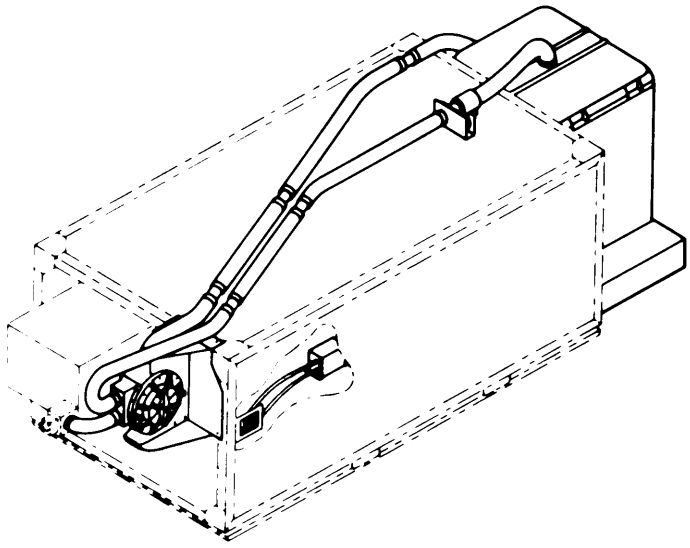
TM 3-4240-286-30&P

TECHNICAL MANUAL

DIRECT SUPPORT MAINTENANCE MANUAL
(INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST)



COLLECTIVE PROTECTION EQUIPMENT, GUIDED MISSILE AIR DEFENSE SYSTEM, AN/TSQ-73

CONSISTING OF

ENTRANCE, PROTECTIVE, PRESSURIZED: COLLAPSIBLE, M12 (NSN 4240-01-048-2923);
FILTER UNIT, GAS-PARTICULATE: 200 CFM, 208 V, 400 HZ, M56 (NSN 4240-00-237-0227)

AND

INSTALLATION KIT: CBR, PROTECTIVE EQUIPMENT, AN/TSQ-73, M263 (NSN 4240-01-063-7679)

HEADQUARTERS, DEPARTMENT OF THE ARMY
24 AUGUST 1982

CHANGE
NO. 1

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, DC, 21 December 1989

DIRECT SUPPORT MAINTENANCE MANUAL
FOR
COLLECTIVE PROTECTION EQUIPMENT
GUIDED MISSILE AIR DEFENSE SYSTEM, AN/TSQ-73

1. The purpose of this change is to update guidance for disposal, handling, and storage of filters.

2. New or changed material is indicated by a vertical bar in the margin of the page. RPSTL listing changes are indicated by an asterisk to the left of the item number column adjacent to the line item.

3. Remove old pages and insert new pages as follows:

Remove Pages	Insert Pages
None	a/(b blank)
B-17 and B-18	B-17 and B-18

4. File this change sheet in front of the publication for reference purposes.

By Order of the Secretary of the Army:

CARL E. VUONO
General, United States Army
Chief of Staff

Official:

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

Distribution:

To be distributed in accordance with DA Form 12-28-R, quantity required block 56, TM 3-4240-286-30&P.

WARNING

HEALTH/ENVIRONMENTAL HAZARD

Filters use ASC Whetlerite Carbon which contains Chromium VI. Chromium VI is a known carcinogen if inhaled or swallowed. Damaged or unusable filters are classified as hazardous waste:

DO NOT throw away damaged or unusable filters as ordinary trash.

DO turn in damaged or unusable filters to your hazardous waste management office or Defense Reutilization and Marketing Office (DRMO).

Filters are completely safe to handle and use if they are not damaged in such a way that carbon leaks from them. In unlikely event th t carbon should leak, use protection such as a dust resplrator to cover nose and mouth and put carbon in container such as self-sealing plastic bag; turn in to hazardous waste management office or DRMO.

Disposal of hazardous waste is restricted by the Resource Conservation and Recovery Act as amended (42 U.S.C.A sec 6901 et seq). Violation of these laws is subject to severe criminal penalties.

TECHNICAL MANUAL

No. 3-4240-286-30&P

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, DC, 24 August 1982

Direct Support Maintenance Manual
(Including Repair Parts And Special Tools List)

COLLECTIVE PROTECTION EQUIPMENT, GUIDED MISSILE AIR DEFENSE SYSTEM, AN/TSG-73
CONSISTING OF
ENTRANCE, PROTECTIVE, PRESSURIZED: COLLAPSIBLE, M12
(NSN 4240-01-048-2923);
FILTER UNIT, GAS-PARTICULATE:
200 CFM, 208 V, 400 HZ, M56
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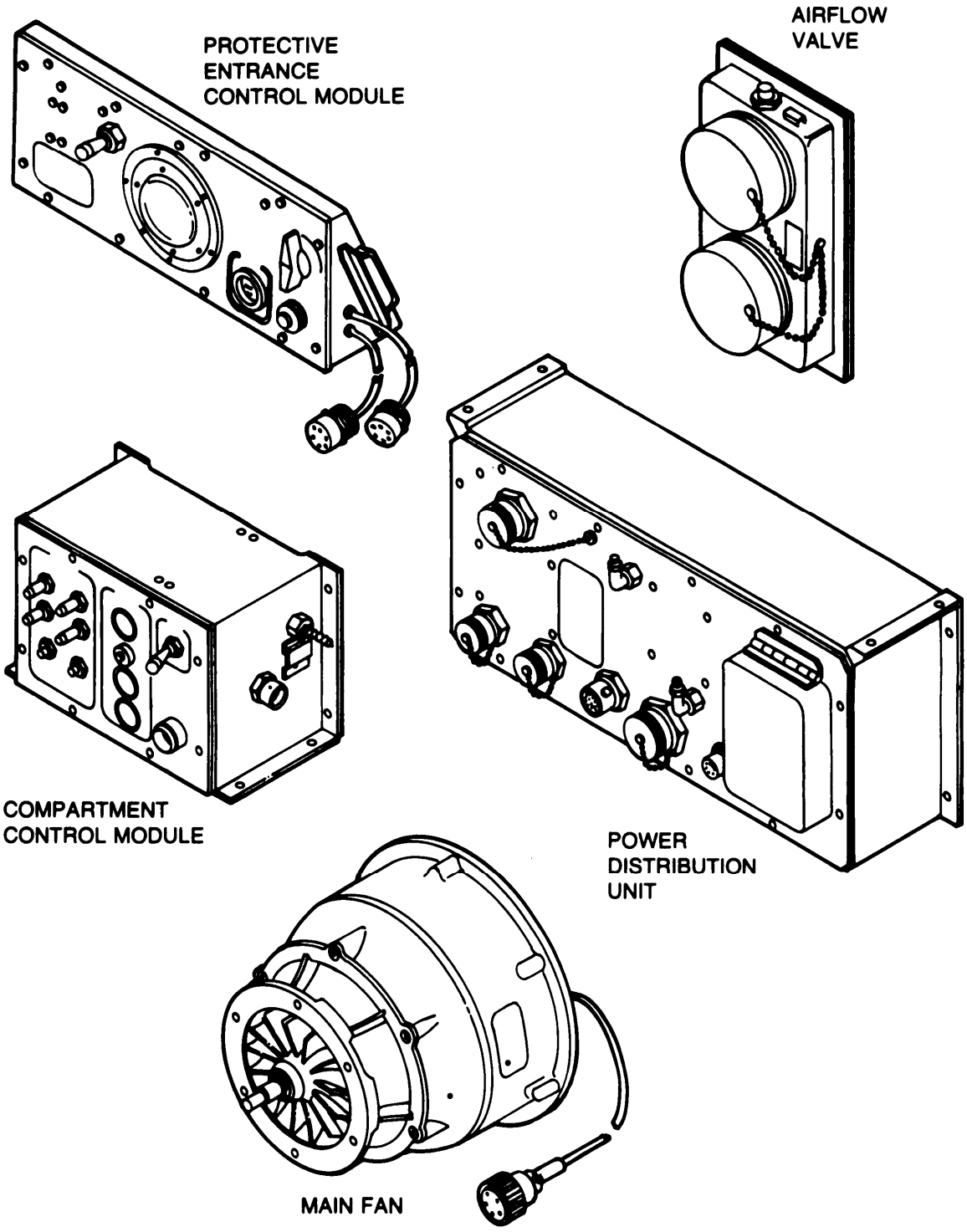
AND
INSTALLATION KIT: CBR, PROTECTIVE EQUIPMENT, AN/TSG-73, M283
(NSN 4240-01-063-7679)

Current as of 3 March 1982 for Appendix B.

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 the back of this manual direct to: Commander, US Army Armament Materiel Readiness Command, ATTN: DRSAR-MAS-C, Aberdeen Proving Ground, MD21010. A reply will be furnished to you.


PROTECTIVE
ENTRANCE
CONTROL MODULE
AIRFLOW
VALVE
COMPARTMENT
CONTROL MODULE
POWER
DISTRIBUTION
UNIT
MAIN FAN

CHAPTER 1
INTRODUCTION

Section I. GENERAL INFORMATION

1-1. SCOPE.

a. Type of *Manua/.* Direct Support Maintenance, including the Repair Parts and Special Tools List.

b. *Model Numbers and Equipment Names.*

M12 protective entrance:
Protective entrance control module

M56 gas-particulate filter unit:
Main fan
Airflow valve
Power distribution unit
Compartment control module

M263 installation kit:
Airflow valve

c. *Purpose of Equipment.* Provides filtered air under positive pressure to field shelters.

1-2. MAINTENANCE FORMS, RECORDS, AND REPORTS.

Department of the Army forms and procedures used for equipment maintenance will be those prescribed by TM 38-750, The Army Maintenance Management System (TAMMS).

1-3. DESTRUCTION OF ARMY MATERIEL TO PREVENT ENEMY USE.

Refer to TM 43-0002-31, Destruction of Chemical Weapons and Defense Equipment to Prevent Enemy Use.

1-4. NOMENCLATURE CROSS-REFERENCE LIST.

This listing includes nomenclature cross--references used in this manual.

Common Name	*Official Nomenclature*
Compartment control module (CCM)	Control module, compartment
Differential pressure gage	Gage, differential, dial indicating
M56 gas-particulate filter unit	Filter unit, gas-particulate, M56
M12 protective entrance	Entrance, protective, pressurized, M12
M263 installation kit	Installation kit, M263
Power card	Printed circuit board: power
Protective entrance control module (PECM)	Control module, protective entrance
Switching card	Printed circuit board: switching

1-5. REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR).

If your collective protection equipment needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about your equipment. Let us know why you don't like the design. Tell us why a procedure is hard to perform. Put it on an SF 368 (Quality Deficiency Report). Mail it to us at Commander, US Army Armament Materiel Readiness Command, ATTN: DRSAR-MAP-A, Aberdeen Proving Ground, MD21010. A reply will be furnished directly to you.

Section II. EQUIPMENT DESCRIPTION AND DATA

1-6. DESCRIPTK)N AND TABULATED DATA. Refer to TM 3-4240-286-20&P.

Section Ill. REPAIR PARTS, SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT

1-7. COMMON TOOLS AND EQUIPMENT. For authorized common tools and equipment refer to the Modified Table of Organization and Equipment (MTOE) applicable to your unit.

1-8. SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT. No special tools, TMDE, or support equipment are required.

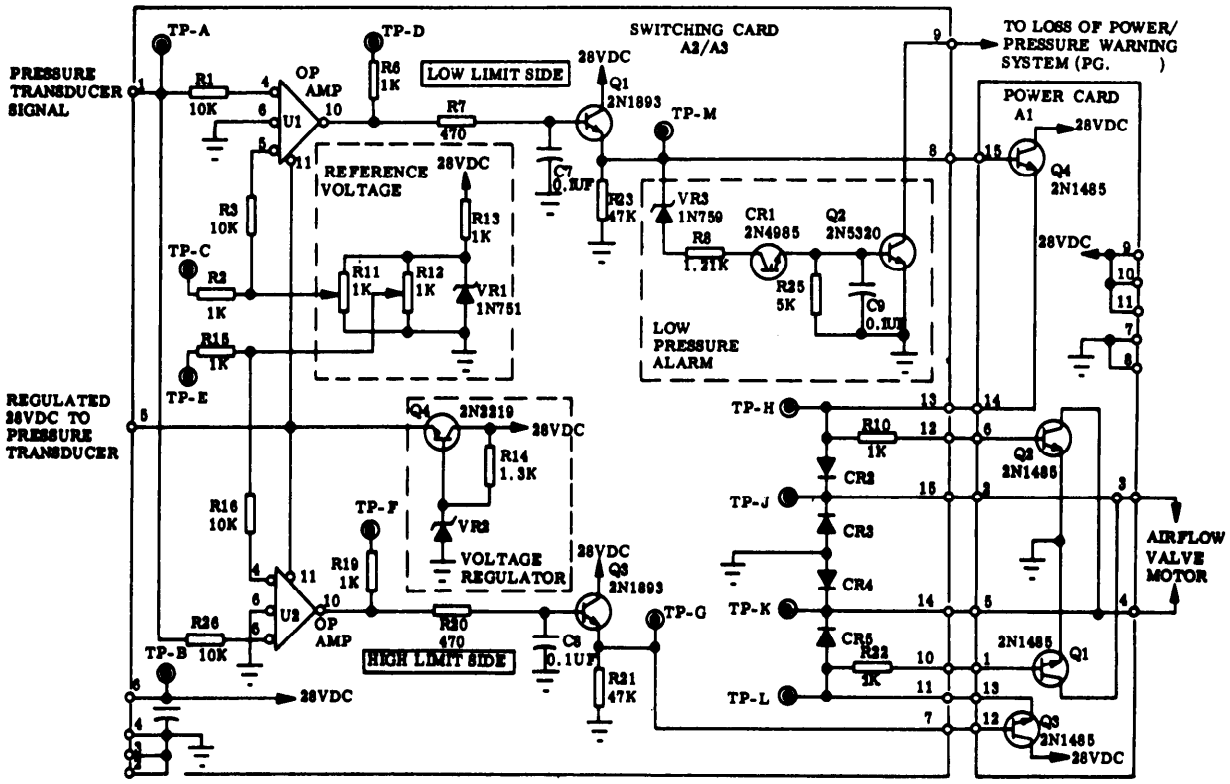
1-9. REPAIR PARTS. Repair parts are listed and illustrated in appendix B of this manual.

Section IV. PRINCIPLES OF OPERATION

1-10. PRESSURE CONTROL SYSTEM.

a. The basic function of the pressure control system is to control the air pressure in a protected compartment within the prescribed limits by controlling the opening of an airflow valve from the pressurized air supply, the filter unit. The prescribed limits are 1.2 to 1.7 inches water gage (hereafter referred to as in. wg) for the compartment or compartment control module and 0.4 to 0.8 in. wg for the protective entrance and protective entrance control module. The control system operates from 28 vdc power.

b. The compartment pressure is sensed by the pressure transducer which provides an output voltage of 2 volts/in. wg to pin 1 of the switching card. When the air pressure in the compartment drops below the desired low limit, 1.2 in. wg for switching card A2 or 0.4 in. wg for switching card A3, the pressure transducer output voltage drops below the low limit reference voltage. An operational amplifier (op amp) on the switching card compares pressure transducer output voltage to the low limit reference voltage (2.6 volts for the compartment control module low limit side) provided by potentiometer R11, resistor R13 and the voltage reference diode VR1 and multiplies the voltage difference by 26 times and provides this as the output voltage at TP-D. The op amp output voltage is at a low power level of only a few milliamps (mA). The transistor Q1 amplifies the power level to about 50 mA while providing no voltage amplification. The power level is further amplified by Q4 of the power card Al. This transistor brings the power level up to about 500 mA to drive the airflow valve motor.



Pressure Control System, Switching and Power Card, Interconnection Schematic

c. Direct current power and ground are provided at output terminals 3 and 4 of the 'power card to the reversible 28 vdc motor. As the output of Q4 on the power card starts to rise, it provides current via RIO to the base of Q2 on the power card. When this happens, Q2 turns on and provides a ground at terminal 4 of the power card whenever a voltage greater than a few volts is provided at terminal 3 of the power card. The airflow valve motor is connected such that when this happens the airflow valve motor will start and open the valve until the compartment pressure has risen to within the prescribed limits.

d. The description so far has been only for a low pressure condition or low limit side. There is an equivalent high pressure or high limit side circuitry which provides opposite polarity voltage to terminals 3 and 4 of the power card and hence the airflow valve motor. This circuitry consists of U2, Q3 on the switching card, and Q3 and Q1 on the power card. Whenever one pressure side is on, the other side is off. In the dead band (i.e., when the pressure is within the proper limits), both sides are off. The greater the pressure is outside the dead band, the greater the dc voltage to the airflow valve motor. The voltage increases at the rate of 5.1 volts/.1 in. wg and saturates or reaches a maximum of about 25 volts when the pressure is 0.35 in. wg or more outside of the dead band.

e. The switching card also contains the low pressure alarm circuitry consisting basically of Q2, CR1, VR3, and the voltage divider resistors R8 and R25. This circuit is set to fire when the pressure falls below a preset level, 1.0 in. wg for the compartment control module and 0.33 in. wg for the protective entrance control module. When the pressure reaches the levels described above, the voltage across the four layer diode goes down to about 1 volt and allows base current to flow into the transistor Q2. The transistor is, therefore, "on" and provides a ground at terminal 9 of the switching card. In the system when this ground is provided, the MASK light/horn alarm or PE LOW PRESSURE light comes on. The circuit turns off when the voltage level of the low limit side falls within the proper limits.

f. The circuit consisting of R14, VR2, and Q4 is a series voltage regulator for the op amps and the pressure transducer. The circuit limits the voltage of these components to 28 vdc during high voltage transients.

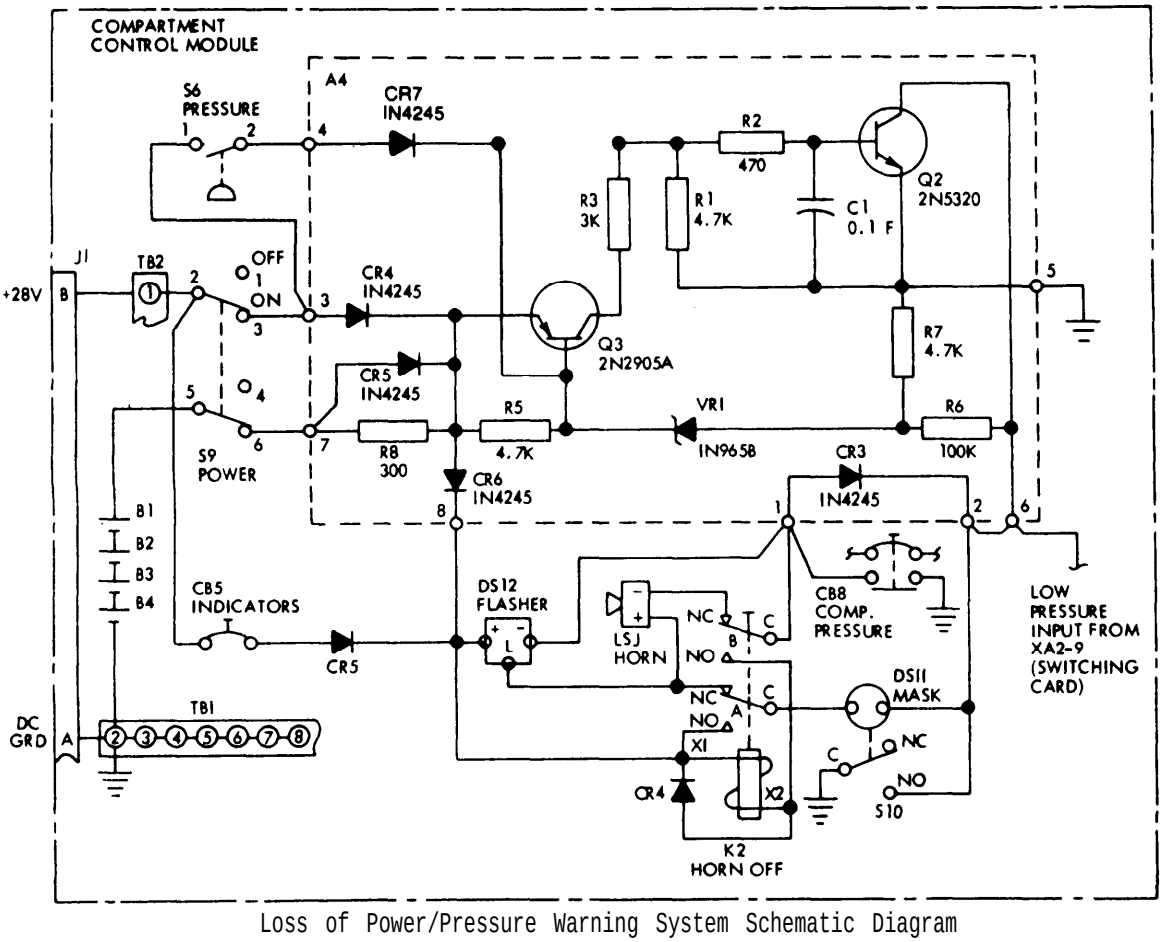
1-11, LOSS OF POWER/PRESSURE WARNING SYSTEM.

a. The loss of power warning system provides an alarm, mask light and warning horn whenever the power switch on the compartment control module is turned on in the absence of input power to the compartment control module. An alarm is also provided when power is lost during normal operation.

b. When the compartment control module power switch is ON and the power is provided to the modular collective protection equipment, the batteries are charged through normal power distribution in the compartment control module through charging resistor R8. With the compartment control module power switch ON and a loss of power, battery power is provided to the loss of power warning system through terminals 5 and 6 of the compartment control module power switch of terminals 7 of A4 (printed circuit assembly switching auxiliary). Power is provided to the warning devices from terminal 8 of A4, Diodes A4 CR4 and CR5 prevent power feedback into the rest of the 28 vdc power system, Diode CR3 provides power for the MASK indicator press-to-test. Diode A4 CR6 blocks power to the loss of power warning system when the system is off; however, press-to-test power is being provided through CR5.

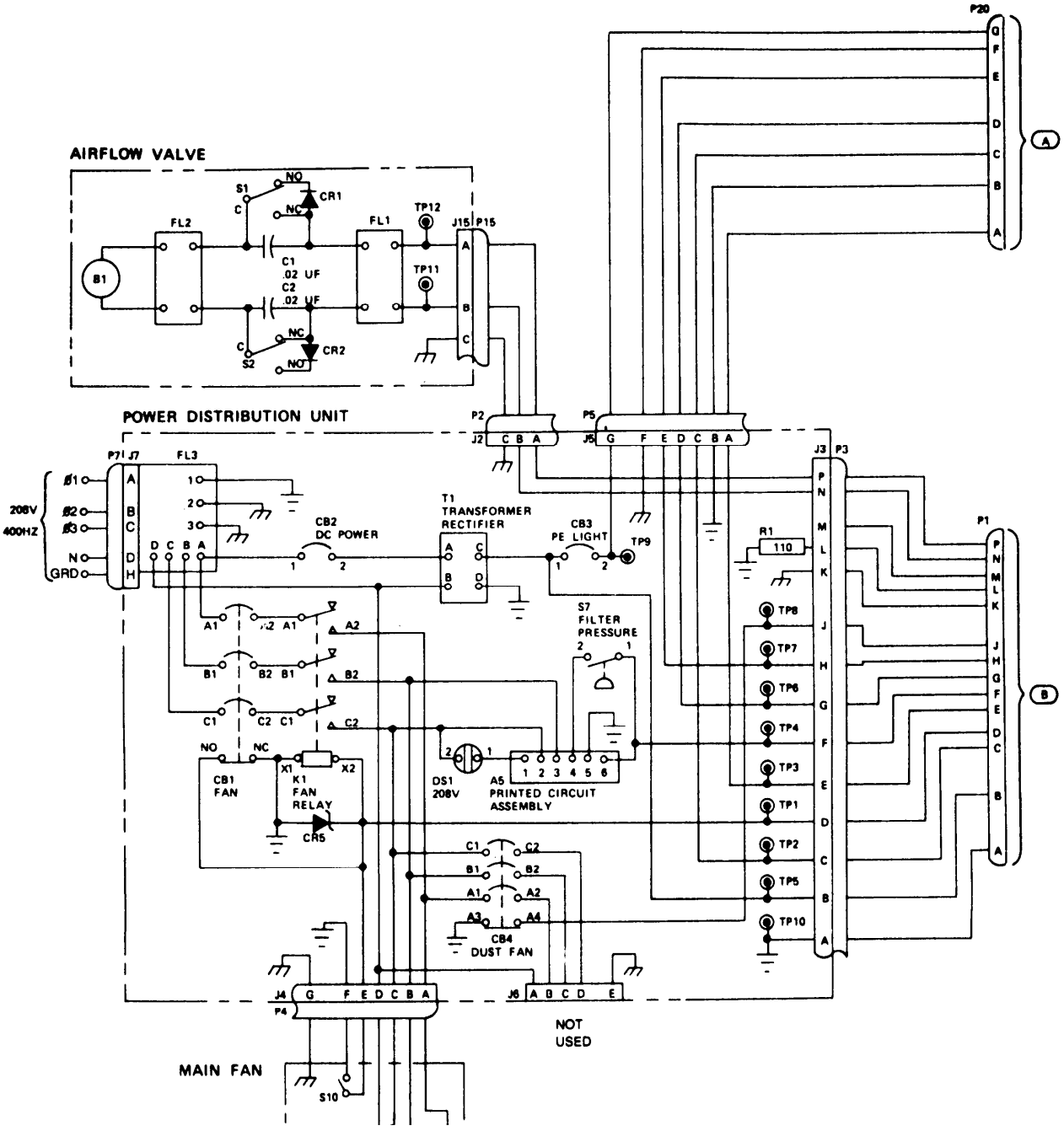
c. During normal operation, 28 vdc power is provided through the closed contacts of pressure switch S6 and diode A4CR7 to keep A4Q3 turned off. Whenever there is a loss of pressure or a loss of power, 28 vdc is removed from the base of A4 Q3 and battery current provided by A4R5, A4VR1, and A4R7 turns A4Q3 on. Current provided by A4 Q3 and A4 R3 is directed to the base of A4 Q2 turning A4 Q2 on. When A4 Q2 is on, a ground is provided at terminals 1,2, and 6 of A4 which activates the warning circuit.

d. Current will be supplied by A4 Q3 as long as the battery voltage is greater than 16 volts. In the range of 14-16 volts the transistor A4 Q3 will be turned off by A4 VR1 thus removing base drive for A4 Q2 and hence turning off the warning circuit and preventing deep discharge of the batteries.

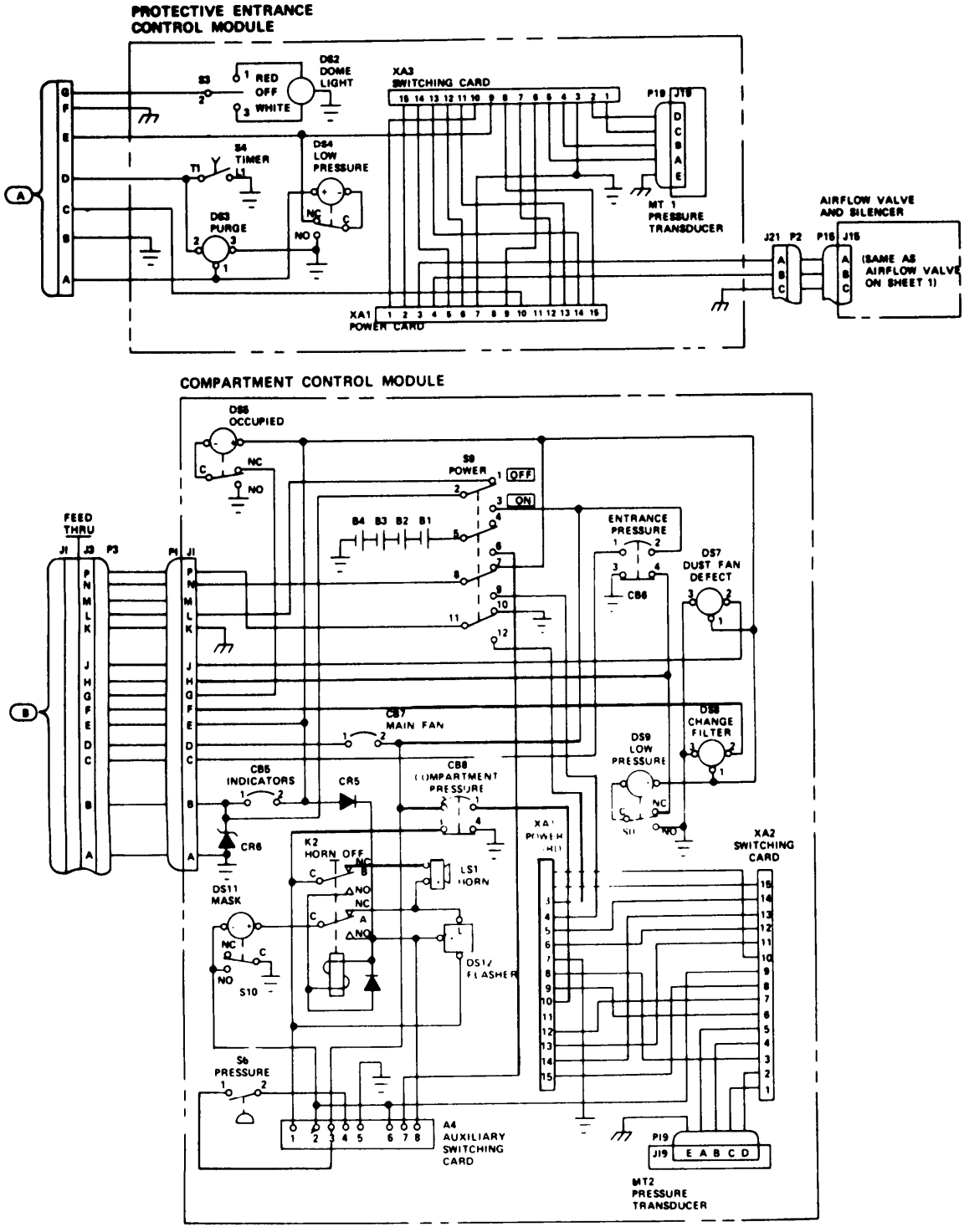


Loss of Power/Pressure Warning System Schematic Diagram

1-12. OVERALL SYSTEM. Refer to system schematic diagram below for component operation with other collective protection equipment.



Collective Protection System Schematic Diagram



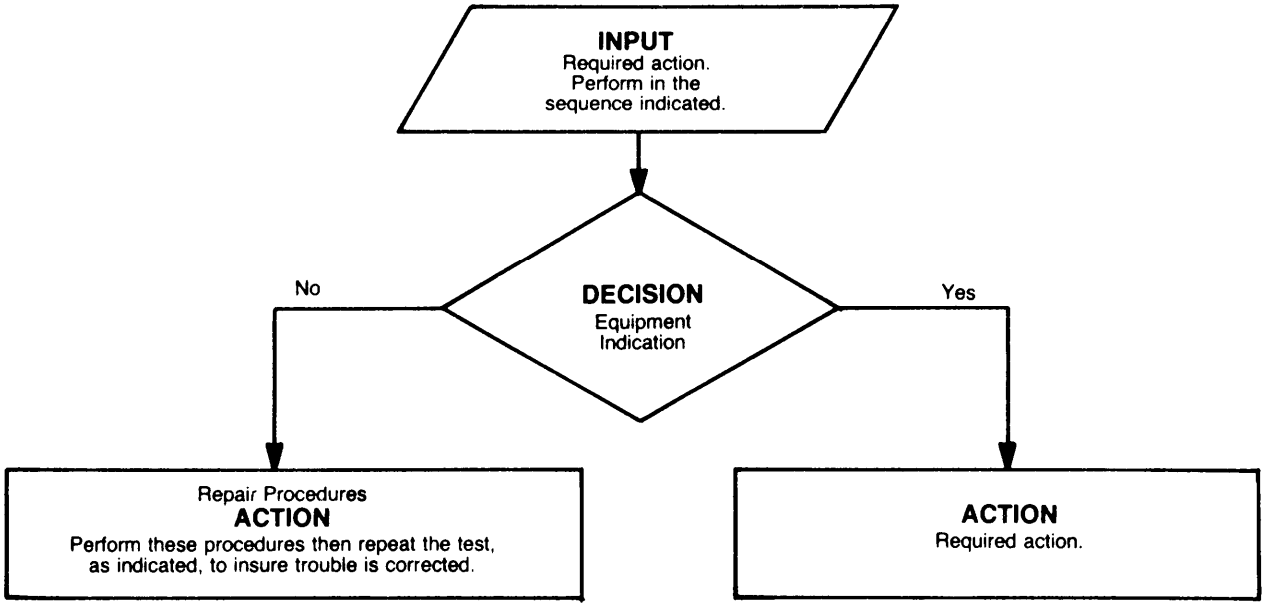
Collective Protection System Schematic Diagram (Sheet 2 of 2)

CHAPTER 2
MAINTENANCE INSTRUCTIONS

Section I. TROUBLESHOOTING

2-1. SCOPE. This section provides information for locating and correcting malfunctions in the modular collective protection equipment. Flow charts are used to isolate malfunctions and prescribe the required corrective action.

2-2. FLOW CHART PROCEDURES. The following describes the use of the troubleshooting charts:



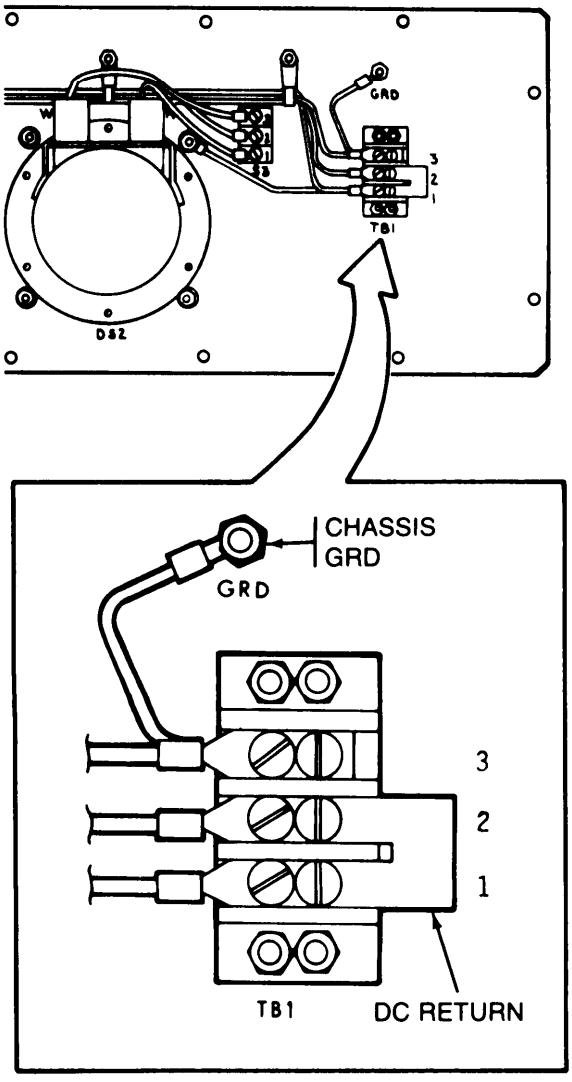
INDEX

TEST EQUIPMENT	2-63	2-39	2-33	2-32	2-2
Multimeter AN/USM223	●	●	●	●	●
Power Supply 6130-00-408-4962 (or equiv)	●	●	●		●
Differential Pressure Gage 6685-OQ-087-6331	●	●			●
Hypodermic Syringe 6515-00-754-0412	●	●			●
Hose Tee 4730-00-082-5402	●	●			●
Tubing 4720-00-059-5819	●	●			●
Resistor (680 OHM, 2W)5905-00-256-0390		●			
Resistor (lOO OHM, 10W) 5905-00-752-6460	●				●

2-3. PECM TROUBLESHOOTING PROCEDURES.

NOTE

All voltages are dc and are measured with respect to dc return (TB1-1) unless otherwise specified.



START

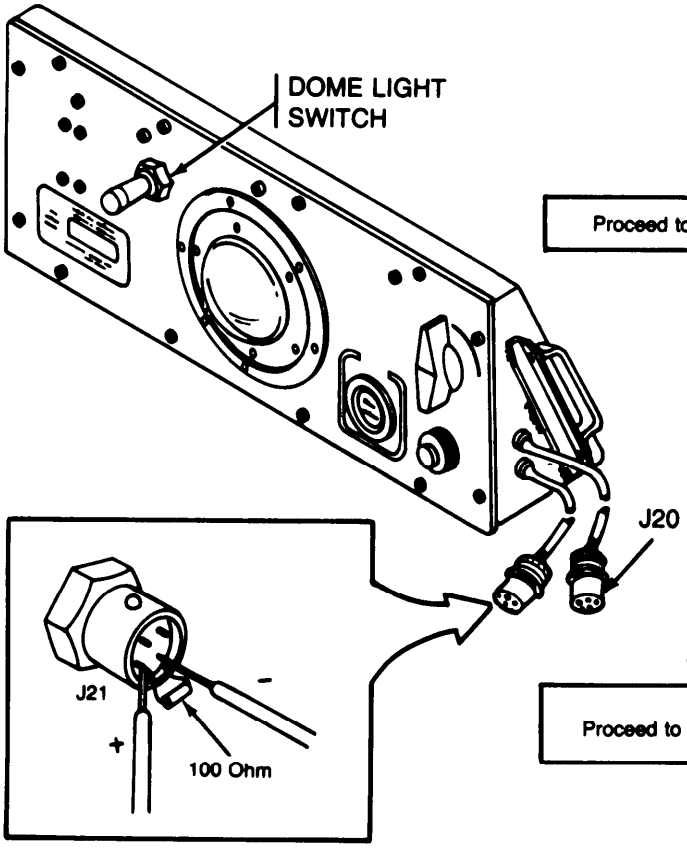
The chassis of the PECM must be isolated from dc return (power ground) of the PECM. Measure for an open between:
(+) J20-B (−) J20-F

Was an open obtained?
- No → Disassemble PECM (p 2-137). Repair short in ground wire circuits, i.e. all wires connected to terminal board TB1-1 and TB1-2 (p 2-142). Repeat test on this page.
- Yes → Measure continuity between: (+) J20-F (−) Chassis of PECM (may use screw which is used to fasten PECM panel to housing).

Was continuity obtained?
- No → Repair wiring between J20-F and chassis of PECM (p 2-142). Repeat test on this page.
- Yes → Measure continuity between: (+) J20-F (−) J21-C

Was continuity obtained?
- No → Repair wiring between J20-F and J21-C (p 2-142). Repeat test on this page.
- Yes → Proceed to page 2-3.

2-3. PECM TROUBLESHOOTING PROCEDURES (Cont).



From page 2-2.

Power application or removal on the following pages is accomplished by setting the power supply on or off.

Set PECM dome light switch to OFF. Connect a 100 ohm, 10 watt resistor to sockets A and B of connector J21.

Connect ammeter between positive of 28 vdc power supply and J20-C.

Connect negative of power supply to J20-B.

Apply power and measure current draw on power supply.

Is the current less than 1/2 amp?

No

Yes

Proceed to page 2-20.

Turn off power. Remove ammeter. Connect positive of power supply to J20-C. Apply power. Measure voltage across the 100 ohm resistor connected to:

(+) J21-A

(-) J21-B

Was 22.5 to 26.5 vdc obtained?

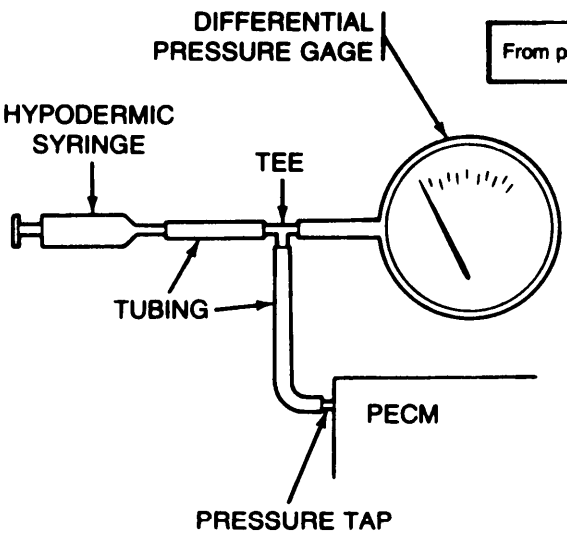
No

Yes

Proceed to page 2-24.

Proceed to page 2-4.

2-3. PECM TROUBLESHOOTING PROCEDURES (Cont).



From page 2-3.

Connect the low pressure side of a differential pressure gage to a vacuum source and to the PECM pressure tap. Slowly increase the vacuum to 0.4 in. wg and measure voltage across the 100 ohm resistor connected to J21-A(+) and J21-B(−).

Was the voltage 4.5 to 11.5 vdc?

No → Proceed to page 2-24.

Yes → Slowly increase the vacuum to 0.8 in. wg. Reverse the voltmeter leads and measure the voltage across the 100 ohm resistor connected to J21-A(−) and J21-B(+).

Was the voltage 4.5 to 11.5 vdc?

No → Proceed to page 2-24.

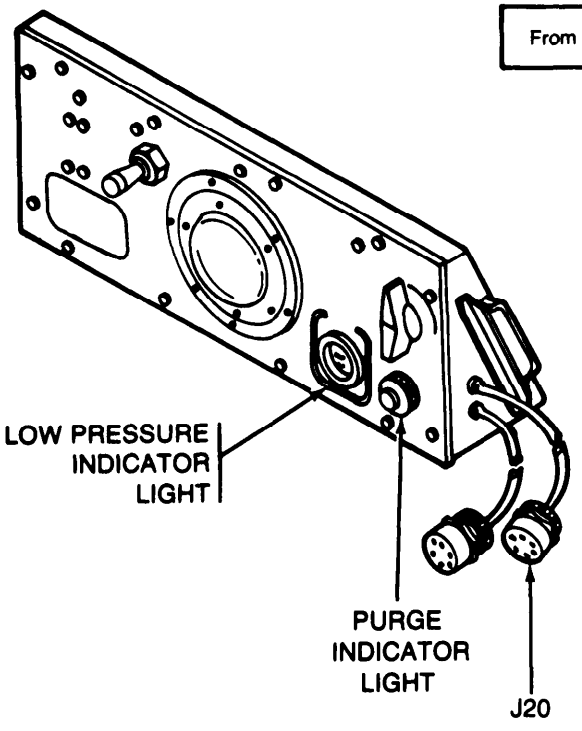
Yes → Increase the vacuum to 1.3 in. wg and measure the voltage across the 100 ohm resistor connected to J21-A(−) and J21-B(+).

Was the voltage 22.5 to 26.5 vdc?

No → Proceed to page 2-24.

Yes → Proceed to page 2-5.

2-3. PECM TROUBLESHOOTING PROCEDURES (Cont).



From page 2-4.

Apply 28 vdc to pin A of connector J20. (28 vdc is still being applied to pin C of J20.) The LOW PRESSURE and PURGE indicators should be off.

Is the LOW PRESSURE indicator off?

No

Yes

Is the PURGE indicator off?

No

Yes

Proceed to page 2-6.

Proceed to page 2-8.

Remove power. Remove screws on PECM panel and lift up for access to components. Remove switching printed circuit card A3 (p 2-140). Apply power.

Is the LOW PRESSURE indicator off?

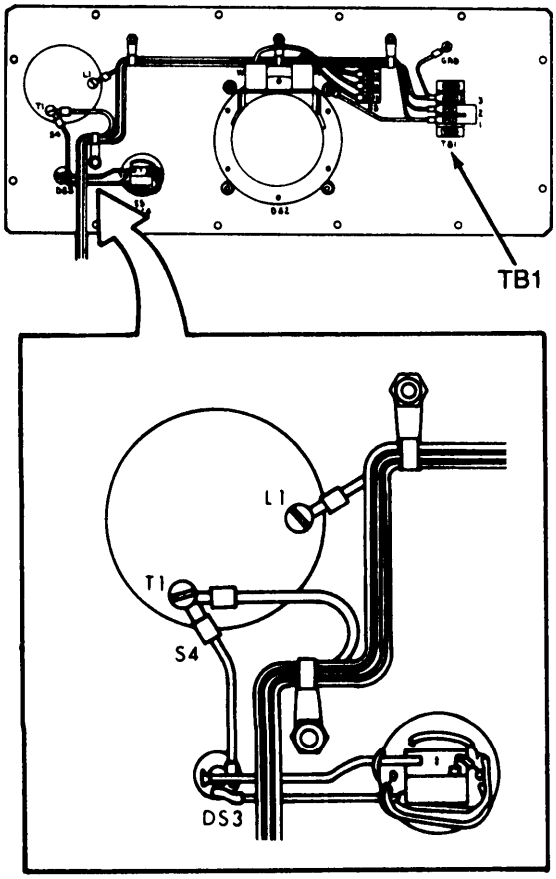
No

Yes

Proceed to page 2-7.

Replace switching printed circuit card A3. Repeat test on this page.

2-3. PECM TROUBLESHOOTING PROCEDURES (Cont).



From page 2-5.

Remove power. Remove screws on the PECM panel and lift open for access to components. Remove wire 10 at S4-T1. Measure for open between:
(+) S4-T1
(–) TB1-1

Was open obtained?
No
Yes

Remove wire 4 at S4-T1. Measure for open between:
(+) S4-T1
(–) TB1-1

Was open obtained?
No
Yes

Replace timer switch S4 (p 2-139). Repeat test on page 2-5.

Repair wire 4 between S4-T1 and J20-D (p 2-142). Repeat test on page 2-5.

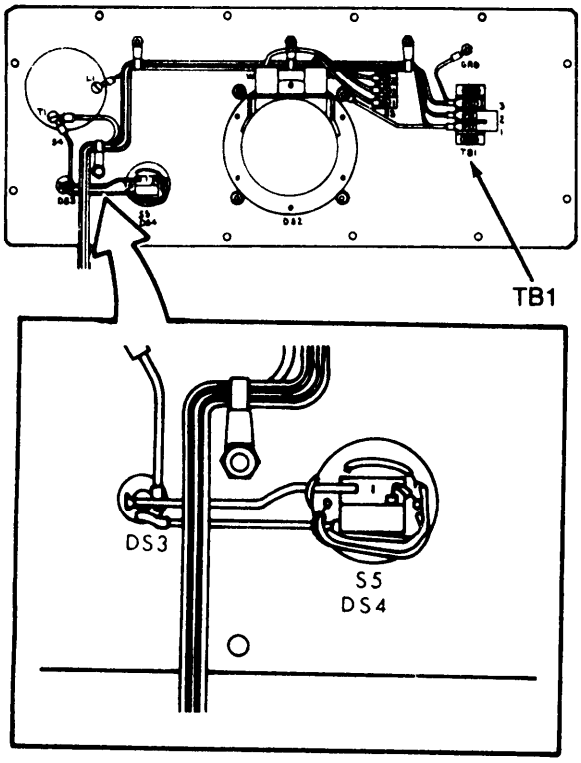
Disconnect (unsolder) wire 10 at DS3-2. Measure for open between:
(+) DS3-2
(–) TB1-1

Was open obtained?
No
Yes

Replace PURGE indicator DS3 (p 2-139). Repeat test on page 2-5.

Repair wire 10 between DS3-2 and S4-T1 (p 2-142). Repeat test on page 2-5.

2-3. PECM TROUBLESHOOTING PROCEDURES (Cont).



From page 2-5.

Disconnect (unsolder) wires 5 and 26 at S5-N.C. Measure for open between:
(+) S5-N.C. (−) TB1-1

Was open obtained?

No → Disconnect (unsolder) wire at S5-C. Measure for open between:
(+) S5-C (−) TB1-1

Was open obtained?

No → Replace LOW PRESSURE switch/indicator S5/DS4 (p 2-138). Repeat test on page 2-5.

Yes → Disconnect (unsolder) wire at DS4-5(−). Measure for open between:
(+) DS4-5(−) (−) TB1-1

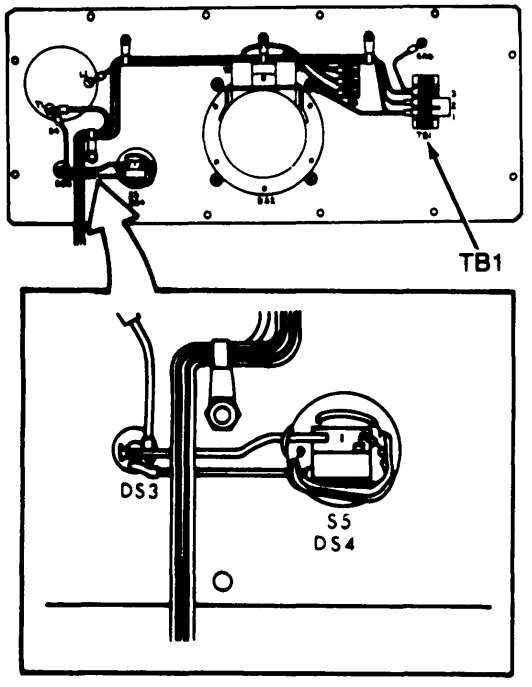
Was open obtained?

No → Replace LOW PRESSURE switch/indicator S5/DS4 (p 2-138). Repeat test on page 2-5.

Yes → Repair jumper wire from DS4-5(−) and S5-C. Repeat test on page 2-5.

Yes → Repair short to ground on wire 5 or 26 between S5-N.C. and J20-E or XA3-K(9). Refer to page 2-142. Repeat test on page 2-5.

2-3. PECM TROUBLESHOOTING PROCEDURES (Cont).



From page 2-5.

Depress the lens cover of the LOW PRESSURE indicator.

Does the LOW PRESSURE indicator light?

No

Yes

Does the indicator go out when released?

No

Yes

Remove power. Replace LOW PRESSURE switch/indicator S5/DS4 (p 2-138). Apply power. Repeat test on this page.

Proceed to page 2-10.

Remove power. Remove screws on PECM panel and lift open for access to components. Measure continuity between:

(+) S5-N.O.

(−) TB1-1

Was continuity obtained?

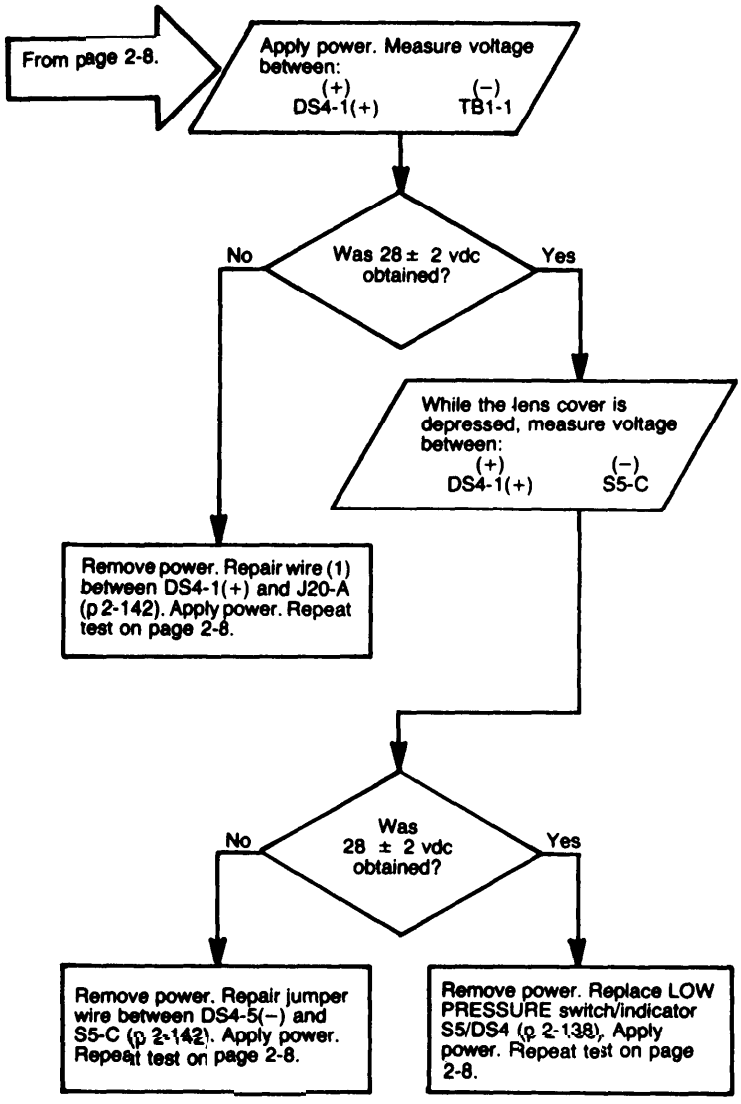
No

Yes

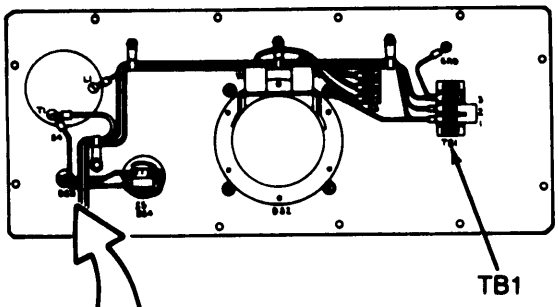
Proceed to page 2-9.

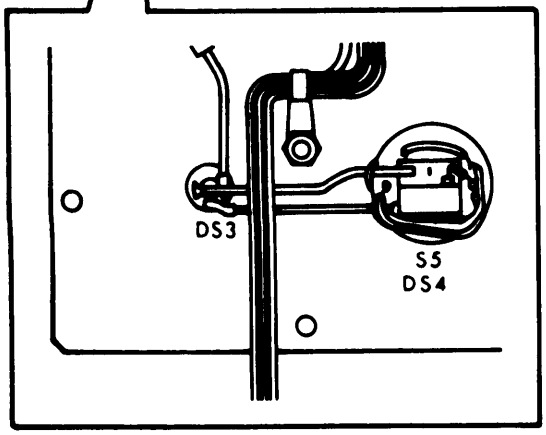
Repair open wire between S5-N.O. and J20-B (p 2-142). Apply power. Repeat test on this page.

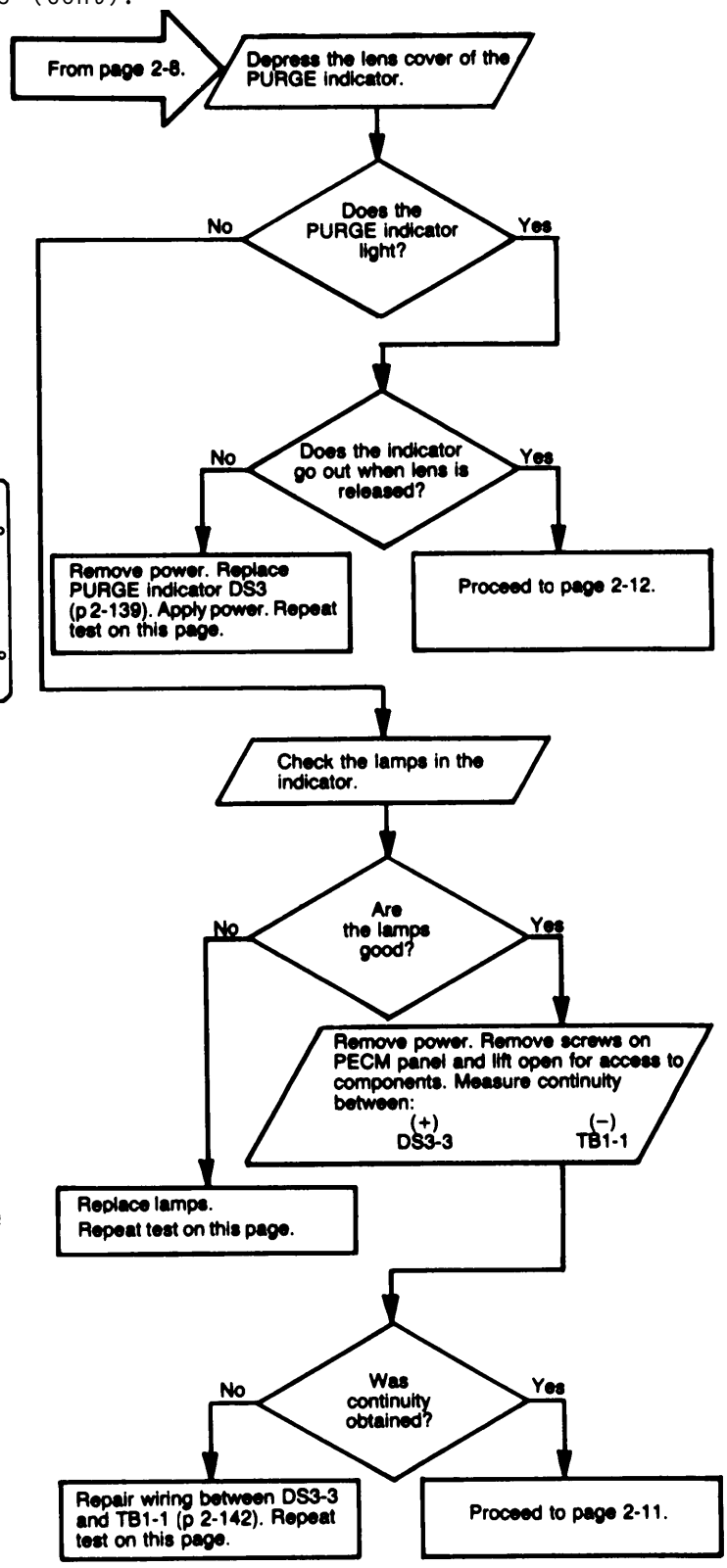
2-3. PECM TROUBLESHOOTING PROCEDURES (Cont).



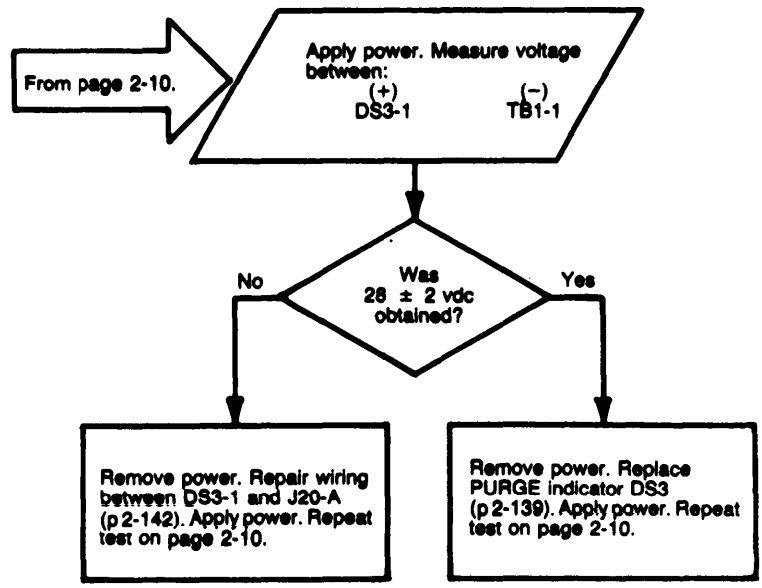
2-3. PECM TROUBLESHOOTING PROCEDURES (Cont).







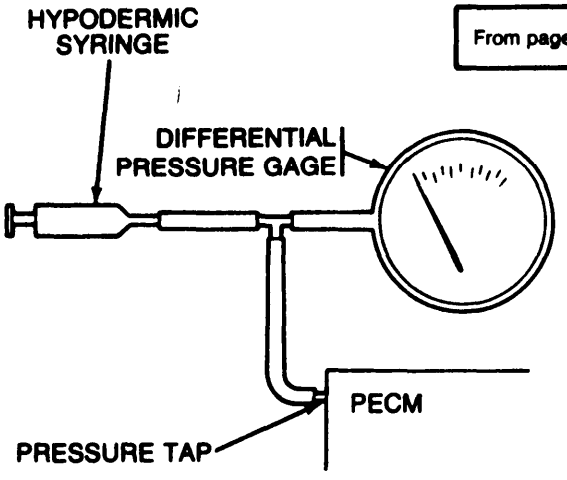
2-3. PECM TROUBLESHOOTING PROCEDURES (Cont)



2-3. PECM TROUBLESHOOTING PROCEDURES (Cont).

CAUTION

Be careful not to touch other pins in J20 as it may short out components on XA3 switching card.



From page 2-10.

Measure voltage between:
(+) 28 vdc positive
(−) J20-E
Slowly decrease the vacuum from 1.3 in. wg until the LOW PRESSURE indicator light comes on and the voltmeter indicates 27 ± 1 vdc. Both indications should occur between 0.10 and 0.30 in wg.

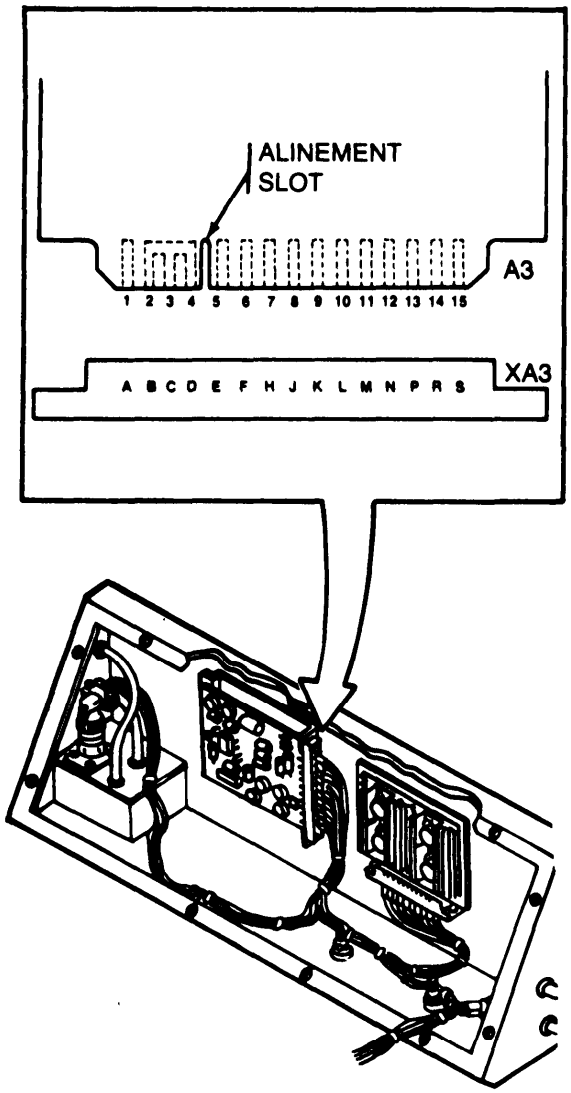
Did the LOW PRESSURE indicator light in the range of 0.10 to 0.30 in. wg?
- No
- Yes

Did the voltmeter indicate 27 ± 1 vdc?
- No: Repair wire (5) between S5-N.C. and J20-E (p 2-142). Repeat test on this page.
- Yes: Proceed to page 2-14.

Vary the vacuum from 0 in. wg to 2.0 in. wg.

Did the LOW PRESSURE indicator light at any vacuum in this range?
- No: Proceed to page 2-13.
- Yes: Replace switching card A3 (p 2-140). Repeat test on this page.

2-3 PECM TROUBLESHOOTING PROCEDURES (Cont).



From page 2-12.

Remove power. Remove screws on PECM panel and lift up for access to components. Apply power and adjust vacuum to zero in. wg. Measure voltage between:
(+) 28 vdc positive
(−) XA3-K(9)

Was 28 ± 2 vdc obtained?

No → Remove power. Replace switching card A3 (p 2-140). Apply power. Repeat test on page 2-12.

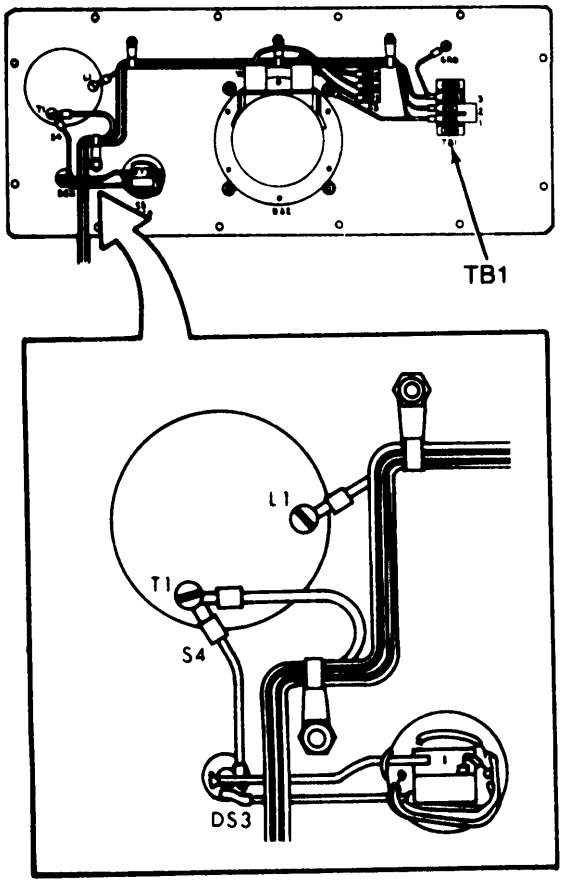
Yes → Measure voltage between:
(+) S5-N.C.
(−) TB1-1

Was 0 vdc obtained?

No → Remove power. Repair wire (26) between XA3-K(9) and S5-N.C. (p 2-142). Apply power. Repeat test on page 2-12.

Yes → Remove power. Replace LOW PRESSURE switch/indicator S5/DS4 (p 2-138). Apply power. Repeat test on page 2-12.

2-3. PECM TROUBLESHOOTING PROCEDURES (Cont).



From 2-12.

Measure voltage between:
(+) 28 vdc positive
(−) J20-D
Turn the timer slightly to the right (1/4 of way to "5" position).

Did the PURGE indicator light?
No
Yes

Did the voltmeter indicate 28 ± 2 vdc?
No
Yes

Remove power. Remove screws on PECM panel and lift up for access to components. Repair wire (4) between S4-T1 and J20-D (p 2-142). Apply power. Repeat test on this page.

Proceed to page 2-15.

Remove power. Remove screws on PECM panel and lift up for access to components. Apply power. Measure voltage between:
(+) S4-T1
(−) TB1-1

Was 0 vdc obtained?
No
Yes

Measure voltage between:
(+) S4-L1
(−) TB1-1

Was 0 vdc obtained?
No
Yes

Remove power. Repair wires to ground from S4-L1 (p 2-142). Apply power. Repeat test on this page.

Remove power. Replace timer switch S4 (p 2-139). Apply power. Repeat test on this page.

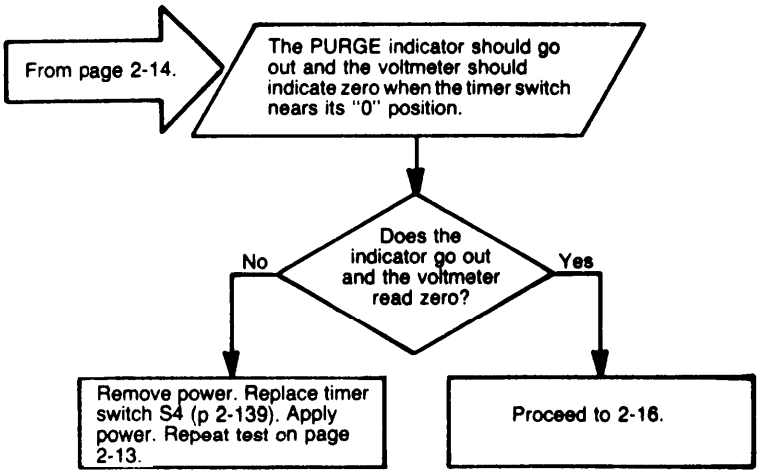
Measure voltage between: (Make sure timer is running.)
(+) DS3-2
(−) TB1-1

Was 0 vdc obtained?
No
Yes

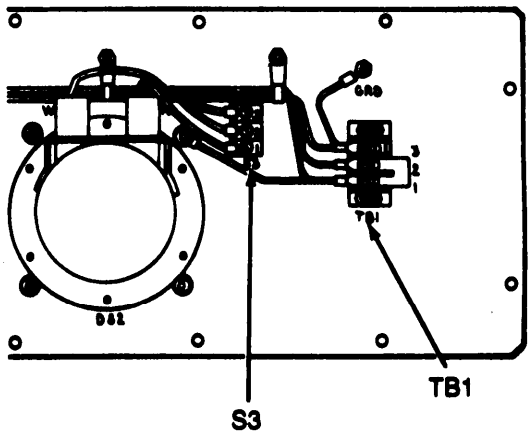
Remove power. Repair wire (10) between DS3-2 and S4-T1 (p 2-142). Apply power. Repeat test on this page.

Remove power. Replace PURGE indicator (p 2-139). Apply power. Repeat test on this page.

2-3. PECM TROUBLESHOOTING PROCEDURES



2-3. PECM TROUBLESHOOTING PROCEDURES (Cont).



From page 2-15.

Apply 28 vdc to J20 as follows:
J20-G - Positive
J20-B - Negative

The dome light switch should be in the OFF position.

Is the dome light off?

No: Remove power. Replace switch S3 (p 2-138). Apply power. Repeat test on this page.

Yes: Switch the dome light switch to the RED position.

Does the red light come on?

No: Remove power. Remove screws on PECM panel and lift up for access to components. Apply power. Measure voltage between:
(+) S3-2
(−) TB1-1

Was 28 ± 2 vdc obtained?

No: Remove power. Repair wire (7) from J20-G to S3-2 (p 2-142). Apply power. Repeat test on this page.

Yes: Proceed to page 2-17.

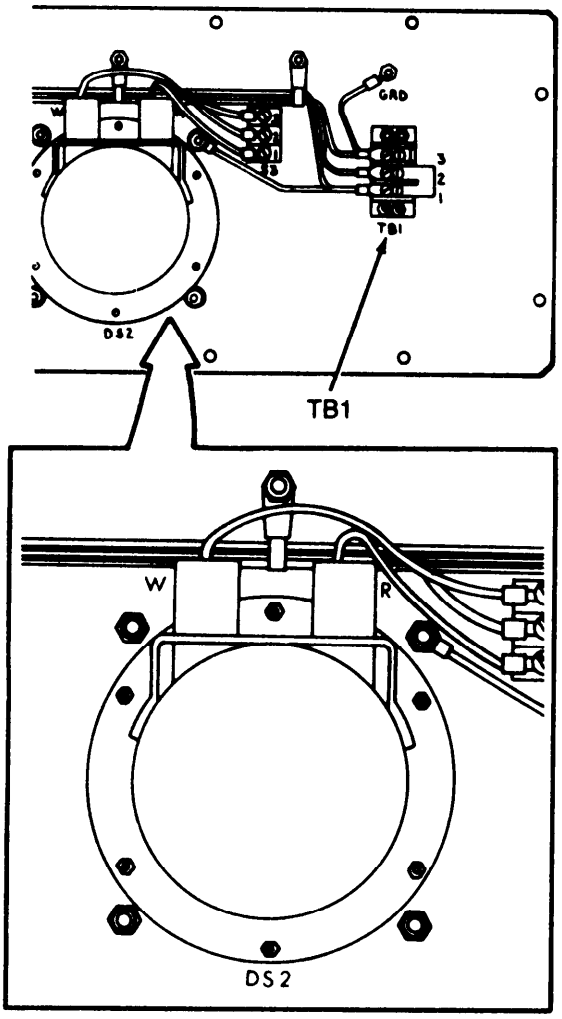
Yes: Switch the dome light switch to the WHITE position.

Does the white light come on?

No: Proceed to page 2-19.

Yes: This completes the checkout of the PECM. Remove power and vacuum connections.

2-3. PECM TROUBLESHOOTING PROCEDURES (Cont).



From page 2-16.

Measure voltage between:
(+) DS2-(−)
(−) TB1-1

Was 0 vdc obtained?

No

Remove power. Repair wires to ground from DS2-(−). Refer to page 2-142. Apply power. Repeat test on page 2-15.

Yes

Measure voltage between:
(+) S3-1
(−) TB1-1

Was 28 ± 2 vdc obtained?

No

Remove power. Replace switch S3 (p 2-138). Apply power. Repeat test on page 2-15.

Yes

Measure voltage between:
(+) DS2-R
(−) TB1-1

Was 28 ± 2 vdc obtained?

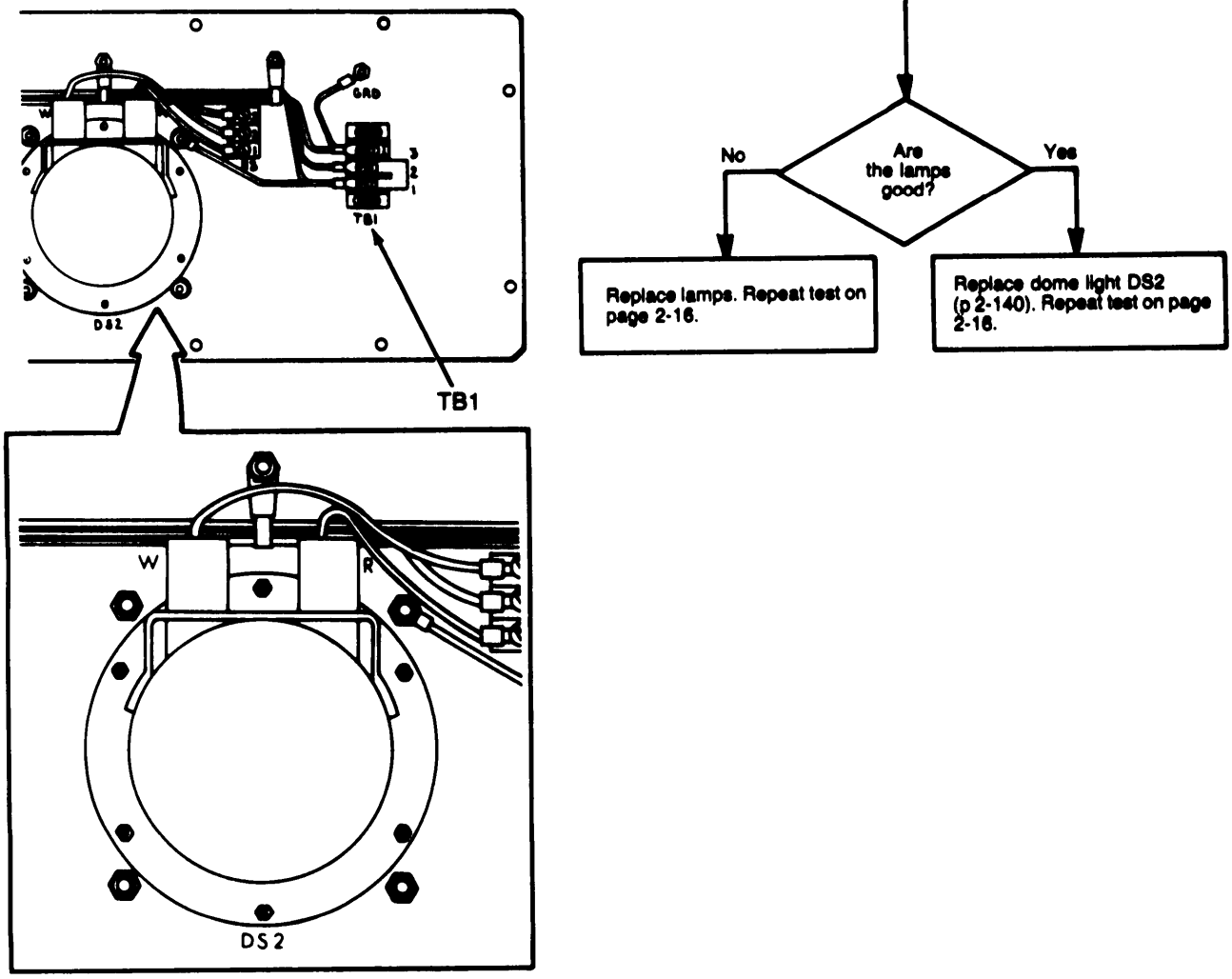
No

Remove power. Repair wire (36) between DS2-1 and DS2-R (p 2-142). Apply power. Repeat test on page 2-16.

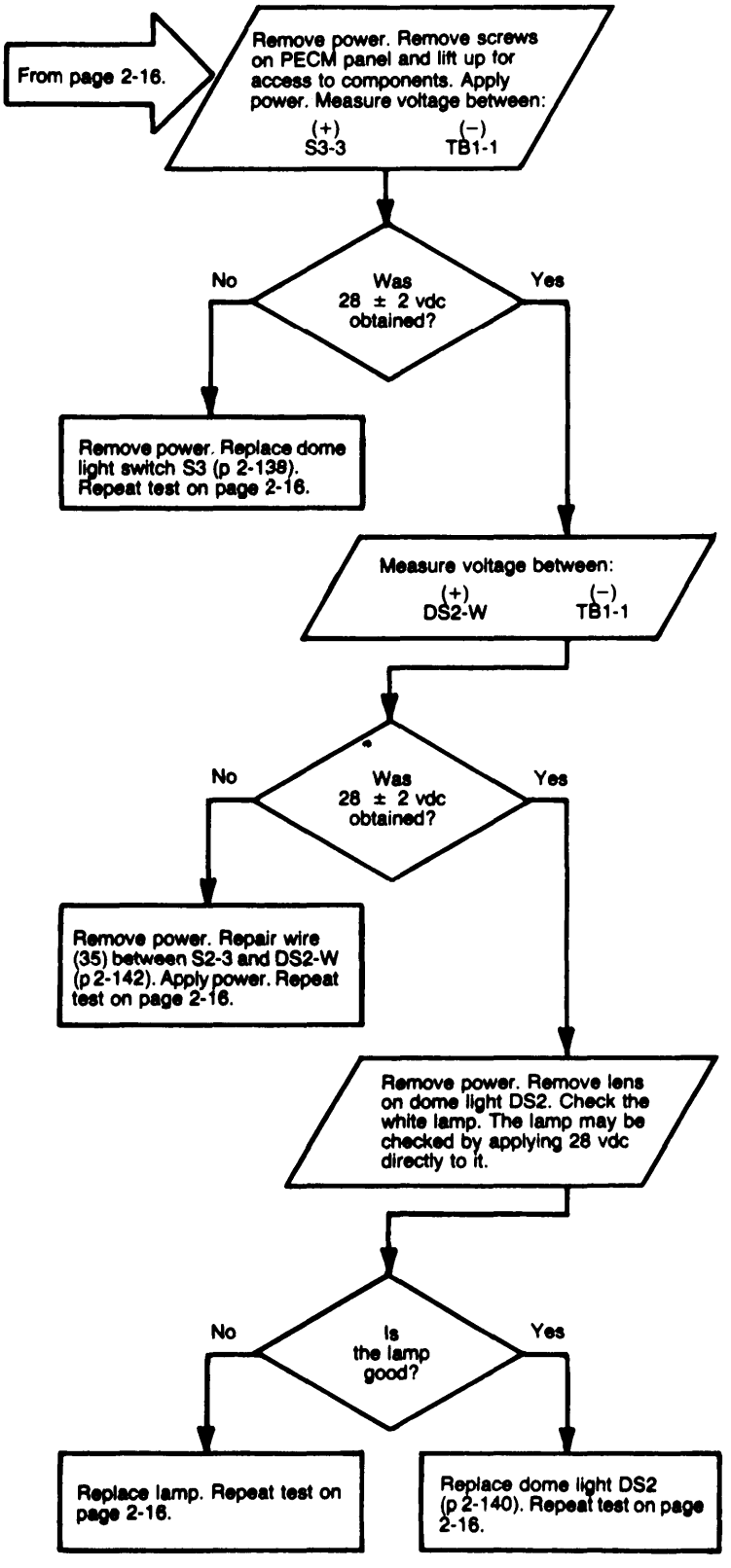
Yes

Proceed to 2-18.

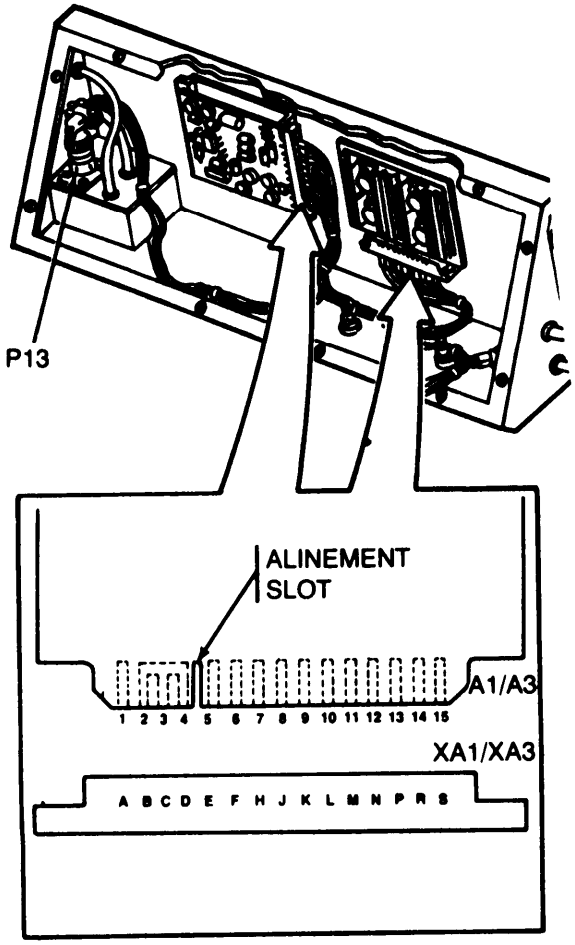
2-3. PECM TROUBLESHOOTING PROCEDURES



2-3. PECM TROUBLESHOOTING PROCEDURES (Cont).



2-3. PECM TROUBLESHOOTING PROCEDURES (Cont).



From page 2-3.

Remove power. Remove screws from PECM panel and lift up for access to components. Remove the printed circuit cards A1 and A3 (p 2-140 and 2-141). Install jumpers as indicated.

(From)	(To)
XA1-L(10)	XA3-E(5)
XA3-C(3)	XA3-D(4)

Apply 28 vdc power as described on page 2-3.

Is current less than 1/2 amp?

No

Remove power. Disconnect pressure transducer plug P13. Apply power.

Is current less than 1/2 amp?

No

Remove power. Repair wiring (3) (short) from J20-C to XA1-L(10) or XA3-E(5) to P13-A (p 2-142). Reconnect plug P13 and install cards A1 and A3. Repeat test on page 2-3.

Yes

Remove power. Replace pressure transducer (p 2-141). Repeat test on page 2-3.

Yes

Remove power. Remove jumpers and connect as follows:

(From)	(To)
XA1-K(10)	XA1-L(9)

This connection completes the power to the switching card A3 which is normally provided by the power card A1. Apply power.

Is current less than 1/2 amp?

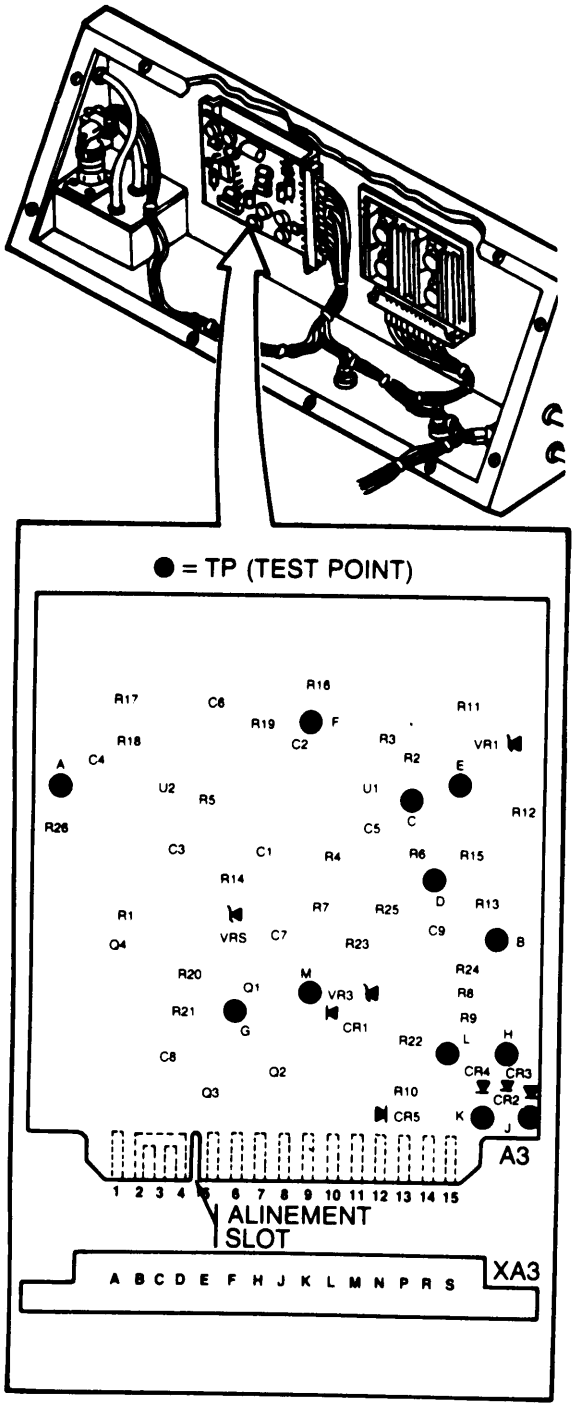
No

Remove power. Repair wire between XA1-9 and XA3-6 (p 2-142). Install cards A1 and A3. Repeat test on page 2-3.

Yes

Proceed to page 2-21.

2-3. PECM TROUBLESHOOTING PROCEDURES (Cont).



From page 2-20.

Remove power. Measure diodes on switching card A3 to verify that they are not shorted. Measure resistance between:

Diode	(+)	(−)
A3CR2	TP-J	TP-H
A3CR3	TP-J	A3-B(3)
A3CR4	TP-K	A3-B(3)
A3CR5	TP-K	TP-L

Was resistance greater than 1 K ohm for all measurements?

No → Replace switching card A3 (p 2-140). Repeat test on page 2-3.

Yes → Measure the resistance at the output of the switching card A3 between:

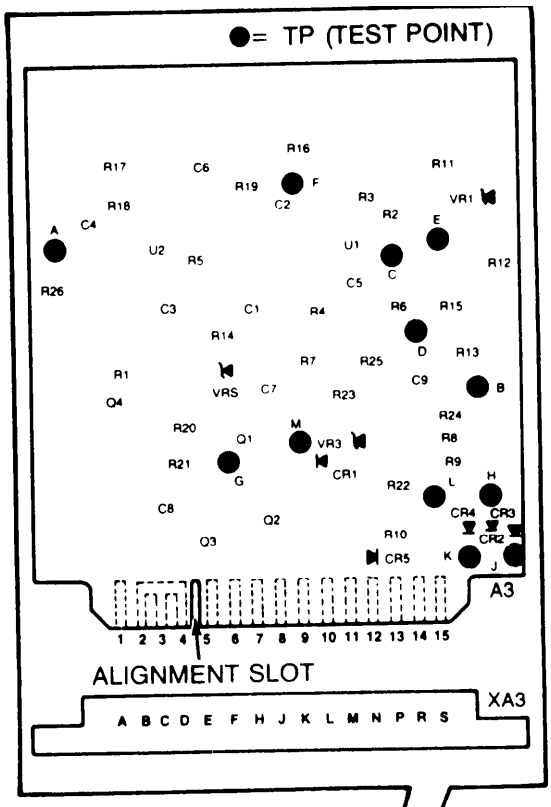
(+)	(−)
A3-TP-M	A3-C(3)
A3-TP-G	A3-C(3)

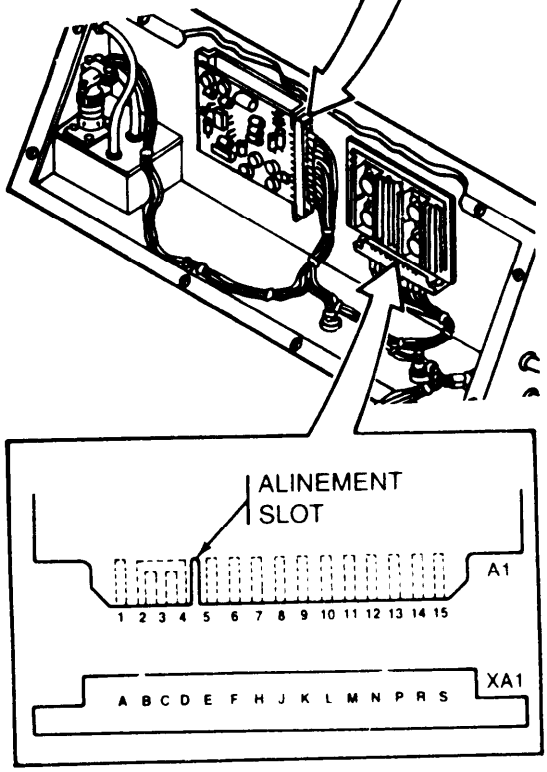
Was resistance greater than 1 K ohm obtained?

No → Replace switching card A3 (p 2-140). Repeat test on page 2-3.

Yes → Proceed to page 2-22.

2-3. PECM TROUBLESHOOTING PROCEDURES (Cont).





From page 2-21.

Install switching card A3 and power card A1. Measure resistance between:

(+)	(−)
A3-TP-M	TB1-1
A3-TP-H	TB1-1
A3-TP-G	TB1-1
A3-TP-L	TB1-1

Was resistance greater than 1 K ohm obtained?

No → Repair wiring (p 2-142) connected to terminals of XA1-B(2), C(3), D(4), E(5), N(12), P(13), R(14), or S(15). Repeat test on page 2-3.

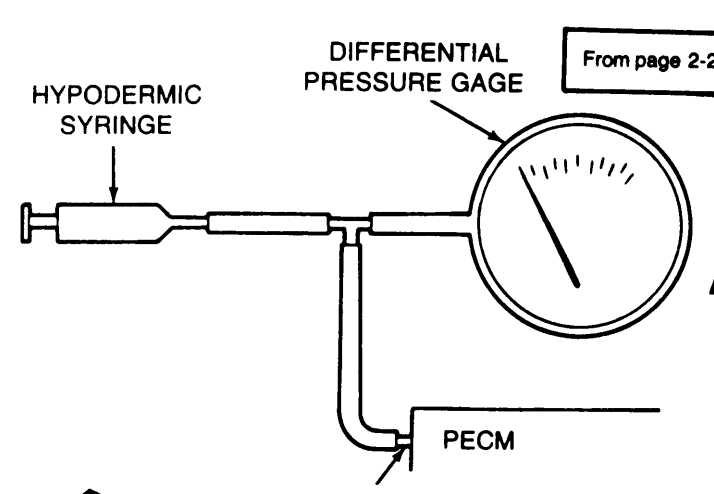
Yes → Remove the power card A1. Connect jumper between XA1-K(10) and XA1-L(9). Apply power.

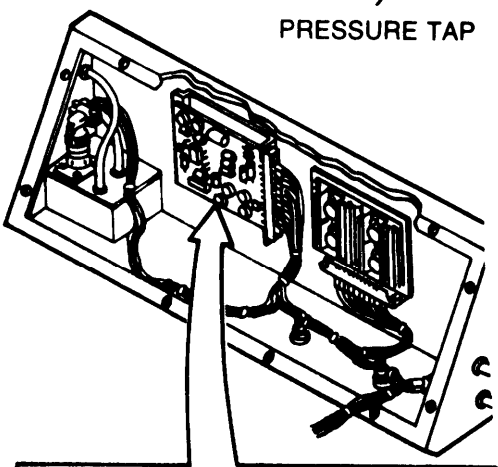
Is the current less than 1/2 amp?

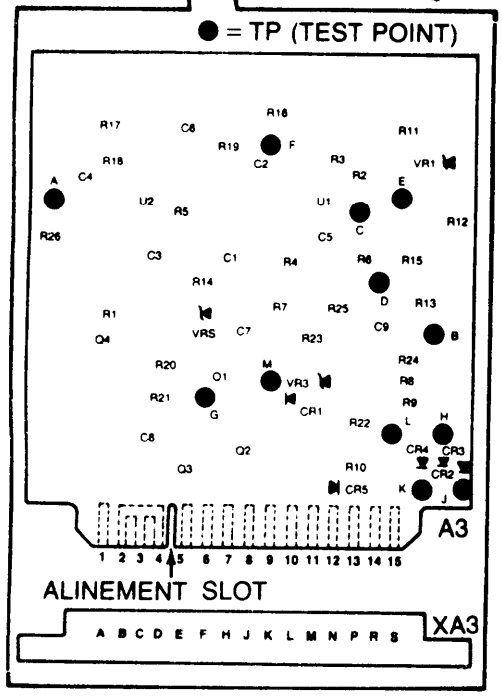
No → Remove power. Replace switching card A3 (p 2-140). Repeat test on page 2-3.

Yes → Proceed to page 2-23.

2-3. PECM TROUBLESHOOTING PROCEDURES (Cont).







From page 2-22.

Apply vacuum to the PECM as indicated below and measure test point (TP) voltage on switching card A3 with respect to TB1-1 as indicated:

Vacuum (in. wg)	Volts TP-M	TP-G
0	25 ± 2	< 1
0.4	9.3 ± 3.5	< 1
0.6	< 1	< 1
0.8	< 1	9.3 ± 3.5
1.3	< 1	25.3 ± 2

Was the specified voltage obtained in all cases?

No

Remove power. Replace the switching card A3 (p 2-140). Repeat test on page 2-3.

Yes

Remove power. Remove XA1 jumper. Install the power card A1. Apply power.

Is the current less than 1/2 amp?

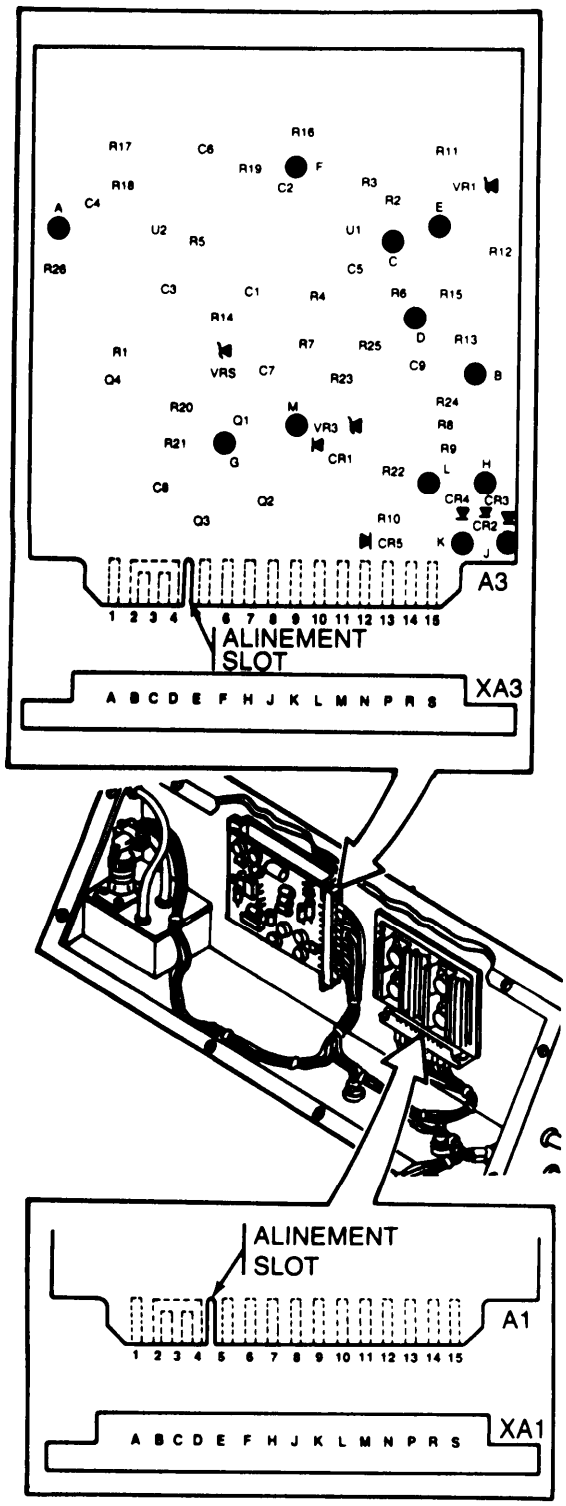
No

Remove power. Replace power card A1 (p 2-141). Repeat test on page 2-3.

Yes

Repeat test on page 2-3.

2-3. PECM TROUBLESHOOTING PROCEDURES (Cont).



From page 2-3 and page 2-4.

Remove power. Remove screws from PECM panel and lift up for access to components. Apply power. Measure voltage between:
(+) A3-TP-J (−) A3-TP-K

Was 22.5 to 26.5 vdc obtained?

Yes

Remove power. Repair wiring (p 2-142) for continuity between:

Wire No.	From (+)	To (−)
20	XA3-S(15)	XA1-B(2)
21	XA3-R(14)	XA1-E(5)
31	XA1-C(3)	J21-A
32	XA1-D(4)	J21-B

Repeat test on page 2-3.

No

Measure voltage between:
(+) A2-TP-B (−) TB1-1

Was 28 ± 2 vdc obtained?

No

Remove power. Repair wire (3) between J20-C and XA1-10 (p 2-142). Apply power. Repeat test on page 2-3.

Yes

Measure voltage between:
(+) A3-TP-B (−) XA3-C(3)

Was 28 ± 2 vdc obtained?

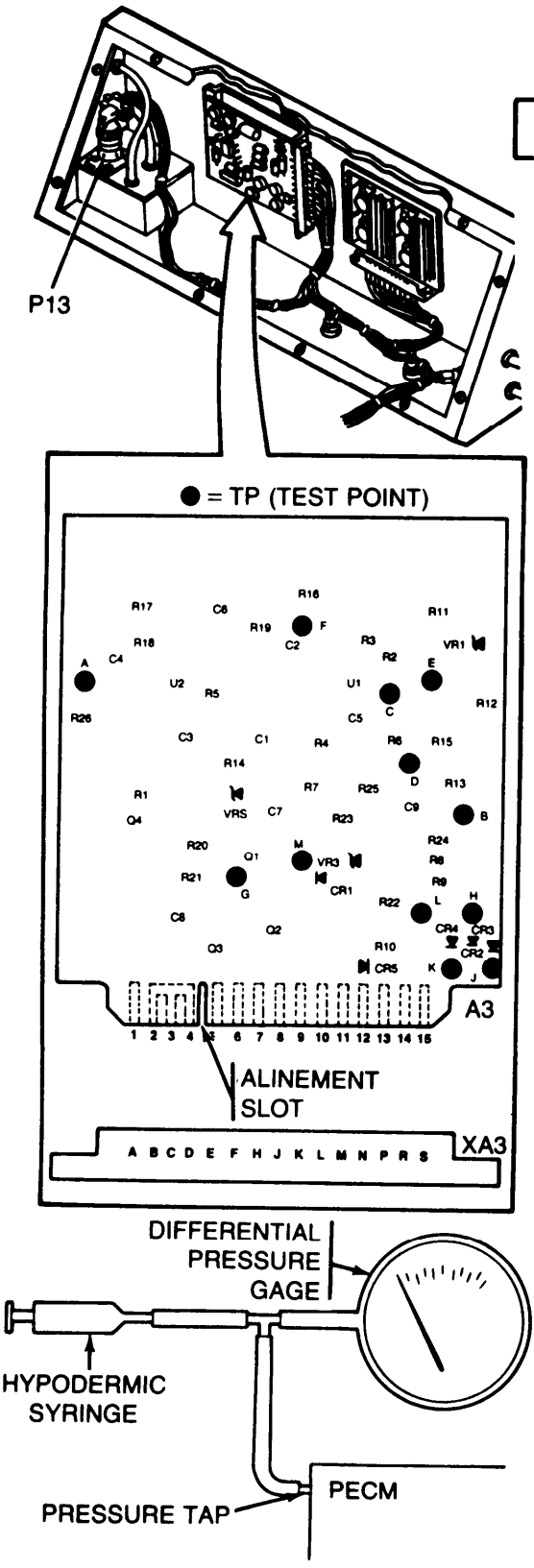
No

Remove power. Repair wires to TB1-1 from XA1-H(7) and XA3-C(3). Refer to page 2-142. Apply power and repeat test on page 2-3.

Yes

Proceed to page 2-25.

2-3. PECM TROUBLESHOOTING PROCEDURES (Cont).



From page 2-24.

Remove power. Disconnect connector plug P13 at pressure transducer MT1. Apply power. Measure voltage at pressure transducer plug sockets.

(+)	(−)
P13-A	P13-B

Was 27 ± 2 vdc obtained?

No

Measure voltage between:

(+)	(−)
XA3-5	TB1-1

Was 27 ± 2 vdc obtained?

No

Remove power. Replace switching card A3 (p 2-140). Apply power. Repeat test on page 2-3.

Yes

Remove power. Repair wiring in power wires to pressure transducer (p 2-142). Apply power. Repeat test on page 2-3.

Yes

Remove power. Connect plug P13. Apply power. Measure voltage with respect to TB1-1 at A3-TP-A at the indicated vacuum:

Vacuum (in. wg)	A3-TP-A Volts
0.00	0.25 ± .15
0.4	0.87 ± .15
0.6	1.20 ± .15
0.8	1.60 ± .15
1.3	2.60 ± .15

Was the voltage within the proper limits?

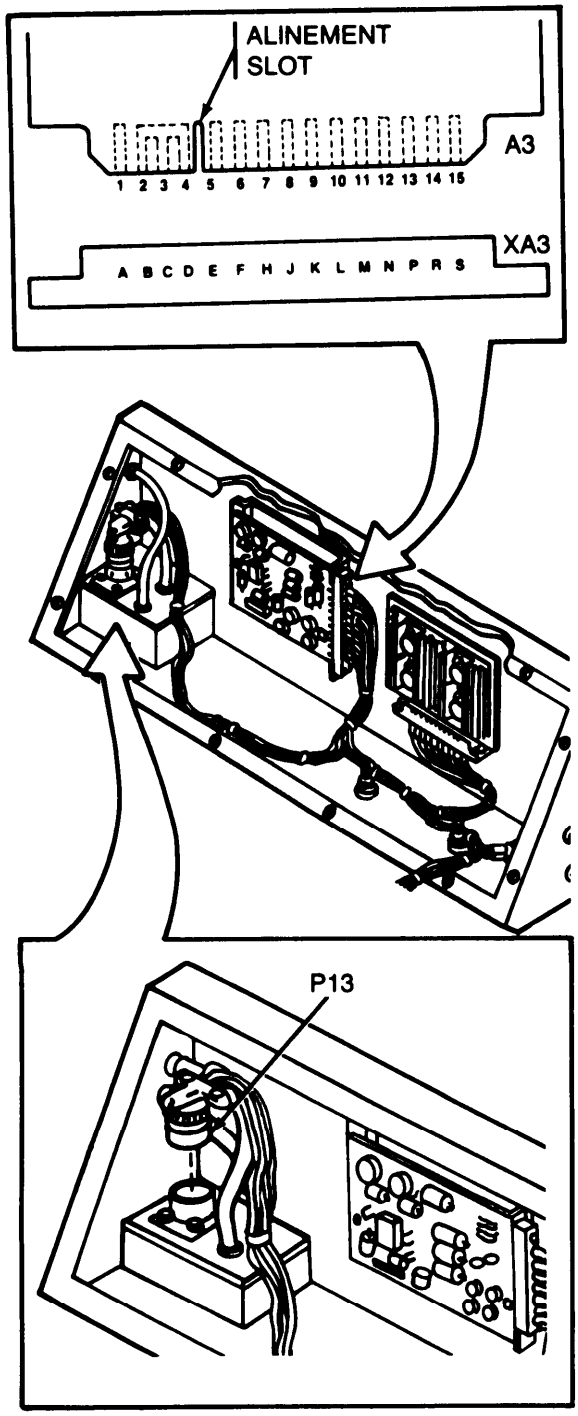
No

Proceed to page 2-26.

Yes

Proceed to page 2-27.

2-3. PECM TROUBLESHOOTING PROCEDURES (Cont).



From page 2-25.

Remove power. Disconnect P13. Measure for open between:
(+) P13-C
(−) P13-D

Was open obtained?

No → Repair shorted wiring (p 2-142) between P13C and D. Reconnect plug P13. Repeat test on page 2-3.

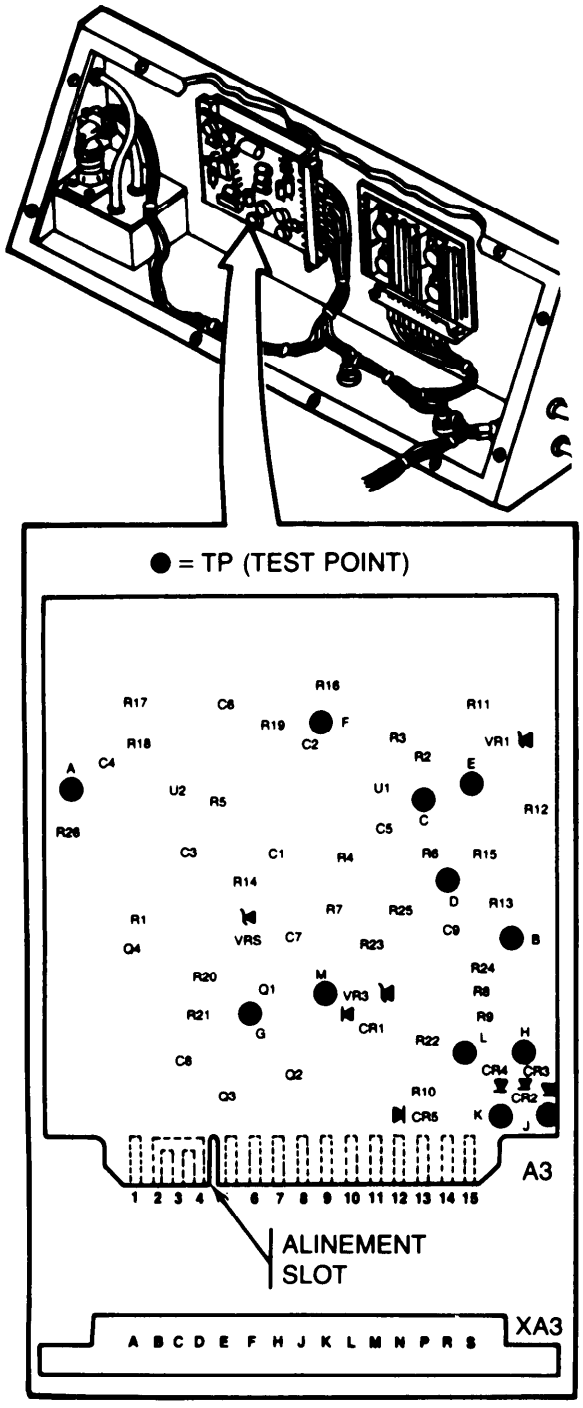
Yes → Measure continuity between:
(+) P13-C, P13-D
(−) XA3-A(1), XA3-B(2)

Was continuity obtained?

No → Repair wiring (p 2-142) between P13 and XA3. Reconnect plug P13. Repeat test on page 2-3.

Yes → Replace pressure transducer MT1 (p 2-141). Reconnect plug P13. Repeat test on page 2-3.

2-3. PECM TROUBLESHOOTING PROCEDURES (Cont).



From page 2-25.

Remove power. Remove switching card A3 (p 2-140). Measure diodes on switching card to verify that they are not shorted. Measure resistance between:

Diode	(+)	(−)
A3CR2	TP-J	TP-H
A3CR3	TP-J	A3-C(3)
A3CR4	TP-K	A3-C(3)
A3CR5	TP-K	TP-L

Was resistance greater than 1 K ohm for all measurements?

No → Replace switching card A3 (p 2-140). Repeat test on page 2-3.

Yes → Measure resistance at the output of the switching card A3 between:

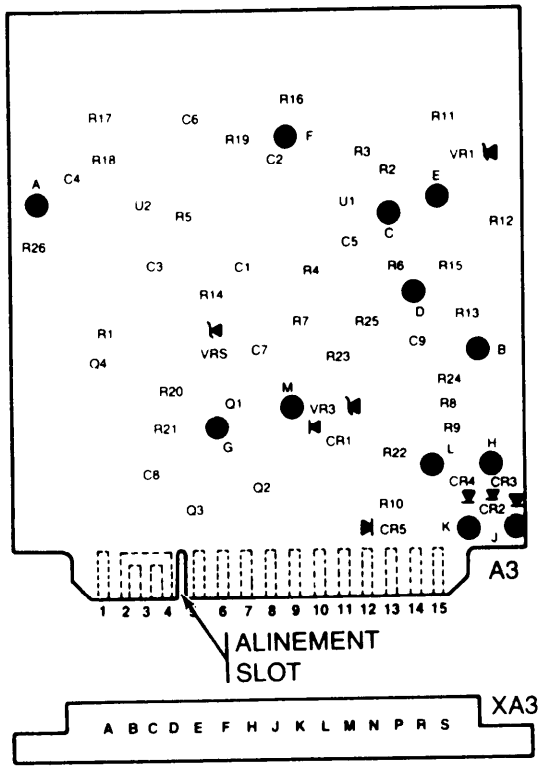
(+)	(−)
A3-TP-M	A3-C(3)
A3-TP-G	A3-C(3)

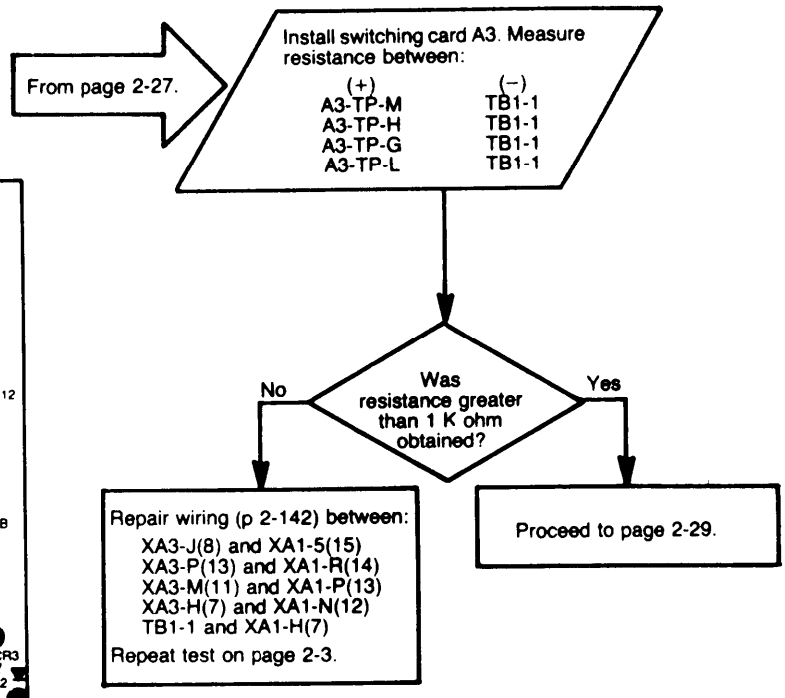
Was resistance greater than 1 K ohm obtained?

No → Replace switching card A3 (p 2-140). Repeat test on page 2-3.

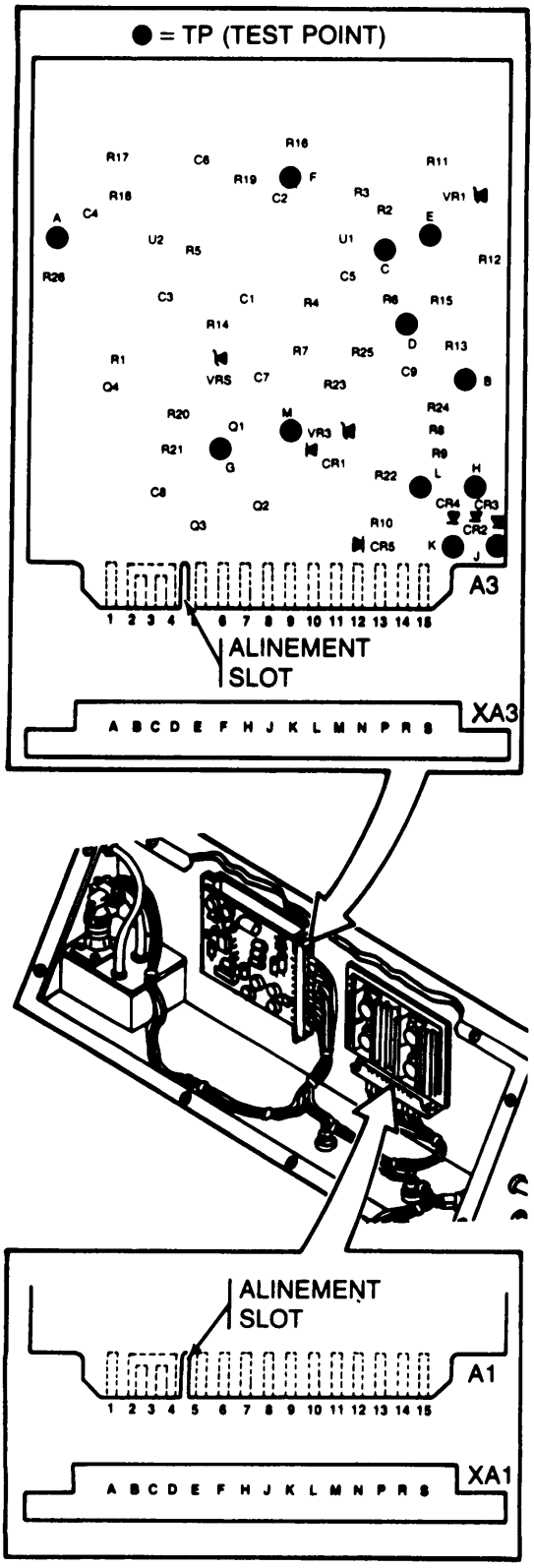
Yes → Proceed to page 2-28.

2-3. PECM TROUBLESHOOTING PROCEDURES





2-3. PECM TROUBLESHOOTING PROCEDURES (Cont).



From page 2-28.

Remove power printed circuit card A1. Connect jumpers as follows:

(From)	(To)
XA1-L(10)	XA1-K(9)

This connection completes the power to the switching card A3 which is normally provided when the power card A1 is removed so that the switching card A3 is not electrically loaded by a defective power card. Apply 28 vdc power and vacuum to the PECM as indicated below and measure test point (TP) voltage on switching card A3 with respect to ground TB1-1 as indicated:

Vacuum (in. wg)	Voltage at test point (volts) A3-TP-M	A3-TP-G
0	25 ± 2	< 1
0.4	9.3 ± 3.5	< 1
0.6	1	< 1
0.8	1	9.3 ± 3.5
1.3	1	25.3 ± 2

Was the specified voltage obtained in all cases?

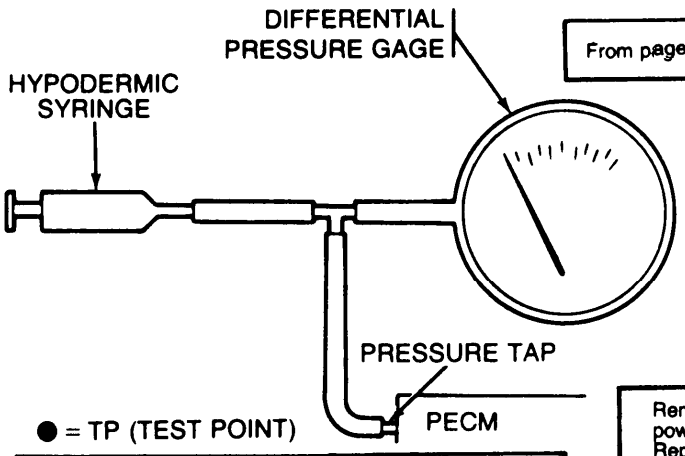
No

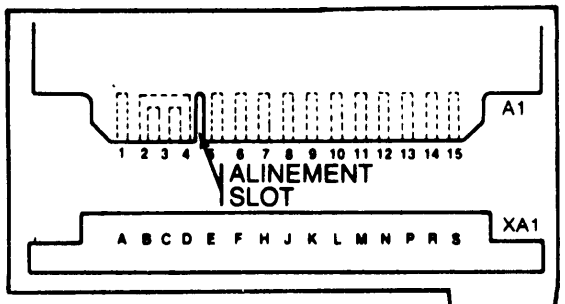
Remove power. Remove jumper. Replace the switching card A3 (p 2-140). Repeat test on page 2-3.

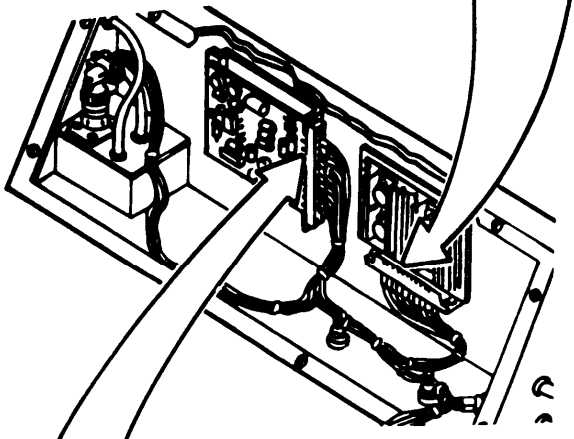
Yes

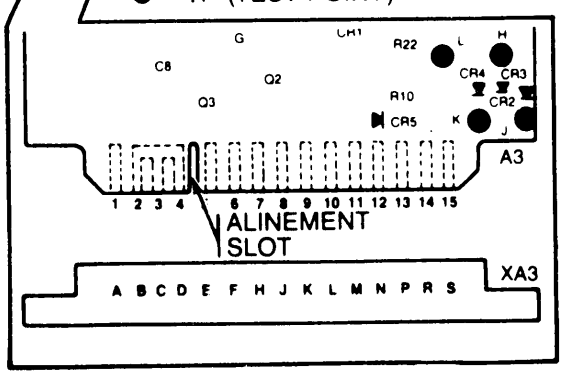
Proceed to page 2-30. Remove jumper.

2-3. PECM TROUBLESHOOTING PROCEDURES (Cont).









From page 2-29.

Remove power. Install the power card A1. Apply power. Repeat measurements of test points "M" and "G" on switching card A3 at the specified pressures (vacuum).

Was the specified voltage obtained in all cases?

No → Remove power. Replace power card A1 (p 2-141). Repeat test on page 2-3.

Yes →

Measure the test point voltages with respect to TB1-1 at the following applied pressures:

Pressure (in. wg)	Voltage at test point (volts) A3-TP-H	A3-TP-L
0	24.3 ± 2	< 1
0.4	8.6 ± 3.5	< 1
0.6	< 1	< 1
0.8	< 1	8.6 ± 3.5
1.3	< 1	24.3 ± 2.0

Were the specified voltages obtained?

No →

Yes → Proceed to page 2-31.

Remove power. Remove power card A1. Measure continuity between:

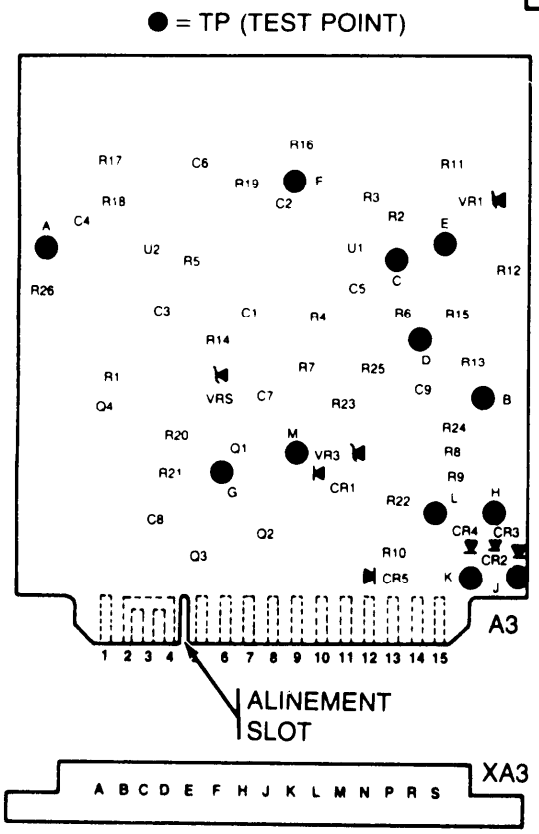
(+)	(−)
A3-J(8)	A1-S(15)
A1-R(14)	A3-P(13)
A3-H(7)	A1-N(12)
A1-P(13)	A3-M(11)

Was continuity obtained?

No → Repair wiring (p 2-142). Repeat test on page 2-3.

Yes → Replace power printed circuit card A1 (p 2-141). Repeat test on page 2-3.

2-3. PECM TROUBLESHOOTING PROCEDURES (Cont).



From page 2-30.

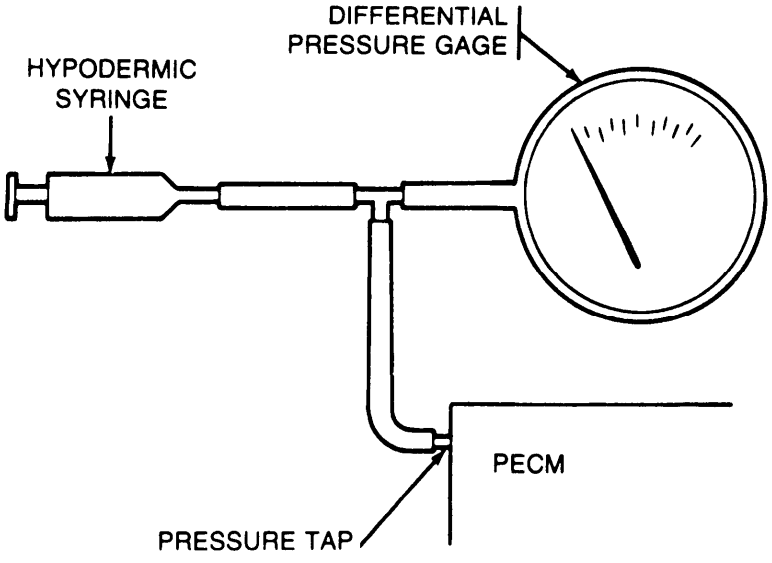
Measure the test point voltages with respect to TB1-1 on the switching card A3 at the following applied vacuum:

Vacuum (in. wg)	Voltage at test point (volts) A3-TP-J	A3-TP-K
0	23.7 ± 2.0	< 1
0.4	8.0 ± 3.5	< 1
0.6	< 1	< 1
0.8	< 1	8.0 ± 3.5
1.3	< 1	23.7 ± 2.0

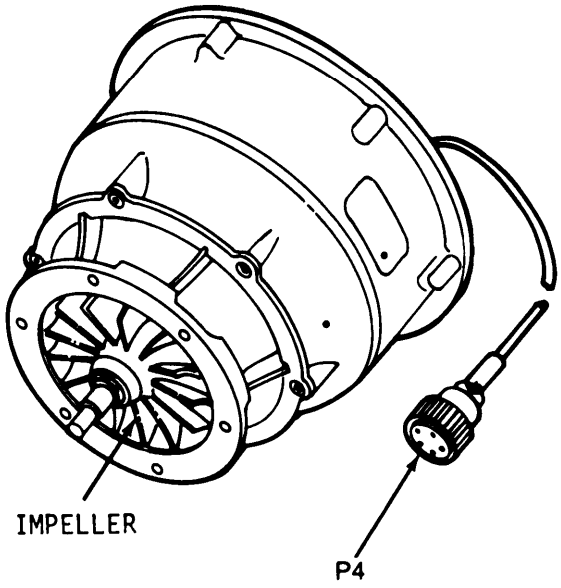
Was the voltage in the specified limits?

No → Remove power. Replace switching card A3 (p 2-140). Repeat test on page 2-3.

Yes → This part of the pressure control system is working properly. Repeat test on page 2-3.

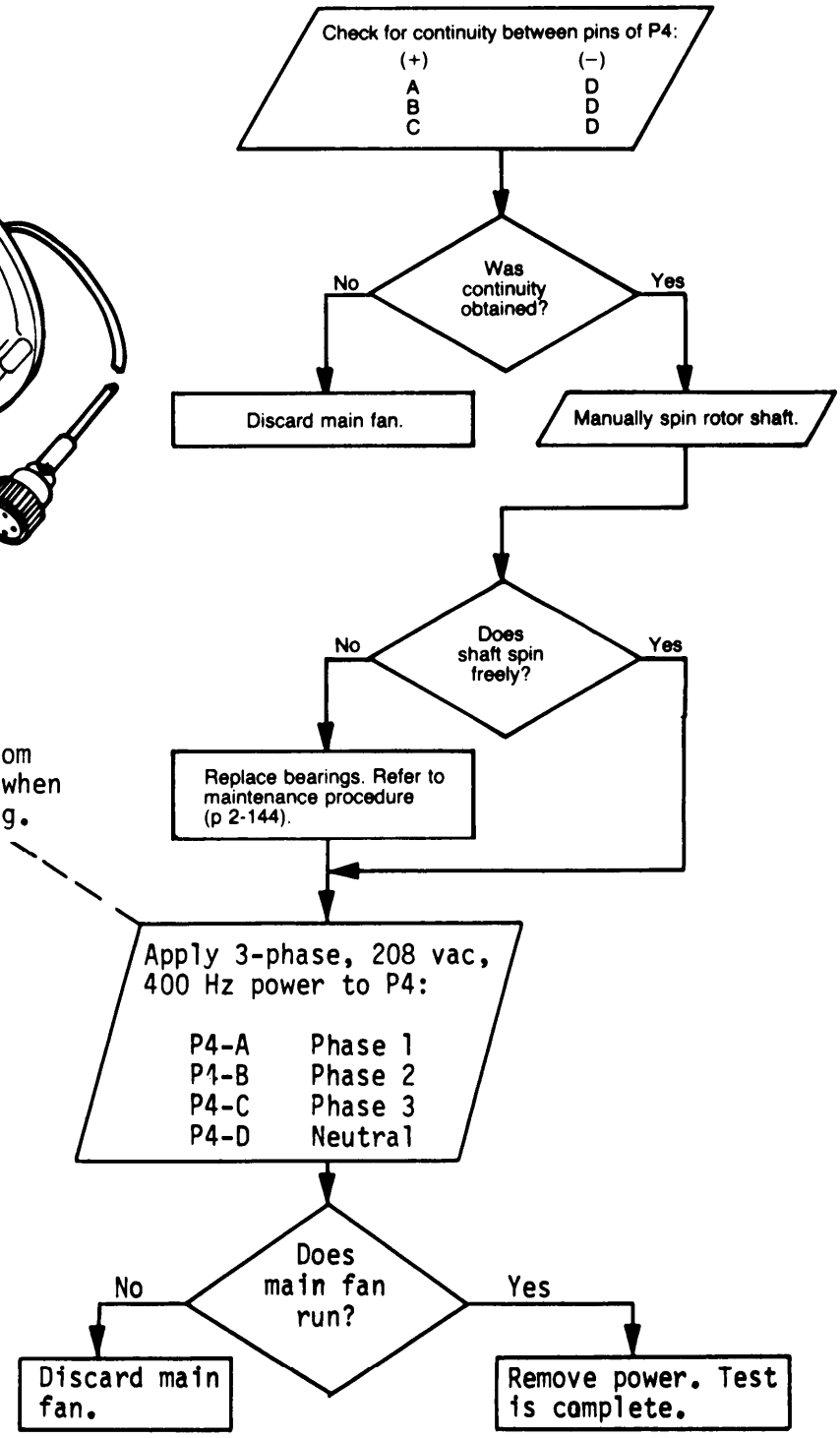


2-4. MAIN FAN TROUBLESHOOTING PROCEDURES.

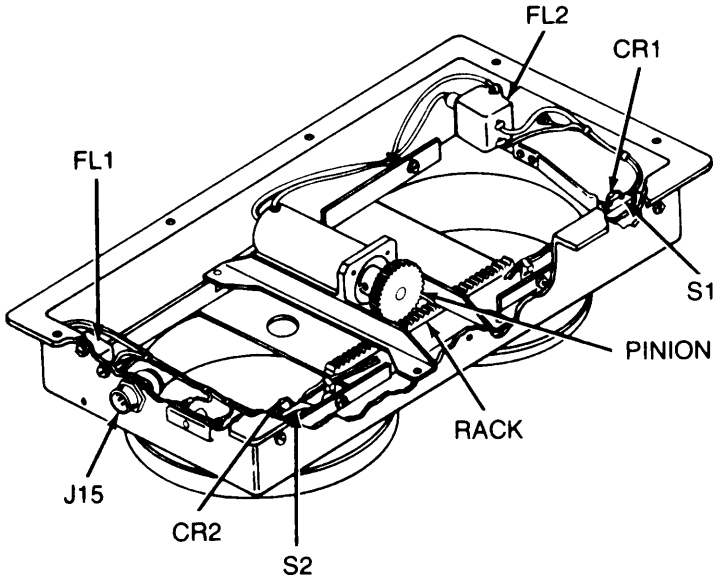


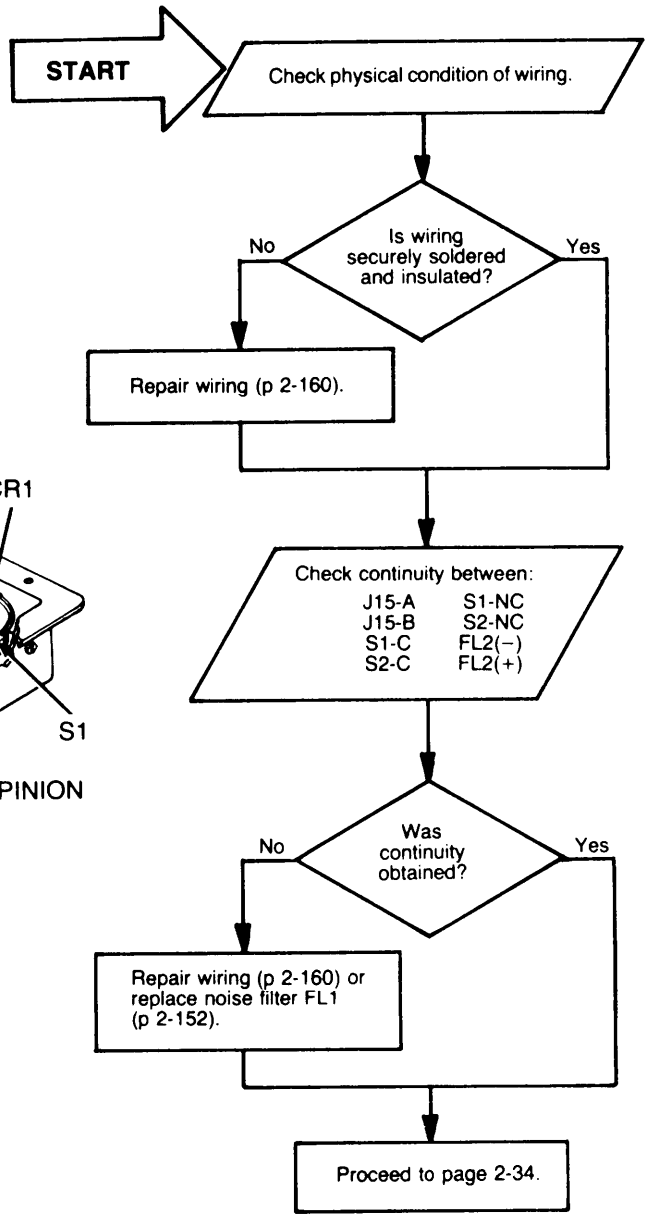
WARNING

Keep hands away from fan impeller area when main fan is running.

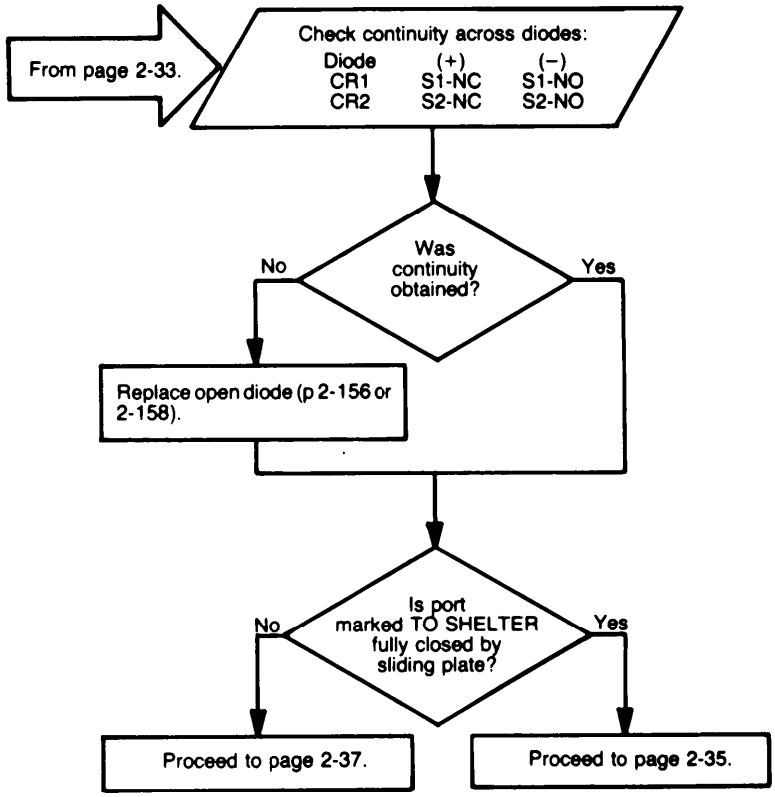


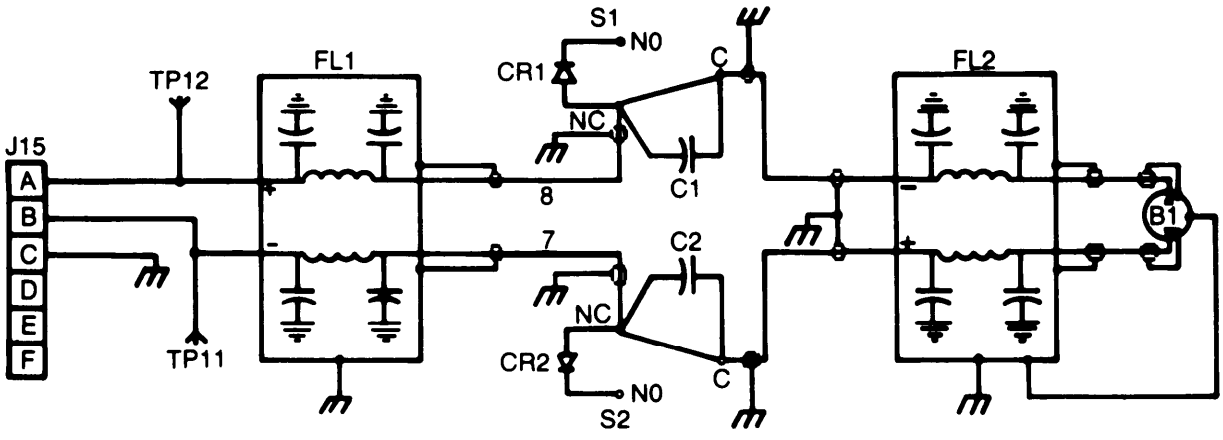
2-5. AIRFLOW VALVE TROUBLESHOOTING PROCEDURES.



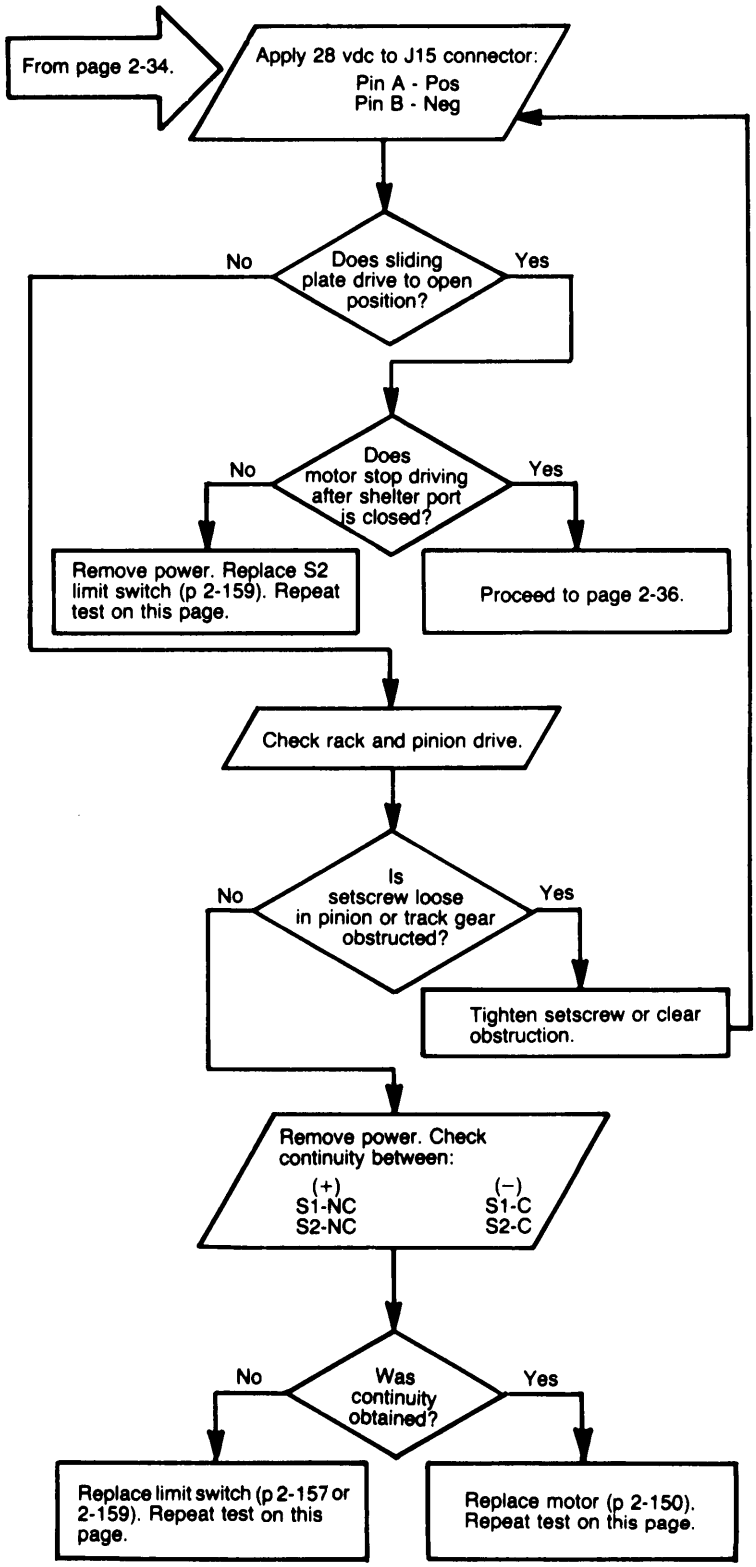


2-5. AIRFLOW VALVE TROUBLESHOOTING PROCEDURES (Cont).

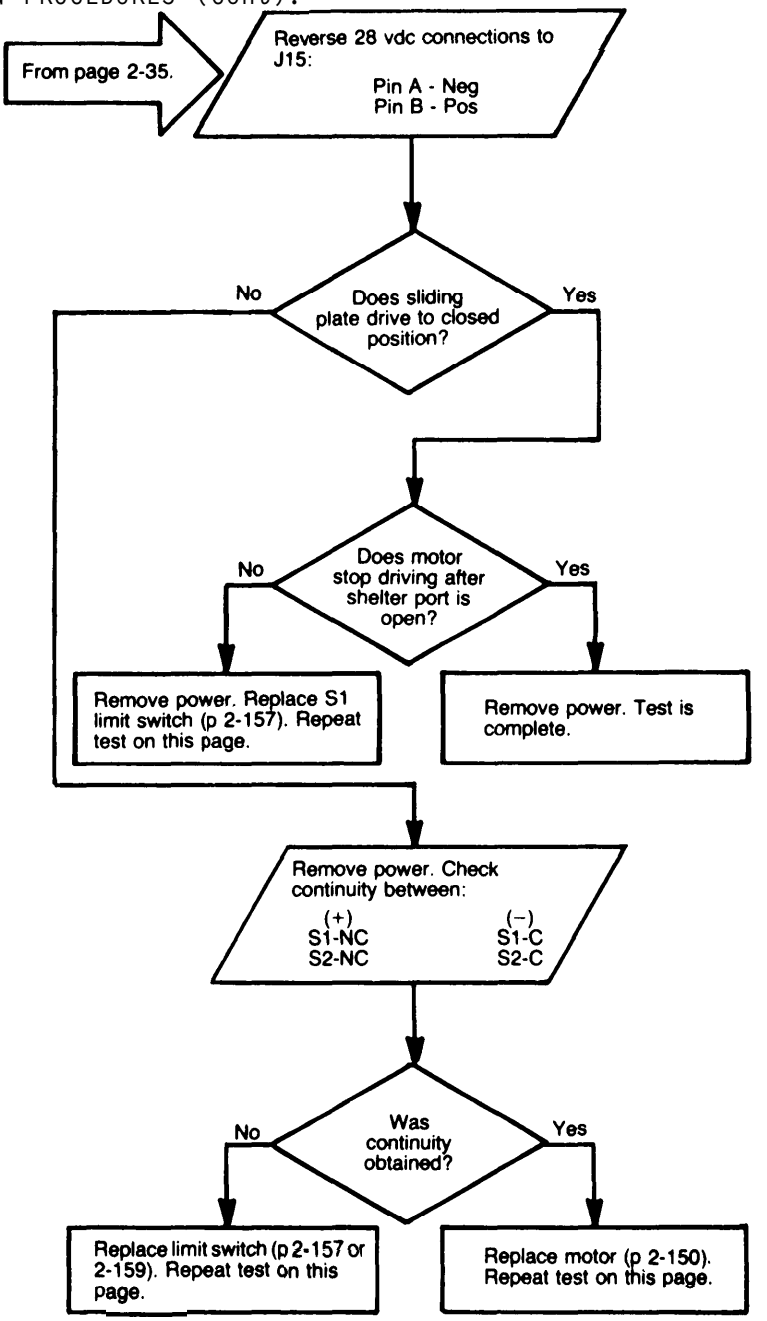




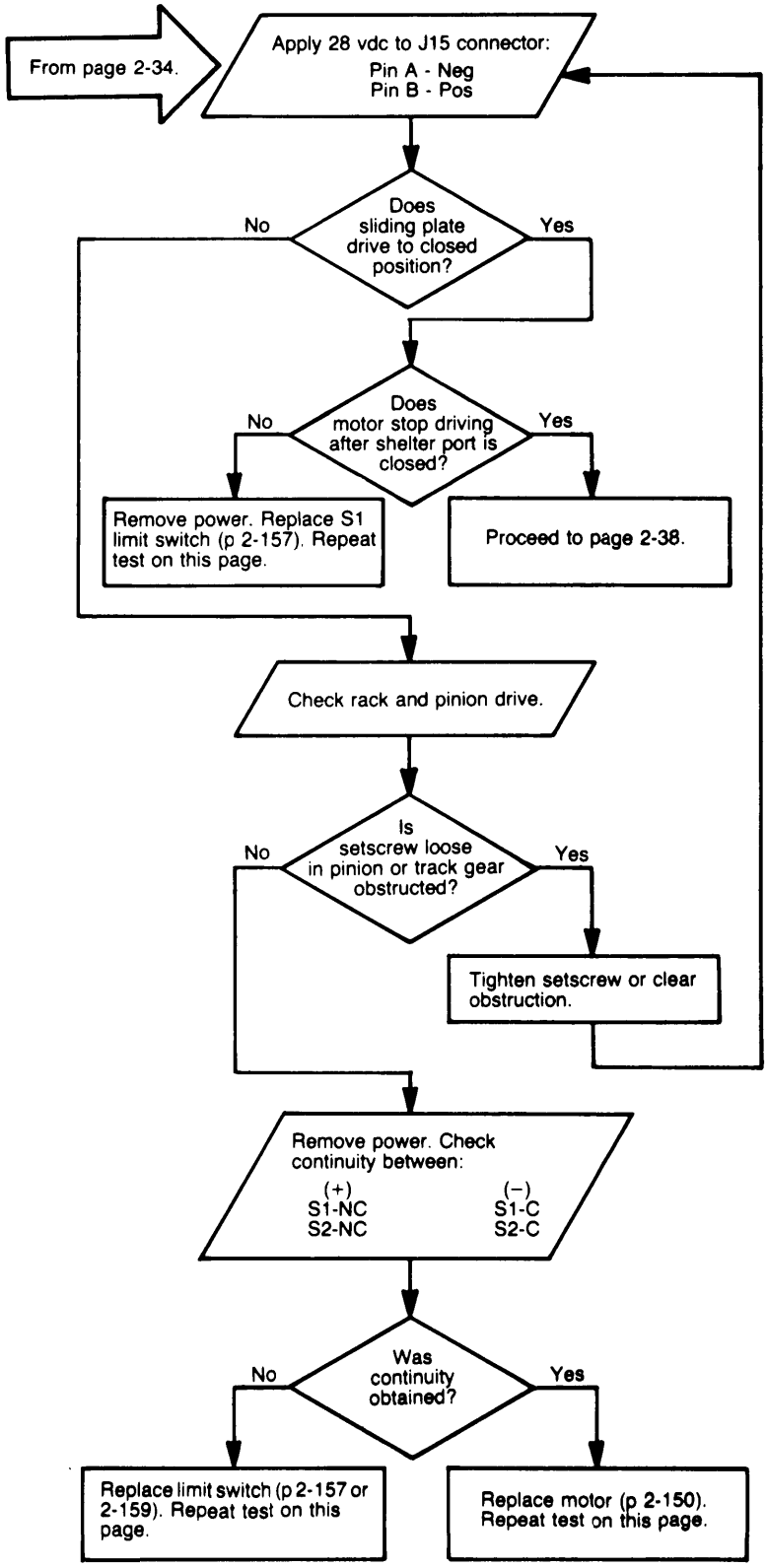
2-5. AIRFLOW VALVE TROUBLESHOOTING PROCEDURES (Cont).



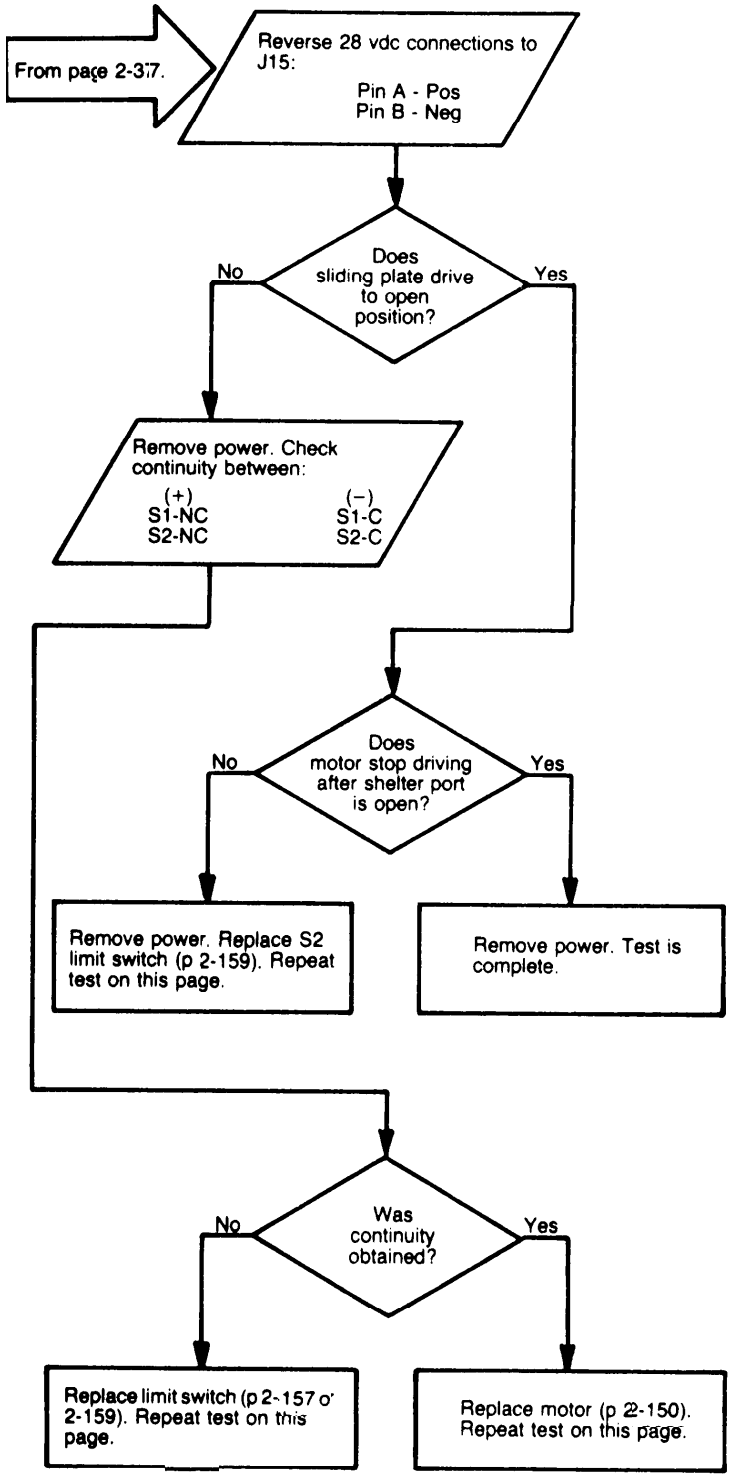
2-5. AIRFLOW VALVE TROUBLESHOOTING PROCEDURES (Cont).



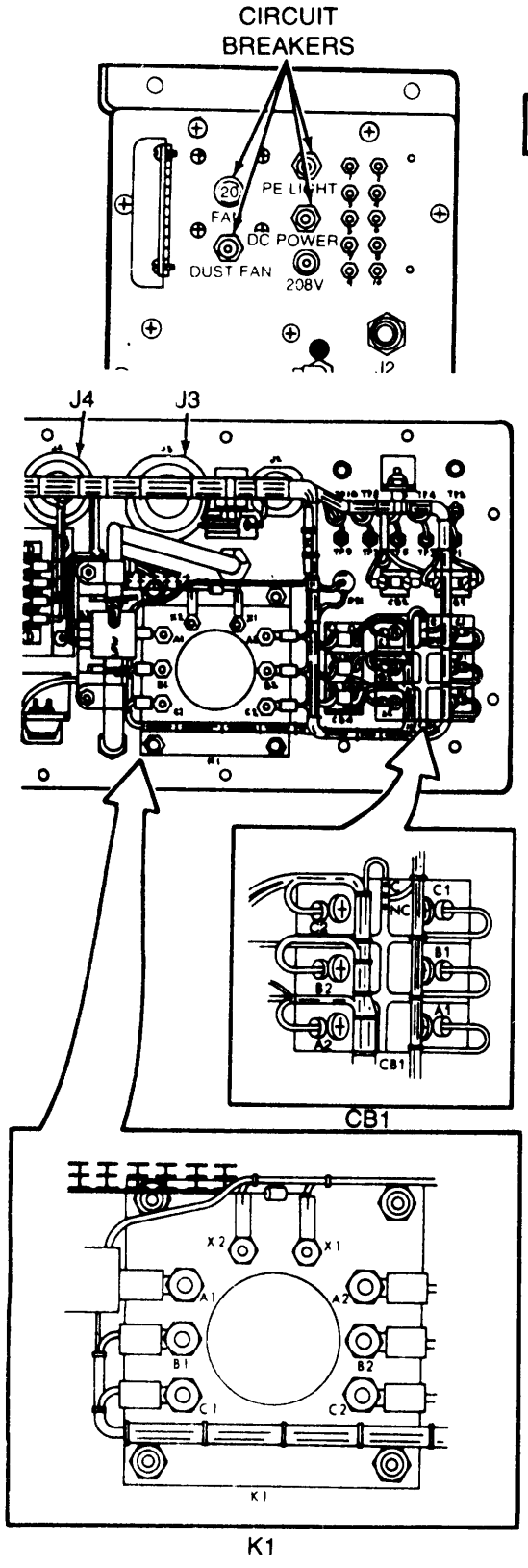
2-5. AIRFLOW VALVE TROUBLESHOOTING PROCEDURES (Cont).



2-5. AIRFLOW VALVE TROUBLESHOOTING PROCEDURES (Cont).



2-6. POWER DISTRIBUTION PANEL TROUBLESHOOTING PROCEDURES.



Fan circuit breaker

Start

Open (pull out) all circuit breakers until white shows on the shaft. Measure resistance between:

(+)	(−)
J4-E	J3-A

Was the resistance less than 1 ohm?

No

Yes

Close the FAN circuit breaker by pushing it fully in and repeat measurement.

Was the resistance between 5 and 70 ohm?

No

Yes

Proceed to page 2-49.

Proceed to page 2-40.

Check for continuity between:

(+)	(−)
J4-E	K1-X2
J4-E	CB1-N.O.
J4-E	J3-D
CB1-C	J3-A

Was continuity obtained?

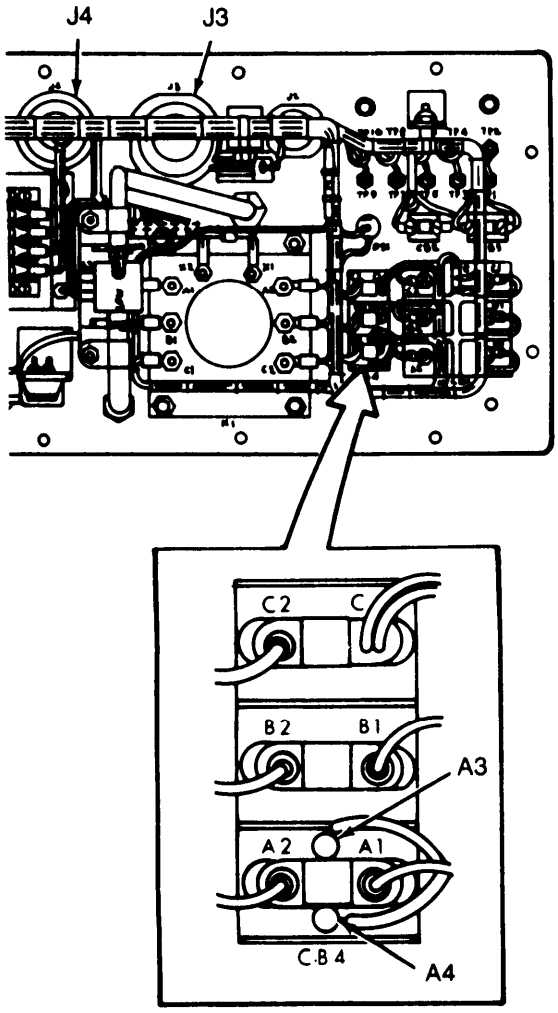
No

Yes

Repair wiring (p 2-169). Repeat test on this page.

Replace FAN circuit breaker CB1 (p 2-162). Repeat test on this page.

2-6. POWER DISTRIBUTION PANEL TROUBLESHOOTING PROCEDURES (Cont).



CB4

From page 2-39.

Check for continuity between:
(+) J3-J
(−) J4-F

Was there continuity?

No

Yes

Disconnect one of the wires on DUST FAN circuit breaker CB4 terminals A3 or A4. Check for continuity between:
(+) CB4-A4
(−) CB4-A3

Was continuity obtained?

No

Replace DUST FAN circuit breaker CB4. Repeat test on this page.

Yes

Repair wiring (p 2-169). Repeat test on this page.

Press DUST FAN circuit breaker. Check for open between:
(+) J3-J
(−) J4-F

Was the circuit open?

No

Yes

Proceed to page 2-41.

Disconnect one of the wires on CB4, A3 or A4. Check for open between:
(+) CB4-A3
(−) CB4-A4

Was open obtained?

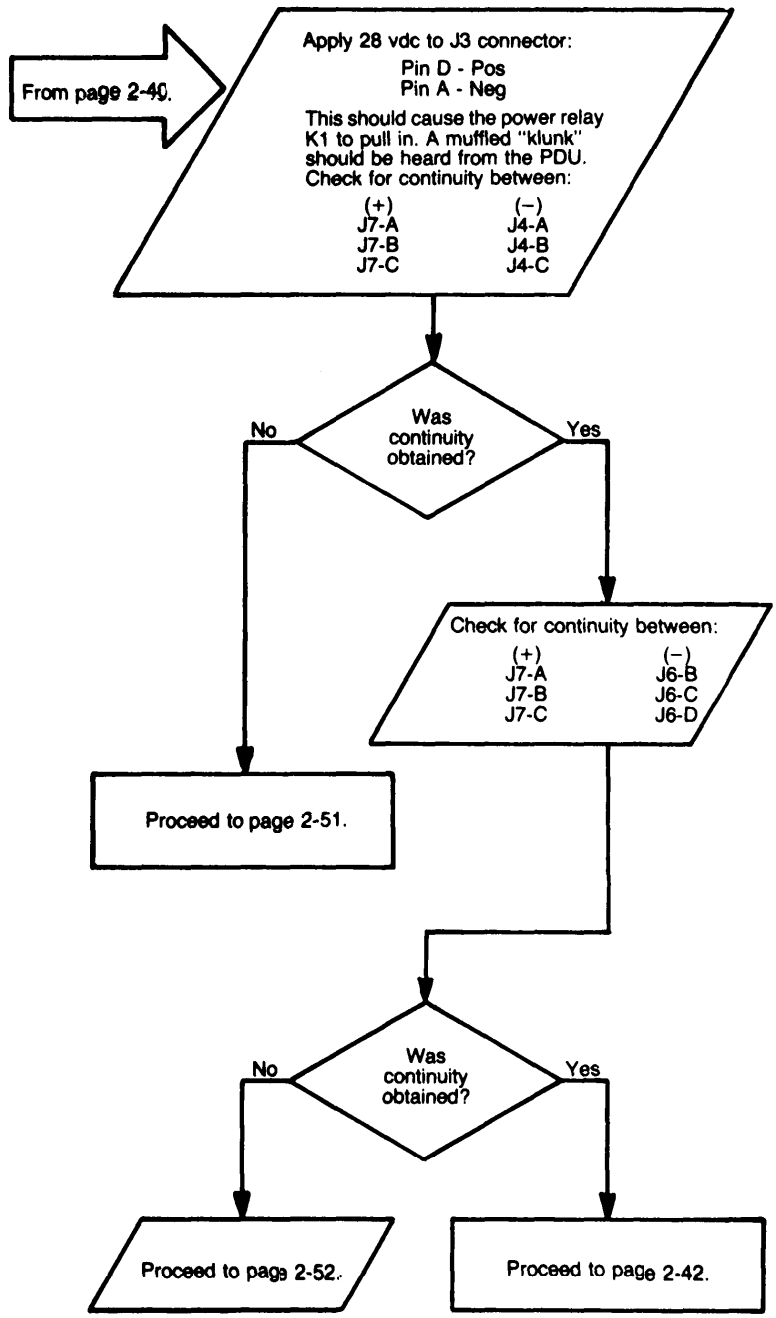
No

Replace DUST FAN circuit breaker CB4. Repeat test on this page.

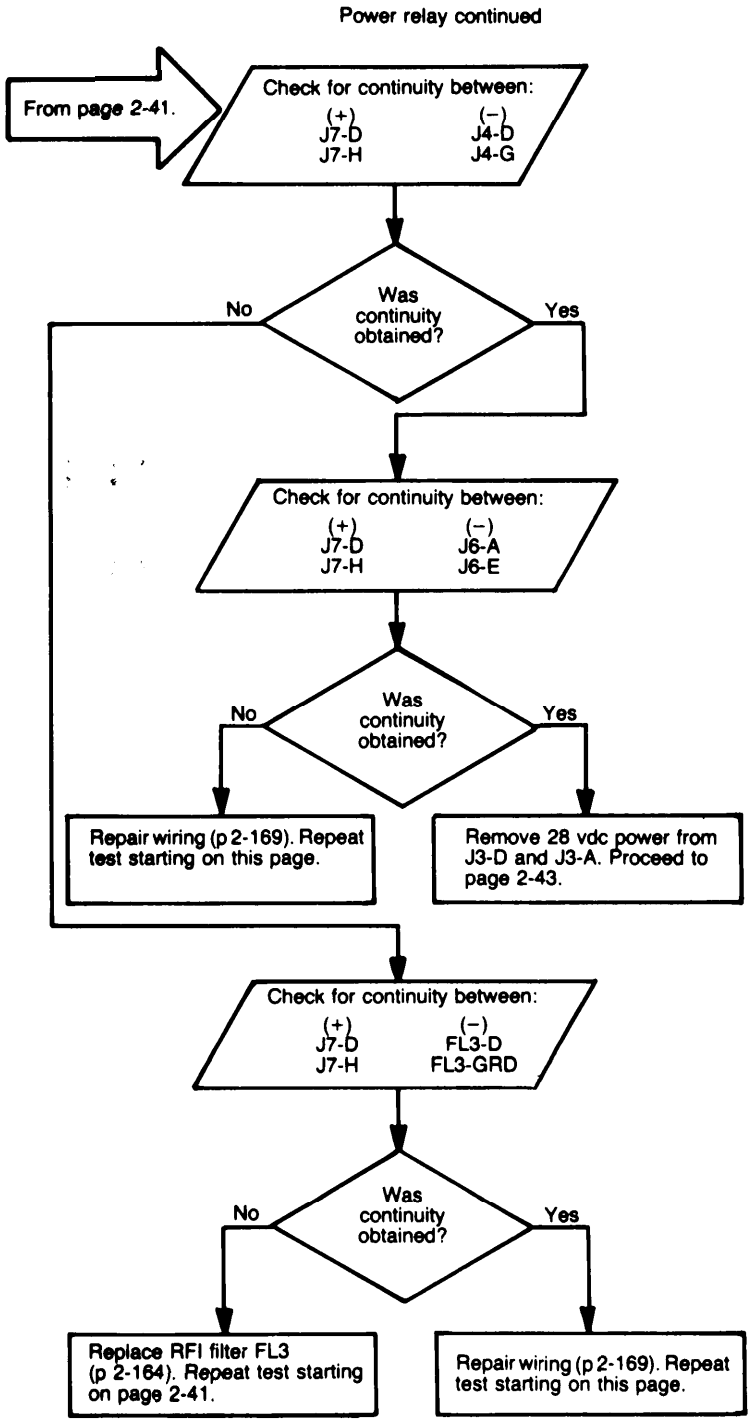
Yes

Repair wiring (p 2-169). Repeat test on this page.

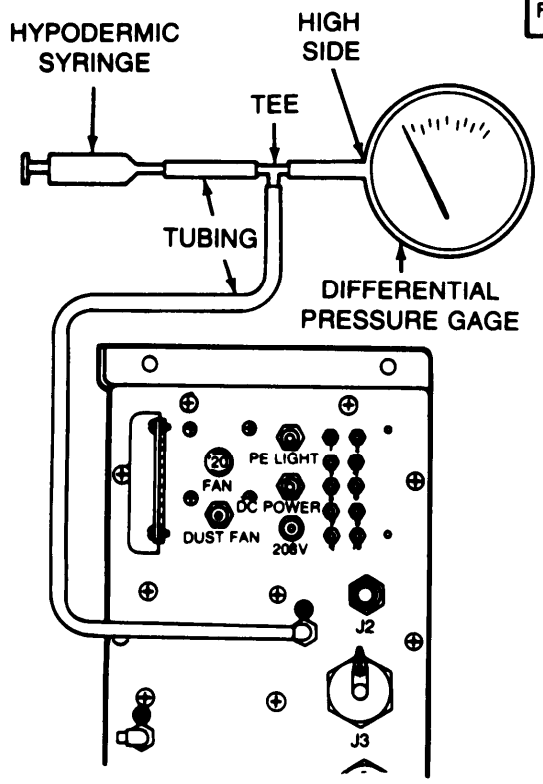
2-6. POWER DISTRIBUTION PANEL TROUBLESHOOTING PROCEDURES (Cont).



2-6. POWER DISTRIBUTION PANEL TROUBLESHOOTING PROCEDURES (Cont).



2-6. POWER DISTRIBUTION PANEL TROUBLESHOOTING PROCEDURES (Cont).



From page 2-42.

Connect the high pressure side of a differential pressure gage (6 in. wg) to a pressure source (syringe, aspirator, etc.) and to the hose fitting marked with a red dot on the PDU panel.

Connect one end of a 680 ohm, 2 watt resistor to J3-F. Apply 28 vdc to:

(+)	(−)
680 resistor	J3-A

Slowly increase pressure to 6 in. wg and measure voltage across resistor connected to power source (+) and J3-F (−). Voltmeter should indicate 28 ± 2 vdc when pressure is greater than 5.5 in. wg; 0 vdc when less than 4.5 in. wg.

Was the voltage 0 vdc at pressure less than 4.5 in. wg?

No → Was the voltage 28 ± 2 vdc at pressure greater than 5.5 in. wg?

Yes → Was the voltage 28 ± 2 vdc at pressure greater than 5.5 in. wg?

No → Proceed to page 2-54.

Yes → Proceed to page 2-44.

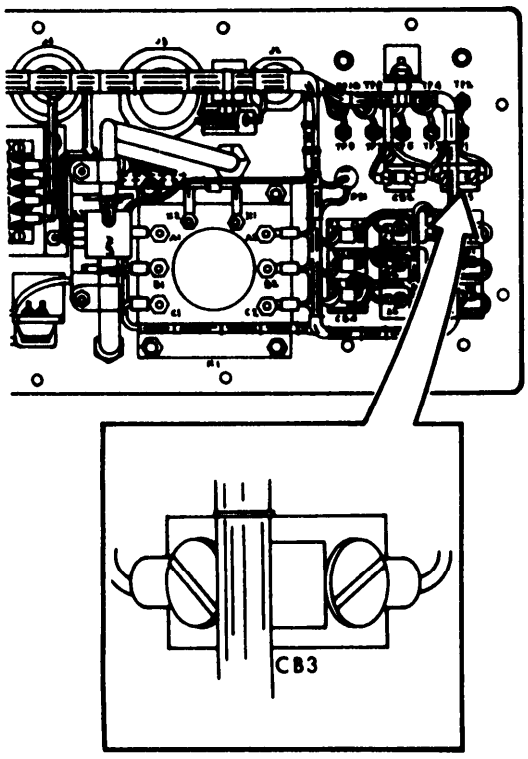
No → Did the voltage switch to 28 ± 2 vdc at a pressure less than 4.5 in. wg?

Yes → Did the voltage switch to 28 ± 2 vdc at a pressure less than 4.5 in. wg?

No → Proceed to page 2-53.

Yes → Replace pressure switch S7 (p 2-165). Repeat test on this page.

2-6. POWER DISTRIBUTION PANEL TROUBLESHOOTING PROCEDURES (Cont).



CB3

Protective entrance light circuit breaker

From page 2-43.

Remove power, pressure, and voltmeter connections. Check continuity between:
(+) J3-B
(–) J5-G

Was open obtained?
No
Yes

Press the PE LIGHT circuit breaker CB3. Check for continuity.

Was continuity obtained?
No
Yes

Proceed to page 2-56.

Proceed to page 2-45.

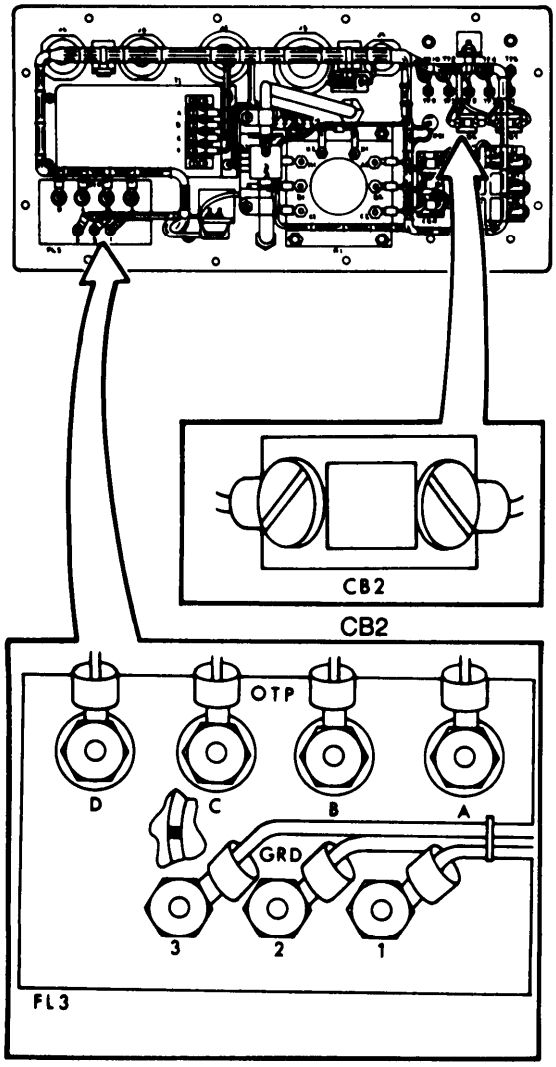
Disconnect wires from PE LIGHT circuit breaker CB3 terminals 1 and 2. Check for open between:
(+) CB3-1
(–) CB3-2

Was open obtained?
No
Yes

Replace circuit breaker CB3 (p 2-163). Repeat test on this page.

Repair wiring (p 2-169). Repeat test on this page.

2-6. POWER DISTRIBUTION PANEL TROUBLESHOOTING PROCEDURES (Cont).



FL3

DC POWER circuit breaker

From page 2-44.

Check for open between:
(+) J7-A
(−) J7-D

Was open obtained?
No
Yes

Press the DC POWER circuit breaker. Check for continuity.

Was continuity obtained?
No
Yes

Proceed to page 2-57.

Proceed to page 2-46.

Disconnect wires from RFI filter FL3 terminal A. Check for open between:
(+) J7-A
(−) J7-D

Was open obtained?
No
Yes

Replace filter FL3. Repeat test on this page.

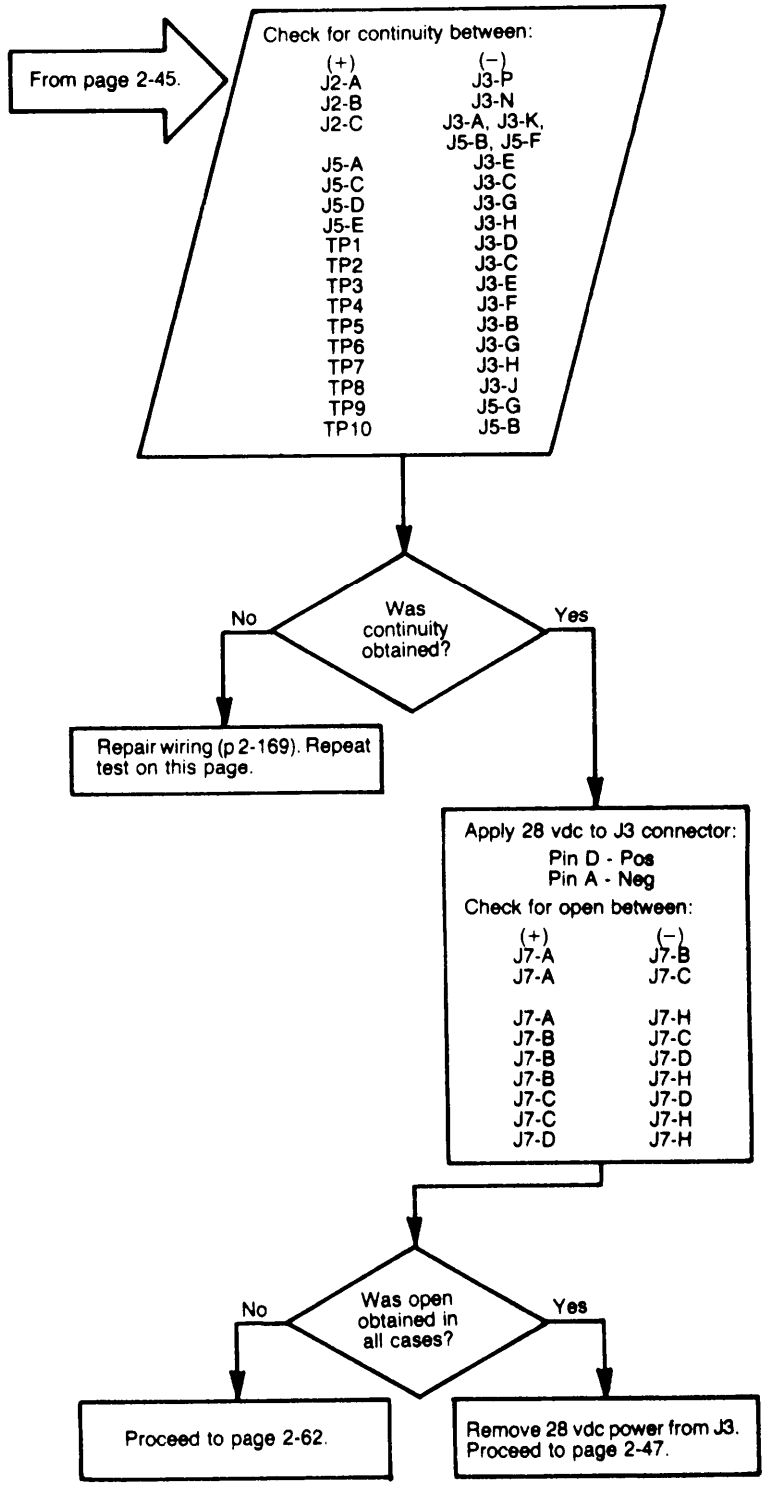
Disconnect one wire from DC POWER circuit breaker CB2. Check for open between:
(+) CB2-1
(−) CB2-2

Was open obtained?
No
Yes

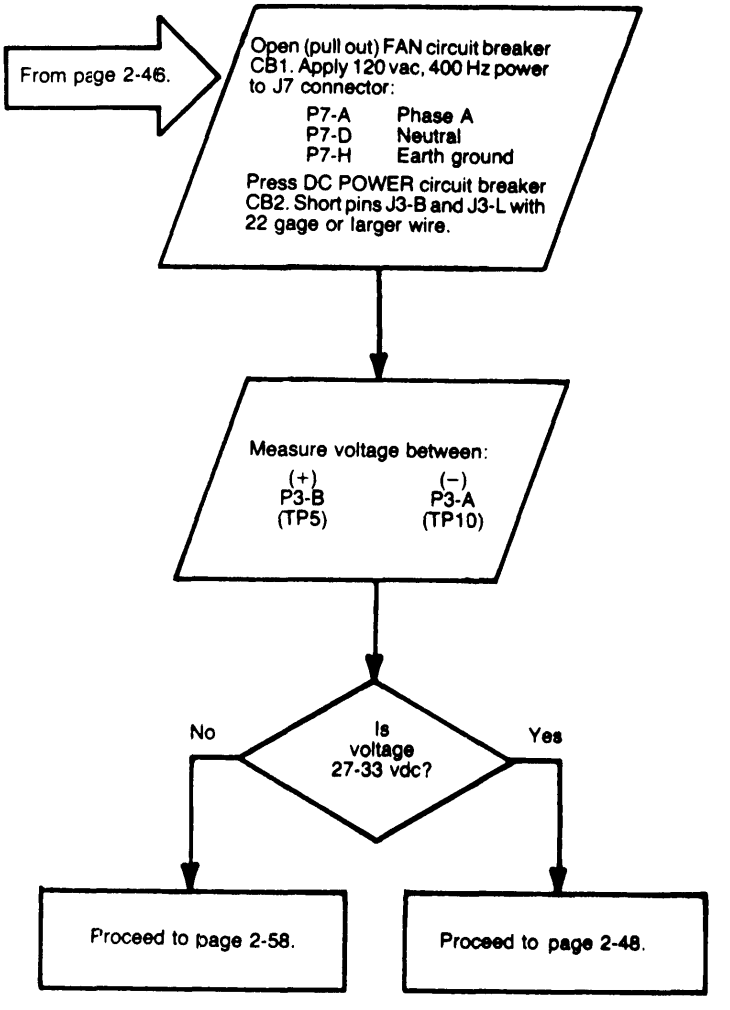
Replace DC POWER circuit breaker CB2 (p 2-163). Repeat test on this page.

Repair wiring (p 2-169). Repeat test on this page.

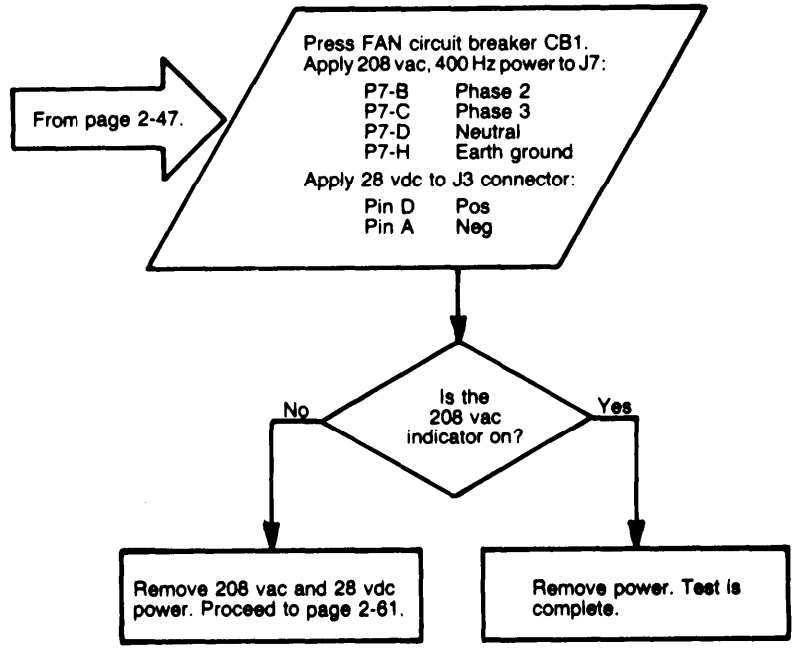
2-6. POWER DISTRIBUTION PANEL TROUBLESHOOTING PROCEDURES (Cont).



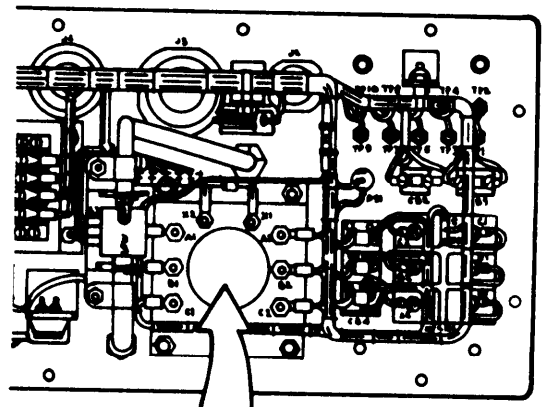
2-6. POWER DISTRIBUTION PANEL TROUBLESHOOTING PROCEDURES (Cont).

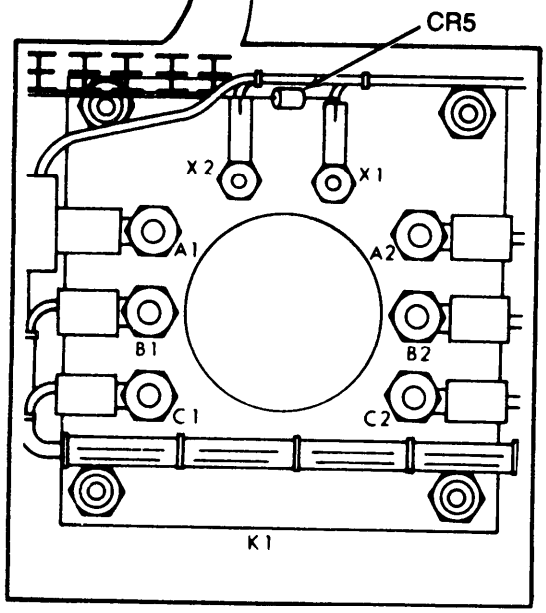


2-6. POWER DISTRIBUTION PANEL TROUBLESHOOTING PROCEDURES (Cont).



2-6. POWER DISTRIBUTION PANEL TROUBLESHOOTING PROCEDURES (Cont).





From page 2-39.

Was the resistance less than 5 ohm?

No

Yes

Disconnect wires and diode terminal from K1-X2. Measure resistance between:

(+) K1-X2

(−) K1-X1

Disconnect wires and diode terminal from K1-X2. Measure resistance between:

(+) K1-X2

(−) K1-X1

Was the resistance between 5 and 70 ohm?

No

Yes

Replace relay K1 (p 2-167). Repeat test on page 2-39.

Repair wiring (p 2-169). Repeat test on page 2-39.

Was the resistance between 5 and 70 ohm?

No

Yes

Replace relay K1 (p 2-167). Repeat test on page 2-39.

Measure resistance between:

(+) CR5-K (Cathode)

(−) CR5-A (Anode)

Was the resistance greater than 5 ohm?

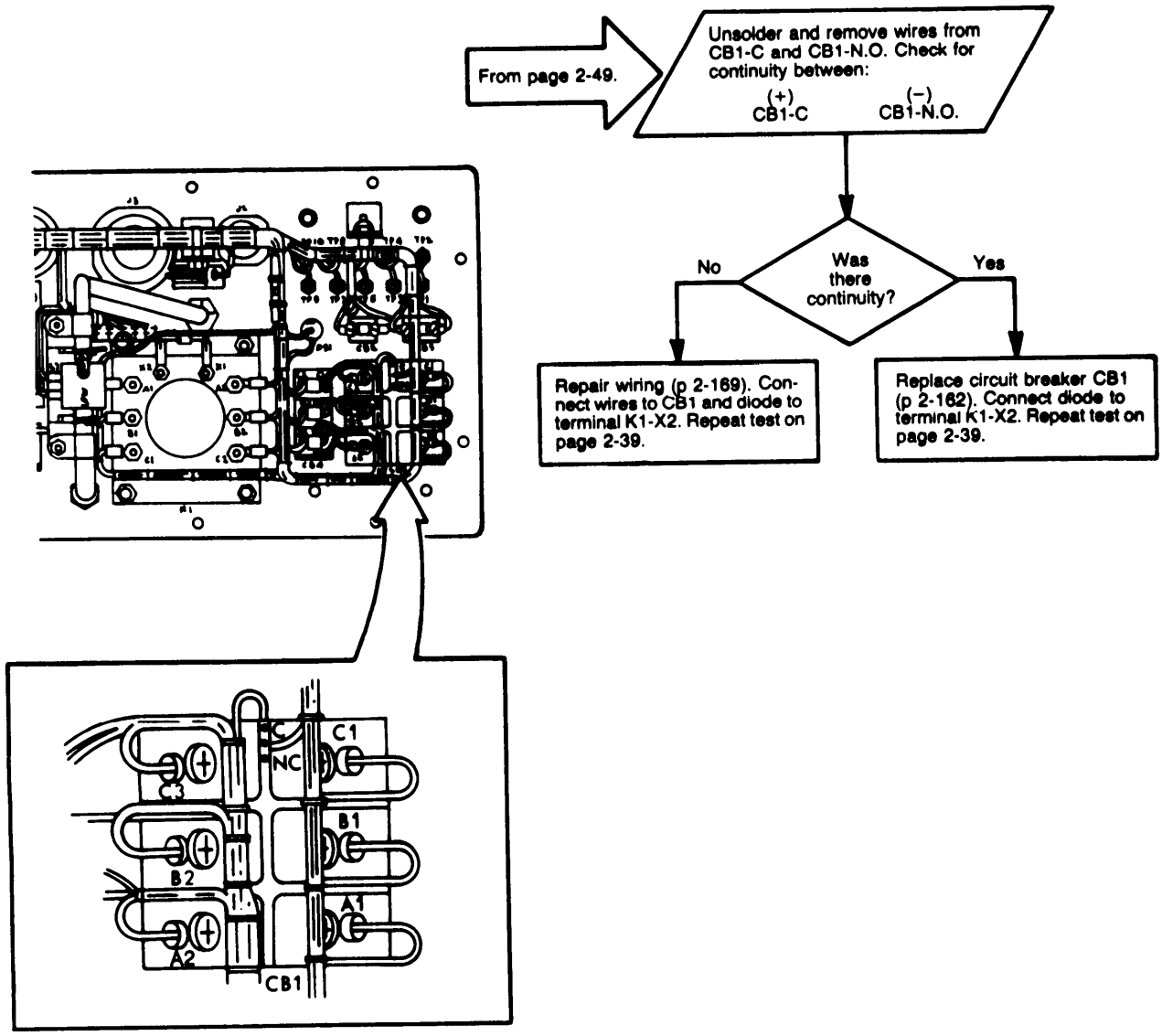
No

Yes

Replace diode CR5 (p 2-167). Repeat test on page 2-39.

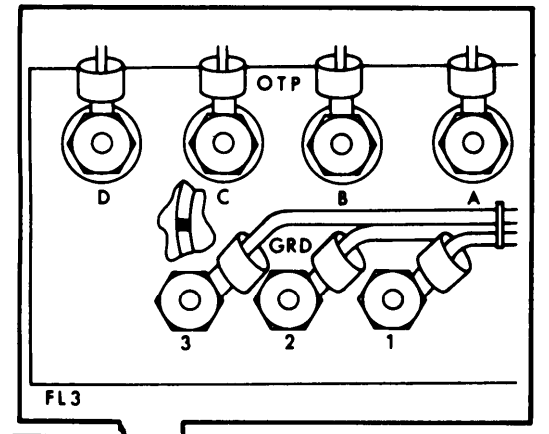
Proceed to page 2-50.

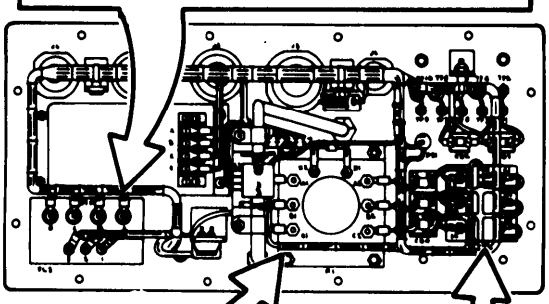
2-6. POWER DISTRIBUTION PANEL TROUBLESHOOTING PROCEDURES (Cont).

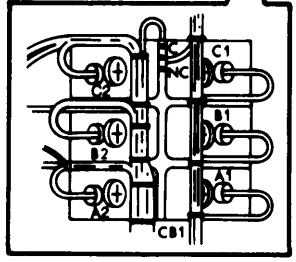


CB1

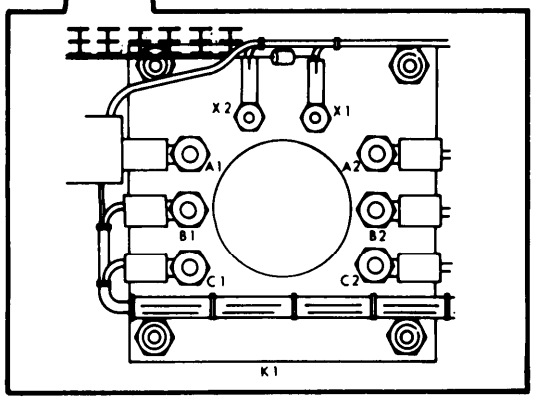
2-6. POWER DISTRIBUTION PANEL TROUBLESHOOTING PROCEDURES (Cont).







CB1



K1

From page 2-41.

Check for continuity between:

(+)	(−)
J7-A	FL3-A
J7-B	FL3-B
J7-C	FL3-C

Was continuity obtained?

No → Replace RFI filter FL3 (p 2-164). Repeat test on page 2-41.

Yes

Check for continuity between:

(+)	(−)
CB1-A1	CB1-A2
CB1-B1	CB1-A2
CB1-C1	CB1-C2

Was continuity obtained?

No → Replace FAN circuit breaker CB1 (p 2-162). Repeat test on this page.

Yes

Check for continuity between:

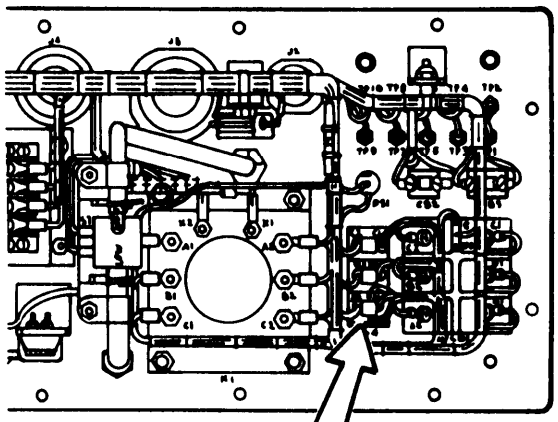
(+)	(−)
K1-A1	K1-A2
K1-B1	K1-B2
K1-C1	K1-C2

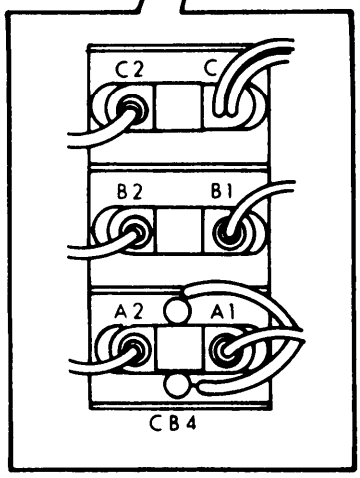
Was continuity obtained?

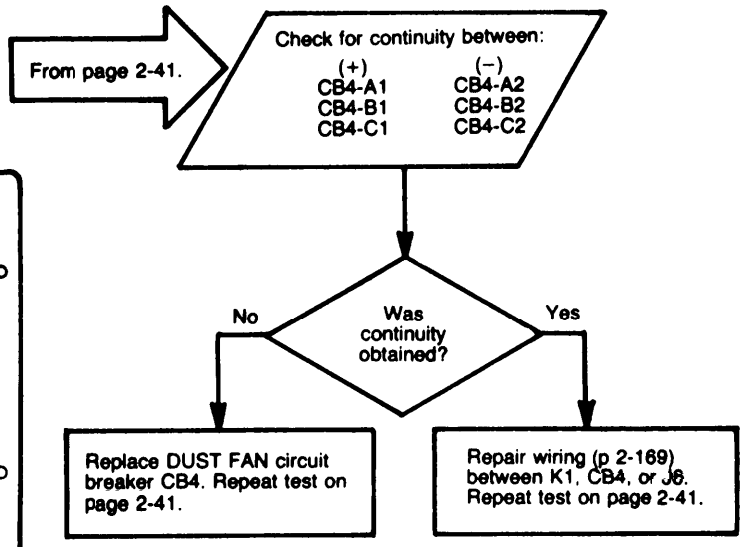
No → Replace relay K1 (p 2-167). Repeat test on page 2-41.

Yes → Repair wiring (p 2-169). Repeat test on page 2-41.

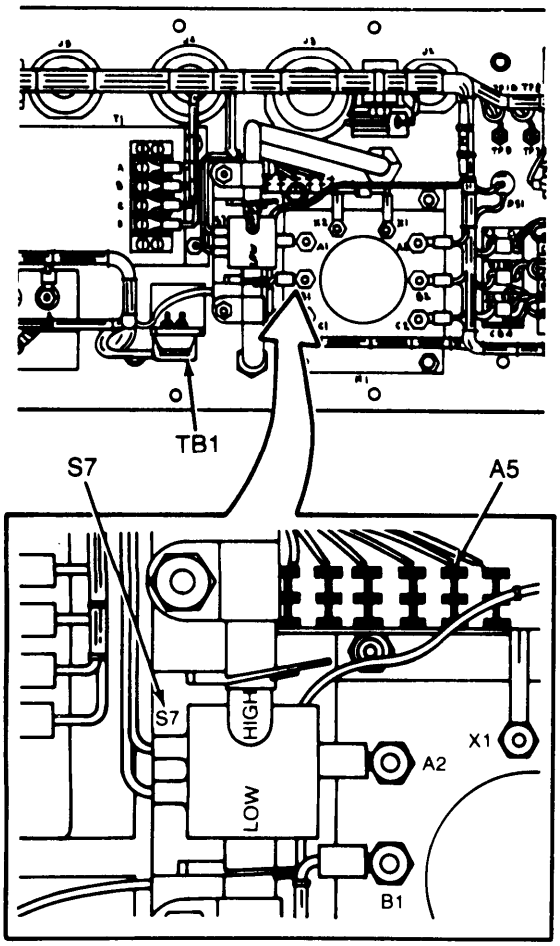
2-6. POWER DISTRIBUTION PANEL TROUBLESHOOTING PROCEDURES (Cont).







2-6. POWER DISTRIBUTION PANEL TROUBLESHOOTING PROCEDURES (Cont).



From page 2-43.

Remove 28 vdc power. Disconnect wire at terminal 4 of A5. Reapply 28 vdc.

Did the voltage switch to 0 vdc?

No

Remove 28 vdc power. Disconnect wires at terminal 6 of A5. Check for open between:

(+)	(−)
A5-6	TB1-1

Was open obtained?

No

Replace printed circuit card A5 (p 2-168). Repeat test on page 2-43.

Yes

Repair wiring (p 2-169). Repeat test on page 2-43.

Yes

Remove 28 vdc power. Disconnect one wire at the pressure switch. Check for open between:

(+)	(−)
S7-1 (A)	S7-2 (B)

Was open obtained?

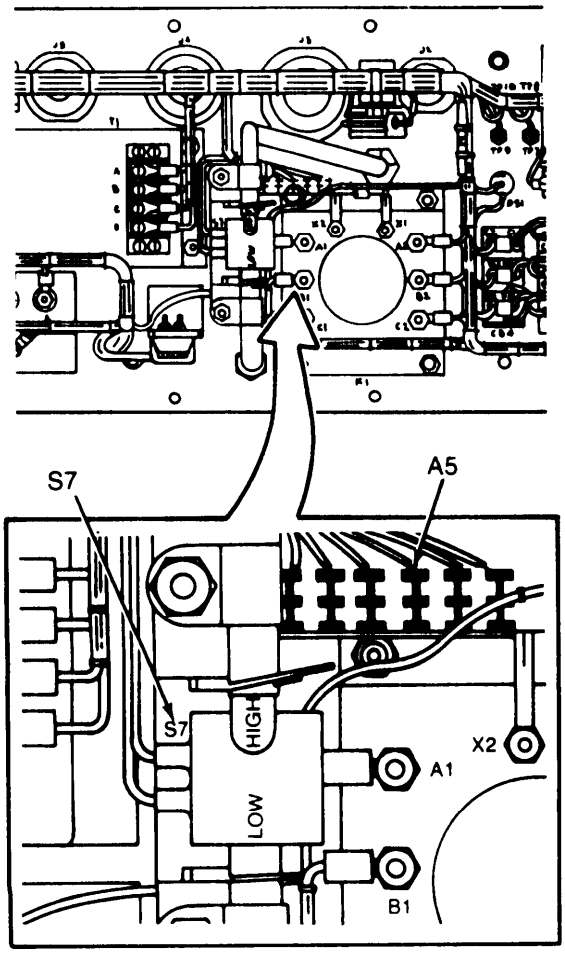
No

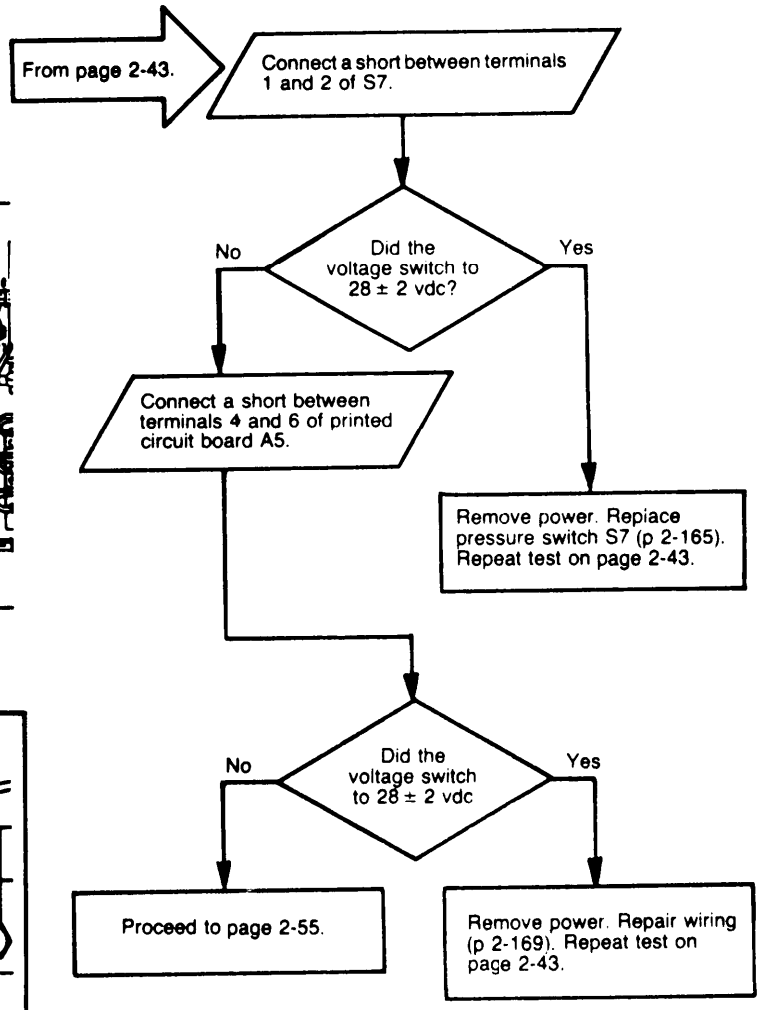
Replace pressure switch S7 (p 2-165). Repeat test on page 2-43.

Yes

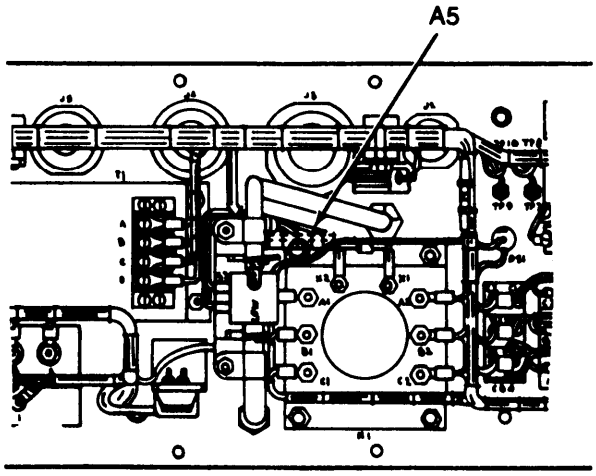
Repair wiring (p 2-169). Repeat test on page 2-43.

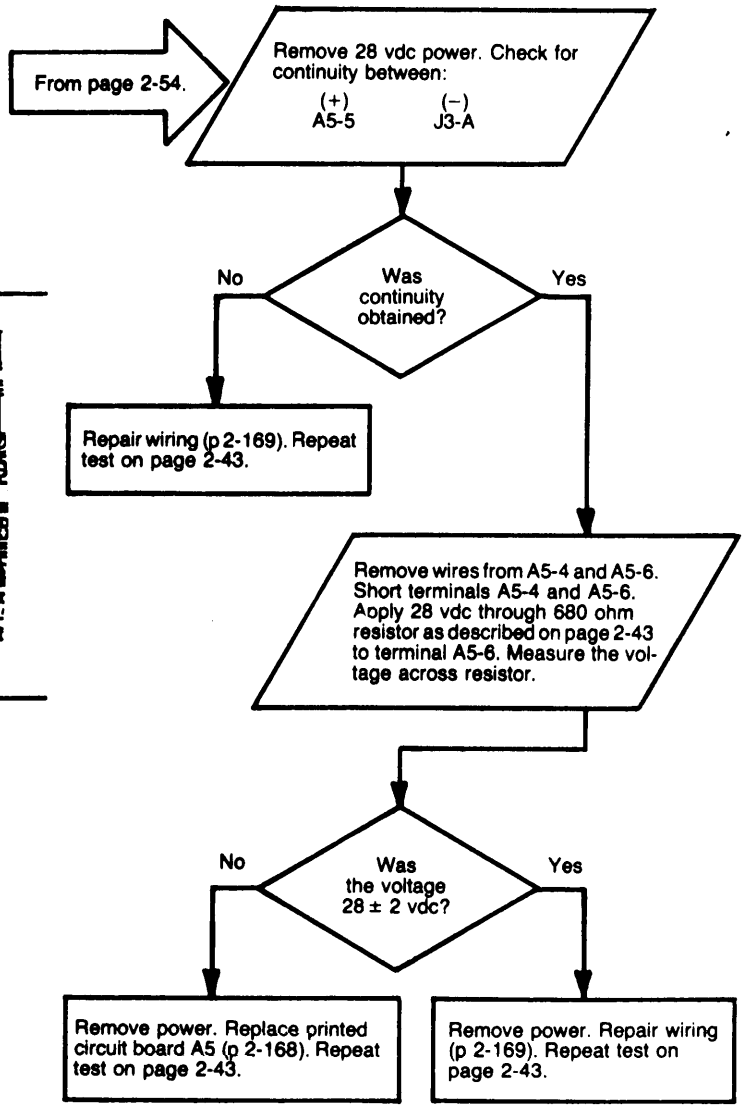
2-6. POWER DISTRIBUTION PANEL TROUBLESHOOTING PROCEDURES (Cont).



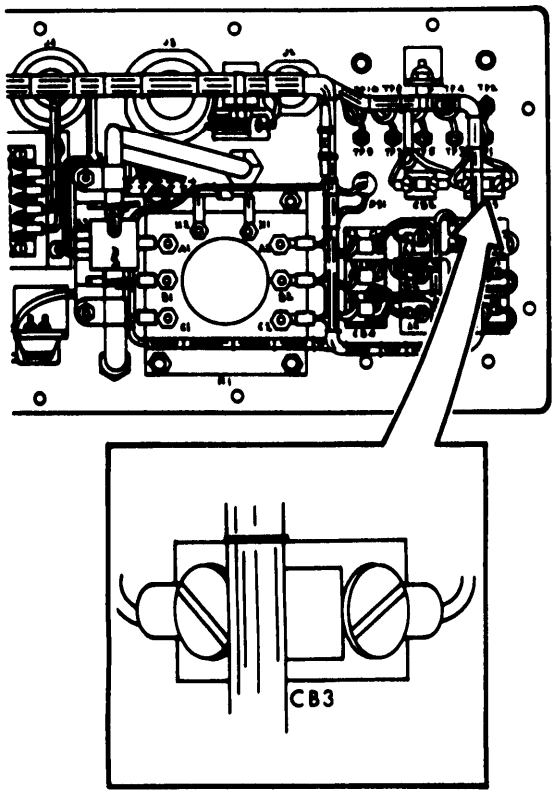


2-6. POWER DISTRIBUTION PANEL TROUBLESHOOTING PROCEDURES (Cont).

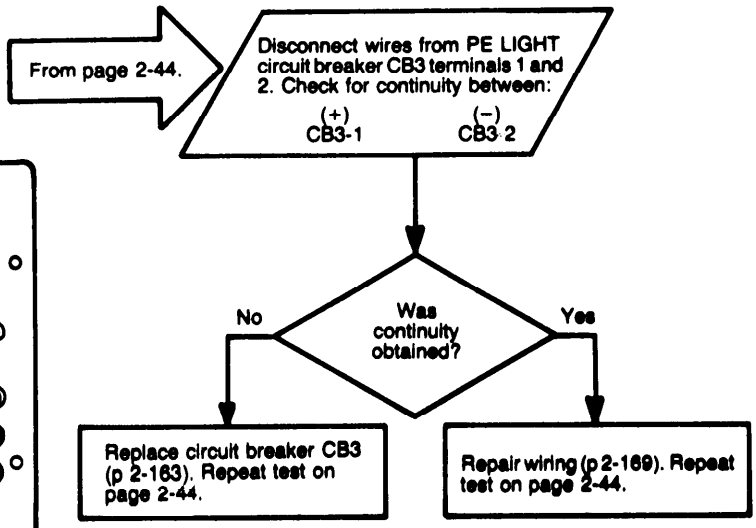




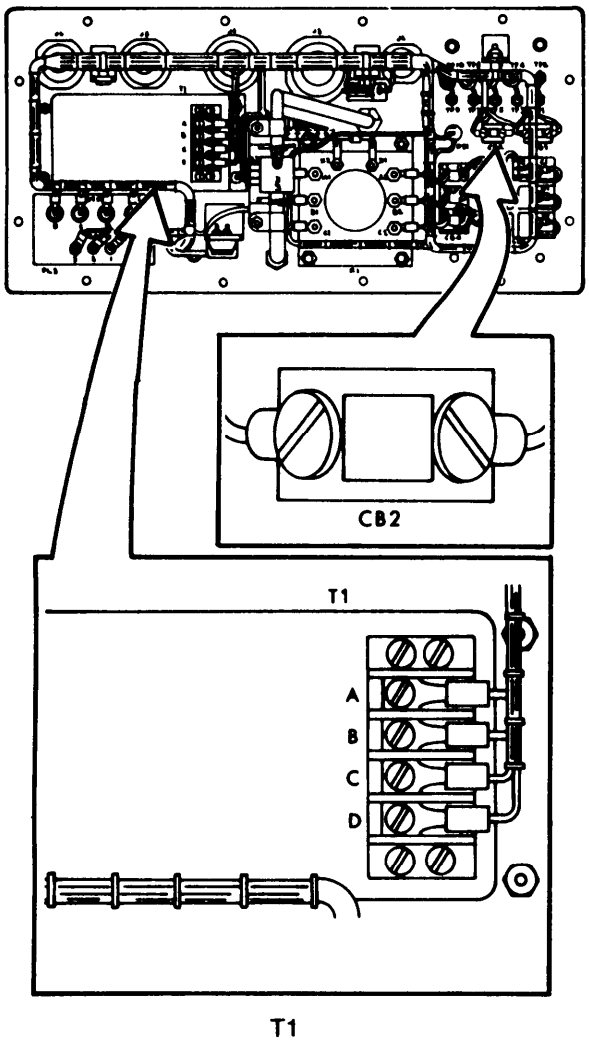
2-6. POWER DISTRIBUTION PANEL TROUBLESHOOTING PROCEDURES (cont)



CB3



2-6. POWER DISTRIBUTION PANEL TROUBLESHOOTING PROCEDURES (Cont).



T1

From page 2-45.

Disconnect one wire from DC POWER circuit breaker CB2. Check for continuity between:
(+) CB2-1
(–) CB2

Was continuity obtained?

No

Replace DC POWER circuit breaker CB2 (p 2-163). Repeat test on page 2-45.

Yes

Disconnect one wire from transformer/rectifier T1 between:
(+) T1-A
(–) T1-B

Was continuity obtained?

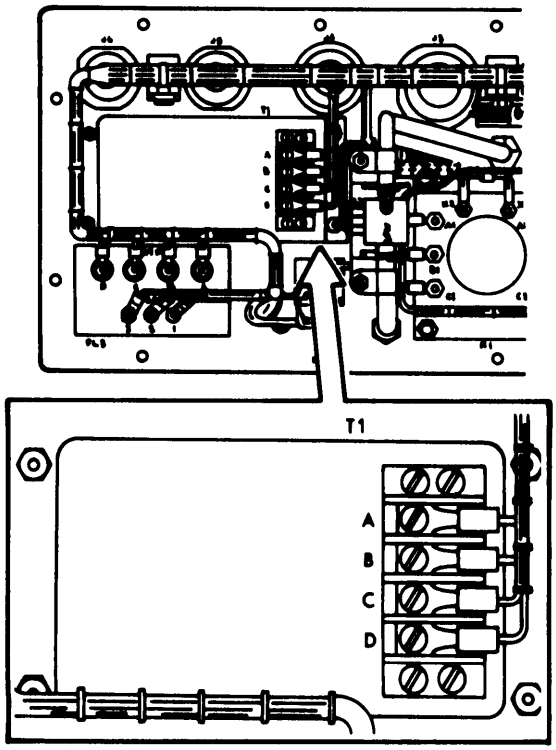
No

Replace transformer/rectifier T1 (p 2-166). Repeat test on page 2-45.

Yes

Repair wiring (p 2-169). Repeat test on page 2-45.

2-6. POWER DISTRIBUTION PANEL TROUBLESHOOTING PROCEDURES (Cont).



From page 2-47.

Check the DC POWER circuit breaker CB2 to see if it has remained set.

Has the circuit breaker CB2 remained set?

No

Yes

Remove 120 vac power. Disconnect wire from transformer/rectifier T1-A. Press circuit breaker CB2. Check for open between:

(+) J7-A

(−) J7-D

Proceed to page 2-59.

Was open obtained?

No

Yes

Repair wiring (p 2-169). Repeat test on page 2-47.

Reconnect wire at T1-A. Disconnect wires at T1-C. Reapply 120 vac power as described on page 2-47.

Has the circuit breaker CB2 remained set?

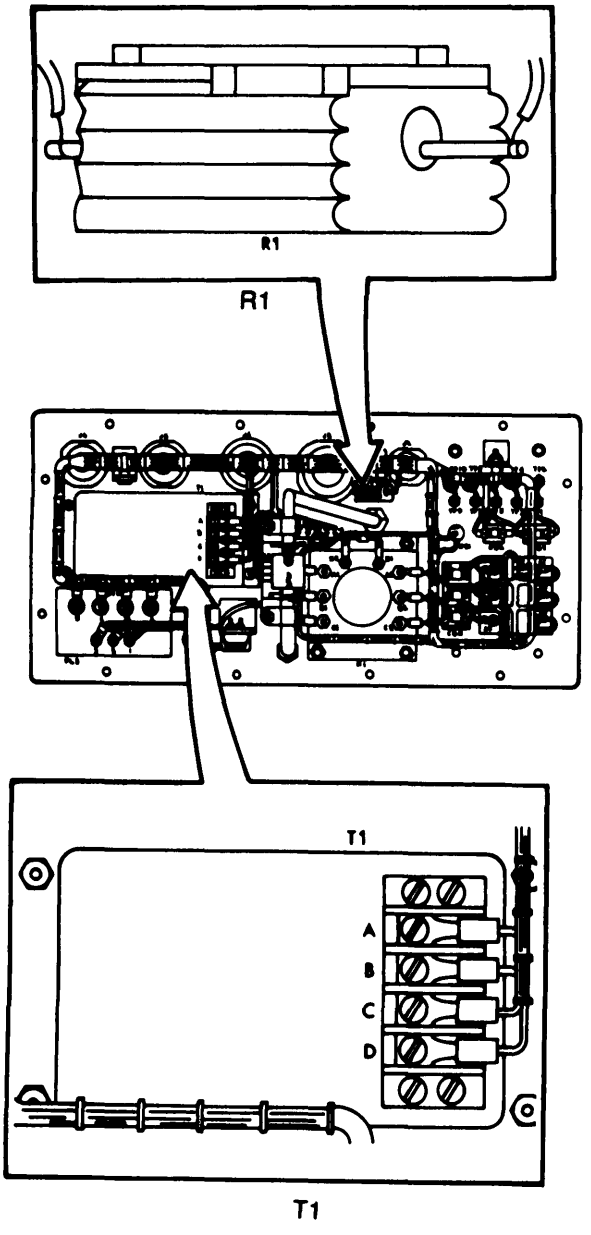
No

Yes

Remove power. Replace transformer/rectifier T1 (p 2-166). Repeat test on page 2-47.

Remove power. Repair wiring at output of T1 (p 2-169). Repeat test on page 2-47.

2-6. POWER DISTRIBUTION PANEL TROUBLESHOOTING PROCEDURES (Cont).



From page 2-58.

Turn off 120 vac power. Measure transformer/rectifier load resistance:
(+) T1-C (−) T1-D

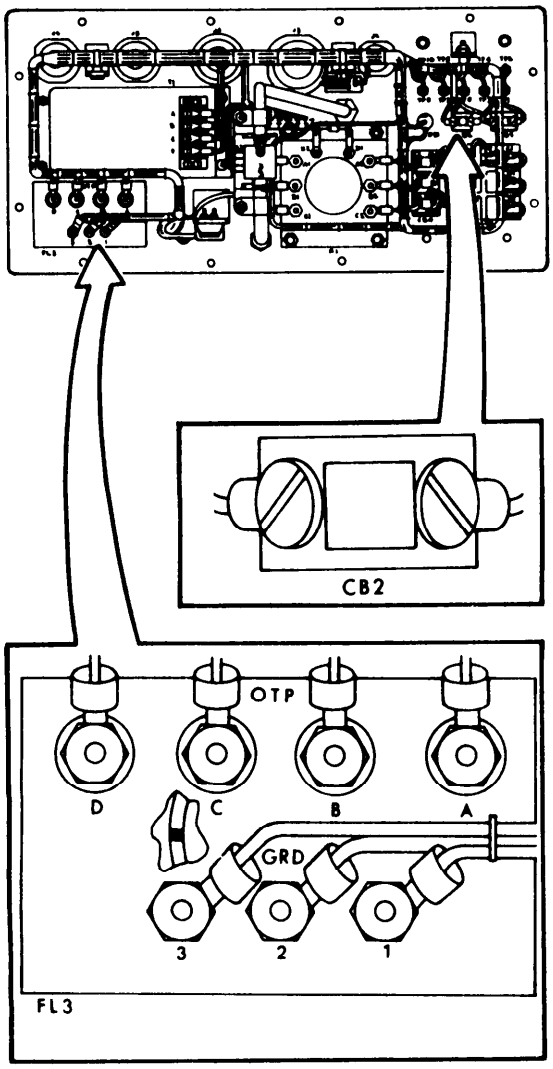
Was resistance 110 ± 10 ohm?
- No → Remove short across pins J3-B and J3-L. Measure resistance across 110 resistor R1: (+) R1-1 (−) R1-2
- Yes → Reapply 120 vac power. Measure voltage at input of transformer/rectifier: (+) T1-A (−) T1-B

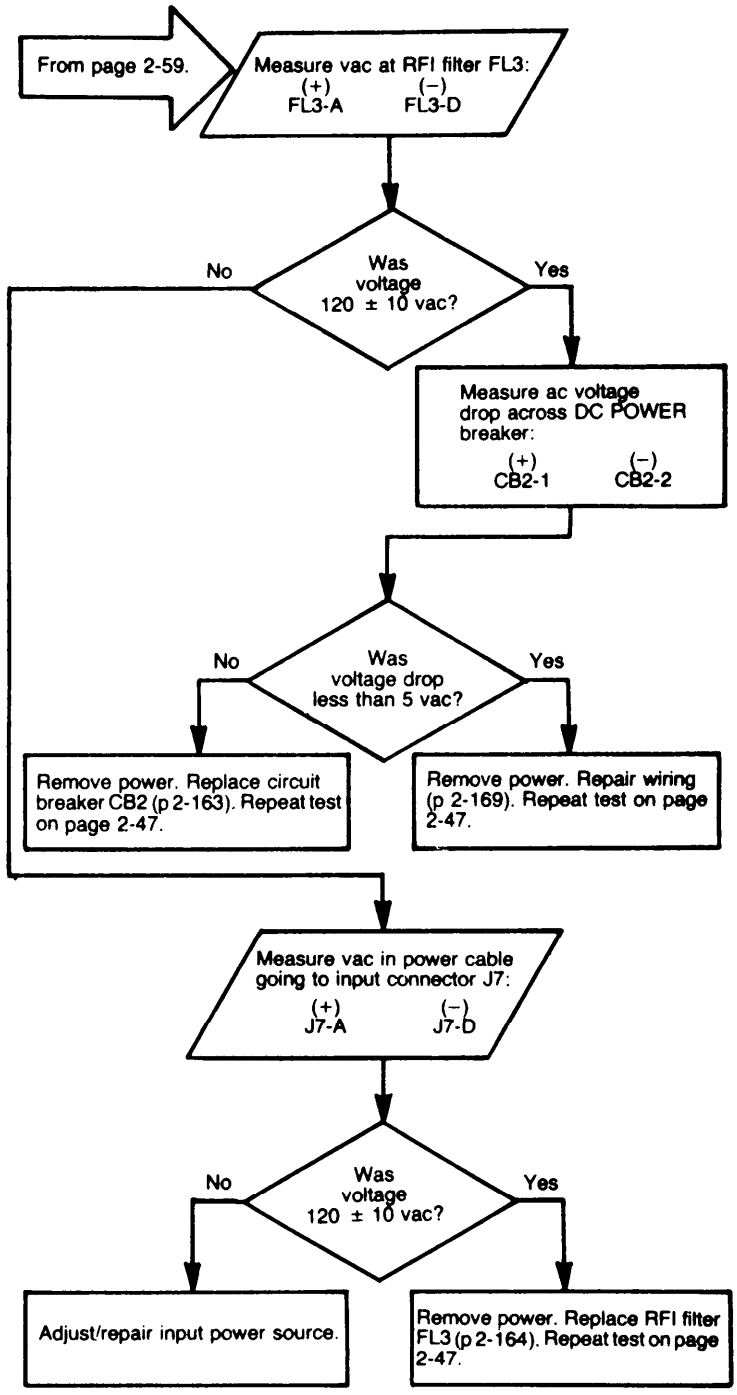
Was voltage 120 ± 10 vac?
- No → Proceed to page 2-60.
- Yes → Remove power. Replace transformer/rectifier (p 2-166). Repeat test on page 2-47.

Was resistance 110 ± ohm?
- No → Replace resistor R1. Repeat test on page 2-47.
- Yes → Remove wires from transformer/rectifier T1-C and T1-D. Measure resistance across: (+) T1-C (−) T1-D

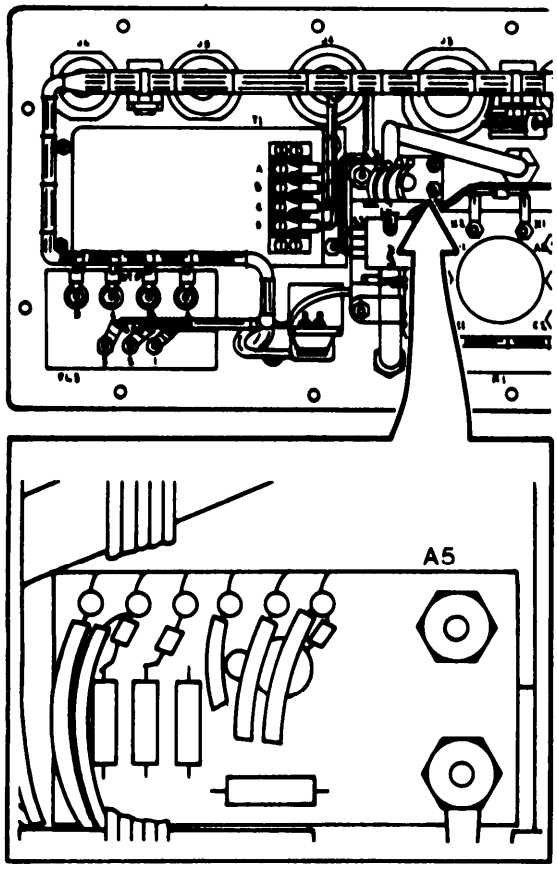
Was open obtained?
- No → Replace transformer/rectifier (p 2-166). Repeat test on page 2-47.
- Yes → Repair wiring (p 2-169). Repeat test on page 2-47.

2-6. POWER DISTRIBUTION PANEL TROUBLESHOOTING PROCEDURES (Cont).

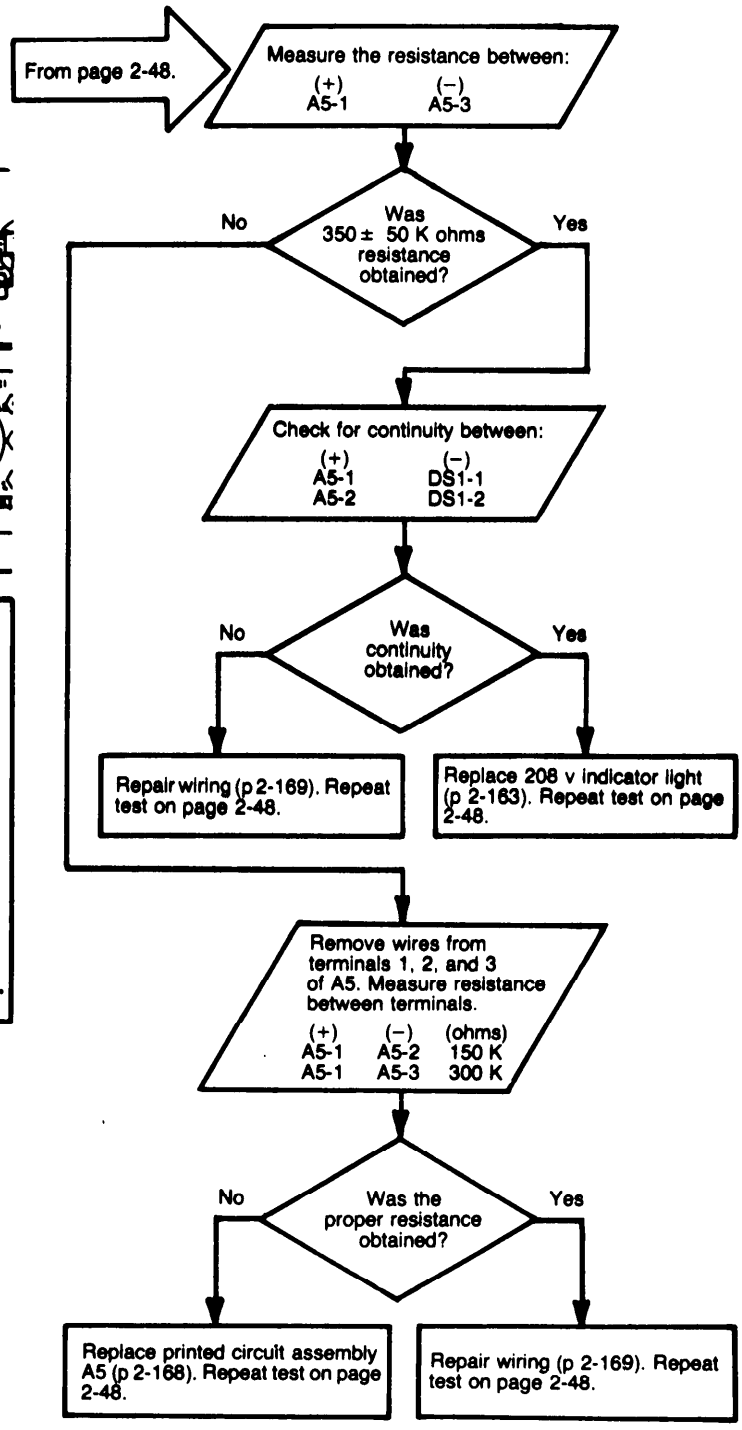




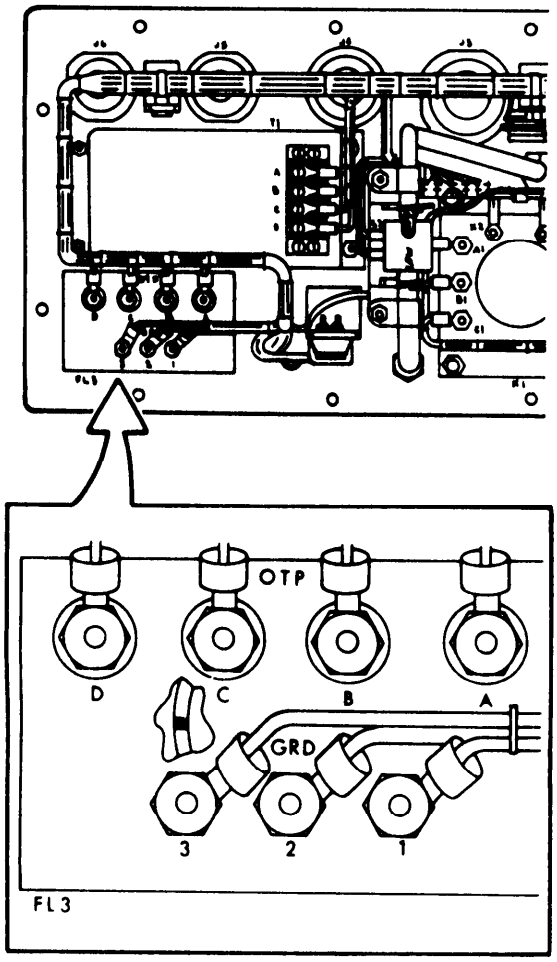
2-6. POWER DISTRIBUTION PANEL TROUBLESHOOTING PROCEDURES (Cont).



A5



2-6. POWER DISTRIBUTION PANEL TROUBLESHOOTING (PROCEDURES Cont).



From page 2-46.

Open (pull out) DC POWER circuit breaker. Check for open between:

(+)	(−)
J7-A	J7-B
J7-A	J7-C
J7-A	J7-D
J7-A	J7-H
J7-B	J7-C
J7-B	J7-D
J7-B	J7-H
J7-C	J7-D
J7-C	J7-H
J7-D	J7-H

Was open obtained in all cases?

No

Yes

Remove 28 vdc power on J3 connector. Remove all wires connected to RFI filter at FL3 A, B, C, and D. Repeat measurements for open.

Remove power. Repair wiring (shorted) between CB1 and connectors J4 and/or J6 (p 2-169). Repeat test on page 2-46.

Was open obtained in all cases?

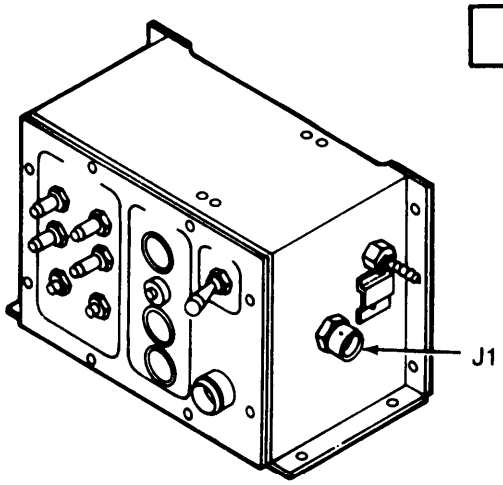
No

Yes

Replace RFI filter FL3 (p 2-164). Repeat test on page 2-46.

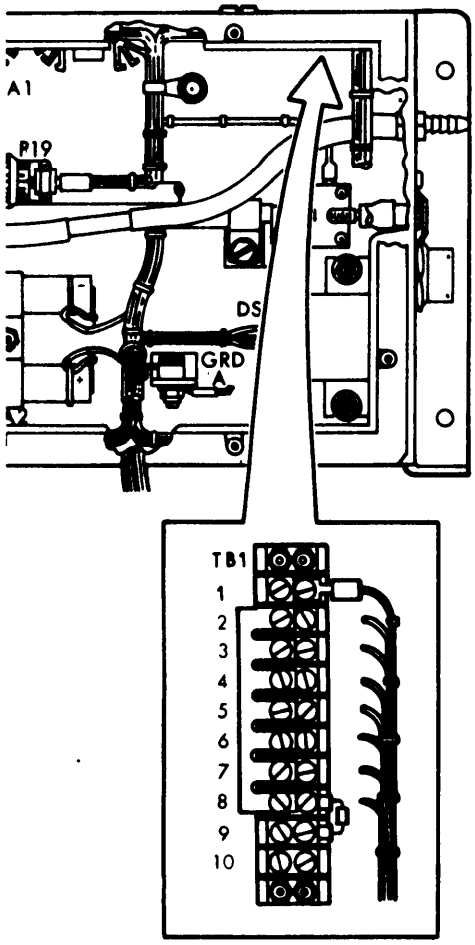
Repair wiring connected to terminals of RFI filter (p 2-169). Repeat test on page 2-46.

2-7. CCM TROUBLESHOOTING PROCEDURES.



NOTE

All voltages are dc and are measured with respect to dc return (TB1-2 thru 8) unless otherwise specified.



START

The chassis of the CCM must be isolated from dc return (power ground) of the CCM. Measure for an open between:
(+) J1-A (−) J1-K

Was an open obtained?

No

Remove screws on CCM panel and lift up for access to components. Repair shorted wiring in ground wire circuits, i.e., all wires connected to terminal board TB1-2, 3, 4, 5, 6, 7, and 8 (p 2-184). Repeat test on this page.

Yes

Measure continuity between:
(+) J1-K (−) Chassis of CCM (may use screw which fastens panel to housing).

Was continuity obtained?

No

Remove screws on CCM panel and lift up for access to components. Repair wiring between J1-K and chassis of CCM (p 2-184). Repeat test on this page.

Yes

Proceed to page 2-64.

2-7. CCM TROUBLESHOOTING PROCEDURES (Cont).

From page 2-63.

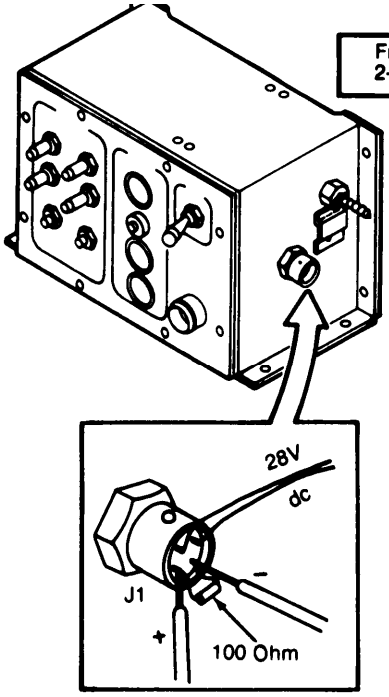
With the POWER switch S9 OFF, open (pull out) all circuit breakers until white shows on shaft. Connect a 100 ohm, 10 watt resistor across terminals J1-P and J1-N. Apply 28 vdc to J1 connector:

Pin B - positive
Pin A - negative

Measure the voltage across resistor:

(+) J1-P (−) J1-N

Power application or removal on the following pages is accomplished by making or breaking connections to pins A and B of J1 or by setting the power source on or off.



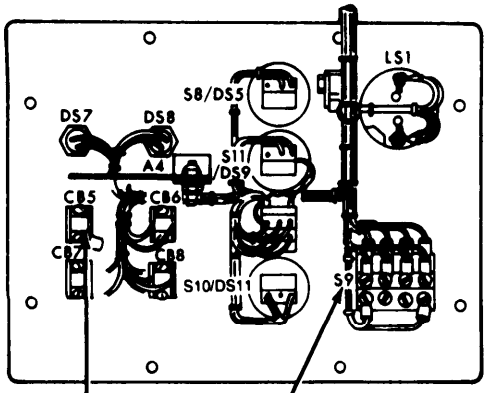
Was 0 vdc obtained?

No → Is the warning horn and/or MASK indicator light off?

No → Proceed to page 2-103.

Yes → Proceed to page 2-65.

Yes → Remove screws on CCM panel and lift up for access to components. Remove power. Disconnect wires (11 and 12) from S9-8 and S9-11. Apply power.



Was 0 vdc obtained?

No → Remove power. Repair wires between S9-8 or S9-11 to J1-N or J1-P (p 2-184). Apply power. Repeat test on this page.

Yes → Remove power. Disconnect wires from CB5-2. Measure voltage at CB5-2.

(+) CB5-2 (−) TB1-2

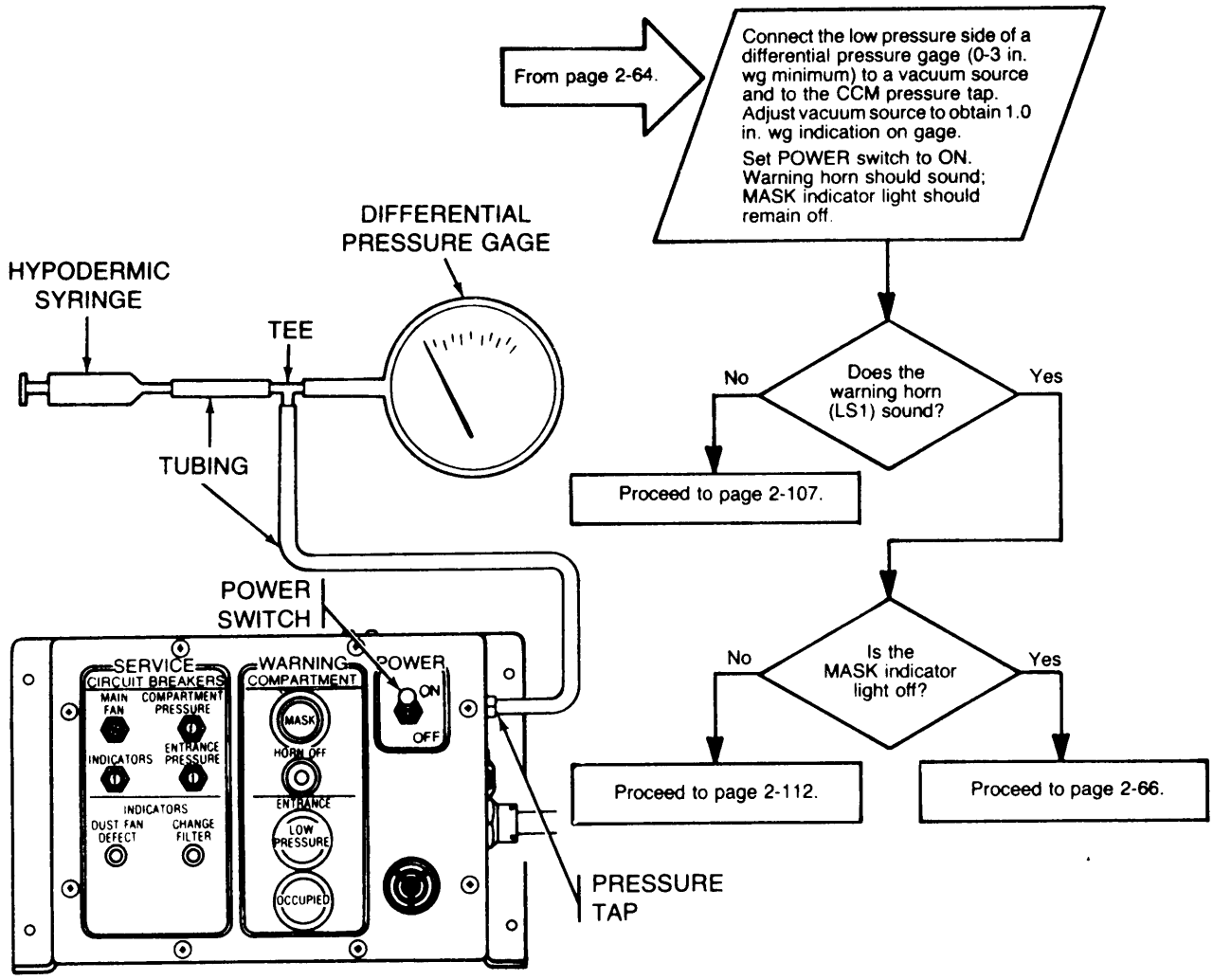
Apply power.

Was 0 vdc obtained?

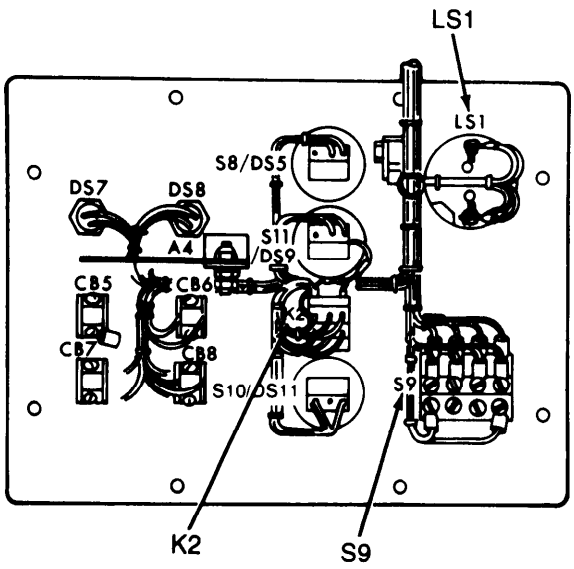
No → Remove power. CB5 should not have voltage at terminal 2 when it is tripped. Replace INDICATORS circuit breaker CB5 (p 2-178). Reconnect wires 11 and 12 at 59. Apply power. Repeat test on this page.

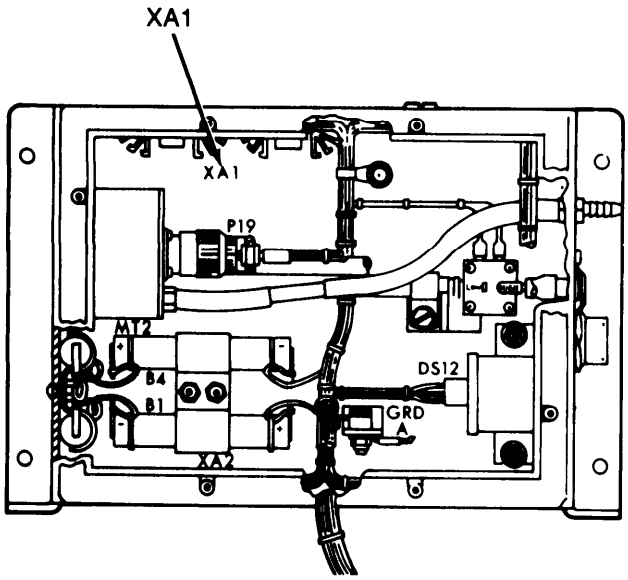
Yes → Remove power. Repair wiring from CB5-2 to S9-7 (p 2-184). Reconnect wires 11 and 12 at 59. Apply power. Repeat test on this page.

2-7. CCM TROUBLESHOOTING PROCEDURES (Cont).



2-7. CCM TROUBLESHOOTING PROCEDURES (Cont).





From page 2-65.

Measure the voltage across 100 ohm resistor connected to:
(+) J1-P
(−) J1-N

Was 0 vdc obtained?

No

Remove power. Remove screws on CCM panel and lift up for access to components. Repair wiring between S9-9 or S9-12 and XA1-4 or XA1-3 (p 2-184). Apply power. Repeat test on this page.

Yes

Press the HORN OFF button. The button should stay in and the horn should silence.

Does the HORN OFF button stay in?

No

Proceed to page 2-115.

Yes

Does the horn silence?

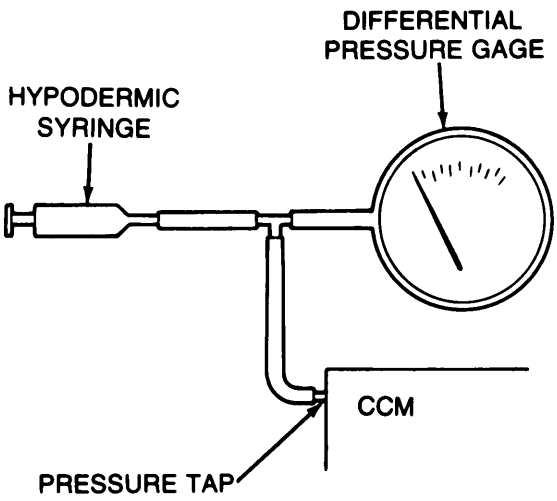
No

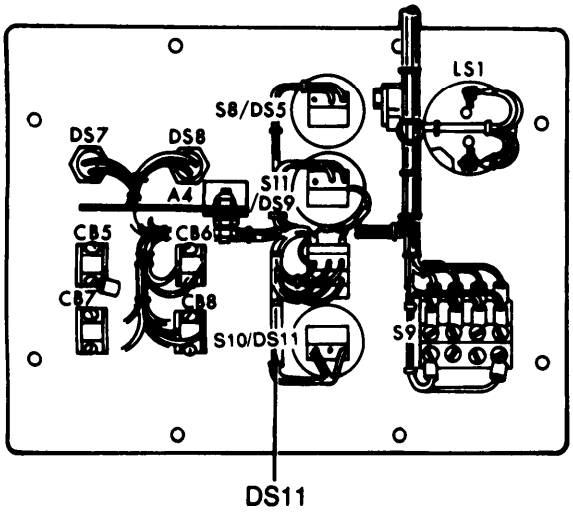
Remove power. Repair wiring (67) between LS1 (−) and K2-B — N.C. (p 2-184). Apply power. Repeat test on this page.

Yes

Proceed to page 2-67.

2-7. CCM TROUBLESHOOTING PROCEDURES (Cont).





From page 2-66.

Slowly decrease the vacuum from 1.0 in. wg until the MASK indicator lights. This should occur between 0.5 and 0.9 in. wg.

Does the MASK indicator light?

No

Yes

Increase the vacuum to 0.9 (±) 0.1 in. wg. The MASK indicator should go out.

Does the MASK indicator go out?

No

Yes

Remove power. Replace pressure switch S6 (p 2-172). Apply power. Repeat test on this page.

Proceed to page 2-68.

Remove power. Remove screws on CCM panel and lift up for access to components. Apply power. Measure the voltage across the MASK indicator light:

(+) DS11-4(+) (−) DS11-5(−)

Was 26.5 (±) 1 vdc obtaind?

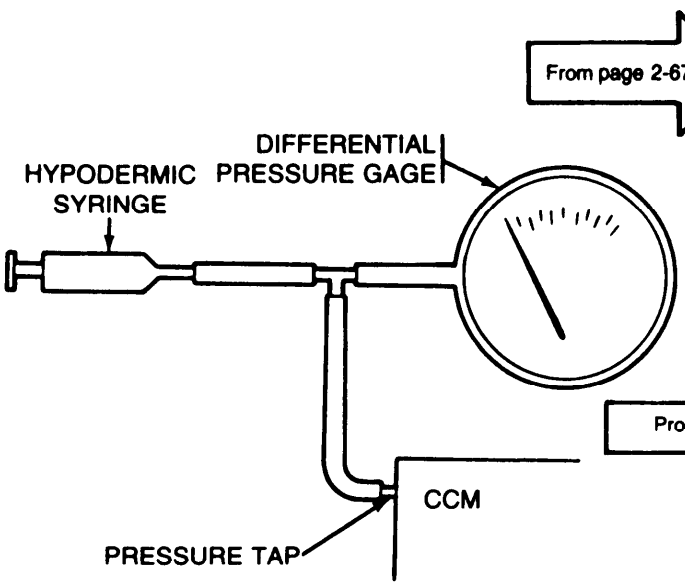
No

Yes

Proceed to page 2-116.

Check MASK indicator lamps by pressing lens. If lamps are good and MASK indicator light still does not flash, remove power and replace the MASK switch/indicator S10/DS11 (p 2-181). Apply power. Repeat test on this page.

2-7. CCM TROUBLESHOOTING PROCEDURES (Cont).



From page 2-67.

Increase the vacuum to 2.2 in. wg. Press the COMPARTMENT PRESSURE circuit breaker. The HORN OFF button should pop out (reset).

Does the COMPARTMENT PRESSURE circuit breaker CB8 remain set?

No

Yes

Proceed to page 2-119.

Did the HORN OFF button reset?

No

Proceed to page 2-123.

Measure voltage across 100 ohm resistor connected to J1-P(−) and J1-N(+).

Does the voltmeter indicate 22.5 to 26.5 vdc?

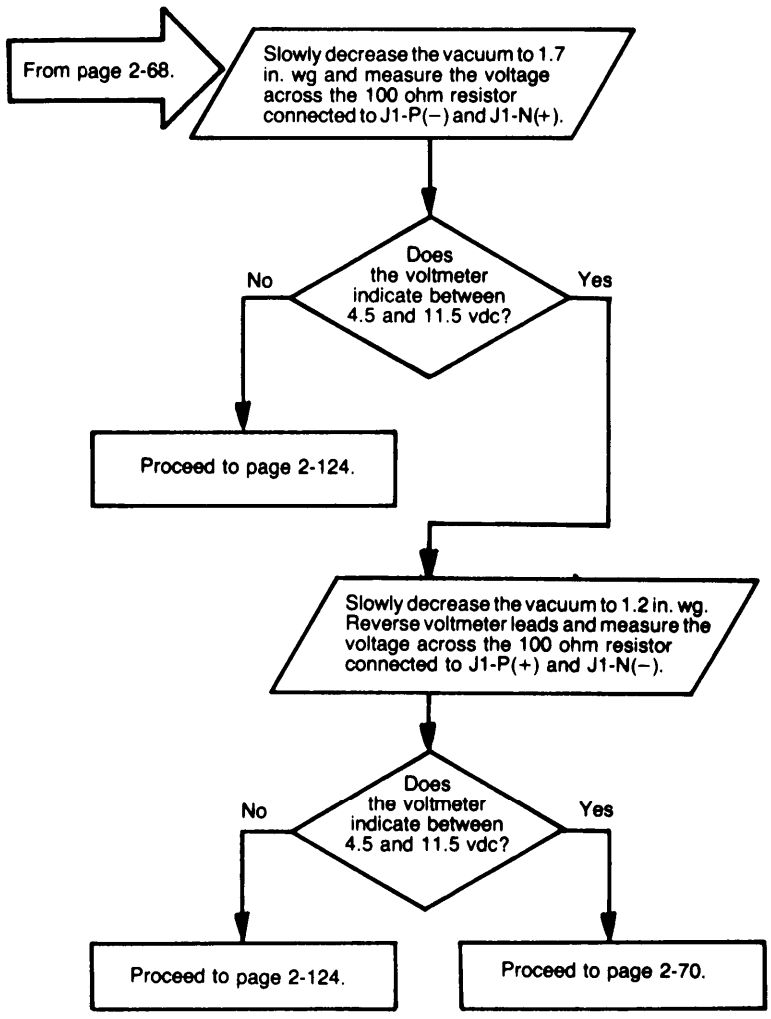
No

Yes

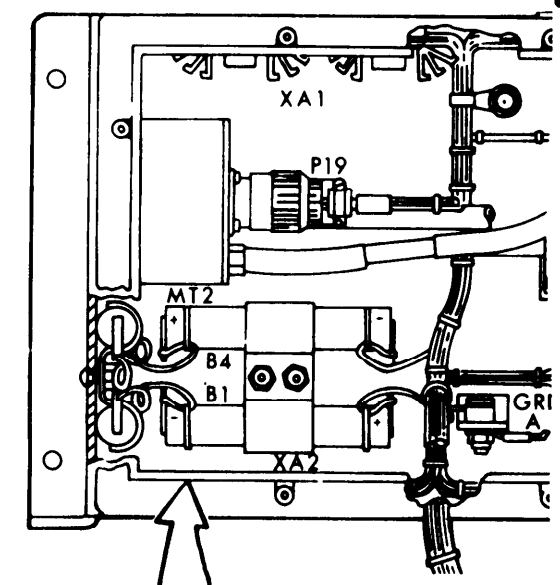
Proceed to page 2-124.

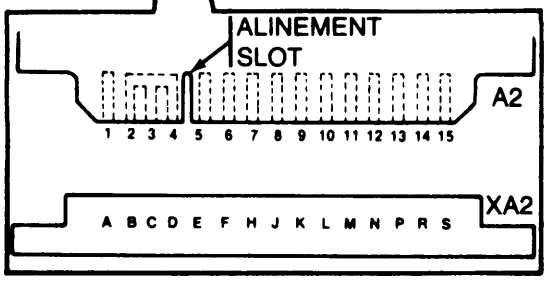
Proceed to page 2-69.

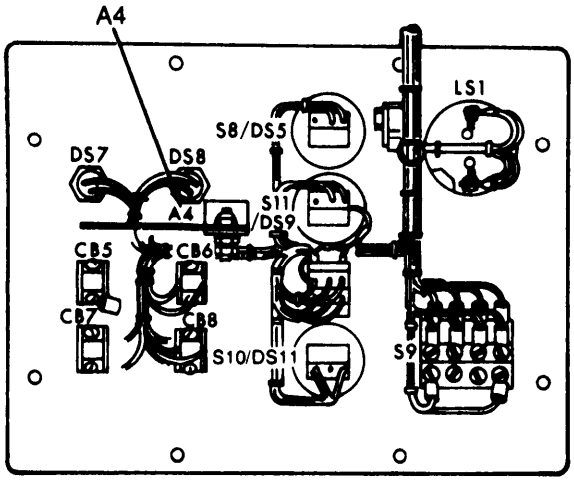
2-7. CCM TROUBLESHOOTING PROCEDURES (Cont).



2-7. CCM TROUBLESHOOTING PROCEDURES (Cont).







From page 2-69.

Slowly decrease the vacuum from 1.2 in. wg. until the MASK indicator begins flashing and the horn begins sounding with a pulsating tone. This should occur at a vacuum of 1.10 ± 05 in. wg.

Did the warning horn begin sounding and the MASK indicator light begin flashing at the proper pressure of 1.10 ± 05 in. wg?

No

Yes

Proceed to page 2-71.

Set POWER switch OFF. Remove screws on CCM panel and lift open for access to components. Check for continuity between:

(+) A2-K(9)

(−) A4-6

Was continuity obtained?

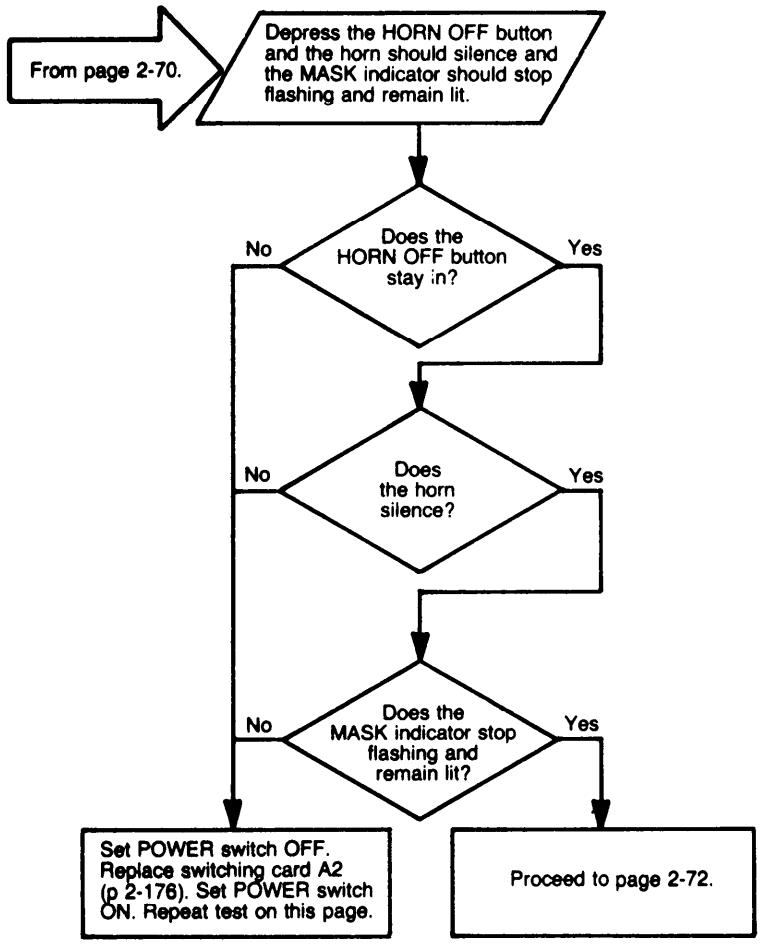
No

Yes

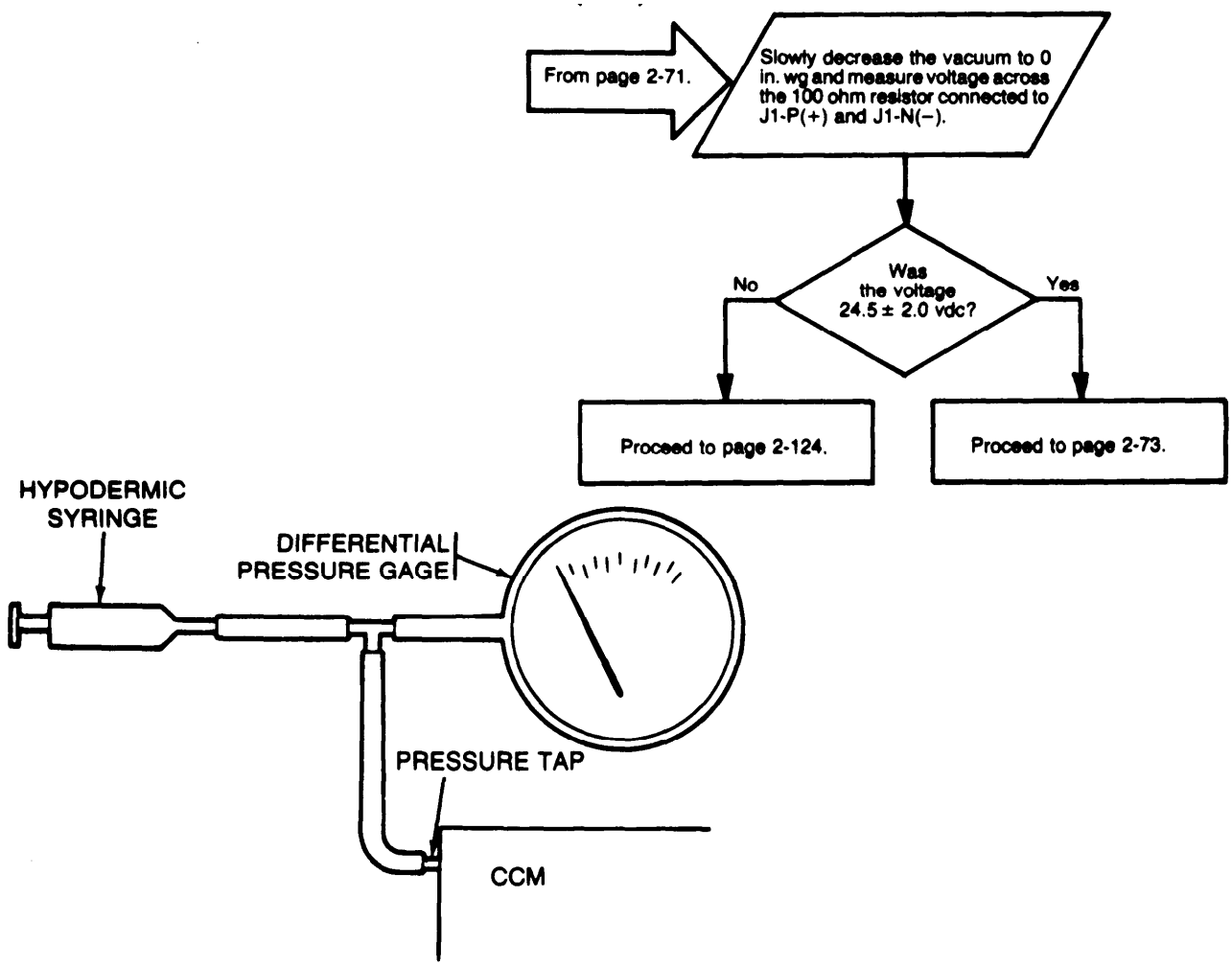
Repair wiring (p 2-184). Increase vacuum to 1.2 in. wg. Set POWER switch ON. Repeat test on this page.

Replace switching card (p 2-176). Increase vacuum to 1.2 in. wg. Set POWER switch ON. Repeat test on this page.

2-7. CCM TROUBLESHOOTING PROCEDURES (Cont).



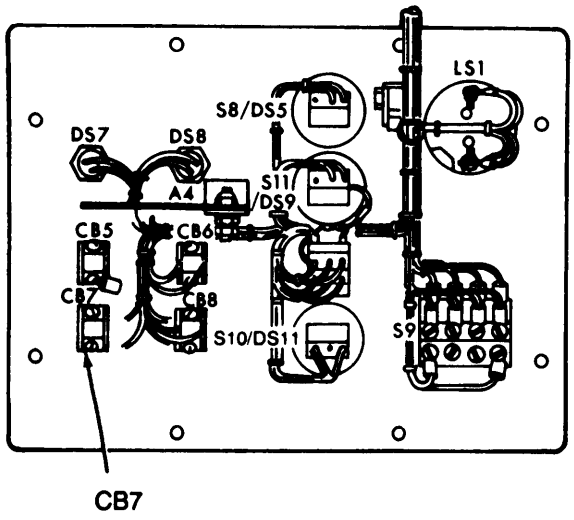
2-7. CCM TROUBLESHOOTING PROCEDURES (Cont).



2-7. CCM TROUBLESHOOTING PROCEDURES (Cont).

NOTE

Reapplying power on the following pages will probably cause the horn to sound. Press the HORN OFF button to silence horn.



From page 2-72.

Connect voltmeter between:
(+) J1-D
(−) J1-A
Push in the MAIN FAN circuit breaker. The voltmeter should indicate 28 v ± 1 vdc when the circuit breaker is pushed in.

Does the circuit breaker remain set?
No
Yes

Was 28 vdc obtained?
No
Yes

Move the (+) lead of the voltmeter from J1-D to J1-E. Push in the INDICATORS circuit breaker. When the circuit breaker is pushed in the voltmeter should read 28 ± 1 vdc and the LOW PRESSURE indicator light shall come on.

Proceed to page 2-133.

Proceed to page 2-74.

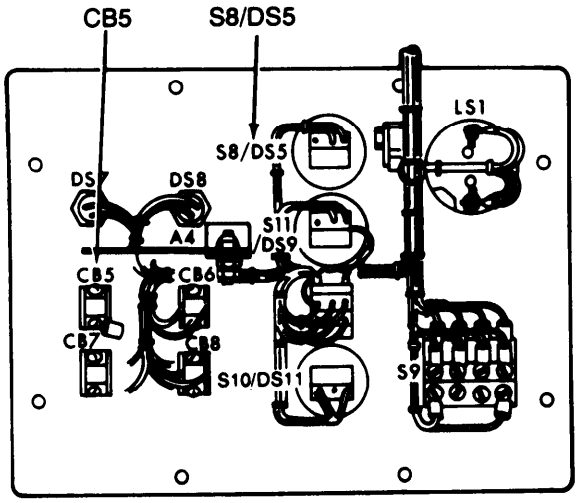
Remove power. Set POWER switch OFF. Remove screws on CCM panel and lift open for access. Disconnect wire 4 at CB7-1. Measure continuity between:
(+) Wire 4 at CB7-1
(−) TB1-2

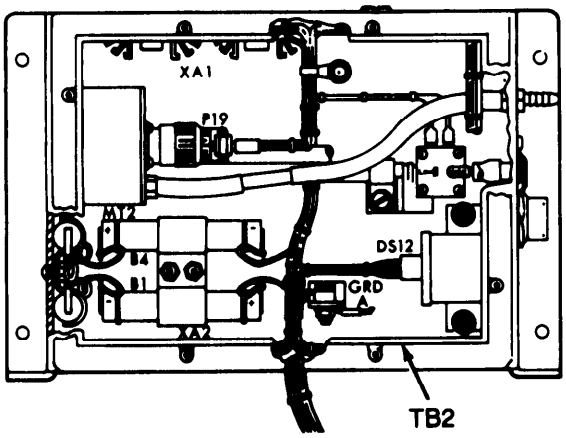
Was continuity obtained?
No
Yes

Replace MAIN FAN circuit breaker (p 2-179). Apply power. Set POWER switch ON. Repeat test on this page.

Repair wire 4 (p 2-184). The wire is shorted to ground or chassis. Apply power. Set POWER switch ON. Repeat test on this page.

2-7. CCM TROUBLESHOOTING PROCEDURES (Cont).





From page 2-73.

Does the INDICATORS circuit breaker remain set?

No

Yes

Remove power. Set POWER switch OFF. Remove screws on CCM panel and lift up for access to components. Disconnect wires 51 and 52 from CB5-2. Measure continuity between:

(+)	(−)
Wire 51	TB1-2
Wire 52	TB1-2

Was continuity obtained?

No

Yes

Replace INDICATORS circuit breaker CB5 (p 2-178). Reconnect wires 51 and 52. Apply power. Set POWER switch ON. Repeat test on this page.

Repair shorted wiring (p 2-184). Reconnect wires 51 and 52. Apply power. Set POWER switch ON. Repeat test on this page.

Was 28 ± 2 vdc obtained at J1-E?

No

Yes

Proceed to page 2-134.

Did the LOW PRESSURE light come on?

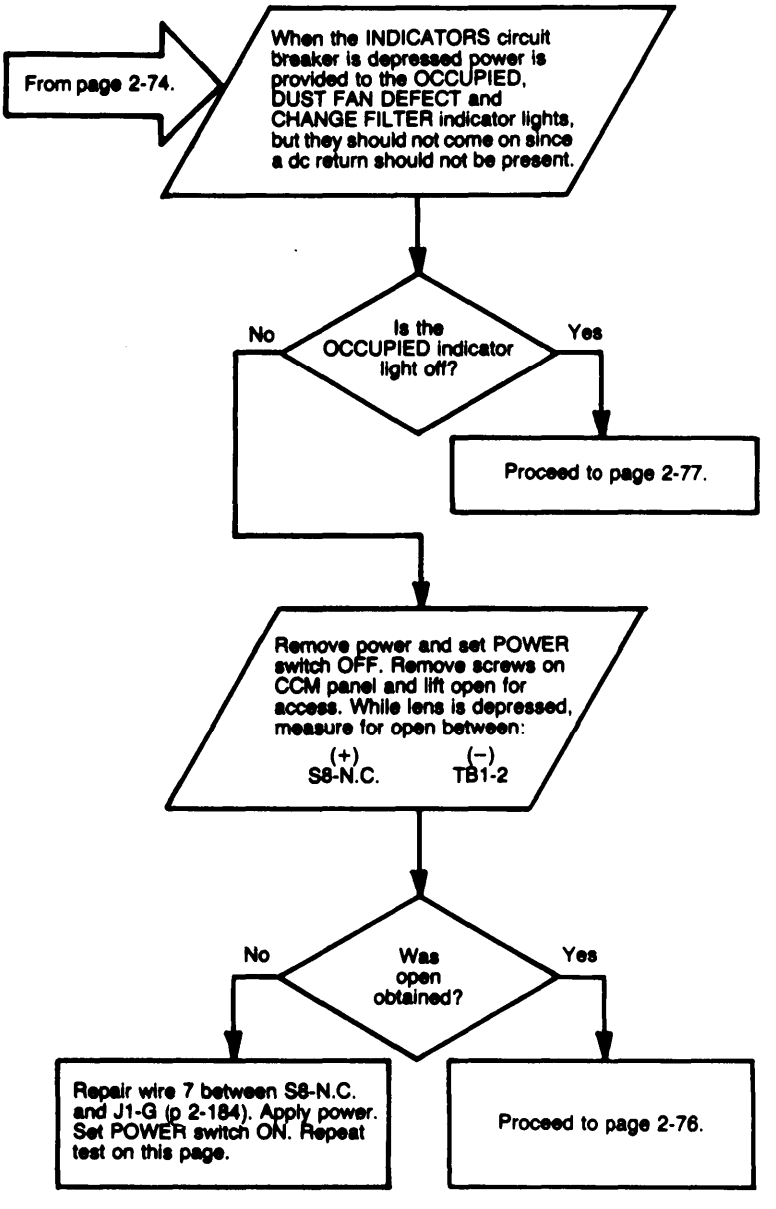
No

Yes

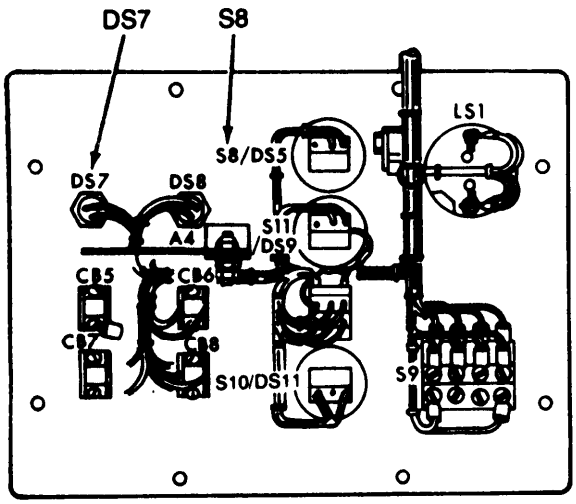
Proceed to page 2-135.

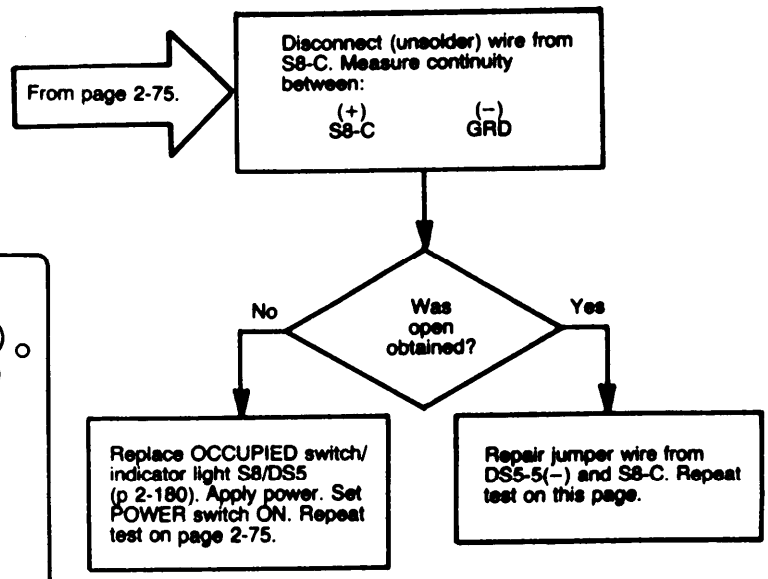
Proceed to page 2-75.

2-7. CCM TROUBLESHOOTING PROCEDURES (Cont).

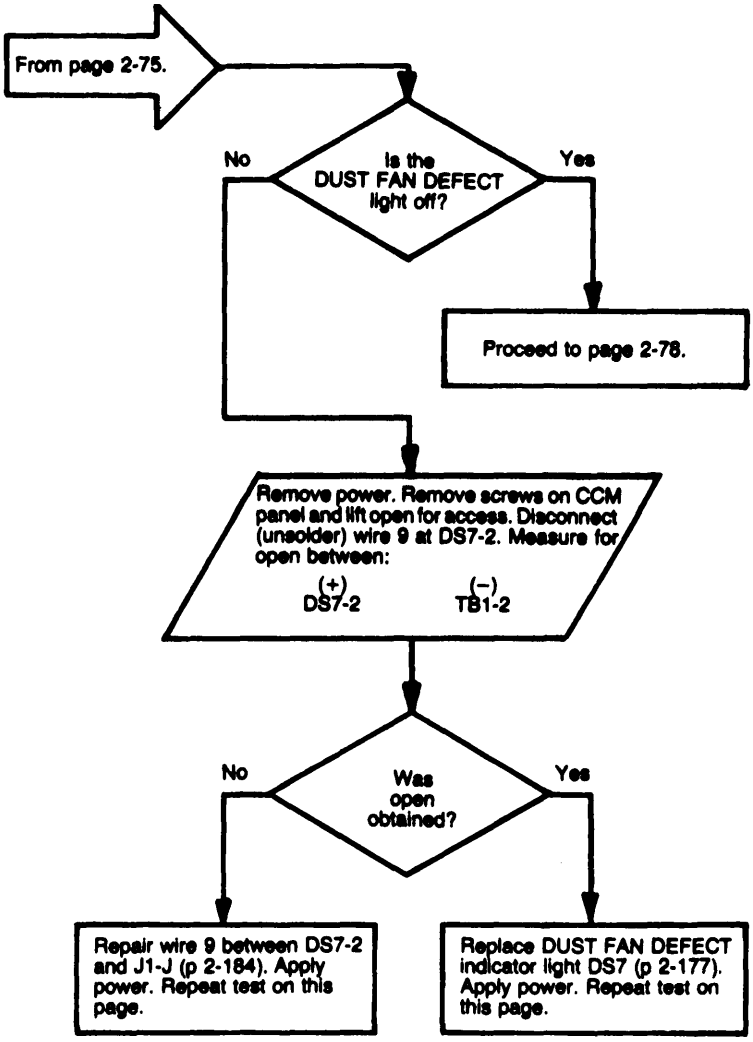


2-7. CCM TROUBLESHOOTING PROCEDURES (Cont).

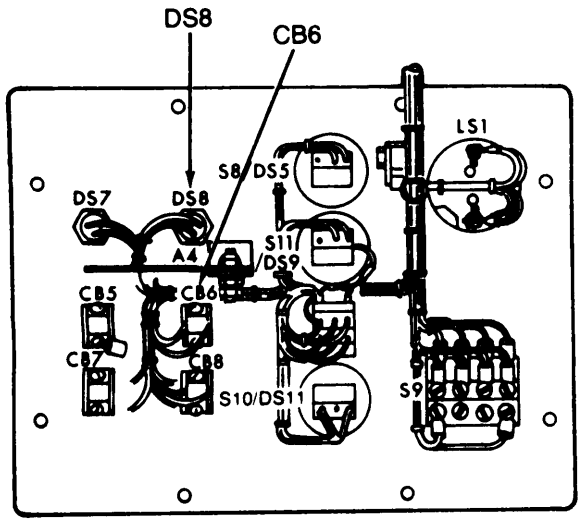


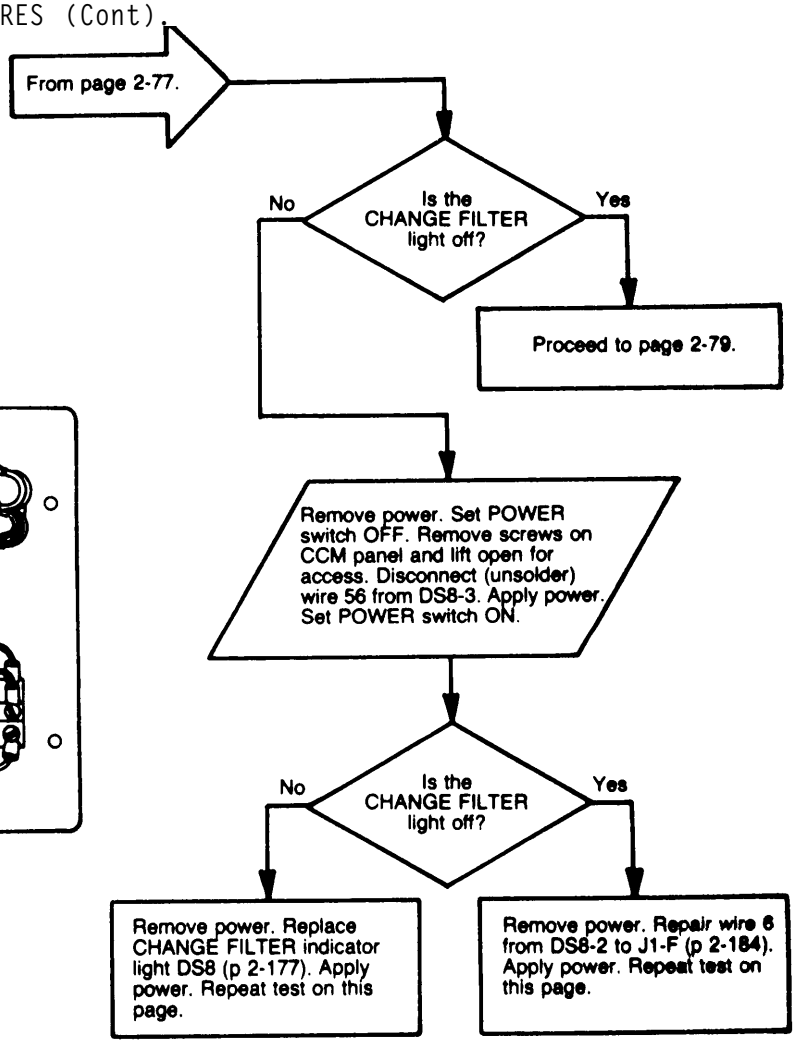


2-7. CCM TROUBLESHOOTING PROCEDURES (Cont).

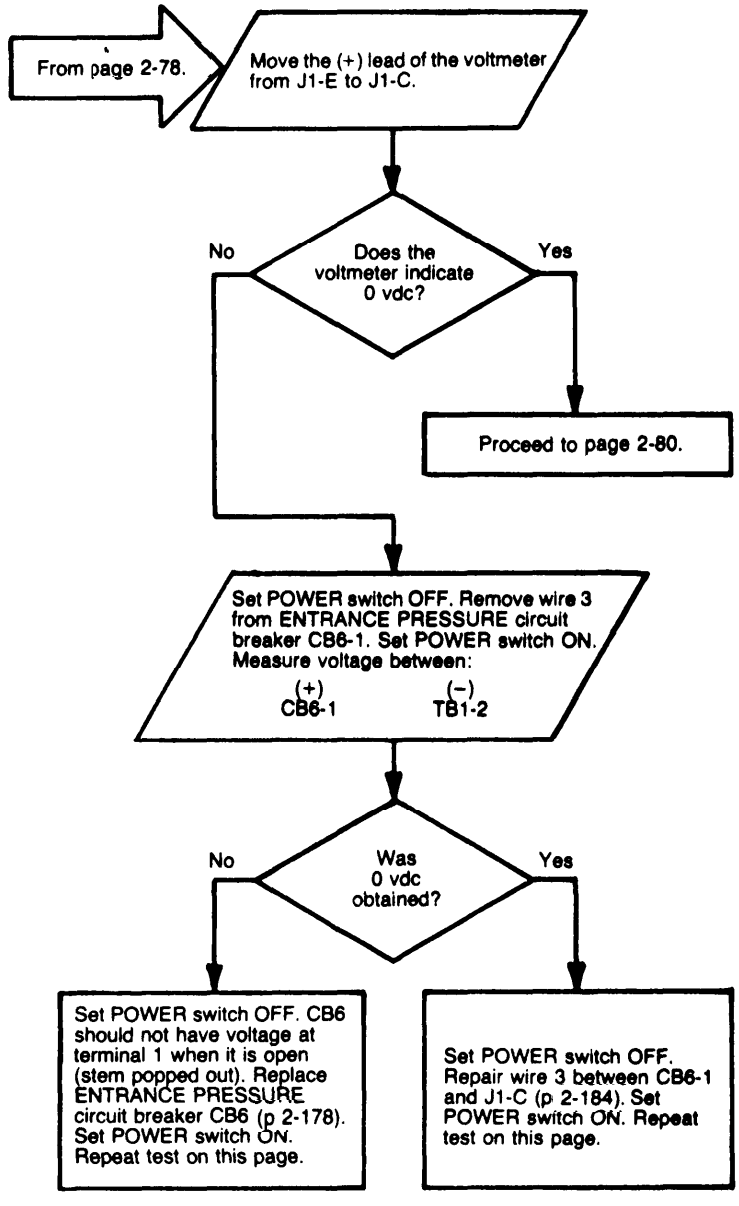


2-7. CCM TROUBLESHOOTING PROCEDURES (Cont).

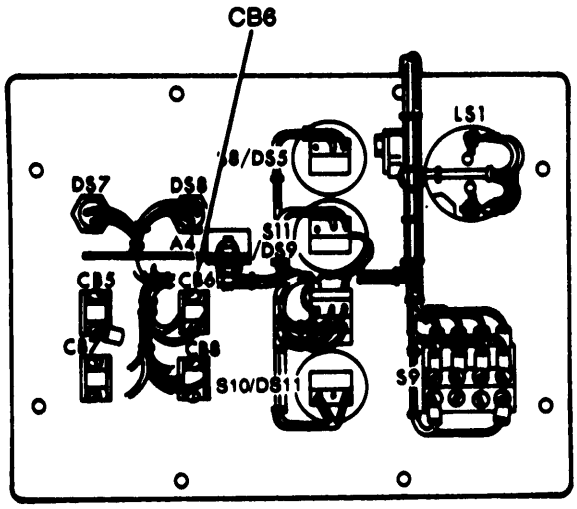




2-7. CCM TROUBLESHOOTING PROCEDURES (Cont).



2-7. CCM TROUBLESHOOTING PROCEDURES (Cont).



From page 2-79.

Push in the ENTRANCE PRESSURE circuit breaker. Voltmeter should indicate 28 ± 2 vdc and the LOW PRESSURE indicator should go off.

Does the ENTRANCE PRESSURE circuit breaker remain set?

No

Yes

Remove power. Set POWER switch OFF. Remove screws on the CCM panel and lift up for access to components. Disconnect wire 3 at CB6-1. Measure continuity between:

(+)	(−)
Wire 3 at CB6-1	TB1-2

Proceed to page 2-81.

Was continuity obtained?

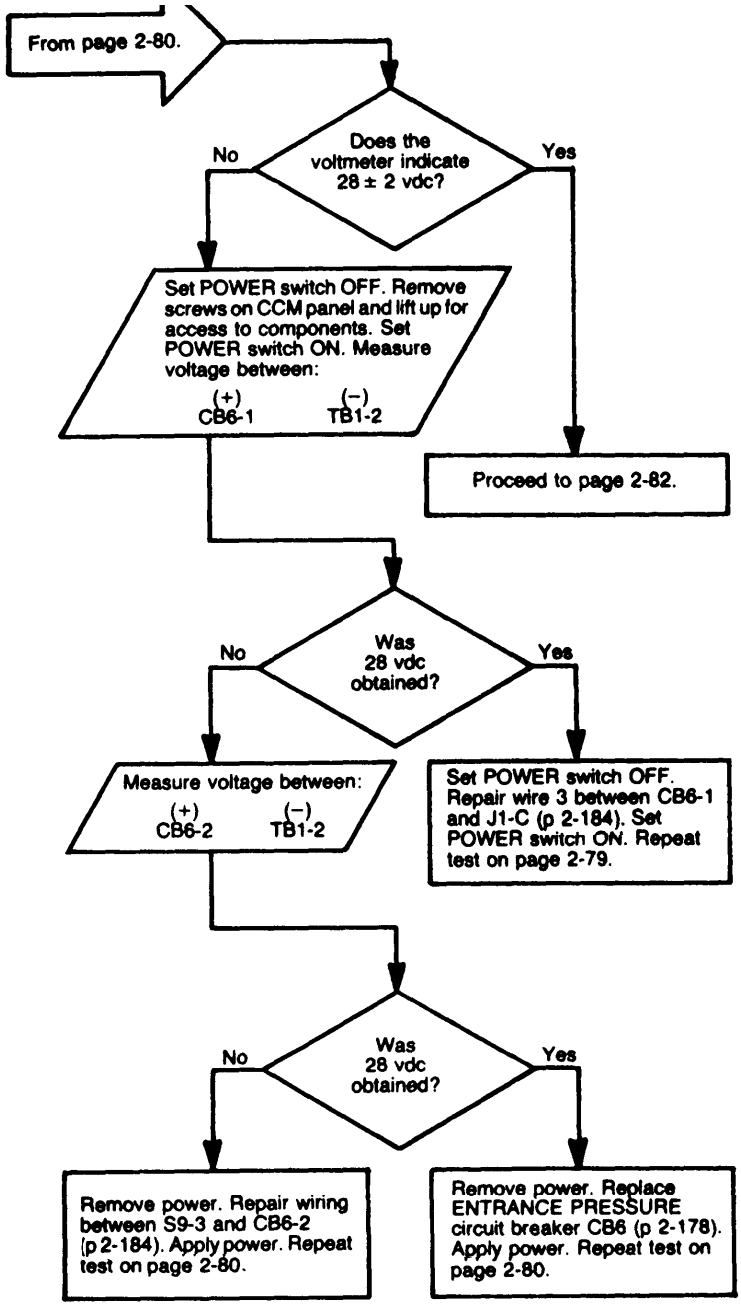
No

Yes

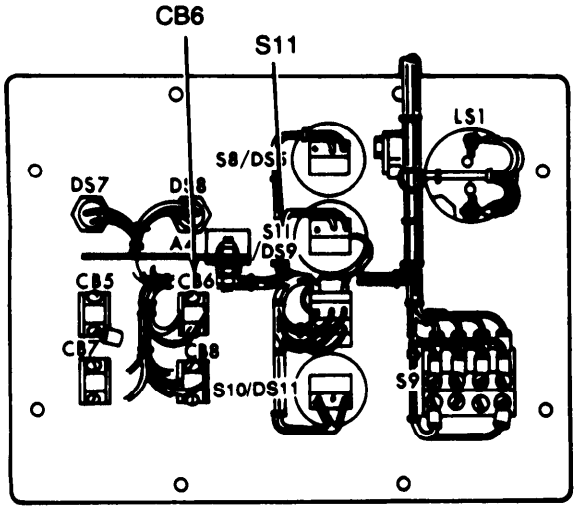
Replace ENTRANCE PRESSURE circuit breaker (p 2-178). Apply power. Set POWER switch ON. Repeat test on this page.

Repair wire 3 (p 2-184). The wire is shorted to dc return or chassis. Apply power. Set POWER switch ON. Repeat test on this page.

2-7. CCM TROUBLESHOOTING PROCEDURES (Cont).



2-7. CCM TROUBLESHOOTING PROCEDURES (Cont).



From page 2-81.

Is the LOW PRESSURE indicator light off?

No

Yes

Remove power. Remove screws on CCM panel and lift open for access. Disconnect (unsolder) wire 62 at S11-N.C. Measure for open between:

(+) S11-N.C. (−) TB1-2

Proceed to page 2-84.

Was open obtained?

No

Yes

Disconnect (unsolder) wire 62 at CB6-4. Measure for open between:

(+) CB6-4 (−) TB1-2

Proceed to page 2-83.

Was open obtained?

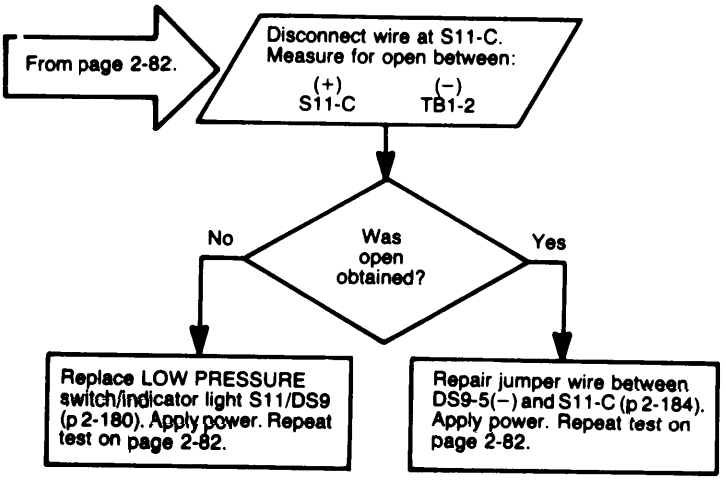
No

Yes

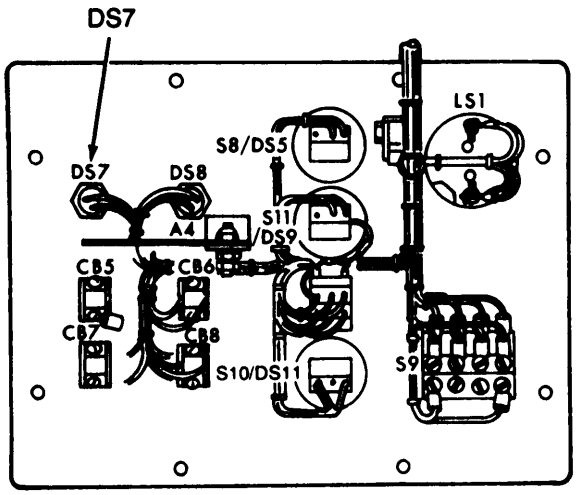
Replace ENTRANCE PRESSURE circuit breaker CB6 (p 2-178). Reconnect wire 62. Apply power. Repeat test on this page.

Repair wire 62 between CB6-4 and S11-N.C. (p 2-184). Apply power. Repeat test on this page.

2-7. CCM TROUBLESHOOTING PROCEDURES (Cont).



2-7. CCM TROUBLESHOOTING PROCEDURES (Cont).



From page 2-82.

Press the lens cover of the DUST FAN DEFECT indicator.

Does the indicator light?

No

Yes

Does the indicator go out when lens is released?

No

Yes

Remove power. Replace DUST FAN DEFECT indicator light (p 2-177). Apply power. Repeat test on this page.

Proceed to page 2-86.

Check the lamp in the indicator. The lamps may be checked by applying 28 vdc to the lamp.

Is the lamp good?

No

Yes

Remove power. Remove screws on CCM panel and lift open for access to components. Measure continuity between:

(+) DS7-3 (−) TB1-2

Replace lamp. Repeat test on this page.

Was continuity obtained?

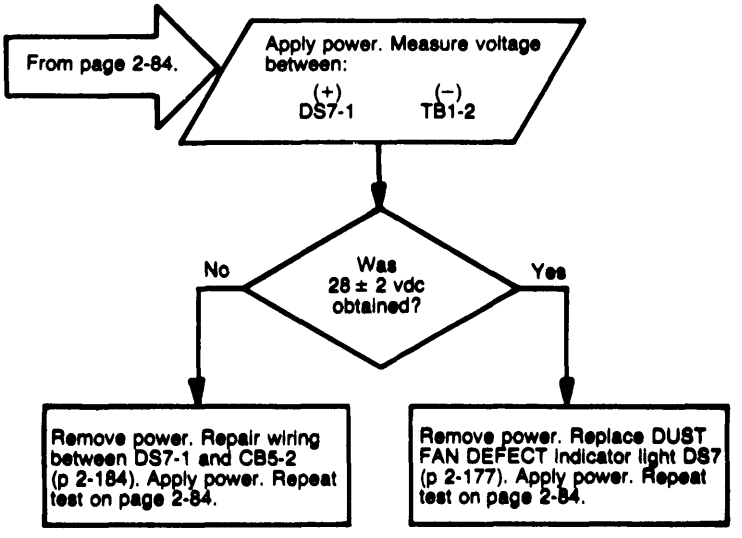
No

Yes

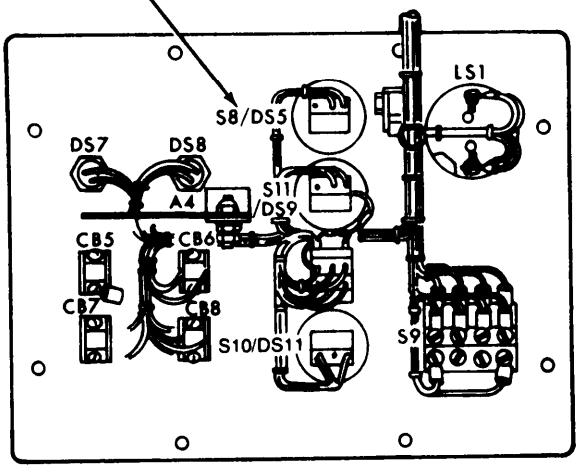
Repair wiring (p 2-184). Apply power. Repeat test on this page.

Proceed to page 2-85.

2-7. CCM TROUBLESHOOTING PROCEDURES (Cont).



2-7. CCM TROUBLESHOOTING PROCEDURES (Cont).



From page 2-84.

Press the lens cover of the OCCUPIED indicator.

Does the OCCUPIED indicator light?

No

Yes

Does the indicator go out when lens is released?

No

Yes

Remove power. Replace OCCUPIED switch/indicator light S8/DS5 (p 2-180). Apply power. Repeat test on this page.

Proceed to page 2-88.

Check the lamps in the indicator. The lamps may be checked by applying 28 vdc to the lamp.

Are the lamps good?

No

Yes

Replace lamps. Repeat test on this page.

Remove power. Remove screws on CCM panel and lift up for access to components. Measure continuity between:

(+) S8-N.O. (−) TB1-2

Was continuity obtained?

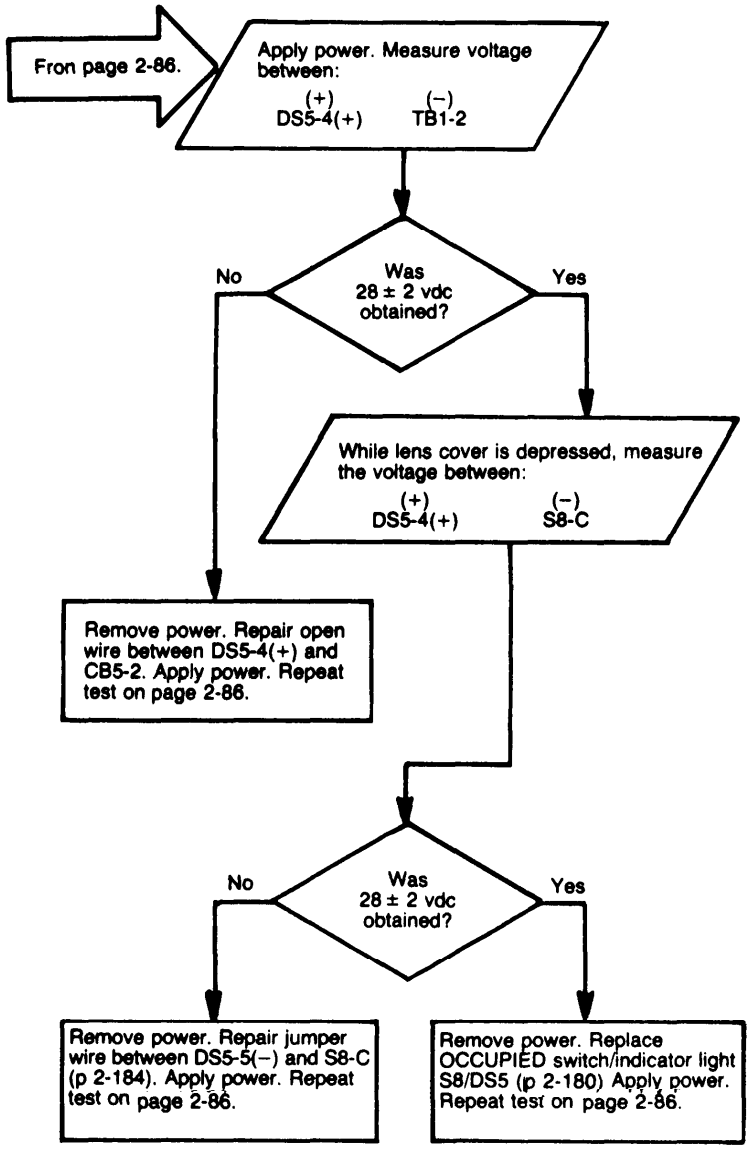
No

Yes

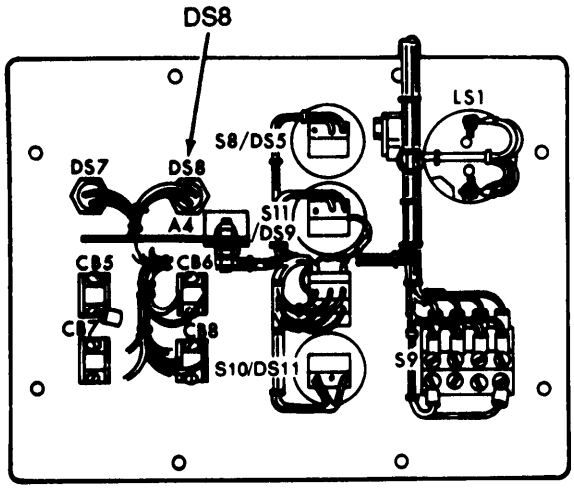
Repair wiring (p 2-184). Apply power. Repeat test on this page.

Proceed to page 2-87.

2-7. CCM TROUBLESHOOTING PROCEDURES (Cont).



2-7. CCM TROUBLESHOOTING PROCEDURES (Cont).



From page 2-86.

Press the lens cover of the CHANGE FILTER indicator.

Does the indicator light?

No

Yes

Does the indicator go out when the lens is released?

No

Yes

Remove power. Replace CHANGE FILTER indicator light (p 2-177). Apply power. Repeat test on this page.

Proceed to page 2-90.

Check the lamp in the indicator. The lamp may be checked by applying 28 vdc to the lamp.

Are the lamps good?

No

Yes

Replace lamp. Repeat test on this page.

Remove power. Remove screws on CCM panel and lift open for access to components. Measure continuity between:

(+) DS8-3 (−) TB1-2

Was continuity obtained?

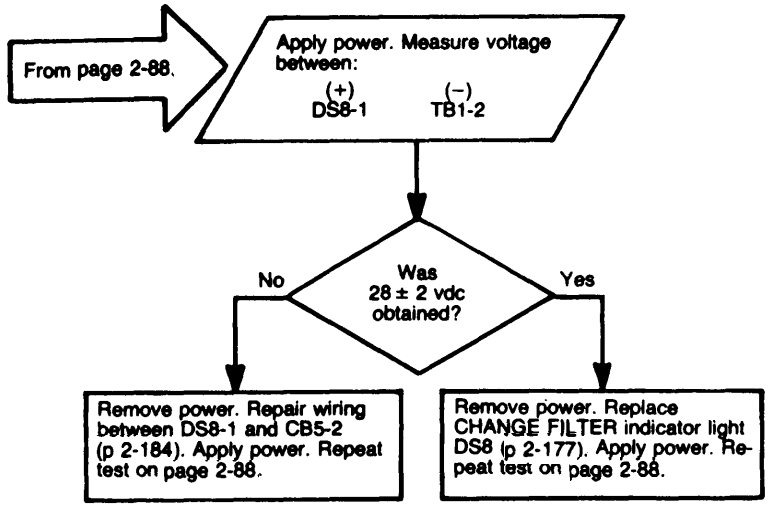
No

Yes

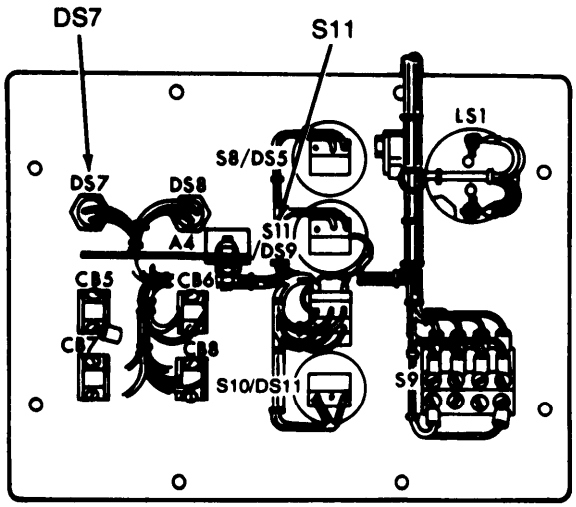
Repair wiring (p 2-184). Apply power. Repeat test on this page.

Proceed to page 2-89.

2-7. CCM TROUBLESHOOTING PROCEDURES (Cont).



2-7. CCM TROUBLESHOOTING PROCEDURES (Cont).



From page 2-88.

Does the LOW PRESSURE indicator light come on when lens cover is depressed?

No

Yes

Does the indicator go out when the lens is released?

No

Yes

Remove power. Replace LOW PRESSURE switch/indicator light S11/DS9 (p 2-181). Apply power. Repeat test on this page.

Proceed to page 2-91.

Remove power. Remove screws on CCM panel and lift open for access. Measure continuity between:

(+) S11-N.O. (−) TB1-2

Was continuity obtained?

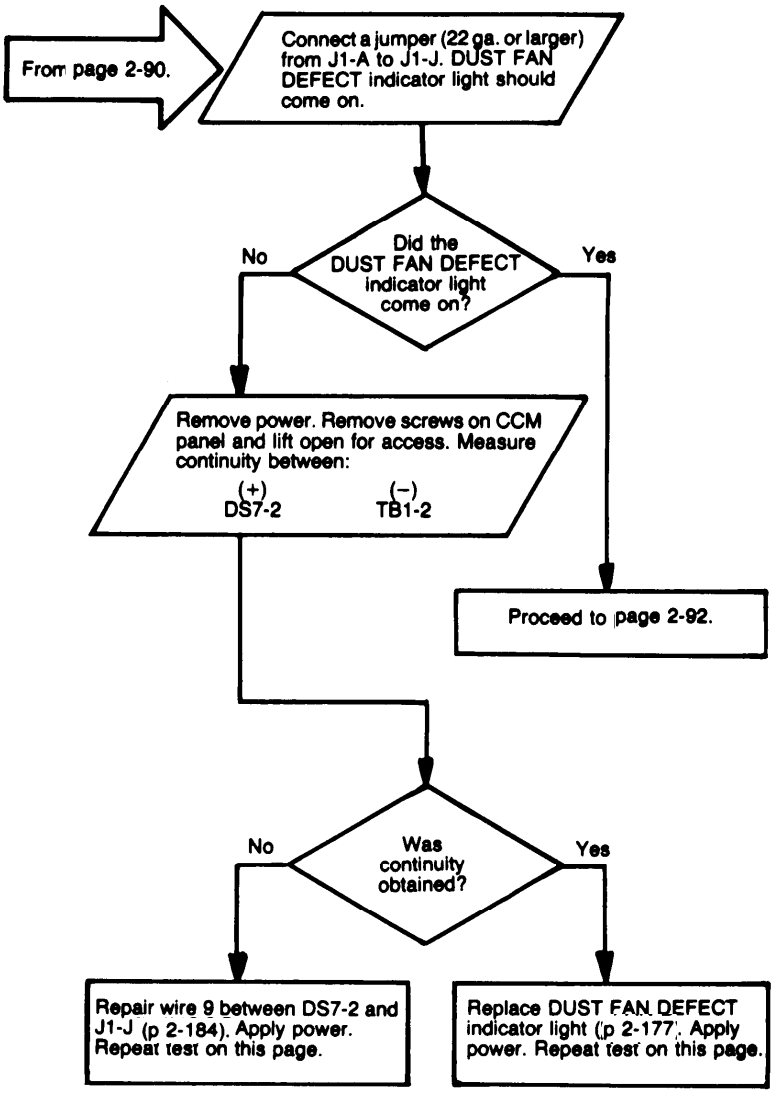
No

Yes

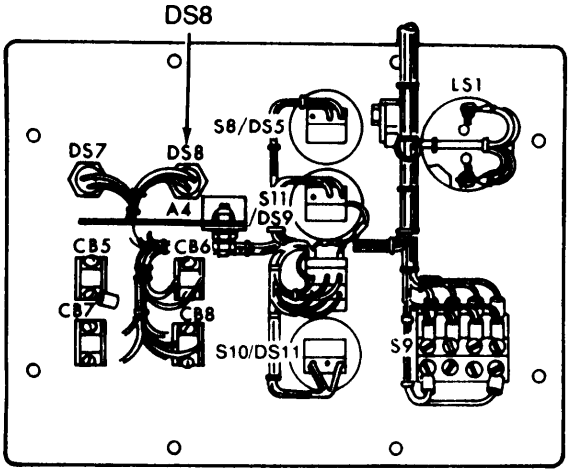
Repair wiring (p 2-184). Apply power. Repeat test on this page.

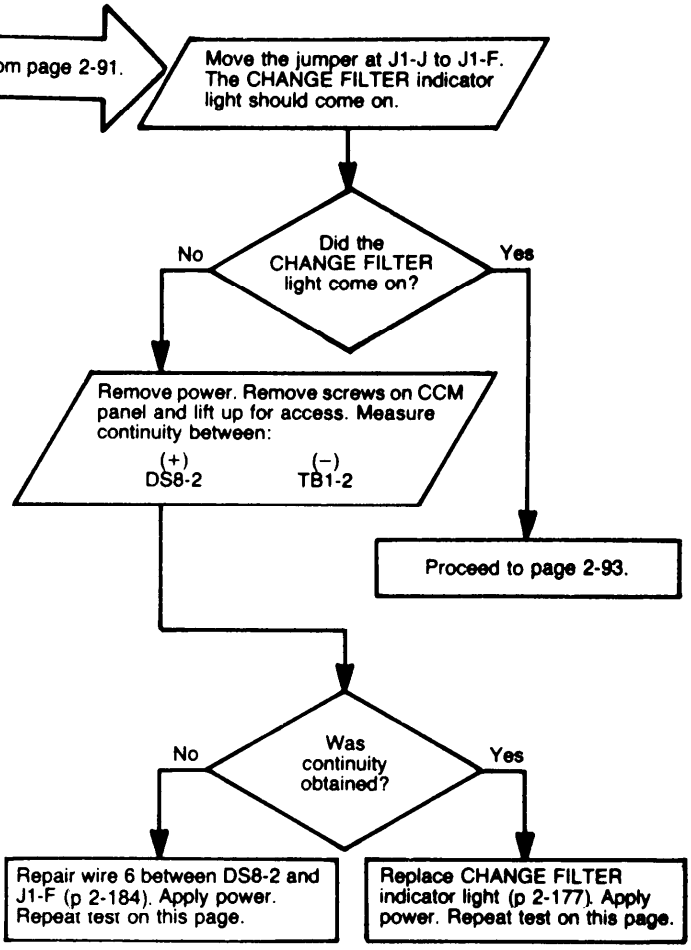
Replace LOW PRESSURE switch/indicator light S11/DS9 (p 2-181). Apply power. Repeat test on this page.

2-7. CCM TROUBLESHOOTING PROCEDURES (Cont).

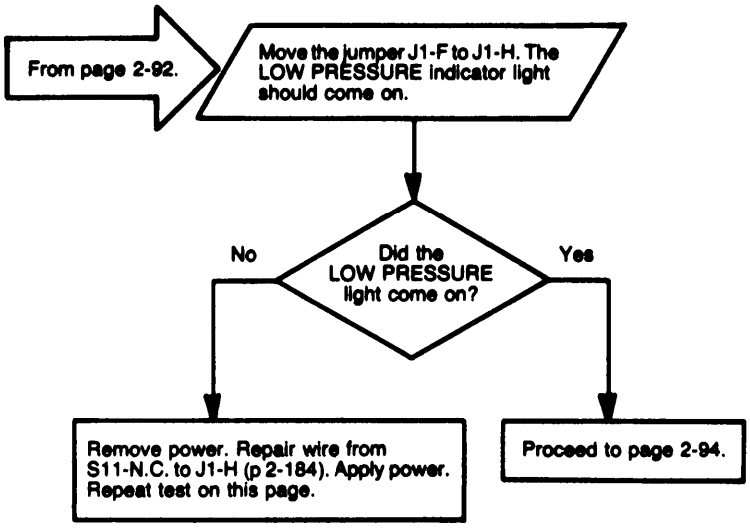


2-7. CCM TROUBLESHOOTING PROCEDURES (Cont).

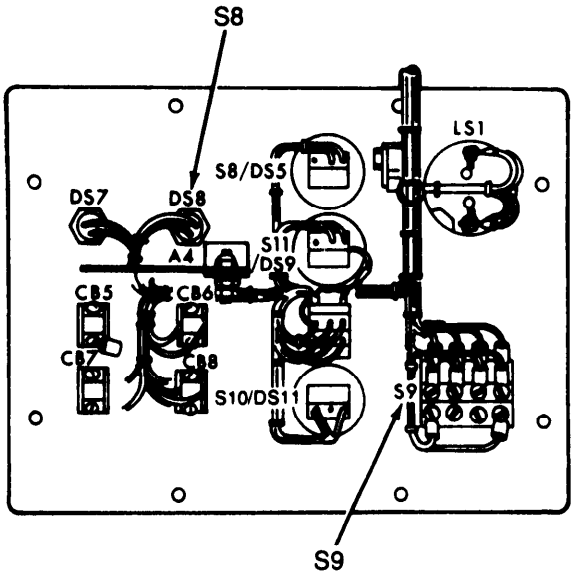




2-7. CCM TROUBLESHOOTING PROCEDURES (Cont).



2-7. CCM TROUBLESHOOTING PROCEDURES (Cont).



From page 2-93.

Move the jumper at J1-H to J1-G. The OCCUPIED indicator light should come on.

Did the OCCUPIED light come on?

No

Yes

Remove jumper from J1-A and J1-G. Proceed to page 2-95.

Remove power. Remove screws on CCM panel and lift up for access. Measure continuity between:

(+) S8-N.C. (−)

Was continuity obtained?

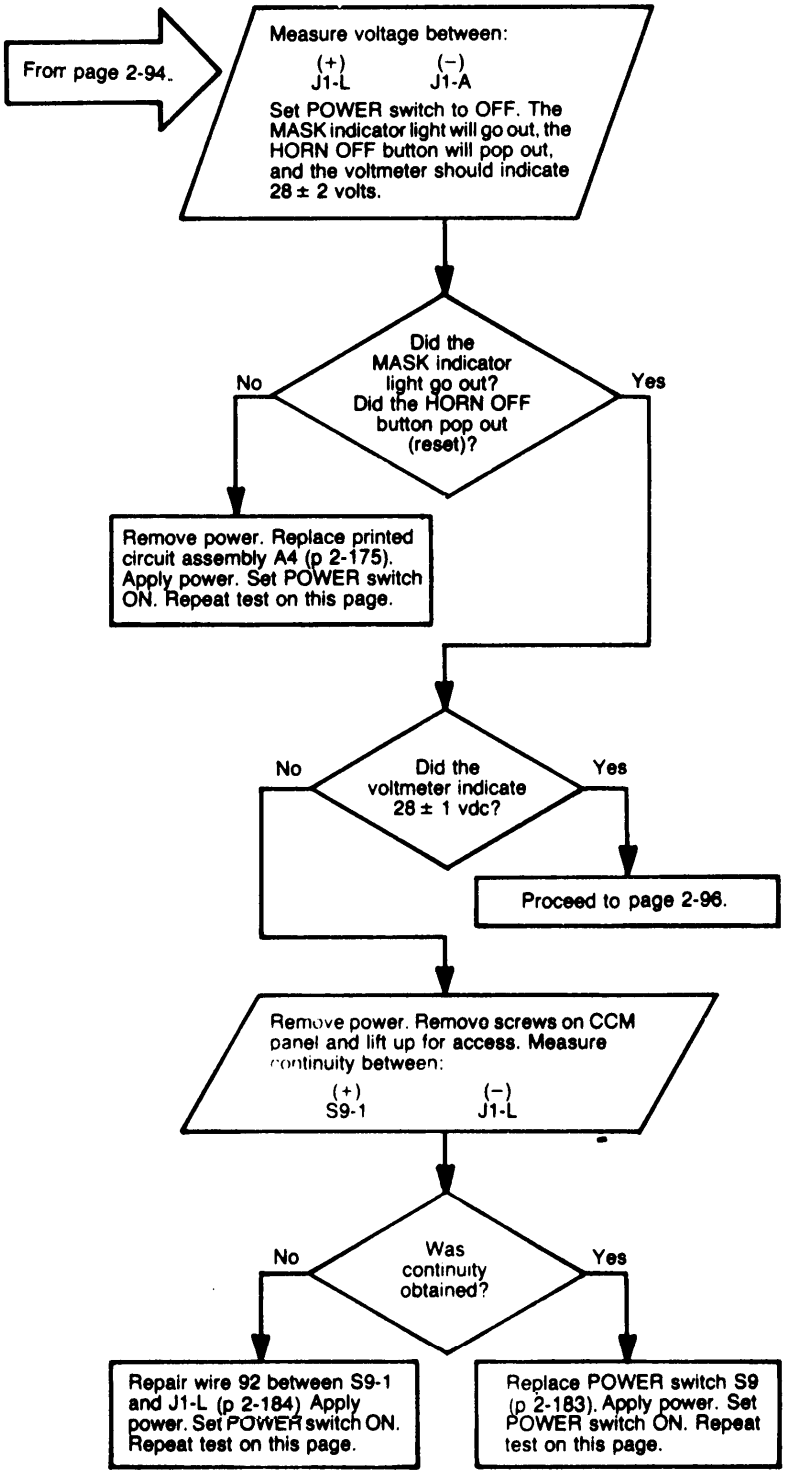
No

Yes

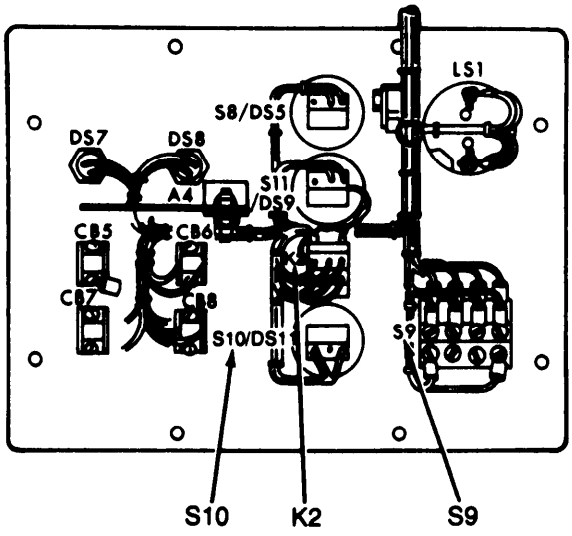
Repair wires from S8-N.C. to J1-G (p 2-184). Apply power. Repeat test on this page.

Replace OCCUPIED switch/ indicator light S8/DS5 (p 2-180). Apply power. Repeat test on this page.

2-7. CCM TROUBLESHOOTING PROCEDURES (Cont).



2-7. CCM TROUBLESHOOTING PROCEDURES (Cont).



From page 2-95.

Push in the lens cover of the MASK indicator. The indicator shall flash and the warning horn shall sound with a pulsating tone while the lens cover is held in.

Did the MASK indicator flash? Did the warning horn sound?

No → Remove power. Replace MASK switch/indicator S10/DS11 (p 2-181). Apply power. Repeat test on this page.

Yes → Did light and horn cease operating when lens cover is released?

No → Remove power. Replace MASK switch/indicator S10/DS11 (p 2-181). Apply power. Repeat test on this page.

Yes → Proceed to page 2-97.

Remove power. Remove screws on CCM panel and lift open for access. Measure continuity between:

(+) S10-C (−) TB1-2

Was continuity obtained?

No → Repair wiring to TB1-6 from S10-C (p 2-184). Apply power. Repeat test on this page.

Yes → Apply power. Measure voltage between:

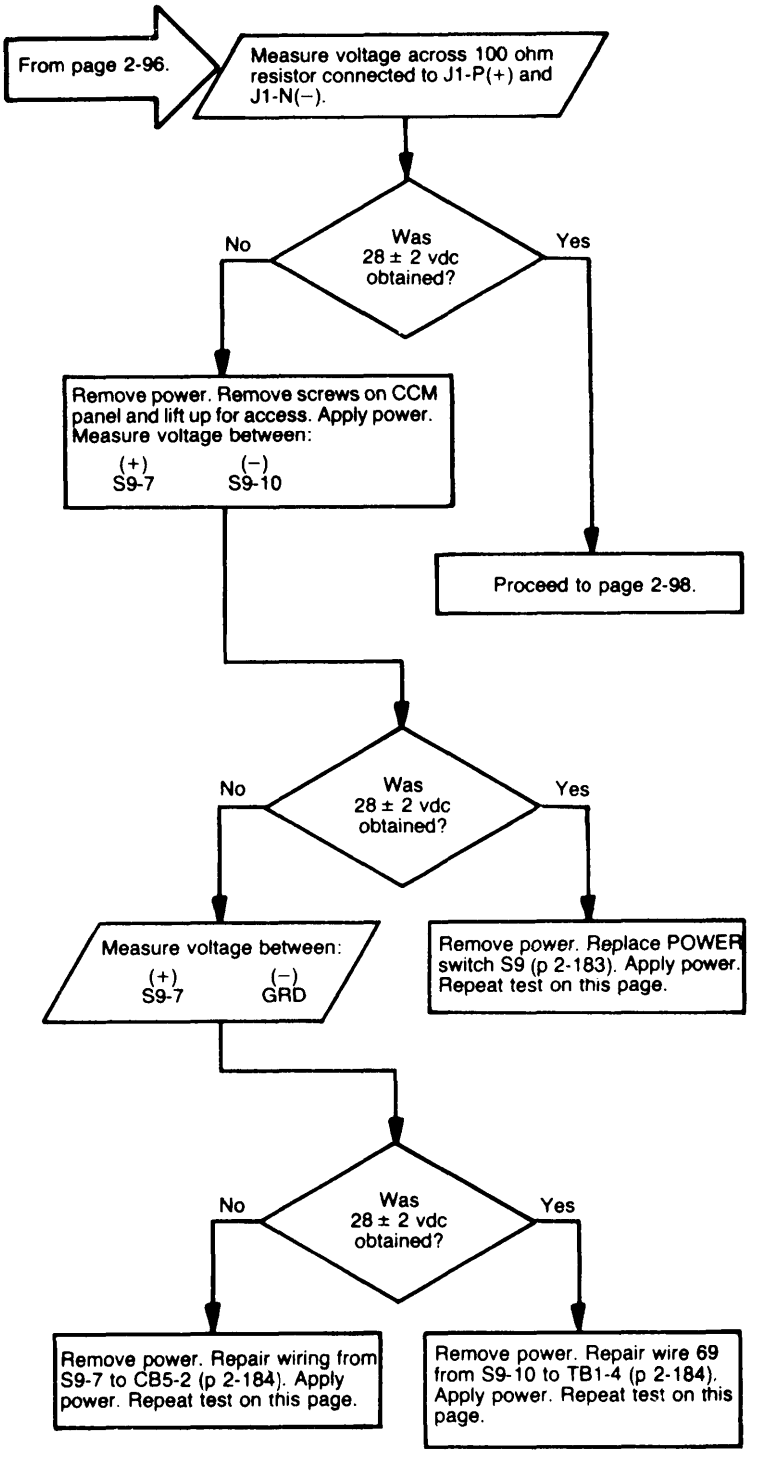
(+) K2-X1 (−) TB1-

Was 27 ± 1 vdc obtained?

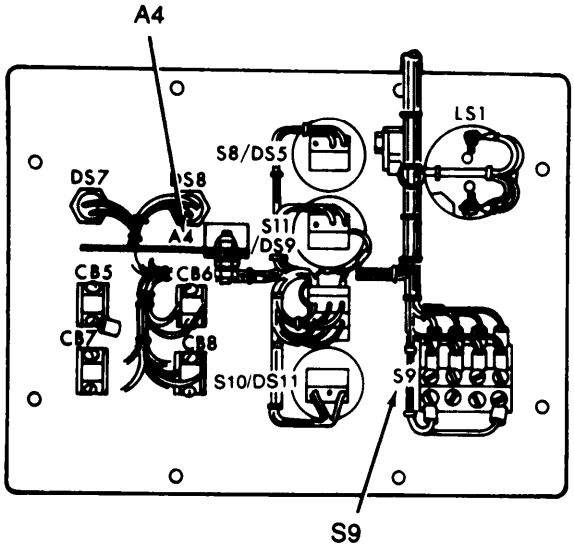
No → Remove power. Replace diode CR5 connected between K2-X1 and DS9-4 (p 2-182). Apply power. Repeat test on this page.

Yes → Remove power. Replace MASK switch/indicator S10/DS11 (p 2-181). Apply power. Repeat test on this page.

2-7. CCM TROUBLESHOOTING PROCEDURES (Cont).



2-7. CCM TROUBLESHOOTING PROCEDURES (Cont).



From page 2-97.

Adjust the vacuum source to 1.0 in. wg. Set POWER switch ON. Remove power. Decrease the vacuum to zero. The MASK indicator light shall flash and the warning horn shall sound with a pulsating tone.

Does the MASK indicator light flash? Does the warning horn sound?

No

Yes

Remove screws on CCM panel and lift up panel for access to components. Measure voltage between:

(+) A4-7 (−) TB1-2

This completes test. Remove power and vacuum source connections.

Was voltage greater than 16 vdc obtained?

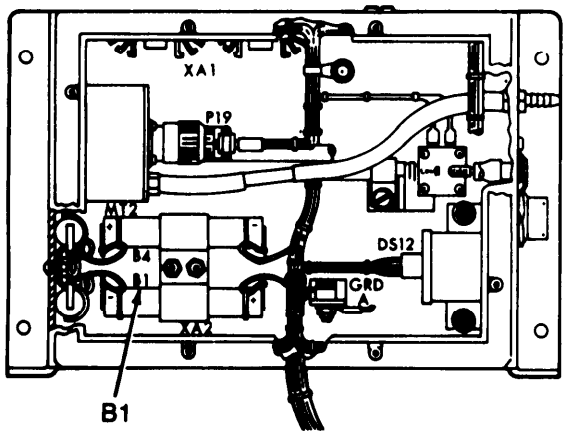
No

Yes

Proceed to page 2-99.

Set POWER switch OFF. Replace printed circuit assembly A4 (p 2-175). Repeat test on this page.

2-7. CCM TROUBLESHOOTING PROCEDURES (Cont).



From page 2-98.

Measure voltage between:
(+) S9-5 (−) TB1-2

Was 16 vdc or greater obtained?

No

Yes

Measure voltage between:
(+) S9-6 (−) TB1-2

Was 16 vdc or greater obtained?

No

Yes

Replace POWER switch S9 (p 2-183). Repeat test on page 2-98.

Set POWER switch OFF. Repair wire 13 between S9-6 and A4-7 (p 2-184). Repeat test on page 2-98.

Measure voltage between:
(+) B1-(+) (−) TB1-2

Was 16 vdc or greater obtained?

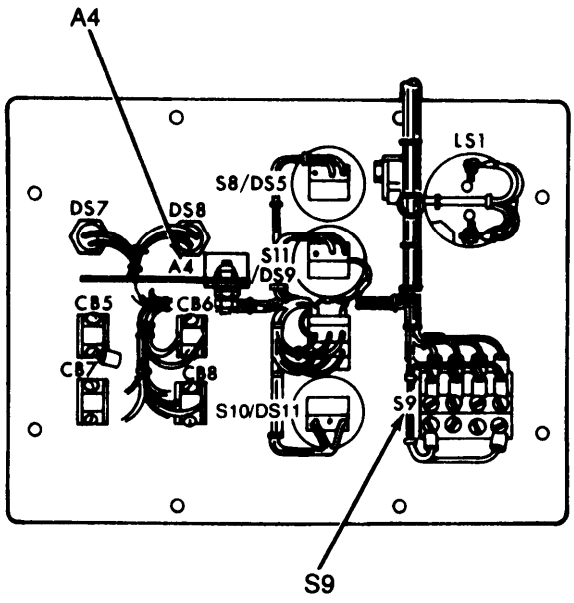
No

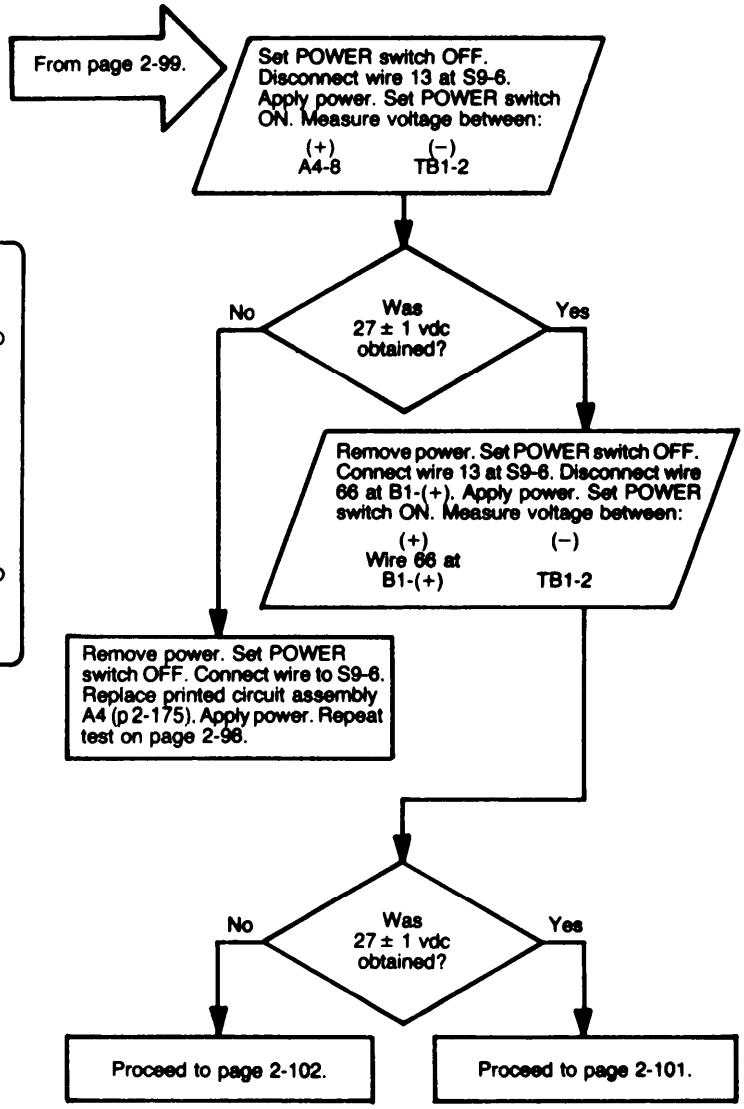
Yes

Proceed to page 2-100.

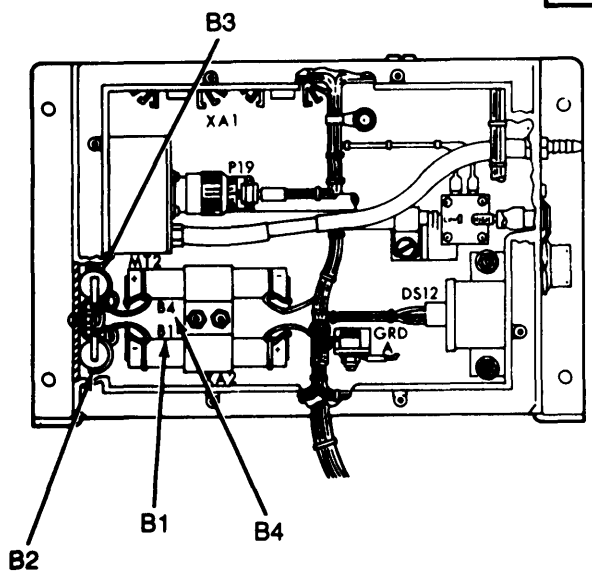
Set POWER switch OFF. Repair wire 66 between B1-(+) and S9-5 (p 2-184). Repeat test on page 2-98.

2-7. CCM TROUBLESHOOTING PROCEDURES (Cont).





2-7. CCM TROUBLESHOOTING PROCEDURES (Cont).



From page 2-100.

Remove power. Set POWER switch OFF. Measure continuity between:

(+)	(−)
B1-(−)	B2-(+)
B2-(−)	B3-(+)
B3-(−)	B4-(+)
B4-(−)	TB1-2

Was continuity obtained for all measurements?

No

Repair wiring (p 2-184). Connect wire 66 at B1-(+). Repeat test on page 2-98.

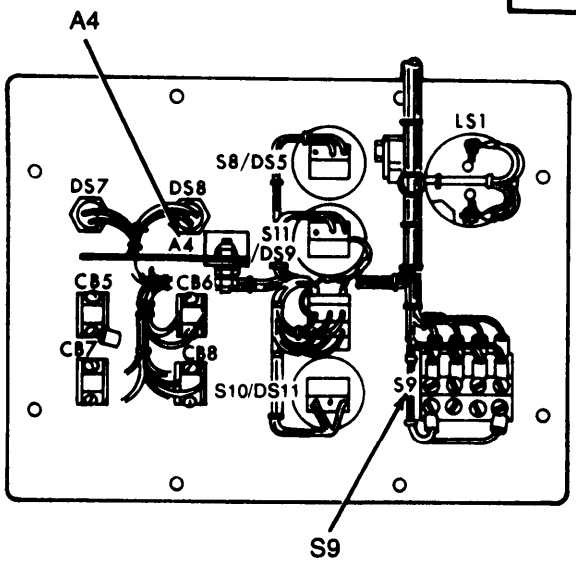
Yes

Measure as indicated to obtain specified voltage:

(+)	(−)	Voltage (volts)
B1-(+)	B1-(−)	4.2
B2-(+)	B2-(−)	3.3
B3-(+)	B3-(−)	3.3
B4-(+)	B4-(−)	4.2

Replace defective batteries as required (p 2-174). Repeat test on page 2-98.

2-7. CCM TROUBLESHOOTING PROCEDURES (Cont).



From page 2-100.

Remove power. Set POWER switch OFF. Disconnect wire 66 at S9-5. Measure continuity between:
(+) A4-7
(−) S9-6

Was continuity obtained?

No

Measure continuity between:
(+) S9-6
(−) Wire 66 at B1-(+)

Yes

Repair wire 66 (p 2-184). Repeat test on page 2-98.

Was continuity obtained?

No

Keep 28 vdc power off. Set POWER switch ON. Measure continuity between:
(+) S9-5
(−) S9-6

Yes

Repair shorted wiring (p 2-184) between either A4-7 and S9-6 or S9-5 and B1-(+). Replace wire 66 on S9-5. Repeat test on page 2-98.

Was continuity obtained?

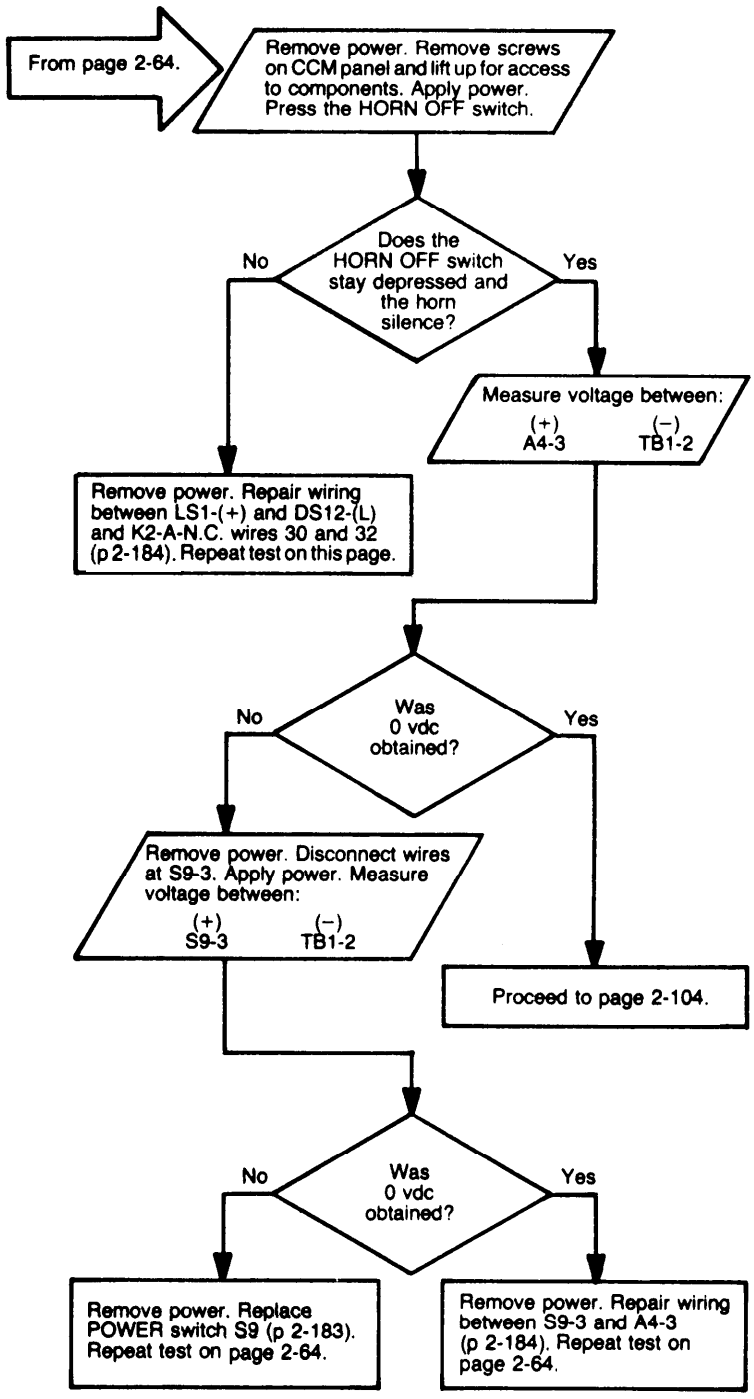
No

Replace POWER switch S9 (p 2-183). Repeat test on page 2-98.

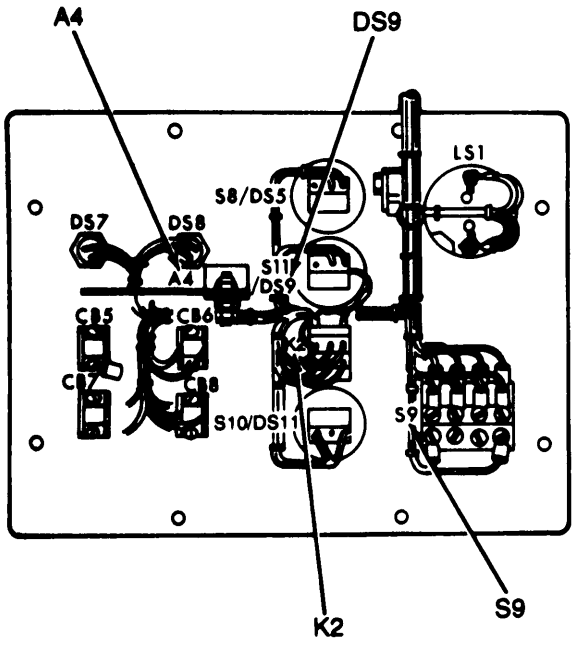
Yes

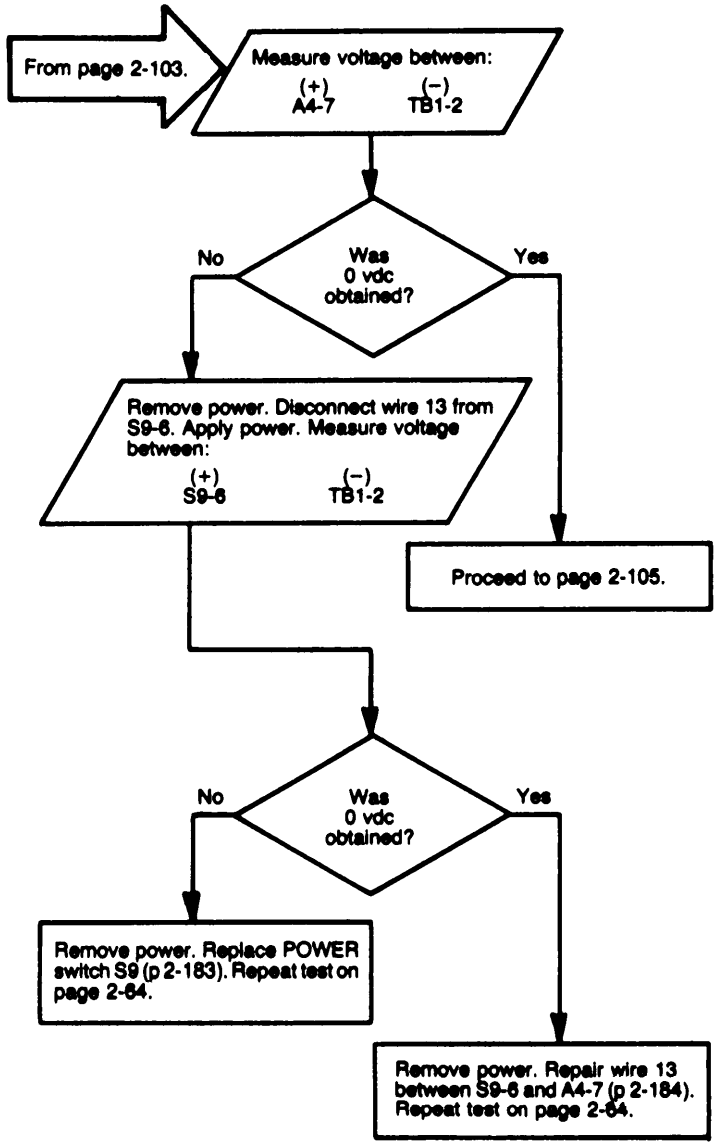
Replace wire 66 between B1-(+) and S9-5 (p 2-184). Set POWER switch OFF. Repeat test on page 2-98.

2-7. CCM TROUBLESHOOTING PROCEDURES (Cont).

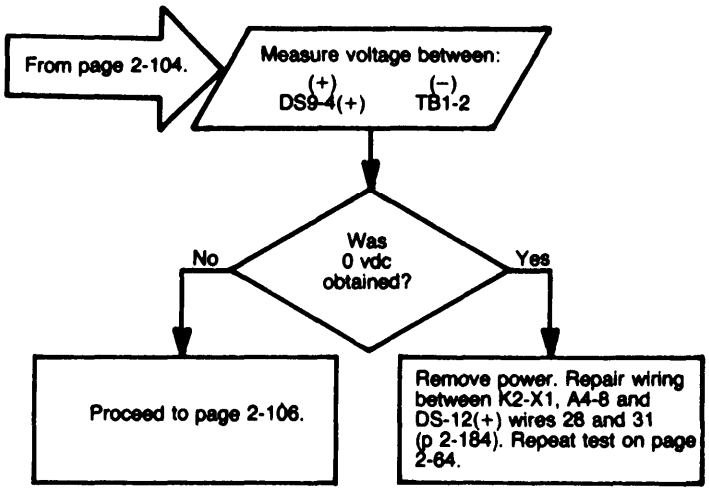


2-7. CCM TROUBLESHOOTING PROCEDURES (Cont).

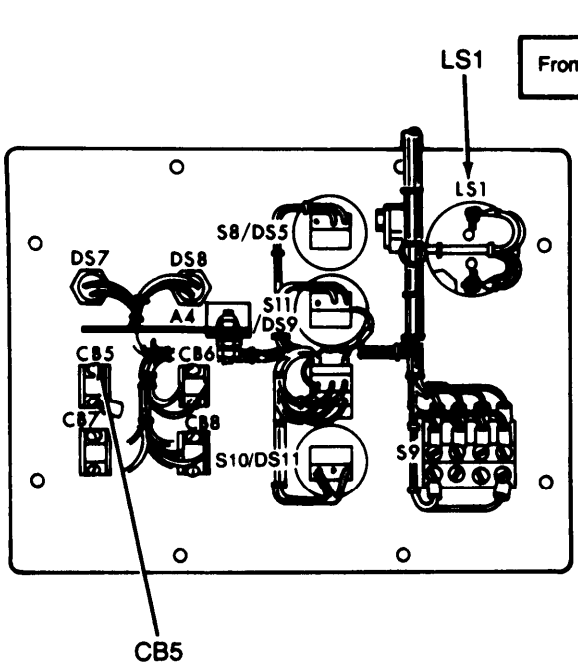


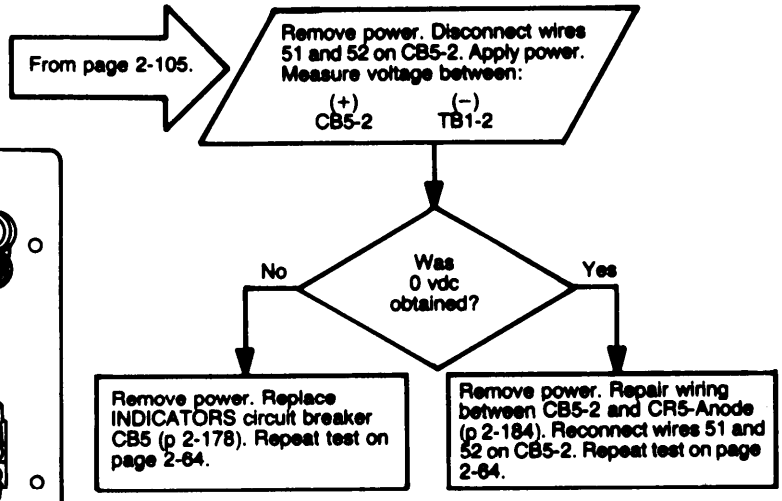


2-7. CCM TROUBLESHOOTING PROCEDURES (Cont).

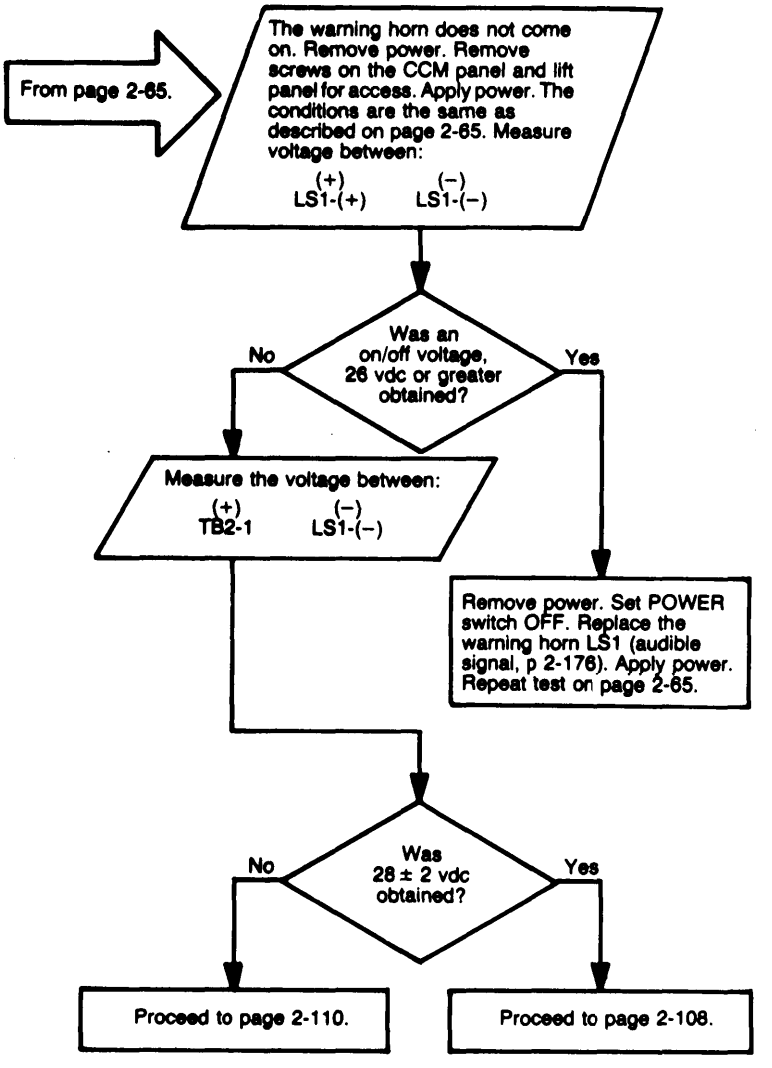


2-7. CCM TROUBLESHOOTING PROCEDURES (Cont).

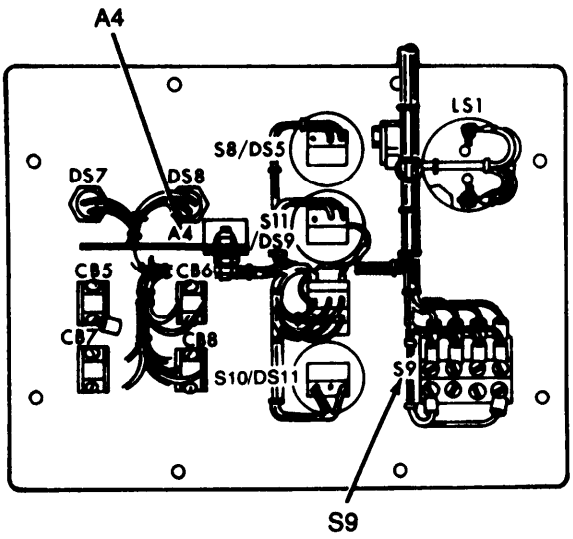


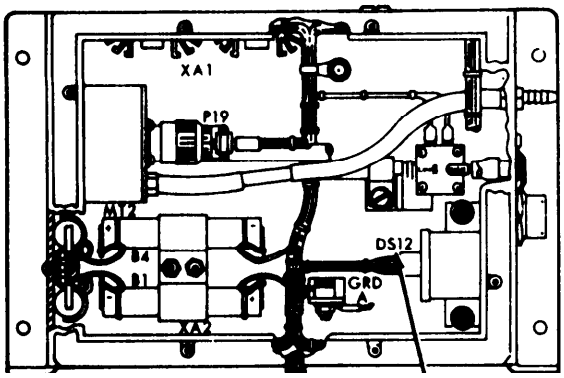


2-7. CCM TROUBLESHOOTING PROCEDURES (Cont).



2-7. CCM TROUBLESHOOTING PROCEDURES (Cont).





From page 2-107.

Measure the voltage between:
(+) A4-8 (−) TB1-2

Was the voltage 27.5 ± 5 vdc?

No

Yes

Measure the voltage between:
(+) DS12(+) (−) TB1-2

Was the voltage 27.0 ± 1 vdc?

No

Yes

Remove power. Set POWER switch OFF. Repair wiring (p 2-184) between A4-8 and DS12(+). Apply power. Repeat test on page 2-65.

Proceed to page 2-111.

Measure the voltage between:
(+) A4-3 (−) TB1-2

Was the voltage 28 ± 0.5 vdc?

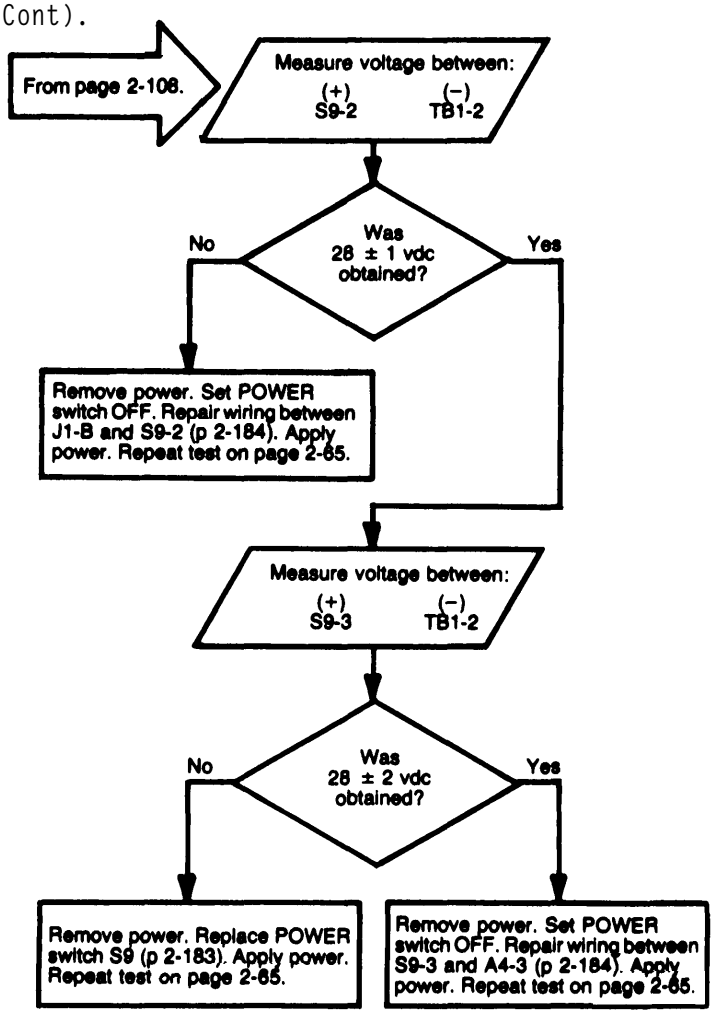
No

Yes

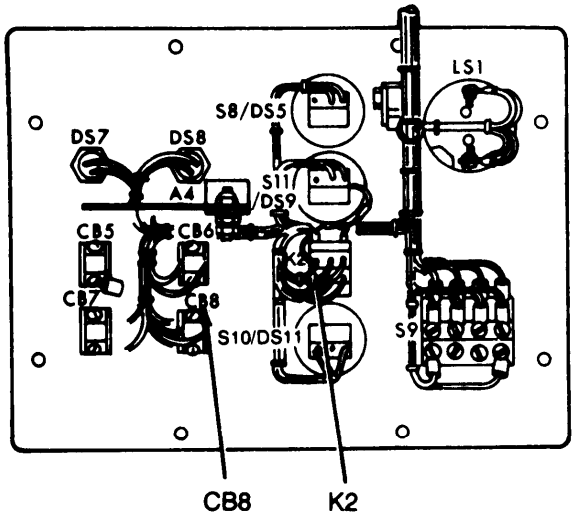
Proceed to page 2-109.

Remove power. Set POWER switch OFF. Replace printed circuit assembly A4 (p 2-175). Apply power. Repeat test on page 2-65.

2-7. CCM TROUBLESHOOTING PROCEDURES (Cont).



2-7. CCM TROUBLESHOOTING PROCEDURES (Cont).



From page 2-107.

Pressure circuit breaker CB8 provides a dc return signal on its auxiliary contacts to actuate the warning horn LS1 when CB8 is open or tripped. Measure the voltage at the auxiliary terminal CB8-3 (soldered terminal) with respect to dc return.
(+) CB8-3 (−) TB1-2

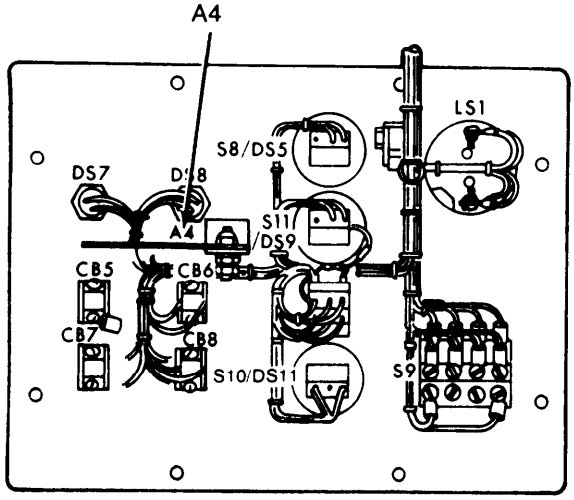
Was the voltage less than 1 vdc?
No → Measure the voltage between: (+) K2-C on B side of switch (−) TB1-2
Yes → Remove power. Set POWER switch OFF. Repair wiring between K2-B-C and CB8-3 (p 2-184). Apply power. Repeat test on page 2-65.

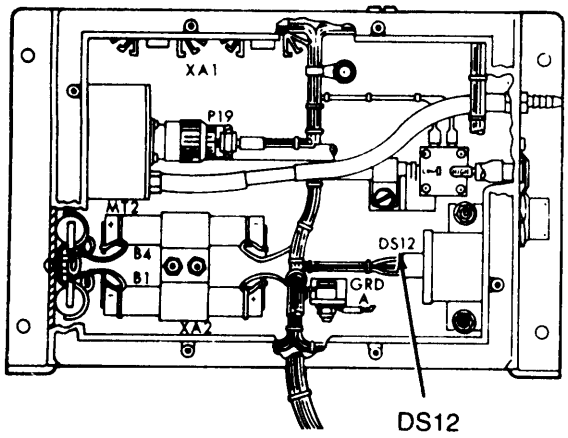
Was the voltage less than 1 vdc?
No → Measure the voltage between: (+) K2-N.C. on B side of switch (−) TB1-2
Yes → Remove power. Set POWER switch OFF. Replace HORN OFF switch (p 2-182). Apply power. Repeat test on page 2-65.

Was the voltage 0 ± 0 vdc?
No → Remove power. Set POWER switch OFF. Repair wiring (p 2-184) between K2-B-N.C. and LS1-( ). Apply power. Repeat test on page 2-65.
Yes → Remove power. Measure for continuity to ground: (+) CB8-4 (−) TB1-2

Was continuity obtained?
No → Set POWER switch OFF. Repair wire to TB1-5. Apply power. Repeat test on page 2-65.
Yes → Set POWER switch OFF. Replace COMPARTMENT PRESSURE circuit breaker CB8 (p 2-179). Apply power. Repeat test on page 2-65.

2-7. CCM TROUBLESHOOTING PROCEDURES (Cont).





From page 2-108.

Measure the voltage between:
(+) A4-1
(−) TB1-2

Was 0 vdc obtained?

No: Remove power. Set POWER switch OFF. Repair wiring (p 2-184) between K2-B-C and A4-1. Apply power. Repeat test on page 2-65.

Yes: Measure voltage between:
(+) DS12-(−)
(−) TB1-2

Was 0 vdc obtained?

No: Remove power. Set POWER switch OFF. Repair wiring (p 2-184) between A4-1 and DS12-(−). Apply power. Repeat test on page 2-65.

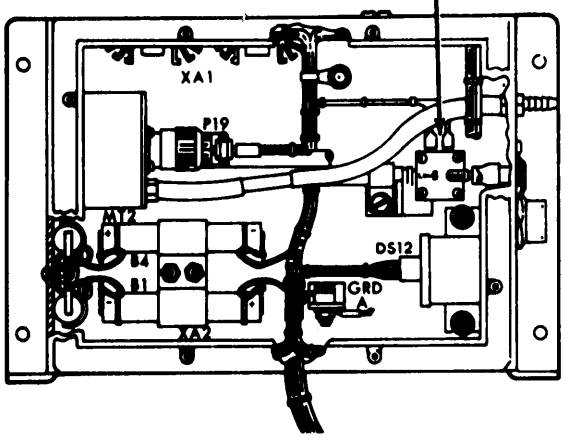
Yes: Measure the voltage between:
(+) DS12-L
(−) TB1-2

Was an on/off voltage at least 26 vdc obtained?

No: Remove power. Set POWER switch OFF. Replace flasher DS12 (p 2-175). Apply power. Repeat test on page 2-65.

Yes: Remove power. Set POWER switch OFF. Repair wiring (p 2-184) between DS12-L and LS1-(+). Apply power. Repeat test on page 2-65.

2-7. CCM TROUBLESHOOTING PROCEDURES (Cont)



From page 2-65.

Remove power. Remove screws on CCM panel and lift open for access. MASK indicator is on when applied pressure is 1.0 in. wg and all circuit breakers are open. A dc return signal should not be present at MASK light. Connect a jumper across the pressure switch terminals S6-1 and S6-2. Apply power.

Does the MASK light go out?

No

Yes

Remove power. Remove switching card A2 (p 2-176) to eliminate an erroneous dc return signal from switching circuit. Apply power.

Remove power and jumper. Set POWER switch OFF. Replace pressure switch S6 (p 2-172). Repeat test on page 2-65.

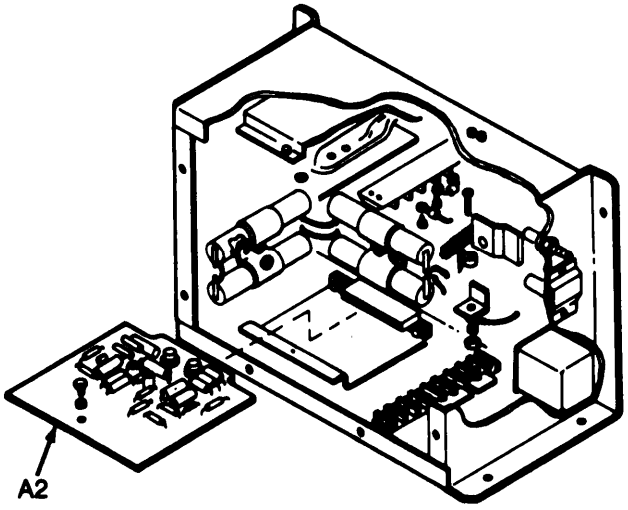
Is (does) the MASK light go out?

No

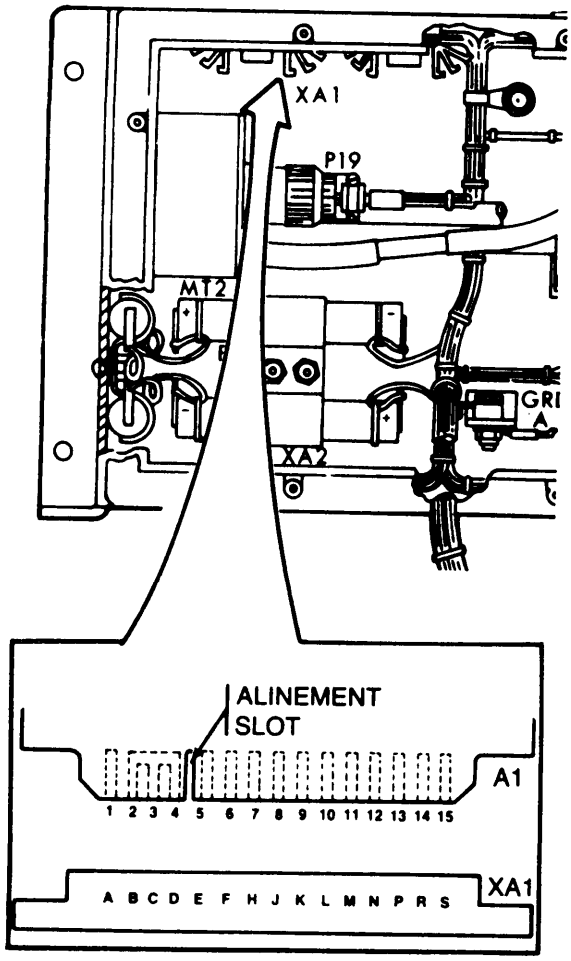
Yes

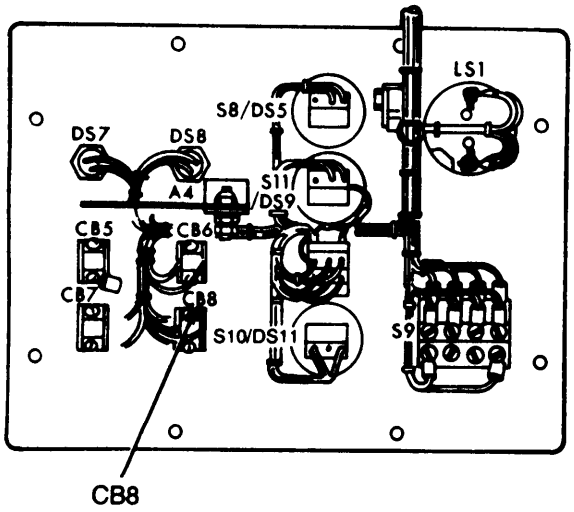
Proceed to page 2-114.

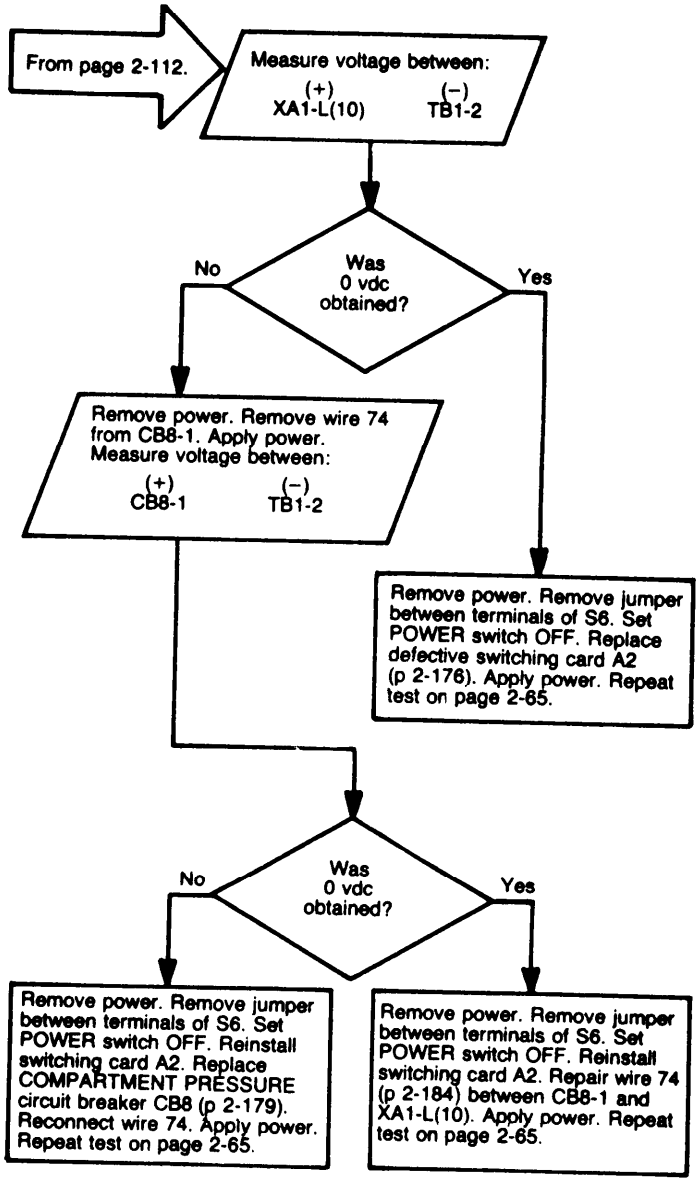
Proceed to page 2-113.



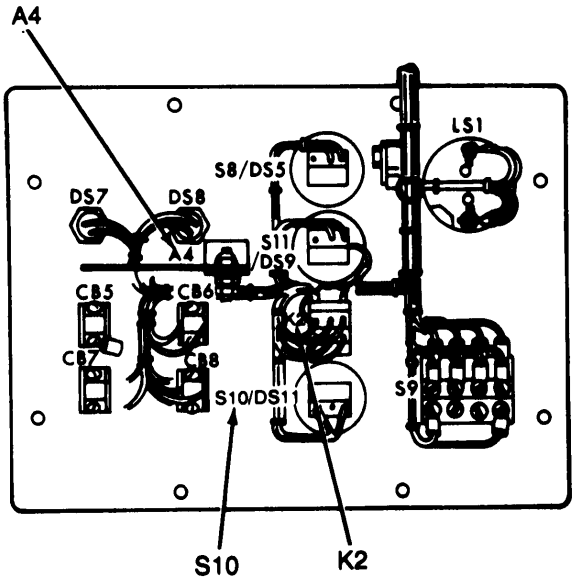
2-7. CCM TROUBLESHOOTING PROCEDURES (Cont).







2-7. CCM TROUBLESHOOTING PROCEDURES (Cont)



From page 2-112.

Mask light remains on even when switching card A2 has been removed. Remove power. Disconnect (unsolder) wire 34 on A4-2. Leave wire which goes to A4-6 connected. Apply power.

Is (does) the MASK light (go) out?

No

Remove power. Disconnect (unsolder) wire 34 on S10-N.O. Leave jumper to DS11-5(–) connected. Apply power.

Is (does) the MASK light (go) out?

No

Remove power. Remove jumper between terminals of S6. Set POWER switch OFF. Reinstall switching printed card A2. Replace MASK switch/ indicator light S10/DS11 (p 2-181). Reconnect (solder) wire 34 on A4-2. Apply power. Repeat test on page 2-65.

Yes

Remove power. Remove jumper between terminals of S6. Set POWER switch OFF. Reinstall switching card A2. Repair wire 34 between A4-2 and S10-N.O. Apply power. Repeat test on page 2-65.

Yes

Remove power. Disconnect (unsolder) wire 37 on A4-6. Reconnect (solder) wire 34 on A4-2. Apply power.

Is (does) the MASK light (go) out?

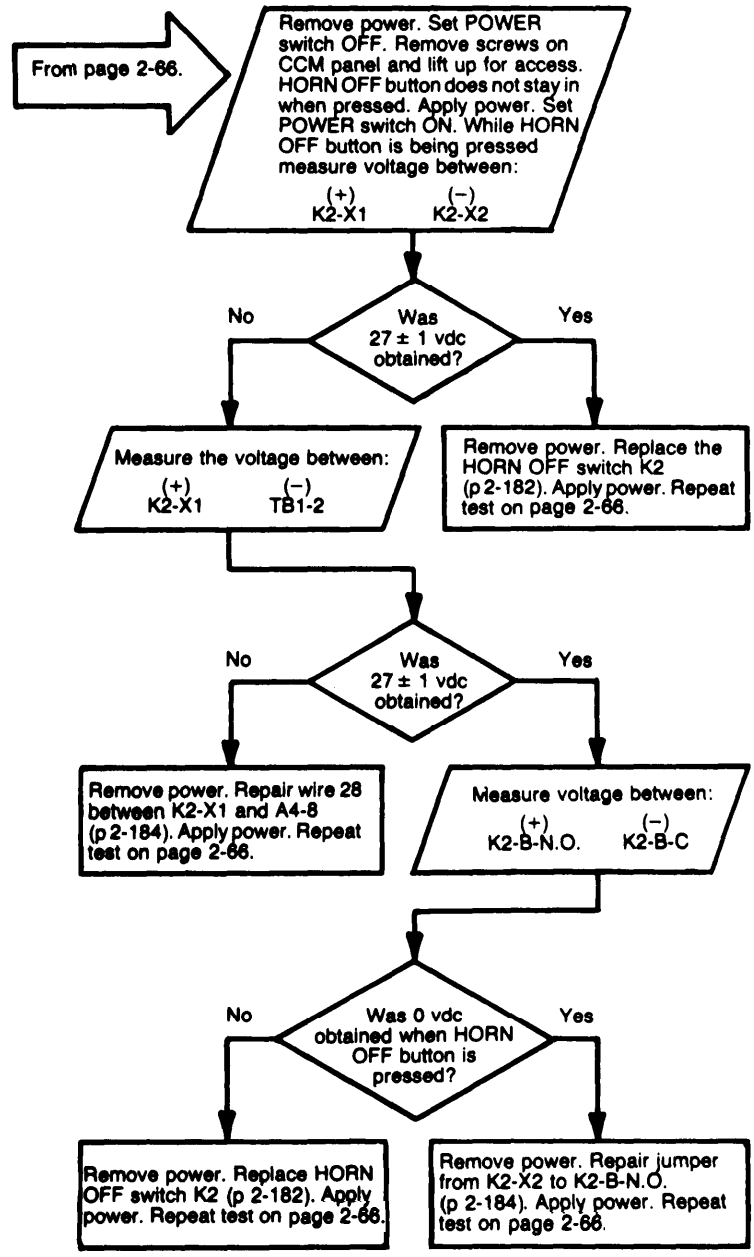
No

Remove power. Remove jumper between terminals of S6. Set POWER switch OFF. Reinstall switching card A2. Replace printed circuit assembly A4 (p 2-175). Apply power. Repeat test on page 2-65.

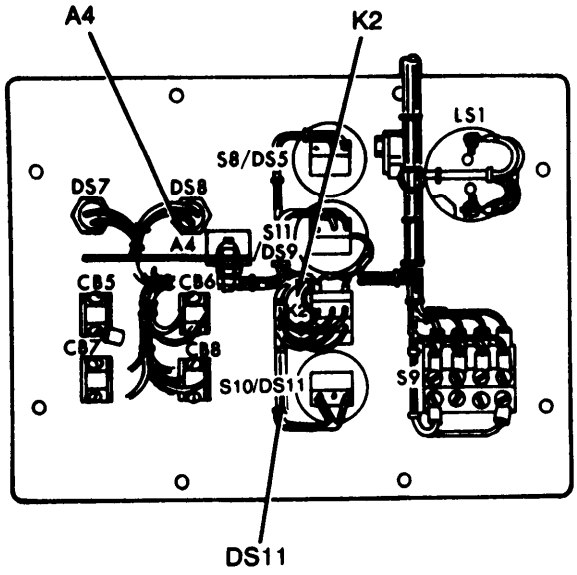
Yes

Remove power. Remove jumper between terminals of S6. Set POWER switch OFF. Reinstall switching printed card A2. Repair wiring (p 2-184) between A4-6 and XA2-K(9). Apply power. Repeat test on page 2-65.

2-7. CCM TROUBLESHOOTING PROCEDURES (Cont).



2-7. CCM TROUBLESHOOTING PROCEDURES (Cont).



From page 2-67.

Measure the voltage between:
(+) DS11-(4) (−) TB1-2

Was 26.5 ± 1 vdc obtained?

No

Yes

This measurement indicates that the MASK indicator is not getting a power signal. Measure voltage between:
(+) K2-A-N.O. (−) TB1-2

Was 26.5 ± 1 vdc obtained?

No

Remove power. Repair jumper between K2-X1 and K2-4-N.O. (p 2-184). Apply power. Repeat test on page 2-67.

Yes

Proceed to page 2-117.

This measurement indicates that the MASK indicator is not getting a dc return signal. Measure voltage between:
(+) DS11-(4) (−) A4-6

Was 26.5 ± 1 vdc obtained?

No

Transistor A4Q2 is not turning on. Measure voltage between:
(+) A4-4 (−) TB1-2

Yes

Remove power. Repair wiring between DS-11(−) and A4-6 (p 2-184). Apply power. Repeat test on page 2-67.

Was 3.0 vdc or greater obtained?

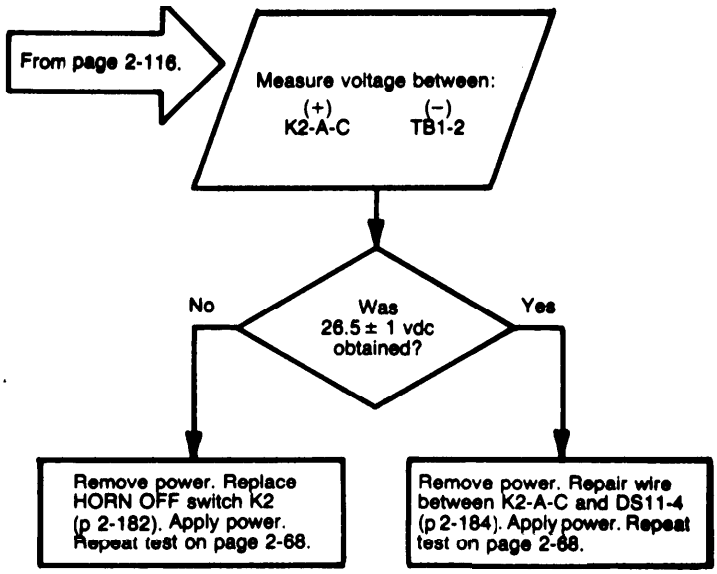
No

Proceed to page 2-118.

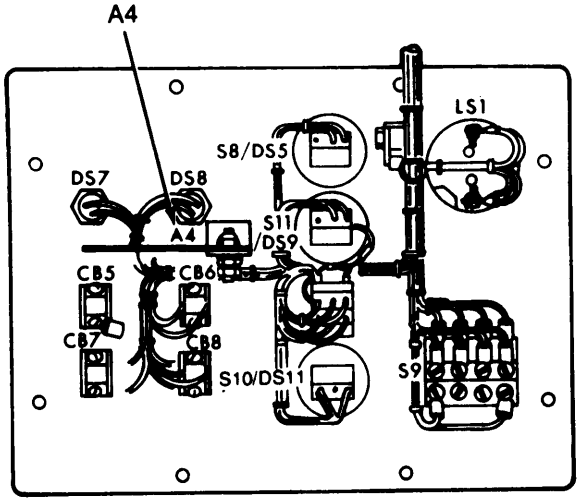
Yes

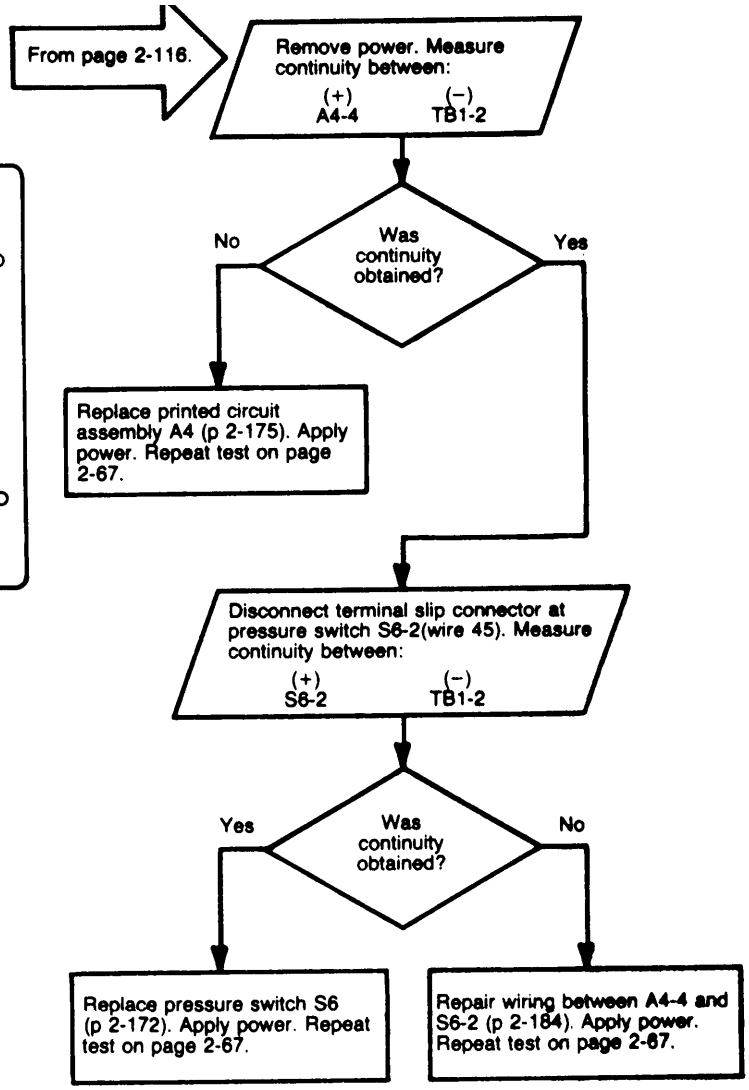
Remove power. Replace printed circuit assembly A4 (p 2-175). Apply power. Repeat test on page 2-67.

2-7. CCM TROUBLESHOOTING PROCEDURES (Cont)

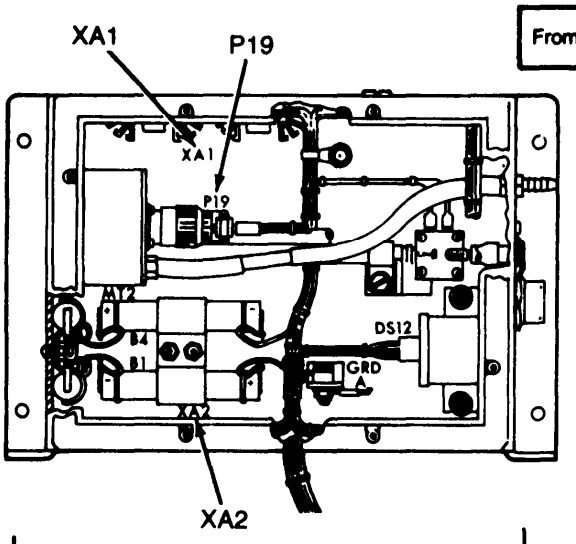


2-7. CCM TROUBLESHOOTING PROCEDURES (Cont).





2-7 CCM TROUBLESHOOTING PROCEDURES (Cont).



From page 2-68.

Remove power. Set POWER switch OFF. Remove screws on CCM panel and lift up for access to components. Disconnect power connection at J1-B and reconnect with ammeter as follows:

(+)	(−)
Positive of 28 vdc supply	J1-B

Apply power. Set POWER switch ON.

Is current less than 1/2 amp?

No

Yes

Remove power. Remove switching and power cards A2 (p 2-176) and A1 (p 2-174). Install jumpers as indicated:

(From)	(To)
XA1-L(10)	XA2-E(5)
XA1-H(7)	XA2-D(4)

Remove ammeter and reconnect 28 vdc supply positive to J1-B. Apply power.

Remove power. Replace COMPARTMENT PRESSURE circuit breaker (p 2-179). Remove ammeter and reconnect 28 vdc supply positive to J1-B. Apply power. Repeat test on page 2-68.

Does the COMPARTMENT PRESSURE circuit breaker remain set?

No

Yes

Remove power. Repair wiring (short) from CB8-1 to XA1-L(10) or XA2-E(5) to P19-A (p 2-184). Remove jumpers. Reinstall A1 and A2. Apply power. Repeat test on page 2-68.

Remove power. Replace pressure transducer (p 2-173). Remove jumpers. Reinstall A1 and A2. Apply power. Repeat test on page 2-68.

Does the COMPARTMENT PRESSURE circuit breaker remain set?

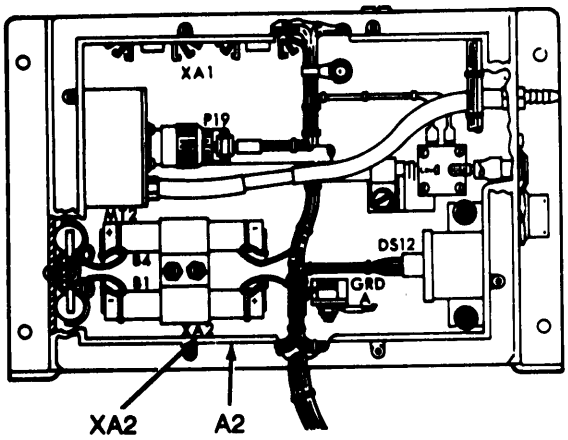
No

Yes

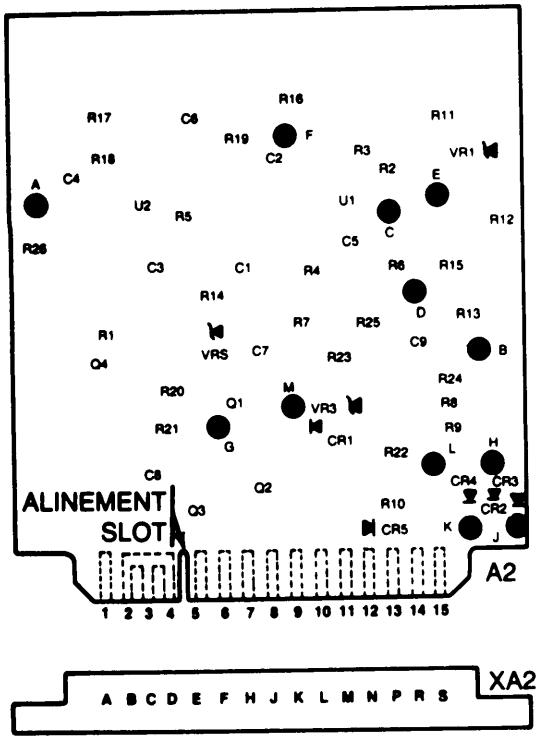
Remove power. Disconnect pressure transducer connector plug P19. Reset circuit breaker. Apply power.

Remove power. Remove jumpers. Proceed to page 2-120.

2-7. CCM TROUBLESHOOTING PROCEDURES (Cont).



● = TP (TEST POINT)



From page 2-119.

Measure diodes on switching card A2 to verify that they are not shorted. Measure resistance between:

Diode	(+)	(−)
CR2	TP-J	TP-H
CR3	TP-J	A2-B(2), C(3), or D(4)
CR4	TP-K	A2-B(2), C(3), or D(4)
CR5	TP-K	TP-L

Was resistance greater than 1 K ohm obtained?

No

Replace switching card A2 (p 2-176). Reinstall power card A1. Apply power. Repeat test on page 2-68.

Yes

Measure resistance at the output of A2 between:

(+)	(−)
A2-TP-M	A2-B(2), C(3), or D(4)
A2-TP-G	A2-B(2), C(3), or D(4)

Was resistance greater than 1 K ohm obtained?

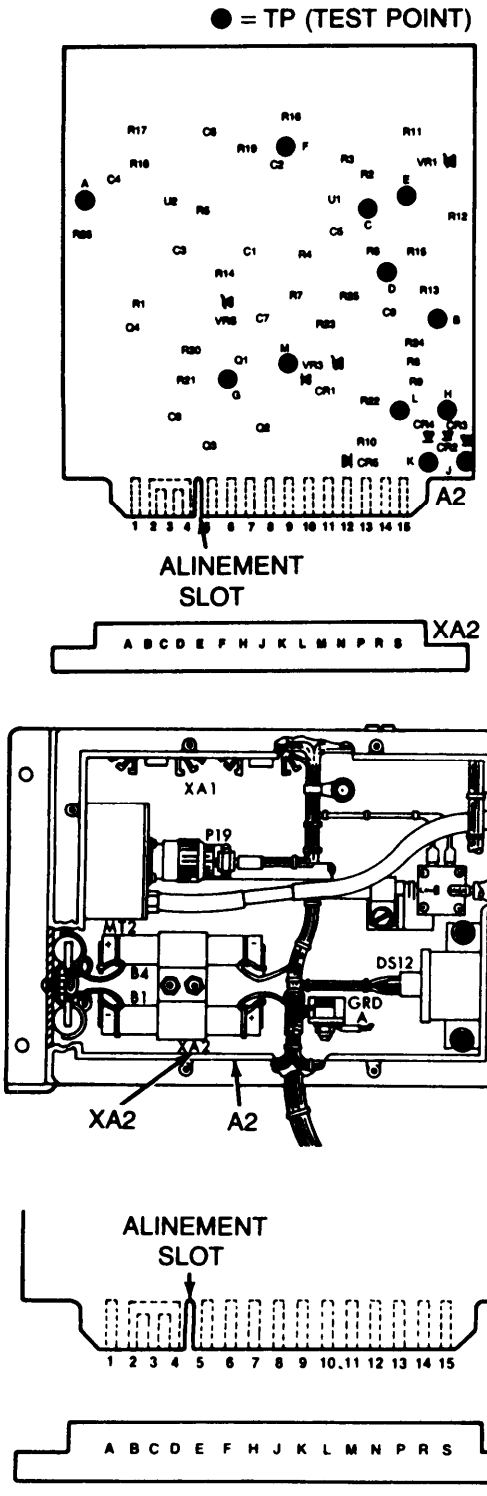
No

Replace switching card A2 (p 2-176). Reinstall power card A1. Apply power. Repeat test on page 2-68.

Yes

Proceed to page 2-121.

2-7. CCM TROUBLESHOOTING PROCEDURES (Cont).



From page 2-120.

Install switching card A2 and power card A1. Measure resistance between:

(+)	(−)
A2-TP-M	TB1-2
A2-TP-H	TB1-2
A2-TP-G	TB1-2
A2-TP-L	TB1-2

Was resistance greater than 1 K ohm obtained?

No → Repair wiring (p 2-184) connected to terminals of power card connector of XA1, XA1-B(2), C(3), D(4), E(5), R(14), P(13), S(15), or N(12). Apply power. Repeat test on page 2-68.

Yes → Remove the power card A1. Connect jumpers as shown.

(From)	(To)
XA1-K(10)	XA1-L(9)
XA1-H(7)	XA1-J(8)

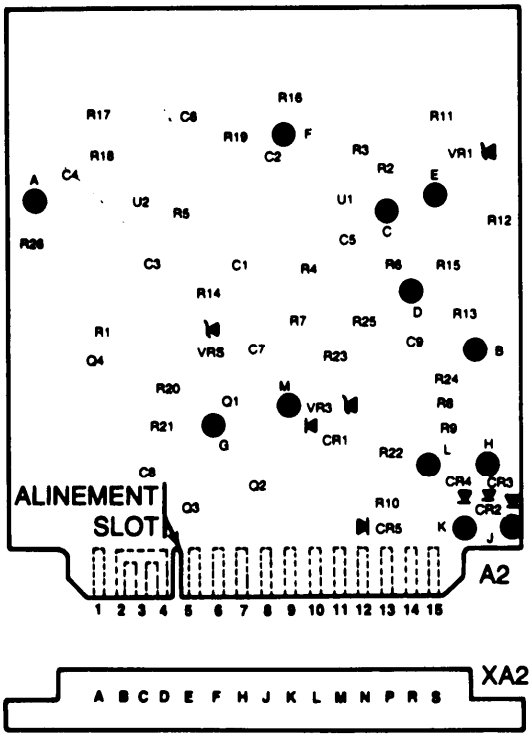
Apply power. POWER switch should be ON.

Does the COMPARTMENT PRESSURE circuit breaker remain set?

No → Remove power. Replace switching card A2 (p 2-176). Remove jumpers. Reinstall power card A1. Apply power. Repeat test on page 2-68.

Yes → Proceed to page 2-122.

2-7. CCM TROUBLESHOOTING PROCEDURES (Cont).



From page 2-121.

Apply vacuum to CCM as indicated below and measure test point (TP) voltage on switching card A2 with respect to TB1-2 as indicated.

Pressure (in. wg)	Voltage at test points TP-M	TP-G
0	25 ± 2	< 1
1.2	9.3 ± 3.5	< 1
1.45	< 1	< 1
1.7	< 1	9.3 ± 3.5
2.5	< 1	25.3 ± 2

Was the specified voltage obtained in all cases?

No

Remove power. Replace the switching card A2 (p 2-176). Remove jumpers. Reinstall power card A1. Apply power. Repeat test on page 2-68.

Yes

Remove power. Remove jumpers. Reinstall the power card A1. Apply power.

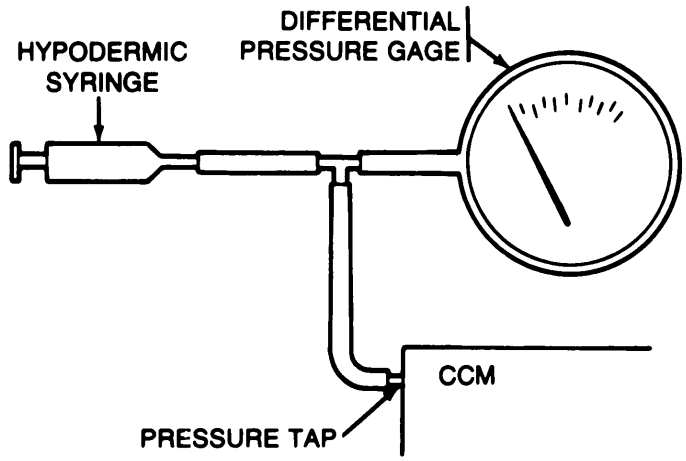
Does the COMPARTMENT PRESSURE circuit breaker remain set?

No

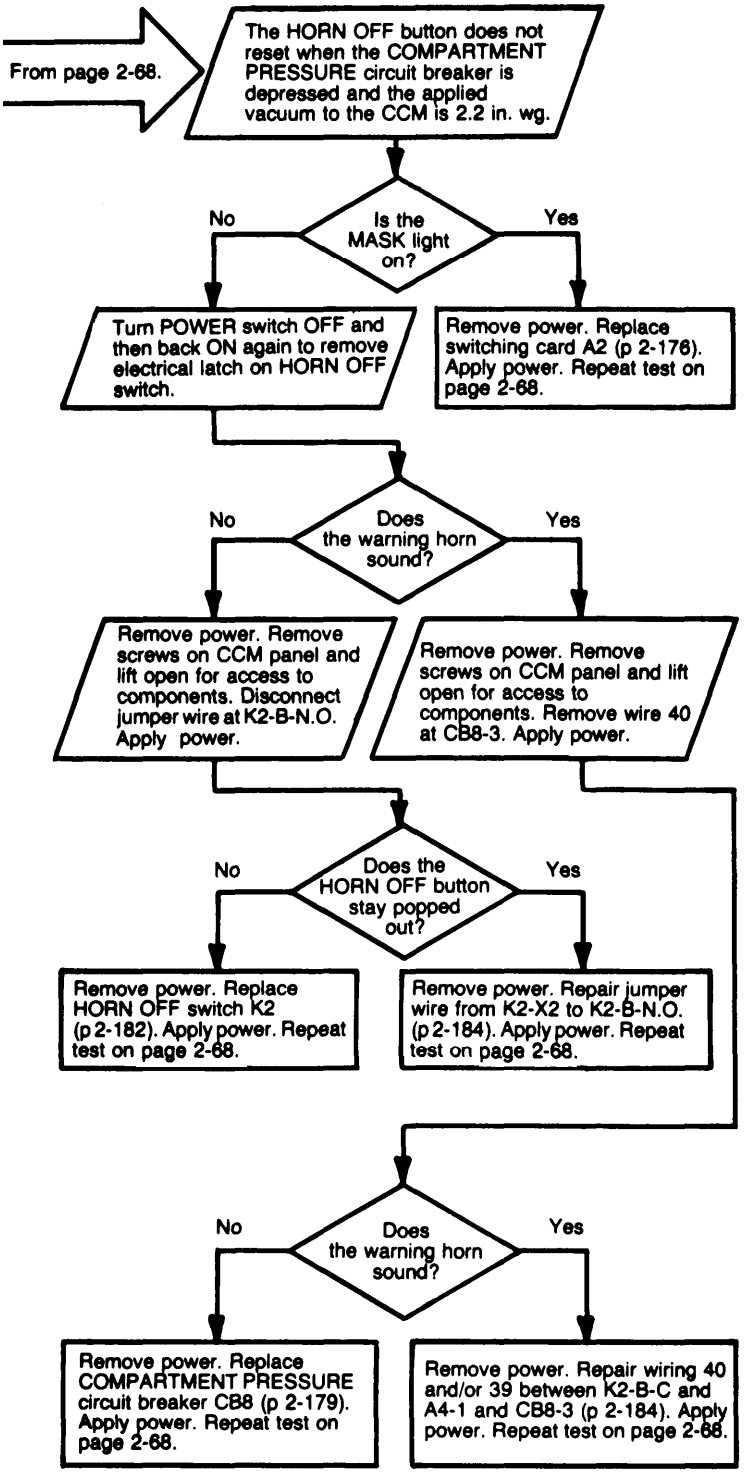
Remove power. Replace power card A1 (p 2-174). Apply power. Repeat test on page 2-68.

Yes

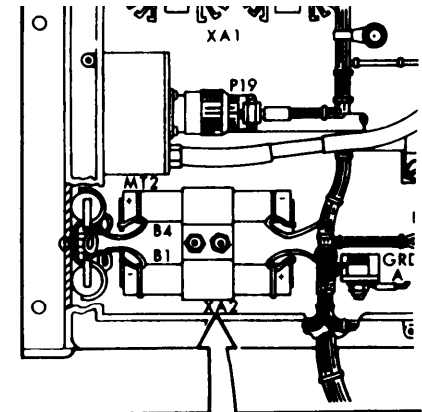
Repeat test on page 2-68.

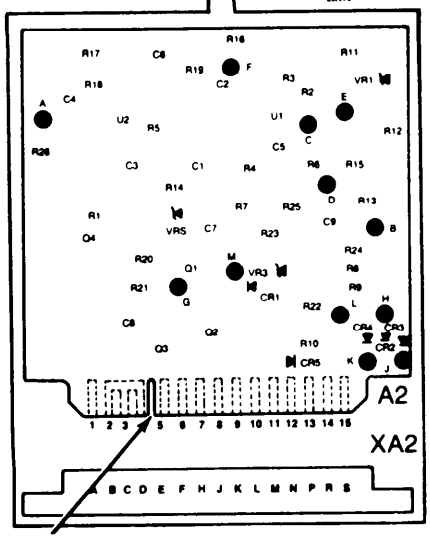


2-7. CCM TROUBLESHOOTING PROCEDURES (Cont).



2-7. CCM TROUBLESHOOTING PROCEDURES (Cont).





● = TP (TEST POINT)

ALINEMENT SLOT

From page 2-68, 2-69 and 2-72.

Set POWER switch OFF. Remove the screws from the CCM panel and lift open for access to components. Set POWER switch ON. Measure voltage between:
(+) A2-TP-J (−) A2-TP-K

Was 22.5 to 26.5 vdc obtained?

No

Measure voltage between:
(+) A2-TP-B (−) TB1-2

Yes

Remove power. Remove switching and power cards A2 (p 2-176) and A1 (p 2-174). Check the following wires for continuity and repair as necessary (p 2-184).

Wire No.	From(+)	To(−)
77	XA2-S(15)	XA1-B(2)
78	XA2-R(14)	XA1-E(5)
70	XA1-C(3)	S9-N(12)
71	XA1-D(4)	S9-K(9)

Reinstall cards A1 and A2. Apply power. Repeat test on page 2-68.

Was 28 ± 1 vdc obtained?

No

Measure voltage between:
(+) CB8-1 (−) TB1-2

Was 28 ± 1 vdc obtained?

No

Proceed to page 2-125.

Yes

Remove power. Repair wire 74 (p 2-184) between CB8-1 and XA1-L(10). Apply power. Repeat test on page 2-68.

Yes

Measure voltage between:
(+) A2-TP-B (−) XA2-C(3)

Was 28 ± 2 vdc obtained?

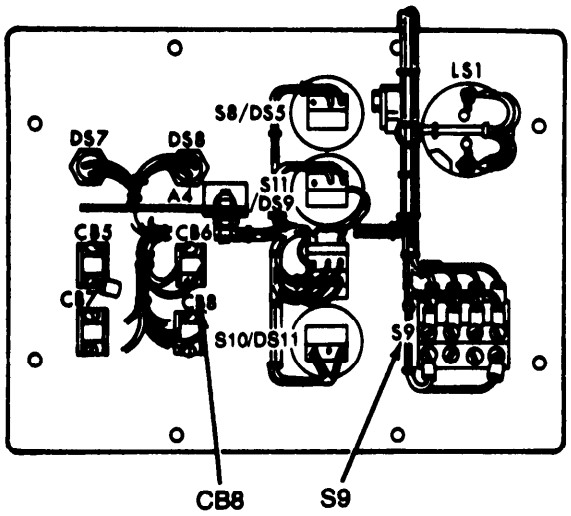
No

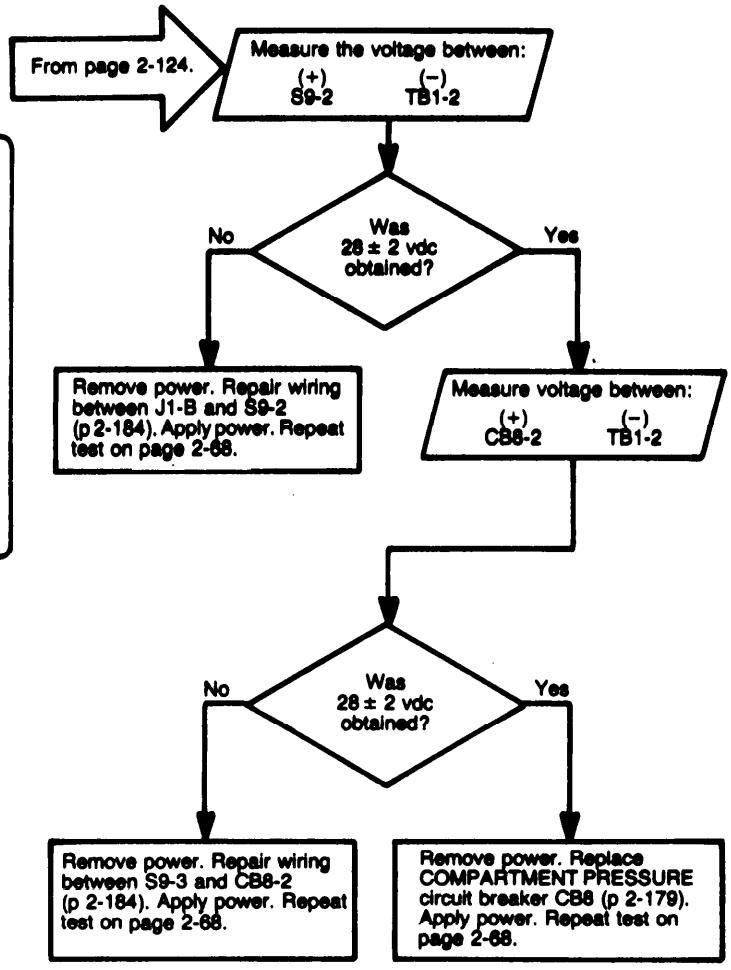
Remove power. Repair wiring (p 2-184) from J1-A to TB1, from TB1 to XA1-7, or from XA1-8 to XA2-3. Apply power. Repeat test on page 2-68.

Yes

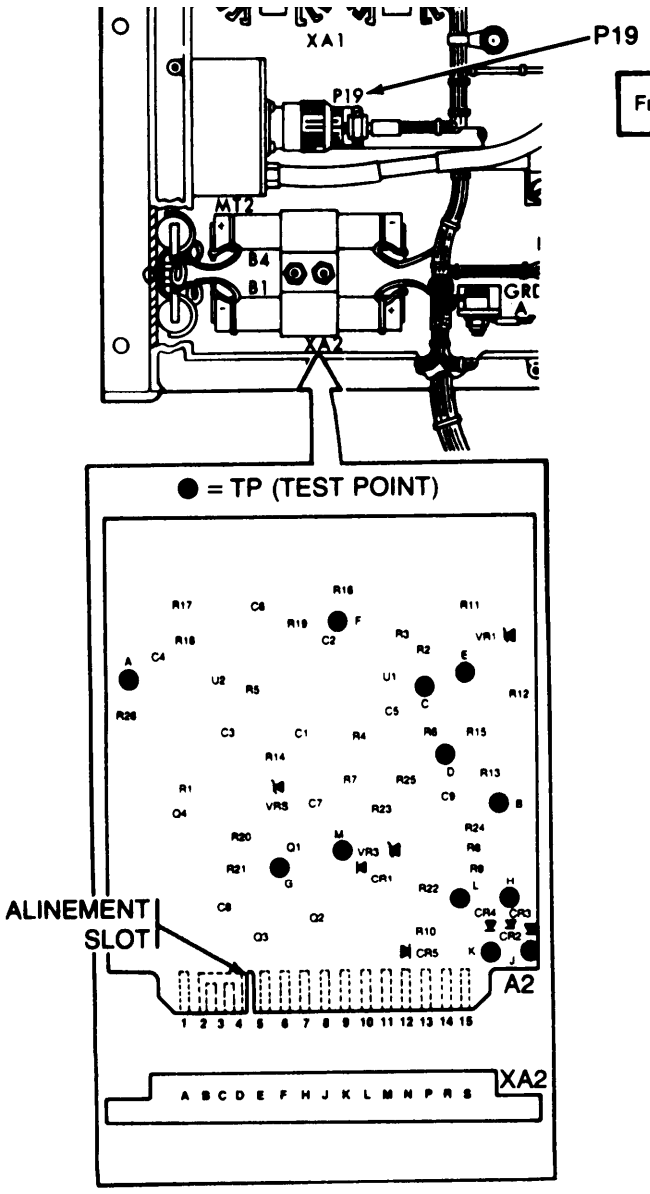
Proceed to page 2-126.

2-7. CCM TROUBLESHOOTING PROCEDURES (Cont).





2-7. CCM TROUBLESHOOTING PROCEDURES (Cont).



From page 2-124.

Remove power. Disconnect (plug connector) P19 at transducer. Apply power. Measure voltage at pressure transducer plug sockets.

(+) P19-A (−) P19-B

Was 27 ± 2 vdc obtained?

No

Yes

Remove power. Connect plug P19. Apply power. Measure voltage with respect to TB1-2 at A2-TP-A at the indicated vacuum.

CCM vacuum (in. wg)	A2-TP-A (volts)
0.00	0.0025 ± .15
1.2	2.46 ± .15
1.45	2.90 ± .15
1.7	3.40 ± .15
2.5	5.0 ± .15

Was the voltage within the proper limits?

No

Yes

Proceed to page 2-127.

Proceed to page 2-128.

Measure voltage between:

(+) XA2-E(5) (−) TB1-2

Was 27 ± 2 vdc obtained?

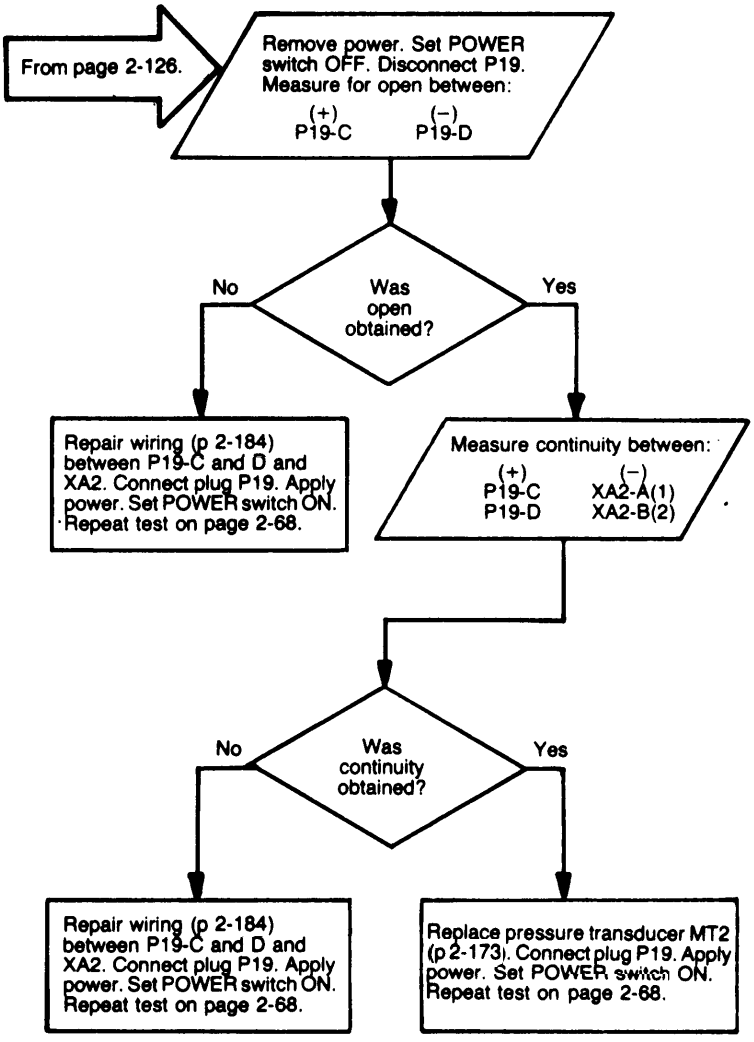
No

Yes

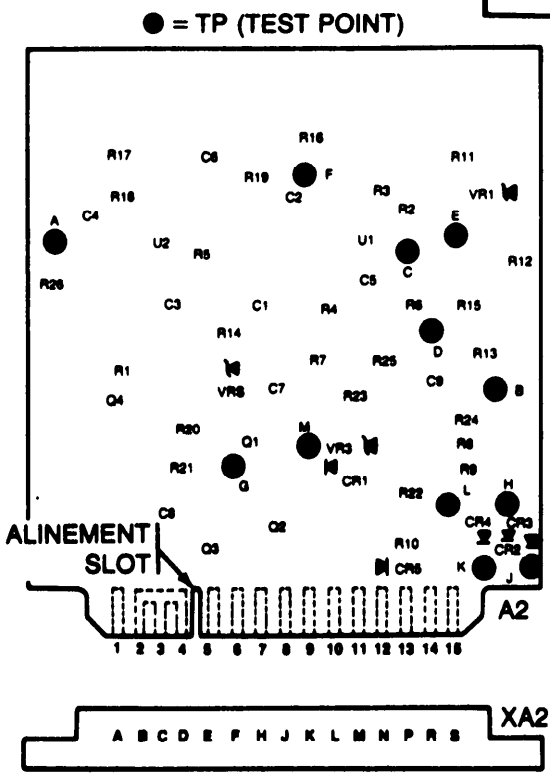
Remove power. Replace switching card A2 (p 2-176). Connect plug P19. Apply power. Repeat test on page 2-68.

Remove power. Repair wires to P19-A and P19-B (p 2-184). Apply power. Repeat test on page 2-68.

2-7. CCM TROUBLESHOOTING PROCEDURES (Cont).



2-7. CCM TROUBLESHOOTING PROCEDURES (Cont).



From page 2-126.

Set POWER switch OFF. Remove power. Remove switching card A2 (p 2-176). Measure diodes on switching card to verify that they are not shorted. Measure resistance between:

Diode	(+)	(−)
CR2	TP-J	TP-H
CR3	TP-J	A2-B(2), C(3), or D(4)
CR4	TP-K	A2-B(2), C(3), or D(4)
CR5	TP-K	TP-L

Was resistance greater than 1 K for all measurements?

No

Replace switching card A2. Apply power. Set POWER switch ON. Repeat test on page 2-68.

Yes

Measure resistance at the output of the switching card A2 between:

(+)	(−)
A2-TP-M	A2-B(2), C(3), or D(4)
A2-TP-G	A2-B(2), C(3), or D(4)

Was resistance greater than 1 K obtained?

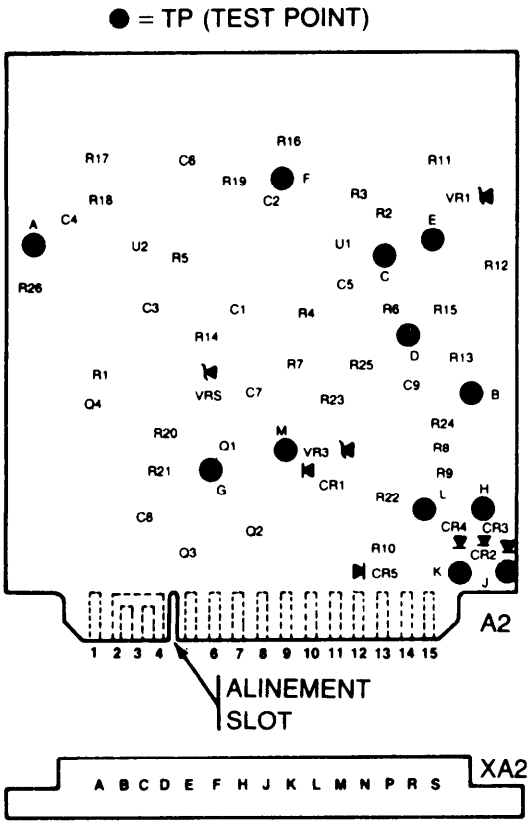
No

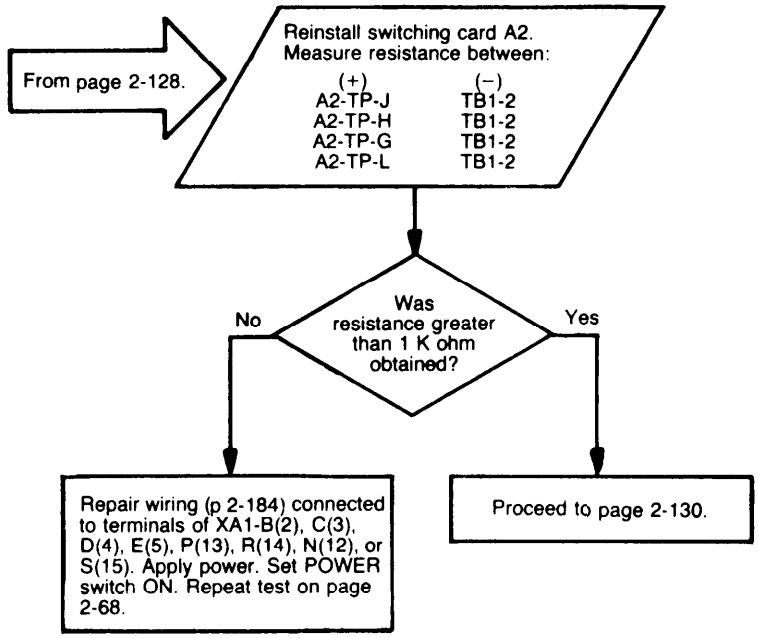
Replace switching card A2. Apply power. Set POWER switch ON. Repeat test on page 2-68.

Yes

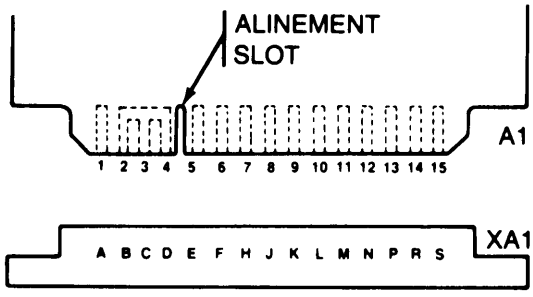
Proceed to page 2-129.

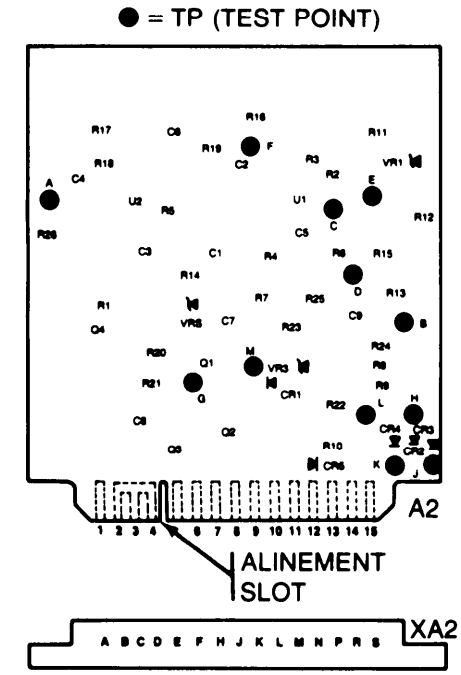
2-7. CCM TROUBLESHOOTING PROCEDURES (Cont).

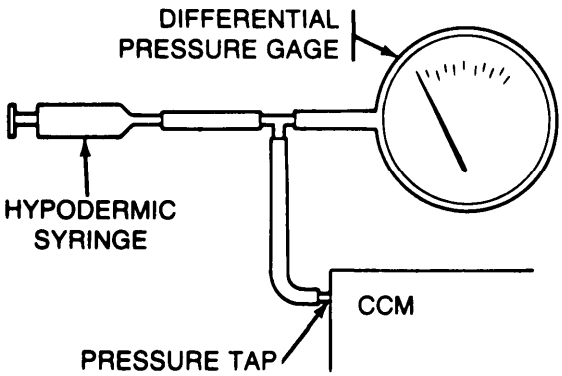




2-7. CCM TROUBLESHOOTING PROCEDURES (Cont).







From page 2-129.

Remove power card A1 (p 2-174). Connect jumpers as indicated:

(From)	(To)
XA1-L(10)	XA1-K(9)
XA1-H(7)	XA1-J(8)

This connection completes the power to the switching card A2 which is normally provided when the power card is installed. The power card A1 is removed so that the switching card is not electrically loaded by a defective power card. Apply power. Set POWER switch ON and apply vacuum to CCM as indicated below and measure test point (TP) voltage on switching card A2 with respect to TB1-2 as indicated:

Vacuum (in. wg)	Voltage at test points TP-M	TP-G
0	25 ± 2	< 1
1.2	9.3 ± 3.5	< 1
1.45	< 1	< 1
1.70	< 1	9.3 ± 3.5
2.5	< 1	25.3 ± 2

Was the specified voltage obtained in all cases?

No

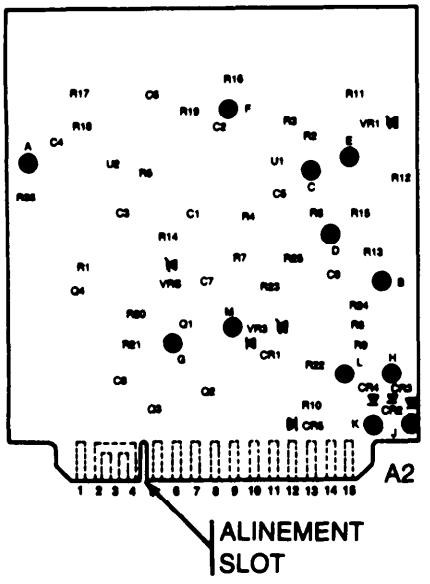
Set POWER switch OFF. Replace the switching card A2 (p 2-176). Remove jumpers. Reinstall power card A1. Set POWER switch ON. Repeat test on page 2-68.

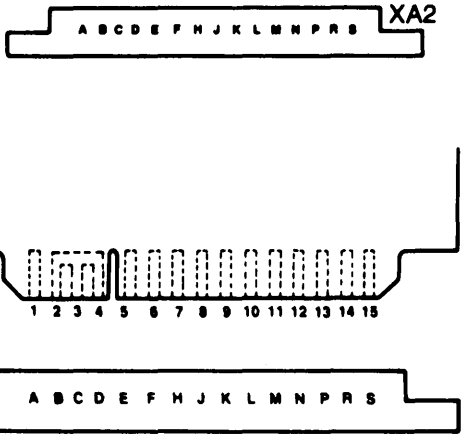
Yes

Proceed to page 2-131.

2-7. CCM TROUBLESHOOTING PROCEDURES (Cont).

● = TP (TEST POINT)





From page 2-130.

Set POWER switch OFF. Remove jumpers. Reinstall the power card A1. Set POWER switch ON. Repeat measurements at test points on switching card A2 at TP-M and TP-G (p 2-130).

Was the specified voltage obtained in all cases?

No → Set POWER switch OFF. Replace power card A1 (p 2-174). Set POWER switch ON. Repeat test on page 2-68.

Yes → Measure the test point voltages at the following applied pressures:

Pressure (in. wg)	Voltage at test points TP-H	TP-L
0	24.3 ± 2	< 1
1.2	8.6 ± 3.5	< 1
1.45	< 1	< 1
1.7	< 1	8.6 ± 3.5
2.5	< 1	24.3 ± 2.0

Was the specified voltage obtained?

No → Set POWER switch OFF. Remove power card A1. Measure continuity between:

(+)	(−)
A2-J(8)	A1-S(15)
A1-R(14)	A2-P(13)
A2-H(7)	A1-N(12)
A1-P(13)	A2-M(11)

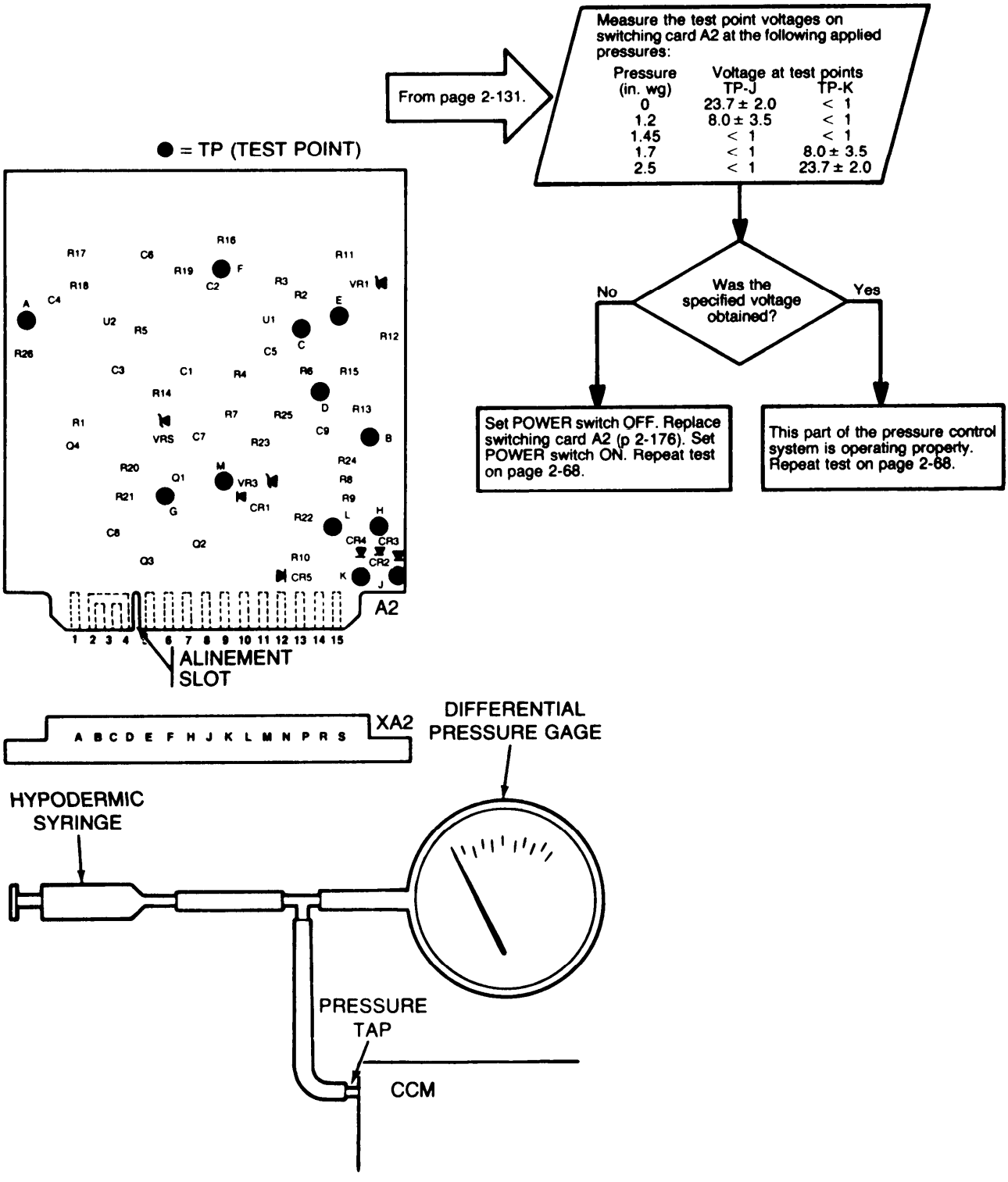
Was continuity obtained?

No → Repair wiring (p 2-184). Set POWER switch ON. Repeat test on page 2-68.

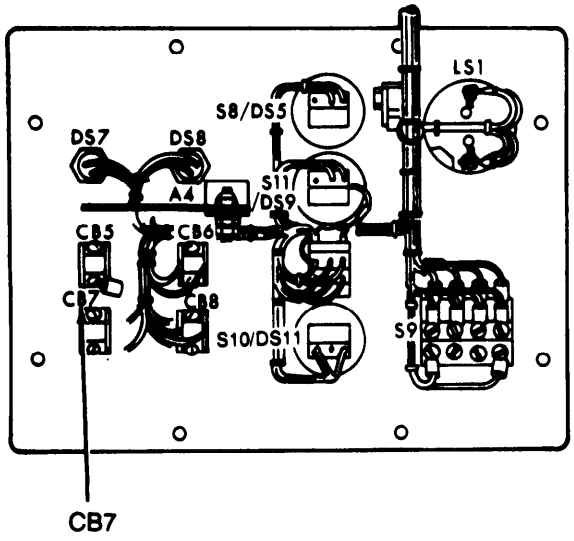
Yes → Replace power card A1 (p 2-174). Set POWER switch ON. Repeat test on page 2-68.

Yes → Proceed to page 2-132.

2-7. CCM TROUBLESHOOTING PROCEDURES (Cont).



2-7. CCM TROUBLESHOOTING PROCEDURES (Cont).



From page 2-73.

28 vdc was not obtained at connector jack J1-D. Set POWER switch OFF. Remove screws on the CCM panel and lift open for access. Set POWER switch ON. Measure voltage between:

(+) CB7-2 (−) TB1-2

Fan circuit breaker (CB7) terminal 2 has 2 wires on it.

Was 28 ± 2 vdc obtained?

No

Set POWER switch OFF. Repair wiring between CB7-2 and S9-3 (p 2-184). Set POWER switch ON. Repeat test on page 2-73.

Yes

Measure voltage between:

(+) CB7-1 (−) TB1-2

Was 28 ± 2 vdc obtained?

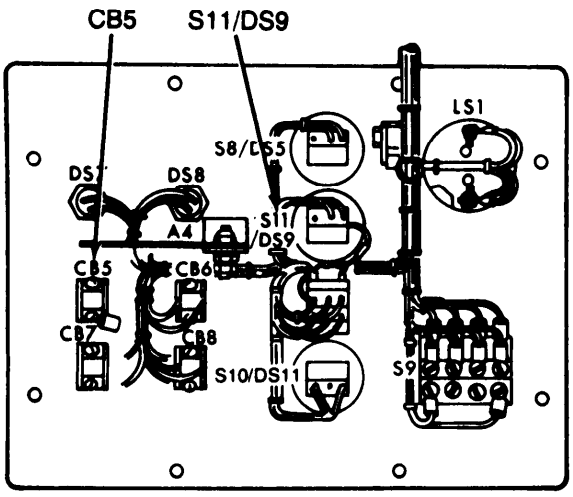
No

Set POWER switch OFF. Replace MAIN FAN circuit breaker CB7 (p 2-179). Set POWER switch ON. Repeat test on page 2-73.

Yes

Set POWER switch OFF. Repair wiring between J1-D and CB7-1 (p 2-184). Set POWER switch ON. Repeat test on page 2-73.

2-7. CCM TROUBLESHOOTING PROCEDURES (Cont).



From page 2-74.

Set POWER switch OFF. Remove screws on CCM panel and lift open for access. Set POWER switch ON. Measure voltage between:

(+) CB5-2 (−) TB1-2

Was 28 ± 2 vdc obtained?

No

Yes

Measure voltage between:

(+) CB5-1 (−) TB1-2

Remove power. Set POWER switch OFF. Repair wiring between CB5-2 and J1-E (p 2-184). Apply power. Set POWER switch ON. Repeat test on page 2-74.

Was 28 ± 2 vdc obtained?

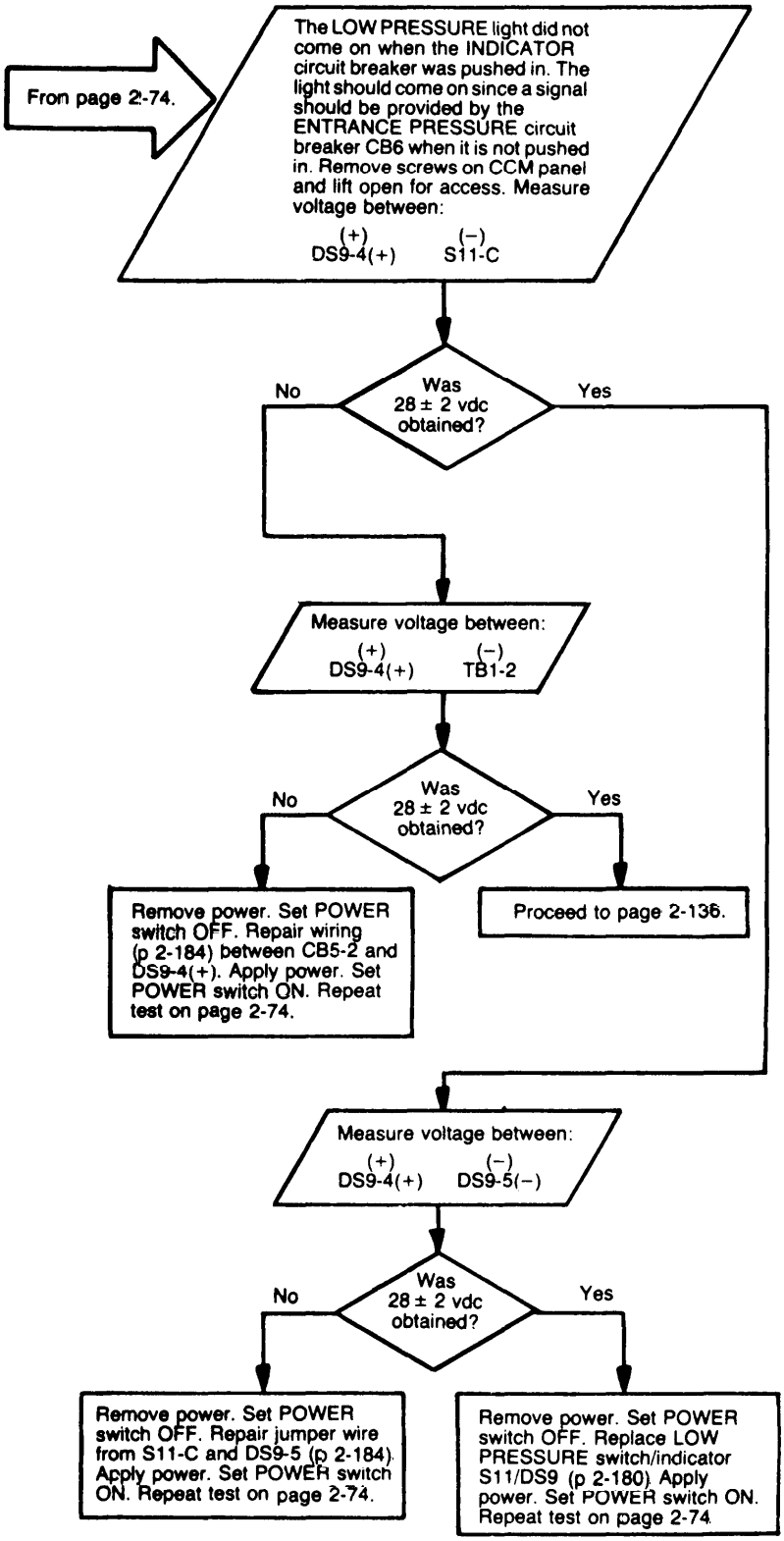
No

Yes

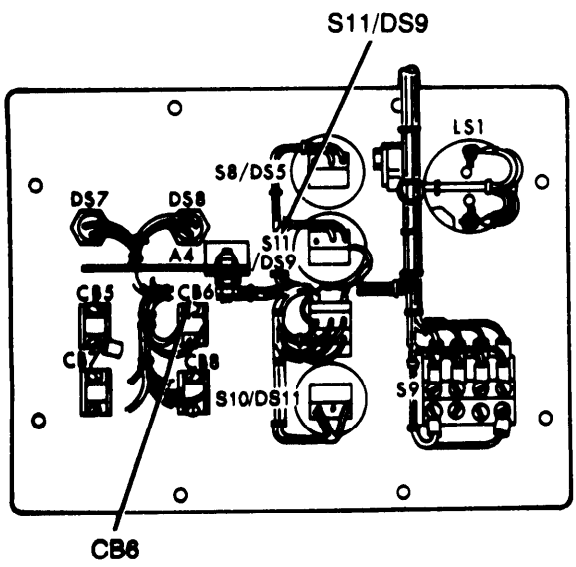
Set POWER switch OFF. Remove power. Repair wire between S9-2 and CB5-1 (p 2-184). Apply power. Set POWER switch ON. Repeat test on page 2-74.

Set POWER switch OFF. Remove power. Replace INDICATORS circuit breaker CB5 (p 2-178). Apply power. Set POWER switch ON. Repeat test on page 2-74.

2-7. CCM TROUBLESHOOTING PROCEDURES (Cont).



2-7. CCM TROUBLESHOOTING PROCEDURES (Cont).



From page 2-135.

Set POWER switch OFF. Measure continuity between:
(+) CB6-4 (−) TB1-2

Was continuity obtained?

No

Yes

Measure continuity between:
(+) S11-N.C. (−) TB1-2

Was continuity obtained?

No

Yes

Repair wire 62 between S11-N.C. and CB6-4 (p 2-184). Set POWER switch ON. Repeat test on page 2-74.

Replace LOW PRESSURE switch/indicator S11/DS9 (p 2-180). Set POWER switch ON. Repeat test on page 2-74.

Measure continuity between:
(+) CB6-3 (−) TB1-2

Was continuity obtained?

No

Yes

Repair wire from CB6-3 to TB1-4 (p 2-184). Set POWER switch ON. Repeat test on page 2-74.

Replace ENTRANCE PRESSURE circuit breaker CB6 (p 2-178). Set POWER switch ON. Repeat test on page 2-74.

Section II. MAINTENANCE PROCEDURES FOR M12 PROTECTIVE ENTRANCE

2-8. Scope.

a. This section contains repair procedures for component parts of the M 12 protective entrance.

b. Disassemble only as necessary to gain access to desired components.

c. Illustrations are configured to show access to the specific components being addressed and may not show the true position of the item or items being maintained or disassembled.

d. Identify wiring prior to unsoldering connection to simplify reassembly.

2-9. PROTECTIVE ENTRANCE CONTROL MODULE - MAINTENANCE INSTRUCTIONS.

This task covers:
a. Disassembly
b. Repair
c. Reassembly
d. Removal
e. Installation

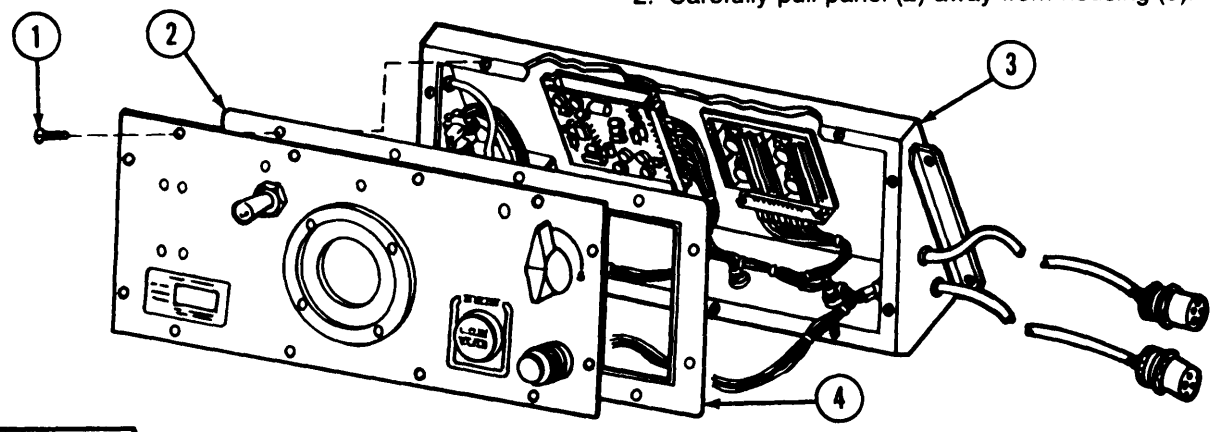
Tools
Electronic Equipment Tool
Kit TK-105/G (SC 5180-91-CL-R07)

References
TB SIG 222

Troubleshooting References
Refer to page 2-2.

Equipment Condition
PECM removed from the protective entrance.

LOCATION	ITEM	ACTION
DISASSEMBLY		
	Protective entrance control module	1. Remove twelve screws (1) from panel (2). 2. Carefully pull panel (2) away from housing (3).



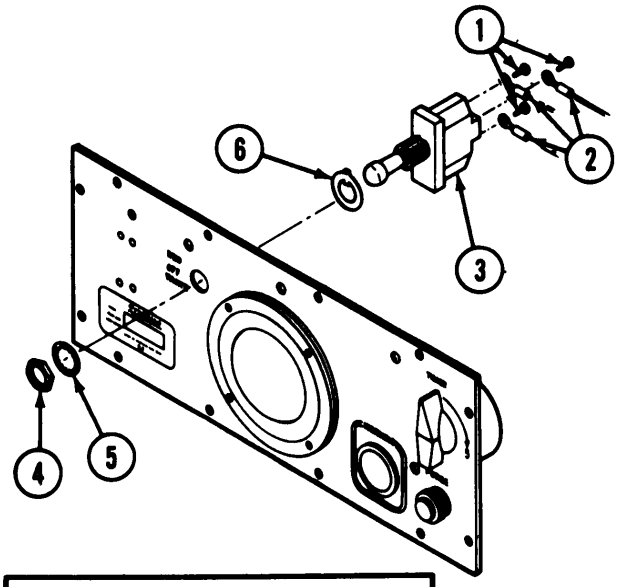
REPAIR		
	Gasket	Replace gasket (4) if defective.
REASSEMBLY		
	Protective entrance control module	1. Place panel (2) on housing (3) and secure with twelve screws (1).

2-9. PROTECTIVE ENTRANCE CONTROL MODULE - MAINTENANCE INSTRUCTIONS (Cont).

LOCATION	ITEM	ACTION

REMOVAL/INSTALLATION

Panel **Toggle switch**



REMOVAL

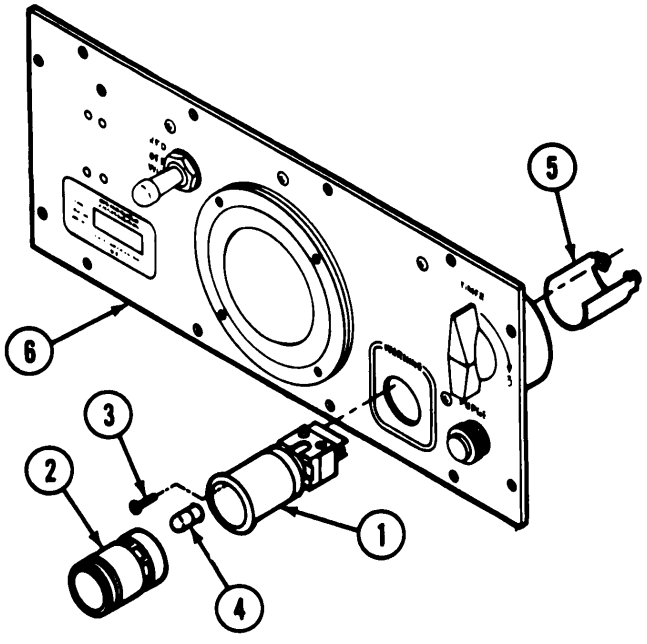
1. Disassemble PECM (page 2-137).
2. Remove three screws (1) and wires (2) from toggle switch (3).
3. Remove nut (4) and washer (5).
4. Remove toggle switch (3) and keying washer (6).

INSTALLATION

1. Install keying washer (6) on toggle switch (3).
2. Insert toggle switch in panel and secure with washer (5) and nut (4).
3. Attach wires (2) to toggle switch using three screws (1). Refer to page 2-142.
4. Reassemble PECM (page 2-137).

REMOVAL/INSTALLATION

Panel **LOW PRESSURE switch/indicator**



REMOVAL

1. Disassemble PECM (page 2-137).
2. Unsolder wires from LOW PRESSURE switch/indicator light (1).
3. Pry out lamp module (2).
4. Remove two screws (3) and two lamps (4).
5. Remove sleeve (5) from back of panel (6) and pull LOW PRESSURE switch/indicator light (1) from front of panel (6).

INSTALLATION

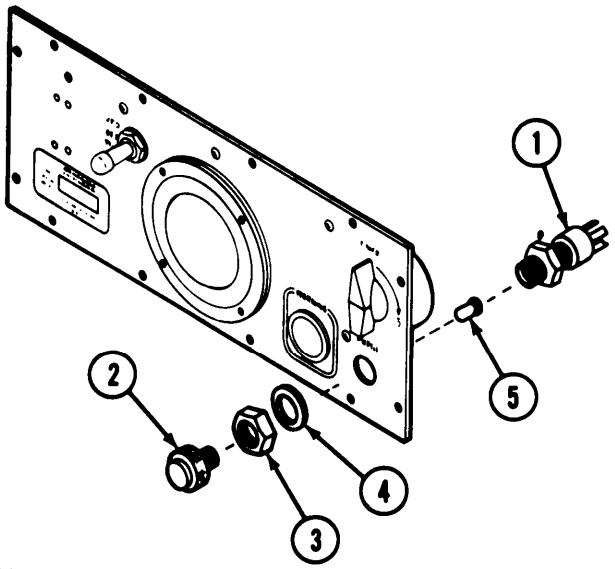
1. Insert LOW PRESSURE switch/indicator light (1) in panel.
2. Place sleeve (5) over LOW PRESSURE switch/indicator light and secure with screws (3). Install lamps (4).
3. Press lamp module (2) into LOW PRESSURE switch/indicator light.
4. Connect and solder wires to LOW PRESSURE switch/indicator light. Refer to page 2-142.
5. Reassemble PECM (page 2-137).

2-9. PROTECTIVE ENTRANCE CONTROL MODULE - MAINTENANCE INSTRUCTIONS (Cont).

LOCATION	ITEM	ACTION

REMOVAL/INSTALLATION

Panel **PURGE indicator light**



REMOVAL

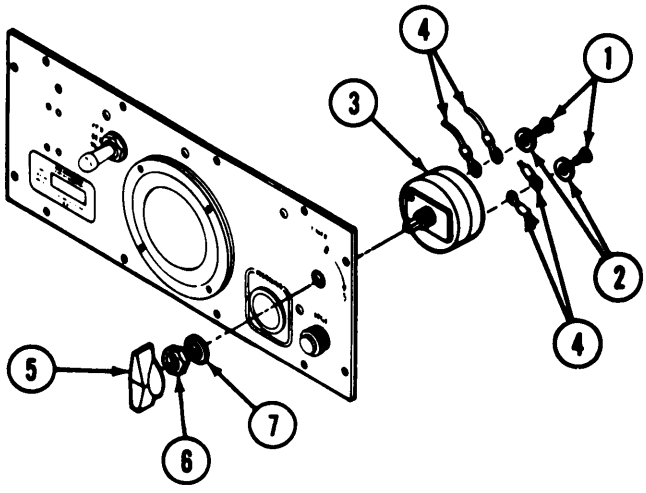
1. Disassemble PECM (page 2-137).
2. Remove insulating tubing and unsolder wires from PURGE indicator light (1).
3. Unscrew knurled lens (2) and nut (3),
4. Remove washer (4) and PURGE indicator light (1).
5. Remove lamp (5) from PURGE indicator light.

INSTALLATION

1. Install lamp (5) in PURGE indicator light (1).
2. Insert PURGE indicator light in panel and install washer (4) and nut (3).
3. Install knurled lens (2).
4. Place insulating tubing over wires.
5. Connect and solder wires to PURGE indicator light. Refer to page 2-142.
6. Reassemble PECM (page 2-137).

REMOVAL/INSTALLATION

Panel **TIMER switch**



REMOVAL

1. Disassemble PECM (page 2-137).
2. Remove two screws (1) and two washers (2) from TIMER switch (3). Remove wires (4).
3. Loosen setscrew and remove knob (5).
4. Remove nut (6) and washer (7) from TIMER switch (3).
5. Remove TIMER switch (3).

INSTALLATION

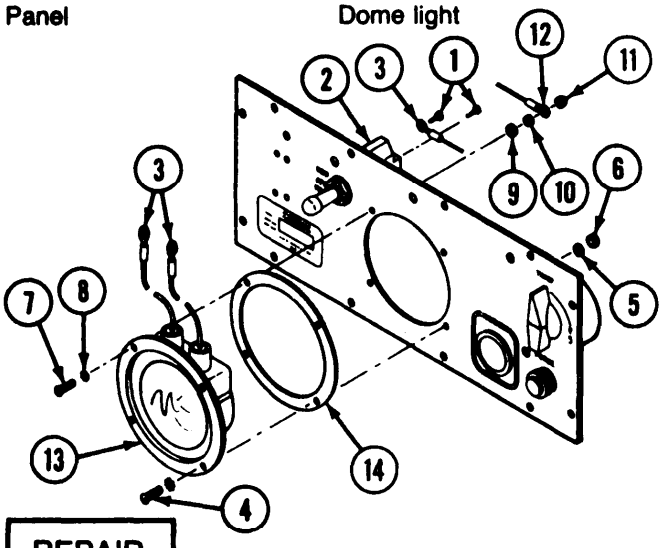
1. Install TIMER switch (3) in panel using washer (7) and nut (6).
2. Position knob (5) on shaft of TIMER switch with pointer at the zero mark on panel.
3. Tighten setscrew in knob.
4. Install wire leads (4) on TIMER switch using washers (2) and screws (1). Refer to page 2-142.
5. Reassemble PECM (page 2-137).

2-9. Protective ENTRANCE CONTROL MODULE - MAINTENANCE INSTRUCTIONS (Cont).

LOCATION	ITEM	ACTION

REMOVAL

Panel **Dome light**



1. Disassemble PECM (page 2-137).
2. Remove two screws (1) from toggle switch (2) and release wires *(3)*.
3. Remove three screws (4), nonmetallic washers (5), and nuts (6).
4. Remove one screw (7), washers (8 and 9), nuts (10 and 11), and wire (12).
5. Remove dome light (13) and gasket (14).

REPAIR

Gasket

Fabricate gasket (fig D-1, app D).

INSTALLATION

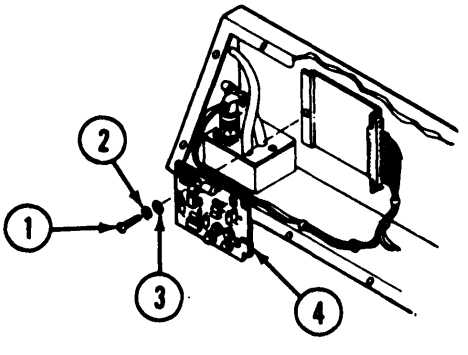
Dome light

1. Install gasket (14) and dome light (13) in panel using three screws (4), washers (5) and nuts (6).
2. Install wire lead (12) on one screw (7) and secure with washers (8 and 9) and nuts (1 0 and 11). Install wire leads *(3)* on toggle switch (2) using two screws (1). Refer to page 2-142.
3. Reassemble PECM (page 2-137).

REMOVAL/INSTALLATION

REMOVAL

Housing **Switching card**



1. Disassemble PECM (page 2-137).
2. Remove screw (1) and washers (2 and 3).
3. Lift switching card (4) slightly and pull from socket.

INSTALLATION

1. Insert switching card (4) into socket in housing.
2. Secure switching card with screw (1) and washers (2 and 3).
3. Reassemble PECM (page 2-137).

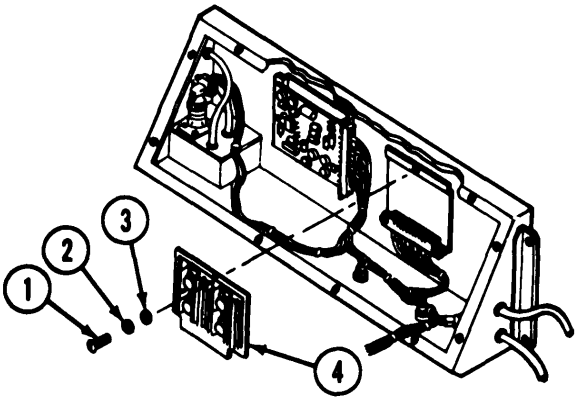
2-9. PROTECTIVE ENTRANCE CONTROL MODULE - MAINTENANCE INSTRUCTIONS (Cent).

LOCATION	ITEM	ACTION

REMOVAL/INSTALLATION

REMOVAL

Housing **Power card**



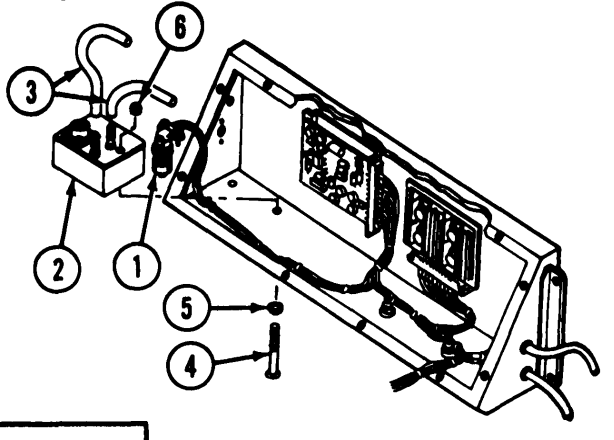
1. Disassemble PECM (page 2-137).
2. Remove screw (1) and washers (2 and 3).
3. Lift power card (4) slightly and pull from socket.

INSTALLATION

1. Insert power card (4) into socket In housing.
2. Secure power card (4) with screw (1) and washers (2 and 3).
3. Reassemble PECM (page 2-137).

REMOVAL

Housing **Pressure transducer**



1. Disassemble PECM (page 2-137).
2. Remove connector plug (1) from pressure transducer (2).
3. Remove tubing (3).
4. Remove two screws (4), washers (5), and nuts (6).
5. Remove pressure transducer (2).

REPAIR

Nonmetallic tubing

Fabricate replacement tubing (3) from NSN 9330-01-073-1011 stock. Cut to same length as tubing being replaced.

INSTALLATION

Pressure transducer

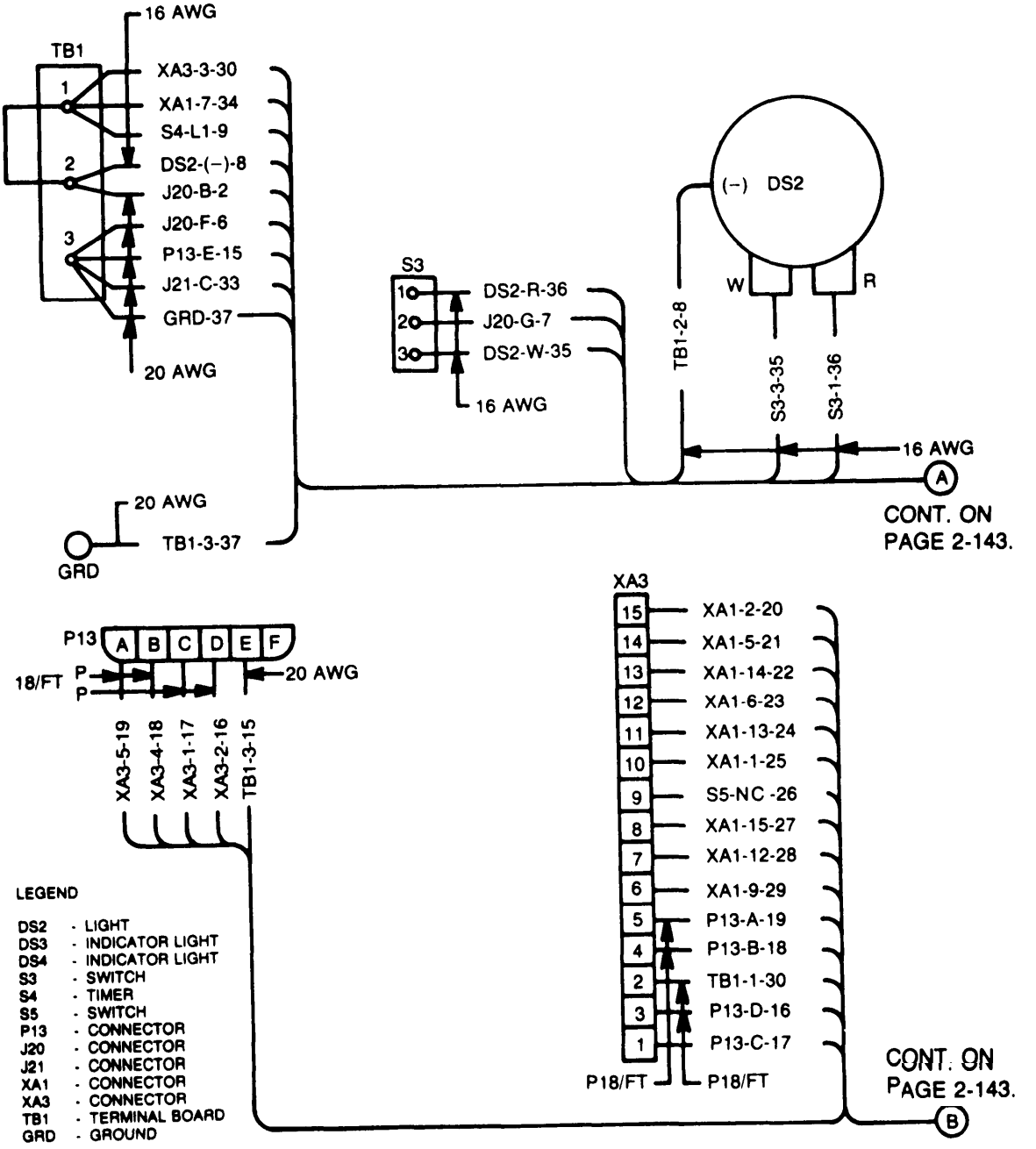
1. Place transducer (2) in housing and secure with two screws (4), washers (5), and nuts (6).
2. Install tubing (3).
3. Connect plug (1) to transducer.
4. Reassemble PECM (page 2-137).'

2-9. PROTECTIVE ENTRANCE CONTROL MODULE - MAINTENANCE INSTRUCTIONS (Cont).

LOCATION	ITEM	ACTION

REPAIR

Protective entrance control module **Wiring**

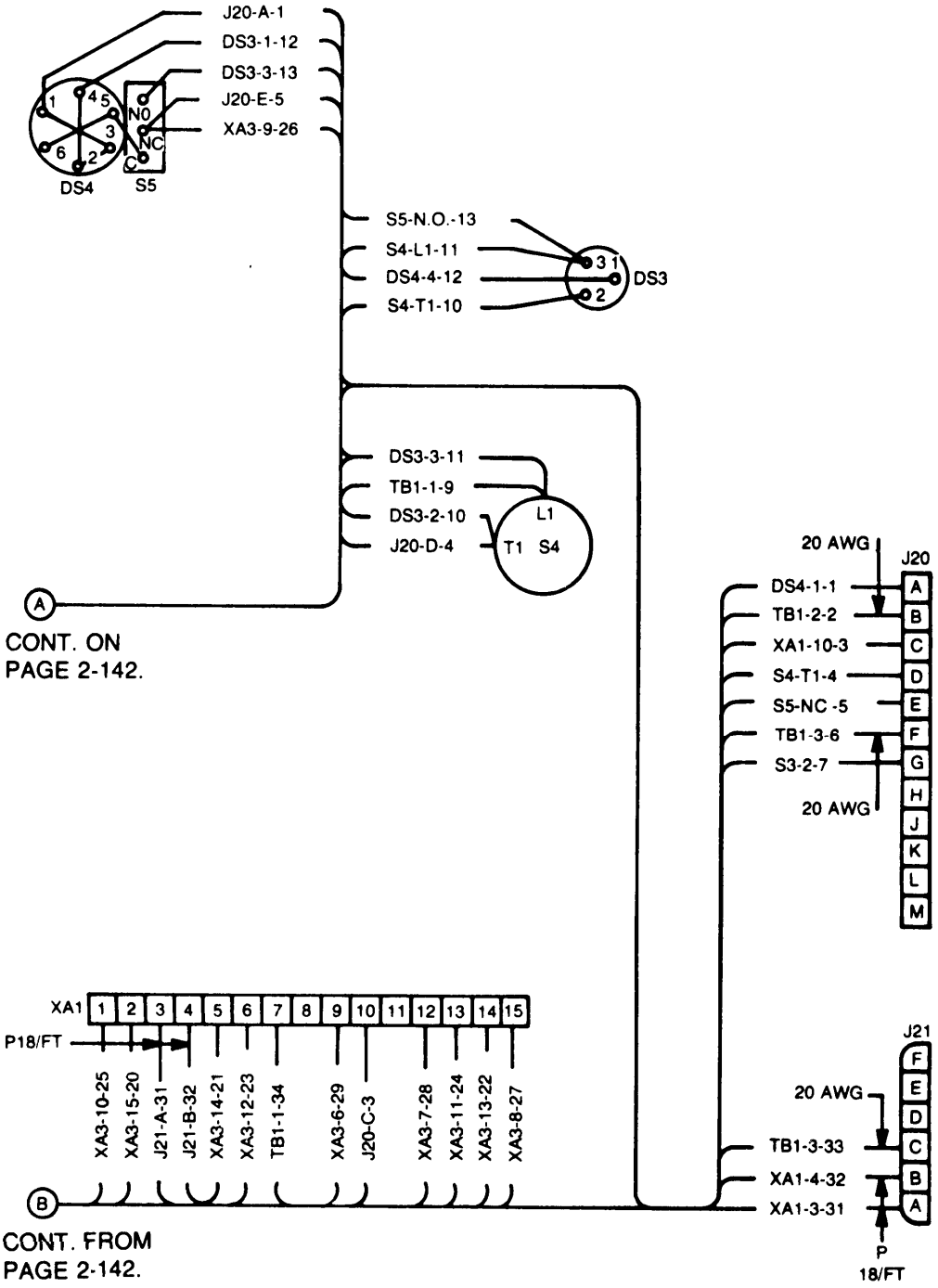


2-9. PROTECTIVE ENTRANCE CONTROL MODULE - MAINTENANCE INSTRUCTIONS (Cont).

LOCATION	ITEM	ACTION

REPAIR (Cont)

Protective entrance control module — Wiring



Section III. MAINTENANCE PROCEDURE FOR M56 GAS-PARTICULATE FILTER UNIT

2-10. General.

a. This section contains repair procedures for component parts of the M56 Gas-particulate Filter Unit,

b. Disassemble only as necessary to gain access to desired components.

c. Illustrations are configured to show access to the specific components being addressed and may not show the true position of the item or items being maintained or disassembled.

2-11. MAIN FAN - MAINTENANCE INSTRUCTIONS.

This task covers:

a. Removal
b. Disassembly
c. Installation
d. Reassembly

INITIAL SETUP

Troubleshooting References
Refer to page 2-32.

Equipment Condition
Main fan removed from filter unit.

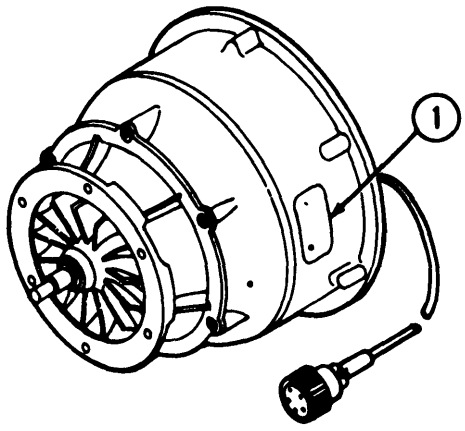
Tools
General mechanics tool kit SC 5180-90-CL-N26
Puller kit 5120-00-289-9597
Torque wrench 5120-00-247-2536
Micrometer depth gage 5210-00-619-4045
Arbor press 3444-00-243-2655
(or equivalent)

Materials
Coating, aliphatic polyurethane (item 3, app C)
Dry cleaning solvent (item 4, app C)
Grease (item 5, app C)

LOCATION	ITEM	ACTION

REMOVAL/INSTALLATION

Main Fan **Identification plate**



REMOVAL

1. Lift edge of plate (1) with a sharp tool.
2. Pull plate completely off the mounting surface.

INSTALLATION

1. Thoroughly clean mounting surface with dry cleaning solvent (item 4, app C). Mounting surface must be free of all contamination such as oil, grease, dirt, or any foreign matter.
2. Activate the back of the plate with dry cleaning solvent (item 4, app C).
3. Mount plate (1) and apply pressure to the plate surface.
4. Spray or brush plate with aliphatic polyurethane coating (item 3, app C).

2-11. MAIN FAN - MAINTENANCE INSTRUCTIONS (Cont).

LOCATION	ITEM	ACTION

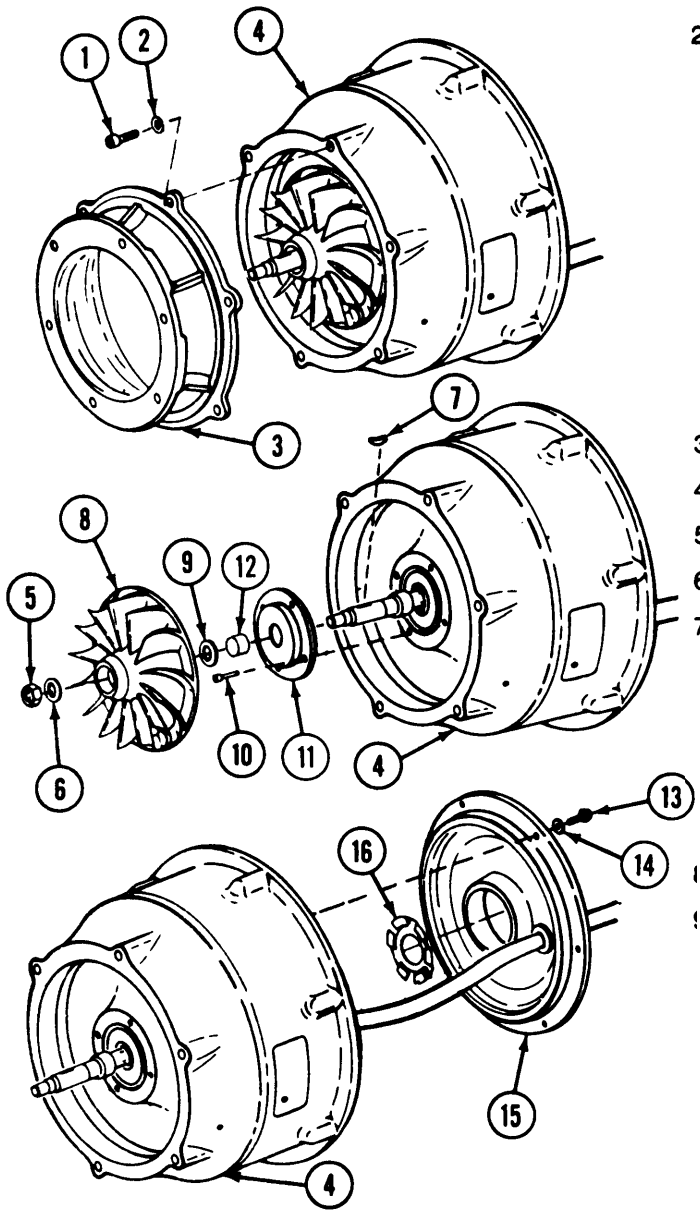
REMOVAL

Main Fan **Bearings**

Disassemble main fan.

DISASSEMBLY

Main fan



1. Remove six screws (1) and washers (2).
2. Remove impeller cover (3) from fan housing (4).
3. Remove impeller nut (5) and washer (6).
4. Remove impeller (8).
5. Remove woodruff key (7).
6. Remove shim (9).
7. Remove four screws (10), bearing retainer plate (11), and bushing (12).

CAUTION

When removing the motor cover (15) from the fan housing (4), use care not to pull the stator electrical wires from ground.

8. Remove six screws (13) and washers (14).
9. Carefully remove motor cover (15) from fan housing (4), Slide the motor cover (15) back onto the electrical cable.

NOTE

Use care not to lose loading spring washer (16), as it will fall free when the motor cover is removed from the fan housing.

2-11. MAIN FAN - MAINTENANCE INSTRUCTIONS (Cont).

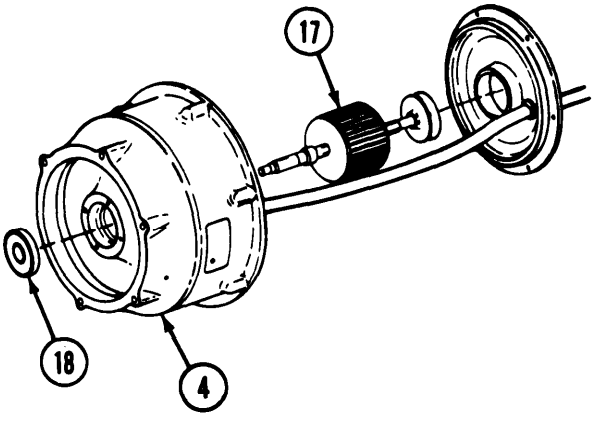
LOCATION	ITEM	ACTION

DISASSEMBLY (Cont)

Main fan

CAUTION

Use care not to damage the rotor or nick rotor shaft journals when pressing rotor from bearing.



10. Using an arbor press, press rotor (17) from bearing (18) and out of fan housing (4).
11. Press bearing (18) from fan housing (4).

CAUTION

Use care not to damage the rotor or nick shaft journals when removing the bearing.

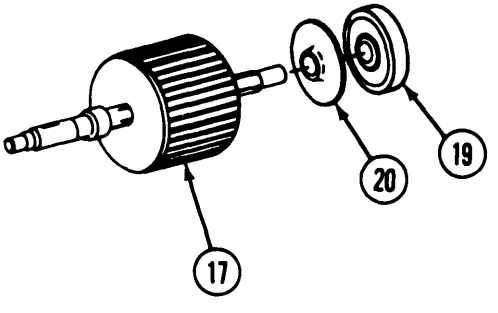
12. Remove bearing (19) from rotor (17) shaft using a standard bearing puller,

NOTE

Use care not to lose deflector (20). It will fall free when bearing is removed.

INSTALLATION

Rotor shaft **Bearing**

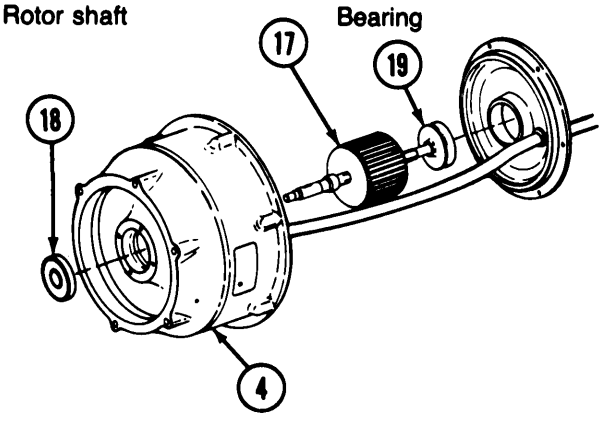


1. Install deflector (20) on rotor shaft. Press a new bearing (19) on the rotor (17) shaft (use an arbor press). Make sure the bearing is flush against the deflector and shaft shoulder.

2-11. MAIN FAN - MAINTENANCE INSTRUCTIONS (Cont).

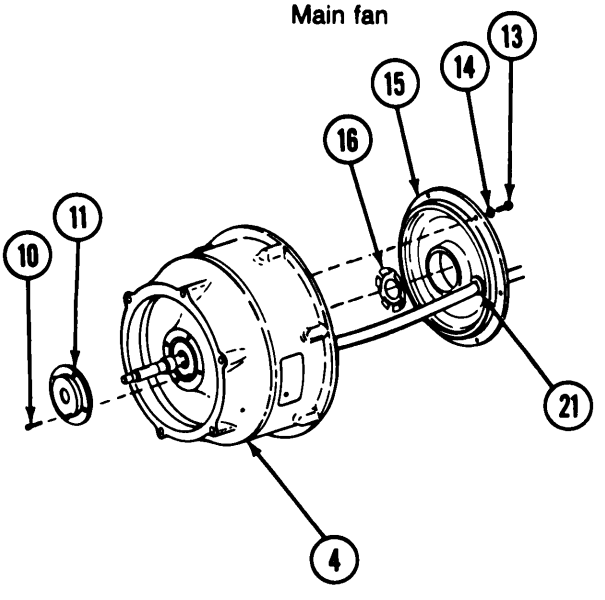
LOCATION	ITEM	ACTION

INSTALLATION (Cont)



2. Install the rotor (17) in the fan housing (4).
3. Stand the fan housing on end with rotor shaft supported, and press a new bearing (18) on the input end of the rotor shaft, flush against the shaft shoulder.
4. Fill cavity of bearings (18 and 19) half full of grease (item 5, app C).

REASSEMBLY



1. Install loading spring washer (16) on the end of rotor shaft and press against the bearing with the fingers.
2. Position the motor cover in place on the fan housing (4). Work stator cable through rubber grommet (21) to remove slack while positioning. Seat bearing and loading spring washer in motor cover,

CAUTION

Make sure loading spring washer remains in place on the rotor shaft and bearing is fully seated before tightening screws.

3. Install six screws (13) and washers (14) in motor cover.
4. Install bearing retainer plate (11) with four screws (1 0) and torque to 20-23 inch-pounds,

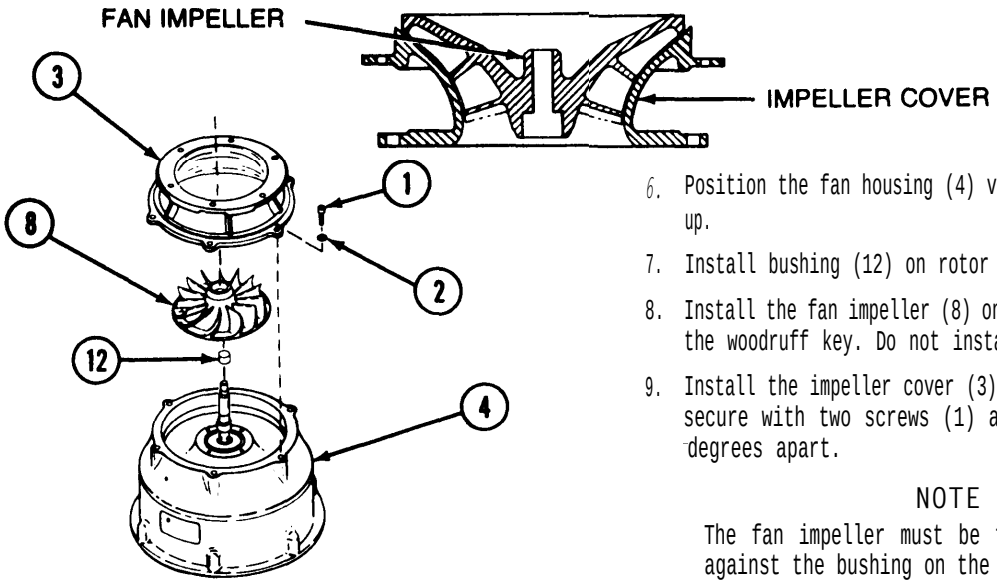
2-11. MAIN FAN - MAINTENANCE INSTRUCTIONS (Cont).

LOCATION	ITEM	ACTION

REASSEMBLY (Cont)

Main fan

5. Check the contour fit between the fan impeller and the impeller cover.



6. Position the fan housing (4) vertically with input end up.
7. Install bushing (12) on rotor shaft.
8. Install the fan impeller (8) on the rotor shaft without the woodruff key. Do not install self locking nut.
9. Install the impeller cover (3) on the fan housing and secure with two screws (1) and two washers (2) 180 degrees apart.

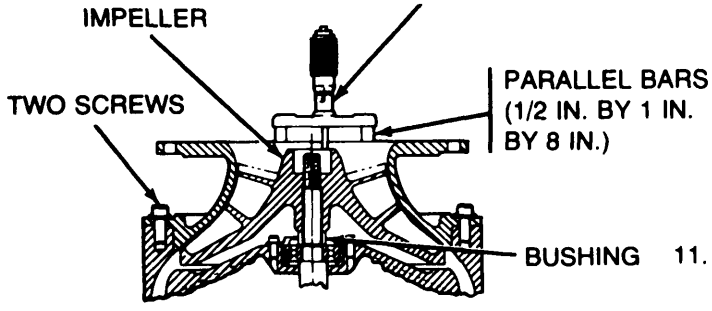
NOTE

The fan impeller must be firmly seated against the bushing on the rotor shaft in order to obtain an accurate reading for dimension "A".

DIMENSION"A' FAN IMPELLER FIRMLY SEATED AGAINST SPACER.

DIMENSION "B" FAN IMPELLER SEATED AGAINST IMPELLER COVER.

10. With the fan impeller against bushing, use a 2 inch depth micrometer with two parallel bars (1/2 inch by 1 inch by 8 inches). Measure the distance from the top of the parallel bars to the machined surface on the fan impeller as shown. Record as dimension "A".



NOTE

The fan impeller must be firmly seated against the impeller cover to obtain an accurate reading for dimension "B".

11. Pull up on the fan impeller to seat against the impeller cover and take a second measurement using the same technique as in step 10 and record as dimension "B".

IMPELLER GAGE DIAMETER. (ADD SHIMS BETWEEN IMPELLER AND SPACER TO OBTAIN 0.007 TO 0.012 INCH AXIAL CLEARANCE BETWEEN FAN IMPELLER AND IMPELLER COVER.)

2-11. MAIN FAN - MAINTENANCE INSTRUCTIONS (Cont).

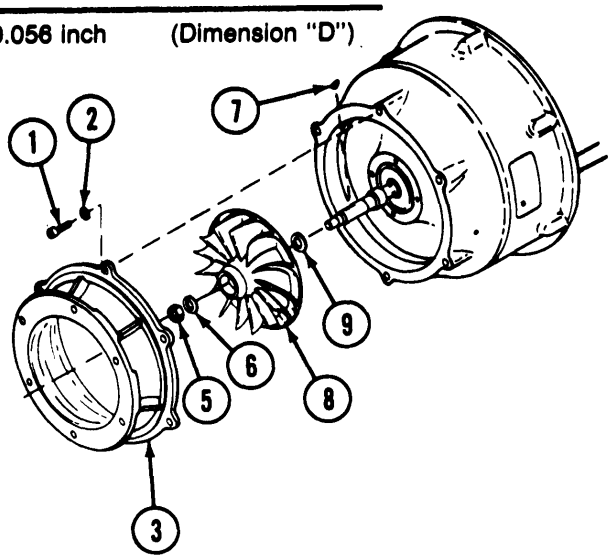
LOCATION	ITEM	ACTION

REASSEMBLY (Cont)

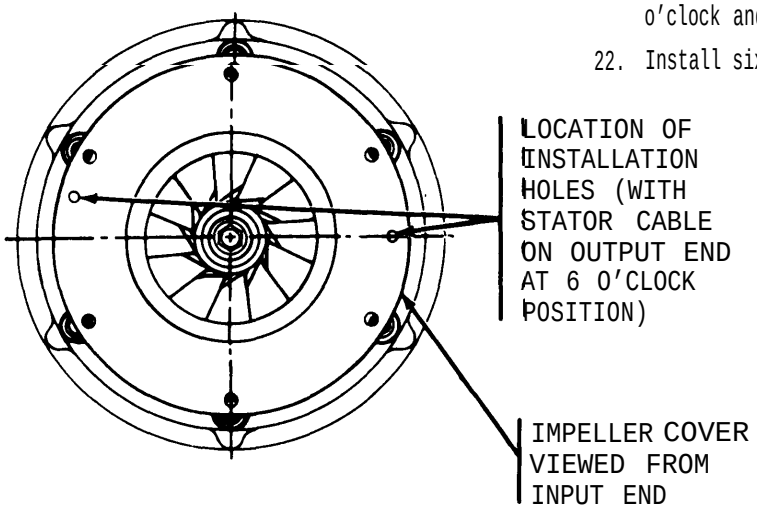
Main Fan

Example

1,152 Inches	(Dimension "A")
-1.086 inches	(Dimension "B")
0.066 Inch	(Dimension "C")
-0.010 inch	(Nominal)
0.056 inch	**(Dimension "D")**



12. Subtract dimension "B" from dimension "A" as recorded in steps 10 and 11, the difference being dimension "C". (See example below.)
13. Subtract a nominal 0.010 inch from dimension "C" and record as dimension "D". Dimension "D" is the required shim thickness for shim to obtain 0.007 to 0.012 inch axial clearance between the fan Impeller and the impeller cover.
14. Remove impeller cover and impeller.
15. Peel laminated shims (9) to required thickness determined by dimension "D" to obtain the proper spacing.
16. Install shims (9) on rotor shaft.
17. Install woodruff key (7) in rotor shaft and install fan impeller (8).
18. Install washer (6) and lock nut (5).
19. Torque lock nut (5) to 95 to 110 inch-pounds.
20. Turn rotor counterclockwise to check that bearings are free.
21. With the stator electric cable positioned in the 6 o'clock position, install the impeller cover (3) with the installation locating holes located in the 3 o'clock and 9:30 positions.
22. Install six washers (2) and screws (1).



2-12. AIRFLOW VALVE - MAINTENANCE INSTRUCTIONS.

This task covers:
a. Removal
b. Installation

INITIAL SETUP

Tools
Electronic Equipment Tool
Kit TK-105/G (SC 5180-91-CL-R07)

References
TB SIG 222

Troubleshooting References
Refer to page 2-33.

Equipment Condition
'Airflow valve removed from filter unit or airflow valve removed from airflow valve and silencer.

NOTE

Perform all electrical connections in accordance with wiring diagram on page 2-160.

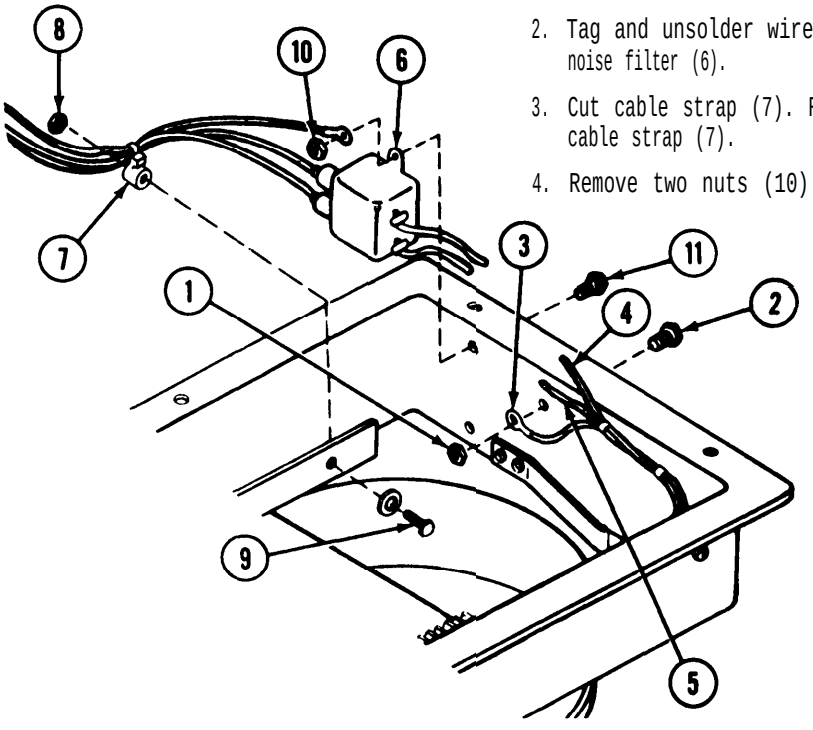
LOCATION	ITEM	ACTION

REMOVAL/INSTALLATION

REMOVAL

AirfIow Valve

Motor with radio noise filter



1. Remove nut (1) and screw (2) from GRD 4 terminal lug (3)
2. Tag and unsolder wires (4 and 5) from FL2 radio noise filter (6).
3. Cut cable strap (7). Remove nut (8), screw (9) and cable strap (7).
4. Remove two nuts (10) and screws (11).

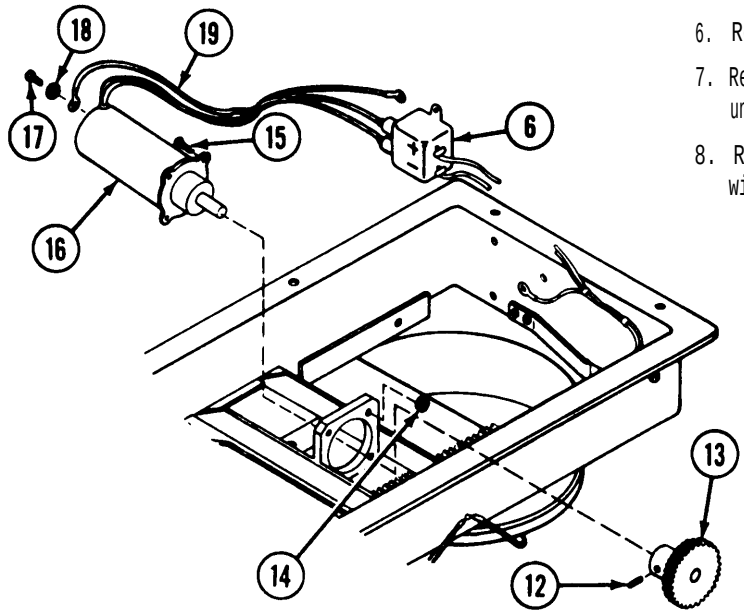
2-12. AIRFLOW VALVE - MAINTENANCE INSTRUCTIONS (Cont).

LOCATION	ITEM	ACTION

REMOVAL/INSTALLATION (Cont)

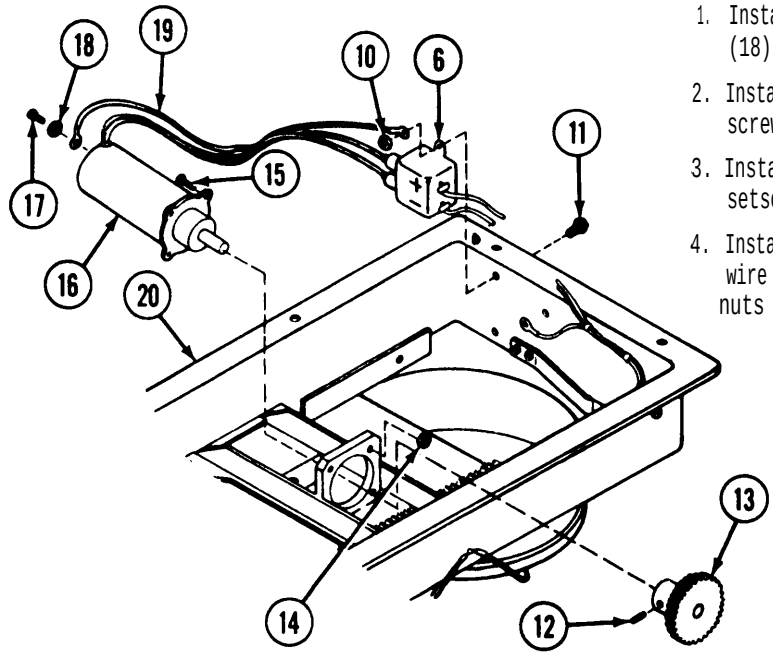
Airflow Valve

Motor with radio noise filter



5. Loosen setscrew (12) and remove gear (13).
6. Remove four nuts (14) and screws (15).
7. Remove motor (16) and FL2 radio noise filter (6) as a unit.
8. Remove screw (17), washer (18), and grounding wire (19).

INSTALLATION



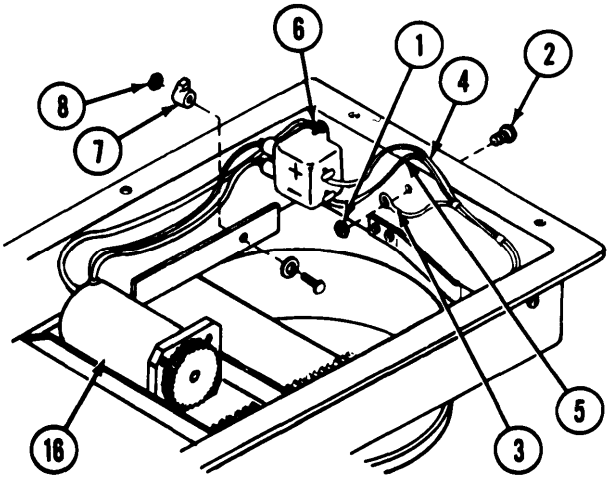
1. Install grounding wire (19) on motor (16) with washer (18) and screw (17).
2. Install motor (16) in airflow valve (20) using four screws (15) and nuts (14).
3. Install gear (13) on shaft of motor (16). Tighten setscrew (12).
4. Install FL2 radio noise filter (6) and grounding wire (19) in airflow valve (20) using screws (11) and nuts (10).

2-12. AIRFLOW VALVE - MAINTENANCE INSTRUCTIONS (Cont).

LOCATION	ITEM	ACTION

REMOVAL/INSTALLATION (Cont)

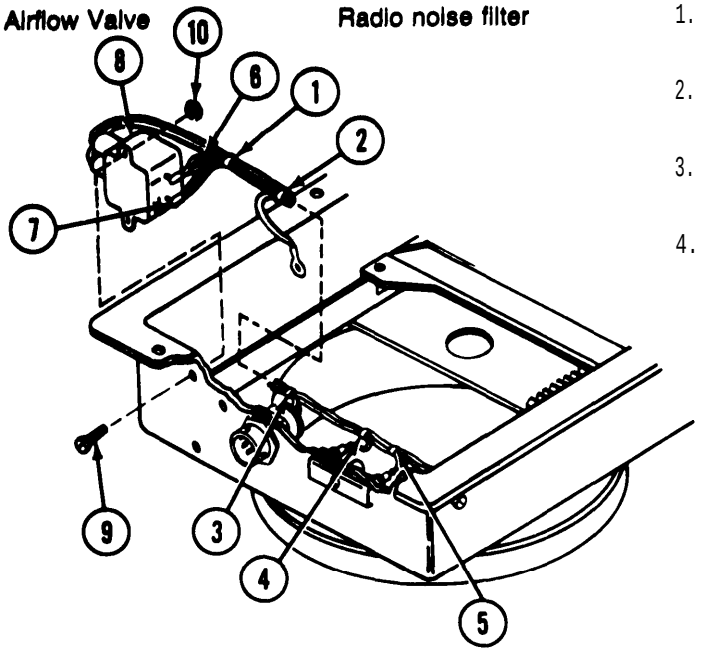
Airflow Valve Motor with radio noise filter



5. Install screw (2), GRD 4 terminal lug (3), and nut (1).
6. Observing the wiring diagram on page 2-160, solder the tagged wires *(4* and 5) to lugs on FL2 radio noise filter (6).
7. Bring cabling between motor (16) and FL2 radio noise filter *(6)* together and install cable strap (7), screw (9), and nut (8).

REMOVAL/INSTALLATION

Airflow Valve Radio noise filter



REMOVAL

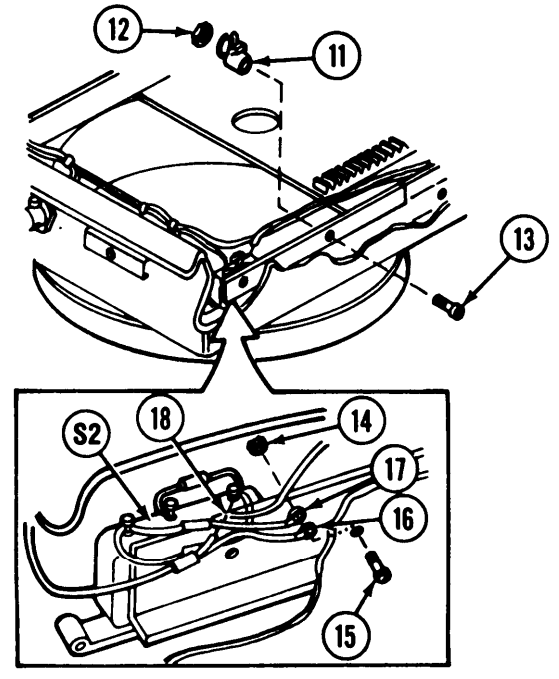
1. Cut and remove cable ties (1 thru 5) and separate the wires.
2. Tag and unsolder one pair of wires (6) from FL1 radio noise filter (8) negative (-) terminal.
3. Tag and unsolder one pair of wires *(7)* from FL1 radio noise filter (8) positive (+) terminal.
4. Remove *two* screws (9) and nuts (10). Place FL1 radio noise filter (8) inside the airflow valve.

2-12. AIRFLOW VALVE - MAINTENANCE INSTRUCTIONS (Cont).

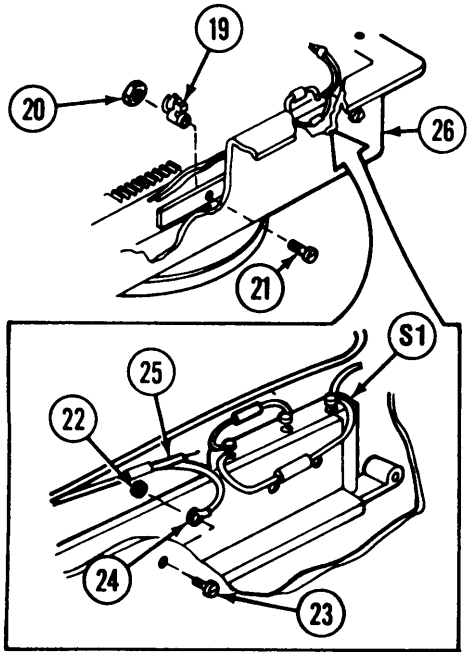
LOCATION	ITEM	ACTION

REMOVAL/INSTALLATION (Cont)

Airflow Valve — Radio noise filter



5. Cut cable strap (11). Remove nut (12), screw (13), and cable strap (11).
6. Remove nut (14), screw (15), and two grounding terminal lugs (16 and 17) from GRD 2.
7. Tag and unsolder wire (18) from normally closed (NC) terminal on switch (S2).



8. Cut cable strap (19). Remove nut (20), screw (21), and cable strap (19).
9. Remove nut (22), screw (23), and grounding lug (24) from GRD 3.
10. Tag and unsolder wire (25) from normally closed (NC) terminal on switch (S1).
11. Remove FL1 radio noise filter *(8)* from airflow valve (26).

NOTE

Be sure to keep the old filter. It will be used as a pattern for installing a new filter.

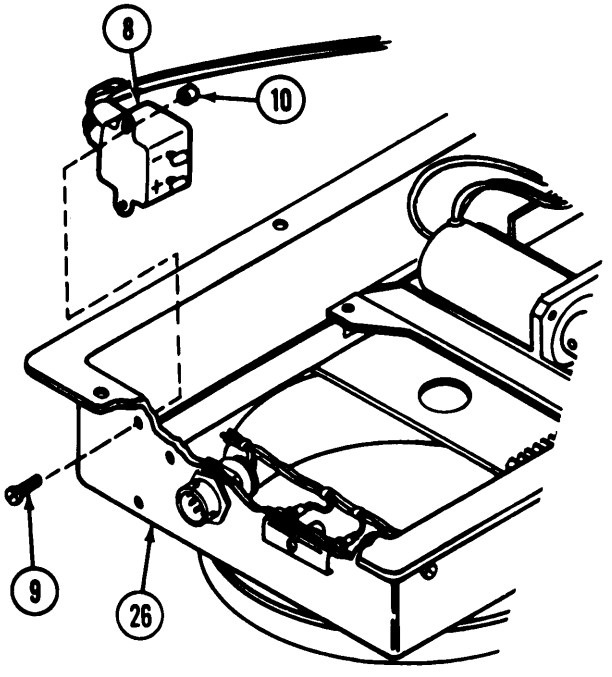
2-12. AIRFLOW VALVE - MAINTENANCE INSTRUCTIONS (Cont).

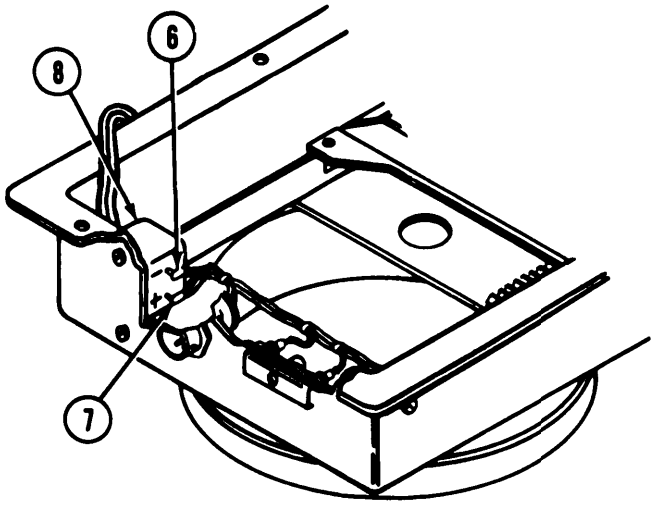
LOCATION	ITEM	ACTION

REMOVAL/INSTALLATION (Cont)

Airflow Valve

Radio noise filter





INSTALLATION

1. Using the old radio noise filter as a pattern, cut and tag wires on new filter and install ground terminal lugs on the shielding of both wires.
2. Mount radio noise filter (8) in airflow valve (26) using two screws (9) and nuts (10).

NOTE

Place FL1 radio noise filter wires over the flange of the airflow valve.

3. Observing the wiring diagram on page 2-160 solder the tagged wires (6 and 7) to lugs on FL1 radio noise filter (8).

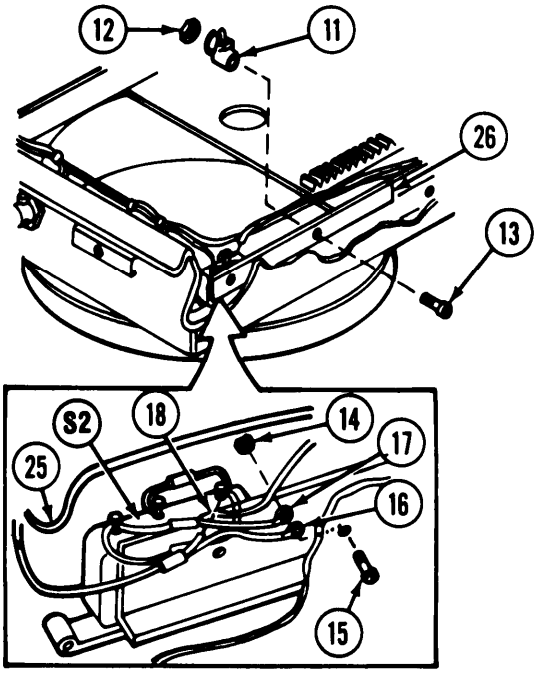
2-12. AIRFLOW VALVE - MAINTENANCE INSTRUCTIONS (Cont).

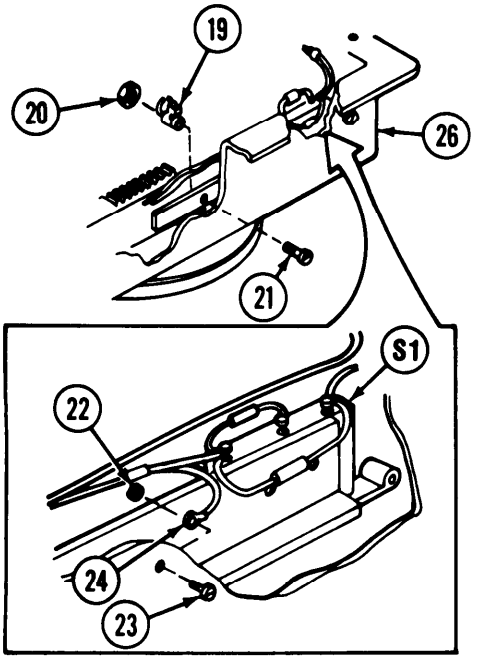
LOCATION	ITEM	ACTION

REMOVAL/INSTALLATION (Cont)

Airflow Valve

Radio noise filter





4. Place wires (18 and 25) in position in the airflow valve (26),
5. Solder wire (18) to normally closed (NC) terminal on switch (S2).
6. Install grounding lugs (16 and 17), using screw (15) and nut (14).
7. Install cable strap (11) using screw (13) and nut (12). Secure the wires within the cable strap.
8. Solder wire (25) to normally closed (NC) terminal on switch (S1),
9. Install grounding lug (24) using screw (23) and nut (22).
10. Install cable strap (19) using screw (21) and nut (20). Secure the wires within the cable strap.

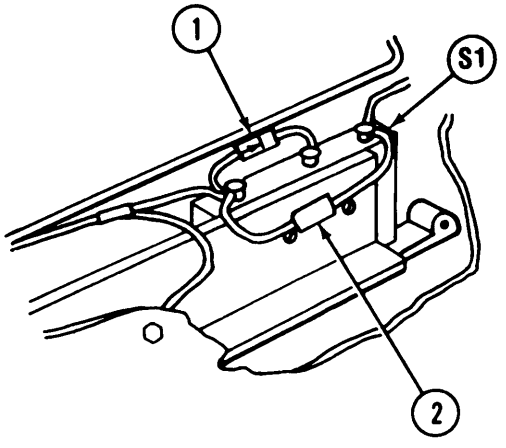
2-12. AIRFLOW VALVE - MAINTENANCE INSTRUCTIONS (Cont).

LOCATION	ITEM	ACTION

REMOVAL/INSTALLATION

Airflow Valve

Diode and capacitor on switch (S1)



REMOVAL

1. Unsolder diode (1) from normally closed (NC) and from normally open (NO) terminals on switch (S1).
2. Unsolder capacitor *(2)* from normally closed (NC) and from common (C) terminals on switch (S1).

INSTALLATION

1. Cut and bend leads of diode (1) and capacitor (2) using the old parts as a pattern.
2. Solder diode (1) leads to normally closed (NC) and to normally open (NO) terminals on switch (S1).
3. Solder capacitor (2) leads to normally closed (NC) and common (C) terminals on switch (S1).

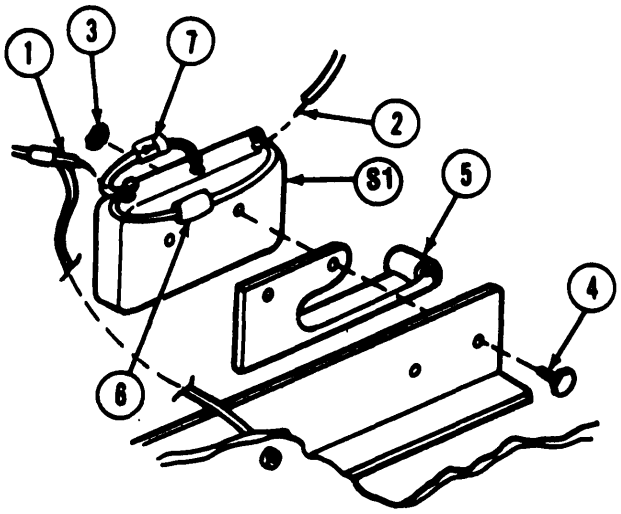
2-12. AIRFLOW VALVE - MAINTENANCE INSTRUCTIONS (Cont).

LOCATION	ITEM	ACTION

REMOVAL/INSTALLATION

Airflow Valve

Switch (S1) and adapter



REMOVAL

1. Tag and unsolder wire (1) from normally closed (NC) terminal on switch (S1).
2. Tag and unsolder wire (2) from common (C) terminal on switch (S1).
3. Remove two nuts (3) and screws (4).
4. Remove switch (S1) and adapter (5).

INSTALLATION

1. Install switch (S1) and adapter (5) using two screws (4) and nuts (3).
2. Cut and bend leads of capacitor (6) to fit between normally closed (NC) and common (C) terminals of switch (S1).
3. Cut and bend leads of diode (7) to fit between normally closed (NC) and normally open (NO) terminals of switch (S1).
4. Solder wire (1), one end of capacitor (6), and one end of diode (7) to normally closed (NC) terminal of switch (S1).
5. Solder wire (2) and one end of capacitor (6) to common (C) terminal of switch (S1).
6. Solder one end of diode (7) to normally open (NO) terminal of switch (S1).

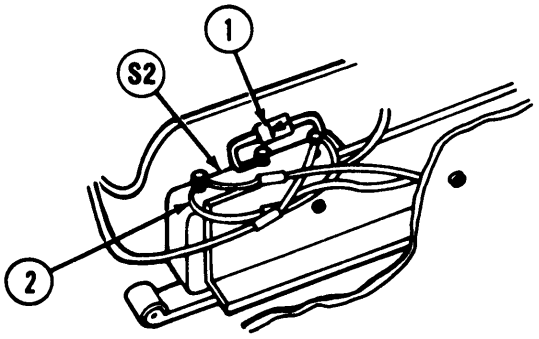
2-12. AIRFLOW VALVE - MAINTENANCE INSTRUCTIONS (Cont).

LOCATION	ITEM	ACTION

REMOVAL/INSTALLATION

Airflow Valve

Diode and capacitor on switch (S2)



REMOVAL

1. Unsolder diode (1) from normally closed (NC) and from normally open (NO) terminals on switch (S2).
2. Unsolder capacitor (2) from normally closed (NC) and from common (C) terminals on switch (S2).

INSTALLATION

1. Cut and bend leads of diode (1) and capacitor (2) using the old parts as a pattern.
2. Solder diode (1) leads to normally closed (NC) and to normally open (NO) terminals on switch (S2).
3. Solder capacitor (2) leads to normally closed (NC) and to common (C) terminals on switch (S2).

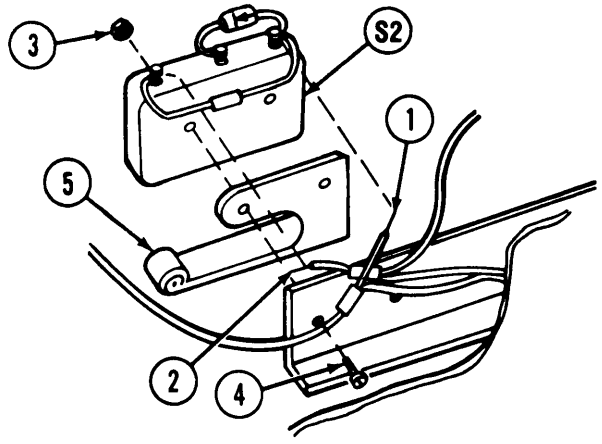
2-12. AIRFLOW VALVE - MAINTENANCE INSTRUCTIONS (Cont).

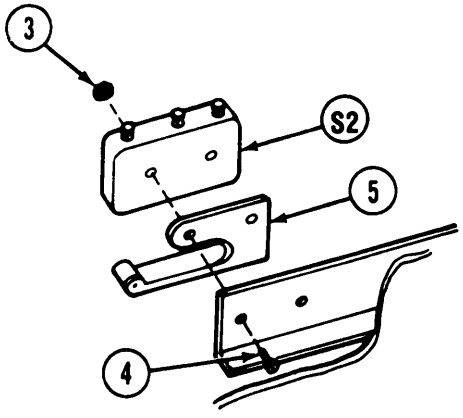
LOCATION	ITEM	ACTION

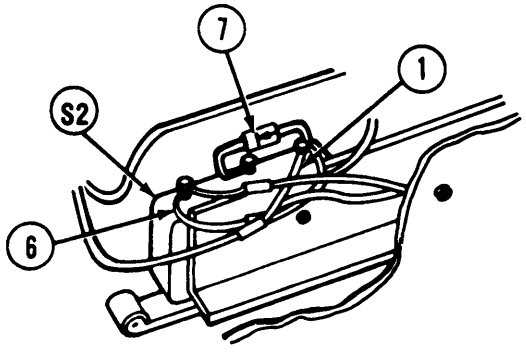
REMOVAL/INSTALLATION

Airflow Valve

Switch (S2) and adapter







REMOVAL

1. Tag and unsolder wire (1) from normally closed (NC) terminal on switch (S2).
2. Tag and unsolder wire (2) from common (C) terminal on switch (S2).
3. Remove two nuts (3) and screws (4).
4. Remove switch (S2) and adapter (5).

INSTALLATION

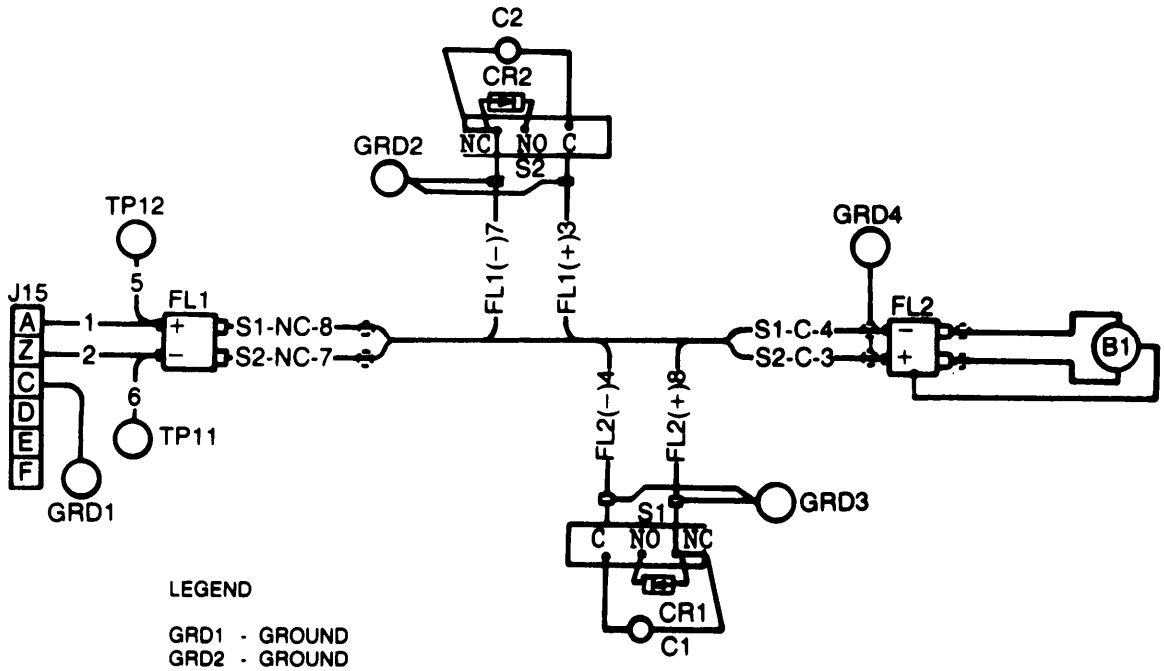
1, Install switch (S2) and adapter (5) using two screws (4) and nuts (3).
2. Cut and bend leads of capacitor (6) to fit between normally closed (NC) and common (C) terminals of switch (S2).
3. Cut and bend leads of diode (7) to fit between normally closed (NC) and normally open (NO) terminals of switch (S2).
4. Solder wire (1), one end of capacitor (6), and one end of diode (7) to normally closed (NC) terminal of switch (S2).
5. Solder wire (2) and one end of capacitor (6) to common (C) terminal of switch (S2).
6. Solder one end of diode (7) to normally open (NO) terminal of switch (S2).

2-12. AIRFLOW VALVE - MAINTENANCE INSTRUCTIONS (Cont).

LOCATION	ITEM	ACTION

REPAIR

Airflow Valve Wiring



LEGEND

GRD1 - GROUND
GRD2 - GROUND
GRD3 - GROUND
GRD4 - GROUND
B1 - GEAR MOTOR
C1 - CAPACITOR
C2 - CAPACITOR
CR1 - DIODE
CR2 - DIODE
FL1 - FILTER
FL2 - FILTER
J15 - CONNECTOR
S1 - CLOSED LIMIT SWITCH
S2 - OPEN LIMIT SWITCH
TP12 - TEST POINT
TP11 - TEST POINT

2-13. POWER DISTRIBUTION UNIT - MAINTENANCE INSTRUCTIONS.

This task covers:
a. Removal
b. Installation

INITIAL SETUP

Troubleshooting References
Refer to page 2-39.

Equipment Condition
Power distribution unit removed from the filter unit.

Tools
Electronic Equipment Tool
Kit TK-105/G (SC 5180-91-CL-R07)

LOCATION	ITEM	ACTION

REMOVAL/INSTALLATION

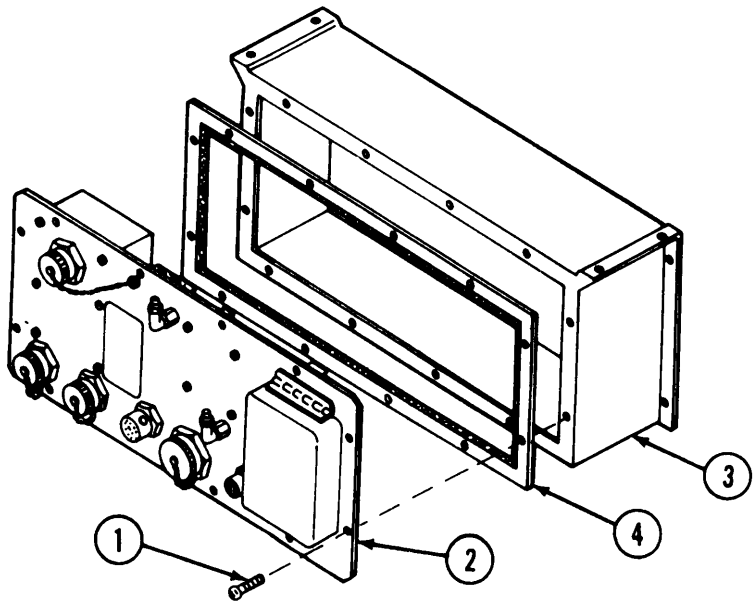
REMOVAL

Power Distribution Unit — Panel

1. Remove twelve screws (1) and separate panel (2) from housing (3).
2. Remove gasket (4) from housing (3).

INSTALLATION

1. Install gasket (4) on housing (3) with screw holes alined.
2. Install panel (2) on housing using twelve screws (4).



2-14. POWER DISTRIBUTION PANEL - MAINTENANCE INSTRUCTIONS.

This task covers:
a. Removal b. Repair c. Installation

INITIAL SETUP

Materials
Insulation sleeving item 6, app C)

Tools
Electrortic Equipment Tool
Kit TK-105/G (SC 5180-91-CL-R07)

References
TB SIG 222

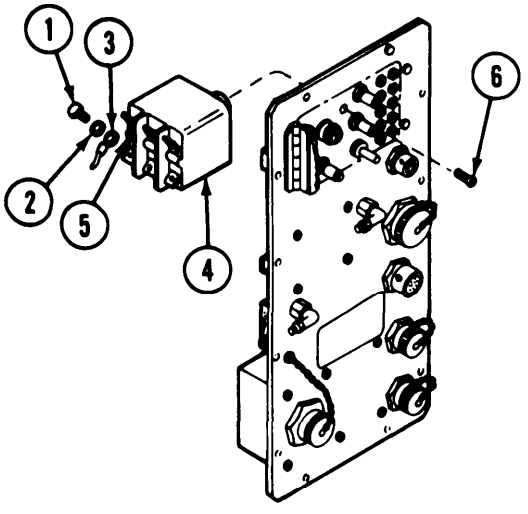
Troubleshooting References
Refer to page 2-39,

Equipment Condition
Power distribution panel removed from distribution unit. Refer to page 2-161.

LOCATION	ITEM	ACTION

REMOVAL/INSTALLATION

Power Distribution Panel FAN circuit breaker



Observe the orientation of the numbers on the push button.

REMOVAL

1. Remove six screws (1), washers (2), and wires (3) from circuit breaker (4).
2. Unsolder wires from C and NO contacts (5) on circuit breaker.
3. Remove four screws (6) and remove fan circuit breaker (5).

INSTALLATION

1. Insert fan circuit breaker (4) in panel and secure with four screws (6).
2. Solder wires to C and NO contacts of circuit breaker. Refer to page 2-169.
3. Install wires on six electrical terrminal using six screws (1) and washers (2).

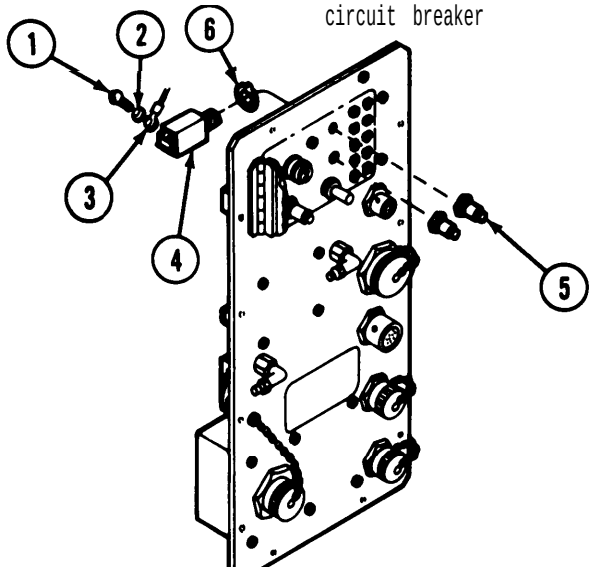
2-14. POWER DISTRIBUTION PANEL - MAINTENANCE INSTRUCTIONS (Cont).

LOCATION	ITEM	ACTION

REMOVAL/INSTALLATION

Power Distribution Panel

PE LIGHT or DC POWER circuit breaker



REMOVAL

1. Remove two screws (1), washers (2), and wires (3) from circuit breaker (4).
2. Unscrew waterproof boot (5).
3. Remove circuit breaker and keying washer (6).

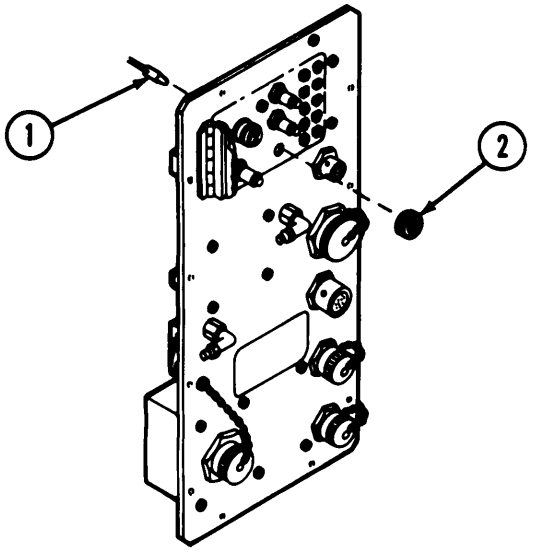
INSTALLATION

1. Place keying washer (6) on circuit breaker (4).
2. Insert circuit breaker in panel and secure with waterproof boot (5).
3. Connect wires using screws (1) and washers (2). Refer to page 2-169.

REMOVAL/INSTALLATION

Power Distribution Panel

208 v indicator light



REMOVAL

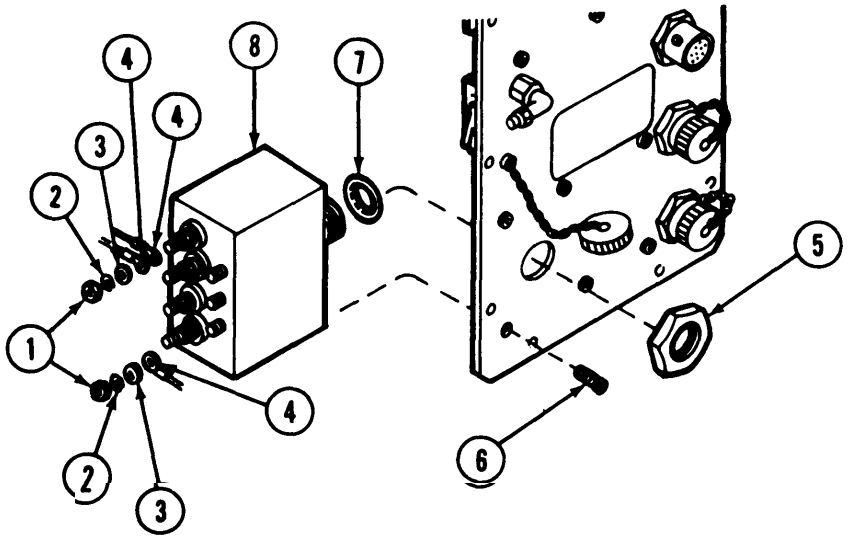
1. Remove insulation and unsolder connections from indicator light (1).
2. Unscrew knurled ring (2) and remove indicator light.

INSTALLATION

1. Insert 208 v indicator light (1) in panel and secure with knurled nut (2).
2. Place insulation sleeving (item 6, app C) over wire leads.
3. Solder wire leads to 208 v indicator light. Refer to page 2-169.
4. Place insulation sleeving (item 6, app C) over connection and shrink.

2-14. POWER DISTRIBUTION PANEL - MAINTENANCE INSTRUCTIONS (Cont).

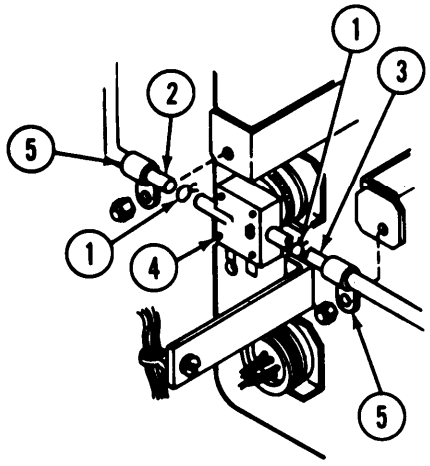
LOCATION	ITEM	ACTION
REMOVAL		
Power Distribution Panel	RFI filter	1. Remove five nuts (1), lockwashers (2), and washers (3) from filter terminals and release wiring (4). 2. Unscrew nut (5). 3. Unscrew four screws (6) and remove radio noise filter. 4. Remove preformed packing (7) from radio noise filter (8).



REPAIR		
	Preformed packing	Replace preformed packing (7) if unserviceable.
INSTALLATION		
Power Distribution Panel	RFI filter	1. Place preformed packing (7) on radio noise filter (8). 2. Install radio noise filter in panel using four screws (6) and nut (5). 3. Connect electrical wiring to the seven connectors. Refer to page 2-169.

2-14. POWER DISTRIBUTION PANEL - MAINTENANCE INSTRUCTIONS (Cont).

LOCATION	ITEM	ACTION
Power Distribution Panel	Pressure switch	1. Pinch ears of hose clamps (1) and remove tubing (2 and 3) from pressure switch (4). 2. Loosen clamps (5) if necessary to remove tubes. 3. Disconnect electrical connector from pressure switch and remove switch.



REPAIR

	Nonmetallic tubing	Fabricate replacement tubing (2 or 3) from NSN 9330-01-073-1011 stock. Cut to same length as tubing being replaced.

INSTALLATION

	Pressure switch	1. Connect wire connector to pressure switch (4). 2. Position pressure switch between tubing (2 and 3) with switch terminals pointing toward transformer/ rectifier and "LOW' and "HIGH" marking away from panel. 3. Install tube (3) on the "LOW' side of the switch and tube (2) on the "HIGH" side. 4. Position clamps (1) within 1/4 inch of switch body.

2-14. POWER DISTRIBUTION PANEL - MAINTENANCE INSTRUCTIONS (Cont).

LOCATION	ITEM	ACTION

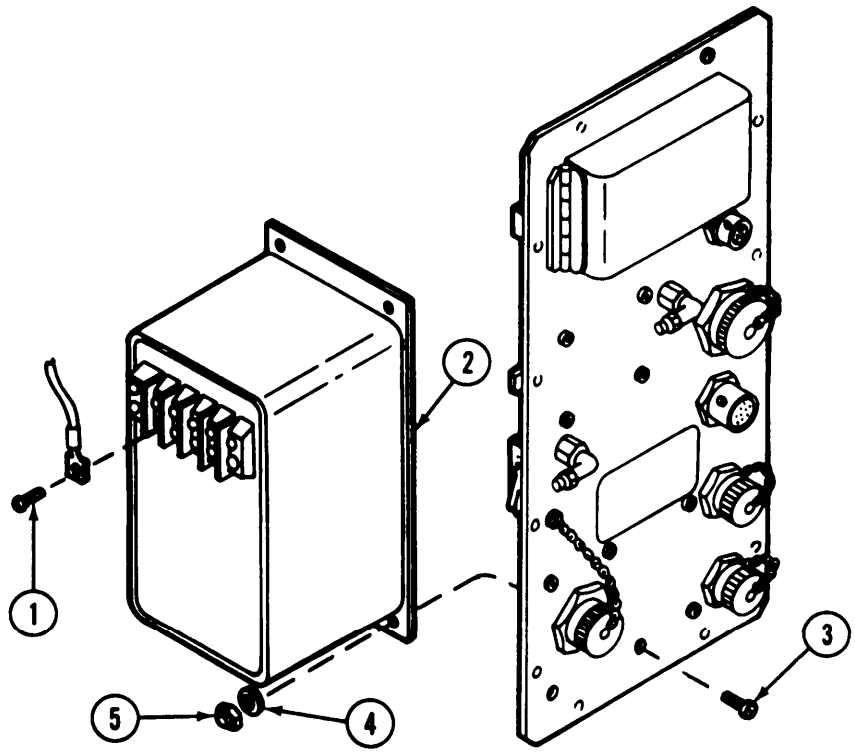
REMOVAL/INSTALLATION

REMOVAL

Power Distribution Panel — Transformer/rectifier

1, Remove four screws (1) from transformer/ rectifier (2) and remove wires.

2. Remove four screws (3), washers (4), and nuts (5) and remove transformer/rectifier.



INSTALLATION

1, Position transformer/rectifier (2) on panel.

2. Secure to panel using four screws (3), washers (4), and nuts (5).

3. Install wires using four screws (1). Refer to page 2-169,

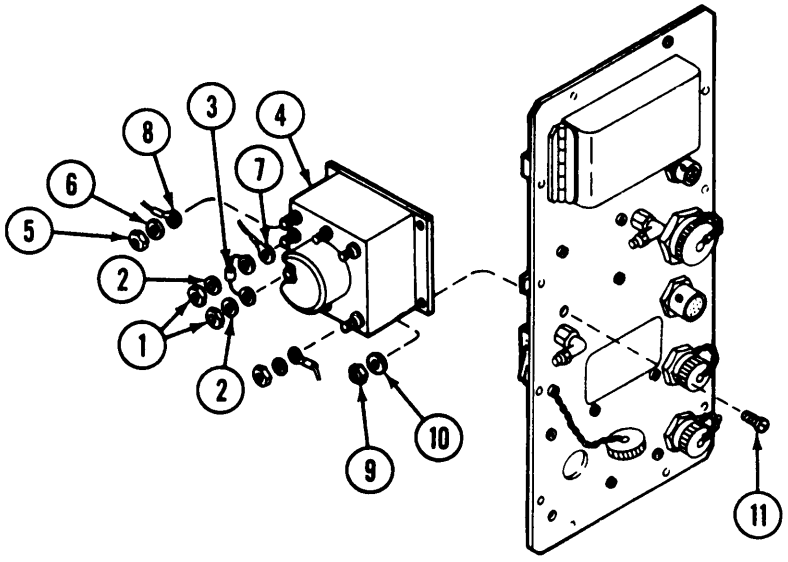
2-14. POWER DISTRIBUTION PANEL - MAINTENANCE INSTRUCTIONS (Cont).

LOCATION	ITEM	ACTION

REMOVAL/INSTALLATION

REMOVAL

Power Relay	Diode (CR5)	1. Remove nuts (1) and washers (2).
		2. Remove diode (3) from power relay (4),
Power Distribution Panel	Power relay	3. Remove six nuts (5) and washers (6) from power relay and remove wires (7 and 8).
		4. Remove four nuts (9), washers (10), and screws (11).
		5. Remove power relay.



INSTALLATION

Power Distribution Panel	Power relay	1. Position power relay (4) on panel,
		2. Attach with four screws (11), washers (10), and nuts (9).
		3. Install wires (7) on terminals Xl and X2 of power relay. Refer to page 2-169.
Power Relay	Diode (CR5)	4. Install diode (3) between terminal Xl and X2 of the power relay. Ensure that the end is installed on terminal X2. Secure with washers (2) and nuts (1),
		5. Install wires (8) and secure with washers (6) and nuts (5). Refer to page 2-169.

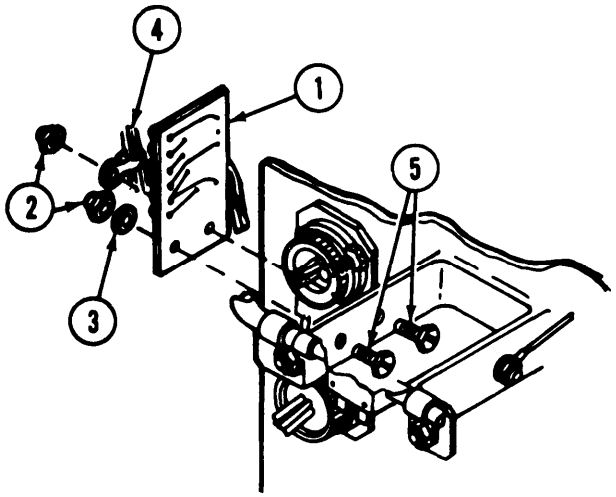
2-14. POWER DISTRIBUTION PANEL - MAINTENANCE INSTRUCTIONS (Cont).

LOCATION	ITEM	ACTION

REMOVAL/INSTALLATION

REMOVAL

Power Distribution Panel — Printed circuit assembly



1. Unsolder wires from auxiliary switching printed circuit assembly (1).
2. Remove two nuts (2), washer (3), cable strap (4), and two screws (5).
3. Remove auxiliary switching printed circuit assembly.

INSTALLATION

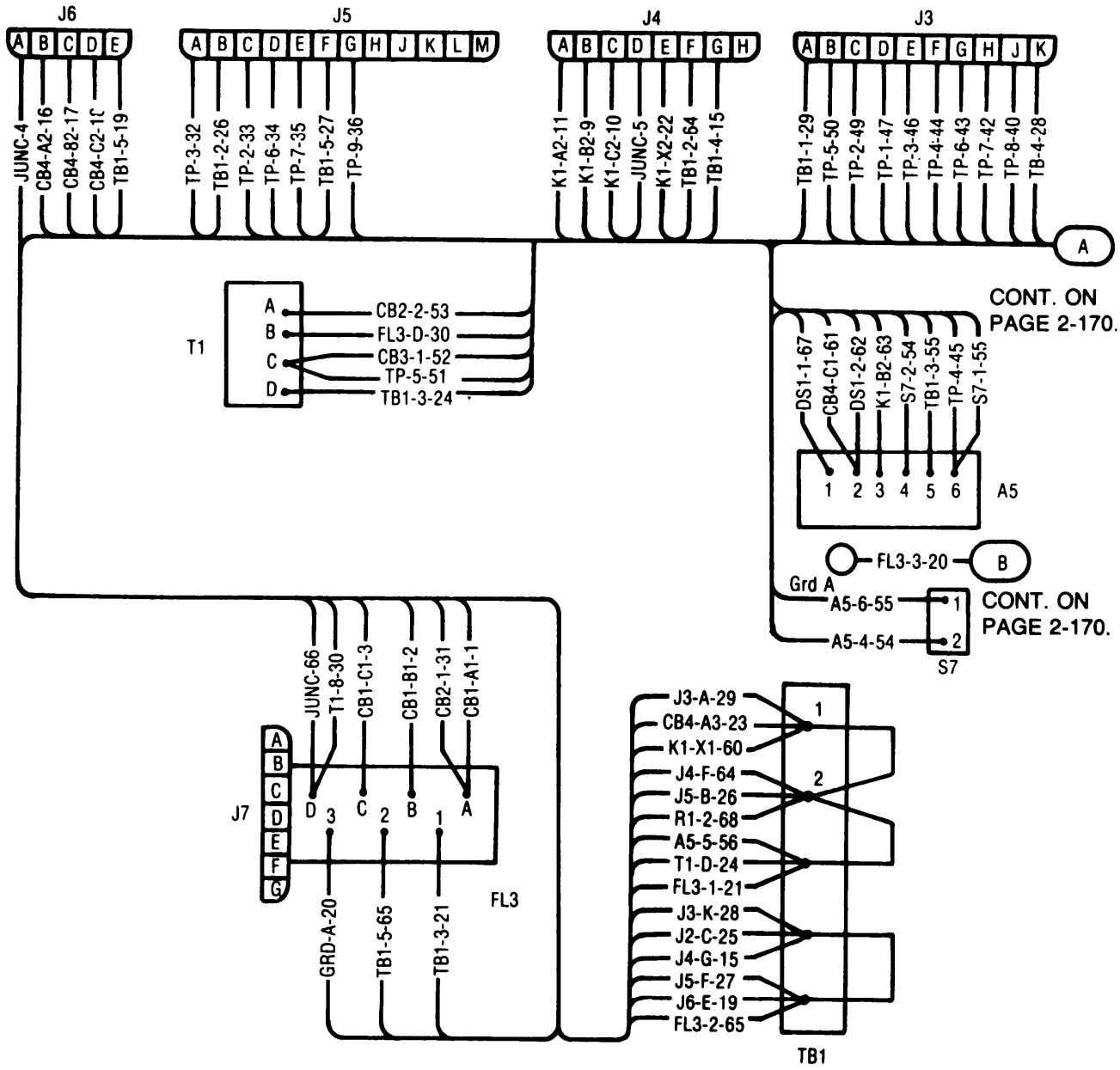
1. Position printed circuit board (1) on bracket and install screws (5).
2. Install cable strap (4) and nut (2) on one screw. Install washer (3) and nut (2) on the other.
3. Connect and solder wires to printed circuit assembly. Refer to wiring diagram on page 2-169.

2-14. POWER DISTRIBUTION PANEL - MAINTENANCE INSTRUCTIONS (Cont).

LOCATOIN	ITEM	ACTION

REPAIR

Power Distribution Panel Wiring

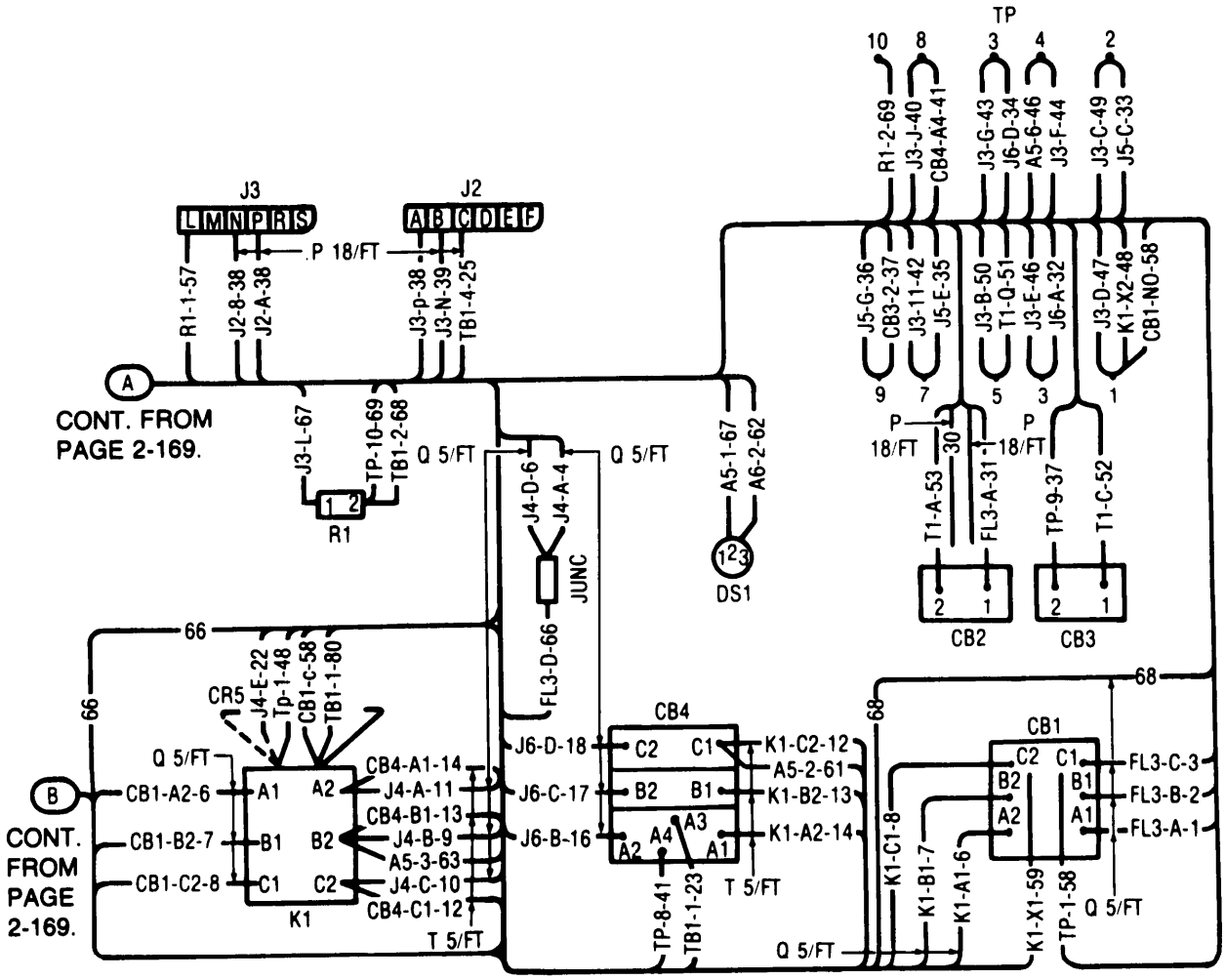


2-14. POWER DISTRIBUTION PANEL - MAINTENANCE INSTRUCTIONS (Cont).

LOCATION	ITEM	ACTION

REPAIR (Cont)

Power Distribution Panel Wiring



LEGEND

A5	- PRINTED CIRCUIT CARD	J4	- CONNECTOR
CB1	- CIRCUIT BREAKER	J5	- CONNECTOR
CB2	- CIRCUIT BREAKER	J6	- CONNECTOR
CB3	- CIRCUIT BREAKER	J7	- CONNECTOR
CB4	- CIRCUIT BREAKER	JUNC	- INSULATED JUNCTION
CB5	- DIODE	K1	- FAN RELAY
DS1	- INDICATOR	R1	- RESISTOR
FL3	- FILTER	S7	- PRESSURE SWITCH
GRD	- GROUND	T1	- TRANSFORMER
J2	- CONNECTOR	TB1	- TERMINAL BOARD
J3	- CONNECTOR	TP	- TEST POINT

2-15. COMPARTMENT CONTROL MODULE - MAINTENANCE INSTRUCTIONS.

This task covers:
a. Disassembly
b. Repair
c. Reassembly
d. Removal
e. installation

INITIAL SETUP

Troubleshooting Reference
Refer to page 2-63.

Equipment Condition
Compartment control module removed from shelter

Tools
Electronic Equipment Tool Kit TK-105/G (SC 5180-91-CL-R07)

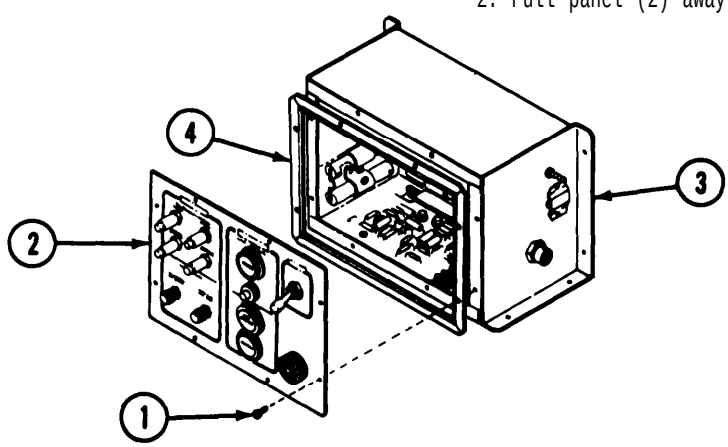
References
TB SIG 222

LOCATION	ITEM	ACTION

DISASSEMBLY

Compartment control module

1. Remove eight screws (1).
2. Pull panel (2) away from housing (3).



REPAIR

Gasket — Replace gasket (4) if defective.

REASSEMBLY

Compartment control module — Position panel (2) on housing (3) and secure with eight screws (1).

2-15. COMPARTMENT CONTROL MODULE - MAINTENANCE INSTRUCTIONS (Cont).

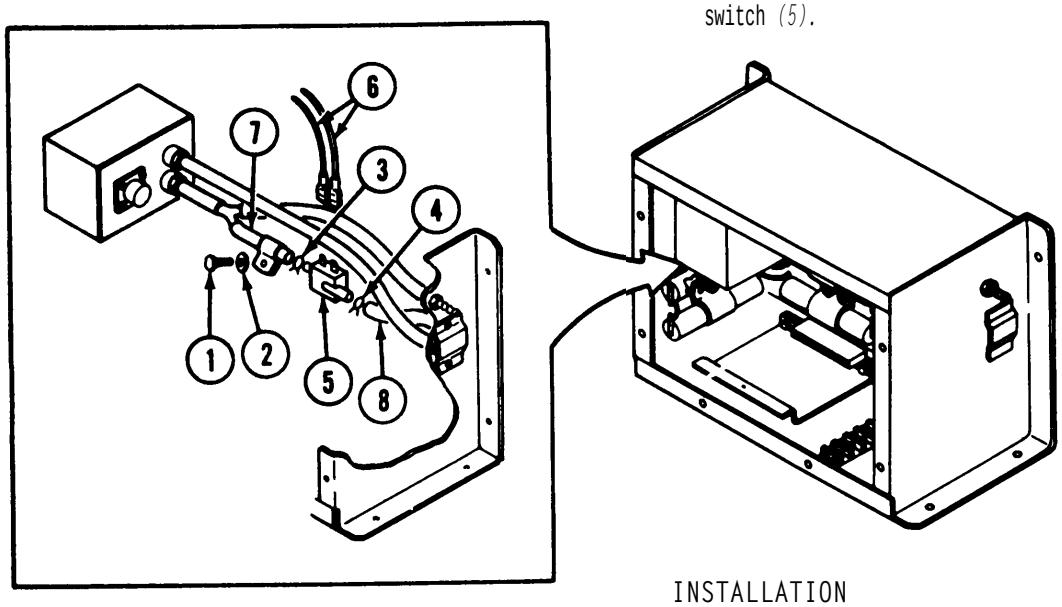
LOCATION	ITEM	ACTION

REMOVAL/INSTALLATION

REMOVAL

Housing — Pressure switch

1. Disassemble CCM (p 2-171).
2. Remove screw (1) and washer (2).
3. Pinch ears of clamps (3 and 4) and pull tubes from pressure switch (5).
4. Carefully remove connectors (6) from pressure switch (5).



INSTALLATION

1. connect pressure switch (5) (tap marked LOW) to tube (7).
2. connect pressure switch (5) (tap marked HIGH) to tube (8).
3. Install hose clamps (3 and 4) and electrical connectors (6).
4. Reassemble CCM (p 2-171).

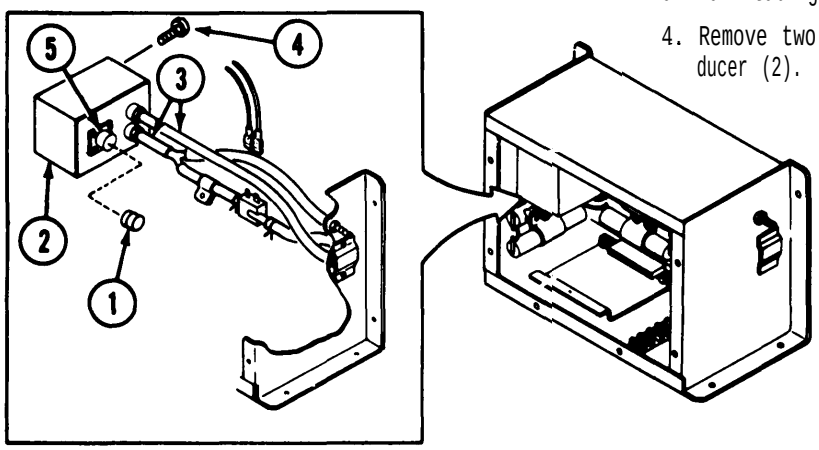
2-15. COMPARTMENT CONTROL MODULE - MAINTENANCE INSTRUCTIONS (Cont).

LOCATION	ITEM	ACTION

REMOVAL

Housing — Pressure transducer

1. Disassemble CCM (p 2-171).
2. Remove connector (1) from pressure transducer (2).
3. Pull tubing (3) from pressure transducer (2).
4. Remove two screws (4) and remove pressure transducer (2).



REPAIR

Nonmetallic tubing — Fabricate replacement tubing (3) from NSN 9330-01-073-1011 stock. Cut to same length as tubing being replaced.

INSTALLATION

Pressure transducer

1. Install pressure transducer (2) using two screws (4).

CAUTION

When installing rubber tubes, be sure that the tube from the pressure switch is connected to the hose connector marked P_R on the pressure transducer and that the other tube is connected to the hose connector marked Px on the pressure transducer.

2. Connect tubing (3) to pressure transducer (2).
3. Connect connector (1) to connector (5).
4. Reassemble CCM (p 2-171).

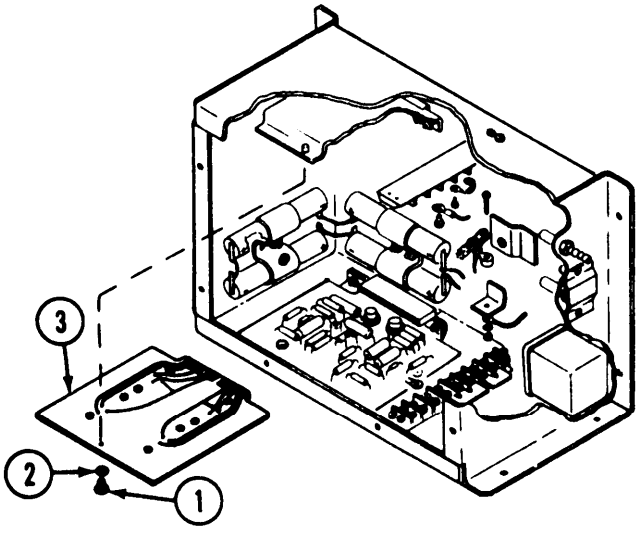
2-15. COMPARTMENT CONTROL MODULE - MAINTENANCE INSTRUCTIONS (Cont).

LOCATION	ITEM	ACTION

REMOVAL/INSTALLATION

Housing

Power card



REMOVAL

1. Disassemble CCM (p 2-171).
2. Remove screws (1) and washer (2).
3. Pull power card (3) from its socket.

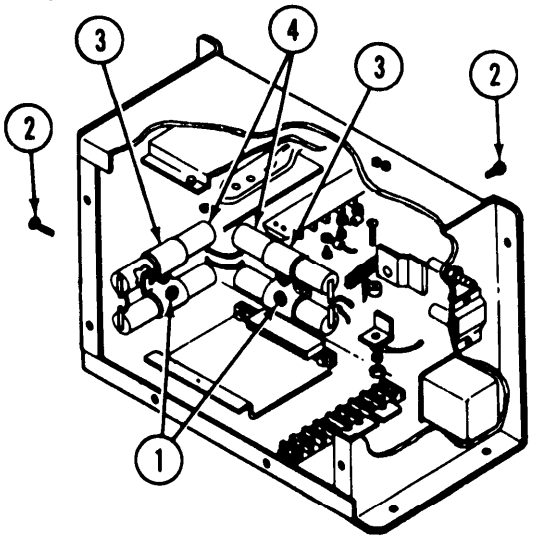
INSTALLATION

1. Insert power card (3) into connector.
2. Secure power card (3) with screw (1) and washer (2).
3. Reassemble CCM (p 2-171).

REMOVAL/INSTALLATION

Housing

Batteries (warning system)



REMOVAL

1. Disassemble CCM (p 2-171).
2. Remove four nuts (1) and screws (2).
3. Remove two battery retainers (3).
4. Unsolder and remove four batteries (4).

INSTALLATION

1. Solder connections on four warning system batteries (4), Refer to page 2-184.
2. Install and secure the four batteries (4) using two retainers (3), four screws (2), and four nuts (1).
3. Reassemble CCM (p 2-171).

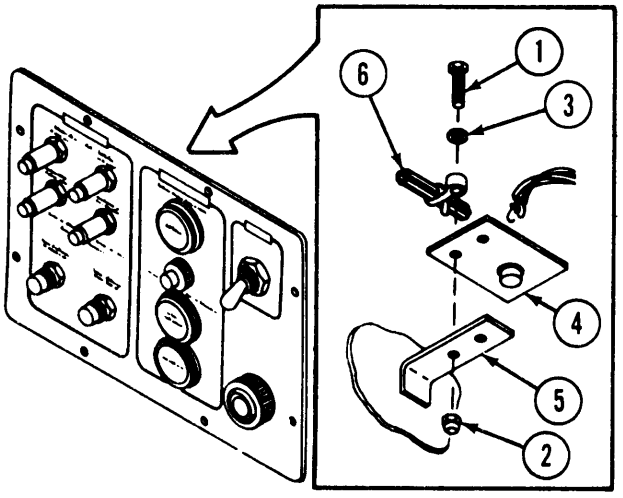
2-15. COMPARTMENT CONTROL MODULE - MAINTENANCE INSTRUCTIONS (Cont).

LOCATION	ITEM	ACTION

REMOVAL/INSTALLATION

Panel

Printed circuit assembly (auxiliary switching)



REMOVAL

1. Disassemble CCM (p 2-171).
2. Remove two screws (1), nuts (2), and washers (3).
3. Unsolder wires and remove auxiliary switching printed circuit assembly (4).

CAUTION

Apply needle-nose pliers to the leads of the diodes connected between terminals 1 and 2, 3 and 8, and 7 and 8 to form a heat sink during soldering of these terminals. This is done to prevent heat damage to the diodes. Use care to apply only enough heat as necessary to form a good solder joint. This applies to all terminals,

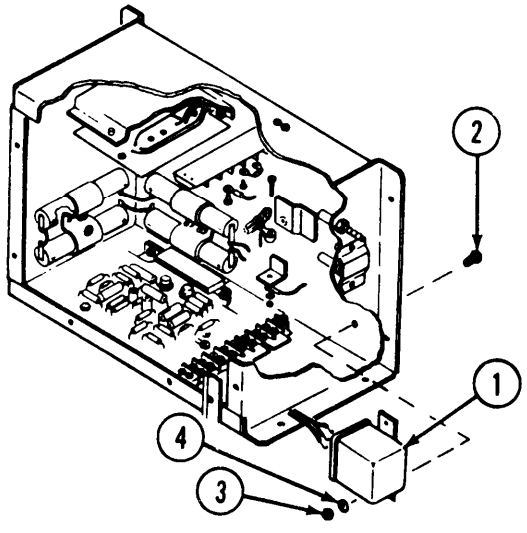
INSTALLATION

1. Connect and solder wires to auxiliary switching printed circuit assembly (4). Refer to page 2-184,
2. Place auxiliary switching printed circuit assembly (4) on bracket (5) and attach using screws (1), washers (3), cable bracket (6), and nuts (2).
3. Reassemble CCM (p 2-171).

REMOVAL/INSTALLATION

Housing

Flasher



REMOVAL

1. Disassemble CCM (p 2-171).
2. Unsolder wires from flasher (1),
3. Remove two screws (2), nuts (3), and washers (4).
4. Remove flasher (1).

INSTALLATION

1. Install flasher (1) using two screws (2), washers (4), and nuts (3).
2. Connect and solder wires. Refer to page 2-184.
3. Reassemble CCM (p 2-171).

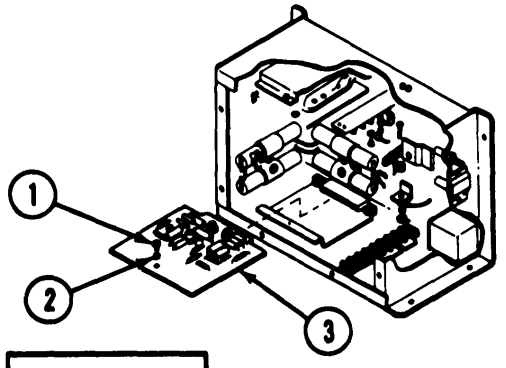
2-15. COMPARTMENT CONTROL MODULE - MAINTENANCE INSTRUCTIONS (Cont).

LOCATION	ITEM	ACTION

REMOVAL/INSTALLATION

REMOVAL

Housing **Switching card**



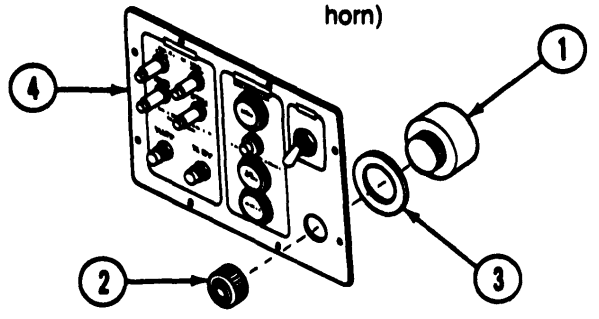
1. Disassemble CCM (p 2-171).
2. Remove screw (1) and washer (2).
3. Pull out switching card (3).

INSTALLATION

1, Insert switching card (3) into connector.
2. Secure switching card (3) with screw (1) and washer (2).
3. Reassemble CCM (p 2-171).

REMOVAL

Panel **Audible signal (warning horn)**



1. Disassemble CCM (p 2-171).
2. Remove wires from warning horn (1),
3. Unscrew bezel (2) and remove warning horn (1) and gasket (3).

REPAIR

Gasket

Fabricate gasket (fig D-2, app D).

INSTALLATION

Audible signal (warning horn)

1. Insert warning horn (1) with gasket (3) in panel (4, and secure with bezel (2).
2. Connect wire leads. Refer to page 2-184.
3. Reassemble CCM (p 2-171).

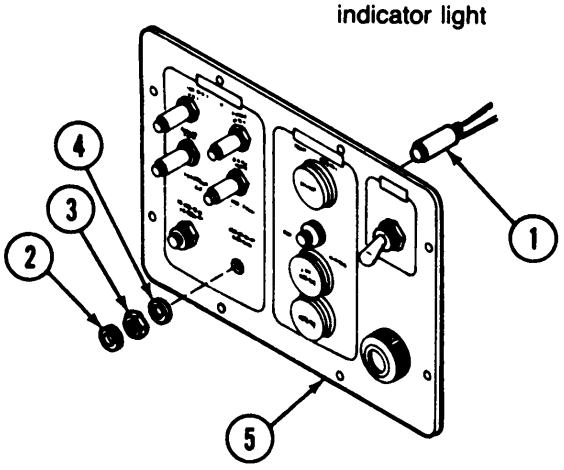
2-15. COMPARTMENT CONTROL MODULE - MAINTENANCE INSTRUCTIONS (Cont).

LOCATION	ITEM	ACTION

REMOVAL/INSTALLATION

Panel

DUST FAN DEFECT indicator light



REMOVAL

1. Disassemble CCM (p 2-171).
2. Remove insulation and unsolder wires from terminal on DUST FAN DEFECT indicator light (1).
3. Remove knurled ring (2), nuts (3), and washer (4) from light (1).

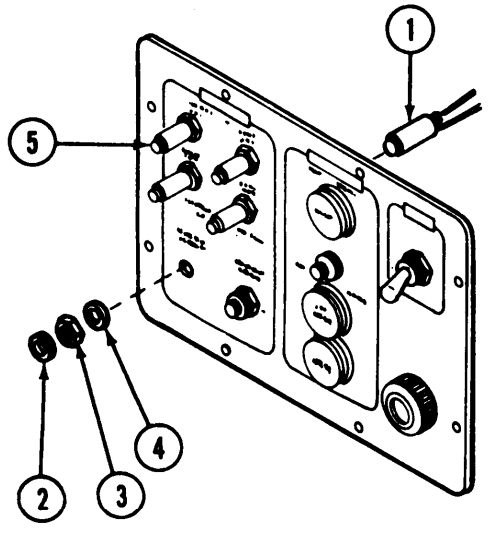
INSTALLATION

1. Insert DUST FAN DEFECT indicator light (1) in panel (5) and secure with washer (4) and nut (3),
2. Install knurled ring (2).
3. Connect and solder wire leads. Refer to page 2-184.
4. Reassemble CCM (p 2-171).

REMOVAL/INSTALLATION

Panel

CHANGE FILTER indicator light



REMOVAL

1. Disassemble CCM (p 2-171).
2. Remove insulation and unsolder wires from terminals on CHANGE FILTER indicator light (1).
3. Remove knurled ring (2), nut (3), and washer (4) from light (1).

INSTALLATION

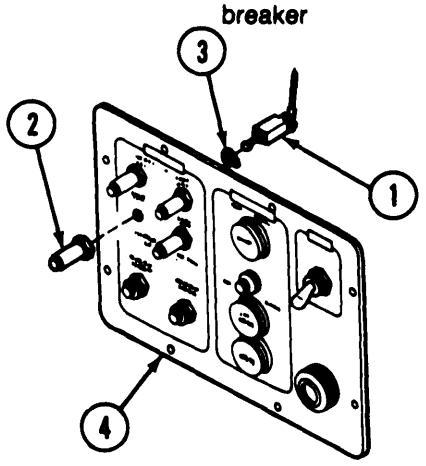
1. Insert CHANGE FILTER indicator light (1) in panel (5) and secure with washer (4) and nut (3).
2. Install knurled ring (2).
3. Connect and solder wire leads. Refer to page 2-184.
4. Reassemble CCM (p 2-171).

2-15. COMPARTMENT CONTROL MODULE - MAINTENANCE INSTRUCTIONS (Cont).

LOCATION	ITEM	ACTION

REMOVAL/INSTALLATION

Panel — INDICATORS circuit breaker



REMOVAL

1, Disassemble CCM (p 2-171).

2. Remove wire leads from INDICATORS circuit breaker (1).

3. Unscrew and remove waterproof boot (2).

4. Remove circuit breaker (1) and keying washer (3).

INSTALLATION

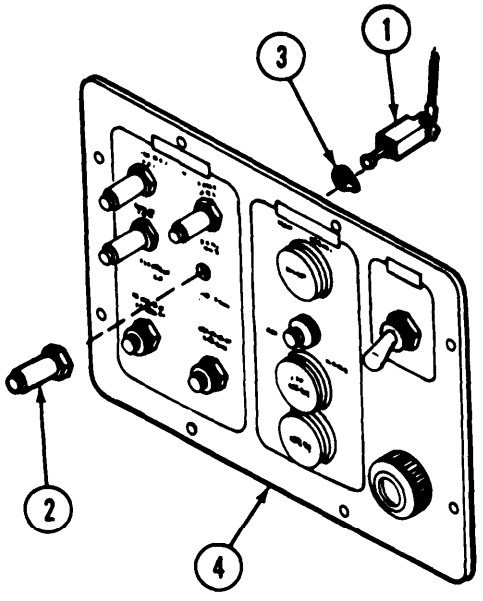
1. Insert INDICATORS circuit breaker (1) with keying washer (3) in panel (4) and secure with waterproof boot (2).

2. Connect wire leads. Refer to page 2-184,

3. Reassemble CCM (p 2-171).

REMOVAL/ⅠNSTALLATION

Panel — ENTRANCE PRESSURE circuit breaker



REMOVAL

1, Disassemble CCM (p 2-171),

2. Remove wire leads from ENTRANCE PRESSURE circuit breaker (1).

3. Unscrew and remove waterproof boot (2),

4. Remove circuit breaker (1) and keying washer (3).

INSTALLATION

1. Insert ENTRANCE PRESSURE circuit breaker (1) with keying washer (3) in panel (4) and secure with waterproof boot (2).

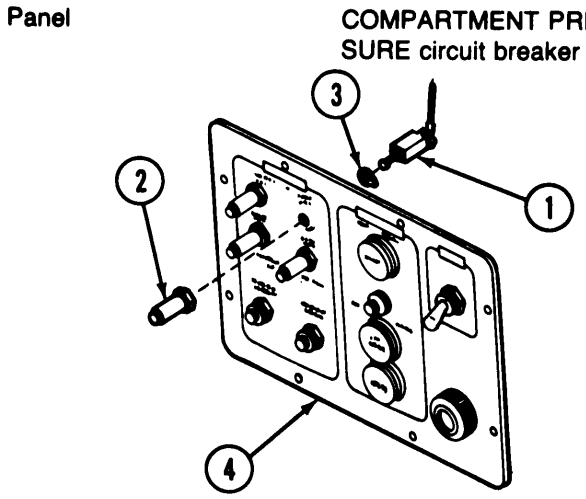
2. Connect wire leads. Refer to page 2-184.

3. Reassemble CCM (p 2-171).

2-15. COMPARTMENT CONTROL MODULE - MAINTENANCE INSTRUCTIONS (Cont).

LOCATION	ITEM	ACTION

REMOVAL/INSTALLATION



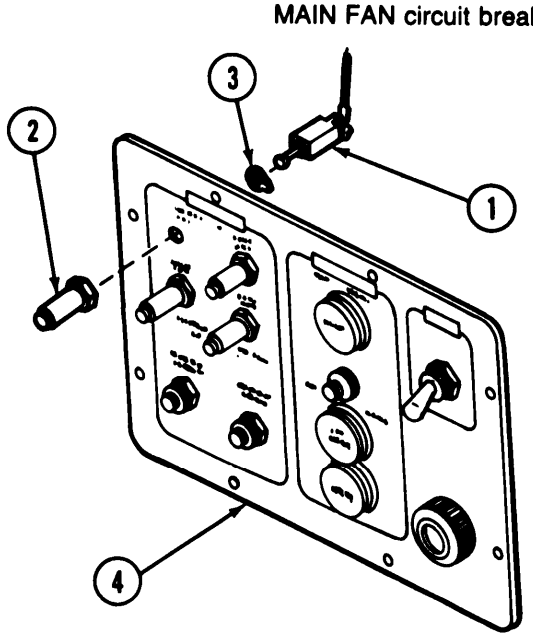
REMOVAL

1. Disassemble CCM (p 2-171).
2. Remove wire leads from COMPARTMENT PRESSURE circuit breaker (1).
3. Unscrew and remove waterproof boot (2),
4. Remove circuit breaker (1) and keying washer (3).

INSTALLATION

1. Insert COMPARTMENT PRESSURE circuit breaker (1) with keying washer (3) in panel (4) and secure with waterproof boot (2),
2. Connect wire leads. Refer to page 2-184,
3. Reassemble CCM (p 2-171).

REMOVAL/INSTALLATION



REMOVAL

1. Disassemble CCM (p 2-171).
2. Remove wire leads from MAIN FAN circuit breaker (1).
3. Unscrew and remove waterproof boot (2).
4. Remove circuit breaker (1) and keying washer (3).

INSTALLATION

1. Insert MAIN FAN circuit breaker (1) with keying washer (3) in panel (4) and secure with waterproof boot (2).
2. Connect wire leads. Refer to page 2-184.
3. Reassemble CCM (p 2-171).

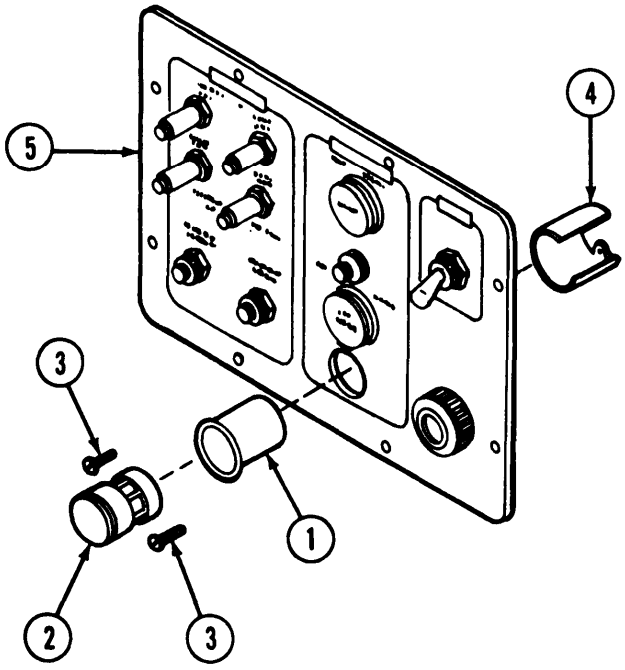
2-15. COMPARTMENT CONTROL MODULE - MAINTENANCE INSTRUCTIONS (Cont).

LOCATION	ITEM	ACTION

REMOVAL/INSTALLATION

Panel

OCCUPIED switch/ indicator light



REMOVAL

1. Disassemble CCM (p 2-171).
2. Unsolder wire leads from OCCUPIED switch/ indicator light (1),
3. Pry out and remove the lamp module (2).
4. Remove two screws (3).
5. Remove sleeve (4) and switch/indicator light (1).

INSTALLATION

NOTE

Lamp module is keyed to fit into light body at only one rotational position. It maybe necessary to turn the lamp module within the light body to find the keyway.

1. Place module (2) in OCCUPIED switch/indicator light (1) and position in panel (5) with the word OCCUPIED right side up and level.
2. Remove module (2). Place sleeve (4) over switch/ indicator light (1) and secure with screws (3).
3. Replace module (2) in switch/indicator light (1).
4. Connect and solder wires. Refer to page 2-184.
5. Reassemble CCM (p 2-171).

REMOVAL/lNSTALLATION

REMOVAL

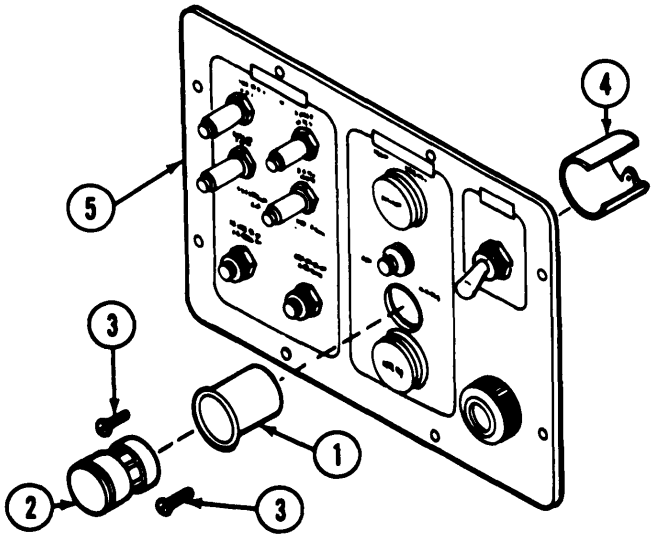
LOW PRESSURE switch/ indicator light

1. Disassemble CCM (p 2-171).
2. Unsolder wire leads from LOW PRESSURE switch/indicator light (1).
3. Pry out and remove the lamp module (2).
4. Remove two screws (3).
5. Remove sleeve (4) and switch/lndicator light (1).

2-15. COMPARTMENT CONTROL MODULE - MAINTENANCE INSTRUCTIONS (Cont).

LOCATION	ITEM	ACTION

REMOVAL/INSTALLATION (Cont)



INSTALLATION

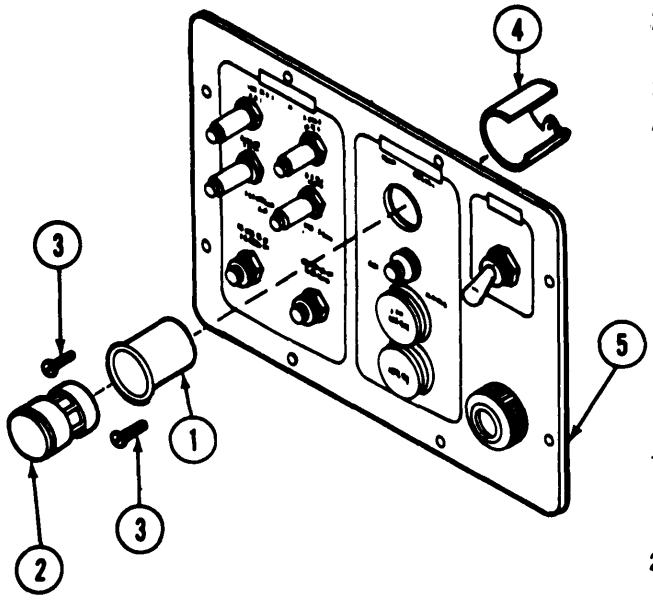
NOTE

Lamp module is keyed to fit into light body at only one rotational position. It maybe necessary to turn the lamp module within the light body to find the keyway.

1. Place module (2) in LOW PRESSURE switch/indicator light (1) and position in panel (5) with the words LOW PRESSURE right side up and level.
2. Remove module (2). Place sleeve (4) over switch/indicator light (1) and secure with screws (3).
3. Replace module (2) in switch/indicator light (1),
4. Connect and solder wires. Refer to page 2-184,
5. Reassemble CCM (p 2-171).

REMOVAL/INSTALLATION

Panel **MASK switch/indicator light**



REMOVAL

1. Disassemble CCM (p 2-171).
2. Unsolder wire leads from MASK switch/indicator light (1),
3. Pry out and remove lamp module (2).
4. Remove two screws (3).
5. Remove sleeve (4) and switch/indicator light (1),

INSTALLATION

NOTE

Lamp module is keyed to fit into light body at only one rotational position. It maybe necessary to turn the lamp module within the light body to find the keyway.

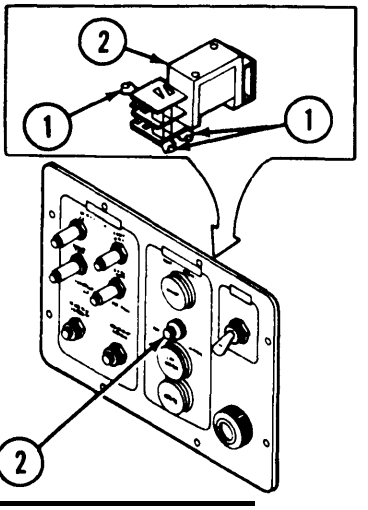
1. Place module (2) in MASK switch/indicator light (1) and position in panel (5) with the word MASK right side up and level,
2. Remove module (2). Place sleeve (4) over switch/indicator light (1) and secure with screws (3),
3. Replace module (2) in switch/indicator light (1).
4. Connect and solder wires. Refer to page 2-184.
5. Reassemble CCM (p 2-171),

2-15. COMPARTMENT CONTROL MODULE - MAINTENANCE INSTRUCTIONS (Cont).

LOCATION	ITEM	ACTION

REMOVAL/INSTALLATION

HORN OFF Switch on Panel — Diodes



REMOVAL

CAUTION

When unsoldering diodes (1) from the switch solenoid terminals, apply needle-nose pliers to the leads of the diode to form a heat sink. Excessive heat will damage the diode.

1. Disassemble CCM (p 2-171),
2. Unsolder diodes (1) from HORN OFF switch (2).

INSTALLATION

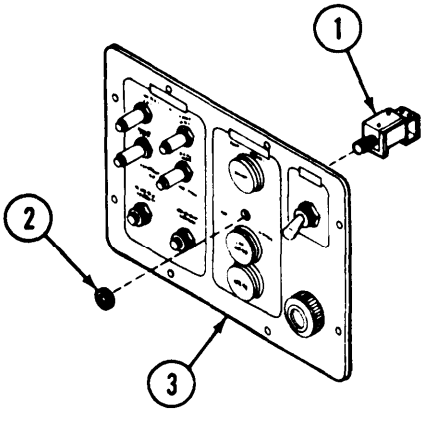
CAUTION

Diodes must be connected properly or damage will result. Observe the banded end of the diodes. Apply needle-nose pliers to leads of diodes to form a heat sink when soldering. Excessive heat will damage the diodes.

1. Solder diodes (1) to HORN OFF switch (2) in accordance with wiring diagram (p 2-184).
2. Reassemble CCM (p 2-171).

REMOVAL/INSTALLATION

Panel — HORN OFF switch



REMOVAL

1. Disassemble CCM (p 2-171).
2. Unsolder wire leads and diodes from HORN OFF switch (1).
3. Remove nut (2) and switch (1).

INSTALLATION

1. Insert HORN OFF switch (1) in panel (3) and secure with nut (2).
2. Connect and solder wires and diodes to HORN OFF switch. Refer to page 2-184,
3. Reassemble CCM (p 2-171).

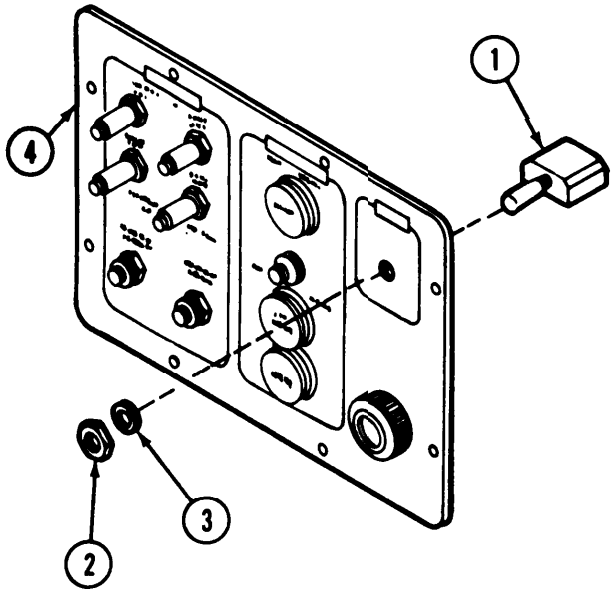
2-15. COMPARTMENT CONTROL MODULE - MAINTENANCE INSTRUCTIONS (Cont).

LOCATION	ITEM	ACTION

REMOVAL/INSTALLATION

REMOVAL

POWER toggle switch.



1. Disassemble CCM (p 2-171).
2. Remove wire leads from POWER toggle switch (1).
3. Remove nut (2), washer (3), and POWER toggle switch.

INSTALLATION

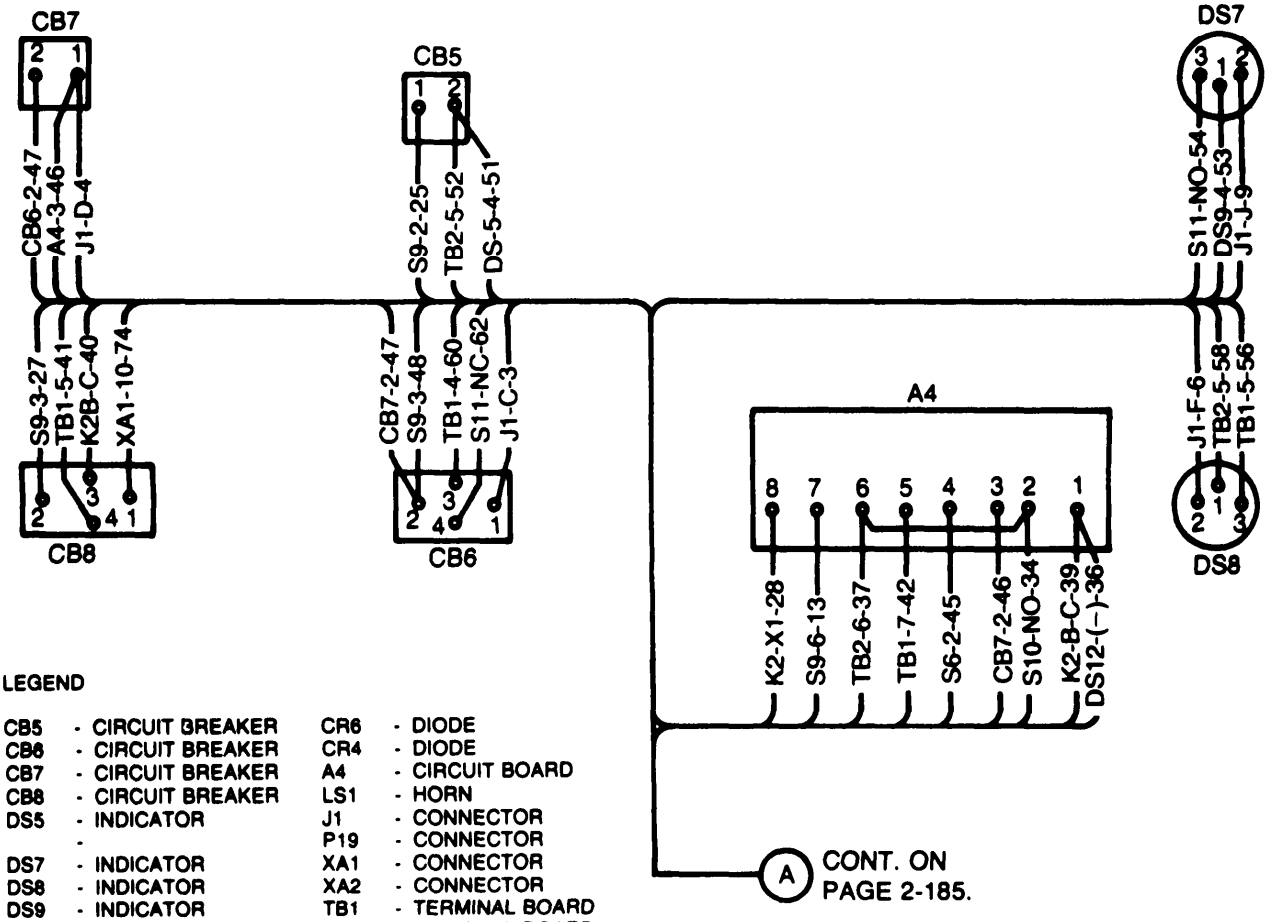
1. Insert POWER toggle switch (1) in panel (4) and secure with washer (3) and nut (2).
2. Connect electrical wires. Refer to page 2-184.
3. Reassemble CCM (p 2-171).

2-15. COMPARTMENT CONTROL MODULE - MAINTENANCE INSTRUCTIONS (Cont).

LOCATION	ITEM	ACTION

REPAIR

Compartment Control Module **Wiring**



LEGEND

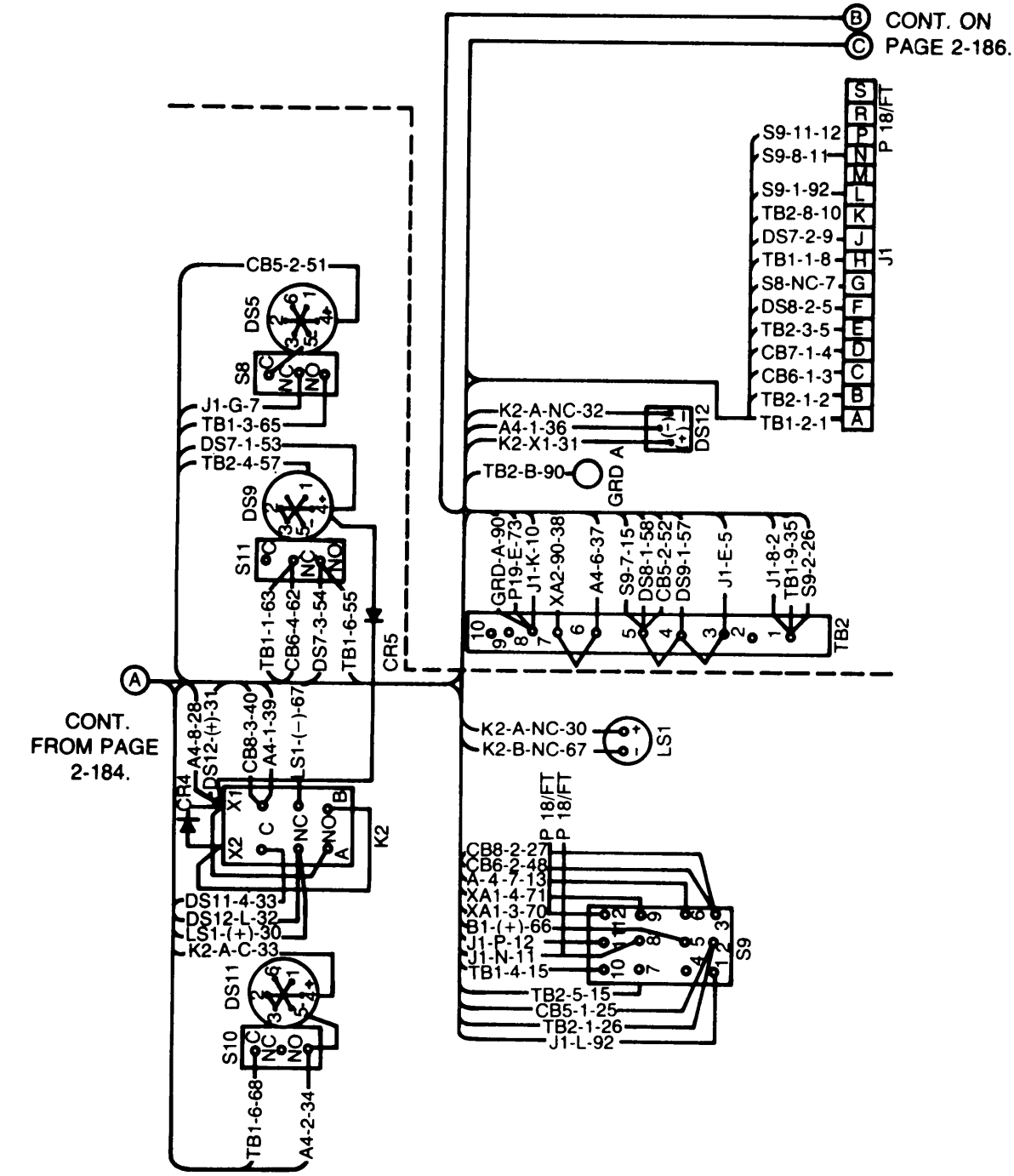
CB5	- CIRCUIT BREAKER	CR6	- DIODE
CB6	- CIRCUIT BREAKER	CR4	- DIODE
CB7	- CIRCUIT BREAKER	A4	- CIRCUIT BOARD
CB8	- CIRCUIT BREAKER	LS1	- HORN
DS5	- INDICATOR	J1	- CONNECTOR
	-	P19	- CONNECTOR
DS7	- INDICATOR	XA1	- CONNECTOR
DS8	- INDICATOR	XA2	- CONNECTOR
DS9	- INDICATOR	TB1	- TERMINAL BOARD
CR5	- DIODE	TB2	- TERMINAL BOARD
DS11	- INDICATOR	K2	- RELAY
DS12	- INDICATOR	GRD	- GROUND
S6	- SWITCH	B1	- BATTERY
S8	- SWITCH	B2	- BATTERY
S9	- SWITCH	B3	- BATTERY
S10	- SWITCH	B4	- BATTERY
S11	- SWITCH		

2-15. COMPARTMENT CONTROL MODULE - MAINTENANCE INSTRUCTIONS (Cont).

LOCATION	ITEM	ACTION

REPAIR (Cont)

Compartment Control Module **Wiring**

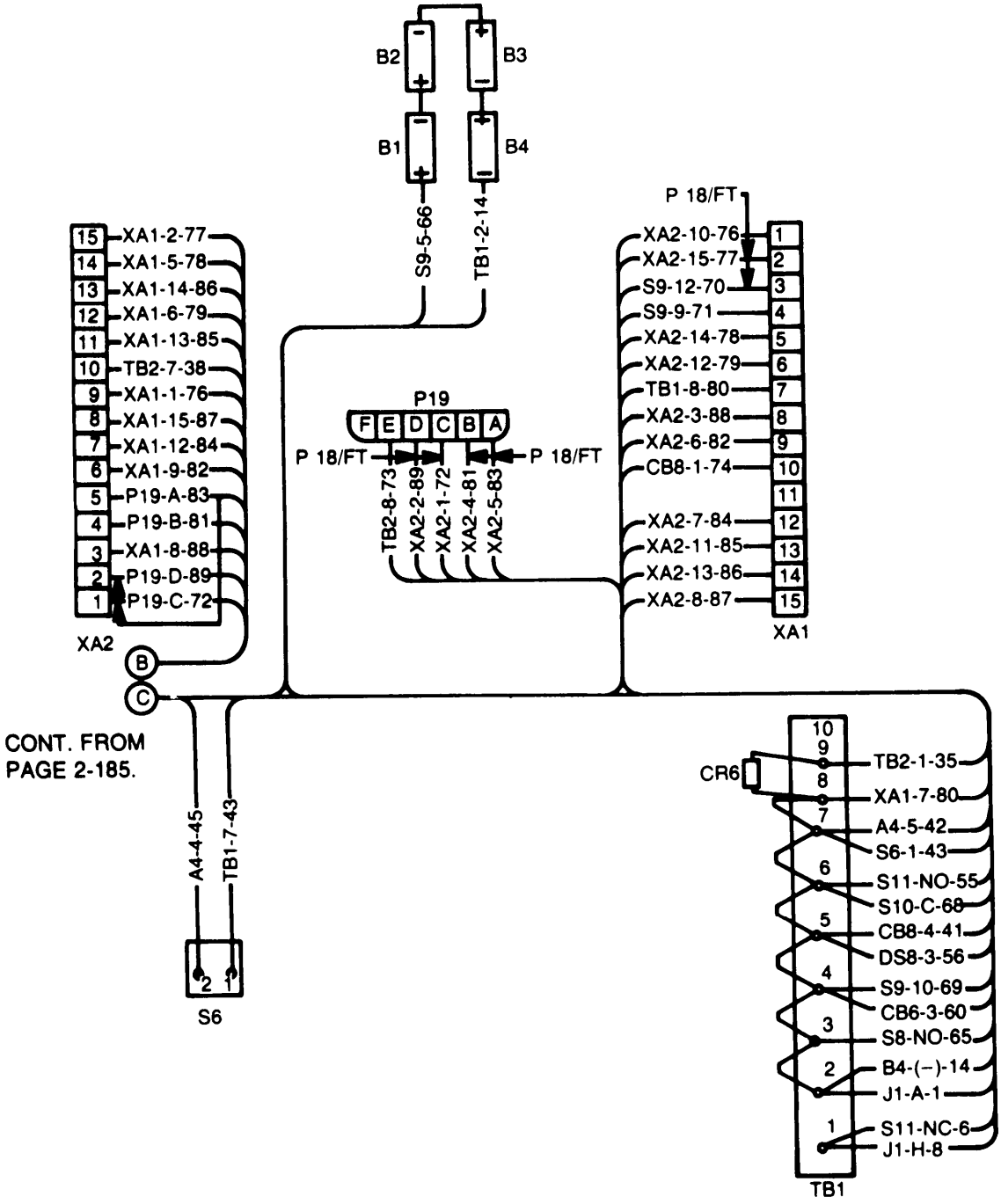


2-15. COMPARTMENT CONTROL MODULE - MAINTENANCE INSTRUCTIONS (Cont).

LOCATION	ITEM	ACTION

REPAIR (Cont)

Compartment Control Module **Wiring**



APPENDIX A
REFERENCES

The following publications are related to information contained in this manual.

A-1. TECHNICAL MANUALS

TM 3-4240-286-20&P . . . . . Organizational Maintenance Manual (Including Repair Parts and Special Tools List) for Collective Protection Equipment, Guided Missile Air Defense System, AN/TSQ-73; Consisting of Entrance, Protective, Pressurized, Collapsible, Ml 2 (NSN 4240-01-048-2923); Filter Unit, Gas-Particulate, 200 CFM, 208 V, 400 HZ, M56 (NSN 4240-00-237-0227); and Installation Kit, CBR, Protective Equipment, AN/TSQ-73, M263 (NSN 4240-01-063-7679)

TM 9-1430-651-12 . . . . . Operator's and Organizational Maintenance Manual, Emplacement and Preparation for Travel, Guided Missile Air Defense System, AN/TSQ-73

TM 38-750 . . . . . The Army Maintenance Management System (TAMMS)

TM 43-0002-31 . . . . . Destruction of Chemical Weapons and Defense Equipment to Prevent Enemy Use

A-2. COMMON TABLE OF ALLOWANCES

CTA 50-970 . . . . . Expendable Items (Except Medical, Class V, Repair Parts and Heraldic Items)

A-3. SUPPLY BULLETIN

SB 708-42 . . . . . Federal Supply Code for Manufacturers; United States and Canada-Code to Name (Cataloging Handbook H4-2)

A-4. SUPPLY CATALOGS

SC 5180-91-CL-R07 . . . . . Tool Kit, Electronic Equipment TK-105/G

SC 5180-90-CL-N26 . . . . . Tool Kit, General Mechanics

A-5. TECHNICAL BULLETIN

TB SIG 222 . . . . . Solder and Soldering

APPENDIX B
REPAIR PARTS AND SPECIAL TOOLS LIST

Section 1. INTRODUCTION

B-1. Scope, This appendix lists spares and repair parts; special tools; special test, measurement, and diagnostic equipment (TMDE); and other special support equipment required for the performance of direct support maintenance of the Collective Protection Equipment for the AN/TSQ-73. It authorizes the requisitioning and issue of spares and repair parts as indicated by the source and maintenance codes.

B-2. General. This Repair Parts and Special Tools List is divided into the following sections:

a. *Section* Il. *Repair Parts List.* A list of spares and repair parts authorized for use in the performance of maintenance. The list also includes parts which must be removed for replacement of the authorized parts. Parts lists are composed of functional groups in numeric sequence, with the parts in each group listed in figure and item number sequence. Bulk materials are listed In National stock number (NSN) sequence.

b. *Section ///. Specia/ Too/s* List. Not applicable.

c. *Section IV.* National *Stock Number and Part Number Index.* A list in National item identification number (NIIN, the last nine figures of the NSN) sequence, of all National stock numbers (NSNs) appearing in the listings, followed by a list in alphameric sequence of all part numbers appearing in the listings. National stock numbers and part numbers are cross--referenced to each illustration figure and item number appearance.

B-3. Explanation of Columns.

a. *Illustration.* This column is divided as follows:

(1) *Figure number.* Indicates the figure number of the illustration on which the item is shown.

(2) *Item number.* The number used to identify item called out in the illustration.

b. *Source, Maintenance, and Recoverability (SMR) Codes.*

(1) Source code. Source codes indicate the manner of acquiring support items for maintenance, repair, or overhaul of end items. Source codes are entered in the first and second positions of the Uniform SMR Code format as follows:

Code	*Definitiom*
PA	Item procured and stocked for anticipated or known usage.
PB	Item procured and stocked for insurance purposes because essentiality dictates that a minimum quantity be available in the supply system.
PC	Item procured and stocked and which otherwise would be coded PA except that It Is deteriorative in nature.
PD	Support item, excluding support equipment, procured for Initial issue or outfitting and stocked only for subsequent or additional Initial issues or outfittings. Not subject to automatic replenishment.
PE	Support equipment procured and stocked for initial issue or outfitting to specified maintenance repair activities.
PF	Support equipment which wiII not be stocked but which will be centrally procured on demand.
PG	Item procured and stocked to provide for sustained support for the life of the equipment. It is applied to an item peculiar to the equipment which, because of probable discontinuance or shutdown of production facilities, would prove uneconomical to reproduce at a later time.
KF	An item of a maintenance kit and not purchased separately. Maintenance kit defined as a kit that provides an item that can be replaced at organizational or intermediate levels of maintenance.
KB	Item included in both a depot overhaul/repair kit and a maintenance kit.

code	*Definition*
MO	Item to be manufactured or fabricated at organizational level.
MF	Item to be manufactured or fabricated at the direct support maintenance level.
AO	Item to be assembled at organizational level.
AF	Item to be assembled at direct support maintenance level.
XA	Item is not procured or stocked because the requirements for the item will result in the replacement of the next higher assembly.
XB	Item is not procured or stocked. If not available through salvage, requisition.
XD	A support item that is not stocked. When required, item will be procured through normal supply channels.

NOTE

Cannibalization or salvage may be used as a source of supply for any items coded above, except those coded XA.

(2) *Maintenance code.* Maintenance codes are assigned to indicate the levels of maintenance authorized to USE and REPAIR support items. The maintenance codes are entered in the third and fourth positions of the Uniform SMR Code format as follows:

(a) The maintenance code entered in the third position will indicate the lowest maintenance level authorized to remove, replace, and use the support item. The maintenance code entered in the third position will indicate one of the following levels of maintenance.

Code	*Application/explanation*
C	Crew or operator maintenance performed within organizational maintenance.
O	Support item is removed, replaced, used at the organizational level.
F	Support item is removed, replaced, used at the direct support level.

(b) The maintenance code entered in the fourth position indicates whether the item is to be repaired and identifies the lowest maintenance level with the capability to perform complete repair (i.e., all authorized maintenance functions). This position will contain one of the following maintenance codes:

Code	*Application/explanation*
O	The lowest maintenance level capable of complete repair of the support item is the organizational level.
F	The lowest maintenance level capable of complete repair of the support item is the direct support level.
L	Repair restricted to specialized repair activity. Not applicable.
Z	Nonreparable. No repair is authorized.
B	No repair is authorized. The item maybe reconditioned by adjusting, lubricating, etc, at the user level. No parts or special tools are procured for the maintenance of this item.

(3) Recoverability code. Recoverability codes are assigned to support items to indicate the disposition action on unserviceable items. The recoverability code is entered in the fifth position of the Uniform SMR Code format as follows:

Recoverability Code	*Definition*
Z	Nonreparable item. When unserviceable, condemn and dispose at the level indicated in position 3.
O	Reparable item. When uneconomically reparable, condemn and dispose at organizational level.
F	Reparable item. When uneconomically reparable, condemn and dispose at the direct support level.
L	Reparable item. Repair, condemnation, and disposal not authorized below depot/specialized repair activity level.
A	Item requires special handling or condemnation procedures because of specific reasons (i.e., precious metal content, high dollar value, critical material, or hazardous material). Refer to appropriate manuals/directives for specific instructions.

c. *Nationa/ Stock Number.* Indicates the National stock number assigned to the item and which will be used for requisitioning purposes.

d. Federal Supply Code for Manufacturer (FSCM). The FSCM is a five-digit numeric code listed in SB *708-42* which is used to identify the manufacturer, distributor, or Government agency, etc.

e. *Part Number.* Indicates the primary number used by the manufacturer (individual, company, firm, corporation, or Government activity), which controls the design and characteristics of the item by means of its engineering drawings, specifications, standards, and inspection requirements to identify an item or range of items.

NOTE

When a stock numbered item is requisitioned, the item received may have a different part number than the part being replaced.

f. *Description.* Indicates the Federal item name and, if required, a minimum description to identify the item.

g. *Unit of Measure (U/M).* Indicates the standard of the basic quantity of the listed item as used in performing the actual maintenance function. This measure is expressed by a two-character alphabetical abbreviation (e.g., ea, in., pr, etc). When the unit of measure differs from the unit of issue, the lowest unit of issue that will satisfy the required units of measure will be requisitioned.

h. *Quantity Incorporated in Unit.* Indicates the quantity of the item used in the breakout shown on the illustration figure, which is prepared for a functional group, subfunctional group, or an assembly. A "V" appearing in this column in lieu of a quantity indicates that no specific quantity is applicable (e.g., shims, spacers, etc).

B-4. Special Information.

a. Useable On Codes are shown in the description column. Uncoded items are applicable to all models.

b. Detailed manufacturing instructions for items source coded to be manufactured or fabricated are found in maintenance portions of this manual. Bulk materials required to manufacturer items are listed in the Bulk Material Group of this appendix.

c. Detailed assembly instructions for items source coded to be assembled are found in the maintenance portions of this manual. Assembly components are listed immediately following the item to be assembled.

B-5. How to Locate Repair Parts.

a. When National Stock Number or Part Number is Unknown:

(1) *First.* Using the table of contents, determine the functional group with which the item belongs. This is necessary since illustrations are prepared for functional groups and listings are divided into the same groups.

(2) *Second.* Find the illustration covering the functional group to which the item belongs.

(3) *Third.* Identify the item on the illustration and note the illustration figure and item number of the item.

(4) *Fourth.* Using the repair parts listing, find the figure and item number noted on the illustration.

b. When National Stock Number or Part Number is Known:

(1) *First.* Using the index of National stock numbers and part numbers, find the pertinent NSN or part number. This index is in NIIN sequence followed by a list of part numbers in alphameric sequence, cross-referenced to the illustration figure number and item number.

(2) *Second.* After finding the figure and item number, locate the figure and item number in the repair parts list.

B-6. ABBREVIATIONS.

Abbreviation	*Explanation*
amp	amperage
CBR	chemical, biological, radiological (warfare)
cfm	cubic feet per minute
cl.	class
cres	corrosion-resistant steel
deg	degree
dia	diameter
elec	electrical
ext	external
fil,	fillister

Abbreviation	*Explanation*
ft	foot, feet
gr	grade
h	high
hex	hexagonal
hd	head
hz	hertz
id	inside diameter
in	inch
intl	internal
lg	length, long
med	medium
mfd	manufactured
min	minimum
mtg	mounting
nom	nominal
oa	overall
od	outside diameter
porm	plus or minus
psi	pounds per square inch
pst	paste
RFI	radio frequency interference
spst	single-pole single-throw
thd	thread
thk	thick
v	volt
w/	with
w/o	without

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Section II. REPAIR PARTS LIST

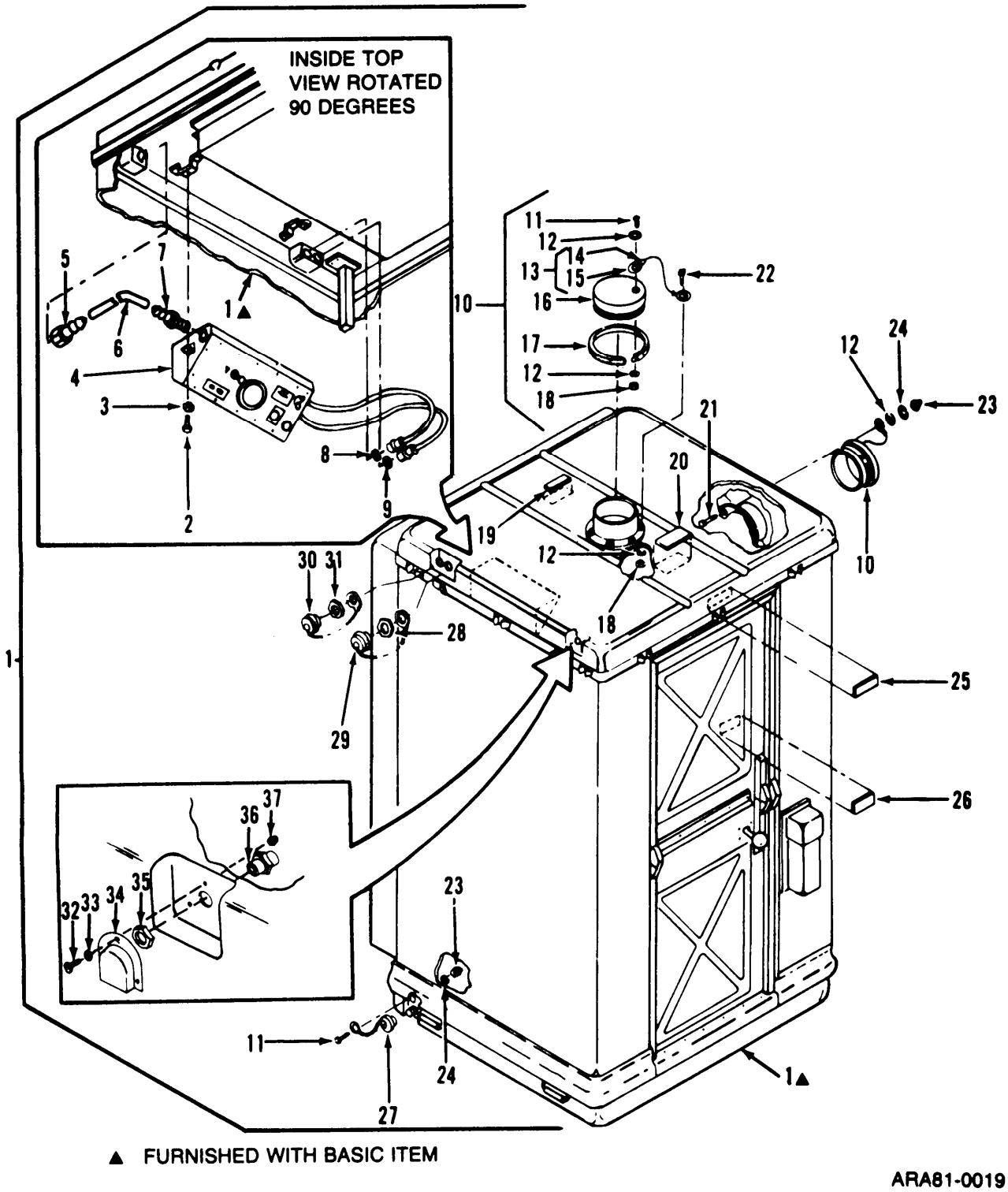

Figure B-1. M12 protective entrance

(1) ILLUSTRATION (A) FIG NO.	(B) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) FSCM	(5) PART NUMBER	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GROUP 0100 M12 PROTECTIVE ENTRANCE		
						ES-19-6201-20		
B-1	1	PAOOO	4240-01-048-2923	81361	ES-19-6201-20	ENTRANCE,PROTECTIVE,PRESSURIZED: M12	EA	1
B-1	2	PAOZZ	5305-00-179-8946	96906	MS51849-66	SCREW,MACHINE HEX HD,NO.10-32UNF-2A,3/4 IN LG	EA	3
B-1	3	PAOZZ	5310-00-045-3296	96906	MS35338-43	WASHER,LOCK SPRING,NO.10 NOM SIZE	EA	3
B-1	4	PAOZZ	4240-01-048-2803	81361	E5-19-6357	CONTROL MODULE,PROTECTIVE ENTRANCE	EA	1
B-1	5	PAOZZ	4730-01-050-7540	30327	KF03-04RV	ADAPTER,STRAIGHT	EA	1
B-1	6	MOOZZ		81361	E5-19-6357-111	HOSE,NONMETALLIC LOW PRESSURE: MFD FROM 4720-00-065-8682	EA	1
B-1	7	PAOZZ	4730-01-017-5119	30327	KF03-02PS	ADAPTER,STRAIGHT	EA	1
B-1	8	PAOZZ	5330-00-250-0236	96906	MS29513-024	PACKING,PREFORMED	EA	1
B-1	9	PAOZZ	5330-00-248-3849	96906	MS29513-019	PACKING,PREFORMED	EA	1
B-1	10	PAOOO	5340-01-048-6327	81361	C5-19-6145	CAP,PROTECTIVE,DUST AND MOISTURE SEAL	EA	2
B-1	11	PAOZZ	5305-00-115-9934	96906	MS51849-55	SCREW,MACHINE HEX HD,NO.8-32UNC-2A,5/8 IN LG	EA	3
B-1	12	PAOZZ	5310-00-765-3197	96906	MS27183-41	WASHER,FLAT .188 IU ID,.438 IN OD, .049 IN THK	EA	5
B-1	13	AOOOO		99862	CL-2-FANDCL-2-C-8.0	CABLE	EA	2
B-1	14	PAOZZ	4030-00-878-8693	99862	CL2F	FERRULE,WIRE ROPE	EA	4
B-1	15	MOOZZ		99862	CL-2-C-8.0	CABLE,NYLON: 8IN. LG MFD FROM 4010-00-069-5180	EA	2
B-1	16	XAOZZ		81361	C5-19-6309	CAP,RUBBER	EA	2
B-1	17	PAOZZ	4730-00-908-6294	96906	MS35842-16	CLAMP,HOSE 4-1/8 TO 7 IN DIA RANGE	EA	2
B-1	18	PAOZZ	5310-00-811-3494	96906	MS21044N08	NUT,SELF-LOCKING,HEXAGON: 8-32 UNJC-3B	EA	3
B-1	19	PAOZZ	9905-01-068-2368	81361	5-19-6657	PLATE,INSTRUCTION NO STEP	EA	1
B-1	20	PAOZZ	9905-01-049-1385	81361	C5-19-6175	PLATE,INSTRUCTION	EA	1
B-1	21	PAOZZ	5305-00-211-8193	96906	MS51849-54	SCREW,MACHINE HEX HD,NO.8-32UNC-2A,1/2 IN LG	EA	1
B-1	22	PAOZZ	5305-00-157-5621	96906	MS51849-56	SCREW,MACHINE HEX HD, NO.8-32UNC-2A,3/4 IN LG	EA	1
B-1	23	PAOZZ	5310-00-928-9821	96906	MS24679-2	NUT,PLAIN,CAP NO. 8-32UNC-2B	EA	2
B-1	24	PAOZZ	5310-00-045-3299	96906	MS35338-42	WASHER,LOCK SPRING,NO.8 NOM SIZE	EA	2
B-1	25	PAOZZ	9905-01-061-7139	81361	C5-19-6316-10	PLATE, IDENTIFICATION: ENTRANCE,PROTECTIVE,PRESSURIZED M12	EA	1
B-1	26	PAOZZ	9905-01-048-2790	81361	B5-19-6238	PLATE,INSTRUCTION CAUTION,DO NOT ENTER WHEN PROTECTIVE ENTRANCE IS OCCUPIED	EA	1
B-1	27	PAOZZ	5410-00-981-8701	01943	8173	CAP,FILLER OPENING W/CHAIN	EA	1
B-1	28	PAOZZ	5310-01-054-4643	96906	MS3186-34	NUT,PLAIN,HEXAGON 11/16-24UNEF-2B	EA	1
B-1	29	PAOZZ	5935-00-912-9599	96906	MS3181-10N	COVER,ELECTRICAL CONNECTOR	EA	1
B-1	30	PAOZZ	5935-00-990-5580	96906	MS3181-14N	COVER,ELECTRICAL CONNECTOR	EA	1
B-1	31	PAOZZ	5310-00-435-8983	96906	MS3186-43	NUT,PLAIN,HEXAGON 1-2OUNEF-2B	EA	1
B-1	32	PAOZZ	5305-00-115-9406	96906	MS51849-53	SCREW,MACHINE HEX HD,NO.6-32UNC-2A,.38IN LG	EA	3
B-1	33	PAOZZ	5310-00-045-3299	96906	MS35338-42	WASHER,LOCK SPRING NO.8 NOM SIZE	EA	3
B-1	34	PAOZZ	4240-01-049-0804	81361	C5-19-6236	COVER,PROTECTIVE	EA	1
B-1	35	PAOZZ	5310-00-897-6081	96906	MS35691-32	NUT,PLAIN,HEXAGON JAM,7/16-20 UNF-2B	EA	1
B-1	36	PAOZZ	4730-01-067-9232	81361	C5-19-6654	ADAPTER,PIPE TO TUBE 1/4NDS,7/16-20UNF-2A	EA	1
B-1	37	PAOZZ	5310-00-928-9821	96906	MS24679-2	NUT,PLAIN,CAP NO.8-32UNC-2B	EA	3

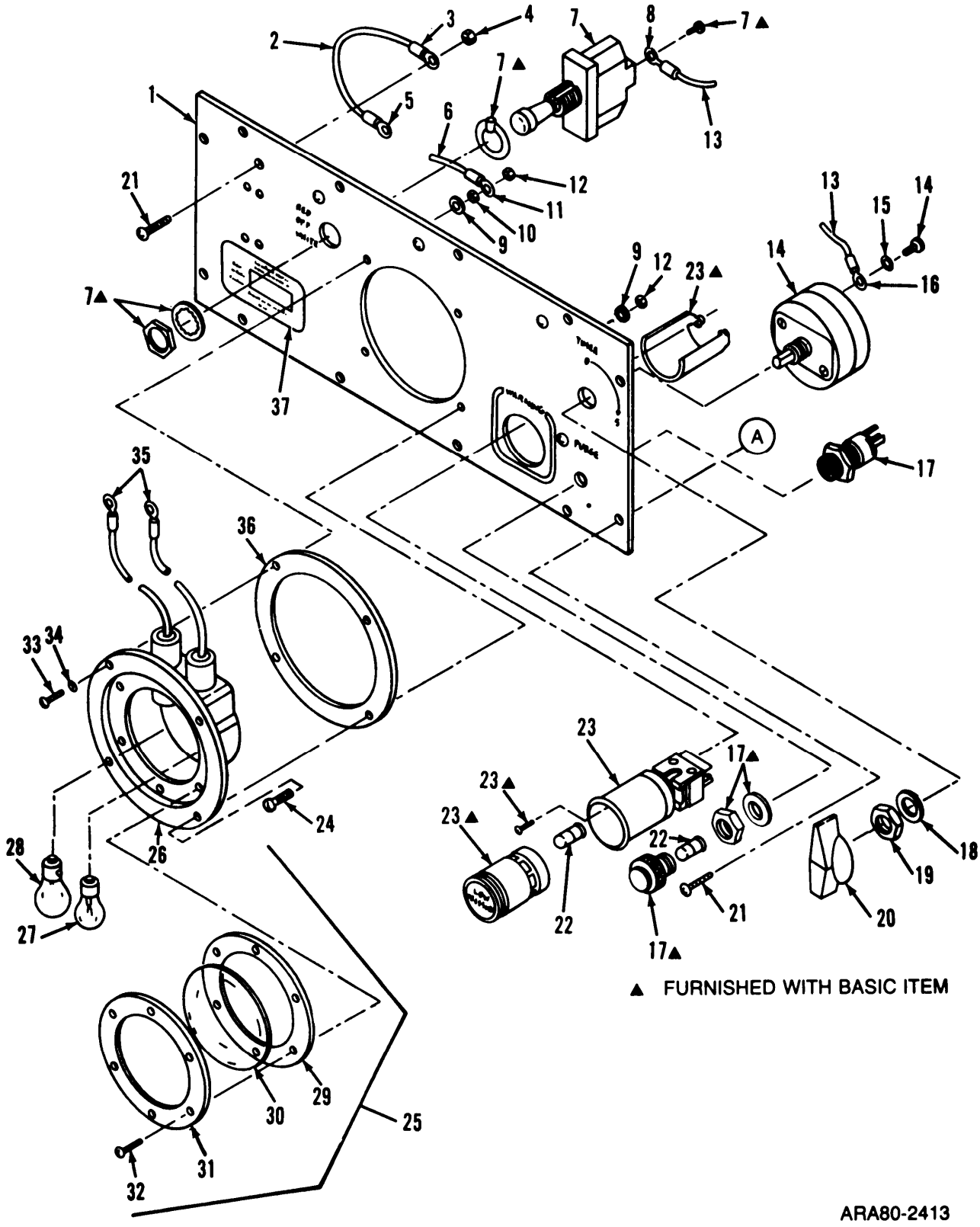

Figure B-2. Protective entrance control module (sheet 1 of 2)

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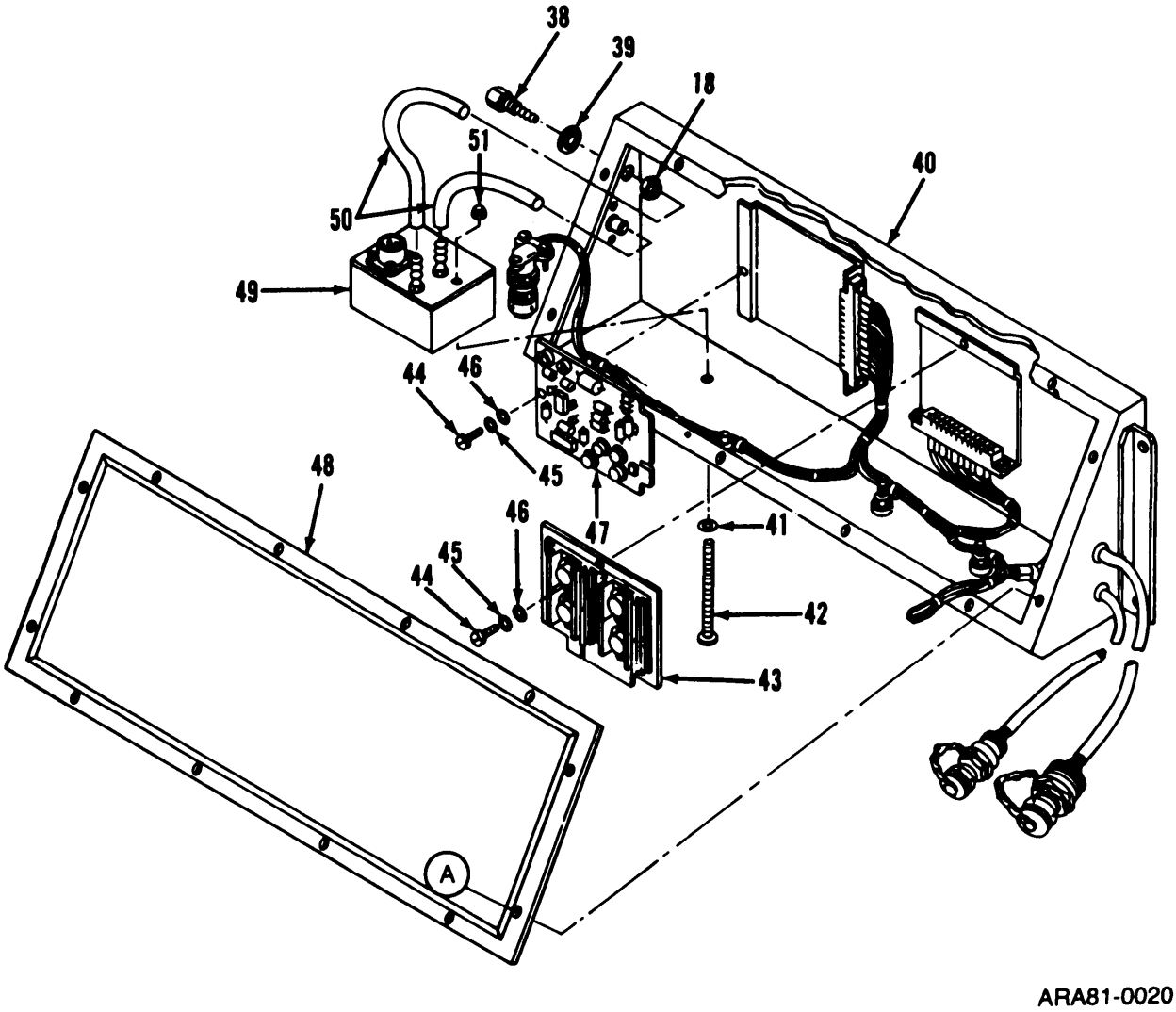

Figure B-2. Protective entrance control module (sheet 2 of 2)

(1) ILLUSTRATION (A) FIG NO.	(B) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) FSCM	(5) PART NUMBER	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GROUP 0110 PROTECTIVE ENTRANCE		
						CONTROL MODULE		
						ES-19-6357		
B-2	1	XAFZZ		81361	E5-19-6360	PLATE,LETTERED	EA	1
B-2	2	MFFZZ		81349	M5086/1-20-9	WIRE,ELECTRICAL MFD FROM 6145-00-578-7519	FT	V
B-2	3	PAFZZ	5940-00-143-4771	96906	MS25036-103	TERMINAL,LUG CRIMP STYLE,22-18 AWG WIRE SIZE,NO. 10 STUD SIZE	EA	1
B-2	4	PAFZZ	5310-00-877-5797	96906	MS21044N3	NUT,SELF-LOCKING,HEXAGON: NO.10-32UNJF-38	EA	1
B-2	5	PAFZZ	5940-00-825-3699	96906	MS17143-10	TERMINAL,LUG CRIMP STYLE,22-18 AWG WIRE SIZE,NO.5 STUD SIZE	EA	9
B-2	6	MFFZZ		81349	M5086/1-16-9	WIRE,ELECTRICAL MFD FROM 6145-00-578-7517	FT	V
B-2	7	PAFZZ	5930-00-057-5848	96906	MS24658-21M	SWITCH,TOGGLE	EA	1
B-2	8	PAFZZ	5940-00-204-8966	96906	MS25036-102	TERMINAL,LUG CRIMP STYLE,22-18 AWG WIRE SIZE,NO. 6 STUD SIZE	EA	1
B-2	9	PAFZZ	5310-00-575-5292	83330	2660	WASHER,SHOULDERED PLASTIC,.031 IN.SHOULDER H,.140 IN ID, .375	EA	4
B-2	10	PAFZZ	5310-00-934-9748	96906	MS35649-244	NUT,PLAIN,HEXAGON 4-40-UNC-2B	EA	1
B-2	11	PAFZZ	5940-00-615-6073	96906	MS25036-152	TERMINAL,LUG CRIMP STYLE,16-14 AWG WIRE SIZE,NO.4 STUD SIZE	EA	1
B-2	12	PAFZZ	5310-00-088-0551	96906	MS21044N04	NUT,SELF-LOCKING,HEXAGON: NO.4-4OUNJC-3B	EA	4
B-2	13	MFFZZ		81349	M5086/1-22-9	WIRE,ELECTRICAL MFD FROM 6145-00-578-7520	FT	V
B-2	14	PAFZZ	6645-01-113-2525	79919	71015	TIMER,INTERVAL TIME OFF TYPE,SPST,CENTER MTQ, SPLASHPROOF, 5 MIN AT 90DEG STOP,KNOB NO.K35B1	EA	1
B-2	15	PAFZZ	5310-00-559-0070	96906	MS35333-38	WASHER,LOCK INTL TOOTH,NO.8 NOM SIZE	EA	2
B-2	16	PAFZZ	5940-00-557-1629	96906	MS25036-149	TERMINAL,LUG CRIMP STYLE,22-18 AWG WIRE SIZE,NO.8 STUD SIZE	EA	4
B-2	17	PAFZZ	6210-00-635-4700	76854	VM911M8	LIGHT,INDICATOR	EA	1
B-2	18	PAFZZ	5330-00-954-6684	80205	NAS1598-6Y	PACKING WITH RETAINER: 3/8 IN. BOLT SIZE	EA	2
B-2	19	PAFZZ	5310-00-199-1056	96906	MS35650-3385	NUT,PLAIN,HEXAGON 3/8-24UNF-2B	EA	2
B-2	20	PAOZZ	5355-00-821-5225	79919	K35B1	KNOB	EA	1
B-2	21	PAFZZ	5305-00-148-1286	96906	MS3213-36	SCREW,MACHINE PAN HD,SELF-SEALING,NO.10-32UNF-2A,3/4 IN. LG	EA	13
B-2	22	PAOZZ	6240-00-763-7744	81348	W-L-00111/7	LAMP,INCANDESCENT	EA	3
B-2	23	PAFZZ	5930-01-052-7684	81361	E5-19-6376-155	SWITCH,PUSH HOUSING AND SWITCH: ENGRAVED "LOW PRESSURE"	EA	1
B-2	24	PAFZZ	5305-01-057-7206	96906	MS3213-5	SCREW,MACHINE PAN HD,SELF-SEALING,NO.4-40UNC-2A,1/2 IN LG	EA	3
B-2	25	PAFFF	6220-00-891-1491	96906	MS25358-7	LIGHT,DOME	EA	1
B-2	26	XAFZZ		96906	MS25358-3	HOUSING,DOME LIGHT	EA	1
B-2	27	PAOZZ	6240-00-155-7784	96906	MS35478-307	LAMP,INCANDESCENT	EA	1
B-2	28	PAOZZ	6240-00-155-7932	96906	MS25235R311	LAMP,INCANDESCENT RED	EA	1
B-2	29	PAOZZ	5330-00-143-8571	96906	MS25358-6	GASKET DOME LIGHT	EA	1
B-2	30	PAOZZ	6220-00-283-9732	96906	MS25358-4	LENS,LIGHT	EA	1
B-2	31	XAOZZ		96906	MS25358-5	RETAINER,LIGHT	EA	1
B-2	32	PAOZZ	5305-00-889-2999	96906	MS35206-217	SCREW,MACHINE PAN HD, NO.4-40UNC-2A,1/2 IN LG 4	EA	6

(1) ILLUSTRATION (A) FIG NO.	(B) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) FSCM	(5) PART NUMBER	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
B-2	33	PAFZZ	5305-00-984-4976	96906	MS35206-219	SCREW,MACHINE PAN HD,NO.4-40OUNC-2A,3/4IN LG	EA	1
B-2	34	PAFZZ	5310-00-058-3599	96906	MS35335-57	WASHER,LOCK EXT TOOTH,NO 4 NOM SIZE	EA	1
B-2	35	PAFZZ	5940-00-113-8179	96906	MS25036-107	TERMINAL,LUG CRIMP STYLE,16-14 AWG WIRE SIZE,NO.6 STUD SIZE	EA	2
B-2	34	MFFZZ		81361	C5-19-5676	GASKET MFD FROM 9320007858171	EA	1
B-2	37	PAOZZ	9905-01-053-3006	81361	C5-19-6316-4	PLATE,IDENTIFICATION: CONTROL MODULE,PROTECTIVE ENTRANCE	EA	1
B-2	38	PAFZZ	4730-01-053-5923	81361	B5-19-6362	ADAPTER,STRAIGHT,HOSE	EA	1
B-2	39	PAFZZ	5330-00-954-6684	80205	NAS1598-6Y	PACKING WITH RETAINER: 3/8 IN BOLT SIZE	EA	1
B-2	40	XAFZZ		81361	E5-19-6358	HOUSING	EA	1
B-2	41	PAFZZ	5330-00-928-0290	80205	NAS1598-06Y	PACKING WITH RETAINER: NO 6 SCREW SIZE	EA	2
B-2	42	PAFZZ	5305-00-920-0327	12909	500881	SCREW,MACHINE PAN HD,SLOTTED,CRES,NO.6-32UNC-2A,2-1/2 IN LG	EA	2
B-2	43	PAFZZ	5999-01-050-4635	81361	C5-19-6197	PRINTED CIRCUIT BOARD: POWER	EA	1
B-2	44	PAFZZ	5305-00-227-1543	96906	MS51849-33	SCREW,MACHINE HEX HD,NO.6-32UNC-2A,.38 IN LG	EA	2
B-2	45	PAFZZ	5310-00-045-4007	96906	MS35338-41	WASHER,LOCK SPRING,NO 6 NOM SIZE	EA	2
B-2	46	PAFZZ	5310-00-983-8483	96906	MS27183-5	WASHER,FLAT .156 IN ID,.312 IN OD, .035 IN THK	EA	2
B-2	47	PAFZZ	5999-01-050-4636	81361	D5-19-6193-20	PRINTED CIRCUIT BOARD: SWITCHING	EA	1
B-2	48	PAFZZ	5330-01-085-3267	81361	5-19-6361	GASKET CONTROL MODULE	EA	1
B-2	49	PAFZZ	6685-01-056-5283	33107	P92-1020	TRANSMITTER,PRESSURE	EA	1
B-2	50	MFFZZ		81361	E5-19-6357-47	TUBING NONMETALLIC: 3/16 IN NOM ID,GREEN, MFD FROM 9330010731011	IN	13
B-2	51	PAFZZ	5310-00-081-8087	96906	MS21044N06	NUT,SELF-LOCKING,HEXAGON: NO 6-32UNJC-3B	EA	2

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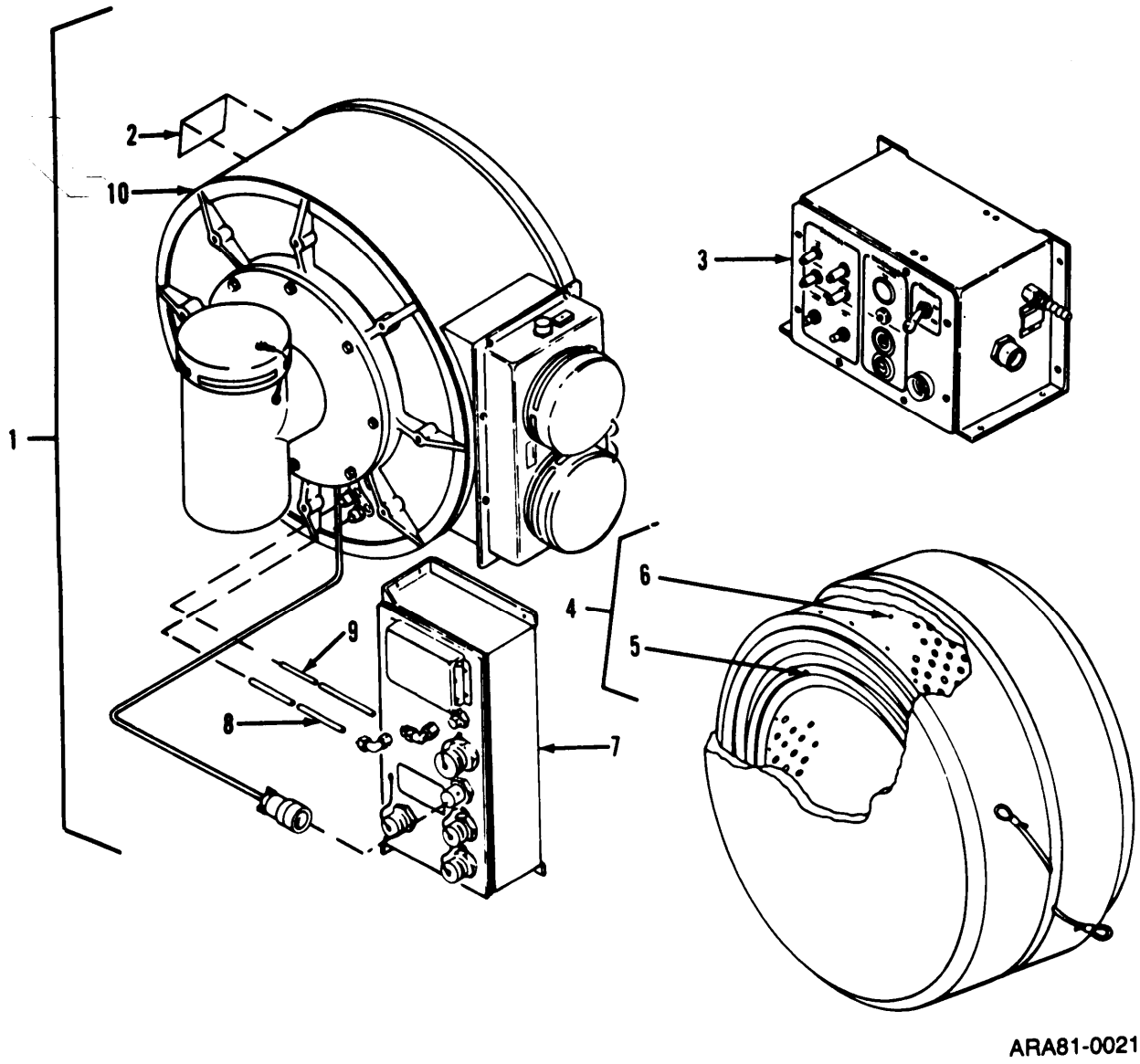

Figure B-3. M56 gas-particulate filter unit (sheet 1 of 2)

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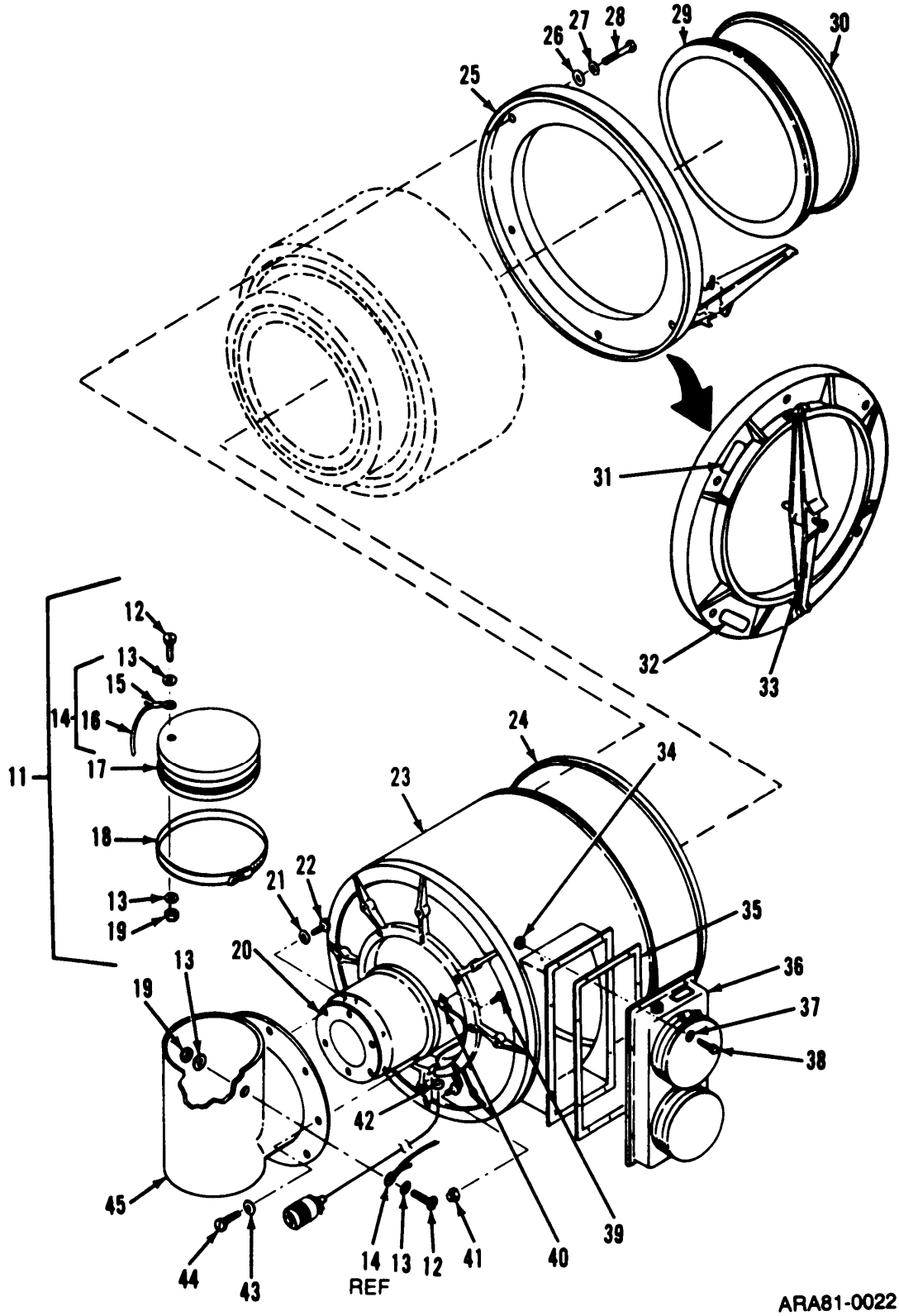

Figure B-3. M56 gas-particulate filter unit (sheet 2 of 2)

	(1) ILLUSTRATION (A) FIG NO.	(B) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) FSCM	(5) PART NUMBER	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
							GROUP 0200 M56 GAS PARTICULATE FILTER UNIT		
							E5-19-6402		
*	B-3	1	PAOFA	4240-00-237-0227	81361	E5-19-6402	FILTER UNIT, GAS-PARTICULATE: 1 FILTER,M56	EA	1
	B-3	2	PAOZZ	9905-01-071-5711	81361	5-19-6316-9	PLATE,IDENTIFICATION: FILTER UNIT,GAS-PARTICULATE,1 FILTER,M56	EA	1
	B-3	3	PAOFF	4240-01-057-3378	81361	E5-19-6376	CONTROL MODULE COMPARTMENT	EA	1
	B-3	4	PAOZA	4240-01-067-5605	81361	5-19-6718	FILTER SET,GAS AND PARTICULATE	SE	1
	B-3	5	PAOZA	4240-01-066-3266	81361	D5-19-6262	FILTER,PARTICULATE	EA	1
	B-3	6	XAOZA		81361	D5-19-6368	FILTER,GAS	EA	1
	B-3		PAOFF	4240-01-068-8645	81361	E5-19-6387	POWER DISTRIBUTION UNIT	EA	1
	B-3	8	MOOZZ		81361	E5-19-6402-8	TUBING,NONMETALLIC MFD FROM 4720-01-053-0316	EA	1
	B-3	9	MOOZZ		81361	E5-19-6402-7	TUBING,NONMETALLIC 1/4 IN OD,RED,MFD FROM 4720-00-996-0381	EA	1
	B-3	10	XBOFF	4240-01-054-7020	81361	E5-19-6314-20	HOUSING UNIT, FAN AND AIRFLOW VALVE	EA	1
	B-3	11	PAOOO	5340-01-048-6327	81361	C5-19-6145	CAP,PROTECTIVE,DUST AND MOISTURE SEAL	EA	1
	B-3	12	PAOZZ	5305-00-115-9934	96906	MS51849-55	SCREW,MACHINE HEX HD,NO 8-32UNC-2A,5/8 IN LG	EA	2
	B-3	13	PAOZZ	5310-00-765-3197	96906	MS27183-41	WASHER,FLAT .188 IN ID, .438 IN OD, .049 IN THK	EA	4
	B-3	14	AOOOO		99862	CL-2-FANDCL-2-C-8.0	CABLE	EA	1
	B-3	15	PAOZZ	4030-00-878-8693	99862	CL2F	FERRULE,WIRE ROPE	EA	2
	B-3	16	MOOZZ		99862	CL-2-C-8.0	CABLE,NYLON: 8 IN LG,MFD FROM 4010-00-069-5180	EA	1
	B-3	17	XAOZZ		81361	C5-19-6309	CAP,RUBBER	EA	1
	B-3	18	PAOZZ	4730-00-908-6294	96906	MS35842-16	CLAMP,HOSE 4-1/8 TO 7 IN DIA RANGE	EA	1
	B-3	19	PAOZZ	5310-00-811-3494	96906	MS21044N08	NUT,SELF-LOCKING,HEXAGON: NO 8-32UNJC-3B	EA	2
	B-3	20	PAOFF	4140-01-059-2095	81361	E5-19-6240	FAN,TUBEAXIAL MAIN: 200 CFM	EA	1
	B-3	21	PAOZZ	5310-00-809-4058	96906	MS27183-10	WASHER,FLAT .281 IN ID, .625 IN OD, .065 IN THK	EA	6
	B-3	22	PAOZZ	5305-00-068-0513	96906	MS90727-6	SCREW,CAP,HEXAGON HEAD: 1/4-28UNF-2A,3/4 IN LG	EA	6
	B-3	23	XBOZZ	4240-01-107-2433	81361	E5-19-6120	HOUSING,GAS-PARTICU 1 FILTER	EA	1
	B-3	24	PAOZZ	5330-01-069-9824	81361	C5-19-5687-2	SEAL,RUBBER	EA	1
	B-3	25	XBOZZ		81361	E5-19-6128	COVER,ACCESS	EA	1
	B-3	26	PAOZZ	5310-00-080-6004	96906	MS27183-14	WASHER,FLAT .406 IN ID,.812 IN OD, .065 IN THK	EA	6
	B-3	27	PAOZZ	5310-00-187-2400	88044	AN960PD616	WASHER,FLAT 0.390 IN ID, 0.625 IN OD, 0.063 IN THK	EA	6
	B-3	28	PAOZZ	5305-00-269-3240	96906	MS90727-64	SCREW,CAP,HEXAGON HEAD: 3/8-24UNF-2A,1-1/2 IN LG	EA	6
	B-3	29	XBOZZ		81361	D5-19-6260	COVER,INNER	EA	1
	B-3	30	PAOZZ	5330-01-068-0515	81361	C5-19-5687-1	SEAL,RUBBER	EA	1
	B-3	31	PAOZZ	9905-01-067-8634	81361	B5-19-6134	PLATE,INSTRUCTION WARNING TORGUE OUTER COVER BOLTS 180 TO 200INCH POUNDS	EA	1
	B-3	32	PAOZZ	9905-01-066-3084	81361	5-19-6135	PLATE,INSTRUCTION WARNING-DO NOT REMOVE COVERS TO SERVICE COMPONENTS AFTERTOXIC EXPOSURE,WITHOUT OBSERVING PROPER HANDLING PROCEDURES	EA	1
	B-3	33	PAOZZ	9905-01-050-7557	81361	B5-19-6133	PLATE,INSTRUCTION WARNING-TIGHTEN UNTIL SLEEVE IS FLUSH WITH TOP SURFACE	EA	1
	B-3	34	PAOZZ	5310-00-877-5797	96906	MS21044N3	NUT,SELF-LOCKING,HEXAGON: NO 10-32UNJF-3B	EA	8

(1) ILLUSTRATION (A) FIG NO.	(B) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) FSCM	(5) PART NUMBER	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
B-3	35	PAOZZ	5330-01-088-4442	81361	5-19-6348	GASKET AIRFLOW VALVE	EA	1
B-3	36	PAOFF	4240-01-055-1493	81361	E5-19-6136	VALVE,AIRFLOW	EA	1
B-3	37	PAOZZ	5310-00-014-5850	96906	MS27183-42	WASHER,FLAT .219 IN ID, .500 IN OD,.049 IN THK	EA	8
B-3	38	PAOZZ	5305-00-824-7363	80205	NAS1096-3-12	SCREW,MACHINE HEX HD,NO.10-32NF-3A,3/4 IN LG	EA	8
B-3	39	PAOZZ	5305-00-180-4966	96906	MS51849-64	SCREW,MACHINE HEX HD,NO 10-32UNF-2A,1/2 IN LG	EA	1
B-3	40	PAOZZ	5340-00-119-4705	96906	MS9352-05	CLAMP,LOOP CUSHIONED,3/8 IN NOM TUBE OD	EA	1
B-3	41	PAOZZ	4730-00-817-1891	30327	261P1-4	NUT,TUBE COUPLING 1/4 IN TUBE OD,3/8-24 THD SIZE,W/SLEEVE	EA	2
B-3	42	PAOZZ	5365-01-057-7379	81361	B5-19-6347	BUSHING,RUBBER	EA	1
B-3	43	PAOZZ	5310-00-081-4219	96906	MS27183-12	WASHER,FLAT .344 IN ID, .688 IN OD, .065 IN THK	EA	8
B-3	44	PAOZZ	5305-00-051-4075	96906	MS90727-33	SCREW,CAP,HEXAGON HEAD: 5/16-24UNF-2A,7/8 IN LG	EA	8
B-3	45	PAOZZ	4520-01-057-7010	81361	D5-19-6401	TEE,AIR CONDITIONIN INLET	EA	1

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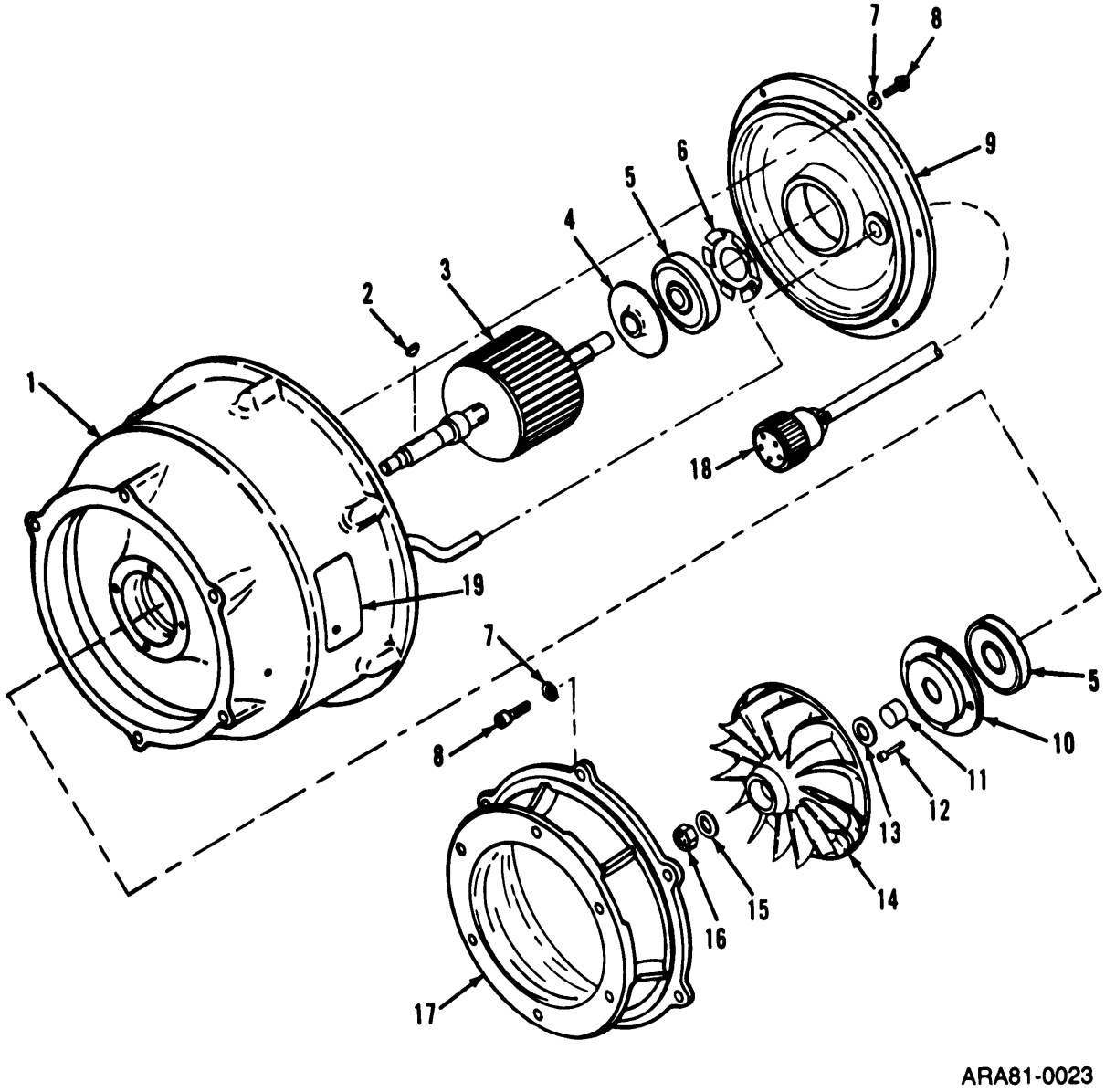

Figure B-4. Main fan

(1) ILLUSTRATION (A) FIG NO.	(B) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) FSCM	(5) PART NUMBER	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GROUP 0210 MAIN FAN		
						E5-19-6240		
B-4	1	XAFZZ		81361	E5-19-6241	HOUSING,FAN	EA	1
B-4	2	PAFZZ	5315-00-616-5526	96906	MS35756-8	KEY,WOODRUFF	EA	1
B-4	3	XAFZZ		81361	C5-19-6247	ROTOR	EA	1
B-4	4	PAFZZ	4320-01-052-7999	81361	B5-19-6081	DEFLECTOR,DIRT AND SHAFT	EA	1
B-4	5	PAFZZ	3110-00-144-8882	38443	201SFP	BEARING,BALL,ANNULAR	EA	2
B-4	6	PAFZZ	5310-00-227-4882	92830	F1240-008	WASHER,SPRING LOADING	EA	1
B-4	7	PAFZZ	5310-00-167-0835	88044	AN960-416L	WASHER,FLAT .265 IN ID, .500 IN OD, .032 IN THK	EA	12
B-4	8	PAFZZ	5305-00-477-2713	80205	NAS1351-4-12	SCREW,CAP,SOCKET HEAD: 1/4-28UNF-3A,3/4 IN LG	EA	12
B-4	9	XAFZZ		81361	D5-19-6242	COVER,MOTOR	EA	1
B-4	10	PAFZZ	3110-01-057-4653	81361	C5-19-6255	PLATE,RETAINING,BEARING	EA	1
B-4	11	PAFZZ	3120-01-053-5848	81361	B5-19-6254	BUSHING,SLEEVE IMPELLER	EA	1
B-4	12	PAFZZ	5305-00-978-9369	96906	MS16997-31	SCREW,CAP,SOCKET HEAD: NO 8-32UNC-3A,3/8 IN.LG	EA	4
B-4	13	PAFZZ	5365-01-053-2593	81361	B5-19-6030-1	SHIM LAMINATED	EA	1
B-4	14	XAFZZ		81361	D5-19-6252	IMPELLER,FAN	EA	1
B-4	15	PAFZZ	5310-00-167-0821	88044	AN960-616	WASHER,FLAT .390 IN ID,.625 IN OD, .063 IN THK	EA	1
B-4	16	PAFZZ	5310-00-810-1786	96906	MS21042-6	NUT,SELF-LOCKING,EXTENDED WASHER,HEXAGON: 3/8-24UNJF-3B	EA	1
B-4	17	XAFZZ		81361	E5-19-6251	COVER,IMPELLER	EA	1
B-4	18	XAFZZ		96906	MS3116P16-8P	CONNECTOR,PLUG,ELECTRIC	EA	1
B-4	19	PAFZZ	9905-01-054-4263	81361	C5-19-6258-1	PLATE,IDENTIFICATION: MAIN FAN,200 CFM	EA	1

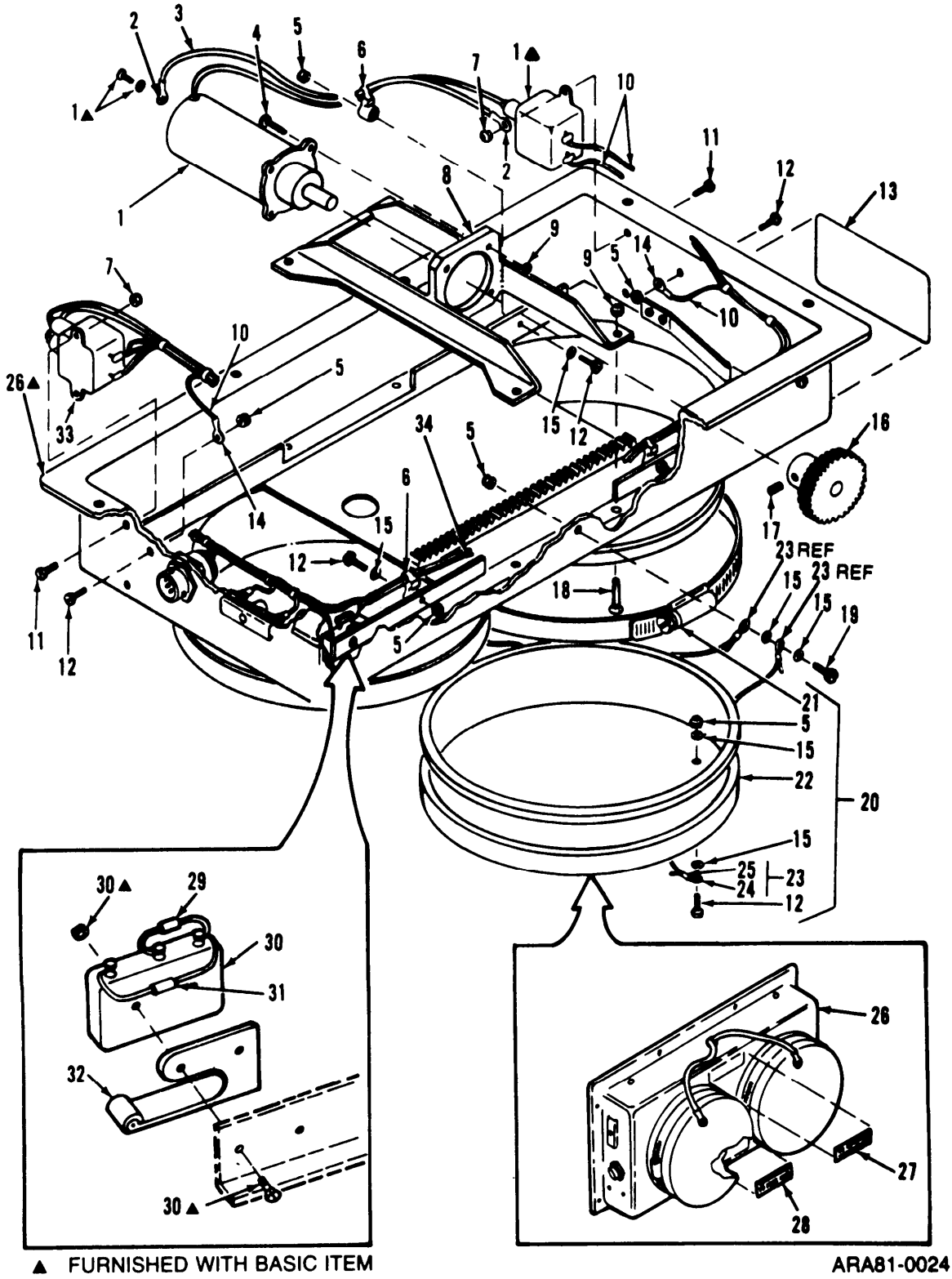

Figure B-5. Airflow valve

(1) ILLUSTRATION (A) FIG NO.	(B) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) FSCM	(5) PART NUMBER	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GROUP 0220 AIRFLOW VALVE		
						E9-19-6136		
B-5	1	PAFZZ	6105-01-056-9045	25140	5A3128	GEARCASE-MOTOR PLANETARY,GEAR REDUCED	EA	1
B-5	2	PAFZZ	5940-00-113-9828	96906	MS25036-148	TERMINAL,LUG CRIMP STYLE,22-18 AWG WIRE SIZE,NO.4 STUD SIZE	EA	2
B-5	3	MFFZZ		81349	M5086/1-20-9	WIRE,ELECTRICAL MFD FROM 6145-00-578-7519	FT	V
B-5	4	PAFZZ	5305-00-582-5808	96906	MS35265-31	SCREW,MACHINE FIL HCAD,NO 6-32UNC-2A,5/8 IN LG	EA	4
B-5	5	PAOZZ	5310-00-811-3494	96906	MS21044N08	NUT,SELF-LOCKING,HEXAGON: NO. 8-32UNJC-3B	EA	3
B-5	6	PAFZZ	5975-01-053-6294	09922	TF-5H	STRAP,TIEDOWN,CABLE	EA	3
B-5	7	PAFZZ	5310-00-088-0551	96906	MS21044N04	NUT,SELF-LOCKING,HEXAGON: NO 4-4OUNJC-3B	EA	8
B-5	8	XAFZZ		81361	D5-19-6138	MOUNT,MOTOR	EA	1
B-5	9	PAFZZ	5310-00-081-8087	96906	MS21044N06	NUT,SELF-LOCKING,HEXAGON	EA	12
B-5	10	MFFZZ		81349	M5086/1-22-9	WIRE,ELECTRICAL MFD FROM 6145-00-578-7520	FT	V
B-5	11	PAFZZ	5305-00-242-1264	96906	MS51849-13	SCREW,MACHINE HEXAGON HEAD,NO 4-4OUNC-2A, .38 IN LG	EA	8
B-5	12	PAOZZ	5305-00-115-9934	96906	MS51849-55	SCREW,MACHINE HEX HD,NO 8-32UNC-2A,5/8 IN LG	EA	2
B-5	13	PAOZZ	9905-01-065-9382	81361	C5-19-6149	PLATE,IDENTIFICATION: AIRFLOW VALVE	EA	1
B-5	14	PAFZZ	5940-00-557-1629	96906	MS25036-149	TERMINAL,LUG CRIMP STYLE,22-18 AWG WIRE SIZE, NO 8 STUD SIZE	EA	6
B-5	15	PAOZZ	5310-00-765-3197	96906	MS27183-41	WASHER,FLAT .188 IN ID, .438 IN OD, .049 IN THK	EA	6
B-5	16	XAFZZ		81361	C5-19-6144	GEAR	EA	1
B-5	17	PAFZZ	5305-00-058-9362	96906	MS51977-19	SETSCREW HEX SOCKET, NO 6-32UNC-3A,3/16 IN LG	EA	1
B-5	18	PAFZZ	5305-00-984-6221	96906	MS35206-234	SCREW,MACHINE PAN HD,NO.6-32UNC-2A,1 IN LG	EA	8
B-5	19	PAOZZ	5305-00-157-5621	96906	MS51849-56	SCREW,MACHINE HEX HD,NO 8-32UNC-2A, 3/4 IN LG	EA	1
B-5	20	PAOOO	5340-01-048-6327	81361	C5-19-6145	CAP,PROTECTIVE,DUST AND MOISTURE SEAL	EA	2
B-5	21	PAOZZ	4730-00-908-6294	96906	MS35842-16	CLAMP,HOSE 4-1/8 TO 7 IN DIA RANGE	EA	2
B-5	22	XAOZZ		81361	C5-19-6309	CAP,RUBBER	EA	2
B-5	23	AOOOO		99862	CL-2-FANDCL-2-C-8.0	CABLE	EA	2
B-5	24	MOOZZ		99862	CL-2-C-8.0	CABLE,NYLON: 8IN LG, MFD FROM 4010-00-069-5180	EA	2
B-5	25	PAOZZ	4030-00-878-8693	99862	CL2F	FERRULE,WIRE ROPE	EA	4
B-5	26	XAFZZ		81361	E9-19-6137	HOUSING,VALVE	EA	1
B-5	27	PAOZZ	9905-01-051-0186	81361	B5-19-6147	PLATE,INSTRUCTION TO SHELTER	EA	1
B-5	28	PAOZZ	9905-01-050-7556	81361	B5-19-6148	PLATE,INSTRUCTION TO PROT ENT	EA	1
B-5	29	PAFZZ	5961-00-924-6981	81349	JAN1N4245	SEMICONDUCTOR DEVICE,DIODE	EA	2
B-5	30	PAFZZ	5930-00-913-7960	81349	MS25085-2	SWITCH,SENSITIVE	EA	2
B-5	31	PAFZZ	5910-00-114-0510	81349	M39014/01-1581	CAPACITOR,FIXED CERAMIC	EA	2
B-5	32	PAFZZ	5930-00-296-9610	94135	12Z7903-178	ADAPTER,SWITCH ACTU	EA	2
B-5	33	PAFZZ	5915-01-075-7240	81361	C5-19-6152	FILTER,RADIO FREQUENCY INTERFERENCE	EA	1
B-5	34	MFFZZ		81349	M7078-3-22-1	CABLE,SPECIAL PURPOSE,ELECTRICAL: MFD FROM 6145-00-608-5484	FT	V

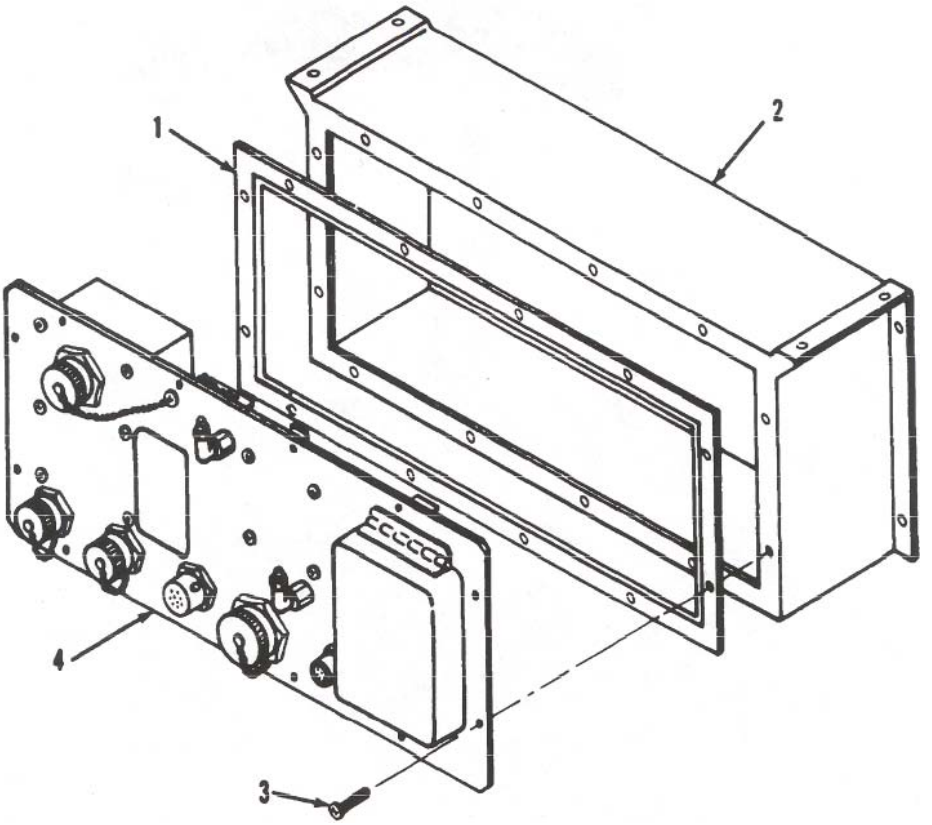

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Figure B-6. Power distribution unit.

(1) ILLUSTRATION (a) FIG NO	(b) ITEM NO	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) FSCM	(5) PART NUMBER	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GROUP 0230 POWER DISTRIBUTION UNIT		
						E5-19-6387		
B-6	1	PAFZZ	5999-01-074-8880	81361	D5-19-6392	SHIELDING GASKET, POWER DISTRIBUTION UNIT	EA	1
B-6	2	XAFZZ		81361	E5-19-6390	HOUSING	EA	1
B-6	3	PAFZZ	5305-01-031-5092	96906	MS3213-33	SCREW, MACHINE PAN HD, SELF-SEALING, NO. 10-32UNF-2A, 1/2 IN LG	EA	12
B-6	4	PAFFF	4240-01-057-3474	81361	E5-19-6391	PANEL, POWER DISTRIBUTION UNIT	EA	1

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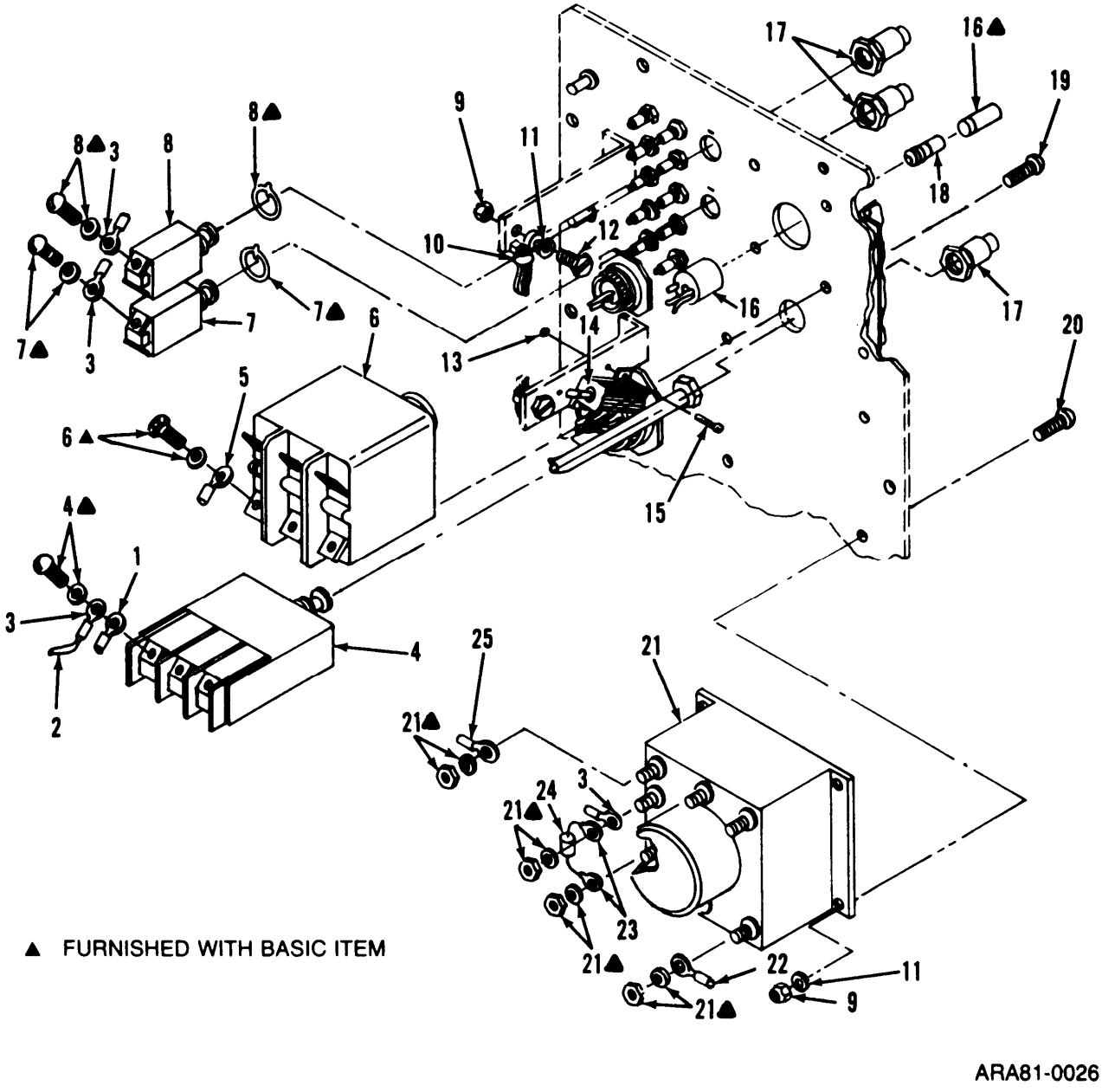

Figure B-7. Power distribution panel (sheet 1 of 2)

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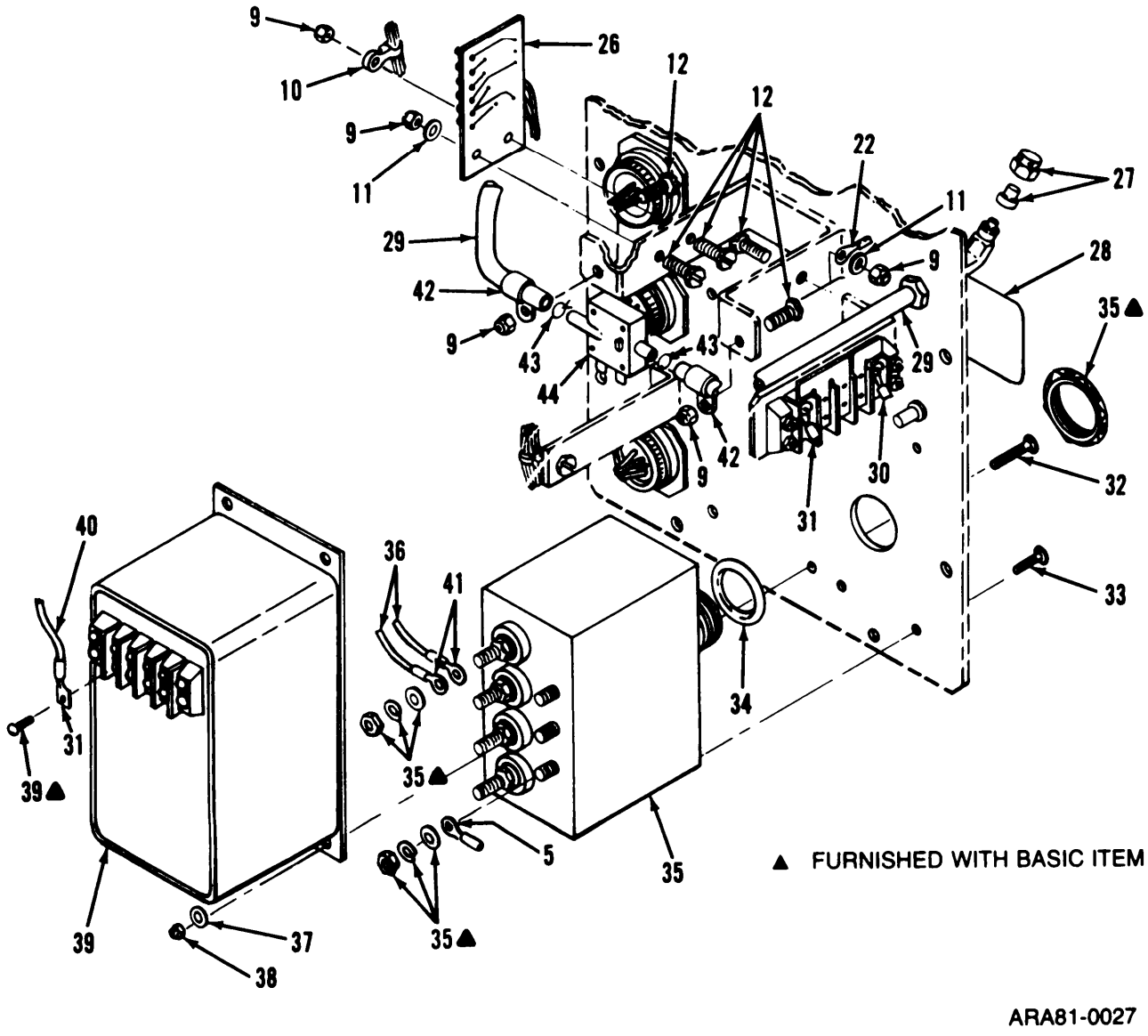

Figure B-7. Power distribution panel (sheet 2 of 2)

(1) ILLUSTRATION (A) FIG NO.	(B) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) FSCM	(5) PART NUMBER	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GROUP 0231 POWER DISTRIBUTION PANEL		
						E5-19-6391		
B-7	1	PAFZZ	5940-00-113-8179	96906	MS25036-107	TERMINAL,LUG CRIMP STYLE, 16-14 AWG WIRE SIZE,NO 6 STUD SIZE	EA	6
B-7	2	MFFZZ		81349	M5086/1-20-9	WIRE,ELECTRICAL MFD FROM 6145-00-578-7519	FT	V
B-7	3	PAFZZ	5940-00-204-8966	96906	MS25036-102	TERMINAL,LUG CRIMP STYLE,22-18 AWG WIRE SIZE,NO 6 STUD SIZE	EA	9
B-7	4	PAFZZ	5925-00-814-8428	18876	10231240	CIRCUIT BREAKER	EA	1
B-7	5	PAFZZ	5940-00-143-4774	96906	MS25036-153	TERMINAL,LUG CRIMP STYLE, 16-14 AWG WIRE SIZE, NO 8 STUD SIZE	EA	13
B-7	6	PAFZZ	5925-01-067-5437	82647	6752-320-20	CIRCUIT BREAKER	EA	1
B-7	7	PAFZZ	5925-00-045-1704	82647	7274-12-1	CIRCUIT BREAKER	EA	1
B-7	8	PAFZZ	5925-00-768-2035	82647	7274-12-1-1-2	CIRCUIT BREAKER	EA	1
B-7	9	PAFZZ	5310-00-877-5797	96906	MS21044N3	NUT,SELF-LOCKING,HEXAGON: NO 10-32UNJF-3B	EA	12
B-7	10	PAFZZ	5975-01-053-6294	09922	TF-5H	STRAP,TIEDOWN,CABLE	EA	4
B-7	11	PAFZZ	5310-00-809-8546	96906	MS27183-8	WASHER,FLAT .219 IN ID, .438 IN OD, .049 IN THK	EA	9
B-7	12	PAFZZ	5305-00-179-8946	96906	MS51849-66	SCREW,MACHINE HEX HD,NO. 10-32UNF-2A,3/4 IN LG	EA	8
B-7	13	PAFZZ	5310-00-088-0551	96906	MS21044N04	NUT,SELF-LOCKING,HEXAGON: NO 4-4OUNJC-3B	EA	2
B-7	14	PAFZZ	5905-00-553-8100	81349	RER70F1100R	RESISTOR,FIXED,WIRE WOUND	EA	1
B-7	15	PAFZZ	5305-01-053-0958	96906	MS51849-14	SCREW,MACHINE HEX HD,NO 4-4OUNC-2A, 1/2 IN LG	EA	2
B-7	16	XBFZZ		07137	PTL-A1(3-C7A)	LIGHT,INDICATOR	EA	1
B-7	17	PAFZZ	5975-00-958-6451	82647	14500-1	BOOT,DUST AND MOISTURE SEAL	EA	3
B-7	18	PAOZZ	6240-00-892-4420	81349	M15098/11-001	LAMP,GLOW	EA	1
B-7	19	PAFZZ	5305-01-053-0959	96906	MS3213-14	SCREW,MACHINE PAN HD,SELF-SEALING,NO 6-32UNC-2A,7/16 IN LG	EA	4
B-7	20	PAFZZ	5305-00-148-1286	96906	MS3213-36	SCREW,MACHINE PAN HD,SELF-SEALING,NO 10-32UNF-2A,3/4 IN LG	EA	4
B-7	21	PAFZZ	5945-00-201-9456	96906	MS24143D1	RELAY,ELECTROMAGNETIC 25 AMP,3PST, N O	EA	1
B-7	22	PAFZZ	5940-00-143-4780	96906	MS25036-108	TERMINAL,LUG CRIMP STYLE,16-14 AWG WIRE SIZE,NO 10 STUD SIZE	EA	10
B-7	23	PAFZZ	5940-00-681-8185	96906	MS35430-4	TERMINAL,LUG SOLDER TYPE,14-20 AWG WIRE SIZE,NO 6 STUD SIZE	EA	2
B-7	24	PAFZZ	5961-00-139-9812	81349	JAN1N5557	SEMICONDUCTOR DEVICE,DIODE	EA	1
B-7	25	PAFZZ	5940-00-143-4771	96906	MS25036-103	TERMINAL,LUG CRIMP STYLE,22-18 AWG WIRE SIZE, NO 10 STUD SIZE	EA	1
B-7	26	PAFZZ	5999-01-048-9865	81361	C5-19-6415	PRINTED CIRCUIT ASSEMBLY	EA	1
B-7	27	PAOZZ	4730-00-817-1891	30327	261P1-4	NUT,TUBE COUPLING 1/4 IN TUBE OD,3/8-24 THD SIZE, W/SLEEVE	EA	2
B-7	28	PAOZZ	9905-01-065-3065	81361	C5-19-6316-6	PLATE,IDENTIFICATION: POWER DISTRIBUTION UNIT	EA	1
B-7	29	MFFZZ		81361	E5-19-6391-52	TUBING,NONMETALLIC: 3/16 IN NOM ID,GREEN,MFD FROM 9330-01-073-1011	IN	14
B-7	30	PAFZZ	5940-00-825-3697	96906	MS17143-11	TERMINAL,LUG CRIMP STYLE, 16-14 AWG WIRE SIZE,NO 5 STUD SIZE	EA	4
B-7	31	PAFZZ	5940-00-825-3699	96906	MS17143-10	TERMINAL,LUG CRIMP STYLE,22-18 AWG WIRE SIZE,NO 5 STUD SIZE	EA	16

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(1) ILLUSTRATION (A) FIG NO.	(B) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) FSCM	(5) PART NUMBER	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
B-7	32	PAFZZ	5305-01-006-8953	96906	MS3213-27	SCREW,MACHINE PAN HD,SELF-SEALING,NO 8-32UNC-2A,5/8 IN LG	EA	4
B-7	33	PAFZZ	5305-01-053-0960	96906	MS3213-24	SCREW,MACHINE PAN HD,SELF-SEALING,NO 8-32UNC-2A,7/16 IN LG	EA	4
B-7	34	PAFZZ	5330-00-542-1329	96906	MS28775-120	PACKING,PREFORMED	EA	1
B-7	35	PAFZZ	5915-01-096-8853	81361	D5-19-6353	FILTER,RADIO FREQUENCY INTERFERENCE	EA	1
B-7	36	MFFZZ		81349	M5086/1-16-9	WIRE,ELECTRICAL MFD FROM 6145-00-578-7517	FT	V
B-7	37	PAFZZ	5310-00-809-8544	96906	MS27183-7	WASHER,FLAT .188 IN ID, .375 IN OD .049 IN THK	EA	4
B-7	38	PAFZZ	5310-00-811-3494	96906	MS21044N08	NUT,SELF-LOCKING, HEXAGON: NO 8-32UNJC-3B	EA	4
B-7	39	PAFZZ	5950-01-091-8626	81361	D5-19-6397	TRANSFORMER,POWER RECTIFIER MODULE, 400 HZ	EA	1
B-7	40	MFFZZ		81349	M5086/1-22-9	WIRE,ELECTRICAL MFD FROM 6145-00-578-7520	FT	V
B-7	41	PAFZZ	5940-00-557-1629	96906	MS25036-149	TERMINAL,LUG CRIMP STYLE, 22-18 AWG WIRE SIZE, NO 8 STUD SIZE	EA	2
B-7	42	PAFZZ	5340-00-989-9224	96906	MS25281R6	CLAMP,LOOP PLASTIC WIRE SUPPORT,RIBBED INNER DIA, 3/8 IN BUNDLE DIADIA	EA	2
B-7	43	PAFZZ	4730-00-116-2969	70494	A5S	CLAMP,HOSE	EA	2
B-7	44	PAFZZ	5930-01-055-9249	81361	B5-19-6261-1	SWITCH,PRESSURE	EA	1

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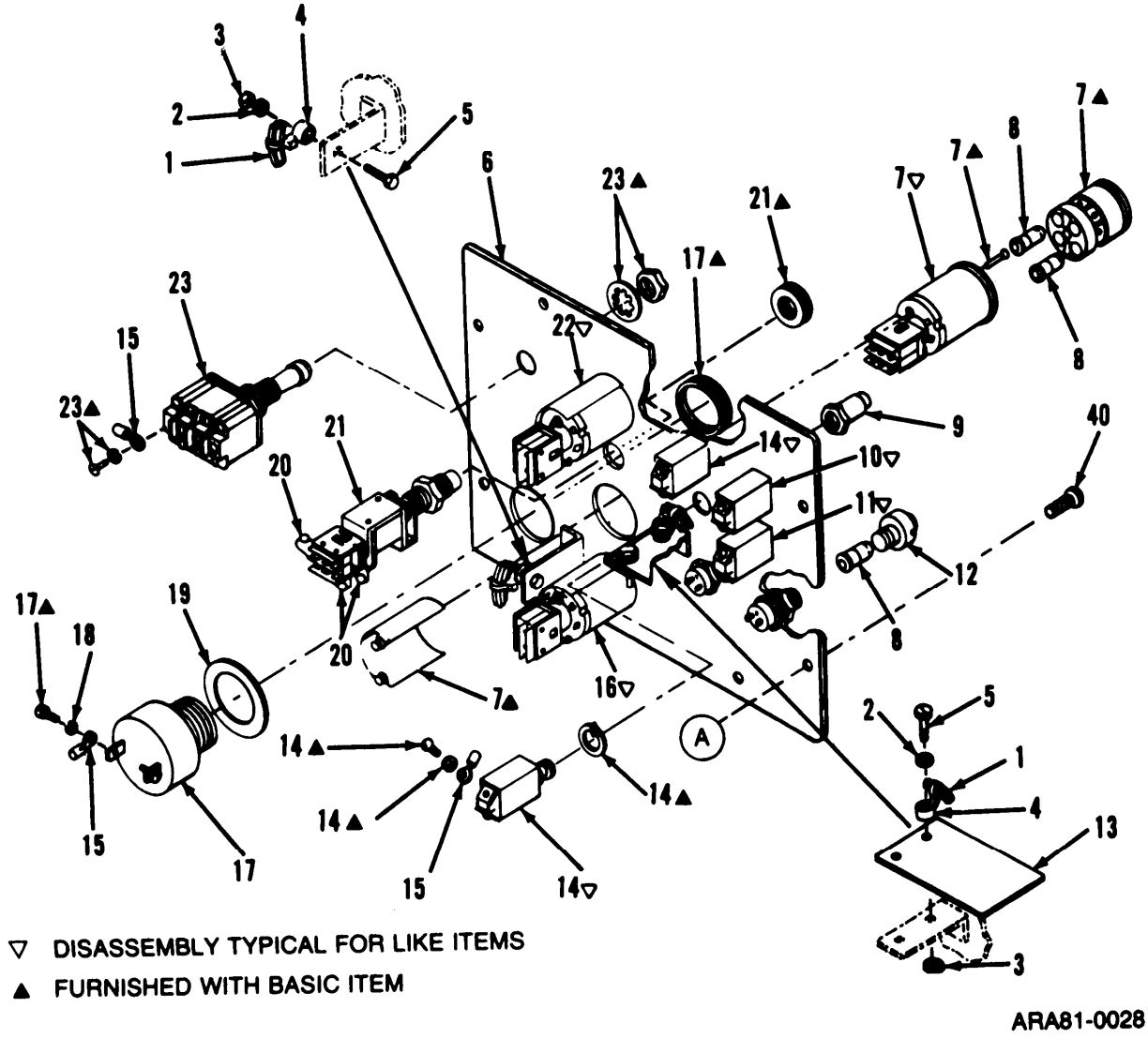

Figure B-8. Compartment control module (sheet 1 of 2)

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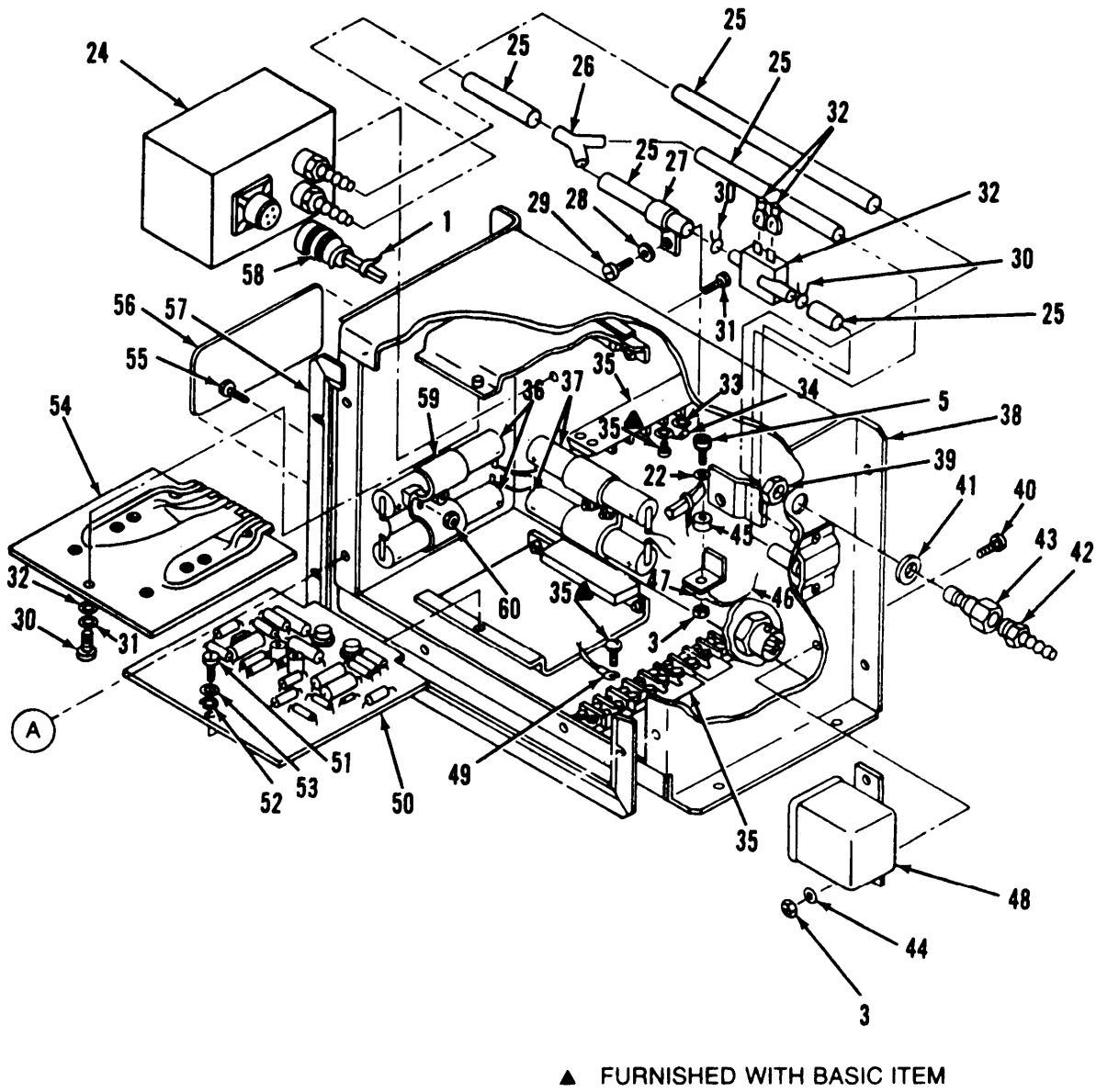

Figure B-8. Compartment control module (sheet 2 of 2)

(1) ILLUSTRATION (A) FIG NO.	(B) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) FSCM	(5) PART NUMBER	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GROUP 0240 COMPARTMENT CONTROL MODULE		
						E5-19-6376		
B-8	1	MFFZZ		81349	M5086/1-22-9	WIRE,ELECTRICAL MFD FROM 6145-00-578-7520	FT	V
B-8	2	PAFZZ	5310-00-014-5850	96906	MS27183-42	WASHER,FLAT .219 IN ID, .500 IN OD,.049 IN THK	EA	7
B-8	3	PAFZZ	5310-00-877-5797	96906	MS21044N3	NUT,SELF-LOCKING,HEXAGON:NO 10-32UNJF-38	EA	7
B-8	4	PAFZZ	5975-01-053-6294	09922	TF-5H	STRAP,TIEDOWN,CABLE	EA	4
B-8	5	PAFZZ	5305-00-179-8946	96906	MS51849-66	SCREW,MACHINE HEX HD,NO 10-32UNF-2A,3/4 IN LG	EA	4
B-8	6	XAFZZ		81361	D5-19-6378	PANEL,LETTERED	EA	1
B-8	7	PAFZZ	5930-01-052-7684	81361	E5-19-6376-155	SWITCH,PUSH HOUSING AND SWITCH: ENGRAVED "LOW PRESSURE"	EA	1
B-8	8	PAOZZ	6240-00-763-7744	81348	W-L-00111/7	LAMP,INCANDESCENT	EA	8
B-8	9	PAFZZ	5975-00-958-6451	82647	14500-1	BOOT,DUST AND AND MOISTURE SEAL	EA	4
B-8	10	PAFZZ	5925-01-054-3453	82647	7274-34-3/4	CIRCUIT BREAKER	EA	1
B-8	11	PAFZZ	5925-00-045-1704	82647	7274-12-1	CIRCUIT BREAKER	EA	1
B-8	12	PAFZZ	6210-00-635-4700	76854	VM911MS	LIGHT,INDICATOR	EA	2
B-8	13	PAFZZ	5999-01-048-9866	81361	C5-19-6688	PRINTED CIRCUIT ASSEMBLY,SWITCHING,AUXILIARY	EA	1
B-8	14	PAFZZ	5925-01-054-3452	82647	7274-34-1	CIRCUIT BREAKER	EA	2
B-8	15	PAFZZ	5940-00-813-0698	96906	MS25036-101	TERMINAL,LUG CRIMP STYLE, 22-18 AWG WIRE SIZE NO 6 STUD SIZE	EA	29
B-8	16	PAFZZ	5930-01-050-4362	04426	44-580151AAAA	SWITCH,PUSH ENGRAVED "OCCUPIED"	EA	1
B-8	17	PAFZZ	6350-00-267-0442	37942	SC628M	SIGNAL,ELECTRONIC, AUDIBLE	EA	1
B-8	18	PAFZZ	5310-00-579-0079	96906	MS35333-37	WASHER,LOCK INT TOOTH, NO 6 NOM SIZE	EA	2
B-8	19	MFFZZ		81361	B5-19-5710	GASKET MFD FROM 9320-00-785-8171	EA	1
B-8	20	PAFZZ	5961-00-924-6981	81349	JAN1N4245	SEMICONDUCTOR DEVICE,DIODE	EA	3
B-8	21	PAFZZ	5930-00-854-7864	18876	9745533	SWITCH,PUSH	EA	1
B-8	22	PAFZZ	5930-01-108-2588	81361	E5-19-6376-159	SWITCH,PUSH HOUSING AND SWITCH: ENGRAVED "MASK"	EA	1
B-8	23	PAFZZ	5930-00-847-2599	96906	MS24660-23D	SWITCH,TOGGLE	EA	1
B-8	24	PAFZZ	6685-01-056-5283	33107	P92-1020	TRANSMITTER,PRESSURE	EA	1
B-8	25	MFFZZ		81361	E5-19-6376-46	TUBING,NONMETALLIC: 3/16 IN NOM ID,GREEN,MFD FROM 9330-01-073-1011	IN	18
B-8	26	PAFZZ	6640-00-494-0527	05178	6152	CONNECTOR,ELASTIC TUBING,BRANCHED: Y SHAPE, .25 IN OD	EA	1
B-8	27	PAFZZ	5340-00-989-9224	96906	MS25281R6	CLAMP,LOOP PLASTIC SIRE SUPPORT,RIBBED INNER DIA, 3/8 IN BUNDLE DIA	EA	1
B-8	28	PAFZZ	5310-00-765-3197	96906	MS27183-41	WASHER,FLAT .188 IN ID, .438 IN OD, .049 IN THK	EA	1
B-8	29	PAFZZ	5305-00-211-8193	96906	MS51849-54	SCREW,MACHINE HEX HD, NO 8-32UNC-2A,1/2 IN LG	EA	1
B-8	30	PAFZZ	4730-00-116-2969	70494	A58	CLAMP,HOSE	EA	2
B-8	31	PAFZZ	5305-01-054-2488	96906	MS3213-11	SCREW,MACHINE PAN HD,SELF-SEALING, NO 6-32UNC-2A,1/4 IN LG	EA	2
B-8	32	PAFZZ	5930-01-068-8812	81361	5-19-6261-2	SWITCH,PRESSURE	EA	1
B-8	33	PAFZZ	5940-00-681-8185	96906	MS35430-4	TERMINAL,LUG SOLDER TYPE,14-20 AWG WIRE,NO 6 STUD SIZE	EA	2
B-8	34	PAFZZ	5961-00-139-9812	81349	JAN1N5557	SEMICONDUCTOR DEVICE,DIODE	EA	1

(1) ILLUSTRATION (A) FIG NO.	(B) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) FSCM	(5) PART NUMBER	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
B-8	35	XAFZZ		81349	37TB10	TERMINAL BOARD	EA	2
B-8	36	PAFZZ	6135-01-053-0564	09823	CS1004	BATTERY,DRY CELL TYPE 225SC	EA	2
B-8	37	PAFZZ	6135-01-055-9627	09823	CS1005	BATTERY,DRY CELL TYPE 225SC	EA	2
B-8	38	XAFZZ		81361	E5-19-6377	HOUSING, COMPARTMENT CONTROL	EA	1
B-8	39	PAFZZ	5310-00-199-1056	96906	MS35650-3385	NUT,PLAIN,HEXAGON 3/8-24UNF-2B	EA	1
B-8	40	PAFZZ	5305-01-031-5092	96906	MS3213-33	SCREW,MACHINE PAN HD,SELF-SEALING,NO 10-32UNF-2A,1/2 IN LG	EA	10
B-8	41	PAFZZ	5330-00-954-6684	80205	NAS1598-6Y	PACKING WITH RETAINER: 3/8 IN BOLT SIZE	EA	1
B-8	42	PAFZZ	4730-01-053-5923	81361	B5-19-6362	ADAPTER,STRAIGHT,HOSE	EA	1
B-8	43	PAFZZ	4730-01-017-5119	30327	KF03-02PS	ADAPTER,STRAIGHT, PIPE TO HOSE	EA	1
B-8	44	PAFZZ	5310-00-014-5850	96906	MS27183-42	WASHER,FLAT .219 IN ID,.500 IN. OD, .049 IN THK	EA	1
B-8	45	PAFZZ	5975-01-053-6294	09922	TF-5H	STRAP,TIEDOWN,CABLE	EA	1
B-8	46	MFFZZ		81349	M5086/1-20-9	WIRE,ELECTRICAL MFD FROM 6145-00-578-7519	FT	V
B-8	47	PAFZZ	5940-00-143-4771	96906	MS25036-103	TERMINAL,LUG CRIMP STYLE,22-18 AWG WIRE SIZE, NO 10 STUD SIZE	EA	1
B-8	48	PAFZZ	5945-01-059-7074	81361	C5-19-6383	FLASHER,THERMAL E11	EA	1
B-8	49	PAFZZ	5940-00-825-3699	96906	MS17143-10	TERMINAL,LUG CRIMP STYLE,22-18 AWG WIRE SIZE, NO 5 STUD SIZE	EA	43
B-8	50	PAFZZ	5999-01-048-9867	81361	D5-19-6193-10	PRINTED CIRCUIT BOARD,SWITCHING	EA	1
B-8	51	PAFZZ	5305-00-227-1543	96906	MS51849-33	SCREW,MACHINE HEX HD, NO 6-32UNC-2A,.38 IN LG	EA	2
B-8	52	PAFZZ	5310-00-045-4007	96906	MS35338-41	WASHER,LOCK SPRING, NO 6 NOM SIZE	EA	2
B-8	53	PAFZZ	5310-00-983-8483	96906	MS27183-5	WASHER,FLAT .156 IN ID,.312 IN OD, .035 IN THK	EA	2
B-8	54	PAFZZ	5999-01-050-4635	81361	C5-19-6197	PRINTED CIRCUIT BOARD: POWER	EA	1
B-8	55	PAFZZ	5305-01-033-2636	96906	MS3213-13	SCREW,MACHINE PAN HD, SELF-SEALING,NO 6-32UNC-2A,3/8 IN LG	EA	4
B-8	56	PAFZZ	9905-01-052-3766	81361	C5-19-6316-7	PLATE,IDENTIFICATION: CONTROL MODULE COMPARTMENT	EA	1
B-8	57	PAFZZ	5999-01-070-8434	81361	C5-19-6382	SHIELDING GASKET, RFI	EA	1
B-8	58	XBFZZ	5935-00-715-2756	96906	MS3126F10-68	CONNECTOR,PLUG,ELECTRICAL	EA	1
B-8	59	PAFZZ	6135-01-052-3744	81361	B5-19-6659	RETAINER,BATTERY	EA	2
B-8	60	PAFZZ	5310-00-081-8087	96906	MS21044N06	NUT,SELF-LOCKING,HEXAGON: NO 6-32UNJC-3B	EA	4

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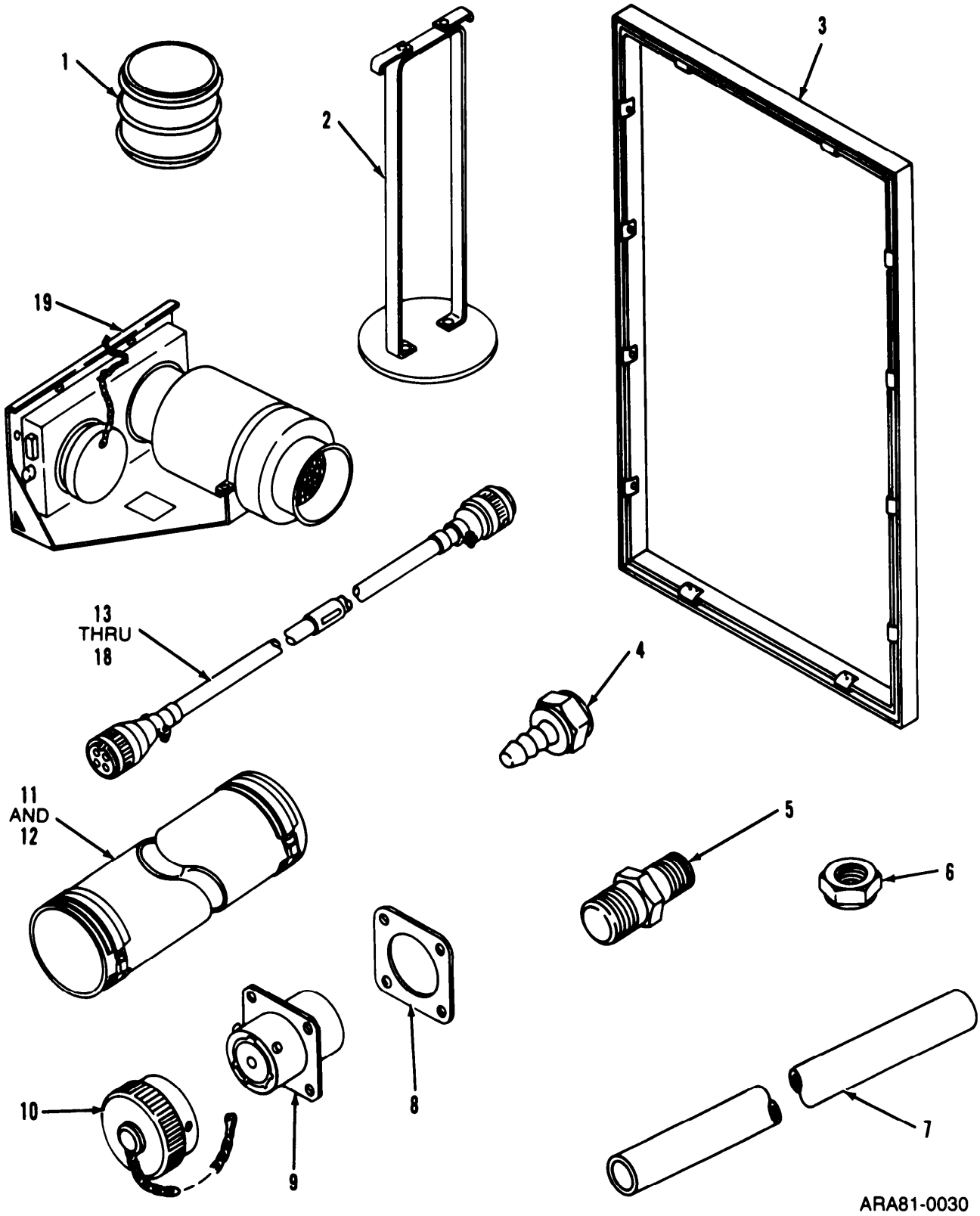

Figure B-9. M263 installation kit

(1) ILLUSTRATION (a) FIG NO	(b) ITEM NO	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) FSCM	(5) PART NUMBER	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GROUP 0300 M263 INSTALLATION KIT		
						PL5-19-6705		
B-9	1	PAOZZ	4730-01-049-0805	81361	C5-19-6182	COUPLING,AIR DUCT	EA	5
B-9	2	PAOZZ	4240-01-052-3783	81361	C5-19-6180	HOLDER,STORAGE,AIR DUCT	EA	9
B-9	3	PAOZZ	4240-01-061-7233	81361	E5-19-5908	FRAME,INTERFACE	EA	1
B-9	4	PAOZZ	4730-01-050-7540	30327	KF03-04RV	ADAPTER,STRAIGHT,TUBE TO HOSE	EA	1
B-9	5	PAOZZ	4730-01-067-9232	81361	C5-19-6654	ADAPTER,PIPE TO 1/4 NPS,7/16-20UNF-2A	EA	1
B-9	6	PAOZZ	5310-00-897-6081	96906	MS35691-32	NUT,PLAIN,HEXAGON JAM,7/16-20UNF-2B	EA	1
B-9	7	MOOZZ		81361	PL5-19-6705-20	HOSE,NONMETALLIC RUBBER,3/16 IN NOM ID MFD FROM 4720-00-065-8682	EA	1
B-9	8	PAOZZ	5330-01-054-0857	96906	MS90484-20-1	GASKET FLANGE MOUNT,ELECTRICAL CONNECTOR	EA	1
B-9	9	PAOZZ	5935-00-994-0294	96906	MS3119E20-16	ADAPTER,CONNECTOR RECEPTACLE,ELECTRICAL: THRU-BULKHEAD MTG.	EA	1
B-9	10	PAOZZ	5935-00-762-1392	96906	MS3181-20C	COVER,ELECTRICAL	EA	1
B-9	11	PAOOO	4720-01-074-9220	30299	0120-0600-0109	HOSE,AIR DUCT 6 IN ID,72 IN LG O/A	EA	8
B-9	12	PAOOO	4720-01-063-4567	30299	0120-0600-0106	HOSE,AIR DUCT 6 IN ID,36 IN LG O/A	EA	1
B-9	13	PAOZZ	4240-01-069-3494	81361	5-19-6160-40	CABLE ASSEMBLY,SPECIAL PURPOSE,ELECTRICAL: 72 IN NOM,LG EXCLUDINGTERMINATIONS	EA	1
B-9	14	PAOZZ	4240-01-068-2356	81361	5-19-6160-50	CABLE ASSEMBLY,SPECIAL PURPOSE,ELECTRICAL: 144 IN NOM LG EXCLUDINGTERMINATIONS	EA	1
B-9	15	PAOZZ	4240-01-073-3439	81361	5-19-6162-10	CABLE ASSEMBLY,SPECIAL PURPOSE,ELECTRICAL: 240 IN NOM LG EXCLUDINGTERMINATIONS	EA	1
B-9	14	PAOZZ	4240-01-067-9826	81361	5-19-6684	CABLE ASSEMBLY,SPECIAL PURPOSE,ELECTRICAL: 72 IN NOM LG EXCLUDINGTERMINATIONS	EA	1
B-9	17	PAOZZ	4240-01-067-8376	81361	5-19-6170-10	CABLE ASSEMBLY,SPECIAL PURPOSE,ELECTRICAL: 54 IN NOM LG EXCLUDINGTERMINATIONS	EA	1
B-9	18	PAOZZ	4240-01-068-2355	81361	5-19-6170-40	CABLE ASSEMBLY,SPECIAL PURPOSE,ELECTRICAL 76 IN NOM LG	EA	1
B-9	19	XBOOO		81361	D5-19-6628	AIRFLOW VALVE AND SILENCER	EA	1

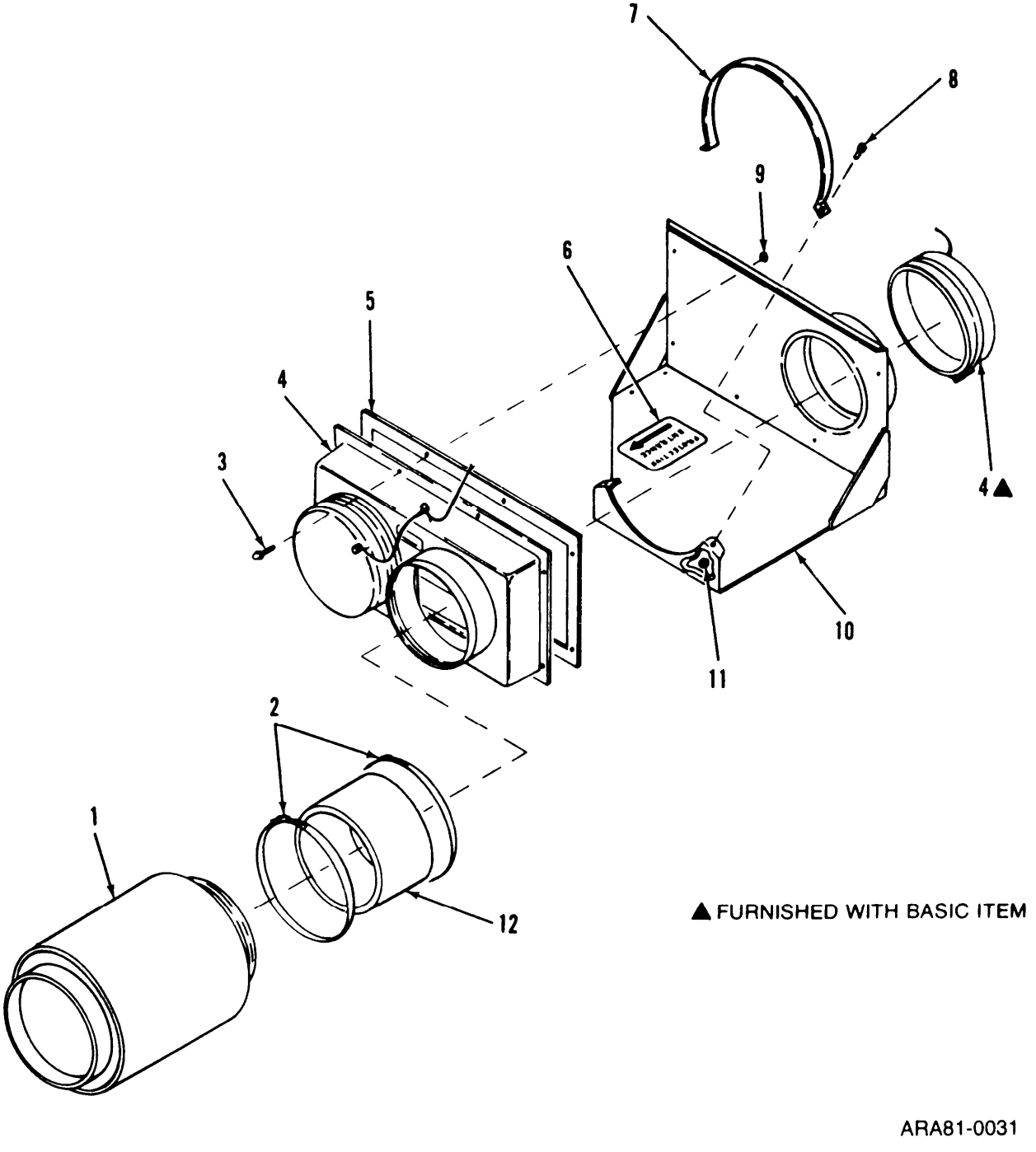

Figure B-10. Airflow valve and silencer

(1) ILLUSTRATION (a) FIG NO	(b) ITEM NO	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) FSCM	(5) PART NUMBER	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GROUP 0310 AIRFLOW VALVE AND SILENCER		
						D5-19-6628		
B-10	1	PAOZZ	2990-01-057-3475	81361	C5-19-6627	MUFFLER,INTAKE	EA	1
B-10	2	PAOZZ	4730-00-908-6294	96906	MS35842-16	CLAMP,HOSE 4-1/8 TO 7 IN DIA RANGE	EA	2
B-10	3	PAOZZ	5305-00-179-8946	96906	MS51849-66	SCREW,MACHINE HEX HD,NO 10-32UNF-2A,3/4 IN LG	EA	8
B-10	4	PAOFF	4240-01-055-1493	81361	E5-19-6136	VALVE,AIRFLOW	EA	1
B-10	5	PAOZZ	5330-01-088-4442	81361	5-19-6348	GASKET AIRFLOW VALVE	EA	1
B-10	6	PAOZZ	9905-01-051-0187	81361	B5-19-6656	PLATE,INSTRUCTION PROTECTIVE ENTRANCE	EA	1
B-10	7	XBOZZ		81361	C5-19-6626	STRAP,RETAINING	EA	1
B-10	8	PAOZZ	5305-00-157-5621	96906	MS51849-56	SCREW,MACHINE HEX HD,NO 8-32UNC-2A,3/4 IN LG	EA	2
B-10	9	PAOZZ	5310-00-877-5797	96906	MS21044N3	NUT,SELF-LOCKING,HEXAGON: NO 10-32UNJF-3B	EA	8
B-10	10	XBOZZ		81361	D5-19-6625	BRACKET,MOUNTING	EA	1
B-10	11	PAOZZ	5310-00-811-3494	96906	MS21044N08	NUT,SELF-LOCKING,HEXAGON: NO 8-32UNJC-3B	EA	2
B-10	12	MOOZZ		81361	D5-19-6628-14	HOSE,NONMETALLIC 3.50 IN LG,MFD FROM 4720-01-106-4602	EA	1

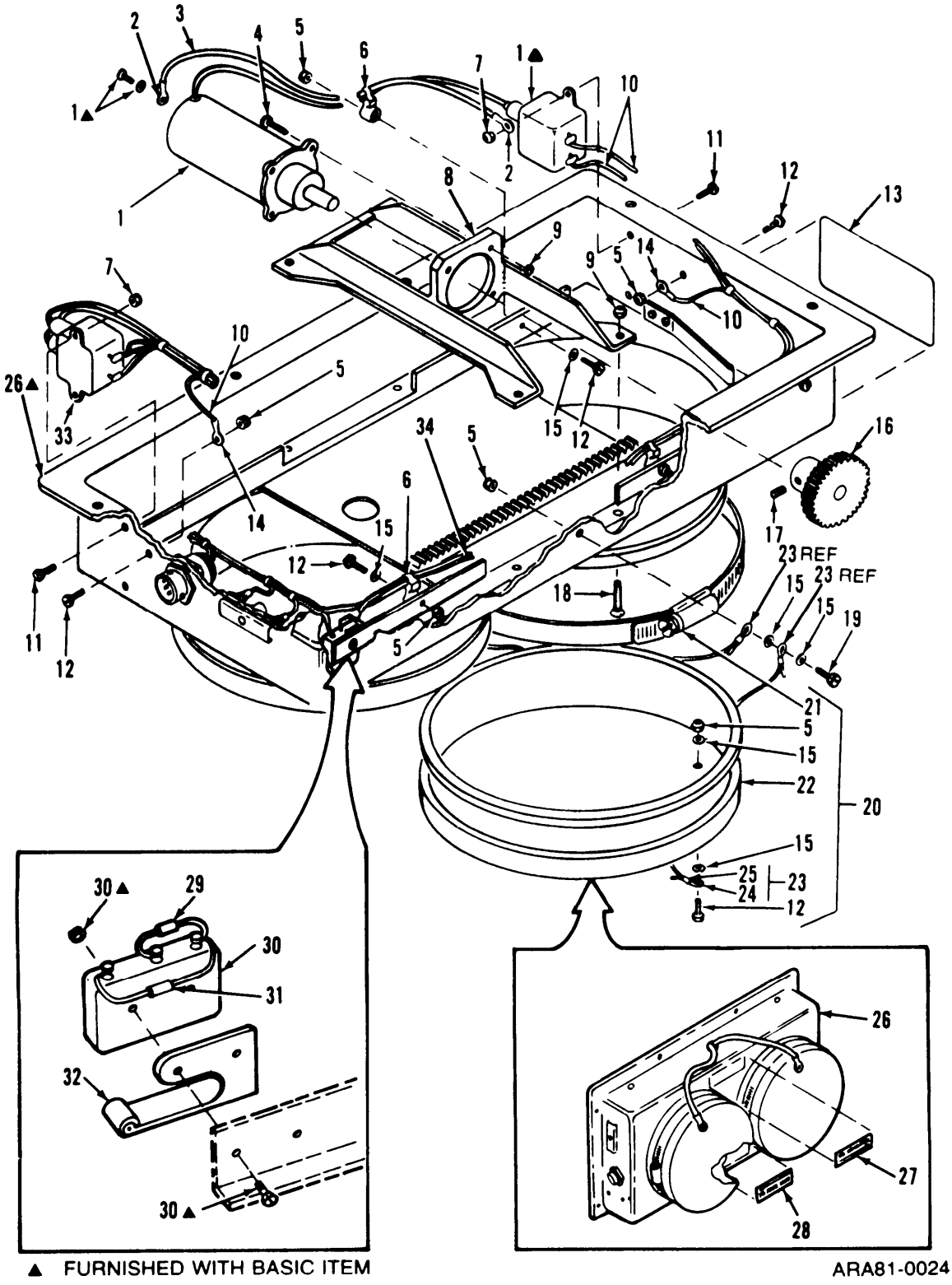

Figure B-11, Airflow valve.

(1) ILLUSTRATION (a) FIG NO	(b) ITEM NO	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) FSCM	(5) PART NUMBER	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GROUP 0311 AIRFLOW VALVE		
						E5-19-6136		
B-11	1	PAFZZ	6105-01-056-9045	25140	5A3128	GEARCASE-MOTOR PLANETARY,GEAR REDUCED	EA	1
B-11	2	PAFZZ	5940-00-113-9828	96906	MS25036-148	TERMINAL,LUG CRIMP STYLE,22-18 AWG WIRE SIZE,NO 4 STUD SIZE	EA	2
B-11	3	MFFZZ		81349	M5086/1-20-9	WIRE,ELECTRICAL MFD FROM 6145-00-578-7519	FT	V
B-11	4	PAFZZ	5305-00-582-5808	96906	MS35265-31	SCREW,MACHINE FIL HD,NO 6-32UNC-2A,5/8IN LG	EA	4
B-11	5	PAOZZ	5310-00-811-3494	96906	MS21044N08	NUT,SELF-LOCKING,HEXAGON: NO 8-32UNJC-3B	EA	3
B-11	6	PAFZZ	5975-01-053-6294	09922	TF-5H	STRAP,TIEDOWN,CABLE	EA	3
B-11	7	PAFZZ	5310-00-088-0551	96906	MS21044N04	NUT,SELF-LOCKING,HEXAGON: NO 4-4OUNJC-3B	EA	8
B-11	8	XAFZZ		81361	D5-19-6138	MOUNT,MOTOR	EA	1
B-11	9	PAFZZ	5310-00-081-8087	96906	MS21044N06	NUT,SELF-LOCKING,HEXAGON	EA	12
B-11	10	MFFZZ		81349	M5086/1-22-9	WIRE,ELECTRICAL MFD FROM 6145-00-578-7520	FT	V
B-11	11	PAFZZ	5305-00-242-1264	96906	MS51849-13	SCREW,MACHINE HEX HD,NO 4-4OUNC-2A,.38 IN LG	EA	8
B-11	12	PAOZZ	5305-00-115-9934	96906	MS51849-55	SCREW,MACHINE HEX HD,NO 8-32UNC-2A,5/8 IN LG	EA	2
B-11	13	PAOZZ	9905-01-065-9382	81361	C5-19-6149	PLATE,IDENTIFICATION: AIRFLOW VALVE	EA	1
B-11	14	PAFZZ	5940-00-557-1629	96906	MS25036-149	TERMINAL,LUG CRIMP STYLE,22-1B AWG WIRE SIZE,NO S STUD SIZE	EA	6
B-11	15	PAOZZ	5310-00-765-3197	96906	MS27183-41	WASHER,FLAT .188 IN ID, .438 OD, .049 IN THK	EA	6
B-11	16	XAFZZ		81361	C5-19-6144	GEAR	EA	1
B-11	17	PAFZZ	5305-00-058-9362	96906	MS51977-19	SETSCREW HEX SOCKET,NO 6-32UNC-3A,3/16 IN LG	EA	1
B-11	18	PAFZZ	5305-00-984-6221	96906	MS35206-234	SCREW,MACHINE PAN HD,NO 6-32UNC-2A,1 IN LG	EA	8
B-11	19	PAOZZ	5305-00-157-5621	96906	MS51849-56	SCREW,MACHINE HEX HD,NO 8-32UNC-2A,3/4 IN LG	EA	1
B-11	20	PAOOO	5340-01-048-6327	81361	C5-19-6145	CAP,PROTECTIVE,DUST AND MOISTURE SEAL	EA	2
B-11	21	PAOZZ	4730-00-908-6294	96906	MS35842-16	CLAMP,HOSE 4-1/8 TO 7 IN DIA RANGE	EA	2
B-11	22	XAOZZ		81361	C5-19-6309	CAP,RUBBER	EA	2
B-11	23	AOOOO		99862	CL-2-FANDCL-2-C-8.0	CABLE	EA	2
B-11	24	MOOZZ		99862	CL-2-C-8.0	CABLE,NYLON: 8 IN LG MFD FROM 4010-00-069-5180	EA	2
B-11	25	PAOZZ	4030-00-878-8693	99862	CL2F	FERRULE,WIRE ROPE	EA	4
B-11	26	XAFZZ		81361	E9-19-6137	HOUSING,VALVE	EA	1
B-11	27	PAOZZ	9905-01-051-0186	81361	B5-19-6147	PLATE,INSTRUCTION TO SHELTER	EA	1
B-11	28	PAOZZ	9905-01-050-7556	81361	B5-19-6148	PLATE,INSTRUCTION TO PROT	EA	1
B-11	29	PAFZZ	5961-00-924-6981	81349	JAN1N4245	SEMICONDUCTOR DEVICE,DIODE	EA	2
B-11	30	PAFZZ	5930-00-913-7960	81349	MS25085-2	SWITCH,SENSITIVE	EA	2
B-11	31	PAFZZ	5910-00-114-0510	81349	M39014/01-1581	CAPACITOR,FIXED,CERAMIC	EA	2
B-11	32	PAFZZ	5930-00-296-9610	94135	12Z7903-178	ADAPTER,SWITCH ACTU	EA	2
B-11	33	PAFZZ	5915-01-075-7240	81361	C5-19-6152	FILTER,RADIO FREQUENCY INTERFERENCE	EA	1
B-11	34	MFFZZ		81349	M7078-3-22-1	CABLE,SPECIAL PURPOSE,ELECTRICAL: MFD FROM 6145-00-608-5484	FT	V

(1) ILLUSTRATION (a) FIG NO	(b) ITEM NO	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) FSCM	(5) PART NUMBER	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
						GROUP 0500 BULK MATERIAL		
BULK	1	PAOZZ	4010-00-069-5180	99862	CL2C	CABLE,NYLON COVERED	FT	7
BULK	2	PAOZZ	4720-00-065-8682	30327	C403	HOSE,NONMETALLIC RUBBER 3/16 IN NOM ID	FT	13
BULK	3	PAOZZ	4720-00-996-0381	30327	44PRED	TUBIN,NONMETALLIC 1/4 IN OD, .040 IN WALL THK RED	FT	5
BULK	4	PAFZZ	6145-00-578-7517	81349	M5086/1-16-9	WIRE,ELECTRICAL 600 V,16AWG,STRANDED SINGLE CONDUCTOR, WHITE	FT	47
BULK	5	PAFZZ	6145-00-578-7519	81349	M5086/1-20-9	WIRE,ELECTRICAL 600 V,20 AWG,STRANDED SINGLE CONDUCTOR, WHITE	FT	35
BULK	6	PAFZZ	6145-00-578-7520	81349	M5086/1-22-9	WIRE,ELECTRICAL 600 V,22 AWG,STRANDED SINGLE CONDUCTOR, WHITE	FT	278
BULK	7	PAFZZ	6145-00-608-5484	81349	M7078-3-22-1	CABLE,SPECIAL PURPOSE,ELECTRICAL: 600 V,22 AWG, STRANDED SINGLECONDUCTOR,SHIE DED	FT	5
BULK	8	PAFZZ	9320-00-785-8171	81349	MIL-R-3065	RUBBER STRIP 1/16 IN NOM THK, 2FT X 2FT, GR SC4158F2G	SH	1
BULK	9	PAOZZ	4720-01-053-0316	30327	44PGREEN	TUBING,NONMETALLIC 1/4 IN OD, .040 IN WAL THK GREEN	FT	5
BULK	10	PAFZZ	9330-01-073-1011	81348	ZZ-R-765	TUBING NONMETALLIC: SILICONE RUBBER,GREEN,.188 IN ID, .375 IN OD, CL2B,OR 50	FT	4
BULK	11	PAOZZ	4720-01-106-4602	81361	B5-19-6716	HOSE,NONMETALLIC 6.000 IN ID,4.000 IN LG,50 PSI BURST PRESSURE	EA	1

SECTION III. SPECIAL TOOLS LIST

(NOT APPLICABLE)

SECTION IV NATIONAL STOCK NUMBER AND PART NUMBER INDEX

STOCK NUMBER	FIG. NO.	ITEM NO.	STOCK NUMBER	FIG. NO.	ITEM NO.
5310-00-014-5850	B-3	37	5330-00-248-3849	B-1	9
5310-00-014-5850	B-8	2	5330-00-250-0236	B-1	8
5310-00-014-5850	B-8	44	6350-00-267-0442	B-8	17
5925-00-045-1704	B-7	7	5305-00-269-3240	B-3	28
5925-00-045-1704	B-8	11	6220-00-283-9732	B-2	30
5310-00-045-3296	B-1	3	4720-00-288-9757	BULK	
5310-00-045-3299	B-1	24	5930-00-296-9610	B-11	32
5310-00-045-3299	B-1	33	5930-00-296-9610	B-5	32
5310-00-045-4007	B-2	45	5310-00-435-8983	B-1	31
5310-00-045-4007	B-8	52	5305-00-477-2713	B-4	8
5305-00-051-4075	B-3	44	6640-00-494-0527	B-8	26
5930-00-057-5848	B-2	7	5330-00-542-1329	B-7	34
5310-00-058-3599	B-2	34	5905-00-553-8100	B-7	14
5305-00-058-9362	B-11	17	5940-00-557-1629	B-11	14
5305-00-058-9362	B-5	17	5940-00-557-1629	B-2	16
4720-00-065-8682	BULK		5940-00-557-1629	B-5	14
5305-00-068-0513	B-3	22	5940-00-557-1629	B-7	41
4010-00-069-5180	BULK		5310-00-559-0070	B-2	15
5310-00-080-6004	B-3	26	5310-00-575-5292	B-2	9
5310-00-081-4219	B-3	43	6145-00-578-7517	BULK	
5310-00-081-8087	B-11	9	6145-00-578-7519	BULK	
5310-00-081-8087	B-2	51	6145-00-578-7520	BULK	
5310-00-081-8087	B-5	9	5310-00-579-0079	B-8	18
5310-00-081-8087	B-8	60	5305-00-582-5808	B-11	4
5310-00-088-0551	B-11	7	5305-00-582-5808	B-5	4
5310-00-088-0551	B-2	12	6145-00-608-5484	BULK	
5310-00-088-0551	B-5	7	5940-00-615-6073	B-2	11
5310-00-088-0551	B-7	13	5315-00-616-5526	B-4	2
5940-00-113-8179	B-2	35	6210-00-635-4700	B-2	17
5940-00-113-8179	B-7	1	6210-00-635-4700	B-8	12
5940-00-113-9828	B-11	2	5940-00-681-8185	B-7	23
5940-00-113-9828	B-5	2	5940-00-681-8185	B-8	33
5910-00-114-0510	B-11	31	5935-00-715-2756	B-8	58
5910-00-114-0510	B-5	31	5935-00-762-1392	B-9	10
5305-00-115-9406	B-1	32	6240-00-763-7744	B-2	22
5305-00-115-9934	B-1	11	6240-00-763-7744	B-8	8
5305-00-115-9934	B-11	12	5310-00-765-3197	B-1	12
5305-00-115-9934	B-3	12	5310-00-765-3197	B-11	15
5305-00-115-9934	B-5	12	5310-00-765-3197	B-3	13
4730-00-116-2969	B-7	43	5310-00-765-3197	B-5	15
4730-00-116-2969	B-8	30	5310-00-765-3197	B-8	28
5340-00-119-4705	B-3	40	5925-00-768-2035	B-7	8
5961-00-139-9812	B-7	24	9320-00-785-8171	BULK	
5961-00-139-9812	B-8	34	5310-00-809-4058	B-3	21
5940-00-143-4771	B-2	3	5310-00-809-8544	B-7	37
5940-00-143-4771	B-7	25	5310-00-809-8546	B-7	11
5940-00-143-4771	B-8	47	5310-00-810-1786	B-4	16
5940-00-143-4774	B-7	5	5310-00-811-3494	B-1	18
5940-00-143-4780	B-7	22	5310-00-811-3494	B-10	11
5330-00-143-8571	B-2	29	5310-00-811-3494	B-11	5
3110-00-144-8882	B-4	5	5310-00-811-3494	B-3	19
5305-00-148-1286	B-2	21	5310-00-811-3494	B-5	5
5305-00-148-1286	B-7	20	5310-00-811-3494	B-7	38
6240-00-155-7784	B-2	27	5940-00-813-0698	B-8	15
6240-00-155-7932	B-2	28	5925-00-814-8428	B-7	4
5305-00-157-5621	B-1	22	4730-00-817-1891	B-3	41
5305-00-157-5621	B-10	8	4730-00-817-1891	B-7	27
5305-00-157-5621	B-11	19	5355-00-821-5225	B-2	20
5305-00-157-5621	B-5	19	5305-00-824-7363	B-3	38
5310-00-167-0821	B-4	15	5940-00-825-3697	B-7	30
5310-00-167-0835	B-4	7	5940-00-825-3699	2	5
5305-00-179-8946	B-1	2	5940-00-825-3699	B-7	31
5305-00-179-8946	B-10	3	5940-00-825-3699	B-8	49
5305-00-179-8946	B-7	12	5930-00-847-2599	B-8	23
5305-00-179-8946	B-8	5	5930-00-854-7864	B-8	21
5305-00-180-4966	B-3	39	5310-00-877-5797	B-10	9
5310-00-187-2400	B-3	27	5310-00-877-5797	B-2	4
5310-00-199-1056	B-2	19	5310-00-877-5797	B-3	34
5310-00-199-1056	B-8	39	5310-00-877-5797	B-7	9
5945-00-201-9456	B-7	21	5310-00-877-5797	B-8	3
5940-00-204-8966	B-2	8	4030-00-878-8693	B-1	14
5940-00-204-8966	B-7	3	4030-00-878-8693	B-11	25
5305-00-211-8193	B-1	21	4030-00-878-8693	B-3	15
5305-00-211-8193	B-8	29	4030-00-878-8693	B-5	25
5305-00-227-1543	B-2	44	5305-00-889-2999	B-2	32
5305-00-227-1543	B-8	51	6220-00-891-1491	B-2	25
5310-00-227-4882	B-4	6	6240-00-892-4420	B-7	18
4240-00-237-0227	B-3	1	5310-00-897-6081	B-1	35
5305-00-242-1264	B-11	11	5310-00-897-6081	B-9	6
5305-00-242-1264	B-5	11	4730-00-908-6294	B-1	17

STOCK NUMBER	FIGURE NO.	ITEM NO.	STOCK NUMBER	FIGURE NO.	ITEM NO.
4730-00-908-6294	B-10	2	5365-01-053-2593	B-4	13
4730-00-908-6294	B-113	21	9905-01-053-3006	B-2	37
4730-00-908-6294	B-3	18	3120-01-053-5848	B-4	11
4730-00-908-6294	B-5	21	4730-01-053-5923	B-2	38
5935-00-912-9599	B-1	29	4730-01-053-5923	B-8	42
5930-00-913-7960	B-11	30	5975-01-053-6294	B-11	6
5930-00-913-7960	B-5	30	5975-01-053-6294	B-5	6
5961-00-924-6981	B-11	29	5975-01-053-6294	B-7	10
5961-00-924-6981	B-5	29	5975-01-053-6294	B-8	4
5961-00-924-6981	B-8	20	5975-01-053-6294	B-8	45
5330-00-928-0290	B-2	41	5330-01-054-0857	B-9	8
5310-00-928-9821	B-1	23	5305-01-054-2488	B-8	31
5310-00-928-9821	B-1	37	5925-01-054-3452	B-8	14
5310-00-934-9748	B-2	10	5925-01-054-3453	B-8	10
5330-00-954-6684	B-2	18	9905-01-054-4263	B-4	19
5330-00-954-6684	B-2	39	5310-01-054-4643	B-1	28
5330-00-954-6684	B-8	41	4240-01-054-7020	B-3	10
5975-00-958-6451	B-7	17	4240-01-055-1493	B-10	4
5975-00-958-6451	B-8	9	4240-01-055-1493	B-3	36
5305-00-978-9369	B-4	12	5930-01-055-9249	B-7	44
5410-00-981-8701	B-1	27	6135-01-055-9627	B-8	37
5310-00-983-8483	B-2	46	6685-01-056-5283	B-2	49
5310-00-983-8483	B-8	53	6685-01-056-5283	B-8	24
5305-00-984-4976	B-2	33	6105-01-056-9045	B-11	1
5305-00-984-6221	B-11	18	6105-01-056-9045	B-5	1
5305-00-984-6221	B-5	18	4240-01-057-3378	B-3	3
5340-00-989-9224	B-7	42	4240-01-057-3474	B-6	4
5340-00-989-9224	B-8	27	2990-01-057-3475	B-10	1
5935-00-990-5580	B-1	30	3110-01-057-4653	B-4	10
5935-00-994-0294	B-9	9	4520-01-057-7010	B-3	45
4720-00-996-0381	BULK		5305-01-057-7206	B-2	24
5305-01-006-8953	B-7	32	5365-01-057-7379	B-3	42
4730-01-017-5119	B-1	7	4140-01-059-2095	B-3	20
4730-01-017-5119	B-8	43	5945-01-059-7074	B-8	48
5305-01-031-5092	B-6	3	9905-01-061-7139	B-1	25
5305-01-031-5092	B-8	40	4240-01-061-7233	B-9	3
5305-01-033-2636	B-8	55	4720-01-063-4567	B-9	12
9905-01-048-2790	B-1	26	9905-01-065-3065	B-7	28
4240-01-048-2803	B-1	4	9905-01-065-9382	B-11	13
4240-01-048-2923	B-1	1	9905-01-065-9382	B-5	13
5340-01-048-6327	B-1	10	9905-01-066-3084	B-3	32
5340-01-048-6327	B-11	20	4240-01-066-3266	B-3	5
5340-01-048-6327	B-3	11	5925-01-067-5437	B-7	6
5340-01-048-6327	B-5	20	4240-01-067-5605	B-3	4
5999-01-048-9865	B-7	26	4240-01-067-8376	B-9	17
5999-01-048-9866	B-8	13	9905-01-067-8634	B-3	31
5999-01-048-9867	B-8	50	4730-01-067-9232	B-1	36
4240-01-049-0804	B-1	34	4730-01-067-9232	B-9	5
4730-01-049-0805	B-9	1	5330-01-068-0515	B-3	30
9905-01-049-1385	B-1	20	4240-01-068-2355	B-9	18
5930-01-050-4362	B-8	16	4240-01-068-2356	B-9	14
5999-01-050-4635	B-2	43	9905-01-068-2368	B-1	19
5999-01-050-4635	B-8	54	4240-01-068-8645	B-3	7
5999-01-050-4636	B-2	47	5930-01-068-8812	B-8	32
4730-01-050-7540	B-1	5	4240-01-069-3494	B-9	13
4730-01-050-7540	B-9	4	5330-01-069-9824	B-3	24
9905-01-050-7556	B-11	28	4240-01-069-9826	B-9	16
9905-01-050-7556	B-5	28	5999-01-070-8434	B-8	57
9905-01-050-7557	B-3	33	9905-01-071-5711	B-3	2
9905-01-051-0186	B-11	27	9330-01-073-1011	BULK	
9905-01-051-0186	B-5	27	4240-01-073-3439	B-9	15
9905-01-051-0187	B-10	6	5999-01-074-8880	B-6	1
6135-01-052-3744	B-8	59	4720-01-074-9220	B-9	11
9905-01-052-3766	B-8	56	5915-01-075-7240	B-11	33
4240-01-052-3783	B-9	2	5915-01-075-7240	B-5	33
5930-01-052-7684	B-2	23	5330-01-085-3267	B-2	48
5930-01-052-7684	B-8	7	5330-01-088-4442	B-10	5
4320-01-052-7999	B-4	4	5330-01-088-4442	B-3	35
4720-01-053-0316	BULK		5950-01-091-8626	B-7	39
6135-01-053-0564	B-8	36	5915-01-096-8853	B-7	35
5305-01-053-0958	B-7	15	4240-01-107-2433	B-3	23
5305-01-053-0959	B-7	19	5930-01-108-2588	B-8	22
5305-01-053-0960	B-7	33	6645-01-113-2525	B-2	14

FSCM	PART NUMBER	FIGURE NO.	ITEM NO.	FSCM	PART NUMBER	FIGURE NO.	ITEM NO.
88044	AN960-416L	B-4	7	88044	AN960PD616	B-3	27
88044	AN960-616	B-4	15	70494	A5S	B-7	43

FSCM	PART NUMBER	FIGURE NO.	ITEM NO.	FSCM	PART NUMBER	FIGURE NO.	ITEM NO.
70494	A5S	B-8	30	81361	D5-19-6262	B-3	5
81361	B5-19-5710	B-8	19	81361	D5-19-6353	B-7	35
81361	B5-19-6030-1	B-4	13	81361	D5-19-6368	B-3	6
81361	B5-19-6081	B-4	4	81361	D5-19-6378	B-8	6
81361	B5-19-6133	B-3	33	81361	D5-19-6392	B-6	1
81361	B5-19-6134	B-3	31	81361	D5-19-6397	B-7	39
81361	B5-19-6147	B-11	27	81361	D5-19-6401	B-3	45
81361	B5-19-6147	B-5	27	81361	D5-19-6625	B-10	10
81361	B5-19-6148	B-11	28	81361	D5-19-6628	B-9	19
81361	B5-19-6148	B-5	28	81361	D5-19-6628-14	B-10	12
81361	B5-19-6238	B-1	26	81361	E5-19-5908	B-9	3
81361	B5-19-6254	B-4	11	81361	E5-19-6120	B-3	23
81361	B5-19-6261-1	B-7	44	81361	E5-19-6128	B-3	25
81361	B5-19-6347	B-3	42	81361	E5-19-6136	B-10	4
81361	B5-19-6362	B-2	38	81361	E5-19-6136	B-3	36
81361	B5-19-6362	B-8	42	81361	E5-19-6201-20	B-1	1
81361	B5-19-6656	B-10	6	81361	E5-19-6240	B-3	20
81361	B5-19-6659	B-8	59	81361	E5-19-6241	B-4	1
99862	CL-2-C-8.0	B-11	24	81361	E5-19-6251	B-4	17
99862	CL-2-C-8.0	B-1	15	81361	E5-19-6314-20	B-3	10
99862	CL-2-C-8.0	B-3	16	81361	E5-19-6357	B-1	4
99862	CL-2-C-8.0	B-5	24	81361	E5-19-6357-47	B-2	50
99862	CL-2-FANDCL-2-C-8.0	B-11	23	81361	E5-19-6358	B-2	40
99862	CL-2-FANDCL-2-C-8.0	B-1	13	81361	E5-19-6360	B-2	1
99862	CL-2-FANDCL-2-C-8.0	B-3	14	81361	E5-19-6376	B-3	3
99862	CL-2-FANDCL-2-C-8.0	B-5	23	81361	E5-19-6376-155	B-2	23
99862	CL2C	BULK		81361	E5-19-6376-155	B-8	7
99862	CL2F	B-11	25	81361	E5-19-6376-159	B-8	22
99862	CL2F	B-1	14	81361	E5-19-6376-46	B-8	25
99862	CL2F	B-3	15	81361	E5-19-6377	B-8	38
99862	CL2F	B-5	25	81361	E5-19-6387	B-3	7
9823	CS1004	B-8	36	81361	E5-19-6390	B-6	2
9823	CS1005	B-8	37	81361	E5-19-6391	B-6	4
30327	C403	B-1	6	81361	E5-19-6391-52	B-7	29
30327	C403	BULK		81361	E5-19-6402	B-3	1
81361	C5-19-5676	B-2	36	81361	E5-19-6402-7	B-3	9
81361	C5-19-5687-1	B-3	30	81361	E5-19-6402-8	B-3	8
81361	C5-19-5687-2	B-3	24	81361	E9-19-6137	B-11	26
81361	C5-19-6144	B-11	16	81361	E9-19-6137	B-5	26
81361	C5-19-6144	B-5	16	92830	F1240-008	B-4	6
81361	C5-19-6145	B-11	20	81349	JAN1N4245	B-11	29
81361	C5-19-6145	B-1	10	81349	JAN1N4245	B-5	29
81361	C5-19-6145	B-3	11	81349	JAN1N4245	B-8	20
81361	C5-19-6145	B-5	20	81349	JAN1N5557	B-7	24
81361	C5-19-6149	B-11	13	81349	JAN1N5557	B-8	34
81361	C5-19-6149	B-5	13	30327	KF03-02PS	B-1	7
81361	C5-19-6152	B-11	33	30327	KF03-02PS	B-8	43
81361	C5-19-6152	B-5	33	30327	KF03-04RV	B-1	5
81361	C5-19-6175	B-1	20	30327	KF03-04RV	B-9	4
81361	C5-19-6180	B-9	2	79919	K35B1	B-2	20
81361	C5-19-6182	B-9	1	81349	MIL-R-3065	BULK	
81361	C5-19-6197	B-2	43	96906	MS16997-31	B-4	12
81361	C5-19-6197	B-8	54	96906	MS17143-10	B-2	5
81361	C5-19-6236	B-1	34	96906	MS17143-10	B-7	31
81361	C5-19-6247	B-4	3	96906	MS17143-10	B-8	49
81361	C5-19-6255	B-4	10	96906	MS17143-11	B-7	30
81361	C5-19-6258-1	B-4	19	96906	MS21042-6	B-4	16
81361	C5-19-6309	B-11	22	96906	MS21044N04	B-11	7
81361	C5-19-6309	B-1	16	96906	MS21044N04	B-2	12
81361	C5-19-6309	B-3	17	96906	MS21044N04	B-5	7
81361	C5-19-6309	B-5	22	96906	MS21044N04	B-7	13
81361	C5-19-6316-10	B-1	25	96906	MS21044N06	B-11	9
81361	C5-19-6316-4	B-2	37	96906	MS21044N06	B-2	51
81361	C5-19-6316-6	B-7	28	96906	MS21044N06	B-5	9
81361	C5-19-6316-7	B-8	56	96906	MS21044N06	B-8	60
81361	C5-19-6382	B-8	57	96906	MS21044N08	B-10	11
81361	C5-19-6383	B-8	48	96906	MS21044N08	B-11	5
81361	C5-19-6415	B-7	26	96906	MS21044N08	B-1	18
81361	C5-19-6626	B-10	7	96906	MS21044N08	B-3	19
81361	C5-19-6627	B-10	1	96906	MS21044N08	B-5	5
81361	C5-19-6654	B-1	36	96906	MS21044N08	B-7	38
81361	C5-19-6654	B-9	5	96906	MS21044N3	B-10	9
81361	C5-19-6688	B-8	13	96906	MS21044N3	B-2	4
81361	D5-19-6138	B-11	8	96906	MS21044N3	B-3	34
81361	D5-19-6138	B-5	8	96906	MS21044N3	B-7	9
81361	D5-19-6193-10	B-8	50	96906	MS21044N3	B-8	3
81361	D5-19-6193-20	B-2	47	96906	MS24143D1	B-7	21
81361	D5-19-6242	B-4	9	96906	MS24658-21M	B-2	7
81361	D5-19-6252	B-4	14	96906	MS24660-23D	B-8	23
81361	D5-19-6260	B-3	29	96906	MS24679-2	B-1	23

FSCM	PART NUMBER	FIGURE NO.	ITEM NO.	FSCM	PART NUMBER	FIGURE NO.	ITEM NO.
96906	MS24679-2	B-1	37	96906	MS35478-307	B-2	27
96906	MS25036-101	B-8	15	96906	MS35649-244	B-2	10
96906	MS25036-102	B-2	8	96906	MS35650-3385	B-2	19
96906	MS25036-102	B-7	3	96906	MS35650-3385	B-8	39
96906	MS25036-103	B-2	3	96906	MS35691-32	B-1	35
96906	MS25036-103	B-7	25	96906	MS35691-32	B-9	6
96906	MS25036-103	B-8	47	96906	MS35756-8	B-4	2
96906	MS25036-107	B-2	35	96906	MS35842-16	B-10	2
96906	MS25036-107	B-7	1	96906	MS35842-16	B-11	21
96906	MS25036-108	B-7	22	96906	MS35842-16	B-1	17
96906	MS25036-148	B-11	2	96906	MS35842-16	B-3	18
96906	MS25036-148	B-5	2	96906	MS35842-16	B-5	21
96906	MS25036-149	B-11	14	96906	MS51849-13	B-11	11
96906	MS25036-149	B-2	16	96906	MS51849-13	B-5	11
96906	MS25036-149	B-5	14	96906	MS51849-14	B-7	15
96906	MS25036-149	B-7	41	96906	MS51849-33	B-2	44
96906	MS25036-152	B-2	11	96906	MS51849-33	B-8	51
96906	MS25036-153	B-7	5	96906	MS51849-53	B-1	32
81349	MS25085-2	B-11	30	96906	MS51849-54	B-1	21
81349	MS25085-2	B-5	30	96906	MS51849-54	B-8	29
96906	MS25235R311	B-2	28	96906	MS51849-55	B-11	12
96906	MS25281R6	B-7	42	96906	MS51849-55	B-1	11
96906	MS25281R6	B-8	27	96906	MS51849-55	B-3	12
96906	MS25358-3	B-2	26	96906	MS51849-55	B-5	12
96906	MS25358-4	B-2	30	96906	MS51849-56	B-10	8
96906	MS25358-5	B-2	31	96906	MS51849-56	B-11	19
96906	MS25358-6	B-2	29	96906	MS51849-56	B-1	22
96906	MS25358-7	B-2	25	96906	MS51849-56	B-5	19
96906	MS27183-10	B-3	21	96906	MS51849-64	B-3	39
96906	MS27183-12	B-3	43	96906	MS51849-66	B-10	3
96906	MS27183-14	B-3	26	96906	MS51849-66	B-1	2
96906	MS27183-41	B-11	15	96906	MS51849-66	B-7	12
96906	MS27183-41	B-1	12	96906	MS51849-66	B-8	5
96906	MS27183-41	B-3	13	96906	MS51977-19	B-11	17
96906	MS27183-41	B-5	15	96906	MS51977-19	B-5	17
96906	MS27183-41	B-8	28	96906	MS521301B225360	BULK	
96906	MS27183-42	B-3	37		MS90484-20-1	B-9	8
96906	MS27183-42	B-8	2	96906	MS90727-33	B-3	44
96906	MS27183-42	B-8	44	96906	MS90727-6	B-3	22
96906	MS27183-5	B-2	46	96906	MS90727-64	B-3	28
96906	MS27183-5	B-8	53	96906	MS9352-05	B-3	40
96906	MS27183-7	B-7	37	81349	M15098/11-001	B-7	18
96906	MS27183-8	B-7	11	81349	M39014/01-1581	B-11	31
96906	MS28775-120	B-7	34	81349	M39014/01-1581	B-5	31
96906	MS29513-019	B-1	9	81349	M5086/1-16-9	B-2	6
96906	MS29513-024	B-1	8	81349	M5086/1-16-9	B-7	36
96906	MS3116P16-8P	B-4	18	81349	M5086/1-16-9	BULK	
96906	MS3119E20-16	B-9	9	81349	M5086/1-20-9	B-11	3
96906	MS3126F10-6S	B-8	58	81349	M5086/1-20-9	B-2	2
96906	MS3181-10N	B-1	29	81349	M5086/1-20-9	B-5	3
96906	MS3181-14N	B-1	30	81349	M5086/1-20-9	B-7	2
96906	MS3181-20C	B-9	10	81349	M5086/1-20-9	B-8	46
96906	MS3186-34	B-1	28	81349	M5086/1-20-9	BULK	
96906	MS3186-43	B-1	31	81349	M5086/1-22-9	B-11	10
96906	MS3213-11	B-8	31	81349	M5086/1-22-9	B-2	13
96906	MS3213-13	B-8	55	81349	M5086/1-22-9	B-5	10
96906	MS3213-14	B-7	19	81349	M5086/1-22-9	B-7	40
96906	MS3213-24	B-7	33	81349	M5086/1-22-9	B-8	1
96906	MS3213-27	B-7	32	81349	M5086/1-22-9	BULK	
96906	MS3213-33	B-6	3	81349	M7078-3-22-1	B-11	34
96906	MS3213-33	B-8	40	81349	M7078-3-22-1	B-5	34
96906	MS3213-36	B-2	21	81349	M7078-3-22-1	BULK	
96906	MS3213-36	B-7	20	80205	NAS1096-3-12	B-3	38
96906	MS3213-5	B-2	24	80205	NAS1351-4-12	B-4	8
96906	MS3213-5	B-2	24	80205	NAS1351-4-12	B-4	8
96906	MS35206-217	B-2	32	80205	NAS1598-06Y	B-2	41
96906	MS35206-219	B-2	33	80205	NAS1598-6Y	B-2	18
96906	MS35206-234	B-11	18	80205	NAS1598-6Y	B-2	39
96906	MS35206-234	B-5	18	80205	NAS1598-6Y	B-8	41
96906	MS35265-31	B-11	4	81361	PL5-19-6705-20	B-9	7
96906	MS35265-31	B-5	4	87137	PTL-A1(3-C7A)	B-7	16
96906	MS35333-37	B-8	18	33107	P92-1020	B-2	49
96906	MS35333-38	B-2	15	33107	P92-1020	B-8	24
96906	MS35335-57	B-2	34	81349	RER70F1100R	B-7	14
96906	MS35338-41	B-2	45	37942	SC628M	B-8	17
96906	MS35338-41	B-8	52	9922	TF-5H	B-11	6
96906	MS35338-42	B-1	24	9922	TF-5H	B-5	6
96906	MS35338-42	B-1	33	9922	TF-SH	B-7	10
96906	MS35338-43	B-1	3	9922	TF-5H	B-8	45
96906	MS35430-4	B-7	23	76854	VM911MB	B-2	17
96906	MS35430-4	B-8	33	76854	VM911M8	B-8	12

FSCM	PART NUMBER	FIGURE NO.	ITEM NO.	FSCM	PART NUMBER	FIGURE NO.	ITEM NO.
81348	W-L-00111/7	B-2	22	81361	5-19-6170-40	B-9	18
81348	W-L-00111/7	B-8	8	81361	5-19-6261-2	B-8	32
81348	ZZ-R-765	BULK		81361	5-19-6316-9	B-3	2
30299	0120-0600-0106	B-9	12	81361	5-19-6348	B-10	5
30299	0120-0600-0109	B-9	11	81361	5-19-6348	B-3	35
18876	10231240	B-7	4	81361	5-19-6361	B-2	48
94135	12Z7903-178	B-11	32	81361	5-19-6657	B-1	19
94135	12Z7903-178	B-5	32	81361	5-19-6684	B-9	16
82647	14500-1	B-7	17	81361	5-19-6718	B-3	4
82647	14500-1	B-8	9	25140	5A3128	B-11	1
38443	201SFP	B-4	5	25140	5A3128	B-5	1
30327	261P1-4	B-3	41	12909	500881	B-2	42
30327	261P1-4	B-7	27	5178	6152	B-8	26
83330	2660	B-2	9	82647	6752-320-20	B-7	6
81349	37TB10	B-8	35	79919	71015	B-2	14
4426	44-580151AAAA	B-8	16	82647	7274-12-1	B-7	7
30327	44PGREEN	BULK		82647	7274-12-1	B-8	11
30327	44PRED	BULK		82647	7274-12-1-1-2	B-7	8
81361	5-19-6135	B-3	32	82647	7274-34-1	B-8	14
81361	5-19-6160-40	B-9	13	82647	7274-34-3/4	B-8	10
81361	5-19-6160-50	B-9	14		8173	B-1	27
81361	5-19-6162-10	B-9	15		9745533	B-8	21
81361	5-19-6170-10	B-9	17				

APPENDIX C
EXPENDABLE SUPPLIES AND MATERIALS LIST

Section I. INTRODUCTION

C-1. SCOPE. This appendix lists expendable supplies and materials you will need to operate and maintain the collective protection equipment. These items are authorized to you by CTA 50-970, Expendable Items (Except Medical, Class V, Repair Parts, and Heraldic Items).

C-2. EXPLANATION OF COLUMNS.

a. *Column 1, Itern Number.* This number is assigned to the entry in the listing and is referenced in the narrative instructions to identify the material (e.g., "Use dry-cleaning solvent, item 4, app C").

b. *Column* 2, Level. This column identifies the lowest level of maintenance that requires the listed item.

O - Organizational Maintenance
F - Direct Support Maintenance

c. Column 3, National Stock Number. This is the National stock number assigned to the item; use it to request or requisition the item.

d. *Column* 4, *Description.* Indicates the Federal item name and, if required, a description to identify the item. The last line for each item indicates the Federal Supply Code for Manufacturer (FSCM) in parentheses followed by the part number.

e. *Column 5, Unit of Measure (U/M).* Indicates the measure used in performing the actual maintenance function. This measure is expressed by a two-character alphabetical abbreviation (e.g., ea, in., pr). If the unit of measure differs from the unit of issue, requisition the lowest unit of issue that will satisfy your requirements.

Section Il. EXPENDABLE SUPPLIES AND MATERIALS LIST

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION	(5) U/M
1	O		ADHESIVE, BONDING VULCANIZED: (81348) MMM-A-121	
		8040-00-165-8614	1 qt can	QT
2	O	7920-00-543-7728	BRUSH, ACID SWABBING: bristle (81348) HB643	EA
3	O	8010-01-055-2319	COATING, ALIPHATIC POLYURETHANE: two part kit, 1 gal pigment and polyester, 1 qt catalyst (81349) MIL-C-46168	KT
4	O	6850-00-281-1985	DRY CLEANING SOLVENT: 1 gal can (81348) P-D-680	GL
5	F		GREASE, AIRCRAFT, GENERAL PURPOSE: wide temperature range (81349) MIL-G-81322	
		9150-00-944-8953	1 lb can	CN

(1) Item Number	(2) Level	(3) National Stock Number	(4) Description	(5) U/M
6	F	5970-00-812-2969	INSULATION SLEEVING:BLACK,MF 100,1/8 X 1 FT LG (06090)	FT
7	0	8010-00-142-9279	PRIMER COATING: 1 QT,TWO PART KIT,CLASS 2 (81349)MIL-P-23377	KT
8	O		RAG,WIPING: COTTON DESIGNED FOR GENERAL PURPOSE USE (81348) DDD-R-30	
		7920-00-205-1711	5- LB BALE	EA
9	F	8030-00-889-3535	TAPE,ANTISEIZING: 1/2 IN WIDE, 260 IN LG (81349)MIL-T-27730	EA
10	O		TAPE: OLIVE DRAB,3 WIDE TYPE 3,CLASS 1 (80244)PPP-T-60	
		7510-00-663-3738	ROLL	EA

APPENDIX D
ILLUSTRATED LIST OF MANUFACTURED ITEMS

D-1. INTRODUCTION.

a. This appendix includes complete instruction for making items authorized to be manufactured or fabricated at direct support maintenance level.

b. All bulk materials needed for manufacture of an item are listed by National Stock Number in a tabular list on the illustration.

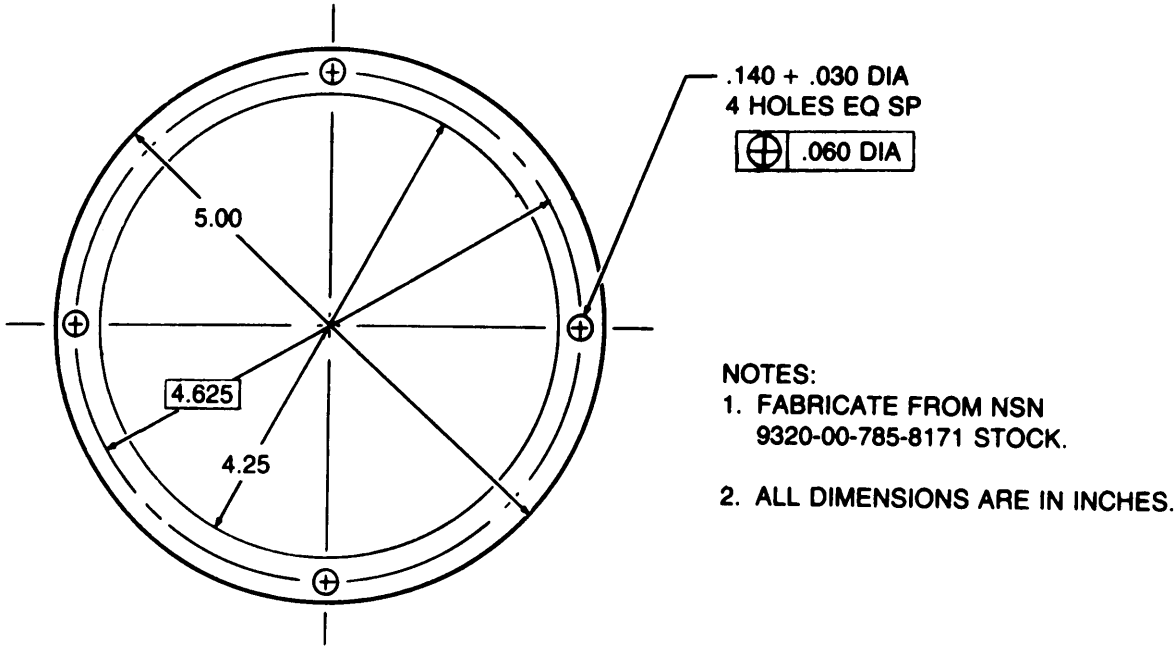

Figure D-1. Gasket

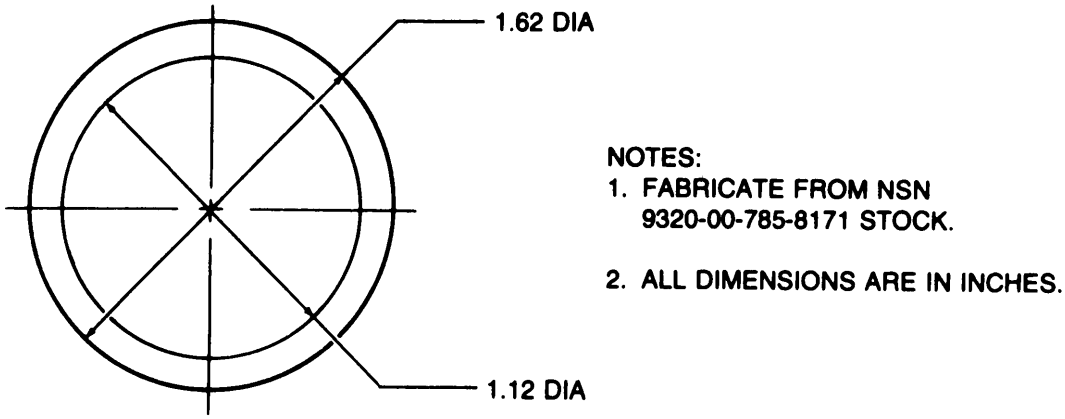

Figure D-2. Gasket

INDEX

By *Order* of the Secretary *of the Army:*

E. C. MEYER
General, *United States Army*
Chief of Staff

Official:

ROBERT *M. JOYCE*
Brigadier General, United States Army
The Adjutant General

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PAGE NO.	PARAGRAPH	FIGURE NO.	TABLE NO.
1-1	1-4		
2-28	2-12		
2-43	2-14		

IN THIS SPACE TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT:

ITEM 1. LINE 12. Change "Rock Island, IL 61201" to read, "Aberdeen Proving Ground, MD 21010."
REASON: Wrong address.

ITEM 2. Test equipment. Add, "28V dc power supply capable of delivery 2 amps"
REASON: Incomplete information.

ITEM 3. Add callout "20" to the shaft slinger in the illustration.
REASON: Callout missing from illustration.

SAMPLE

PRINTED NAME, GRADE OR TITLE AND TELEPHONE NUMBER
JOHN SMITH, S.SGT. 793/XXXX

SIGN HERE John Smith

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Commander
US Army Armament Materiel Readiness Command
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Aberdeen Proving Ground, MD 21010

THE METRIC SYSTEM AND EQUIVALENTS

'NEAR MEASURE

. Centimeter = 10 Millimeters = 0.01 Meters = 0.3937 Inches
1 Meter = 100 Centimeters = 1000 Millimeters = 39.37 Inches
1 Kilometer = 1000 Meters = 0.621 Miles

'VEIGHTS

Gram = 0.001 Kilograms = 1000 Milligrams = 0.035 Ounces
1 Kilogram = 1000 Grams = 2.2 lb.
1 Metric Ton = 1000 Kilograms = 1 Megagram = 1.1 Short Tons

LIQUID MEASURE

1 Milliliter = 0.001 Liters = 0.0338 Fluid Ounces
1 Liter = 1000 Milliliters = 33.82 Fluid Ounces

SQUARE MEASURE

1 Sq. Centimeter = 100 Sq. Millimeters = 0.155 Sq. Inches
1 Sq. Meter = 10,000 Sq. Centimeters = 10.76 Sq. Feet
1 Sq. Kilometer = 1,000,000 Sq. Meters = 0.386 Sq. Miles

CUBIC MEASURE

1 Cu. Centimeter = 1000 Cu. Millimeters = 0.06 Cu. Inches
1 Cu. Meter = 1,000,000 Cu. Centimeters = 35.31 Cu. Feet

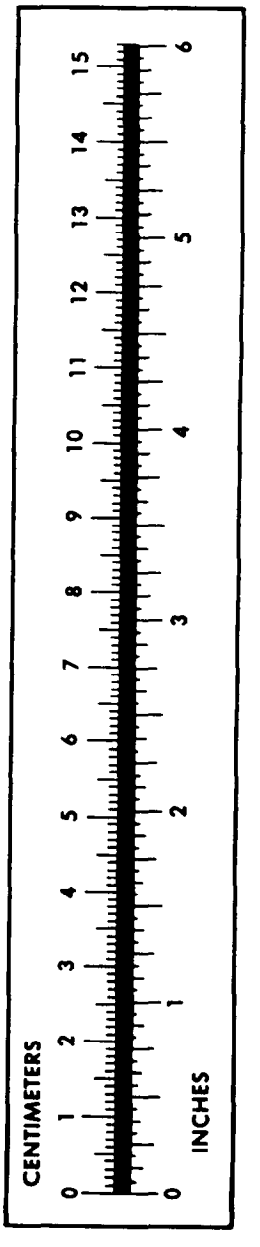
TEMPERATURE

5/9(°F - 32) = °C
212° Fahrenheit is evuivalent to 100° Celsius
90° Fahrenheit is equivalent to 32.2° Celsius
32° Fahrenheit is equivalent to 0° Celsius
9/5C° + 32 =°F

APPROXIMATE CONVERSION FACTORS

TO CHANGE	TO	MULTIPLY BY
Inches	Centimeters	2.540
Feet	Meters	0.305
Yards	Meters	0.914
Miles	Kilometers	1.609
Square Inches	Square Centimeters	6.451
Square Feet	Square Meters	0.093
Square Yards	Square Meters	0.836
Square Miles	Square Kilometers	2.590
Acres	Square Hectometers	0.405
Cubic Feet	Cubic Meters	0.028
Cubic Yards	Cubic Meters	0.765
Fluid Ounces	Milliliters	29.573
ıts	Liters	0.473
arts	Liters	0.946
allons	Liters	3.785
Ounces	Grams	28.349
Pounds	Kilograms	0.454
Short Tons	Metric Tons	0.907
Pound-Feet	Newton-Meters	1.356
Pounds per Square Inch	Kilopascals	6.895
Miles per Gallon	Kilometers per Liter	0.425
Miles per Hour	Kilometers per Hour	1.609

TO CHANGE	TO	MULTIPLY BY
Centimeters	Inches	0.394
Meters	Feet	3.280
Meters	Yards	1.094
Kilometers	Miles	0.621
Square Centimeters	Square Inches	0.155
Square Meters	Square Feet	10.764
Square Meters	Square Yards	1.196
Square Kilometers	Square Miles	0.386
Square Hectometers	Acres	2.471
Cubic Meters	Cubic Feet	35.315
Cubic Meters	Cubic Yards	1.308
Milliliters	Fluid Ounces	0.034
Liters	Pints	2.113
Liters	Quarts	1.057
ers	Gallons	0.264
ms	Ounces	0.035
ograms	Pounds	2.205
Metric Tons	Short Tons	1.102
Newton-Meters	Pounds-Feet	0.738
Kilopascals	Pounds per Square Inch	0.145
lometers per Liter	Miles per Gallon	2.354
meters per Hour	Miles per Hour	0.621



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