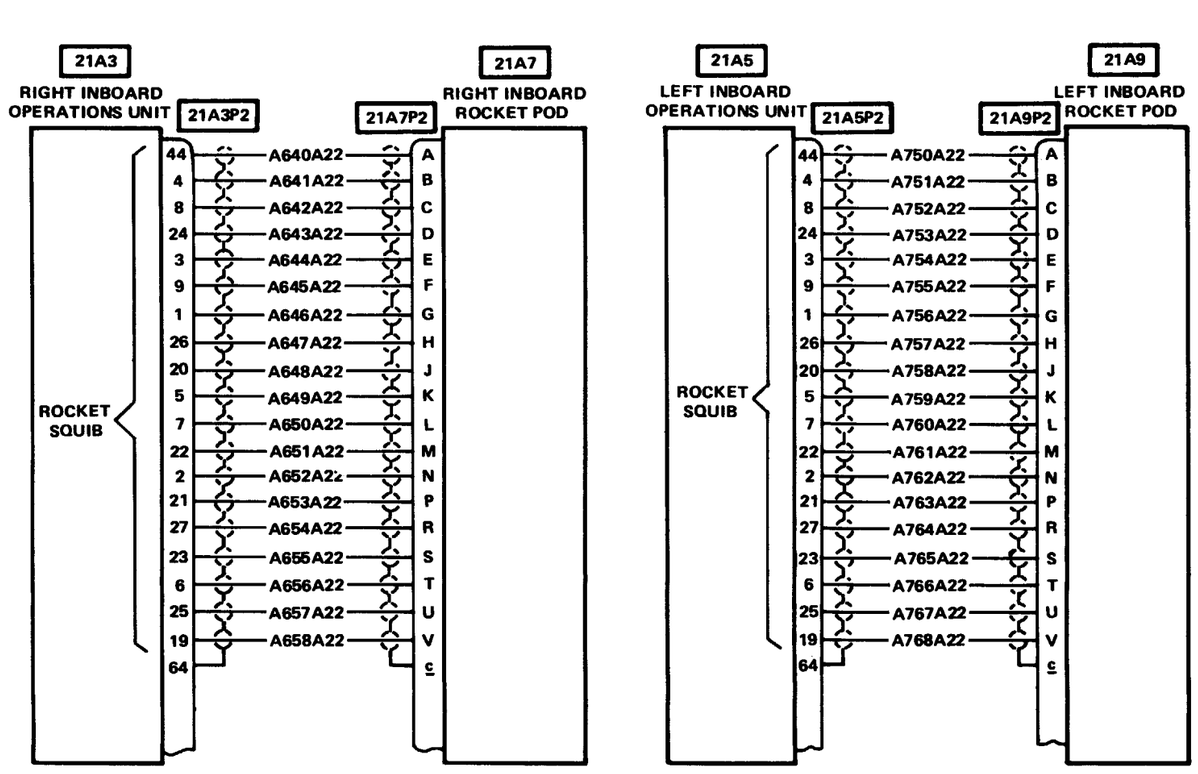
Disconnect 21A3P1 and 21A5P1.

Check for continuity from each of the following pins on 21A3P2 to 21A7P2:

21A3P2	21A7P2
44	A
4	B
8	C
24	D
3	E
9	F
1	G
26	H
20	J
5	K
7	L
22	M
2	N
21	P
27	R
23	S
6	T
25	U
19	V
64	c

Check for continuity from each of the following pins on 21A5P2 to 21A9P2:

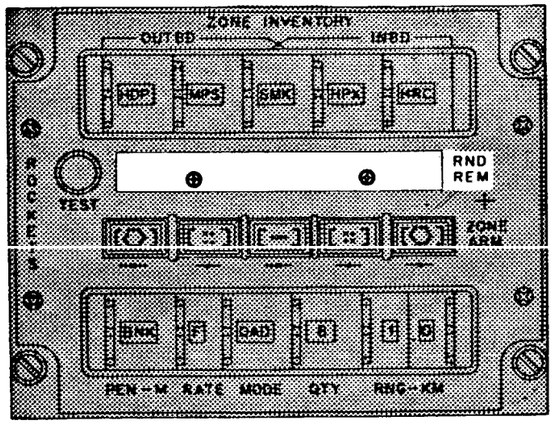
21A5P2	21A9P2
44	A
4	B
8	C
24	D
3	E
9	F
1	G
26	H
20	J
5	K
7	L
22	M
2	N
21	P
27	R
23	S
6	T
25	U
19	V
64	c



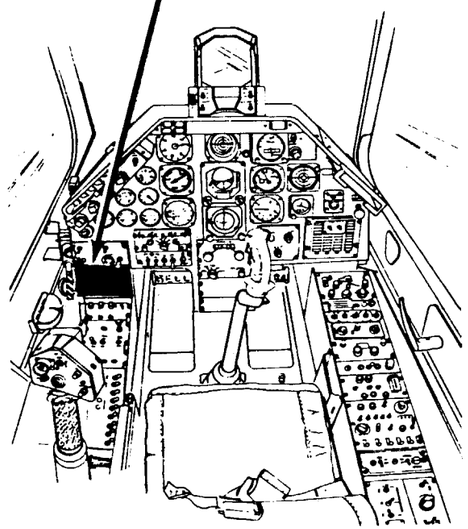
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5-5. RND REM DOES NOT SHOW ZEROS WITH SIMULATORS NOT INSTALLED.

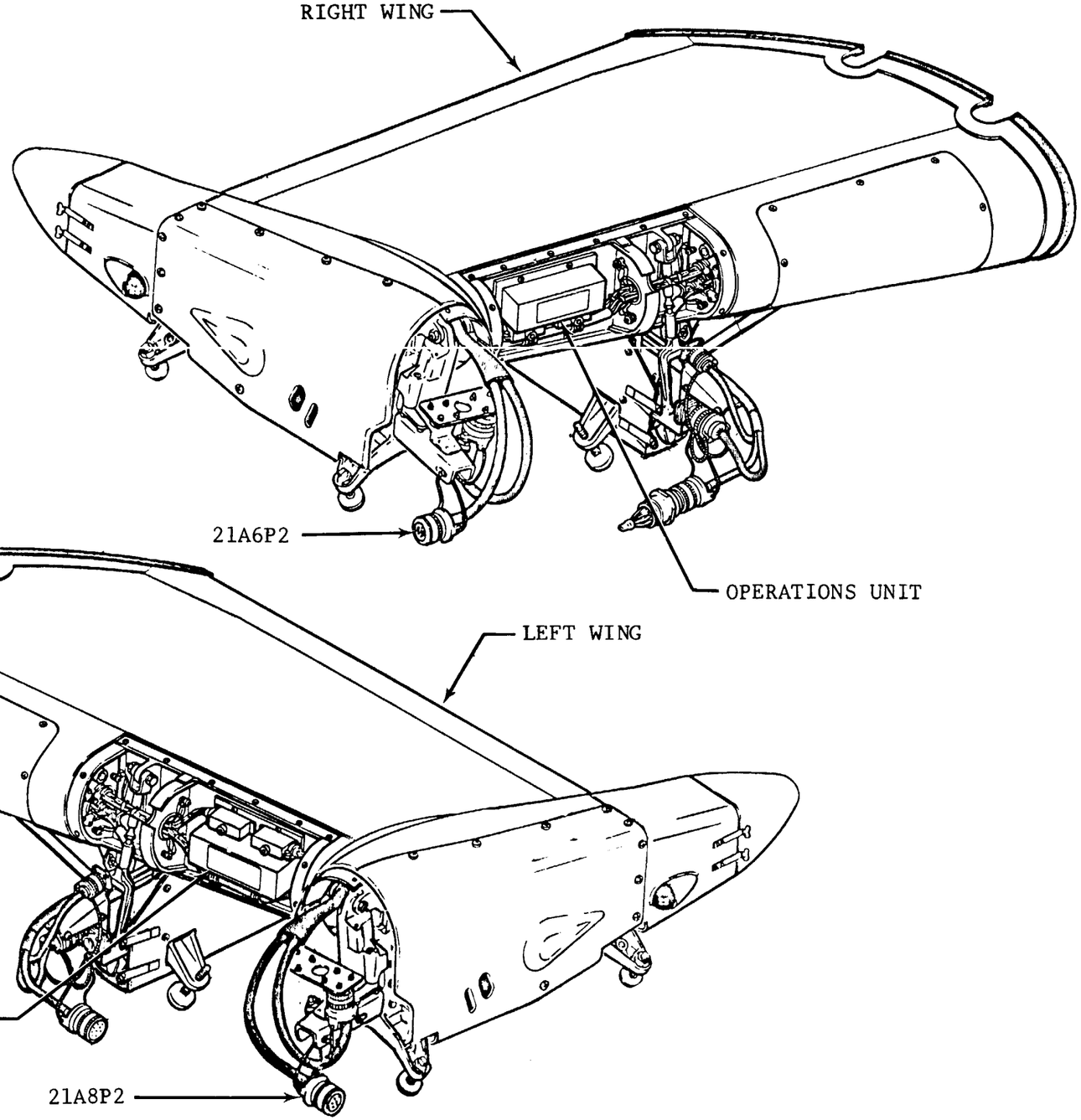
C. TROUBLESHOOTING LOGIC PART THREE.



ROCKETS DISPLAY UNIT



PILOT STATION



5-5. RND REM DOES NOT SHOW ZEROS WITH SIMULATORS NOT INSTALLED.

C. TROUBLESHOOTING LOGIC PART THREE. (CONTINUED).

Are operations units installed at the outboard stations?

YES

Are outboard launchers installed and connected?

YES

Disconnect 21A6P2 and 21A8P2.

Turn on electrical power per paragraph 5-3.

Does RND REM display all zeros?

YES

NO

Replace ROCKETS display unit per TM 9-1090-207-13, Chapter 4, Section IV.

Then go to paragraph 5-2.

NO

Go to Troubleshooting Logic Part Four (subparagraph D).

NO

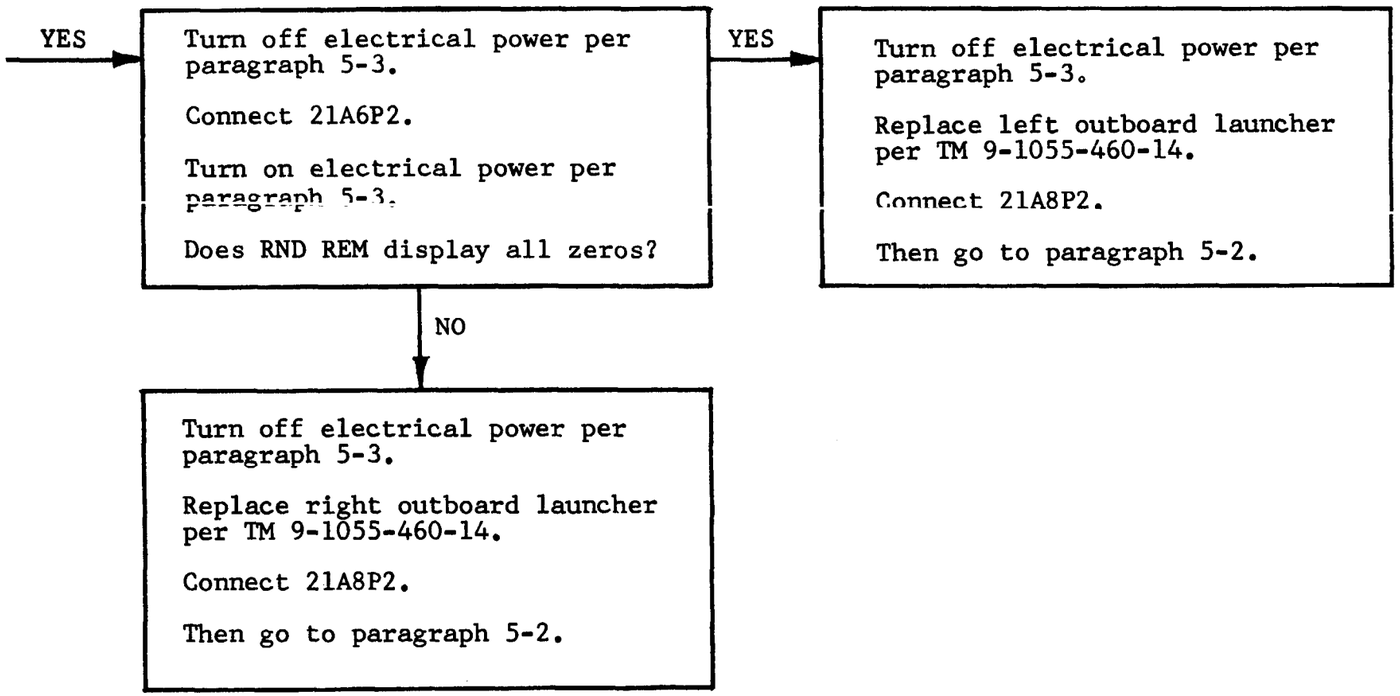
Turn off electrical power per paragraph 5-3.

Connect 21A6P2 and 21A8P2.

Then go to Troubleshooting Logic Part Four (subparagraph D).

5-5. RND REM DOES NOT SHOW ZEROS WITH SIMULATORS NOT INSTALLED (CONTINUED).

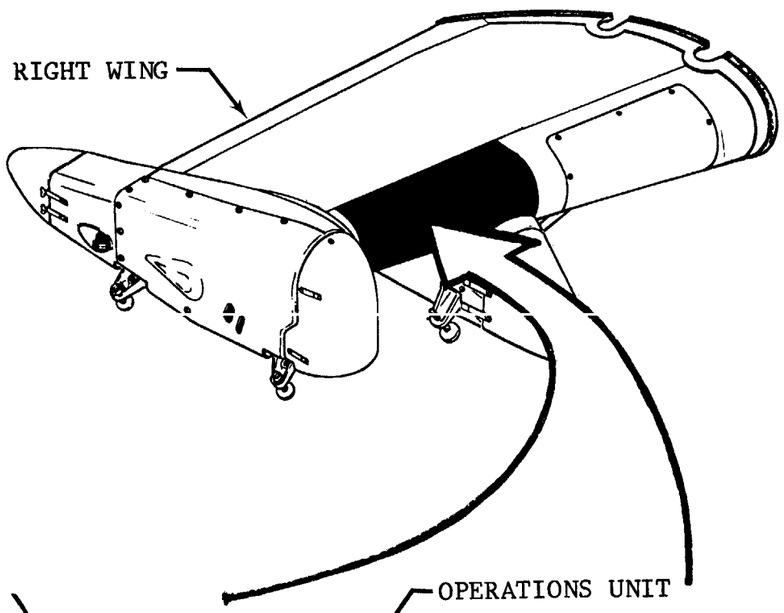
C. TROUBLESHOOTING LOGIC PART THREE (CONTINUED).

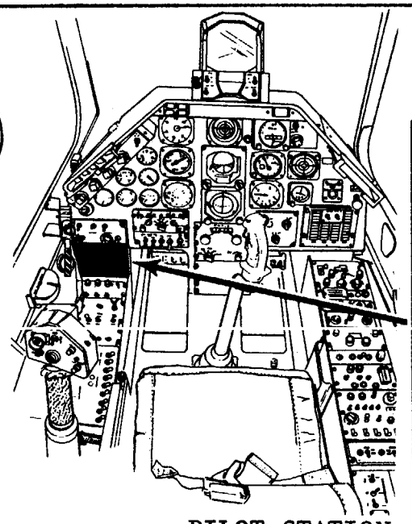


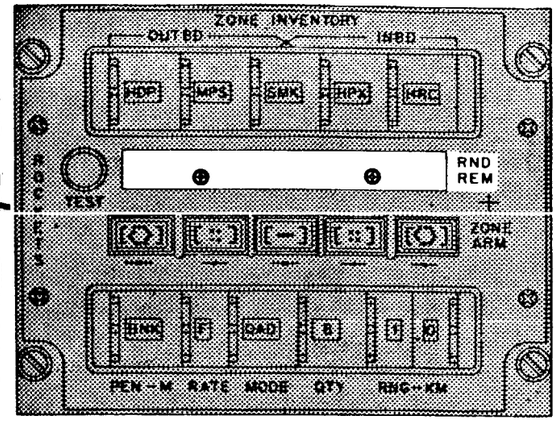
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5-5. RND REM DOES NOT SHOW ZEROS WITH SIMULATORS NOT INSTALLED (CONTINUED).

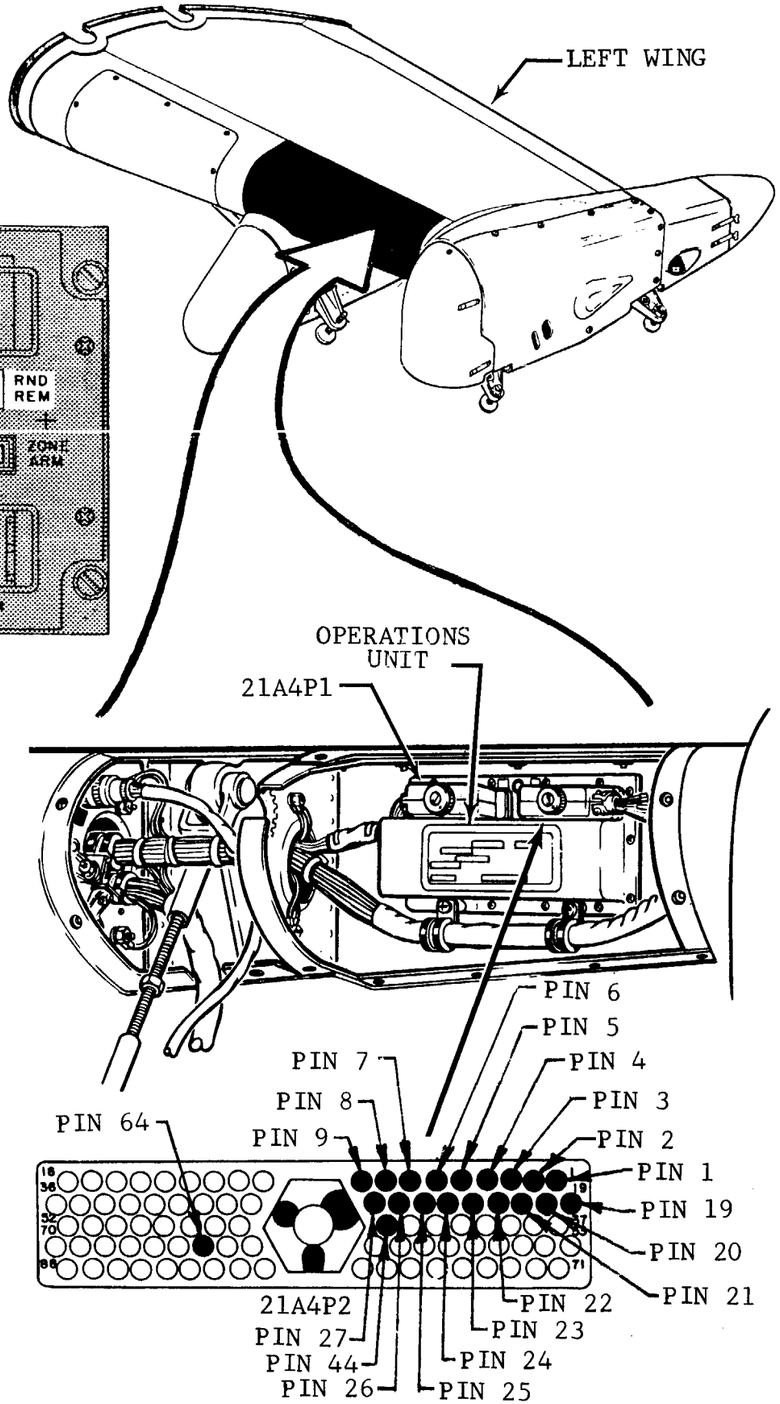
D. TROUBLESHOOTING LOGIC PART FOUR.







ROCKETS DISPLAY UNIT



5-5. RND REM DOES NOT SHOW ZEROS WITH SIMULATORS NOT INSTALLED (CONTINUED).

D. TROUBLESHOOTING LOGIC PART FOUR (CONTINUED).

Disconnect 21A2P1.

Turn on electrical power per paragraph 5-3.

Does RND REM display all zeros.

YES

Turn off all electrical power per paragraph 5-3.

Check for continuity from each of the following pins on connector 21A2P2 to:

(1) 21A2P2-64
(2) 21A2P2 backshell.
(3) Airframe ground.

PIN	WIRE NUMBER
-44	A585A22
-4	A586A22
-8	A587A22
-24	A588A22
-3	A589A22
-9	A590A22
-1	A591A22
-26	A592A22
-20	A593A22
-5	A594A22
-7	A595A22
-22	A596A22
-2	A597A22
-21	A598A22
-27	A599A22
-23	A600A22
-6	A601A22
-25	A602A22
-19	A603A22

Is continuity present in any of the above checks?

YES

Repair defective wire(s) to eliminate short(s).

Connect 21A2P1 and 21A4P1.

Then go to paragraph 5-2.

NO

Replace right outboard operations unit per TM 9-1090-207-13, Chapter 4, Section IV.

Then go to paragraph 5-2.

NO

Turn off electrical power per paragraph 5-3.

Disconnect 21A4P1.

Turn on electrical power per paragraph 5-3.

Does RND REM display all zeros?

YES

Turn off all electrical power per paragraph 5-3.

Check for continuity from each of the following pins on connector 21A4P2 to:

(1) 21A4P2-64.
(2) 21A4P2 backshell.
(3) Airframe ground.

PIN	WIRE NUMBER
-44	A695A22
-4	A696A22
-8	A697A22
-24	A698A22
-3	A699A22
-9	A700A22
-1	A701A22
-26	A702A22
-20	A703A22
-5	A704A22
-7	A705A22
-22	A706A22
-2	A707A22
-21	A708A22
-27	A709A22
-23	A710A22
-6	A711A22
-25	A712A22
-19	A713A22

Is continuity present in any of the above checks?

NO

Replace left outboard operations unit per TM 9-1090-207-13, Chapter 4, Section IV.

Connect 21A2P1.

Then go to paragraph 5-2.

NO

Turn off electrical power per paragraph 5-3.

Replace ROCKETS display unit per TM 9-1090-207-13, Chapter 4, Section IV.

Connect 21A2P1 and 21A4P1.

Then go to paragraph 5-2.

5-5. RND REM DOES NOT SHOW ZEROS WITH SIMULATORS NOT INSTALLED (CONTINUED).

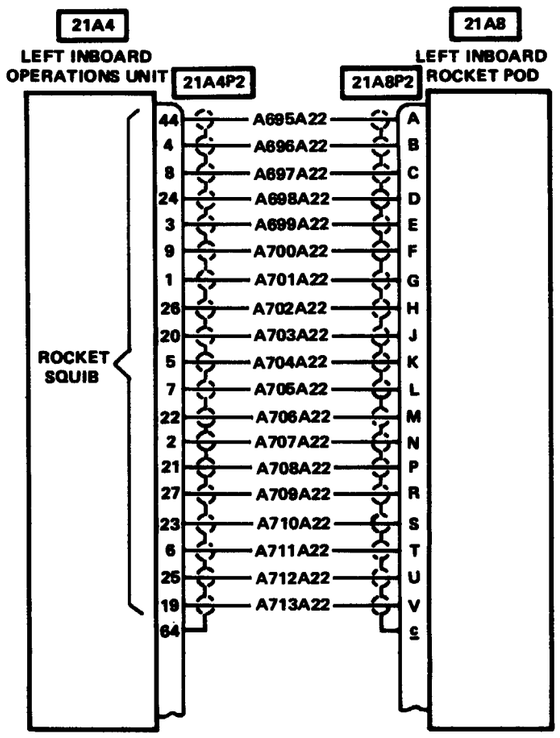
D. TROUBLESHOOTING LOGIC PART FOUR (CONTINUED).

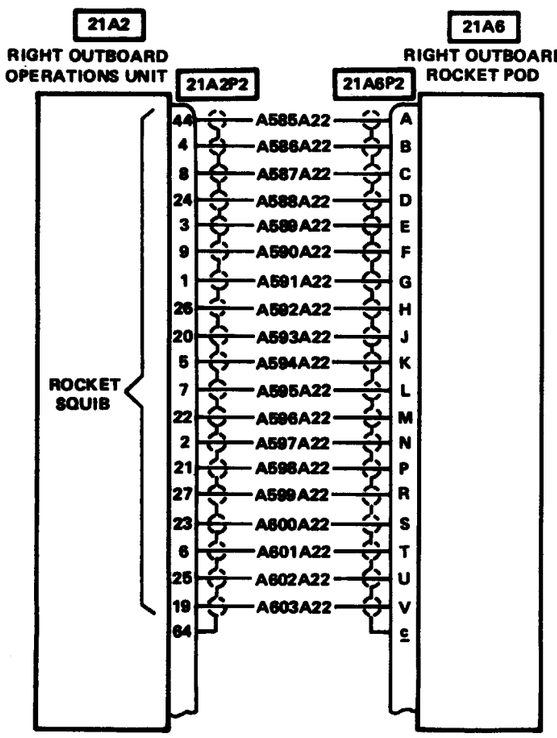
YES →

Repair defective wire(s) to eliminate short(s).

Connect 21A2P1.

Then go to paragraph 5-2.





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5-6. RIGHT OUTBOARD OPERATIONS UNIT FAILS ("7" DOES NOT LIGHT) DURING RMS SELF TEST.

INITIAL SETUP

Applicable Configurations
All

Tools/Test and Support Equipment
Multimeter

Digital Voltmeter

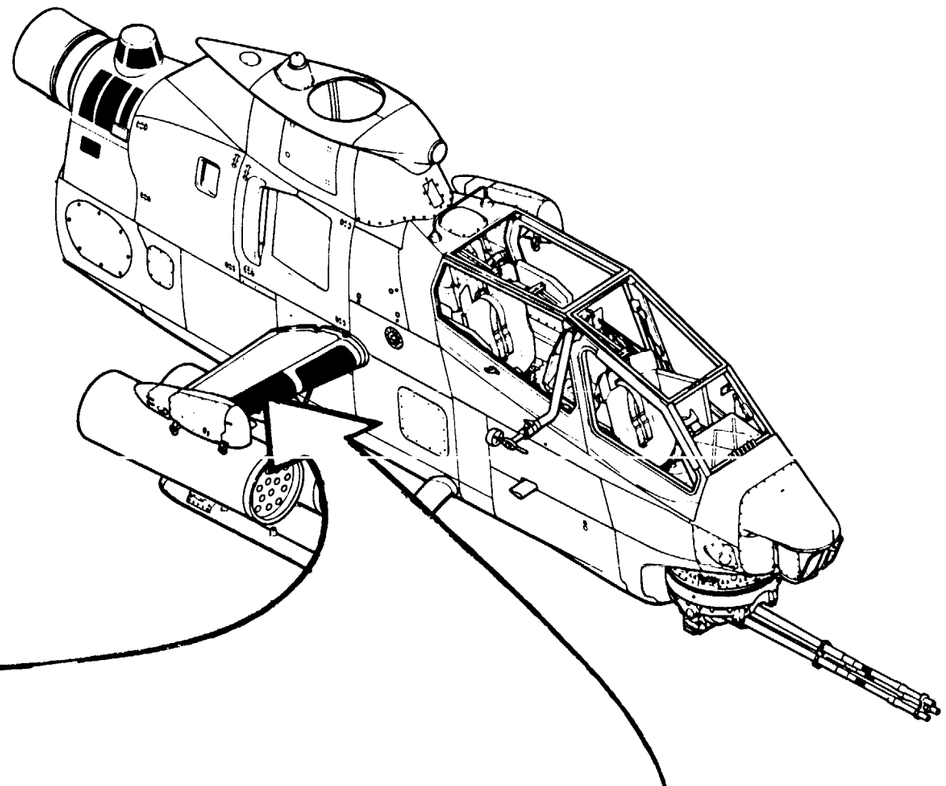
Tool Set, A/C Armament Repairman

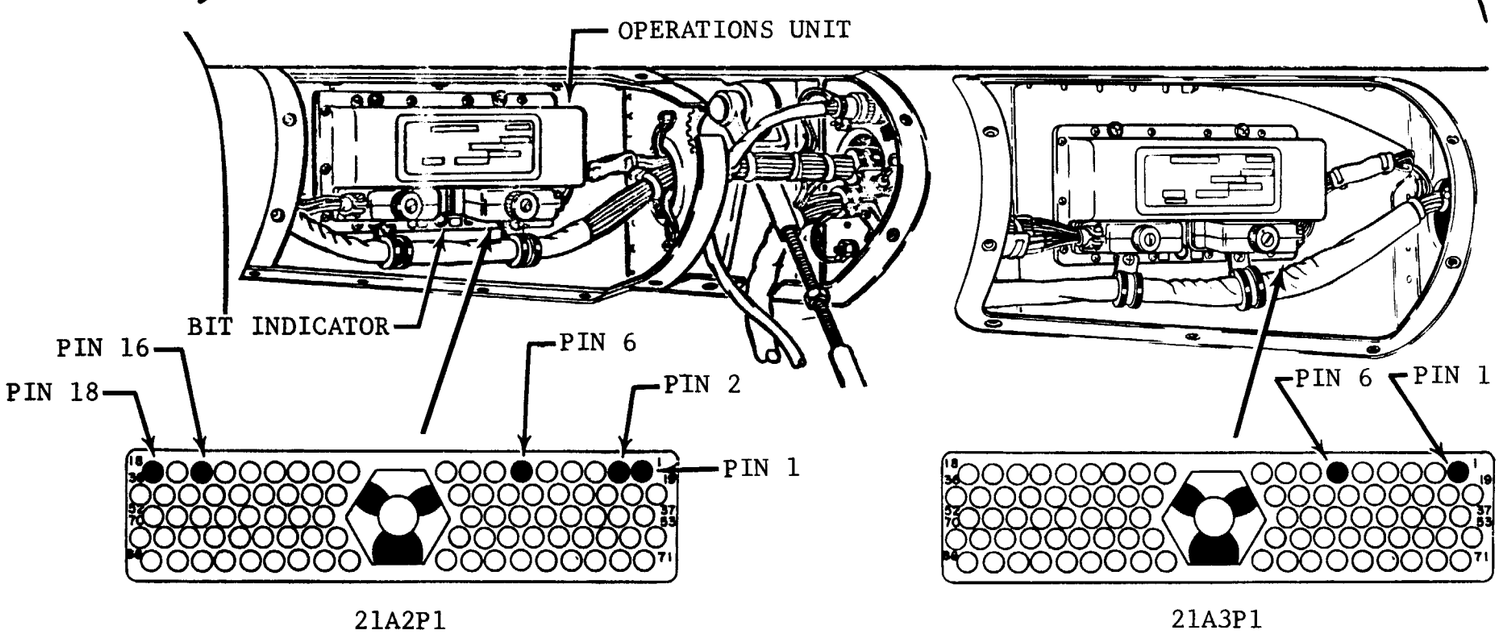
Personnel Required
68J (2)

References
TM 9-1090-207-13

Access Panels
Right Wing Outboard Leading Edge Cover - Removed

Right Wing Inboard Leading Edge Cover - Removed





5-6. RIGHT OUTBOARD OPERATIONS UNIT FAILS ("7" DOES NOT LIGHT) DURING RMS SELF TEST (CONTINUED).

Does right outboard operations unit BIT indicator show white?

YES → Turn off electrical power per paragraph 5-3.

Replace right outboard operations unit per TM 9-1090-207-13, Chapter 4, Section IV.

Then go to paragraph 5-2.

NO ↓

Turn off electrical power per paragraph 5-3.

Disconnect 21A2P1.

Connect voltmeter between 21A2P1-6(+) and 21A2P1-18(-).

Turn on electrical power per paragraph 5-3.

Is 20 to 21.5 V dc present?

YES → Turn off electrical power per paragraph 5-3.

Connect digital voltmeter between 21A2P1-1(+) and 21A2P1-2(-).

Turn on electrical power per paragraph 5-3.

Is 2 V dc or more present?

YES → Check for 28 V dc at 21A2P1-16.

Is 28 V dc present?

YES →

NO ↓

Turn off electrical power per paragraph 5-3.

Repair wire A636D22 between 21A2P1-16 and splice.

Replace right outboard operations unit per TM 9-1090-207-13, Chapter 4, Section IV.

Then go to paragraph 5-2.

NO ↓

Turn off electrical power per paragraph 5-3.

Check for continuity from 21A2P1-1 to 21A3P1-1.

Is continuity present.

YES → Repair wire A552D22 (BLU) between 21A2P1-2 and splice.

Connect 21A2P1.

Then go to paragraph 5-2.

NO ↓

Repair wire A552D22 (WHT) between 21A2P1-1 and splice.

Connect 21A2P1.

Then go to paragraph 5-2.

NO ↓

Turn off electrical power per paragraph 5-3.

Check for continuity from 21A2P1-6 to 21A3P1-6.

Is continuity present?

YES → Repair wire A558D22 between 21A2P1-18 and splice.

Connect 21A2P1.

Then go to paragraph 5-2.

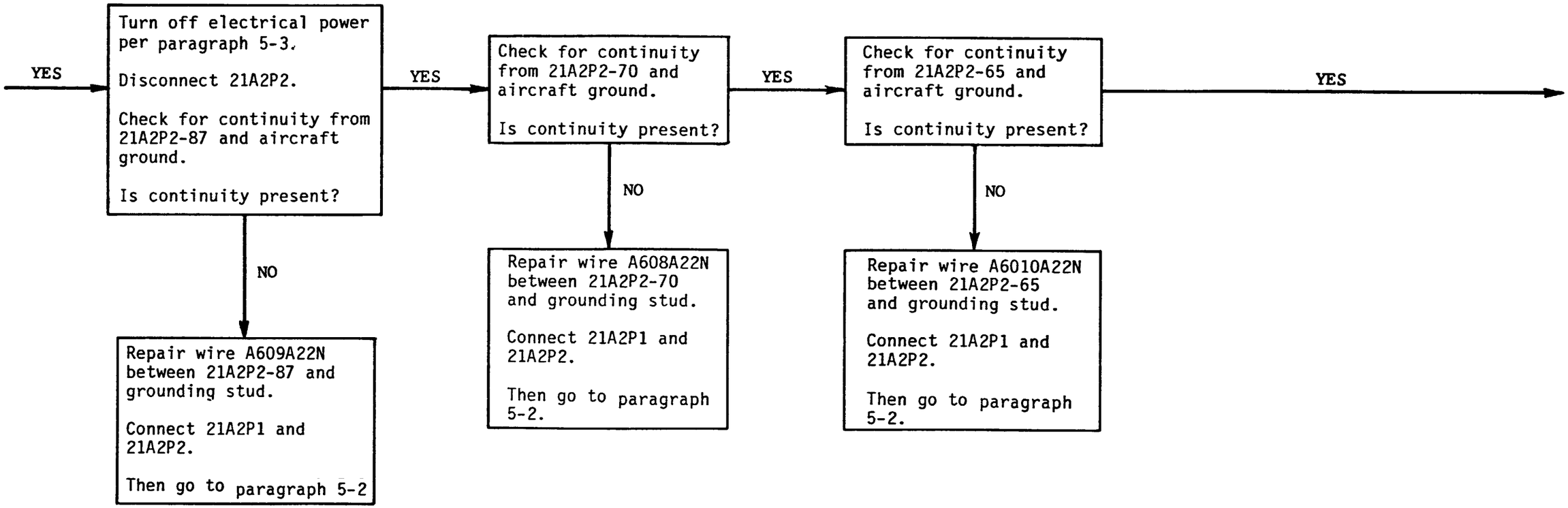
NO ↓

Repair wire A550D22 between 21A2P1-6 and splice.

Connect 21A2P1.

Then go to paragraph 5-2.

5-6. RIGHT OUTBOARD OPERATIONS UNIT FAILS ("7" DOES NOT LIGHT) DURING RMS SELF TEST (CONTINUED).



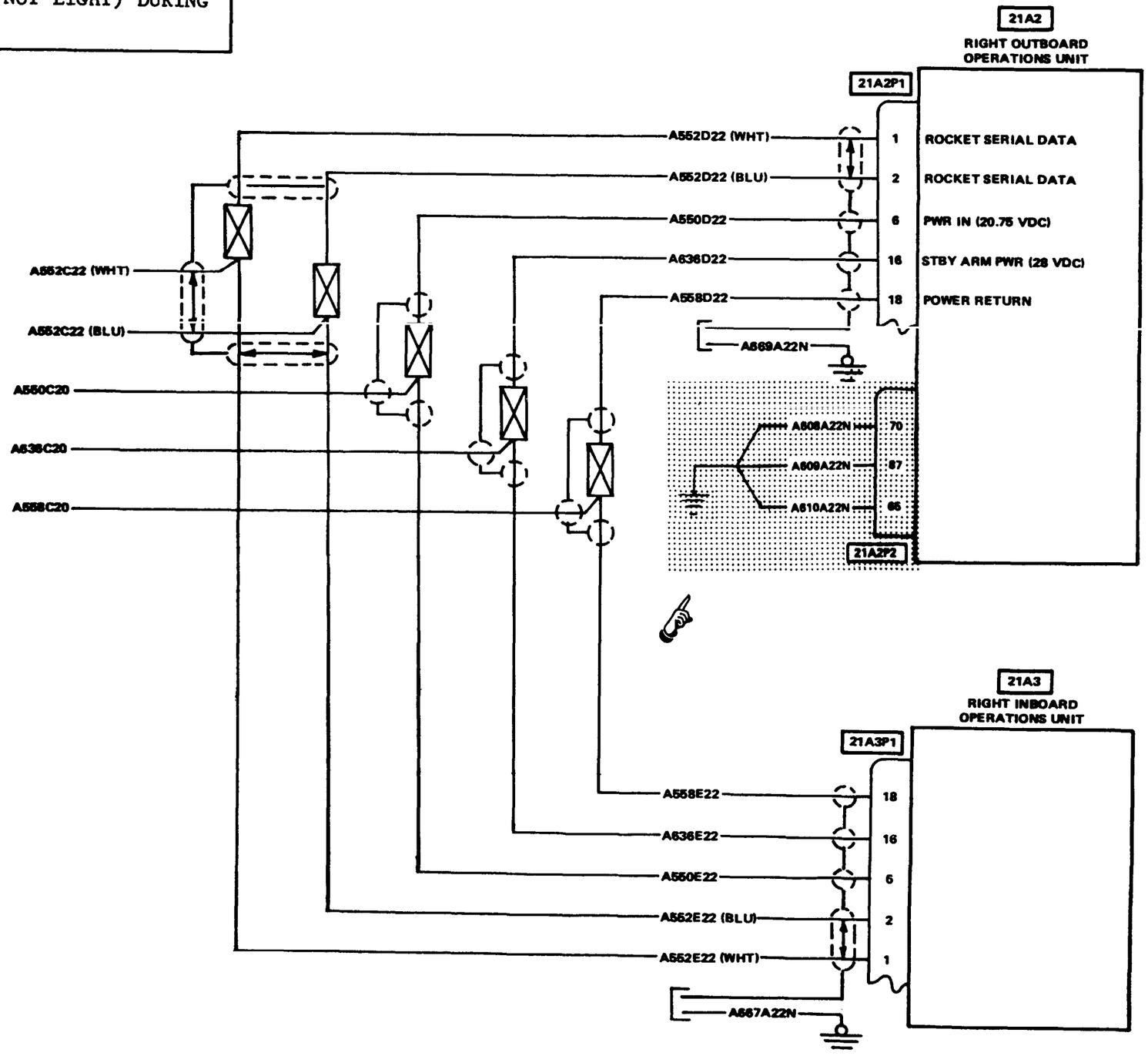
5-6. RIGHT OUTBOARD OPERATIONS UNIT FAILS ("7" DOES NOT LIGHT) DURING RMS SELF TEST (CONTINUED).

YES →

Turn off electrical power per paragraph 5-3.

Replace right outboard operations unit per TM 9-1090-207-13 and P Chapter 4, Section IV.

Then go to paragraph 5-2.



5-7. RIGHT INBOARD OPERATIONS UNIT FAILS ("7" DOES NOT LIGHT) DURING RMS SELF TEST.

INITIAL SETUP

Applicable Configuration
All

Tools/Test and Support Equipment
Multimeter

Digital Voltmeter

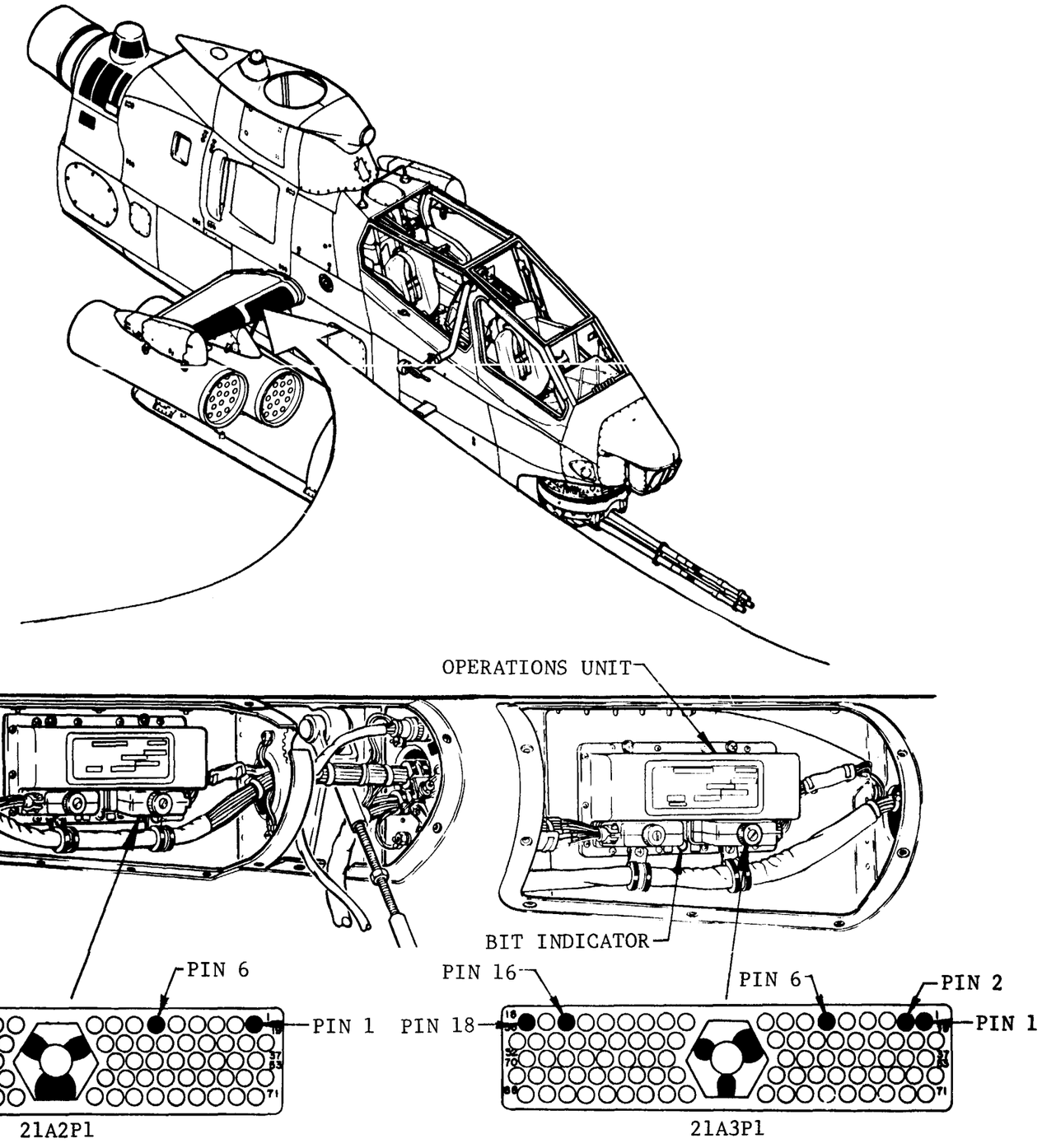
Tool Set, A/C Armament Repairman

Personnel Required
68J (2)

References
TM 9-1090-207-13

Access Panels
Right Wing Inboard Leading Edge Cover - Removed

Right Wing Outboard Leading Edge Cover - Removed



5-7. RIGHT INBOARD OPERATIONS UNIT FAILS ("7" DOES NOT LIGHT") DURING RMS SELF TEST (CONTINUED).

Does right inboard operations unit BIT indicator show white?

YES

Turn off electrical power per paragraph 5-3.

Replace right inboard operations unit per TM 9-1090-207-13, Chapter 4, Section IV.

Then go to paragraph 5-2.

NO

Turn off electrical power per paragraph 5-3.

Disconnect 21A3P1.

Connect voltmeter between 21A3P1-6(+) and 21A3P1-18(-).

Turn on electrical power per paragraph 5-3.

Is 20 to 21.5 V dc present?

YES

Turn off electrical power per paragraph 5-3.

Connect digital voltmeter between 21A3P1-1(+) and 21A3P1-2(-).

Turn on electrical power per paragraph 5-3.

Is 2 V dc or more present?

YES

Check for 28 V dc at 21A3P1-16.

Is 28 V dc present?

YES

NO

Turn off electrical power per paragraph 5-3.

Repair wire A636E22 between 21A3P1-16 and splice.

Replace right inboard operations unit per TM 9-1090-207-13, Chapter 4, Section IV.

Then go to paragraph 5-2.

NO

Turn off electrical power per paragraph 5-3.

Check for continuity from 21A3P1-1 to 21A2P1-1.

Is continuity present?

NO

Repair wire A552E22(WHT) between 21A3P1-1 and splice.

Connect 21A3P1.

Then go to paragraph 5-2.

NO

Turn off electrical power per paragraph 5-3.

Check for continuity from 21A3P1-6 to 21A2P1-6.

Is continuity present?

NO

Repair wire A550E22 between 21A3P1-6 and splice.

Connect 21A3P1.

Then go to paragraph 5-2.

YES

Repair wire A558E22 between 21A3P1-18 and splice.

Connect 21A3P1.

Then go to paragraph 5-2.

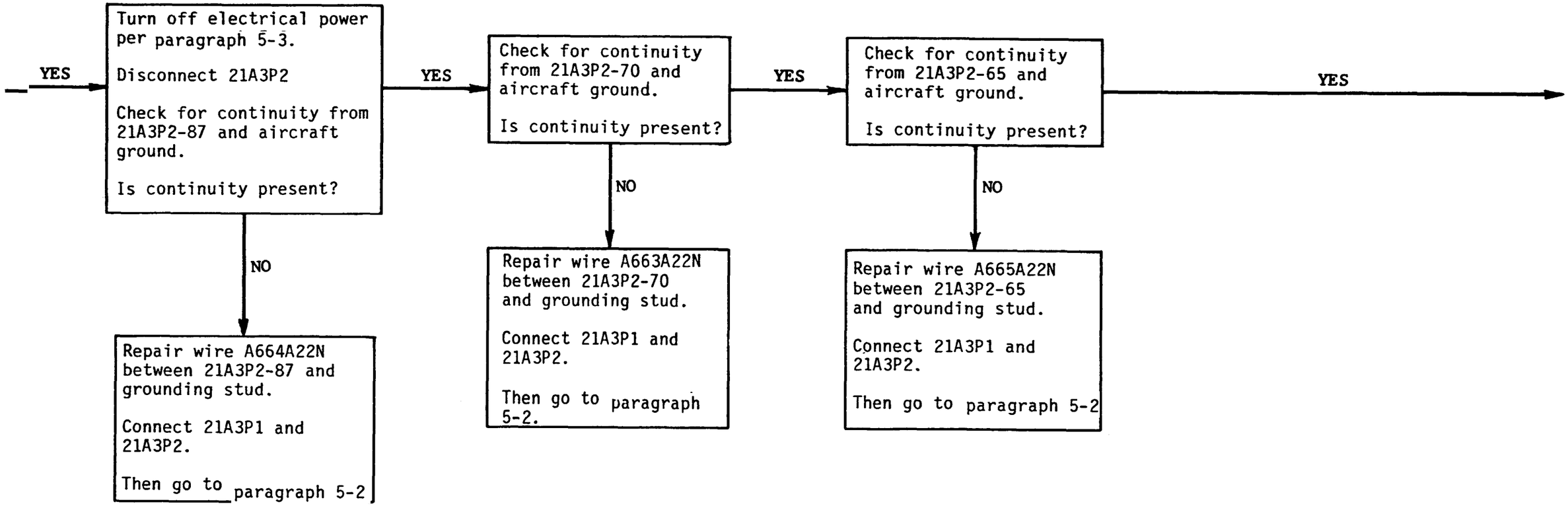
YES

Repair wire A552E22(BLU) between 21A3P1-2 and splice.

Connect 21A3P1.

Then go to paragraph 5-2.

5-7. RIGHT INBOARD OPERATIONS UNIT FAILS ("7" DOES NOT LIGHT) DURING RMS SELF TEST (CONTINUED).



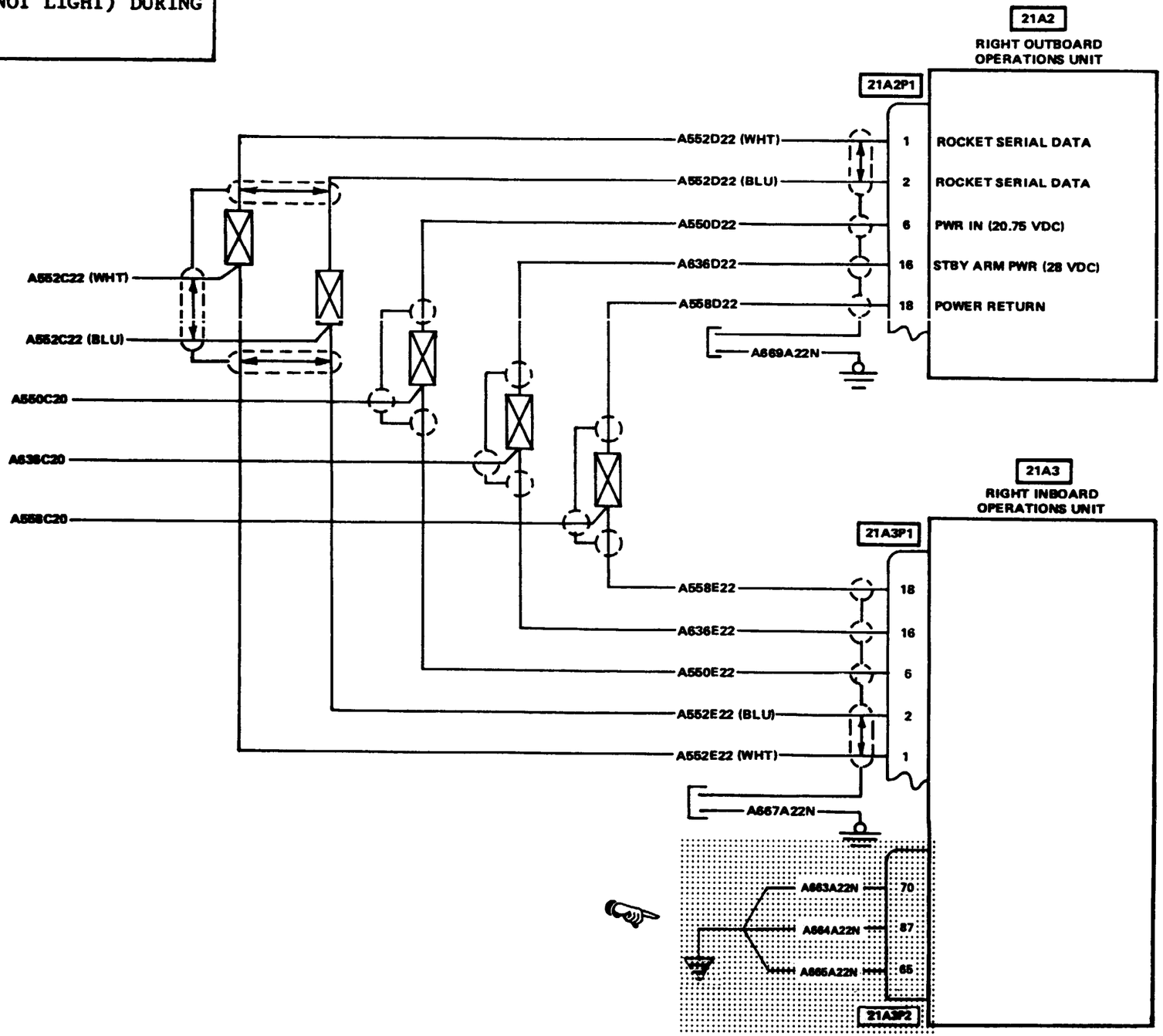
5-7. RIGHT INBOARD OPERATIONS UNIT FAILS ("7" DOES NOT LIGHT) DURING RMS SELF TEST (CONTINUED).

YES →

Turn off electrical power per paragraph 5-3.

Replace right inboard operations unit per TM 9-1090-207-13 and P Chapter 4, Section IV.

Then go to paragraph 5-2.



5-8.	LEFT OUTBOARD OPERATIONS UNIT FAILS ("7" DOES NOT LIGHT) DURING RMS SELF TEST.

INITIAL SETUP

Applicable Configuration
All

Tools Test and Support Equipment
Multimeter

Digital Voltmeter

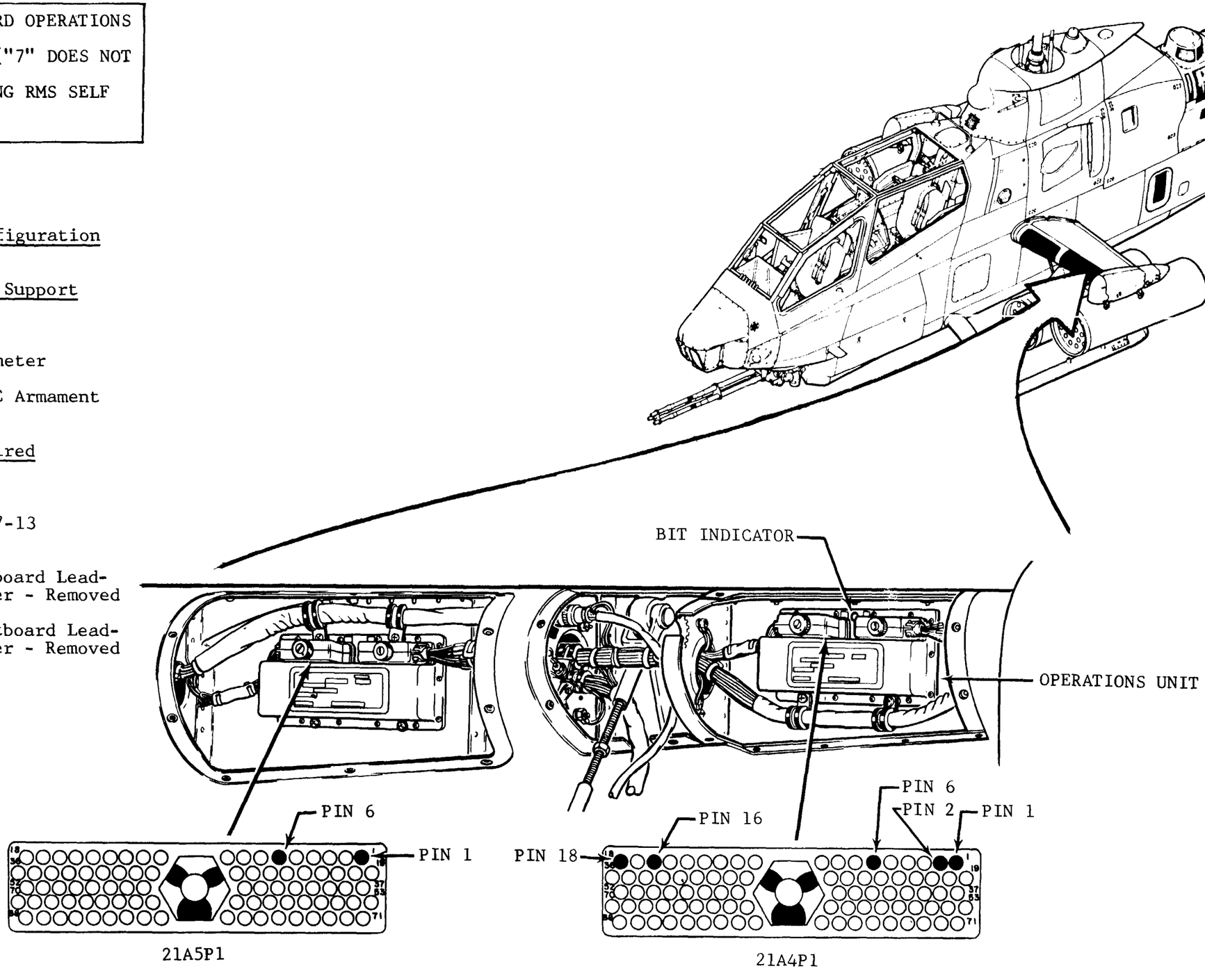
Tool Set, A/C Armament Repairman

Personnel Required
68J (2)

References
TM 9-1090-207-13

Access Panels
Left Wing Inboard Leading Edge Cover - Removed

Left Wing Outboard Leading Edge Cover - Removed



5-8. LEFT OUTBOARD OPERATIONS UNIT FAILS ("7" DOES NOT LIGHT) DURING RMS SELF TEST (CONTINUED).

Does left outboard operations unit BIT indicator show white?

YES → Turn off electrical power per paragraph 5-3.

Replace left outboard operations unit per TM 9-1090-207-13, Chapter 4, Section IV.

Then go to paragraph 5-2.

NO ↓

Turn off electrical power per paragraph 5-3.

Disconnect 21A4P1.

Connect voltmeter between 21A4P1-6(+) and 21A4P1-18(-).

Turn on electrical power per paragraph 5-3.

Is 20 to 21.5 V dc present?

YES → Turn off electrical power per paragraph 5-3.

Connect digital voltmeter to read dc voltage between 21A4P1-1(+) and 21A4P1-2(-).

Turn on electrical power per paragraph 5-3.

Is 2 V dc or more present?

YES → Check for 28 V dc at 21A4P1-16.

Is 28 V dc present?

YES →

NO ↓

Turn off electrical power per paragraph 5-3.

Repair wire A636H22 between 21A4P1-16 and splice.

Replace left outboard operations unit per TM 9-1090-207-13, Chapter 4, Section IV.

Then go to paragraph 5-2.

NO ↓

Turn off electrical power per paragraph 5-3.

Check for continuity from 21A4P1-1 to 21A5P1-1.

Is continuity present?

YES → Repair wire A552H22(BLU) between 21A4P1-2 and splice.

Connect 21A4P1.

Then go to paragraph 5-2.

NO ↓

Repair wire A552H22(WHT) between 21A4P1-1 and splice.

Connect 21A4P1.

Then go to paragraph 5-2.

NO ↓

Turn off electrical power per paragraph 5-3.

Check for continuity from 21A4P1-6 to 21A5P1-6.

Is continuity present?

YES → Repair wire A558H22 between 21A4P1-18 and splice.

Connect 21A4P1.

Then go to paragraph 5-2.

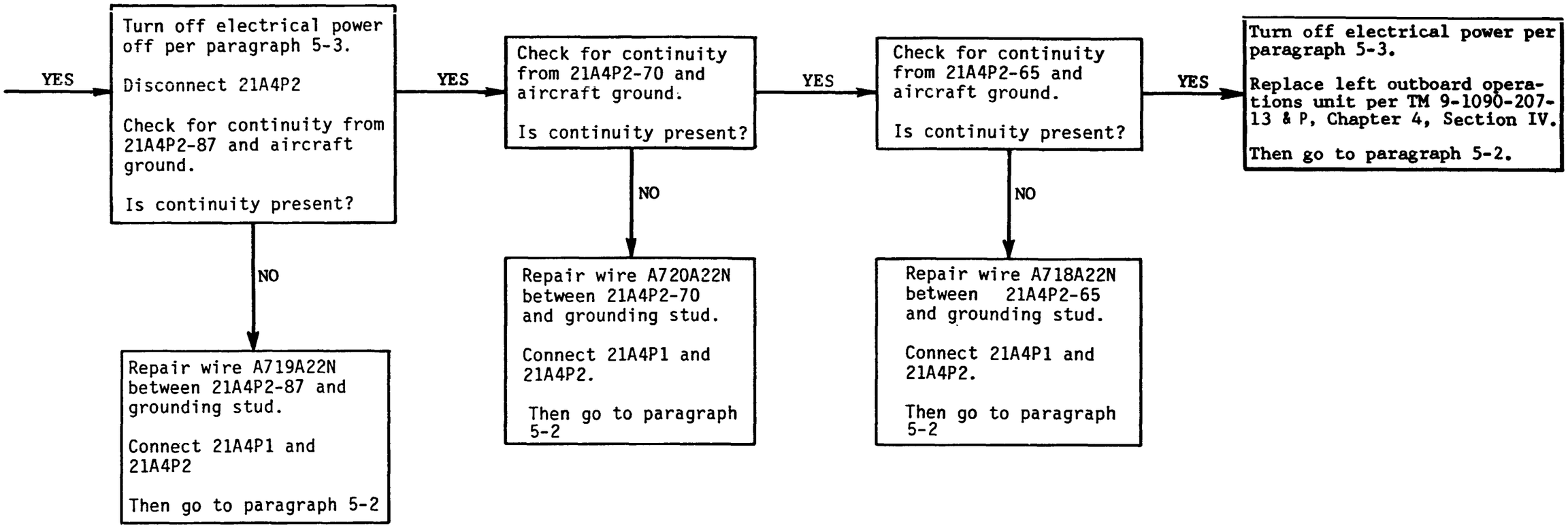
NO ↓

Repair wire A550H22 between 21A4P1-6 and splice.

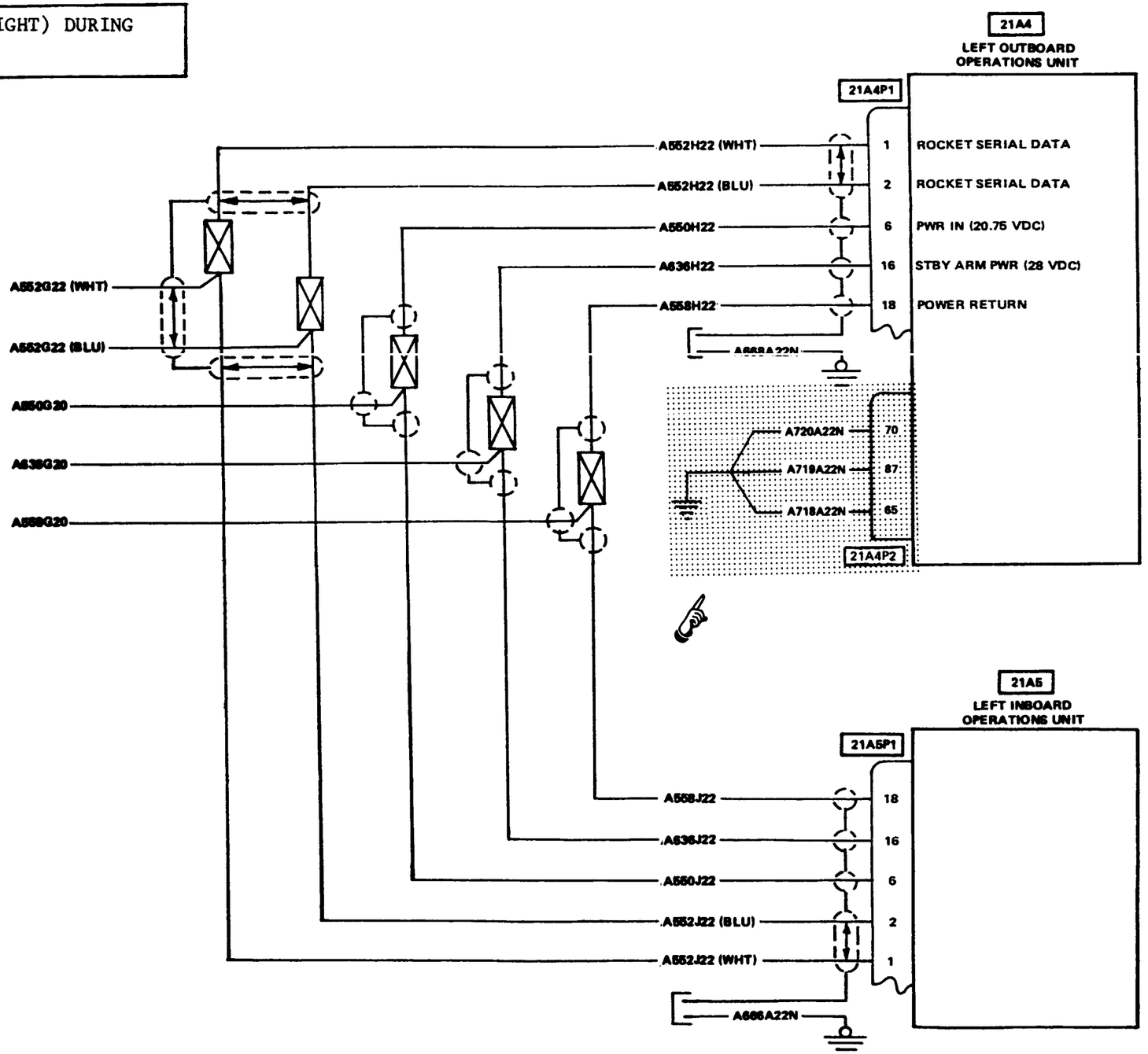
Connect 21A4P1.

Then go to paragraph 5-2.

5-8. LEFT OUTBOARD OPERATIONS UNIT FAILS ("7" DOES NOT LIGHT) DURING RMS SELF TEST (CONTINUED).



5-8. LEFT OUTBOARD OPERATIONS UNIT FAILS ("7" DOES NOT LIGHT) DURING RMS SELF TEST (CONTINUED).



5-9. LEFT INBOARD OPERATIONS UNIT FAILS ("7" DOES NOT LIGHT) DURING RMS SELF TEST.

INITIAL SETUP

Applicable Configuration
All

Tools/Test and Support Equipment
Multimeter

Digital Voltmeter

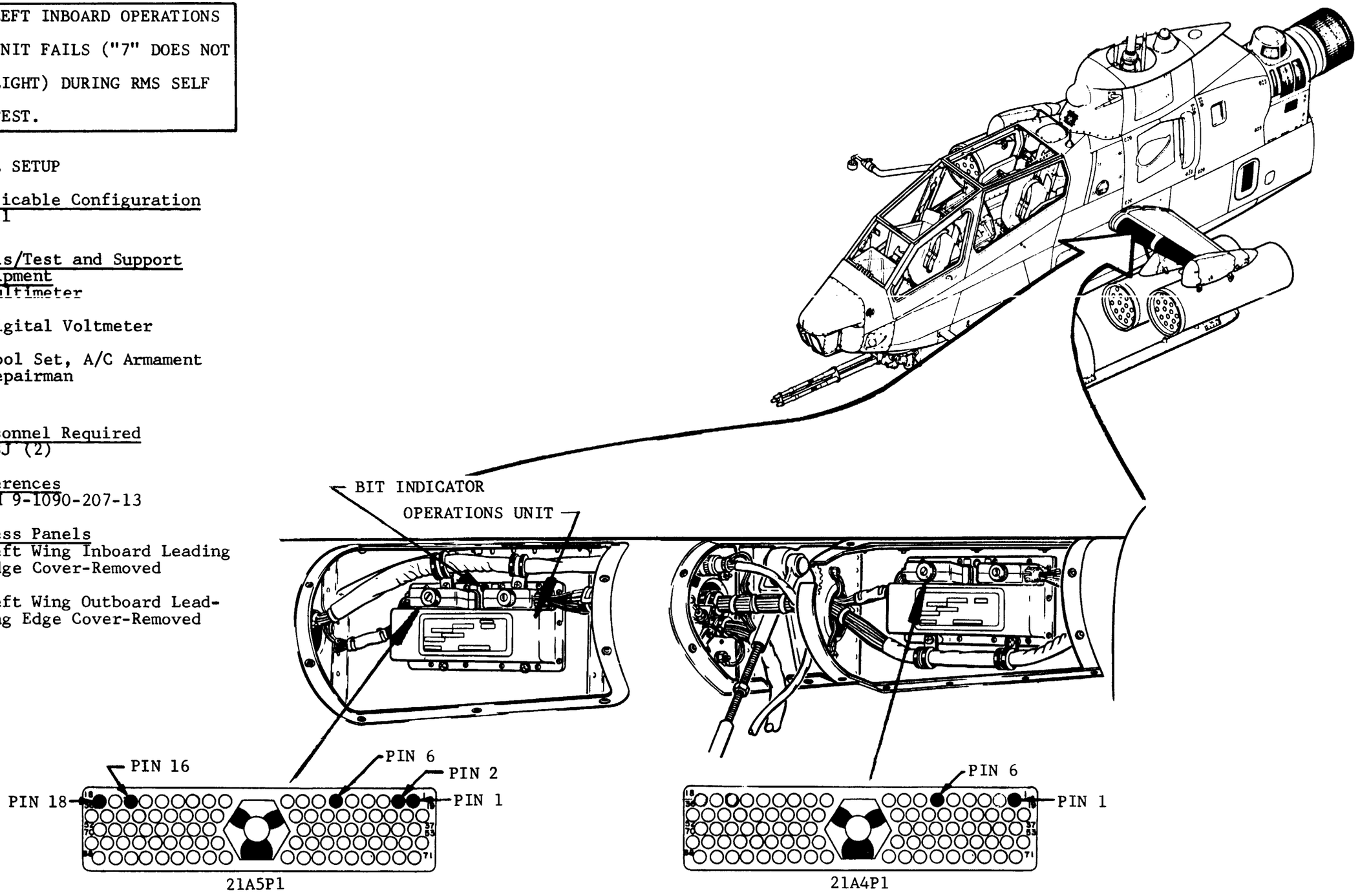
Tool Set, A/C Armament Repairman

Personnel Required
68J (2)

References
TM 9-1090-207-13

Access Panels
Left Wing Inboard Leading Edge Cover-Removed

Left Wing Outboard Leading Edge Cover-Removed



5-9. LEFT INBOARD OPERATIONS UNIT FAILS ("7" DOES NOT LIGHT) DURING RMS SELF TEST (CONTINUED).

Does left inboard operations unit BIT indicator show white?

YES → Turn off electrical power per paragraph 5-3.

Replace left inboard operations unit per TM 9-1090-207-13, Chapter 4, Section IV.

Then go to paragraph 5-2.

NO ↓

Turn off electrical power per paragraph 5-3.

Disconnect 21A5P1.

Connect voltmeter between 21A5P1-6(+) and 21A5P1-18(-).

Turn on electrical power per paragraph 5-3.

Is 20 to 21.5 V dc present?

YES →

Turn off electrical power per paragraph 5-3.

Connect digital voltmeter to read dc voltage between 21A5P1-1(+) and 21A5P1-2(-).

Turn on electrical power per paragraph 5-3.

Is 2 V dc or more present?

YES →

NO ↓

Turn off electrical power per paragraph 5-3.

Check for continuity from 21A5P1-1 to 21A4P1-1.

Is continuity present?

YES →

NO ↓

Repair wire A552J22(WHT) between 21A5P1-1 and splice.

Connect 21A5P1.

Then go to paragraph 5-2.

NO ↓

Turn off electrical power per paragraph 5-3.

Check for continuity from 21A5P1-6 to 21A4P1-6.

Is continuity present?

YES →

Repair wire A558J22 between 21A5P1-18 and splice.

Connect 21A5P1.

Then go to paragraph 5-2.

NO ↓

Repair wire A550J22 between 21A5P1-6 and splice.

Connect 21A5P1.

Then go to paragraph 5-2.

5-9. LEFT INBOARD OPERATIONS UNIT FAILS ("7" DOES NOT LIGHT) DURING RMS SELF TEST (CONTINUED).

YES

Check for 28 V dc at 21A5P1-16.

Is 28 V dc present?

YES

NO

Turn off electrical power per paragraph 5-3.

Repair wire A636J22 between 21A5P1-16 and splice.

Replace left inboard operations unit per TM 9-1090-207-13 and P Chapter 4, Section IV.

Then go to paragraph 5-2.

YES

Repair wire A552J22(BLU) between 21A5P1-2 and splice.

Connect 21A5P1.

Then go to paragraph 5-2.

Turn off electrical power per paragraph 5-3.

Disconnect 21A5P2

Check for continuity from 21A5P2-87 and aircraft ground.

Is continuity present?

YES

NO

Repair wire A774A22N between 21A5P2-87 and grounding stud.

Connect 21A5P1 and 21A5P2.

Then go to paragraph 5-2.

Check continuity from 21A5P2-70 and aircraft ground.

Is continuity present?

YES

NO

Repair wire A775A22N between 21A5P2-70 and grounding stud.

Connect 21A5P1 and 21A5P2.

Then go to paragraph 5-2.

Check for continuity from 21A5P2-65 and aircraft ground.

Is continuity present?

YES

NO

Repair wire A773A22N between 21A5P2-65 and grounding stud.

Connect 21A5P1 and 21A5P2.

Then go to paragraph 5-2.

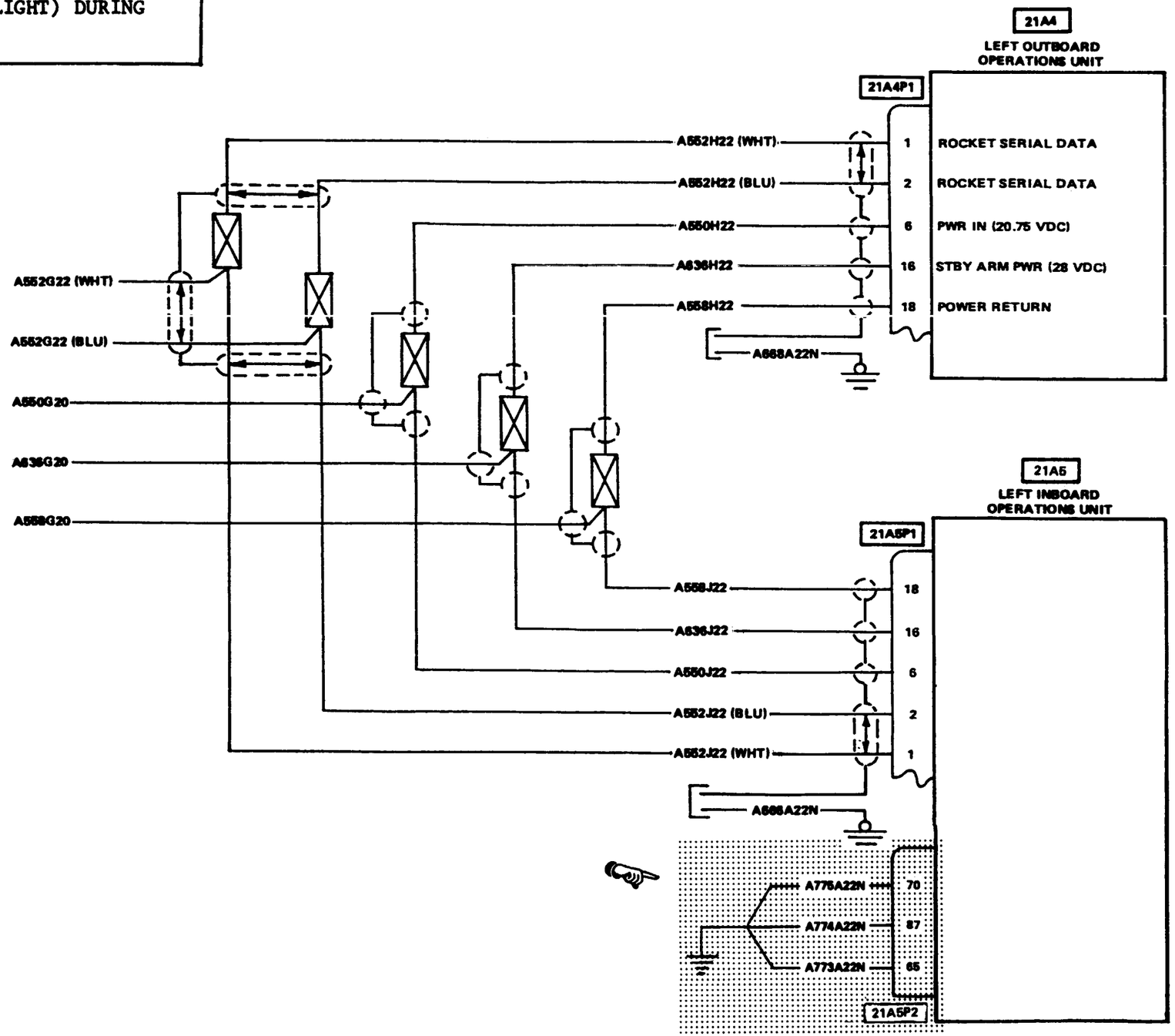
5-9. LEFT INBOARD OPERATIONS UNIT FAILS ("7" DOES NOT LIGHT) DURING RMS SELF TEST (CONTINUED).

YES →

Turn off electrical power per paragraph 5-3.

Replace left inboard operations unit per TM 9-1090-207-13 & P, Chapter 4, Section IV.

Then go to paragraph 5-2.



5-10. RIGHT INBOARD AND RIGHT OUTBOARD OPERATIONS UNITS FAIL ("7" DOES NOT LIGHT) DURING RMS SELF TEST.

INITIAL SETUP

Applicable Configuration
All

Tools/Test and Support Equipment
Multimeter

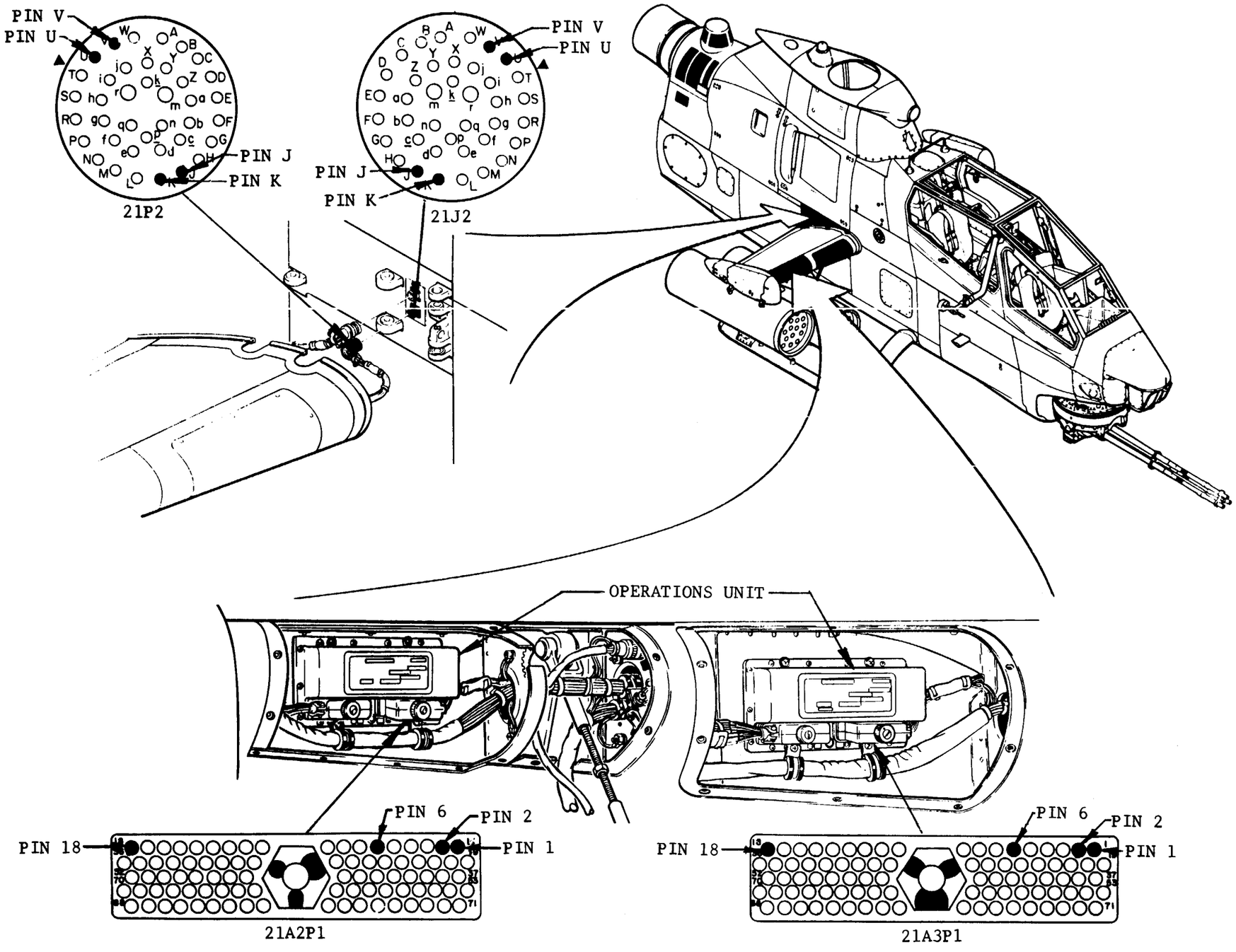
Tool Set, A/C Armament Repairman

Personnel Required
68J (2)

References
TM 55-1520-236-23

Access Panels
Right Wing Outboard Leading Edge Cover - Removed

Right Wing Inboard Leading Edge Cover - Removed



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5-10. RIGHT INBOARD AND RIGHT OUTBOARD OPERATIONS UNITS FAIL ("7" DOES NOT LIGHT) DURING RMS SELF TEST (CONTINUED).

Turn off electrical power per paragraph 5-3.

Disconnect 21A3P1.

Connect multimeter between 21A3P1-6(+) and 21A3P1-18(-).

Turn on electrical power per paragraph 5-3.

Is 20 to 21.5 V dc present?

YES → Turn off electrical power per paragraph 5-3.

Check for continuity from 21A2P1-1 to 21A3P1-1.

Is continuity present?

NO → Replace splice joining wires A552D22(WHT), A552E22(WHT) and A552C22(WHT) per TM 55-1520-236-23, Chapter 9, Section I.

Connect 21A3P1.

Then go to paragraph 5-2.

YES → Check for continuity from 21A2P1-2 to 21A3P1-2.

Is continuity present?

NO → Replace splice joining wires A552D22(BLU), A552E22(BLU) and A552C22(BLU) per TM 55-1520-236-23, Chapter 9, Section I.

Connect 21A3P1.

Then go to paragraph 5-2.

YES → Connect 21A3P1.

Remove right wing assembly per TM 55-1520-236-23, Chapter 2, Section IV.

Check for continuity from 21P2-J to splice.

Is continuity present?

NO → Repair wire A552C22(WHT) between 21P2-J and splice.

Install right wing assembly per TM 55-1520-236-23, Chapter 2, Section IV.

Then go to paragraph 5-2.

YES

NO → Turn off electrical power per paragraph 5-3.

Check for continuity from 21A2P1-6 to 21A3P1-6.

Is continuity present?

NO → Replace splice joining wires A550D22, A550E22 and A550C20 per TM 55-1520-236-23, Chapter 9, Section I.

Connect 21A3P1.

Then go to paragraph 5-2.

YES → Check for continuity from 21A2P1-18 to 21A3P1-18.

Is continuity present?

NO → Replace splice joining wires A558D22, A558E22, and A558C20 per TM 55-1520-236-23, Chapter 9, Section I.

Connect 21A3P1.

Then go to paragraph 5-2.

YES → Connect 21A3P1.

Remove right wing assembly per TM 55-1520-236-23, Chapter 2, Section IV.

Check for continuity from 21P2-U to splice.

Is continuity present?

NO → Repair wire A550C20 between 21P2-U and splice.

Install right wing assembly per TM 55-1520-236-23, Chapter 2, Section IV.

Then go to paragraph 5-2.

YES → Check for continuity from 21P2-V to splice.

Is continuity present?

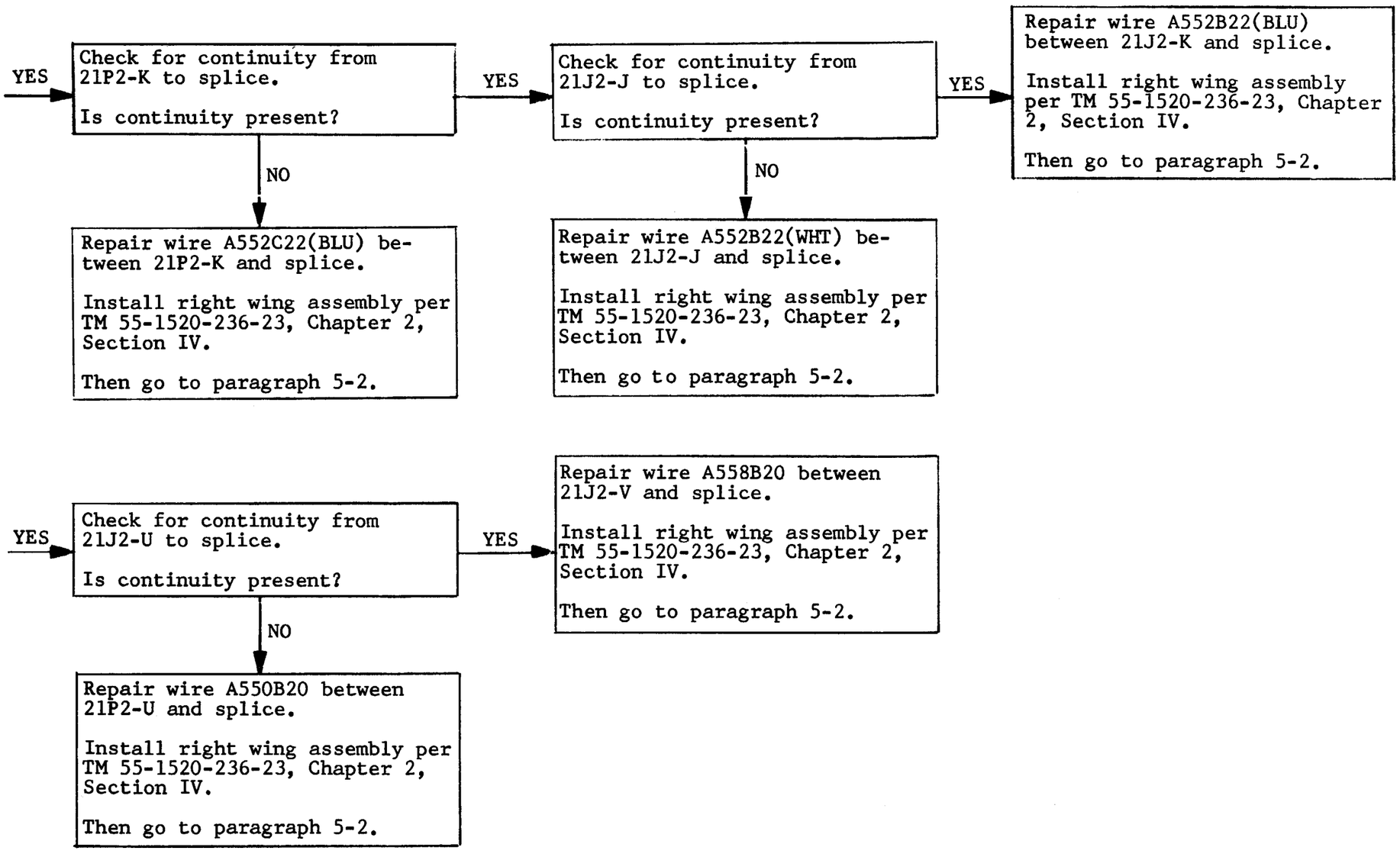
NO → Repair wire A558C20 between 21P2-V and splice.

Install right wing assembly per TM 55-1520-236-23, Chapter 2, Section IV.

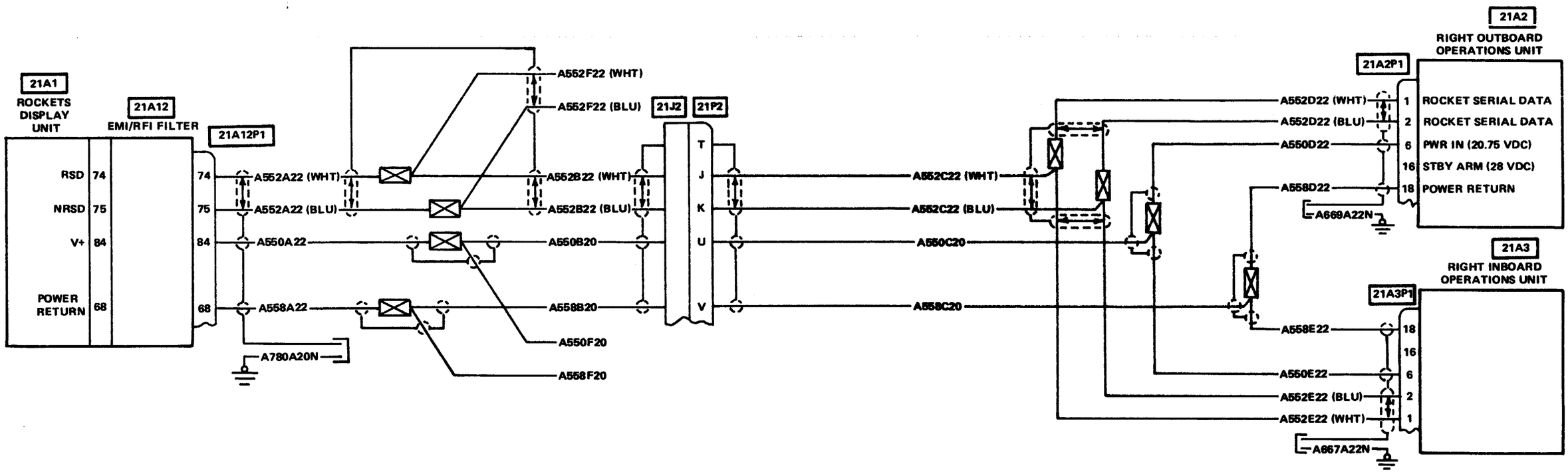
Then go to paragraph 5-2.

YES

5-10. RIGHT INBOARD AND RIGHT OUTBOARD OPERATIONS UNITS FAIL ("7" DOES NOT LIGHT) DURING RMS SELF TEST (CONTINUED).



5-10. RIGHT INBOARD AND RIGHT OUTBOARD OPERATIONS UNITS FAIL ("7" DOES NOT LIGHT) DURING RMS SELF TEST (CONTINUED).



5-11. LEFT INBOARD AND LEFT OUTBOARD OPERATIONS UNITS FAIL ("7" DOES NOT LIGHT) DURING RMS SELF TEST.

INITIAL SETUP

Applicable Configuration
All

Tools/Test and Support Equipment
Multimeter

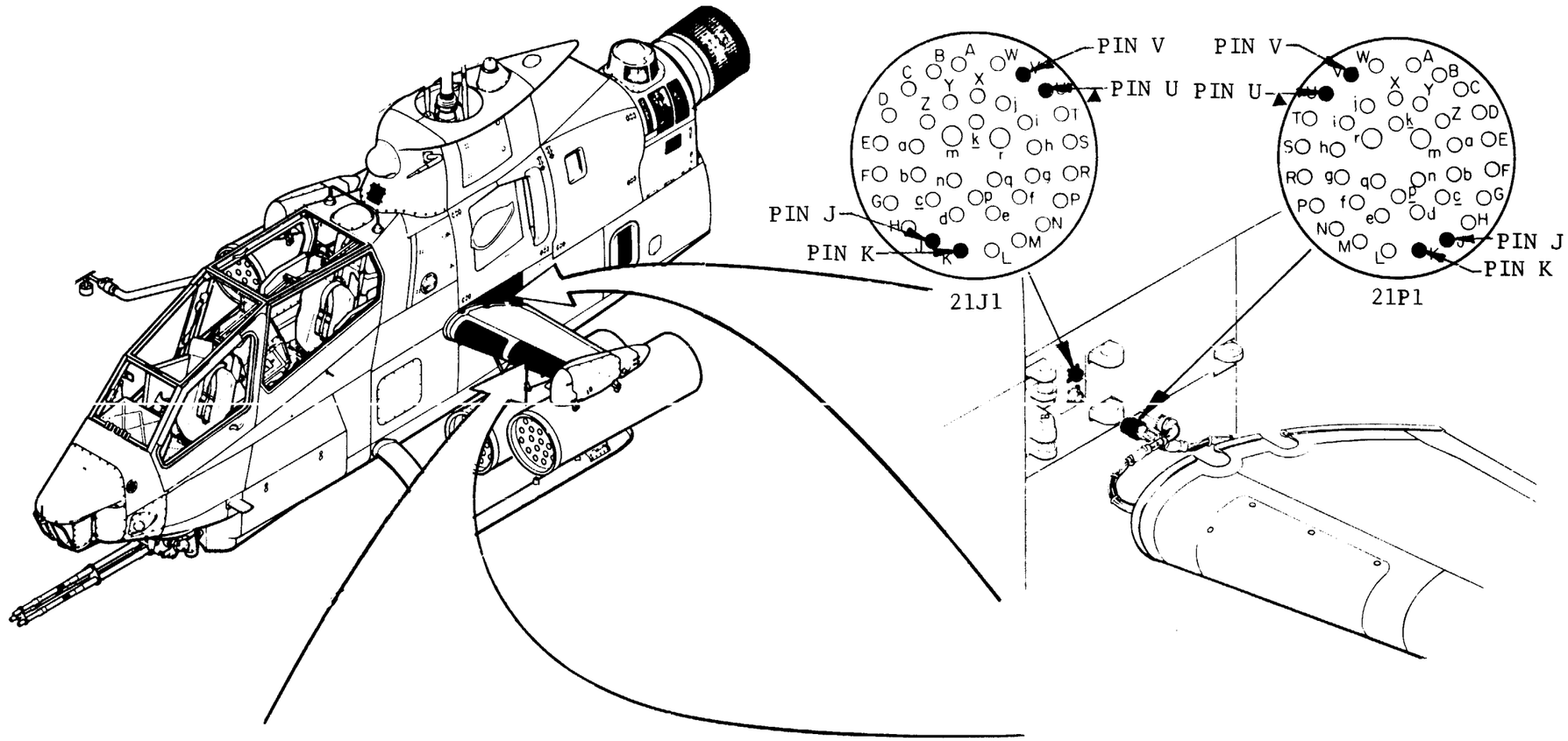
Tool Set, A/C Armament Repairman

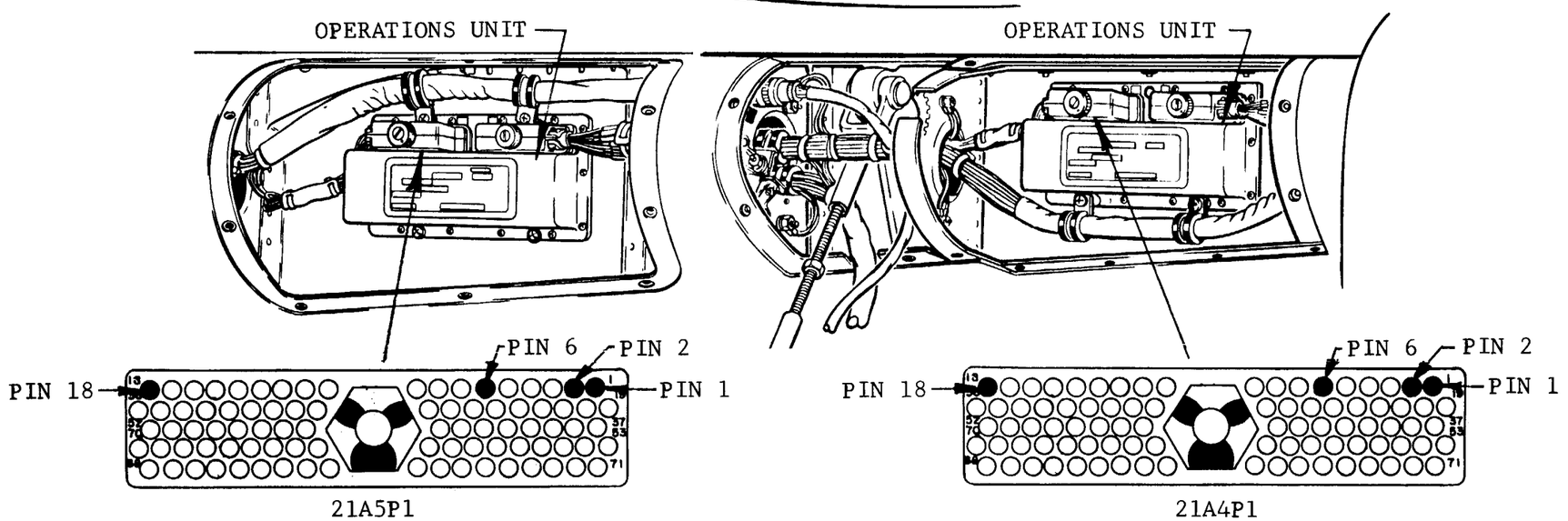
Personnel Required
68J (2)

References
TM 55-1520-236-23

Access Panels
Left Wing Outboard Leading Edge Cover - Removed

Left Wing Inboard Leading Edge Cover - Removed





5-11. LEFT INBOARD AND LEFT OUTBOARD OPERATIONS UNITS FAIL ("7" DOES NOT LIGHT) DURING RMS SELF TEST (CONTINUED).

Turn off electrical power per paragraph 5-3.

Disconnect 21A5P1.

Connect multimeter between 21A5P1-6(+) and 21A5P1-18(-).

Turn on electrical power per paragraph 5-3.

Is 20 to 21.5 V dc present?

YES → Turn off electrical power per paragraph 5-3.

Check for continuity from 21A4P1-1 to 21A5P1-1.

Is continuity present?

NO → Replace splice joining wires A552H22(WHT), A552J22(WHT) and A552G22(WHT) per TM 55-1520-236-23, Chapter 9, Section I.

Connect 21A5P1.

Then go to paragraph 5-2.

YES → Check for continuity from 21A4P1-2 to 21A5P1-2.

Is continuity present?

NO → Replace splice joining wires A552H22(BLU), A552J22(BLU) and A552G22(BLU) per TM 55-1520-236-23, Chapter 9, Section I.

Connect 21A5P1.

Then go to paragraph 5-2.

YES → Connect 21A5P1.

Remove left wing assembly per TM 55-1520-236-23, Chapter 2, Section IV.

Check for continuity from 21P1-J to splice.

Is continuity present?

NO → Repair wire A552G22(WHT) between 21P1-J and splice.

Install left wing assembly per TM 55-1520-236-23, Chapter 2, Section IV.

Then go to paragraph 5-2.

YES

NO

Turn off electrical power per paragraph 5-3.

Check for continuity from 21A4P1-6 to 21A5P1-6.

Is continuity present?

NO → Replace splice joining wires A550H22, A550J22 and A550G20 per TM 55-1520-236-23, Chapter 9, Section I.

Connect 21A5P1.

Then go to paragraph 5-2.

YES → Check for continuity from 21A4P1-18 to 21A5P1-18.

Is continuity present?

NO → Replace splice joining wires A558H22, A558J22, and A558G20 per TM 55-1520-236-23, Chapter 9, Section I.

Connect 21A5P1.

Then go to paragraph 5-2.

YES → Connect 21A5P1.

Remove left wing assembly per TM 55-1520-236-23, Chapter 2, Section IV.

Check for continuity from 21P1-U to splice.

Is continuity present?

NO → Repair wire A550G20 between 21P1-U and splice.

Install left wing assembly per TM 55-1520-236-23, Chapter 2, Section IV.

Then go to paragraph 5-2.

YES → Check for continuity from 21P1-V to splice.

Is continuity present?

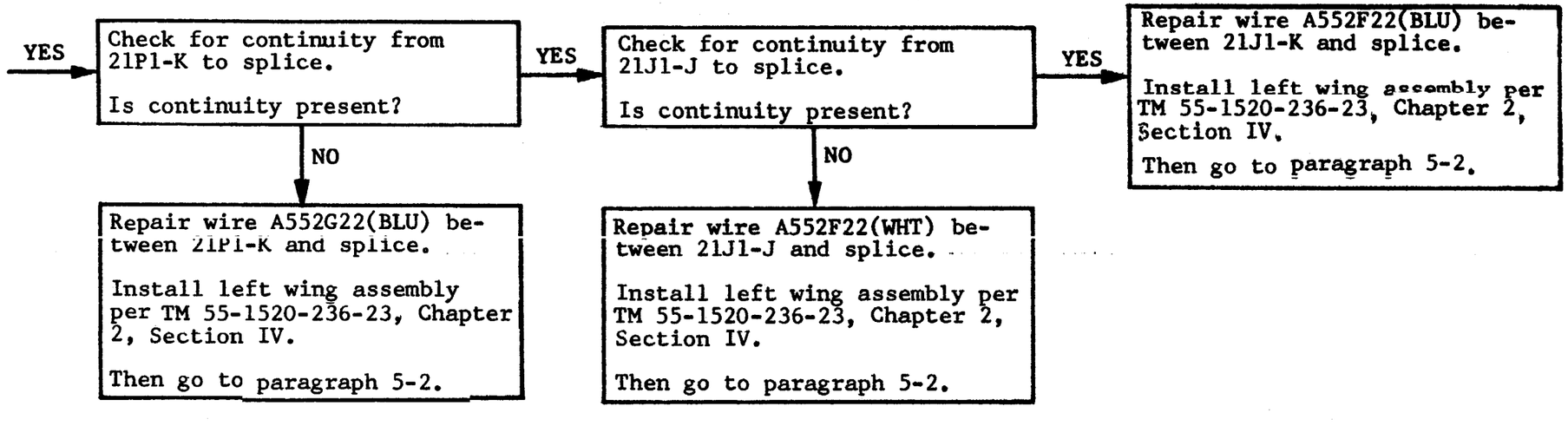
NO → Repair wire A558G20 between 21P1-V and splice.

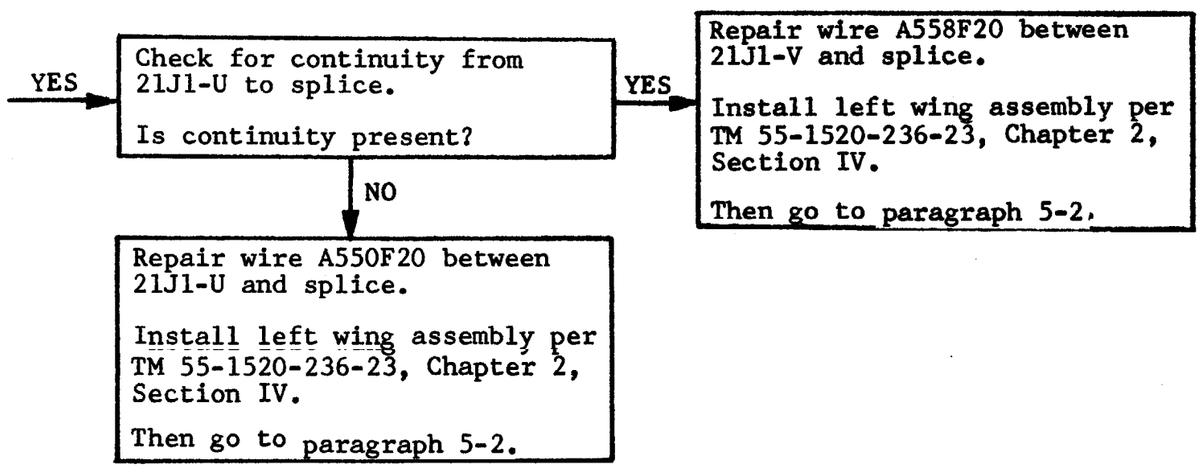
Install left wing assembly per TM 55-1520-236-23, Chapter 2, Section IV.

Then go to paragraph 5-2.

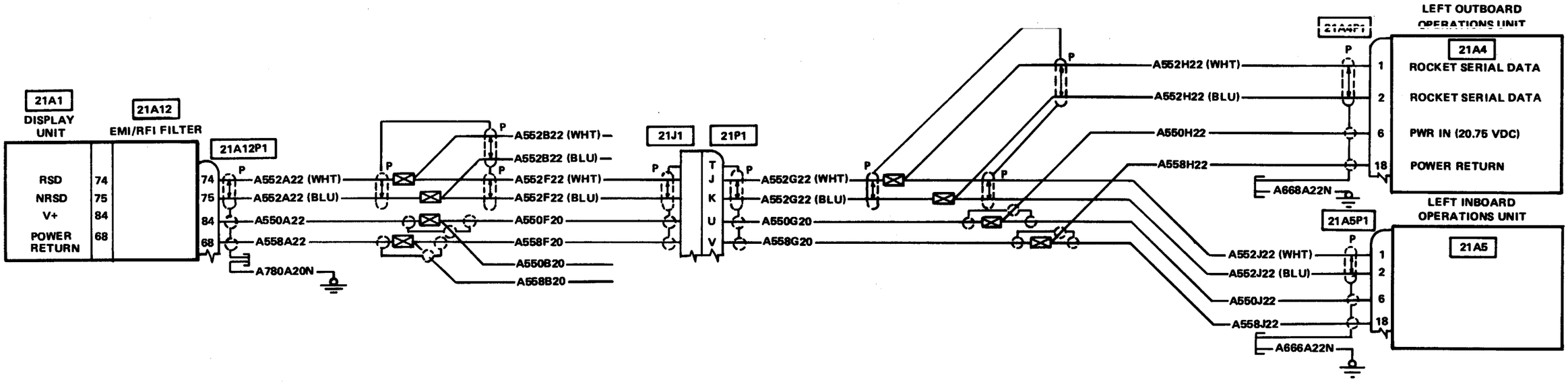
YES

5-11. LEFT INBOARD AND LEFT OUTBOARD OPERATIONS UNITS FAIL ("7" DOES NOT LIGHT) DURING RMS SELF TEST (CONTINUED).





5-11. LEFT INBOARD AND LEFT OUTBOARD OPERATIONS UNITS FAIL ("7" DOES NOT LIGHT) DURING RMS SELF TEST (CONTINUED).



5-12. ALL OPERATIONS UNITS FAIL ("7" DOES NOT LIGHT) DURING RMS SELF TEST.

INITIAL SETUP

Applicable Configuration
All

Tools/Test and Support Equipment
Multimeter

Tool Set, A/C Armament Repairman

Personnel Required
68J (2)

References
TM 55-1520-236-23
TM 9-1090-207-13

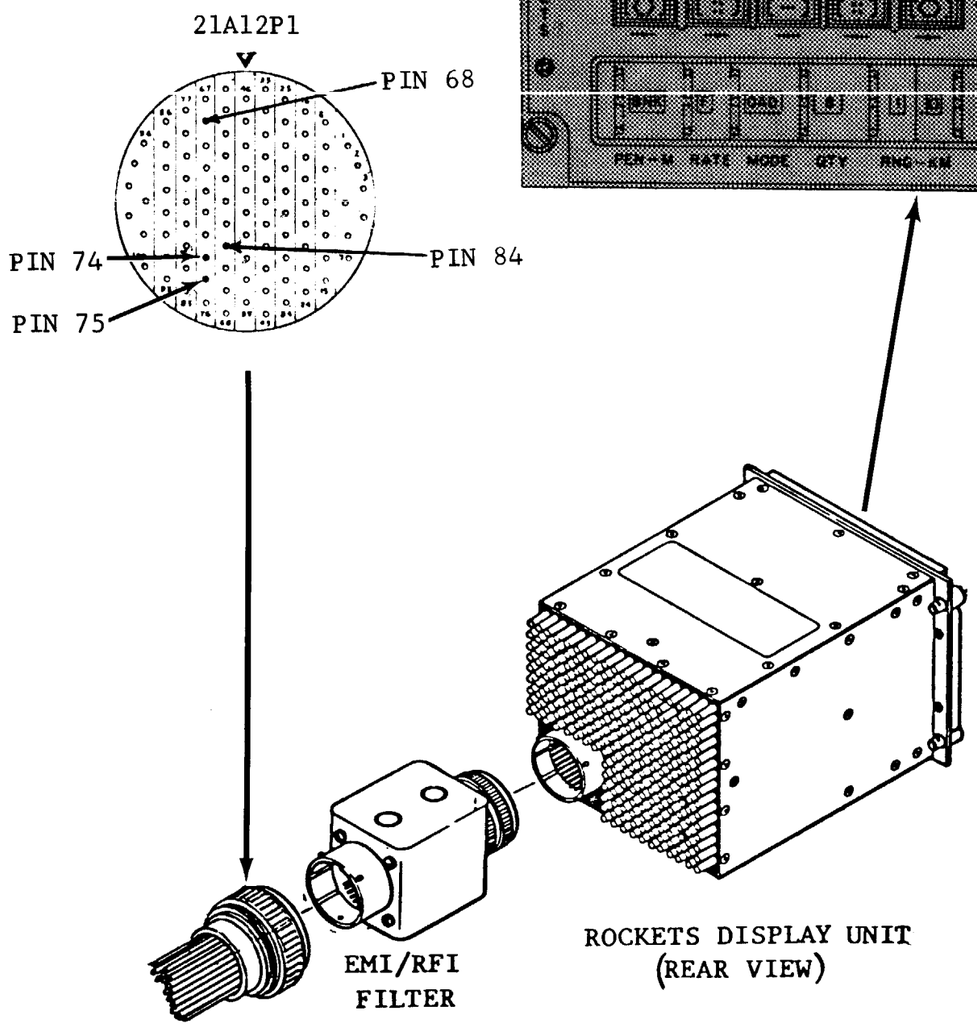
Access Panels
Left Wing Outboard Leading Edge Cover - Removed

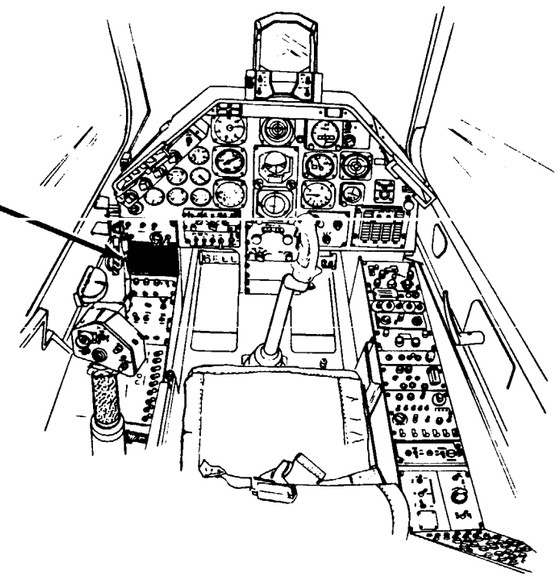
Left Wing Inboard Leading Edge Cover - Removed

Right Wing Outboard Leading Edge Cover - Removed

Right Wing Inboard Leading Edge Cover - Removed

A. TROUBLESHOOTING LOGIC PART ONE.

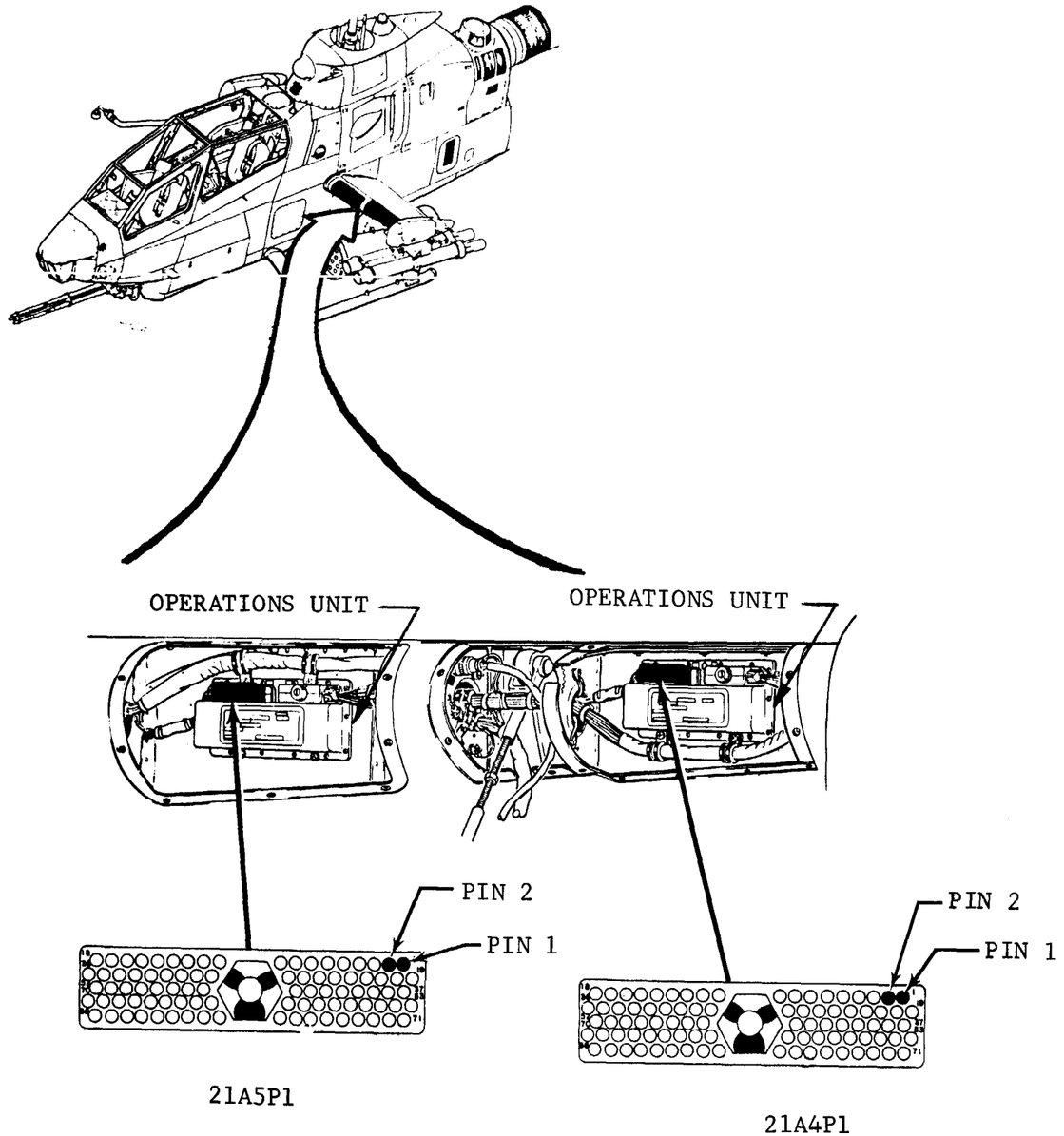


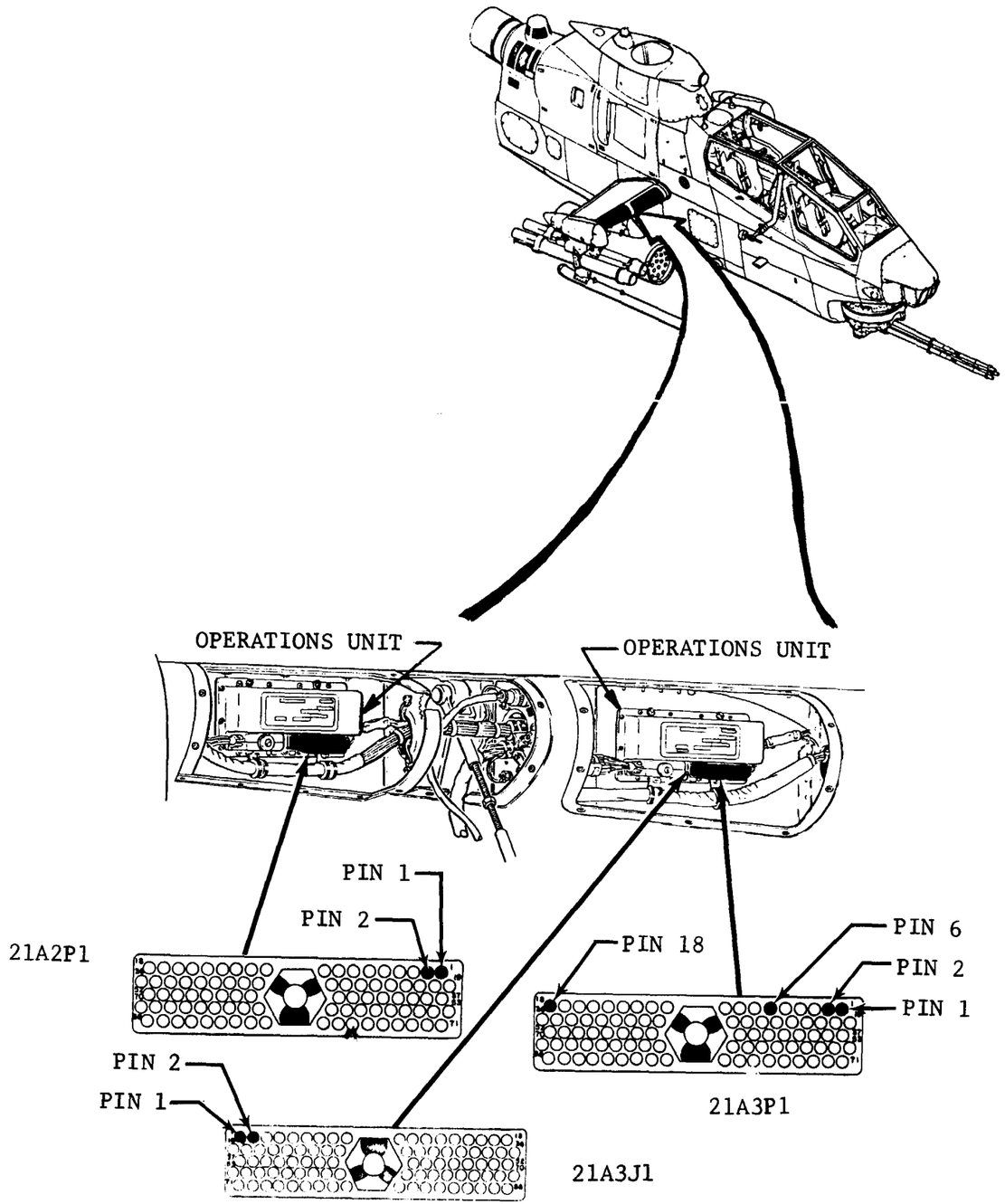


PILOT STATION

5-12. ALL OPERATIONS UNITS FAIL ("7" DOES NOT LIGHT) DURING RMS SELF TEST (CONTINUED).

A. TROUBLESHOOTING LOGIC PART ONE (CONTINUED).





5-12. ALL OPERATIONS UNITS FAIL ("7" DOES NOT LIGHT) DURING RMS SELF TEST (CONTINUED).

A. TROUBLESHOOTING LOGIC PART ONE (CONTINUED).

Turn off electrical power per paragraph 5-3.

Remove ROCKETS display unit per TM 9-1090-207-13, Chapter 4, Section IV.

Disconnect 21A12P1 from EMI/RFI filter.

Connect 21A12P1 directly to ROCKETS display unit.

Turn on electrical power per paragraph 5-3.

Press ROCKETS display unit TEST switch.

Do "7s" appear for all operations units?

YES

Turn off electrical power per paragraph 5-3.

Replace EMI/RFI filter per TM 9-1090-207-13, Chapter 4, Section IV.

Install ROCKETS display unit per TM 9-1090-207-13, Chapter 4 Section IV.

Then go to paragraph 5-2.

NO

Turn off electrical power per paragraph 5-3.

Connect EMI/RFI filter to ROCKETS display unit and 21A12P1 to EMI/RFI filter.

Disconnect 21A3P1.

Connect multimeter to pins 21A3P1-6 (+) and 21A3P1-18(-).

Turn on electrical power per paragraph 5-3.

Check for 20 to 21.5 V dc between 21A3P1-6(+) and 21A3P1-18(-).

Is 20 to 21.5 V dc present?

YES

NO

Turn off electrical power per paragraph 5-3.

Check for continuity from 21A12P1-84 to 21A3P1-6.

Is continuity present?

YES

Check for continuity from 21A12P1-68 to 21A3P1-18.

Is continuity present?

YES

NO

Repair wire A558A22 between 21A12P1-68 and splice.

Install ROCKETS display unit per TM 9-1090-207-13, Chapter 4, Section IV.

Connect 21A3P1.

Then go to paragraph 5-2.

NO

Repair wire A550A22 between 21A12P1-84 and splice.

Install ROCKETS display unit per TM 9-1090-207-13, Chapter 4, Section IV.

Connect 21A3P1.

Then go to paragraph 5-2.

5-12. ALL OPERATIONS UNITS FAIL ("7" DOES NOT LIGHT) DURING RMS SELF TEST (CONTINUED).

A. TROUBLESHOOTING LOGIC PART ONE (CONTINUED).

YES

Turn off electrical power per paragraph 5-3.

Connect multimeter to pins 21A3P1-1(+) and 21A3P1-2(-).

Turn on electrical power per paragraph 5-3.

Check for 2 V dc or greater between 21A3P1-1(+) and 21A3P1-2(-).

Is 2 V dc or greater present?

YES

Turn off electrical power per paragraph 5-3.

Connect 21A3P1.

Replace ROCKETS display unit per TM 9-1090-207-13, Chapter 4, Section IV.

Then go to paragraph 5-2.

NO

Turn off electrical power per paragraph 5-3.

Check for continuity from 21A12P1-74 to 21A3P1-1.

Is continuity present?

YES

Check for continuity from 21A12P1-75 to 21A3P1-2.

Is continuity present?

YES

NO

Repair wire A552A22(WHT) between 21A12P1-74 and splice.

Connect 21A3P1.

Install ROCKETS display unit per TM 9-1090-207-13, Chapter 4, Section IV.

Then go to paragraph 5-2.

NO

Repair wire A552A22(BLU) between 21A12P1-75 and splice.

Connect 21A3P1.

Install ROCKETS display unit per TM 9-1090-207-13, Chapter 4, Section IV.

Then go to paragraph 5-2.

YES

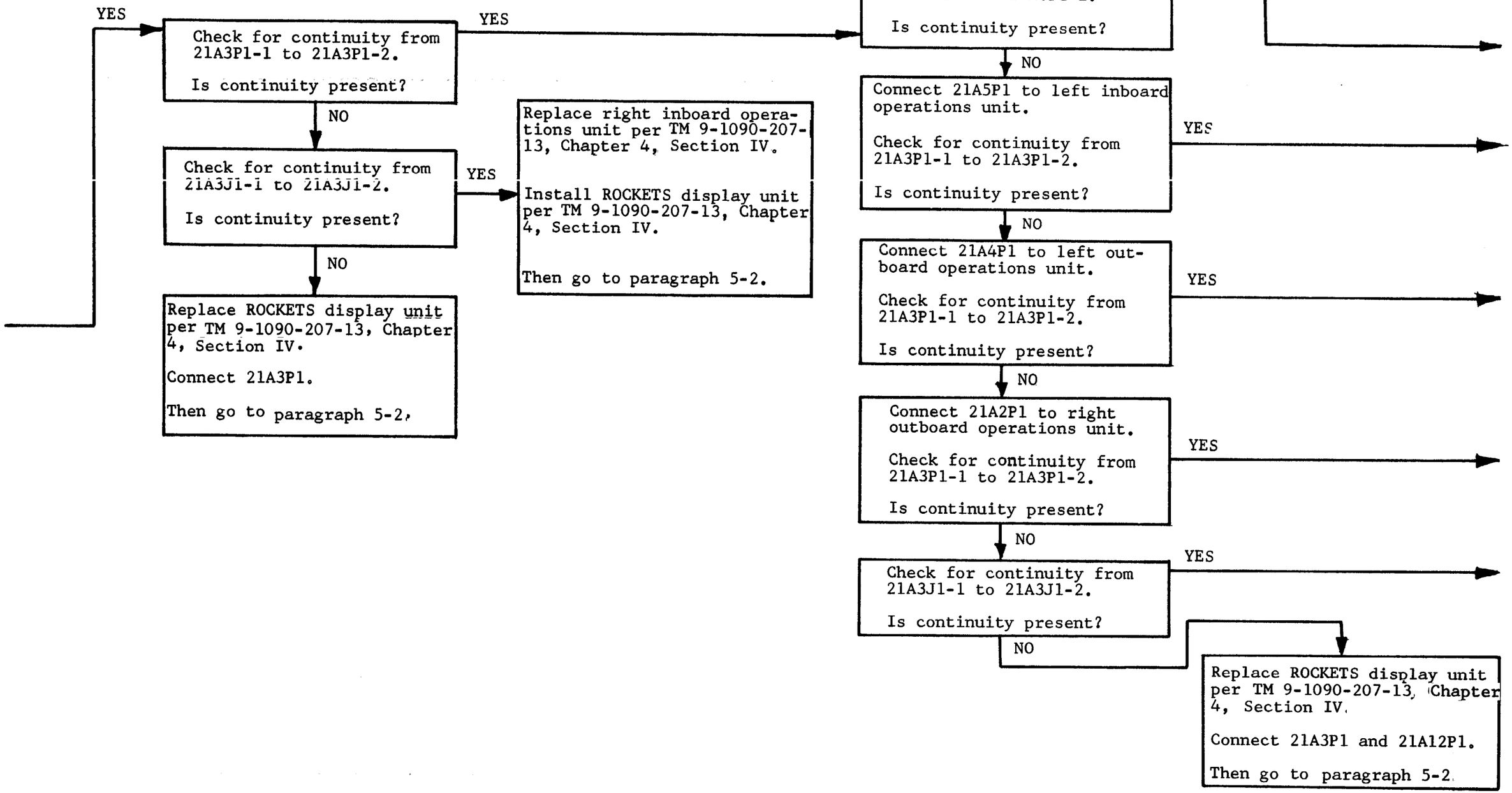
Replace ROCKETS display unit per TM 9-1090-207-13, Chapter 4, Section IV.

Connect 21A3P1.

Then go to paragraph 5-2.

5-12. ALL OPERATIONS UNITS FAIL ("7" DOES NOT LIGHT) DURING RMS SELF TEST (CONTINUED).

A. TROUBLESHOOTING LOGIC PART ONE (CONTINUED).



5-12. ALL OPERATIONS UNITS FAIL ("7" DOES NOT LIGHT) DURING RMS SELF TEST (CONTINUED).

A. TROUBLESHOOTING LOGIC PART ONE (CONTINUED).

YES → Remove splice joining wires A552C22(WHT), A552D22(WHT), and A552E22(WHT).

Check for continuity from 21A3P1-1 to 21A3P1-2.

Is continuity present?

YES → Repair wire A552E22(WHT) between 21A3P1-1 and splice.

Install splice joining wires A552C22 (WHT), A552D22 (WHT), and A552E22 (WHT) per TM 55-1520-236-23, Chapter 9, Section I.

Connect 21A2P1, 21A3P1, 21A4P1, 21A5P1, and 21A12P1.

Install ROCKETS display unit per TM 9-1090-207-13, Chapter 4, Section IV.

Then go to paragraph 5-2.

NO → Check for continuity from 21A2P1-1 to 21A2P1-2.

Is continuity present?

YES → Repair wire A552D22(WHT) between 21A2P1-1 and splice.

Install splice joining wires A552C22 (WHT), A552D22 (WHT), and A552E22 (WHT) per TM 55-1520-236-23, Chapter 9, Section I.

Connect 21A2P1, 21A3P1, 21A4P1, 21A5P1, and 21A12P1.

Install ROCKETS display unit per TM 9-1090-207-13, Chapter 4, Section IV.

Then go to paragraph 5-2.

NO → Remove splice joining wires A552H22(WHT), A552J22(WHT), and A552G22(WHT).

Check for continuity from 21A5P1-1 to 21A5P1-2.

Is continuity present?

YES → YES

NO → Go to Troubleshooting Logic Part Two (subparagraph B).

YES → Replace left inboard operations unit per TM 9-1090-207-13, Chapter 4, Section IV.

Connect 21A2P1, 21A3P1, 21A4P1. and 21A12P1.

Install ROCKETS display unit per TM 9-1090-207-13, Chapter 4, Section IV.

Then go to paragraph 5-2.

YES → Replace left outboard operations unit per TM 9-1090-207-13, Chapter 4, Section IV.

Connect 21A2P1, 21A3P1, and 21A12P1.

Install ROCKETS display unit per TM 9-1090-207-13, Chapter 4, Section IV.

Then go to paragraph 5-2.

YES → Replace right outboard operations unit per TM 9-1090-207-13, Chapter 4, Section IV.

Connect 21A3P1 and 21A12P1.

Install ROCKETS display unit per TM 9-1090-207-13, Chapter 4, Section IV.

Then go to paragraph 5-2.

YES → Replace right inboard operations unit per TM 9-1090-207-13, Chapter 4, Section IV.

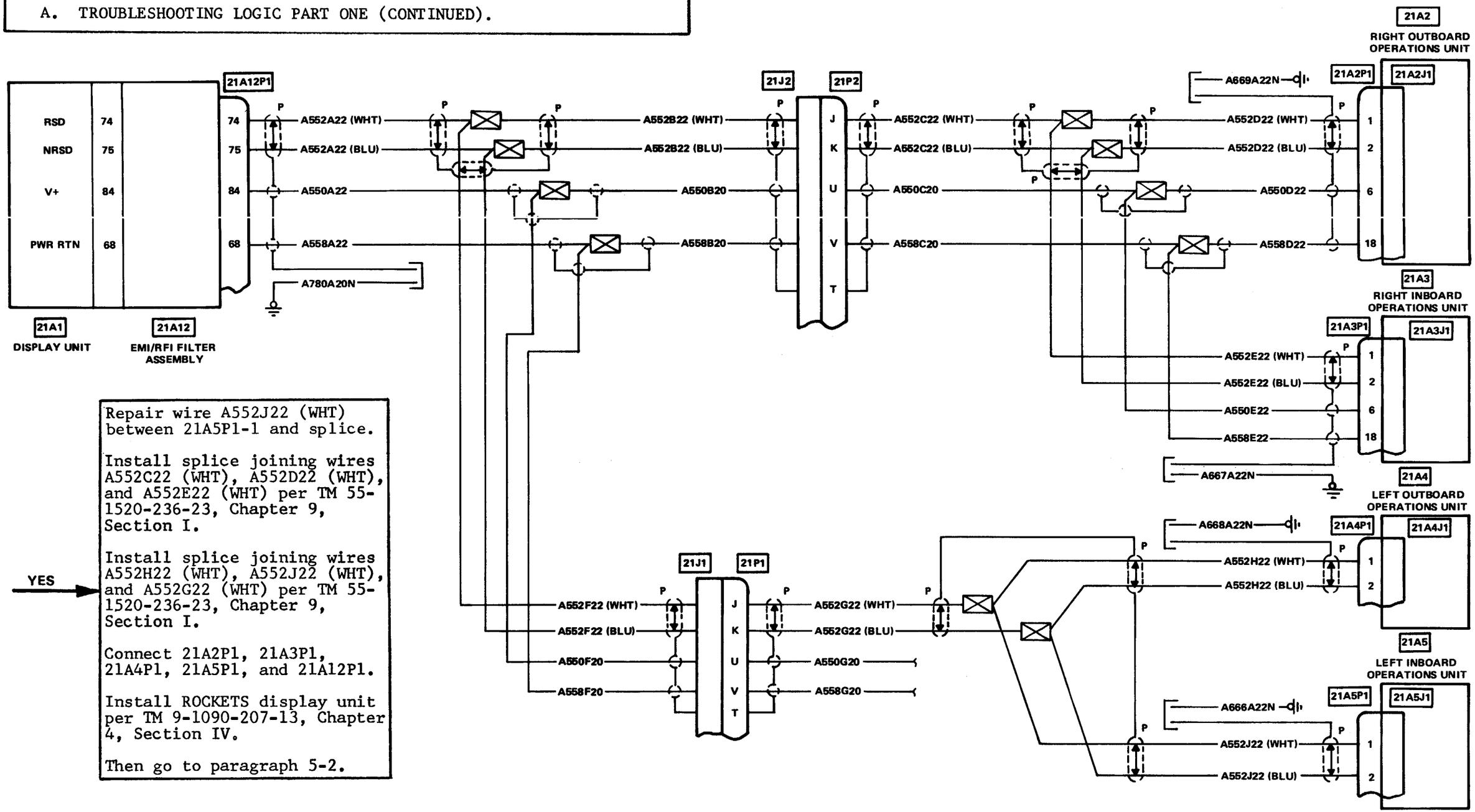
Connect 21A12P1.

Install ROCKETS display unit per TM 9-1090-207-13, Chapter 4, Section IV.

Then go to paragraph 5-2.

5-12. ALL OPERATIONS UNITS FAIL ("7" DOES NOT LIGHT) DURING RMS SELF TEST (CONTINUED).

A. TROUBLESHOOTING LOGIC PART ONE (CONTINUED).



YES →

Repair wire A552J22 (WHT) between 21A5P1-1 and splice.

Install splice joining wires A552C22 (WHT), A552D22 (WHT), and A552E22 (WHT) per TM 55-1520-236-23, Chapter 9, Section I.

Install splice joining wires A552H22 (WHT), A552J22 (WHT), and A552G22 (WHT) per TM 55-1520-236-23, Chapter 9, Section I.

Connect 21A2P1, 21A3P1, 21A4P1, 21A5P1, and 21A12P1.

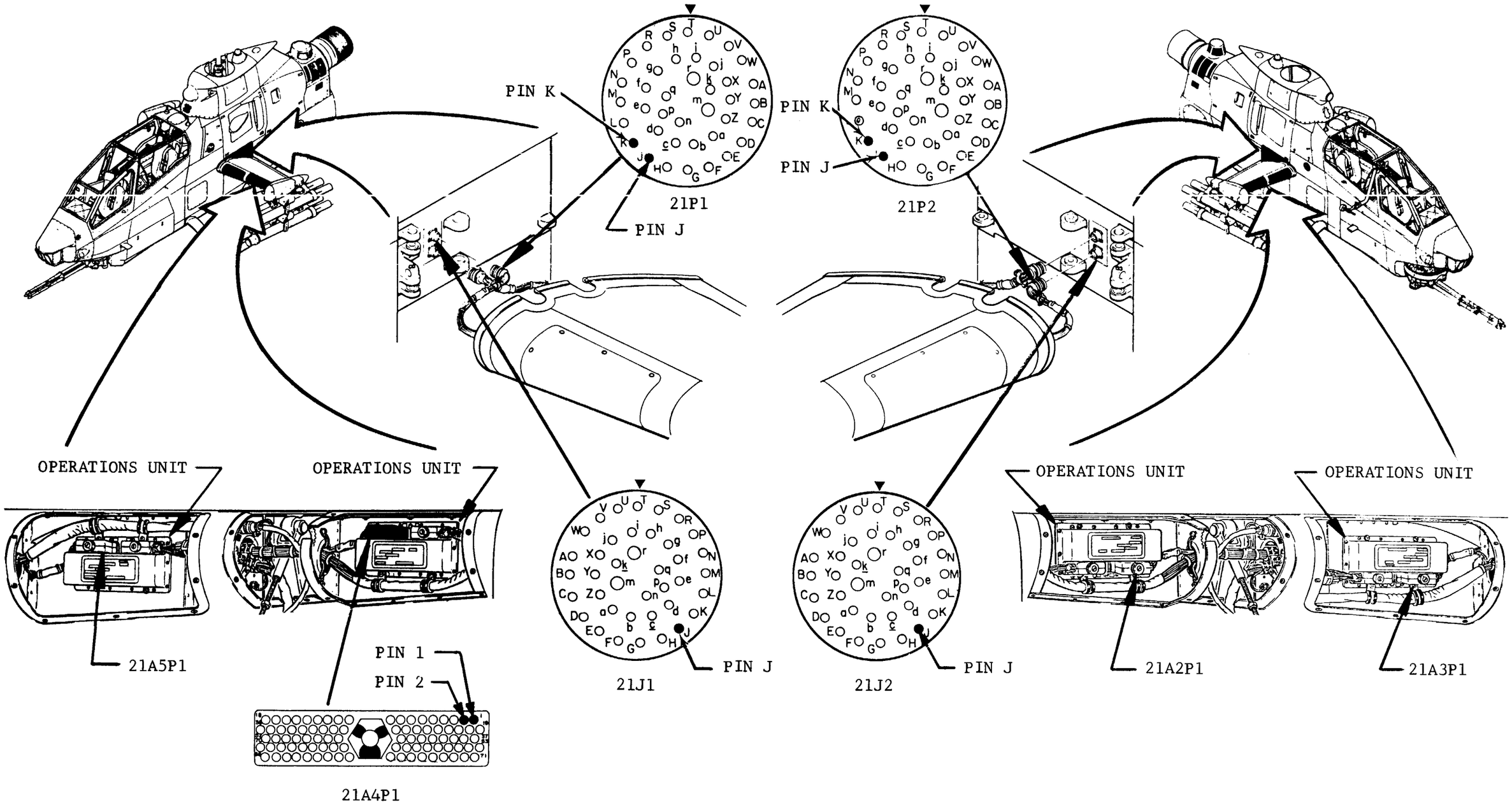
Install ROCKETS display unit per TM 9-1090-207-13, Chapter 4, Section IV.

Then go to paragraph 5-2.

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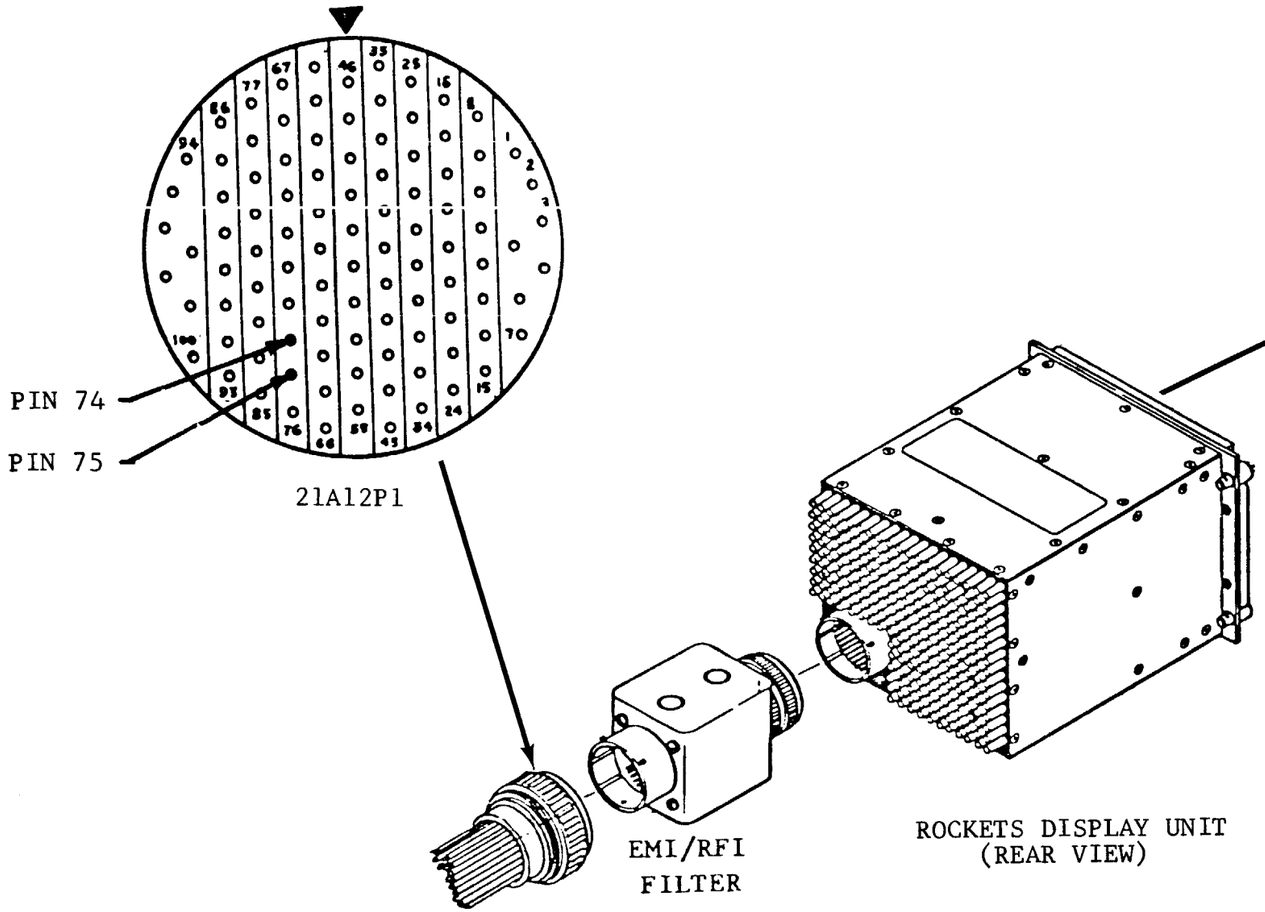
5-12. ALL OPERATIONS UNITS FAIL ("7" DOES NOT LIGHT) DURING RMS SELF TEST (CONTINUED).

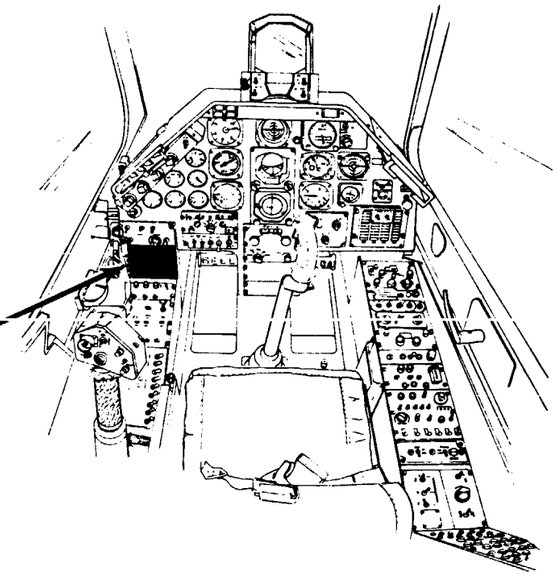
B. TROUBLESHOOTING LOGIC PART TWO.



5-12. ALL OPERATIONS UNITS FAIL ("7" DOES NOT LIGHT) DURING RMS SELF TEST (CONTINUED).

B. TROUBLESHOOTING LOGIC PART TWO (CONTINUED).





PILOT STATION

5-12.. ALL OPERATIONS UNITS FAIL ("7" DOES NOT LIGHT) DURING RMS SELF TEST (CONTINUED).

B. TROUBLESHOOTING LOGIC PART TWO (CONTINUED).

Check for continuity from 21A4P1-1 to 21A4P1-2.

Is continuity present?

YES

NO

Remove splice joining wires A552A22(WHT), A552B22(WHT), and A552F22(WHT).

Check for continuity from 21A12P1-74 to 21A12P1-75.

Is continuity present?

YES

NO

Check for continuity from end of wire A552B22(BLU) to splice joining wires A552A22(BLU), A552B22(BLU), and A552F22(BLU)

Is continuity present?

YES

NO

Remove left wing per TM 55-1520-236-23, Chapter 2, Section IV.

Check for continuity from 21P1-J to 21P1-K.

Is continuity present?

YES

NO

Repair wire A552G22 (WHT) between 21P1-J and splice.

Install splice joining wires A552A22 (WHT), A552B22 (WHT), and A552F22 (WHT) per TM 55-1520-236-23, Chapter 9, Section I.

Install splice joining wires A552C22 (WHT), A552D22 (WHT), and A552E22 (WHT) per TM 55-1520-236-23, Chapter 9, Section I.

Install splice joining wires A552H22 (WHT), A552J22 (WHT), and A552G22 (WHT) per TM 55-1520-236-23, Chapter 9, Section I.

Connect 21A2P1, 21A3P1, 21A4P1, 21A5P1, and 21A12P1.

Install ROCKETS display unit per TM 9-1090-207-13, Chapter 4, Section IV.

Install left wing per TM 55-1520-236-23, Chapter 2, Section IV.

Then go to paragraph 5-2.

Repair wire A552F22 (WHT) between 21J1-J and splice.

Install splice joining wires A552A22 (WHT), A552B22 (WHT), and A552F22 (WHT) per TM 55-1520-236-23, Chapter 9, Section I.

Install splice joining wires A552C22 (WHT), A552D22 (WHT), and A552E22 (WHT) per TM 55-1520-236-23, Chapter 9, Section I.

Install splice joining wires A552H22 (WHT), A552J22 (WHT), and A552G22 (WHT) per TM 55-1520-236-23, Chapter 9, Section I.

Connect 21A2P1, 21A3P1, 21A4P1, 21A5P1, and 21A12P1.

Install ROCKETS display unit per TM 9-1090-207-13, Chapter 4, Section IV.

Install left wing per TM 55-1520-236-23, Chapter 2, Section IV.

Then go to paragraph 5-2.

5-12. ALL OPERATIONS UNITS FAIL (“7” DOES NOT LIGHT) DURING RMS SELF TEST (CONTINUED).

B. TROUBLESHOOTING LOGIC PART TWO (CONTINUED).

Remove right wing per TM 55-1520-236-23, Chapter 2, Section IV.

Check for continuity from 21P2-J to 21P2-K.

Is continuity present?

YES

Repair wire A552C22 (WHT) between 21P2-J and splice.

Install splice joining wires A552A22 (WHT), A552B22 (WHT), and A552F22 (WHT) per TM 55-1520-236-23, Chapter 9, Section I.

Install splice joining wires A552C22 (WHT), A552D2 (WHT), and A552E22 (WHT) per TM 55-1520-236-23, Chapter 9, Section I.

Install splice joining wires A552H22 (WHT), A552J22 (WHT), and A552G22 (WHT) per TM 55-1520-236-23, Chapter 9, Section I.

Connect 21A2P1, 21A3P1, 21A4P1, 21A5P1, and 21A12P1.

Install ROCKETS display unit per TM 9-1090-207-13, Chapter 4, Section IV.

Install right wing per TM 55-1520-236-23, Chapter 2, Section IV.

Then go to paragraph 5-2.

NO

Repair wire A552B22 (WHT) between 21J2-J and splice.

Install splice joining wires A552A22 (WHT), A552B22 (WHT), and A552F22 (WHT) per TM 55-1520-236-23, Chapter 9, Section 1.

Install splice joining wires A552C22 (WHT), A552D22 (WHT), and A552E22 (WHT) per TM 55-1520-236-23, Chapter 9, Section 1.

Install splice joining wires A552H22 (WHT), A552J22 (WHT), and A552G22 (WHT) per TM 55-1520-236-23, Chapter 9, Section I.

Connect 21A2P1, 21A3P1, 21A4P1, 21A5P1, and 21A12P1.

Install ROCKETS display unit per TM 9-1090-207-13, Chapter 4, Section IV.

Install right wing per TM 55-1520-236-23, Chapter 2, Section IV.

Then go to paragraph 5-2.

YES

Repair wire A552A22 (WHT) between 21A12P1-74 and splice.

Install splice joining wires A552A22 (WHT), A552B22 (WHT), and A552F22 (WHT) per TM 55-1520-236-23, Chapter 9, Section I.

Install splice joining wires A552C22 (WHT), A552D22 (WHT), and A552E22 (WHT) per TM 55-1520-236-23, Chapter 9, Section I.

Install splice joining wires A552H22 (WHT), A552J22 (WHT), and A552G22 (WHT) per TM 55-1520-236-23, Chapter 9, Section I.

Connect 21A2P1, 21A3P1, 21A4P1, 21A5P1, and 21A12P1.

Install ROCKETS display unit per TM 9-1090-207-13, Chapter 4, Section IV.

Then go to paragraph 5-2.

YES

Repair wire A552H22 (WHT) between 21A4P1-1 and splice.

Install splice joining wires A552C22 (WHT), A552D22 (WHT), and A552E22 (WHT) per TM 55-1520-236-23, Chapter 9, Section I.

Install splice joining wires A552H22 (WHT), A552J22 (WHT), and A552G22 (WHT) per TM 55-1520-236-23, Chapter 9, Section I.

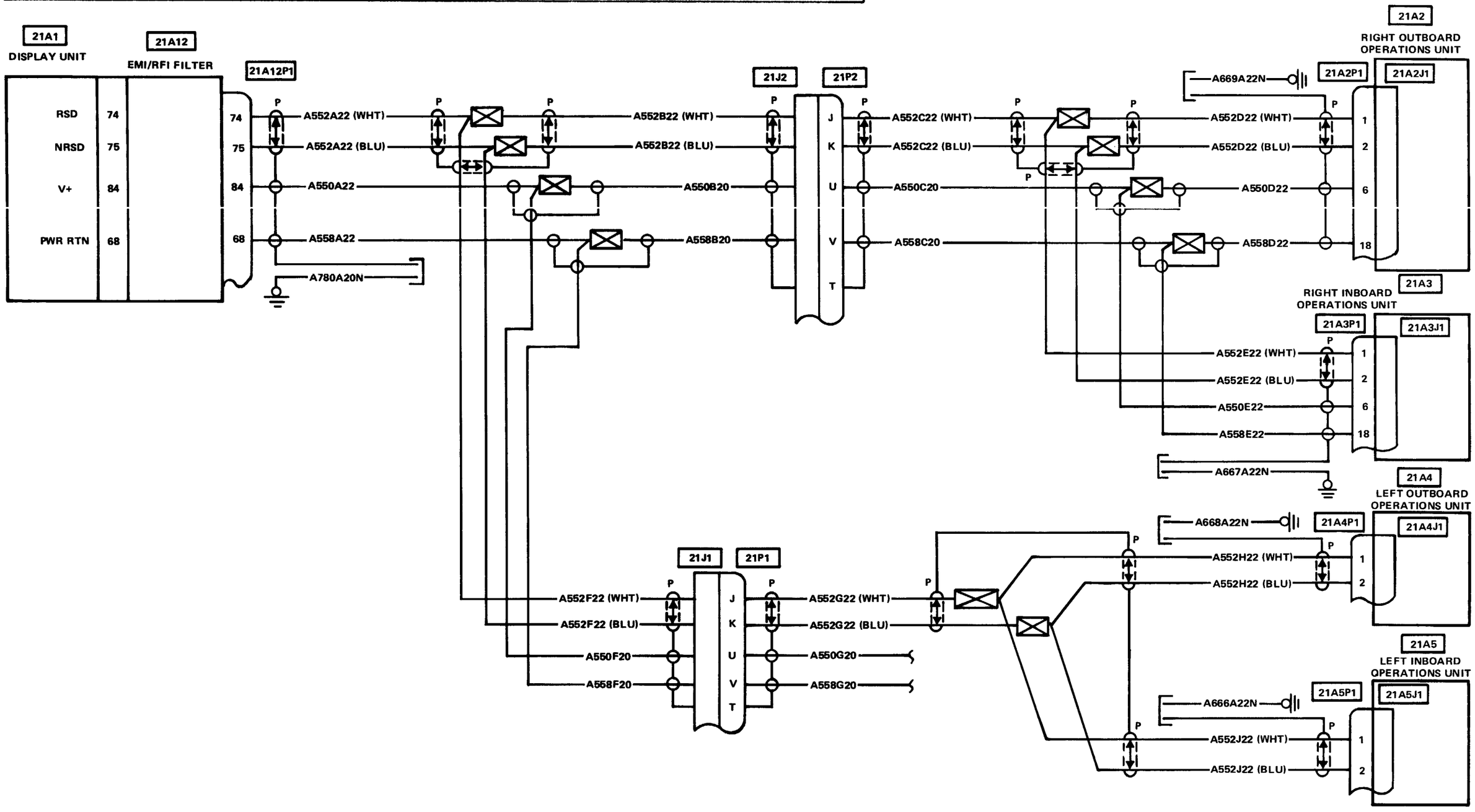
Connect 21A2P1, 21A3P1, 21A4P1, 21A5P1, and 21A12P1.

Install ROCKETS display unit per TM 9-1090-207-13, Chapter 4, Section IV.

Then go to paragraph 5-2.

5-12. ALL OPERATIONS UNITS FAIL ("7" DOES NOT LIGHT) DURING RMS SELF TEST (CONTINUED).

B. TROUBLESHOOTING LOGIC PART TWO (CONTINUED).



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5-13. ZONE WILL NOT ARM WHEN ITS ZONE ARM SWITCH IS PRESSED.

INITIAL SETUP

Applicable Configuration
All

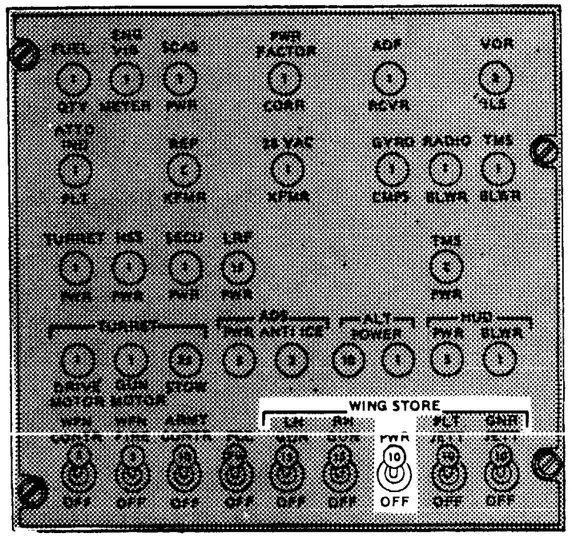
Tools/Test and Support Equipment
Multimeter

Tool Set, A/C Armament Repairman

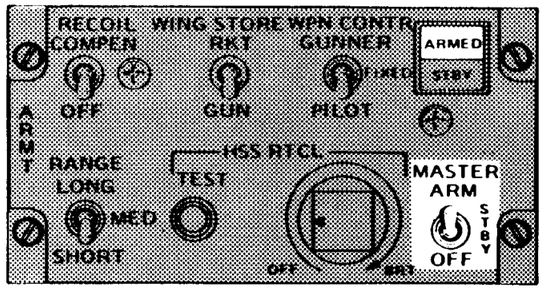
Personnel Required
68J (2)

References
TM 9-1090-207-13
TM 55-1520-236-23

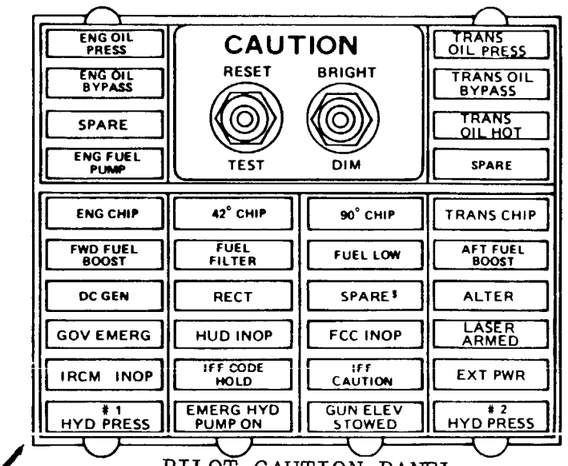
Access Panels
Right Side Glareshield Access Panel - Removed



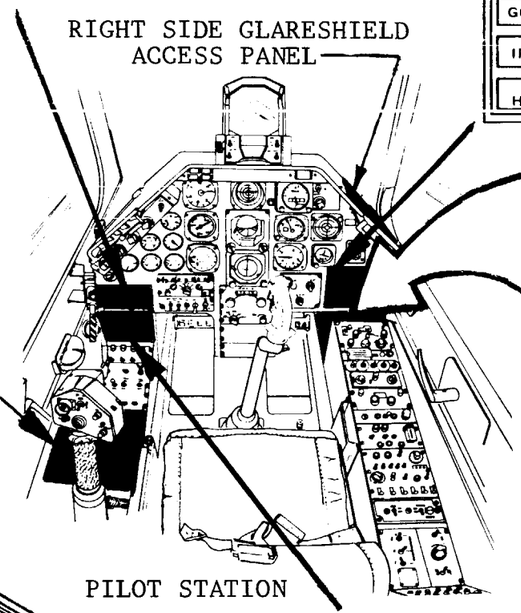
AC/ARMT CIRCUIT BREAKER PANEL



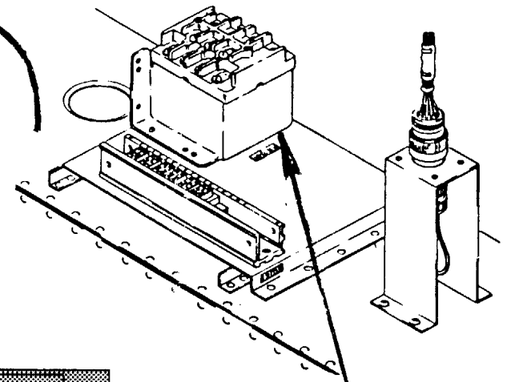
PILOT ARMT CONTROL PANEL

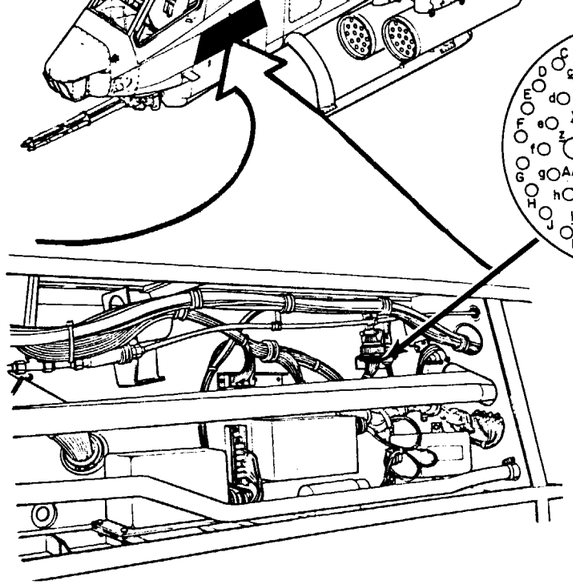


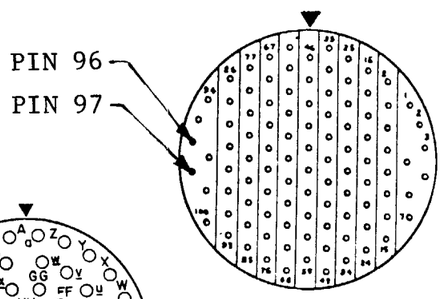
PILOT CAUTION PANEL

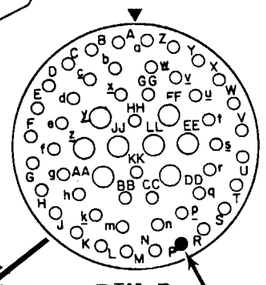


PILOT STATION



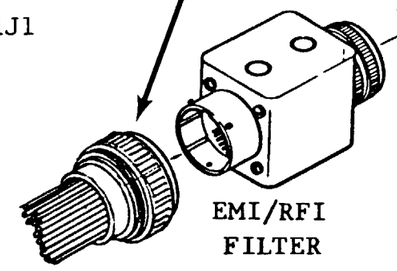


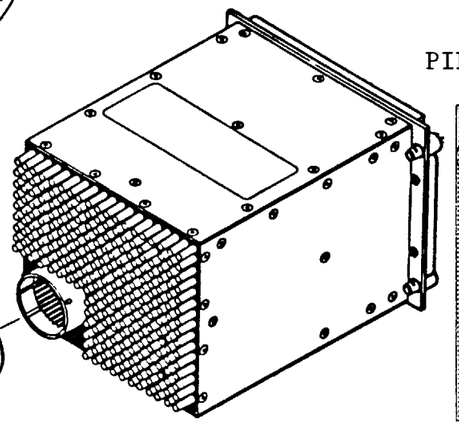


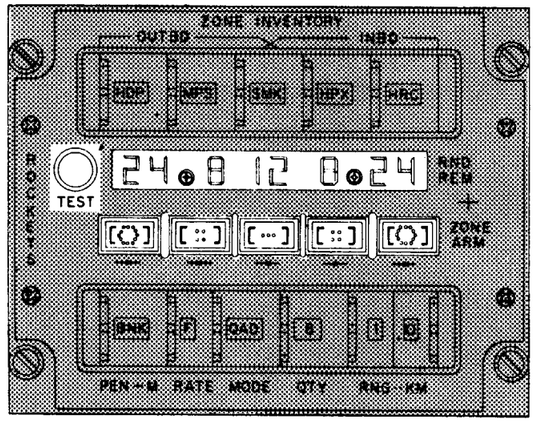


3A1J1

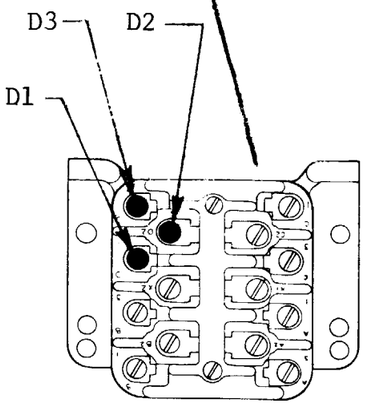
21A12P1


EMI/RFI FILTER


ROCKETS DISPLAY UNIT REAR VIEW



ROCKETS DISPLAY UNIT



19K31

5-13. ZONE WILL NOT ARM WHEN ITS ZONE ARM SWITCH IS PRESSED (CONTINUED).

Verify the following:

ARMED indicator on pilot ARMT control panel is lit.

RND REM display on ROCKETS display unit displays rounds in zone to be armed.

Is WING STORE PWR circuit breaker on AC/ARMT circuit breaker panel closed?

YES → For each zone with rounds displayed, press the ZONE ARM switch on ROCKETS display unit.

Will any zone arm?

YES → Turn off electrical power per paragragh 5-3.

Replace ROCKETS display unit per TM 9-1090-207-13, Chapter 4, Section IV.

Then go to paragraph 5-2.

NO → Press TEST switch on ROCKETS display unit.

Does rockets management subsystem perform and pass self-test?

YES → Turn off electrical power per paragraph 5-3.

Disconnect 21A12P1.

Connect voltmeter at 21A12P1-96 and at 21A12P1-97.

Turn on electrical power per paragraph 5-3.

Is 28 V dc present on either pin?

YES → Is 28 V dc present on both 21A12P1-96 and 21A12P1-97?

YES → Turn off electrical power per paragraph 5-3.

Repair wire A449B22 between 21A12P1-96 and splice or wire A449C22 between 21A12P1-97 and splice.

Continue trouble-shooting.

YES

NO → Check for 28 V dc at 19K31-D2.

Is 28 V dc present?

YES

NO → Turn off electrical power per paragraph 5-3.

Check for continuity from 3A1J1-P to 19K31-D2.

Is continuity present?

YES → Remove AC/ARMT circuit breaker panel per TM 55-1520-236-23, Chapter 9, Section I.

Check for continuity from bus side to output side of WING STORE PWR circuit breaker on AC/ARMT circuit breaker panel with circuit breaker closed.

Is continuity present?

YES

NO → Replace WING STORE PWR circuit breaker on AC/ARMT circuit breaker panel per TM 55-1520-236-23, Chapter 9, Section I.

Install AC/ARMT circuit breaker panel per TM 55-1520-236-23, Chapter9, Section I.

Connect 21A12P1.

Then go to paragraph 5-2.

NO → Repair wire A359B20 between 3A1J1-P and 19K31-D2.

Connect 21A12P1.

Then go to paragraph 5-2.

NO → Set MASTER ARM switch on pilot ARMT control panel to STBY.

Close WING STORE PWR circuit breaker on AC/ARMT circuit breaker panel.

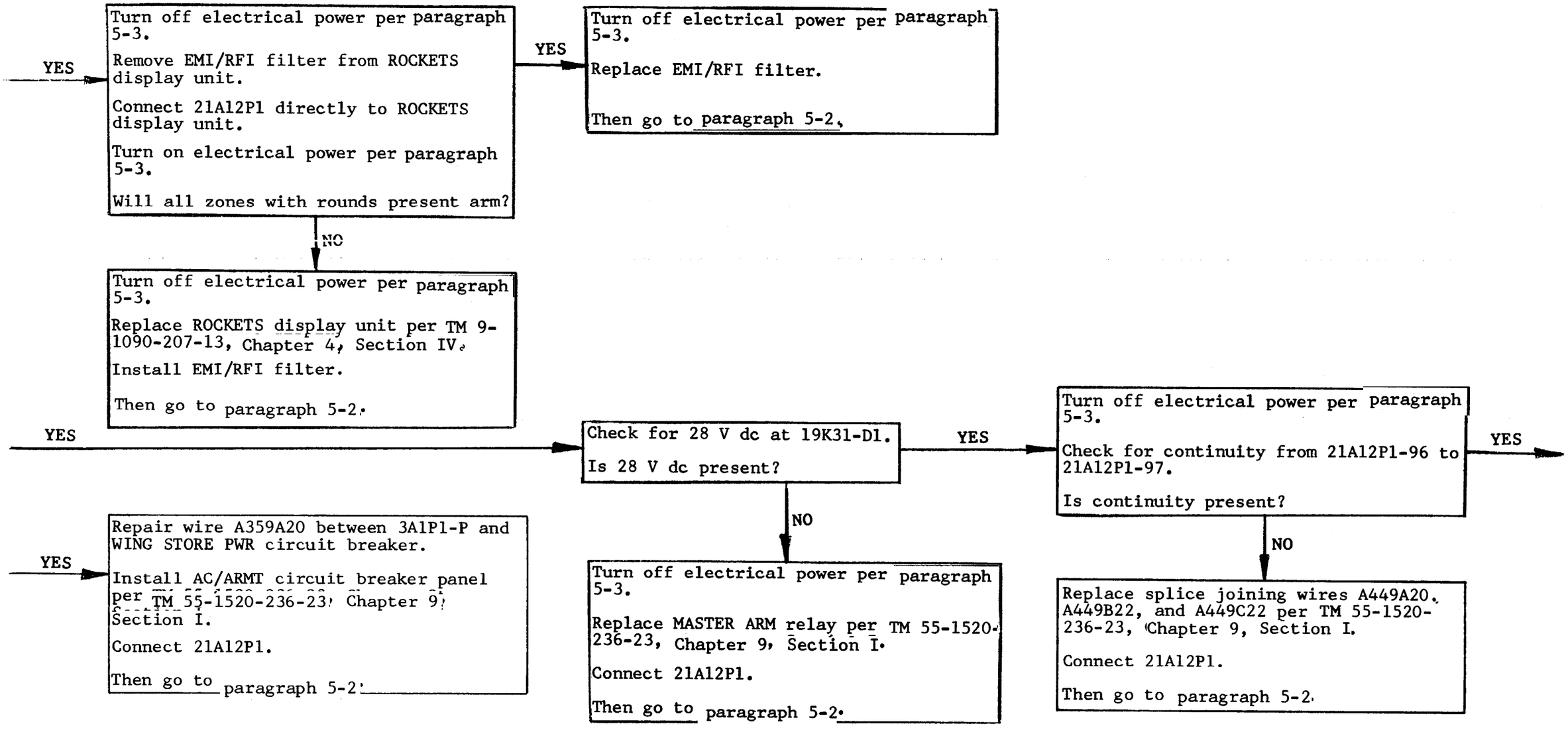
Does WING STORE PWR circuit breaker stay closed?

YES → Set MASTER ARM switch on pilot armament control panel to ARM.

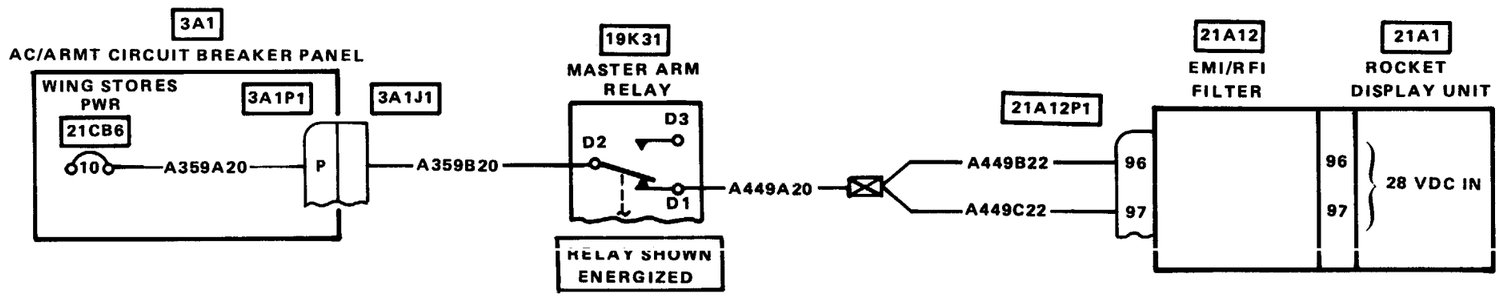
Go to paragraph 5-26.

NO → Go to paragraph 5-27.

5-13. ZONE WILL NOT ARM WHEN ITS ZONE ARM SWITCH IS PRESSED (CONTINUED).



5-13. ZONE WILL NOT ARM WHEN ITS ZONE ARM SWITCH IS PRESSED (CONTINUED).



YES →

Repair wire A449A20 between 19K31-D1 and splice.

Connect 21A12P1.

Then go to paragraph 5-2.

5-14. EDGE LIT PANEL LIGHTS ON ROCKETS DISPLAY UNIT DO NOT INCREASE IN BRIGHTNESS AS CONSOLE LIGHTING CONTROL IS ROTATED FROM OFF TO BRT.

INITIAL SETUP

Applicable Configuration
All

Tools/Test and Support Equipment
Multimeter

Tool Set, A/C Armament
Repairman

Personnel Required
68J (1)

References
TM 9-1090-207-13

Turn off electrical power per paragraph 5-3.

Remove edge lit panel from display unit per TM 9-1090-207-13, Chapter 4, Section IV.

Turn on electrical power per paragraph 5-3.

Check for dc voltage from socket(+) to ring(-) on edge lit panel receptacle.

Is 20 V dc or greater present?

YES

Turn off electrical power per paragraph 5-3.

Replace edge lit panel per TM 9-1090-207-13, Chapter 4, Section IV.

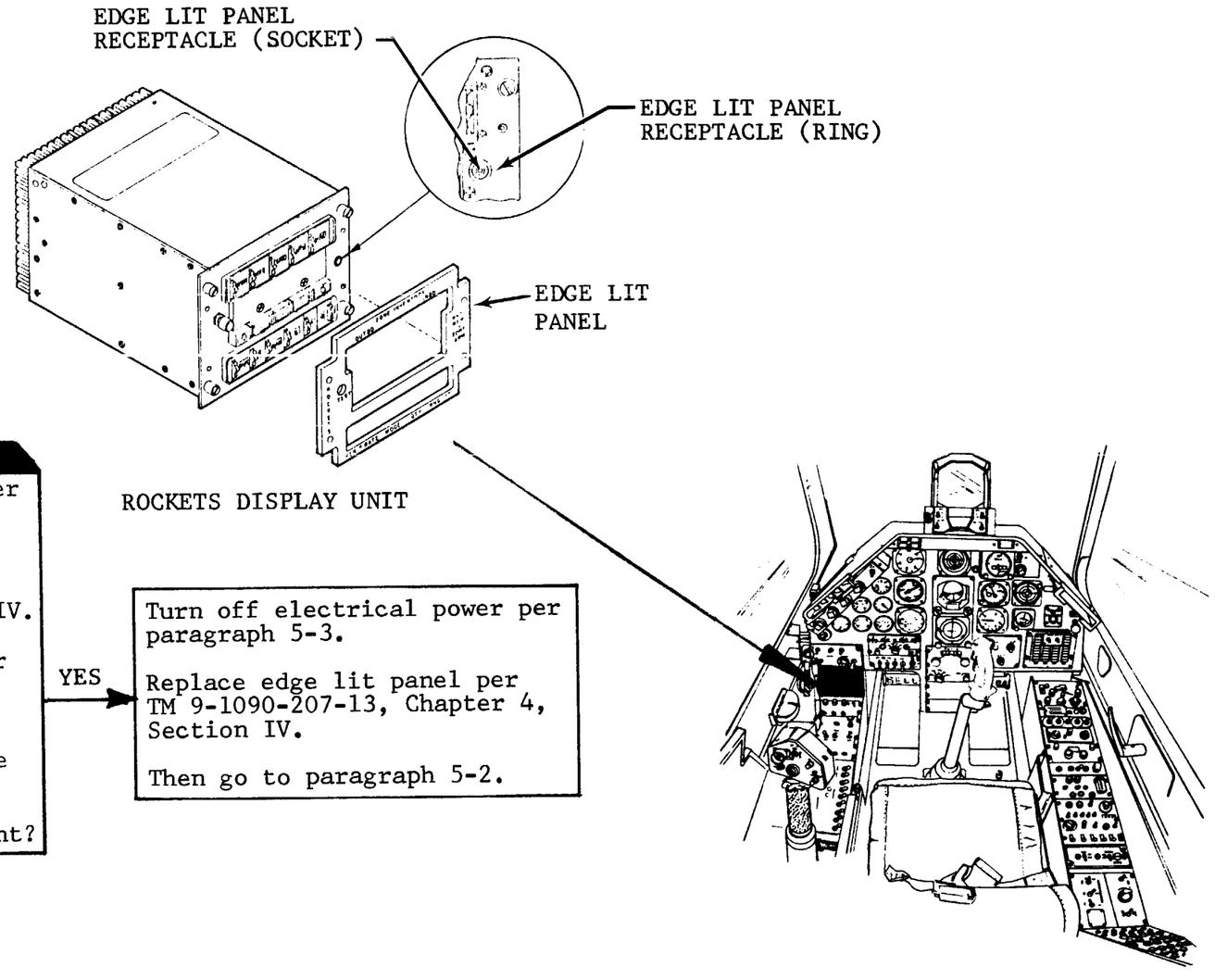
Then go to paragraph 5-2.

NO

Turn off electrical power per paragraph 5-3.

Replace ROCKETS display unit per TM 9-1090-207-13, Chapter 4, Section IV.

Then go to paragraph 5-2.



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5-15. RND REM, ZONE ARM AND THUMBWHEEL SWITCH LIGHTS DO NOT GO OFF AND THEN INCREASE IN BRIGHTNESS AS CONSOLE LIGHTING CONTROL IS ROTATED FROM OFF TO BRT.

INITIAL SETUP

Applicable Configuration
All

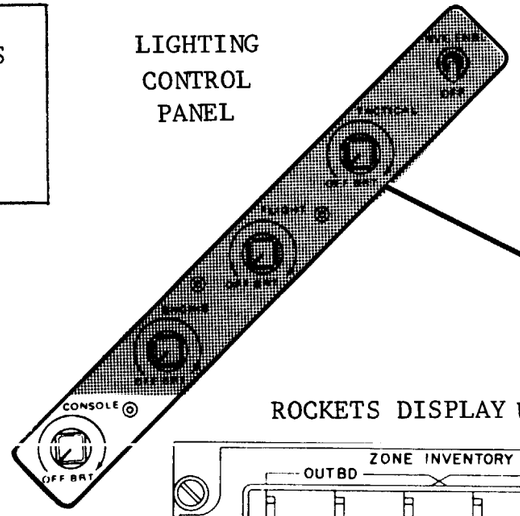
Tools/Test and Support Equipment
Multimeter

Tool Set, A/C Armament Repairman

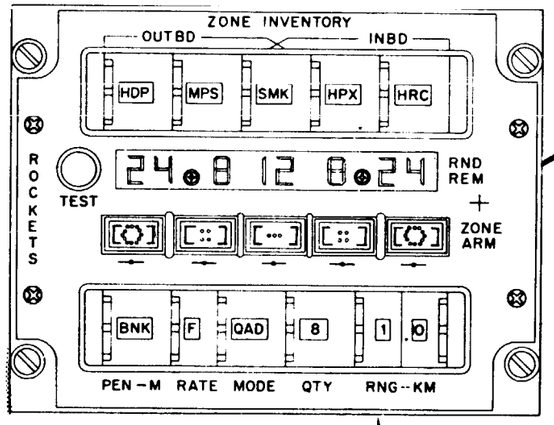
Personnel Required
68J (2)

References
TM 55-1520-236-23
TM 9-1090-207-13

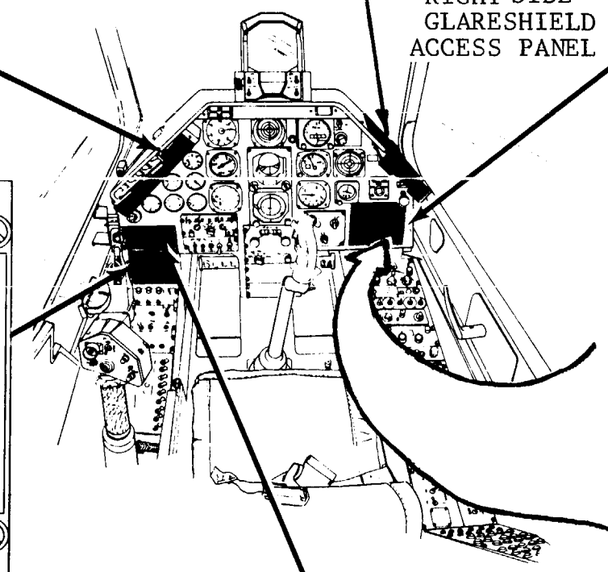
Access Panels
Right Side Glareshield - Removed



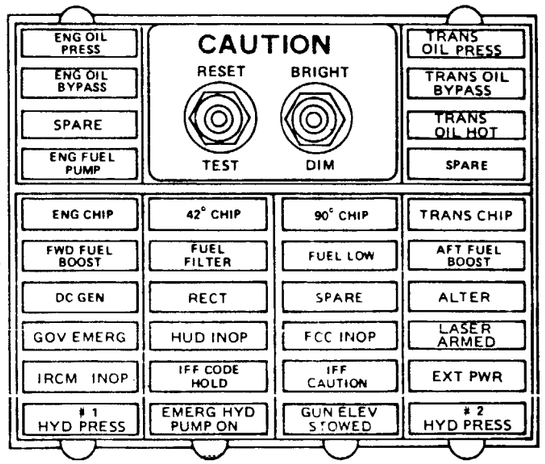
LIGHTING CONTROL PANEL



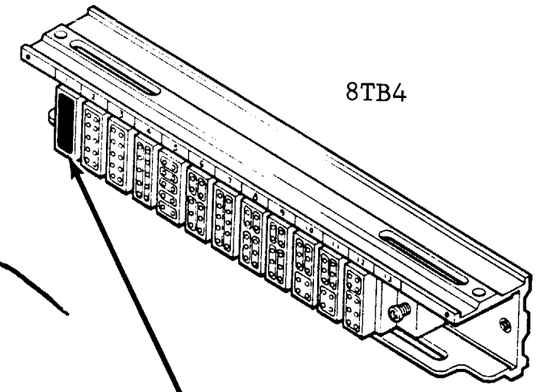
ROCKETS DISPLAY UNIT

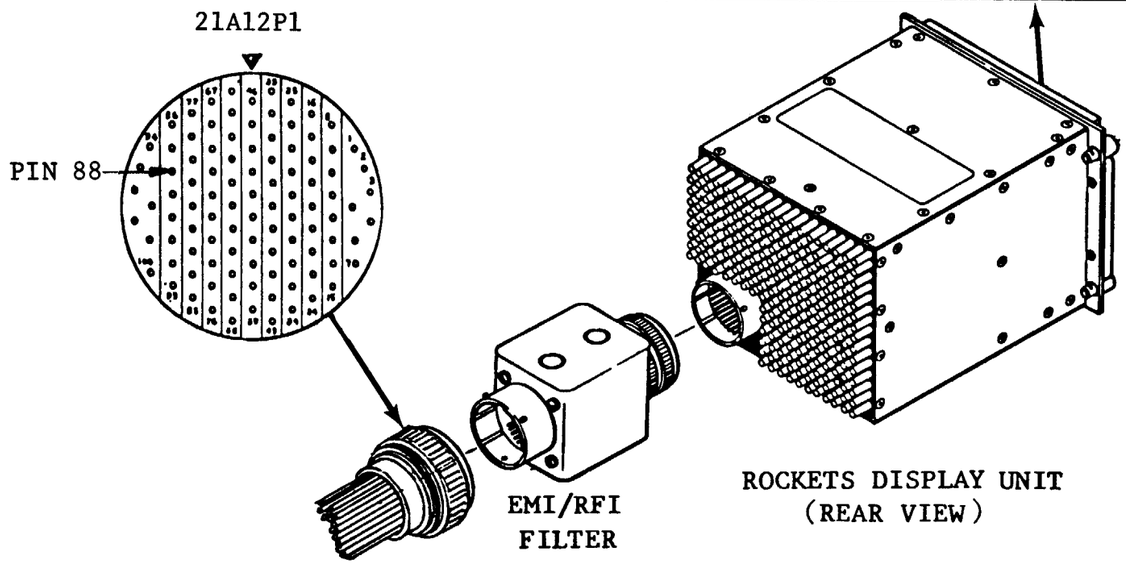

PILOT STATION

RIGHT SIDE GLARESHIELD ACCESS PANEL

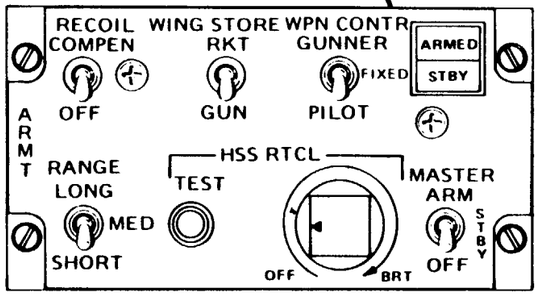


PILOT CAUTION PANEL

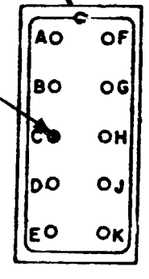

8TB4



ROCKETS DISPLAY UNIT (REAR VIEW)

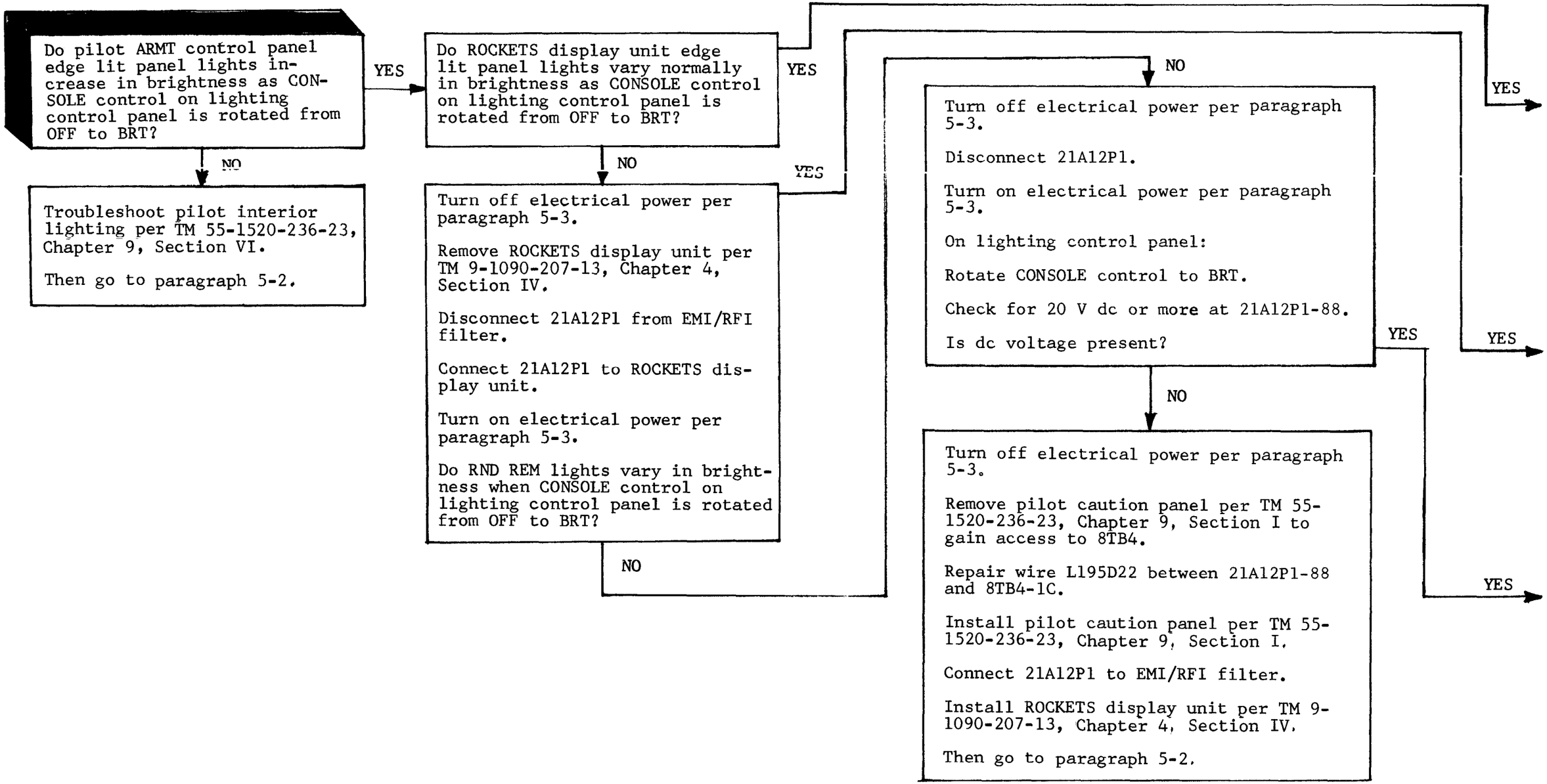


PILOT ARMT CONTROL PANEL



MODULE 1

5-15. RND REM, ZONE ARM AND THUMBWHEEL SWITCH LIGHT DO NOT GO OFF AND THEN INCREASE IN BRIGHTNESS AS CONSOLE LIGHTING CONTROL IS ROTATED FROM OFF TO BRT (CONTINUED).



5-15. RND REM, ZONE ARM AND THUMBWHEEL SWITCH LIGHT DO NOT GO OFF AND THEN INCREASE IN BRIGHTNESS AS CONSOLE LIGHTING CONTROL IS ROTATED FROM OFF TO BRT (CONTINUED).

YES →

Turn off electrical power per paragraph 5-3.

Replace ROCKETS display unit per TM 9-1090-207-13, Chapter 4, Section IV.

Then go to paragraph 5-2.

YES →

Turn off electrical power per paragraph 5-3.

Replace EMI/RFI filter.

Connect 21A12P1 to EMI/RFI filter.

Install ROCKETS display unit per TM 9-1090-207-13, Chapter 4, Section IV.

Then go to paragraph 5-2.

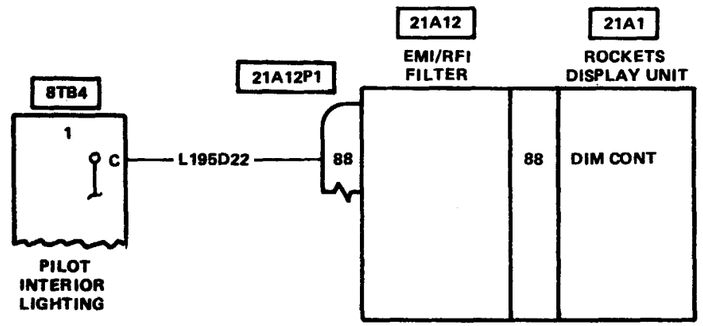
YES →

Turn off electrical power per paragraph 5-3.

Connect 21A12P1 to EMI/RFI filter.

Replace ROCKETS display unit per TM 9-1090-207-13, Chapter 4, Section IV.

Then go to paragraph 5-2.



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5-16. LIGHTING ON ROCKETS DISPLAY UNIT DOES NOT GO OUT OR DIM IN THE NVG MODE.

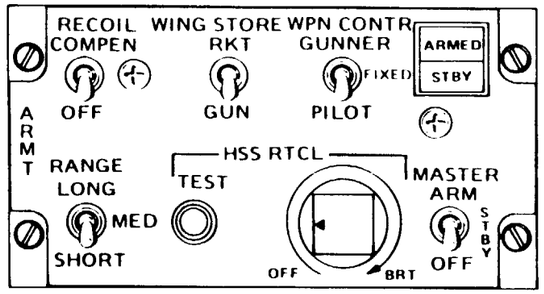
INITIAL SETUP

Applicable Configuration
All

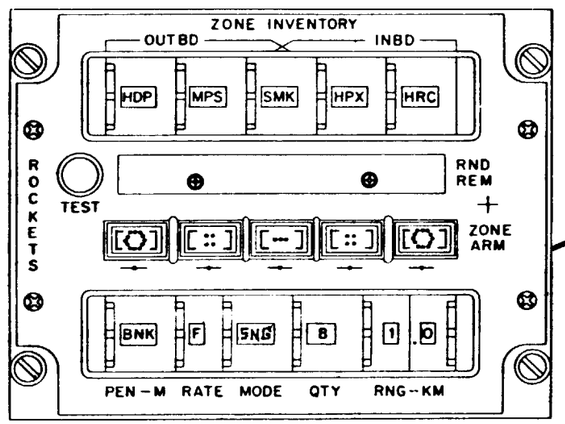
Tools/Test and Support Equipment
Tool Set, A/C Armament Repairman

Personnel Required
68J (1)

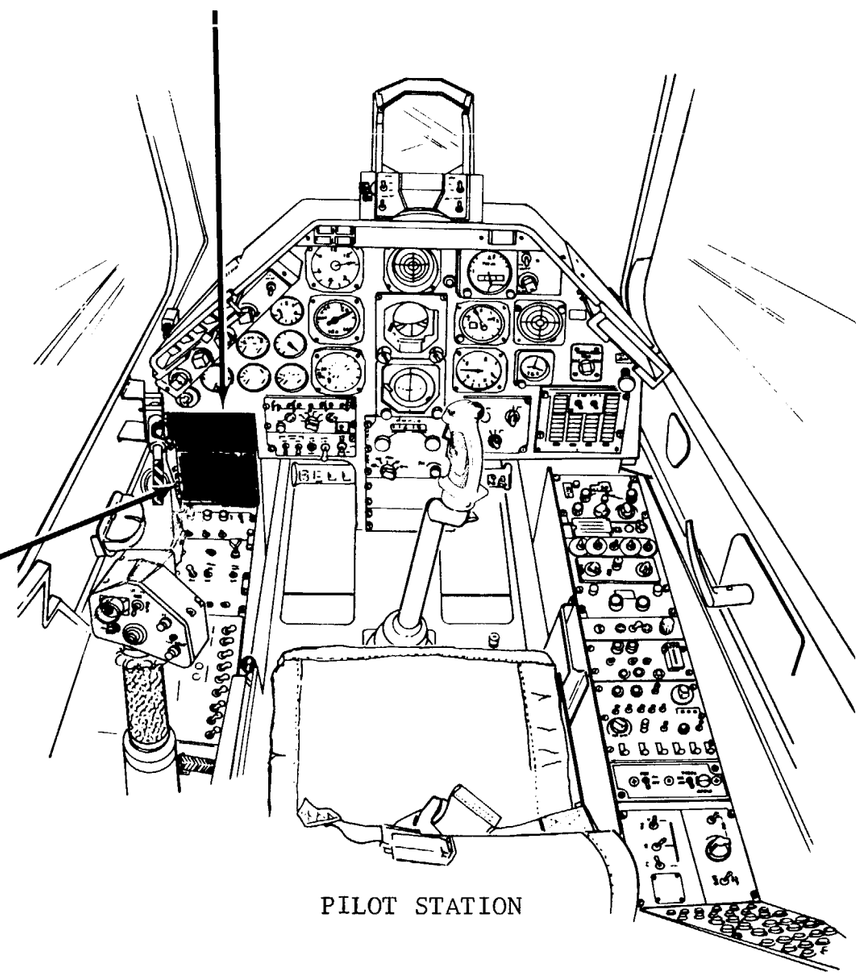
References
TM 55-1520-236-23
TM 9-1090-207-13



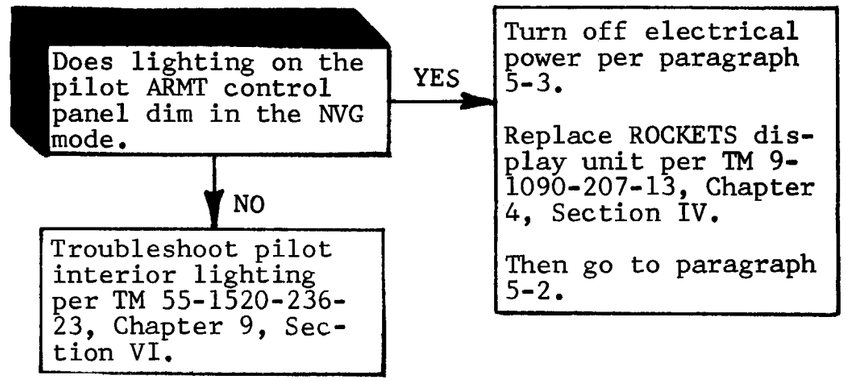
PILOT ARMT CONTROL PANEL

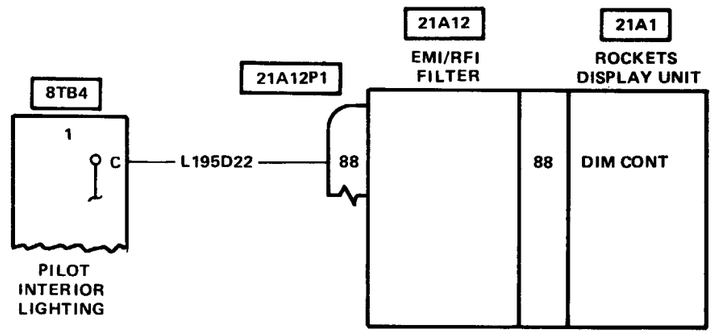


ROCKETS DISPLAY UNIT



PILOT STATION





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5-17. RND REM DISPLAY NOT LIT WITH MASTER ARM SWITCH IN STBY.

INITIAL SETUP

Applicable Configuration
All

Tools, Test and Support Equipment
Multimeter

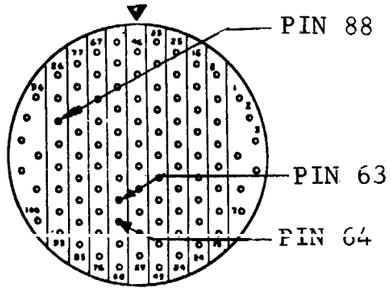
Digital Voltmeter

Tool Set, A/C Armament Repairman

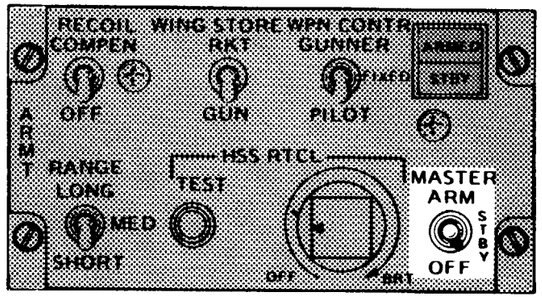
Personnel Required
68J (2)

References
TM 9-1090-207-13

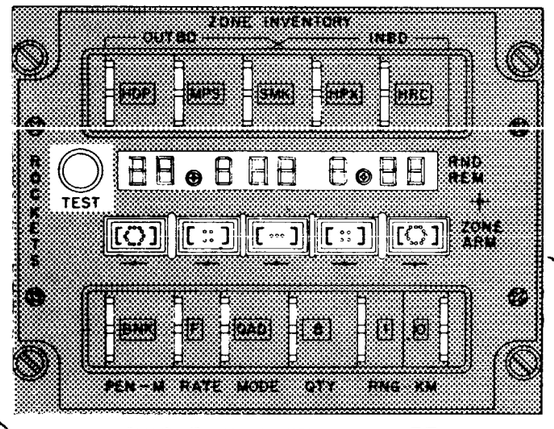
Access Panels
Forward Belly Armament and Lighting - Removed



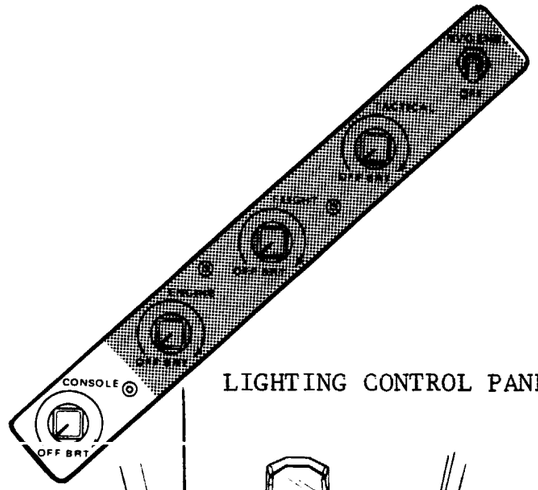
21A12P1



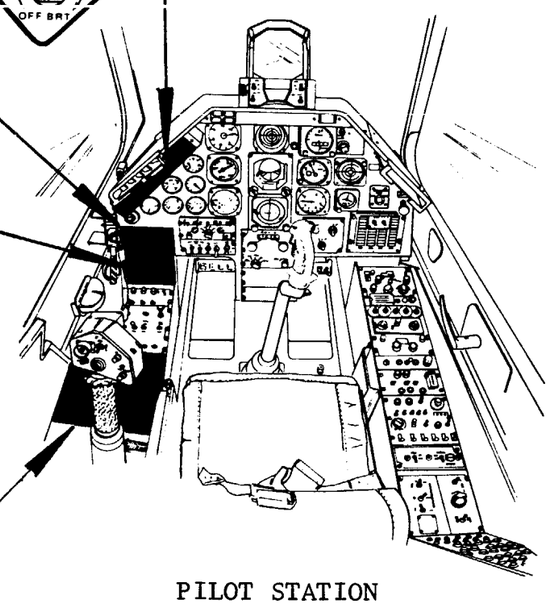
PILOT ARMT CONTROL PANEL

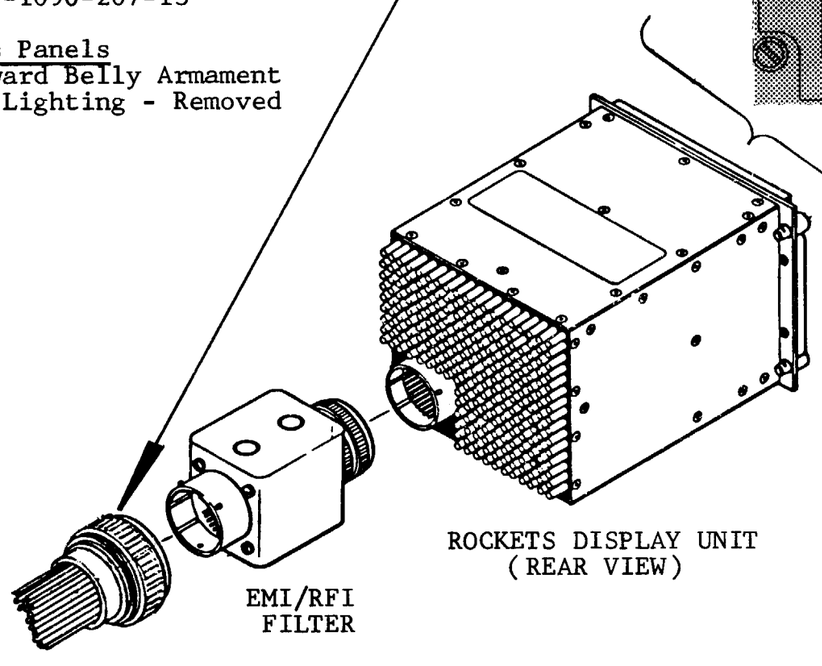


ROCKETS DISPLAY UNIT

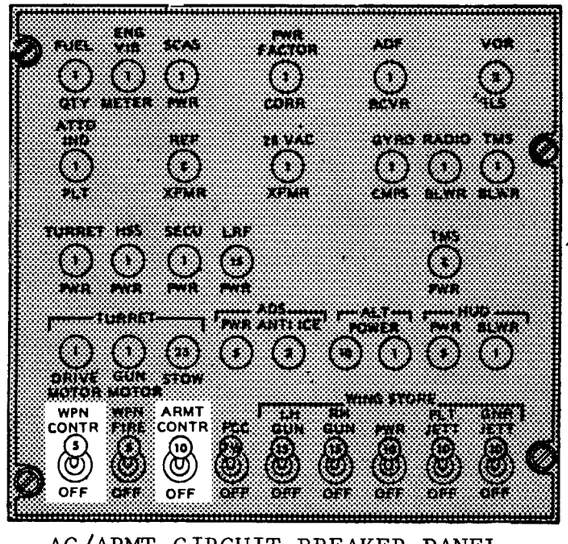


LIGHTING CONTROL PANEL


PILOT STATION

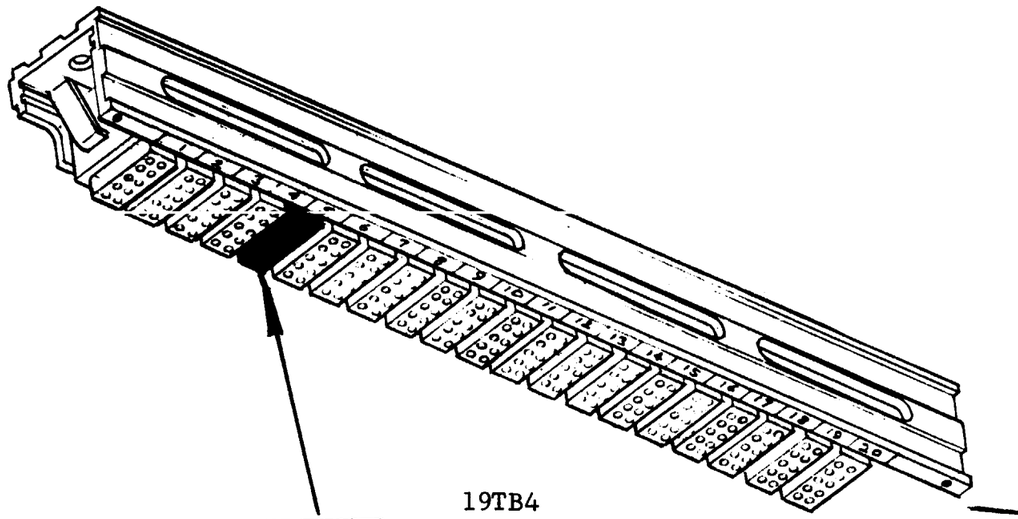


ROCKETS DISPLAY UNIT (REAR VIEW)

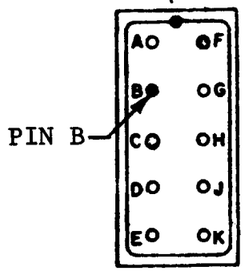


AC/ARMT CIRCUIT BREAKER PANEL

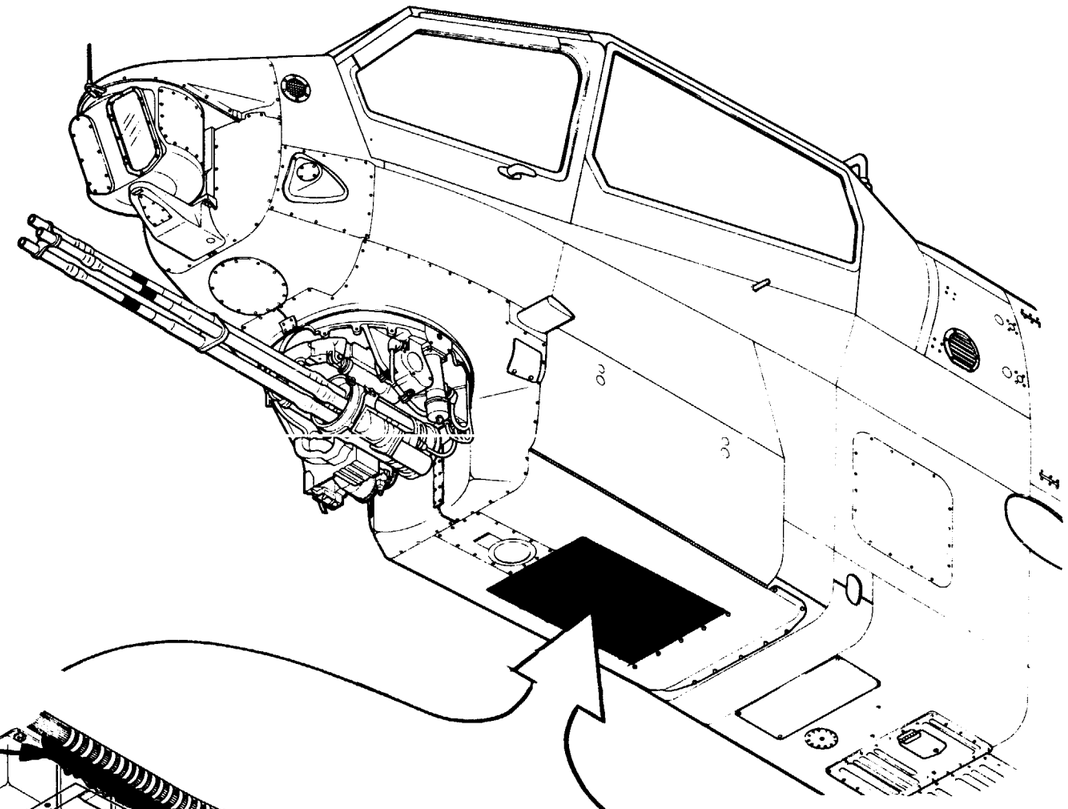
5-17. RND REM DISPLAY NOT LIT WITH MASTER ARM SWITCH IN STBY (CONTINUED).

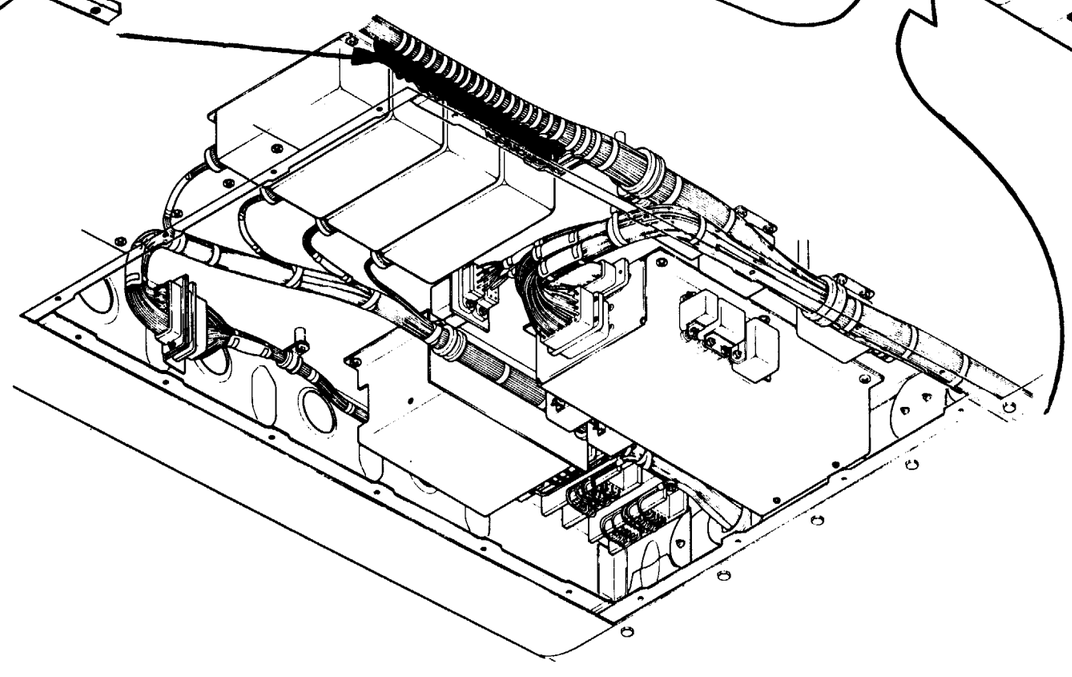


19TB4



MODULE 5





5-17. RND REM DISPLAY NOT LIT WITH MASTER ARM SWITCH IN STBY (CONTINUED).

Verify the following:

CONSOLE light control on lighting control panel is set to OFF.

ARMT CONTR circuit breaker on AC/ARMT circuit breaker panel is closed.

WPN CONTR circuit breaker on AC/ARMT circuit breaker panel is closed.

Press TEST switch on ROCKETS display unit.

Does RND REM indicator on ROCKETS display unit display all 8's during first phase of self-test?

YES → Turn off electrical power per paragraph 5-3.

Replace ROCKETS display unit per TM 9-1090-207-13, Chapter 4, Section IV.

Then go to paragraph 5-2.

NO

Did any ZONE ARM switch brackets on ROCKETS display unit light during self-test?

YES → Turn off electrical power per paragraph 5-3.

Perform ROCKETS display unit troubleshooting procedure per TM 9-1090-207-13, Chapter 4, Section V (Table 4-1, Step 5).

Then go to paragraph 5-2.

NO

Are the thumb wheel switches on ROCKETS display unit lit?

YES → Turn off electrical power per paragraph 5-3.

Replace ROCKETS display unit per TM 9-1090-207-13, Chapter 4, Section IV.

Then go to paragraph 5-2.

NO

NO

Turn off electrical power per paragraph 5-3.

Remove ROCKETS display unit per TM 9-1090-207-13, Chapter 4, Section IV.

Remove EMI/RFI filter.

Connect 21A12P1 to ROCKETS display unit.

Turn on electrical power per paragraph 5-3.

Does RND REM indicator on ROCKETS display unit light?

YES → Turn off electrical power per paragraph 5-3.

Replace EMI/RFI filter.

Connect 21A12P1 to EMI/RFI filter.

Install ROCKETS display unit per TM 9-1090-207-13, Chapter 4, Section IV.

Then go to paragraph 5-2.

NO

Set CONSOLE control on lighting control panel to BRT.

Does RND REM indicator on ROCKETS display unit light?

YES → Set CONSOLE control on lighting control panel to OFF.

Turn off electrical power per paragraph 5-3.

Disconnect 21A12P1.

Connect digital voltmeter to read dc voltage at 21A12P1-88(+).

Turn on electrical power per paragraph 5-3.

Is less than 0.1 V dc present?

YES → Turn off electrical power per paragraph 5-3.

Connect 21A12P1 to EMI/RFI filter.

Install ROCKETS display unit per TM 9-1090-207-13, Chapter 4, Section IV.

Troubleshoot pilot interior lighting per TM 55-1520-236-23, Chapter 9, Section VI.

Then go to paragraph 5-2.

NO

Turn off electrical power per paragraph 5-3.

Disconnect 21A12P1.

Turn on electrical power per paragraph 5-3.

Check for 28 V dc at 21A12P1-63 and 21A12P1-64.

Is 28 V dc present at either pin?

YES → YES

NO

Check for 28 V dc at 19TB4-5B.

Is 28 V dc present?

YES → YES

NO

Go to paragraph 9-32.

5-17. RND REM DISPLAY NOT LIT WITH MASTER ARM SWITCH IN STBY (CONTINUED).

Turn off electrical power per paragraph 5-3.

Connect 21A12P1 to EMI/RFI filter.

YES → Replace ROCKETS display unit per TM 9-1090-207-13, Chapter 4, Section IV.

Then go to paragraph 5-2.

Is 28 V dc present at both pins?

YES → Turn off electrical power per paragraph 5-3.

Connect 21A12P1 to EMI/RFI filter.

Replace ROCKETS display unit per TM 9-1090-207-13, Chapter 4, Section IV.

Then go to paragraph 5-2.

NO

Turn off electrical power per paragraph 5-3.

Repair wire A528X22 between 21A12P1-63 and splice or wire A528Y22 between 21A12P1-64 and splice.

Connect 21A12P1 to EMI/RFI filter.

Replace ROCKETS display unit per TM 9-1090-207-13, Chapter 4, Section IV.

Then go to paragraph 5-2.

YES

Turn off electrical power per paragraph 5-3.

Check for continuity from 21A12P1-63 to 21A12P1-64.

Is continuity present?

YES → Repair wire A528V20 between 19TB4-5B and splice.

Connect 21A12P1 to EMI-RFI filter.

Then go to paragraph 5-2.

NO

Replace splice joining wires A528V20, A528X22, and A528Y22 per TM 55-1520-236-23, Chapter 9, Section I.

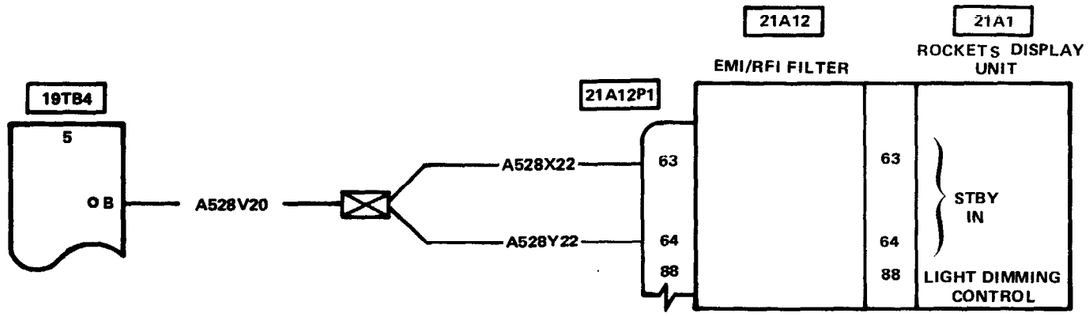
Connect 21A12P1 to EMI/RFI filter.

Then go to paragraph 5-2.

YES

YES

5-17.	RND REM DISPLAY NOT LIT WITH MASTER ARM SWITCH IN STBY (CONTINUED).



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5-18. RND REM DISPLAY DOES NOT DECREASE WHILE IN THE SNG MODE.

INITIAL SETUP

Applicable Configuration
All

Tools/Test and Support Equipment
Multimeter

Tool Set, A/C Armament Repairman

Personnel Required
68J (2)

References
TM 55-1520-236-23
TM 9-1090-206-20-1

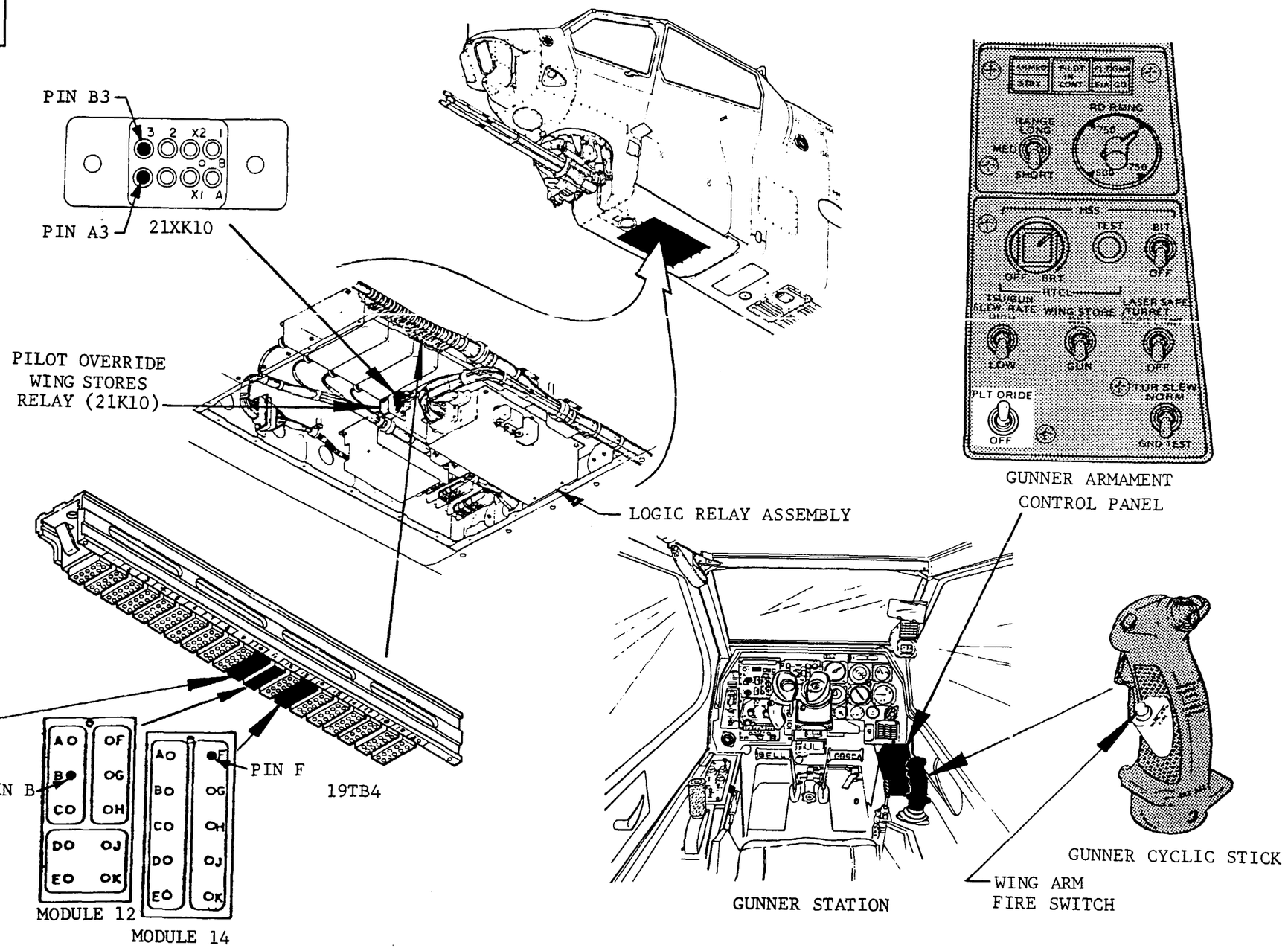
Access Panels
Forward Belly Armament and Lighting - Removed

Ammo Compartment Door - Open

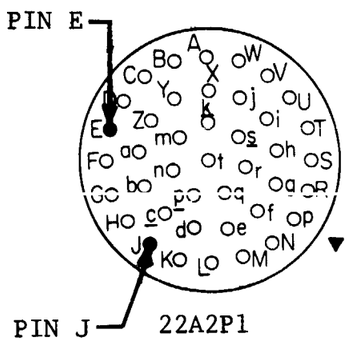
Upper Ammo Compartment - Removed

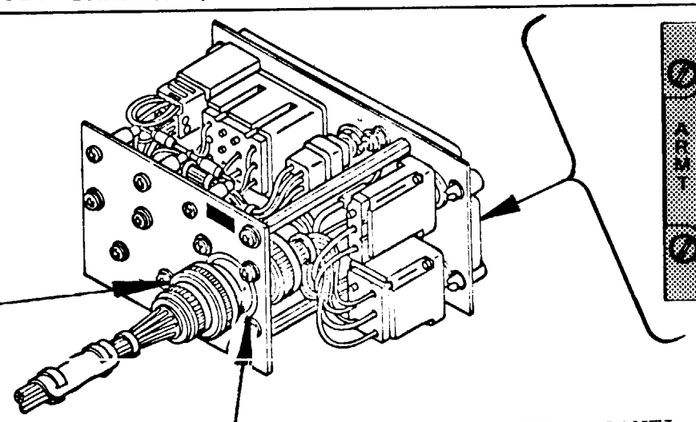
Turret Fairing - Removed

A. TROUBLESHOOTING LOGIC PART ONE.

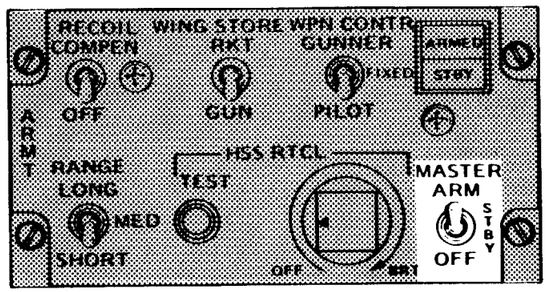


5-18. RND REM DISPLAY DOES NOT DECREASE WHILE IN THE SNG MODE (CONTINUED).
A. TROUBLESHOOTING LOGIC PART ONE.(CONTINUED).

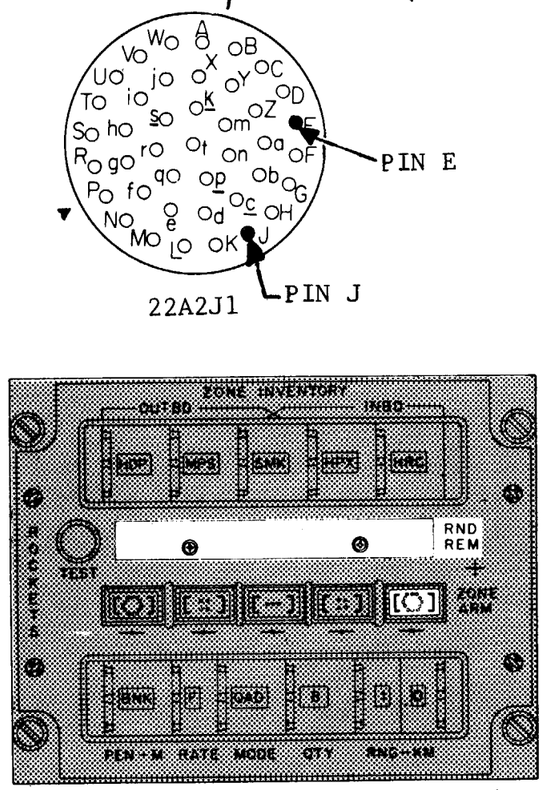




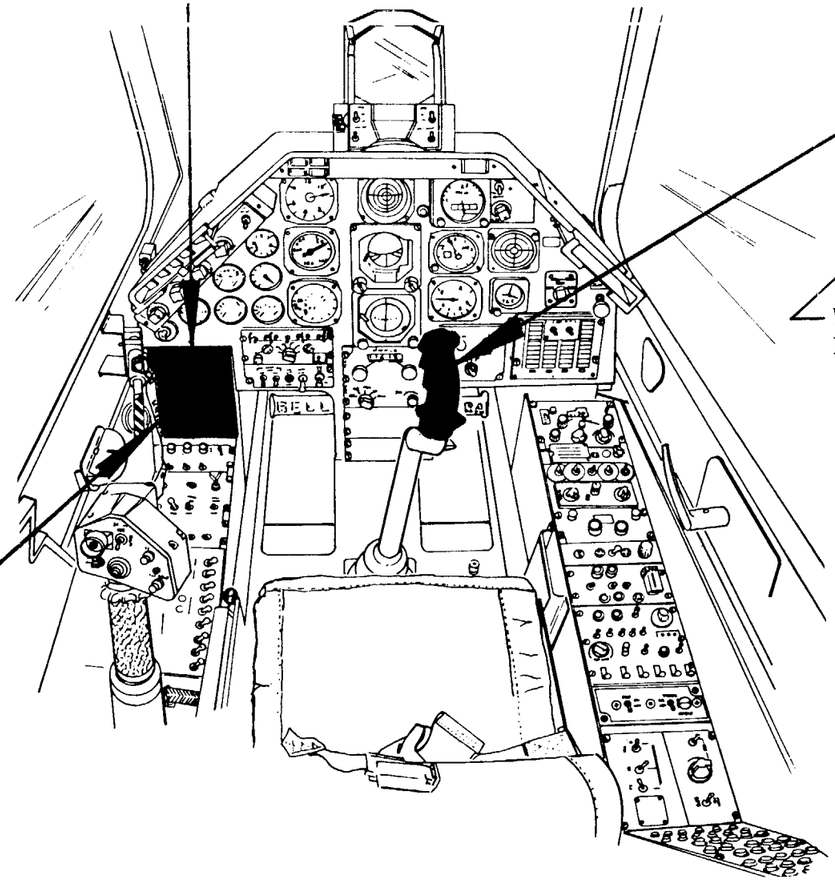
PILOT ARMT CONTROL PANEL
(REAR VIEW)



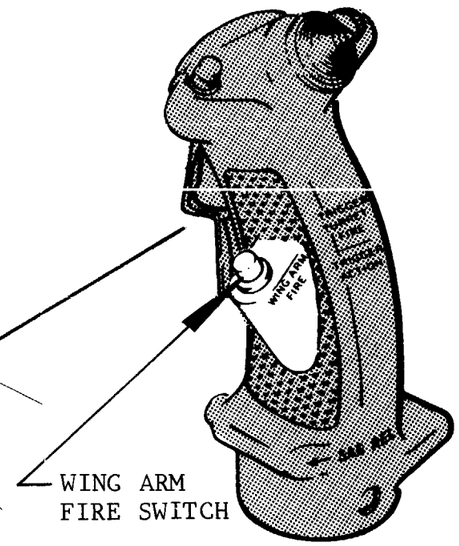
PILOT ARMT CONTROL PANEL



ROCKETS DISPLAY UNIT



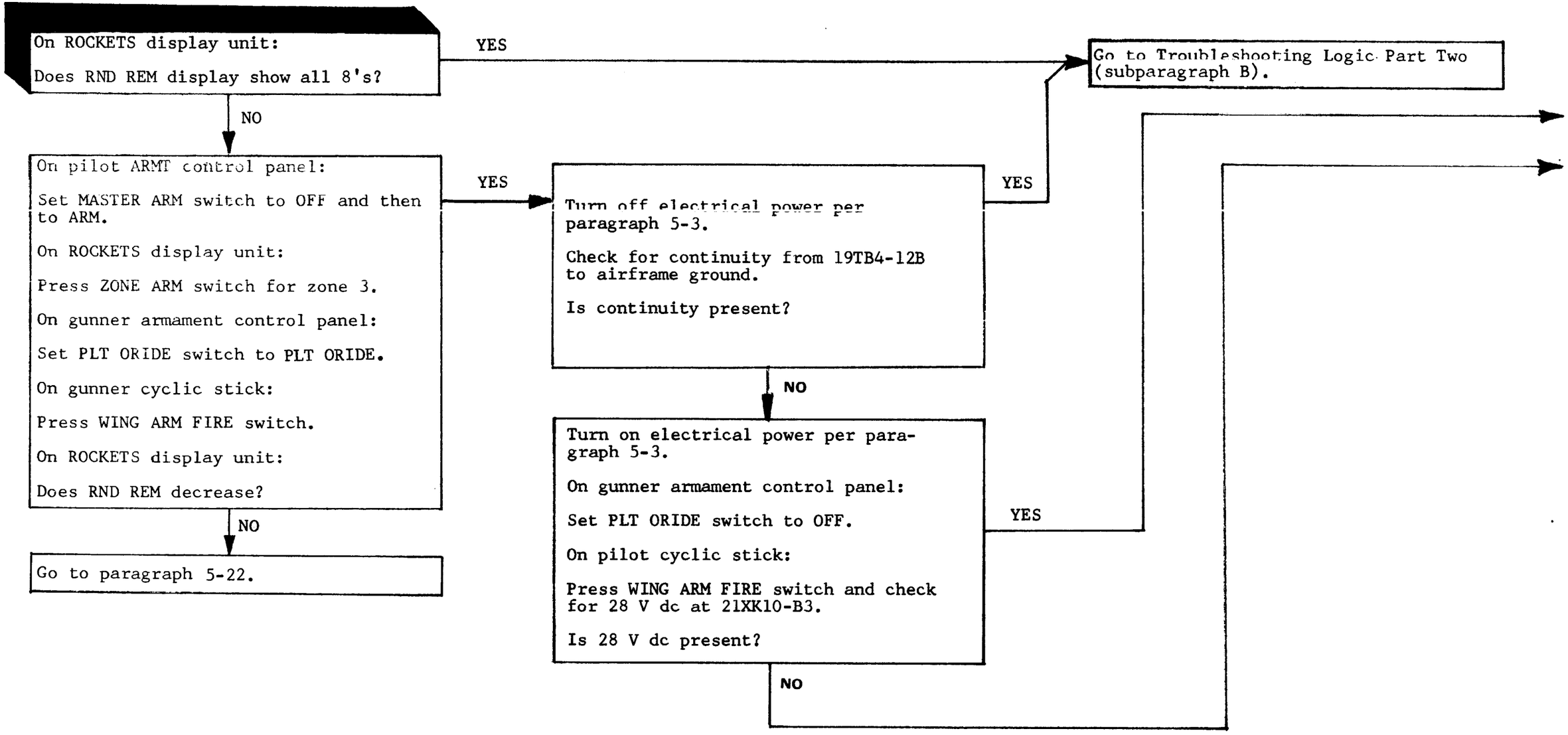
PILOT STATION



PILOT CYCLIC STICK

5-18. RND REM DISPLAY DOES NOT DECREASE WHILE IN THE SNG MODE.

A. TROUBLESHOOTING LOGIC PART ONE (CONTINUED).



5-18. RND REM DISPLAY DOES NOT DECREASE WHILE IN THE SNG MODE.

A. TROUBLESHOOTING LOGIC PART ONE (CONTINUED).

On pilot cyclic stick:

Press WING ARM FIRE switch and check for 28 V dc at 19TB4-11A.

Is 28 V dc present?

YES → Turn off electrical power per paragraph 5-3.

Repair wire A405A22 between 21XK10-B3 and 19TB4-11A.

Then go to paragraph 5-2.

NO

On pilot cyclic stick:

Press WING ARM FIRE switch and check for 28 V dc at 19TB4-11C.

Is 28 V dc present?

YES → Turn off electrical power per paragraph 5-3.

Replace module 11 of 19TB4 per TM 55-1520-236-23, Chapter 9, Section I.

Then go to paragraph 5-2.

NO

Go to Troubleshooting Logic Part Three (subparagraph C).

YES → **On pilot cyclic stick:**

Press WING ARM FIRE switch and check for 28 V dc at 19TB4-14F.

Is 28 V dc present?

YES → Turn off electrical power per paragraph 5-3.

Replace module 14 of 19TB4 per TM 55-1520-236-23, Chapter 9, Section I.

Then go to paragraph 5-2.

NO

On gunner armament control panel:

Set PLT ORIDE switch to PLT ORIDE.

On gunner cyclic stick:

Press and hold WING ARM FIRE switch.

Check for 28 V dc at 19TB4-14F.

Is 28 V dc present?

YES → Turn off electrical power per paragraph 5-3.

Replace module 14 of 19TB4 per TM 55-1520-236-23, Chapter 9, Section I.

Then go to paragraph 5-2.

NO

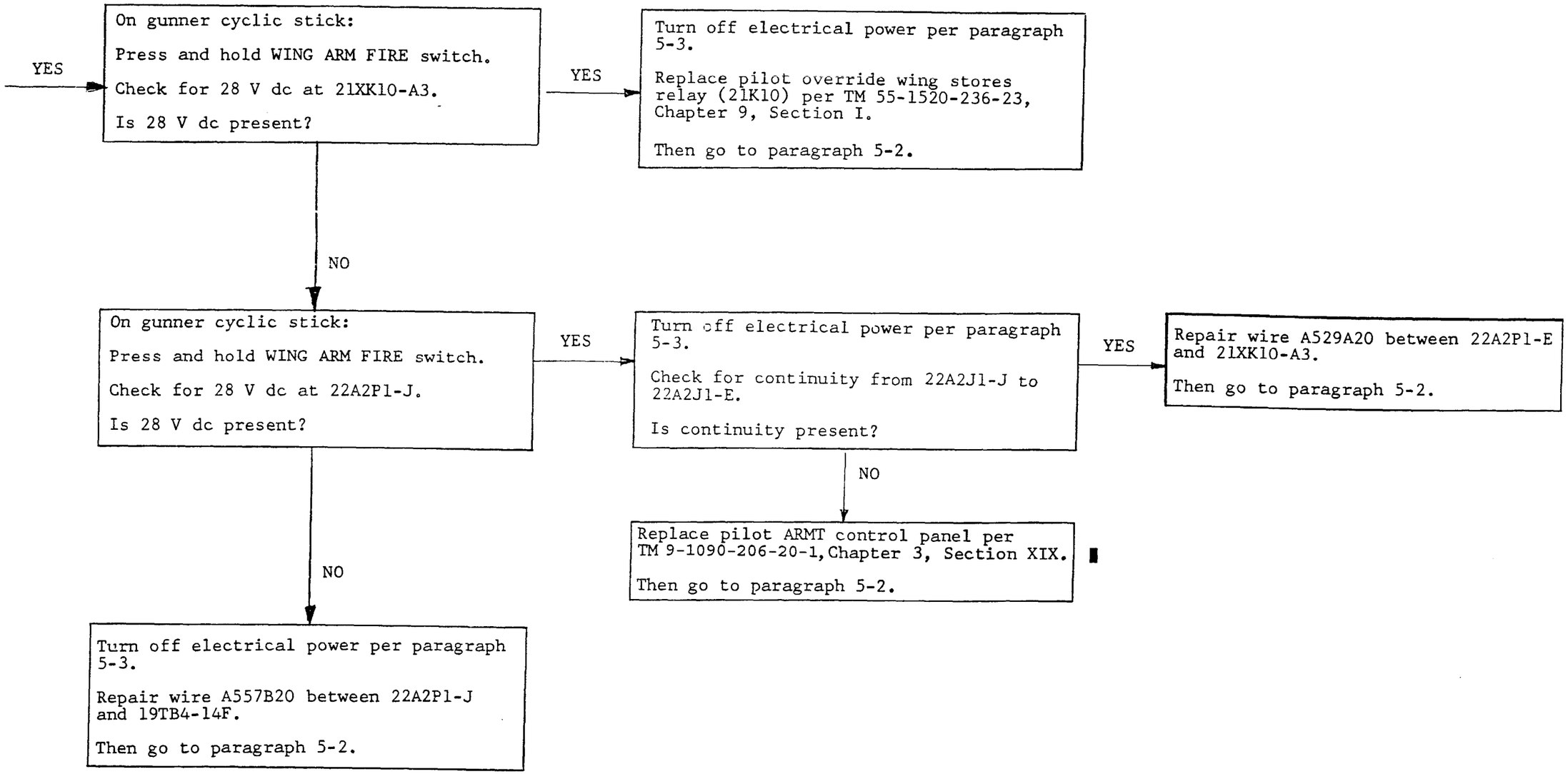
Turn off electrical power per paragraph 5-3.

Repair wire A405A22 between 21XK10-B3 and 19TB4-14F.

Then go to paragraph 5-2.

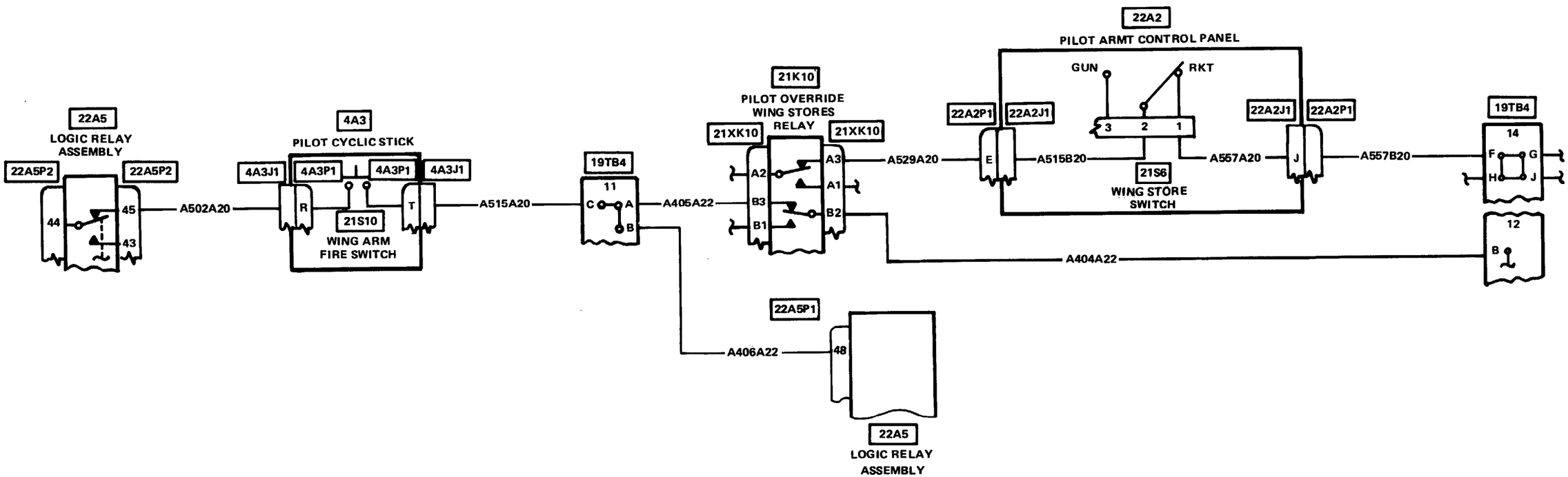
5-18. RND REM DISPLAY DOES NOT DECREASE WHILE IN THE SNG MODE.

A. TROUBLESHOOTING LOGIC PART ONE (CONTINUED).

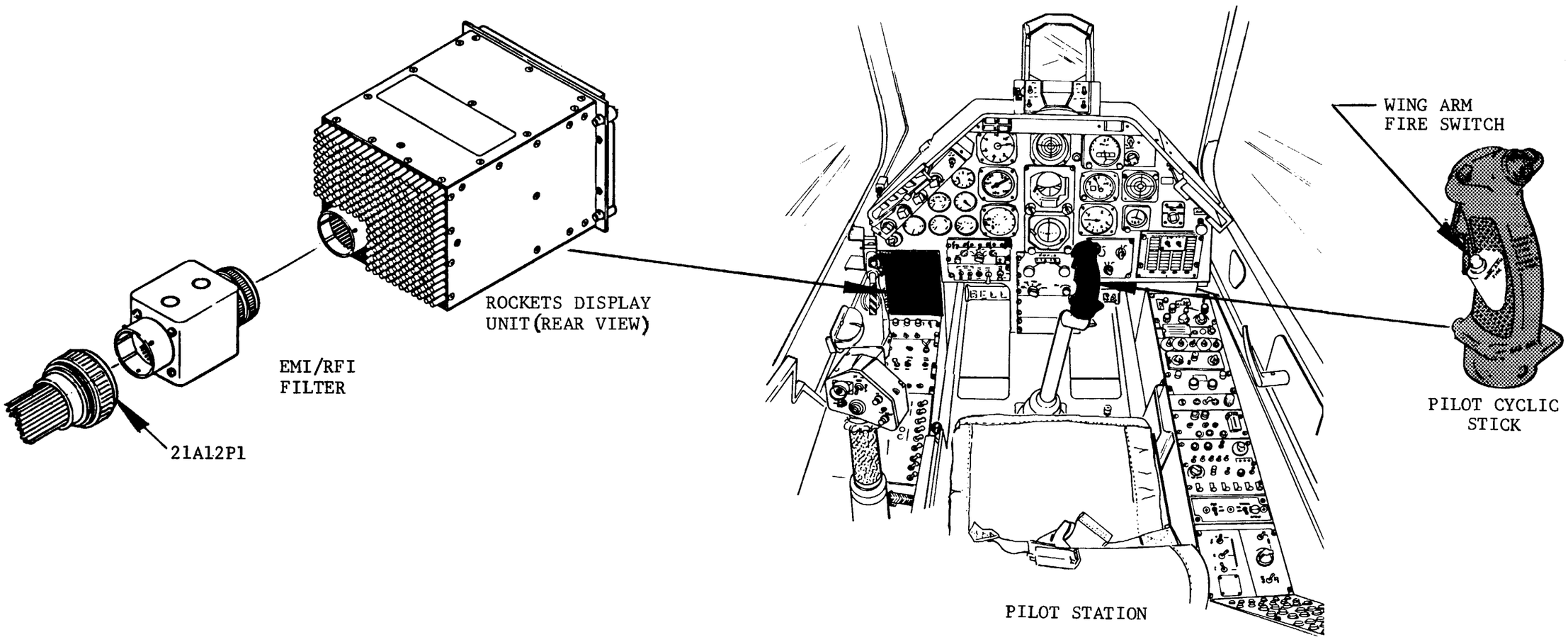


5-18. RND REM DISPLAY DOES NOT DECREASE WHILE IN THE SNG MODE.

A. TROUBLESHOOTING LOGIC PART ONE (CONTINUED).

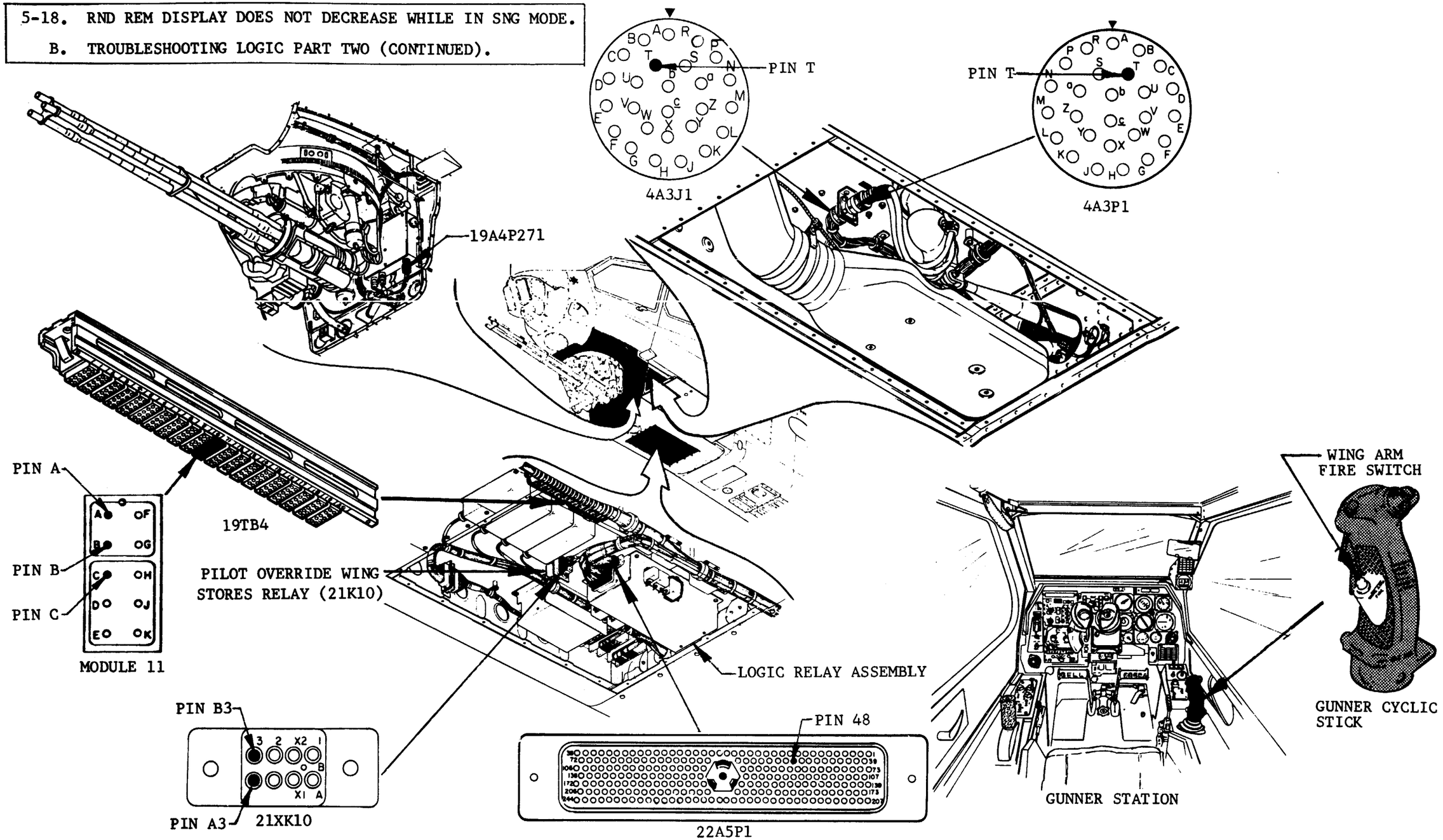


5-18. RND REM DISPLAY DOES NOT DECREASE WHILE IN SNG MODE.
B. TROUBLESHOOTING LOGIC PART TWO.



5-18. RND REM DISPLAY DOES NOT DECREASE WHILE IN SNG MODE.

B. TROUBLESHOOTING LOGIC PART TWO (CONTINUED).



5-18. RND REM DISPLAY DOES NOT DECREASE WHILE IN SNG MODE.

B. TROUBLESHOOTING LOGIC PART TWO (CONTINUED).

On pilot cyclic stick:

Press and hold WING ARM FIRE switch.

Check for continuity from 4A3P1-T to airframe ground.

Is continuity present?

YES → Replace pilot cyclic stick per TM 55-1520-236-23, Chapter 11, Section I.

Then go to paragraph 5-2.

NO ↓

Disconnect 19A4P271, 21A12P1, and 22A5P1.

Check for continuity from 4A3J1-T to airframe ground.

Is continuity present?

YES → Remove pilot override wing stores relay (21K10) per TM 55-1520-236-23, Chapter 9, Section I.

Check for continuity from 4A3J1-T to airframe ground.

Is continuity present?

YES → Connect 19A4P271 and 21A12P1.

Remove wire A515A20 at 19TB4-11C.

Check for continuity from 4A3J1-T to airframe ground.

Is continuity present?

YES →

NO ↓

Remove wire A406A22 at 19TB4-11B.

Check for continuity from 22A5P1-48 to airframe ground.

Is continuity present?

YES →

NO ↓

Remove wire A405A22 at 19TB4-11A.

Check for continuity from 21XK10-B3 to airframe ground.

Is continuity present?

YES →

NO ↓

Replace module 11 of 19TB4 per TM 55-1520-236-23, Chapter 9, Section I.

Connect 22A5P1.

Install pilot override wing stores relay (21K10) per TM 55-1520-236-23, Chapter 9, Section I.

Then go to paragraph 5-2.

NO ↓

Replace pilot override wing stores relay (21K10) per TM 55-1520-236-23, Chapter 9, Section I.

Connect 19A4P271, 21A12P1, and 22A5P1.

Then go to paragraph 5-2.

NO ↓

Replace logic relay assembly per TM 9-1090-206-20-1, Chapter 3, Section XXIII.

Connect 19A4P271 and 21A12P1.

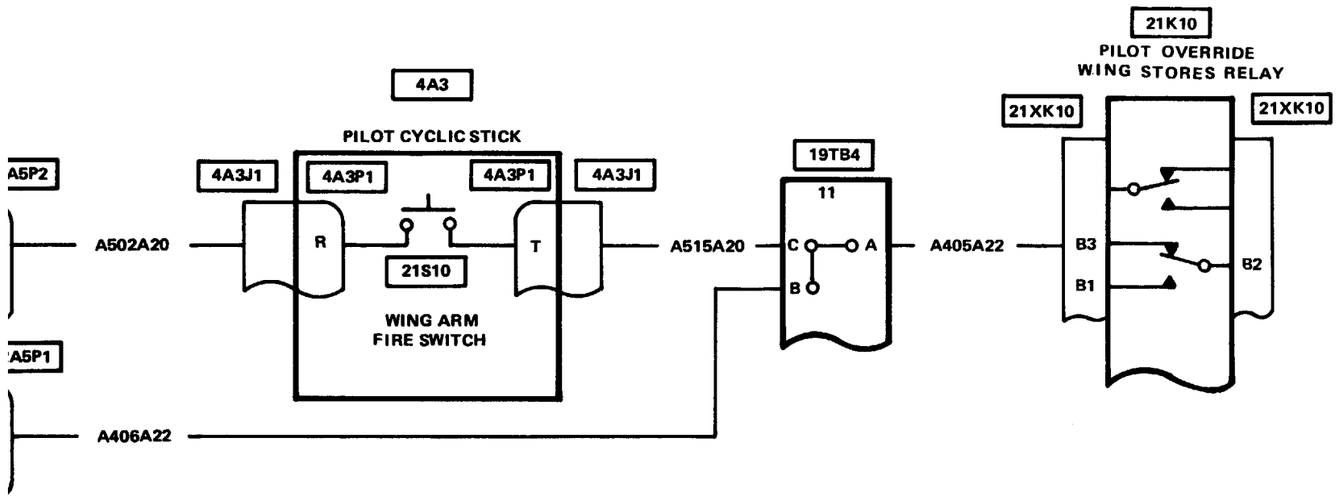
Then go to paragraph 5-2.

5-18.

TM 55-1520-236-23,
Chapter 9 Section I.
paragraph 5-2

TM 55-1520-236-23
Chapter 9, Section I.

paragraph 5-2.

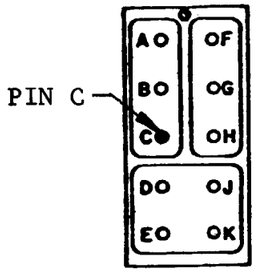


TM 55-1520-236-23,
Chapter 9, Section I.

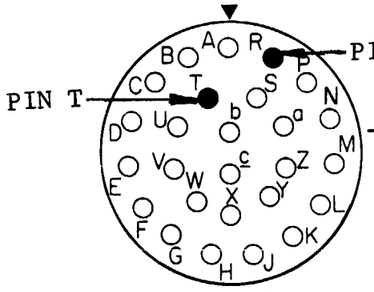
paragraph 5-2.

5-18. RND REM DISPLAY DOES NOT DECREASE WHILE IN THE SNG MODE (CONTINUED).

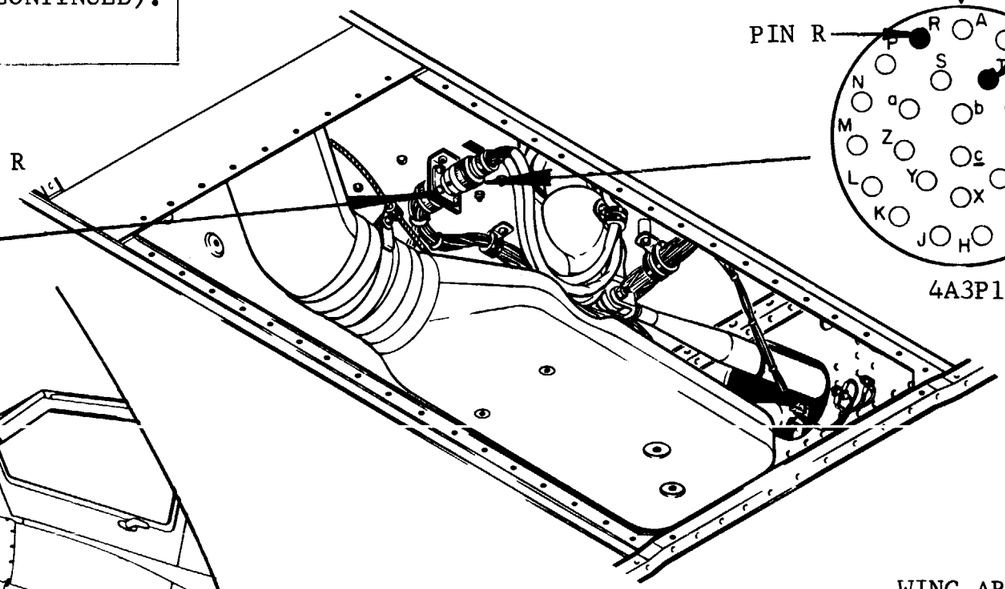
C. TROUBLESHOOTING LOGIC PART THREE.

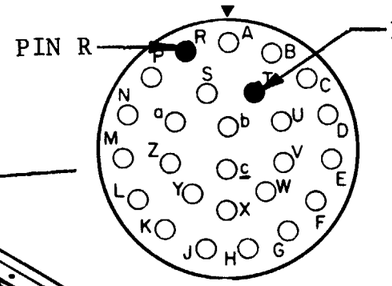


MODULE 11

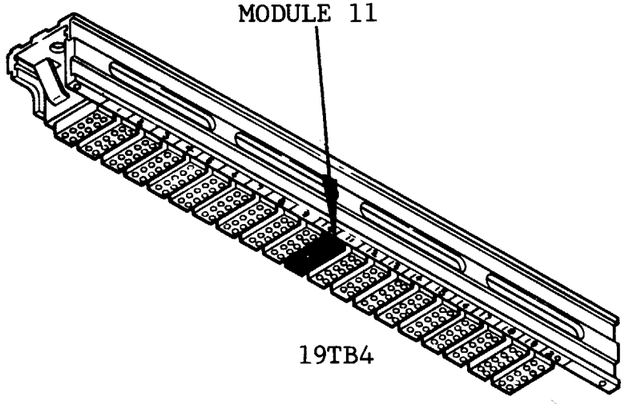


4A3J1

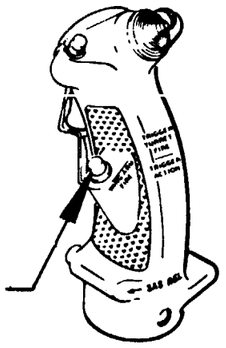




4A3P1

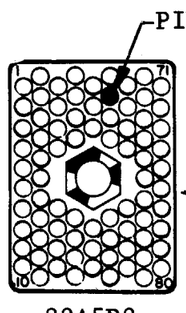


19TB4

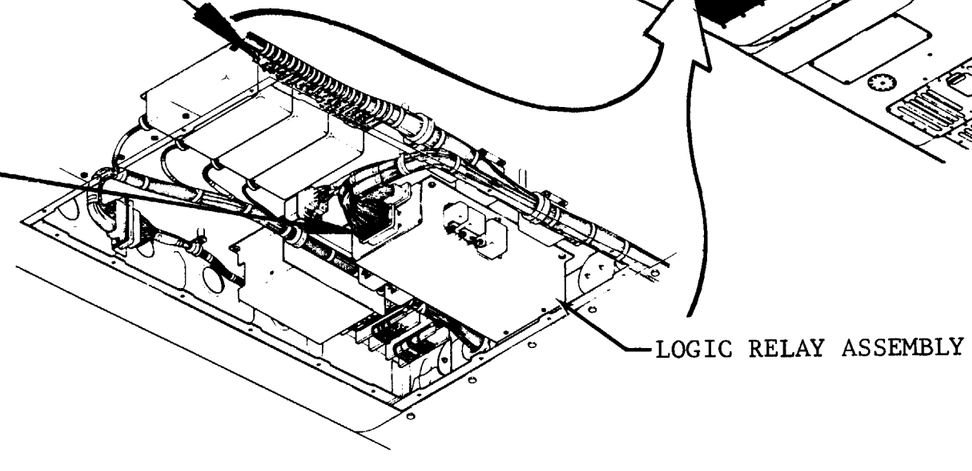


WING ARM FIRE SWITCH

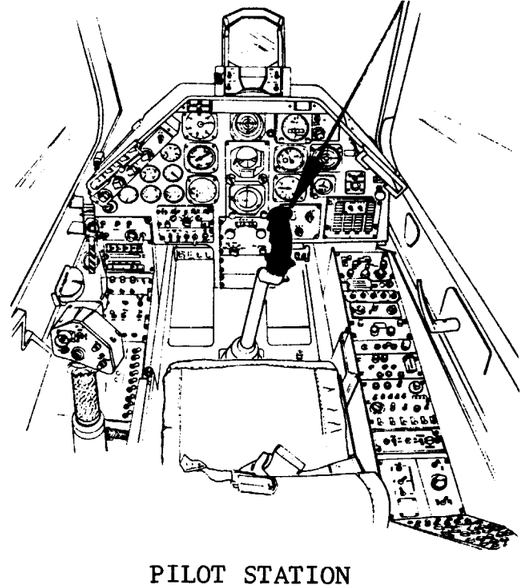
PILOT CYCLIC STICK



22A5P2



LOGIC RELAY ASSEMBLY



PILOT STATION

5-18. RND REM DISPLAY DOES NOT DECREASE WHILE IN THE SNG MODE (CONTINUED).

C. TROUBLESHOOTING LOGIC PART THREE (CONTINUED).

Check for 28 V dc at 4A3J1-R.

Is 28 V dc present?

YES → Turn off electrical power per paragraph 5-3.

On pilot cyclic stick:

Press WING ARM FIRE switch and check for continuity from 4A3P1-R to 4A3P1-T.

Is continuity present?

YES → Repair wire A515A20 between 4A3J1-T and 19TB4-11C.

Then go to paragraph 5-2.

NO → Replace pilot cyclic stick per TM 55-1520-236-23, Chapter 11, Section I.

Then go to paragraph 5-2.

NO → Replace logic relay assembly per TM 9-1090-206-20-1, Chapter 3, Section XXIII.

Then go to paragraph 5-2.

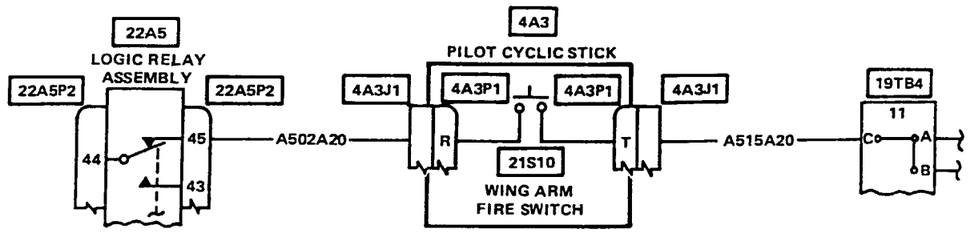
NO → Turn off electrical power per paragraph 5-3.

Check for continuity from 4A3J1-R to 22A5P2-45.

Is continuity present?

NO → Repair wire A502A20 between 22A5P2-45 and 4A3J1-R.

Then go to paragraph 5-2.



5-19. RND REM DISPLAY DOES NOT DECREASE WHILE IN THE PRS MODE.

INITIAL SETUP

Applicable Configuration
All

Tools/Test and Support Equipment
Tool Set, A/C Armament Repairman

Personnel Required
68J (1)

References
TM 9-1090-207-13

On ROCKETS display unit:

Set MODE thumbwheel to SNG.

On pilot cyclic stick:

Press WING ARM FIRE switch.

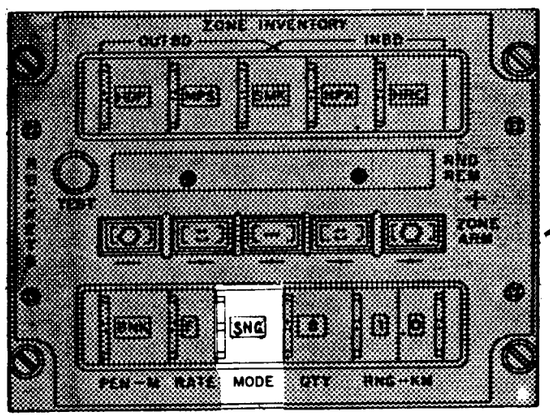
Does RND REM display decrease?

YES → Turn off electrical power per paragraph 5-3.

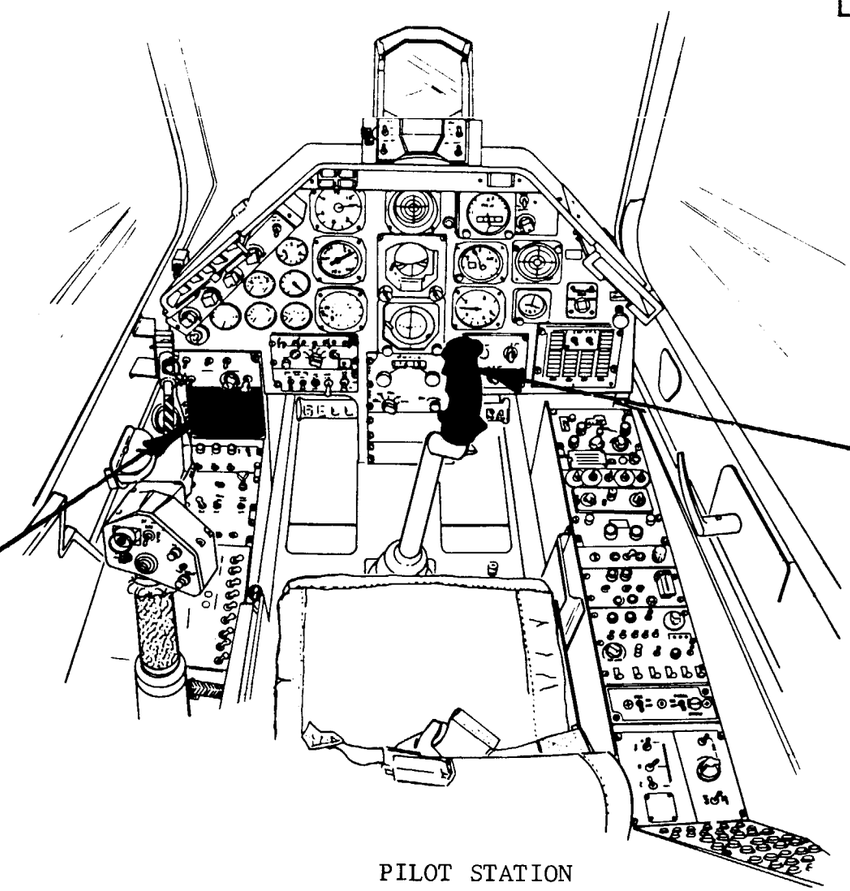
Replace ROCKETS display unit per TM 9-1090-207-13, Chapter 4, Section IV.

Then go to paragraph 5-2.

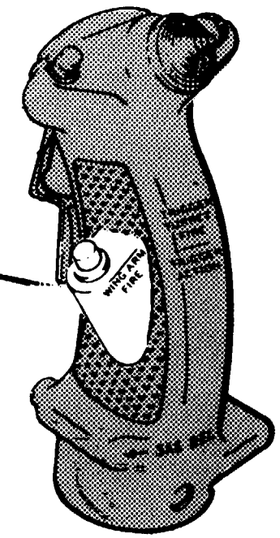
NO → Go to paragraph 5-18.



ROCKETS DISPLAY UNIT



PILOT STATION



PILOT CYCLIC STICK

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5-20.	RND REM DISPLAY DOES NOT DECREASE WHILE IN THE QAD MODE.

INITIAL SETUP

Applicable Configuration
All

Tools/Test and Support Equipment
Tool Set, A/C Armament Repairman

Personnel Required
68J (1)

References
TM 9-1090-207-13.

On ROCKETS display unit:

Set MODE thumbwheel to SNG.

On pilot cyclic stick:

Press WING ARM FIRE switch.

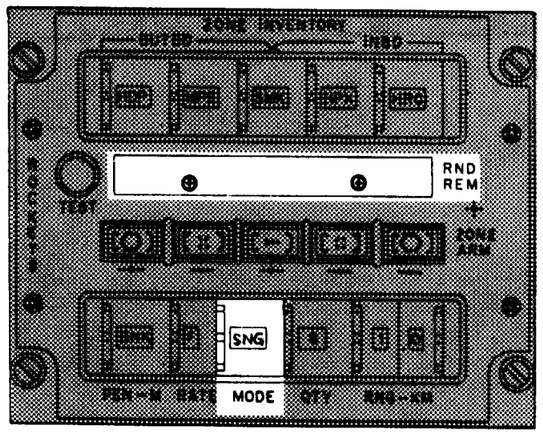
Does RND REM display decrease?

YES → Turn off electrical power per paragraph 5-3.

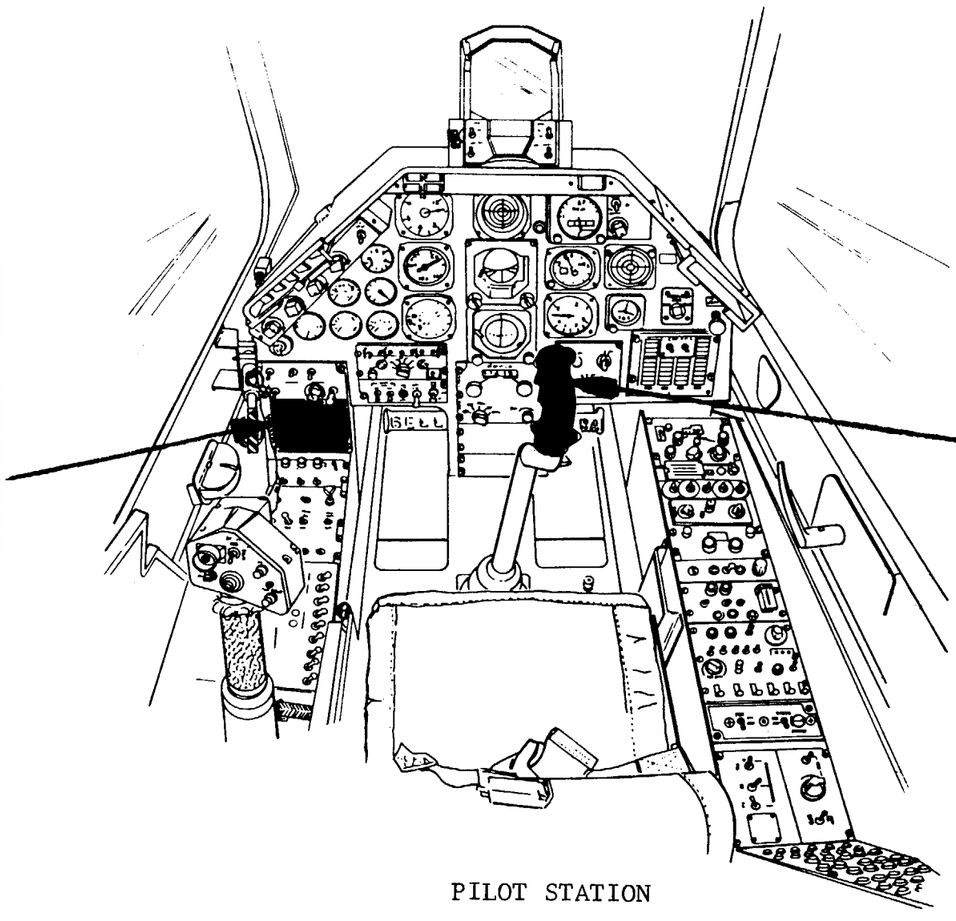
Replace ROCKETS display unit per TM 9-1090-207-13, Chapter 4, Section IV.

Then go to paragraph 5-2.

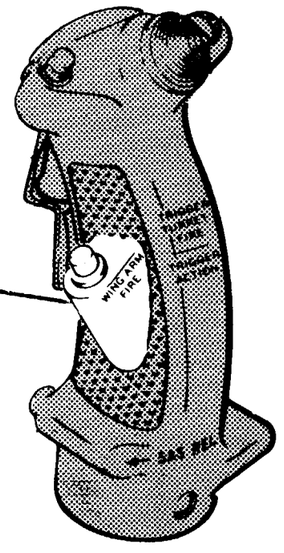
NO → Go to paragraph 5-18.



ROCKETS DISPLAY UNIT



PILOT STATION



PILOT CYCLIC STICK

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5-21. RND REM DISPLAY DOES NOT DECREASE WHEN GUNNER IS IN PLT ORIDE.

INITIAL SETUP

Applicable Configuration
All

Tools/Test and Support Equipment
Multimeter

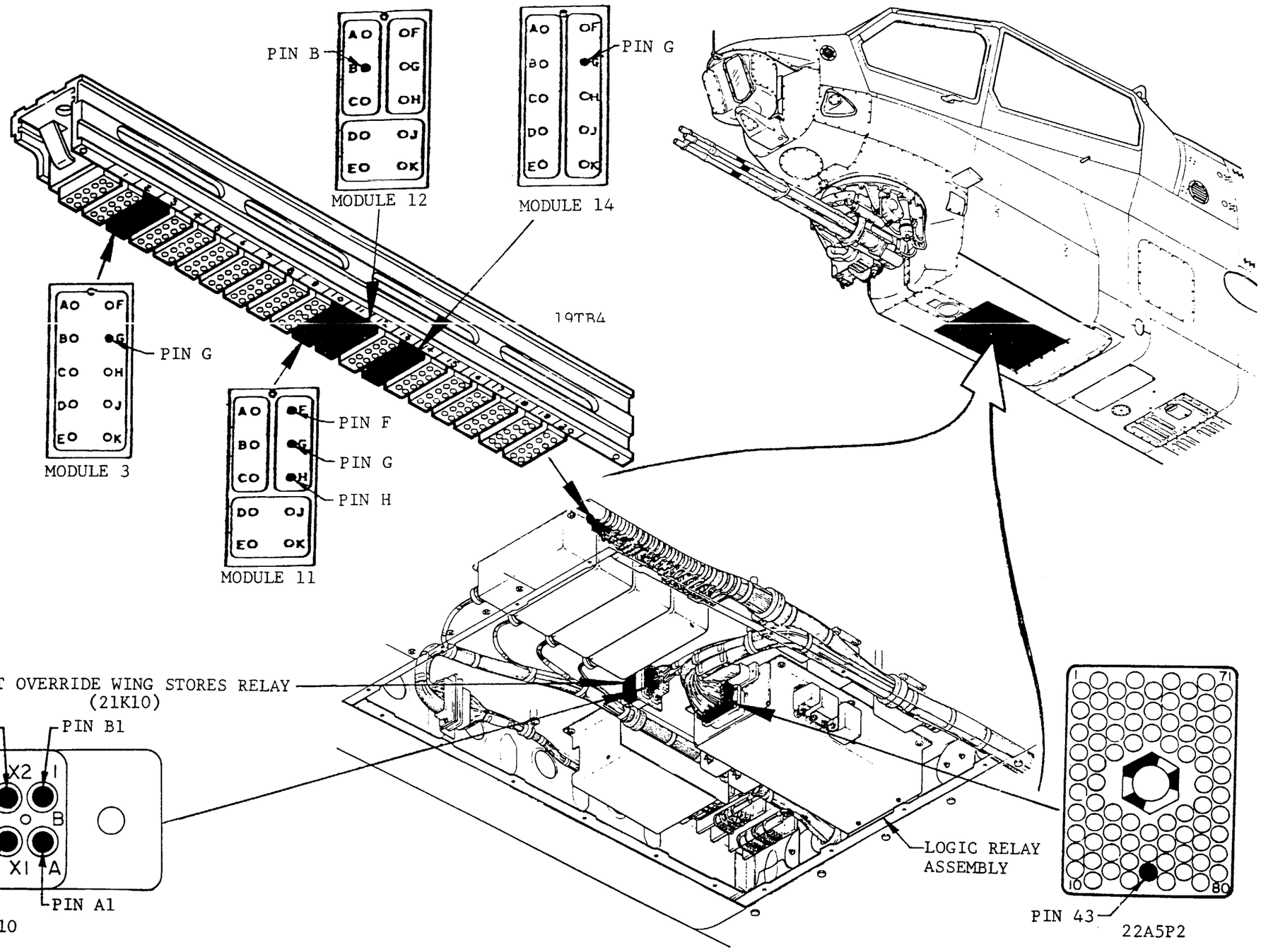
Tool Set, A/C Armament Repairman

Personnel Required
68J (2)

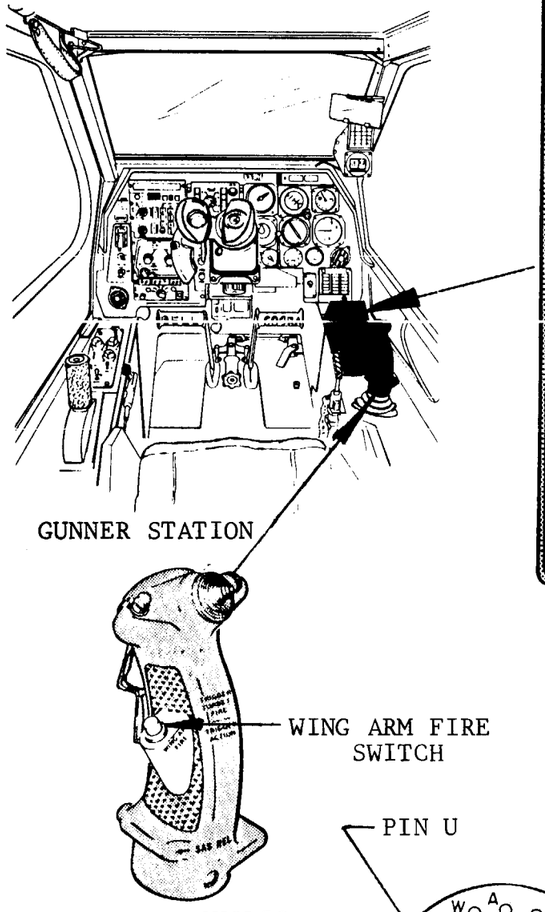
References
TM 9-1090-206-20-1
TM 55-1520-236-23

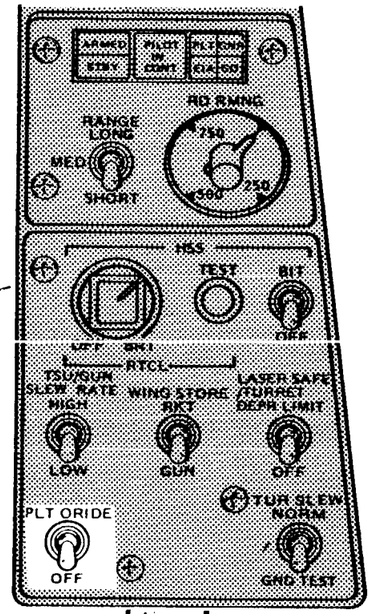
Access Panels
Forward Belly Armament and Lighting - Removed

Forward Right Side Control Linkage - Removed

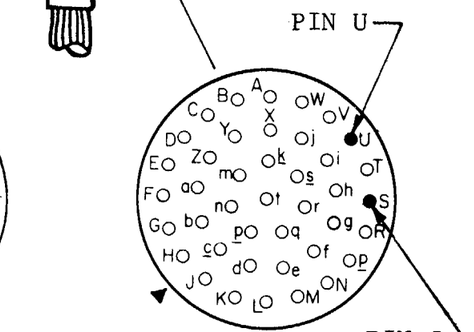


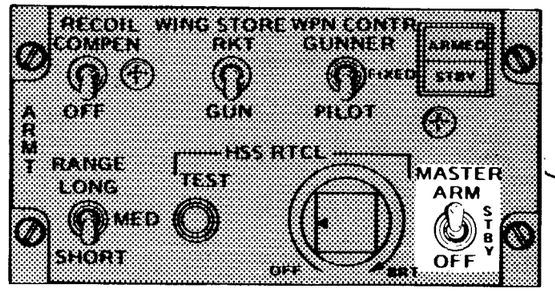
5-21. RND REM DISPLAY DOES NOT DECREASE WHEN GUNNER IS IN PLT ORIDE (CONTINUED).



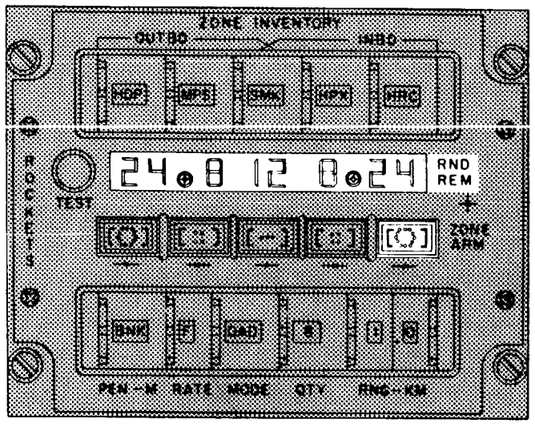


GUNNER ARMAMENT CONTROL PANEL

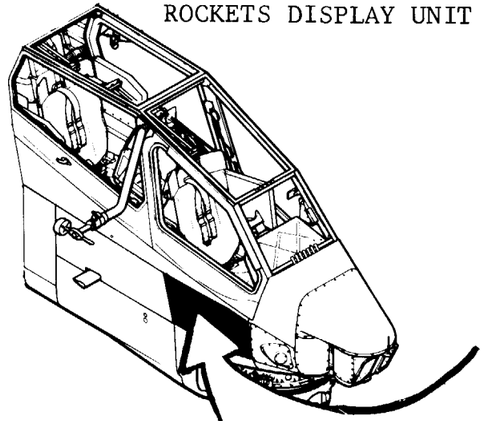


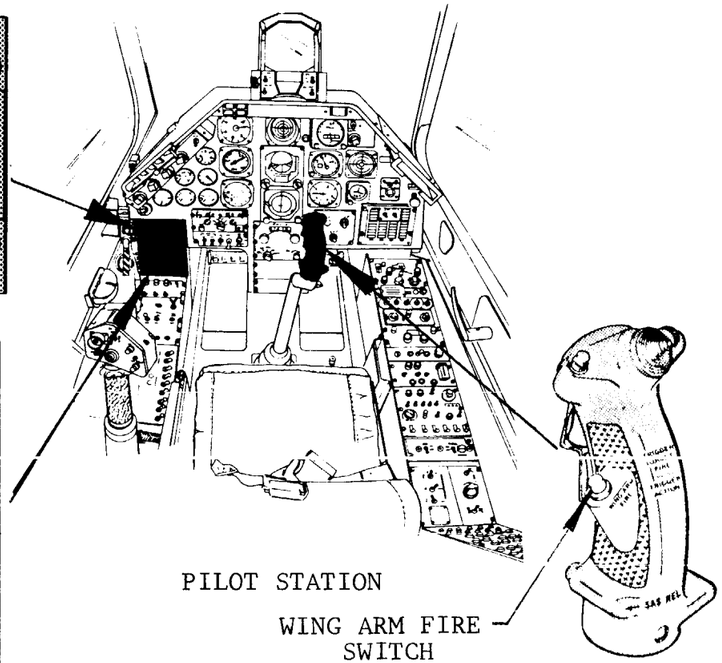


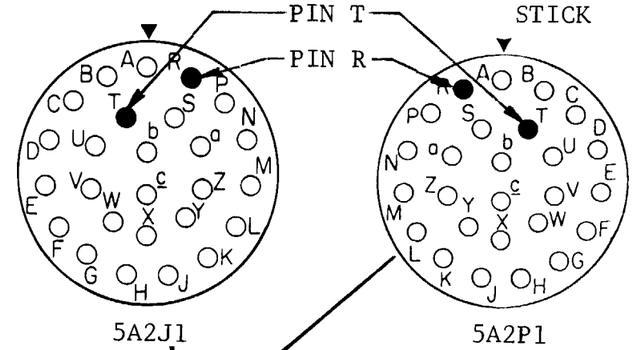
PILOT ARMT CONTROL PANEL

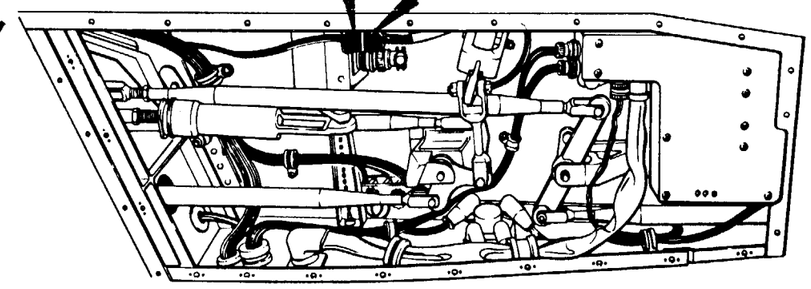


ROCKETS DISPLAY UNIT









5-21. RND REM DISPLAY DOES NOT DECREASE WHEN GUNNER IS IN PLT ORIDE (CONTINUED).

On pilot ARMT control panel:

Set MASTER ARM switch to ARM.

On gunner armament control panel:

Set PLT ORIDE switch to OFF.

On pilot cyclic stick:

Press WING ARM FIRE switch.

Does RND REM display decrease?

NO

Go to paragraph 5-22.

YES

On gunner armament control panel:

Set PLT ORIDE switch to PLT ORIDE.

Turn off electrical power per paragraph 5-3.

Remove wire A501A20 from 19TB4-11H.

Turn on electrical power per paragraph 5-3.

On gunner cyclic stick:

Press and hold WING ARM FIRE switch.

CAUTION

ELECTRICAL POWER IS ON FOR THIS CONTINUITY CHECK.

Check for continuity from 19TB4-12B to airframe ground.

Is continuity present?

NO

Turn off electrical power per paragraph 5-3.

Insert wire A5-1A20 into 19TB4-11H.

Turn on electrical power per paragraph 5-3.

Check for 28 V dc at 19TB4-3G.

Is 28 V dc present?

NO

Turn off electrical power per paragraph 5-3.

Replace module 3 of 19TB4 per TM 55-1520-236-23, Chapter 9, Section I.

Then go to paragraph 5-2.

YES

Turn off electrical power per paragraph 5-3.

Check for continuity from 5A2P1-T to airframe ground while pressing WING ARM FIRE switch on gunner cyclic stick.

Is continuity present?

NO

Remove pilot override wing stores relay (21K10) per TM 55-1520-236-23, Chapter 9, Section I.

Insert wire A501A20 into 19TB4-11H.

Check for continuity from 5A2J1-T to airframe ground.

Is continuity present?

NO

Replace pilot override wing stores relay (21K10) per TM 55-1520-236-23, Chapter 9, Section I.

Then go to paragraph 5-2.

YES

YES

YES

YES

5-21. RND REM DISPLAY DOES NOT DECREASE WHEN GUNNER IS IN PLT ORIDE (CONTINUED).

YES → Replace gunner cyclic stick grip per TM 55-1520-236-23, Chapter 11, Section I.

Go to paragraph 5-2.

YES → Repair wire A530A20 between 5A2J1-T and 21XK10-B1 to eliminate short.

Install pilot override wing stores relay (21K10) per TM 55-1520-236-23, Chapter 9, Section I.

Go to paragraph 5-2.

YES

YES → Check for 28 V dc at 19TB4-11F.

Is 28 V dc present?

YES →

NO

Check for 28 V dc at 19TB4-11H.

Is 28 V dc present?

YES →

NO

Check for 28 V dc at 19TB4-11G.

Is 28 V dc present?

YES →

NO

Turn off electrical power per paragraph 5-3.

Check for continuity from 19TB4-11G to 22A5P2-43.

Is continuity present?

YES →

NO

Repair wire A403A20 between 22A5P2-43 and 19TB4-11G.

Then go to paragraph 5-2.

5-21. RND REM DISPLAY DOES NOT DECREASE WHEN GUNNER IS IN PLT ORIDE (CONTINUED).

YES

Turn off electrical power per paragraph 5-3.

Disconnect 21XK10.

Turn on electrical power per paragraph 5-3.

On gunner cyclic stick:

Press and hold WING ARM FIRE switch.

Check for 28 V dc at 21XK10-B1.

Is 28 V dc present?

YES

Check for 28 V dc at 21XK10-X1.

Is 28 V dc present?

YES

NO

Turn off electrical power per paragraph 5-3.

Repair wire A402A20 between 21XK10-X1 and 19TB4-11F.

Connect 21XK10.

Then go to paragraph 5-2.

YES

Turn off electrical power per paragraph 5-3.

Replace module 11 of 19TB4 per TM 55-1520-236-23, Chapter 9, Section I.

Then go to paragraph 5-2.

NO

Turn off electrical power per paragraph 5-3.

Disconnect 5A2J1.

Turn on electrical power per paragraph 5-3.

Check for 28 V dc at 5A2J1-R.

Is 28 V dc present?

YES

Turn off electrical power per paragraph 5-3.

On gunner cyclic stick:

Press WING ARM FIRE switch and check for continuity from 5A2P1-R to 5A2P1-T.

Is continuity present?

YES

YES

Turn off electrical power per paragraph 5-3.

Replace module 11 of 19TB4 per TM 55-1520-236-23, Chapter 9, Section I.

Then go to paragraph 5-2.

NO

Turn off electrical power per paragraph 5-3.

Repair wire A501A20 between 5A2J1-R and 19TB4-11 H.

Connect 21XK10 and 5A2J1.

Then go to paragraph 5-2.

NO

Replace gunner cyclic stick assembly per TM 55-1520-236-23, Chapter 11, Section I.

Connect 21XK10 and 5A2J1.

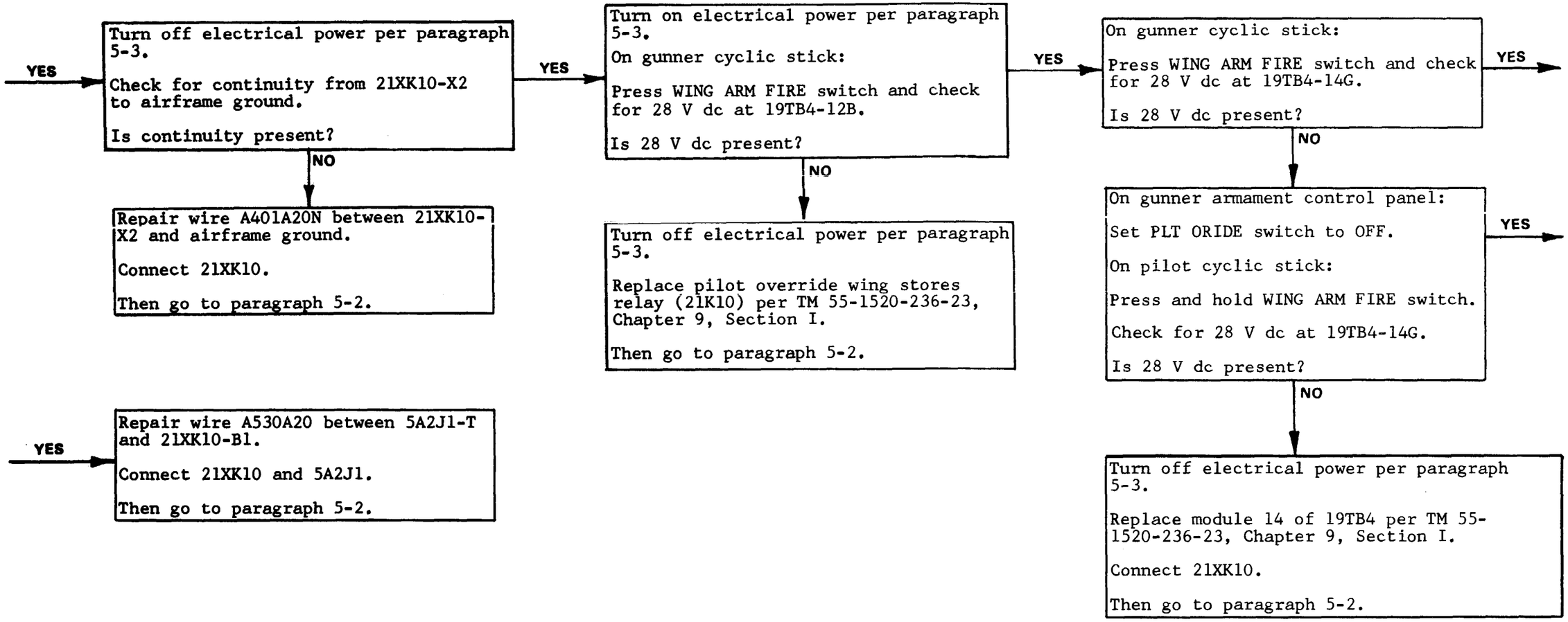
Then go to paragraph 5-2.

YES

Replace logic relay assembly per TM 9-1090-206-20-1, Chapter 3, Section XXIII.

Then go to paragraph 5-2.

5-21. RND REM DISPLAY DOES NOT DECREASE WHEN GUNNER IS IN PLT ORIDE (CONTINUED).



5-21. RND REM DISPLAY DOES NOT DECREASE WHEN GUNNER IS IN PLT ORIDE (CONTINUED).

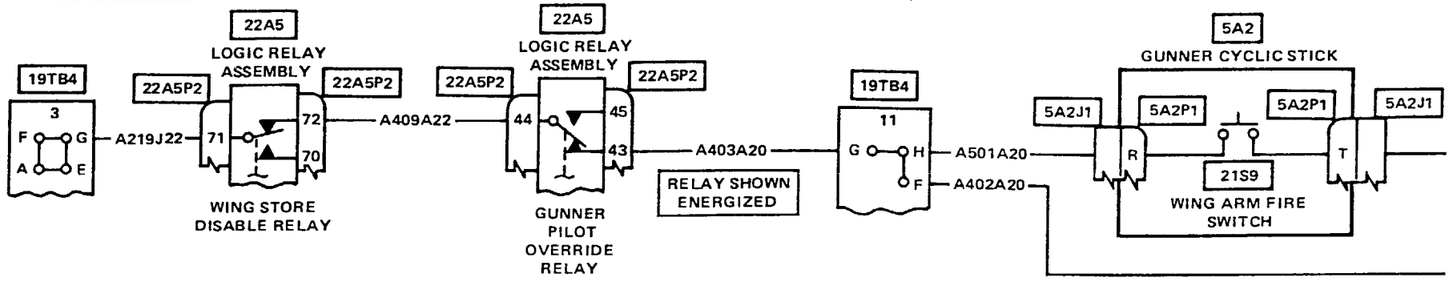
Turn off electrical power per paragraph 5-3.

Replace module 14 of 19TB4 per TM 55-1520-236-23, Chapter 9, Section I.

Connect 21XK10.

Then go to paragraph 5-2.

YES



On pilot cyclic stick:

Press and hold WING ARM FIRE switch.

Check for 28 V dc at 21XK10-A1.

Is 28 V dc present?

YES

Turn off electrical power per paragraph 5-3.

Replace pilot override wing stores relay (21K10) per TM 55-1520-236-23, Chapter 9, Section I.

Then go to paragraph 5-2.

NO

Turn off electrical power per paragraph 5-3.

Disconnect 22A3P1.

Turn on electrical power per paragraph 5-3.

On pilot cyclic stick:

Press and hold WING ARM FIRE switch.

Check for 28 V dc at 22A3P1-U.

Is 28 V dc present?

YES

Turn off electrical power per paragraph 5-3.

Check for continuity from 22A3J1-U to 22A3J1-S.

Is continuity present?

YES

Repair wire A505A20 between 22A3P1-S and 21XK10-A1.

Connect 21XK10 and 22A3P1.

Then go to paragraph 5-2.

NO

Replace gunner armament control panel per TM 9-1090-206-20-1, Chapter 3, Section XVIII.

Connect 21XK10 and 22A3P1.

Then go to paragraph 5-2.

NO

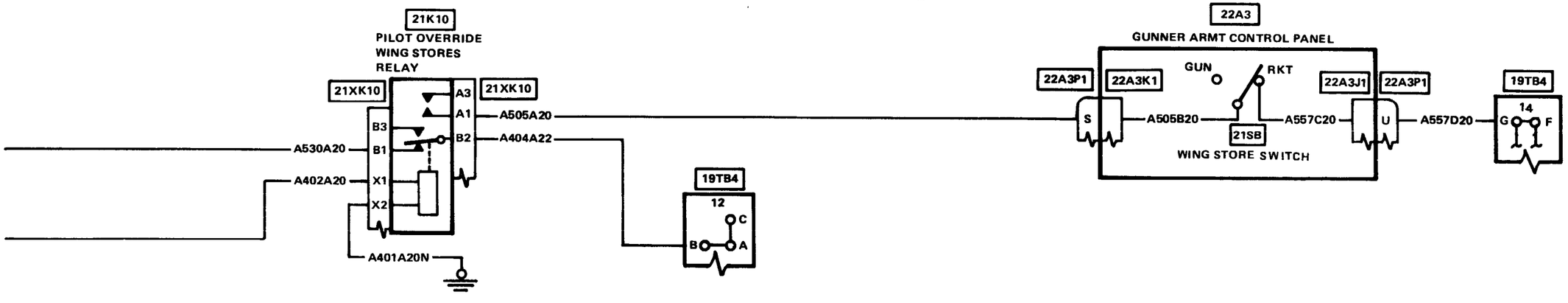
Turn off electrical power per paragraph 5-3.

Repair wire A557D20 between 22A3P1-U and 19TB4-14G.

Connect 21XK10 and 22A3P1.

Then go to paragraph 5-2.

5-21. RND REM DISPLAY DOES NOT DECREASE WHEN GUNNER IS IN PLT ORIDE (CONTINUED).



5-22. RND REM DISPLAY DOES NOT DECREASE WHEN PILOT OR GUNNER WING ARM FIRE SWITCH IS PRESSED.

INITIAL SETUP

Applicable Configuration
All

Tools/Test and Support Equipment
Multimeter

Tool Set, A/C Armament Repairman

Personnel Required
68J (2)

References
TM 9-1090-207-13
TM 9-1090-206-20-1
TM 55-1520-236-23

Access Panels
Turret Fairing - Removed

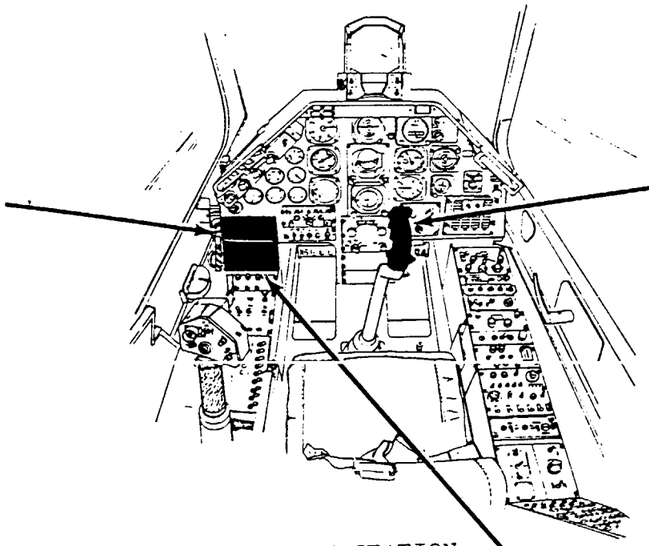
Forward Belly Armament and Lighting - Removed

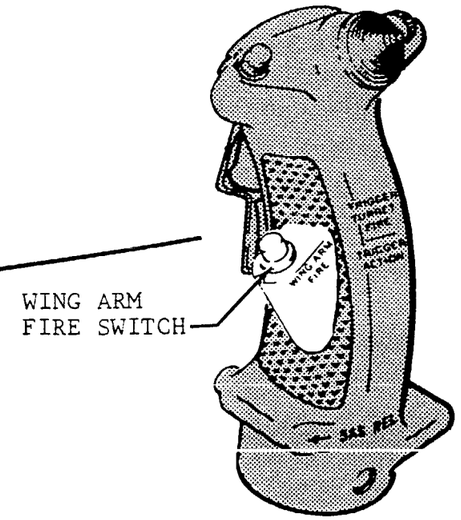
Forward Right Side Control Linkage - Removed

A. TROUBLESHOOTING LOGIC PART ONE.

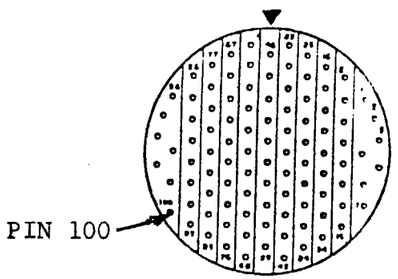


PILOT ARMT CONTROL PANEL

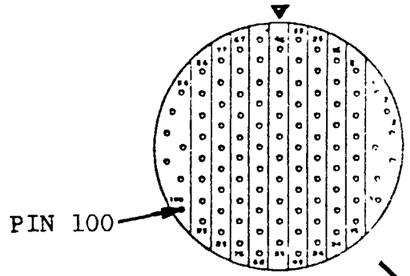

PILOT STATION

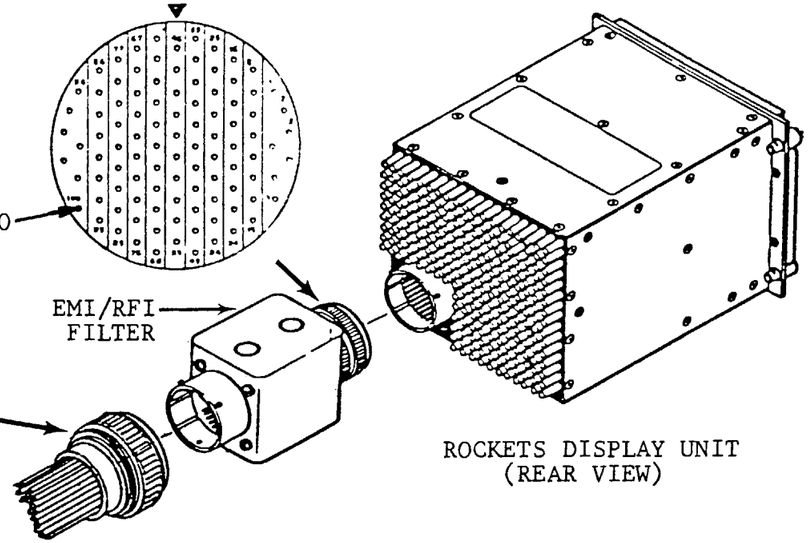


PILOT CYCLIC STICK

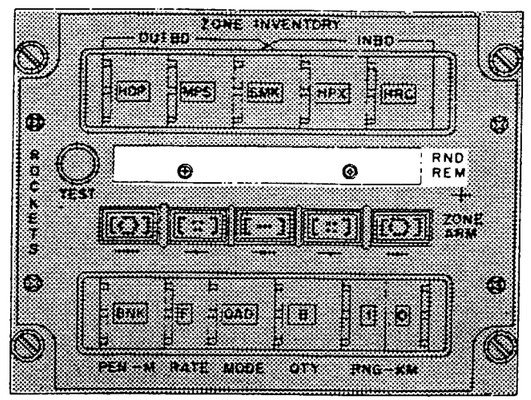


21A12P1





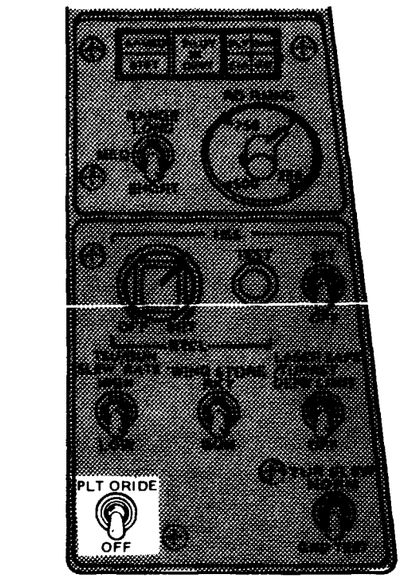
ROCKETS DISPLAY UNIT (REAR VIEW)



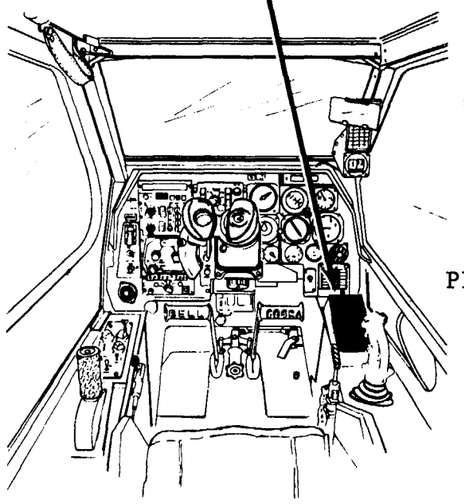
ROCKETS DISPLAY UNIT

5-22. RND REM DISPLAY DOES NOT DECREASE WHEN PILOT OR GUNNER WING ARM FIRE SWITCH IS PRESSED (CONTINUED).

A. TROUBLESHOOTING LOGIC PART ONE (CONTINUED).

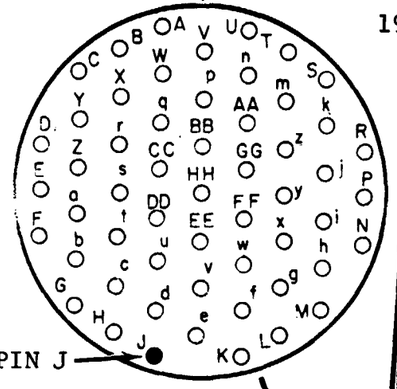


GUNNER ARMAMENT CONTROL PANEL

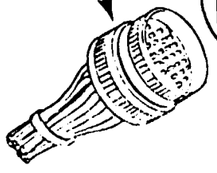


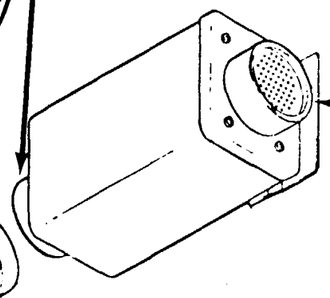
GUNNER STATION

19A7J1

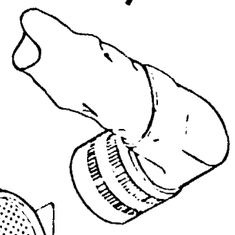


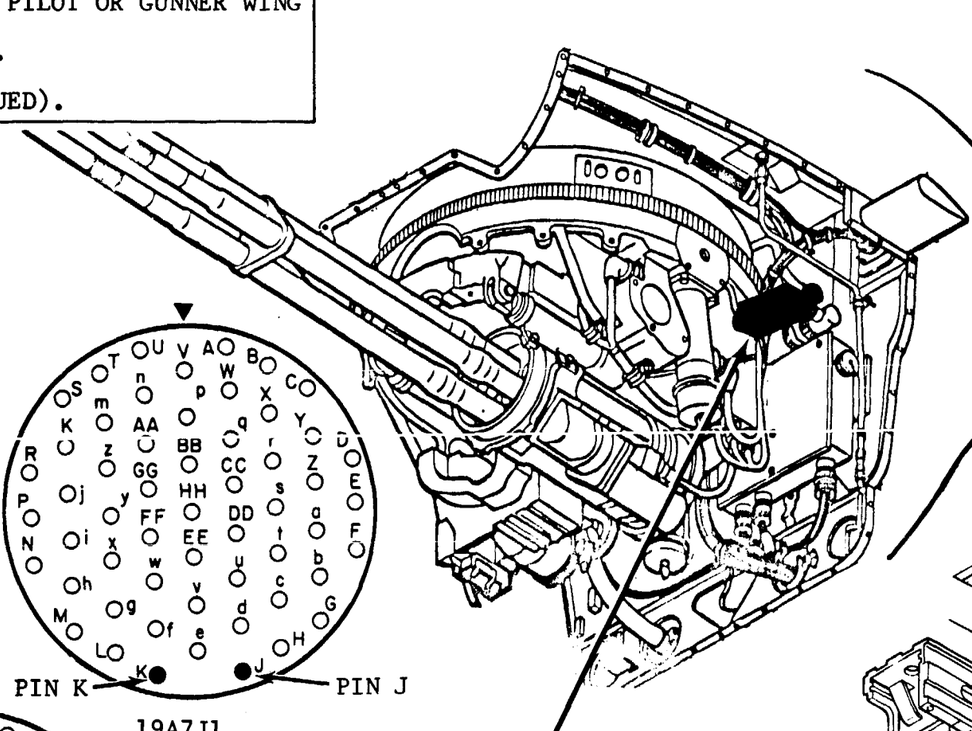
19A7P1

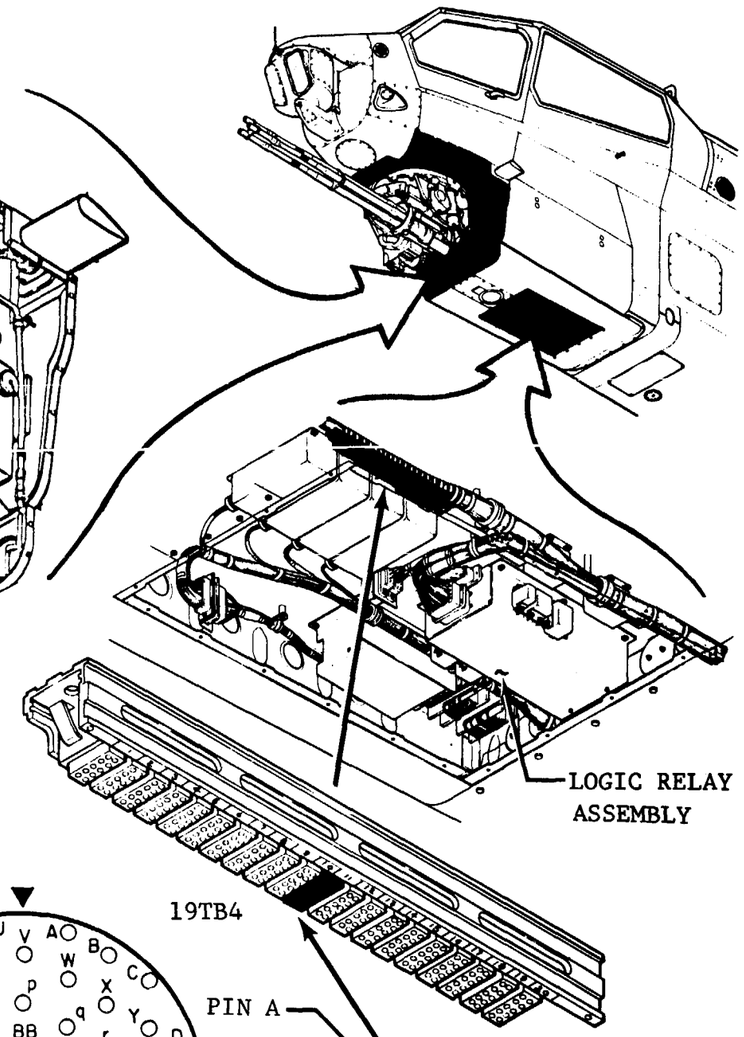




TURRET BUFFER AMPLIFIER

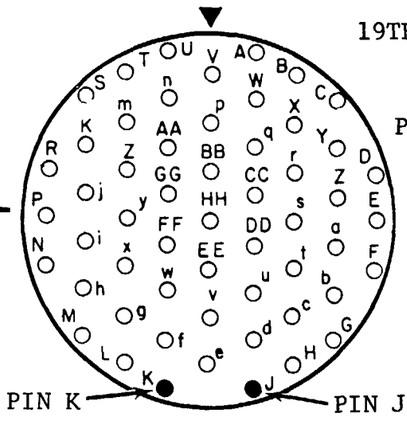






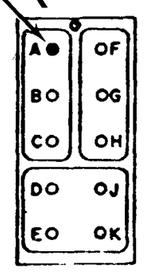
LOGIC RELAY ASSEMBLY

19TB4



19A7J247

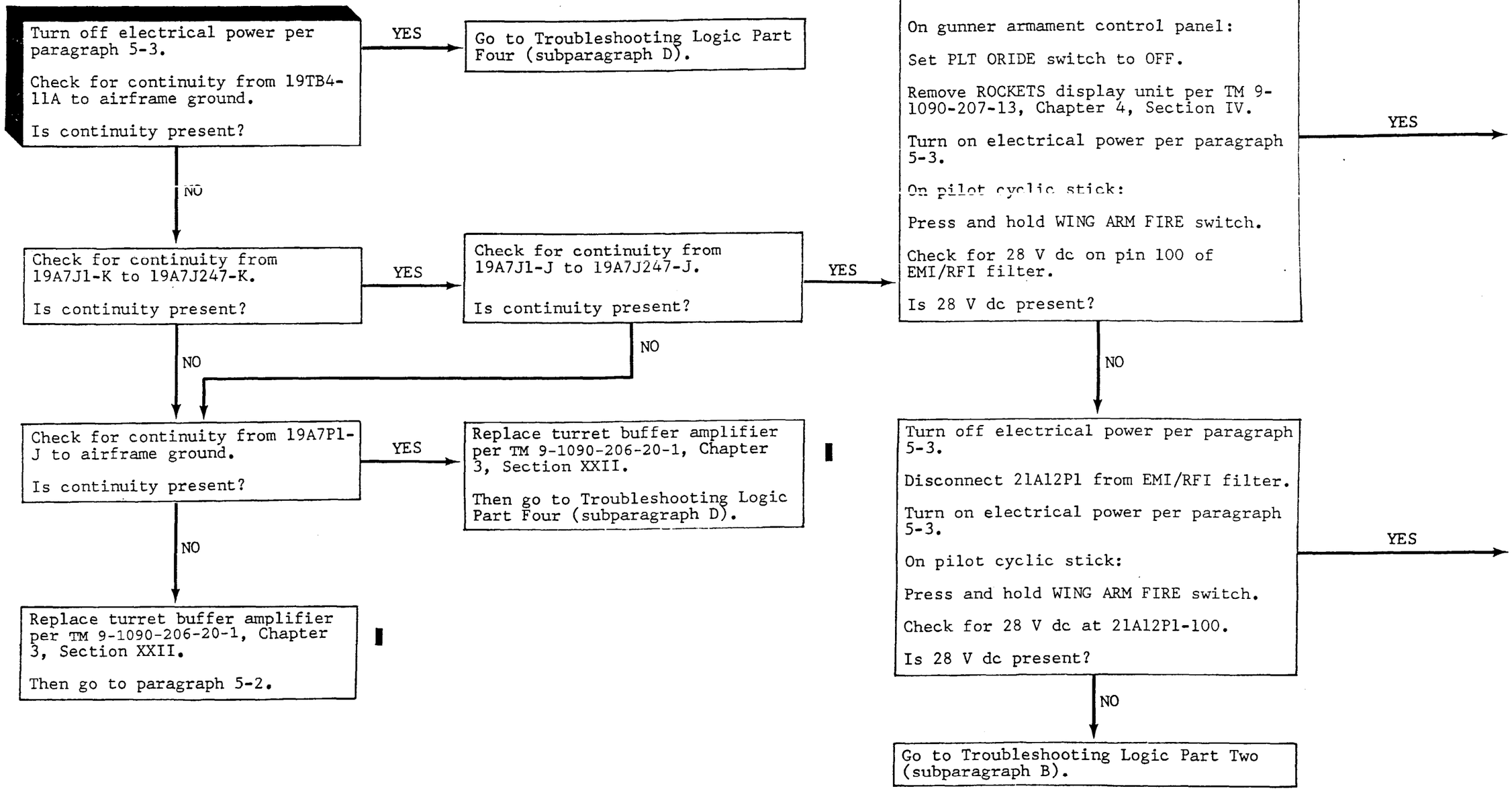
PIN A



MODULE 11

5-22. RND REM DISPLAY DOES NOT DECREASE WHEN PILOT OR GUNNER WING ARM FIRE SWITCH IS PRESSED (CONTINUED).

A. TROUBLESHOOTING LOGIC PART ONE (CONTINUED).



5-22. RND REM DISPLAY DOES NOT DECREASE WHEN PILOT OR GUNNER WING ARM FIRE SWITCH IS PRESSED (CONTINUED).

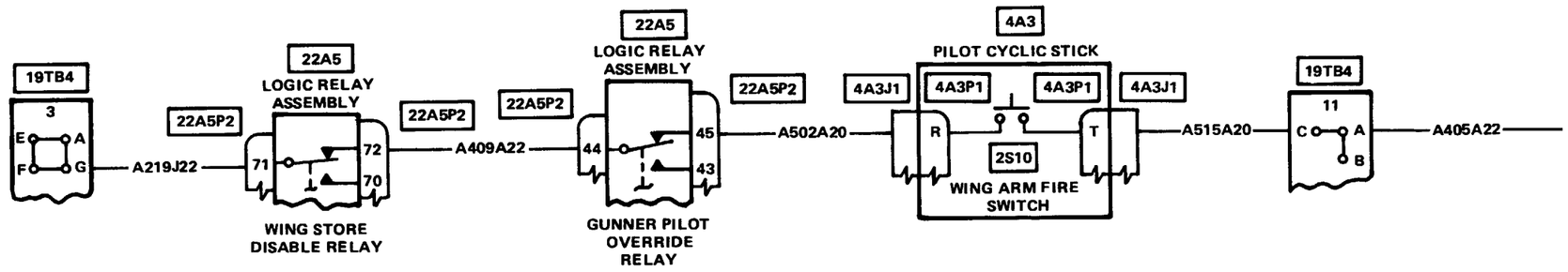
A. TROUBLESHOOTING LOGIC PART ONE (CONTINUED).

YES →

Turn off electrical power per paragraph 5-3.

Replace ROCKETS display unit per TM 9-1090-207-13, Chapter 4, Section IV.

Then go to paragraph 5-2.



YES →

Turn off electrical power per paragraph 5-3.

Replace EMI/RFI filter.

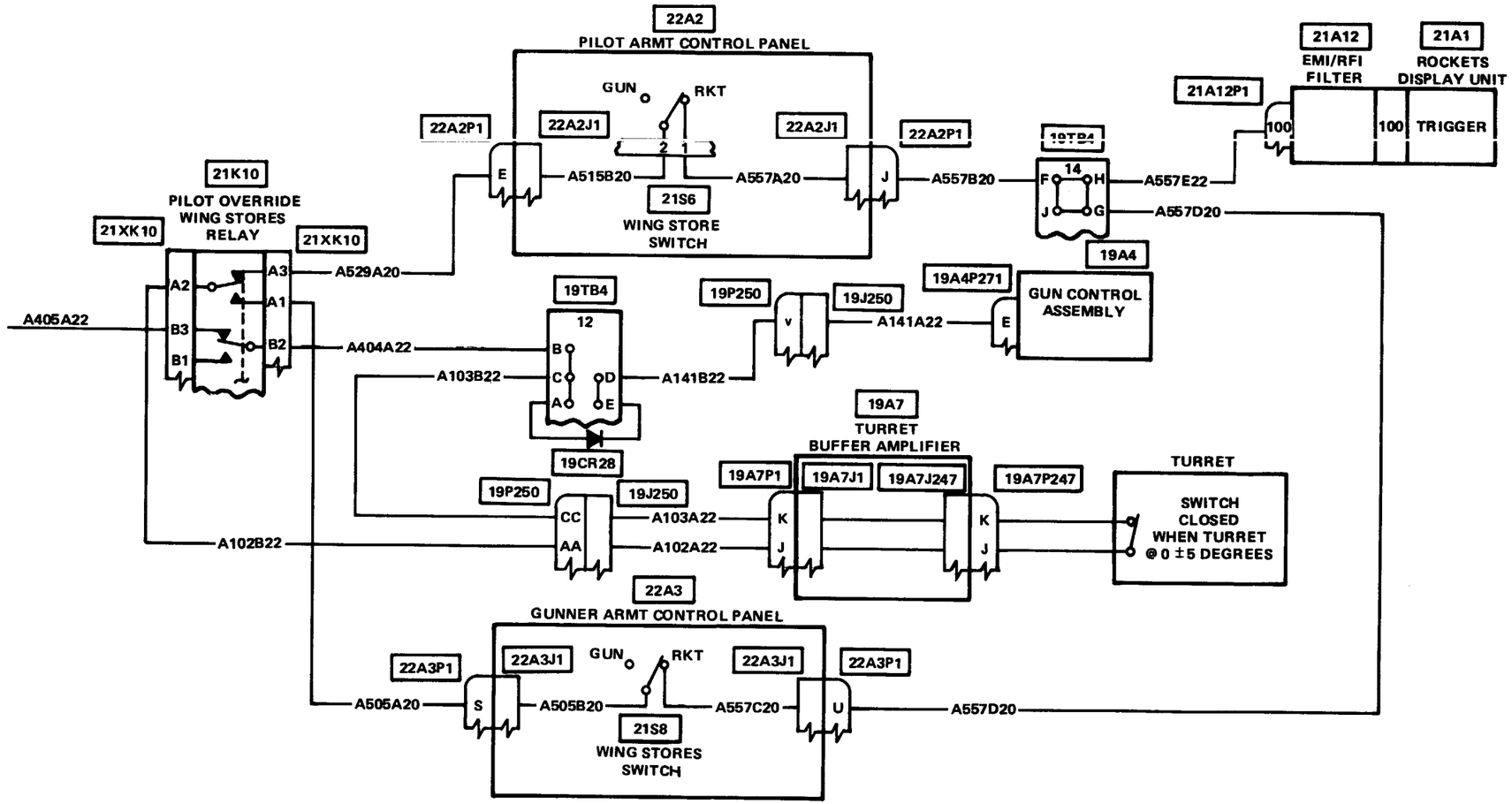
Connect 21A12P1 to EMI/RFI filter.

Install ROCKETS display unit per TM 9-1090-207-13, Chapter 4, Section IV.

Then go to paragraph 5-2.

5-22. RND REM DISPLAY DOES NOT DECREASE WHEN PILOT OR GUNNER WING ARM FIRE SWITCH IS PRESSED (CONTINUED).

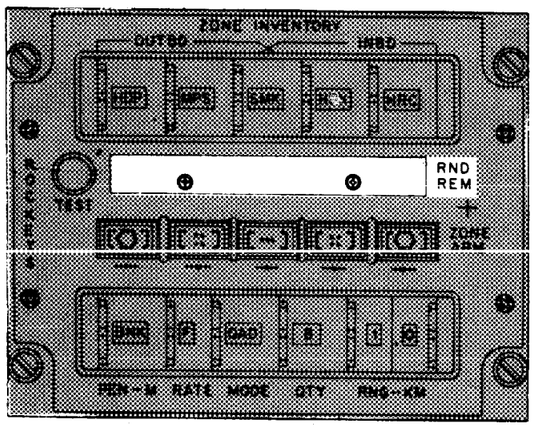
A. TROUBLESHOOTING LOGIC PART ONE (CONTINUED).



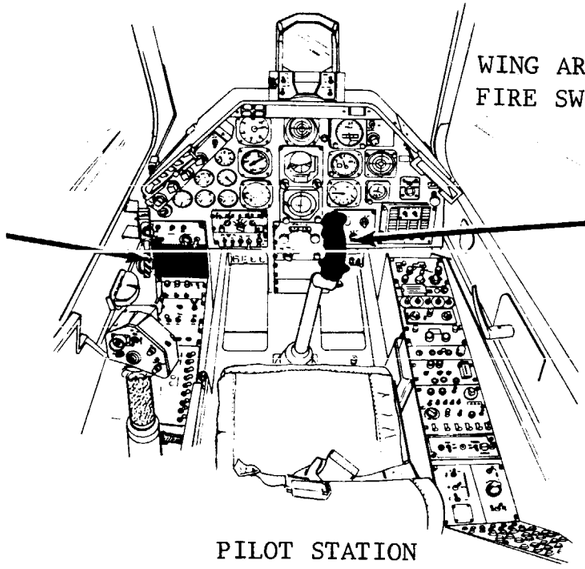
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5-22. RND REM DISPLAY DOES NOT DECREASE WHEN PILOT OR GUNNER WING ARM FIRE SWITCH IS PRESSED (CONTINUED).

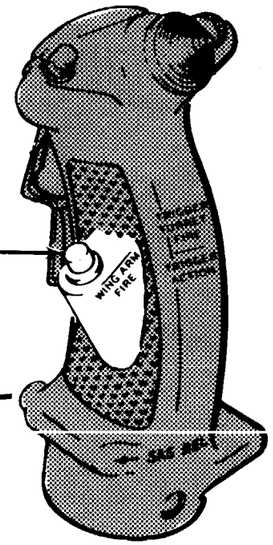
B. TROUBLESHOOTING LOGIC PART TWO.



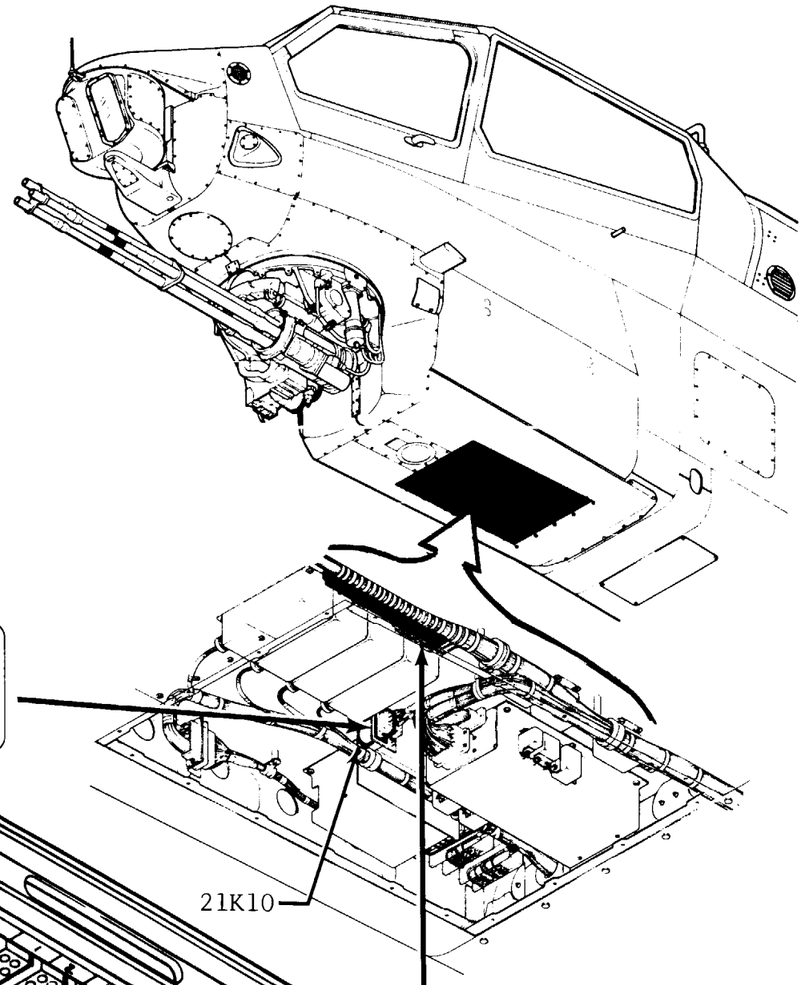
ROCKETS DISPLAY UNIT

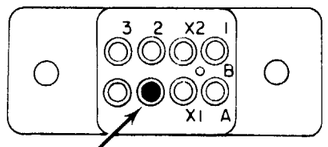


PILOT STATION

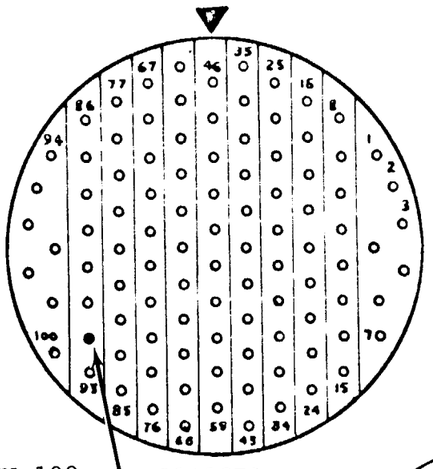


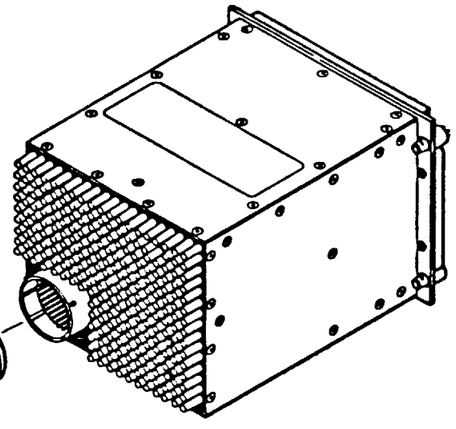
PILOT CYCLIC STICK





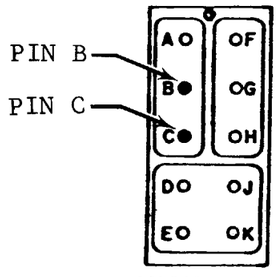
PIN A2 — 21XK10



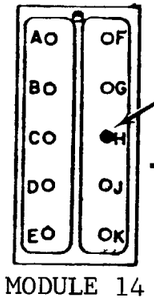


ROCKETS DISPLAY UNIT
(REAR VIEW)

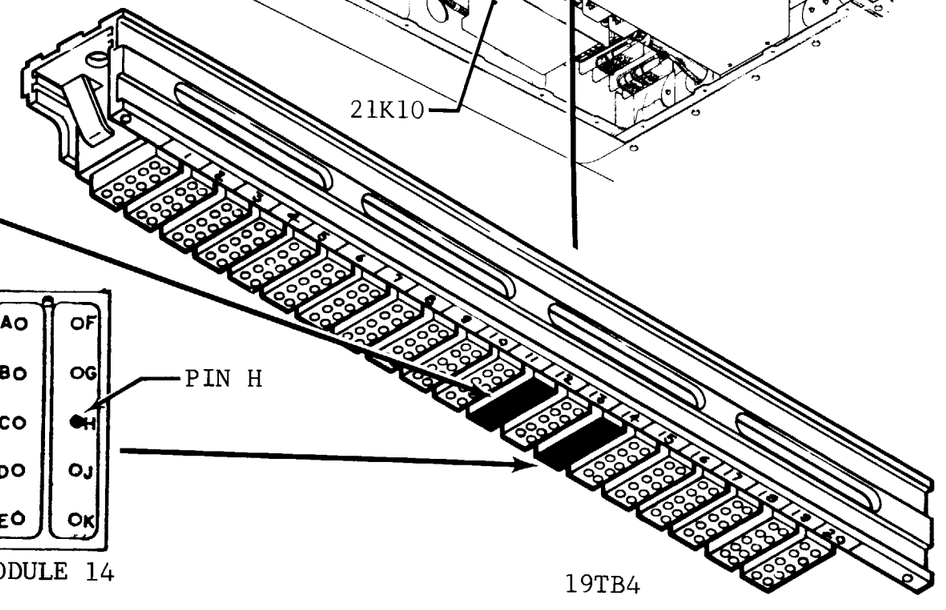
EMI/RFI
FILTER



MODULE 12



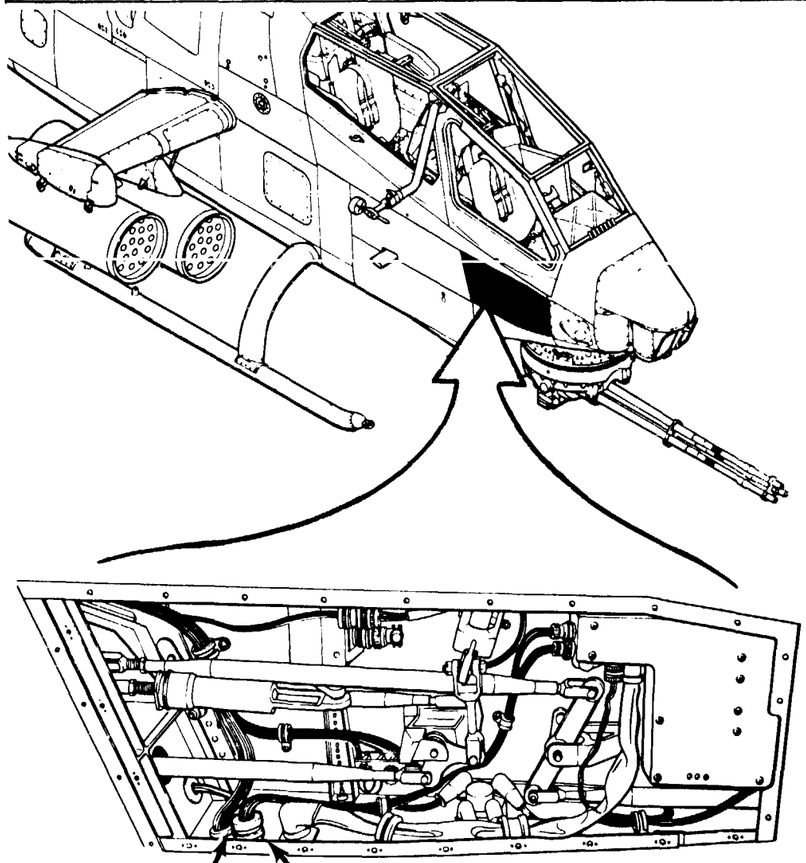
MODULE 14

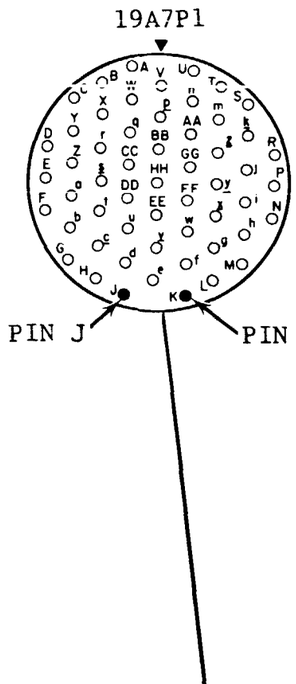


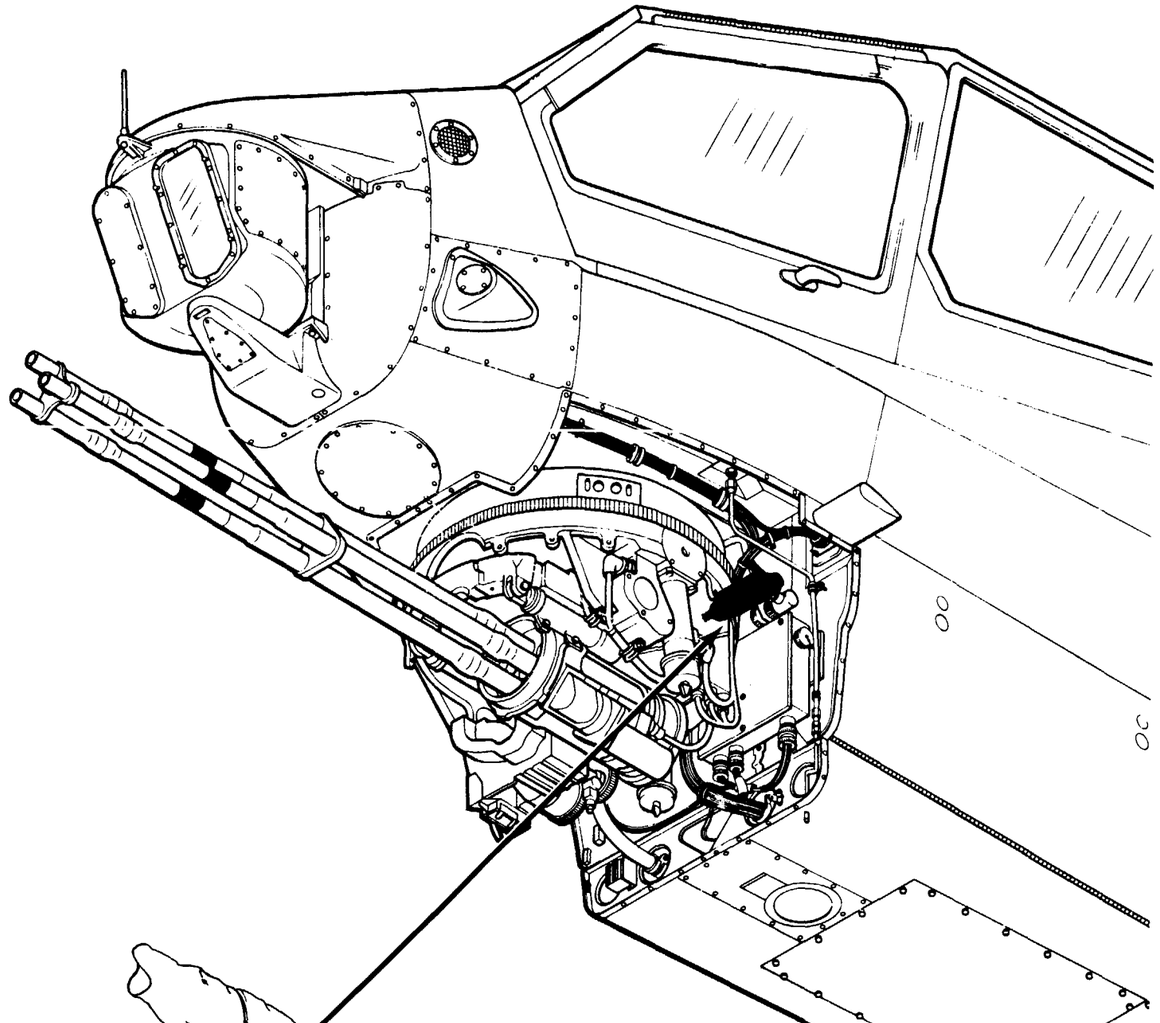
19TB4

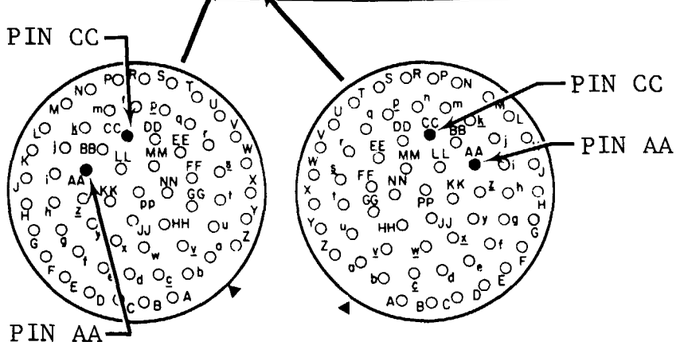
5-22. RND REM DISPLAY DOES NOT DECREASE WHEN PILOT OR GUNNER WING ARM FIRE SWITCH IS PRESSED (CONTINUED).

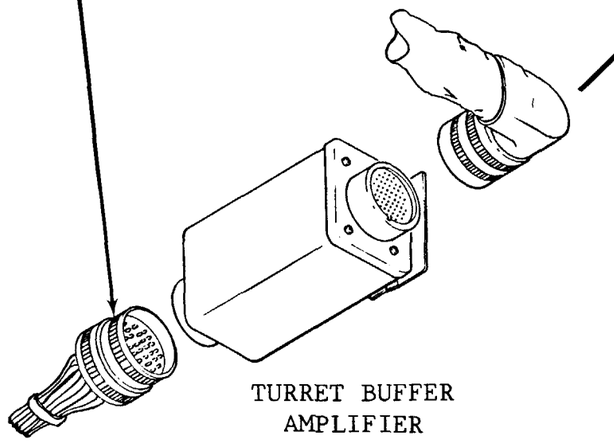
B. TROUBLESHOOTING LOGIC PART TWO (CONTINUED).











5-22. RND REM DISPLAY DOES NOT DECREASE WHEN PILOT OR GUNNER WING ARM FIRE SWITCH IS PRESSED (CONTINUED).
B. TROUBLESHOOTING LOGIC PART TWO (CONTINUED).

Turn off electrical power per paragraph 5-3.

Check for continuity from 21A12P1-100 to 19TB4-14H.

Is continuity present?

YES → Connect 21A12P1 to EMI/RFI filter.

Install ROCKETS display unit per TM 9-1090-207-13, Chapter 4, Section IV.

Turn on electrical power per paragraph 5-3.

On pilot cyclic stick:

Press and hold WING ARM FIRE switch.

Check for 28 V dc at 19TB4-12B.

Is 28 V dc present?

YES → On pilot cyclic stick:

Press and hold WING ARM FIRE switch and check for 28 V dc at 19TB4-12C.

Is 28 V dc present?

YES → Turn off electrical power per paragraph 5-3.

Check for continuity from 19TB4-12C to 21XK10-A2.

Is continuity present?

YES → Replace pilot override wing stores relay (21K10) per TM 55-1520,236-23, Chapter 9, Section I.

Then go to paragraph 5-2.

NO → Repair wire A557E22 between 21A12P1-100 and 19TB4-14H.

Connect 21A12P1 to EMI/RFI filter.

Install ROCKETS display unit per TM 9-1090-207-13, Chapter 4, Section IV.

Then go to paragraph 5-2.

NO → Go to Troubleshooting Logic Part Three (subparagraph C).

NO → Turn off electrical power per paragraph 5-3.

Replace module 12 of 19TB4 per TM 55-1520-236-23, Chapter 9, Section I.

Then go to paragraph 5-2.

NO → Check for continuity from 19TB4-12C to 19P250-CC.

Is continuity present?

YES → Check for continuity from 19P250-AA to 21XK10-A2.

Is continuity present?

YES →

NO → Repair wire A103B22 between 19TB4-12C and 19P250-CC.

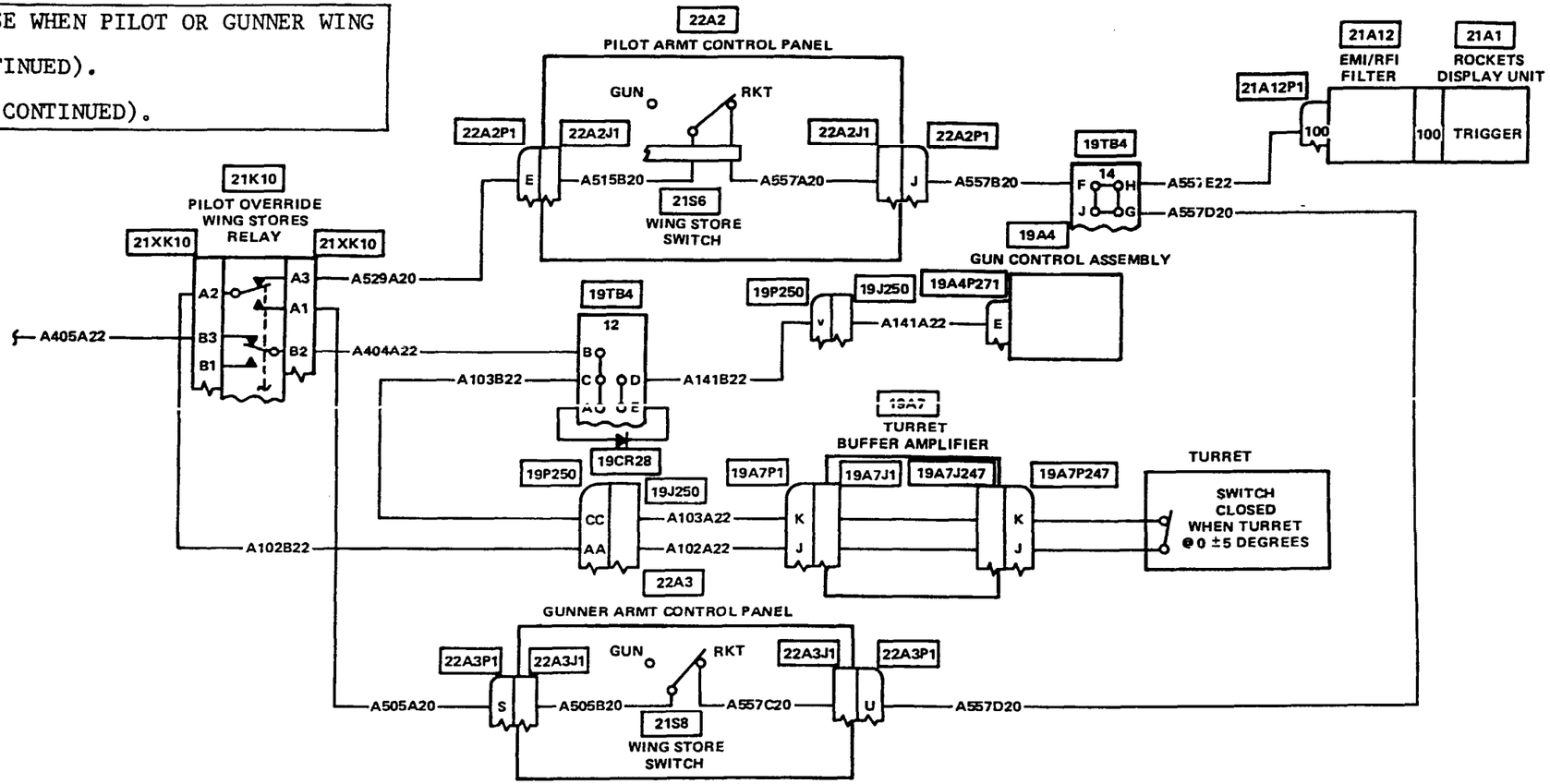
Then go to paragraph 5-2.

NO → Repair wire A102B22 between 19P250-AA and 21XK10-A2.

Then go to paragraph 5-2.

5-22. RND REM DISPLAY DOES NOT DECREASE WHEN PILOT OR GUNNER WING ARM FIRE SWITCH IS PRESSED (CONTINUED).

B. TROUBLESHOOTING LOGIC PART TWO (CONTINUED).



YES → Check for continuity from 19J250-CC to 19A7P1-K.

Is continuity present?

NO → Repair wire A103A22 between 19J250-CC and 19A7P1-K.

Then go to paragraph 5-2.

YES → Check for continuity from 19J250-AA to 19A7P1-J.

Is continuity present?

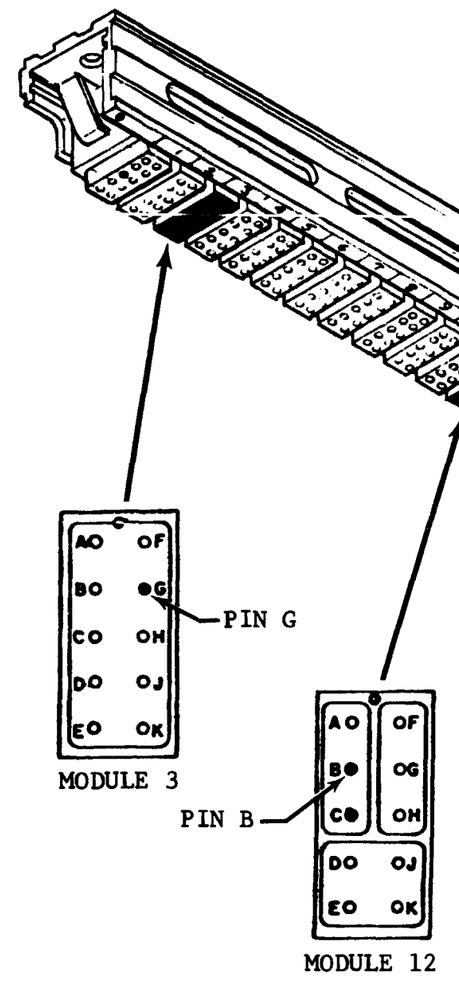
NO → Repair wire A102A22 between 19J250-AA and 19A7P1-J.

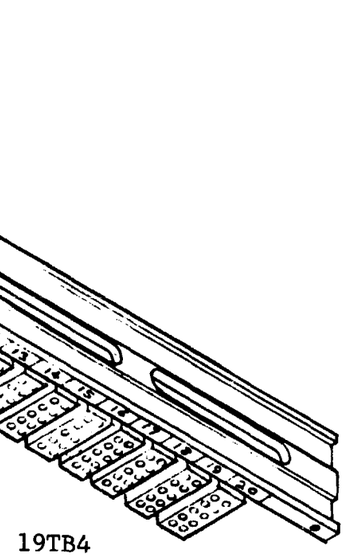
Then go to paragraph 5-2.

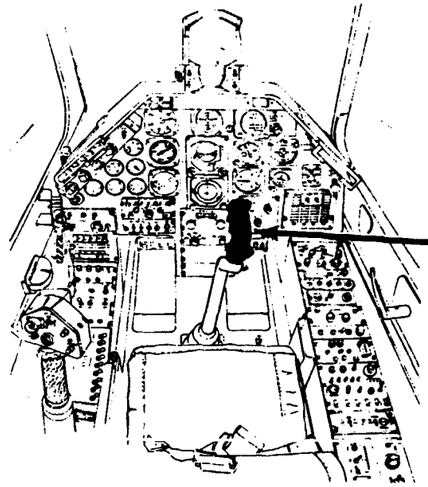
YES → Troubleshoot turret per TM 9-1090-206-20-1, Chapter 3, Section III.

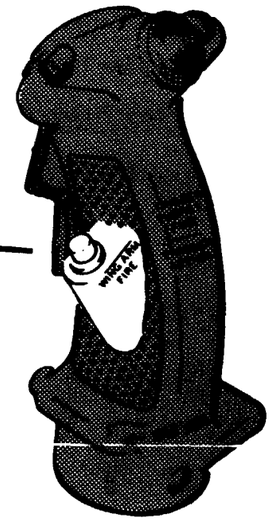
Then go to paragraph 5-2.

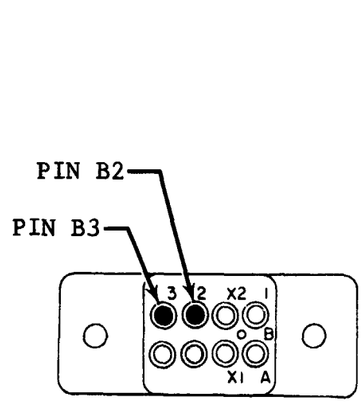
5-22. RND REM DISPLAY DOES NOT DECREASE WHEN PILOT OR GUNNER WING ARM FIRE SWITCH IS PRESSED (CONTINUED).
C. TROUBLESHOOTING LOGIC PART THREE.

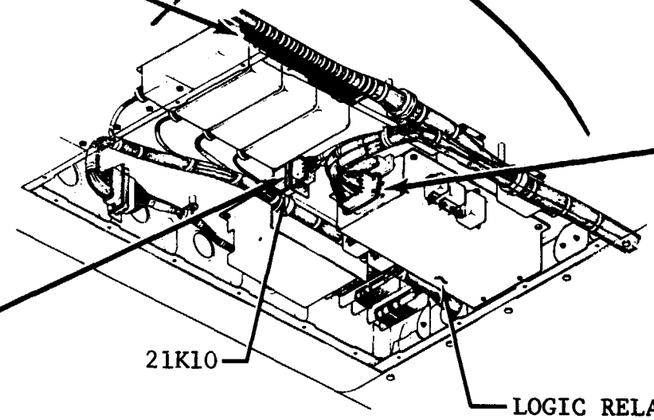


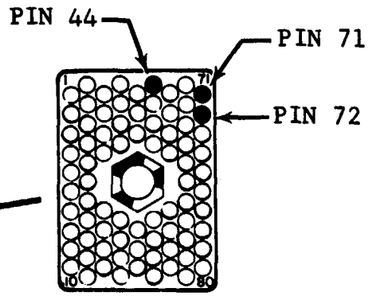




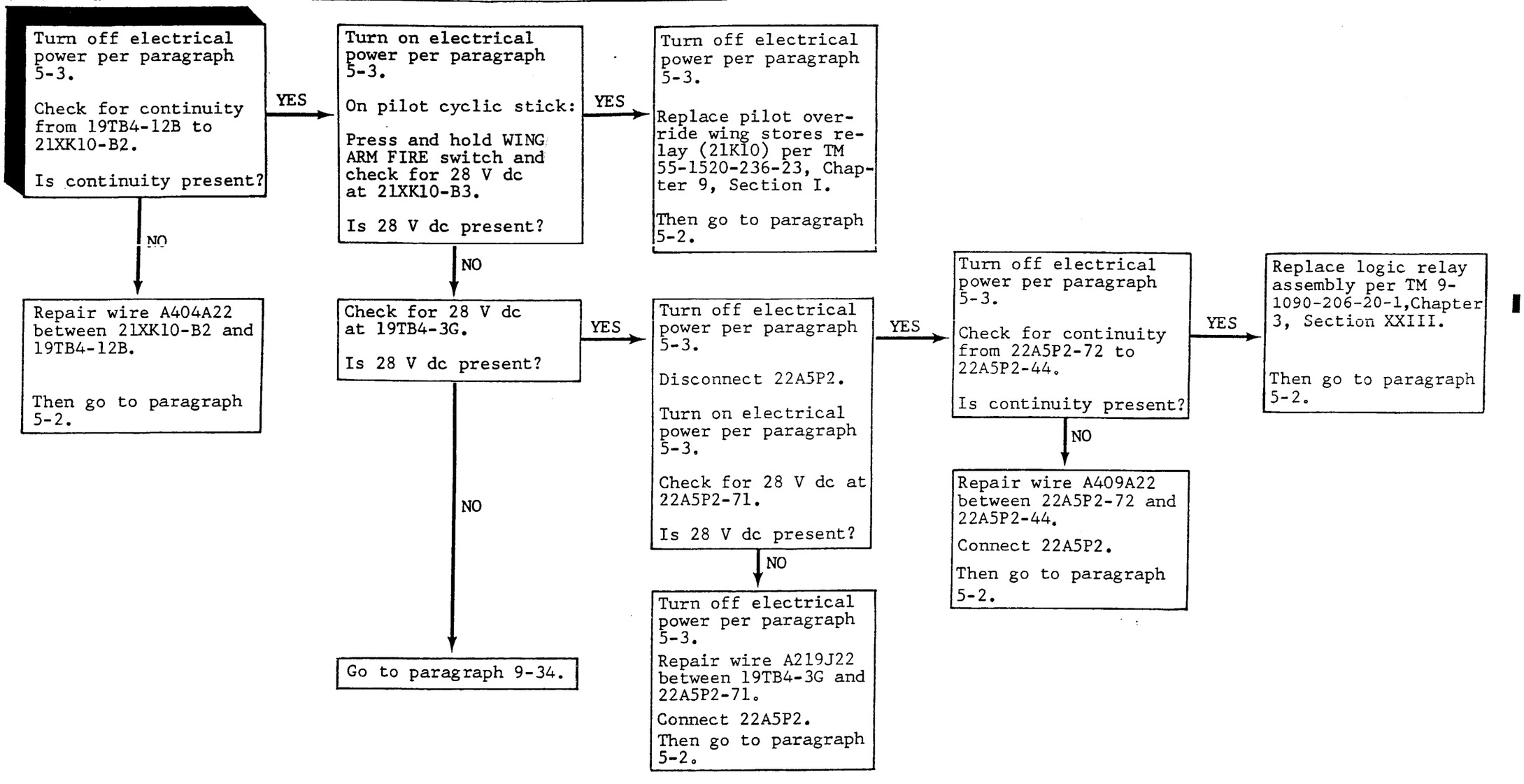




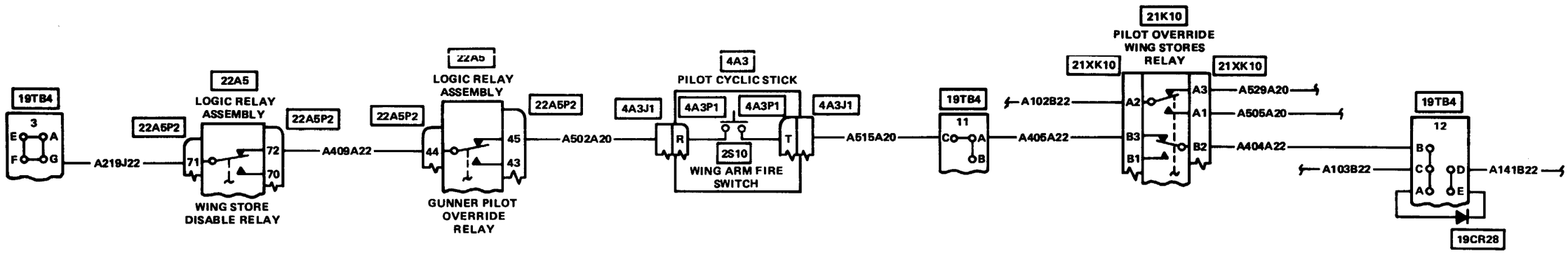




5-22. RND REM DISPLAY DOES NOT DECREASE WHEN PILOT OR GUNNER WING ARM FIRE SWITCH IS PRESSED (CONTINUED).
C. TROUBLESHOOTING LOGIC PART THREE (CONTINUED).

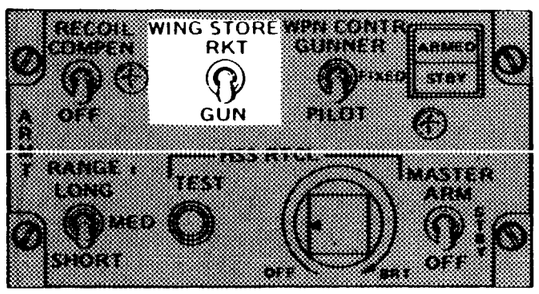


5-22. RND REM DISPLAY DOES NOT DECREASE WHEN PILOT OR GUNNER WING ARM FIRE SWITCH IS PRESSED (CONTINUED).
C. TROUBLESHOOTING LOGIC PART THREE (CONTINUED).

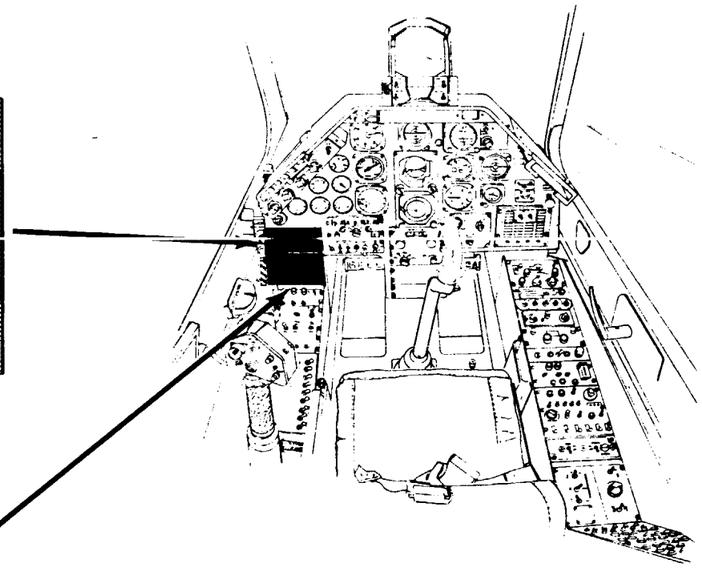


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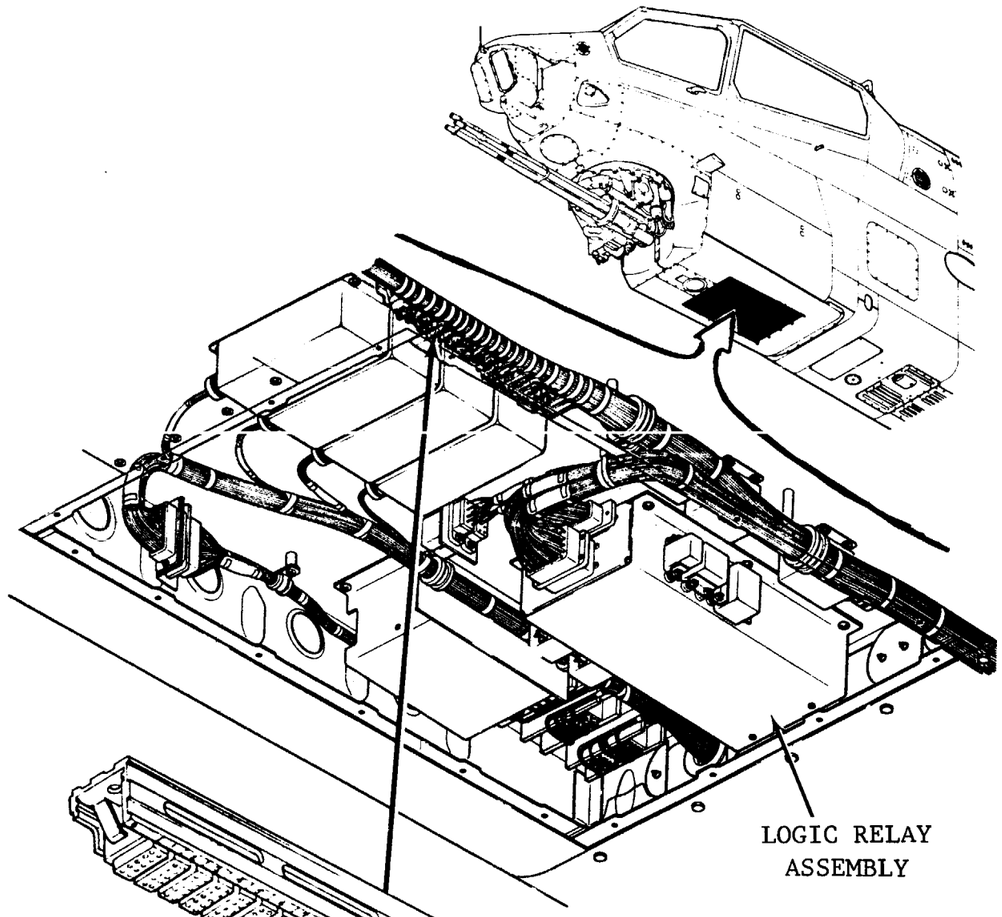
5-22. RND REM DISPLAY DOES NOT DECREASE WHEN PILOT OR GUNNER WING ARM FIRE SWITCH IS PRESSED (CONTINUED).
D. TROUBLESHOOTING LOGIC PART FOUR.

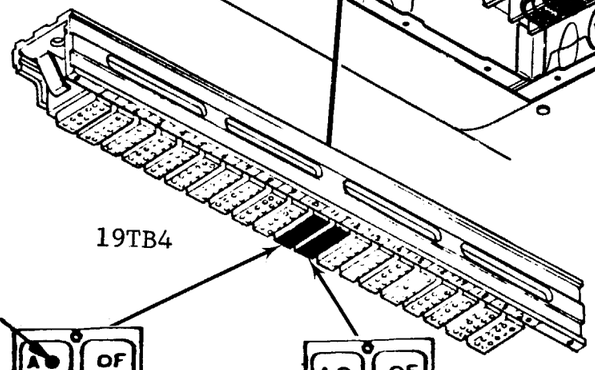


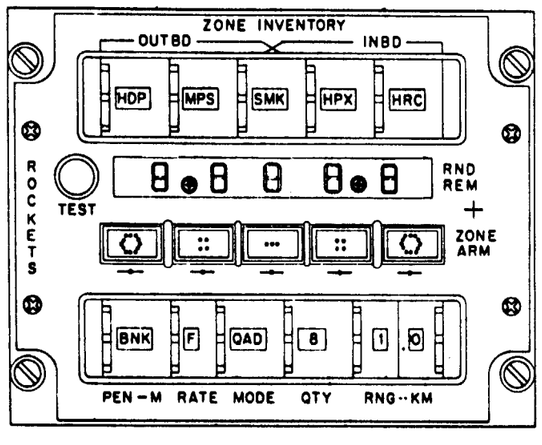
PILOT ARMT CONTROL PANEL



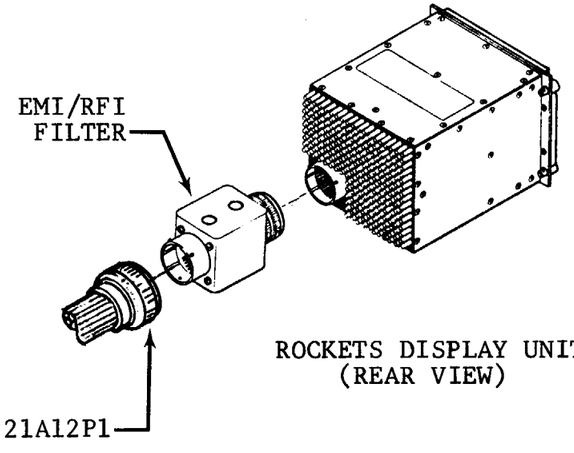
PILOT STATION





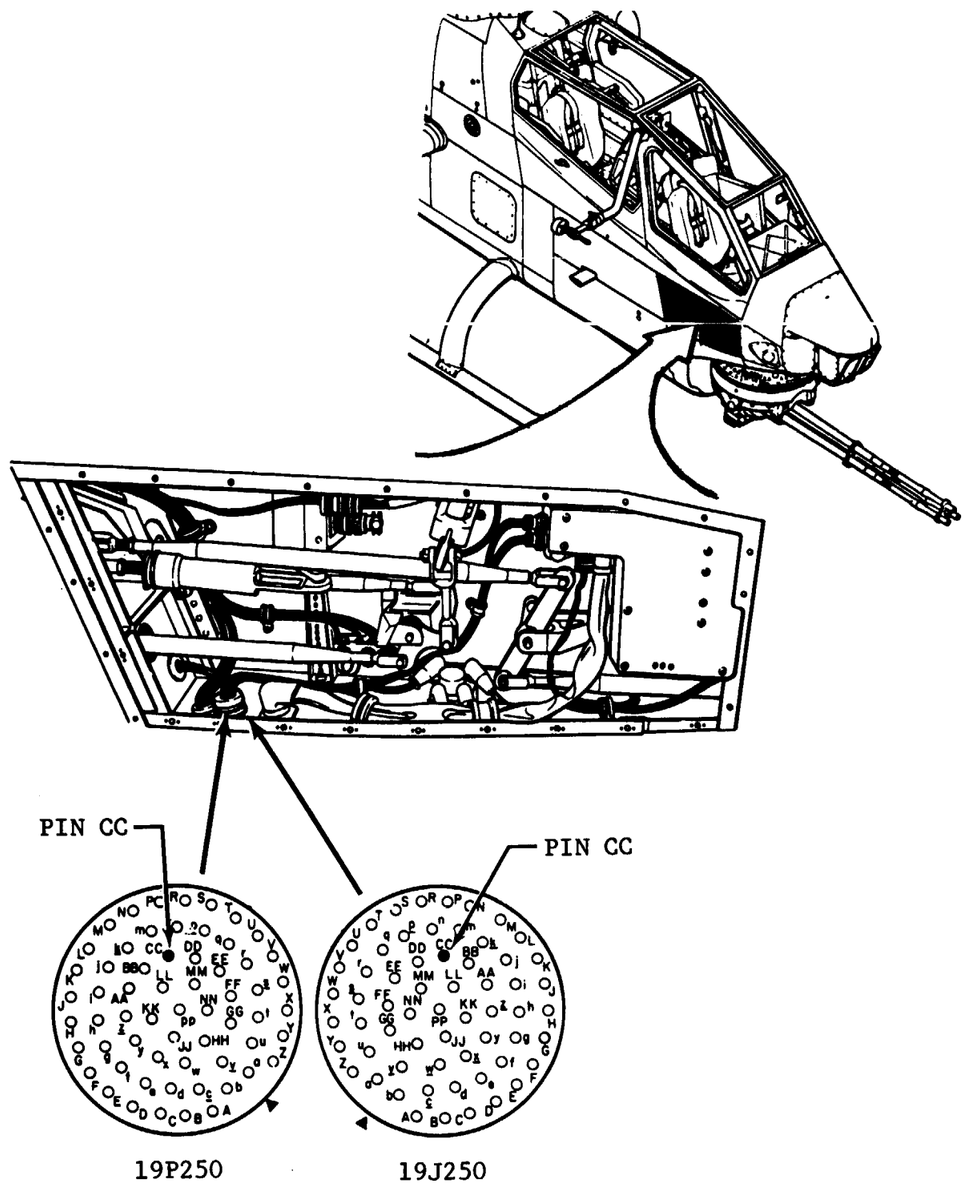


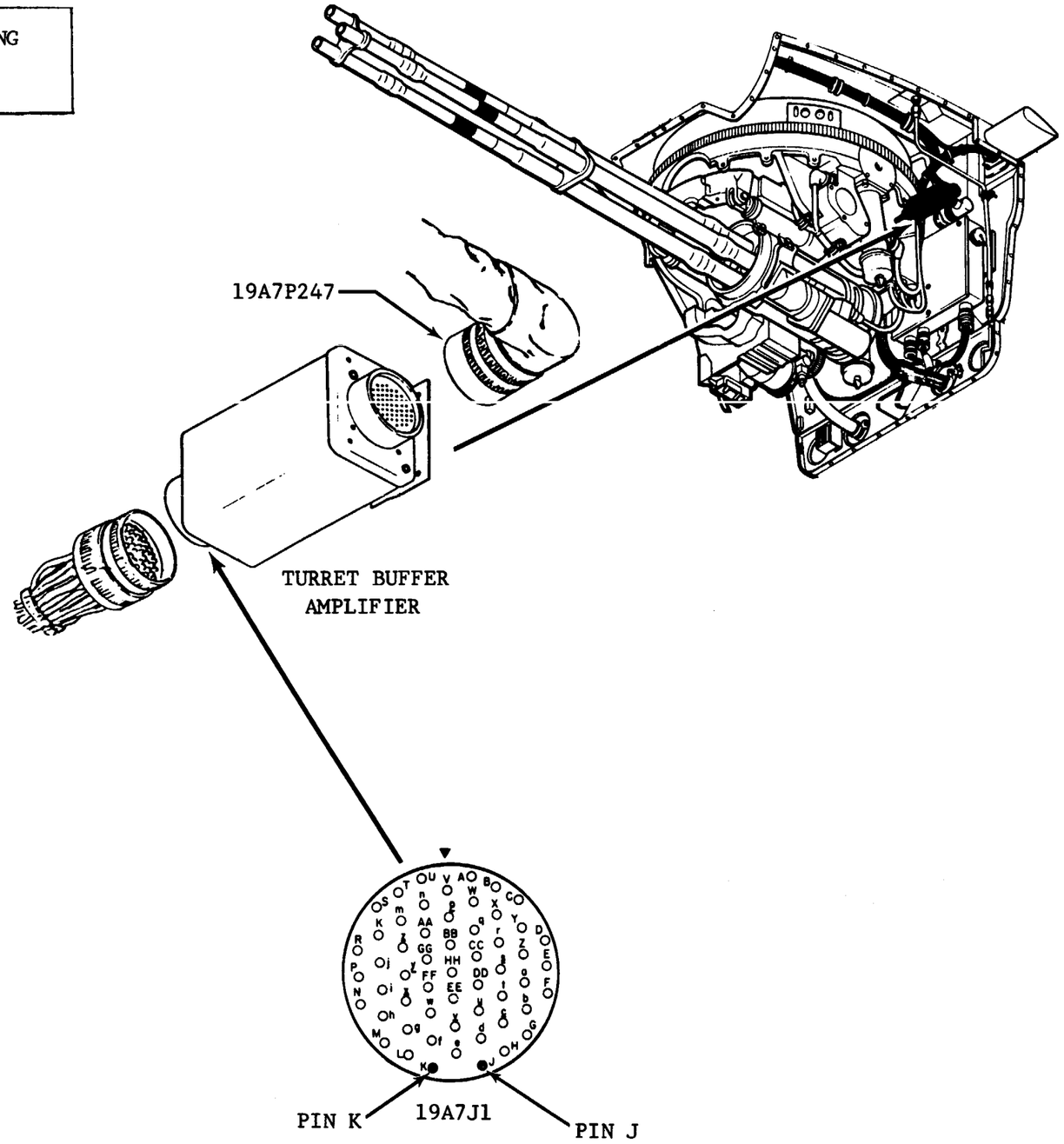
ROCKETS DISPLAY UNIT



ROCKETS DISPLAY UNIT (REAR VIEW)

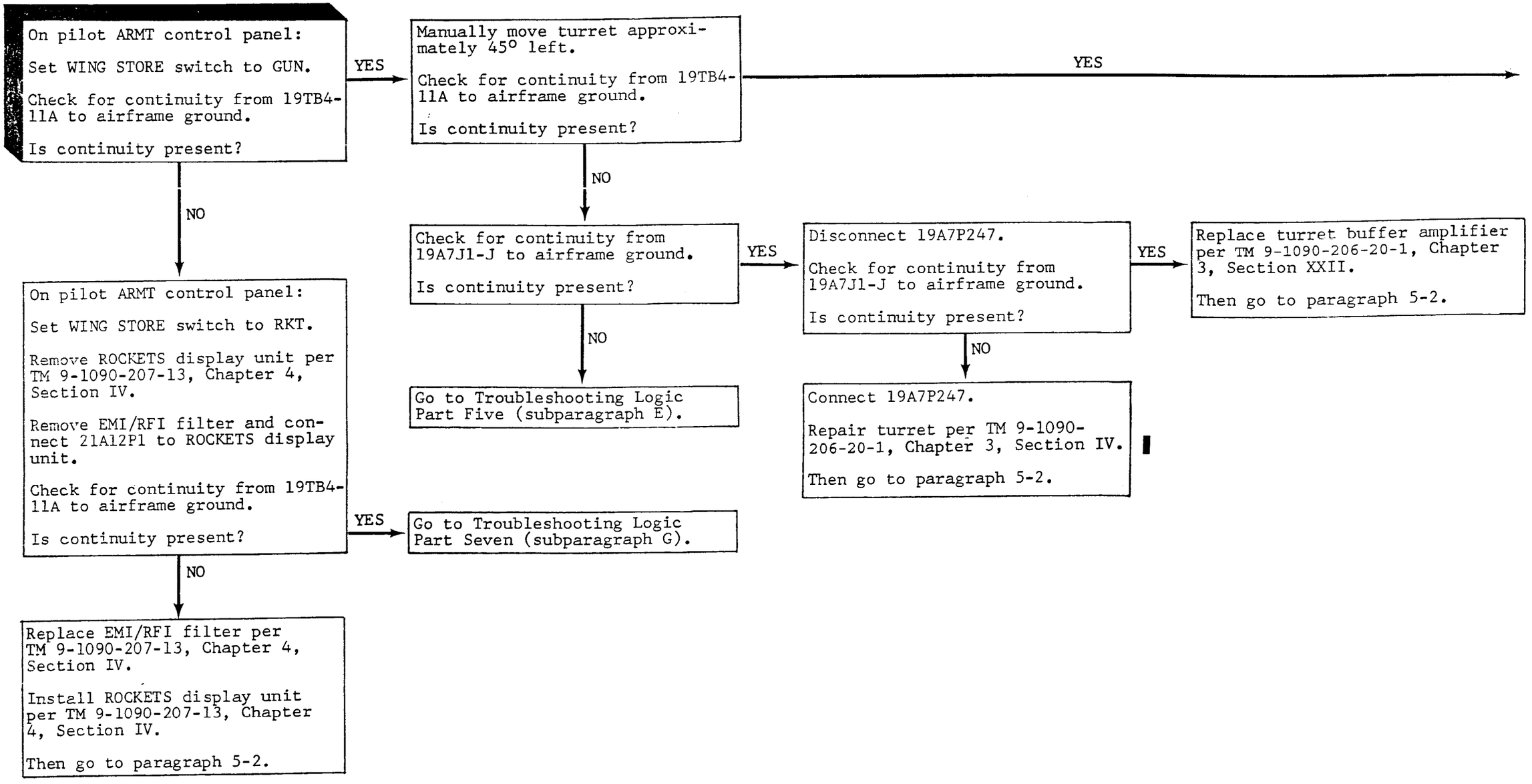
5-22. RND REM DISPLAY DOES NOT DECREASE WHEN PILOT OR GUNNER WING ARM FIRE SWITCH IS PRESSED (CONTINUED).
D. TROUBLESHOOTING LOGIC PART FOUR (CONTINUED).





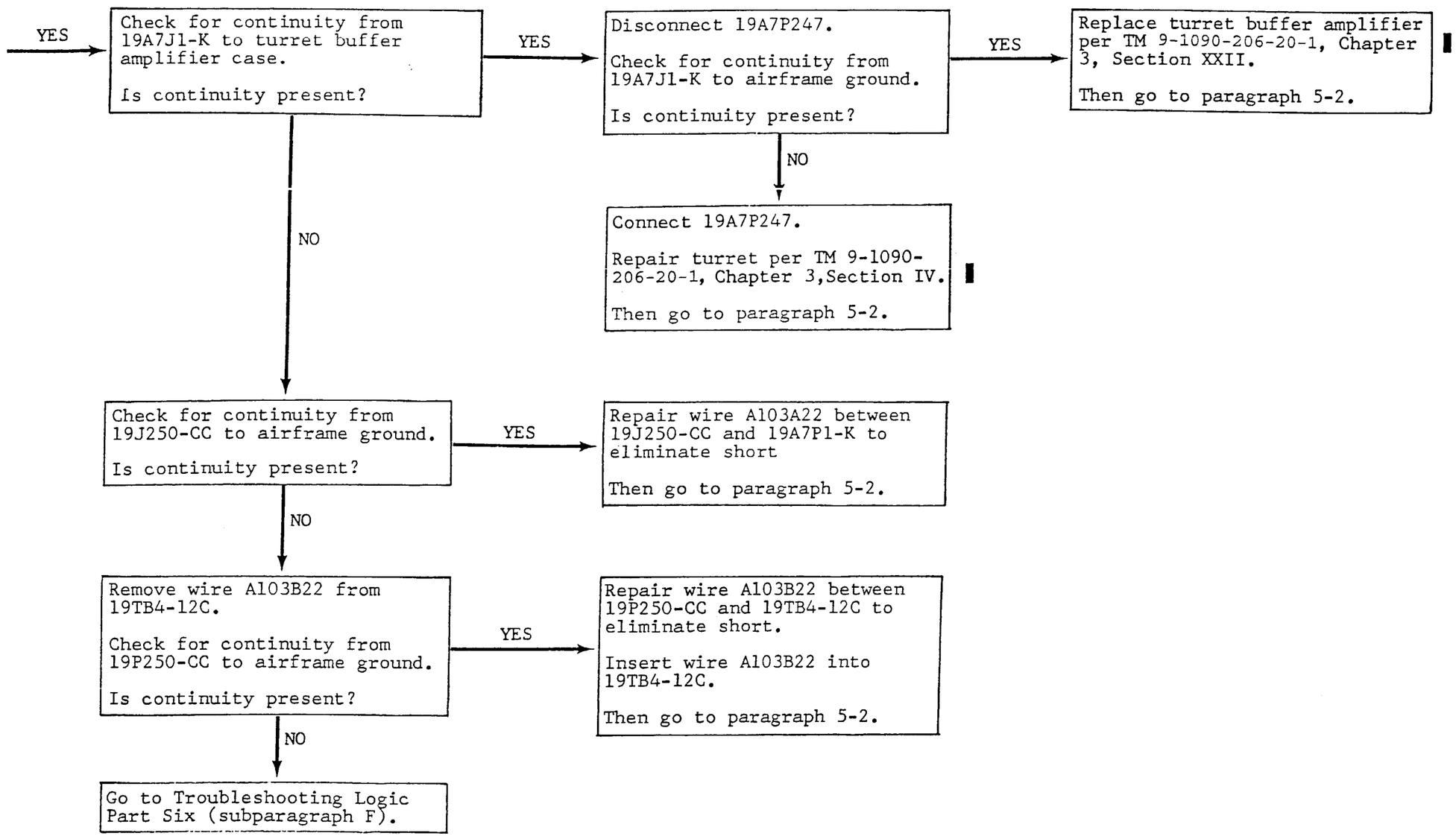
5-22. RND REM DISPLAY DOES NOT DECREASE WHEN PILOT OR GUNNER WING ARM FIRE SWITCH IS PRESSED (CONTINUED).

D. TROUBLESHOOTING LOGIC PART FOUR (CONTINUED).

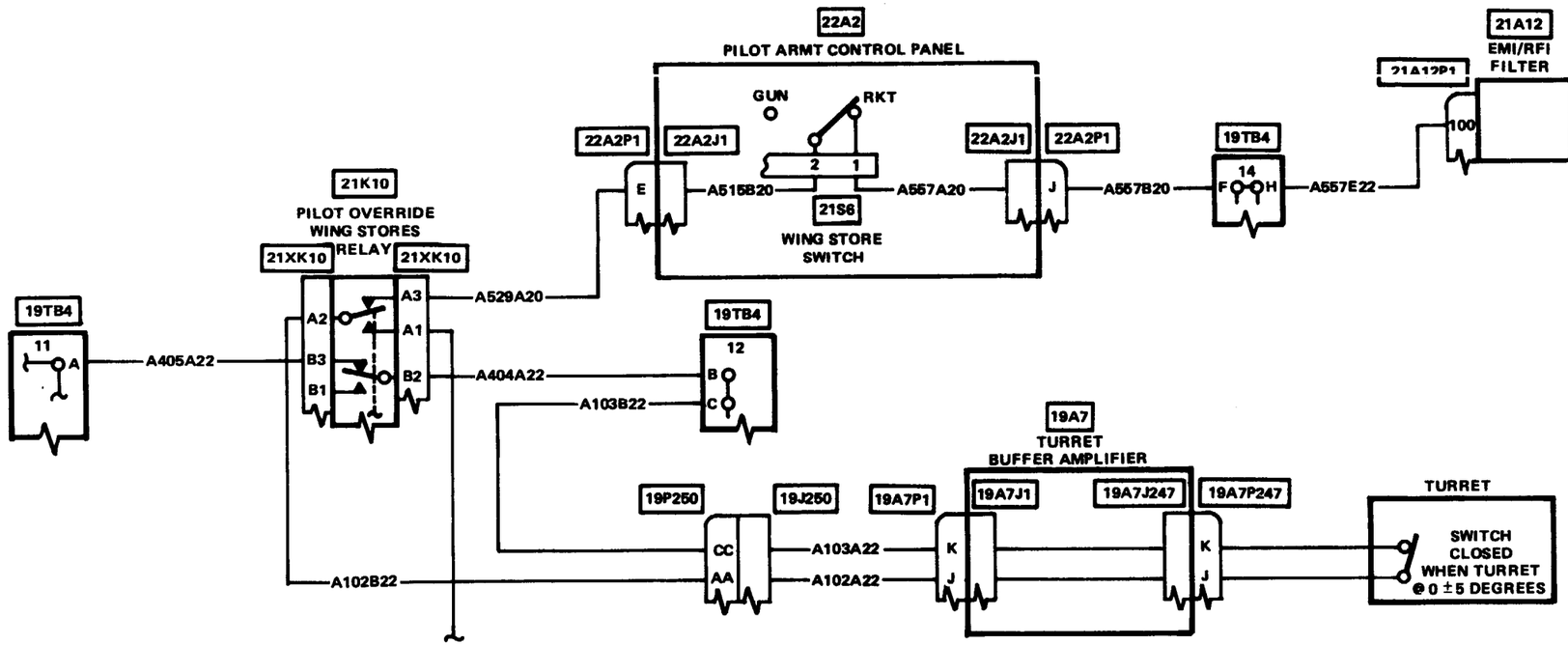


5-22. RND REM DISPLAY DOES NOT DECREASE WHEN PILOT OR GUNNER WING ARM FIRE SWITCH IS PRESSED (CONTINUED).

D. TROUBLESHOOTING LOGIC PART FOUR (CONTINUED).

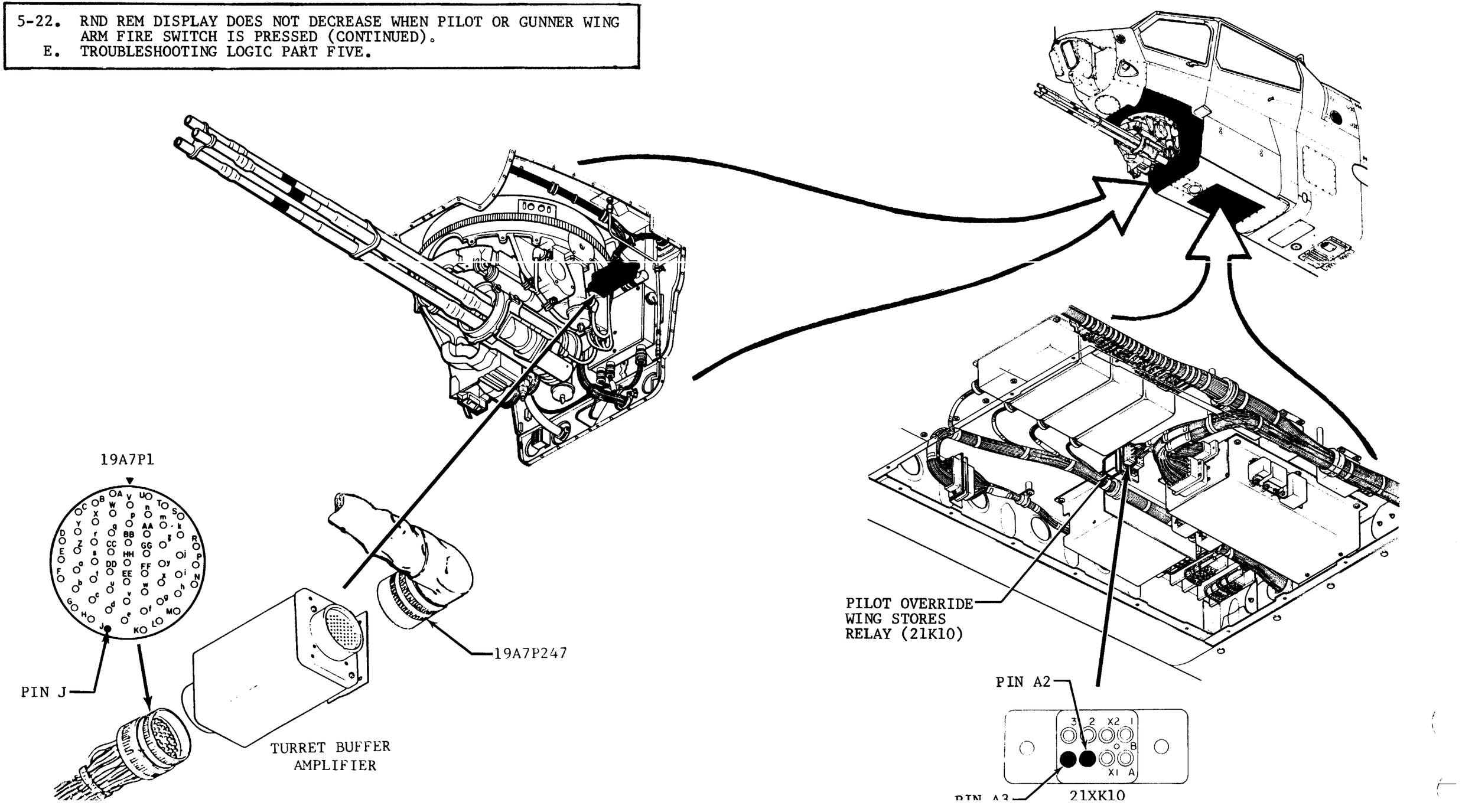


5-22. RND REM DISPLAY DOES NOT DECREASE WHEN PILOT OR GUNNER WING ARM FIRE SWITCH IS PRESSED (CONTINUED).
D. TROUBLESHOOTING LOGIC PART FOUR (CONTINUED).

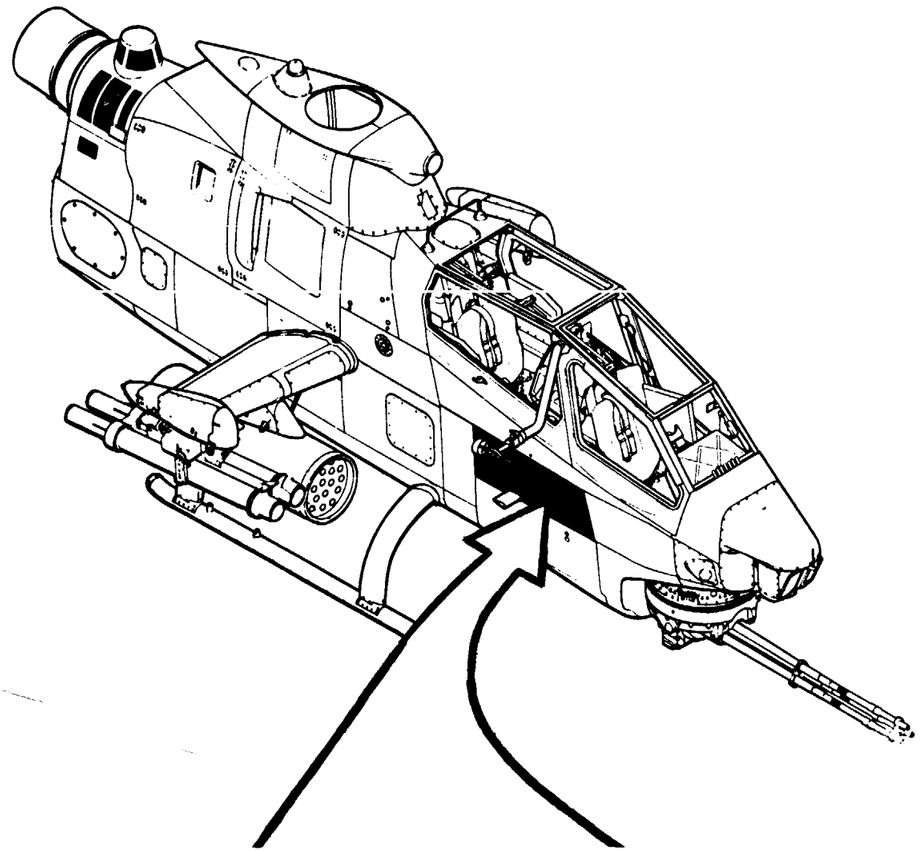


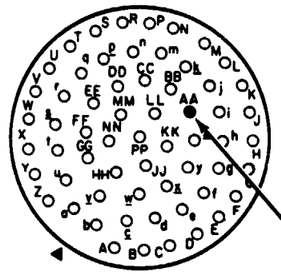
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5-22. RND REM DISPLAY DOES NOT DECREASE WHEN PILOT OR GUNNER WING ARM FIRE SWITCH IS PRESSED (CONTINUED).
E. TROUBLESHOOTING LOGIC PART FIVE.

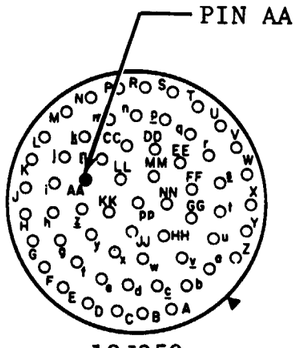


5-22. RND REM DISPLAY DOES NOT DECREASE WHEN PILOT OR GUNNER WING ARM FIRE SWITCH IS PRESSED (CONTINUED).
E. TROUBLESHOOTING LOGIC PART FIVE (CONTINUED).

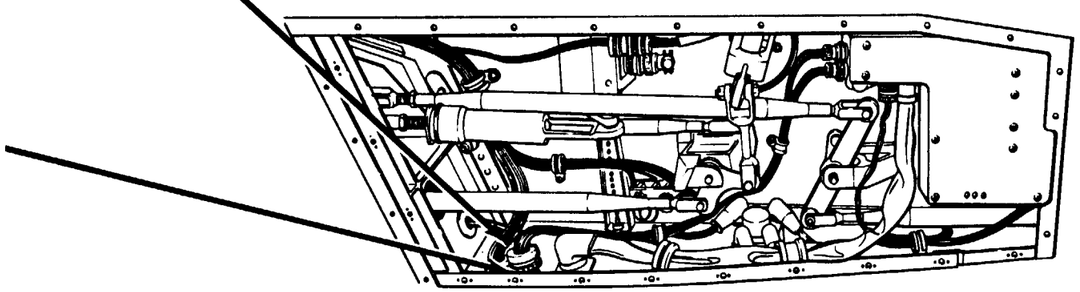


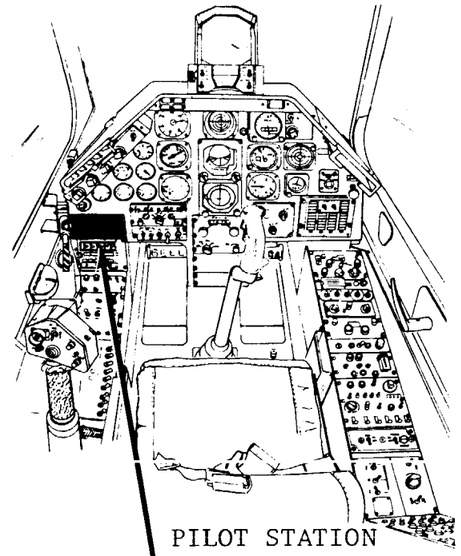


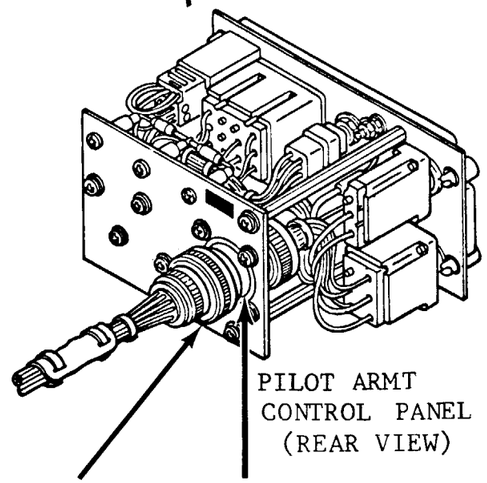
19P250

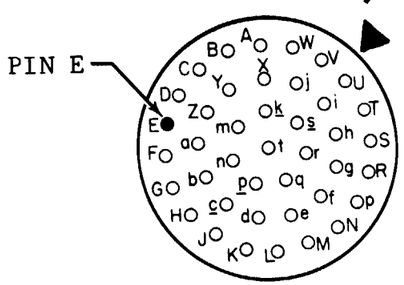


19J250

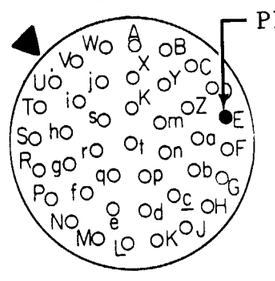



PILOT STATION


PILOT ARMT CONTROL PANEL (REAR VIEW)

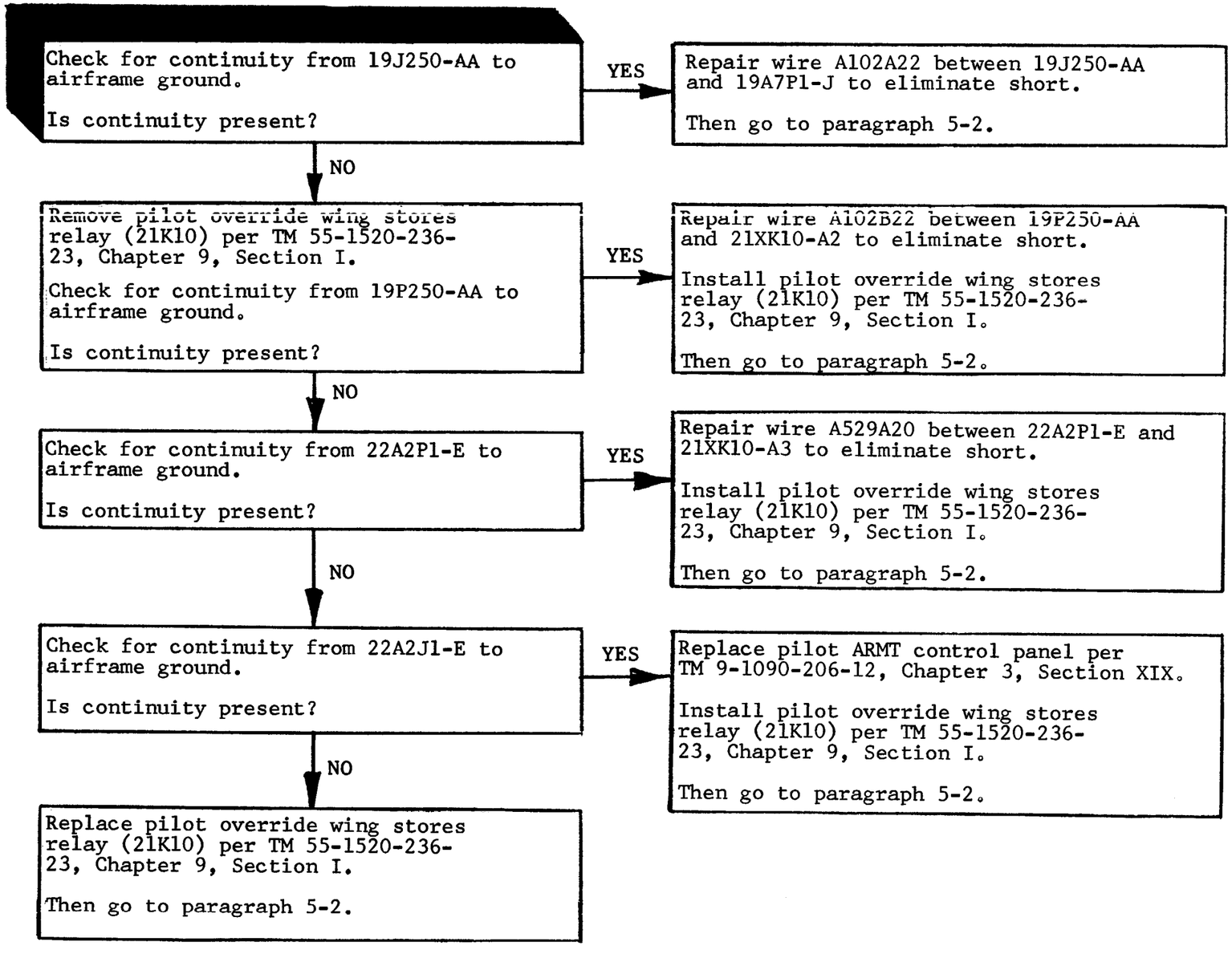


22A2P1

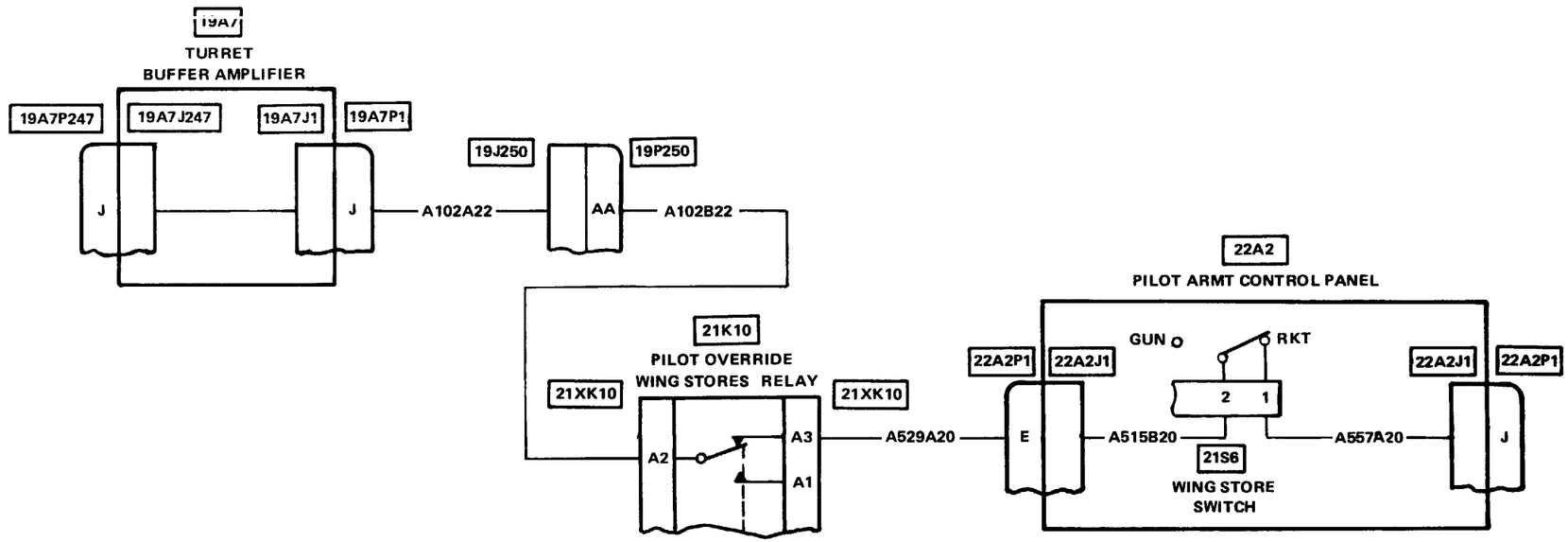


22A2J1

5-22. RND REM DISPLAY DOES NOT DECREASE WHEN PILOT OR GUNNER WING ARM FIRE SWITCH IS PRESSED (CONTINUED).
E. TROUBLESHOOTING LOGIC PART FIVE (CONTINUED).

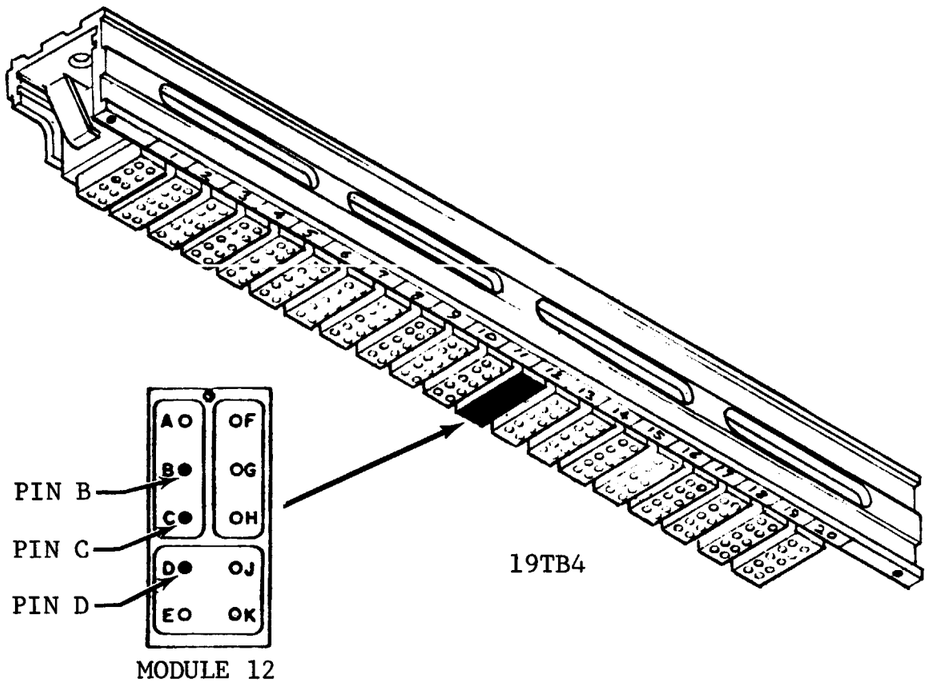


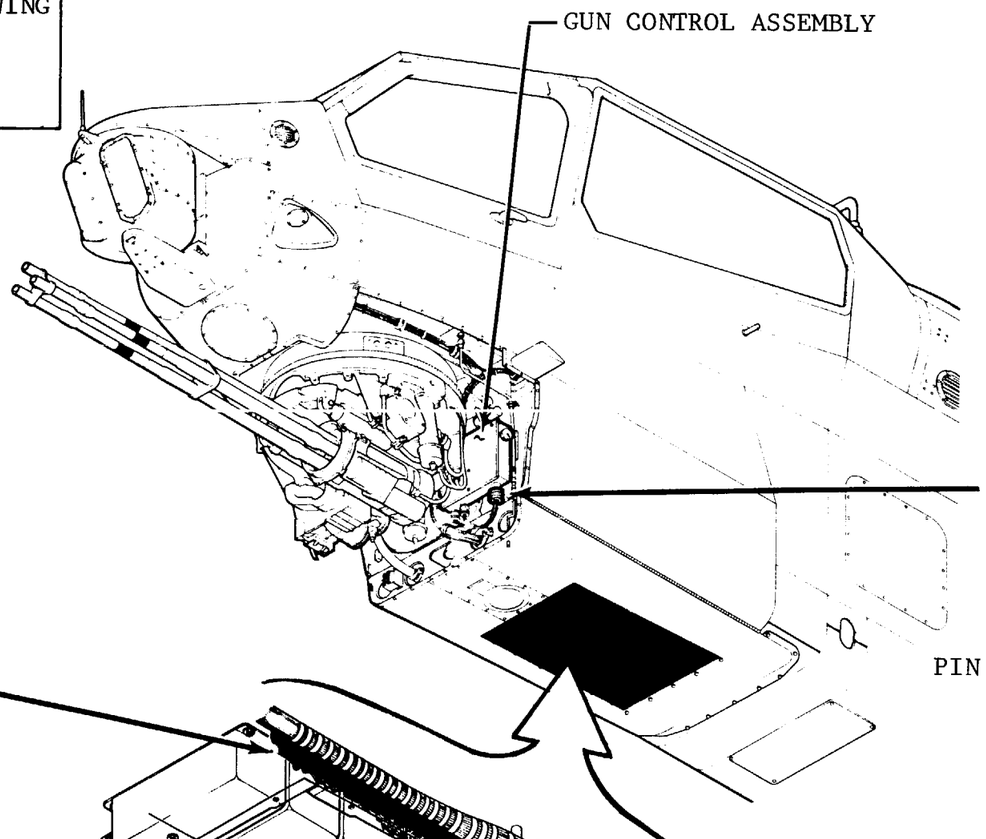
5-22. RND REM DISPLAY DOES NOT DECREASE WHEN PILOT OR GUNNER WING ARM FIRE SWITCH IS PRESSED (CONTINUED).
E. TROUBLESHOOTING LOGIC PART FIVE (CONTINUED).

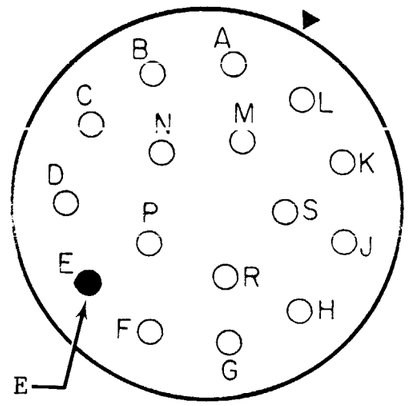


5-22. RND REM DISPLAY DOES NOT DECREASE WHEN PILOT OR GUNNER WING ARM FIRE SWITCH IS PRESSED (CONTINUED).

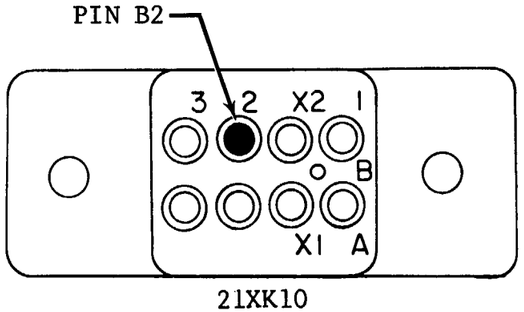
F. TROUBLESHOOTING LOGIC PART SIX.



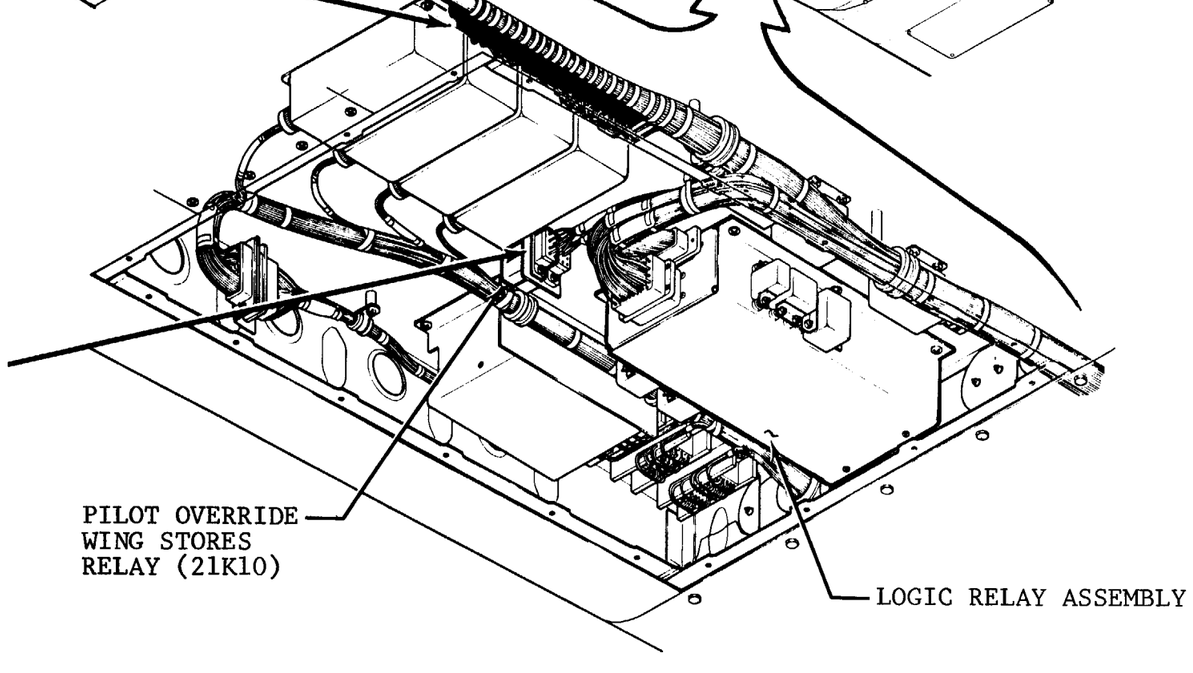




19A4P271

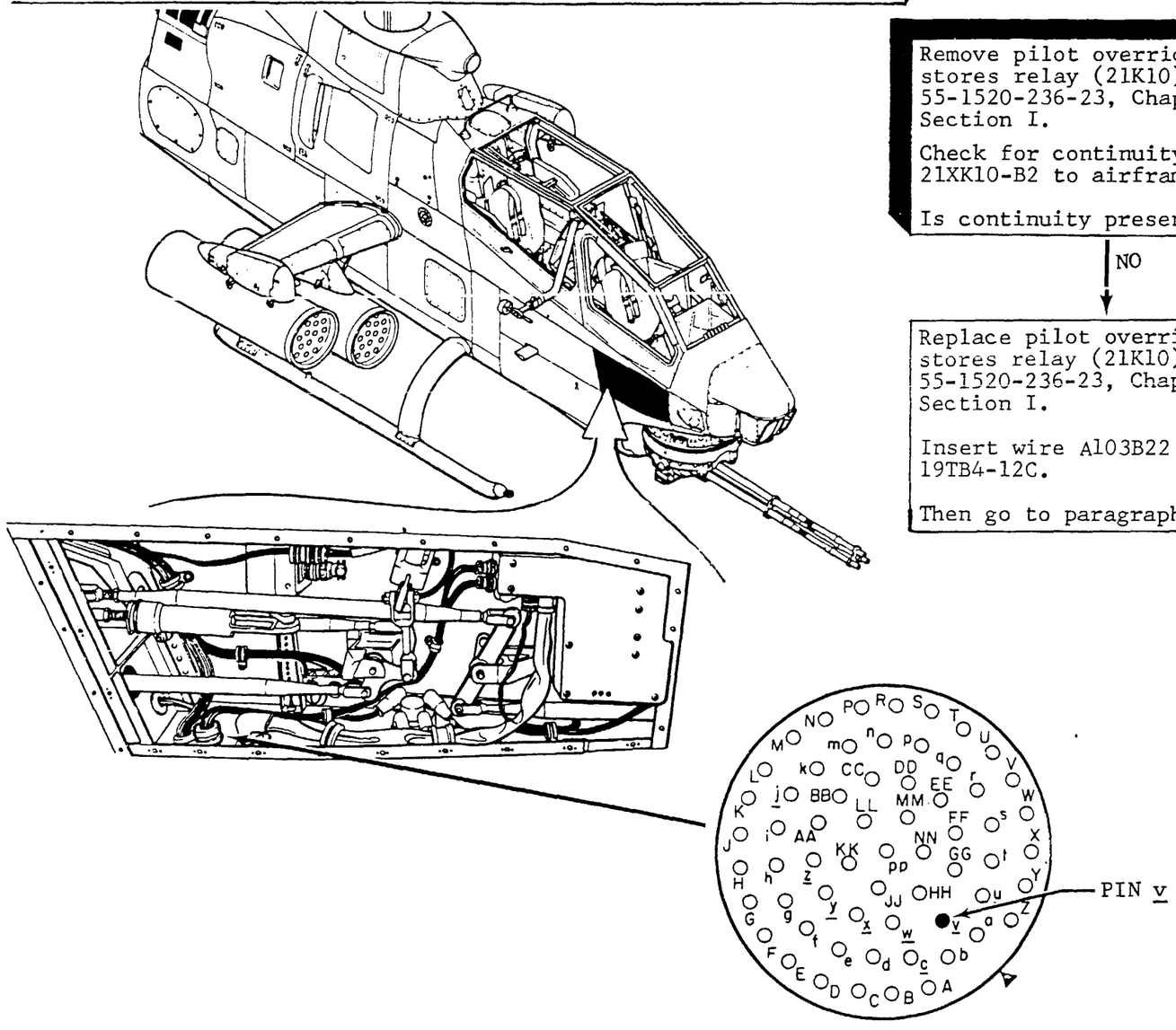


21XK10



5-22. RND REM DISPLAY DOES NOT DECREASE WHEN PILOT OR GUNNER WING ARM FIRE SWITCH IS PRESSED (CONTINUED).

F. TROUBLESHOOTING LOGIC PART SIX (CONTINUED).



Remove pilot override wing stores relay (21K10) per TM 55-1520-236-23, Chapter 9, Section I.

Check for continuity from 21XK10-B2 to airframe ground.

Is continuity present?

YES → Remove wire A404A22 from 19TB4-12B.

Check for continuity from 21XK10-B2 to airframe ground.

Is continuity present?

YES →

NO ↓

NO ↓

Replace pilot override wing stores relay (21K10) per TM 55-1520-236-23, Chapter 9, Section I.

Insert wire A103B22 into 19TB4-12C.

Then go to paragraph 5-2.

Remove wire A141B22 from 19TB4-12D.

Check for continuity from 19TB4-12D to airframe ground.

Is continuity present?

YES →

NO ↓

Check for continuity from 19P250-v to airframe ground.

Is continuity present?

YES →

NO ↓

Check for continuity from 19A4P271-E to airframe ground.

Is continuity present?

YES →

NO ↓

Replace gun control assembly per TM 9-1090-206-20-1, Chapter 3, Section XIII.

Insert wires A404A22 into 19TB4-12B, A141B22 into 19TB4-12D, and A103B22 into 19TB4-12C.

Install pilot override wing stores relay (21K10) per TM 55-1520-236-23, Chapter 9, Section I.

Then go to paragraph 5-2.

5-22. RND REM DISPLAY DOES NOT DECREASE WHEN PILOT OR GUNNER WING ARM FIRE SWITCH IS PRESSED (CONTINUED).

F. TROUBLESHOOTING LOGIC PART SIX (CONTINUED).

YES → Repair wire A404A22 between 19TB4-12B and 21XK10-B2.

Install pilot override wing stores relay (21K10) per TM 55-1520-236-23, Chapter 9, Section I.

Insert wire A103B22 into 19TB4-12C.

Then go to paragraph 5-2.

YES → Replace module 12 of 19TB4 per TM 55-1520-236-23, Chapter 9, Section I.

Install pilot override wing stores relay (21K10) per TM 55-1520-236-23, Chapter 9, Section I.

Insert wires A404A22 into 19TB4-12B, A141B22 into 19TB4-12D, and A103B22 into 19TB4-12C.

Then go to paragraph 5-2.

YES → Repair wire A141B22 between 19TB4-12D and 19P250-v to eliminate short.

Insert wires A404A22 into 19TB4-12B and A103B22 into 19TB4-12C.

Install pilot override wing stores relay (21K10) per TM 55-1520-236-23, Chapter 9, Section I.

Then go to paragraph 5-2.

YES → Repair wire A141A22 between 19J250-v and 19A4P271-E to eliminate short.

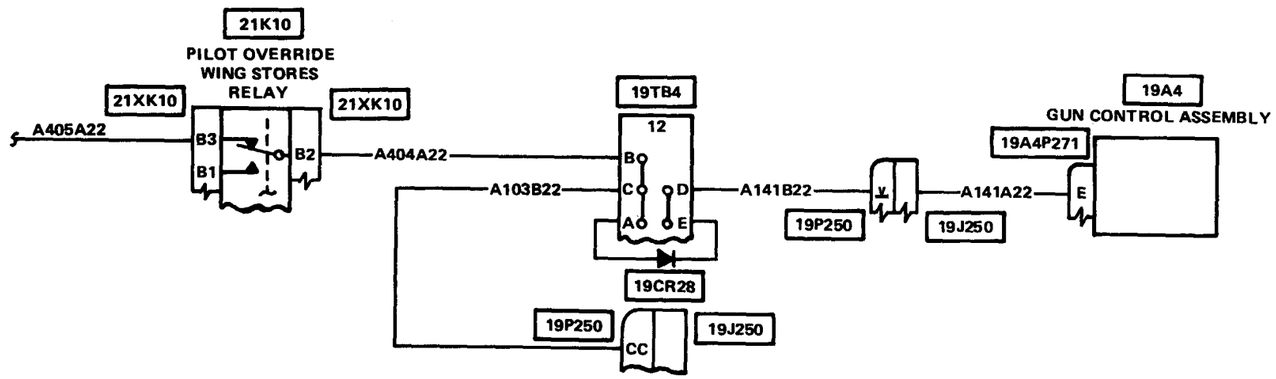
Insert wires A404A22 into 19TB4-12B, A141B22 into 19TB4-12D, and A103B22 into 19TB4-12C.

Install pilot override wing stores relay (21K10) per TM 55-1520-236-23, Chapter 9, Section I.

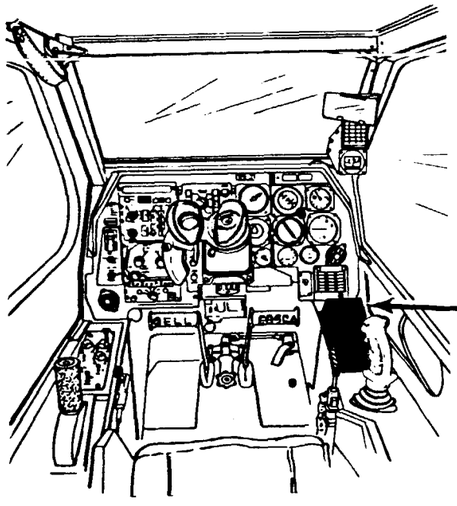
Then go to paragraph 5-2.

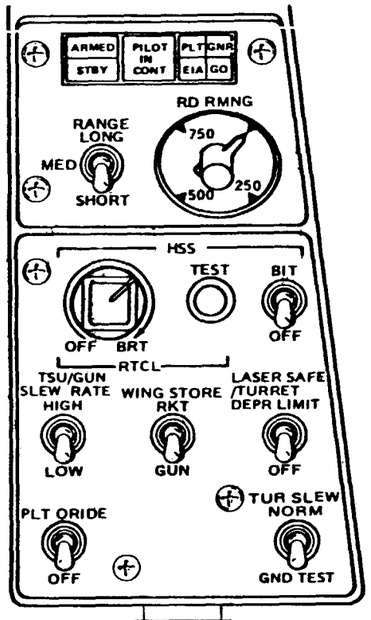
5-22. RND REM DISPLAY DOES NOT DECREASE WHEN PILOT OR GUNNER WING ARM FIRE SWITCH IS PRESSED (CONTINUED).

F. TROUBLESHOOTING LOGIC PART SIX (CONTINUED).

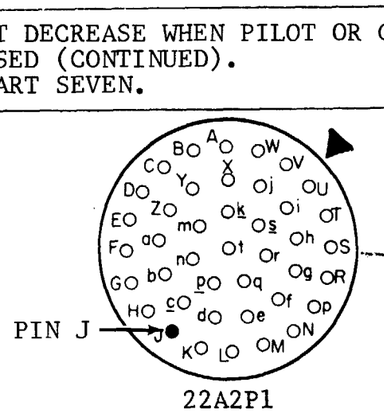


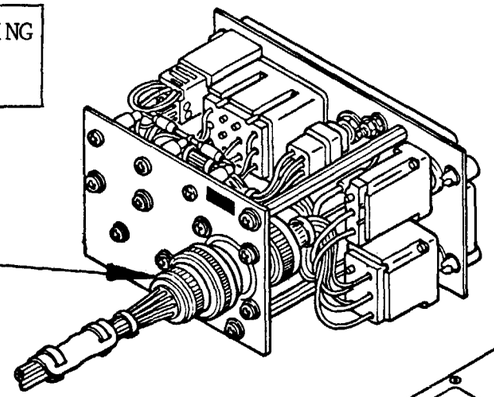
5-22. RND REM DISPLAY DOES NOT DECREASE WHEN PILOT OR GUNNER WING ARM FIRE SWITCH IS PRESSED (CONTINUED).
G. TROUBLESHOOTING LOGIC PART SEVEN.



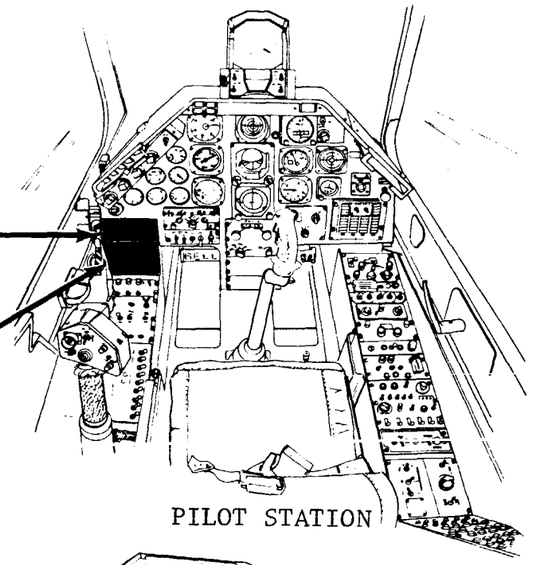


GUNNER ARMAMENT CONTROL PANEL

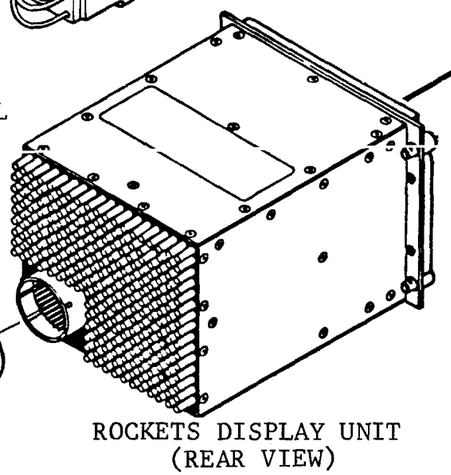




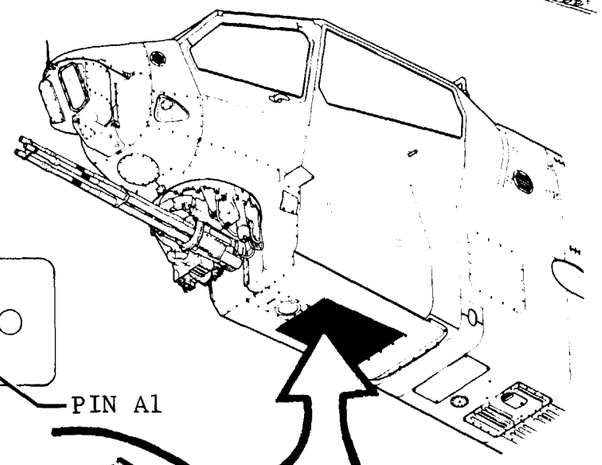
PILOT ARMT CONTROL PANEL (REAR VIEW)



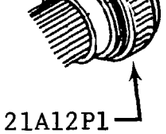
PILOT STATION

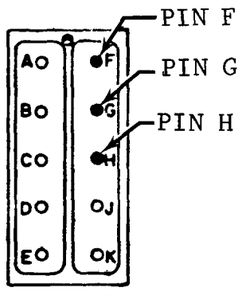


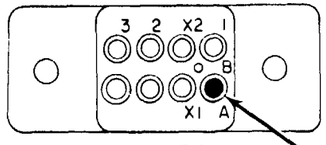
EMI/RFI FILTER

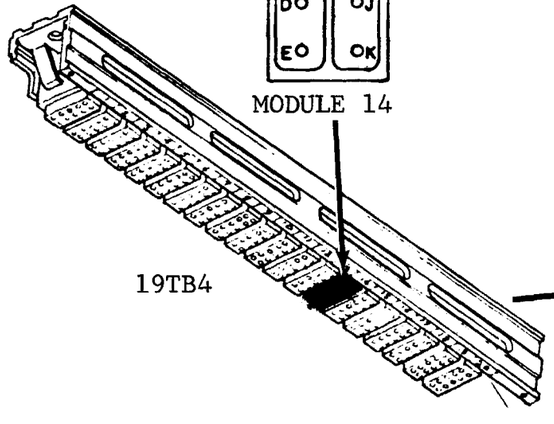


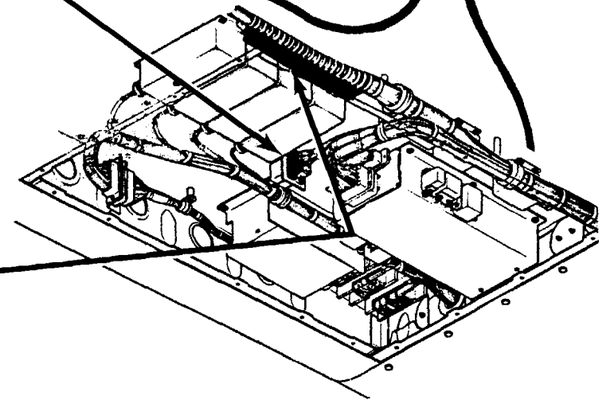
ROCKETS DISPLAY UNIT (REAR VIEW)





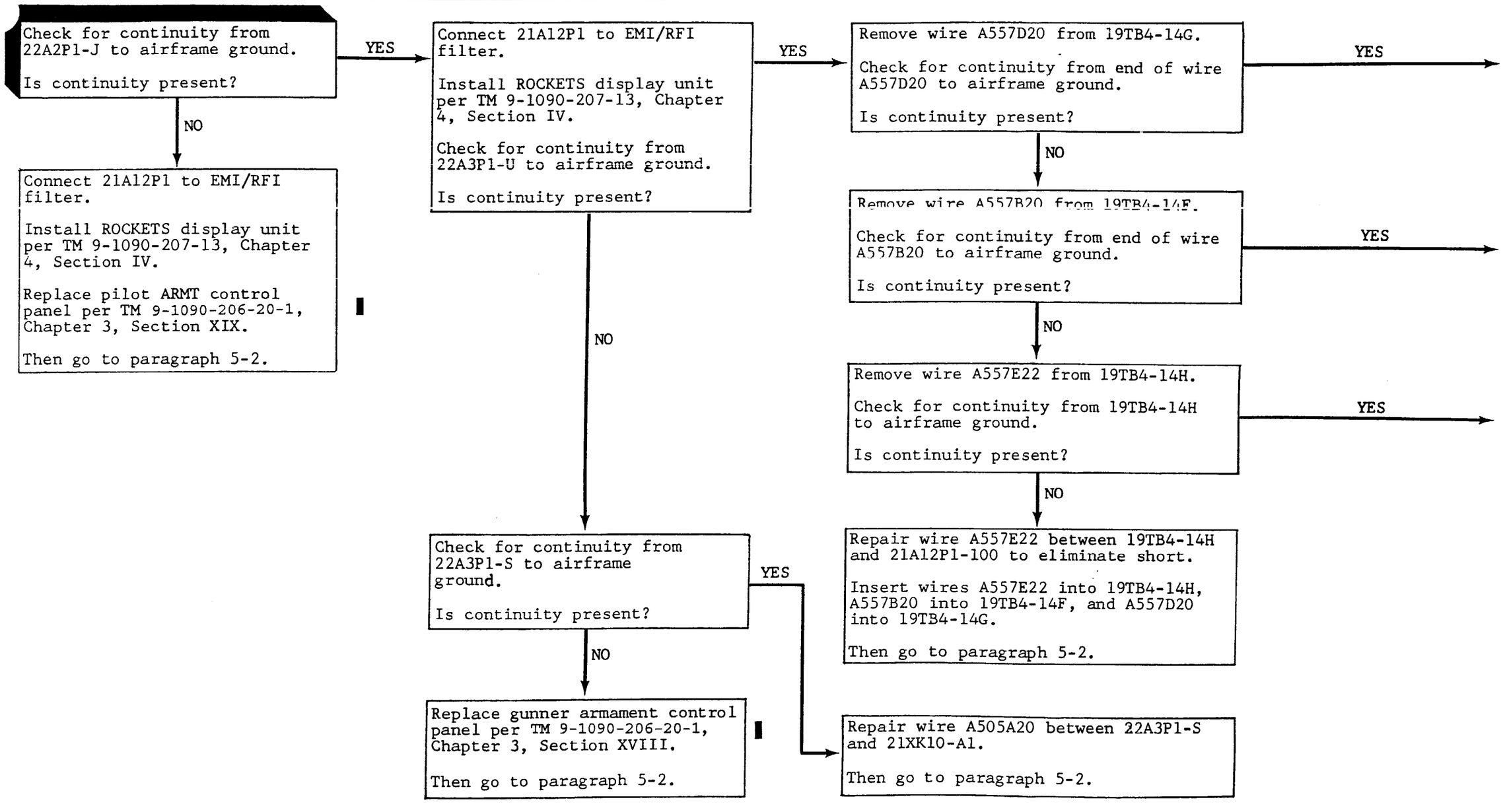






5-22. RND REM DISPLAY DOES NOT DECREASE WHEN PILOT OR GUNNER WING ARM FIRE SWITCH IS PRESSED (CONTINUED).

G. TROUBLESHOOTING LOGIC PART SEVEN (CONTINUED).



5-22. RND REM DISPLAY DOES NOT DECREASE WHEN PILOT OR GUNNER WING ARM FIRE SWITCH IS PRESSED (CONTINUED).
G. TROUBLESHOOTING LOGIC PART SEVEN (CONTINUED).

YES → Repair wire A557D20 between 19TB4-14G and 22A3P1-U to eliminate short.

Insert wire A557D20 into 19TB4-14G.

Then go to paragraph 5-2.

YES → Repair wire A557B20 between 22A2P1-J and 19TB4-14F to eliminate short.

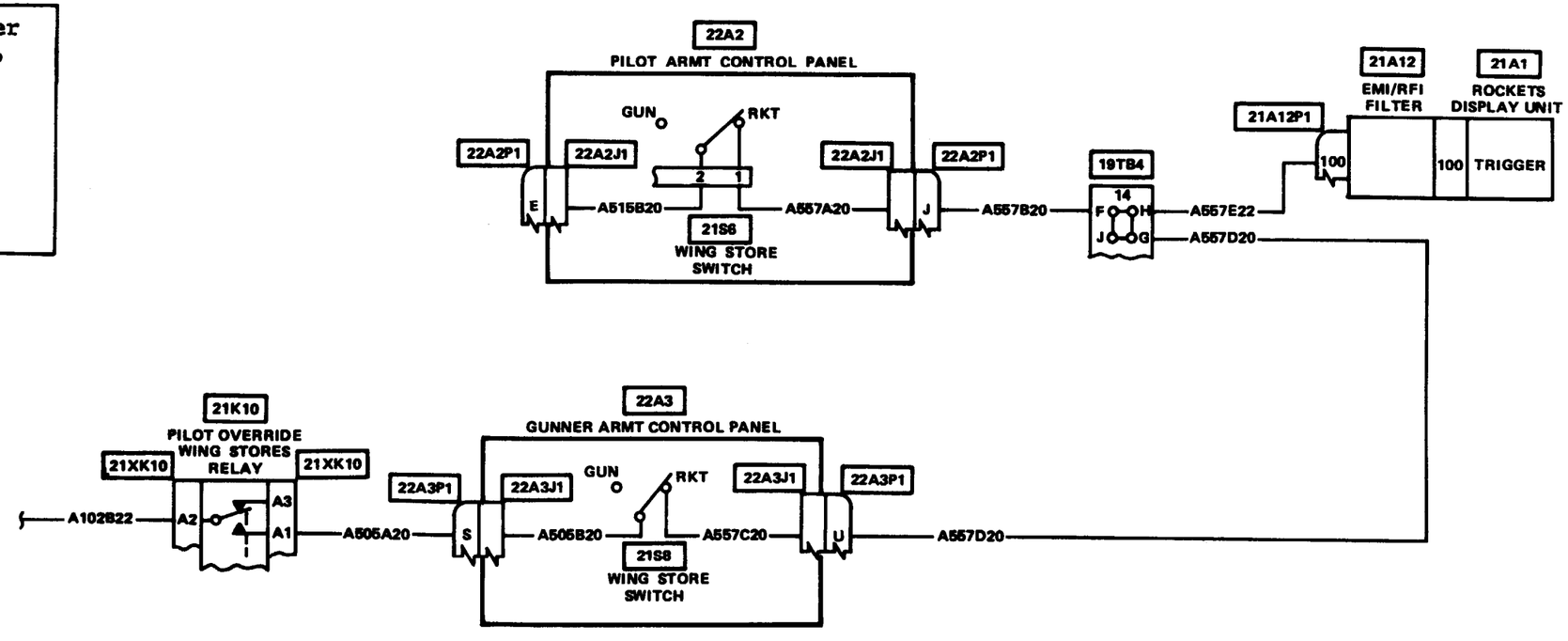
Insert wires A557B20 into 19TB4-14F and A557D20 into 19TB4-14G.

Then go to paragraph 5-2.

YES → Replace module 14 of 19TB4 per TM 55-1520-236-23, Chapter 9, Section I.

Insert wires A557E22 into 19TB4-14H, A557B20 into 19TB4-14F, and A557D20 into 19TB4-14G.

Then go to paragraph 5-2.



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5-23. RND REM DISPLAY DECREASES WITH GUN TURRET OUT OF STOW POSITION.

INITIAL SETUP

Applicable Configuration
All

Tools/Test and Support Equipment
Multimeter

Tool Set, A/C Armament Repairman

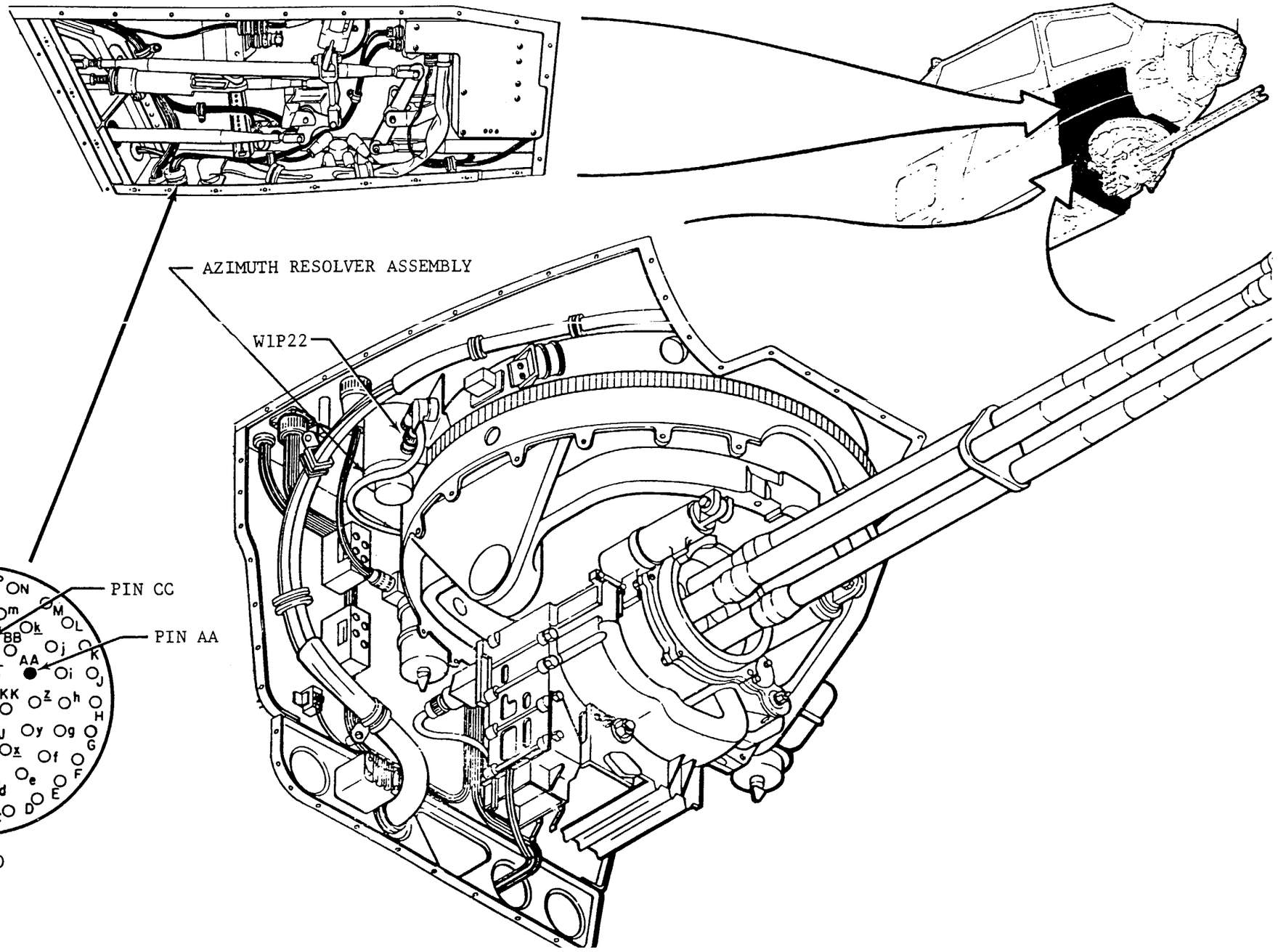
Personnel Required
68J (1)

References
TM 9-1090-206-20-1

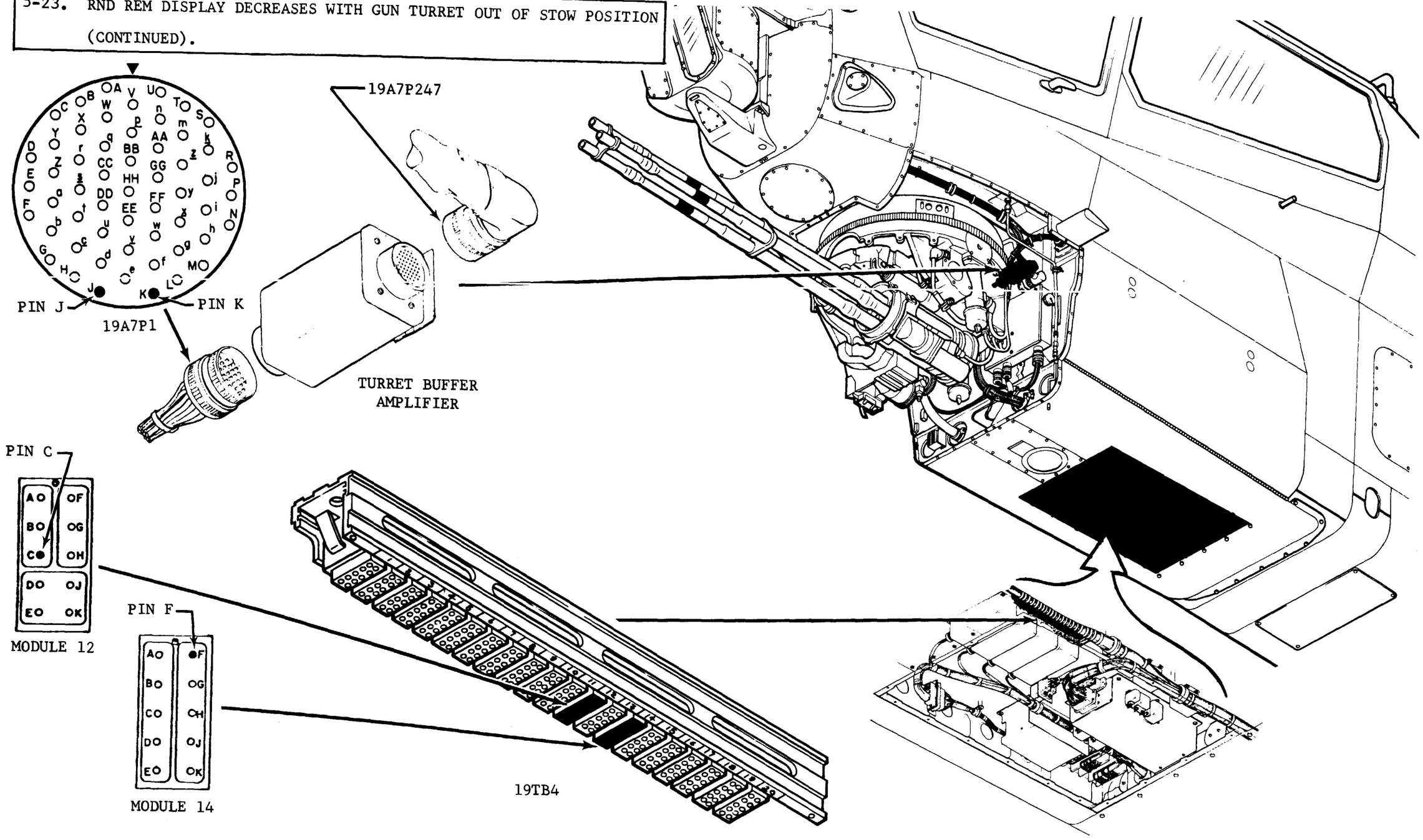
Access Panels
Forward Belly Armament and Lighting - Removed

Turret Fairing - Removed

Forward Right Side Control Linkage - Removed



5-23. RND REM DISPLAY DECREASES WITH GUN TURRET OUT OF STOW POSITION (CONTINUED).



5-23. RND REM DISPLAY DECREASES WITH GUN TURRET OUT OF STOW POSITION (CONTINUED).

Turn off electrical power per paragraph 5-3.

Disconnect W1P22.

Check for continuity from 19TB4-12C to 19TB4-14F.

Is continuity present?

YES

Connect W1P22.

Disconnect 19A7P247.

Check for continuity from 19TB4-12C to 19TB4-14F.

Is continuity present?

YES

Disconnect 19A7P1.

Check for continuity from 19TB4-12C to 19TB4-14F.

Is continuity present?

YES

Repair wire A103A22 between 19A7P1-K and 19J250-CC and wire A102A22 between 19A7P1-J and 19J250-AA to eliminate short.

Connect 19A7P247 and 19A7P1.

Then go to paragraph 5-2.

NO

Adjust or replace azimuth resolver assembly per TM 9-1090-206-30, Chapter 3, Section VI.

Then go to paragraph 5-2.

NO

Connect 19A7P247.

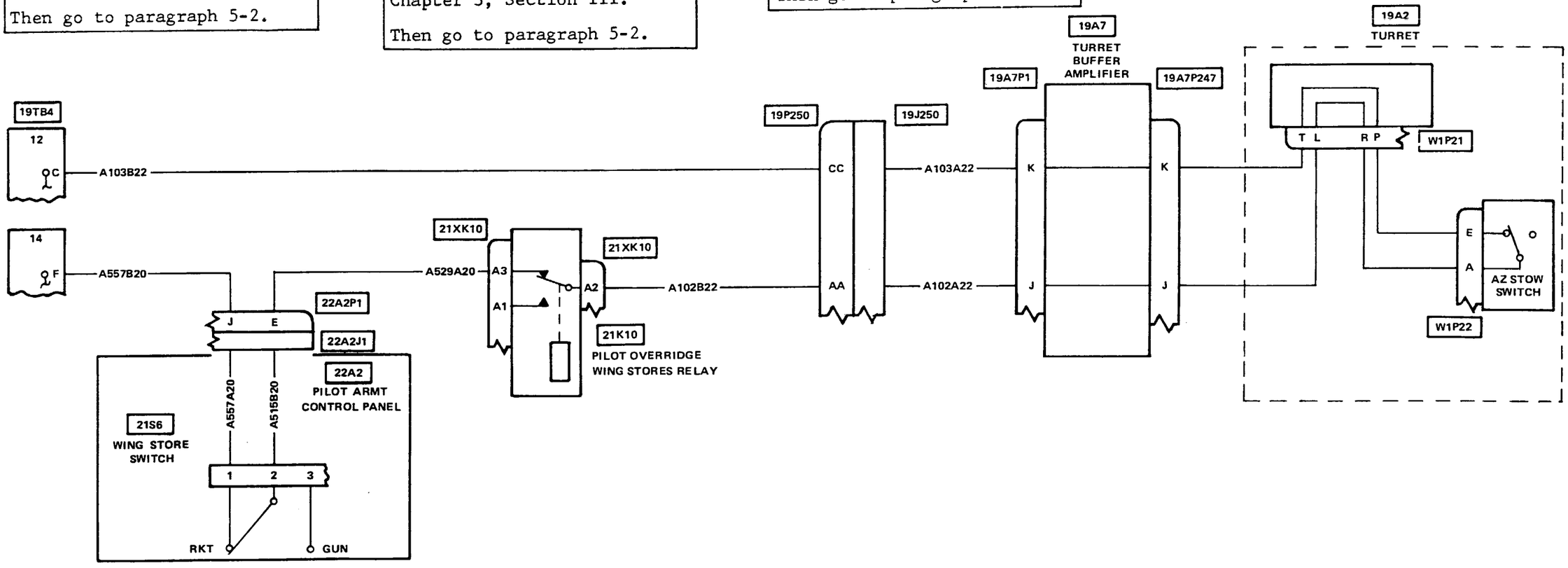
Troubleshoot turret subsystem per TM 9-1090-206-20-1, Chapter 3, Section III.

Then go to paragraph 5-2.

NO

Replace turret buffer amplifier per TM 9-1090-206-20-1, Chapter 3, Section XXIII.

Then go to paragraph 5-2.



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5-24. GUN TURRET WILL NOT STOW WHEN PILOT WING ARM FIRE SWITCH IS PRESSED.

INITIAL SETUP

Applicable Configuration
All

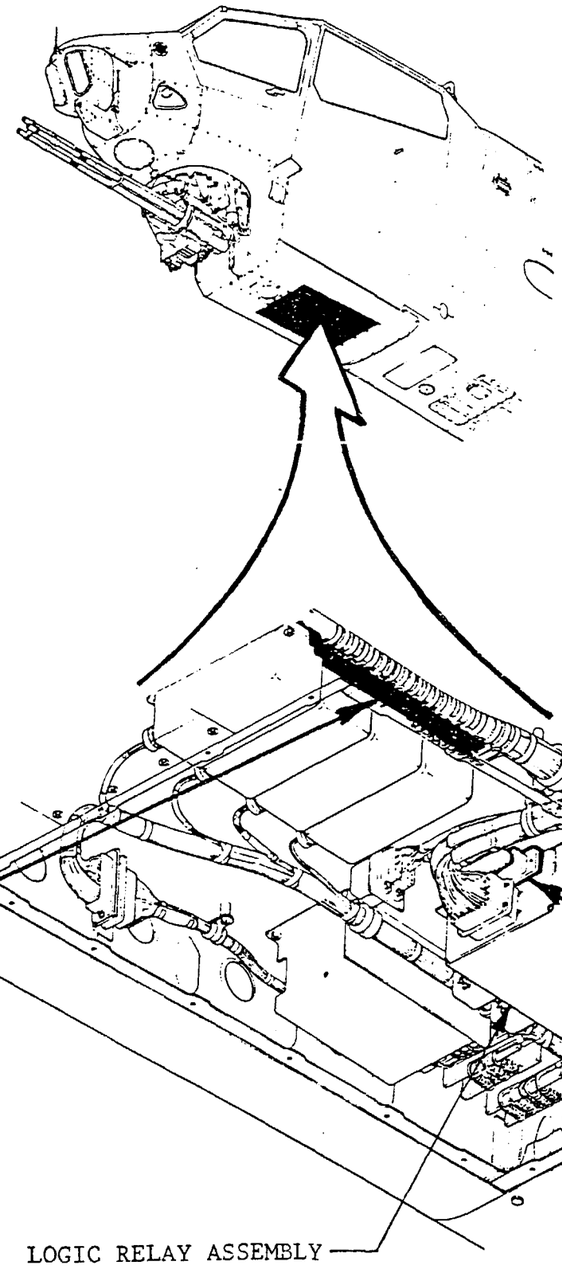
Tools/Test and Support Equipment
Multimeter

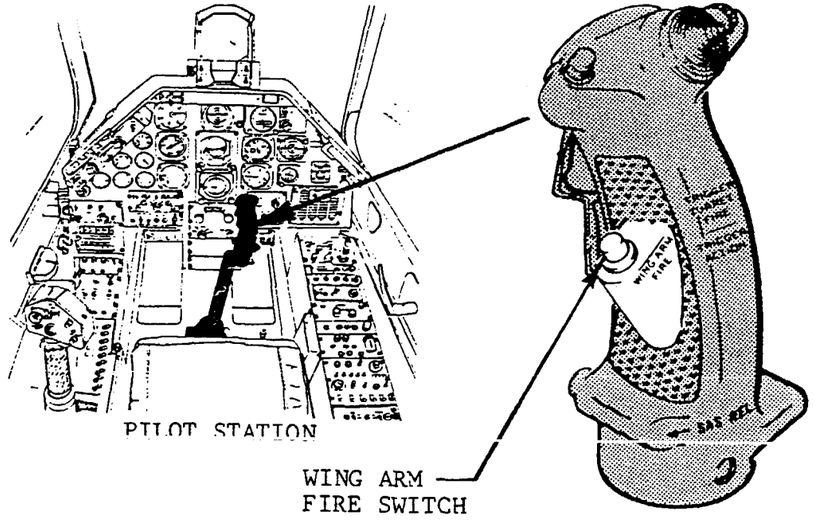
Tool Set, A/C Armament Repairman

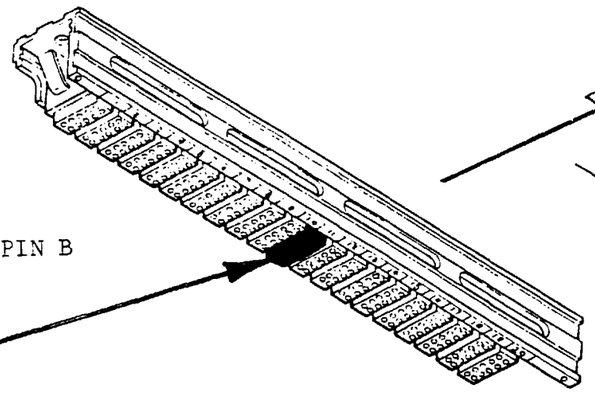
Personnel Required
68J (2)

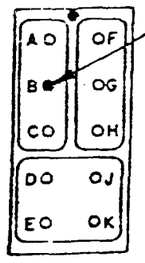
References
TM 55-1520-236-23
TM 9-1090-206-20-1

Access Panels
Forward Belly Armament and Lighting - Removed

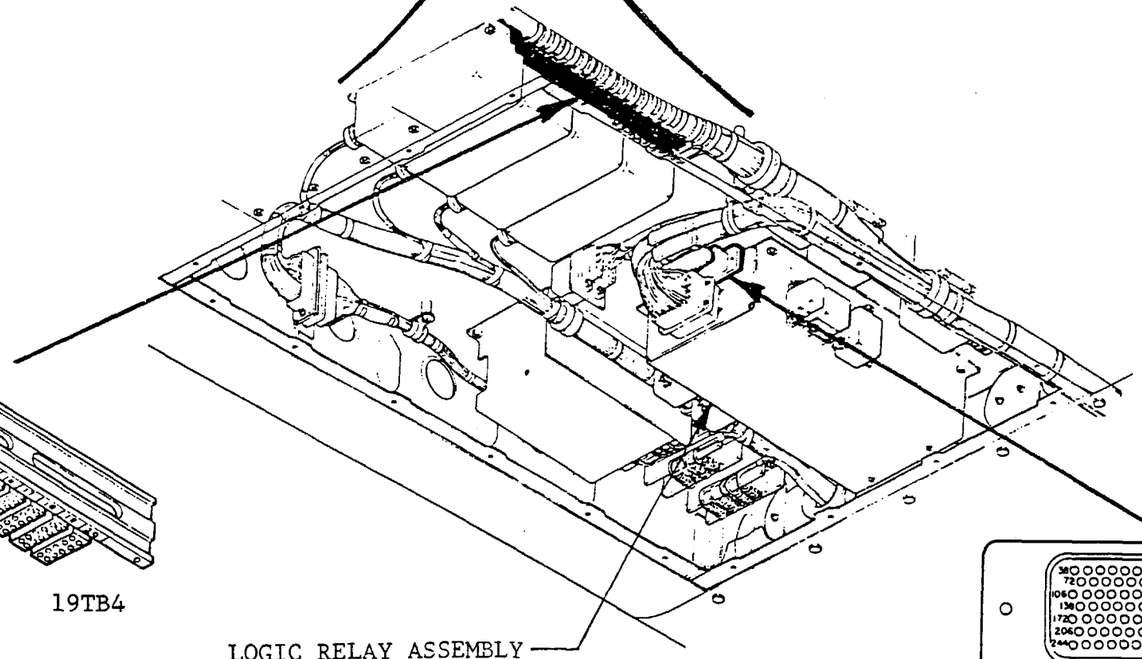


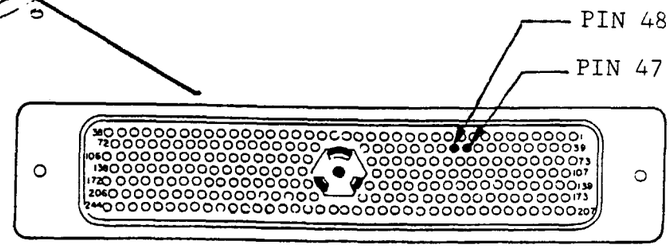






MODULE 11





22A5P1

5-24. GUN TURRET WILL NOT STOW WHEN PILOT WING ARM FIRE SWITCH IS PRESSED (CONTINUED).

Turn off electrical power per paragraph 5-3.

Disconnect 22A5P1.

Turn on electrical power per paragraph 5-3.

On pilot cyclic stick:

Press and hold WING ARM FIRE switch.

Check for 28 V dc at 22A5P1-48.

Is 28 V dc present?

YES → Turn off electrical power per paragraph 5-3.

Check for continuity from 22A5P1-47 to airframe ground.

Is continuity present?

YES → Replace logic relay assembly per TM 9-1090-206-20-1, Chapter 3, Section XXIII.

Then go to paragraph 5-2.

NO → Repair wire A408A22N between 22A5P1-47 and airframe ground.

Connect 22A5P1.

Then go to paragraph 5-2.

NO → Turn off electrical power per paragraph 5-3.

Check for continuity from 22A5P1-48 to 19TB4-11B.

Is continuity present?

YES → Replace module 11 of 19TB4 per TM55-1520-236-23, Chapter 9, Section I.

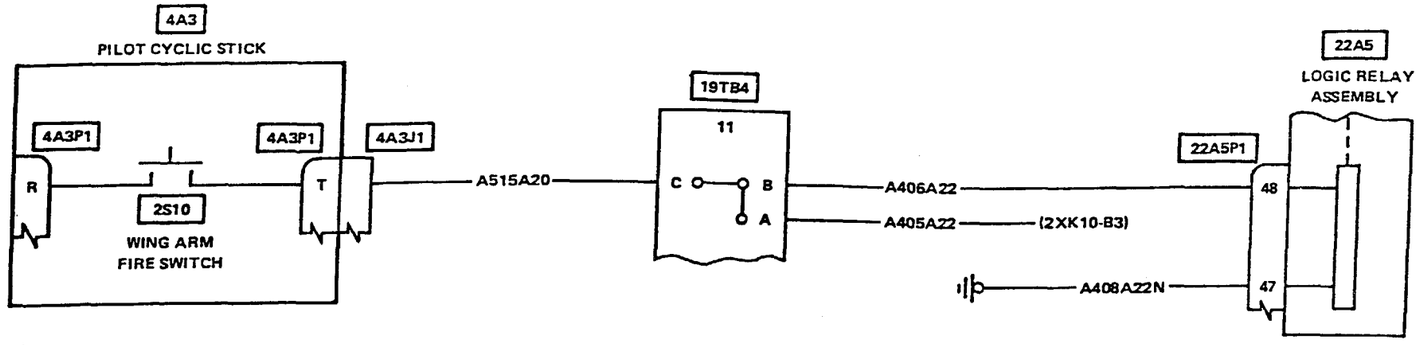
Connect 22A5P1.

Then go to paragraph 5-2.

NO → Repair wire A406A22 between 19TB4-11B and 22A5P1-48.

Connect 22A5P1.

Then go to paragraph 5-2.



5-25. DIRECT ROCKET RETICLE ON HUD DISPLAY WILL NOT RESPOND TO MANUAL RMS RNG INPUT.

INITIAL SETUP

Applicable Configuration
All

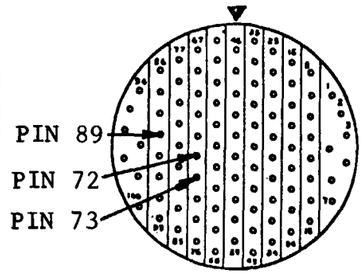
Tools/Test and Support Equipment
Multimeter

Tool Set, A/C Armament Repairman

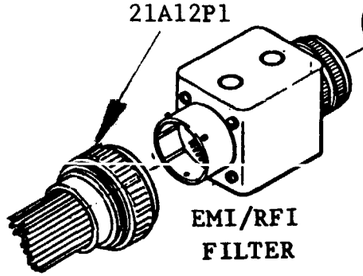
Personnel Required
68J (2)

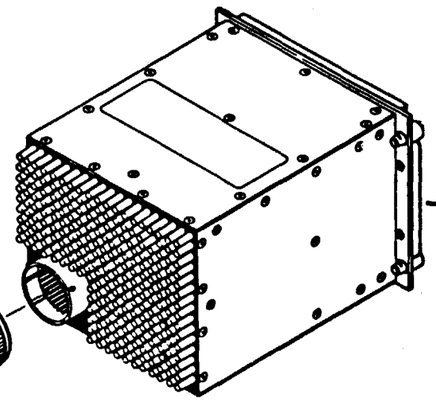
References
TM 9-1090-207-13
TM 9-1270-218-13
TM 55-1520-236-23

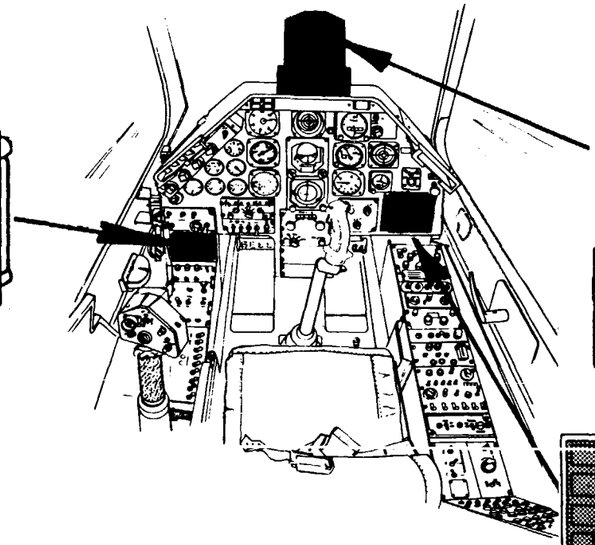
Access Panels
Battery Compartment-Removed

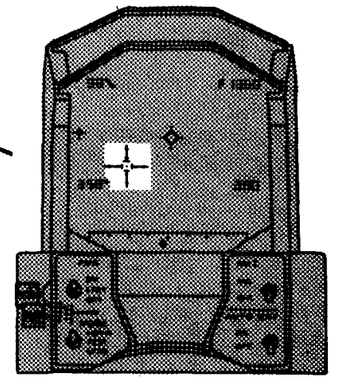


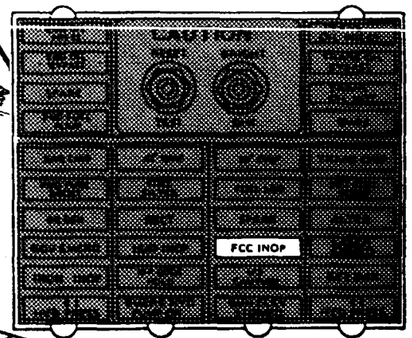
21A12P1


EMI/RFI FILTER

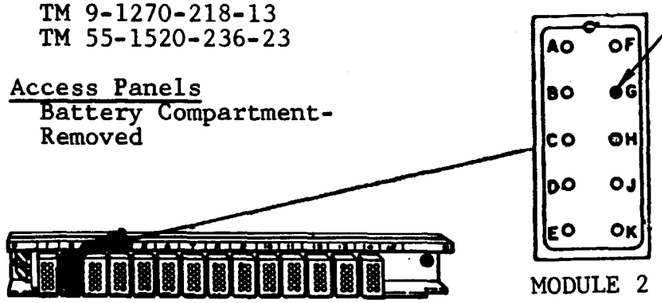

ROCKETS DISPLAY UNIT (REAR VIEW)

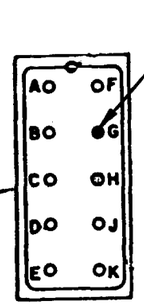



HUD

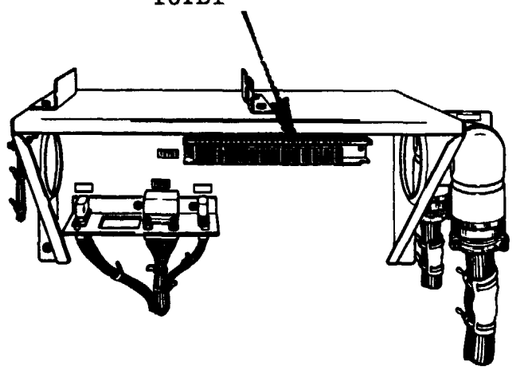


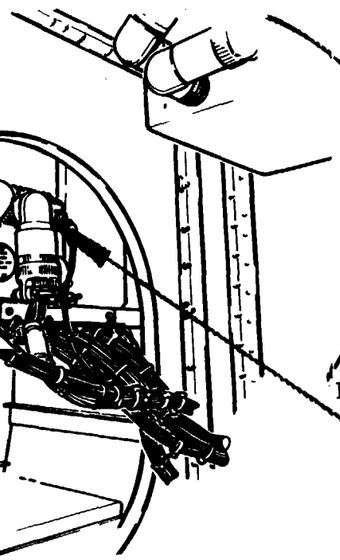
PILOT CAUTION PANEL

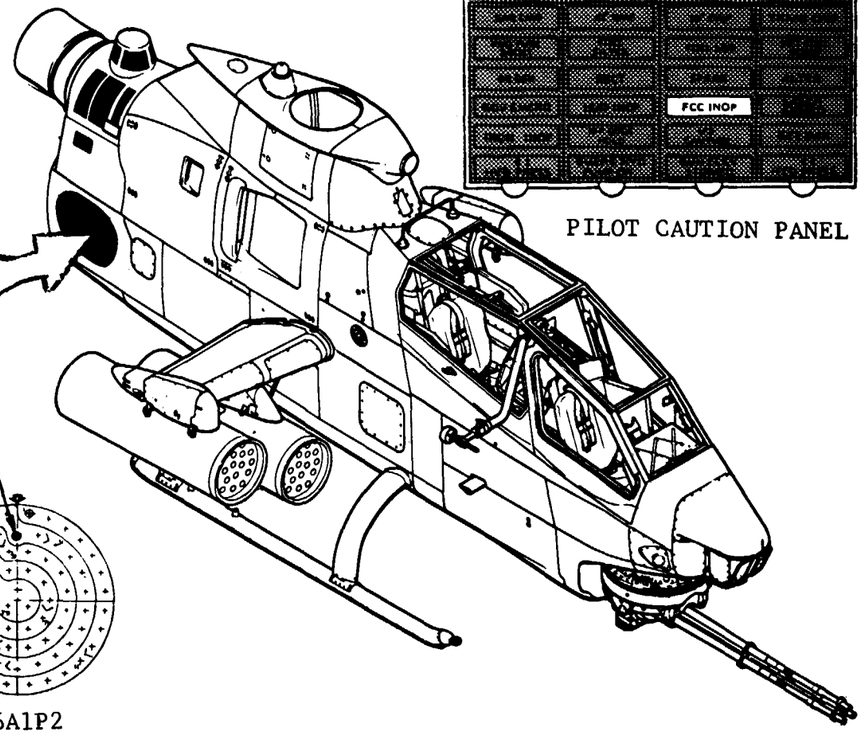

16TB1

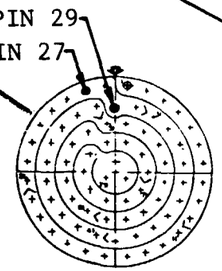


MODULE 2




FIRE CONTROL COMPUTER





16A1P2

5-25. DIRECT ROCKET RETICLE ON HUD WILL NOT RESPOND TO MANUAL RMS RNG INPUT (CONTINUED).

On pilot CAUTION panel:

Is FCC INOP segment lit?

YES

Go to paragraph 3-5.

Then go to paragraph 5-2.

NO

Turn off electrical power per paragraph 5-3.

Remove ROCKETS display unit per TM 9-1090-207-13, Chapter 4, Section IV.

Remove EMI/RFI filter and connect 21A12P1 to the ROCKETS display unit.

Turn on electrical power per paragraph 5-3.

On HUD:

Does reticle respond to RNG-KM input?

YES

Turn off electrical power per paragraph 5-3.

Replace EMI/RFI filter.

Connect 21A12P1 to EMI/RFI filter.

Install ROCKETS display unit per TM 9-1090-207-13, Chapter 4, Section IV.

Then go to paragraph 5-2.

NO

Turn off electrical power per paragraph 5-3.

Disconnect 21A12P1.

Turn on electrical power per paragraph 5-3.

Check for 28 V dc at 21A12P1-89.

Is 28 V dc present?

YES

Turn off electrical power per paragraph 5-3.

Check for continuity from 21A12P1-73 to 16A1P2-27.

Is continuity present?

YES

Check for continuity from 21A12P1-72 to 16A1P2-29.

Is continuity present?

YES

Connect 21A12P1 to EMI/RFI filter.

Replace ROCKETS display unit per TM 9-1090-207-13, Chapter 4, Section IV.

Then go to paragraph 5-2.

NO

Repair wire A1097A22(BLU) between 16A1P2-29 and 21A12P1-72.

Connect 21A12P1 to EMI/RFI filter.

Install ROCKETS display unit per TM 9-1090-207-13, Chapter 4, Section IV.

Then go to paragraph 5-2.

NO

Repair wire A1097A22(WHT) between 16A1P2-27 and 21A12P1-73.

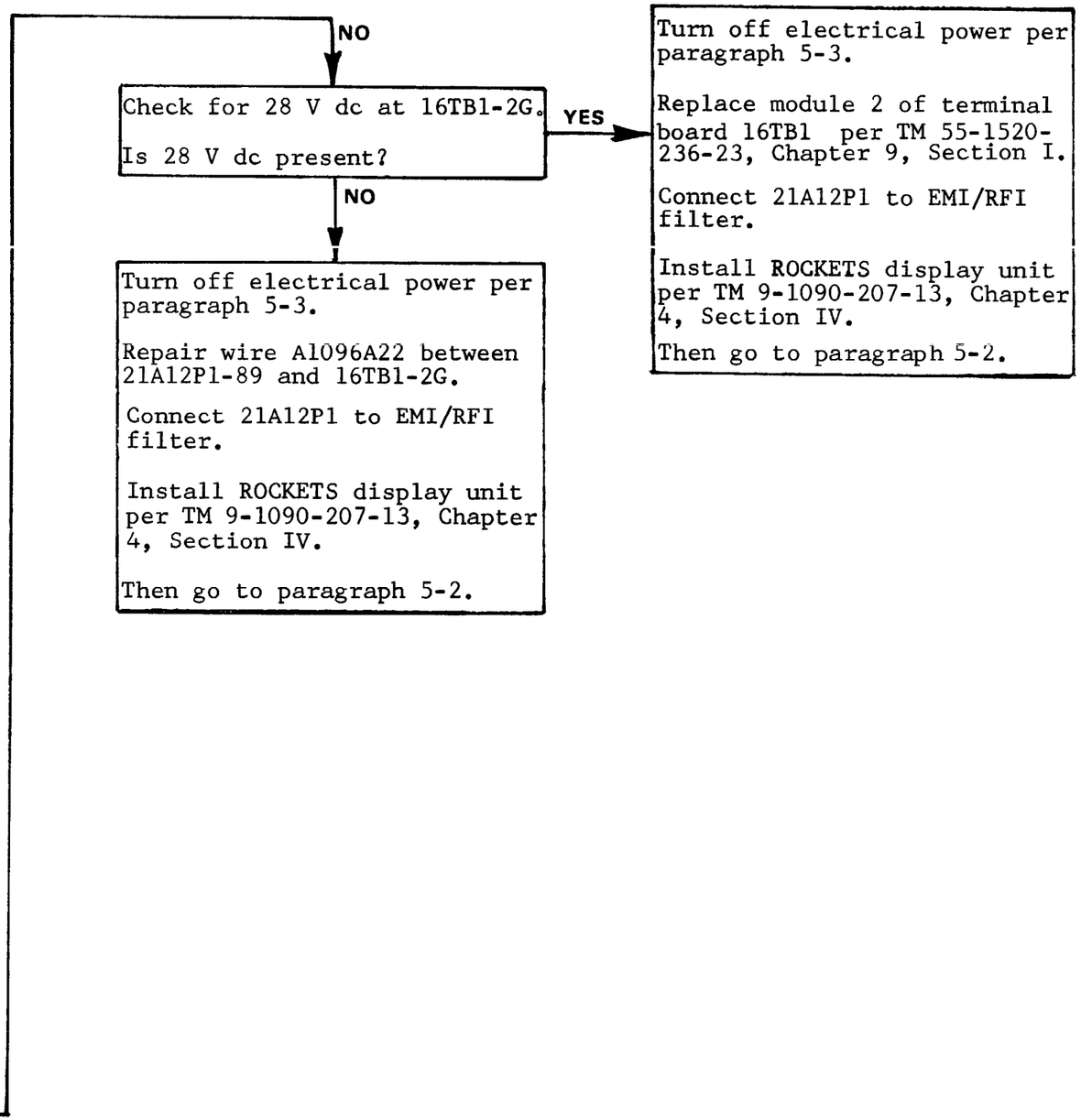
Connect 21A12P1 to EMI/RFI filter.

Install ROCKETS display unit per TM 9-1090-207-13, Chapter 4, Section IV.

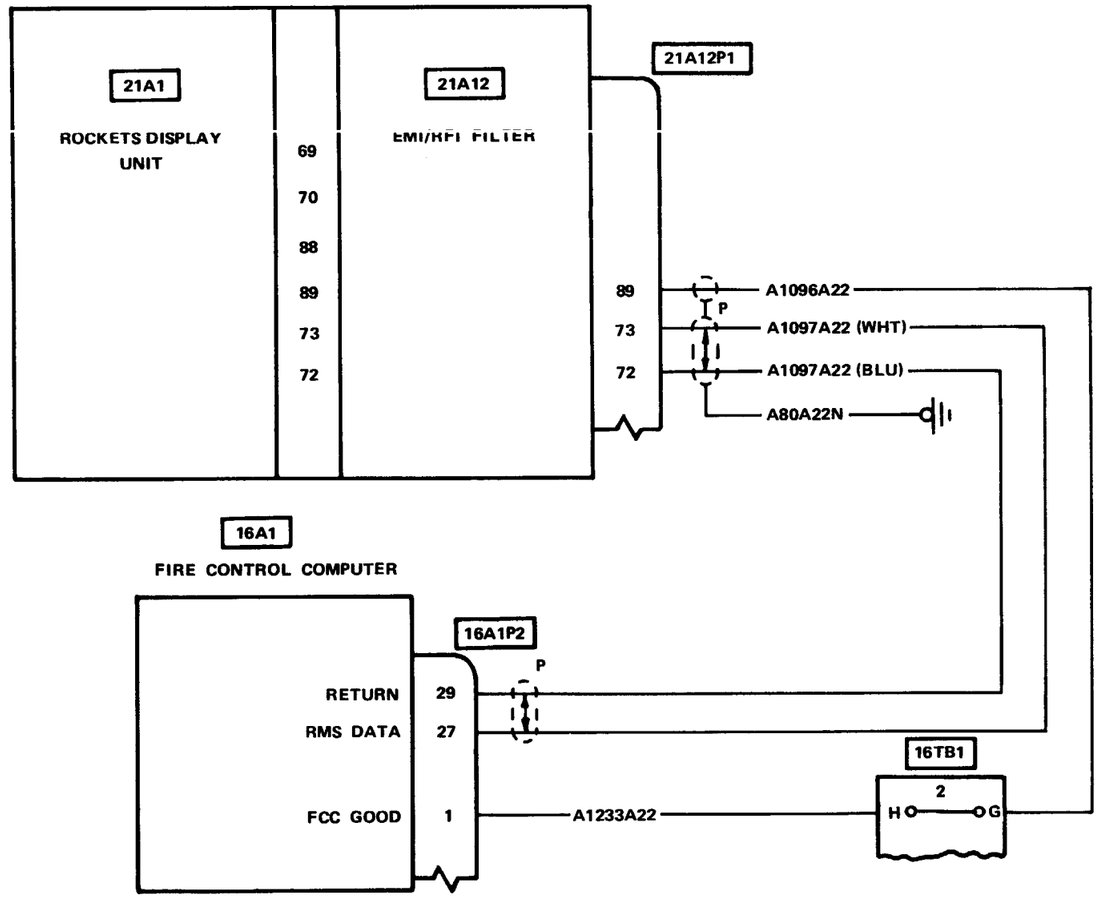
Then go to paragraph 5-2.

NO

5-25. DIRECT ROCKET RETICLE ON HUD WILL NOT RESPOND TO MANUAL RMS RNG INPUT (CONTINUED).



5-25. DIRECT ROCKET RETICLE ON HUD WILL NOT RESPOND TO MANUAL RMS RNG INPUT (CONTINUED).



5-26. WING STORE PWR CIRCUIT BREAKER WILL NOT STAY CLOSED WITH MASTER ARM SWITCH IN ARM.

INITIAL SETUP

Applicable Configuration
All

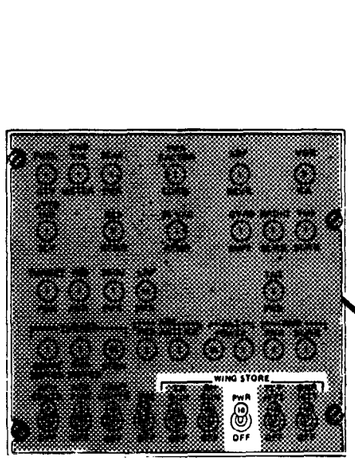
Tools/Test and Support Equipment
Multimeter

Tool Set, A/C Armament Repairman

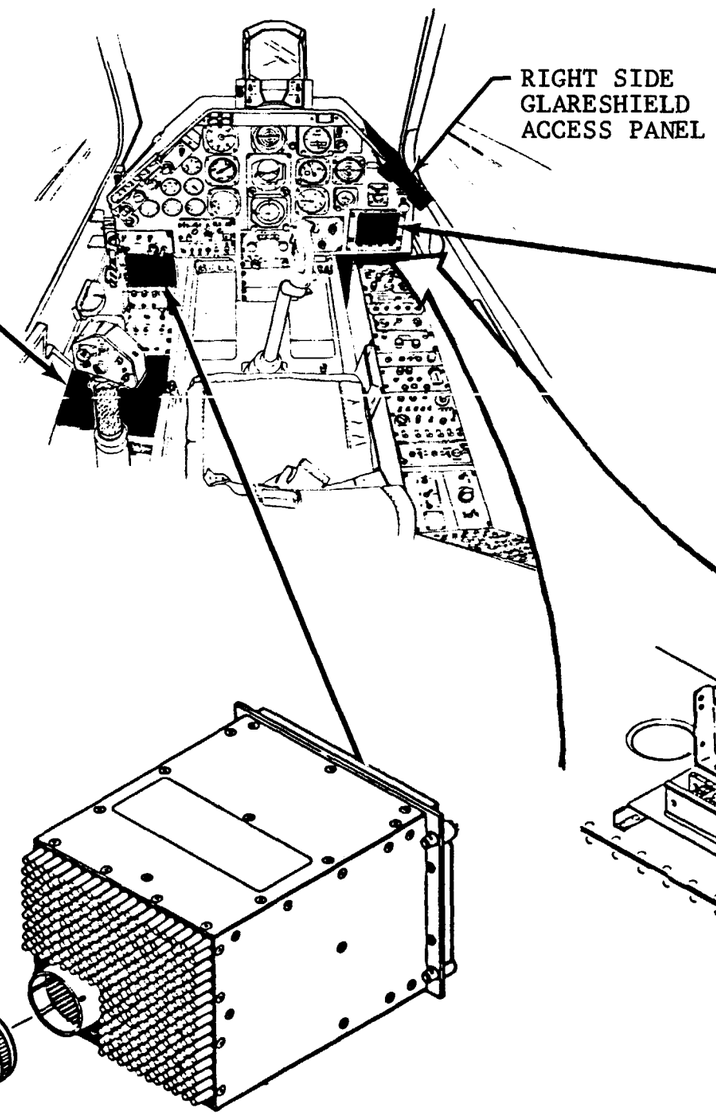
Personnel Required
68J (1)

References
TM 9-1090-207-13
TM 55-1520-236-23

Access Panels
Right Side Glareshield - Removed

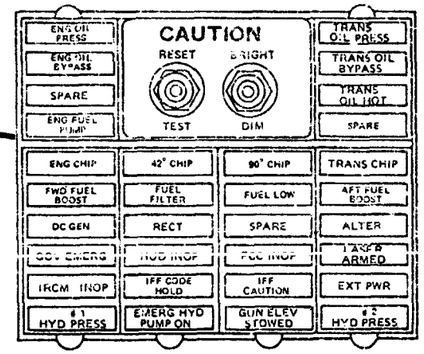


AC/ARMT CIRCUIT BREAKER PANEL

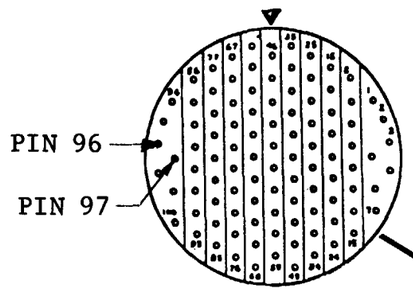


PILOT STATION

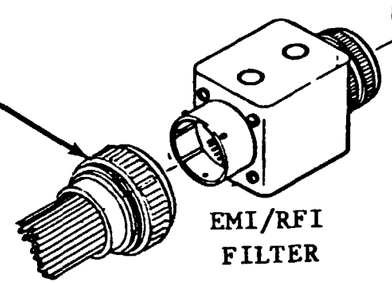
RIGHT SIDE GLARESHIELD ACCESS PANEL



PILOT CAUTION PANEL

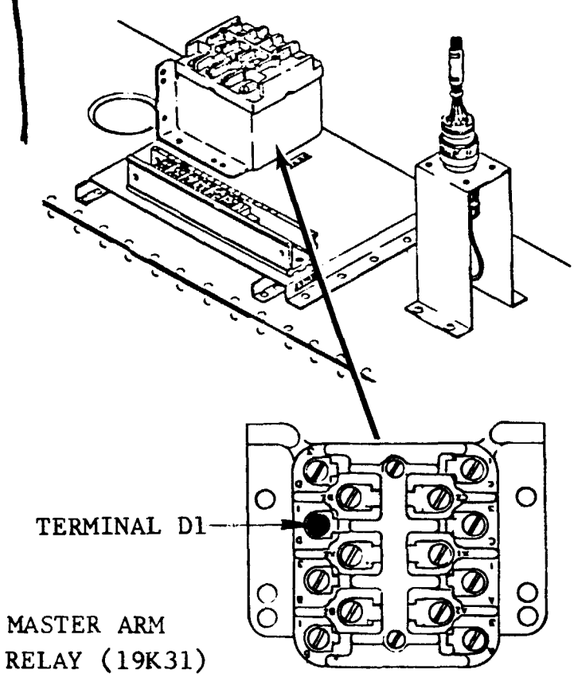


21A12P1



EMI/RFI FILTER

ROCKETS DISPLAY UNIT REAR VIEW



MASTER ARM RELAY (19K31)

5-26. WING STORE PWR CIRCUIT BREAKER WILL NOT STAY CLOSED WITH MASTER ARM SWITCH IN ARM (CONTINUED).

Turn off electrical power per paragraph 5-3.

Remove ROCKETS display unit per TM 9-1090-207-13, Chapter 4, Section IV.

Remove EMI/RFI filter and connect 21A12P1 to ROCKETS display unit.

Turn on electrical power per paragraph 5-3.

On AC/ARMT circuit breaker panel:

Close WING STORE PWR circuit breaker.

Does circuit breaker stay closed?

YES →

Turn off electrical power per paragraph 5-3.

Replace EMI/RFI filter.

Connect 21A12P1 to EMI/RFI filter.

Install ROCKETS display unit per TM 9-1090-207-13, Chapter 4, Section IV.

Then go to paragraph 5-2.

NO ↓

Turn off electrical power per paragraph 5-3.

Disconnect 21A12P1.

On AC/ARMT circuit breaker panel:

Close WING STORE PWR circuit breaker.

Turn on electrical power per paragraph 5-3.

Does circuit breaker stay closed?

YES →

Turn off electrical power per paragraph 5-3.

Connect 21A12P1 to EMI/RFI filter.

Replace ROCKETS display unit per TM 9-1090-207-13, Chapter 4, Section IV.

Then go to paragraph 5-2.

NO ↓

NO ↓

Turn off electrical power per paragraph 5-3.

Disconnect wire A449A20 from master arm relay (19K31-D1).

Check for continuity from 21A12P1-96 to airframe ground.

Is continuity present?

YES →

NO ↓

Replace master arm relay (19K31) per TM 55-1520-236-23, Chapter 9, Section I.

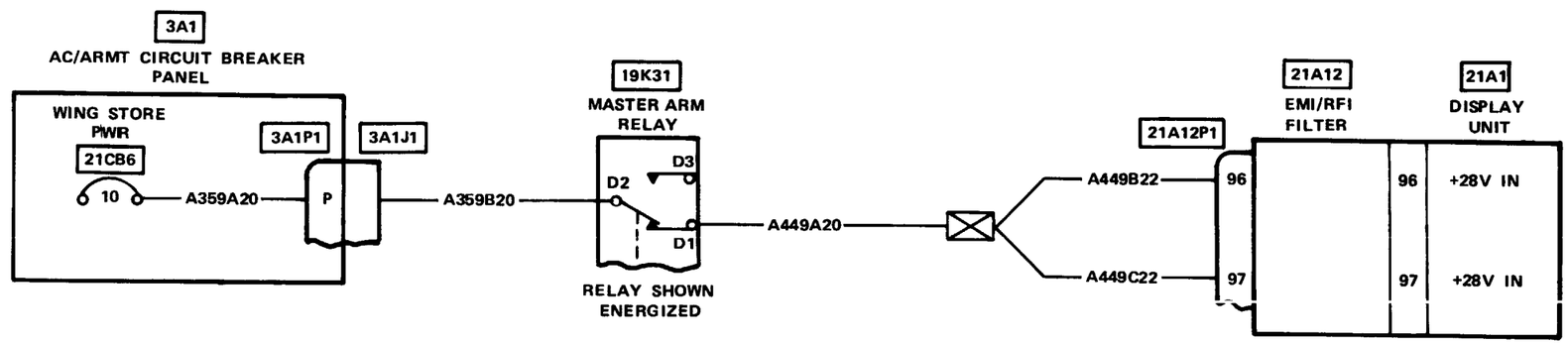
Connect wire A449A20 to 19K31-D1.

Connect 21A12P1 to EMI/RFI filter.

Install ROCKETS display unit per TM 9-1090-207-13, Chapter 4, Section IV.

Then go to paragraph 5-2.

5-26. WING STORE PWR CIRCUIT BREAKER WILL NOT STAY CLOSED WITH MASTER ARM SWITCH IN ARM (CONTINUED).



YES

Remove splice joining wires A449A20, A449B22, and A449C22.

Check 22A12P1-96 and 22A12P1-97 for continuity to airframe ground.

Is continuity present?

YES

Repair wire A449B22 between 21A12P-96 and splice and/or wire A449C22 between 21A12P1-97 and splice to eliminate short.

Replace splice joining wires A449A20, A449B22, and A449C22 per TM 55-1520-236-23, Chapter 9, Section I.

Connect wire A449A20 to 19K31-D1.

Connect 21A12P1 to EMI/RFI filter.

Install ROCKETS display unit per TM 9-1090-207-13, Chapter 4, Section IV.

Then go to paragraph 5-2.

NO

Repair wire A449A20 between 19K31-D1 and splice to eliminate short.

Replace splice joining wires A449A20, A449B22, and A449C22 per TM 55-1520-236-23, Chapter 9, Section I.

Connect wire A449A20 to 19K31-D1.

Connect 21A12P1 to EMI/RFI filter.

Install ROCKETS display unit per TM 9-1090-207-13, Chapter 4, Section IV.

Then go to paragraph 5-2.

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5-27. WING STORE PWR CIRCUIT BREAKER WILL NOT REMAIN CLOSED WITH MASTER ARM SWITCH IN STBY.

INITIAL SETUP

Applicable Configuration
All

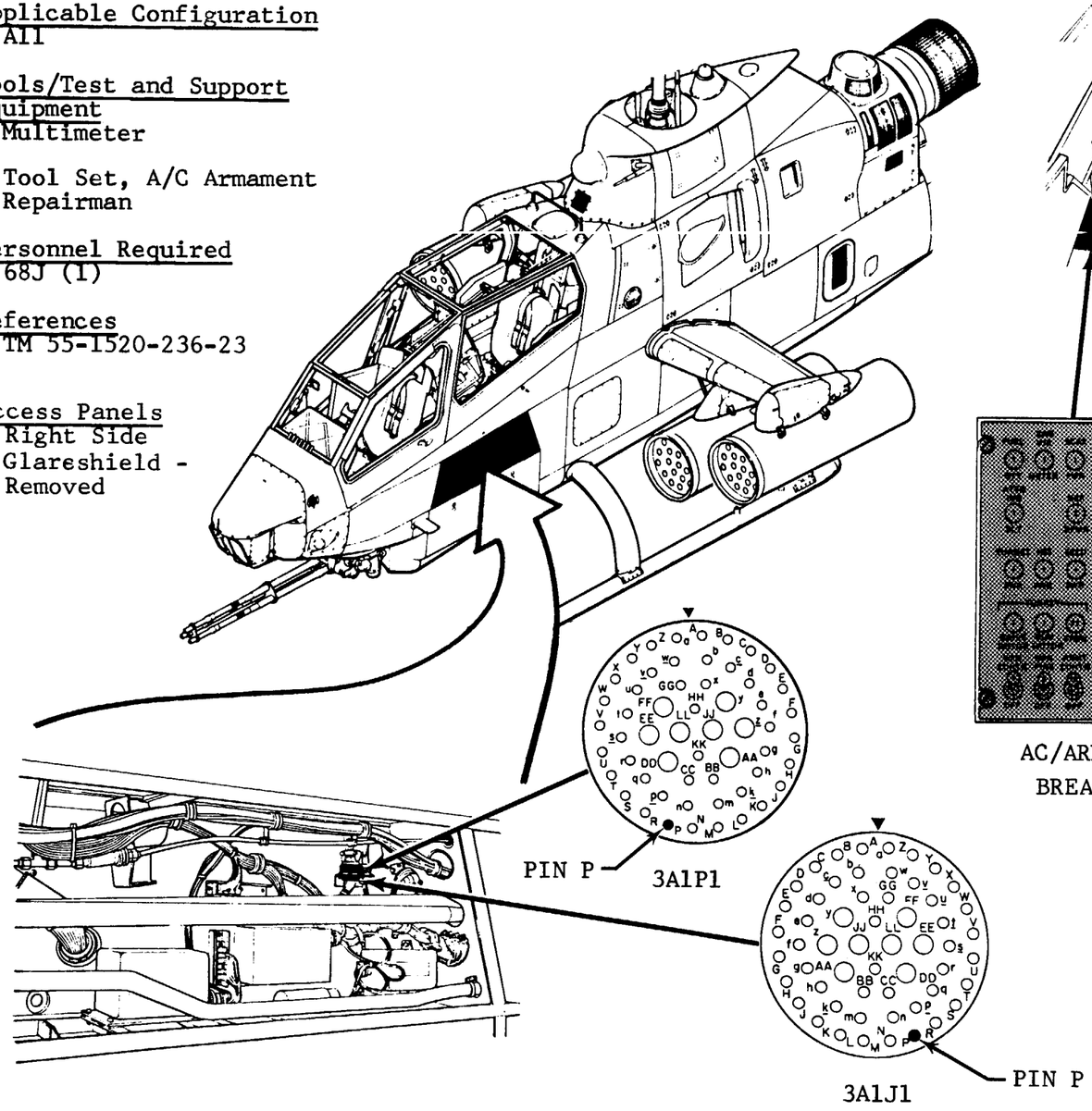
Tools/Test and Support Equipment
Multimeter

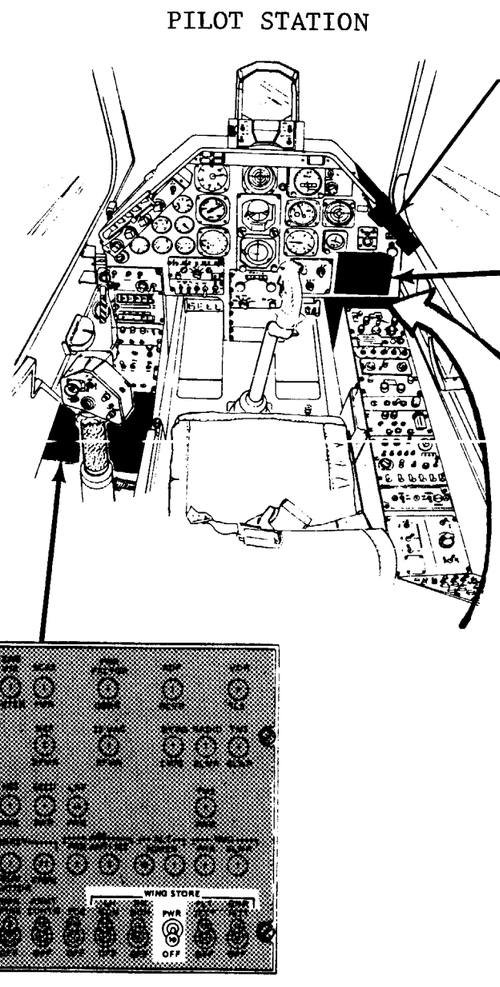
Tool Set, A/C Armament Repairman

Personnel Required
68J (1)

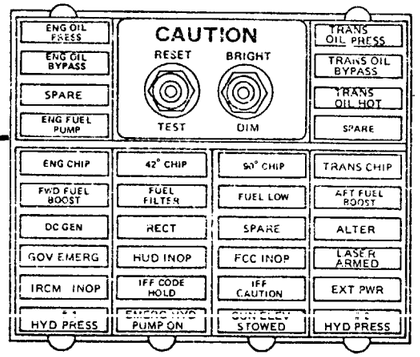
References
TM 55-1520-236-23

Access Panels
Right Side Glareshield - Removed

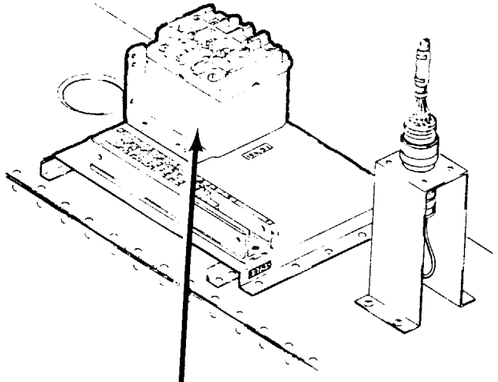




AC/ARMT CIRCUIT BREAKER PANEL



PILOT CAUTION PANEL



MASTER ARM RELAY (19K31)

5-27. WING STORE PWR CIRCUIT BREAKER WILL NOT REMAIN CLOSED WITH MASTER ARM SWITCH IN STBY (CONTINUED).

Turn off electrical power per paragraph 5-3.

Check for continuity from 3A1J1-P to airframe ground.

Is continuity present?

YES → Disconnect wire A359B20 from master arm relay (19K31-D2).

Check for continuity from 3A1J1-P to airframe ground.

Is continuity present?

YES → Repair wire A359B20 between 3A1J1-P and 19K31-D2 to eliminate short.

Then go to paragraph 5-2.

NO → Replace master arm relay (19K31) per TM 55-1520-236-23, Chapter 9, Section I.

Then go to paragraph 5-2.

NO → Check for continuity from 3A1P1-P to airframe ground.

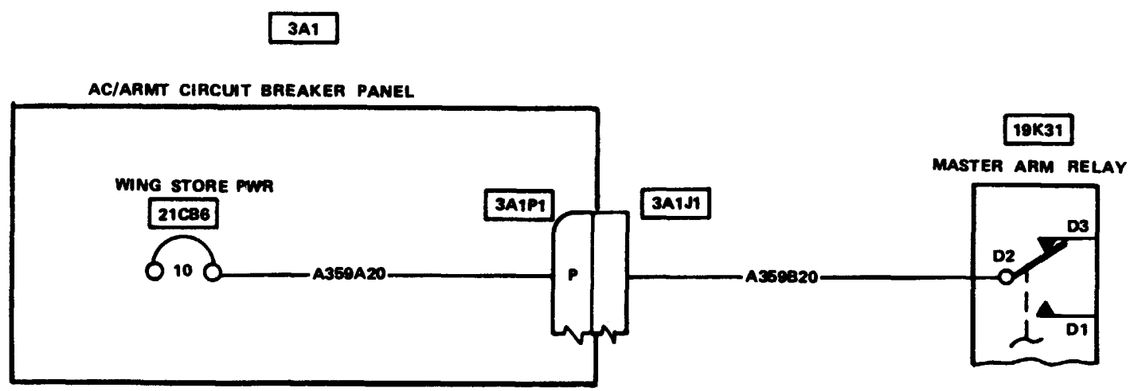
Is continuity present?

NO → Replace WING STORE PWR circuit breaker (21CB6) per TM 55-1520-236-23, Chapter 9, Section I.

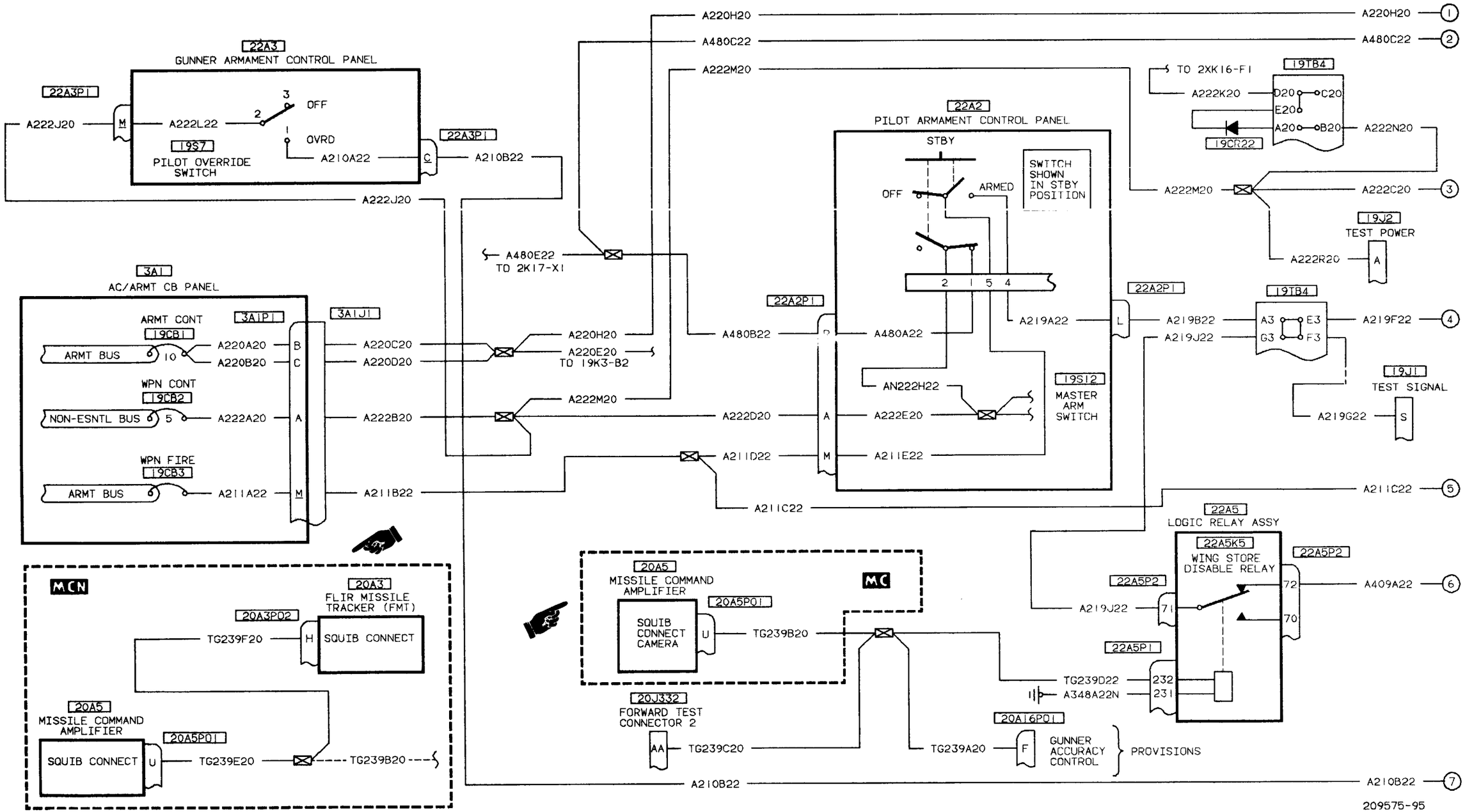
Then go to paragraph 5-2.

YES → Repair wire A359A20 between 3A1P1-P and WING STORE PWR circuit breaker to eliminate short.

Then go to paragraph 5-2.

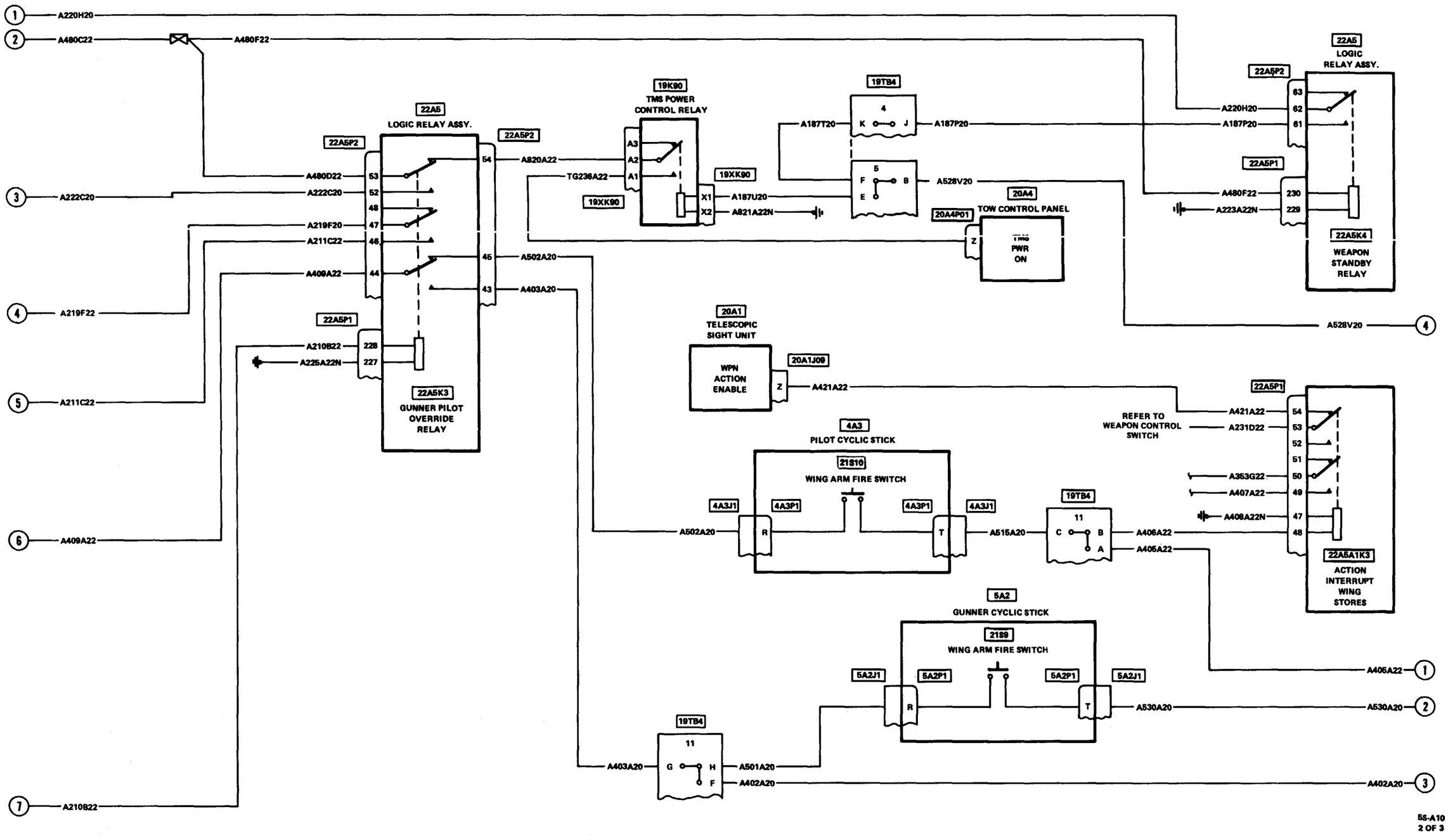


STANDBY POWER AND TRIGGER (SHEET 1 OF 3)



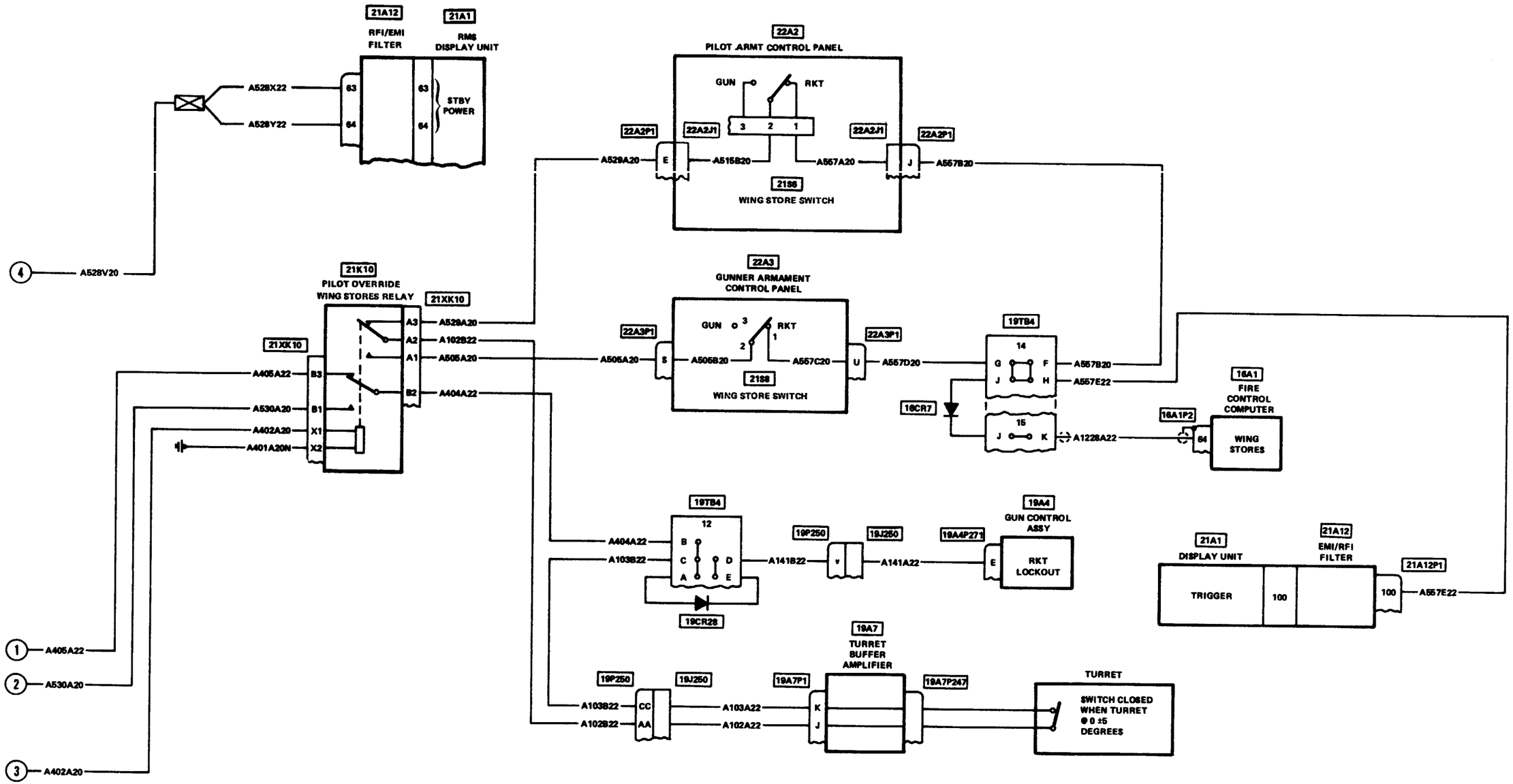
U.S. GOVERNMENT PRINTING OFFICE: 1990 754-125/00180

STANDBY POWER AND TRIGGER (Sheet 2 of 3)

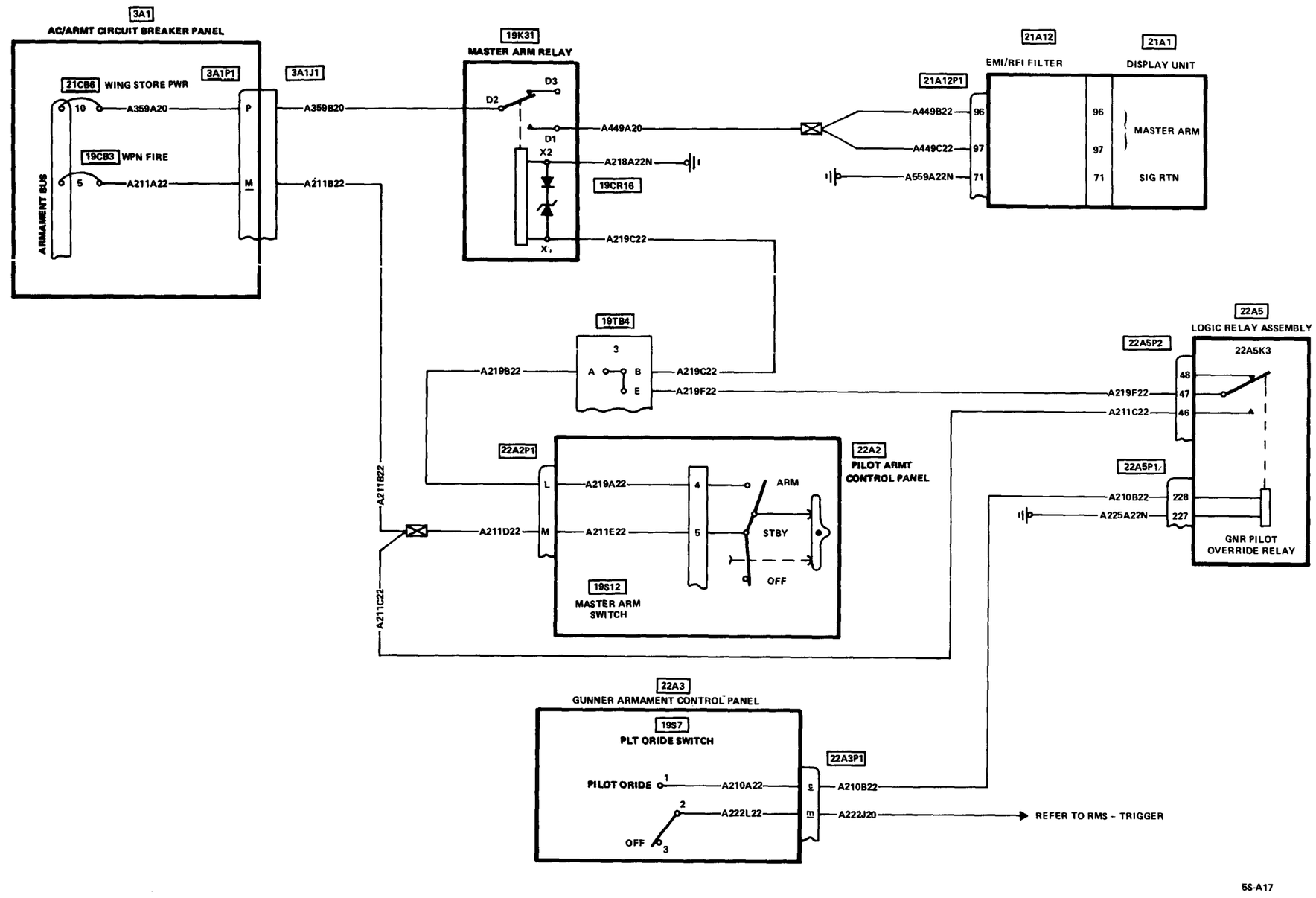


5S-A10
2 OF 3

STANDBY POWER AND TRIGGER (Sheet 3 of 3)

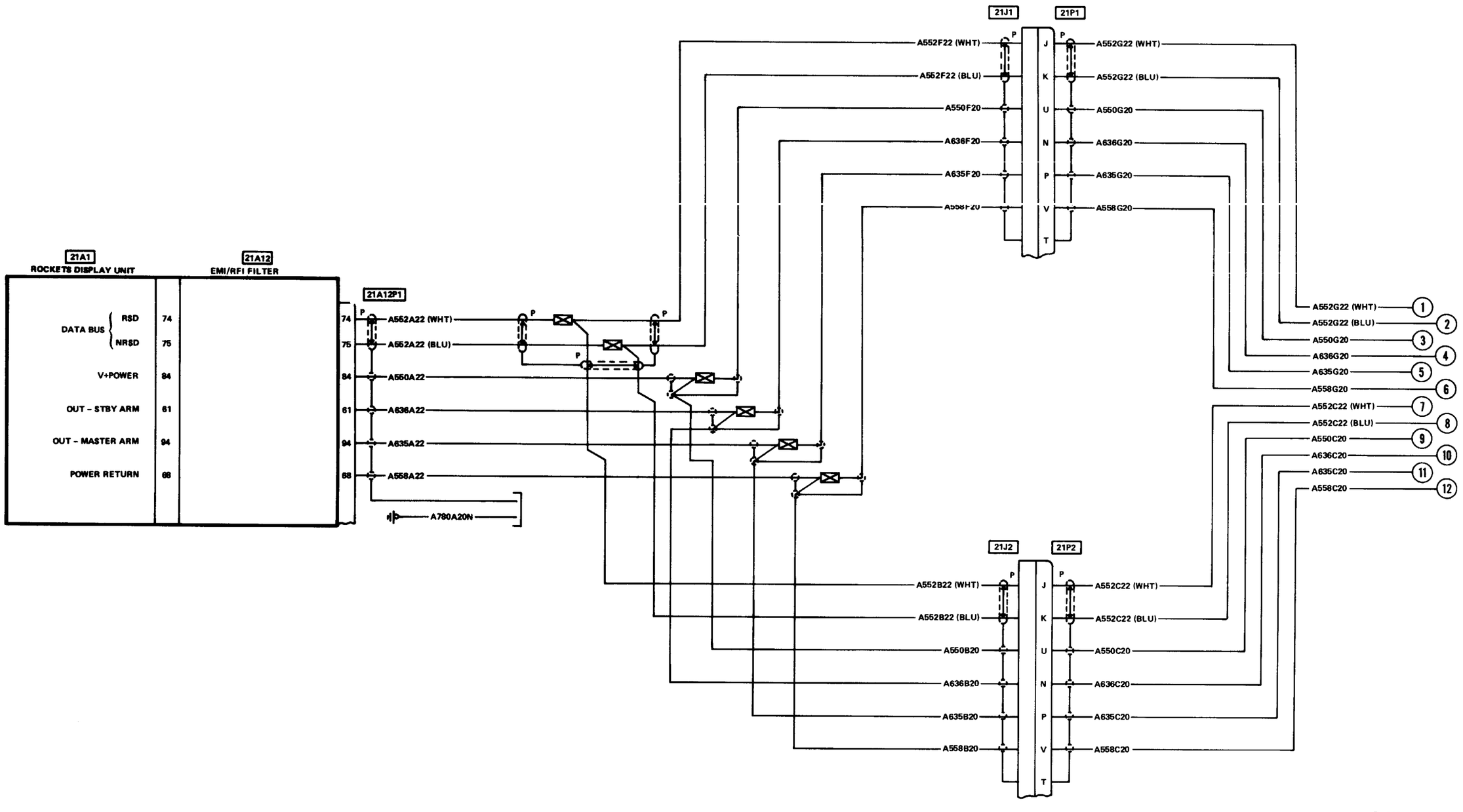


MASTER ARM - RMS (Sheet 1 of 1)

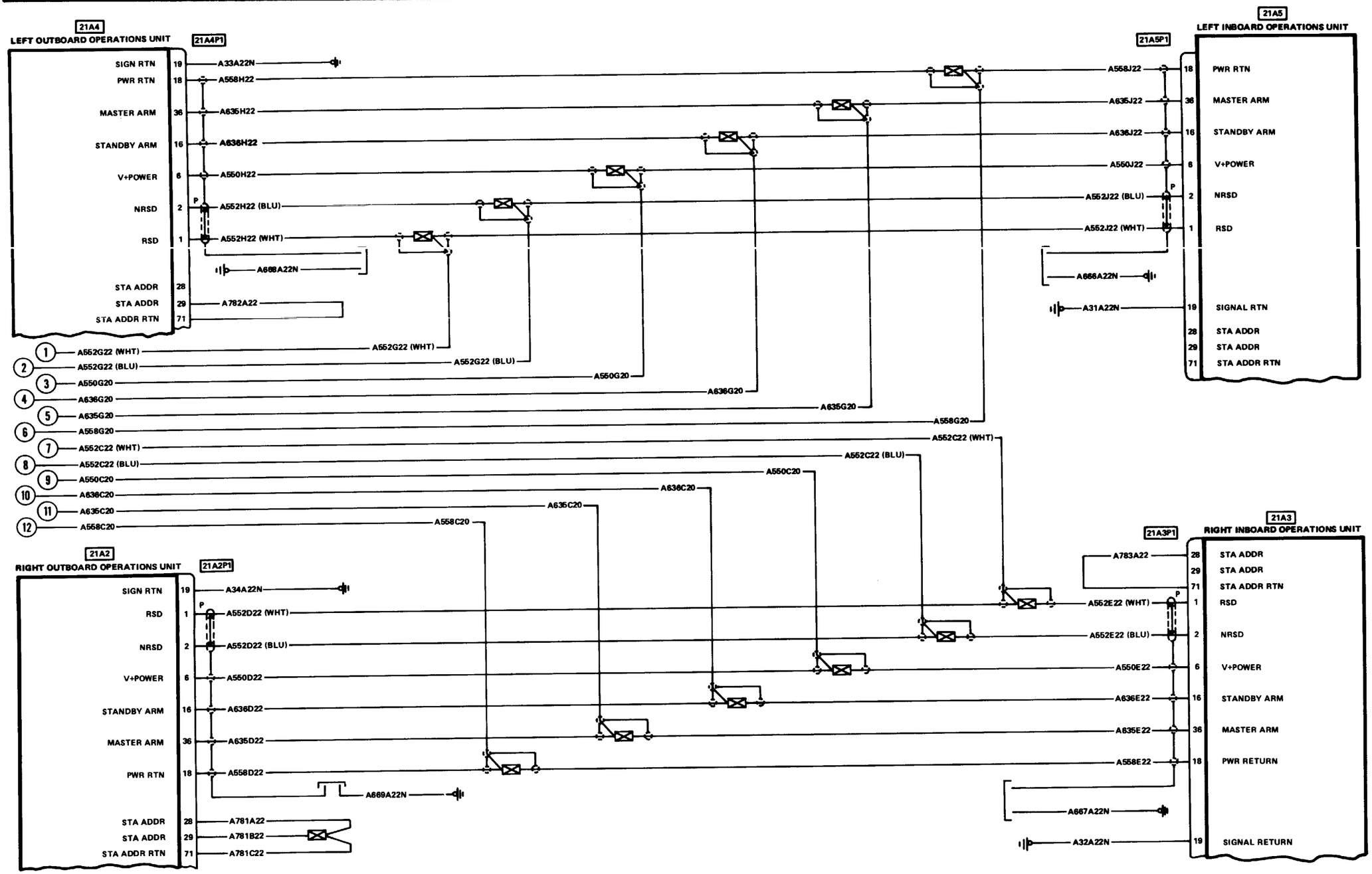


5S-A17

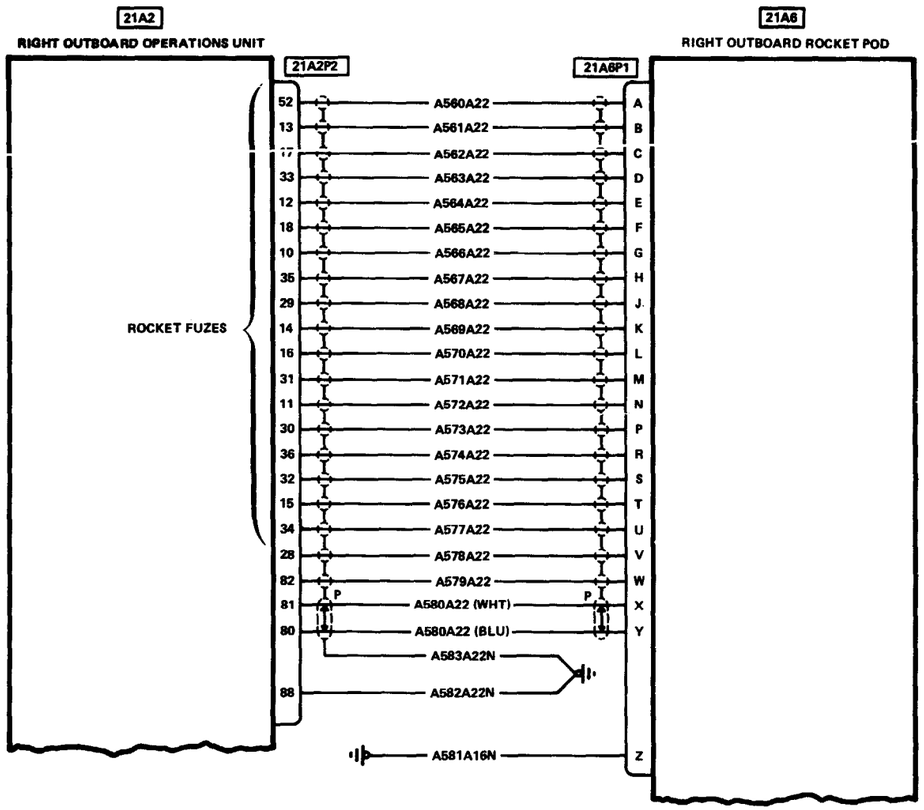
RMS STATION UNITS - OPERATIONS UNITS (Sheet 1 of 2)

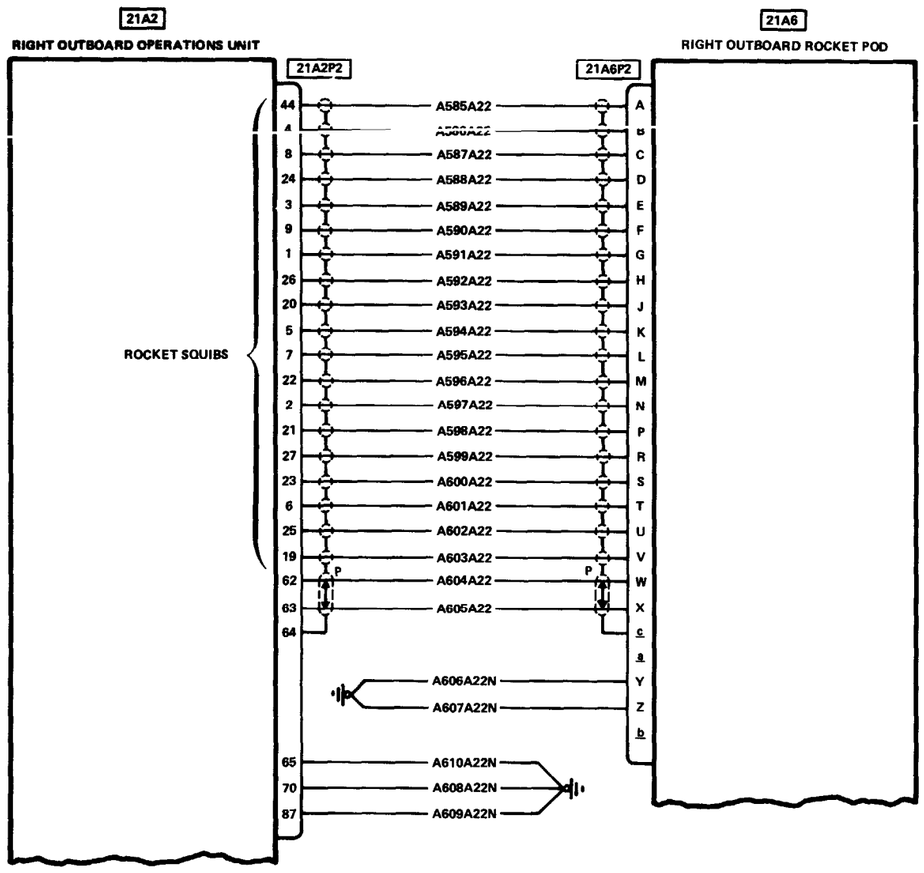


RMS STATION UNITS - OPERATIONS UNITS (Sheet 2 of 2)

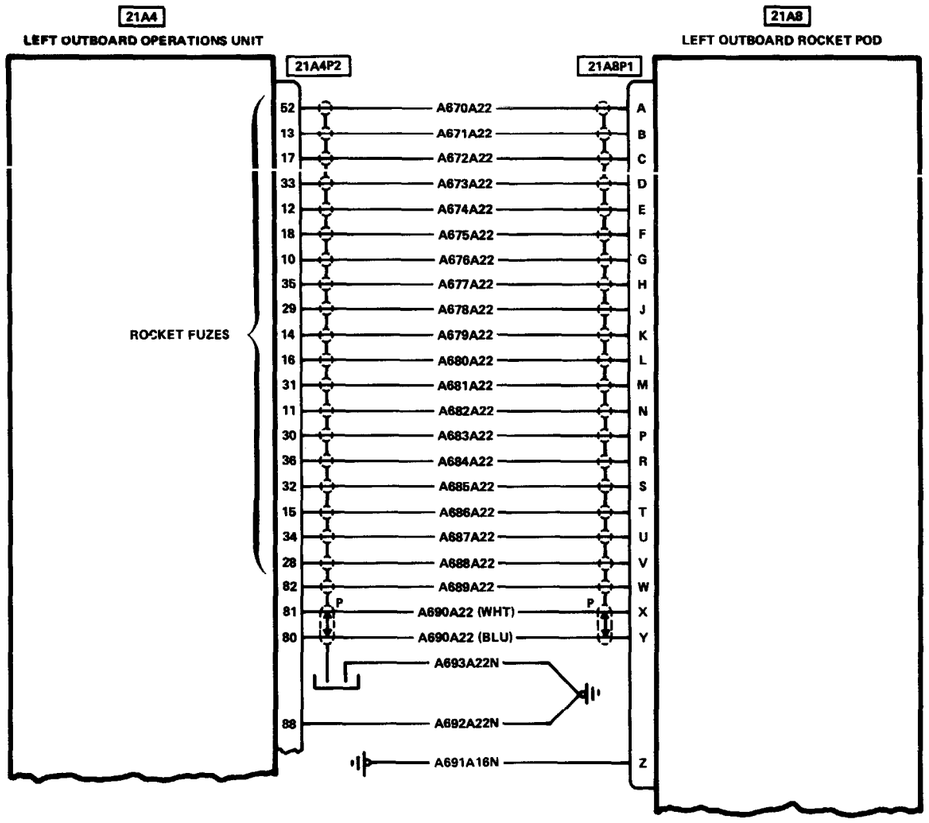


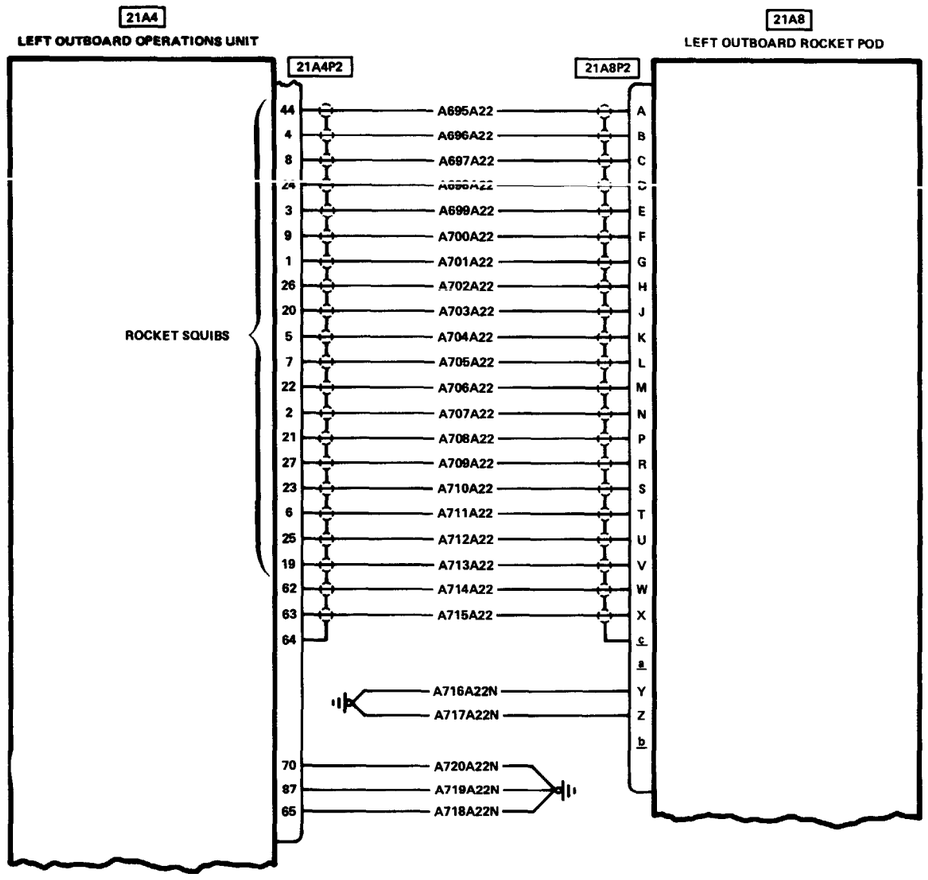
ROCKET PODS - Squib and Fuse Wiring (Sheet 1 of 4)





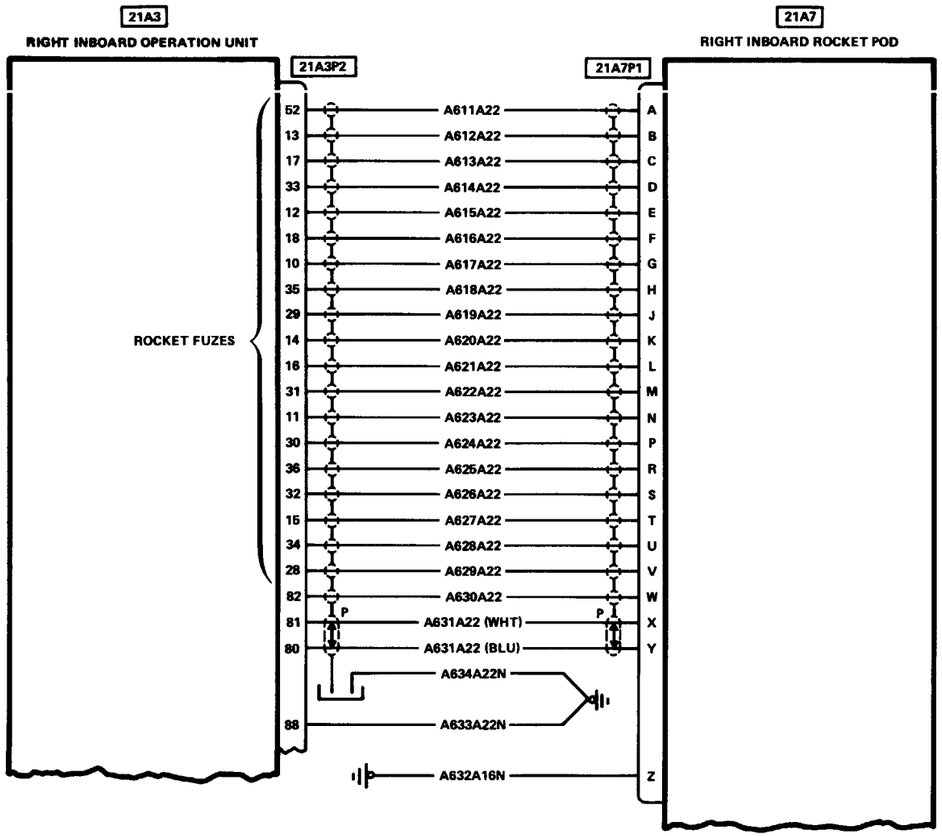
ROCKET PODS - Squib and Fuse Wiring (Sheet 2 of 4)

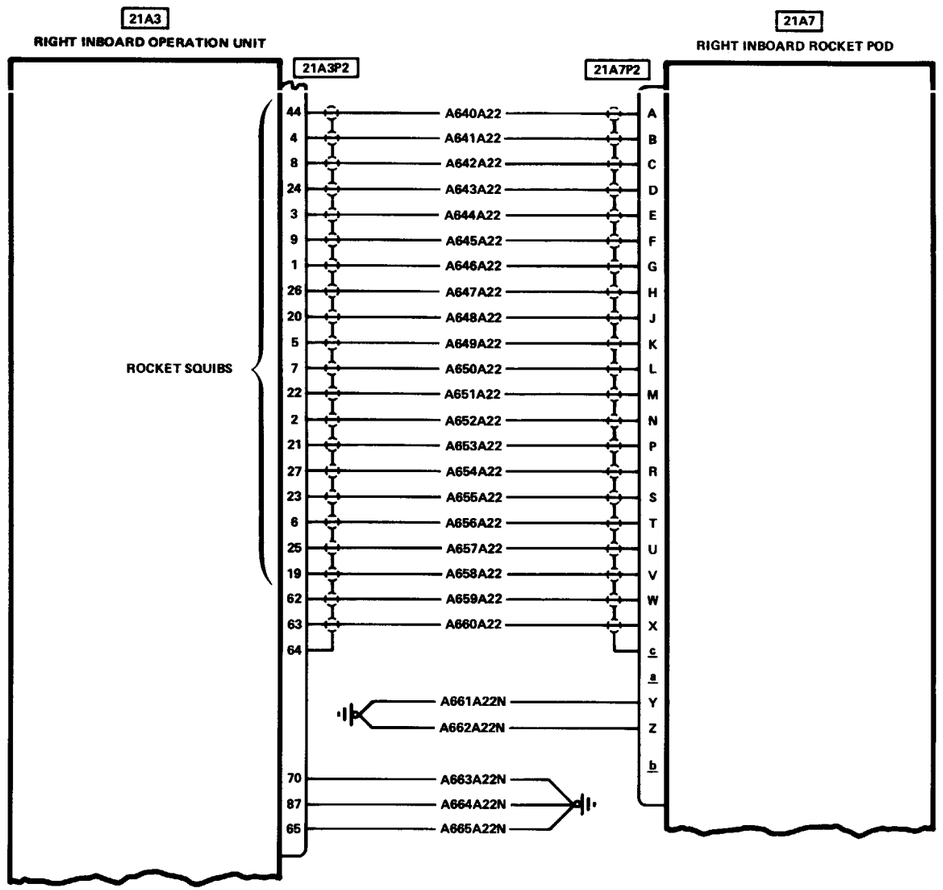




5S-A13 2OF4

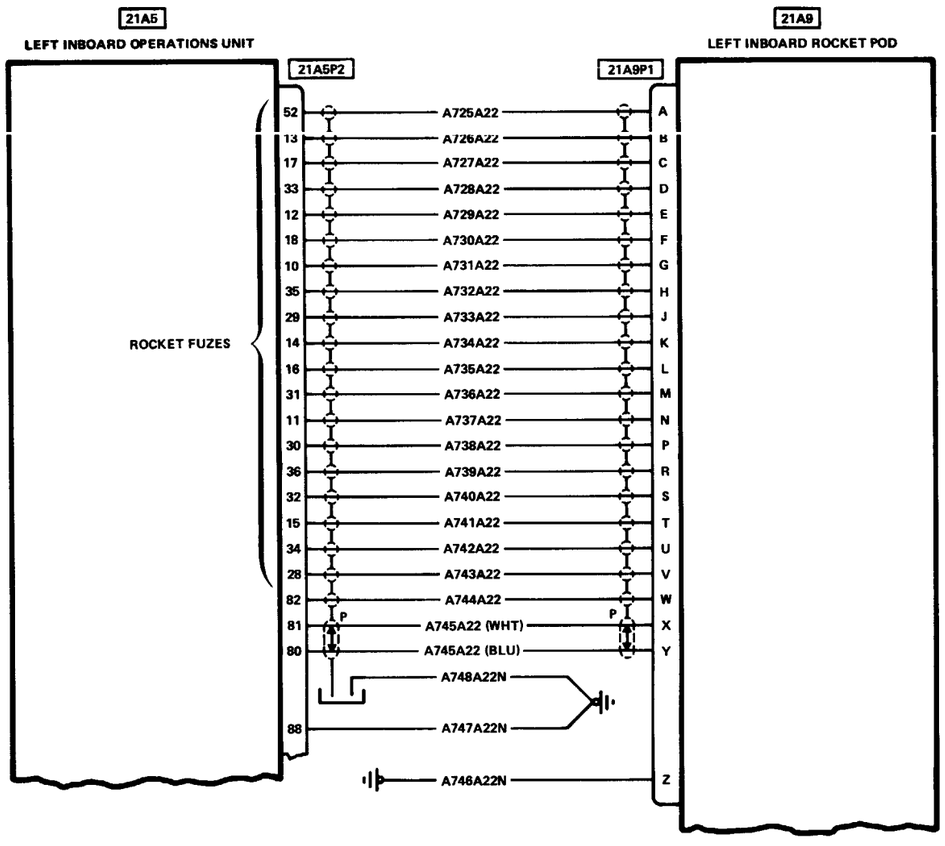
ROCKET PODS - Squib and Fuse Wiring (Sheet 3 of 4)

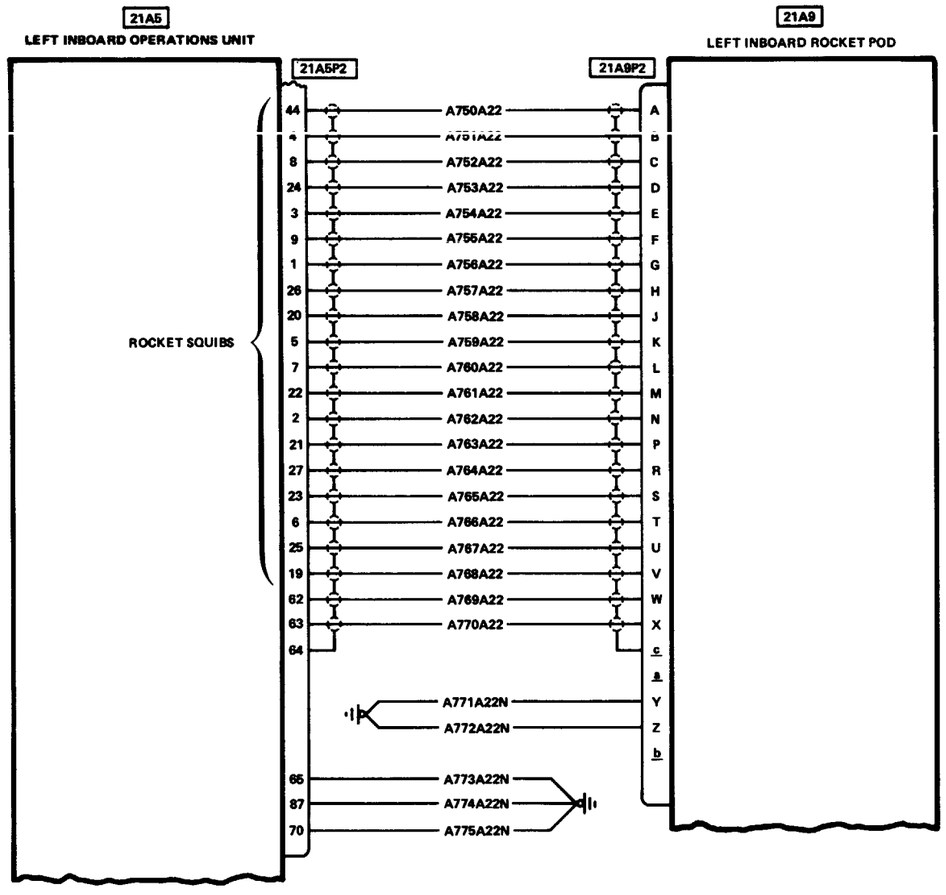




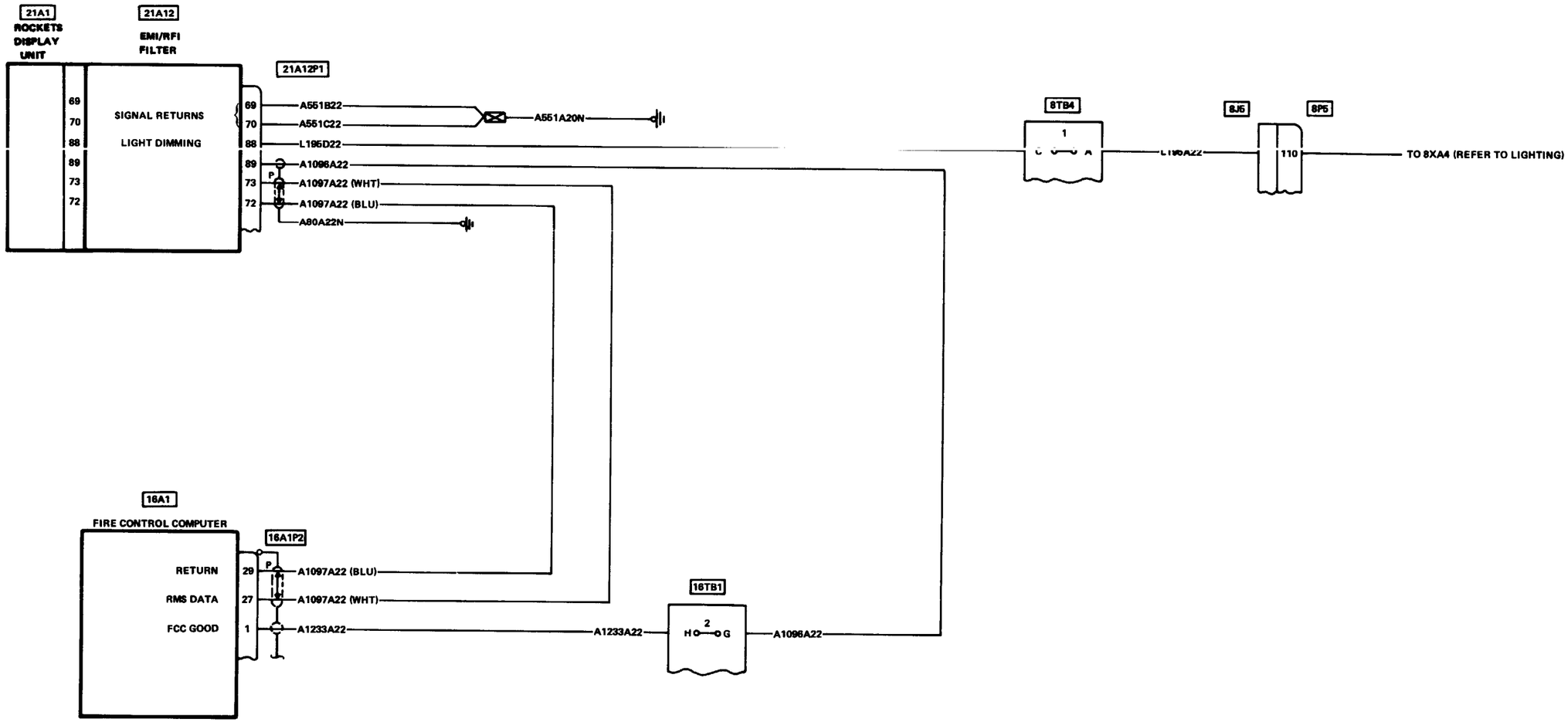
5S-A14 3OF4

ROCKET PODS - Squib and Fuse Wiring (Sheet 4 of 4)



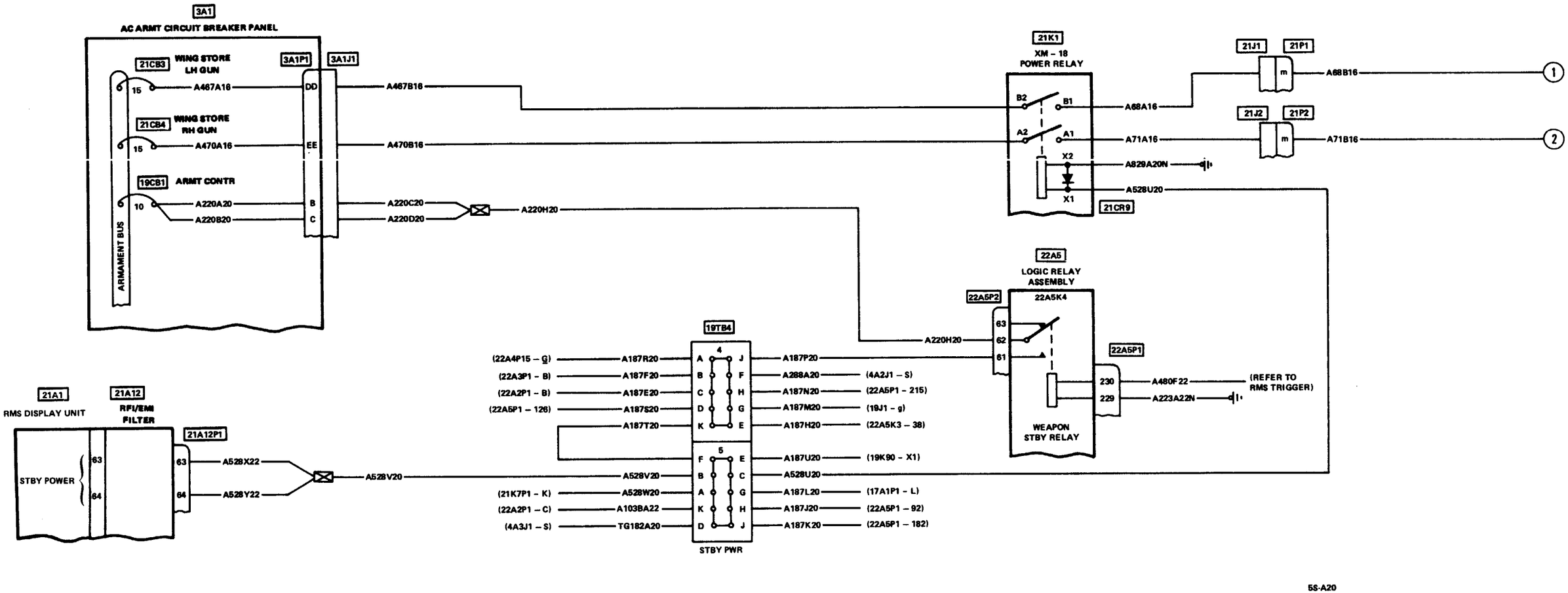


FCC Data Bus and Lighting Control (Sheet 1 of 1)

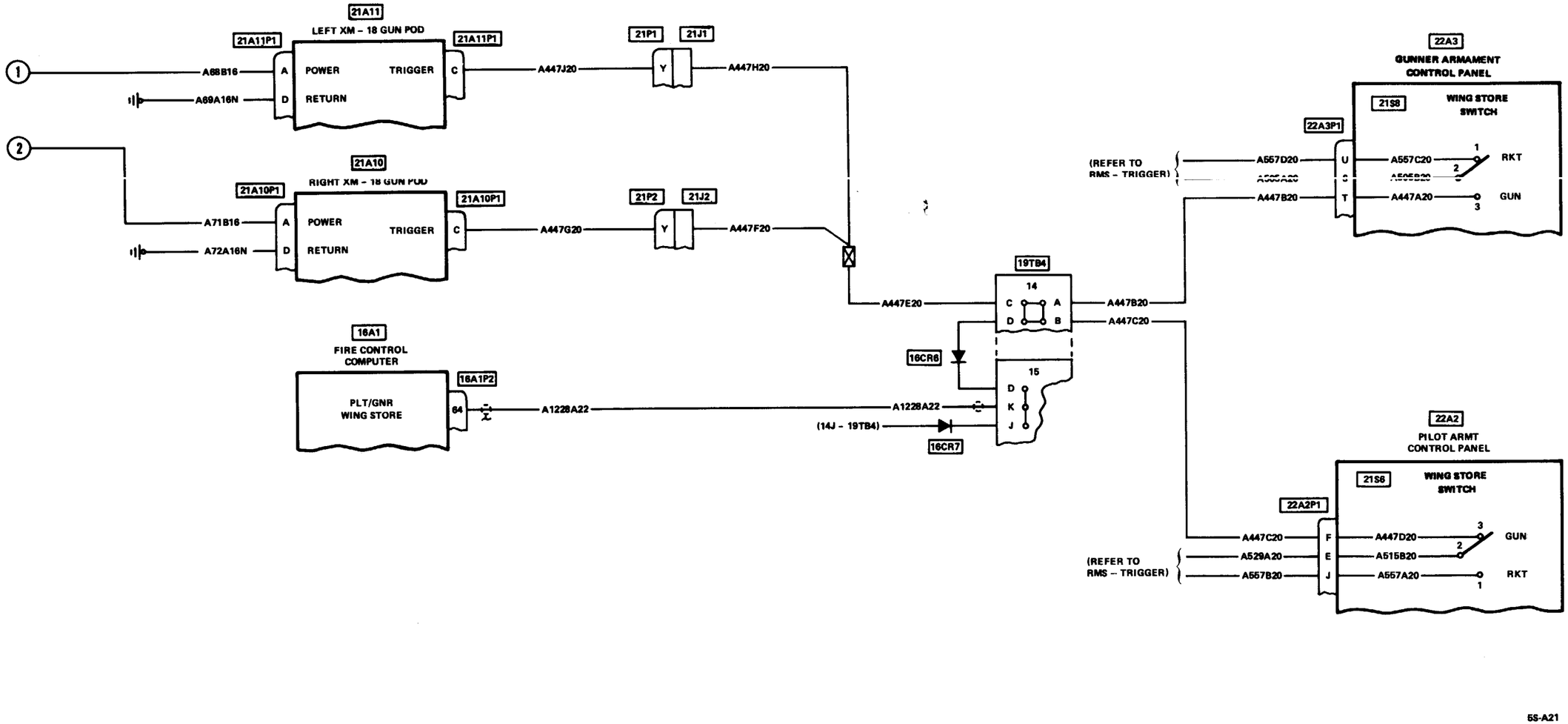


5S-A16

MINI GUN PODS - POWER and TRIGGER (Sheet 1 of 2)



MINI GUN PODS - POWER and TRIGGER (Sheet 2 of 2)



5S-A21

By Order of the Secretary of the Army:

E. C. MEYER
General, United States Army
Chief of Staff

Official:

ROBERT M. JOYCE
Major General, United States Army
The Adjutant General

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TEAR ALONG PERFORATED LINE

RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL PUBLICATIONS



SOMETHING WRONG WITH THIS PUBLICATION?

FROM: (PRINT YOUR UNIT'S COMPLETE ADDRESS)
PFC JOHN DOE
COA, 3d ENGINEER BN
FT. LEAVENWORTH, MO 63108

DATE SENT

PUBLICATION NUMBER	PUBLICATION DATE	PUBLICATION TITLE
TM 55-1520-236-T-1	15 June 1983	AH-1F INTEGRATED ARMAMENT SYSTEM

BE EXACT. . . PIN-POINT WHERE IT IS

PAGE NO	PARA-GRAPH	FIGURE NO	TABLE NO	IN THIS SPACE TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT:
6	2-1 a			In line 6 of paragraph 2-1a the manual states the engine has 6 Cylinders. The engine on my set only has 4 Cylinders. Change the manual to show 4 Cylinders.
B1		4-3		Callout 16 on figure 4-3 is pointing at a bolt. In key to figure 4-3, item 16 is called a shim - Please correct one or the other.
125	line 20			I ordered a gasket, item 19 on figure B-16 key NSN 2910-00-762-3001. I got a gasket but it doesn't fit. Supply says I got what I ordered, so the NSN is wrong. Please give me a good NSN

PRINTED NAME, GRADE OR TITLE, AND TELEPHONE NUMBER	SIGN HERE:
JOHN DOE, PFC (268) 317-7111	John Doe JOHN DOE

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TEAR ALONG PERFORATED LINE

The Metric System and Equivalents

Linear Measure

1 centimeter = 10 millimeters = .39 inch
1 decimeter = 10 centimeters = 3.94 inches
1 meter = 10 decimeters = 39.37 inches
1 dekameter = 10 meters = 32.8 feet
1 hectometer = 10 dekameters = 328.08 feet
1 kilometer = 10 hectometers = 3,280.8 feet

Weights

1 centigram = 10 milligrams = .15 grain
1 decigram = 10 centigrams = 1.54 grains
1 gram = 10 decigram = .035 ounce
1 dekagram = 10 grams = .35 ounce
1 hectogram = 10 dekagrams = 3.52 ounces
1 kilogram = 10 hectograms = 2.2 pounds
1 quintal = 100 kilograms = 220.46 pounds
1 metric ton = 10 quintals = 1.1 short tons

Liquid Measure

1 centiliter = 10 milliters = .34 fl. ounce
1 deciliter = 10 centiliters = 3.38 fl. ounces
1 liter = 10 deciliters = 33.81 fl. ounces
1 dekaliter = 10 liters = 2.64 gallons
1 hectoliter = 10 dekaliters = 26.42 gallons
1 kiloliter = 10 hectoliters = 264.18 gallons

Square Measure

1 sq. centimeter = 100 sq. millimeters = .155 sq. inch
1 sq. decimeter = 100 sq. centimeters = 15.5 sq. inches
1 sq. meter (centare) = 100 sq. decimeters = 10.76 sq. feet
1 sq. dekameter (are) = 100 sq. meters = 1,076.4 sq. feet
1 sq. hectometer (hectare) = 100 sq. dekameters = 2.47 acres
1 sq. kilometer = 100 sq. hectometers = .386 sq. mile

Cubic Measure

1 cu. centimeter = 1000 cu. millimeters = .06 cu. inch
1 cu. decimeter = 1000 cu. centimeters = 61.02 cu. inches
1 cu. meter = 1000 cu. decimeters = 35.31 cu. feet

Approximate Conversion Factors

To change	*To*	*Multiply by*	*To change*	*To*	*Multiply by*
inches	centimeters	2.540	ounce-inches	newton-meters	.007062
feet	meters	.305	centimeters	inches	.394
yards	meters	.914	meters	feet	3.280
miles	kilometers	1.609	meters	yards	1.094
square inches	square centimeters	6.451	kilometers	miles	.621
square feet	square meters	.093	square centimeters	square inches	.155
square yards	square meters	.836	square meters	square feet	10.764
square miles	square kilometers	2.590	square meters	square yards	1.196
acres	square hectometers	.405	square kilometers	square miles	.386
cubic feet	cubic meters	.028	square hectometers	acres	2.471
cubic yards	cubic meters	.765	cubic meters	cubic feet	35.315
fluid ounces	milliliters	29,573	cubic meters	cubic yards	1.308
pints	liters	.473	milliliters	fluid ounces	.034
quarts	liters	.946	liters	pints	2.113
gallons	liters	3.785	liters	quarts	1.057
ounces	grams	28.349	liters	gallons	.264
pounds	kilograms	.454	grams	ounces	.035
short tons	metric tons	.907	kilograms	pounds	2.205
pound-feet	newton-meters	1.356	metric tons	short tons	1.102
pound-inches	newton-meters	.11296			

Temperature (Exact)

°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C

PIN: 041726-000