

TM 55-1520-248-23-8-2

TECHNICAL MANUAL

**AVIATION UNIT AND
INTERMEDIATE
MAINTENANCE MANUAL**

**APPENDIX N (MAPS)
MAINTENANCE ACTION
PRECISE SYMPTOM**

**APPENDIX P
STANDARD TORQUE VALUES**

**APPENDIX Q
CORROSION CONTROL**

**APPENDIX R
SPECIAL MISSION**

**ARMY MODEL
OH-58D
HELICOPTER**

This manual together with TM 55-1520-248-23-8-1 supersedes TM 55-1520-248-23-8, dated 31 March 1992 Including all changes

This copy is a reprint which includes current pages from Change 1.

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

HEADQUARTERS, DEPARTMENT OF THE ARMY

4 APRIL 1994

CHANGE
NO. 4

TM 55-1520-248-23-8-2
C4
HEADQUARTERS
DEPARTMENTS OF THE ARMY
WASHINGTON, D.C., 28 July 1997

Aviation Unit and Intermediate
Maintenance Manual

ARMY MODEL
OH-58D HELICOPTER

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

TM 55-1520-248-23-8-2,4 April 1994, 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

iii and iv
N-765/(N-766 blank)
N-780.1 through N-780.4

Insert pages

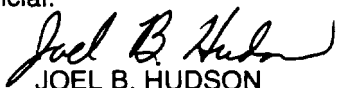
iii and iv
N-765/(N-766 blank)
N-780.1 through N-780.4
N-943 through N-1166
N-1167/(N-1168 blank)

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

TM 55-1520-248-23-8-2
C4

By Order of the Secretary of the Army:

Official:



JOEL B. HUDSON

*Administrative Assistant to the
Secretary of the Army*

03970

DENNIS J. REIMER
*General, United States Army
Chief of Staff*

DISTRIBUTION:

To be distributed in accordance with DA Form 12-31-E, block no. 3433, requirements for
TM 55-1520-248-23-8-2.

CHANGE

NO. 3

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., 15 September 1996

Aviation Unit and Intermediate
Maintenance Manual

**ARMY MODEL
OH-58D HELICOPTER**

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

TM 55-1520-248-23-8-2, 4 April 1994, 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

N-780.1 and N-780.2
N-780.3/(N-780.4 blank)
N-839 and N-840
N-935 and N-936


Insert pages

N-780.1 and N-780.2
N-780.3 through N-780.6
N-839 and N-840
N-935/(N-936 blank)

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

By Order of the Secretary of the Army:

Official:


JOEL B. HUDSON
Administrative Assistant to the
Secretary of the Army
02485

DENNIS J. REIMER
General, United States Army
Chief of Staff

DISTRIBUTION:

To be distributed in accordance with DA Form 12-31-E, block no. 3433, requirements for
TM 55-1520-248-23-8-2.

CHANGE

NO. 2

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D. C., 6 January 1995

**Aviation Unit and Intermediate
Maintenance Manual
for
ARMY MODEL
OH-58D HELICOPTERS**

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

TM 55-1520-248-23-8-2, 4 April 1994, 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 either a miniature pointing hand or a vertical bar in the margin.

Remove pages

i through iv
N-780.1 and N-780.2
N-780.3(N-780.4 blank)
N-789 and N-790
N-836.13 through N-836.16
N-837 through N-840
N-901 through N-904
N-922.1 and N-922.2
- - - - -
N-922.11 through N-922.14
N-924.1 and N-924.2
- - - - -
N-926.13/(N-926.14 blank)
N-933 through N-936

Insert pages

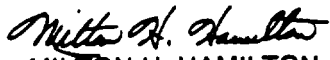
i through iv
N-780.1 and N-780.2
N-780.3/(N-780.4 blank)
N-789 and N-790
N-836.13 through N-836.16
N-837 through N-840
N-901 through N-904
N-922.1 and N-922.2
N-922.2.1/(N-922.2.2 blank)
N-922.11 through N-922.14
N-924.1 and N-924.2
N-924.2.1 and N-924.2.2
N-926.13/(N-926.14 blank)
N-933 through N-936

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

TM 55-1520-248-23-8-2
C2

By Order of the Secretary of the Army:

Official:


MILTON H. HAMILTON

*Administrative Assistant to the
Secretary of the Army*
08073

GORDON R. SULLIVAN
*General, United States Army
Chief of Staff*

DISTRIBUTION:

To be distributed in accordance with DA Form 12-31-E, block no. 3433, requirements for
TM 55-1520-248-23-8-2.

CHANGE

NO. 1

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

Aviation Unit and Intermediate
Maintenance Manual
for
ARMY MODEL
OH-58D HELICOPTERS

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

TM 55-1520-248-23-8-2, 4 April 1984, 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 either a miniature pointing hand or a vertical bar in the margin.

Remove pages

N-780.1 and N-780.2

- - - - -

N-781 and N-782

- - - - -

- - - - -

N-839 and N-840

- - - - -

- - - - -

N-841 and N-842

N-859 and N-860

- - - - -

- - - - -

- - - - -

N-883 and N-884

- - - - -

N-899 and N-900

- - - - -

N-901 and N-902

- - - - -

N-915 and N-916

- - - - -

- - - - -

N-917 and N-918

- - - - -

- - - - -

- - - - -

N-925 and N-926

- - - - -

- - - - -

- - - - -

Insert pages

N-780.1 and N-780.2

N-780.3/(N-780.4 blank)

N-781 and N-782

N-836.1 through N-836.16

N-836.17/(N-836.18 blank)

N-839 and N-840

N-840.1 through N-840.4

N-840.5/(N-840.6 blank)

N-841 and N-842

N-859 and N-860

N-868.1 through N-868.6

N-868.7/(N-868.8 blank)

N-882.1 and N-882.2

N-883 and N-884

N-896.1 and N-896.2

N-899 and N-900

N-900.1 through N-900.6

N-901 and N-902

N-914.1 and N-914.2

N-915 and N-916

N-916.1 and N-916.2

N-916.3/(N-916.4 blank)

N-917 and N-918

N-922.1 through N-922.24

N-922.25/(N-922.26 blank)

N-924.1 through N-924.10

N-925 and N-926

N-926.1 through N-926.12

N-926.13/(N-926.14 blank)

N-928.1 and N-928.2

Remove pages

- - - - -
- - - - -

Q-1/(Q-2 blank)
R-29 and R-30
R-51 through R-54
R-57 through R-64
R-71 and R-72
R-83 and R-84
R-93 and R-94
R-97 through R-102
R-105 through R-116

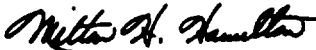
Insert pages

N-930.1 and N-930.2
N-933 through N-942
Q-1 through Q-28
R-29 and R-30
R-51 through R-54
R-57 through R-64
R-71 and R-72
R-83 and R-84
R-93 and R-94
R-97 through R-102
R-105 through R-116

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

By Order of the Secretary of the Army:

Official:


MILTON H. HAMILTON

*Administrative Assistant to the
Secretary of the Army*
07453

GORDON R. SULLIVAN
*General, United States Army
Chief of Staff*

DISTRIBUTION:

To be distributed in accordance with DA Form 12-31-E, block no. 3433, requirements for
TM 55-1520-246-23-6-2.

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.

**SAFETY STEPS
ELECTRICAL SHOCK**

Refer to FM 21-11 for electrical shock safety steps and procedures.

WARNING**HIGH VOLTAGE**

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

WARNING**HIGH VOLTAGE**

High voltage may be stored in the ignition system after operation of the APU. This high voltage can cause injury or death.

- Do not make contact with exposed wires or connectors.
- Allow at least five minutes after operation of the ignition system before disconnecting or removing ignition system components.
- Turn all power switches off before making any connections or disconnections.
- Observe instructions for grounding the power cable to discharge high voltage.
- For artificial respiration, refer to FM 21-11.

WARNING

PITOT HEAT

The pitot tube assembly is very hot during and immediately after operation requiring pitot heat. Severe burns will result if contacted by hands or other parts of the body.

WARNING

LUBRICATING OILS HAZARDOUS

Lubricating oils MIL-L-7808 and MIL-L-23699 contain materials hazardous to health. They can cause paralysis if swallowed. Prolonged contact with skin can cause irritation. Fire can result if exposed to heat or flames.

- Use only in areas with adequate ventilation
- Wash hands thoroughly after handling.

WARNING

BATTERY ELECTROLYTE

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, severe skin burns will result. Immediately start flushing the affected area with clean water and continue flushing until medical assistance arrives.

WARNING
RADIATION HAZARD



SELF-LUMINOUS DIALS

Self-luminous instrument dials contain radioactive materials

- If glass is broken or case becomes unsealed, avoid personal contact. Injury to personnel could result.
- Forceps or gloves made of rubber or polyethylene shall be used to pick up contaminated material.

SELF-LUMINOUS DIALS (CONT)

- 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.
- Repair procedure shall conform to requirements in AR 700-52.

WARNING**POISONOUS LEAD OXIDE**

Poisonous lead oxide is a byproduct of fuels containing tetraethyl lead. Death or injury can result if this lead oxide is taken into the body through cuts or other external openings, or if inhaled,

- Wear rubber gloves and goggles when handling contaminated parts.
- If accidental exposure occurs, drench affected areas with large amounts of clear water.
- Obtain immediate medical attention

WARNING**TOXIC AND FLAMMABLE SOLVENTS**

Solvents used for cleaning are toxic and flammable. They irritate skin and cause burns. Fire can result from use near heat or open flame.

- Use only in a well-ventilated area.
- Wear rubber gloves
- In case of contact, immediately flush skin or eyes with water for at least 15 minutes.
- Get immediate medical attention for eyes.



To look along the axis of a laser beam without protective glasses is extremely dangerous. Serious eye injury will result. Align the laser so that personnel are unlikely to inadvertently look along the axis of its beam.

Laser firing systems may store a charge. Take care to prevent accidental pulsing of the laser and to avoid electric shock. Personal injury may result.

Reflections from the laser beam are extremely dangerous. Serious eye injury will result. It is essential that all reflective material be removed from its path.

WARNING
SOLVENT

Drycleaning solvent is flammable and toxic. It can irritate skin and cause burns.

- Use only in well-ventilated area away from heat and open flame.
- Wear rubber gloves and goggles
- In case of contact, immediately flush skin or eyes with water for at least 15 minutes.
- Get medical attention for eyes.

WARNING
SOUND LEVEL

Sound pressure levels in this helicopter during operating conditions exceed the Surgeon General hearing conservation criteria. Hearing protection devices, such as aviator helmet or ear plugs or ear sound suppressors are required to be worn by all personnel in and around the helicopter during its operation.

WARNING
COMPRESSED AIR

Compressed air is dangerous when directed toward yourself or another person. The airstream or material blown by the airstream can cause injury, particularly to the eyes or face.

- Use goggles to protect eyes and face.
- Do not exceed 30 psig.
- Do not direct airstream toward yourself or another person.

WARNING
TOXIC AND FLAMMABLE FUELS

Turbine fuels and fuel fumes are flammable. They cause drying and irritation of skin or eyes.

- Handle only in well-ventilated areas away from heat and open flame.
- Store in approved metal safety containers.
- Avoid prolonged or repeated contact with skin.
- Do not take internally.
- Wash contacted areas of skin after handling.
- Get immediate medical attention for eyes and irritated skin.

WARNING
METHYL-ETHYL-KETONE (MEK)

MEK is flammable and toxic.

- It can irritate and cause burns.
- Use only in well-ventilated areas, away from heat or open flame.
- Wear rubber gloves and goggles.
- In case of contact, immediately flush skin or eyes with water for at least 15 minutes.
- Get medical attention for eyes.

WARNING

STRAY VOLTAGE

Stray voltages may exist in electronic equipment installed in the helicopter. These voltages present an explosive hazard to fuel and fuel fumes. Severe injury or death could result.

WARNING

MAIN AND TAIL ROTOR BLADES

Stay clear of turning main and tail rotor blades. Wind gusts, coast down or cyclic movement may cause the main rotor blade to flap down below the height of a person. Dangerous winds are created by the main rotor blades when blades are operated at or near top rpm. Adequate distance must be maintained from main and tail rotor blades during operation. Severe injury or death may result.

WARNING

ARMAMENT

Loaded weapons, or weapons being loaded or unloaded, shall be pointed in a direction which offers the least exposure to personnel or property in the event of accidental firing. Personnel should remain clear of hazardous area of all loaded weapons. Death or severe injury may result.

WARNING

HF ANTENNA

Ensure that HF antenna is not operating while performing maintenance. When operating, HF antenna emits infrared radiation that can cause radiation burns. If exposed to infrared radiation, seek medical aid immediately.

WARNING

ASBESTOS DUST

Avoid creating dust. Breathing asbestos dust may cause serious bodily harm.

AVIATION UNIT AND INTERMEDIATE MAINTENANCE MANUAL

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located in back of this manual direct to: Commander, U.S. 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		PAGE
	HOW TO USE THIS MANUAL	v
CHAPTER 1	INTRODUCTION	
Section I	General information	1-2
Section II	Equipment Description and Data	1-4
Section III	Principles of Operation	1-16
Section IV	Servicing	1-55
Section V	Lubrication	1-91
Section VI	Ground Handling and Jacking	1-98
Section VII	Mooring	1-124
Section VIII	Hoisting and Sling Loading	1-153
Section IX	Preventive Maintenance Inspections	1-177
Section X	Overhaul and Retirement Schedule.	1-207
Section XI	Flight Safety Parts	1-209
CHAPTER 2	AIRFRAME	
Section I	Fuselage	
Section II	Tailboom	2-186
Section III	Pylon	2-280
CHAPTER 3	ALIGHTING GEAR	
SECTION I	Landing Gear	3-2
CHAPTER 4	POWER PLANT	
Section I	Engine Assembly	4-2
Section II	Air Induction	4-47
Section III	Exhaust System	4-63
Section IV	Engine Oil System	4-68
Section V	Ignition System	4-98.4
Section VI	Power Plant Controls	4-99
Section VII	Engine Mounts	4-135
Section VIII	Forward Firewall	4-177
Section IX	Aft Firewall	4-191

CHAPTER 5	ROTORS	
Section I	Main Rotor Hub and Blade Assembly	5-2
Section II	Main Rotor Rotating Controls	5-158
Section III	Main Rotor Tracking and Dynamic Balancing	5-302
Section IV	Tail Rotor Hub and Blades	5-336
Section V	Tail Rotor Pitch Change Mechanism	5-407
Section VI	Tail Rotor Balancing.. . . .	5-470
CHAPTER 6	DRIVE TRAIN SYSTEM	
Section I	Troubleshooting	6-2
Section II	Engine to Transmission Driveshaft	6-19
Section III	Transmission	6-28
Section IV	Standpipe Electrical Assembly, Torquemeter System, and Main Rotor Mast Assembly	6-80
Section V	Freewheeling Unit	6-167
Section VI	Tail Rotor Driveshafts	6-218
Section VII	Tail Rotor Gearbox	6-290
Section VIII	Oil System	6-314
CHAPTER 7	HYDRAULIC SYSTEM	
Section I	Operational Check and Troubleshooting	7-2
Section II	Hydraulic System Bleeding	7-11
Section III	Hydraulic Filter Assemblies	7-14
Section IV	Hydraulic Hoses, Lines, Fittings and Quick-Disconnects	7-22
Section V	Pressure Switch, Manifolds and Relief Valve	7-34
Section VI	Hydraulic Solenoid Valve	7-46
Section VII	Hydraulic Reservoir	7-57
Section VIII	Hydraulic Pump	7-73
Section IX	Actuators	7-87
CHAPTER 8	INSTRUMENT SYSTEMS	
Section I	Engine, Rotor and Transmission Instruments	8-2
Section II	Flight Instruments	8-37
Section III	Pitot-Static instrument and Air Data Systems	8-55
Section IV	Navigation Instruments	8-87
Section V	Miscellaneous Instruments	8-88
CHAPTER 9	ELECTRICAL SYSTEM	
Section I	Operational Checks — Electrical	9-2
Section II	Troubleshooting —Electrical Systems.	9-382
Section III	Direct Current Power and Distribution System	9-383
Section IV	Alternating Current Power and Distribution System	9-506
Section V	Lighting System	9-576
Section VI	Miscellaneous Electrical Equipment	9-655
Section VII	Power Plant and Transmission Electrical Equipment	9-1030
Section VIII	Avionic Cooling System	9-1081
Section IX	Armament Electrical Equipment	9-1114
CHAPTER 10	FUEL SYSTEM	
Section I	Fuel System	10-2
Section II	Fuel Cell	10-61

CHAPTER 11	FLIGHT CONTROLS	
Section I	Flight Controls Troubleshooting.....	11-2
Section II	Rigging.....	11-2.1
Section III	Collective Controls.....	11-31
Section IV	Cyclic Control System.....	11-182
Section V	Directional Controls.....	11-392.11
Section VI	Component Inspection.....	11-486
CHAPTER 12	UTILITY SYSTEM (Not Applicable).....	12-1
CHAPTER 13	ENVIRONMENTAL CONTROL SYSTEM	
Section I	Heating System.....	13-2
Section II	Ventilating System.....	13-30
CHAPTER 14	HOIST AND WINCHES (Not Applicable).....	14-1
CHAPTER 15	AUXILIARY POWER PLANTS (Not Applicable).	15-1
CHAPTER 16	MISSION EQUIPMENT	16-1
Section I	Armament Operational Checks	16-2
Section II	Armament Maintenance Procedures.....	16-109
Section III	Boresight Procedures	16-230
CHAPTER 17	EMERGENCY EQUIPMENT	
Section I	Fire Extinguisher and First Aid Kit	17-2
CHAPTER 18	INSTALLED AVIONICS EQUIPMENT (Not Applicable)	18-1
APPENDIX A	REFERENCES.	A-1
APPENDIX B	MAINTENANCE ALLOCATION CHART (MAC).....	B-1
APPENDIX C	HELICOPTER INVENTORY MASTER GUIDE.....	C-1
APPENDIX C.1	HELICOPTER INVENTORY MASTER GUIDE (R)	C.1-1
APPENDIX D	EXPENDABLE SUPPLIES AND MATERIALS LIST.....	D-1
APPENDIX E	STORAGE OF HELICOPTER	E-1
Section I	General Information.....	E-1
Section II	Flyable Storage.....	E-4
Section III	Short Term Storage.....	E-7
Section IV	Intermediate Storage.....	E-16
APPENDIX F	WIRING DIAGRAMS.....	F-1
APPENDIX F.1	WIRING DIAGRAMS DATA (R).....	F.1-1
APPENDIX G	WEIGHT AND BALANCE.....	G-1
Section I	General Information	G-1
Section II	Instructions for Use of Forms and Charts.....	G-2
Section III	Weighing Instructions	G-14

APPENDIX H	ILLUSTRATED LIST OF MANUFACTURED ITEMS (AVUM) (AVIM)	H-1
APPENDIX J	FAULT DETECTION LOCATION SYSTEM (FDLS) FAILURE CODES...	J-1
APPENDIX J.1	FAULT DETECTION LOCATION SYSTEM (FDLS) FAILURE CODES FOR OH58D (R)	J.1-1
APPENDIX K	OH 58D MAINTENANCE ACTION PRECISE SYMPTOM (MAPS)	K-1
Section I	Drive Train System (Chapter 6)	K-1
Section II	Hydraulic System (Chapter 7).....	K-17
Section III	Instrument Systems (Chapter 8).....	K-22
Section IV	Electrical System (Chapter 9)	K-57
Section V	Fuel System (Chapter 10).....	K-766
Section VI	Flight Controls (Chapter 11)	K-773
APPENDIX L	BATTERY TESTING AND SERVICING (Not Applicable)	L-1
APPENDIX M	SPECIAL PROCEDURES	M-1
Section I	Introduction	M-1
Section II	Equipment Requirements	M-2
Section III	Resistance Requirements	M-2
Section IV	Procedures	M-2
Section V	Test	M-29
APPENDIX N	OH-58D (I/R) MAINTENANCE ACTION PRECISE SYMPTOM (MAPS)....	N-1
Section I	Drive Train System (Chapter 6)	N-1
Section II	Hydraulic System (Chapter 7).....	N-17
Section III	Instrument Systems (Chapter 8).....	N-22
Section IV	Electrical System (Chapter 9)	N-57
Section V	Fuel System (Chapter 10).....	N-766
Section VI	Flight Controls (Chapter 11)	N-773
Section VII	Armament (Chapter 16)	N-781
APPENDIX P	STANDARD TORQUE VALUES	P-1
APPENDIX Q	CORROSION CONTROL.....	Q-1
Section I	Introduction	Q-1
Section II	Inspection and Corrosion Prone Areas	Q-1
Section III	Preventive Maintenance.....	Q-2
Section IV	Processes and Equipment Requirements.....	Q-3
Section V	Corrosion Prone Areas.....	Q-3
APPENDIX R	OH-58D (SPECIAL MISSION) HELICOPTERS.....	R-1
Section I	Maintenance Procedures	R-1
Section II	Wiring Diagrams	R-129
GLOSSARY	Glossary 1
INDEX	ALPHABETICAL	Index 1
FOLDOUTS	FP-1

HOW TO USE THIS MANUAL

1. GENERAL.

In order to do the job right, you must be able to find the information you need. Knowing how to use this manual is very important. You should know what the manual consists of, how it is put together, and how to use it.

2. ORGANIZATION.

a. The entire manual is made up of a set of CHAPTERS. They are numbered in Arabic numerals (1, 2, 3, 4, etc.).

b. Each chapter contains information on major helicopter systems.

c. Chapters are divided into SECTIONS. Sections are numbered in Roman numerals (I, II, III, IV, etc.).

d. Each section has information you need for doing any job.

3. PARAGRAPHS

a. Paragraphs are individually numbered by chapter and sequence. Illustrations are provided to make things clearer. Illustrations and index callouts apply to the text located on the same page as the illustration.

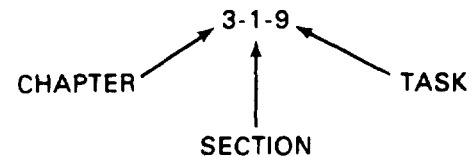
b. Paragraph numbers are assigned to each major information subject.

c. The task title (task name) is also at the top of the page.

4. NUMBERING.

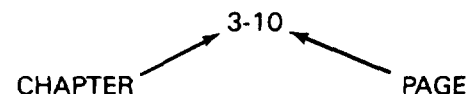
a. Paragraphs are numbered in two parts. The first number is the CHAPTER. The second number is the PARAGRAPH number in that chapter. Each number is separated by a dash.

b. Tasks are numbered in three parts. The first number is the CHAPTER. The second number is the SECTION, and the third is the TASK number in that section. Each number is separated by a dash as shown in the example.



5. PAGE NUMBERING.

All page numbering is by chapters. Section numerals are not included in page numbers. The first number is the number of the chapter; the second number is the number of the page in that chapter. The numbers are separated by a dash as shown in the example.



6. ALPHABETICAL INDEX.

a. The Alphabetical Index lists all the subjects of the manual in alphabetical order. If you know what you are looking for, it will be listed under the first letter of the first word in the title. For example: If You need information on the Tail Rotor Gearbox, look under "T", "R", or "G" in the Index.

b. The Alphabetical Index gives you the page number that has the information you need.

7. APPENDIXES.

a. Appendixes A through J are included in this manual to provide supplementary information required for maintenance. Each appendix contains specific instructions for its use.

b. Section III of Appendix B – Maintenance Allocation Chart – contains a list of the special tools and ground support equipment required for the OH-58D helicopter. The TOOL OR TEST EQUIPMENT REFERENCE CODE COLUMN has a number for each item on the list. This number appears as (B124) for example in identifying the particular tool or GSE in the setup table of the applicable task. Also, this number appears where applicable in Section II of Appendix B.

c. Appendix D — Expendable Supplies and Materials — contains a list of the adhesives, chemicals, etc., required to maintain the helicopter. The ITEM NUMBER column has a number for each item on the list. This number appears as (D4), for example, in identifying lockwire in the setup table of the applicable task. Also, this number appears as (D4) within the steps of the task.

8. GLOSSARY.

a. Many words have more than one meaning. A word that has a certain meaning in every day language may have a different meaning when used for the helicopter. This is the reason for the Glossary. If you see a word in the manual and you are not sure of the meaning, check the Glossary.

b. The Glossary also has a List of Abbreviations as they are used in this manual. It is always good

practice to look over the list. Make sure You know what each abbreviation stands for.

9. INITIAL SETUP (EXAMPLE NEXT PAGE).

The first page of each maintenance procedure in the manual is the Initial Setup. Always check the Initial Setup before starting a task on the helicopter. The Initial Setup contains information you must know. **DON'T START A TASK UNTIL:**

- a. You understand the task.
- b. You understand what you are to do.
- c. You know what is needed to do the work.

NOTE

A task requiring a pilot/maintenance test pilot to perform a MOC/MTF may not necessarily list either in the Initial Setup or Follow-on Maintenance. These requirements may be covered in other referenced tasks under Follow-on Maintenance.

- d. You have the things you need.

11-X-X. RIG CYCLIC CONTROLS

This task covers: Rigging (On Helicopter)

INITIAL SETUP

References:

Applicable Configurations:

TM 55-1520-248-MTF

All

Equipment Condition:

Tools:

Aircraft Mechanic Tool Kit
Rigging Bolt (B66)
Torque Wrench, 30-150 Inch-Pounds
Spring Scales 0-10 pounds.

Forward Fairing Removed (Task 2-1-21)
Collective Controls Rigged (Task 11-2-1)
CPO Collective Stick Removed (Task 11-3-17)
Crew Seats and Floor Panels Removed (Task 2-1-18)

General Safety Instructions:

Parts:

Cotter Pin (8)
Nut

WARNING

Personnel Required:

66S Scout Helicopter Technical Inspector
67S Scout Helicopter Repairer
Maintenance Test Pilot

Ensure that no one operates control from inside of helicopter during rigging of cyclic control system. Physical injury can occur. If injury occurs, seek medical aid.

Do not drop tools in center post (vertical tunnel). Tools can jam or damage controls, Loss of controls can result in helicopter crash and loss of lives.

APPENDIX N**OH-58D(I/R) MAINTENANCE ACTION PRECISE SYMPTOM (MAPS)****NOTE**

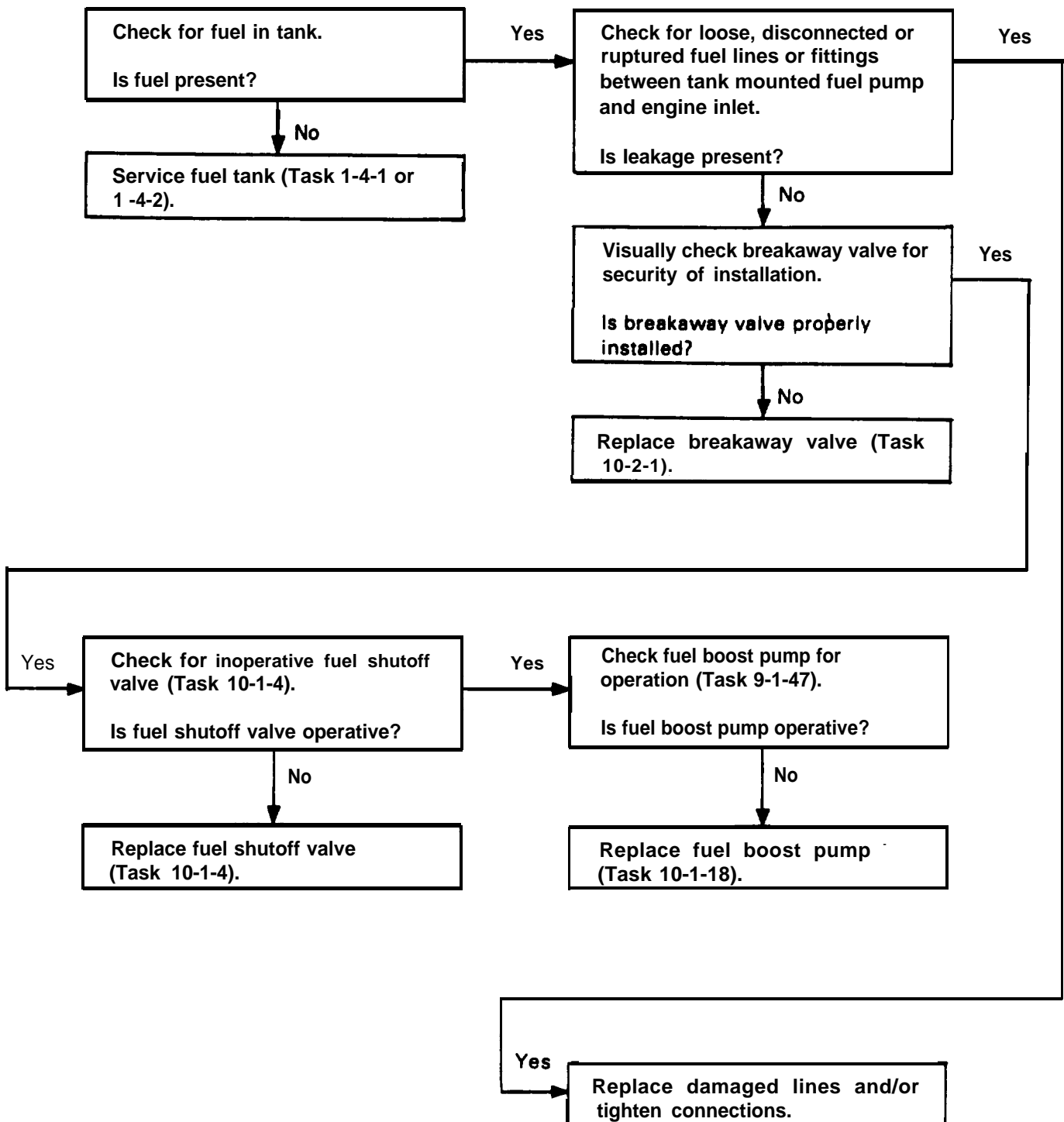
- Due to the quantity of material Appendix N has been volumized.
- Refer to Appendix K for OH-58D Maintenance Action Precise Symptom (MAPS).
- Sections 1 through IV of Appendix N are located in TM 55-1520-248-23-8-1.

Section V	Fuel System (Chapter 10)	N-765
Section VI	Flight Controls (Chapter 11)	N-773
Section VII	Hoists and Winches (Chapter 14)	N-780.1
Section VIII	Armament Systems (Chapter 16)	N-780.4
Section IX	Troubleshooting OH-58D (R) Helicopters	N-943

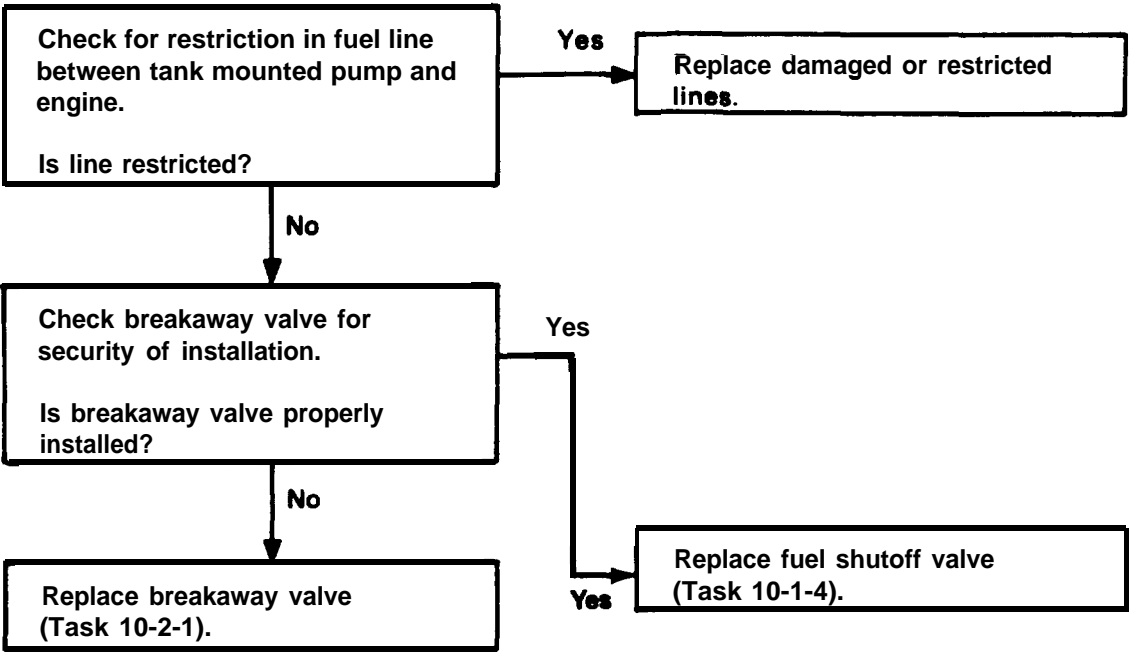
Section V. FUEL SYSTEM (CHAPTER 10)

MAPS NUMBER	SYMPTOM	PAGE NUMBER
1.	No Fuel Flow to Engine Driven Pump	N-767
2.	Fuel Flow to Engine Driven Pump Restricted	N-768
3.	Incorrect Capacitance Reading on Test Set	N-769
4.	Fuel Low Quantity Indication Inoperable	N-771

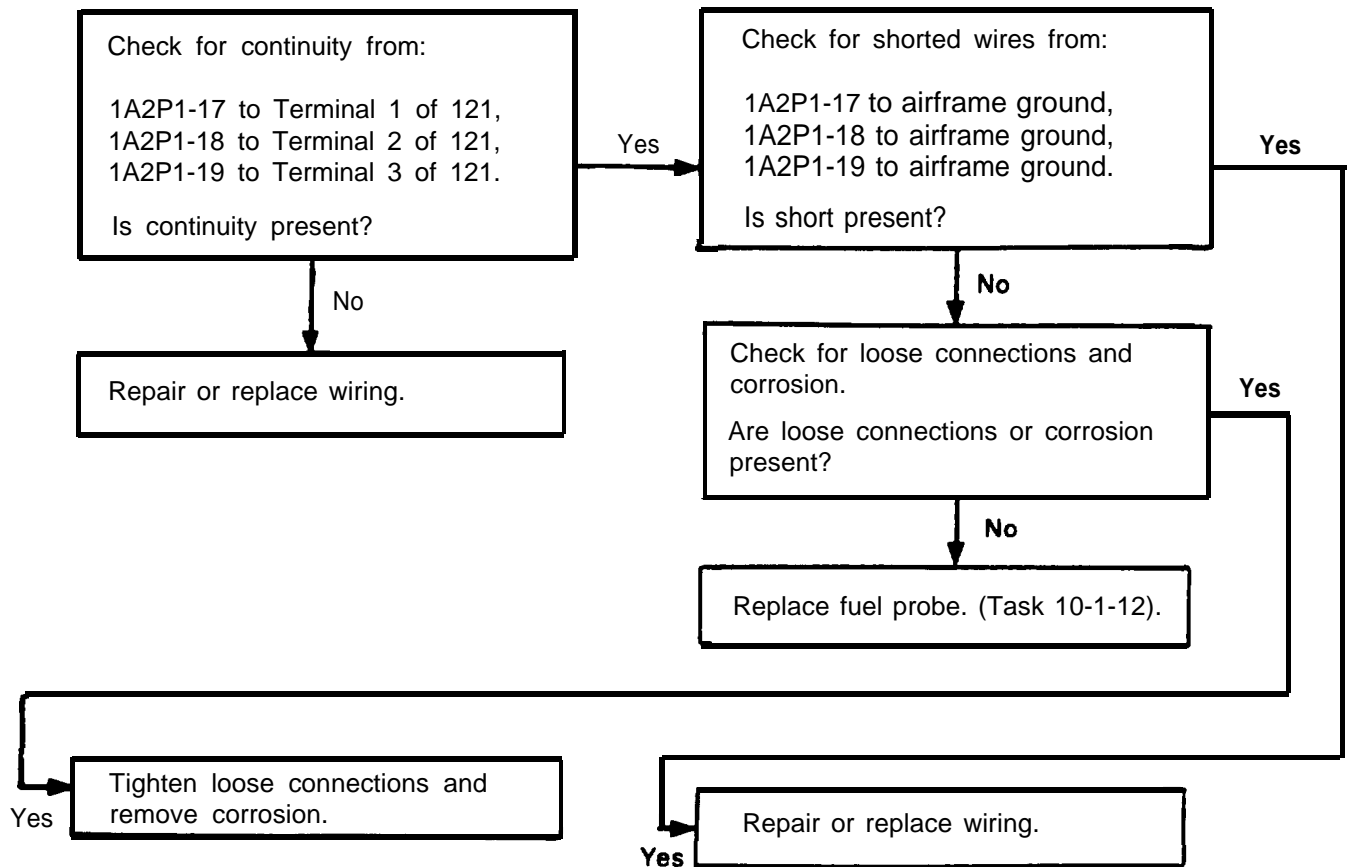
1. NO FUEL FLOW TO ENGINE DRIVEN PUMP



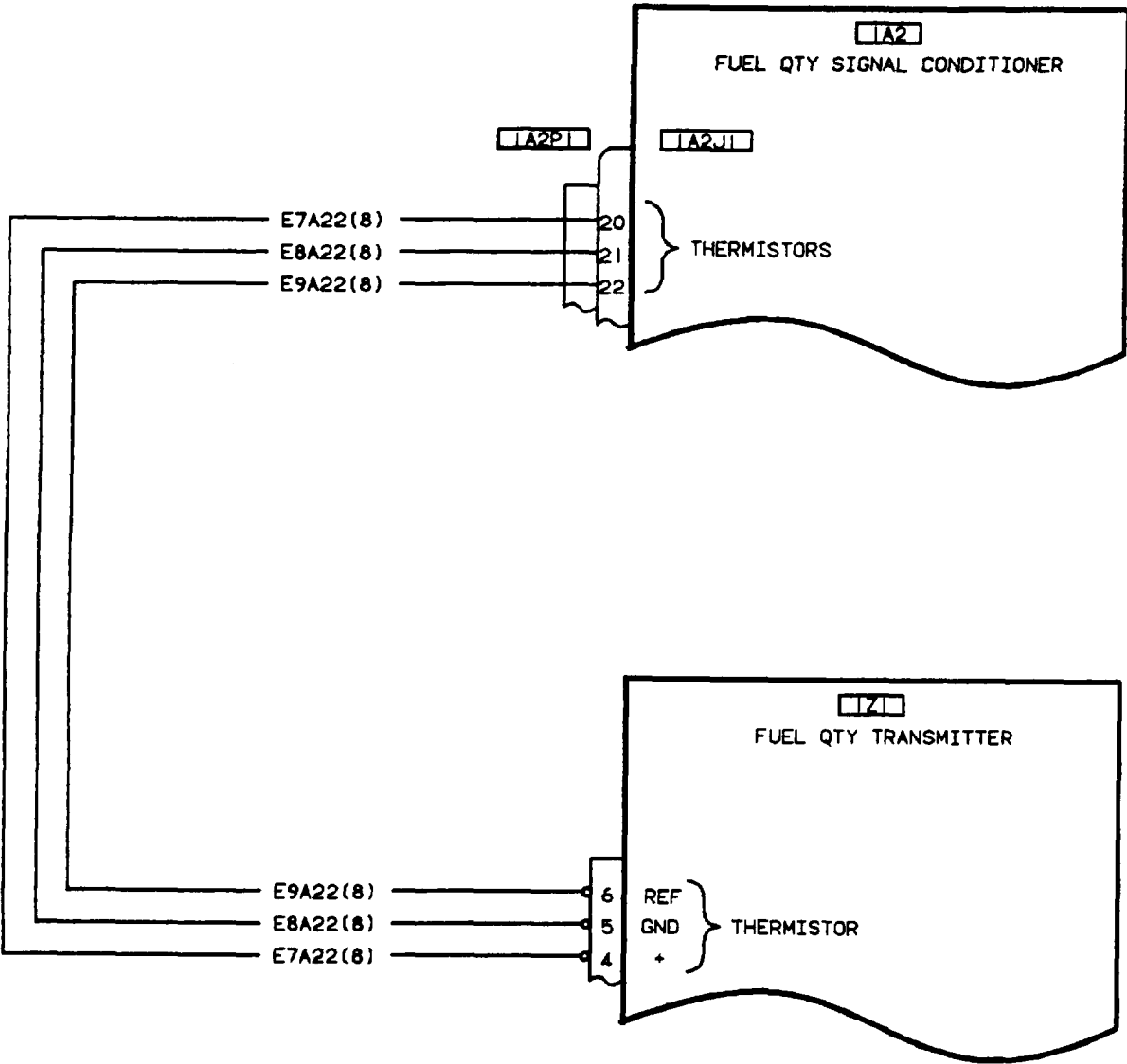
2. FUEL FLOW TO ENGINE DRIVEN PUMP RESTRICTED



3. INCORRECT CAPACITANCE READING ON TEST SET

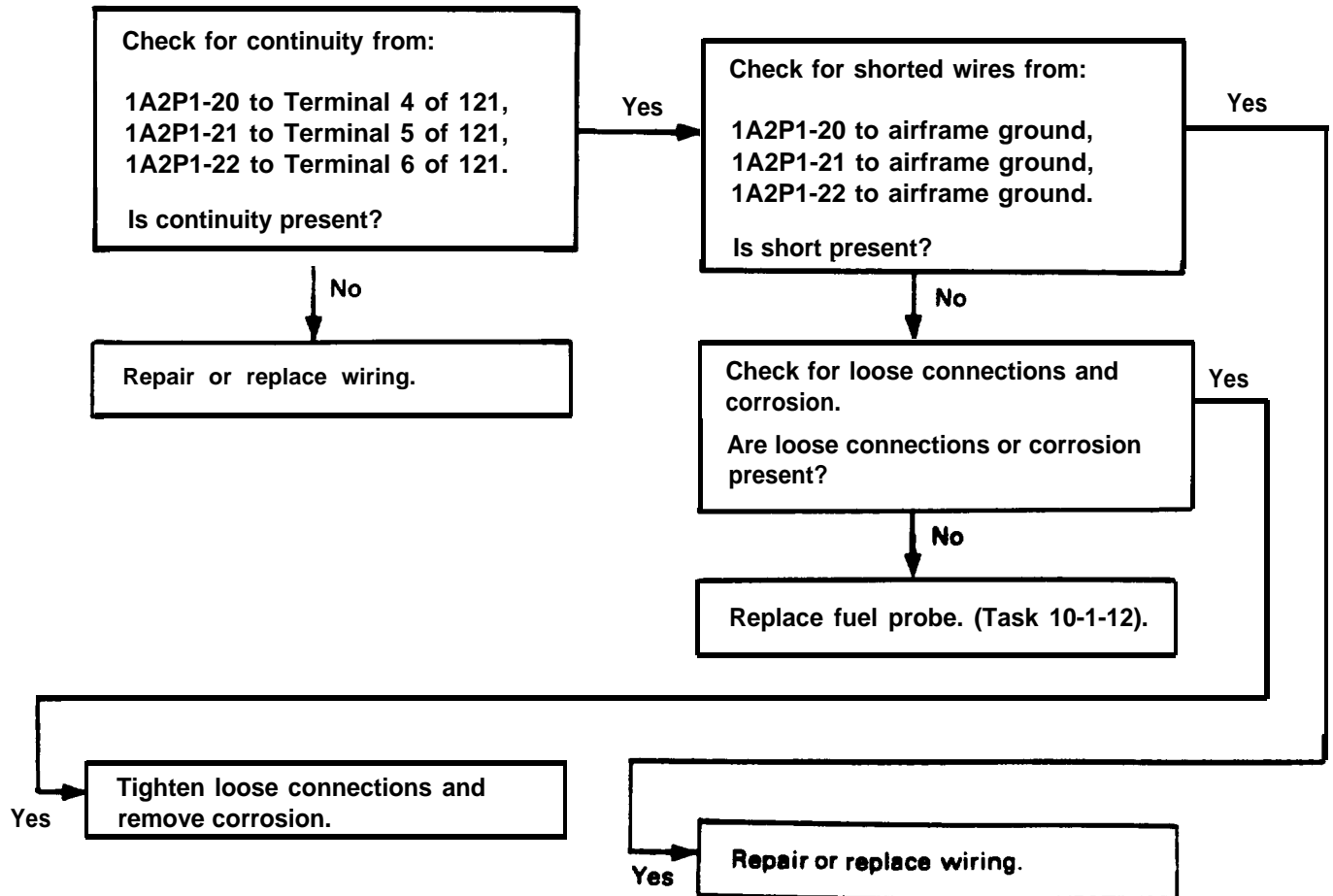


3. INCORRECT CAPACITANCE READING ON TEST SET (CONT)

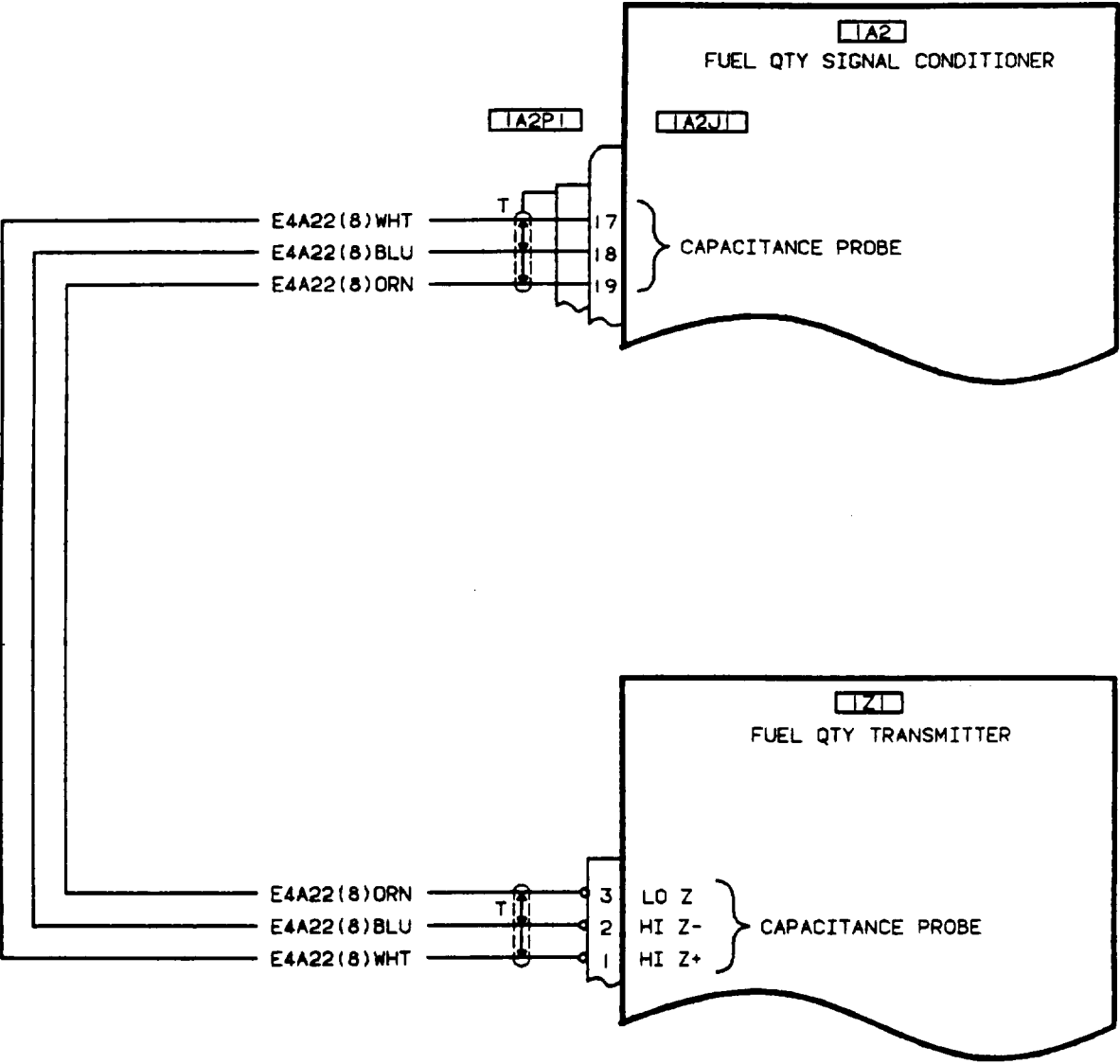


406475-445

4. FUEL LOW QUANTITY INDICATION INOPERABLE



4. FUEL LOW QUANTITY INDICATION INOPERABLE (CONT)

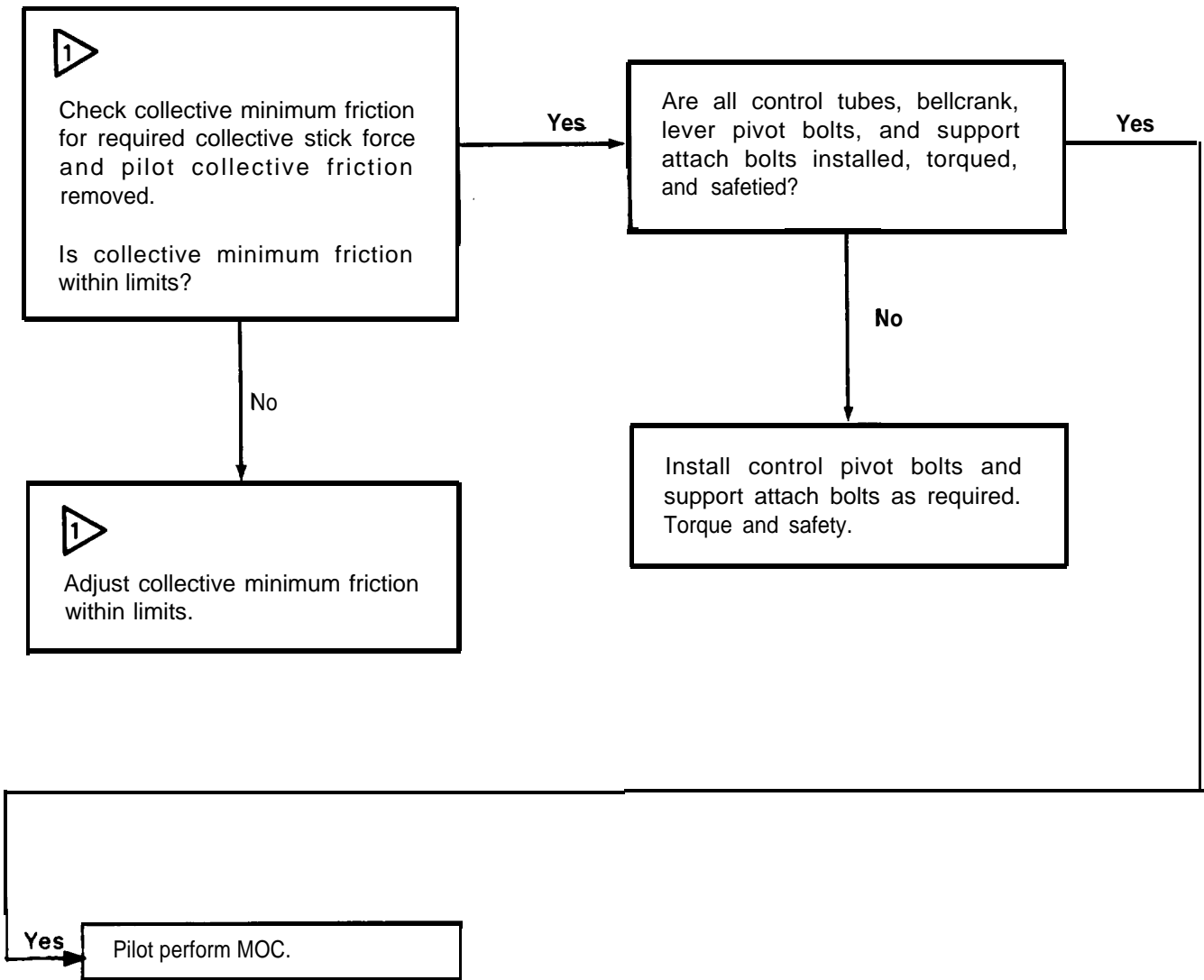



406475-446

Section VI. FLIGHT CONTROLS (CHAPTER 11)

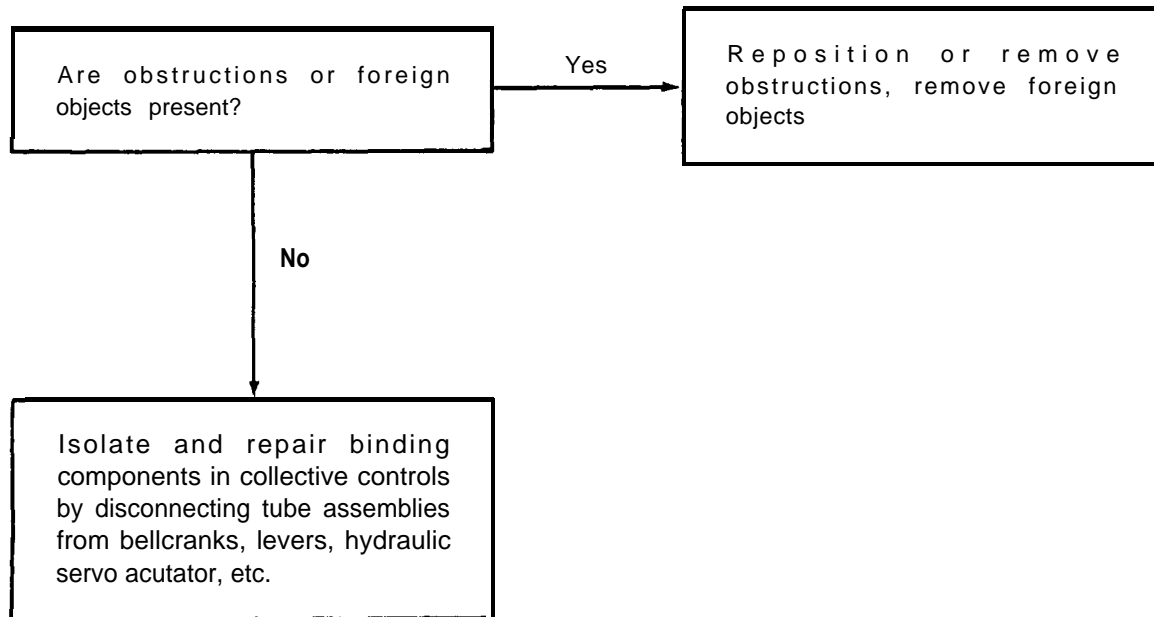
MAPS NUMBER	SYMPTOM	PAGE NUMBER
1.	Collective Controls Feel Loose.	N-774
2.	Collective Controls Binding.	N-775
3.	Cyclic Controls Feel Loose.	N-776
4.	Cyclic Controls Binding	N-777
5.	Directional Controls Feel Loose.	N-778
6.	Directional Control Pedals Motoring (Creeping).	N-779
7.	Directional Controls Binding.	N-780

1. COLLECTIVE CONTROLS FEEL LOOSE

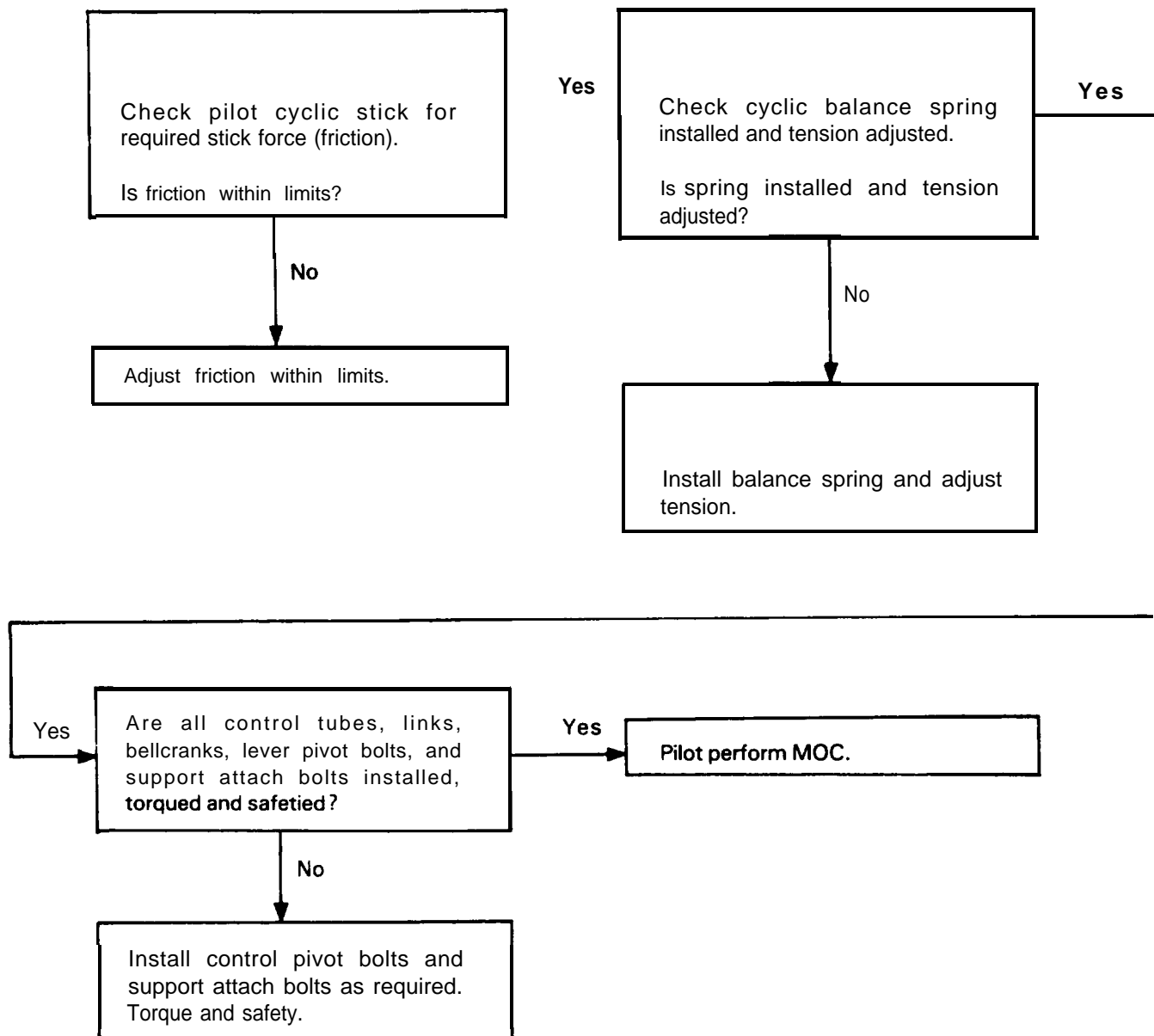


 Hydraulic test stand connected to helicopter and operating.

2. COLLECTIVE CONTROLS BINDING

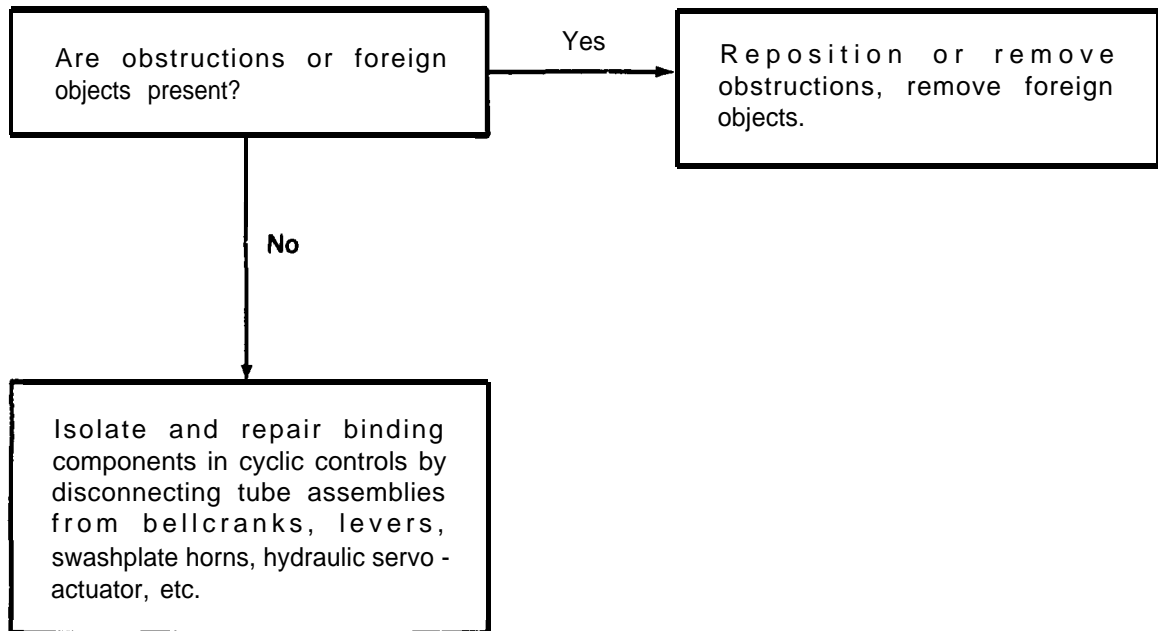


3. CYCLIC CONTROLS FEEL LOOSE

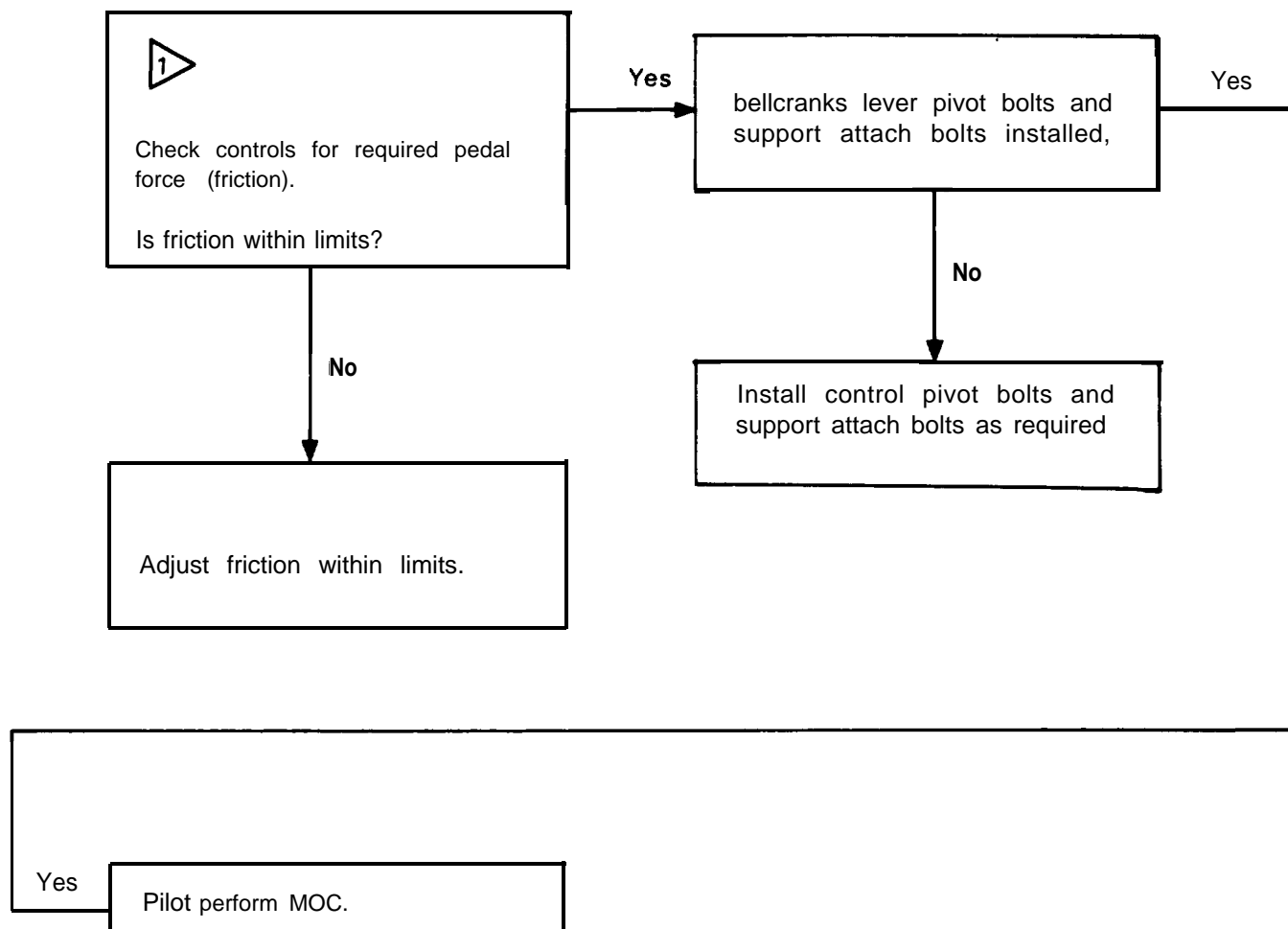


Hydraulic test stand connected to helicopter and operating.

4. CYCLIC CONTROLS BINDING

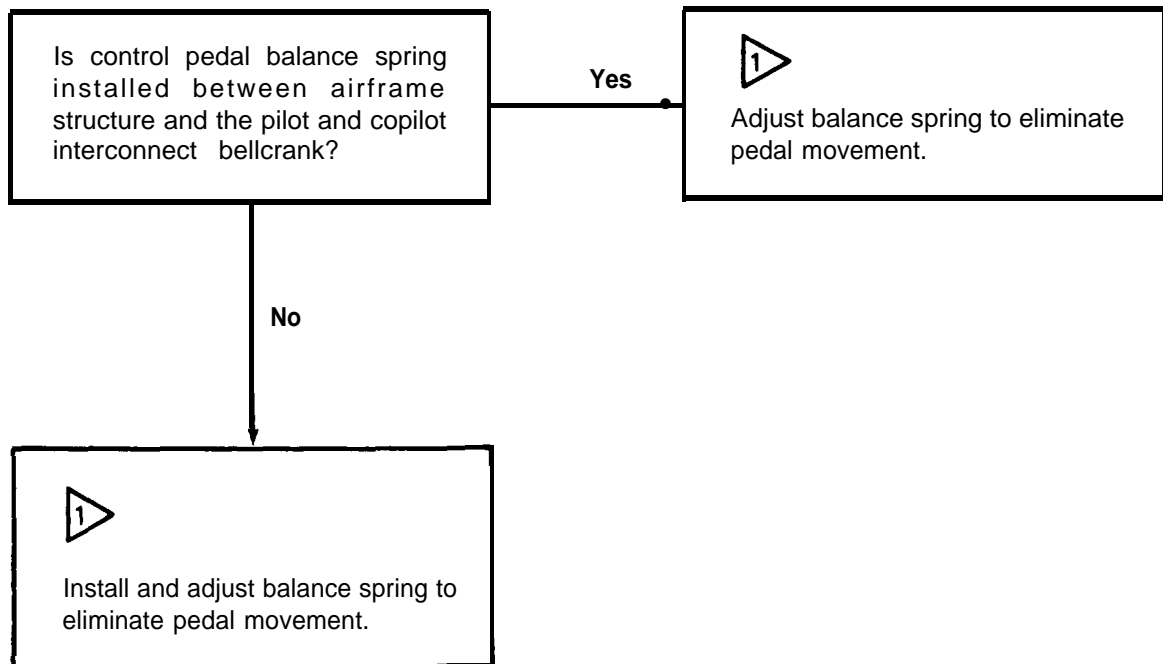


5. DIRECTIONAL CONTROLS FEEL LOOSE



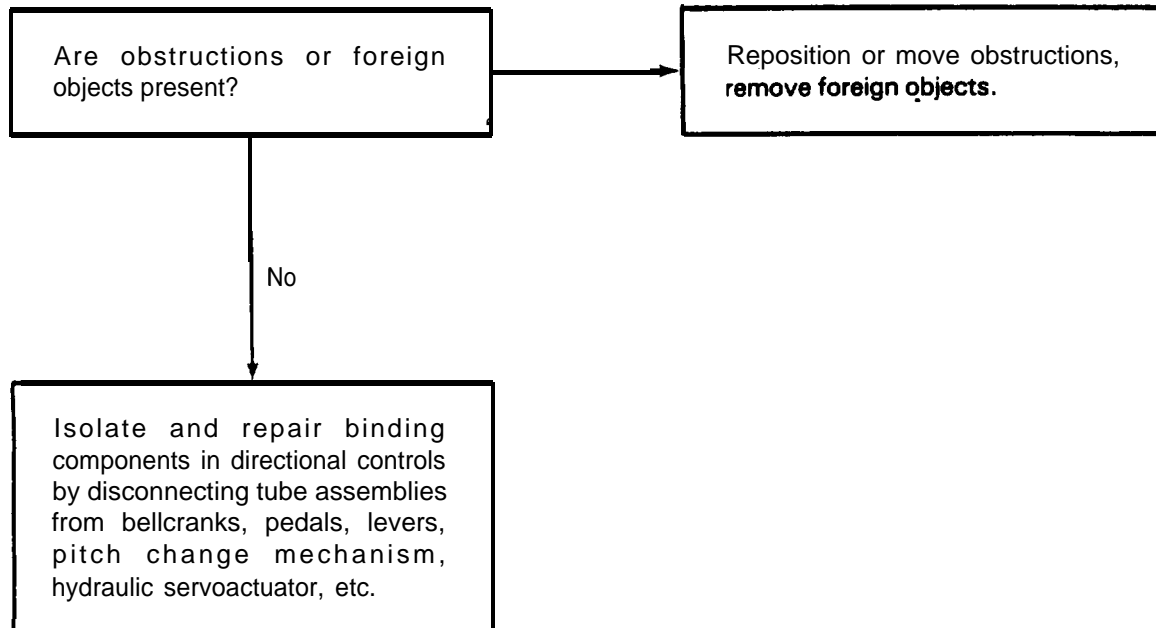
1 Hydraulic test stand connected to helicopter and operating.

6. DIRECTIONAL CONTROL PEDALS MOTORING (CREEP)



Helicopter test stand connected to helicopter and operating.

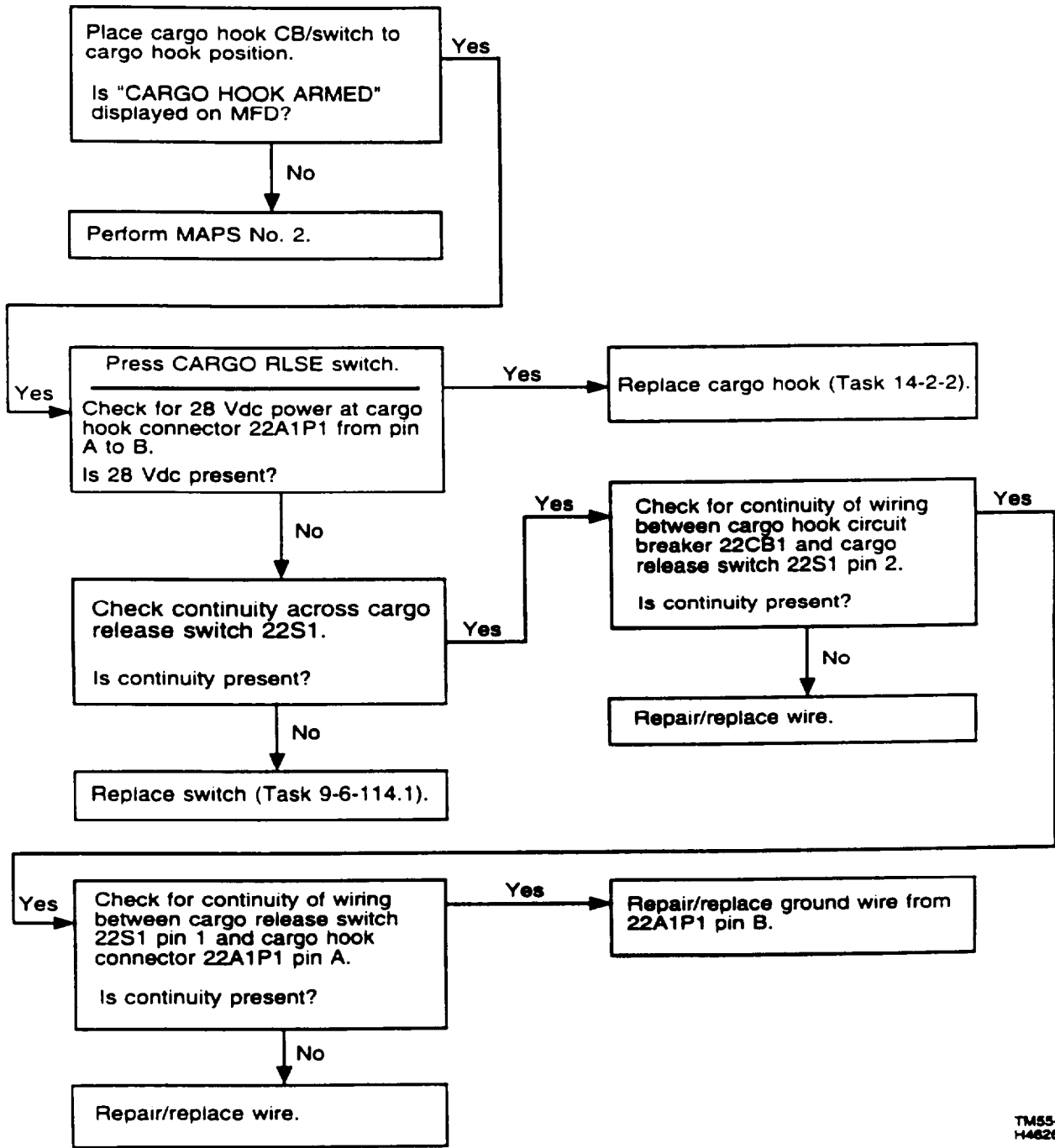
7. DIRECTIONAL CONTROLS BINDING



Section VII. HOISTS AND WINCHES (CHAPTER 14)

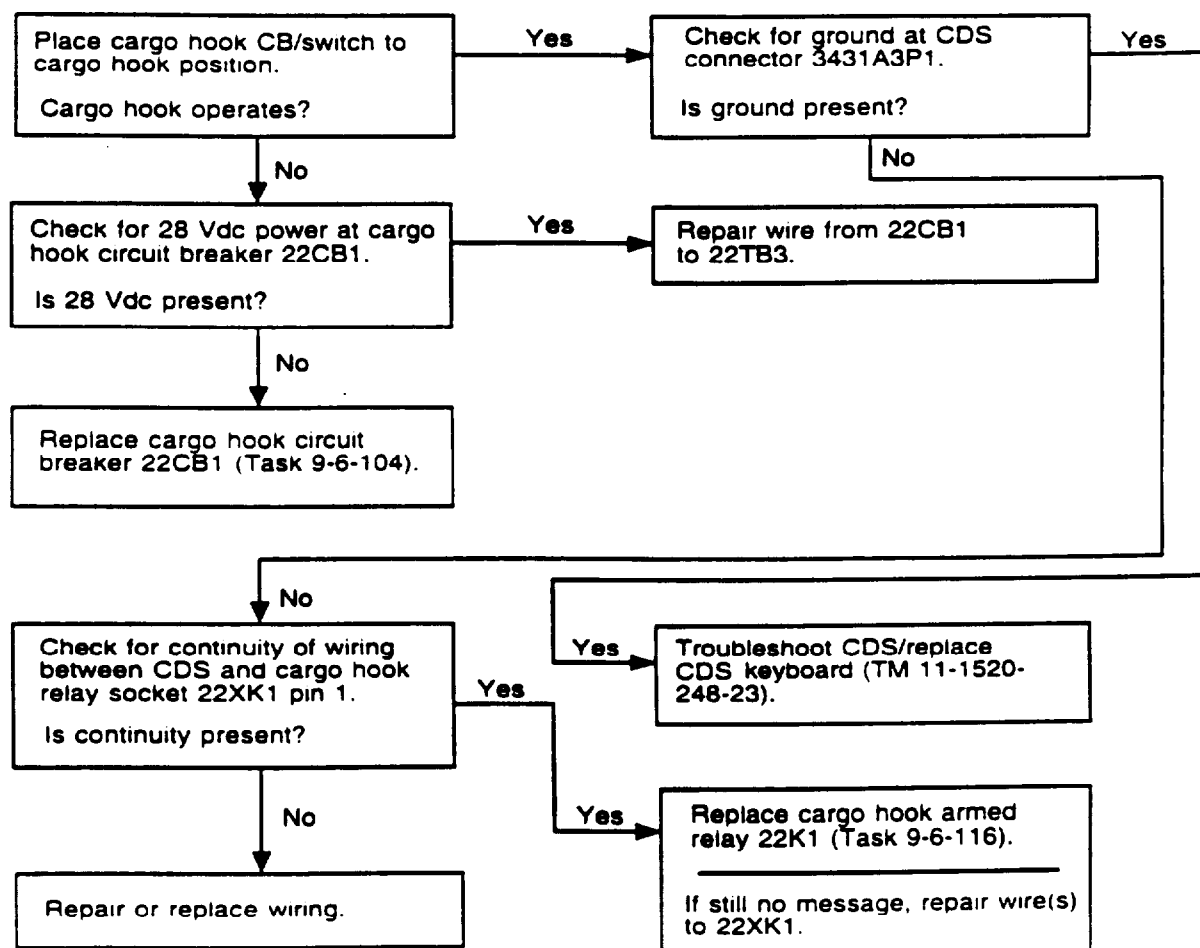
MAPS NUMBER	SYMPTOM	PAGE NUMBER
1.	Cargo Hook Inoperable	N-780.2
2.	No CARGO HOOK ARMED message displayed on MFD	N-780.3

1. CARGO HOOK INOPERABLE



TM55-248-CH1
H4626

2. NO CARGO HOOK ARMED MESSAGE DISPLAYED ON MFD

TM55-248-CH2
H4626

Section VIII. ARMAMENT SYSTEMS (CHAPTER 16)

Troubleshooting procedures are presented as a guide for locating and correcting malfunctions. Use of these procedures will reduce delays and maintenance down time and will minimize unnecessary replacement of electrical components.

WARNING

Helicopter armament safing procedure in task 1-6-17 must be accomplished before performing any troubleshooting procedures.

- 1. Four basic assumptions have been made in preparing these procedures:
 - a. Correct operating procedures or operational checks have been followed.
 - b. Problem is caused by a single failure or malfunction.
 - c. When any connector is disconnected, it will be checked for recessed or bent pins.
 - d. All continuity checks are to include checks from applicable pins to ground and to adjacent pins to verify no unintentional grounds or shorts.
- 2. When a repair, replacement, adjustment, or other maintenance is performed, you must demonstrate that the original problem has been corrected by performing an operational check (Chapter 16).

- 3. Ensure electrical power is off before doing continuity checks. Disconnect appropriate connector(s) as indicated in text prior to performing continuity or voltage checks.
- 4. When a repair, replacement, or maintenance action is performed or the troubleshooting logic tree ends with "Return system to service", you must demonstrate that the original problem has been corrected by performing an operational check. System components and wiring must be restored before performing an operational check.
- 5. Reference designator numbers contained in troubleshooting logic trees are keyed to wiring diagram reference designators.
- 6. Repairing or replacing wires consists of checking and replacing connectors or repairing/replacing accessible wires. If wire(s) are not accessible, reroute replacement wire(s) and attach to connector pins/terminals (it is not necessary to cut into wire bundles but must be routed with same category wires and clamping arrangement). Refer to wire repair and replacement, Appendix F.
- 7. LRU and connector locations are shown in table F-1 (equipment lists), Appendix F.
- 8. When instructions are given to "replace" a part, the part may be repaired in lieu of replacement, provided that repair is authorized. (See Maintenance Allocation Chart, Appendix B).

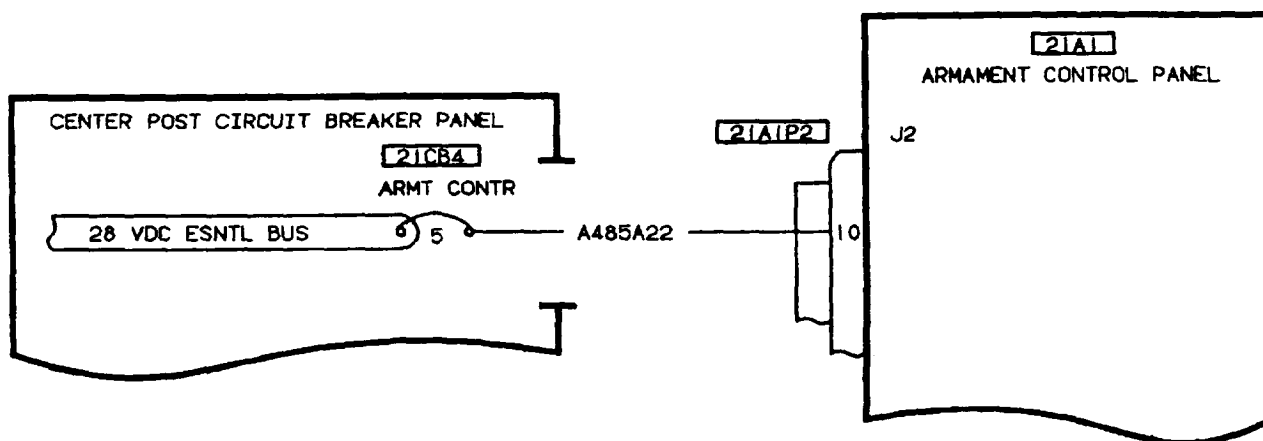
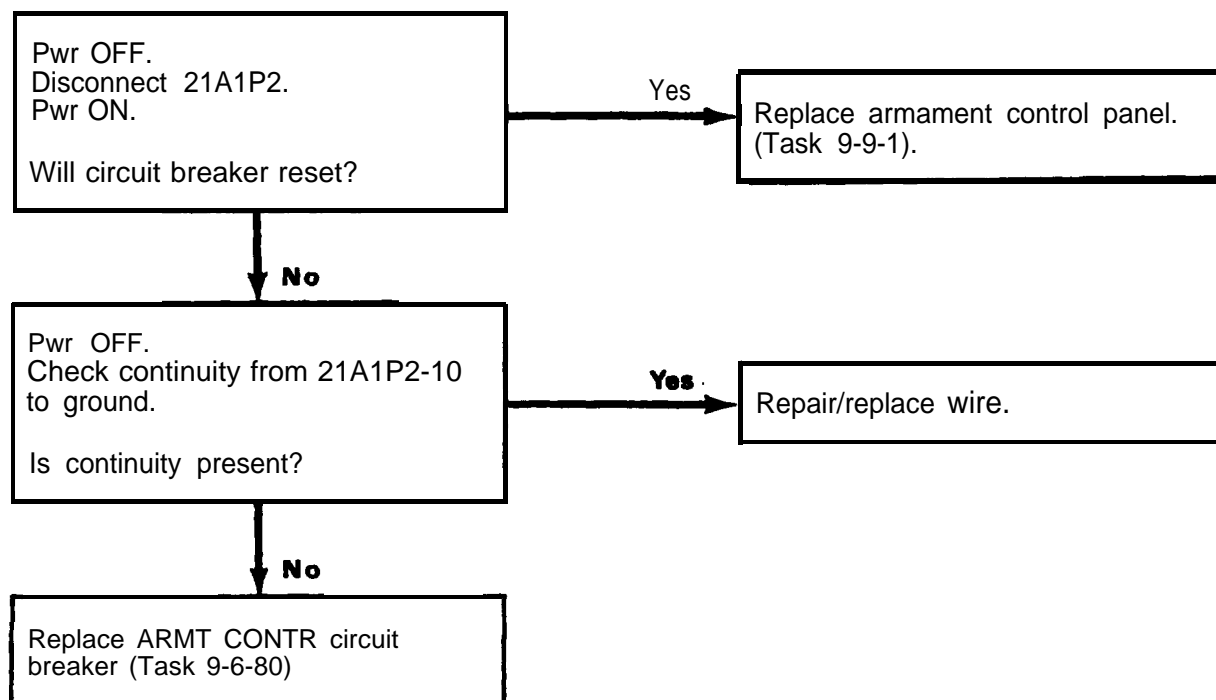
MAPS NUMBER	SYMPTOM	PAGE NUMBER
The task number referenced in the symptom column is the related operational check in Chapter 16.		
GENERAL:		
1	Armament control circuit breaker will not reset (Task 16-1-1)	N-782
2	Reticle not displayed on PDU (Task 16-1-1)	N-783
3	TEST not displayed on PDU (Task 16-1-1)	N-788
4	WEAPONS PAGE not displayed on MFD (Task 16-1-3)	N-789
5	Gun symbology not displayed on MFD (Task 16-1-3)	N-791
6	GUN WEAPONS PAGE not displayed on CPO MFD (Task 16-1-3)	N-792
7	GUN VSD PAGE not displayed on MFD (Task 16-1-3)	N-793
8	Gun fires with MASTER switch in STBY (Task 16-1-3)	N-795
9	Gun does not recock when GUN switch is toggled to RECOCK (Task 16-1-3)	N-797
10	Gun not in hold back with GUN switch in SAFE position (Task 16-1-3)	N-805

MAPS NUMBER	(Cont) SYMPTOM	PAGE NUMBER
11	Gun not in battery with GUN switch in ARMED position (Task 16-1-3)	N-807
12	Gun does not fire when WPN-FIRE switch is pressed to first detent (Task 16-1-3)	N-809
13	Gun does not fire when WPN-FIRE switch is pressed to second detent (Task 16-1-3)	N-813
14	Gun does not fire with ISP failed and WPN-FIRE switch pressed to second detent (Task 16-1-3)	N-816
15	Faulty armament cable assembly (GUN) (Task 16-1-3)	N-817
16	Faulty armament cable assembly (RCKT) (Task 16-1-5)	N-819
17	Faulty armament cable assembly (ATAS) (Task 16-1-2)	N-821
18	Faulty armament cable assembly (HELLFIRE) (Task 16-1-4)	N-824
19	Faulty jettison cable assembly (Task 16-1-6)	N-827
JETTISON FAULTS:		
20	Stores jettison upon power up (Task 16-1-6)	N-829
21	Stores fail to jettison (Task 16-1-6)	N-833
GUN FAULTS:		
22	Gun does not indicate as installed on the MFD (Task 16-1-3)	N-836.1
23	Gun shows as installed but does not operate (Task 16-1-3)	N-836.2
24	Gun will not respond to gun recock switch command (Task 16-1-3)	N-836.7
25	MFD ARM/SAFE does not respond properly to gun position (Task 16-1-3)	N-836.11
26	Gun does not fire limited burst in first detent (Task 16-1-3)	N-836.14
27	Gun does not fire in second detent (Task 16-1-3)	N-837
28	Gun rounds counter does not decrement properly (Task 16-1-3)	N-840
29	Gun charger will not go forward from SAFE (Task 16-1-3)	N-840.2
ROCKETS FAULTS:		
30	MFD does not indicate rocket system installed (Task 16-1-5)	N-840.5
31	Rockets show as installed, but do not operate (Task 16-1-5)	N-842
32	Rockets show "SAFE" when selected and ARMED (Task 16-1-5)	N-847
33	Rocket squib does not fire when system is armed and selected and FIRE switch is pressed (Task 16-1-5)	N-852
34	Rocket fuse time for manual setting does not agree with MFD (Task 16-1-5)	N-859
36	All or a single rocket will not fuse (Task 16-1-5)	N-863
37	Rockets fire in pairs when single is selected (Task 16-1-5)	N-866
38	Rockets fire in singles when RIPL singles is selected (Task 16-1-5)	N-867
39	Rockets show RKTs OFF on MFD when selected, armed, and able to be fired (Task 16-1-5)	N-868
40	Rockets display SAFED on MFD when selected (Task 16-1-5)	N-868.1
41	Rockets fire in zones not selected to fire (Task 16-1-5)	N-869
42	Rockets fire in both zones when single is selected (Task 16-1-5)	N-870
ATAS FAULTS:		
43	Missile does not activate (spin up/cool) due to signal failure (Task 16-1-2)	N-871
44	Missile fails to uncage due to signal failure (Task 16-1-2)	N-874
45	Missile fails to acquire (Task 16-1-2)	N-877
46	ATAS does not pass BIT on MFD (Task 16-1-2)	N-882
47	Missile activates but does not show on MFD (Task 16-1-2)	N-882.1
48	ATAS missile activates but does not display on PDU (Task 16-1-2)	N-883
49	ATAS tracking reticle on MFD does not correspond to target/seeker movement (Task 16-1-2)	N-884
50	ATAS tracking reticle on PDU does not correspond to target/seeker movement (Task 16-1-2)	N-889
51	System will not step to next missile (Task 16-1-2)	N-893
52	MFD does not indicate ATAS is installed (Task 16-1-2)	N-894

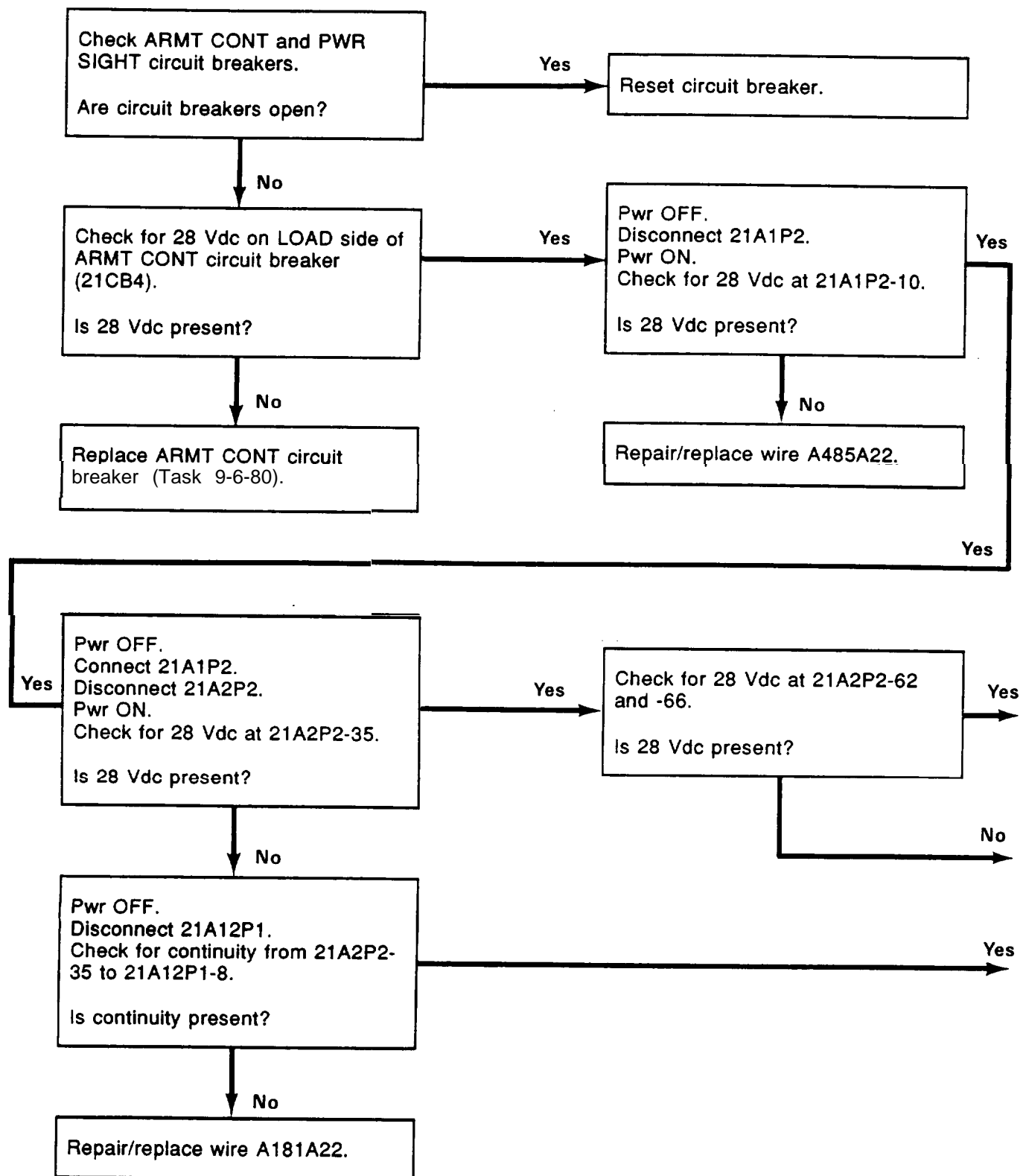
(Cont)		
MAPS NUMBER	SYMPTOM	PAGE NUMBER
53	PDU does not operate and MFD shows incorrect ATAS symbology (Task 16-1-2)	N-896
54	ATAS shows "SAFE" on MFD when selected and armed (Task 16-1-2)	N-896.1
55	No ATAS acquisition audio present when missile is activated (Task 16-1-2)	N-897
HELLFIRE FAULTS:		
56	HELLFIRE missile does not perform spin up (Task 16-1-4)	N-900
57	With HELLFIRE missiles installed and "ON", MFD does not display missile images and BIT cannot be initiated (Task 16-1-4)	N-900.6
56	HELLFIRE BIT legend not displayed on MFD WEAPONS BIT/SETUP page and incorrect symbology is displayed on WEAPONS VSD page (Task 16-1-4)	N-901
59	Missile does not perform proper box scan in LOBL (Task 16-1-4)	N-909
60	System will not step to next missile (Task 16-1-4)	N-913
61	Improper HELLFIRE missile quantity shown on MFD (Task 16-1-4)	N-914.1
62	MFD displays UNL when launchers are in latched position (Task 16-1-4)	N-915
63	MFD does not indicate HELLFIRE system is installed (Task 16-1-4)	N-916.3
64	MFD indicates HELLFIRE missile system is installed but system does not operate (Task 16-1-4)	N-918
65	HELLFIRE missile shows SAFE when armed and selected (Task 16-1-4)	N-921
66	MFD shows "SEL" then "MF" under HELLFIRE "MSL" image (Task 16-1-4)	N-922.1
67	HELLFIRE system fails launcher BIT (Task 16-1-4)	N-922.3
68	MFD displays HELLFIRE ARMED and READY, but cannot fire missile (Task 16-1-4)	N-922.11
MISSILE SIGHT SYSTEM (MSS) FAULTS:		
69	Pilot display unit (PDU) fails to power up (Task 16-1-1)	N-922.13
70	PDU displays vertical dashed line (Task 16-1-1)	N-922.16
71	MSS fails BIT (Task 16-1-1)	N-922.17
72	With ATAS AUTO CAGE selected, activating missile causes first missile to activate and then deactivate, and second missile to activate and then deactivate. Missile images remain, but cannot be reactivated (Task 16-1-2)	N-922.18
73	PDU does not display GUN reticle with gun installed and selected (PDU displays ATAS) (Task 16-1-2)	N-922.20
74	MSS fails to perform BIT (Task 16-1-1)	N-922.21
75	If BIT is initiated, PDU displays TEST for approximately 15 seconds, then PDU displays FAIL IEU (Task 16-1-1)	N-922.22
MSS/CDS FAULTS:		
76	ATAS tracking reticle does not appear on PDU when in manual with missile ARMED, selected, and FIRE switch pressed to the first detent (Task 16-1-2)	N-922.23
77	HELLFIRE missile will not fire (Task 16-1-4)	N-922.24
78	PDU displays GUN reticle with ATAS installed (Task 16-1-2)	N-923
79	RHE indicates NO GO on MUX bus status page (Task 16-1-1)	N-924.1
80	When MASTER ARM switch set to ARMED, ARMED indicator does not come on (Task 16-1-1)	N-924.3

MAPS NUMBER	(Cont) SYMPTOM	PAGE NUMBER
MSS GROWTH OPTION FAULTS:		
81	Tracker fail	N-924.5
82	MMS LASER fail	N-924.6
83	TB fail	N-924.7
84	Thermal imaging system (TIS) fail	N-924.8
85	Turret fail	N-924.9
OTHER FAULTS:		
86	ISP FAIL message displayed on MFDs (Task 16-1-1)	N-924.10
87	ATAS does not indicate low pressure on MFD when argon bottle is low (Task 16-1-2)	N-925
88	HELLFIRE SAFE/ARM switch on launcher electrically inoperative (Task 16-1-4)	N-926
89	Copilot cannot code MMS laser for HELLFIRE designation (Task 16-1-4)	N-926.2
90	ARM CONTROL breaker trips with MASTER ARM in STBY and ARM position (Task 16-1-1)	N-926.3
91	Weapon will not arm (Task 16-1-1)	N-926.8
92	Weapon will not fire (Task 16-1-1)	N-926.10
93	Cannot select installed weapon (Task 16-1-1)	N-926.12
94	Cannot access WEAPON page from copilot MFD (Task 16-1-1)	N-925.13
95	Cannot access any weapons VSD or sparse VSD page (Task 16-1-1)	N-926
96	Weapon fires on the ground (without weapon override ON) (Task 16-1-1)	N-928
97	Weapons fire in standby (Task 16-1-1)	N-928.1
98	All weapons fire in first detent (Task 16-1-1)	N-929
99	MFD does not respond to weapons. ISP shows NO GO on MUX status page (Task 16-1-1)	N-930.1
100	Cannot access weapons BIT/SETUP on copilot MFD (Task 16-1-1)	N-931
101	Low is not indicated on PDU when argon bottle pressure is low (Task 16-1-2)	N-932
ALTERNATE FAULTS:		
102	Sight electronics unit circuit breaker trips (Task 16-1-1)	N-933
103	Cannot access WEAPONS page on pilot MFD (Task 16-1-1)	N-938
108	Arm control breaker trips with MASTER ARM in ARM position	N-940

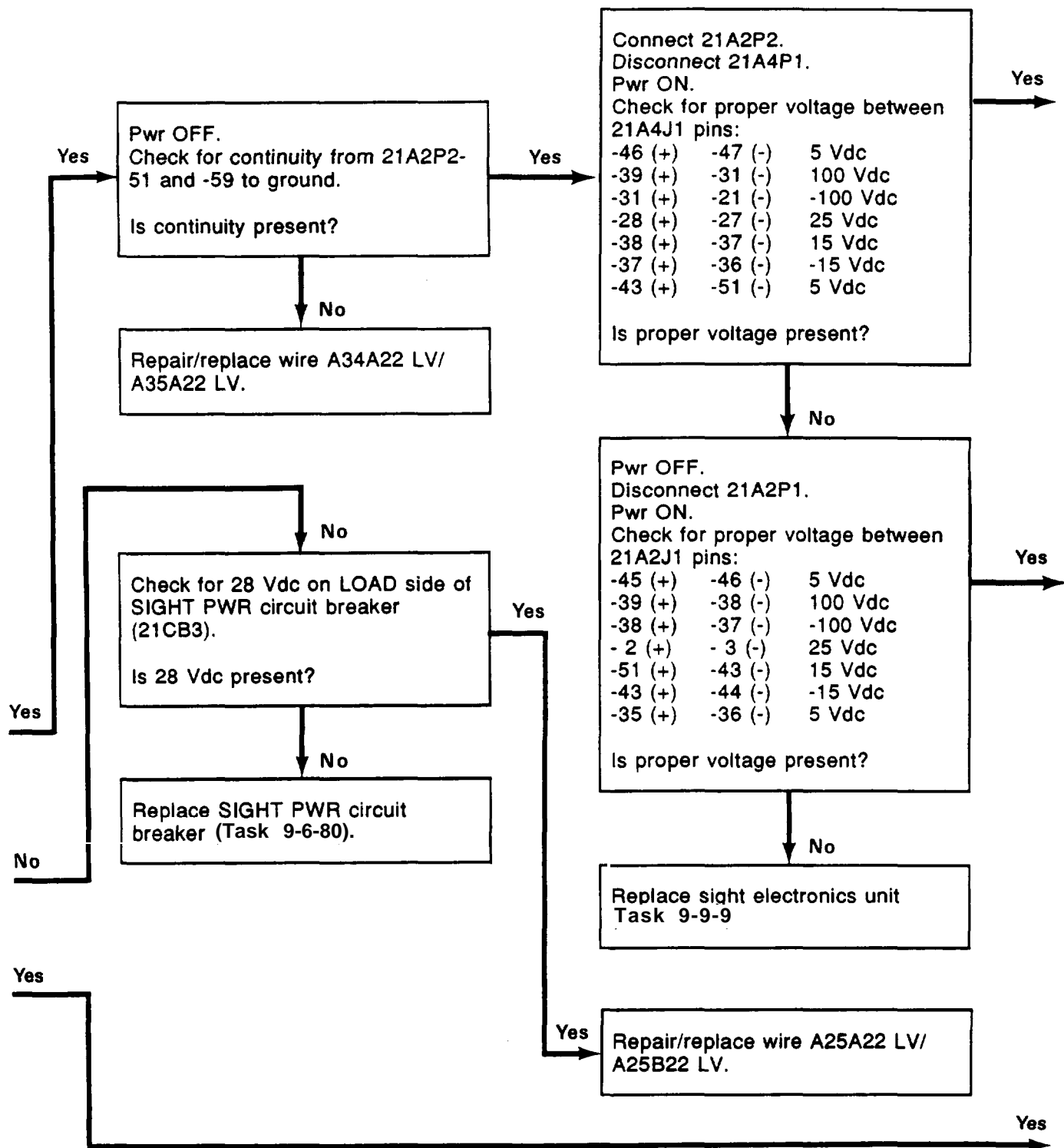
1. ARMAMENT CONTROL CIRCUIT BREAKER WILL NOT RESET

406475-498
H3560

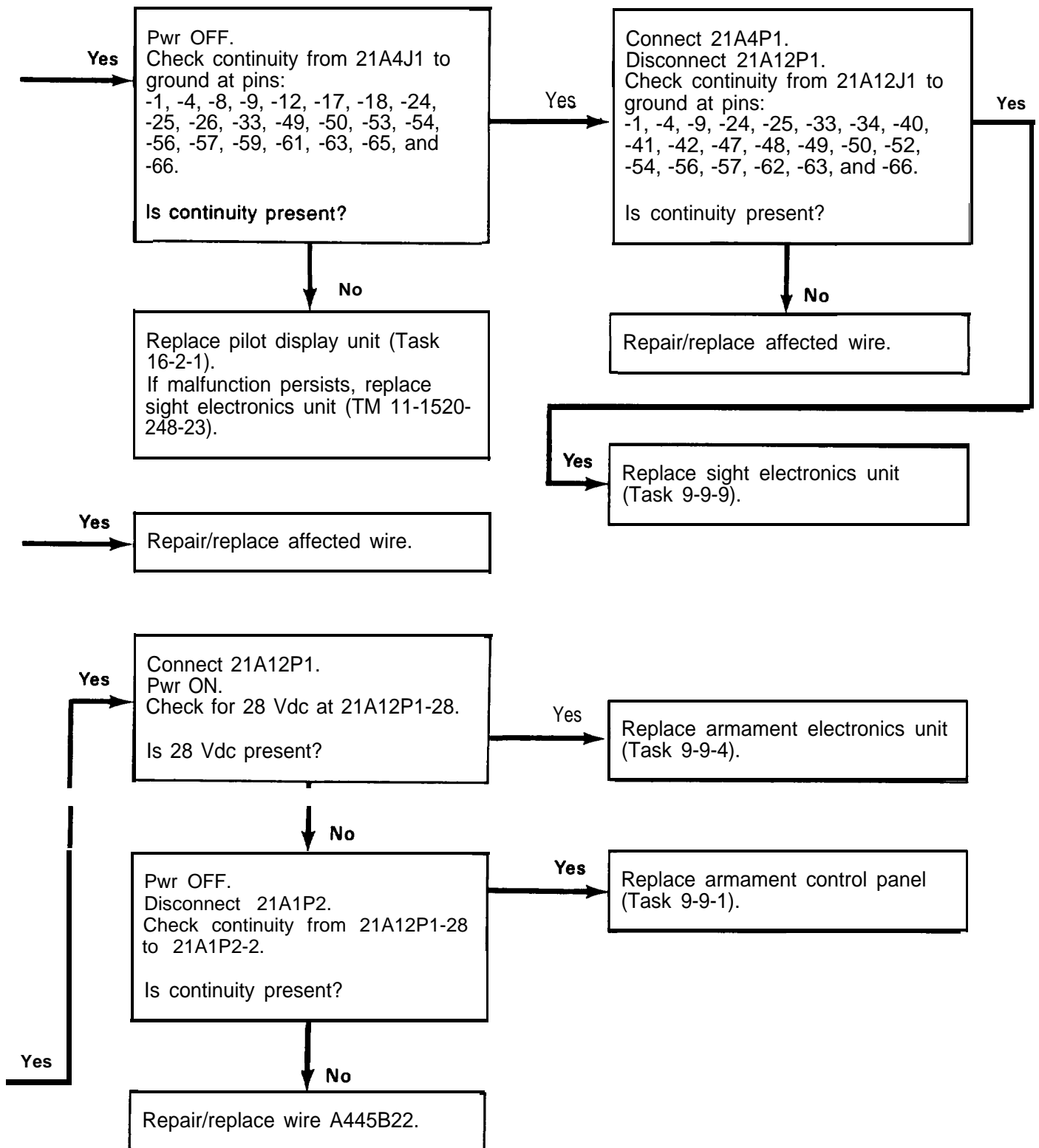
2. RETICLE NOT DISPLAYED ON PDU



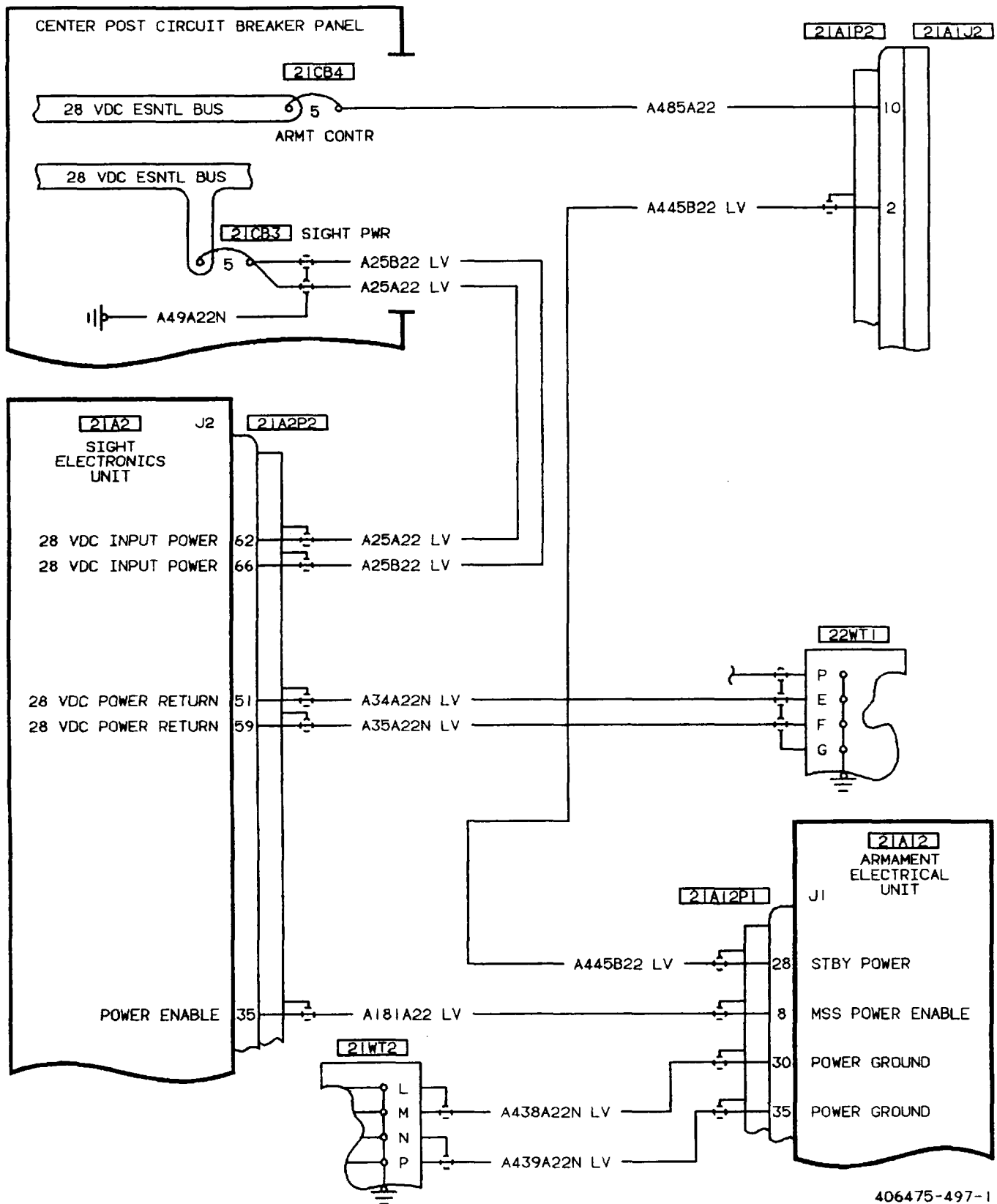
2. RETICLE NOT DISPLAYED ON PDU (CONT)



2. RETICLE NOT DISPLAYED ON PDU (CONT)

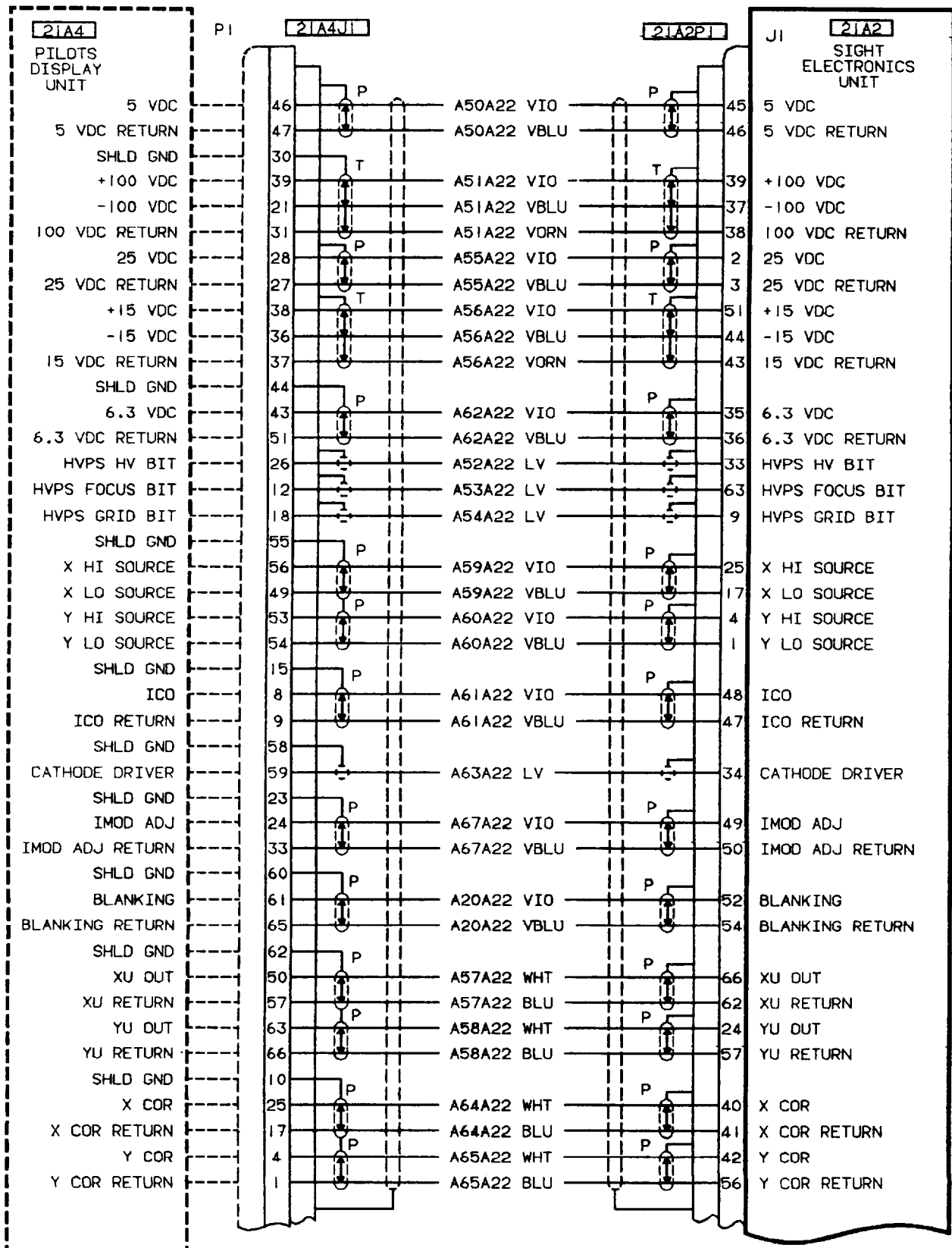


2. RETICLE NOT DISPLAYED ON PDU (CONT)

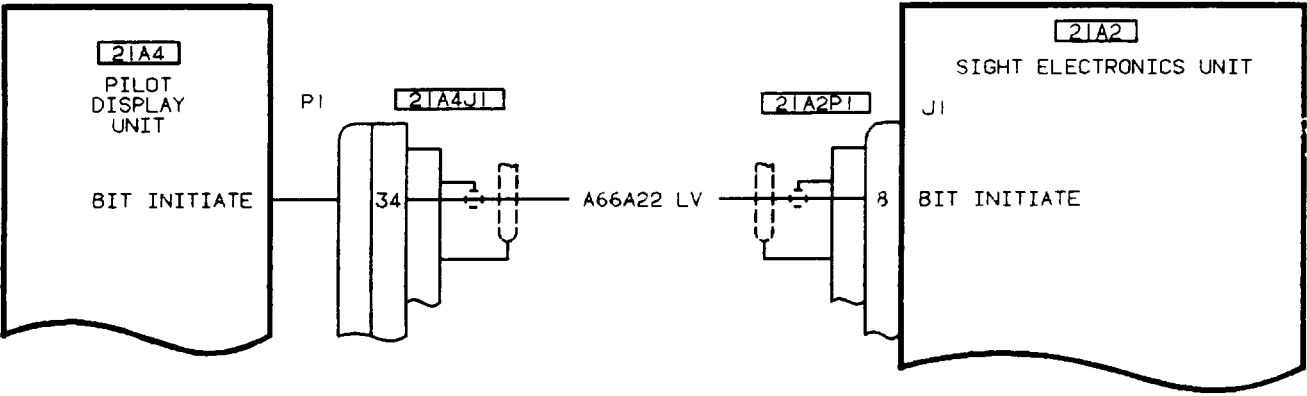
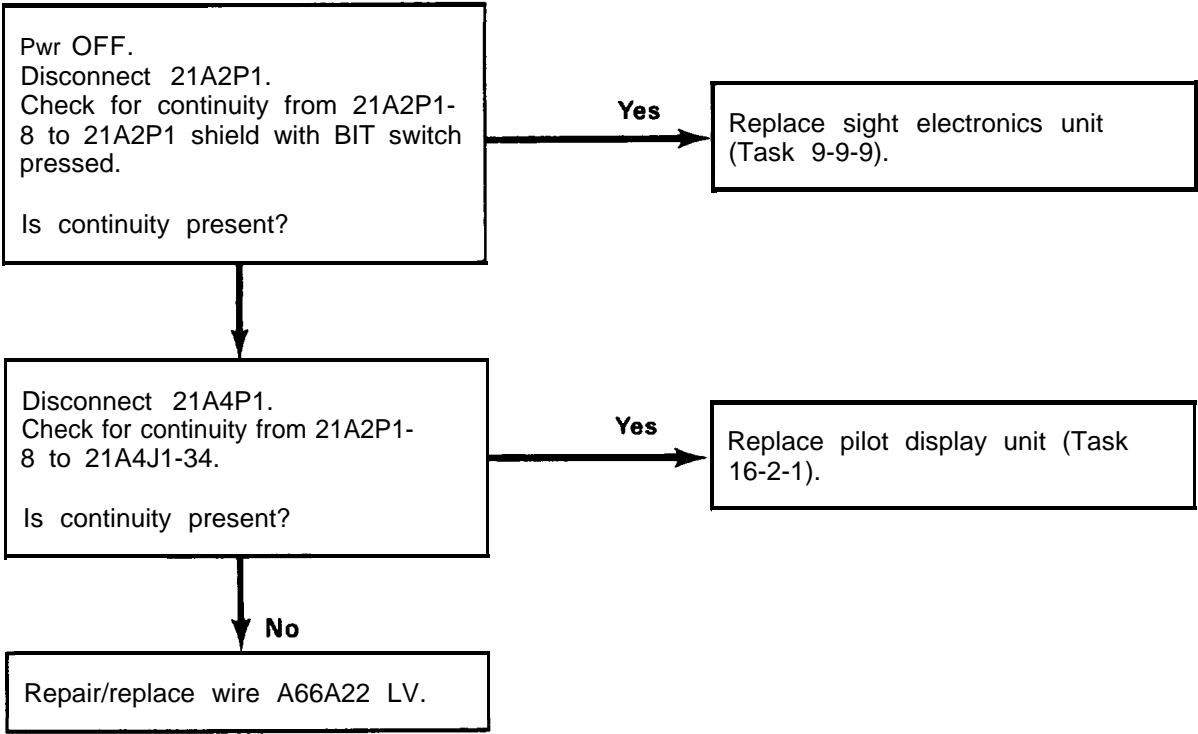


406475-497-1
H2088

2. RETICLE NOT DISPLAYED ON PDU (CONT)

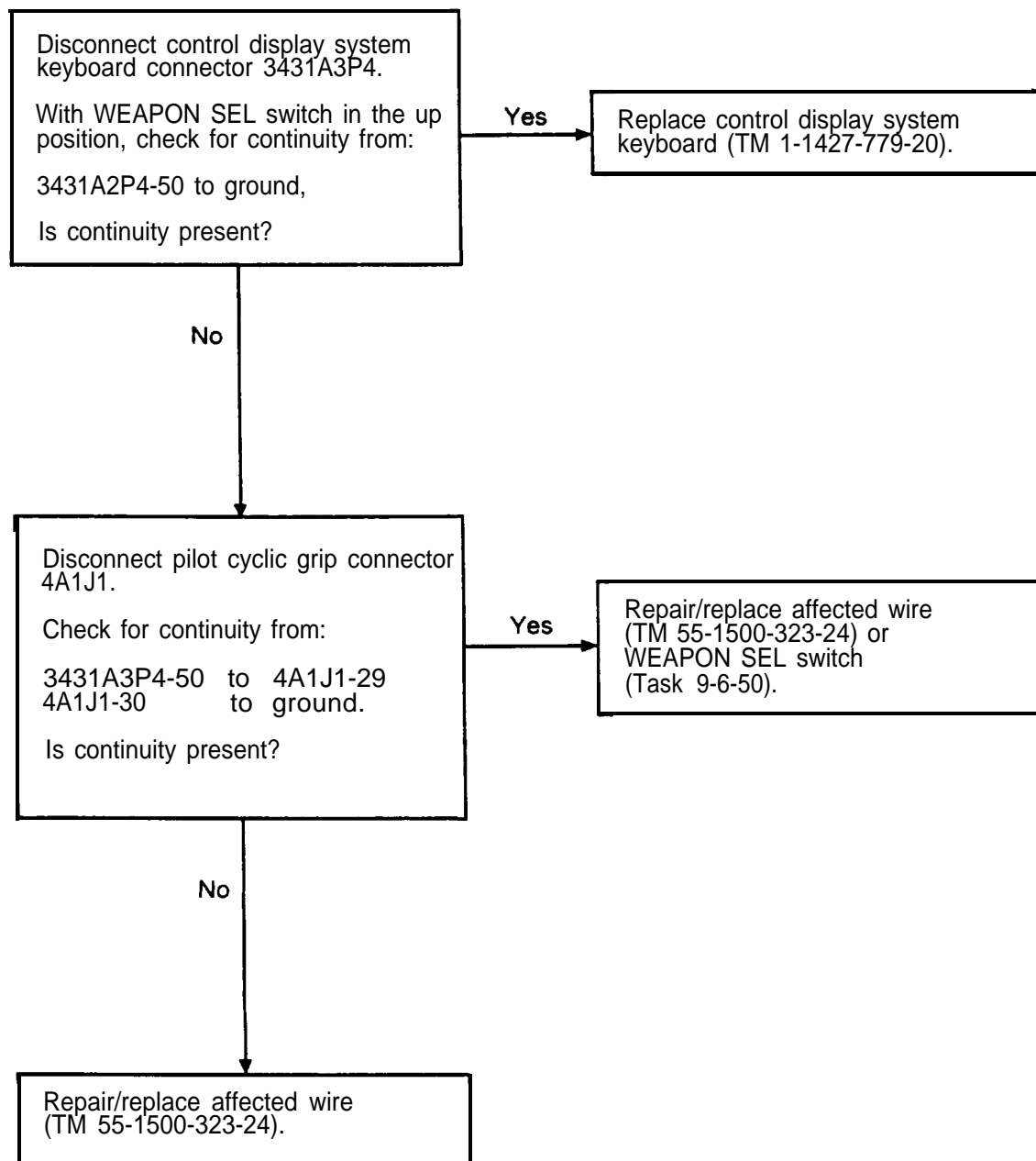
406475-497-2
H2088

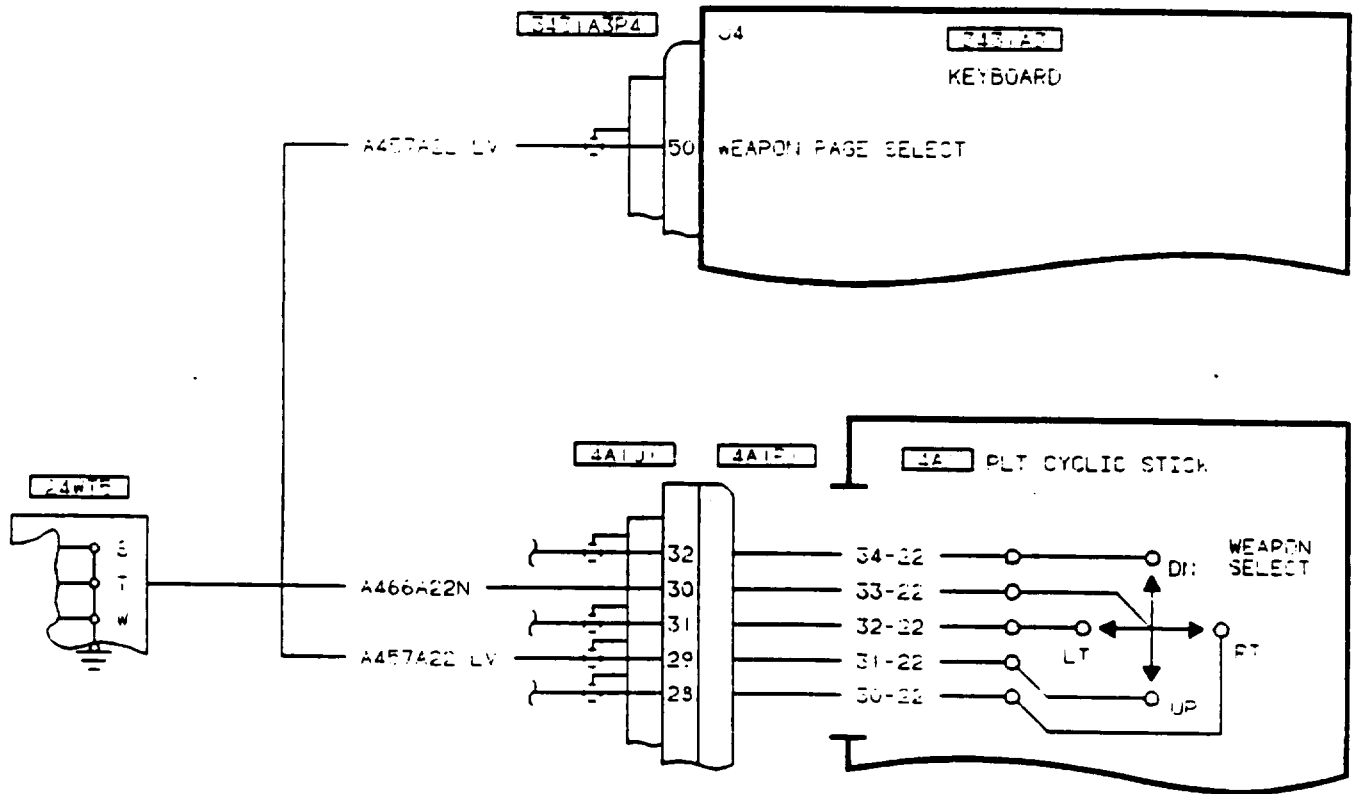
3. TEST NOT DISPLAYED ON PDU



406475-496
H2089

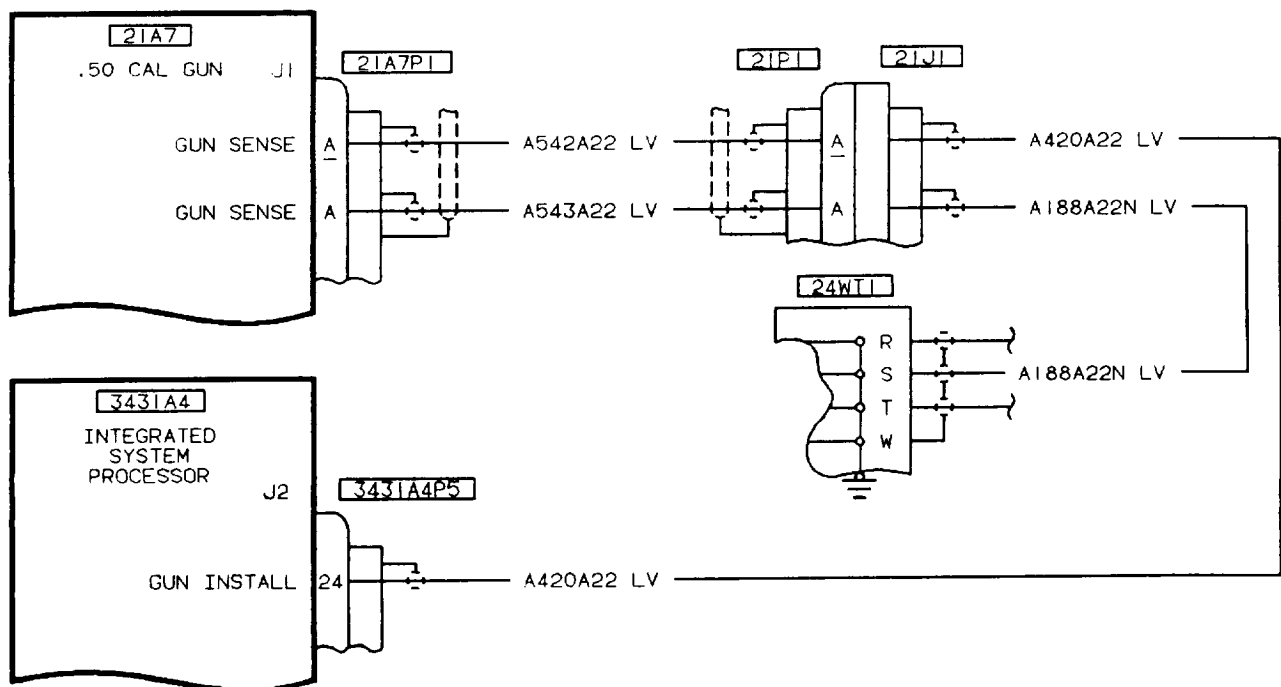
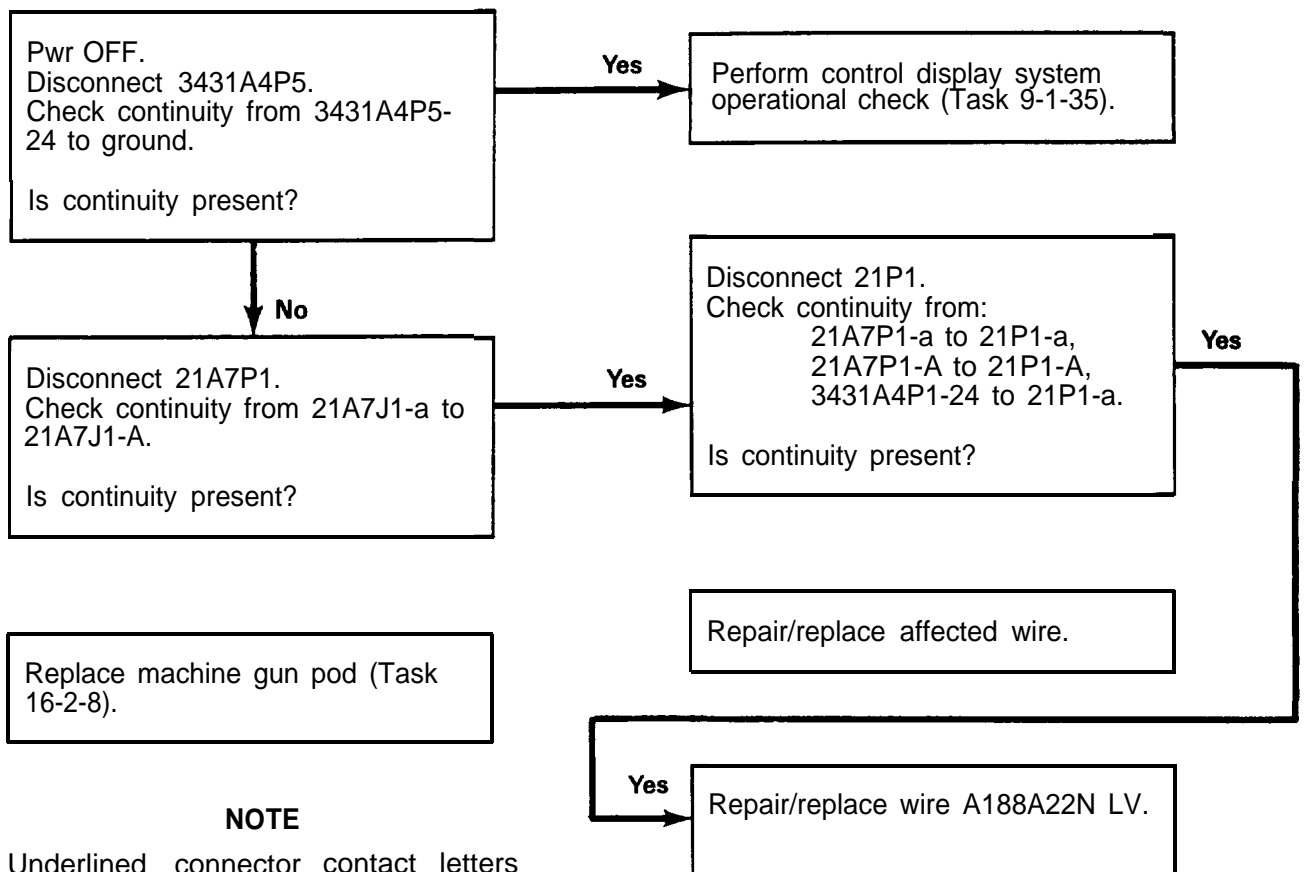
4. CANNOT ACCESS WEAPONS PAGE ON PILOT MFD

TM55_248_N4
H4289

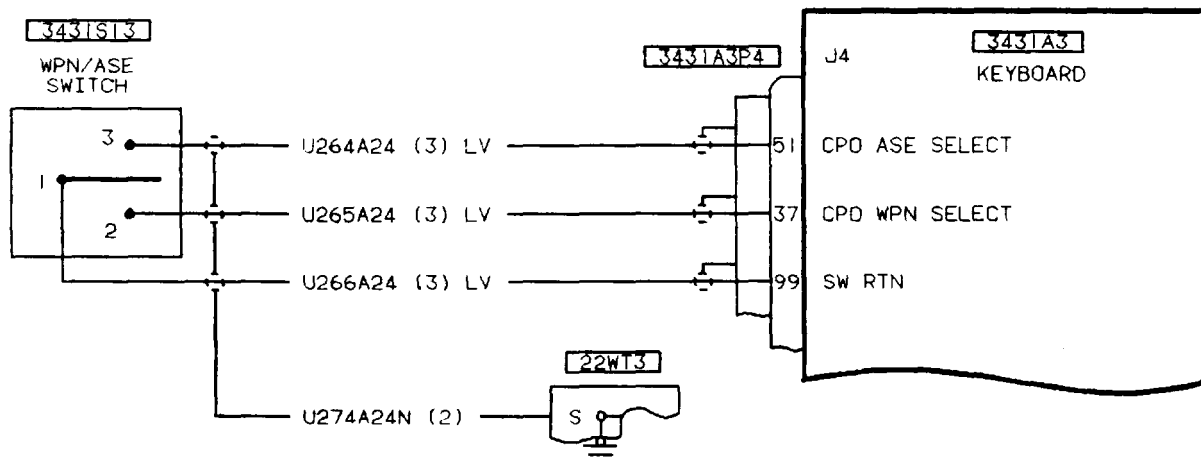
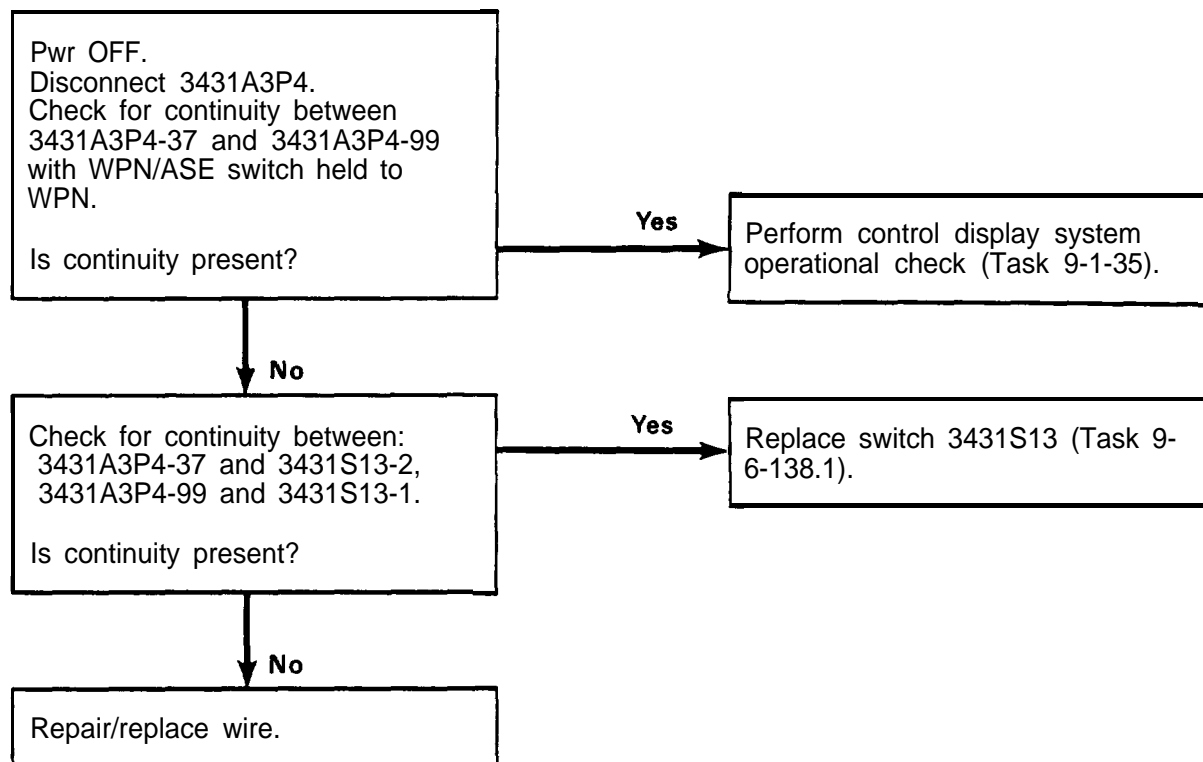


406475-495
H2090

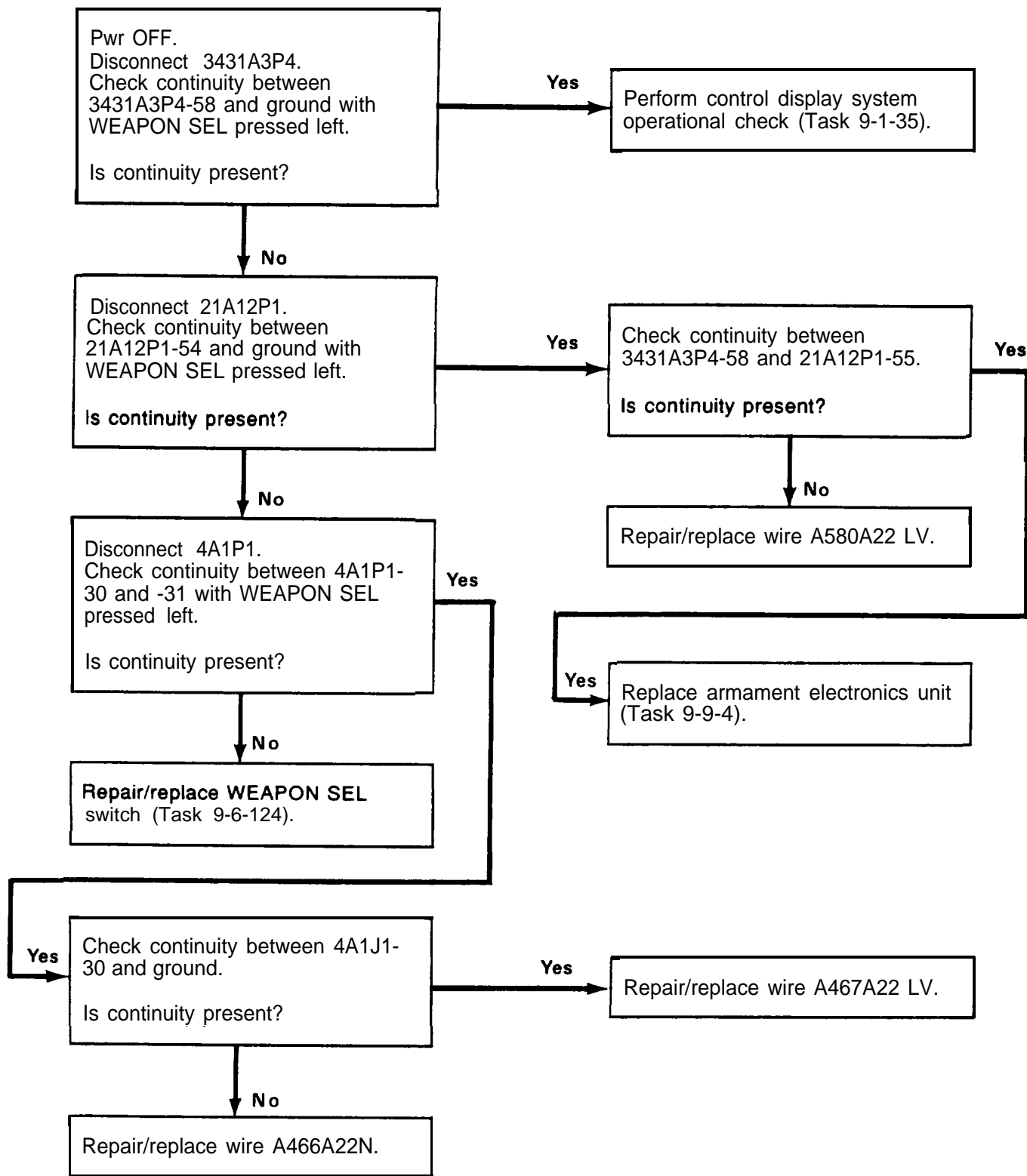
5. GUN SYMBOLOGY NOT DISPLAYED ON PDU (CONT)

406475-494
H2123

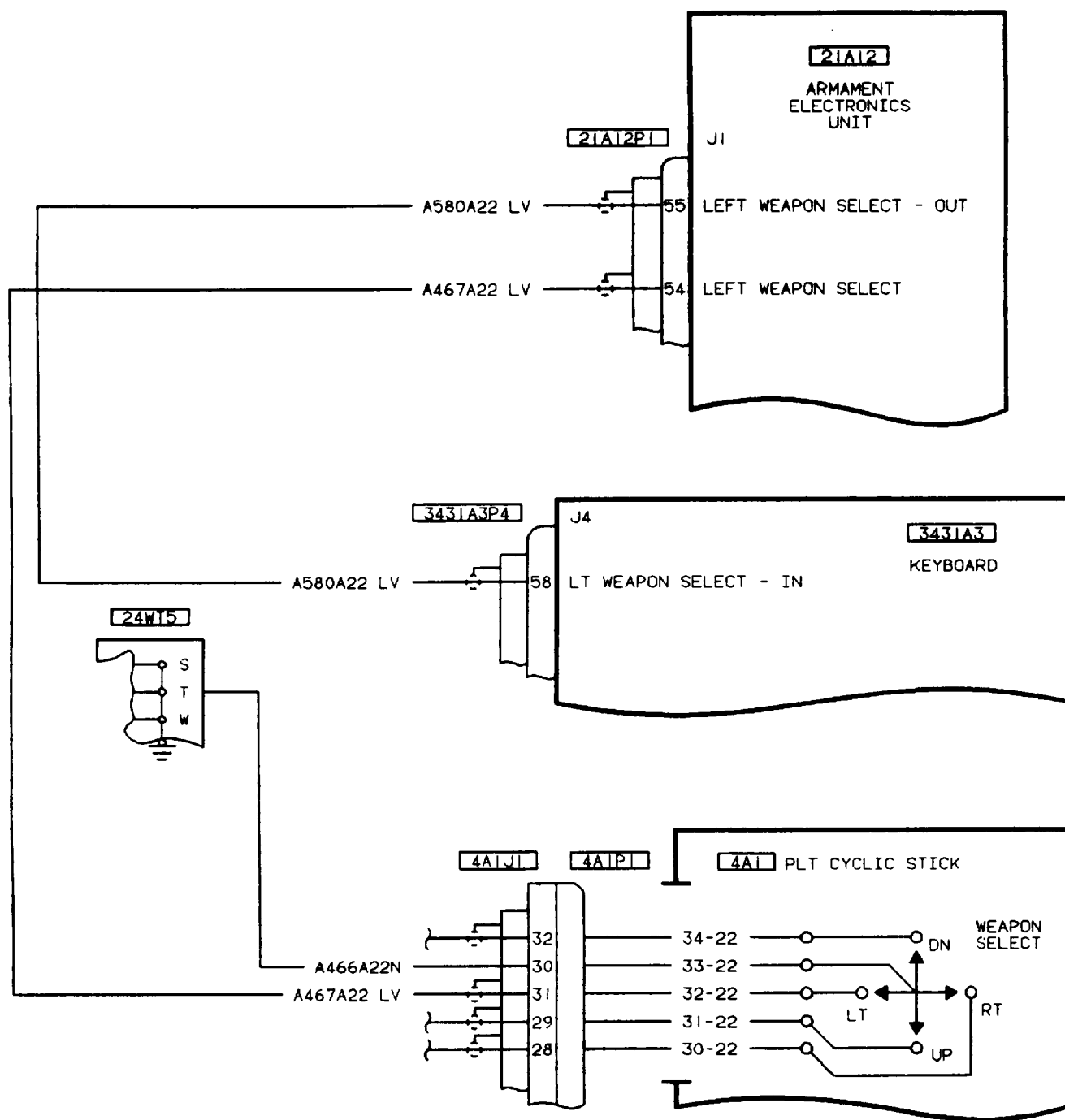
6. GUN WEAPONS PAGE NOT DISPLAYED ON CPO MFD

406099-58
H2128

7. GUN VSD PAGE NOT DISPLAYED ON MFD (CONT)

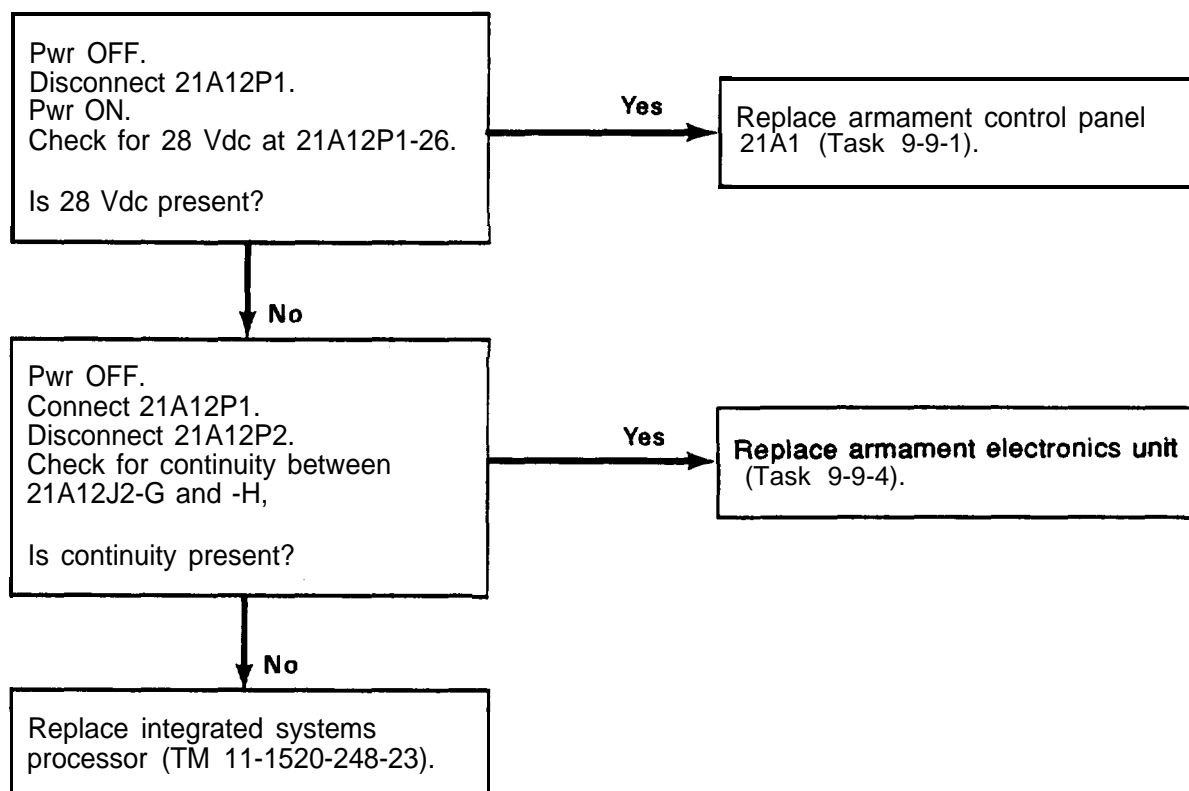


7. GUN VSD PAGE NOT DISPLAYED ON MFD

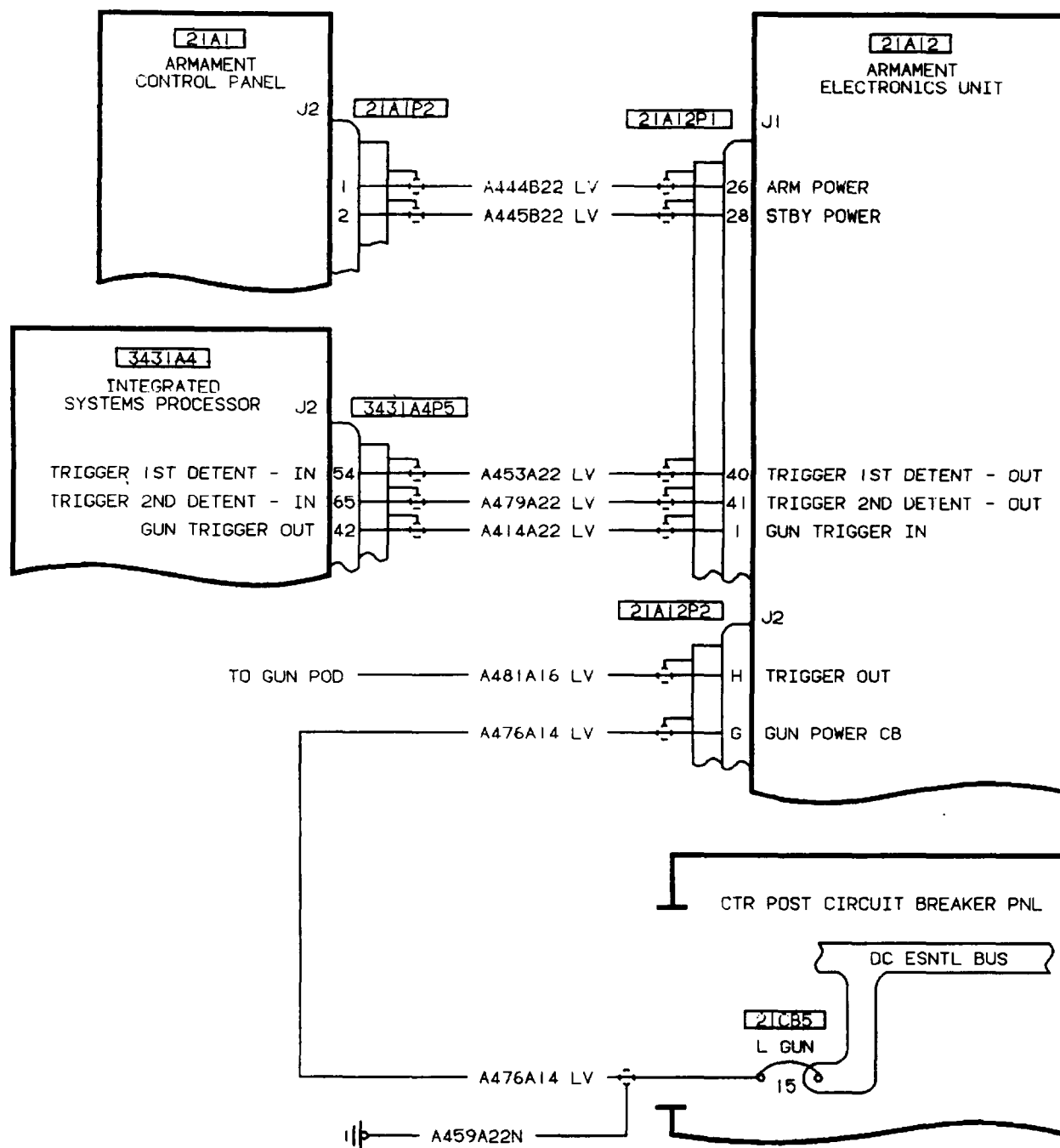


406475-493
H2125

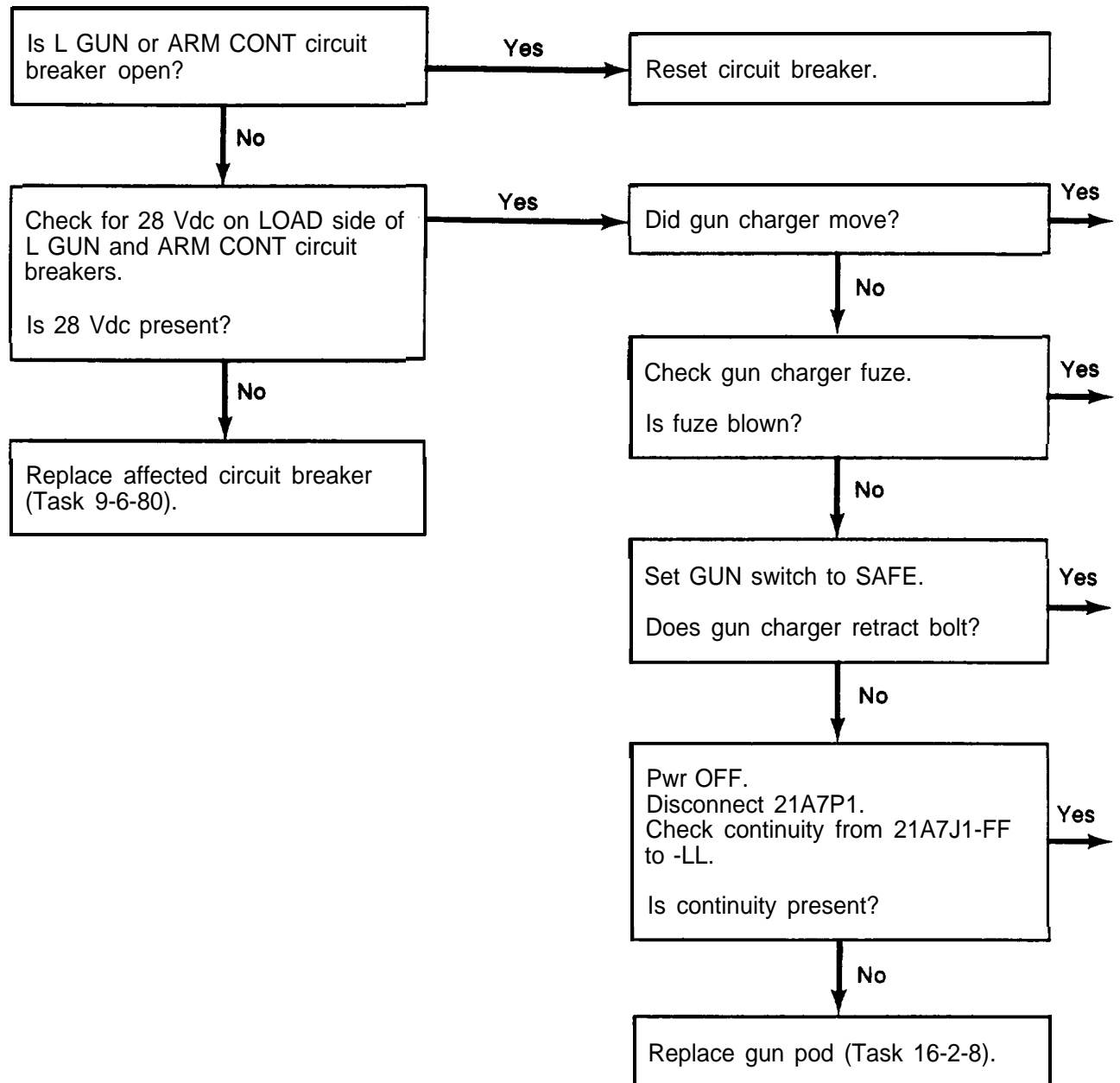
8. GUN FIRES WITH MASTER ARM SWITCH IN STBY



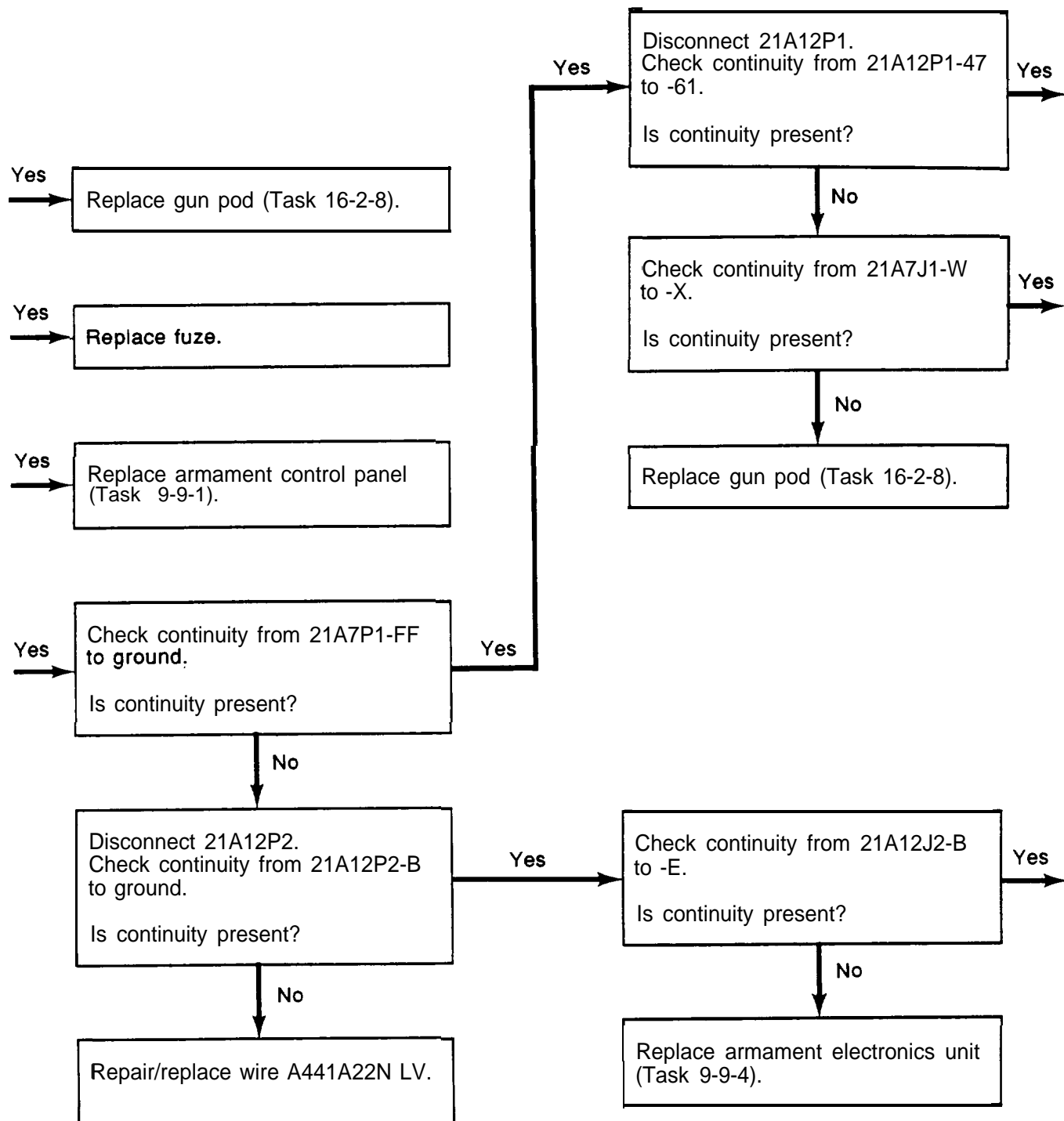
8. GUN FIRES WITH MASTER ARM SWITCH IN STBY

406475-504
H2129

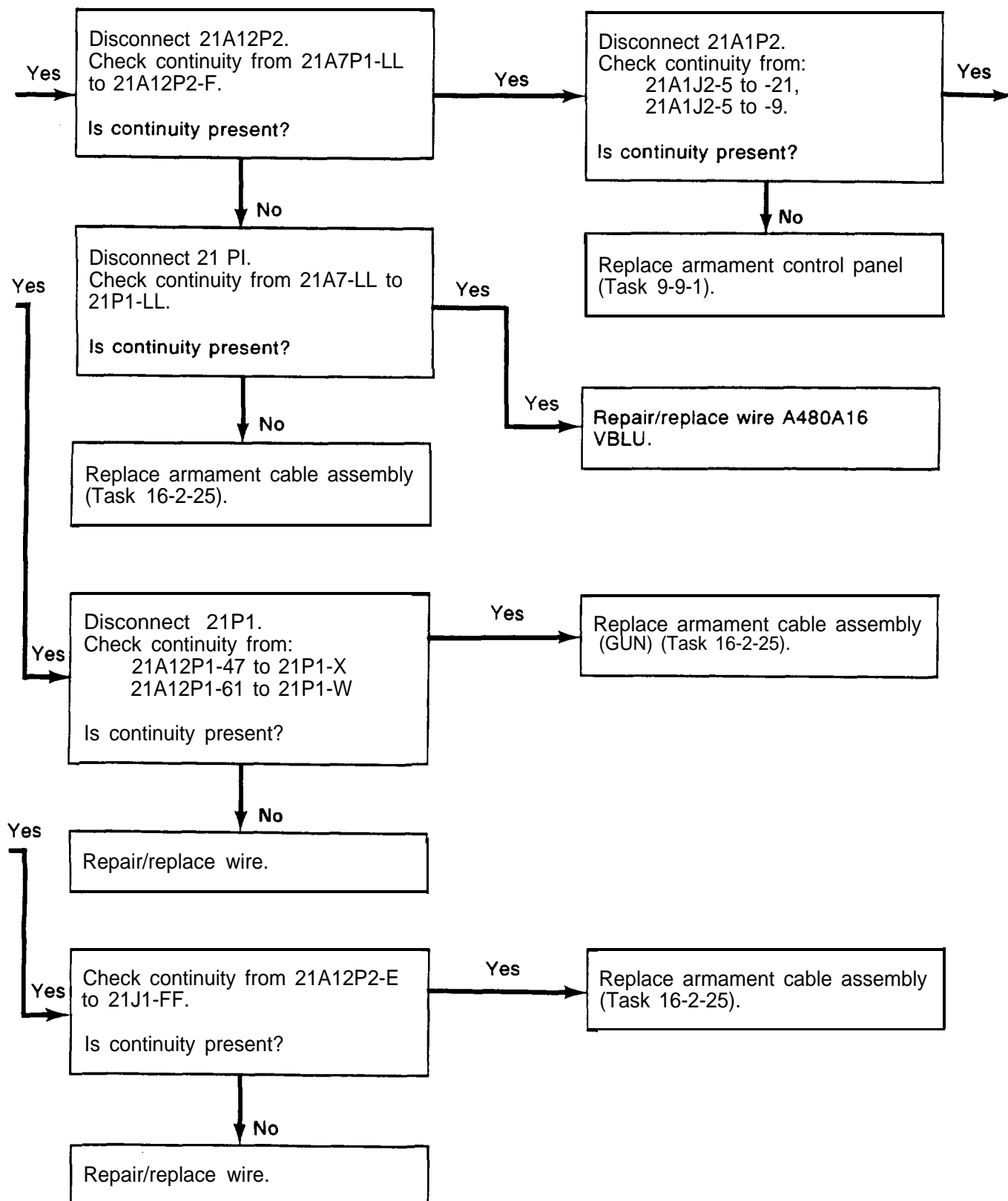
9. GUN DOES NOT RECOCK WHEN GUN SWITCH IS TOGGLED TO RECOCK



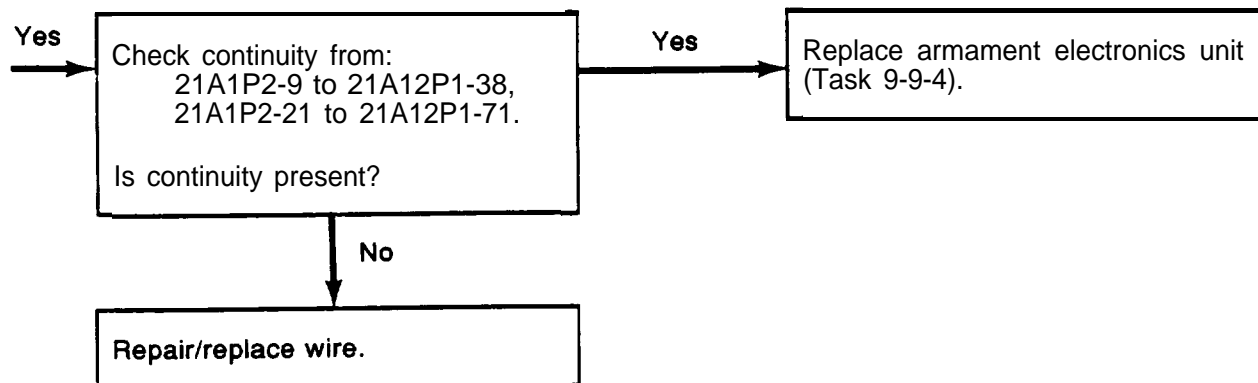
9. GUN DOES NOT RECOCK WHEN GUN SWITCH IS TOGGLED TO RECOCK (CONT)



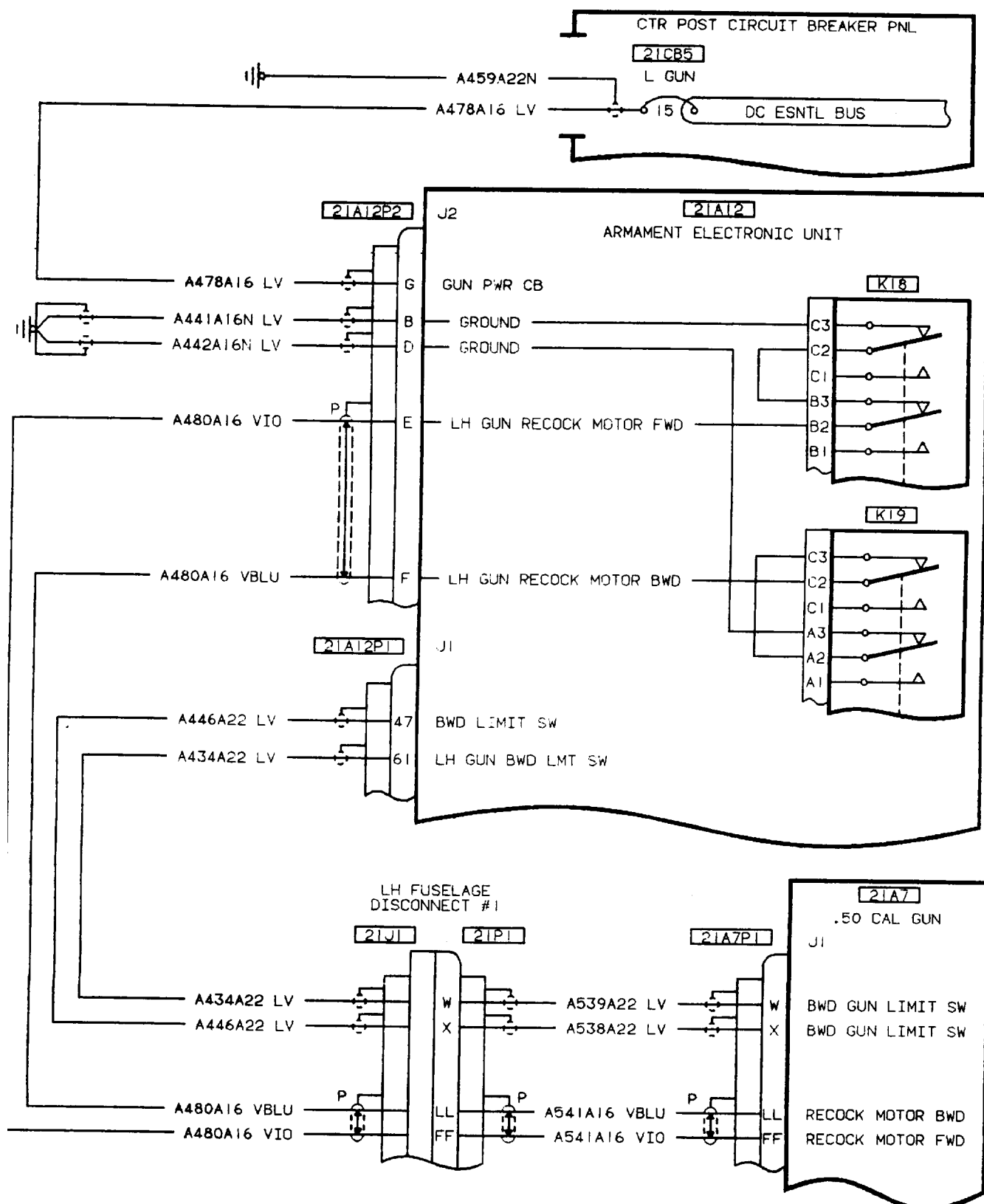
 9. GUN DOES NOT RECOCK WHEN GUN SWITCH IS TOGGLED TO RECOCK (CONT)



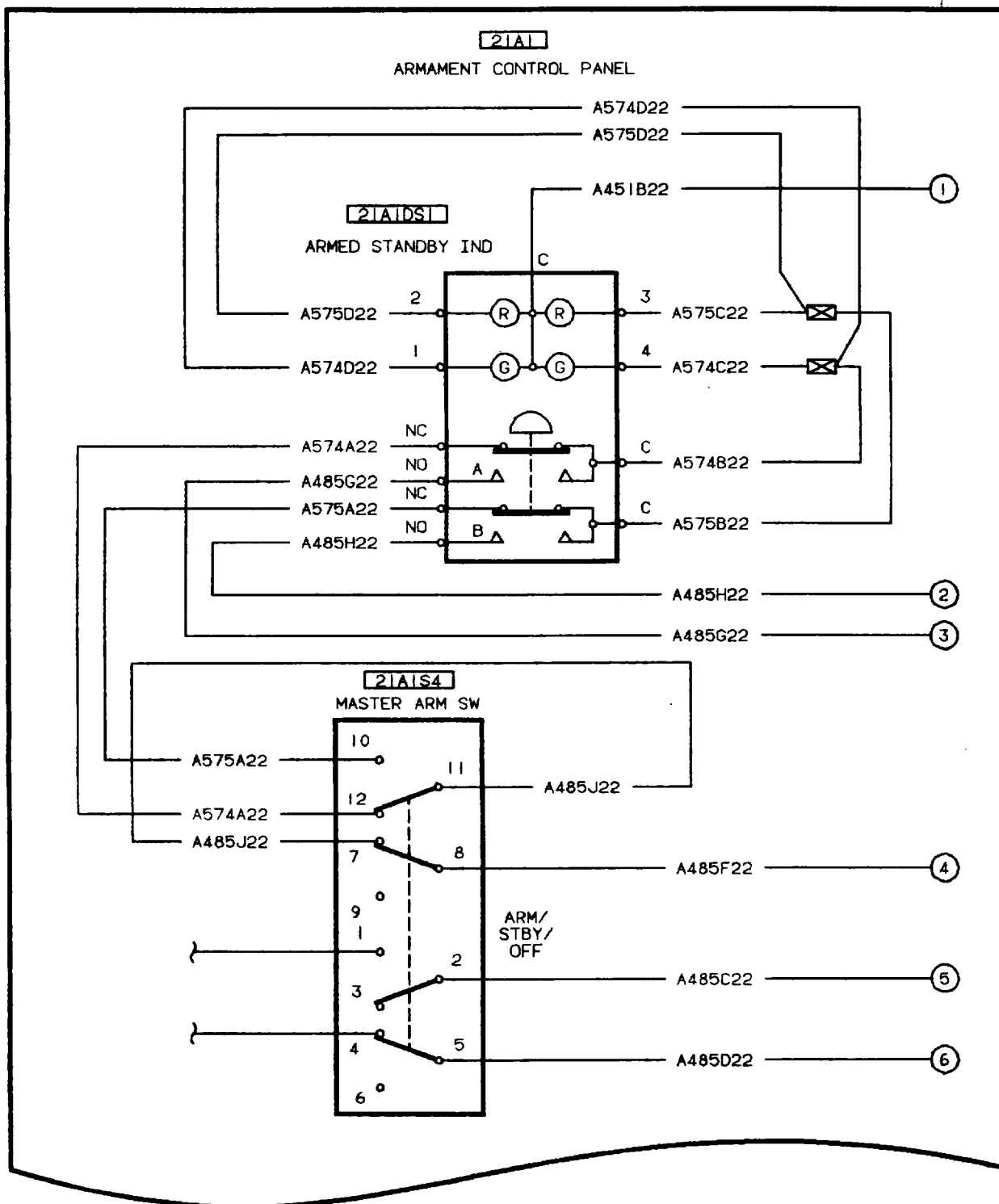
9. GUN DOES NOT RECOCK WHEN GUN SWITCH IS TOGGLED TO RECOCK (CONT)



9. GUN DOES NOT RECOCK WHEN GUN SWITCH IS TOGGLED TO RECOCK (CONT)

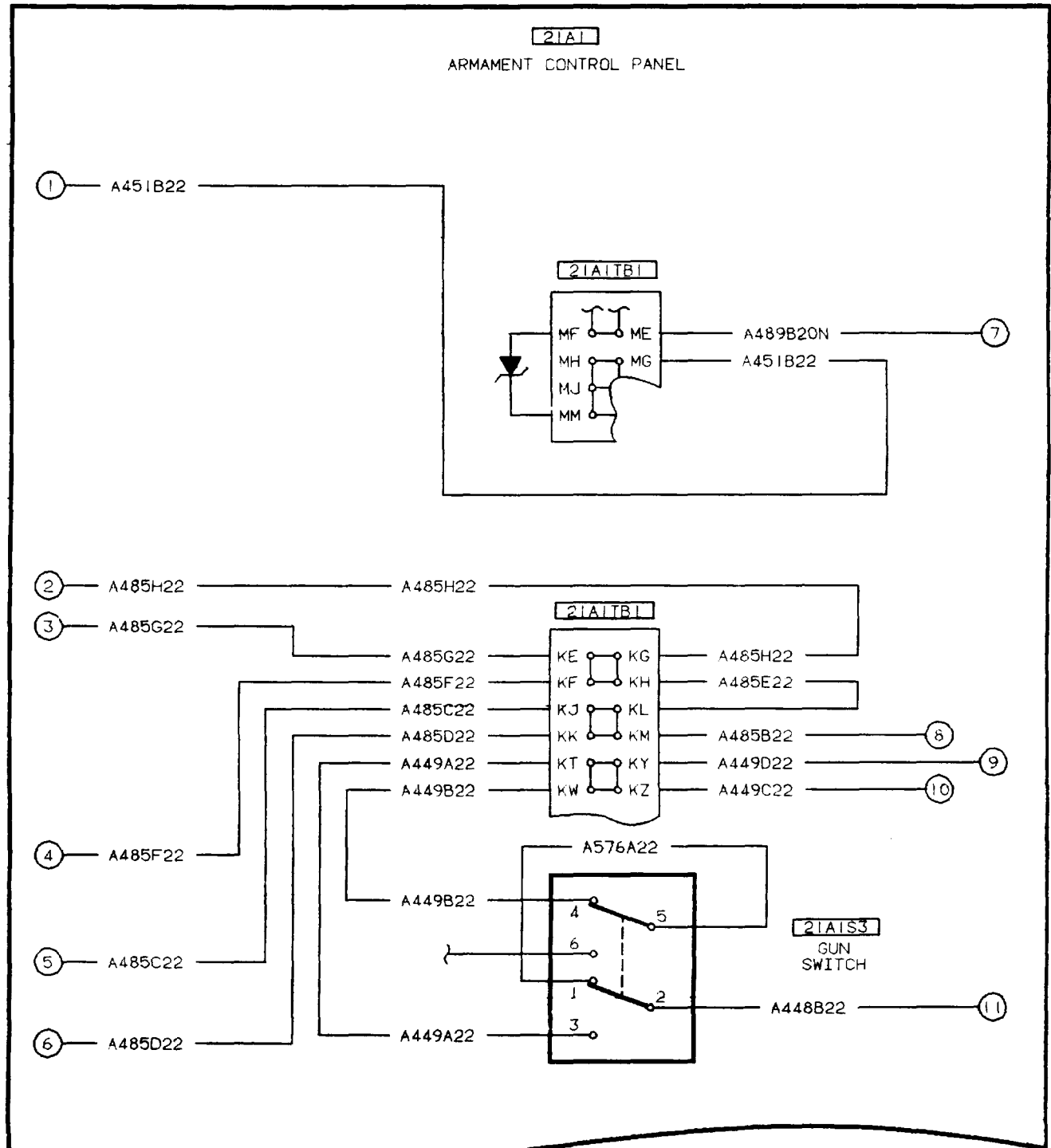
406475-509-1
H2130

9. GUN DOES NOT RECOCK WHEN GUN SWITCH IS TOGGLED TO RECOCK (CONT)



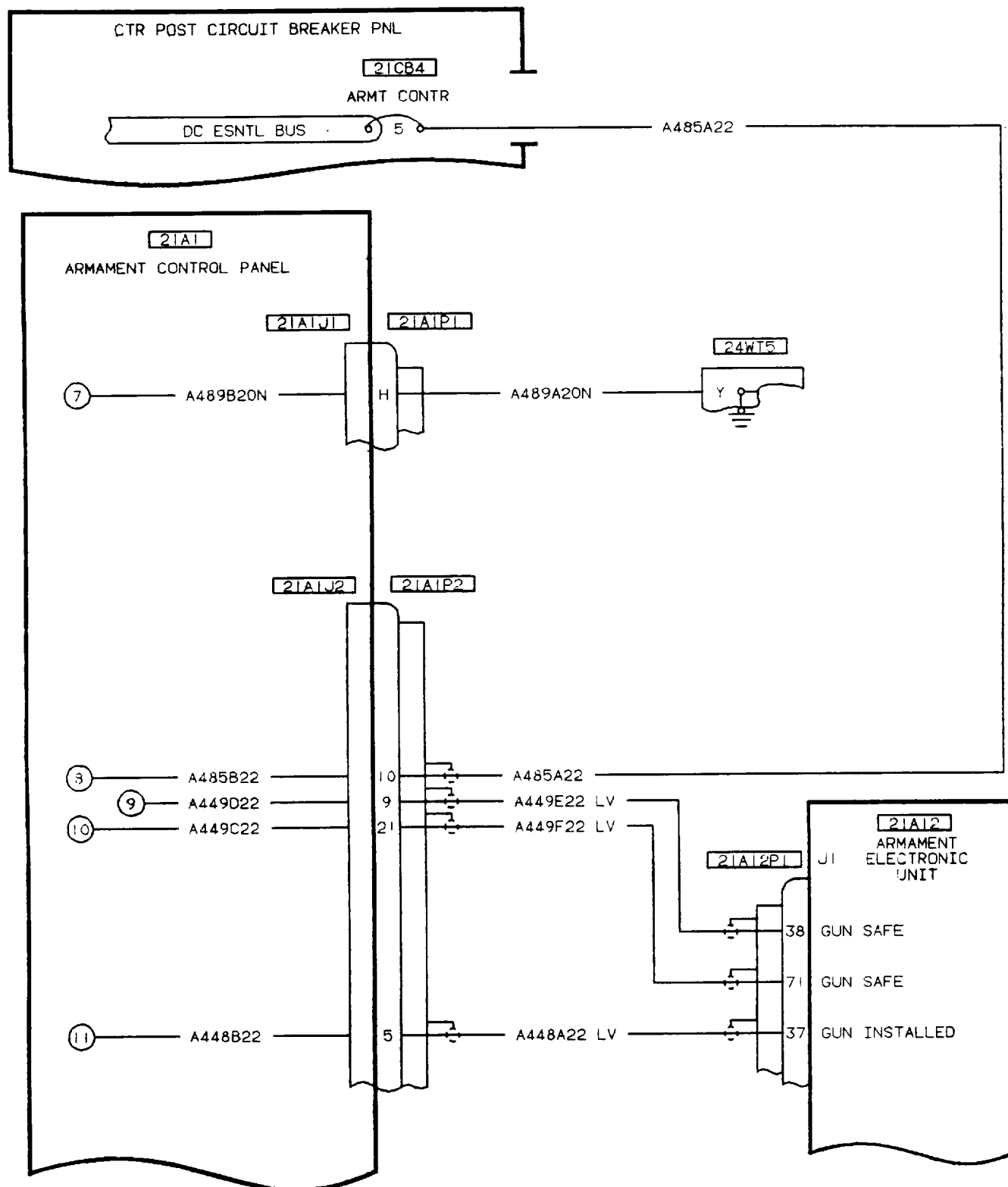
406475-509-2
H2130

9. GUN DOES NOT RECOCK WHEN GUN SWITCH IS TOGGLED TO RECOCK (CONT)



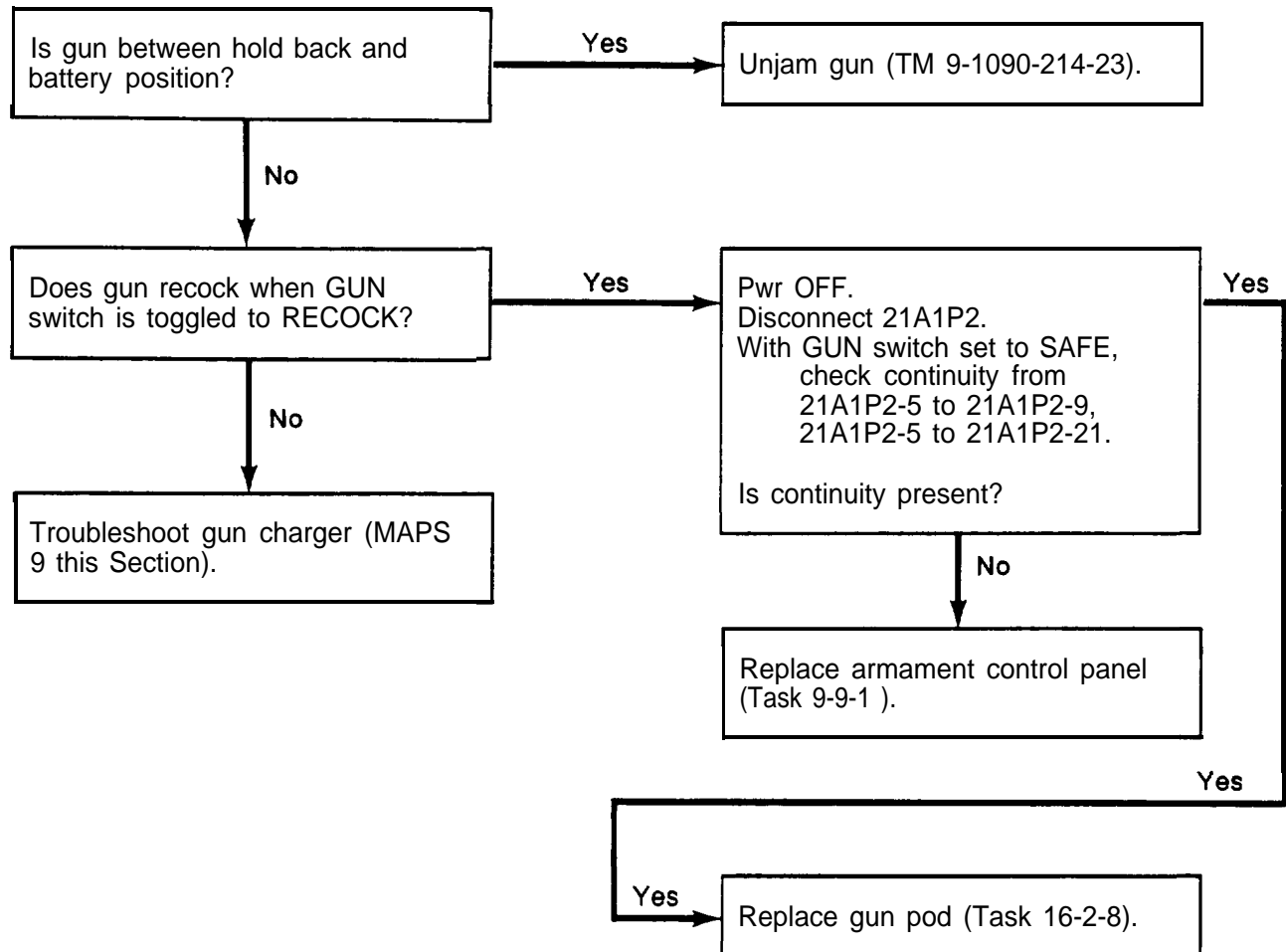
406475-509-3
H2130

9. GUN DOES NOT RECOCK WHEN GUN SWITCH IS TOGGLED TO RECOCK (CONT)

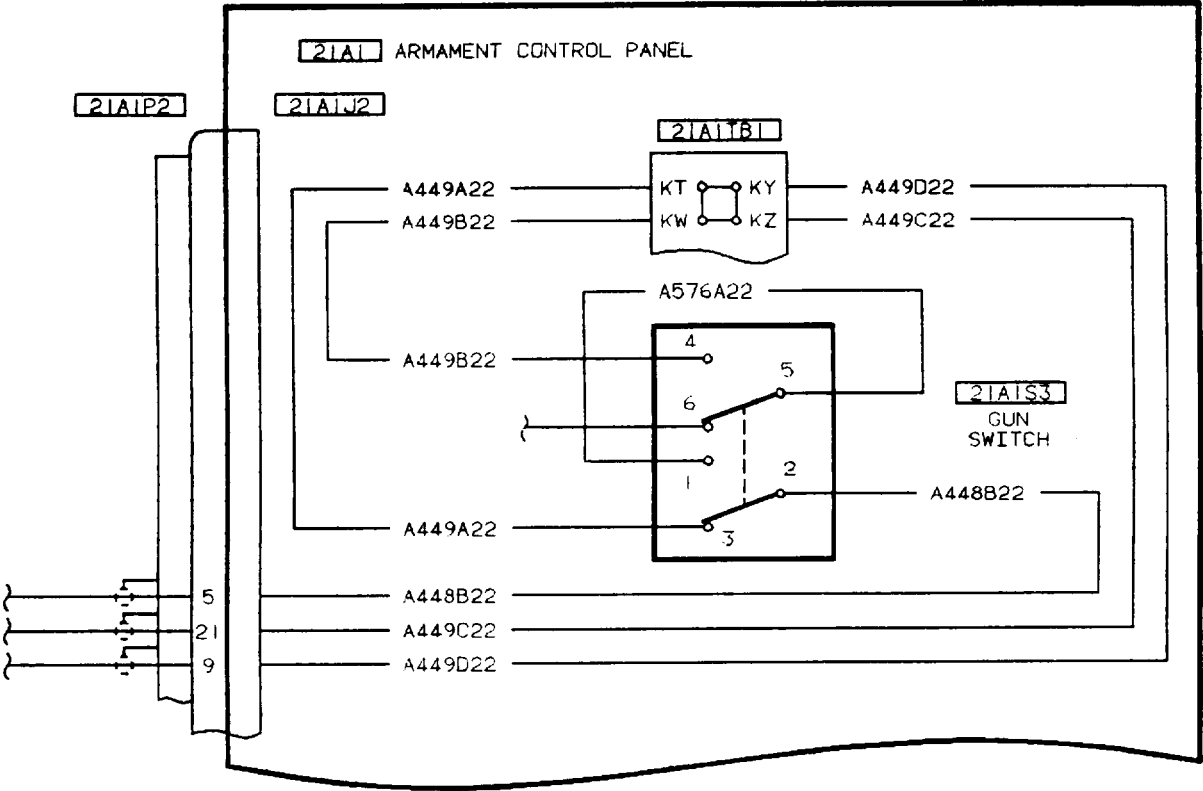


406475-509-4
H2130

10. GUN NOT IN HOLD BACK WITH GUN SWITCH IN SAFE POSITION

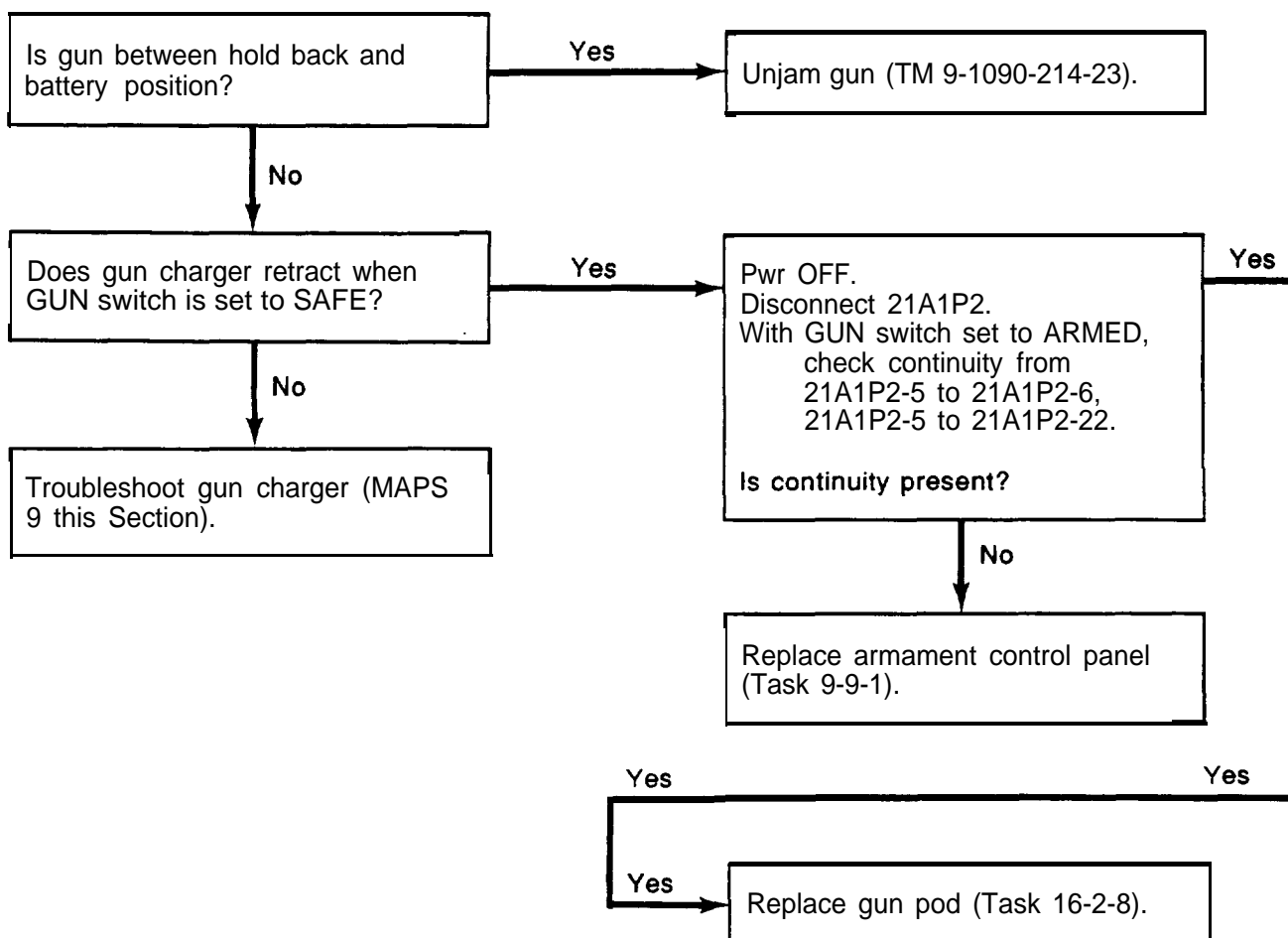


10. GUN NOT IN HOLD BACK WITH GUN SWITCH IN SAFE POSITION (CONT)

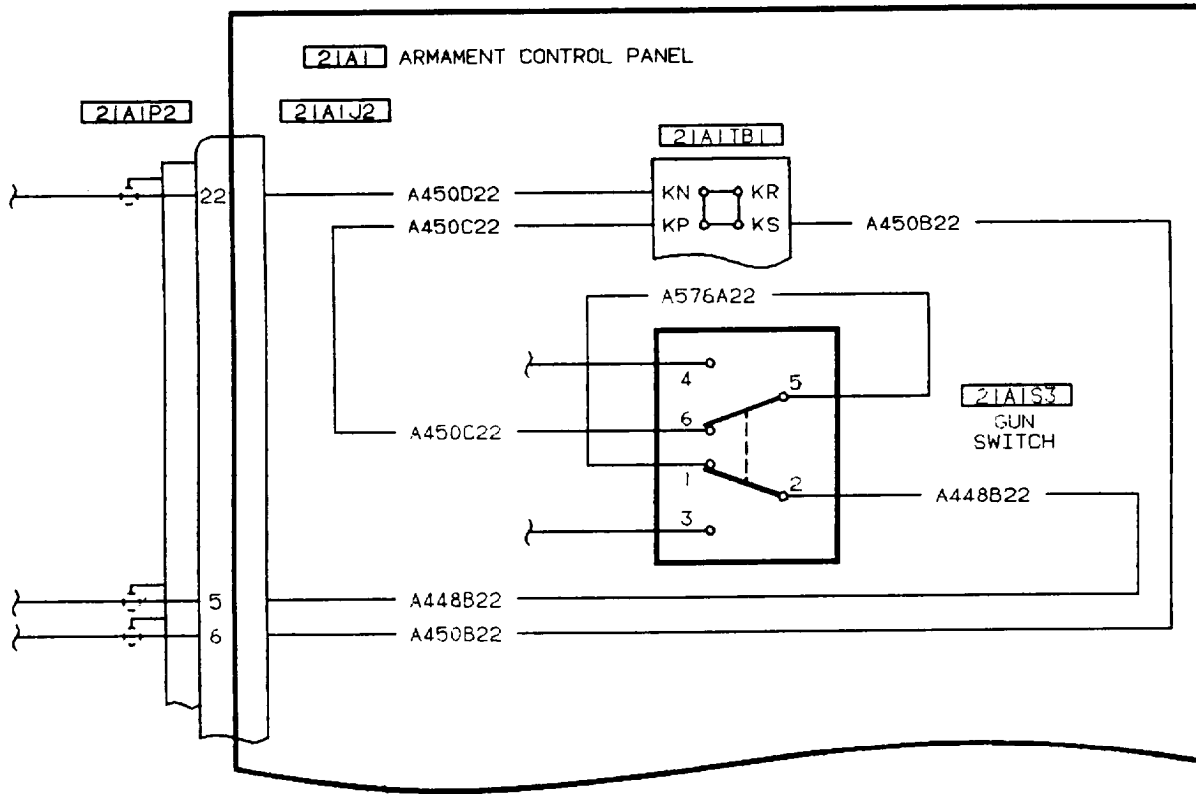


406475-508
H2131

11. GUN NOT IN BATTERY WITH GUN SWITCH IN ARMED POSITION

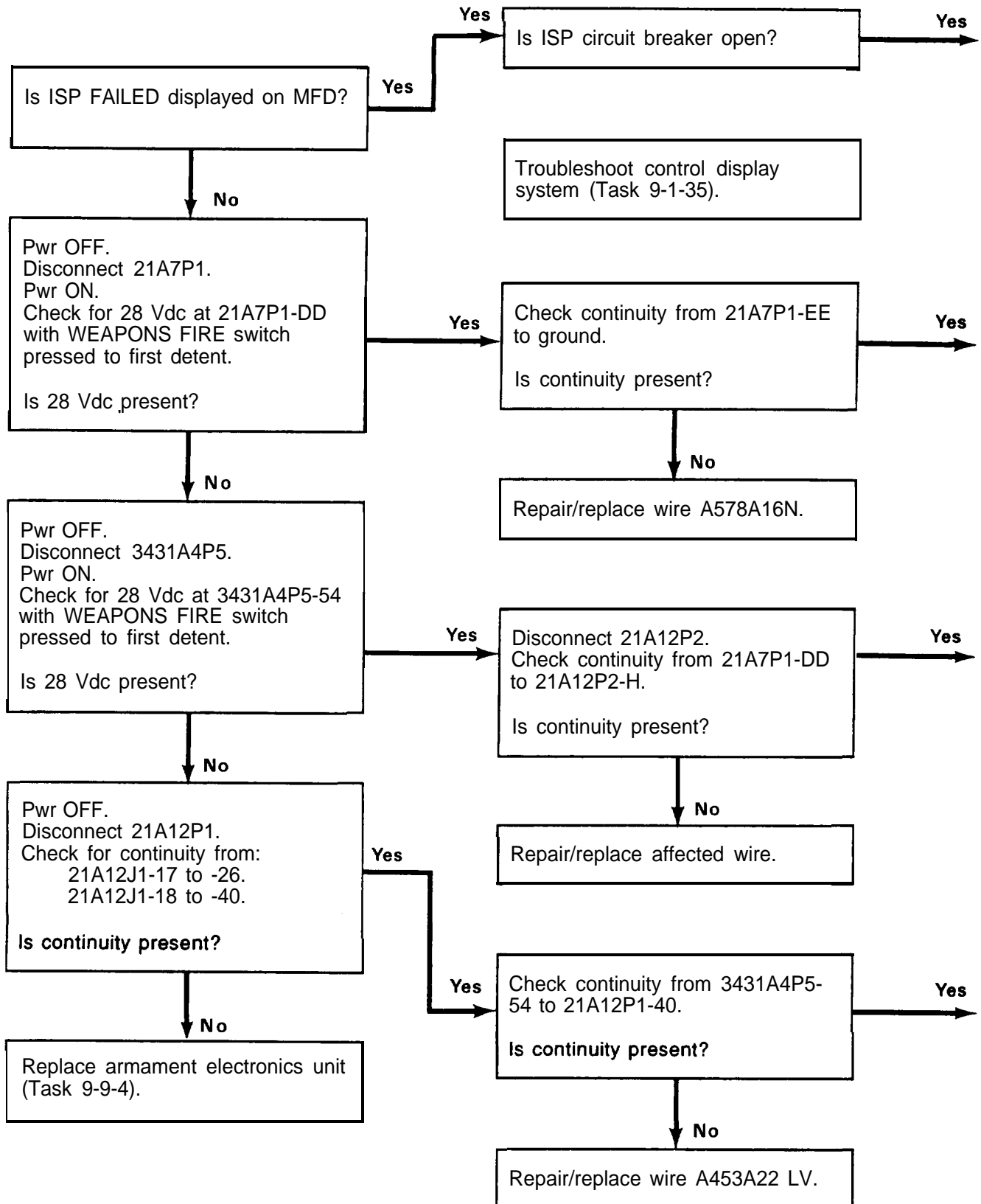


11. GUN NOT IN BATTERY WITH GUN SWITCH IN ARMED POSITION (CONT)

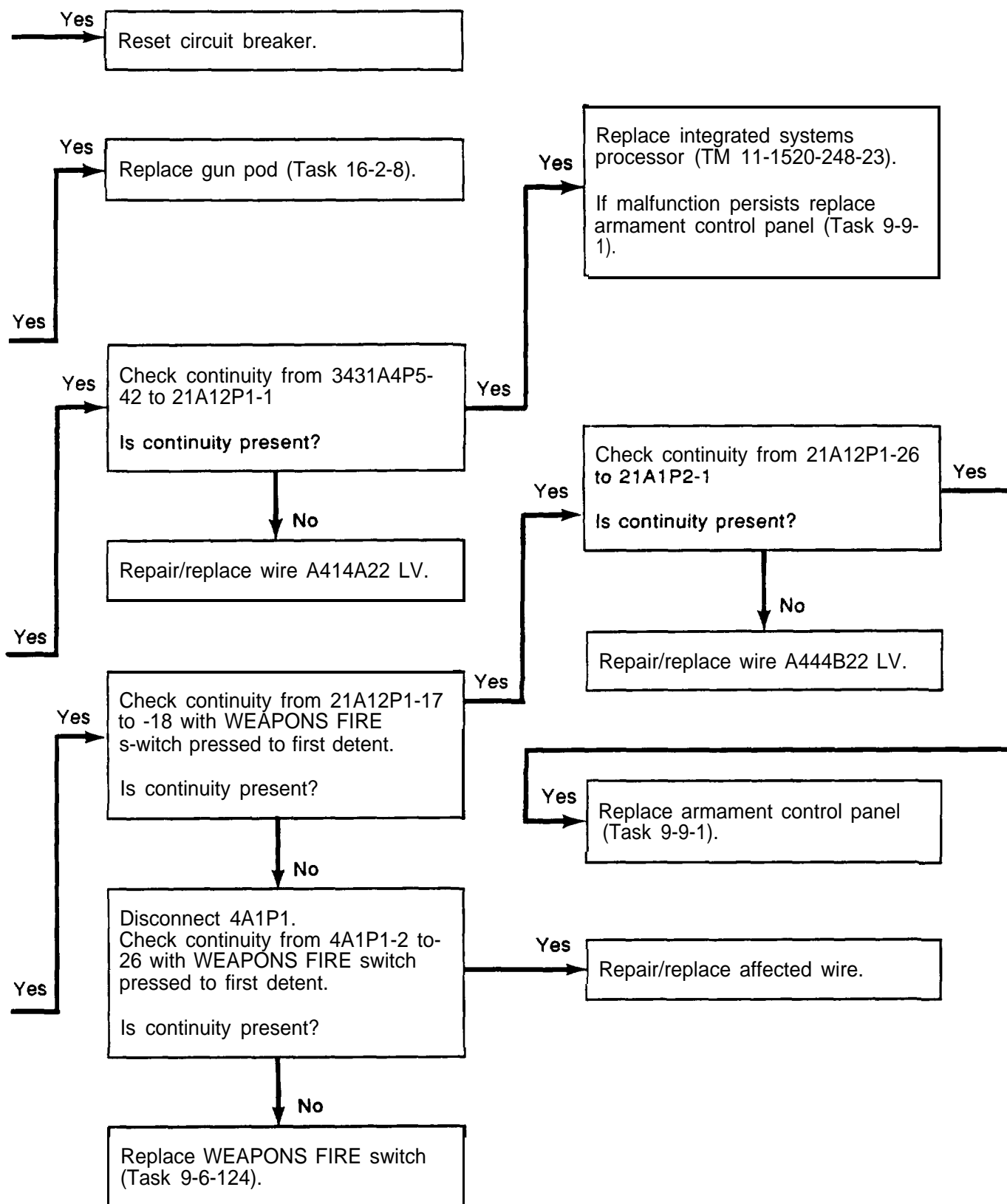


406475-507
H2132

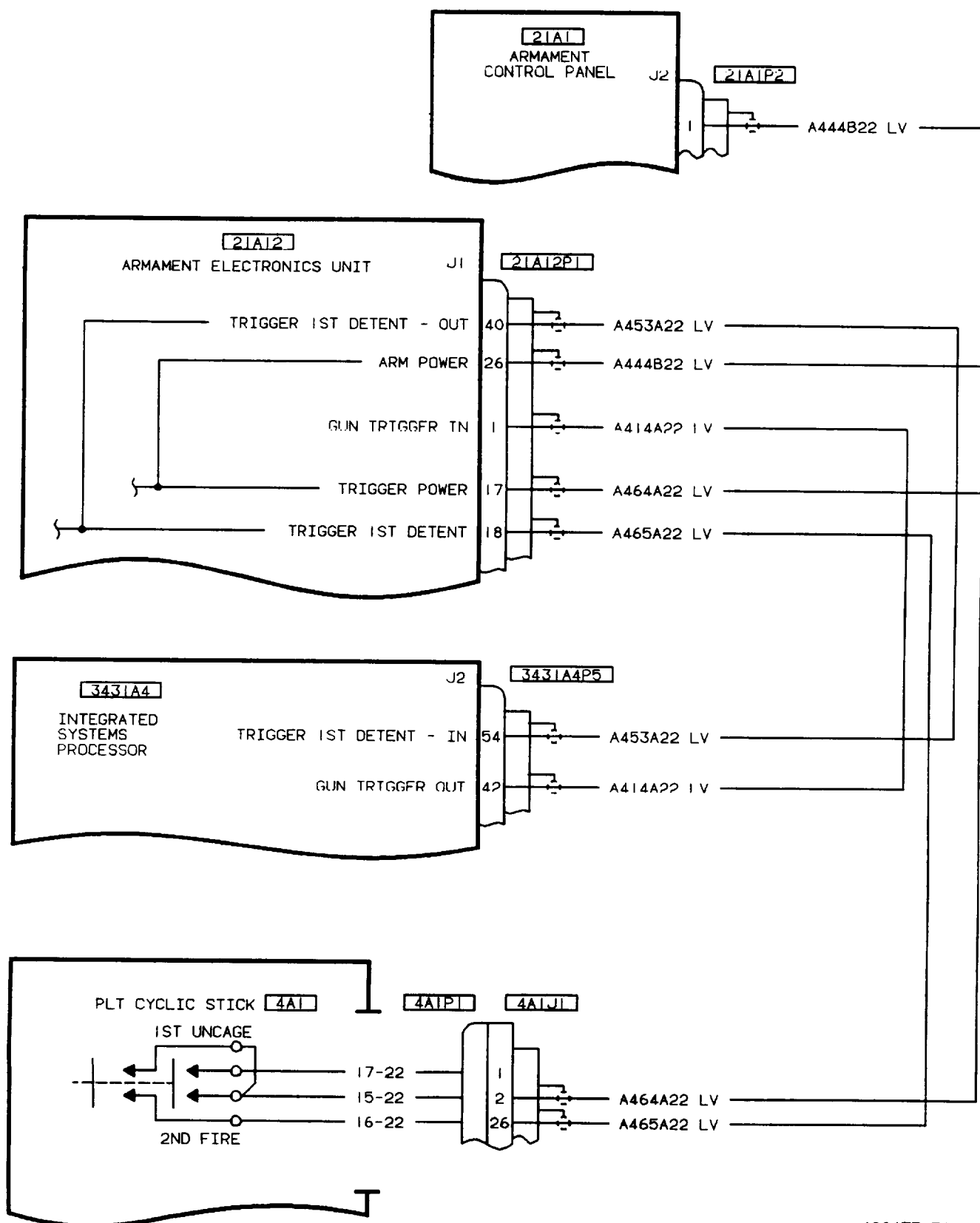
12. GUN DOES NOT FIRE WHEN WEAPONS FIRE SWITCH IS PRESSED TO FIRST DETENT



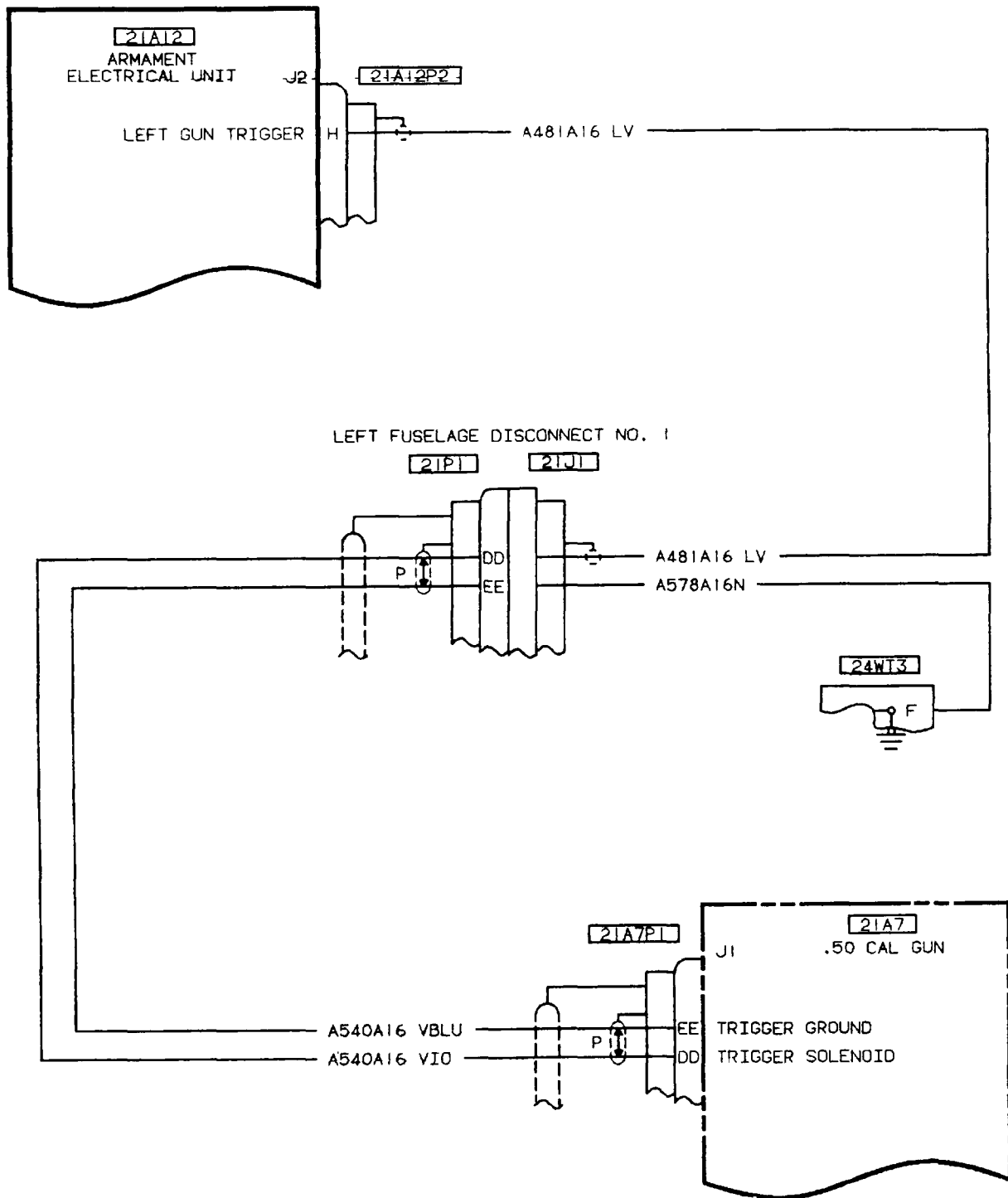
12. GUN DOES NOT FIRE WHEN WEAPONS FIRE SWITCH IS PRESSED TO FIRST DETENT (CONT)



12. GUN DOES NOT FIRE WHEN WEAPONS FIRE SWITCH IS PRESSED TO FIRST DETENT (CONT)

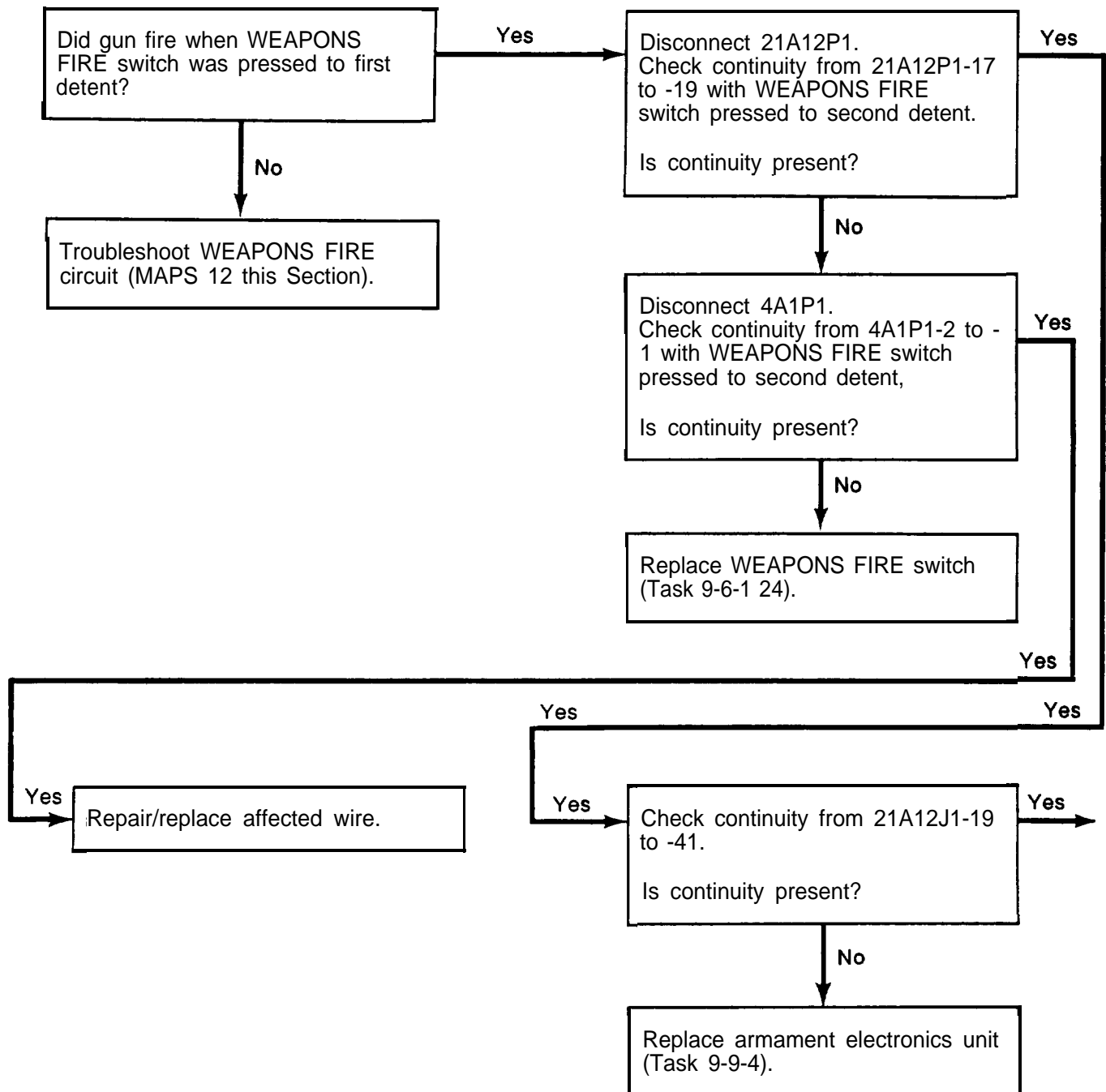
406475-506-1
H2133

12. GUN DOES NOT FIRE WHEN WEAPONS FIRE SWITCH IS PRESSED TO FIRST DETENT
(CONT)

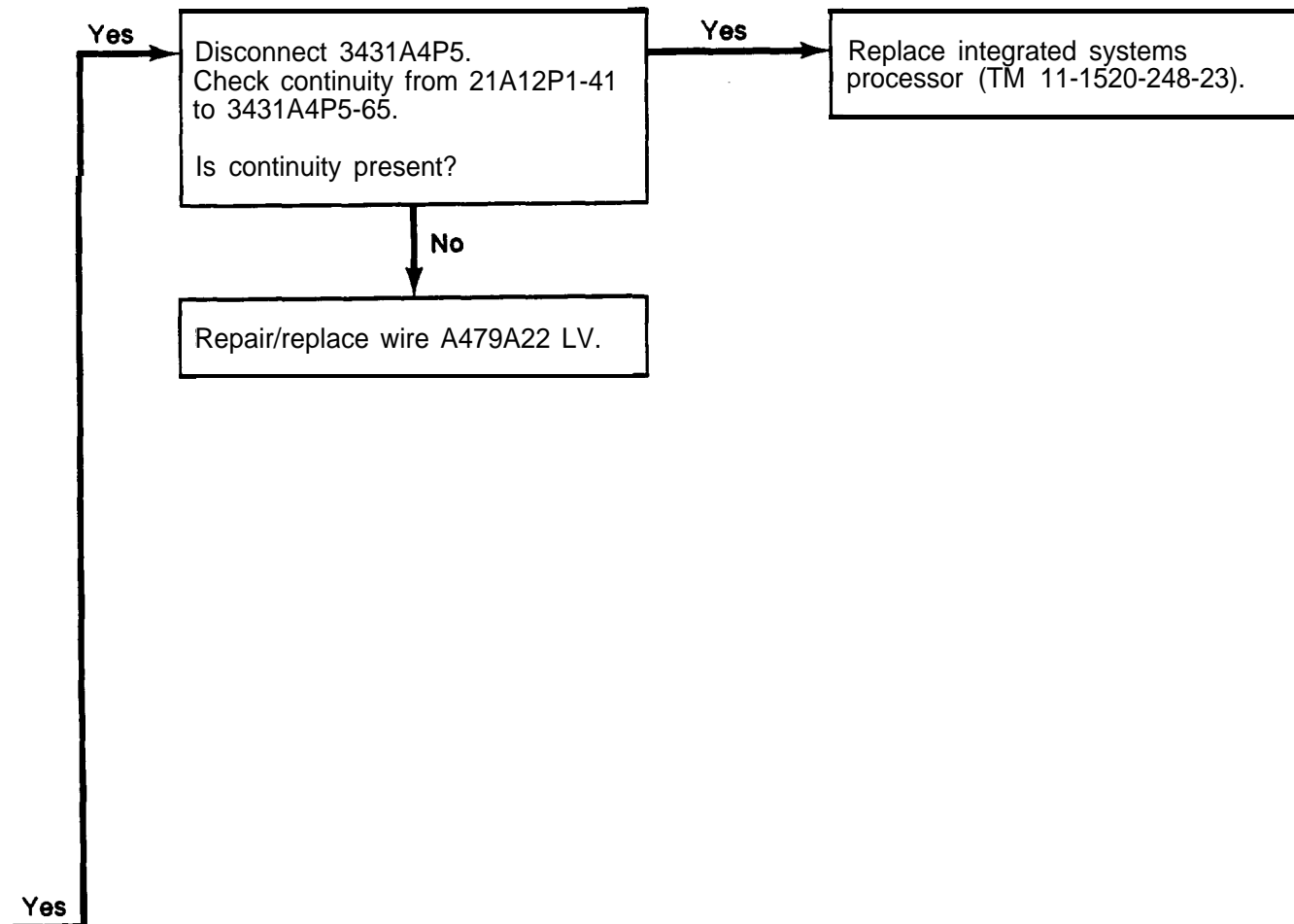


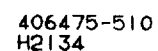
406475-506
H2133

13. GUN DOES NOT FIRE WHEN WEAPONS FIRE SWITCH IS PRESSED TO SECOND DETENT

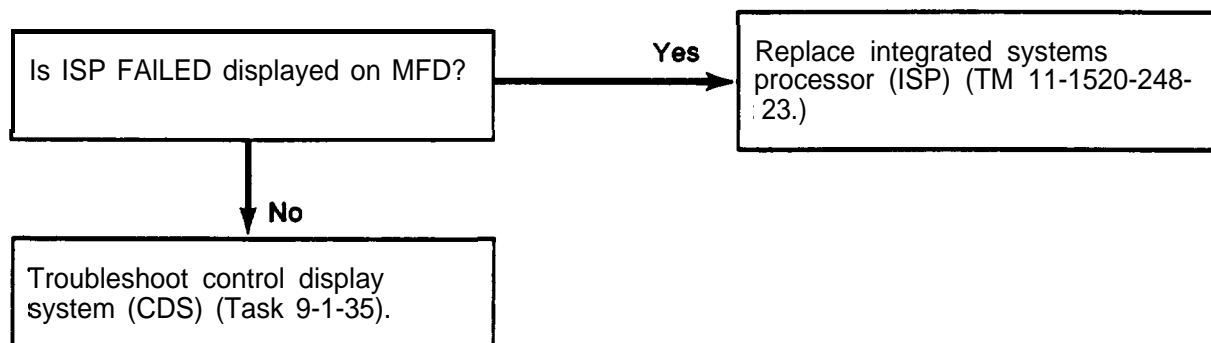


13. GUN DOES NOT FIRE WHEN WEAPONS FIRE SWITCH IS PRESSED TO SECOND DETENT
(CONT)

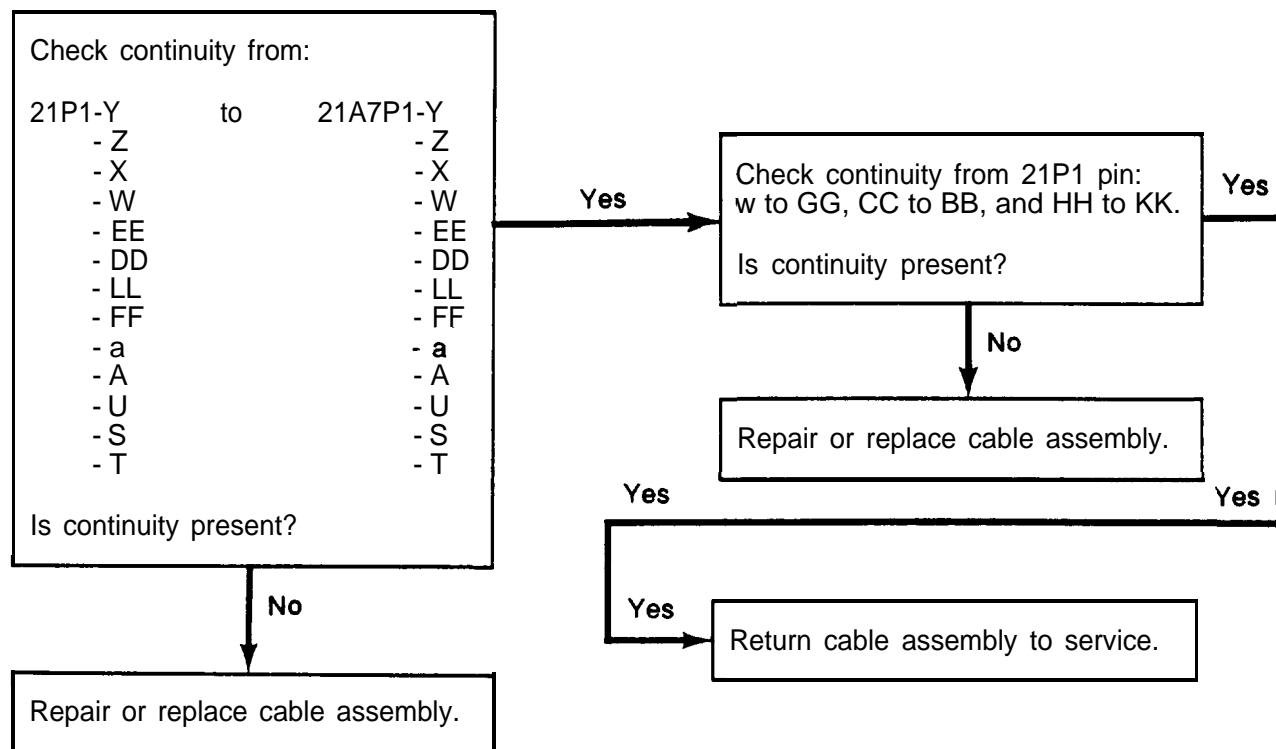




14. GUN DOES NOT FIRE WITH ISP FAILED AND WEAPONS FIRE SWITCH PRESSED TO SECOND DETENT



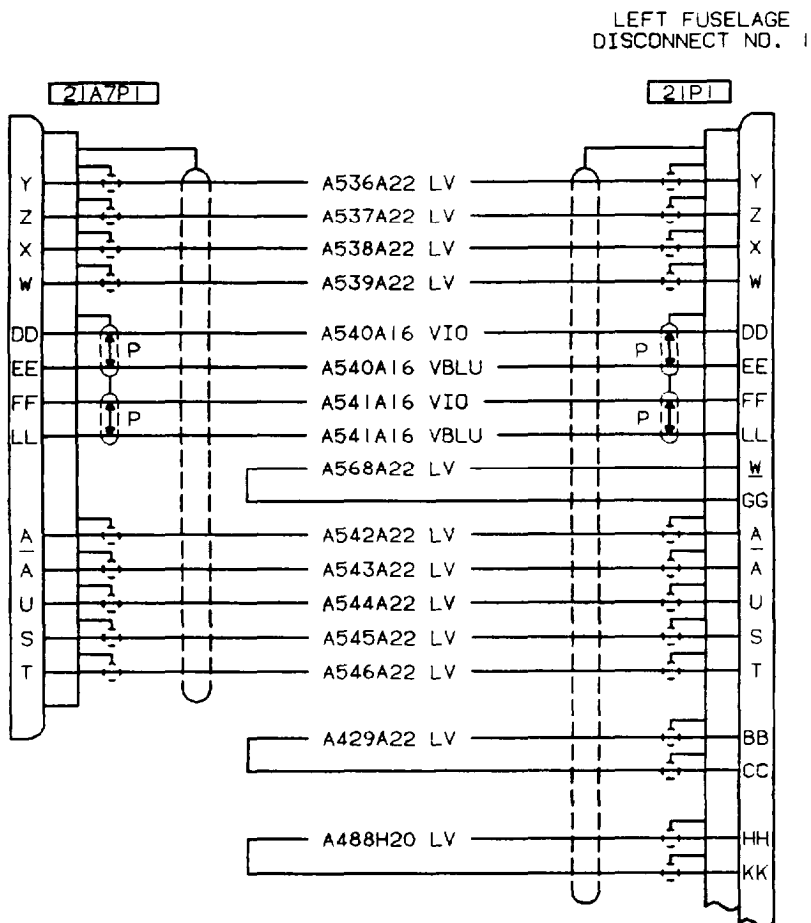
15. FAULTY ARMAMENT CABLE ASSEMBLY (GUN)



15. FAULTY ARMAMENT CABLE ASSEMBLY (GUN) (CONT)

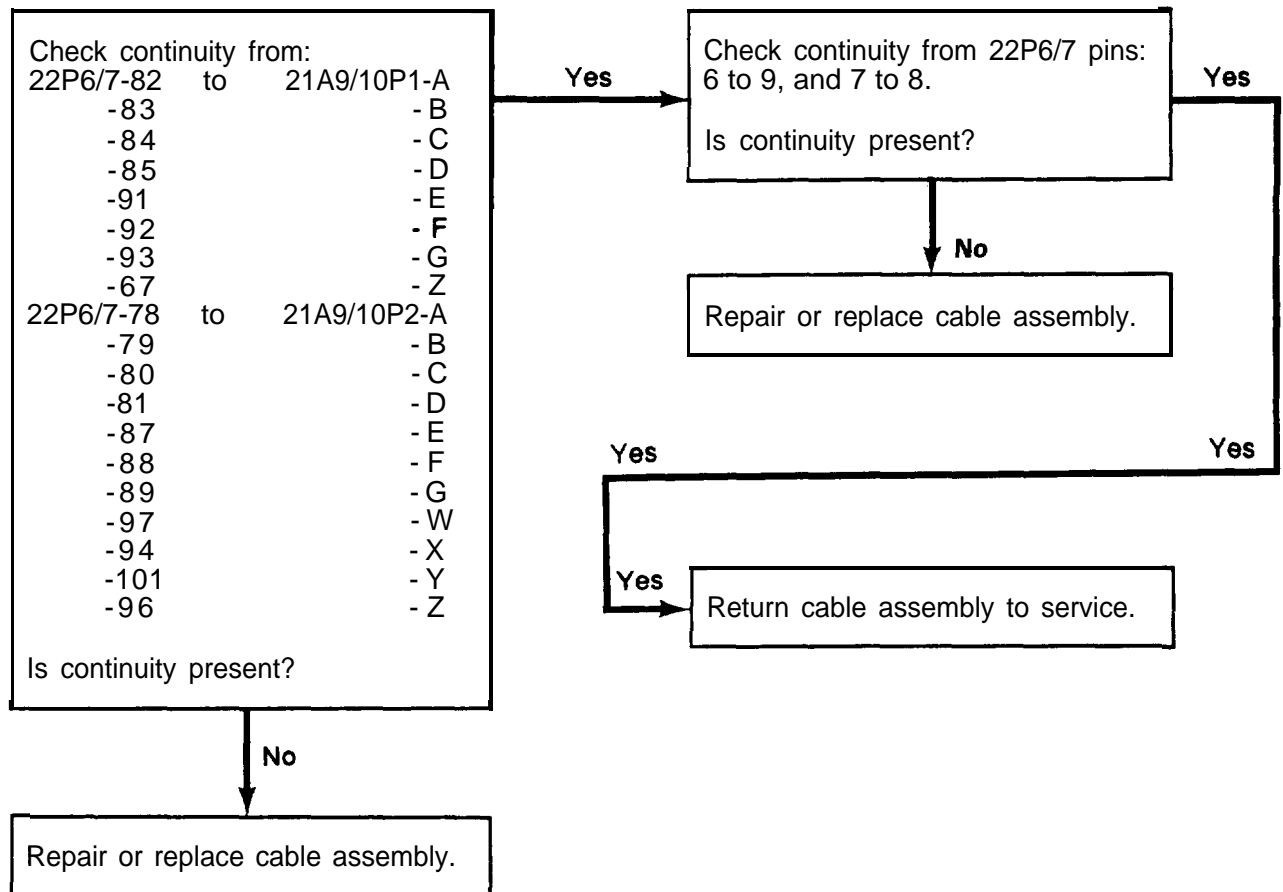
NOTE

Underlined connector contact letters denote lower case.

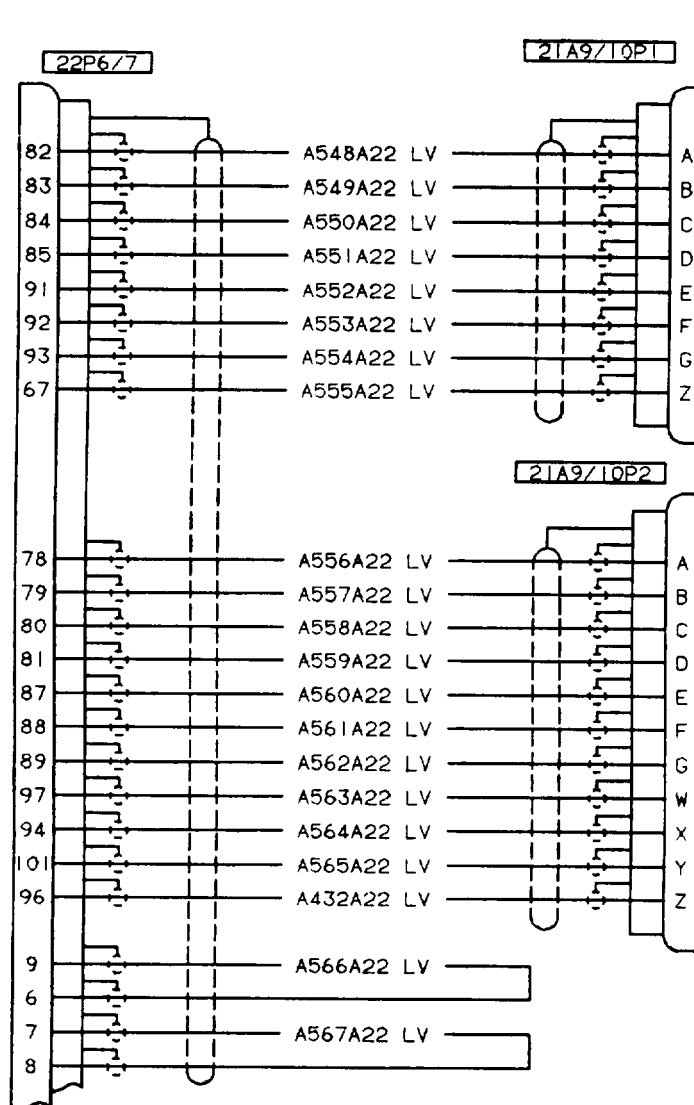


406475-503
H2118

16. FAULTY ARMAMENT CABLE ASSEMBLY (RCKT)

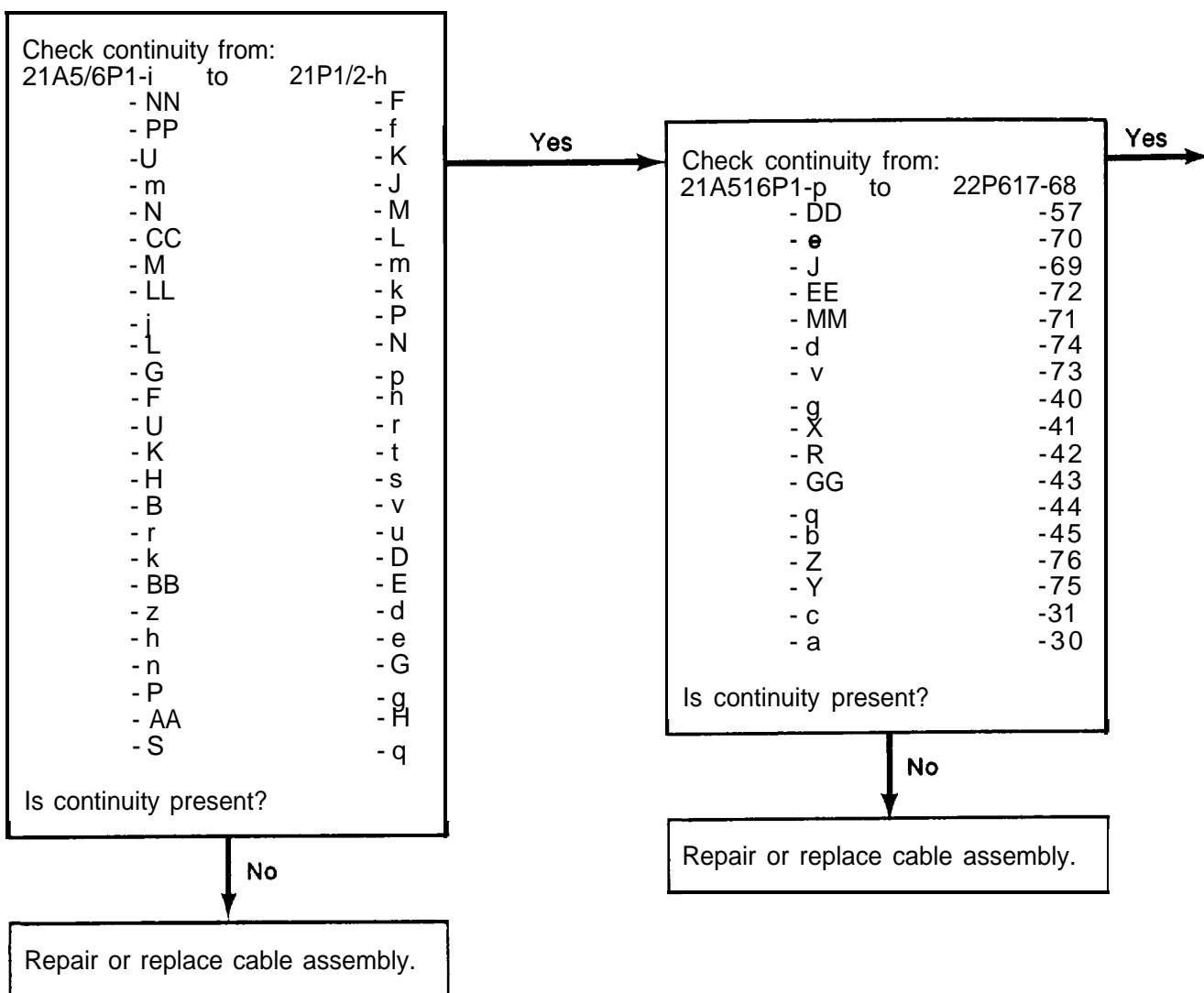


16. FAULTY ARMAMENT CABLE ASSEMBLY (RCKT) (CONT)

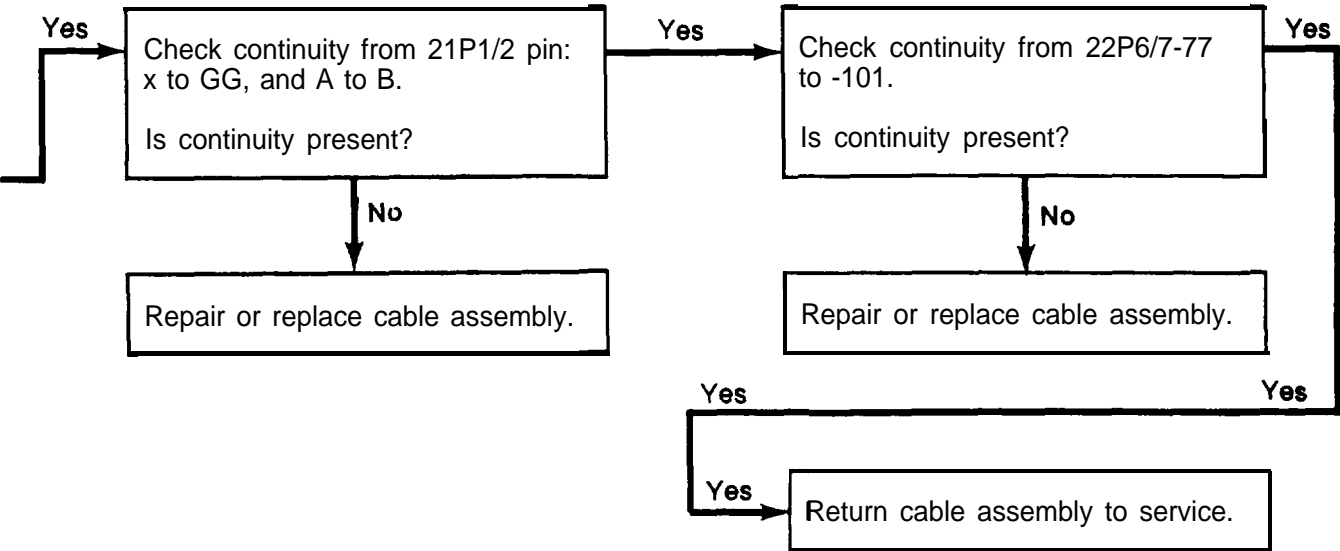


406475-499
H2119

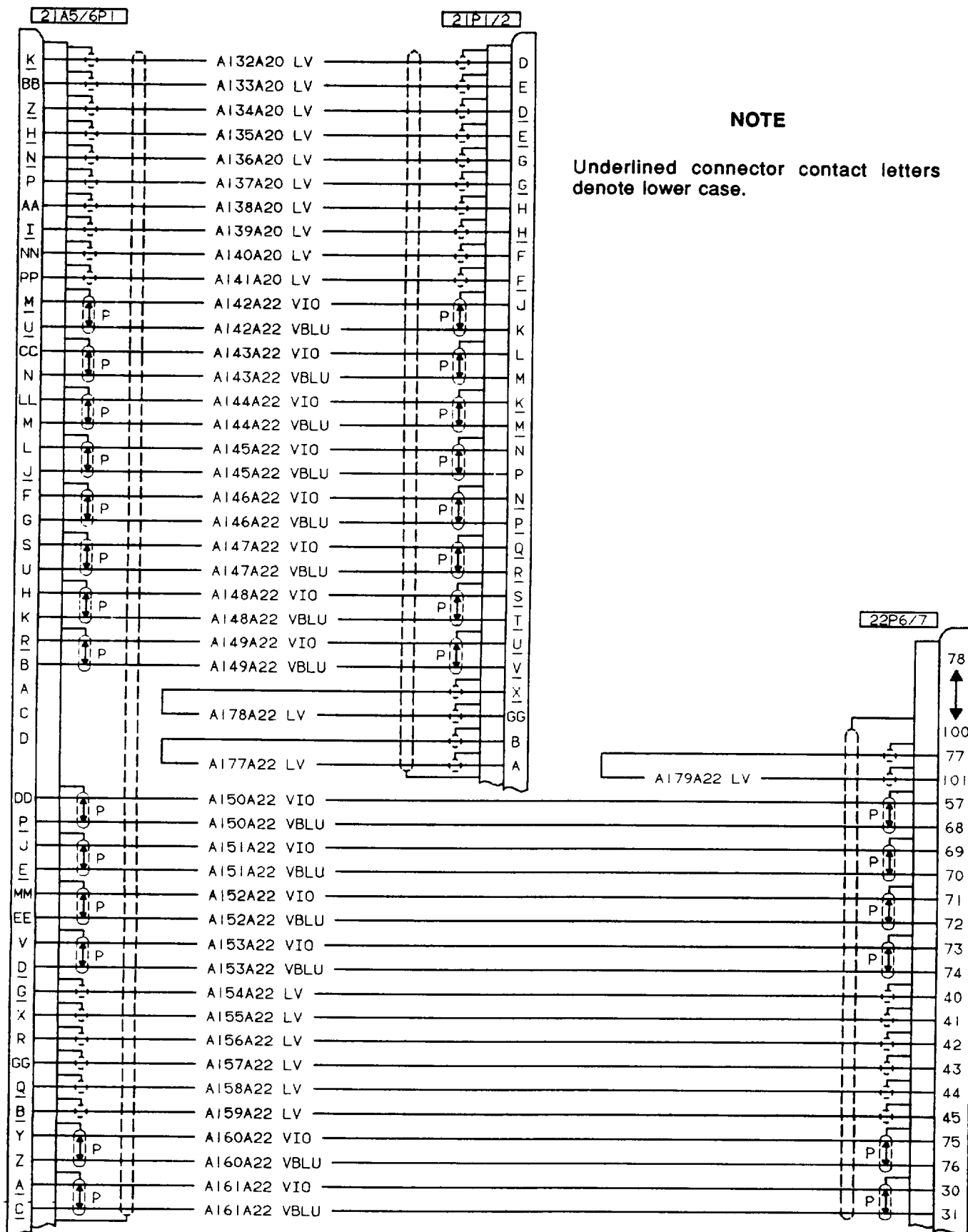
17. FAULTY ARMAMENT CABLE ASSEMBLY (ATAS)



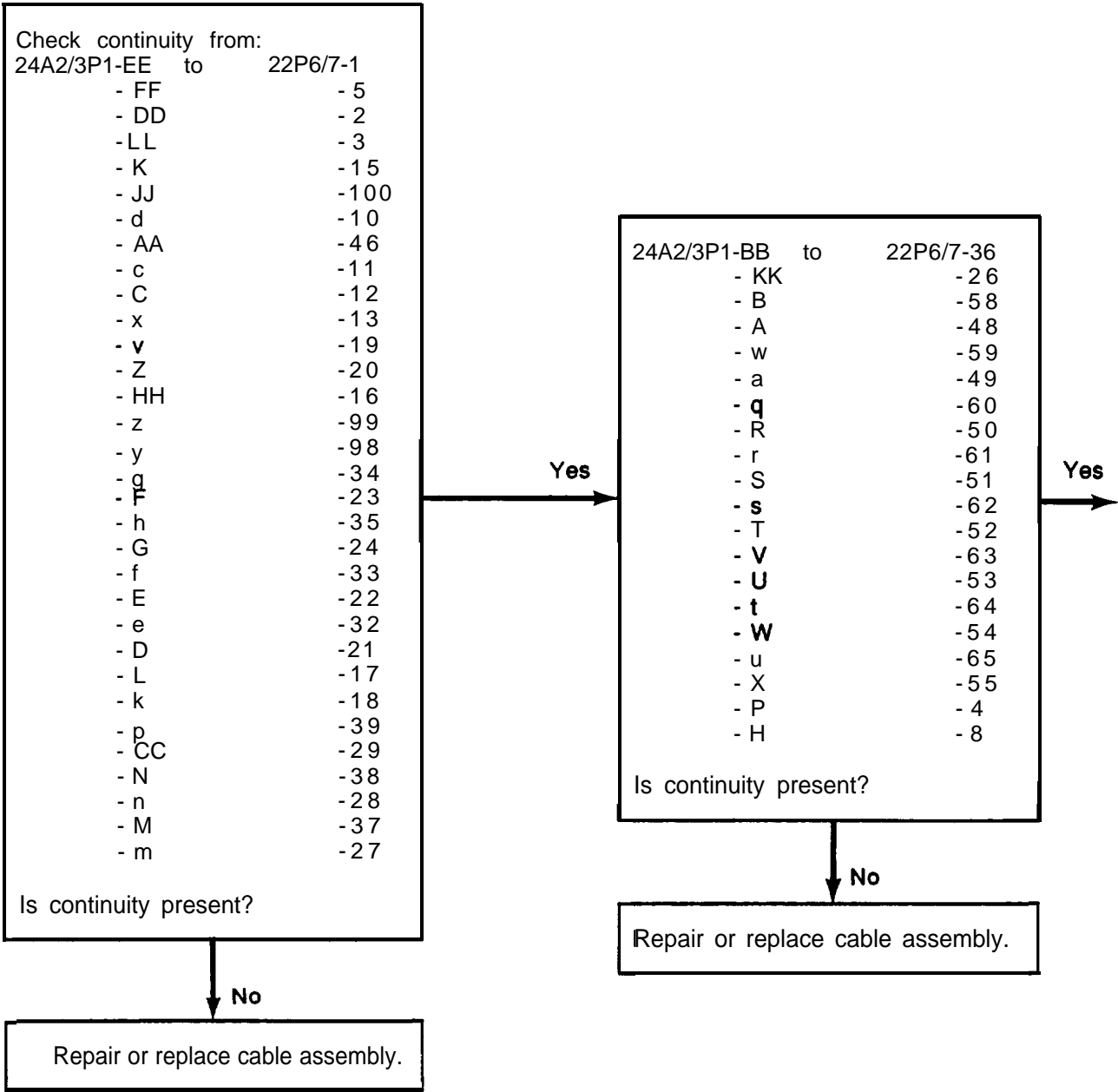
17. FAULTY ARMAMENT CABLE ASSEMBLY (ATAS) (CONT)



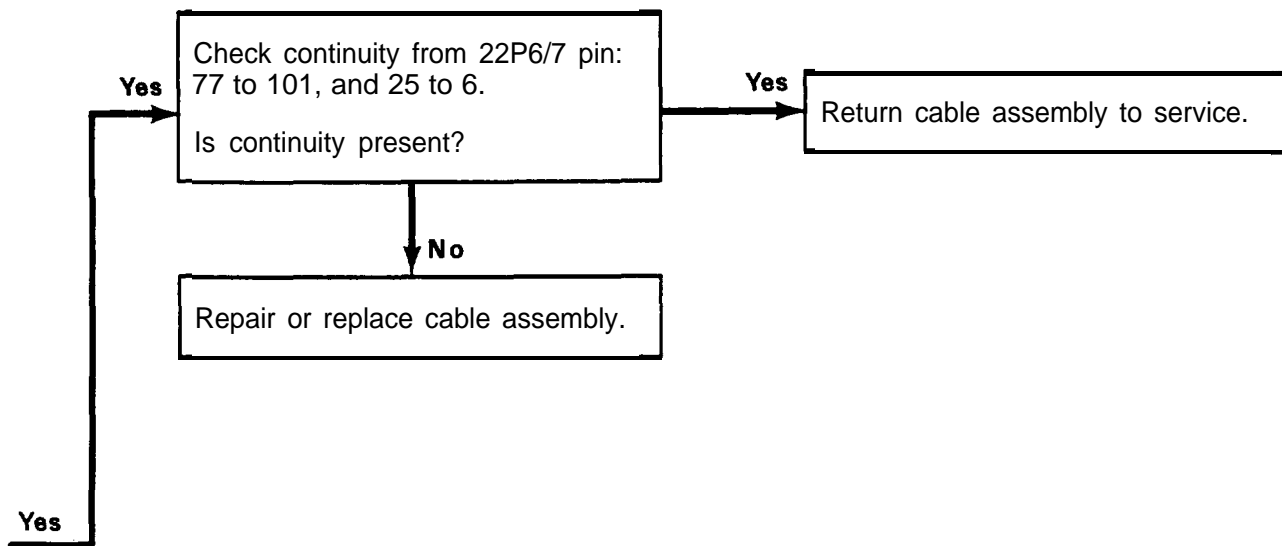
17. FAULTY ARMAMENT CABLE ASSEMBLY (ATAS) (CONT)

406475-500
H2120

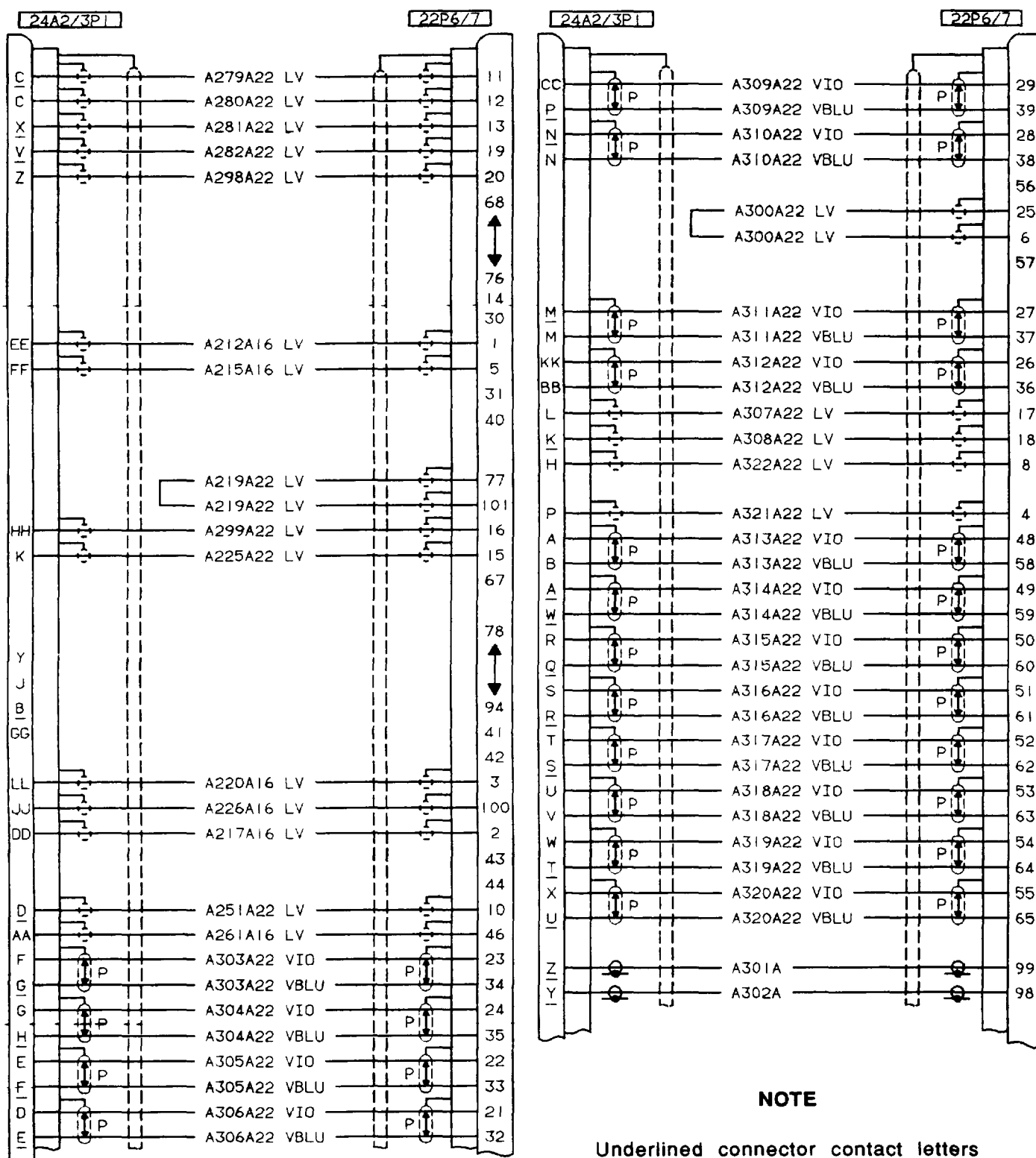
18. FAULTY ARMAMENT CABLE ASSEMBLY (HELLFIRE)



18. FAULTY ARMAMENT CABLE ASSEMBLY (HELLFIRE) (CONT)



18. FAULTY ARMAMENT CABLE ASSEMBLY (HELLFIRE) (CONT)

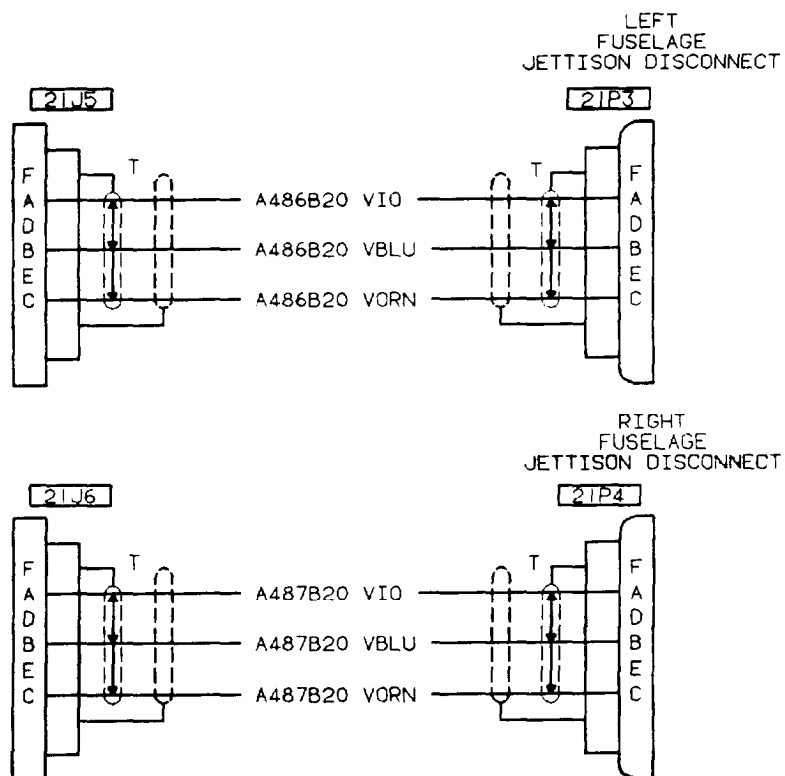
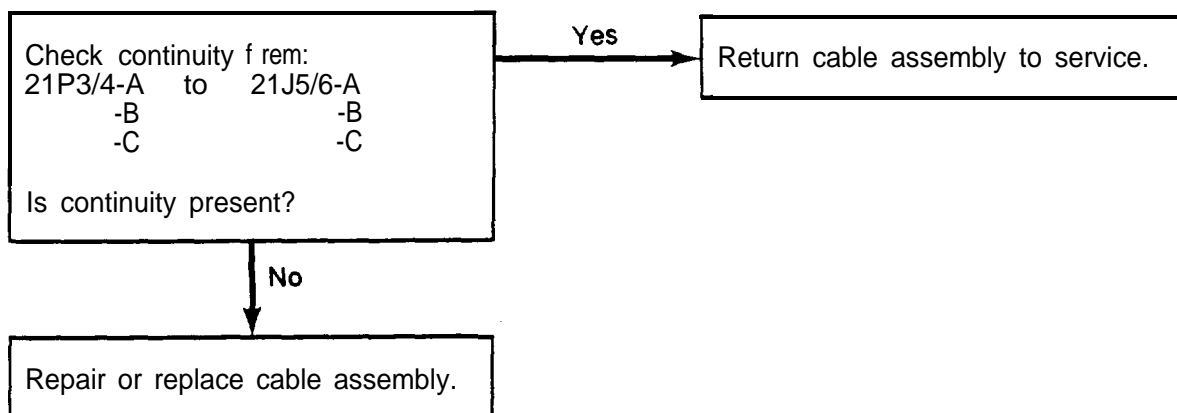


NOTE

Underlined connector contact letters denote lower case.

406475-501
H2121

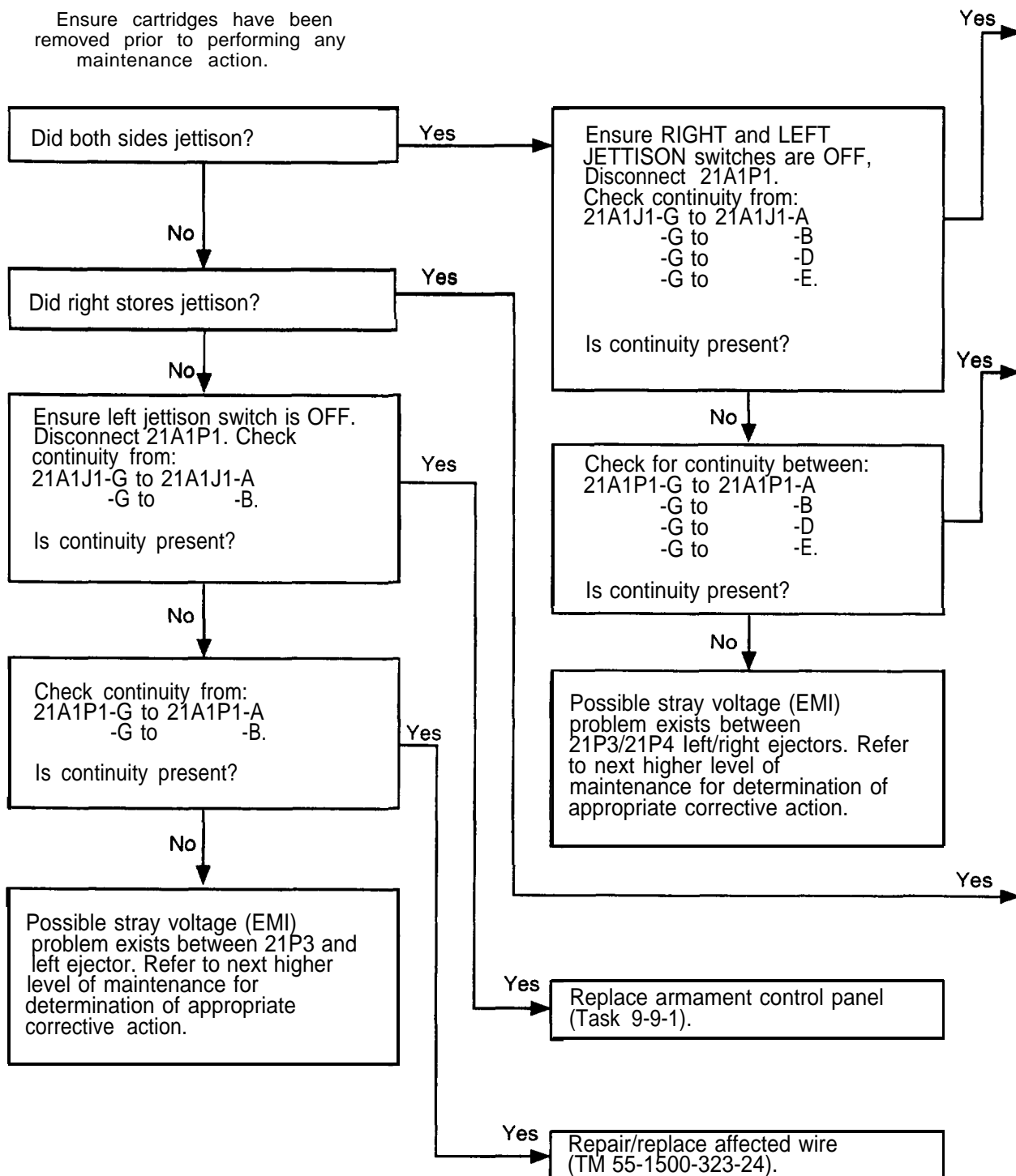
19. FAULTY JETTISON CABLE ASSEMBLY

406475-502
H2122

20. STORES JETTISON UPON POWER UP

WARNING

Ensure cartridges have been removed prior to performing any maintenance action.

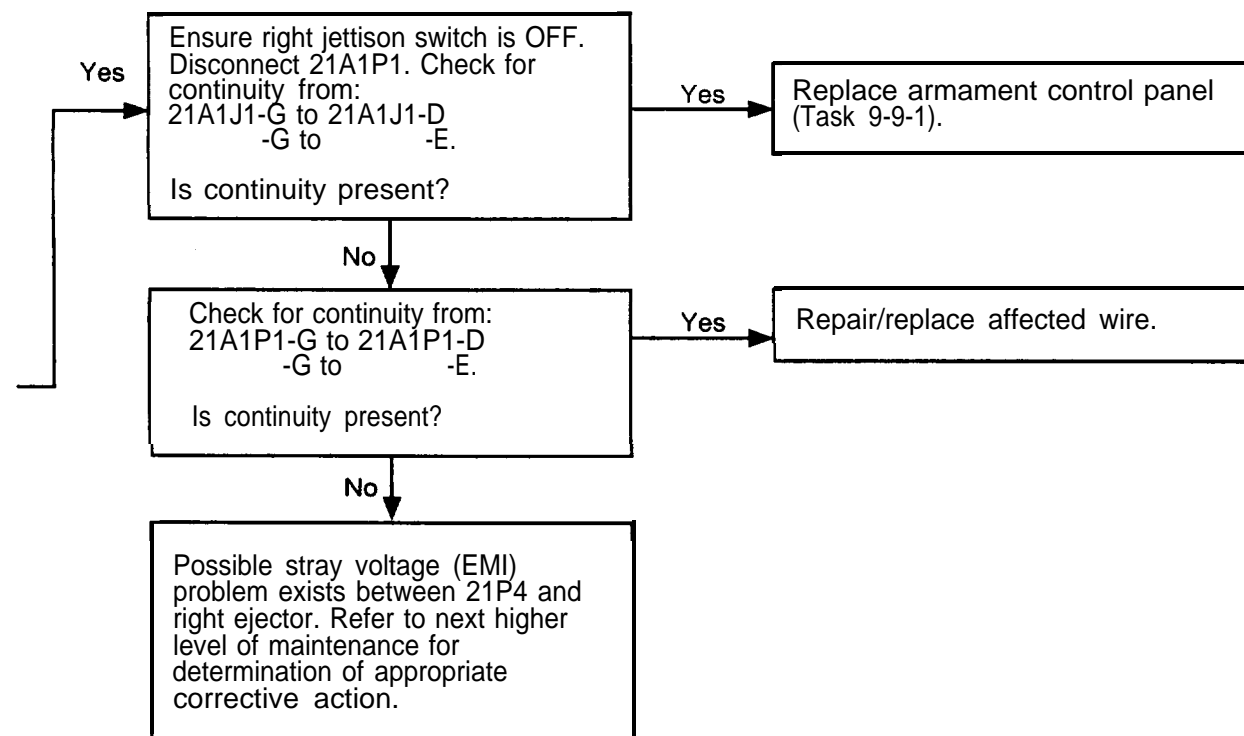


TM55-248-N20-1
H3551

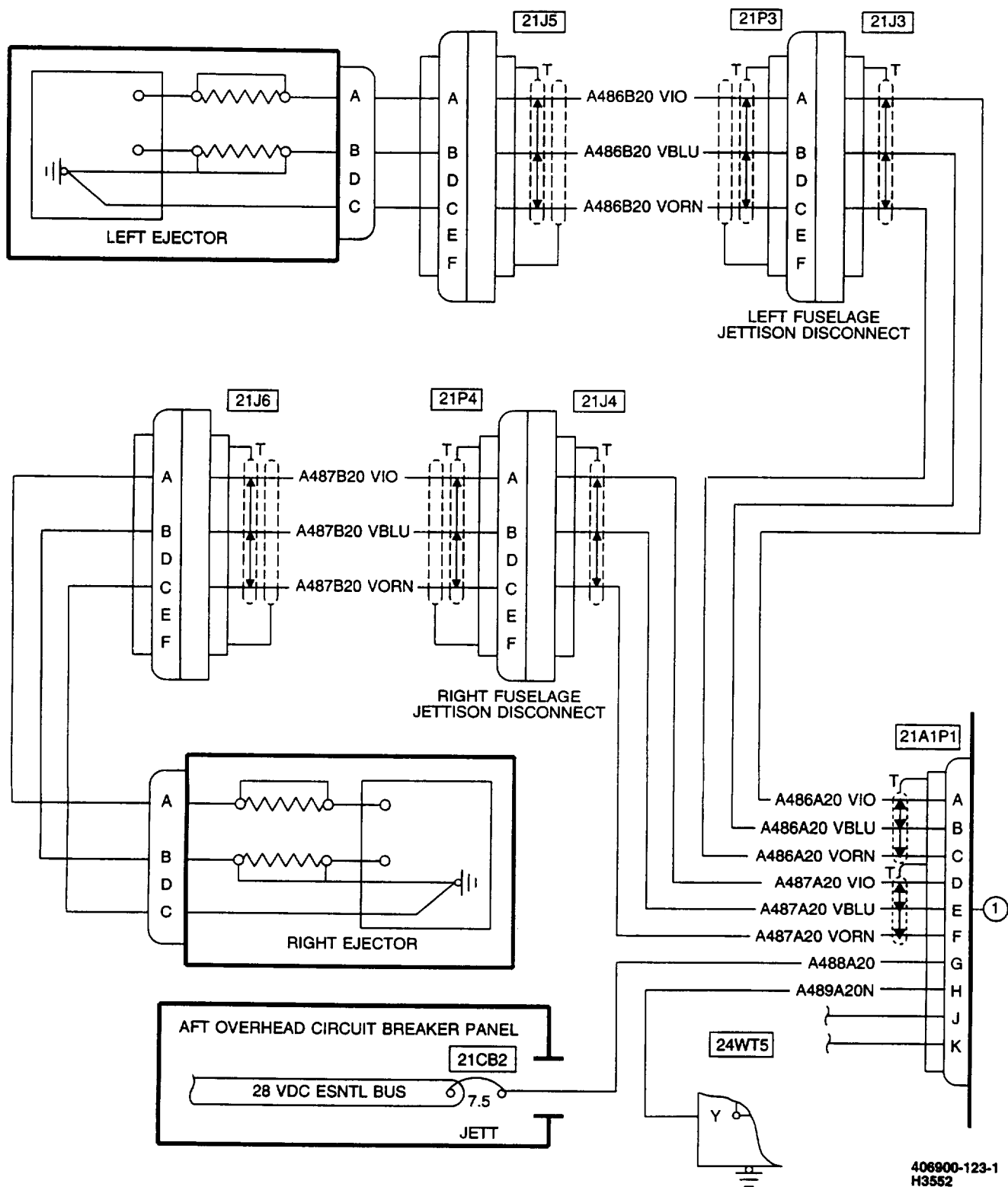
20. STORES JETTISON UPON POWER UP (CONT)

Yes → Replace armament control panel (Task 9-9-1).

Yes → Repair/replace affected wire.

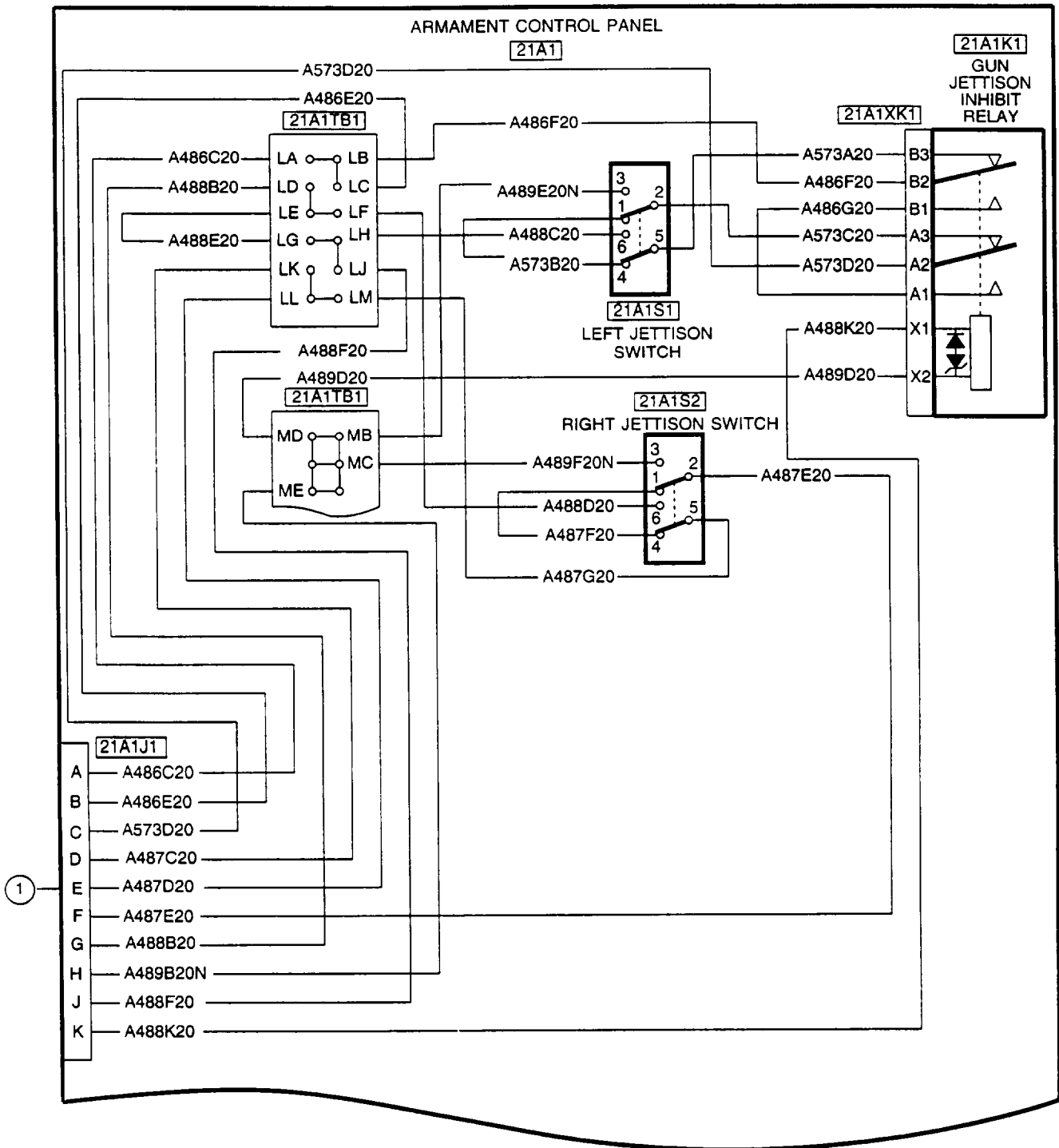


20. STORES JETTISON UPON POWER UP (CONT)



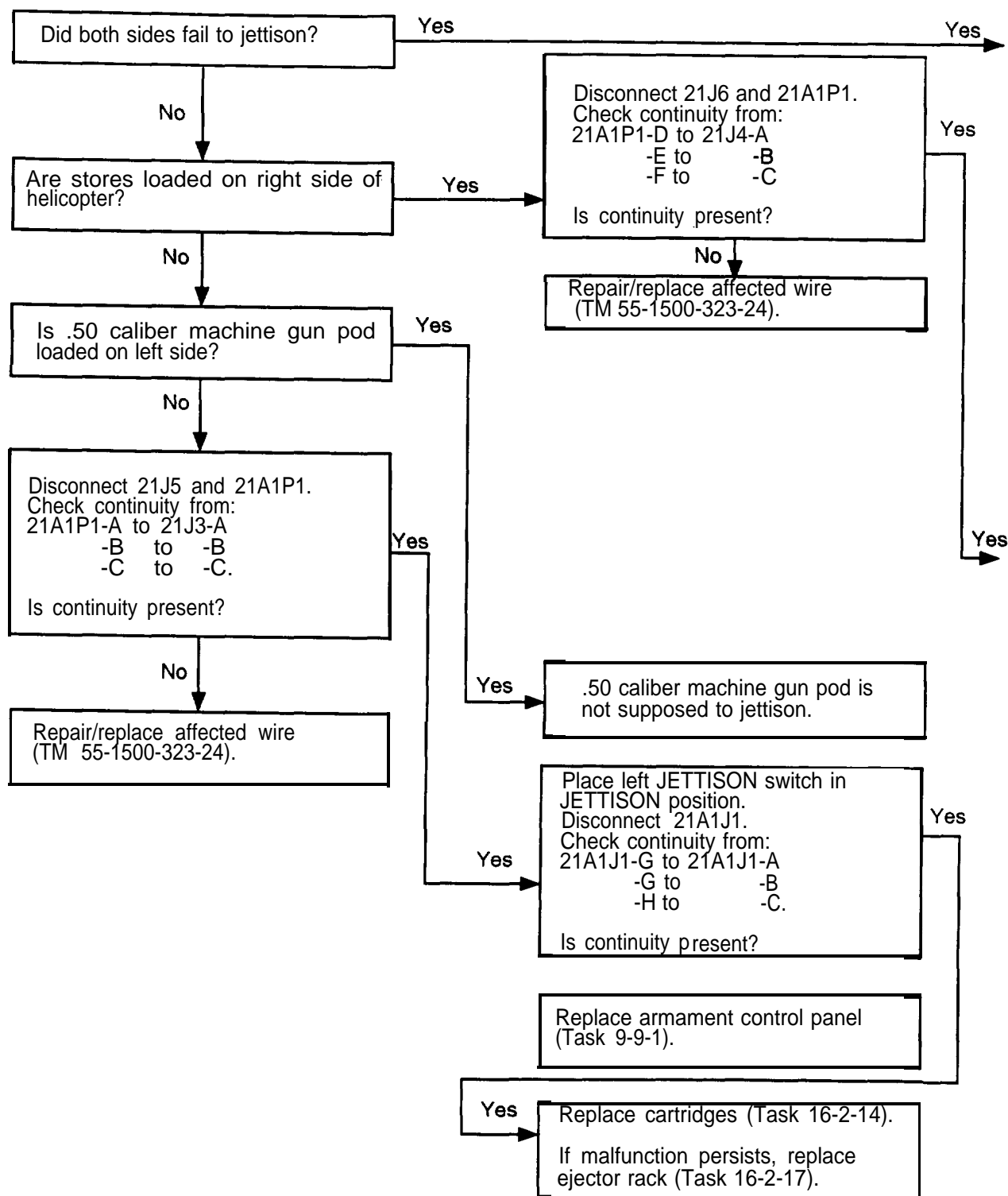
406900-123-1
H3552

20. STORES JETTISON UPON POWER UP (CONT)

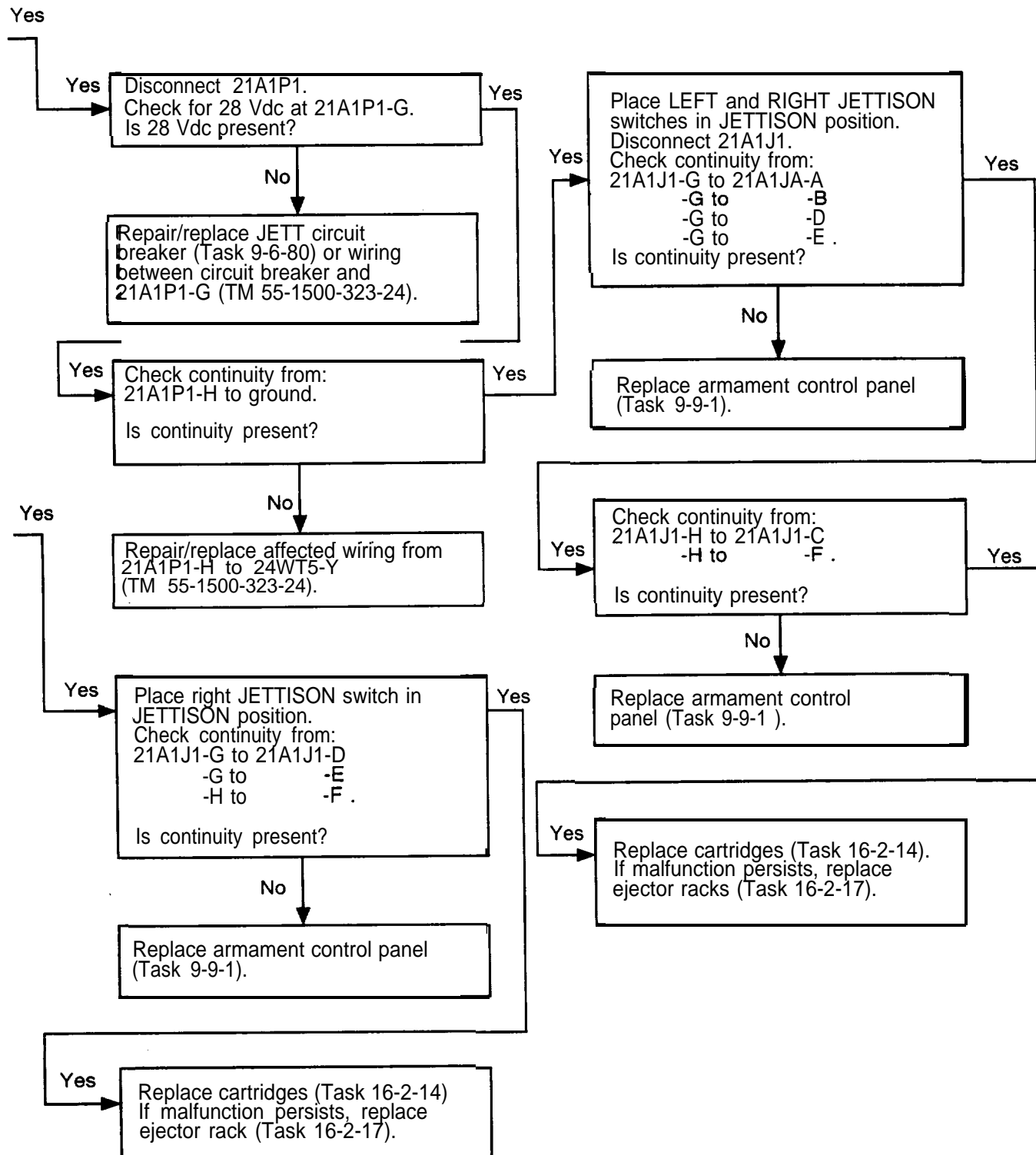


406900-123-2
H3552

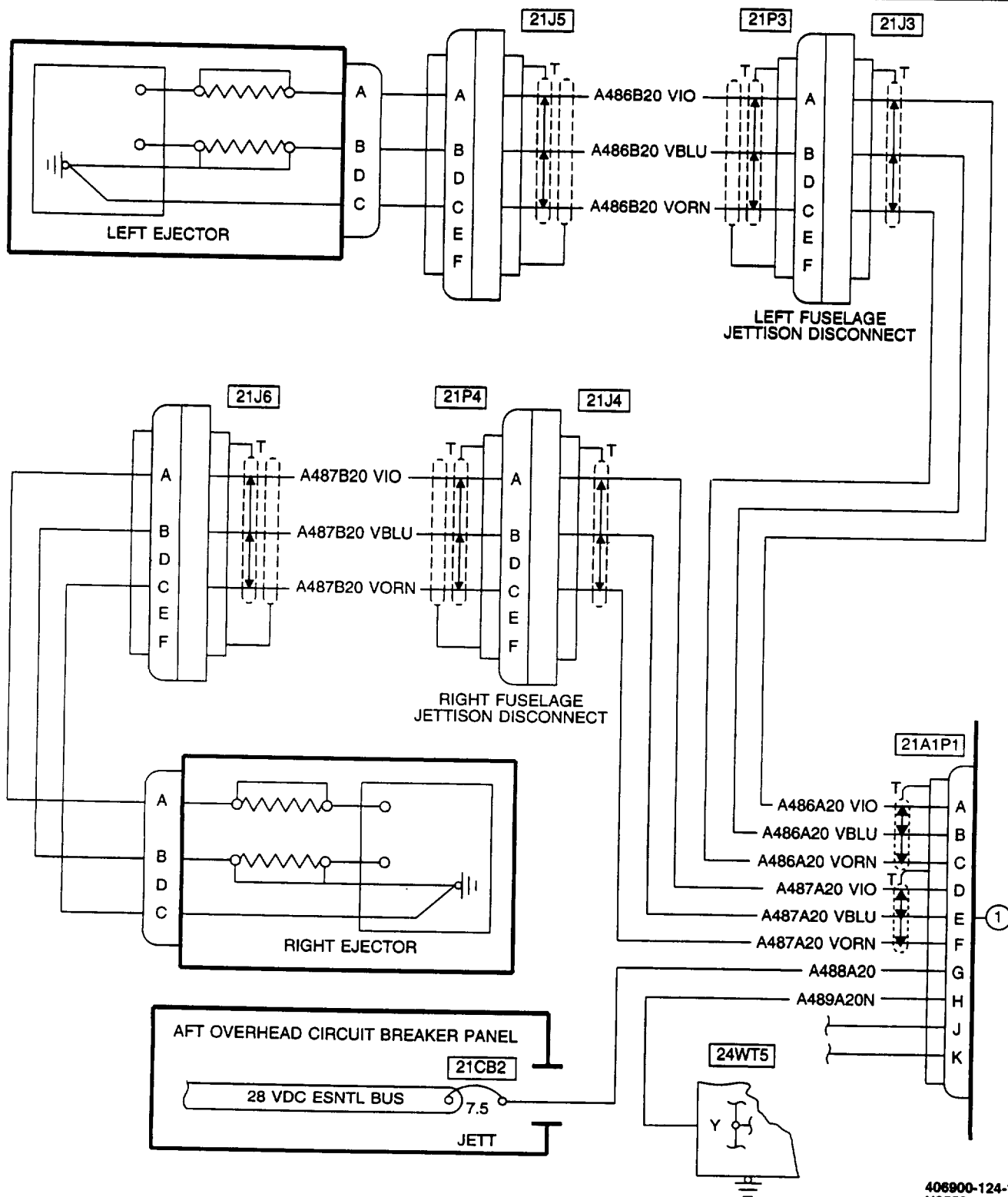
21. STORES FAIL TO JETTISON

TM55-248-N21-1
H3551

21. STORES FAIL TO JETTISON (CONT)

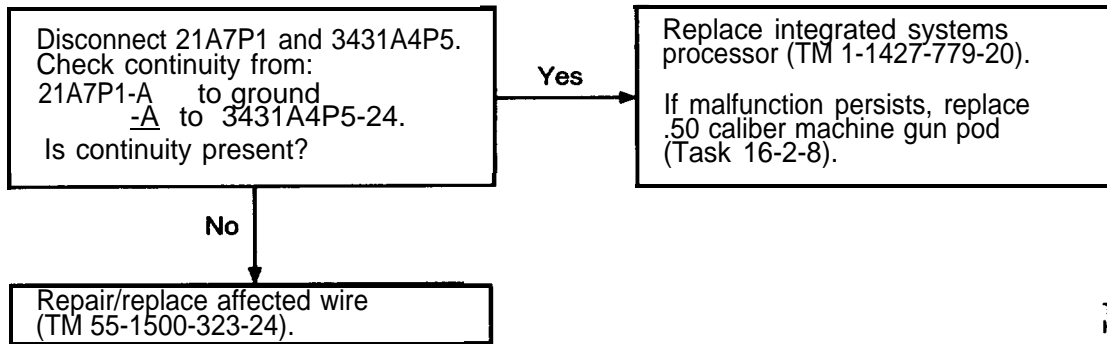
TM55-248-N21-2
H3551

21. STORES FAIL TO JETTISON (CONT)

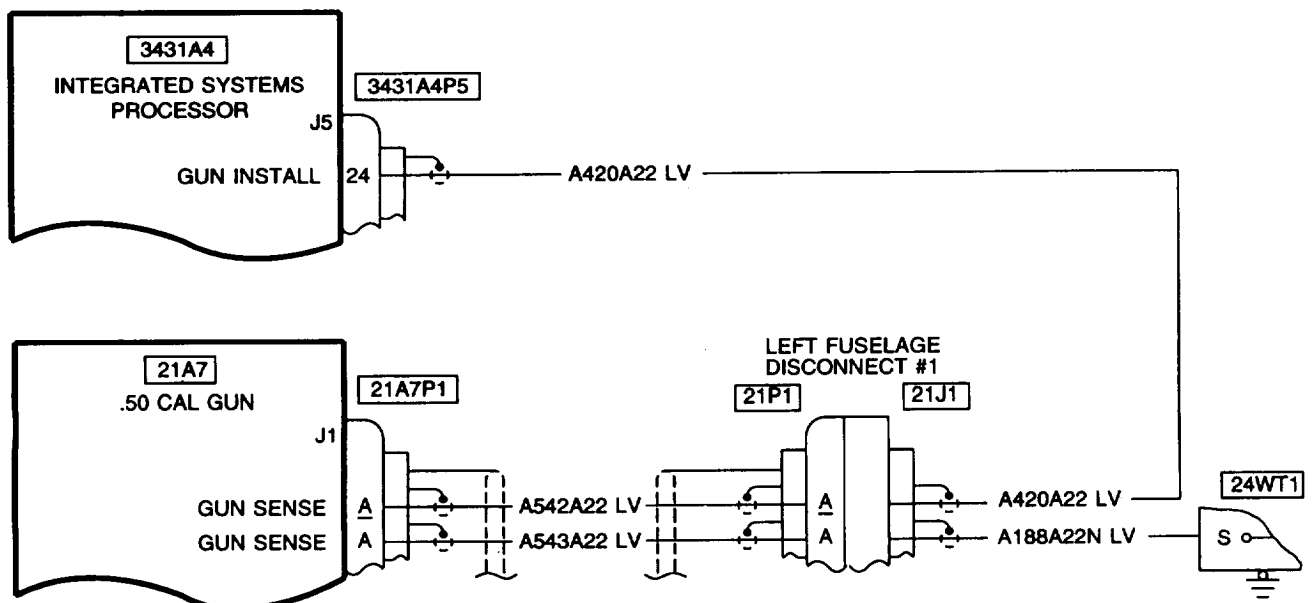


406900-124-1
H3552

22. GUN DOES NOT INDICATE AS INSTALLED ON THE MFD

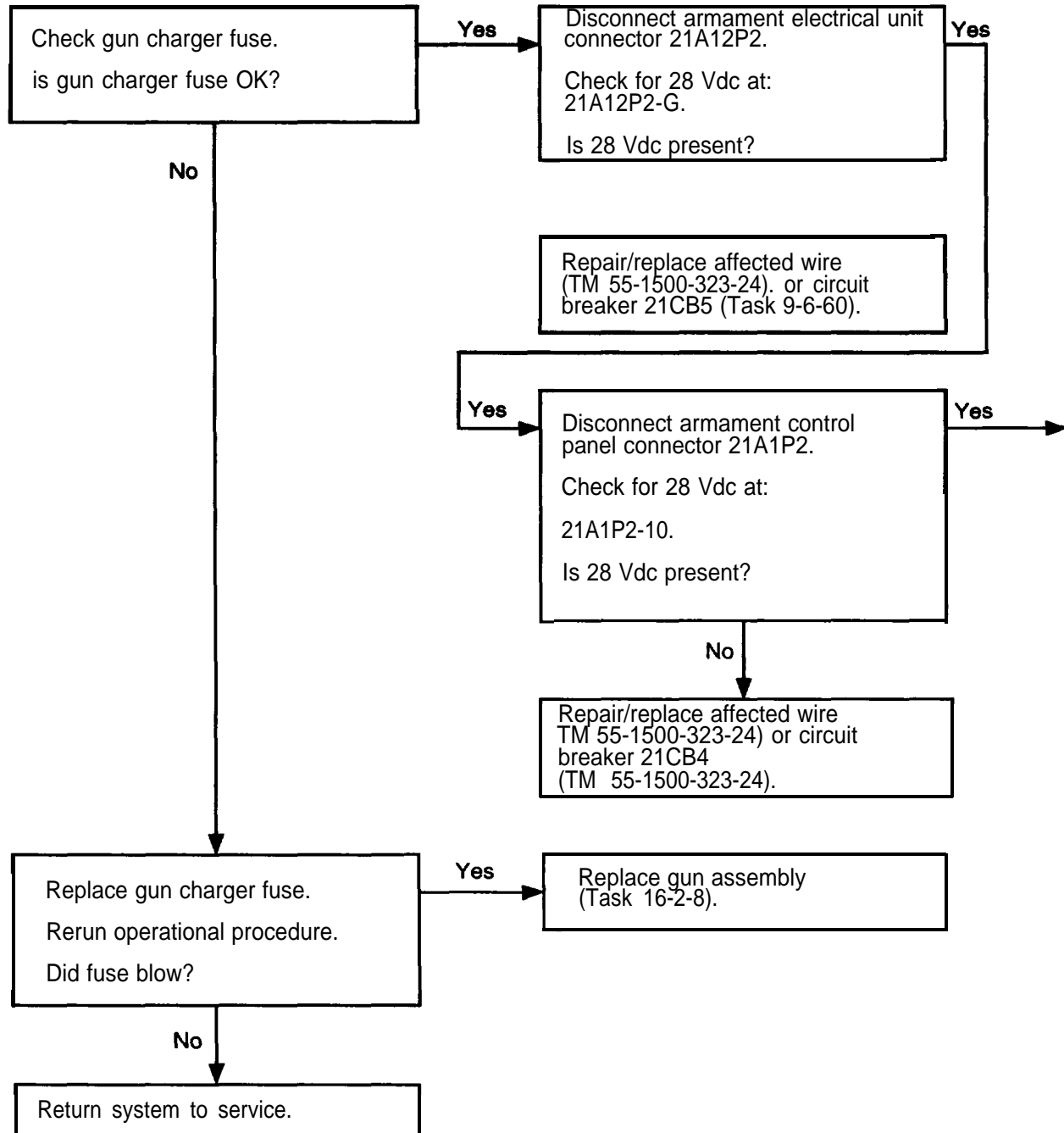


TM55_248_N22
H3425

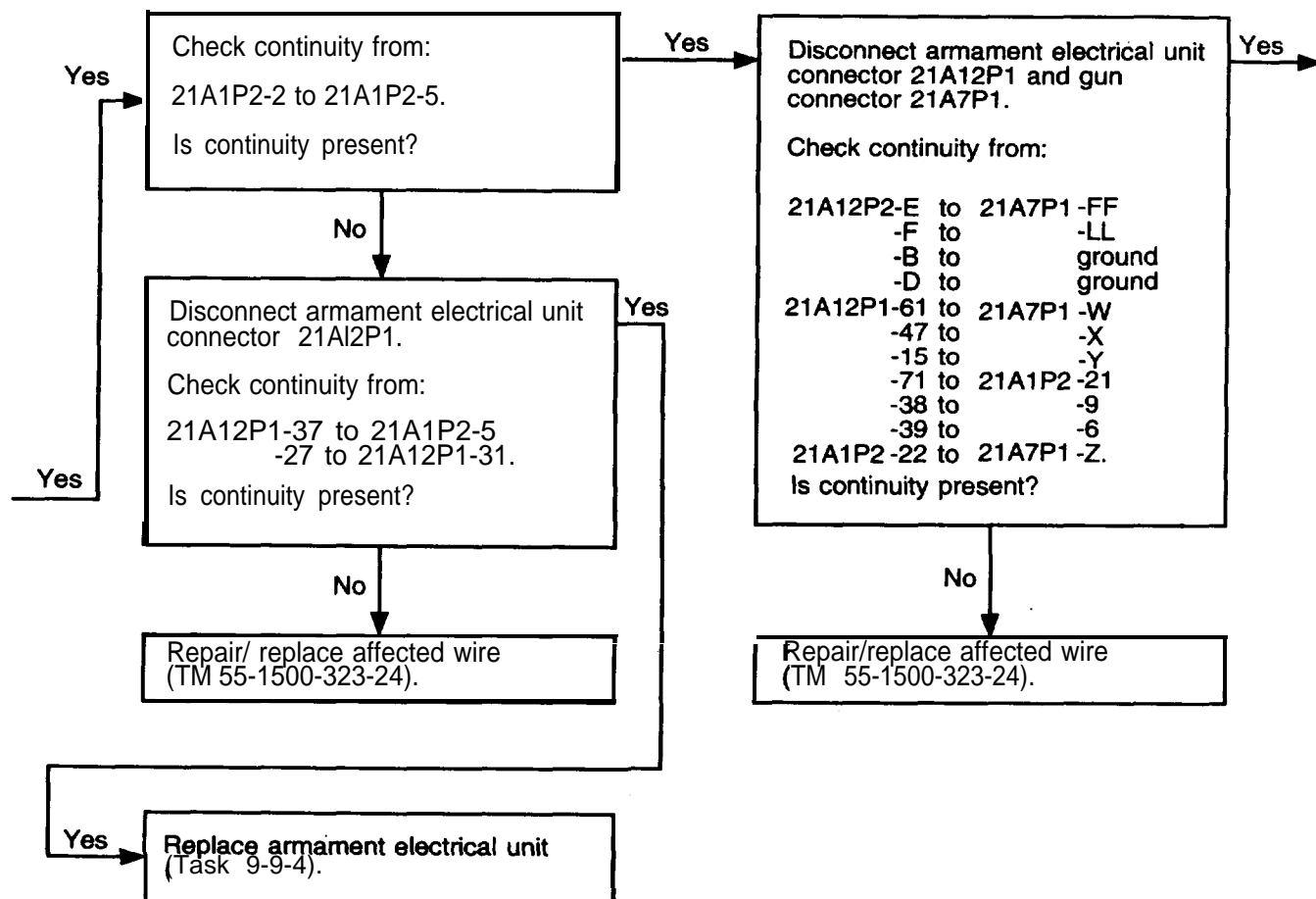


406900-141-1
H5073

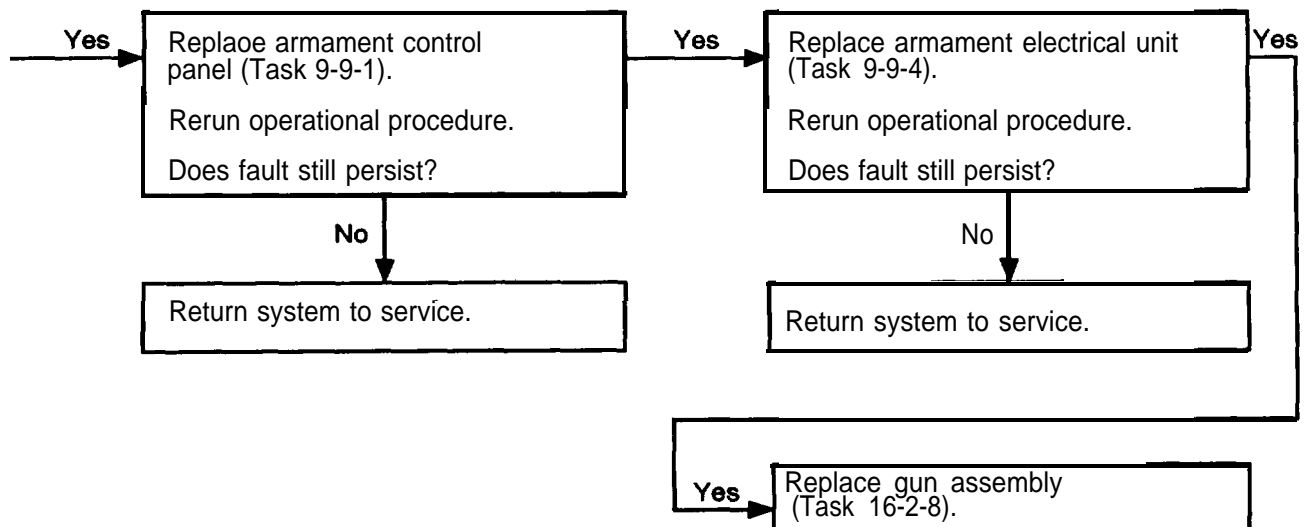
23. GUN SHOWS AS INSTALLED BUT DOES NOT OPERATE

TM55_248_N23_1
H5073

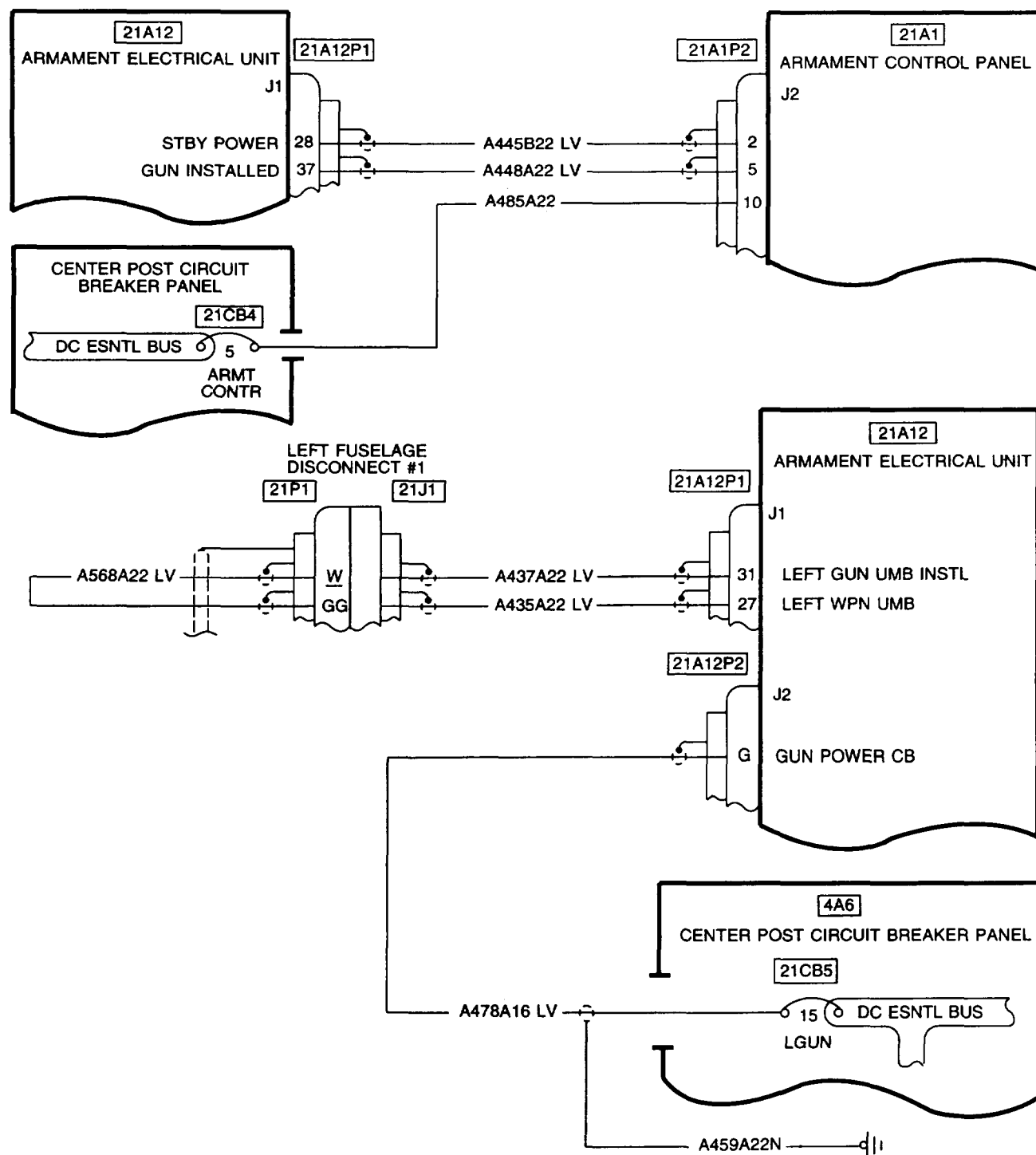
23. GUN SHOWS AS INSTALLED BUT DOES NOT OPERATE (CONT)

TM55_248_N23_2
H5073

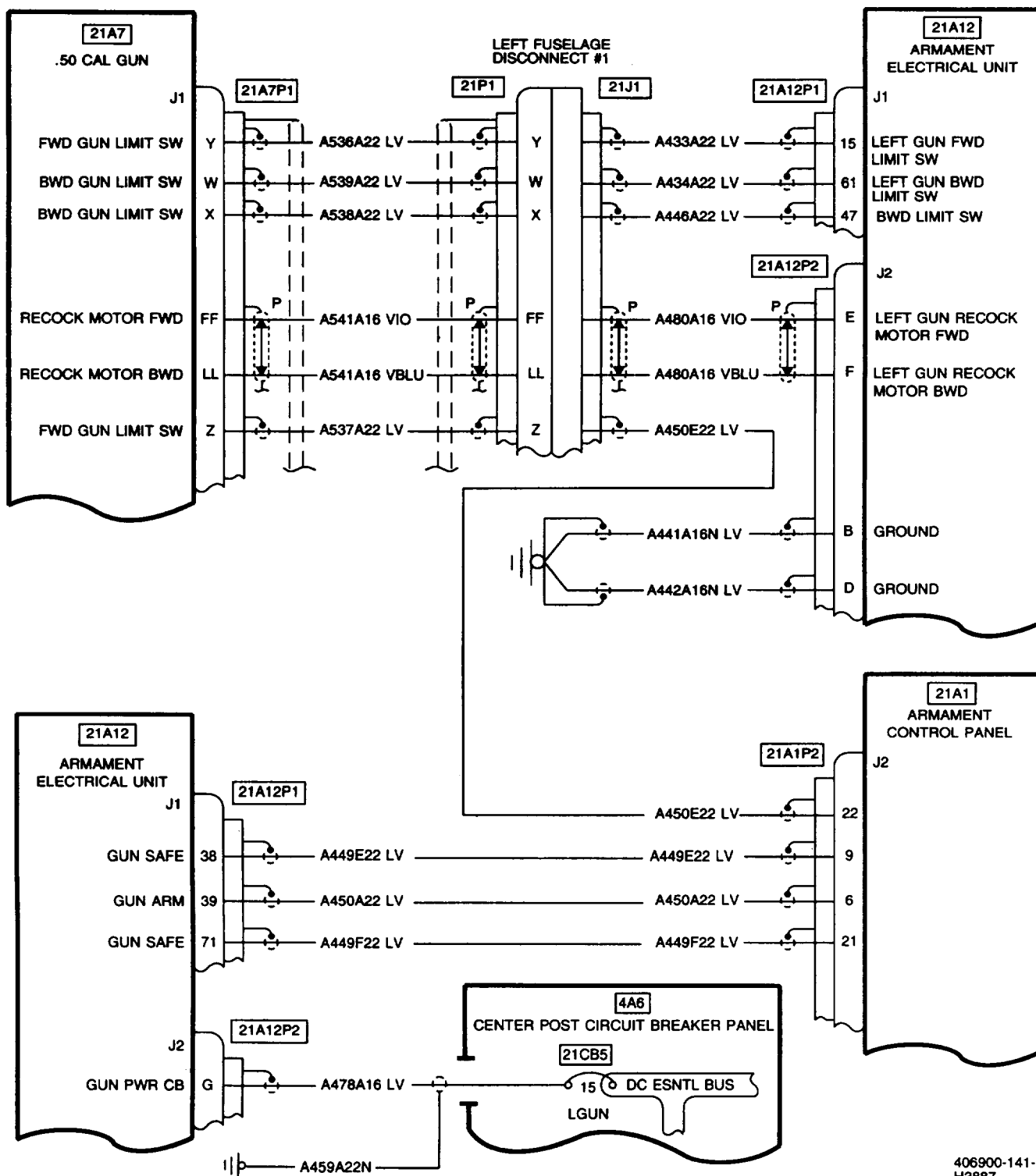
23. GUN SHOWS AS INSTALLED BUT DOES NOT OPERATE (CONT)

TM55_248_N23_3
H3425

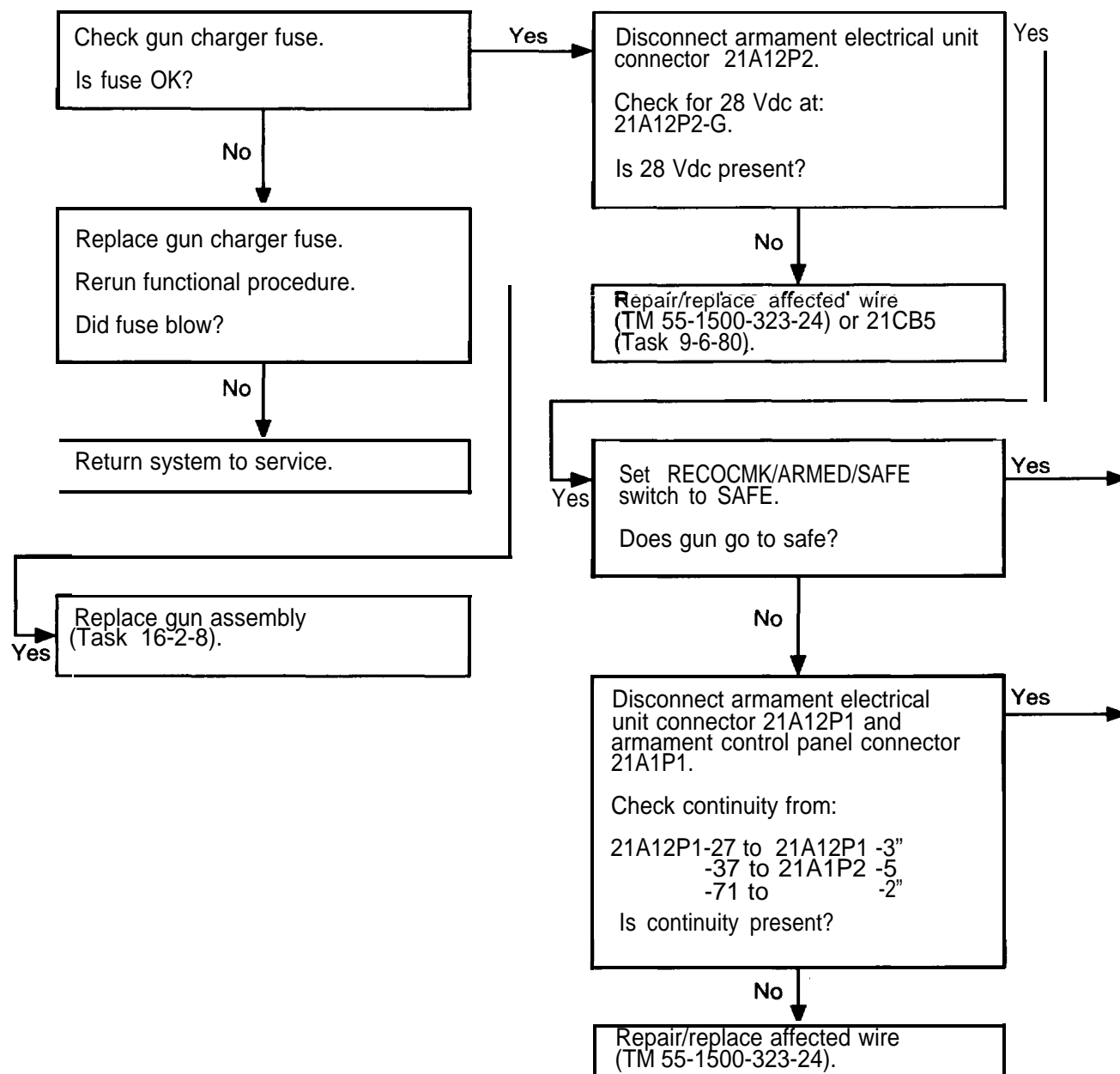
23. GUN SHOWS AS INSTALLED BUT DOES NOT OPERATE (CONT)

406900-141-2
H5073

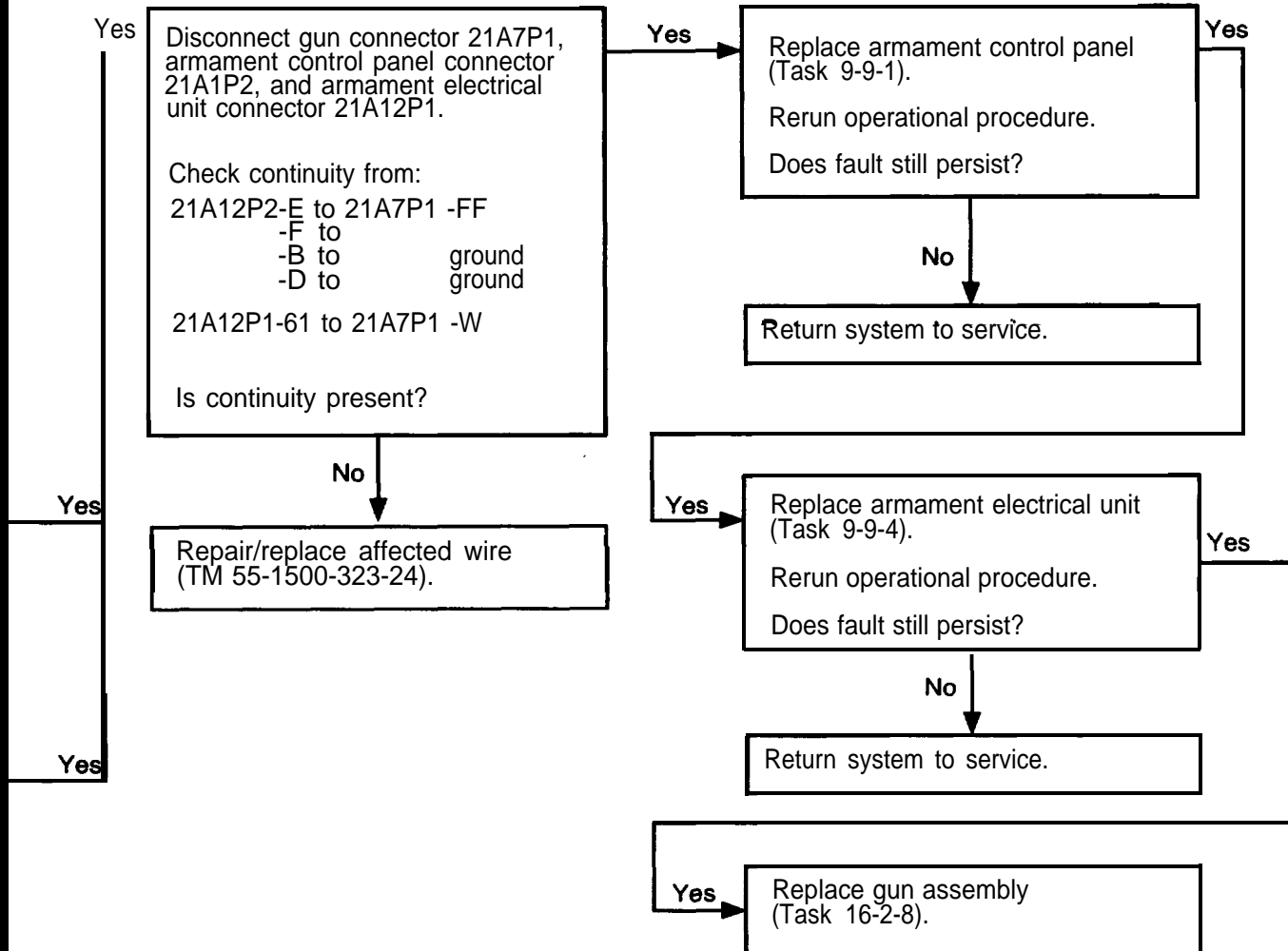
23. GUN SHOWS AS INSTALLED BUT DOES NOT OPERATE (CONT)

406900-141-3
H3887

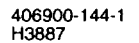
24. GUN WILL NOT RESPOND TO GUN RECOCK SWITCH COMMAND

TM55_248_N24_1
H5073

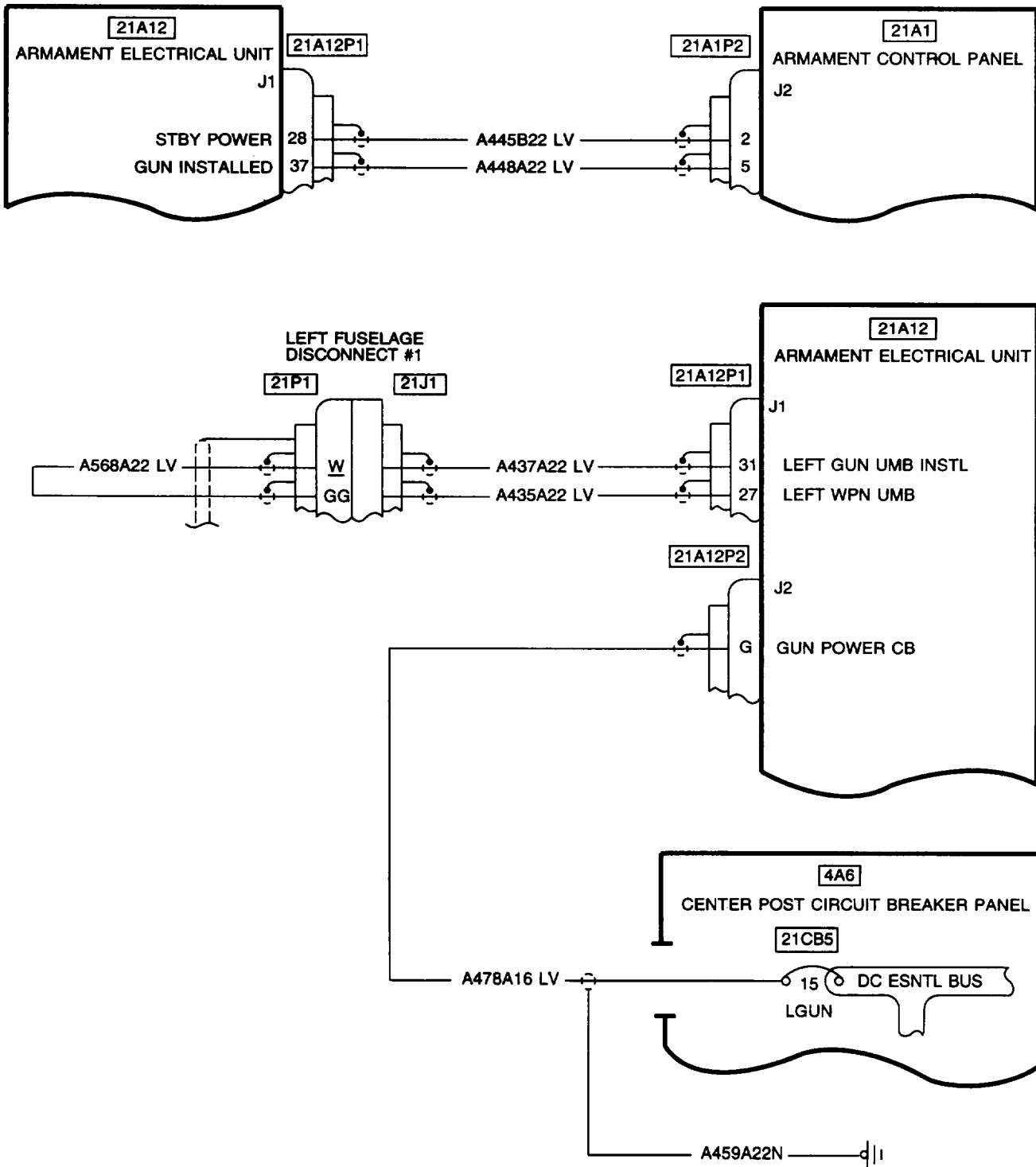
24. GUN WILL NOT RESPOND TO GUN RECOCK SWITCH COMMAND (CONT)



TM55_248_N24_2
H5073

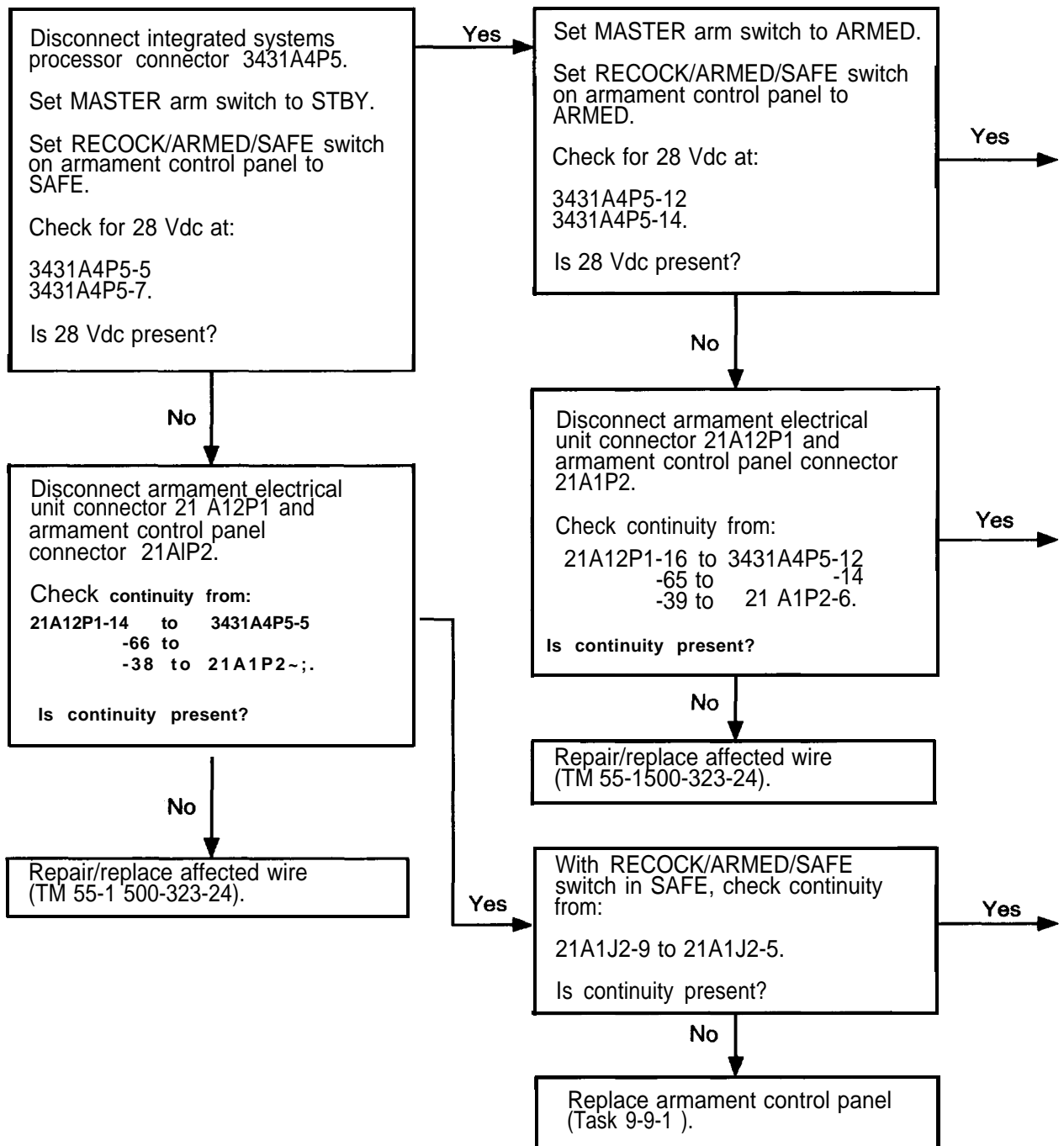


24. GUN WILL NOT RESPOND TO GUN RECOCK SWITCH COMMAND (CONT)

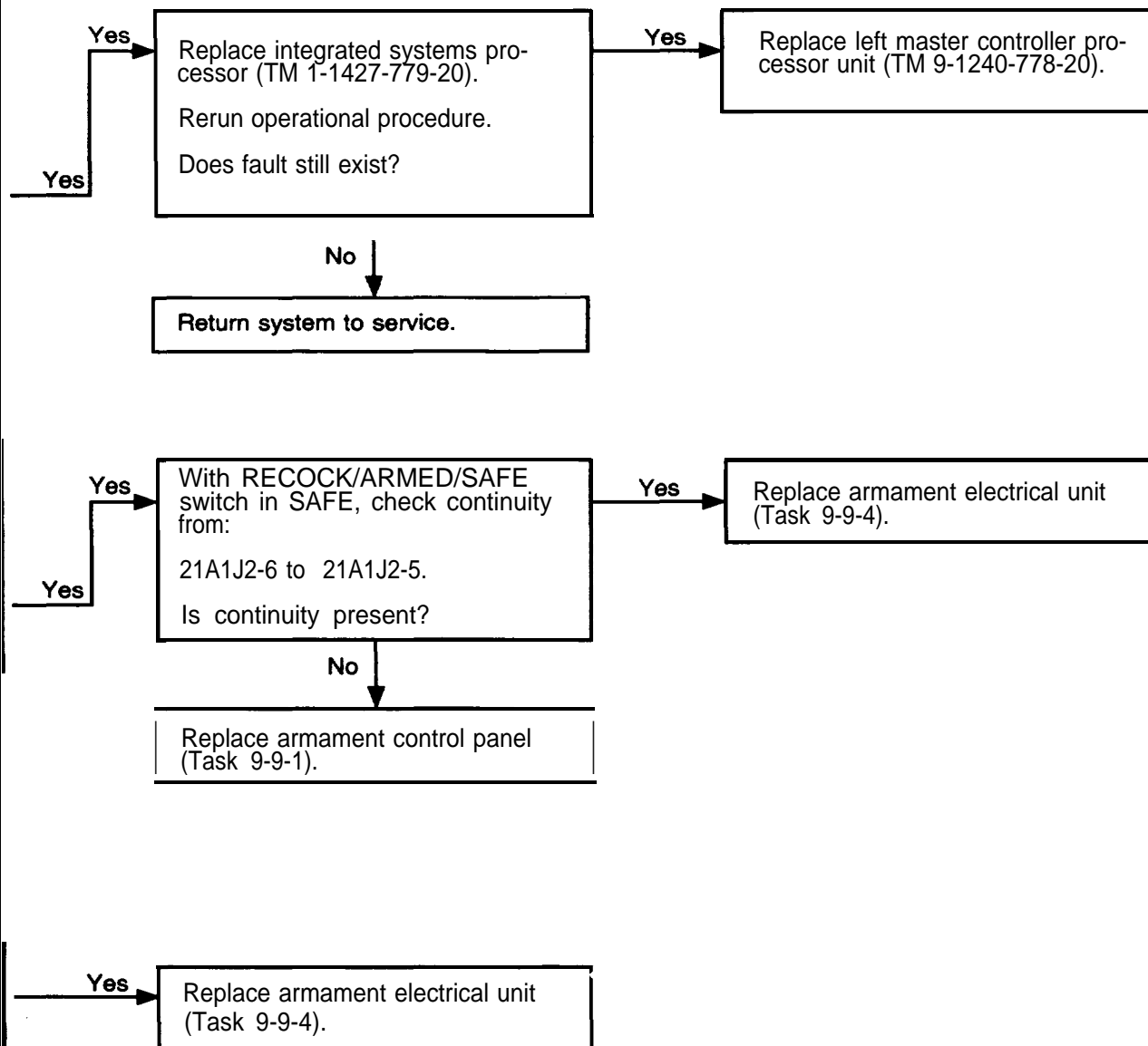


406900-144-2
H3887

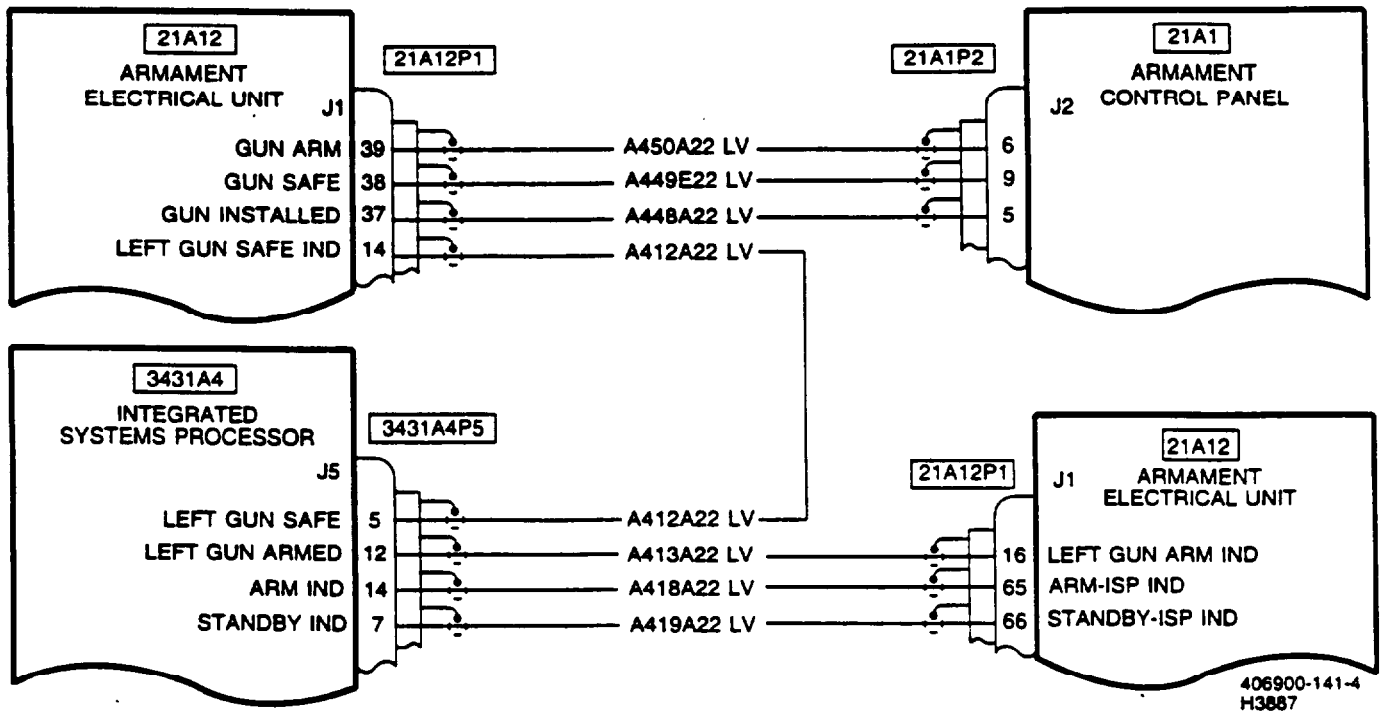
25. MFD ARM/SAFE DOES NOT RESPOND PROPERLY TO GUN POSITION

TM55_248_N25_1
H5073

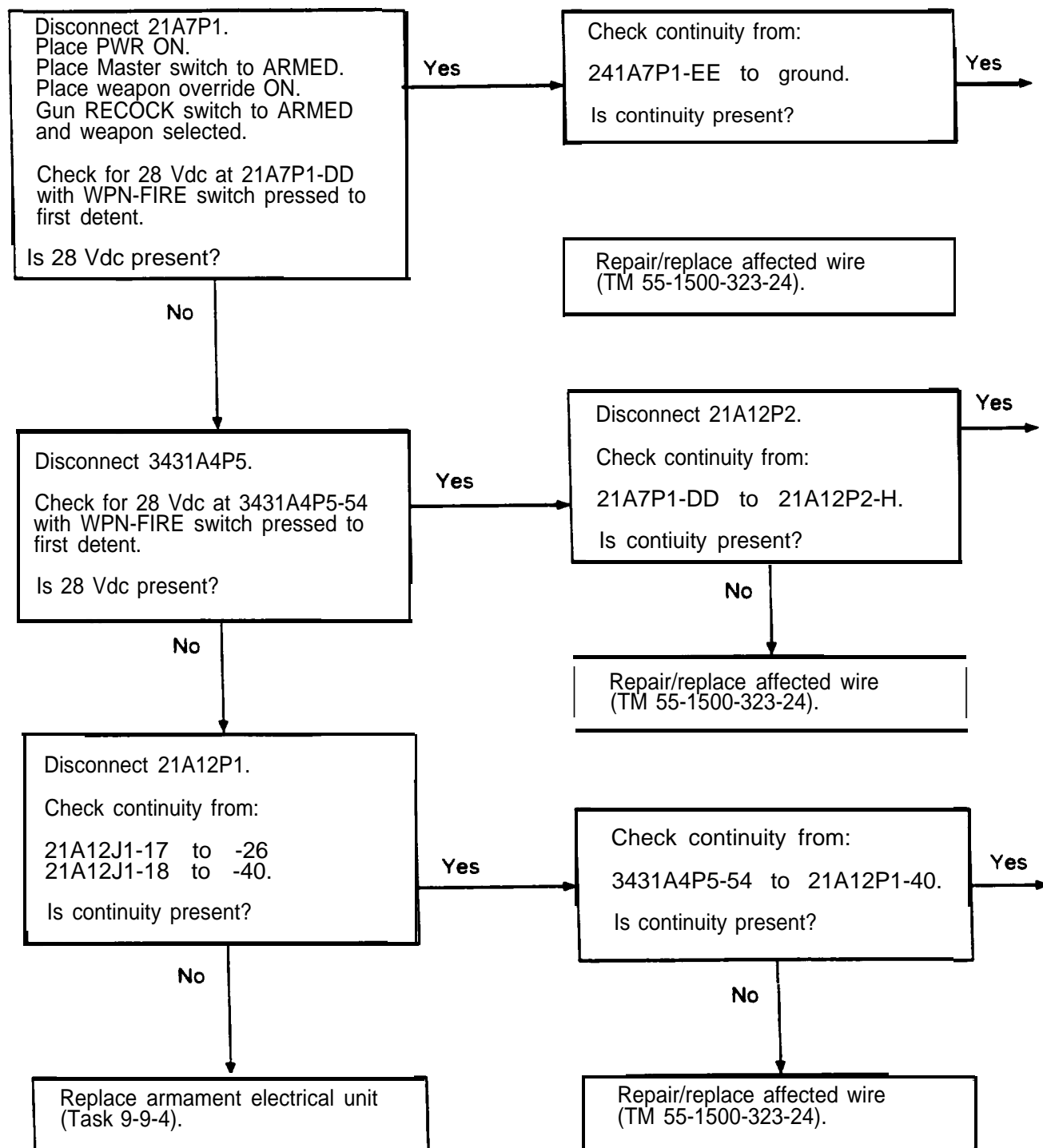
25. MFD ARM/SAFE DOES NOT RESPOND PROPERLY TO GUN POSITION (CONT)

TM55_248_N25_2
H5073

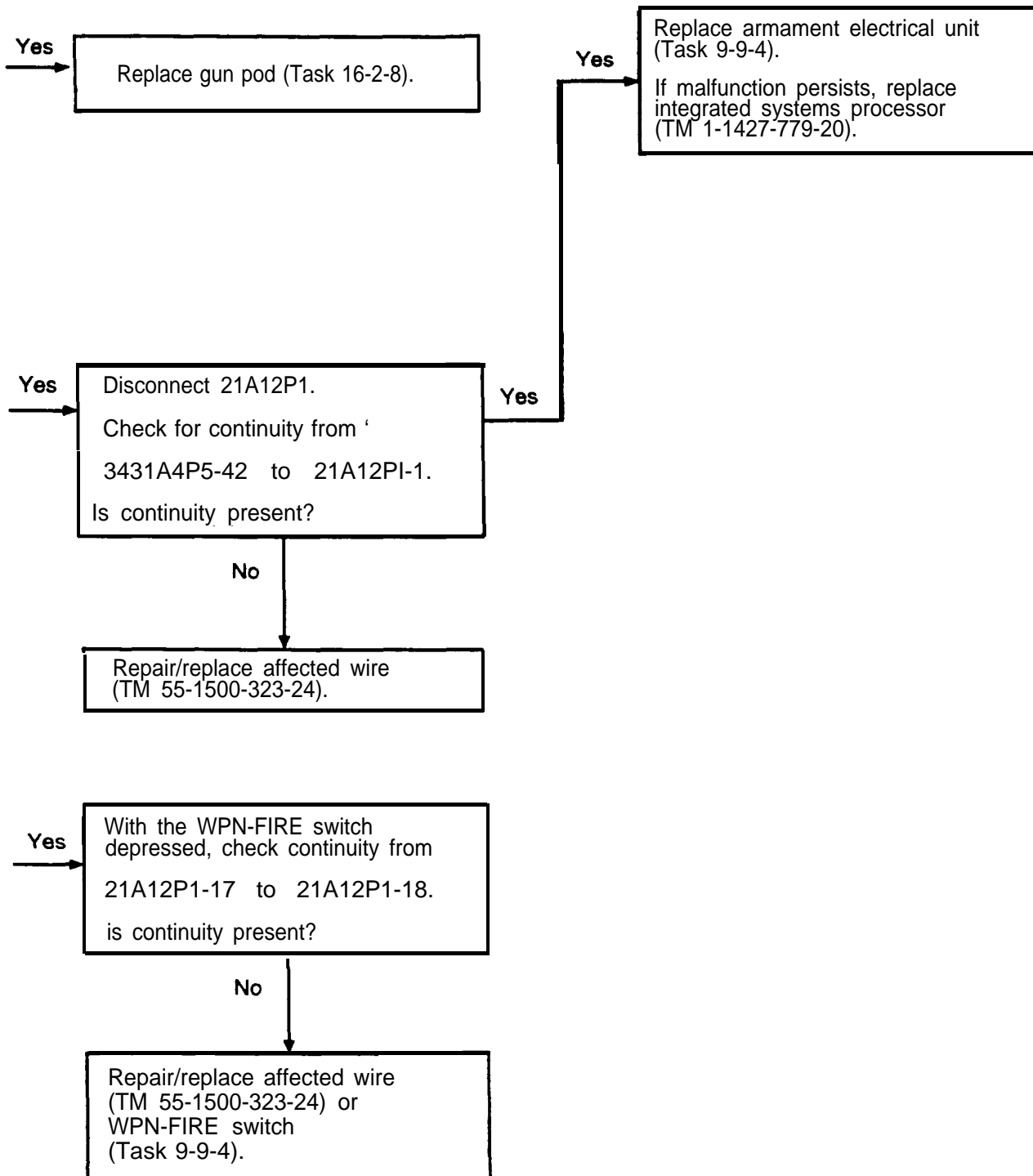
25. MFD ARM/SAFE DOES NOT RESPOND PROPERLY TO GUN POSITION (CONT)



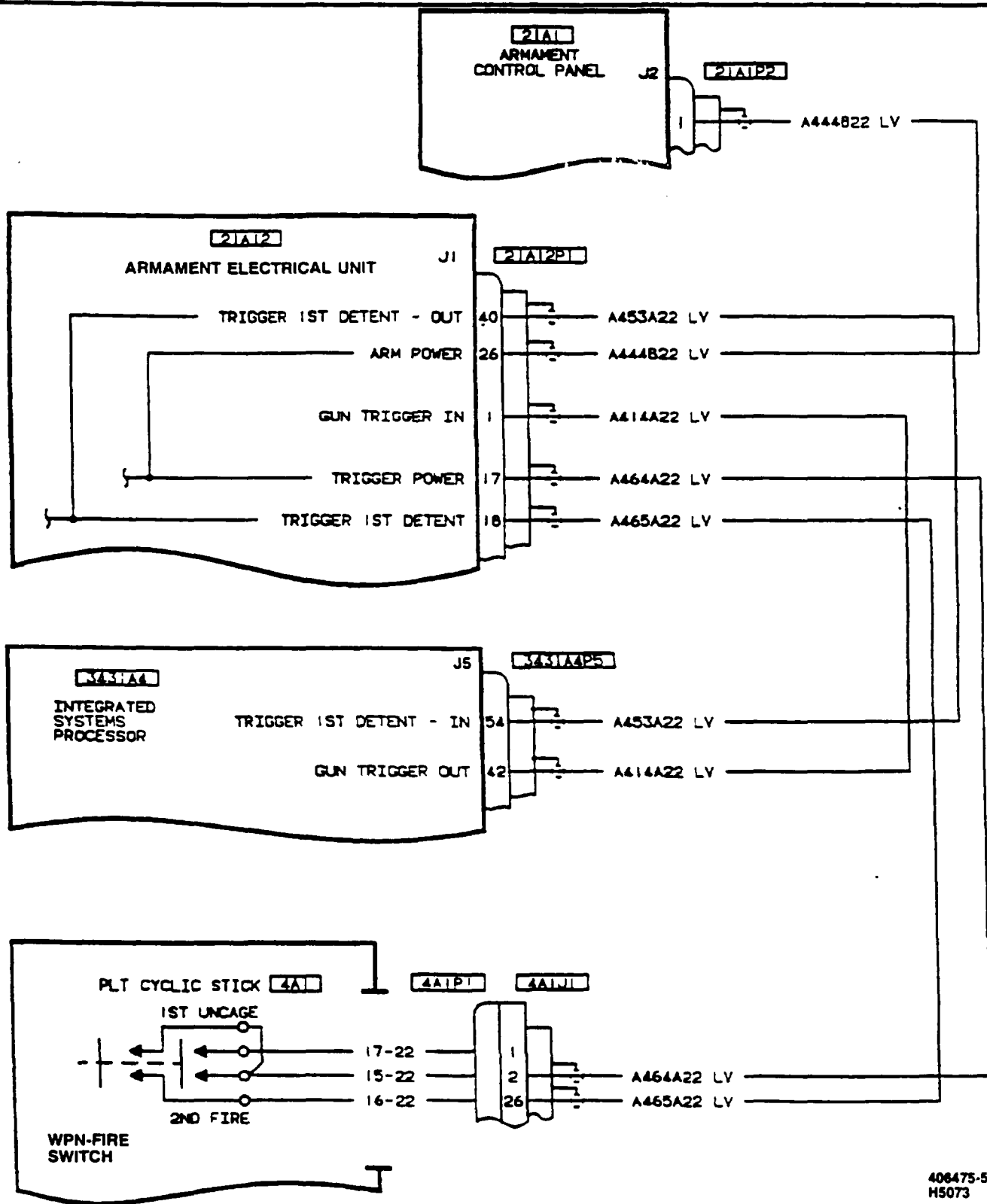
26. GUN DOES NOT FIRE LIMITED BURST IN FIRST DETENT

TM55_248_N26_1
H4289

26. GUN DOES NOT FIRE LIMITED BURST IN FIRST DETENT (CONT)

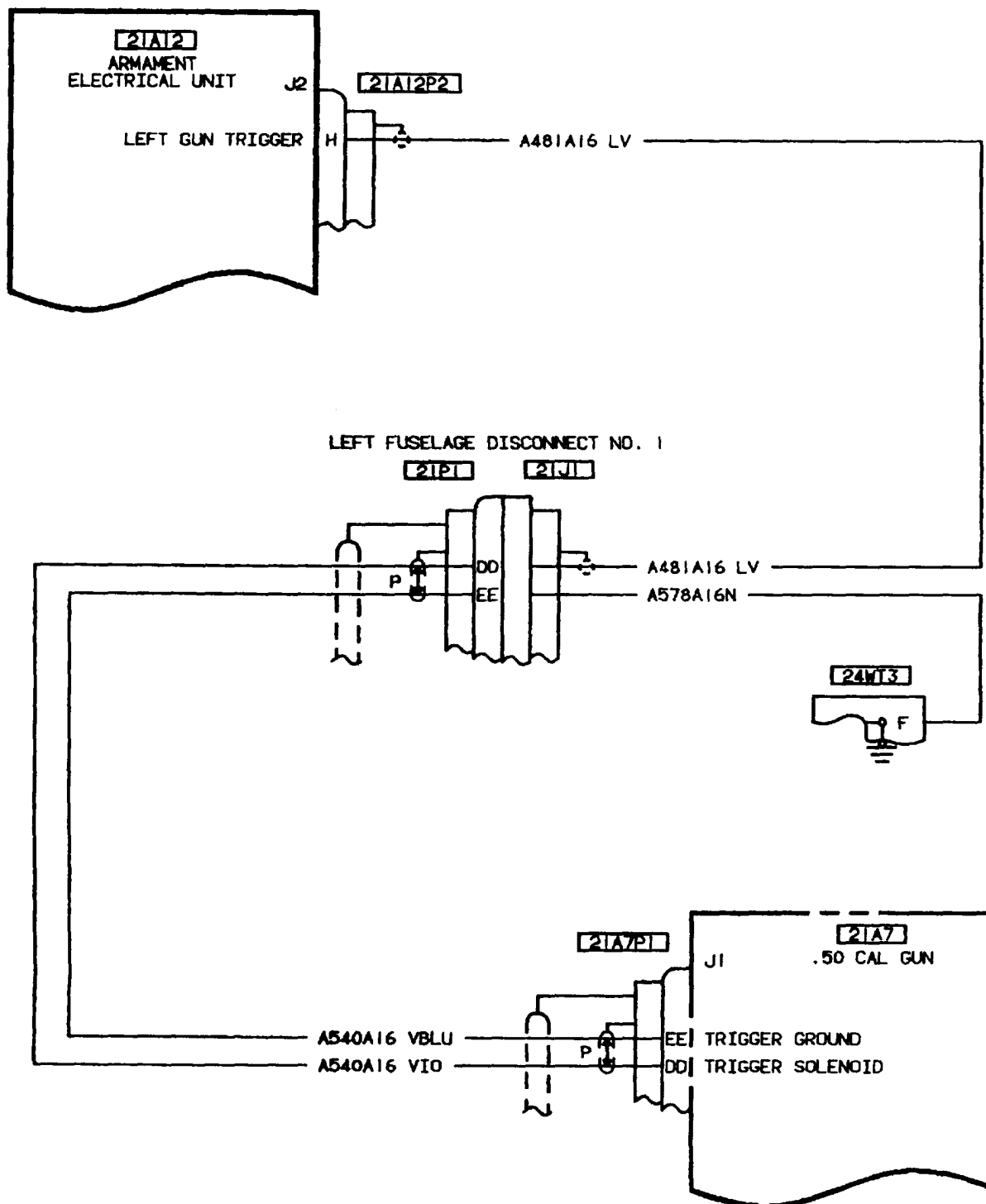
TM55_248_N26_2
H4289

26. GUN DOES NOT FIRE LIMITED BURST IN FIRST DETENT (CONT)

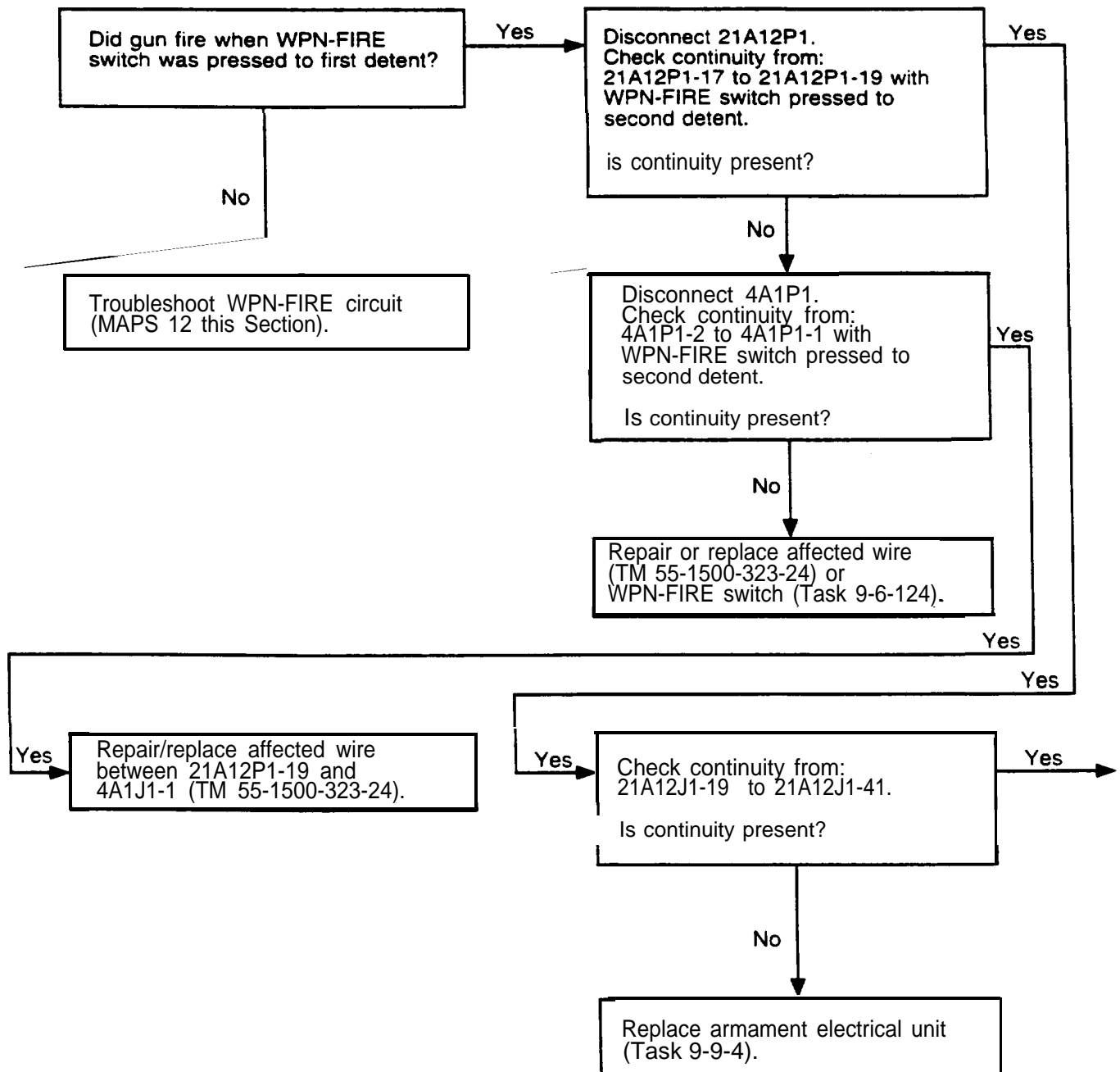


406475-506-1
H5073

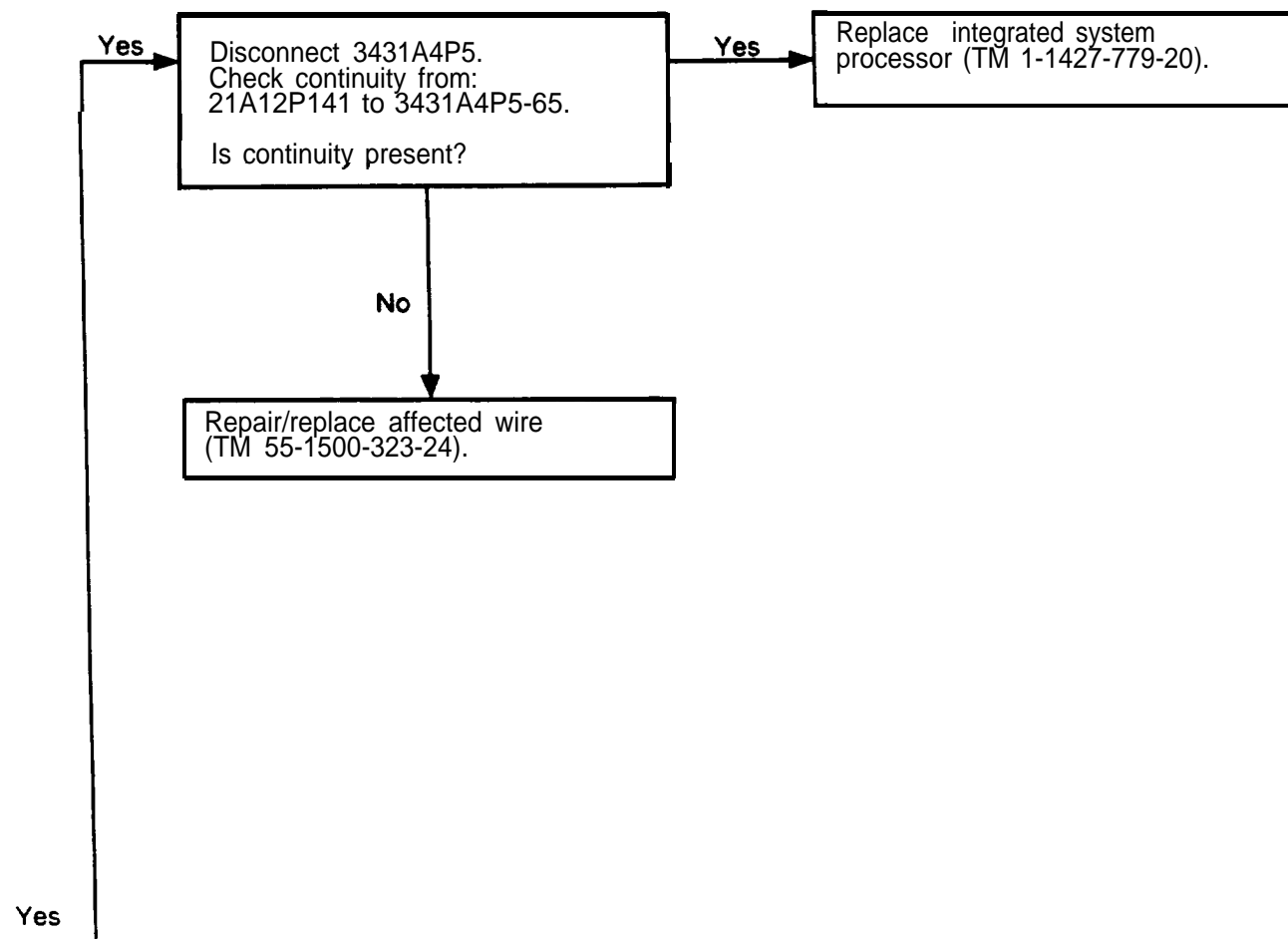
26. GUN DOES NOT FIRE LIMITED BURST IN FIRST DETENT (CONT)

406475-506-2
H3887

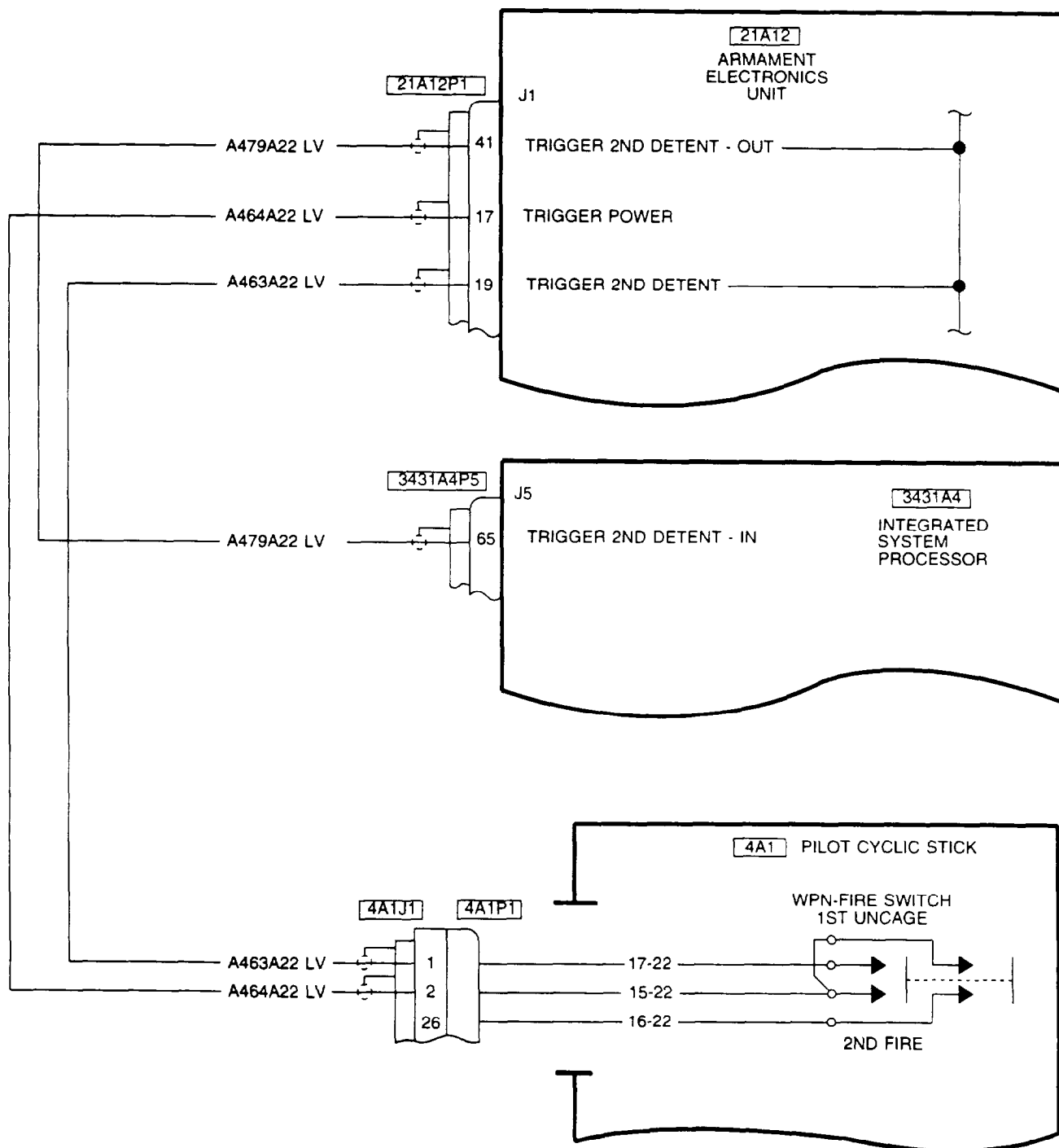
 27. GUN DOES NOT FIRE WHEN WPN-FIRE SWITCH IS PRESSED TO SECOND DETENT


 TM55_248_N27_1
 H4289

27. GUN DOES NOT FIRE WHEN WPN-FIRE SWITCH IS PRESSED TO SECOND DETENT (CONT)

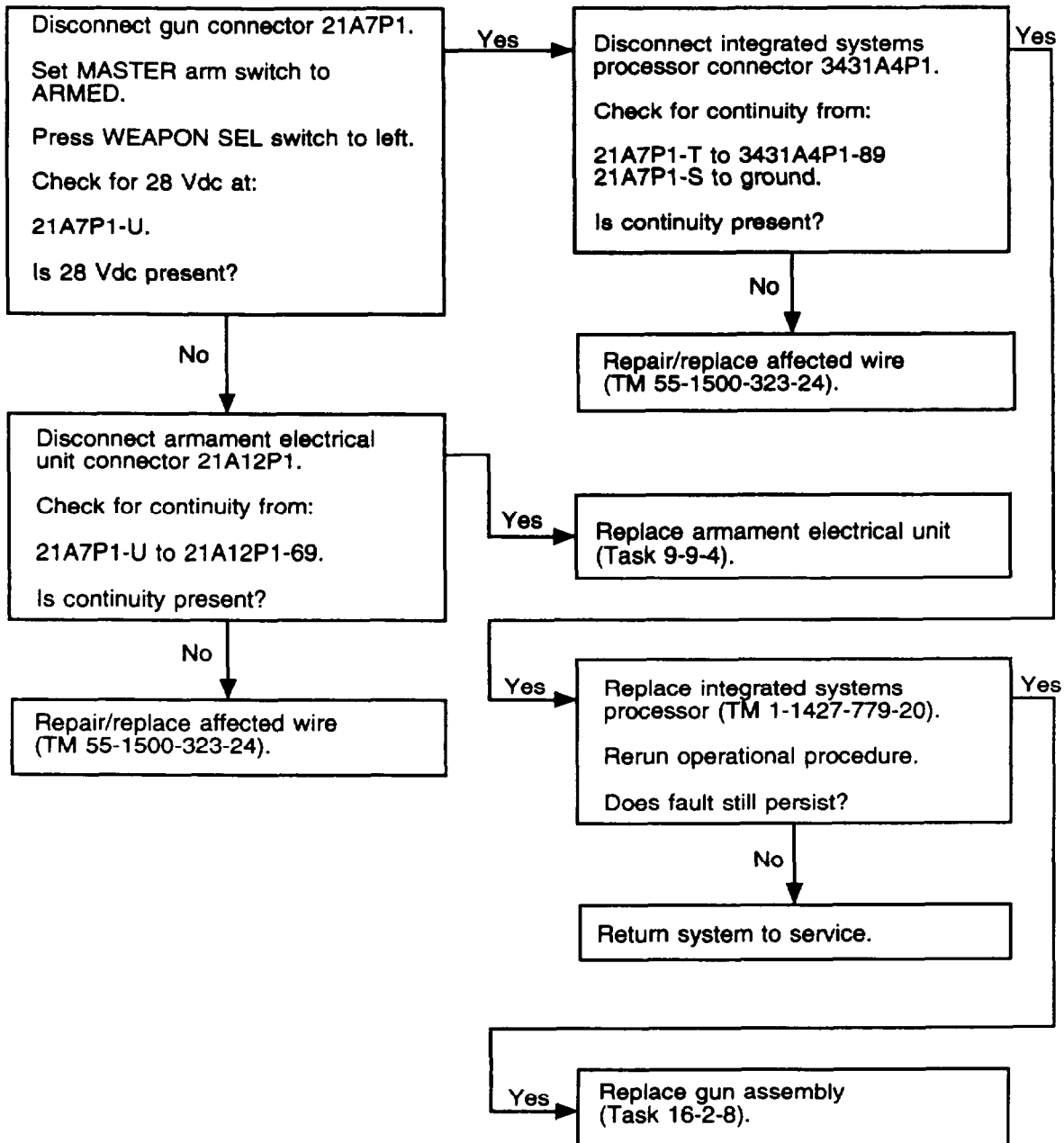


27. GUN DOES NOT FIRE IN SECOND DETENT (CONT)

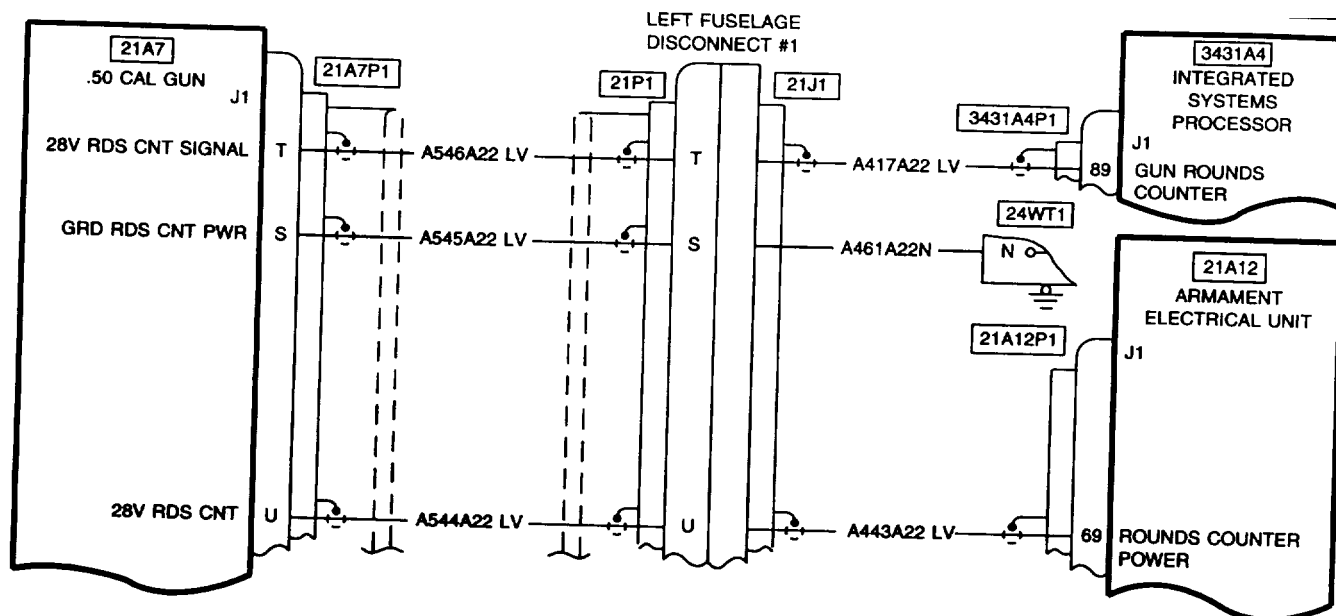


406900-101
H3424

28. GUN ROUNDS COUNTER DOES NOT DECREMENT PROPERLY

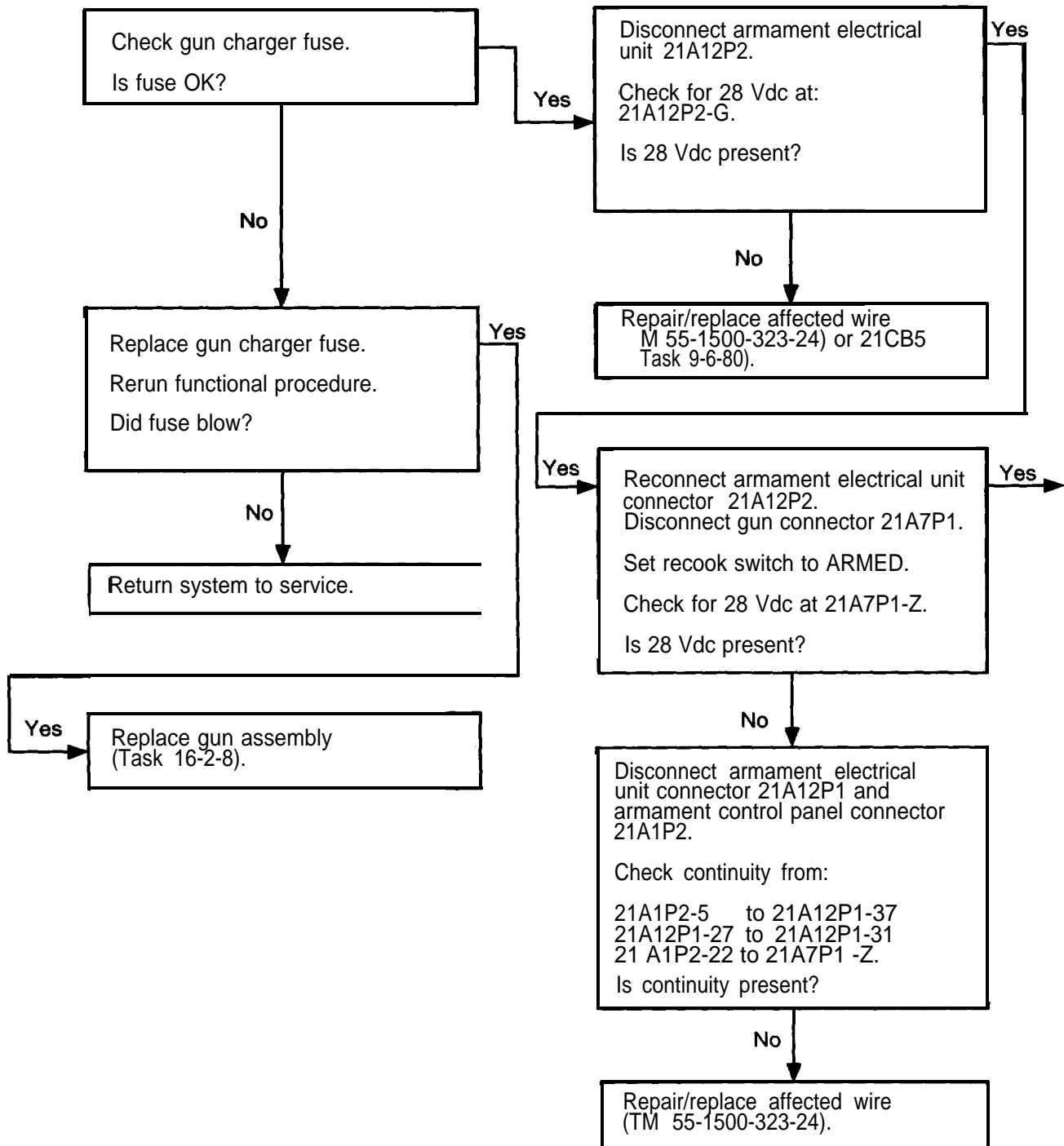
TM55_248_N28
H5073

28. GUN ROUNDS COUNTER DOES NOT DECREMENT PROPERLY (CONT)

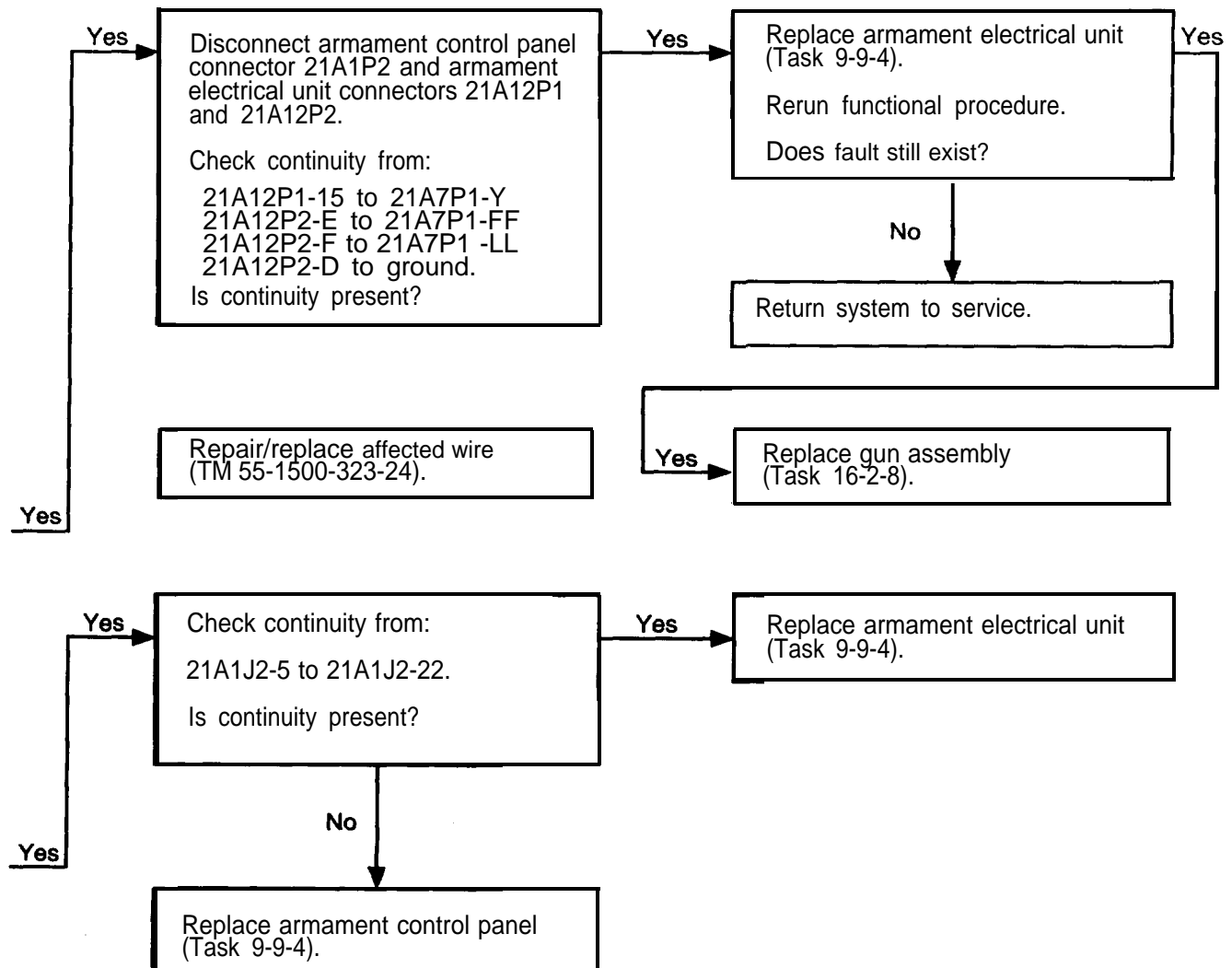


406900-141-5
H3887

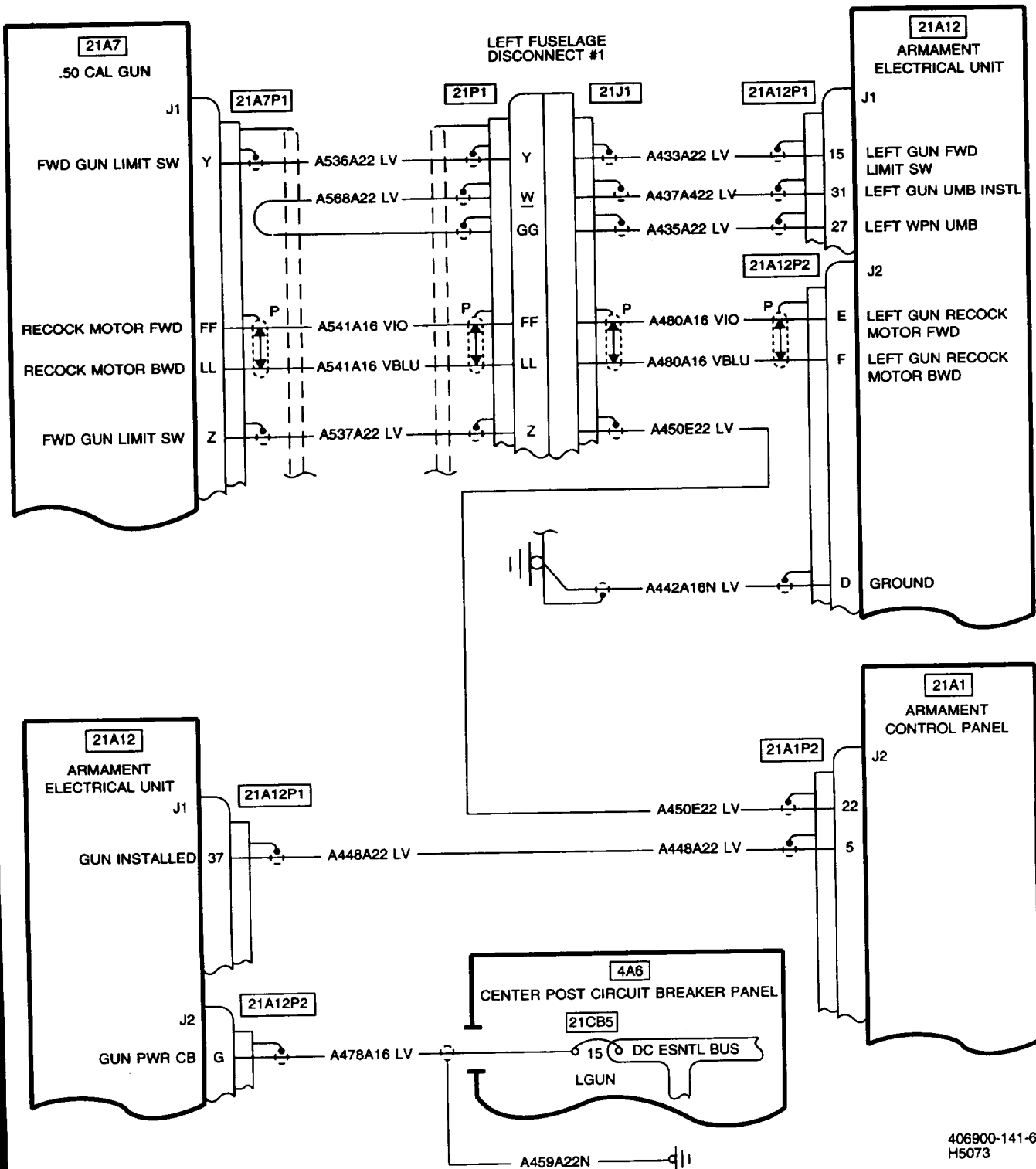
29. GUN CHARGER WILL NOT GO FORWARD FROM SAFE

TM 248_N29_1
H5073

29. GUN CHARGER WILL NOT GO FORWARD FROM SAFE (CONT)

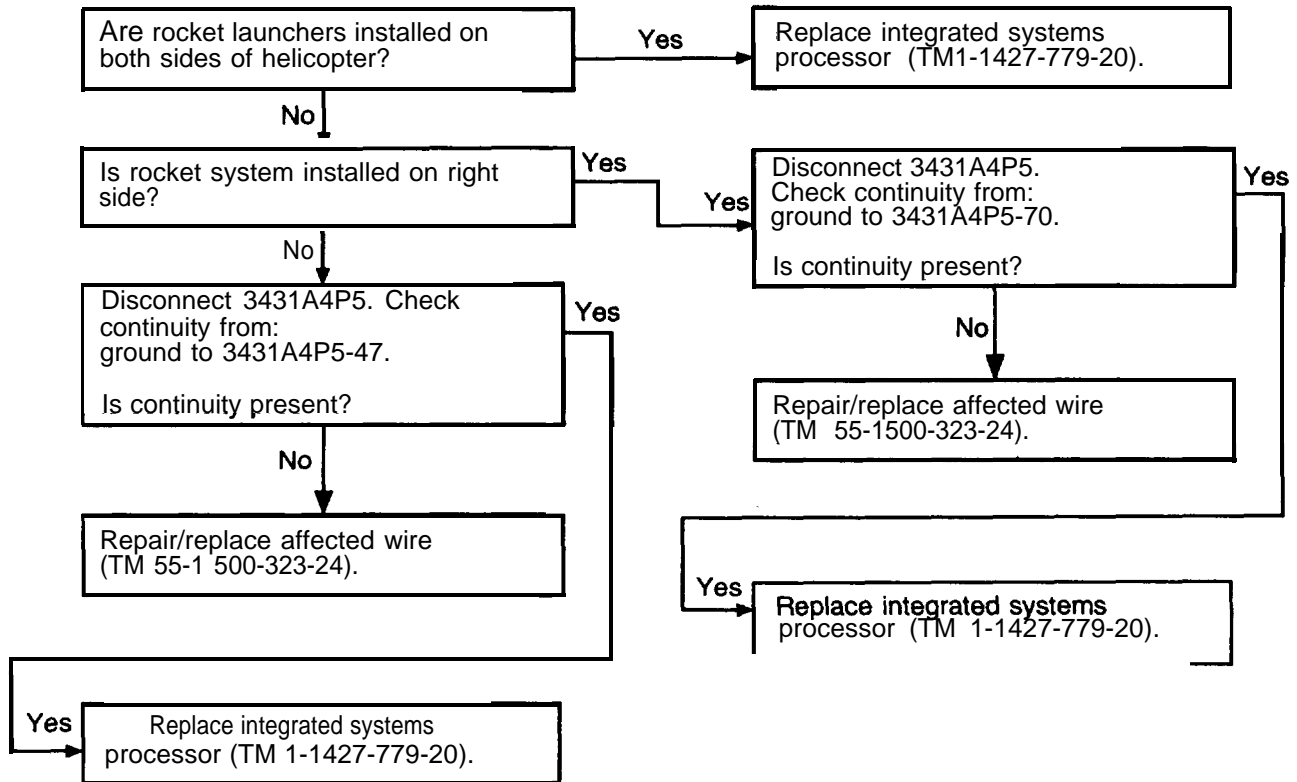
TM55_248_N29_2
H5073

29. GUN CHARGER WILL NOT GO FORWARD FROM SAFE (CONT)

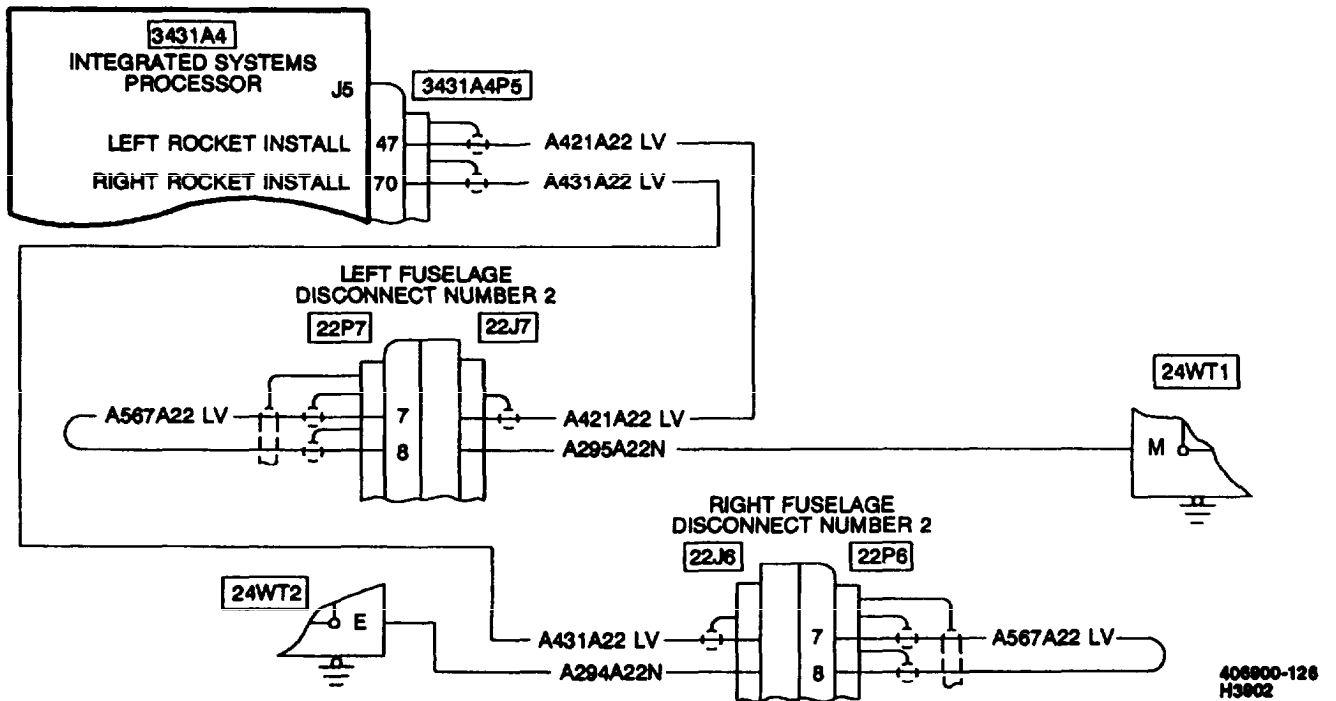


406900-141-6
H5073

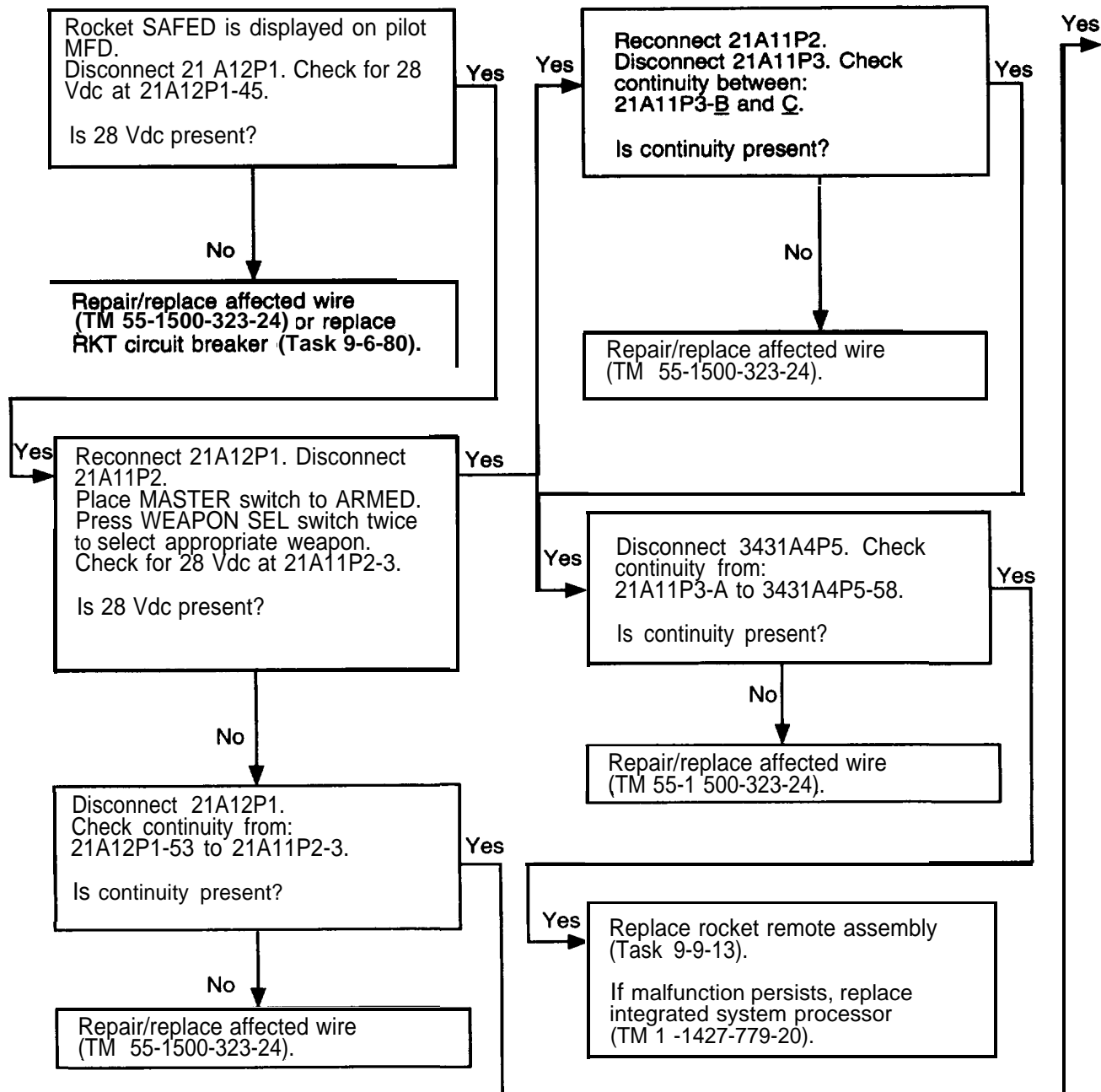
30. MFD DOES NOT INDICATE ROCKET SYSTEM INSTALLED



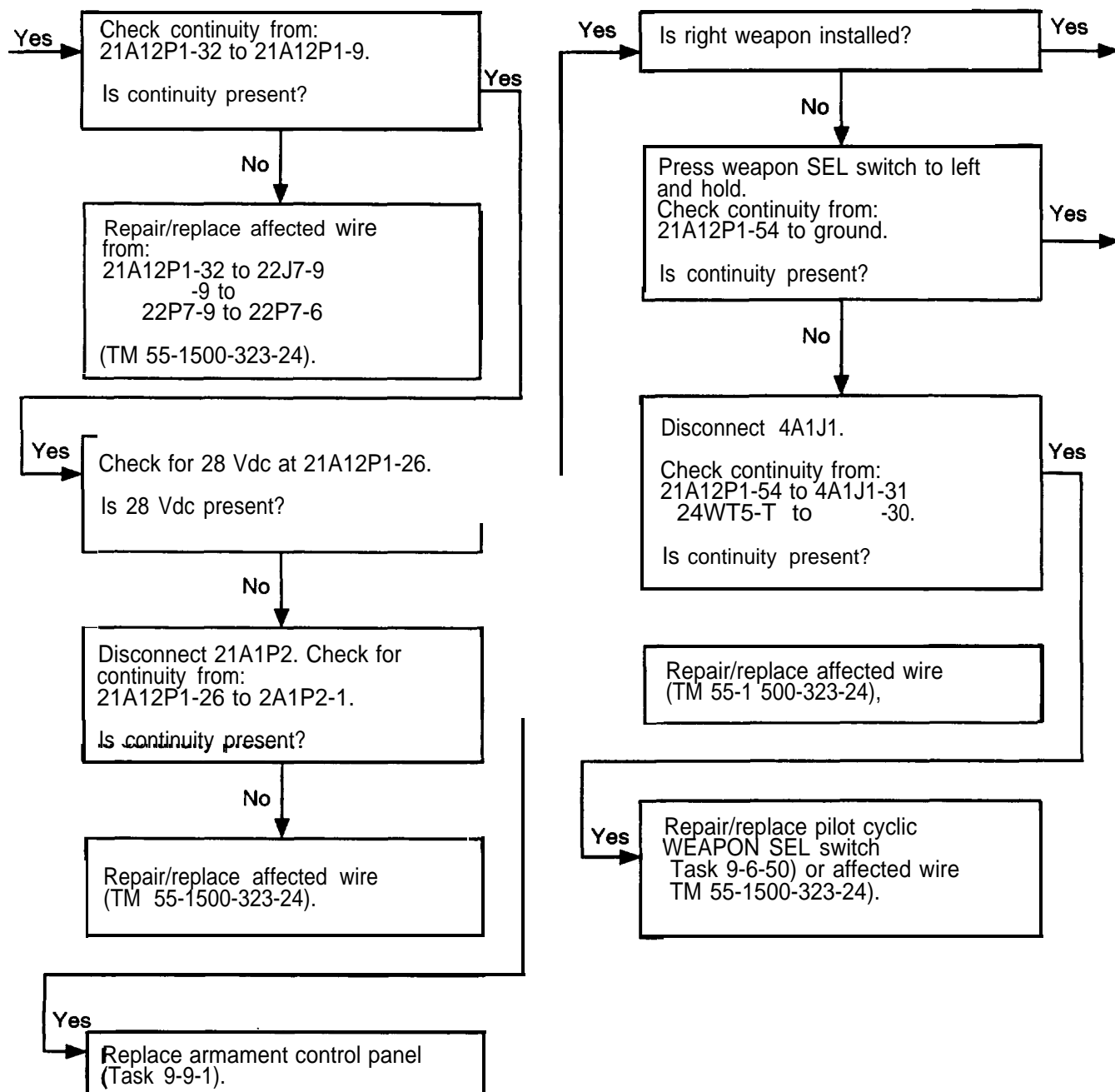
30. MFD DOES NOT INDICATE ROCKET SYSTEM INSTALLED (CONT)



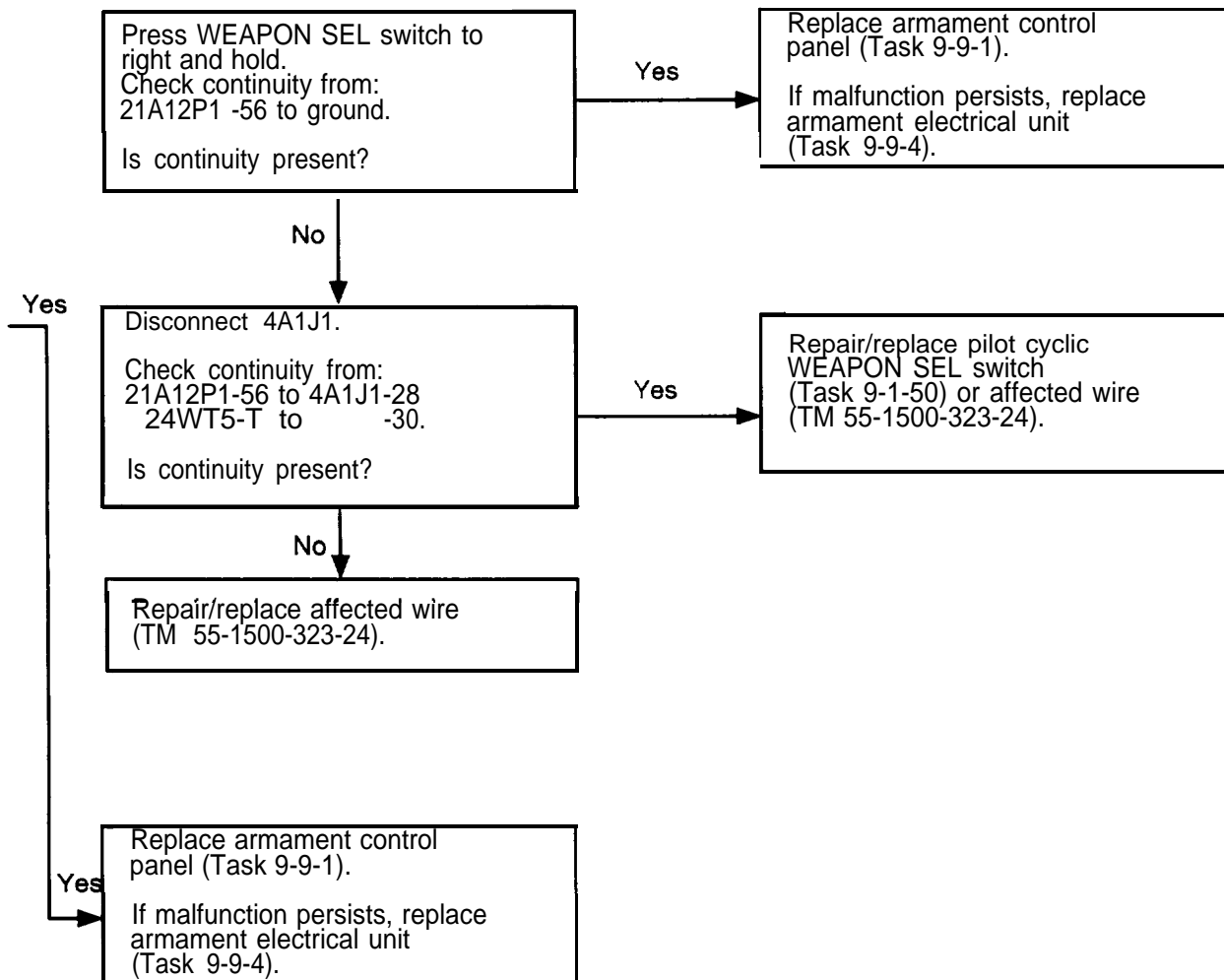
31. ROCKETS SHOW AS INSTALLED, BUT DO NOT OPERATE



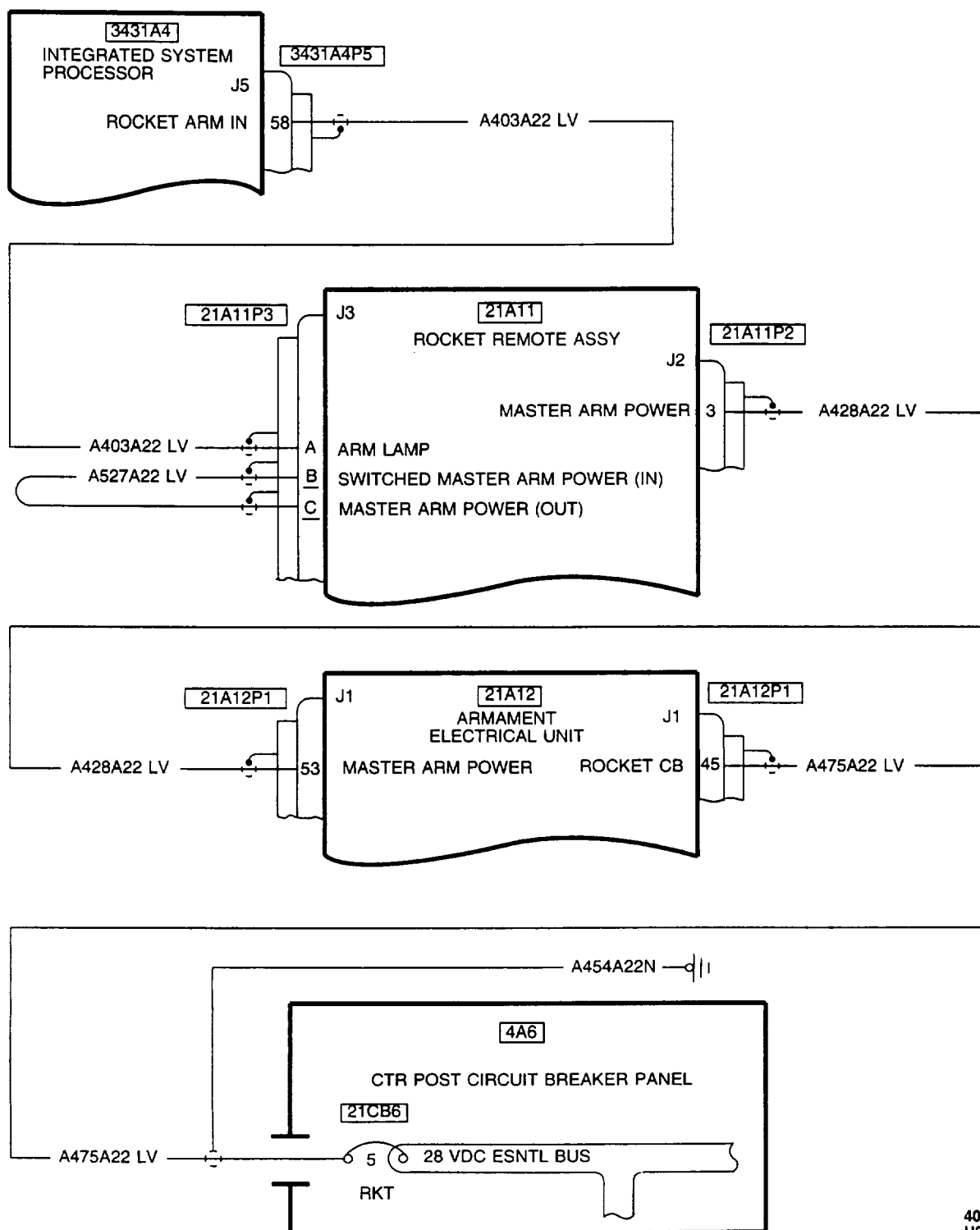
31. ROCKETS SHOW AS INSTALLED, BUT DO NOT OPERATE (CONT)



31. ROCKETS SHOW AS INSTALLED, BUT DO NOT OPERATE (CONT)

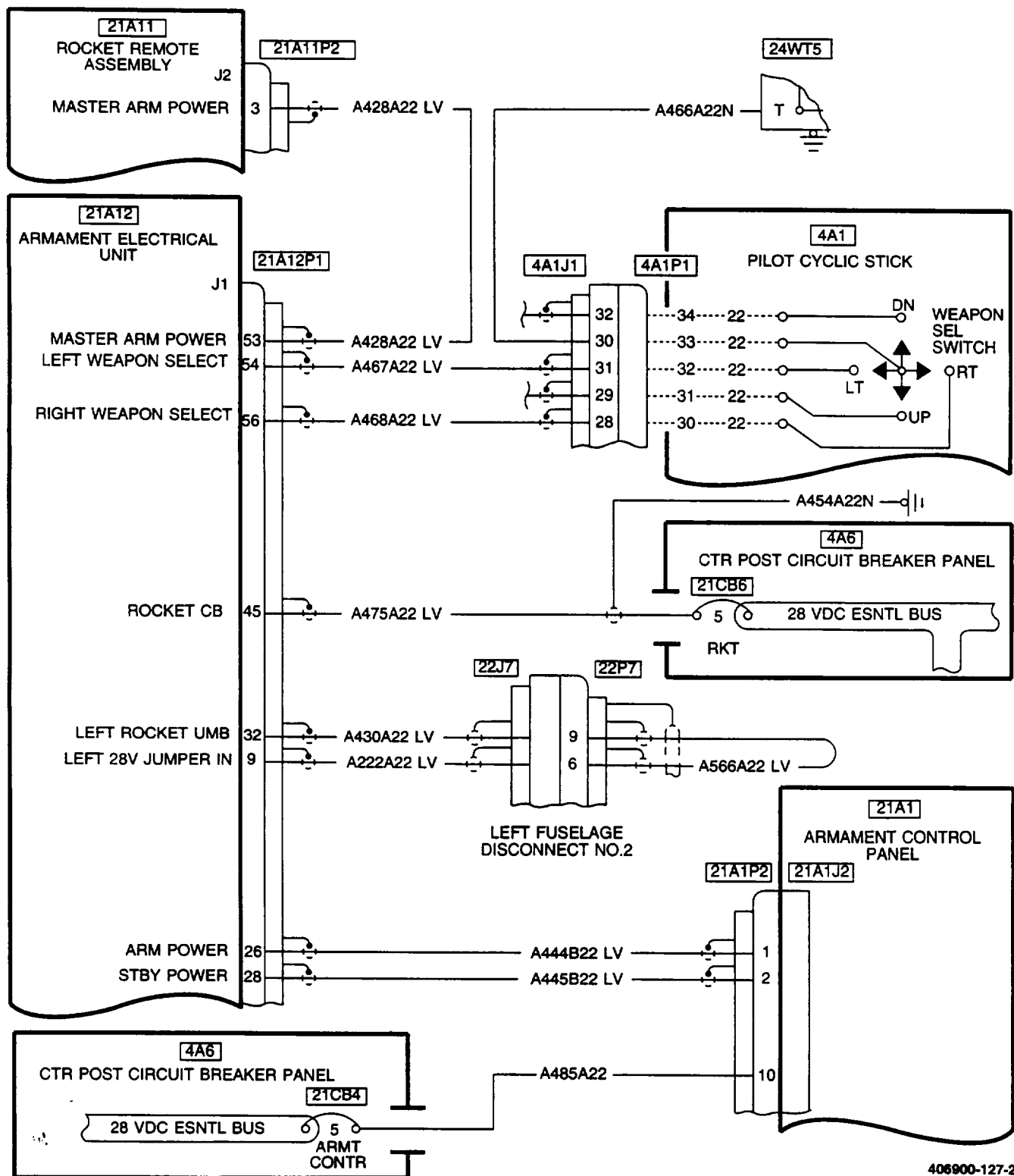


31. ROCKETS SHOW AS INSTALLED, BUT DO NOT OPERATE (CONT)



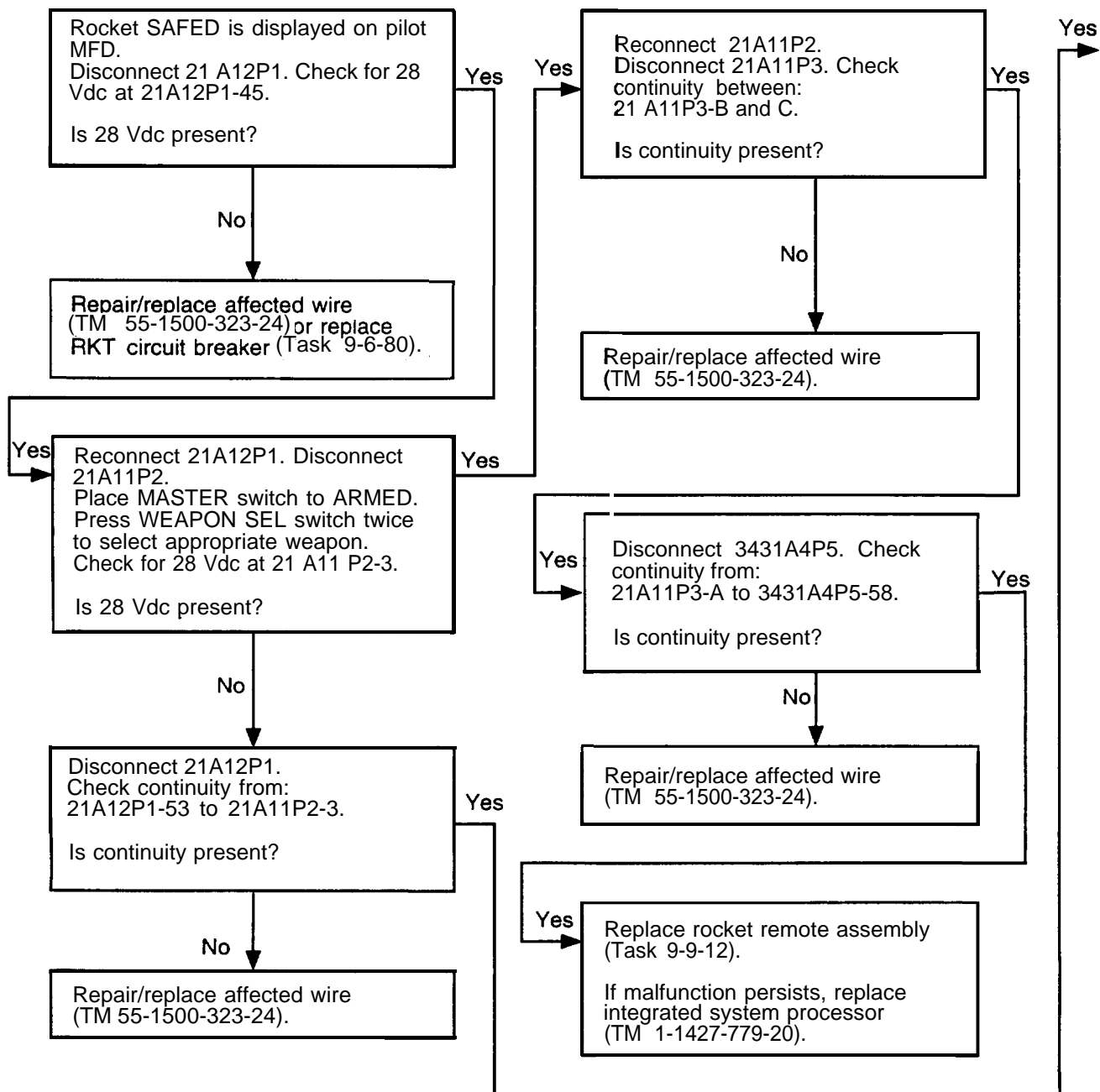
406900-127-1
H3553

31. ROCKETS SHOW AS INSTALLED, BUT DO NOT OPERATE (CONT)

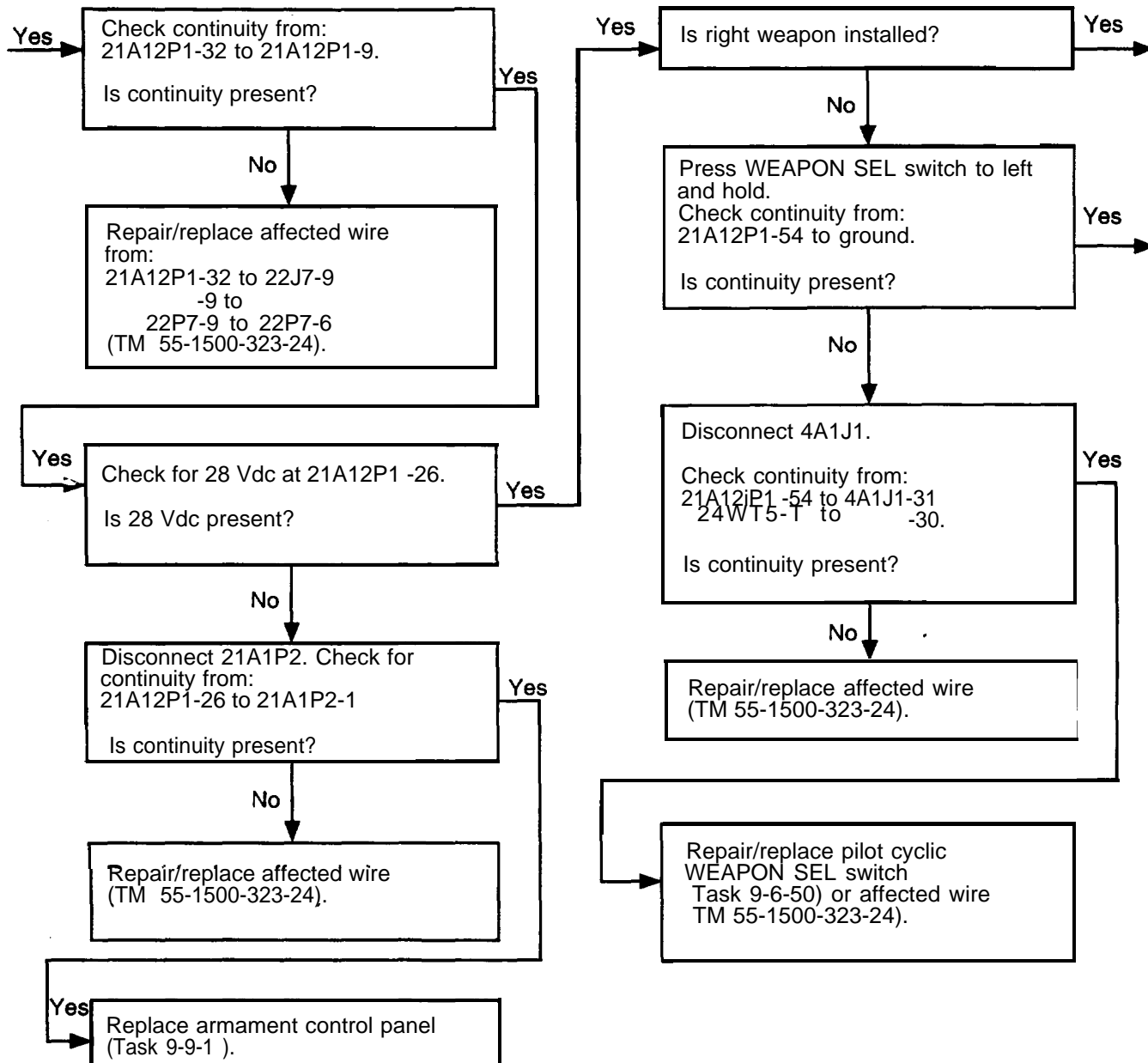


406900-127-2
H3553

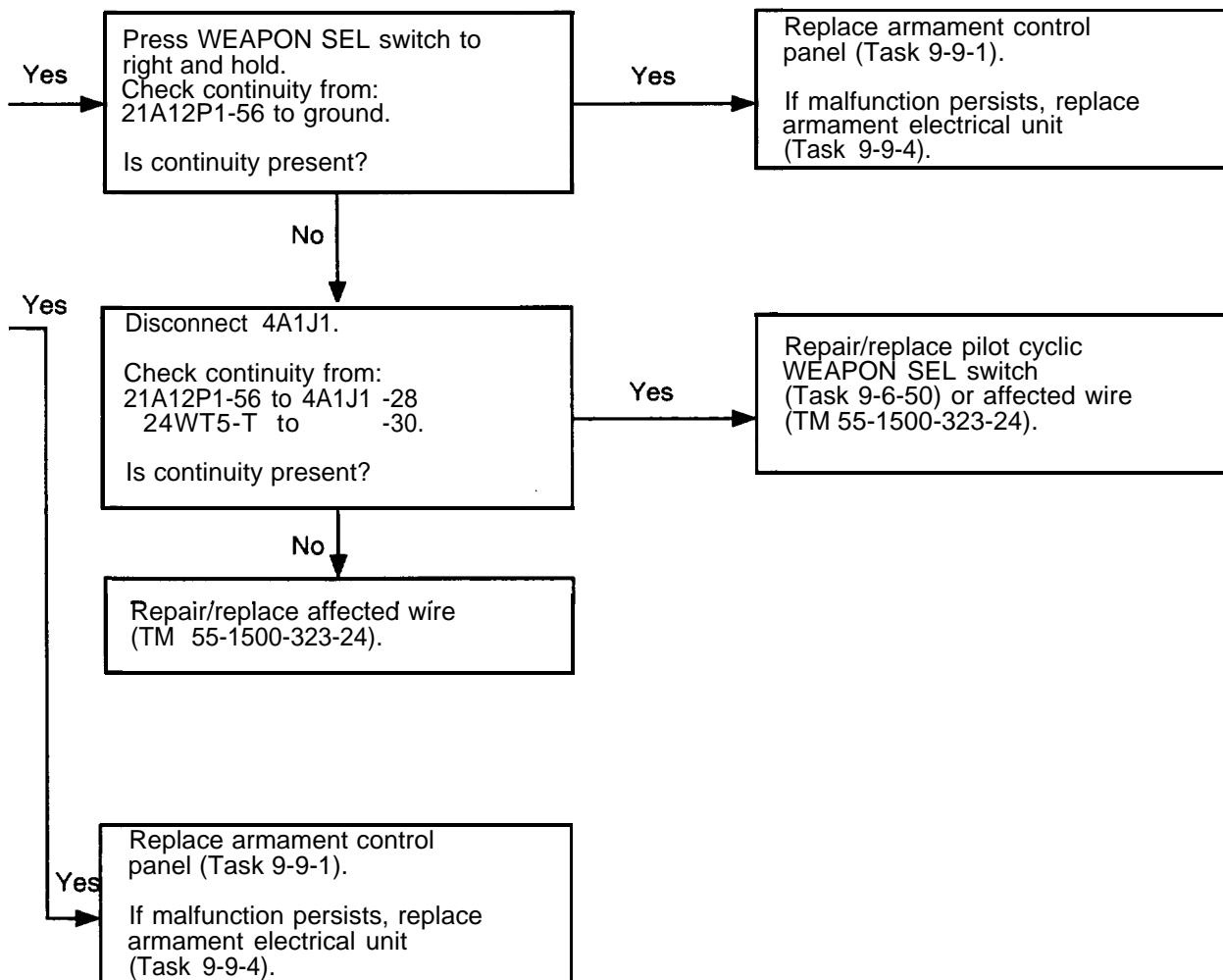
32. ROCKETS SHOW "SAFE" WHEN SELECTED AND ARMED



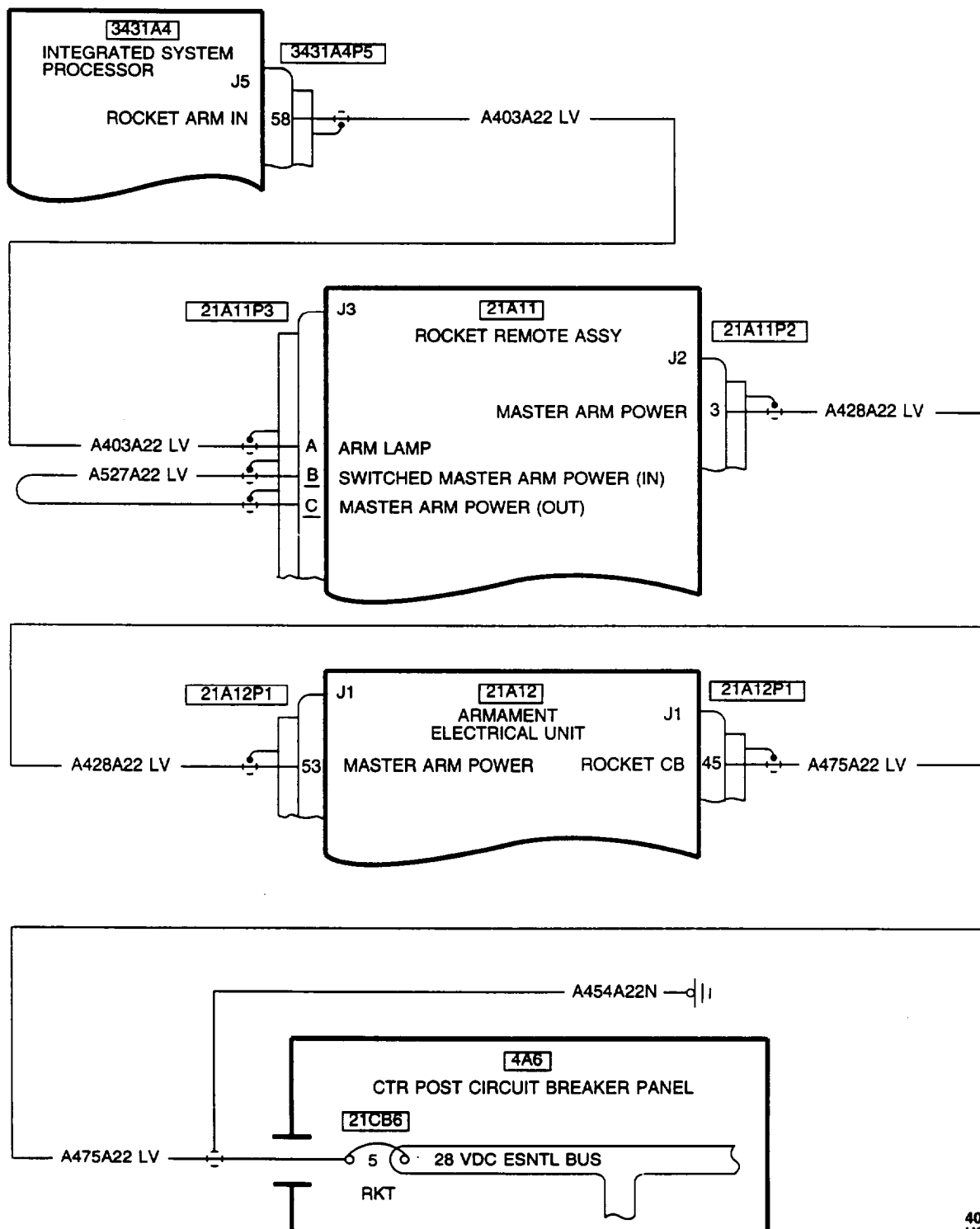
32. ROCKETS SHOW "SAFE" WHEN SELECTED AND ARMED (CONT)



32. ROCKETS SHOW "SAFE" WHEN SELECTED AND ARMED (CONT)

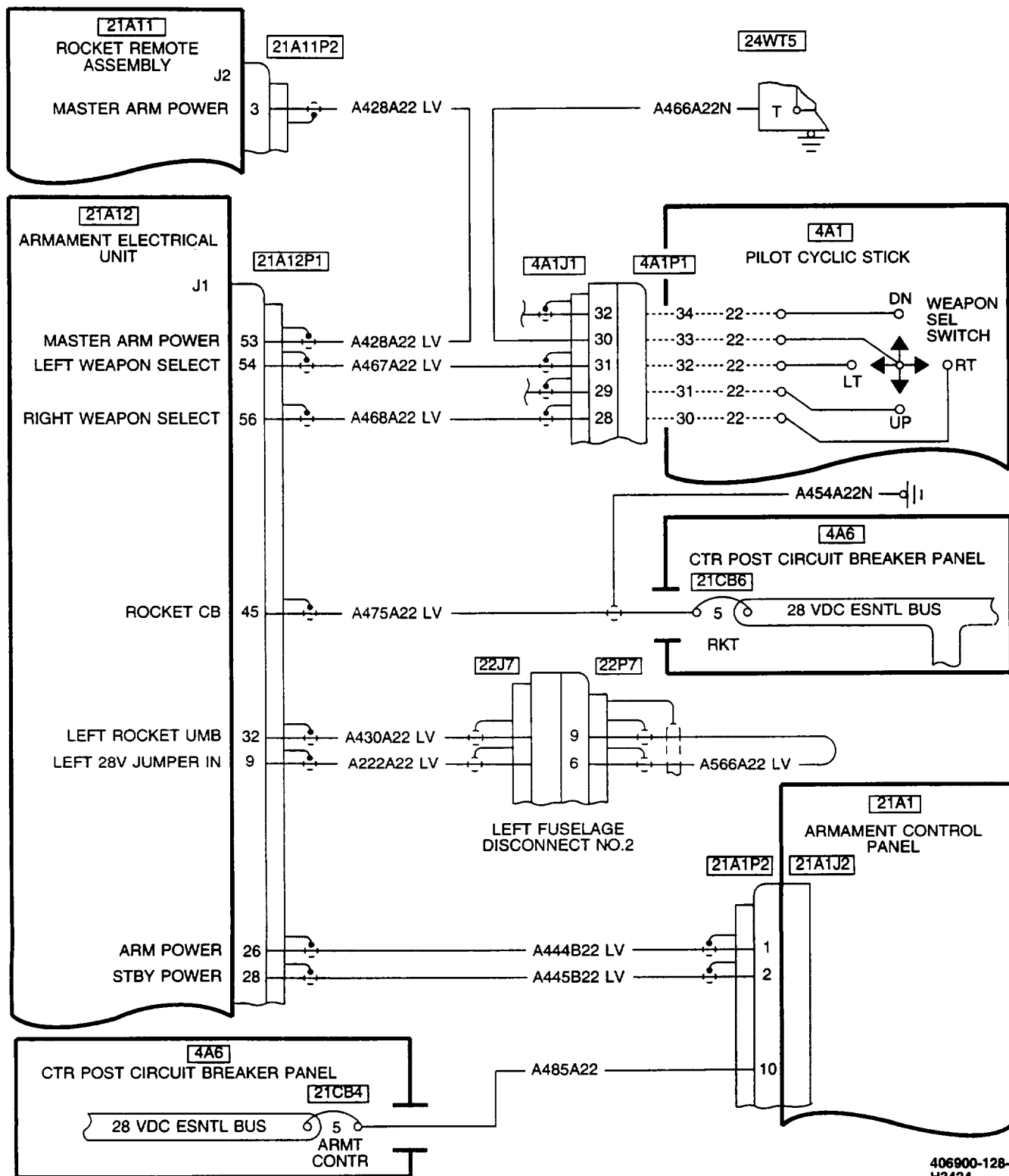


32. ROCKETS SHOW "SAFE" WHEN SELECTED AND ARMED (CONT)

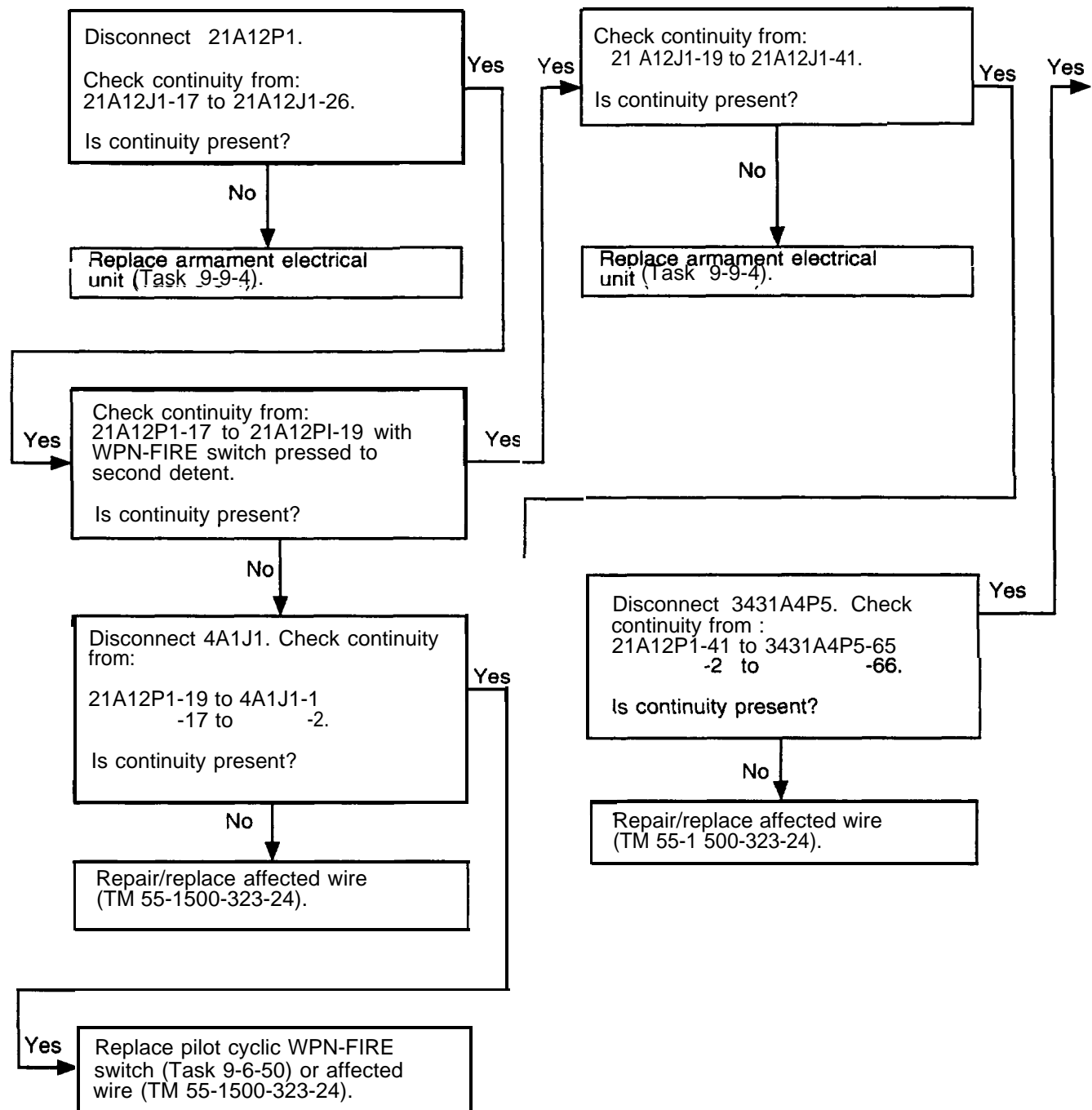


406900-128-1
H3553

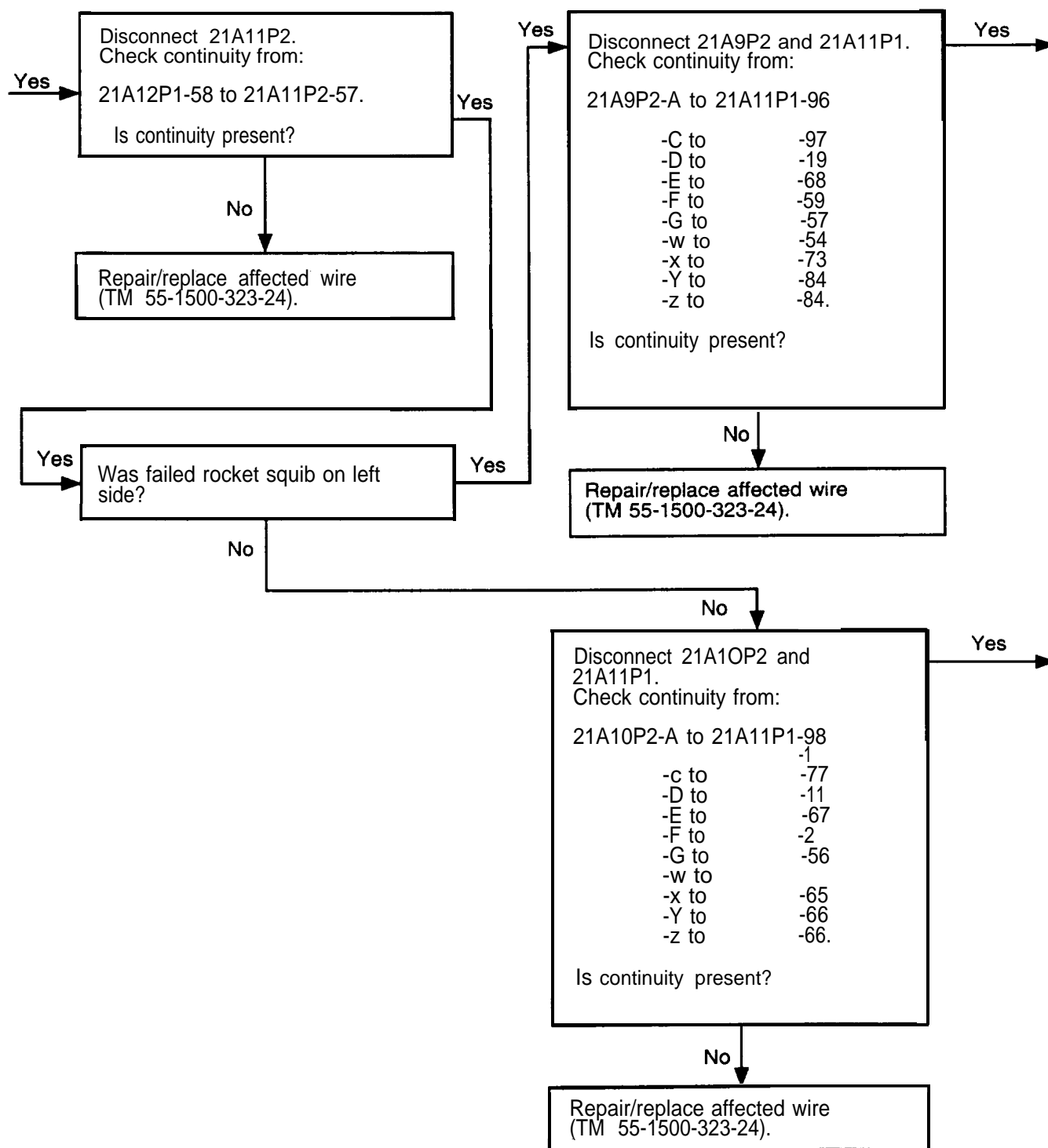
32. ROCKETS SHOW "SAFE" WHEN SELECTED AND ARMED (CONT)

406900-128-2
H3424

33. ROCKET SQUIB DOES NOT FIRE WHEN SYSTEM IS ARMED AND SELECTED AND FIRE SWITCH IS PRESSED

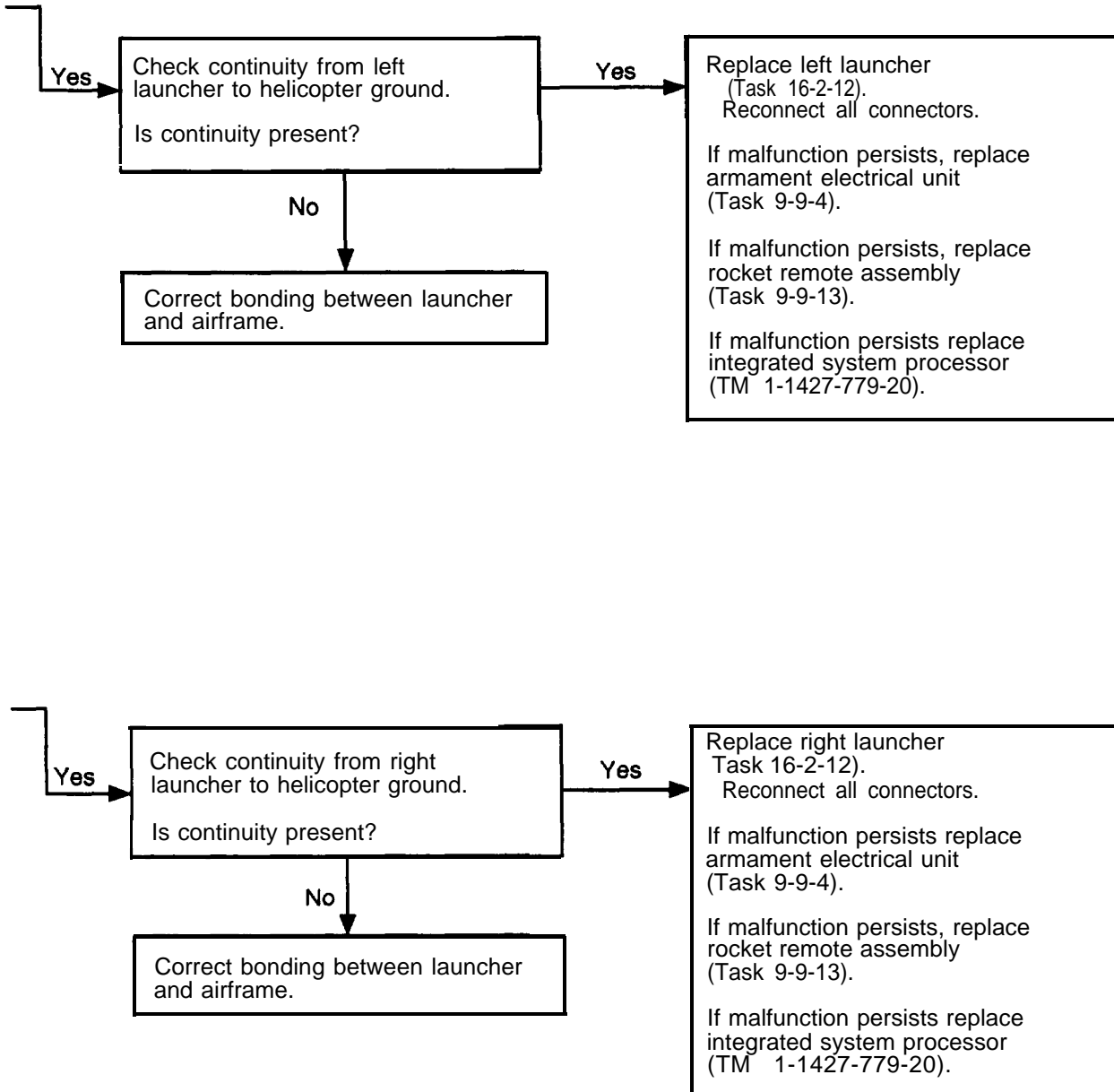


33. ROCKET SQUIB DOES NOT FIRE WHEN SYSTEM IS ARMED AND SELECTED AND FIRE SWITCH IS PRESSED (CONT)

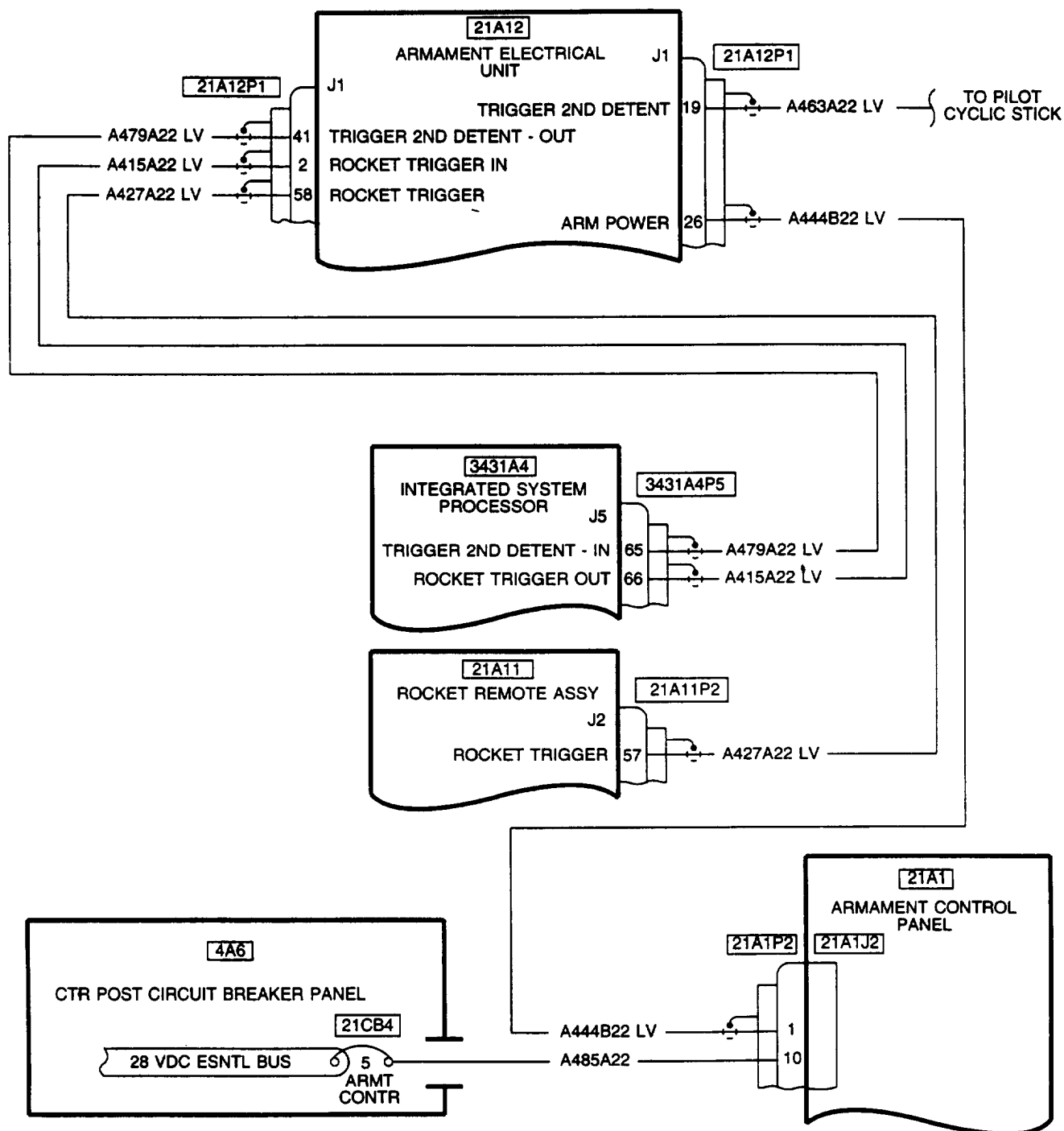


TM55-248-N33-2
H3551

33. ROCKET SQUIB DOES NOT FIRE WHEN SYSTEM IS ARMED AND SELECTED AND FIRE SWITCH IS PRESSED (CONT)

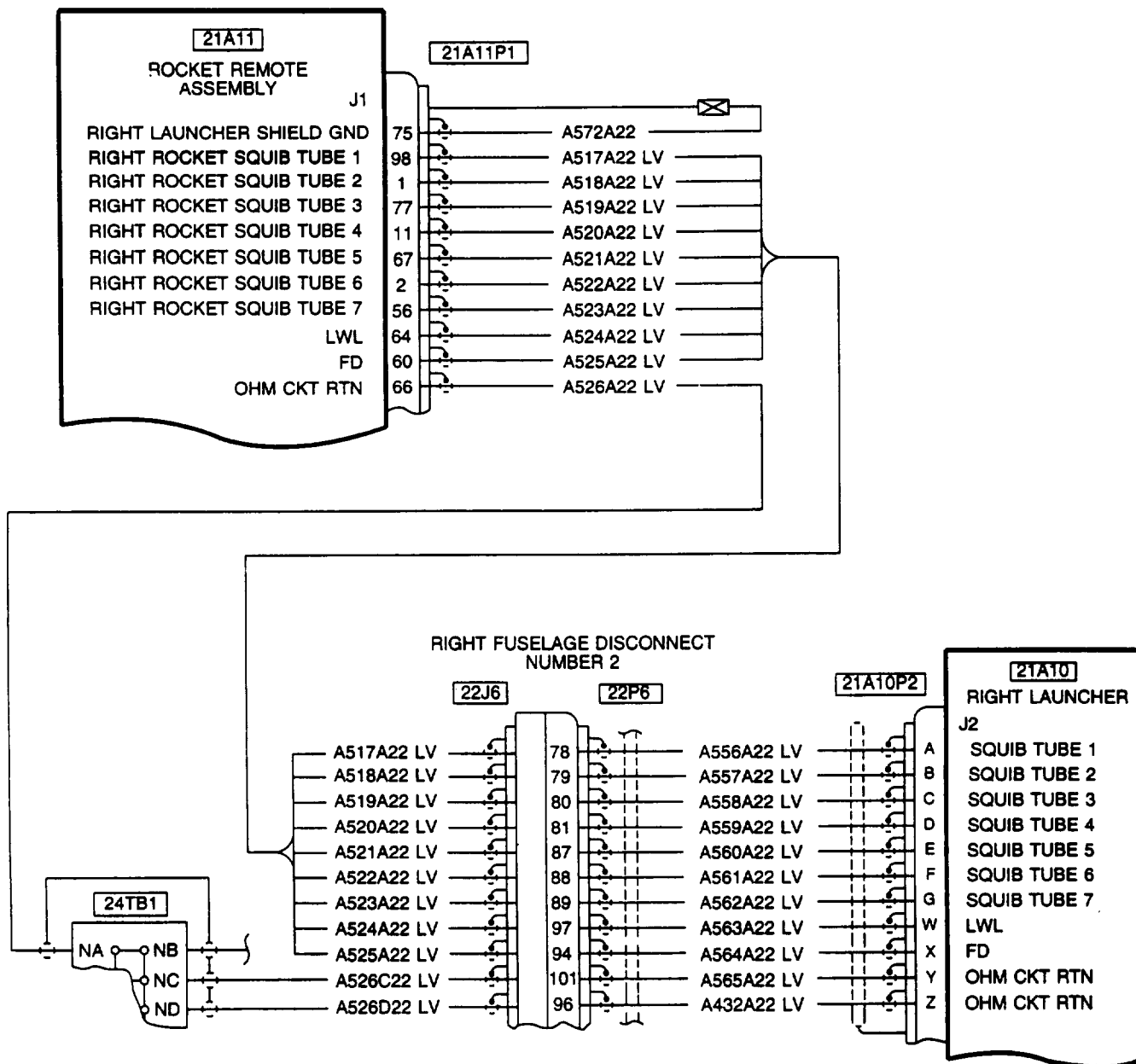


33. ROCKET SQUIB DOES NOT FIRE WHEN SYSTEM IS ARMED AND SELECTED AND FIRE SWITCH IS PRESSED (CONT')



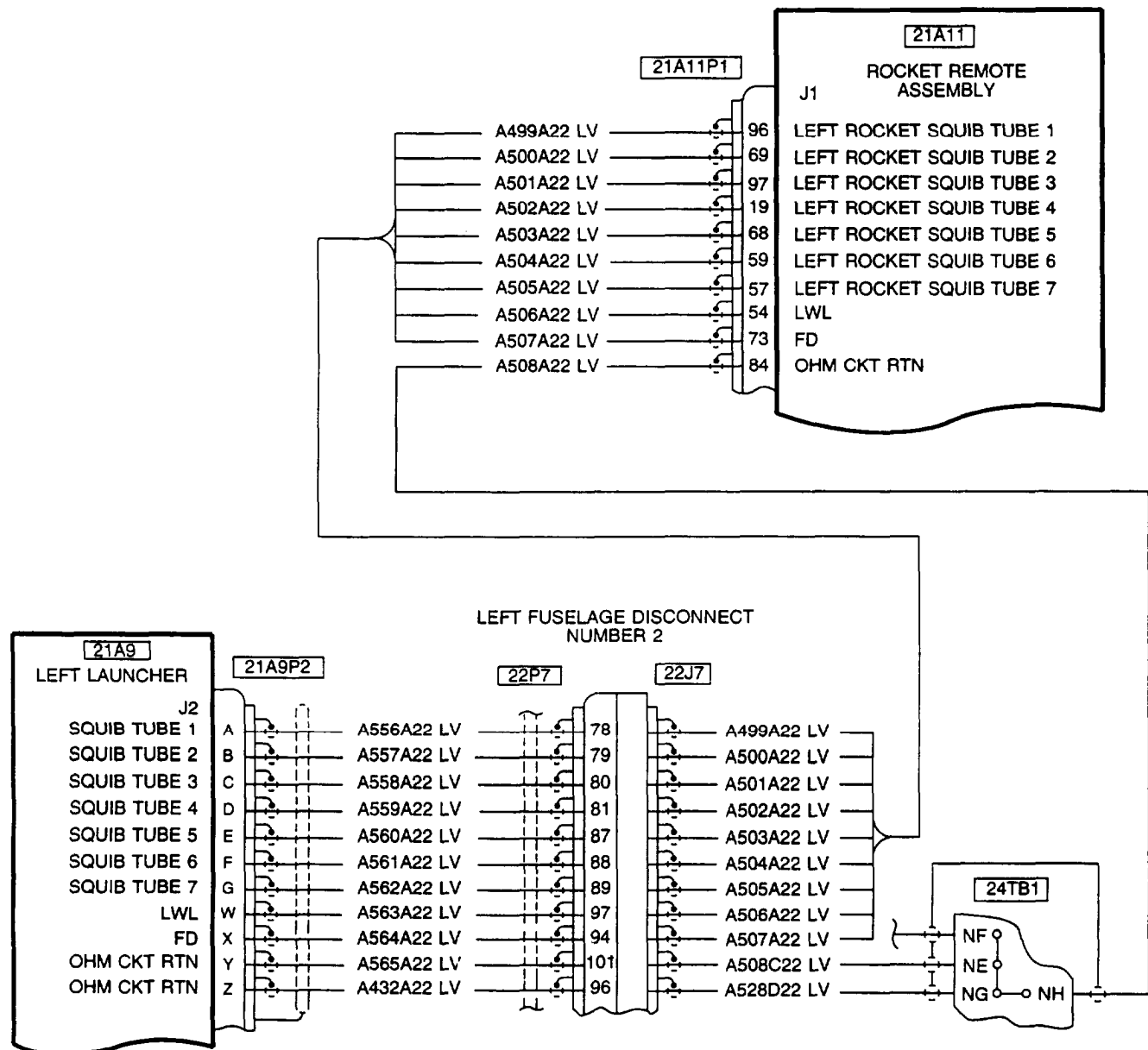
406900-129-1
H3424

33. ROCKET SQUIB DOES NOT FIRE WHEN SYSTEM IS ARMED AND SELECTED AND FIRE SWITCH IS PRESSED (CONT)



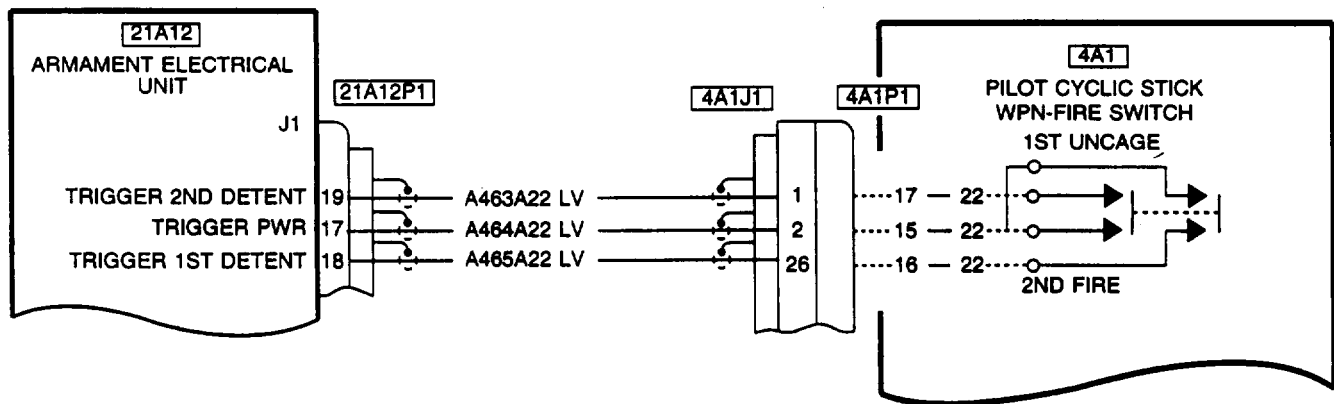
406900-129-2
H3553

33. ROCKET SQUIB DOES NOT FIRE WHEN SYSTEM IS ARMED AND SELECTED AND FIRE SWITCH IS PRESSED (CONT)



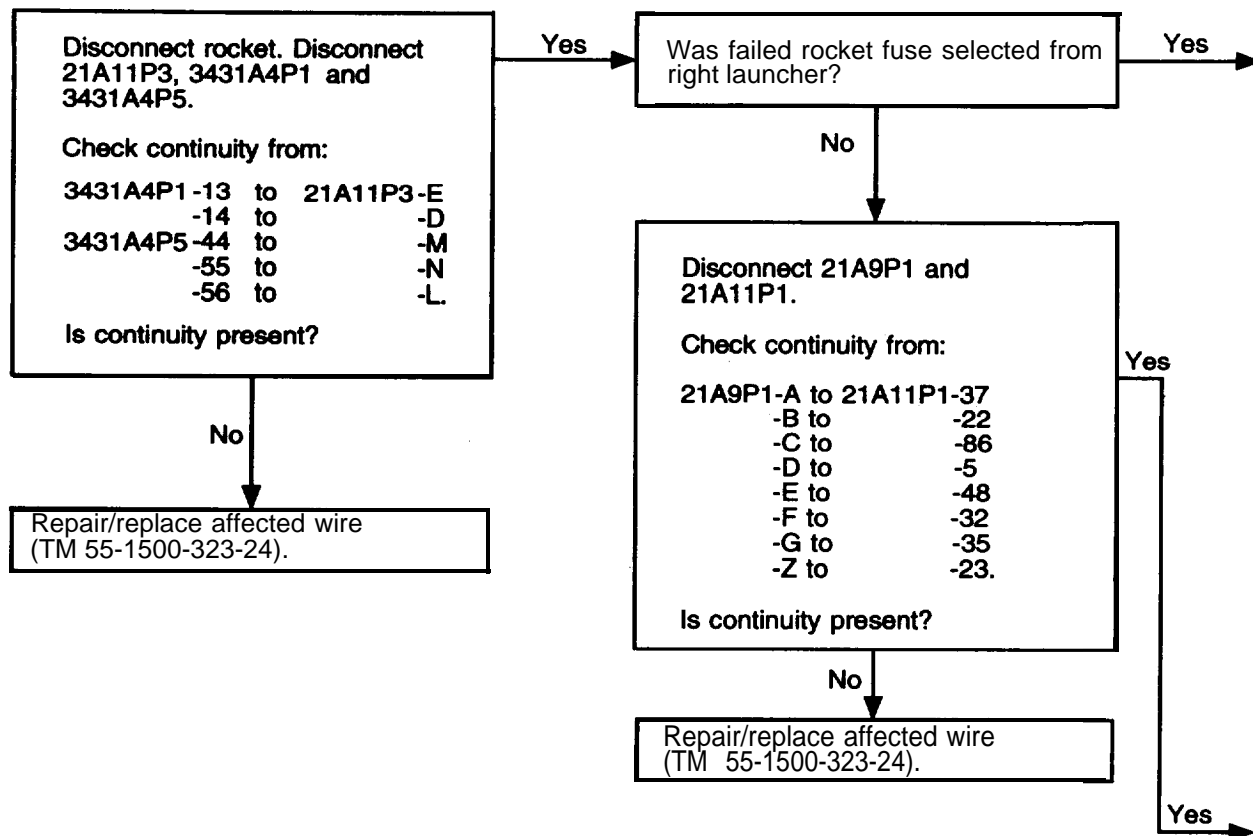
406900-129-3
H3553

33. ROCKET SQUIB DOES NOT FIRE WHEN SYSTEM IS ARMED AND SELECTED AND FIRE SWITCH IS PRESSED (CONT)

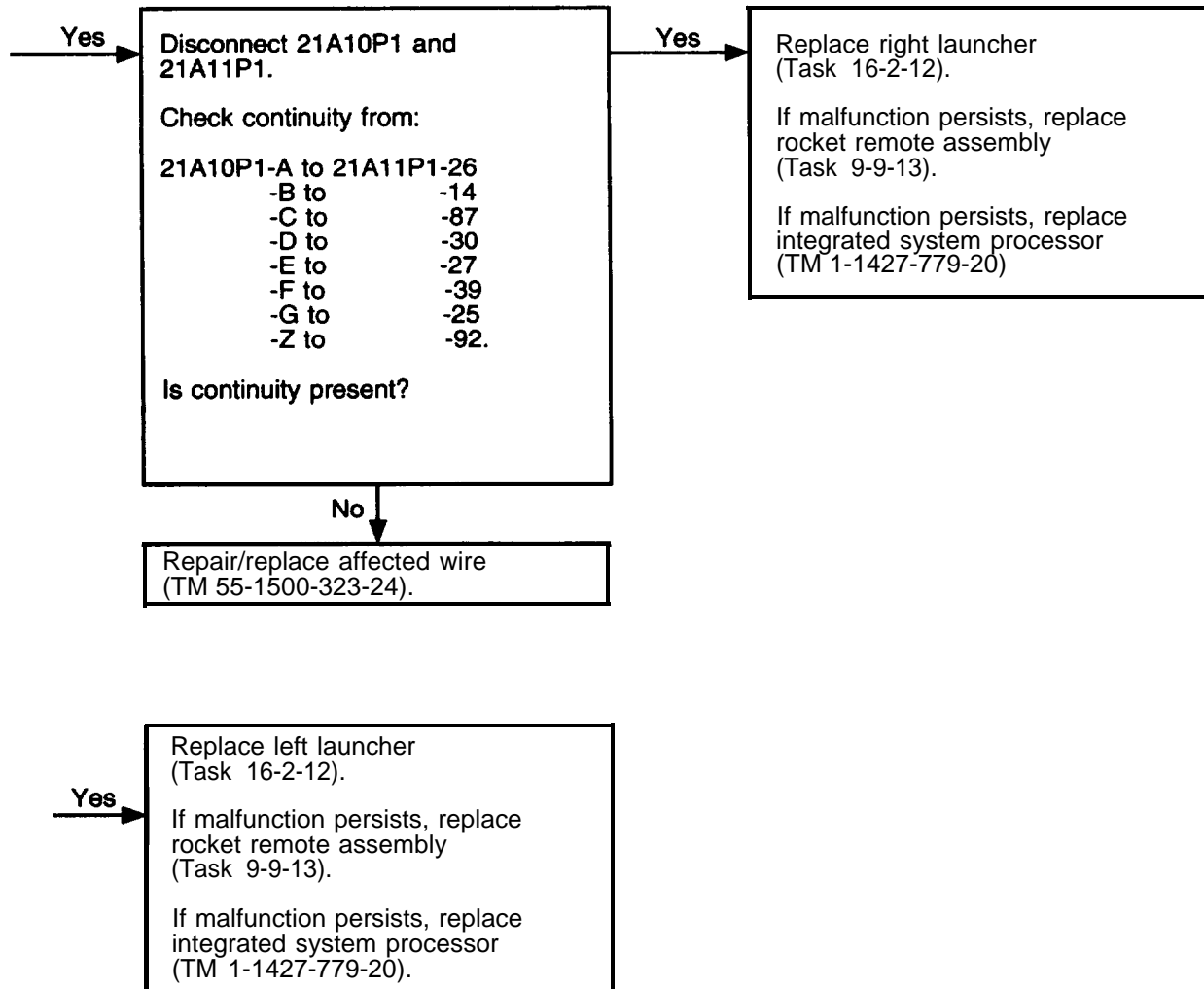


406900-129-4
H3653

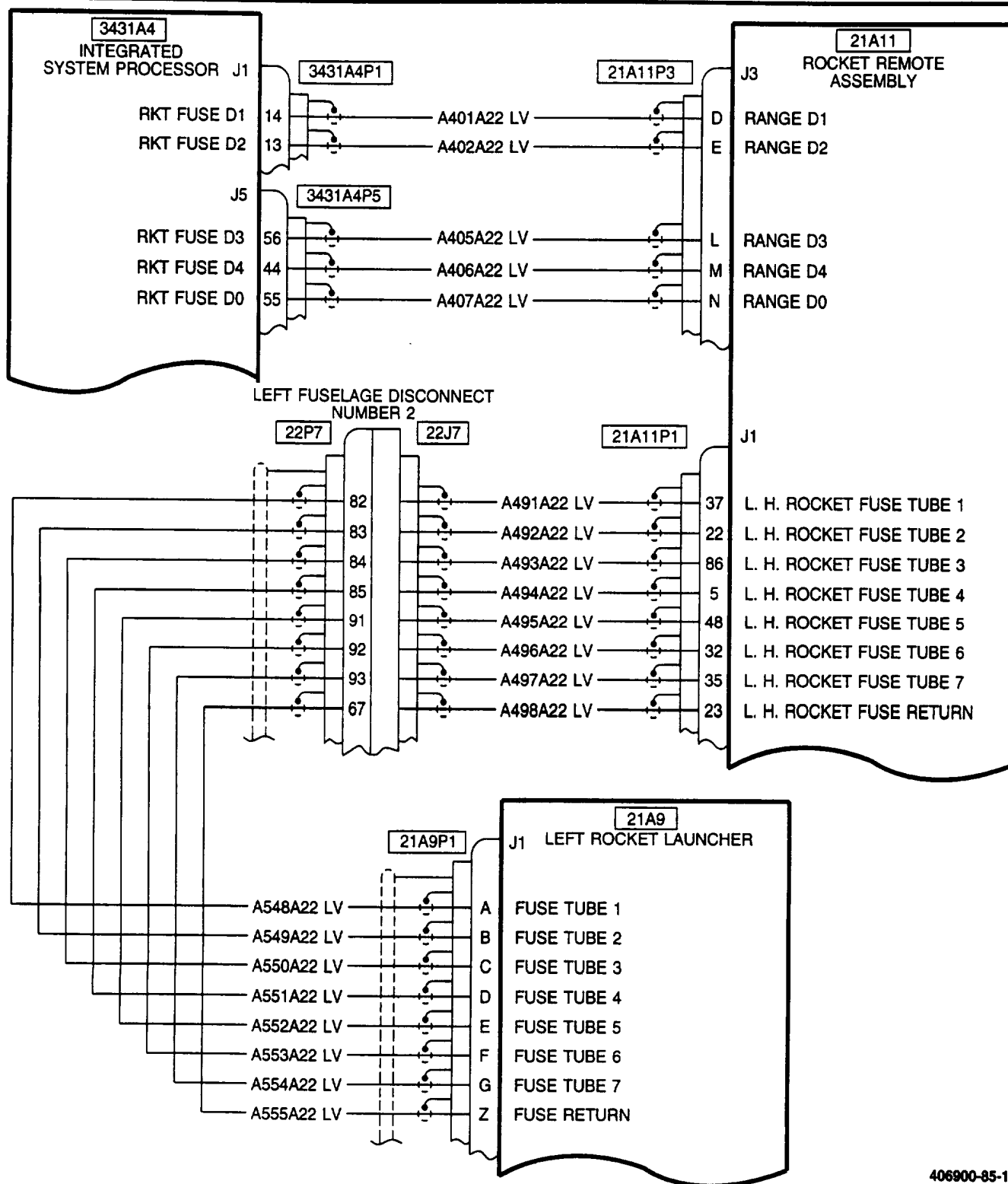
34. ROCKET FUSE TIME FOR MANUAL SETTING DOES NOT AGREE WITH MFD



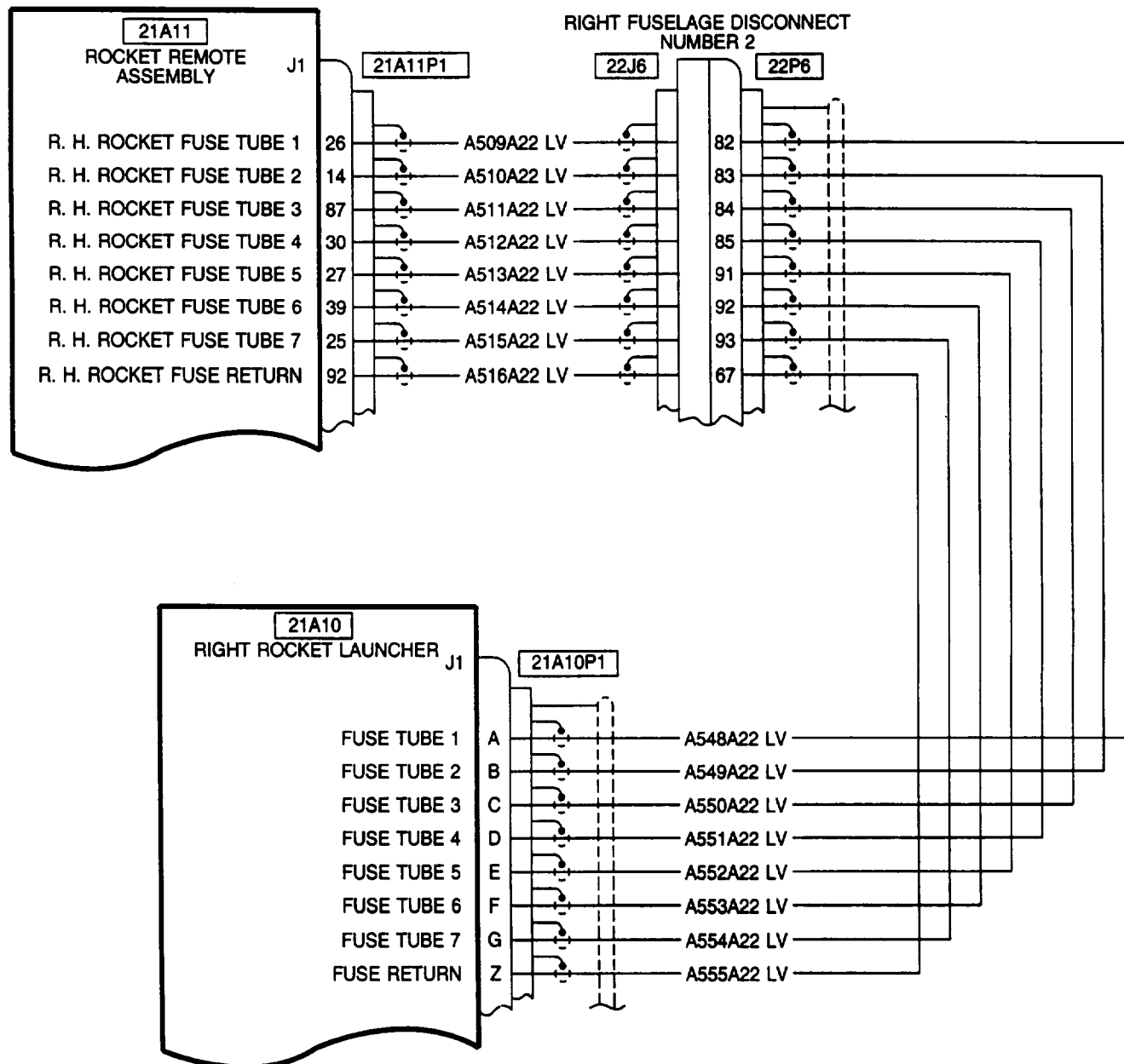
34. ROCKET FUSE TIME FOR MANUAL SETTING DOES NOT AGREE WITH MFD (CONT)



34. ROCKET FUSE TIME FOR MANUAL SETTING DOES NOT AGREE WITH MFD (CONT)

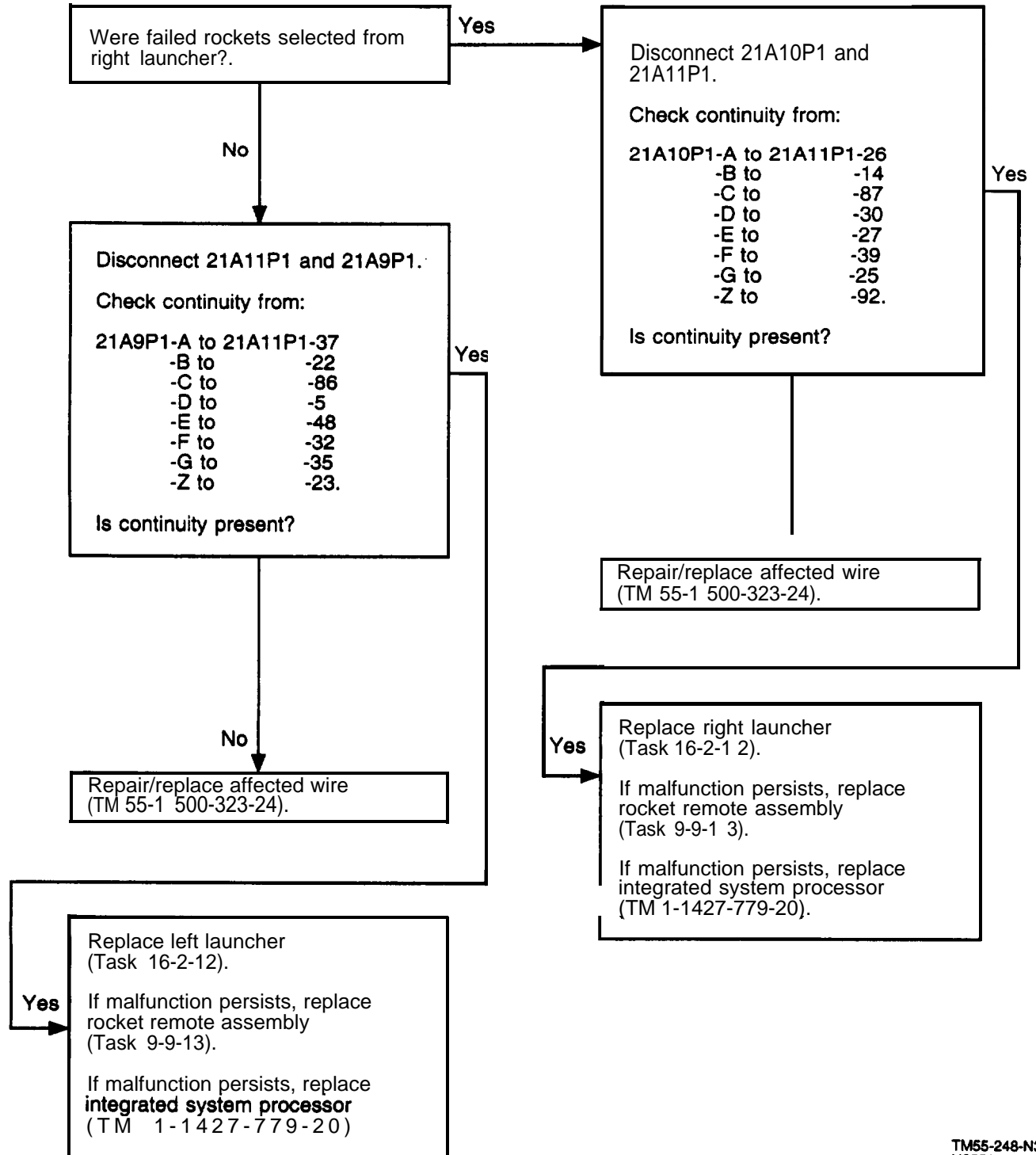
406900-85-1
H3544

34. ROCKET FUSE TIME FOR MANUAL SETTING DOES NOT AGREE WITH MFD (CONT)

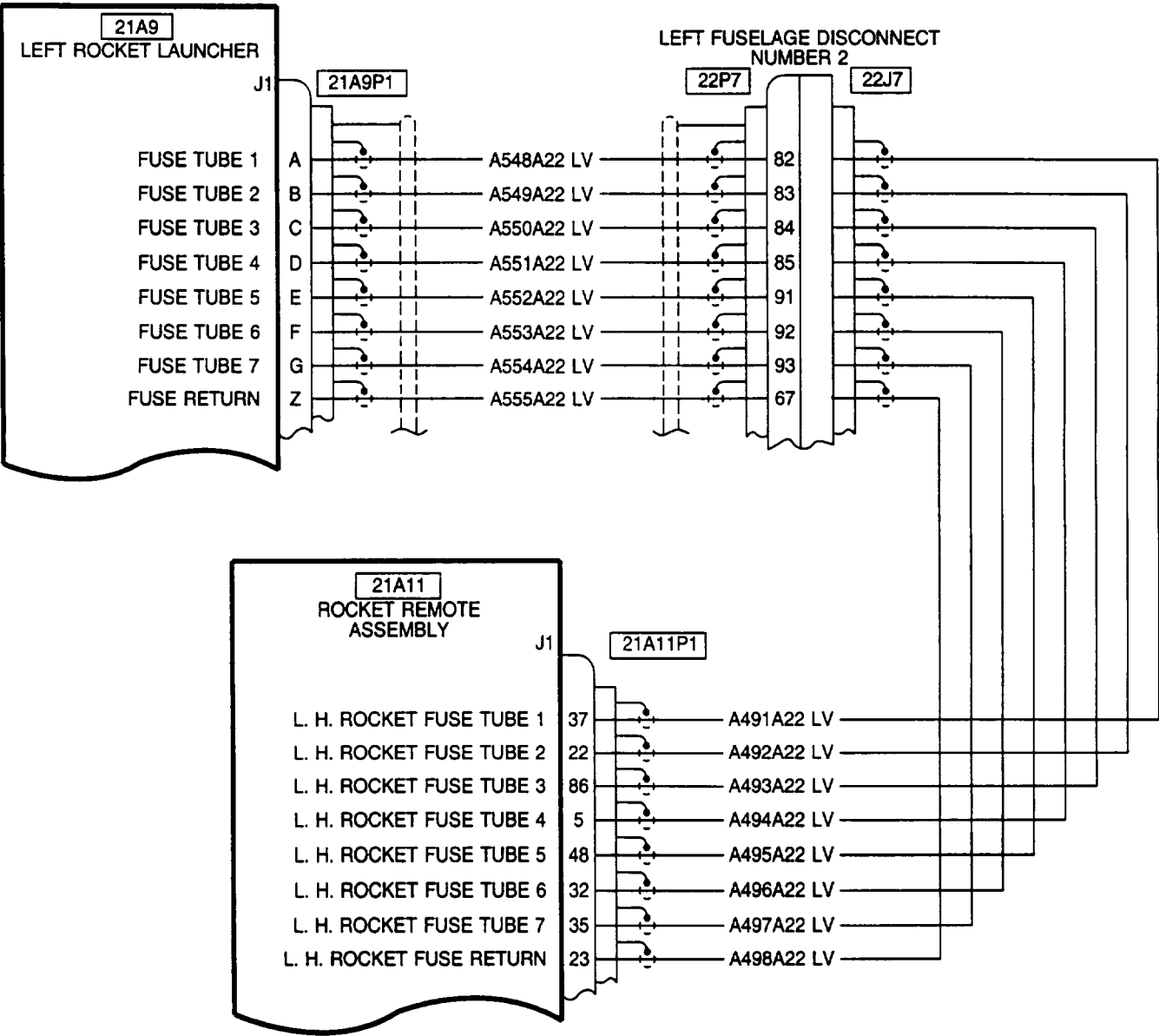


406900-85-2
H3544

36. ALL OR A SINGLE ROCKET WILL NOT FUSE

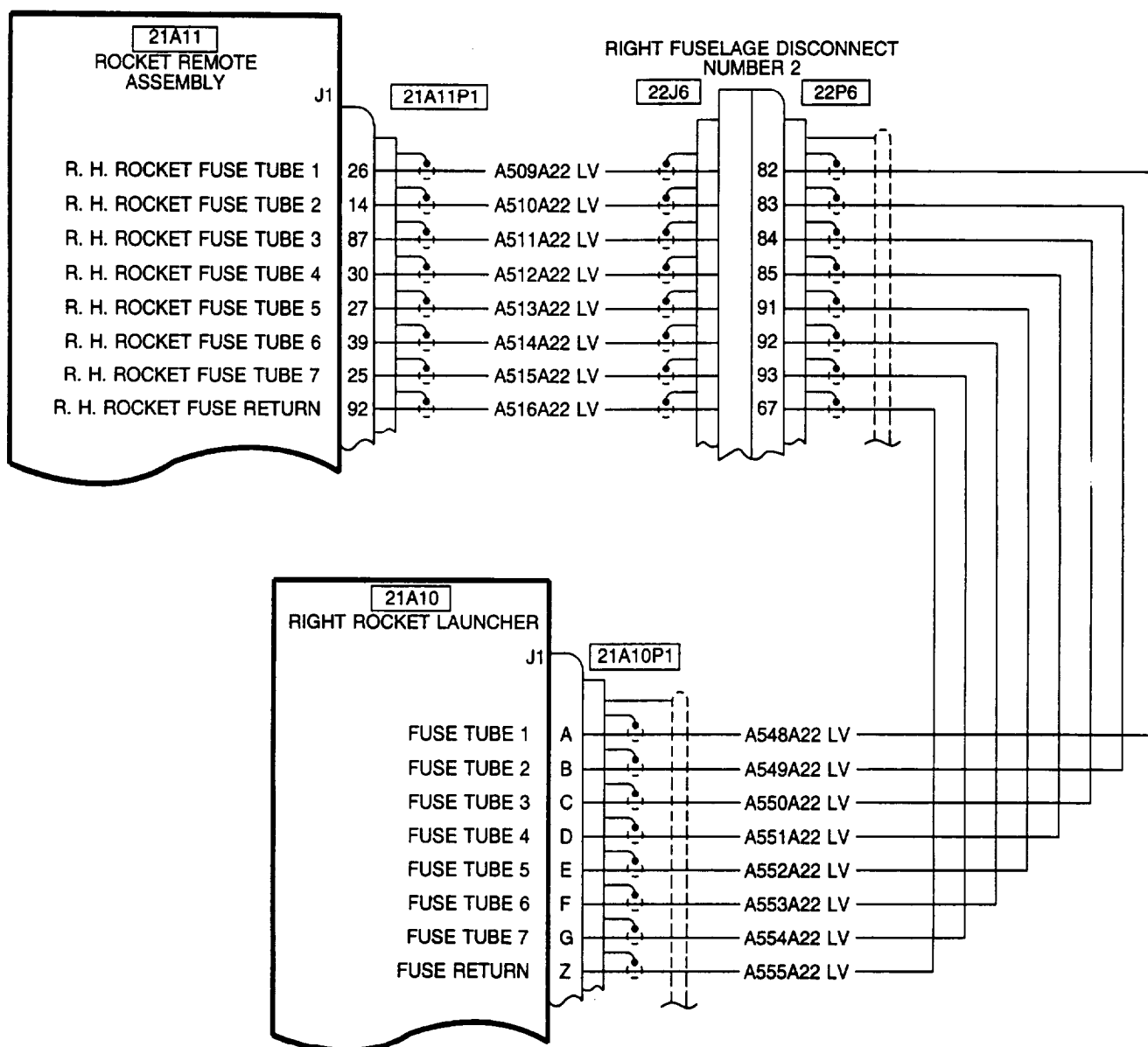
TM55-248-N36
H3551

36. ALL OR A SINGLE ROCKET WILL NOT FUSE (CONT)



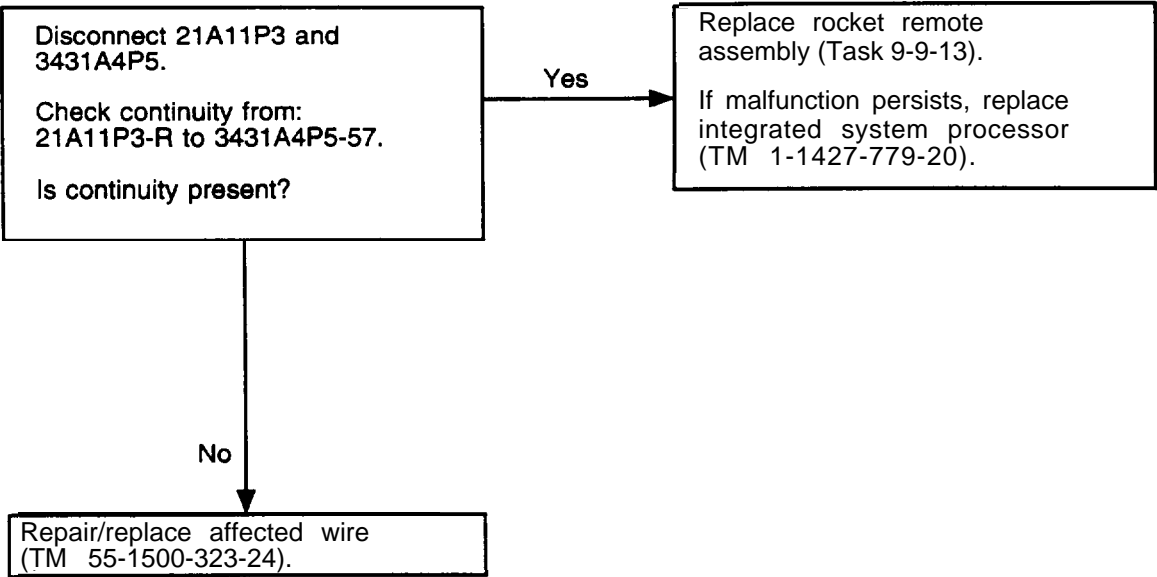
406900-86-1
H3544

36. ALL OR A SINGLE ROCKET WILL NOT FUSE (CONT)

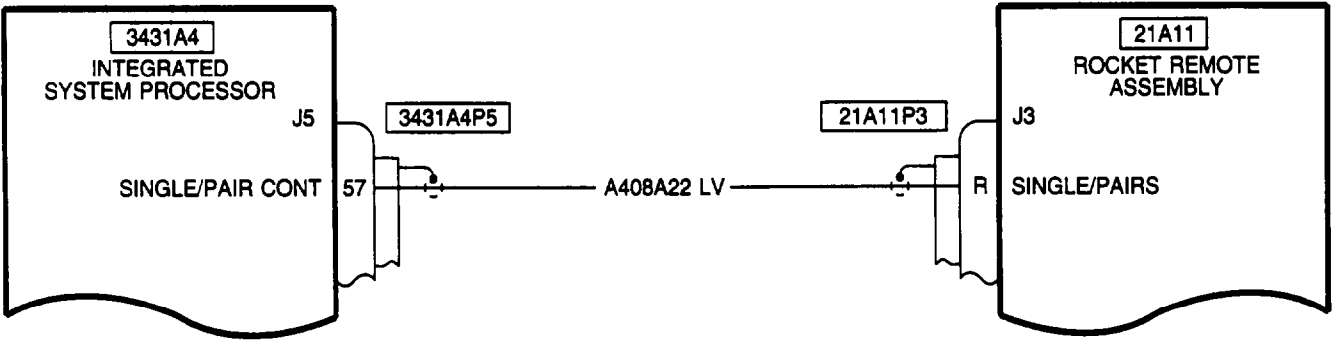


406900-86-2
H3424

37. ROCKETS FIRE IN PAIRS WHEN SINGLE IS SELECTED

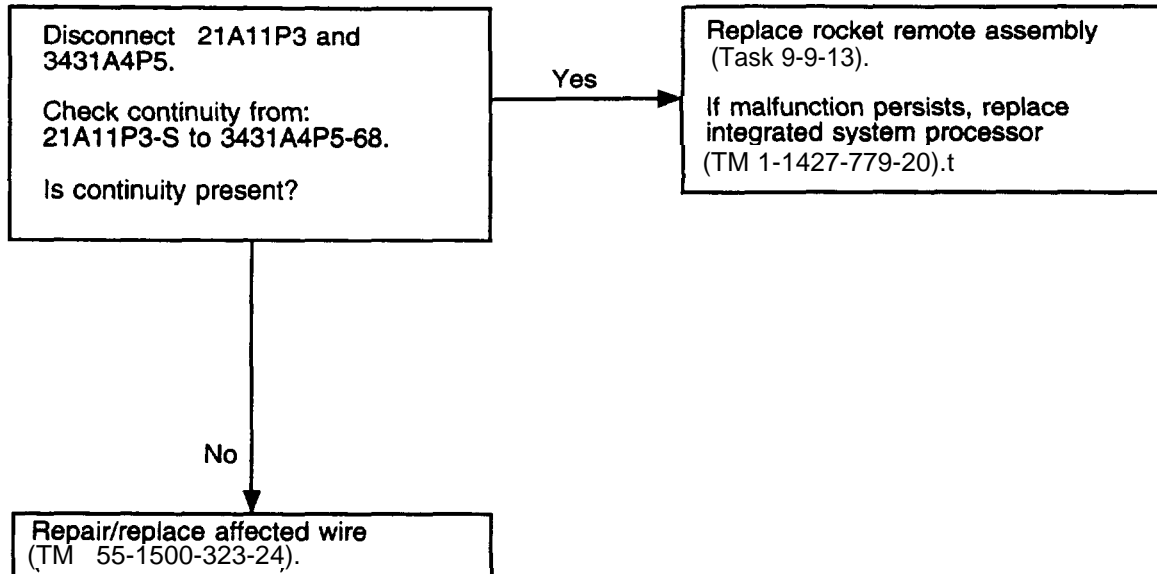


TM 55-248-N37
H3351

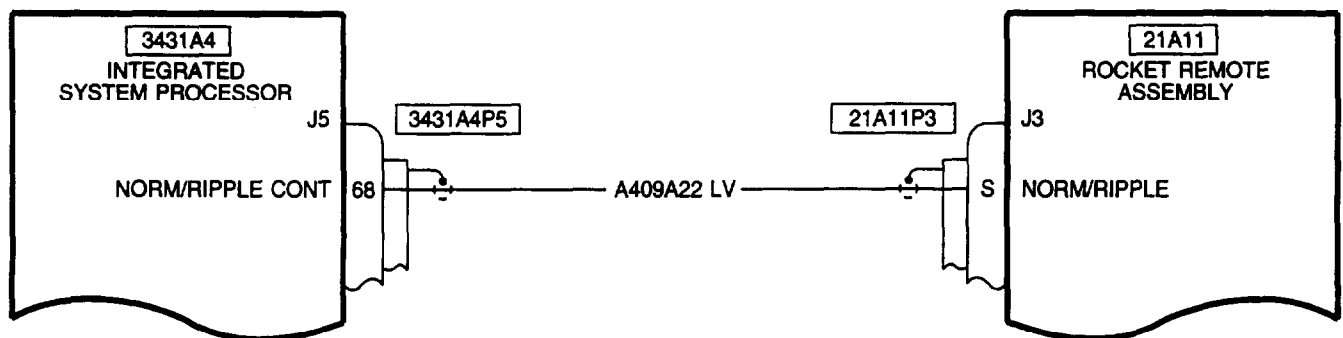


406900-87
H3544

38. ROCKETS FIRE IN SINGLES WHEN RIPPLE SINGLES IS SELECTED

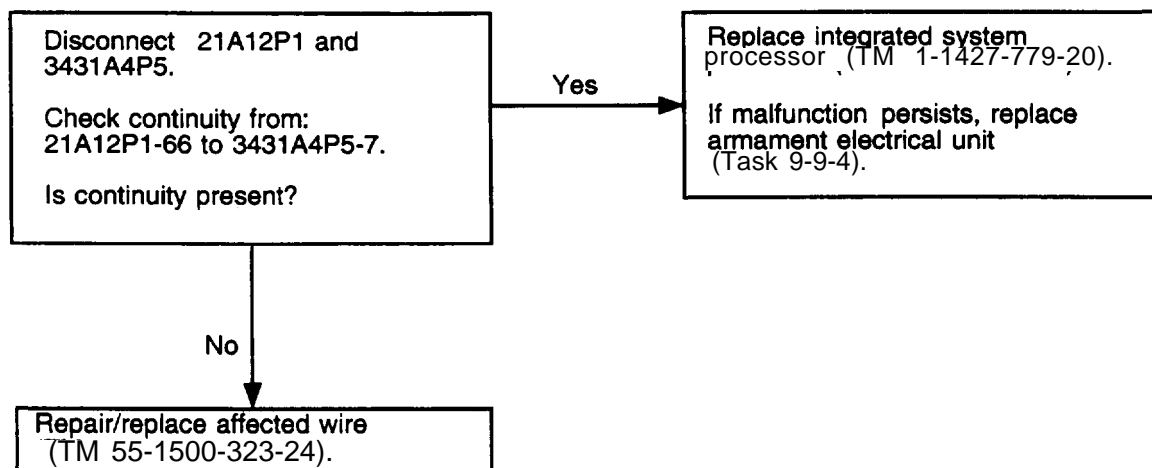


TM55-248-N38
H3551

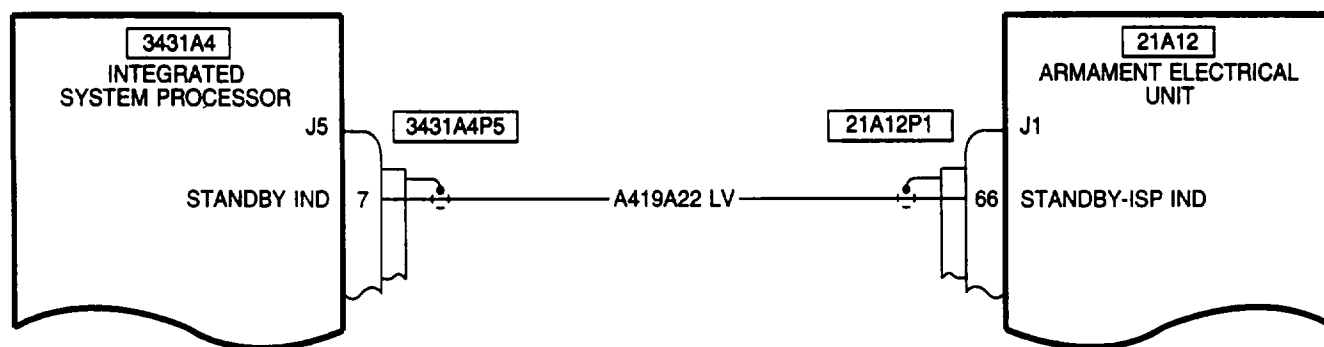


406900-88
H3544

39. ROCKETS SHOW "RKTS OFF ON MFD WHEN SELECTED, ARMED, AND ABLE TO BE FIRED

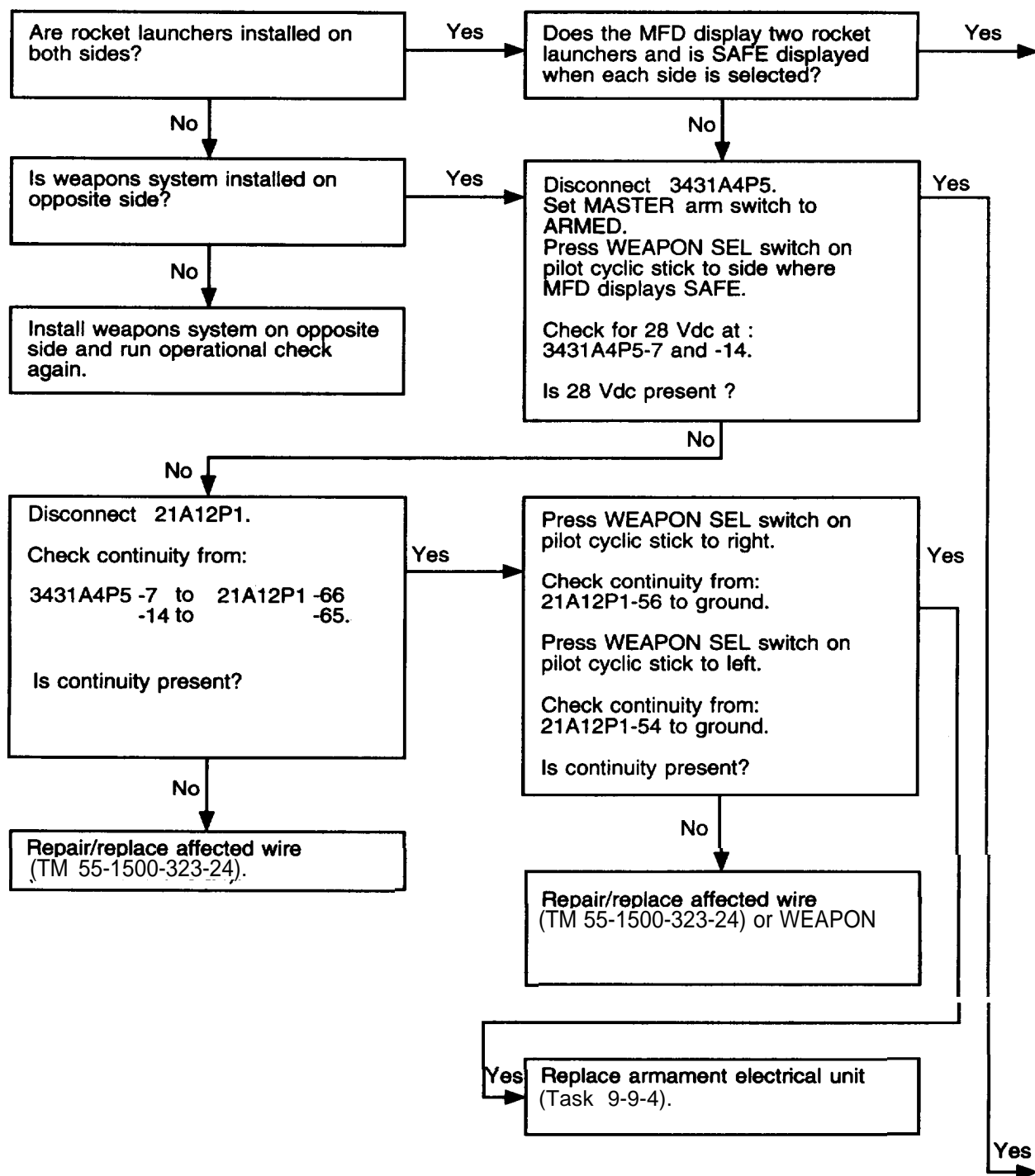


TM55-248-N39
H3551



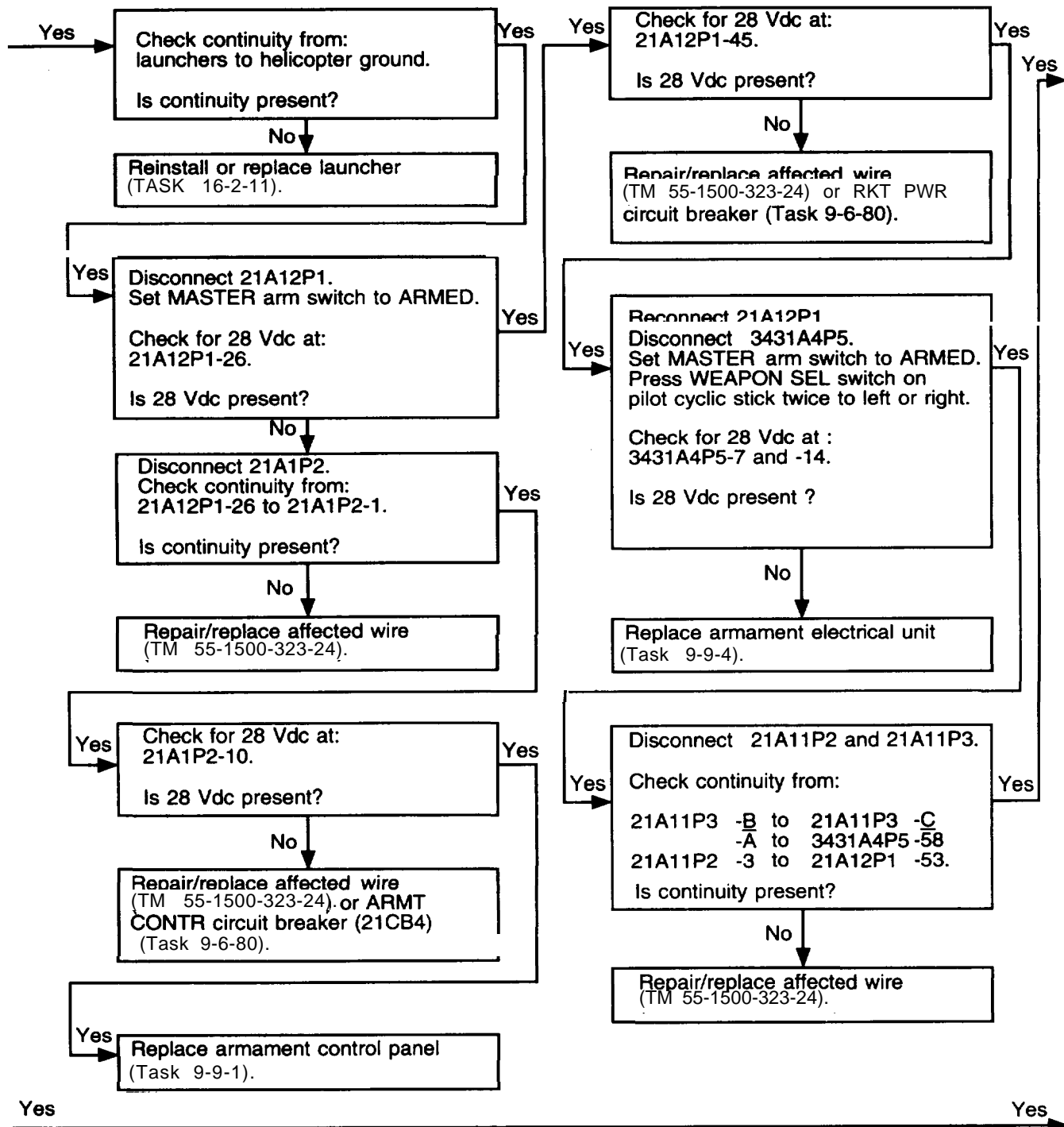
408900-89
H3544

40. ROCKETS DISPLAY SAFED ON MFD WHEN SELECTED

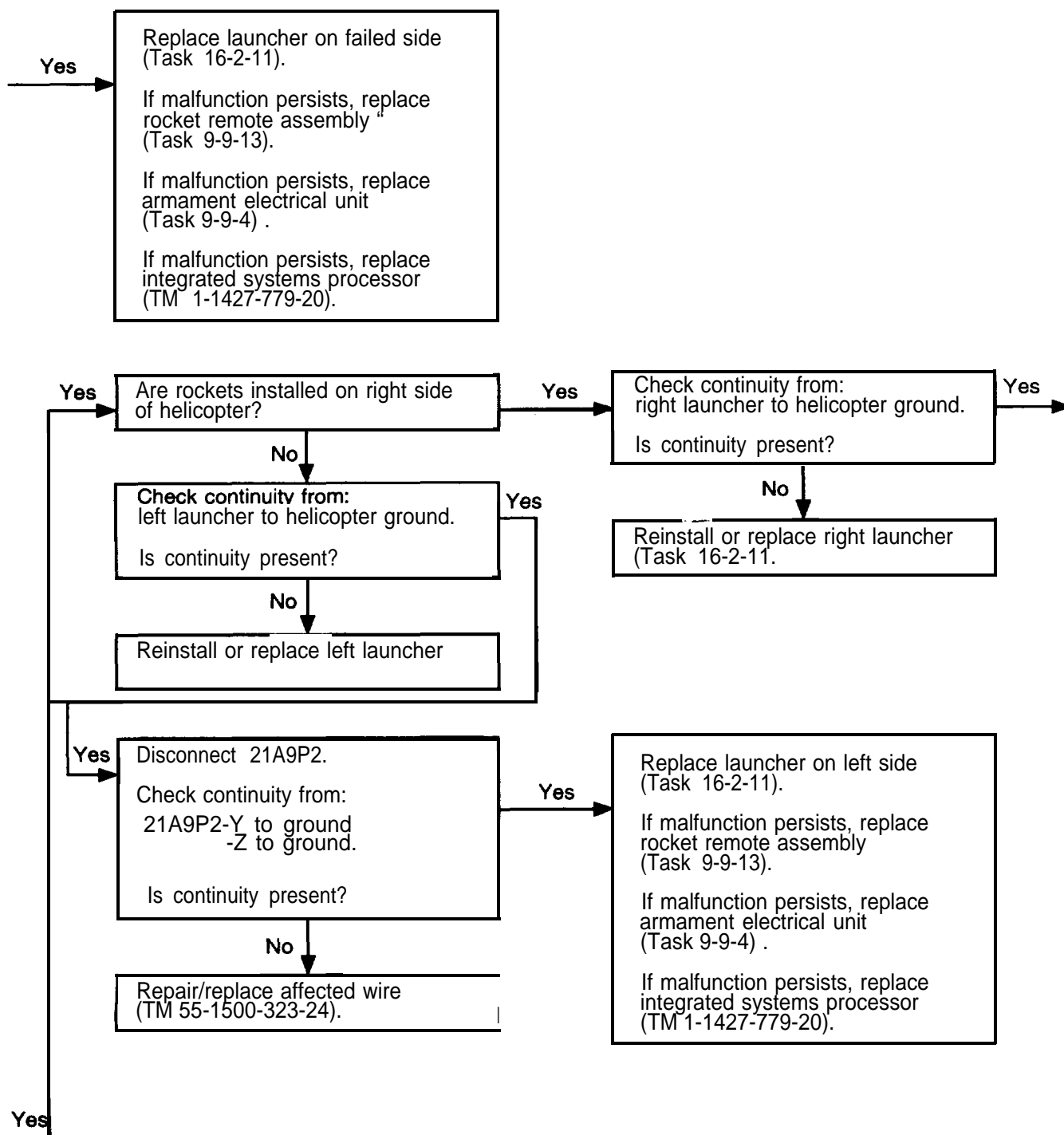


TM 55-248-N40-H3425

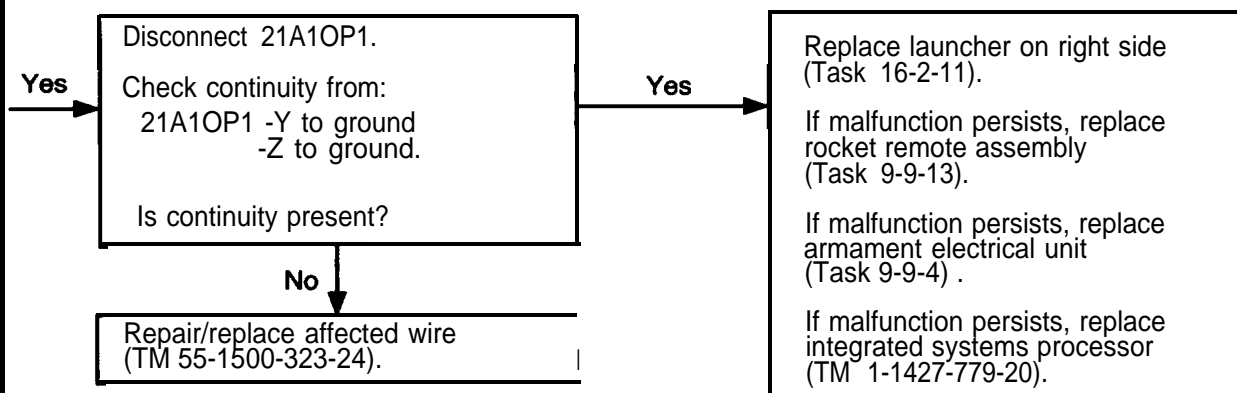
40. ROCKETS DISPLAY SAFED ON MFD WHEN SELECTED (CONT)

TM55_248_N40_2
H5073

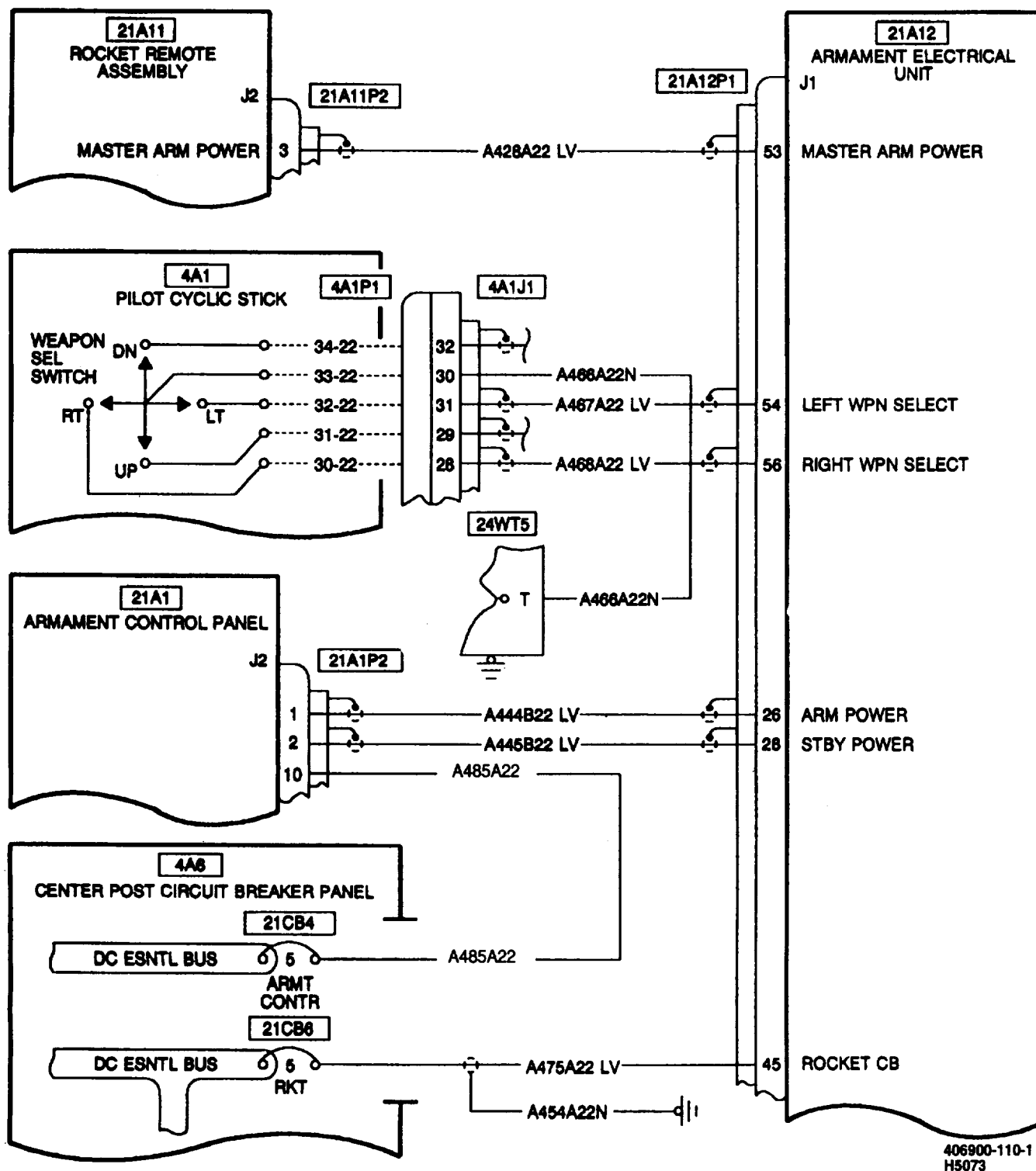
40. ROCKETS DISPLAY SAFED ON MFD WHEN SELECTED (CONT)

TM55_N40_3
H5073

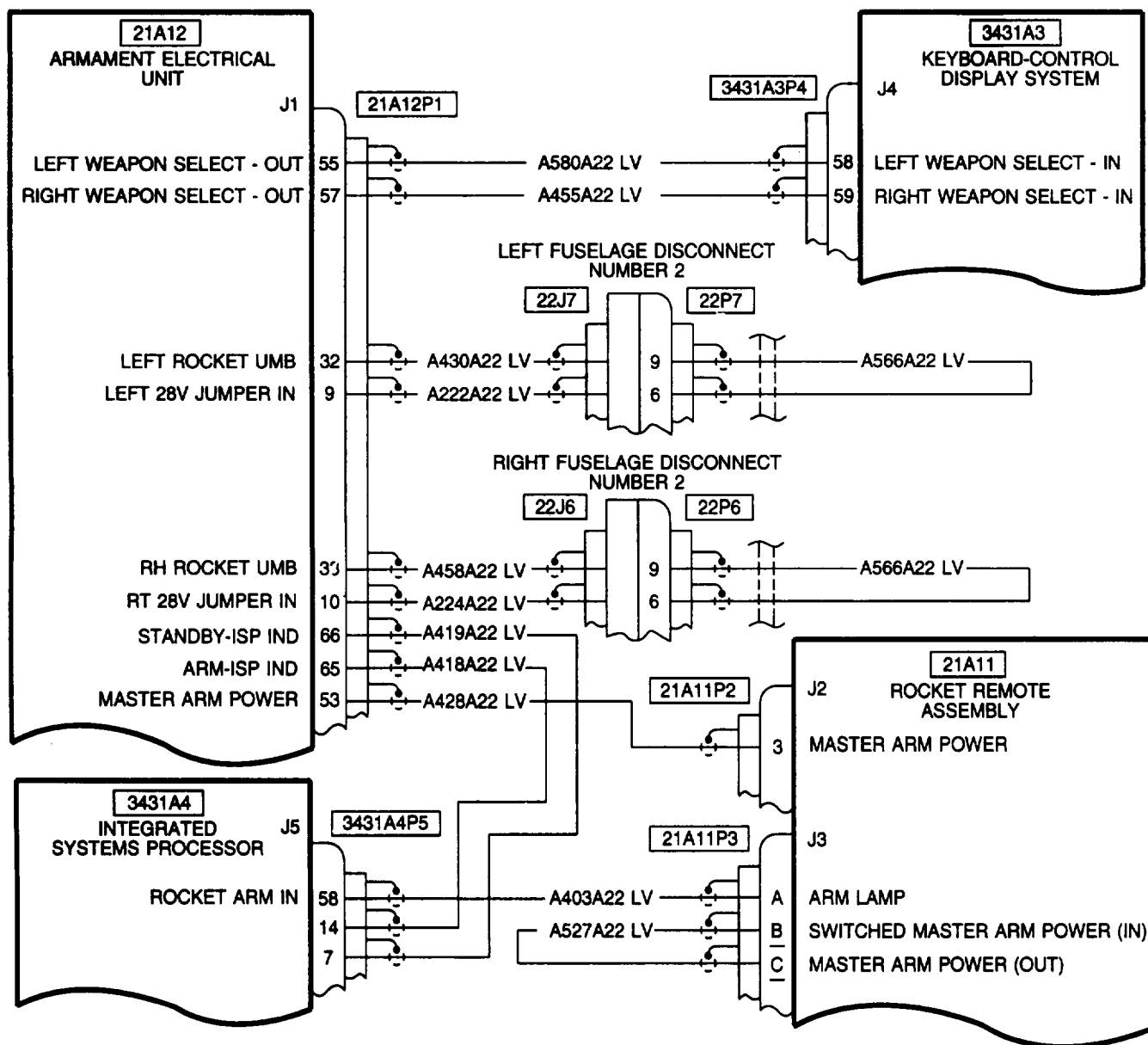
40. ROCKETS DISPLAY SAFED ON MFD WHEN SELECTED (CONT)

TM55_248_N4C_4
H5073

40. ROCKETS DISPLAY SAFED ON MFD WHEN SELECTED (CONT)

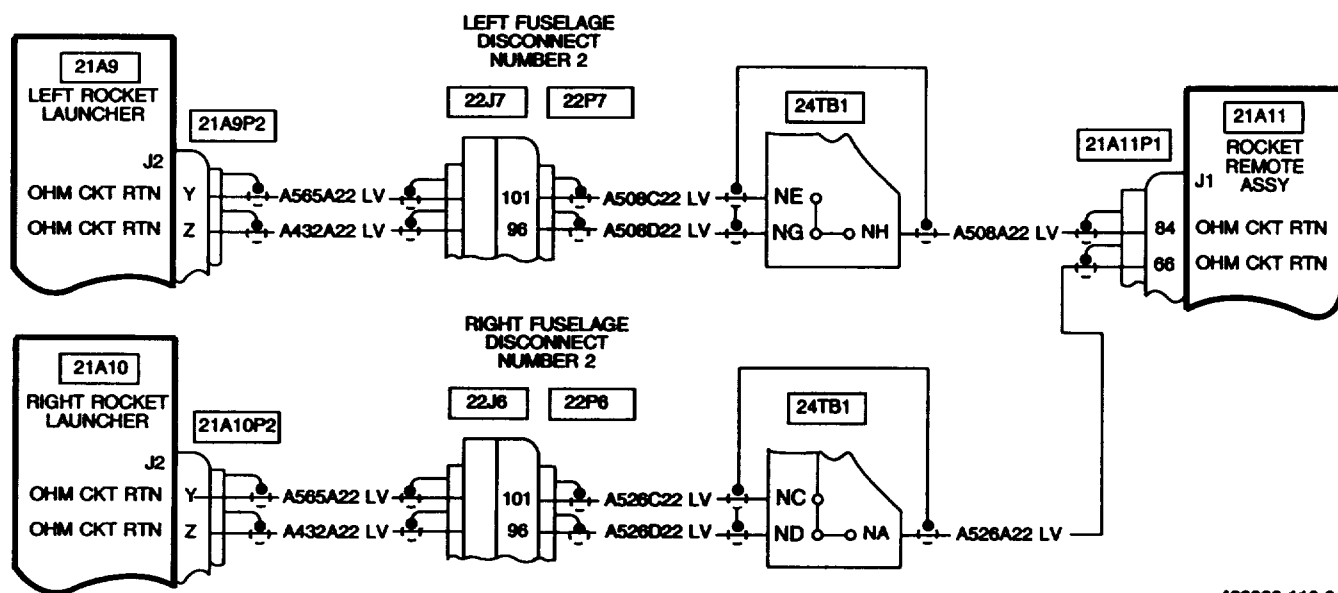


40. ROCKETS DISPLAY SAFED ON MFD WHEN SELECTED (CONT)



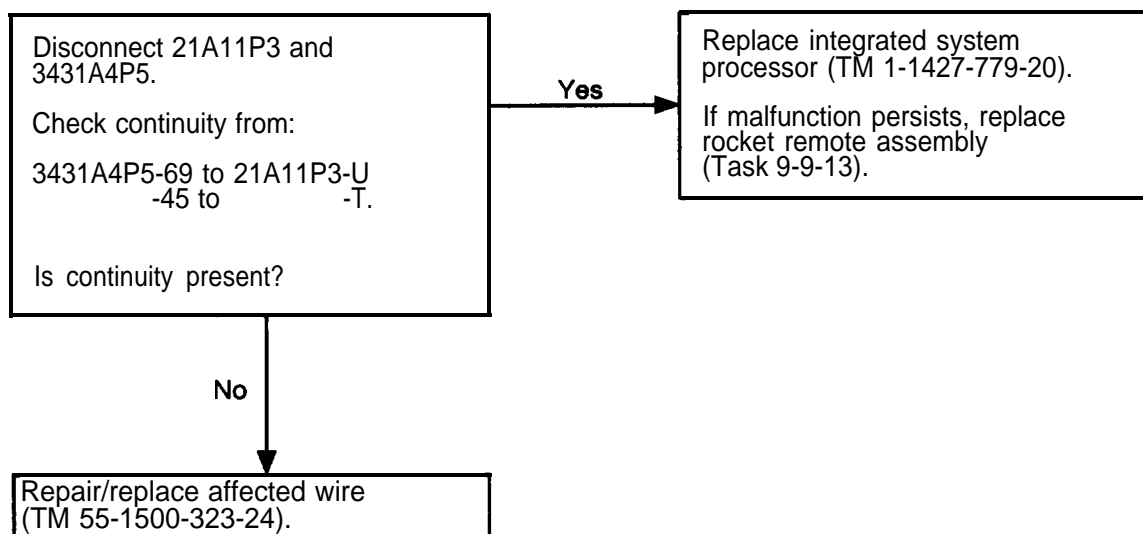
406900-110-2
H5073

40. ROCKETS DISPLAY SAFED ON MFD WHEN SELECTED (CONT)

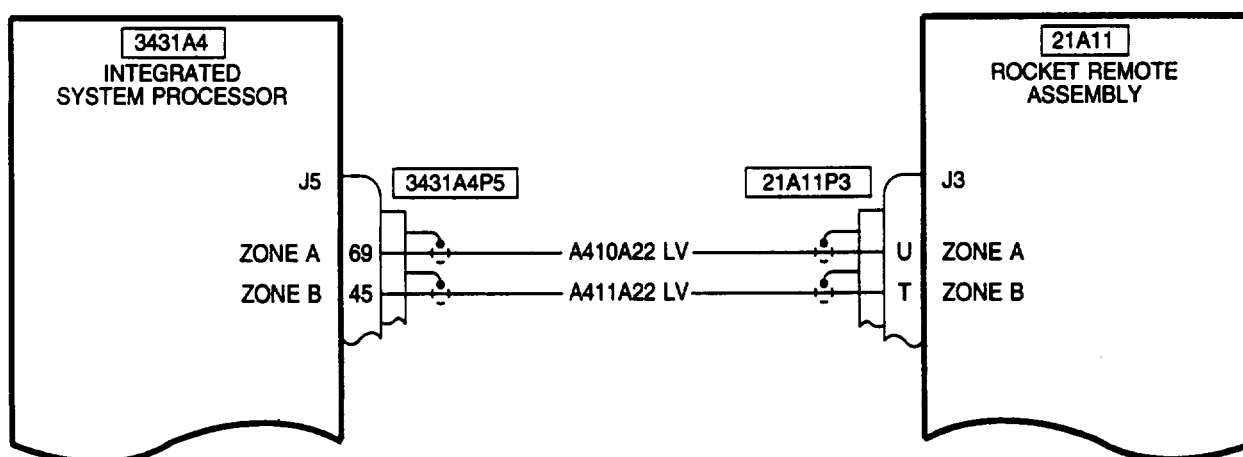


408900-110-3
H5073

41. ROCKETS FIRE IN ZONES NOT SELECTED TO FIRE

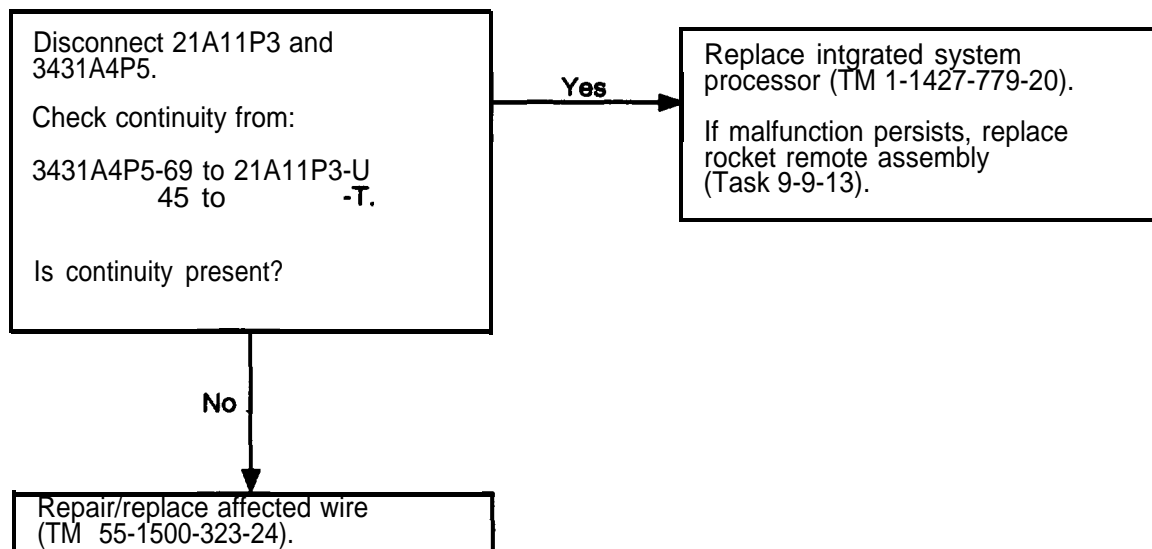


TM55-248-N41
H3551

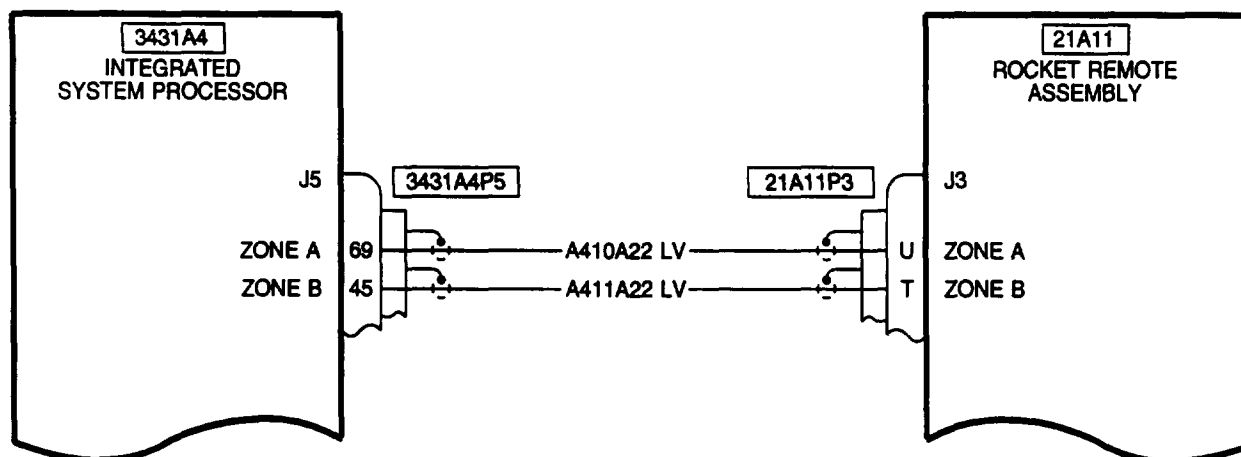


408900-90
H3544

42. ROCKETS FIRE IN BOTH ZONES WHEN SINGLE IS SELECTED

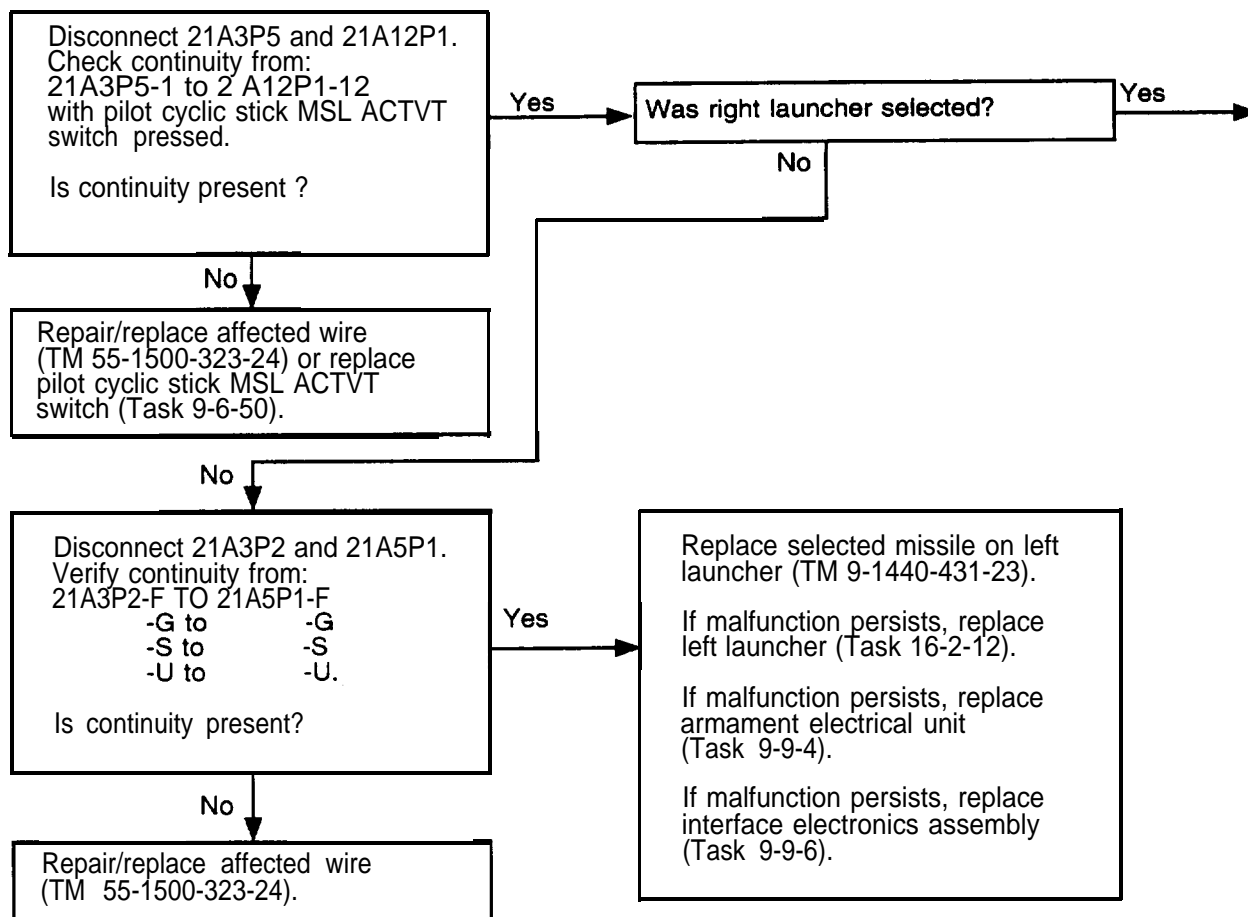


TM55-248-N42
H3551

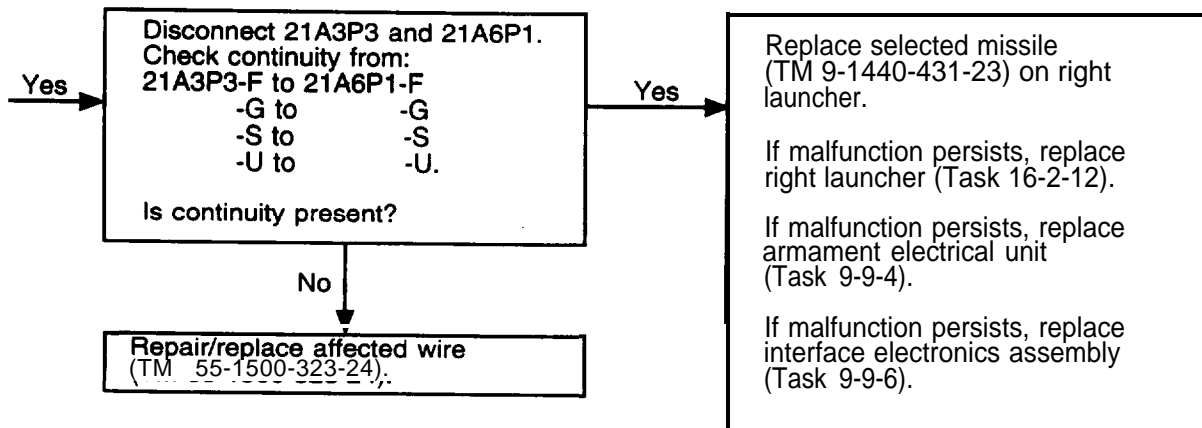


406900-81
H3544

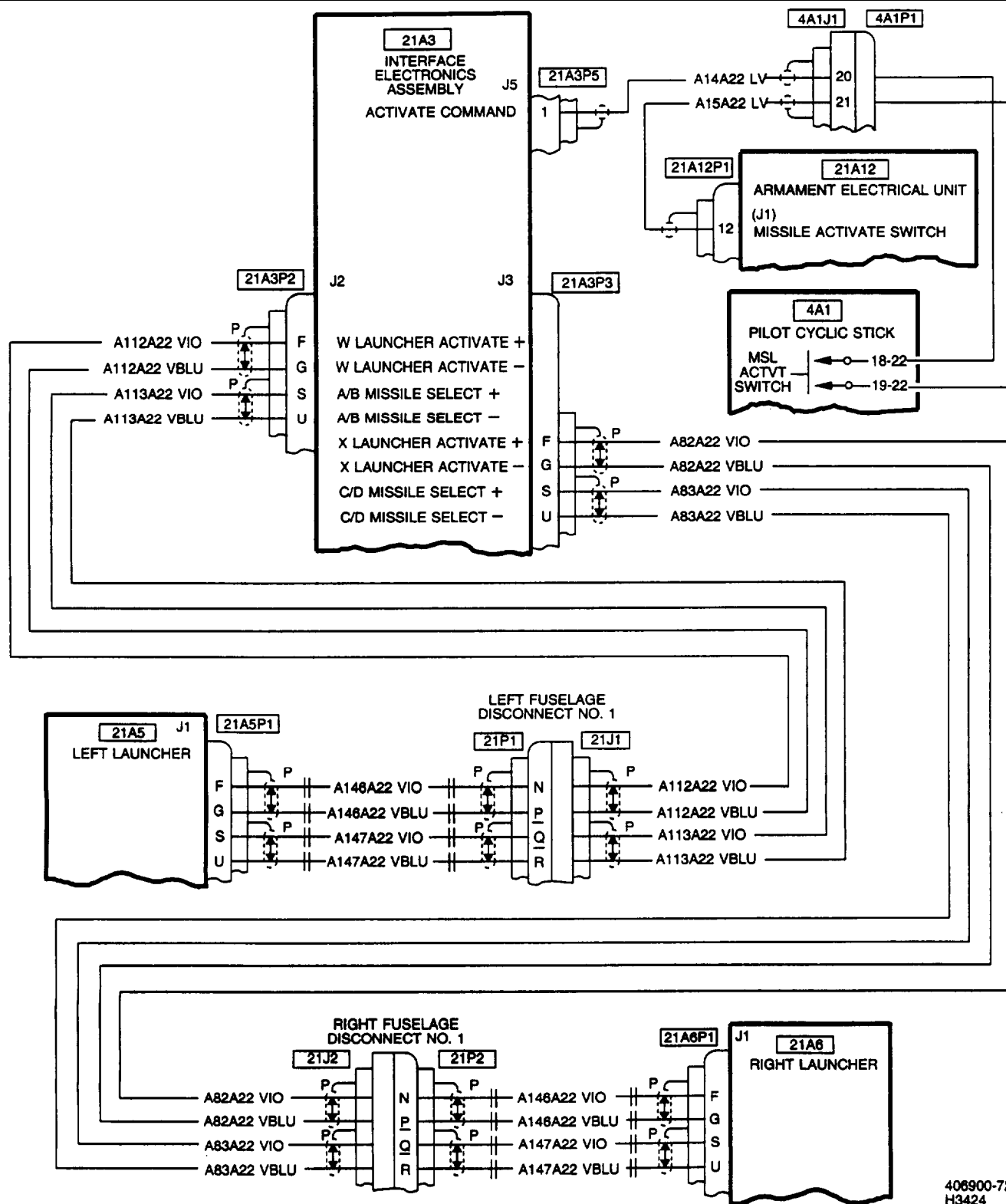
43. MISSILE DOES NOT ACTIVATE (SPIN UP/COOL) DUE TO SIGNAL FAILURE



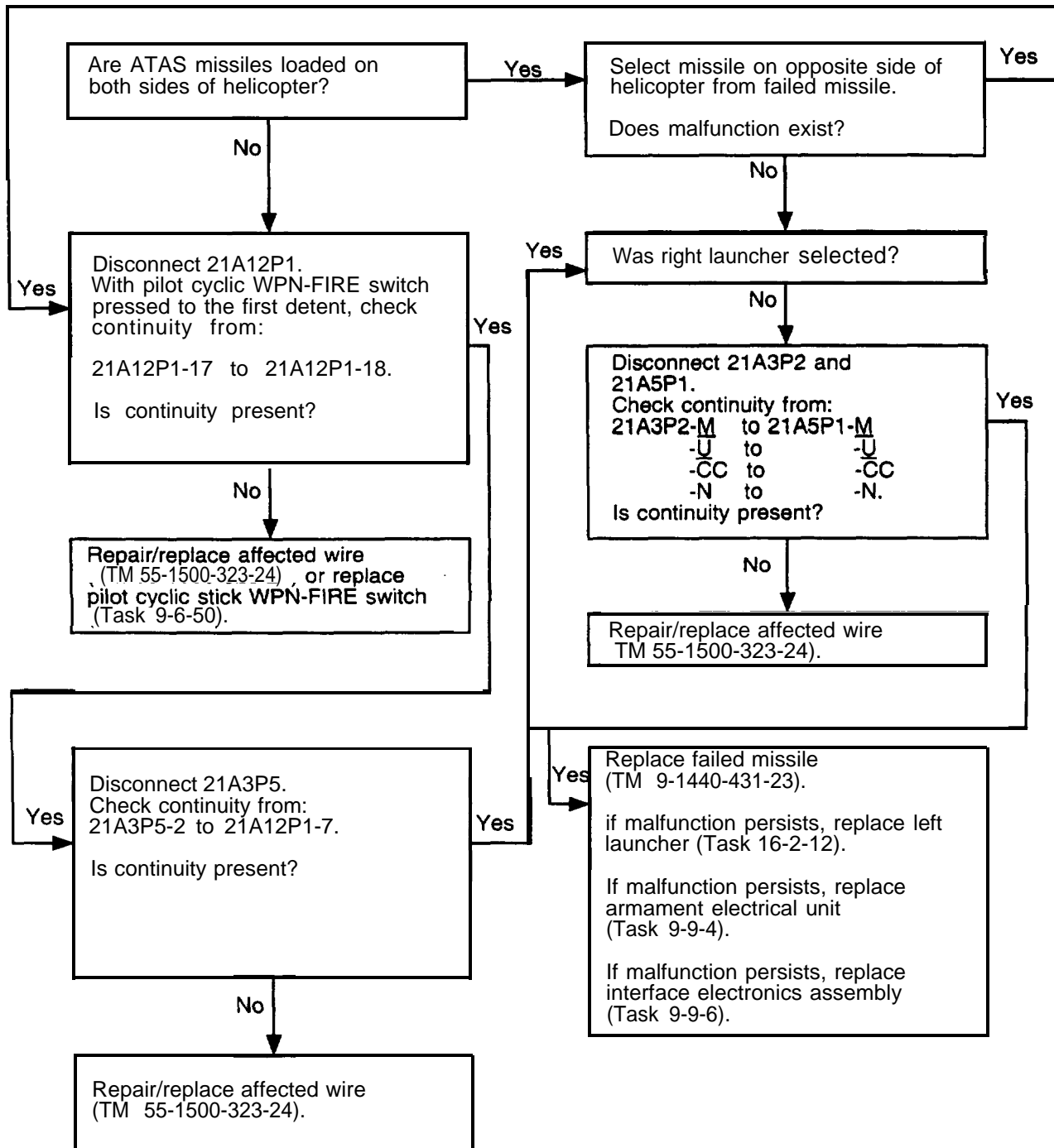
43. MISSILE DOES NOT ACTIVATE (SPIN UP/COOL) DUE TO SIGNAL FAILURE (CONT)



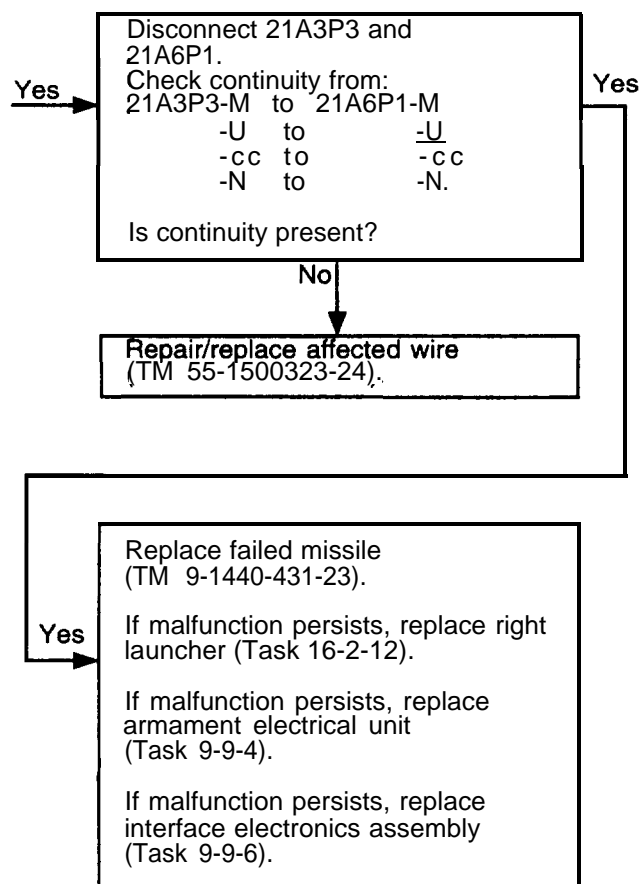
43. MISSILE DOES NOT ACTIVATE (SPIN UP/COOL) DUE TO SIGNAL FAILURE (CONT)


406900-72
H3424

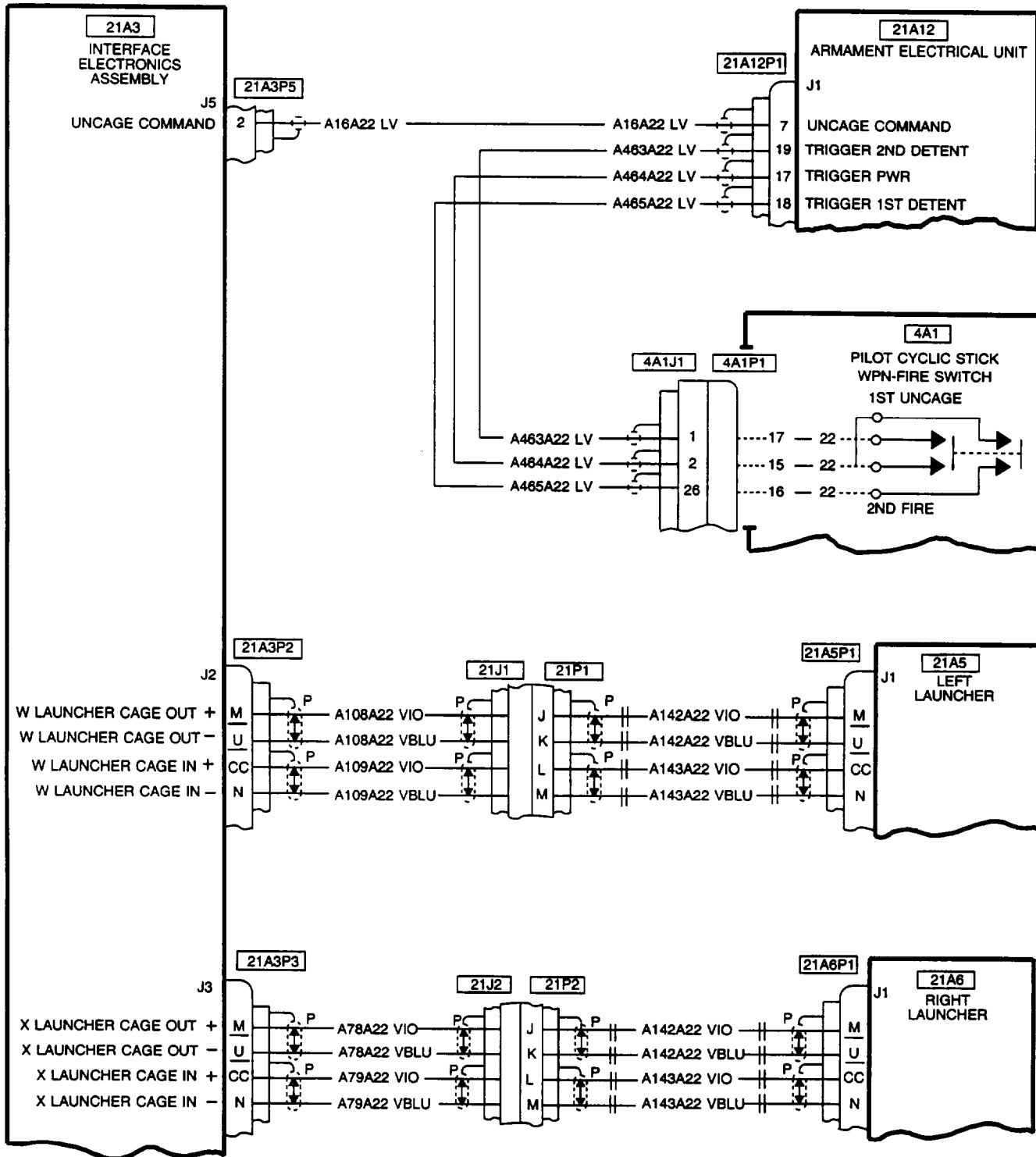
44. MISSILE FAILS TO UNCAGE DUE TO SIGNAL FAILURE



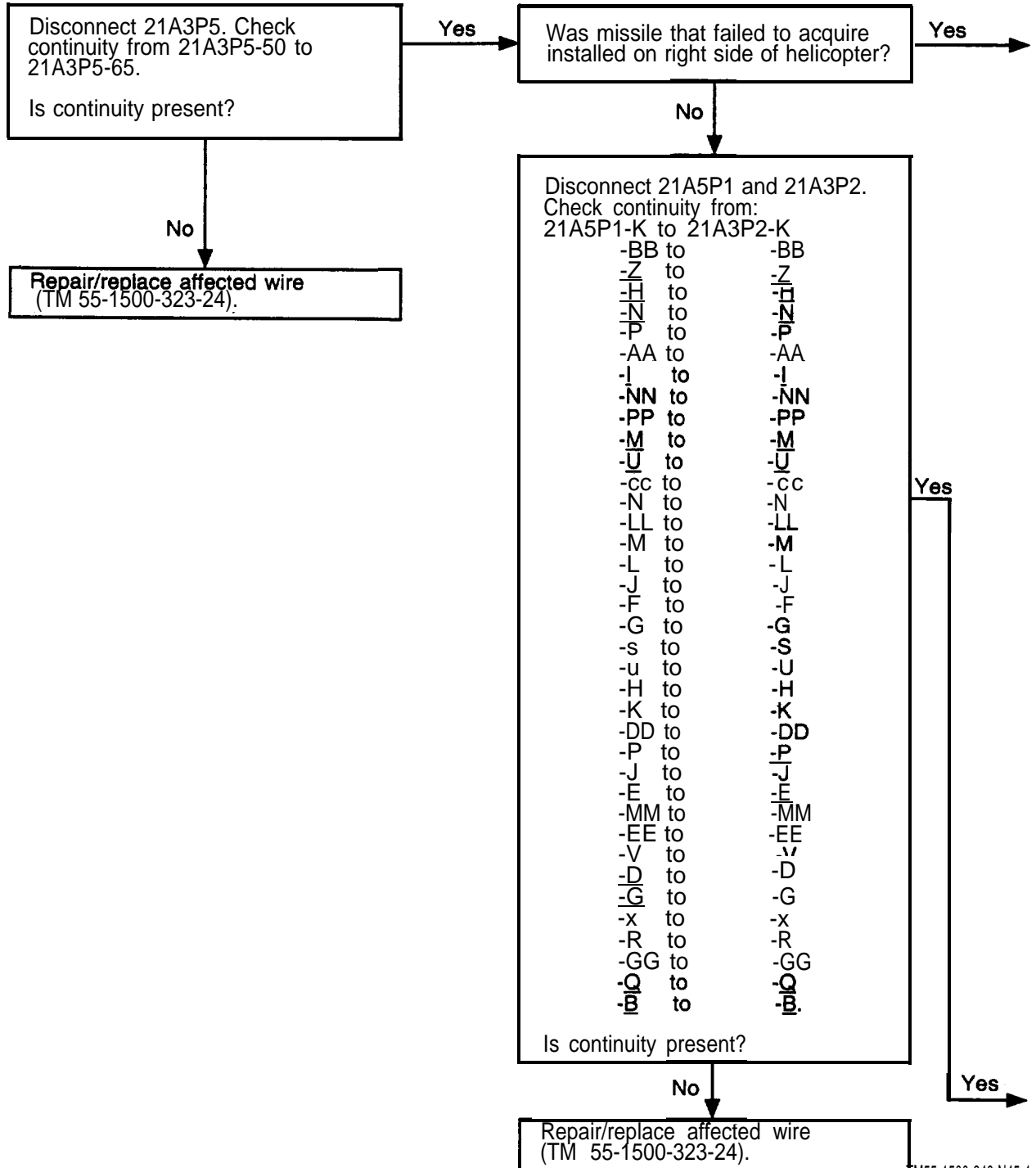
44. MISSILE FAILS TO UNCAGE DUE TO SIGNAL FAILURE (CONT)



44. MISSILE FAILS TO UNCAGE DUE TO SIGNAL FAILURE (CONT)

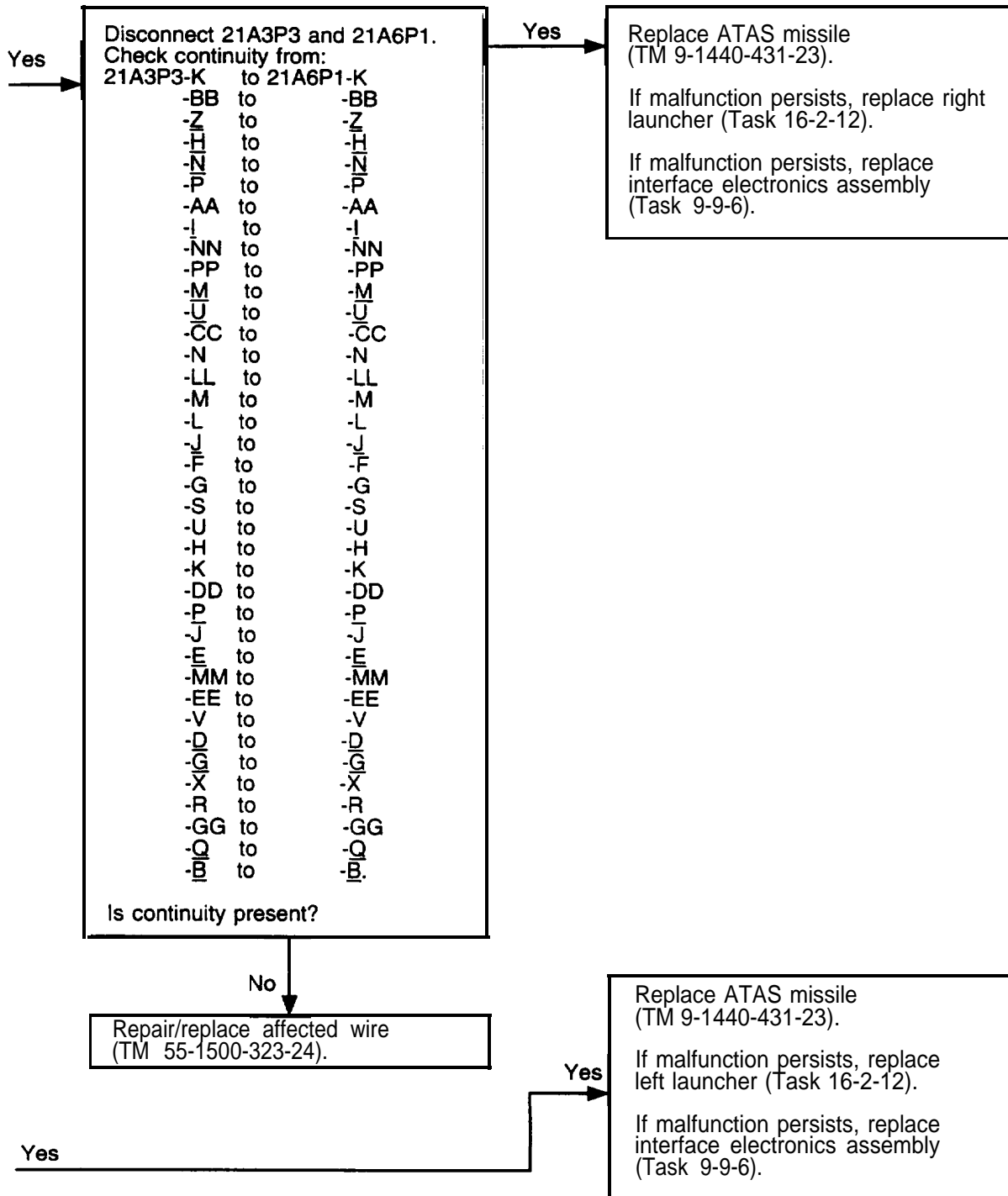
406900-73
H2793

45. MISSILE FAILS TO ACQUIRE

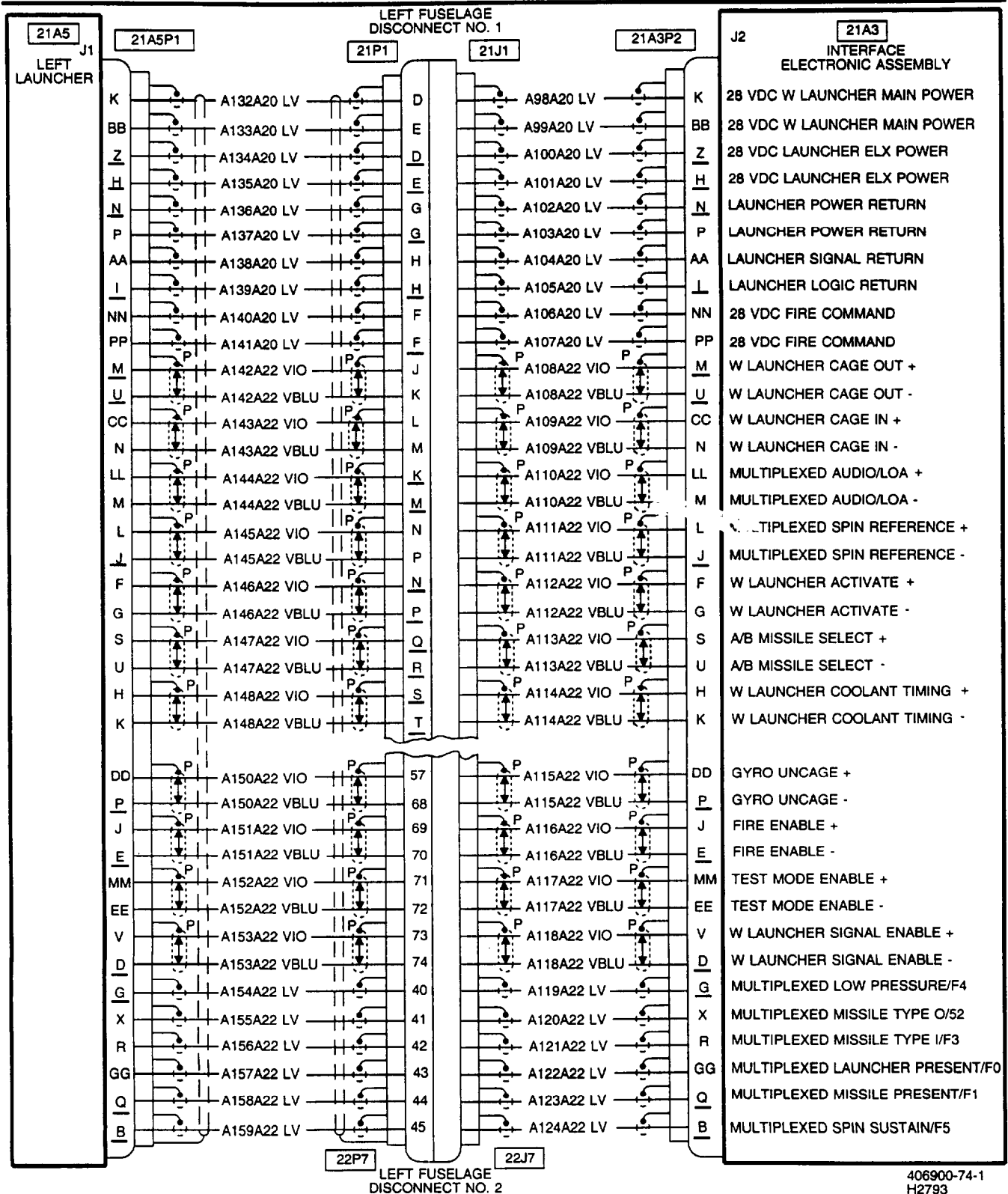


TM55-1500-248-N45-1
H3551

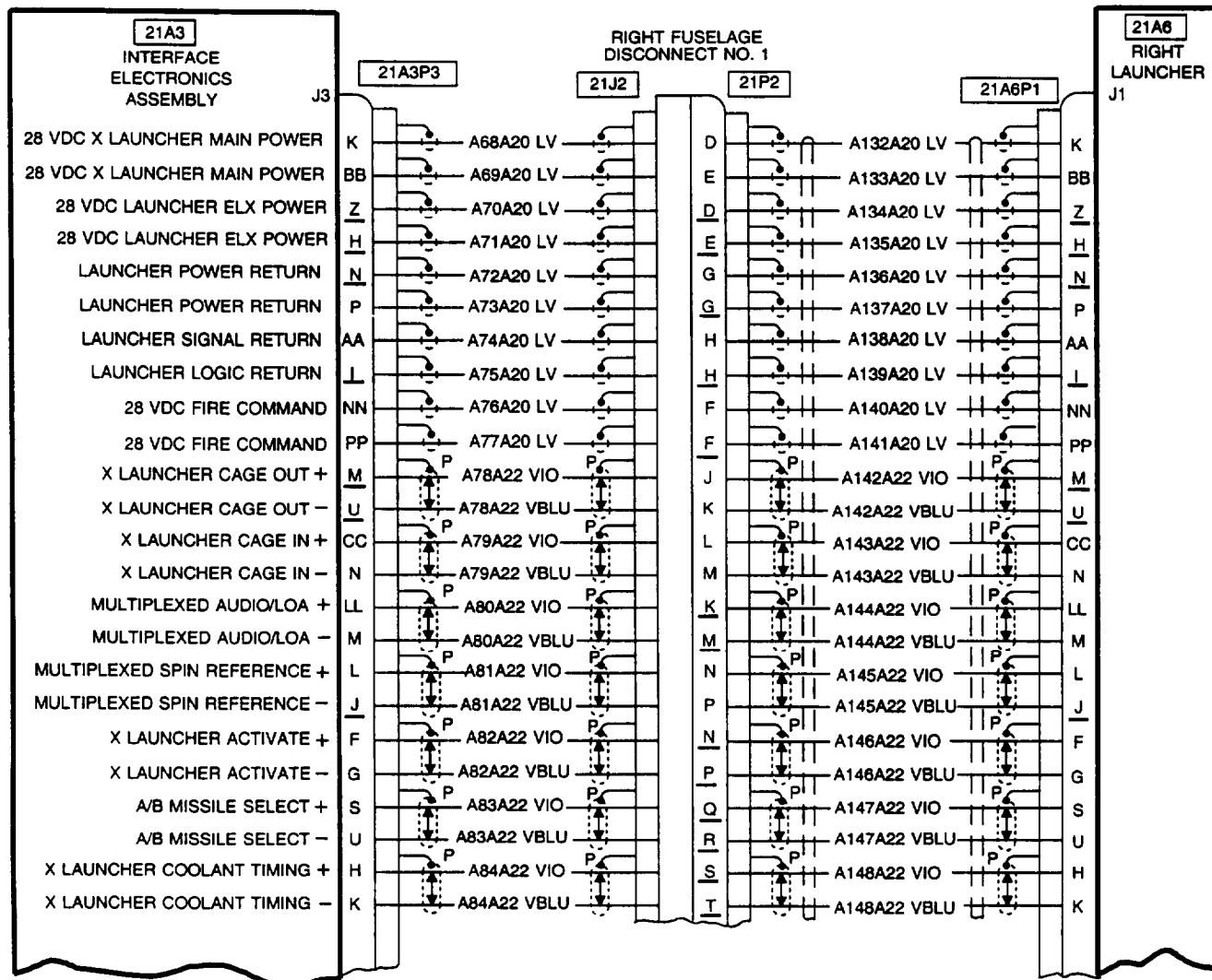
45. MISSILE FAILS TO ACQUIRE (CONT)



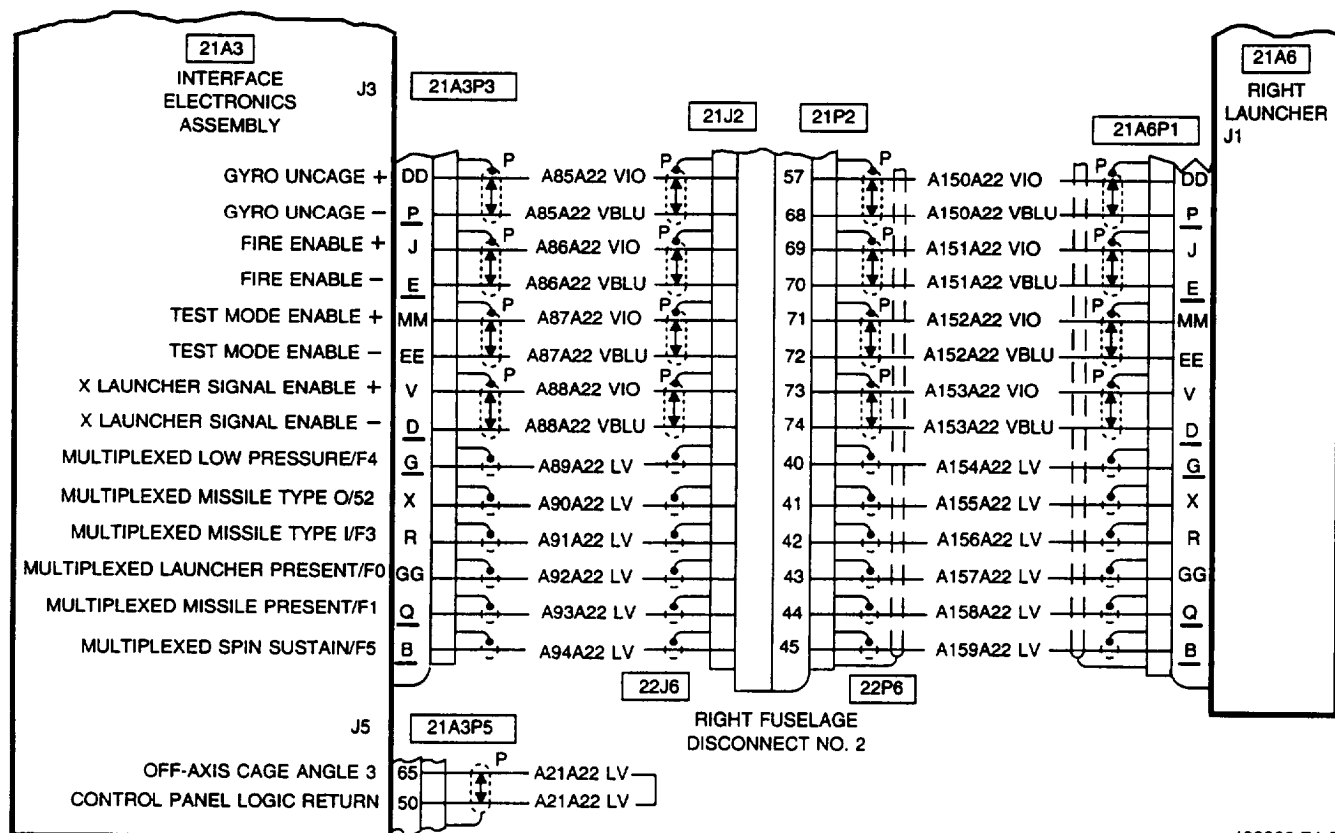
45. MISSILE FAILS TO ACQUIRE (CONT)



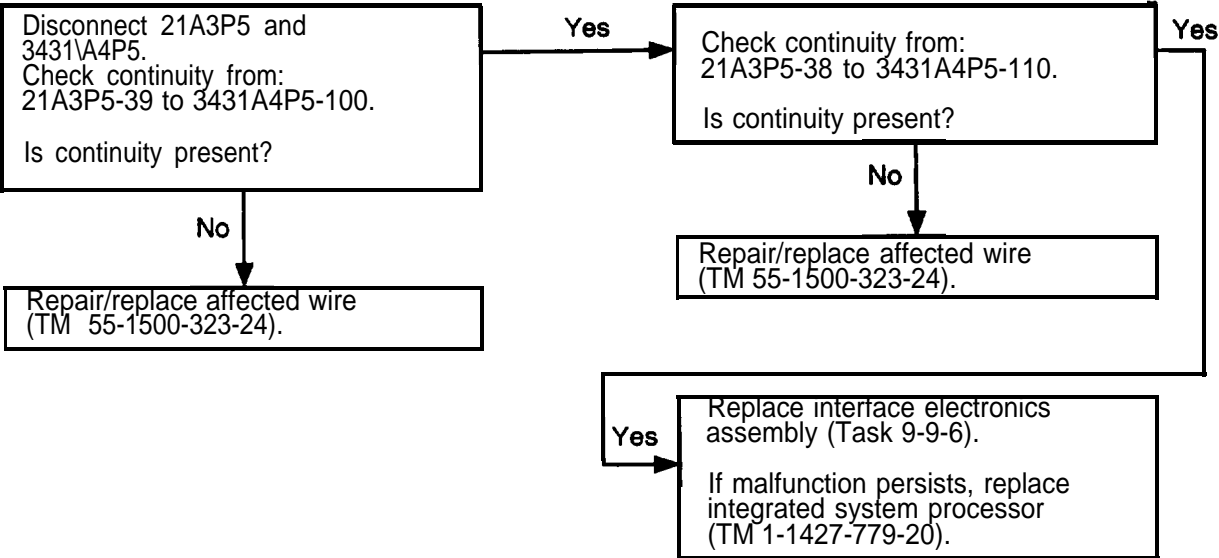
45. MISSILE FAILS TO ACQUIRE (CONT)

406900-74-2
H3424

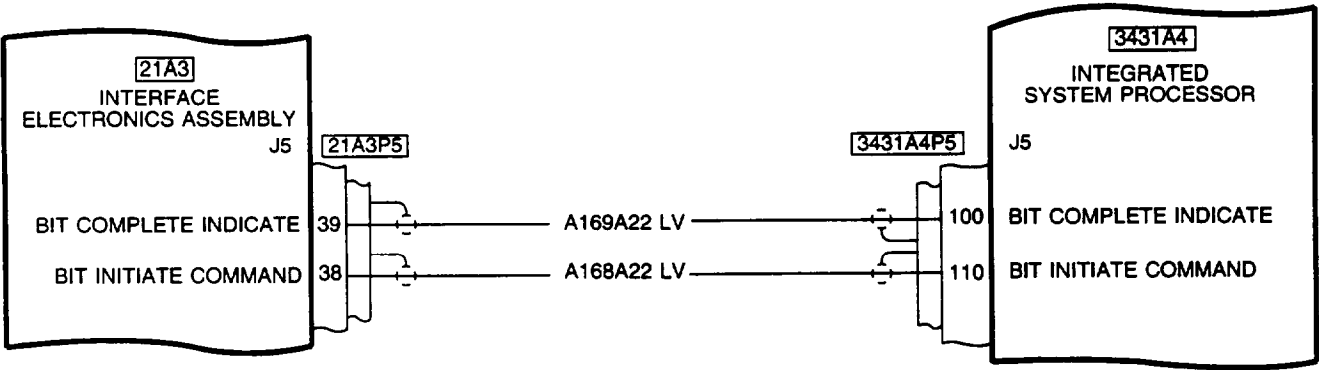
45. MISSILE FAILS TO ACQUIRE (CONT)

406900-74-3
H2793

46. ATAS DOES NOT PASS BIT ON MFD

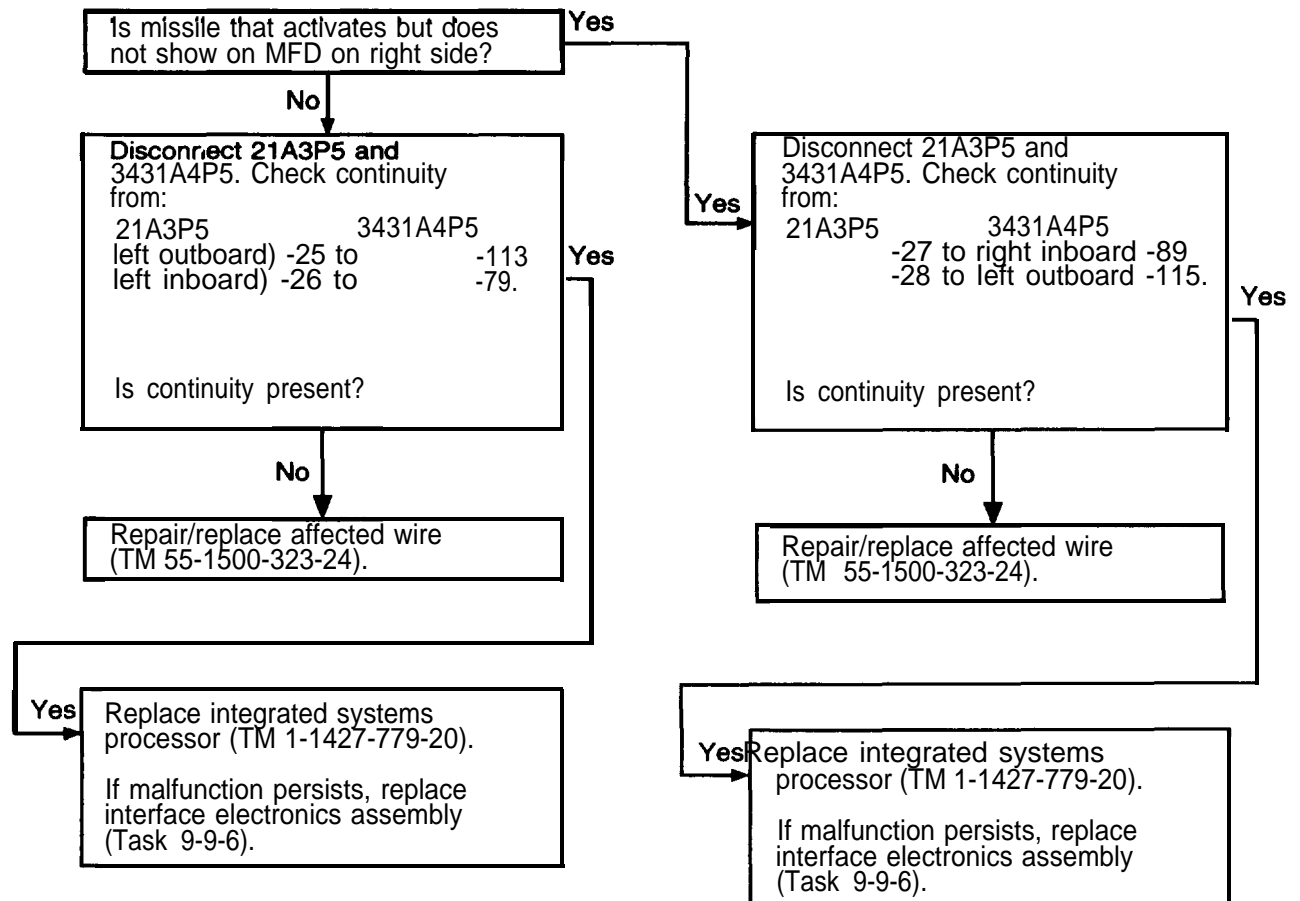


TM55-248-N46
H3551

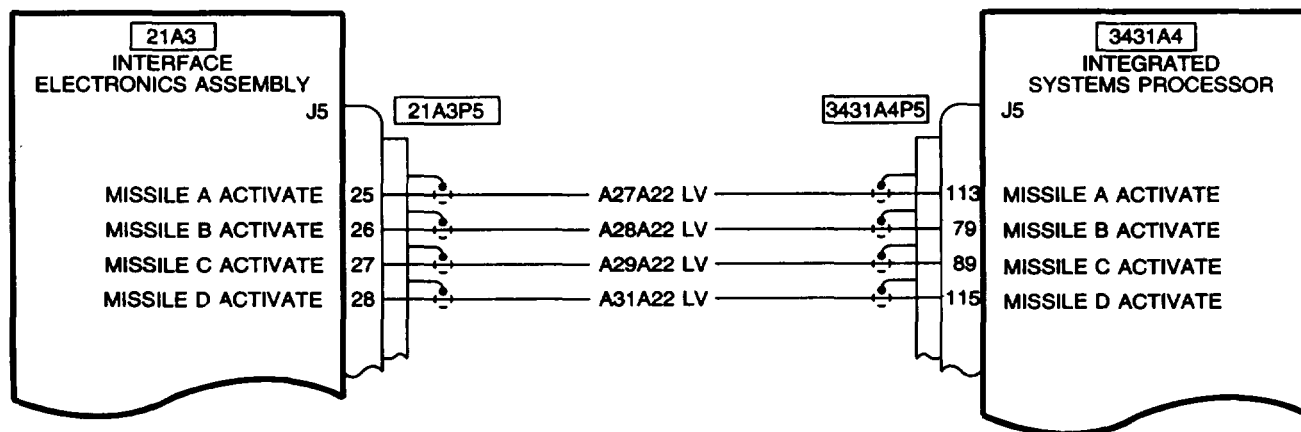


406900-75
H3424

47. MISSILE ACTIVATES BUT DOES NOT SHOW ON MFD

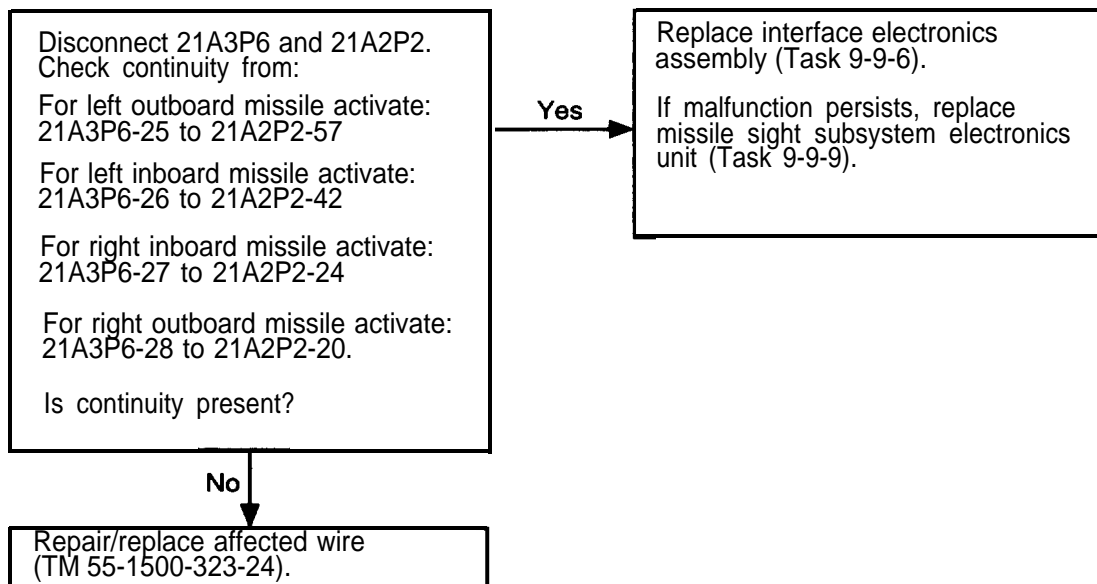
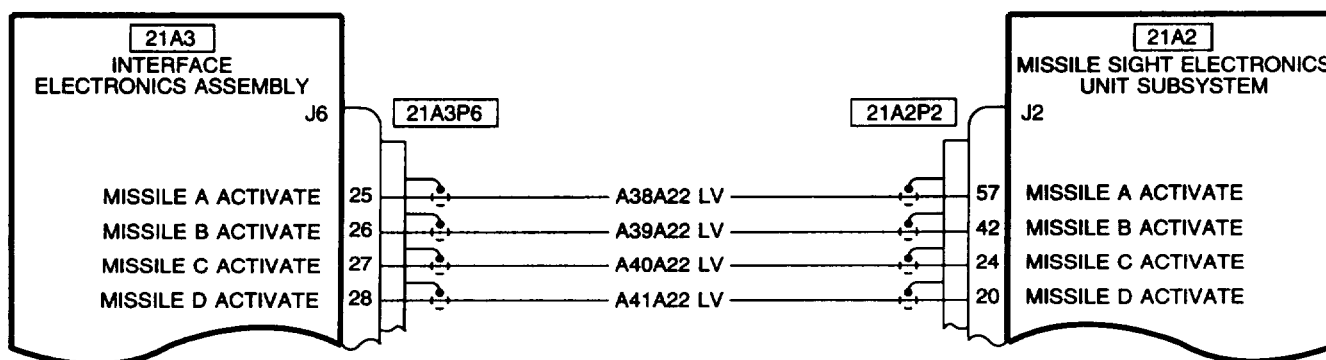
TM55-248-N47
H3425

47. MISSILE ACTIVATES BUT DOES NOT DISPLAY ON PDU (CONT)

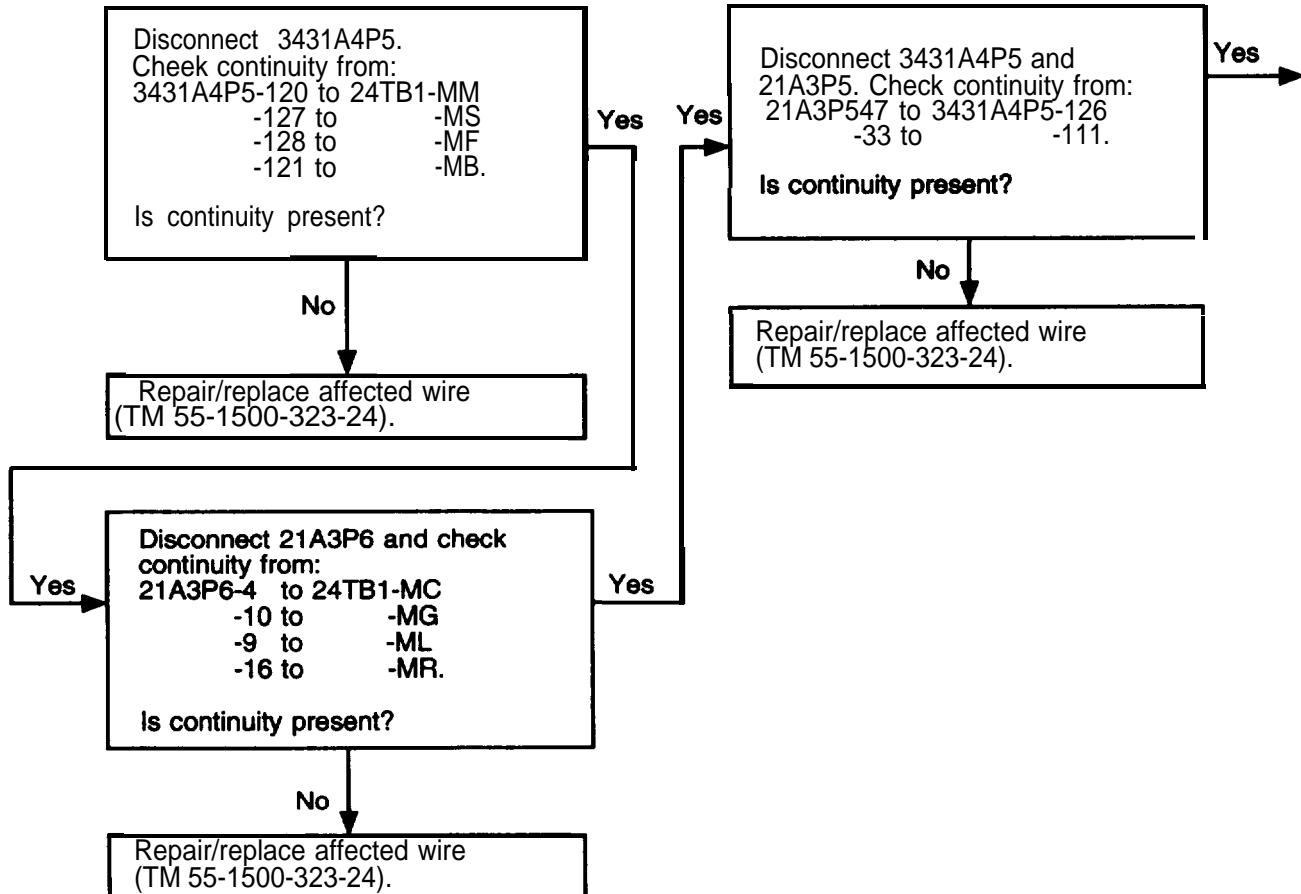


406900-76
H3902

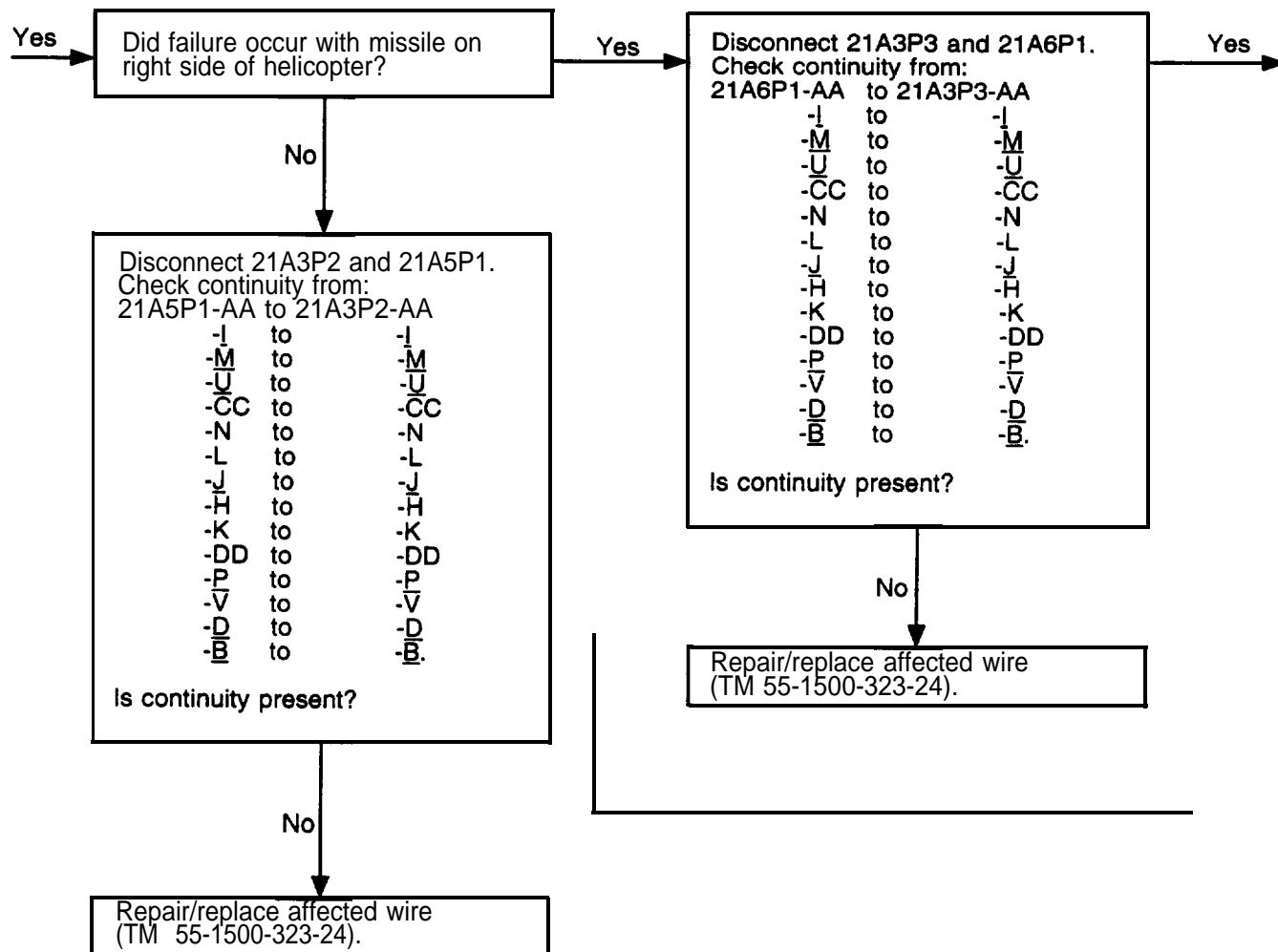
48. ATAS MISSILE ACTIVATES BUT DOES NOT DISPLAY ON PDU

TM55_248_N48
H3425406900-111
H3885

49. ATAS TRACKING RETICLE ON MFD DOES NOT CORRESPOND TO TARGET/SEEKER MOVEMENT



49. ATAS TRACKING RETICLE ON MFD DOES NOT CORRESPOND TO TARGET/SEEKER MOVEMENT (CONT)



49. ATAS TRACKING RETICLE ON MFD DOES NOT CORRESPOND TO TARGET/SEEKER
MOVEMENT (CONT)

Yes

Replace right failed missile
(TM 9-1440-431-23).

If malfunction persists, replace
interface electronics assembly
(Task 9-9-6).

If malfunction persists, replace
failed right launcher
(Task 16-2-12).

If malfunction persists, replace
sight electronics unit (Task 9-9-9).

Yes

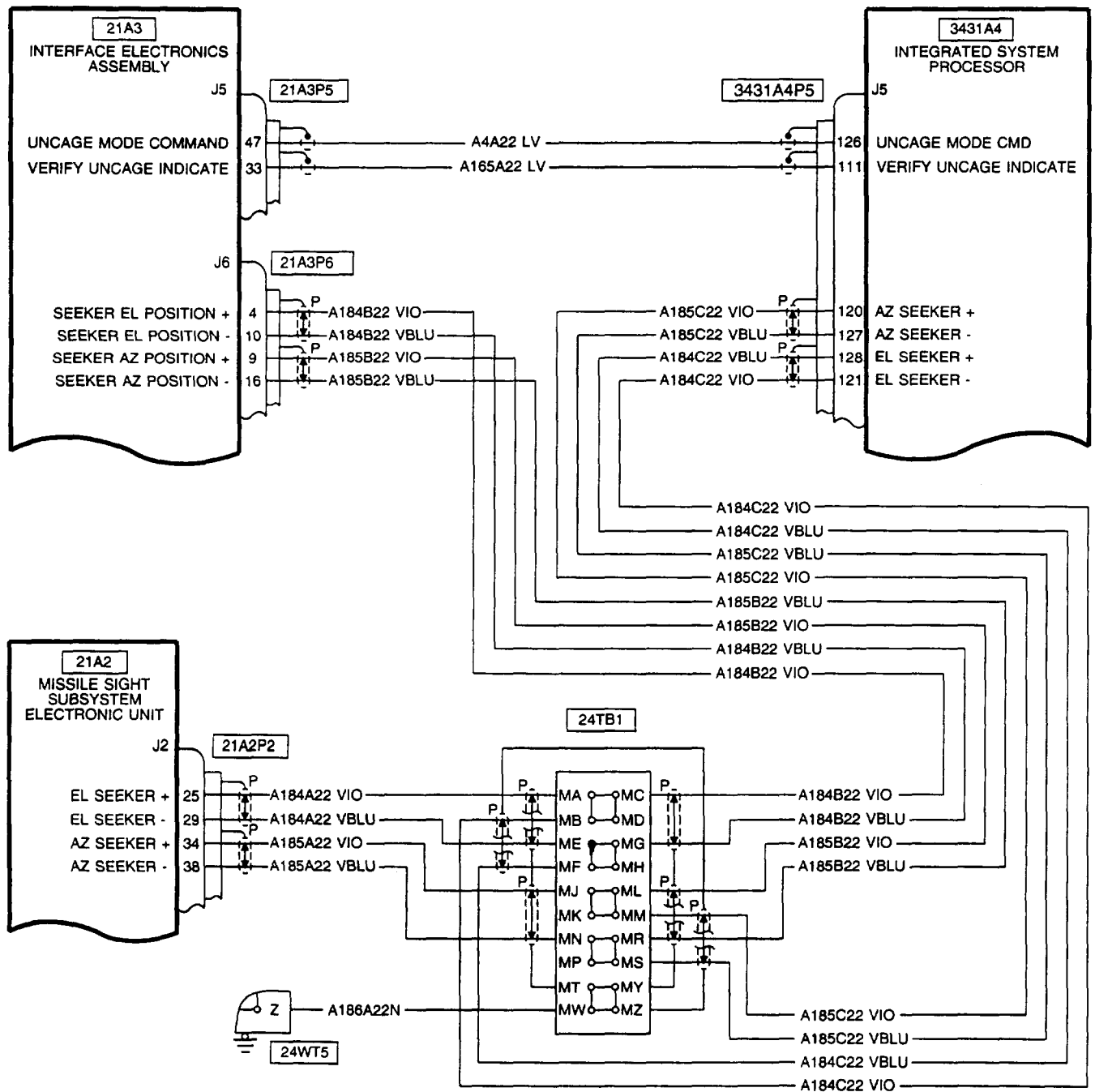
Replace left failed missile
(TM 9-1440-431-23).

If malfunction persists, replace
interface electronics assembly
(Task 9-9-6).

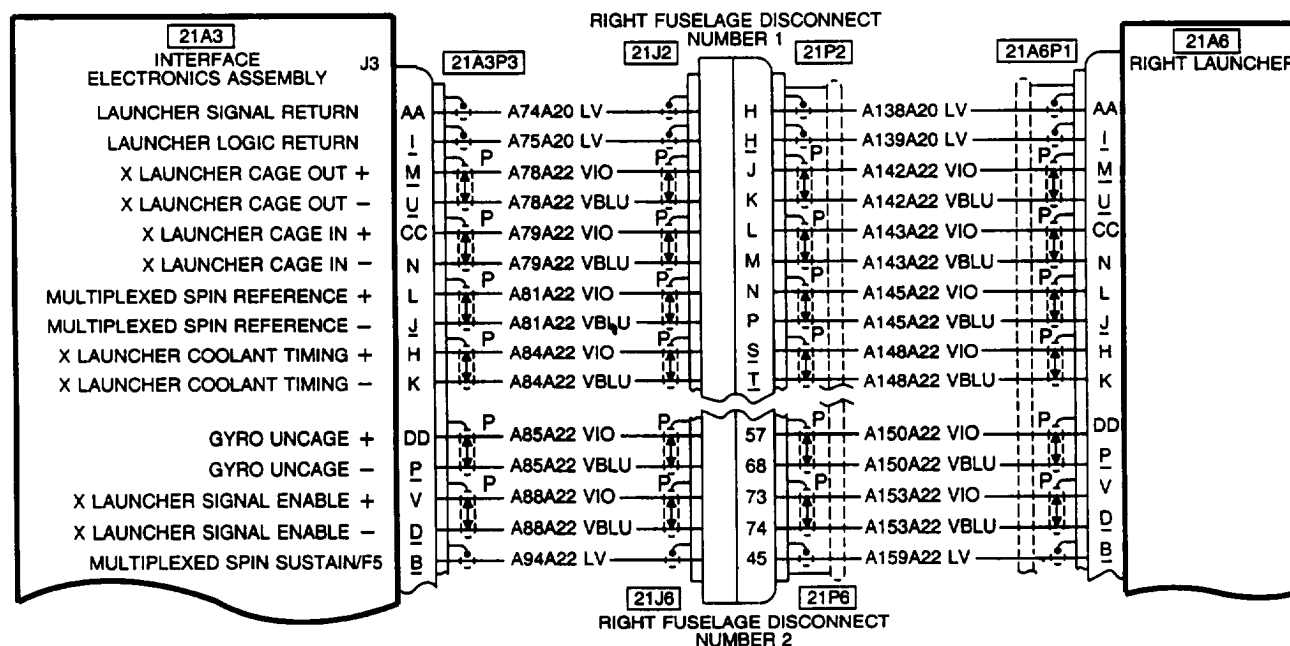
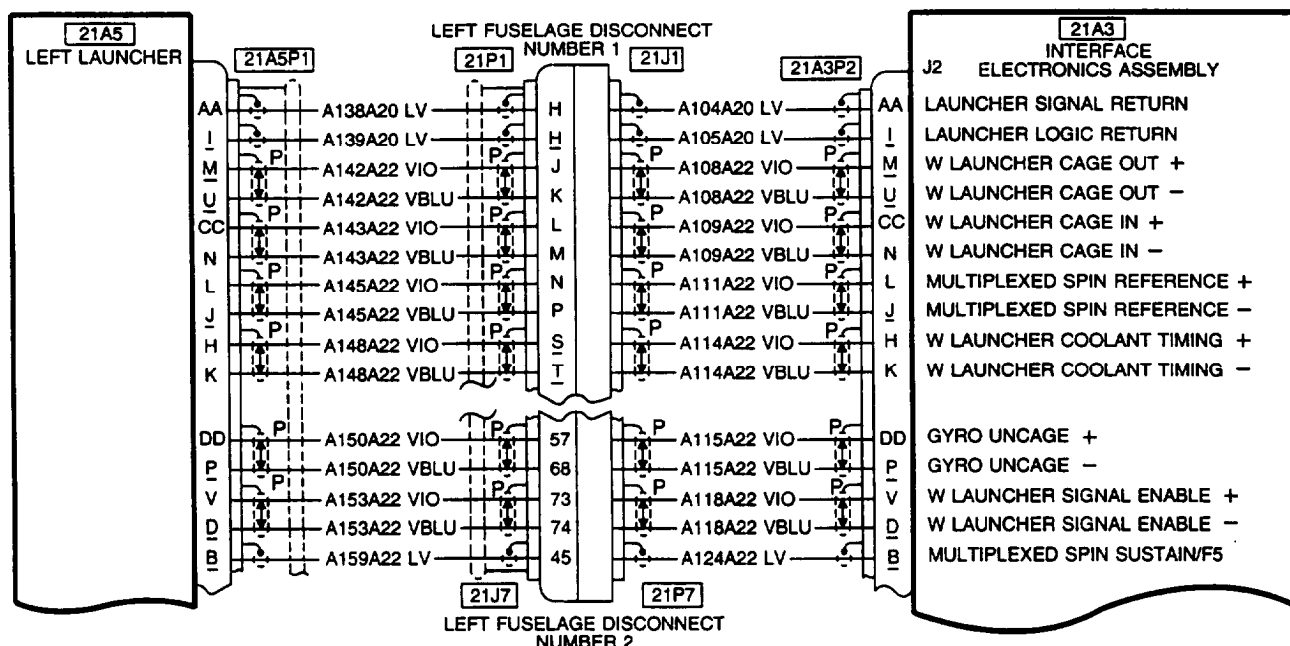
If malfunction persists, replace
failed left launcher (Task 16-2-12).

If malfunction persists, replace
sight electronics unit (Task 9-9-9).

49. ATAS TRACKING RETICLE ON MFD DOES NO CORRESPOND TO TARGET/SEEKER MOVEMENT (CONT)

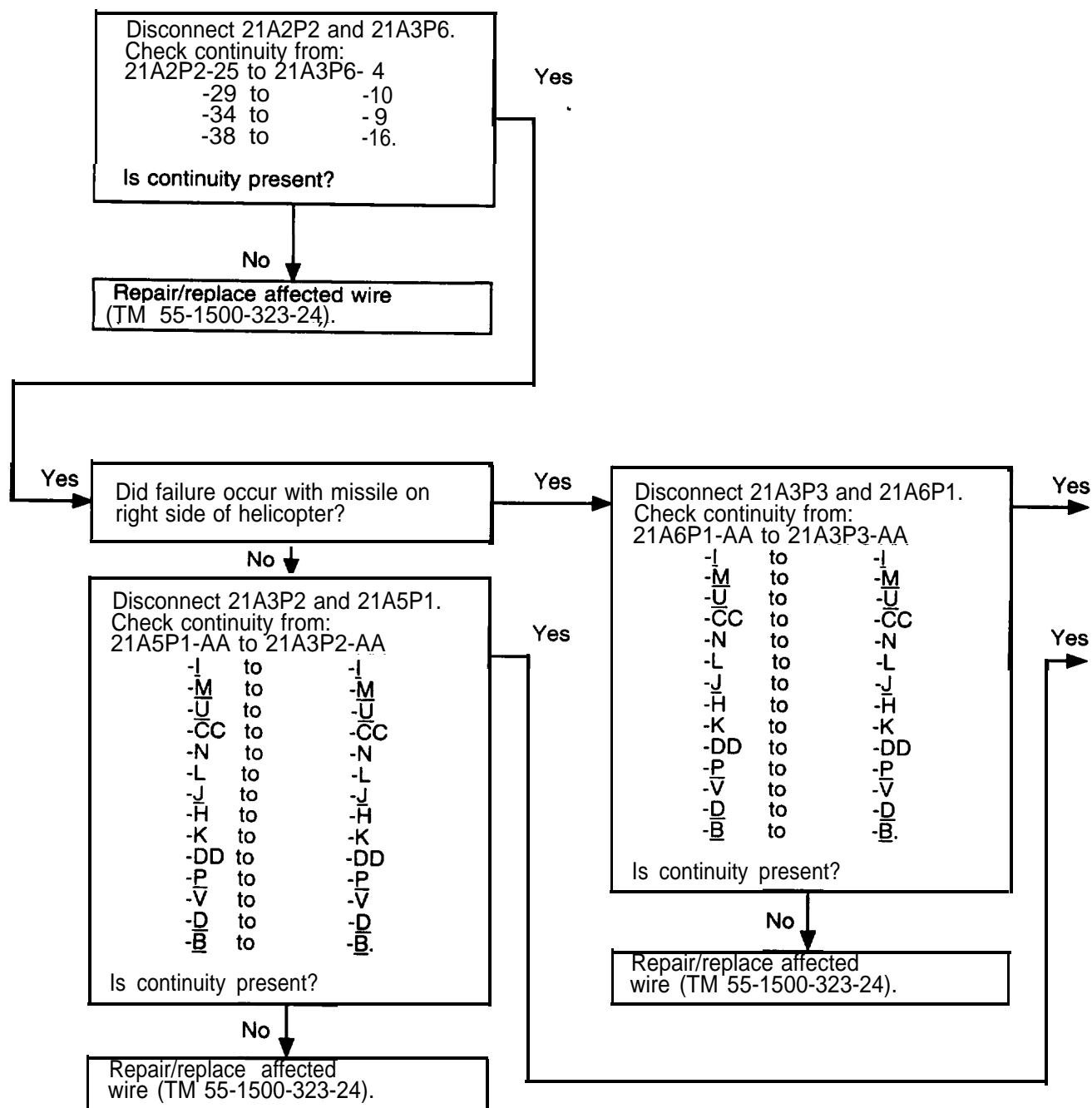

406900-78-1
H3424

49. ATAS TRACKING RETICLE ON MFD DOES NOT CORRESPOND TO TARGET/SEEKER MOVEMENT (CONT)

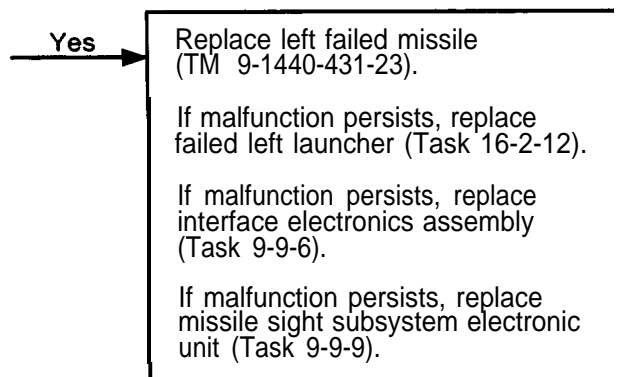
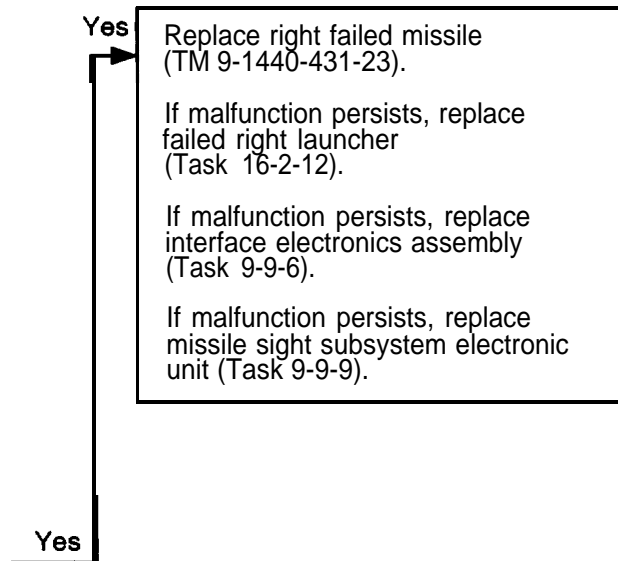


406900-78-2
H2793

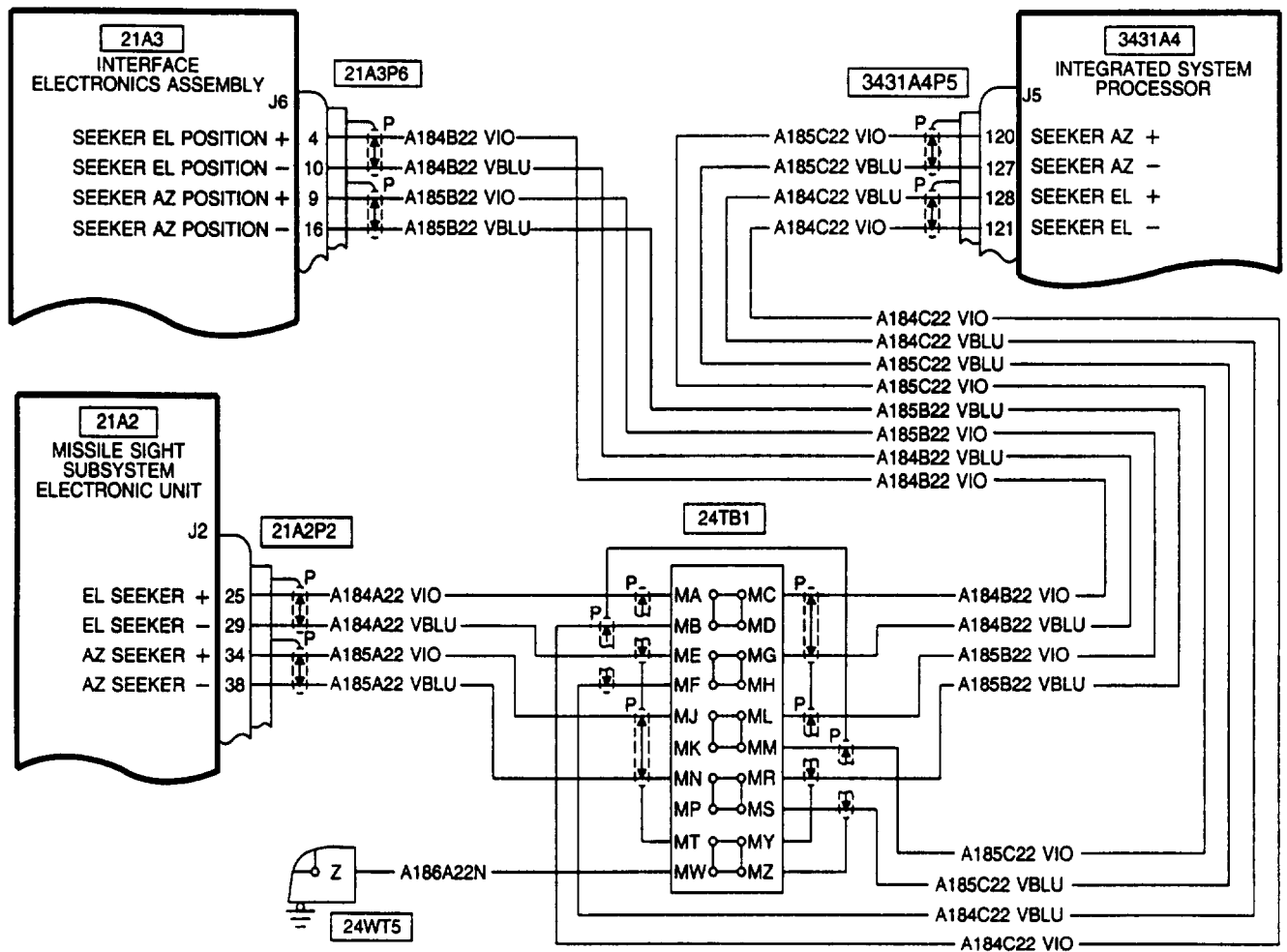
50. ATAS TRACKING RETICLE ON PDU DOES NOT CORRESPOND TO TARGET/SEEKER MOVEMENT

TM 55-248-N50-1
H3351

50. ATAS TRACKING RETICLE ON PDU DOES NOT CORRESPOND TO TARGET/SEEKER
MOVEMENT (CONT)

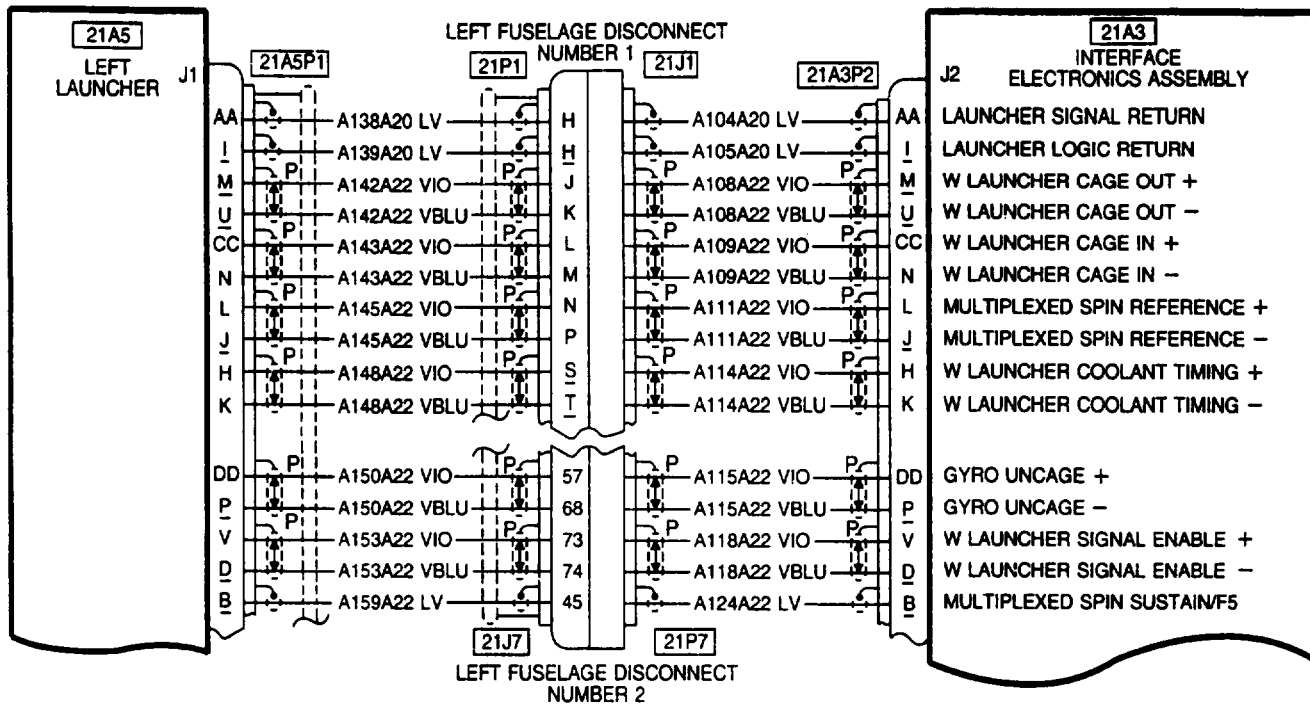


50. ATAS TRACKING RETICLE ON PDU DOES NOT CORRESPOND TO TARGET/SEEKER MOVEMENT (CONT)



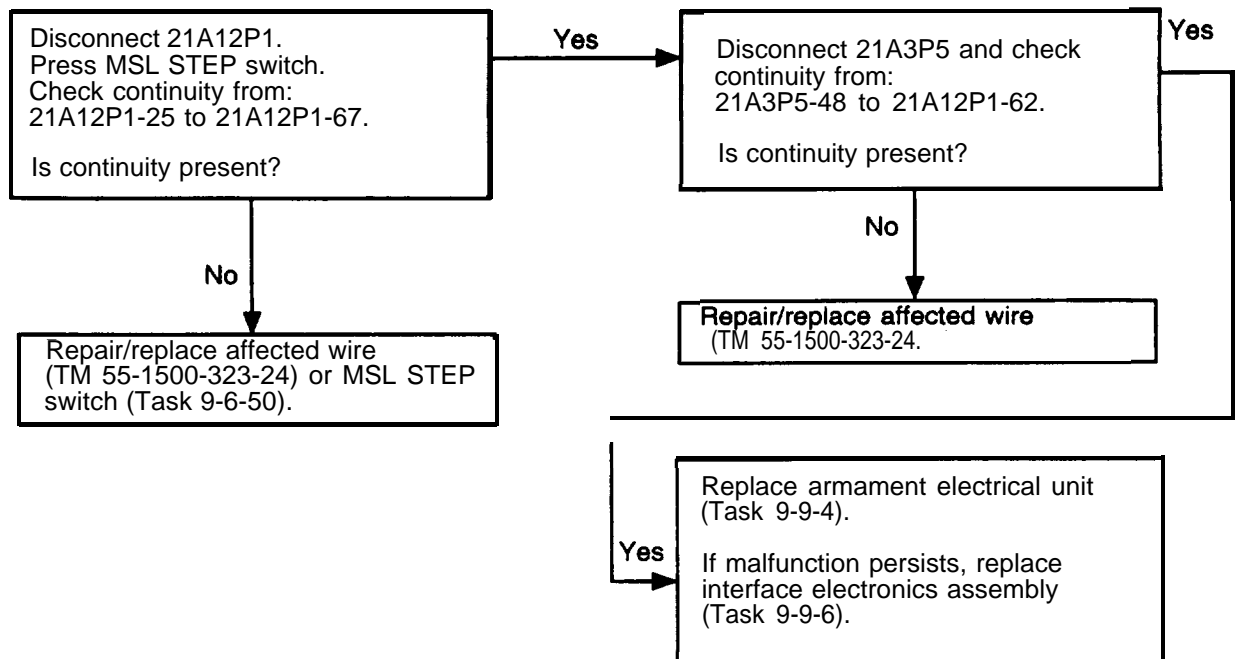
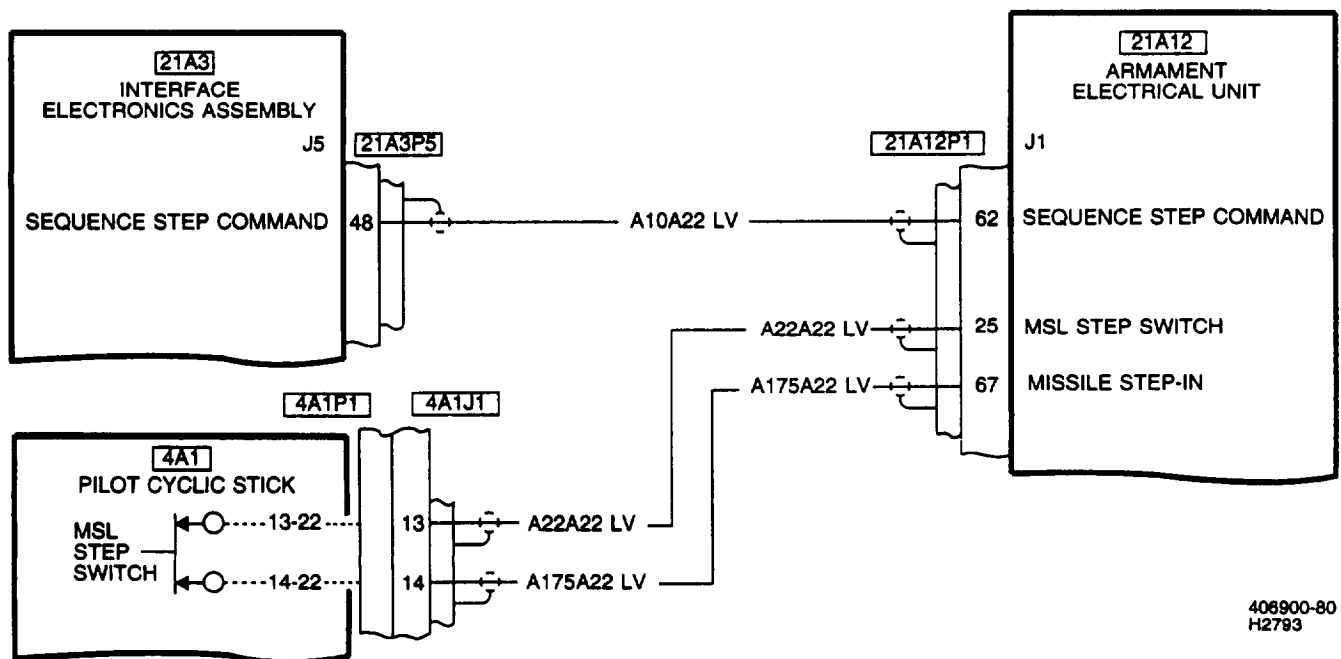
406900-79-1
H3424

50. ATAS TRACKING RETICLE ON PDU DOES NOT CORRESPOND TO TARGET/SEEKER MOVEMENT (CONT)

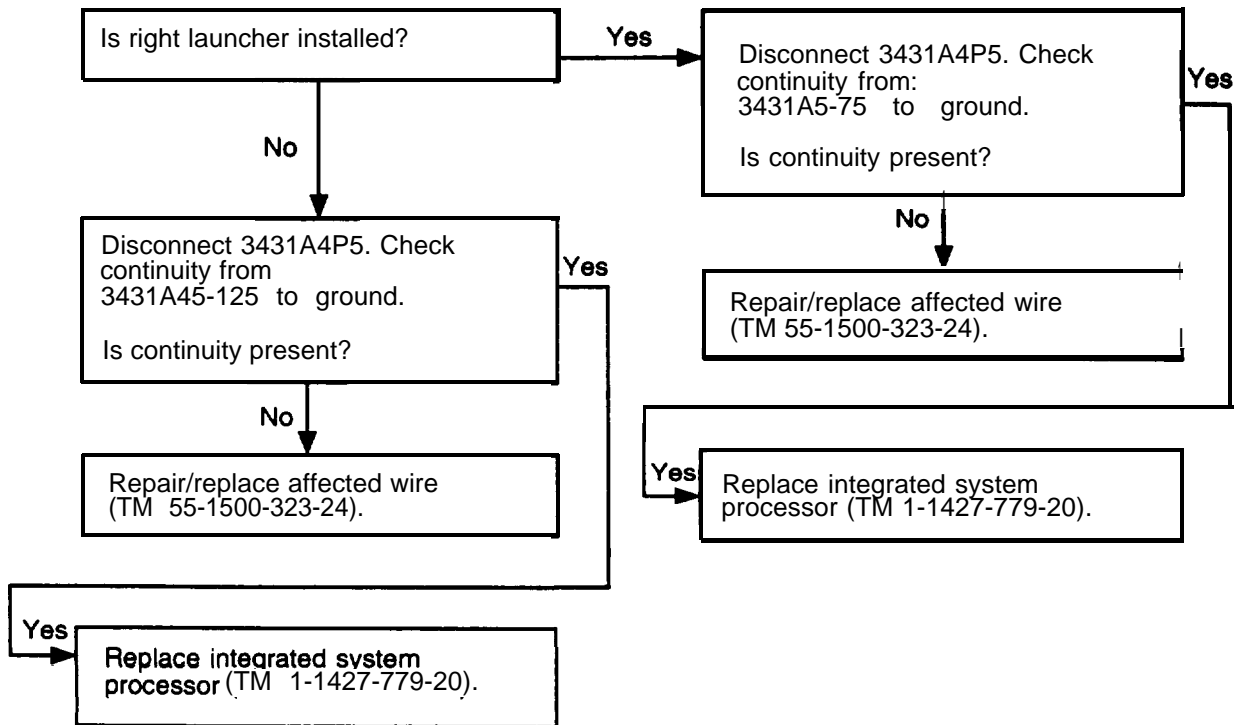


406900-79-2
H2793

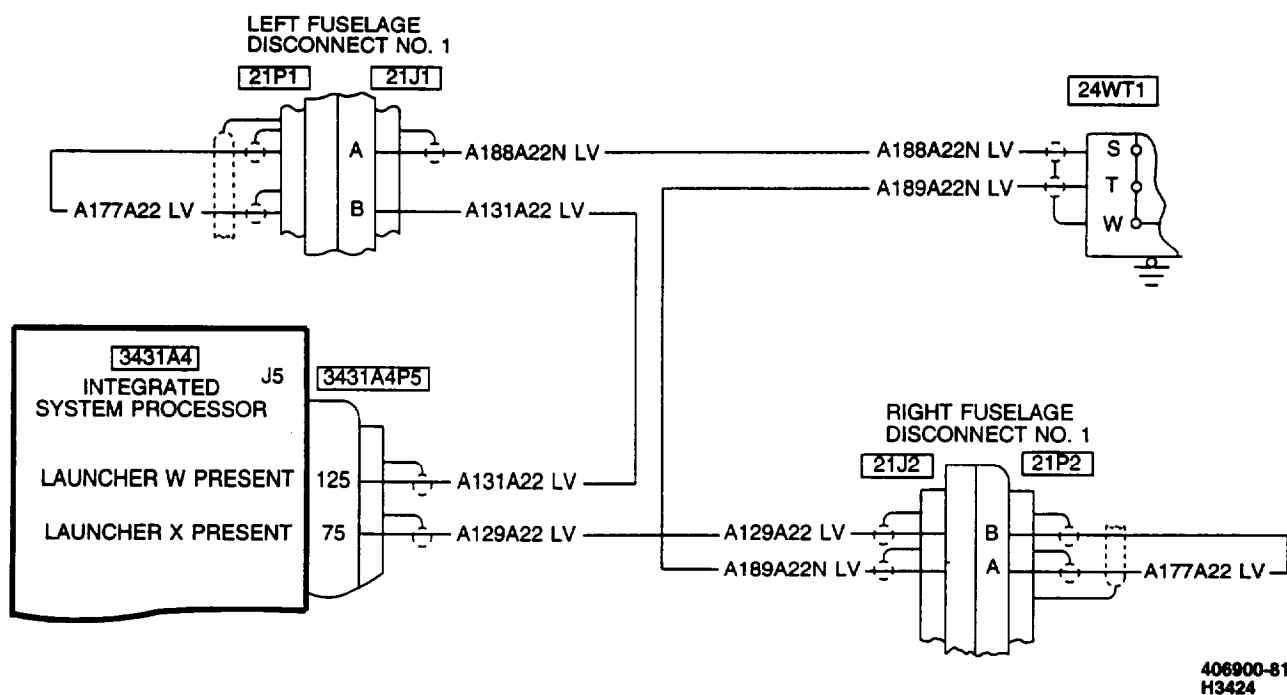
51. SYSTEM WILL NOT STEP TO NEXT MISSILE

TM55-248-N51
H3551406900-80
H2793

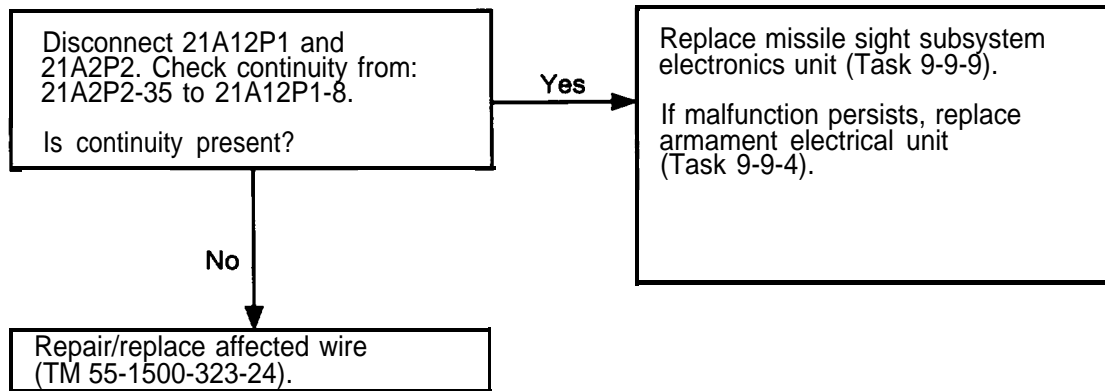
52. MFD DOES NOT INDICATE ATAS IS INSTALLED



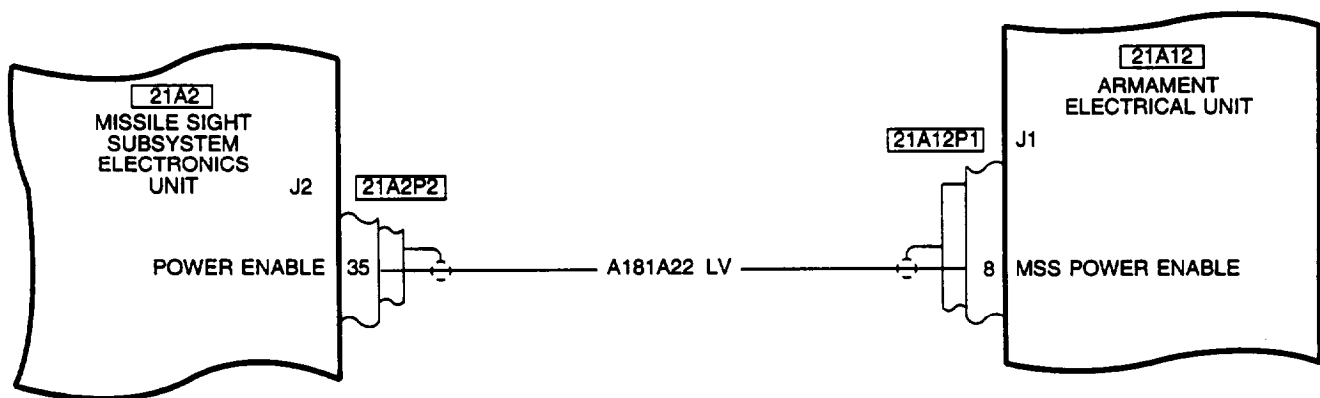
52. MFD DOES NOT INDICATE ATAS IS INSTALLED (CONT)



53. PDU DOES NOT OPERATE AND MFD SHOWS INCORRECT ATAS SYMBOLOGY

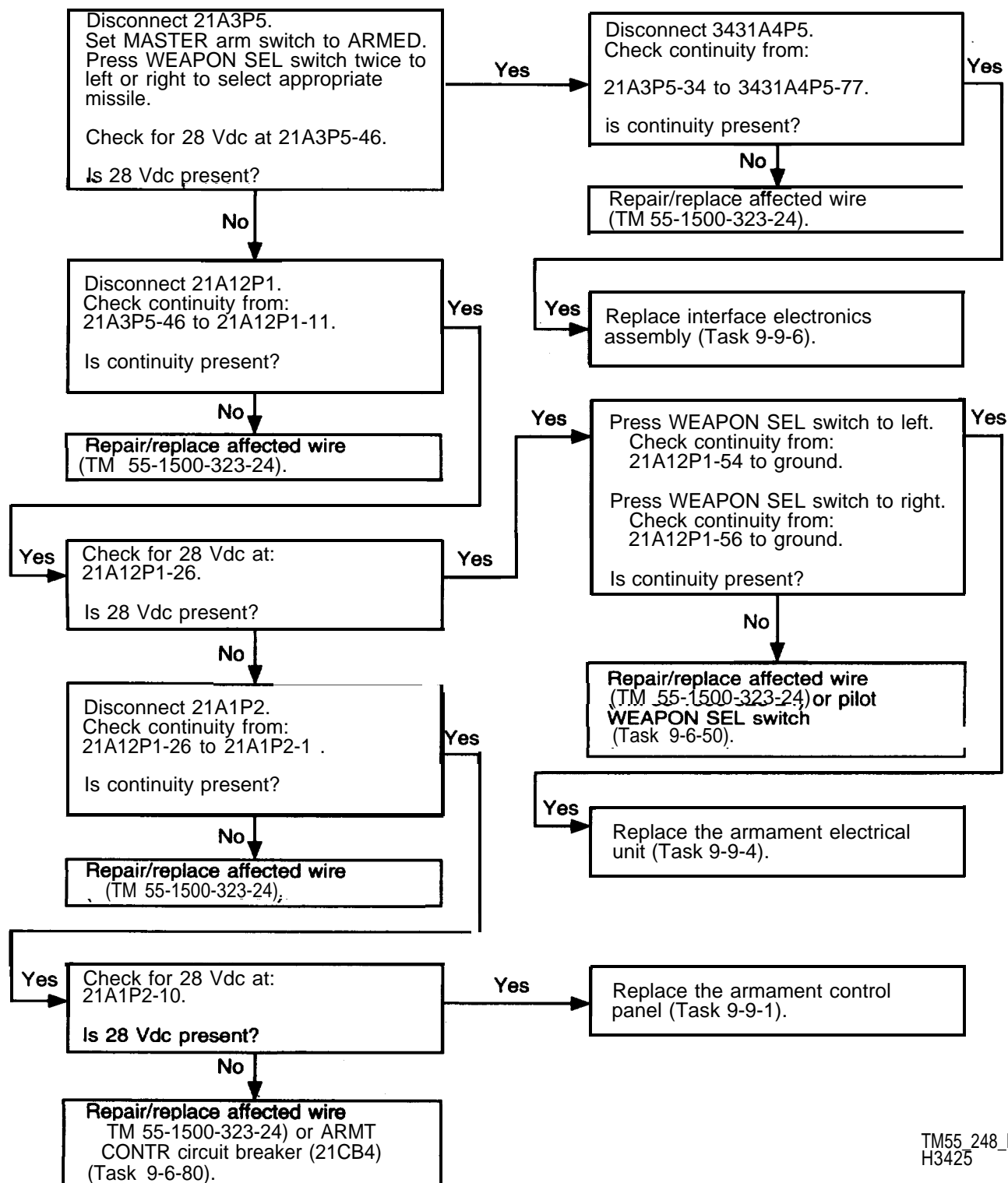


TM55-248-N53
H3551

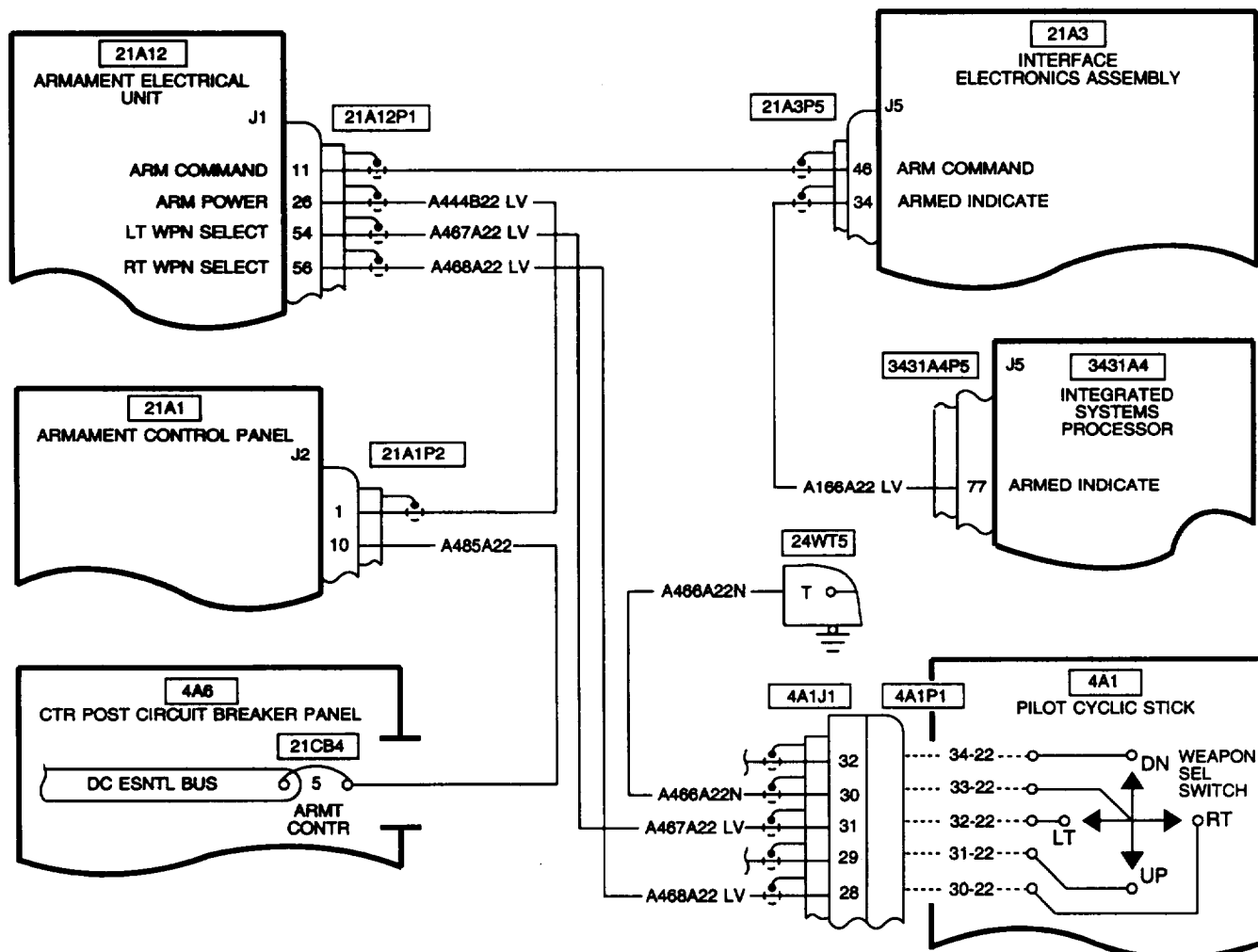


406900-82
H2793

54. ATAS SHOWS "SAFE" ON MFD WHEN SELECTED AND ARMED

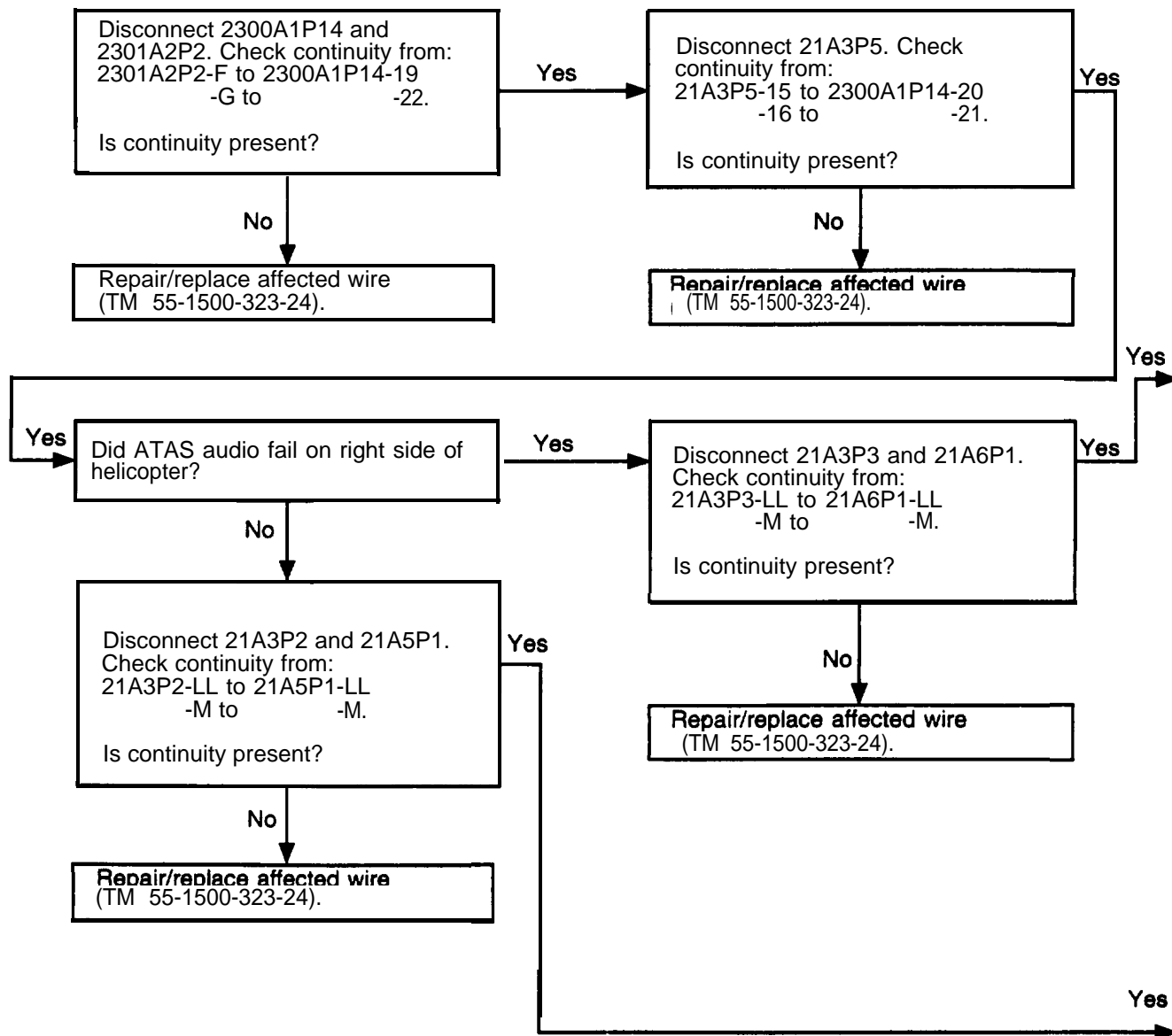
TM55_248_N54
H3425

54. ATAS SHOWS "SAFE" ON MFD WHEN SELECTED AND ARMED (CONT)

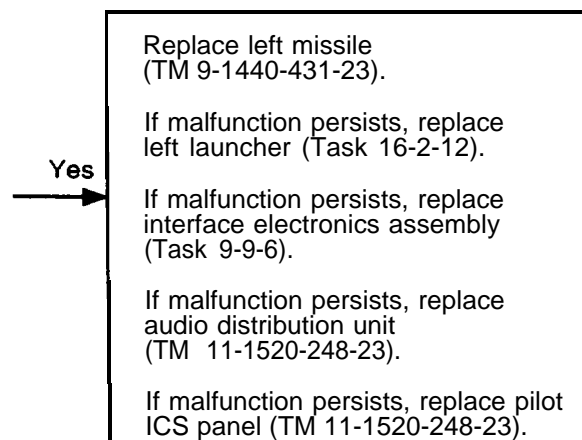
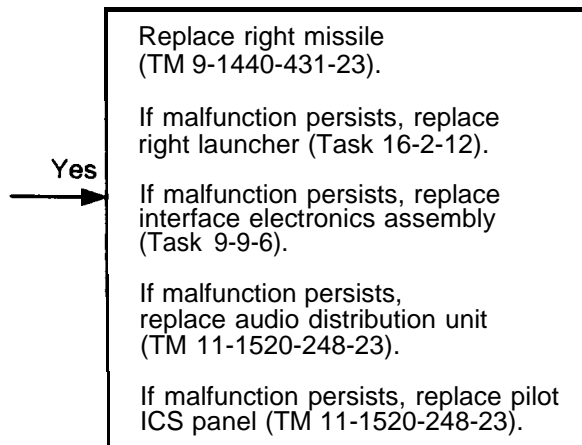


406900-112
H5073

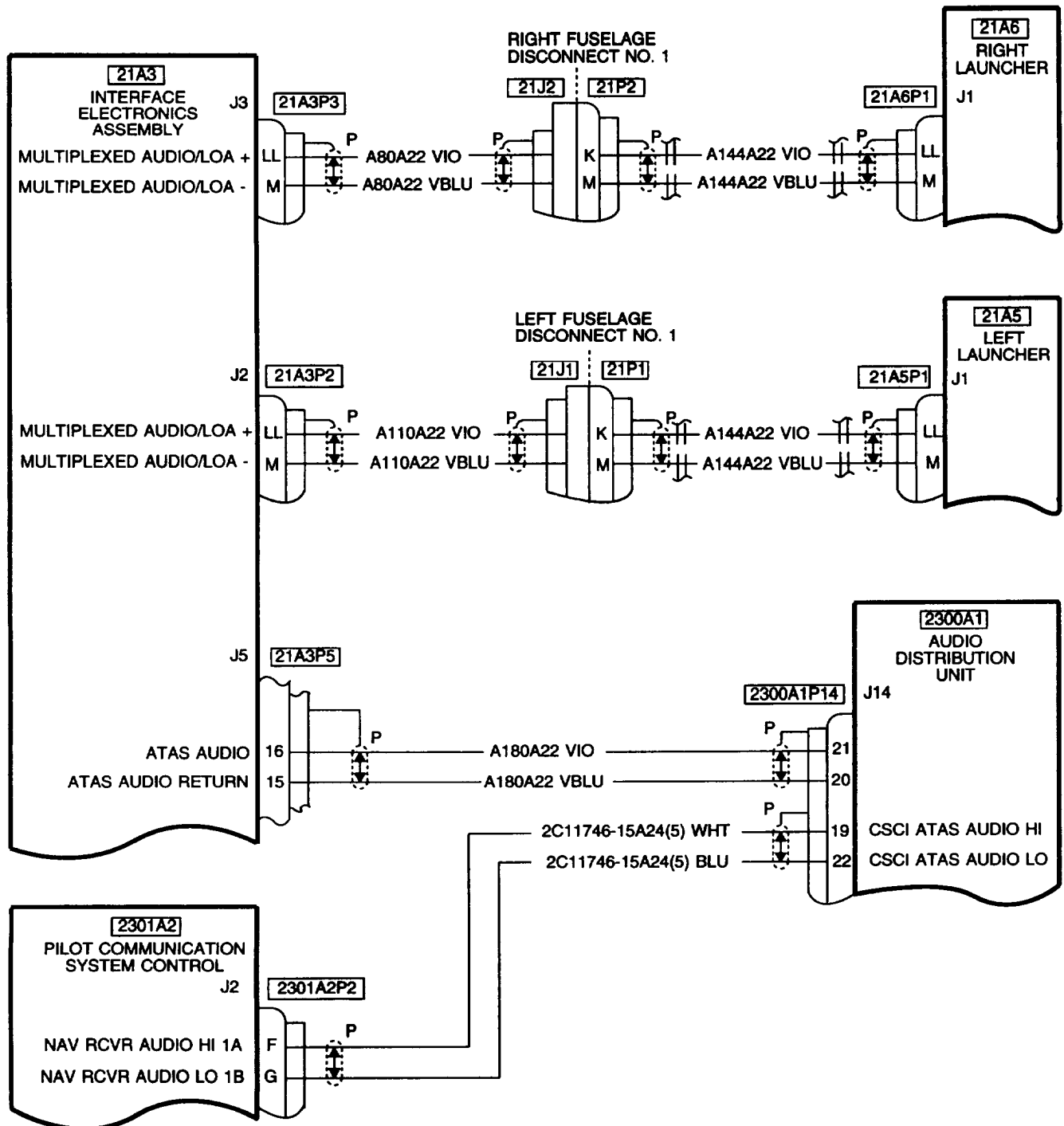
55. NO ATAS ACQUISITION AUDIO PRESENT WHEN MISSILE IS ACTIVATED



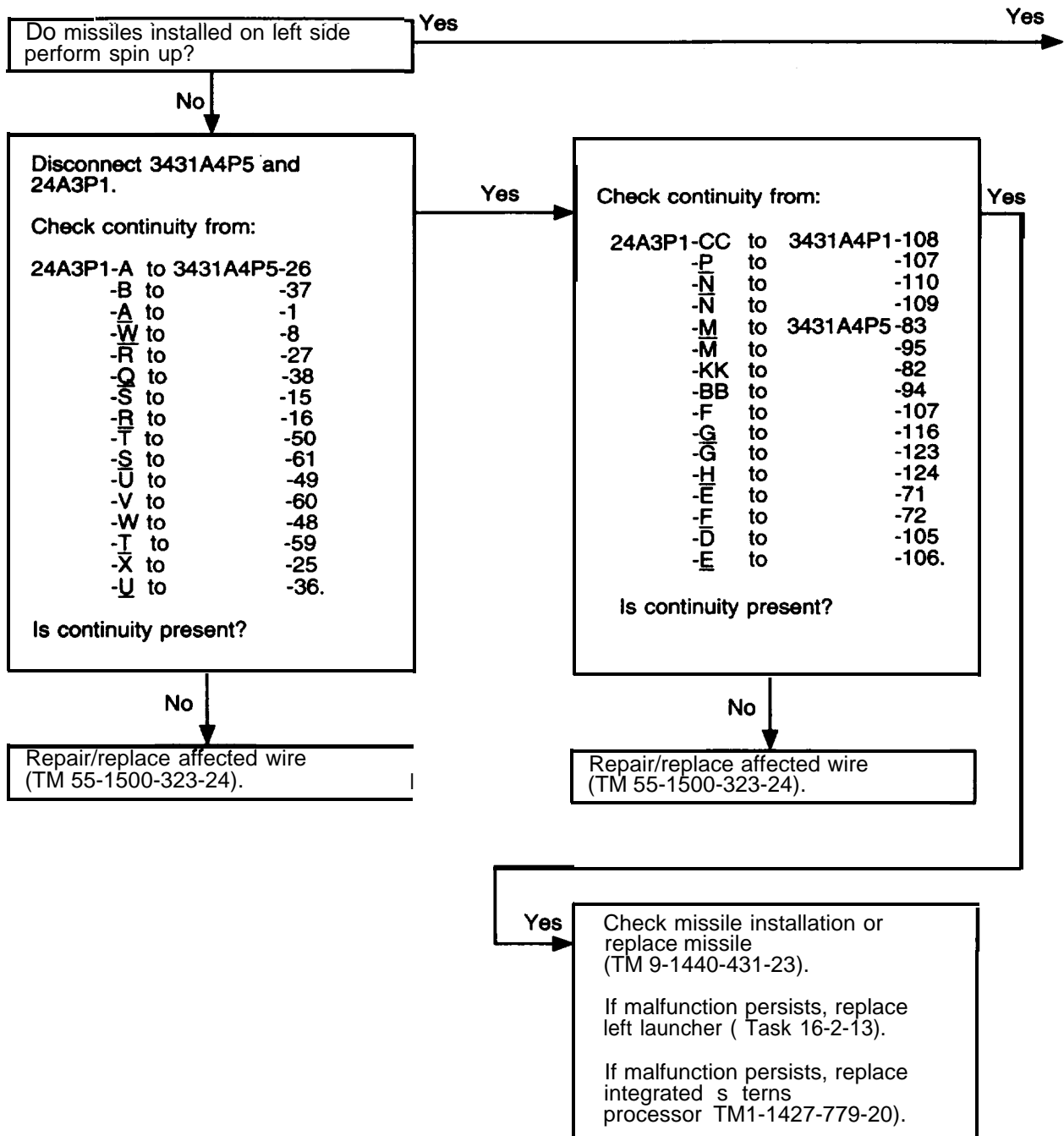
55. NO ATAS ACQUISITION AUDIO PRESENT WHEN MISSILE IS ACTIVATED (CONT)



55. NO ATAS ACQUISITION AUDIO PRESENT WHEN MISSILE IS ACTIVATED (CONT)

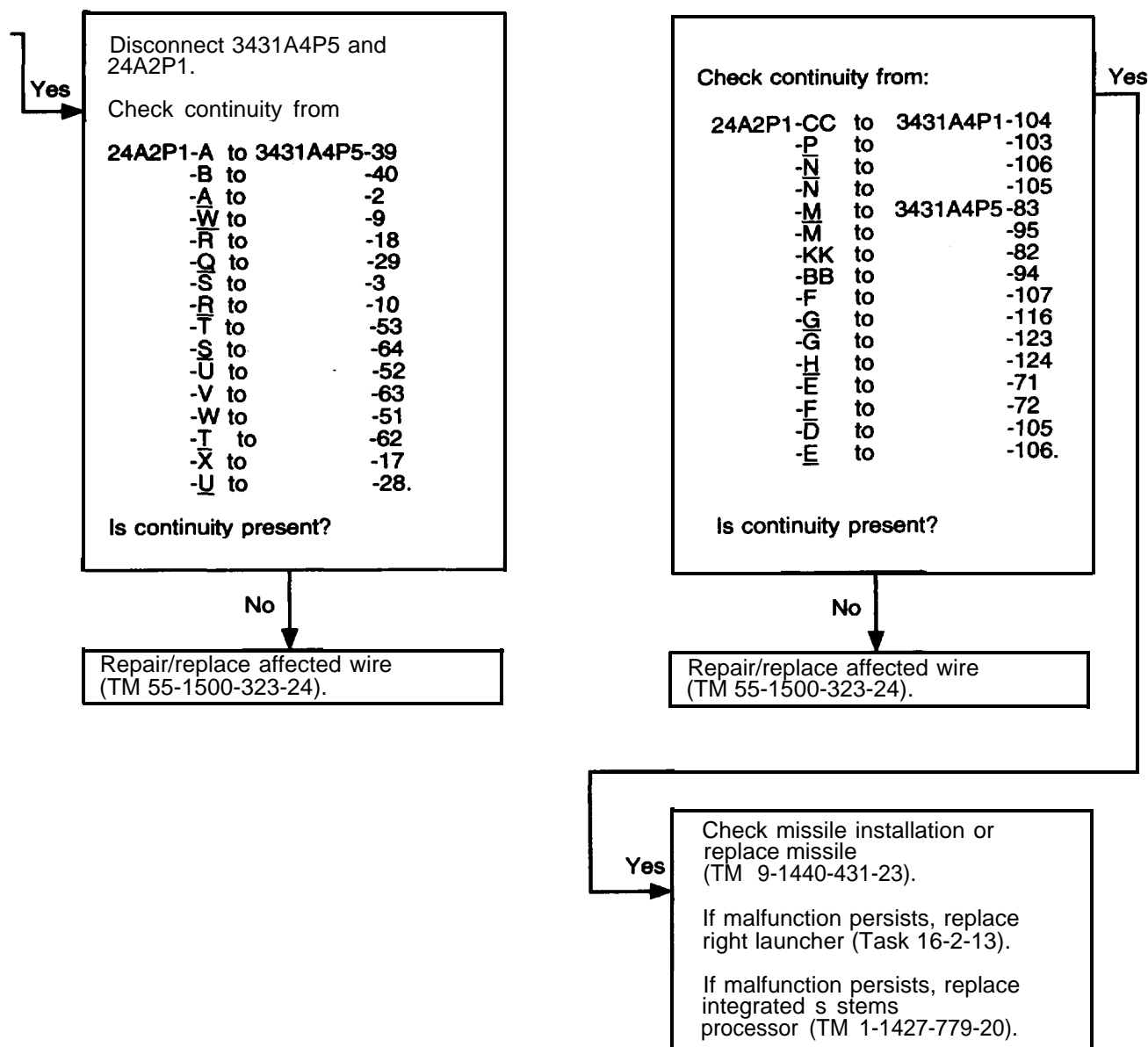

408900-84
H2793

56. HELLFIRE MISSILE DOES NOT PERFORM SPIN UP

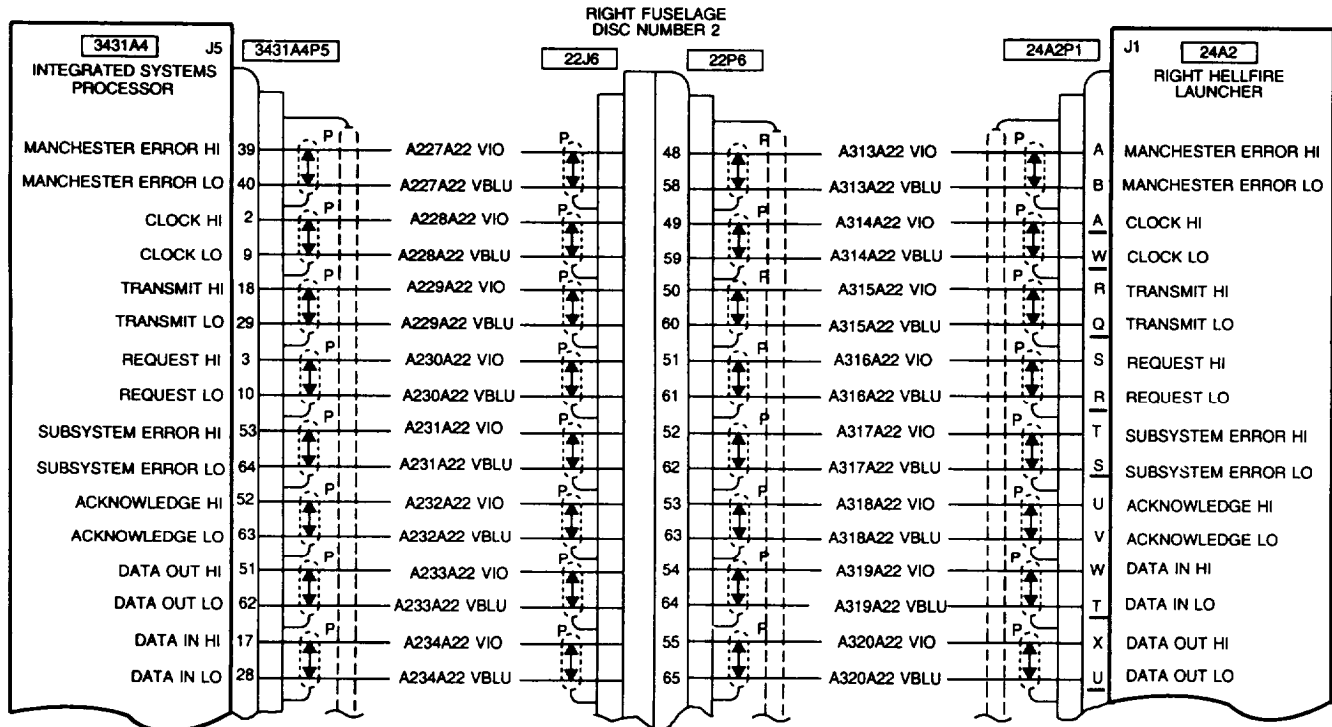
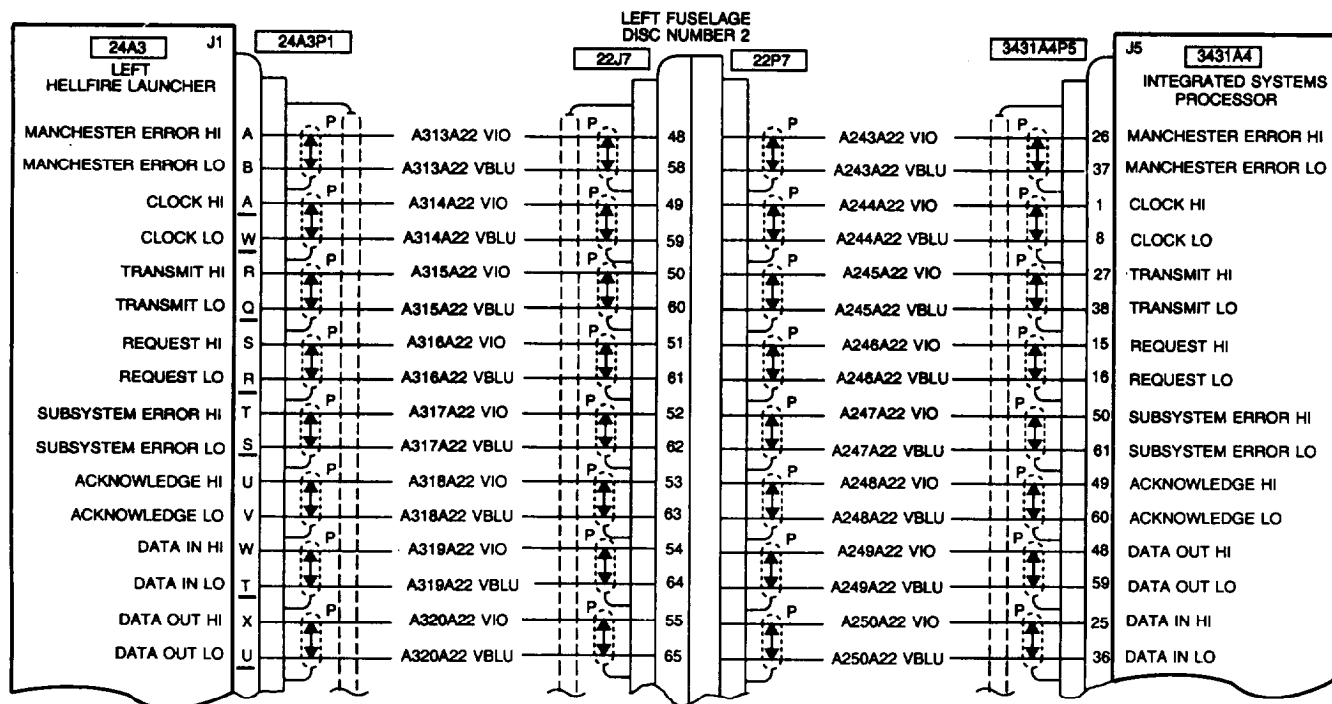


TM55_248_N56_1
H5073

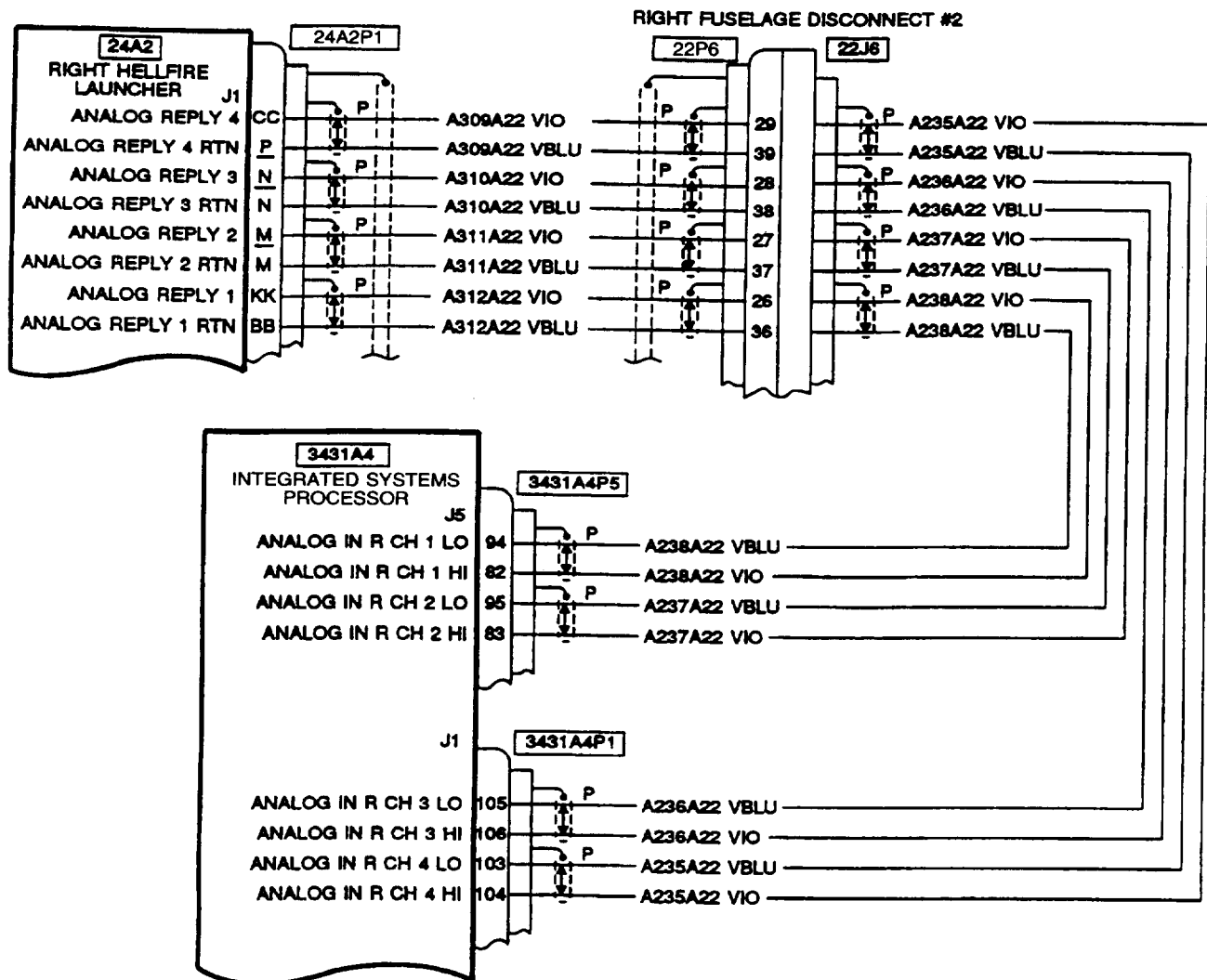
56. HELLFIRE MISSILE DOES NOT PERFORM SPIN UP (CONT)

TM55_248_N56_2
H5073

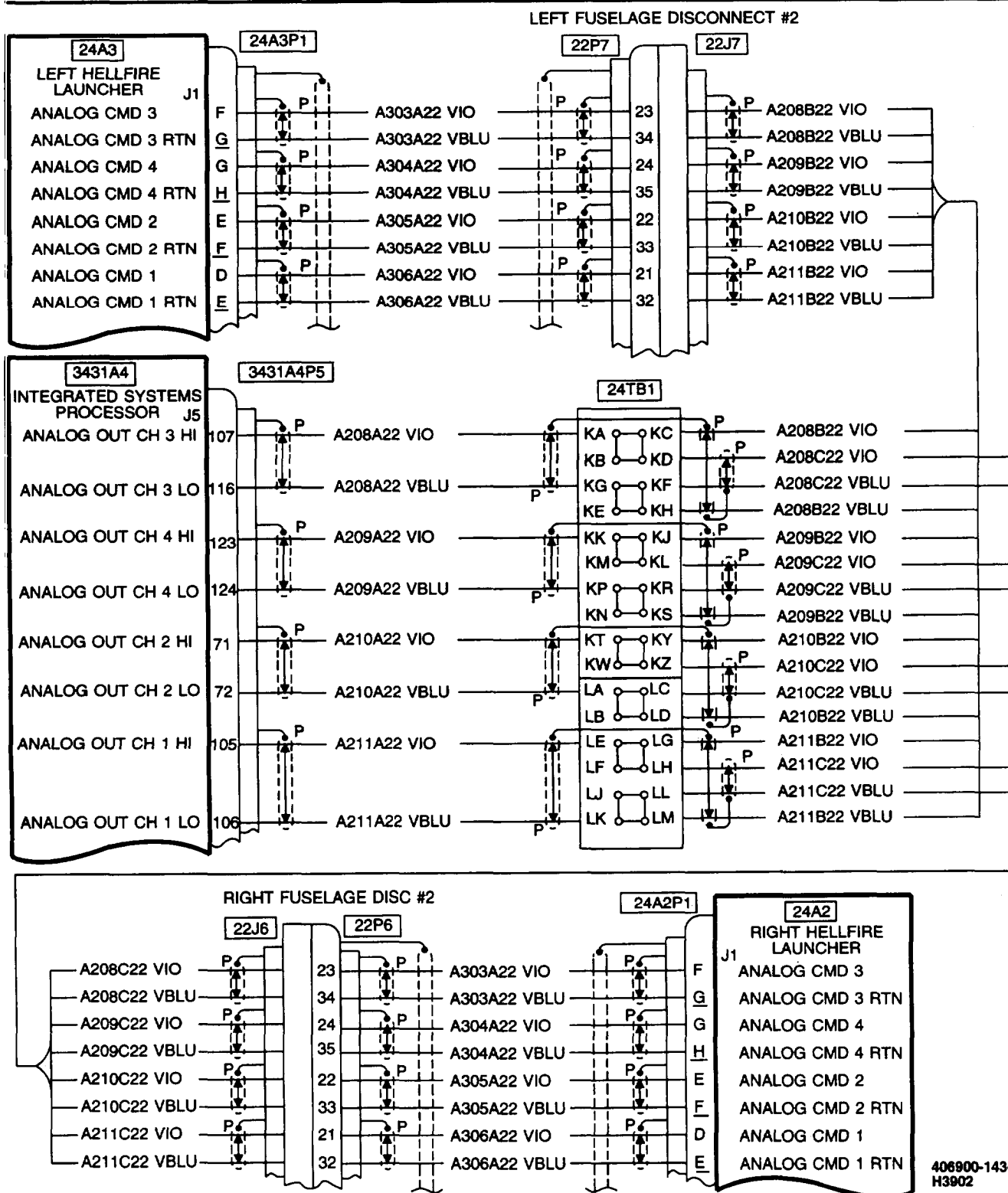
56. HELLFIRE MISSILE DOES NOT PERFORM SPINUP (CONT)

406900-143-1
H3902

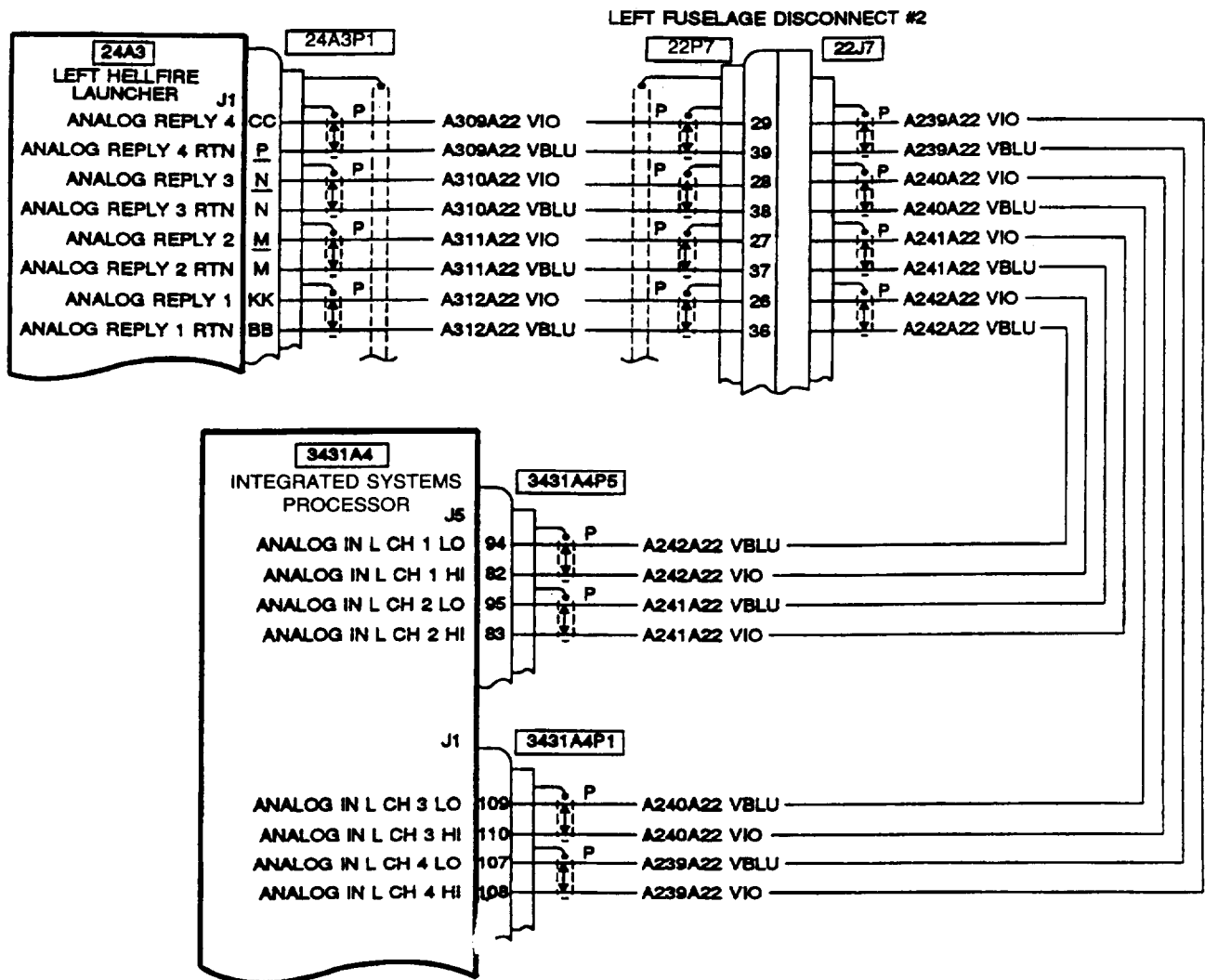
56. HELLFIRE MISSILE DOES NOT PERFORM SPIN UP (CONT)

408800-143-2
H3802

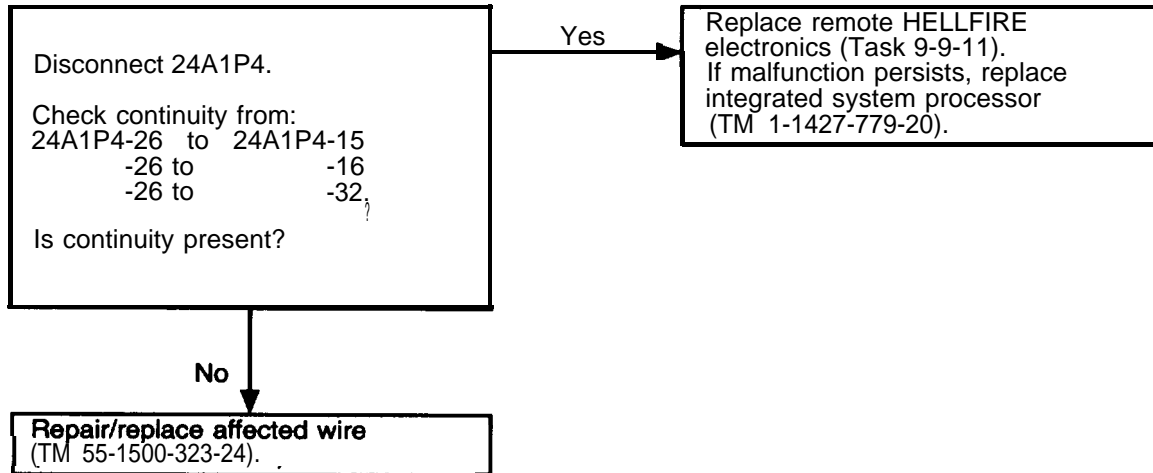
56. HELLFIRE MISSILE DOES NOT PERFORM SPIN UP (CONT)



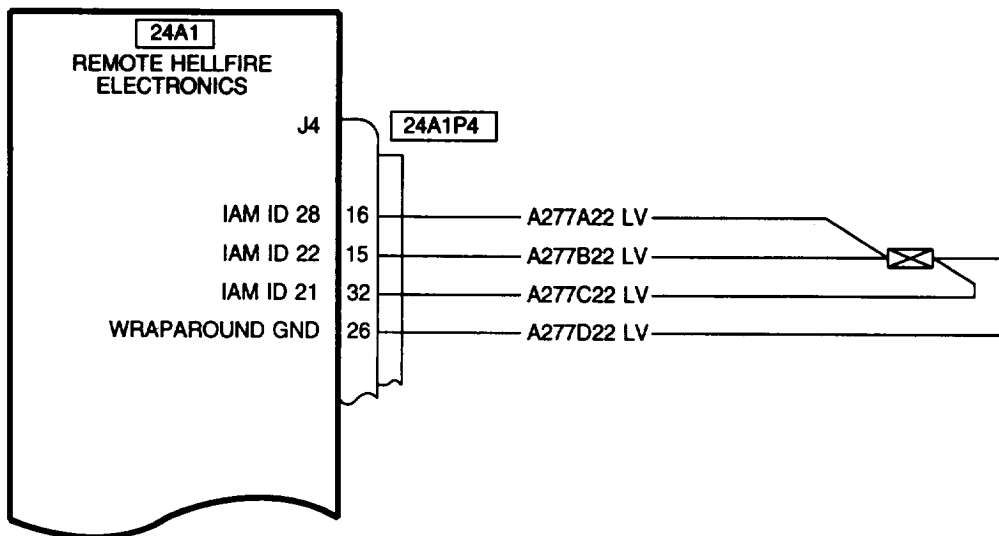
56. HELLFIRE MISSILE DOES NOT PERFORM SPIN UP (CONT)


408600-143-4
H3902

57. WITH HELLFIRE MISSILES INSTALLED AND "ON", MFD DOES NOT DISPLAY MISSILE IMAGES AND BIT CANNOT BE INITIATED

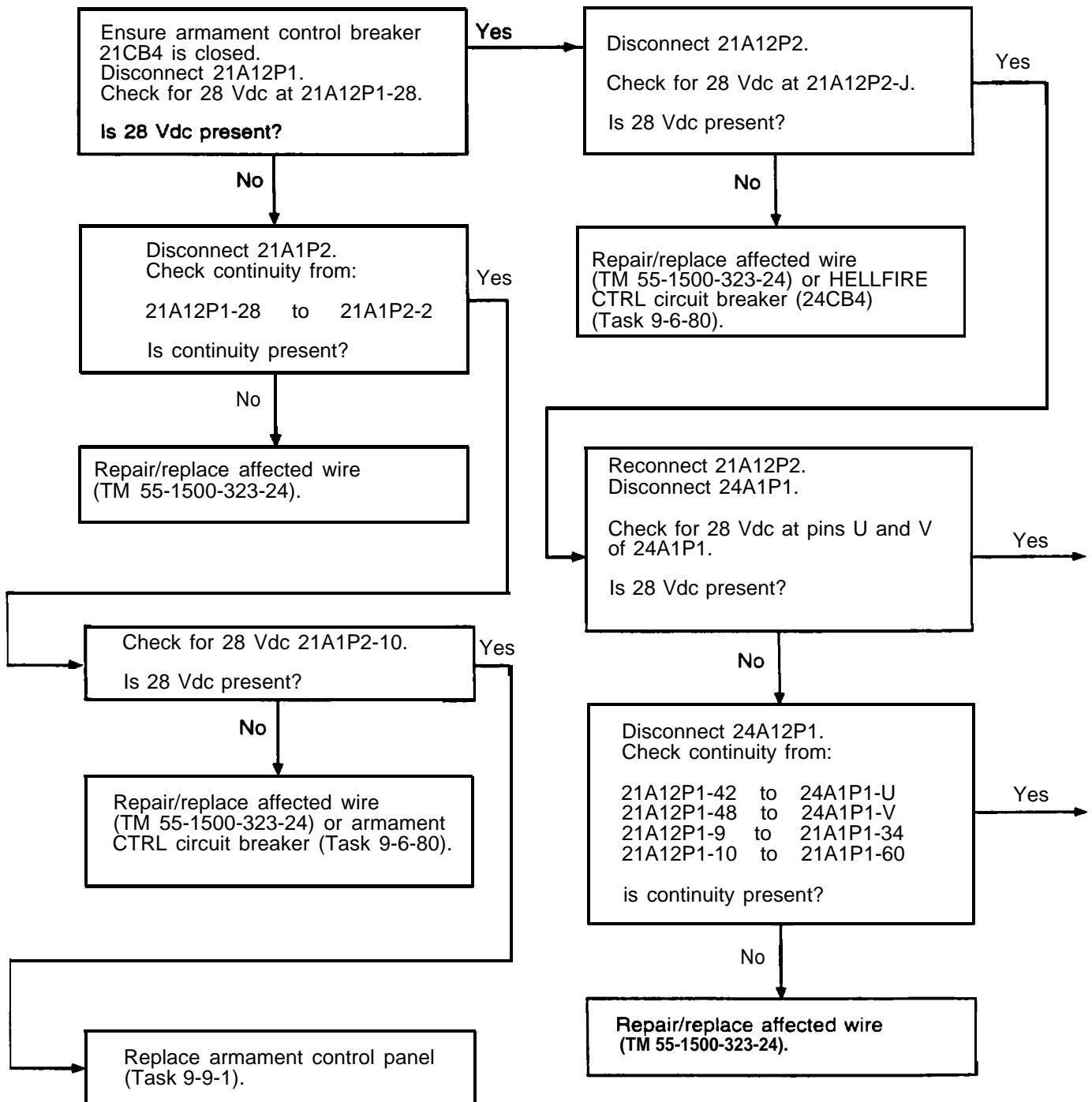


TM55-248-N57
H3551



406900-92
H3544

58. HELLFIRE BIT LEGEND NOT DISPLAYED ON MFD WEAPONS BIT/SETUP PAGE AND INCORRECT SYMBOLOGY IS DISPLAYED ON WEAPONS VSD PAGE



TM55_248_N58_1
H4218

58. HELLFIRE BIT LEGEND NOT DISPLAYED ON MFD WEAPONS BIT/SETUP PAGE AND
INCORRECT SYMBOLOGY IS DISPLAYED ON WEAPONS VSD PAGE (CONT)

Yes

Replace remote HELLFIRE
electronics (Task 9-9-11).

If malfunction persists, replace
integrated system processor
(TM 1-1427-779-20).

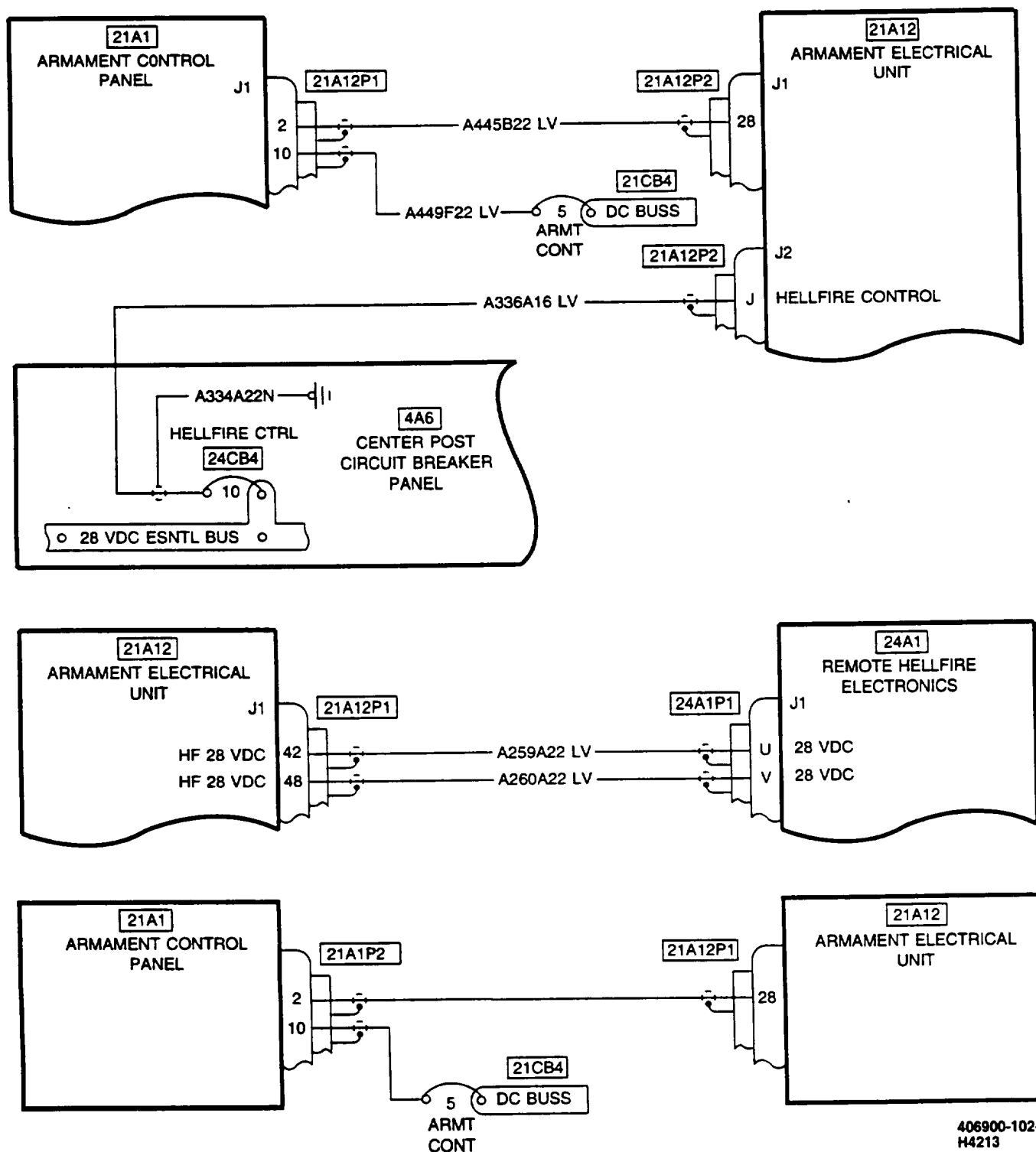
If malfunction persists, replace
armament electrical unit (Task 9-9-4).

Yes

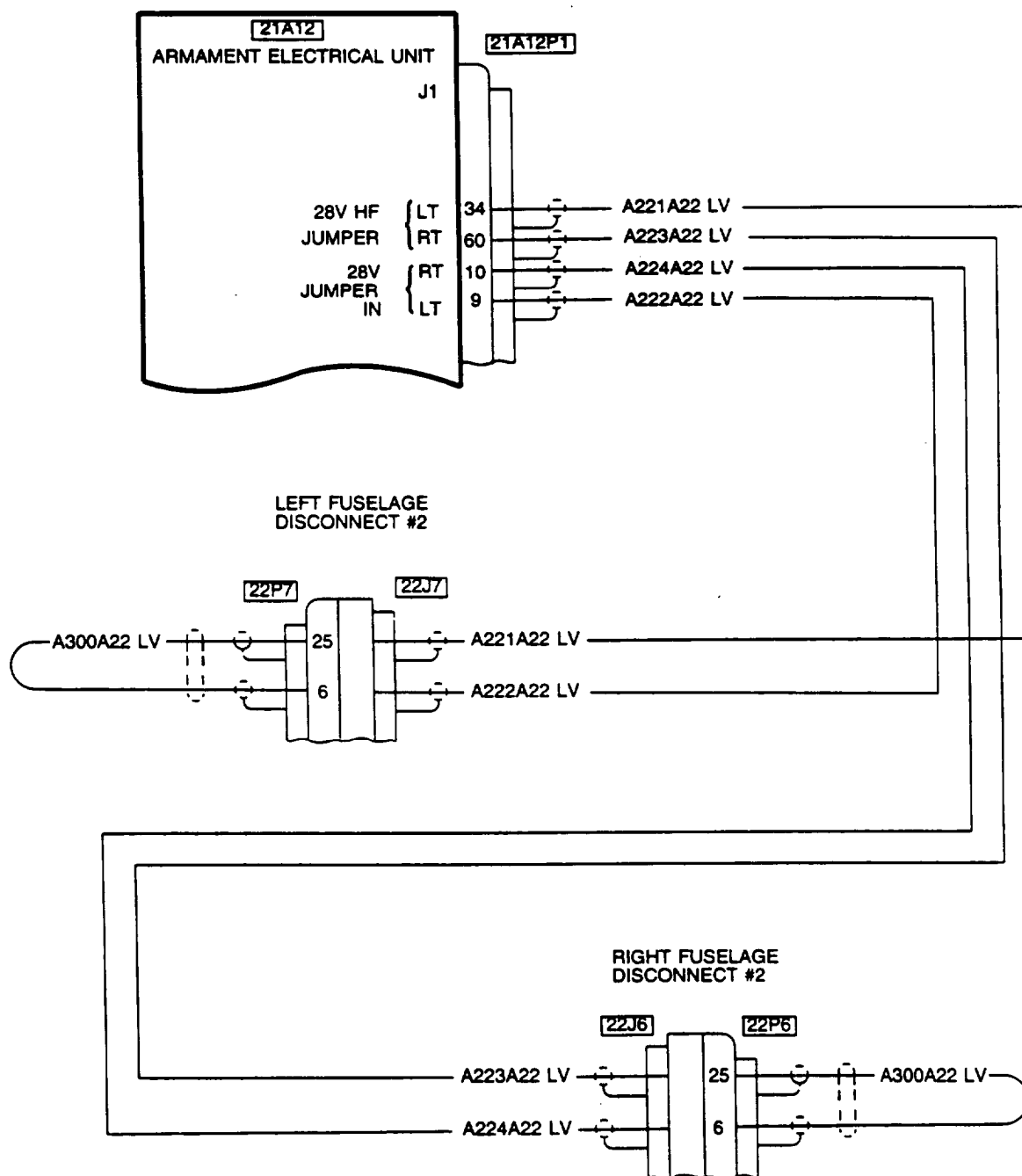
Replace armament electrical unit
(Task 9-9-4).

TM55_248_N58_2
H4218

58. HELLFIRE BIT LEGEND NOT DISPLAYED ON MFD WEAPONS BIT/SETUP PAGE AND
INCORRECT SYMBOLOGY IS DISPLAYED ON WEAPONS VSD PAGE (CONT)

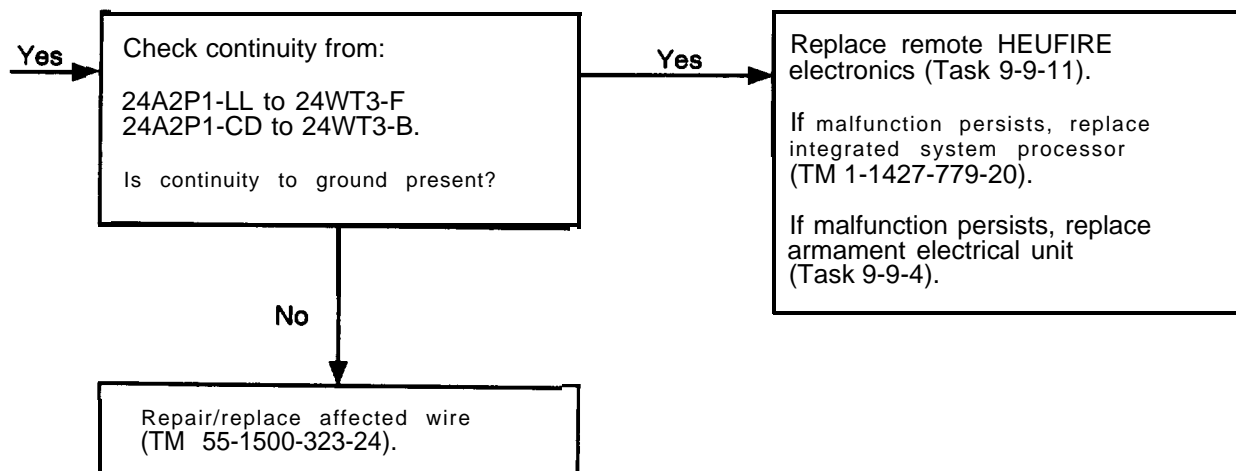


58. HELLFIRE BIT LEGEND IS NOT DISPLAYED ON MFD WEAPONS BIT/SETUP PAGE AND INCORRECT SYMBOLOGY IS DISPLAYED ON WEAPONS VSD PAGE (CONT)

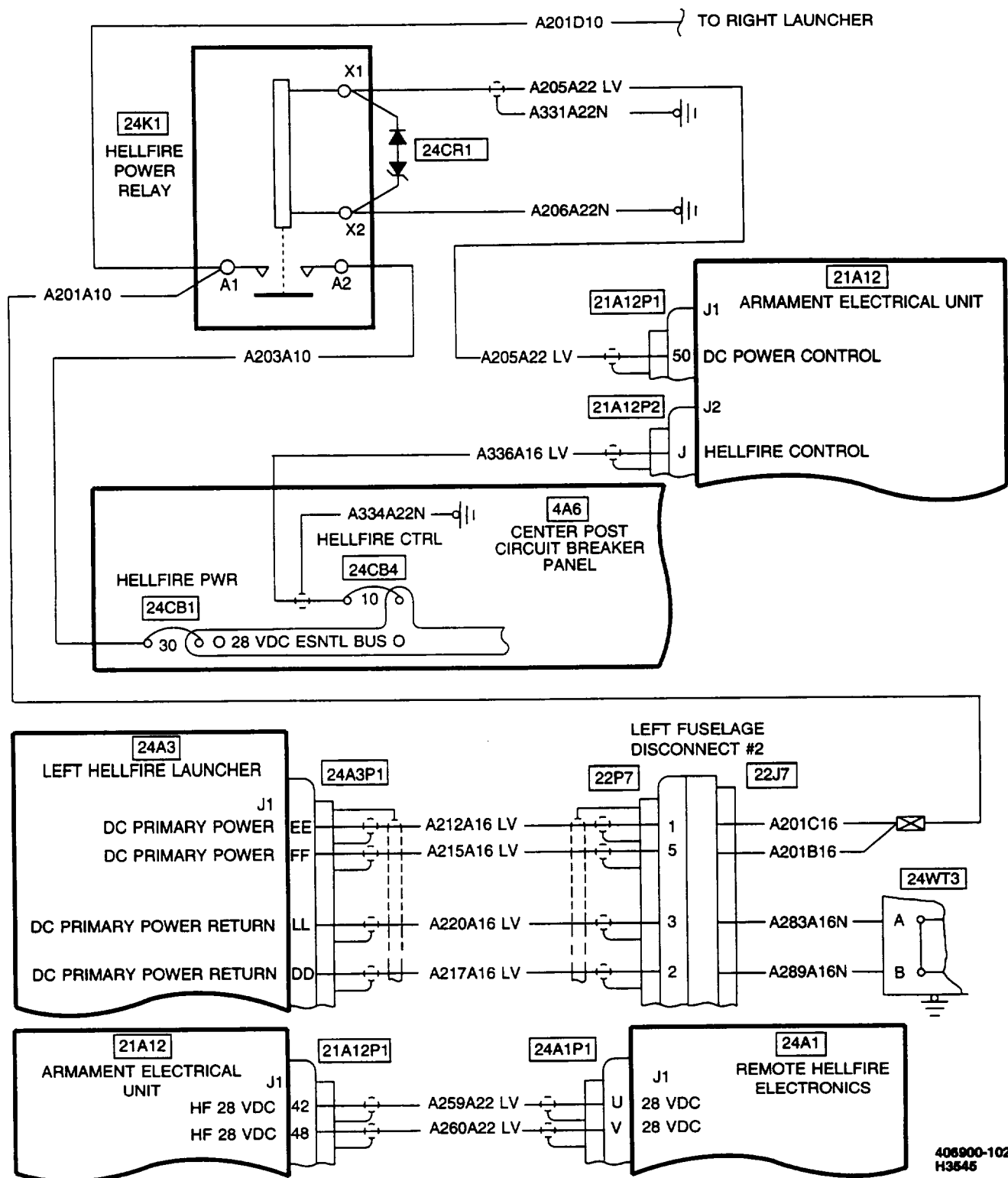


408900-102-2
H4213

58. HELLFIRE BIT LEGEND NOT DISPLAYED ON MFD WEAPONS BIT/SETUP PAGE AND INCORRECT SYMBOLOGY IS DISPLAYED ON WEAPONS VSD PAGE (CONT)

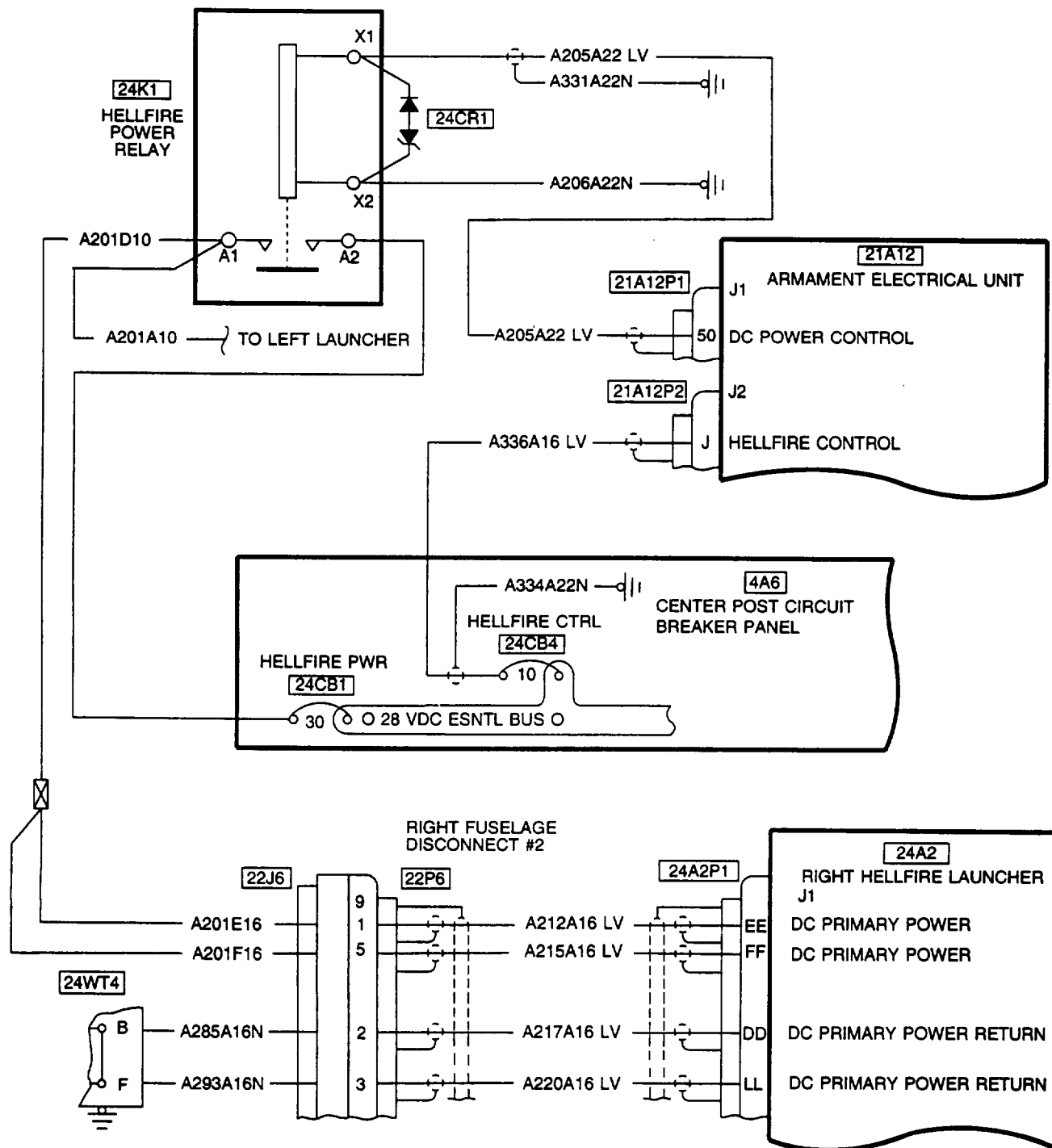


58. HELLFIRE BIT LEGEND IS NOT DISPLAYED ON MFD WEAPONS BIT/SETUP PAGE AND INCORRECT SYMBOLOGY IS DISPLAYED ON WEAPONS VSD PAGE (CONT)



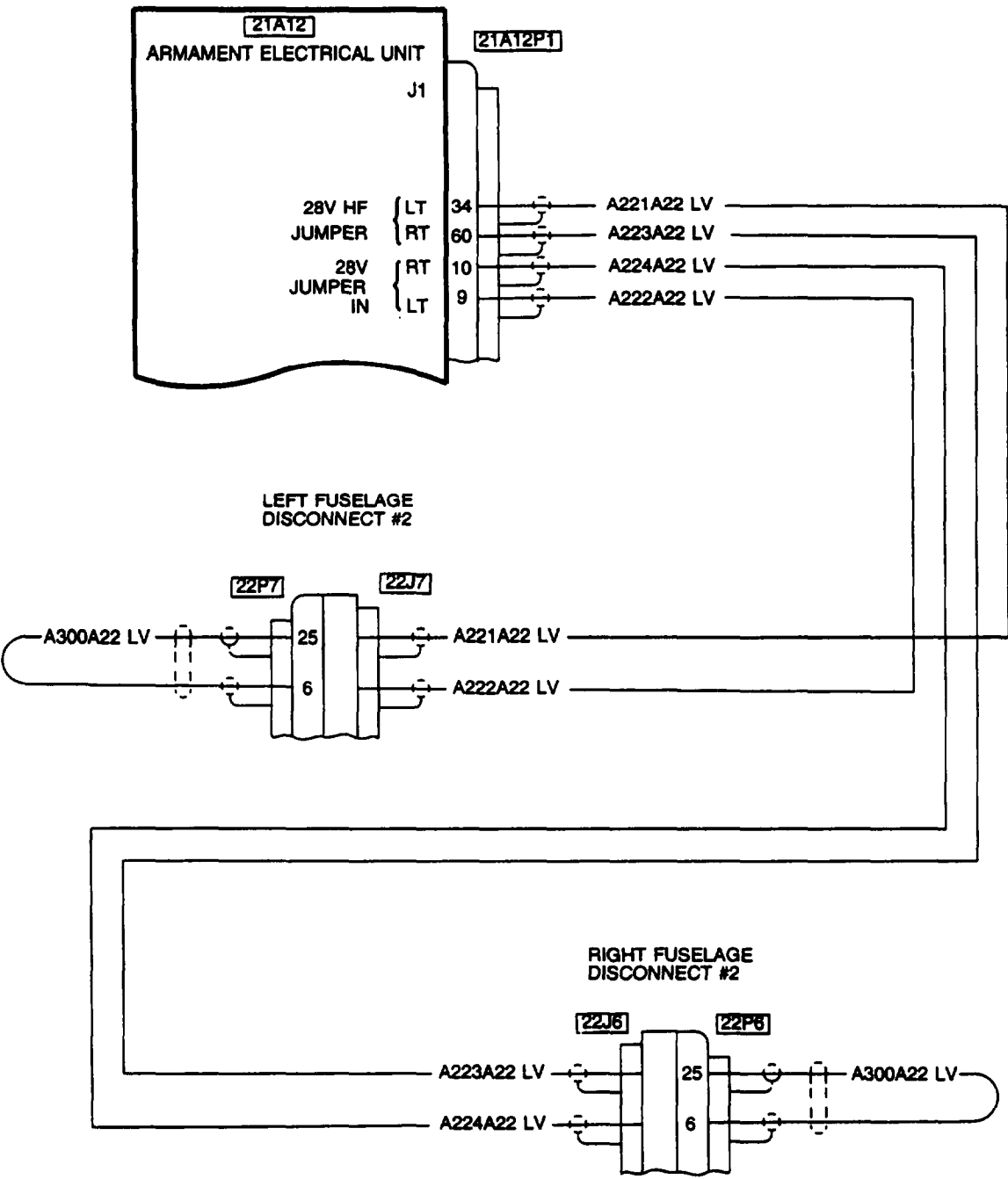
406900-102-1
H3545

58. HELLFIRE BIT LEGEND IS NOT DISPLAYED ON MFD WEAPONS BIT/SETUP PAGE AND INCORRECT SYMBOLOGY IS DISPLAYED ON WEAPONS VSD PAGE (CONT)



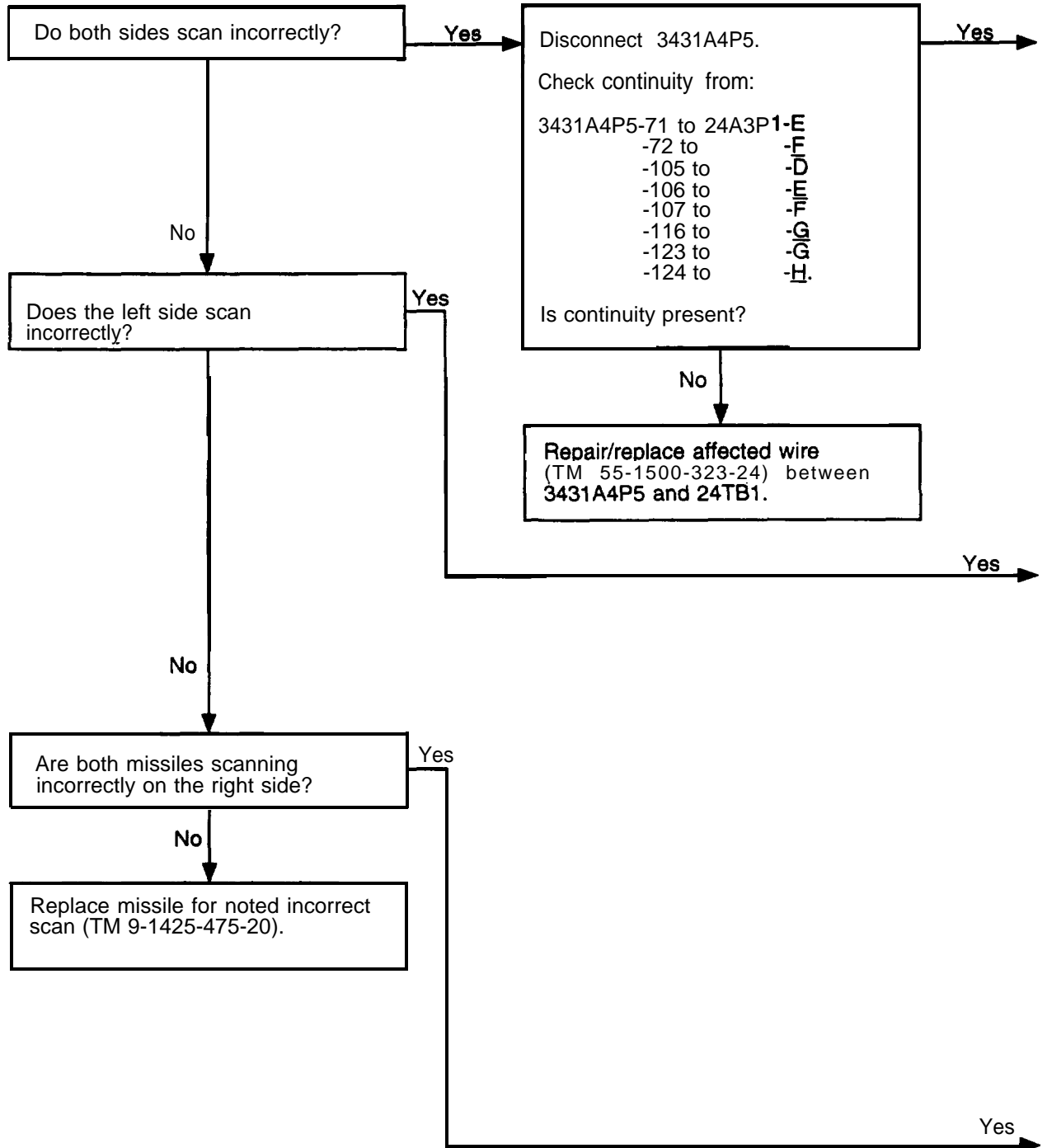
408900-102-2
H3545

58. HELLFIRE BIT LEGEND IS NOT DISPLAYED ON MFD WEAPONS BIT/SETUP PAGE AND INCORRECT SYMBOLOGY IS DISPLAYED ON WEAPONS VSD PAGE (CONT)



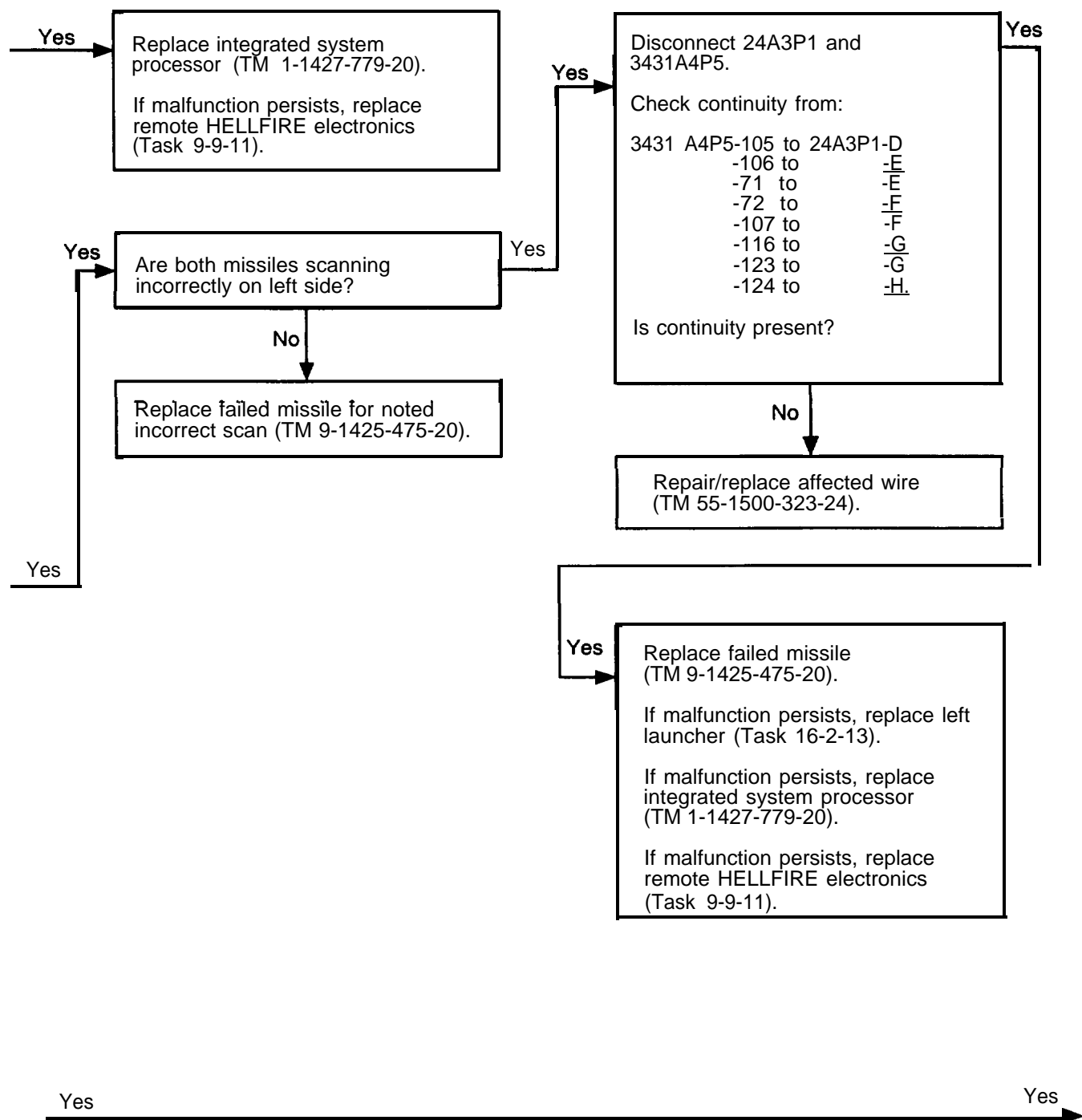
408900-102-3
H3548

59. MISSILE DOES NOT PERFORM PROPER BOX SCAN IN LOBL

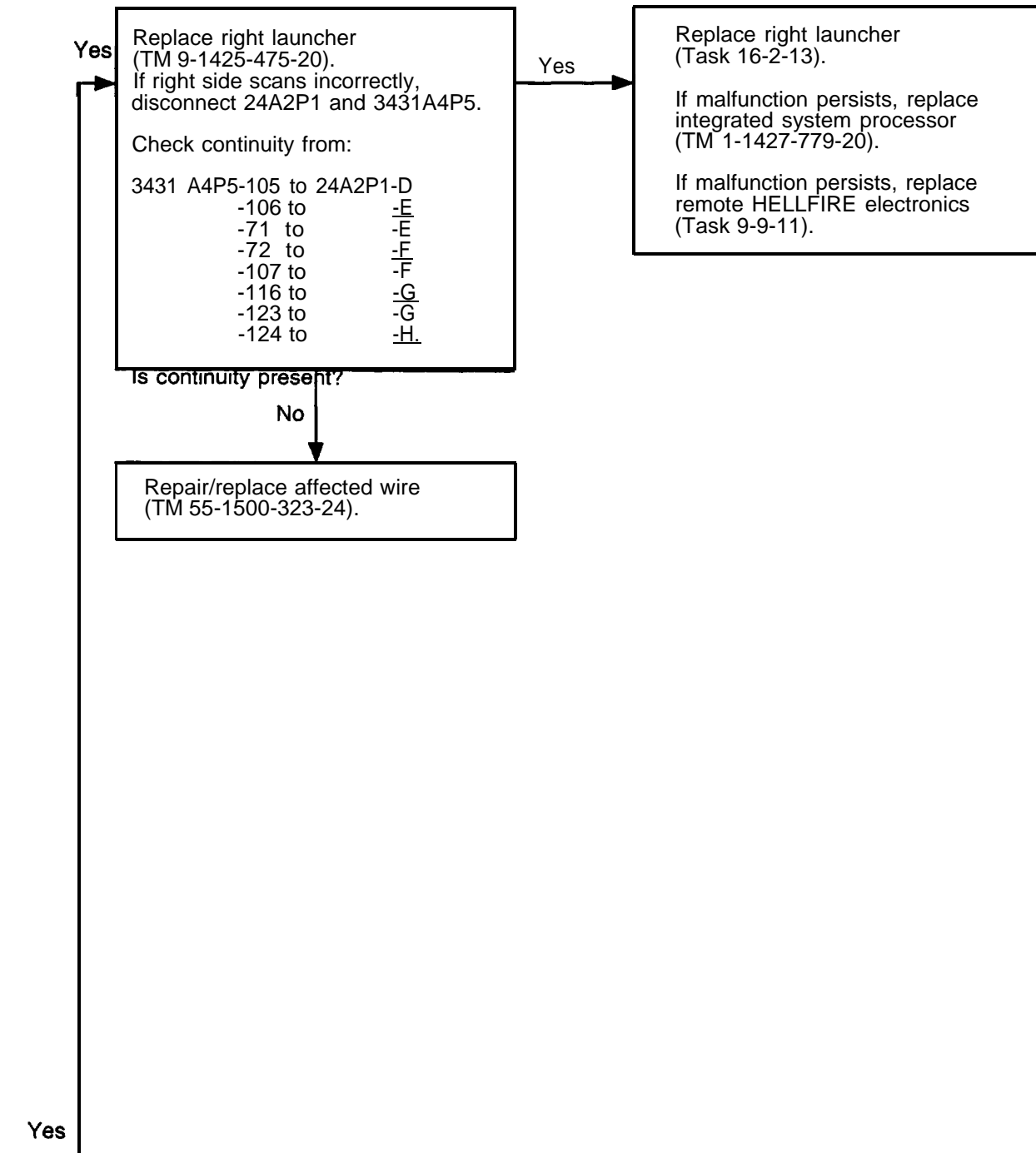


TM 55-248-N59-1
H3551

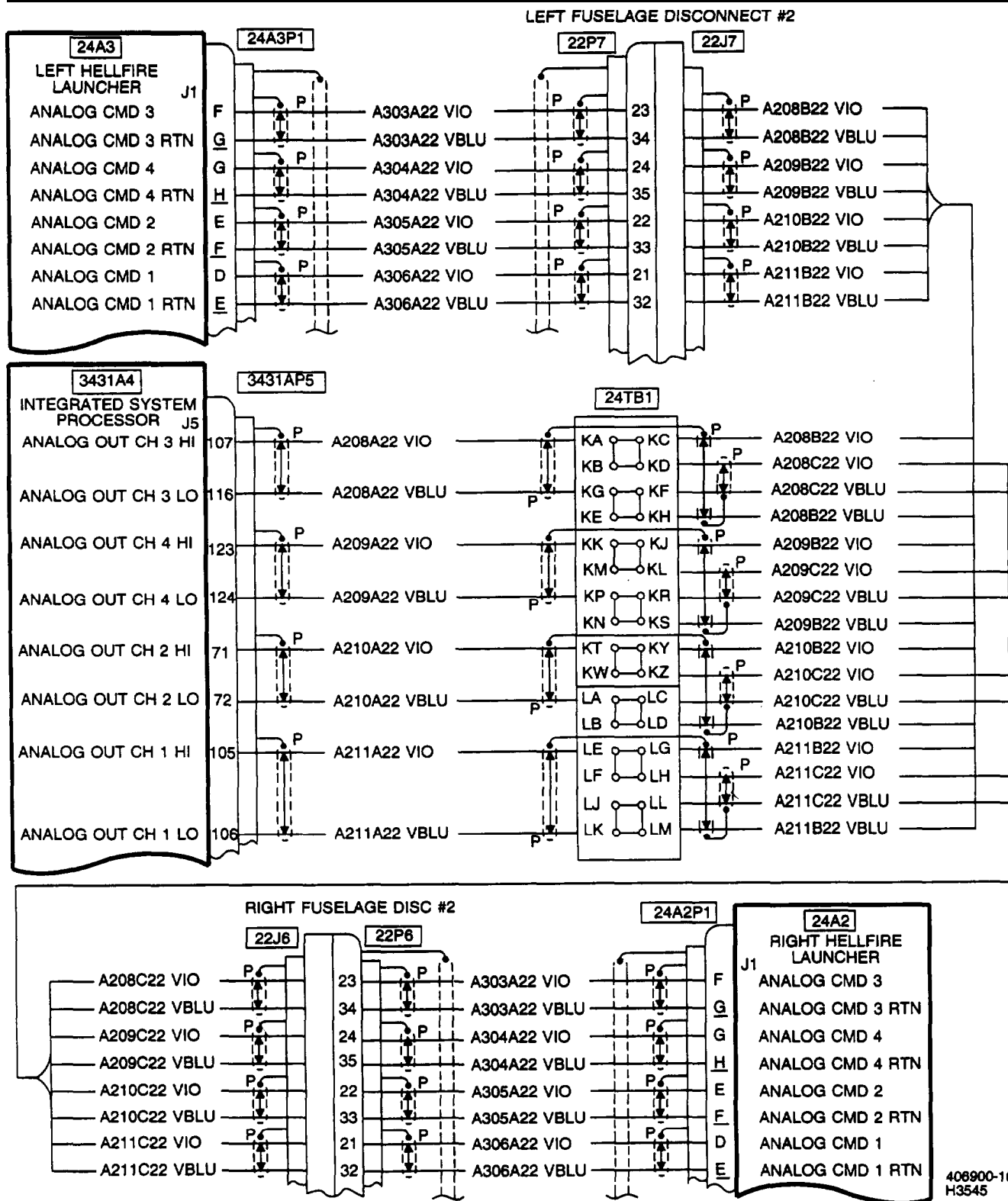
59. MISSILE DOES NOT PERFORM PROPER BOX SCAN IN LOBL (CONT)



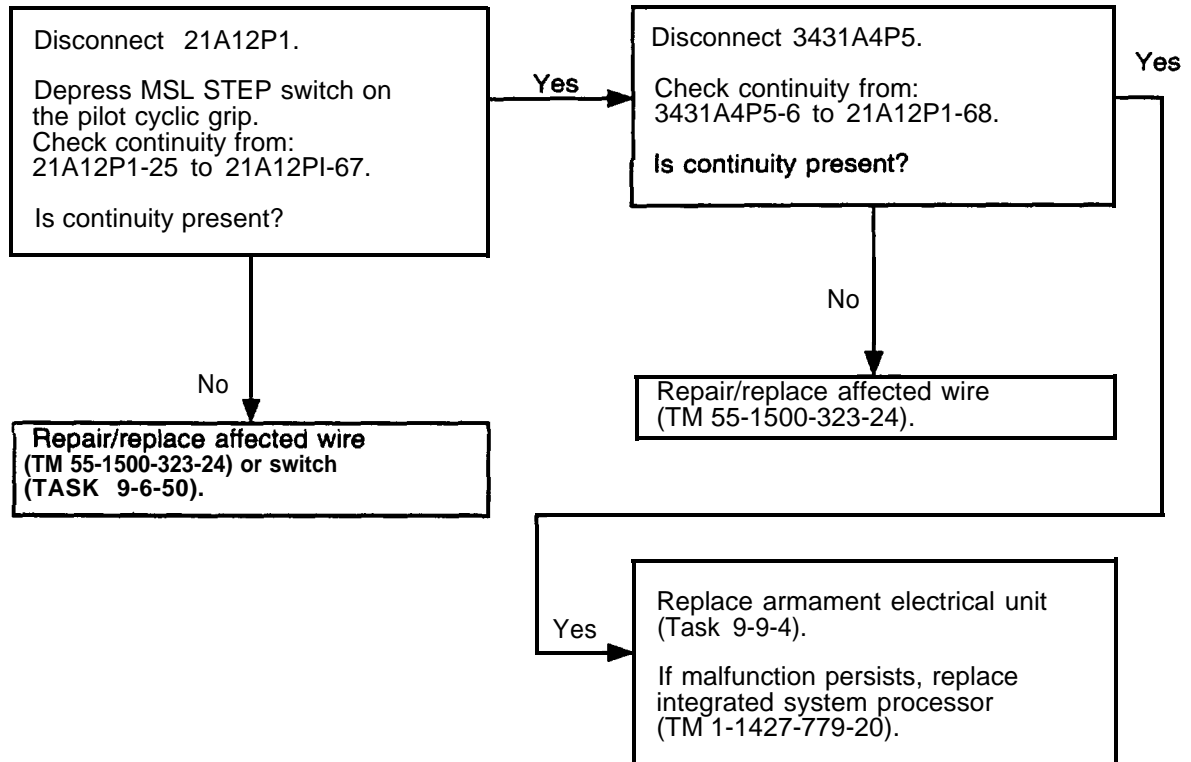
59. MISSILE DOES NOT PERFORM PROPER BOX SCAN IN LOBL (CONT)



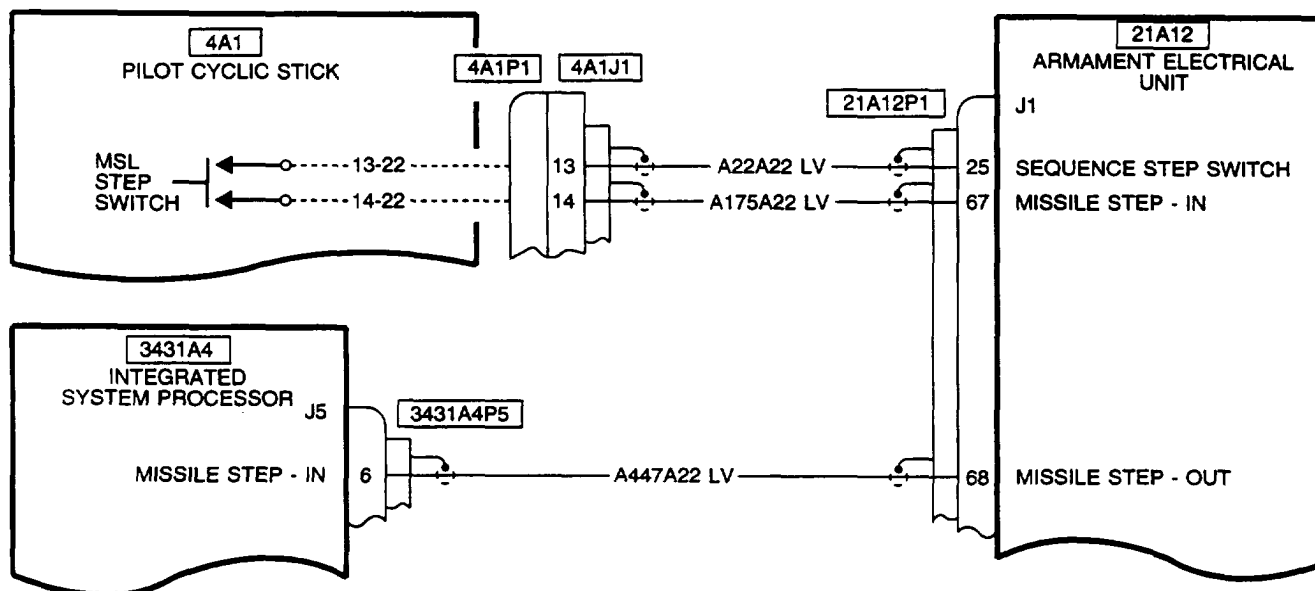
59. MISSILE DOES NOT PERFORM PROPER BOX SCAN IN LOBL (CONT)



60. SYSTEM WILL NOT STEP TO NEXT MISSILE

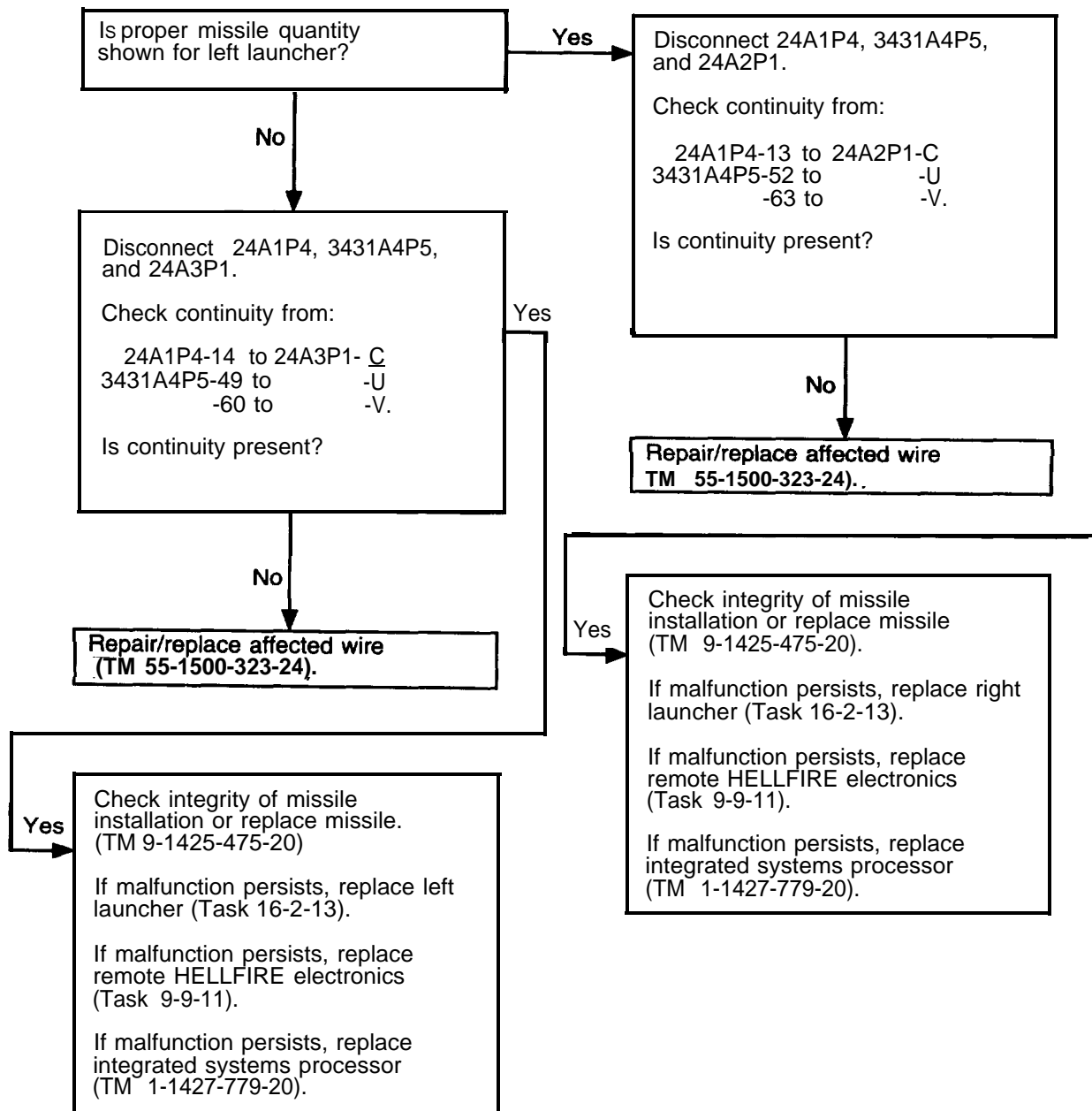


60. SYSTEM WILL NOT STEP TO NEXT MISSILE (CONT))



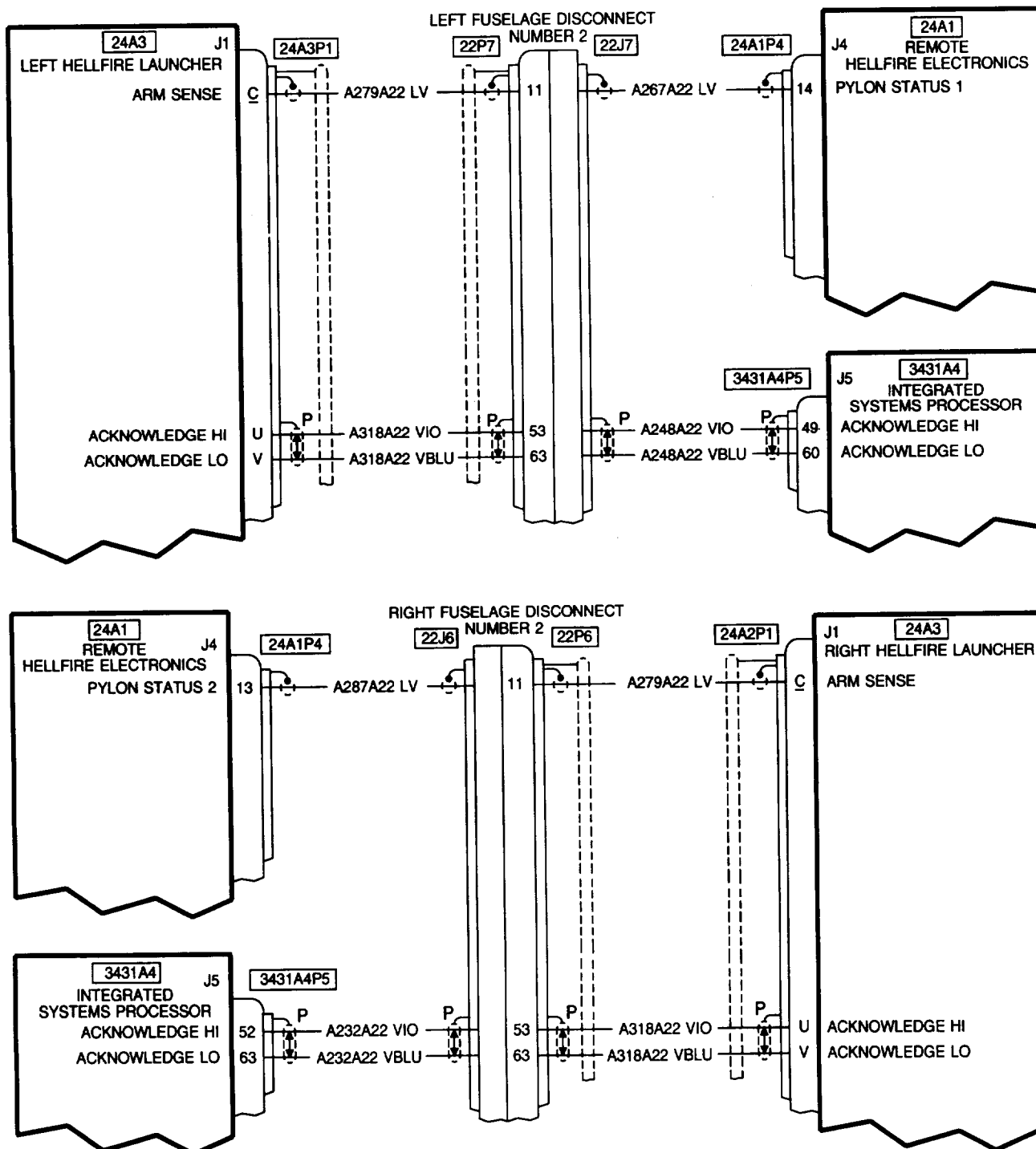
406900-93
H3544

61. IMPROPER HELLFIRE MISSILE QUANTITY SHOWN ON MFD



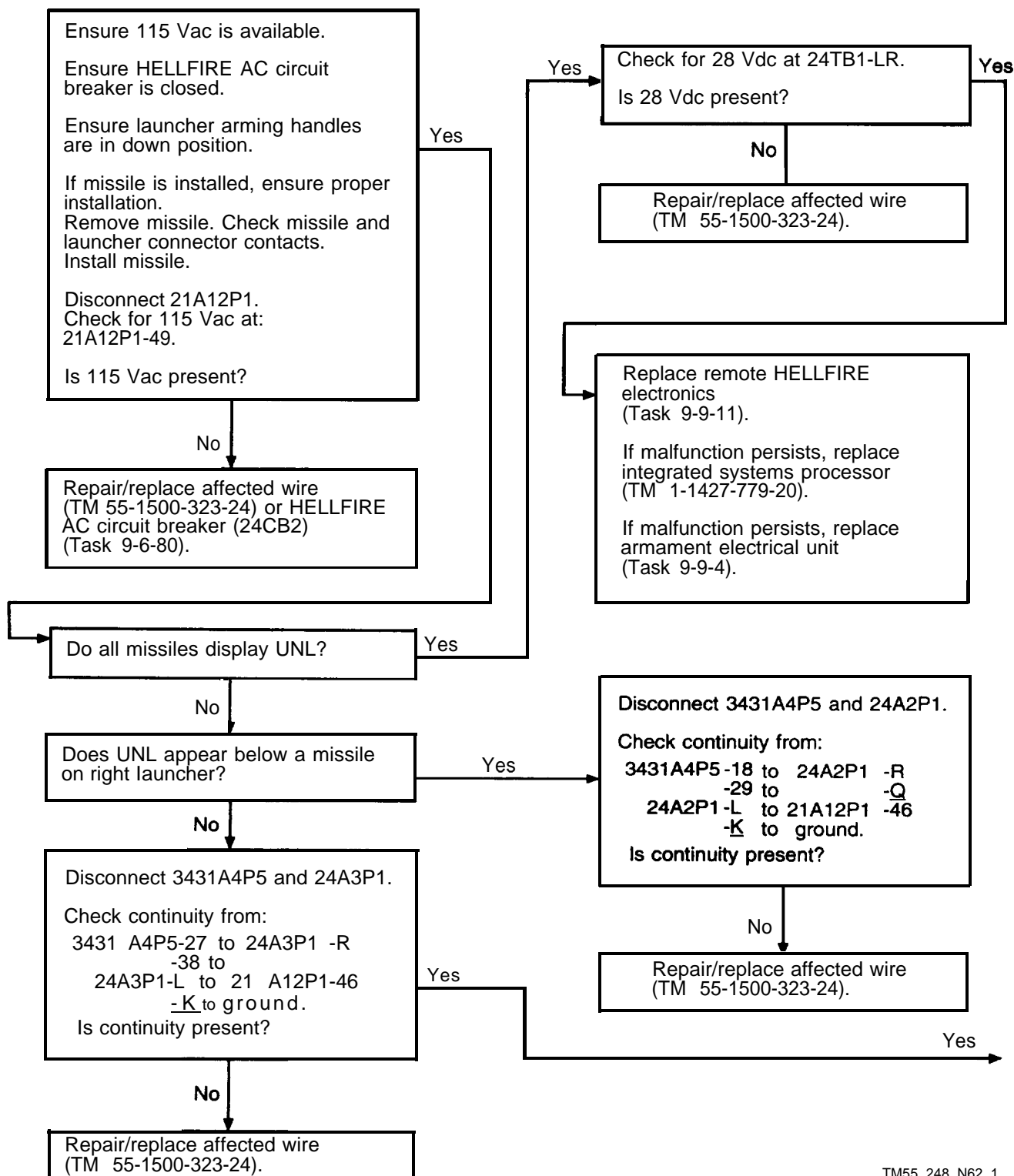
TM 55248.N61
H5073

61. IMPROPER HELLFIRE MISSILE QUANTITY SHOWN ON MFD (CONT)



406900-113
H3902

62. MFD DISPLAYS UNL WHEN LAUNCHERS ARE IN LATCHED POSITION

TM55_248_N62_1
H3425

62. MFD DISPLAYS UNL WHEN LAUNCHERS ARE IN LATCHED POSITION (CONT)

Yes

Replace right launcher
(Task 16-2-13).

If malfunction persists, replace
remote HELLFIRE electronics
(Task 9-9-11).

If malfunction persists, replace
integrated systems processor
(TM 1-1427-779-20).

Yes

Yes

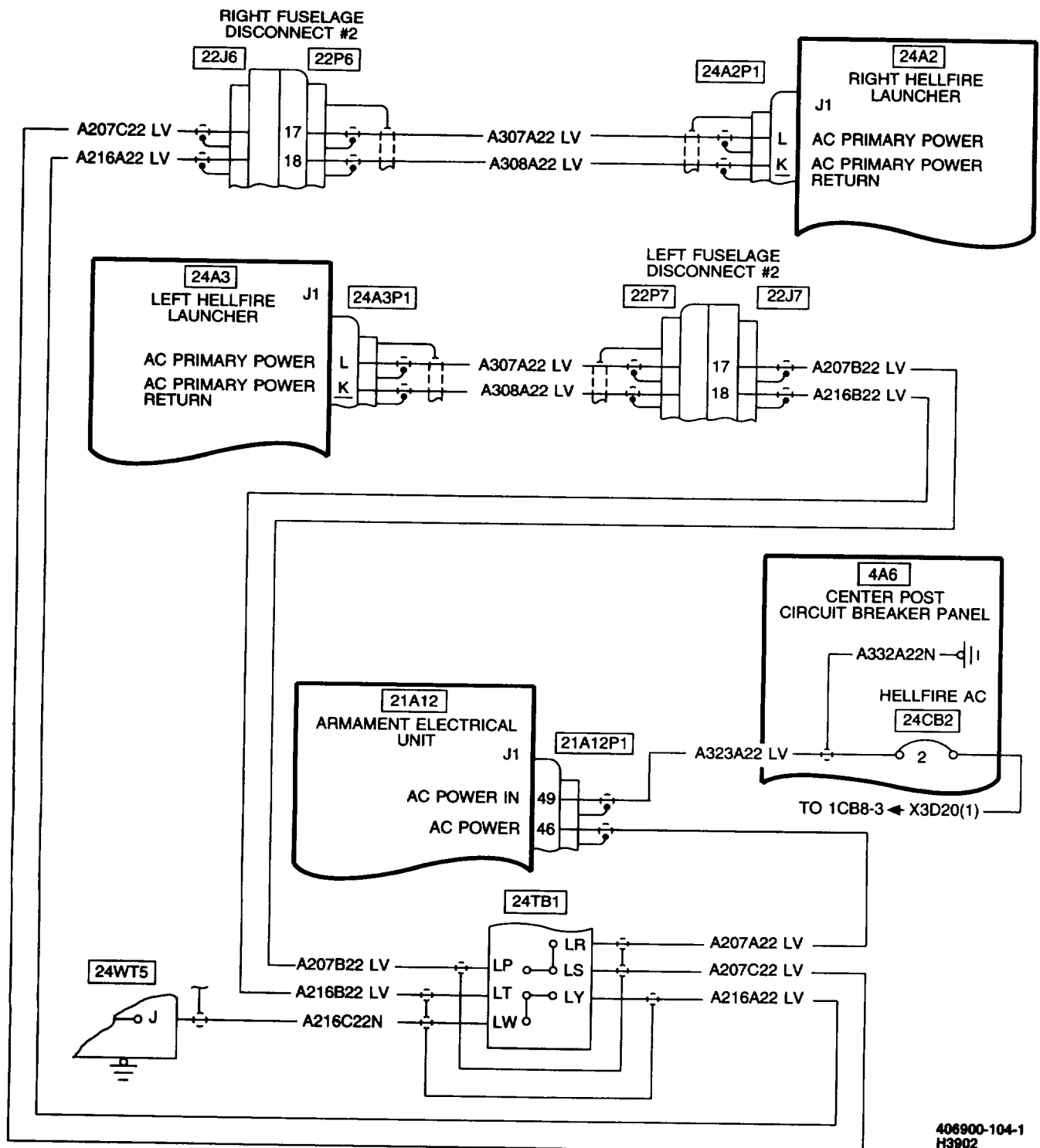
Yes

Replace left launcher
(Task 16-2-13).

If malfunction persists, replace
remote HELLFIRE electronics
(Task 9-9-11).

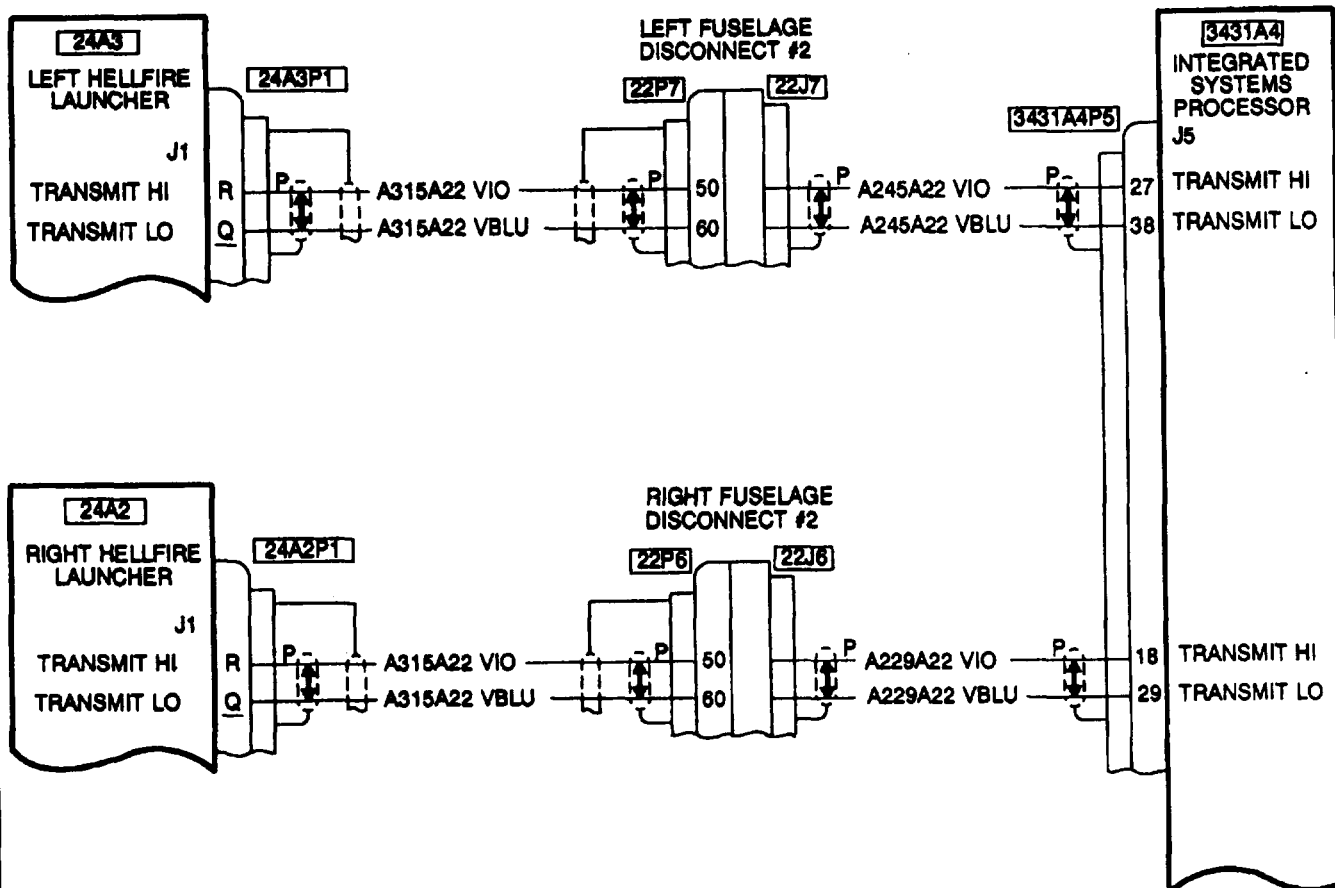
If malfunction persists, replace
integrated systems processor
(TM 1-1427-779-20).

62. MFD DISPLAYS UNL WHEN LAUNCHERS ARE IN LATCHED POSITION (CONT)



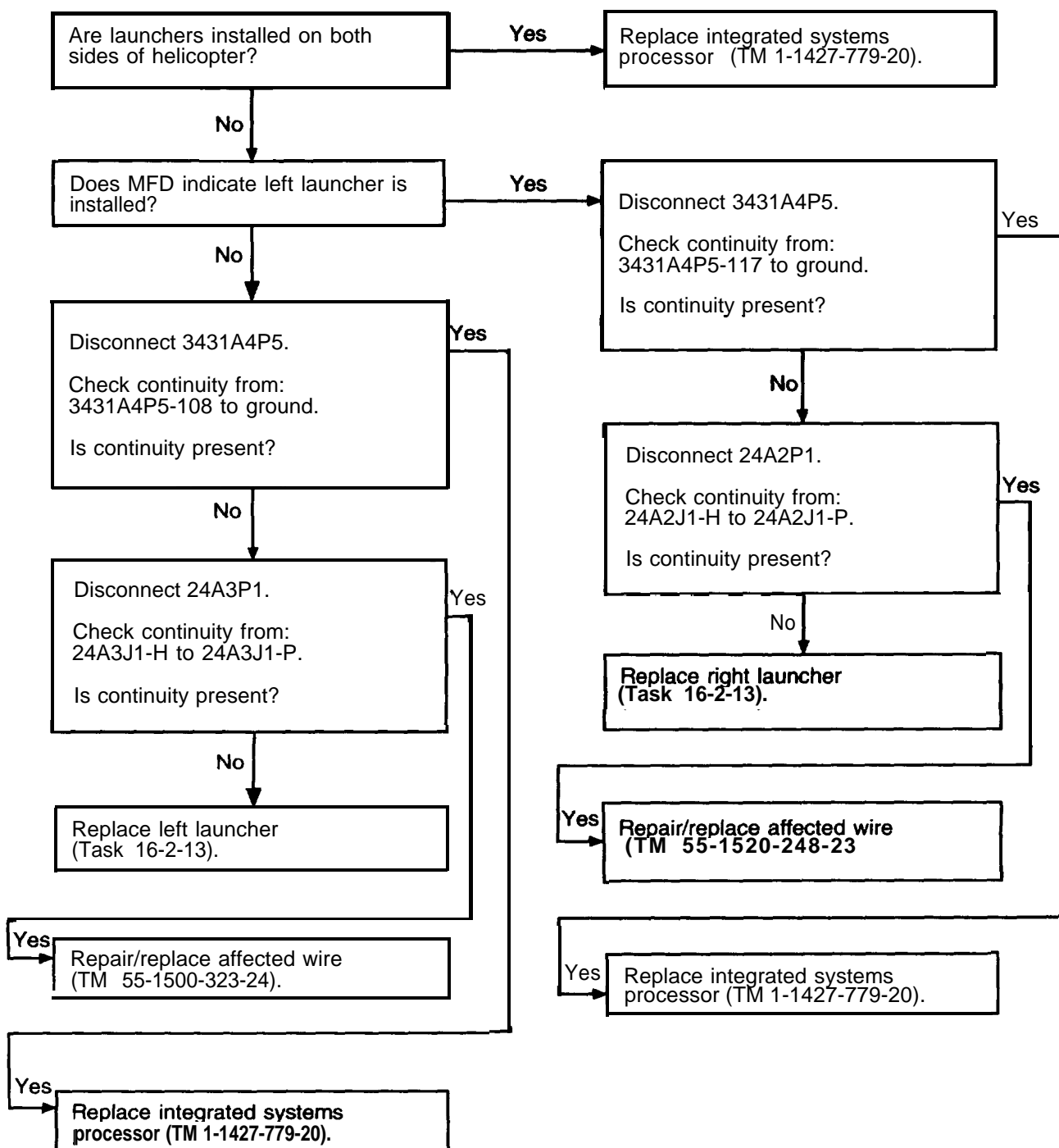
406900-104-1
H3902

62. MPD DISPLAYS UNL WHEN LAUNCHERS ARE IN LATCHED POSITION (CONT)

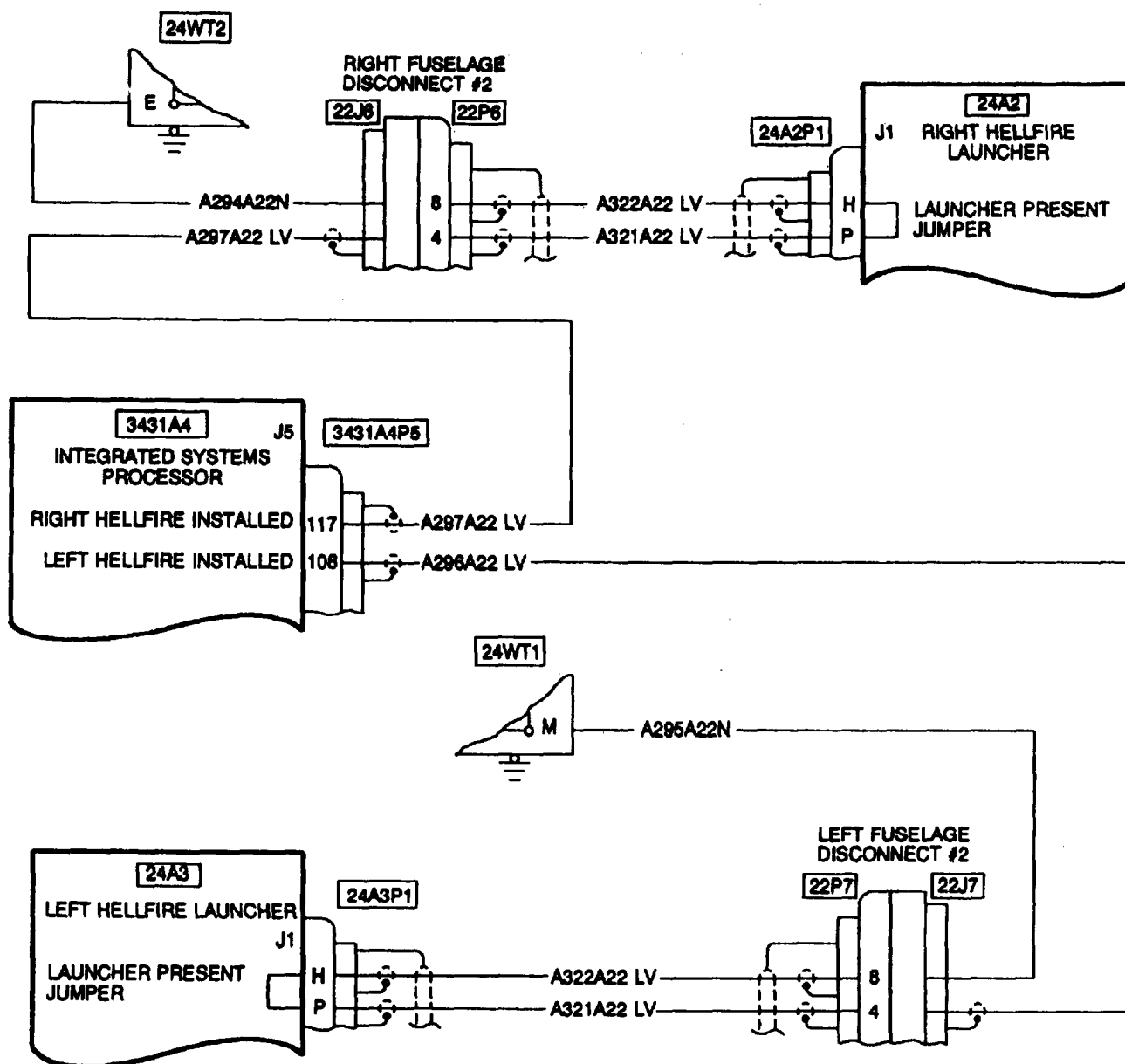


406900-104-2
H3922

63. MFD DOES NOT INDICATE HELLFIRE SYSTEM IS INSTALLED

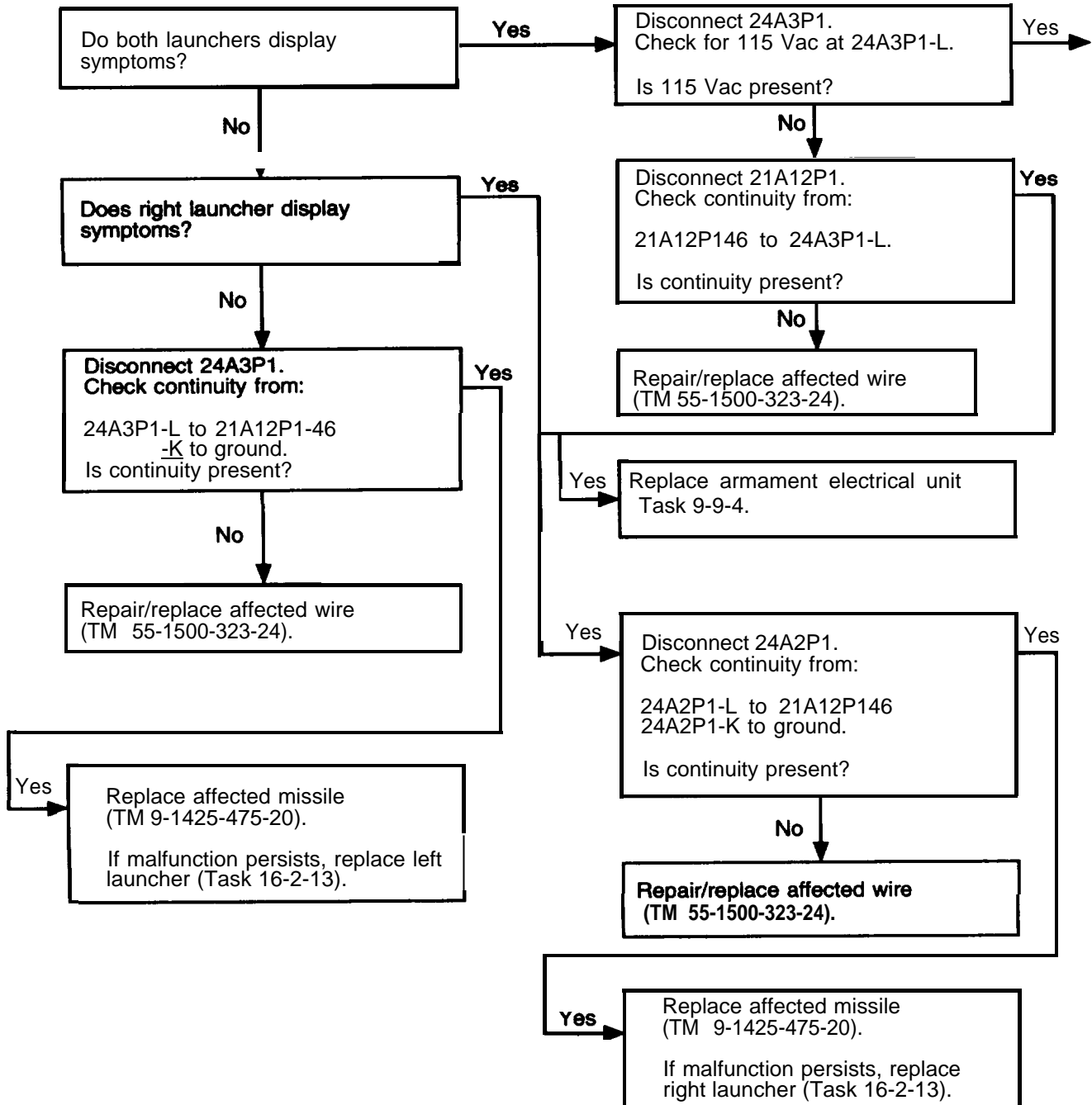
TM55-24S-N63
H3425

63. MFD DOES NOT INDICATE HELLFIRE SYSTEM IS INSTALLED (CONT)



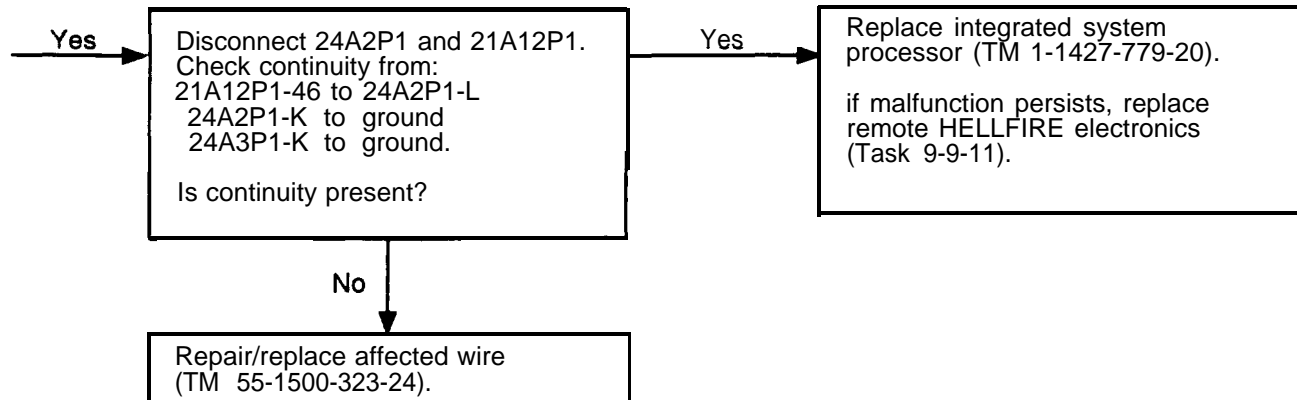
406900-105
H5073

64. MFD INDICATES HELLFIRE MISSILE SYSTEM IS INSTALLED BUT SYSTEM DOES NOT OPERATE

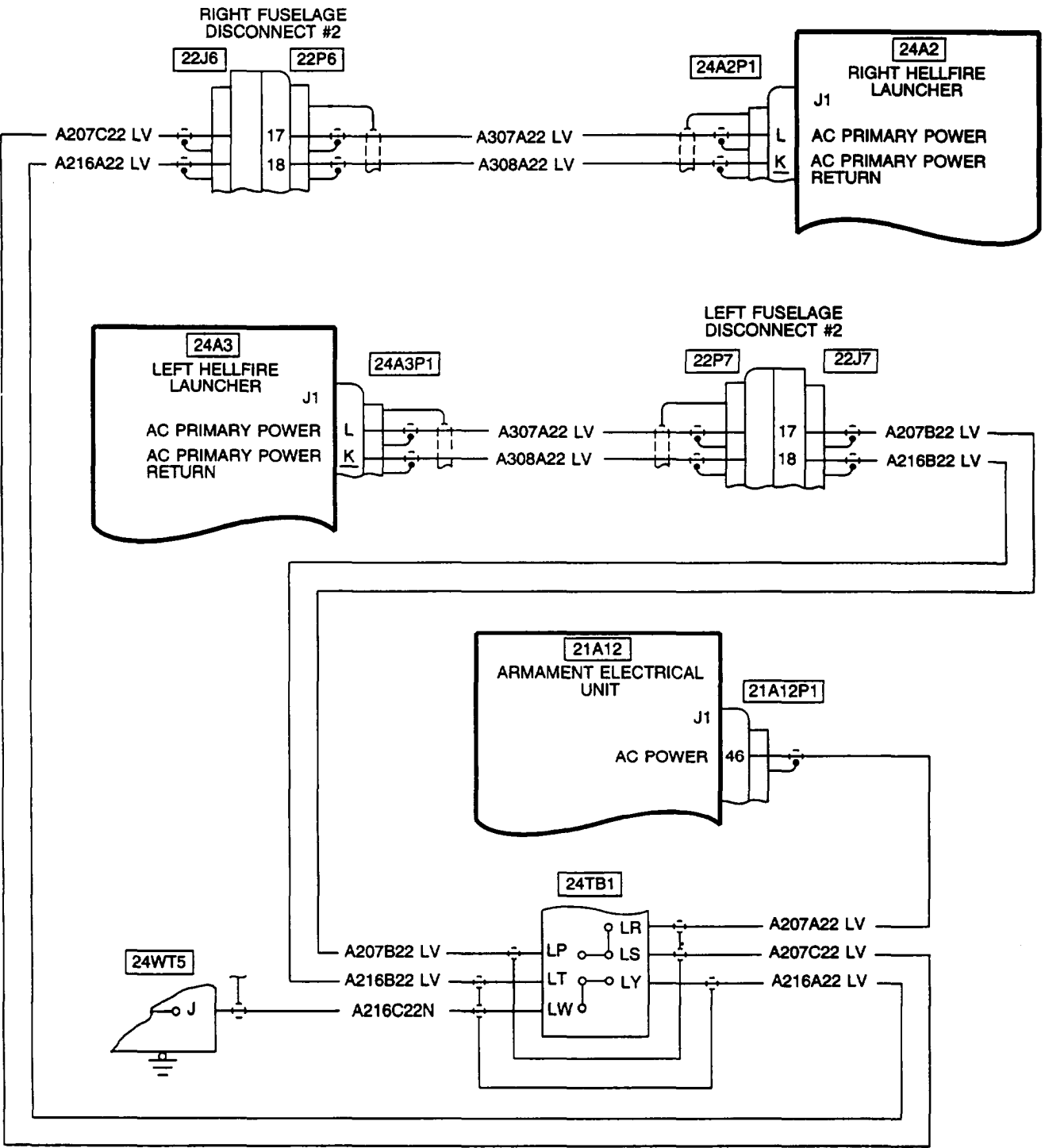


TM 55-248-N64-1
H3551

64. MFD INDICATES HELLFIRE MISSILE SYSTEM IS INSTALLED BUT SYSTEM DOES NOT OPERATE (CONT)

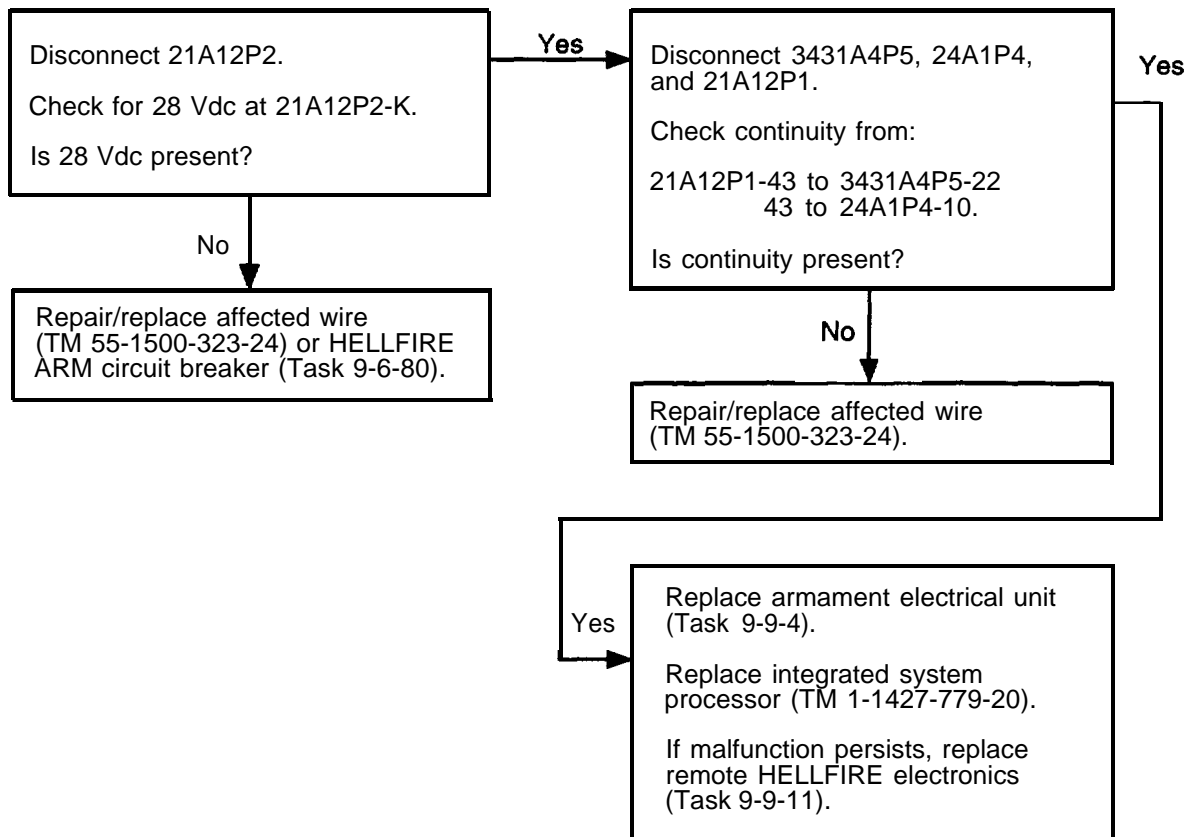


64. MFD INDICATES HELLFIRE MISSILE SYSTEM IS INSTALLED BUT SYSTEM DOES NOT OPERATE (CONT)

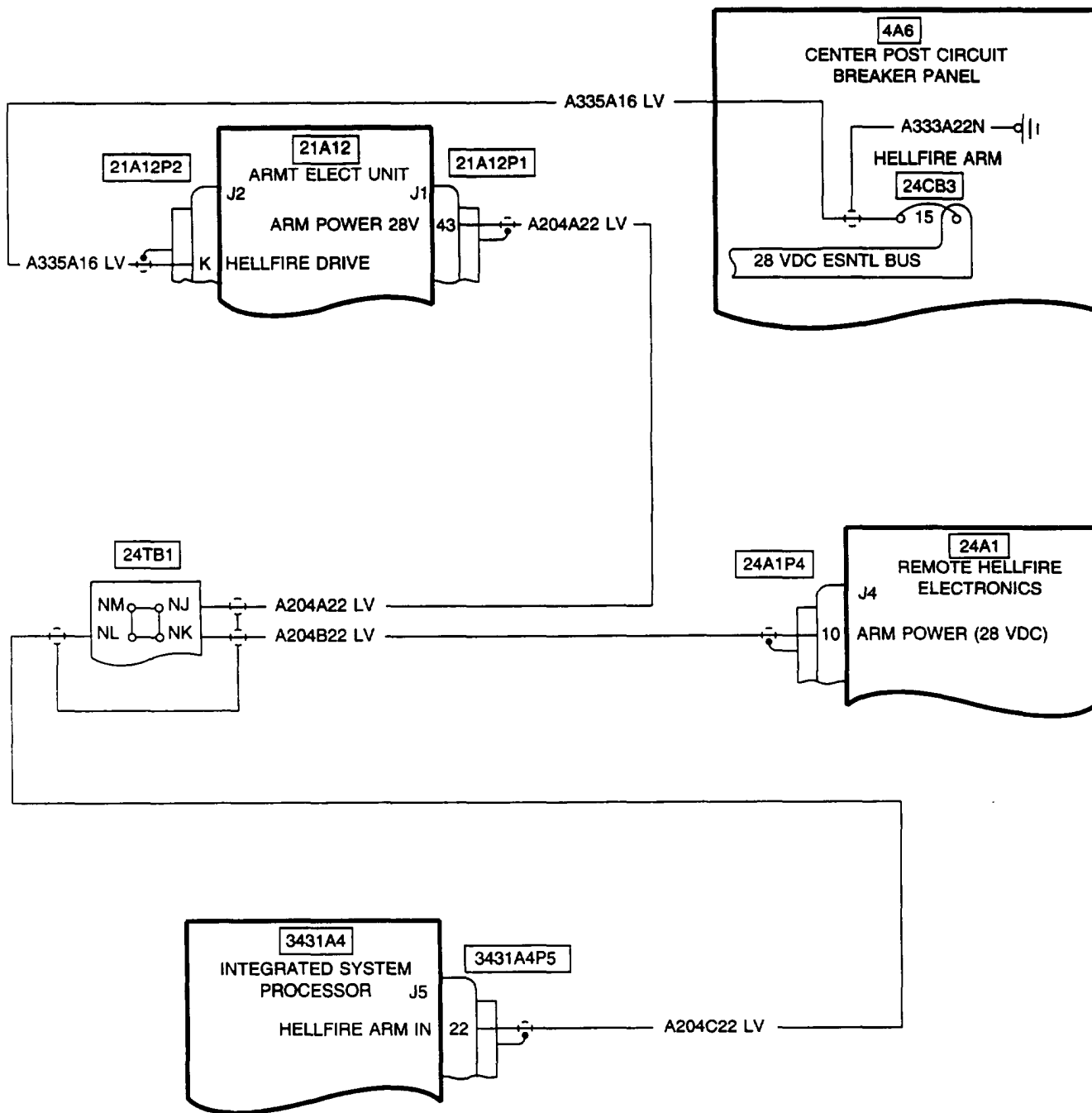


406900-106
H3424

65. HELLFIRE MISSILE SHOWS SAFE WHEN ARMED AND SELECTED

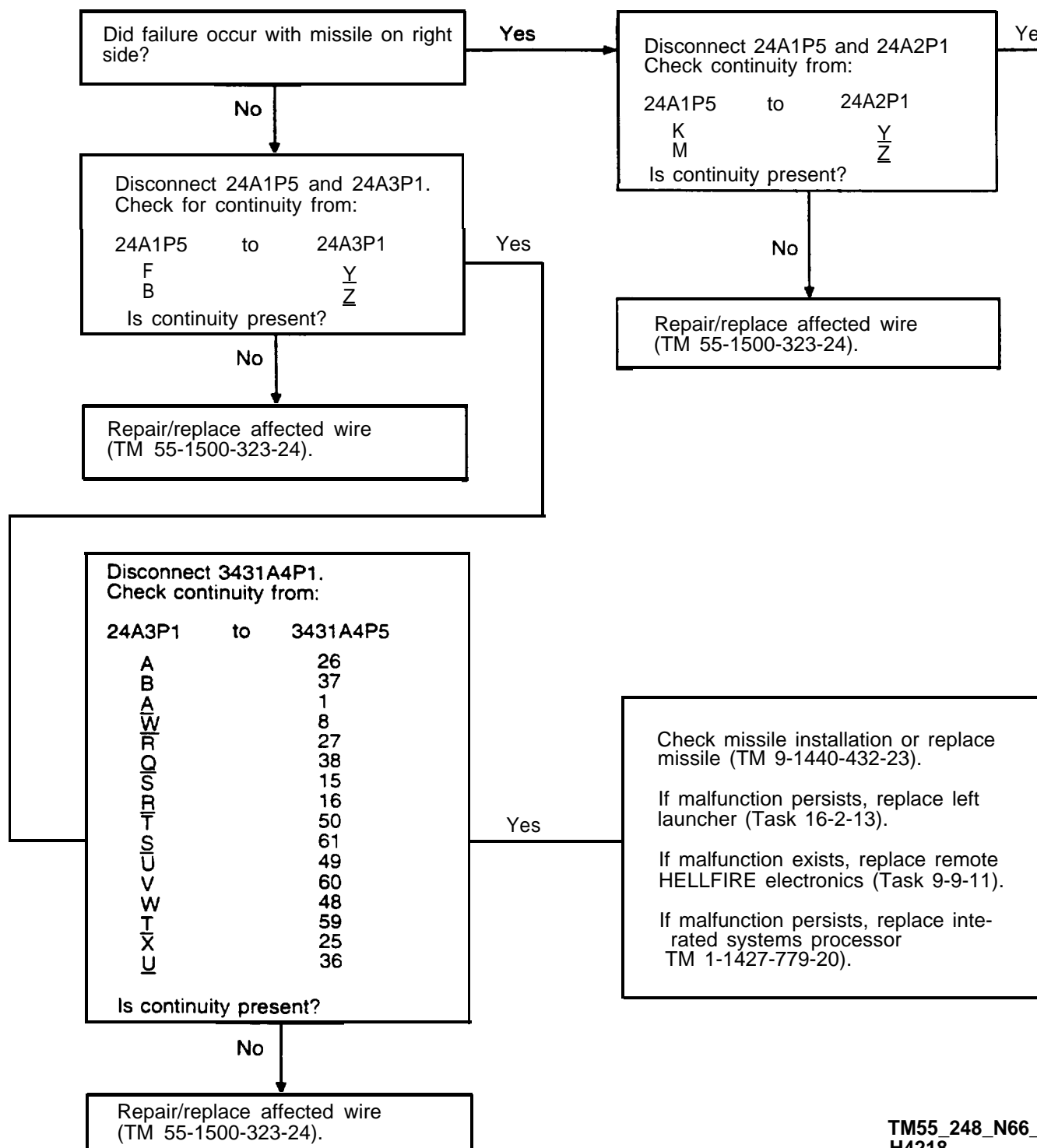


65. HELLFIRE MISSILE SHOWS SAFE WHEN ARMED AND SELECTED (CONT)

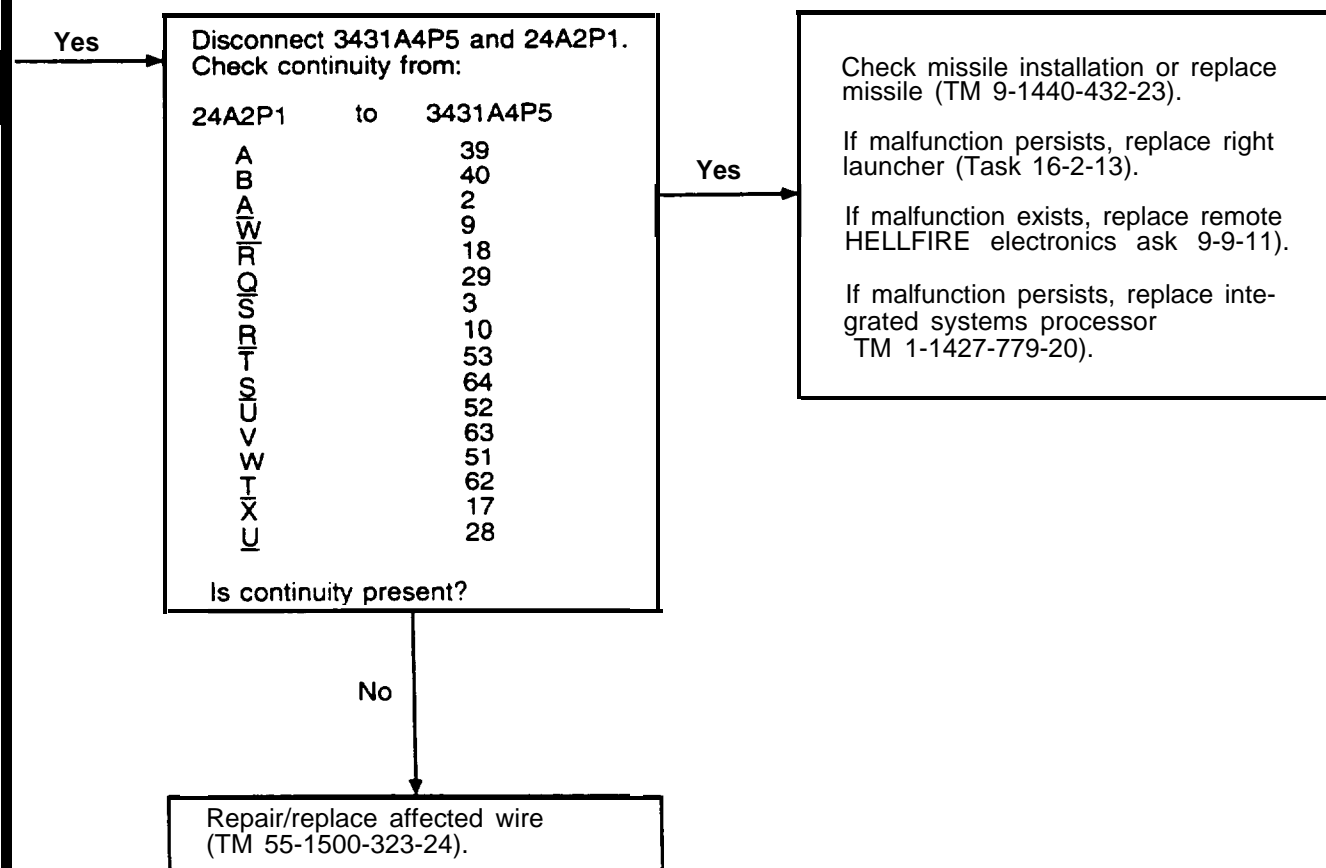


406900-107
H3424

66. MFD SHOWS "SEL" THEN "MF" UNDER HELLFIRE "MSL" IMAGE

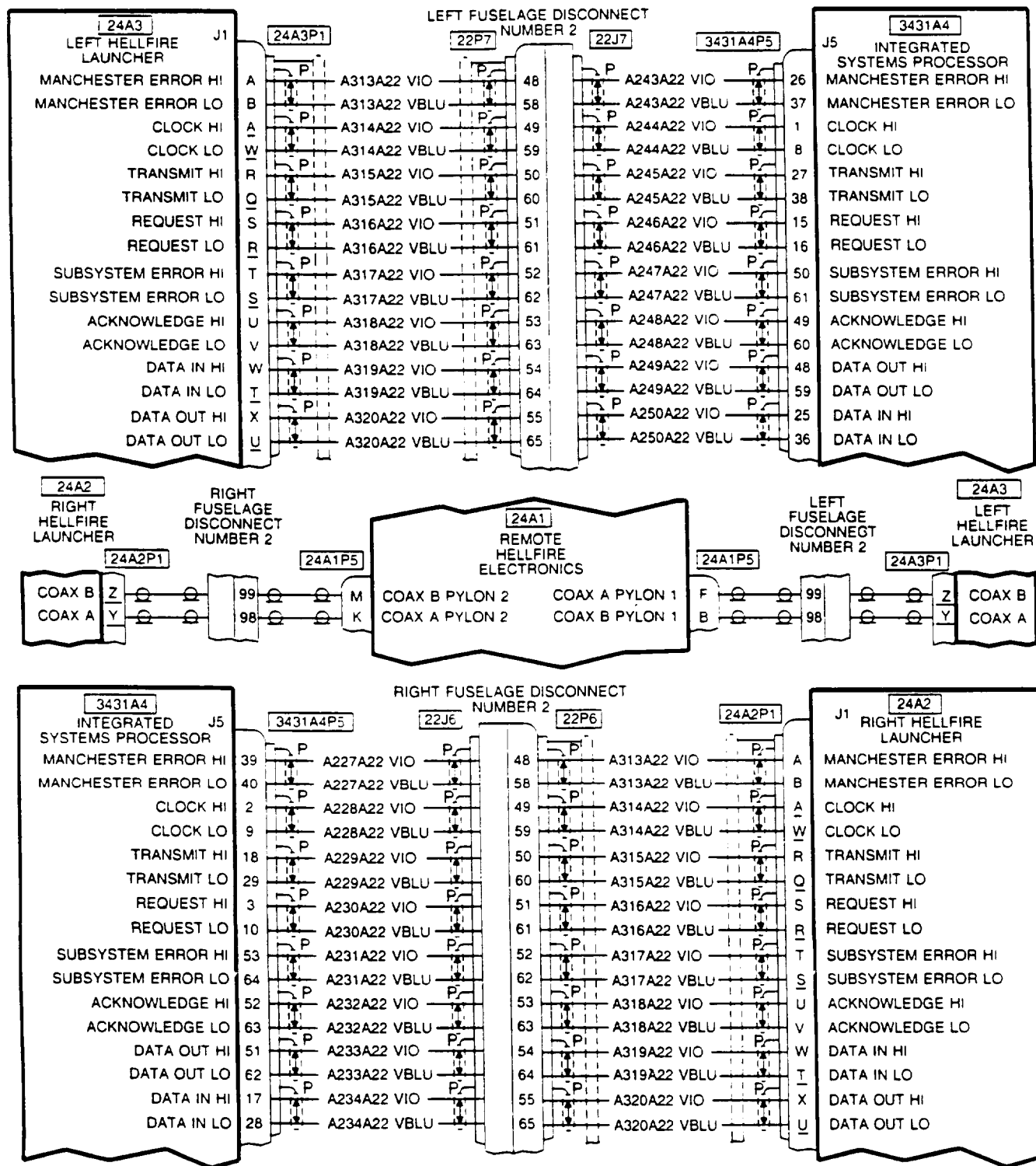
TM55_248_N66_1
H4218

66. MFD SHOWS "SEL" THEN "MF" UNDER HELLFIRE "MSL" IMAGE (CONT)

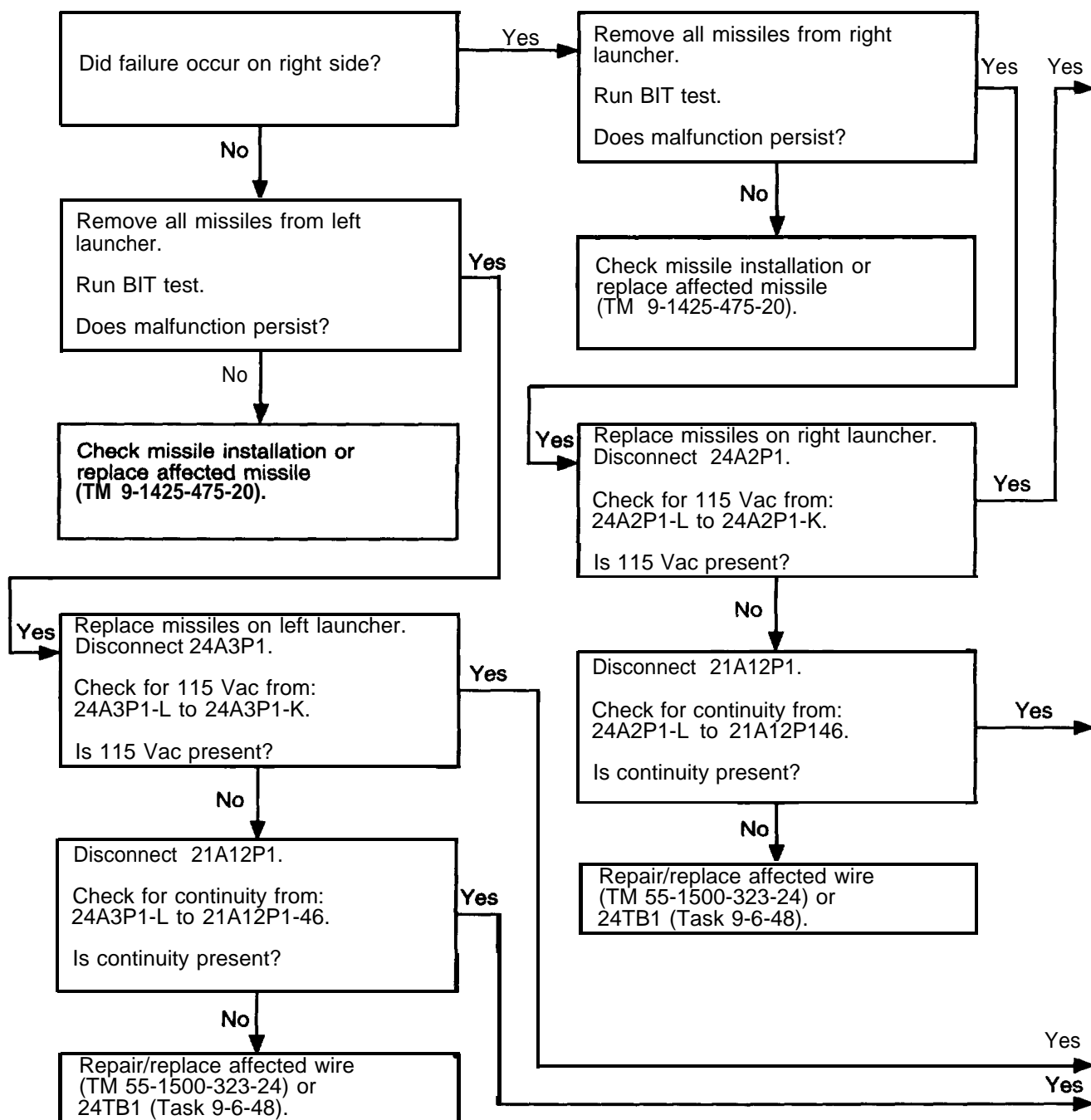


TM55_248_N66_2
H4218

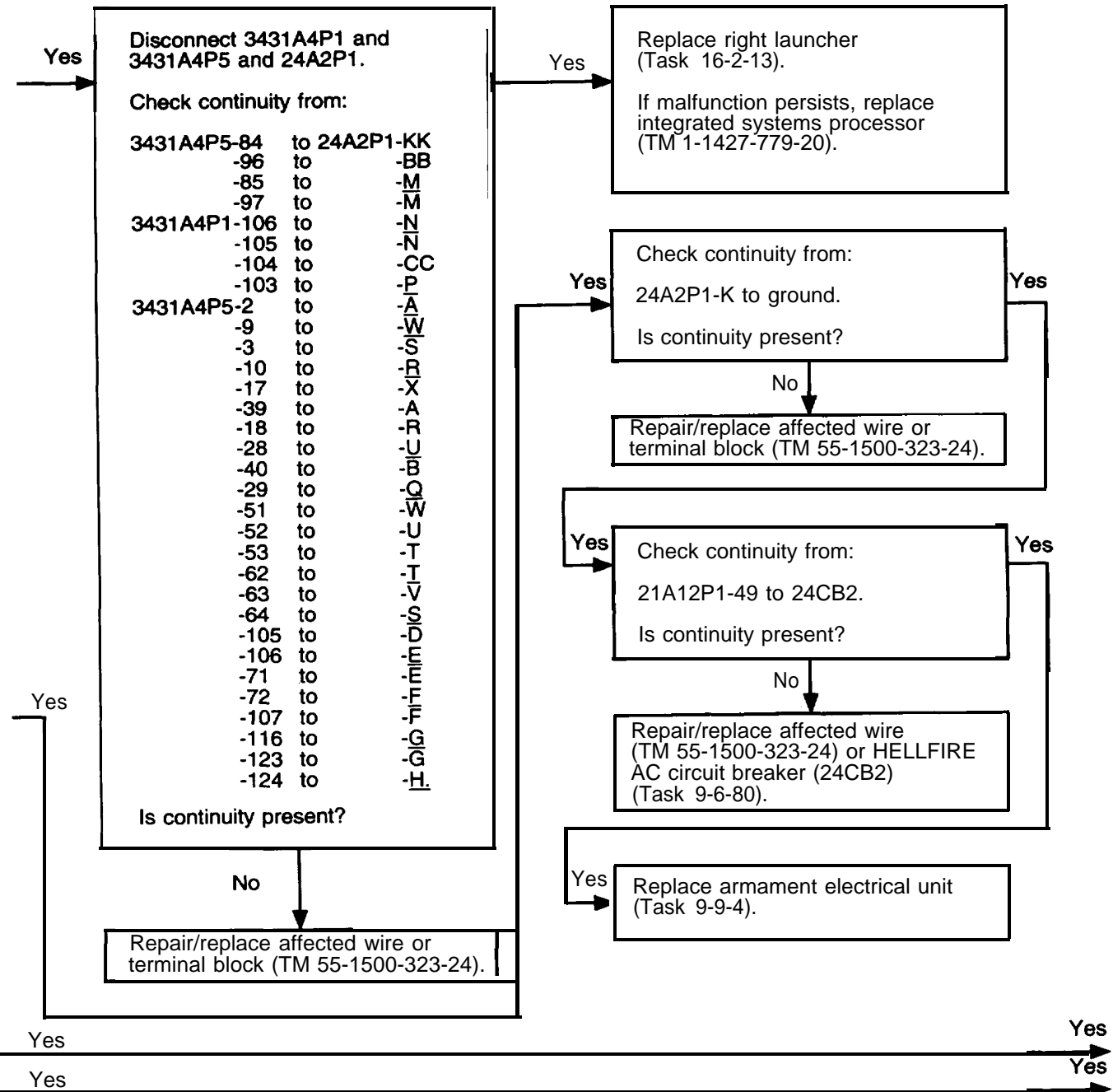
66. MFD SHOWS "SEL" THEN "MF" UNDER HELLFIRE "MSL" IMAGE (CONT)

406900-114
H4216

67. HELLFIRE SYSTEM FAILS LAUNCHER BIT

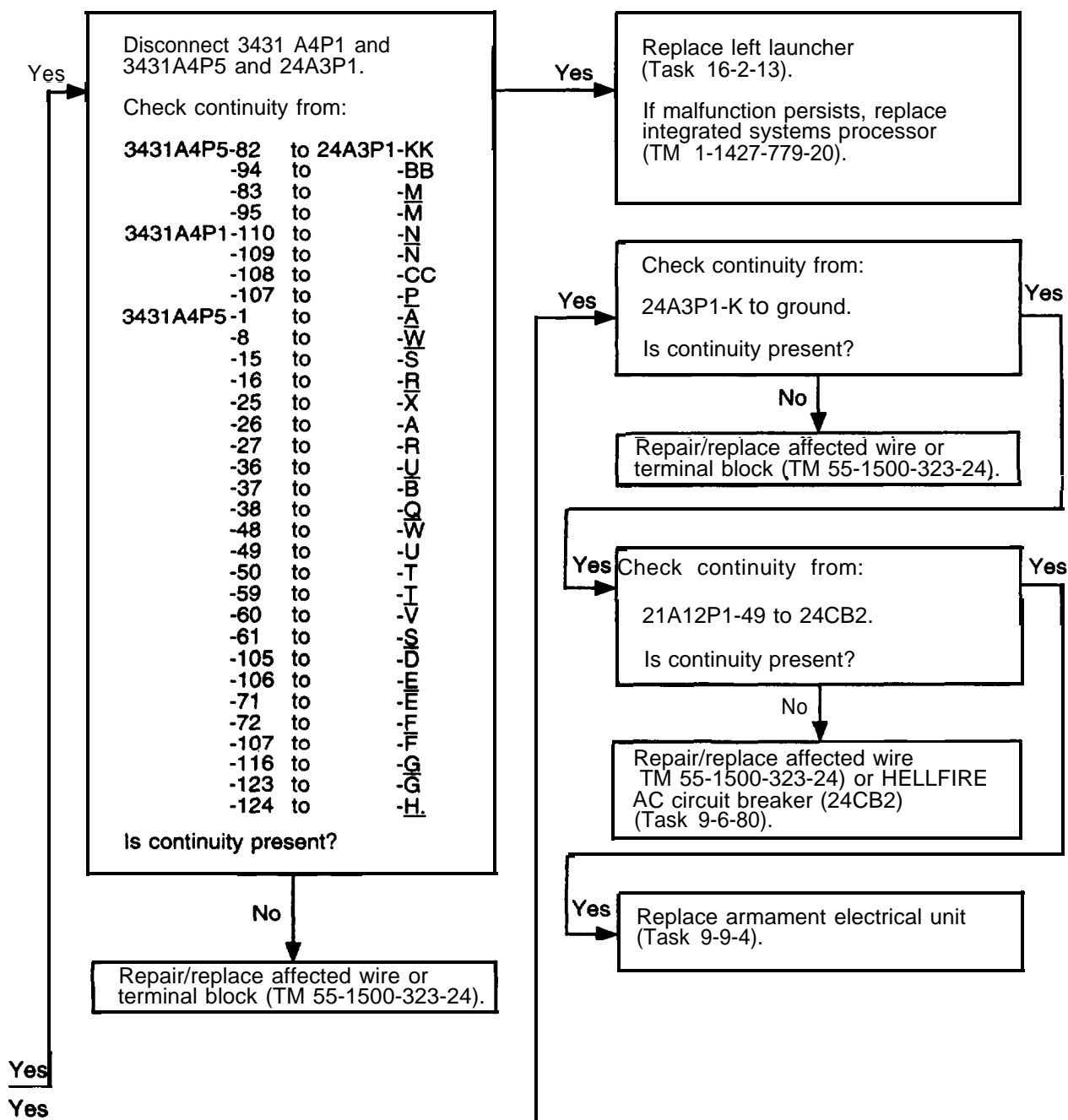
TM55 248_N67_1
H3425

67. HELLFIRE SYSTEM FAILS LAUNCHER BIT (CONT)

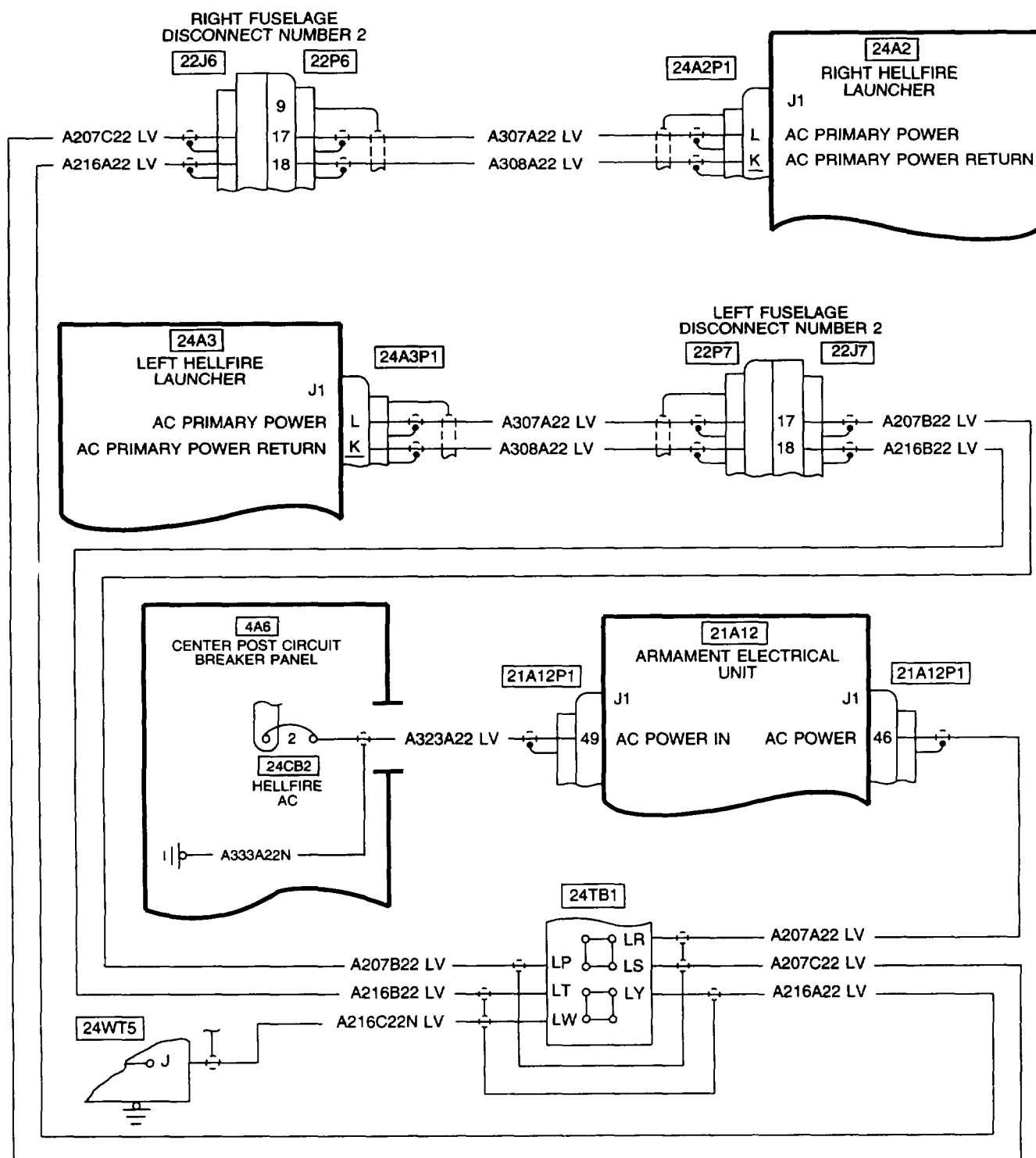


TM55_248_N67_2
H5073

67. HELLFIRE SYSTEM FAILS LAUNCHER BIT (CONT)

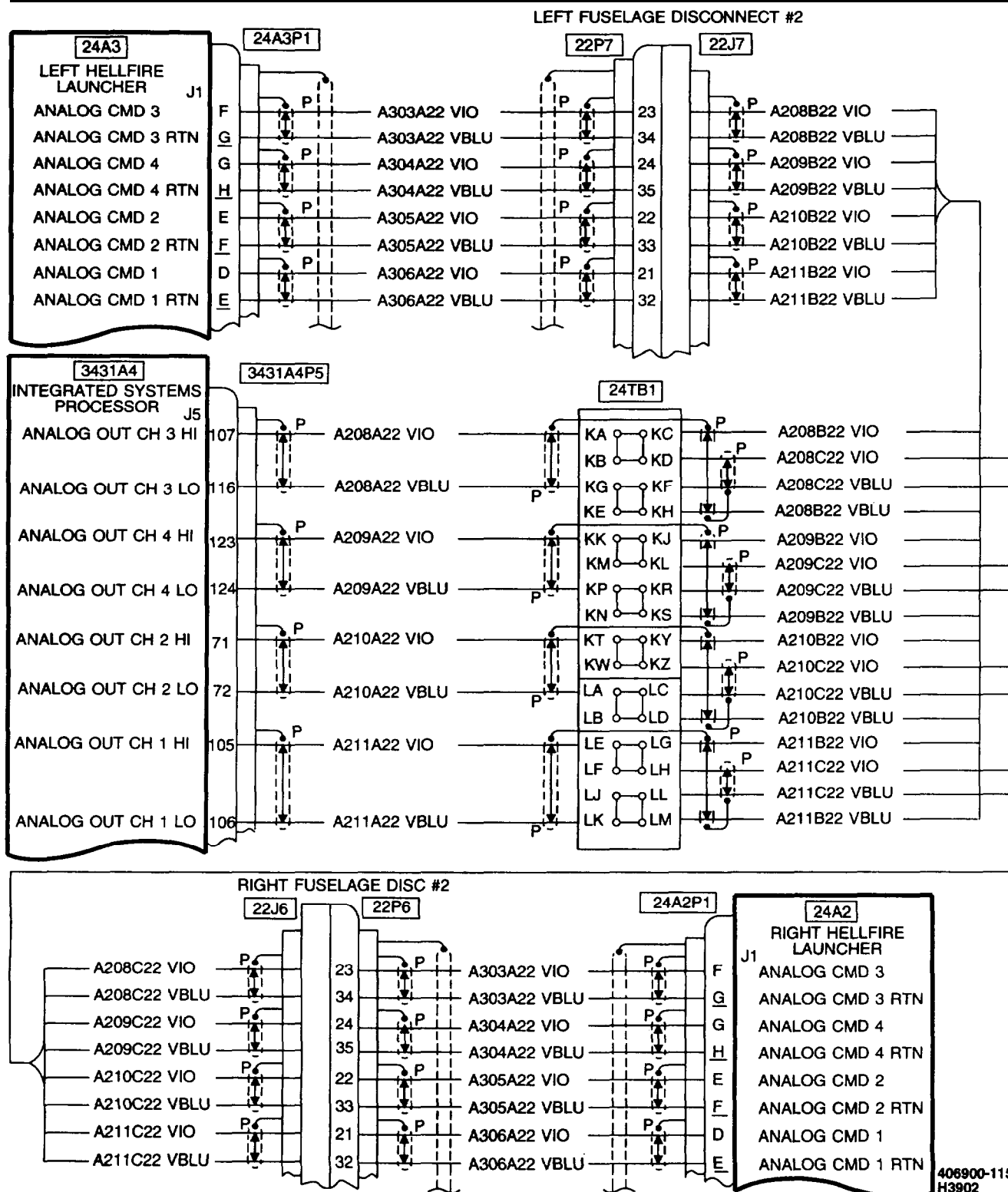
TM55_248_N67_3
H5073

67. HELLFIRE SYSTEM FAILS LAUNCHER BIT (CONT)

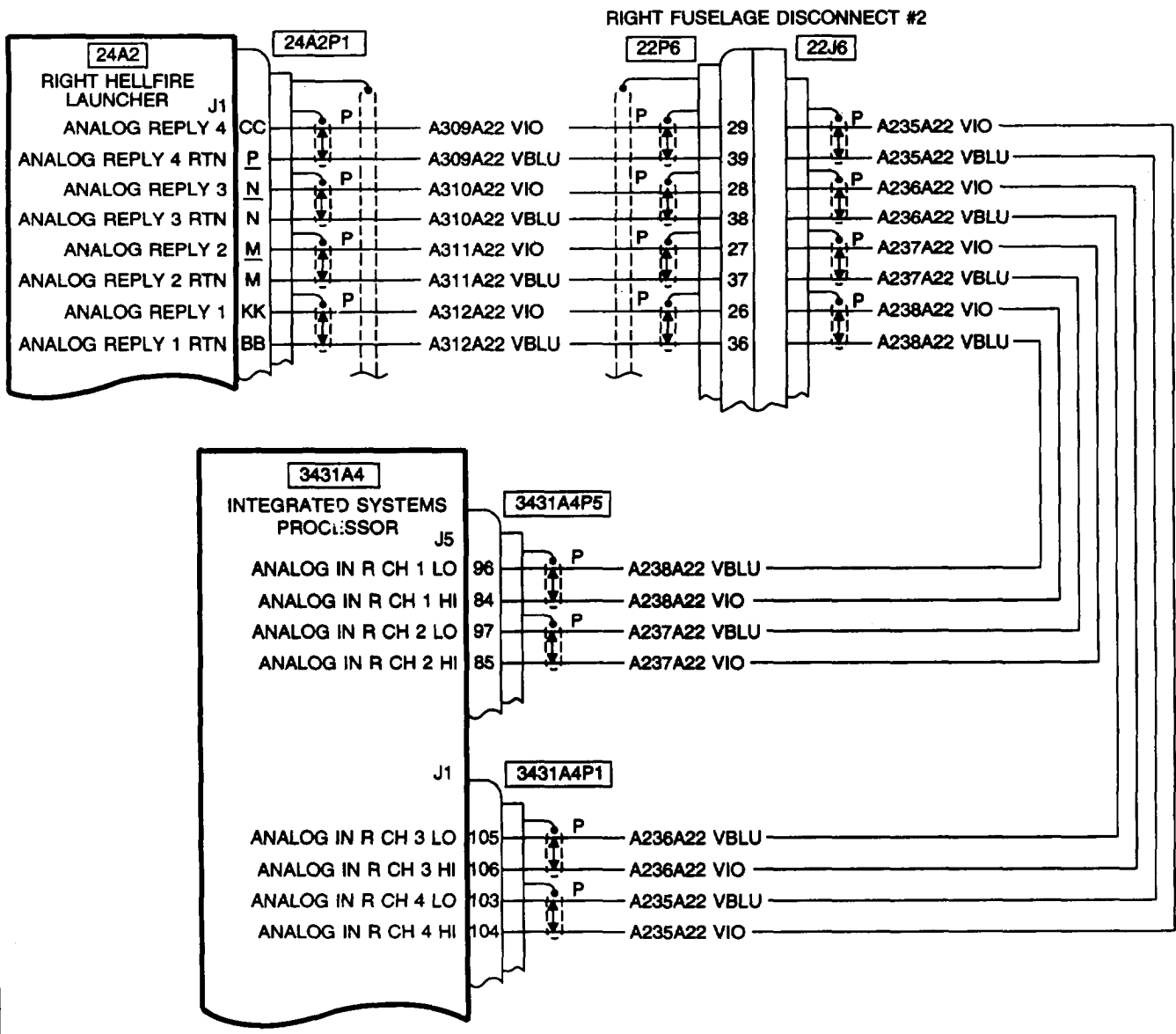


406900-115-1
H3902

67. HELLFIRE SYSTEM FAILS LAUNCHER BIT (CONT)

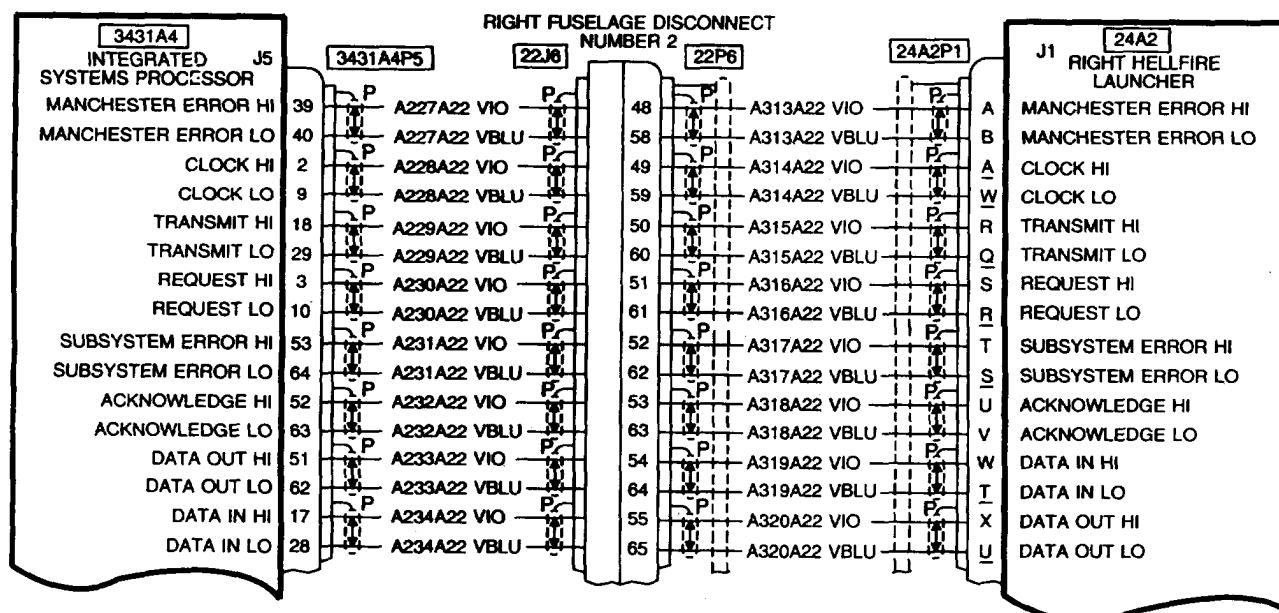
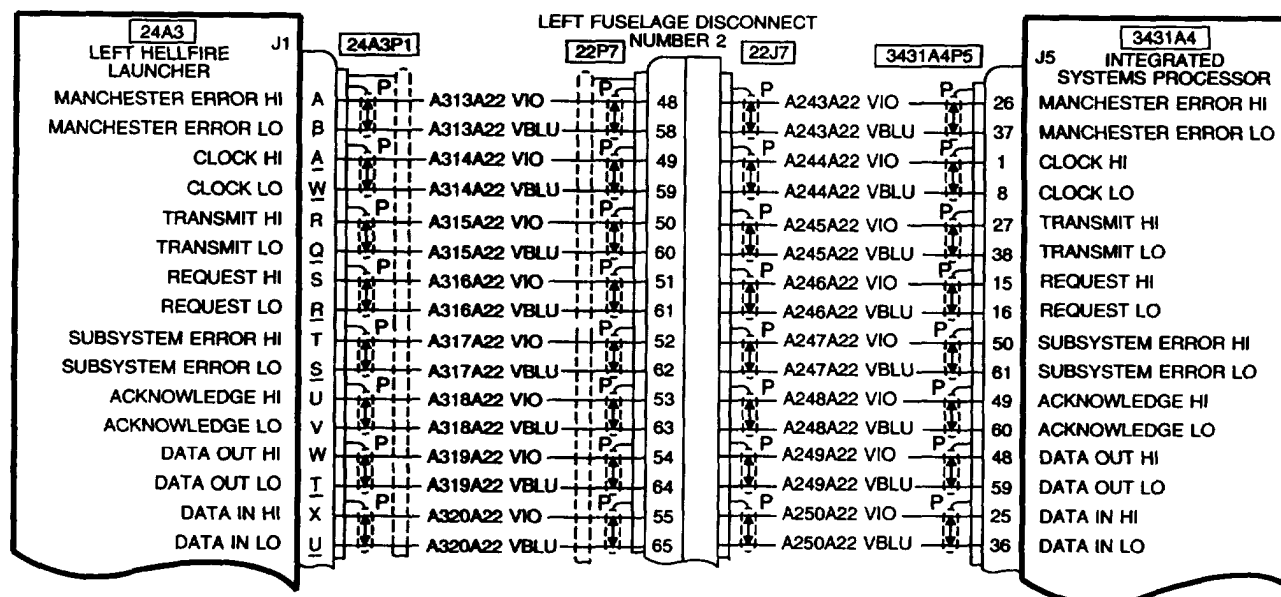


67. HELLFIRE SYSTEM FAILS LAUNCHER BIT (CONT)

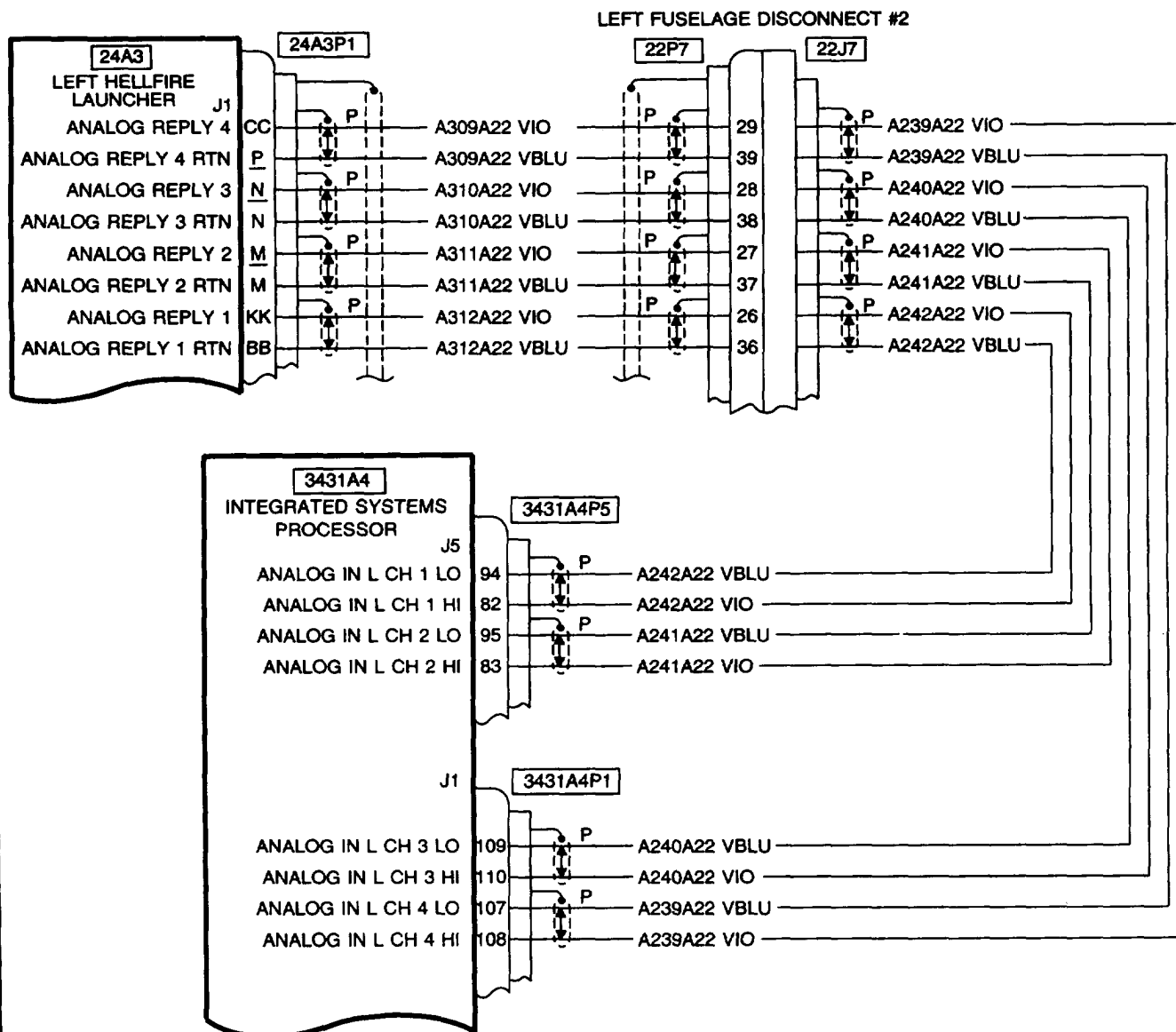


406900-115-3
H3902

67. HELLFIRE SYSTEM FAILS LAUNCHER BIT (CONT)

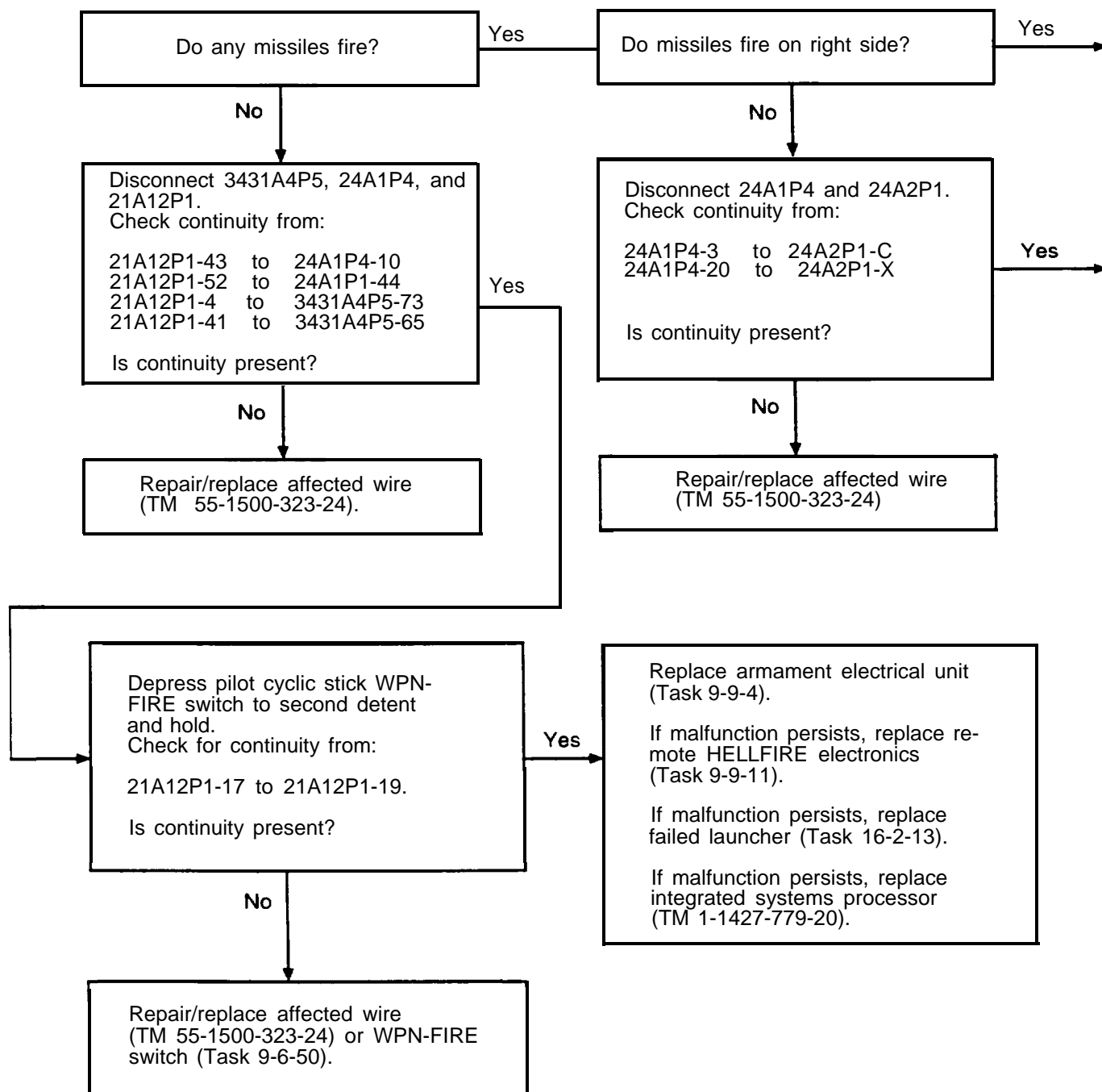
406900-115-4
H5073

67. HELLFIRE SYSTEM FAILS LAUNCHER BIT (CONT)

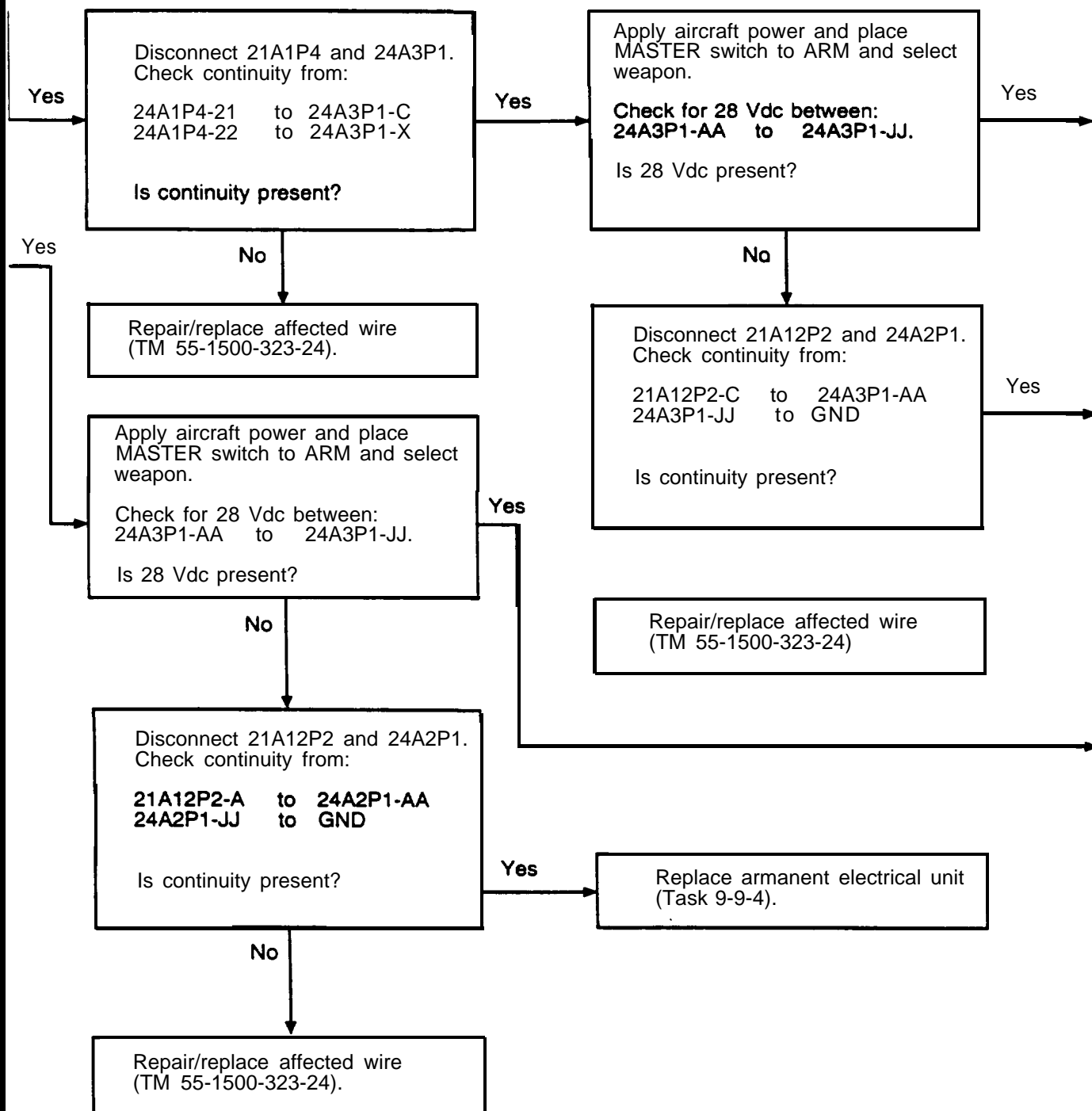


406900-115-5
H3902

68. MFD DISPLAYS HELLFIRE ARMED AND READY BUT CANNOT FIRE MISSILE

TM55_248_N68_1
H4218

68. MFD DISPLAYS HELLFIRE ARMED AND READY BUT CANNOT FIRE MISSILE (CONT)

TM55_248_N68_2
H4218

68. MFD DISPLAYS HLLFIRE ARMED AND READY BUT CANNOT FIRE MISSILE (CONT)

Yes

Replace defective missile
(TM 9-1440-431-23).

If malfunction persists, replace
failed launcher (Task 16-2-13).

If malfunction persists, replace
remote HELLFIRE electronics
(Task 9-9-11).

If malfunction persists, replace
integrated systems processor
(TM 1-1427-779-20).

Yes

Replace armament electrical unit
(Task 9-9-4).

Yes

Replace defective missile
(TM 9-1440-431 -23).

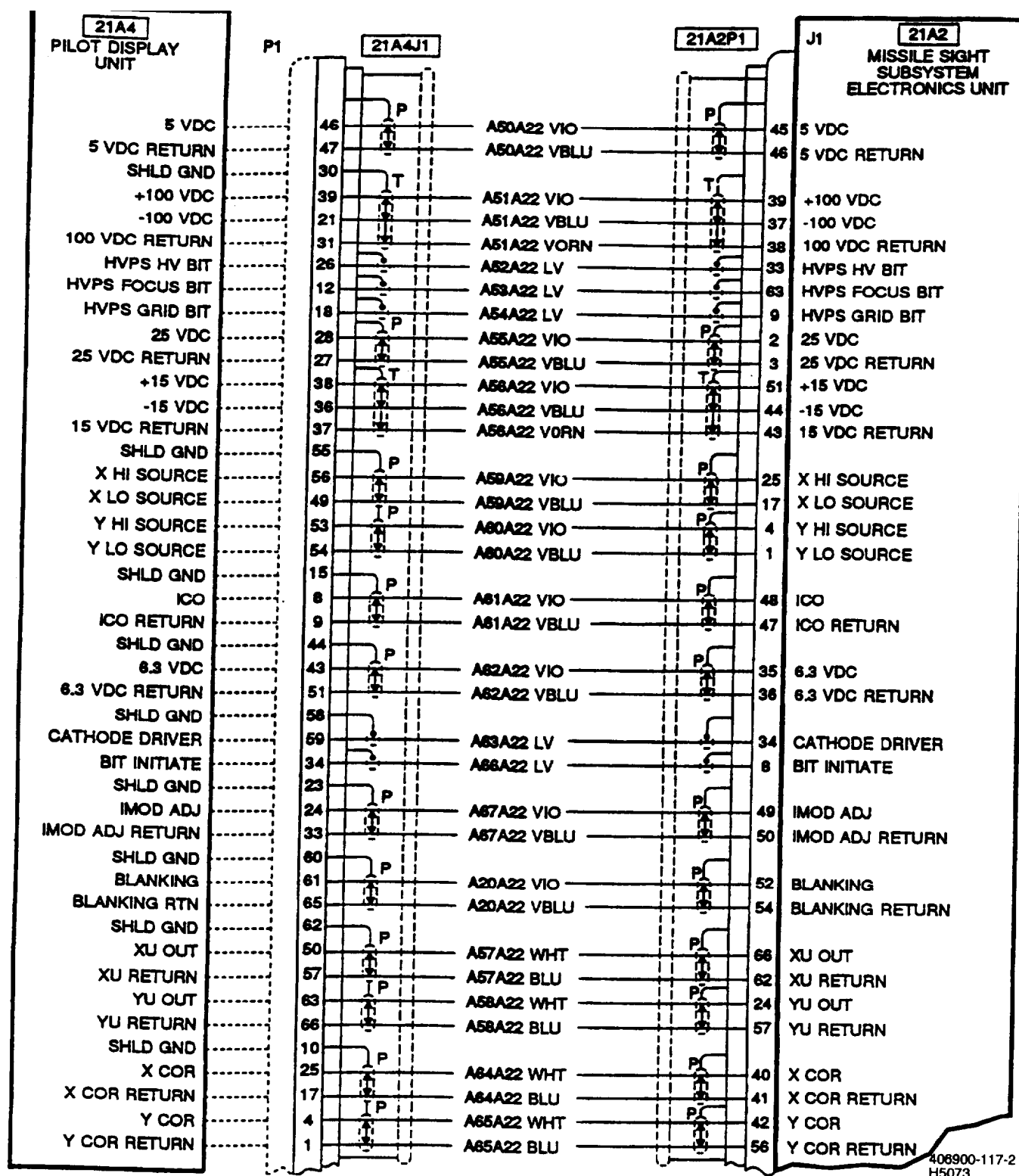
If malfunction persists, replace
failed launcher (Task 16-2-13).

If malfunction persists, replace
remote HELLFIRE electronics
(Task 9-9-11).

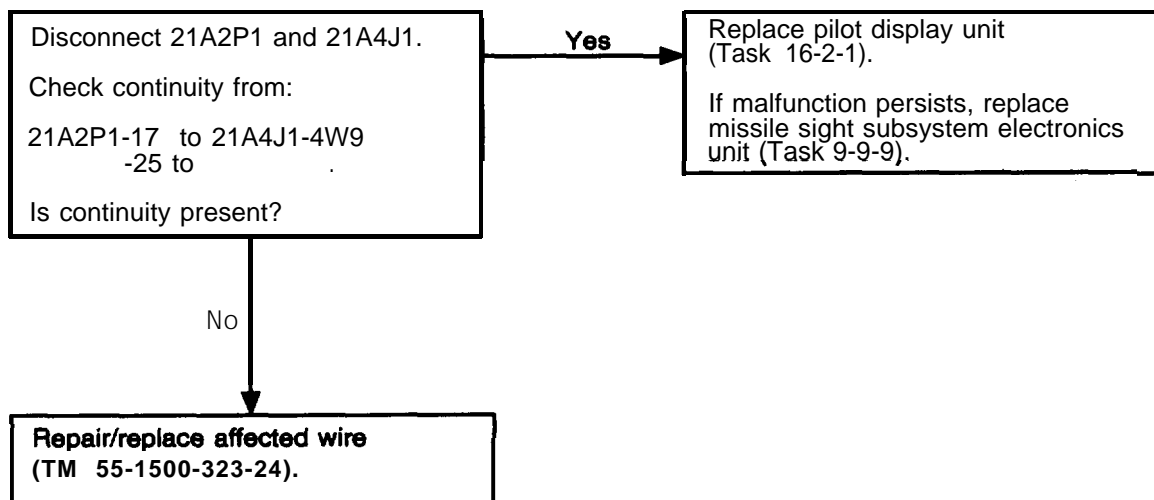
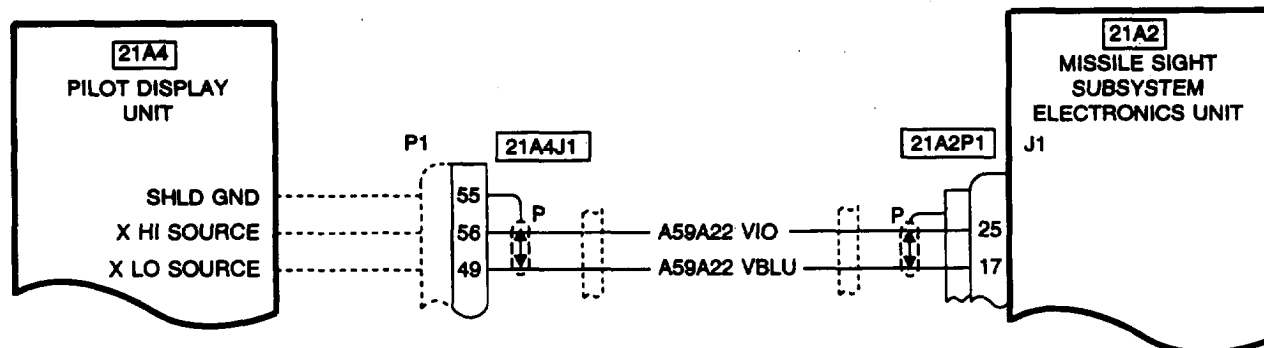
If malfunction persists, replace
integrated systems processor
(TM 1-1427-779-20).

TM55_248_N68_3
H4218

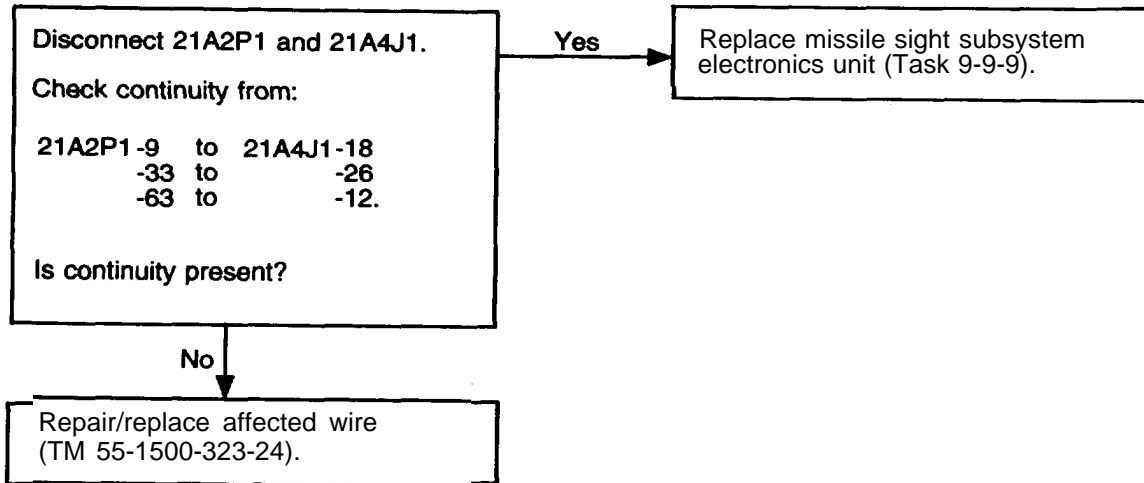
69. PILOT DISPLAY UNIT (PDU) FAILS TO POWER UP (CONT)



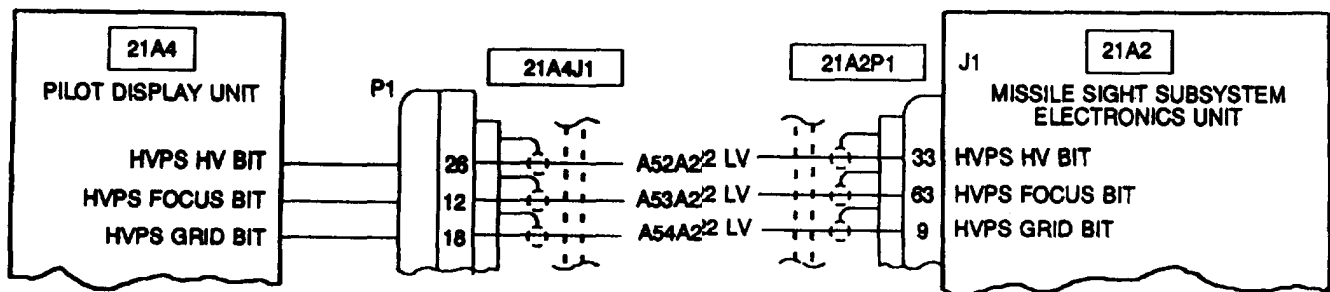
70. PDU DISPLAYS VERTICAL DASHED LINE

TM55_248_N70
H3425406900-118
H3426

71. MSS FAILS BIT

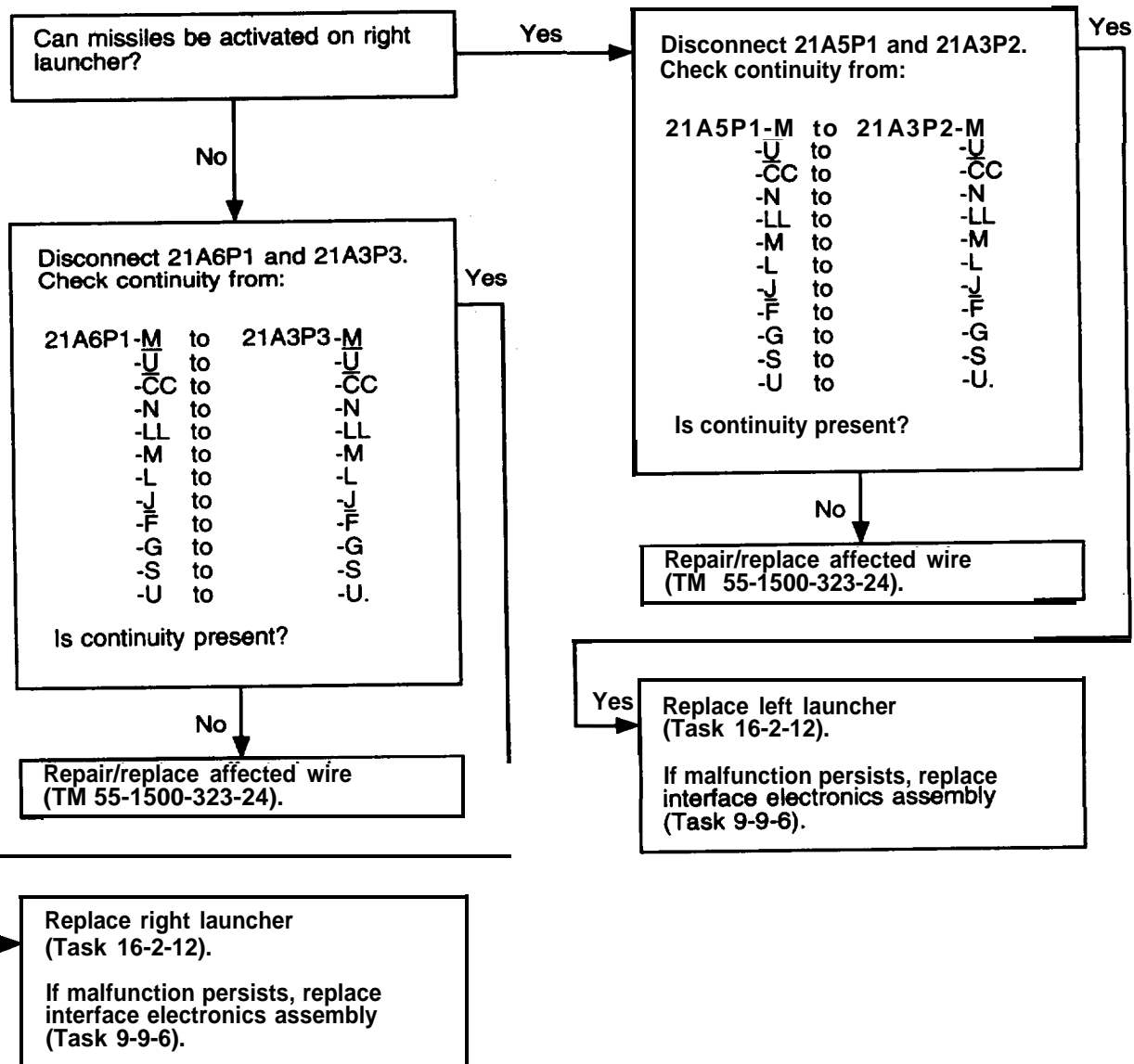


TM55_248_N71
H3425

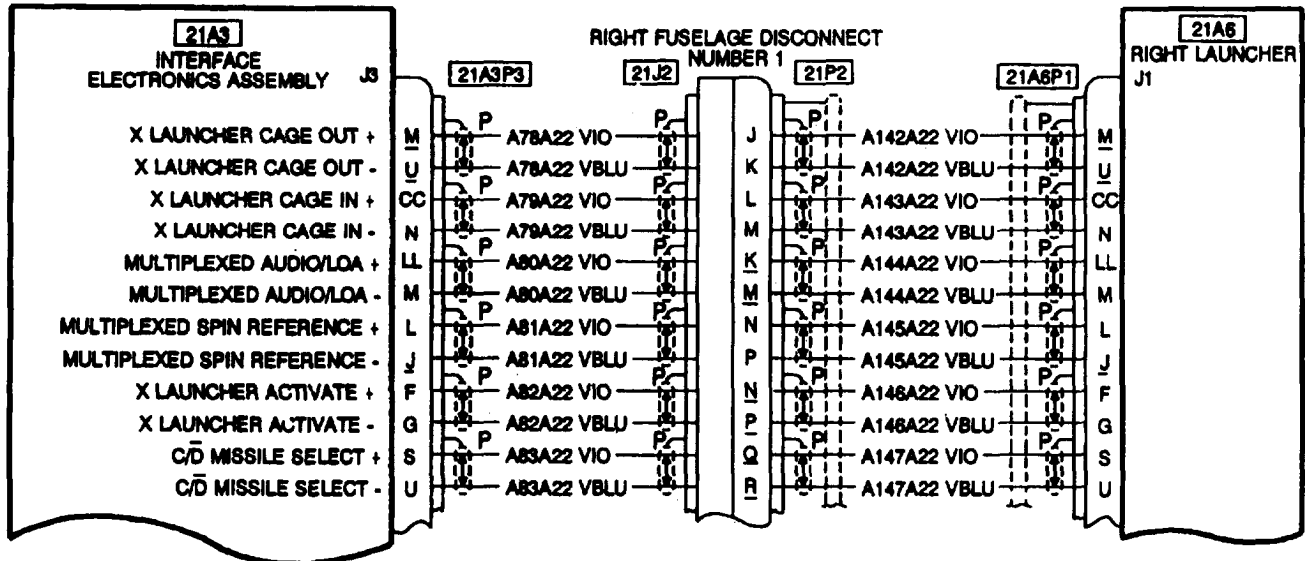
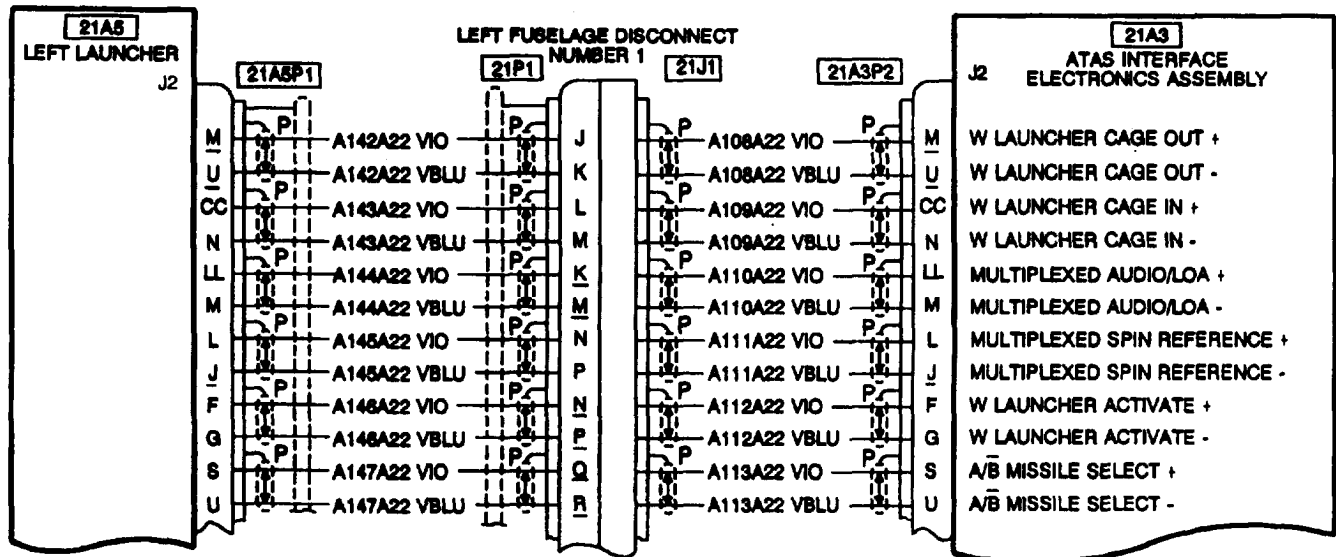


406800-131
H3802

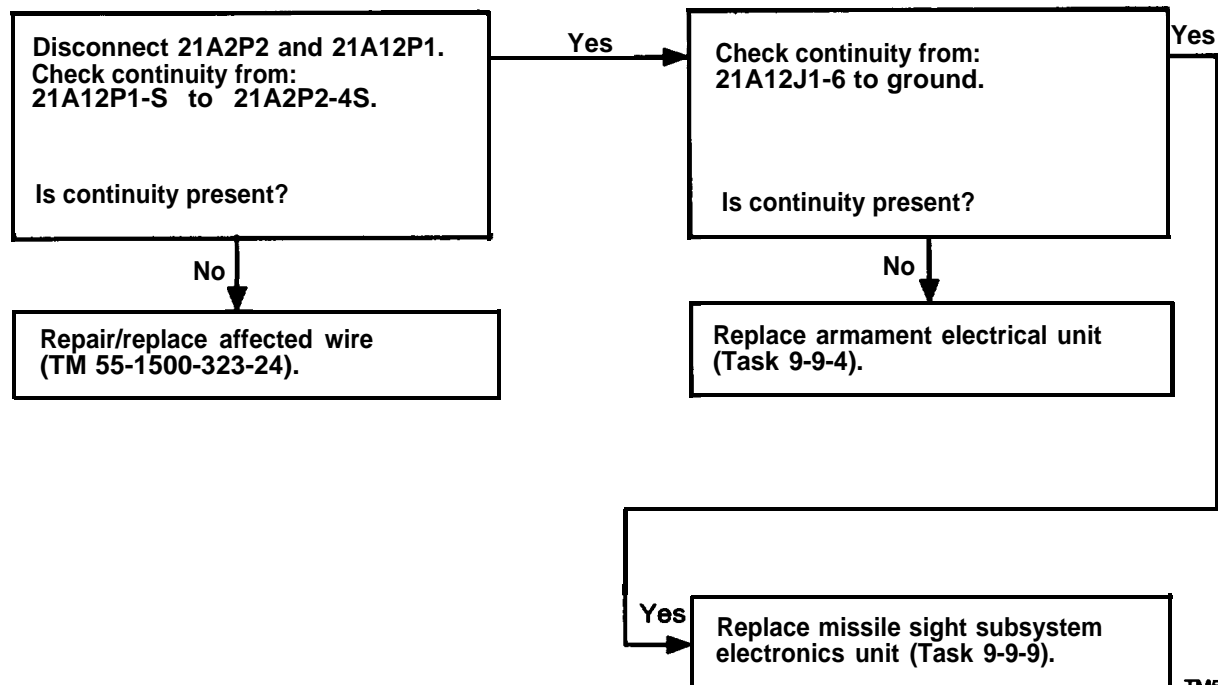
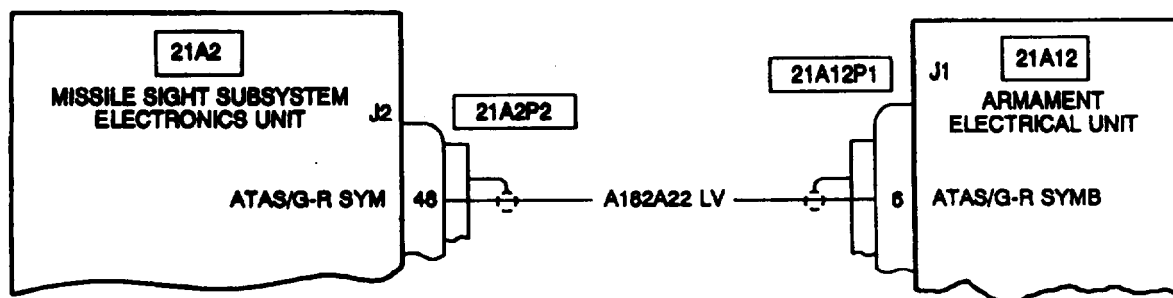
72. WITH ATAS AUTO CAGE SELECTED, ACTIVATING MISSILE CAUSES FIRST MISSILE TO ACTIVATE AND THEN DEACTIVATE, AND SECOND MISSILE TO ACTIVATE AND THEN DEACTIVATE. MISSILE IMAGES REMAIN, BUT CANNOT BE REACTIVATED



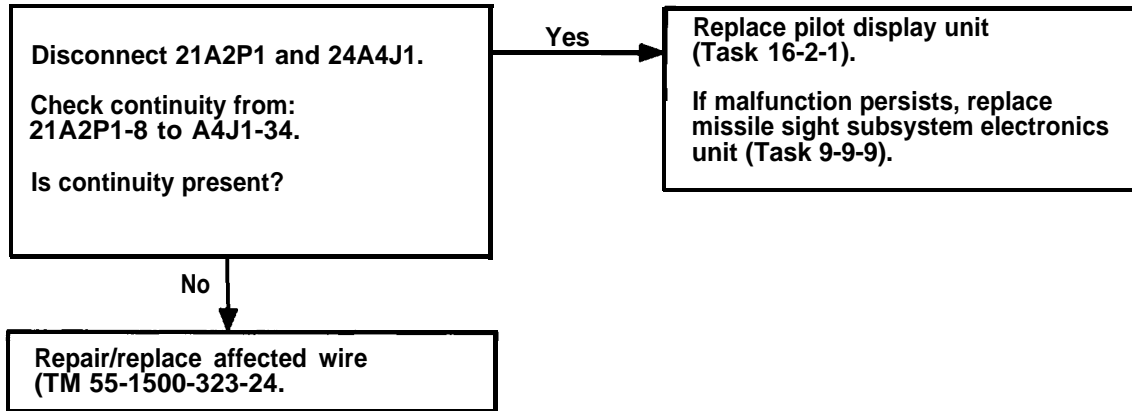
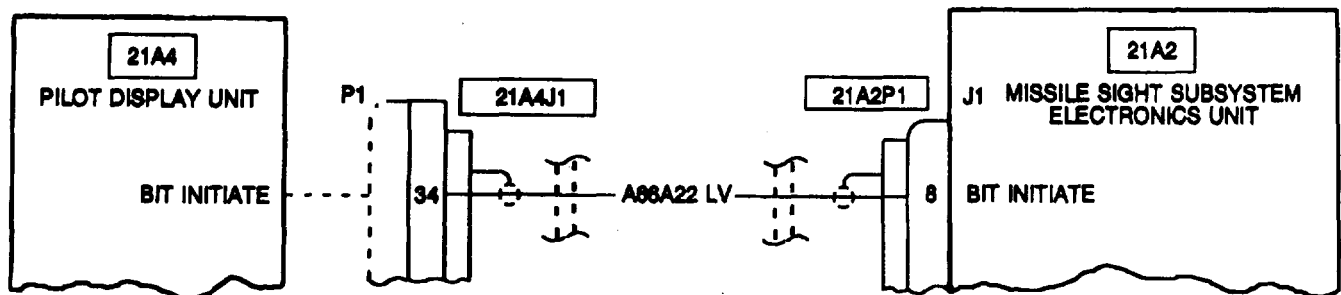
72. WITH ATAS AUTO CAGE SELECTED, ACTIVATING MISSILE CAUSES FIRST MISSILE TO ACTIVATE AND THEN DEACTIVATE, AND SECOND MISSILE TO ACTIVATE AND THEN DEACTIVATE. MISSILE IMAGES REMAIN, BUT CANNOT BE REACTIVATED (CONT)



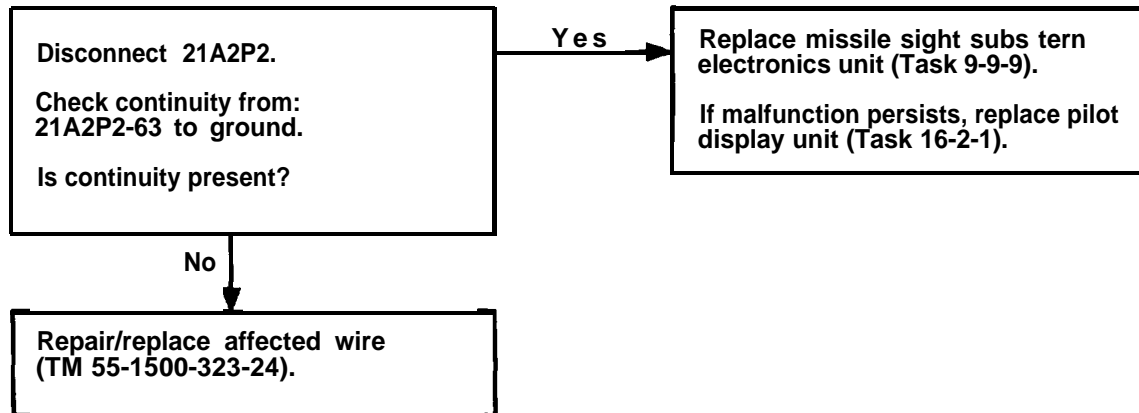
406900-119
H5073

**73. PDU DOES NOT DISPLAY GUN RETICLE WITH GUN INSTALLED AND SELECTED
(PDU DISPLAYS ATAS)**
TM55_248_N73
H5073

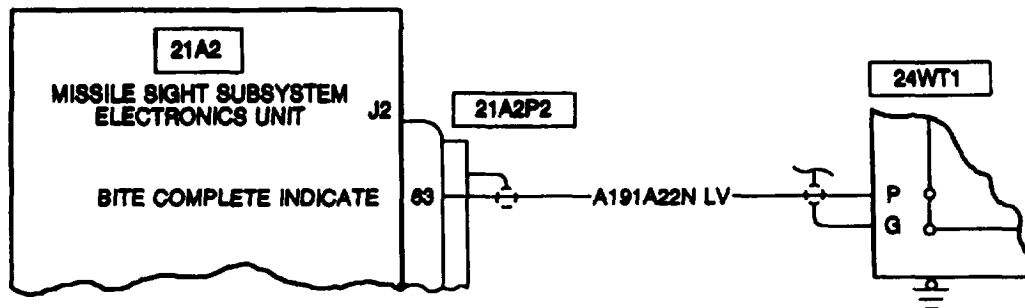
74. MSS FAILS TO PERFORM BIT

TM55_248_N74
H3425406900-133
H5073

75. IF BIT IS INITIATED, PDU DISPLAYS TEST FOR APPROXIMATELY 15 SECONDS, THEN PDU DISPLAYS "FAIL IEU" (INTERFACE ELECTRONICS UNIT)

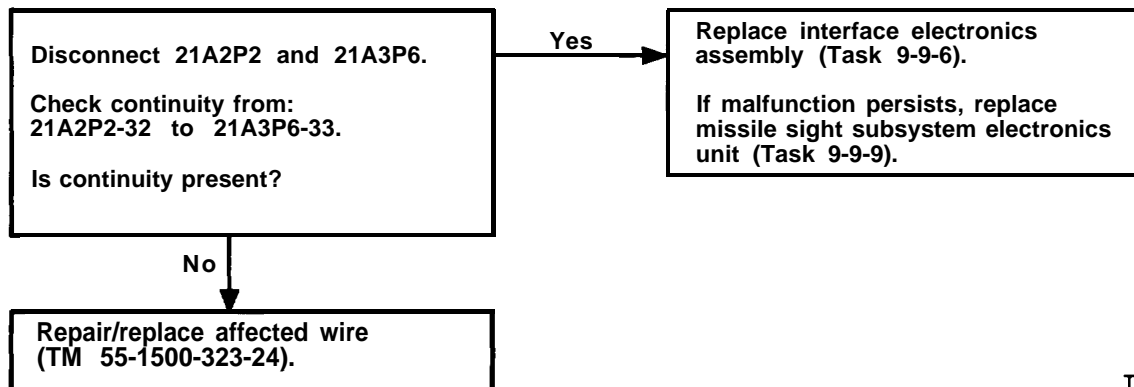


TM55_248_N75
H5073

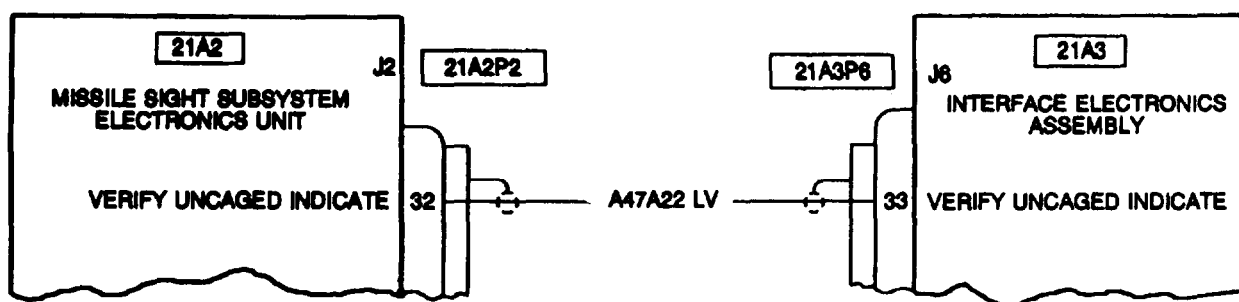


408800-134
H3802

76. ATAS TRACKING RETICLE DOES NOT APPEAR ON PDU WHEN IN MANUAL WITH MISSILE ARMED, SELECTED, AND FIRE SWITCH PRESSED TO THE FIRST DETENT

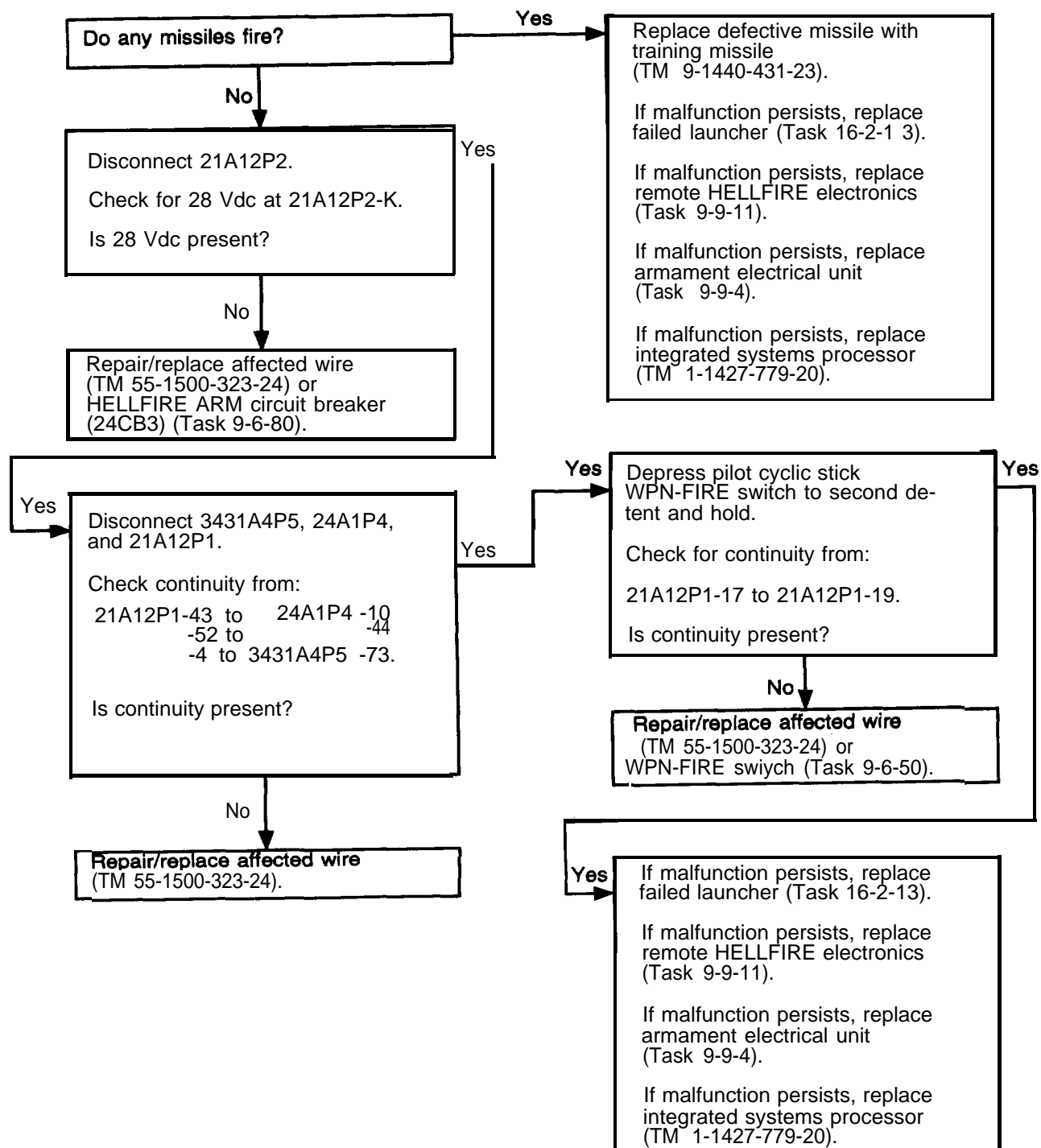


TM55_248_N76
H3425

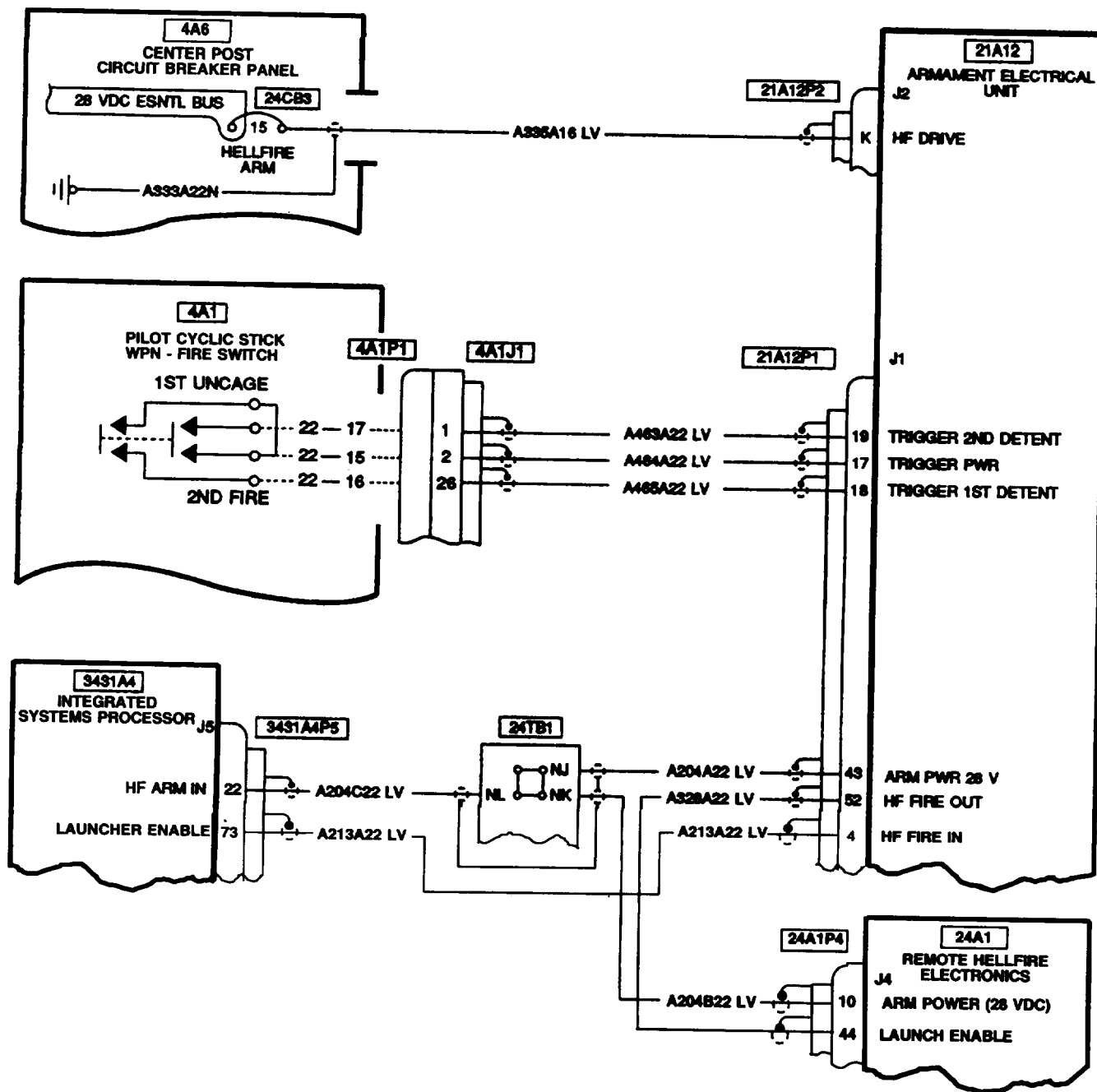


408800-135
H3802

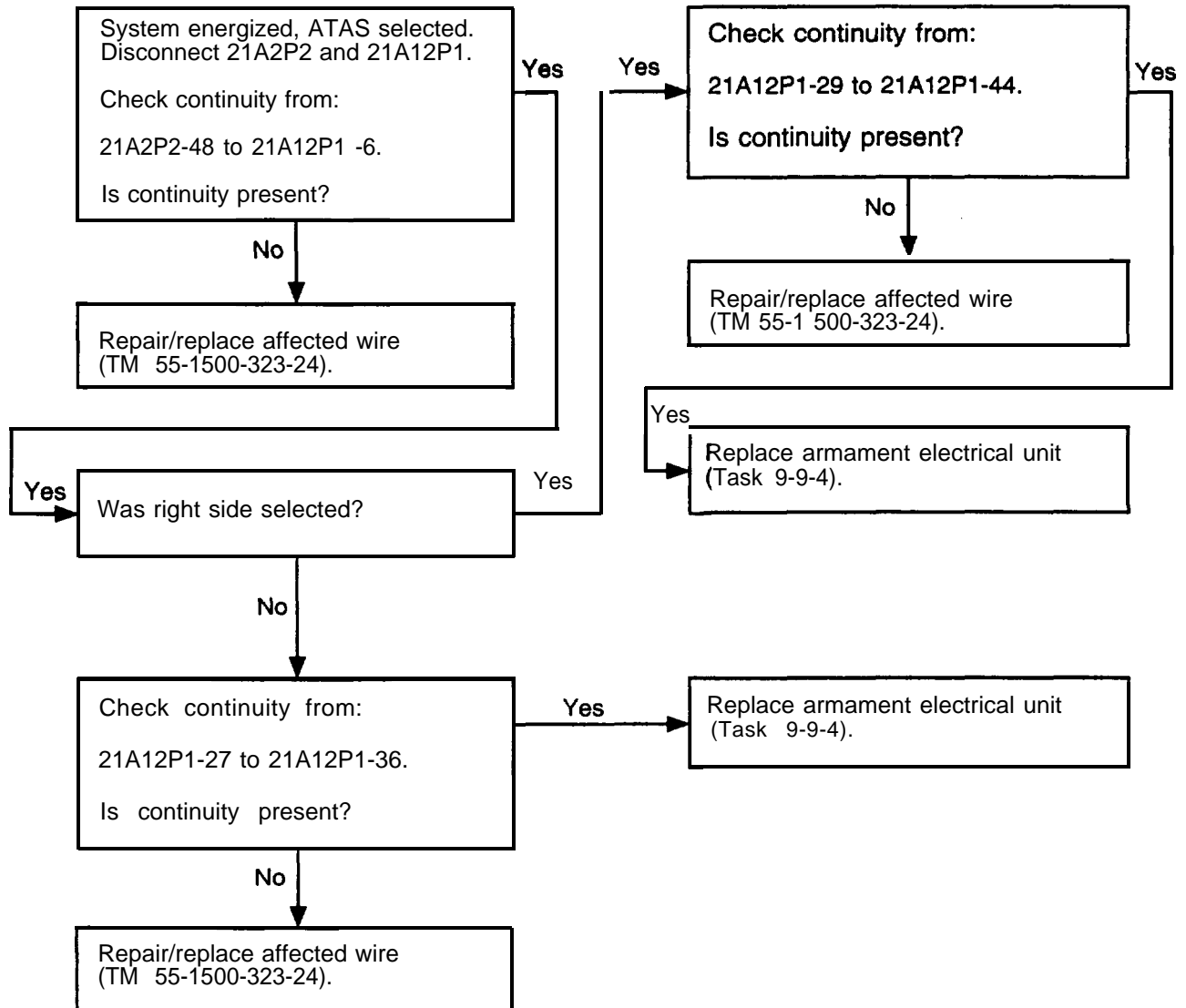
77. HELLFIRE MISSILE WILL NOT FIRE

TM55_248_N77
H5073

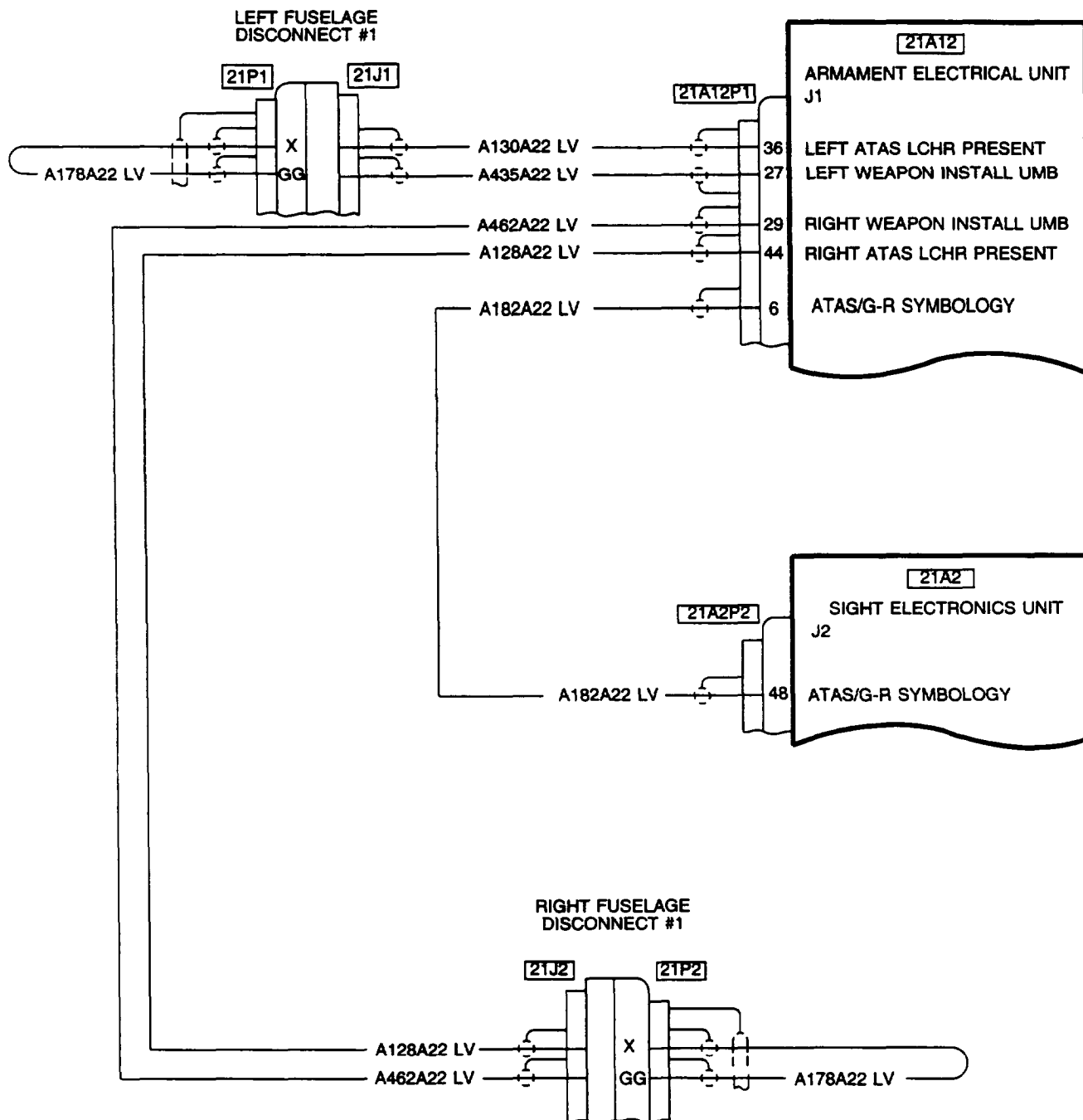
77. HELLFIRE MISSILE WILL NOT FIRE (CONT)

406900-142
H5073

78. PDU DISPLAYS GUN RETICLE WITH ATAS INSTALLED

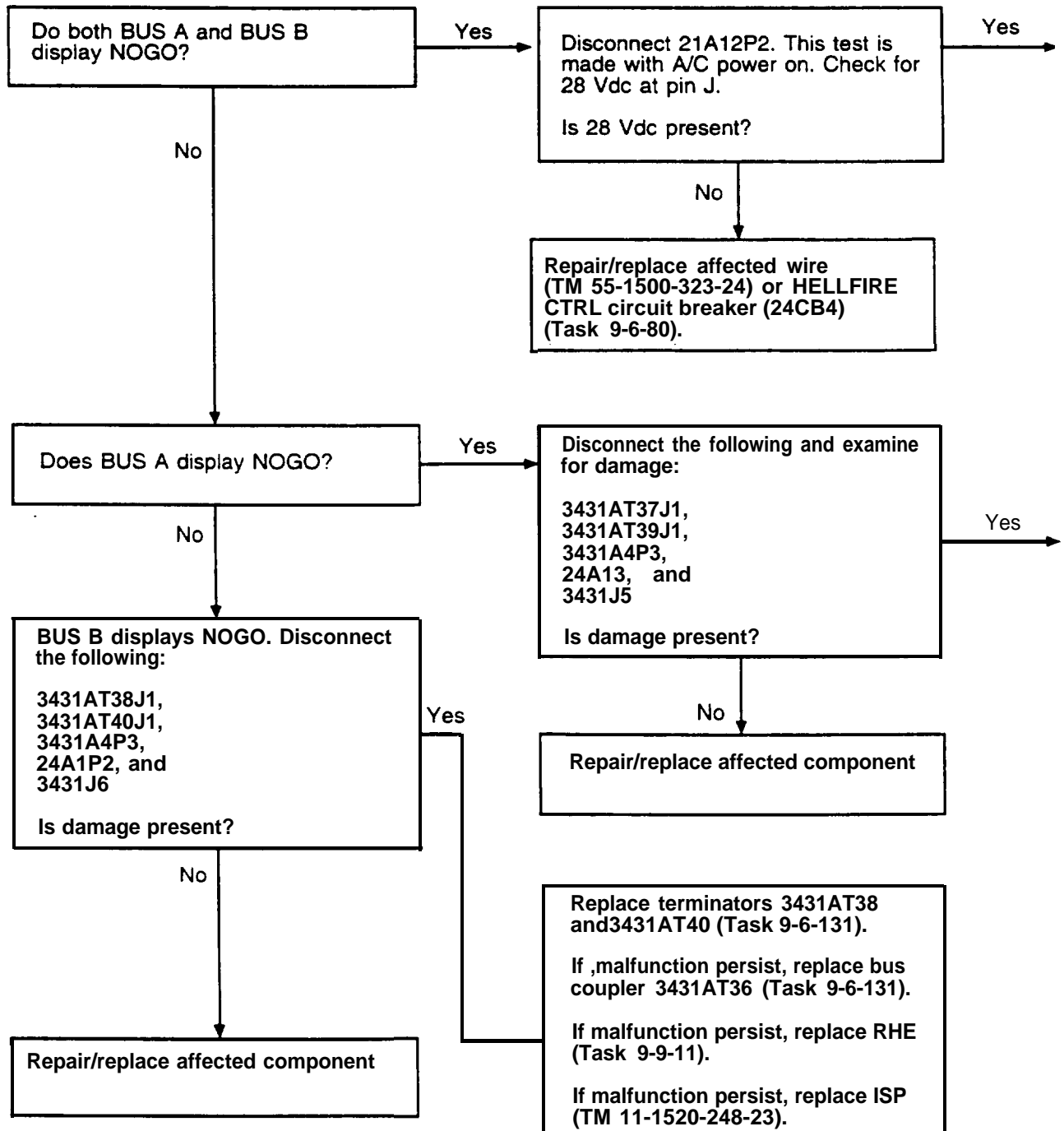


78. PDU DISPLAYS GUN RETICLE WITH ATAS INSTALLED (CONT)

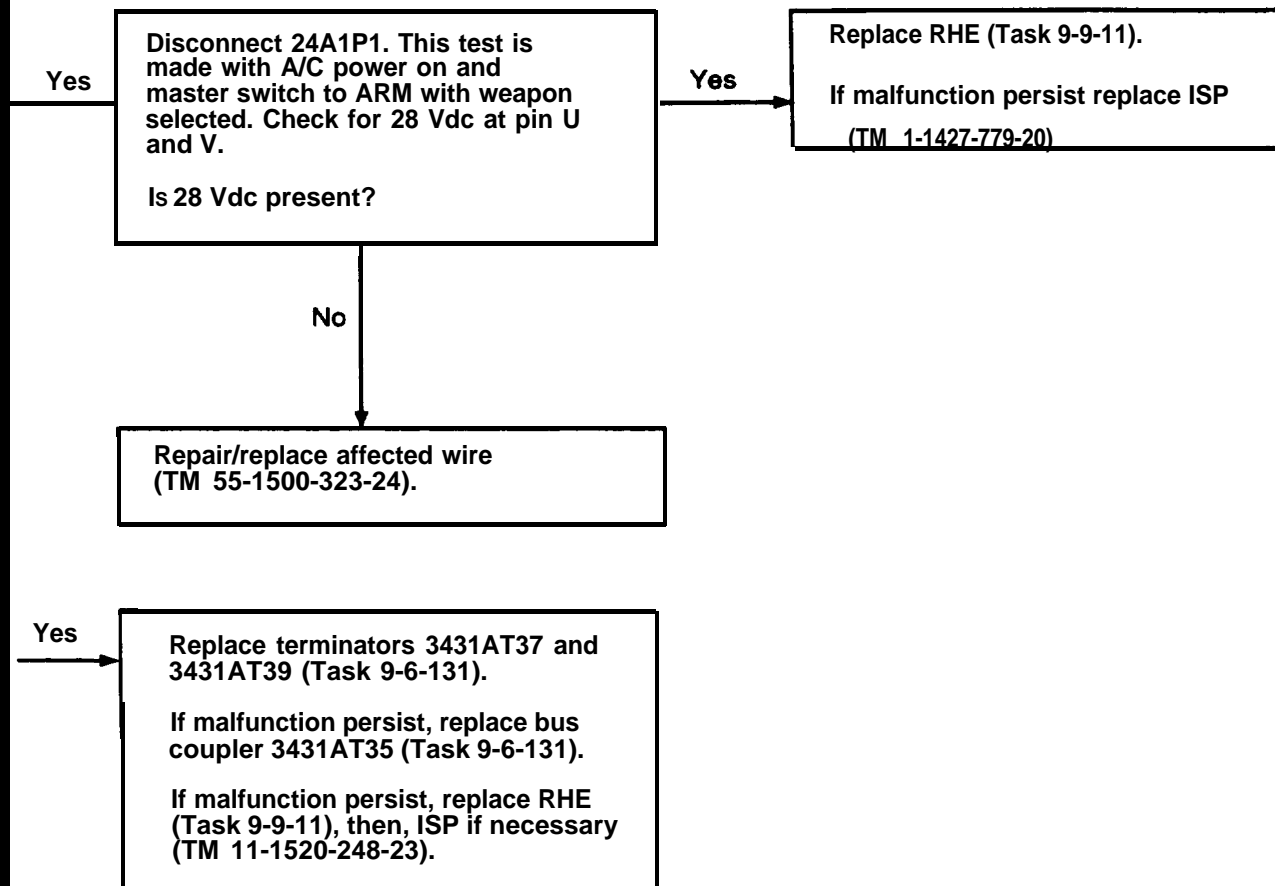


406900-108
H3545

79. RHE INDICATES NOGO ON MUX BUS STATUS PAGE

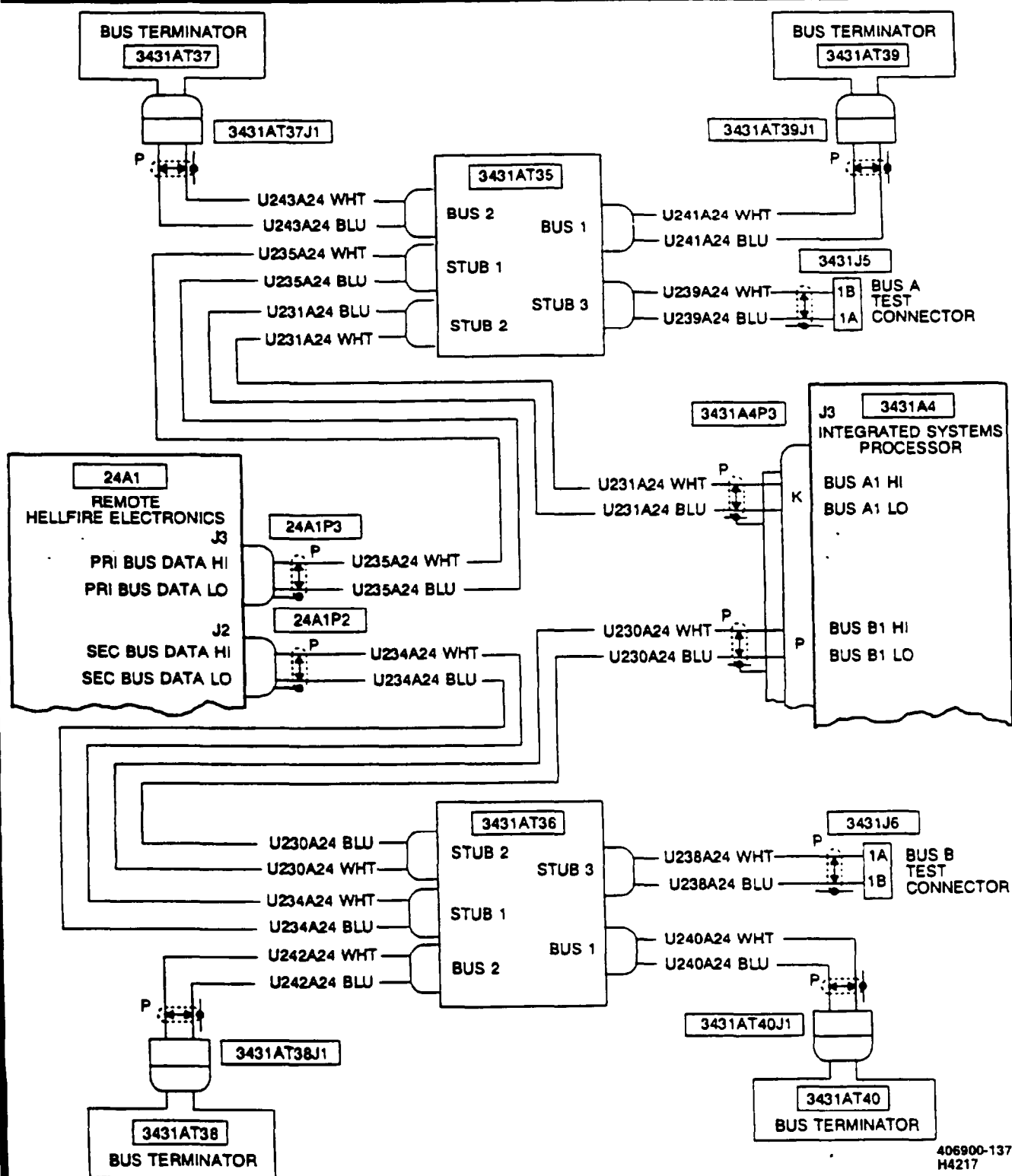
TM55_248_N79_1
H4218

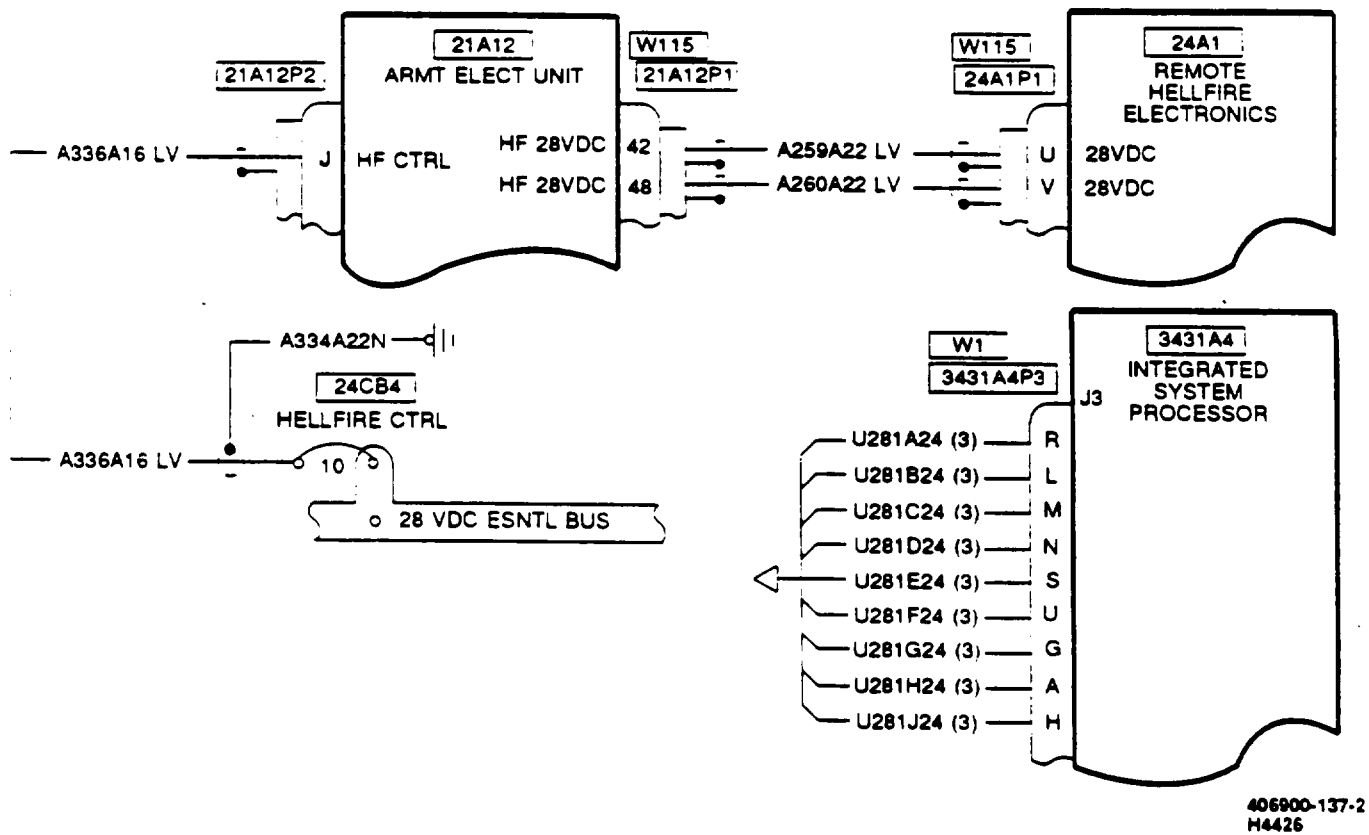
79. RHE INDICATES NOGO ON MUX BUS STATUS PAGE (CONT)

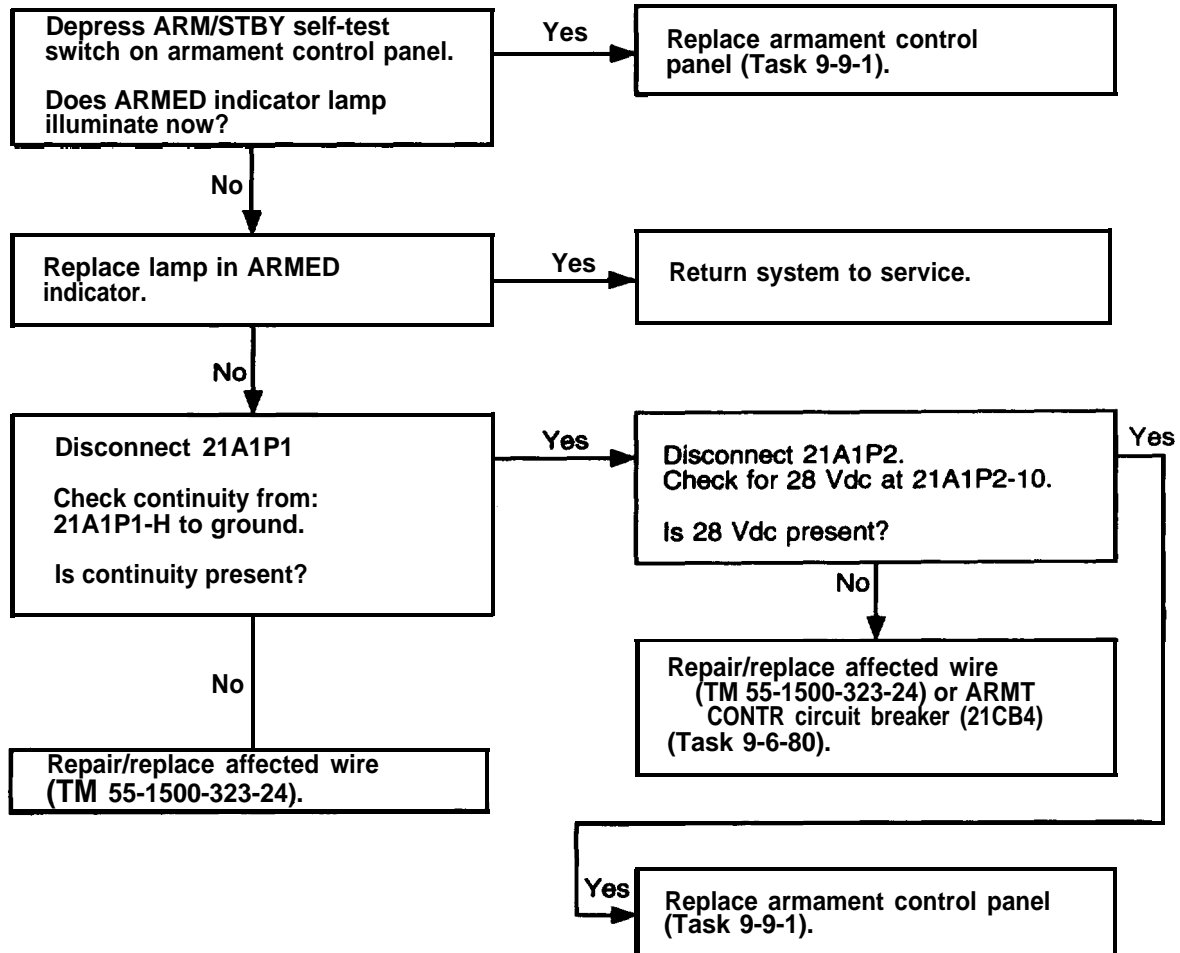


TM55_248_N79_2
H4218

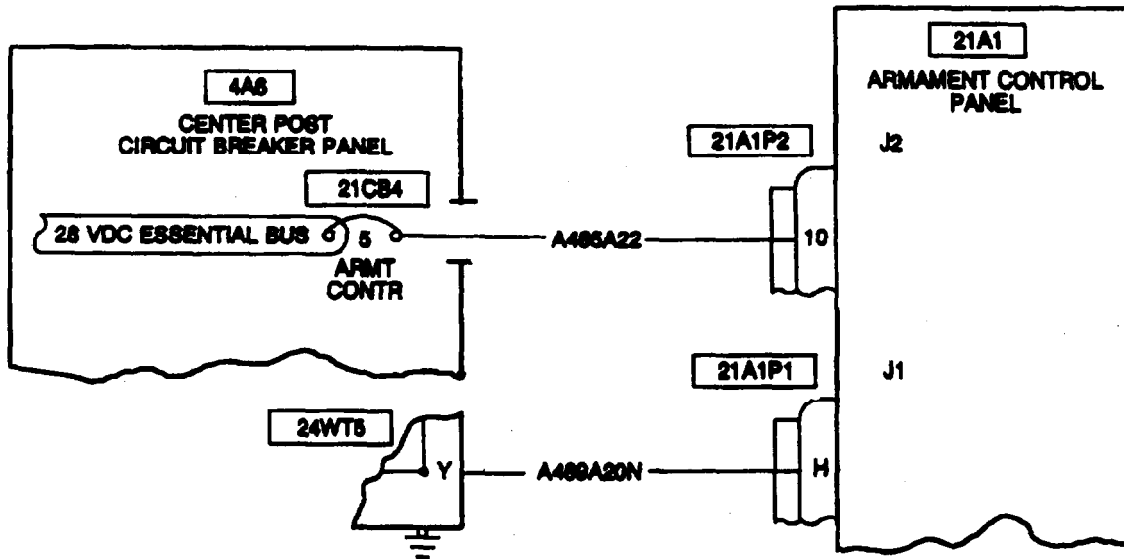
79. RHE INDICATES NO GO ON MUX BUS STATUS PAGE (CONT)





80. WHEN MASTER ARM SWITCH SET TO ARMED, ARMED INDICATOR DOES NOT COME ONTM55_248_N80
H3425

80. WHEN MASTER ARM SWITCH SET TO ARMED, ARMED INDICATOR DOES NOT COME ON (CONT)



408900-138
H5073

81. TRACKER FAIL

Refer to TM 11-1520-248-23, Appendix G for troubleshooting procedures.

82. MMS LASER FAIL

Refer to TM 11-1520-248-23, Appendix G for troubleshooting procedures.

83. TB FAIL

Refer to TM 11-1520-248-23, Appendix G for troubleshooting procedures.

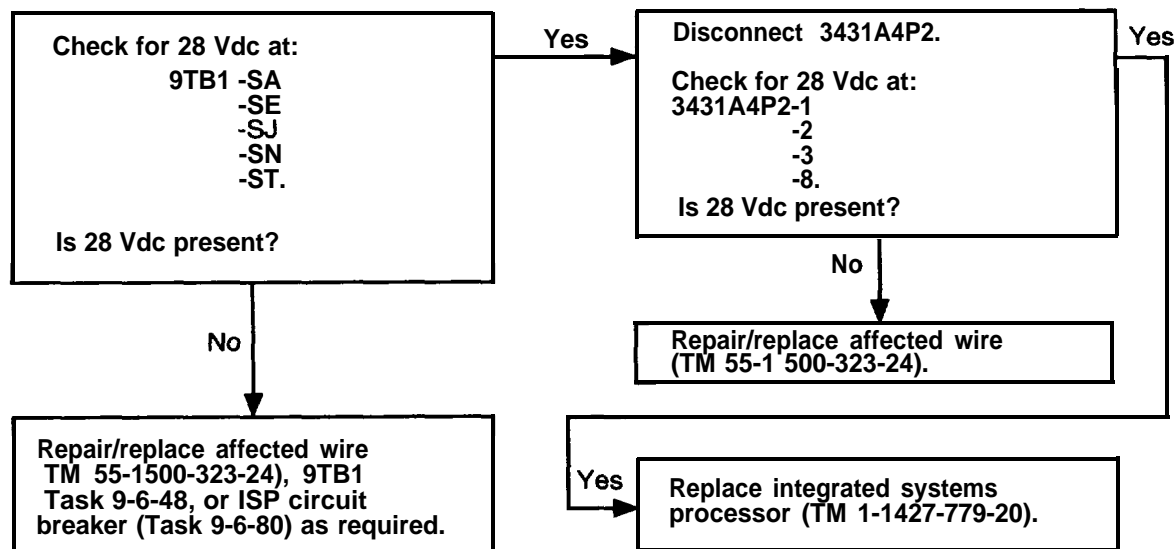
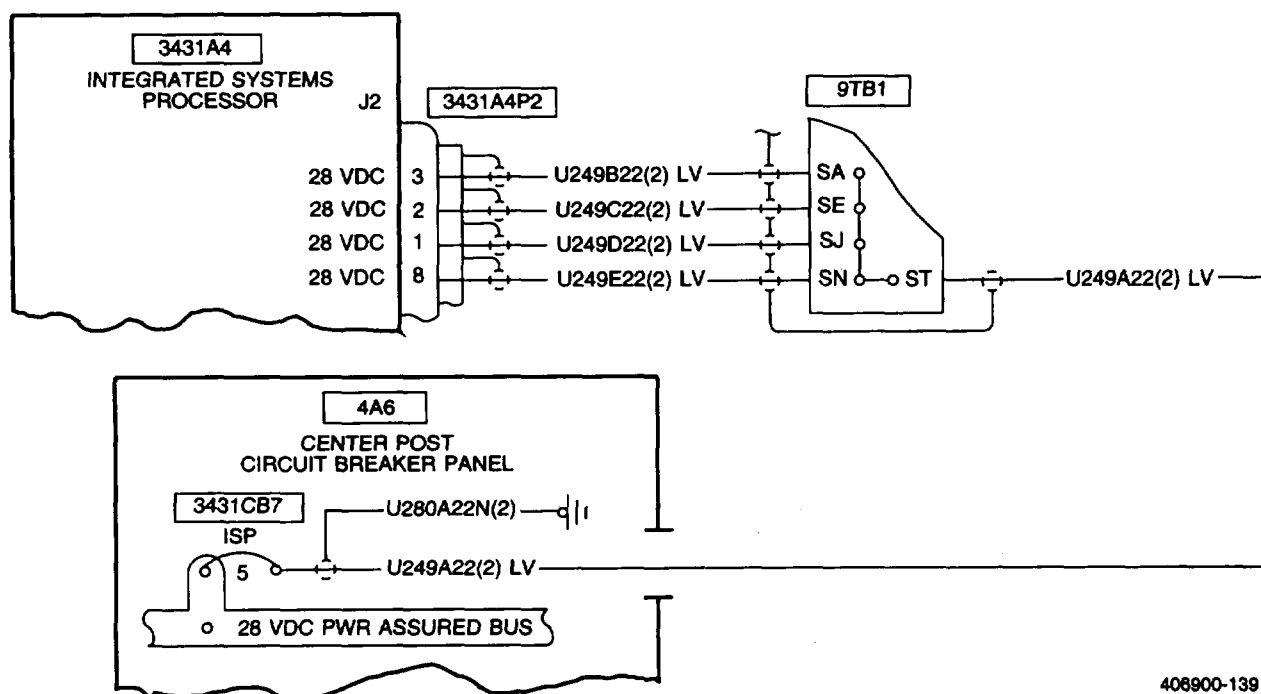
84. THERMAL IMAGING SYSTEM (TIS) FAIL

Refer to TM 11-1520-248-23, Appendix G for troubleshooting procedures.

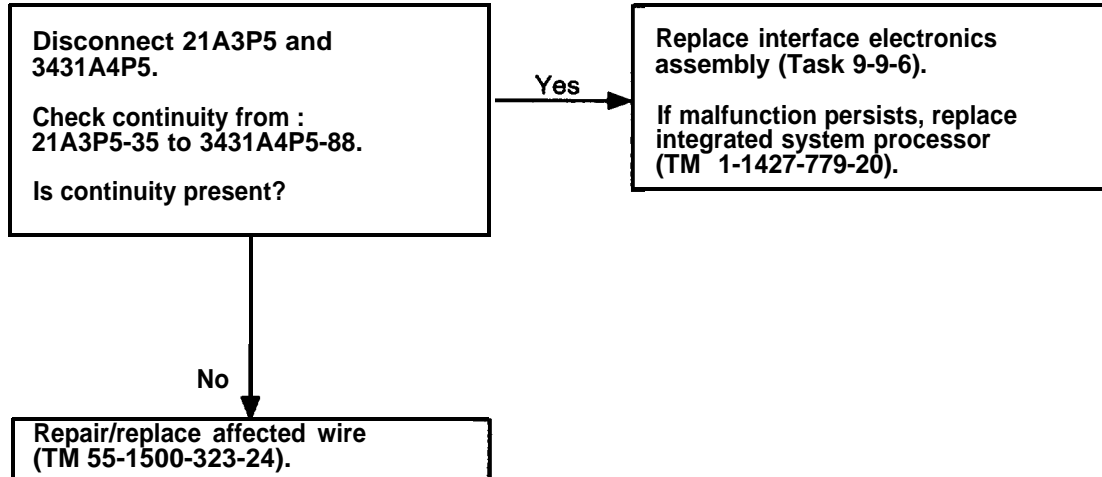
85. TURRET FAIL

Refer to TM 11-1520-248-23, Appendix G for troubleshooting procedures.

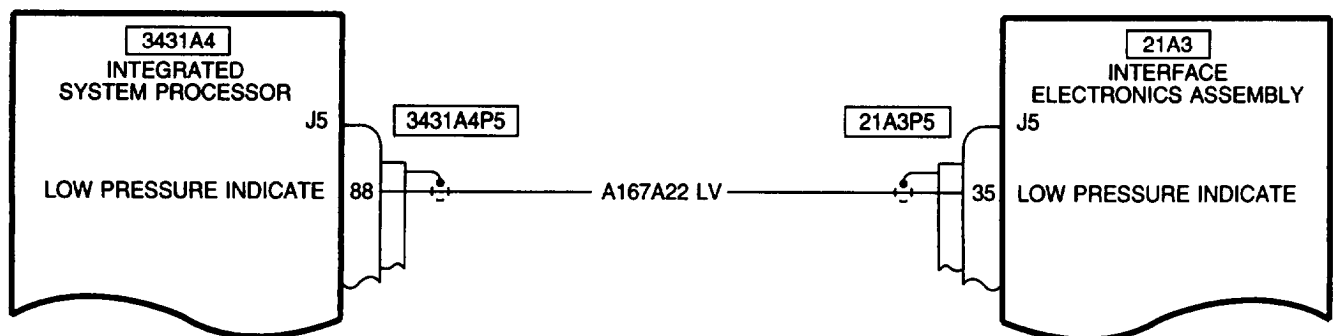
86. ISP FAIL MESSAGE DISPLAYED ON MFDS

TM55_248_N86
H5073408900-139
H3902

87. ATAS DOES NOT INDICATE LOW PRESSURE ON MFD WHEN ARGON BOTTLE IS LOW

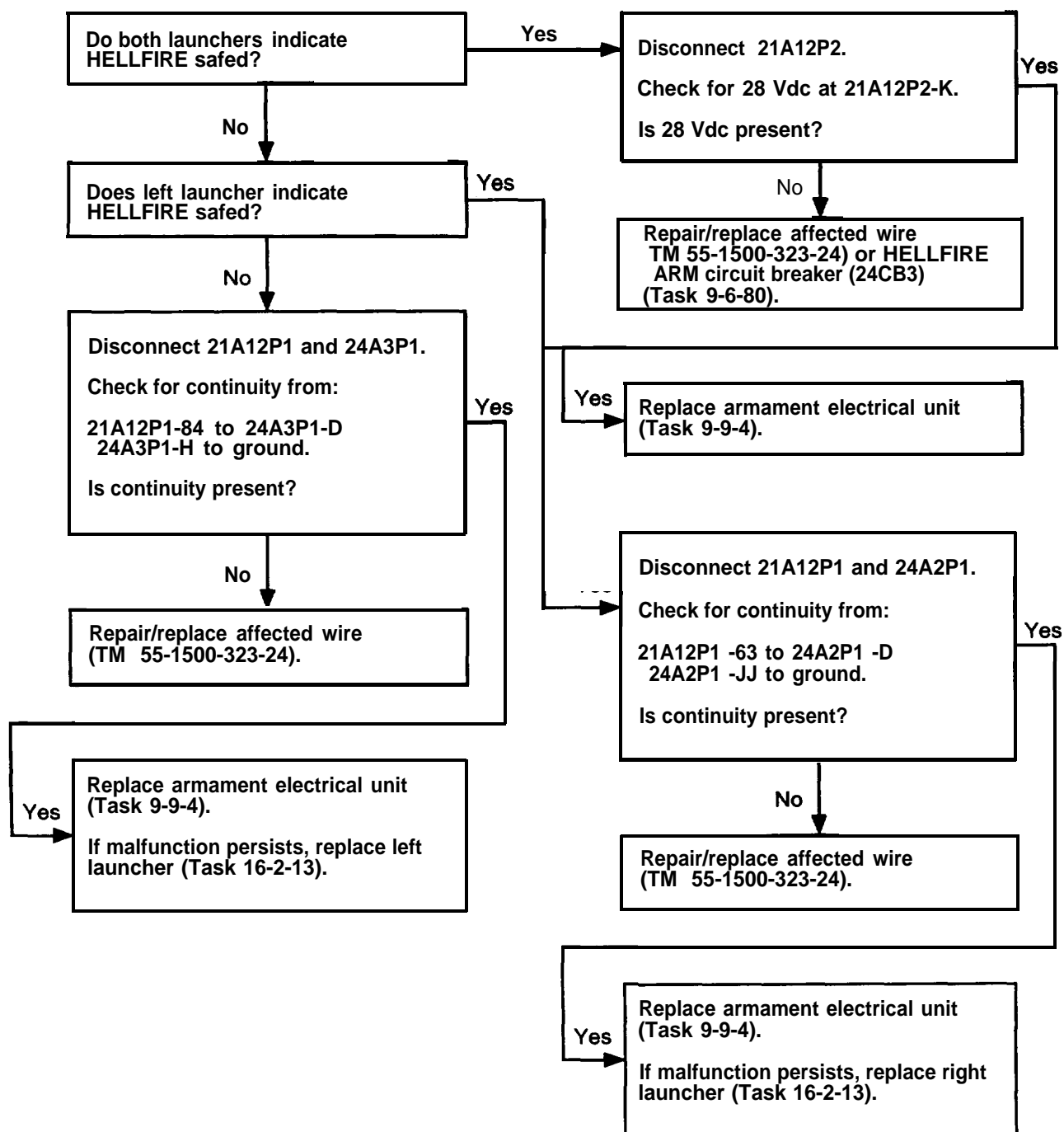


TM55-248-N87
H3551

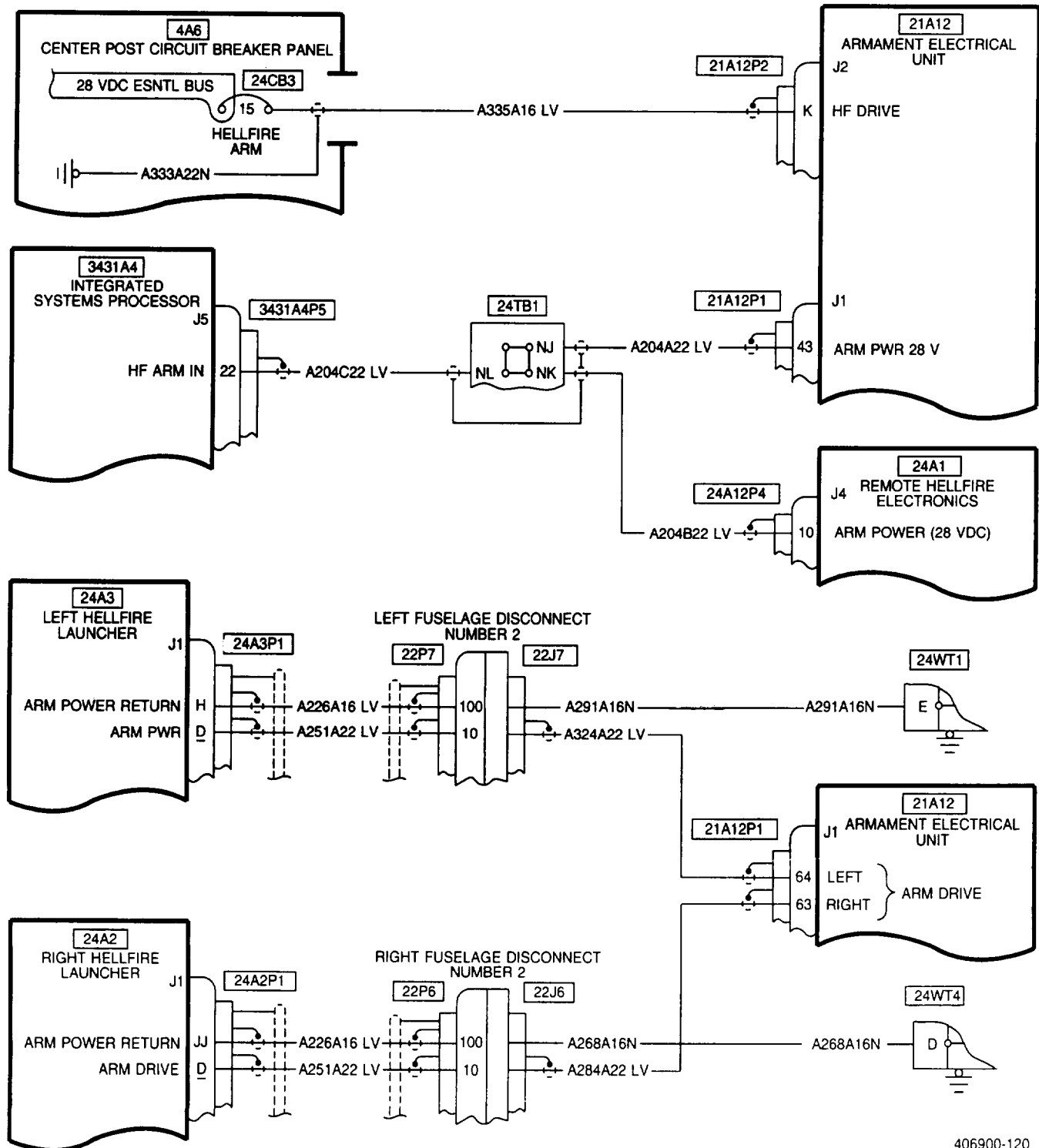


406900-94
H3544

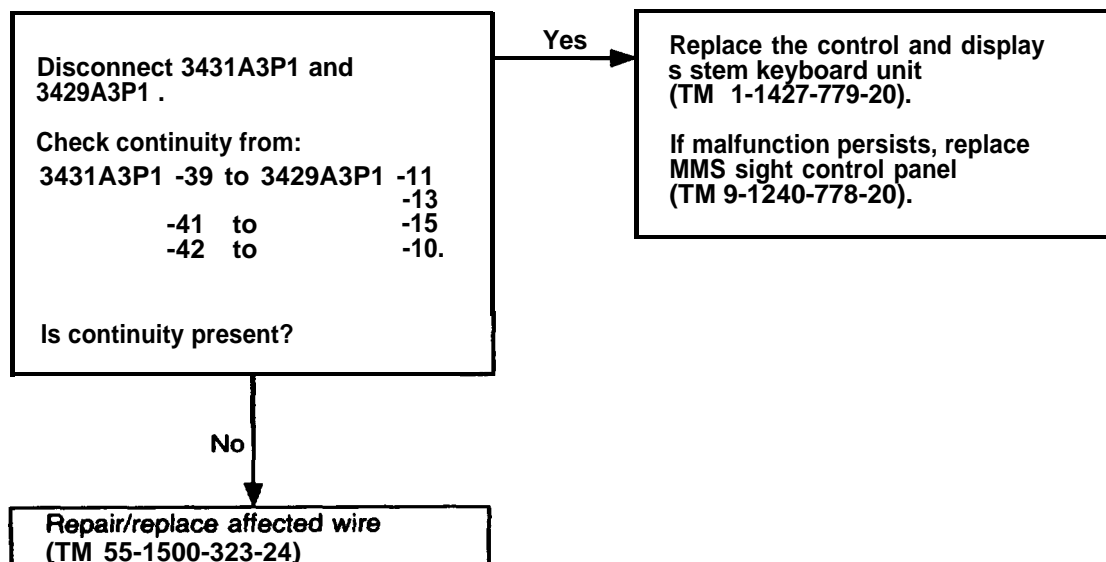
88. HELLFIRE SAFE/ARM SWITCH ON LAUNCHER ELECTRICALLY INOPERATIVE



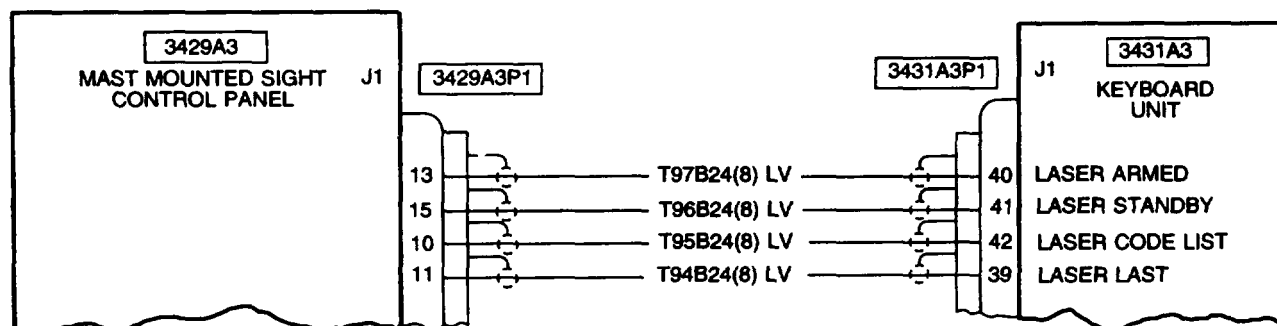
88. HELLFIRE SAFE/ARM SWITCH ON LAUNCHER ELECTRICALLY INOPERATIVE (CONT)

406900-120
H3902

89. COPILOT CANNOT CODE MMS LASER FOR HELLFIRE DESIGNATION

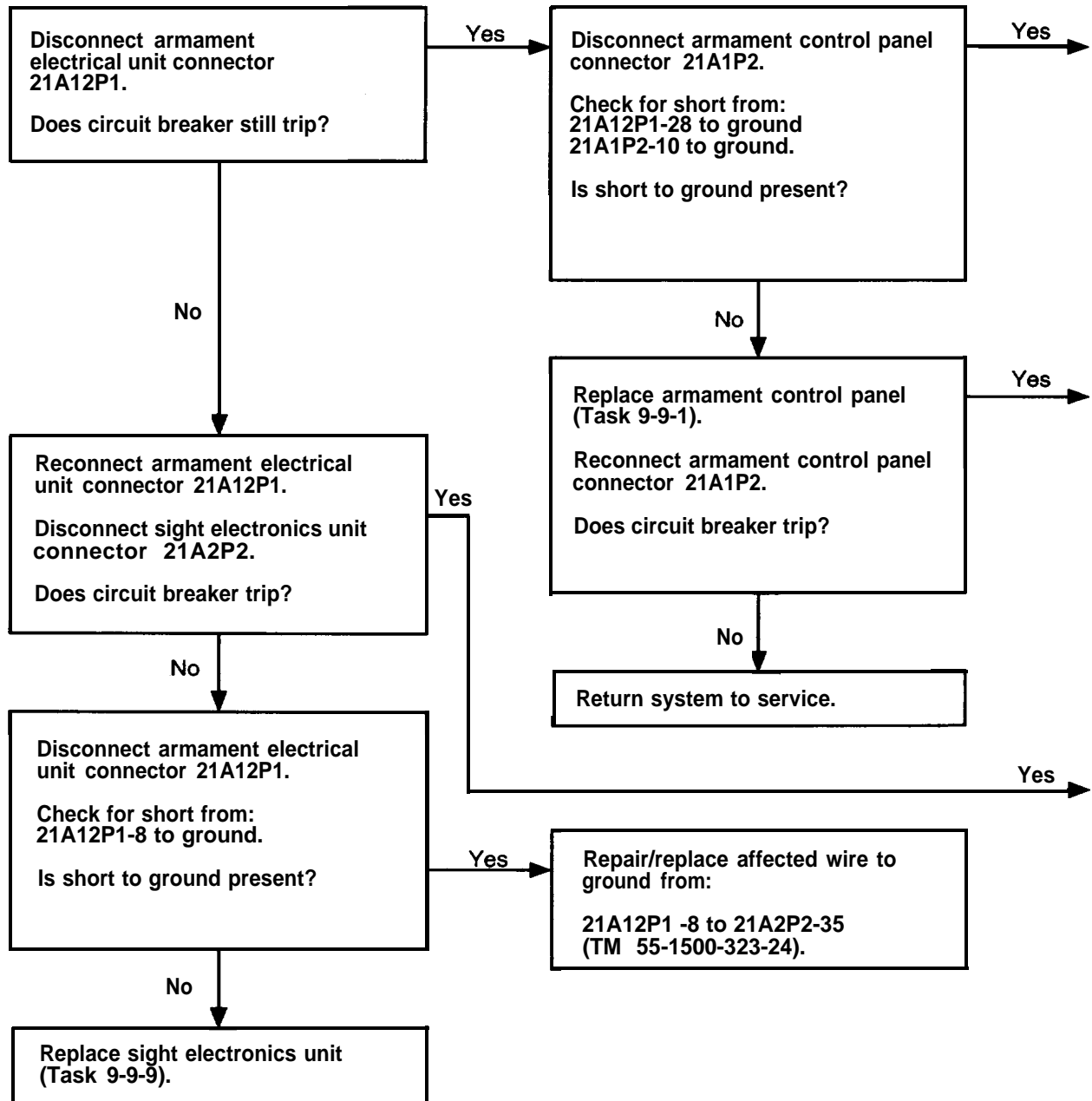


TM55_248_N89
H3425

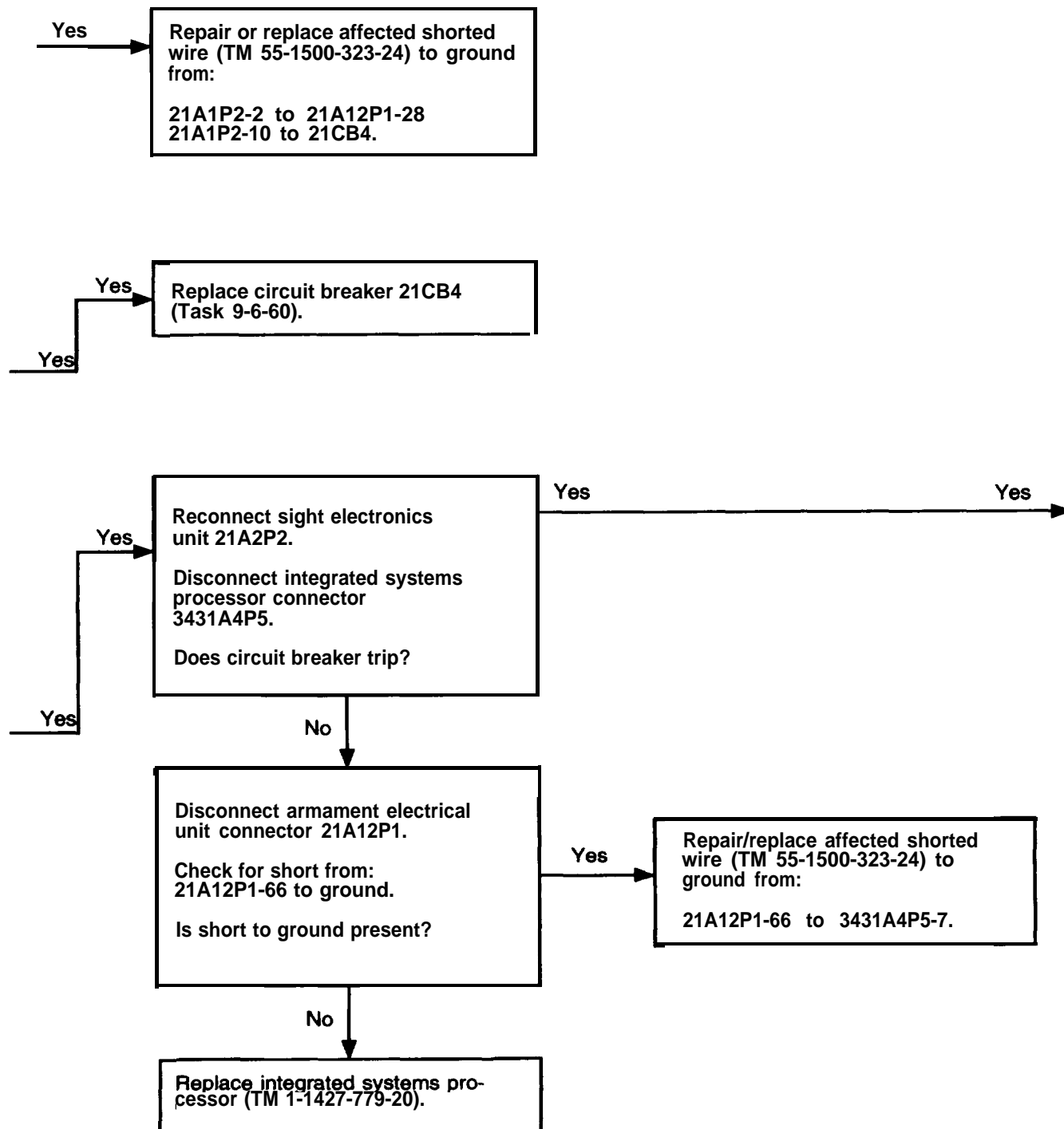


406900-140
H3427

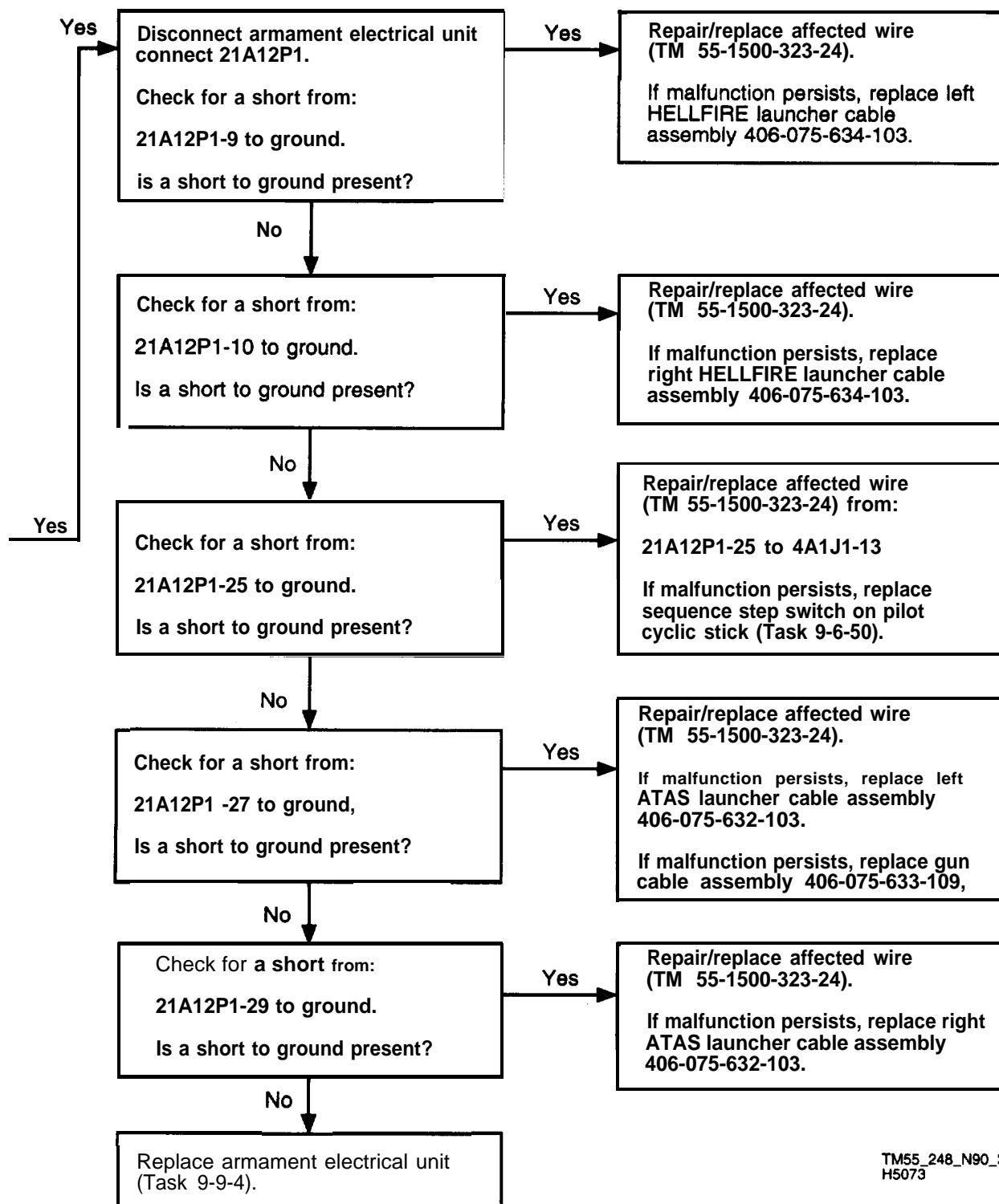
90. ARM CONTROL BREAKER TRIPS WITH MASTER ARM IN STBY AND ARM POSITION

TM55_248_N90_1
H5073

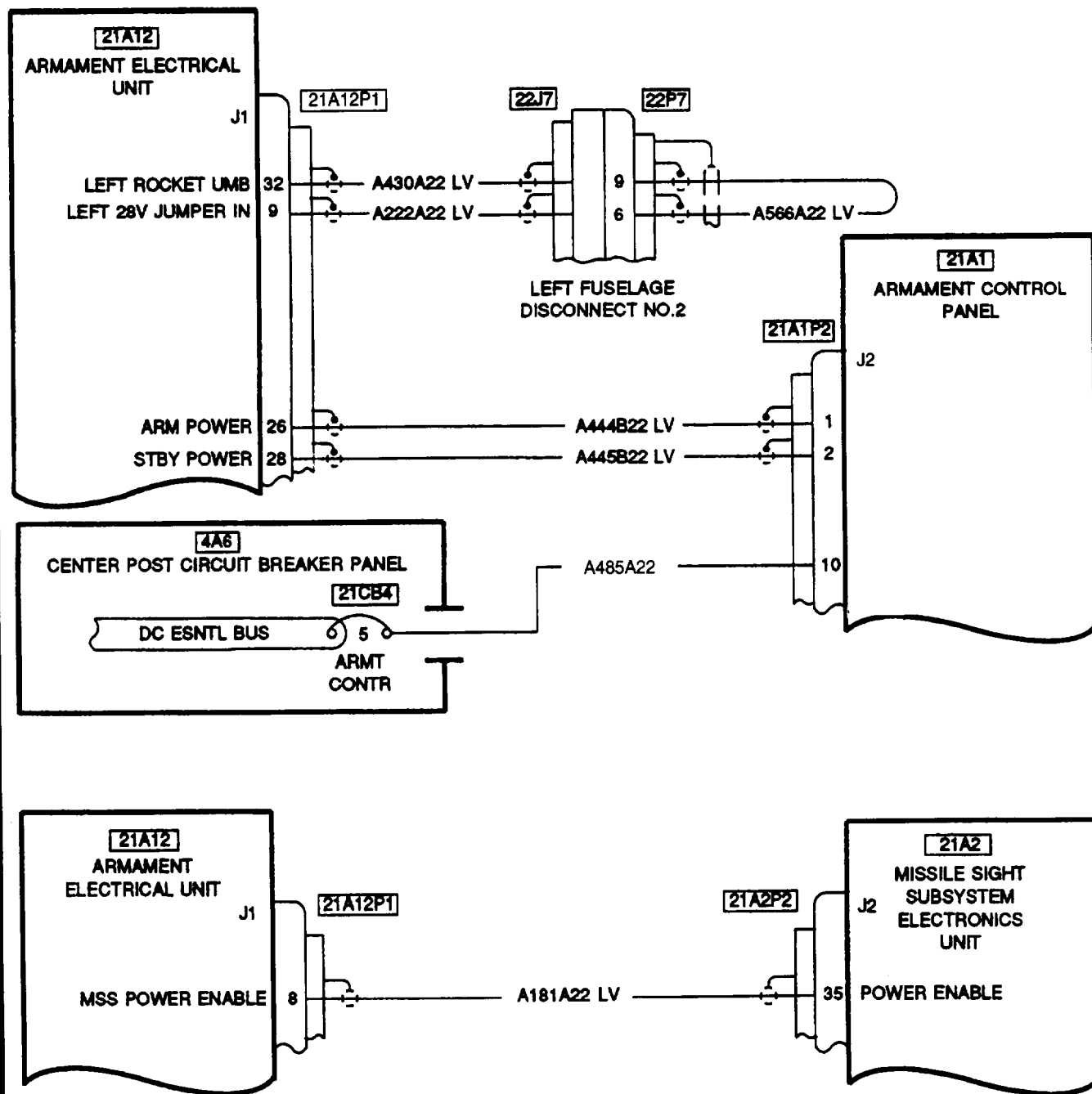
90. ARM CONTROL BREAKER TRIPS WITH MASTER ARM IN STBY AND ARM POSITION (CONT)



90. ARM CONTROL BREAKER TRIPS WITH MASTER ARM IN STBY AND ARM POSITION (CONT)

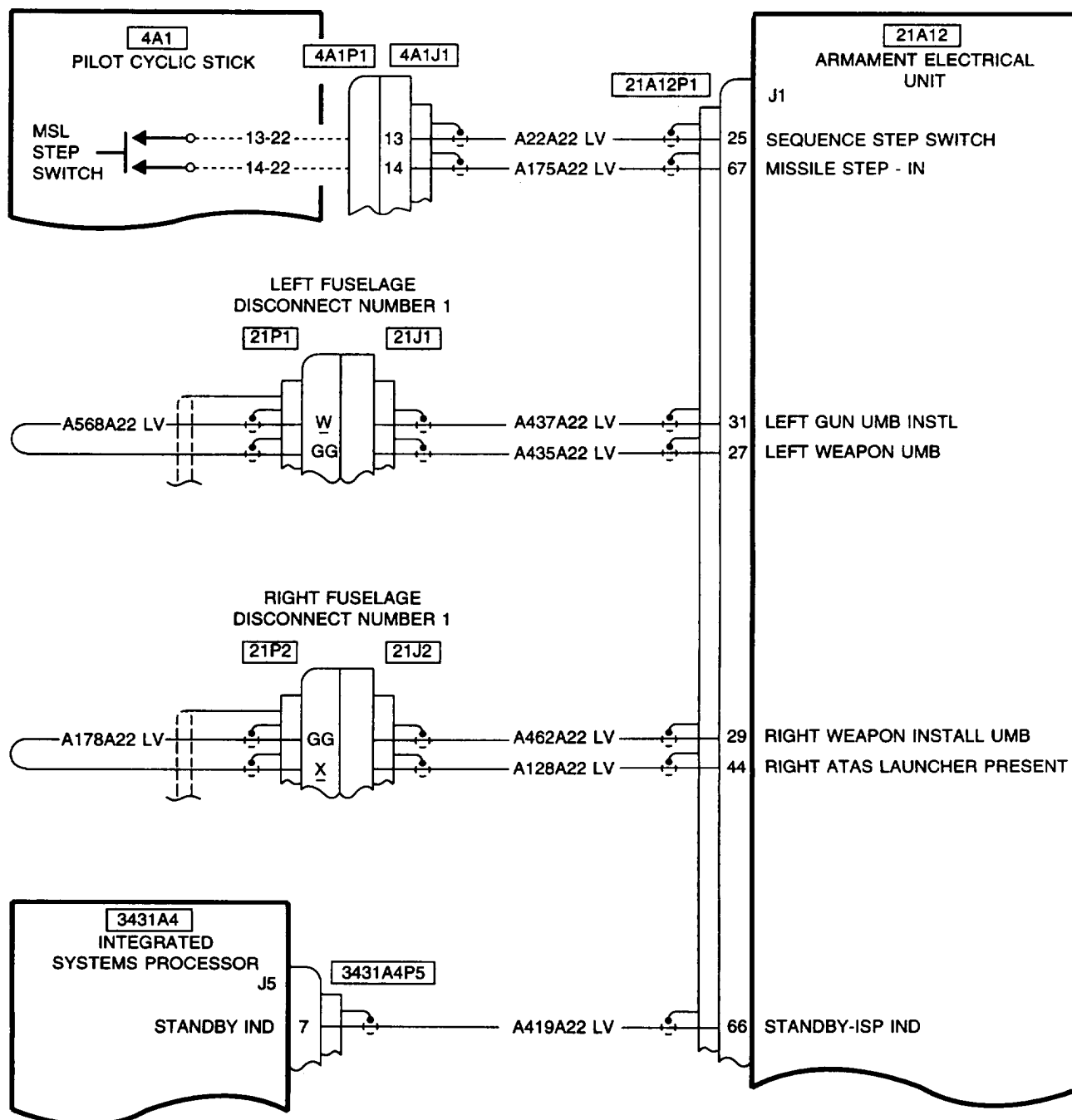


ARM CONTROL BREAKER TRIPS ITH MASTER ARM IN STBY AND ARM POSITION (CONT)



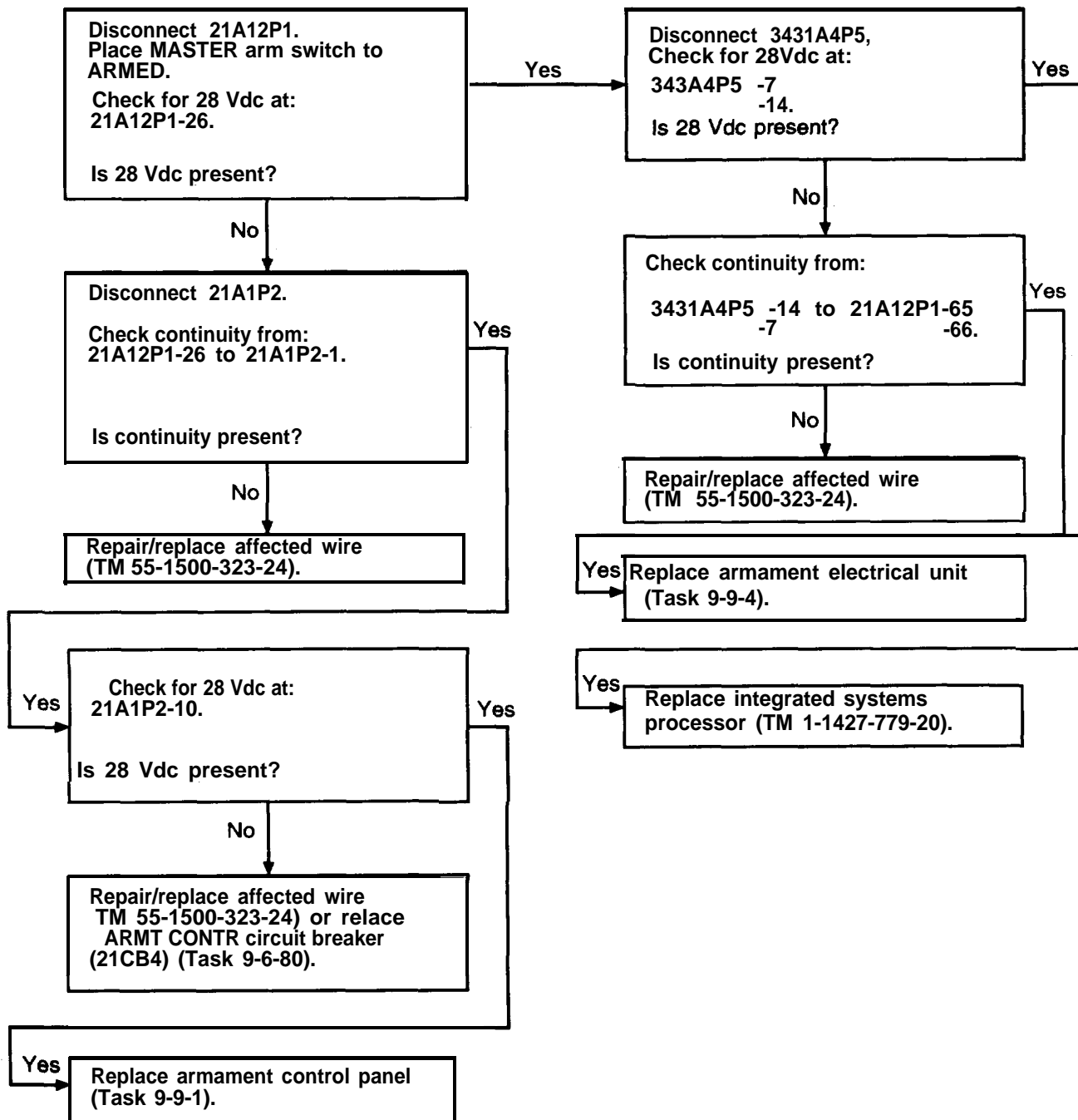
406900-141-7-1
H5073

90. ARM CONTROL BREAKER TRIPS WITH MASTER ARM IN STBY AND ARM POSITION

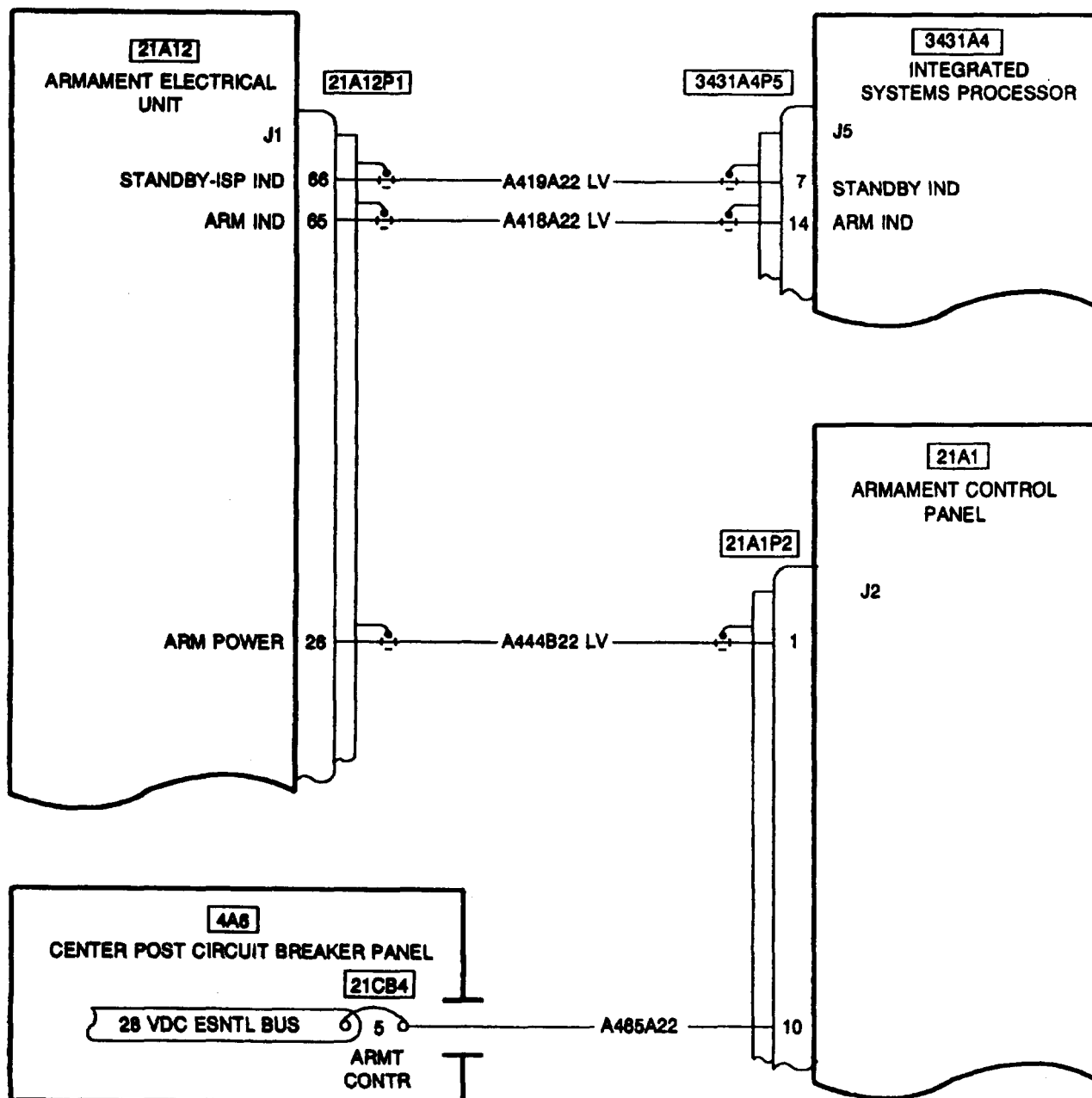


406900-141-7-2
H3887

91. WEAPON WILL NOT ARM

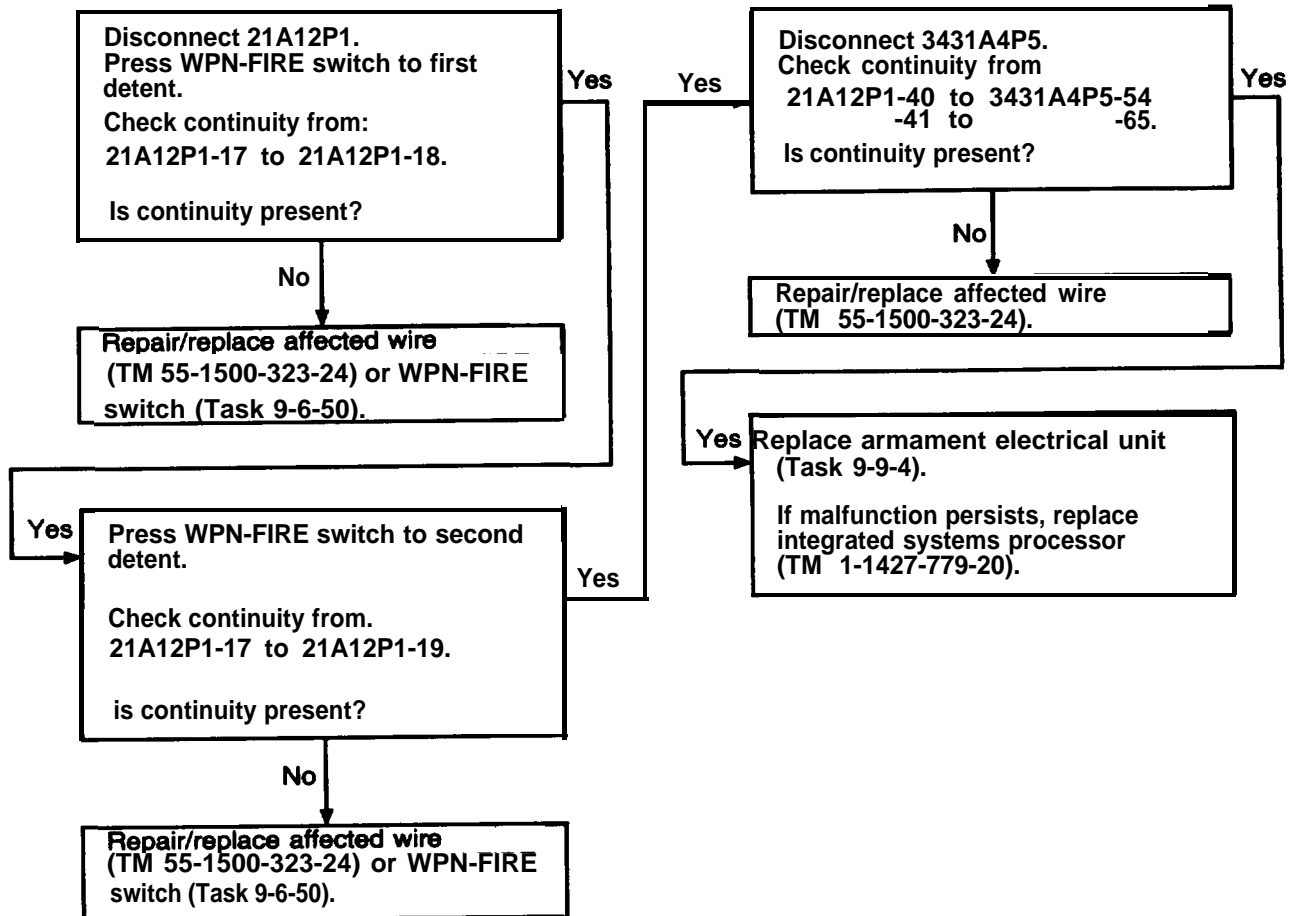
TM55_248_N91
H3425

91. WEAPON WILL NOT ARM (CONT)

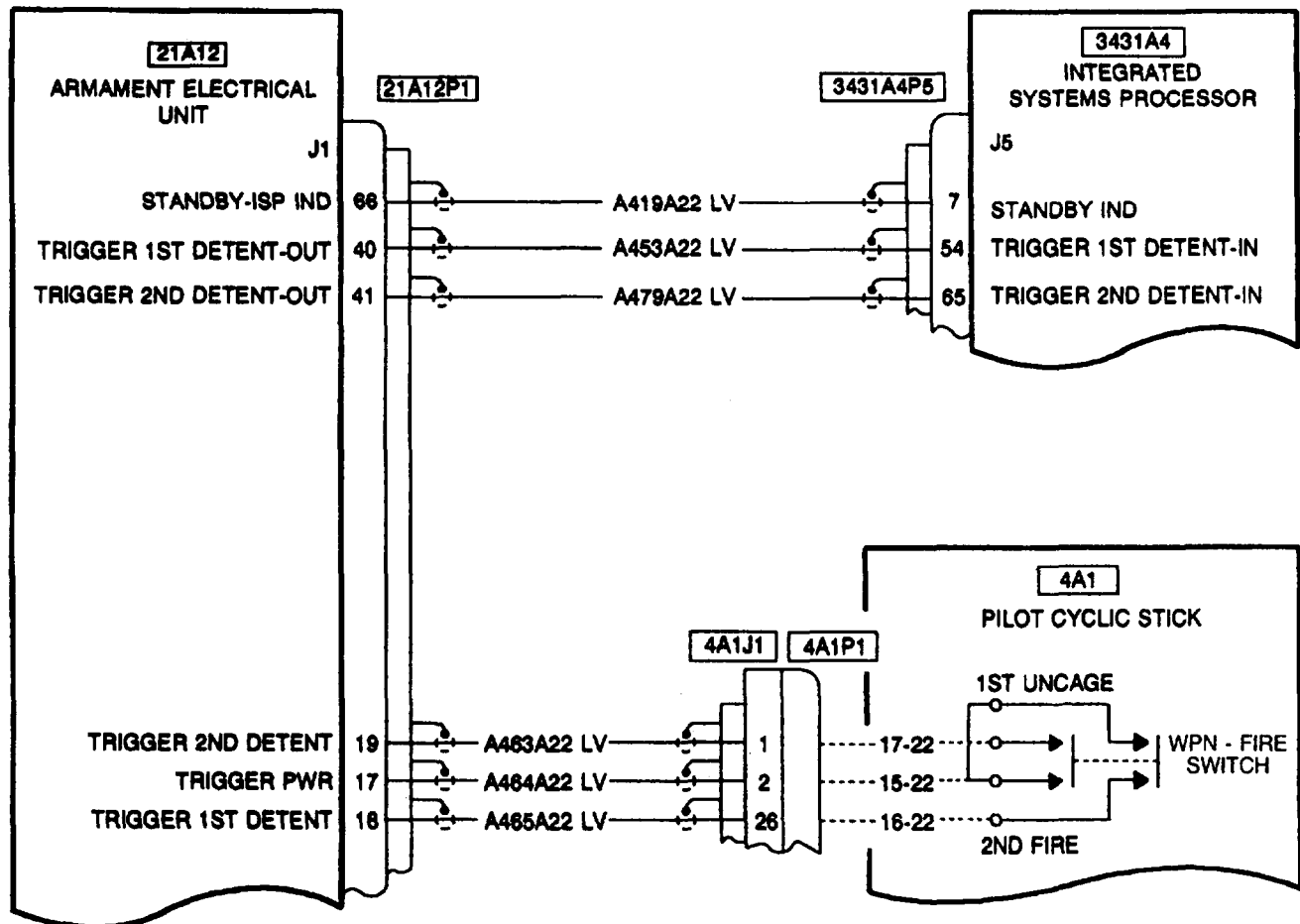


406900-141-8
H5073

92. WEAPON WILL NOT FIRE

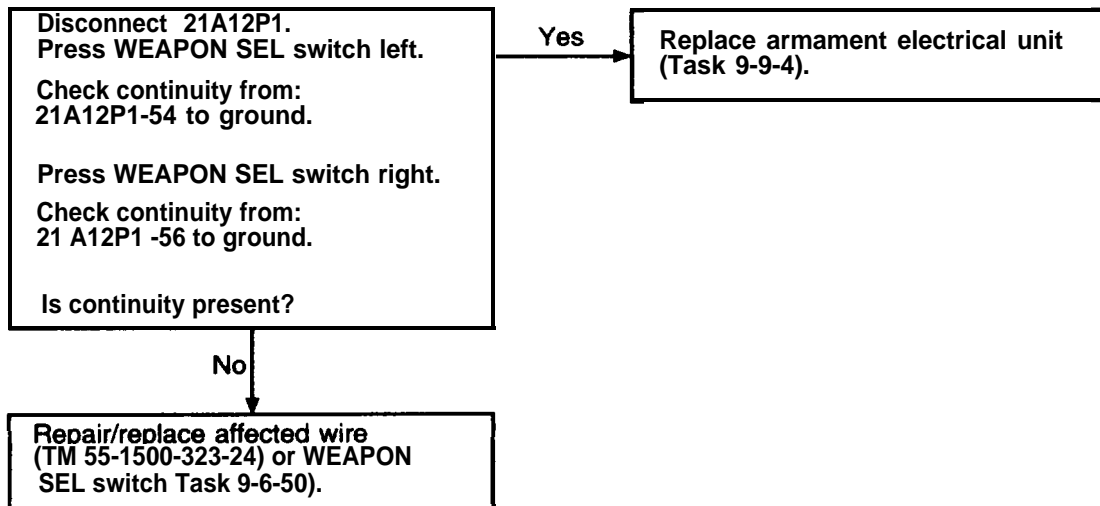


92. WEAPON WILL NOT FIRE (CONT)

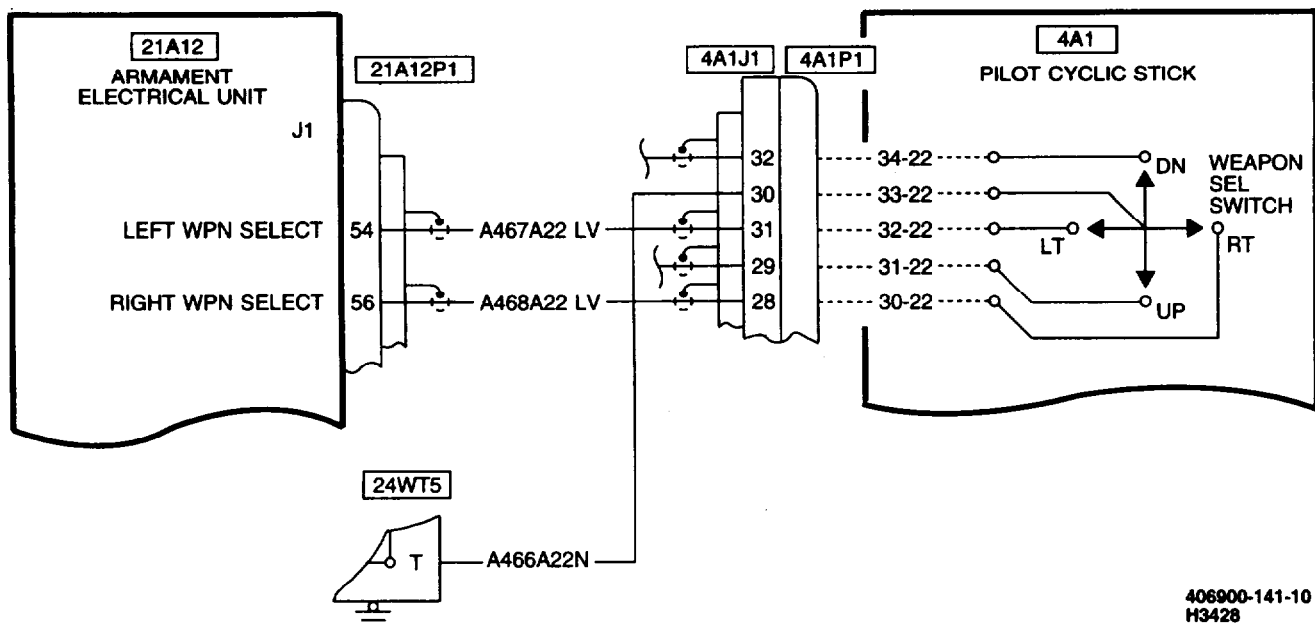


406900-141-9
H5073

93. CANNOT SELECT INSTALLED WEAPON

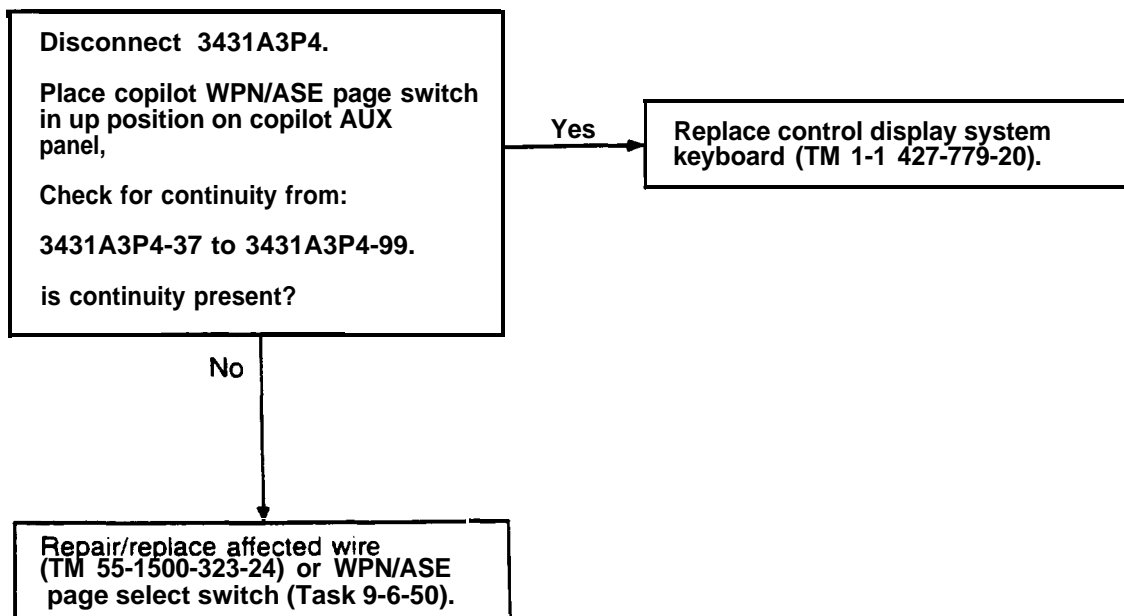
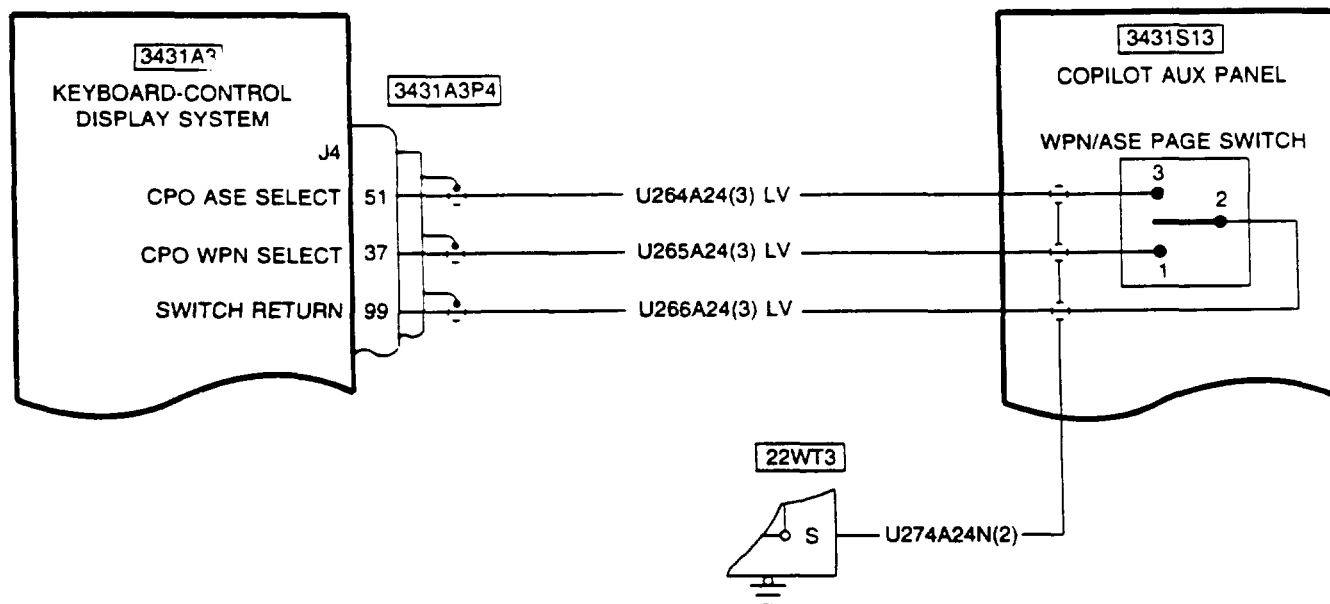


TM55_248_N93
H3425

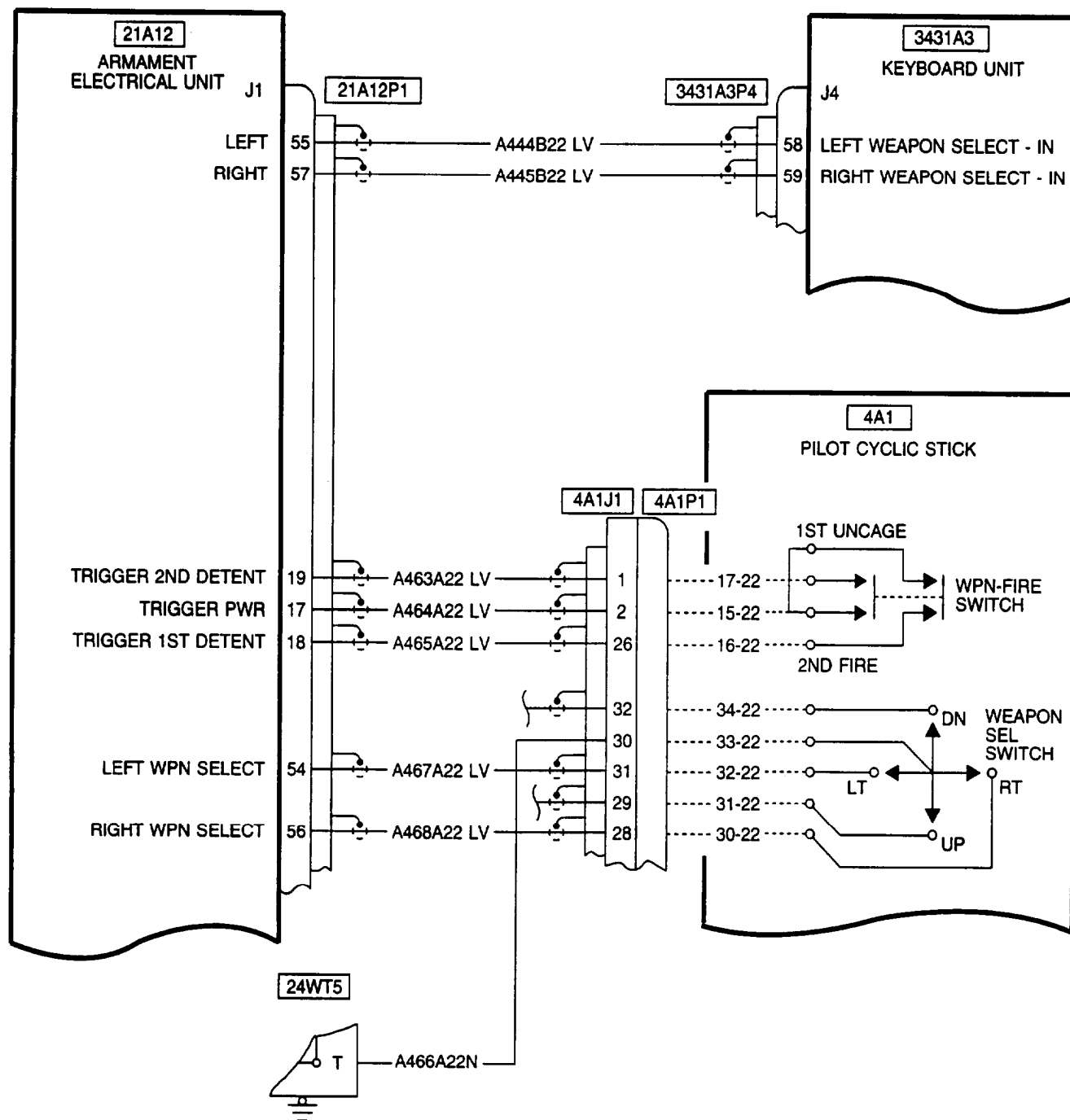


406900-141-10
H3428

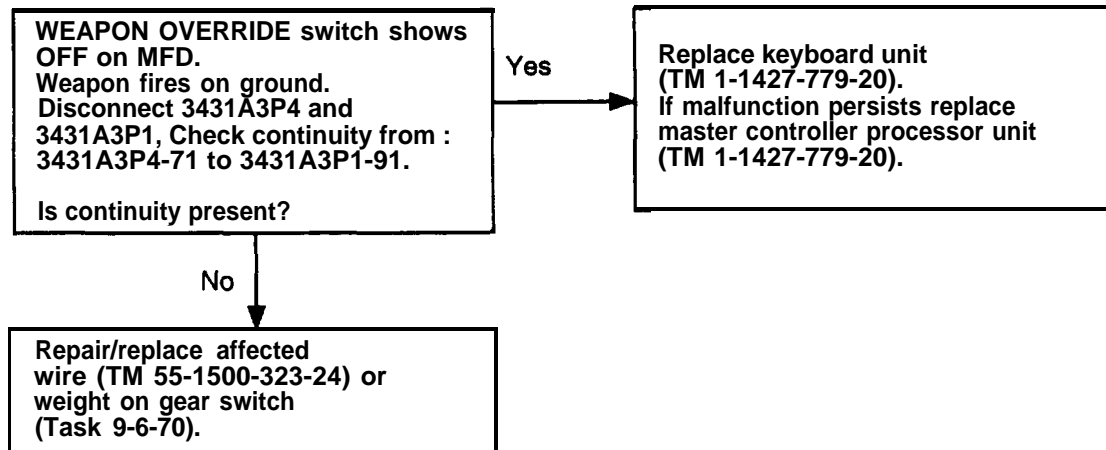
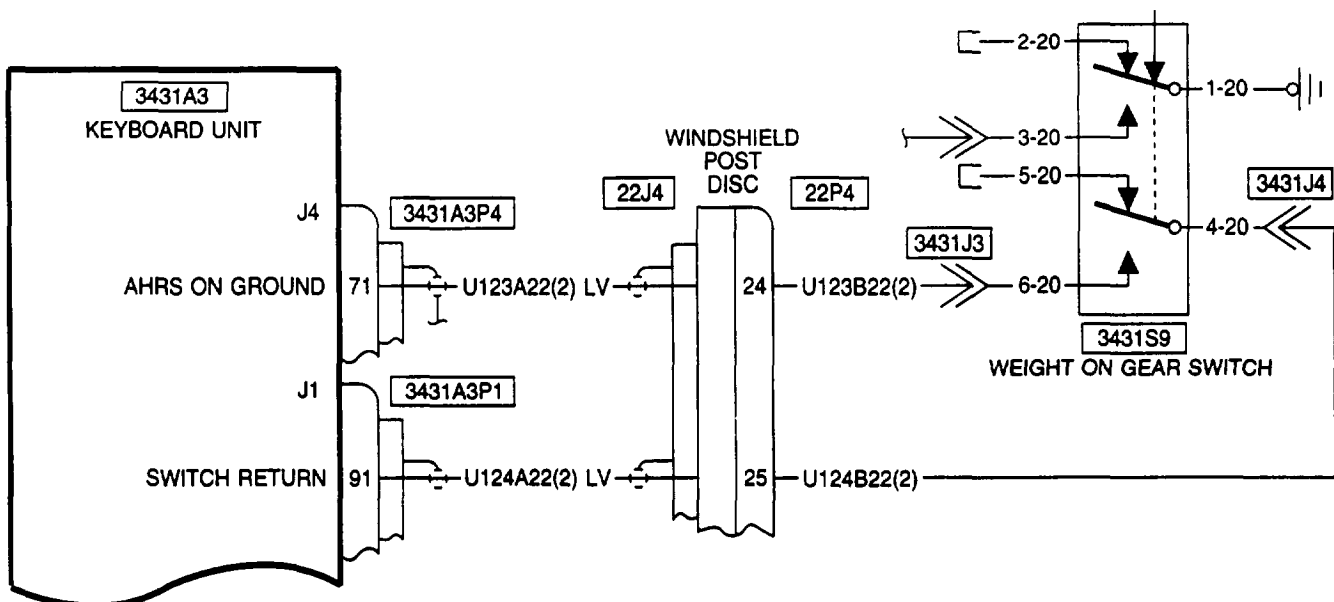
94. CANNOT ACCESS WEAPONS PAGE ON COPILOT MFD

TM55_248_N94
H4289406900-141-11
H3428

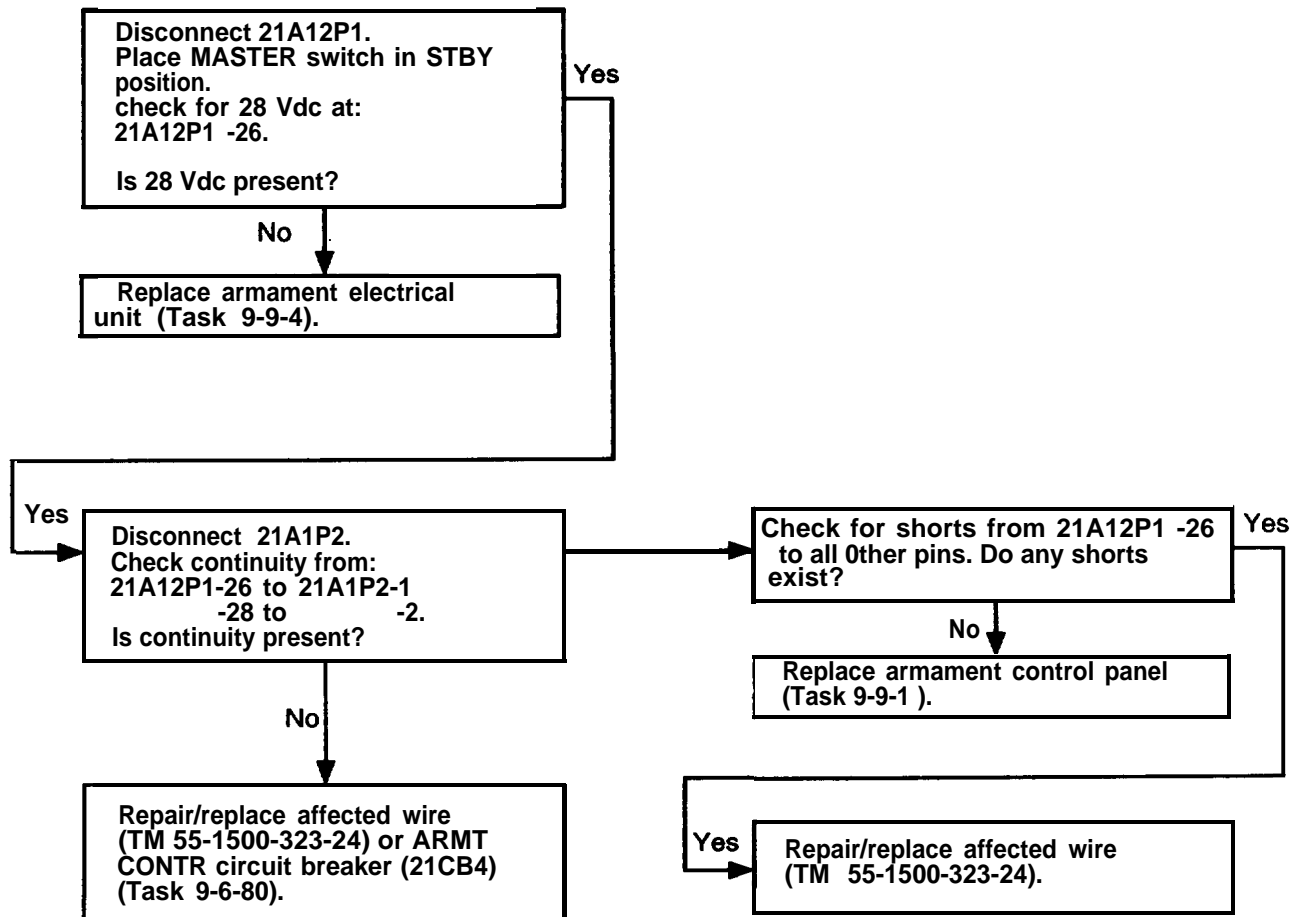
95. CANNOT ACCESS ANY WEAPONS VSD OR SPARSE VSD PAGE (CONT)

406900-95
H3424

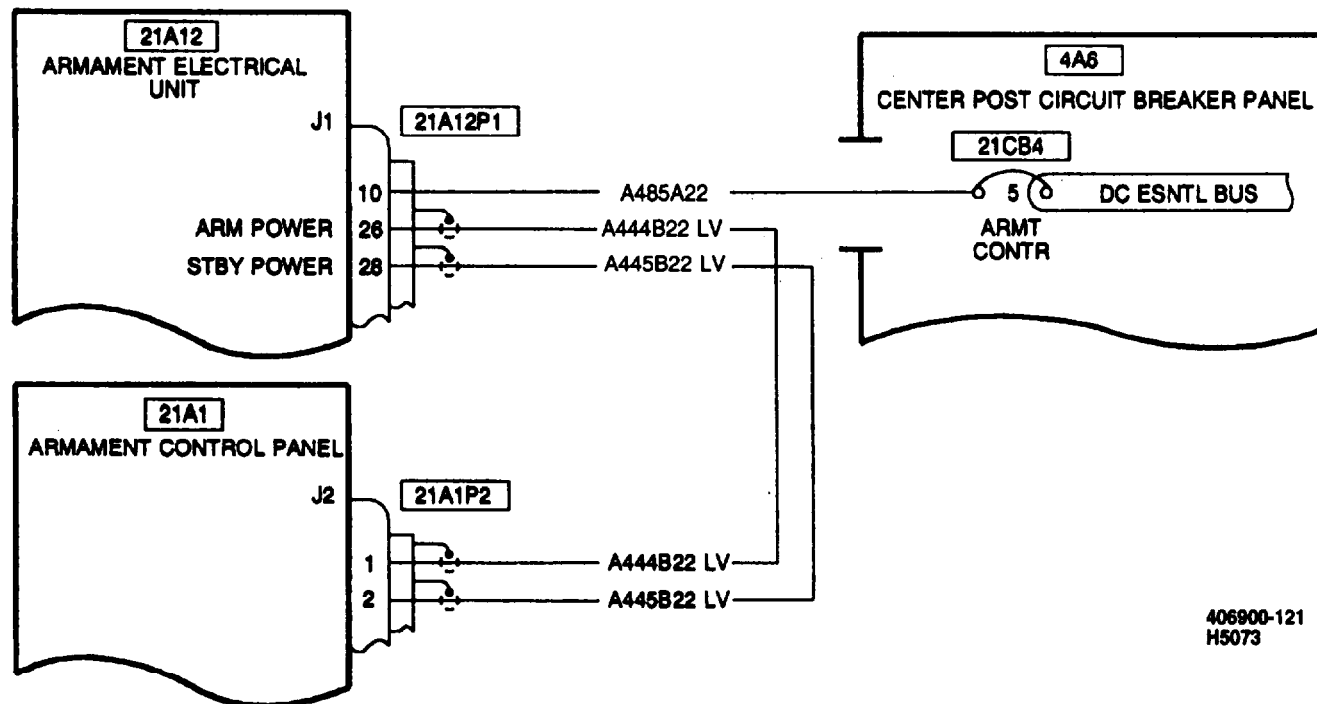
96. WEAPON FIRES ON THE GROUND (WITHOUT WEAPON OVERRIDE ON)

TM55-248-N96
H3551406900-86
H3544

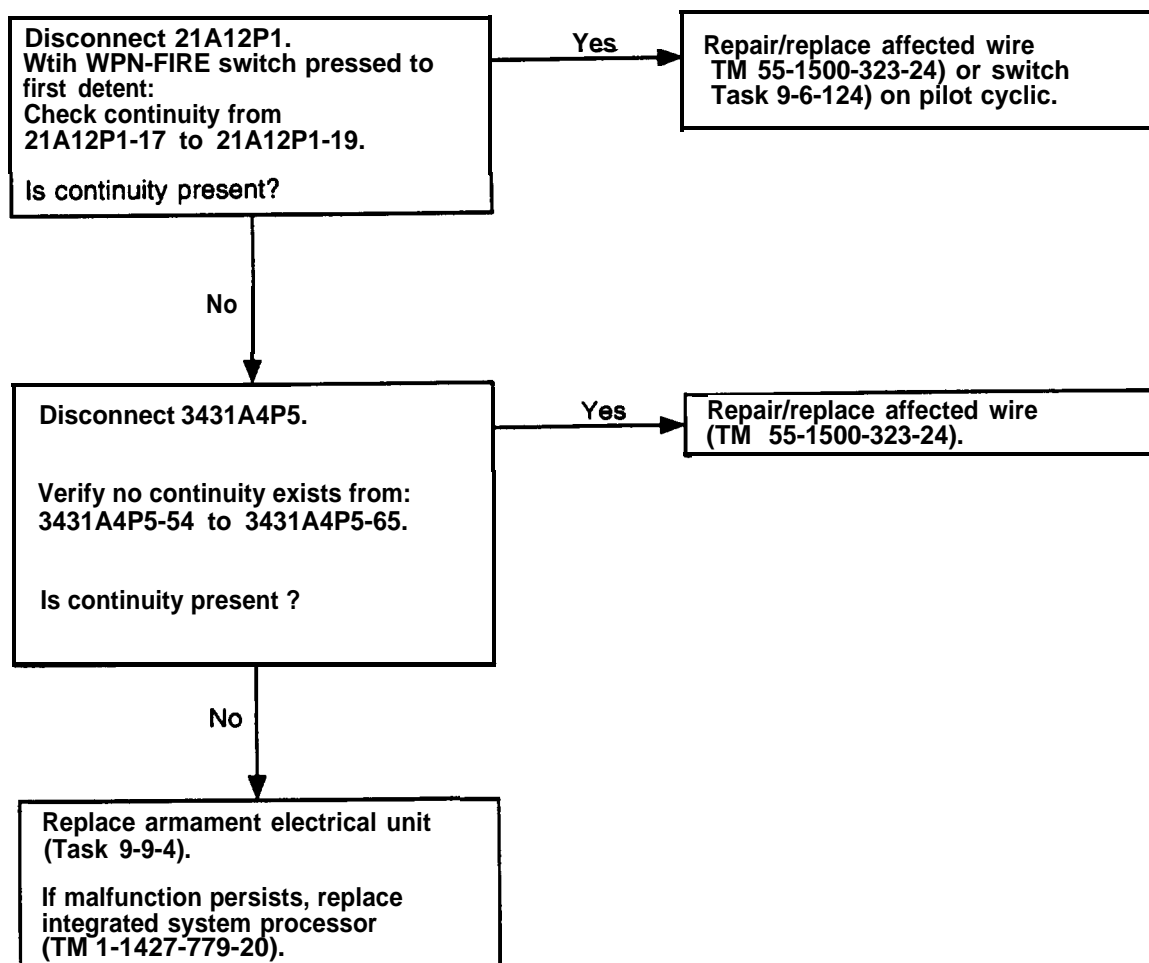
97. WEAPONS FIRE IN STANDBY

TM55_248_N97
H3425

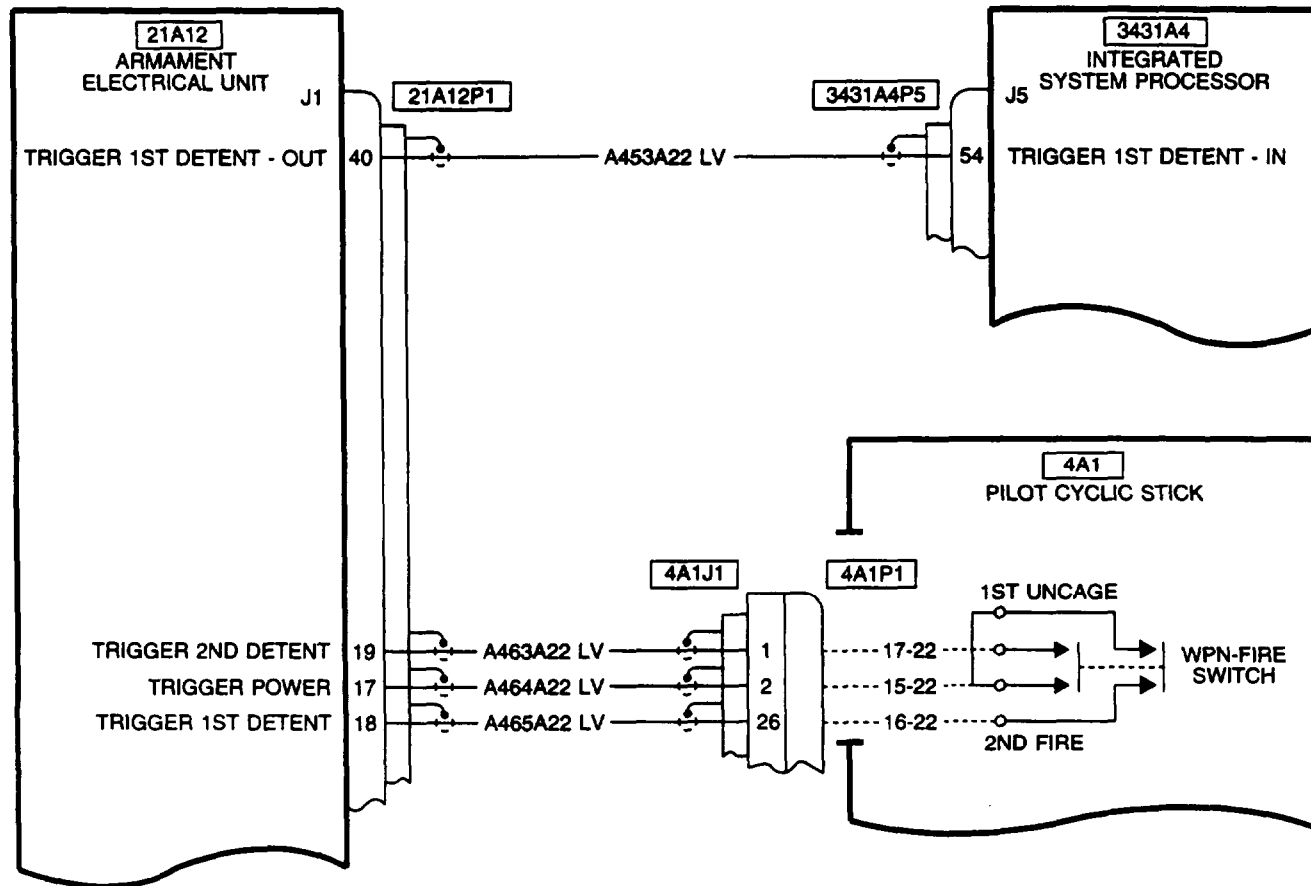
97. WEAPONS FIRE IN STANDBY (CONT)



98. ALL WEAPONS FIRE IN FIRST DETENT

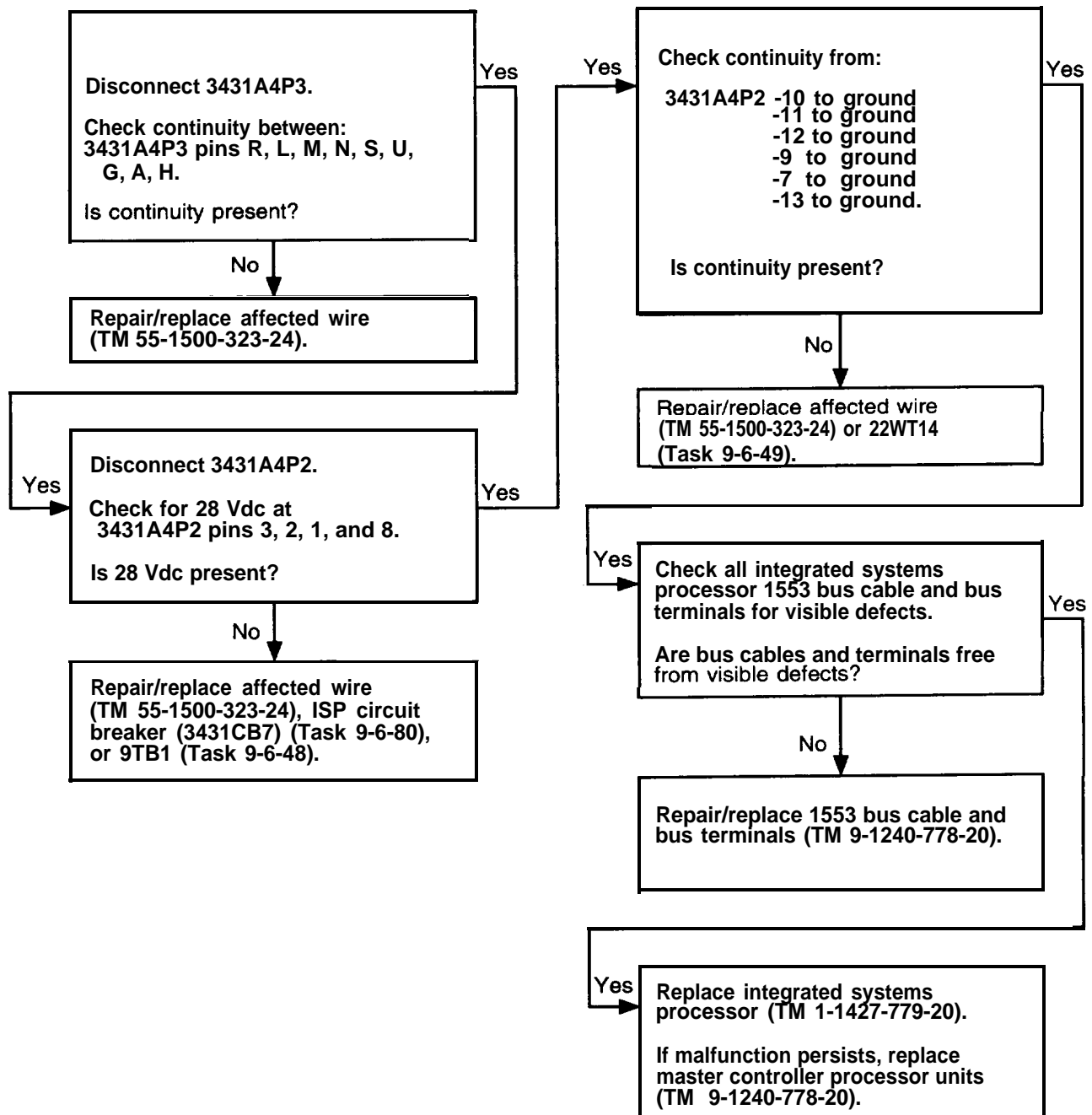


98. ALL WEAPONS FIRE IN FIRST DETENT (CONT)

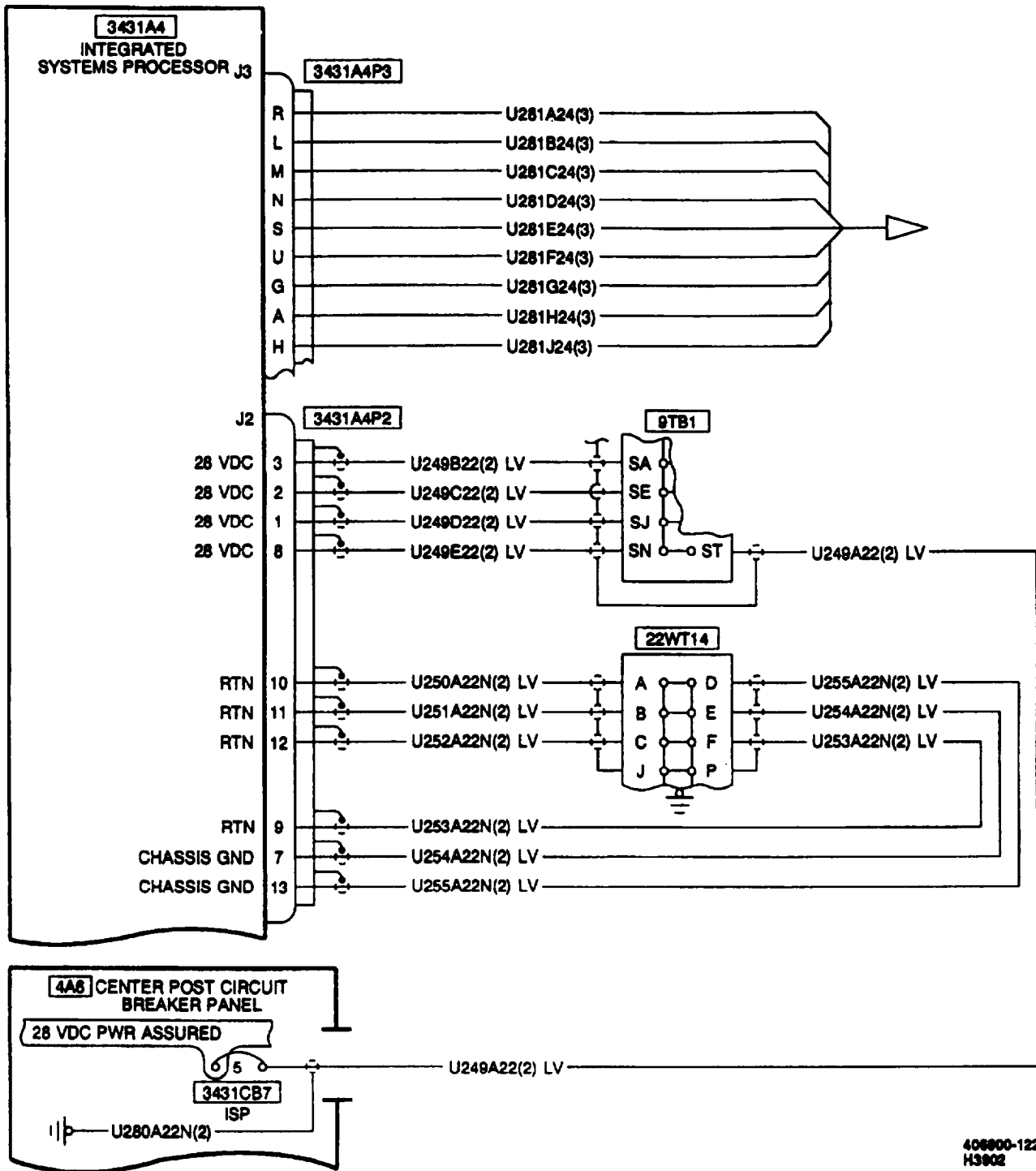


406900-97
H3544

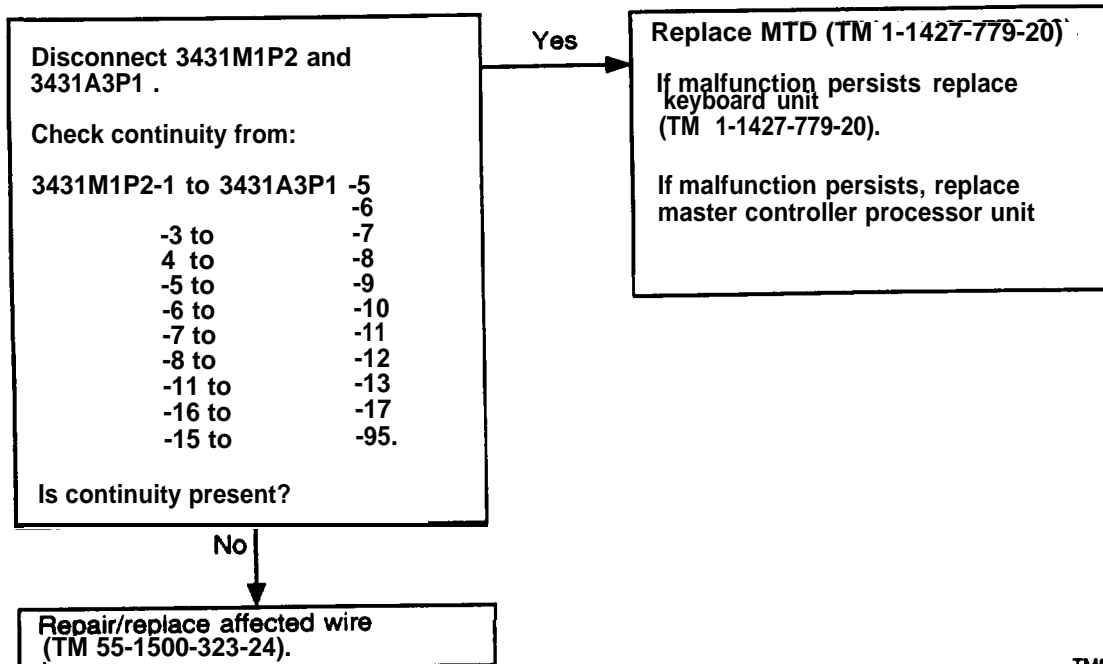
99. MFD DOES NOT RESPOND TO WEAPONS. ISP SHOWS NOGO ON MUX STATUS PAGE

TM55_248_N99
H5073

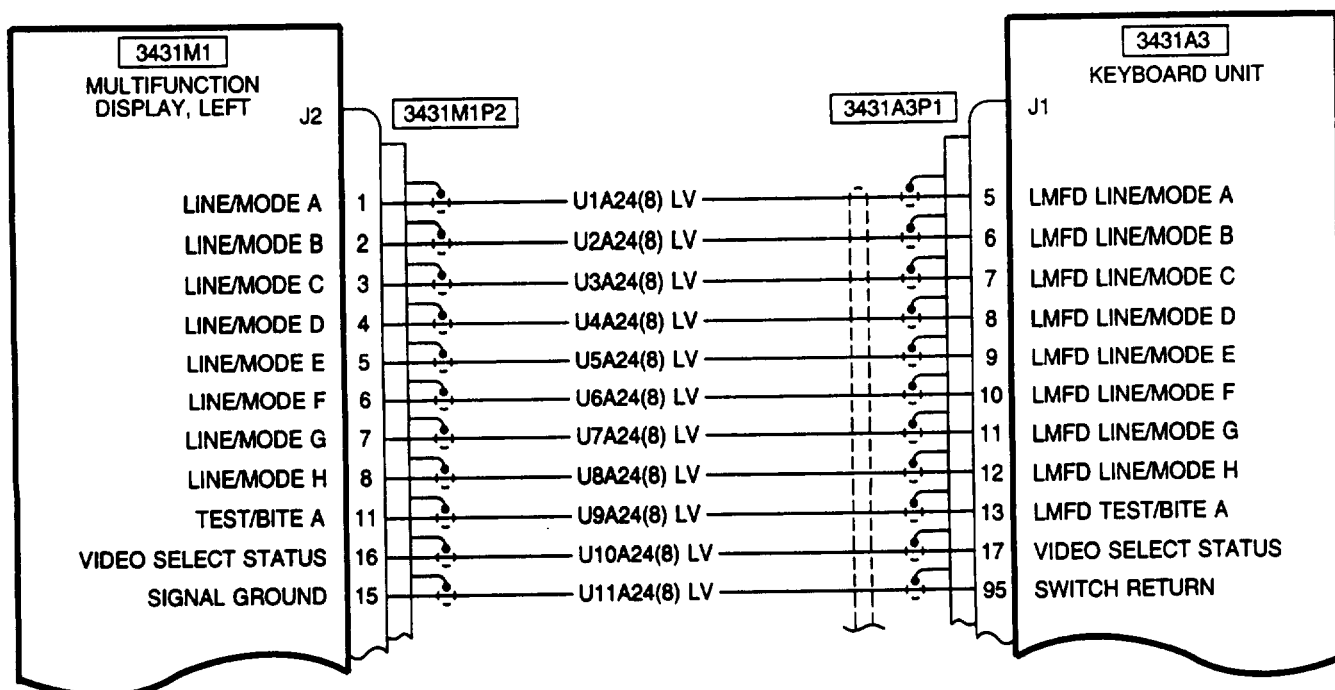
99. MPD DOES NOT RESPOND TO WEAPONS. ISP SHOWS NOGO ON MUX STATUS PAGE (CONT)



100. CANNOT ACCESS WEAPONS BIT/SETUP ON COPILOT MFD

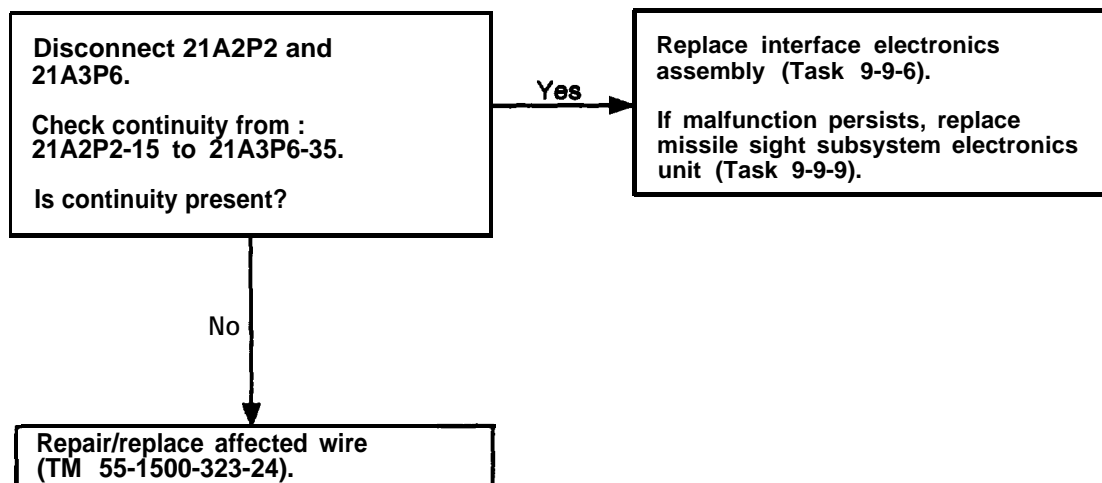


TM55-248-N100
H3551

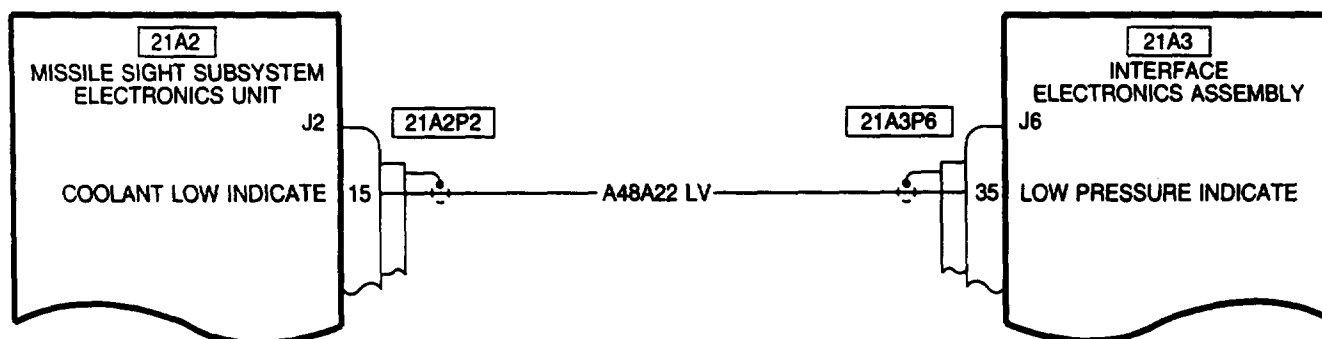


406900-88
H3424

101. LOW IS NOT INDICATED ON PDU WHEN ARGON BOTTLE PRESSURE IS LOW

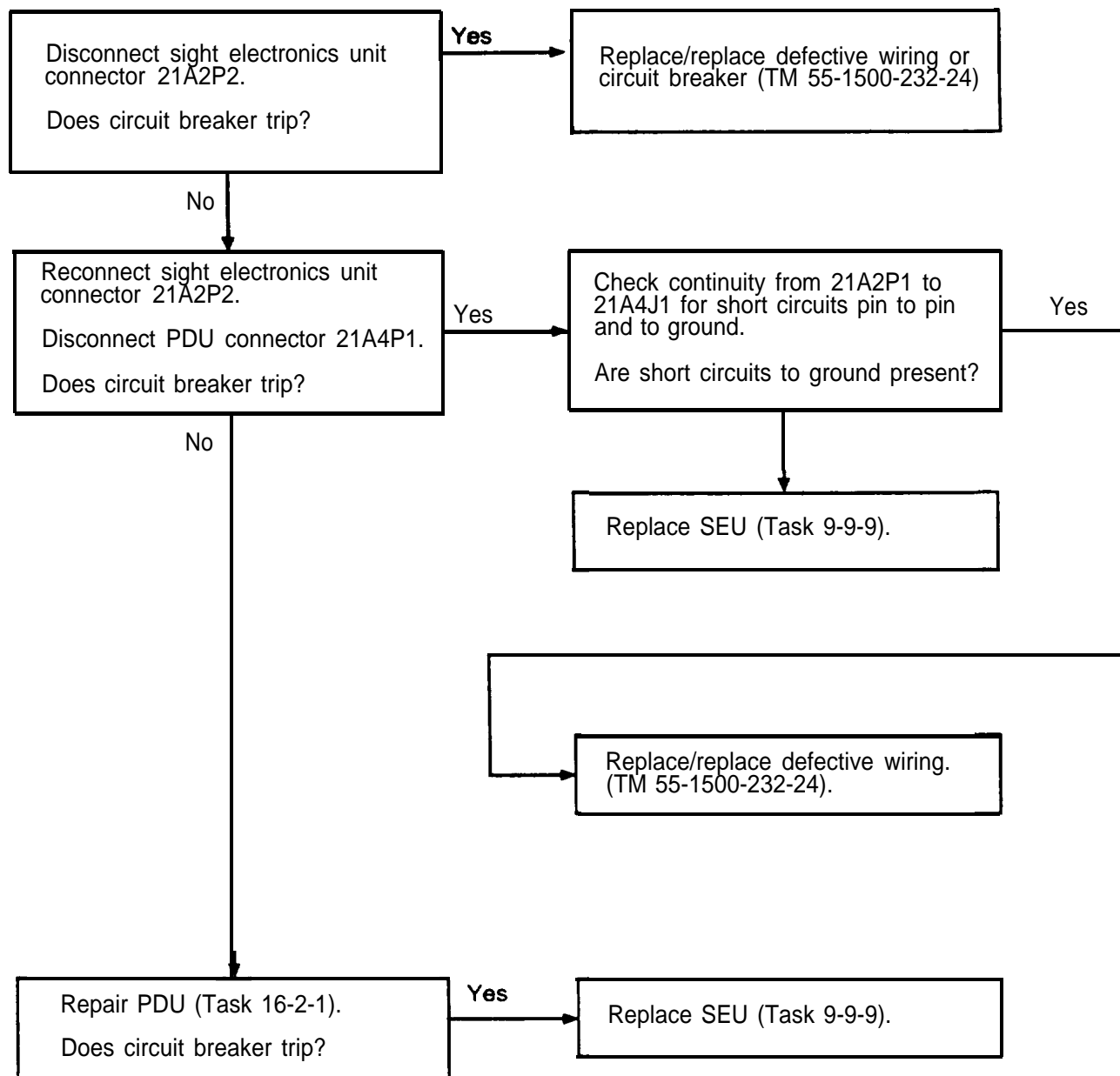


TM55-248-N101
H3551

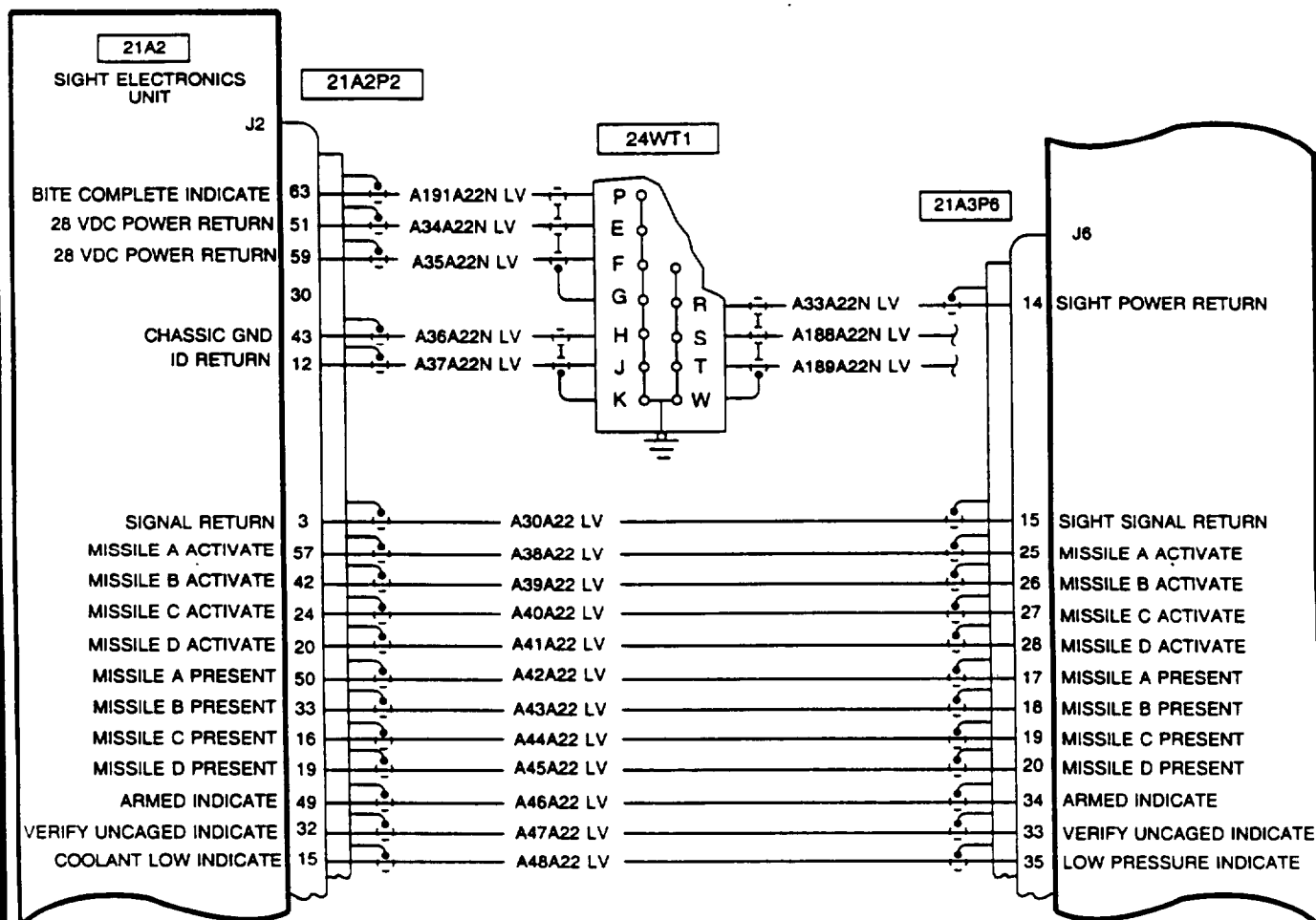


408900-99
H3544

102. SIGHT ELECTRONICS UNIT CIRCUIT BREAKER TRIPS

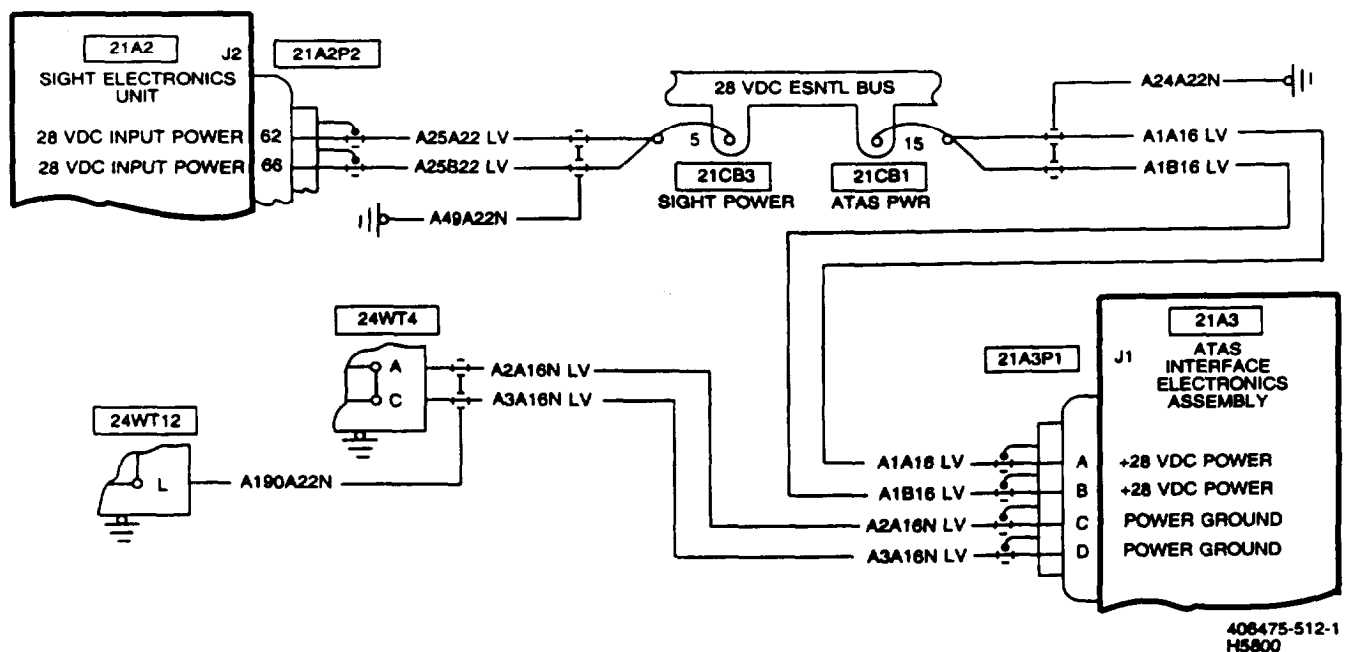
TM55_248_N102
H4218

102. SIGHT ELECTRONICS UNIT CIRCUIT BREAKER TRIPS (CONT)



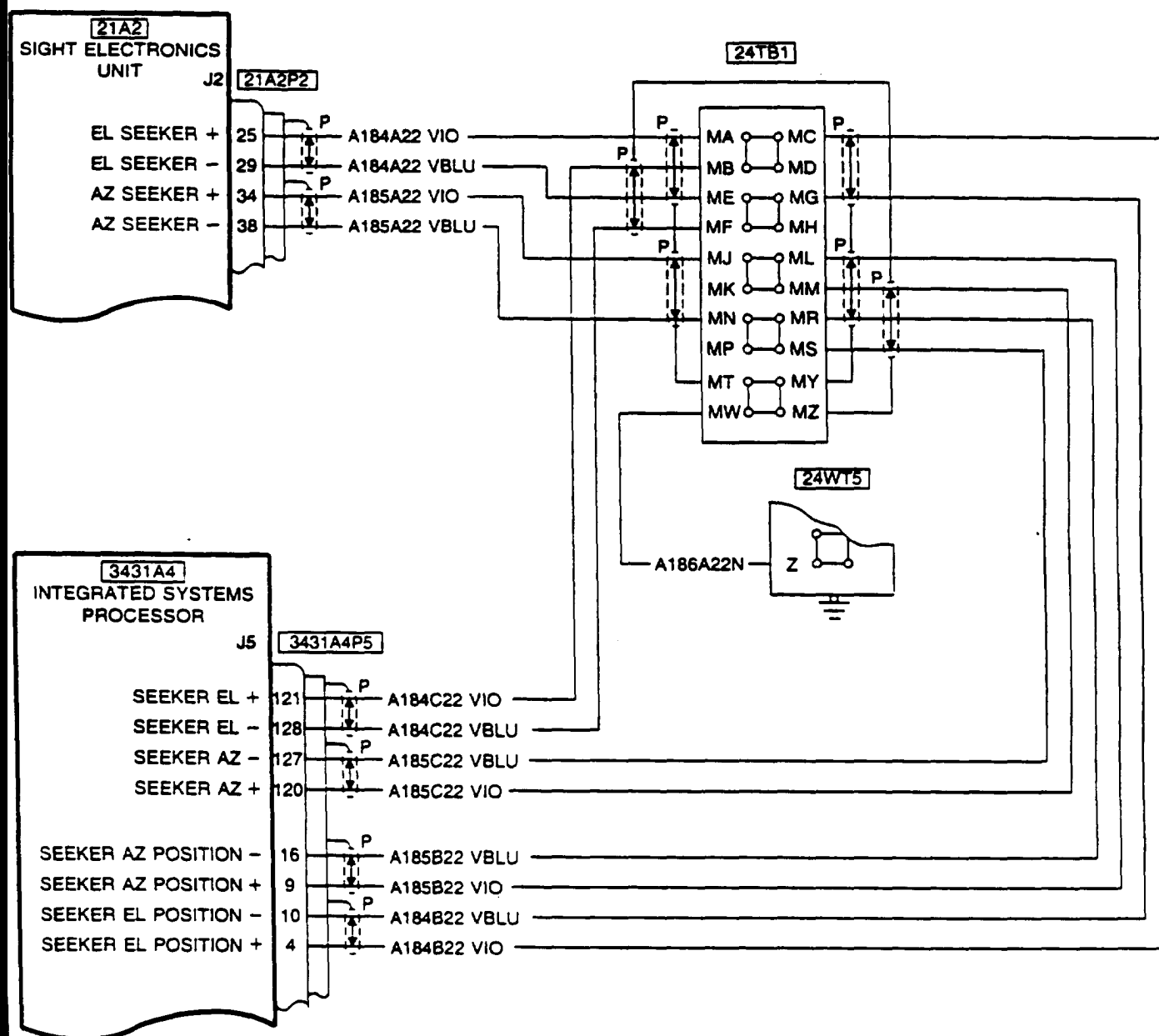
406475-512-1
H4215

102. SIGHT ELECTRONICS UNIT CIRCUIT BREAKER TRIPS (CONT)



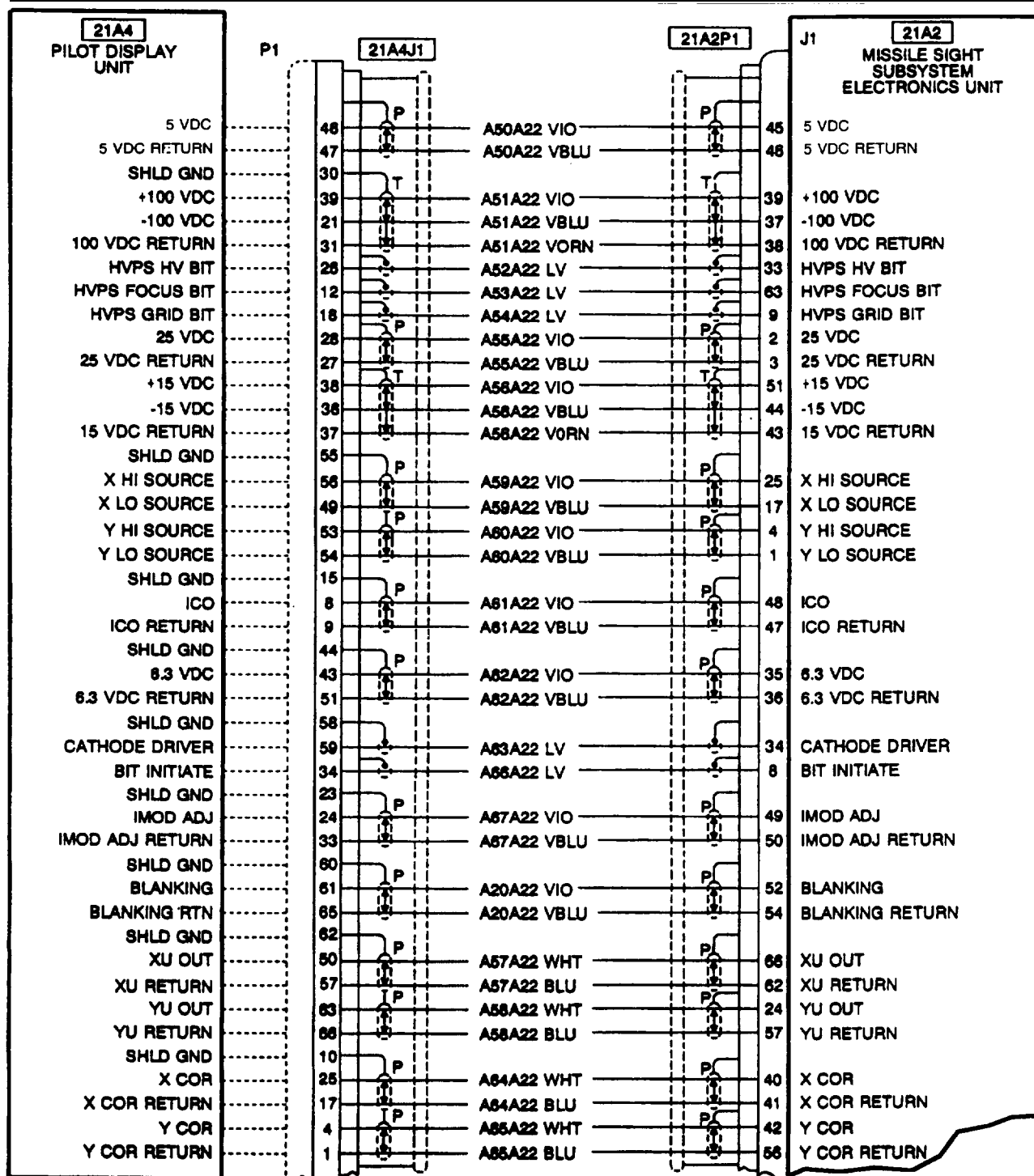
All Data On Page N-936 Deleted

102. SIGHT ELECTRONICS UNIT CIRCUIT BREAKER TRIPS (CONT)

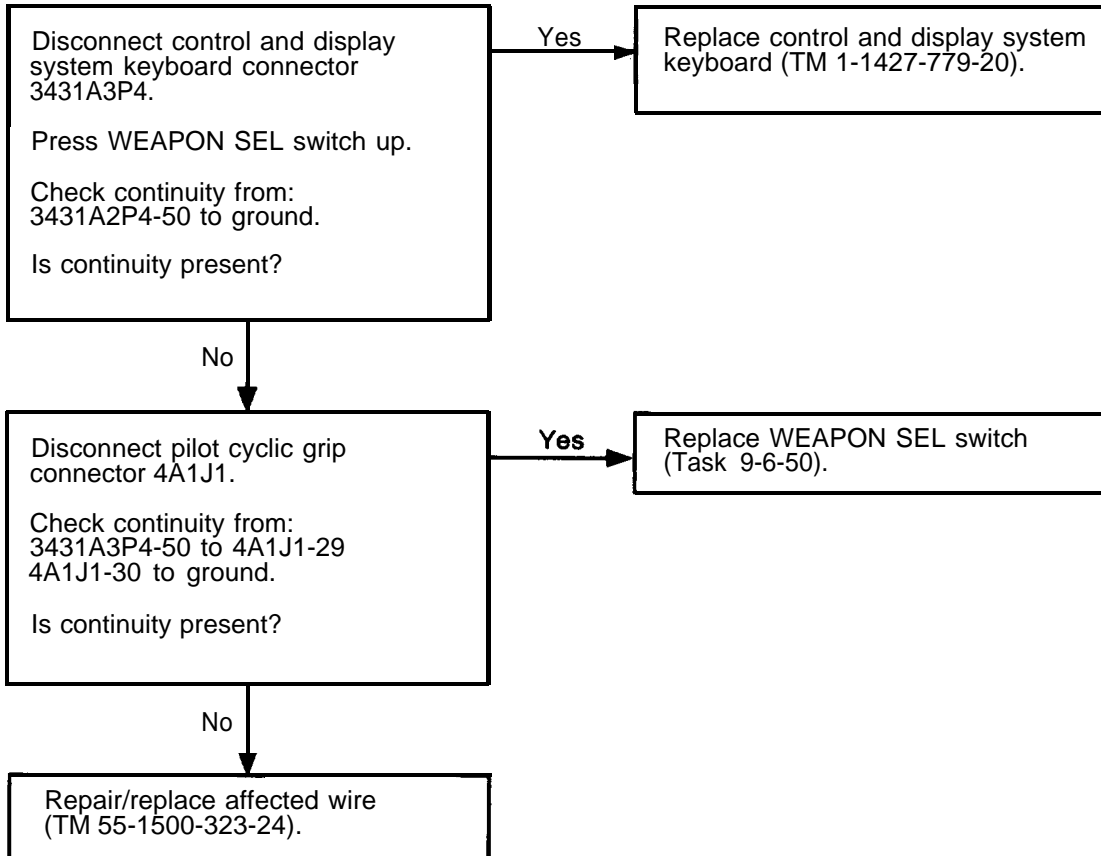
406475-512-2
H3887

PIN: 072649-002

102. SIGHT ELECTRONICS UNIT CIRCUIT BREAKER TRIPS (CONT)

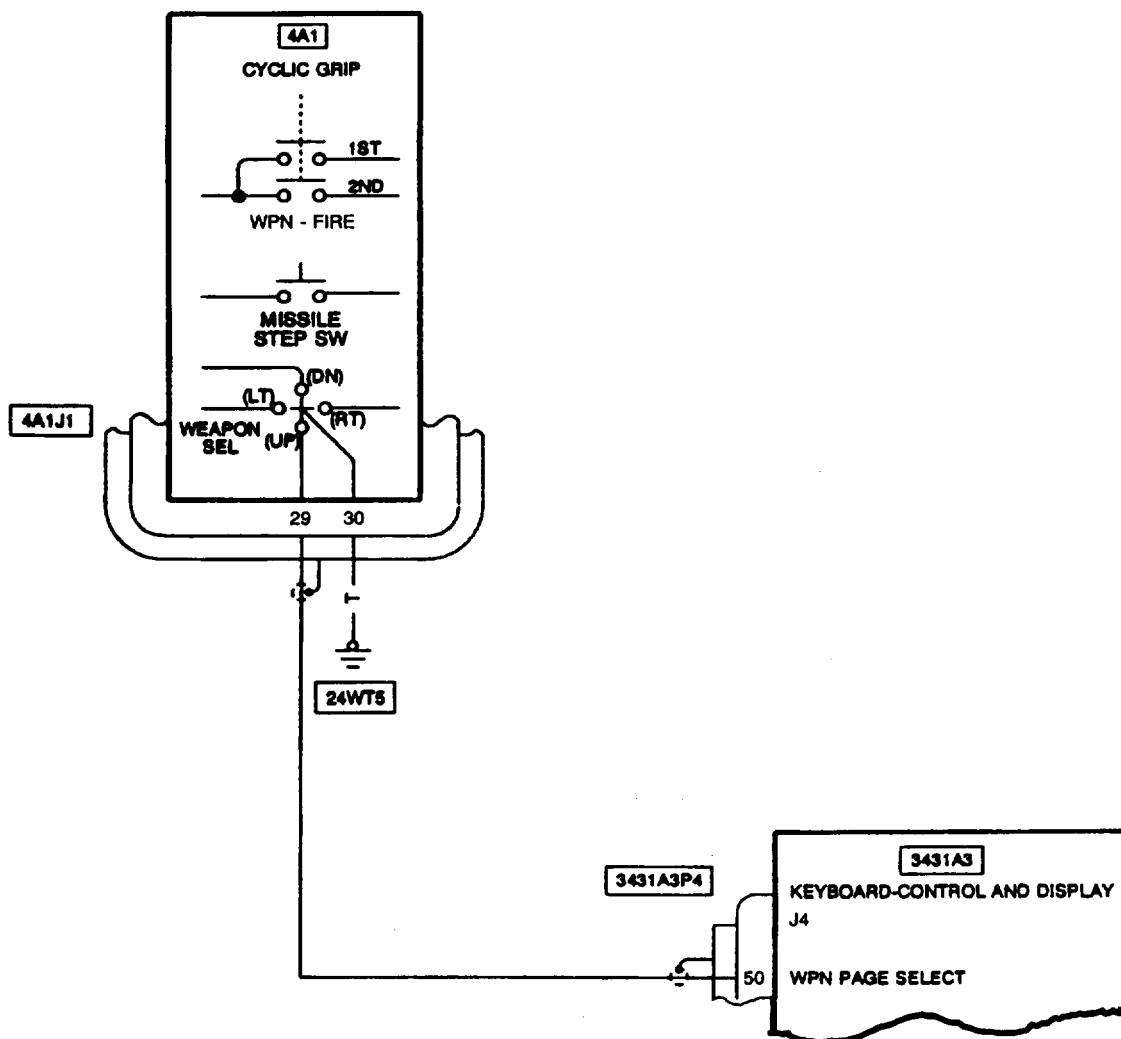
406475-512-3
H5073

103. CANNOT ACCESS WEAPONS PAGE ON PILOT MFD



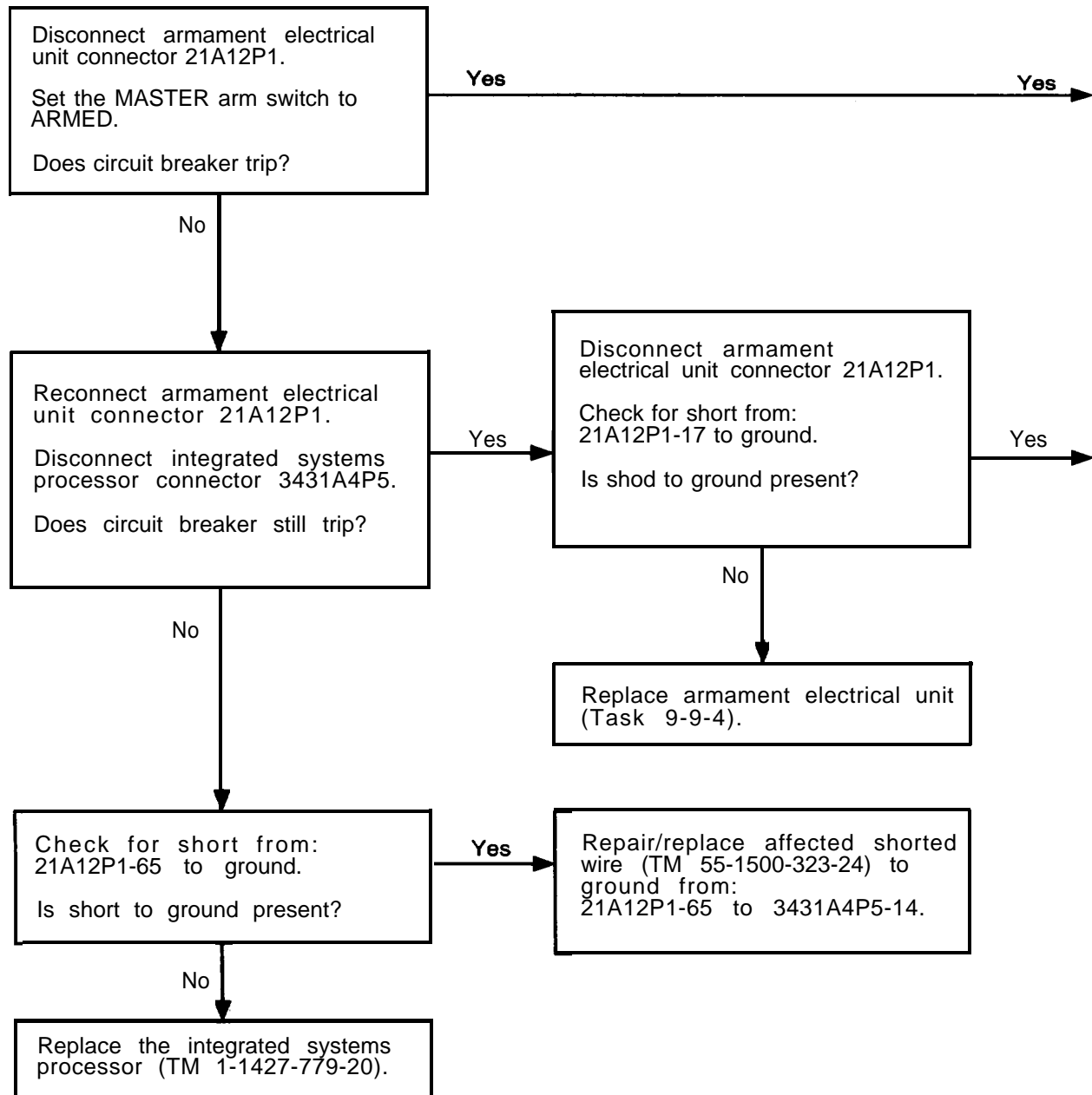
TM55_248_N103
H5073

103. CANNOT ACCESS WEAPONS PAGE ON PILOT MFD (CONT)

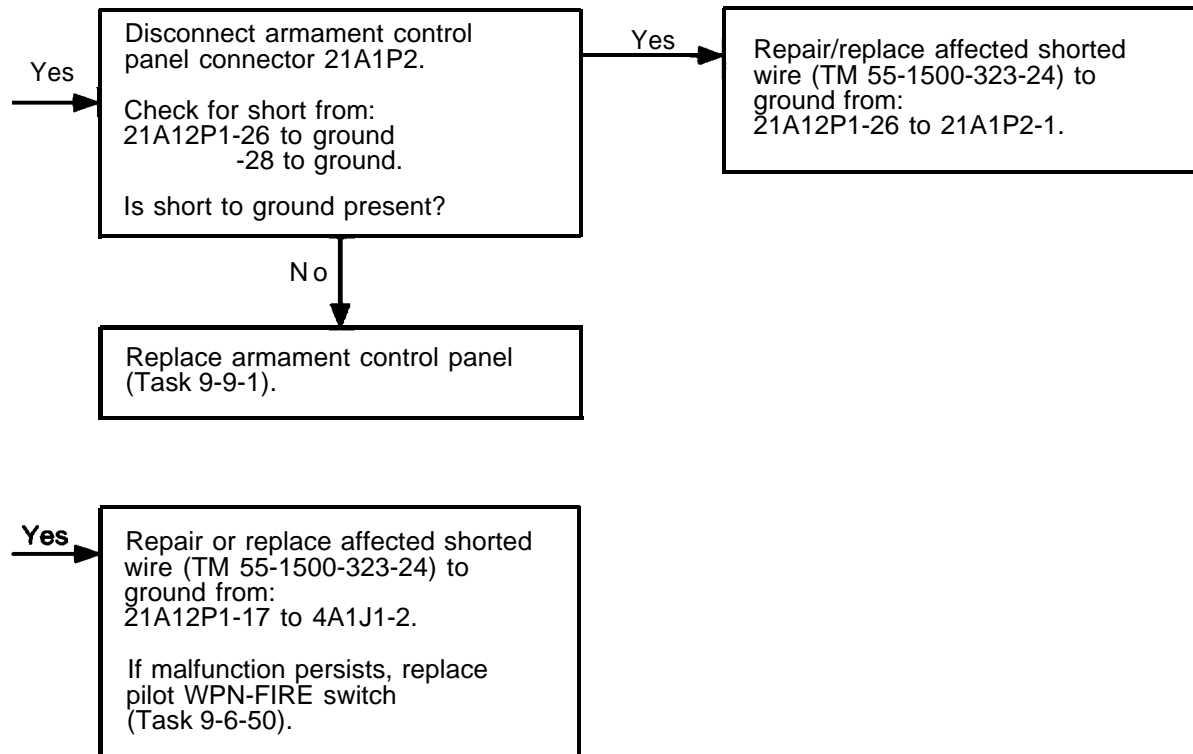


40475-513
H5073

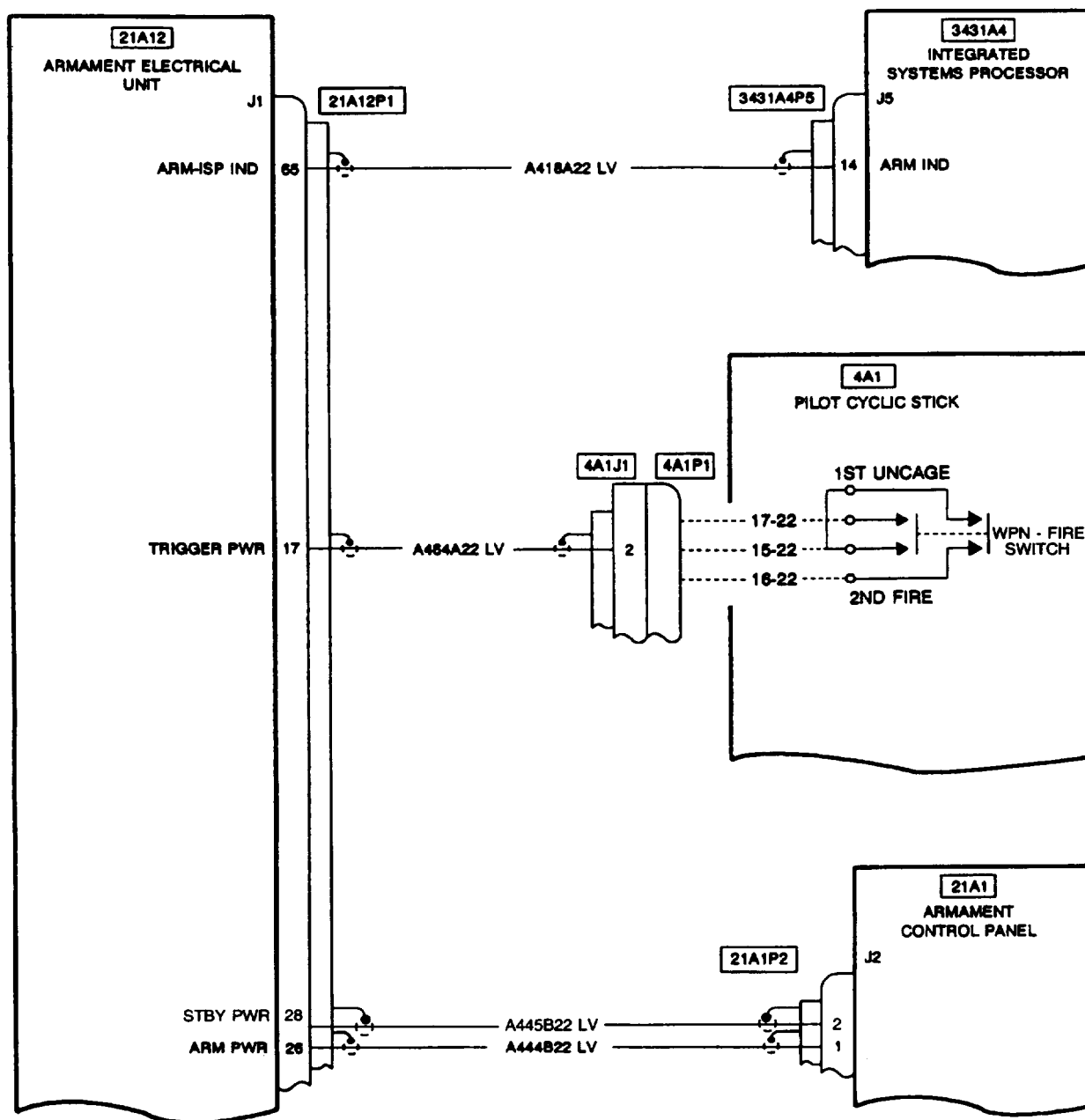
108. ARM CONTROL BREAKER TRIPS WITH MASTER ARM IN ARM OR STBY POSITION

TM55_248_N1-8_1
H5073

108. ARM CONTROL BREAKER TRIPS WITH MASTER ARM IN ARM OR STBY POSITION (CONT)

TM55_248_N108_2
H5073

108. ARM CONTROL BREAKER TRIPS WITH MASTER ARM IN ARM OR STBY POSITION (CONT)



406475-514
H5073

Section IX. TROUBLESHOOTING OH-58D (R) HELICOPTERS

NOTE

The task number referenced in the symptom column is the related operational check in Chapter 9.

MAPS NUMBER	SYMPTOM	PAGE NUMBER
1.	Starter will not crank engine. (Task 9-1-42)	N-947
2.	Engine Anti-ice valve does not open (no rise in TGT) when ENG ANTI-ICE switch is set to Eng ANTI-ICE and helicopter at idle rpm. (Task 9-1-47)	N-954
3.	Anti-ice switch solenoid valve does not close (no reduction in TGT). (Helicopter at idle, ENG ANTI-ICE switch set to OFF). (Task 9-1-47)	N-956
4.	Caution message CHIP ENG UPPER does not come on (engine upper chip detector connector connected to special test tool and test switch set to ON). (Task 9-1-47)	N-959
5.	Caution message CHIP ENG LOWER does not come on (engine lower chip detector connector connected to special test tool and test switch set to ON). (Task 9-1-47)	N-961
6.	Engine igniter does not fire. (Task 9-1-47)	N-963
7.	Warning message ENGINE OUT remains on (helicopter stabilized at flight idle and dc generator on). (Task 9-1-47)	N-966
8.	Engine NP RPM indicator (vertical scale) does not indicate approximately 62% (helicopter at flight idle and dc generator on). (Task 9-1-47)	N-968
9.	Engine TGT indicator does not indicate in green range (helicopter at flight idle and dc generator on). (Task 9-1-47)	N-971
10.	Engine NP RPM indicator (digital) on MPD does not indicate approximately 62% (helicopter at flight idle and dc generator on). (Task 9-1-47)	N-974
11.	Engine NG RPM indicator (digital) on MPD does not indicate approximately 64% (helicopter at flight idle and dc generator on). (Task 9-1-47)	N-977
12.	Engine NP RPM indicator (vertical scale) does not indicate approximately 100% (helicopter at 100% RPM and dc generator on). (Task 9-1-47)	N-980
13.	Engine NG RPM indicator (vertical scale) does not indicate approximately 80% (helicopter at 100% RPM and dc generator on). (Task 9-1-47)	N-983
14.	Engine TGT indicator does not indicate in green range (helicopter at 100% RPM and dc generator on). (Task 9-1-47)	N-986
15.	Engine NP RPM indicator (digital) on MPD does not indicate approximately 100% (helicopter at 100% and dc generator on). (Task 9-1-47)	N-989

**(Cont)
SYMPTOM****MAPS
NUMBER****PAGE
NUMBER**

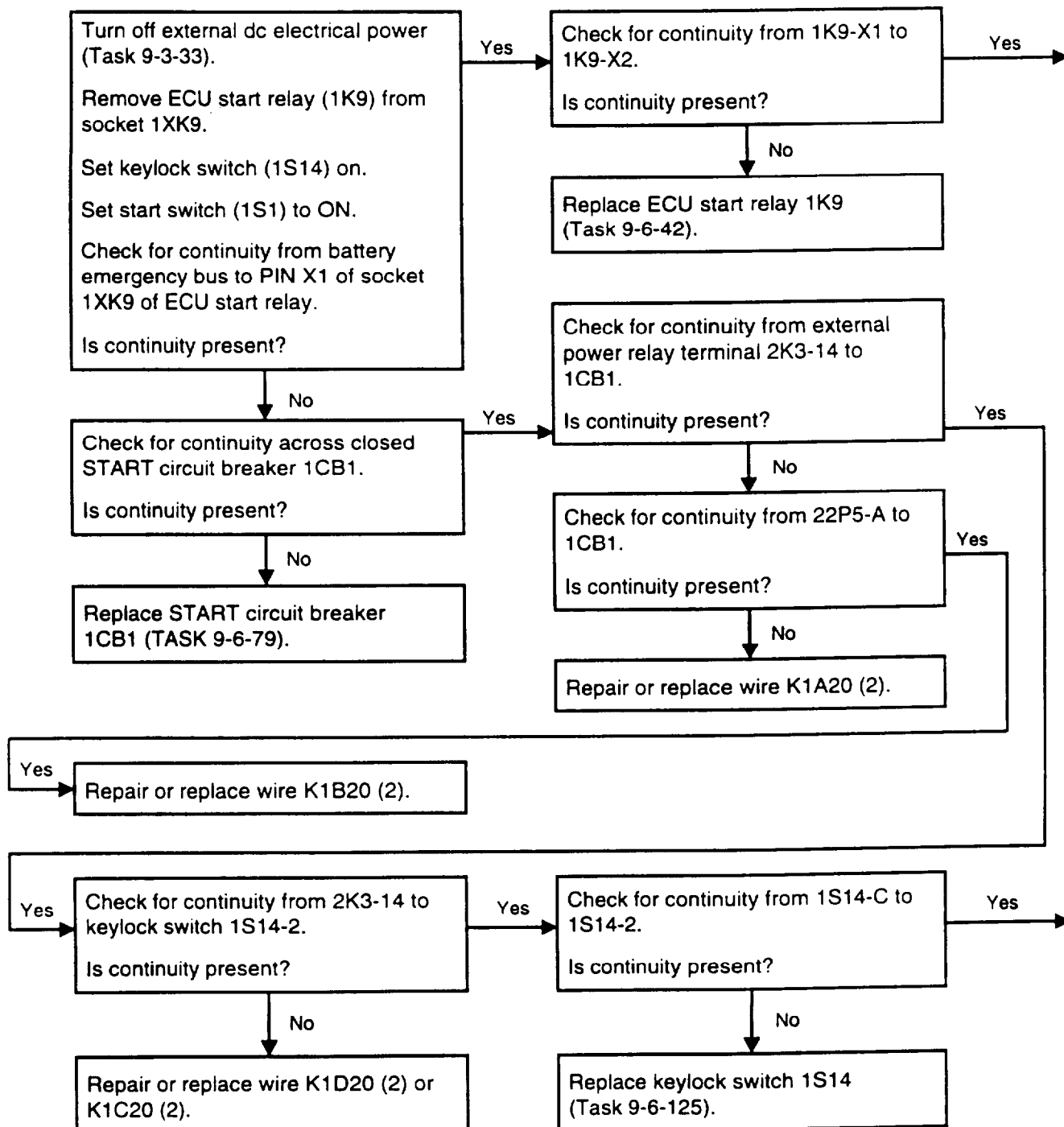
16.	Engine NG RPM indicator (digital) on MPD does not indicate approximately 85% (helicopter at 100% and dc generator on). (Task 9-1-47)	N-992
17.	RPM switch does not increase and/or decrease engine rpm. (Task 9-1-47)	N-995
18.	Error code 0200 word 1 pitch rate gyro failure.	N-997
19.	Error code 0400 word 1 roll rate gyro failure.	N-1001
20.	Error code 0800 word 1 yaw rate gyro failure.	N-1005
21.	Engine droops during increase in collective. (TM 55-1520-248-10)	N-1014
22.	FDL MENU page appears in flight.	N-1016
23.	Gun symbology not displayed on PDU (Task 16-1-3)	N-1018
24.	Gun fires with MASTER switch in STBY (Task 16-1-3)	N-1019
25.	Gun does not fire when WPN FIRE switch is depressed to first detent (Task 16-1-3)	N-1021
26.	Gun does not fire when WPN FIRE switch is depressed to second detent (Task 16-1-3)	N-1025
27.	Gun does not fire with RIGHT MCPU FAIL and WPN FIRE switch depressed to second detent (Task 16-1-3)	N-1028
28.	Gun installed indication is not displayed on MFDs (Task 16-1-3)	N-1029
29.	MFD ARM/SAFE indication does not respond properly to GUN switch positions (Task 16-1-3)	N-1030
30.	Gun does not fire limited burst in first detent (Task 16-1-3)	N-1033
31.	GUN rounds counter does not decrement properly (Task 16-1-3)	N-1037
32.	MFD does not indicate rocket system installed (Task 16-1-5)	N-1039
33.	Rockets installed indication is displayed, but rockets do not operate (Ta-16-1-5)	N-1041
34.	Rockets SAFED is displayed when selected and armed (Task 16-1-5)	N-1046
35.	Rocket squib does not fire when system is armed and selected, and WPN FIRE switch is depressed (Task 16-1-5)	N-1051
36.	Rocket fuse time for manual setting does not agree with MFD (Task 16-1-5)	N-1058
37.	All or a single rocket will not fuse (Task 16-1-5)	N-1062
38.	Rockets fire in pairs when single is selected (Task 16-1-5)	N-1065
39.	Rockets fire in singles when ripple singles is selected (Task 16-1-5)	N-1066
40.	RKTS OFF is displayed on MFD when selected, armed, and able to be fired (Task 16-1-5)	N-1067
41.	Rockets display SAFED on MFD when selected (Task 16-1-5)	N-1068
42.	Rockets fire in zones not selected to fire (Task 16-1-5)	N-1075
43.	Rockets fire in both zones when single is selected (Task 16-1-5)	N-1076
44.	ATAS does not pass BIT on MFD (Task 16-1-2)	N-1077

MAPS NUMBER	(Cont) SYMPTOM	PAGE NUMBER
45.	Missile activates but is not displayed on MFD (Task 16-1-2)	N-1078
46.	ATAS tracking reticle on MFD does not correspond to target/seeker movement (Task 16-1-2)	N-1080
47.	ATAS tracking reticle on PDU does not correspond to target/seeker movement (Task 16-1-2)	N-1085
48.	MFD does not indicate ATAS is installed (Task 16-1-2)	N-1089
49.	ATAS SAFED is displayed on MFD when selected and armed (Task 16-1-2)	N-1091
50.	Hellfire missile does not spin up (Task 16-1-4)	N-1093
51.	Hellfire missiles installed and selected (ON), but missile images not displayed on MFD and BIT cannot be initiated (Task 16-1-4)	N-1099
52.	HELLFIRE BIT is not displayed on WEAPONS BIT/SETUP PAGE and incorrect symbology is displayed on VSD page (Task 16-1-4)	N-1100
53.	Missile does not perform box scan in LOBL (Task 16-1-4)	N-1104
54.	System will not step to next missile (Task 16-1-4)	N-1108
55.	Incorrect Hellfire missile quantity displayed on MFD (Task 16-1-4)	N-1110
56.	MFD displays UNL when launchers are latched (Task 16-1-4)	N-1112
57.	MFD does not indicate Hellfire system is Installed (Task 16-1-4)	N-1116
58.	MFD indicates Hellfire system is installed, but system does not operate (Task 16-1-4)	N-1118
59.	Hellfire missile displays SAFED on MFD when armed and selected (ON) (Task 16-1-4)	N-1121
60.	MFD displays SEL then MF under Hellfire MSL image (Task 16-1-4)	N-1123
61.	Hellfire system fails launcher BIT (Task 16-1-4)	N-1126
62.	MFD displays HELLFIRE ARMED and READY, but cannot fire missile (Task 16-1-4)	N-1134
63.	Hellfire missile will not fire (Task 16-1-4)	N-1138
64.	RHE indicates NOGO on MUX BUS STATUS PAGE (Task 16-1-1)	N-1140
65.	RIGHT MCPU FAIL displayed on MFDs (Task 16-1-1)	N-1145
66.	ATAS does not indicate LOW PRESSURE on MFD when argon bottle is low (Task 16-1-2)	N-1147
67.	Hellfire launcher SAFE/ARM switch is electrically inoperative (Task 16-1-4)	N-1148
68.	ARMT CONTR circuit breaker trips with MASTER switch in STBY or ARM (Task 16-1-1)	N-1150

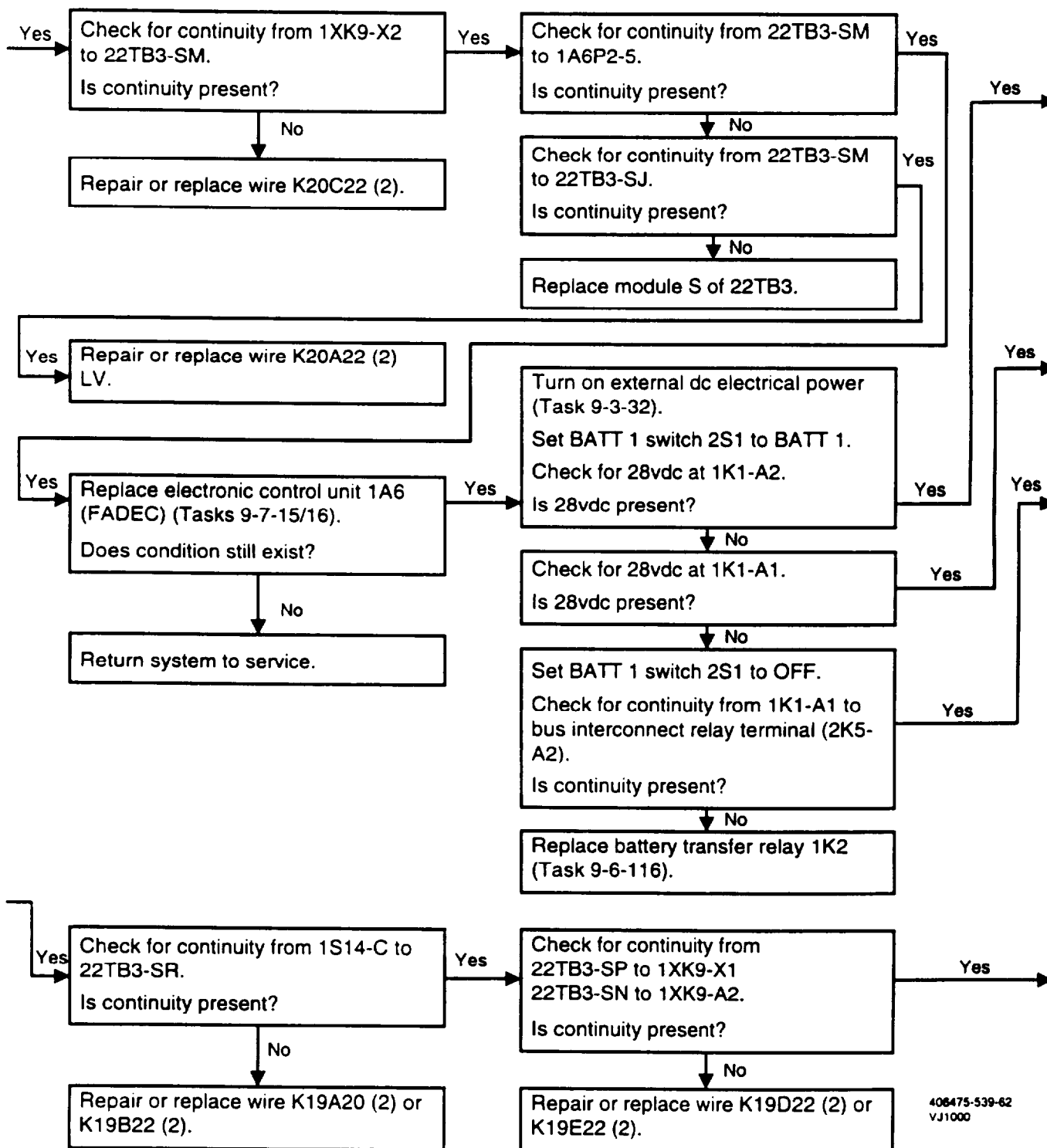
**(Cont)
SYMPTOM****MAPS
NUMBER****PAGE
NUMBER**

69.	Weapon will not arm (Task 16-1-1)	N-1155
70.	Weapon will not fire (Task 16-1-1)	N-1157
71.	All weapons fire in first detent (Task 16-1-1)	N-1159
72.	MFD does not respond to weapons. R MCPU NOGO is displayed on MUX STATUS PAGE (Task 16-1-1)	N-1161
73.	ARMT CONTR circuit breaker trips with MASTER switch in ARM or STBY	N-1165

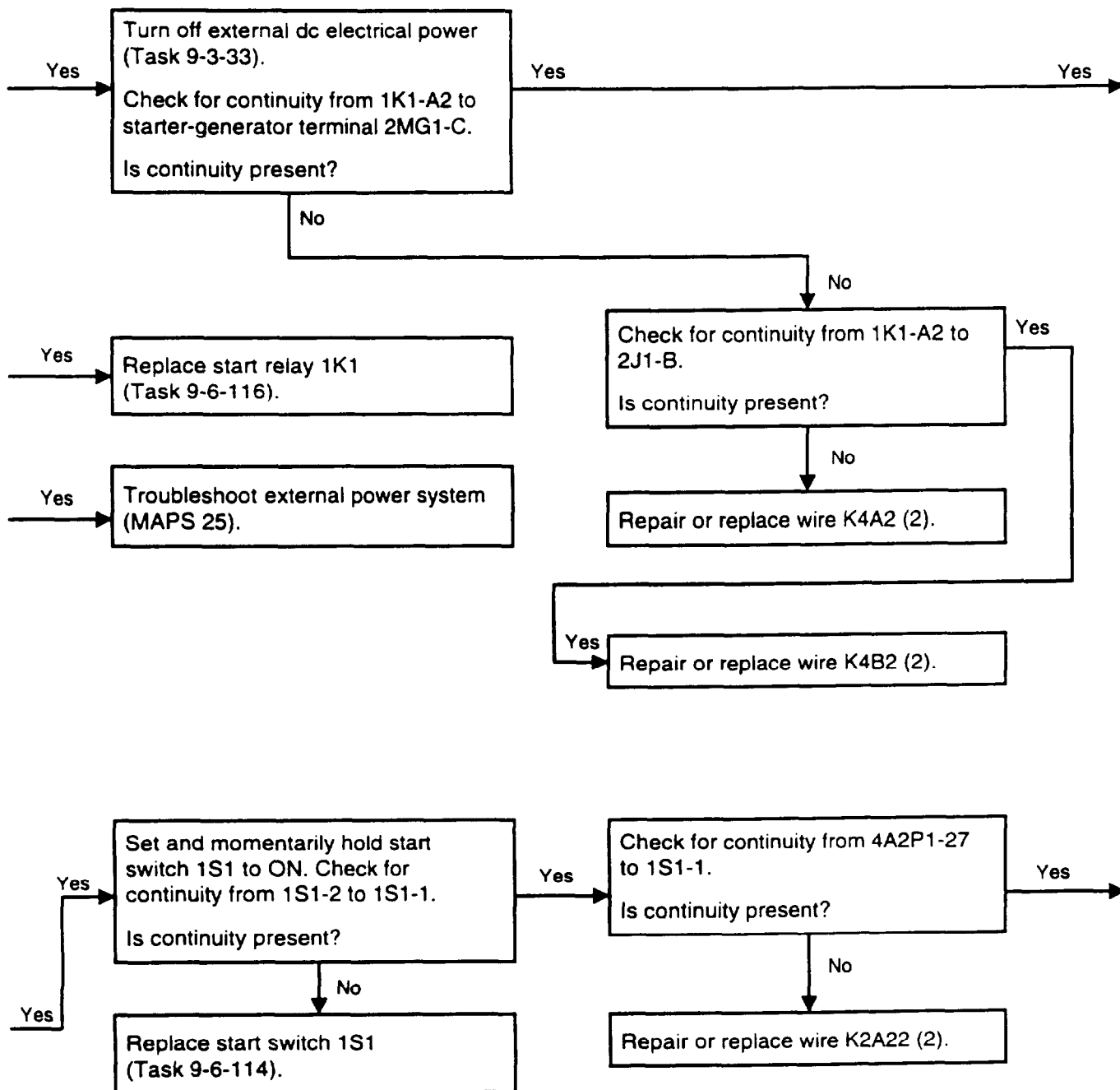
1. STARTER WILL NOT CRANK ENGINE

406475-539-61
VJ1000

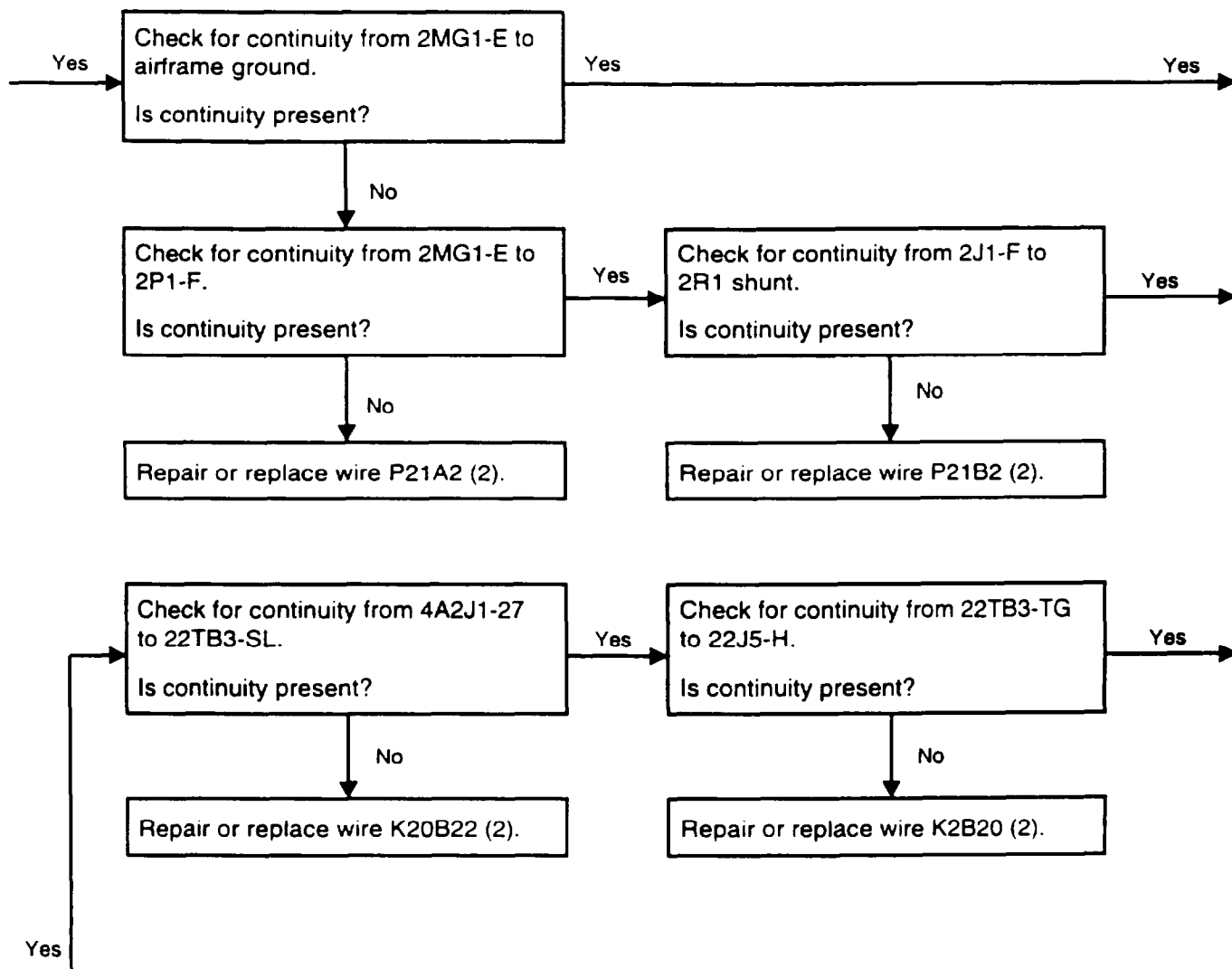
1. STARTER WILL NOT CRANK ENGINE (CONT)



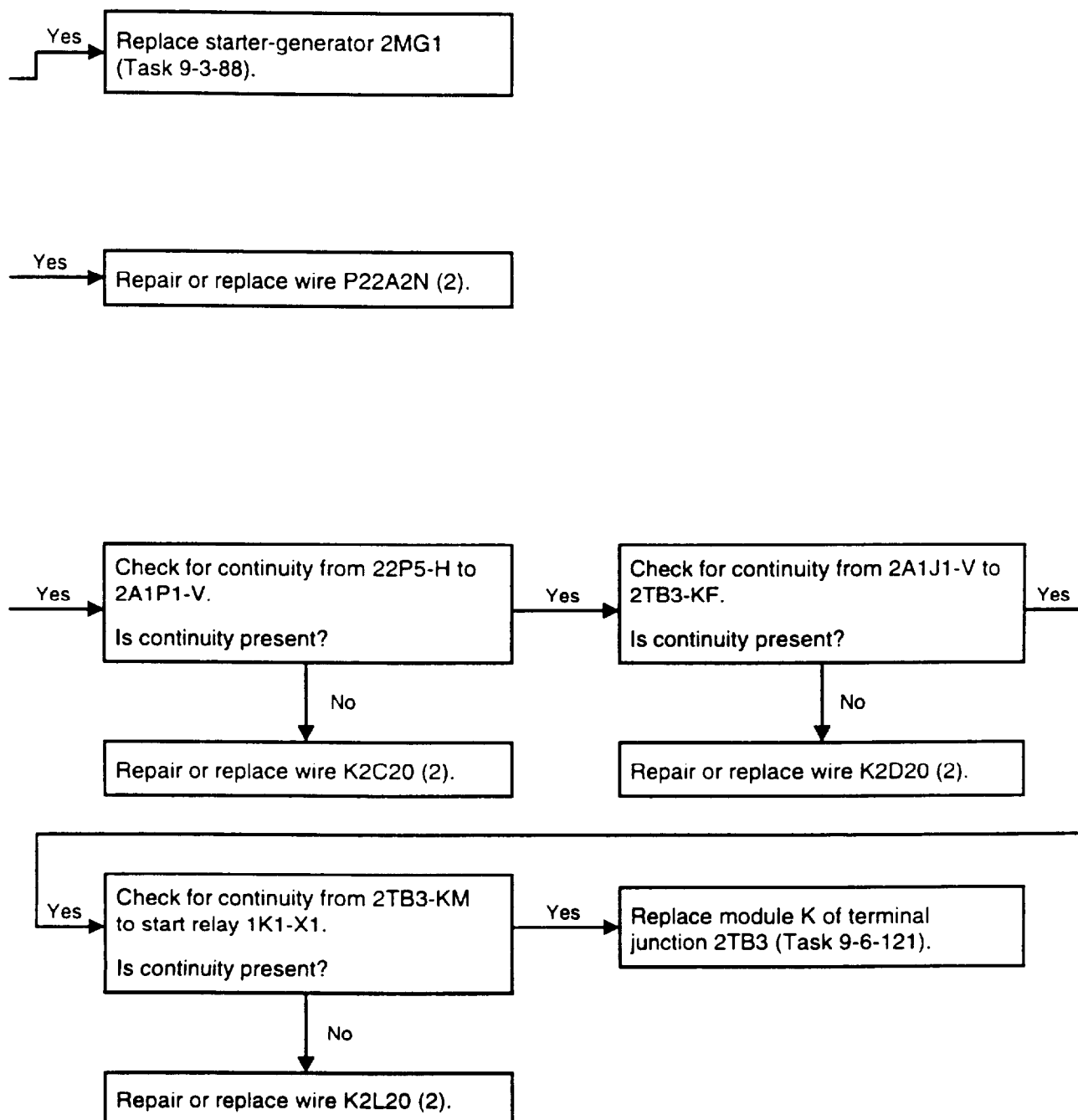
1. STARTER WILL NOT CRANK ENGINE (CONT)

406475-539-63
VJ1000

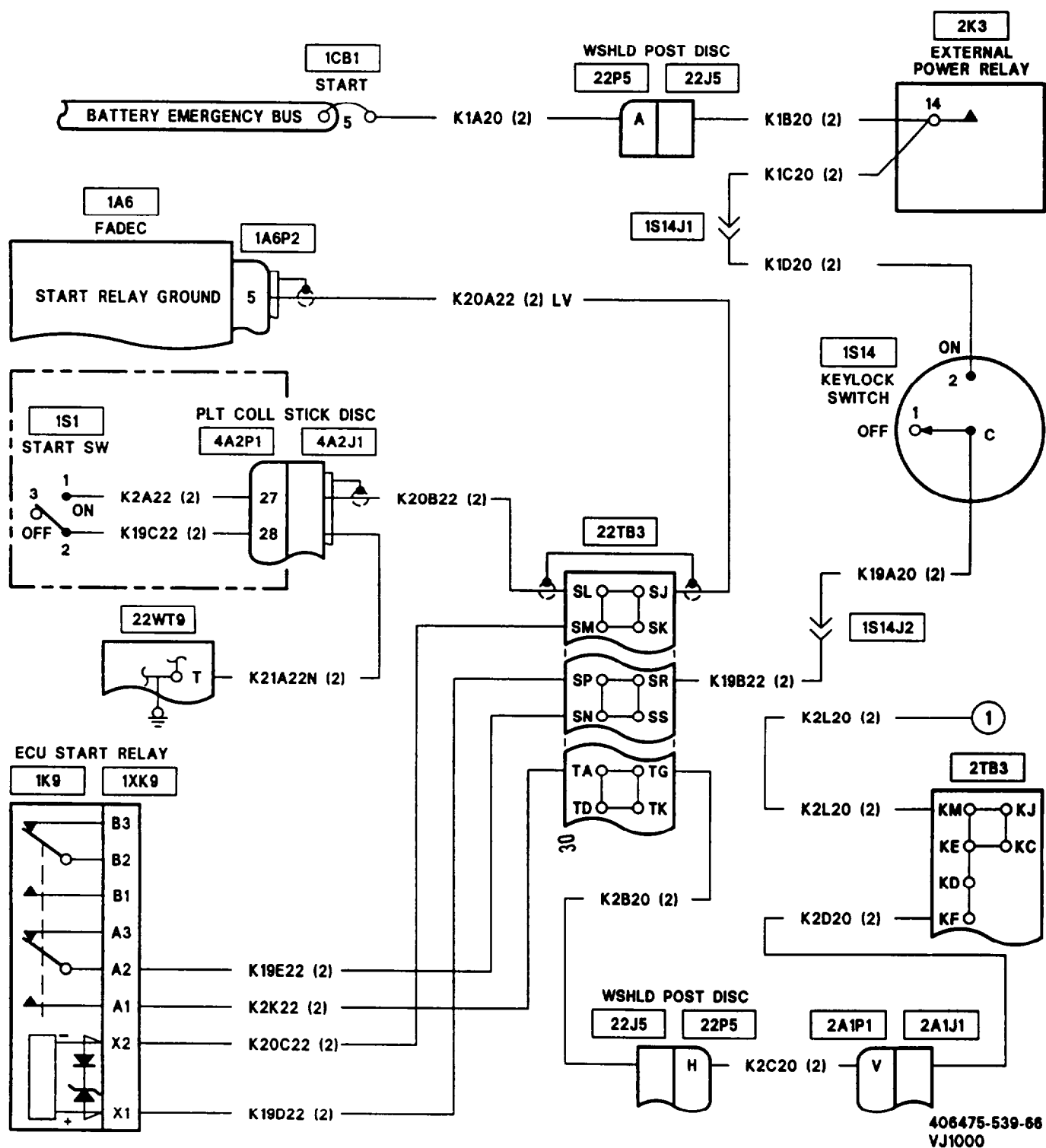
1. STARTER WILL NOT CRANK ENGINE (CONT)

406475-539-64
VJ1000

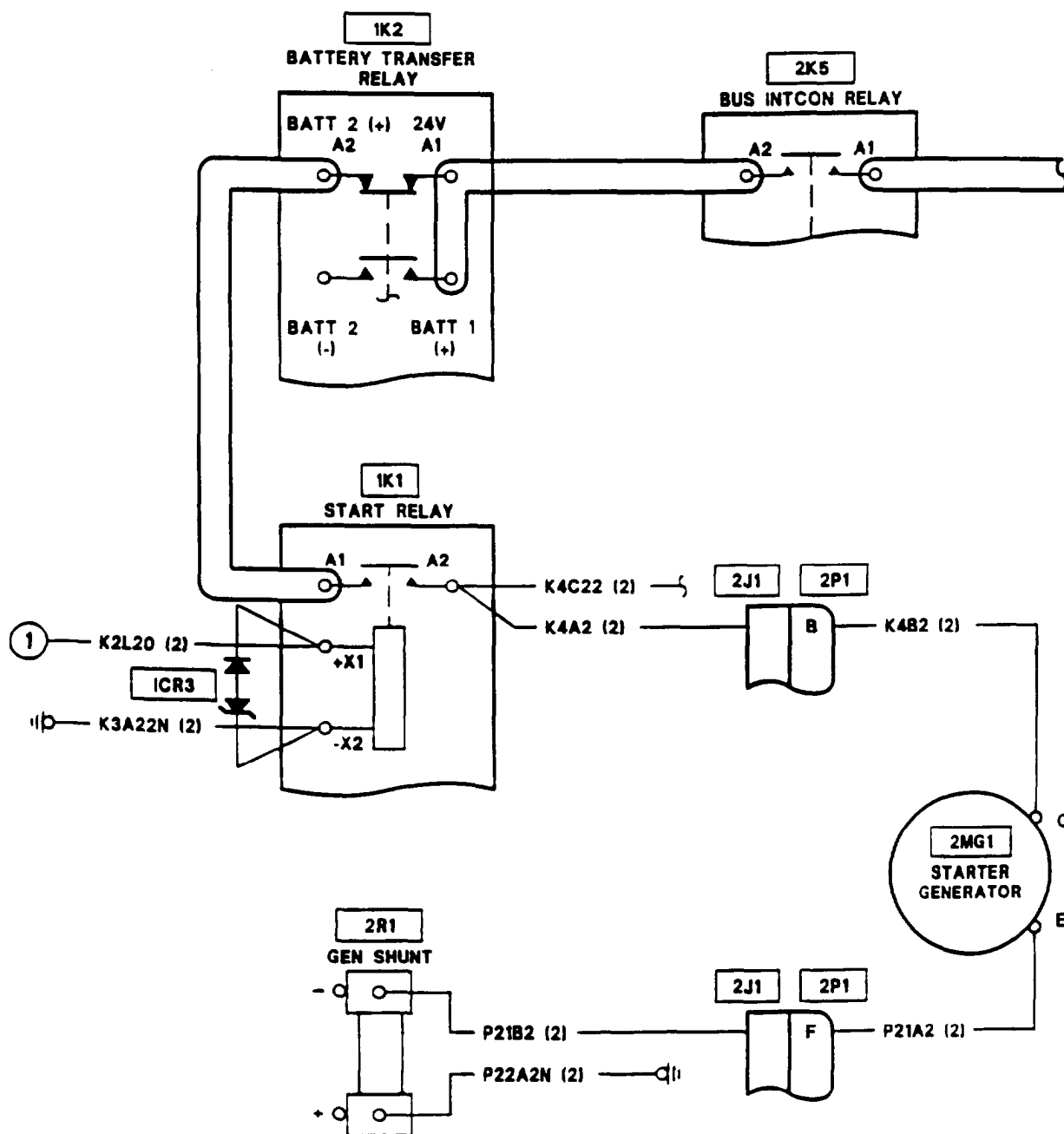
1. STARTER WILL NOT CRANK ENGINE (CONT)

406475-539-65
VJ1000

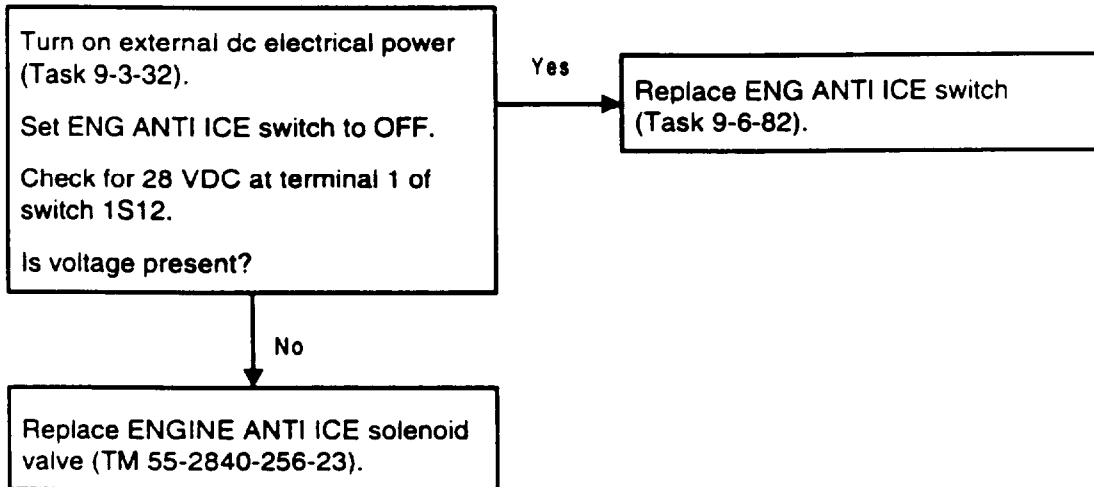
1. STARTER WILL NOT CRANK ENGINE (CONT)



1. STARTER WILL NOT CRANK ENGINE (CONT)

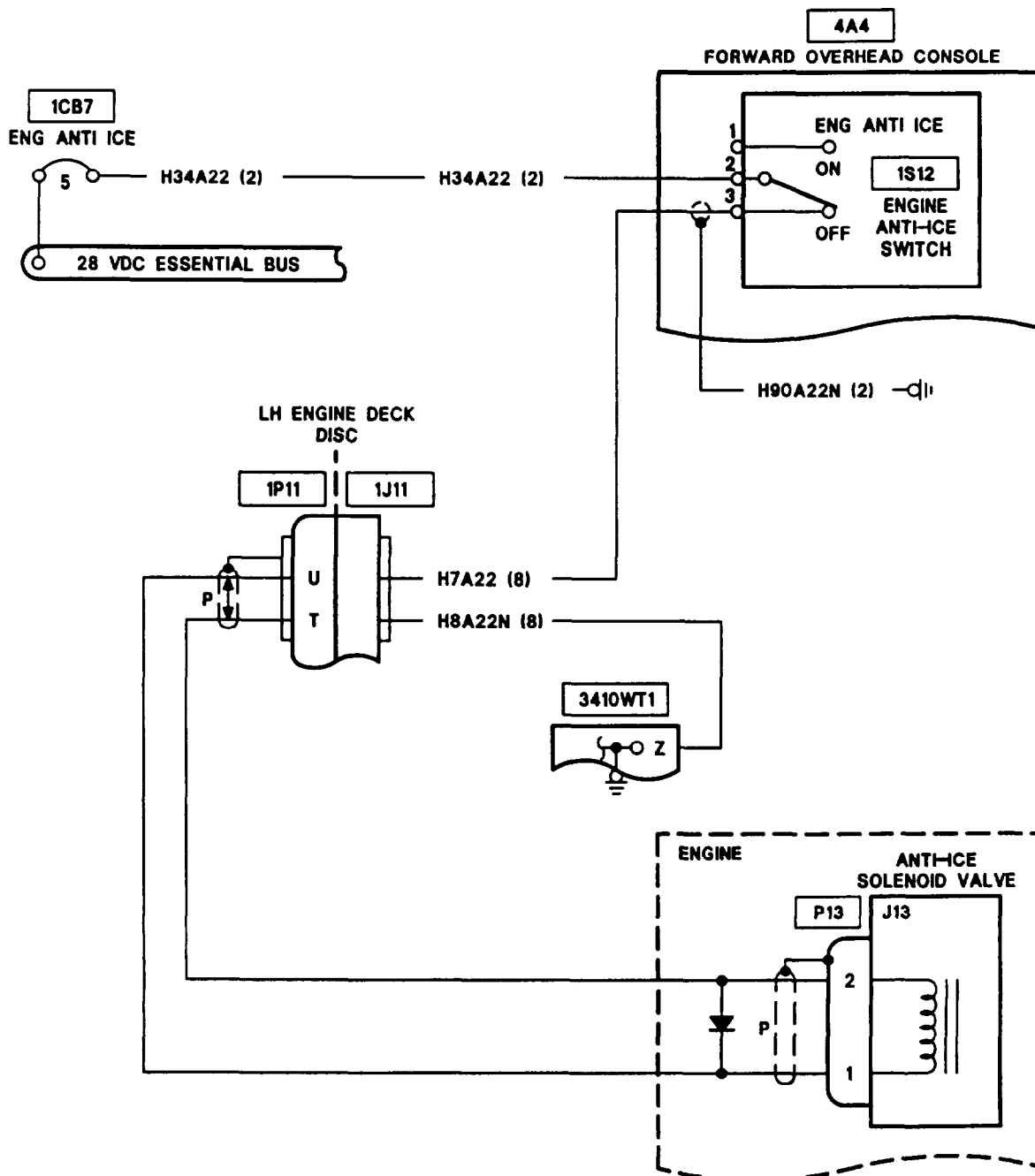
406475-539-67
VJ1000

2. ENGINE ANTI-ICE VALVE DOES NOT OPEN (NO RISE IN TGT) WHEN ENG ANTI ICE SWITCH IS SET TO ENG ANTI ICE AND HELICOPTER AT IDLE RPM



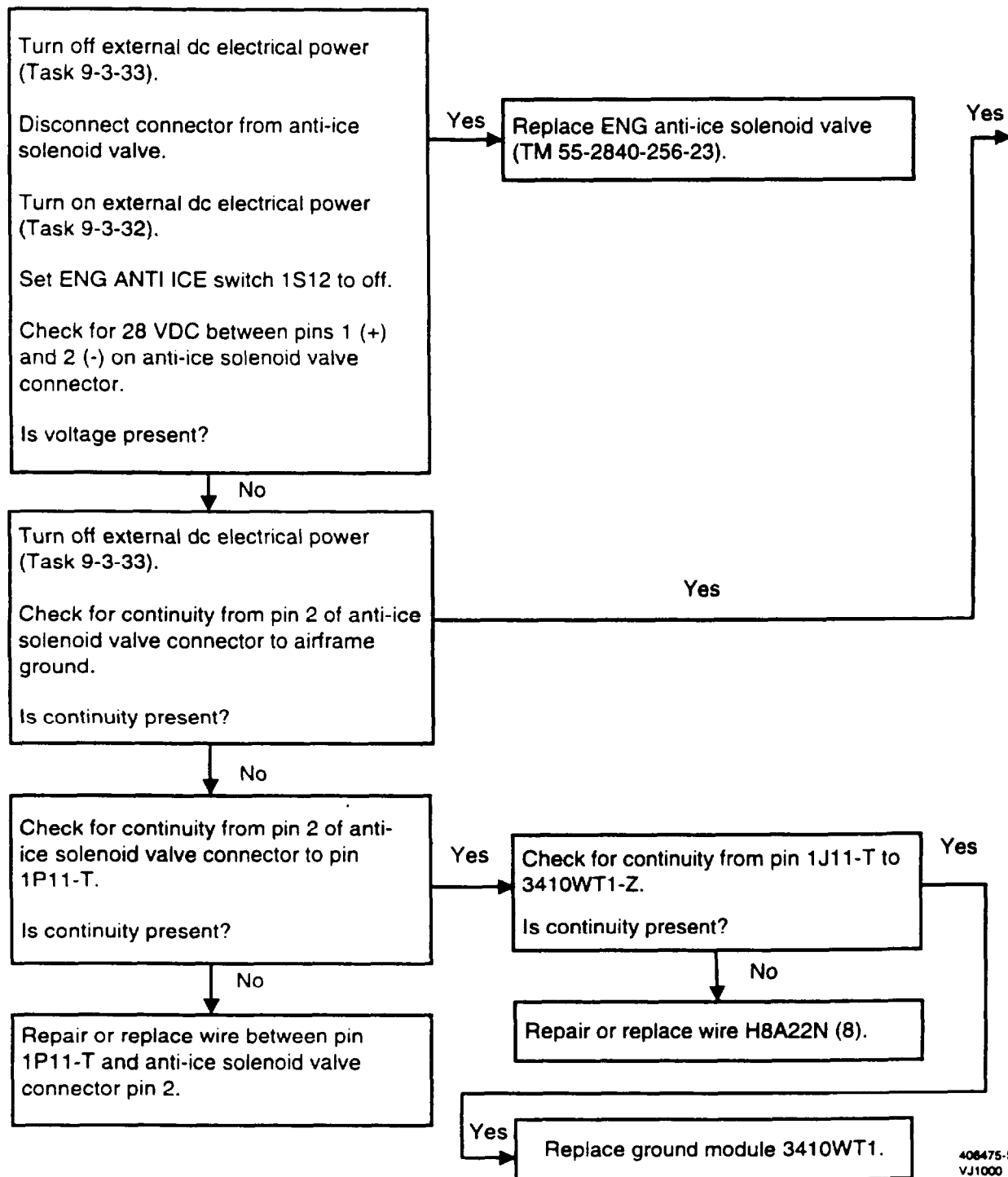
406475-539-1
VJ1000

2. ENGINE ANTI-ICE VALVE DOES NOT OPEN (NO RISE IN TGT) WHEN ENG ANTI ICE SWITCH IS SET TO ENG ANTI ICE AND HELICOPTER AT IDLE RPM (CONT)

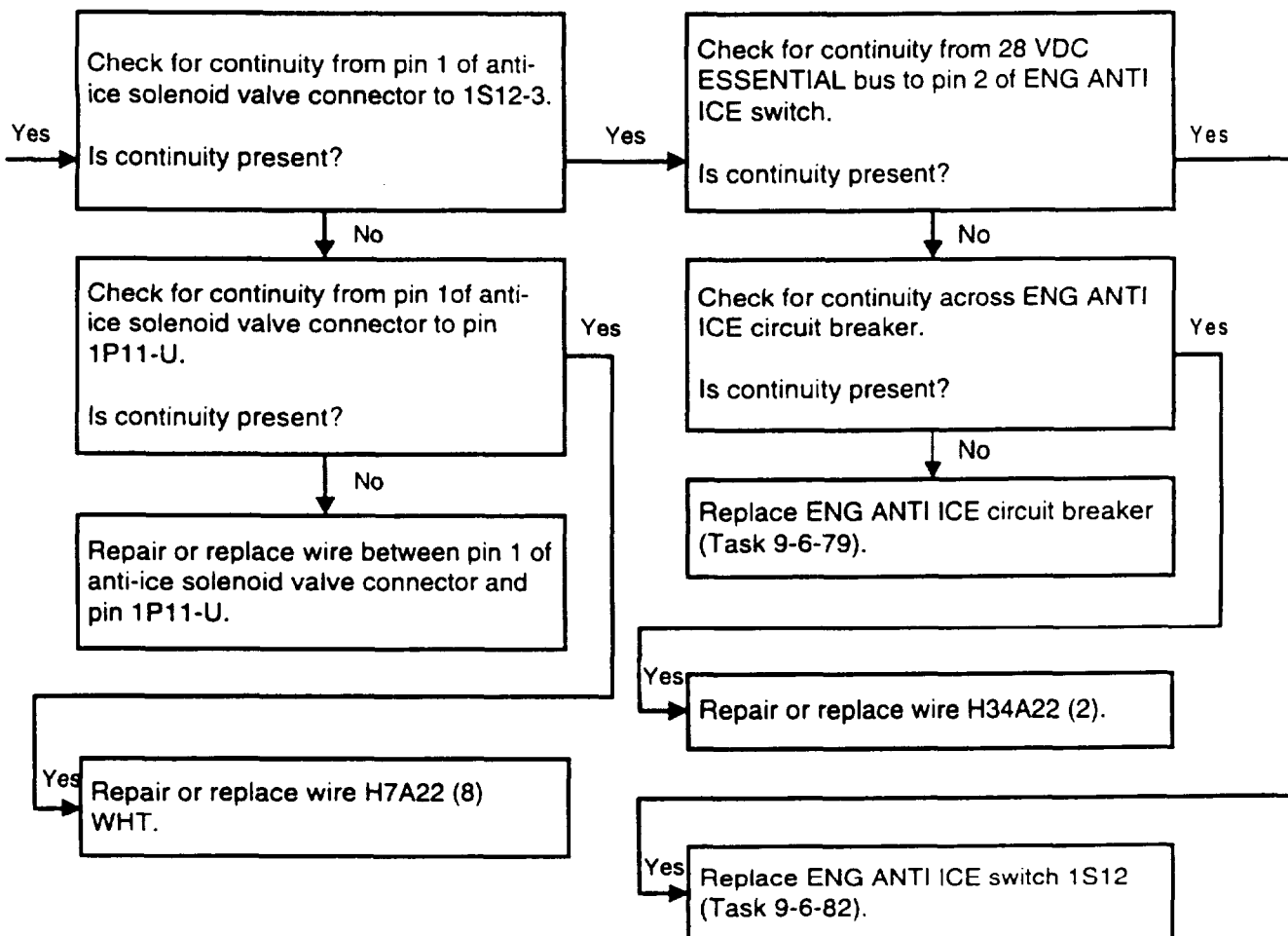


406475-539-2
VJ1000

3. ANTI-ICE SOLENOID VALVE DOES NOT CLOSE (NO REDUCTION IN TGT) (HELICOPTER AT IDLE, ENG ANTI ICE SWITCH SET TO OFF)

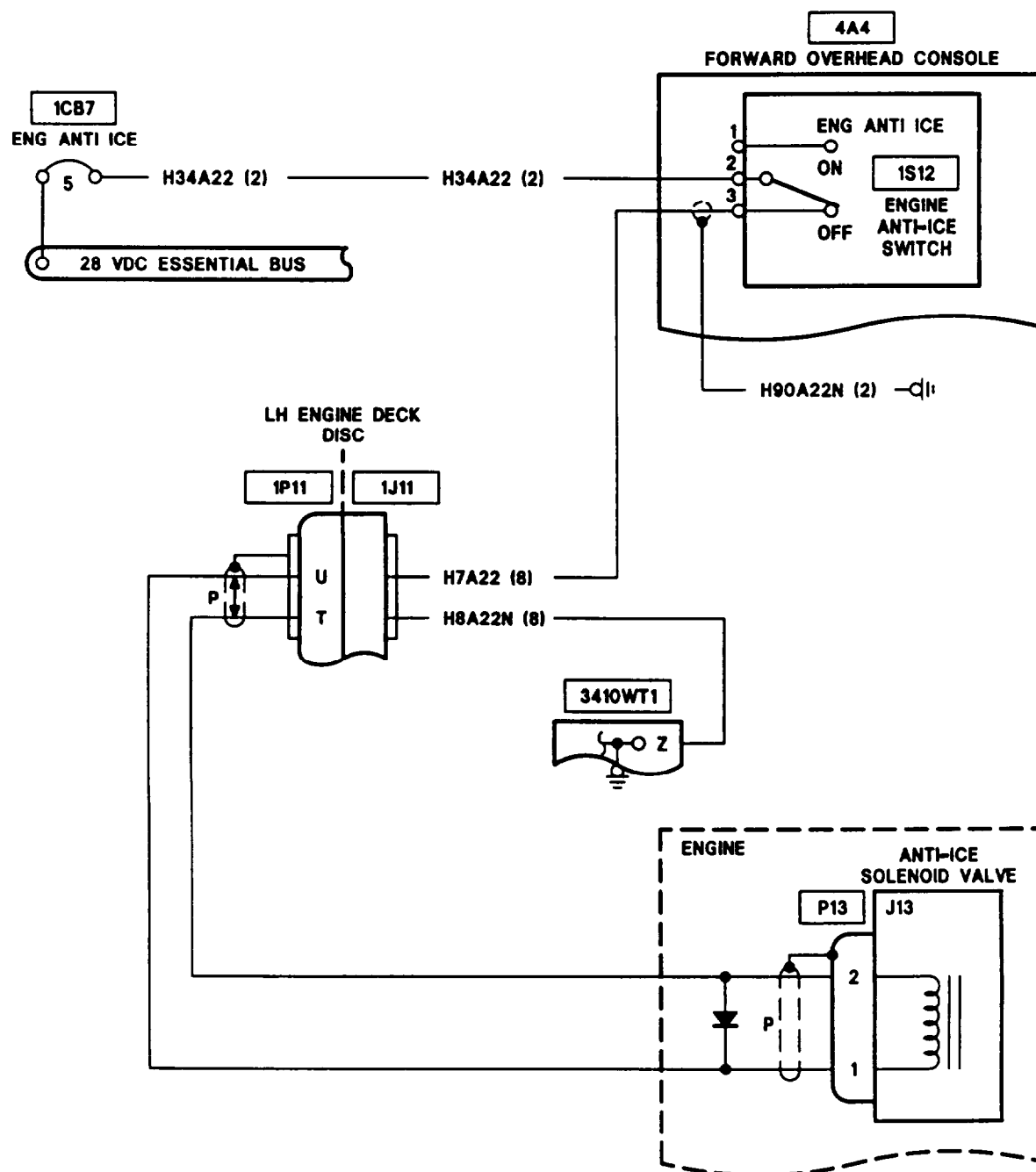
408475-539-3
VJ1000

3. ANTI-ICE SOLENOID VALVE DOES NOT CLOSE (NO REDUCTION IN TGT) (HELICOPTER AT IDLE, ENG ANTI ICE SWITCH SET TO OFF) (CONT)



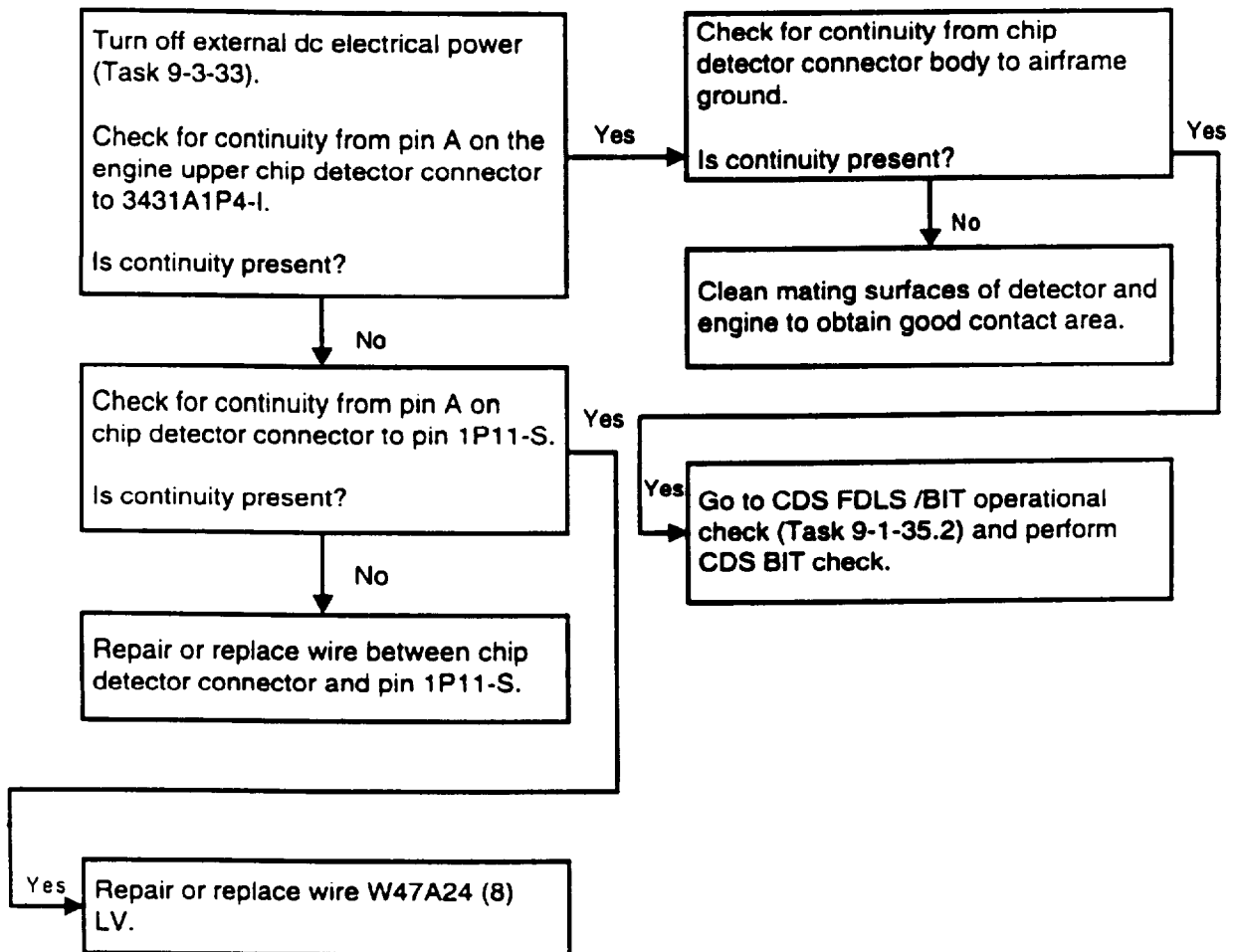
406475-539-4
VJ1000

3. ANTI-ICE SOLENOID VALVE DOES NOT CLOSE (NO REDUCTION IN TGT) (HELICOPTER AT IDLE, ENG ANTI ICE SWITCH SET TO OFF) (CONT)



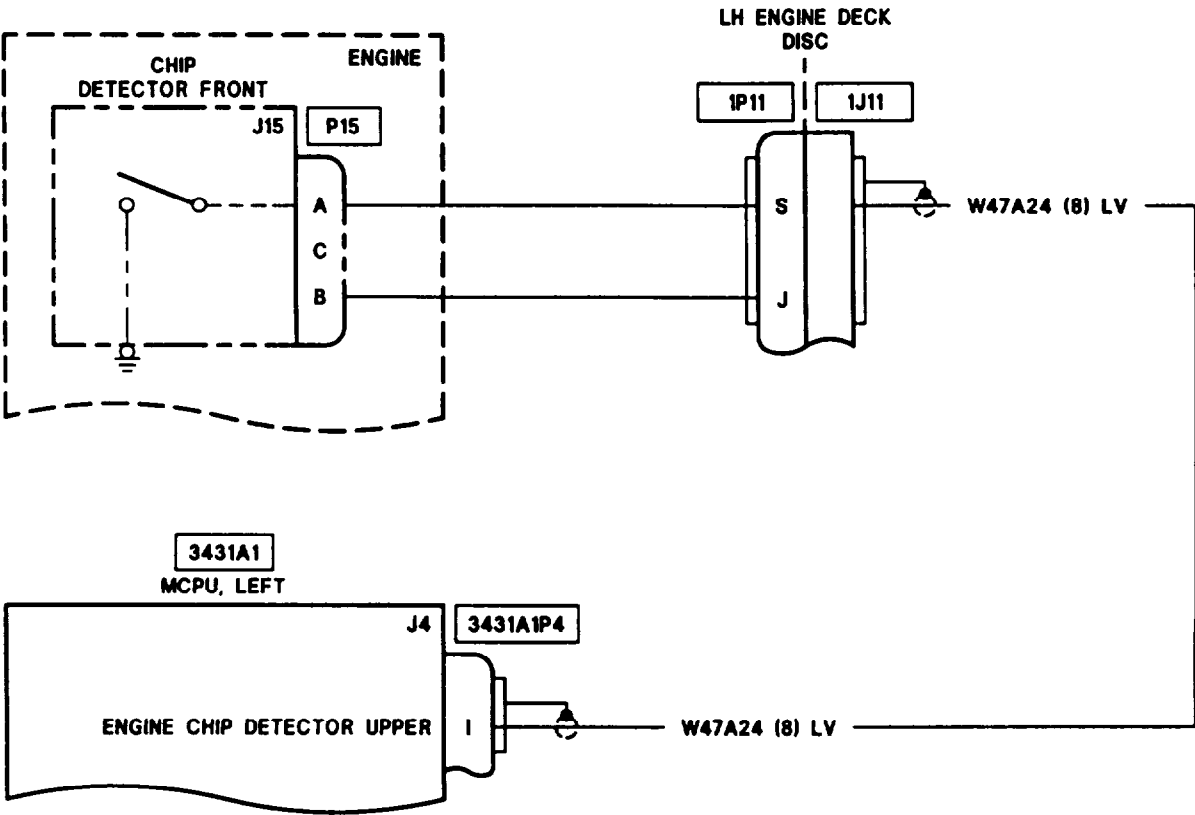
406475-539-5
VJ1000

4. CAUTION MESSAGE CHIP ENG UPPER DOES NOT COME ON (ENGINE UPPER CHIP DETECTOR CONNECTOR CONNECTED TO SPECIAL TEST TOOL AND TEST SWITCH SET TO ON)



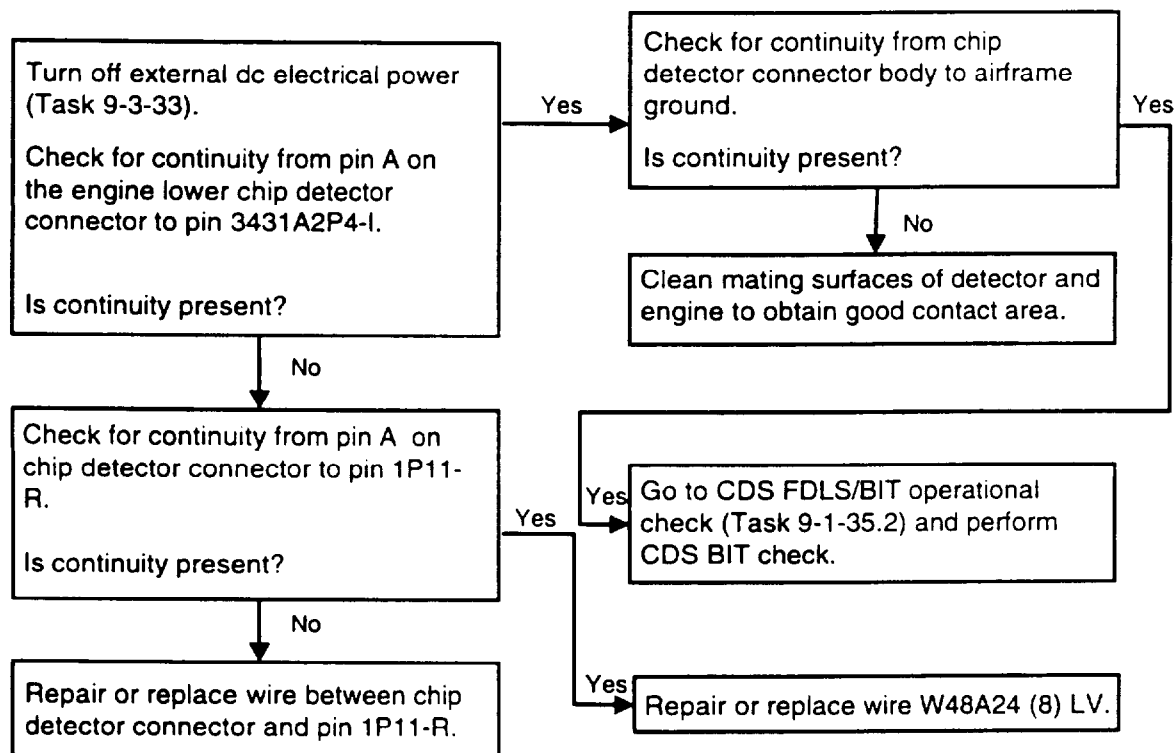
408475-539-8
VJ1000

4. CAUTION MESSAGE CHIP ENG UPPER DOES NOT COME ON (ENGINE UPPER CHIP DETECTOR CONNECTOR CONNECTED TO SPECIAL TEST TOOL AND TEST SWITCH SET TO ON) (CONT)



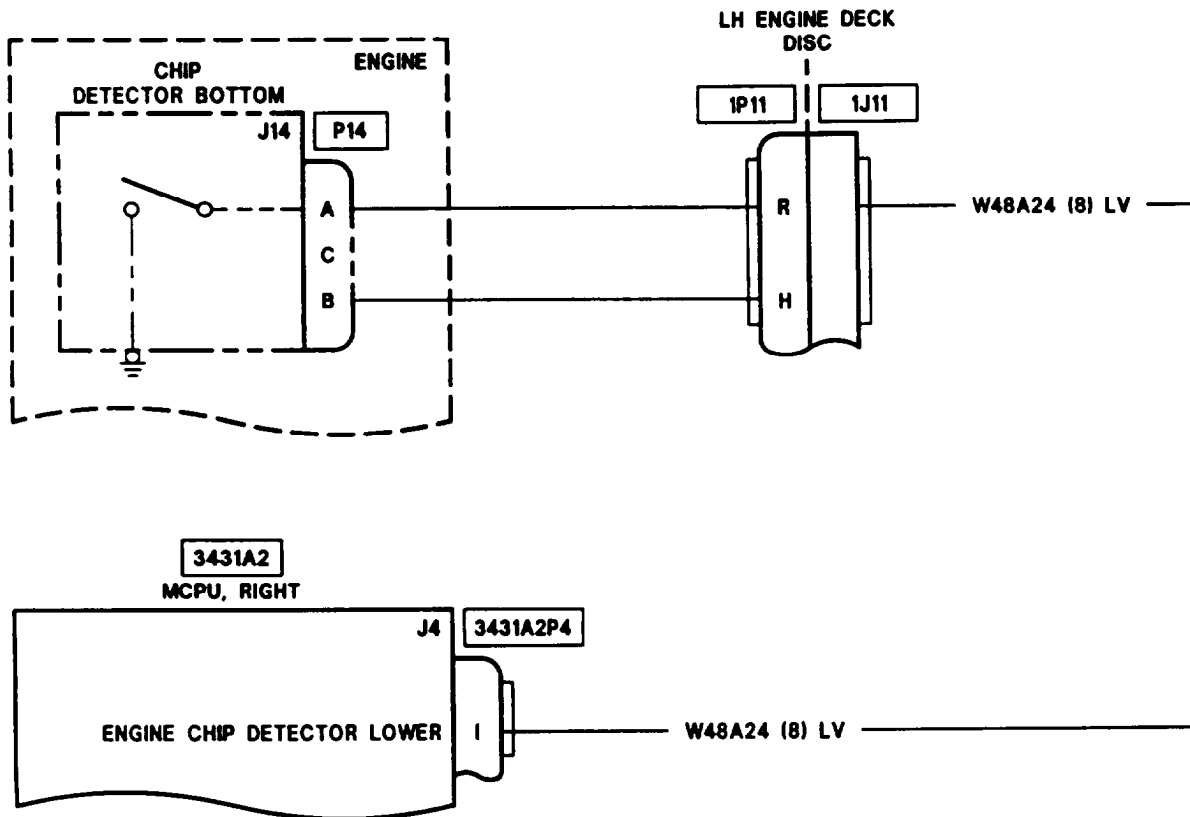
406475-539-7
VJ1000

5. CAUTION MESSAGE CHIP ENG LOWER DOES NOT COME ON (ENGINE LOWER CHIP DETECTOR CONNECTOR CONNECTED TO SPECIAL TEST TOOL AND TEST SWITCH SET TO ON)



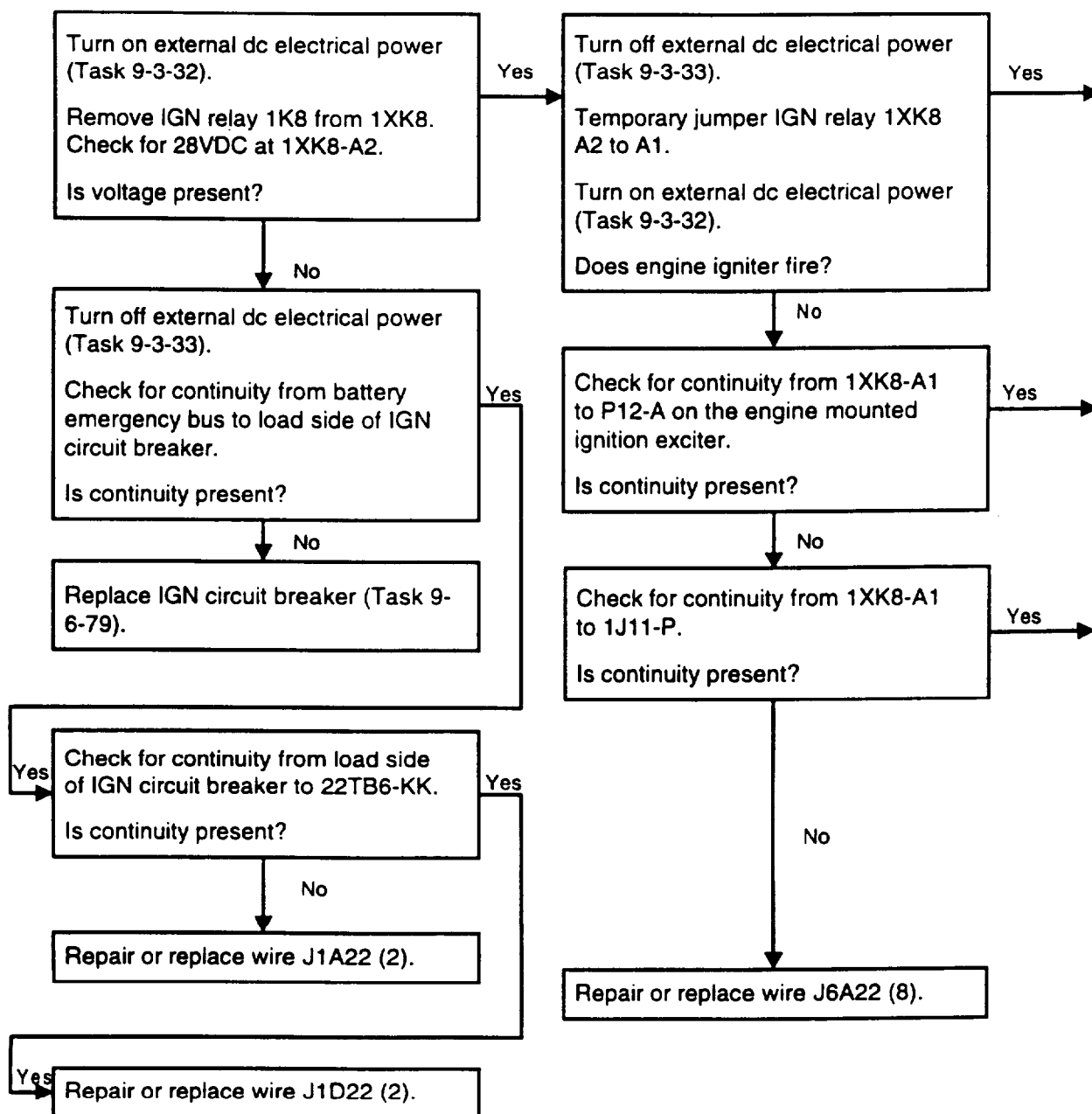
406475-539-8
VJ1000

5. CAUTION MESSAGE CHIP ENG LOWER DOES NOT COME ON (ENGINE LOWER CHIP DETECTOR CONNECTOR CONNECTED TO SPECIAL TEST TOOL AND TEST SWITCH SET TO ON) (CONT)

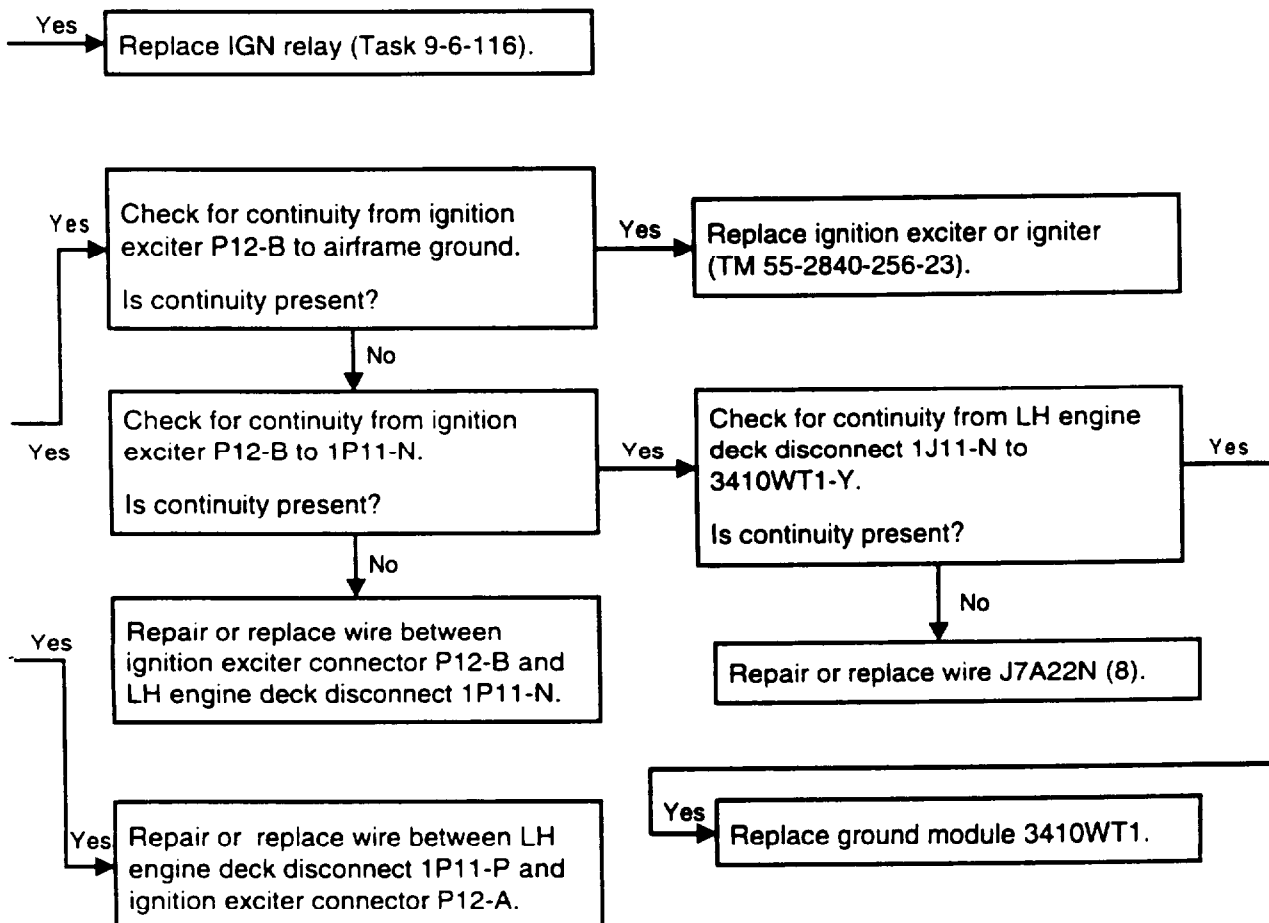


406475-538-9
VJ1000

6. ENGINE IGNITER DOES NOT FIRE

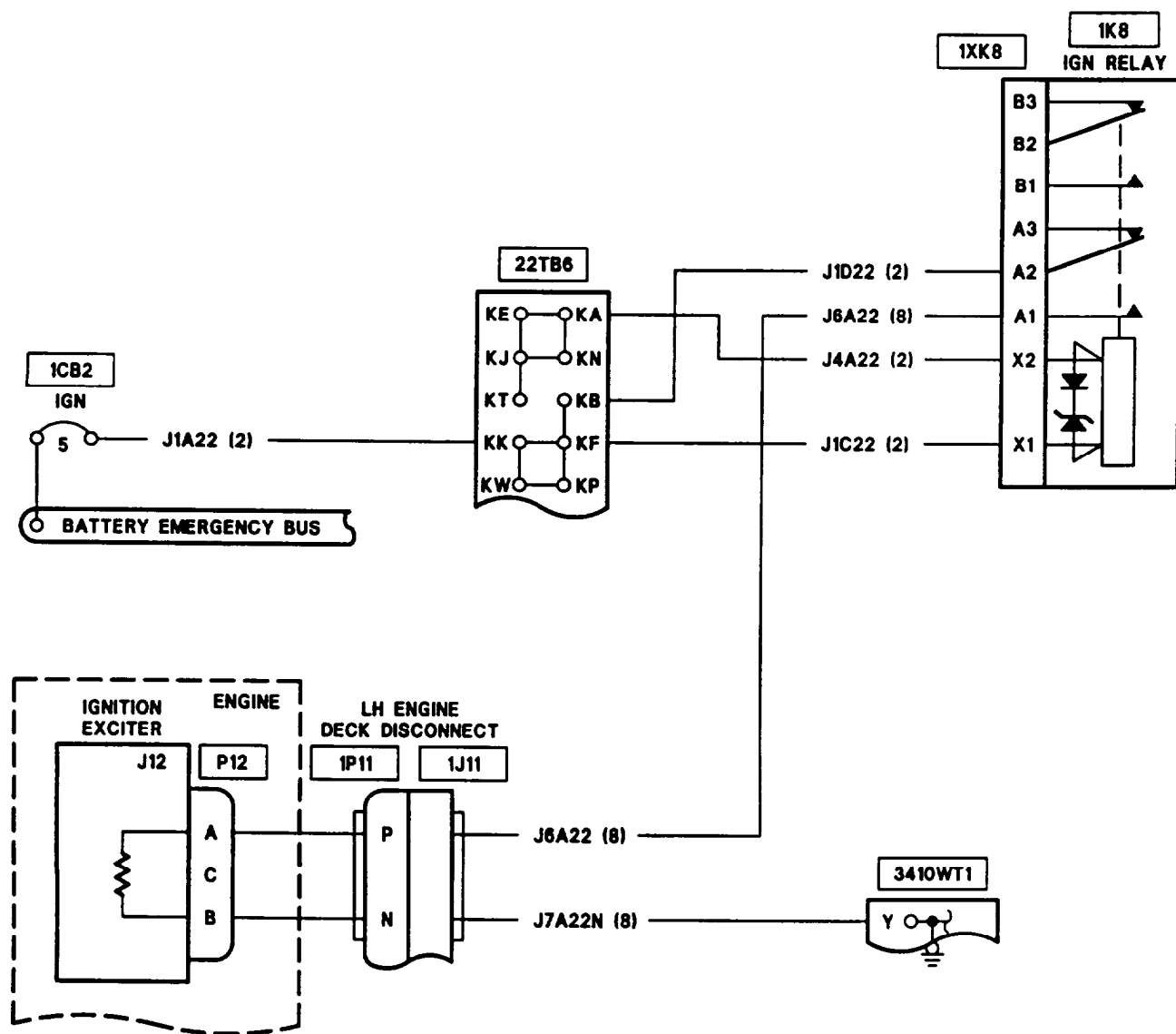
406475-539-10
VJ1000

6. ENGINE IGNITER DOES NOT FIRE (CONT)



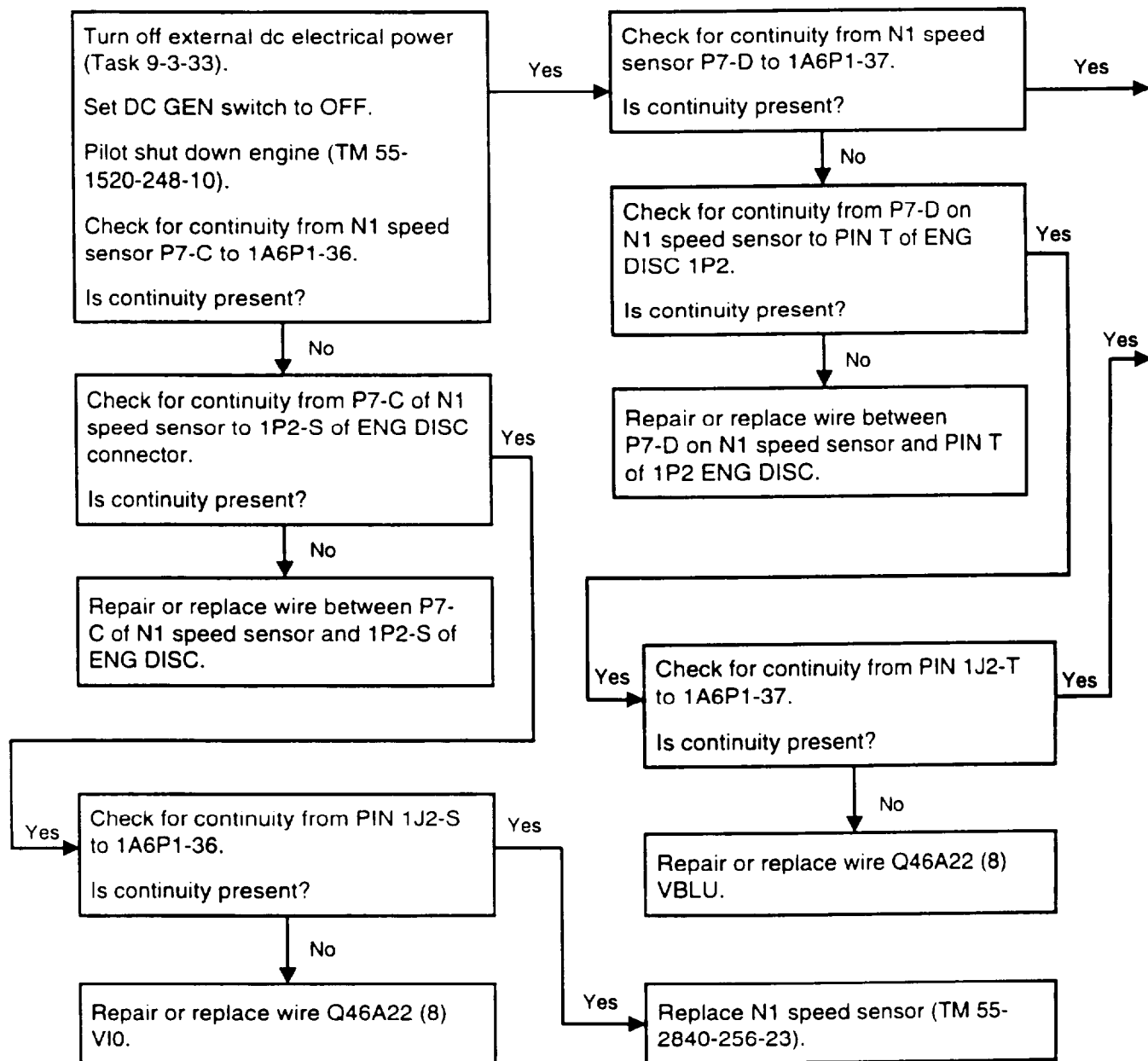
408475-539-11
VJ1000

6. ENGINE IGNITER DOES NOT FIRE (CONT)



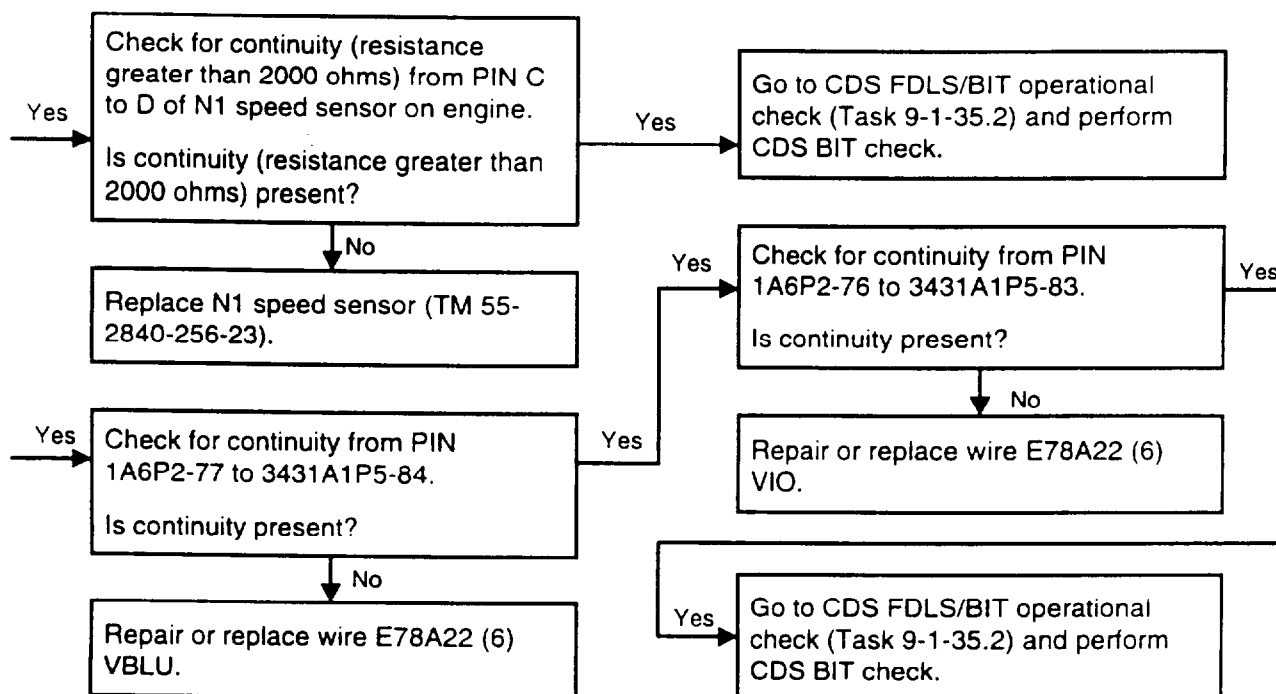
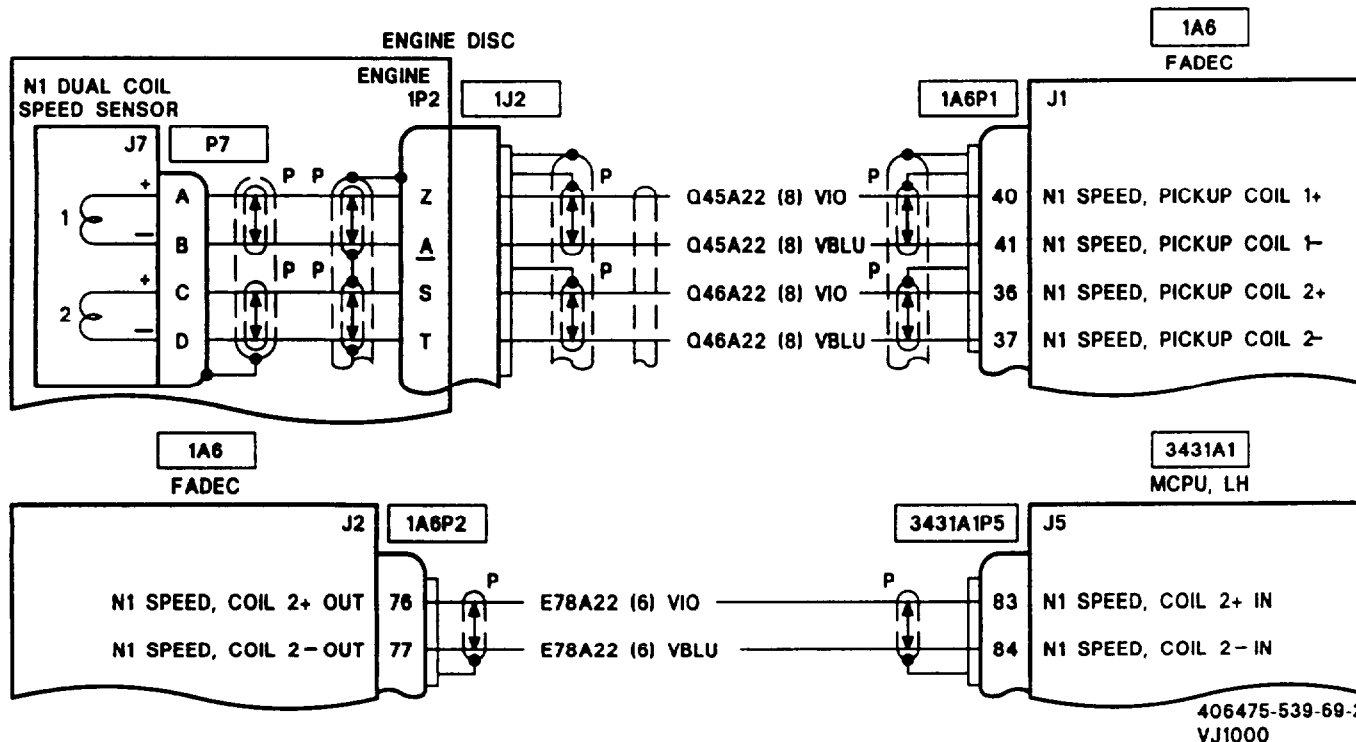
406475-539-12
VJ1000

7. WARNING MESSAGE ENGINE OUT REMAINS ON (HELICOPTER STABILIZED AT FLIGHT IDLE AND DC GENERATOR ON)

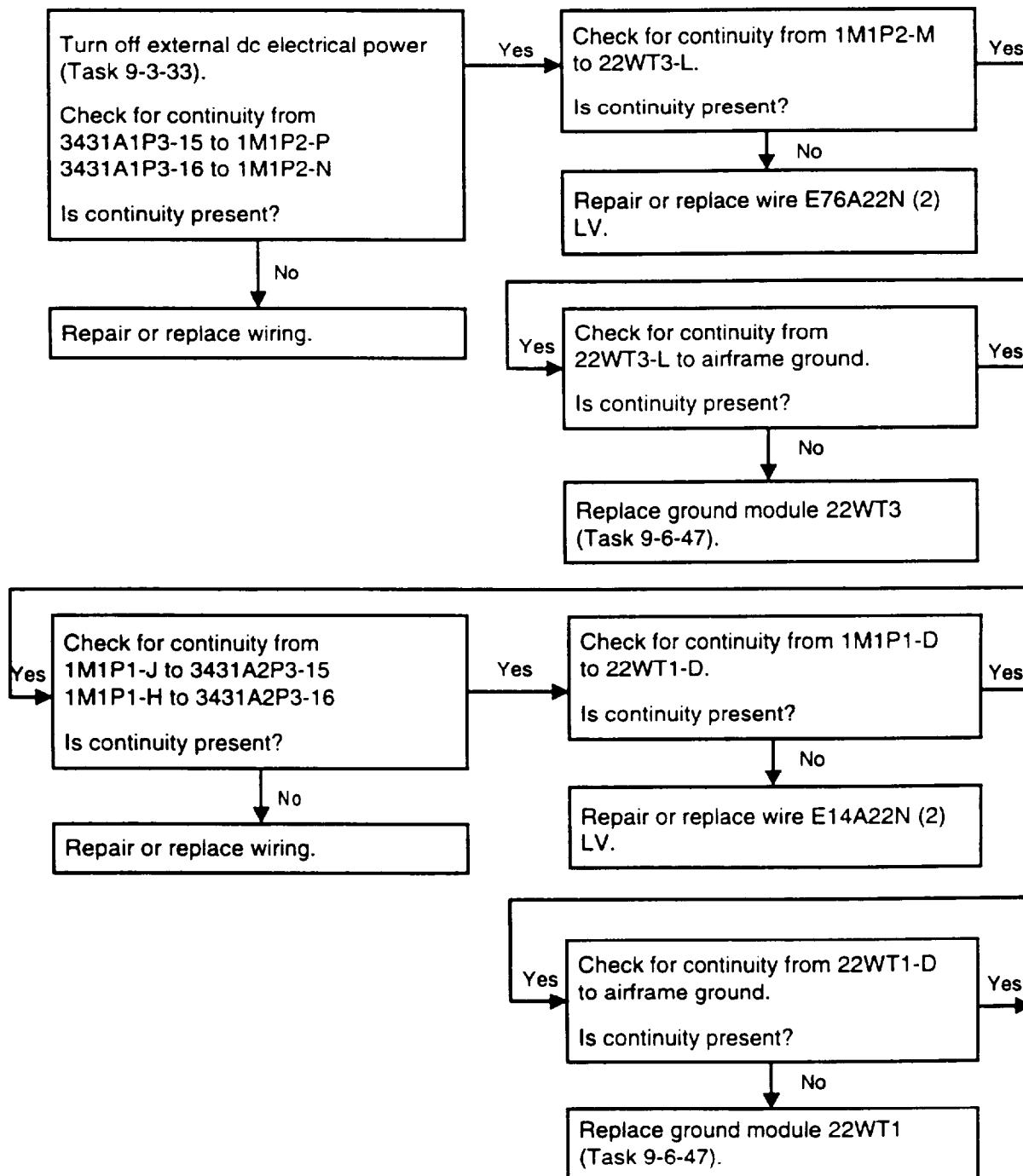


408475-539-68
VJ1000

7. WARNING MESSAGE ENGINE OUT REMAINS ON (HELICOPTER STABILIZED AT FLIGHT IDLE AND DC GENERATOR ON) (CONT)

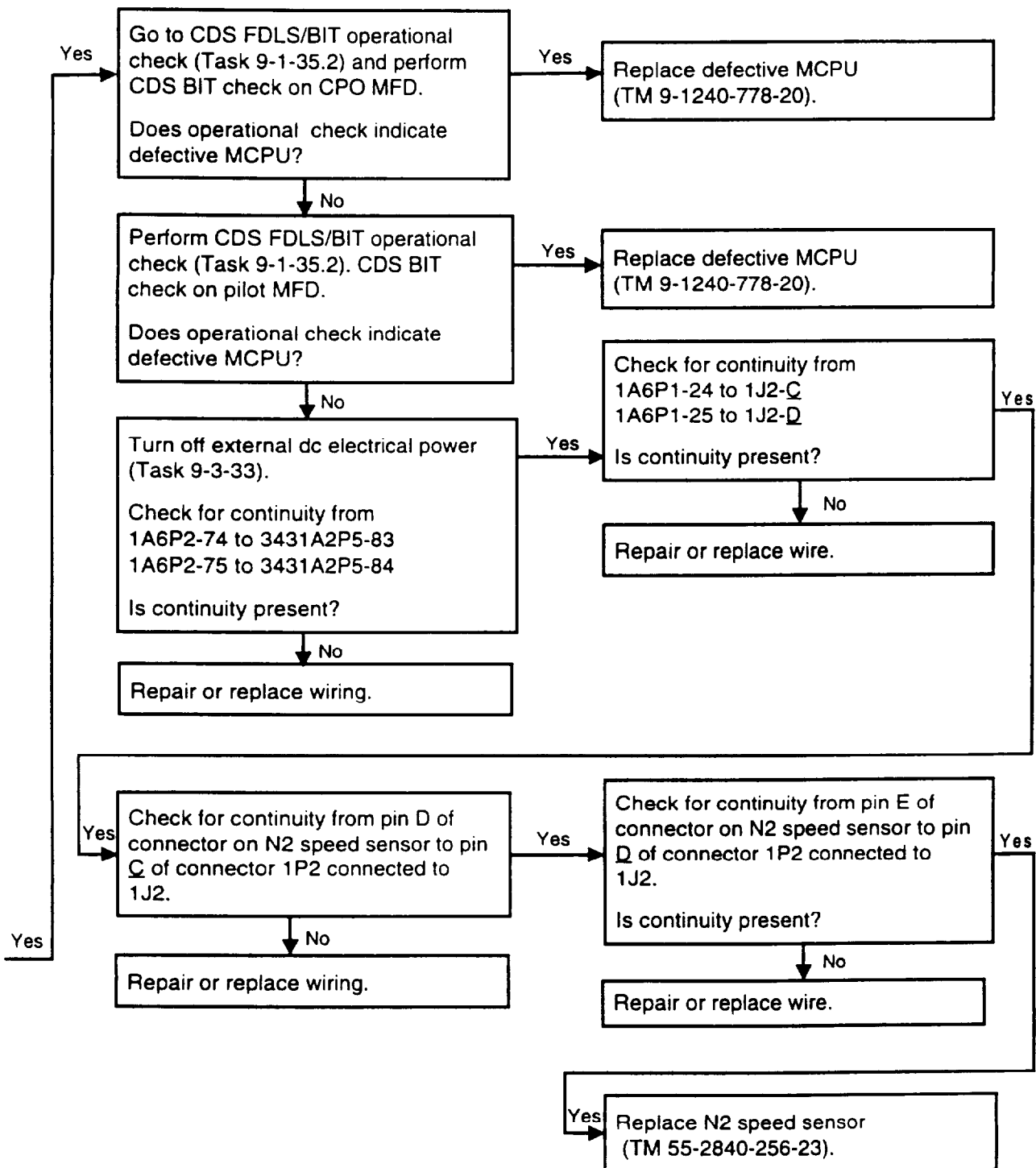
406475-539-69-1
VJ1000

8. ENGINE NP RPM INDICATOR (VERTICAL SCALE) DOES NOT INDICATE APPROXIMATELY 62% (HELICOPTER AT FLIGHT IDLE AND DC GENERATOR ON)



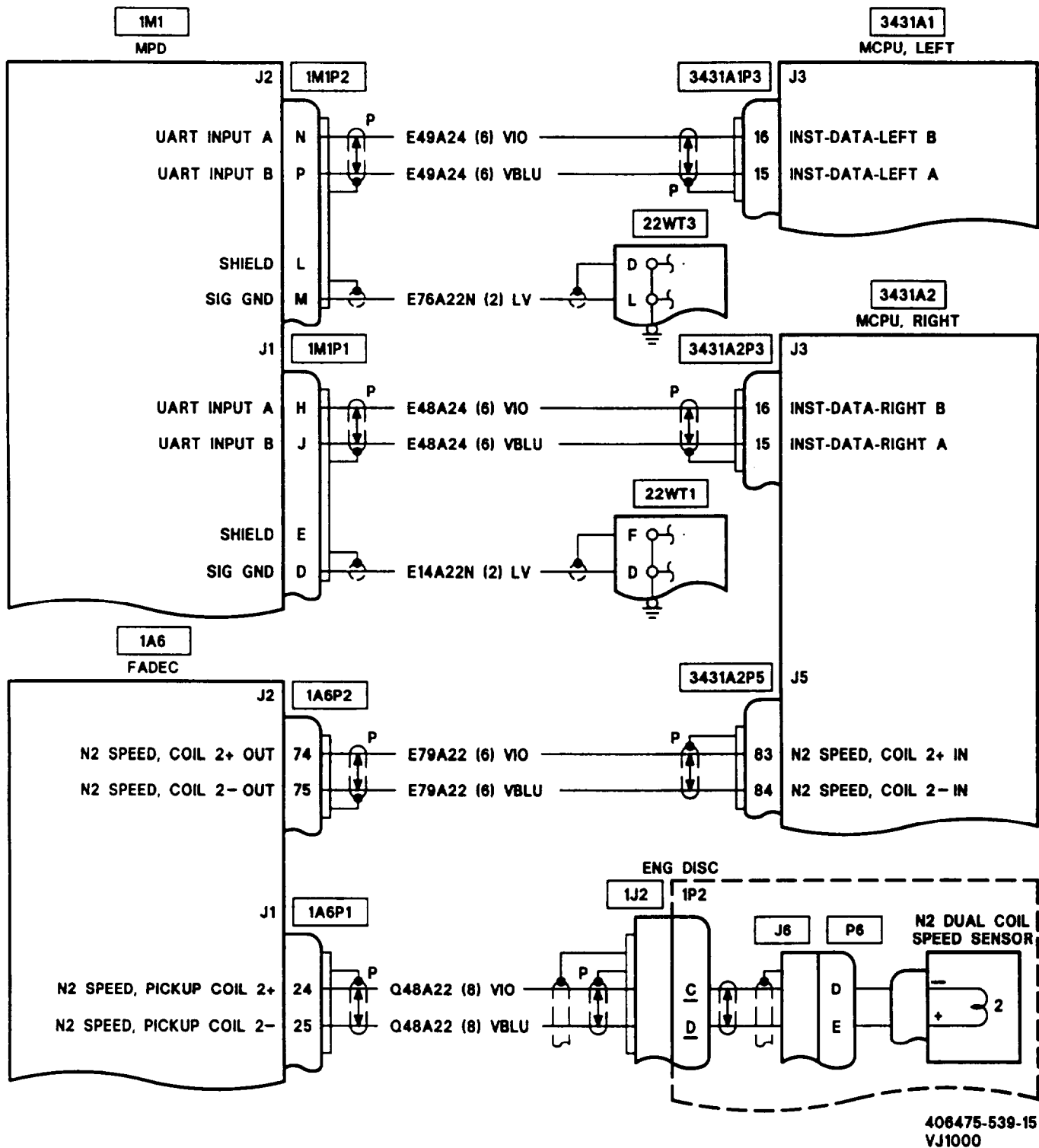
406475-539-13
VJ1000

8. ENGINE NP RPM INDICATOR (VERTICAL SCALE) DOES NOT INDICATE APPROXIMATELY 62% (HELICOPTER AT FLIGHT IDLE AND DC GENERATOR ON) (CONT)

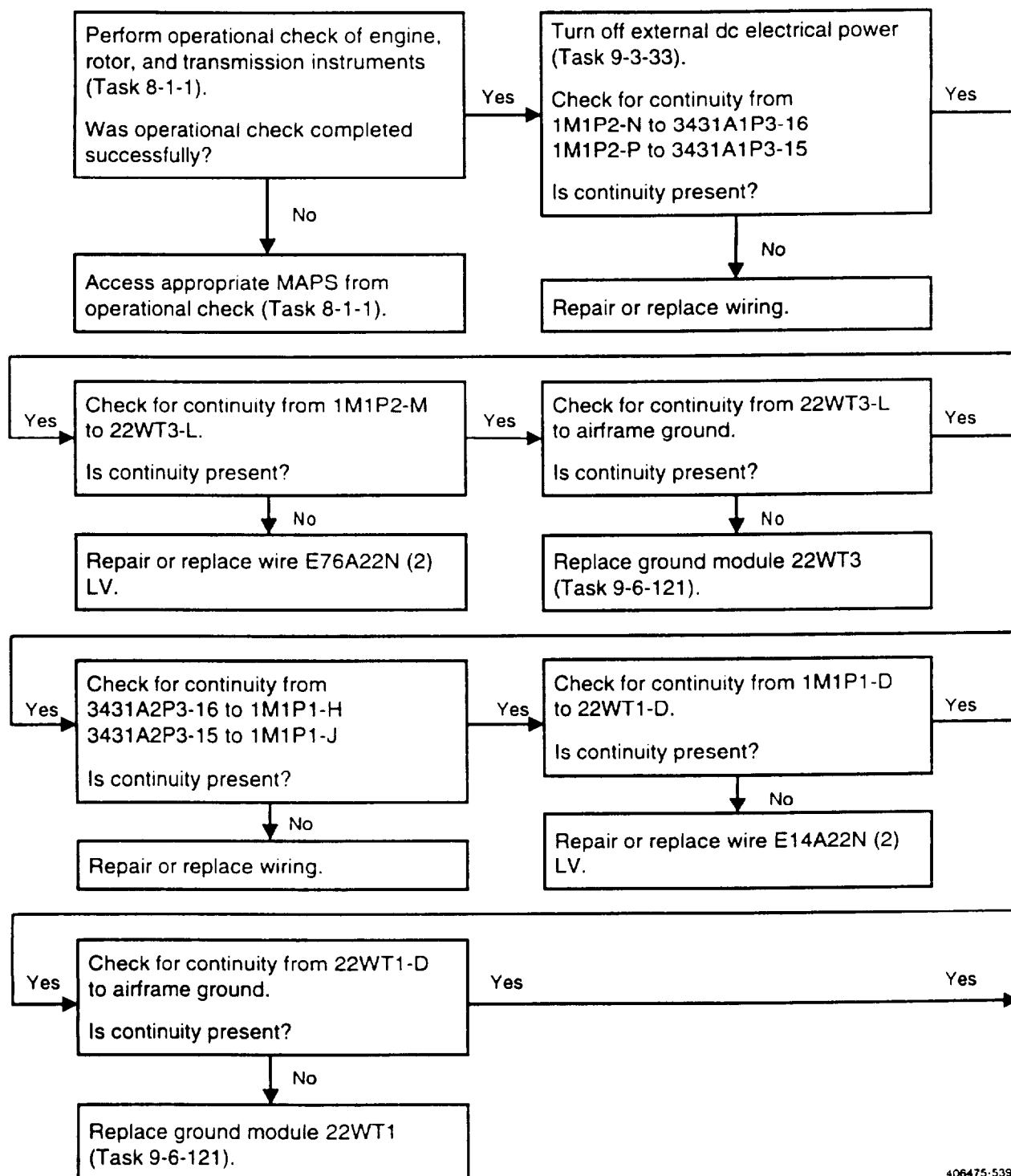


408475-539-14
VJ1000

8. ENGINE NP RPM INDICATOR (VERTICAL SCALE) DOES NOT INDICATE APPROXIMATELY 62% (HELICOPTER AT FLIGHT IDLE AND DC GENERATOR ON) (CONT)

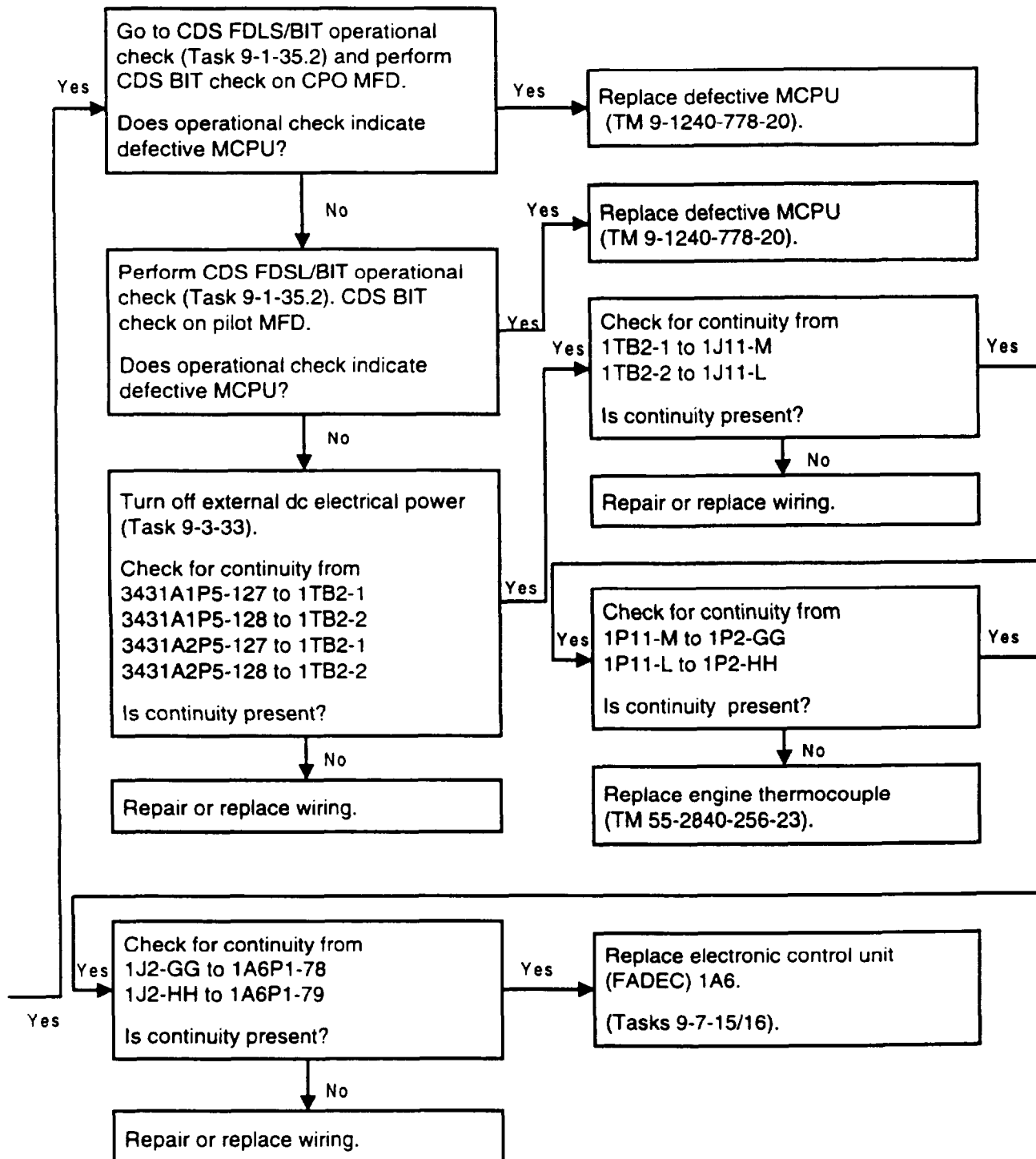


9. ENGINE TGT INDICATOR DOES NOT INDICATE IN GREEN RANGE (HELICOPTER AT FLIGHT IDLE AND DC GENERATOR ON)



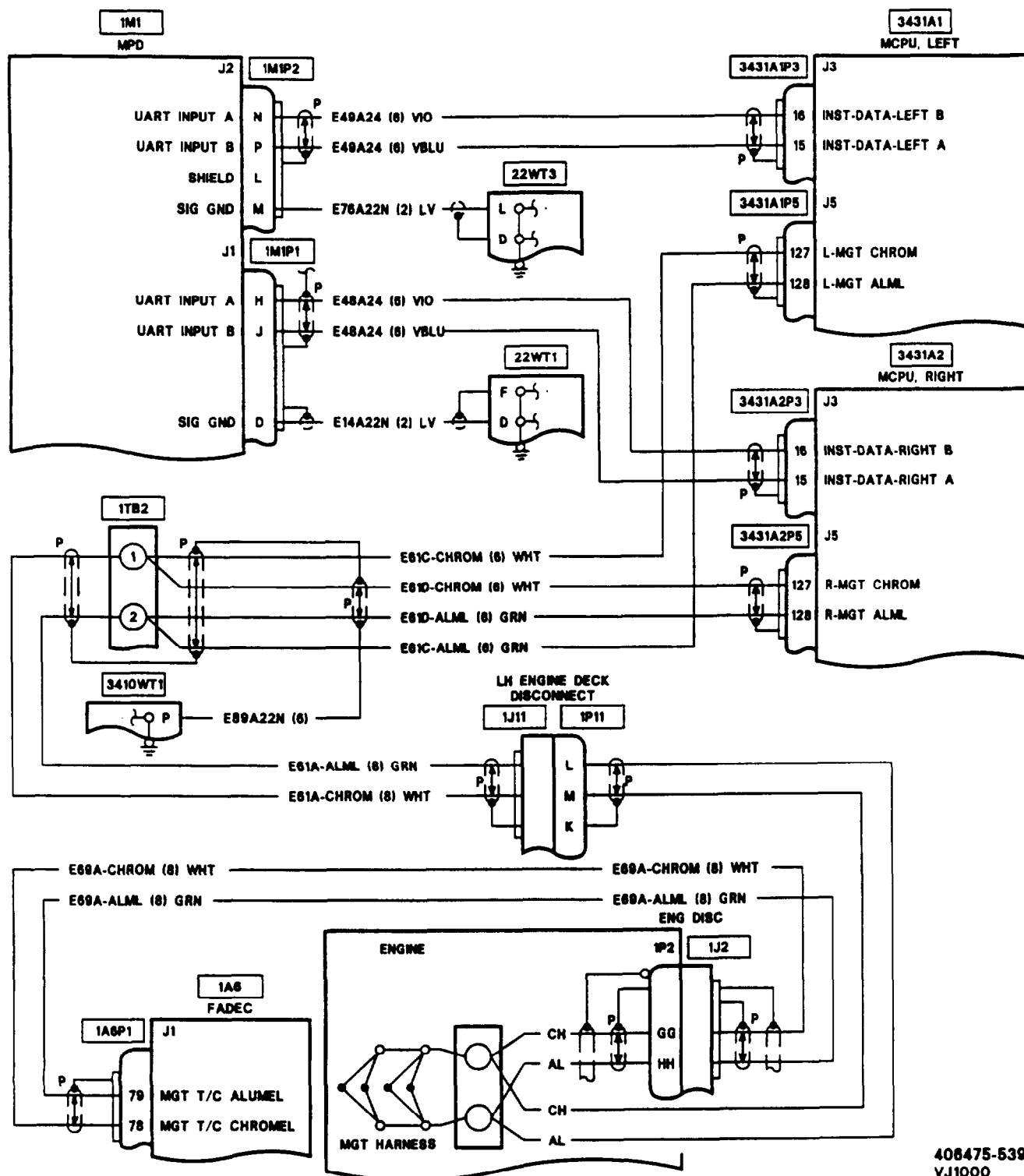
406475-539-16
VJ1000

9. ENGINE ENGINE TGT INDICATOR DOES NOT INDICATE IN GREEN RANGE (HELICOPTER AT FLIGHT IDLE AND DC GENERATOR ON) (CONT)



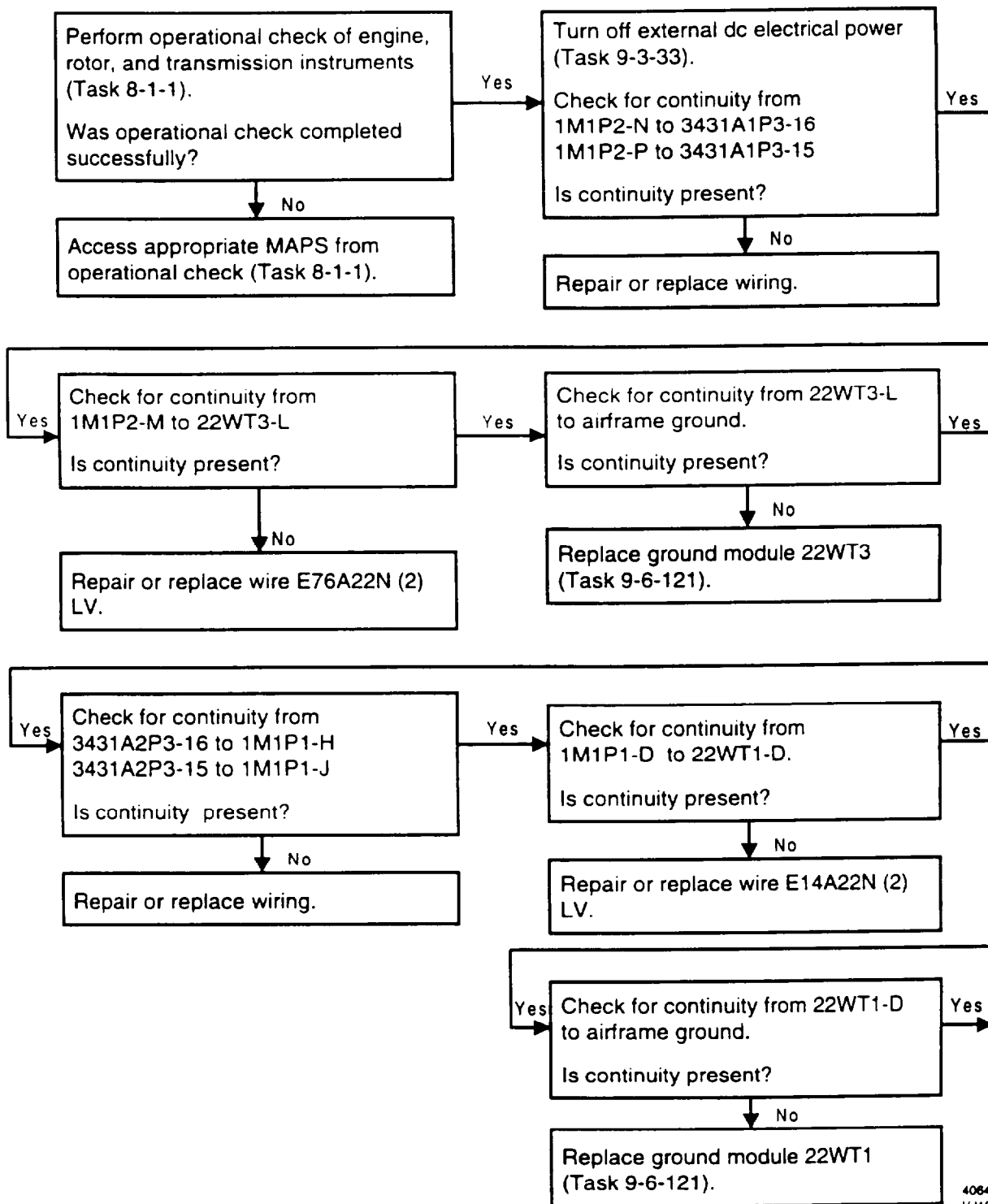
406475-539-17
VJ1000

9. ENGINE TGT INDICATOR DOES NOT INDICATE IN GREEN RANGE (HELICOPTER AT FLIGHT IDLE AND DC GENERATOR ON) (CONT)



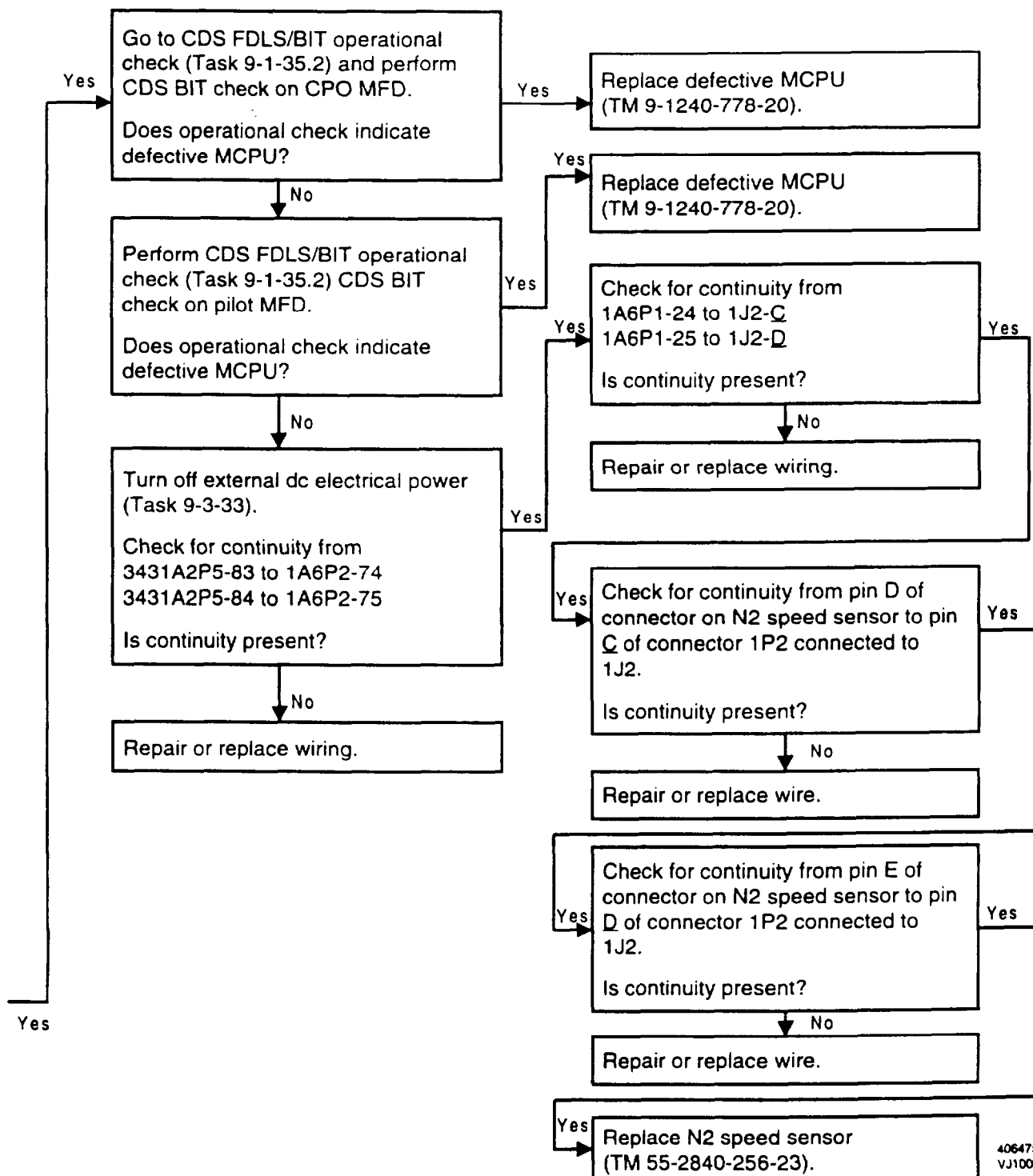
406475-539-18
VJ1000

10. ENGINE NP RPM INDICATOR (DIGITAL) ON MPD DOES NOT INDICATE APPROXIMATELY 62% (HELICOPTER AT FLIGHT IDLE AND DC GENERATOR ON)

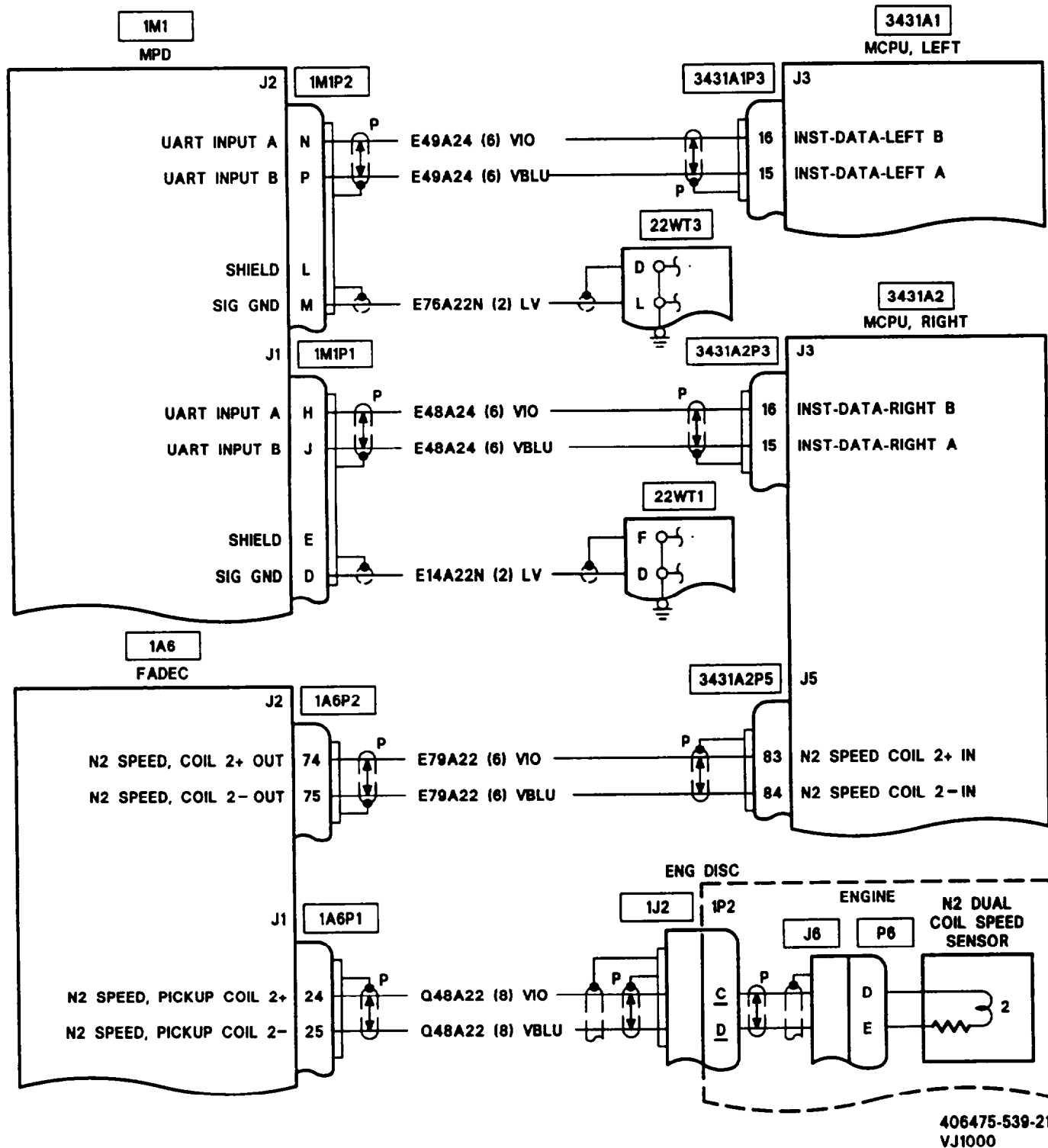


406475-539-19
VJ1000

10. ENGINE NP RPM INDICATOR (DIGITAL) ON MPD DOES NOT INDICATE APPROXIMATELY 62% (HELICOPTER AT FLIGHT IDLE AND DC GENERATOR ON) (CONT)

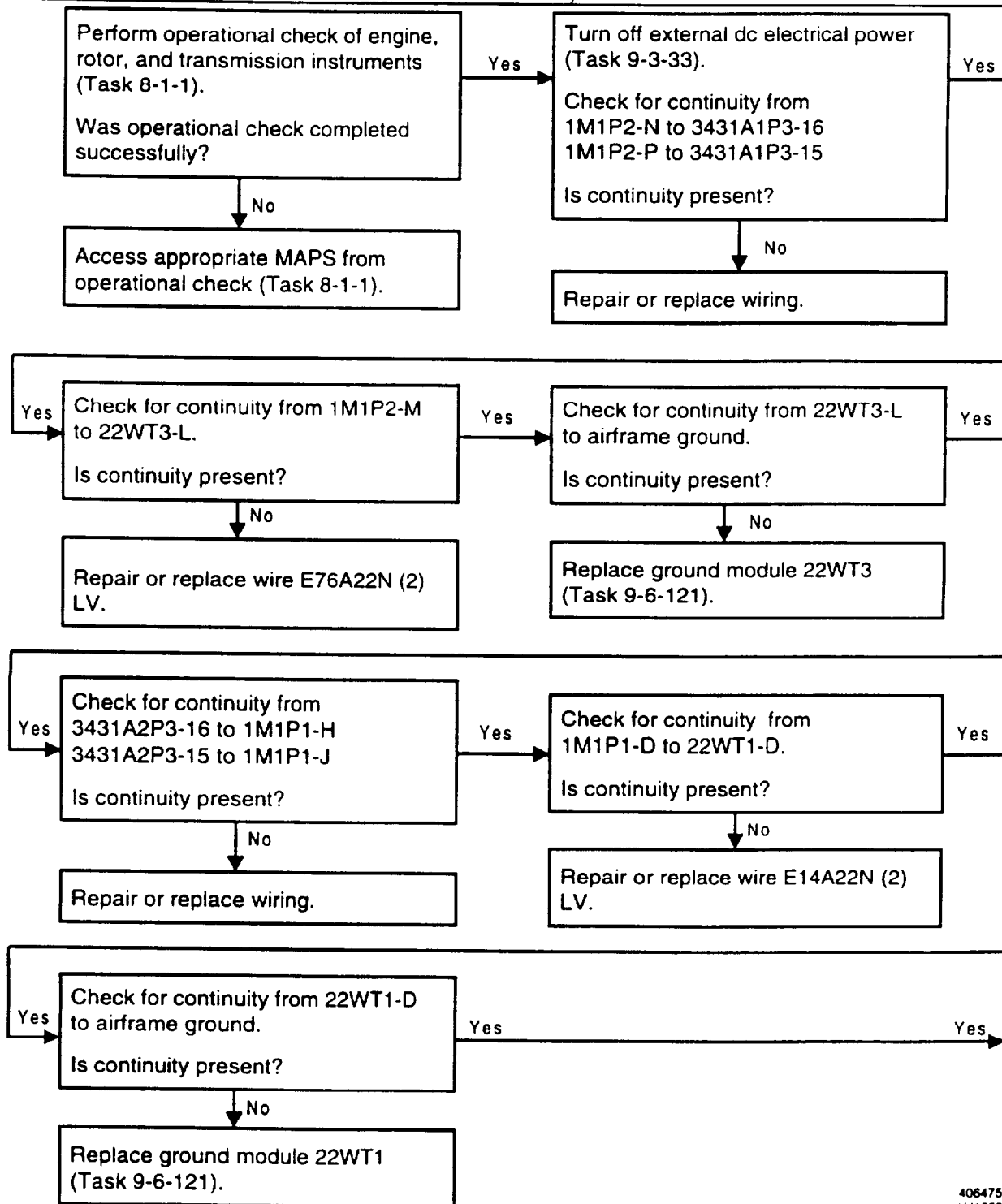


10. ENGINE NP RPM INDICATOR (DIGITAL) ON MPD DOES NOT INDICATE APPROXIMATELY 62% (HELICOPTER AT FLIGHT IDLE AND DC GENERATOR ON) (CONT)



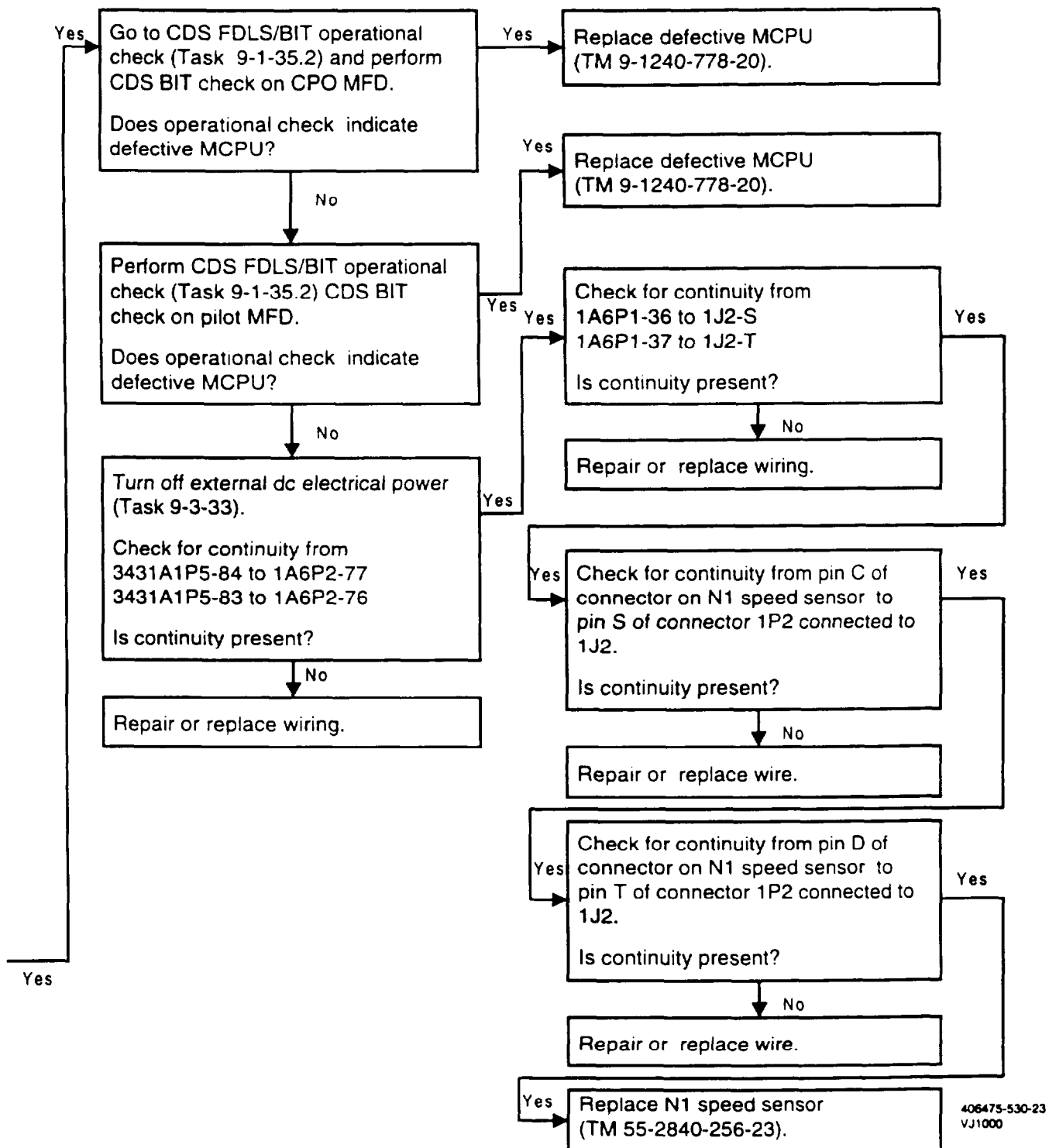
406475-539-21
VJ1000

11. ENGINE NG RPM INDICATOR (DIGITAL) ON MPD DOES NOT INDICATE APPROXIMATELY 64% (HELICOPTER AT FLIGHT IDLE AND DC GENERATOR ON)

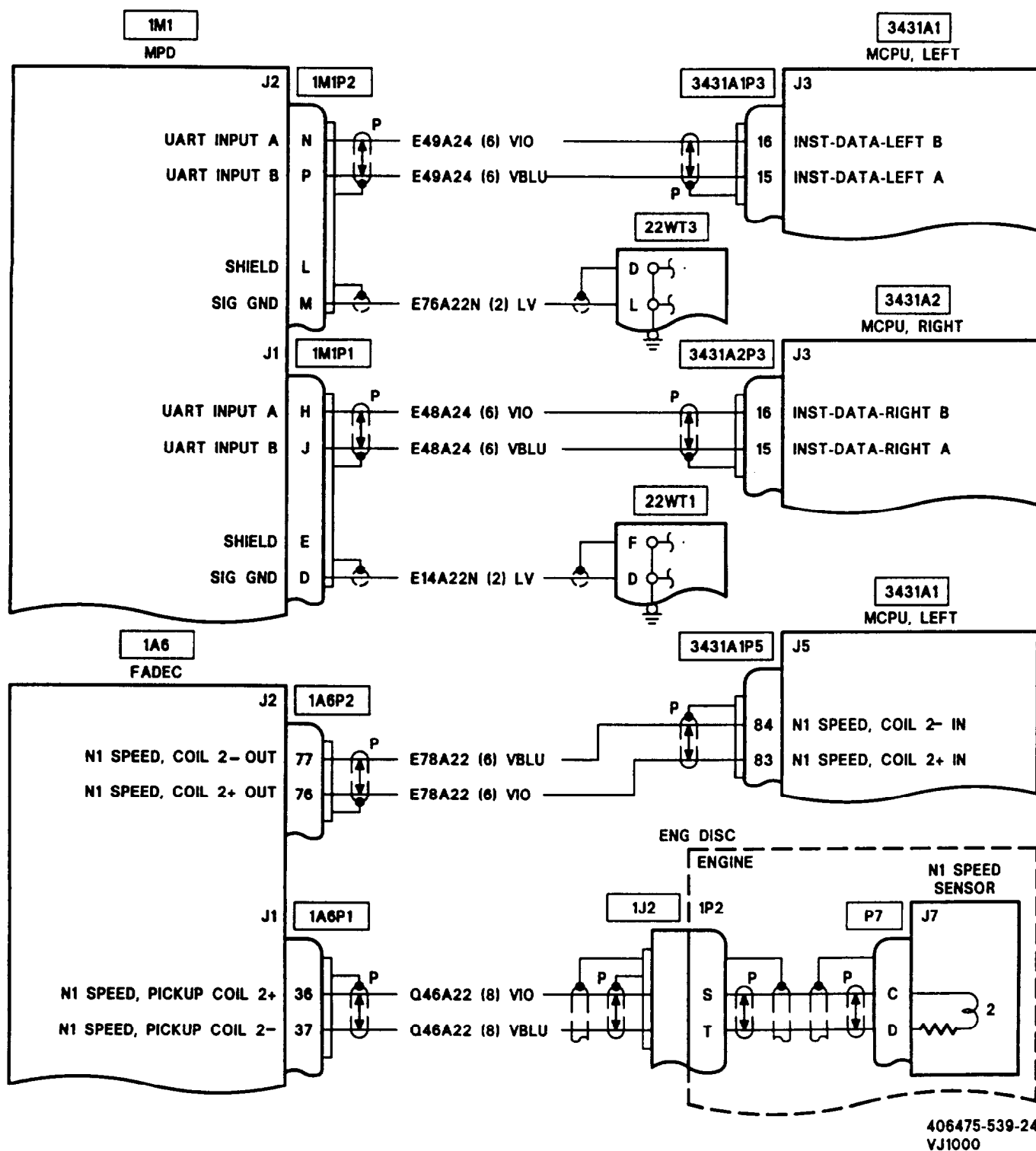


406475-530-22
VJ1000

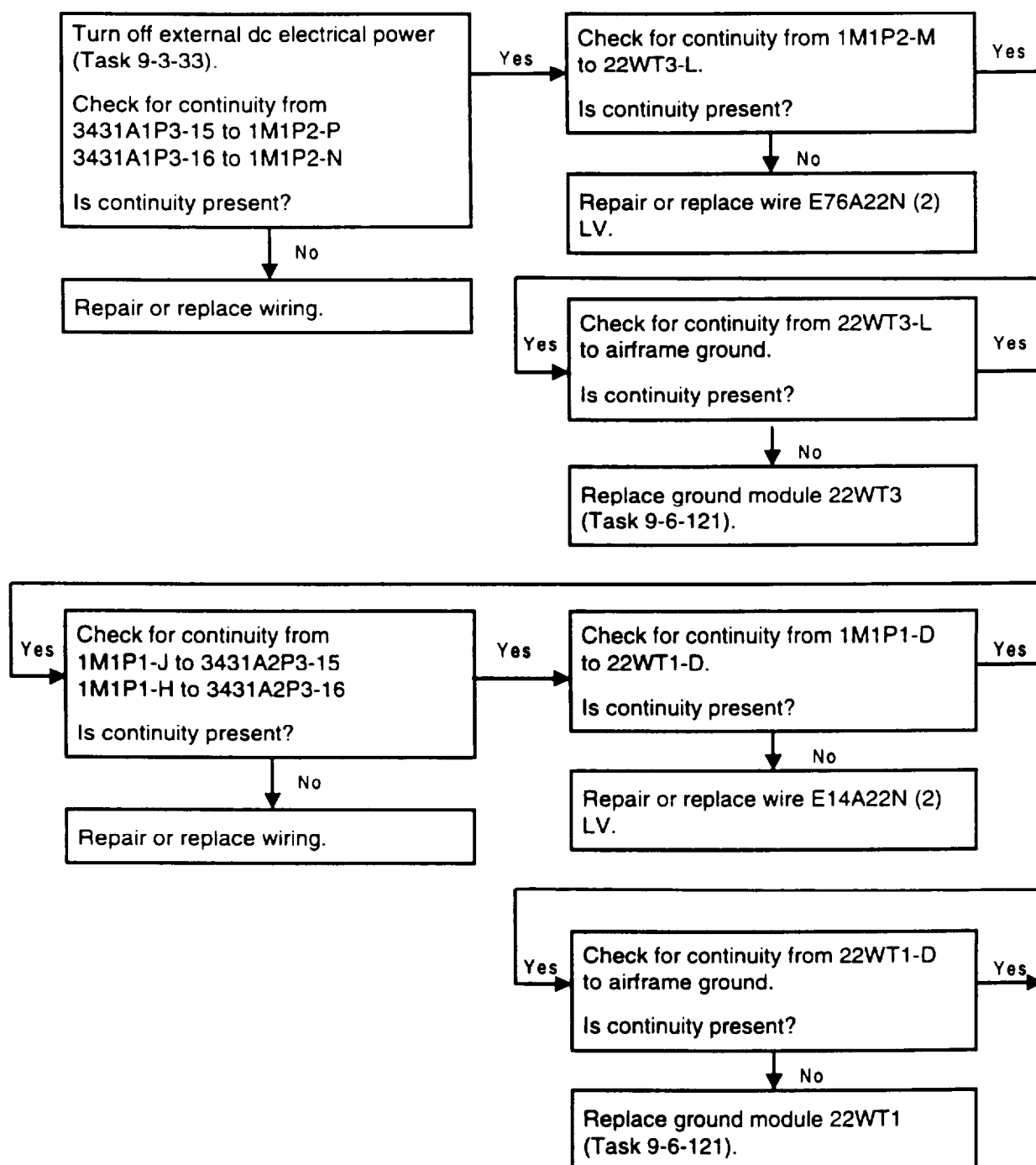
11. ENGINE NG RPM INDICATOR (DIGITAL) ON MPD DOES NOT INDICATE APPROXIMATELY 64% (HELICOPTER AT FLIGHT IDLE AND DC GENERATOR ON) (CONT)



11. ENGINE NG RPM INDICATOR (DIGITAL) ON MPD DOES NOT INDICATE APPROXIMATELY 64% (HELICOPTER AT FLIGHT IDLE AND DC GENERATOR ON) (CONT)

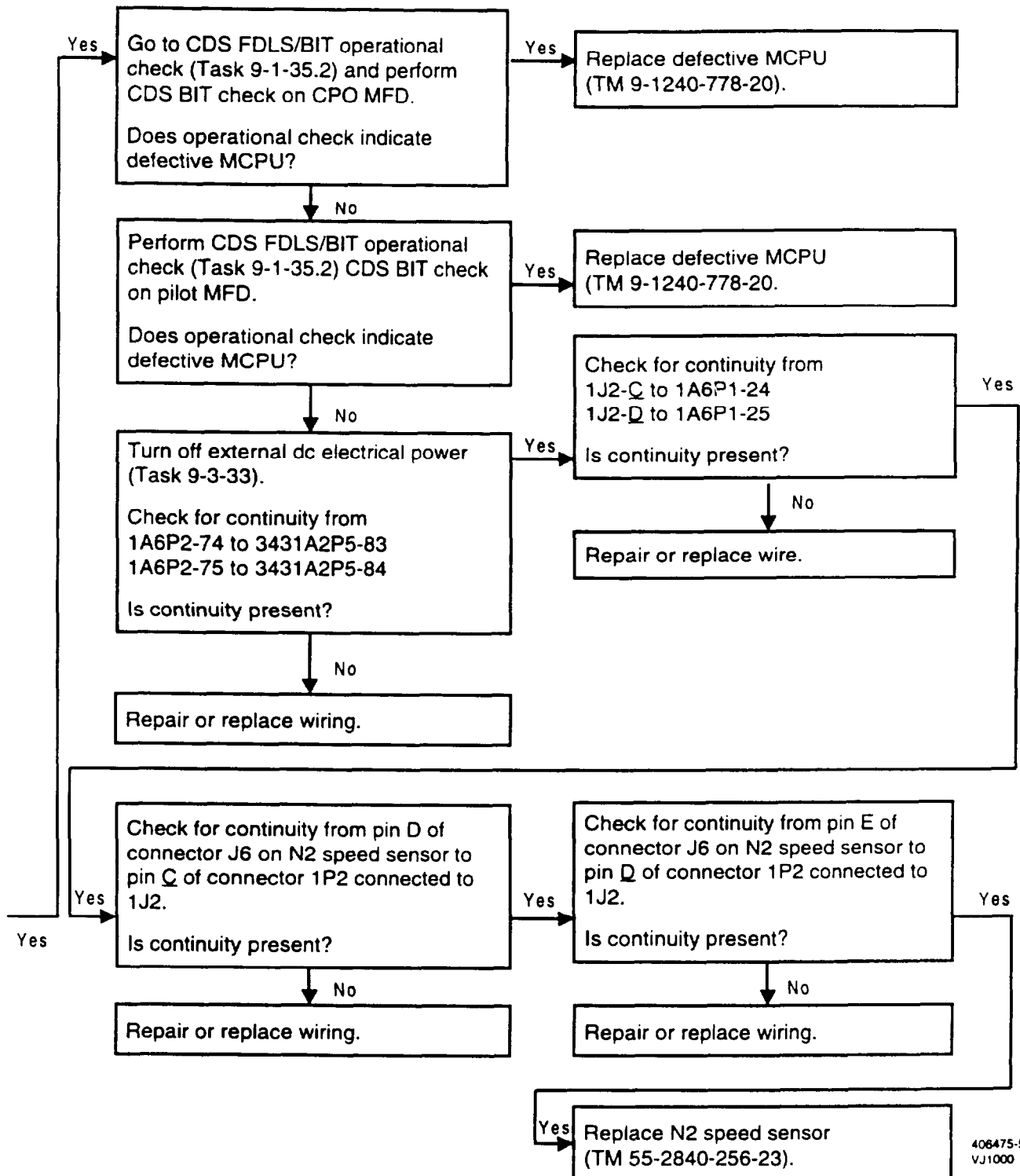


12. ENGINE NP RPM INDICATOR (VERTICAL SCALE) DOES NOT INDICATE APPROXIMATELY 100% (HELICOPTER AT 100% RPM AND DC GENERATOR ON)

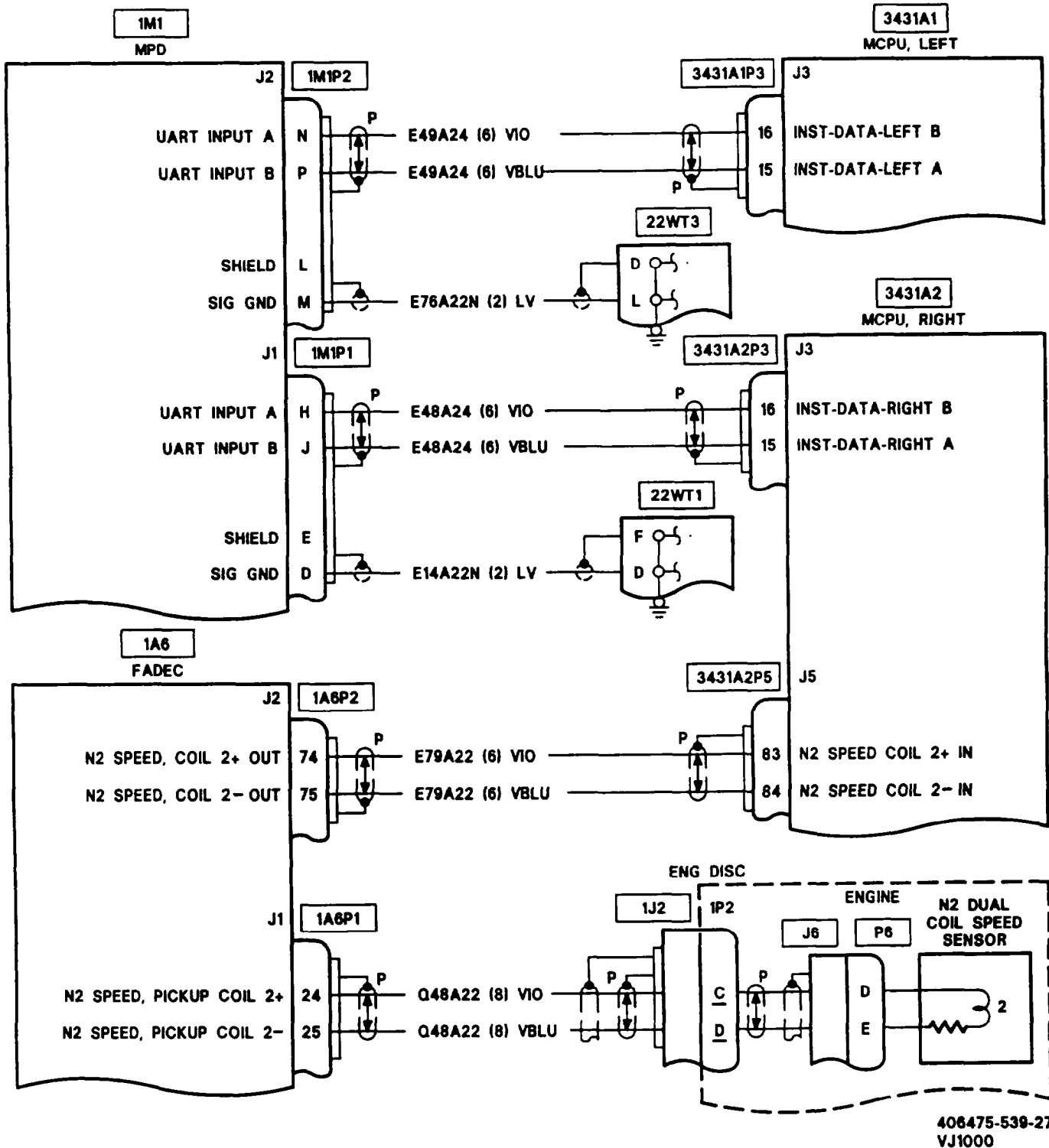


406475-539-25
VJ1000

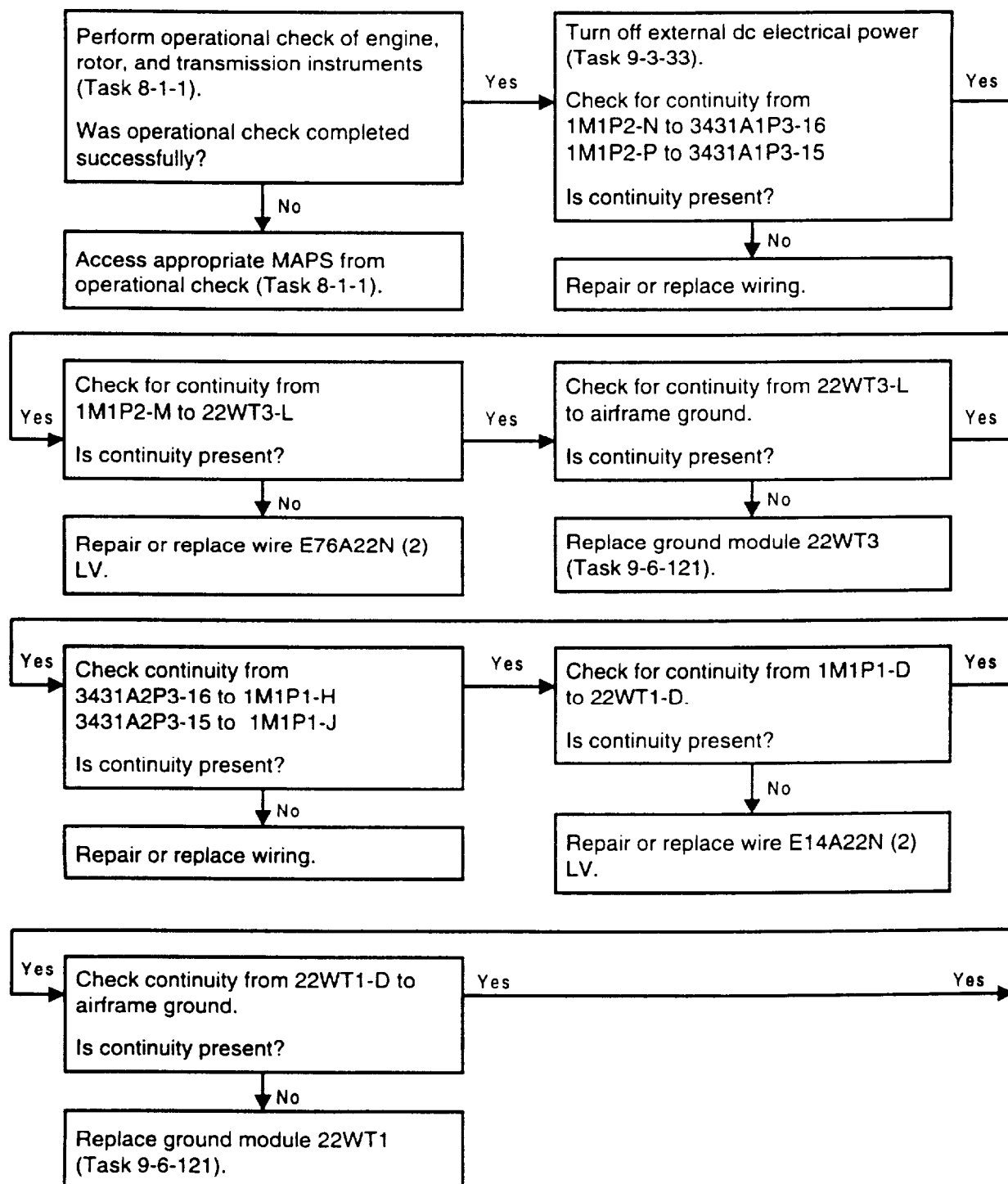
12. 1 ENGINE NP RPM INDICATOR (VERTICAL SCALE) DOES NOT INDICATE APPROXIMATELY 100% (HELICOPTER AT 100% RPM AND DC GENERATOR ON) (CONT)



12. ENGINE NP RPM INDICATOR (VERTICAL SCALE) DOES NOT INDICATE APPROXIMATELY 100% (HELICOPTER AT 100% RPM AND DC GENERATOR ON) (CONT)

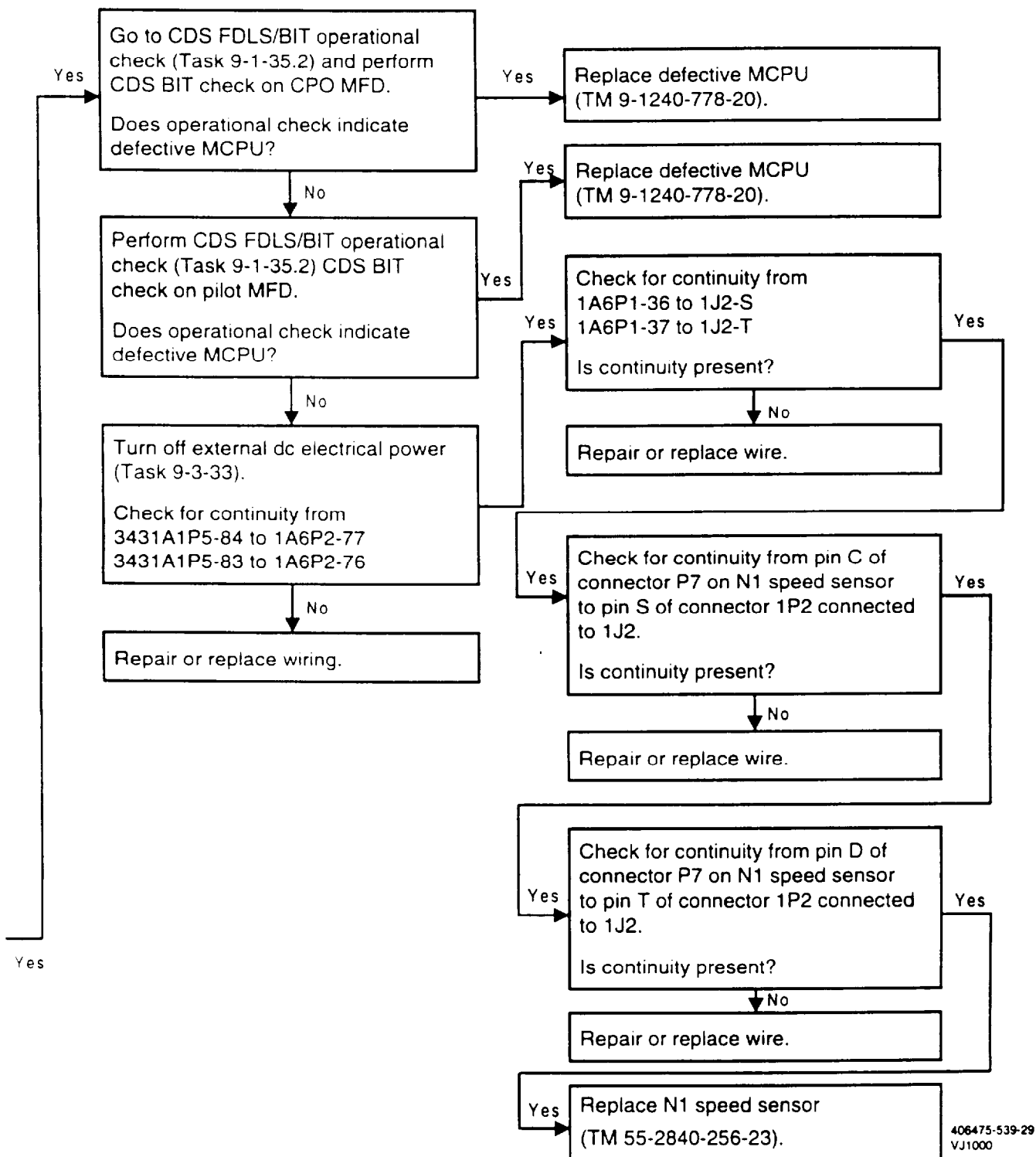


13. ENGINE NG RPM INDICATOR (VERTICAL SCALE) DOES NOT INDICATE APPROXIMATELY 80% (HELICOPTER AT 100% RPM AND DC GENERATOR ON)

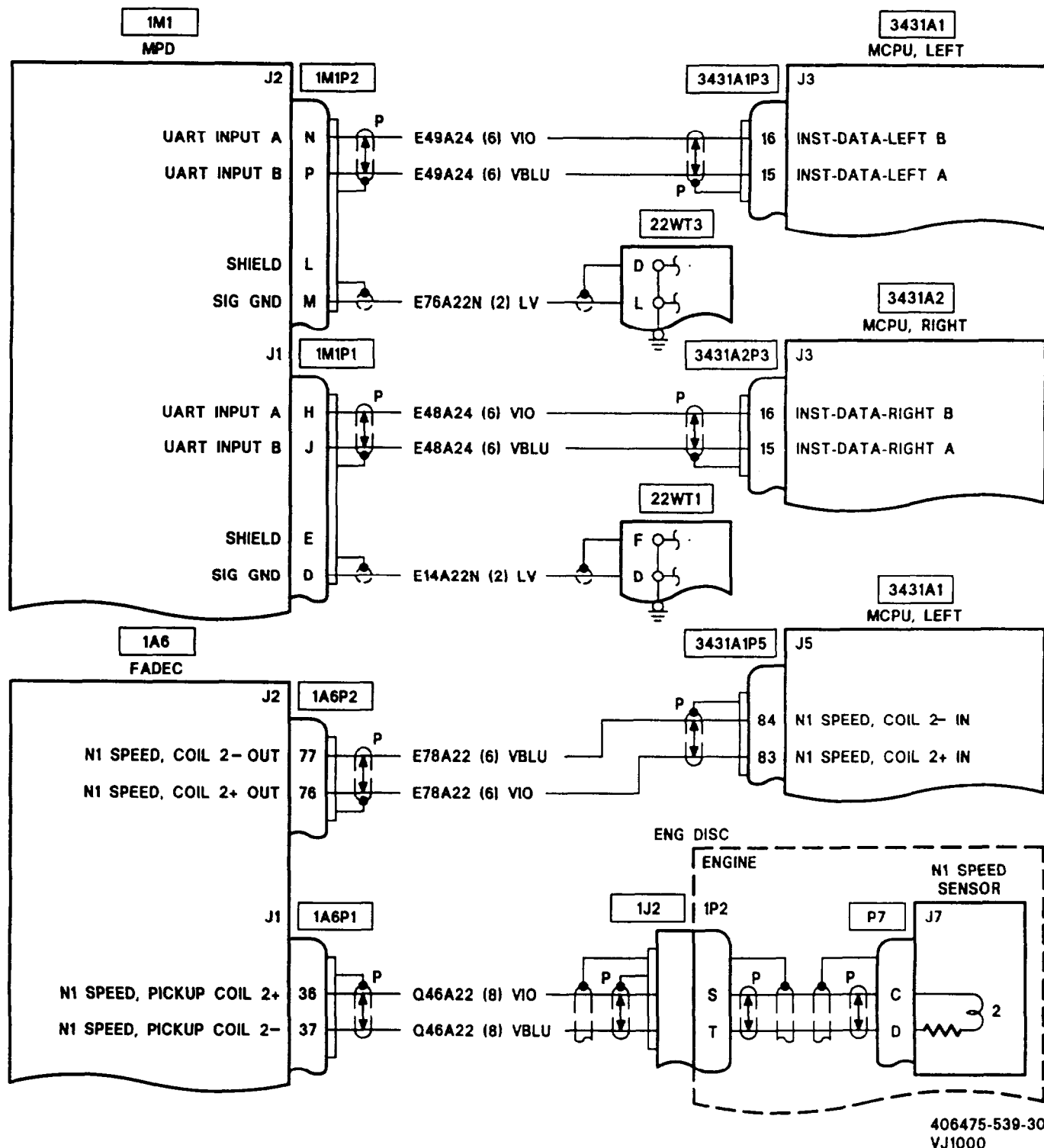


406475-539-28
VJ1000

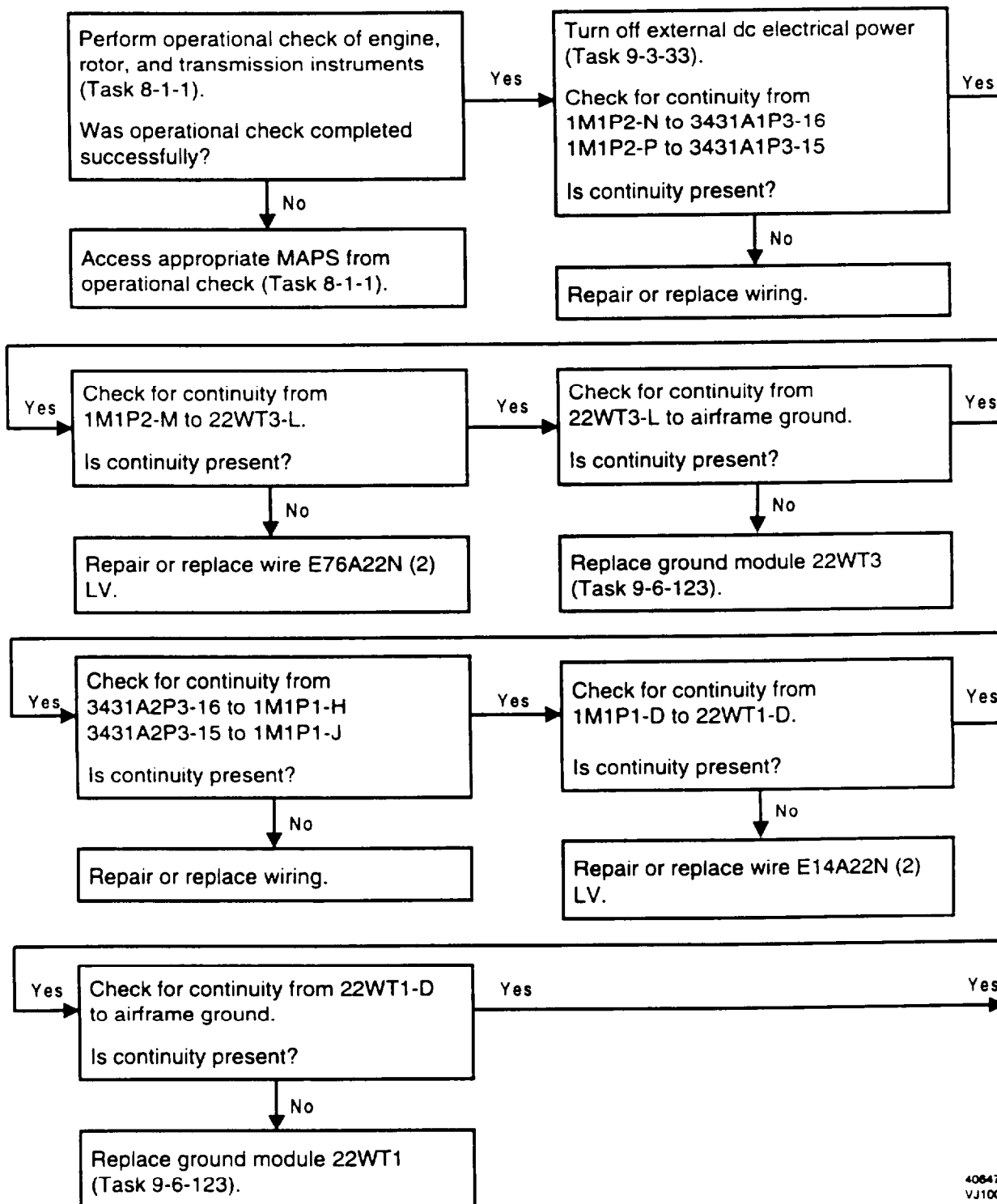
13. ENGINE NG RPM INDICATOR (VERTICAL SCALE) DOES NOT INDICATE APPROXIMATELY 80% (HELICOPTER AT 100% RPM AND DC GENERATOR ON) (CONT)



13. ENGINE NG RPM INDICATOR (VERTICAL SCALE) DOES NOT INDICATE APPROXIMATELY 80% (HELICOPTER AT 100% RPM AND DC GENERATOR ON) (CONT)

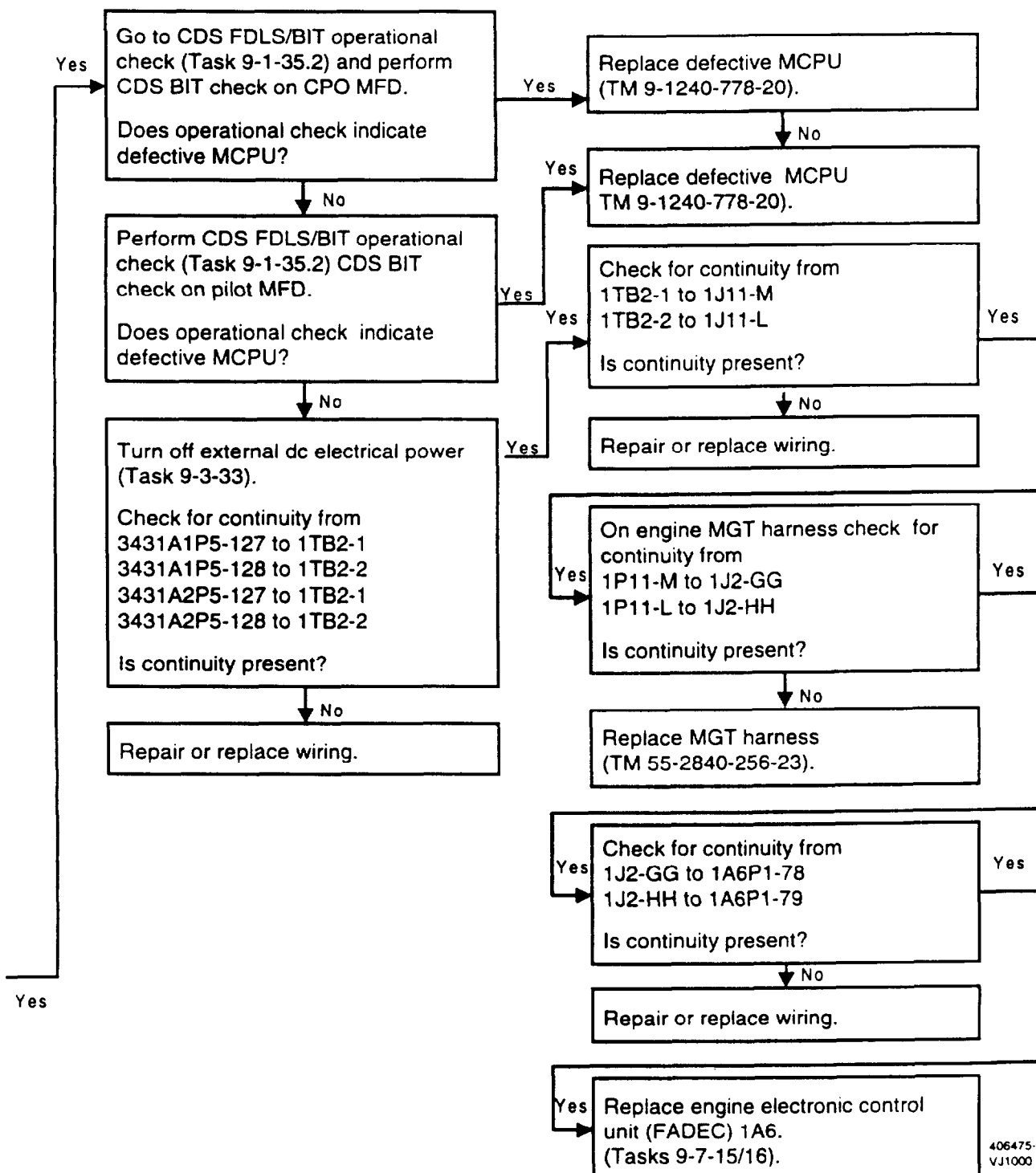


14. ENGINE TGT INDICATOR DOES NOT INDICATE IN GREEN RANGE (HELICOPTER AT 100% RPM AND DC GENERATOR ON)

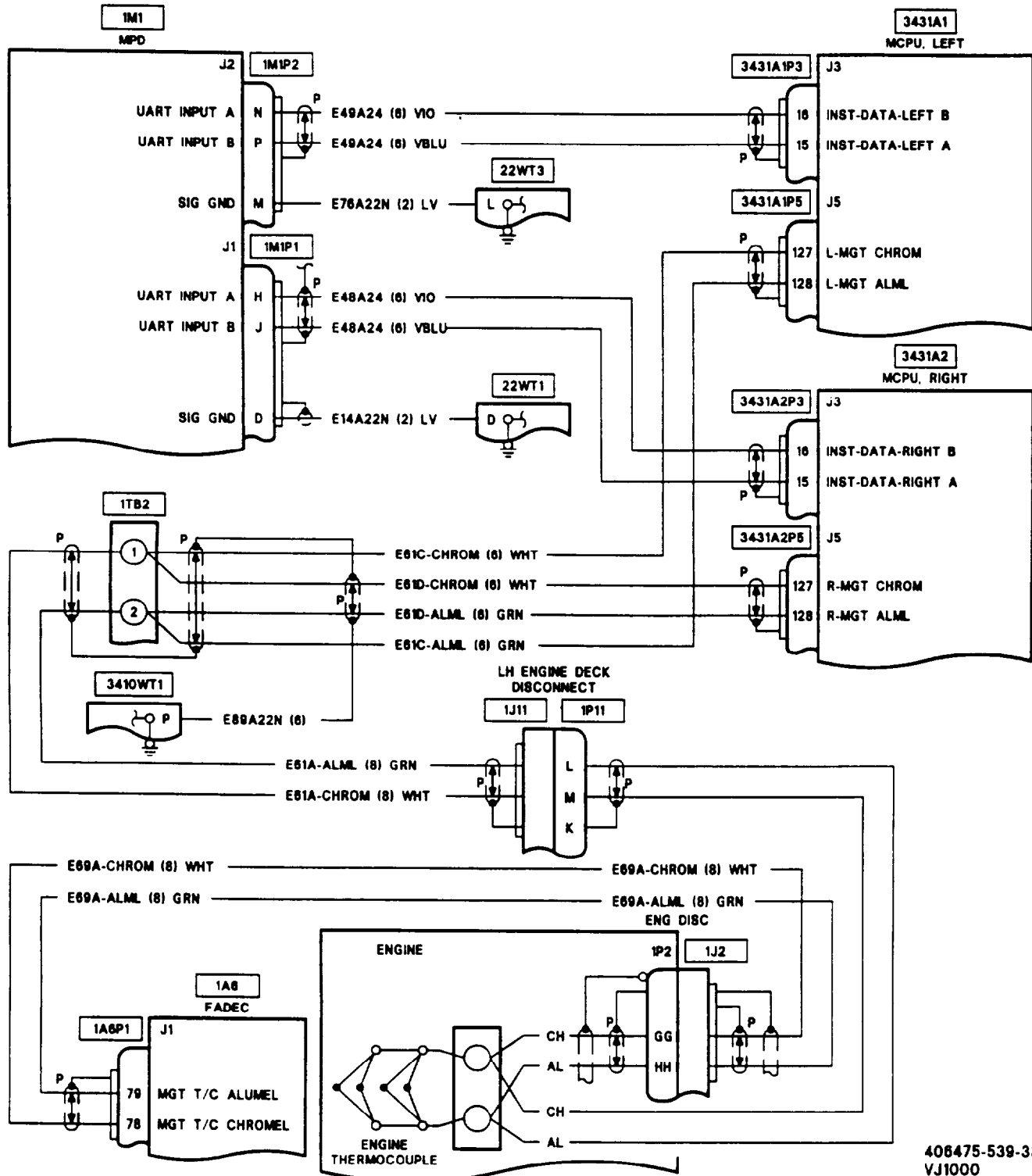


406475-539-31
VJ1000

14. ENGINE TGT INDICATOR DOES NOT INDICATE IN GREEN RANGE (HELICOPTER AT 100% RPM AND DC GENERATOR ON) (CONT)

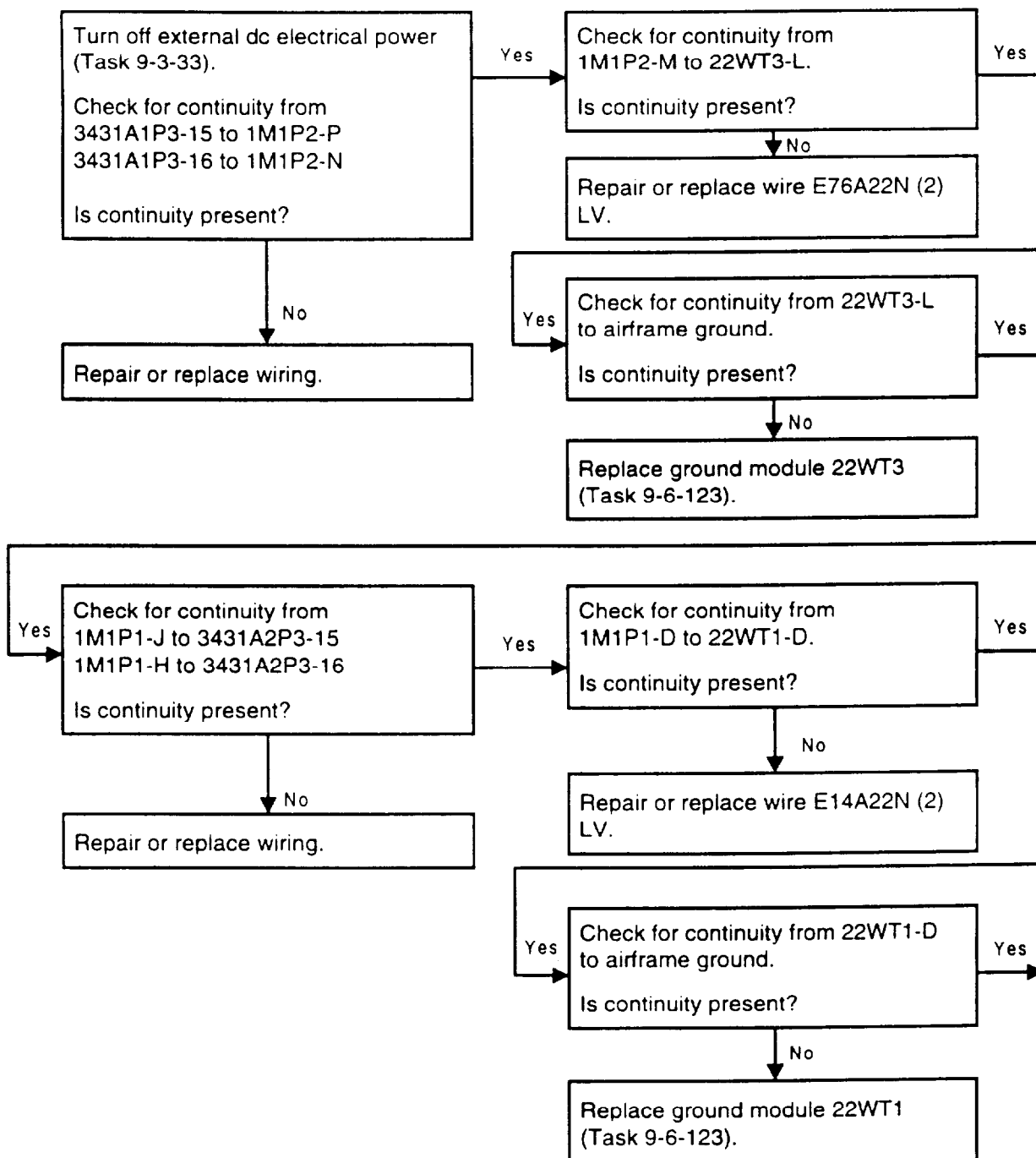


14. ENGINE TGT INDICATOR DOES NOT INDICATE IN GREEN RANGE (HELICOPTER AT 100% RPM AND DC GENERATOR ON) (CONT)



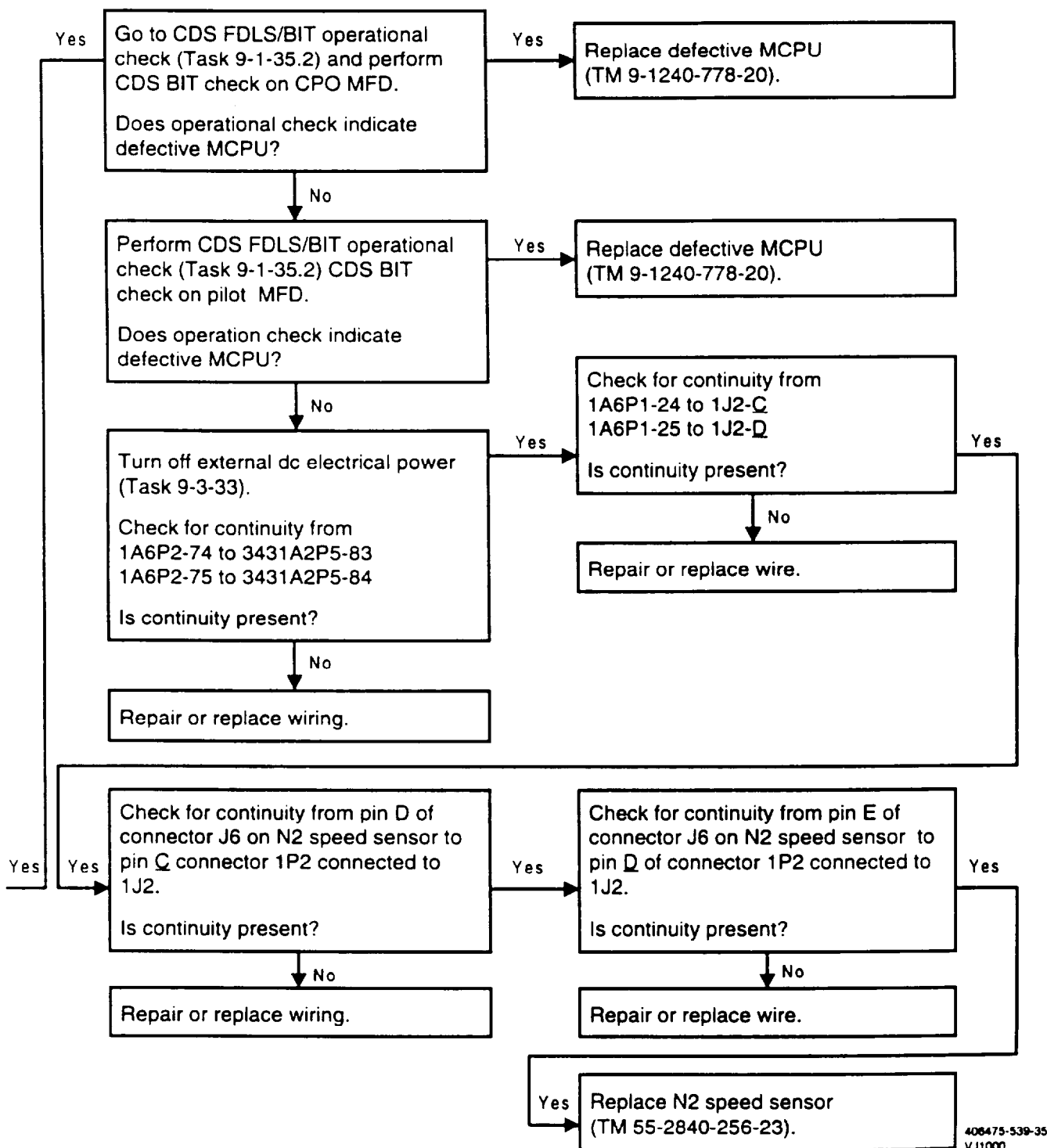
406475-539-33
VJ1000

15. ENGINE NP RPM INDICATOR (DIGITAL) ON MPD DOES NOT INDICATE APPROXIMATELY 100% (HELICOPTER AT 100% RPM AND DC GENERATOR ON)

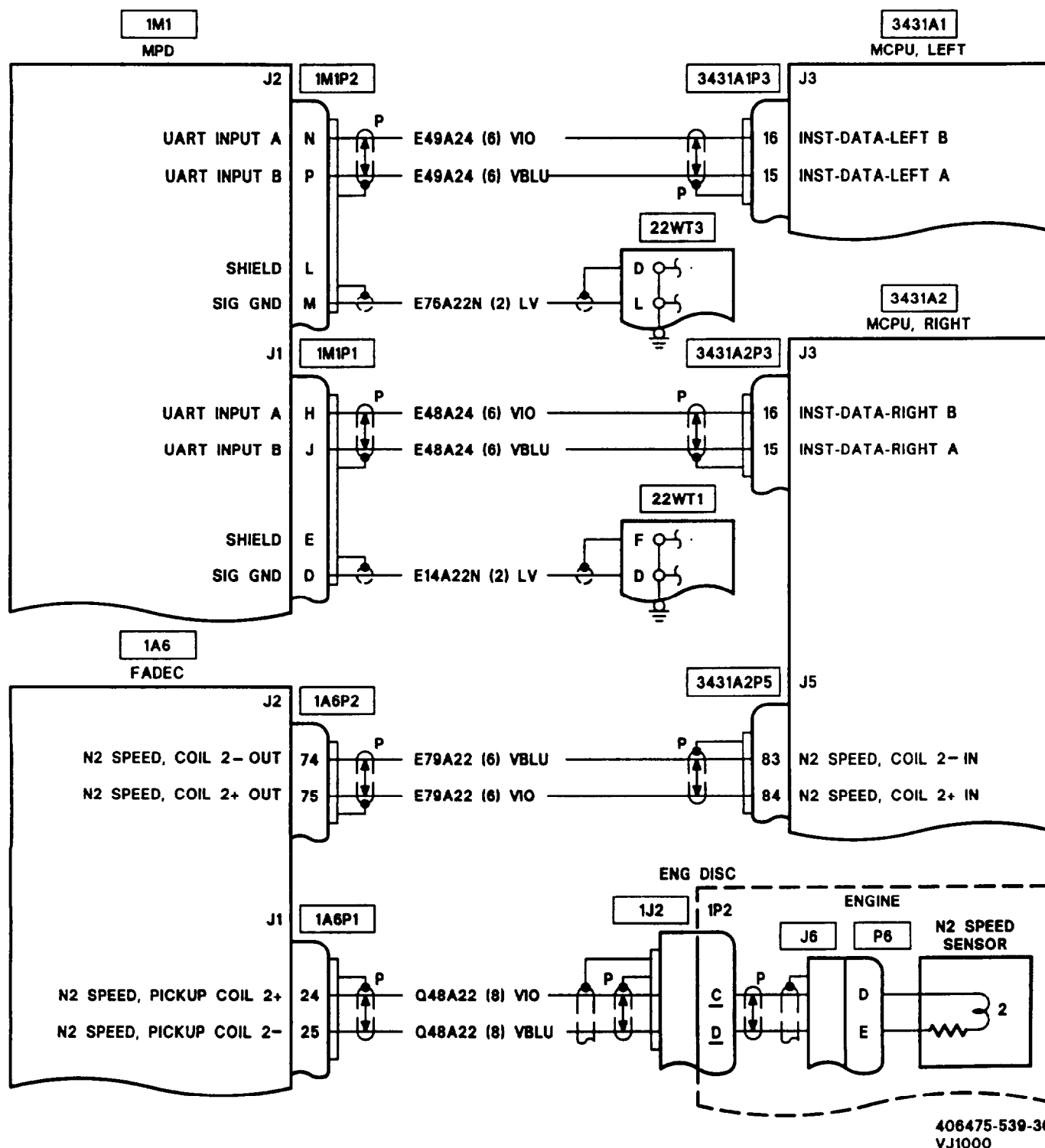


406475-539-34
VJ1000

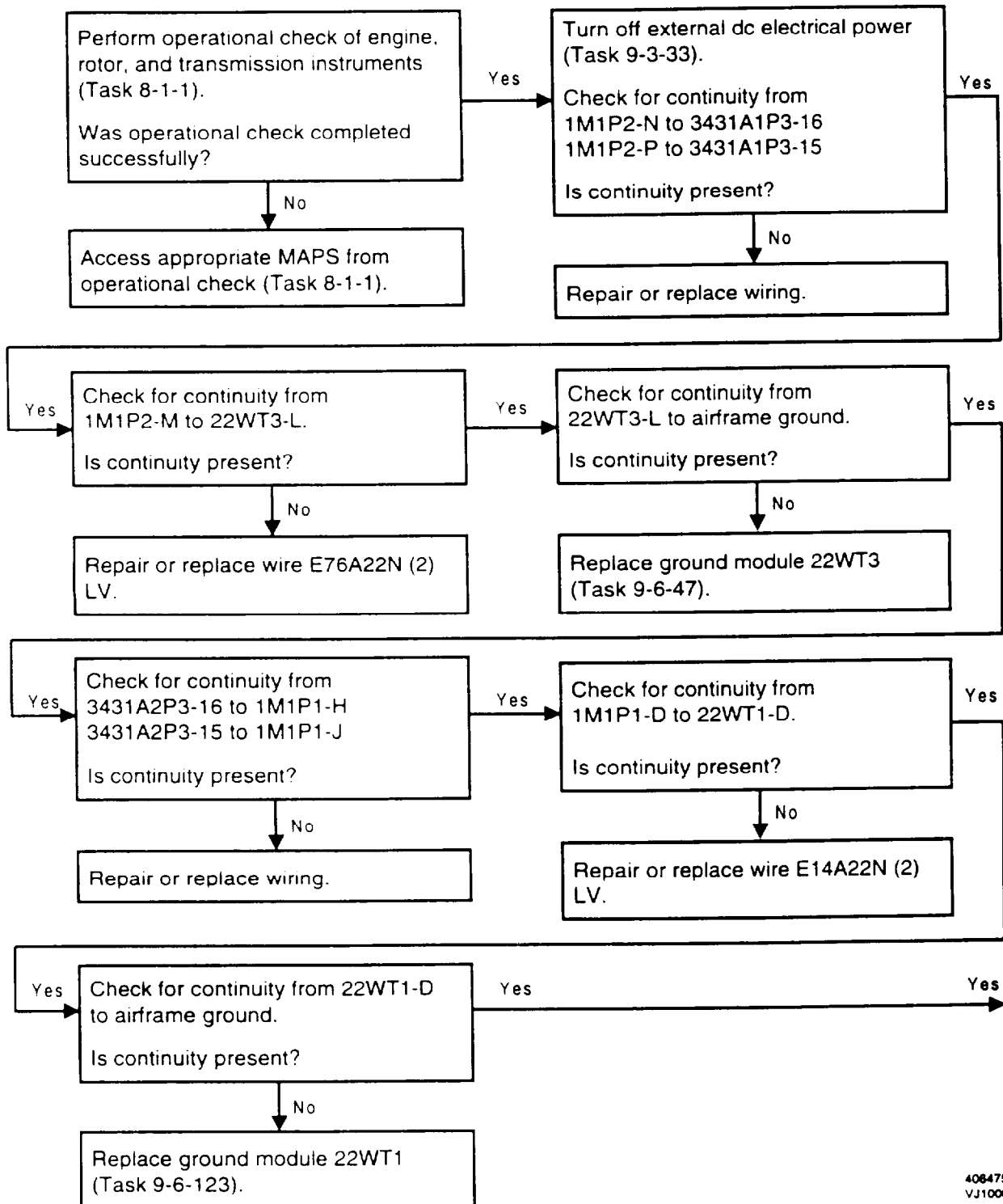
15. ENGINE NP RPM INDICATOR (DIGITAL) ON MPD DOES NOT INDICATE APPROXIMATELY 100%
(HELICOPTER AT 100% RPM AND DC GENERATOR ON) (CONT)



15. ENGINE NP RPM INDICATOR (DIGITAL) ON MPD DOES NOT INDICATE APPROXIMATELY 100% (HELICOPTER AT 100% RPM AND DC GENERATOR ON) (CONT)

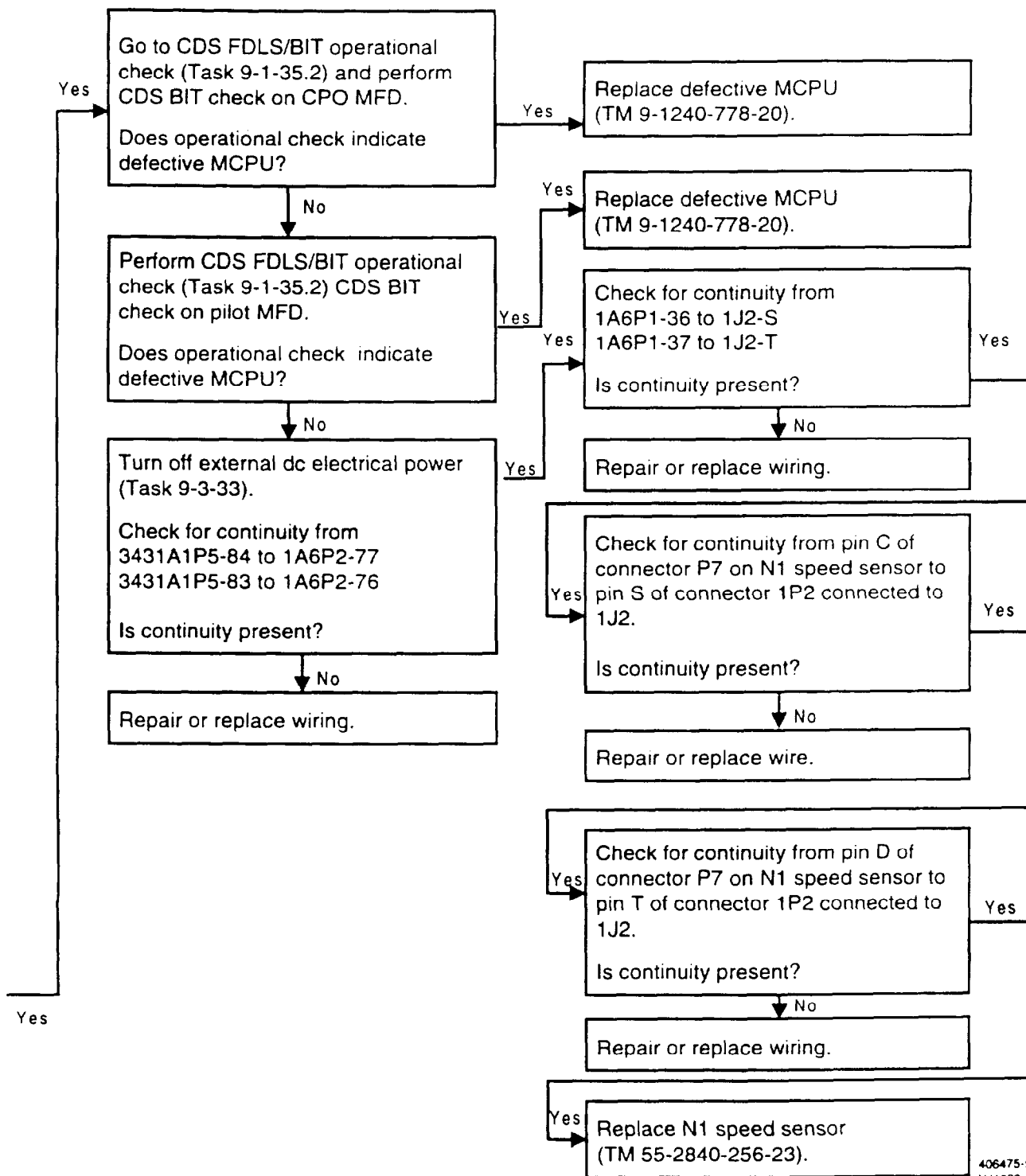


16. ENGINE NG RPM INDICATOR (DIGITAL) ON MPD DOES NOT INDICATE APPROXIMATELY 85% (HELICOPTER AT 100% RPM AND DC GENERATOR ON)

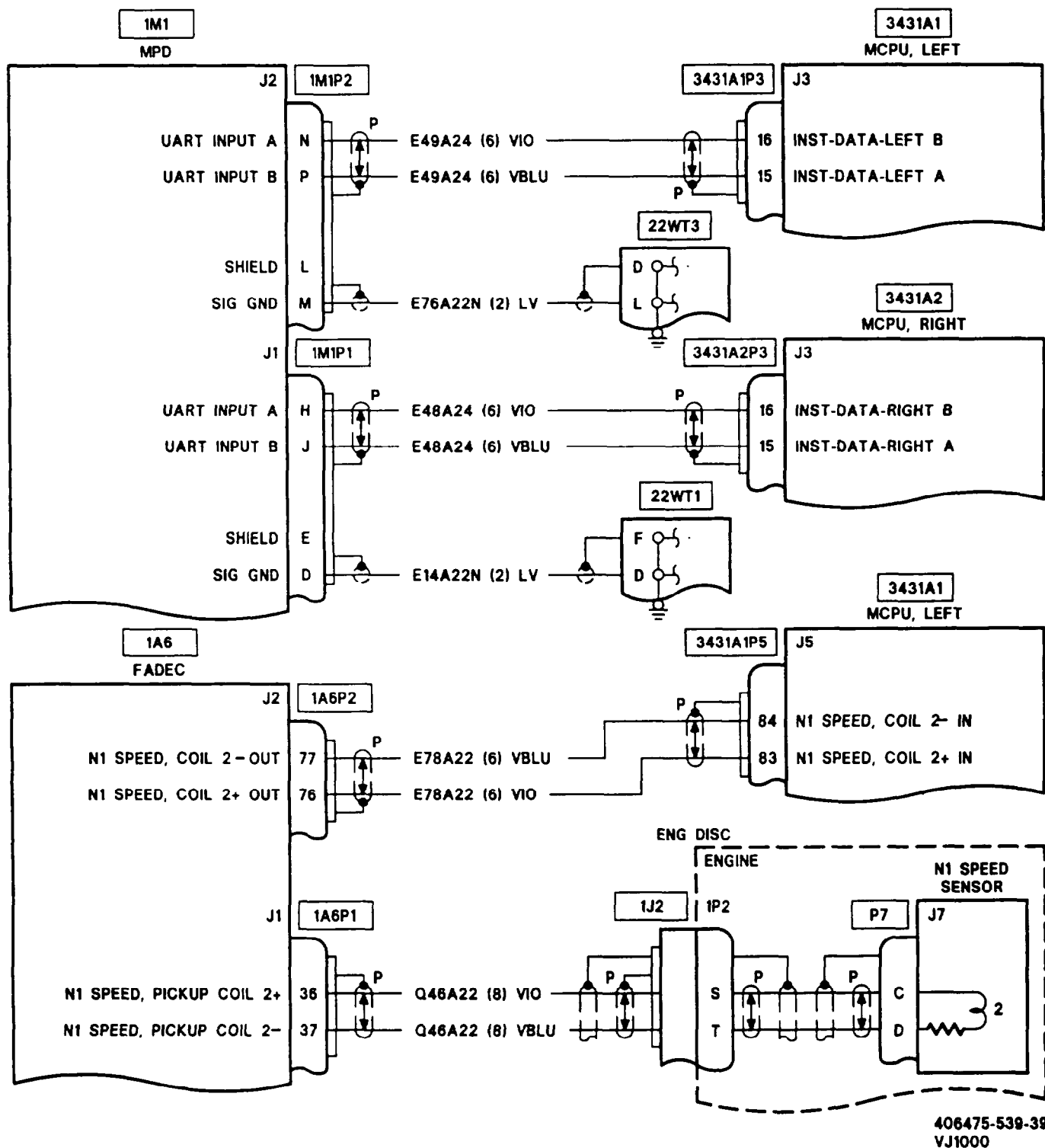


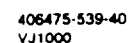
406475-539-37
VJ1000

16. ENGINE NG RPM INDICATOR (DIGITAL) ON MPD DOES NOT INDICATE APPROXIMATELY 85% (HELICOPTER AT 100% RPM AND DC GENERATOR ON) (CONT)

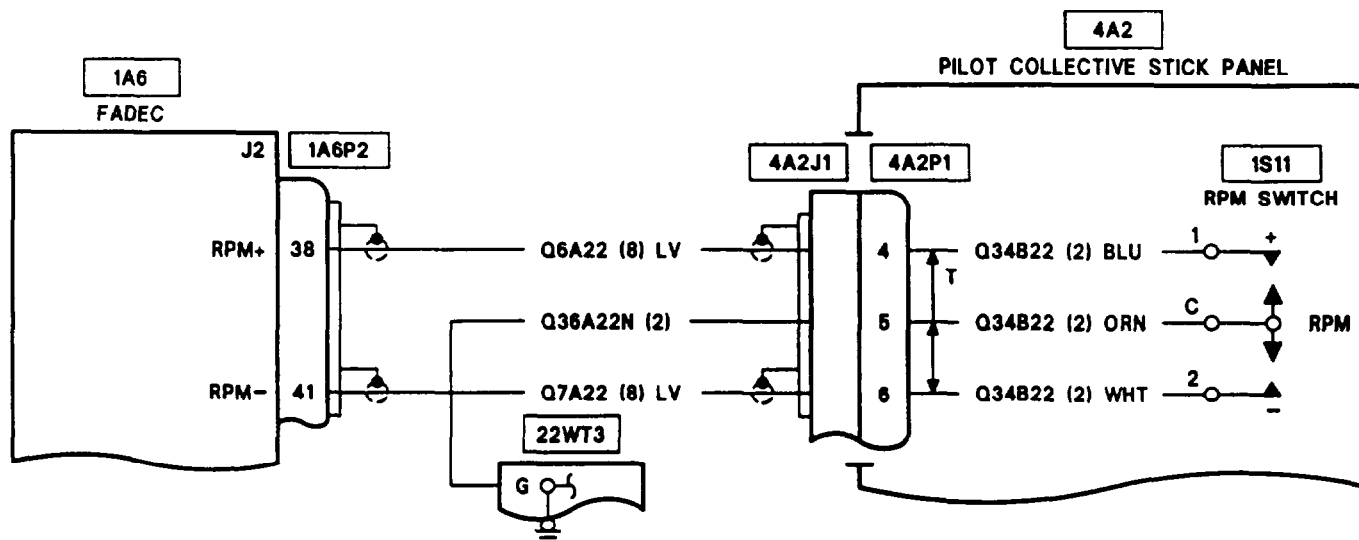


16. ENGINE NG RPM INDICATOR (DIGITAL) ON MPD DOES NOT INDICATE APPROXIMATELY 85% (HELICOPTER AT 100% RPM AND DC GENERATOR ON) (CONT)



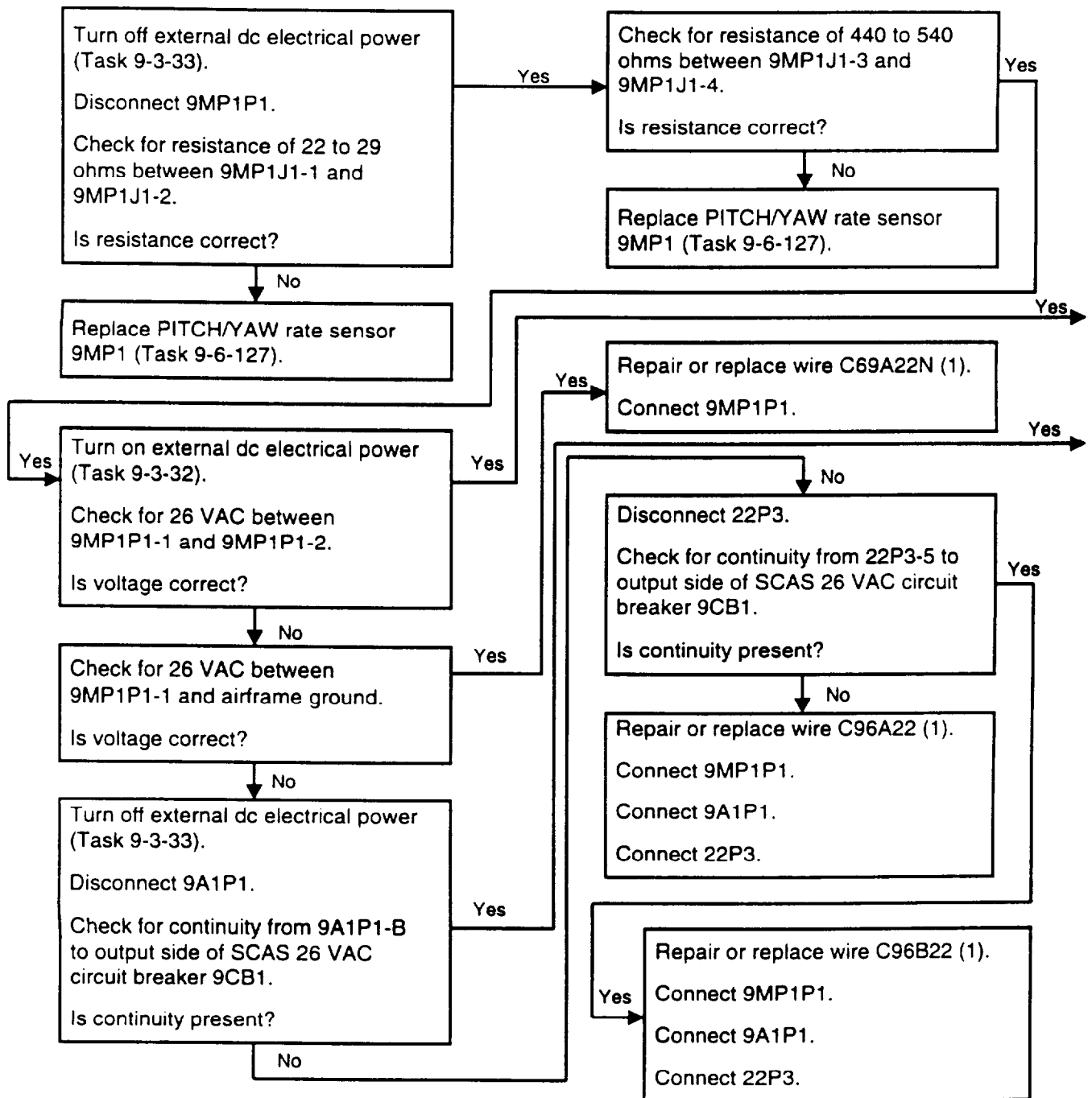


17. RPM SWITCH DOES NOT INCREASE AND/OR DECREASE ENGINE RPM (CONT)

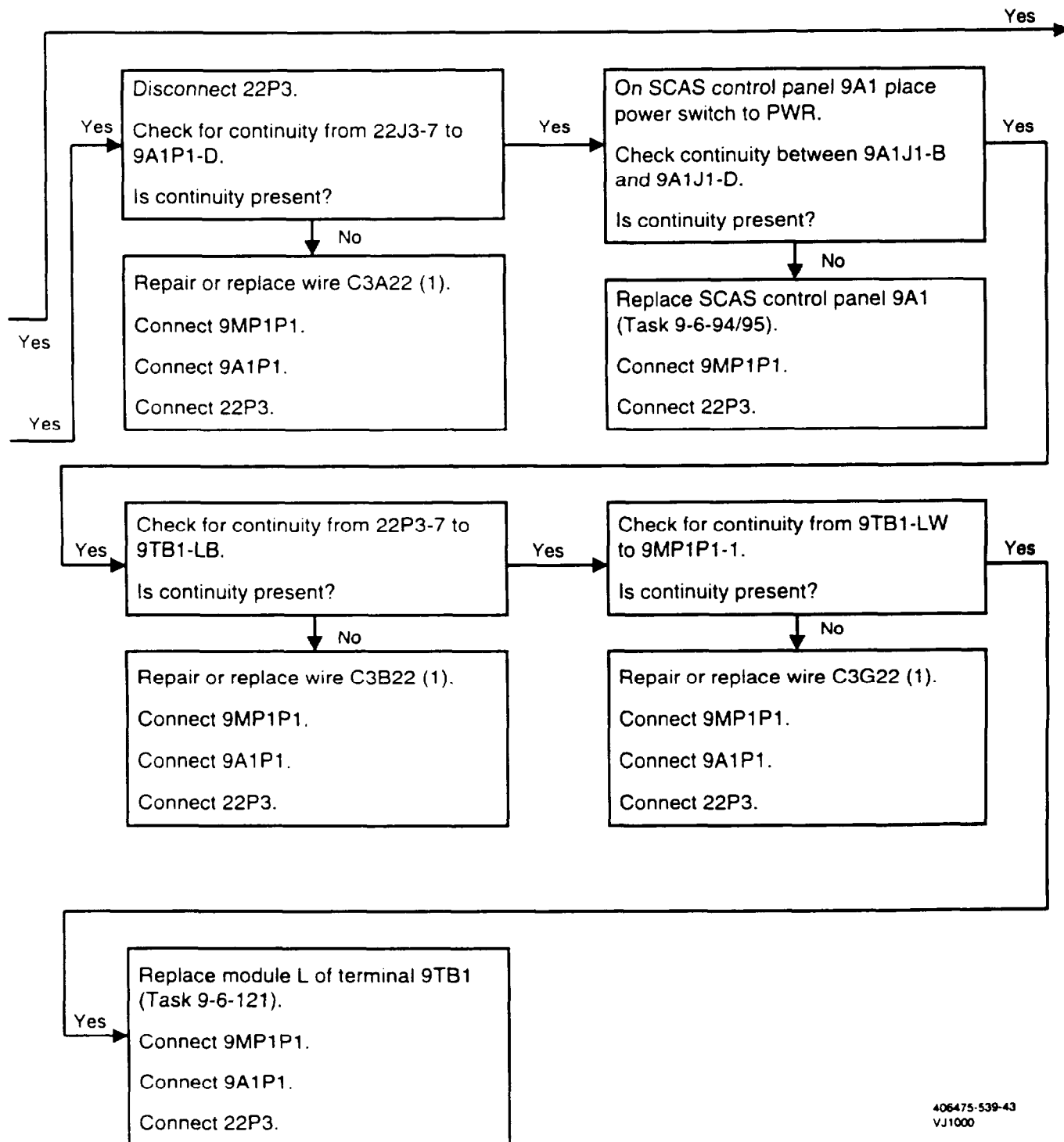


406475-539-41
VJ1000

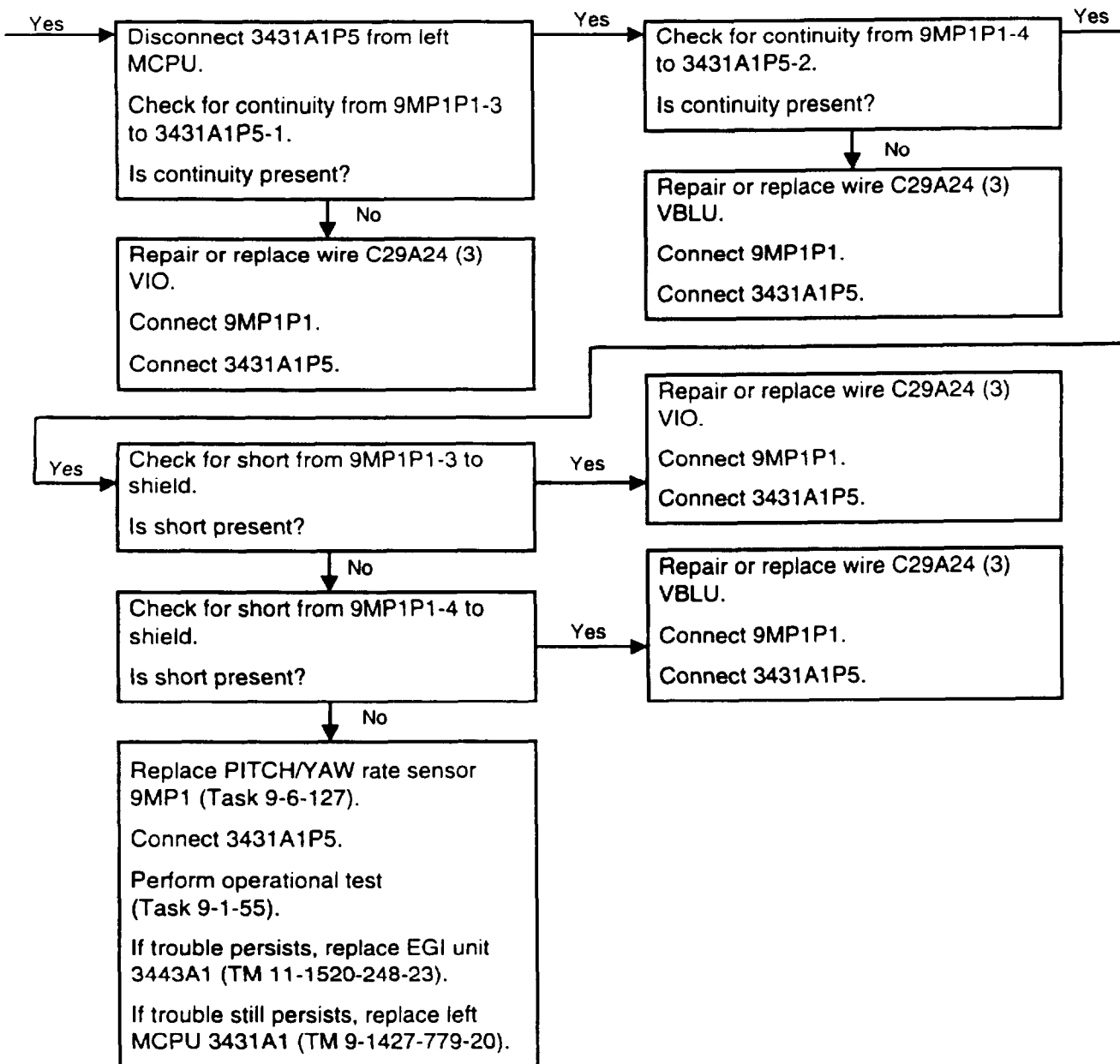
18. ERROR CODE 0200 WORD 1 PITCH RATE SENSOR FAILURE

406475-539-42
VJ1000

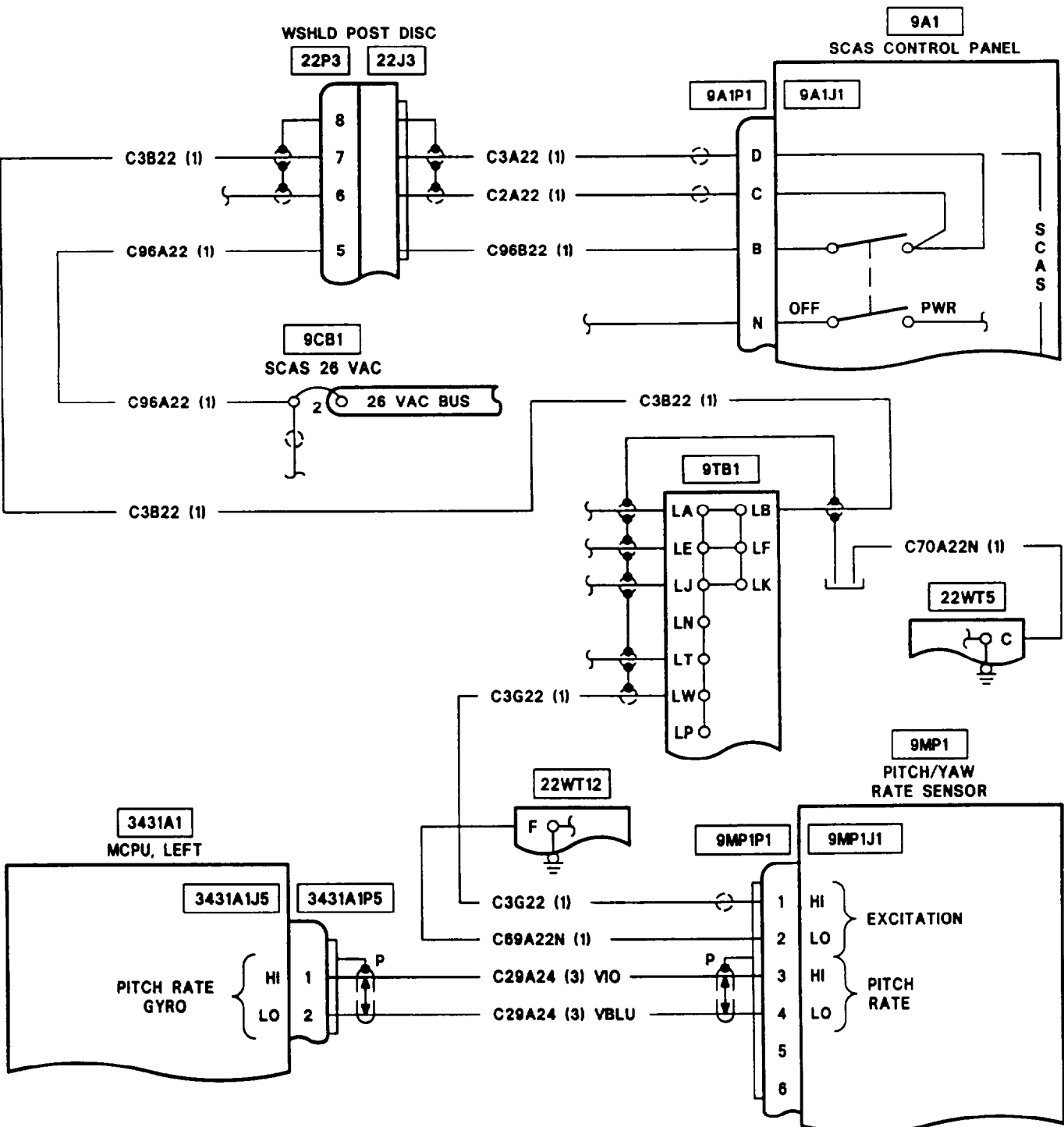
18. ERROR CODE 0200 WORD 1 PITCH RATE SENSOR FAILURE (CONT)



18. ERROR CODE 0200 WORD 1 PITCH RATE SENSOR FAILURE (CONT)

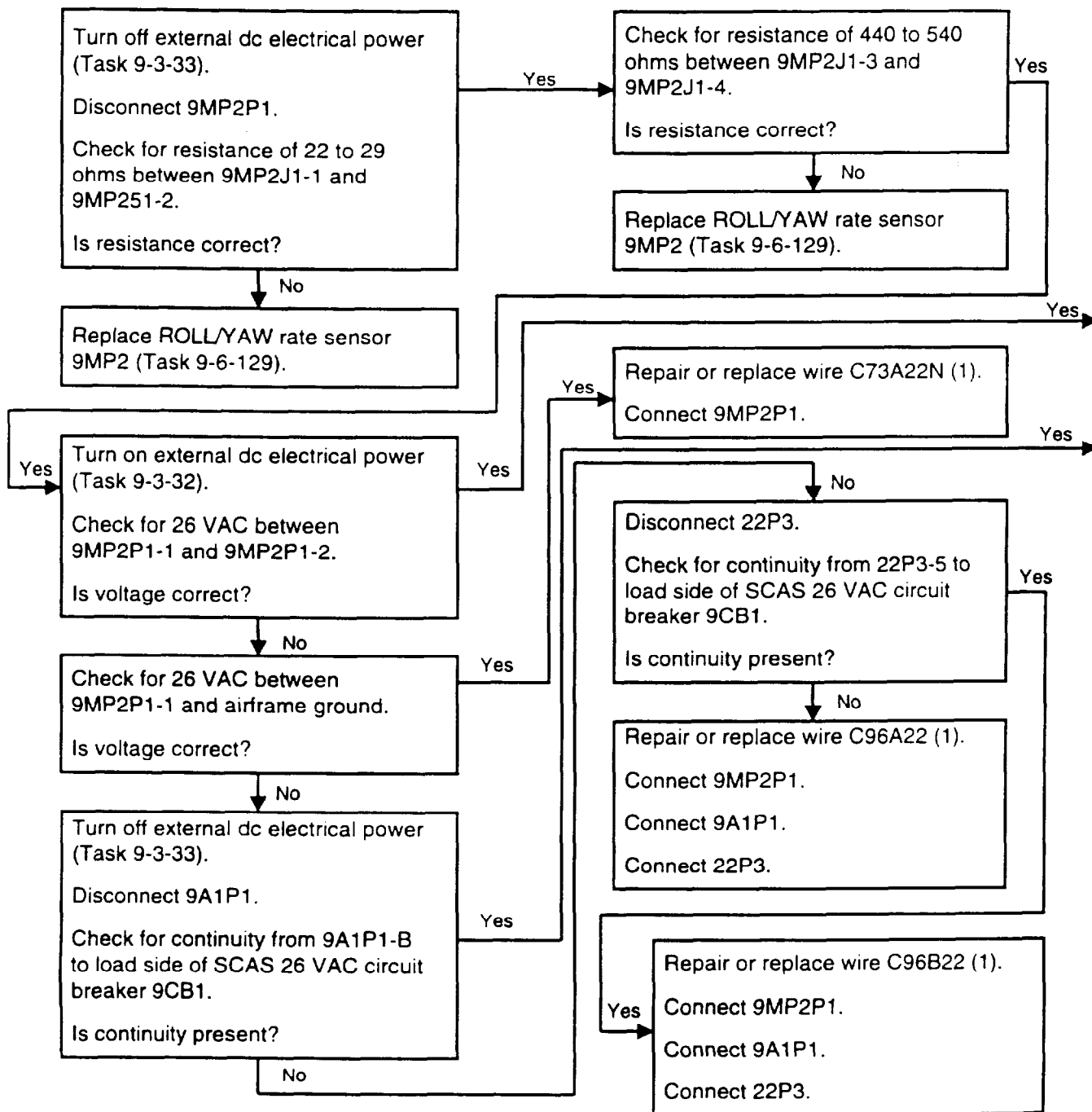
408475-539-44
VJ1000

18. ERROR CODE 0200 WORD 1 PITCH RATE GYRO FAILURE (CONT)

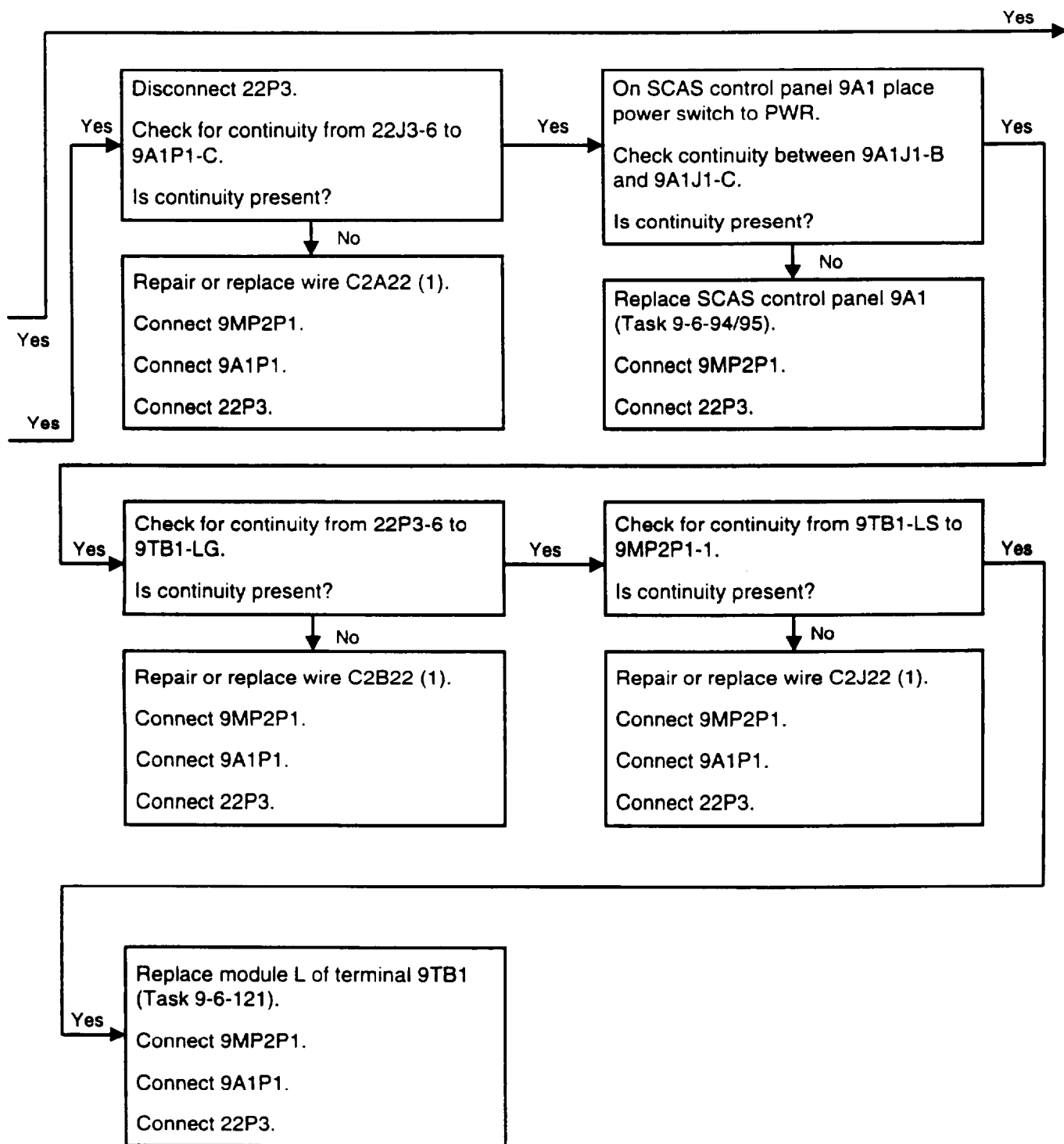


406475-539-45
VJ1000

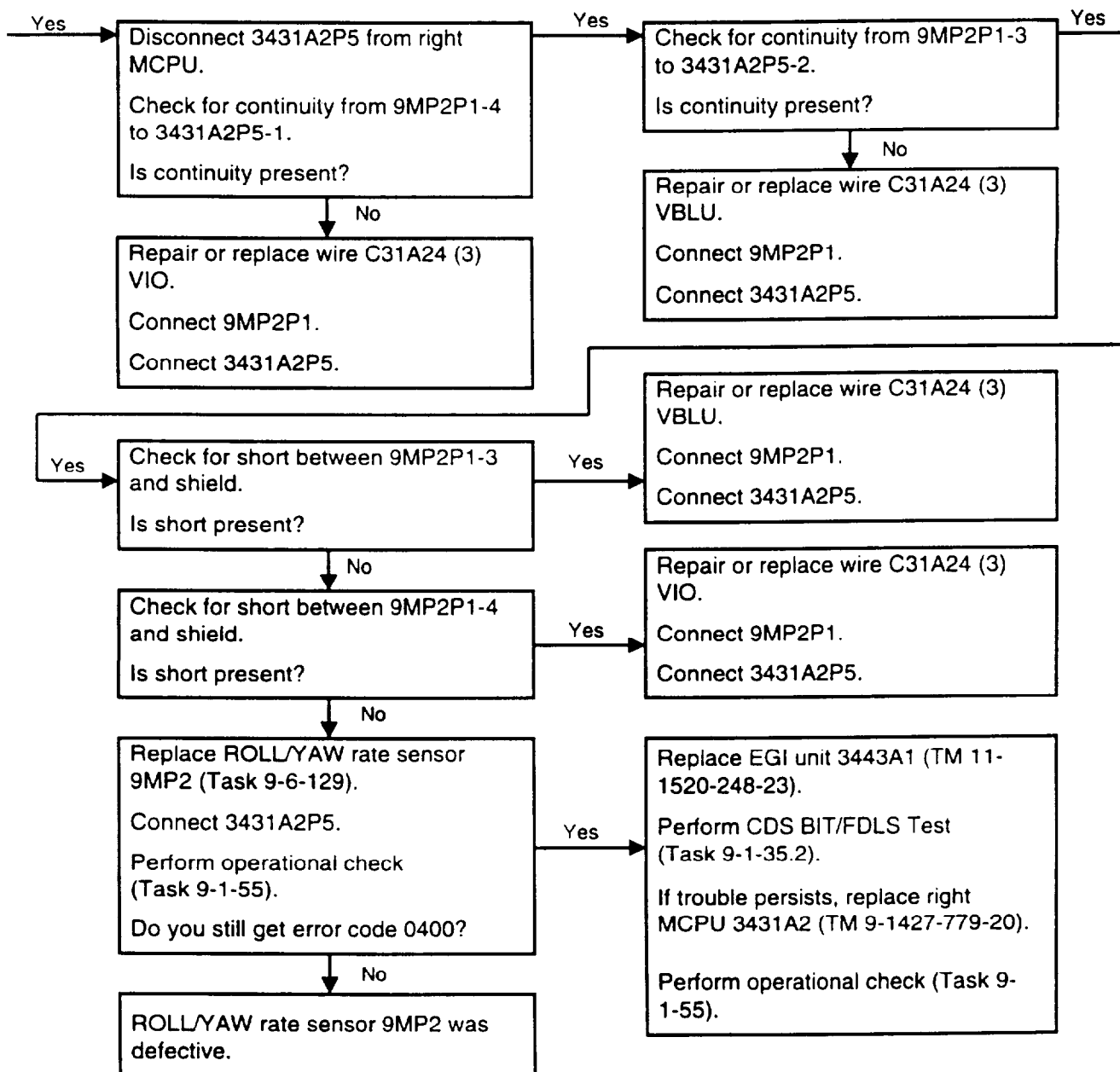
19. ERROR CODE 0400 WORD 1 ROLL RATE SENSOR FAILURE

406475-539-48
VJ1000

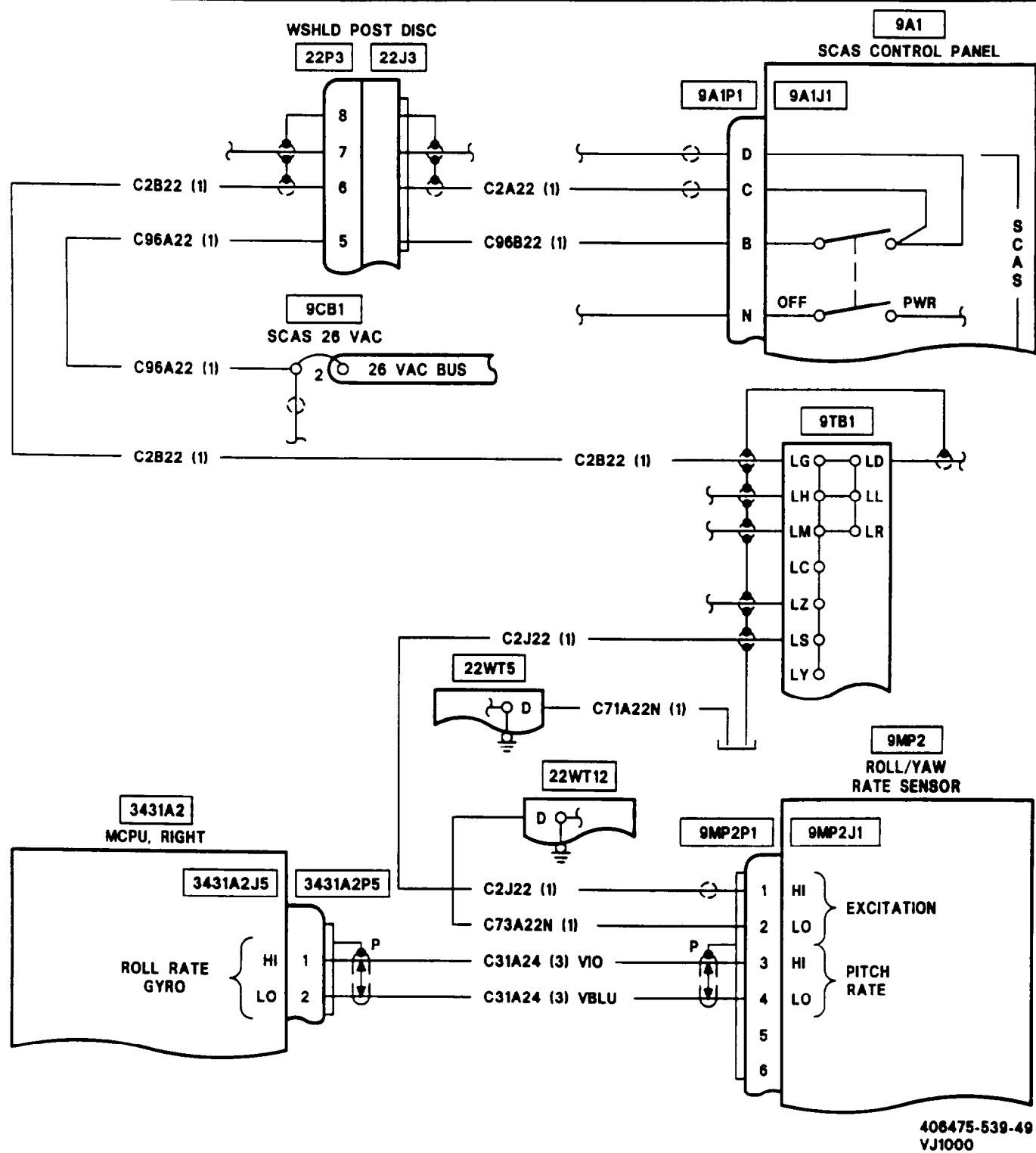
19. ERROR CODE 0400 WORD 1 ROLL RATE SENSOR FAILURE (CONT)

406475-538-47
VJ1000

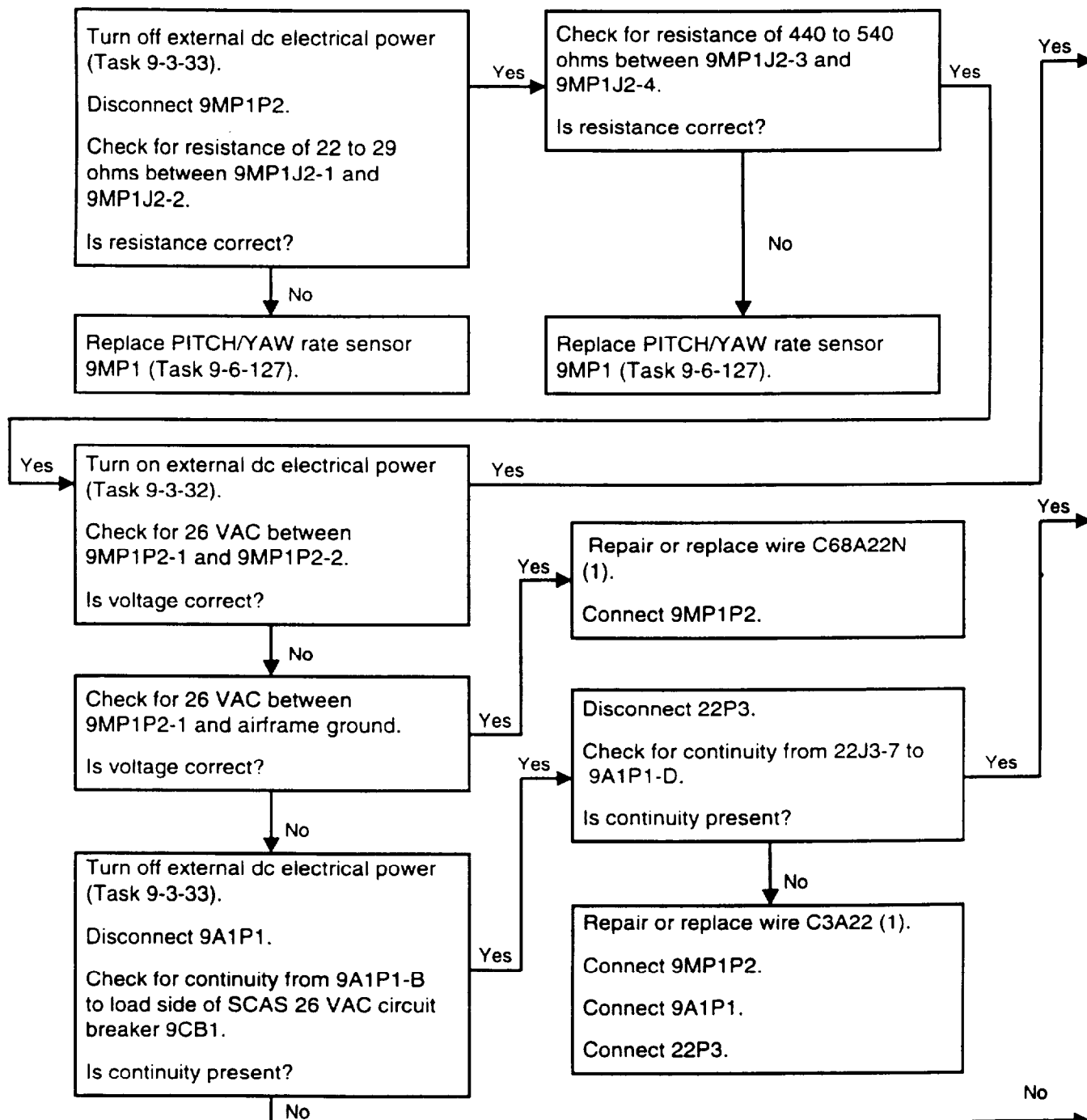
19. ERROR CODE 0400 WORD 1 ROLL RATE SENSOR FAILURE (CONT)

406475-539-48
VJ1000

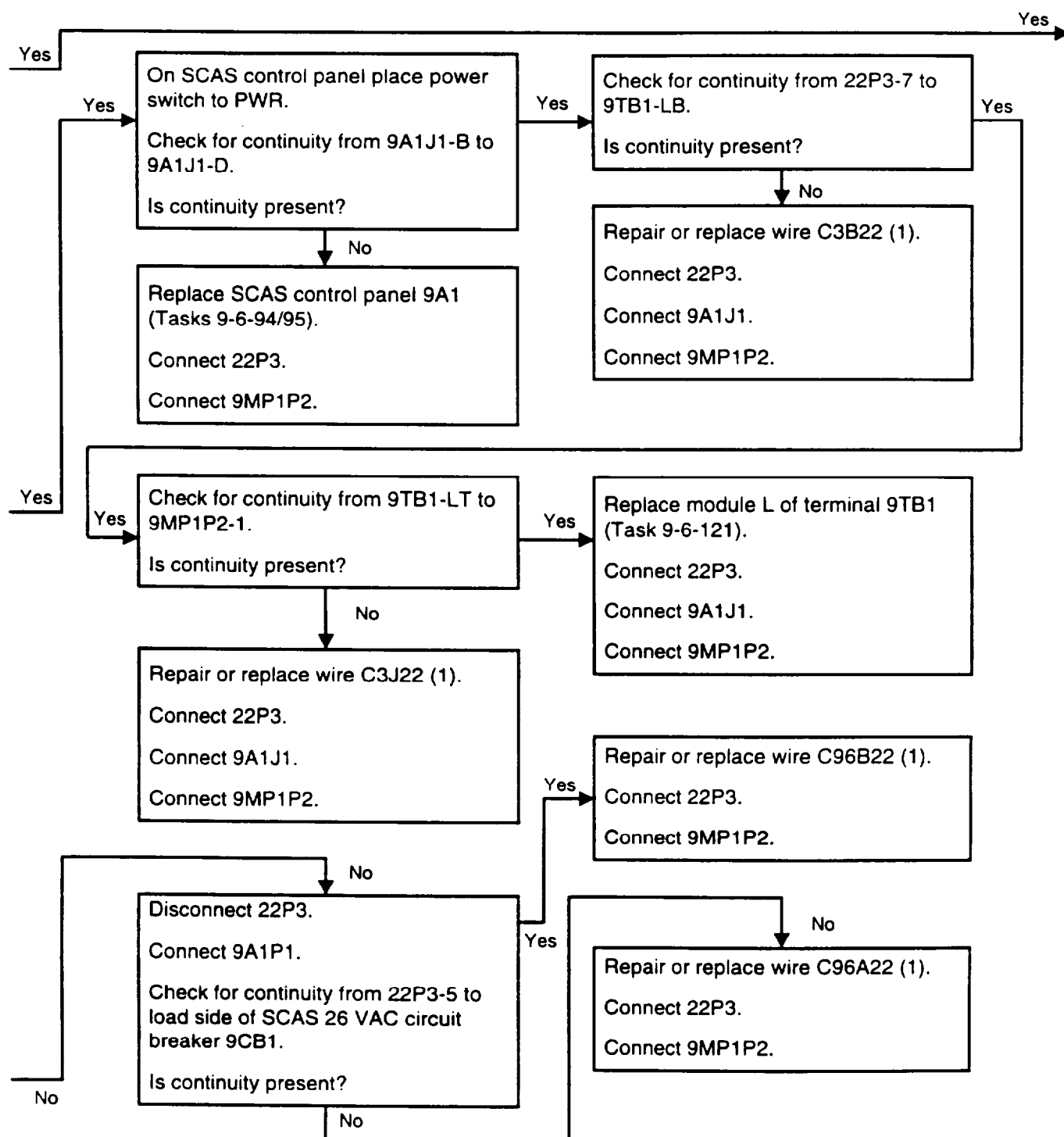
19. ERROR CODE 0400 WORD 1 ROLL RATE SENSOR FAILURE (CONT)



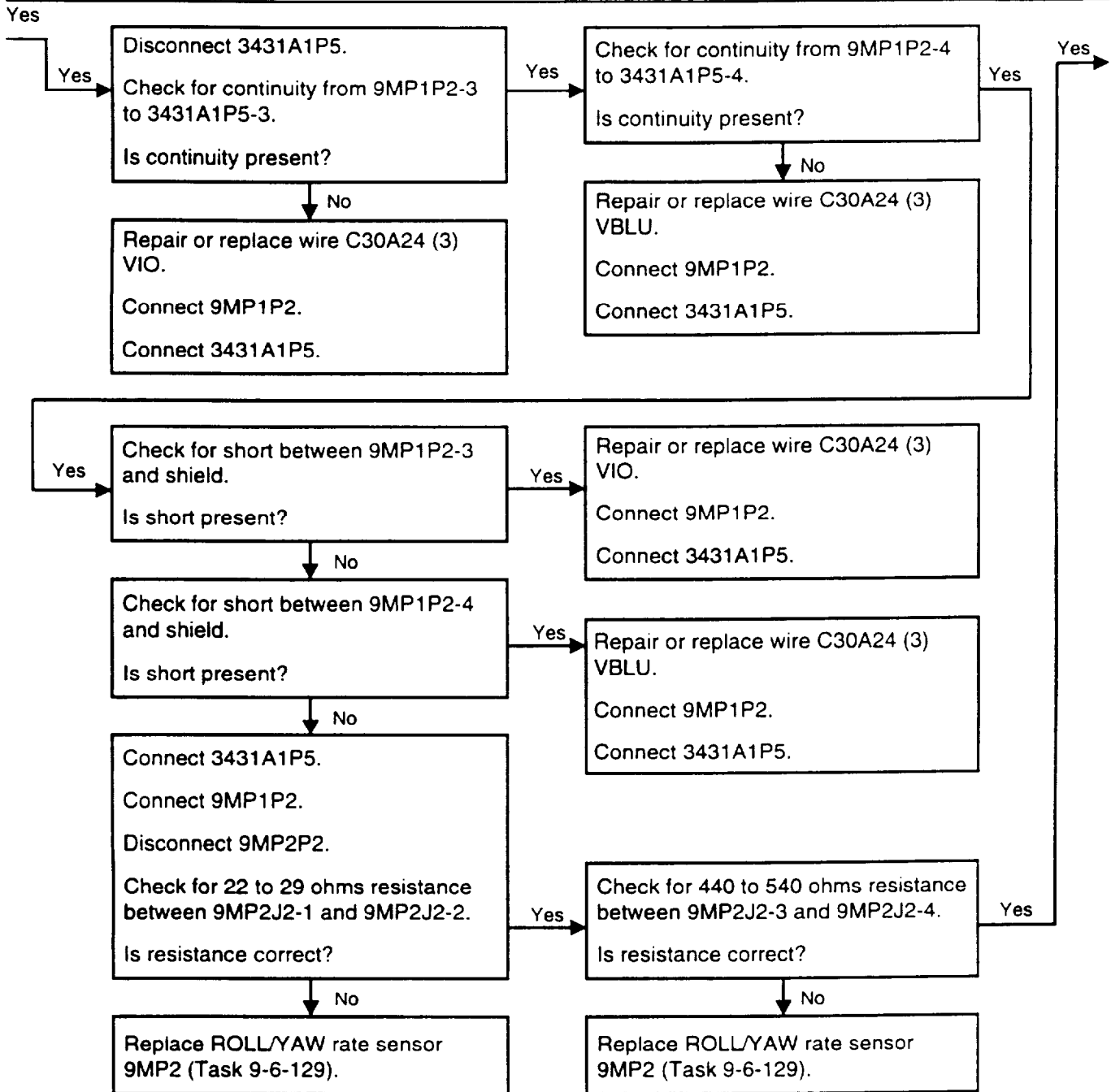
20. ERROR CODE 0800 WORD 1 YAW RATE SENSOR FAILURE

406475-539-50
VJ1000

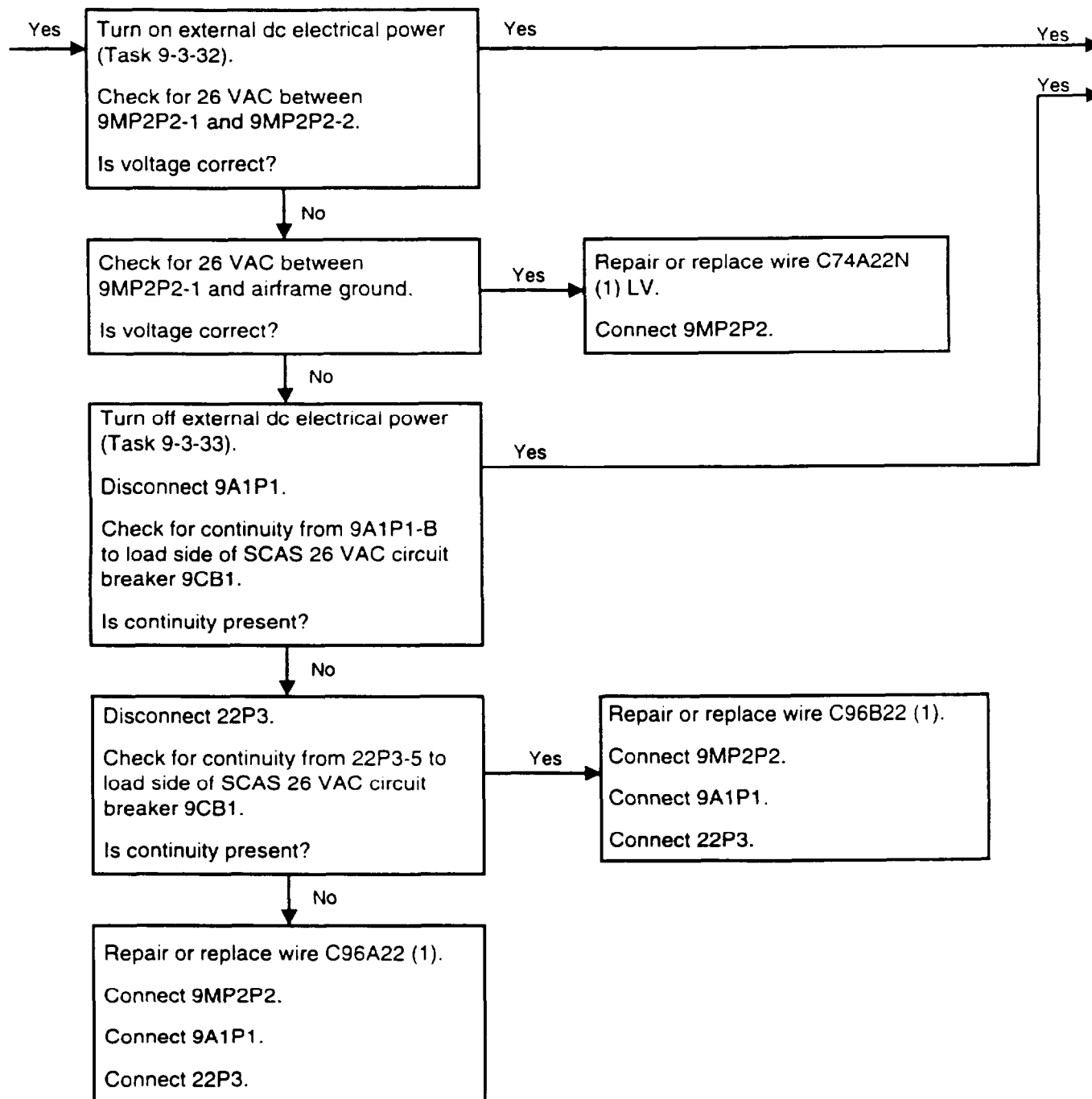
20. ERROR CODE 0800 WORD 1 YAW RATE SENSOR FAILURE (CONT)

406475-539-51
VJ1000

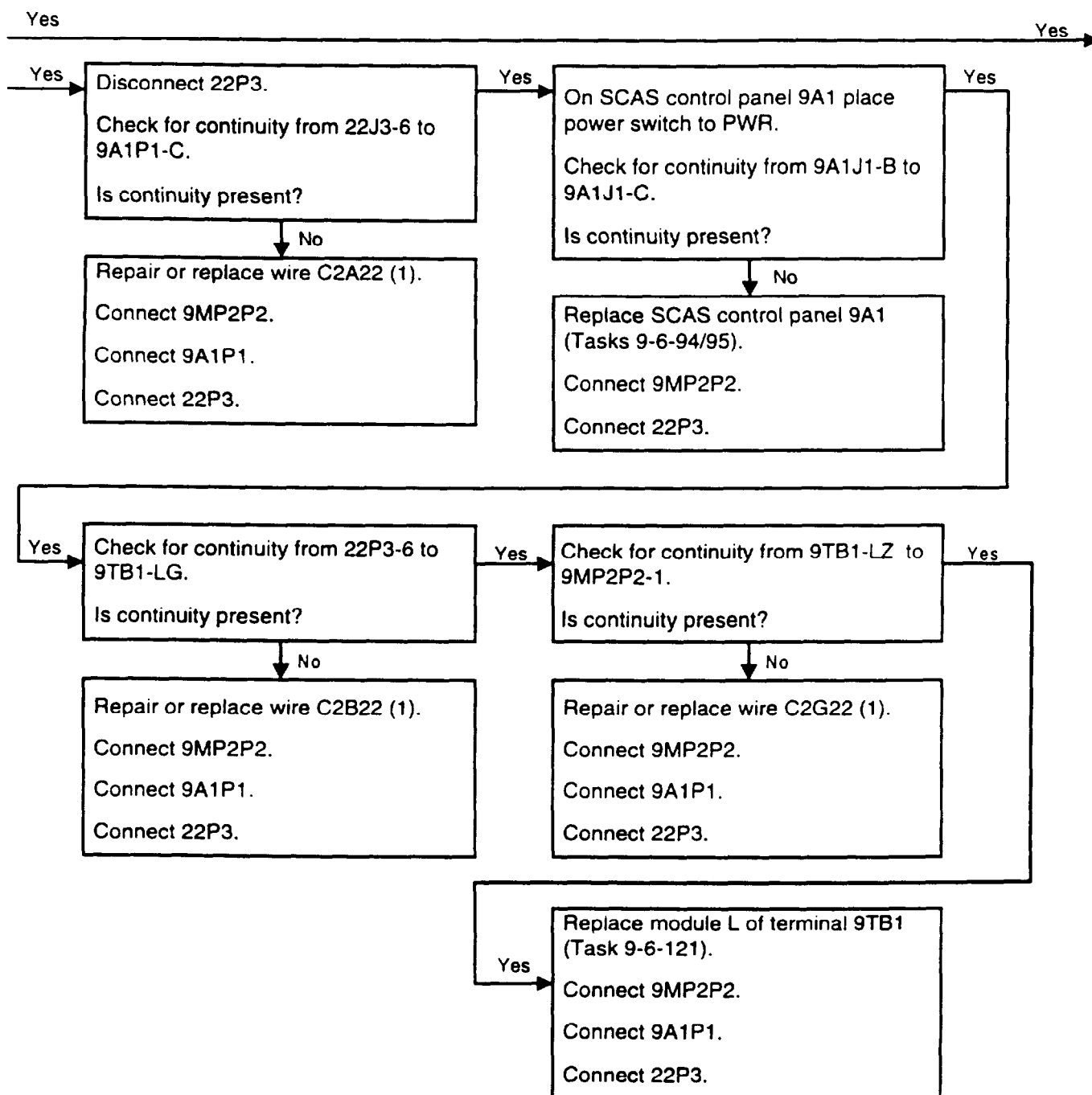
20. ERROR CODE 0800 WORD 1 YAW RATE SENSOR FAILURE (CONT)

406475_539_52
VJ1000

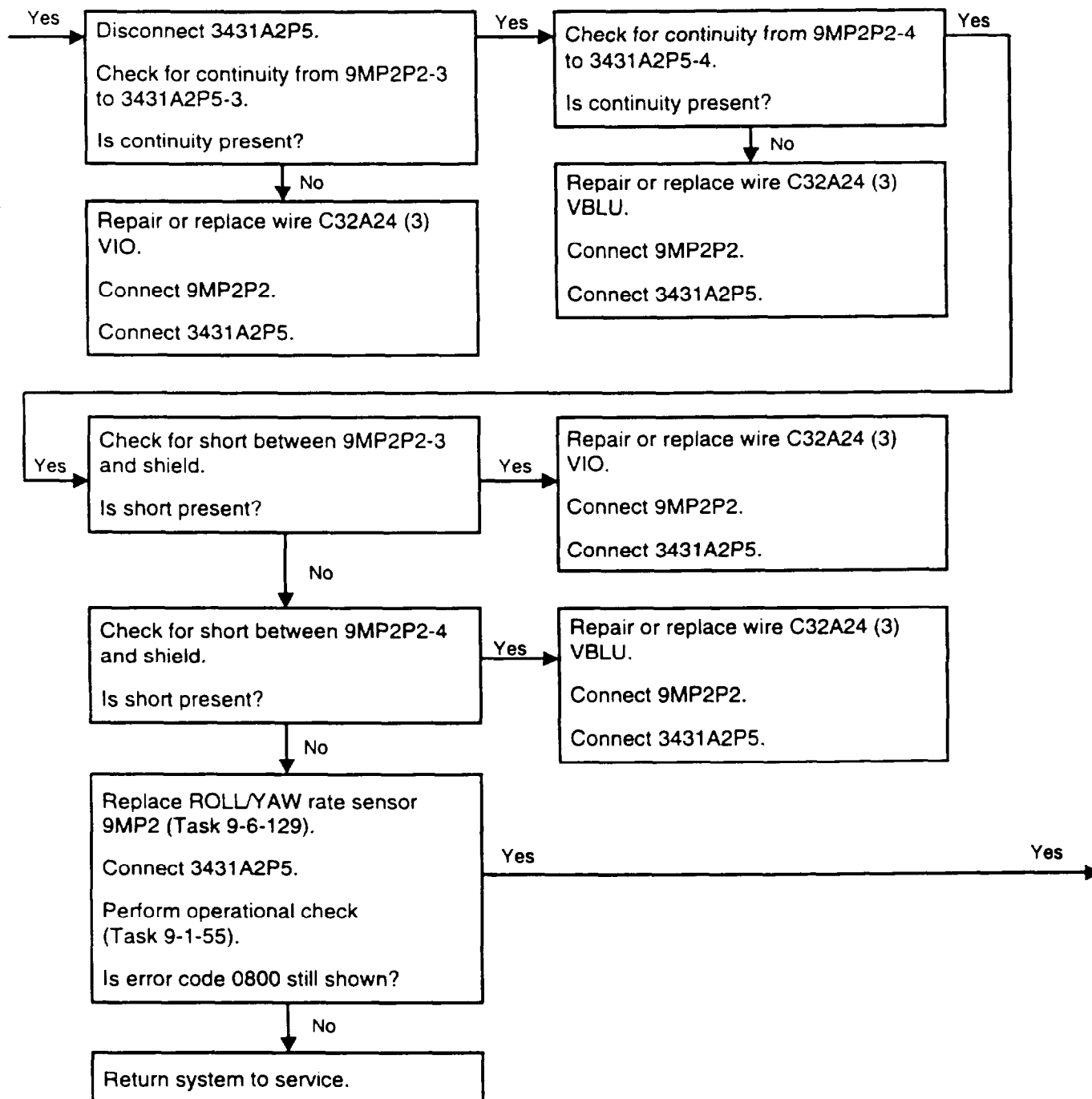
20. ERROR CODE 0800 WORD 1 YAW RATE SENSOR FAILURE (CONT)

406475-539-53
VJ1000

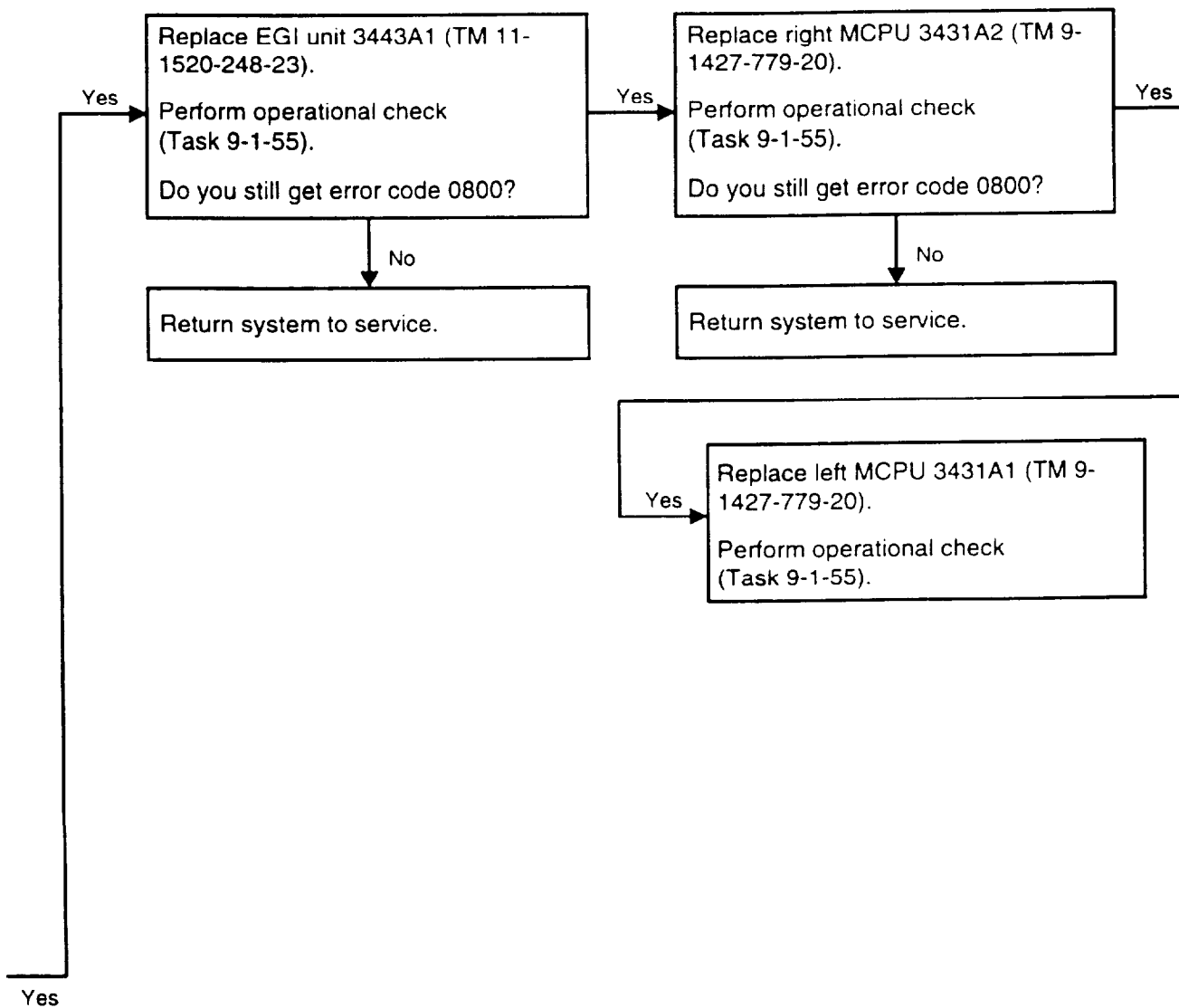
20. ERROR CODE 0800 WORD 1 YAW RATE SENSOR FAILURE (CONT)

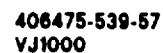
406475-539-54
VJ1000

20. ERROR CODE 0800 WORD 1 YAW RATE SENSOR FAILURE (CONT)

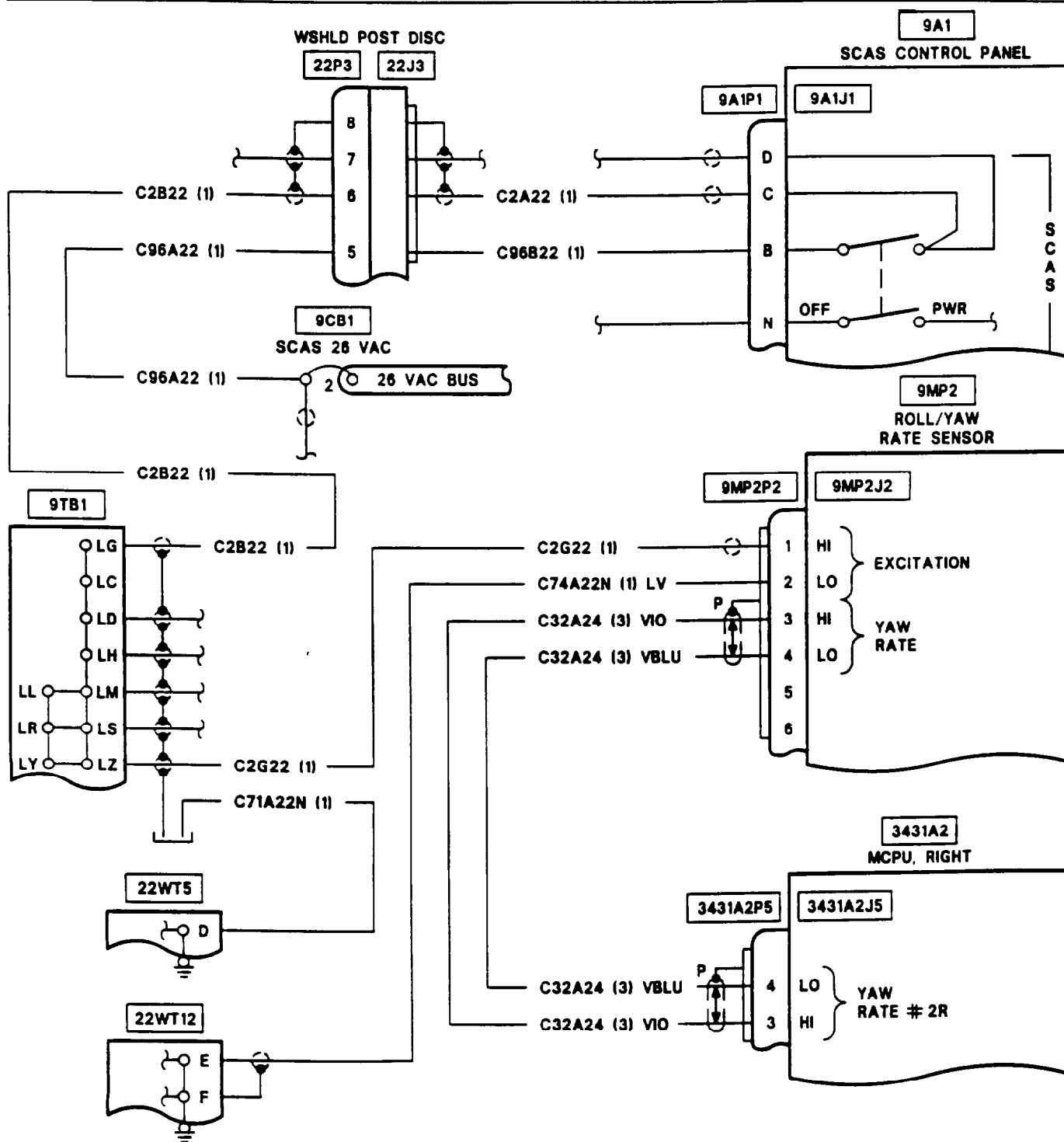
406475-539-55
VJ1000

20. ERROR CODE 0800 WORD 1 YAW RATE SENSOR FAILURE (CONT)

406475-539-56
VJ1000

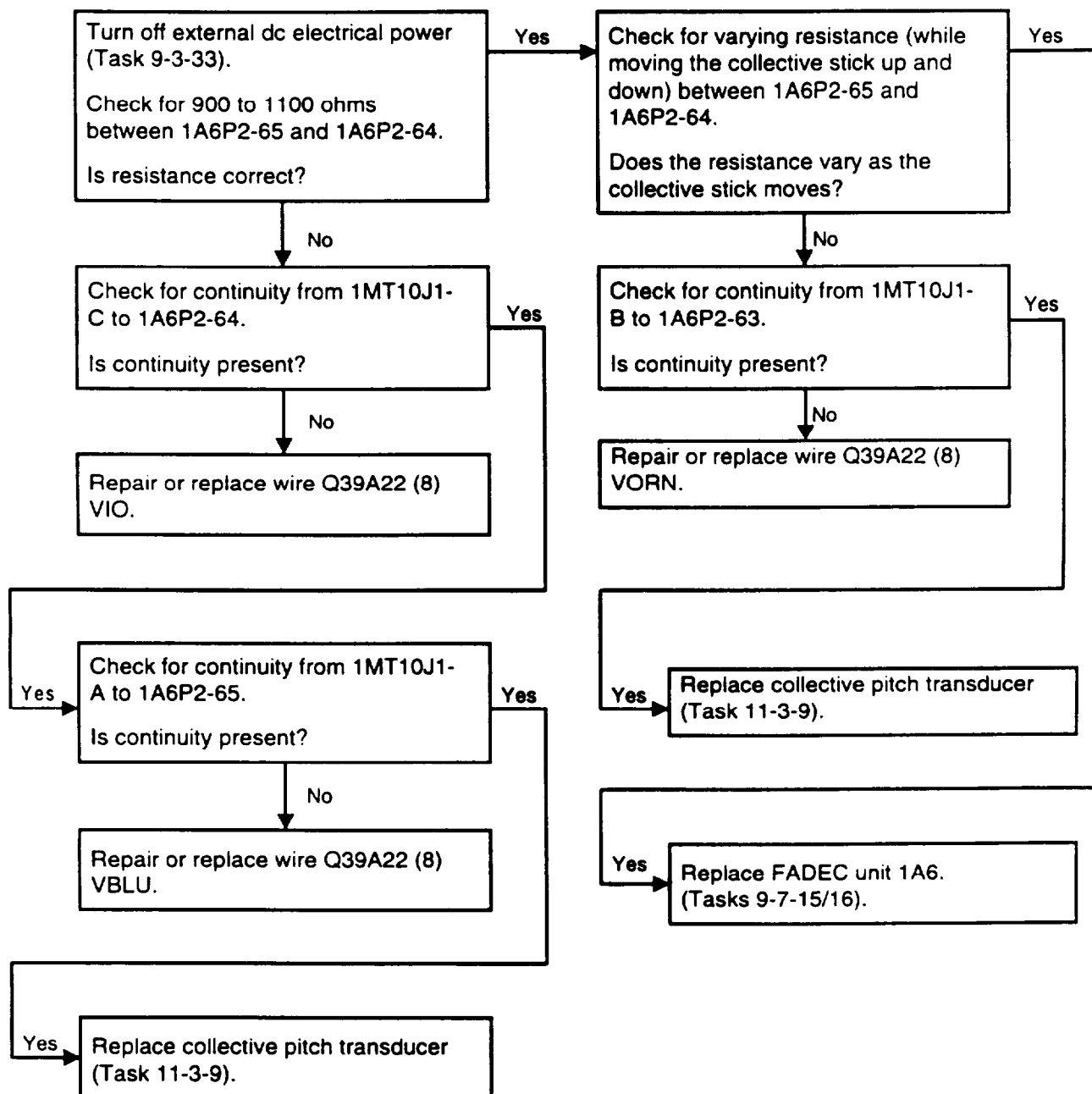


20. ERROR CODE 0800 WORD 1 YAW RATE SENSOR FAILURE (CONT)



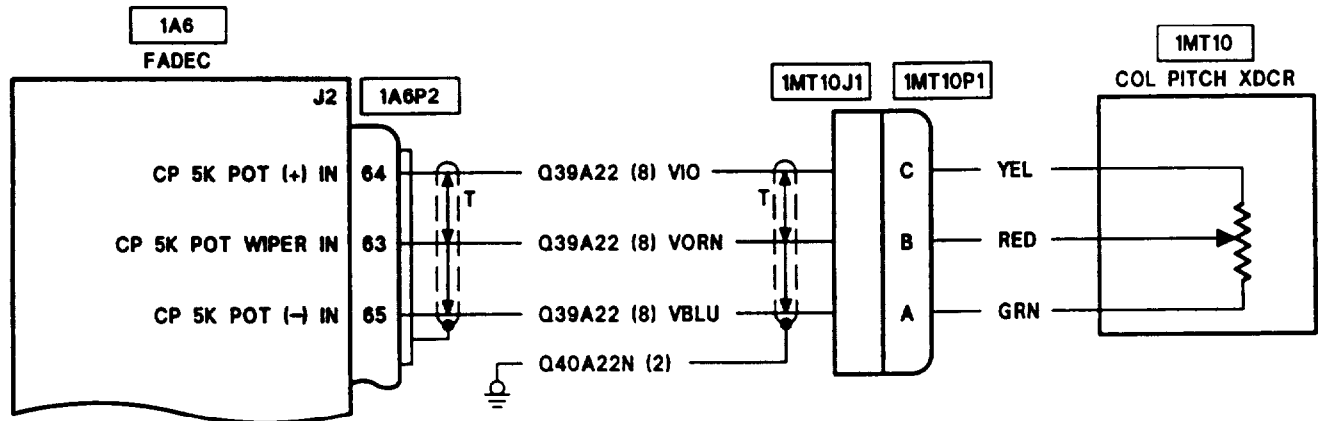
406475-539-58
VJ1000

21. ENGINE DROOPS DURING INCREASE IN COLLECTIVE



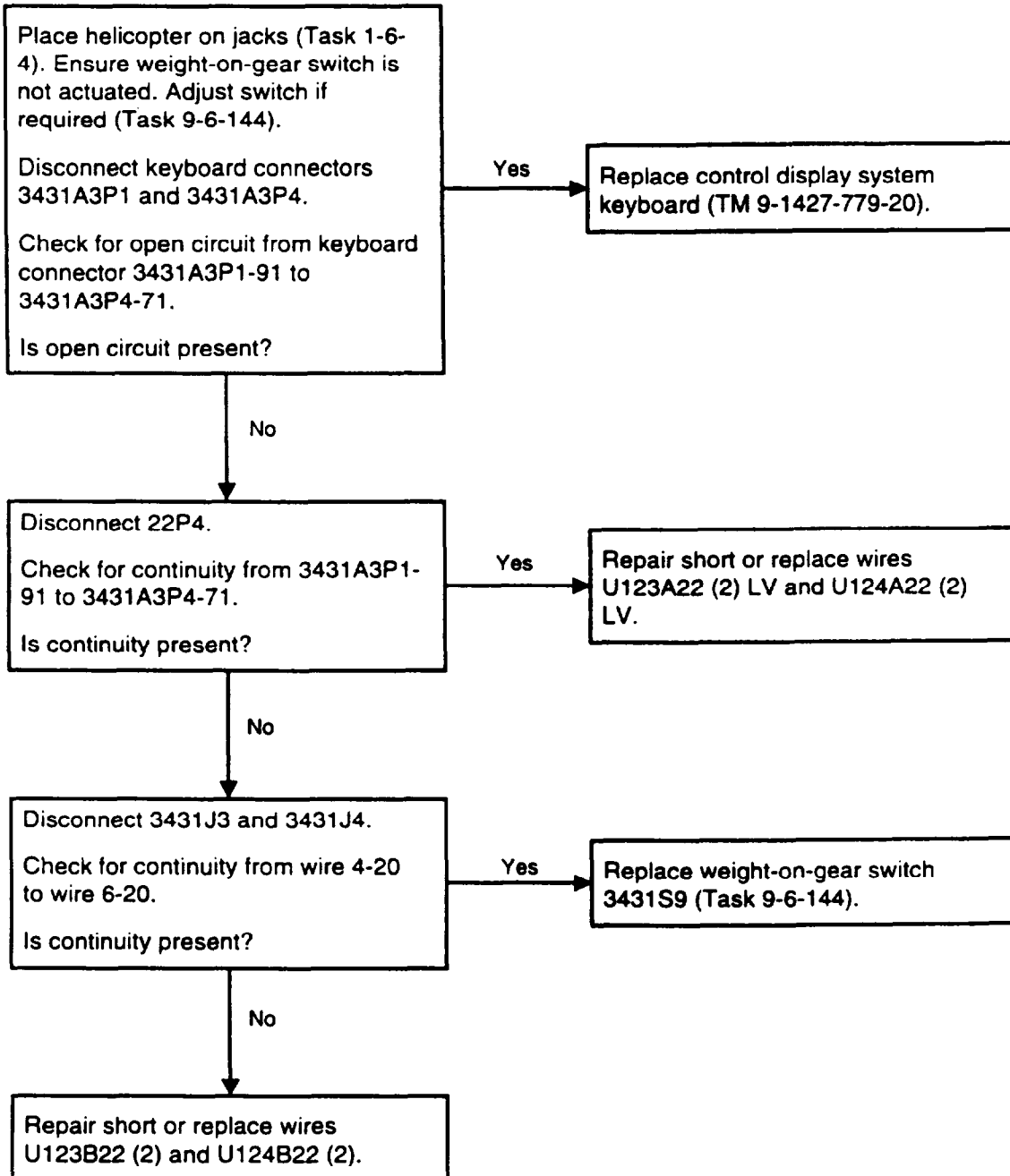
406475-539-59
VJ1000

21. ENGINE DROOPS DURING INCREASE IN COLLECTIVE (CONT)



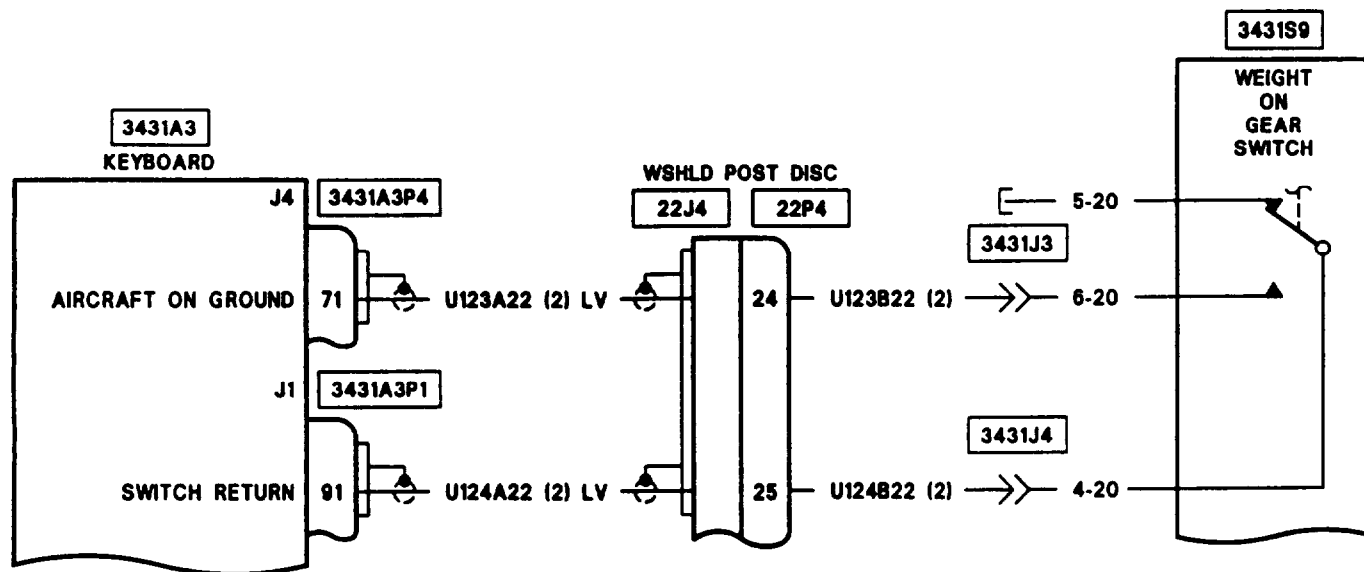
406475-539-60
VJ1000

22. FDL MENU PAGE APPEARS IN FLIGHT

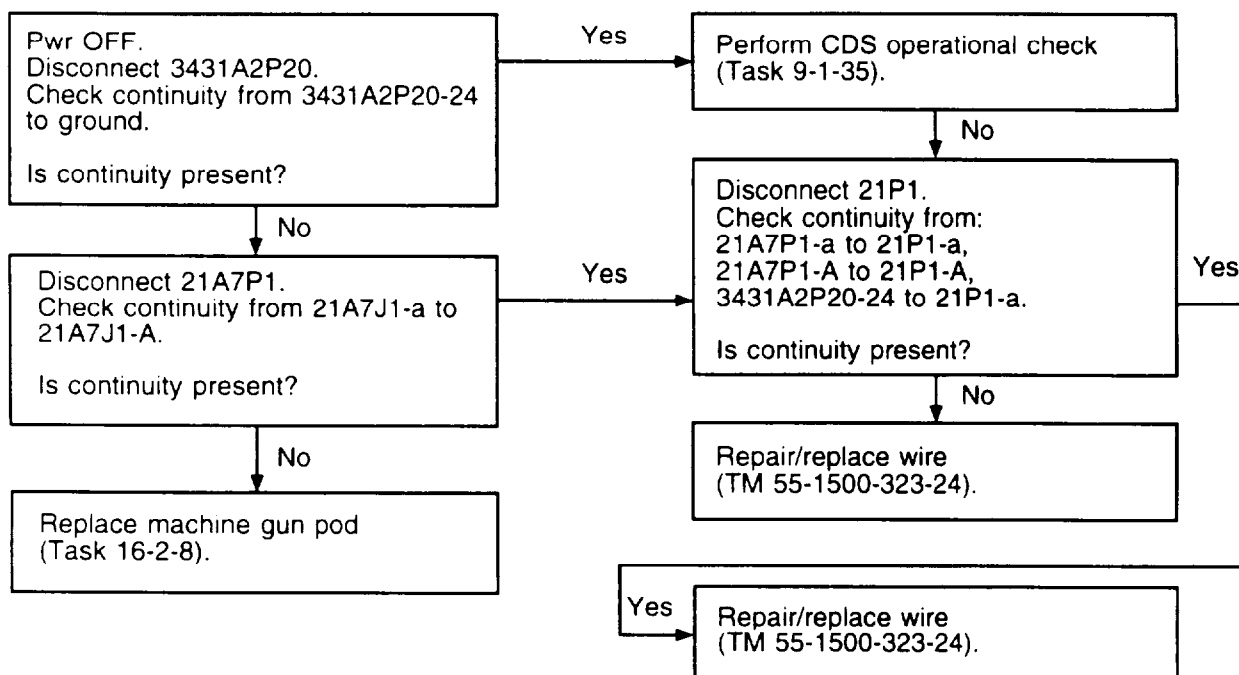


408475-539-70
VJ1000

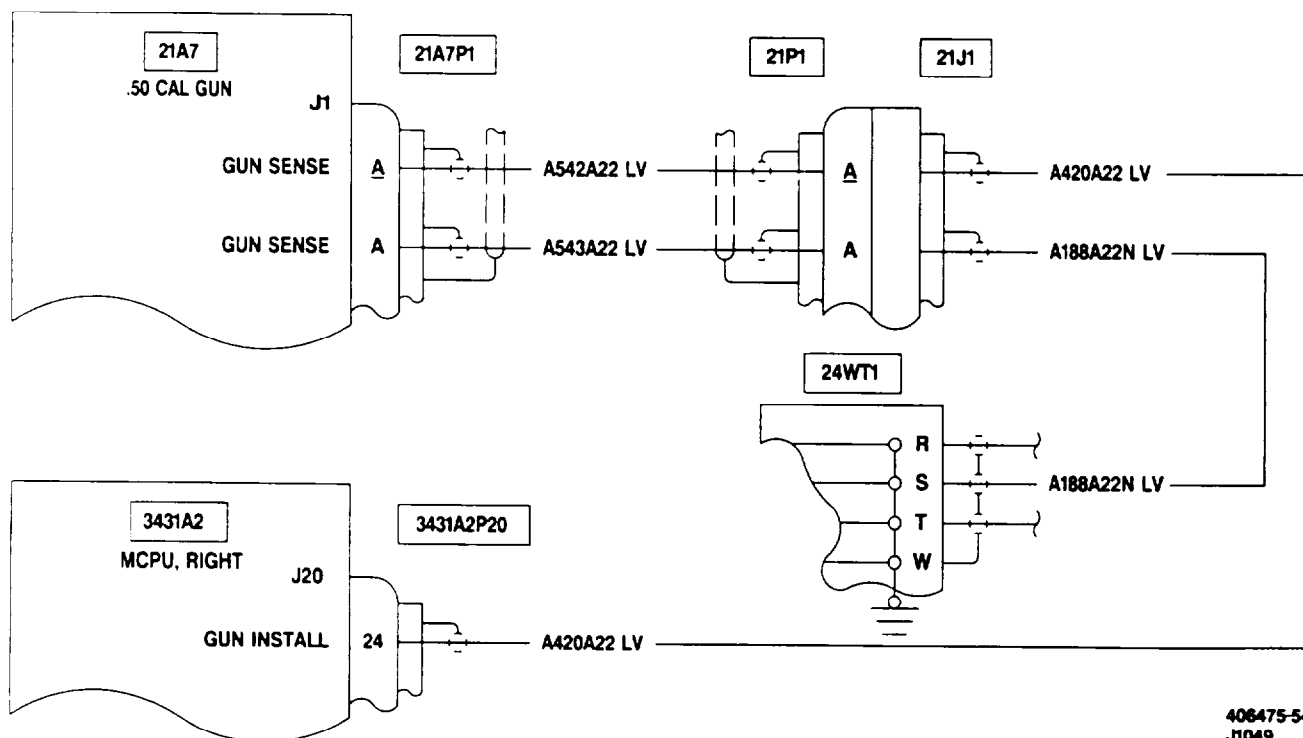
22. FDL MENU PAGE APPEARS IN FLIGHT (CONT)

406475-539-71
VJ1000

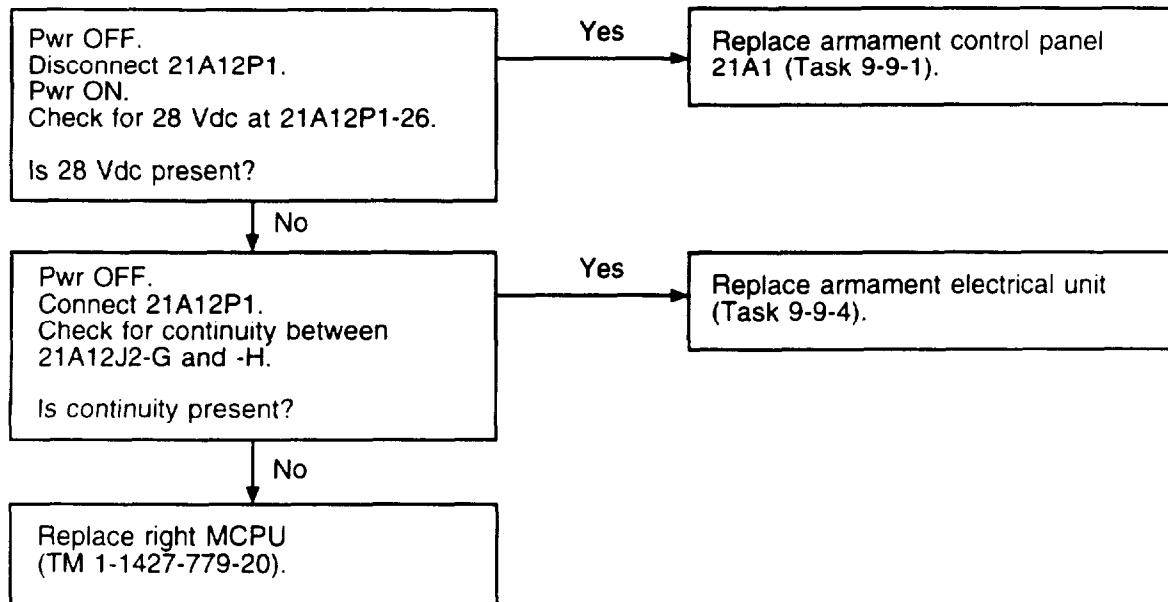
23. GUN SYMBOLOGY NOT DISPLAYED ON PDU

TM55-248-N109
J1071

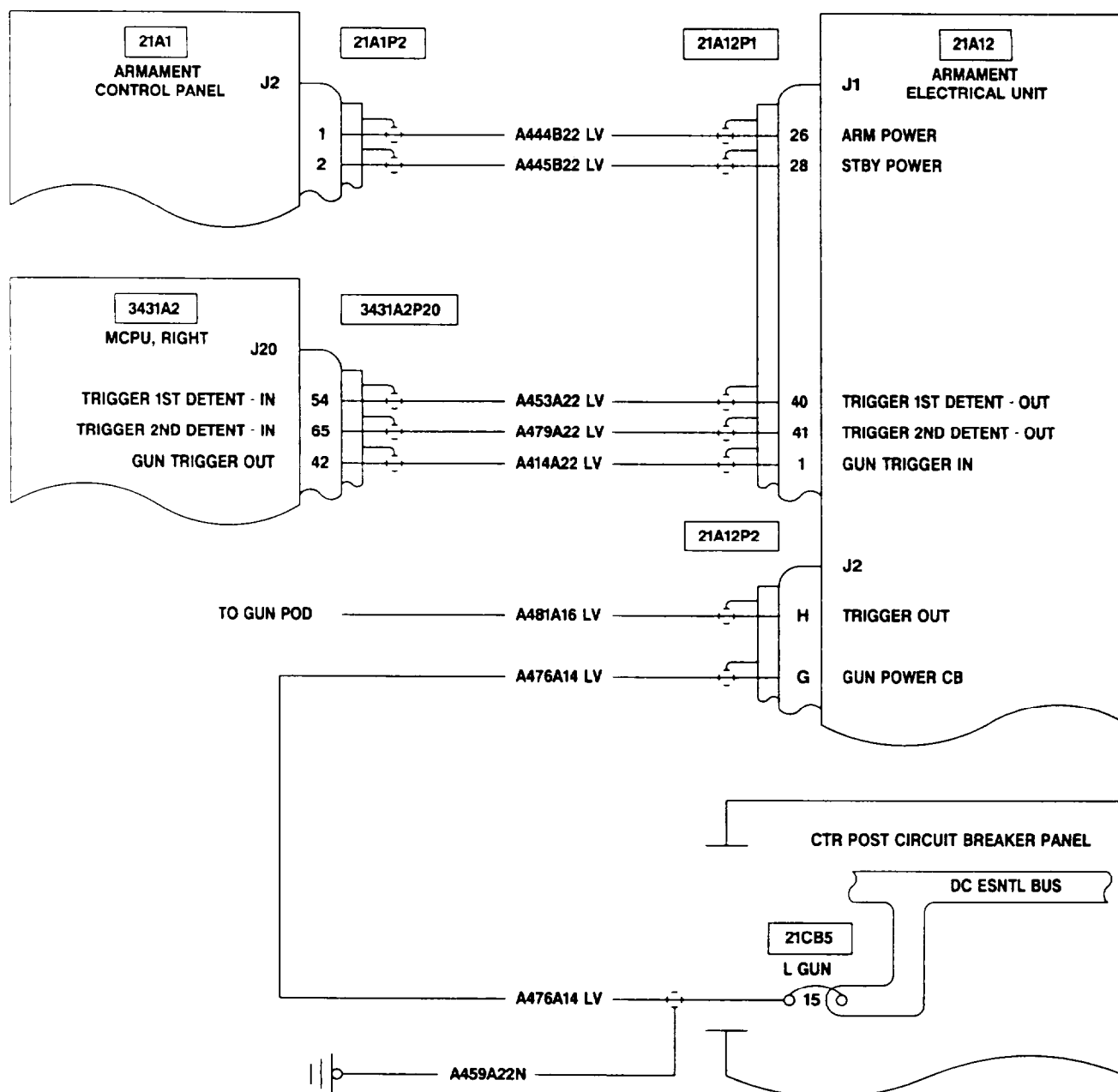
NOTE
Underlined letters
denote lower case.

406475-540-1
J1049

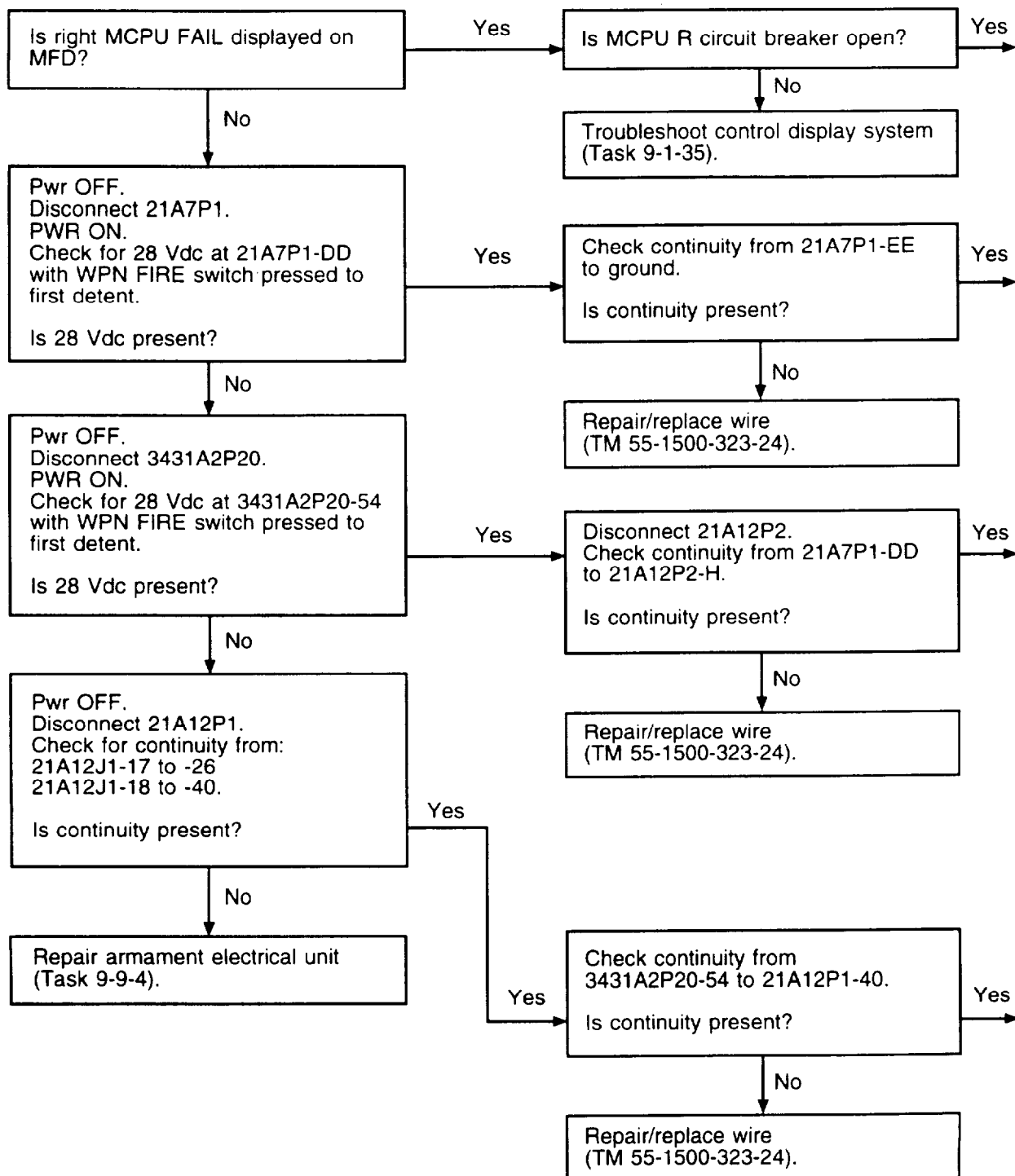
24. GUN FIRES WITH MASTER SWITCH IN STBY

TM55-248-N110
J1071

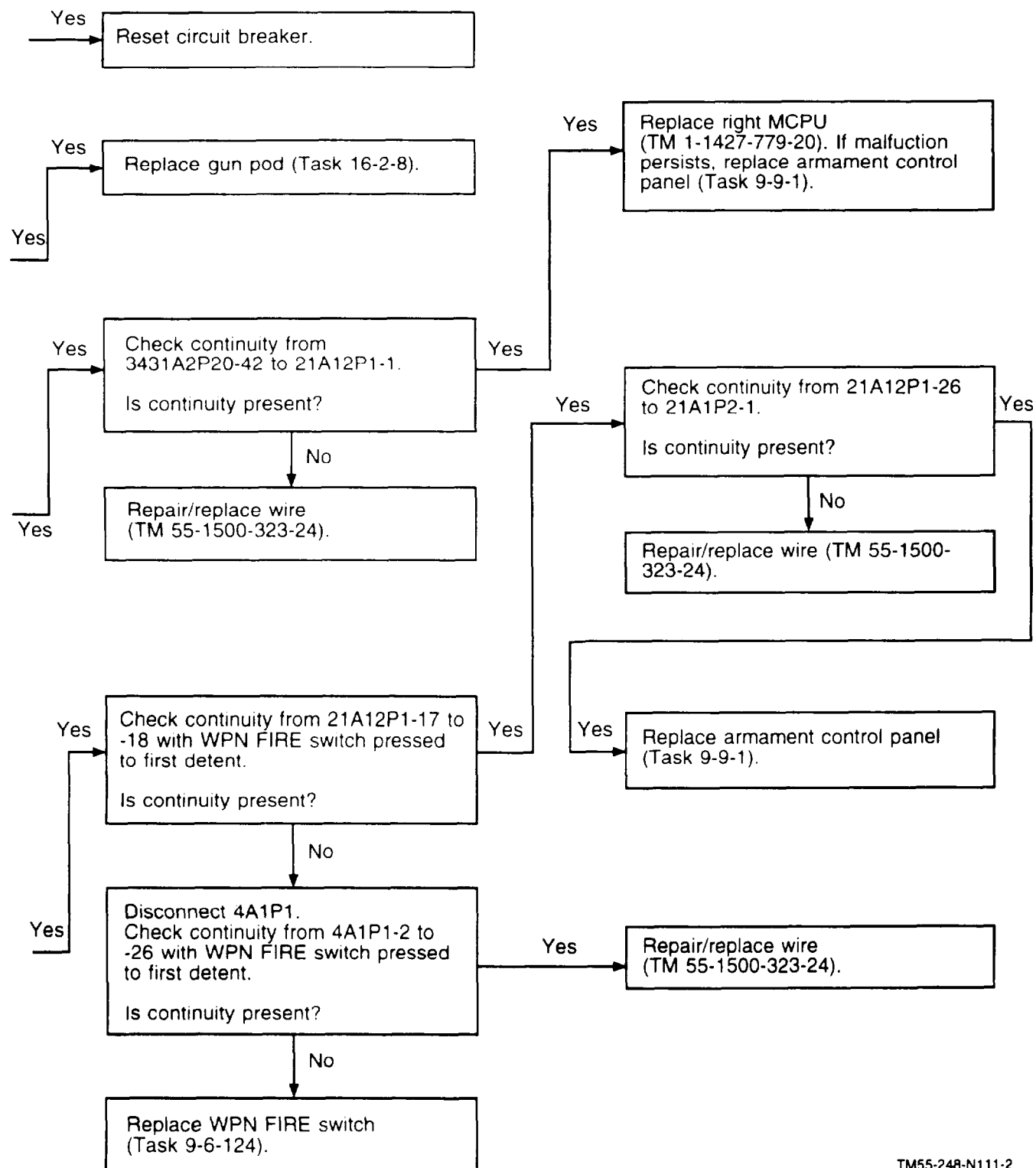
24. GUN FIRES WITH MASTER SWITCH IN STBY (TASK 16-1-3).

406475-540-2
J1049

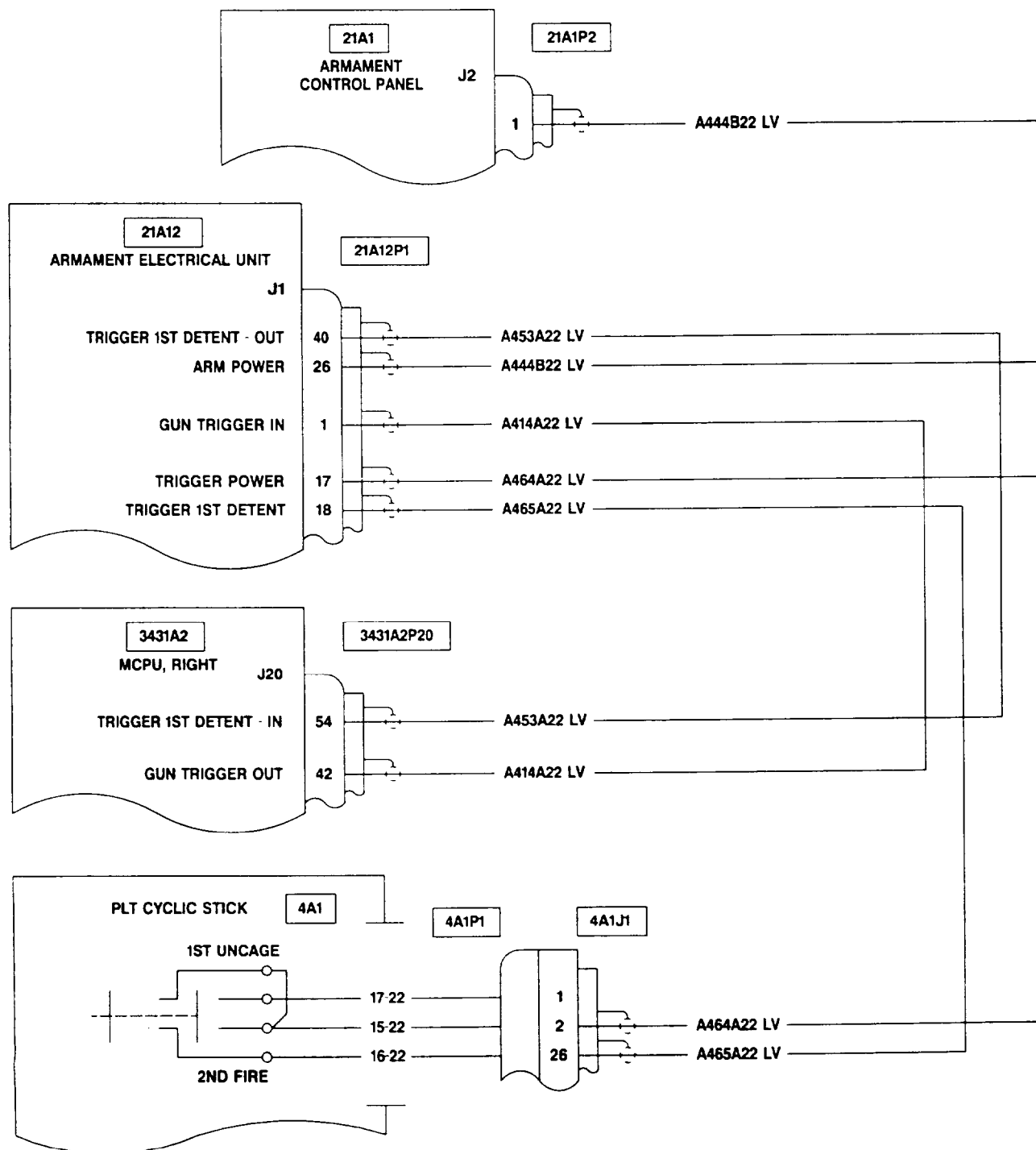
25. GUN DOES NOT FIRE WHEN WPN FIRE SWITCH IS DEPRESSED TO FIRST DETENT

TM55-248-N111-1
J1071

25. GUN DOES NOT FIRE WHEN WPN FIRE SWITCH IS DEPRESSED TO FIRST DETENT (CONT)

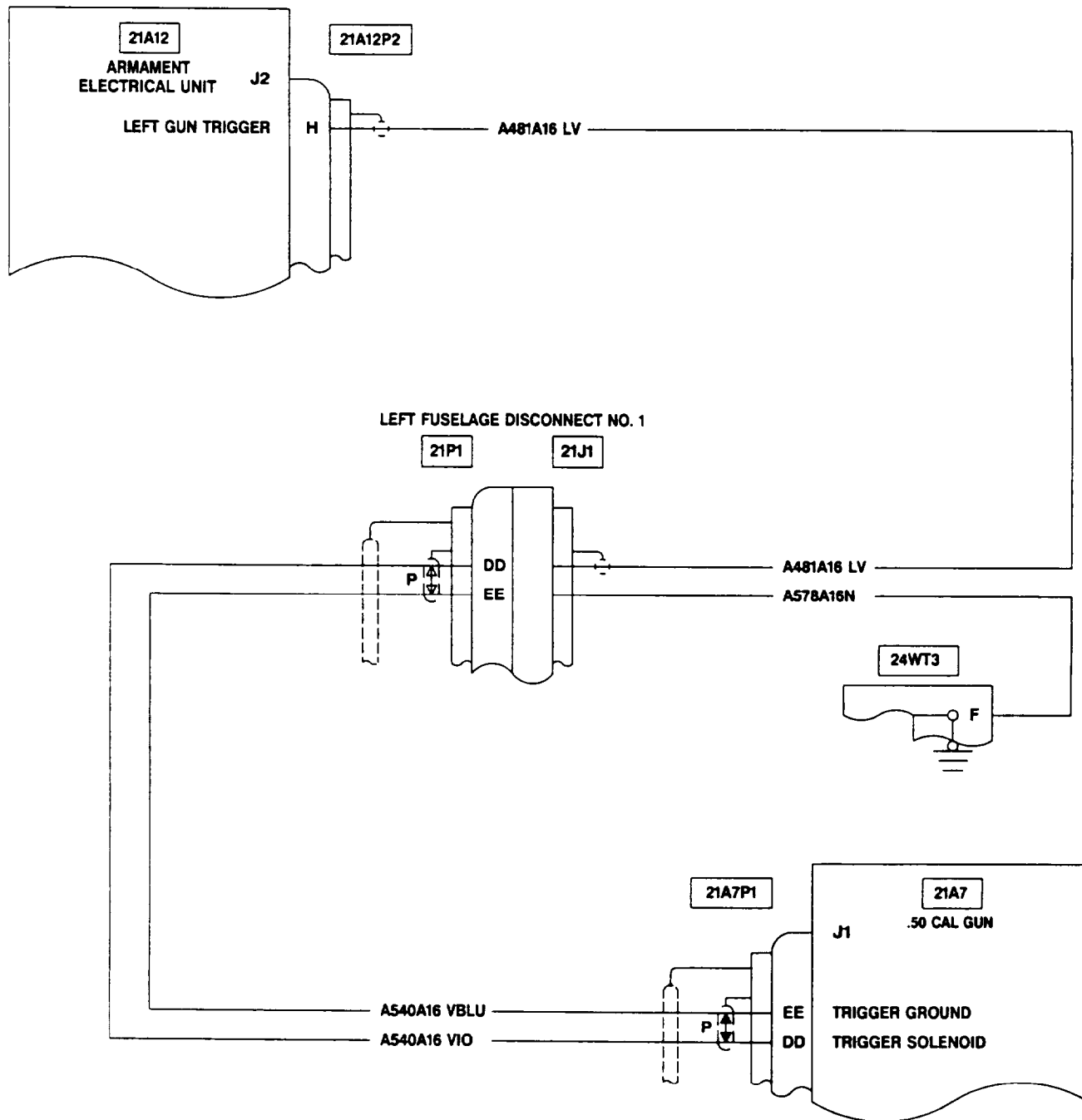
TM55-248-N111-2
J1071

25. GUN DOES NOT FIRE WHEN WPN FIRE SWITCH IS DEPRESSED TO FIRST DETENT (TASK 16-1-3).



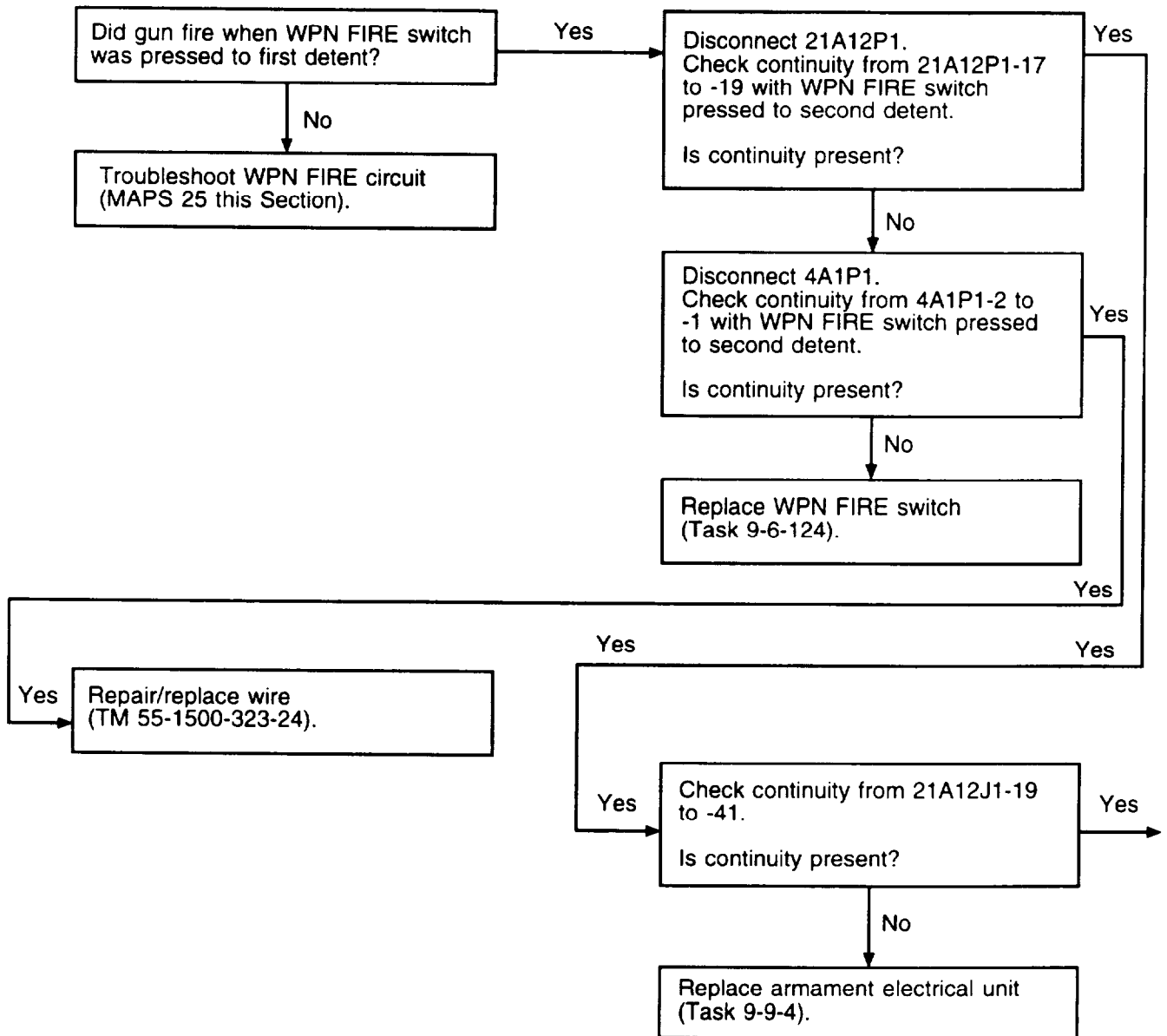
406475-540-3
J1049

25. GUN DOES NOT FIRE WHEN WPN FIRE SWITCH IS DEPRESSED TO FIRST DETENT (TASK 16-1-3).



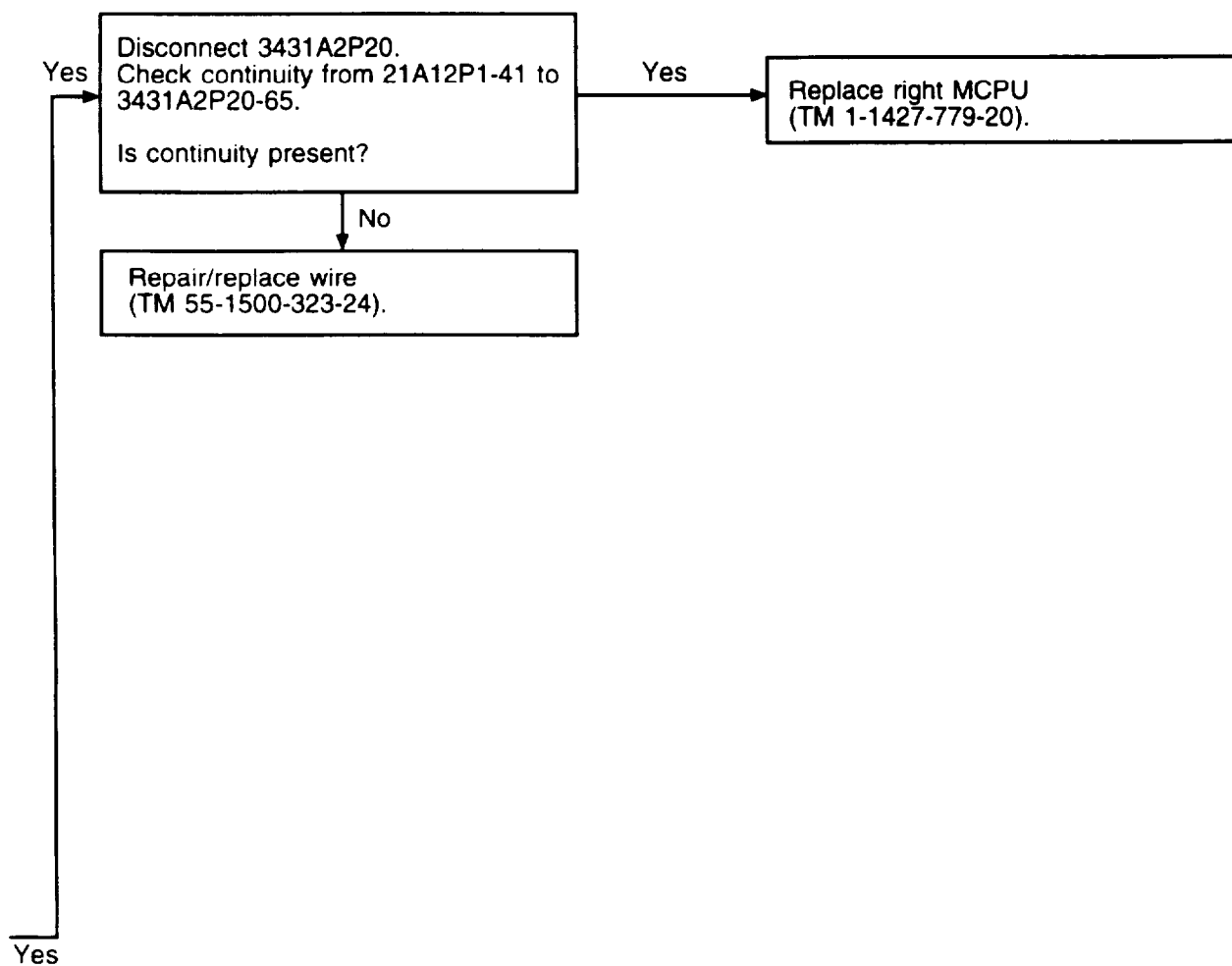
408475-540-4
J1049

26. GUN DOES NOT FIRE WHEN WPN FIRE SWITCH IS DEPRESSED TO SECOND DETENT

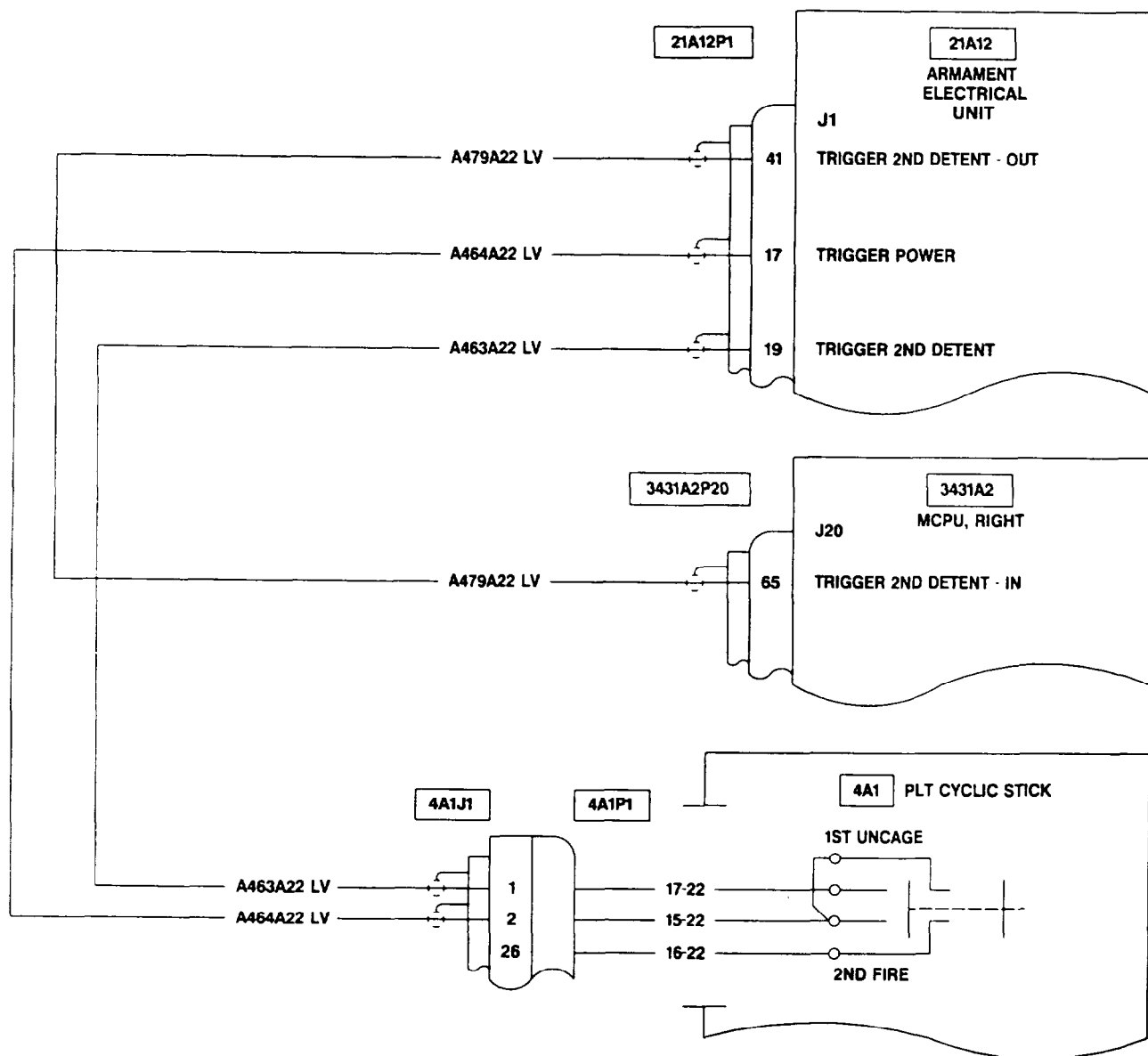


TM55-248-N112-1
J1071

26. GUN DOES NOT FIRE WHEN WPN FIRE SWITCH IS DEPRESSED TO SECOND DETENT (CONT)

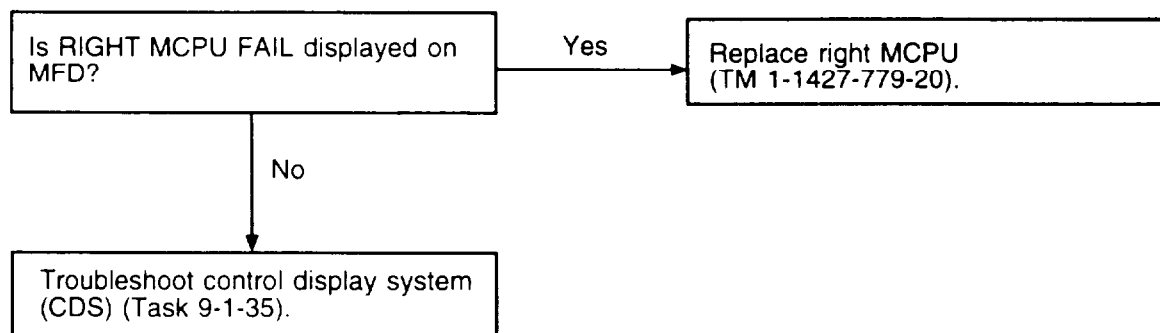
TM55-248-N112-2
J1071

26. GUN DOES NOT FIRE WHEN WPN FIRE SWITCH IS DEPRESSED TO SECOND DETENT (TASK 16-1-3).



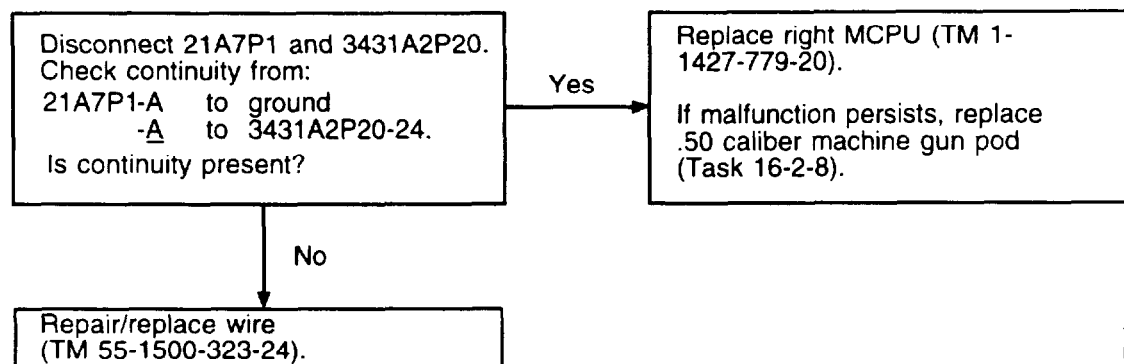
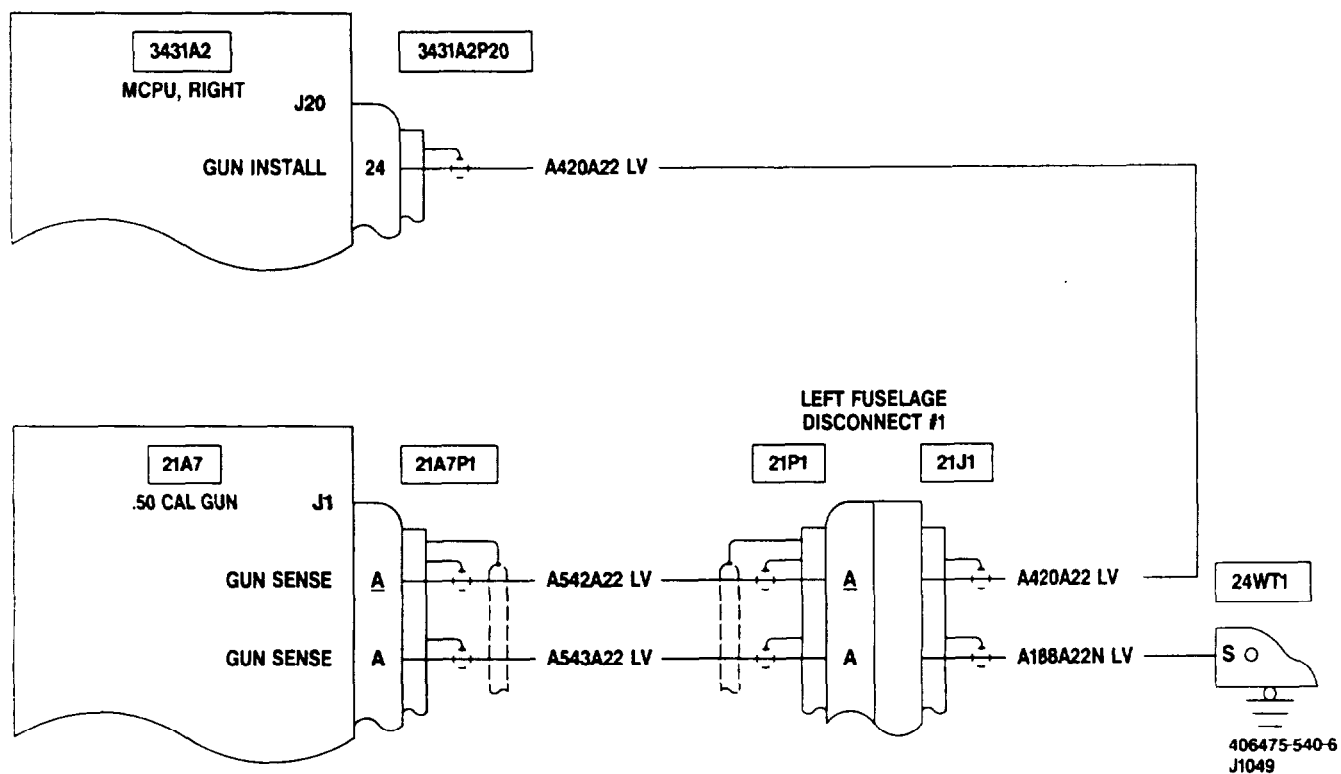
408475-540-5
J1049

27. GUN DOES NOT FIRE WITH RIGHT MCPU FAIL AND WPN FIRE SWITCH DEPRESSED TO SECOND DETENT

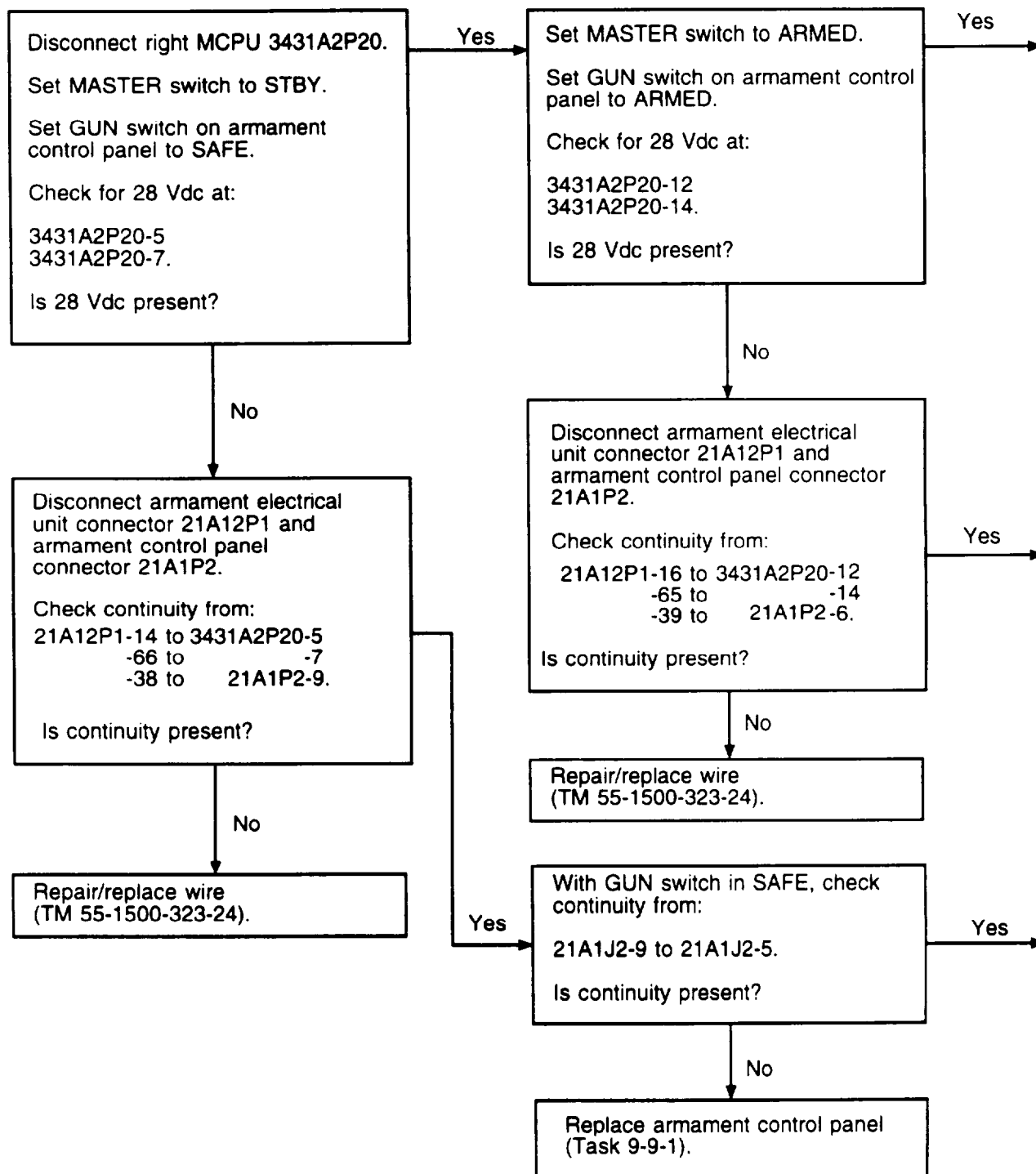


TM55-248-N113
J1071

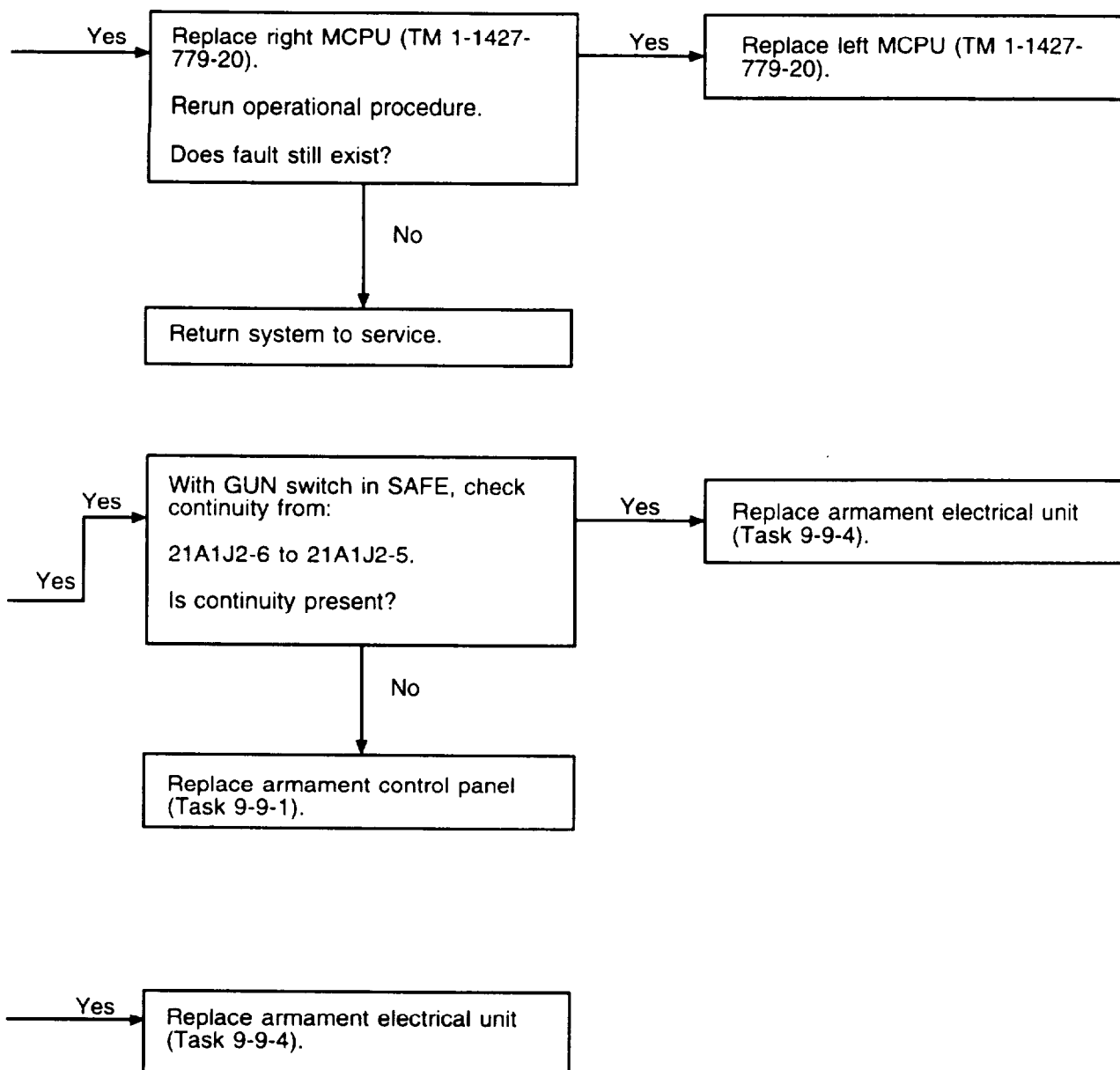
28. GUN INSTALLED INDICATION IS NOT DISPLAYED ON MFDS

TM55_248_N22
H3425

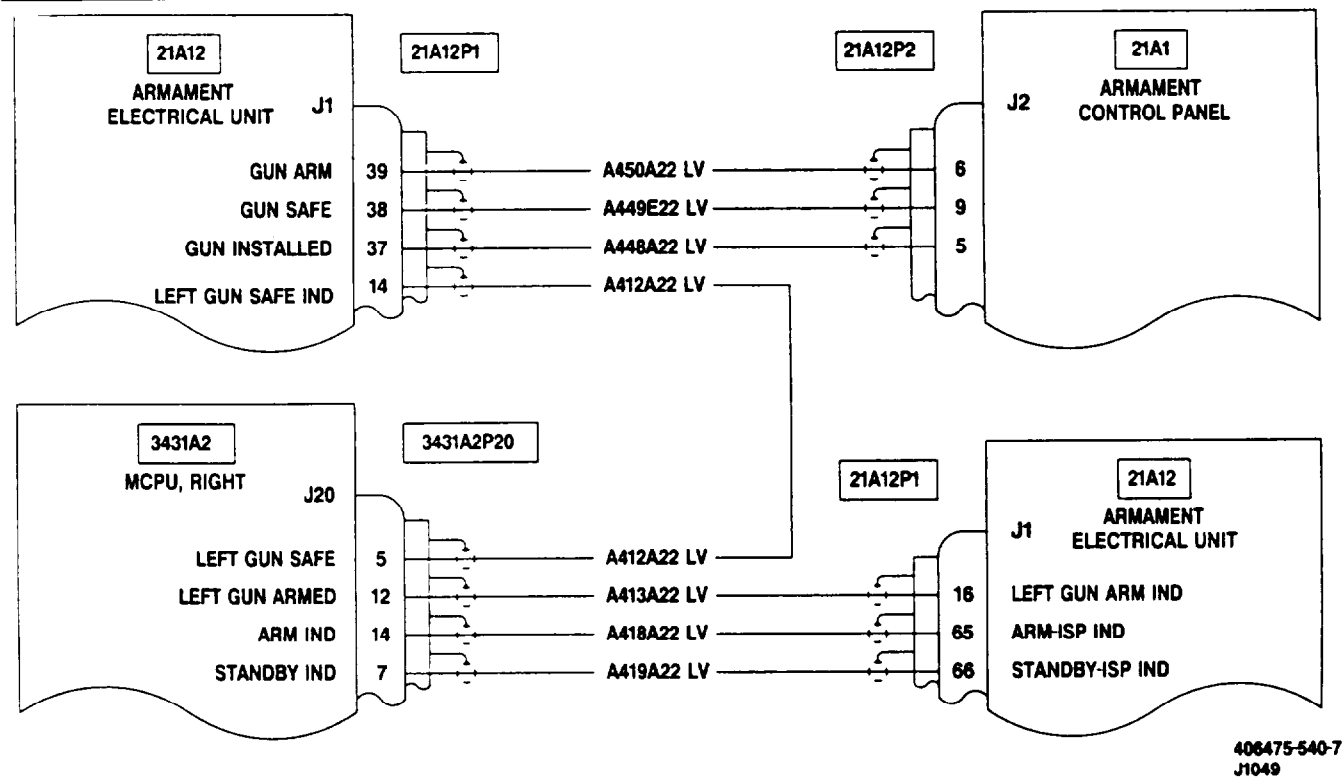
29. MFD ARM/SAFE INDICATION DOES NOT RESPOND TO GUN SWITCH POSITIONS

TM55_248_N25_1
H5073

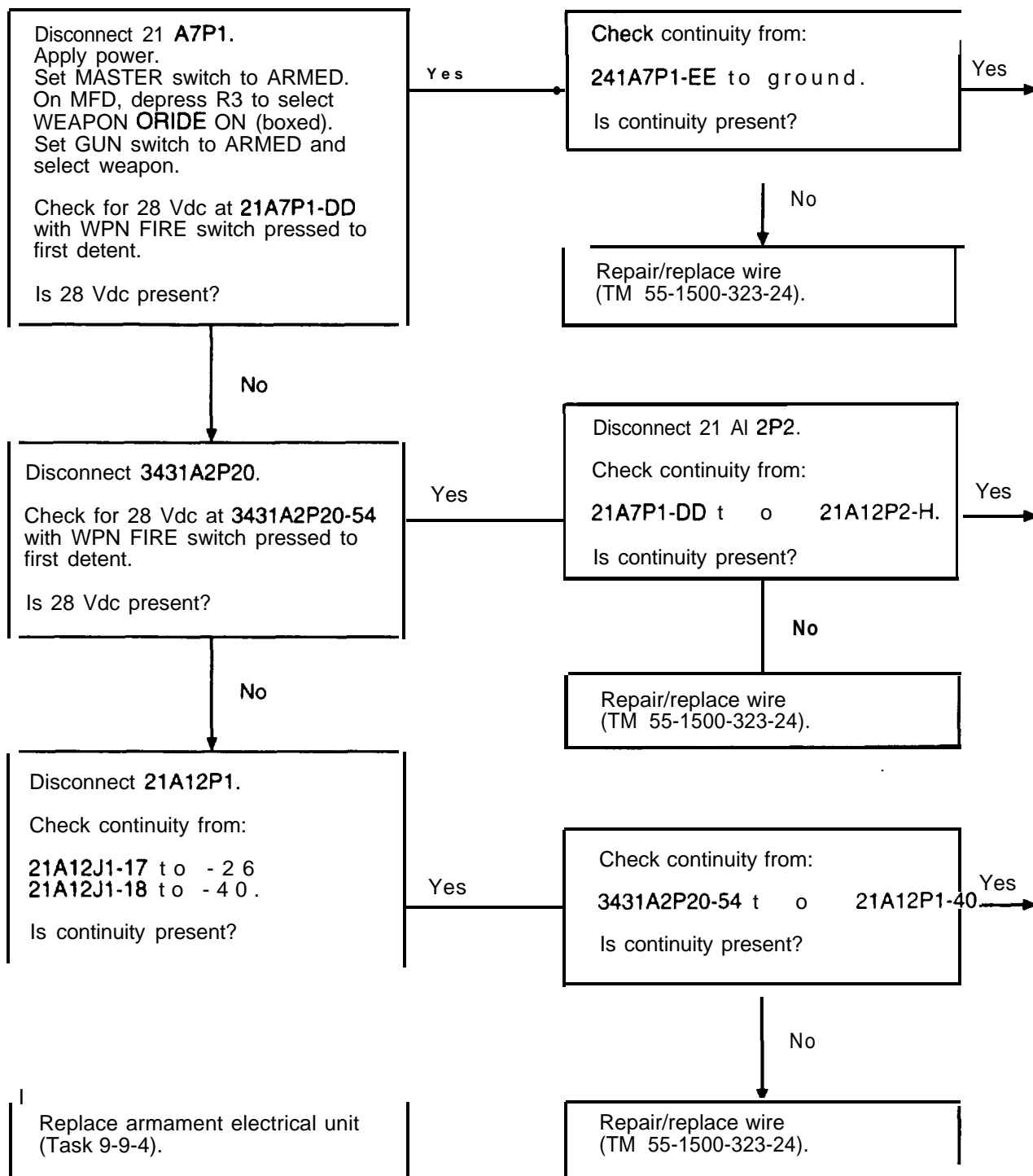
29. MFD ARM/SAFE INDICATION DOES NOT RESPOND TO GUN SWITCH POSITIONS (CONT)

TM55_248_N25_2
H5073

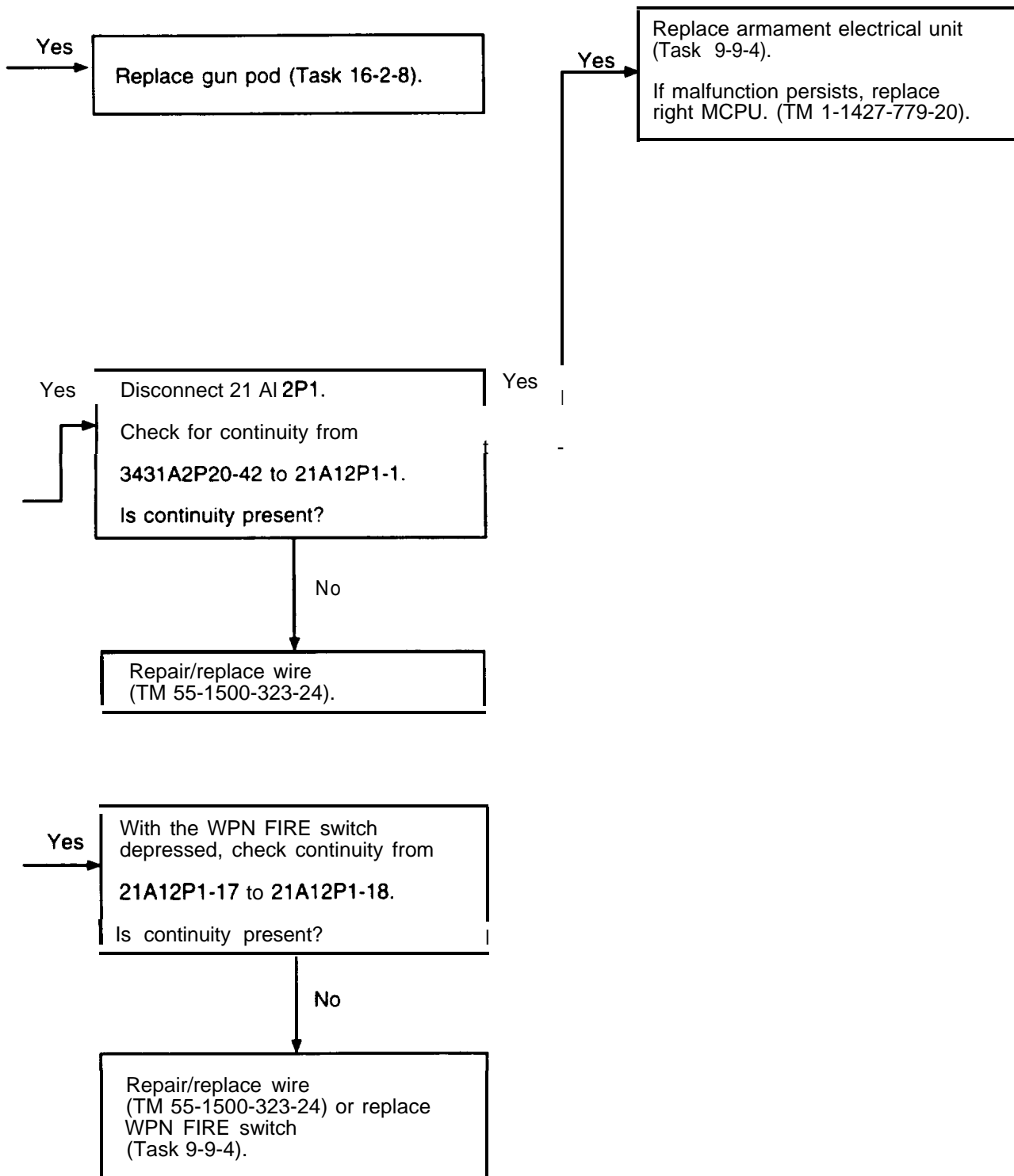
29. MFD ARM/SAFE INDICATION DOES NOT RESPOND PROPERLY TO GUN SWITCH POSITIONS (TASK 16-1-3).



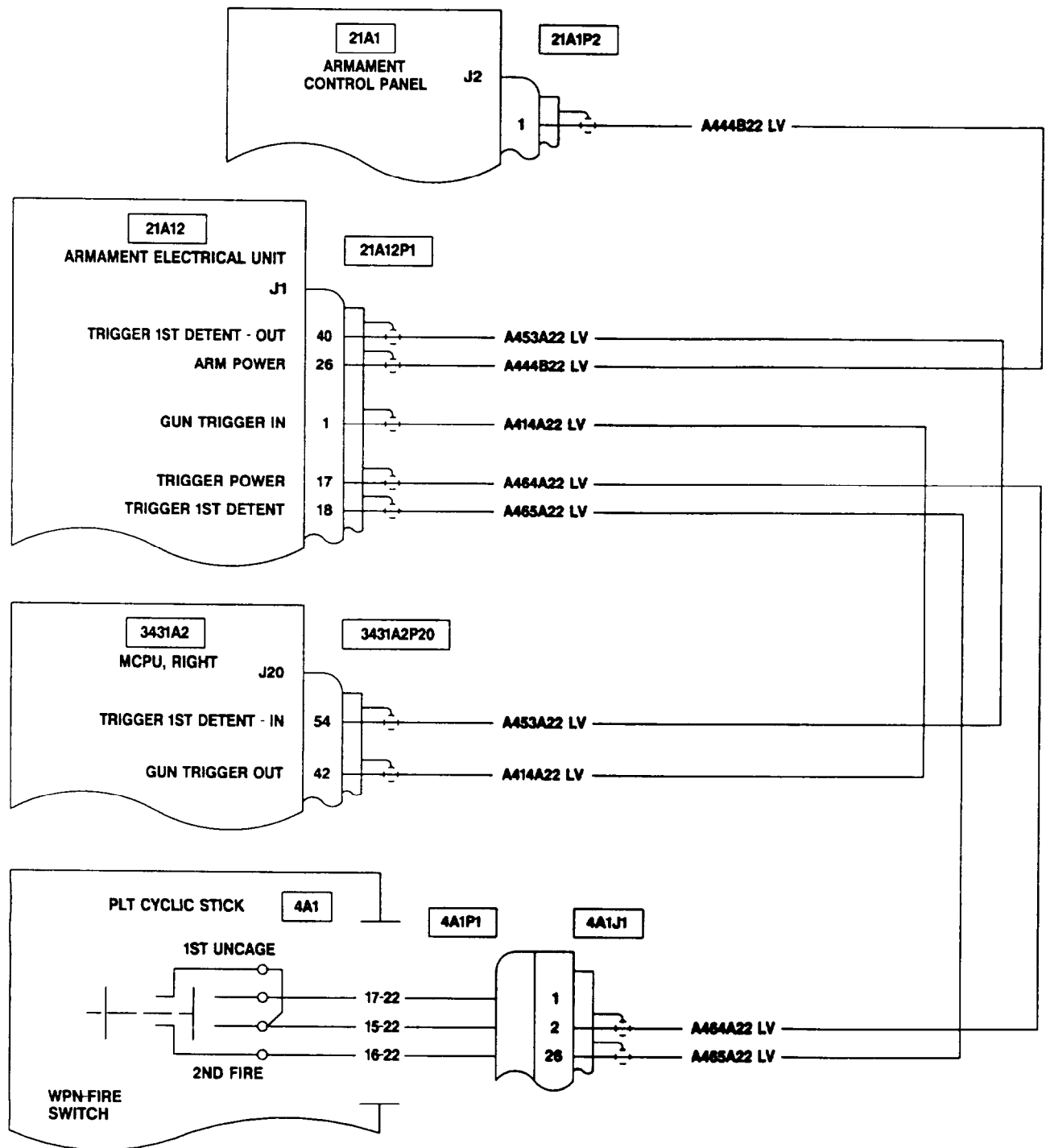
30. GUN DOES NOT FIRE LIMITED BURST IN FIRST DETENT

TM55_248_N26_1
H4269

30. GUN DOES NOT FIRE LIMITED BURST IN FIRST DETENT (CONT)

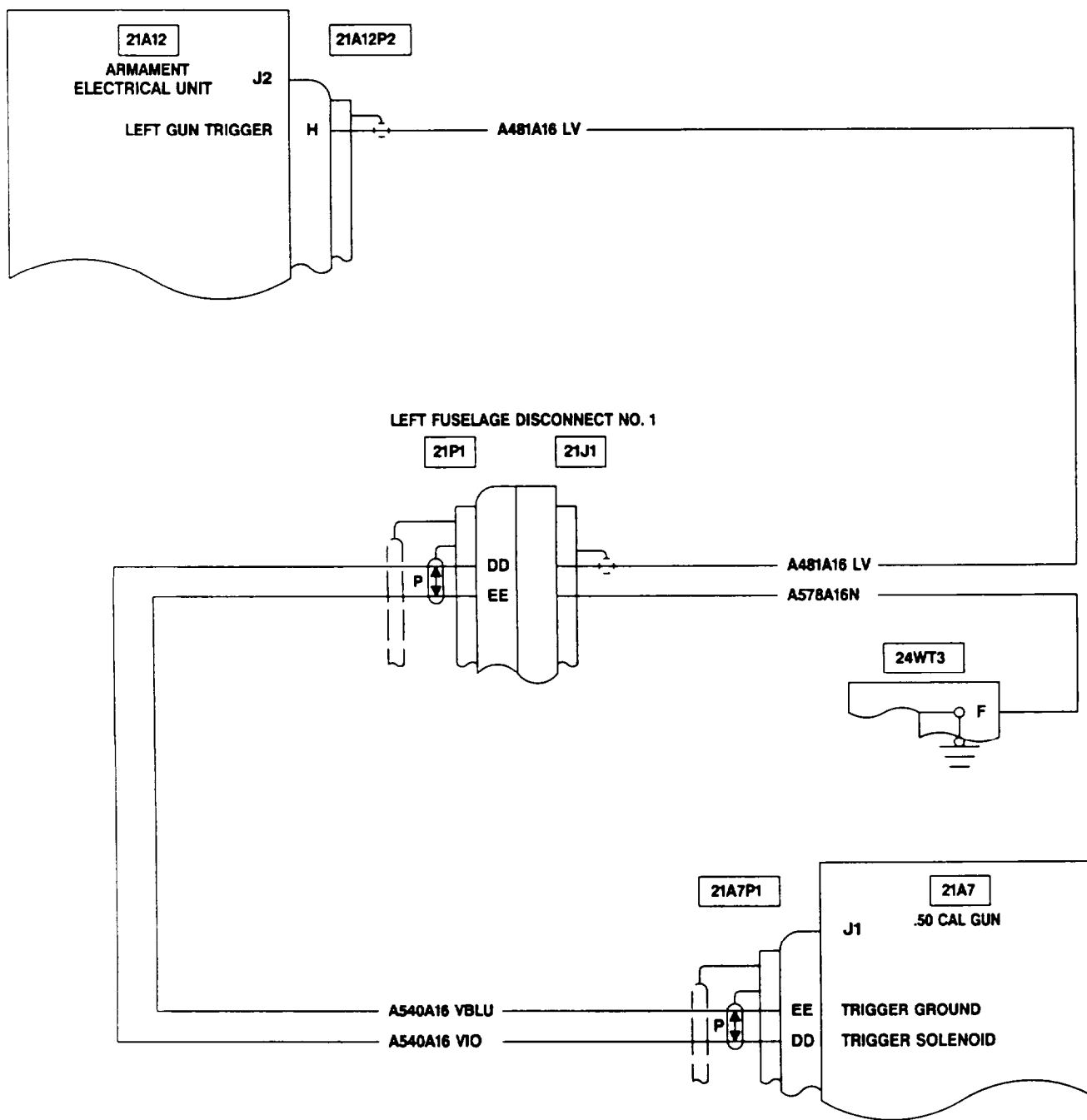
TM55_248_N26_2
H4289

30. GUN DOES NOT FIRE LIMITED BURST IN FIRST DETENT (TASK 16-1-3).



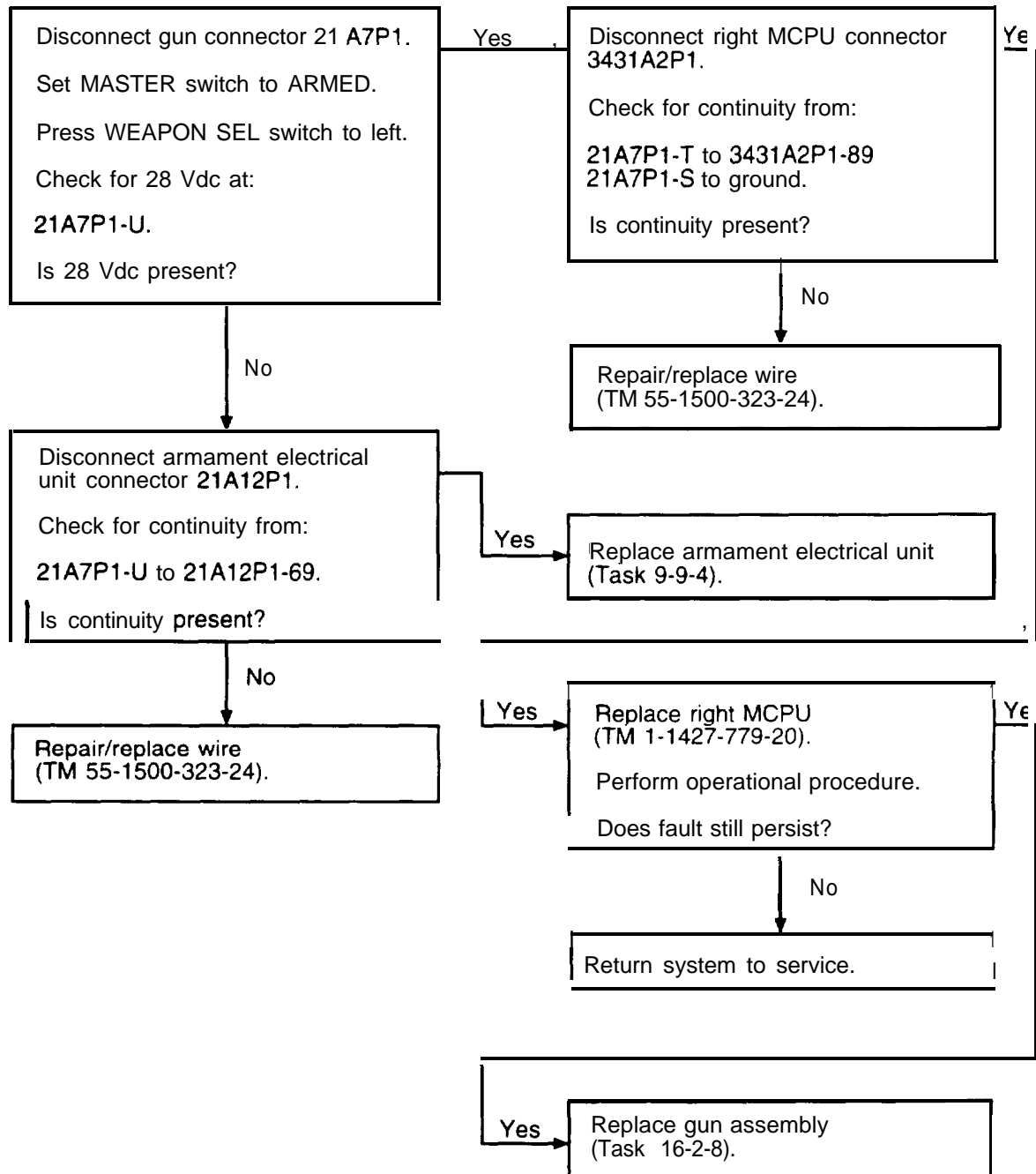
408475-540-8
J1049

30. GUN DOES NOT FIRE LIMITED BURST IN FIRST DETENT (TASK 16-1-3).

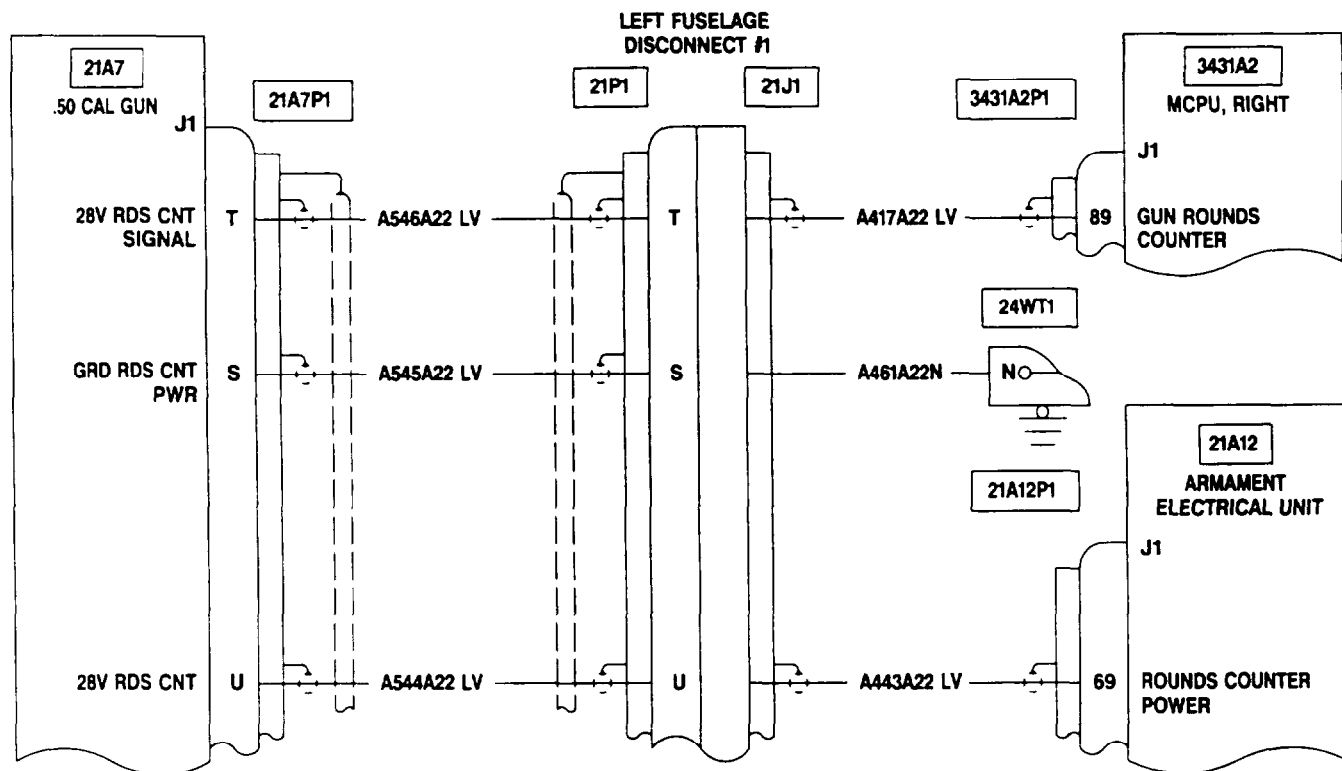


406475-54
J1049

31. GUN ROUNDS COUNTER DOES NOT DEINCREMENT PROPERLY

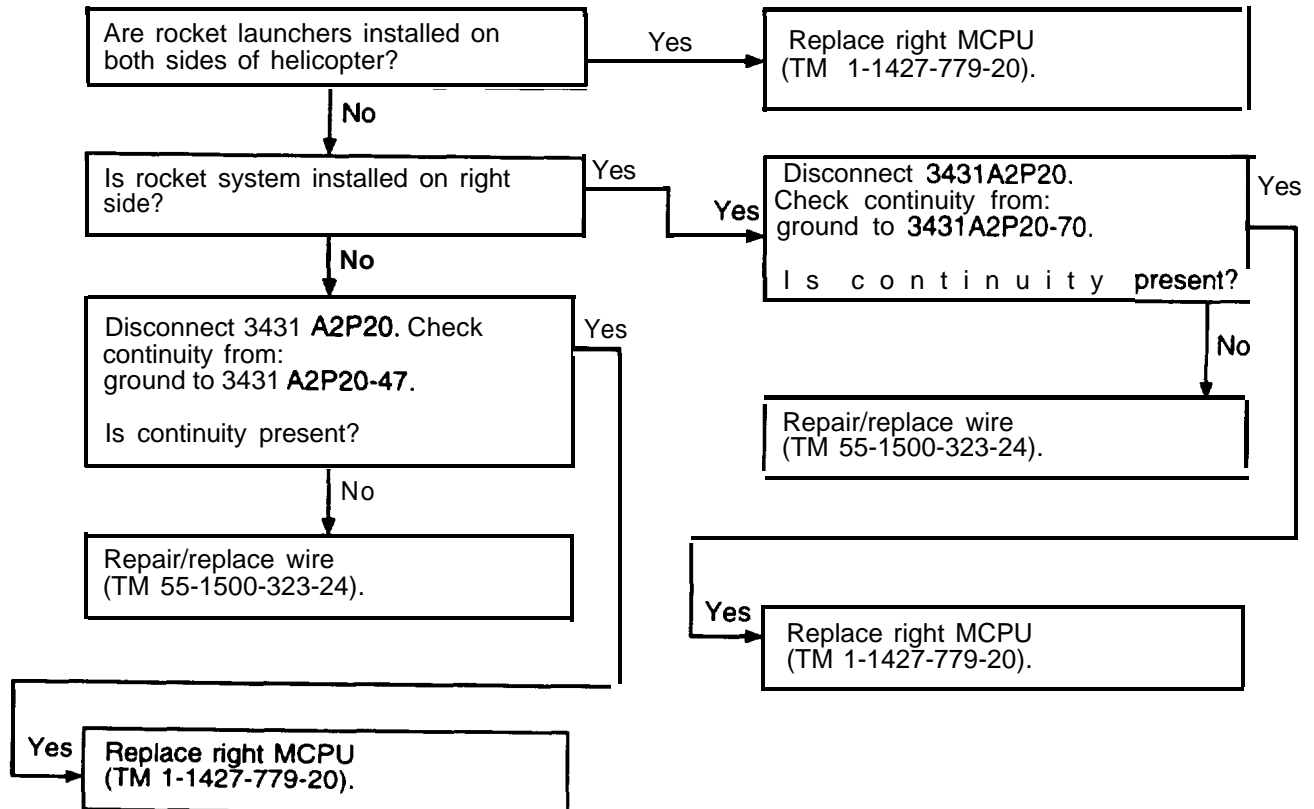
TM55_248_N28
H5073

31. GUN ROUNDS COUNTER DOES NOT DECREMENT PROPERLY (TASK 16-1-3).

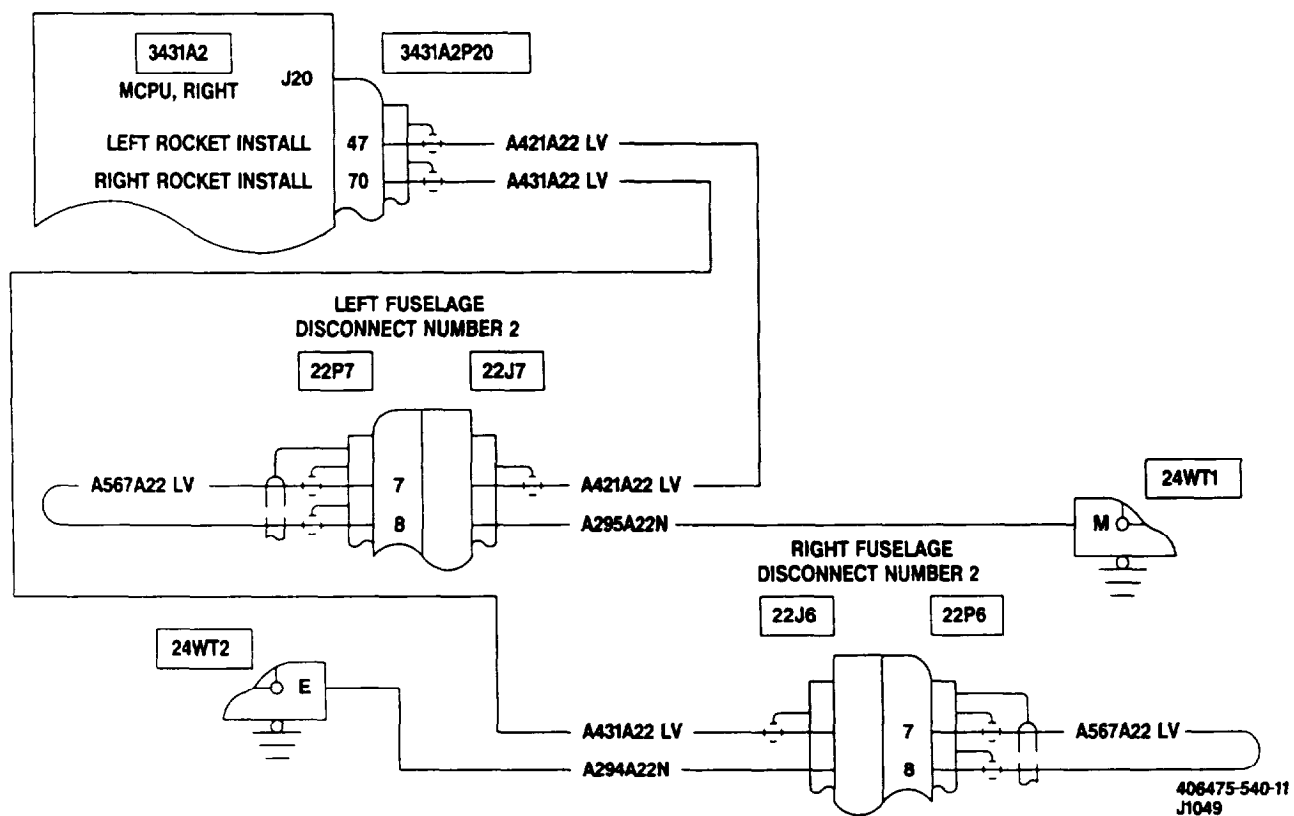


406475-540-10
J1049

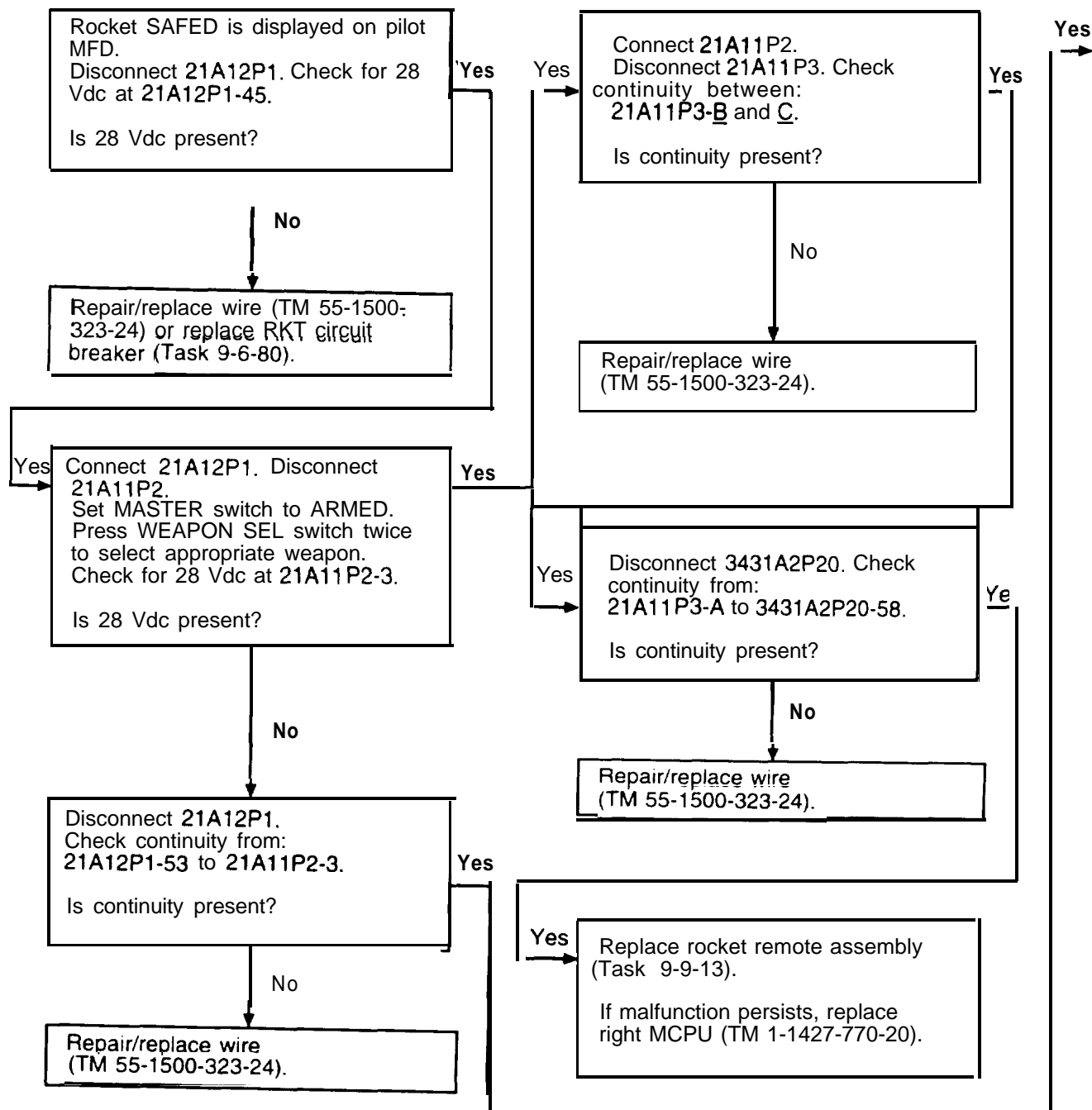
32. MFD DOES NOT INDICATE ROCKET SYSTEM INSTALLED



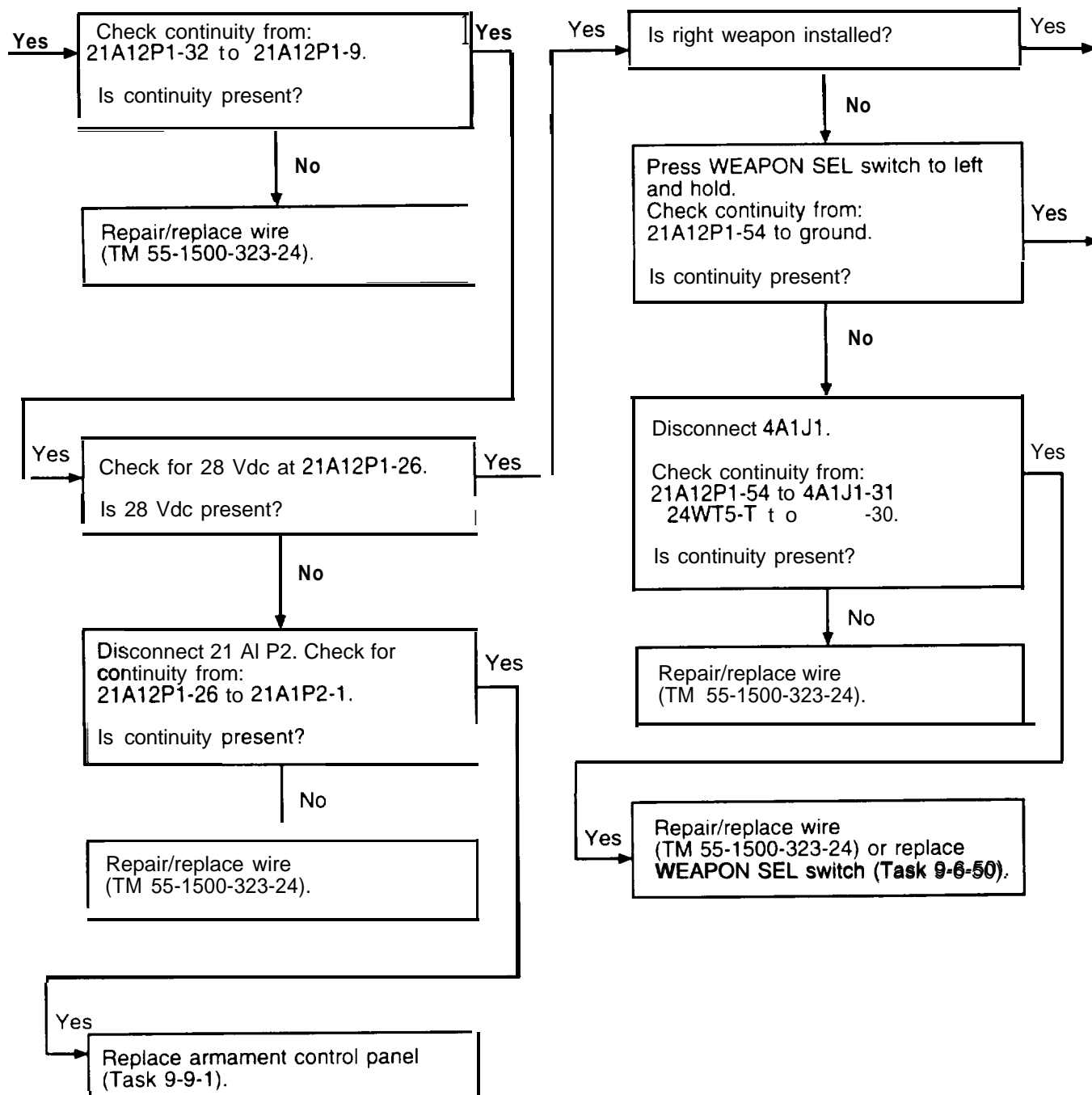
32. MFD DOES NOT INDICATE ROCKET SYSTEM INSTALLED (TASK 16-1-5).



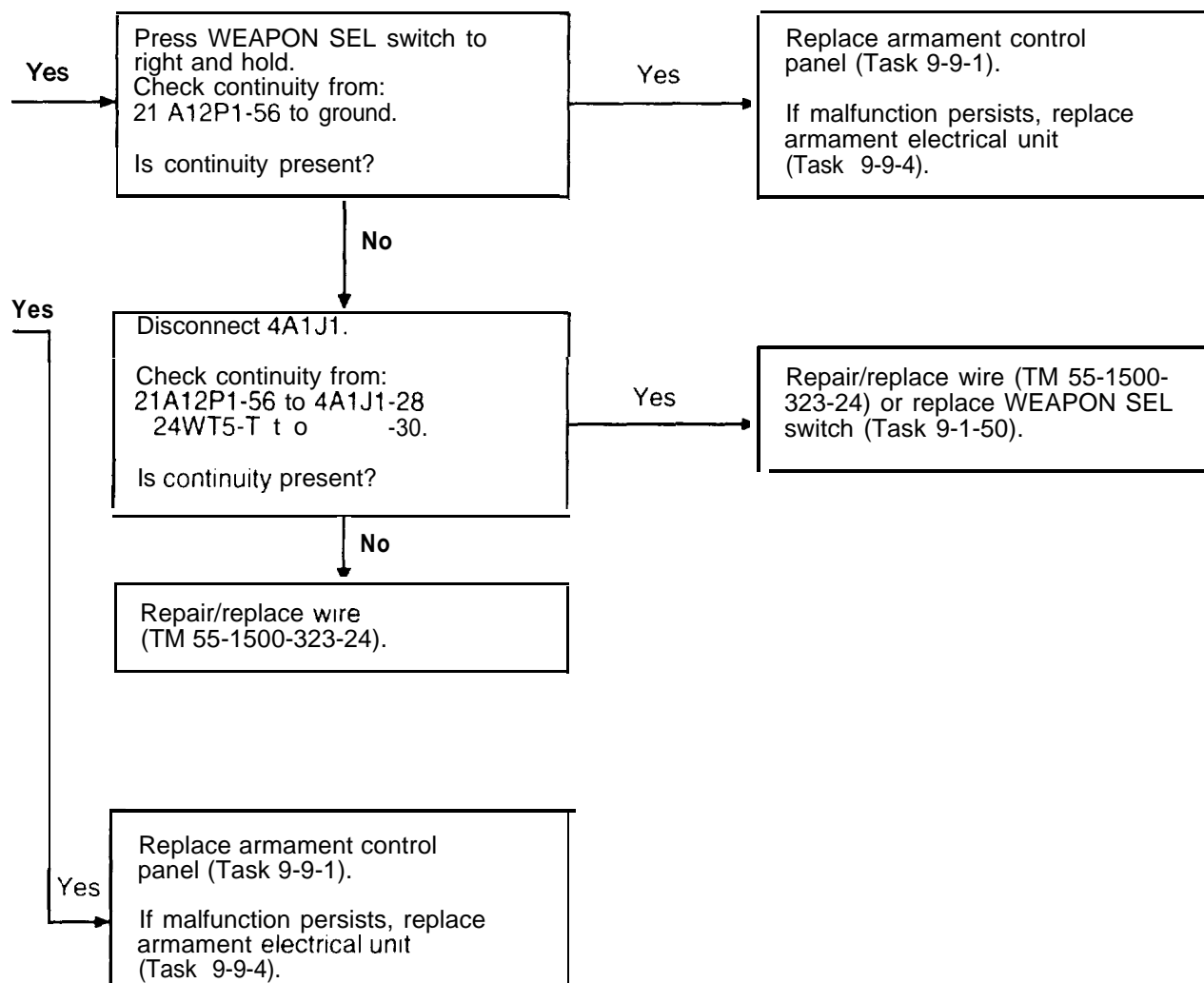
33. ROCKETS INSTALLED INDICATION IS DISPLAYED, BUT ROCKETS DO NOT OPERATE

TM55-248-N31-1
H3551

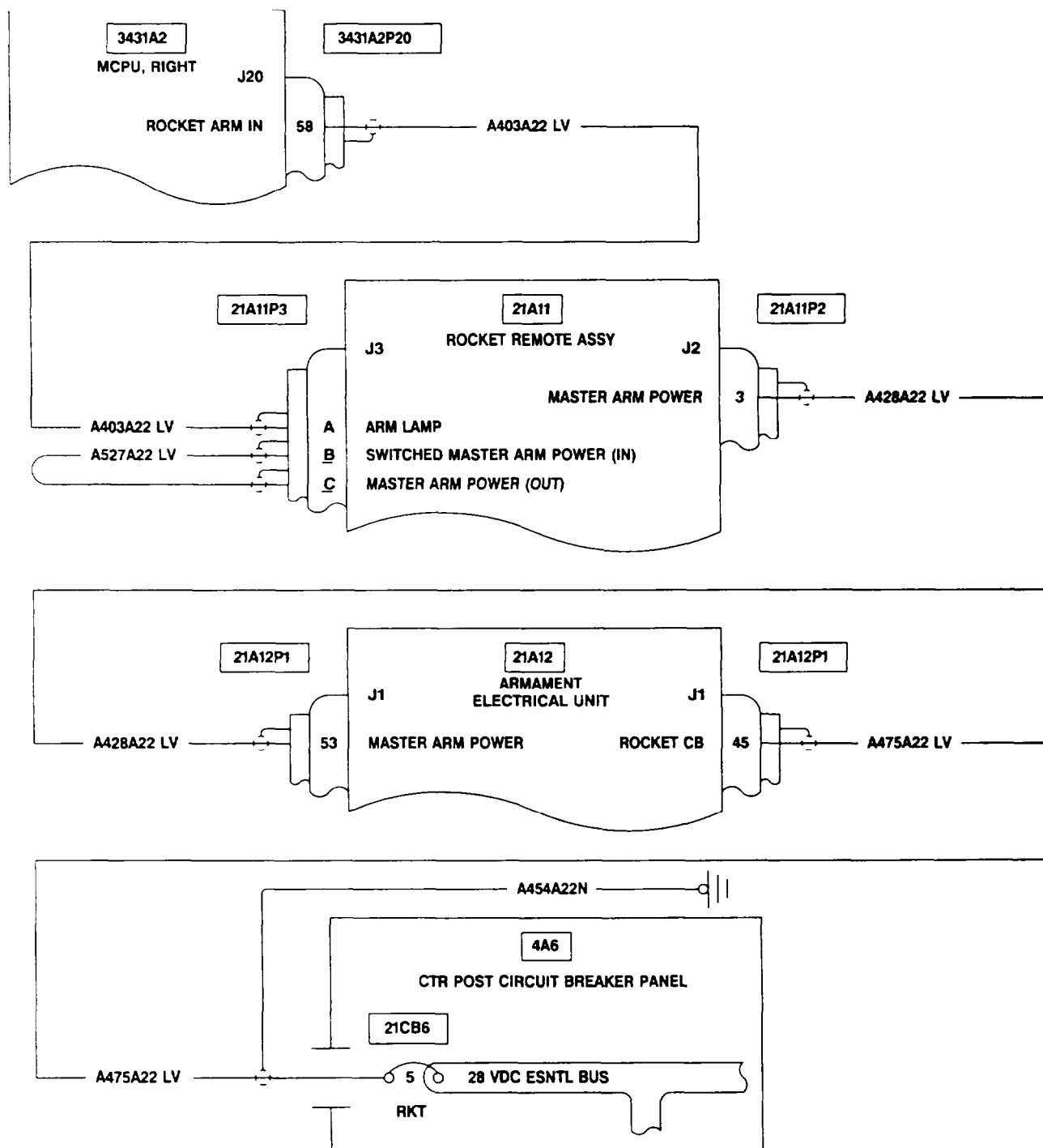
33. ROCKETS INSTALLED INDICATION IS DISPLAYED, BUT ROCKETS DO NOT OPERATE (CONT)



33. ROCKETS INSTALLED INDICATION IS DISPLAYED, BUT ROCKETS DO NOT OPERATE (CONT)

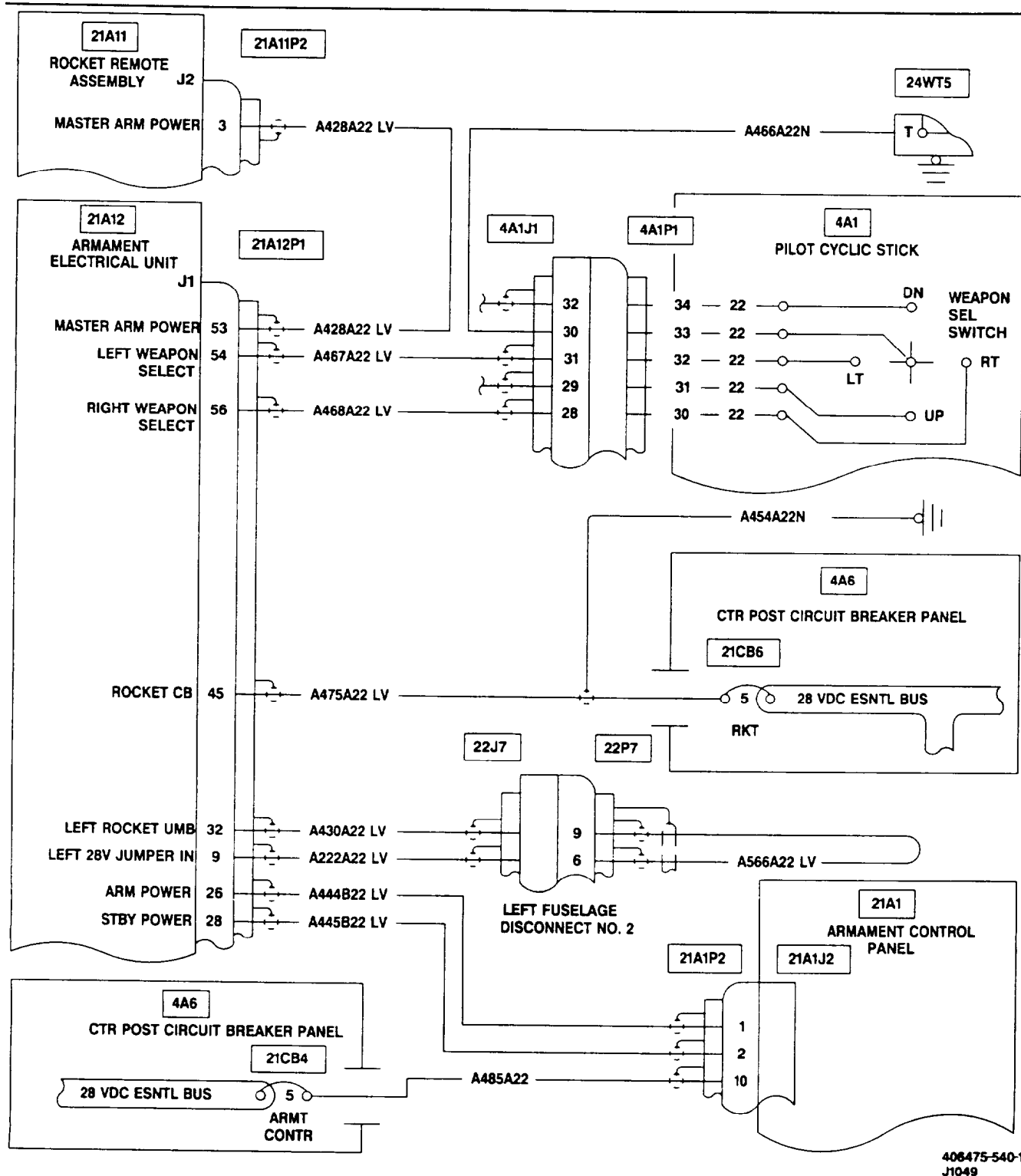


33. ROCKETS INSTALLED INDICATION IS DISPLAYED, BUT ROCKETS DO NOT OPERATE (TASK 16-1-5).



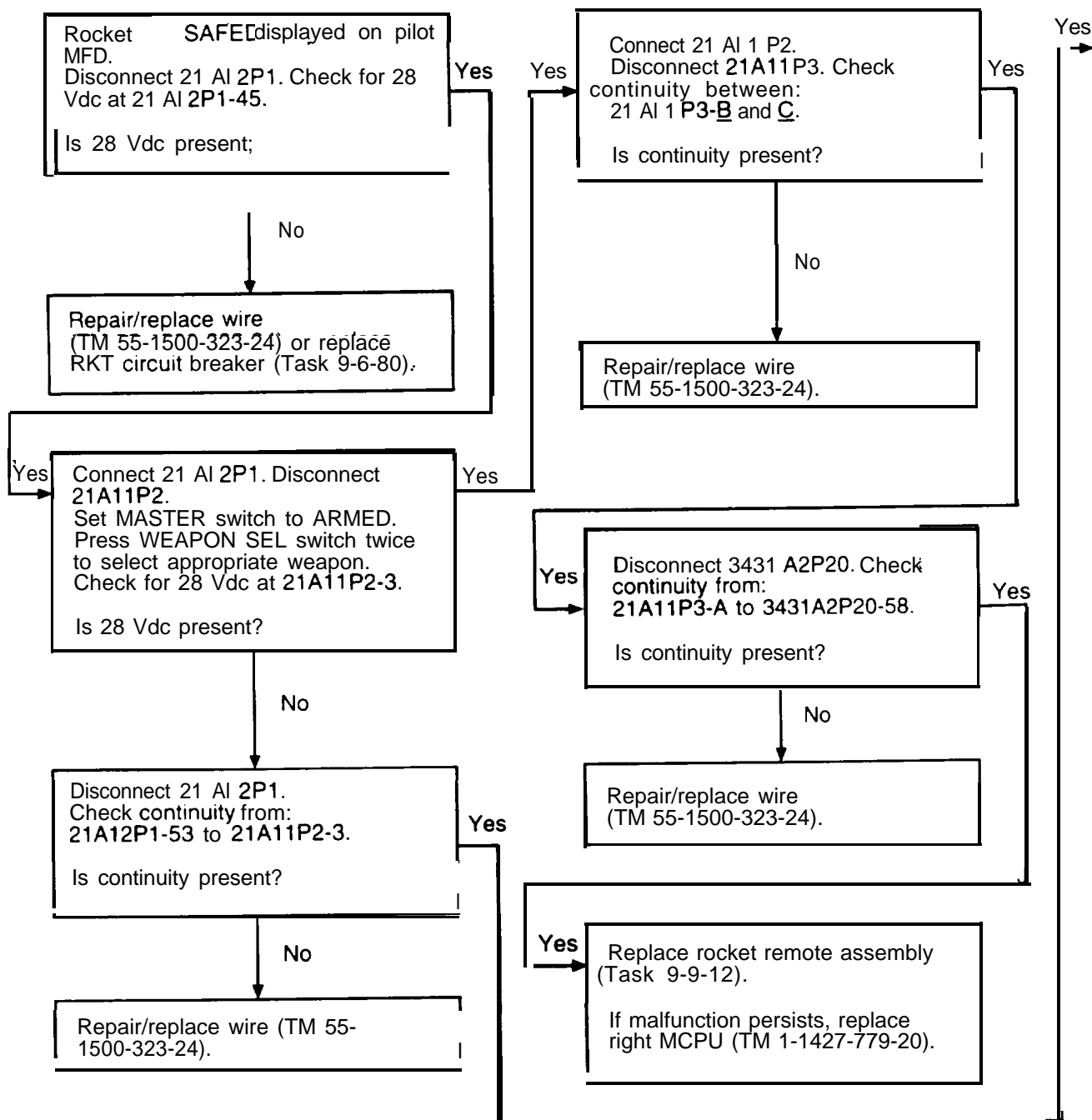
408475-540-12
J1049

33. ROCKETS INSTALLED INDICATION IS DISPLAYED, BUT ROCKETS DO NOT OPERATE (TASK 16-1-5).

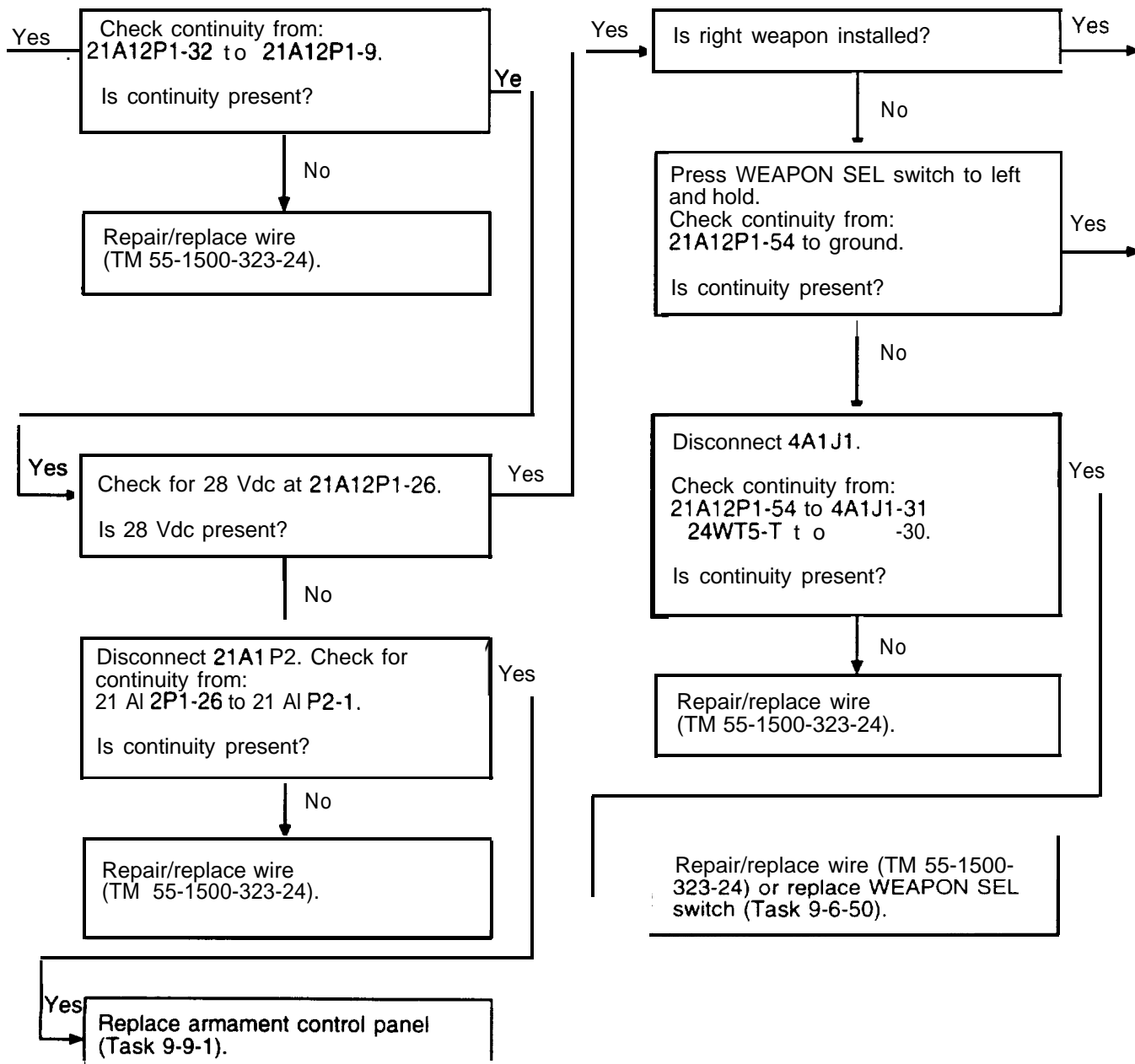


408475-540-13
J1049

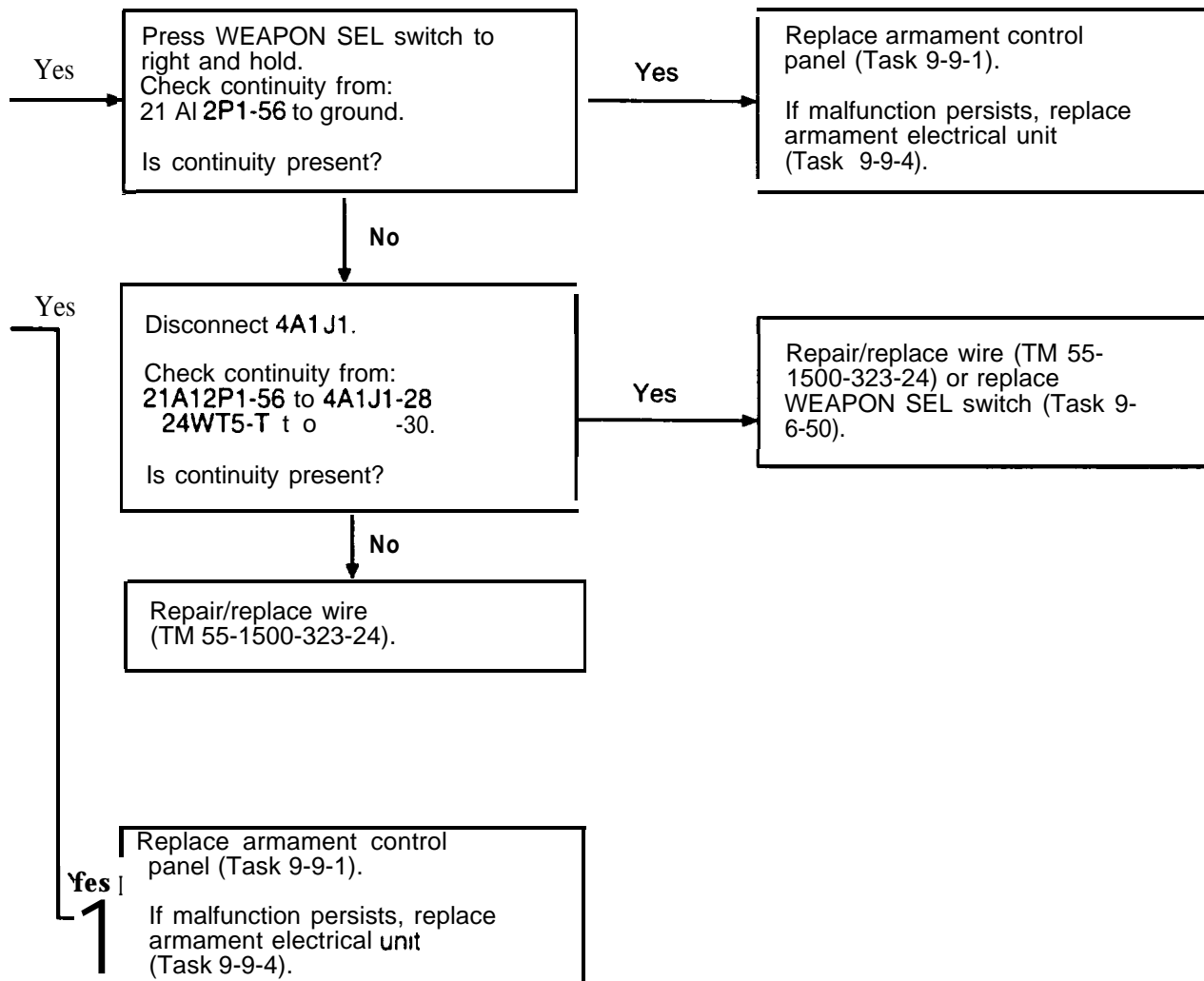
34. ROCKETS SAFED IS DISPLAYED AND ARMED WHEN SELECTED AND ARMED



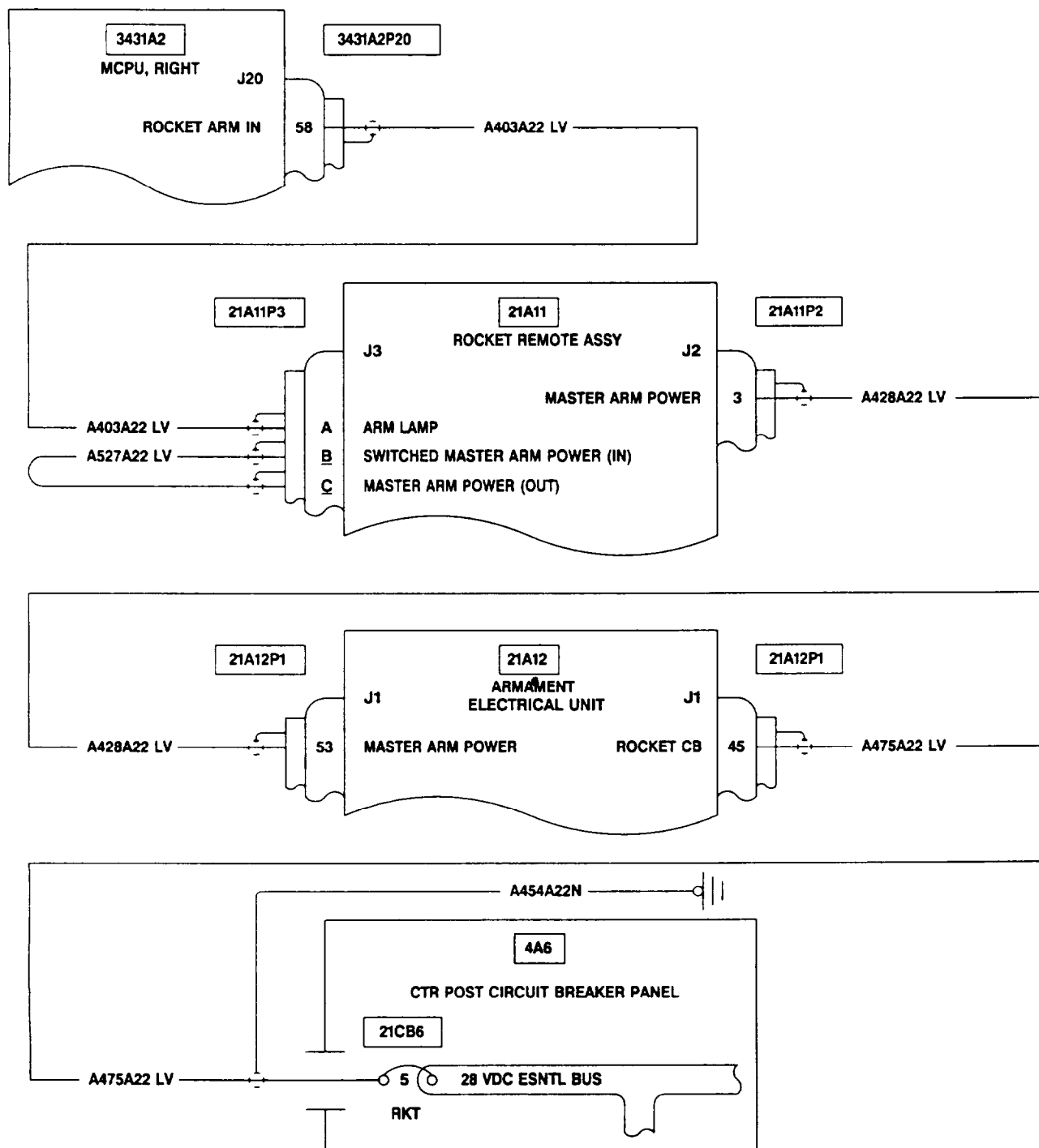
34. ROCKETS SAFED IS DISPLAYED WHEN SELECTED AND ARMED (CONT)

TM55-248-N32-2
H3551

34. ROCKETS SAFED IS DISPLAYED WHEN SELECTED AND ARMED (CONT)

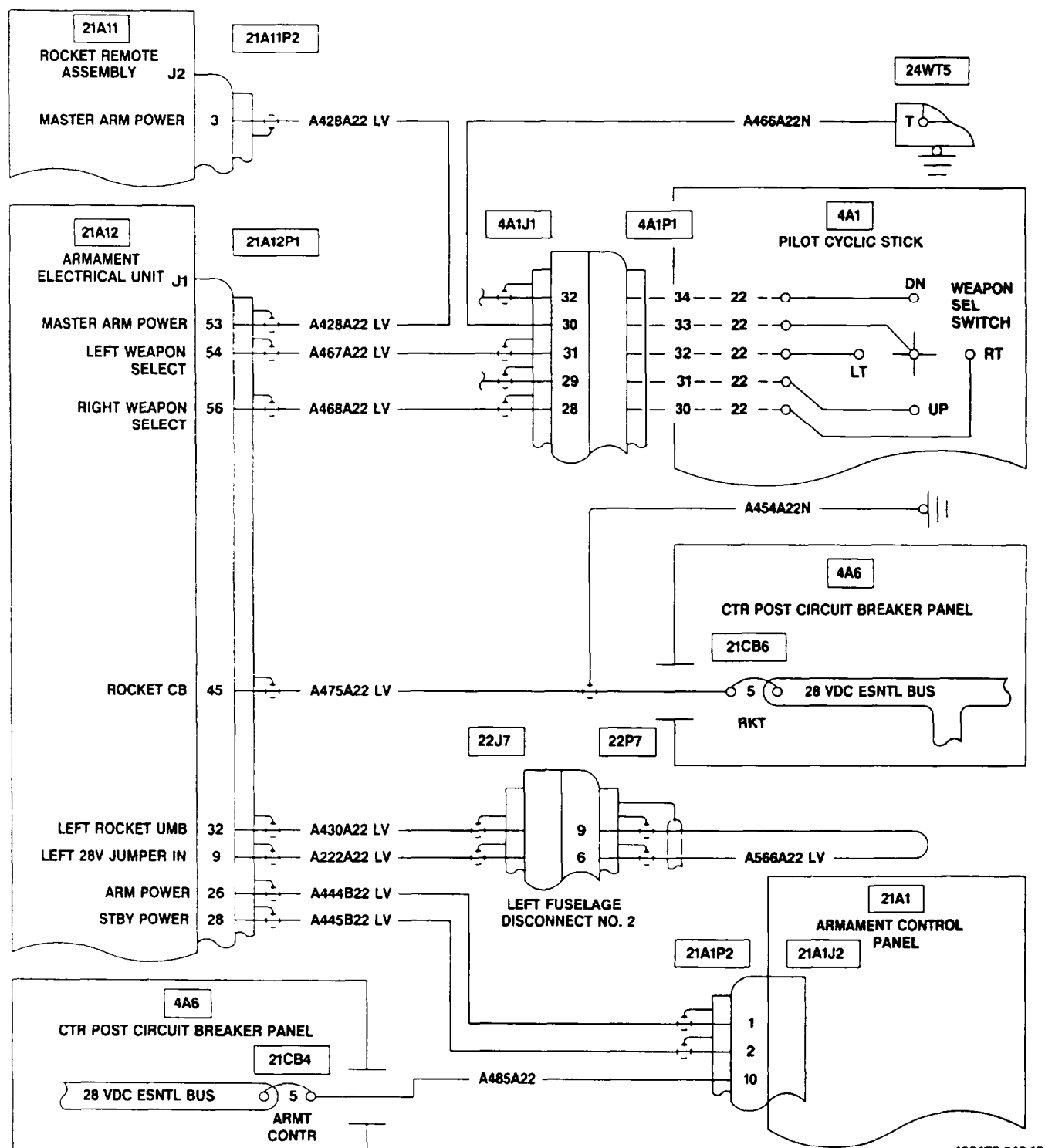


34. ROCKETS SAFED IS DISPLAYED WHEN SELECTED AND ARMED (TASK 16-1-5).



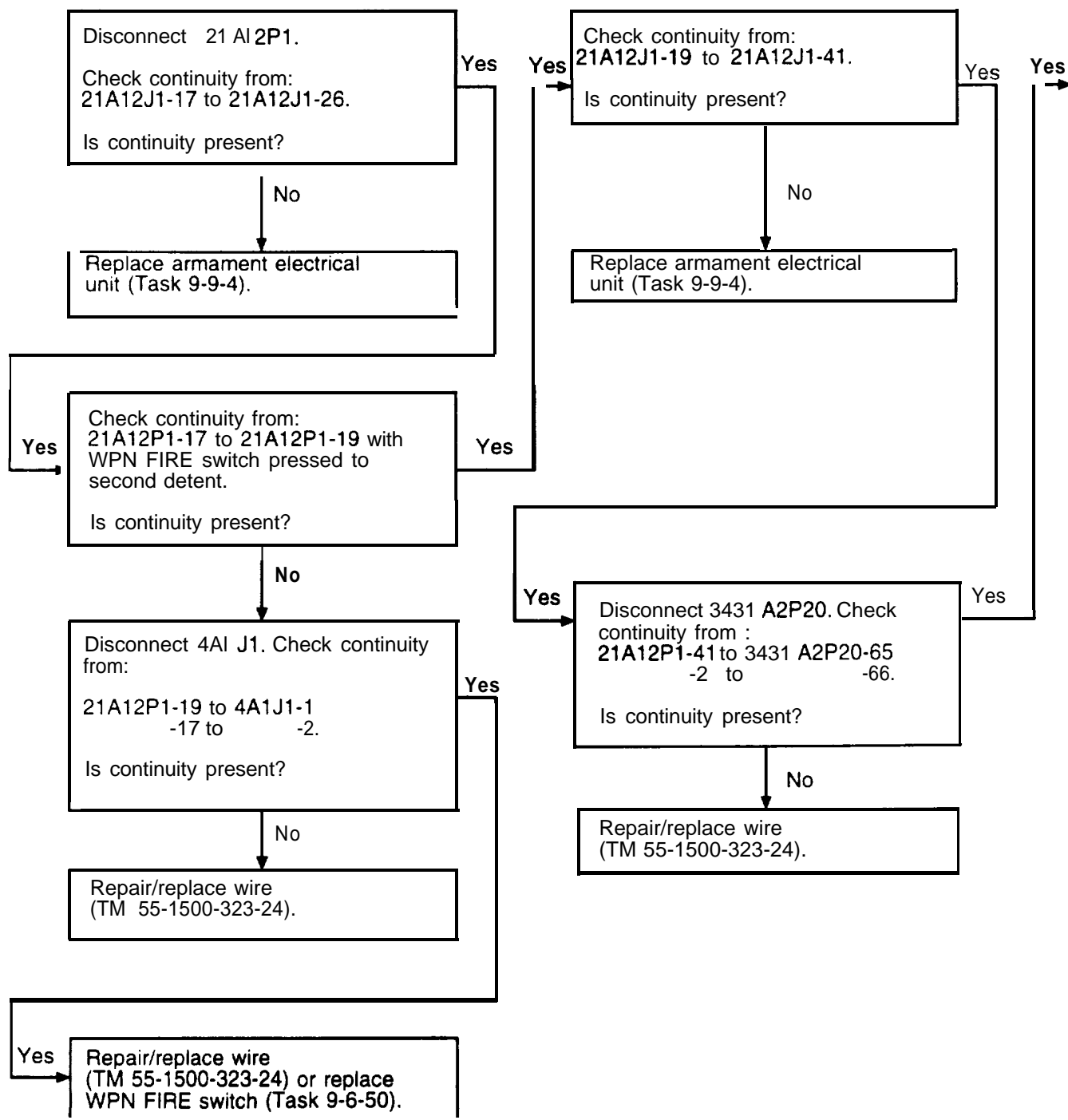
408475-540-14
J1049

34. ROCKETS SAFED IS DISPLAYED WHEN SELECTED AND ARMED (TASK 16-1-5).



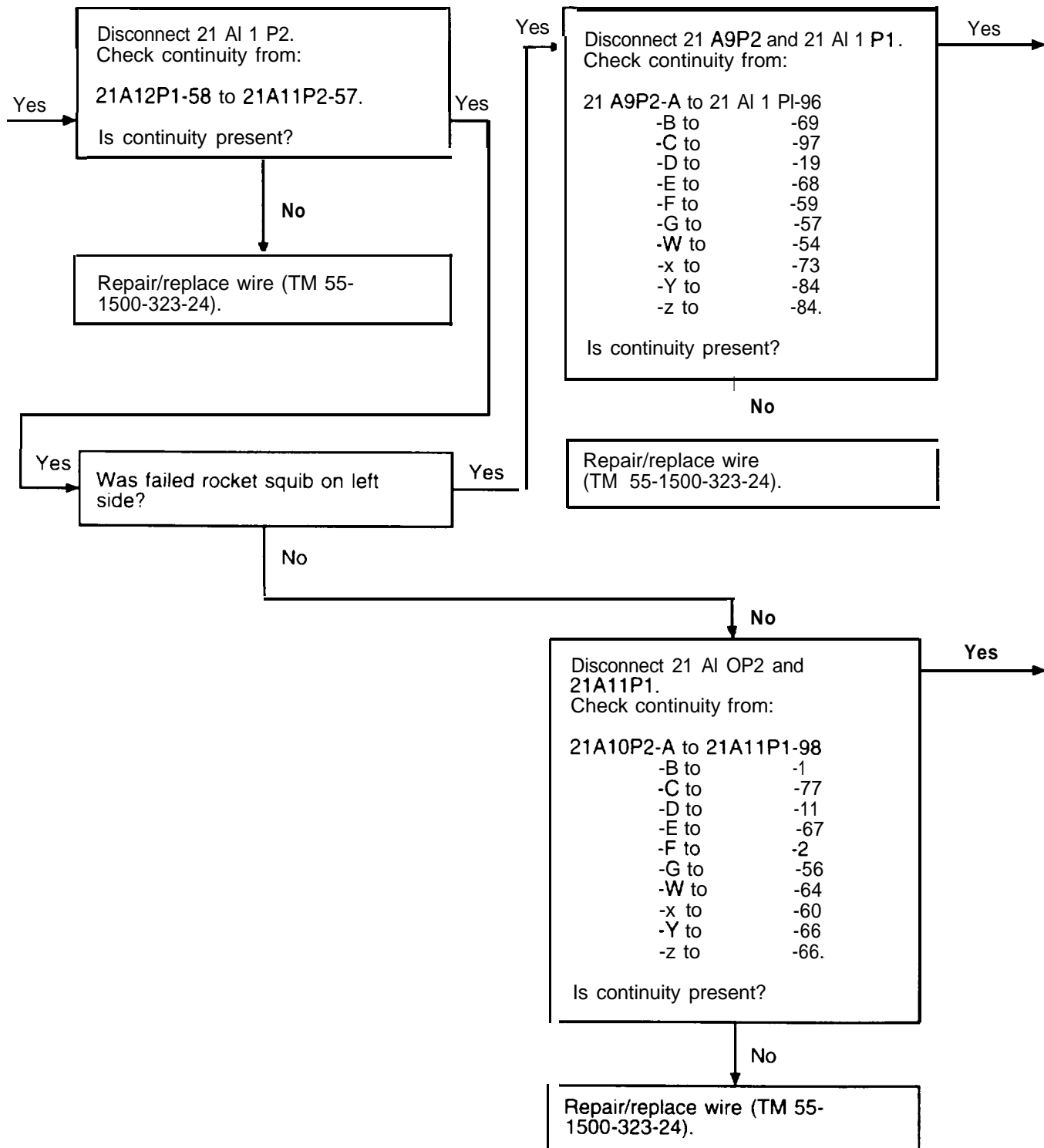
406475-540-15
J1049

35. ROCKET SQUIB DOES NOT FIRE WHEN SYSTEM IS ARMED AND SELECTED, AND WPN FIRE SWITCH IS DEPRESSED



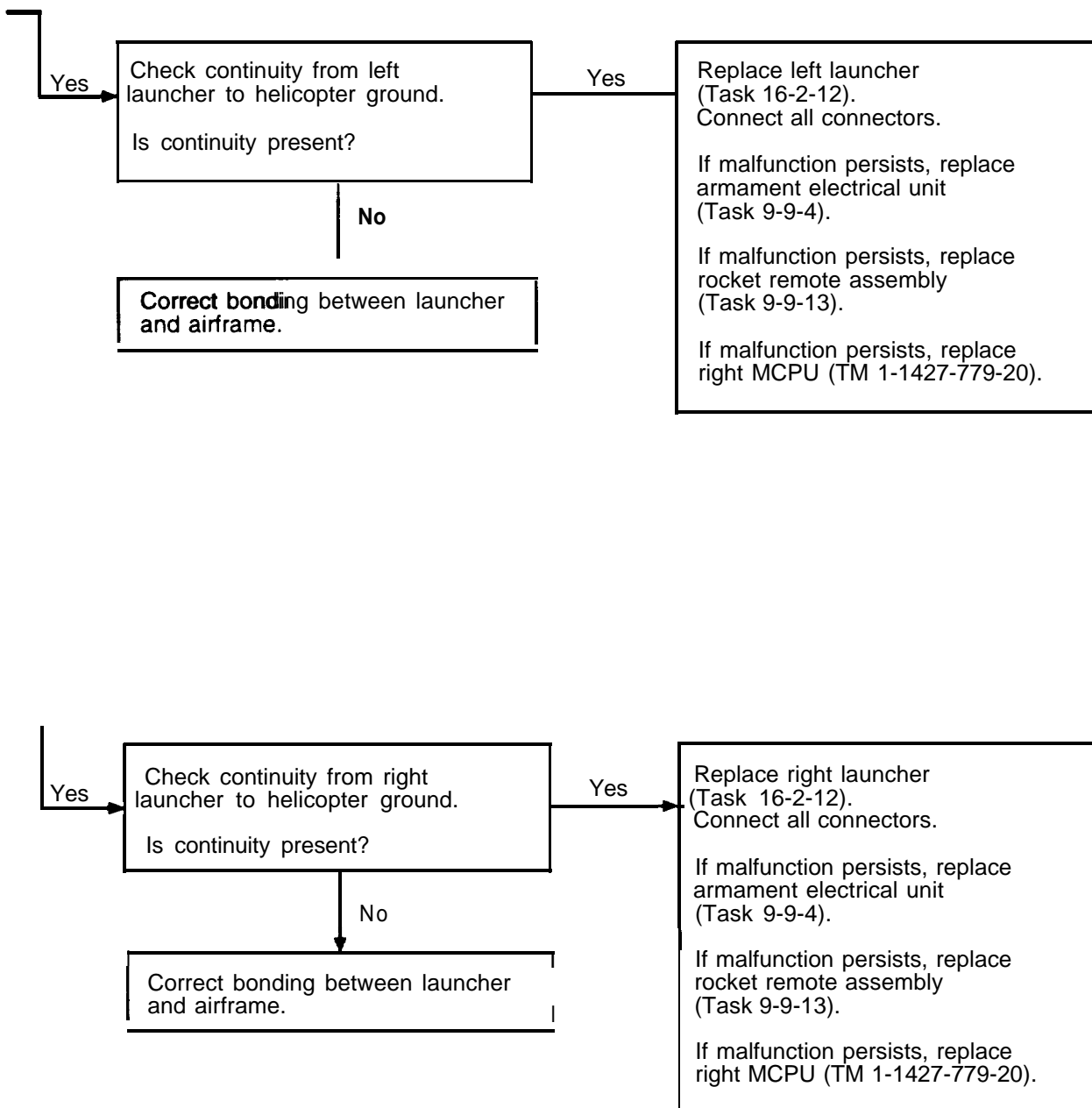
TM55-248-N33-1
H3551

35. ROCKET SQUIB DOES NOT FIRE WHEN SYSTEM IS ARMED AND SELECTED, AND WPN FIRE SWITCH IS DEPRESSED (CONT)

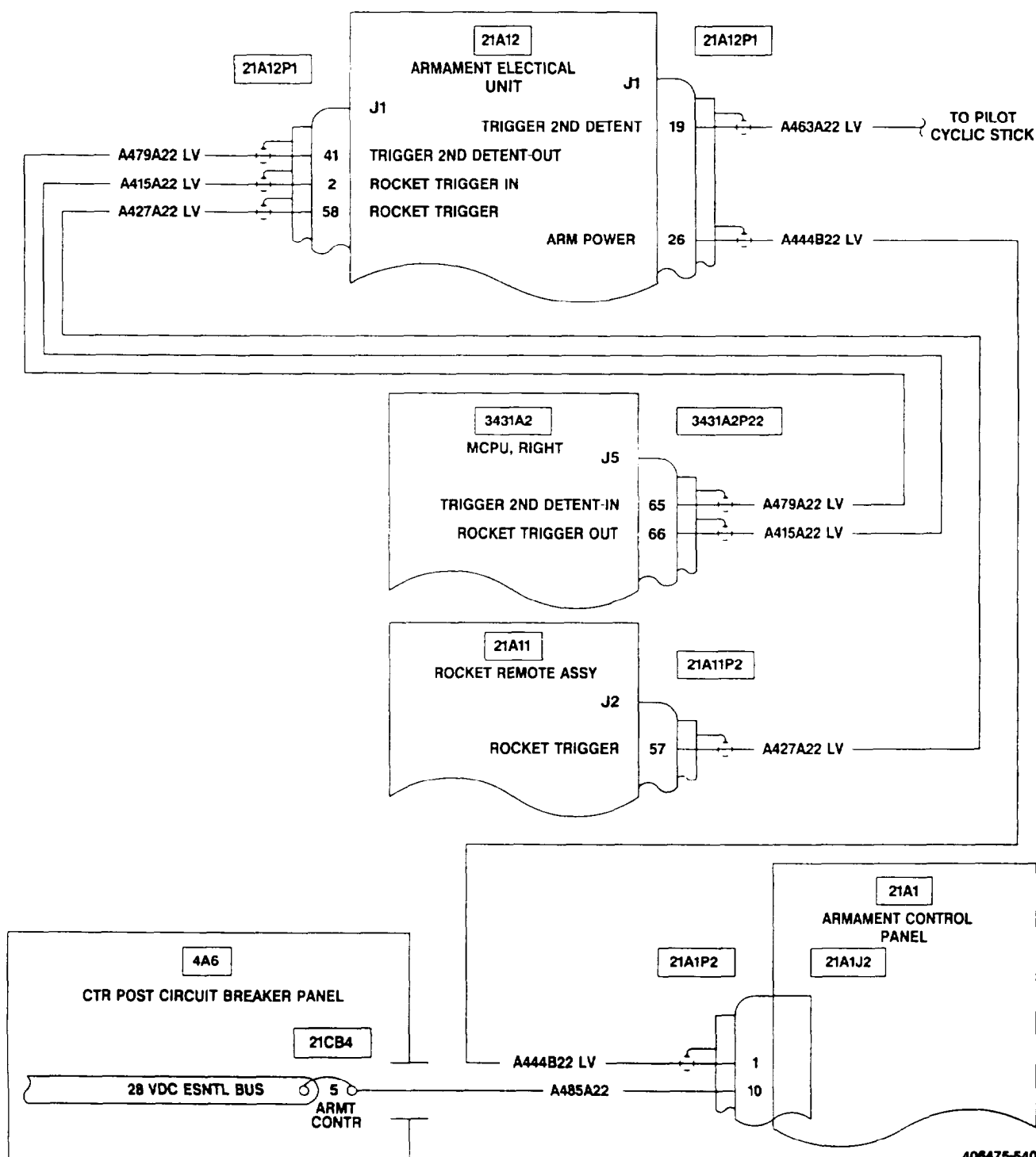


TM55-248-N33-2
H3551

35. ROCKET SQUIB DOES NOT FIRE WHEN SYSTEM IS ARMED AND SELECTED, AND WPN FIRE SWITCH IS DEPRESSED (CONT)

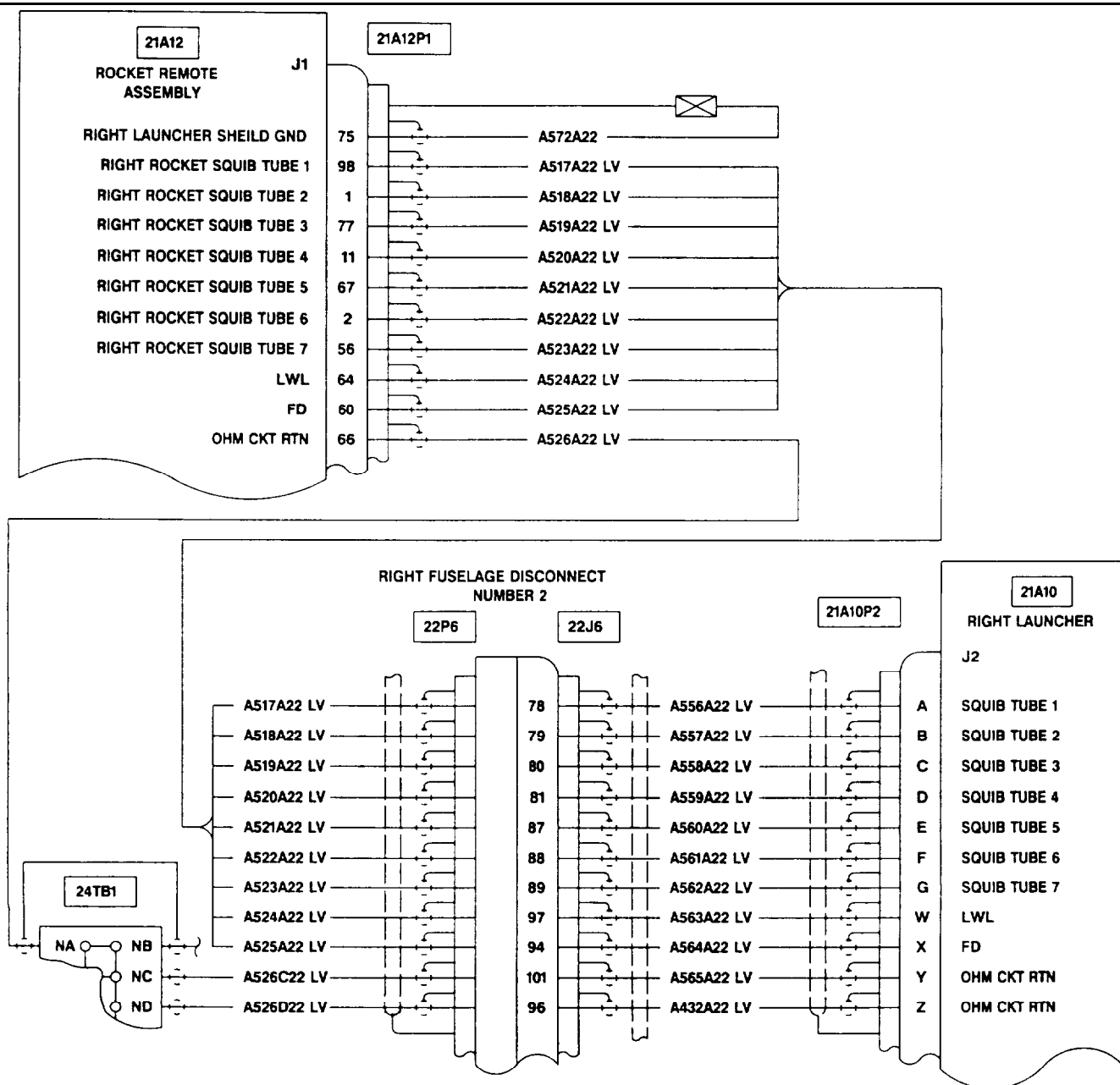


35. ROCKET SQUIB DOES NOT FIRE WHEN SYSTEM IS ARMED AND SELECTED, AND WPN FIRE SWITCH IS DEPRESSED (TASK 16-1-5).



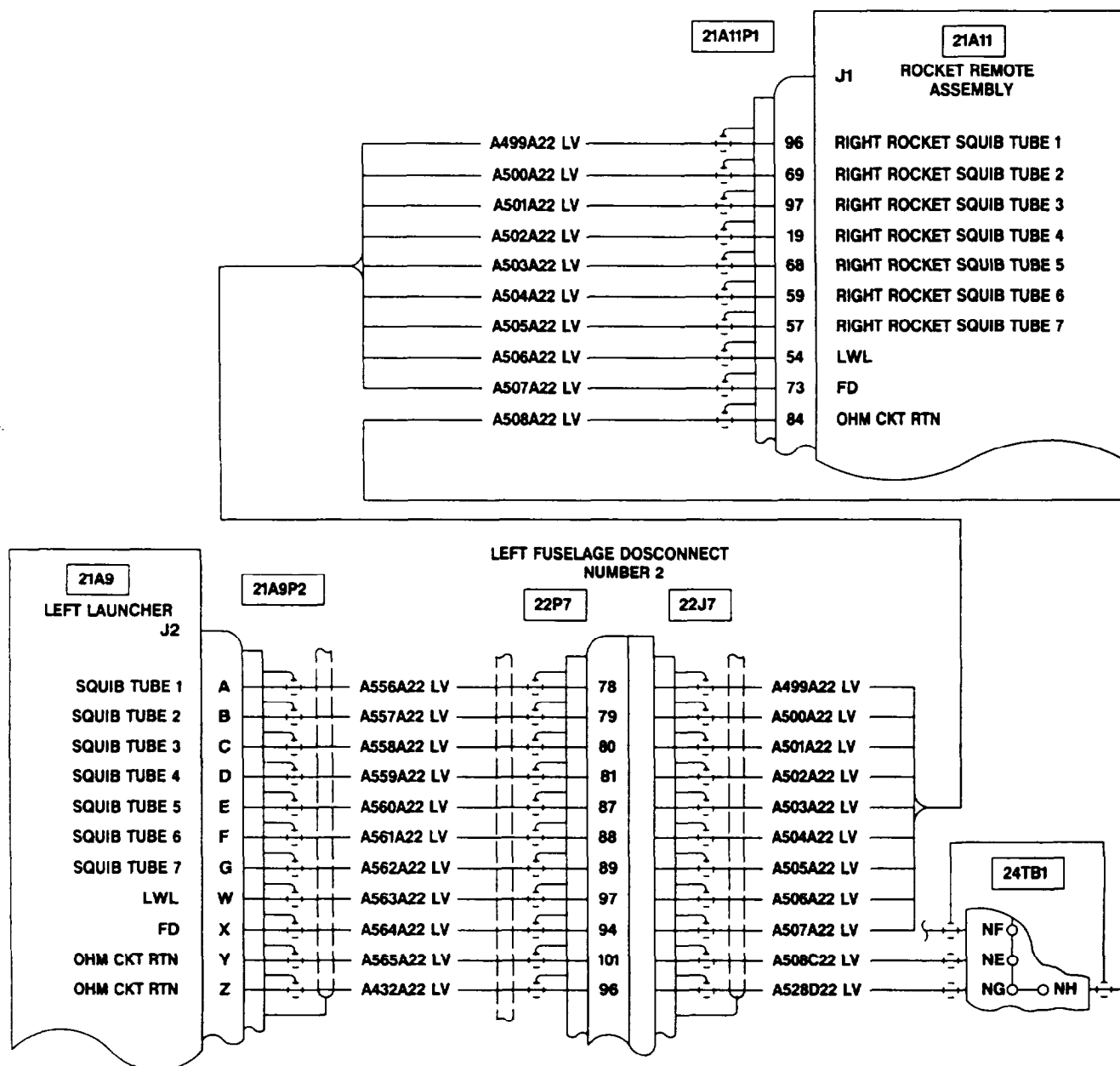
406475-540-16
J1049

35. ROCKET SQUIB DOES NOT FIRE WHEN SYSTEM IS ARMED AND SELECTED, AND WPN FIRE SWITCH IS DEPRESSED (TASK 16-1-5).



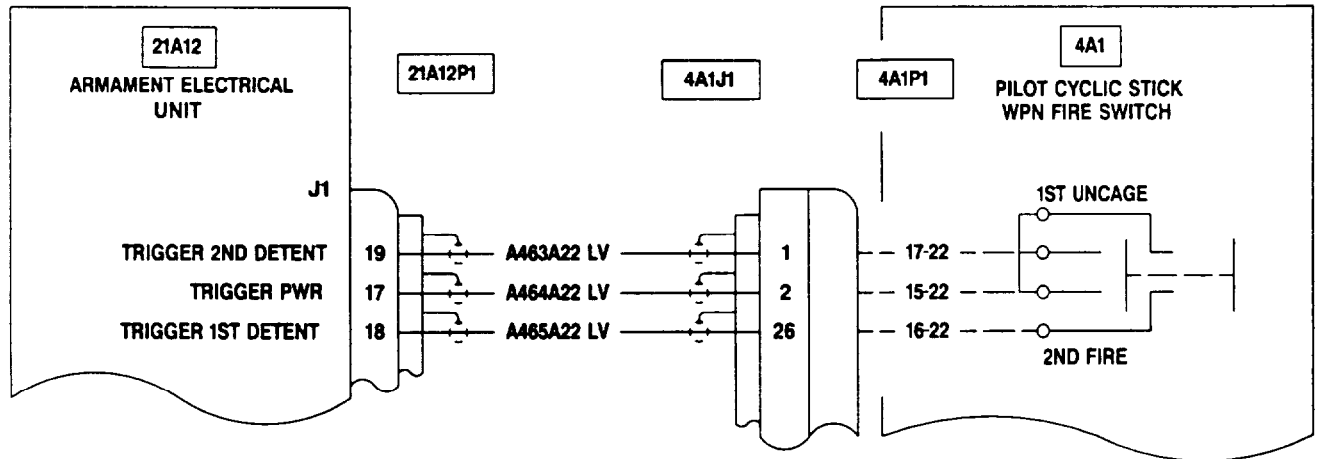
406475-540-17
J1049

35. ROCKET SQUIB DOES NOT FIRE WHEN SYSTEM IS ARMED AND SELECTED, AND WPN FIRE SWITCH IS DEPRESSED (TASK 16-1-5).



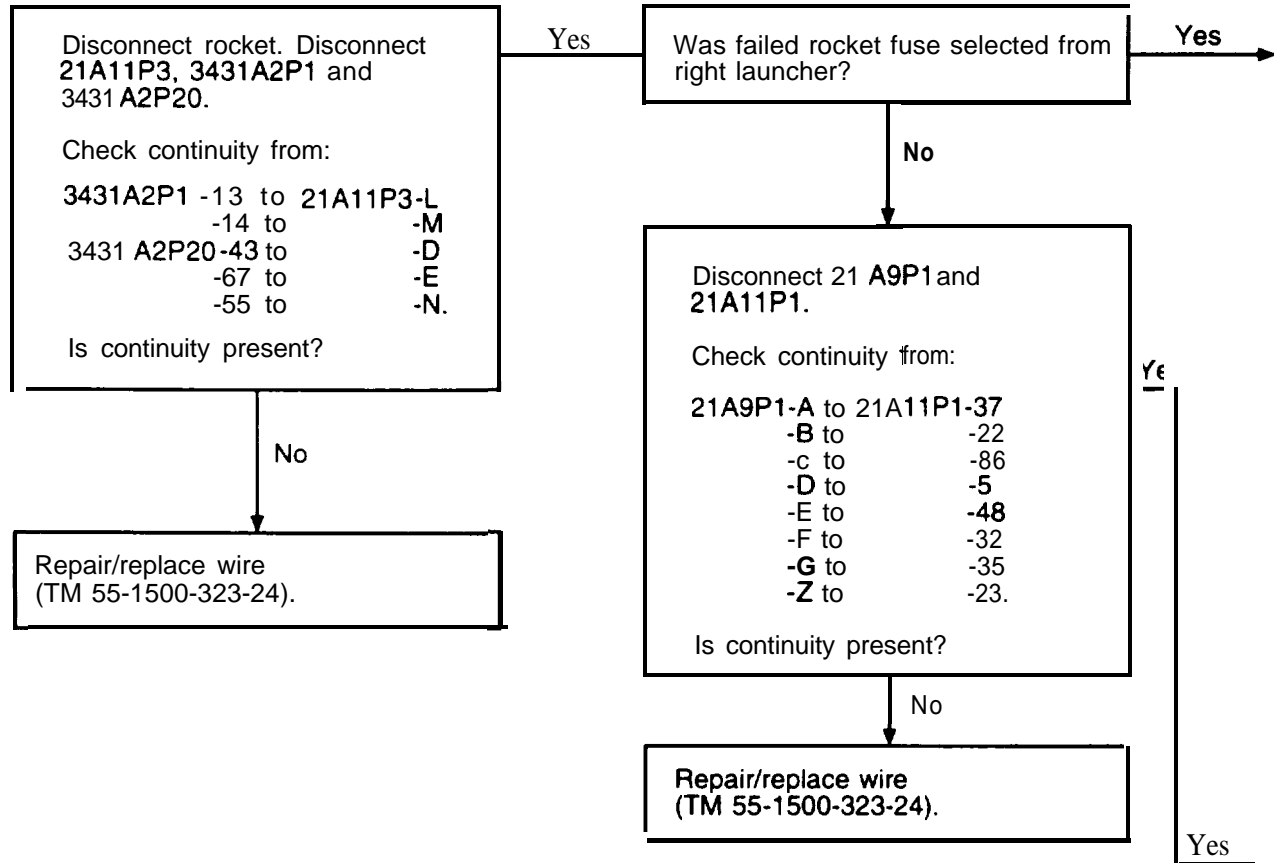
406475-540-18
J1049

35. ROCKET SQUIB DOES NOT FIRE WHEN SYSTEM IS ARMED AND SELECTED, AND WPN FIRE SWITCH IS DEPRESSED (TASK 16-1-5).

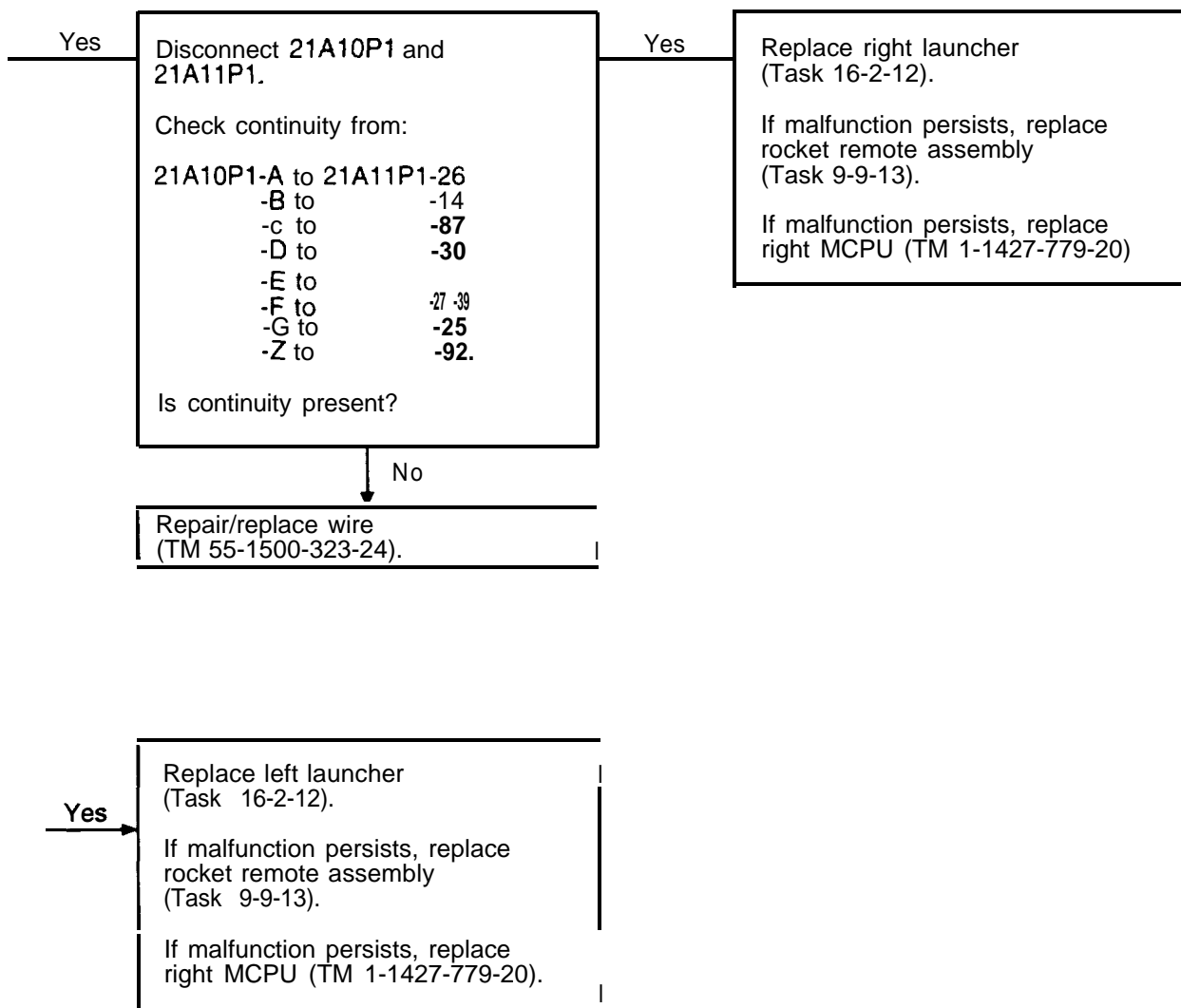


406475-540-19
J1049

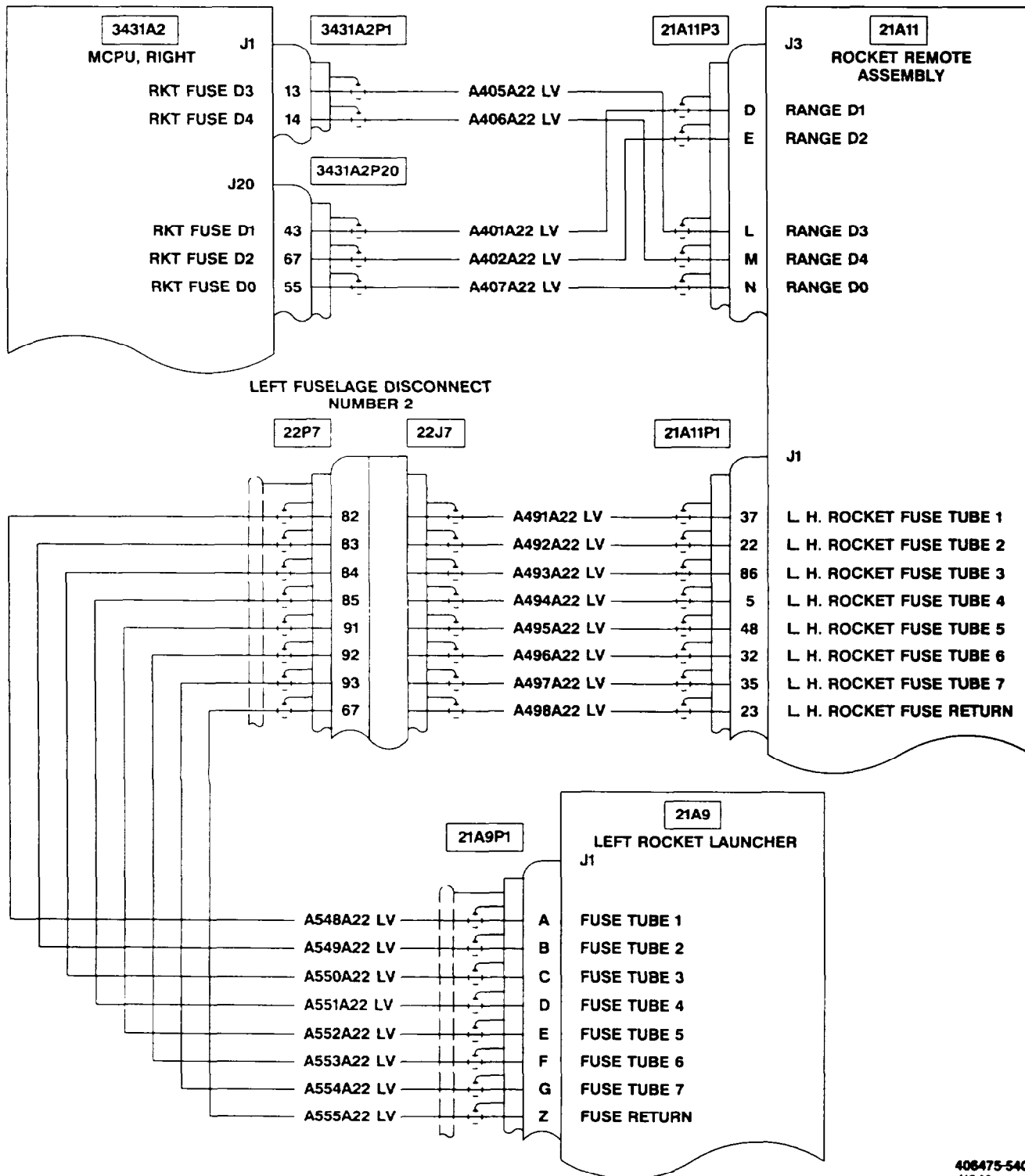
36. ROCKET FUSE TIME FOR MANUAL SETTING DOES NOT AGREE WITH MFD



36. ROCKET FUSE TIME FOR MANUAL SETTING DOES NOT AGREE WITH MFD (CONT)

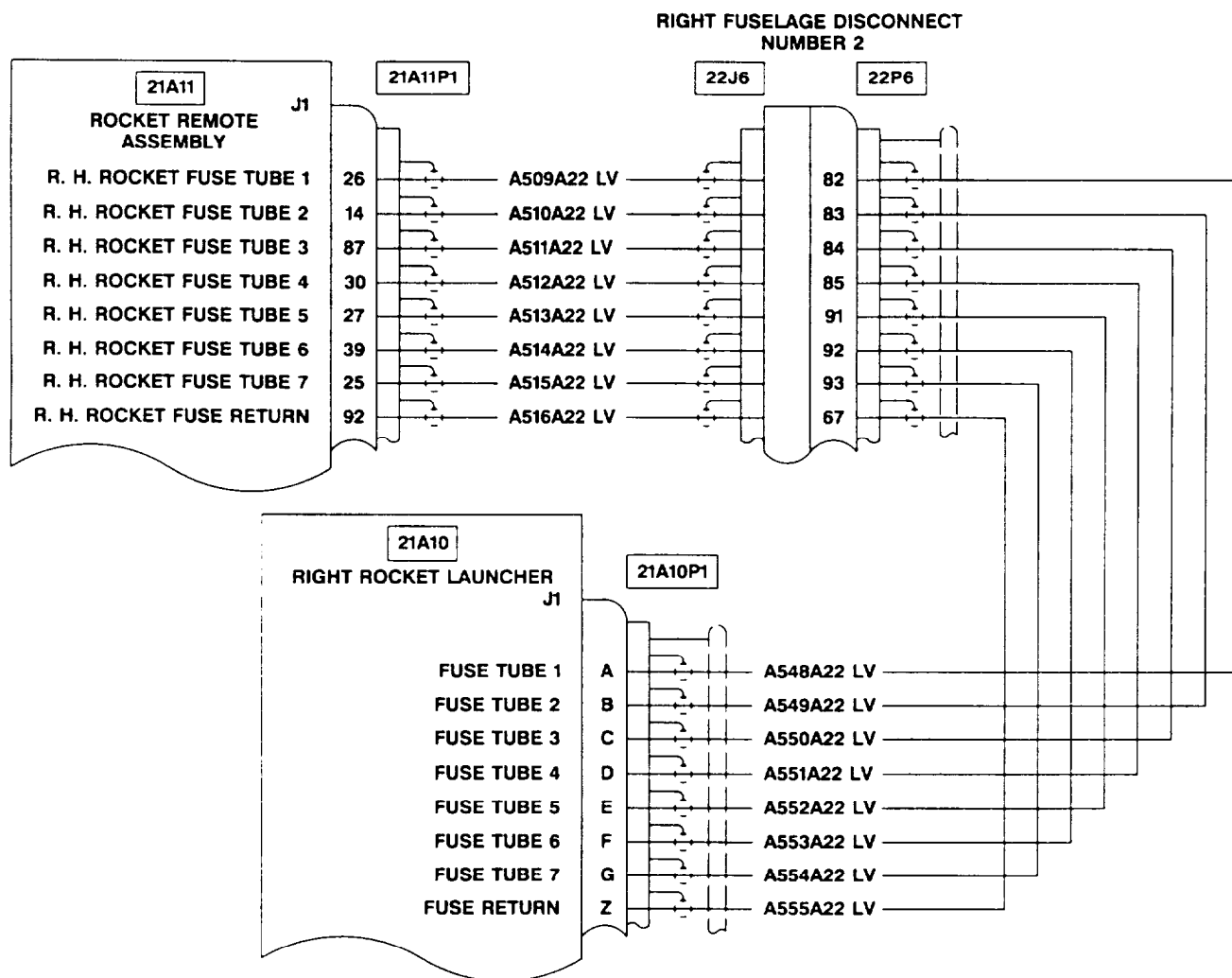
TM55-248-N34-2
H3551

36. ROCKET FUSE TIME FOR MANUAL SETTING DOES NOT AGREE WITH MFD (TASK 16-1-5).



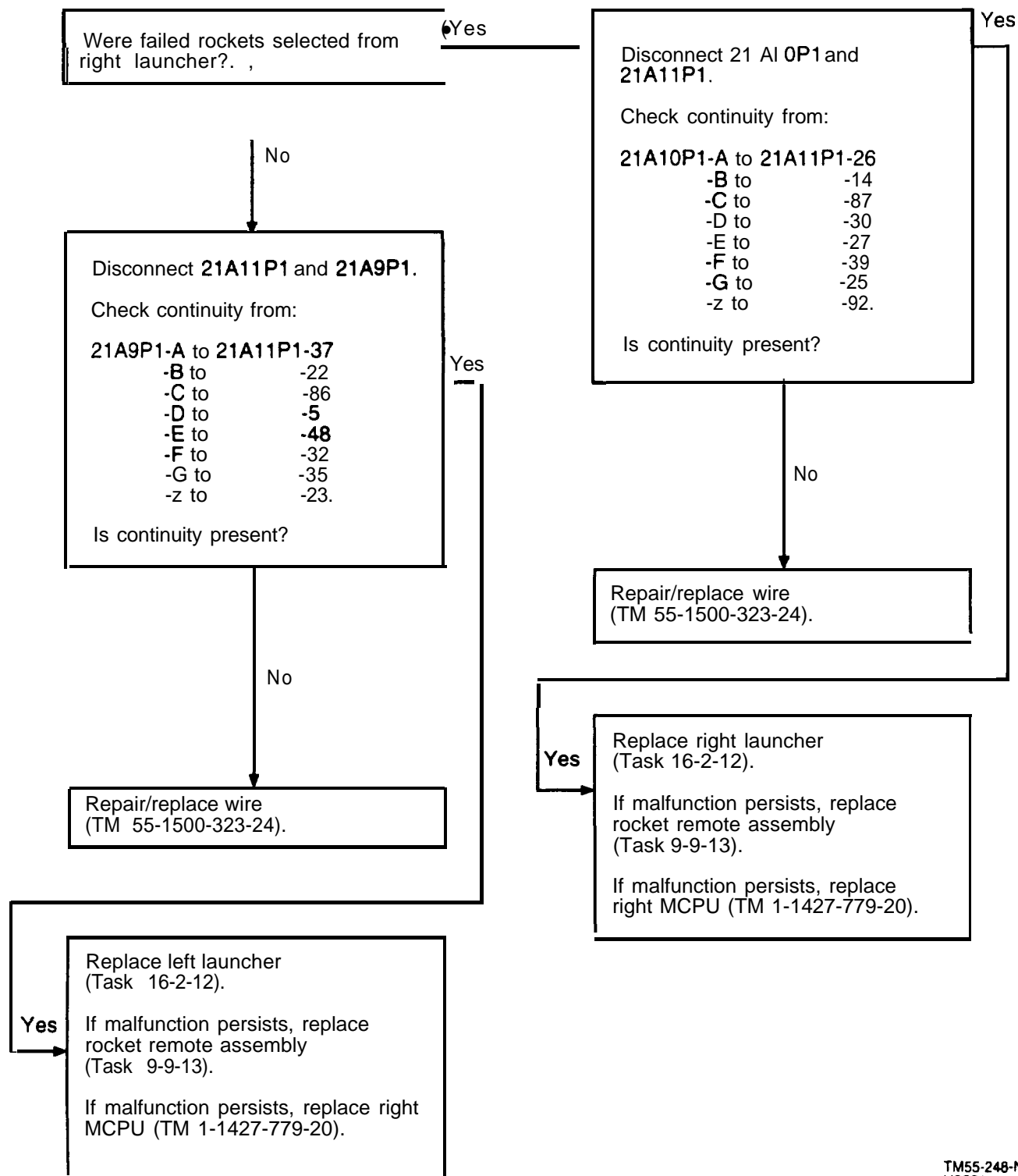
408475-540-20
J1049

36. ROCKET FUSE TIME FOR MANUAL SETTING DOES NOT AGREE WITH MFD (TASK 16-1-5).

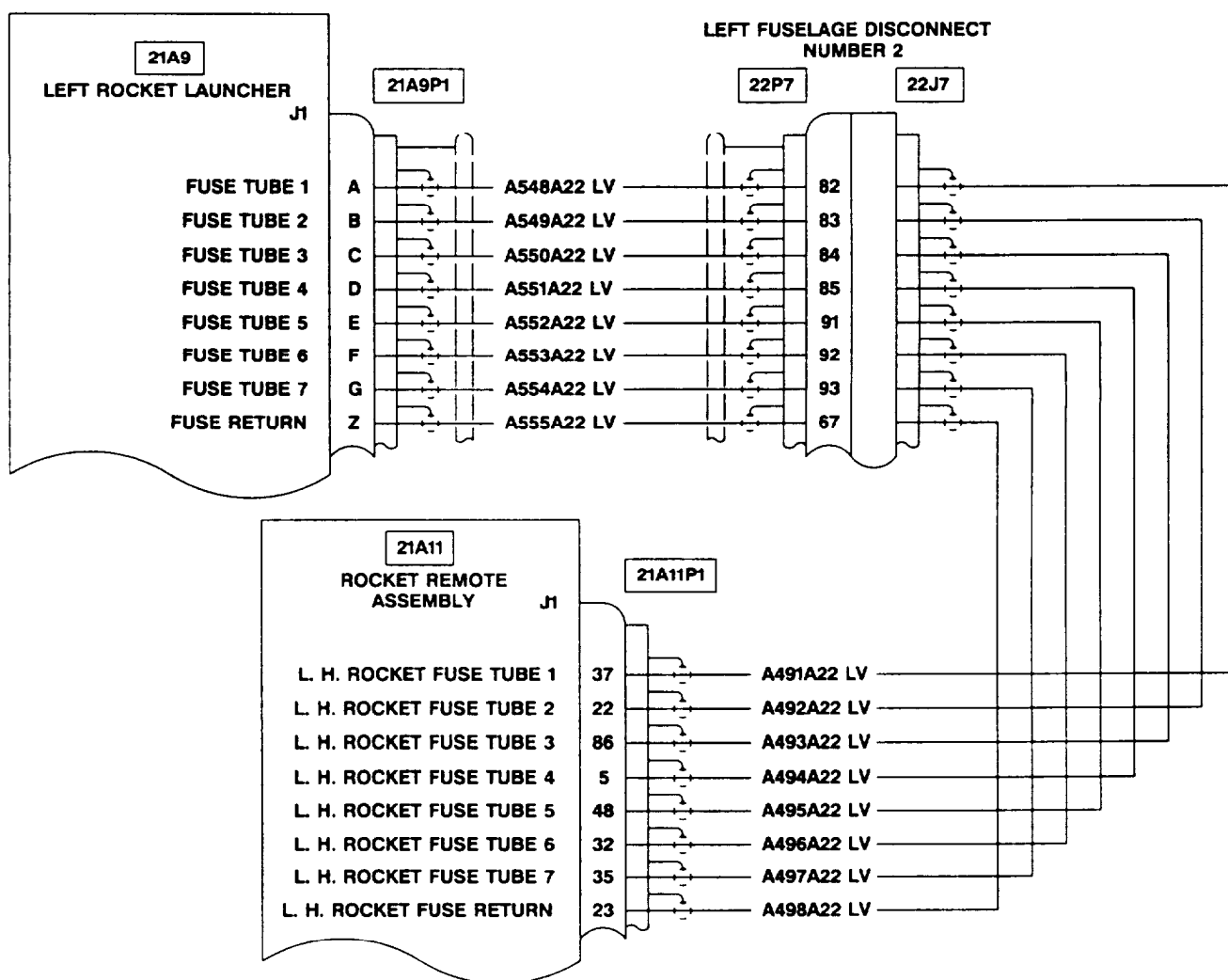


406475-540-21
J1049

37. ALL OR A SINGLE ROCKET WILL NOT FUSE

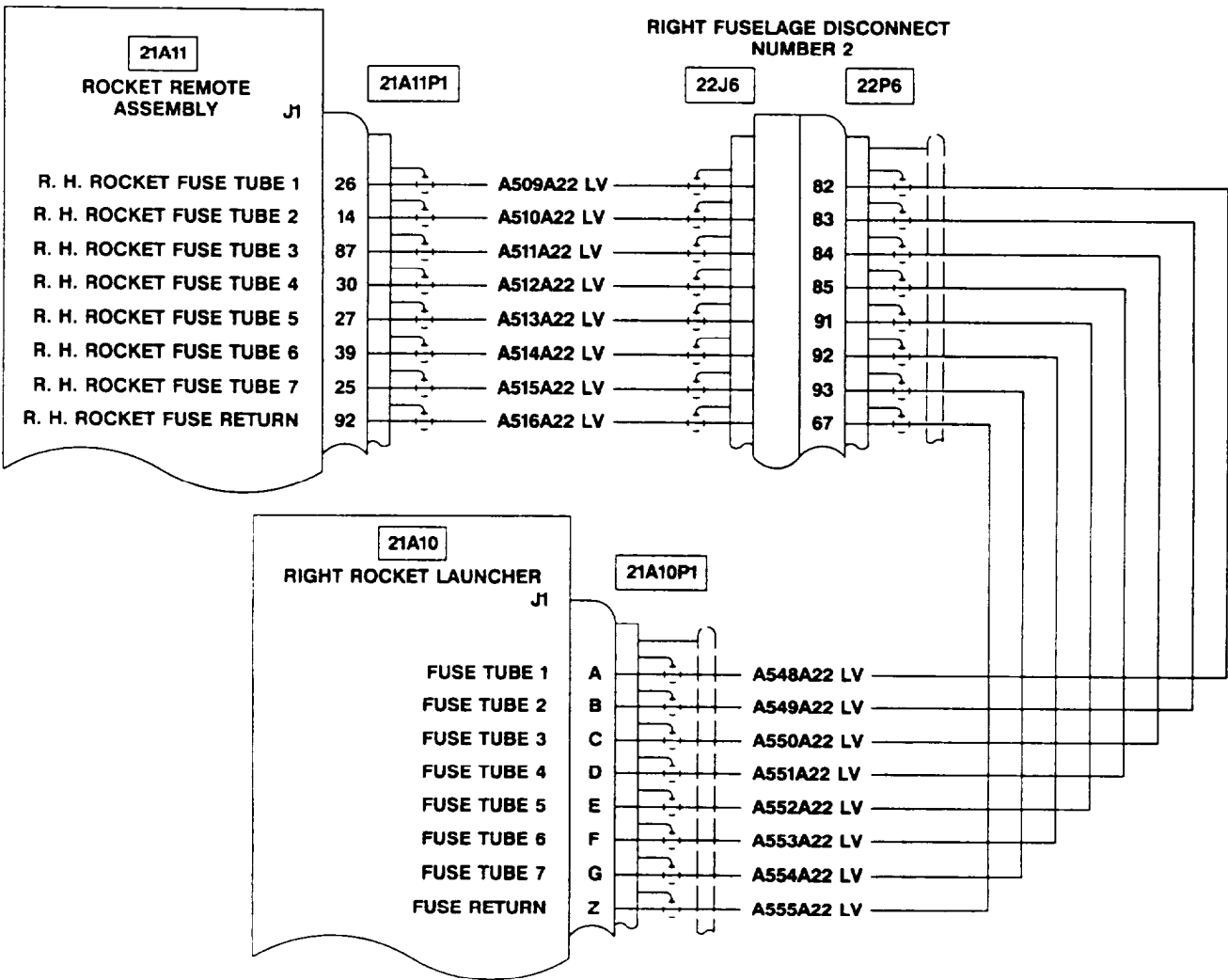
TM55-248-N36
H3551

37. ALL OR A SINGLE ROCKET WILL NOT FUSE (TASK 16-1-5).



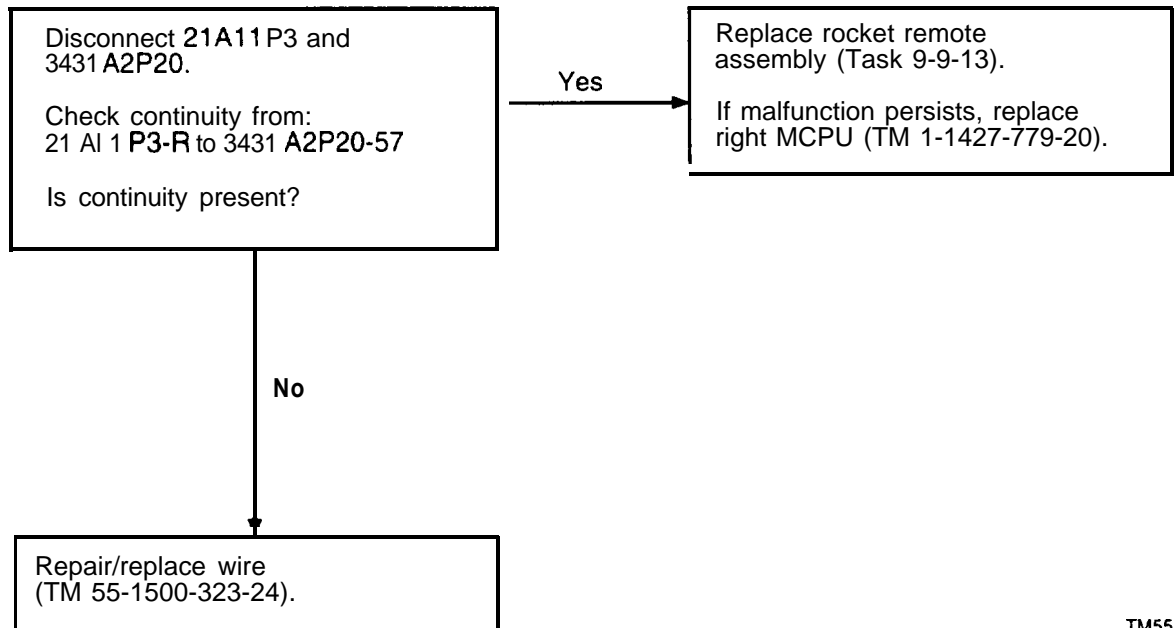
406475-540-22
J1049

37. ALL OR A SINGLE ROCKET WILL NOT FUSE (TASK 16-1-5).

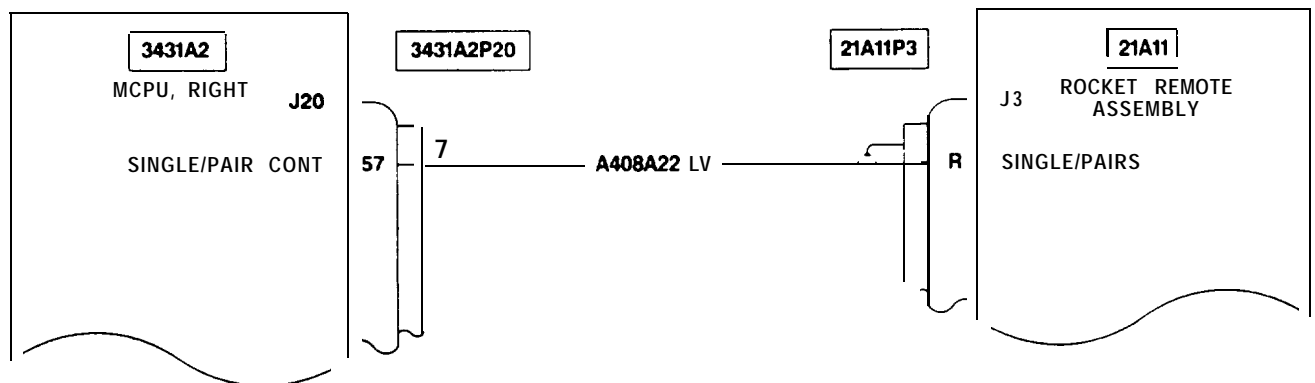


406475-540-23
J1049

38. ROCKETS FIRE IN PAIRS WHEN SINGLE IS SELECTED

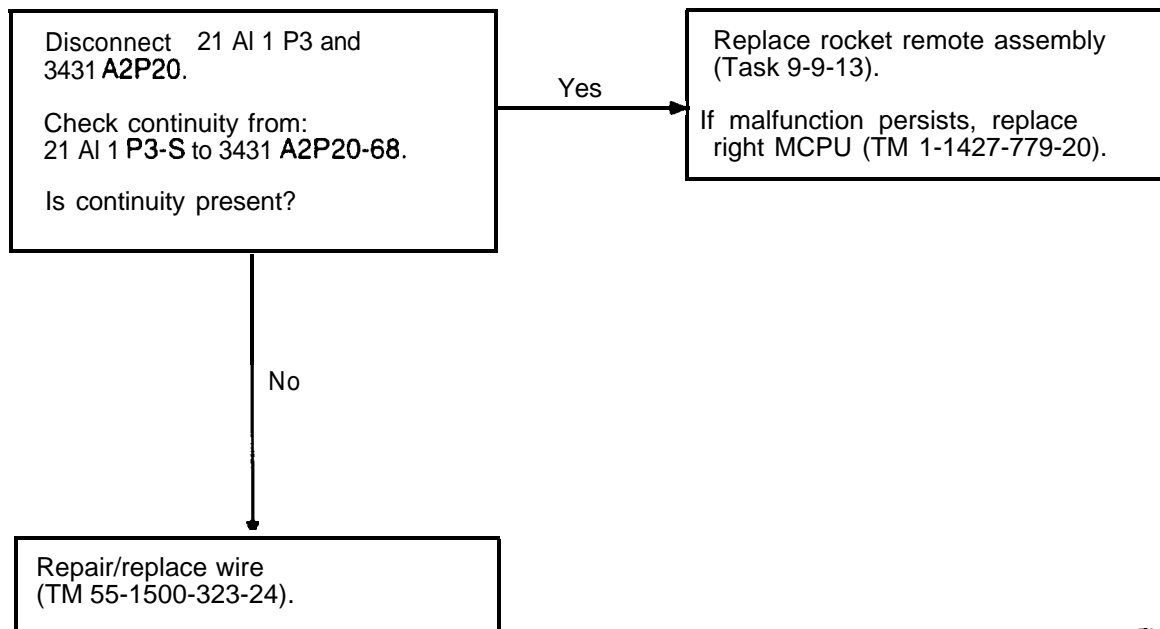


TM55-248-N37
H3551

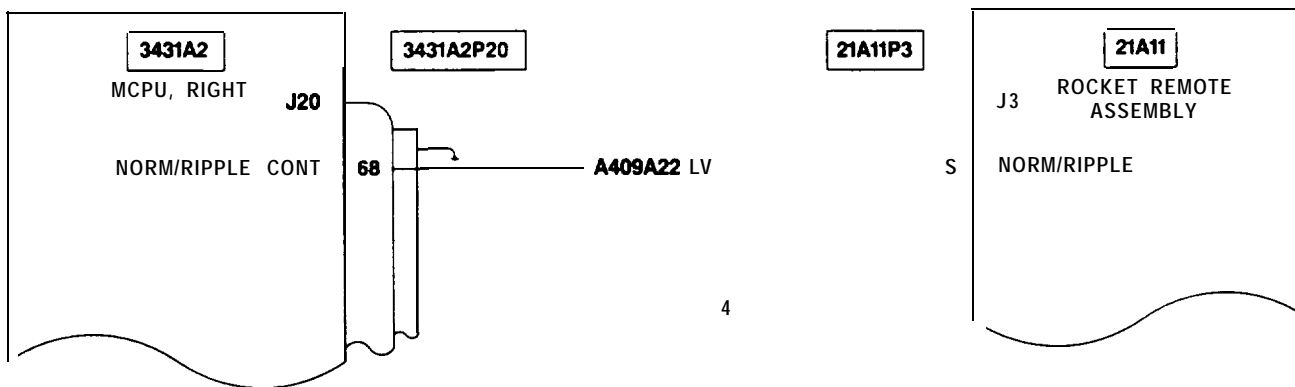


406475-540-24
J1049

39. ROCKETS FIRE IN SINGLES WHEN RIPPLE SINGLES IS SELECTED

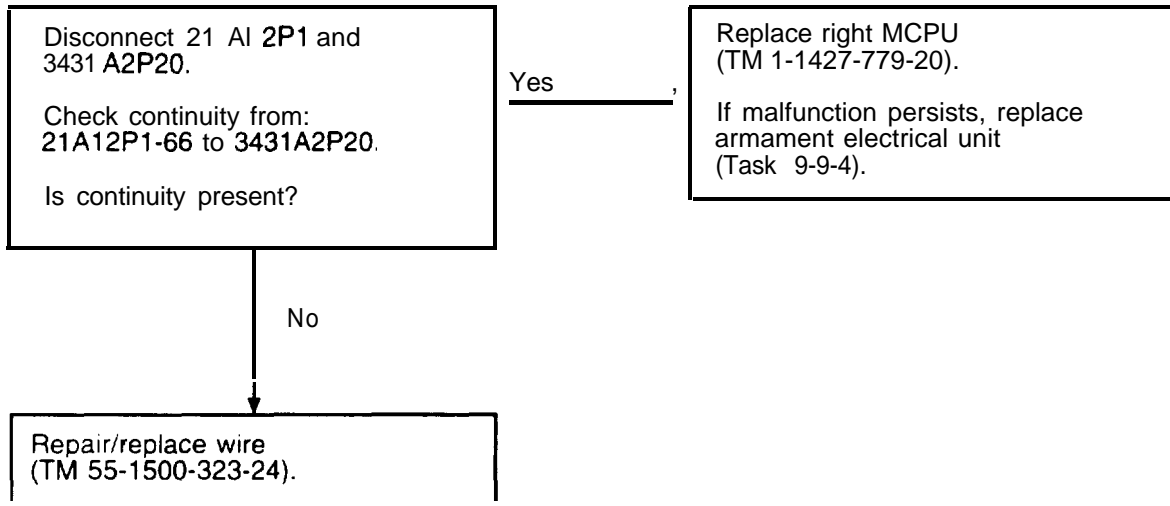
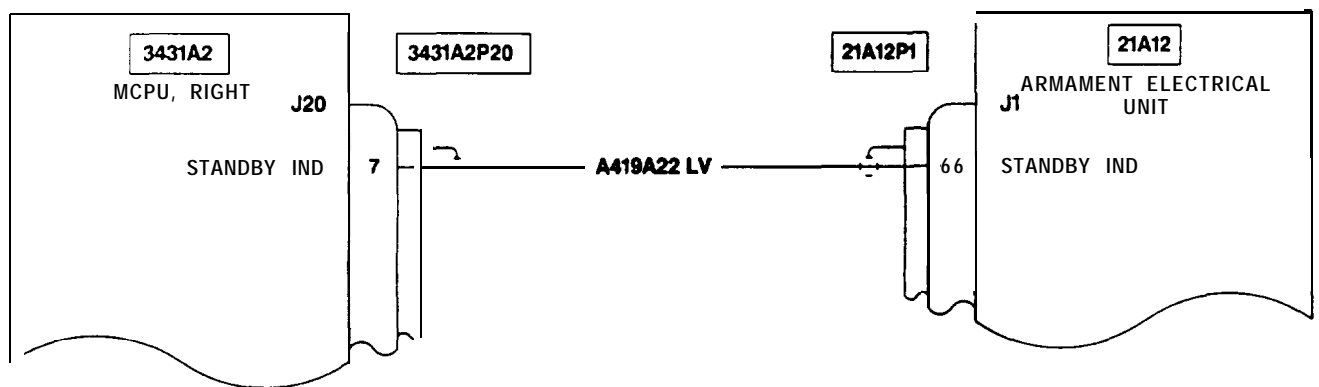


TM55-248-N38
H3551

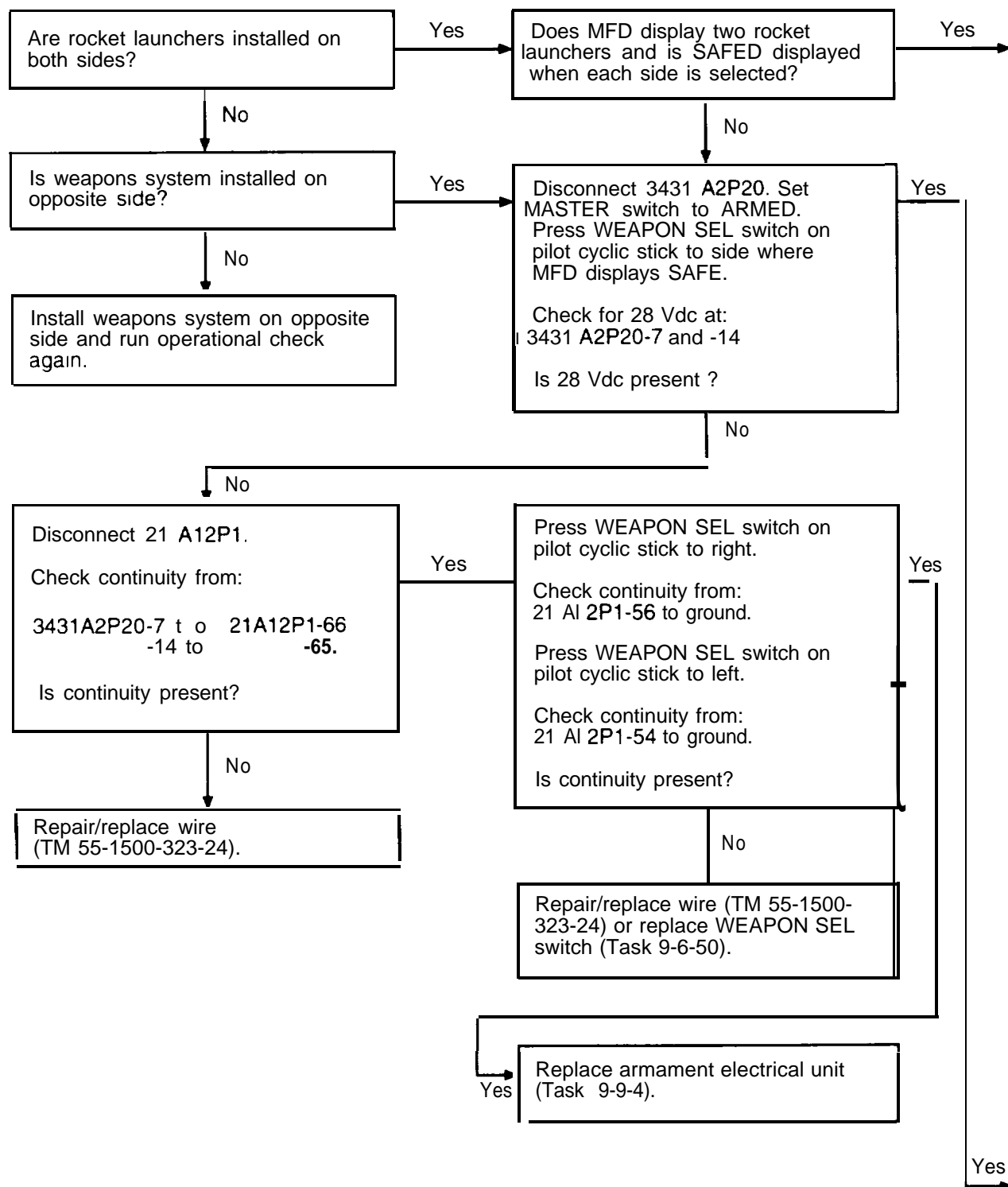


406475-540-25
J1049

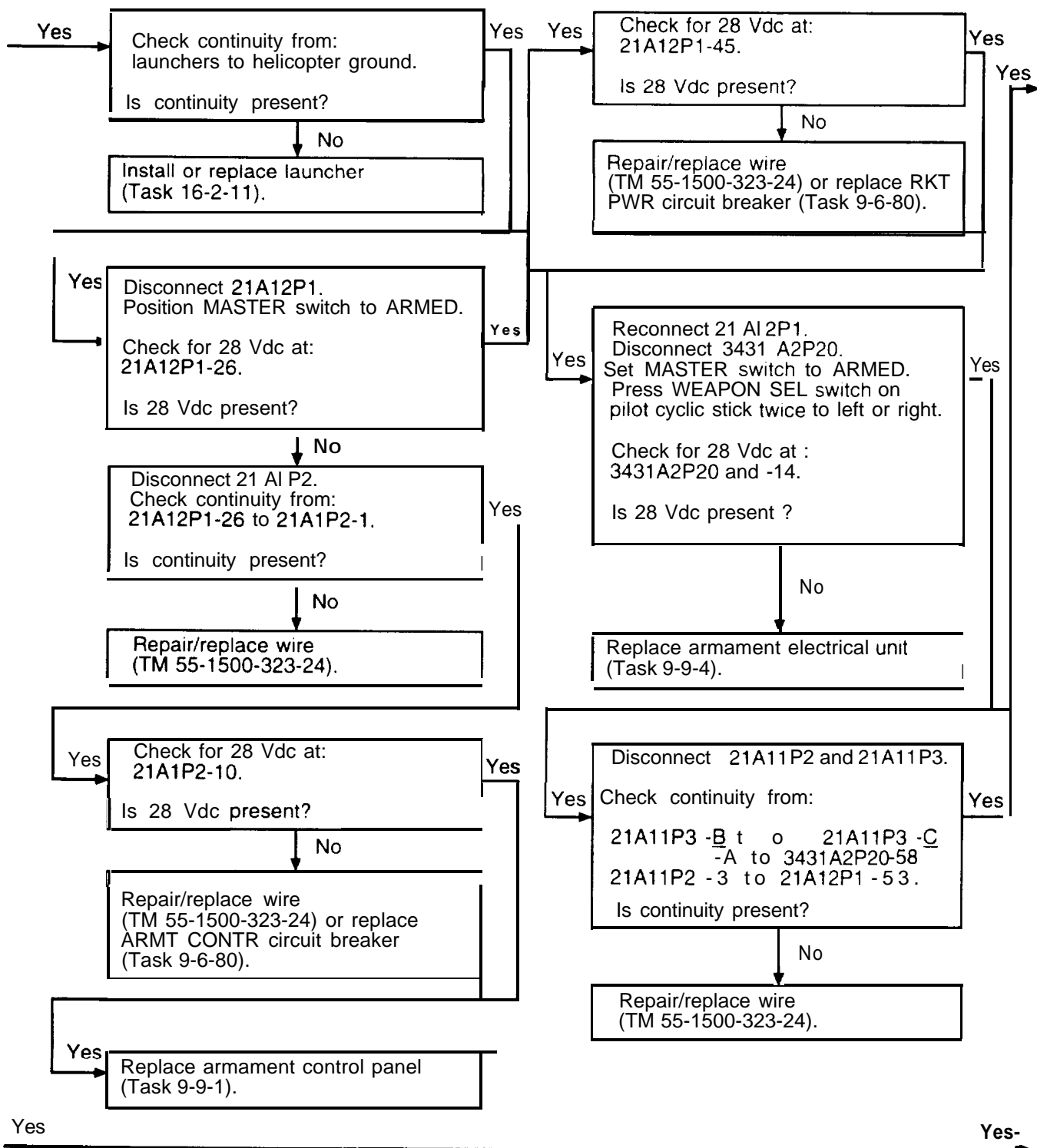
40. RKTS OFF IS DISPLAYED ON MFD WHEN SELECTED, ARMED, AND ABLE TO BE FIRED

TM55-248-N39
H3551406475-540-26
J1049

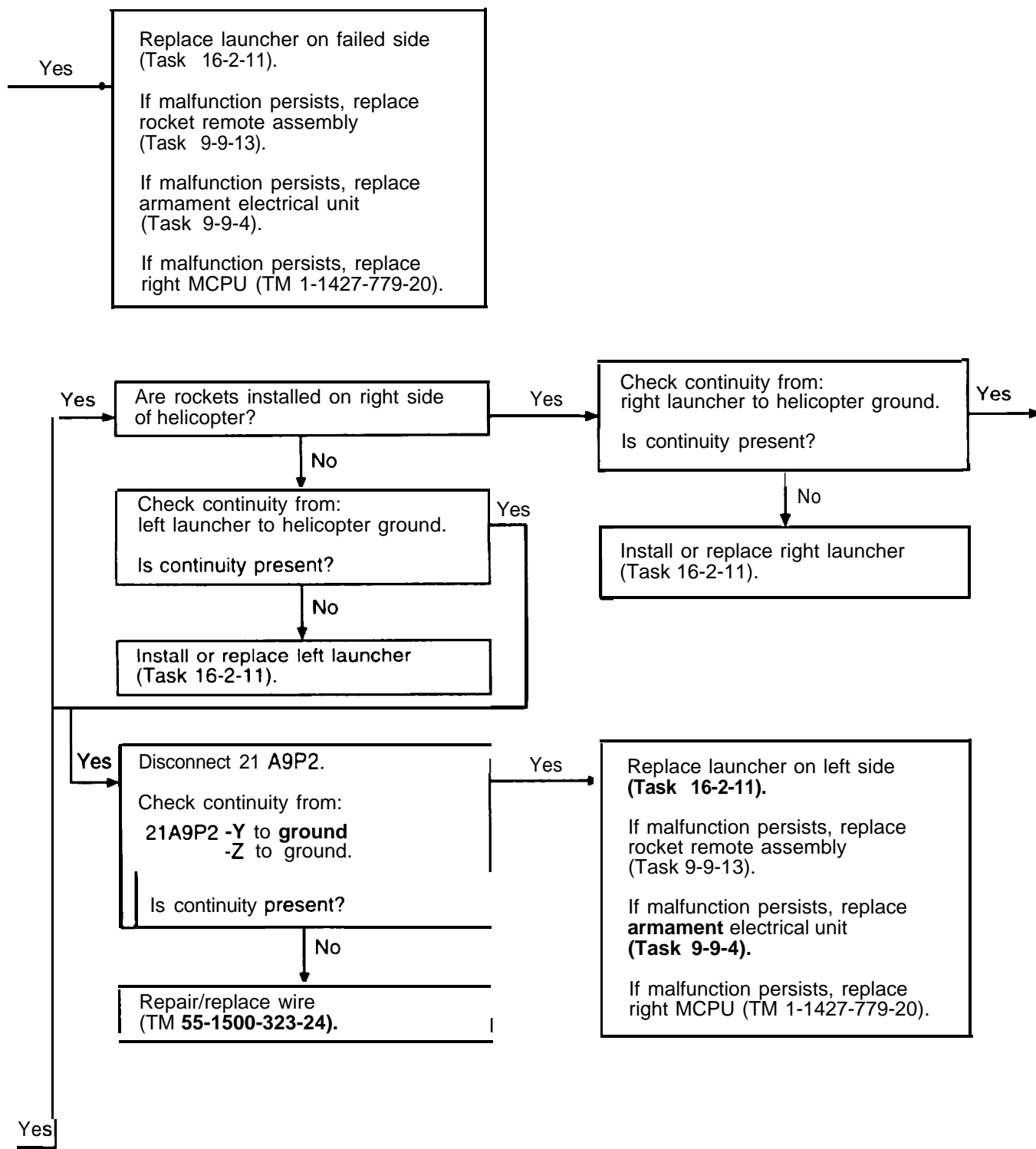
41. ROCKETS DISPLAY SAFED ON MFD WHEN SELECTED

TM55_248_N40_1
H3425

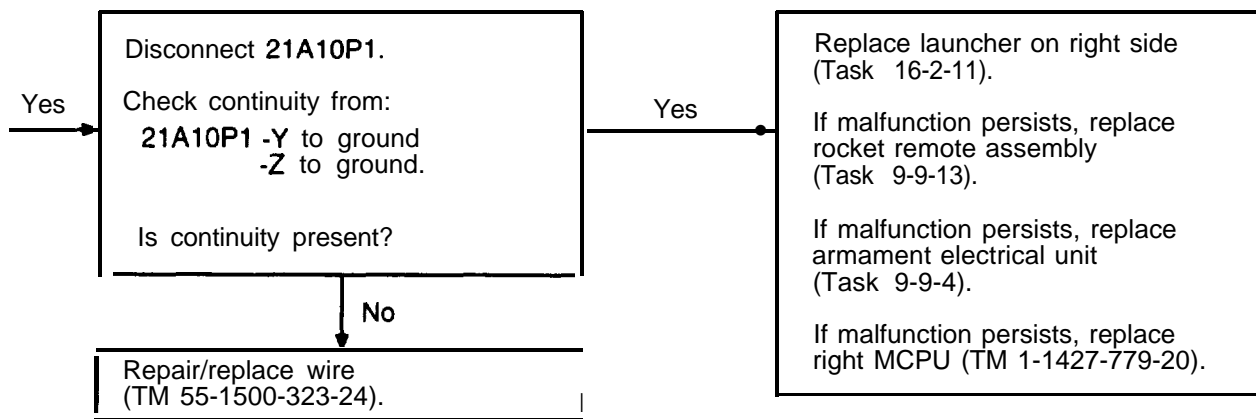
41. ROCKETS DISPLAY SAFED ON MFD WHEN SELECTED (CONT)

TM55_248_N40_2
H5073

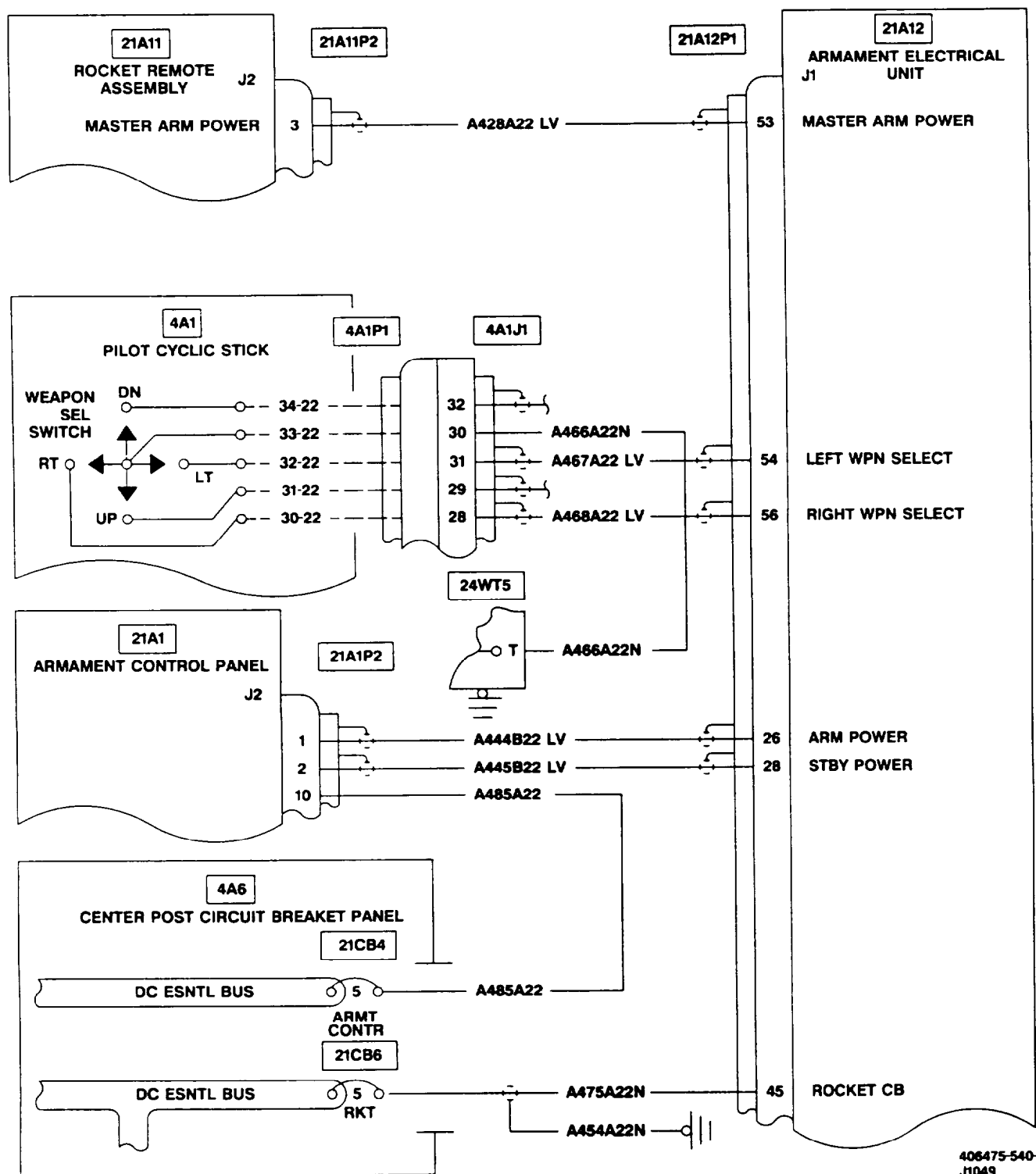
41. ROCKETS DISPLAY SAFED ON MFD WHEN SELECTED (CONT)



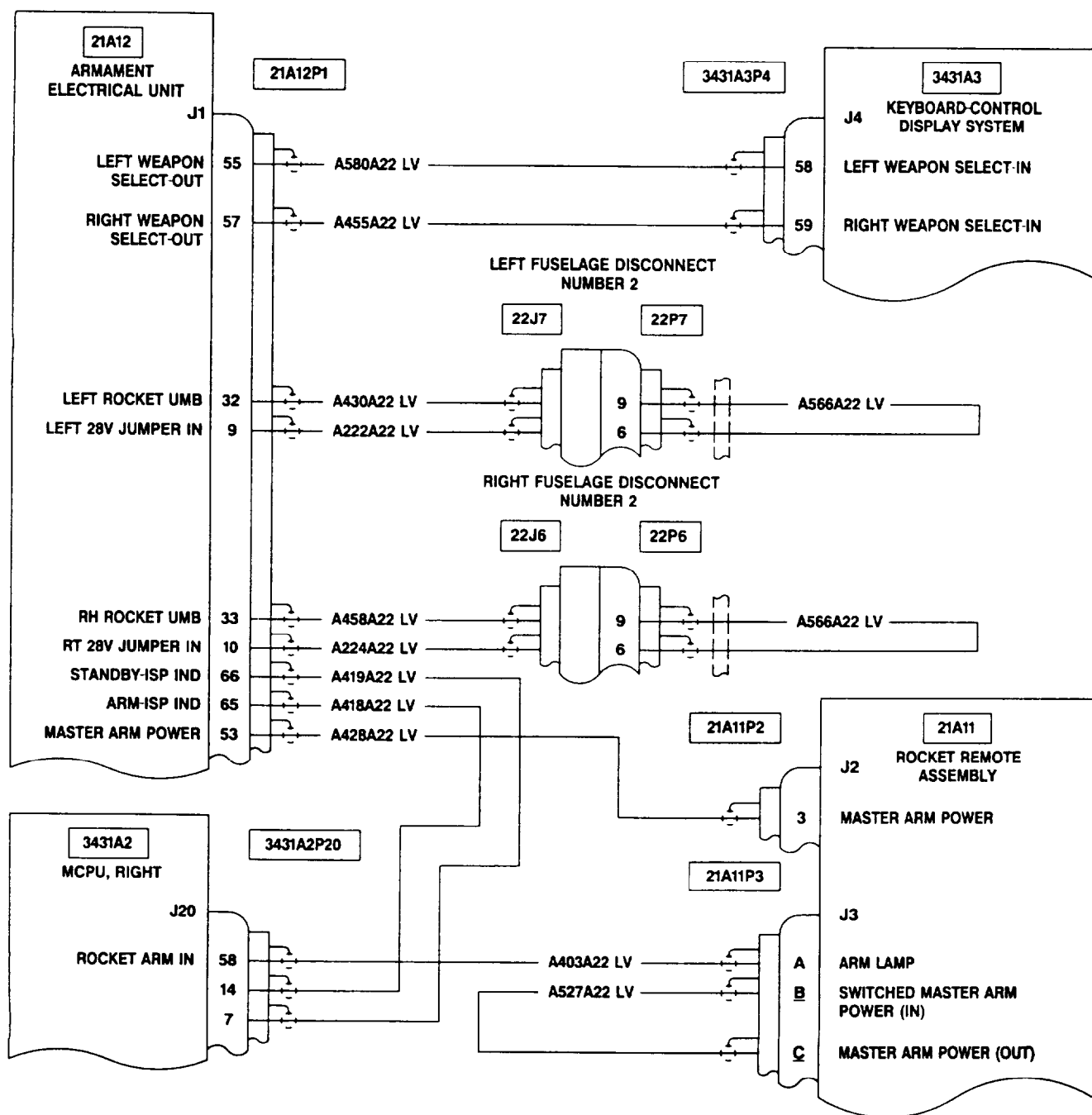
41. ROCKETS DISPLAY SAFED ON MFD WHEN SELECTED (CONT)

TM55_248_N40_4
H5073

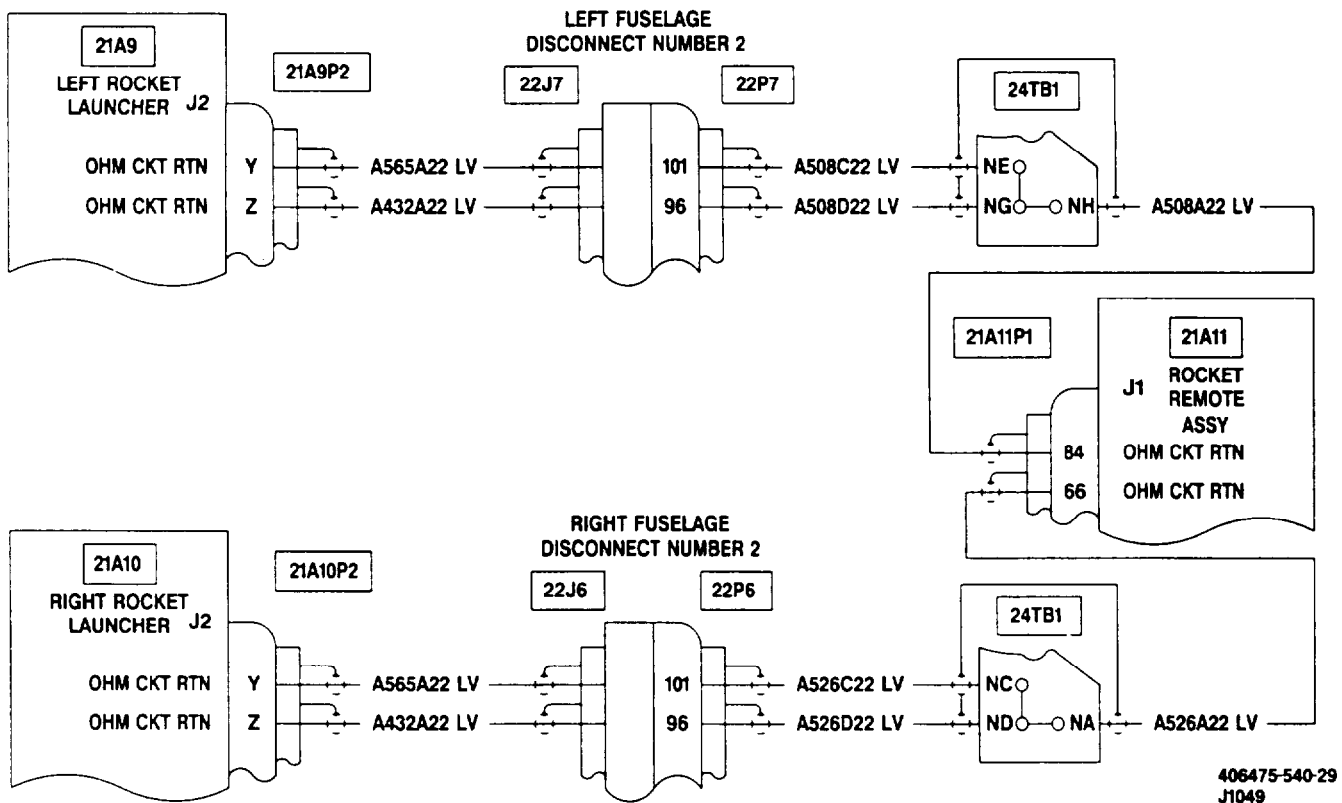
41. ROCKETS DISPLAY SAFED ON MFD WHEN SELECTED (TASK 16-1-5).



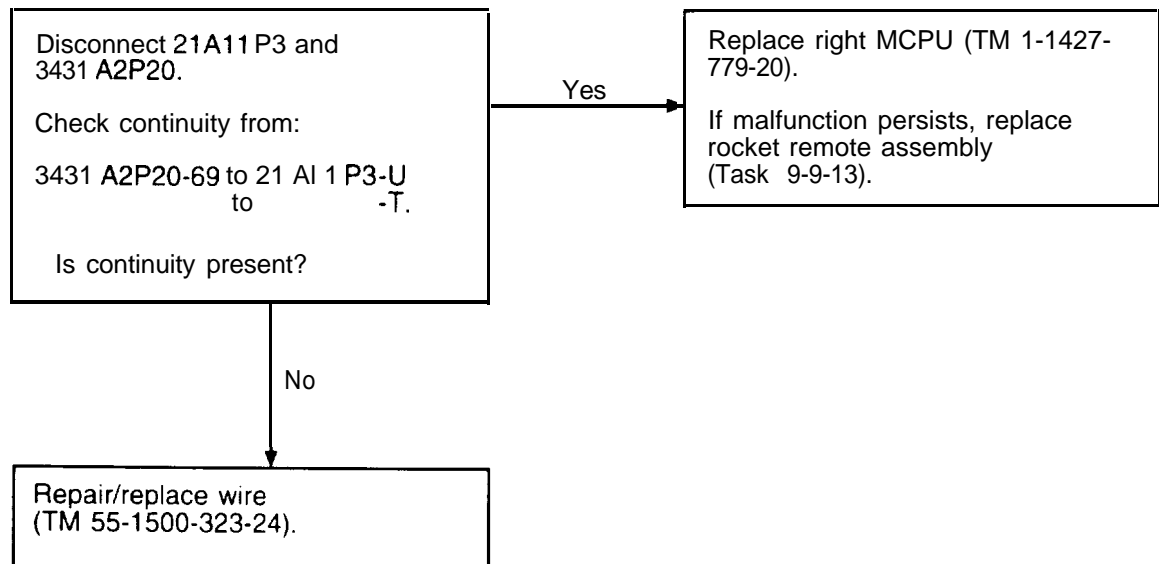
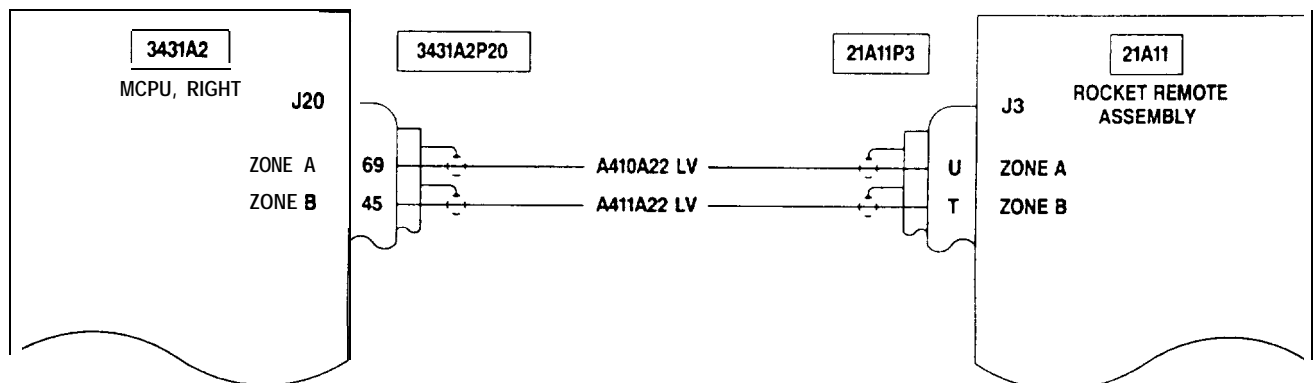
41. ROCKETS DISPLAY SAFED ON MFD WHEN SELECTED (TASK 16-1-5).


408475-540-28
J1049

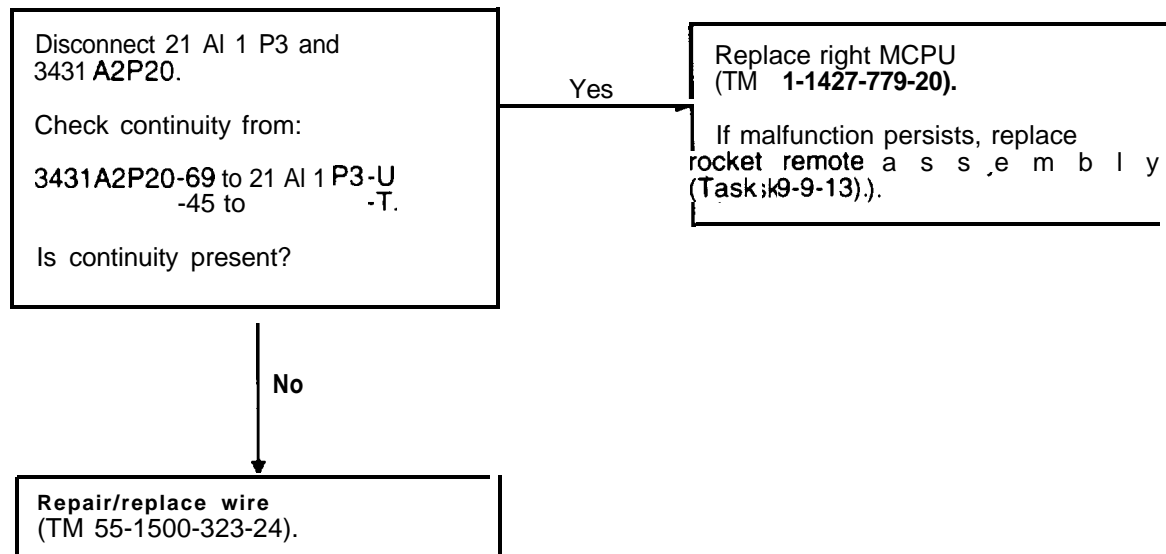
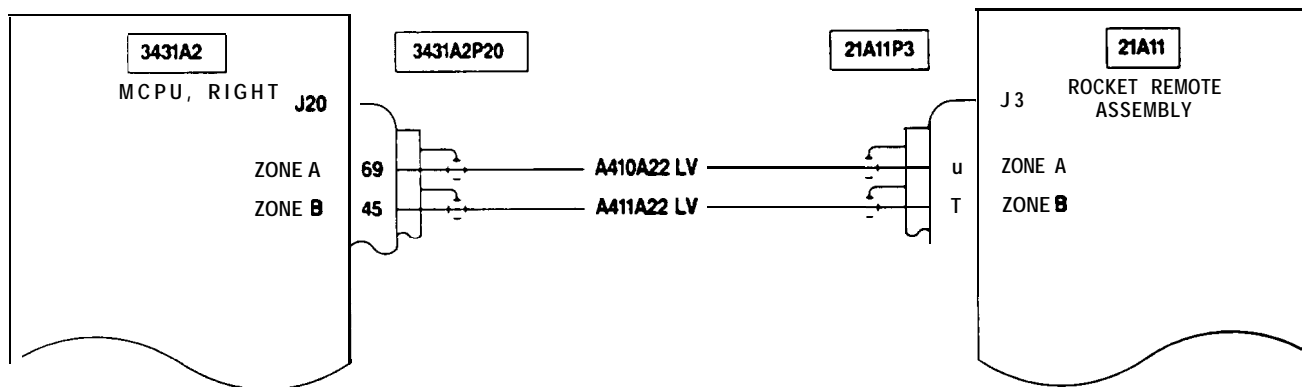
41. ROCKETS DISPLAY SAFED ON MFD WHEN SELECTED (TASK 16-1-5).



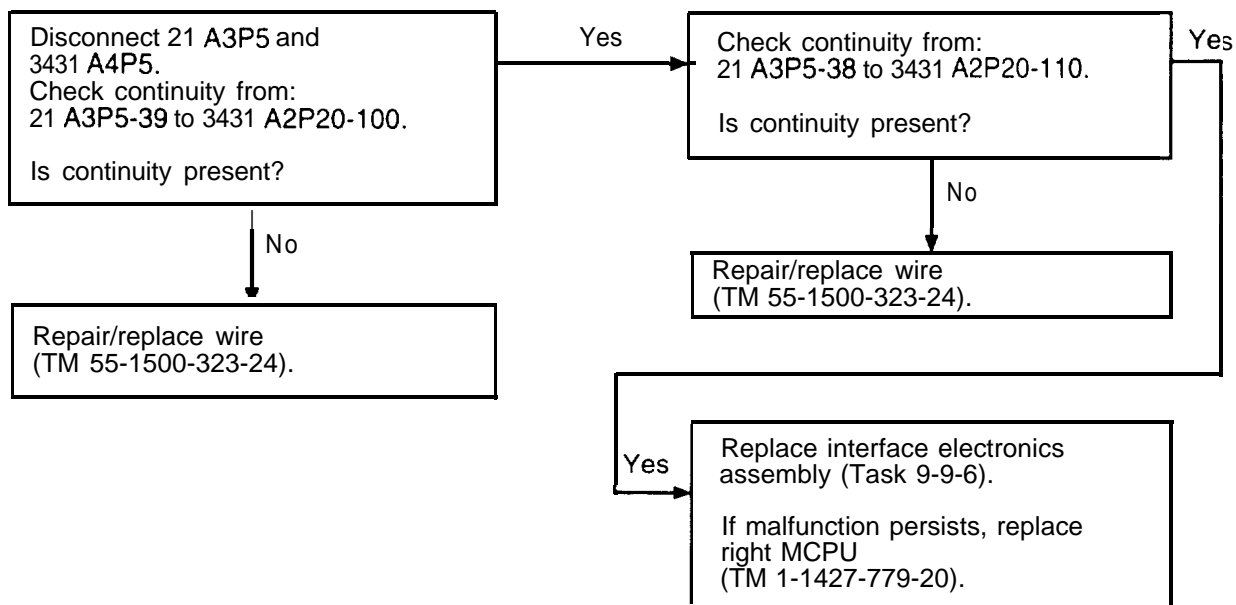
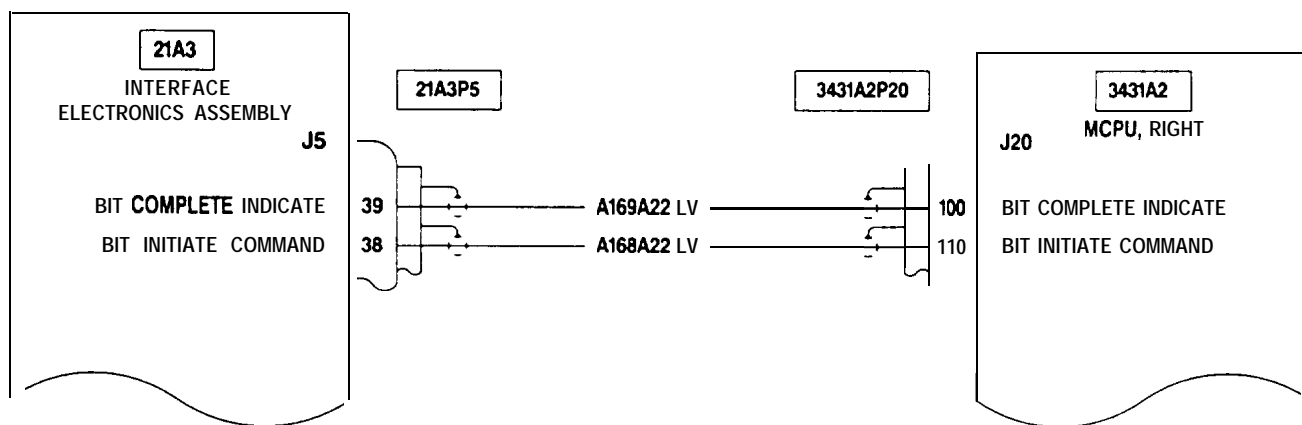
42. ROCKETS FIRE IN ZONES NOT SELECTED TO FIRE

TM55-248-N41
H3551406475-540-30
J1049

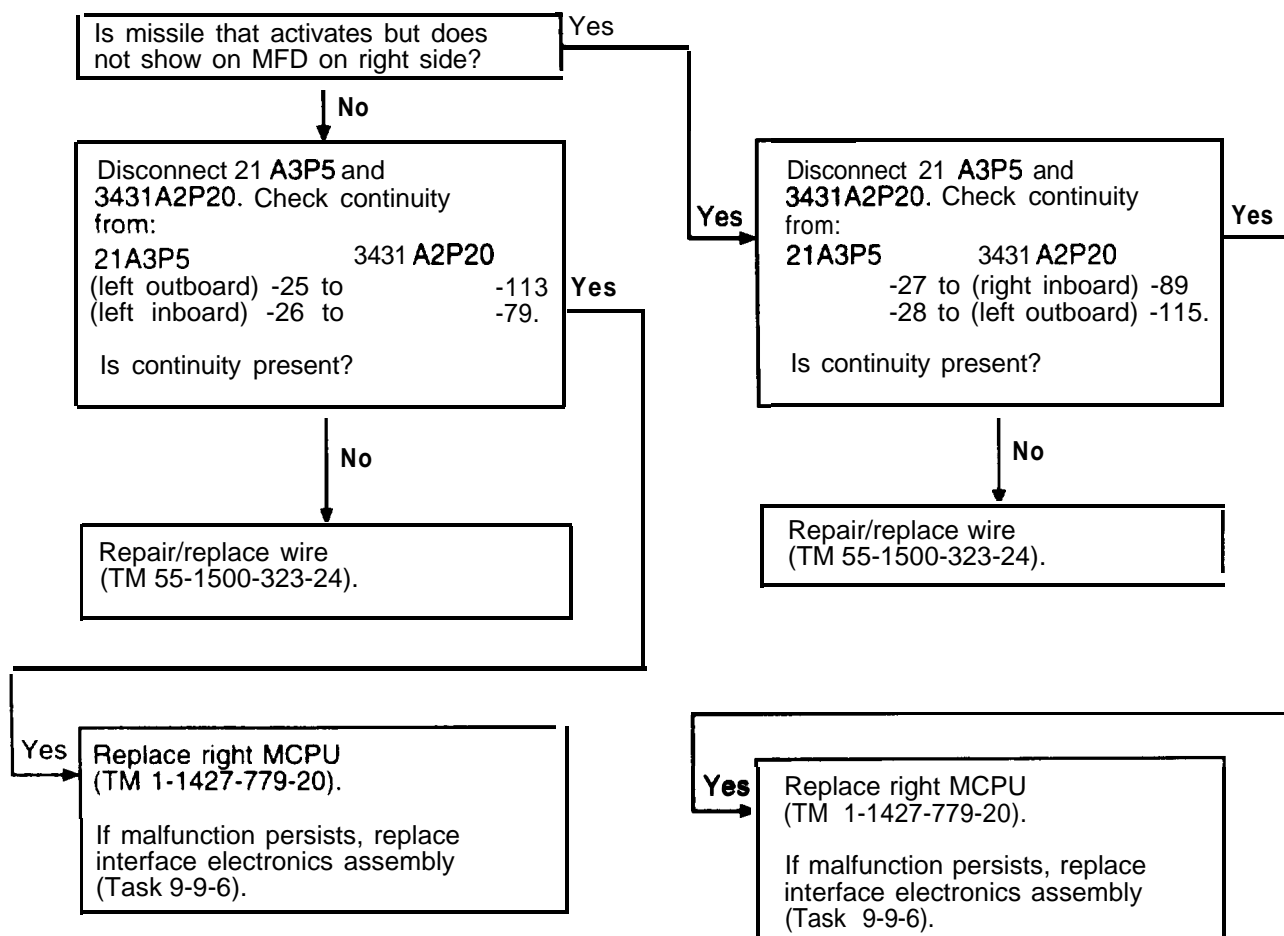
43. ROCKETS FIRE IN BOTH ZONES WHEN SINGLE IS SELECTED

TM55-248-N42
H3551408475-540-31
J1048

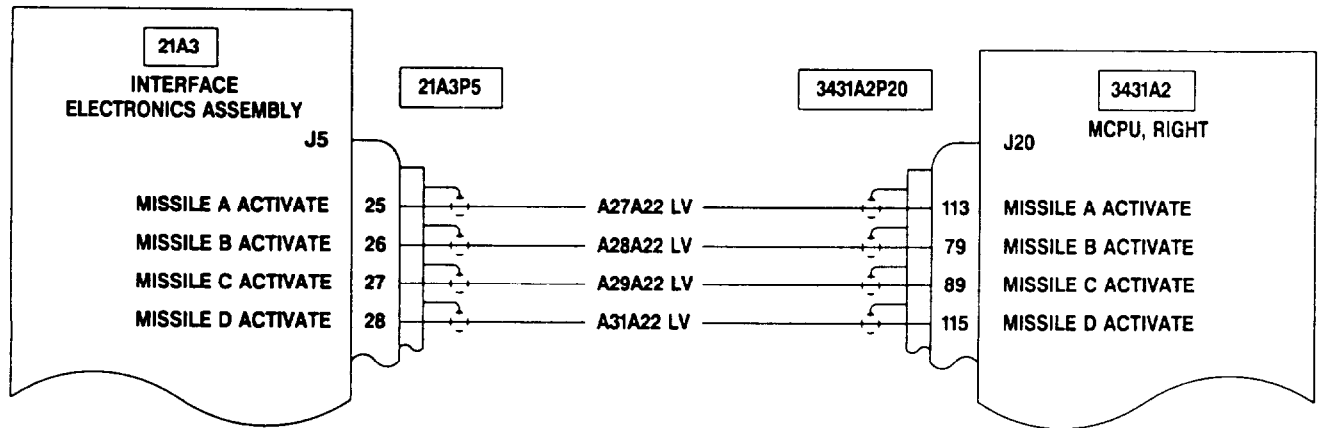
44. ATAS DOES NOT PASS BIT ON MFD

TM55-248-N46
H3551406475-540-32
J1049

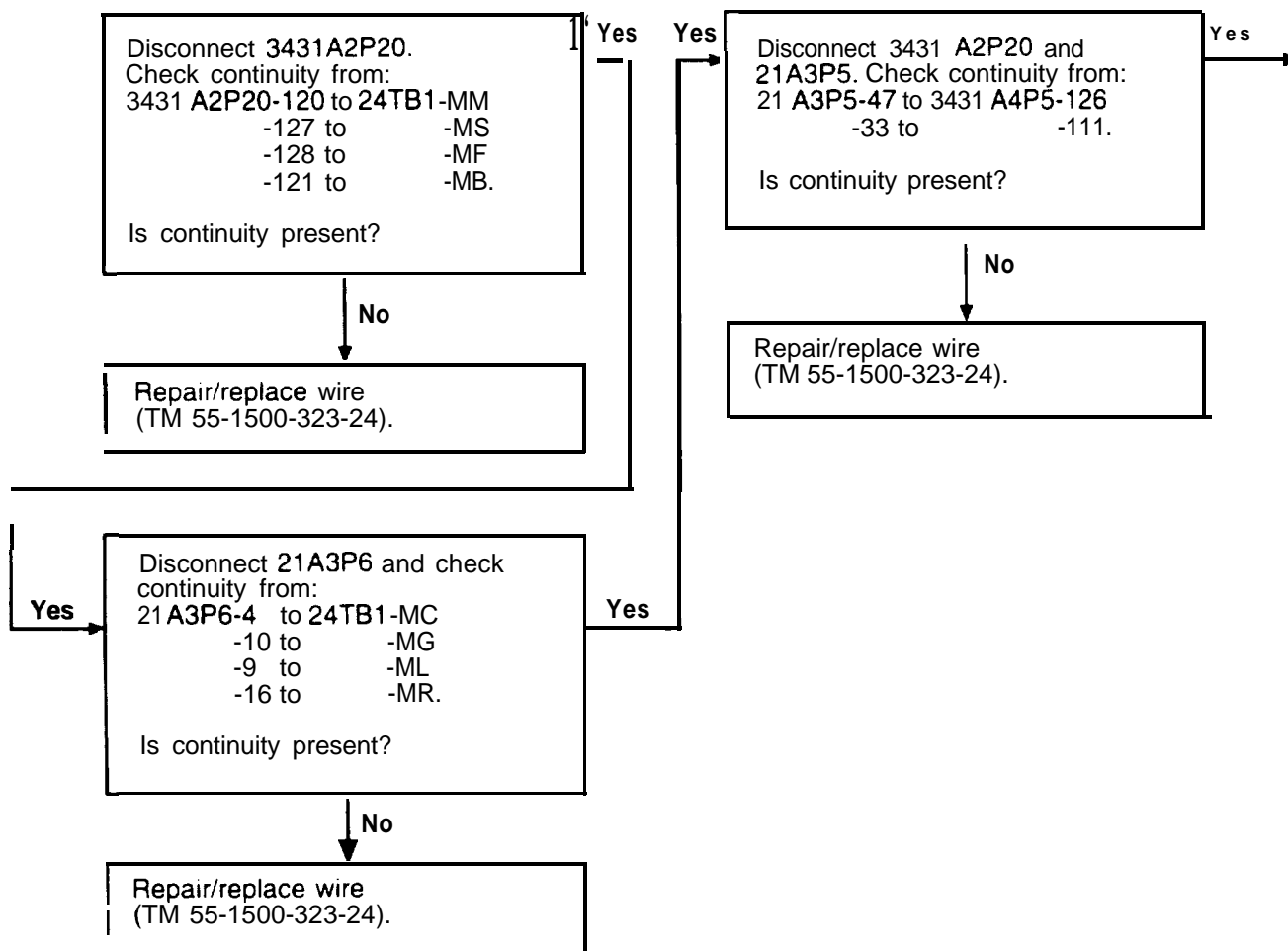
45. MISSILE ACTIVATES BUT IS NOT DISPLAYED ON MFD



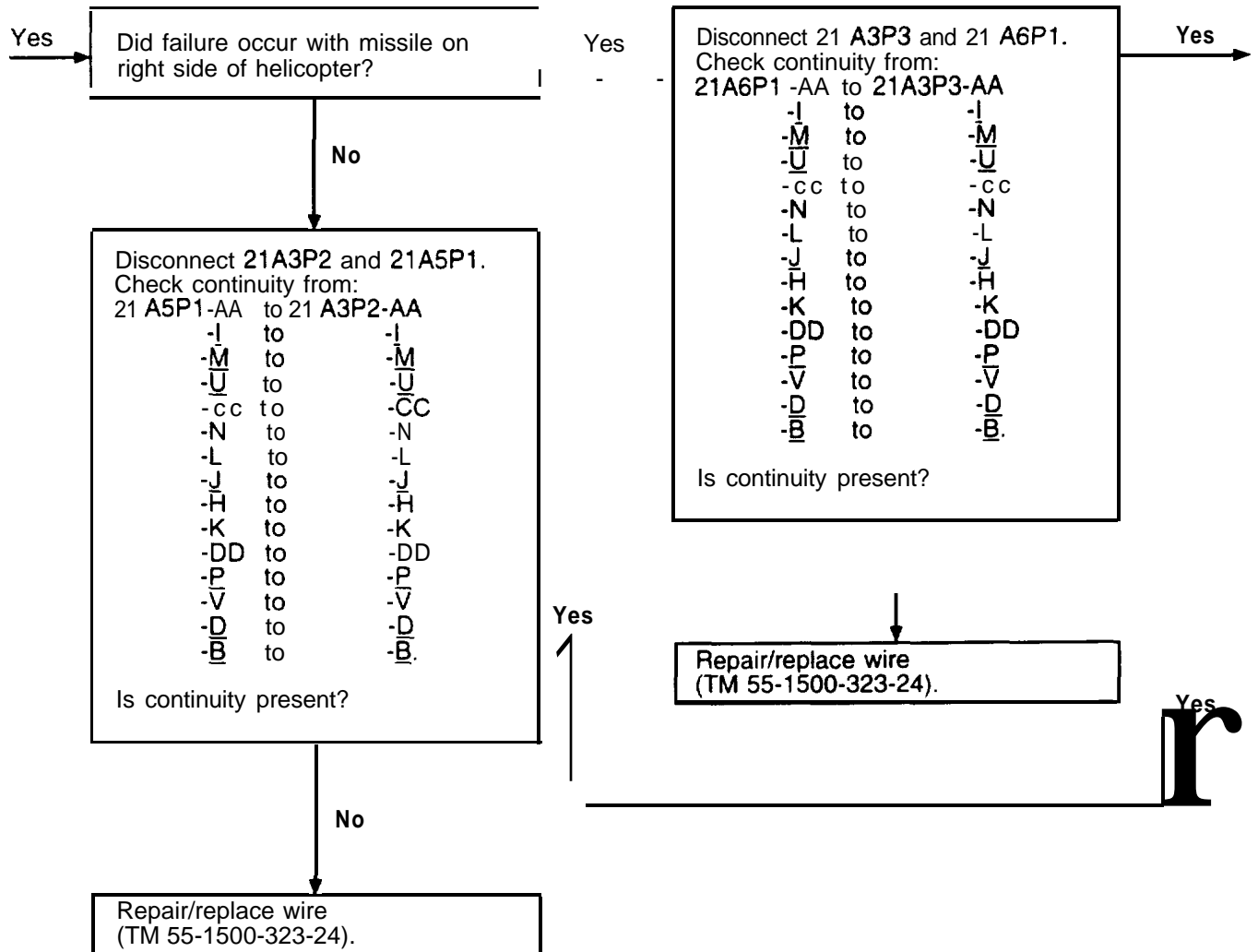
45. MISSILE ACTIVATES BUT IS NOT DISPLAYED ON MFD (TASK 16-1-2)

406475-540-33
J1049

46. ATAS TRACKING RETICLE ON MFD DOES NOT CORRESPOND TO TARGET/SEEKER MOVEMENT



46. ATAS TRACKING RETICLE ON MFD DOES NOT CORRESPOND TO TARGET/SEEKER MOVEMENT (CONT)



46. ATAS TRACKING RETICLE ON MFD DOES NOT CORRESPOND TO TARGET/SEEKER MOVEMENT (CONT)

Yes

Replace right failed missile (TM 9-1440-431-23).

If malfunction persists, replace interface electronics assembly (Task 9-9-6).

If malfunction persists, replace failed right launcher (Task 16-2-12).

If malfunction persists, replace sight electronics unit (Task 9-9-9).

Yes

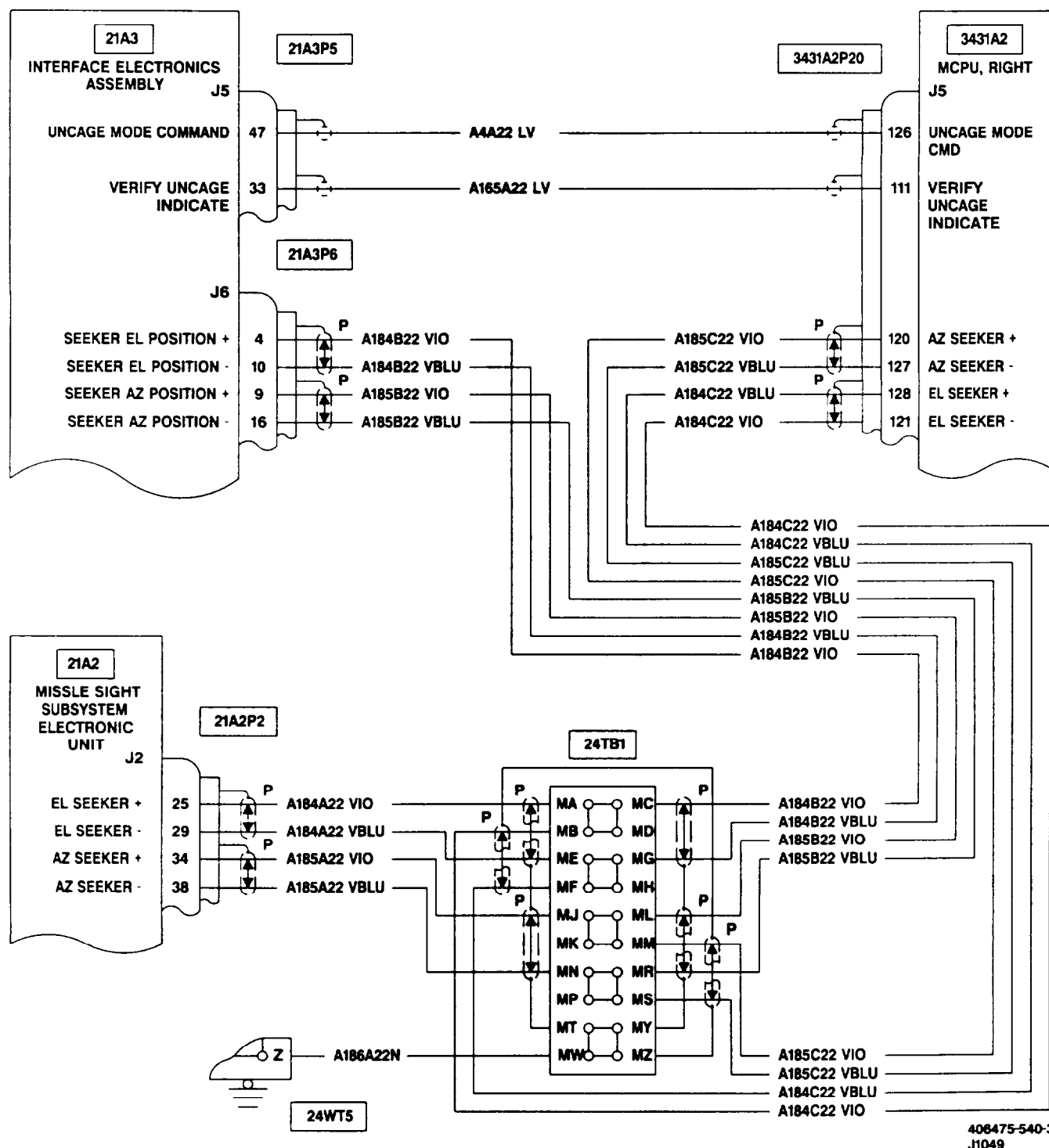
Replace left failed missile (TM 9-1440-431-23).

If malfunction persists, replace interface electronics assembly (Task 9-9-6).

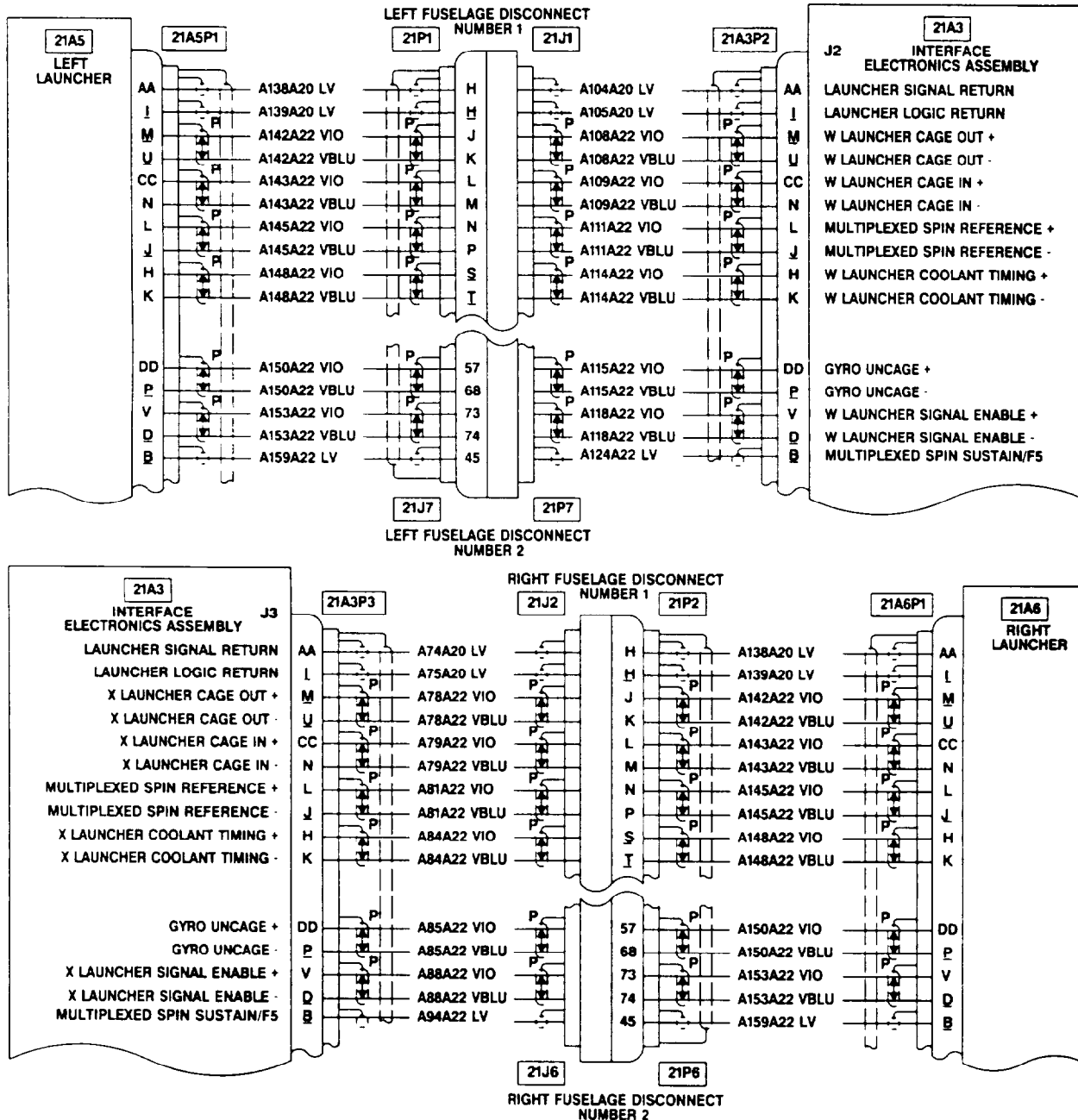
If malfunction persists, replace failed left launcher (Task 16-2-12).

If malfunction persists, replace sight electronics unit (Task 9-9-9).

46. ATAS TRACKING RETICLE ON MFD DOES NOT CORRESPOND TO TARGET/SEEKER MOVEMENT (TASK 16-1-2).

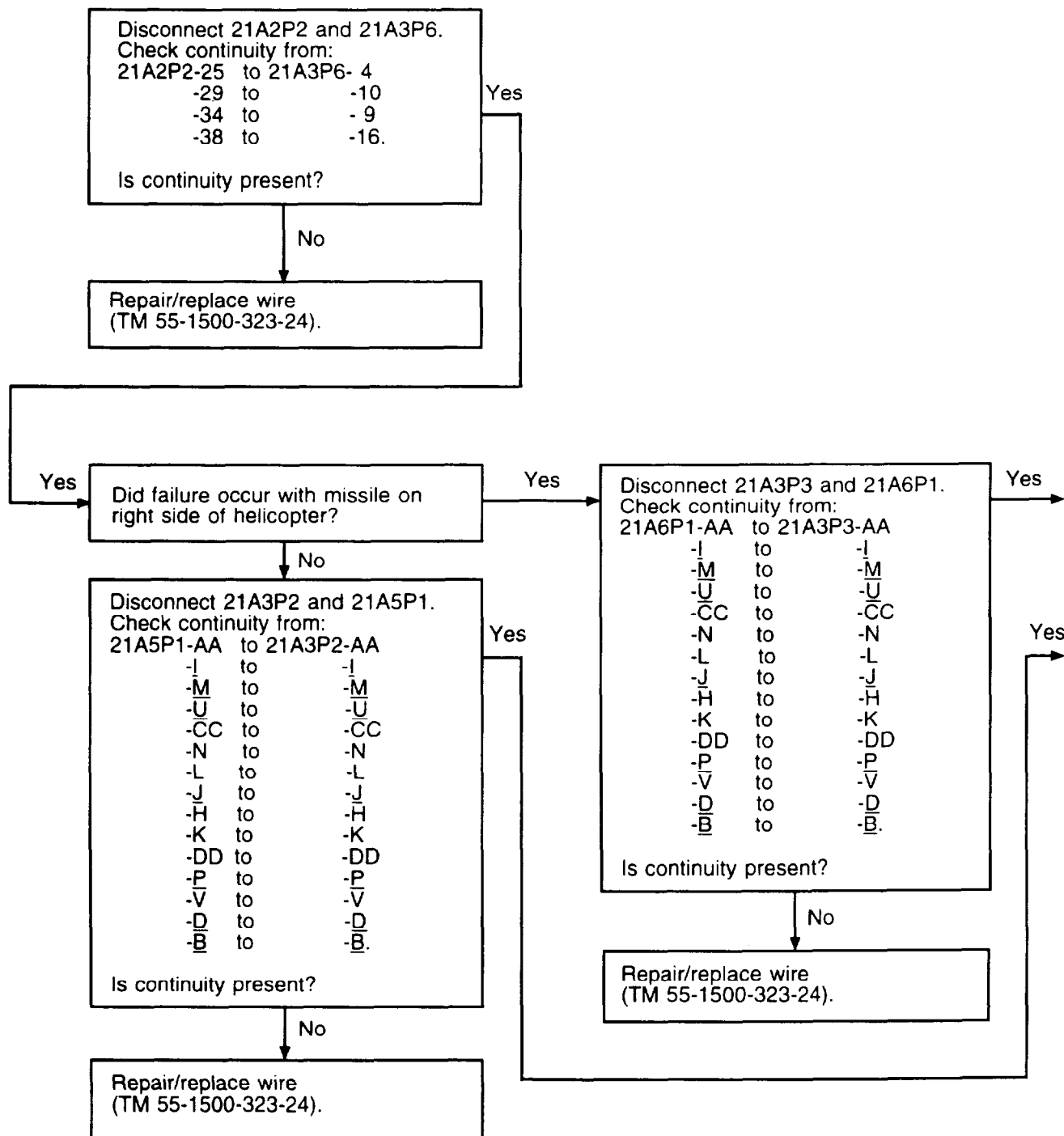


46. ATAS TRACKING RETICLE ON MFD DOES NOT CORRESPOND TO TARGET/SEEKER MOVEMENT (TASK 16-1-2).



406475-540-35
J1047

47. ATAS TRACKING RETICLE ON PDU DOES NOT CORRESPOND TO TARGET/SEEKER MOVEMENT



47. ATAS TRACKING RETICLE ON PDU DOES NOT CORRESPOND TO TARGET/SEEKER
MOVEMENT (CONT)

Yes

Replace right failed missile
(TM 9-1440-431-23).

If malfunction persists, replace
failed right launcher
(Task 16-2-12).

If malfunction persists, replace
interface electronics assembly
(Task 9-9-6).

If malfunction persists, replace
missile sight subsystem electronic
unit (Task 9-9-9).

Yes

Yes

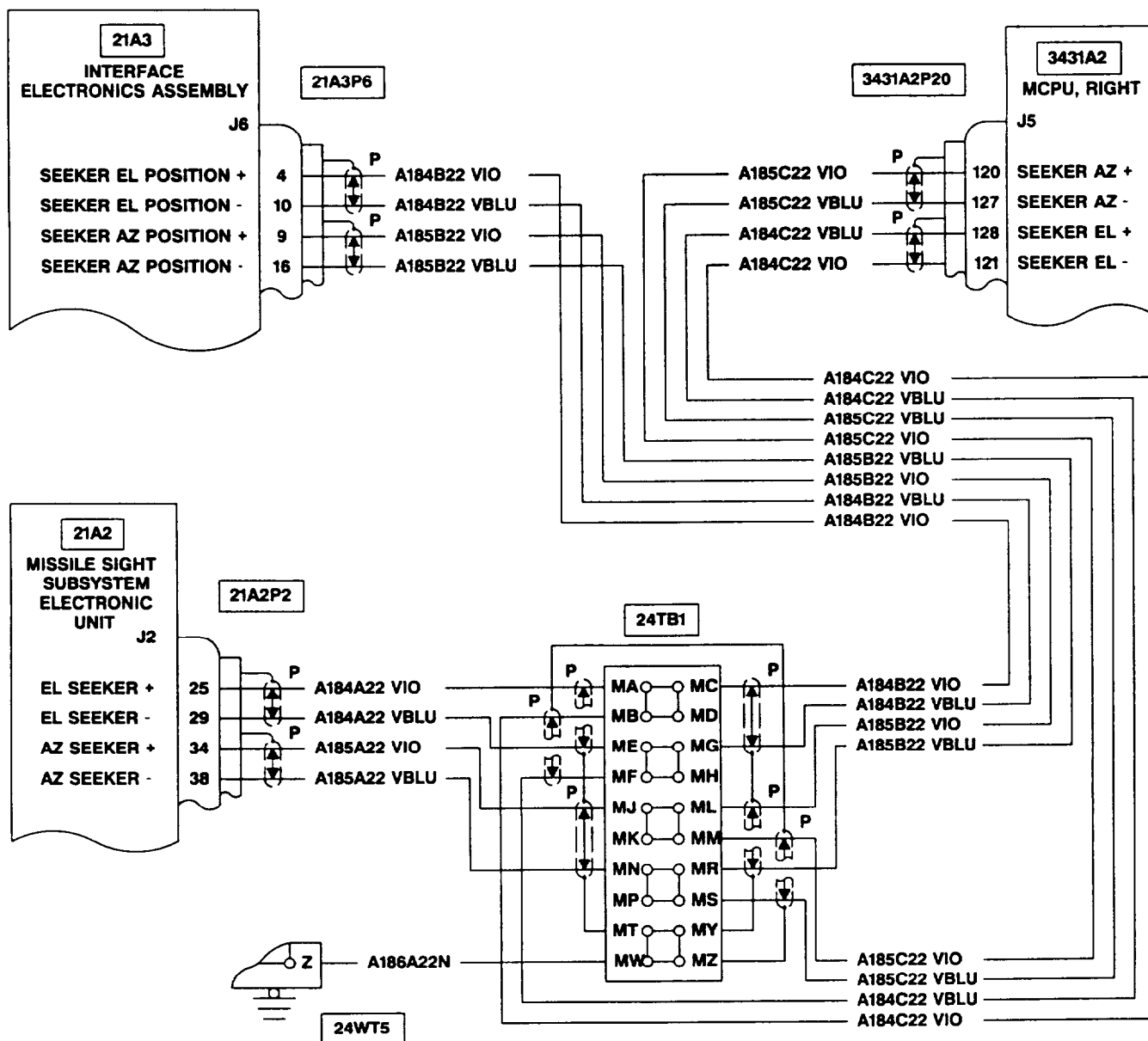
Replace left failed missile
(TM 9-1440-431-23).

If malfunction persists, replace
failed left launcher (Task 16-2-12).

If malfunction persists, replace
interface electronics assembly
(Task 9-9-6).

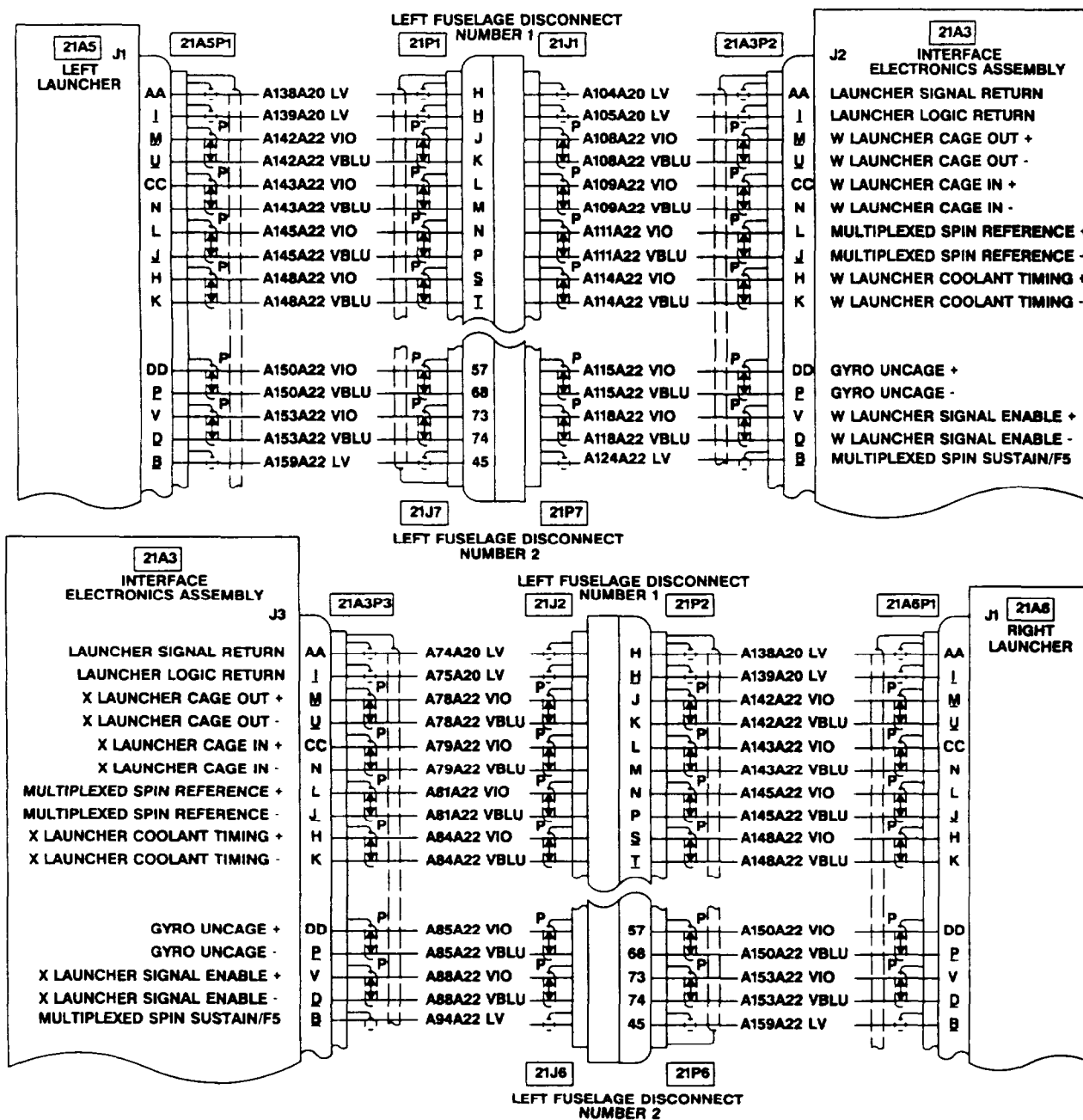
If malfunction persists, replace
missile sight subsystem electronic
unit (Task 9-9-9).

47. ATAS TRACKING RETICLE ON PDU DOES NOT CORRESPOND TO TARGET/SEEKER MOVEMENT (TASK 16-1-2).



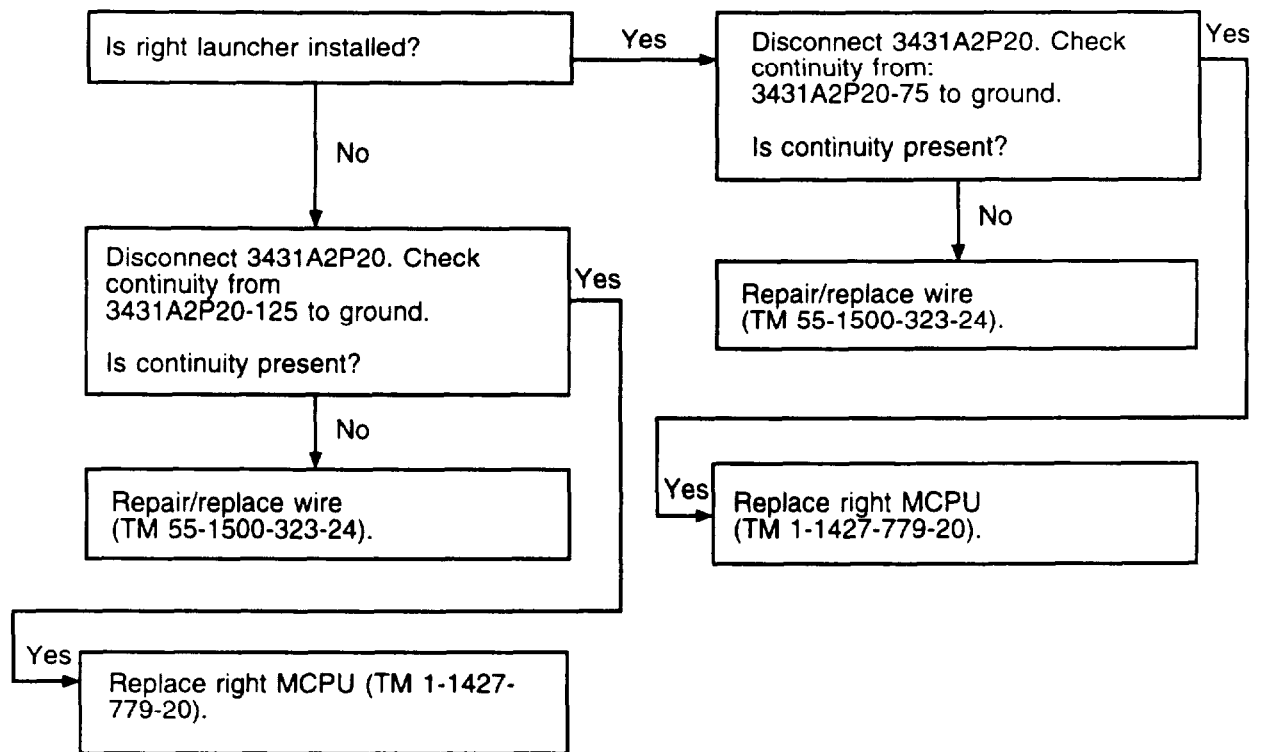
406475-540-36
 J1049

47. ATAS TRACKING RETICLE ON PDU DOES NOT CORRESPOND TO TARGET/SEEKER MOVEMENT (TASK 16-1-2).

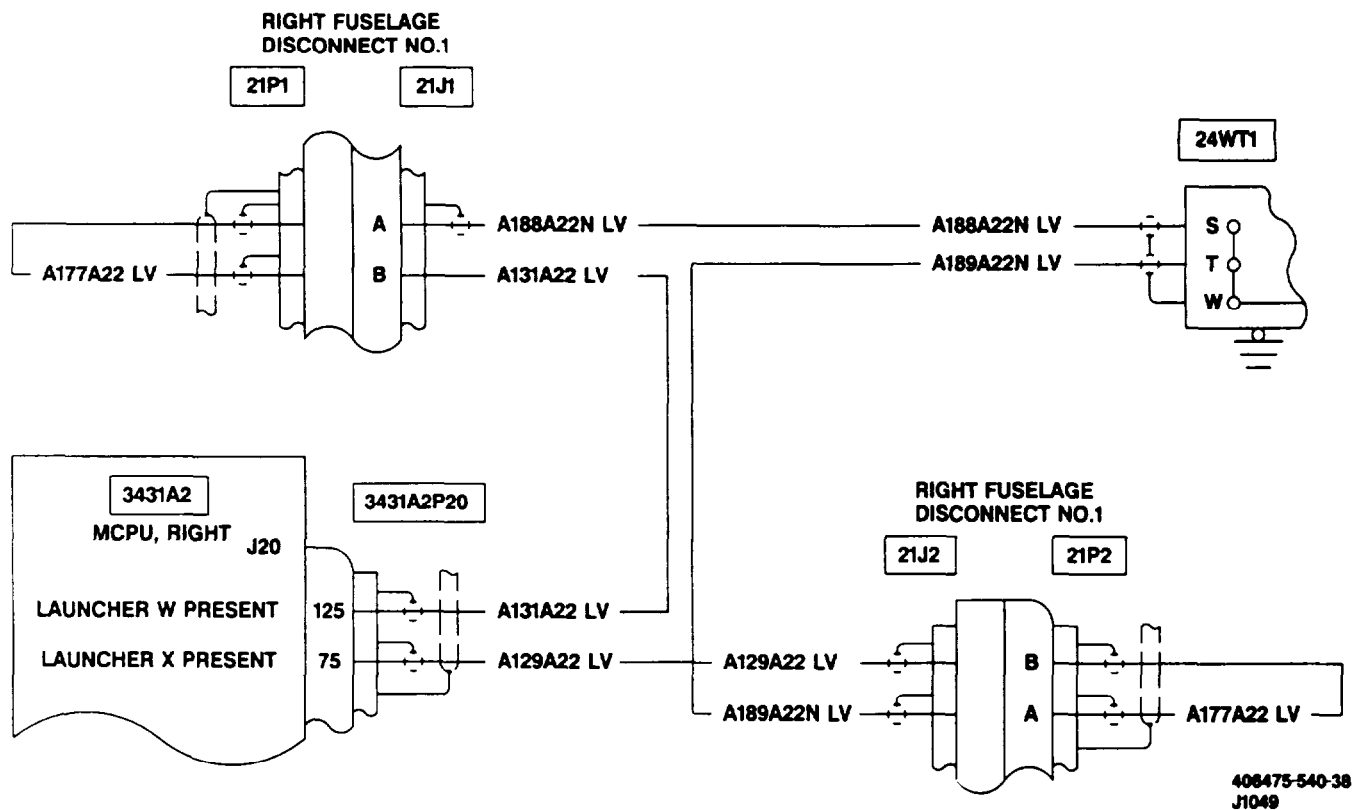


406475-540-37
J1049

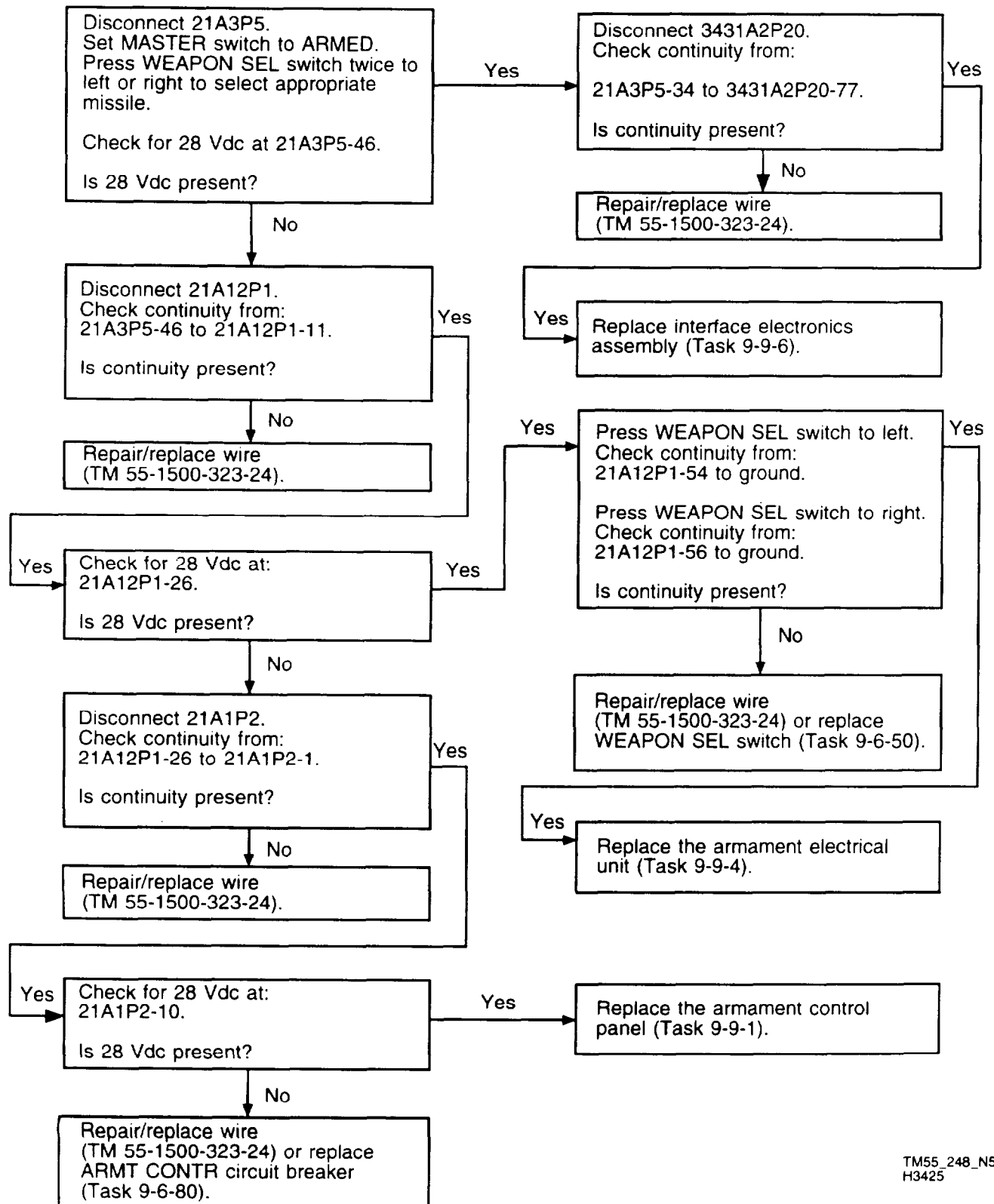
48. MFD DOES NOT INDICATE ATAS IS INSTALLED



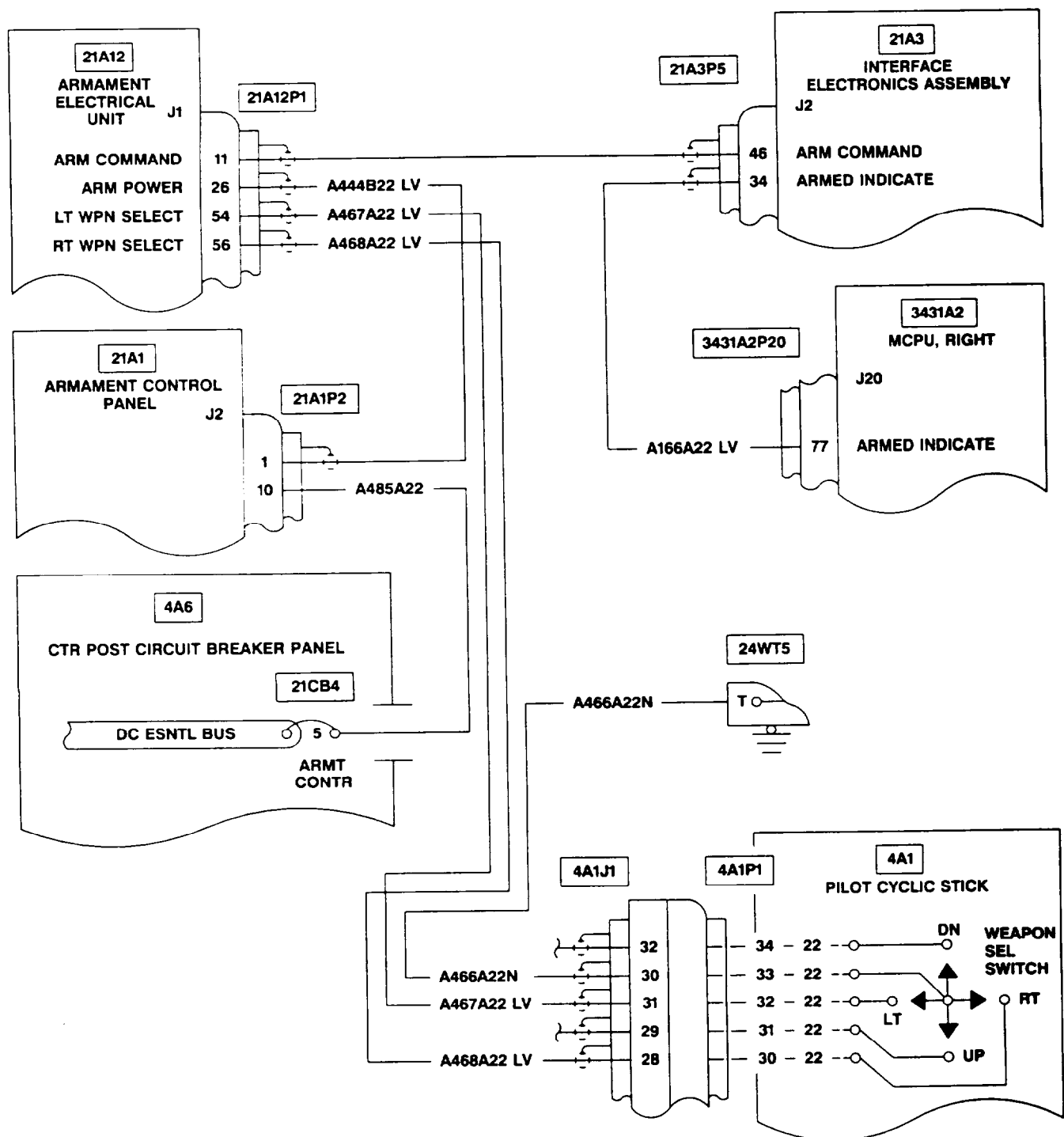
48. MFD DOES NOT INDICATE ATAS IS INSTALLED (TASK 16-1-2).



49. ATAS SAFED IS DISPLAYED ON MFD WHEN SELECTED AND ARMED

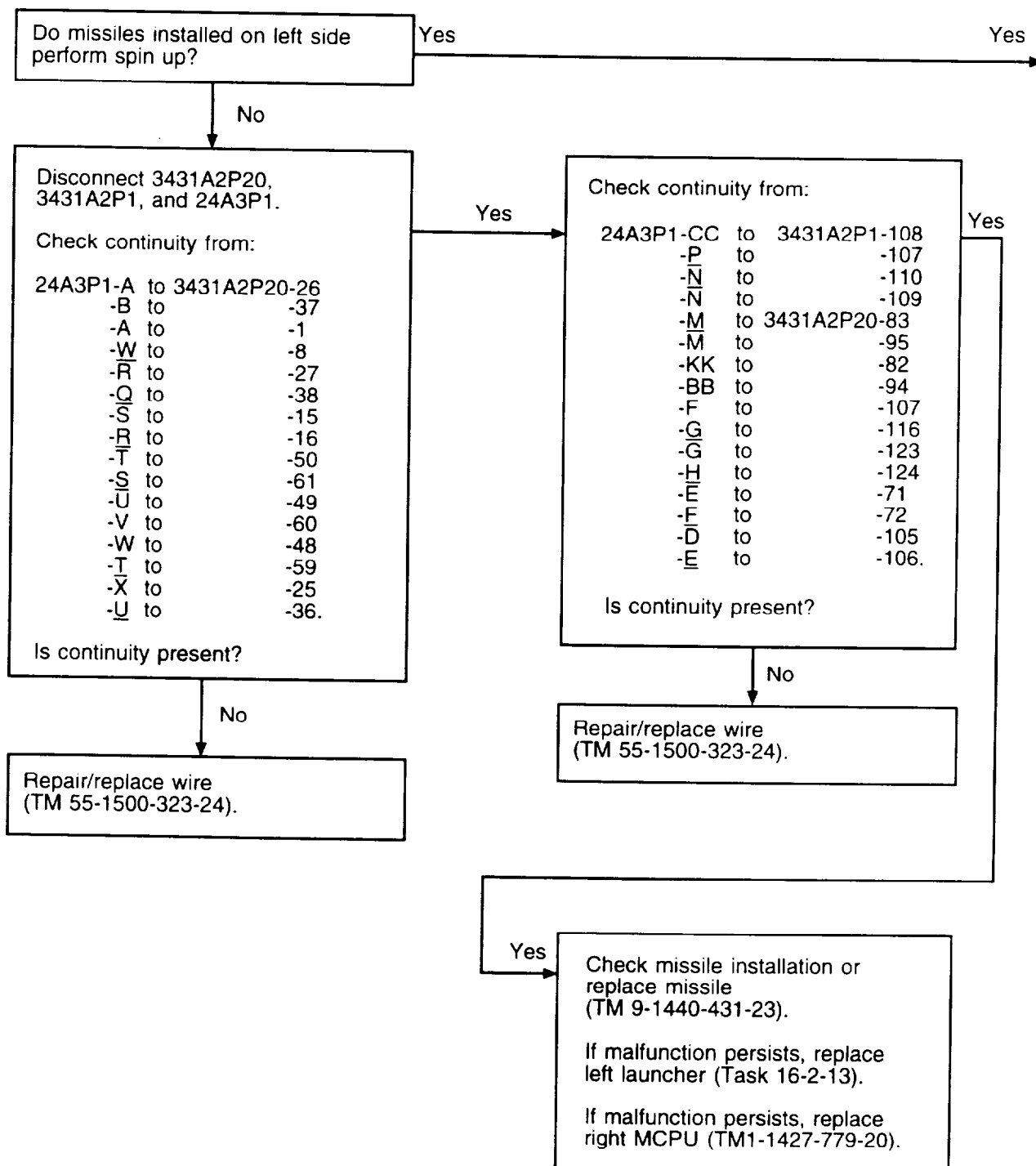
TM55_248_N54
H3425

49. ATAS SAFED IS DISPLAYED ON MFD WHEN SELECTED AND ARMED (TASK 16-1-2).

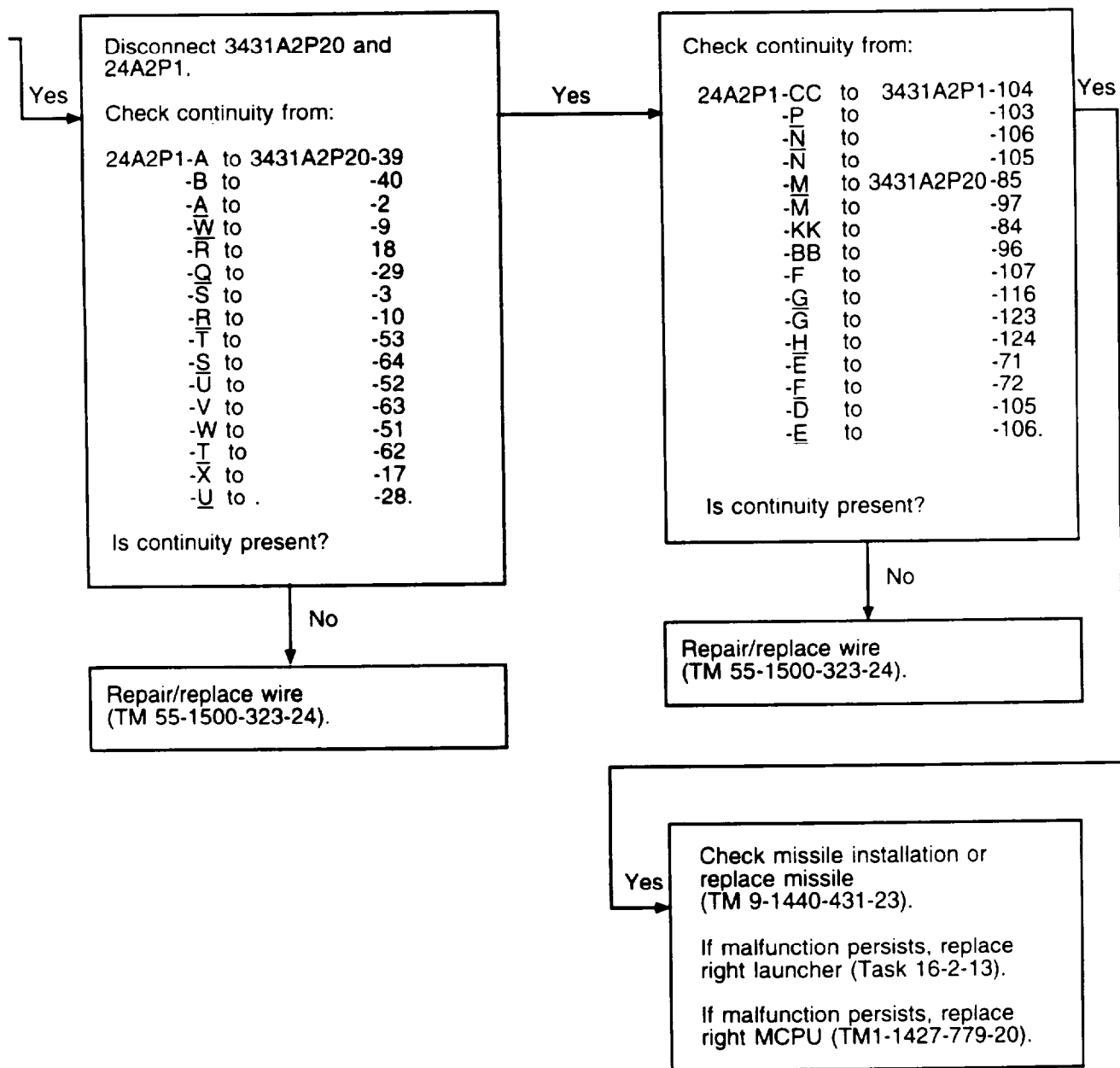


408475-540-38
J1049

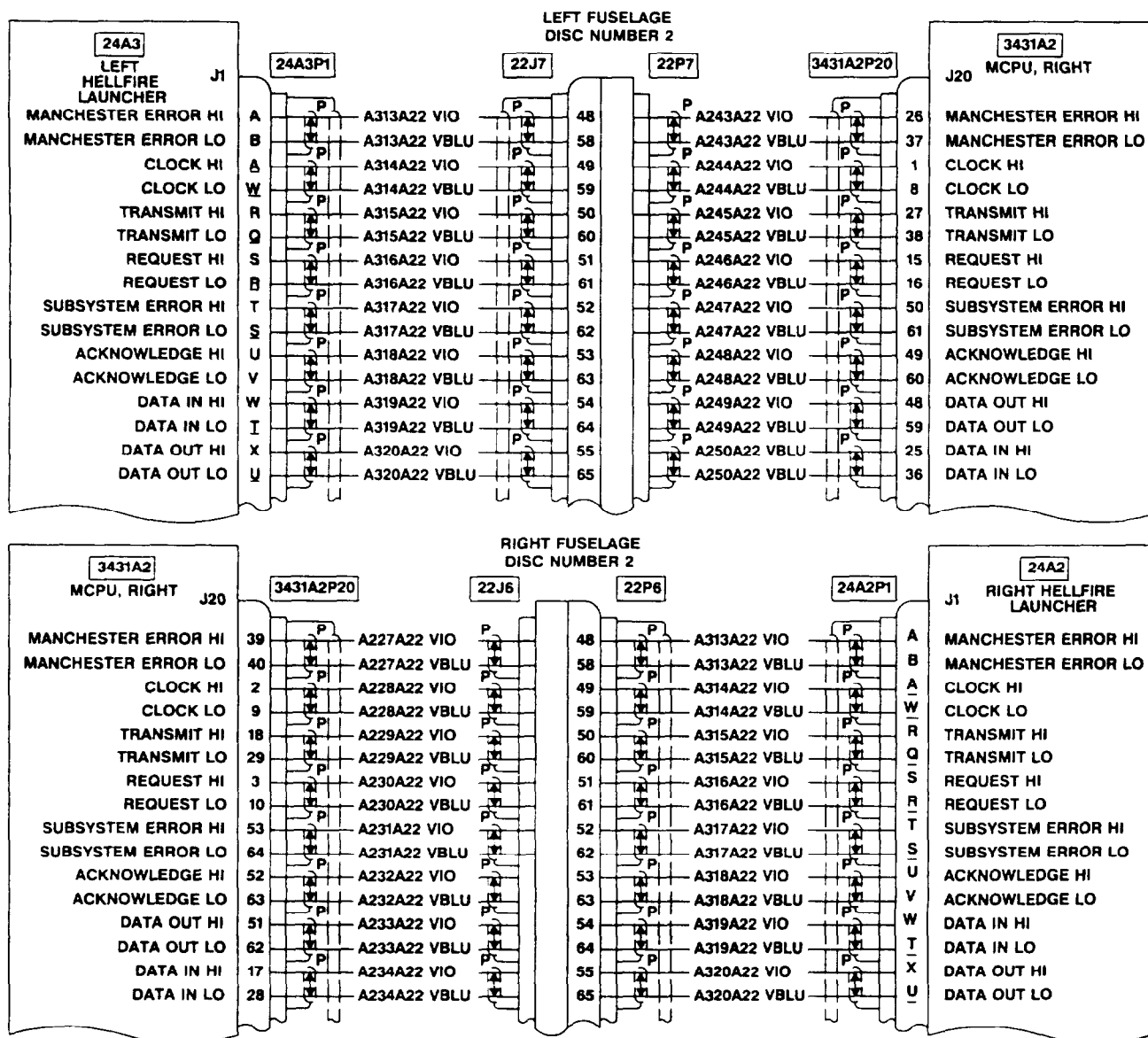
50. HELLFIRE MISSILE DOES NOT SPIN UP

TM55_248_N56_1
H5073

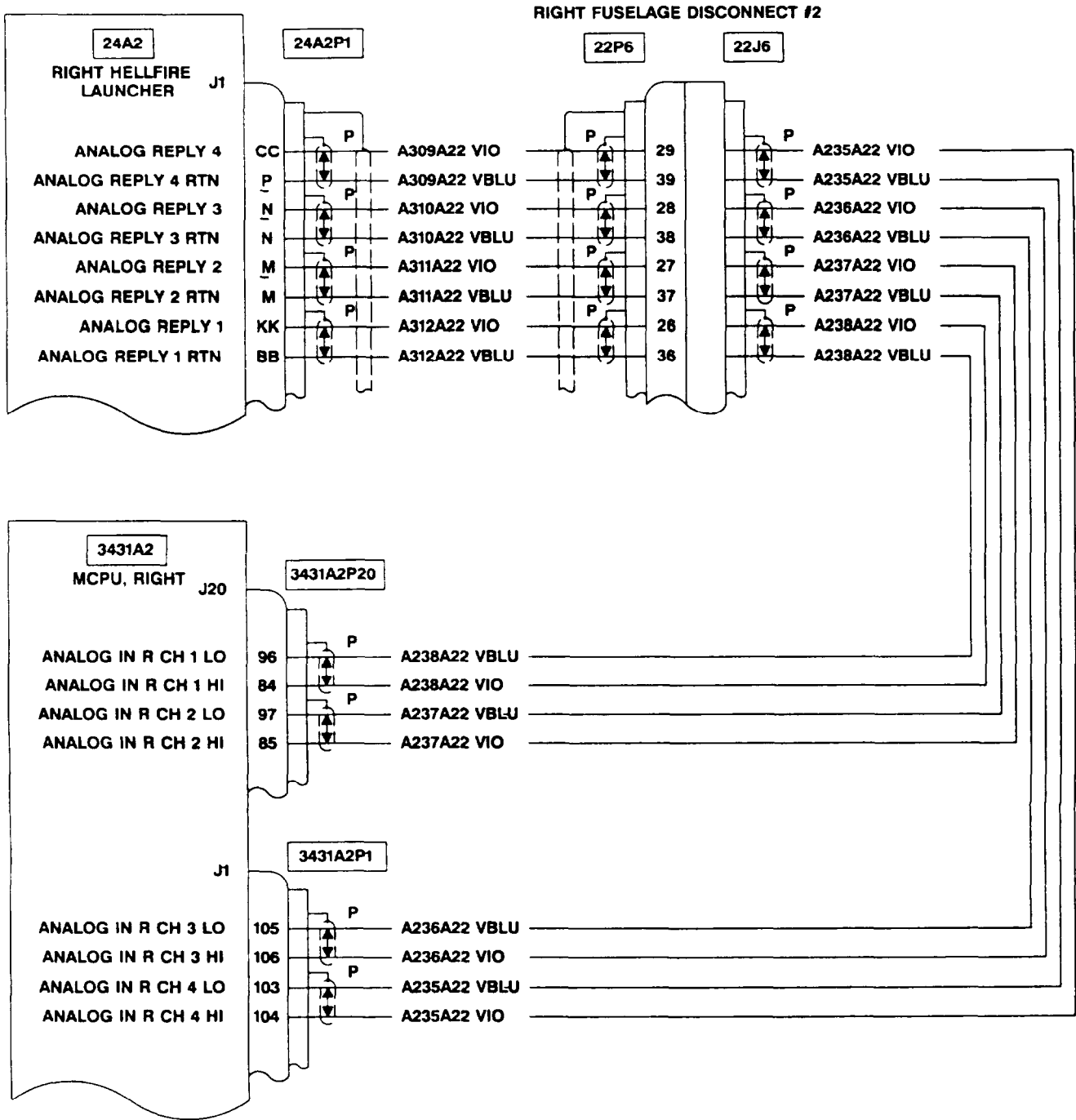
50. HELLFIRE MISSILE DOES NOT SPIN UP (CONT)



50. HELLFIRE MISSILE DOES NOT SPIN UP (TASK 16-1-4).

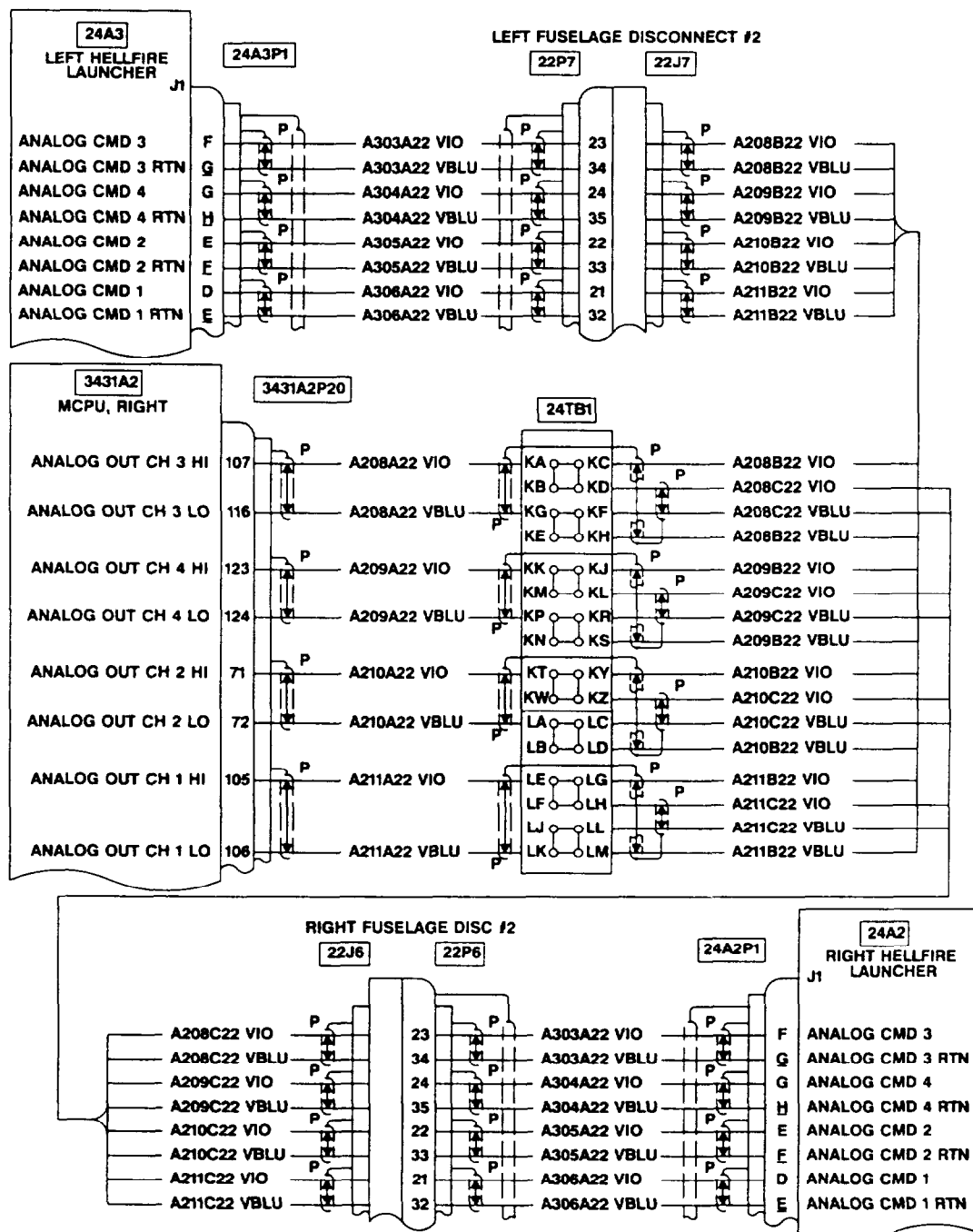
406475-540-40
J1049

50. HELLFIRE MISSILE DOES NOT SPIN UP (TASK 16-1-4).

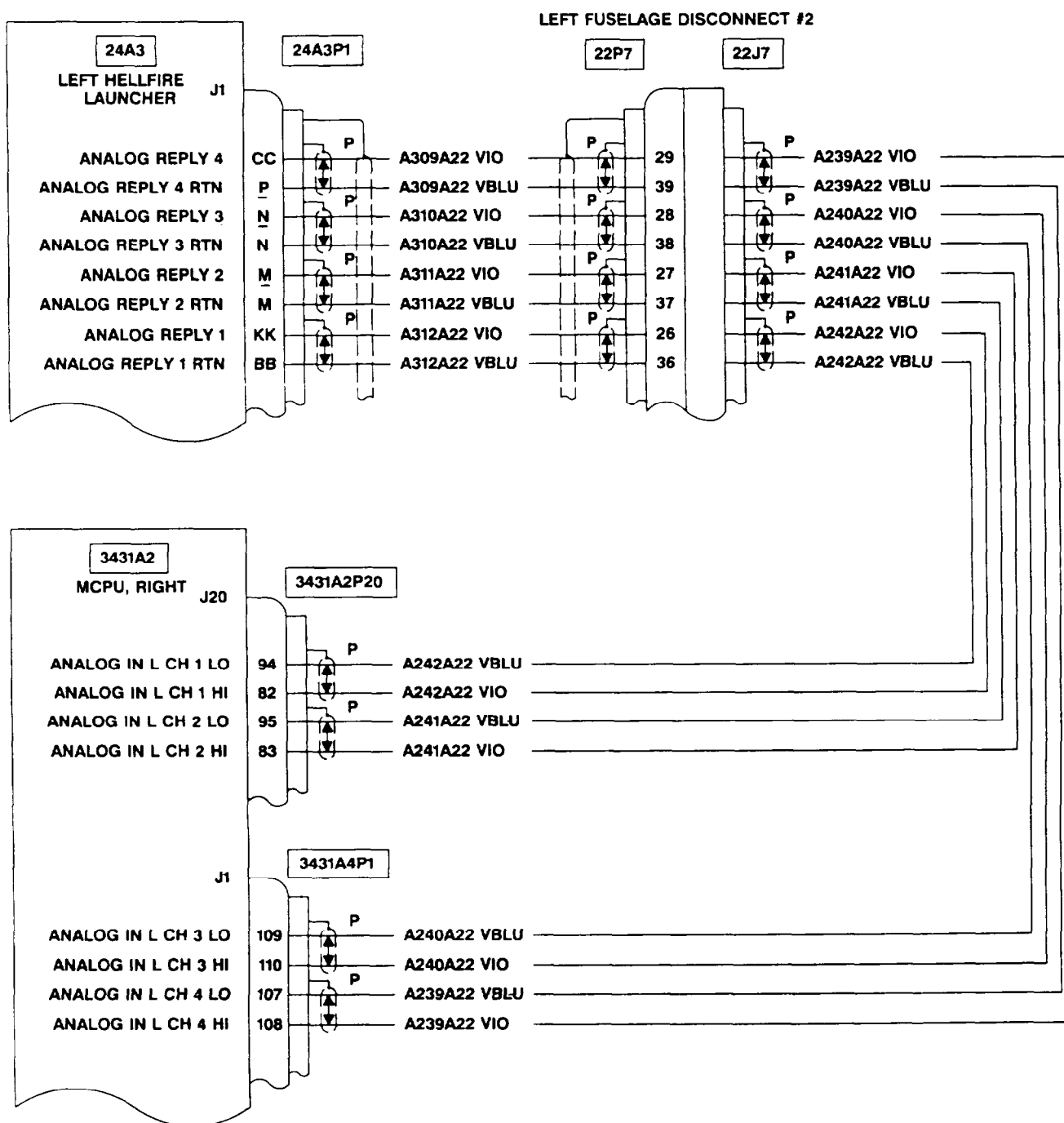


408475-540-41
J1049

50. HELLFIRE MISSILE DOES NOT SPIN UP (TASK 16-1-4).

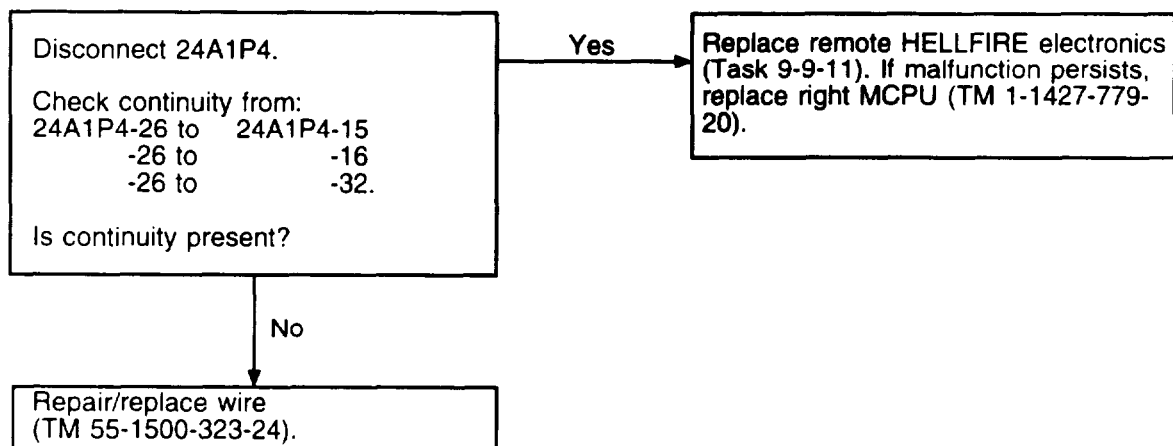
406475-540-42
J1049

50. HELLFIRE MISSILE DOES NOT SPIN UP (TASK 16-1-4).

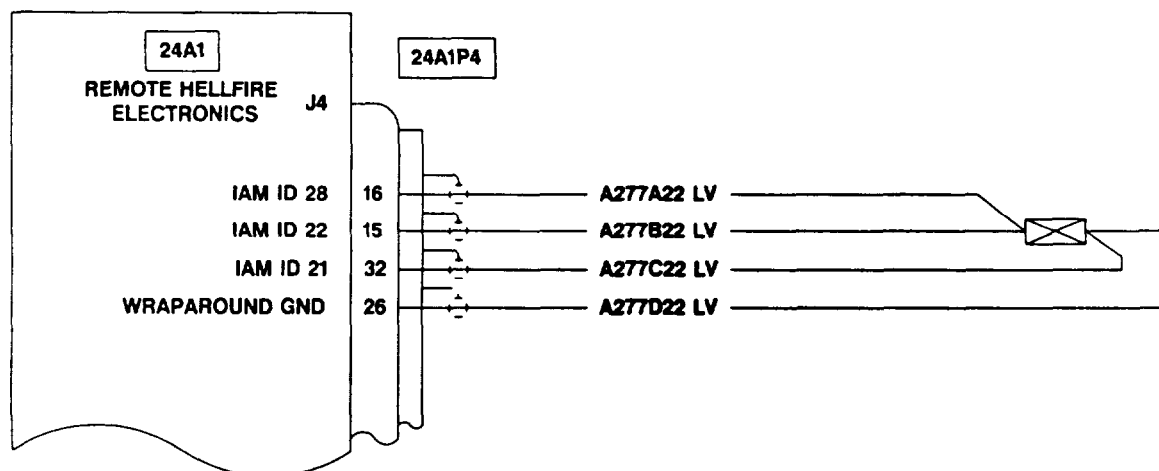


406475-540-43
J1049

51. HELLFIRE MISSILES INSTALLED AND SELECTED (ON), BUT MISSILE IMAGES NOT DISPLAYED ON MFD AND BIT CANNOT BE INITIATED

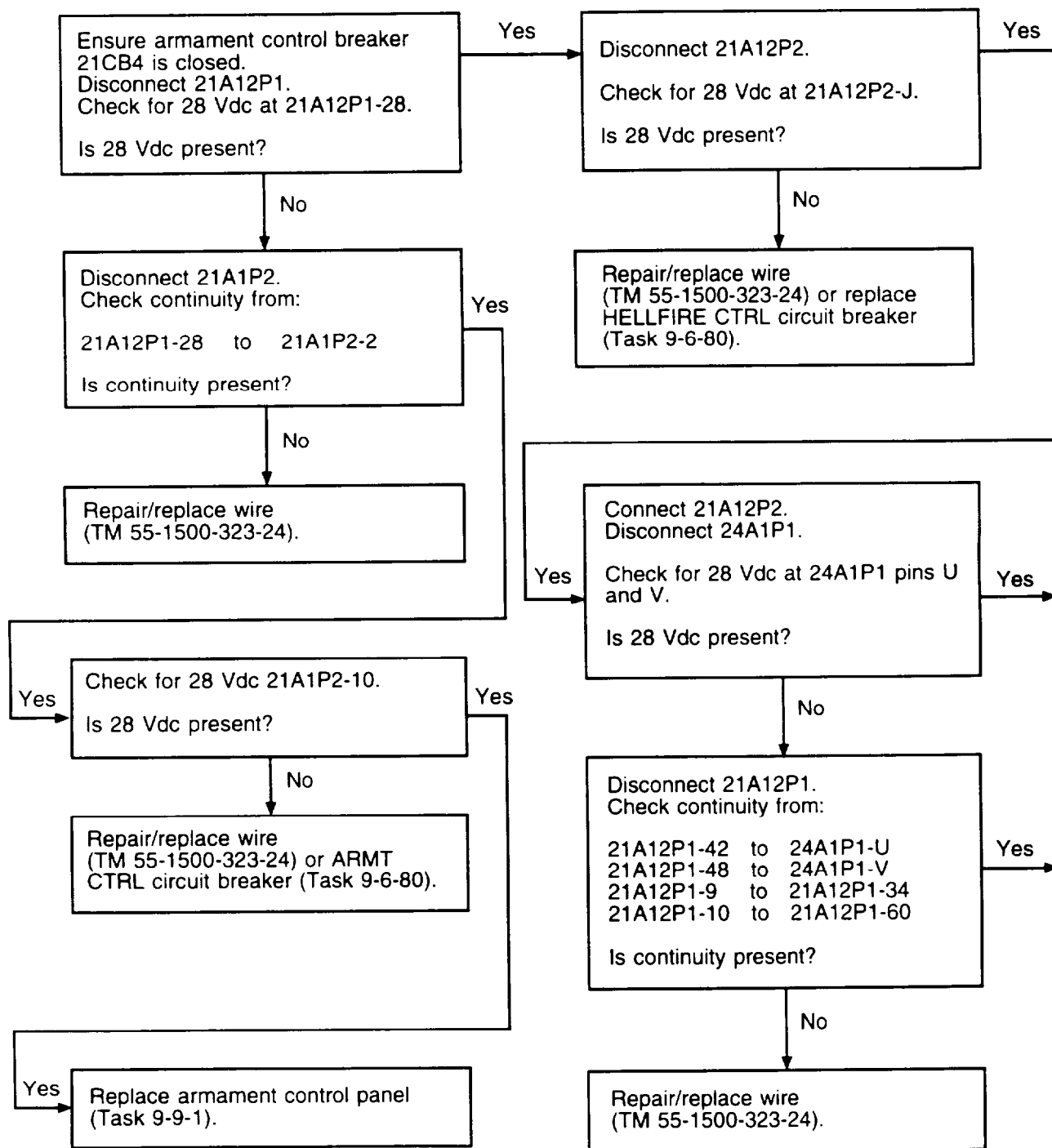


TM55-248-N57
H3551



408475-540-44
J1049

52. HELLFIRE BIT IS NOT DISPLAYED ON WEAPONS BIT/SETUP PAGE AND INCORRECT SYMBOLOGY IS DISPLAYED ON VSD PAGE



TM55-248-N58-1
H4218

52. HELLFIRE BIT IS NOT DISPLAYED ON WEAPONS BIT/SETUP PAGE AND INCORRECT SYMBOLOGY IS DISPLAYED ON VSD PAGE (CONT)

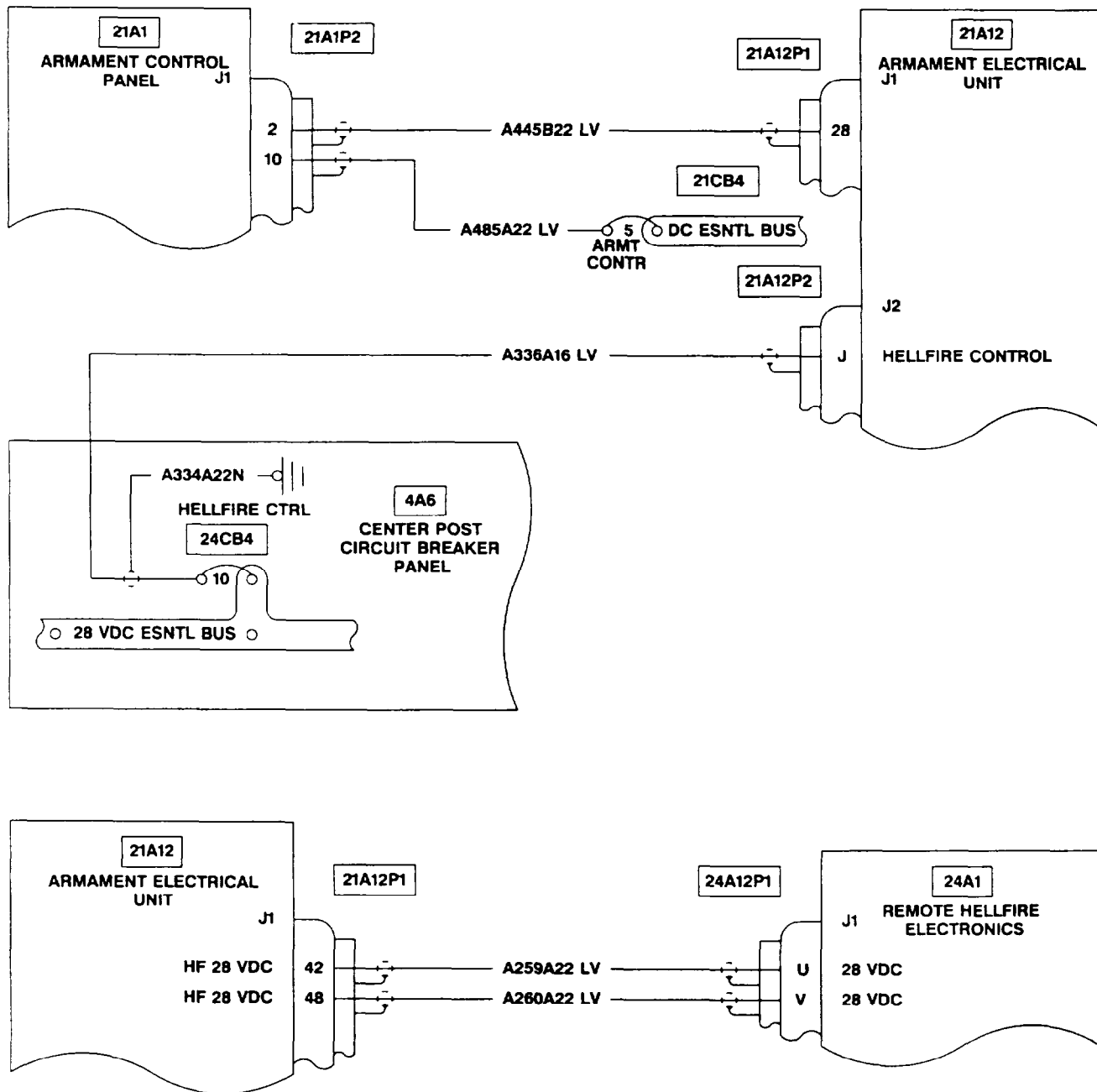
Yes

Replace remote HELLFIRE electronics (Task 9-9-11).
If malfunction persists, replace right MCPU (TM 1-1427-779-20).
If malfunction persists, replace armament electrical unit (Task 9-9-4).

Yes

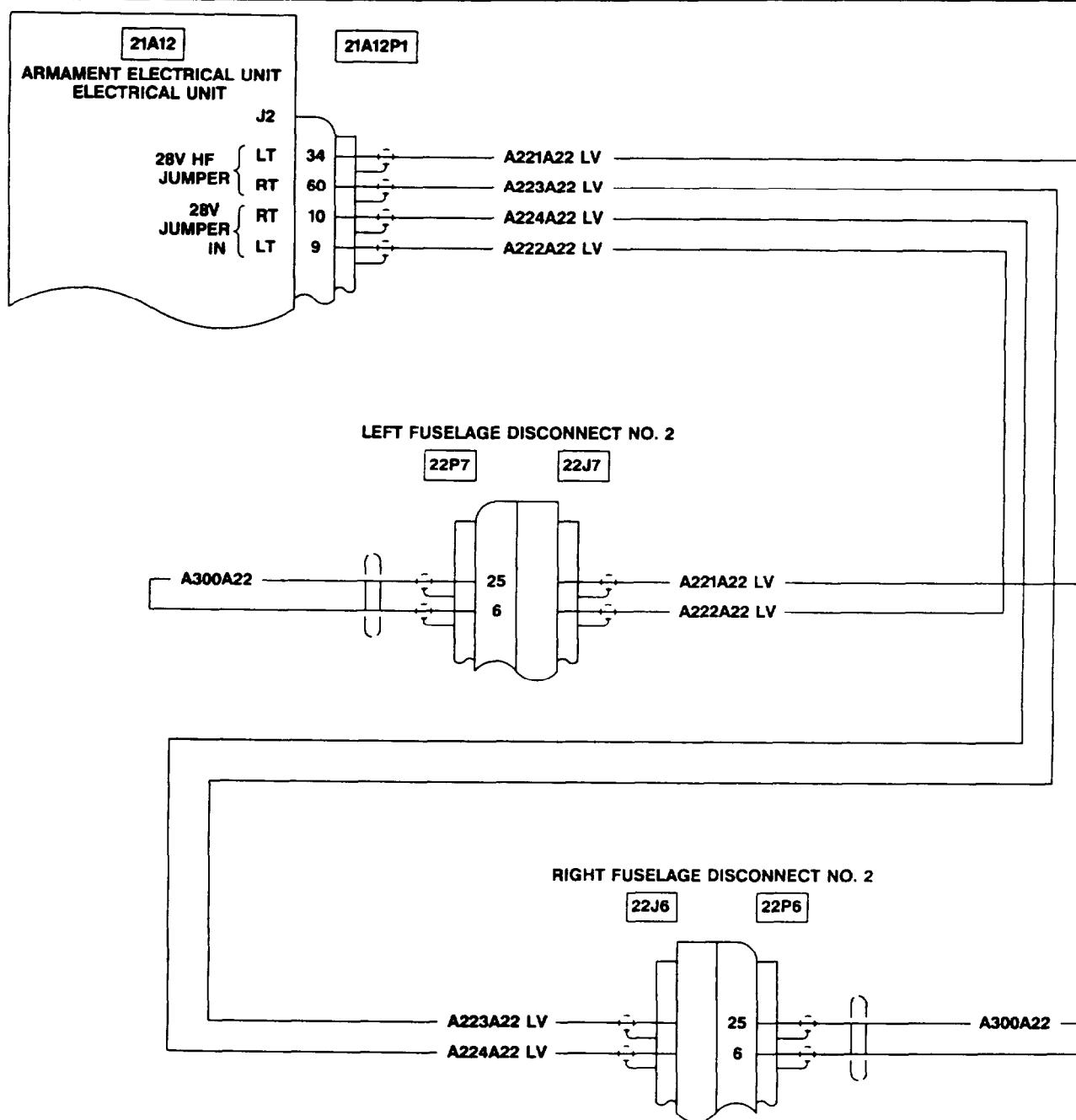
Replace armament electrical unit (Task 9-9-4).

52. HELLFIRE BIT IS NOT DISPLAYED ON WEAPONS BIT/SETUP PAGE AND INCORRECT SYMBOLOGY IS DISPLAYED ON VSD PAGE (TASK 16-1-4).



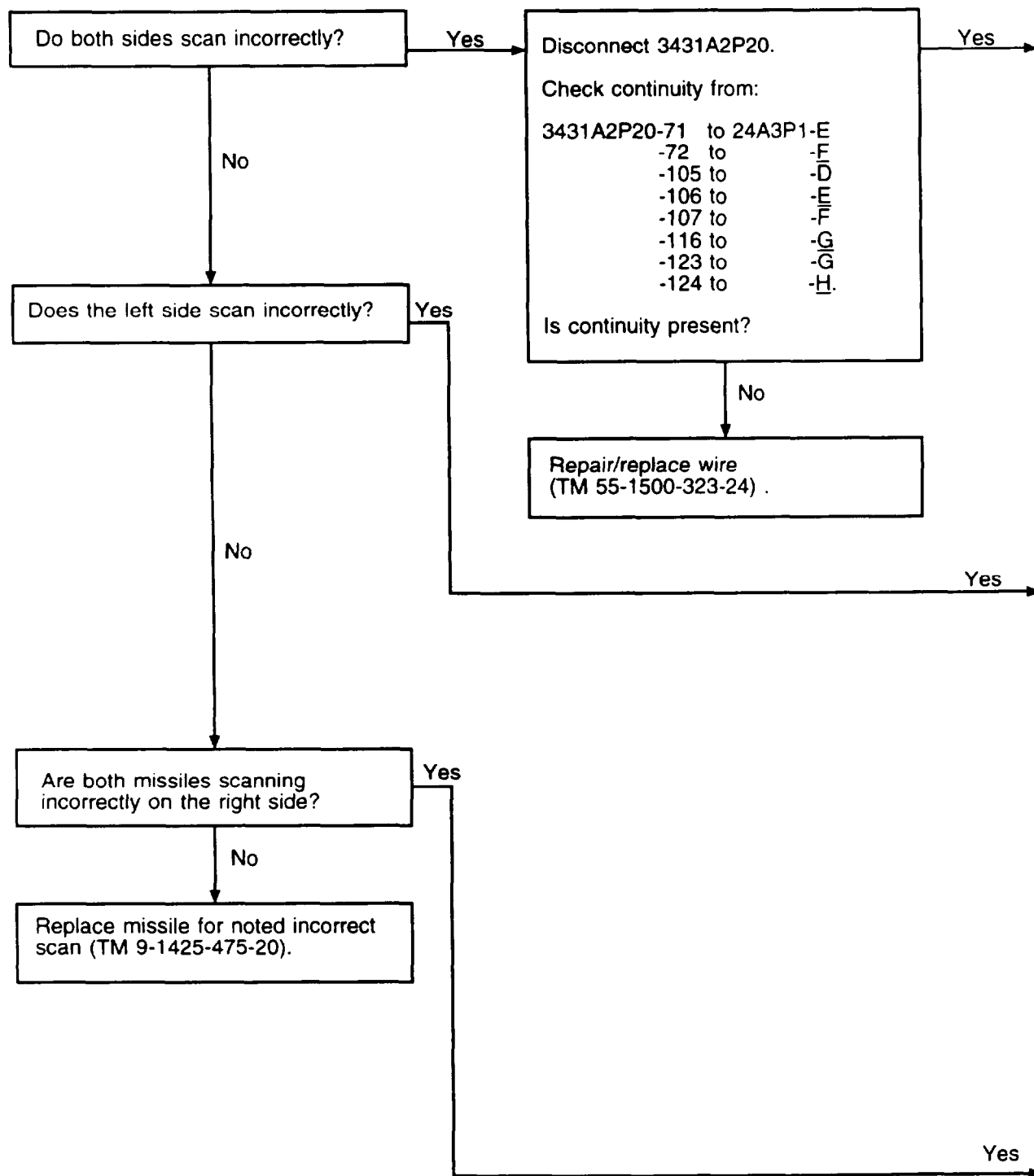
408475-540-45
J1049

52. HELLFIRE BIT IS NOT DISPLAYED ON WEAPONS BIT/SETUP PAGE AND INCORRECT SYMBOLOGY IS DISPLAYED ON VSD PAGE (TASK 16-1-4).

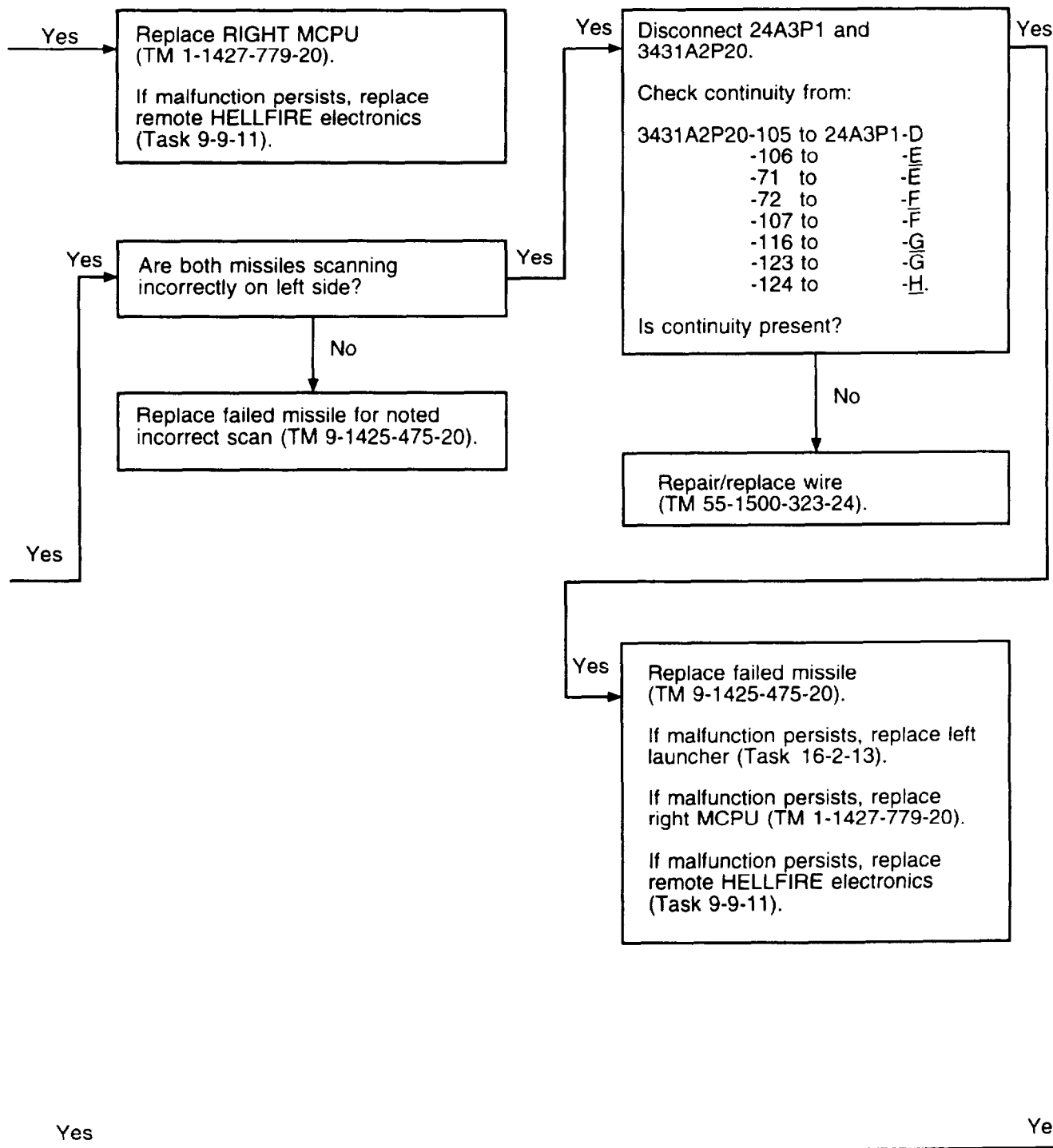


406475-540-46
J1049

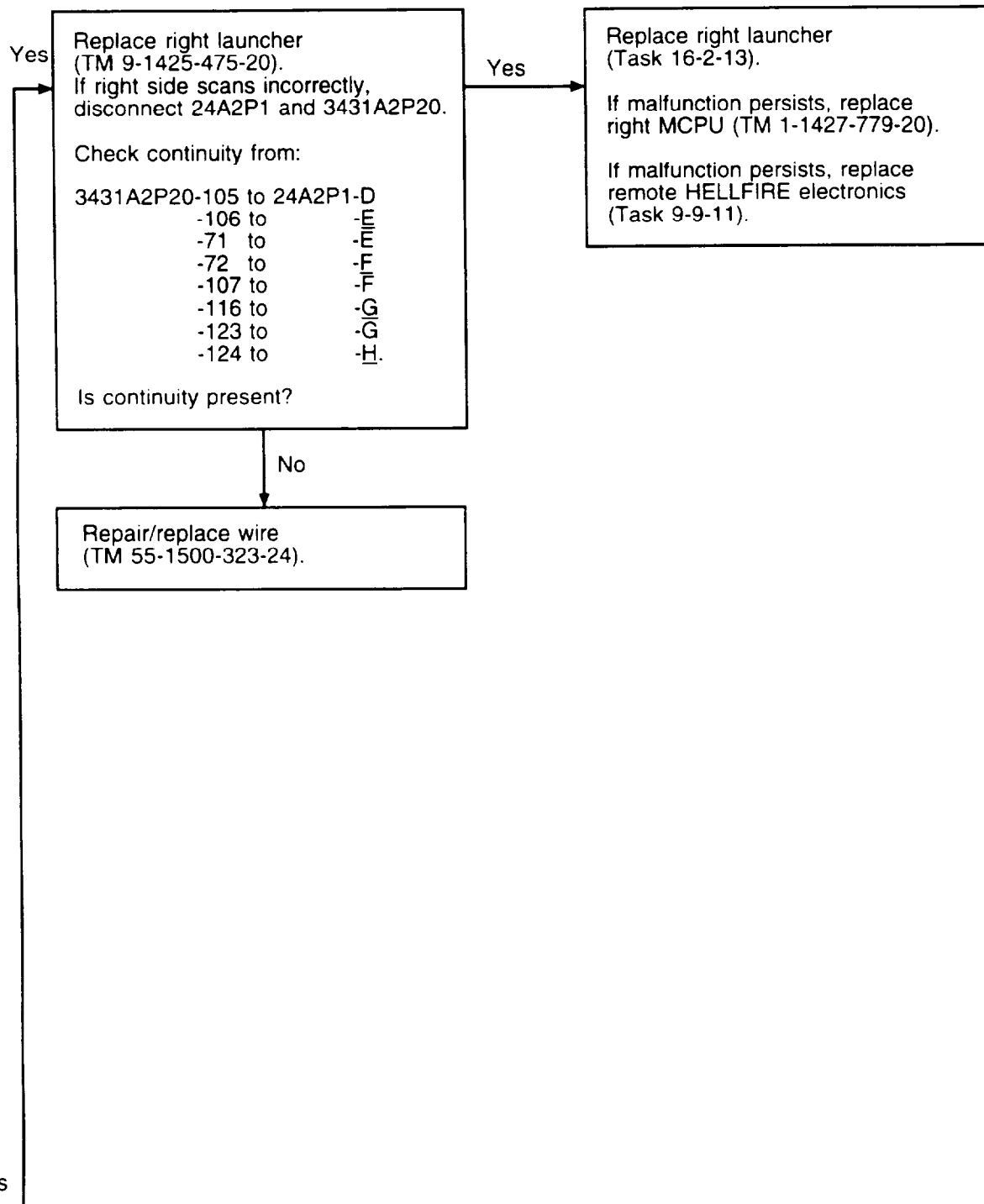
53. MISSILE DOES NOT PERFORM PROPER BOX SCAN IN LOBL

TM55-248-N59-1
H3551

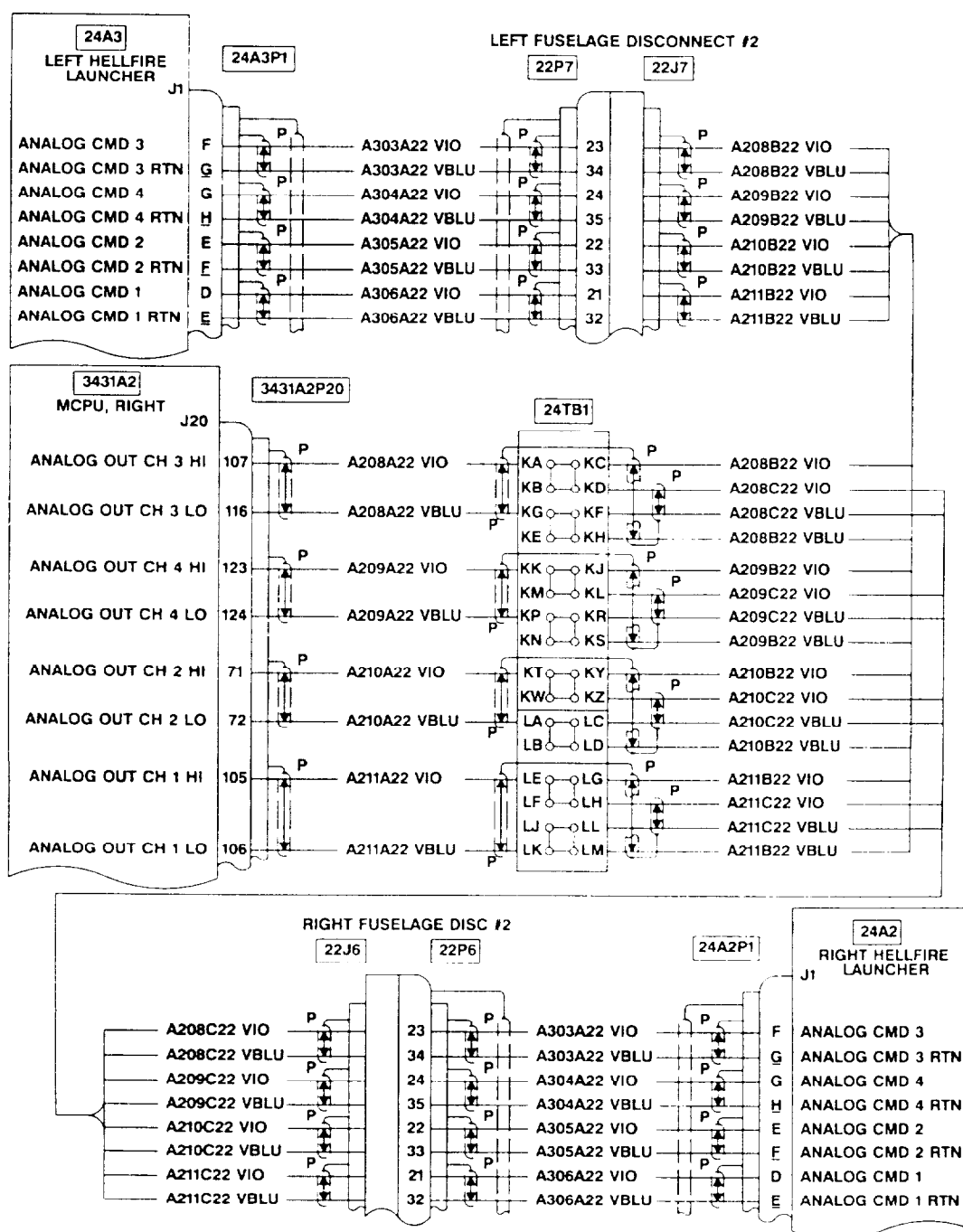
53. MISSILE DOES NOT PERFORM PROPER BOX SCAN IN LOBL (CONT)

TM55-248-N59-2
H3551

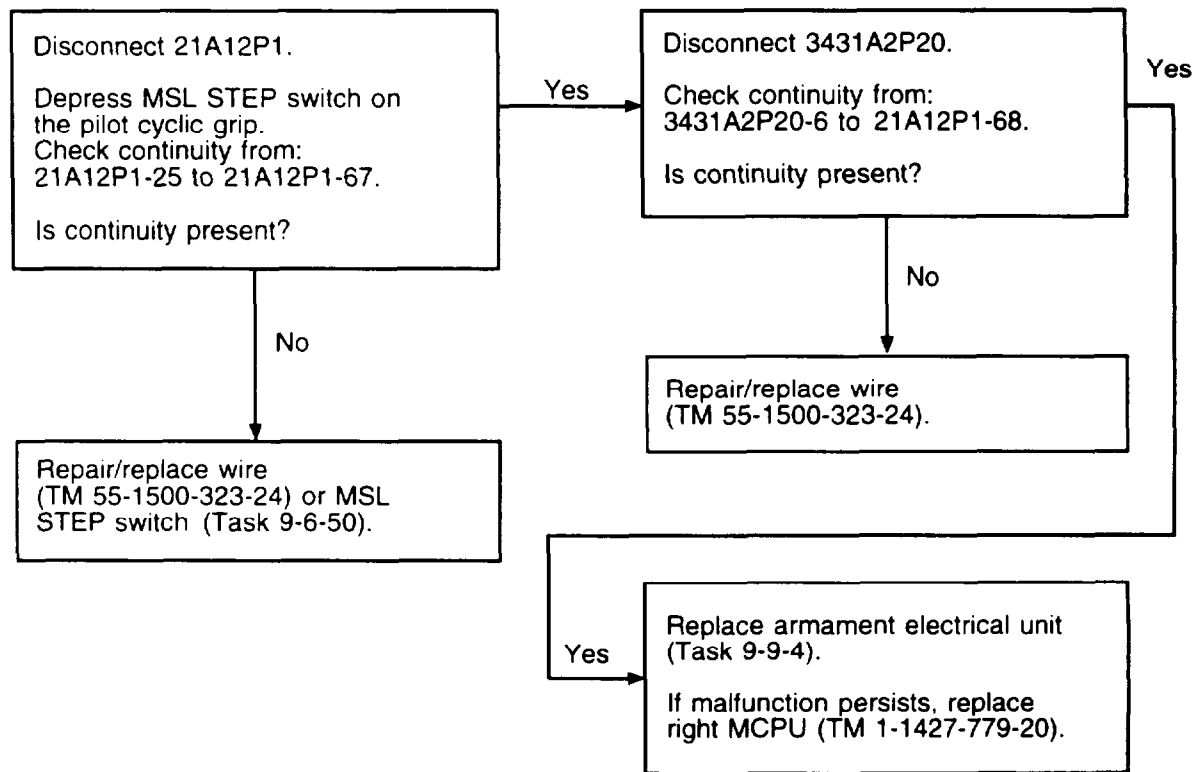
53. MISSILE DOES NOT PERFORM PROPER BOX SCAN IN LOBL (CONT)



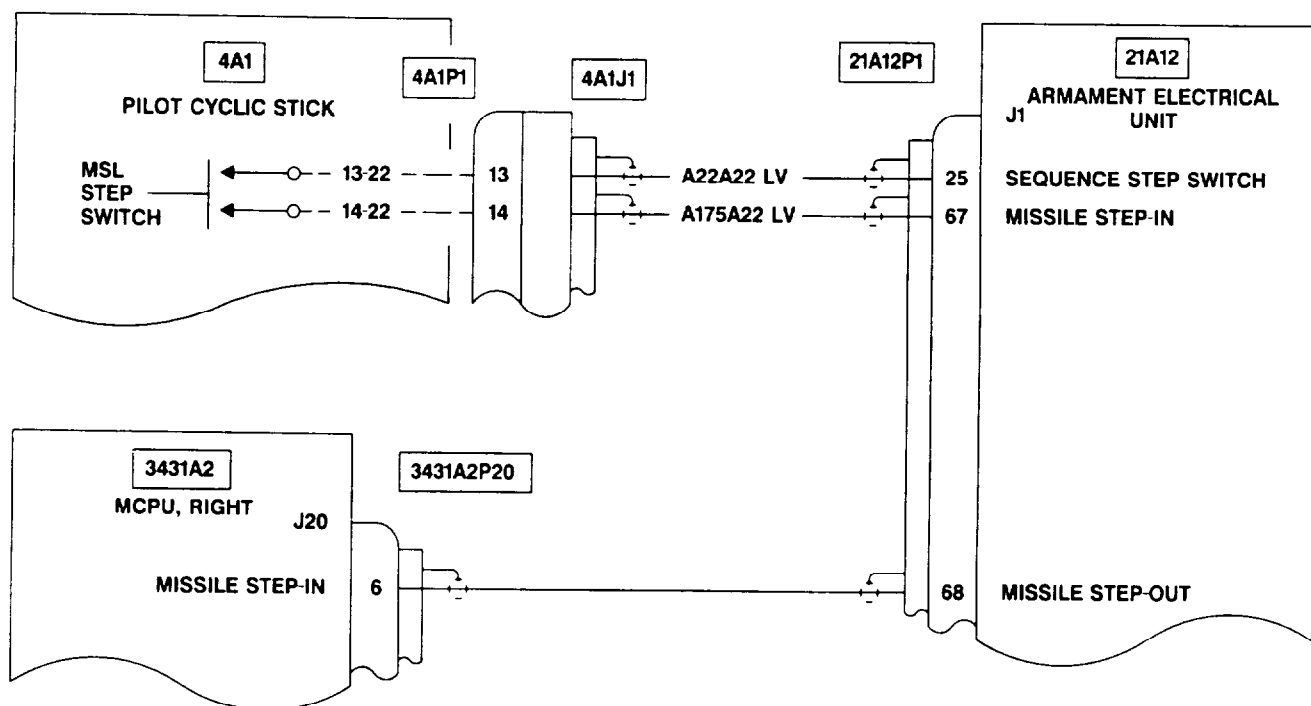
53. MISSILE DOES NOT PERFORM BOX SCAN IN LOBL (TASK 16-1-4).

406475-540-47
J1049

54. SYSTEM WILL NOT STEP TO NEXT MISSILE

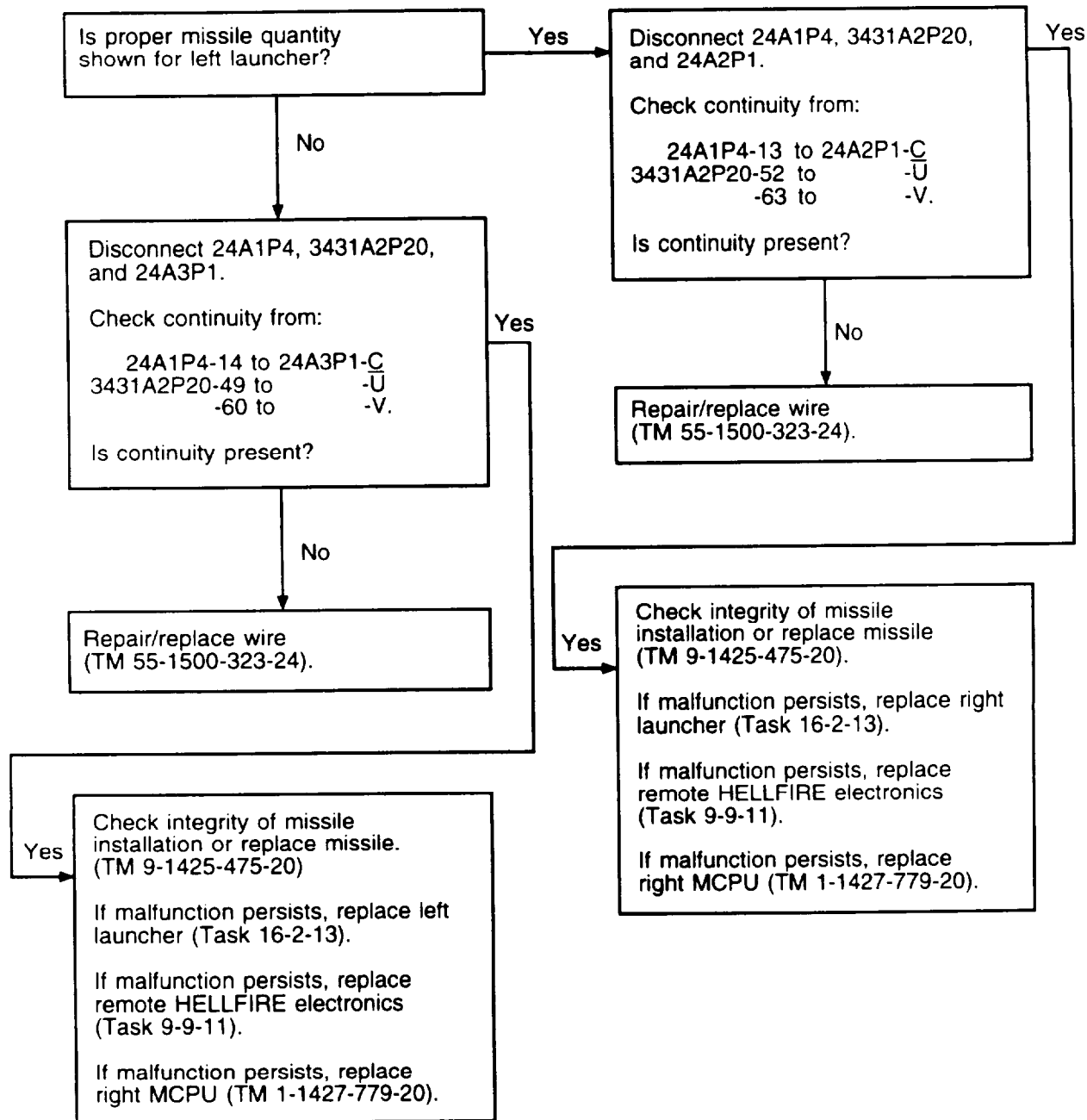


54. SYSTEM WILL NOT STEP TO NEXT MISSILE (TASK 16-1-4).

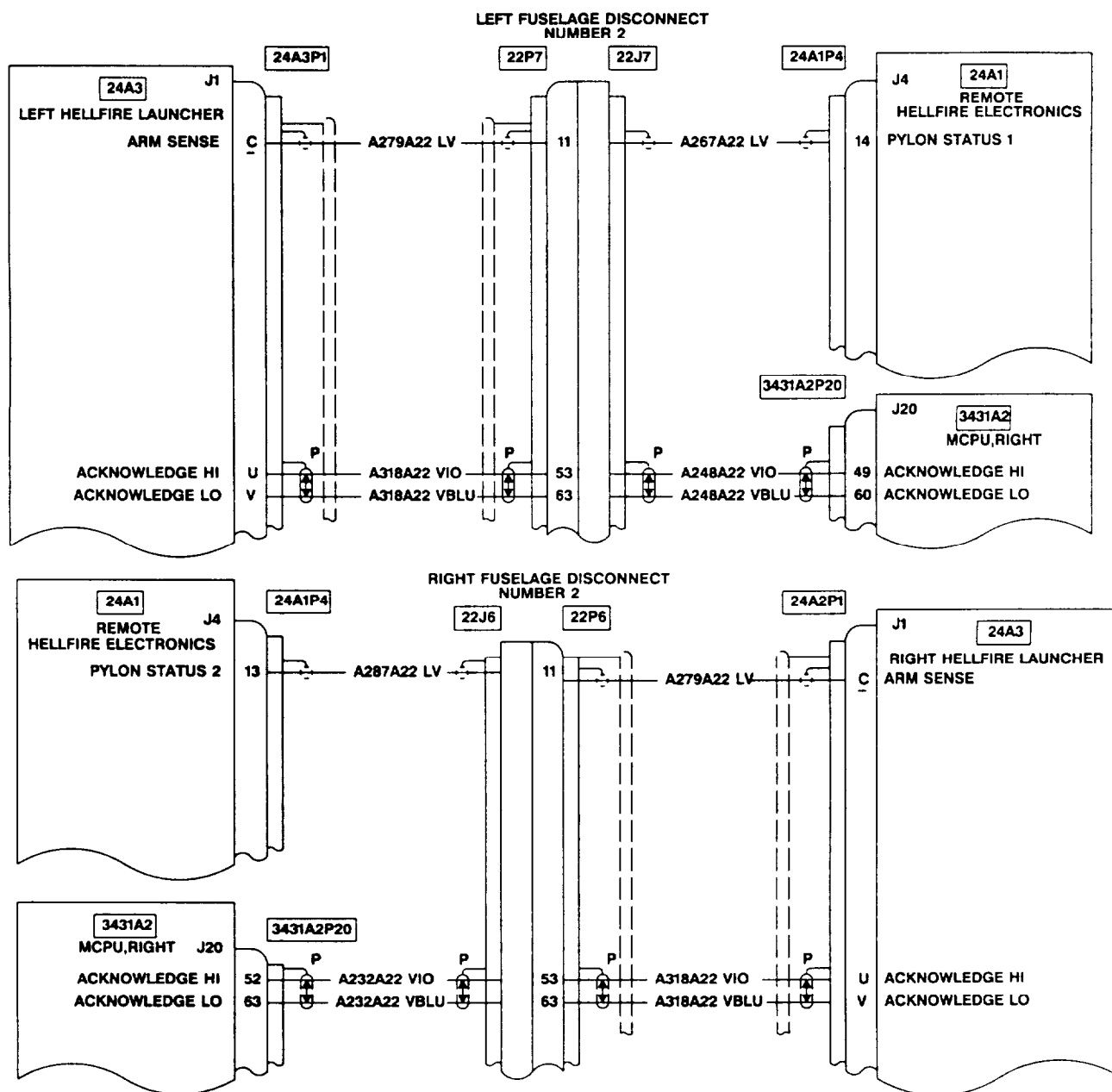


406475-540-48
J1049

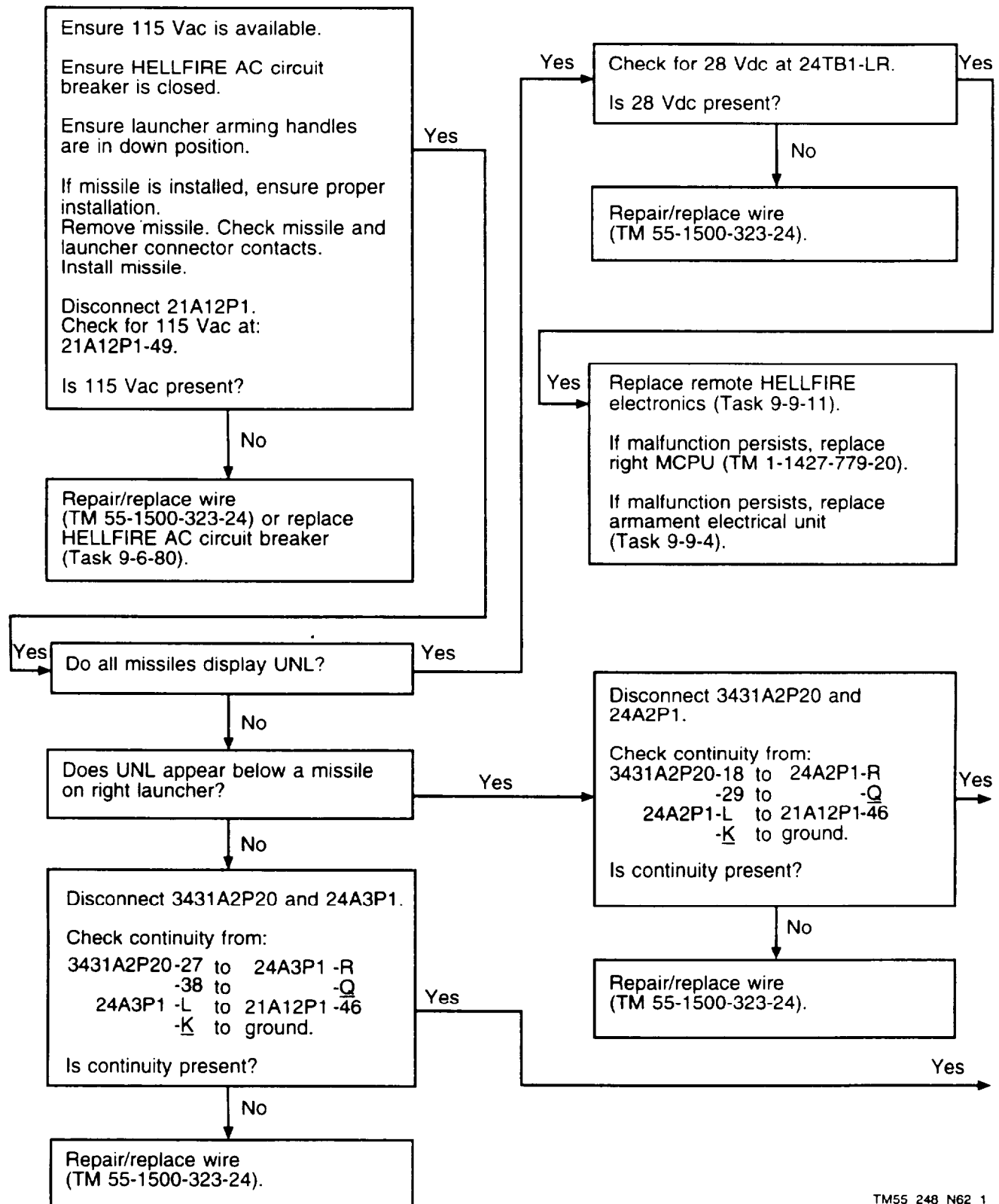
55. INCORRECT HELLFIRE MISSILE QUANTITY DISPLAYED ON MFD

TM55_248_N61
H5073

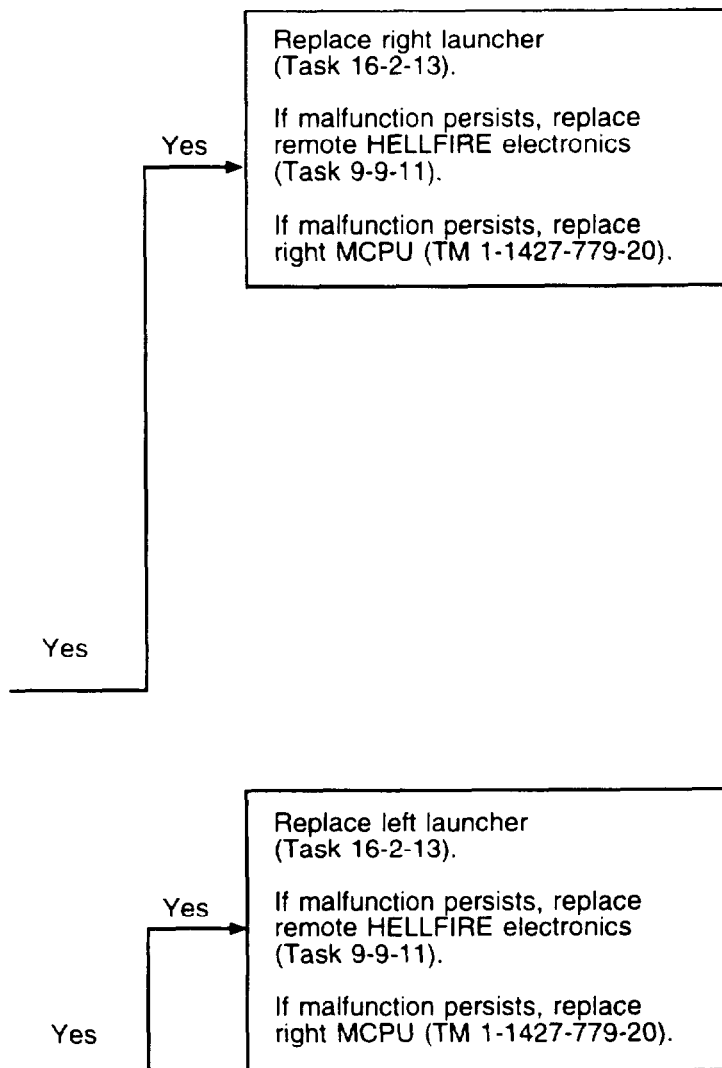
55. INCORRECT HELLFIRE MISSILE QUANTITY DISPLAYED ON MFD (TASK 16-1-4)


406475-540-49
J1049

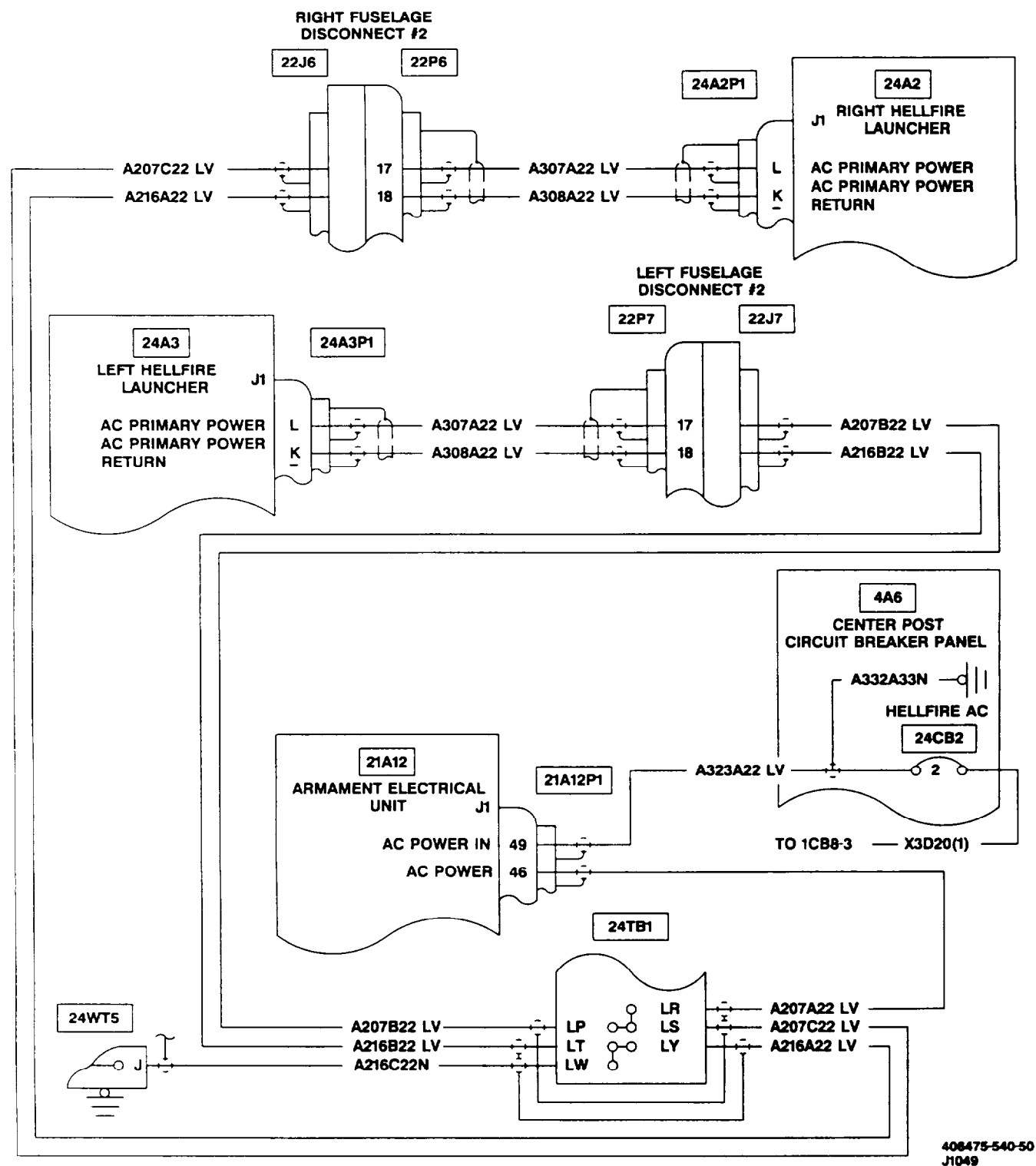
56. MFD DISPLAYS UNL WHEN LAUNCHERS ARE LATCHED

TM55_248_N62_1
H3425

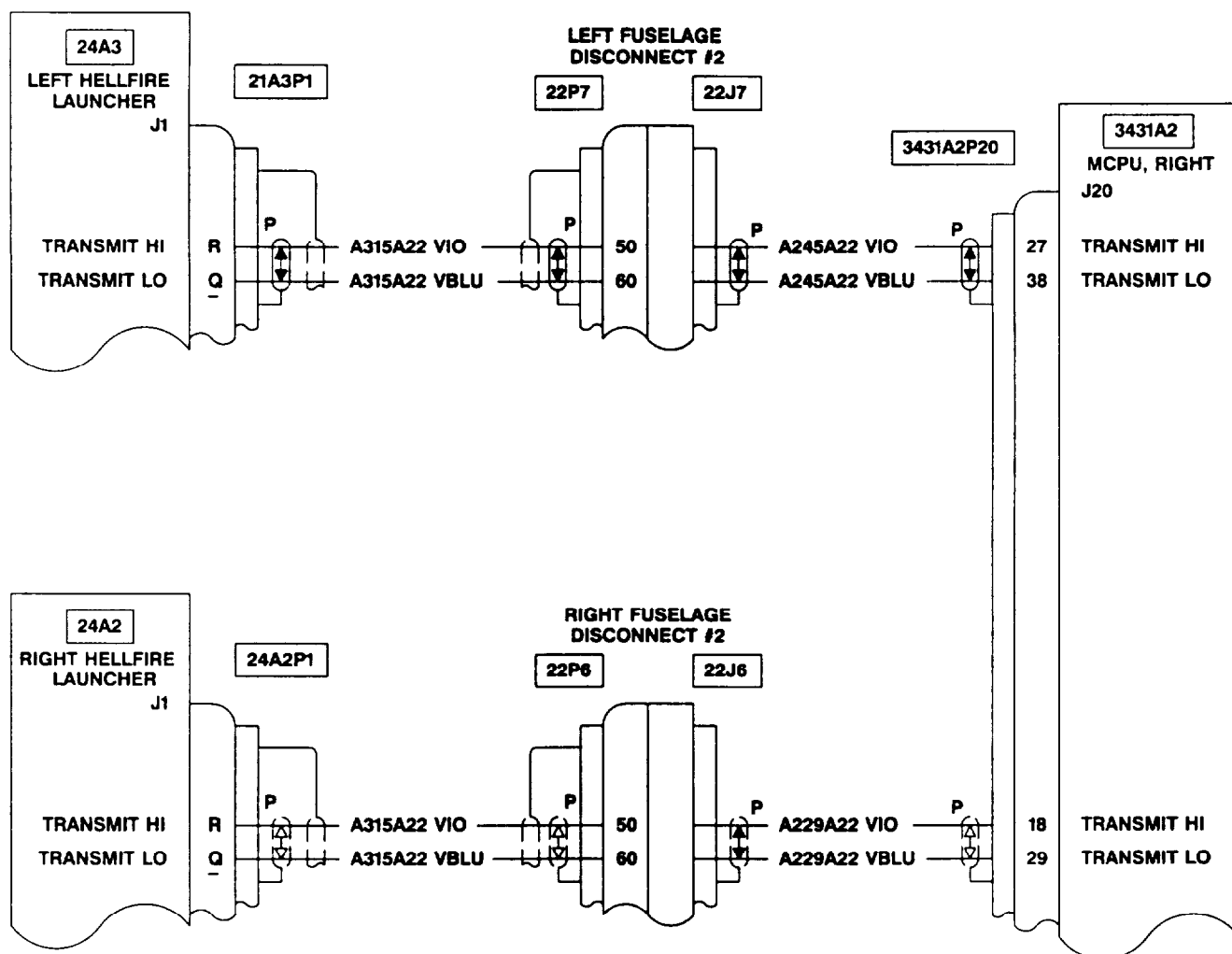
56. MFD DISPLAYS UNL WHEN LAUNCHERS ARE LATCHED (CONT)

TM55-248-N62_2
H3425

56. MFD DISPLAYS UNL WHEN LAUNCHERS ARE LATCHED (TASK 16-1-4).

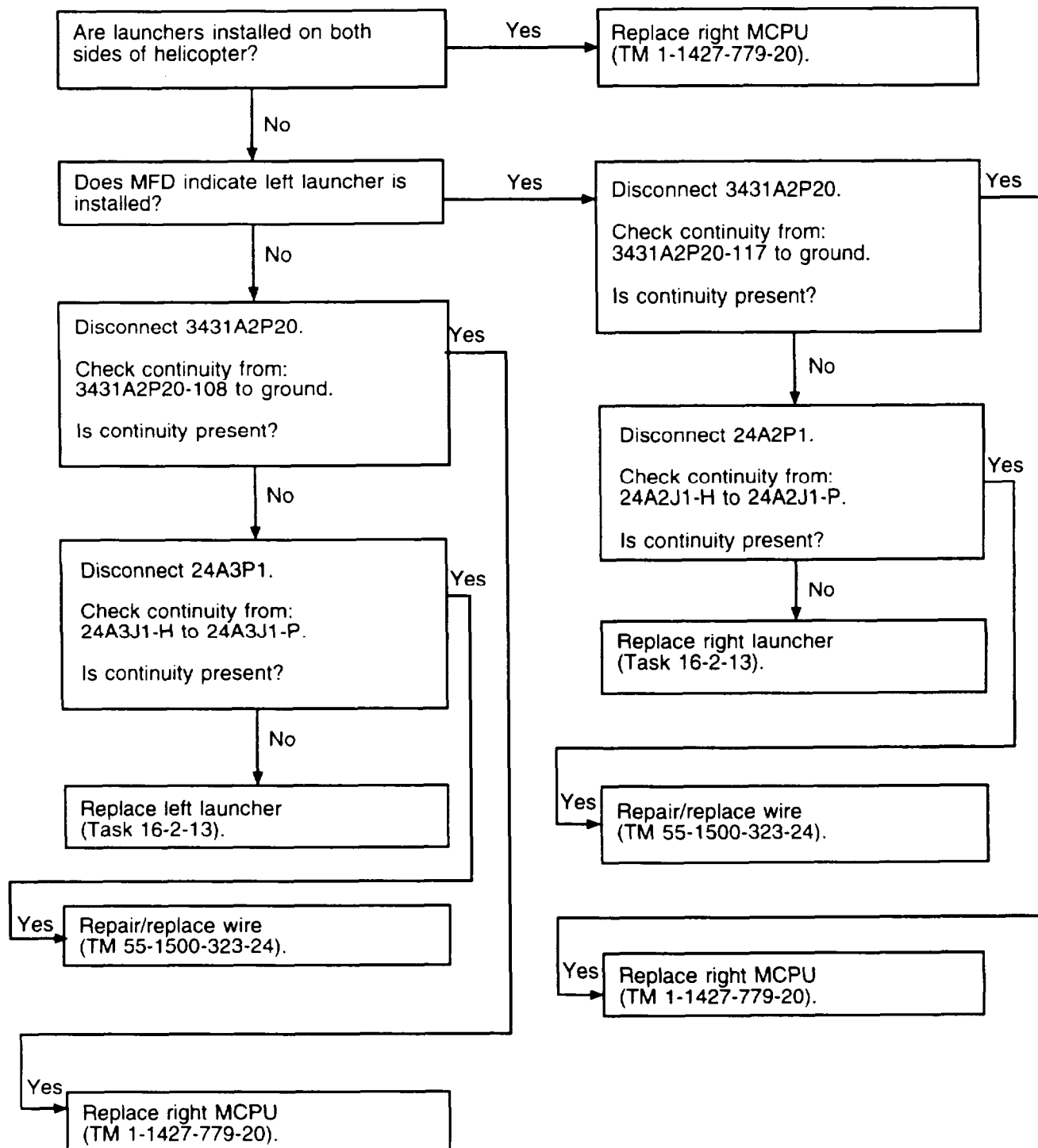


56. MFD DISPLAYS UNL WHEN LAUNCHERS ARE LATCHED (TASK 16-1-4).

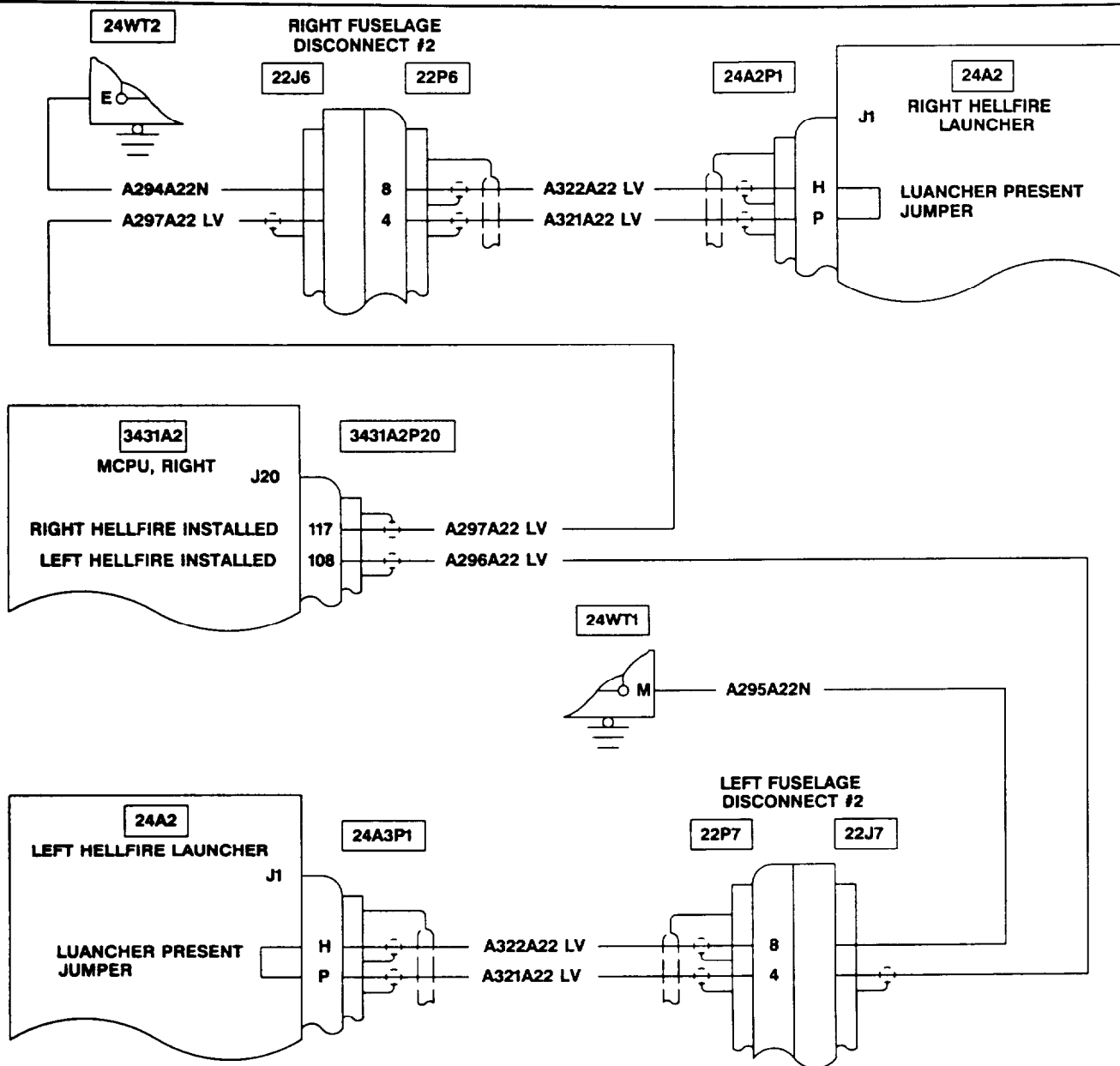


406475-540-51
J1049

57. MFD DOES NOT INDICATE HELLFIRE SYSTEM IS INSTALLED

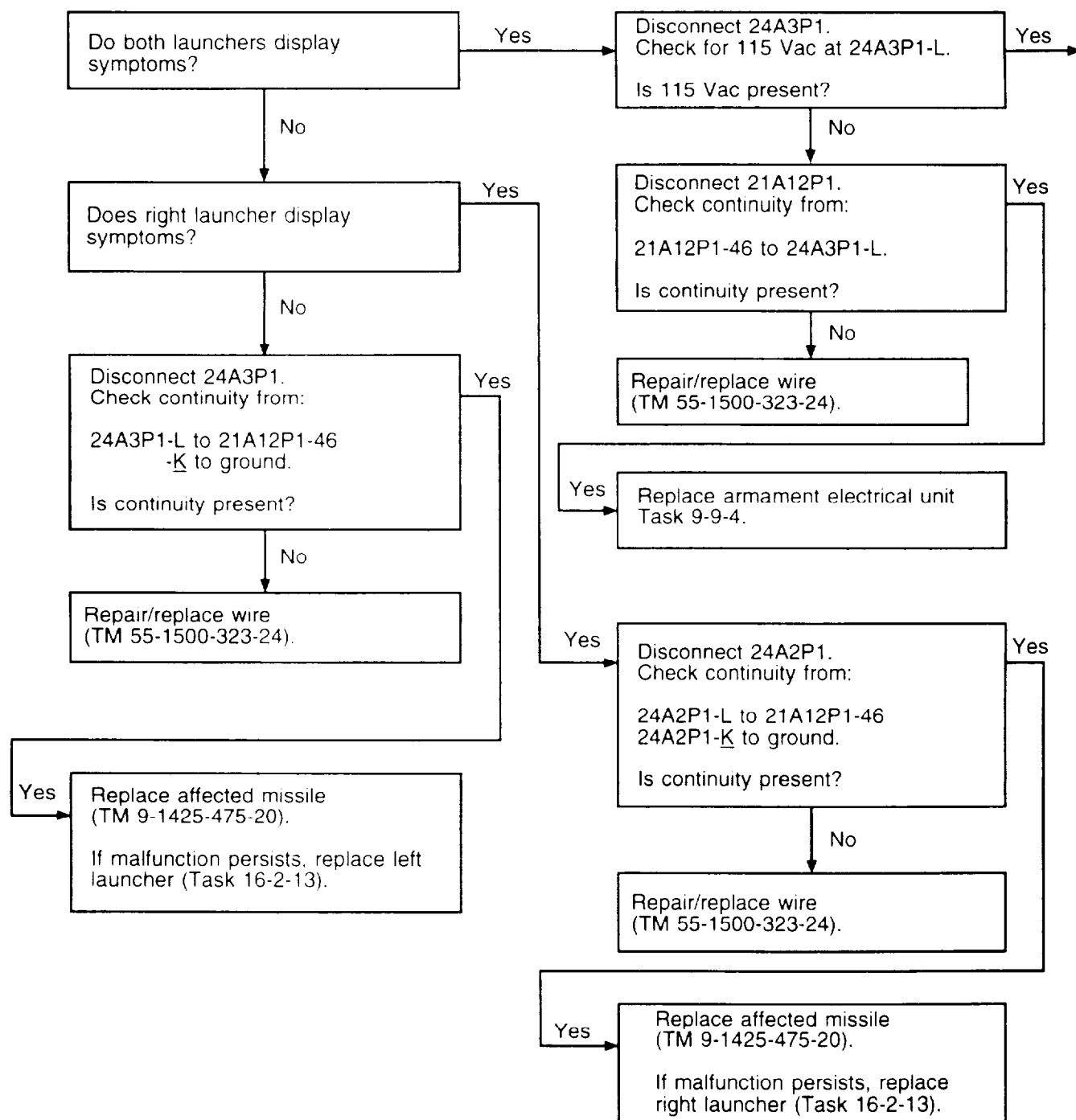
TM55-248-N63
H3425

57. MFD DOES NOT INDICATE HELLFIRE SYSTEM IS INSTALLED (TASK 16-1-4).

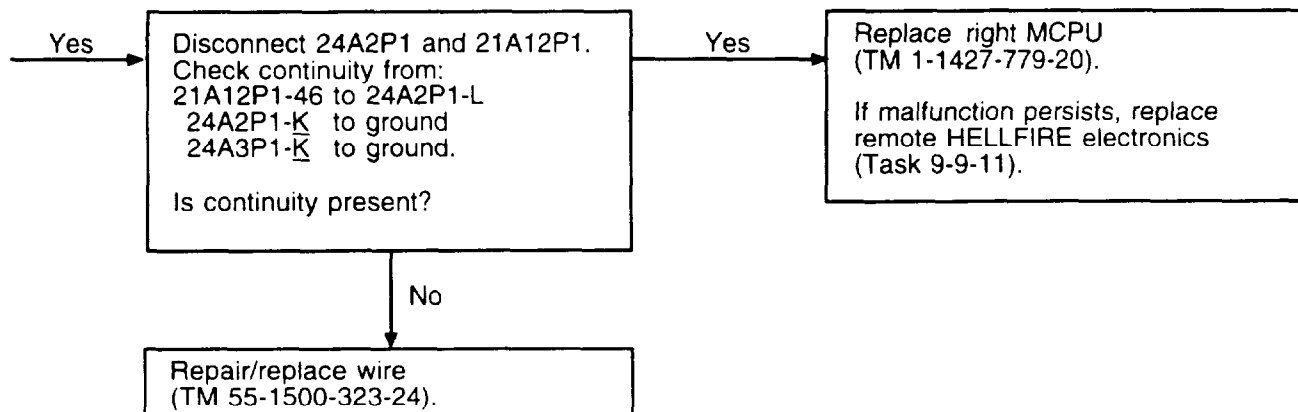


408475-540-52
J1049

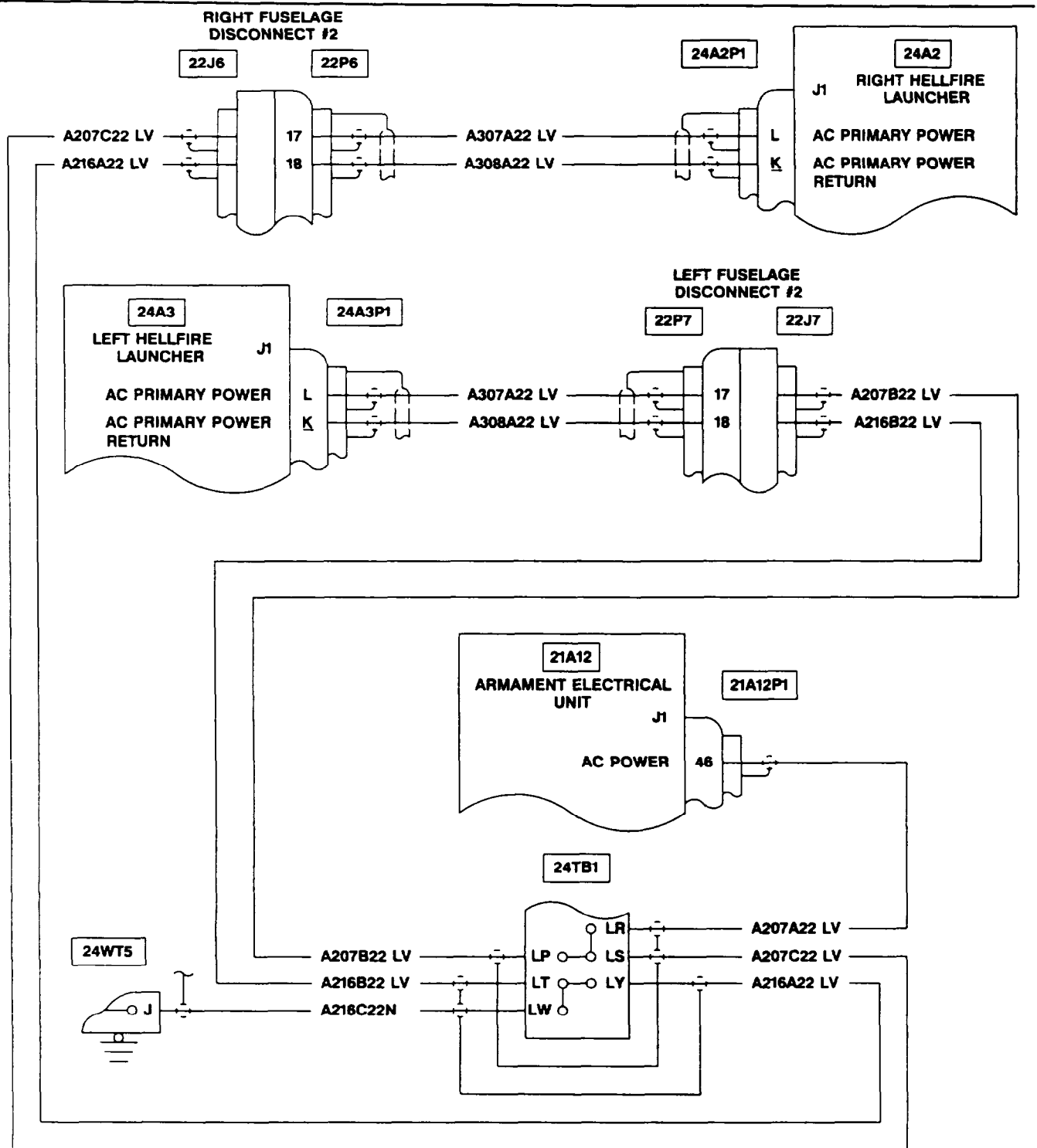
58. MFD INDICATES HELLFIRE SYSTEM IS INSTALLED BUT SYSTEM DOES NOT OPERATE



58. MFD INDICATES HELLFIRE SYSTEM IS INSTALLED BUT SYSTEM DOES NOT OPERATE (CONT)

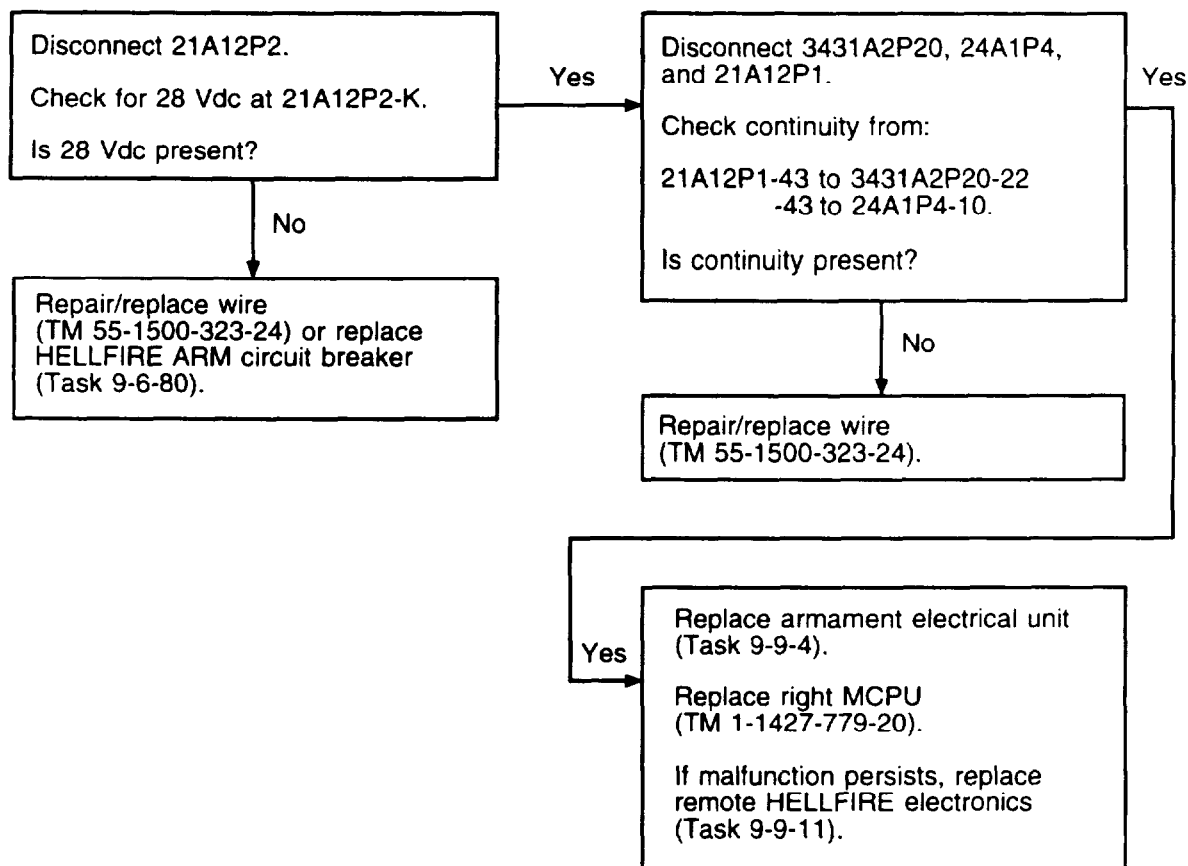
TM55-248-N64-2
H3551

58. MFD INDICATED HELLFIRE SYSTEM IS INSTALLED, BUT SYSTEM DOES NOT OPERATE
(TASK 16-1-4)

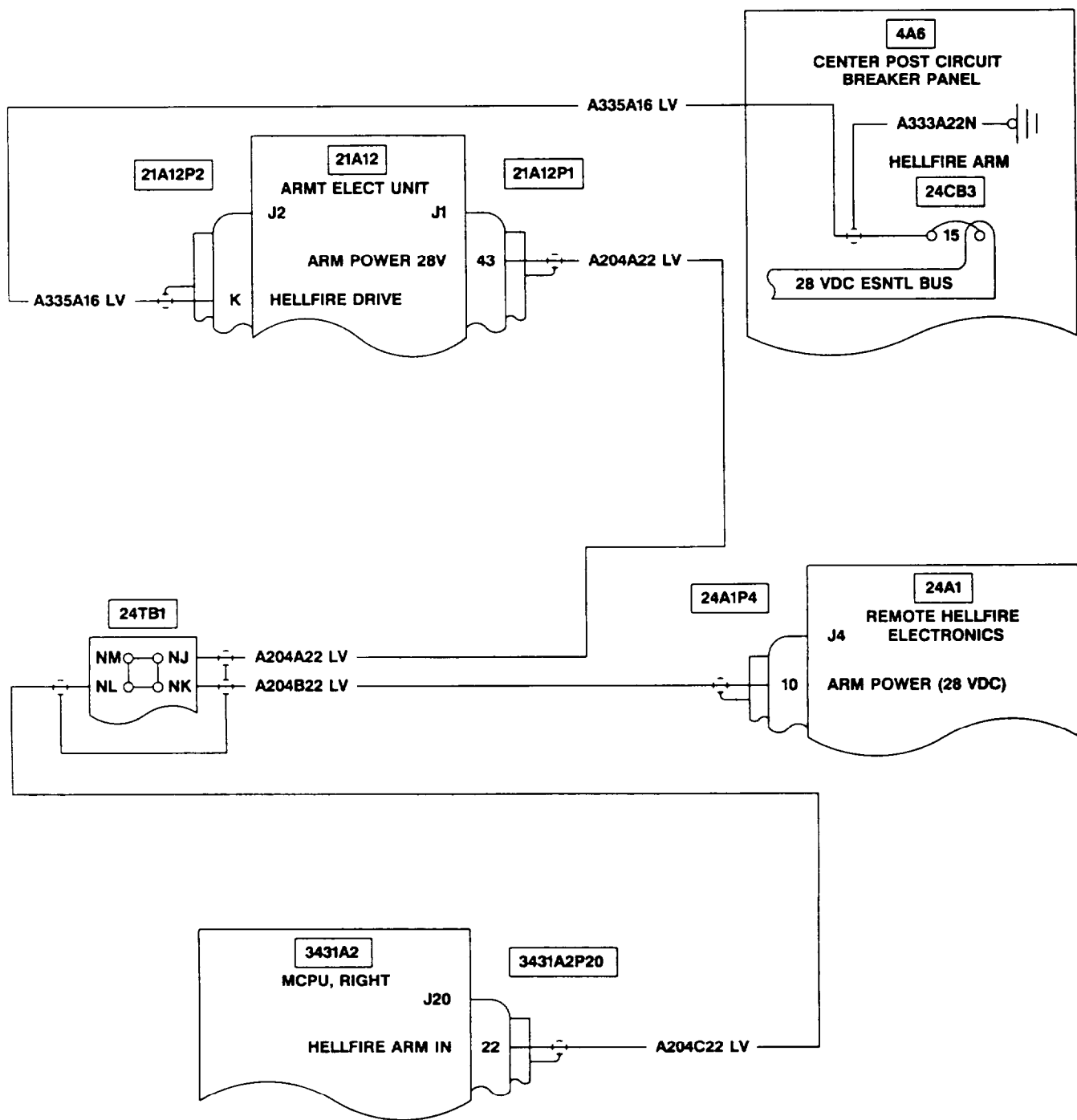


406475-540-53
J1049

59. HELLFIRE MISSILE DISPLAYS SAFED ON MFD WHEN ARMED AND SELECTED (ON)

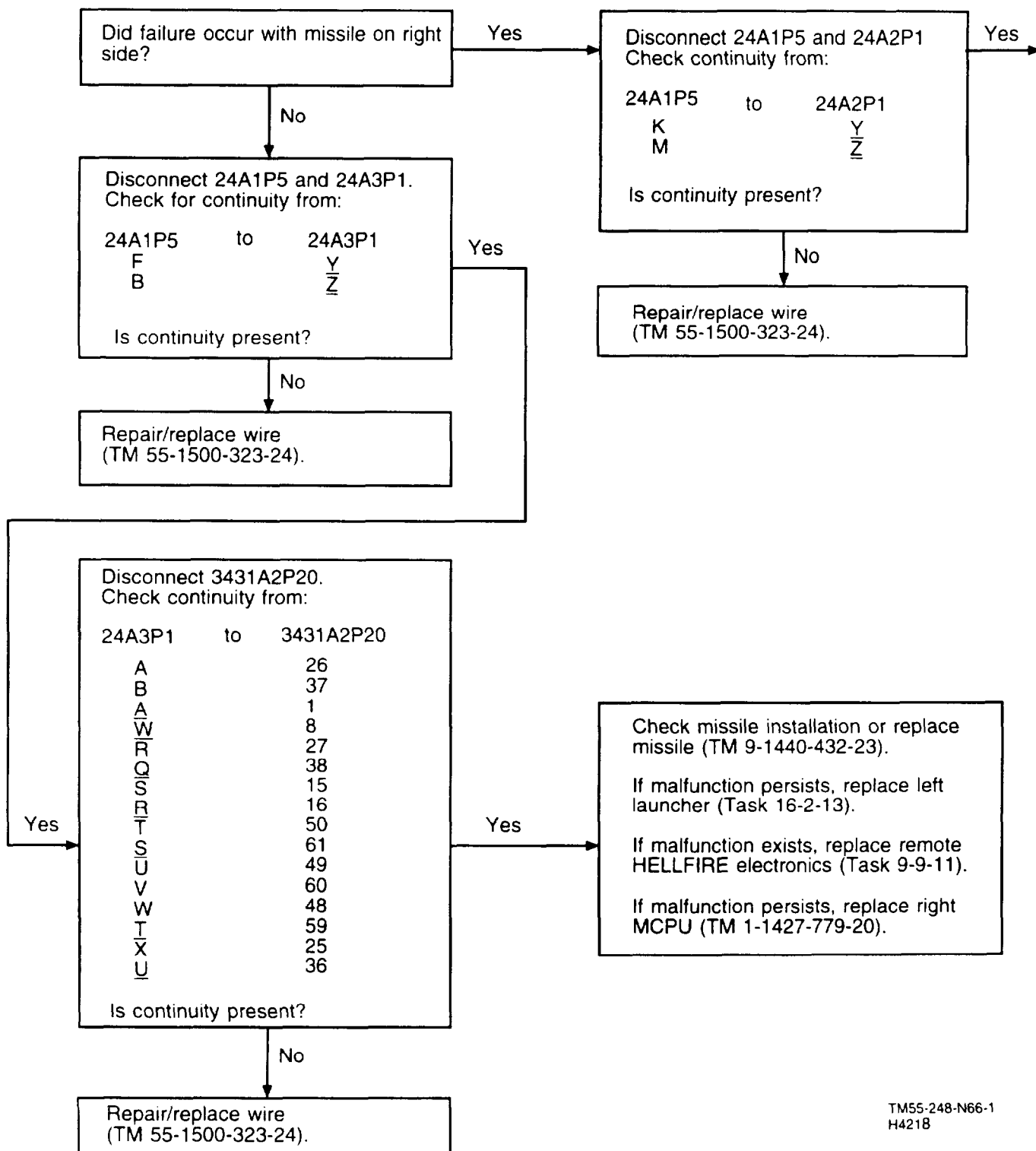


59. HELLFIRE MISSILE DISPLAYED SAFED ON MFD WHEN ARMED AND SELECTED (ON) (TASK 16-1-4).

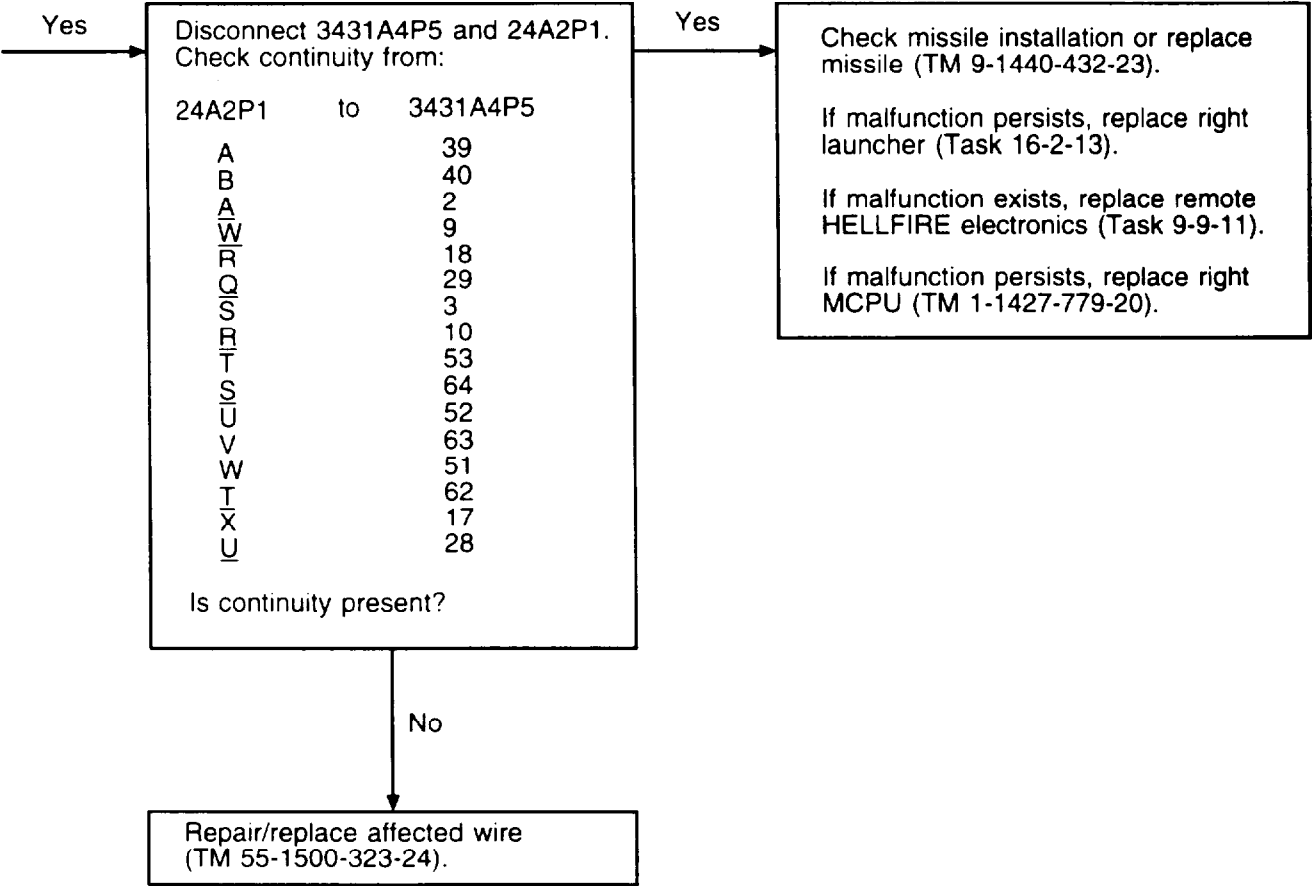


408475-540-54
J1049

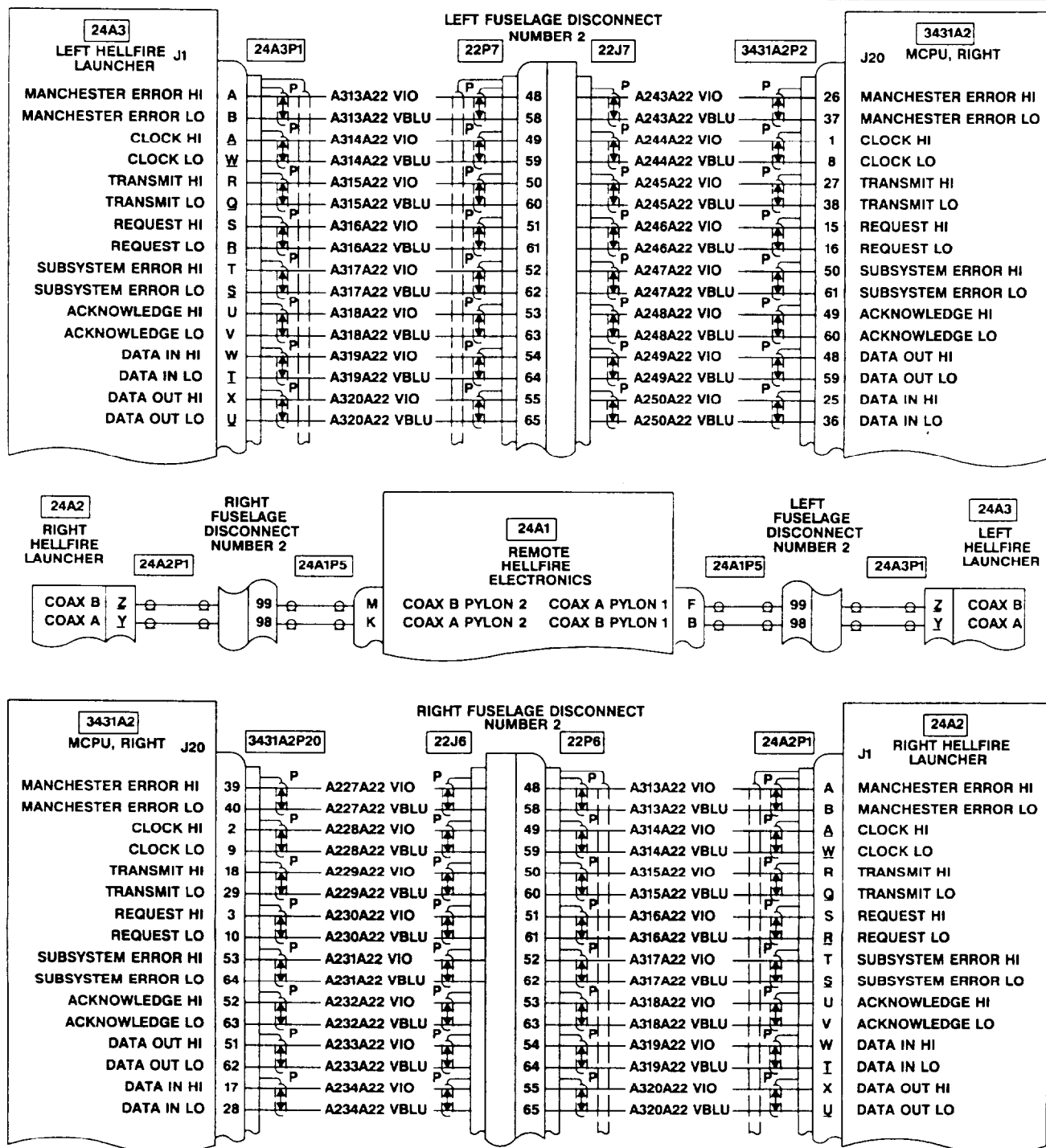
60. MFD DISPLAYS SEL THEN MF UNDER HELLFIRE MSL IMAGE

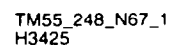
TM55-248-N66-1
H4218

60. MFD DISPLAYS SEL THEN MF UNDER HELLFIRE MSL IMAGE (CONT)

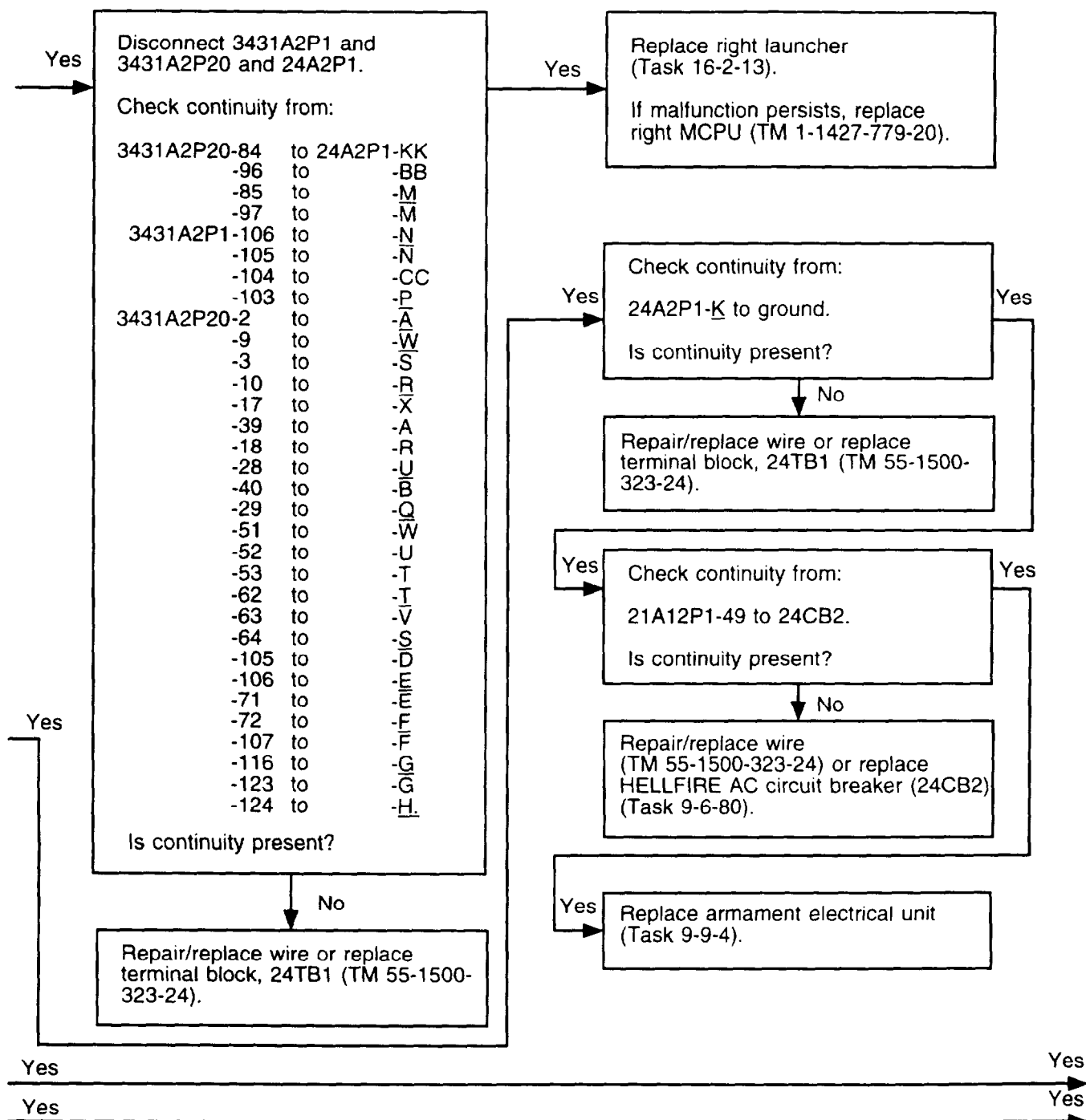


60. MFD DISPLAYS SEL THEN MF UNDER HELLFIRE MSL IMAGE (TASK 16-1-4).

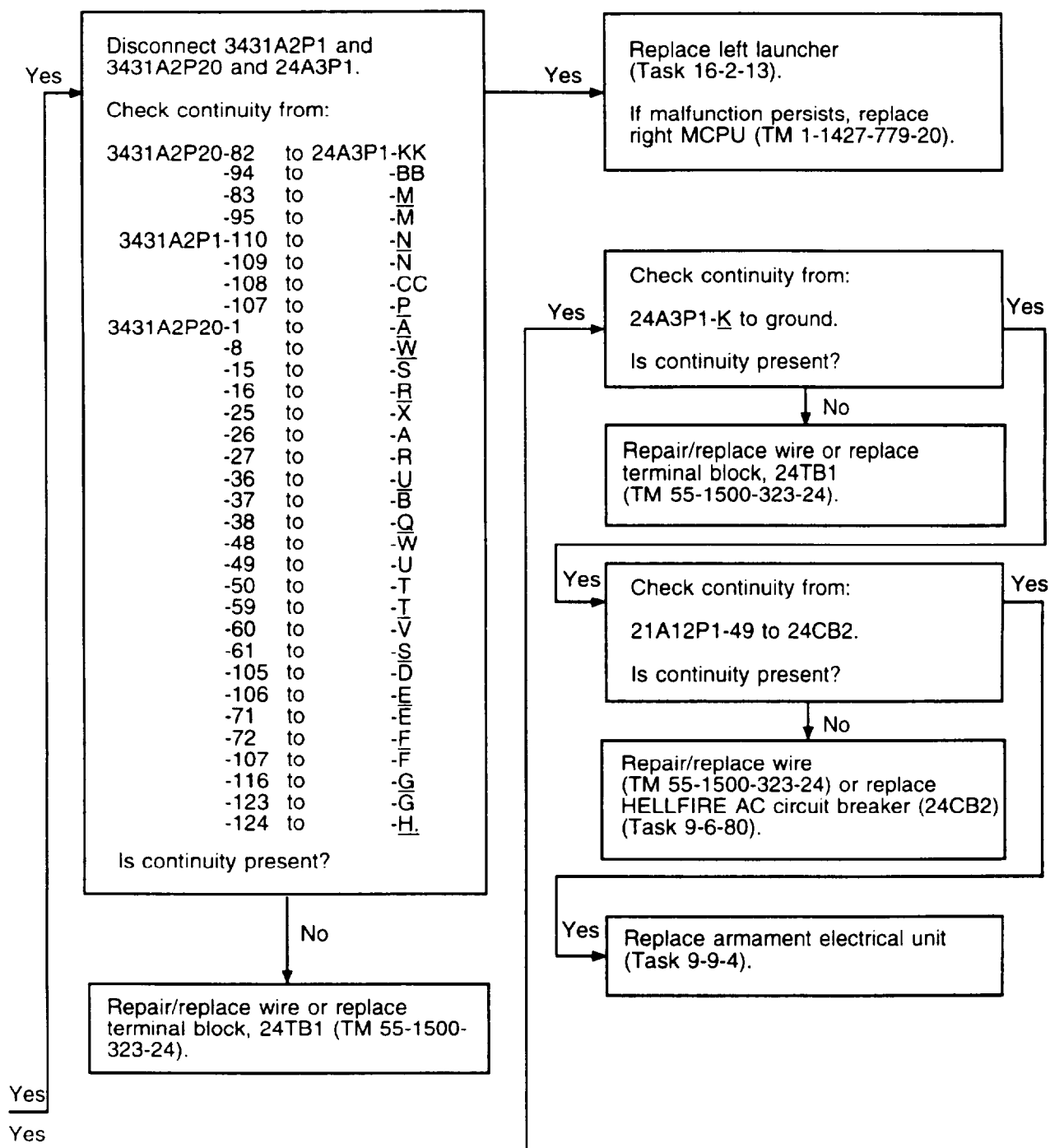
406475-540-55
J1049



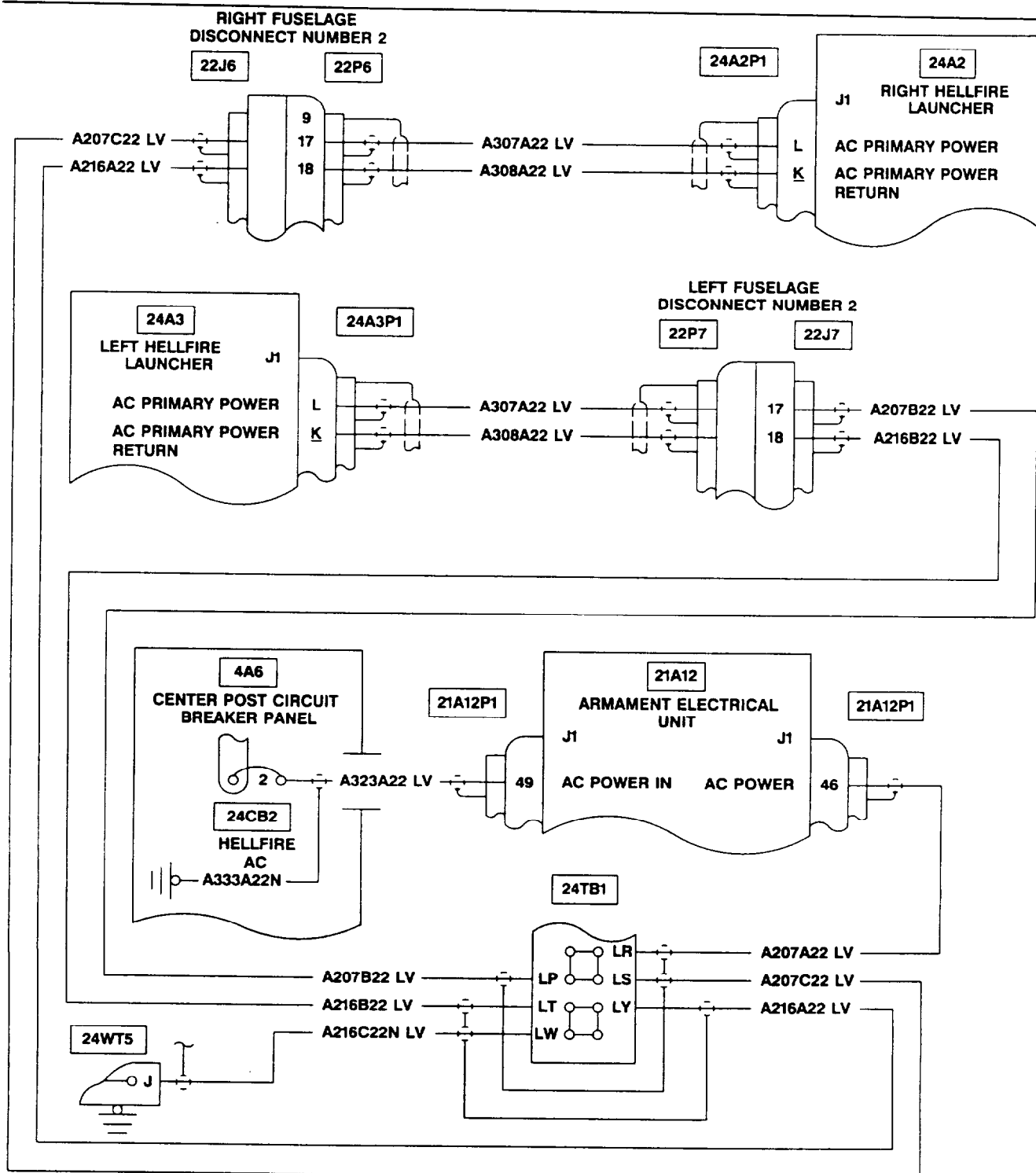
61. HELLFIRE SYSTEM FAILS LAUNCHER BIT (CONT)

TM55_248_N67_2
H5073

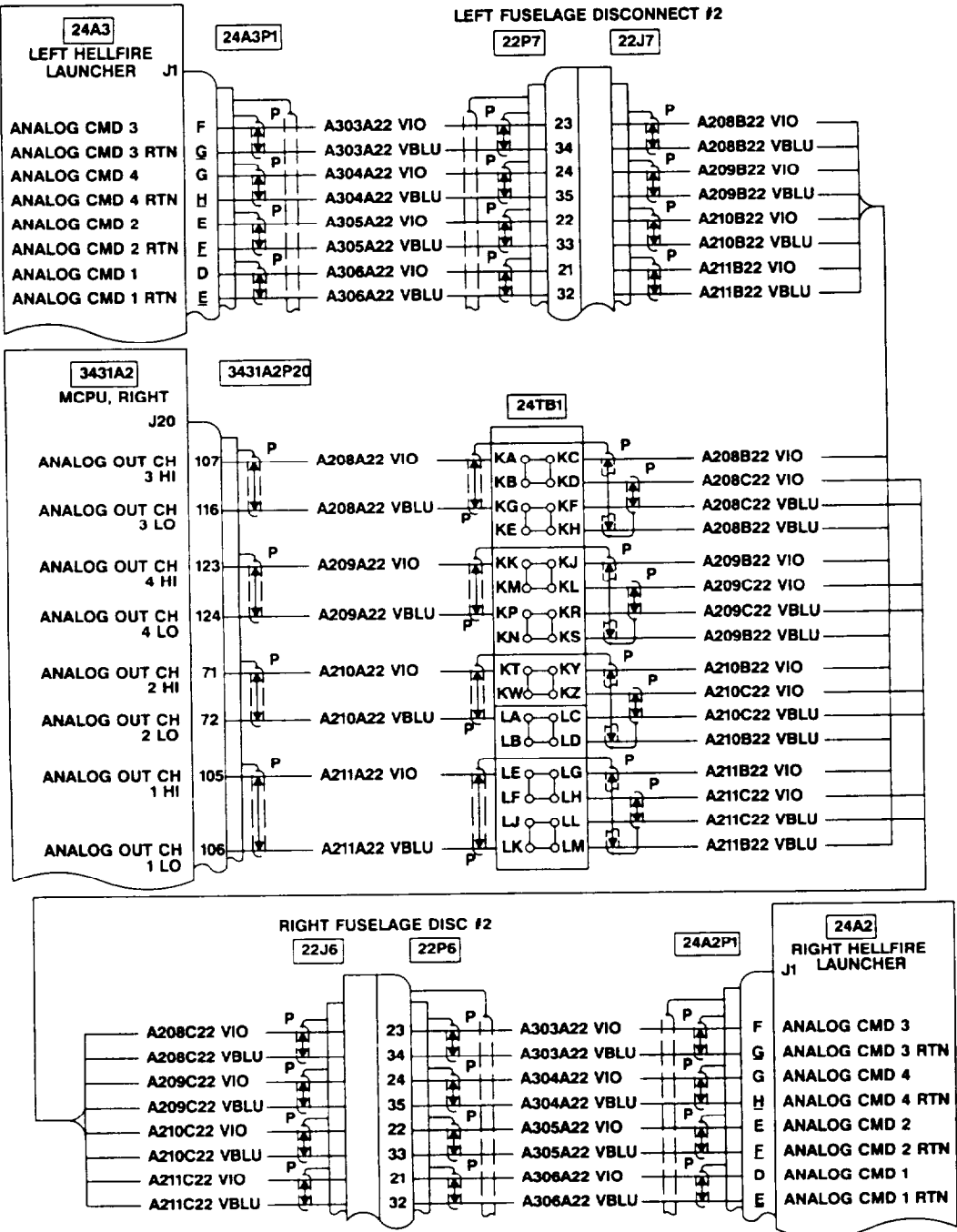
61. HELLFIRE SYSTEM FAILS LAUNCHER BIT (CONT)

TM55_248_N67_3
H5073

61. HELLFIRE SYSTEM FAILS LAUNCHER BIT (TASK 16-1-4).

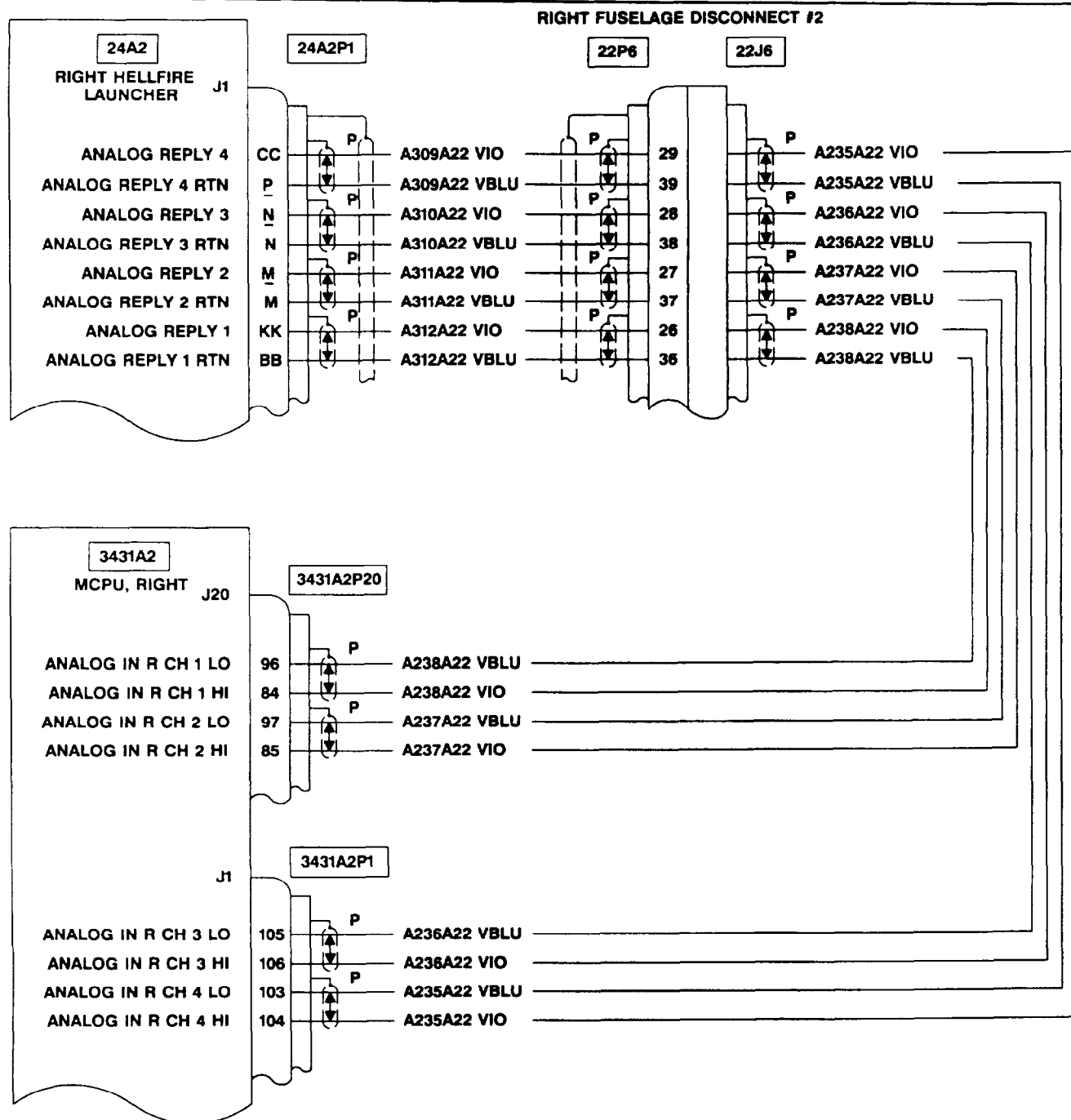

406475-540-58
J1049

61. HELLFIRE SYSTEM FAILS LAUNCHER BIT (TASK 16-1-4).

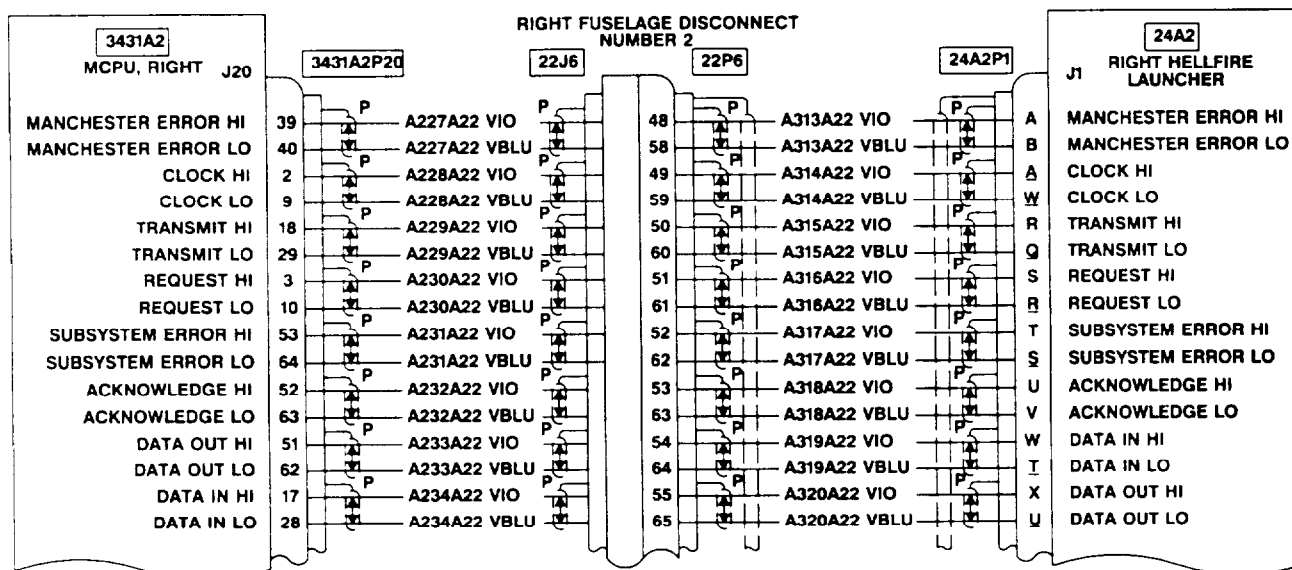
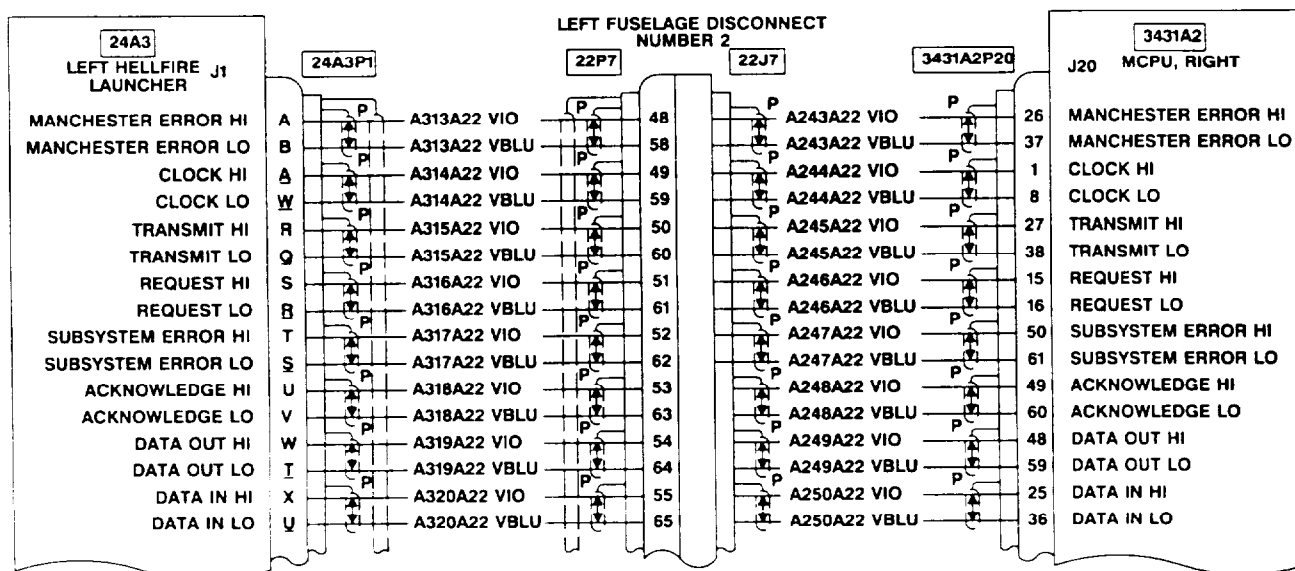


406475-540-57
J1049

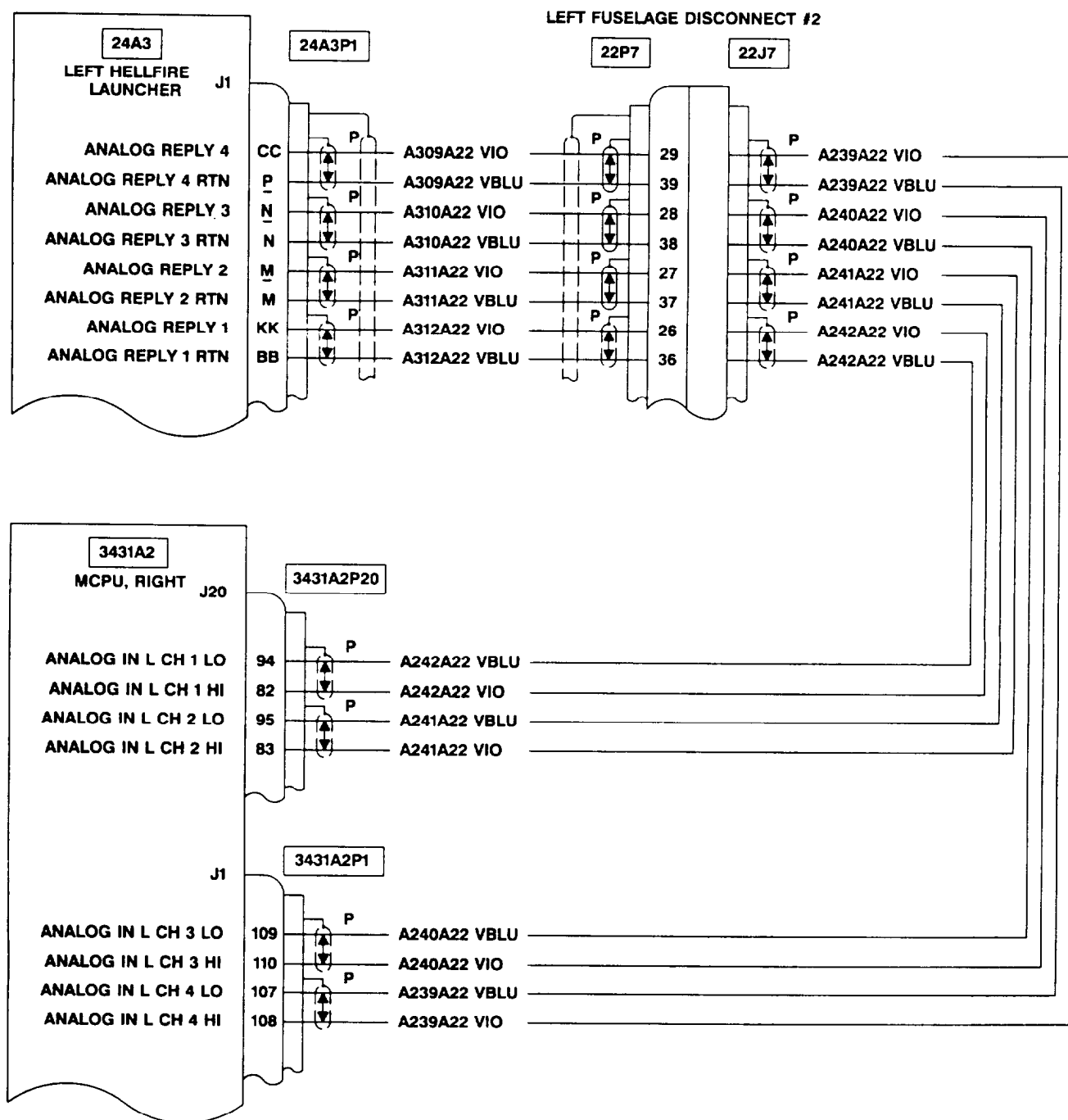
61. HELLFIRE SYSTEM FAILS LAUNCHER BIT (TASK 16-1-4).


406475-540-58
J1049

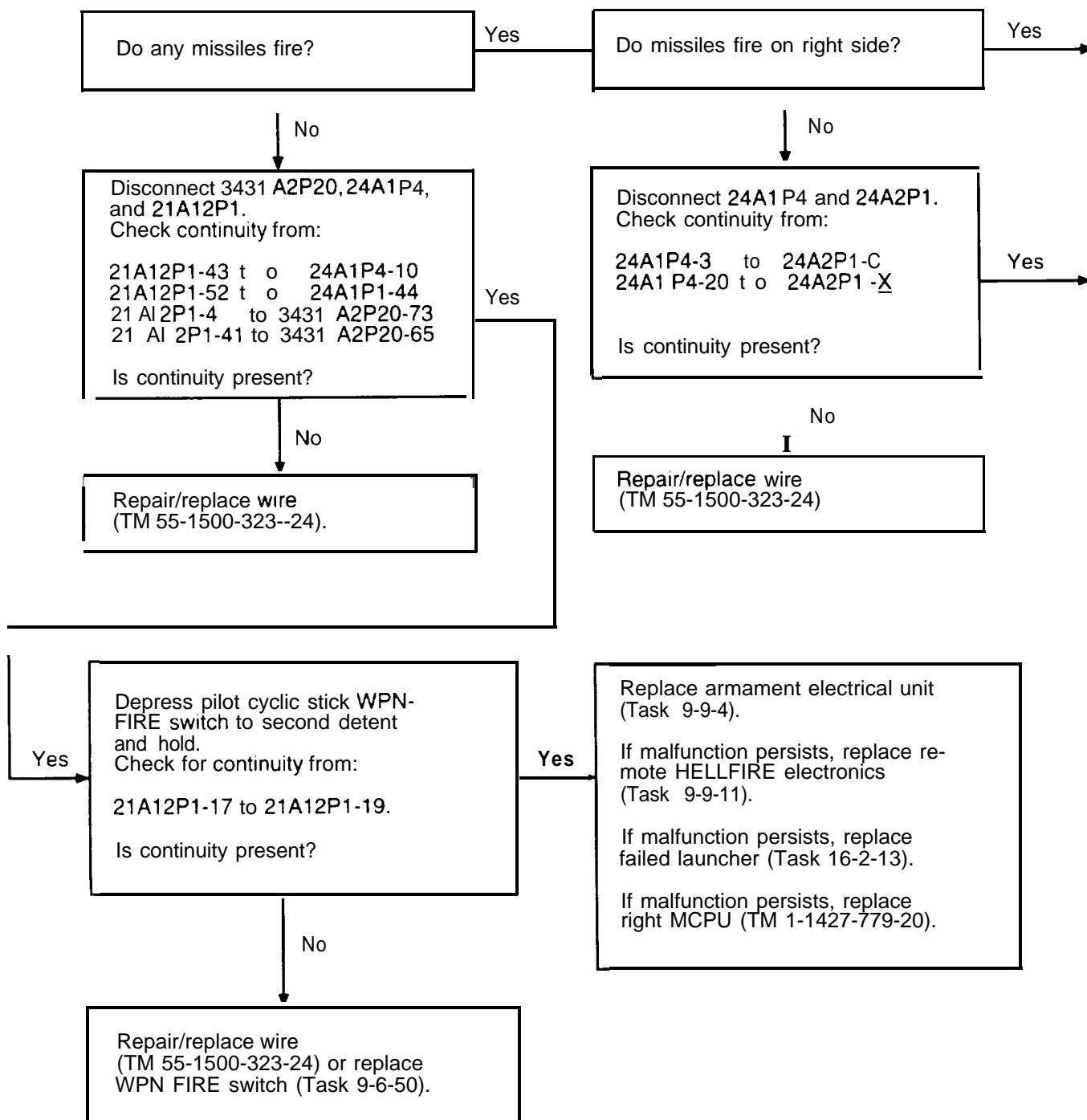
61. HELLFIRE SYSTEM FAILS LAUNCHER BIT (TASK 16-1-4).

406475 540 59
J1049

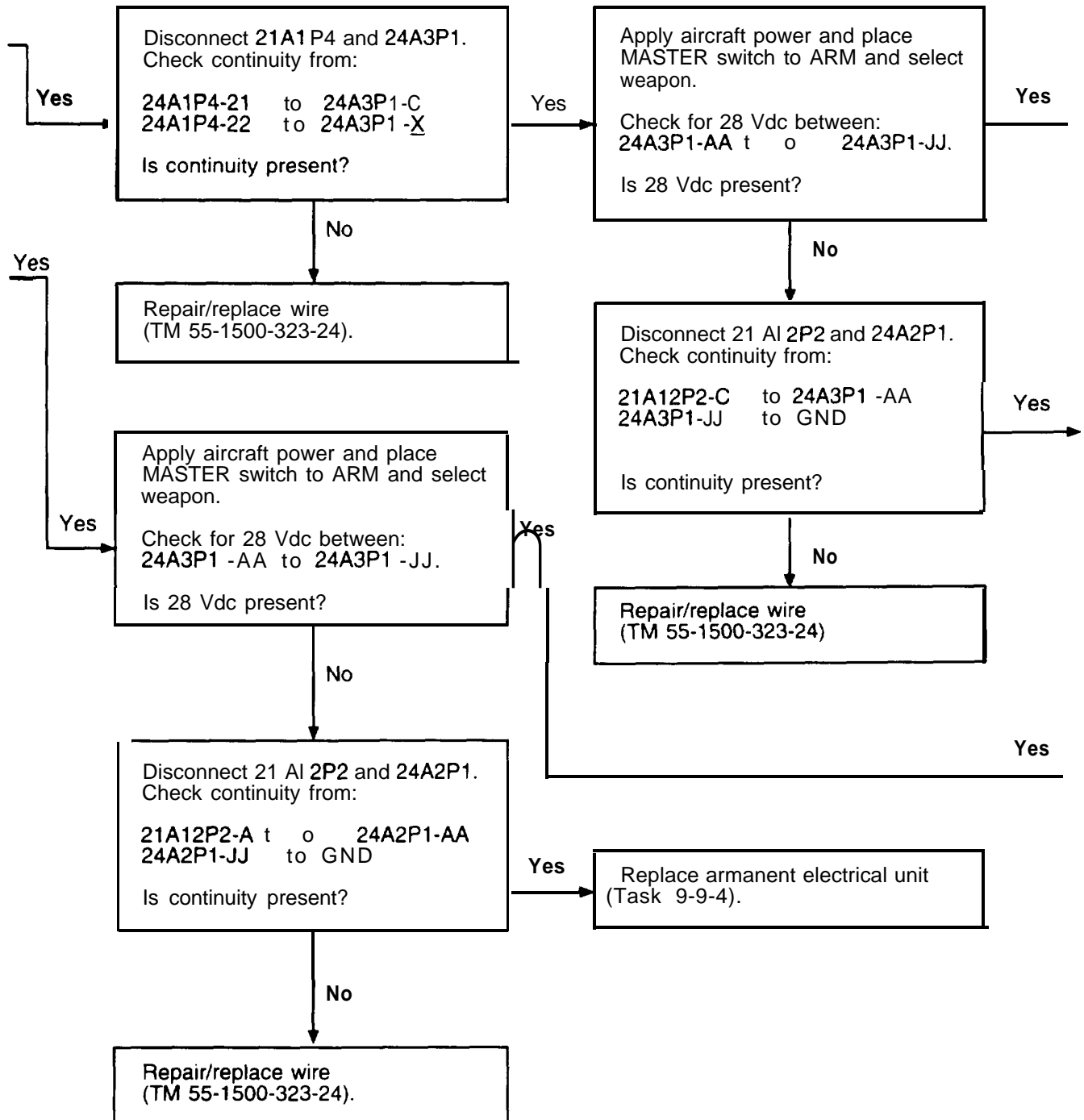
61. HELLFIRE SYSTEM FAILS LAUNCHER BIT (TASK 16-1-4).

408475-540-60
J1049

62. MFD DISPLAYS HELLFIRE ARMED AND READY, BUT CANNOT FIRE MISSILE



62. MFD DISPLAYS HELLFIRE ARMED AND READY, BUT CANNOT FIRE MISSILE (CONT)

TM 55-248-N68-2
H4218

62. MFD DISPLAYS HELLFIRE ARMED AND READY, BUT CANNOT FIRE MISSILE (CONT)

Yes

Replace defective missile
(TM 9-1440-431-23).

If malfunction persists, replace
failed launcher (Task 16-2-13).

If malfunction persists, replace
remote HELLFIRE electronics
(Task 9-9-11).

If malfunction persists, replace
right MCPU (TM 1-1427-779-20).

Yes

Replace armament electrical unit
(Task 9-9-4).

Yes

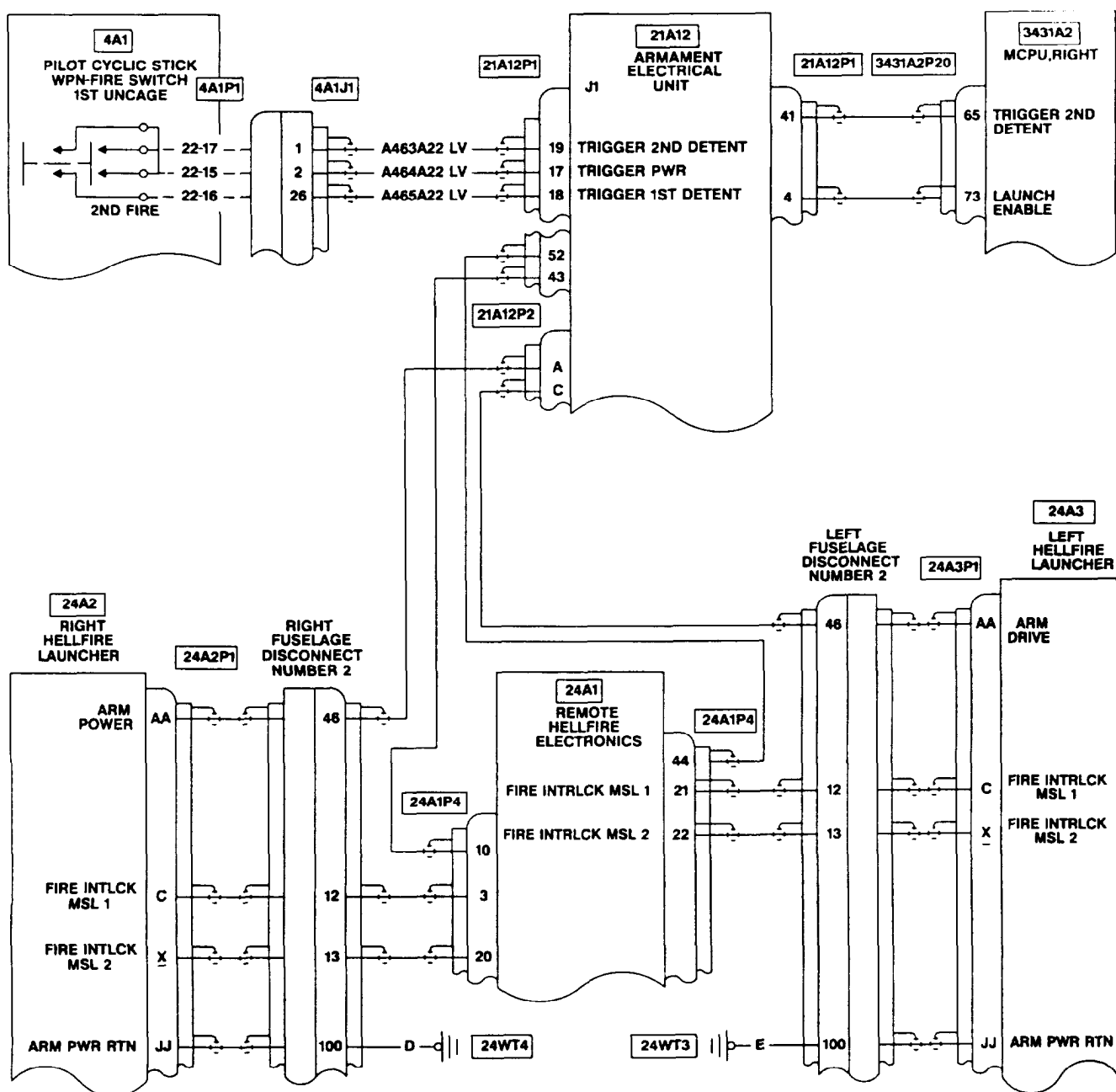
Replace defective missile
(TM 9-1440-431-23).

If malfunction persists, replace
failed launcher (Task 16-2-13).

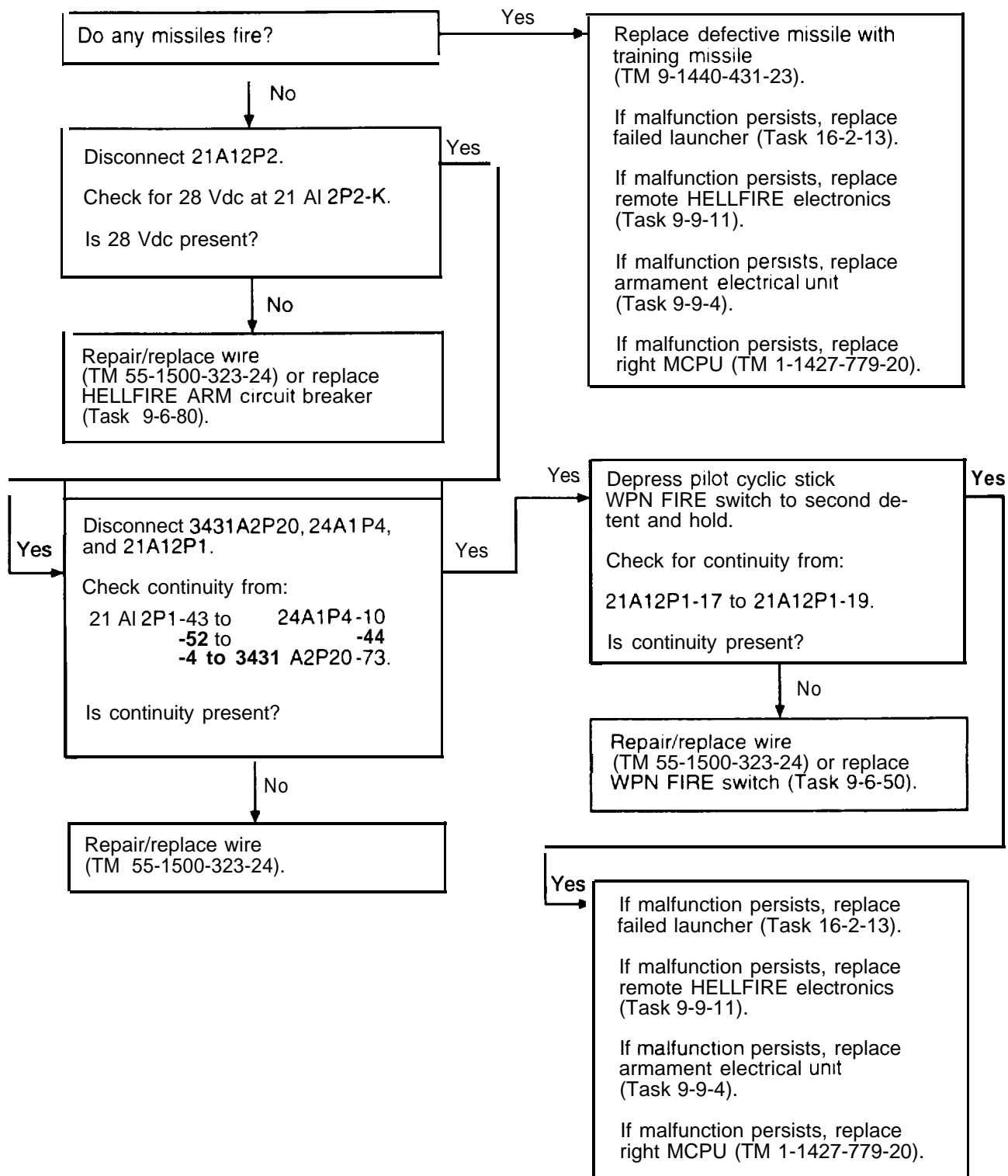
If malfunction persists, replace
remote HELLFIRE electronics
(Task 9-9-11).

If malfunction persists, replace
right MCPU (TM 1-1427-779-20).

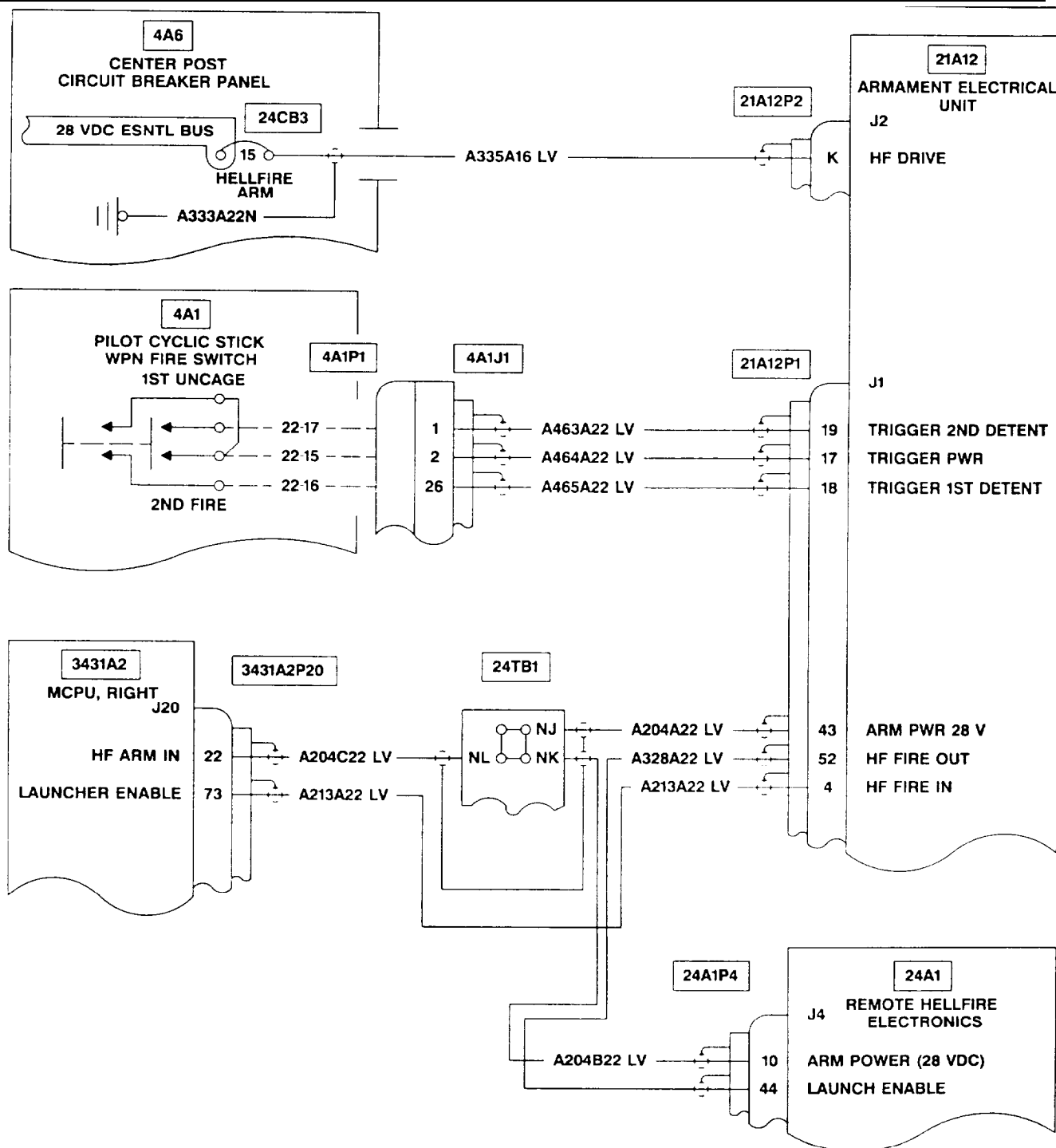
62. MFD DISPLAYS HELLFIRE ARMED AND READY, BUT CANNOT FIRE MISSILE (TASK 16-1-4)

406475-540-6
J1049

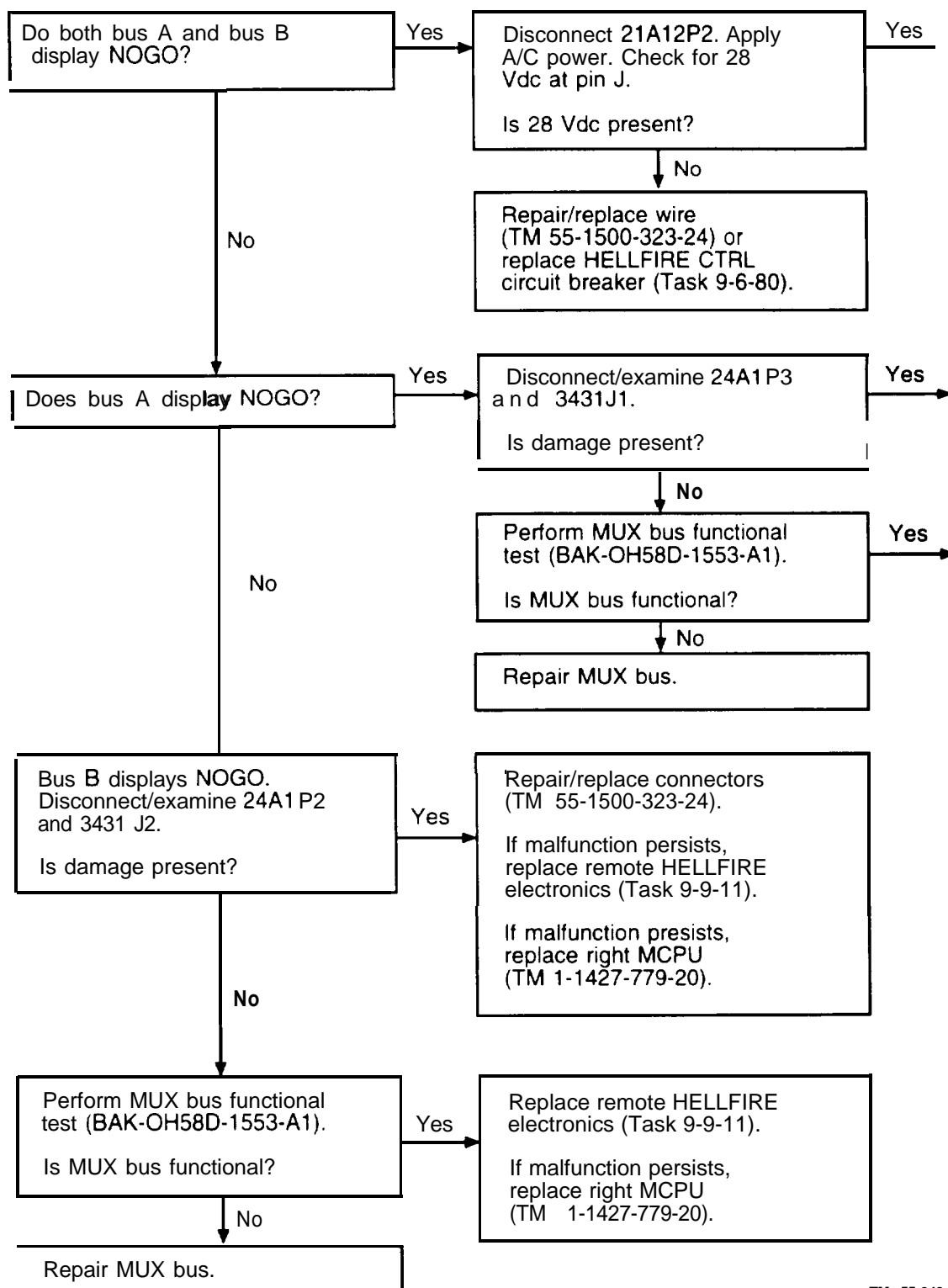
63. HELLFIRE MISSILE WILL NOT FIRE



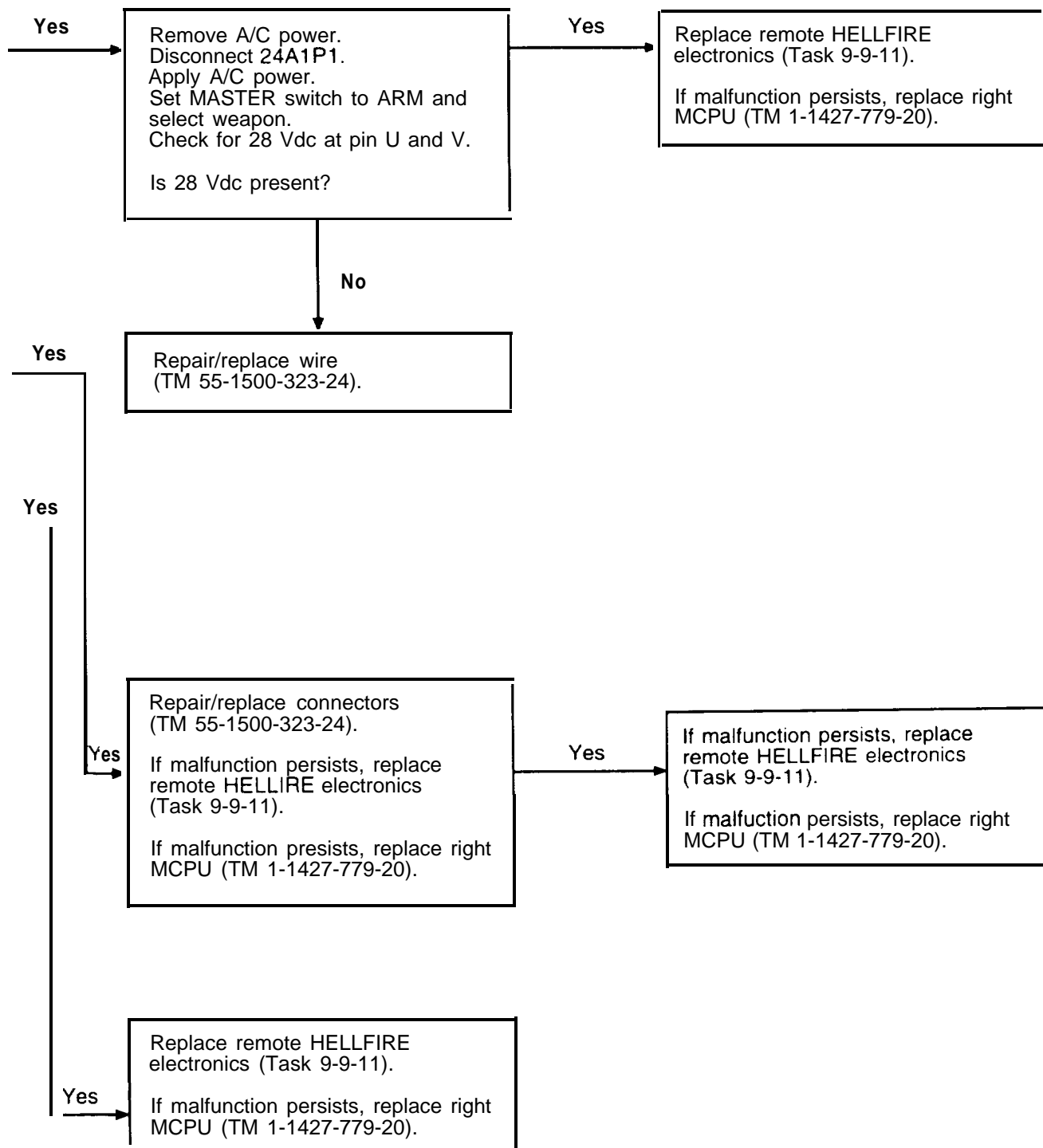
63. HELLFIRE MISSILE WILL NOT FIRE (TASK 16-1-4).

406475-540-62
J1049

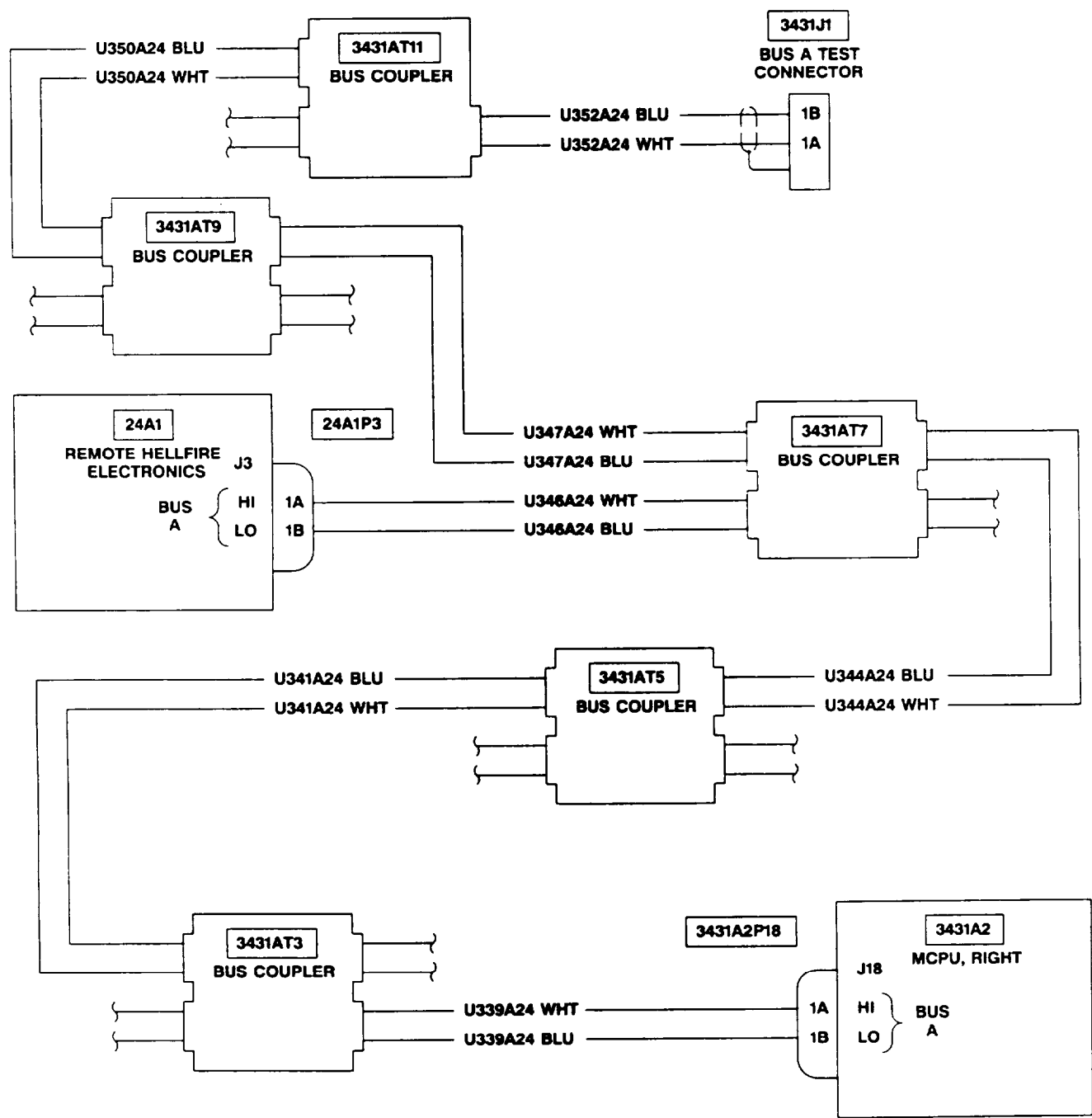
64. RHE INDICATES NOGO ON MUX BUS STATUS PAGE

TM 55-248-N79-1
H4218

64. RHE INDICATES NOGO ON MUX BUS STATUS PAGE (CONT)

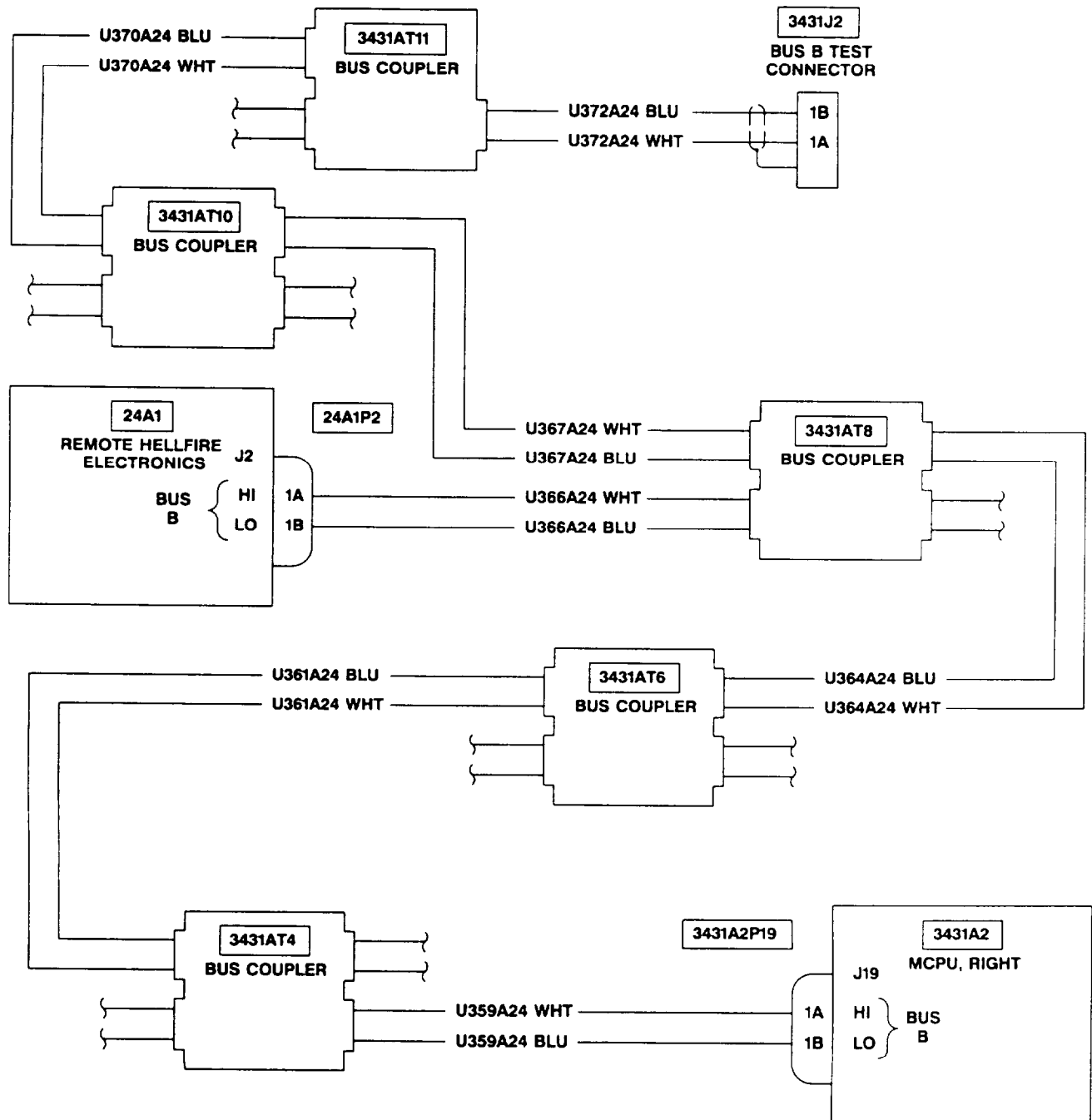


64. REH INDICATES NOGO ON MUX BUS STATUS PAGE (TASK 16-1-1)



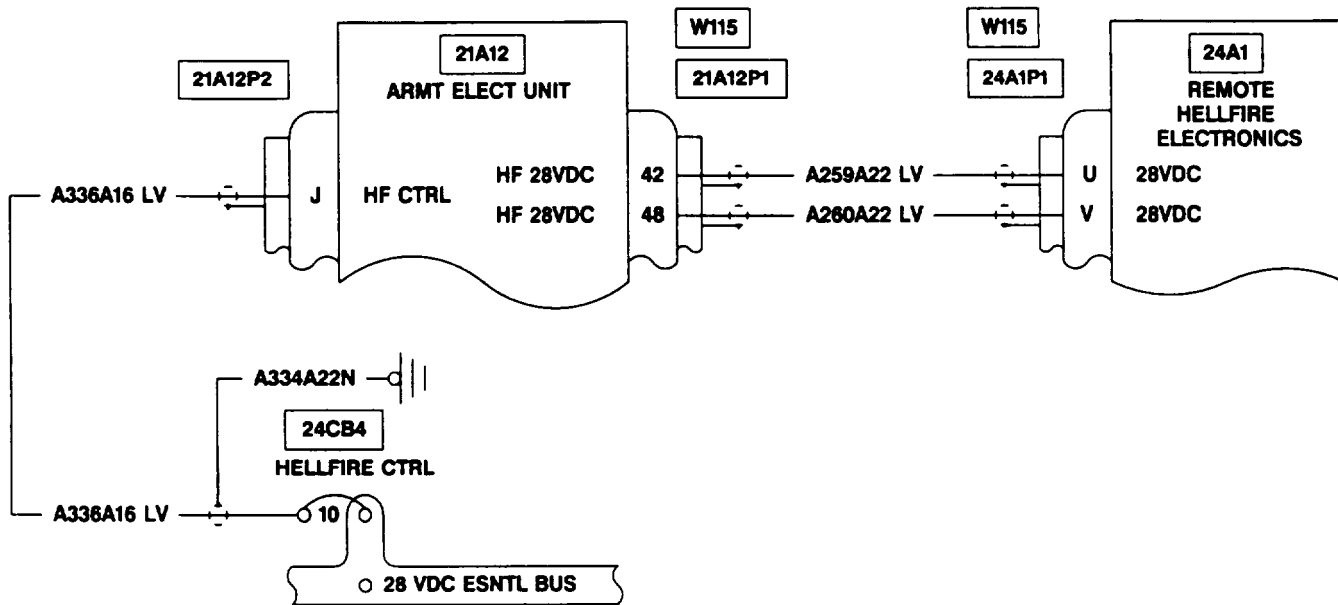
406475-540-63
.J1049

64. REH INDICATES NOGO ON MUX BUS STATUS PAGE (TASK 16-1-1)



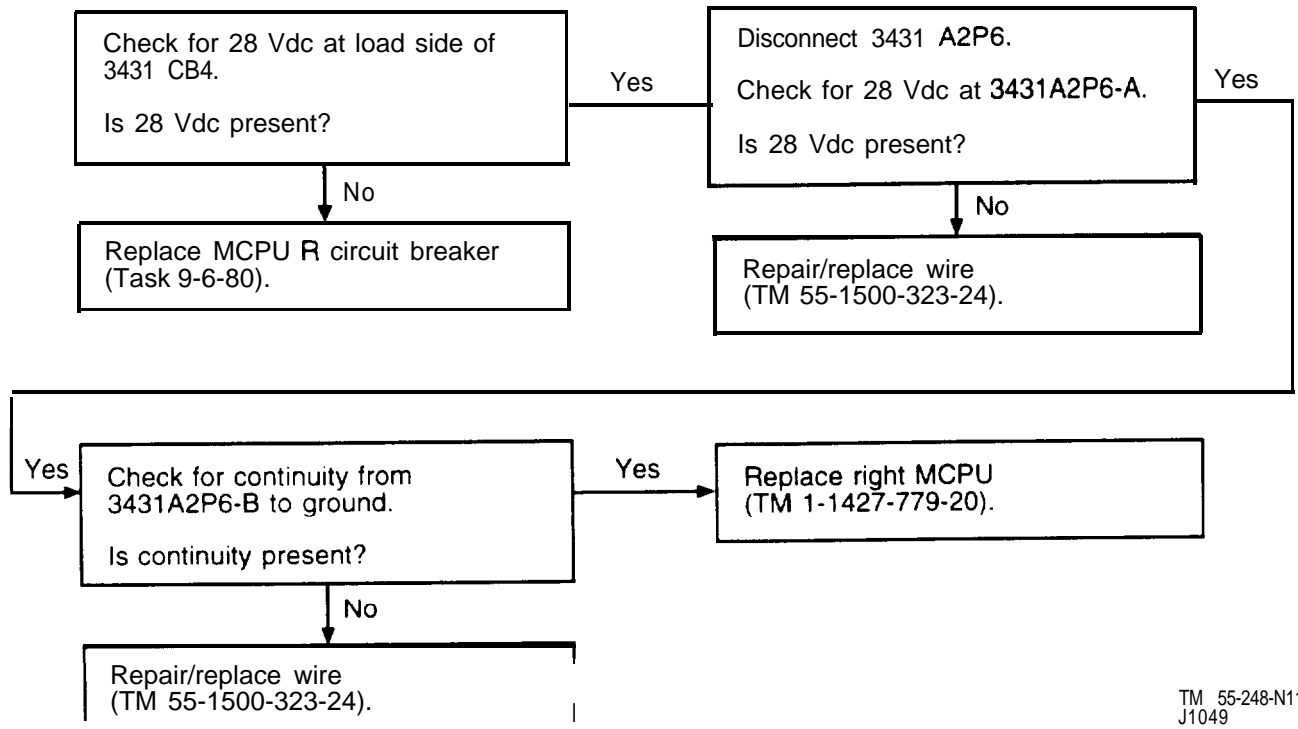
406475-540-64
J1049

64. REH INDICATES NOGO ON MUX BUS STATUS PAGE (TASK 16-1-1)

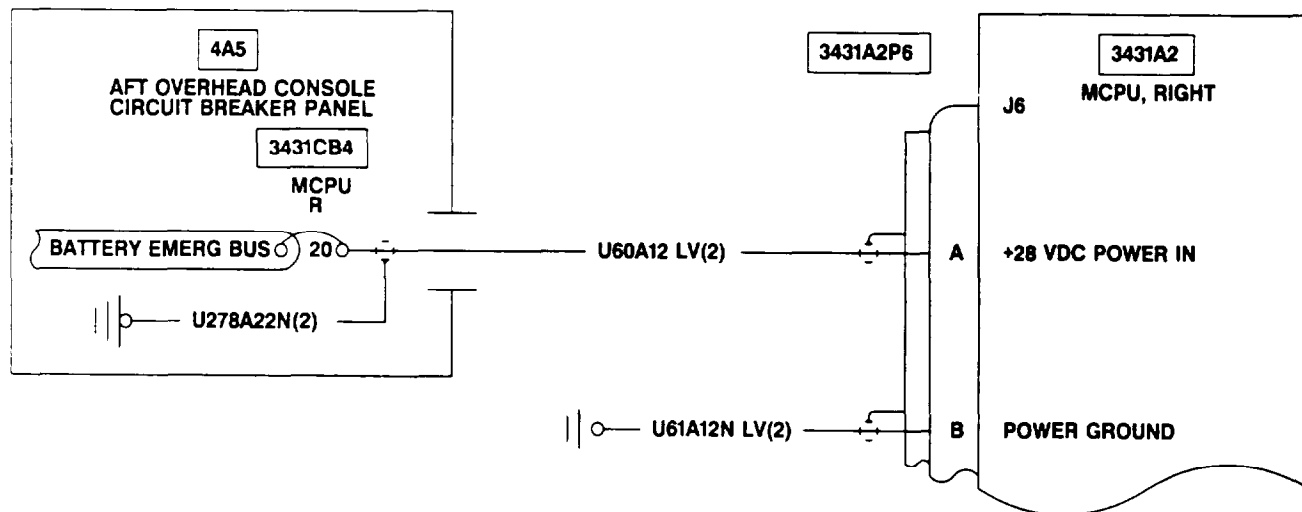


406475-540-65
J1049

65. RIGHT MCPU FAIL DISPLAYED ON MFDS

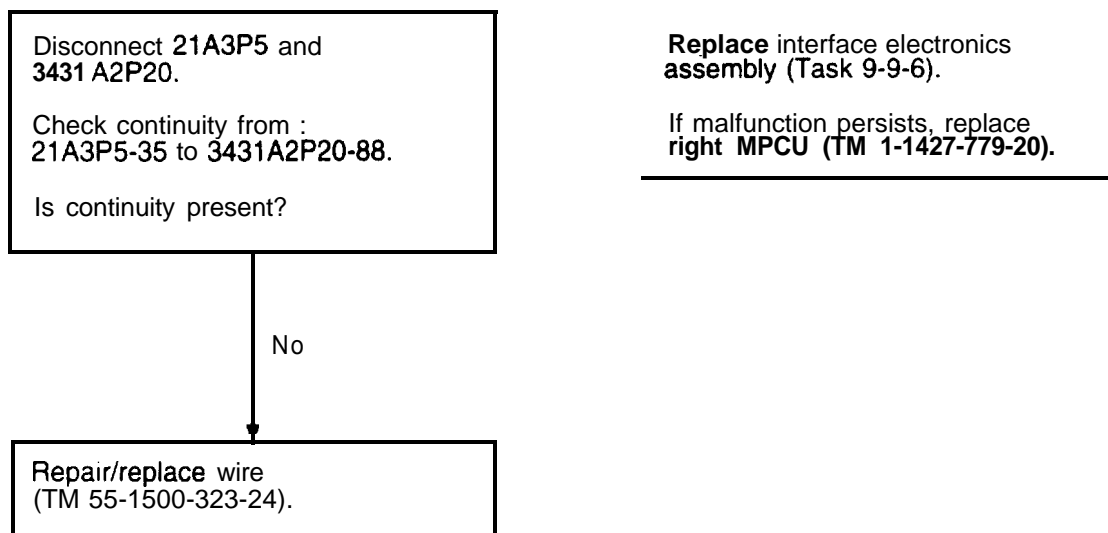
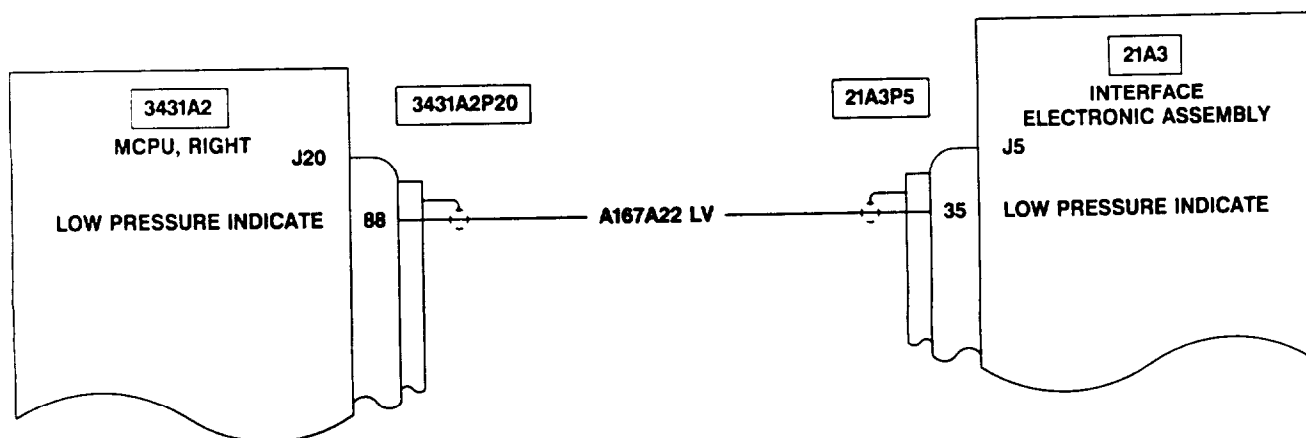
TM 55-248-N113
J1049

65. RIGHT MCPU FAIL DISPLAYED ON MFD'S (TASK 16-1-1).

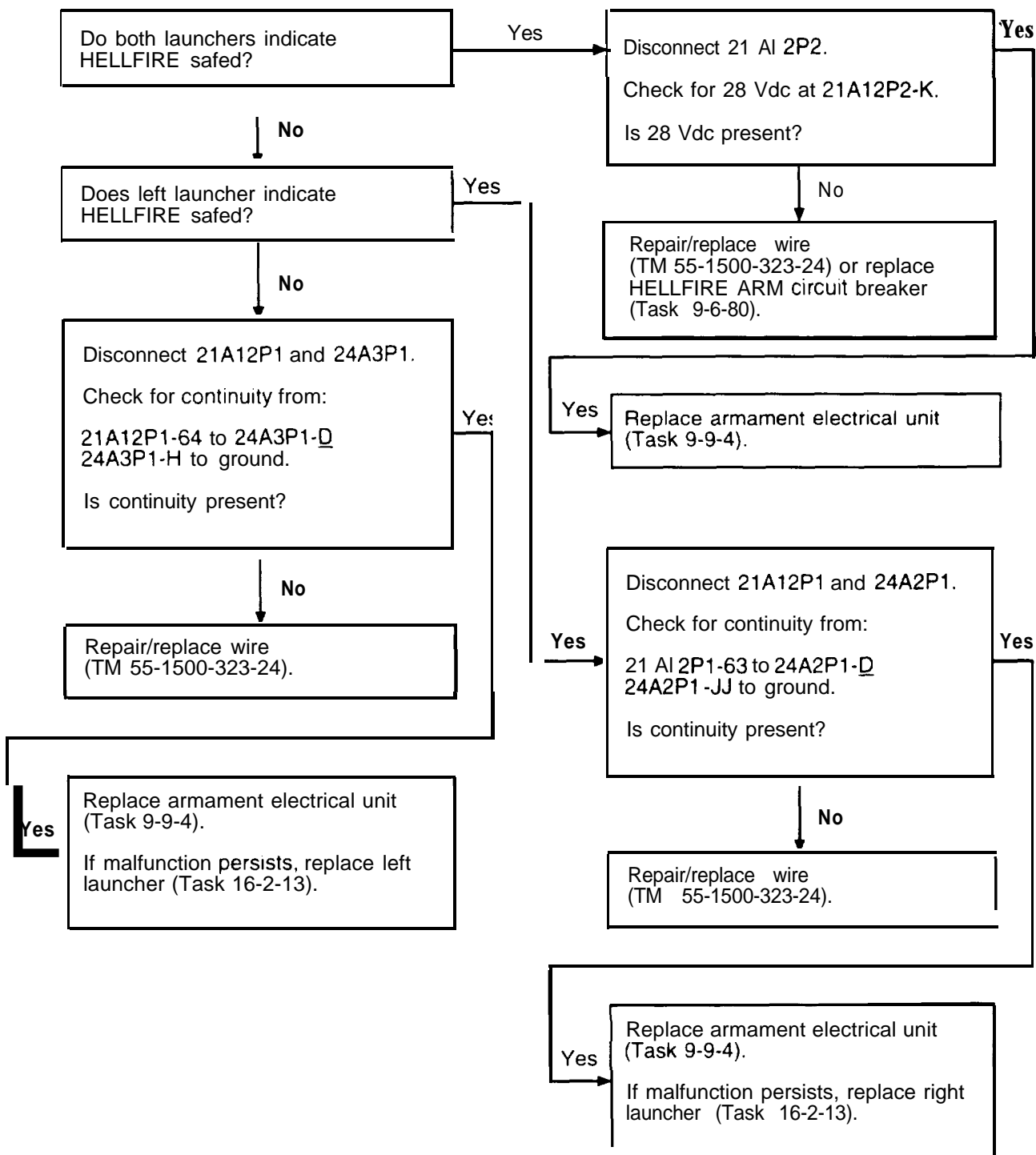


406475-540-66
J1049

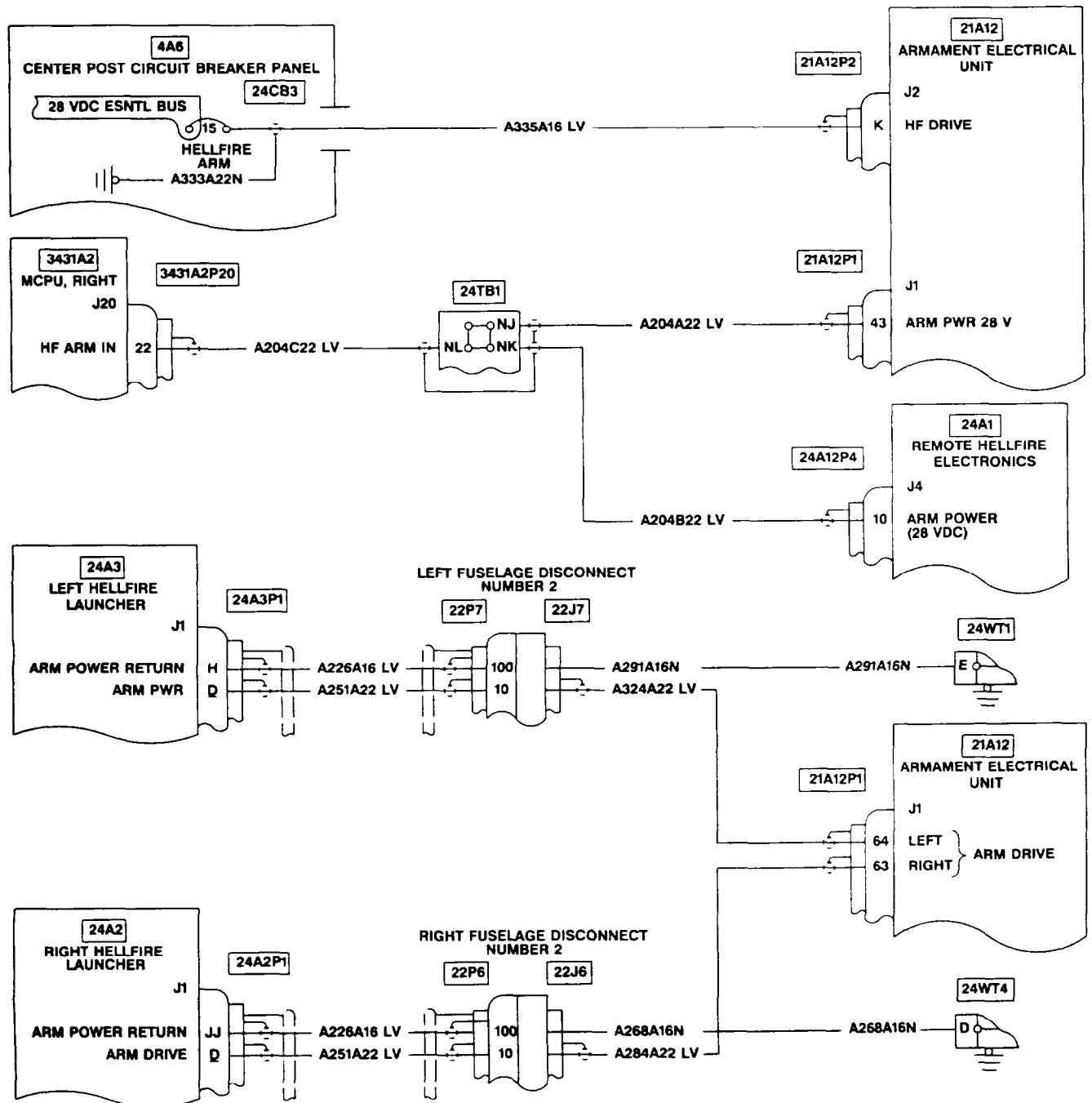
66. ATAS DOES NOT INDICATE LOW PRESSURE ON MFD WHEN ARGON BOTTLE IS LOW

TM55-248-N87
H3551406475-540-67
J1049

67. HELLFIRE LAUNCHER SAFE/ARM SWITCH IS ELECTRICALLY INOPERATIVE

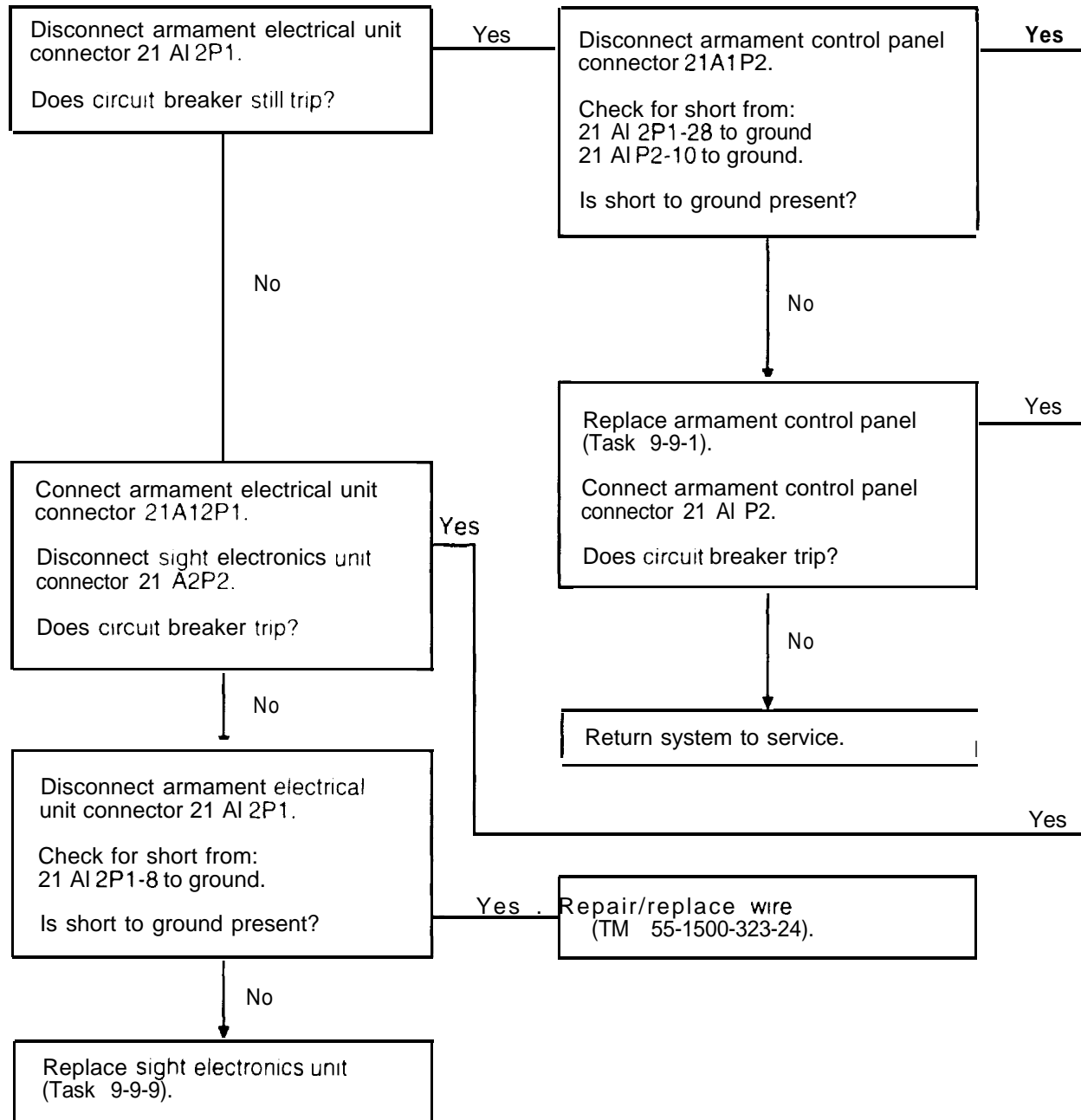
TM55_248_N88
H5073

67. HELLFIRE LAUNCHER SAFE/ARM SWITCH IS ELECTRICALLY INOPERATIVE (TASK 16-1-4).

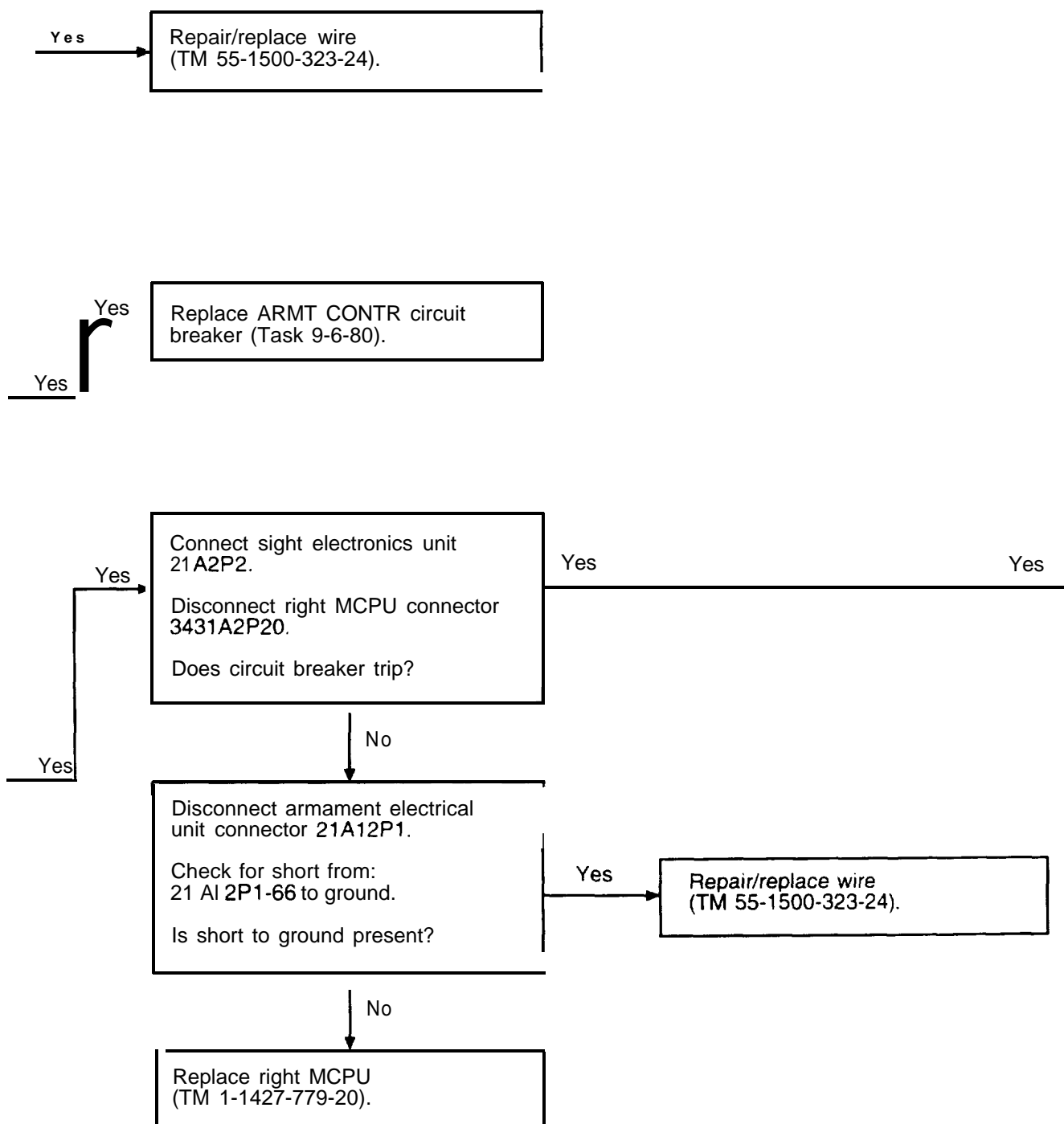


406475-540-68
J1049

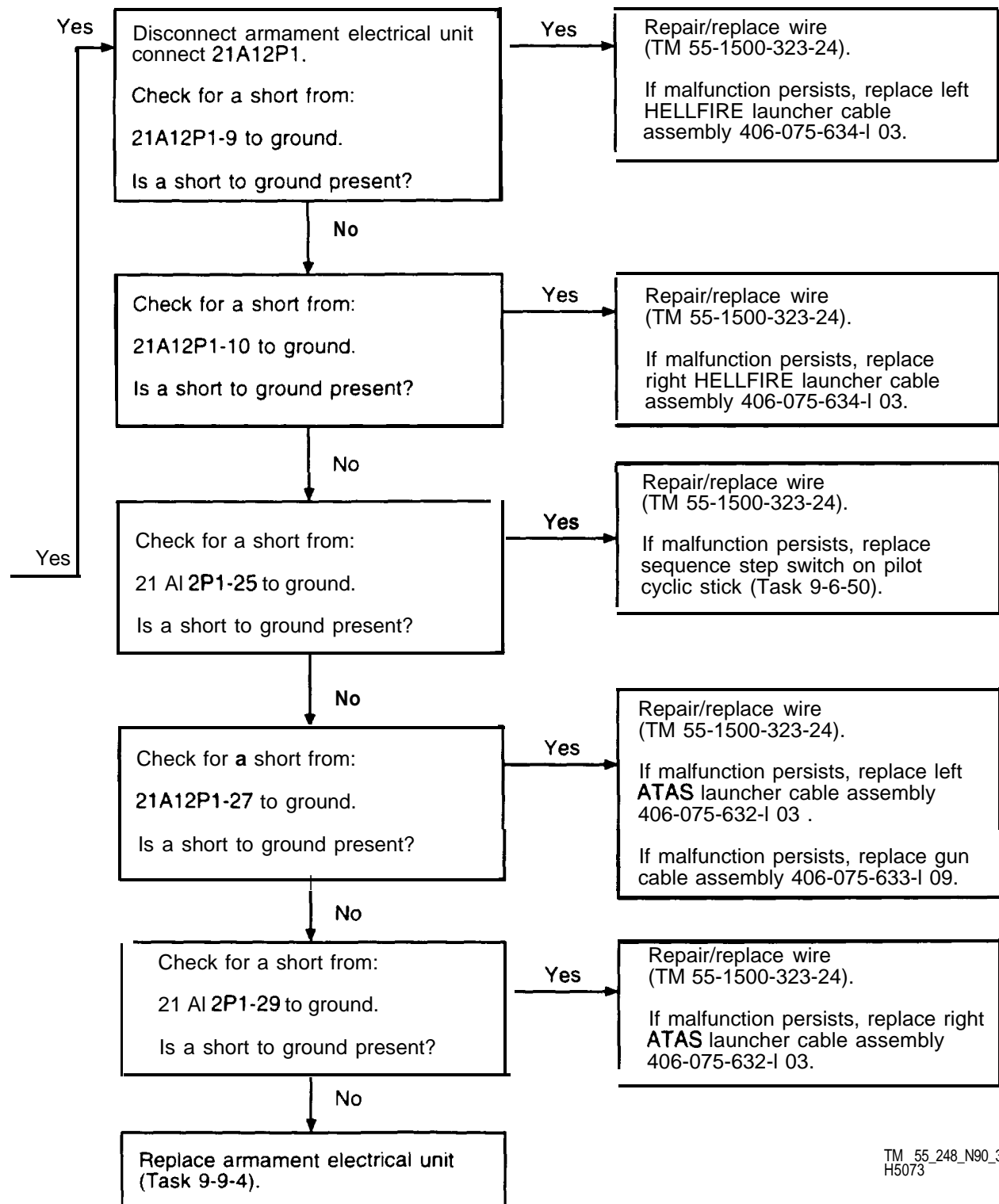
68. ARMT CONTR CIRCUIT BREAKER TRIPS WITH MASTER SWITCH IN STBY OR ARM



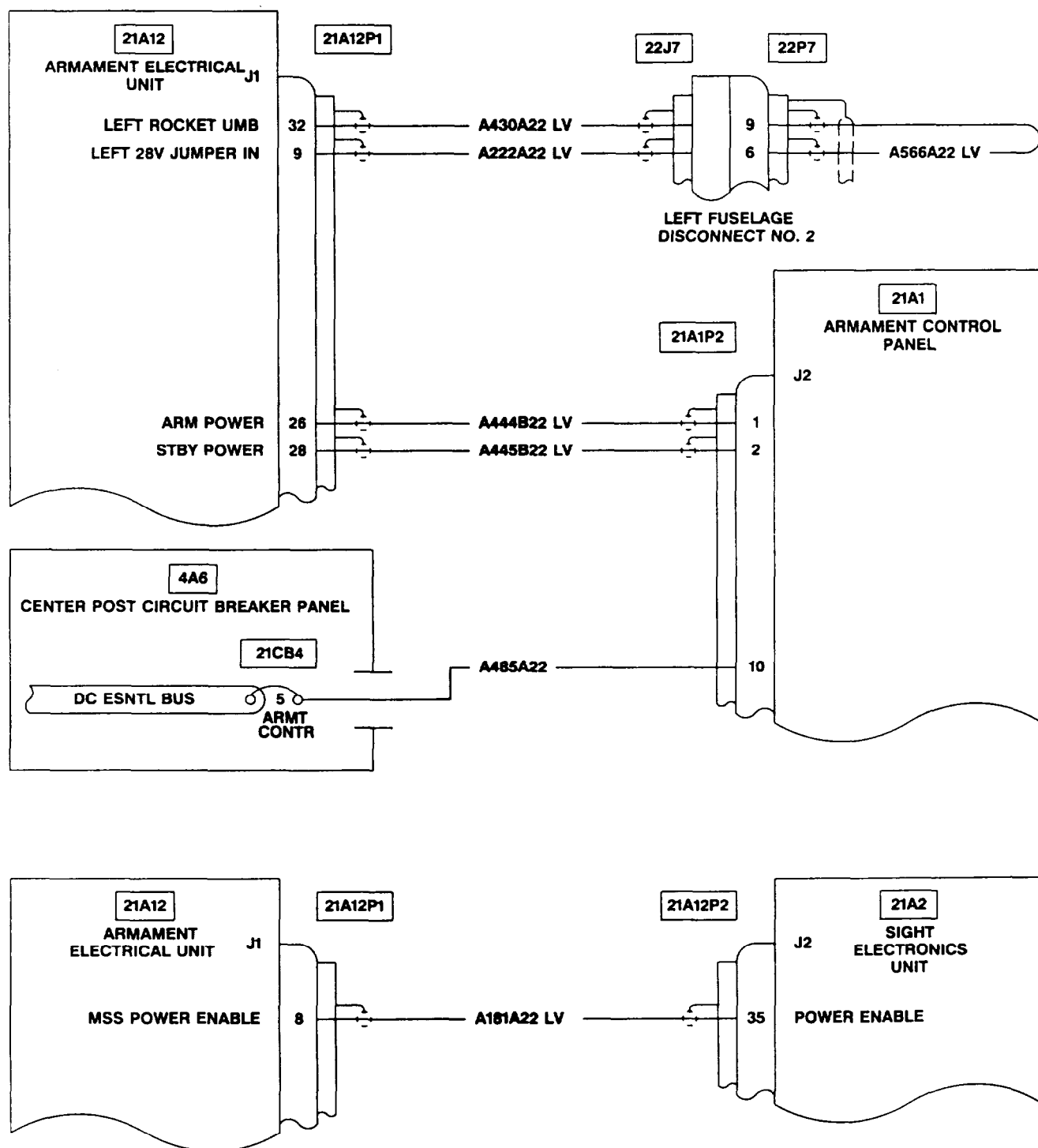
68. ARMT CONTR CIRCUIT BREAKER TRIPS WITH MASTER SWITCH IN STBY OR ARM (CONT)

TM55-248-N90-2
H3425

68. ARMT CONTR CIRCUIT BREAKER TRIPS WITH MASTER SWITCH IN STBY OR ARM (CONT)

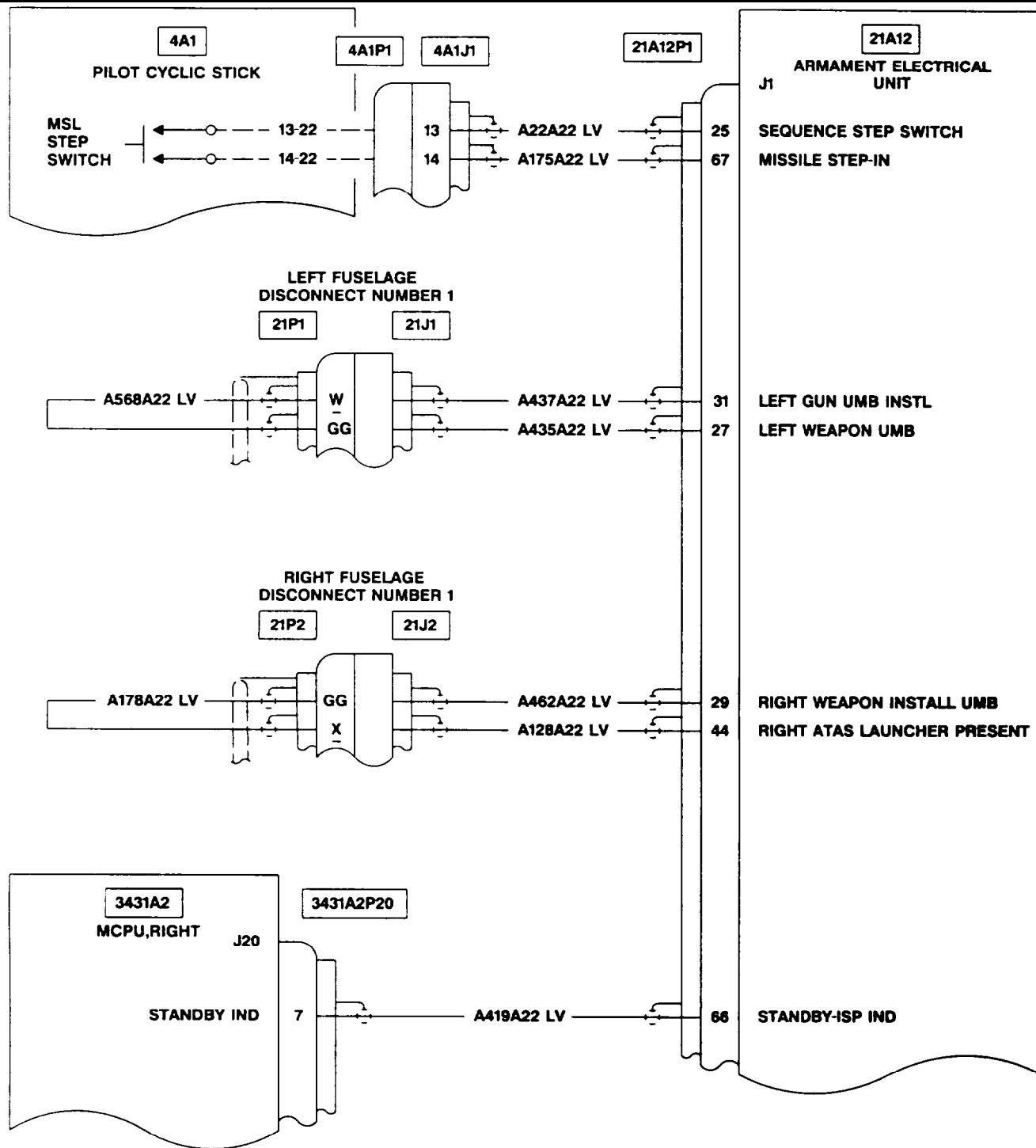
TM 55-248-N90_3
H5073

68. ARMT CONTR CIRCUIT BREAKER TRIPS WITH MASTER SWITCH IN STBY OR ARM (TASK 16-1-1).



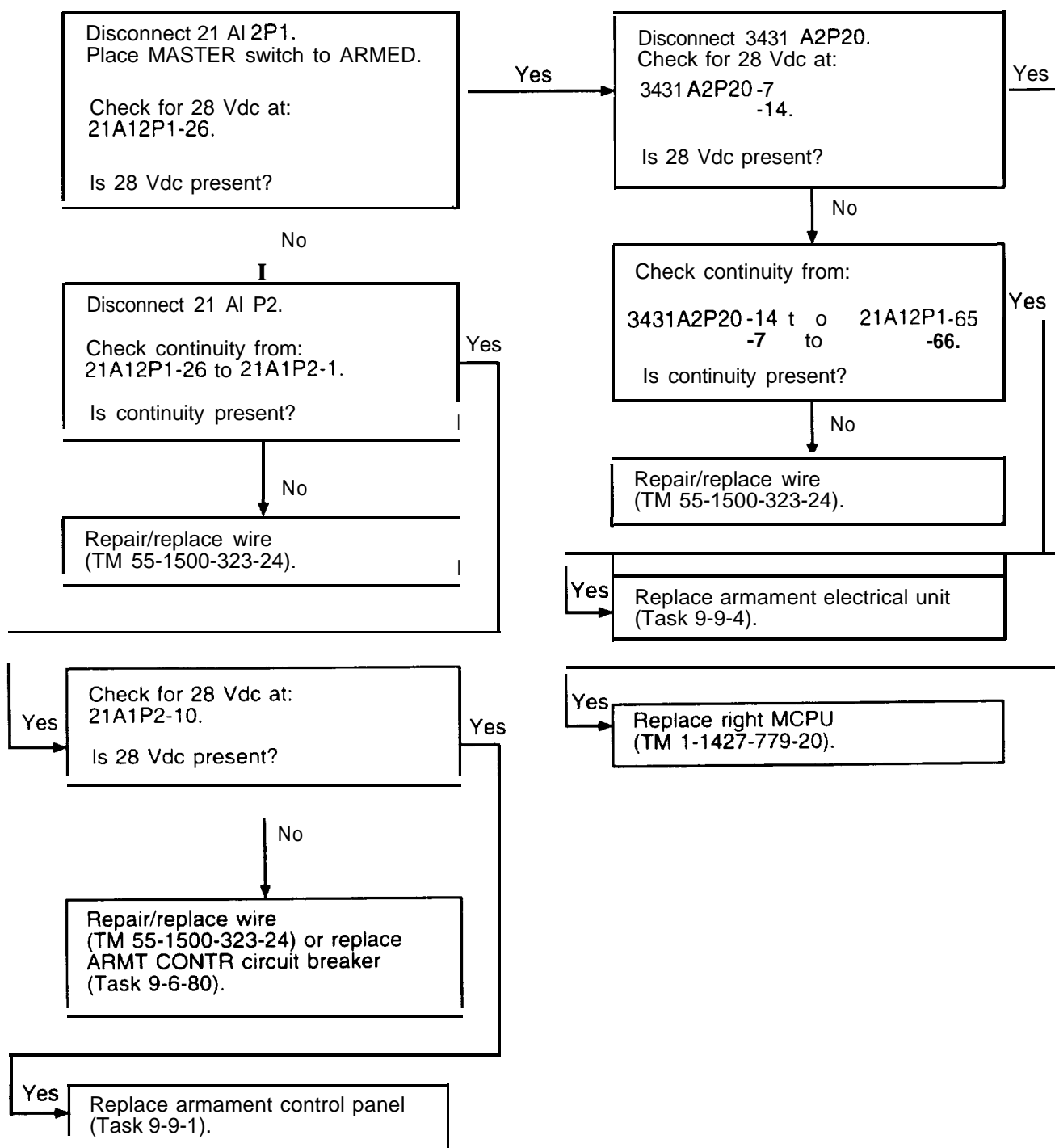
406475-540-89
J1049

68. ARMT CONTR CIRCUIT BREAKER TRIPS WITH MASTER SWITCH IN STBY OR ARM (TASK 16-1-1).

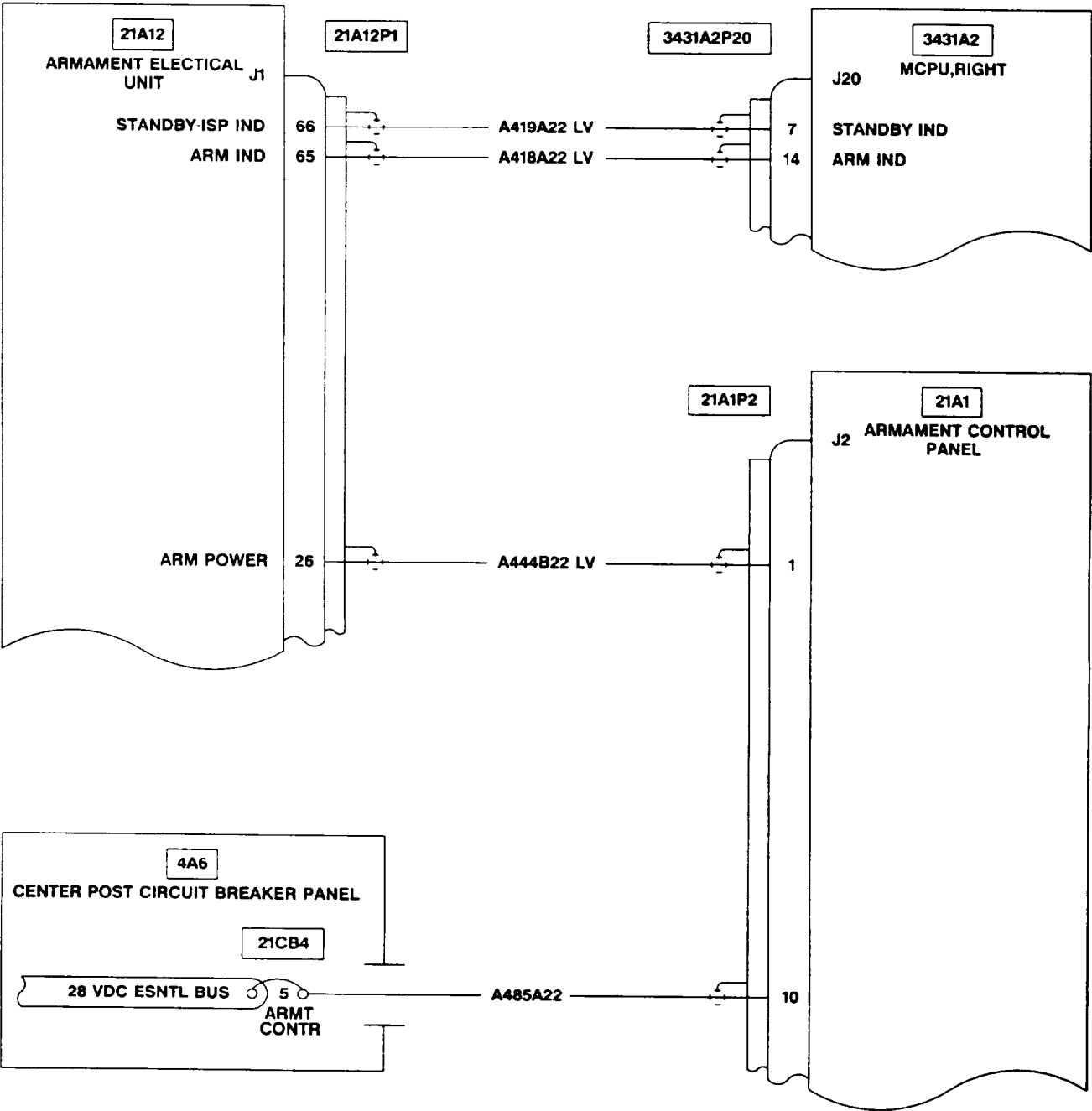


406475-540-70
J1048

69. WEAPON WILL NOT ARM

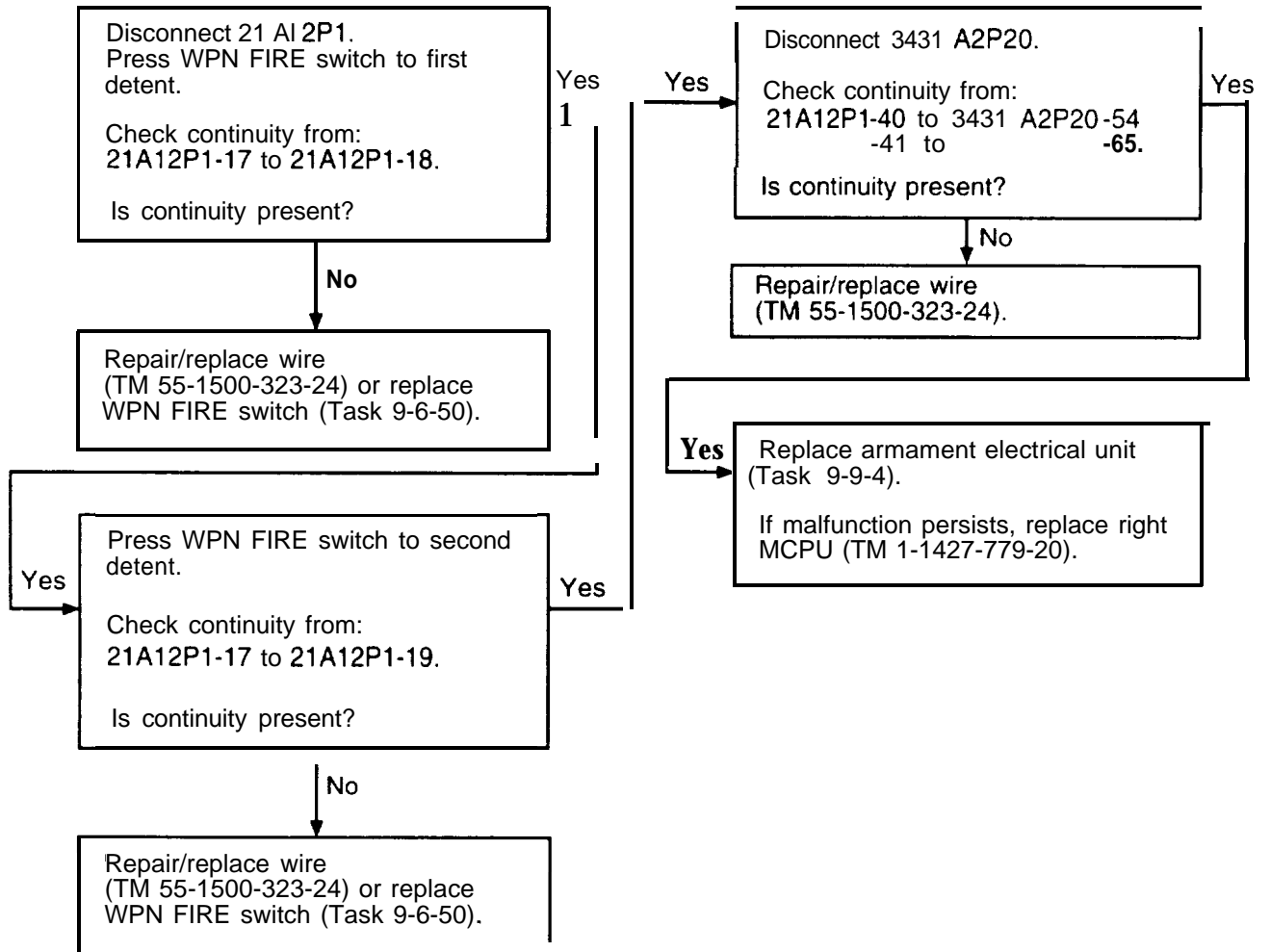
TM 55-248-N91
H3425

69. WEAPON WILL NOT ARM (TASK 16-1-1).

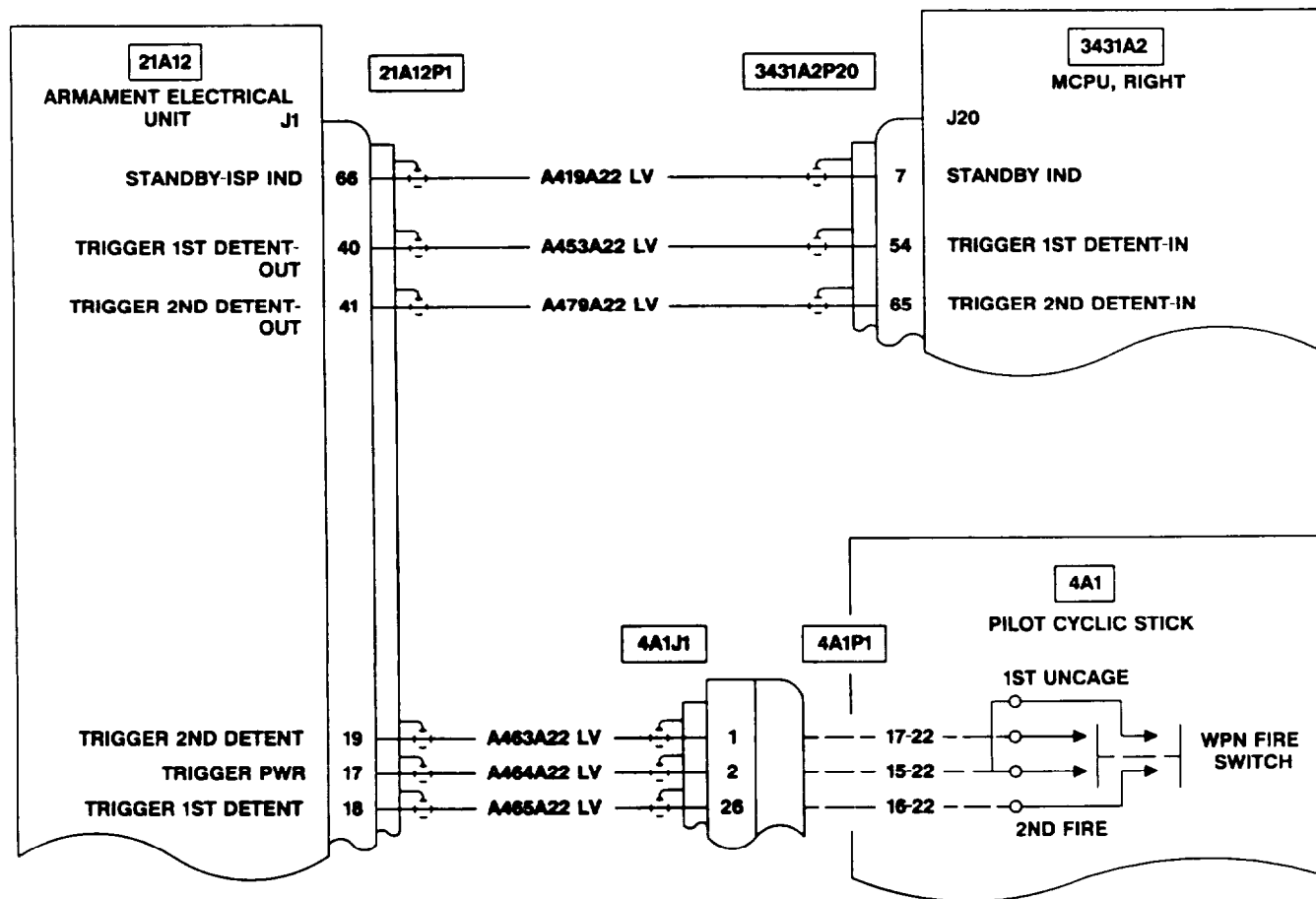


406475-540-71
J1049

70. WEAPON WILL NOT FIRE

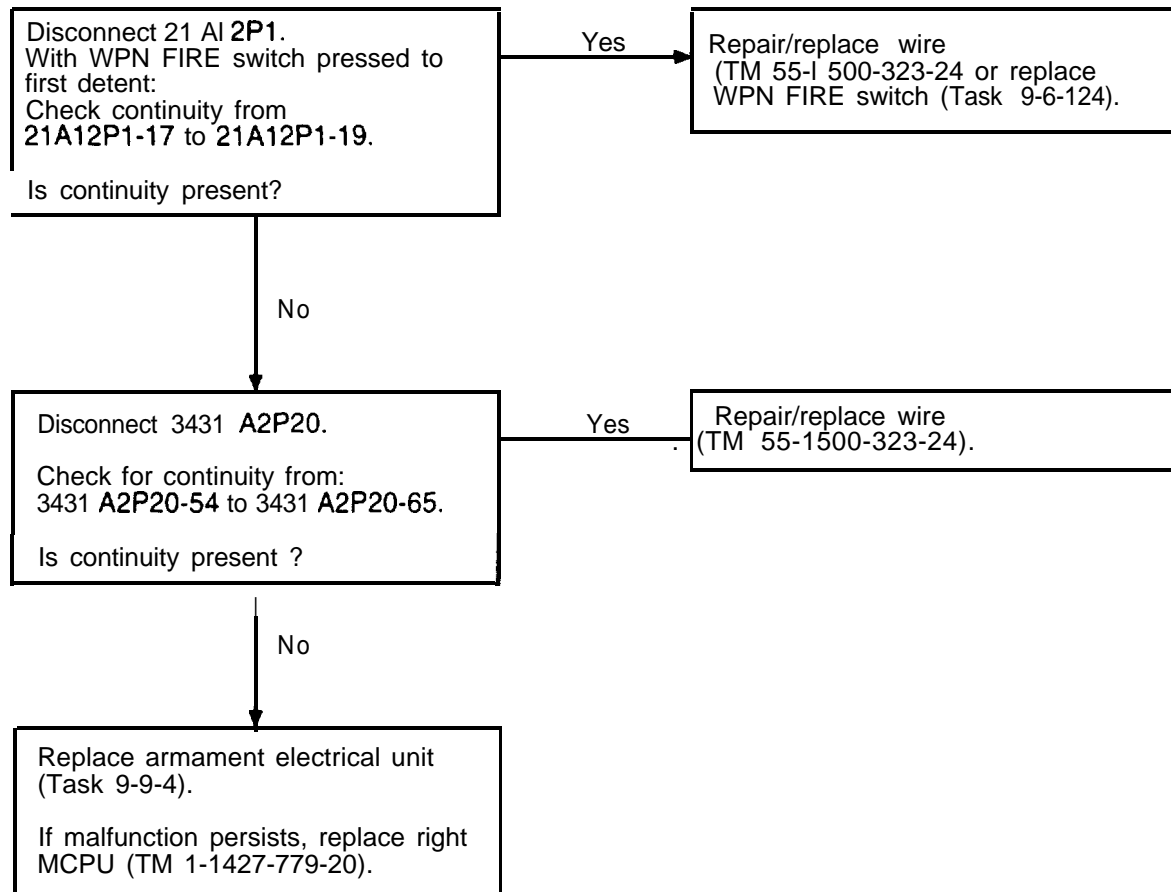


70. WEAPON WILL NOT FIRE (TASK 16-1-1).

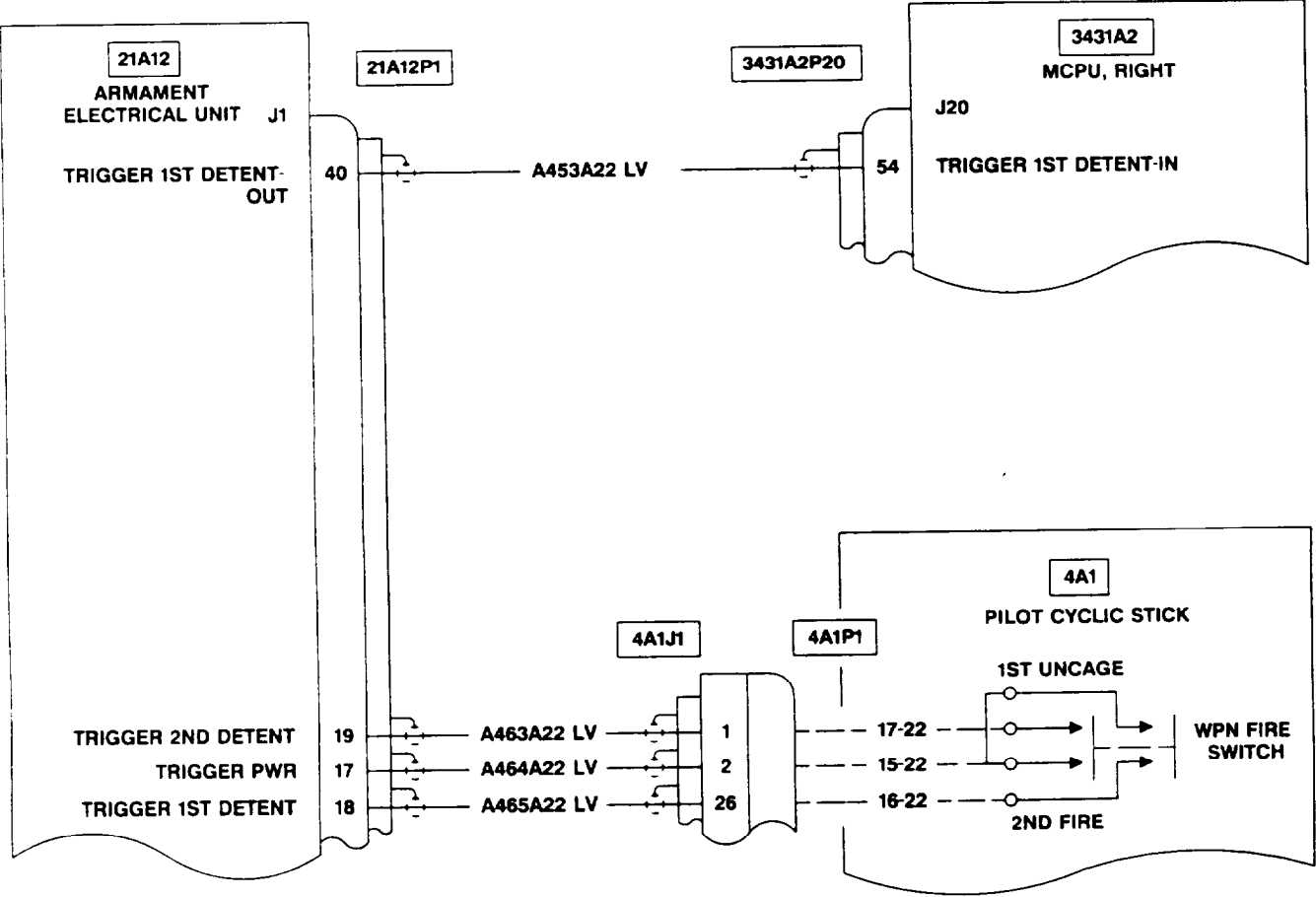


406475-540-72
J1049

71. ALL WEAPONS FIRE IN FIRST DETENT

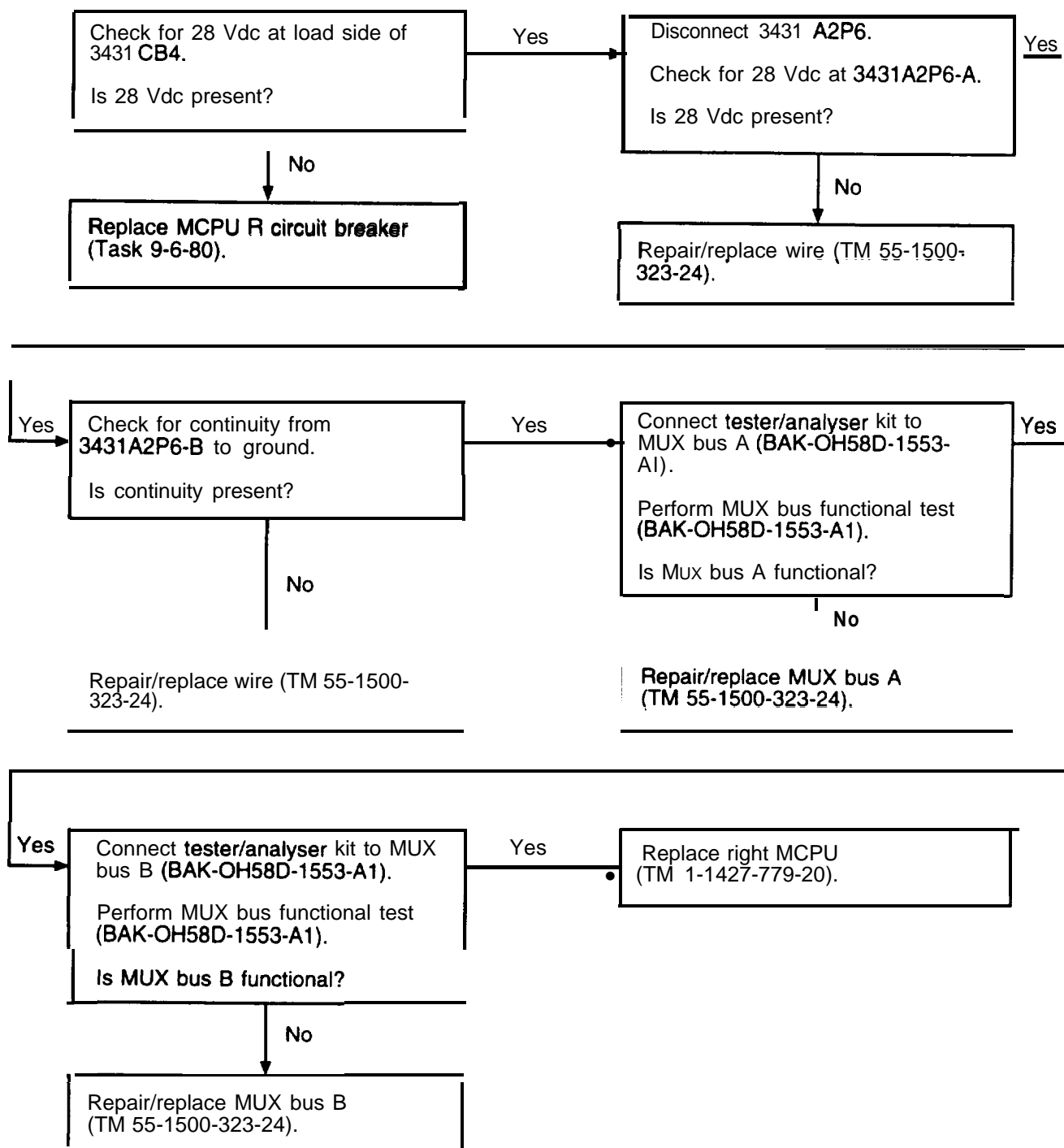


71. ALL WEAPONS FIRE IN FIRST DETENT (TASK 16-1-1).

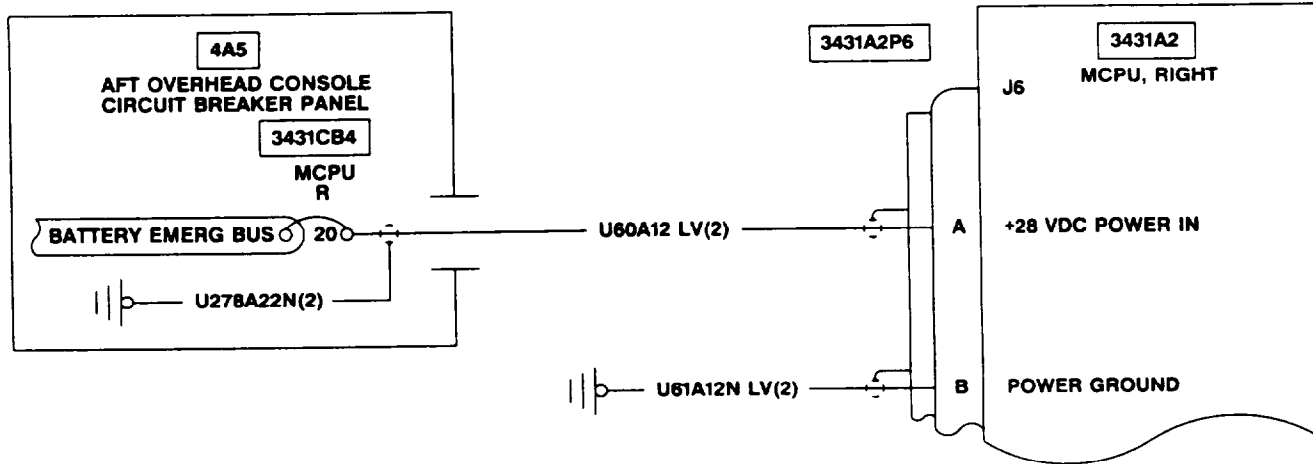


406475-540-73
J1049

72. MFD DOES NOT RESPOND TO WEAPONS. R MCPU NOGO IS DISPLAYED ON MUX STATUS PAGE

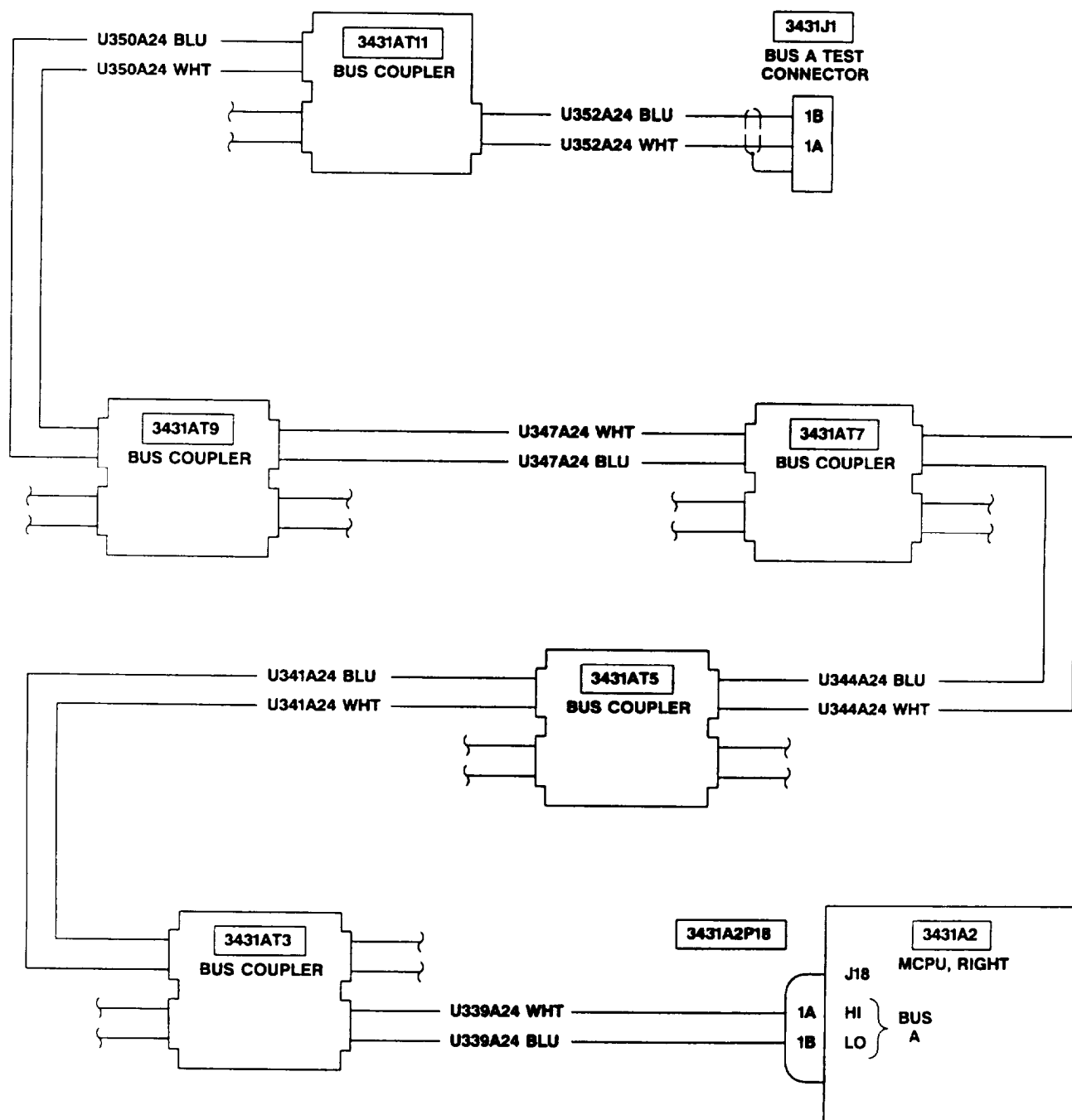


72. MFD DOES NOT RESPOND TO WEAPONS. R MCPU NOGO IS DISPLAYED ON MUX STATUS PAGE (TASK 16-1-1).



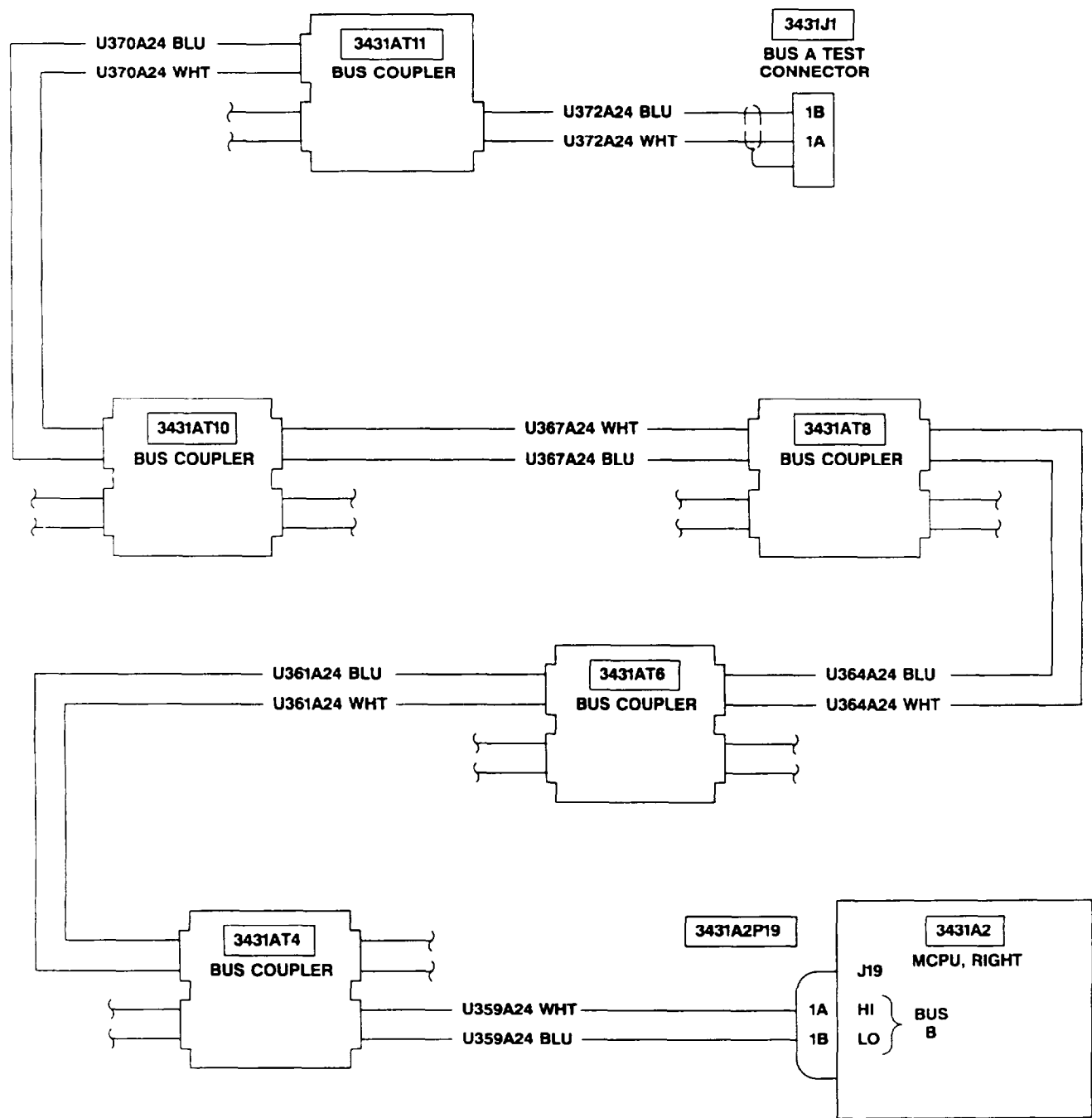
408475-540-74
J1049

72. MFD DOES NOT RESPOND TO WEAPONS. R MCPU NOGO IS DISPLAYED ON MUX STATUS PAGE (TASK 16-1-1).



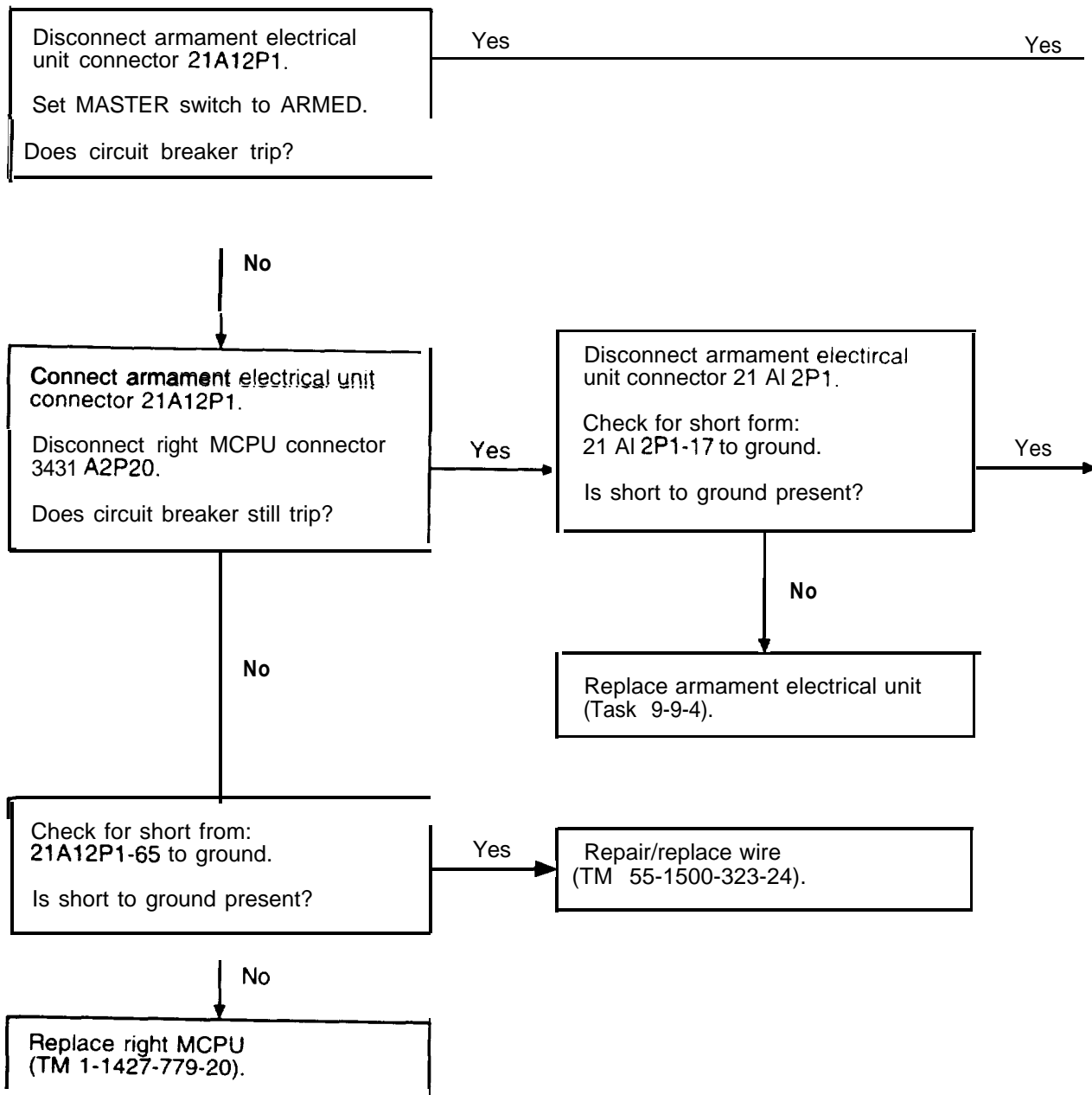
406475-540-75
J1049

72. MFD DOES NOT RESPOND TO WEAPONS. R MCPU NOGO IS DISPLAYED ON MUX STATUS PAGE (TASK 16-1-1).

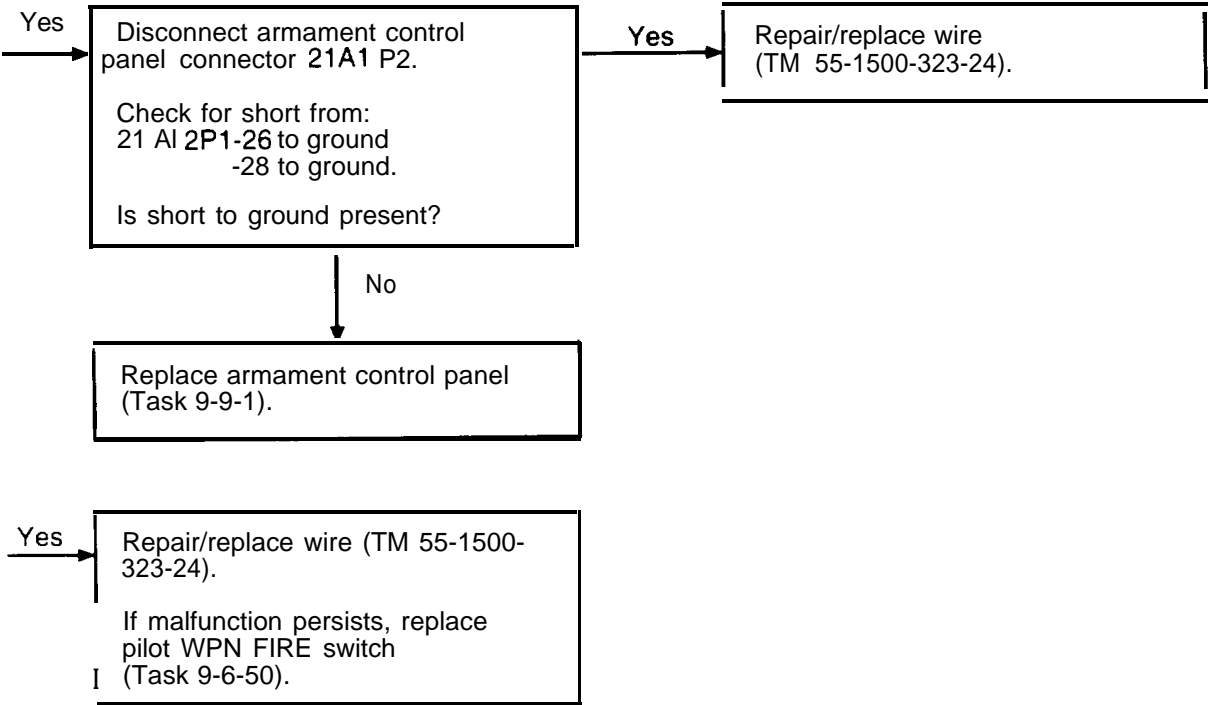


406475-540-76
J1049

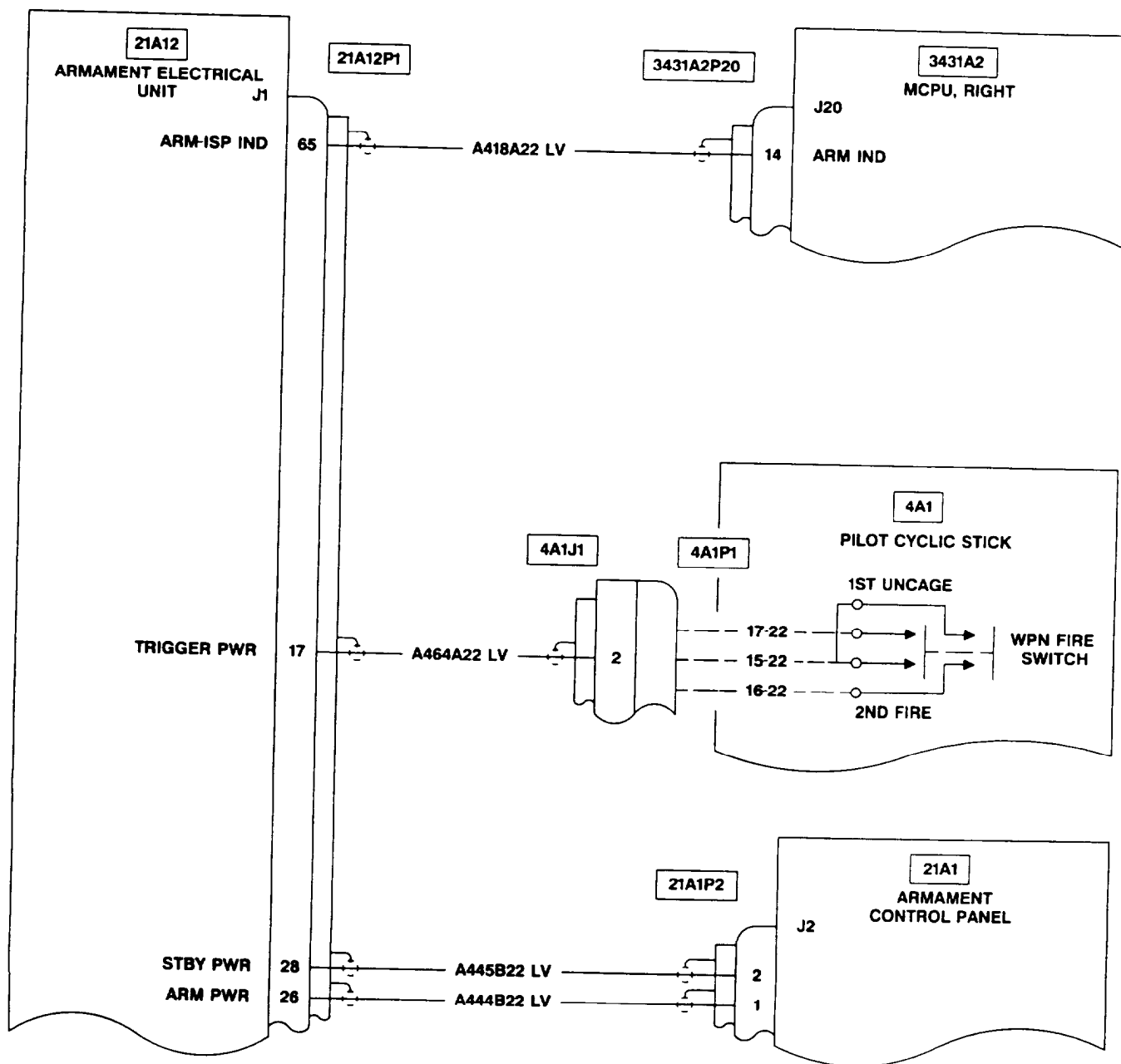
73. ARMT CONTR CIRCUIT BREAKER TRIPS WITH MASTER SWITCH IN ARM OR STBY

TM 55-248-N108_1
H5073

73. ARMT CONTR CIRCUIT BREAKER TRIPS WITH MASTER SWITCH IN ARM OR STBY (CONT)



73. ARMT CONTR CIRCUIT BREAKER TRIPS WITH MASTER SWITCH IN ARM OR STBY.

406475-540-77
J1049

APPENDIX P

STANDARD TORQUE VALUES

P-1. INTRODUCTION.

Appendix P lists standard torque values, torque wrench selection, and usage required throughout the maintenance manual for use on OH-58D and OH-58D(1) helicopters.

P-2. TORQUE VALUES.

WARNING

Do not exceed the maximum allowable torque value. Overstressing of the bolt or nut may result.

P-3. Torque.

a. The torque value charts, figure P-1, provide required torque for various combinations of bolts and nuts. The torque specified is the torque, plus friction drag of the self-locking feature.

CAUTION

Recommended installation torque range and maximum allowable torque are given. Tare torque shall be added to torque value listed unless otherwise stated.

Torque values for fluid connections are given in figure P-2.

Torque values for studs are given in figure P-3.

b. Torque value charts usage.

(1) To locate the correct torque for a bolt and nut the following information must be known:

- (a) Type of bolt used (AN, MS, NAS144, NAS583, etc.).
- (b) Type of nut used (AN316, AN310, MS21043, etc.).
- (c) Thread size of bolts (10-32, 1/4-28, 5/16-24, 3/8-24, etc.).

(2) When all three items of information are known, the correct torque can be found in figure P-1.

- (a) Locate the sheet that carries the primary bolt number (designation) and number of the nut.
- (b) Locate thread size and read across for torque values.
- (c) Minimum breakaway torque values of self-locking bolts and nuts are found in table 1.

P-4. Recommended Installation Torque Range.

The recommended installation torque range shall be used for all applications for bolts and nuts, figure P-1.

P-5. Specified Torques.

When torques are specified in procedural steps of the applicable maintenance or overhaul manual, they take preference over torque values given in figures P-1 through P-3.

TORQUE VALUE CHART (DRY)			
BOLT	NUT	BOLT DIAMETER/ THREAD SIZE	RECOMMENDED INSTALLATION TORQUE RANGE
AN3 thru AN20 AN42 thru AN49 AN173 thru AN186 AN509 AN525 MS20004 thru MS20024 MS20033 thru MS20046 MS20073 thru MS20081 MS24694 MS27039 NAS144 thru NAS156 NAS220 thru NAS227 NAS333 thru NAS340 NAS464 NAS517 NAS583 thru NAS590 NAS623 NAS1003 thru NAS1020 NAS1202 thru NAS1210 NAS1218 NAS1297 NAS1303 thru NAS1320 NAS1351 (non-locking) NAS1352 (non-locking) ALL THREADED STUDS	AN316 AN320 AN341 AN345 AN364 AN150401 thru AN150425 MS20341 MS20364 MS21083 MS25082 MS35650 MS35691 MS51968 NAS1022	10 - 32	12 to 15 in. - lb.
		1/4 - 26	30 to 40 in. - lb.
		5/16 - 24	50 to 65 in. - lb.
		3/8 - 24	95 to 110 in. - lb.
		7/16 - 20	270 to 300 in. - lb.
		1/2 - 20	24 to 34 ft. - lb.
		9/16 - 18	40 to 50 ft. -lb.
		5/8 - 18	55 to 65 ft.-lb.
		3/4 - 16	106 to 125 n. . lb.
		7/8 -14	125 to 150 ft. - lb.
		1 - 1 2	183 to 275 ft. . lb.
		1 1/8 - 12	250 to 350 ft. - lb.
		1 1/4 - 12	450 to 650 ft. - lb.

NOTE: The above values apply to any combination of bolt and nut shown unless otherwise specified.

408010-506-1
H2214

Figure P-1. Torque Values (Sheet 1 of 5)

TORQUE VALUE CHART (DRY)			
BOLT	NUT	BOLT DIAMETER THREAD SIZE	RECOMMENDED INSTALLATION TORQUE RANGE
AN3 thru AN20 AN42 thru AN49 AN173 thru AN186 AN509 AN525 MS20033 thru MS20046 MS20073 thru MS20081 MS24694 MS27039 NAS220 thru NAS227 NAS333 thru NAS340 NAS517 NAS623 NAS1003 thru NAS1020 NAS1202 thru NAS1210 NAS1297 NAS1352 (non-locking) ALL THREADED STUDS	AN256 80-004 AN310 thru AN315 80-007 AN362 80-013 AN363 90-002 AN365 90-003 AN366 110-061 AN121576 110-062 thru AN121600	10 - 32	20 to 26 in. - lb.
		1/4 - 28	50 to 70 in. - lb.
		5/16 - 24	100 to 140 in - lb.
		3/8 - 24	160 to 190 in. - lb.
		7/16 - 20	37 to 42 ft. - lb.
		1/2 - 20	40 to 58 ft. - lb.
		9/16 - 18	66 to 83 ft. - lb.
		5/8 - 18	91 to 108 ft. - lb.
		3/4 - 16	191 to 208 ft.- lb.
		7/8 - 14	206 to 250 ft. - lb.
		1 - 12	308 to 458 ft. - lb.
		1 1/8 - 32	416 to 583 ft. - lb.
		1 1/4 - 12	750 to 916 ft. . lb.
	MS9358 MS20365 MS20500 MS21042 thru MS21045 MS21047 thru MS21049 MS21051 thru MS21056 MS21058 thru MS21062 MS21069 thru MS21076 MS21083 MS21086 MS21208 MS21209 MS21991 MS124651 thru MS124850 NAS509 NAS577 NAS671 NAS679 thru NAS687 NAS696 thru NAS698 NAS1021 NAS1023 NAS1031 NAS1033 NAS1067 NAS1068 NAS1291 NAS1329 NAS1330 NAS1473 NAS1474		

NOTE: The above values apply to any combination of bolt and nut shown unless otherwise specified.

406010-506-2
H2214

Figure P-1. Torque Values (Sheet 2)

TORQUE VALUE CHART (DRY)			
BOLT	NUT	BOLT DIAMETER/ THREAD SIZE	RECOMMENDED INSTALLATION TORQUE RANGE
MS20004 thru MS20024 NAS144 thru NAS158 NAS583 thru NAS590 NAS1218 NAS1303 thru NAS1320 NAS1351 (non-locking) NAS6203 thru NAS6220 NAS6303 thru NAS6320 NAS6603 thru NAS6620	AN256 80-004	10 - 32	20 to 25 in. - lb.
	AN310 thru		
	AN315 80-007	1/4 - 28	50 to 70 in. - lb.
	AN362 80-013		
	thru 30-002		
	AN366 90-003	5/16 - 24	100 to 140 in. - lb.
	AN121576		
	thru		
	AN121600	3/8 - 24	160 to 190 in. - lb.
	MS93586		
	MS14144	7/16 - 20	37 to 42 ft. - lb.
	MS141445		
	MS20365	1/2 - 20	40 to 58 ft. - lb.
	MS20500		
MS21043 thru MS21045 MS21047 thru MS21049 MS21051 thru MS21056 MS21058 thru MS21062 MS21069 thru MS21076 MS21083 MS21086 MS21208 MS21209 MS21991 MS124651 thru MS124850 NAS509 NAS671 NAS679 thru NAS687 NAS696 thru NAS698 NAS1021 thru NAS1023 NAS1031 NAS1033 NAS1067 NAS1068 NAS1329 NAS1330 NAS1473 NAS1474	MS21043 thru MS21045	9/16 - 18	66 to 83 ft. - lb.
	MS21047 thru MS21049		
	MS21051 thru MS21056	5/8 - 18	91 to 108 ft. - lb.
	MS21058 thru MS21062		
	MS21069 thru MS21076	3/4 - 16	191 to 208 ft. - lb.
	MS21083		
	MS21086	7/8 - 14	208 to 250 ft. - lb.
	MS21208		
	MS21209	1 - 12	308 to 458 ft. - lb.
	MS21991		
	MS124651 thru MS124850	1 1/8 - 12	416 to 583 ft. - lb.
	NAS509		
	NAS671	1 1/4 - 12	750 to 916 ft. - lb.
	NAS679 thru NAS687		
	NAS696 thru NAS698		
	NAS1021 thru NAS1023		
	NAS1031		
	NAS1033		
	NAS1067		
	NAS1068		
	NAS1329		
	NAS1330		
	NAS1473		
	NAS1474		

NOTE: The above values apply to any combination of bolt and nut shown unless otherwise specified.

406010-506-3
H2214

Figure P-1. Torque Values (Sheet 3)

TORQUE VALUE CHART (DRY)			
BOLT	NUT	BOLT DIAMETER/ THREAD SIZE	RECOMMENDED INSTALLATION TORQUE RANGE
MS20004 thru MS20024 NAS144 thru NAS158 NAS583 thru NAS590 NAS1218 NAS1303 thru NAS1320 NAS1351 (non-locking) NAS6203 thru NAS6220 NAS6303 thru NAS6320 NAS6603 thru NAS6620	MS21042 NAS577 NAS1291	10 - 32	30 to 40 in. - lb.
		1/4 - 28	75 to 95 in. - lb.
		5/16 - 24	120 to 160 in. - lb.
		3/8 - 24	25 to 28 ft. - lb.
		7/16 - 20	39 to 43 ft. - lb.
		1/2 - 20	53 to 71 ft. - lb.
		9/16 - 18	83 to 100 ft. - lb.
		5/8 - 18	116 to 133 ft. - lb.
		3/4 - 16	200 to 216 ft. - lb.
		7/8 - 14	333 to 375 ft. - lb.
		1 - 12	433 to 583 ft. - lb.
		1 1/8 - 12	691 to 858 ft. - lb.
		1 1/4 - 12	1441 to 1608 ft. - lb.

NOTE: The above values apply to any combination of bolt and nut shown unless otherwise specified.

406010-506-4
H2214

Figure P-1. Torque Values (Sheet 4)

TORQUE VALUE CHART (DRY)		
	BOLTS	
	AN3 thru AN20 AN42 thru AN49 AN173 thru AN186	NAS144 thru NAS158 NAS333 thru NAS340 NAS464 NAS1003 thru NAS1020
	NUT	
	MS17826 NUT (THIN)	MS17825 NUT
THREAD SIZE	RECOMMENDED INSTALLATION TORQUE RANGE	RECOMMENDED INSTALLATION TORQUE RANGE
10 - 32	7 to 12 in. - lb.	12 to 15 in. - lb.
1/4 - 28	25 to 35 in. - lb.	30 to 49 in. - lb.
5/16 - 24	50 to 70 in. - lb.	60 to 85 in. - lb.
3/8 - 24	70 to 90 in. - lb.	95 to 110 in. - lb.
7/16 - 20	110 to 150 in. - lb.	270 to 300 in. - lb.
1/2 - 20	150 to 200 in. - lb.	24 to 34 ft. - lb.
9/16 - 18	200 to 300 in. - lb.	40 to 50 ft. - lb.
5/8 - 18	300 to 420 in. - lb.	55 to 66 ft. - lb.
3/4 - 16	45 to 62 ft. - lb.	108 to 125 ft. - lb.
7/8 - 14	79 to 96 ft. - lb.	125 to 150 ft. - lb.
1 - 12	125 to 150 ft. - lb.	183 to 275 ft. - lb.
1 1/8 - 12	208 to 292 ft. - lb.	250 to 350 ft. - lb.
1 1/4 - 12	292 to 375 ft. - lb.	450 to 550 ft. - lb.

NOTE: The above values apply to any combination of bolt and nut shown unless otherwise specified.

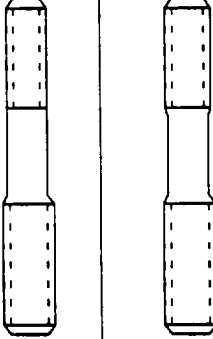
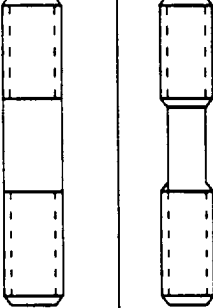
406010-506-5
H2214

Figure P-1. Torque Values (Sheet 5)

TUBE SIZE	AL. TUBING FLARE (MS33583 OR MS33584)	STEEL TUBING FLARE (MS33584)	HOSE END FITTINGS AND HOSE ASSY (MS28740 AND MS28759)	NAS591 THRU NAS596		
				DASH NO.	STEEL TUBING	AL. TUBING
3/16	30 to 45 in.—lb.	90 to 100 in.—lb.	70 to 100 in.—lb.			
1/4	40 to 65 in.—lb.	135 to 150 in.—lb.	70 to 120 in.—lb.	4	60 to 96 in.—lb.	48 to 96 in.—lb.
5/16	60 to 80 in.—lb.	180 to 200 in.—lb.	85 to 180 in.—lb.	5	66 to 108 in.—lb.	60 to 108 in.—lb.
3/8	75 to 125 in.—lb.	270 to 300 in.—lb.	100 to 250 in.—lb.	6	72 to 120 in.—lb.	72 to 120 in.—lb.
1/2	150 to 250 in.—lb.	450 to 500 in.—lb.	210 to 420 in.—lb.	8	144 to 232 in.—lb.	120 to 216 in.—lb.
5/8	200 to 350 in.—lb.	54 to 58 ft.—lb.	300 to 480 in.—lb.	10	204 to 360 in.—lb.	144 to 360 in.—lb.
3/4	300 to 500 in.—lb.	75 to 83 ft.—lb.	41 to 70 ft.—lb.	12	300 to 540 in.—lb.	216 to 540 in.—lb.
1	41 to 58 ft.—lb.	100 to 116 ft.—lb.	58 to 95 ft.—lb.	16	42 to 58 ft.—lb.	480 to 696 in.—lb.
1 1/4	50 to 75 ft.—lb.			20	50 to 75 ft.—lb.	50 to 75 ft.—lb.
1 1/2	50 to 75 ft.—lb.			24	50 to 75 ft.—lb.	50 to 75 ft.—lb.
1 3/4				28	60 to 90 ft.—lb.	62 to 90 ft.—lb.
2				32	75 to 110 ft.—lb.	75 to 110 ft.—lb.
2 1/2				40	150 to 175 ft.—lb.	110 to 150 ft.—lb.
3				48	150 to 175 ft.—lb.	
4				64	200 to 225 ft.—lb.	
NOTE: Flareless tubing connections shall be tightened as follows: Tighten the MS21921 nut 1/6 to 1/3 turn (1 to 2 flats) past point of sharp torque rise on all sizes and material. The 1/6 to 1/3 turn (performed after the presetting operation) is the final installation torque.						

406010-507
H2215

Figure P-2. Torque Values (Fluid Connections)

STEPPED STUDS				STRAIGHT STUDS			
Types A and B are driven from nut end.				Types X and Y are driven from nut end.			
		Type A	Type B			Type X	Type Y
Stud Size		Torque Value Pound — Inches		Stud Size		Torque Value Pound — Inches	
Nut End*	Stud End			Nut End*	Stud End		
10 - 32	1/4 - 20	30 - 40	30 - 40	10 - 32	10 - 24		30 - 40
1/4 - 28	5/16 - 18	50 - 110	50 - 80	1/4 - 28	1/4 - 20	50 - 95	50 - 70
5/16 - 24	3/8 - 16	100 - 240	100 - 160	5/16 - 24	5/16 - 18	100 - 225	100 - 130
3/8 - 24	7/16 - 14	175 - 475	175 - 325	3/8 - 24	3/8 - 16	175 - 375	175 - 250
9/16 - 20	1/2 - 13	250 - 725	250 - 525	9/16 - 20	7/16 - 14	250 - 650	250 - 400
1/2 - 20	9/16 - 12	400 - 1150	400 - 850	1/2 - 20	1/2 - 13	400 - 1000	400 - 700
9/16 - 18	5/8 - 11	600 - 1650	600 - 1150	9/16 - 18	9/16 - 12	600 - 1450	500 - 1050
5/8 - 18	11/16 - 11	900 - 2400	900 - 1700	5/8 - 18	5/8 - 11	900 - 2000	700 - 1400

* For nut torque refer to applicable cahrt for type of nut used.

406010-508
H2216

Figure P-3. Torque Values (Studs)

TABLE P-1. BREAKAWAY TORQUE

THREAD SIZE	MINIMUM BREAKAWAY TORQUE (INCH-POUNDS)
10-32	2.0
1/4-28	3.5
5/16-24	6.5
3/8-24	9.5
7/16-20	14.0
1/2-20	18.0
9/16-18	24.0
5/8-18	32.0
3/4-16	50.0
7/8-14	70.0
1-12	90.0
1-1/8-12	117.0
1-1/4-12	143.0
1-3/8-12	170.0
1-1/2-12	197.0

P-6. SELECTION AND USE OF TORQUE WRENCH.

a. Selecting Torque Wrench:

(1) The accuracy of most torque wrenches tends to decrease at the extremes of the torque range. The torque value being measured should be between the 30 and 80 percent points of the torque wrench range.

(2) The graduation increments of the torque wrench should not be greater than 10 percent of the torque value being measured.

(3) The torque wrench should be calibrated in the same torque units as the specified torque for the bolt.

b. Force Application on Torque Wrench Grip: A smooth, steady force must be applied to obtain an accurate torque value. Rapid or jerky force can result in error in the torque applied.

c. Tightening Bolt on the Head End: When a bolt is tightened from the head end, some of the torque applied is absorbed in turning the bolt in the hole. The amount of torque absorbed will vary. For this reason, torque values specified are for tightening bolts on the nut end.

(1) Use specified torque range if bolt can be inserted through the hole and started into the nut using fingers.

(2) Torque to high limit of specified torque range if bolt is inserted through a hole that increases tightening resistance.

(3) Use specified torque range if bolt is inserted into a threaded hole and hole thread length is more than the bolt diameter. Use a reduced torque range if hole thread length is less than bolt diameter.

d. Tightening New Bolt: Tighten bolt to desired torque value. Loosen bolt by backing off one-half turn. Retighten to desired torque value. This aids in cleaning and smoothing threads and results in more accurate torque.

e. Bolt Thread Condition: Threads should be clean and free from nicks, burrs, paint, grease, and oil to obtain correct torque. However, there are some applications where lubrication or antiseize compound is used on threads.

f. Checking Bolt for Torque Applied: Torque value of an installed bolt cannot be checked. If torque of installed bolt must be known, loosen bolt from one-half to one turn and tighten to recommended torque.

g. Tightening Chilled or Heated Bolt: Do not tighten a chilled or heated bolt until it has returned to room temperature. Heated bolt may loosen when it cools. Chilled bolt may become overstressed when it warms.

h. Tightening Bolt on Part with a Slow Permanent Set: Hold desired torque until the part is seated.

i. Tightening Bolts in a Series: Select a median torque value within the torque range if bolts are to be torqued in a series. Torque is not distributed evenly if some bolts are tightened to minimum value and others to maximum. Unequal distribution of force may cause bolt failure. Do not apply final torque during first drawdown. After median torque value is applied, loosen bolts one at a time and apply final torque. Tightening in a diametrically opposite (staggered) sequence is desirable in most cases.

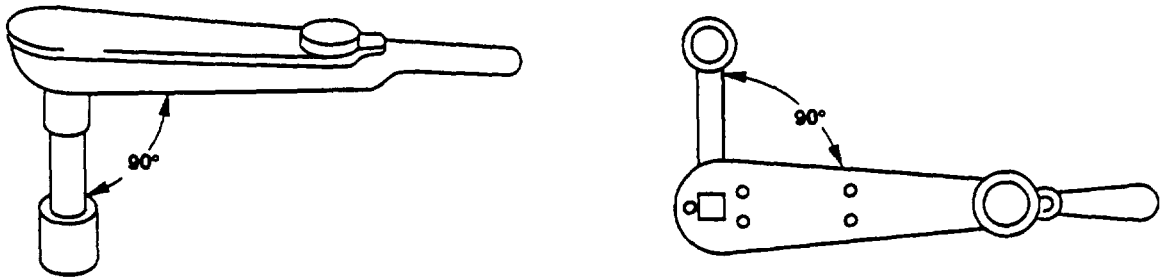
j. Tightening Bolts with Concentric Attachment: The use of a concentric attachment which operates concentrically with torque wrench drive square presents no particular problem. Torque value applied is torque value indicated (figure P-4).

k. Tightening Bolt with Nonconcentric Attachment: The use of a nonconcentric attachment which does not operate concentrically with the drive square presents a mathematical problem. This type of attachment affects lever length. Torque value applied is not torque value indicated. It is necessary to calculate the effect of the lever length to determine correct indicated torque value (figure P-5).

l. Force Application When Using Nonconcentric Attachment:

(1) The point of force applied on a flexible beam-type torque wrench pivoted grip will not affect calculated torque applied to bolt.

(2) The point of force applied on rigid frame and audible indicating torque wrench grips will affect the calculated torque applied to bolt. Refer to figure P-6 for proper and improper application of force and its effect.



NOTE: APPLIED AND INDICATED TORQUE VALUES ARE THE SAME.

406010-500
H2217

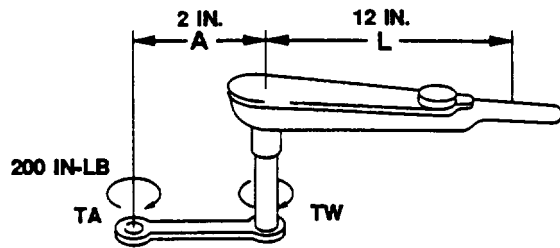
Figure P-4. Torque Wrench Concentric Type Attachments

FORMULA TO OBTAIN CORRECT INDICATED TORQUE VALUE WHEN USING NONCONCENTRIC ATTACHMENT.

$$TW = \frac{(TA) \times (L)}{(L) \pm (A)}$$

TW = INDICATED TORQUE VALUE ON TORQUE WRENCH
TA = ACTUAL TORQUE VALUE APPLIED TO FASTENER
L = LEVEL LENGTH
A = ATTACHMENT LENGTH

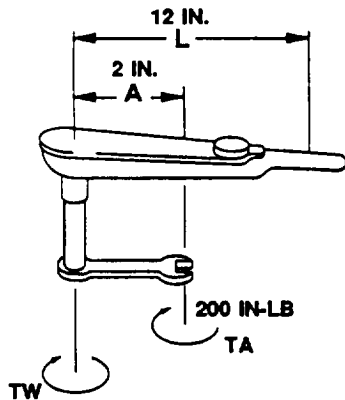
FORMULA



$$TW = \frac{200 \times 12}{12 + 2} = \frac{2400}{14} = 171.4 \text{ IN-LB}$$

RESULTS: FASTENER TORQUED 200 IN-LB WHEN WRENCH INDICATES 171.4 IN-LB

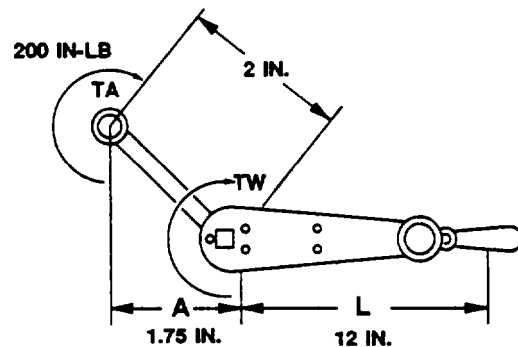
EXAMPLE 1



$$TW = \frac{200 \times 12}{12 - 2} = \frac{2400}{10} = 240 \text{ IN-LB}$$

RESULTS: FASTENER TORQUED 200 IN-LB WHEN WRENCH INDICATES 240 IN-LB.

EXAMPLE 2



$$TW = \frac{200 \times 12}{12 + 1.75} = \frac{2400}{13.75} = 174.5 \text{ IN-LB}$$

RESULTS: FASTENER TORQUED 200 IN-LB WHEN WRENCH INDICATES 174.5 IN-LB

EXAMPLE 3

408010-510
H2218

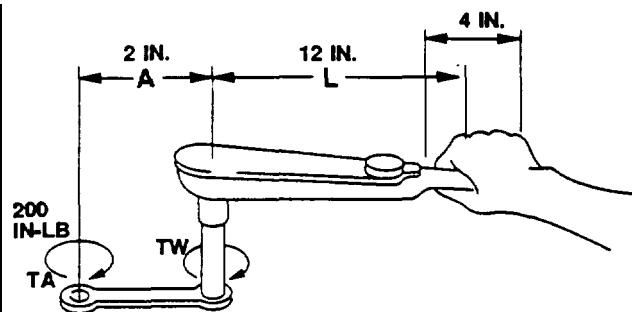
Figure P-5. Torque Wrench Nonconcentric Type Attachments

FORMULA TO OBTAIN CORRECT INDICATED TORQUE VALUE WHEN USING NONCONCENTRIC ATTACHMENT.

$$TW = \frac{(TA) \times (L)}{(L) + (A)}$$

TW = INDICATED TORQUE VALUE ON TORQUE WRENCH
TA = ACTUAL TORQUE VALUE APPLIED TO FASTENER
L = LEVEL LENGTH
A = ATTACHMENT LENGTH

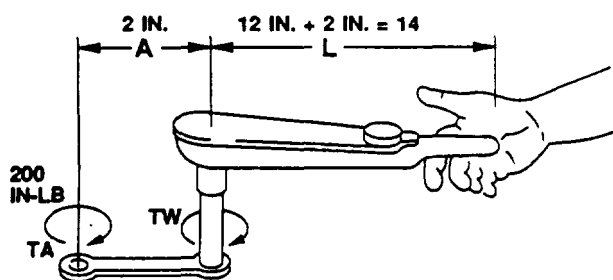
FORMULA



$$TW = \frac{200 \times 12}{12 + 2} = \frac{2400}{14} = 171.4 \text{ IN-LB}$$

RESULTS: FASTENER TORQUED 200 IN-LB WHEN WRENCH INDICATES 171.4 IN-LB

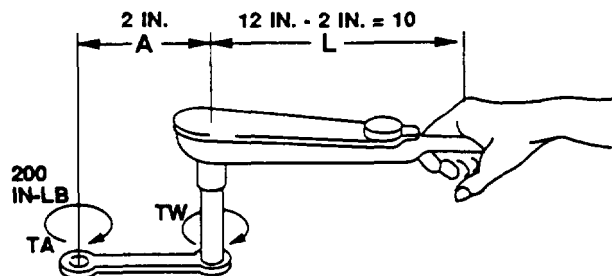
PROPER APPLICATION OF FORCE
EXAMPLE 1



$$TW = \frac{200 \times (12+2)}{(12+2) + 2} = \frac{2800}{16} = 175 \text{ IN-LB}$$

RESULTS: FASTENER TORQUED 200 IN-LB WHEN WRENCH INDICATES 175 IN-LB

IMPROPER APPLICATION OF FORCE
EXAMPLE 2



$$TW = \frac{200 \times (12-2)}{(12-2) + 2} = \frac{2000}{12} = 166.6 \text{ IN-LB}$$

RESULTS: FASTENER TORQUED 200 IN-LB WHEN WRENCH INDICATES 166.6 IN-LB

IMPROPER APPLICATION OF FORCE
EXAMPLE 3

406010-511
H2219

Figure P-6. Effect of Applied Force Using Nonconcentric Attachments

APPENDIX Q

CORROSION CONTROL

	Page
Section I Introduction	Q-1
Section II Inspection and Corrosion Prone Areas	Q-1
Section III Preventive Maintenance	Q-2
Section IV Processes and Equipment Requirements	Q-3
Section V Corrosion Prone Areas	Q-3

Section I. INTRODUCTION

Q-1. **PURPOSE**

This appendix contains corrosion control information and references to ensure that maintenance personnel have adequate guidelines in locating and repairing corrosion found in corrosion prone areas throughout the helicopter. Corrosion control in corrosion prone designated areas is practiced to ensure that:

1. Helicopter has proper drainage of airframe.
2. Corrosion prone areas are identified.
3. Type of corrosion is properly identified.
4. Proper cleanup procedures for corroded areas are used.
5. Correct repair procedures are used.
6. Proper protective coatings are correctly applied.

Q-2. **DEFINITIONS**

Corrosion is the electrochemical deterioration of a metal because of its chemical reaction with the surrounding environment.

1. For different types of corrosion, their effects on different metals and the repair of the corrosion affected area, refer to TM 1-1500-344-23.
2. For material removal and cleanup limitations of specific parts not listed in this appendix, refer to appropriate chapter of this manual.

Section II. INSPECTION AND CORROSION PRONE AREAS

Q.3. **PURPOSE**

Frequent corrosion inspections are essential to the overall corrosion control program. Costs are minimized by early detection, identification, and treatment. Without regular systematic inspections, corrosion will

seriously damage aviation equipment. Refer to TM 1-1500-344-23 for more detailed corrosion control, inspection, and repair information. Appendix Q is to be used in conjunction with 14-day/20 hour inspection located in TM 1-1520-248-PPM.

Q-4. RESPONSIBILITY

Corrosion inspection is an all hands responsibility. All maintenance personnel must be able to identify and report corrosion problems.

Section III. PREVENTIVE MAINTENANCE

Q-5. PREVENTION

Corrosion prevention of aircraft structure depends on a comprehensive corrosion prevention and control plan, implemented from the start of operation of the aircraft which includes the following:

1. Adequate training of personnel in corrosion identification techniques, corrosion detection, cleaning, treatment, lubrication and preservation of aircraft structures and components.
2. Inspection for corrosion and corrosion inducing conditions on a scheduled basis.
3. Keeping drain holes and passages open and functional.
4. Avoidance of water intrusion and entrapment and replacement of deteriorated or damaged gaskets and sealants.
5. Minimizing the exposure of aircraft to adverse environmental conditions by hangaring, use of covers, etc.
6. Thorough cleaning, inspection, lubrication, and preservation at prescribed intervals.
7. Prompt treatment of corrosion after detection to keep damage to a minimum.
8. Accurate recording and reporting of problem areas and material and/or design deficiencies. Use of DA Form 2028 to submit list of deficiencies.
9. Proper use of appropriate materials, equipment, and technical publications.
10. Reapplication of surface finish after corrosion cleanup and repair of area using TM 1-1500-344-23.

Q-6. PRESERVATION

For complete information on preserving aircraft parts using corrosion preventive compounds (CPC), water displacing compounds (WDC), and other surface treatments, refer to TM 1-1500-344-23.

1. Corrosion preventive compounds are used to protect metal aircraft parts. They function by preventing corrosive materials from contacting and corroding bare metal surfaces.
2. Corrosion preventive compounds can be separated into two major categories, water displacing and nonwater displacing compounds.

a. Water displacing compounds (WDC) are CPCs that can be used to remove water or other electrolytes from metal surfaces to stop the corrosion process.

b. Nonwater displacing compounds are CPCs that may be used on dried surfaces or on surfaces which have been first treated with water displacing CPCs.

Section IV. PROCESSES AND EQUIPMENT REQUIREMENTS

Refer to TM 1-1500-344-23 and TM 55-1500-323-24 for corrosion control processes and equipment.

Section V. CORROSION PRONE AREAS

Q-7. **INSPECTION AND REPAIR**

1. Corrosion inspection and repair shall be accomplished using this appendix and TM 1-1500-344-23 and TM 55-1500-323-24.

2. To identify different types of corrosion by appearance, refer to table Q-1.

Table Q-1. Corrosion of Metals - Appearance of Corrosion Products.

Alloy	Type of Attack to Which Alloy is Susceptible	Appearance of Corrosion Product
Aluminum alloy	Surface pitting and intergranular,	White or gray powder
Titanium alloy	Highly corrosion resistant. Extended or repeated contact with chlorinated solvents may cause embrittlement. Cadmium plated tools can cause embrittlement of titanium.	No visible corrosion products.
Magnesium alloy	Highly susceptible to pitting.	White powder snow-like mounds, white spots on surface.
Carbon and low alloy steel (1000-8000 series)	Surface oxidation and pitting, surface and intergranular.	Reddish-brown oxide (rust)
Stainless steel (300-400 series)	Intergranular corrosion. Some tendency to pitting in marine environment (300 series more corrosion resistant than 400 series).	Corrosion evidenced by rough surface; sometimes by red, brown or black stain.
Cadmium (used as a protective plating for steel)	Good corrosion resistance. Will cause embrittlement if improperly applied.	White to brown to black mottling of the surface.
Chromium (used as a wear-resistant plating for steels)	Subject to pitting in chloride environments.	Chromium being cathodic to steel does not corrode itself, but promotes rusting of steel where pits occur in the coating.

Q-8. CORROSION PRONE COMPONENTS.

Inspection and repair for corrosion prone components shall be accomplished using figure Q-1.

Q-9. ENGINE AREAS.

For engine areas that are corrosion prone, see figure Q-2.

Q-10. AIRCRAFT DRAINS.

Inspection of drain holes and drain tubes shall be accomplished using figures Q-3 and Q-4.

Q-11. CORROSION PRONE HONEYCOMB PANELS.

Inspection and repair for corrosion prone areas of honeycomb panels shall be accomplished using figure Q-5.

Q-12. FUSELAGE CORROSION DATA.

Inspection and repair for corrosion prone areas of fuselage shall be accomplished using figure Q-6.

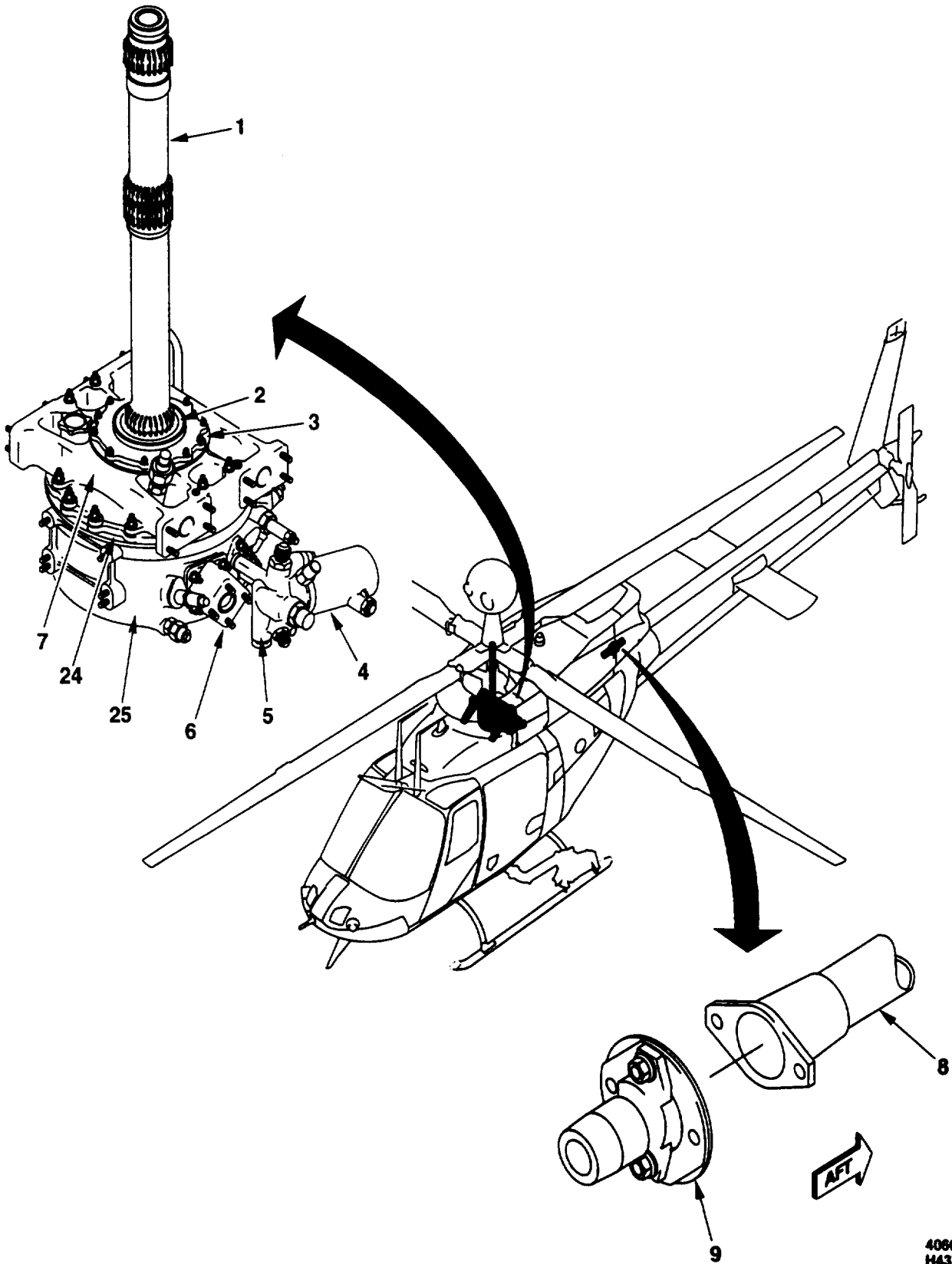
Q-13. TAILBOOM CORROSION REPAIR.

Inspection and repair for corrosion prone areas of tailboom shall be accomplished using figure Q-7.

Q-14. LANDING GEAR CORROSION REPAIR.

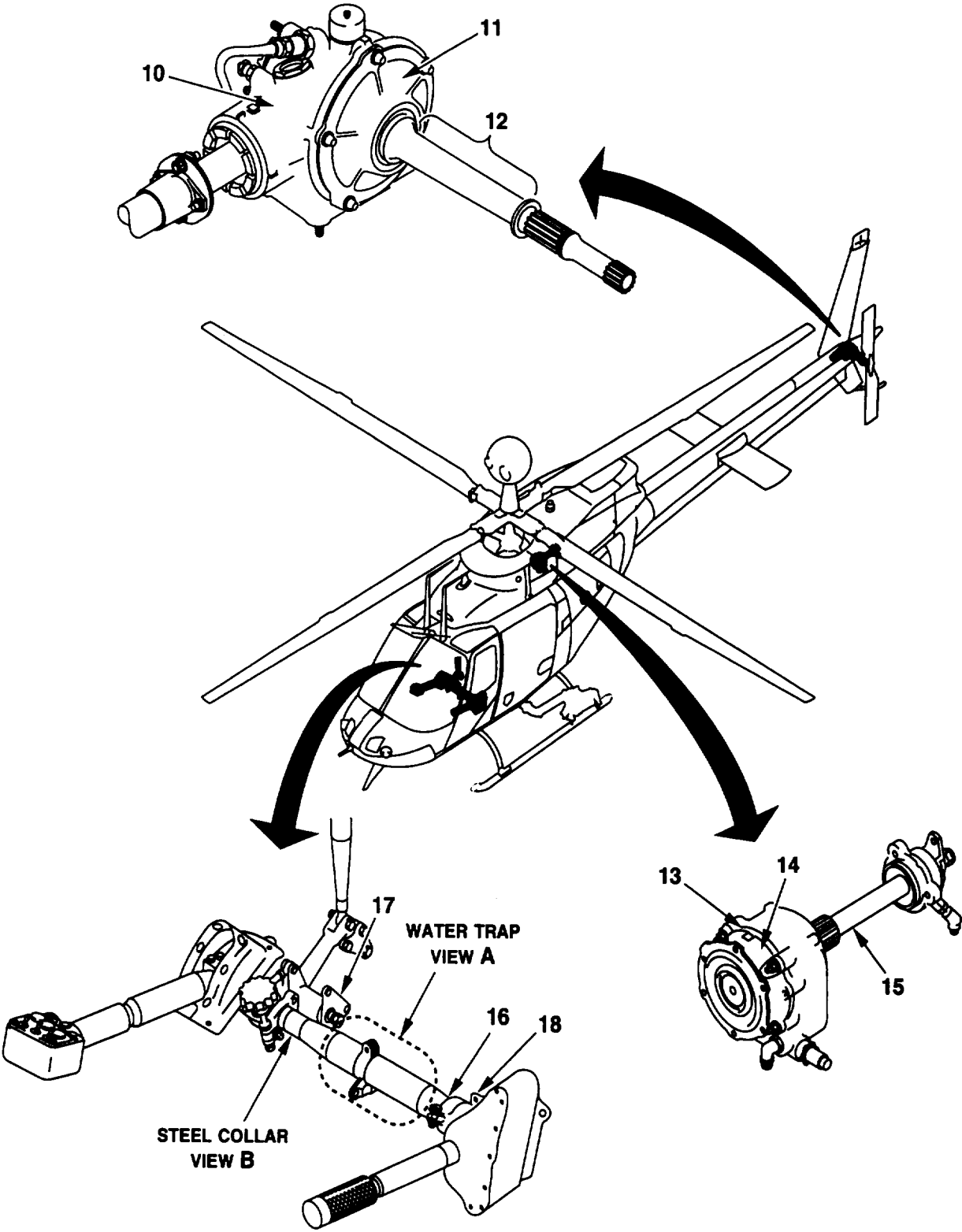
Inspection and repair for corrosion prone areas of landing gear shall be accomplished using figure Q-8.

Q-15. UNIVERSAL WEAPONS PYLON ELECTRICAL CONNECTORS (TM 55-1500-323-24).



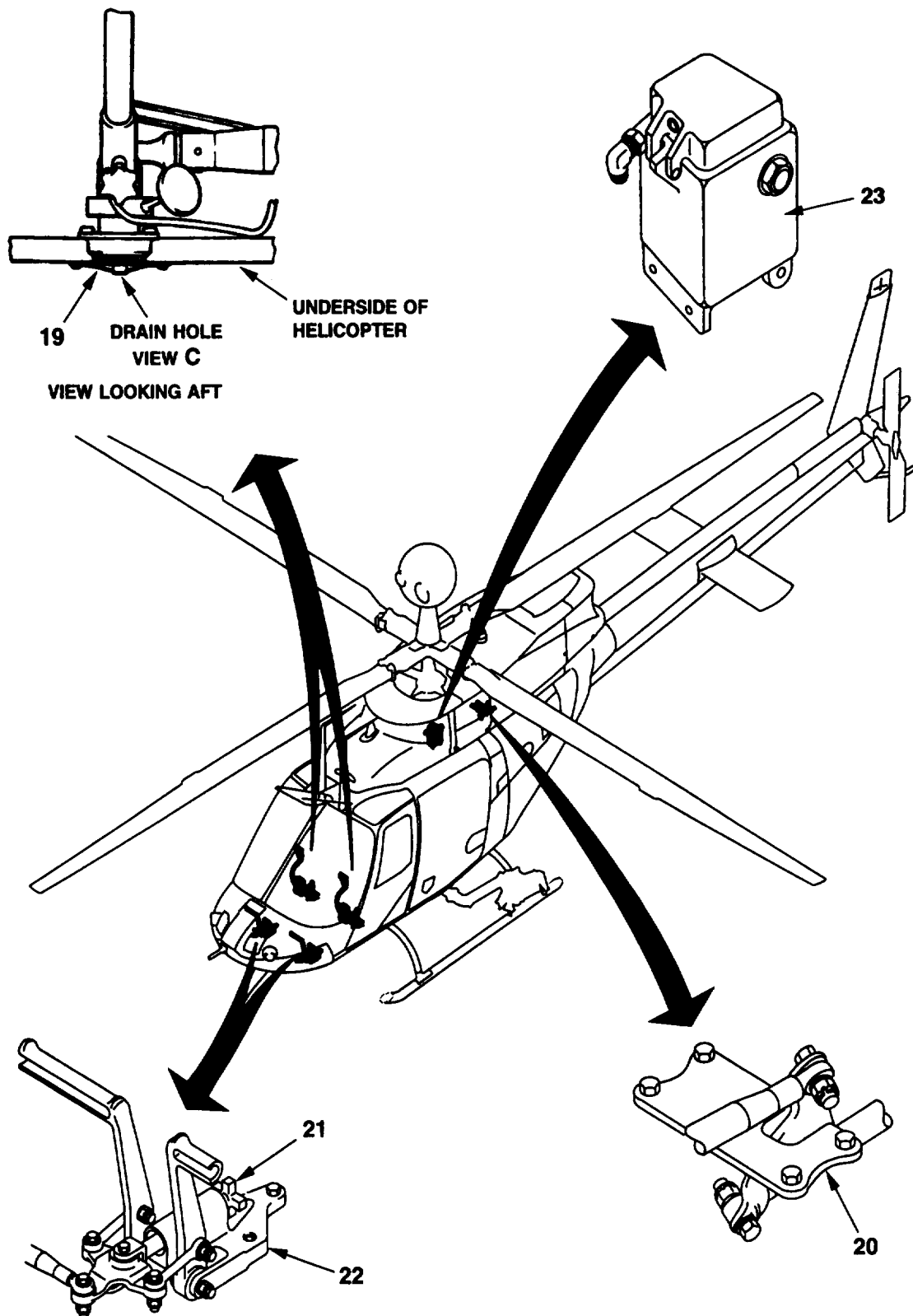
406040-898-1
H4375

Figure Q-1. Corrosion Prone Components (Sheet 1 of 6)

















406040-896-2
H3583

Figure Q-1. Corrosion Prone Components (Sheet 2)








406040-896-3
H3593

Figure Q-1. Corrosion Prone Components (Sheet 3)

NO.	NOMEN	PART NUMBER	MATERIAL	TYPE INSP	WDC CPC	NOTES
1	Mast Assy	406-040-040-105/ 109	Steel Alloy	Visual/ Measure		Refer to Tasks 6-4-16 and 6-4-16.1
2	Nut, Bearing	406-040-090-101/ 103	Stainless Steel/ Chrome Plate	Visual/ Measure		 Refer to Task 6-4-16 and 6-4-16.1
3	Seal Retainer Plate, Surface	406-040-052-101	Magnesium Aly	Visual/ Measure		  Refer Task 6- 3-1
4	Filter Body	406-040-060-105	Magnesium Aly	Visual/ Measure		Refer to Task 6-8-3
5	Manifold	406-040-058-109	Magnesium Aly	Visual/ Measure		Refer to Task 6-8-5
6	Housing, Input	406-040-055-105	Magnesium Aly	Visual/ Measure		Refer to Task 6-3-1
7	Top Case Assy	406-040-052-101	Magnesium Aly	Visual/ Measure		Refer to Task 6-3-1
8	Forward Tail Rotor Driveshaft Assy	406-040-315-105	4130 Steel Aly	Visual		Refer to Task 6-6-2
9	Disk Pack Coupling	406-040-340-101	301 Stainless Steel	Visual		Refer to Task 6-6-6
10	Case Assy- Tail Rotor Gearbox	406-040-406-101	Magnesium Aly	Visual		 Refer to Task 6-7-2
11	Cap Assy	406-040-408-101	Magnesium Aly	Visual/ Measure		Refer to Task 6-7-7
12	Output Shaft - Gearbox	406-040-416-101	Steel Aly, Cadmium Plated	Visual/ Measure		Refer to Tasks 6-7-6 and 6-7-6.1
13	Housing Assy - Freewheeling	406-040-506-101	Magnesium Aly	Visual/ Measure	N/A	Refer to Task 6-5-3
14	capAssy- Freewheeling Unit	406-040-508-101	Magnesium Aly	Visual/ Measure	N/A	Refer to Task 6-5-3

406040-896-4
H4375

Figure Q-1. Corrosion Prone Components (Sheet 4)

NO.	NOMEN	PART NUMBER	MATERIAL	TYPE INSP	WDC CPC	NOTES
15	Shaft- Freewheeling Unit	406-040-517-101	Steel Aly, Black Oxide	Visual/ Measure	N/A	Refer to Task 6-5-3
16	Jackshaft	206-001-174-101	4130 Steel Aly	Visual	N/A	Refer to Task 11-3-19
17	Support	206-001-139-001	Magnesium Aly	Visual/ Measure	N/A	Refer to Task 11-6-3
18	Support	206-001-119-001	Magnesium Aly	Visual/ Measure	N/A	Refer to Task 11-3-41
19	Cover	206-001-376-001	Magnesium Aly	Visual/ Measure	N/A	
20	support	206-001-734-001	Magnesium Aly	Visual/ Measure	N/A	N/A
21	Knob	206-001-709-001	Magnesium Aly	Visual/ Measure	N/A	N/A
22	Support Assy	206-001-713-001	Magnesium Aly	Visual/ Measure	N/A	N/A
23	Hydraulic Reservoir	206-076-368-101	Magnesium Aly	Visual/ Measure	 	Refer to Task 7-7-8
24	Gearshaft Support Case	406-040-056-105	Magnesium Aly	Visual/ Measure		Refer to Task 6-3-1
25	Main Case Assy	400-040-050-101	Magnesium Aly	Visual/ Measure		Refer to Task 6-3-1

406040-896-5
H4375

Figure Q-1. Corrosion Prone Components (Sheet 5)

NOTES

1. Visually inspect using 4-10X magnifying glass.
2. For precise location of component, use part number and refer to TM 55-1520-248-23P.



Apply WDC to hydraulic reservoir only.



Apply water displacement compound (WDC) (D237) to readily accessible areas of components only after each wash and each flight in rain.



Refer to TM 1-1500-344-23 for complete corrosion control, repair methods, and application of corrosion preventive compounds (CPC), and water displacement compounds (WDC).



Check that lockwire has not chafed magnesium.



Movement of brackets 20-032-7 on topcase breaks Proseal and paint coating between magnesium case and brackets. Water can then leak down stud into magnesium case and cause corrosion.

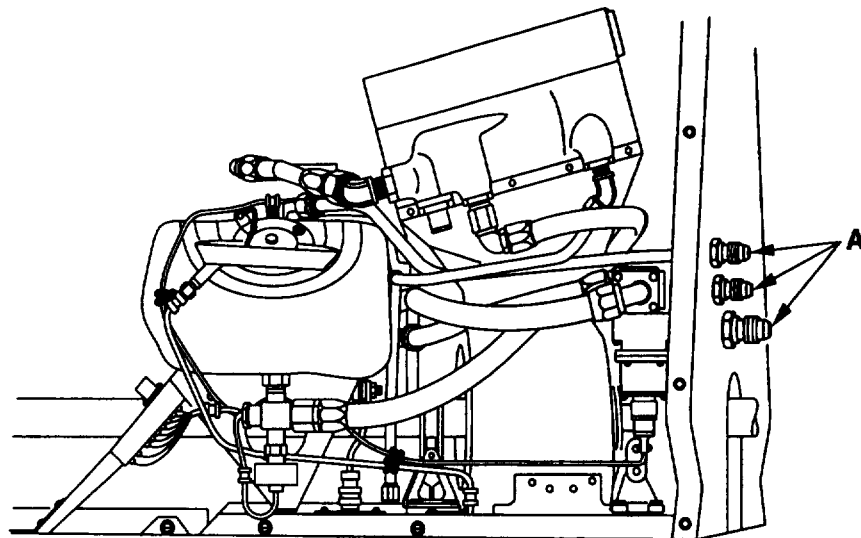
8. CAUTION: Do not allow CPC and WDC to contact elastomer surfaces or get into lubricated bearings.



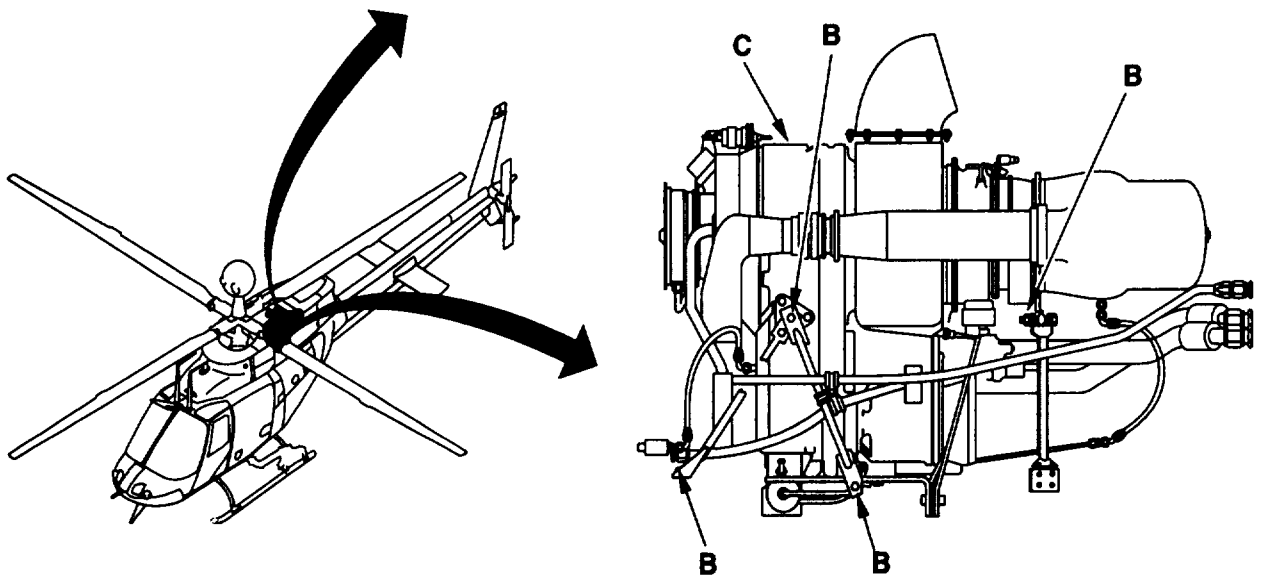
Ensure drain/rigging pin hole is clear.

406040-896-6
H3593

Figure Q-1. Corrosion Prone Components (Sheet 6)



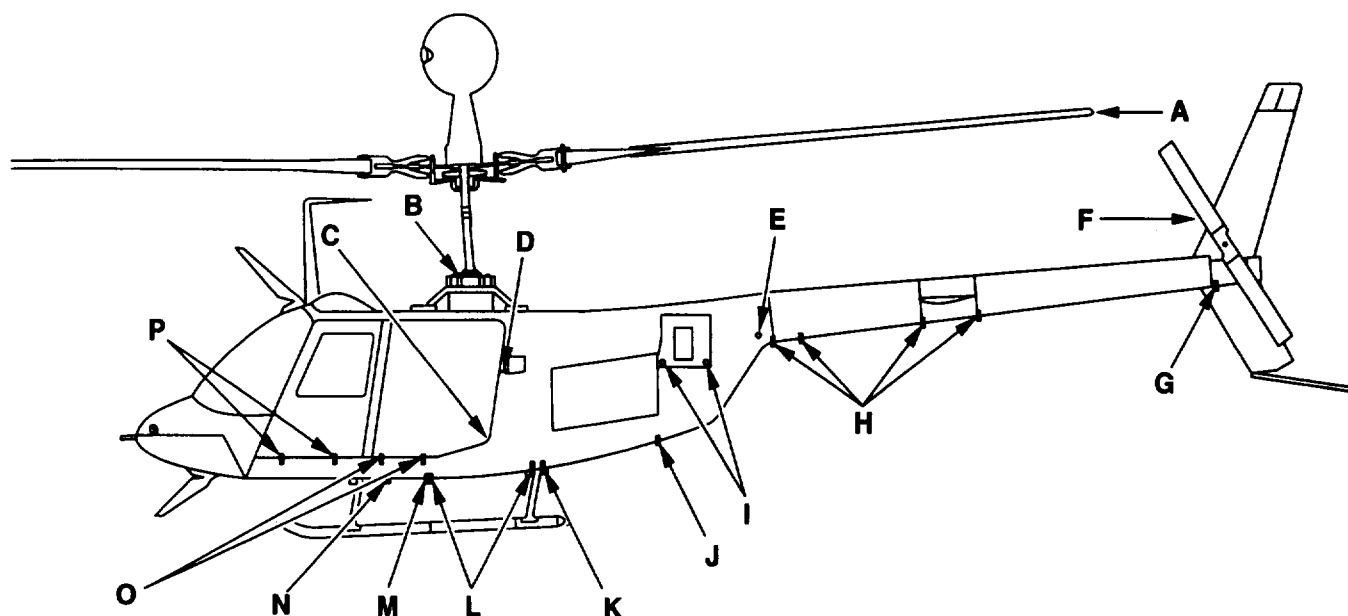
VIEW LOOKING INBOARD RIGHT SIDE



INDEX	ITEM
A	Oil line fittings
B	Engine mount nuts and threads
C	Engine lifting pad
NOTE: Ensure nuts, threads, lifting pad and oil line fittings are clean and dry. Spray areas with corrosion preventive compound (D238) after wash procedures.	

408080-577
H2876

Figure Q-2. Engine Area Corrosion Prone Components

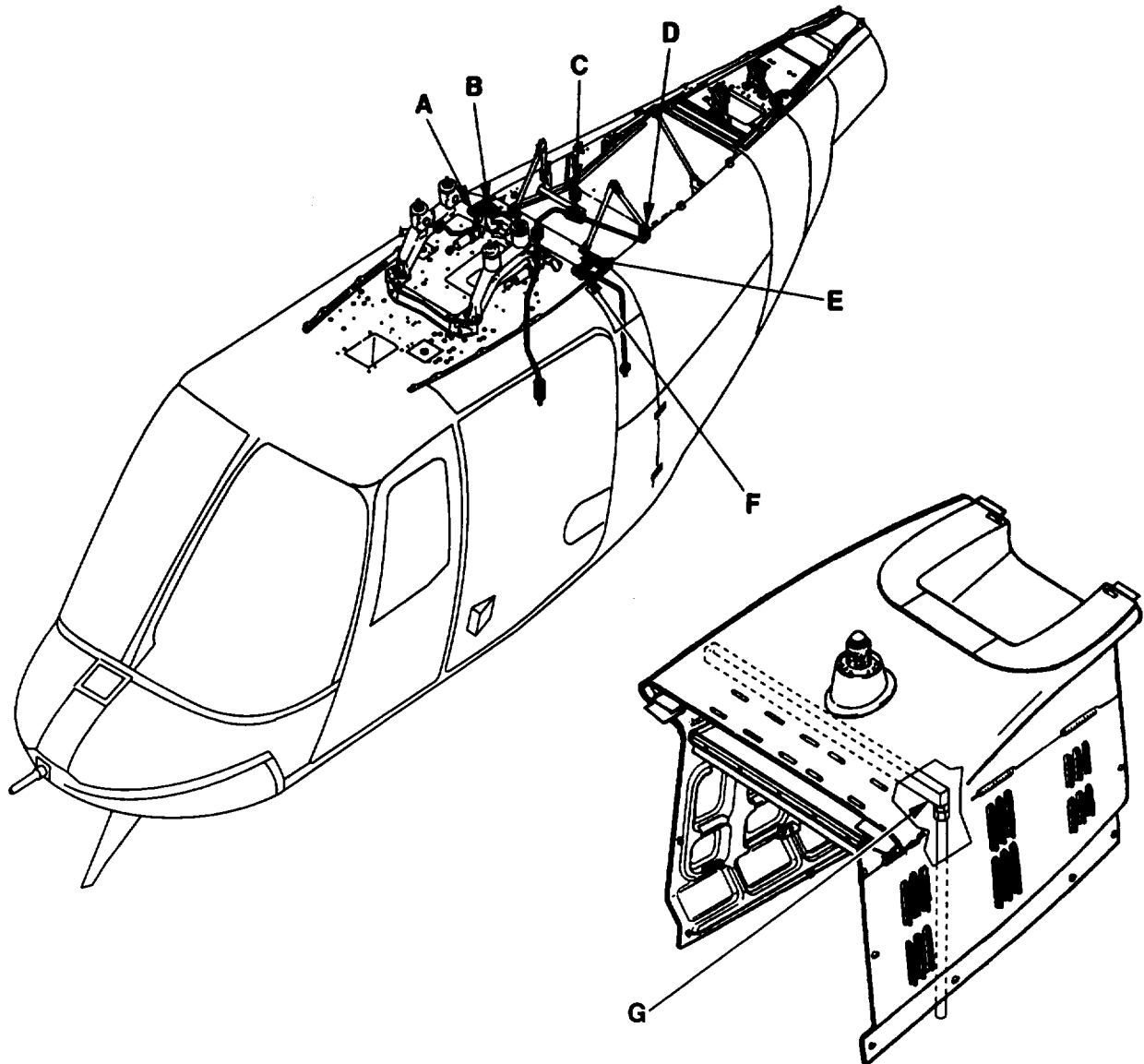


DRAIN HOLE	LOCATION
A	Main rotor blade drain hole
B	Swashplate support drain holes
C	Fuel cell cavity
D	Aft cabin closure
E	Tailboom attach fitting (left/right side)
F	Tail rotor blade drain hole
G	Vertical fin supports (left/right)
H	Bottom and aft of bulkheads
I	Bottom of laser sensor support
J	Lower fairing LBL/RBL 0.88
K	Lower fairing BL 0.00
L	Lower shell BL 0.00
M	Lower shell RBL 0.5
N	Lower shell LBL 1.80
O	Bottom of avionics compartment door (left/right door)
P	Bottom of crew door (left/right door)

NOTE: Ensure drain holes are clear, clean and dry.
 Spray areas with corrosion preventive compound (D238) after wash procedures.

406961-1322
 H2876

Figure Q-3. Aircraft Drain Holes



DRAIN PORT	LOCATION			TUBE ASSEMBLY PART NUMBER
	FUSELAGE STA.	WATERLINE	BUTTOCK LINE	
A	124.40	72.00	R14.06	206-032-333-039
B	125.70	72.00	R13.41	206-032-333-035
C	147.53	65.75	R10.80	206-032-326-001
D	147.53	65.75	L10.80	406-030-167-101
E	124.40	72.00	L14.06	206-032-333-037
F	125.70	72.00	L13.41	206-032-333-015
G	151.00	95.60	L13.00	406-060-006-101

NOTE: Ensure drain holes are clear, clean and dry.
 Spray areas with corrosion preventive compound
 (D238) after wash procedures.

406060-579
 H3664

Figure Q-4. Engine and Pylon Area Drain Tubes

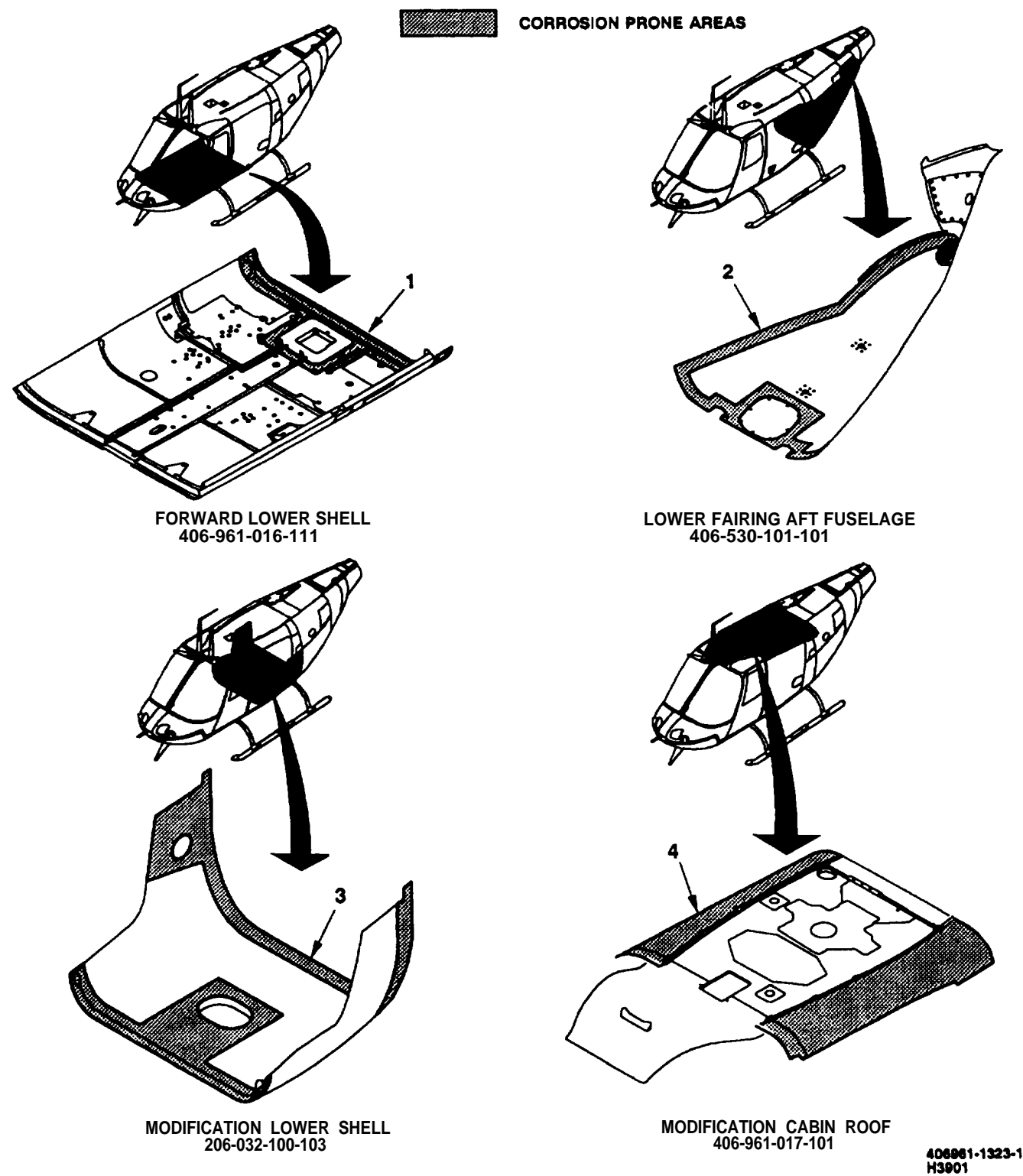
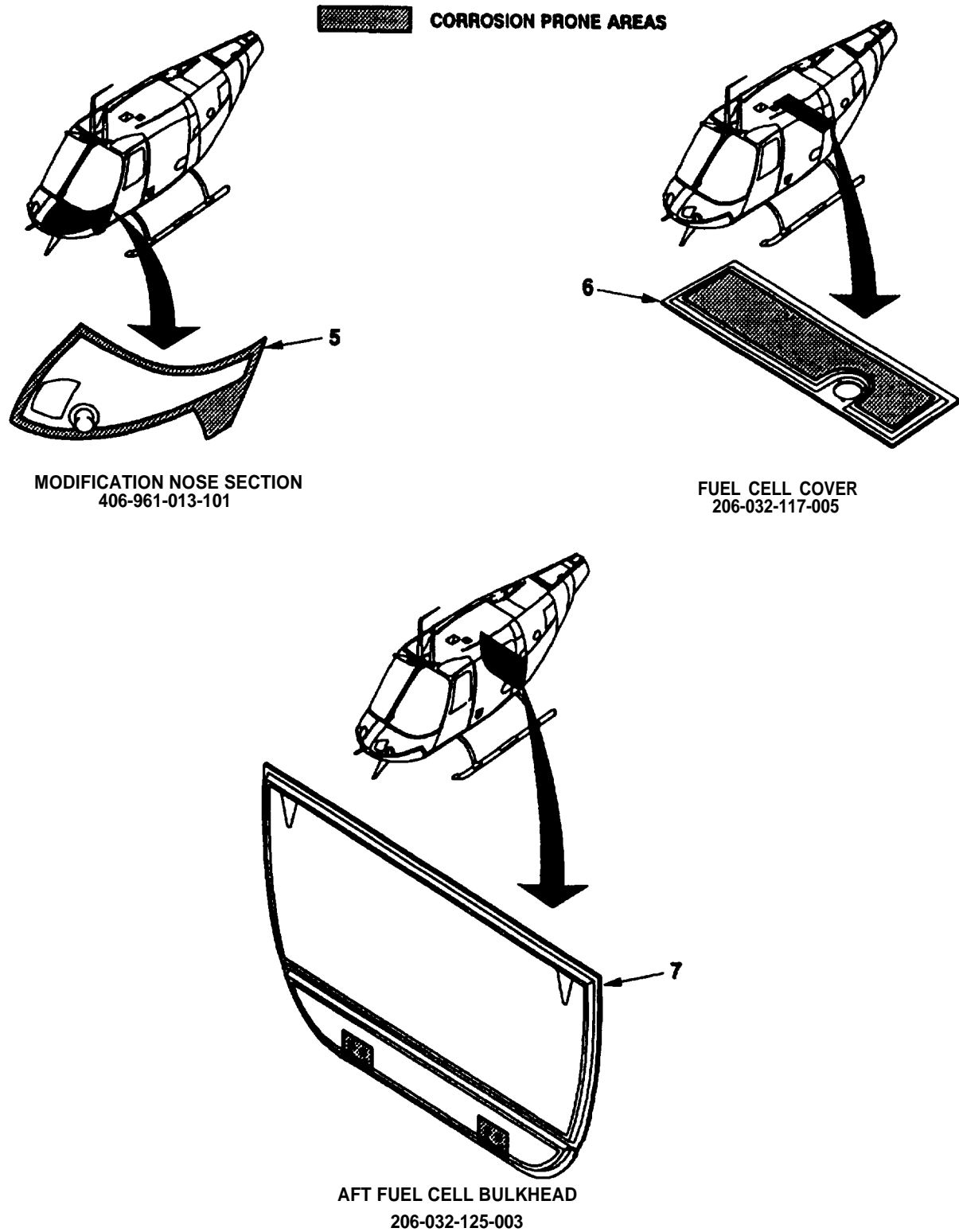


Figure Q-5. Corrosion Prone Panels (Sheet 1 of 3)



406961-1323-2
H3901

Figure Q-5. Corrosion Prone Panels (Sheet 2)

NO.	NOMEN	PART NUMBER	MATERIAL	TYPE INSP	NOTES	
1	Forward Lower Shell	406-961-016-111	Aluminum Honeycomb	Visual	<div>1</div>	<div>2</div>
2	Lower Fairing Aft Fuselage	406-530-101-101	Aluminum Honeycomb	Visual	<div>1</div>	<div>2</div>
3	Modification Lower Shell	206-032-100-103	Aluminum Honeycomb	Visual	<div>1</div>	<div>2</div>
4	Modification Cabin Roof	406-961-017-101	Aluminum Honeycomb	Visual	<div>1</div>	<div>2</div>
5	Modification Nose Section	406-961-013-101	ALuminum Honeycomb	Visual	<div>2</div>	
6	Fuel Cell Cover	206-032-117-005	Aluminum Honeycomb	Visual	<div>1</div>	<div>2</div>
7	Aft Fuel Cell Bulkhead	206-032-125-003	Aluminum Honeycomb	Visual	<div>1</div>	<div>2</div>

NOTES:

- 1

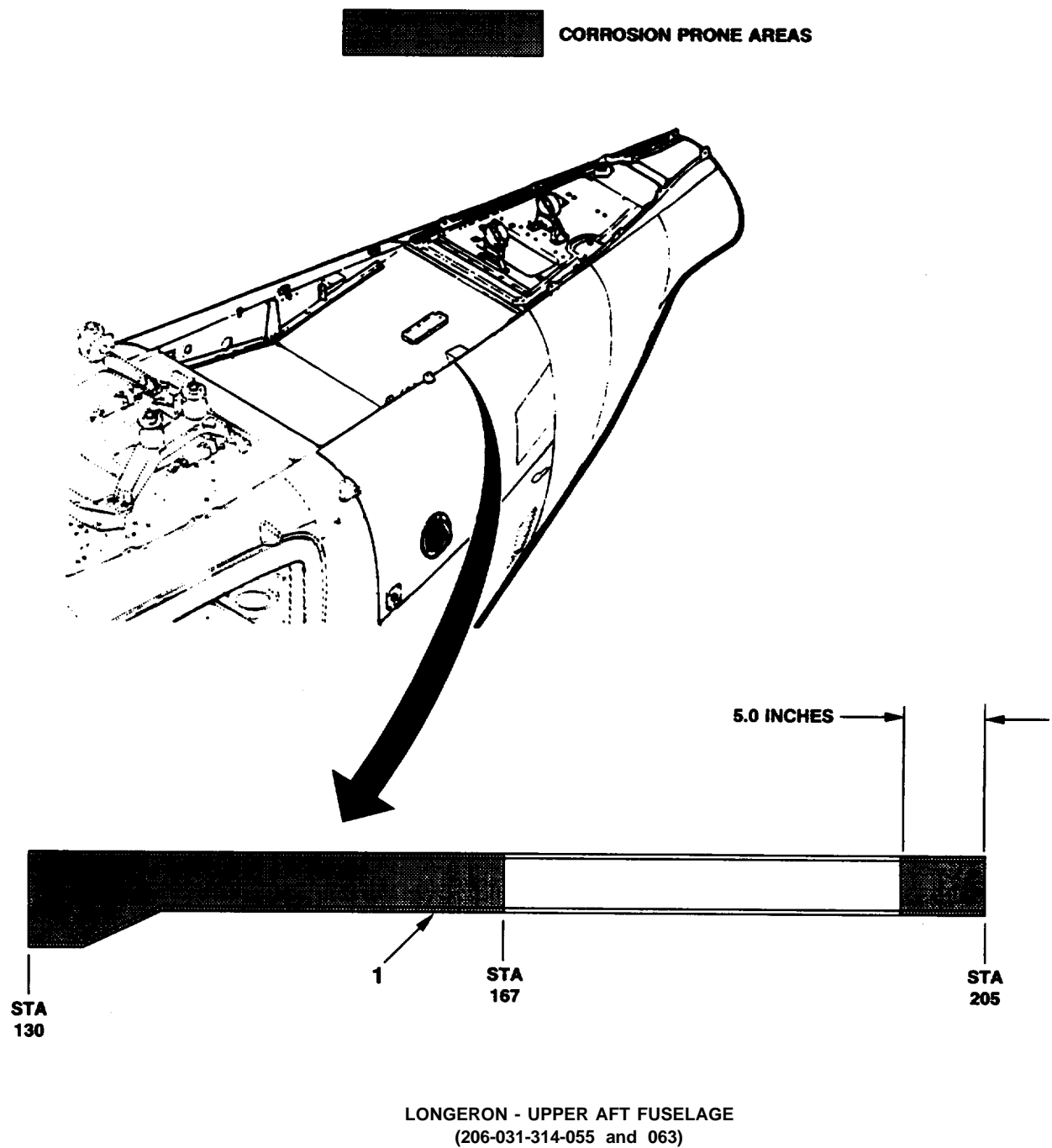
Refer to task 2-1-50.
- 2

If corrosion is present, repair or replace panel.
3.

Finish, WDC/CPC column not required.

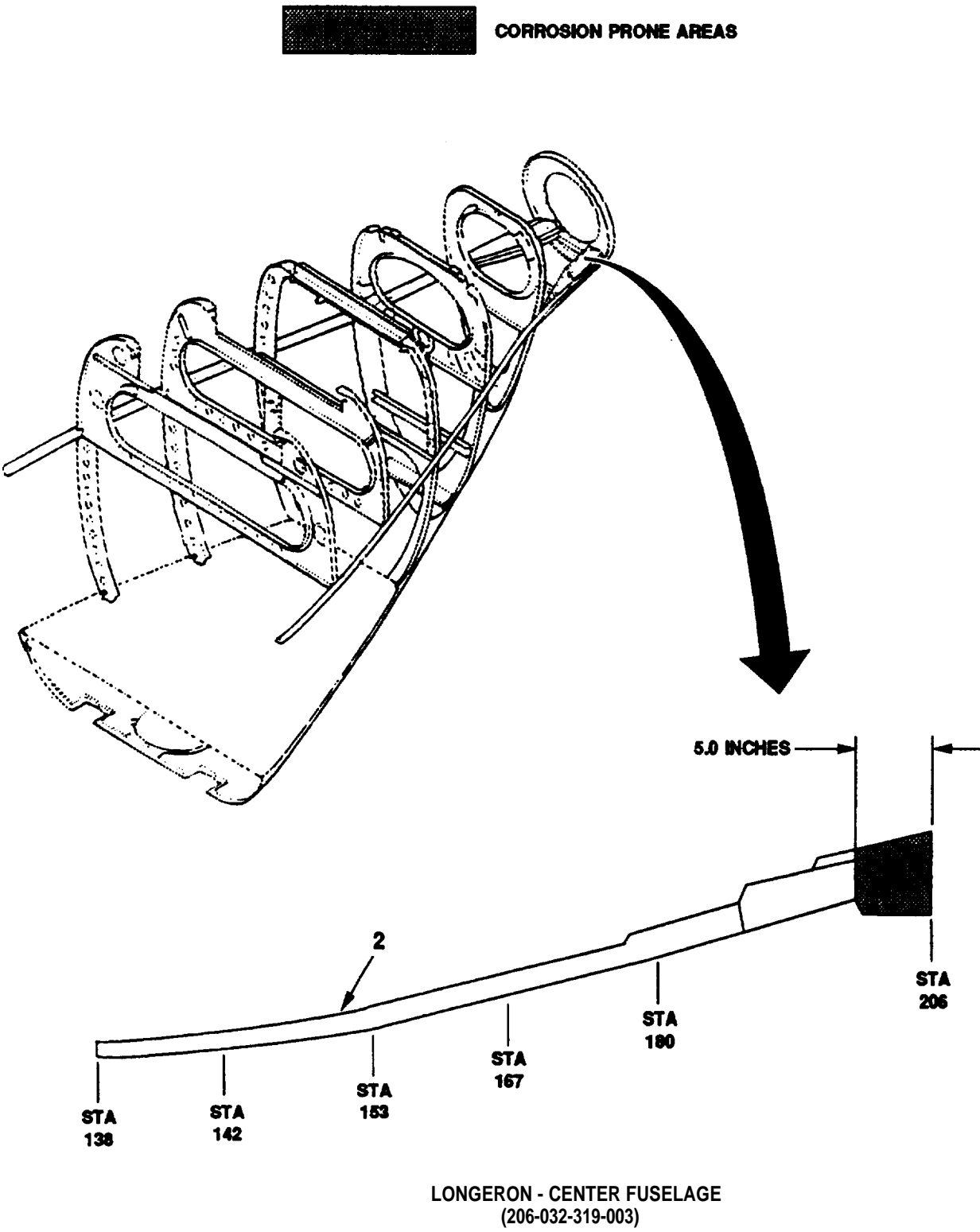
406961-1323-3
H3594

Figure Q-5. Corrosion Prone Panels (Sheet 3)



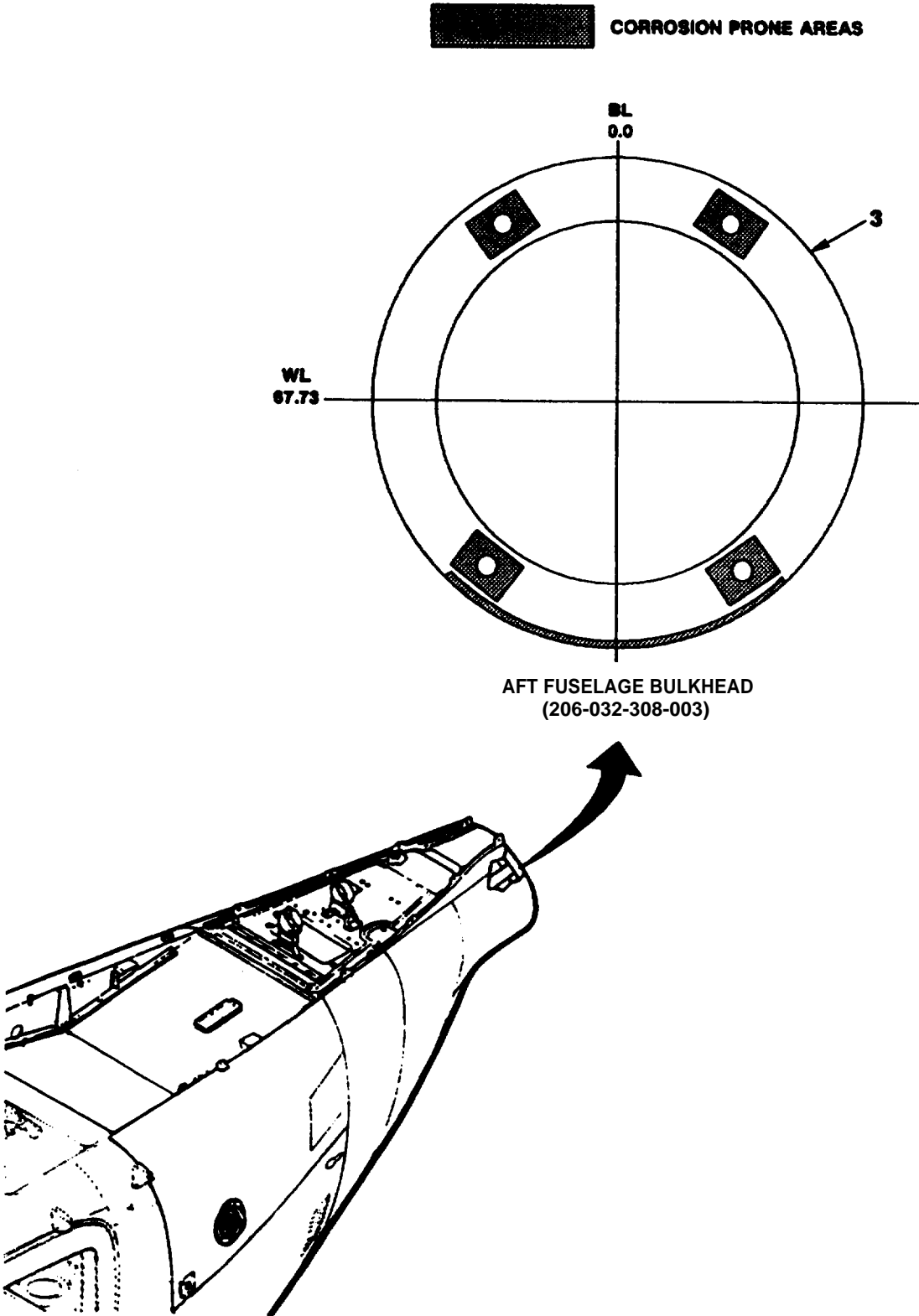
206031-66-2
H3901

Figure Q-6. Fuselage Corrosion Prone Areas (Sheet 1 of 6)



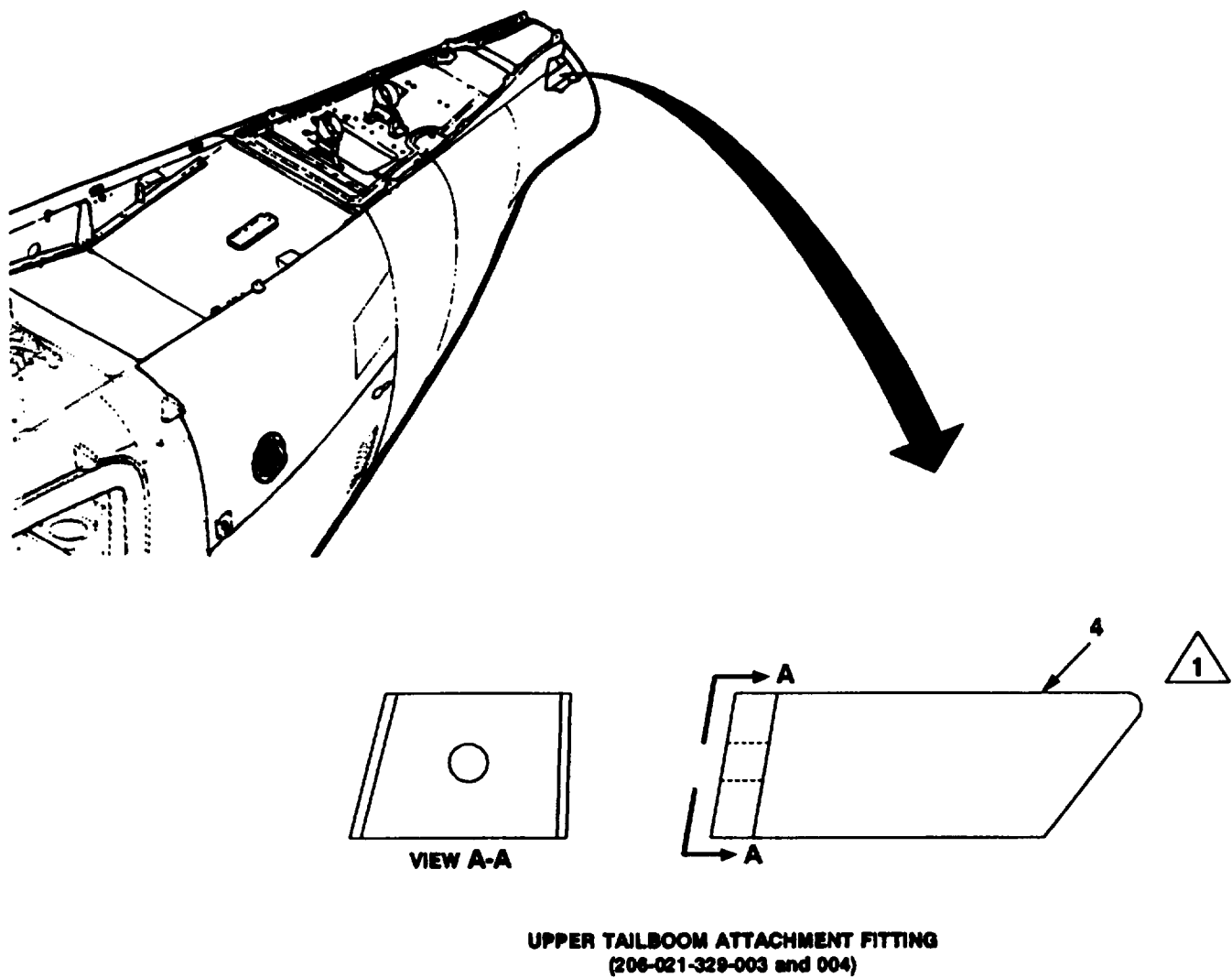
204031-66-3
H3901

Figure Q-6. Fuselage Corrosion Prone Areas (Sheet 2)



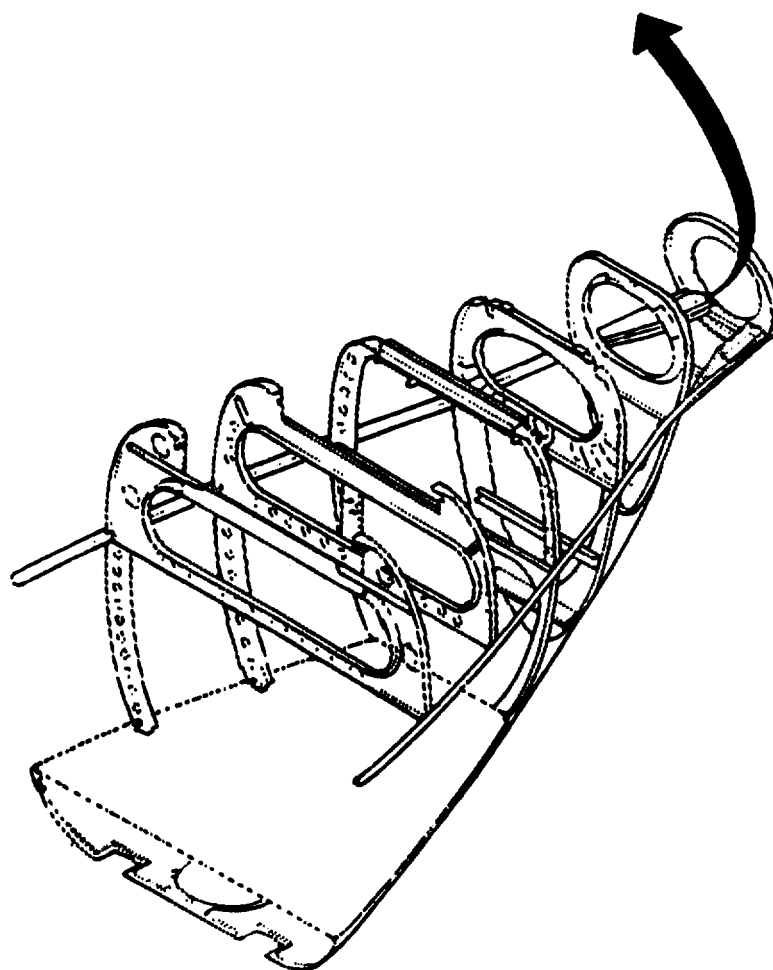
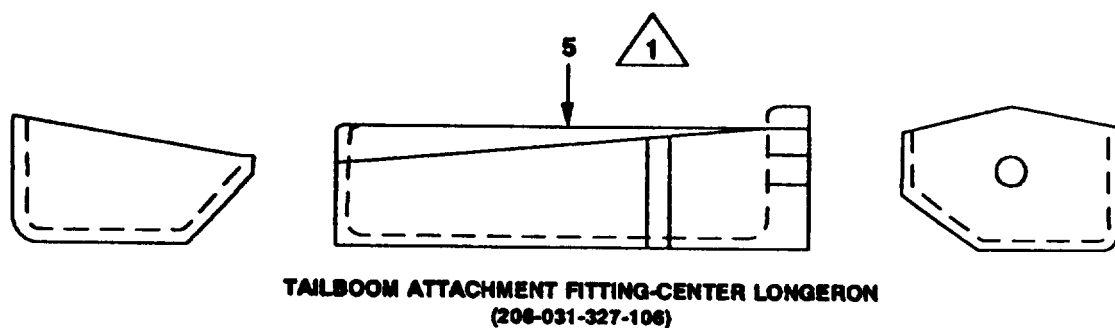
206031-08-4
H3801

Figure Q-6. Fuselage Corrosion Prone Areas (Sheet 3)









200031-08-5
H3801

Figure Q-6. Fuselage Corrosion Prone Areas (Sheet 4)



208031-06-6
143901

Figure Q-6. Fuselage Corrosion Prone Areas (Sheet 5)

NO.	NOMENCLATURE	PART NUMBER	MATERIAL	TYPEE	WDC CPC	NOTES
1	Longeron - Upper Aft Fuselage	206-031-314-055/063	Al. Aly. 7075	Visual		
2	Longeron - Center Fuselage	206-032-319-003	Al. Aly. 7075	Visual		
3	Aft Fuselage Bulkhead	206-032-308-003		Visual		
4	Upper Tailboom Attachment Fitting	206-031-329-003/004	Al. Aly. 2014-T6	Visual/ Measure		
5	Tailboom Attachment Fitting - Center Longeron	206-031-327-106	Al. Aly. 2014-T6	Visual/ Measure		

NOTES:



Entire part is corrosion prone.



Apply water displacement compound (WDC) (D229) only to readily accessible areas of components after each wash and after each flight in the min.

- Refer to TM 1-1500-344-23 for complete corrosion control, repair methods, and application of corrosion preventive compounds (CPC), and water displacement compounds (WDC).

206031-66-1
H4375

Figure Q-6. Fuselage Corrosion Prone Areas (Sheet 6)

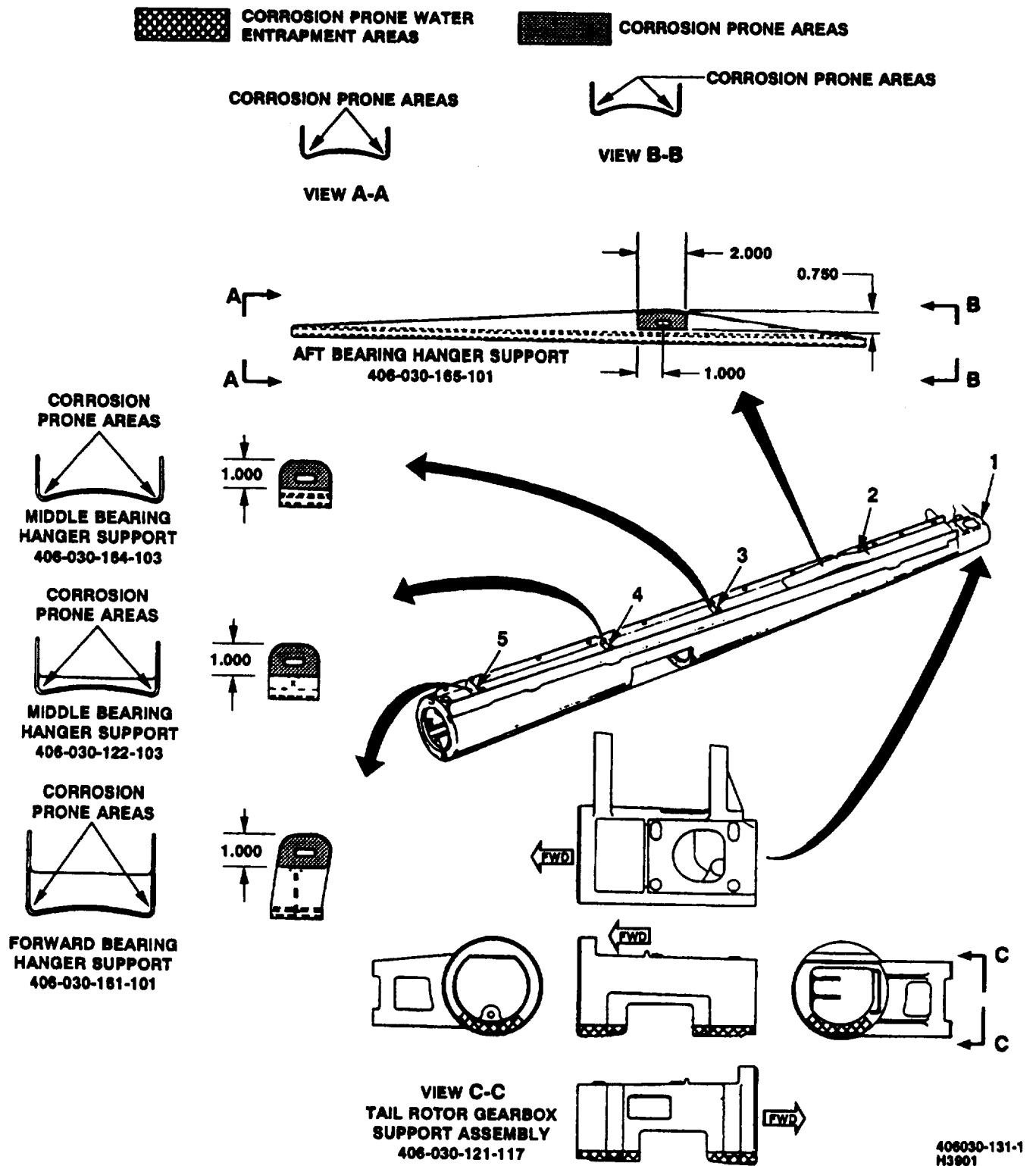


Figure Q-7. Tailboom Corrosion Prone Areas (Sheet 1 of 3)

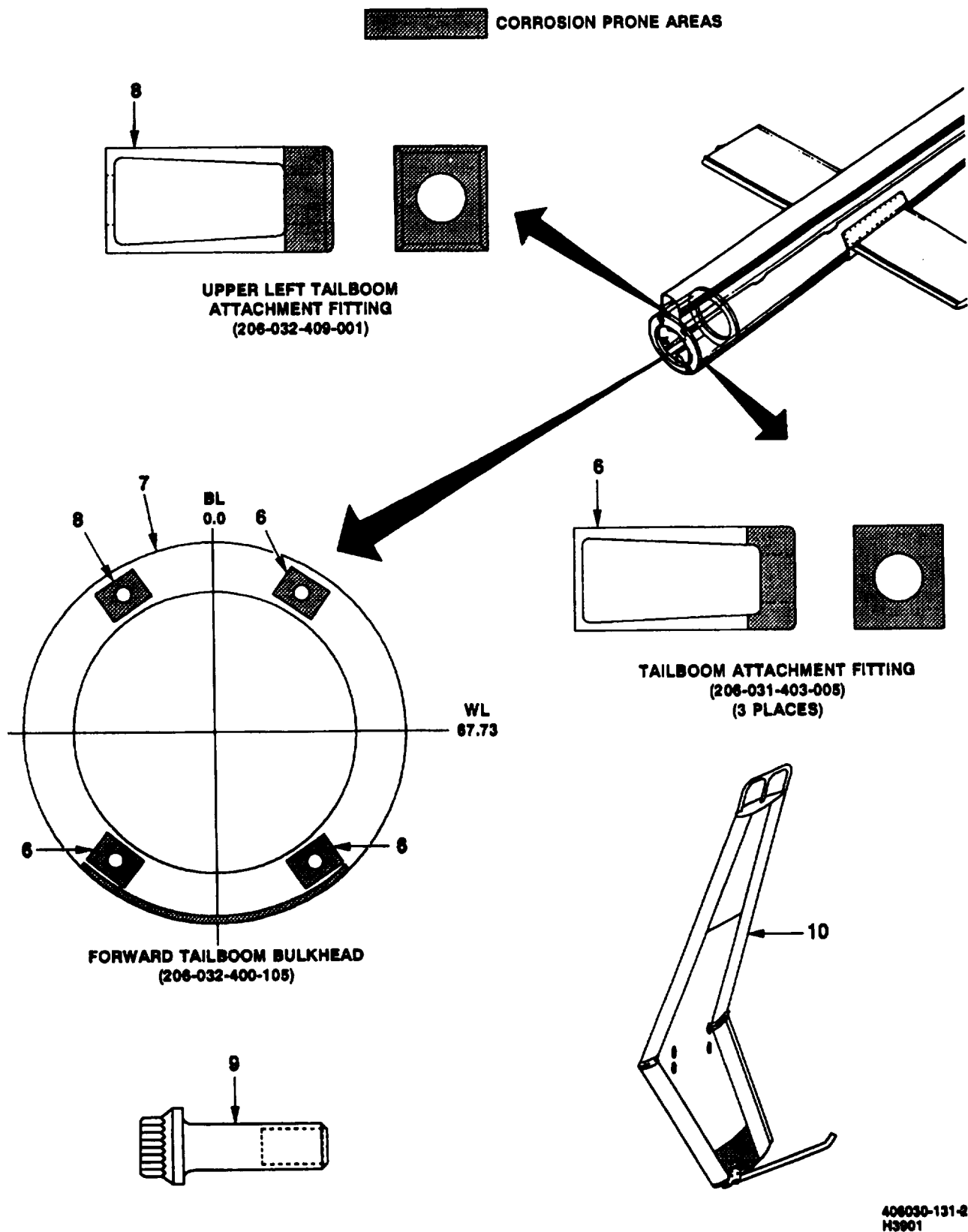


















Figure Q-7. Tailboom Corrosion Prone Areas (Sheet 2)

No.	NOMEN	PART NUMBER	MATERIAL	TYPE INSP	WDC CPC	NOTES
1	Tailrotor Gearbox support	406-030-121-117	Al. Aly. A356	Visual/ Measure		Refer to Task 2-2-6
2	Aft Hanger Bearing support 	406-030-165-101	Al. Aly. 2024-T42	Visual/ Measure		Refer to Task 2-2-9
3	Middle Hanger Bearing Support 	406-030-164-103	CRES 301	Visual/ Measure		Refer to Task 2-2-9
4	Middle Hanger Bearing Support 	406-030-122-103	Al. Aly. 356-T6	Visual/ Measure		Refer to Task 2-2-9
5	Forward Hanger Bearing Support 	406-030-161-101	Al. Aly 356-T6	Visual/ Measure		Refer to Task 2-2-9
6	Tailboom Attachment Fitting (3) 	206-031-403-005	Al. Aly. 2014-T6	Visual/ Measure		Refer to Task 2-2-3
7	Forward Tailboom Bulkhead	206-032-400-105	Al. Aly. 7075	Visual/ Measure		Refer to Task 2-2-3
8	Upper Left Tailboom Attachment Fitting 	206-032-409-001	Al. Aly. 2014-T6	Visual/ Measure		Refer to Task 2-2-3
9	Bolt (4) 	NAS626	Steel 8735	Visual/ Measure		Refer to Task 2-2-5
10	Vertical Fin	206-022-113-101 406-961-025-107	Honeycomb/Al. Aly	Visual/ Measure		Refer to Task 2-2-13

Notes:



Entire area of part is corrosion prone.



A ply water displacement compound (WDC) MIL-C-81309, Type II, to readily accessible areas or components only.

3.

Refer TM 1-1500-344-23 for complete corrosion control, repair methods, and application of corrosion preventive compounds (CPC) and water displacement compounds (WDC).

406030-131-3
H3901

Figure Q-7. Tailboom Corrosion Prone Areas (Sheet 3)

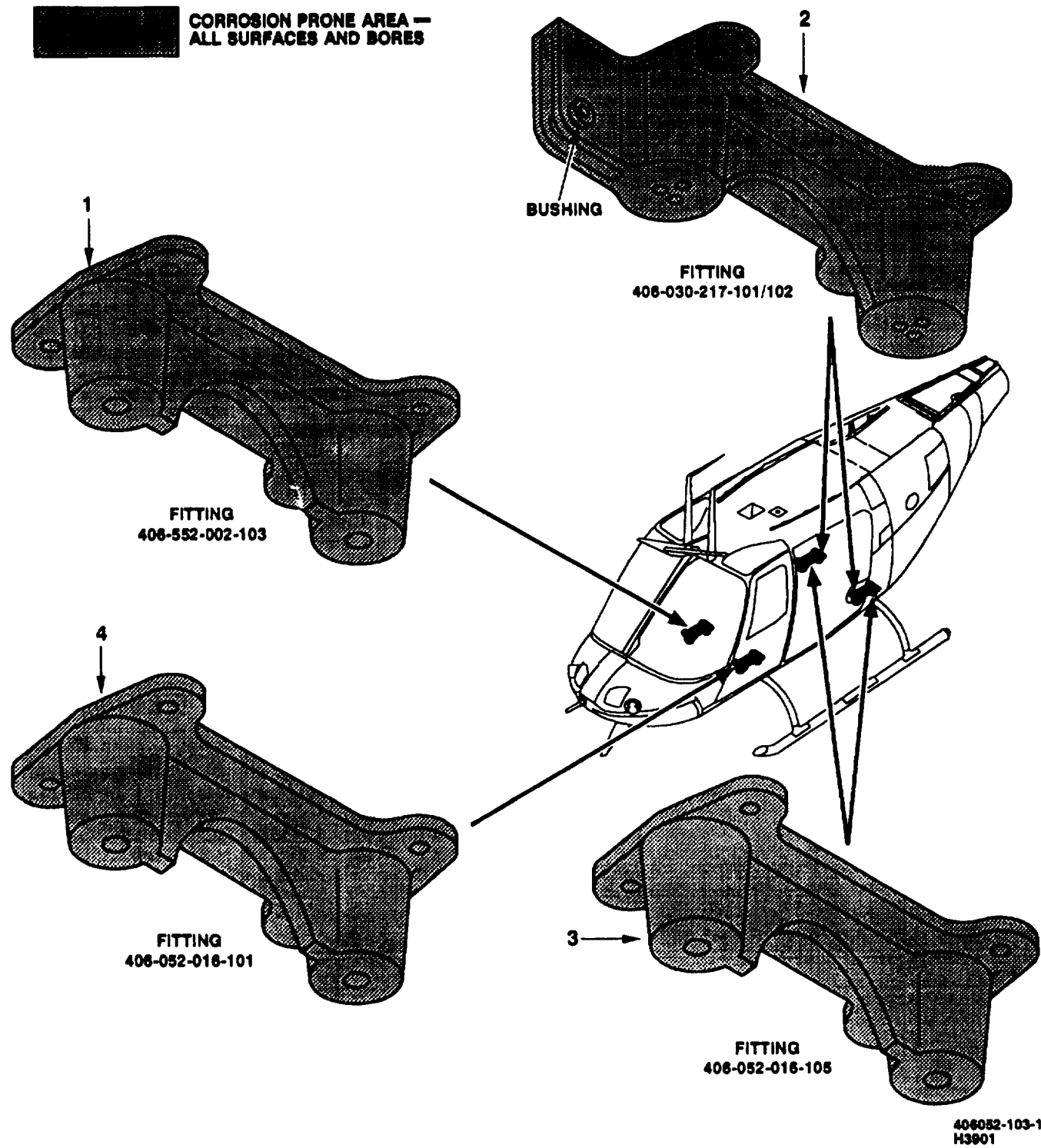


Figure Q-8. Landing Gear Corrosion Prone Areas (Sheet 1 of 3)

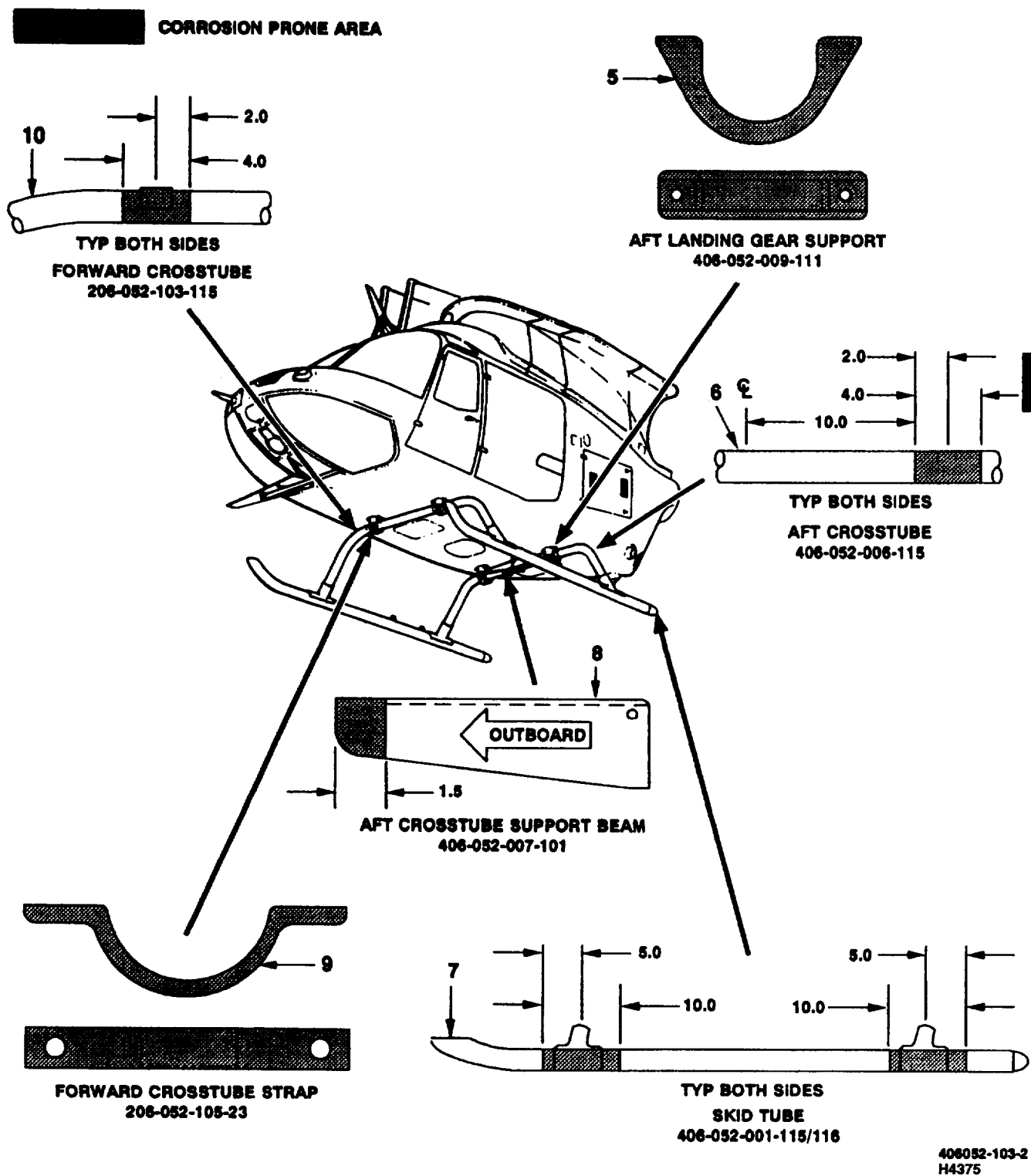








Figure Q-8. Landing Gear Corrosion Prone Areas (Sheet 2)

NO.	NOMEN	PART NUMBER	MATERIAL	TYPE INSP	REPAIR DATA/ COMMENTS/ NOTES
1	Fitting 	406-552-002-103	Al. Aly. 2014-T6	Visual/ Measure	Refer to Task 2-1-65
2	Fitting 	406-030-217-101/102	Al. Aly. 7050	Visual/ Measure	Refer to Task 2-1-65
3	Fitting 	406-052-016-105	Al. Aly. 2014-T6	Visual/ Measure	Refer to Task 2-1-65
4	Fitting 	406-052-016-101	Al. Aly. 2014-T6	Visual/ Measure	Refer to Task 2-1-65
5	Aft Landing Gear Support 	406-052-009-111	Al. Aly. 7075-T73	Visual	Refer to Task 3-1-5 for corrosion repair limits.
6	Aft Crosstube	406-052-006-115	Al. Aly. 7075-T6	Visual	Refer to Task 3-1-18. Typical on both sides.
7	Skid Tube	406-052-001-115/116	Al. Aly. 7075-T6	Visual	Refer to Task 3-1-7 for corrosion repair limits.
8	Aft Crosstube Support Beam	406-052-007-101	Al. Aly. 7075-T73	Visual	Refer to Task 3-1-22. Typical on both sides,
9	Forward Crosstube Strap 	206-052-105-23	Al. Aly. 7075-T6510	Visual	Refer to Task 3-1-4 for corrosion repair limits.
10	Forward Crosstube	206-052-103-115	Al. Aly. 7075	Visual	Refer to task 3-1-14 for corrosion repair limits. Typical on both sides.

NOTES:



Entire part is corrosion prone.

- After wash or flight in rain, apply water displacement compound (WDC), (D237) to readily accessible components only.
- Refer to TM1-1500-344-23 for complete corrosion control, repair methods, and application of corrosion preventive compounds (CPC) and water displacement compounds (WDC).

406052-103-3
H3596

Figure Q-8. Landing Gear Corrosion Prone Areas (Sheet 3)

APPENDIX R

OH-58D (SPECIAL MISSION) HELICOPTERS

R-1. **SCOPE**

This appendix provides aviation unit and intermediate maintenance procedures for those systems peculiar to OH-58D (Special Mission) helicopters.

		Page
Section I	Maintenance Procedures	R-1
Section II	Wiring Diagrams	R-129

Section I. MAINTENANCE PROCEDURES

This section contains maintenance procedures to support peculiar installations and systems installed on the OH-58D special mission helicopter. Standard torques are provided in Appendix P.

The following LIST OF TASKS lists those tasks required to support aviation unit and intermediate level maintenance.

LIST OF TASKS

TASK	TASK NUMBER	PAGE NUMBER
Install/Remove MMS Hoist Assembly	R-1-1	R-3
Clean, Inspect, and Repair MMS Hoist Assembly	R-1-2	R-6
MMS Hoist Rigging for Emergency Removal of Major Components	R-1-3	R-9
Install/Remove MMS Platform Assembly	R-1-4	R-11
Clean, Inspect, and Repair MMS Platform Assembly	R-1-5	R-13
Install/Remove Rapid Deployment Jacks	R-1-6	R-23
Clean, Inspect, and Repair Rapid Deployment Jacks	R-1-7	R-25
Lower/Raise Helicopter for Rapid Deployment	R-1-8	R-27
Disassemble/Assemble Ground Handling Gear	R-1-9	R-29
Clean, Inspect, and Repair Ground Handling Gear	R-1-10	R-32
Remove/Install ALQ-144 IR Jammer Mount	R-1-11	R-33
Clean, Inspect, and Repair ALQ-144 IR Jammer Mount	R-1-12	R-35
Remove/Install ALQ-144 IR Jammer Fairing	R-1-13	R-37
Clean, Inspect, and Repair ALQ-144 IR Jammer Fairing	R-1-14	R-39
Remove/Install Rescue Ladder	R-1-15	R-40
Clean, Inspect, and Repair Rescue Ladder	R-1-16	R-42
Remove/Install Left Rescue Ladder Cable	R-1-17	R-44
Remove/Install Right Rescue Ladder Cable	R-1-18	R-46
Clean, Inspect, and Repair Rescue Ladder Cables	R-1-19	R-49
Remove/Install Rapid Deployment Landing Gear	R-1-20	R-51
Inspect Rapid Deployment Landing Gear	R-1-21	R-54
Clean, Inspect, and Repair Rapid Deployment Aft Crosstube Support Assembly	R-1-22	R-56

LIST OF TASKS (CONT)

TASK	TASK NUMBER	PAGE NUMBER
Clean, Inspect, and Repair Rapid Deployment Forward Crosstube Strap	R-1-23	R-58
Remove/Install Skid Tube Assembly	R-1-24	R-60
Clean, Inspect, and Repair Rapid Deployment Skid Tube Assembly	R-1-25	R-61
Remove/Install Rapid Deployment Skid Shoes and Skid Tube Rivnut	R-1-26	R-65
Clean, Inspect, and Repair Rapid Deployment Skid Shoes and Skid Tube Rivnut (AVIM)	R-1-27	R-67
Remove/Install Rapid Deployment Eyebolt	R-1-28	R-72
Clean, Inspect, and Repair Rapid Deployment Eyebolt	R-1-29	R-73
Remove/Install Rapid Deployment Forward Crosstube	R-1-30	R-77
Clean, Inspect, and Repair Rapid Deployment Forward Crosstube	R-1-31	R-79
Remove/Install Rapid Deployment Forward Crosstube Components	R-1-32	R-82
Clean, Inspect, and Repair Rapid Deployment Forward Crosstube Components	R-1-33	R-86
Remove/Install Rapid Deployment Aft Crosstube	R-1-34	R-88
Clean, Inspect, and Repair Rapid Deployment Aft Crosstube	R-1-35	R-90
Remove/Install Rapid Deployment Aft Crosstube Components	R-1-36	R-92
Clean, Inspect, and Repair Rapid Deployment Aft Crosstube Components	R-1-37	R-96
Remove/Install Rapid Deployment Aft Crosstube Support Beam and Components	R-1-38	R-98
Clean, Inspect, and Repair Rapid Deployment Aft Crosstube Support Beam and Components	R-1-39	R-100
Remove/Install Rapid Deployment Aft Crosstube Support Beam Bushing (AVIM)	R-1-40	R-102
Remove/Install Rapid Deployment Tow Fittings	R-1-41	R-104
Clean, Inspect, and Repair Rapid Deployment Tow Fittings	R-1-42	R-106
Remove/Install Rapid Deployment Leg and Knuckle Assembly	R-1-43	R-109
Clean, Inspect, and Repair Rapid Deployment Leg and Knuckle Assembly	R-1-44	R-111
Remove/Install Rapid Deployment MMS Platform Ball and Hoist Ball	R-1-45	R-116
Clean, Inspect, and Repair Rapid Deployment MMS Platform Ball and MMS Hoist Ball	R-1-46	R-118
Remove/Install NVG Navigation Lights (Typical)	R-1-47	R-120
Remove/Install Weight-On-Gear Interrupt Switch	R-1-48	R-122
Remove/Install Underwater Acoustic Beacon	R-1-49	R-124
Clean, Inspect, and Repair Underwater Acoustic Beacon	R-1-50	R-127

R-1-1. INSTALL/REMOVE MMS HOIST ASSEMBLY

This task covers: Installation and Removal (On Helicopter)

INITIAL SETUP

General Safety Instructions:

Applicable Configurations:
OH-58D (Special Mission)

WARNING

Material:
Lubricating Oil (D239)

This task requires a minimum of three people to prevent injury to personnel and/or damage to equipment.

Personnel Required:
67S Scout Helicopter Technical Inspector
67S Scout Helicopter Repairer (3)

WARNING

Helicopter shall remain in kneeled position during all steps to prevent injury to personnel and/or damage to equipment.

GO TO NEXT PAGE

R-1-1. INSTALL/REMOVE MMS HOIST ASSEMBLY (CONT)

INSTALL**WARNING**

Ensure lower end of hoist assembly locks securely in place on ball to prevent injury to personnel and/or damage to equipment.

Ensure clearance between MMS hoist and rotor blades during installation to prevent injury to personnel and/or damage to equipment.

NOTE

Hoist assembly support ball and support arm attach fittings are located on pilot (right) side of helicopter.

1. Position lower end of hoist assembly (1) on ball (2) with hoist boom pointing toward front of helicopter.

2. Rotate handle (3) to install hoist assembly (1) on ball (2).

WARNING

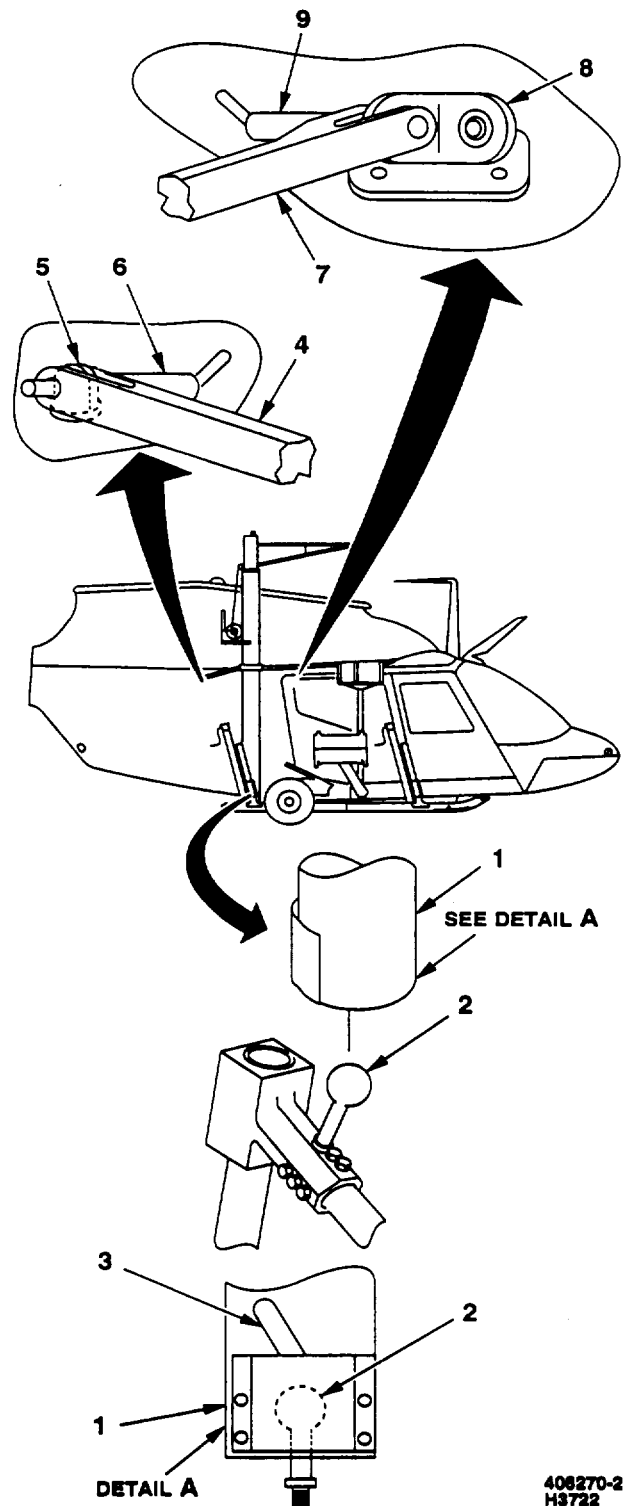
Avoid any skin contact with grease. Wash hands thoroughly with soap and water after handling grease.

NOTE

Lubricate hoist swivel points and attachment fittings as required with lubricating oil (D239).

3. Align support arm (4) with rear attach point of fitting (5) and secure in place with pin (6).

4. Align support arm (7) with attach fitting (8) and secure in place with pin (9).

INSPECT

406270-2
H3722

GO TO NEXT PAGE

R-1-1. INSTALL/REMOVE MMS HOIST ASSEMBLY (CONT)

REMOVE

WARNING

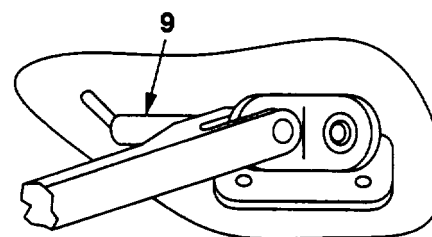
Hoist assembly shall be supported during removal to prevent injury to personnel and/or damage to equipment.

Ensure clearance between MMS hoist and rotor blades during removal to prevent injury to personnel and/or damage to equipment.

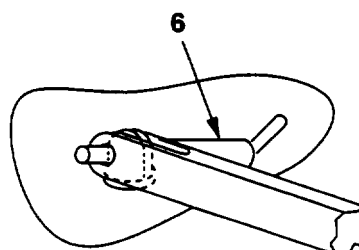
5. Support hoist assembly (1) and release pins (6 and 9).

6. Release hoist assembly (1) from ball (2) by rotating handle (3).

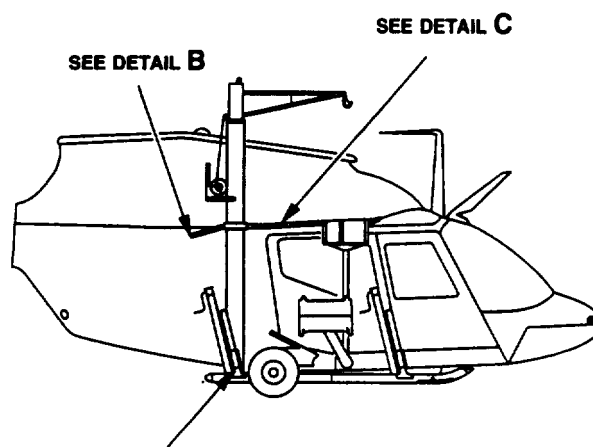
7. Remove hoist assembly (1).

INSPECT

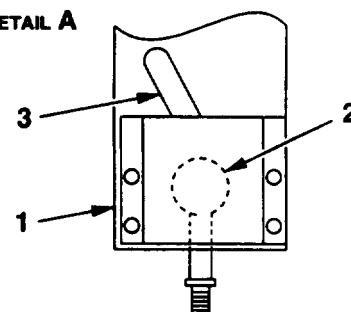
DETAIL C



DETAIL B



SEE DETAIL A



DETAIL A

406270-9
H3202

END OF TASK

R-1-2. CLEAN, INSPECT, AND REPAIR MMS HOIST ASSEMBLY

This task covers: Cleaning, Inspection, and Repair (Off Helicopter)

INITIAL SETUP

Personnel Required:

67S Scout Helicopter Technical Inspector
67S Scout Helicopter Repairer

Applicable Configurations:
OH-58D (Special Mission)

General Safety Instructions:

Tools:
Aircraft Mechanic Tool Kit

CAUTION

Material:
Drycleaning Solvent (D1)
Rubber Gloves (D119)
Wiping Rags (D53)

To prevent accumulation of dust and dirt, lubrication or grease of any kind shall not be applied to MMS hoist assembly.

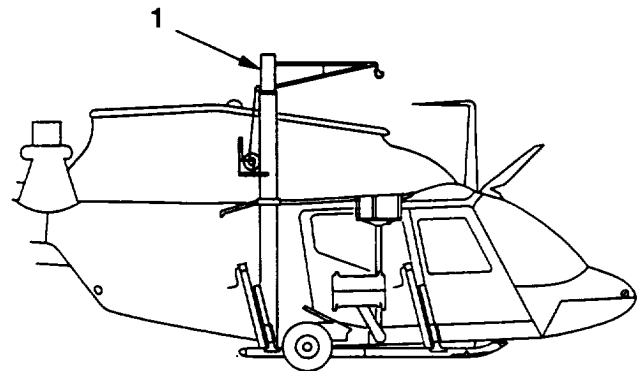
CLEAN

WARNING

Drycleaning solvent (D1) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. Wear rubber gloves (D119) and goggles. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

Clean hoist assembly (1) using wiping rags (D53) dampened with drycleaning solvent (D1).

2. Dry hoist assembly (1) using clean wiping rags (D53).



406270-4
G7104

GO TO NEXT PAGE

R-1-2. CLEAN, INSPECT, AND REPAIR MMS HOIST ASSEMBLY (CONT)

3. Clean cable (2), hooks (3 and 4), ratchet and pawl (6), and brake (7) with dry wiping rag (D53) to clean. Do not lubricate.

WARNING

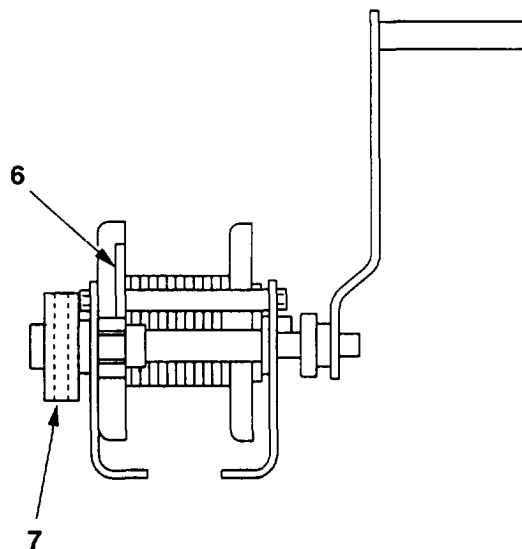
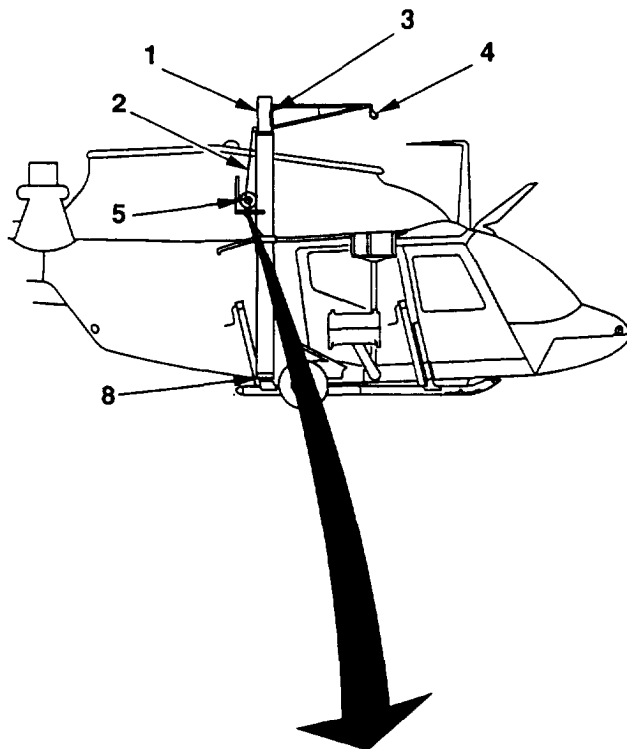
When using compressed air for any cleaning or drying operation, do not exceed 30 psig at the nozzle. Eyes can be permanently damaged by contact with liquid or large particles propelled by compressed air. Inhalation of air-blown particles or solvent vapor can damage lungs. If injury occurs, get immediate medical attention. When using air for drying or cleaning at an air-exhausted workbench, wear approved goggles or faceshield. When using air for drying or cleaning at an unexhausted workbench, wear approved respirator and goggles.

4. Remove dust or sand from winch assembly (5) using shop air.

INSPECT

5. Inspect hoist assembly (1) as follows:

- a. Inspect cable (2) for kinks, frays, broken strands, and correct spooling on drum.
- b. Inspect hooks (3 and 4) for damage and correct operation of safety latches.
- c. Inspect winch assembly (5) for broken or chipped gears and correct operation of ratchet and pawl (6).
- d. Inspect brake assembly (7) for correct operation.
- e. Inspect ball locking mechanism (8) for damage and correct operation.
- f. Check hoist assembly (1) for smoothness and binding during extension.
- g. Check hoist assembly (1) for structural damage.



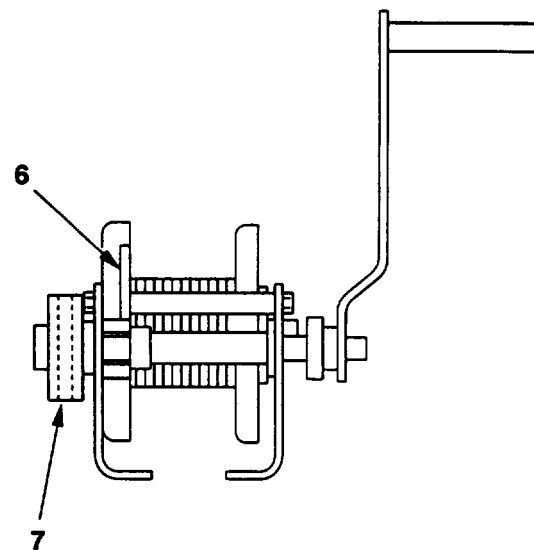
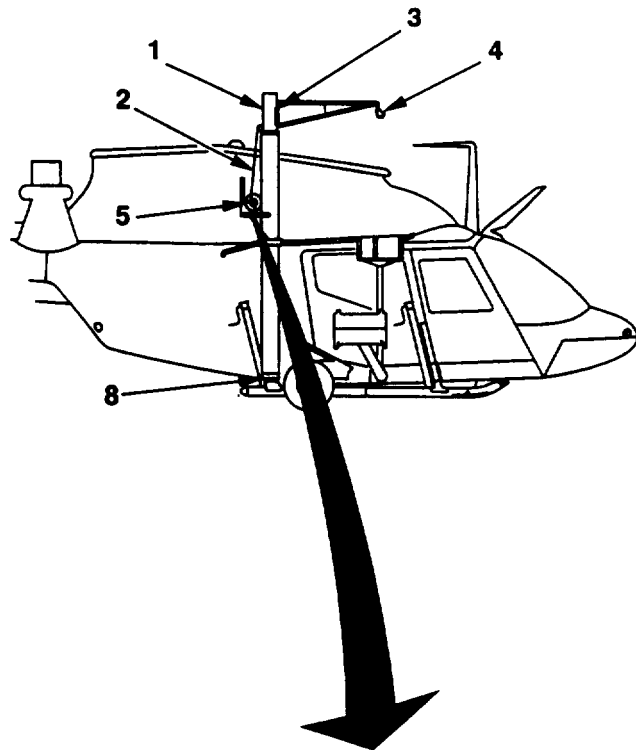
406270-5
G7105

GO TO NEXT PAGE

R-1-2. CLEAN, INSPECT, AND REPAIR MMS HOIST ASSEMBLY (CONT)

REPAIR

6. Replace cable (2) if damaged or worn.
7. Replace hooks (3 and 4) if damaged or if safety latches are defective.
8. Replace brake assembly (7) if damaged or worn.
9. Replace ball locking mechanism (8) if damaged or worn.
10. Replace winch assembly (5) and ratchet and pawl (6) if damaged or worn.
11. Replace hoist assembly (1) if structural damage is not repairable



406270-5
G7105

END OF TASK

R-1-3. MMS HOIST RIGGING FOR EMERGENCY REMOVAL OF MAJOR COMPONENTS

This task covers: Rigging of MMS Hoist Assembly for Major Component Removal (On Helicopter)

INITIAL SETUP

Applicable Configurations:
OH-58D (Special Mission)

Tools:
Aircraft Mechanic Tool Kit

Personnel Required:
67S Scout Helicopter Technical Inspector
67S Scout Helicopter Repairer

Equipment Condition:

Engine Assembly Disconnected (As required)
(Task 4-1-1)

Transmission Assembly Disconnected (As
required) (Task 6-3-2)

Main Rotor Hub Assembly Disconnected (As
required) (Task 5-1-1)

MMS Hoist Assembly Installed On Helicopter
(Task R-1-1)

GO TO NEXT PAGE

R-1-3. MMS HOIST RIGGING FOR EMERGENCY REMOVAL OF MAJOR COMPONENTS (CONT)

DISASSEMBLE

NOTE

Rigging of the MMS hoist assembly for use as a maintenance hoist is for emergency use in removal and installation of the engine, transmission, and main rotor hub assemblies, as required.

1. Raise hoist until 1-inch gray band (1) painted on movable section of hoist assembly is visible.

2. Remove nut (2) and bolt (3) from stowed position in winch support.

3. Align holes (4) in fixed and movable sections of hoist assembly.

4. Install bolt (3) through holes aligned in step 3. and secure with nut (2).

5. Remove hook (5) from anchor (6).

6. Remove nut (7), bolt (8), pulley (9), and guide (10).

ASSEMBLE

7. Position cable in pulley (9) and install guide (10) over pulley (9).

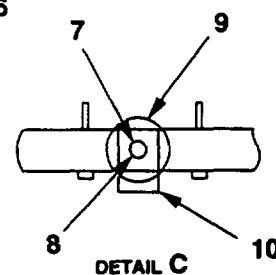
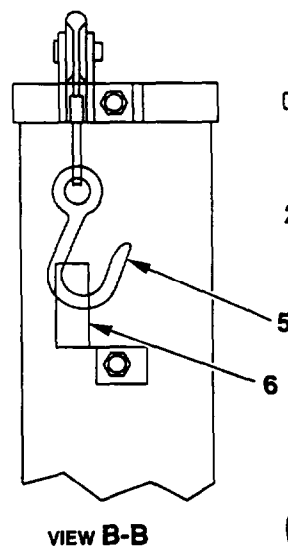
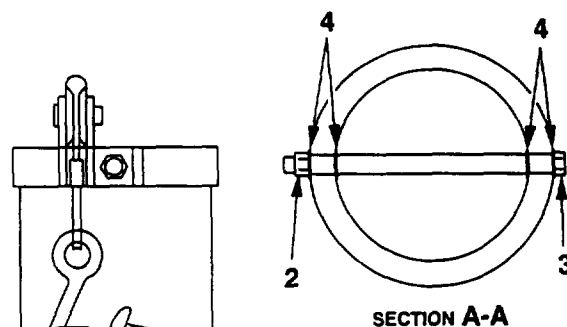
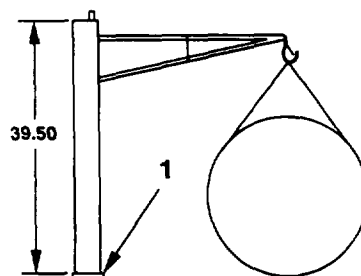
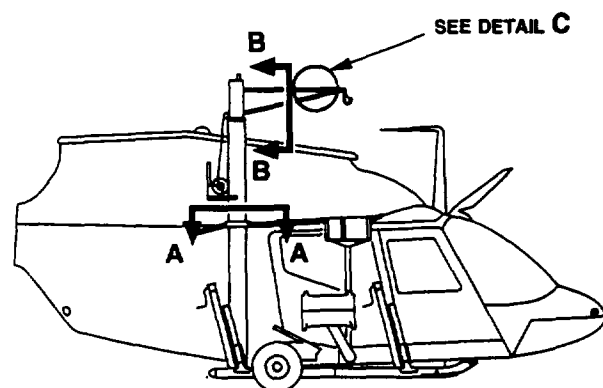
NOTE

Ensure guide (10) is positioned over top of pulley (9) before installing bolt (8) and nut (7).

8. Install pulley (9), guide (10), bolt (8), and nut (7).

9. Attach hook (5) to component to be removed as required.

INSPECT



408270-1
G7101

END OF TASK

R-1-4. INSTALL/REMOVE MMS PLATFORM ASSEMBLY

This task covers: Installation and Removal (On Helicopter)

INITIAL SETUP

General Safety Instructions:

Applicable Configurations:

OH-58D (Special Mission)

WARNING

Personnel Required:

67S Scout Helicopter Technical Inspector

67S Scout Helicopter Repairer

Helicopter shall remain in kneeled position while accomplishing all steps to prevent injury to personnel and/or damage to equipment.

GO TO NEXT PAGE

R-1-4. INSTALL/REMOVE MMS PLATFORM ASSEMBLY (CONT)

INSTALL

WARNING

Ensure lower end of platform assembly locks securely in place on ball to prevent injury to personnel and/or damage to equipment.

NOTE

Platform assembly support ball and support arm attach fittings are located on pilot (right) side of helicopter,

1. Position lower end of platform assembly (1) on ball (2).
2. Align support arm (3) with attach fitting (4) and secure in place with pin (5).
3. Align support arm (6) with forward attach point of fitting (7) and secure in place with pin (8).

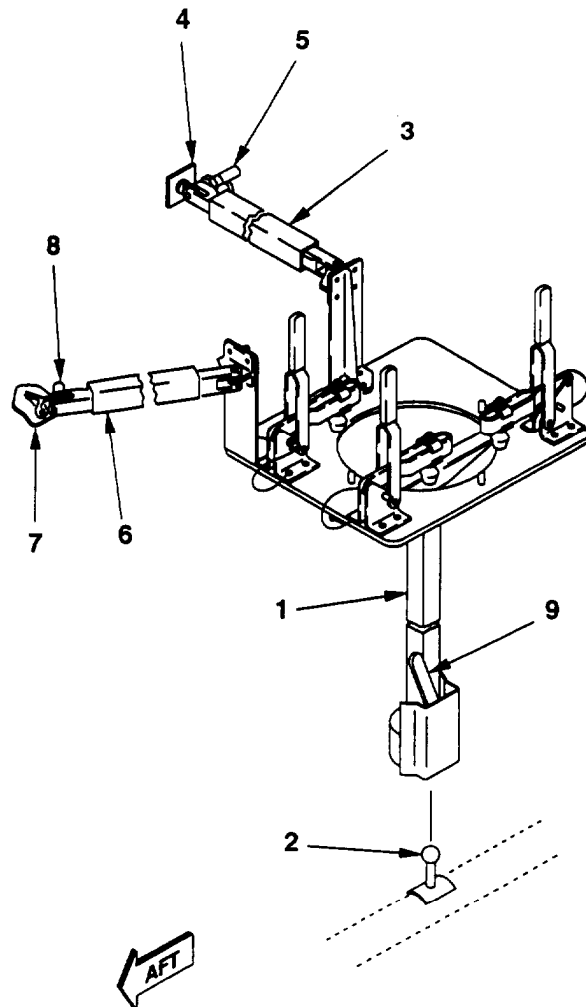
INSPECT

REMOVE

WARNING

Platform assembly shall be supported during removal to prevent injury to personnel and/or damage to equipment.

4. Support platform assembly (1) and release pins (5 and 8).
5. Release platform assembly (1) from ball (2) by rotating handle (9).
6. Remove platform assembly (1).



406270-6
G7106

END OF TASK

R-1-5. CLEAN, INSPECT, AND REPAIR MMS PLATFORM ASSEMBLY

This task covers: Cleaning, Inspection, and Repair (Off Helicopter)

INITIAL SETUP

Applicable Configurations:
OH-58D (Special Mission)

Tools:
Aircraft Mechanic Tool Kit

Material:

Drycleaning Solvent (D1)
Rubber Gloves (D119)
Sandpaper (D11)
Wiping Rags (D53)

Personnel Required:

67S Scout Helicopter Technical Inspector
67S Scout Helicopter Repairer

GO TO NEXT PAGE

R-1-5. CLEAN, INSPECT, AND REPAIR MMS PLATFORM ASSEMBLY (CONT)

CLEAN

WARNING

Drycleaning solvent (D1) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. Wear rubber gloves (D119) and goggles. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

1. Clean platform assembly using wiping rags (D53) dampened with drycleaning solvent (D1).

2. Dry platform assembly using clean wiping rags (D53).

INSPECT

3. Visually inspect platform assembly (1) for cracks, scratches, nicks, gouges, and corrosion exceeding limits shown. No cracks allowed.

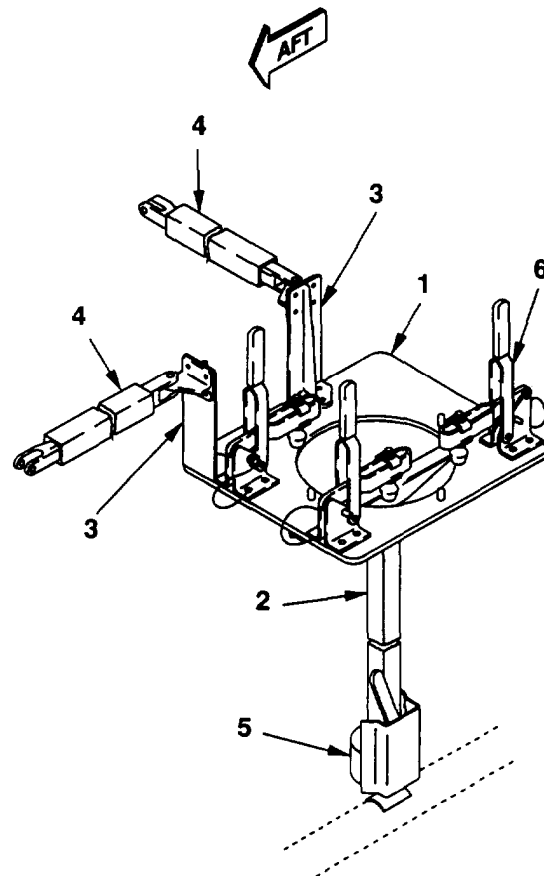
4. Visually inspect platform support assembly (2) for cracks, scratches, nicks, gouges, and corrosion exceeding limits shown. No cracks allowed.

5. Visually inspect platform upper supports (3) for cracks, scratches, nicks, gouges, and corrosion exceeding limits shown. No cracks allowed.

6. Visually inspect rod assemblies (4) for cracks, scratches, nicks, gouges, and corrosion exceeding limits shown. No cracks allowed.

7. Visually inspect ball locking mechanism (5) for cracks, scratches, nicks, gouges, and corrosion exceeding limits shown. No cracks allowed.

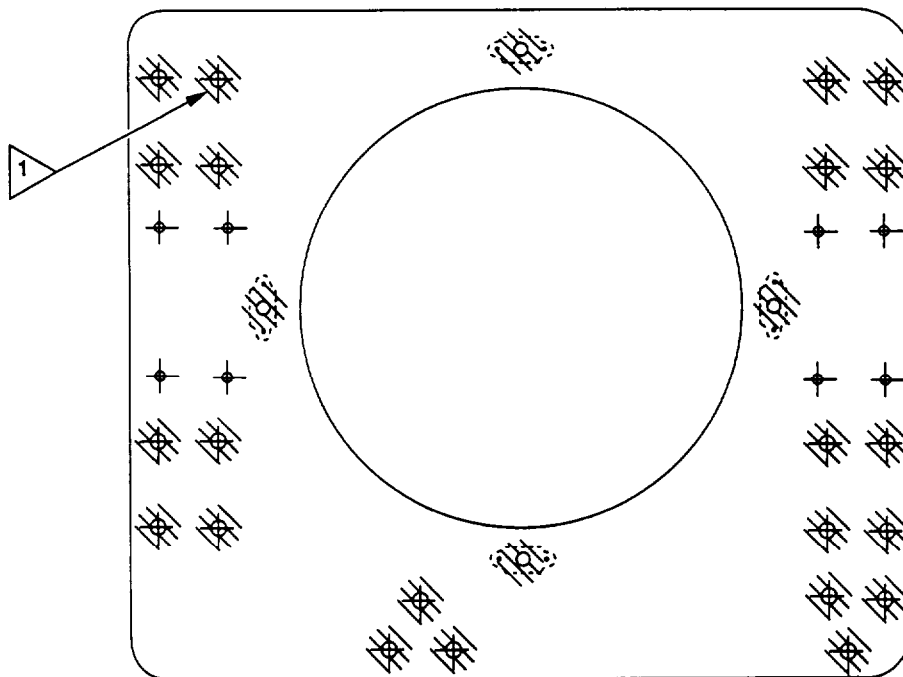
8. Inspect toggle clamp assemblies (6) for damage and correct operation.



406270-8
G7689

GO TO NEXT PAGE

R-1-5. CLEAN, INSPECT, AND REPAIR MMS PLATFORM ASSEMBLY (CONT)



406-092-012-101 PLATFORM ASSY.

DAMAGE LOCATION SYMBOLS



TYPE OF DAMAGE	MAXIMUM DAMAGE AND REPAIR DEPTH	
MECHANICAL:	0.010 In.	0.040 In.
CORROSION:	0.005 In. before repair 0.010 In. after repair	0.020 In. before repair 0.040 In. after repair
MAXIMUM AREA FULL DEPTH REPAIR	0.100 Sq. In.	0.50 Sq. In.
MAXIMUM NUMBER OF REPAIRS	One per surface	2
EDGE CHAMFER	NONE	0.040 In. x 45°
MOUNTING BORE	0.002 In. on full circumference to In. maximum diameter. + 0.004 In.	

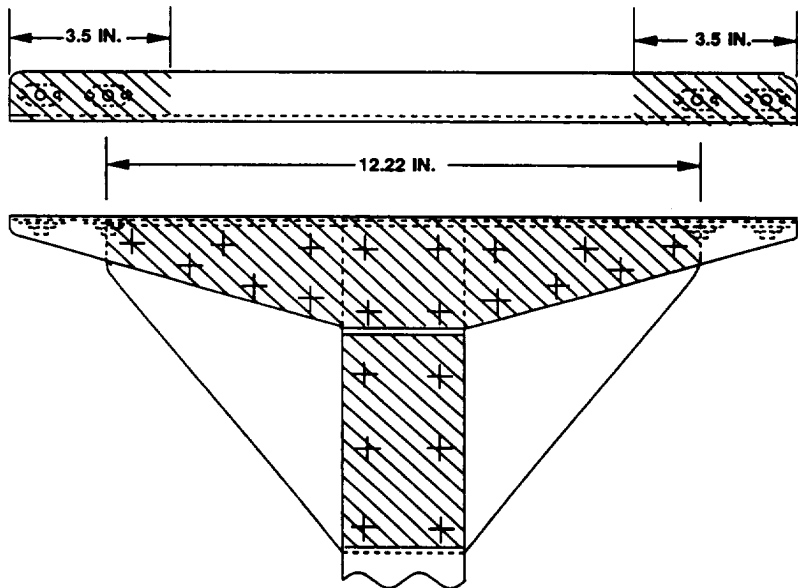
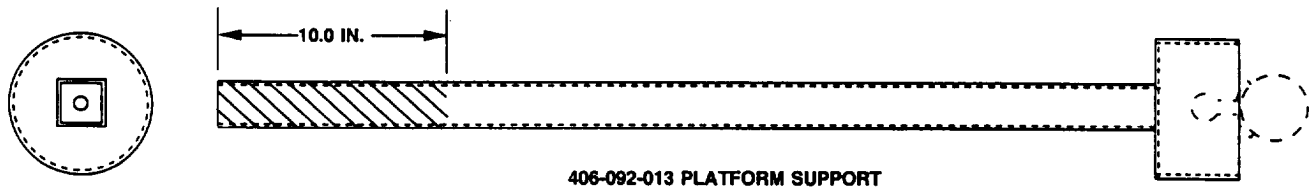
NOTES:

- 1 0.80 inch diameter (reference). Critical area. Both surfaces.
- 2 Minimum spacing between damaged area is 1.00 inch.

406092-5
G7690

GO TO NEXT PAGE

R-1-5. CLEAN, INSPECT, AND REPAIR MMS PLATFORM ASSEMBLY (CONT)



DAMAGE LOCATION SYMBOLS

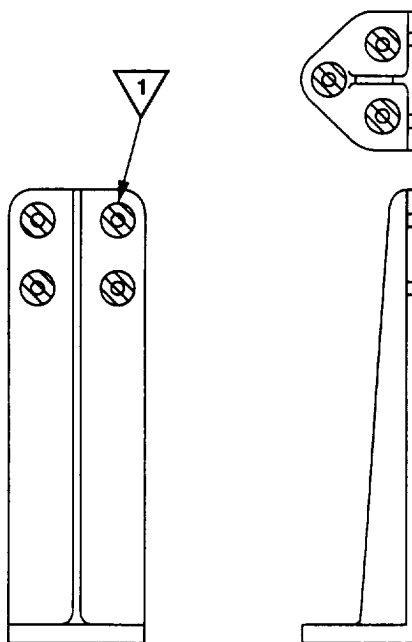


TYPE OF DAMAGE	MAXIMUM DAMAGE AND REPAIR DEPTH	
	0.010 in.	0.020 in.
MECHANICAL:	0.010 in.	0.020 in.
CORROSION:	0.005 in. before repair	0.010 in. before repair
	0.010 in. after repair	0.020 in. after repair
MAXIMUM AREA FULL DEPTH REPAIR	0.250 Sq. in.	0.500 Sq. in.
MAXIMUM NUMBER OF REPAIRS	One per surface	Three per surface
EDGE CHAMFER	0.020 in. x 45°	0.030 in. x 45°

NOTE:
No cracks permitted.

406092-4
G7691

R-1-5. CLEAN, INSPECT, AND REPAIR MMS PLATFORM ASSEMBLY (CONT)



406-092-113 SUPPORT

DAMAGE LOCATION SYMBOLS



TYPE OF DAMAGE

MAXIMUM DAMAGE AND REPAIR DEPTH

MECHANICAL:

0.005 in.

0.040 in.

CORROSION:

0.002 in. before repair
0.005 in. after repair

0.010 in. before repair
0.040 in. after repair

MAXIMUM AREA
FULL DEPTH REPAIR

0.060 Sq. in.

0.250 Sq. in.

MAXIMUM NUMBER
OF REPAIRS

One per surface



EDGE CHAMFER

NA

0.040 in. x 45°

LUG BORE

No damage permitted.

MOUNTING BORE

0.002 Inch on full circumference
to maximum diameter + 0.004 in.

NOTES:



1. 0.80 Inch diameter (reference). Critical area both surfaces.

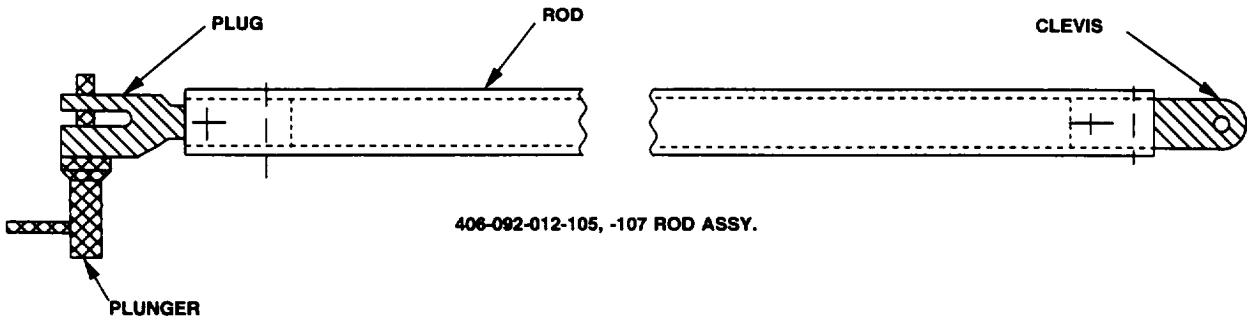
2. Minimum spacing between damaged area is 1.00 Inch.





3. No cracks permitted.

406092-6
G7692


GO TO NEXT PAGE

R-1-5. CLEAN, INSPECT, AND REPAIR MMS PLATFORM ASSEMBLY (CONT)



TYPE OF DAMAGE	DAMAGE LOCATION SYMBOLS		
			
MAXIMUM DAMAGE AND REPAIR DEPTH			
MECHANICAL:	0.005 in.	0.010 in.	0.040 in.
CORROSION:	0.002 in. before repair 0.005 in. after repair	0.005 in. before repair 0.010 in. after repair	0.010 in. before repair 0.040 in. after repair
MAXIMUM AREA FULL DEPTH REPAIR	0.060 Sq. in.	0.100 Sq. in.	0.250 Sq. in.
MAXIMUM NUMBER OF REPAIRS	One per surface		
EDGE CHAMFER	0.010 in. x 45°	0.020 in. x 45°	0.040 in. x 45°
LUG BORE	No damage permitted		

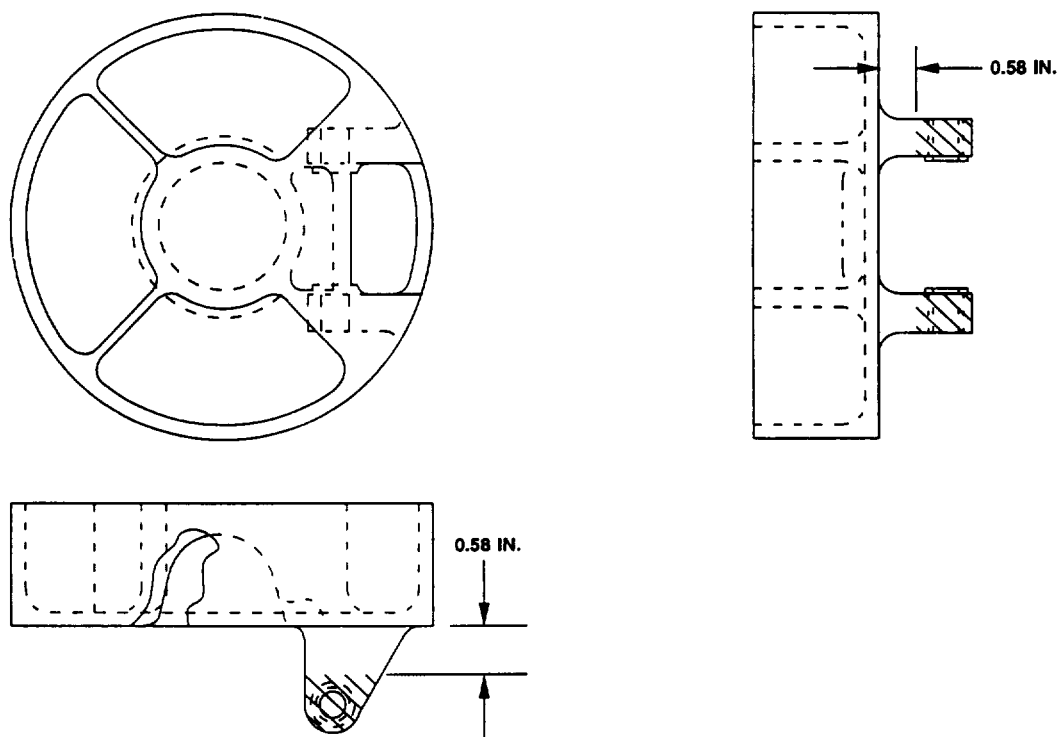
NOTES:

-  Minimum spacing between damaged area is 1.00 inch.
2. No cracks permitted.

406092-3
G7840

GO TO NEXT PAGE

R-1-5. CLEAN, INSPECT, AND REPAIR MMS PLATFORM ASSEMBLY (CONT)




DAMAGE LOCATION SYMBOLS





TYPE OF DAMAGE

MAXIMUM DAMAGE AND REPAIR DEPTH

MECHANICAL:	0.010 in.	0.040 in.	0.070 in.
CORROSION:	0.005 in. before repair 0.010 in. after repair	0.010 in. before repair 0.040 in. after repair	0.030 in. before repair 0.070 in. after repair
MAXIMUM AREA FULL DEPTH REPAIR	0.060 Sq. in.	1.0 Sq. in.	0.500 Sq. in.
MAXIMUM NUMBER OF REPAIRS	One per surface		NA
EDGE CHAMFER	0.020 in. x 45°	0.040 in. x 45°	NA
LUG BORE	0.002 in.	NA	NA

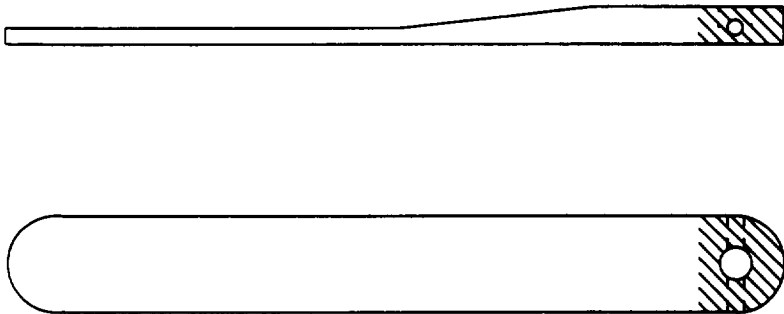
NOTES:

-  Spherical surface and inner surface around it.
-  Minimum spacing between damaged area is 1.00 inch.
3. No cracks permitted.




406092-2
G7641


GO TO NEXT PAGE

R-1-5. CLEAN, INSPECT, AND REPAIR MMS PLATFORM ASSEMBLY (CONT)



406-092-008-155 HANDLE

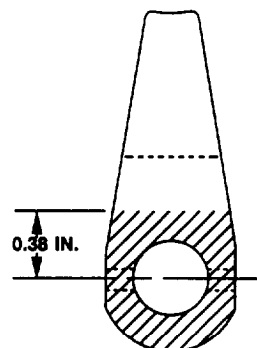
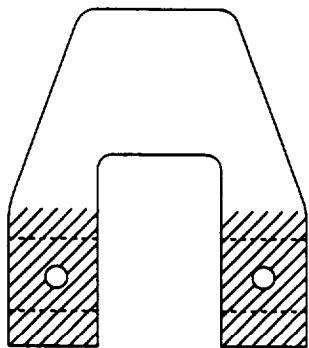
TYPE OF DAMAGE	DAMAGE LOCATION SYMBOLS	
		
MAXIMUM DAMAGE AND REPAIR DEPTH		
MECHANICAL:	0.010 in.	0.100 in.
CORROSION:	0.005 in. before repair 0.010 in. after repair	0.010 in. before repair 0.100 in. after repair
MAXIMUM AREA FULL DEPTH REPAIR	0.250 Sq. in.	0.250 Sq. in.
MAXIMUM NUMBER OF REPAIRS	One per surface	
EDGE CHAMFER	0.020 in. x 45°	0.040 in. x 45°
LUG BORE	0.002 in.	NA
MOUNTING BORE	0.002 inch on full circumference to 0.260 inch maximum diameter.	

- NOTES:
-  Minimum spacing between damaged area is 1.00 inch.
2. No cracks permitted.

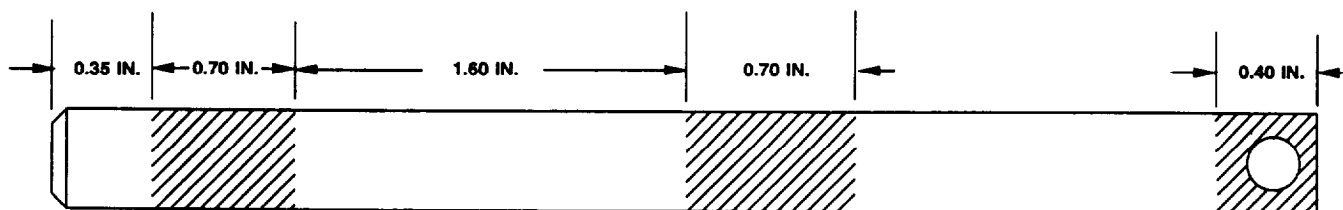
406092-7
G7642

GO TO NEXT PAGE

R-1-5. CLEAN, INSPECT, AND REPAIR MMS PLATFORM ASSEMBLY (CONT)



406-092-008-147 LOCK



406-092-008-153 SHAFT

DAMAGE LOCATION SYMBOLS



TYPE OF DAMAGE

MAXIMUM DAMAGE AND REPAIR DEPTH

MECHANICAL:

0.005 in.

0.040 in.

CORROSION:

0.002 in. before repair
0.005 in. after repair0.010 in. before repair
0.040 in. after repairMAXIMUM AREA
FULL DEPTH REPAIR

0.060 Sq. in.

0.250 Sq. in.

MAXIMUM NUMBER
OF REPAIRS

One per surface

NA

EDGE CHAMFER

0.020 in. x 45°

0.040 in. x 45°

LUG BORE

0.020 in.

NA

MOUNTING BORE

0.002 INCH ON FULL CIRCUMFERENCE TO
MAXIMUM DIAMETER + 0.004

NOTE:

No cracks permitted.

406092-1
G7643

GO TO NEXT PAGE

R-1-5. CLEAN, INSPECT, AND REPAIR MMS PLATFORM ASSEMBLY (CONT)

REPAIR

9. Repair of platform assembly (1), platform support assembly (2), platform upper supports (3), and rod assemblies (4) is limited to cleanup of minor damage within inspection limits.

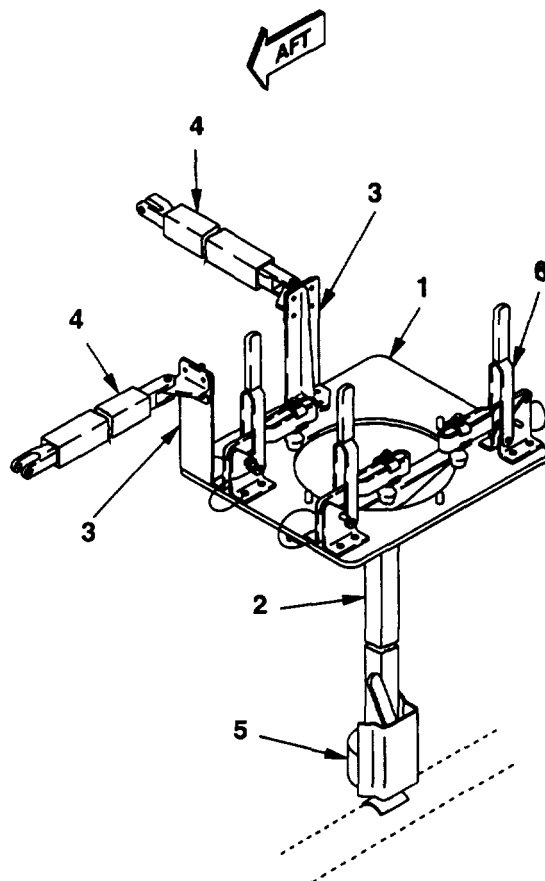
10. Burnish nicks, scratches, and gouges using 400 grit sandpaper (D11).

11. Remove corrosion using 400 grit sandpaper (D11).

12. Replace toggle clamp assemblies (6) if damaged or worn.

13. Replace ball locking mechanism (5) if damaged or worn.

INSPECT



406270-8
G7689

END OF TASK

R-1-6. INSTALL/REMOVE RAPID DEPLOYMENT JACKS

This task covers: Installation and Removal

INITIAL SETUP

Personnel Required:
67S Scout Helicopter Repairer

Applicable Configurations:
OH-58D (Special Mission)

GO TO NEXT PAGE

R-1-6. INSTALL/REMOVE RAPID DEPLOYMENT JACKS (CONT)

NOTE

The following procedure applies to the installation of the rapid deployment jacks at all four positions.

INSTALL

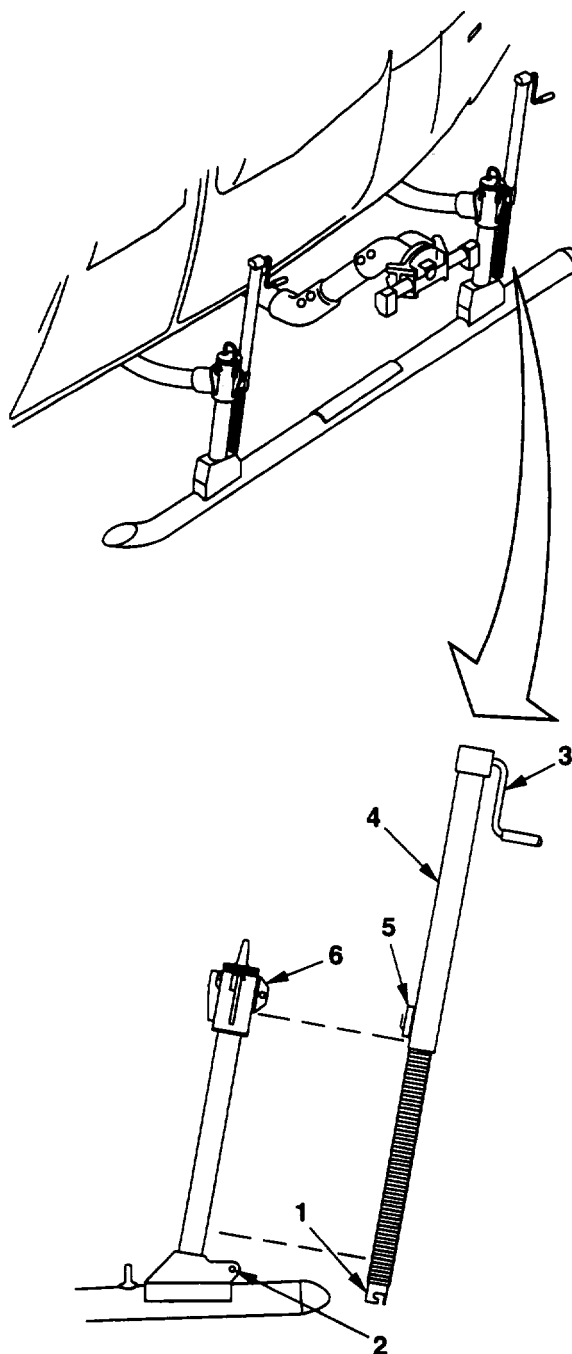
1. Engage attachment lug (1) on fitting (2) and twist to lock in place.
2. Turn jack crank (3) as required to extend or retract jack outer housing (4) to align retainer assembly pin (5) with hole in fitting (6).
3. Ensure retainer assembly pin (5) is fully engaged.

WARNING

Before attempting to remove rapid deployment jacks from helicopter landing gear, ensure landing gear knuckle pins are fully engaged and have locking devices in place.

REMOVE

4. Turn jack crank (3) as required to extend or retract outer jack housing (4) to allow retainer assembly pin (5) freedom of movement within fitting (6) hole.
5. Disengage retainer assembly pin (5) from fitting and move outer jack housing (4) aft until retainer assembly pin (5) clears fitting (6).
6. Twist jack assembly to disengage attachment lug (1) and lift jack assembly from landing gear.



406900-47
G6114

END OF TASK

R-1-7. CLEAN, INSPECT, AND REPAIR RAPID DEPLOYMENT JACKS

This task covers: Cleaning, Inspection, and Repairing (Off Helicopter)

INITIAL SETUP

Applicable Configurations:
OH-58D (Special Mission)

Material:
Solvent (D1)
Wiping Rags (D53)
Grease (D15)

Personnel Required:
67S Scout Helicopter Repairer

General Safety Instructions:

WARNING

Drycleaning solvent is combustible; do not use near open flames, near welding areas, or on hot surfaces. Prolonged contact of skin with liquid can cause

skin irritation. Repeated inhalation of vapor can irritate nose and throat and can cause dizziness. If any liquid contacts skin or eyes, immediately flush affected area thoroughly with water. Remove solvent-saturated clothing. If vapors cause dizziness, go to fresh air. In all cases get immediate medical attention. When handling liquid or when applying it in an air-exhausted, partially covered tank, wear approved gloves. When handling liquid or when applying it at unexhausted, uncovered tank or workbench, wear approved respirator and goggles.

WARNING

Avoid any skin contact with grease. Wash hands thoroughly with soap and water after handling grease.

GO TO NEXT PAGE

R-1-7. CLEAN, INSPECT, AND REPAIR RAPID DEPLOYMENT JACKS (CONT)

CLEAN

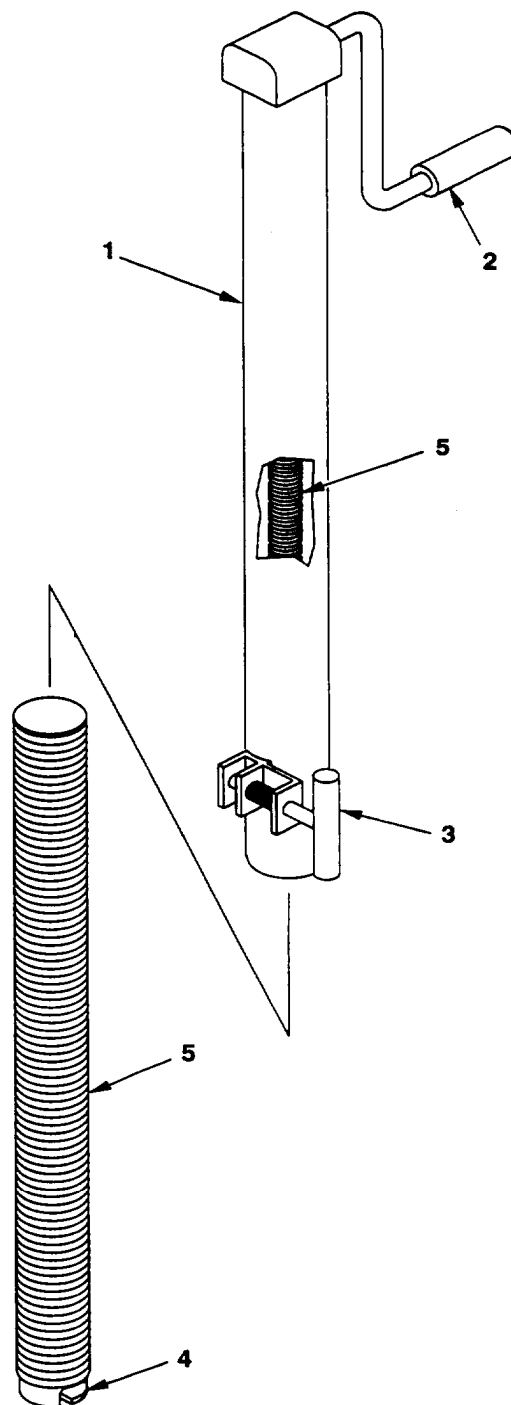
1. Clean exterior surfaces of jack assembly (1) with a wiping rag (D53) dampened with solvent (D1)
2. Dry with clean, dry wiping rag (D53).

INSPECT

3. Inspect jack crank (2) for distortion, cracks, and general condition.
4. Inspect retainer assembly (3) for bent or broken pin, worn or broken spring, and smoothness of operation.
5. Inspect attachment lugs (4) for wear, cracks, and distortion.
6. Inspect outer housing for any damage affecting jack operation.
7. Extend jack assembly (1) to its maximum length, checking for smooth operation.
8. Wipe grease (D15) from exposed threads (5) with a wiping rag (D53) and inspect threads for wear, cracks, and chipped or broken threads.
9. Apply grease (D15) as needed to exposed threads (5). Retract jack and check for smooth operation and maximum retraction.

REPAIR

10. Replace jack if any damage is present which affects rated capacity of jack or safe operation.
11. Repairs are limited to general cleaning, exterior refinishing, and lubrication of threads.



406352-2
G6113

END OF TASK

R-1-8. LOWER/RAISE HELICOPTER FOR RAPID DEPLOYMENT

This task covers: Lowering and Raising Helicopter with Rapid Deployment Jacks

INITIAL SETUP

UHF Antenna Removed (Task 3-3-13)
TACAN Antenna Removed (TM 11-1520-248-23)

Applicable Configurations:
OH-58D (Special Mission)

General Safety Instructions:

Personnel Required:
67S Scout Helicopter Technical Inspector
67S Scout Helicopter Repairer (5)

WARNING

Equipment Condition:
Rapid Deployment Jacks Installed (Task R-1-6)
Lower Wire Strike Protective System Removed
(Task 2-1-31)
Rescue Ladder Removed (Task R-1-15)

This task requires five persons to perform. Failure to utilize personnel or to follow each step may result in injury to personnel and/or damage to equipment.

GO TO NEXT PAGE

R-1-8. LOWER/RAISE HELICOPTER FOR RAPID DEPLOYMENT (CONT)

LOWER/RAISE

1. Position one person at each jack. Slightly extend jacks to relieve weight from lock pins (1).
2. Rotate locking devices (2) counterclockwise and depress spring-loaded end of lock pins (1) until pins clear positioning holes in leg assemblies (3).

CAUTION

Ensure aft crosstube saddle mounts do not contact ground.

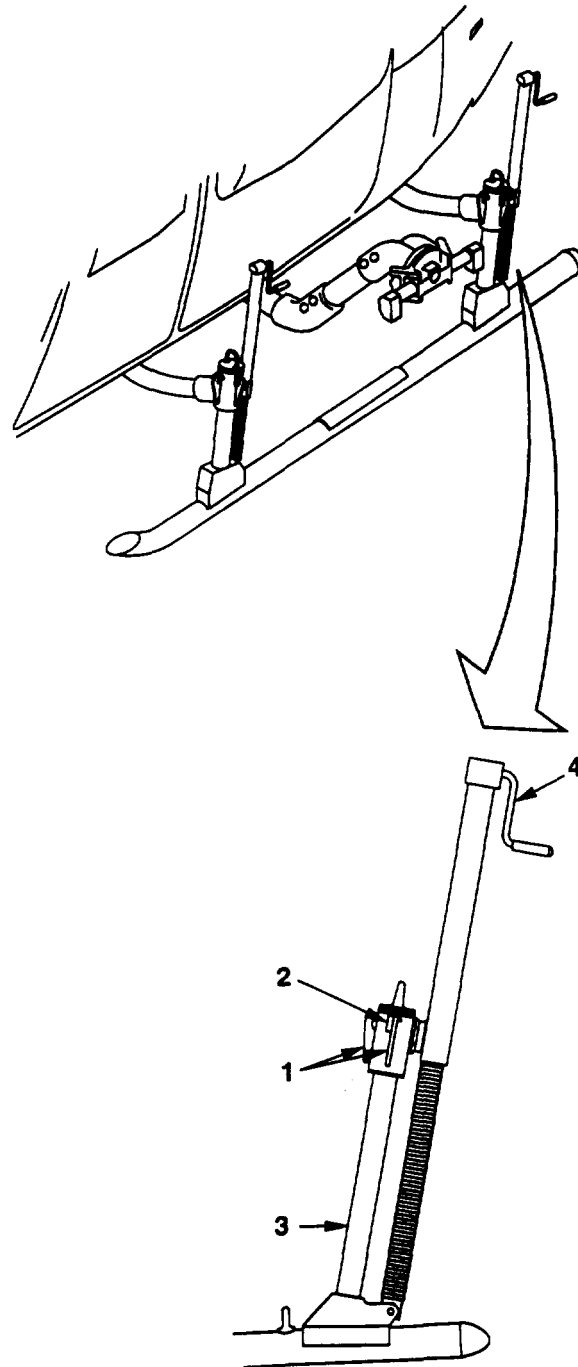
Lower (or raise) helicopter slowly and evenly by simultaneously rotating jack handle (4).

Prior to lowering helicopter, remove any special mission equipment attached below universal weapons pylons (UWP)

3. Continue lowering (or raising) helicopter until lock pins (1) engage positioning holes in leg assemblies (3).

4. Rotate locking devices (2) clockwise behind spring-loaded end of lock pins (1).

INSPECT



400052-68
G0118

END OF TASK

R-1-9. DISASSEMBLE/ASSEMBLE GROUND HANDLING GEAR

This task covers: Disassembly and Assembly (Off Helicopter)

INITIAL SETUP

Material:
Grease (D54)

Applicable Configurations:
OH-58D (Special Mission)

Personnel Required:
67S Scout Helicopter Technical Inspector
67S Scout Helicopter Repairer

Tools:
Aircraft Mechanic Tool Kit

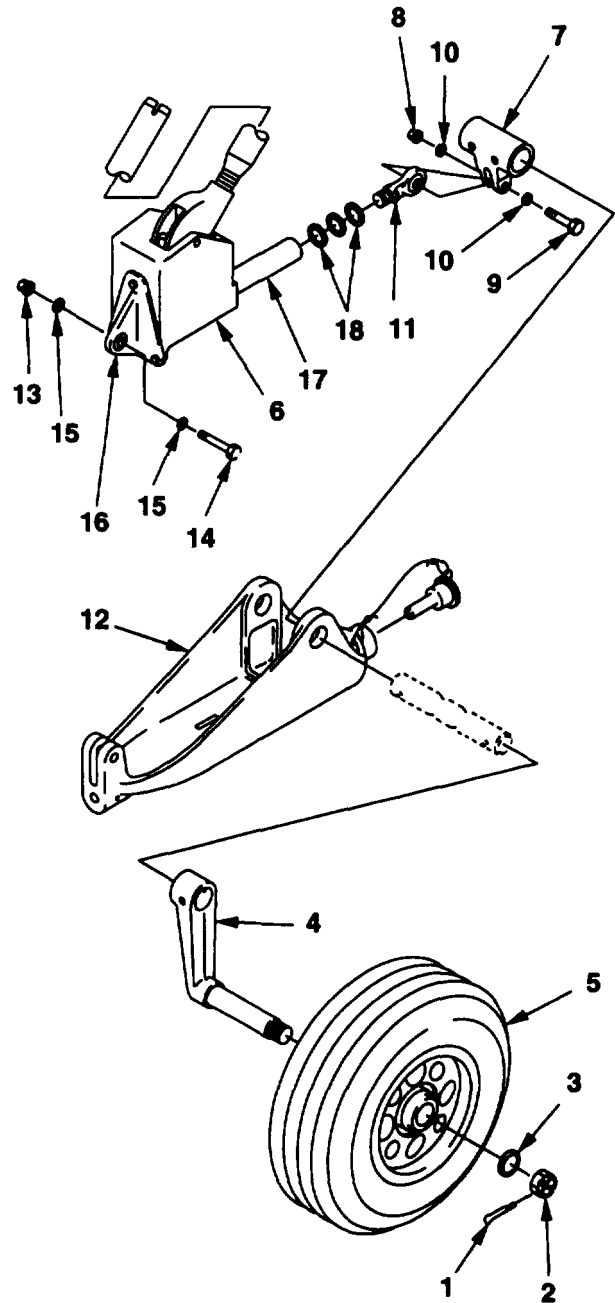
References:
TM 55-2620-200-24

GO TO NEXT PAGE

R-1-9. DISASSEMBLE/ASSEMBLE GROUND HANDLING GEAR (CONT)

DISASSEMBLE

1. Remove cotter pin (1), nut (2), and spacer (3) from axle arm (4).
2. Slide wheel and tire assembly (5) from axle arm (4).
3. Separate jack (6) from lever (7) by removing nut (8), bolt (9), and washers (10) securing rod end (11) to lever (7).
4. Separate jack (6) from cradle (12) by removing nut (13), bolt (14), and washers (15) securing fitting (16) to cradle (12).
5. Rod end (11) may be separated from jack (6) by unscrewing from jackshaft (17). Retain shims (18) for reassembly.
6. Wheel and tire assembly may be disassembled for the replacement of worn or damaged components (TM 55-2620-200-24).

408052-86
H3429

GO TO NEXT PAGE

R-1-9. DISASSEMBLE/ASSEMBLE GROUND HANDLING GEAR (CONT)

ASSEMBLE

7. With jackshaft (16) extended, install rod end (11) on jackshaft (16). Shims (17) will be installed with rod end (11) to achieve a length of 12.70 to 12.80 inches between the centerlines of fitting (18) bolt hole and rod end (11) bolt hole.

8. Place jack (6) on ground handling gear with rod end (11) between the forks of lever (7).

9. Install bolt (9), washers (10), and nut (8).

10. Operate jack (6) to align fitting (18) bolt hole with cradle (12) bolt hole.

11. Install bolt (14), washers (15), and nut (11).

12. Build up pressure with jack (6). Check for leakage.

13. Extend and retract the ground handling gear to ensure the system functions properly.

WARNING

Avoid any skin contact with grease.
Wash hands thoroughly with soap and water after handling grease.

14. Apply a bead of grease (D54) in the inboard and outboard bearing surfaces of the axle portion of axle arms (4).

CAUTION

Do not install tires of different manufacturers or different tread design on the same ground handling gear.

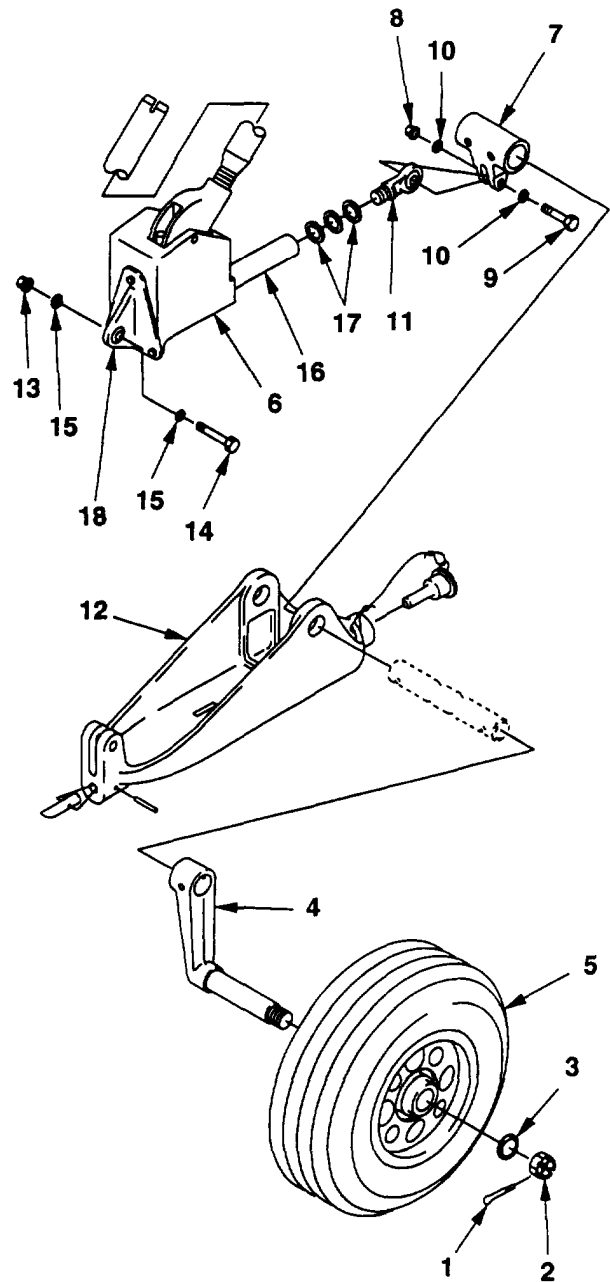
15. Place wheel and tire assembly (5) on axle arm (4).

16. Place spacer (3) on axle arm (4).

17. Secure wheel and tire assembly (5) and spacer (3) on axle arm (4) with nut (2) and cotter pin (1).

INSPECT

GO TO NEXT PAGE



406052-86
G7557

R-1-10. CLEAN, INSPECT, AND REPAIR GROUND HANDLING GEAR

This task covers: Cleaning, Inspection, and Repair

INITIAL SETUP

Applicable Configurations:
OH-58D (Special Mission)

Tools:
Aircraft Mechanic Tool Kit

Material:
Wiping Rags (D53)
Soap (D37)

Personnel Required:
67S Scout Helicopter Repairer

References:
TM 55-2620-200-24

CLEAN

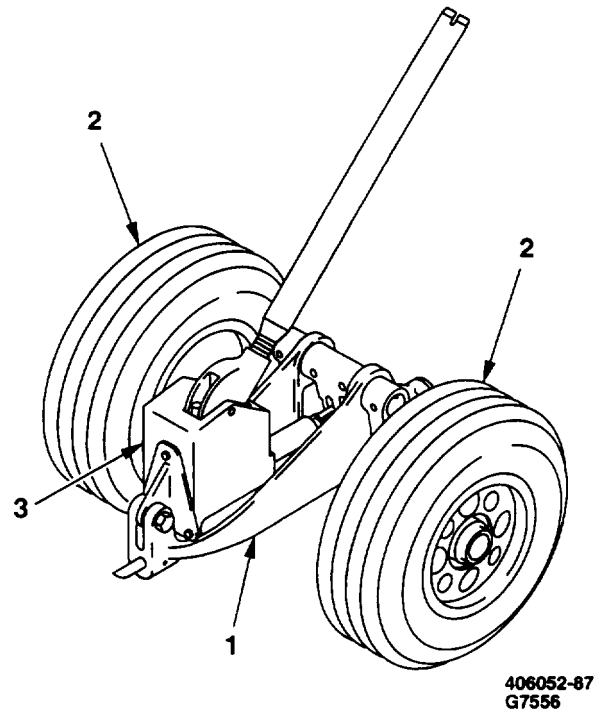
1. Wash ground handling gear (1) with mild soap (D37) and water.
2. Dry ground handling gear with wiping rag (D53).

INSPECT

3. Visually inspect ground handling gear (1) for cleanliness and broken, worn, or distorted hardware and components.
4. Visually inspect tires (2) for cuts, wear, and proper inflation.
5. Inspect jack (3) for leakage and proper operation.

REPAIR

6. Replace broken, worn, or distorted hardware and components.
7. Replace leaking or inoperative jack (3).
8. Replace cut or worn tires (2) (TM 55-2620-200-24).



END OF TASK

R-1-11. REMOVE/INSTALL ALQ-144 IR JAMMER MOUNT

This task covers: Removal and Installation of ALQ-144 IR Jammer Mount (On Helicopter)

INITIAL SETUP

Personnel Required:
67S Scout Helicopter Repairer

Applicable Configurations:
OH-58D (Special Mission)

Equipment Condition:
ALQ-144 IR Jammer Removed (TM 11-1520-248-23)

Tools:
Aircraft Mechanic Tool Kit

GO TO NEXT PAGE

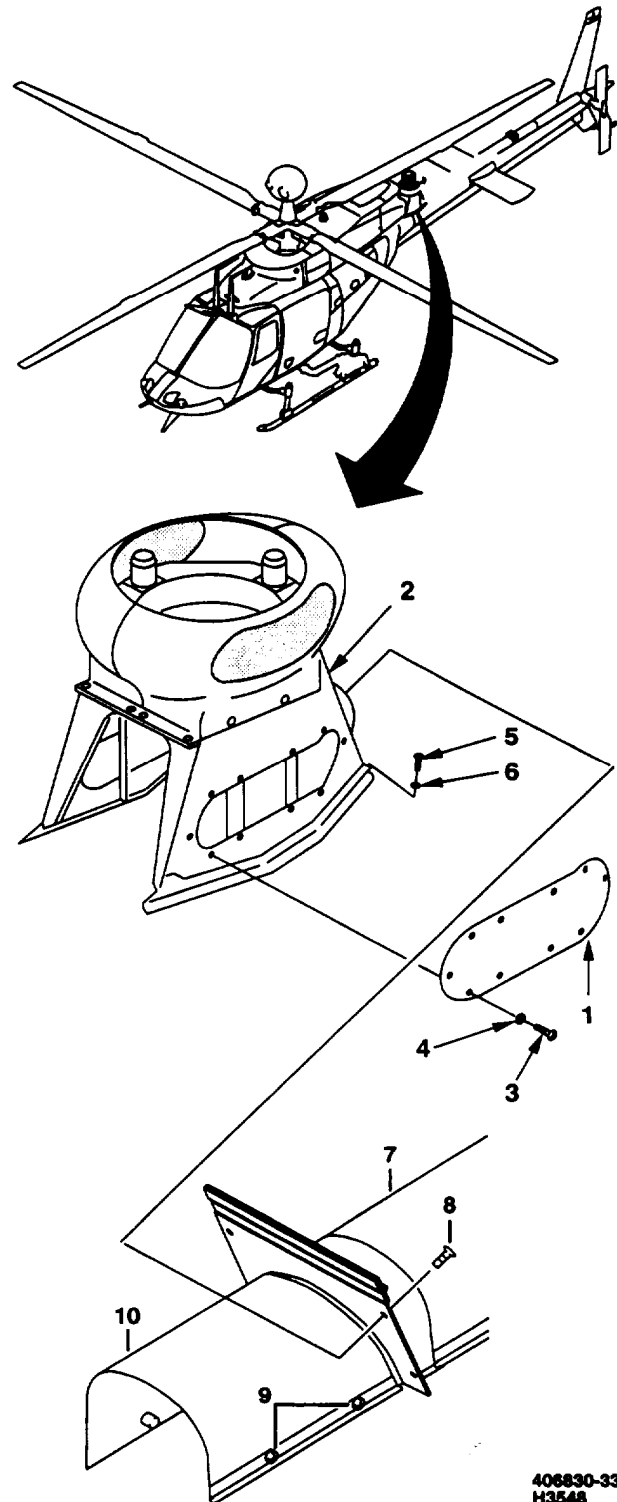
R-1-11. REMOVE/INSTALL ALQ-144 IR JAMMER MOUNT (CONT)

REMOVE

1. Remove left and right panels (1) from ALQ-144 IR jammer mount (2) by removing 20 screws (3), and 20 washers (4).
2. Remove grommet from wiring hole.
3. Remove ALQ-144 IR jammer wiring.
4. Remove 11 screws (5) and 11 washers (6) from helicopter.
5. Open tailrotor driveshaft cover (7).
6. Remove four screws (8) attaching driveshaft cover (7) to ALQ-144 IR jammer mount (2).
7. Remove two screws (9) on left side of driveshaft cover (10) securing cover to tailboom, and remove cover (10).
8. Remove ALQ-144 IR jammer mount (2) with jammer fairing from helicopter.

INSTALL

9. Place ALQ-144 IR jammer mount (2) with jammer fairing on helicopter.
10. Install two screws (9) securing left side of driveshaft cover (10).
11. Install four screws (8) attaching driveshaft cover (7) to ALQ-144 IR jammer mount (2).
12. Install 11 screws (5) and 11 washers (6).
13. Install ALQ-144 IR jammer wiring through mount (2).
14. Install left and right panels (1) on ALQ-144 IR jammer mount (2) with 20 screws (3) and 20 washers (4).



406630-33
H3548

END OF TASK

R-1-12. CLEAN, INSPECT, AND REPAIR ALQ-144 IR JAMMER MOUNT

This task covers: Cleaning, inspection, and Repair (Off Helicopter)

INITIAL SETUP

Applicable Configurations:
OH-58D (Special Mission)

Tools:
Aircraft Mechanic Tool Kit
Airframe Repairer Tool Kit

Material:
Drycleaning Solvent (D1)
Epoxy Primer (D13)
Paint (D21)
Rubber Gloves (D119)
Sandpaper (D11)
Wiping Rags (D53)

Personnel Required:
67S Scout Helicopter Technical Inspector
67S Scout Helicopter Repairer
68G Aircraft Structural Repairer

General Safety Instructions:

WARNING

Drycleaning solvent (D1), epoxy primer (D13), and paint (D21) are flammable and toxic. They can irritate skin and cause burns. Use only in well-ventilated area away from heat and open flame. Wear rubber gloves (D119) and goggles. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

CLEAN

1. Clean ALQ-144 IR jammer mount with drycleaning solvent (D1) and wiping rags (D53).
2. Dry mount with a wiping rag (D53).

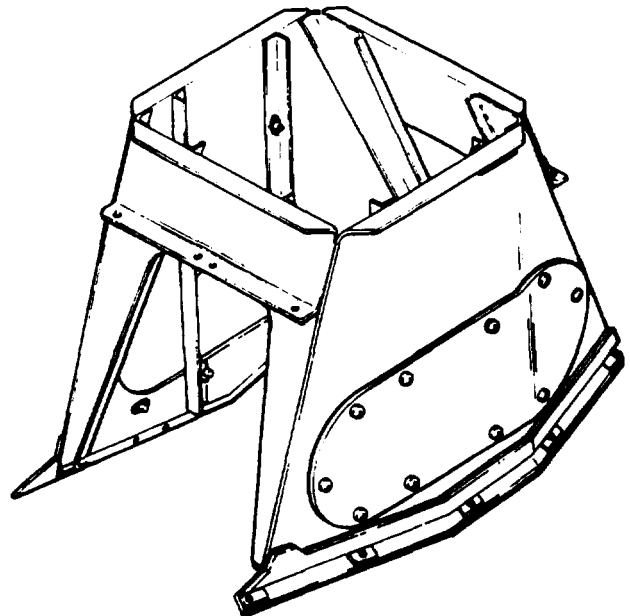
INSPECT

3. Visually inspect ALQ-144 IR jammer mount for cracks, scratches, nicks, gouges, and corrosion. No cracks allowed.
4. Visually inspect ALQ-144 IR jammer mount left and right panels for cracks, scratches, nicks, gouges, and corrosion. No cracks allowed.

REPAIR

5. Repair of ALQ-144 IR jammer mount and side panels is limited to cleanup of minor damage. Replace mount and/or panels if damaged beyond repair.
6. Burnish nicks, scratches, and gouges using 400 grit sandpaper (D11).

GO TO NEXT PAGE



406830-44
H3601

R-1-12. CLEAN, INSPECT, AND REPAIR ALQ-144 IR JAMMER MOUNT (CONT)

7. Apply two coats of epoxy primer (D13) followed by two coats of paint (D21) to repaired areas.

INSPECT

END OF TASK

R-1-13. REMOVE/INSTALL ALQ-144 IR JAMMER FAIRING

This task covers: Removal and Installation (On Helicopter)

INITIAL SETUP

Applicable Configurations:
OH-58D (Special Mission)

Tools:
Aircraft Mechanic Tool Kit
Airframe Repairer Tool Kit

Personnel Required:
67S Scout Helicopter Technical Inspector
67S Scout Helicopter Repairer
68G Aircraft Structural Repairer

Equipment Condition:
ALQ-144 IR Jammer Removed (TM 11-1520-
248-23)

GO TO NEXT PAGE

R-1-13. REMOVE/INSTALL ALQ-144 IR JAMMER FAIRING (CONT)

REMOVE

Remove eight screws (1) and eight washers (2).

2. Remove 12 screws (3) and 12 washers (4).

3. Remove both halves of ALQ-144 IR jammer fairing (5) from mount assembly (6).

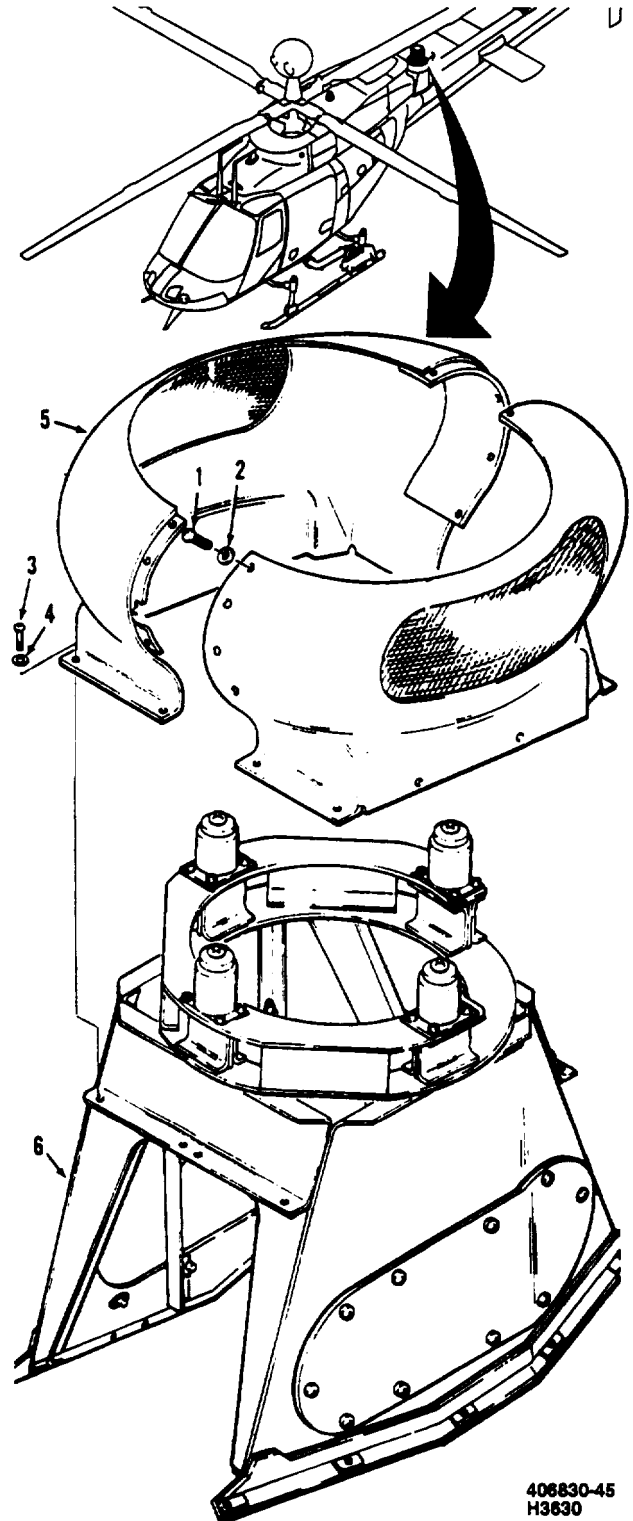
INSTALL

4. Place both halves of ALQ-144 IR jammer fairing (5) on mount assembly (6).

5. Install 12 screws (3) and 12 washers (4),

6. Install eight screws (1) and eight washers (2).

INSPECT



END OF TASK

R-1-14. CLEAN, INSPECT, AND REPAIR ALQ-144 IR JAMMER FAIRING

This task covers: Cleaning, inspection, and Repair (Off Helicopter)

INITIAL SETUP

Applicable Configurations:
OH-58D (Special Mission)

Tools:
Airframe Repairer Tool Kit

Material:
Drycleaning Solvent (D1)
Epoxy Primer (D13)
Paint (D21)
Rubber Gloves (D119)
Sandpaper (D11)
Wiping Rags (D53)

Personnel Required:
67S Scout Helicopter Technical Inspector
68G Aircraft Structural Repairer

General Safety Instructions:

WARNING

Drycleaning solvent (D1), epoxy primer (D13), and paint (D21) are flammable and toxic. They can irritate skin and cause burns. Use only in well-ventilated area away from heat and open flame. Wear rubber gloves (D119) and goggles. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

CLEAN

1. Clean fairing (two halves) with drycleaning solvent (D1) and wiping rag (D53).
2. Wipe dry with clean, dry wiping rags (D53).

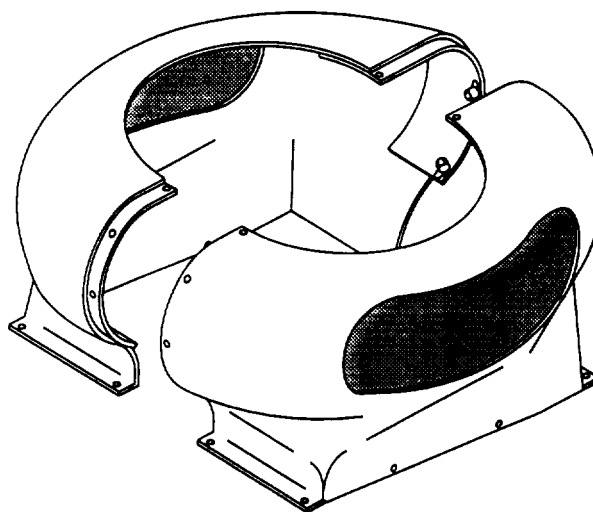
INSPECT

3. Visually inspect fairing (two halves) for cracks, scratches, mechanical, and corrosion damage. No cracks allowed.

REPAIR

4. Repair of fairing halves is limited to cleanup of minor damage. Replace fairing half or halves if damaged beyond repair.
5. Burnish nicks, scratches, and gouges using 400 grit sandpaper (D11).
6. Apply two coats of epoxy primer (D13) followed by two coats of paint (D21) to repaired areas.

INSPECT



406830-46
H3601

END OF TASK

R-1-15. REMOVE/INSTALL RESCUE LADDER

This task covers: Removal and Installation (On Helicopter)

INITIAL SETUP	Personnel Required:
	67S Scout Helicopter Technical Inspector
	67S Scout Helicopter Repairer
Applicable Configurations:	
OH-58D (Special Mission)	
Tools:	
Aircraft Mechanic Tool Kit	

R-1-15. REMOVE/INSTALL RESCUE LADDER (CONT)

REMOVE**NOTE**

Removal procedures for left and right ladders are the same.

1. Remove two screws (1), two clamps (2), and two spacers (3) securing cable (4) to ladder (5).

NOTE

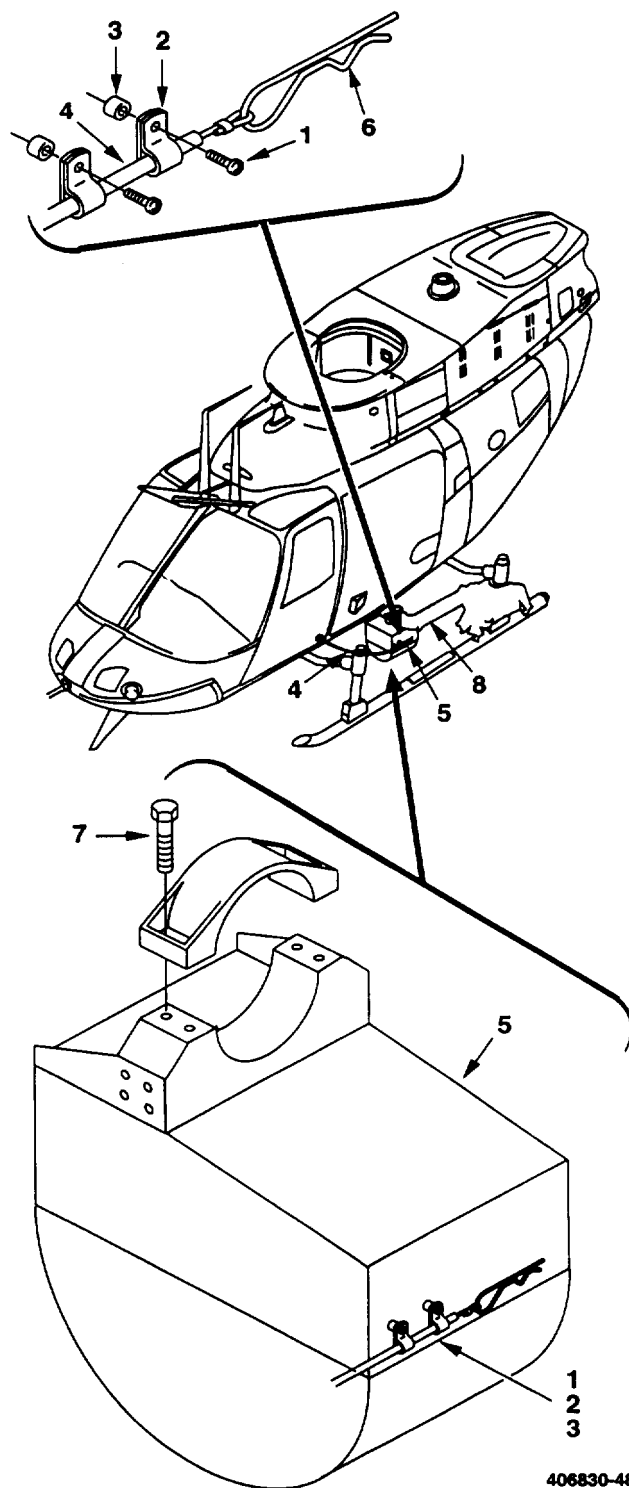
Ladder will deploy when cable pin (6) is removed.

2. Remove cable pin (6) from ladder (5).
3. Remove four bolts (7) securing ladder (5) to pylon support arm (8).
4. Remove ladder (5) from helicopter.

INSTALL**NOTE**

Installation procedures for left and right ladders are the same.

5. Position ladder (5) on helicopter.
6. Install four bolts (7) to secure ladder (5) to pylon support arm (8).
7. Install cable pin (6) in ladder (5).
8. Install two spacers (3), two clamps (2), and two screws (1) to secure cable (4) to ladder (5).

INSPECT

END OF TASK

R-1-16. CLEAN, INSPECT, AND REPAIR RESCUE LADDER

This task covers: Cleaning, Inspection, and Repair (On/Off Helicopter)

INITIAL SETUP

Personnel Required:
67S Scout Helicopter Technical Inspector
67S Scout Helicopter Repairer

Applicable Configurations:
OH-58D (Special Mission)

General Safety Instructions:

Tools:
Aircraft Mechanic Tool Kit

WARNING

Material:
Drycleaning Solvent (D1)
Epoxy Primer (D13)
Paint (D21)
Rubber Gloves (D119)
Sandpaper (D11)
Wiping Rags (D53)

Drycleaning solvent (D1), epoxy primer (D13), and paint (D21) are flammable and toxic. They can irritate skin and cause burns. Use only in well-ventilated area away from heat and open flame. Wear rubber gloves (D119) and goggles. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

GO TO NEXT PAGE

R-1-16. CLEAN, INSPECT, AND REPAIR RESCUE LADDER (CONT)

CLEAN

1. Clean ladder (1) with drycleaning solvent (D1).
2. Dry ladder (1) with a wiping rag (D53).

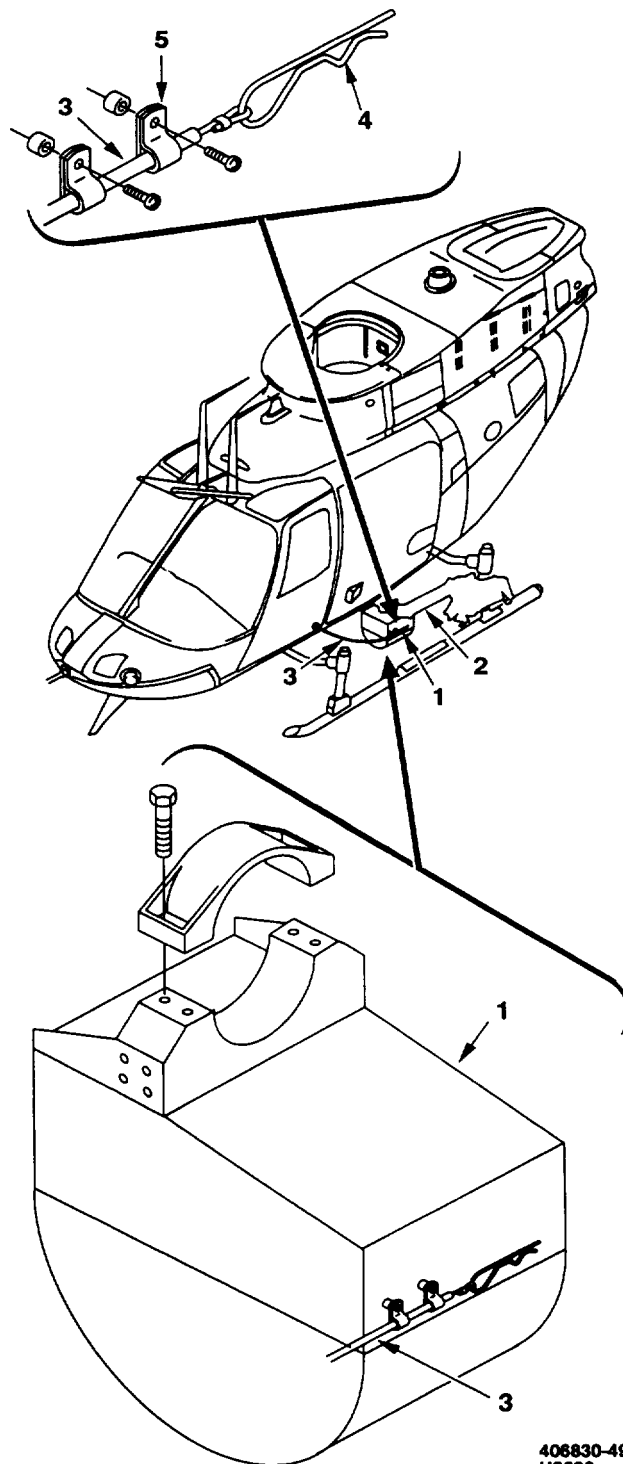
INSPECT

3. Visually inspect ladder (1) housing for cracks, scratches, nicks, and dents and security to pylon support arm (2).
4. Visually inspect cable (3) for security to ladder (1) housing and cable pin (4).
5. Visually inspect cable pin (4) for condition and engagement in ladder (1) housing.
6. Visually inspect ladder (1) cables (sidepieces) and rungs (crosspieces) for condition and security.

REPAIR

7. Polish out ladder (1) housing repairable damage using sandpaper (D11).
8. Apply coat of epoxy primer (D13) and a coat of matching paint (D21) to ladder (1) housing repair areas.
9. Replace damaged cable pin (4) and clamps (5).
10. Repair or replace damaged ladder (1) cables (sidepieces) and rungs (crosspieces).

INSPECT



END OF TASK

R-1-17. REMOVE/INSTALL LEFT RESCUE LADDER CABLE

This task covers: Removal and Installation (On Helicopter)

INITIAL SETUP

Personnel Required:
67S Scout Helicopter Technical Inspector
67S Scout Helicopter Repairer

Applicable Configurations
OH-58D (Special Mission)

Tools:
Aircraft Mechanic Tool Kit

GO TO NEXT PAGE

R-1-17. REMOVE/INSTALL LEFT RESCUE LADDER CABLE (CONT)

REMOVE

1. Remove two screws (1), two clamps (2), and two spacers (3) securing cable (4) to ladder housing.

NOTE

Ladder will deploy when cable pin (5) is removed.

2. Remove cable pin (5) from ladder housing and cable (4).

3. Remove screw (6) and clamp (7) securing cable (4) to copilot floor.

4. Remove nut (8) from threaded portion of cable (4) securing cable to instrument panel (9).

5. Remove cable (4) from grommet (10), nut (8), and instrument panel (9).

INSTALL

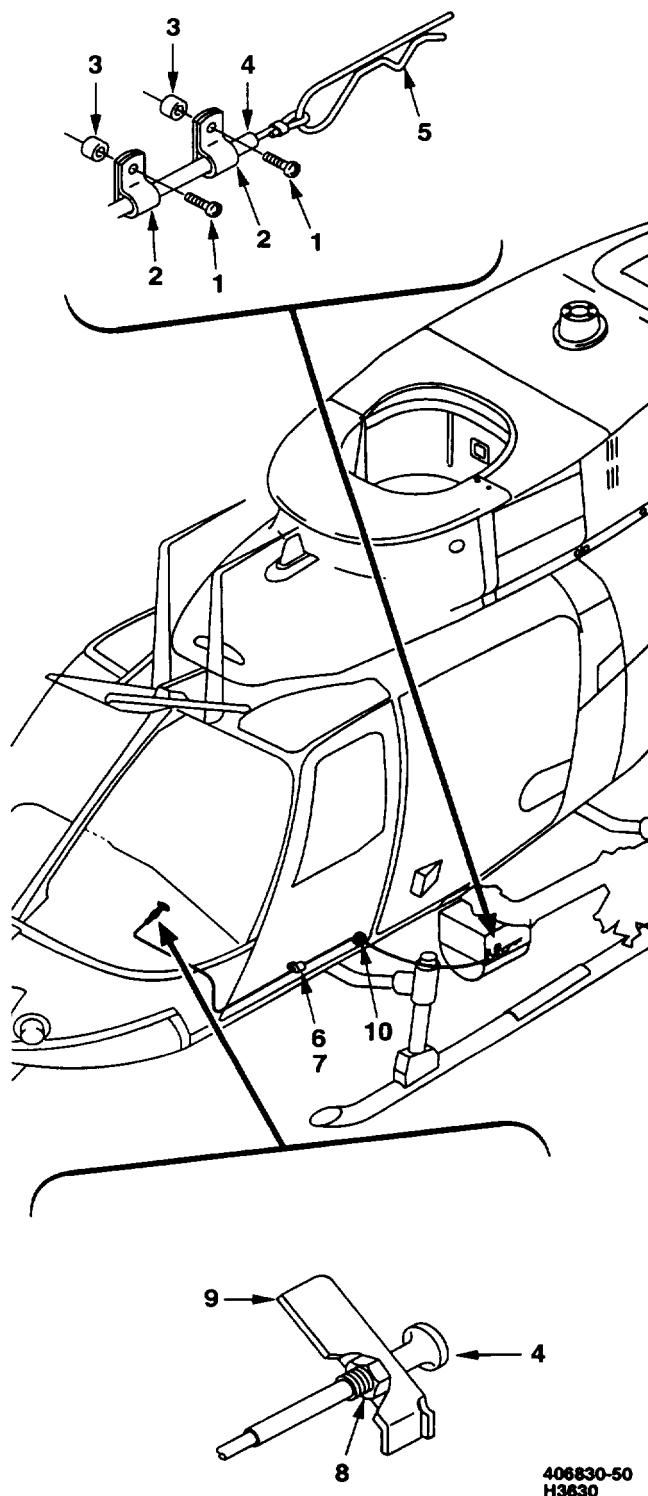
6. Route cable (4) through instrument panel (9), nut (8), and grommet (10) as shown wedging it in between structure parts to secure it in position.

7. Install nut (8) on threaded portion of cable (4) to secure cable to instrument panel (9).

8. Install cable pin (5) on cable (4) and ladder housing.

9. Install two screws (1), two clamps (2), and two spacers (3) securing cable (4) to ladder housing.

10. Install screw (6) and clamp (7) to secure cable (4) to copilot floor.

INSPECT

END OF TASK

R-1-18. REMOVE/INSTALL RIGHT RESCUE LADDER CABLE

This task covers: Removal and Installation (On Helicopter)

INITIAL SETUP

Personnel Required:

67S Scout Helicopter Technical Inspector

67S Scout Helicopter Repairer

Applicable Configurations:
OH-58D (Special Mission)

Tools:

Aircraft Mechanic Tool Kit

GO TO NEXT PAGE

R-1-18. REMOVE/INSTALL RIGHT RESCUE LADDER CABLE (CONT)

REMOVE

1. Remove two screws (1), two clamps (2), and two spacers (3) securing cable (4) to ladder housing.

NOTE

Ladder will deploy when cable pin (5) is removed.

2. Remove cable pin (5) from ladder housing and cable (4).

3. Remove screw (6) and clamp (7) securing cable (4) to pilot floor.

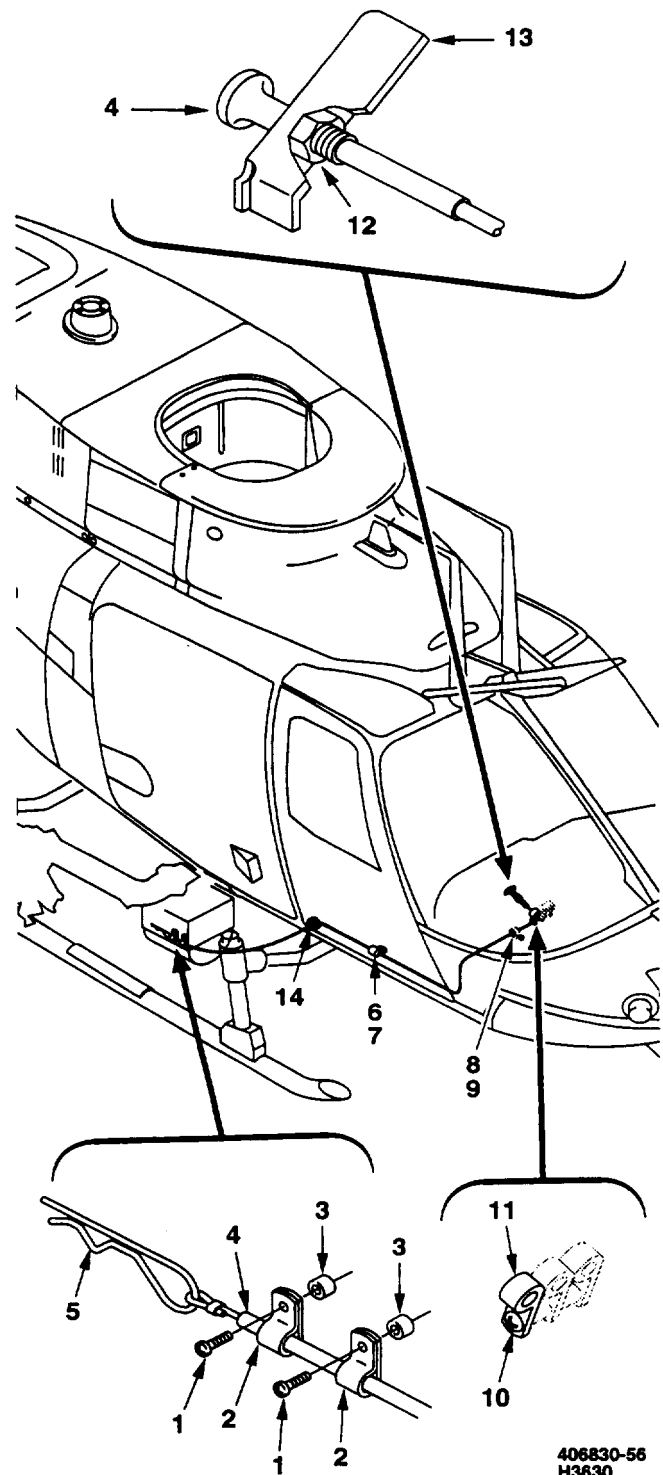
4. Remove screw (8) and clamp (9) securing cable (4) to pilot outboard structure.

5. Remove screw (10) and clamp (11) securing cable (4) to harness bundle.

6. Install screw (10) and clamp (11) (without cable (4)) to secure harness bundle to structure.

7. Remove nut (12) from threaded portion of cable (4) securing cable to instrument panel (13).

8. Remove cable (4) from grommet (14), nut (12), and instrument panel (13).



406830-56
H3630

GO TO NEXT PAGE

R-1-18. REMOVE/INSTALL RIGHT RESCUE LADDER CABLE (CONT)

INSTALL

9. Route cable (4) through instrument panel (13), nut (12), and grommet (14) as shown wedging it in between structure parts to secure it in position.

10. Install nut (12) on threaded portion of cable (4) to secure cable to instrument panel (13).

11. Install cable pin (5) on cable (4) and in ladder housing.

12. Install two screws (1), two clamps (2), and two spacers (3) to secure cable (4) to ladder housing.

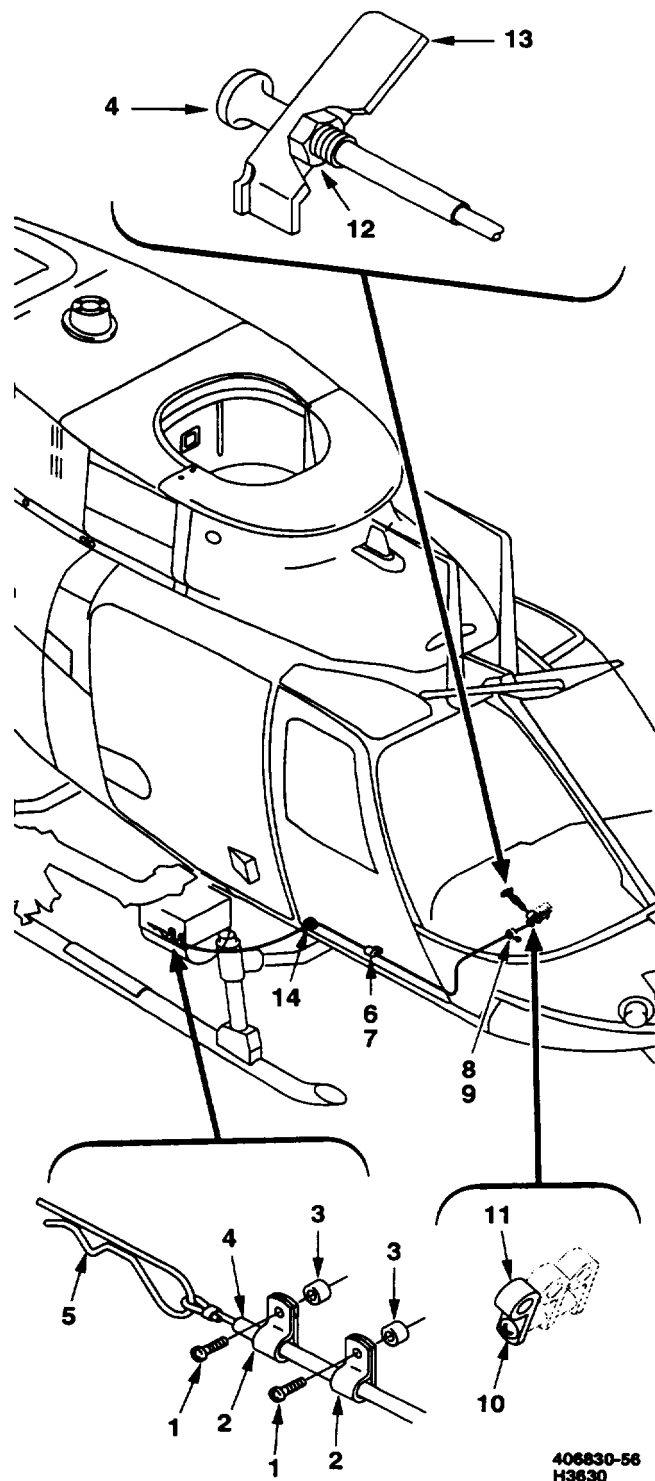
13. Remove screw (10) and clamp (11) securing harness bundle to structure.

14. Install screw (10) and clamp (11) to secure cable (4) to harness bundle.

15. Install screw (8) and clamp (9) to secure cable (4) to pilot outboard structure,

16. Install screw (6) and clamp (7) to secure cable (4) to pilot floor.

INSPECT



END OF TASK

R-1-19. CLEAN, INSPECT, AND REPAIR RESCUE LADDER CABLES

This task covers: Cleaning, Inspection, and Repair (On Helicopter)

INITIAL SETUP**General Safety Instructions:**

Applicable Configurations:
OH-58D (Special Mission)

Tools:
Aircraft Mechanic Tool Kit

Material:
Drycleaning Solvent (D1)
Rubber Gloves (D119)
Wiping Rags (D53)

Personnel Required:
67S Scout Helicopter Technical Inspector
67S Scout Helicopter Repairer

WARNING

Drycleaning solvent (D1) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area away from heat and open flame. Wear rubber gloves (D119) and goggles. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

GO TO NEXT PAGE

R-1-19. CLEAN, INSPECT, AND REPAIR RESCUE LADDER CABLES (CONT)

CLEAN

1. Clean cable housing with drycleaning solvent (D1).
2. Dry cable housing with a wiping rag (D53).

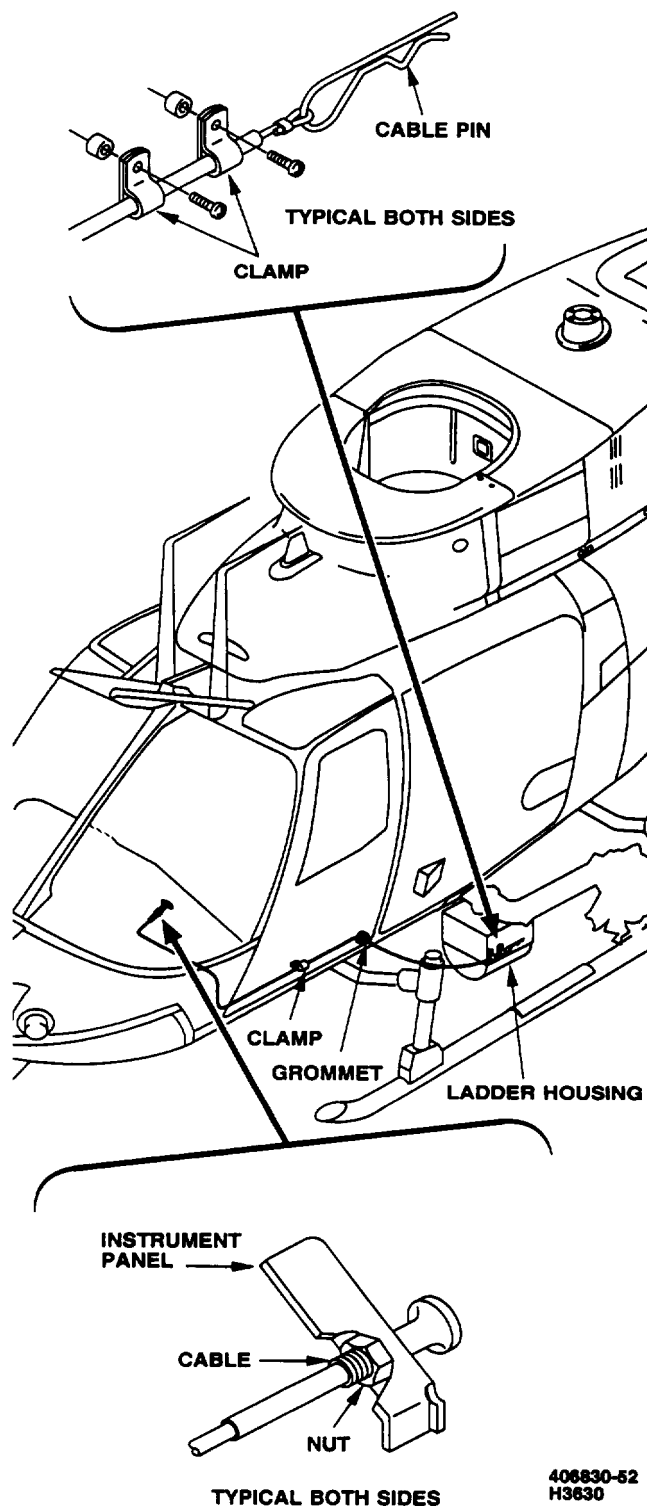
INSPECT

3. Inspect cable housing for dents and sharp bends that would bind the cable.
4. Inspect cable housing for security to the instrument panel, structure, and ladder housing.
5. Inspect cable for security to the handle and cable pin.
6. Inspect cable pin for condition and security to the ladder housing.

REPAIR

7. Tighten unsecured parts.
8. Repair or replace damaged parts.

INSPECT



END OF TASK

R-1-20. REMOVE/INSTALL RAPID DEPLOYMENT LANDING GEAR

This task covers: Removal and Installation (On Helicopter)

INITIAL SETUP

Material:
Adhesive (D19)

Applicable Configurations:
OH-58D (Special Mission)

Personnel Required:
67S Scout Helicopter Technical Inspector
67S Scout Helicopter Repairer (4)

Tools:
Aircraft Mechanic Tool Kit
■ Torque Wrench (B311)

Equipment Condition:
Rescue Ladder Removed (Task R-1-15)
Helicopter on Jacks (Task 1-6-9)
Weight on Gear Switch Removed (Task 9-6-70)

Parts:
Washers

GO TO NEXT PAGE

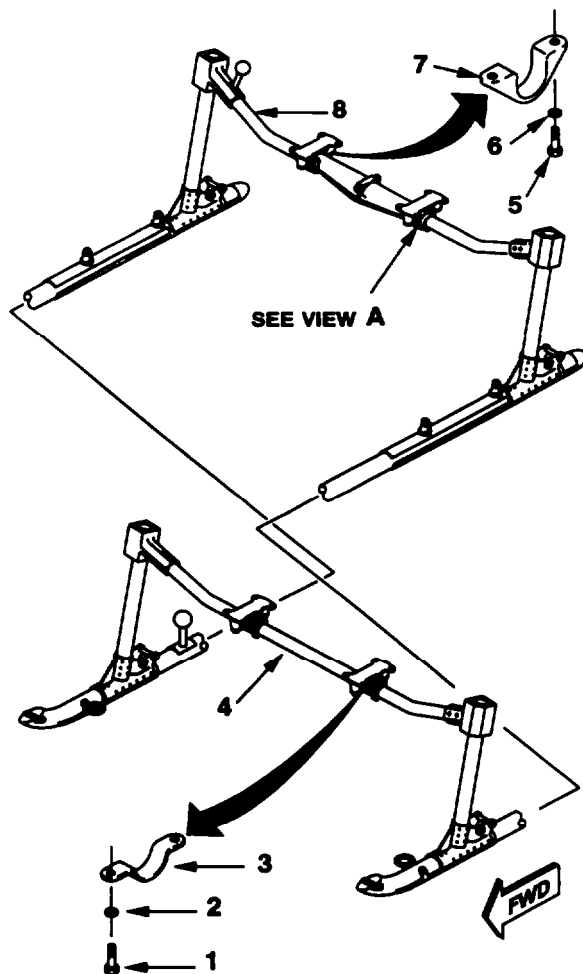
R-1-20. REMOVE/INSTALL RAPID DEPLOYMENT LANDING GEAR (CONT)

REMOVE LANDING GEAR

1. Remove bolts (1), washers (2), and support assemblies (3) that secure the forward crosstube (4) to the fuselage.

2. Remove bolts (5), washers (6), and support assemblies (7) that secure the aft crosstube (8) to the fuselage.

3. Raise helicopter sufficiently to clear the landing gear assembly and facilitate removal.



GO TO NEXT PAGE

R-1-20. REMOVE/INSTALL RAPID DEPLOYMENT LANDING GEAR (CONT)

INSTALL LANDING GEAR

4. Position landing gear under fuselage and carefully lower helicopter to seat the four fuselage mounting points on the crosstubes.

5. Install support assemblies (3) with bolts (1) and washers (2) to secure the forward crosstube (4) to the fuselage.

6. Torque bolts (1) **135 — 180 INCH-POUNDS.**

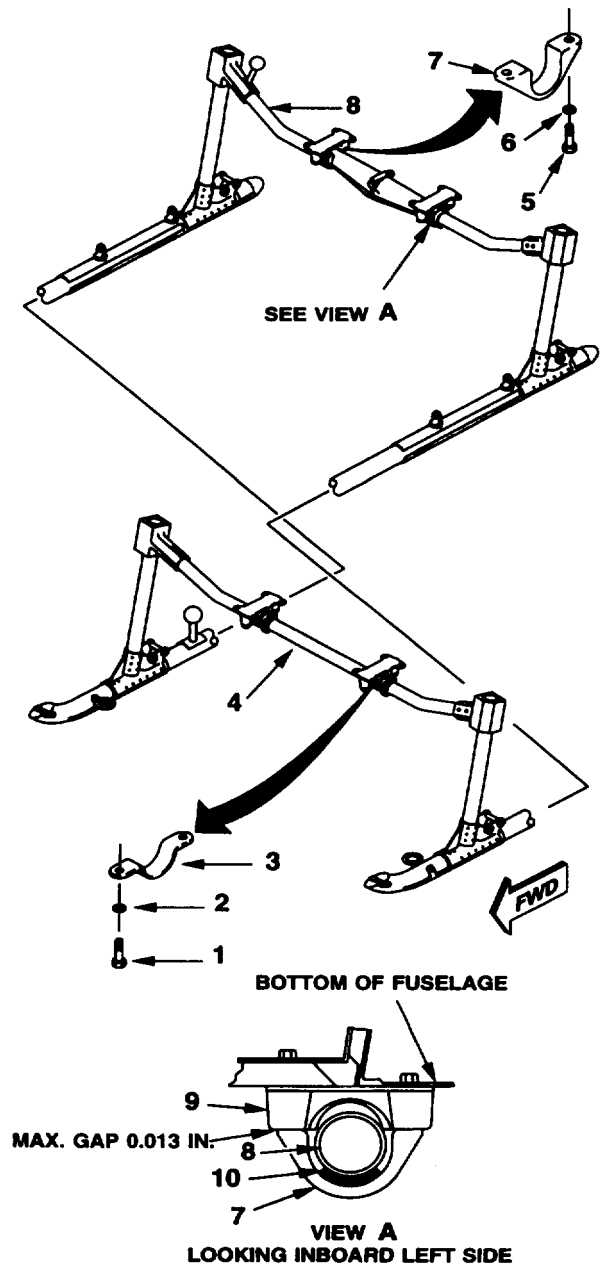
7. Install support assemblies (7) with bolts (5) and washers (6) to secure the aft crosstube (8) to the fuselage.

8. Torque bolts (5) **135 — 180 INCH-POUNDS.**

WARNING

Filled epoxy resin may cause skin and eye irritation. Thoroughly wash skin area with soap and warm water and immediately flush eyes with water for 15 minutes. In all cases get immediate medical attention. When working with epoxy resin, wear approved protective gloves and goggles. Use in a well-ventilated area and avoid breathing vapors.

9. Check gap between support assemblies (7) and fuselage fitting (9). Maximum gap is 0.013 inch. Squeeze, on pad (10), must be a minimum of 0.04 inch. Shim as required by bonding AN960JD416L washers to support assembly with adhesive (D19). Maximum three washers allowable at each bolt (5).

INSPECT

406052-71-2
H3429

END OF TASK

R-1-21. INSPECT RAPID DEPLOYMENT LANDING GEAR

This task covers: Inspection (On Helicopter)

INITIAL SETUP

Personnel Required:
67S Scout Helicopter Repairer

Applicable Configurations:
OH-58D (Special Mission)

Equipment Condition:
Helicopter on Jacks (Task 1-6-9)

Tools:
Aircraft Mechanic Tool Kit

GO TO NEXT PAGE

R-1-21. INSPECT RAPID DEPLOYMENT LANDING GEAR (CONT)

LANDING GEAR INSPECTION

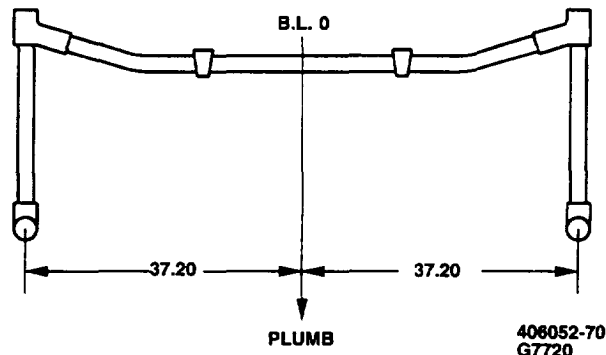
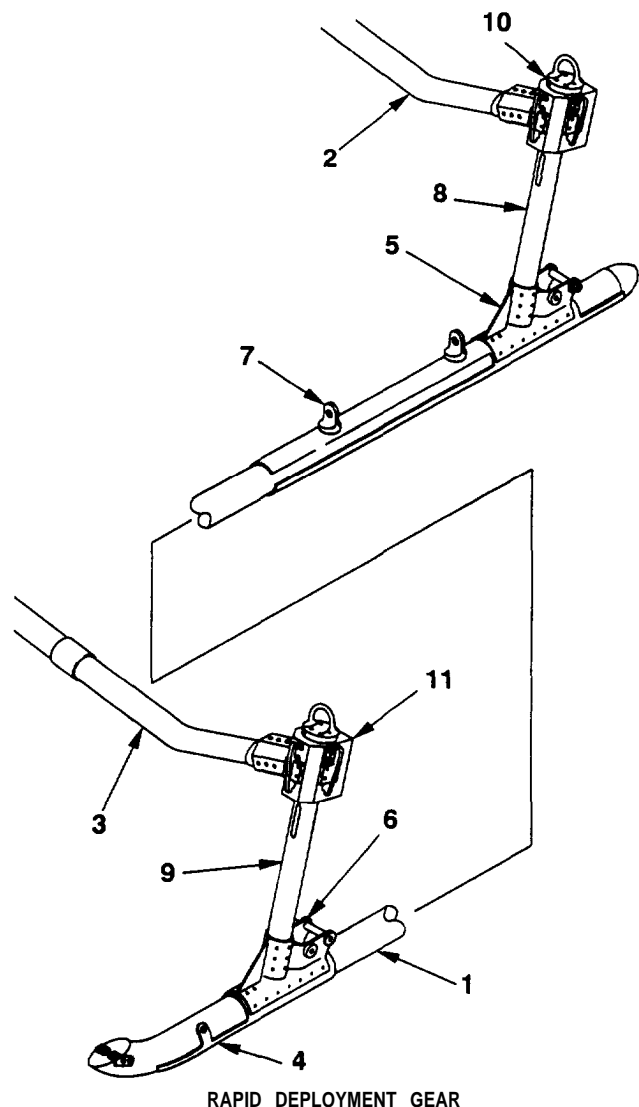
1. Inspect landing gear skid tubes (1) and crosstubes (2 and 3) for scratches, scuffs, nicks, and dents (Tasks R-1-25, R-1-31 and R-1-34).
2. Inspect eight skid shoes (4) for wear, damage, and loose or missing screws (Task R-1-27).
3. Inspect aft saddle (5) and forward saddle (6) for cracks, damage, loose rivets, and loose screws (Task R-1-44).
4. Inspect eyebolts (7) for serviceability and security (Task R-1-29).
5. Inspect landing gear leg assemblies (8 and 9) and crosstube fittings (10 and 11) for scratches, nicks, and dents (Task R-1-44).
6. Visually inspect crosstubes (2 and 3) for obvious deflection.

DEFLECTION INSPECTION

NOTE

Landing gear must be installed on helicopter for performing deflection inspection. This inspection is performed with helicopter raised until landing gear is clear of ground.

7. Determine the center of each crosstube.
8. Drop a plumb line from the center of each crosstube.
9. Check dimensions between plumb line and centerline of each crosstube. Normal dimension is 37.20 inches. If any dimension exceeds 38.20 inches, replace defective crosstube (Task R-1-30 or R-1-34).



END OF TASK

R-1-22. CLEAN, INSPECT, AND REPAIR RAPID DEPLOYMENT AFT CROSSTUBE SUPPORT ASSEMBLY

This task covers: Cleaning, Inspection, and Repair (Off Helicopter)

INITIAL SETUP

Personnel Required:

67S Scout Helicopter Technical Inspector
67S Scout Helicopter Repairer

Applicable Configurations:
OH-58D (Special Mission)

General Safety Instructions:

Tools:

Aircraft Mechanic Tool Kit

WARNING

Material:

Adhesive (D109)
Drycleaning Solvent (D1)
Epoxy Primer (D13)
Paint (D21)
Rubber Gloves (D119)
Sandpaper (D11)
Wiping Rags (D53)

Drycleaning solvent (D1), epoxy primer (D13), and paint (D21) are flammable and toxic. They can irritate skin and cause burns. Use only in well-ventilated area away from heat and open flame. Wear rubber gloves (D119) and goggles. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

CLEAN

1. Clean strap surface with drycleaning solvent (D1).
2. Dry strap with a wiping rag (D53).

INSPECT

3. Inspect crosstube strap to limits shown.
4. Inspect cushion for wear, cracks, torn edges, and adhesion to strap.

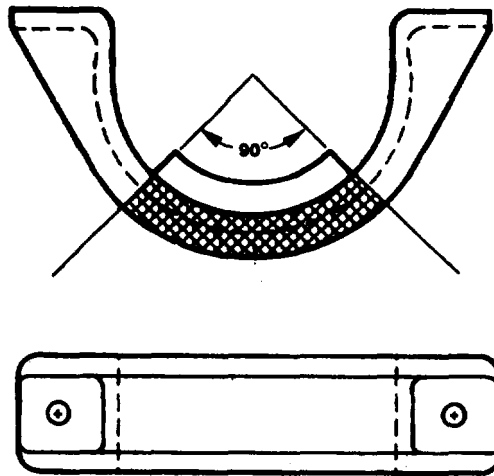
REPAIR

5. Polish out reparable damage on strap using sandpaper (D11).
6. Apply coat to epoxy primer (D13) to repair area followed by coat of paint (D21).
7. Remove damaged cushion and burnish surface of strap. Adhere new cushion to strap with adhesive (D109). Allow 24 hours drying time before assembly, 5 days for maximum strength.

INSPECT



GO TO NEXT PAGE

R-1-22. CLEAN, INSPECT, AND REPAIR RAPID DEPLOYMENT AFT CROSSTUBE SUPPORT ASSEMBLY (CONT)



DAMAGE LOCATION SYMBOLS



TYPE OF DAMAGE	MAXIMUM DAMAGE AND REPAIR DEPTH	
		
MECHANICAL:	0.005 in. before repair 0.010 in. after repair	0.010 in. before repair 0.020 in. after repair
CORROSION:	0.005 in. before repair 0.010 in. after repair	0.010 in. before repair 0.020 in. after repair
MAXIMUM AREA PER FULL DEPTH REPAIR	0.125 Sq. in.	0.25 Sq. in.
NUMBER OF REPAIRS	Two per segment	Not critical
EDGE CHAMBER TO REMOVE DAMAGE	0.020 in. x 45°	0.020 in. x 45°
BORE DAMAGE	0.002 in. x 1/4 circumference	0.002 in. x 1/4 circumference

NOTE:

No cracks permitted.

406052-91
H4079

END OF TASK

Change 1

R-57

R-1-23. CLEAN, INSPECT, AND REPAIR RAPID DEPLOYMENT FORWARD CROSSTUBE STRAP

This task covers: Cleaning, Inspection, and Repair (Off Helicopter)

INITIAL SETUP

Personnel Required:

67S Scout Helicopter Technical Inspector

67S Scout Helicopter Repairer

Applicable Configurations:
OH-58D (Special Mission)

General Safety Instructions:

Tools:

Aircraft Mechanic Tool Kit

WARNING

Material:

Adhesive (D109)
Drycleaning Solvent (D1)
Epoxy Primer (D13)
Paint (D21)
Rubber Gloves (D119)
Sandpaper (D11)
Wiping Rags (D53)

Drycleaning solvent (D1), epoxy primer (D13), and paint (D21) are flammable and toxic. They can irritate skin and cause burns. Use only in well-ventilated area away from heat and open flame. Wear rubber gloves (D119) and goggles. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

CLEAN

1. Clean strap surface with drycleaning solvent (D1).

2. Dry strap with a wiping rag (D53).

INSPECT

3. Inspect crosstube strap to limits shown.

4. Inspect cushion for wear, cracks, torn edges, and adhesion to strap.

REPAIR

5. Polish out reparable damage on strap using sandpaper (D11).

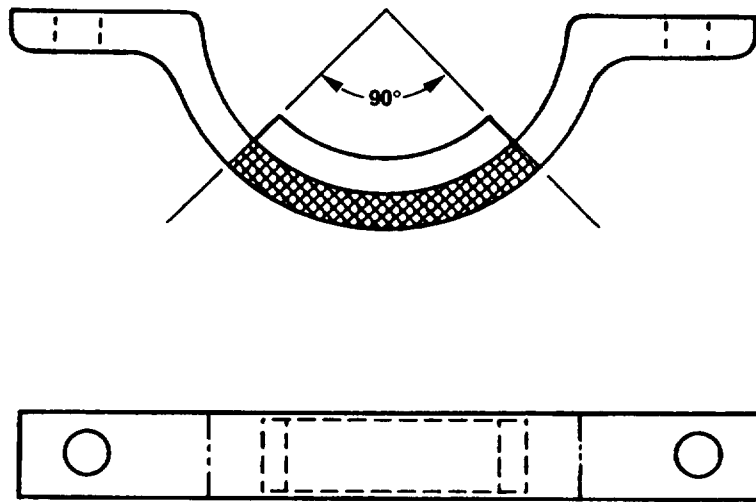
6. Apply coat of epoxy primer (D13) to repair area followed by coat of paint (D21).

7. Remove damaged cushion and burnish surface to strap. Adhere new cushion to strap with adhesive (D109). Allow 24 hours drying time before assembly, 5 days for maximum strength.

INSPECT

GO TO NEXT PAGE

R-1-23. CLEAN, INSPECT, AND REPAIR RAPID DEPLOYMENT FORWARD CROSSTUBE STRAP
(CONT)



DAMAGE LOCATION SYMBOLS



TYPE OF DAMAGE	MAXIMUM DAMAGE AND REPAIR DEPTH	
MECHANICAL:	0.005 in. before repair 0.010 in. after repair	0.010 in. before repair 0.020 in. after repair
CORROSION:	0.005 in. before repair 0.010 in. after repair	0.010 in. before repair 0.020 in. after repair
MAXIMUM AREA PER FULL DEPTH REPAIR	0.125 Sq. in.	0.25 Sq. in.
NUMBER OF REPAIRS	One per segment	Not critical
EDGE CHAMFER TO REMOVE DAMAGE	0.030 in. x 45°	0.030 in. x 45°
BORE DAMAGE	0.002 in. x 1/4 circumference	0.002 in. x 1/4 circumference

NOTE:

No cracks permitted

406052-90
H4079

END OF TASK

R-1-24. REMOVE/INSTALL SKID TUBE ASSEMBLY

This task covers: Removal and Installation (On Helicopter)

INITIAL SETUP

Applicable Configurations:
OH-58D (Special Mission)

Tools:
Airframe Repair Repairer Tool Kit
Aircraft Mechanic Tool Kit
Plastic Scraper
Rubber Mallet

Material:
Sealing Compound (D20)

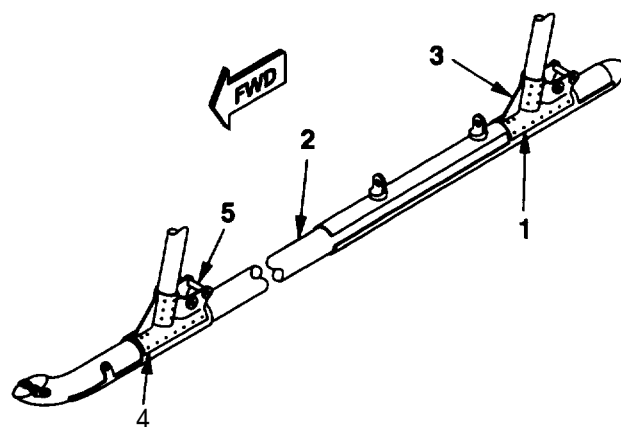
Personnel Required:
67S Scout Helicopter Technical Inspector
67S Scout Helicopter Repairer (4)
68G Aircraft Structural Repairer

References:
TM 1-1500-204-23

Equipment Condition:
Helicopter on Jacks (Task 1-6-9)

REMOVE

1. Remove rivets (1) attaching skid tube (2) to aft leg fitting (3).
2. Remove rivets (4) attaching skid tube (2) to forward leg fitting (5).
3. Raise helicopter until skid tube (2) can be removed from forward and aft leg fittings (5 and 3).
4. Trim sealant from edge of leg fittings (5 and 3) and skid tube (2) using a plastic scraper.
5. Remove skid tube (2) from under leg assemblies.



406052-72
H3429

INSTALL

6. Coat mating surfaces of forward and aft leg fittings (5 and 3) with sealing compound (D20).
7. Position skid tube (2) under leg fittings (5 and 3) and align attachment holes.
8. Temporarily secure skid tube (2) to leg fittings (5 and 3).
9. Install rivets (4 and 1) as required (TM 1-1500-204-23).

INSPECT

END OF TASK

R-1-25. CLEAN, INSPECT, AND REPAIR RAPID DEPLOYMENT SKID TUBE ASSEMBLY

This task covers: Cleaning, Inspection, and Repair (Off Helicopter)

INITIAL SETUP

Applicable Configurations:
OH-58D (Special Mission)

Tools:

Aircraft Mechanic Tool Kit
Airframe Repairer Tool Kit

Material:

Drycleaning Solvent (D1)
Epoxy Primer (D13)
Paint (D21)
Rubber Gloves (D119)
Sandpaper (D11)
Wiping Rags (D53)

Personnel Required:

67S Scout Helicopter Technical Inspector
67S Scout Helicopter Repairer

General Safety Instructions:

WARNING

Drycleaning solvent (D1), epoxy primer (D13), and paint (D21) are flammable and toxic. They can irritate skin and cause burns. Use only in well-ventilated area away from heat and open flame. Wear rubber gloves (D119) and goggles. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

CLEAN

1. Clean skid tube surface with drycleaning solvent (D1).
2. Dry skid tube with a wiping rag (D53).

INSPECT

3. Inspect skid tube for scratches, nicks, and dents to limits shown.

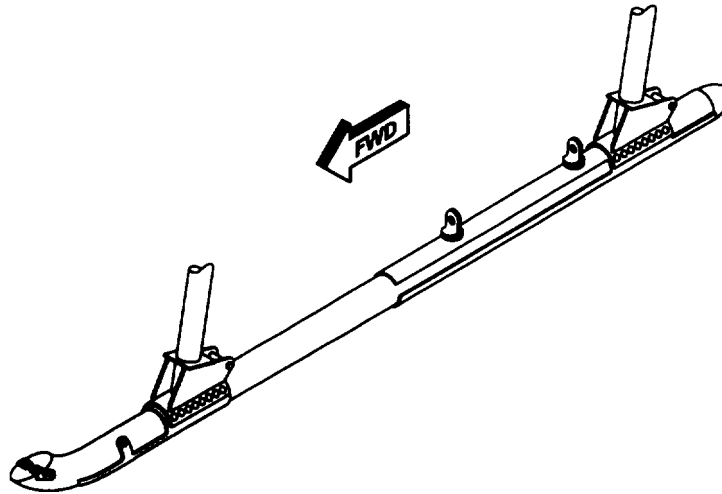
REPAIR

4. Polish out reparable damage using sandpaper (D11).
5. Apply coat of epoxy primer (D13) to repair area followed by coat of paint (D21).
6. Make patch and insertion repairs per limits shown.

INSPECT

GO TO NEXT PAGE

R-1-25. CLEAN, INSPECT, AND REPAIR RAPID DEPLOYMENT SKID TUBE ASSEMBLY (CONT)



SKID TUBE ASSEMBLY

DAMAGE LOCATION SYMBOL

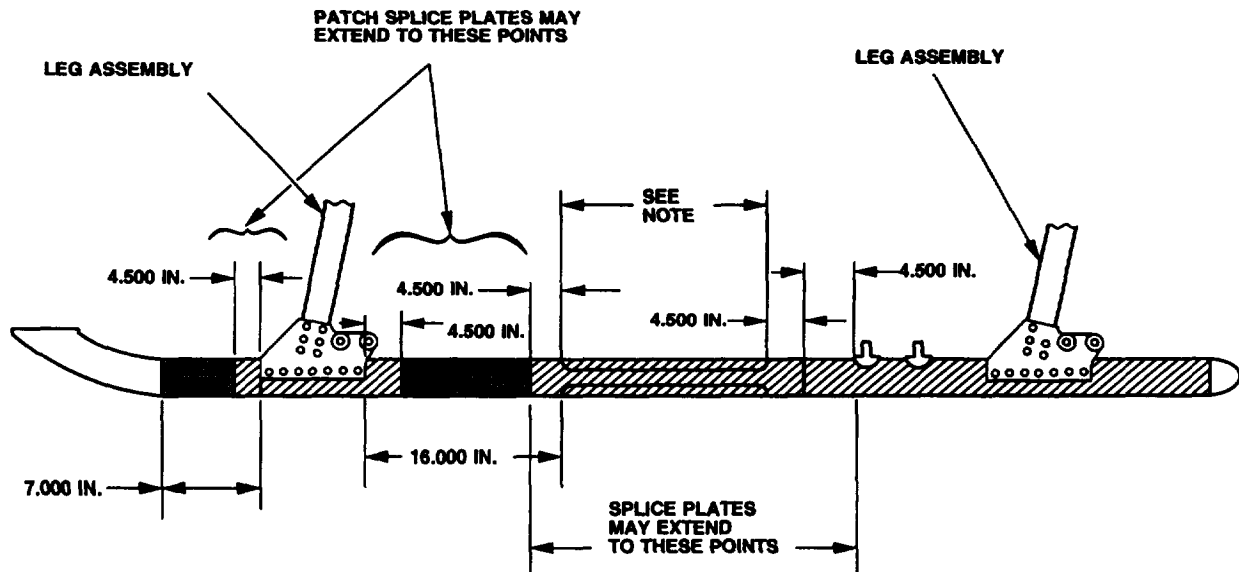


TYPE OF DAMAGE	MAXIMUM DAMAGE AND REPAIR DEPTH
MECHANICAL	
Circumferential	0.025 in. depth and arc of 90 degrees before and after repair
longitudinal	0.025 in. depth (any length) before and after repair
Smooth Dents	0.025 in. depth and 1.00 in. dia
CORROSION	0.0125 in. before and 0.025 in. depth (area not to exceed one-fourth of tube circumference x 3.00 in. length) after repair

406052-89
H4085

GO TO NEXT PAGE

R-1-25. CLEAN, INSPECT, AND REPAIR RAPID DEPLOYMENT SKID TUBE ASSEMBLY (CONT)




NOTE

NO PATCHES ALLOWED ON DOUBLERS. DAMAGE IN THIS AREA EXCEEDING NEGLIGIBLE LIMITS REQUIRES REPAIR BY SPLICING ENTIRE DOUBLER LENGTH USING 0.120 INCH 2024T3 OR SCRAP TUBE WITH UNDAMAGED DOUBLERS.


REPAIRS BY PATCHING OR
INSERTION NOT PERMITTED

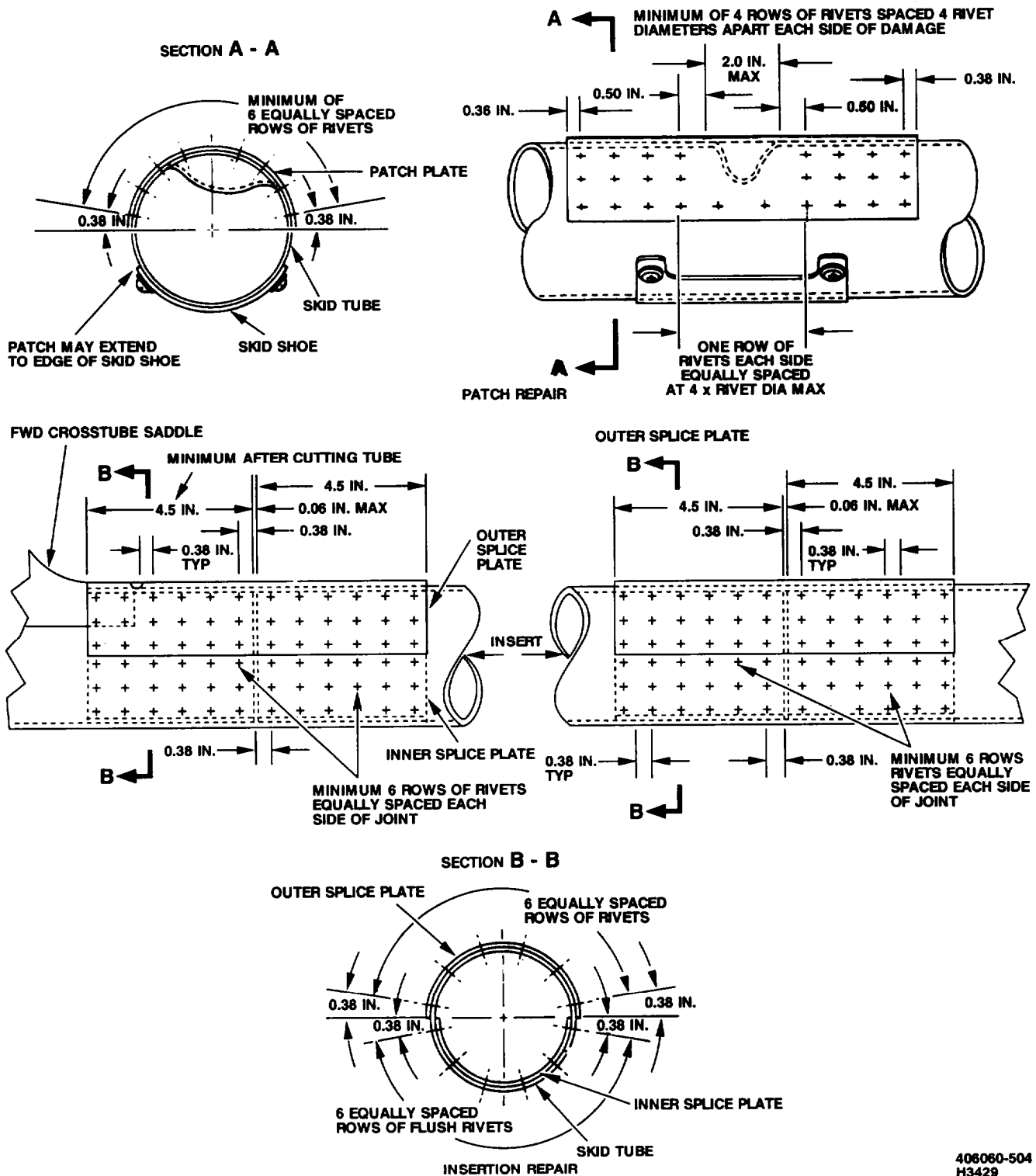

REPAIRS BY PATCHING OR
INSERTION PERMITTED


REPAIRS NOT REQUIRED IN THIS
AREA. HOLES SHOULD BE PLUGGED
TO PREVENT MOISTURE ENTRAPMENT

406060-505
G7721

GO TO NEXT PAGE

R-1-25. CLEAN, INSPECT, AND REPAIR RAPID DEPLOYMENT SKID TUBE ASSEMBLY (CONT)



END OF TASK

R-1-26. REMOVE/INSTALL RAPID DEPLOYMENT SKID SHOES AND SKID TUBE RIVNUT

This task covers: Removal and Installation (On Helicopter)

INITIAL SETUP

Applicable Configurations:
OH-58D (Special Mission)

Tools:
Aircraft Mechanic Tool Kit
Airframe Repairer Tool Kit
Air Compressor Unit
Hose Assembly
Hand Blind Riveter

Personnel Required:
67S Scout Helicopter Technical Inspector
67S Scout Helicopter Repairer (4)
68G Aircraft Structural Repairer

References:
TM 1-1500-204-23

Equipment Condition:
Helicopter on Jacks (Task 1-6-9)

GO TO NEXT PAGE

R-1-26. REMOVE/INSTALL RAPID DEPLOYMENT SKID SHOES AND SKID TUBE RIVNUT (CONT)

REMOVE SKID SHOES

1. Remove 12 screws (1) and 12 washers (2) attaching skid shoe (3) to skid tube (4).
2. Remove four screws (5) and four washers (6) attaching skid shoe (7) to skid tube (4).
3. Remove four screws (8) and four washers (9) attaching skid shoe (10) to skid tube (4).
4. Remove four screws (11) and four washers (12) attaching skid shoe (13) to skid tube (4).

REMOVE RIVNUT

WARNING

Compressed air is dangerous when directed toward yourself or another person. The airstream or material blown by the air stream can cause injury, particularly to the eyes and face. Use goggles to protect eyes and face. Do not exceed 30 psig.

5. Drill out rivnut (14) (TM 1-1500-204-23).

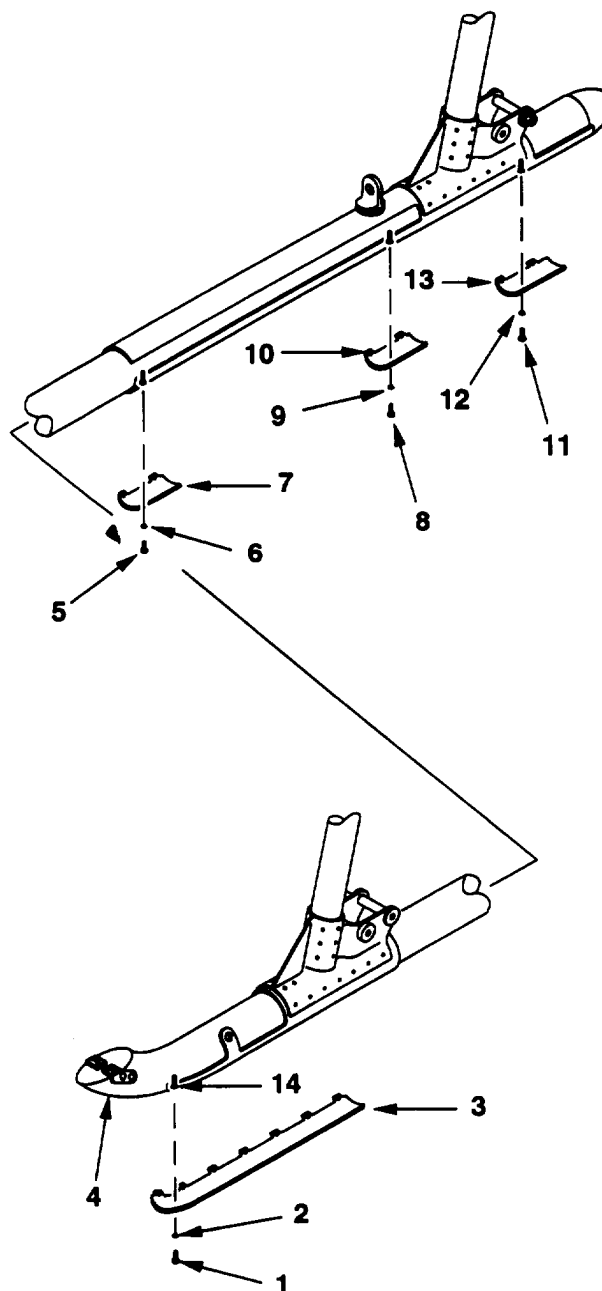
INSTALL RIVNUT

6. Install rivnut (14) (TM 1 -1500-204-23).

INSTALL SKID SHOES

7. Install skid shoe (3) on skid tube (4) using 12 washers (2) and 12 screws (1).
8. Install skid shoe (7) on skid tube (4) using four washers (6) and four screws (5).
9. Install skid shoe (10) on skid tube (4) using four washers (9) and four screws (8).
10. Install skid shoe (13) on skid tube (4) using four washers (12) and four screws (11).

INSPECT



406052-73
G6600

END OF TASK

R-1-27. CLEAN, INSPECT, AND REPAIR RAPID DEPLOYMENT SKID SHOES AND SKID TUBE RIVNUT (AVIM)

This task covers: Cleaning, Inspection. and Repair (On Helicopter)

INITIAL SETUP

15 minutes. Get medical attention for eyes.

Applicable Configurations:
OH-58D (Special Mission)

WARNING

Tools:
Airframe Repairer Tool Kit

Material:
Ammonium Nitrate (D241)
Drycleaning Solvent (D1)
Epoxy Primer (D13)
Paint (D21)
Rubber Gloves (D119)
Weld Tube (D242)
Wiping Rags (D53)

Personnel Required:
67S Scout Helicopter Technical Inspector
68G Aircraft Structural Repairer

References:
TM 55-1500-345-23

Equipment Condition:
Helicopter on Jacks (Task 1-6-9)

WARNING

General Safety Instructions:

WARNING

Drycleaning solvent (D1), epoxy primer (D13), and paint (D21) are flammable and toxic. They can irritate skin and cause burns. Use only in well-ventilated area away from heat and open flame. Wear rubber gloves (D119) and goggles. In case of contact, immediately flush skin or eyes with water for at least

Avoid prolonged or repeated contact with power grinding dust. Inhalation of dust may cause temporary coughing and wheezing, respiratory system irritation, and permanent lung problems. If dust contacts eyes, flush them thoroughly with water. If coughing or wheezing persists, get immediate medical attention. When using an air-exhausted grinding wheel, wear approved respirator, and goggles or faceshield.

CLEAN

1. Clean skid shoe surface with drycleaning solvent (D1).
2. Dry skid shoe with a wiping rag (D53).

GO TO NEXT PAGE

INSPECT

3. Inspect skid shoes for worn beads and worn pads on lower shoe surface. If wear pads are worn to a point of unserviceability, replace skid shoes.

R-1-27. CLEAN, INSPECT, AND REPAIR RAPID DEPLOYMENT SKID SHOES AND SKID TUBE RIVNUT (AVIM) (CONT)

4. Inspect all skid shoe attachment points for cracks. Transverse cracks in beads or pads are not cause for rejection. If cracks are observed at skid shoe attachment points or skid shoe weld beads are worn beyond repair limits, replace skid shoes.

5. Inspect skid tube rivnut for damage. No damage allowed.

REPAIR

CAUTION

Prior to any welding repair, skid shoe must be removed from skid tube to avoid damage to the aluminum skid tube.

6. Bead weld skid shoe as follows:

NOTE

Cadmium must be stripped from skid shoe prior to making weld bead repairs. After stripping, parts will be very susceptible to corrosion and shall immediately be repaired and primed.

a. Mix a solution of 16 ounces of ammonium nitrate (D241) per gallon of water.

b. Maintain solution at a temperature of 120 °F.

c. Immerse skid shoe into solution until all cadmium plating has been removed.

d. Rinse skid shoe in clean water and air dry.

e. Weld two full length beads 0.06 to 0.10 inch high along skid shoe using acetylene and 0.125 inch hard facing weld tube (D242).

WARNING

Handling of hot parts with bare hands may cause reddening and blistering of skin, or third degree burns. If skin is

burned, immerse contacted area in cold water for 10 minutes. If pain or blistering persists, get immediate medical attention. When handling hot parts, wear approved gloves.

f. Hot reform skid shoe as required to fit contour of skid tube.

g. Clean up weld deposits using a stiff wire brush.

h. Apply two coats of epoxy primer (D13) followed by two coats of paint (D21) (TM 55-1500-345-23).

INSPECT

7. Repair elongated hole on mount tab as follows:

a. Fabricate a rectangular doubler of required size from 0.063 inch normalized 4130 steel, MIL-S-18729.

NOTE

Cadmium must be stripped from skid shoe prior to making weld bead repairs. After stripping, parts will be very susceptible to corrosion and shall immediately be repaired and primed.

b. Mix a solution of 16 ounces of ammonium nitrate (D241) per gallon of water.

c. Maintain solution at a temperature of 120 °F.

d. immerse skid shoe into solution until all cadmium plating has been removed.

e. Rinse skid shoe in clean water and air dry.

f. Secure doubler to skid shoe tab by welding (arc or gas method) around entire periphery of doubler.

g. Grind weld smooth on side adjacent to skid tube and in location for retaining screw head.

GO TO NEXT PAGE

R-1-27. CLEAN, INSPECT, AND REPAIR RAPID DEPLOYMENT SKID SHOES AND SKID TUBE RIVNUT (AVIM) (CONT)

h. Clean up weld deposits with stiff wire brush.

i. Apply two coats of epoxy primer (D13) followed by two coats of paint (D21) (TM 55-1500-345-23).

INSPECT

8. Replace skid shoe tab as follows:

a. Cut off damaged tab parallel to skid tube.

NOTE

Cadmium must be stripped from skid shoe prior to making weld bead repairs. After stripping, parts will be very susceptible to corrosion and shall immediately be repaired and primed.

b. Mix a solution of 16 ounces of ammonium nitrate (D241) per gallon of water.

c. Maintain solution at a temperature of 120 °F.

d. Immerse skid shoe into solution until all cadmium plating has been removed.

e. Rinse skid shoe in clean water and air dry.

f. Fabricate a new tab from 0.063 inch normalized 4130 steel, MIL-S-18729.

g. Butt weld tab along cut line of skid shoe.

h. Grind weld smooth on side adjacent to skid tube, and in location for retaining screw head.

i. Clean up weld deposits with stiff wire brush.

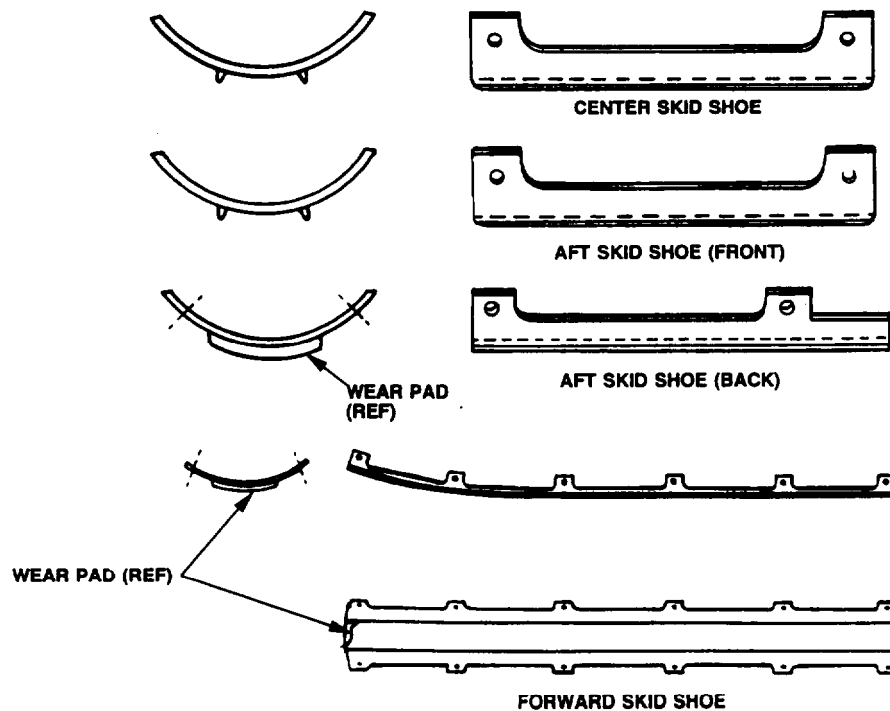
j. Apply two coats of epoxy primer (D13) followed by two coats of paint (D21) (TM 55-1500-345-23).

INSPECT

9. Replace damaged rivnut (Task R-1-26).

GO TO NEXT PAGE

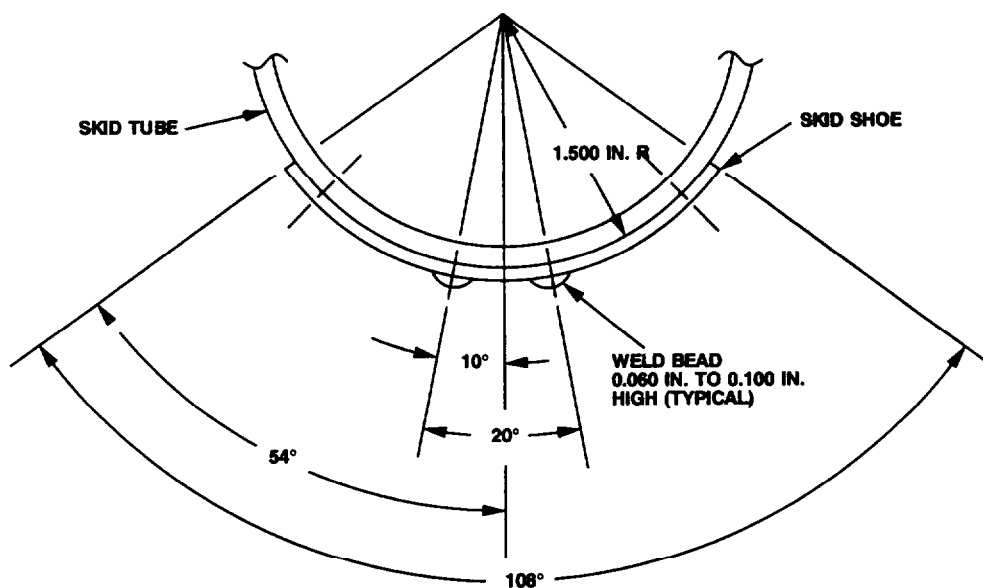
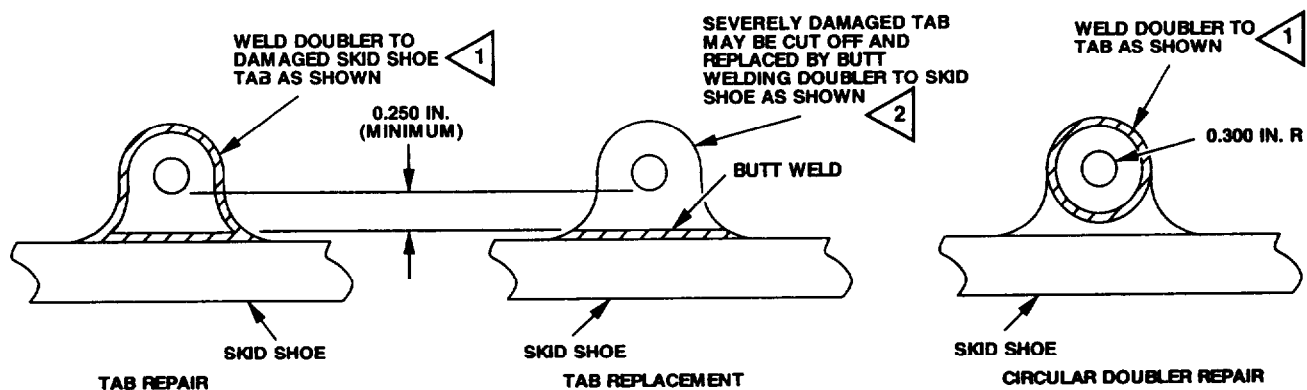
R-1-27. CLEAN, INSPECT, AND REPAIR RAPID DEPLOYMENT SKID SHOES AND SKID TUBE RIVNUT (AVIM) (CONT)



406060-507
G6615

GO TO NEXT PAGE

R-1-27. CLEAN, INSPECT, AND REPAIR RAPID DEPLOYMENT SKID SHOES AND SKID TUBE RIVNUT (AVIM) (CONT)



NOTES:

Fabricate doubler of normalized 4130 steel, MIL-S-18729, 0.063 in. thick and of same configuration as damaged tab.

Fabricate doubler of normalized 4130 steel, MIL-S-18729, and same configuration as removed tab. Grind weld smooth on side adjacent to skid tube.

END OF TASK

R-1-28. REMOVE/INSTALL RAPID DEPLOYMENT EYEBOLT

This task covers: Removal and Installation (On Helicopter)

INITIAL SETUP

Parts:
Washers

Applicable Configurations:
OH-58D (Special Mission)

Personnel Required:
67S Scout Helicopter Technical Inspector
67S Scout Helicopter Repairer
68G Aircraft Structural Repairer

Tools:
Airframe Repairer Tool Kit
Aircraft Mechanic Tool Kit

REMOVE

1. Remove eyebolt (1) and washer (2) from skid tube (3).

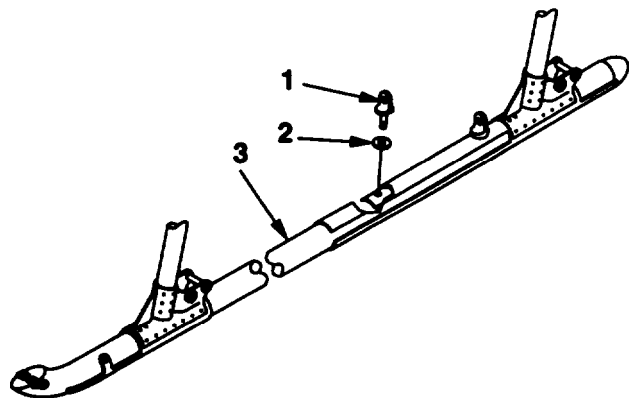
INSTALL

NOTE

Holes in eyebolts must be aligned on installation. Use maximum of four AN960JD816L washers under eyebolt to obtain proper torque and alignment.

2. Install washer (2) and eyebolt (1) in skid tube (3).

INSPECT



406052-74
G6601

END OF TASK

R-1-29. CLEAN, INSPECT, AND REPAIR RAPID DEPLOYMENT EYEBOLT

This task covers: Cleaning, Inspection, and Repair (Off Helicopter)

INITIAL SETUP

Applicable Configurations:
OH-58D (Special Mission)

Tools:
Aircraft Mechanic Tool Kit
Plastic Scraper

Parts:
Thin Aluminum Washers

Material:
Drycleaning Solvent (D1)
Epoxy Primer (D13)
Paint (D21)
Rubber Gloves (D119)
Sandpaper (D11)
Sealing Compound (D20)
Wiping Rags (D53)

Personnel Required:
67S Scout Helicopter Technical Inspector
67S Scout Helicopter Repairer

References:
TM 1-1500-204-23

General Safety Instructions:

WARNING

Drycleaning solvent (D1), epoxy primer (D13), paint (D21), and sealing compound (D20) are flammable and toxic. They can irritate skin and cause burns. Use only in well-ventilated area away from heat and open flame. Wear rubber gloves (D119) and goggles. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

CLEAN

1. Clean eyebolt surface with wiping rag (D53) dampened with drycleaning solvent (D1).

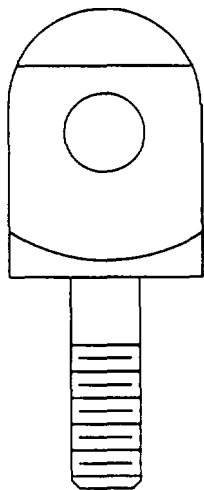
2. Dry eyebolt with a wiping rag (D53).

INSPECT

3. Inspect eyebolt to limits shown. If damage is beyond limits, replace eyebolt.

GO TO NEXT PAGE

R-1-29. CLEAN, INSPECT, AND REPAIR RAPID DEPLOYMENT EYEBOLT (CONT)



DAMAGE LOCATION SYMBOL



TYPE OF DAMAGE	MAXIMUM DAMAGE AND REPAIR DEPTH
MECHANICAL	0.010 in. before repair 0.020 in. after repair
CORROSION:	0.010 in. before repair 0.020 in. after repair
MAXIMUM AREA FULL DEPTH REPAIR	0.125 Sq. in.
MAXIMUM NUMBER OF REPAIRS	Not critical
EDGE CHAMFER	0.03 in. x 45°
BORE	0.002 in. x 1/4 circumference
THREAD DAMAGE	
Depth	1/3 Of thread
Length	0.25 in.
Number	One per segment

NOTE:
 No cracks permitted.

406060-508
 G6616

GO TO NEXT PAGE

R-1-29. CLEAN, INSPECT, AND REPAIR RAPID DEPLOYMENT EYEBOLT (CONT)

REPAIR

4. Polish out reparable damage using sandpaper (D11).

5. Apply coat of epoxy primer (D13) to repair area followed by coat of paint (D21).

6. Repair eyebolt insert as follows:

a. Drill out rivets and rivnuts securing end plug to skid tube.

b. Work end plug free from skid tube and remove sealing compound from skid tube using a plastic scraper.

c. Attach a length of string to nutplate (1). String will be used as an aid during installation of insert (4).

d. Drill out rivets (2 and 3) securing insert (4) and tap nutplate (1) with a mallet to separate insert (4) from skid tube.

e. Remove insert (4) through aft end of skid tube using a four foot rod with a hook on one end or a pair of mechanical fingers.

f. Remove string from nutplate (1).

g. Remove sealing compound from insert (4) using a plastic scraper.

h. Replace nutplate (1) on insert (4) (TM 1-1500-204-23).

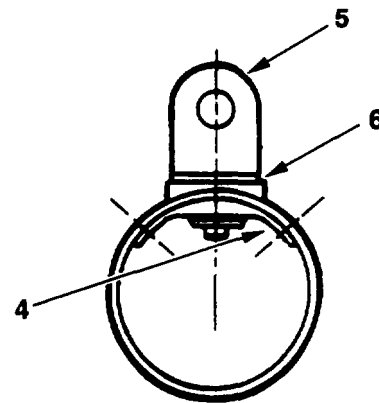
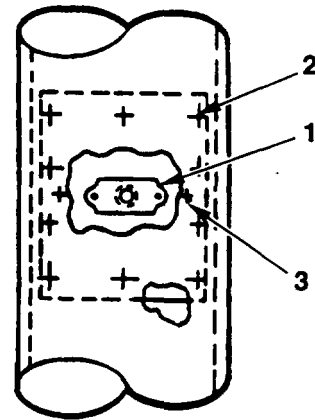
i. Apply an even coating of sealing compound (D20) to surface of insert (4) that will mate with skid tube.

j. Attach string to nutplate (1) and pull insert (4) into position in skid tube.

k. Loosely install eyebolt (5), remove string from nutplate (1), and pull insert (4) into position to align rivet holes.

l. Secure insert (4) with rivets (2 and 3) (TM 1-1500-204-23).

m. Install radius washer (6), eyebolt (5), and additional thin aluminum washers as required to align eyebolts (5).



406080-509
G7724

GO TO NEXT PAGE

R-1-29. CLEAN, INSPECT, AND REPAIR RAPID DEPLOYMENT EYEBOLT (CONT)

n. Apply coating of sealing compound (D20) on skid tube mating surface of plug.

o. Press end plug into skid tube and secure using rivets and rivnuts.

p. Fillet seal around end of skid tube using sealing compound (D20). Remove excess sealing compound with plastic scraper.

INSPECT

END OF TASK

R-1-30. REMOVE/INSTALL RAPID DEPLOYMENT FORWARD CROSSTUBE

This task covers: Removal and Installation (Off Helicopter)

INITIAL SETUP

Personnel Required:

67S Scout Helicopter Technical Inspector
67S Scout Helicopter Repairer (2)

Applicable Configurations:

OH-58D (Special Mission)

Tools:

Aircraft Mechanic Tool Kit

GO TO NEXT PAGE

R-1-30. REMOVE/INSTALL RAPID DEPLOYMENT FORWARD CROSSTUBE (CONT)

REMOVE

1. Remove 12 bolts (1) and 12 washers (2) from fitting (3) on each end of forward crosstube (4).

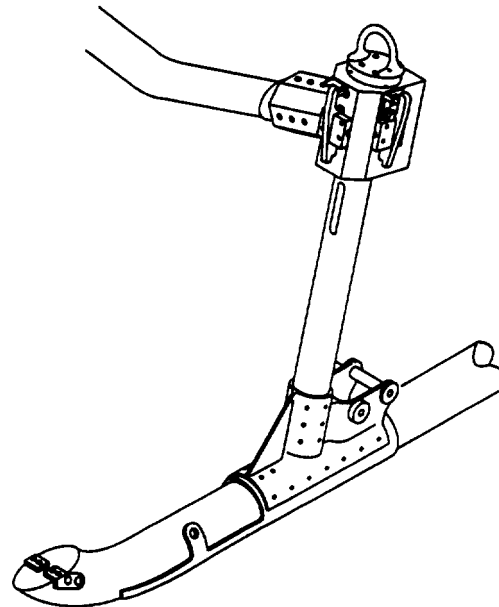
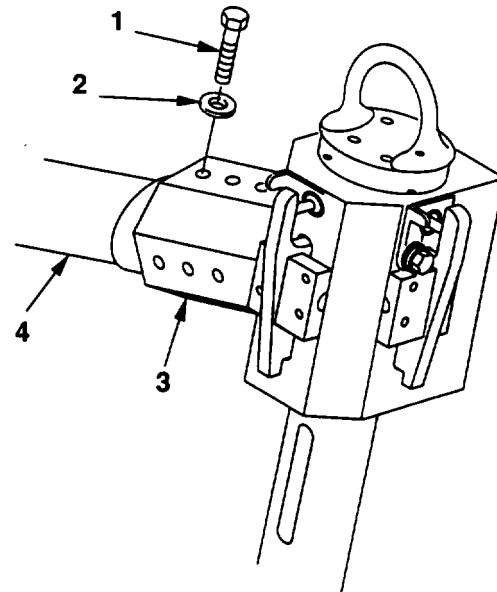
2. Pull ends of crosstube (4) from sockets of fittings (3).

INSTALL

3. Insert ends of replacement crosstube (4) into sockets of fittings (3).

4. Install washers (2) and bolts (1) to secure each end of crosstube (4) to fittings (3).

INSPECT



408052-75
G6602

END OF TASK

R-1-31. CLEAN, INSPECT, AND REPAIR RAPID DEPLOYMENT FORWARD CROSSTUBE

This task covers: Cleaning, Inspection, and Repair (Off Helicopter)

INITIAL SETUP

Applicable Configurations:
OH-58D (Special Mission)

Tools:

Air Compressor Unit
Aircraft Mechanic Tool Kit
Airframe Repairer Tool Kit
Acid Swabbing Brush

Material:

Adhesive (D28)
Aliphatic Naphtha (D7)
Alodine 1200 (D26)
Drycleaning Solvent (D1)
Dynasolve 160 (D22)
Epoxy Primer (D13)
Paint (D21)
Rubber Gloves (D119)
Sandpaper (D11)
Scouring Pads (D25)
Sealing Compound (D20)
Soap Cleaning Compound (D23)
Wiping Rags (D53)

Personnel Required:

67S Scout Helicopter Technical Inspector
67S Scout Helicopter Repairer
68G Aircraft Structural Repairer

References:

TM 55-1500-345-23

General Safety Instructions:

WARNING

Drycleaning solvent (D1); epoxy primer (D13), sealing compound (D20), paint (D21), Dynasolve 160 (D22), Alodine (D26), adhesive (D28), and aliphatic naphtha (D7) are flammable and toxic. They can irritate skin and cause burns. Use only in well-ventilated area away from heat and open flame. Wear rubber gloves (D119) and goggles. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

CLEAN

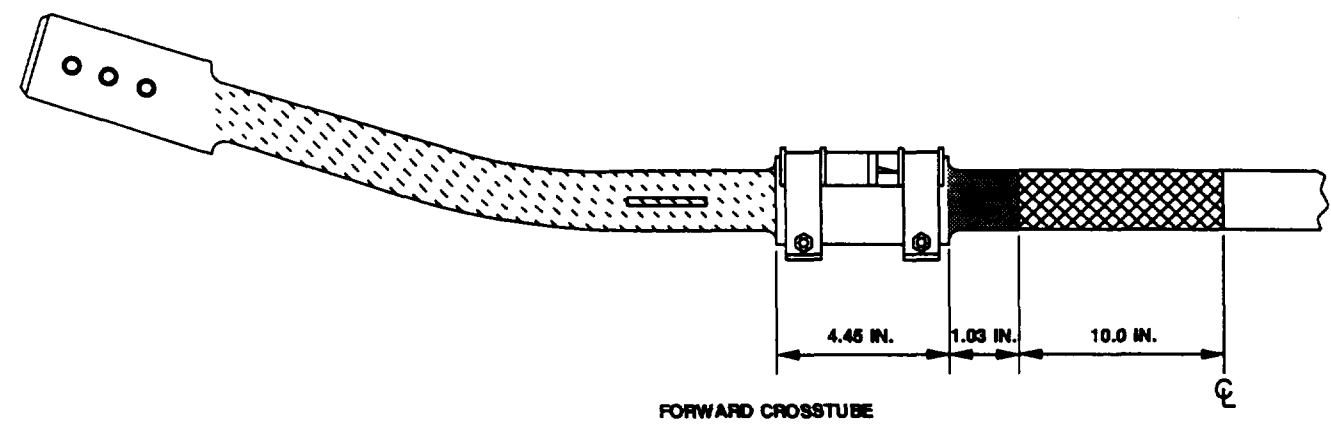
1. Clean forward crosstube surface with drycleaning solvent (D1).
2. Dry forward crosstube surface with a wiping rag (D53).





INSPECT

3. Inspect crosstube for scratches, nicks, cracks, corrosion, and dents. If damage is beyond limits, replace crosstube.
4. Minimum distance between longitudinal nick or scratch repairs is 2 inches. Circumferential scratches must not exceed a 45° arc. No cracks or sharp dents are permitted.

GO TO NEXT PAGE

R-1-31. CLEAN, INSPECT, AND REPAIR RAPID DEPLOYMENT FORWARD CROSSTUBE (CONT)



TYPE OF DAMAGE	DAMAGE LOCATION SYMBOLS			
				
	MAXIMUM DAMAGE AND REPAIR DEPTH			
NICKS, SCRATCHES AND CORROSION DEPTH LIMITS	0.004 in.	0.006 in.	0.016 in.	0.024 in.
MAXIMUM REPAIR LENGTH ALONG CIRCUMFERENCE OF TUBE	0.100 in.	0.200 in.	0.300 in.	0.400 in.

NOTE:
No cracks permitted.

GO TO NEXT PAGE

R-1-31. CLEAN, INSPECT, AND REPAIR RAPID DEPLOYMENT FORWARD CROSSTUBE (CONT)

REPAIR

CAUTION

When overlapping damage is repaired, use most critical maximum limits for entire repair area.

5. Polish out reparable damage using sandpaper (D11).

a. Corrosion shall be cleaned up to twice the visible corrosion depth and the blend out area shall not exceed the limits shown.

b. On all bare aluminum brush or spray an application of chemical conversion material (Alodine 1200) (D26).

6. Apply a coat of epoxy primer (D13) followed by coat of paint (D21) to repair area (TM 55-1500-345-23).

7. Replace damaged rub strip (for weight on gear switch) on forward crosstube as follows:

a. Apply Dynasolve 160 (D22) with an acid swabbing brush around edge of rub strip (1) to dissolve adhesive. Remove rub strip from crosstube (2).

b. Clean surface with aliphatic naphtha (D7) using wiping rags (D53).

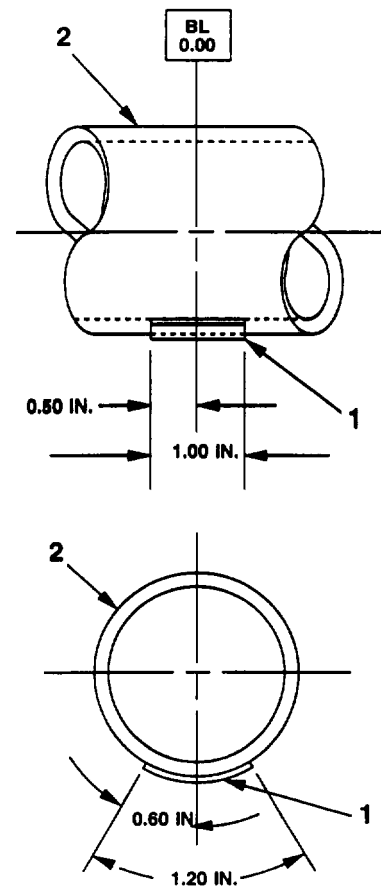
Clean with soap cleaning compound (D23), mixed with four ounces per gallon of water and scouring pads (D25).

d. Brush Alodine 1200 (D26) on surface with acid swabbing brush.

e. Apply adhesive (D28) to rub strip bonding surface using acid swabbing brush.

f. Apply rub strip (1) to forward crosstube (2) at location shown.

g. Apply a bead of sealing compound (D20) around rub strip.

INSPECT

CROSS SECTION OF FORWARD CROSSTUBE

406060-511
G7122

END OF TASK

R-1-32. REMOVE/INSTALL RAPID DEPLOYMENT FORWARD CROSSTUBE COMPONENTS

This task covers: Removal and Installation (Off Helicopter)

INITIAL SETUP

Adhesive (D28)
Wiping Rag (D53)

Applicable Configurations:
OH-58D (Special Mission)

Personnel Required:
67S Scout Helicopter Technical Inspector
67S Scout Helicopter Repairer (4)
68G Aircraft Structural Repairer

Tools:
Aircraft Mechanic Tool Kit
Airframe Repairer Tool Kit
Acid Swabbing Brush
Air Compressor Unit
Goggles
Hose Assembly

References:
TM 1-1500-204-23

General Safety Instructions:

Parts:
Clamps
Nutplate
Rivet

WARNING

Material:
Aliphatic Naphtha (D7)
Epoxy Primer (D13)
Sealing Compound (D20)
Dynasolve 160 (D22)
Cleaning Compound (D23)
Abrasive Mats (D24)
Scouring Pads (D25)
Alodine 1200 (D26)
Tack Rag (D27)

Epoxy primer (D13), sealing compound (D20), Dynasolve 160 (D22), Alodine (D26), adhesive (D28), and aliphatic naphtha (D7) are flammable and toxic. They can irritate skin and cause burns. Use only in well-ventilated area away from heat and open flame. Wear rubber gloves (D119) and goggles. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

GO TO NEXT PAGE

R-1-32. REMOVE/INSTALL RAPID DEPLOYMENT FORWARD CROSSTUBE COMPONENTS (CONT)

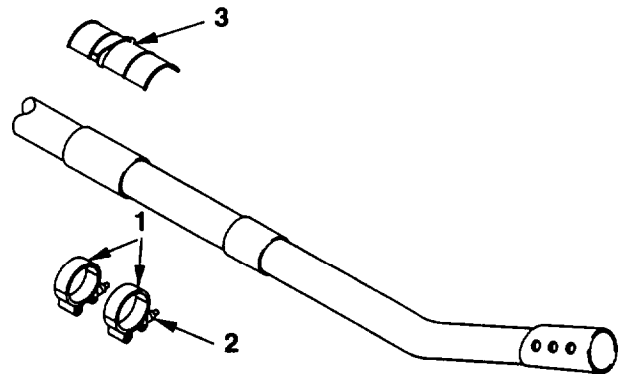
REMOVE CLAMPS

1. Apply Dynasolve 160 (D22) with an acid swabbing brush to clamps (1).

2. Loosen two adjustment nuts (2) and remove two clamps (1).

REMOVE SUPPORT

3. Apply Dynasolve 160 (D22) with an acid swabbing brush around edge of crosstube support (3) to dissolve epoxy sealant. Remove crosstube support (3).



406052-77
G6604

GO TO NEXT PAGE

R-1-32. REMOVE/INSTALL RAPID DEPLOYMENT FORWARD CROSSTUBE COMPONENTS (CONT)

INSTALL SUPPORT

NOTE

Ensure crosstube supports (3) face opposite each other, notch inboard, when installed.

4. Clean area of forward crosstube (4) where crosstube support (3) mounts as follows:

a. Clean the surface with aliphatic naphtha (D7) using wiping rag (D53).

b. Clean with soap cleaning compound (D23) mixed with 4 ounces per gallon in water, and abrasive mats (D24) or scouring pads (D25).

c. Brush Alodine 1200 (D26) on surface with acid swabbing brush, Wipe with tack rag (D27).

5. Apply adhesive (D28) to support mounting area of forward crosstube (4).

6. Install crosstube support (3) in position on forward crosstube (4) as shown.

7. Apply a bead of sealing compound (D20) around edge of crosstube support (3),

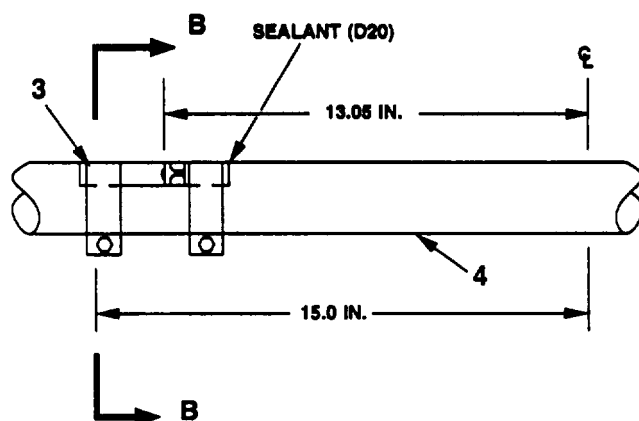
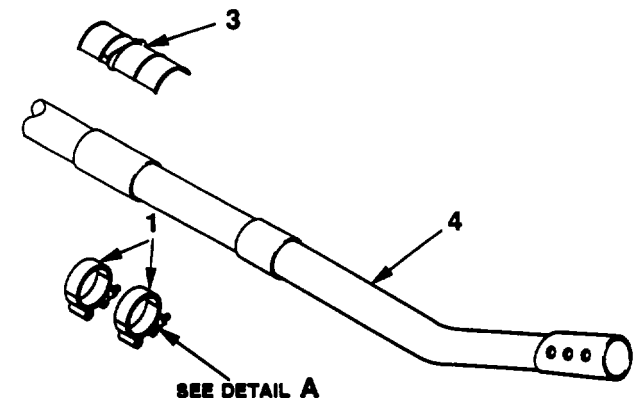
INSTALL CLAMPS

8. Apply adhesive (D28) to mounting area of crosstube support (3) and clamps (1).

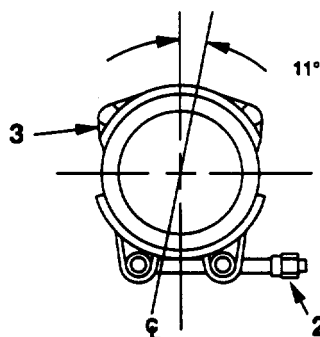
9. Install two clamps (1) on crosstube (3). Use a protractor to determine 11 degrees as shown in Section B-B.

10. Tighten adjustment nuts (2) within 30 minutes of adhesive application. Retighten adjustment nuts (2) as required after adhesive has cured (24 hours minimum).

11. Apply spray coat of epoxy primer (D13) to cleaned surface adjacent to crosstube support (3).

INSPECT

DETAIL A
VIEW LOOKING FWD
(FWD CROSSTUBE SUPPORT)



PLANE OF CROSSTUBE
SECTION B - B

406052-78
G6605

GO TO NEXT PAGE

R-1-32. REMOVE/INSTALL RAPID DEPLOYMENT FORWARD CROSSTUBE COMPONENTS (CONT)

REMOVE NUTPLATE

WARNING

Compressed air is dangerous when directed toward yourself or another person. The airstream or material blown by the airstream can cause injury, particularly to the eyes and face. Use goggles to protect eyes and face. Do not exceed 30 psig.

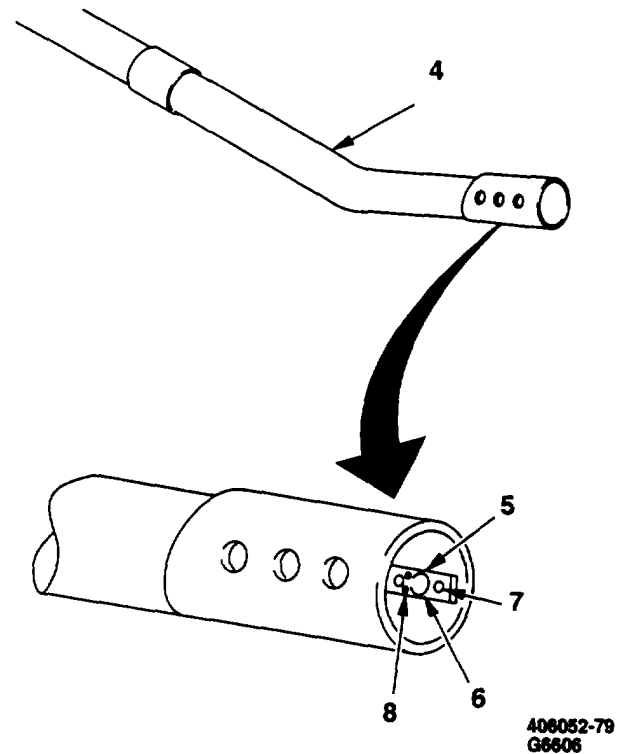
12. Remove nutplate assembly (5) having damaged nutplate (6) by drilling out rivets (7) (TM 1-1500-204-23).

13. Remove damaged nutplate (6) on nutplate assembly (5) by drilling out rivets (8) (TM 1-1500-204-23).

INSTALL NUTPLATE

14. Install nutplate (6) on nutplate assembly (5) using two rivets (8) (TM 1-1 500-204-23).

15. Install nutplate assembly (5) inside forward crosstube (4) using rivets (7).

INSPECT

END OF TASK

R-1-33. CLEAN, INSPECT, AND REPAIR RAPID DEPLOYMENT FORWARD CROSSTUBE COMPONENTS

This task covers: Cleaning, Inspection, and Repair (Off Helicopter)

INITIAL SETUP

Personnel Required:

67S Scout Helicopter Technical Inspector
68G Aircraft Structural Repairer

Applicable Configurations:
OH-58D (Special Mission)

General Safety Instructions:

Tools:
Airframe Repairer Tool Kit

WARNING

Material:
Drycleaning Solvent (D1)
Epoxy Primer (D13)
Paint (D21)
Rubber Gloves (D119)
Sandpaper (D11)
Wiping Rags (D53)

Drycleaning solvent (D1), epoxy primer (D13), and paint (D21) are flammable and toxic. They can irritate skin and cause burns. Use only in well-ventilated area away from heat and open flame. Wear rubber gloves (D119) and goggles. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

CLEAN

1. Clean crosstube support surface with drycleaning solvent (D1).
2. Dry crosstube support with a wiping rag (D53).

INSPECT

3. Inspect crosstube support to limits shown. If damage is beyond limits, replace crosstube support.
4. Inspect nutplates for damage. No damage allowed.

REPAIR

5. Polish out reparable damage using sandpaper (D11).
6. Apply coat of epoxy primer (D13) to repair area followed by coat of paint (D21).
7. Replace damaged nutplates (Task R-1-32).

INSPECT

GO TO NEXT PAGE

R-1-33. CLEAN, INSPECT, AND REPAIR RAPID DEPLOYMENT FORWARD CROSSTUBE COMPONENTS (CONT)



DAMAGE LOCATION SYMBOLS



TYPE OF DAMAGE

MAXIMUM DAMAGE AND REPAIR DEPTH

MECHANICAL:

0.010 in. before repair
0.020 in. after repair

CORROSION:

0.010 in. before repair
0.020 in. after repair

MAXIMUM AREA
FULL DEPTH REPAIR

0.50 Sq. in.

MAXIMUM NUMBER
OF REPAIRS

One per segment

EDGE CHAMFER

0.030 in. x 45°

NOTE:

No cracks permitted.

406060-512
G7123

END OF TASK

R-1-34. REMOVE/INSTALL RAPID DEPLOYMENT AFT CROSSTUBE

This task covers: Removal and Installation (Off Helicopter)

INITIAL SETUP

Personnel Required:

67S Scout Helicopter Technical Inspector

67S Scout Helicopter Repairer

Applicable Configurations:
OH-58D (Special Mission)

Tools:

Aircraft Mechanic Tool Kit

GO TO NEXT PAGE

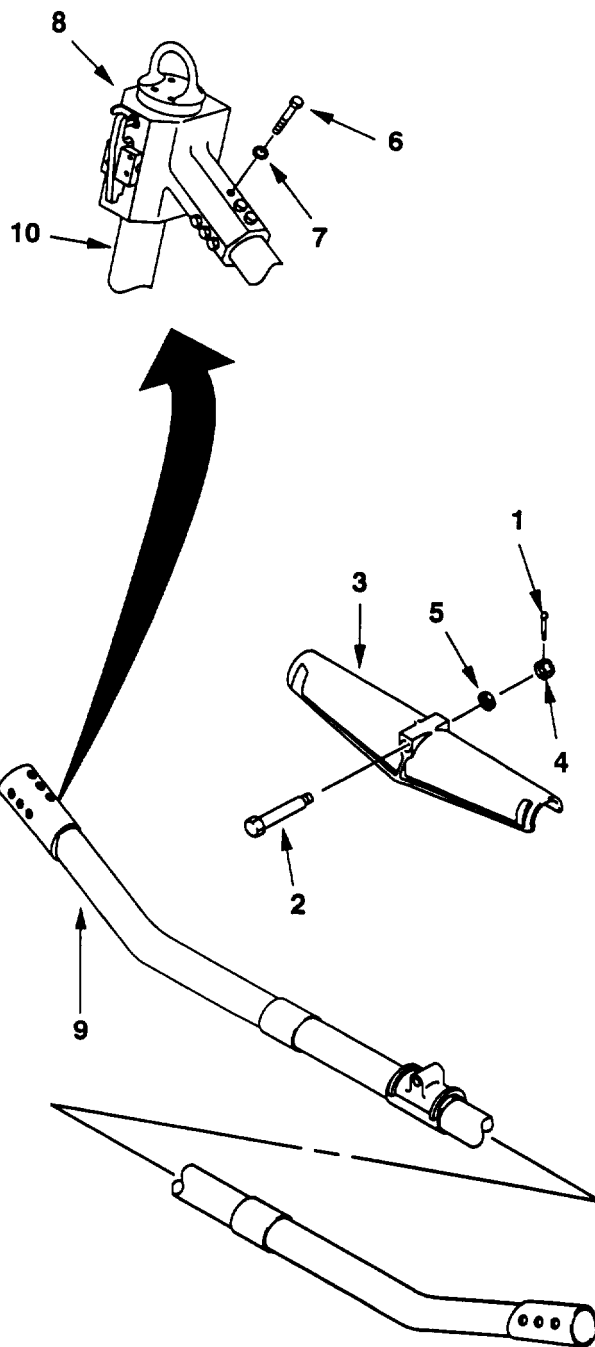
R-1-34. REMOVE/INSTALL RAPID DEPLOYMENT AFT CROSSTUBE (CONT)

REMOVE

1. Remove cotter pin(1) from center bolt (2) in aft crosstube support beam (3).
2. Remove nut (4), washer (5), and center bolt (2).
3. Remove aft crosstube support beam (3).
4. Remove 12 bolts (6) and 12 washers (7) from fitting (8).
5. Pull ends of crosstube (9) from fittings (8) and separate leg assemblies (1) from crosstube (9).

INSTALL

6. Insert ends of aft crosstube (9) into fittings (8) to assemble leg assemblies (10) and aft skid tube (9).
7. Install 12 washers (7) and 12 bolts (6) on fittings (8) to secure to crosstube (9).
8. Place aft crosstube support beam (3) in position. Secure with bolt (2), washer (5), nut (4), and cotter pin (1).

INSPECT406052-80
G6607

END OF TASK

R-1-35. CLEAN, INSPECT. AND REPAIR RAPID DEPLOYMENT AFT CROSSTUBE

This task covers: Cleaning, Inspection, and Repair (Off Helicopter)

INITIAL SETUP

Personnel Required:
67S Scout Helicopter Technical Inspector
67S Scout Helicopter Repairer

Applicable Configurations:
OH-58D (Special Mission)

General Safety Instructions:

Tools:
Air Compressor Unit
Aircraft Mechanic Tool Kit

WARNING

Material:
Alodine 1200 (D26)
Drycleaning Solvent (D1)
Epoxy Primer (D13)
Paint (D21)
Rubber Gloves (D119)
Sandpaper (D11)
Wiping Rags (D53)

Drycleaning solvent (D1), epoxy primer (D13), paint (D21), and Alodine (D26) are flammable and toxic. They can irritate skin and cause burns. Use only in well-ventilated area away from heat and open flame. Wear rubber gloves (D119) and goggles. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

CLEAN

CAUTION

1. Clean aft crosstube surface with drycleaning solvent (D1).

When overlapping damage is repaired, use most critical maximum limits for entire repair area.

2. Dry aft crosstube surface with a wiping rag (D53).

5. Polish out reparable damage using sandpaper (D11).

INSPECT

3. Inspect crosstube for scratches, nicks, cracks, corrosion, and dents. If damage is beyond limits, replace crosstube.

a. Corrosion shall be cleaned up to twice the visible corrosion depth and the blend out area shall not exceed the limits of steps 3 and 4.

4. Minimum distance between longitudinal nick or scratch repairs is 2 inches. Circumferential scratches must not exceed a 45° arc. No cracks or sharp dents are permitted.

b. On all bare aluminum, brush or spray an application of chemical conversion material (Alodine 1200) (D26).

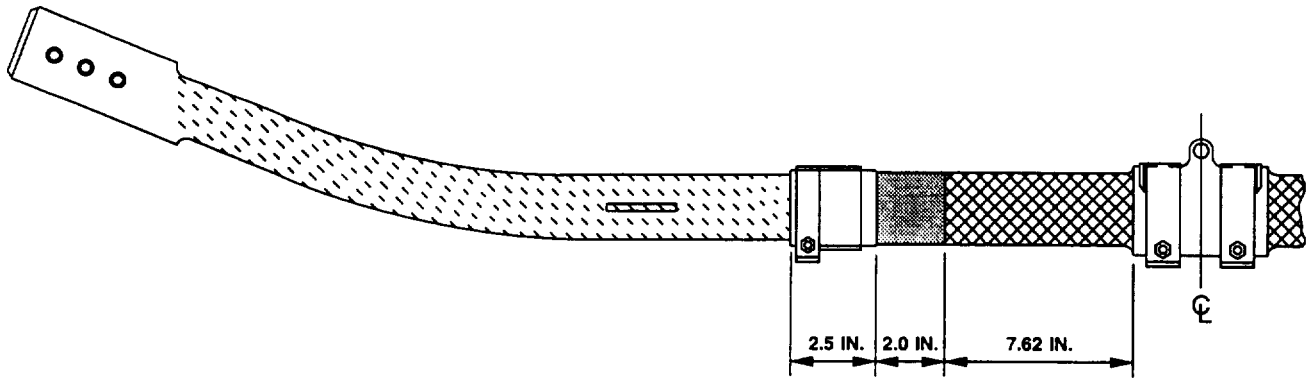
6. Apply coat of epoxy primer (D13) followed by coat of paint (D21) to repair area.

REPAIR





INSPECT

GO TO NEXT PAGE

R-1-35. CLEAN, INSPECT, AND REPAIR RAPID DEPLOYMENT AFT CROSSTUBE (CONT)



AFT CROSSTUBE

TYPE OF DAMAGE	DAMAGE LOCATION SYMBOLS			
				
	MAXIMUM DAMAGE AND REPAIR DEPTH			
NICKS, SCRATCHES AND CORROSION DEPTH LIMITS	0.004 in.	0.008 in.	0.018 in.	0.024 in.
MAXIMUM REPAIR LENGTH ALONG CIRCUMFERENCE OF TUBE	0.100 in.	0.200 in.	0.200 in.	0.400 in.

NOTE:

No cracks permitted.

408060-514
Q7725

END OF TASK

R-1-36. REMOVE/INSTALL RAPID DEPLOYMENT AFT CROSSTUBE COMPONENTS

This task covers: Removal and Installation (Off Helicopter)

INITIAL SETUP

Adhesive (D28)
Sealing Compound (D20)

Applicable Configurations:
OH-58D (Special Mission)

Personnel Required:
67S Scout Helicopter Technical Inspector
67S Scout Helicopter Repairer (4)
68G Aircraft Structural Repairer

Tools:
Aircraft Mechanic Tool Kit
Airframe Repairer Tool Kit
Acid Swabbing Brush
Air Compressor Unit
Goggles
Hose Assembly
Protractor

References:
TM 1-1500-204-23

Equipment Condition:
Aft Crosstube Support Beam Removed (Task R-1-38)

Parts:
Clamps
Cotter Pins
Nutplate
Rivets

WARNING

Material:
Dynasolve 160 (D22)
Aliphatic Naphtha (D7)
Wiping Rag (D53)
Soap Cleaning Compound (D23)
Abrasive Mats (D24)
Scouring Pads (D25)
Alodine 1200 (D26)
Tack Rag (D27)

Sealing compound (D20), Dynasolve 160 (D22), Alodine (D26), adhesive (D28), and aliphatic naphtha (D7) are flammable and toxic. They can irritate skin and cause burns. Use only in well-ventilated area away from heat and open flame. Wear rubber gloves (D119) and goggles. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

GO TO NEXT PAGE

R-1-36. REMOVE/INSTALL RAPID DEPLOYMENT AFT CROSSTUBE COMPONENTS (CONT)

REMOVE CLAMPS

1. Apply Dynasolve 160 (D22) with an acid swabbing brush to two clamps (1). Remove two clamps (1).
2. Apply Dynasolve 160 (D22) with an acid swabbing brush to two clamps (2). Remove two clamps (2).

REMOVE SUPPORT/STRAPS

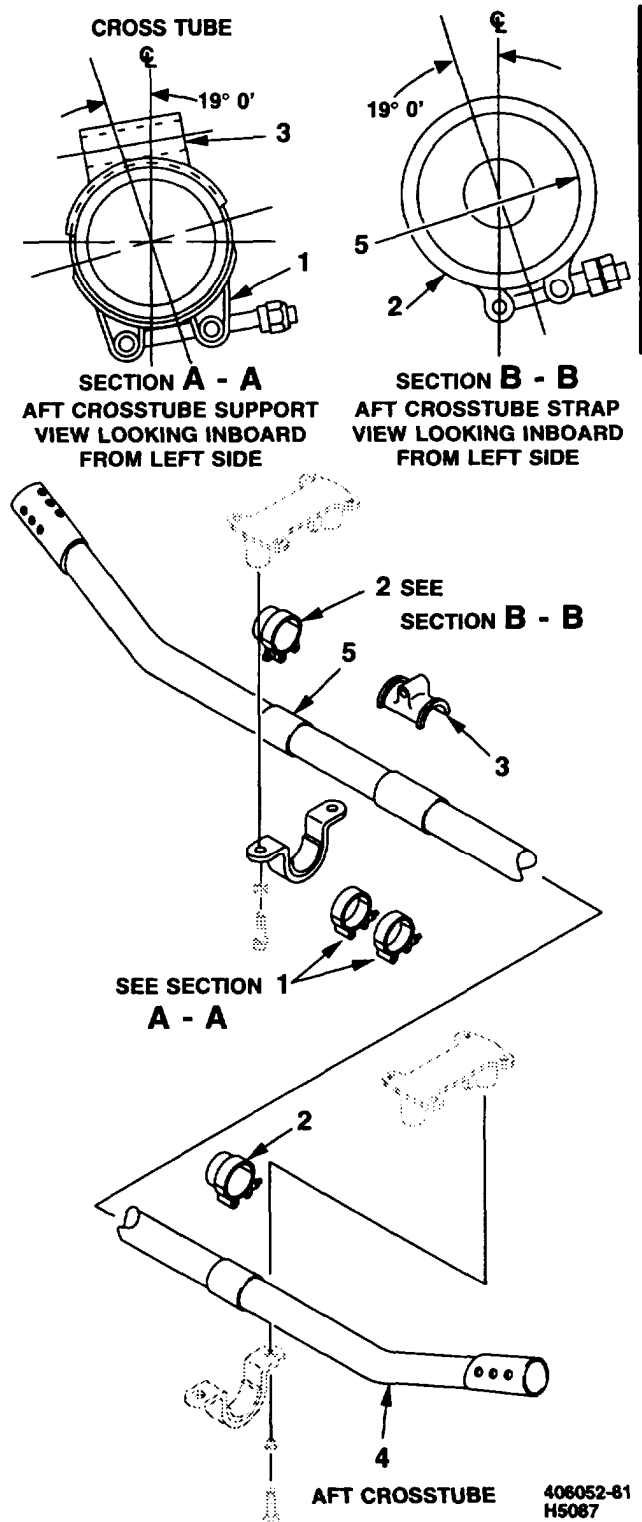
3. Apply Dynasolve 160 (D22) with an acid swabbing brush around edge of crosstube support (3) to dissolve epoxy sealant. Remove crosstube support (3) from aft crosstube (4).
4. Apply Dynasolve 160 (D22) with an acid swabbing brush around edge of straps (5) to dissolve epoxy sealant. Remove straps (5) from aft crosstube (4).

INSTALL SUPPORT/STRAPS

5. Clean area of aft crosstube (4) where crosstube support (3) or straps (5) mount as follows:

- a. Clean the surface with aliphatic naphtha (D7) using wiping rag (D53).
 - b. Clean with soap cleaning compound (D23), mixed 4 ounces per gallon in water, and abrasive mats (D24) or scouring pads (D25).
 - c. Brush Alodine 1200 (D26) on surface with acid swabbing brush. Wipe with tack rag (D27).
6. Apply adhesive (D28) to support mounting area of crosstube (3) or mounting area of straps (5).

7. Use a protractor to determine 19 degrees and install crosstube support (3) or straps (5) in position shown in Section A-A or Section B-B.



GO TO NEXT PAGE

R-1-36. REMOVE/INSTALL RAPID DEPLOYMENT AFT CROSSTUBE COMPONENTS (CONT)

INSTALL CLAMPS

8. Apply adhesive (D28) in mounting area of crosstube support (3) and clamps (1) on aft crosstube (4).

9. Install two clamps (1) on crosstube support (3).

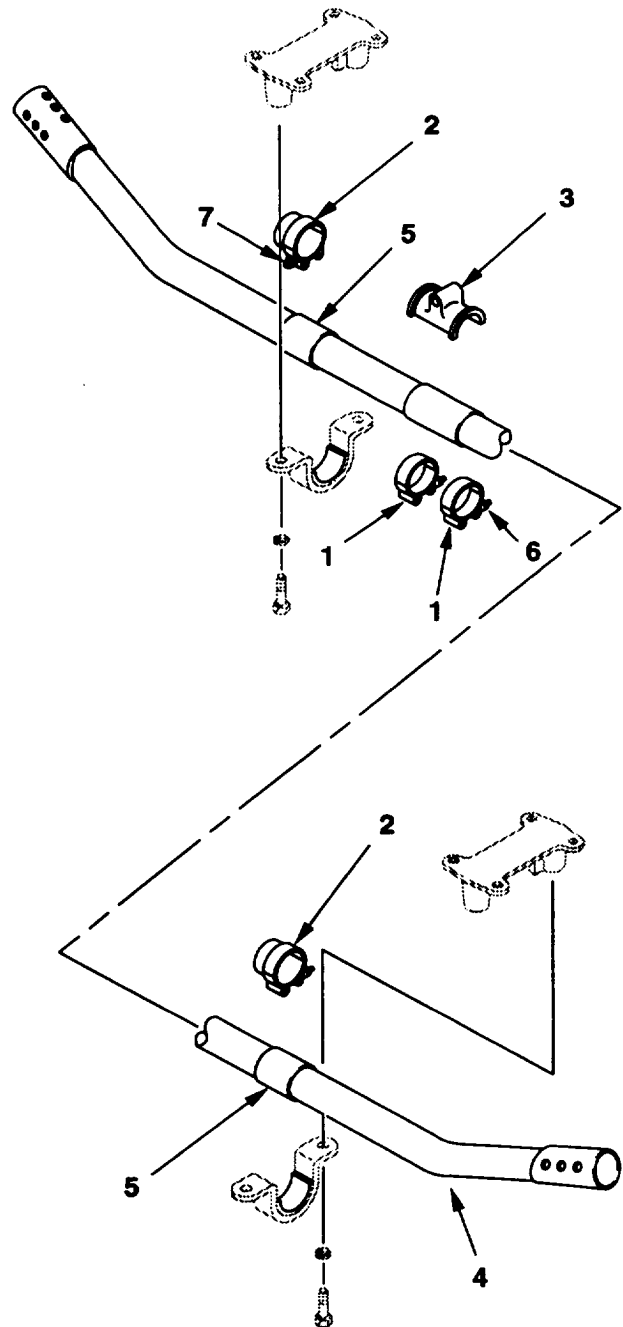
10. Tighten adjustment nuts (6) within 30 minutes of adhesive application. Retighten clamps (1) as required after adhesive has cured (24 hours minimum).

11. Apply bead of sealing compound (D20) around mating edge of support (3).

12. Apply adhesive (D28) in mounting area of crosstube straps (5) and clamps (2).

13. Install two clamps (2) on straps (5).

14. Tighten adjustment nuts (7) within 30 minutes of adhesive application. Retighten clamps (2) as required after adhesive has cured (24 hours minimum).



406052-82
G6609

GO TO NEXT PAGE

R-1-36. REMOVE/INSTALL RAPID DEPLOYMENT AFT CROSSTUBE COMPONENTS (CONT)

REMOVE NUTPLATE

WARNING

Compressed air is dangerous when directed toward yourself or another person. The airstream or material blown by the airstream can cause injury, particularly to the eyes and face. Use goggles to protect eyes and face. Do not exceed 30 psig.

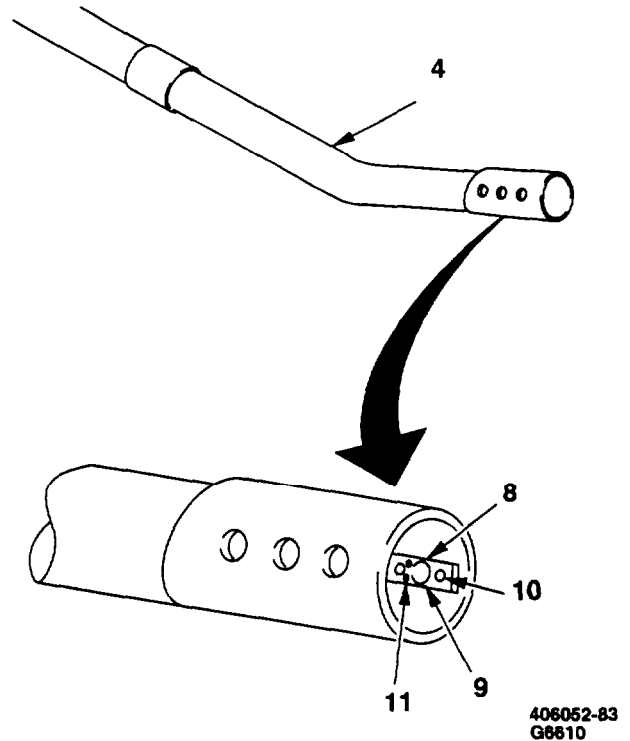
15. Remove nutplate assembly (8) having damaged nutplate (9) by drilling out rivets (10) (TM 1-1500-204-23).

16. Remove damaged nutplate (9) from nutplate assembly (8) by drilling out rivets (11).

INSTALL NUTPLATE

17. Install nutplate (9) on nutplate assembly (8) using two rivets (11) (TM 1-1500-204-23).

18. Install nutplate assembly (8) inside aft crosstube assembly (4) with rivets (10).

INSPECT

END OF TASK

R-1-37. CLEAN, INSPECT, AND REPAIR RAPID DEPLOYMENT AFT CROSSTUBE COMPONENTS

This task covers: Cleaning, Inspection, and Repair (Off Helicopter)

INITIAL SETUP

Applicable Configurations:
OH-58D (Special Mission)

Tools:
Aircraft Mechanic Tool Kit
Airframe Repairer Tool Kit

Material:
Drycleaning Solvent (D1)
Epoxy Primer (D13)
Paint (D21)
Rubber Gloves (D119)
Sandpaper (D11)
Wiping Rag (D53)

Personnel Required:
67S Scout Helicopter Technical Inspector
67S Scout Helicopter Repairer
68G Aircraft Structural Repairer

General Safety Instructions:

WARNING

Drycleaning solvent (D1), epoxy primer (D13), and paint (D21), are flammable and toxic. They can irritate skin and cause burns. Use only in well-ventilated area away from heat and open flame. Wear rubber gloves (D119) and goggles. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

CLEAN

1. Clean crosstube support surface with drycleaning solvent (D1).
2. Dry crosstube support with a wiping rag (D53).

INSPECT

3. Inspect aft crosstube support to limits shown. If damage is beyond limits, replace aft crosstube support.
4. Inspect nutplates for damage. No damage allowed.

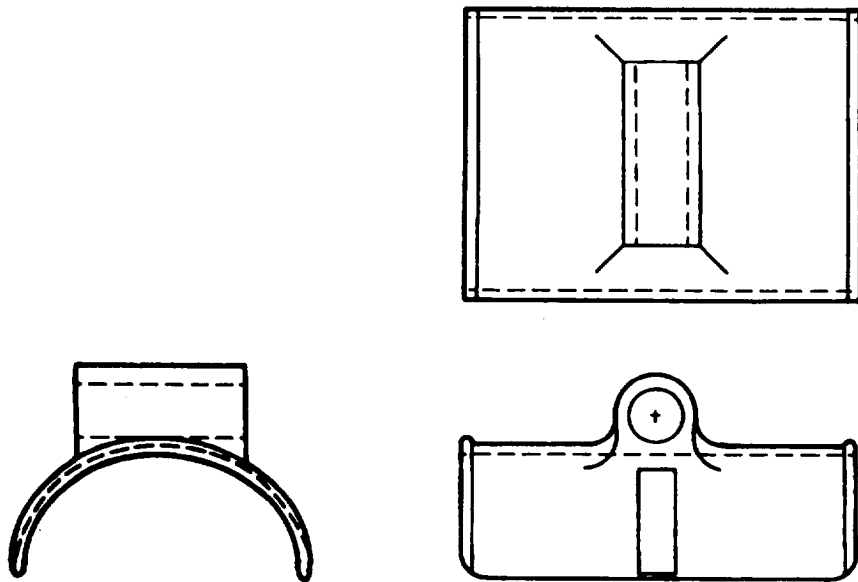
REPAIR

5. Polish out reparable damage using sandpaper (D11).
6. Replace damaged nutplates (Task R-1-36).

INSPECT

GO TO NEXT PAGE

R-1-37. CLEAN, INSPECT, AND REPAIR RAPID DEPLOYMENT AFT CROSSTUBE COMPONENTS
(CONT)



AFT CROSSTUBE SUPPORT

DAMAGE LOCATION SYMBOLS



TYPE OF DAMAGE

MAXIMUM DAMAGE AND REPAIR DEPTH

MECHANICAL:

0.010 before repair
0.020 after repair

CORROSION:

0.010 before repair
0.020 after repair

MAXIMUM AREA PER
FULL DEPTH REPAIR

0.25 Sq. in.

NUMBER OF REPAIRS

Not critical

EDGE CHAMFER

0.030 in. x 45°

BORE DAMAGE

0.002 in. x 1/4
circumference

NOTE:

No cracks permitted.

408080-515
H3429

END OF TASK

Change 1

R-97

R-1-38. REMOVE/INSTALL RAPID DEPLOYMENT AFT CROSSTUBE SUPPORT BEAM AND COMPONENTS

This task covers: Removal and Installation (Off Helicopter)

INITIAL SETUP

References:
TM 1-1500-204-23

Applicable Configurations:
OH-58D (Special Mission)

General Safety Instructions:

Tools:
Aircraft Mechanic Tool Kit
Airframe Repairer Tool Kit

WARNING

Material:
Sealing Compound (D20)

Compressed air is dangerous when directed toward yourself or another person. The airstream or material blown by the air stream can cause injury, particularly to the eyes and face. Use goggles to protect eyes and face. Do not exceed 30 psig.

Personnel Required:
67S Scout Helicopter Technical Inspector
67S Scout Helicopter Repairer (4)
68G Aircraft Structural Repairer

GO TO NEXT PAGE

R-1-38. REMOVE/INSTALL RAPID DEPLOYMENT AFT CROSSTUBE SUPPORT BEAM AND COMPONENTS (CONT)

REMOVE SUPPORT BEAM

1. Remove cotter pin (1) from center bolt (2) in support beam (3).
2. Remove nut (4) from center bolt (2).
3. Remove washer (5), center bolt (2), and support beam (3).

REMOVE BEARING CAP

4. Remove bearing caps (6) by drilling out two rivets (7) from each end of support beam (3).

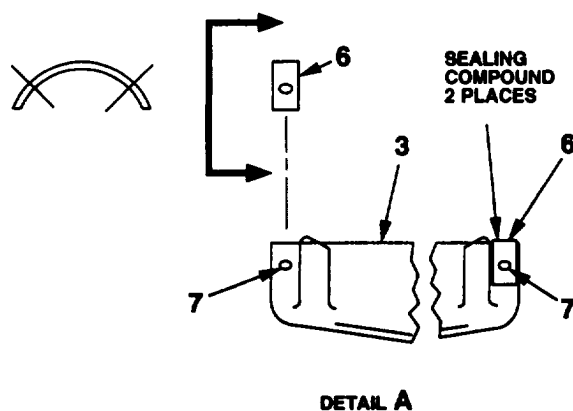
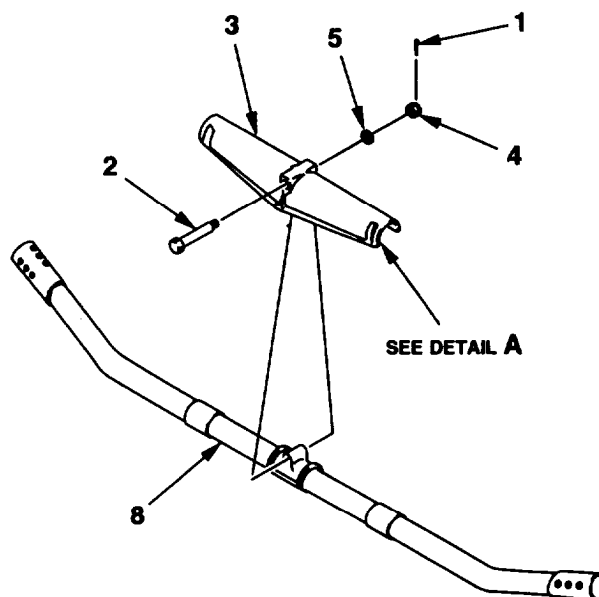
INSTALL BEARING CAP

5. Position bearing cap (6) on support beam (3) and match drill two holes as indicated.
6. Install bearing caps (6) using two rivets (7) at each end.
7. Flush both sides of rivets (7) (TM 1-1500-204-23).
8. Apply bead of sealing compound (D20) along edges of bearing caps.

INSTALL SUPPORT BEAM

9. Place support beam (3) in position on aft crosstube (8).
10. Install center bolt (2), washer (5), and nut (4). Secure with cotter pin (1).

INSPECT



406052-84
H3429

END OF TASK

R-1-39. CLEAN, INSPECT, AND REPAIR RAPID DEPLOYMENT AFT CROSSTUBE SUPPORT BEAM AND COMPONENTS

This task covers: Cleaning, Inspection, and Repair (Off Helicopter)

INITIAL SETUP

Applicable Configurations:
OH-58D (Special Mission)

Tools:
Aircraft Mechanic Tool Kit
Airframe Repairer Tool Kit

Material:
Drycleaning Solvent (D1)
Epoxy Primer (D13)
Paint (D21)
Rubber Gloves (D119)
Sandpaper (D11)
Wiping Rags (D53)

Personnel Required:
67S Scout Helicopter Technical Inspector
67S Scout Helicopter Repairer
68G Aircraft Structural Repairer

General Safety Instructions:

WARNING

Drycleaning solvent (D1), epoxy primer (D13), and paint (D21), are flammable and toxic. They can irritate skin and cause burns. Use only in well-ventilated area away from heat and open flame. Wear rubber gloves (D119) and goggles. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

CLEAN

1. Clean support beam surface with drycleaning solvent (D1).
2. Dry support beam with a wiping rag (D53).

INSPECT

3. Inspect support beam to limits shown. If damage is beyond limits, replace support beam (Task R-1-38).
4. Inspect support beam bearing caps to limits shown. If damage is beyond limits, replace bearing caps (Task R-1-38).

5. Inspect support beam bushings to limits shown. If damage is beyond limits, replace bushings (Task R-1-40).

REPAIR

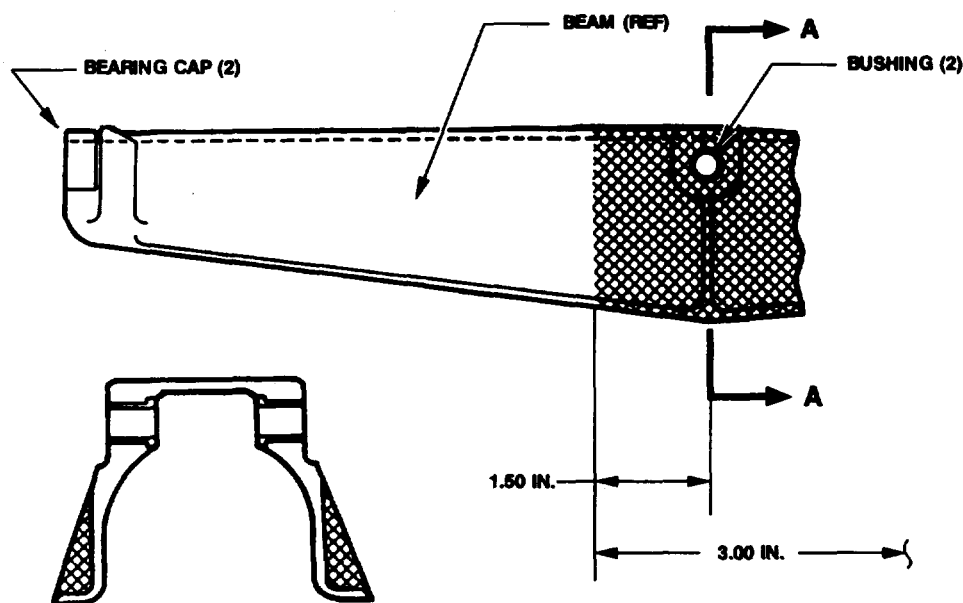
6. Polish out reparable damage using sandpaper (D11).

7. Apply coat of epoxy primer (D13) to repair area followed by coat of paint (D21).

INSPECT

GO TO NEXT PAGE

R-1-39. CLEAN, INSPECT, AND REPAIR RAPID DEPLOYMENT AFT CROSSTUBE SUPPORT BEAM AND COMPONENTS (CONT)



SECTION A-A

AFT CROSSTUBE SUPPORT BEAM ASSEMBLY

DAMAGE LOCATION SYMBOLS



TYPE OF DAMAGE

MECHANICAL:

0.010 in. before repair
0.020 in. after repair

0.010 in. before repair
0.020 in. after repair

CORROSION:

0.010 in. before repair
0.020 in. after repair

0.010 in. before repair
0.020 in. after repair

MAXIMUM AREA FULL DEPTH REPAIR

0.25 Sq. in.

0.50 Sq. in.

MAXIMUM NUMBER OF REPAIRS

2

Not critical

BORE DAMAGE

0.002 in. x 1/4
circumference

NOTE:

No cracks permitted.

406060-513
H3429

END OF TASK

Change 1

R-101

R-1-40. REMOVE/INSTALL RAPID DEPLOYMENT AFT CROSSTUBE SUPPORT BEAM BUSHING (AVIM)

This task covers: Removal and Installation (Off Helicopter)

INITIAL SETUP

Material:
Epoxy Primer (D13)
Rubber Gloves (D119)

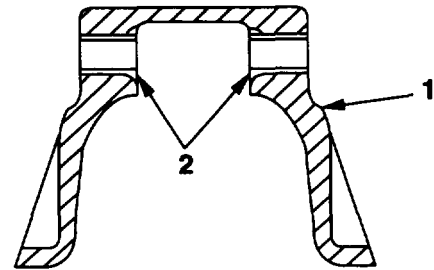
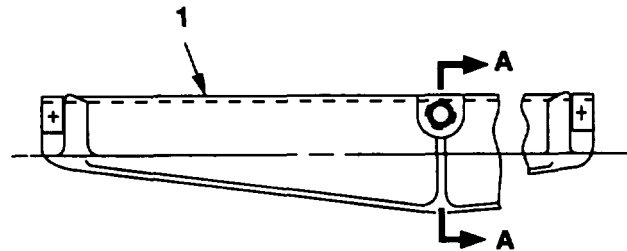
Applicable Configurations:
OH-58D (Special Mission)

Personnel Required:
67S Scout Helicopter Technical Inspector
67S Scout Helicopter Repairer

Tools:
Aircraft Mechanic Tool Kit
Arbor Press

REMOVE

1. Place support beam (1) on arbor press and remove two bushings (2).



SECTION A - A

406052-65
H3429

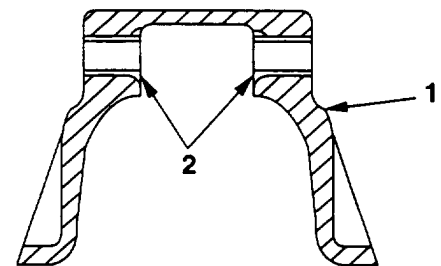
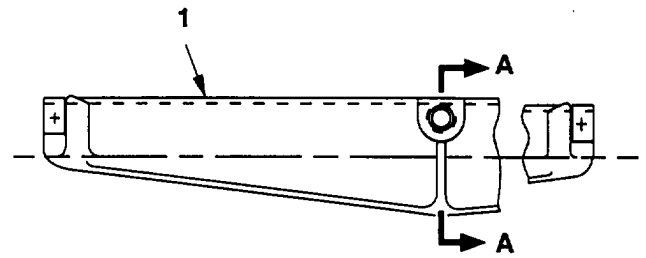
GO TO NEXT PAGE

R-1-40. REMOVE/INSTALL RAPID DEPLOYMENT AFT CROSSTUBE SUPPORT BEAM BUSHING (AVIM) (CONT)

INSTALL**WARNING**

Epoxy primer (D13) is flammable and toxic. It can irritate and cause burns. Use only in well-ventilated area away from heat and open flame. Wear rubber gloves (D119) and goggles. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

2. Apply coat of epoxy primer (D13) to bushings (2).
3. Place support beam (1) on arbor press and position bushing (2) over hole in beam (1).
4. Use suitable metal block and drift pin to press bushing (2) in place.
5. Turn beam over (installed bushing side down).
6. Place support beam (1) on arbor press and position bushing (2) over hole in beam (1).
7. Use suitable metal block and drift pin to press bushing (2) in place.
8. Line ream bushings (2) with 0.437 inch reamer.

INSPECT

SECTION A - A

406052-85
G6127

END OF TASK

R-1-41. REMOVE/INSTALL RAPID DEPLOYMENT TOW FITTINGS

This task covers: Removal and Installation (On Helicopter)

INITIAL SETUP

Material:
Sealing Compound (D20)

Applicable Configurations:
OH-58D (Special Mission)

Personnel Required:
67S Scout Helicopter Repairer

Tools:
Aircraft Mechanic Tool Kit

R-1-41. REMOVE/INSTALL RAPID DEPLOYMENT TOW FITTINGS (CONT)

REMOVE

1. Remove screw (1), steel washer (2), aluminum washer (3), and tow fitting (4) from landing gear (5) (4 places).

INSTALL

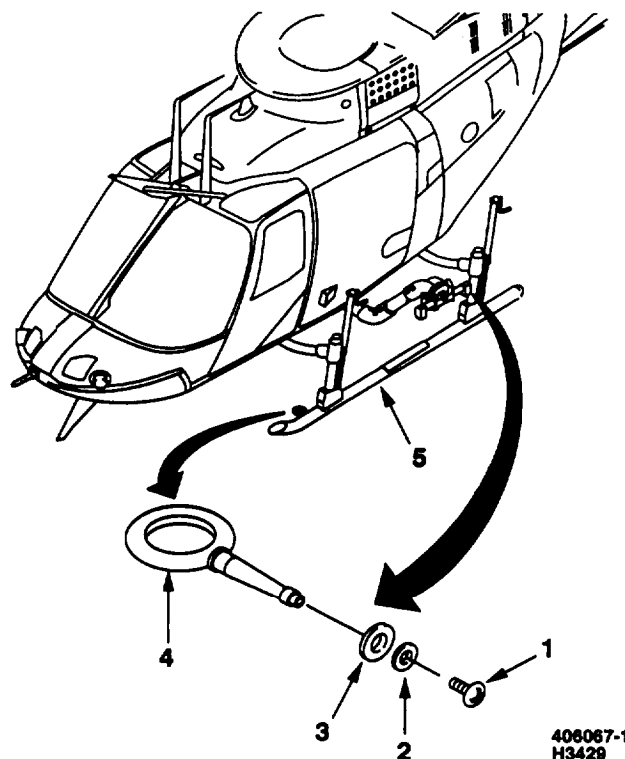
2. Install tow fitting (4) in mount holes (4 places) in landing gear (5).

3. Secure tow fitting (4) with aluminum washer (3), steel washer (2), and screw (1).

WARNING

Sealing compound is flammable, Do not use near heat, open flames, or sparks, Overexposure can cause irritation of skin and eyes, headache, nausea, vomiting, and systemic problems. Thoroughly wash skin area with soap and water and immediately flush eyes with water for 15 minutes. In all cases get immediate medical attention. Wear approved protective gloves and goggles. Avoid breathing of vapors and prolonged or repeated skin contact.

4. Apply a bead of sealing compound (D20) around tow fitting (4) at juncture with landing gear.

408067-1
H3429

END OF TASK

R-1-42. CLEAN, INSPECT, AND REPAIR RAPID DEPLOYMENT TOW FITTINGS

This task covers: Cleaning, Inspection, and Repair (Off Helicopter)

INITIAL SETUP

Applicable Configurations:
OH-58D (Special Mission)

Tools:
Aircraft Mechanic Tool Kit
Airframe Repairer Tool Kit

Parts:
Rivets (As Required)

Material:

Drycleaning Solvent (D1)
Rubber Gloves (D119)
Wiping Rags (D53)

Personnel Required:

67S Scout Helicopter Technical Inspector
67S Scout Helicopter Repairer
68G Aircraft Structural Repairer

GO TO NEXT PAGE

R-1-42. CLEAN, INSPECT, AND REPAIR RAPID DEPLOYMENT TOW FITTINGS (CONT)

CLEAN

WARNING

Drycleaning solvent (D1) is flammable and toxic. it can irritate skin and cause burns. Use only in well-ventilated area away from heat and open flame. Wear gloves (D119) and goggles. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

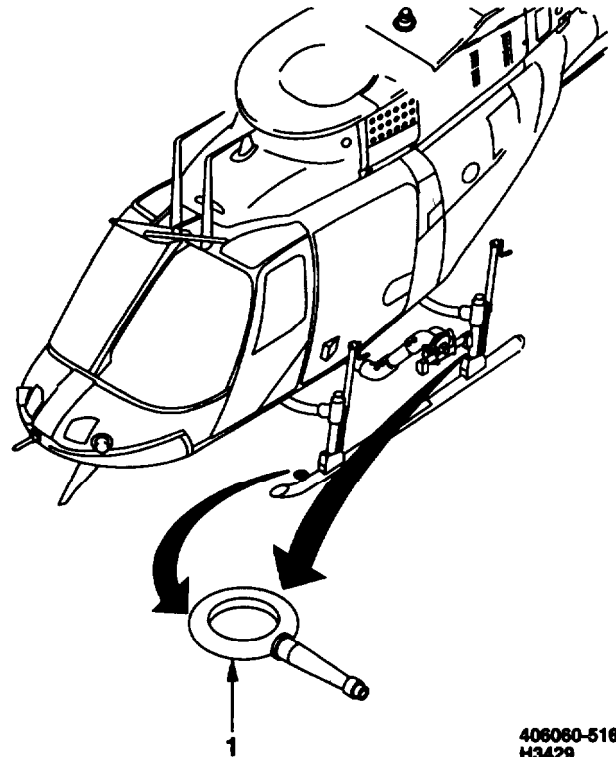
1. Clean tow fittings (1) with drycleaning solvent (D1).
2. Dry with clean wiping rags (D53).

INSPECT

3. Inspect tow fittings for deformation, cracks, dents, and scratches.

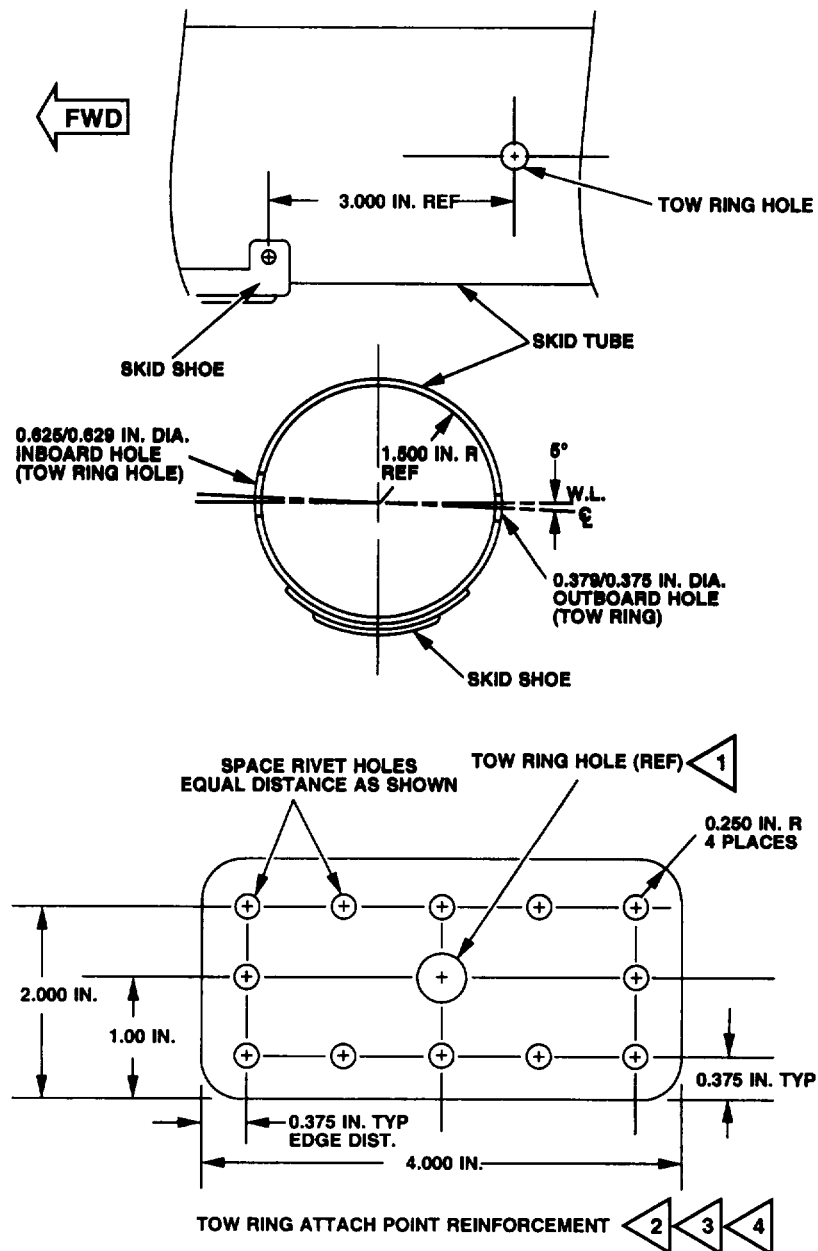
REPAIR

4. Replace unserviceable tow fittings (Task R-1-41).
5. Patch skid tube as shown and insert tow fitting as shown.

INSPECT

GO TO NEXT PAGE

R-1-42. CLEAN, INSPECT, AND REPAIR RAPID DEPLOYMENT TOW FITTINGS (CONT)



NOTES:

- 1 Inside reinforcement plate tow ring hole 0.625 in. to 0.629 in. diameter.
Outside reinforcement plate tow ring hole 0.375 in. to 0.379 in. diameter.
- 2 Material: 4.000 in. x 2.000 in. x 0.120 in. 2024 T3 ALUM.
- 3 Contour to fit skid tube.
- 4 Attach to skid tube with 3/16 in. diameter Cherry rivets.

406080-517
H3429

END OF TASK

R-1-43. REMOVE/INSTALL RAPID DEPLOYMENT LEG AND KNUCKLE ASSEMBLY

This task covers: Removal and Installation (On Helicopter)

INITIAL SETUP

Parts:

Rivets (As Required)

Applicable Configurations:

OH-58D (Special Mission)

Personnel Required:

67S Scout Helicopter Technical Inspector

67S Scout Helicopter Repairer

68G Aircraft Structural Repairer

Tools:

Aircraft Mechanic Tool Kit

Airframe Repairer Tool Kit

Equipment Condition:

Helicopter on Jacks (Task 1-6-9)

GO TO NEXT PAGE

R-1-43. REMOVE/INSTALL RAPID DEPLOYMENT LEG AND KNUCKLE ASSEMBLY (CONT)

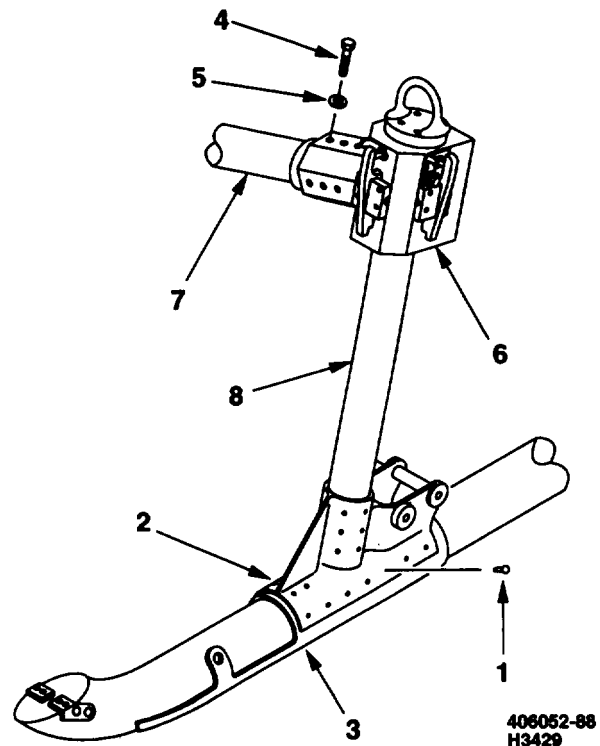
REMOVE

1. Remove rivets (1) that secure saddle (2) to landing gear skid tube (3).
2. Remove bolts (4) and washers (5) that secure knuckle (6) to crosstube (7).
3. Slide knuckle (6) with leg (8) and saddle (2) off crosstube (7).

INSTALL

4. Slide knuckle (6) with leg (8) and saddle (2) onto crosstube (7).
5. Install bolts (4) with washers (5) to secure knuckle (6) to crosstube (7).
6. Install rivets (1) to secure saddle (2) to landing gear skid tube (3).

INSPECT



END OF TASK

R-1-44. CLEAN, INSPECT, AND REPAIR RAPID DEPLOYMENT LEG AND KNUCKLE ASSEMBLY

This task covers: Cleaning, Inspection, and Repair (Off Helicopter)

INITIAL SETUP

Applicable Configurations:
OH-58D (Special Mission)

Tools:
Airframe Repairer Tool Kit
Aircraft Mechanic Tool Kit

Material:
Drycleaning Solvent (D1)
Epoxy Primer (D13)
Paint (D21)
Rubber Gloves (D119)
Sandpaper (D11)
Wiping Rags (D53)

Personnel Required:
67S Scout Helicopter Repairer
68G Aircraft Structural Repairer

General Safety Instructions:

WARNING

Drycleaning solvent (D1), epoxy primer (D13), and paint (D21) are flammable and toxic. They can irritate skin and cause burns. Use only in well-ventilated area away from heat and open flame. Wear rubber gloves (D119) and goggles. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

CLEAN

1. Clean leg and knuckle assembly surfaces with drycleaning solvent (D1).
2. Dry leg and knuckle assemblies with a wiping rag (D53).

INSPECT

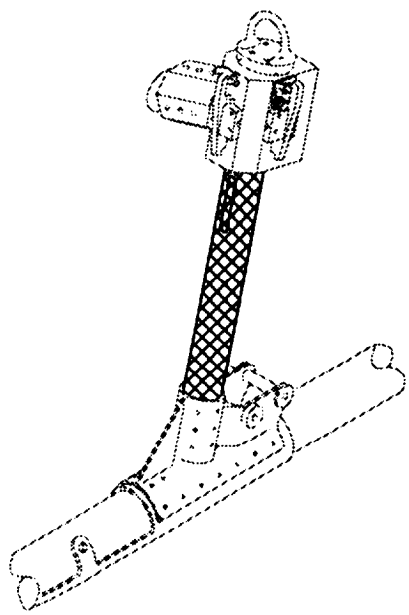
3. Inspect the leg and knuckle assemblies for loose, damaged, or missing attachment bolts, pins, or rivets; distorted, broken, or cracked welds.
4. Inspect leg and knuckle assemblies to limits shown. If damage is beyond limits, replace leg/knuckle assembly (Task R-1-43).

REPAIR

5. Polish out reparable damage using sandpaper (D11).
6. Apply a coat of epoxy primer (D13) to repair area followed by coat of paint (D21).

GO TO NEXT PAGE

R-1-44. CLEAN, INSPECT, AND REPAIR RAPID DEPLOYMENT LEG AND KNUCKLE ASSEMBLY
(CONT)



DAMAGE LOCATION SYMBOL



TYPE OF DAMAGE

MECHANICAL:

**MAXIMUM AREA
FULL DEPTH REPAIR**

MAXIMUM DAMAGE AND REPAIR DEPTH

**0.020 in. before repair
0.030 in. after repair**

1.0 Sq. in.

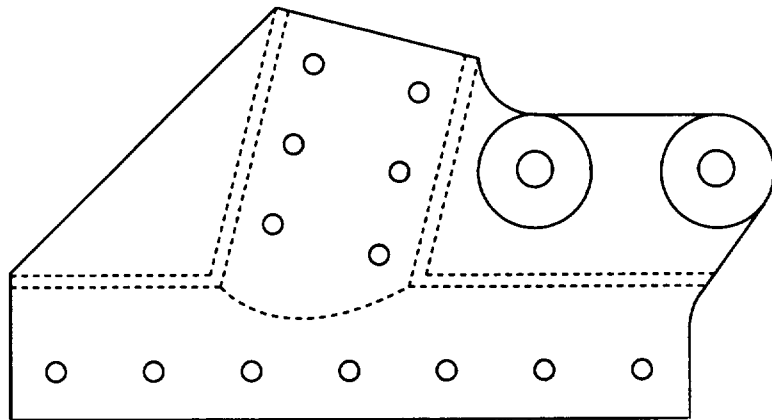
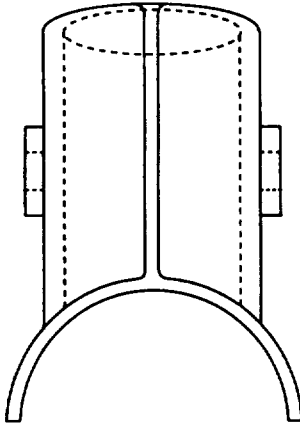
NOTE:

No cracks permitted.

**406052-02
G7730**

GO TO NEXT PAGE

R-1-44. CLEAN, INSPECT, AND REPAIR RAPID DEPLOYMENT LEG AND KNUCKLE ASSEMBLY
(CONT)

**DAMAGE LOCATION SYMBOL****TYPE OF DAMAGE****MAXIMUM DAMAGE AND REPAIR DEPTH****MECHANICAL:**

0.010 in. before repair
0.020 in. after repair

CORROSION:

0.010 in. before repair
0.020 in. after repair

**MAXIMUM AREA
FULL DEPTH REPAIR**

0.25 Sq. in.

**MAXIMUM NUMBER
OF REPAIRS**

Not critical

EDGE CHAMFER

0.030 in. x 45°

BORE DAMAGE

0.002 in. x 1/4
circumference

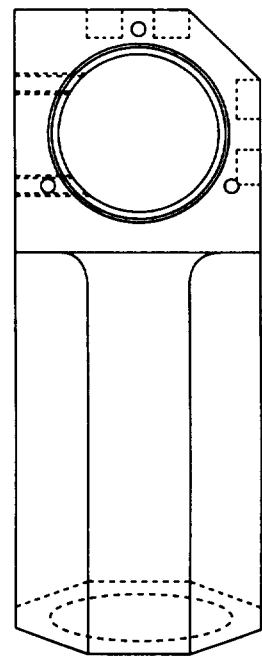
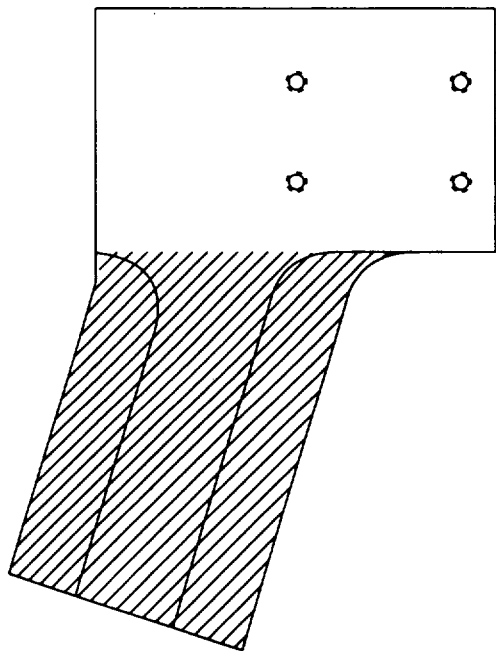
NOTES:

No cracks permitted.

406052-93
G7731

GO TO NEXT PAGE

R-1-44. CLEAN, INSPECT, AND REPAIR RAPID DEPLOYMENT LEG AND KNUCKLE ASSEMBLY
(CONT)



DAMAGE LOCATION SYMBOLS



TYPE OF DAMAGE

MAXIMUM DAMAGE AND REPAIR DEPTH

MECHANICAL:

0.010 in. 0.10 in.

CORROSION:

0.005 in. before repair 0.050 in. before repair
0.010 in. after repair 0.10 in. after repair

MAXIMUM LENGTH OF DAMAGE

0.050 in.

MAXIMUM AREA
FULL DEPTH REPAIR

0.25 Sq. in. 1.0 Sq. in.

MAXIMUM NUMBER
OF REPAIRS

Two per surface

EDGE CHAMFER

0.020 in. x 45° 0.030 in. x 45°

BORE DAMAGE

0.001 in. x 1/4
circumference

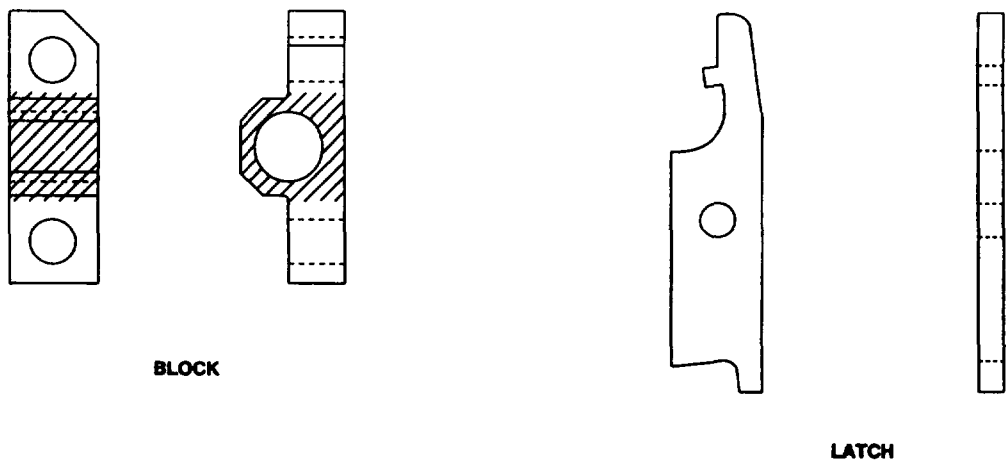
NOTE:



No cracks permitted.

406052-96
H3429

GO TO NEXT PAGE

R-1-44. CLEAN, INSPECT, AND REPAIR RAPID DEPLOYMENT LEG AND KNUCKLE ASSEMBLY
(CONT)



TYPE OF DAMAGE	DAMAGE LOCATION SYMBOLS	
		
MAXIMUM DAMAGE AND REPAIR DEPTH		
MECHANICAL:	0.010 in.	0.050 in.
CORROSION:	0.010 in.	0.050 in.
MAXIMUM LENGTH OF DAMAGE	0.030 in.	
MAXIMUM AREA FULL DEPTH REPAIR	0.25 Sq. in.	50% Surface area
MAXIMUM NUMBER OF REPAIRS	One per surface	
EDGE CHAMFER	0.020 in. x 45°	0.030 in. x 45°
LUG BORE	0.002 in. x 1/4 circumference	
MOUNTING BORE	0.005 in. x 1/4 circumference	

NOTE:
No cracks permitted.

406062-94
H3429

END OF TASK

R-1-45. REMOVE/INSTALL RAPID DEPLOYMENT MMS PLATFORM BALL AND HOIST BALL

This task covers: Removal and Installation (On Helicopter)

INITIAL SETUP

General Safety Instructions:

Applicable Configurations:
OH-58D (Special Mission)

WARNING

Tools:
Airframe Repairer Tool Kit
Plastic Scraper

Material:
Sealing Compound (D20)

Personnel Required:
67S Scout Helicopter Technical Inspector
68G Aircraft Structural Repairer

References:
TM 1-1500-204-23

Sealing compound is flammable. Do not use near heat, open flames, or sparks. Overexposure can cause irritation of skin and eyes, headache, nausea, vomiting, and systemic problems. Thoroughly wash skin area with soap and water and immediately flush eyes with water for 15 minutes. In all cases get immediate medical attention. Wear approved protective gloves and goggles. Avoid breathing of vapors and prolonged or repeated skin contact.

GO TO NEXT PAGE

R-1-45. REMOVE/INSTALL RAPID DEPLOYMENT MMS PLATFORM BALL AND HOIST BALL (CONT)

REMOVE

1. Remove six rivets (1) securing platform ball (2) to skid tube (3).

2. Trim sealant from faying surfaces of platform ball (2) and skid tube (3) using a plastic scraper.

3. Trim sealant from faying surfaces of MMS hoist ball (4) and right aft landing gear crosstube shoulder (5).

4. Remove MMS hoist ball (4) from right aft landing gear crosstube shoulder (5).

5. Remove platform ball (2) from skid tube (3).

INSTALL

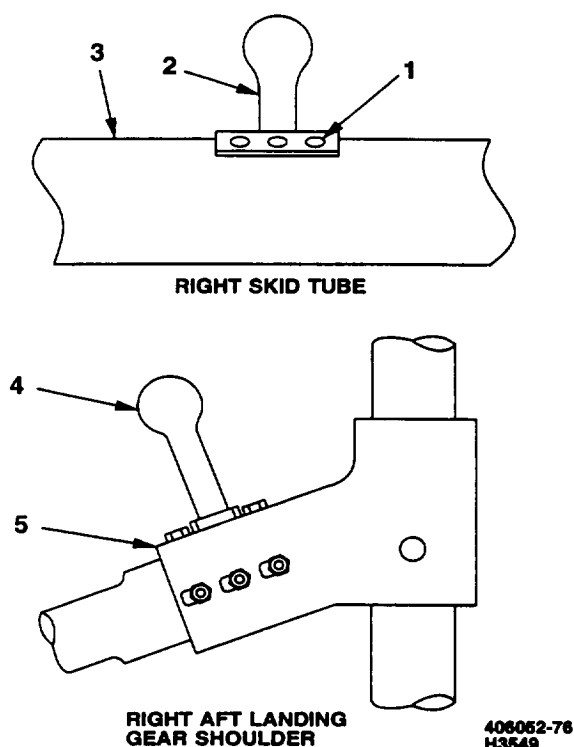
6. Coat mating surfaces of platform ball (4) and skid tube (3) with sealing compound (D20).

7. Coat mating surfaces of MMS hoist ball (4) and right aft landing gear crosstube shoulder (5) with sealing compound (D20).

8. Place platform ball (2) on skid tube (3) and align with rivet holes.

9. Install rivets (1) (TM 1-1500-204-23).

10. Install MMS hoist ball (4) in right aft landing gear crosstube shoulder (5).

INSPECT

END OF TASK

R-1-46. CLEAN, INSPECT, AND REPAIR RAPID DEPLOYMENT MMS PLATFORM BALL AND MMS HOIST BALL

This task covers: Cleaning, Inspection, and Repair (On Helicopter)

INITIAL SETUP

Applicable Configurations:
OH-58D (Special Mission)

Tools:

Airframe Repairer Tool Kit
Aircraft Mechanic Tool Kit

Personnel Required:

67S Scout Helicopter Technical Inspector
67S Scout Helicopter Repairer
68G Aircraft Structural Repairer

General Safety Instructions:

WARNING

Material:

Drycleaning Solvent (D1)
Epoxy Primer (D13)
Paint (D21)
Rubber Gloves (D119)
Sandpaper (D11)
Wiping Rags (D53)

Drycleaning solvent (D1), epoxy primer (D13), and paint (D21) are flammable and toxic. They can irritate skin and cause burns. Use only in well-ventilated area away from heat and open flame. Wear rubber gloves (D119) and goggles. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

CLEAN

1. Clean MMS platform ball surface with drycleaning solvent (D1).
2. Dry MMS platform ball with wiping rag (D53).

INSPECT

3. Inspect the MMS platform ball for loose, damaged, or missing rivets and broken or cracked welds.
4. Inspect MMS platform ball to limits shown. If damage is beyond limits, replace MMS platform ball (Task R-1-45).

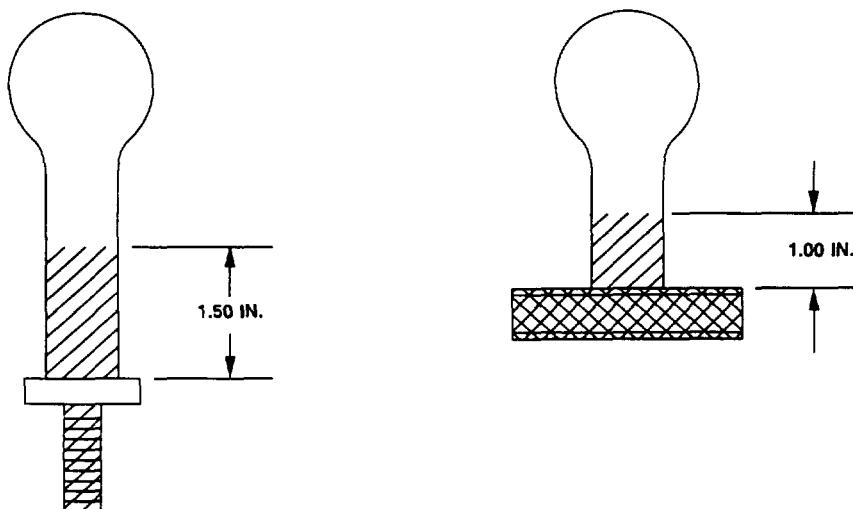
REPAIR

5. Polish out reparable damage using sandpaper (D11).
6. Apply a coat of epoxy primer (D13) to repair area followed by coat of paint (D21).

INSPECT

GO TO NEXT PAGE

R-1-46. CLEAN, INSPECT, AND REPAIR RAPID DEPLOYMENT MMS PLATFORM BALL AND MMS HOIST BALL (CONT)



DAMAGE LOCATION SYMBOLS



TYPE OF DAMAGE

MAXIMUM DAMAGE AND REPAIR DEPTH

MECHANICAL:	0.030 in.	0.050 in.	0.100 in.
CORROSION:	0.015 in. before repair 0.030 in. after repair	0.025 in. before repair 0.050 in. after repair	0.050 in. before repair 0.100 in. after repair
MAXIMUM AREA FULL DEPTH REPAIR	0.500 Sq. in.	1/2 circumference x 0.200 in.	
EDGE CHAMFER	0.040 in. x 45°	NA	NA
THREAD DAMAGE:			
Maximum depth	NA	1/3 Thread depth	NA
Maximum length/pitch	NA	1/4 Circumference	NA
Number of threads	NA	2	NA

NOTE:

No cracks permitted.

406092-8
H2841

END OF TASK

R-1-47. REMOVE/INSTALL NVG NAVIGATION LIGHTS (TYPICAL)

This task covers: Removal and Installation (On Helicopter)

INITIAL SETUP

Material:
Splice (D121)

Applicable Configurations:
OH-58D (Special Mission)

Personnel Required:
67S Scout Helicopter Technical Inspector
68F Aircraft Electrician

Tools:
Electrical Repairer Tool Kit

GO TO NEXT PAGE

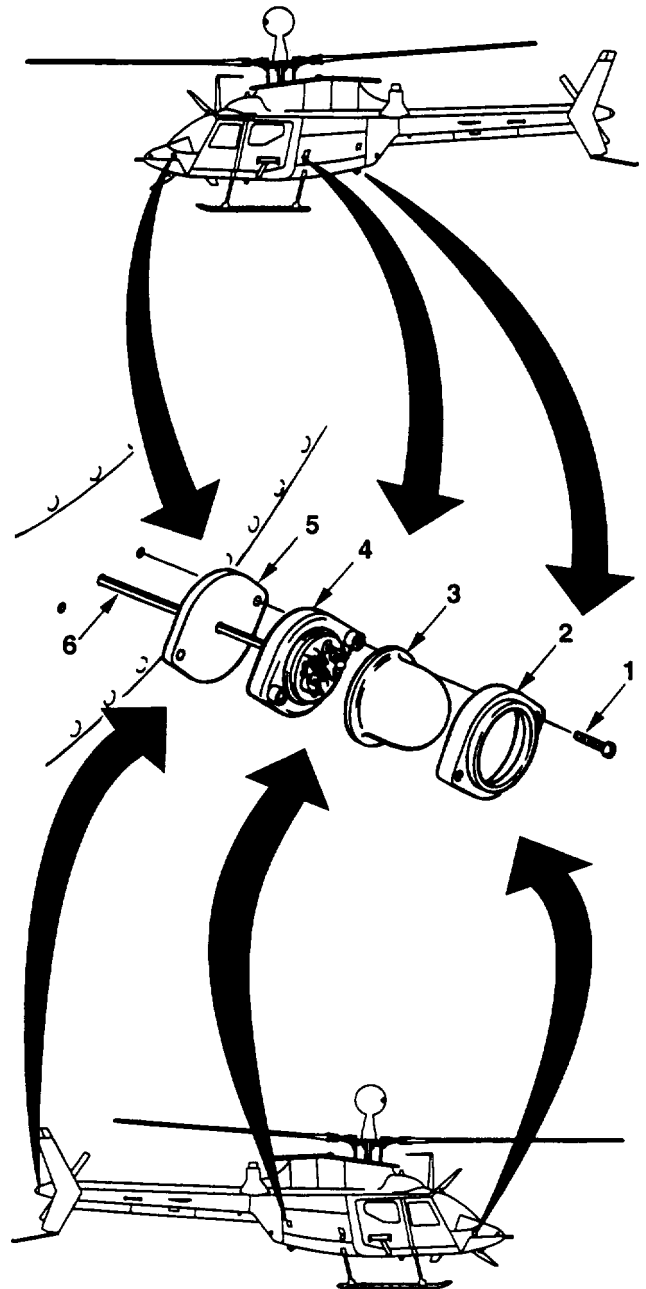
R-1-47. REMOVE/INSTALL NVG NAVIGATION LIGHTS (TYPICAL) (CONT)

REMOVE

1. Remove two mounting screws (1).
2. Remove mounting base (2).
3. Remove lens (3).
4. Pull navigation light (4) and plate (5) away from helicopter far enough to get access to wires (6).
5. Cut wires (6) to remove navigation light (4) and plate (5).

INSTALL

6. Install plate (5) over wires (6) and splice (D121) wires (6).
7. Position navigation light (4) in place and align to mounting holes.
8. Install lens (3), mounting base (2), and screws (1).

INSPECT406875-60
H3630

END OF TASK

R-1-48. REMOVE/INSTALL WEIGHT-ON-GEAR INTERRUPT SWITCH

This task covers: Removal and Installation (On Helicopter)

INITIAL SETUP

Applicable Configurations:
OH-58D (Special Mission)

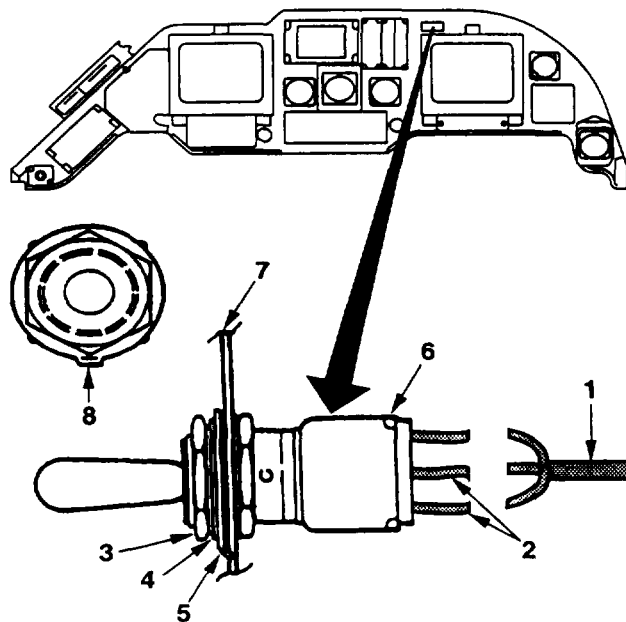
Tools:
Electrical Repairer Tool Kit
Acid Brush
Soldering Iron

Material:
Solder (D93)
Conformal Coating (D95)

Personnel Required:
67S Scout Helicopter Technical Inspector
68F Aircraft Electrician

REMOVE

1. Tag and identify wires (1 and 2).
2. Unsolder harness wires (1) from switch wires (2).
3. Remove mounting nut (3), lockwasher (4), and key washer (5) from switch (6).
4. Remove switch (6) from rear of instrument panel (7).



406530-19
H2795

GO TO NEXT PAGE

R-1-48. REMOVE/INSTALL WEIGHT-ON-GEAR INTERRUPT SWITCH (CONT)

INSTALL

5. Install switch (6) in mounting hole from rear of instrument plate assembly (7).

6. Align keyway (8) of switch (6) and install key washer (5) and lockwasher (4).

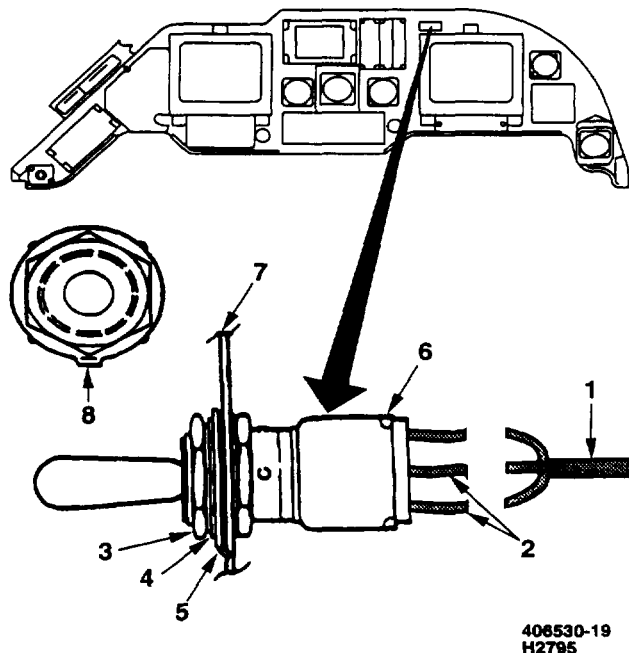
7. Install and tighten mounting nut (3).

8. Solder (D93) harness wires (1) to switch wires (2). Refer to wiring diagram in Section II if necessary.

WARNING

Conformal coating is flammable. Do not use near open flame or high temperatures. Repeated or prolonged contact or inhalation of vapors can cause skin and eye irritation, or damage to lungs, blood, liver, kidneys, and nervous system. Existing eye, skin, and respiratory disorders can be aggravated. Short-term inhalation of vapors can cause drowsiness and irritation of nose and throat. Use only in a well-ventilated area. If vapors are inhaled, go to fresh air. Short-term skin contact can cause irritation, redness, and swelling. Wipe off skin contact area and flush with fresh water. Flush eyes with fresh water for 15 minutes. Get immediate medical attention if irritation develops or ill effects persist. If swallowed, do not induce vomiting. Vomiting can cause serious lung damage. If vomiting occurs, keep head below hips to prevent entry of liquid into lungs. When handling, wear approved protective gloves, goggles, and respirator with organic vapor cartridge. Metal storage containers must be grounded to eliminate static electricity fire hazard.

9. Apply conformal coating (D95) using acid brush to switch terminals at wire (2) ends.

INSPECT

END OF TASK

R-1-49. REMOVE/INSTALL UNDERWATER ACOUSTIC BEACON

This task covers: Removal and Installation (On Helicopter)

INITIAL SETUP

Material:

Lockwire (D4)

Applicable Configurations:
OH-58D (Special Mission)

Personnel Required:

67S Scout Helicopter Technical Inspector

67S Scout Helicopter Repairer

68N Avionics Repairer

Tools:

Aircraft Mechanic Tool Kit

Avionics Repairer Tool Kit

References:

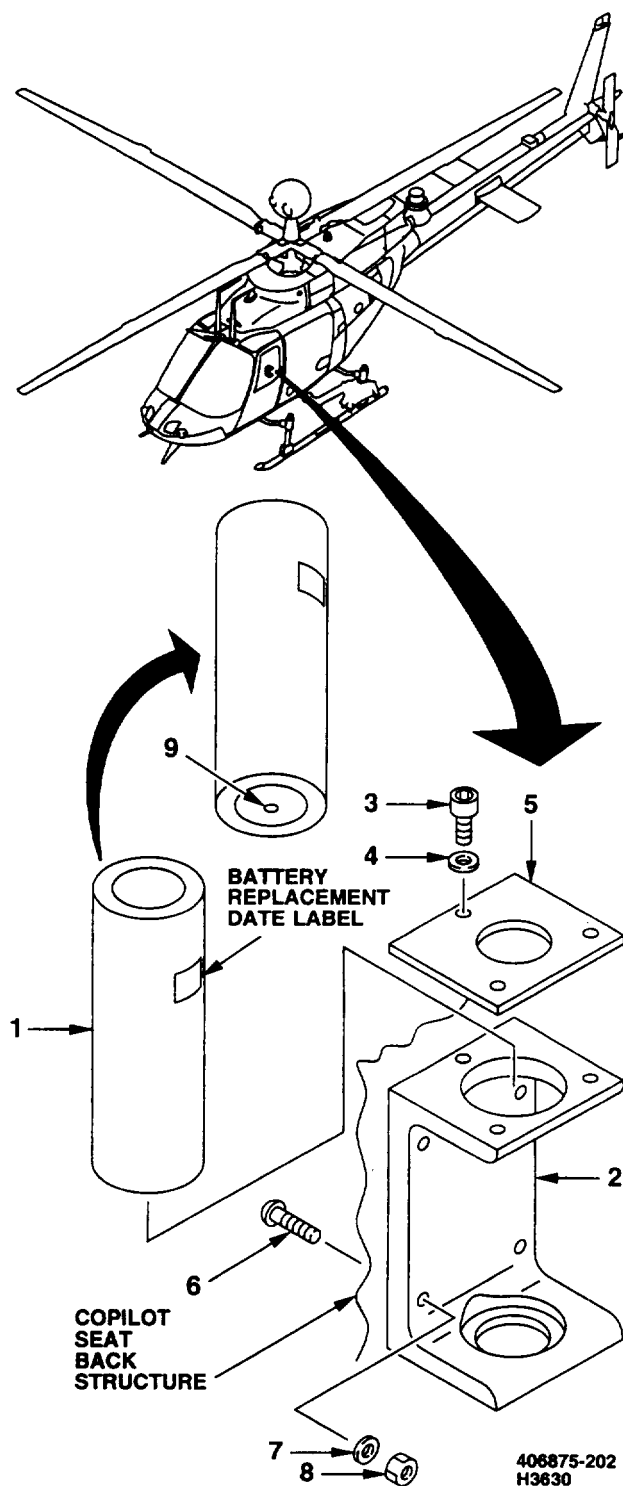
NAVAIR 16-45-2453

GO TO NEXT PAGE

R-1-49. REMOVE/INSTALL UNDERWATER ACOUSTIC BEACON (CONT)

REMOVE

1. Remove beacon (1) from cradle (2).
 - a. Remove lockwire from three capscrews (3).
 - b. Remove three capscrews (3), three lockwashers (4), and plate (5) from cradle (2).
 - c. Remove beacon (1) from cradle (2).
2. Remove cradle (2) from helicopter.
 - a. Remove beacon (1) from cradle (2) (step 1. above).
 - b. Remove four screws (6), washers (7), and nuts (8) securing cradle (2) to structure.
 - c. Remove cradle (2) from helicopter.
 - d. Protect switch (9) from damage, dirt, etc., until switch is installed.



GO TO NEXT PAGE

R-1-49. REMOVE/INSTALL UNDERWATER ACOUSTIC BEACON (CONT)

INSTALL

3. Install cradle (2) in helicopter.

NOTE

An improperly installed cradle (2) will increase the time required to replace the beacon (1).

- a. Position cradle (2) in helicopter with three mounting screw holes of plate (5) to the top.
- b. Install four screws (6), four washers (7), and four nuts (8) securing cradle (2) to structure.

Install beacon (1) in cradle (2) (step 4. below).

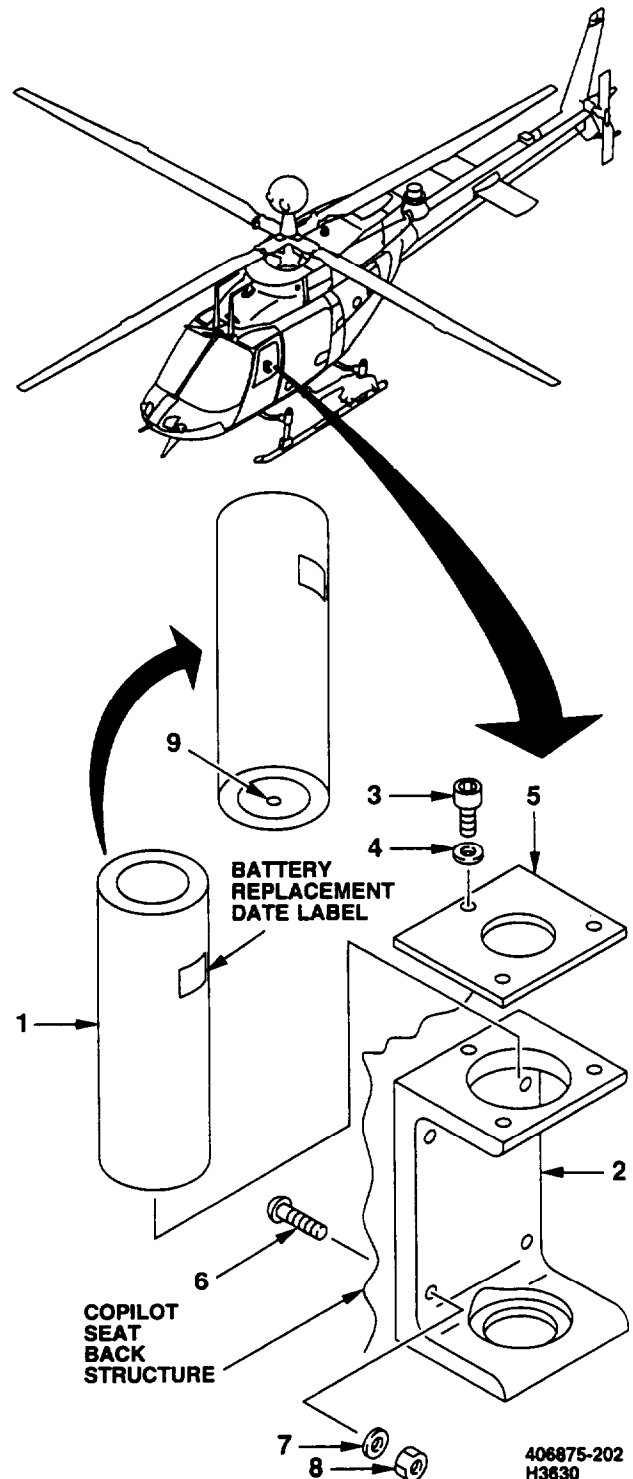
4. Install beacon (1) in cradle (2).

- a. Perform prior to installation beacon testing (NAVAIR 16-45-2453).

CAUTION

An improperly positioned switch (9) can cause the beacon (1) to malfunction.

- b. Position beacon (1) in cradle (2) with switch (9) facing downward and battery replacement date label visible.
- c. Install plate (5), three lockwashers (4), and three capscrews (3), to secure beacon (1) to cradle (2).
- d. Torque three capscrews (3) **15 — 20** inch-pounds.
- e. Lockwire three capscrews (3) with lockwire (D4).
- f. Clean switch (9) (NAVAIR 16-45-2453)
- g. Perform after installation beacon testing (NAVAIR 16-45-2453).

INSPECT

406875-202
H3630

END OF TASK

R-1-50. CLEAN, INSPECT, AND REPAIR UNDERWATER ACOUSTIC BEACON

This task covers: Cleaning, Inspection, and Repair (On/Off Helicopter)

INITIAL SETUP

Applicable Configurations:
OH-58D (Special Mission)

Tools:
Aircraft Mechanic Tool Kit

Personnel Required:
67S Scout Helicopter Technical Inspector
67S Scout Helicopter Repairer

References:
NAVAIR 16-45-2453
TM 1-1500-204-23

GO TO NEXT PAGE

R-1-50. CLEAN, INSPECT, AND REPAIR UNDERWATER ACOUSTIC BEACON (CONT)

CLEAN

CAUTION

A dirty switch (1) can cause the beacon (2) to malfunction.

1. Clean beacon (2) every 90 days (NAVAIR 16-45-2453).

INSPECT

CAUTION

An improperly installed beacon (2) can cause the beacon (2) to malfunction.

2. Inspect beacon (2) (NAVAIR 16-45-2453 testing and operation). Switch (1) shall be facing downward and battery replacement date label visible.

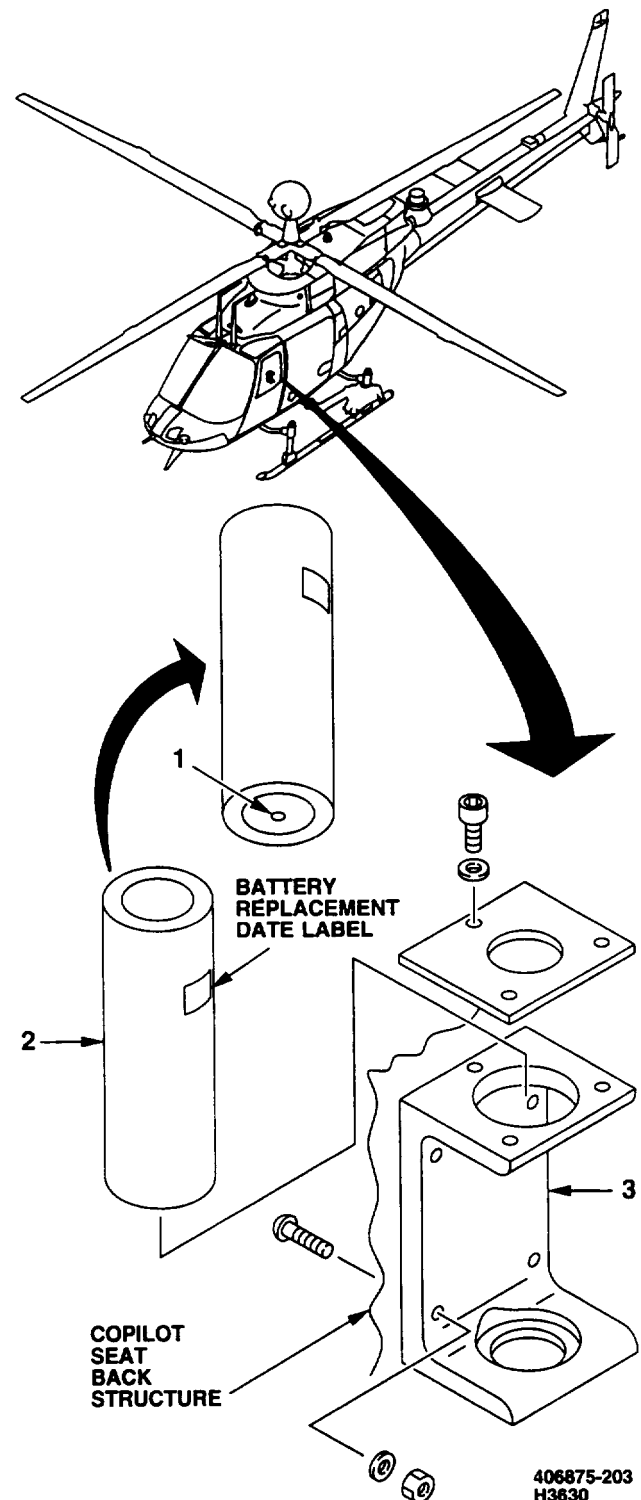
3. Inspect cradle (3) for damage, corrosion, and security (TM 1-1500-204-23).

REPAIR

4. Repair beacon (2) (NAVAIR 16-45-2453 maintenance).

5. Repair cradle (3) (TM 1-1500-204-23).

INSPECT



END OF TASK

Section II. WIRING DIAGRAMS

This section contains wiring diagrams to support peculiar installations and systems installed on the OH-58D special mission helicopter.

The following LIST OF TASKS lists those tasks required to support aviation unit and intermediate level maintenance.

LIST OF TASKS

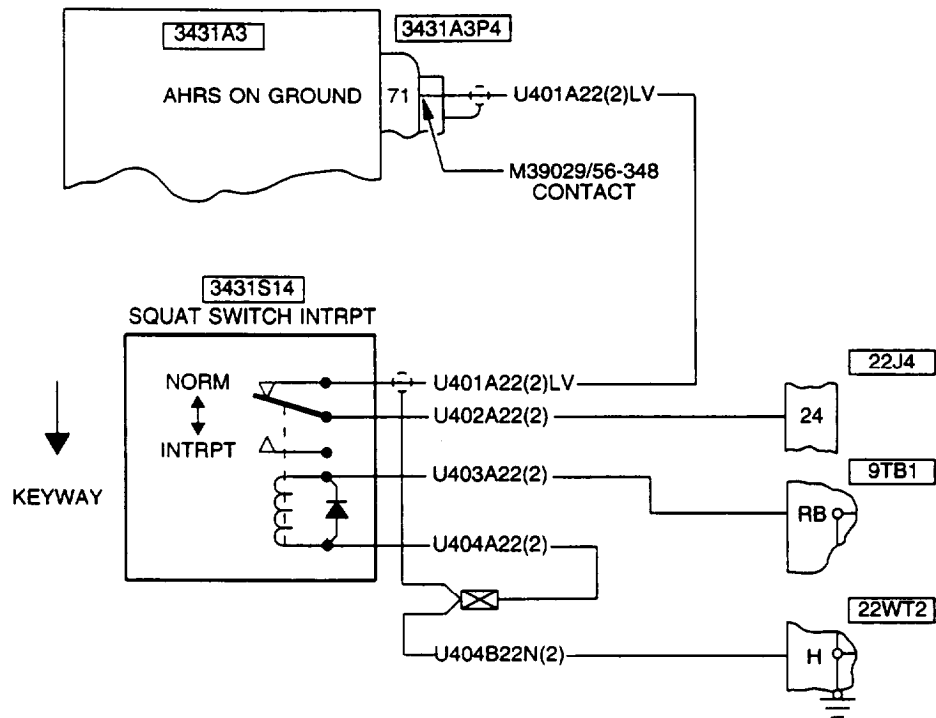
TASK	TASK NUMBER	PAGE NUMBER
Weight-On-Gear Interrupt Switch Wiring Diagram	R-2-1	R-130
NVG Navigation Lights Wiring Diagram	R-2-2	R-131

R-2-1. WEIGHT-ON-GEAR INTERRUPT SWITCH WIRING DIAGRAM

This task covers: Wiring Aid (On Helicopter)

INITIAL SETUP

Applicable Configurations:
OH-58D (Special Mission)



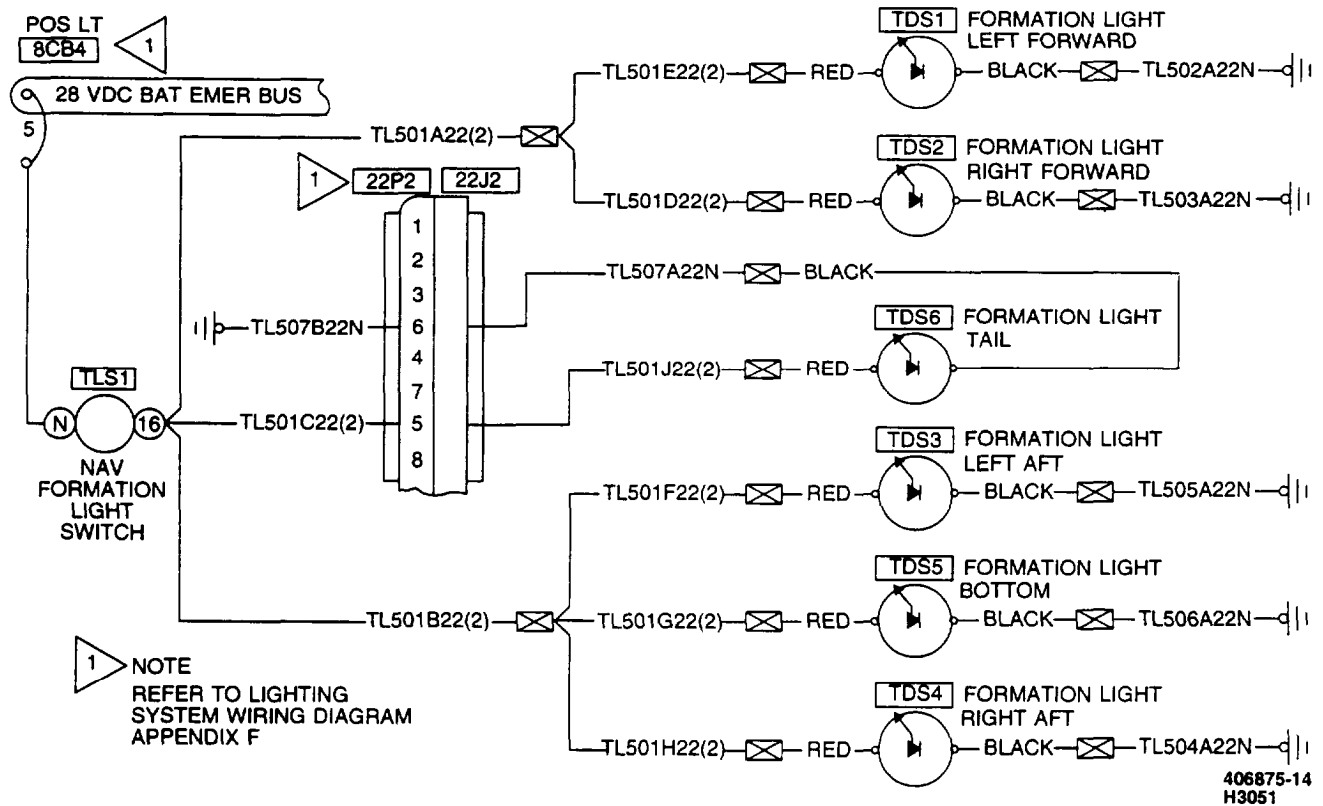
406875-204
H3630

END OF TASK

R-2-2. NVG NAVIGATION LIGHTS WIRING DIAGRAM

This task covers: Wiring Aid (On Helicopter)

INITIAL SETUP

Applicable Configurations:
OH-58D (Special Mission)

END OF TASK

R-131/(R-132 blank)

By Order of the Secretary of the Army

Official:


MILTON H. HAMILTON

*Administrative Assistant to the
Secretary of the Army*
00041

GORDON R. SULLIVAN
*General, United States Army
Chief of Staff*

DISTRIBUTION:

To be distributed in accordance with DA Form 12-31-E, block no. 3433 requirements for TM 55-1520-248-23-8-2.

★ U.S. GOVERNMENT PRINTING OFFICE: 1995 O-393-442



THEN... JOT DOWN THE
DOPE ABOUT IT ON THIS
FORM, CAREFULLY TEAR IT
OUT, FOLD IT AND DROP IT
IN THE MAIL!

SOMETHING WRONG WITH THIS PUBLICATION?

FROM: (PRINT YOUR UNIT'S COMPLETE ADDRESS)

PFC JOHN DOE
COA, 3d ENGINEER BN
FT. L. BARNARDWOOD, MD 63108

DATE SENT

PUBLICATION NUMBER

TM 55-1520-248-23-8-2

PUBLICATION DATE

4 April 1994

PUBLICATION TITLE

ARMY MODEL OH-58D HELICOPTER

BE EXACT... PIN-POINT WHERE IT IS

PAGE NO.	PARA- GRAPH	FIGURE NO.	TABLE NO.
6	2-1 a		
B1		4-3	
125	line 20		

IN THIS SPACE TELL WHAT IS WRONG
AND WHAT SHOULD BE DONE ABOUT IT:

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.

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.

I ordered a gasket, item 19 on figure B-16 by NSN 2 910-00-762-3001. 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

JOHN DOE, PFC (262) 317.7111

SIGN HERE

JOHN DOE

DA FORM 2028-2
1 JUL 79

PREVIOUS EDITIONS
ARE OBSOLETE.

DRSTS-M Overprint 1, 1 Nov 80

P.S.--IF YOUR OUTFIT WANTS TO KNOW ABOUT YOUR
RECOMMENDATION MAKE A CARBON COPY OF THIS
AND GIVE IT TO YOUR HEADQUARTERS

TEAR ALONG PERFORATED LINE

1 Nov 80

FILL IN YOUR
UNITS ADDRESS

FOLD BACK

DEPARTMENT OF THE ARMY

OFFICIAL BUSINESS

COMMANDER
U.S. ARMY AVIATION AND TROOP COMMAND
ATTN: AMSAT-I-MP
4300 GOODFELLOW BOULEVARD
ST. LOUIS, MO 63120-1798

TEAR ALONG PERFORATED LINE

RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL PUBLICATIONS



THEN, JOT DOWN THE
DOPE ABOUT IT ON THIS
FORM. CAREFULLY TEAR IT
OUT. FOLD IT AND DROP IT
IN THE MAIL.

SOMETHING WRONG WITH THIS PUBLICATION?

FROM: (PRINT YOUR UNIT'S COMPLETE ADDRESS)

DATE SENT

PUBLICATION NUMBER

TM 55-1520-248-23-8-2

PUBLICATION DATE

4 April 1994

PUBLICATION TITLE

ARMY MODEL OH-58D HELICOPTER

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:

PRINTED NAME GRADE OR TITLE AND TELEPHONE NUMBER

SIGN HERE

DA FORM 2028-2
1 JUL 79

PREVIOUS EDITIONS
ARE OBSOLETE

P.S. - IF YOUR OUTFIT WANTS TO KNOW ABOUT YOUR
RECOMMENDATION MAKE A CARBON COPY OF THIS
AND GIVE IT TO YOUR HEADQUARTERS

1 Nov 80

FILL IN YOUR
UNITS ADDRESS



FOLD BACK

DEPARTMENT OF THE ARMY

OFFICIAL BUSINESS

COMMANDER
U.S. ARMY AVIATION AND TROOP COMMAND
ATTN: AMSAT-I-MP
4300 GOODFELLOW BOULEVARD
ST. LOUIS, MO 63120-1798

TEAR ALONG PERFORATED LINE

RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL PUBLICATIONS



SOMETHING WRONG WITH THIS PUBLICATION?

THEN... JOT DOWN THE DOPE ABOUT IT ON THIS FORM. CAREFULLY TEAR IT OUT, FOLD IT AND DROP IT IN THE MAIL!

FROM: (PRINT YOUR UNIT'S COMPLETE ADDRESS)

DATE SENT

PUBLICATION NUMBER

TM 55-1520-248-23-8-2

PUBLICATION DATE

4 April 1994

PUBLICATION TITLE

ARMY MODEL OH-58D HELICOPTER

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:

PRINTED NAME GRADE OR TITLE AND TELEPHONE NUMBER

SIGN HERE

DA FORM 2028-2
1 JUL 79

PREVIOUS EDITIONS
ARE OBSOLETE

P.S. IF YOUR OUTFIT WANTS TO KNOW ABOUT YOUR
RECOMMENDATION MAKE A CARBON COPY OF THIS
AND GIVE IT TO YOUR HEADQUARTERS

1 Nov 80

FILL IN YOUR
UNITS ADDRESS

FOLD BACK

DEPARTMENT OF THE ARMY

OFFICIAL BUSINESS

COMMANDER
U.S. ARMY AVIATION AND TROOP COMMAND
ATTN: AMSAT-I-MP
4300 GOODFELLOW BOULEVARD
ST. LOUIS, MO 63120-1798

TEAR ALONG PERFORATED LINE

RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL PUBLICATIONS



THEN... JOT DOWN THE
DOPE ABOUT IT ON THIS
FORM. CAREFULLY TEAR IT
OUT. FOLD IT AND DROP IT
IN THE MAIL.

SOMETHING WRONG WITH THIS PUBLICATION?

FROM (PRINT YOUR UNIT'S COMPLETE ADDRESS)

DATE SENT

PUBLICATION NUMBER

TM 55-1520-248-23-8-2

PUBLICATION DATE

4 April 1994

PUBLICATION TITLE

ARMY MODEL OH-58D HELICOPTER

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:

PRINTED NAME GRADE OR TITLE AND TELEPHONE NUMBER

SIGN HERE

DA FORM 2028-2
1 JUL 79

PREVIOUS EDITIONS
ARE OBSOLETE

P.S. - IF YOUR OUTFIT WANTS TO KNOW ABOUT YOUR
RECOMMENDATION MAKE A CARBON COPY OF THIS
AND GIVE IT TO YOUR HEADQUARTERS

1 Nov 80

FILL IN YOUR
UNITS ADDRESS



FOLD BACK

DEPARTMENT OF THE ARMY

OFFICIAL BUSINESS

COMMANDER
U.S. ARMY AVIATION AND TROOP COMMAND
ATTN: AMSAT-I-MP
4300 GOODFELLOW BOULEVARD
ST. LOUIS, MO 63120-1798

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 decigrams = .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 milliliters = .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
----	------------------------	----------------------------	---------------------	----

