TECHNICAL MANUAL

AVIATION UNIT AND AVIATION INTERMEDIATE MAINTENANCE MANUAL

ENGINE, GAS TURBINE MODEL T55-L-714 NSN 2840-01-353-7635

HEADQUARTERS, DEPARTMENT OF THE ARMY
1 DECEMBER 1994

CHANGE

NO. 1

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., 31 January 2003

TECHNICAL MANUAL

Aviation Unit and Aviation Intermediate
Maintenance Manual

ENGINE, GAS TURBINE, MODEL T55–L–714
(NSN 2840–01–353–7635)

OZONE DEPLETING CHEMICAL INFORMATION

This document has been reviewed for the presence of class I ozone depleting chemicals. As of the basic, dated 1 December 1994, all references to Class I ozone depleting chemicals have been removed from this document by substitution with chemicals by the Engineering, Environment, and Logistics Oversight Office that do not cause atmospheric ozone depletion.

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

TM 1–2840–252–23–3, 1 December 1994, is changed as follows:

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

Remove pages	Insert pages
– –	A and B
i and ii	i and ii
A–1 and A–2	A–1 and A–2
C–3 and C–4	C–3 and C–4
C–7 and C–8(blank)	C–7 and C–8(blank)
G–123 and G–124	G–123 and G–124
Index–3 and Index–4	Index–3 and Index–4

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

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0233002

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Dates of issue for original and changed pages are:

Original 1 Dec 1994 Change 1 31 Jan 2003

Page No.	*Change No.
A and B Blank	1
i	1
ii through iv	0
6–183 through 6–265	0
6–266 blank	0
7–1 through 7–57	0
7–58 blank	0
7–59 through 7–161	0
7–162 blank	0
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9–3 through 9–12	0
A–1	1
A–2 through C–2	0
C–3	1
C–4 through C–6	0
C–7	1
C–8 blank	0
D–1 through D–3	0
D–4 blank	0
Ei through E–25	0
E–26 blank	0
F–1 through F–3	0
F–4 blank	0
G–i through G–122	0
G–123	1
G–124 through Index 2	0
Index 3 and Index 4	1
Index 5 through Index 34	0

*Zero in this column indicates an original page.

Technical Manual

NO. 1–2840–252–23

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON D.C., 1 December 1994

TECHNICAL MANUAL

Aviation Unit and Aviation Intermediate Maintenance Manual

ENGINE, GAS TURBINE

MODEL T55–L–714

(NSN 2840–01–353–7635)

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 these procedures, please let us know. Mail your letter or DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located in the back of this manual directly to: Commander, US Army Aviation and Missile Command, ATTN: AMSAM-MMC-MA–NP, Redstone Arsenal, AL 35898–5000. A reply will be furninshed to you. You may also provide DA Form 2028 information to AMCOM via e–mail, fax, or the World Wide Web. Our fax number is: DSN788–6546. Our e–mail address is: 2028@redstone.army.mil. Instructions for sending an electronic 2028 may be found at the back of this manual immediately preceding the hard copy 2028. For the World Wide Web use: https://amcom2028.redstone.army.mil.

OZONE DEPLETING CHEMICAL INFORMATION

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NOTE

This manual is printed in three volumes as follows:
TM 1–2840–252–23–1, consisting of Table of Contents, Chapter 1, Chapter 2, pages 2–1 through 2–322
TM 1–2840–252–23–2, consisting of Table of Contents, Chapter 2, pages 2–323 through 2–425/(2–426 blank), Chapter 3, Chapter 4, Chapter 5, Chapter 6, pages 6–1 through 6–182.
TM 1–2848–252–23–3, consisting of Table of Contents, Chapter 6, pages 6–183 through 6–265/(6–266 blank), Chapter 7, Chapter 8, and Chapter 9, Appendix A through Appendix G, and an Alphabetical Index.
The Appendices and Index are applicable to Volumes 1 through 3.

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TABLE OF CONTENTS (Continued)

TABLE OF CONTENTS (Continued)

6-64 REMOVE HOSE ASSEMBLY (HMA TO OIL COOLER) 6-64

INITIAL SETUP

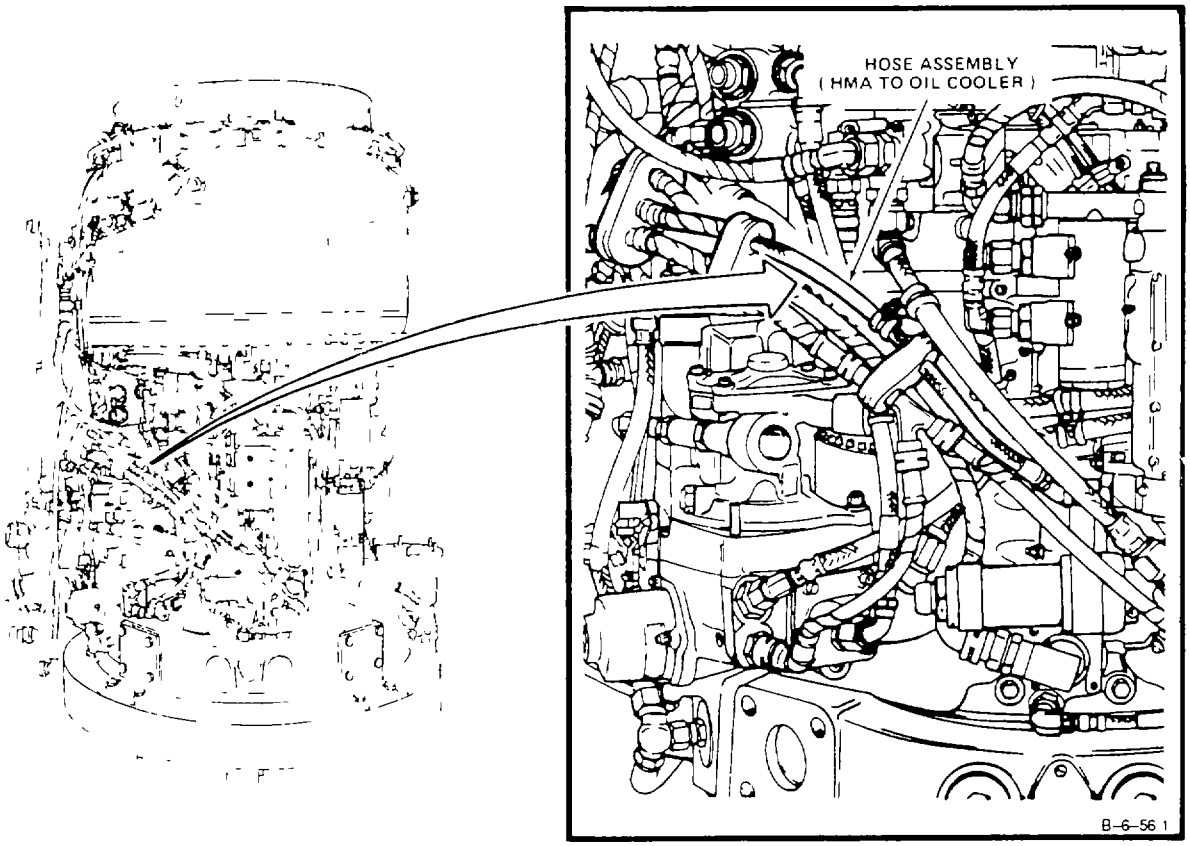
Applicable Configurations:
All
Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Container, 1 Quart

Materials:
Wiping Rag (E64)
Personnel Required:
Aircraft Powerplant Repairer

General Safety Instructions:

WARNING

Turbine fuels are very flammable. They may cause drying and irritation of skin or eyes. Handle only in well-ventilated areas away from heat and open flame. Drain and store in approved metal safety containers. Avoid prolonged or repeated contact with skin and do not take internally . Wash contacted area of skin thoroughly after handling . If irritation of skin results, get medical attention. Get medical attention for eyes.



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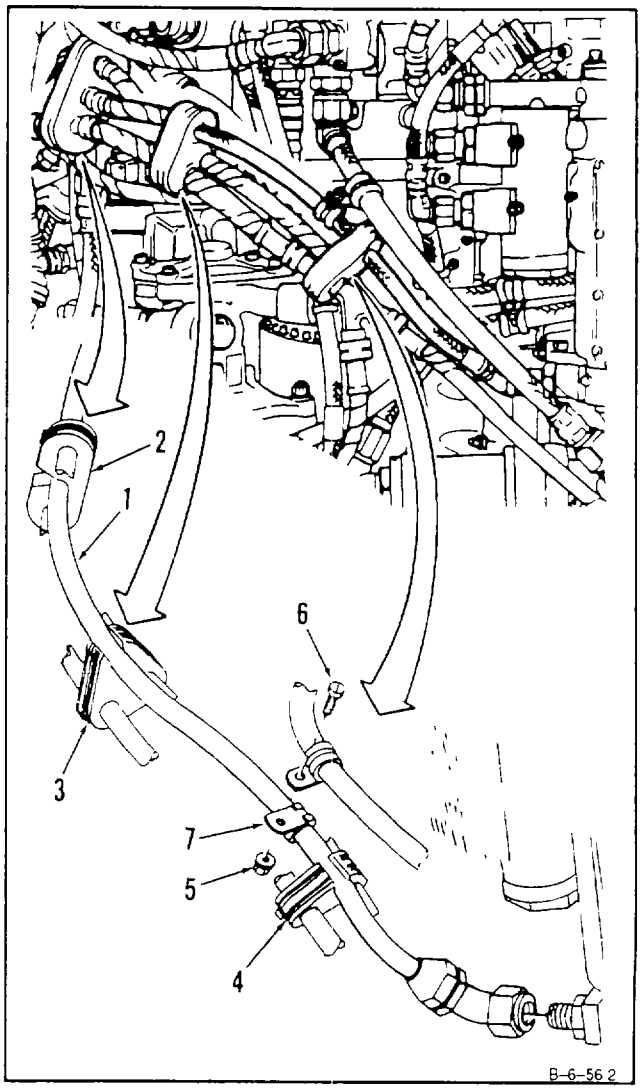
6-64 REMOVE HOSE ASSEMBLY (HMA TO OIL COOLER) (Continued) 6-64

1. Cut and remove tiedown straps and lift hose assembly (1) out of cushions (2, 3, and 4).
2. Remove nut (5), bolt (6), and clamp (7).



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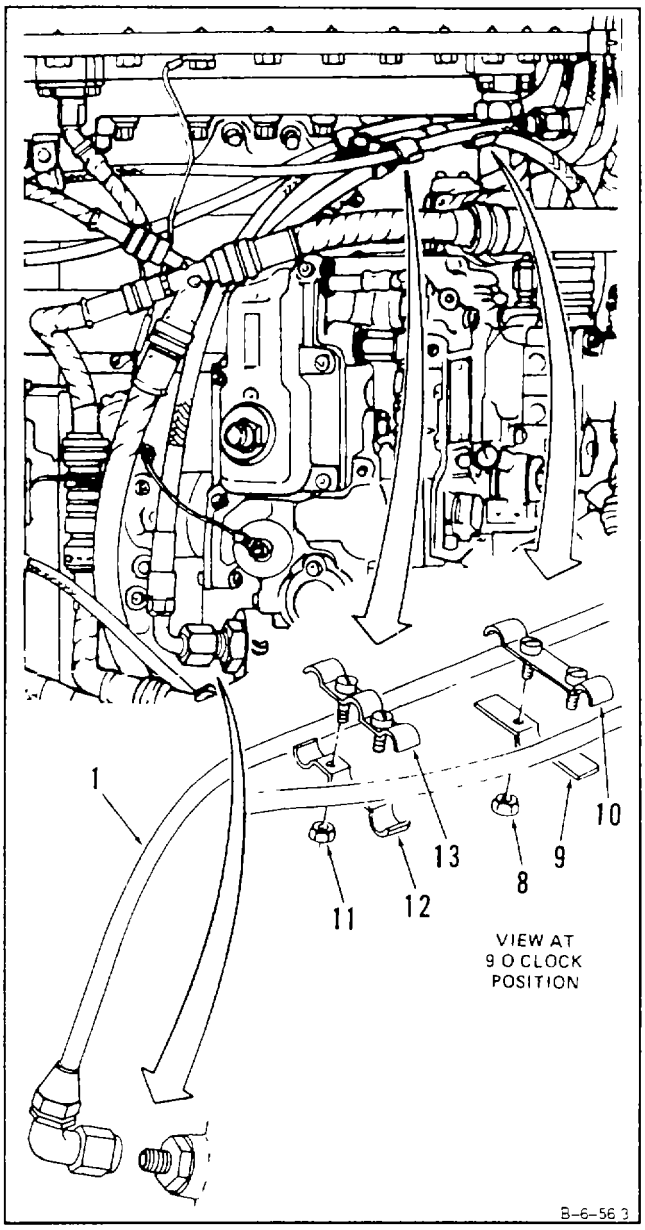
6-64 REMOVE HOSE ASSEMBLY (HMA TO OIL COOLER) (Continued) 6-64

3. **Remove** two nuts (8) and **clamps (9 and 10)** and two nuts (11) and **clamps (12 and 13).**

4. Disconnect and **remove hose assembly (1).**



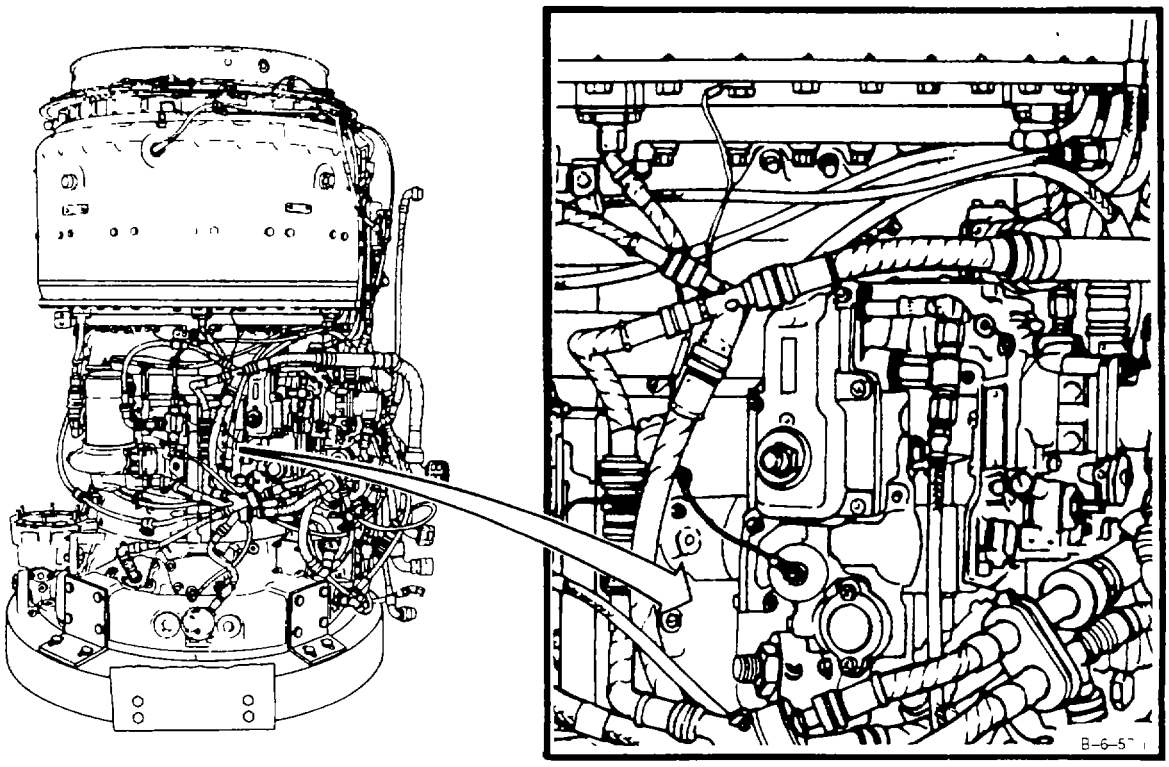
FOLLOW-ON MAINTENANCE:
None

END OF TASK

6-65 INSTALL HOSE ASSEMBLY HMA TO OIL COOLER) 6-65

INITIAL SETUP

Applicable Configurations:
All
Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Technical Inspection Tool Kit,
NSN 5180-00-323-5114
Materials:
Tiedown Strap (3)
Personnel Required:
Aircraft Powerplant Repairer
Aircraft Powerplant Inspector



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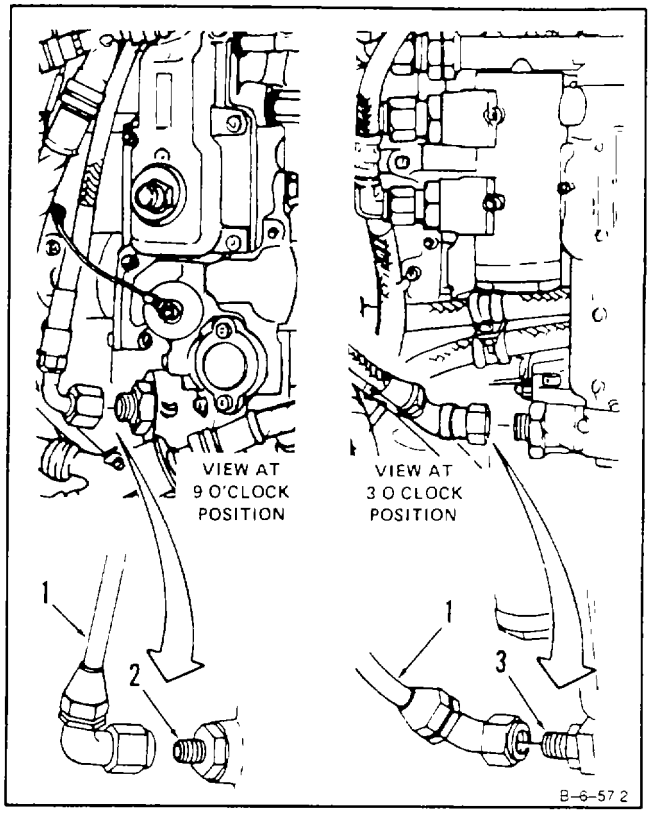
6-65 INSTALL HOSE ASSEMBLY (HMA TO OIL COOLER) (Continued) 6-65

1. **Install hose assembly** (1) on reducers (2 and 3).



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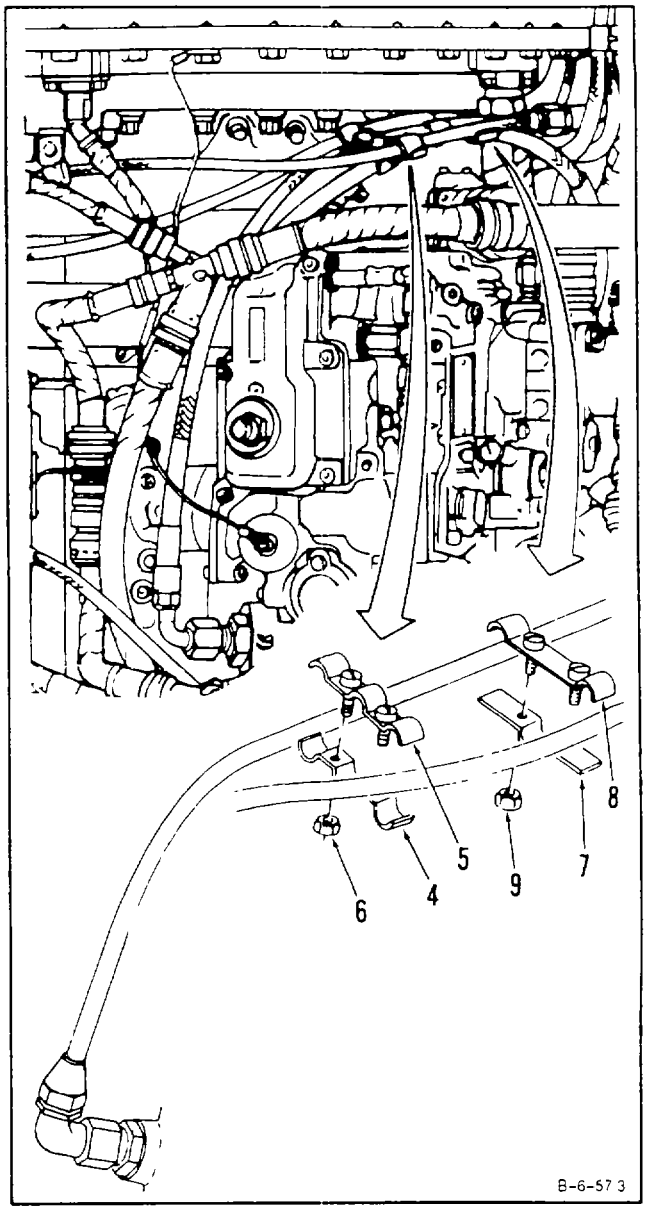
6-65 INSTALL HOSE ASSEMBLY (HMA TO OIL COOLER) (Continued) 6-65

2. **Install clamps (4 and 5)** and two nuts (6), and **clamps (7 and 8)** and two nuts (9).



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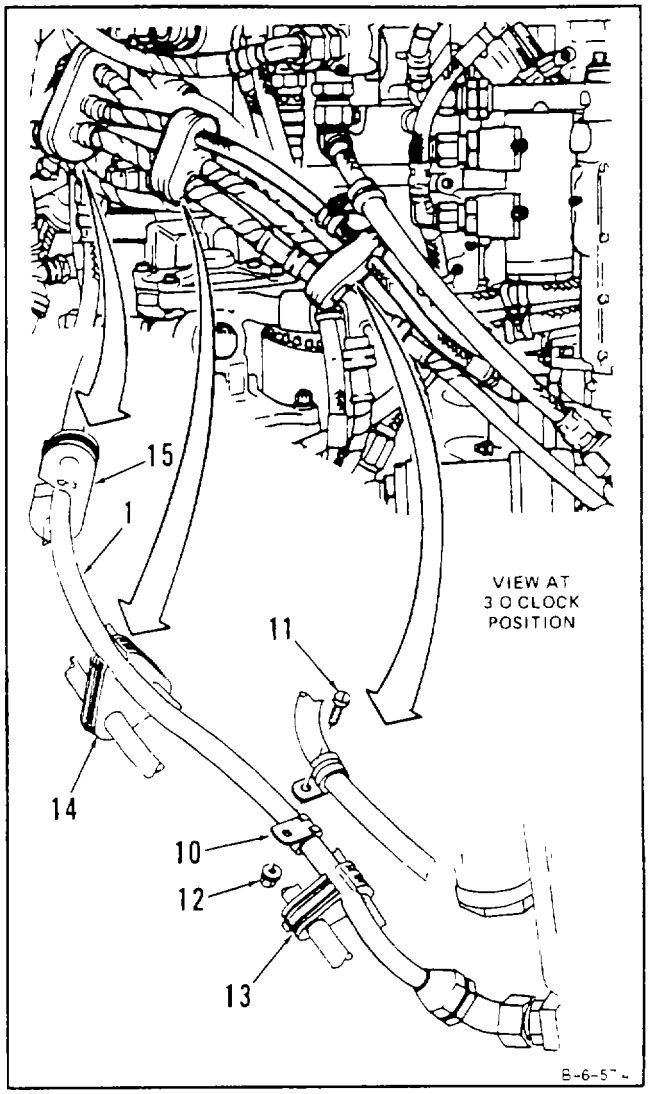
3. **Install clamp (10**), bolt (11), and nut (12).

4. **Install hose assembly (1) into cushions (13, 14, and 15)** and secure with tiedown straps.



INSPECT

FOLLOW-ON MAINTENANCE:
None

END OF TASK

6-66 REMOVE HOSE ASSEMBLY (IN-LINE FUEL FILTER TO OVERSPEED SOLENOID VALVE) 6-66

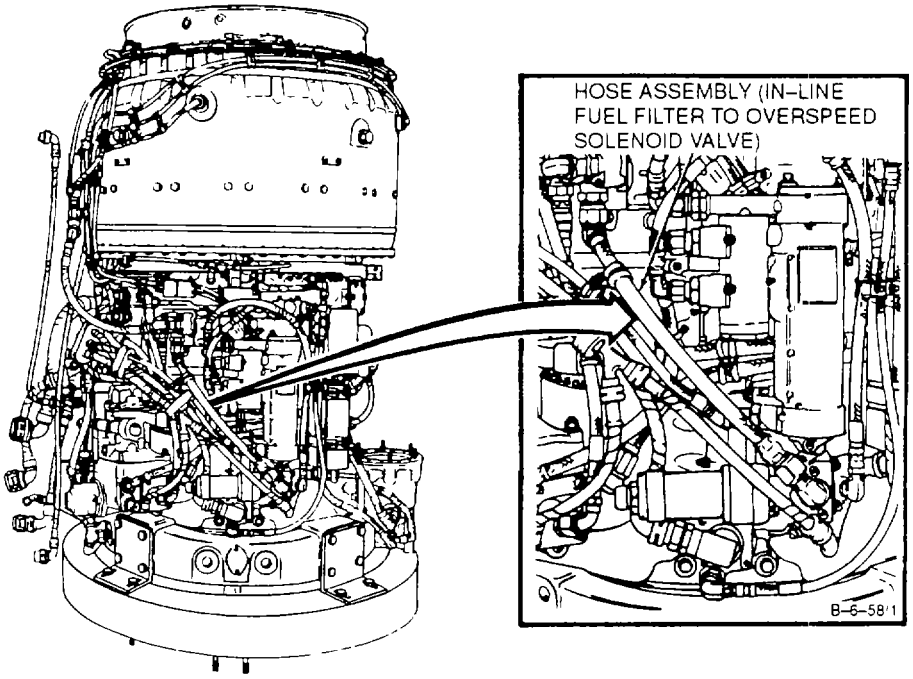
INITIAL SETUP

Applicable Configurations:
All
Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Container, 1 Quart
Materials:
Wiping Rag (E64)
Personnel Required:
Aircraft Powerplant Repairer

General Safety Instructions:

WARNING

Turbine fuels are very flammable. They may cause drying and irritation of skin or eyes. Handle only in well-ventilated areas away from heat and open flame. Drain and store in approved metal safety containers. Avoid prolonged or repeated contact with skin and do not take internally. Wash contacted area of skin thoroughly after handling. If irritation of skin results, get medical attention. Get medical attention for eyes.



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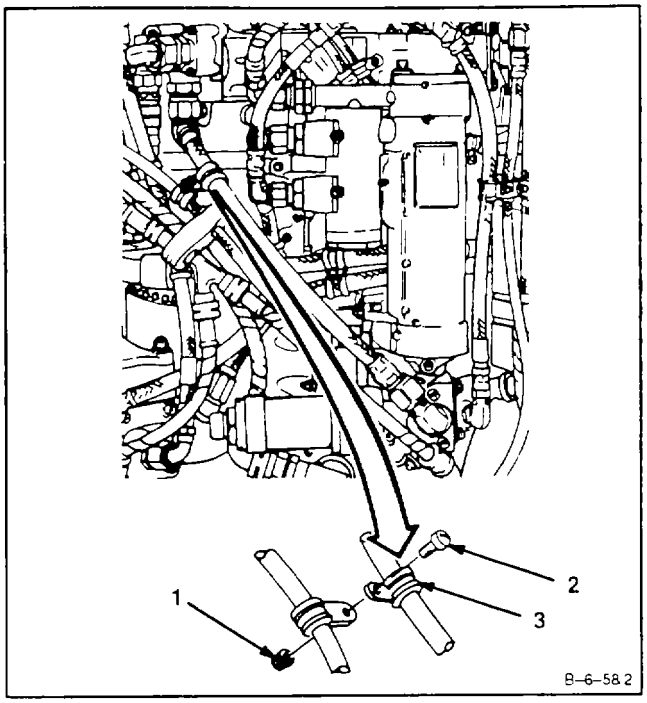
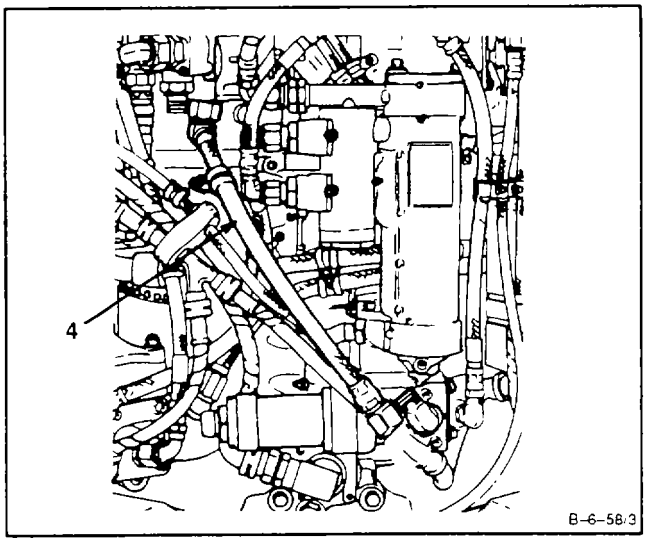
6-66 REMOVE HOSE ASSEMBLY (IN-LINE FUEL FILTER TO OVERSPEED SOLENOID VALVE) (Continued) 6-66

1. **Remove** nut (1), screw (2), and **clamp (3).**



2. **Disconnect and remove hose assembly (4).**



FOLLOW-ON MAINTENANCE:
None

END OF TASK

6-67 INSTALL HOSE ASSEMBLY (IN-LINE FUEL FILTER TO OVERSPEED SOLENOID VALVE) 6-67

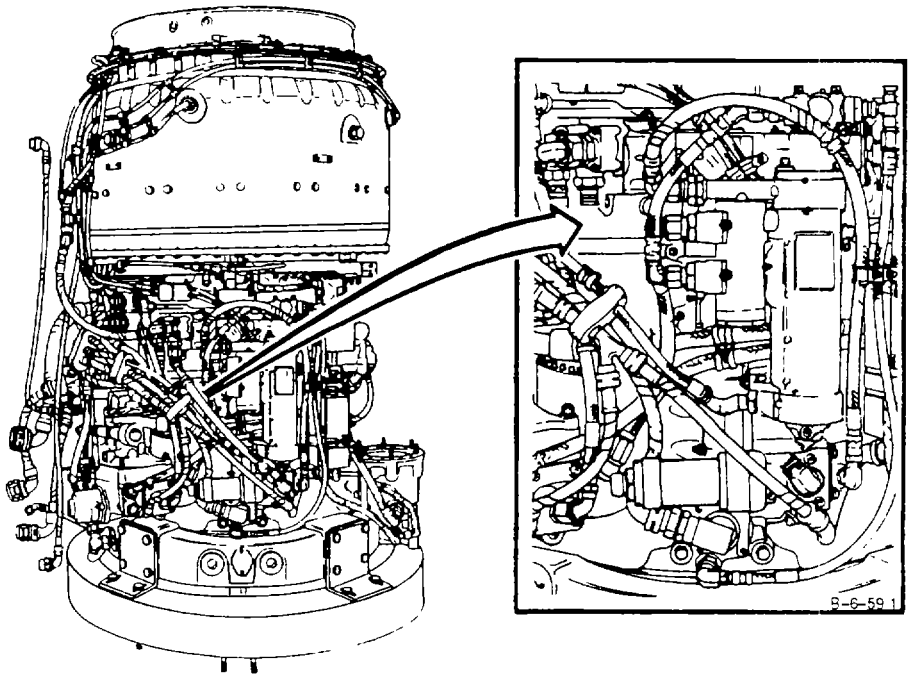
INITIAL SETUP

Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit, NSN 5180-00-323-4944
Technical Inspection Tool Kit, NSN 5180-00-323-5114

Materials:
None

Personnel Required:
Aircraft Powerplant Repairer
Aircraft Powerplant Inspector



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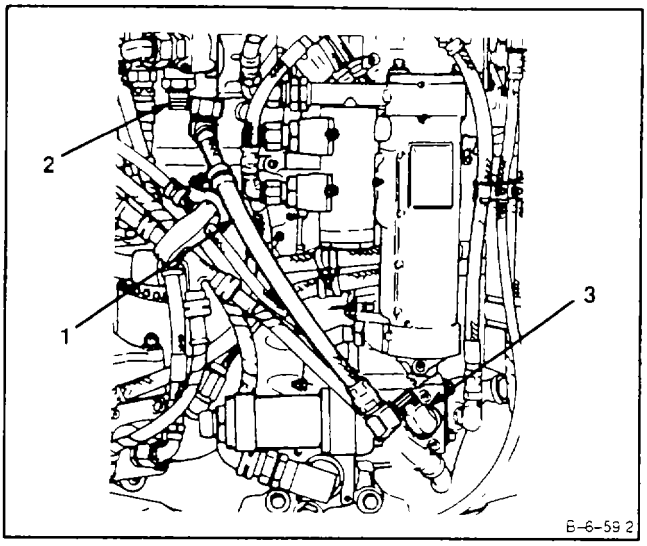
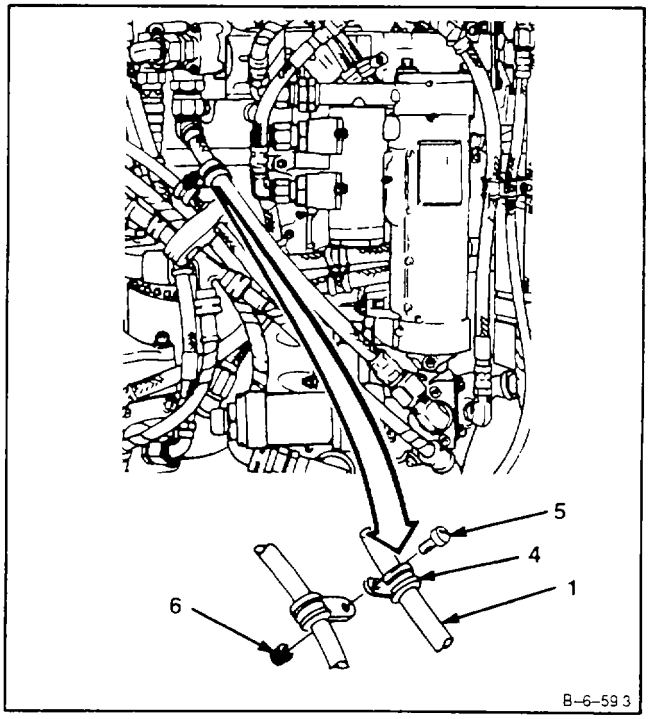
6-67 INSTALL HOSE ASSEMBLY (IN-LINE FUEL FILTER TO OVERSPEED SOLENOID VALVE) (Continued) **6-67**

1. **Install hose assembly (1)** on reducers (2 and 3).



2. **Install clamp (4)** on hose assembly (1), and install screw (5) and nut (6).



INSPECT

FOLLOW-ON MAINTENANCE:
None

END OF TASK

6-68 REMOVE HOSE ASSEMBLY (OVERSPEED SOLENOID VALVE TO PRESSURIZING VALVE) 6-68

INITIAL SETUP

Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Container, 1 Quart

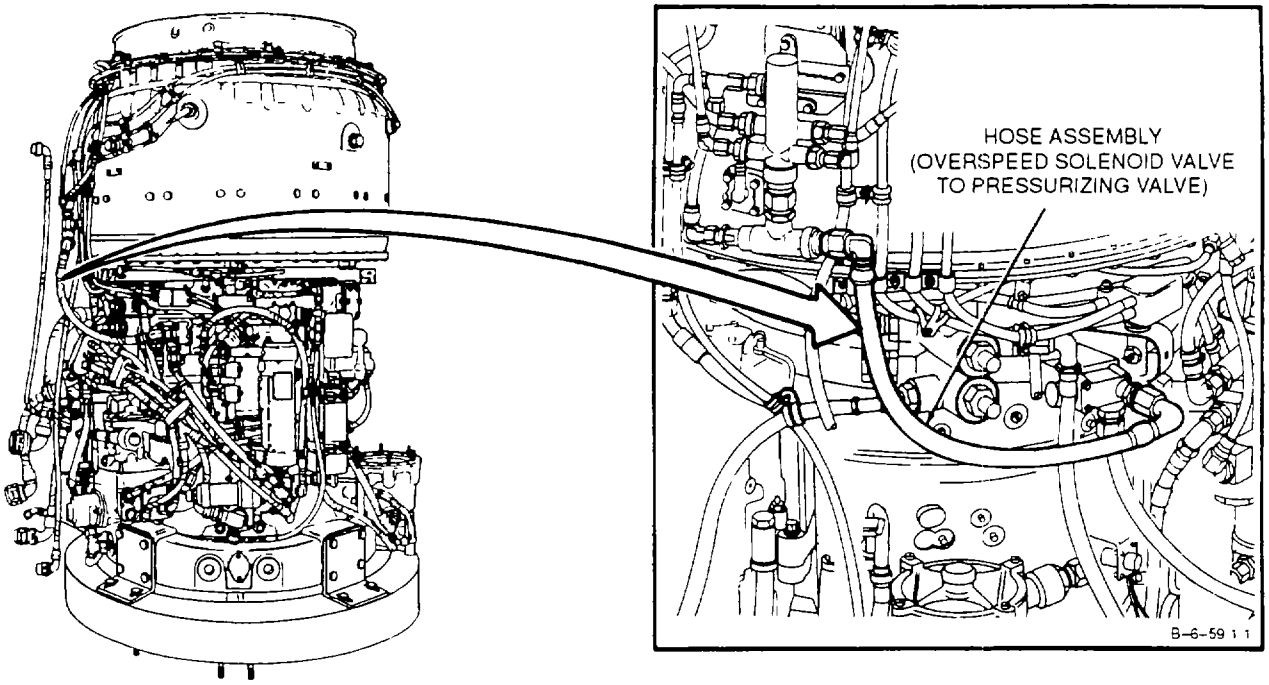
Materials:
Wiping Rag (E64)

Personnel Required:
Aircraft Powerplant Repairer

General Safety Instructions:

WARNING

Turbine fuels are very flammable. They may cause drying and irritation of skin or eyes. Handle only in well-ventilated areas away from heat and open flame. Drain and store in approved metal safety containers. Avoid prolonged or repeated contact with skin and do not take Internally. Wash contacted area of skin thoroughly after handling. If irritation of skin results, get medical attention. Get medical attention for eyes.



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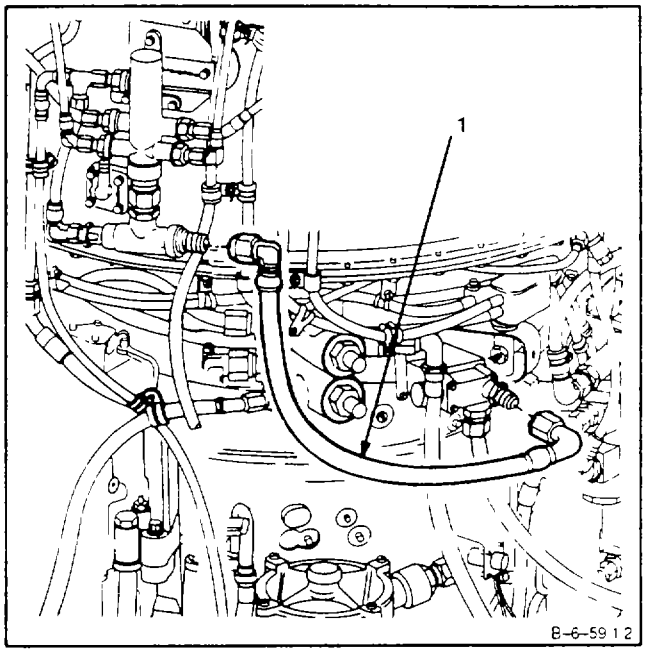
6-68 REMOVE HOSE ASSEMBLY (OVERSPEED SOLENOID VALVE TO PRESSURIZING VALVE) (Continued) 6-68

1 **Disconnect and remove hose assembly (1).**



FOLLOW-ON MAINTENANCE:
None

END OF TASK

6-69 INSTALL HOSE ASSEMBLY (OVERSPEED SOLENOID VALVE TO PRESSURIZING VALVE) 6-69

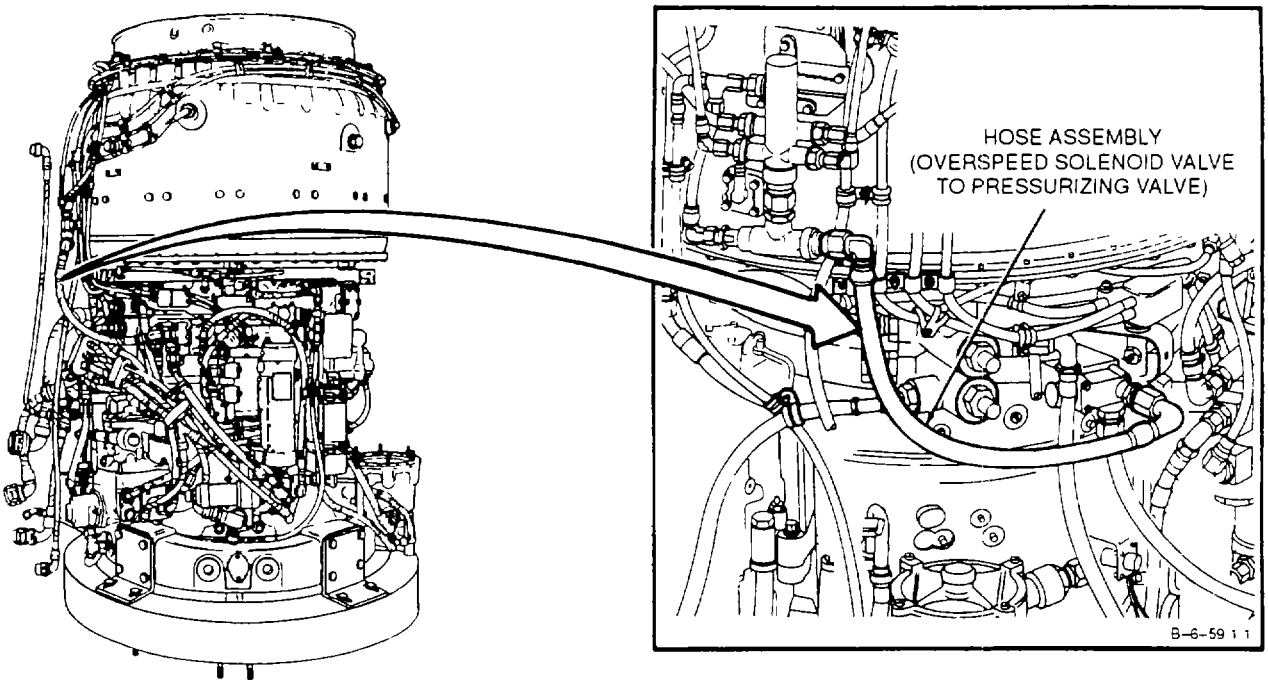
INITIAL SETUP

Applicable Configurations:
All

Tools
Powerplant Mechanic's Tool Kit
NSN 5180-00-323-4944
Technical Inspection Tool Kit,
NSN 5180-00-323-5114

Materials:
None

Personnel Required:
Aircraft Powerplant Repairer
Aircraft Powerplant Inspector



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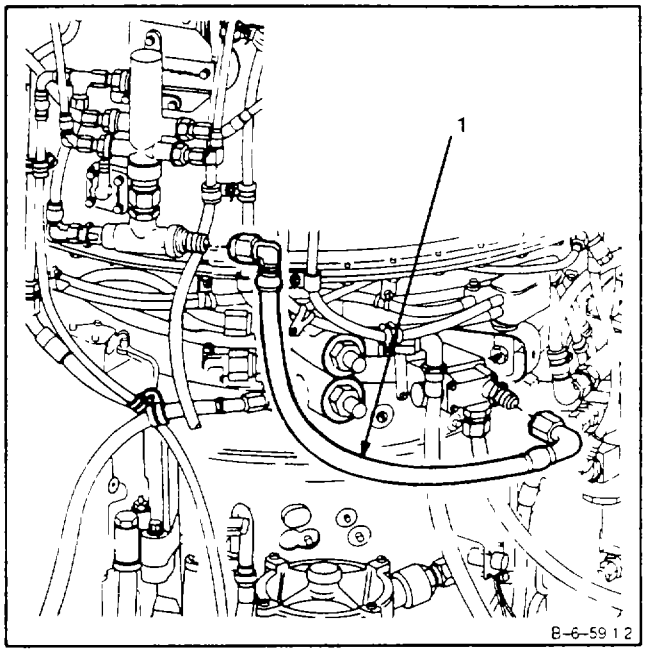
6-69 INSTALL HOSE ASSEMBLY (OVERSPEED SOLENOID VALVE TO PRESSURIZING VALVE) 6-69

1. **Install hose assembly (1)** on flow divider (2) and reducer (3).



INSPECT

FOLLOW-ON MAINTENANCE:
None

END OF TASK

6-70 REMOVE HOSE ASSEMBLY (PRESSURIZING VALVE TO FUEL FLOW DIVIDER RETURN TEE) 6-70

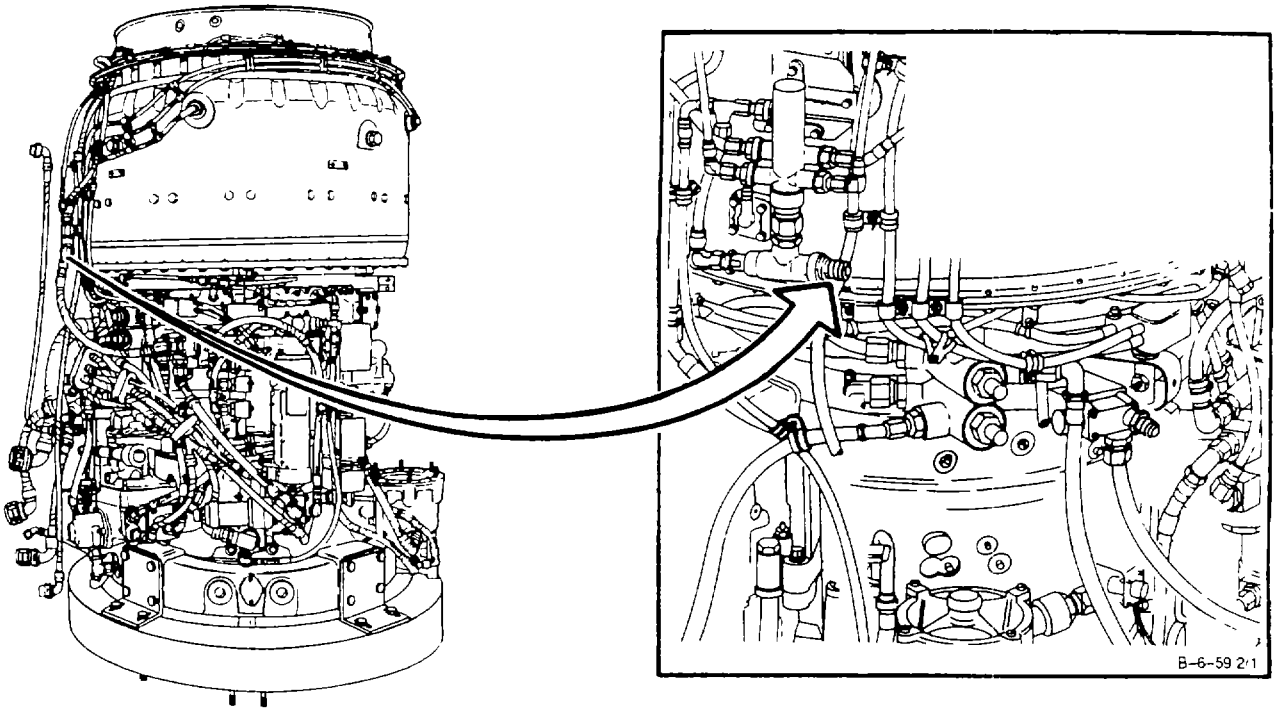
INITIAL SETUP

Applicable Configurations:
All
Tools:
Powerplant Mechanic's Tool Kit, NSN 5180-00-323-4944
Container, 1 Quart
Materials:
Wiping Rag (E64)
Personnel Required:
Aircraft Powerplant Repairer

General Safety Instructions:

WARNING

Turbine fuels are very flammable. They may cause drying and irritation of skin or eyes. Handle only in well-ventilated areas away from heat and open flame. Drain and store in approved metal safety containers. Avoid prolonged or repeated contact with skin and do not take internally. Wash contacted area of skin thoroughly after handling. If irritation of skin results, get medical attention. Get medical attention for eyes.



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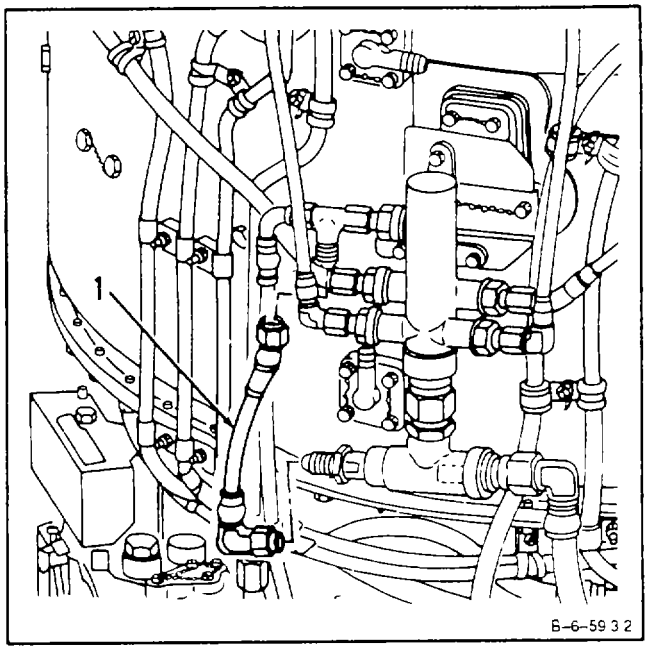
6-70 REMOVE HOSE ASSEMBLY (PRESSURIZING VALVE TO FUEL FLOW DIVIDER RETURN TEE) (Continued) **6-70**

1. Disconnect and **remove hose assembly (1).**



FOLLOW-ON MAINTENANCE:
None

END OF TASK

6-71 INSTALL HOSE ASSEMBLY (PRESSURIZING VALVE TO FUEL FLOW DIVIDER RETURN TEE) 6-71

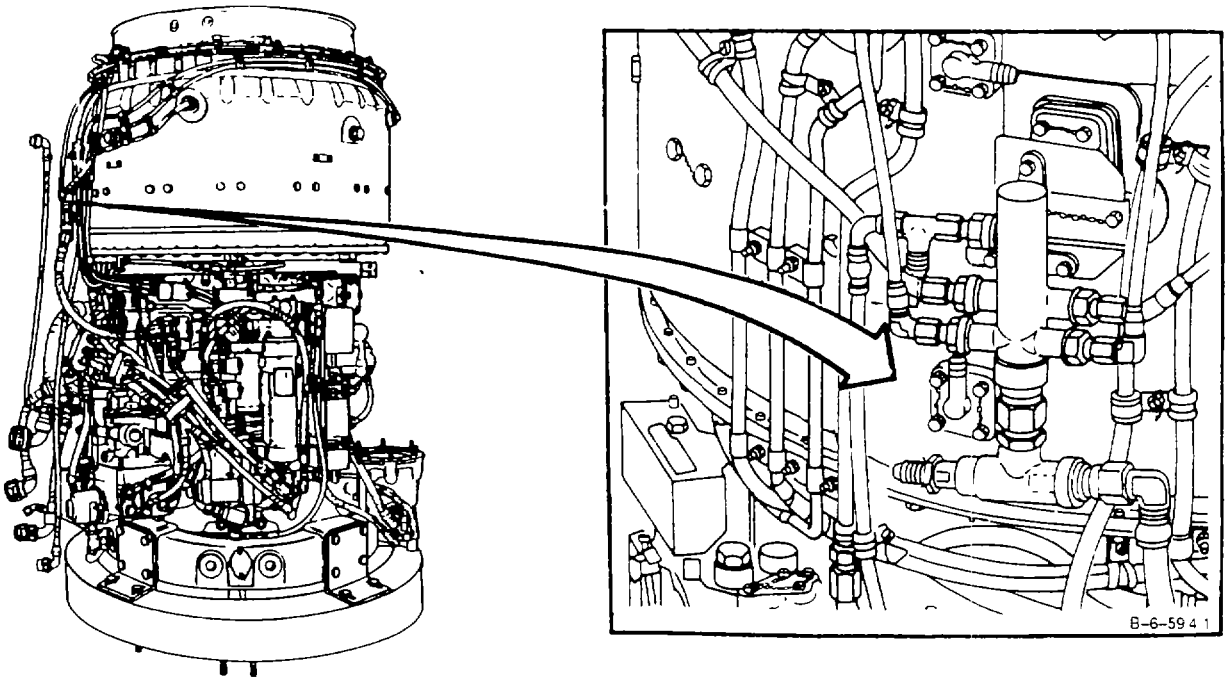
INITIAL SETUP

Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Technical Inspection Tool Kit,
NSN 5180-00-323-5114

Materials:
None

Personnel Required:
Aircraft Powerplant Repairer
Aircraft Powerplant Inspector



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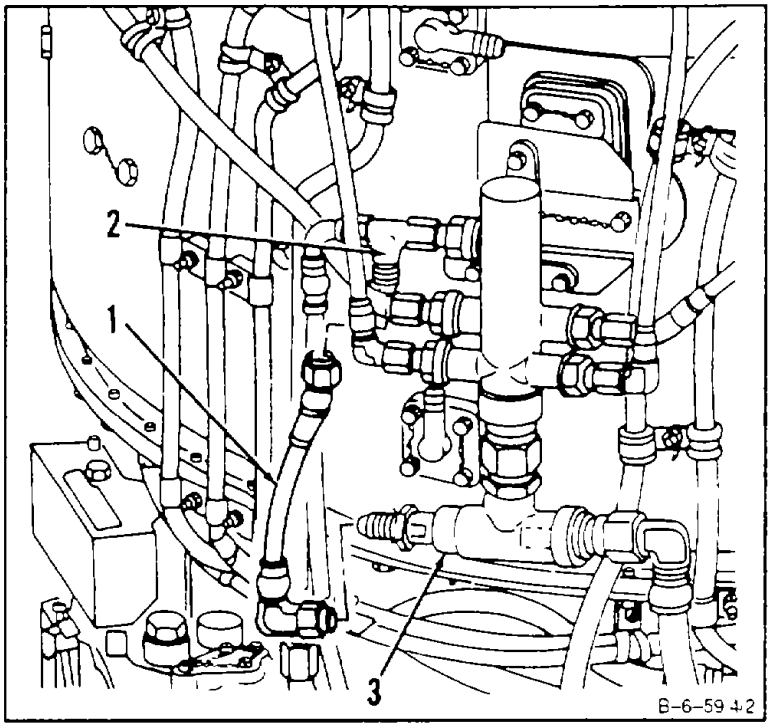
1. **Install hose assembly (1)** on tee (2) and reducer (3).



INSPECT

FOLLOW-ON MAINTENANCE:
None

END OF TASK

6-72 REMOVE HOSE ASSEMBLY (FUEL BOOST PUMP TO MAIN FUEL FILTER) 6-72

INITIAL SETUP

Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Open-End Wrench, 1-Inch
Container, 1 Quart

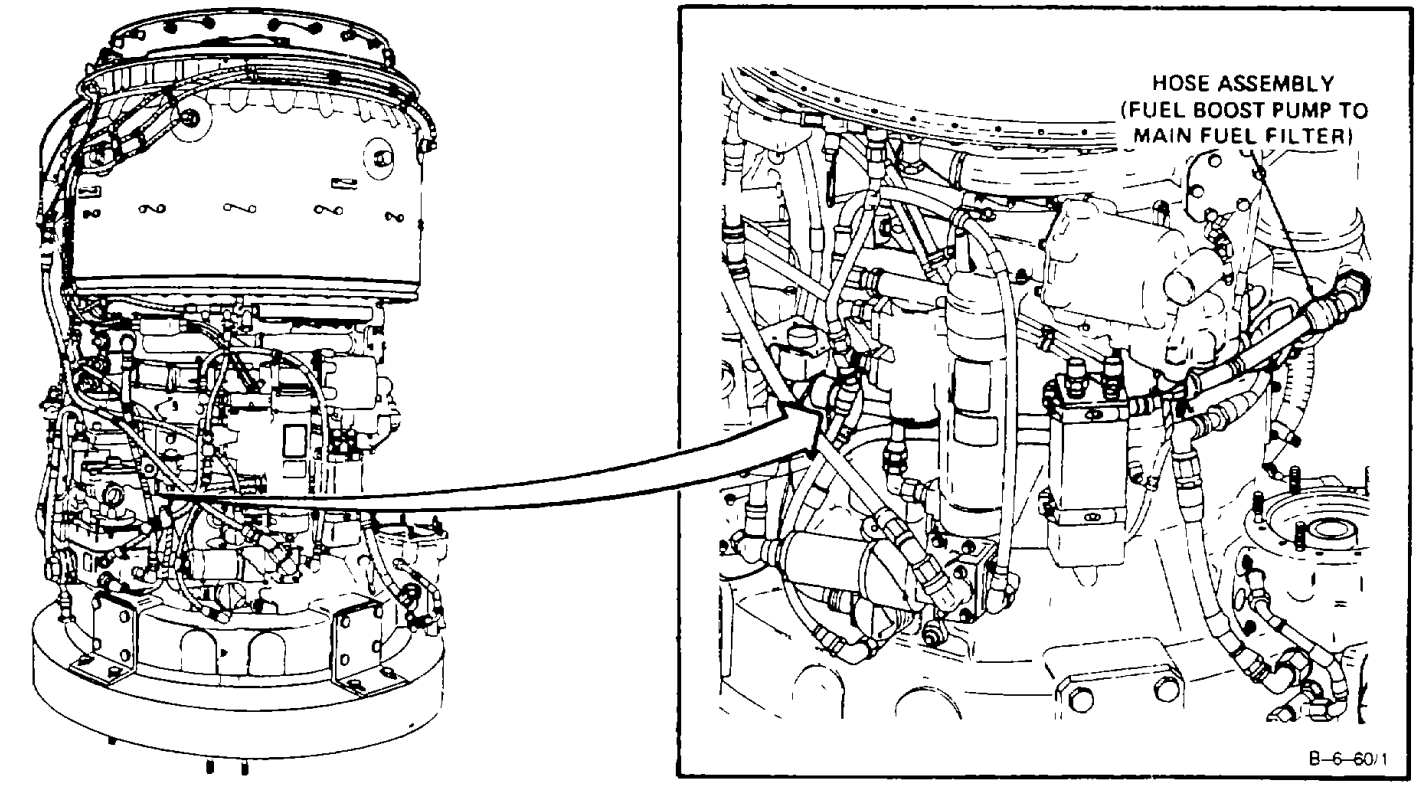
Materials:
Wiping Rag (E64)

Personnel Required:
Aircraft Powerplant Repairer

General Safety Instructions:

WARNING

Turbine fuels are very flammable. They may cause drying and irritation of skin or eyes. Handle only in well-ventilated areas away from heat and open flame. Drain and store in approved metal safety containers. Avoid prolonged or repeated contact with skin and do not take internally. Wash contacted area of skin thoroughly after handling. If irritation of skin results, get medical attention. Get medical attention for eyes.



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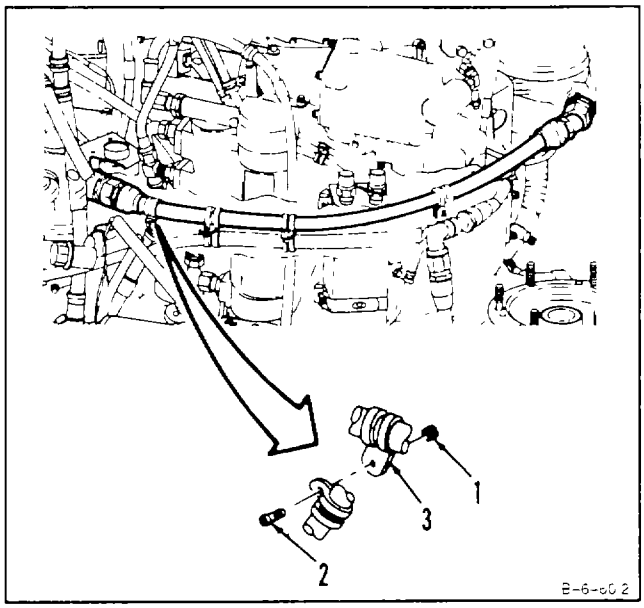
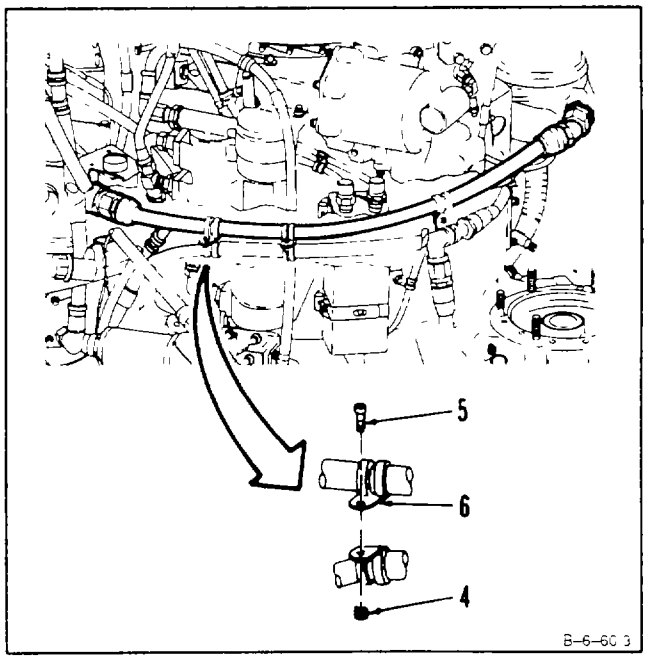
6-72 REMOVE HOSE ASSEMBLY (FUEL BOOST PUMP TO MAIN FUEL FILTER) (Continued) 6-72

1 **Remove** nut (1), screw (2), and clamp (3).



2. **Remove** nut (4), screw (5), and clamp (6).



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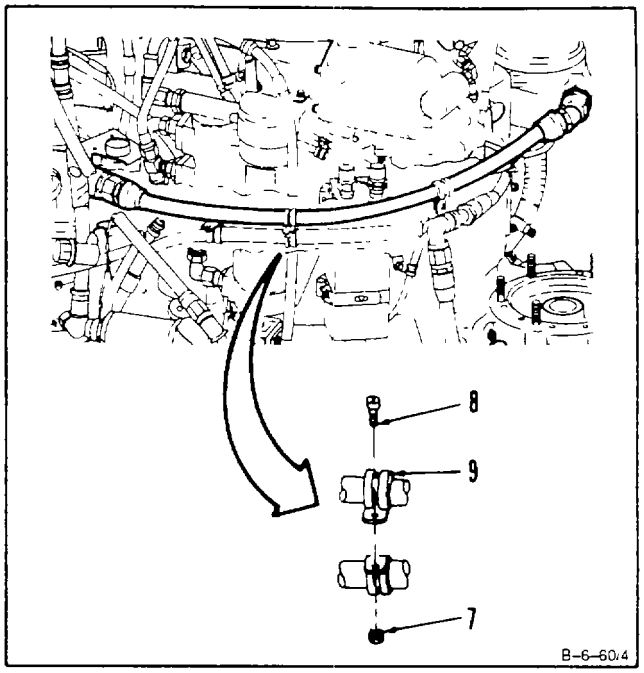
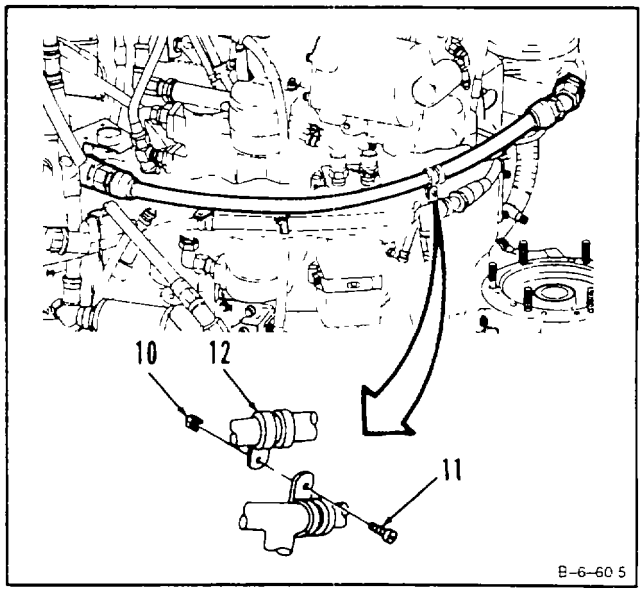
3. **Remove** nut (7), screw (8), and **clamp (9).**



4. **Remove** nut (10), screw (11), and **clamp (12).**



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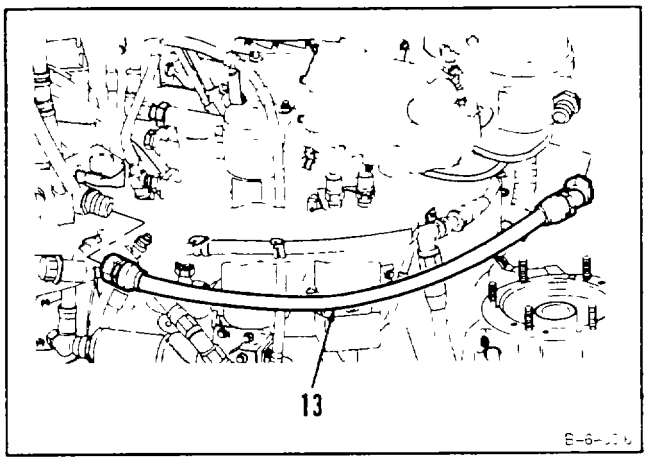
6-72 REMOVE HOSE ASSEMBLY (FUEL BOOST PUMP TO MAIN FUEL FILTER) (Continued) **6-72**

5. Disconnect and **remove hose assembly (13)** using 1-inch open-end wrench.



FOLLOW-ON MAINTENANCE:
None

END OF TASK

6-73 INSTALL HOSE ASSEMBLY (FUEL BOOST PUMP TO MAIN FUEL FILTER) 6-73

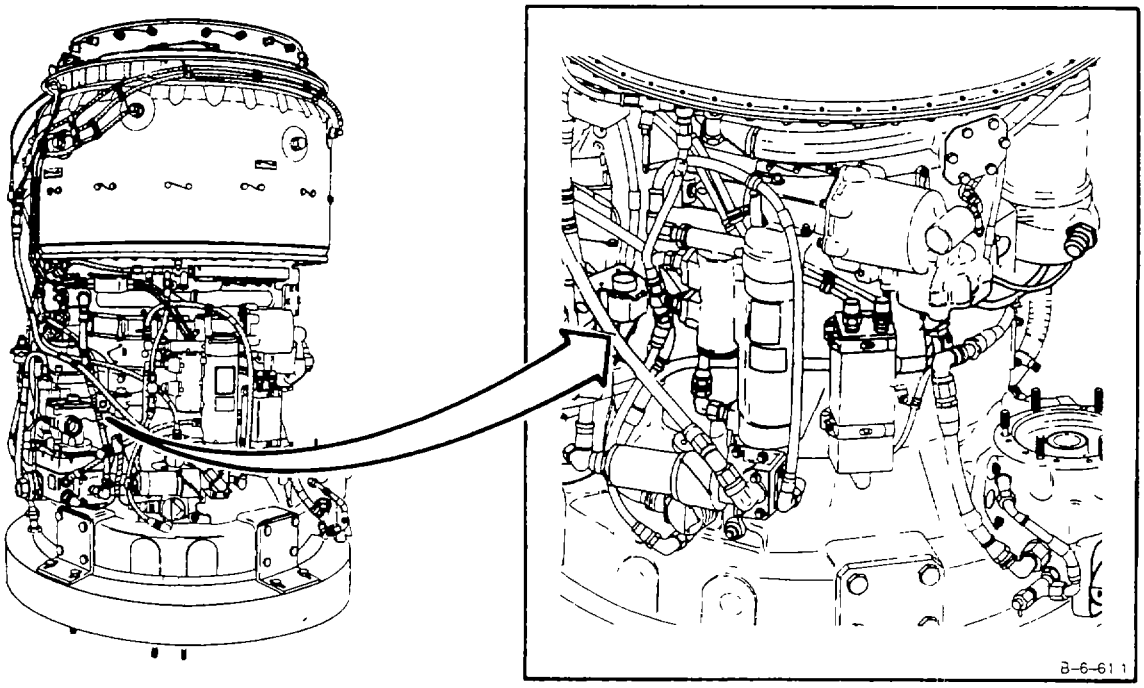
INITIAL SETUP

Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Technical Inspection Tool Kit,
NSN 5180-00-323-5114
Crowfoot Attachment, 1-Inch
Torque Wrench, 700-1600 Inch-Pounds

Materials:
None

Personnel Required:
Aircraft Powerplant Repairer
Aircraft Powerplant Inspector



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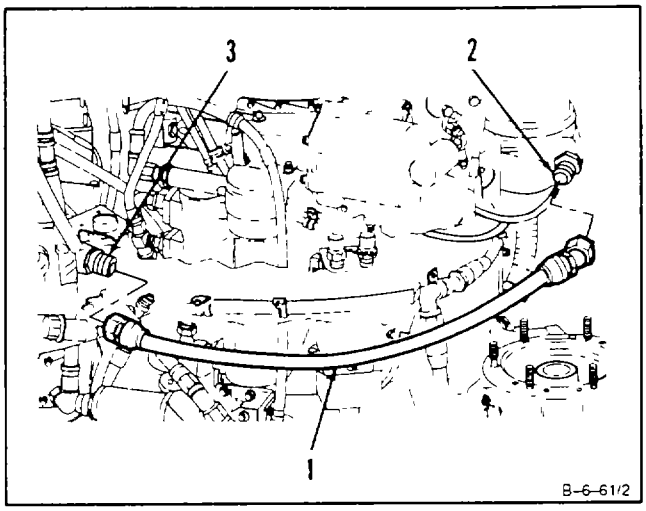
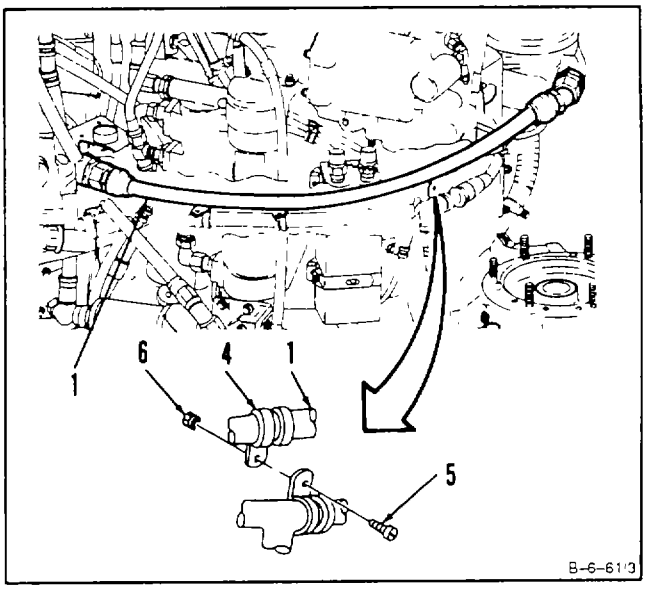
6-73 INSTALL HOSE ASSEMBLY (FUEL BOOST PUMP TO MAIN FUEL FILTER) (Continued) 6-73

1. **Install hose assembly (1)** on nipples (2 and 3), using 1-inch crowfoot attachment.



2. **Install clamp (4)** on hose assembly (1), and install screw (5) and nut (6).



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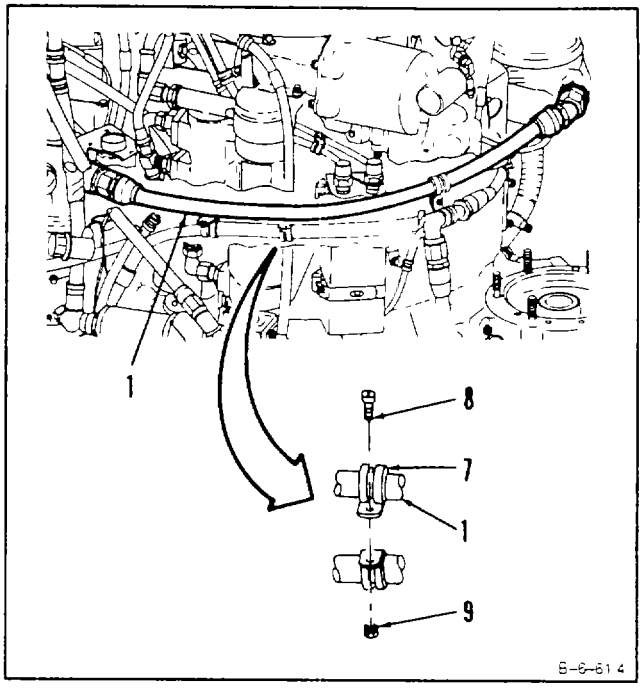
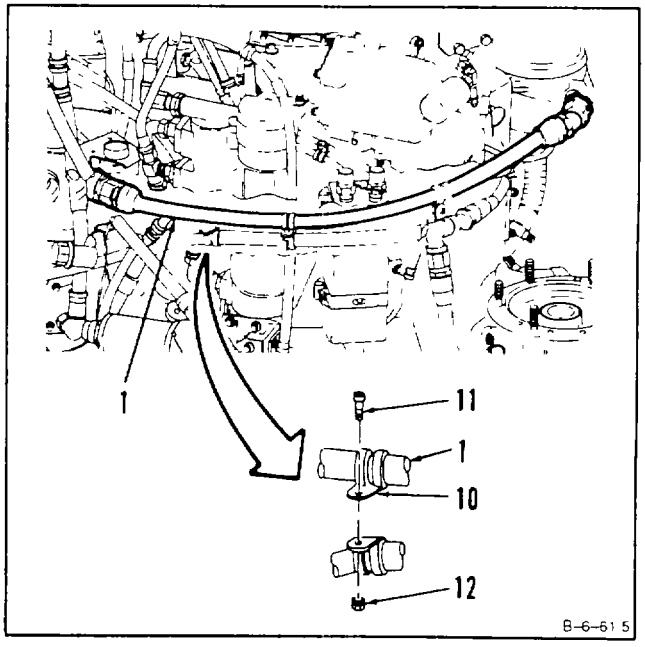
6-73 INSTALL HOSE ASSEMBLY (FUEL BOOST PUMP TO MAIN FUEL FILTER) (Continued) **6-73**

3. **Install clamp (7**) on hose assembly (1), and install screw (8) and nut (9).



4. **Install clamp (10**) on hose assembly (1), and install screw (11) and nut (12).



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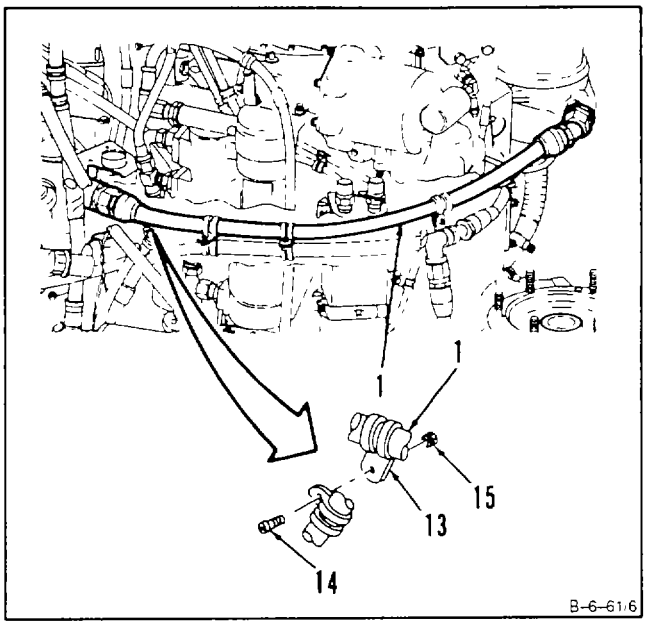
5. **Install clamp (13)** on hose assembly (1), and install screw (14) and nut (15).



INSPECT

FOLLOW-ON MAINTENANCE:
None

END OF TASK

6-74 REMOVE HOSE ASSEMBLY (FUEL FLOW DIVIDER TO FUEL CHECK VALVE) 6-74

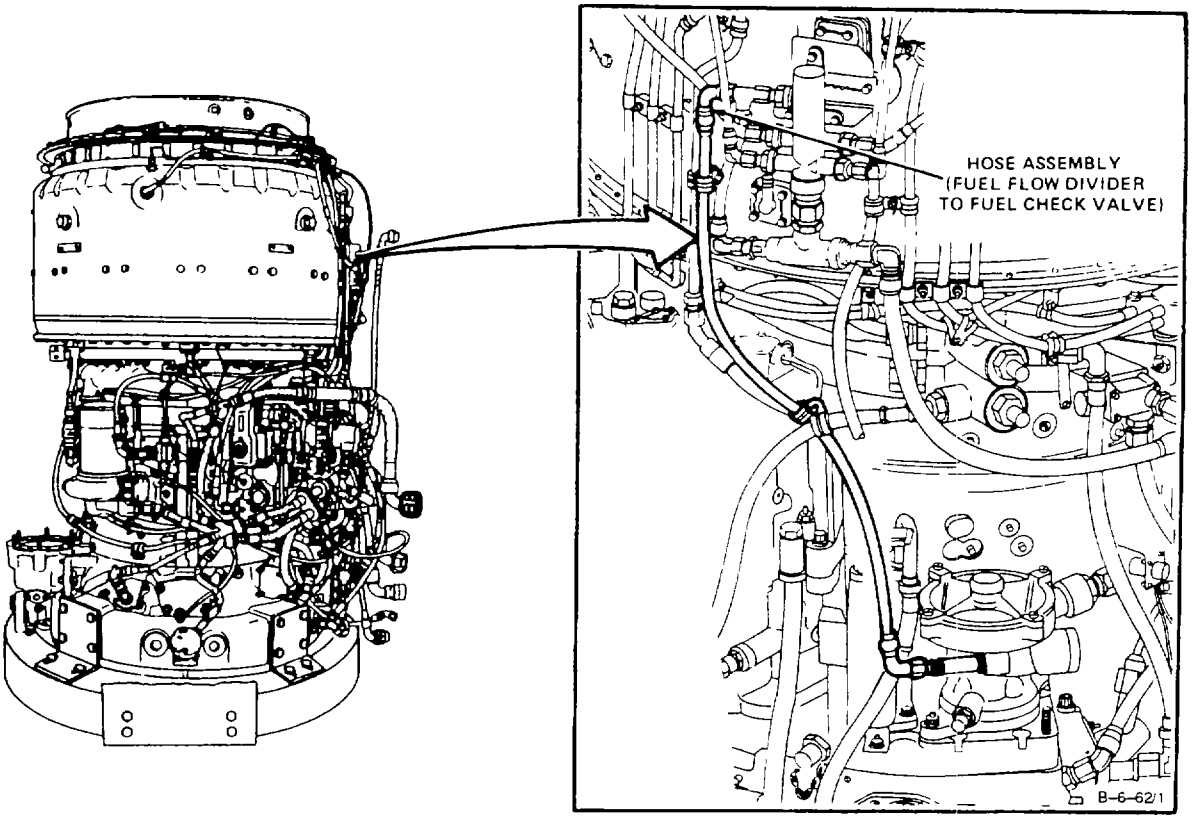
INITIAL SETUP

Applicable Configurations:
All
Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Container, 1 Quart
Materials:
Wiping Rag (E64)
Personnel Required:
Aircraft Powerplant Repairer

General Safety Instructions:

WARNING

Turbine fuels are very flammable. They may cause drying and irritation of skin or eyes. Handle only in well-ventilated areas away from heat and open flame. Drain and store in approved metal safety containers. Avoid prolonged or repeated contact with skin and do not take internally. Wash contacted area of skin thoroughly after handling. If irritation of skin results, get medical attention. Get medical attention for eyes.



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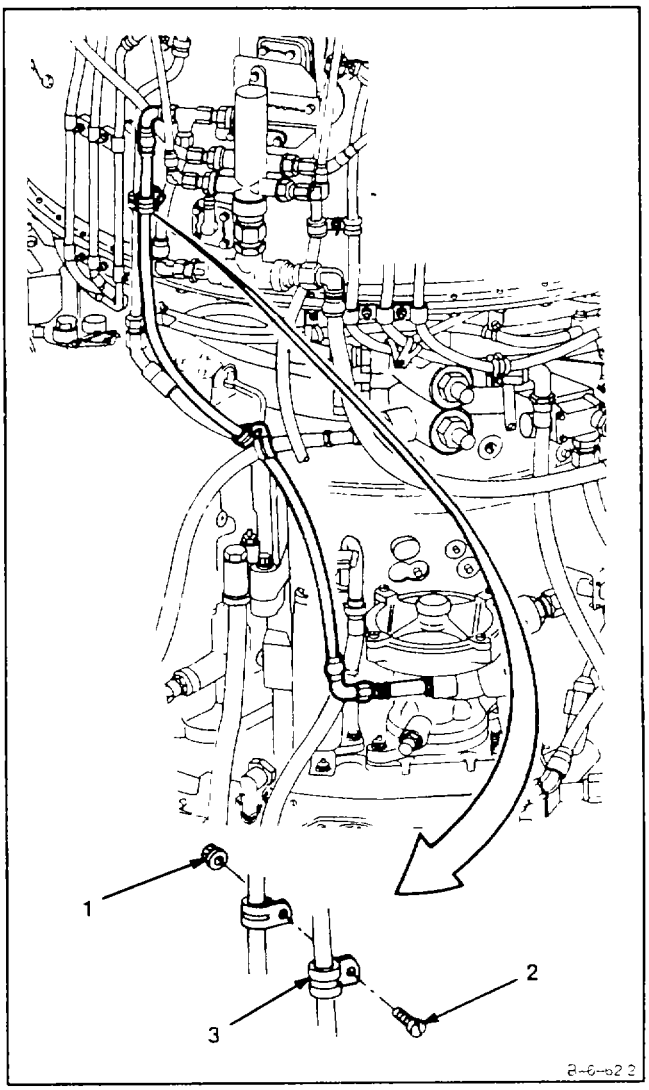
6-74 REMOVE HOSE ASSEMBLY (FUEL FLOW DIVIDER TO FUEL CHECK 6-74

1. **Remove** nut (1), screw (2), and clamp (3).



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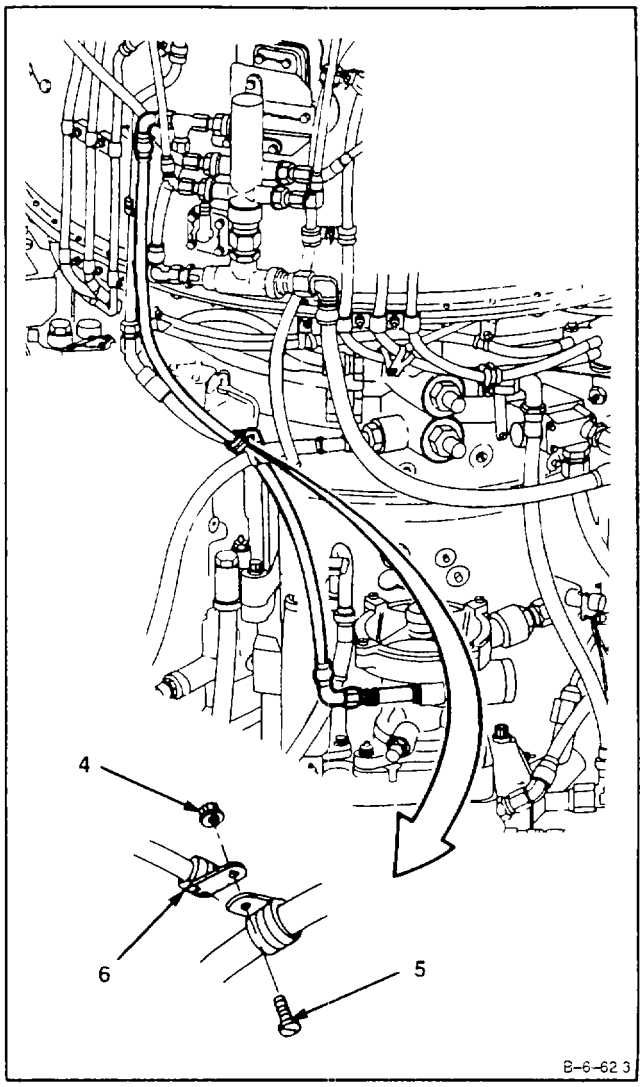
6-74 REMOVE HOSE ASSEMBLY (FUEL FLOW DIVIDER TO FUEL CHECK VALVE) (Continued) 6-74

2 **Remove** nut (4), screw (5), and **clamp (6).**



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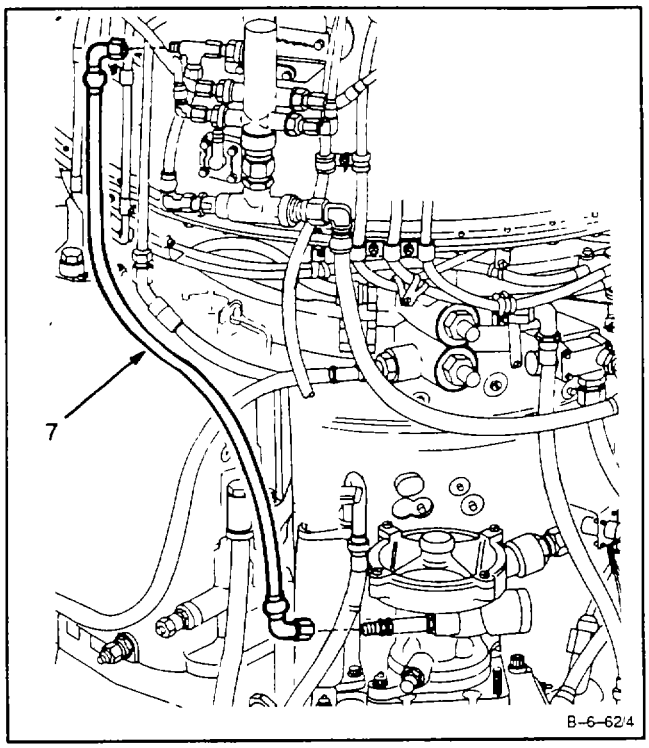
6-74 REMOVE HOSE ASSEMBLY (FUEL FLOW DIVIDER TO FUEL CHECK VALVE (Continued) 6-74

3. Disconnect and remove hose assembly (7).



FOLLOW-ON MAINTENANCE:
None

END OF TASK

6-75 INSTALL HOSE ASSEMBLY (FUEL FLOW DIVIDER TO FUEL CHECK VALVE) 6-75

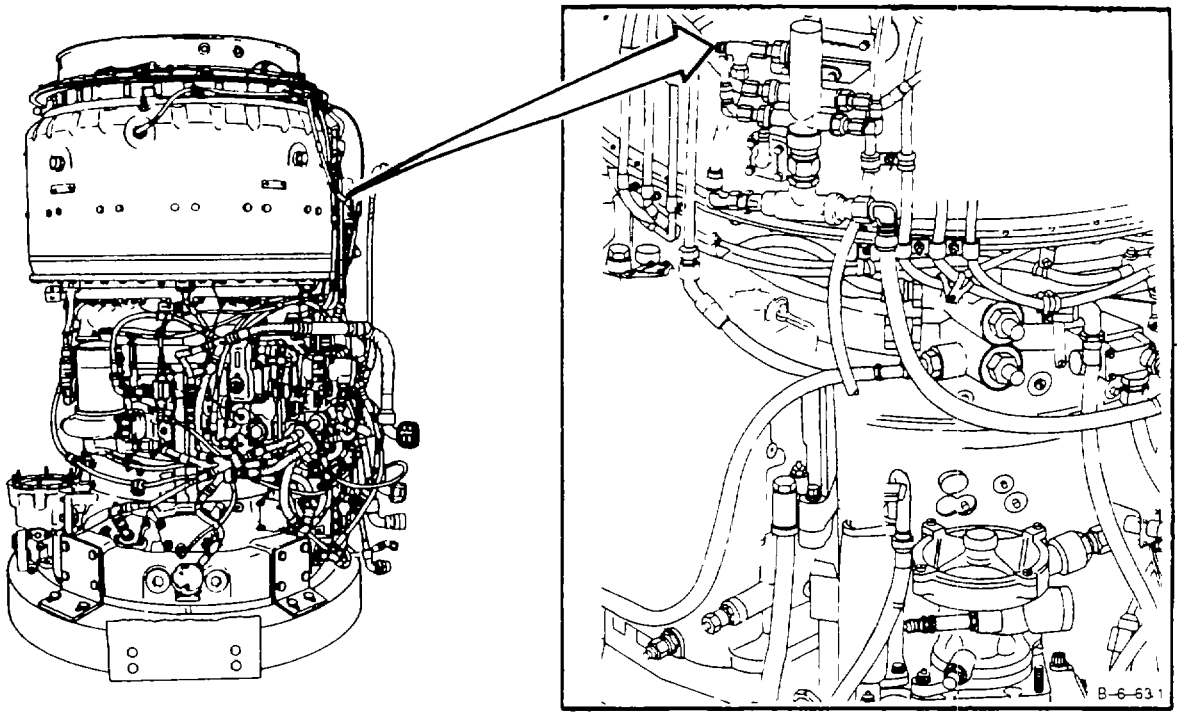
INITIAL SETUP

Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Technical Inspection Tool Kit,
NSN 5180-00-323-5114

Materials:
None

Personnel Required:
Aircraft Powerplant Repairer
Aircraft Powerplant Inspector



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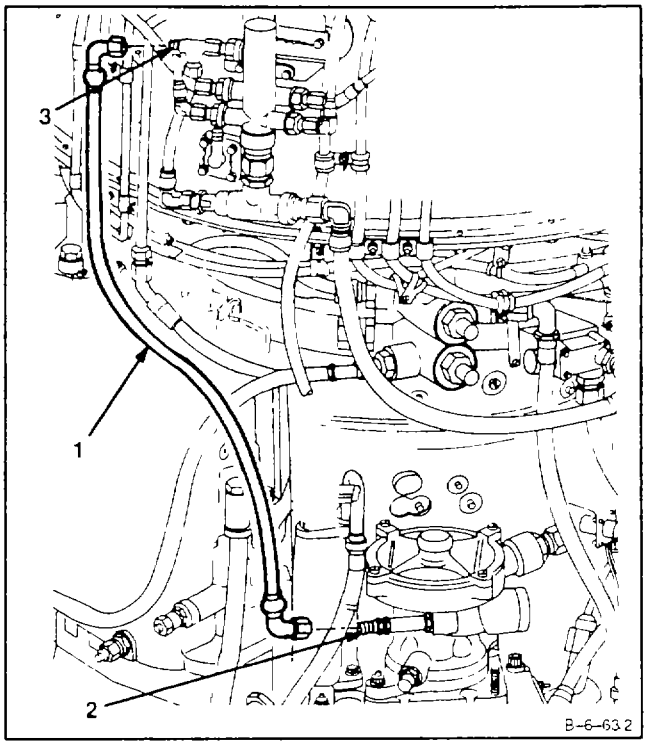
6-75 INSTALL HOSE ASSEMBLY (FUEL FLOW DIVIDER TO FUEL CHECK VALVE) (CONTINUED) 6-75

1. **Install hose assembly (1)** on check valve (2) and tee (3).



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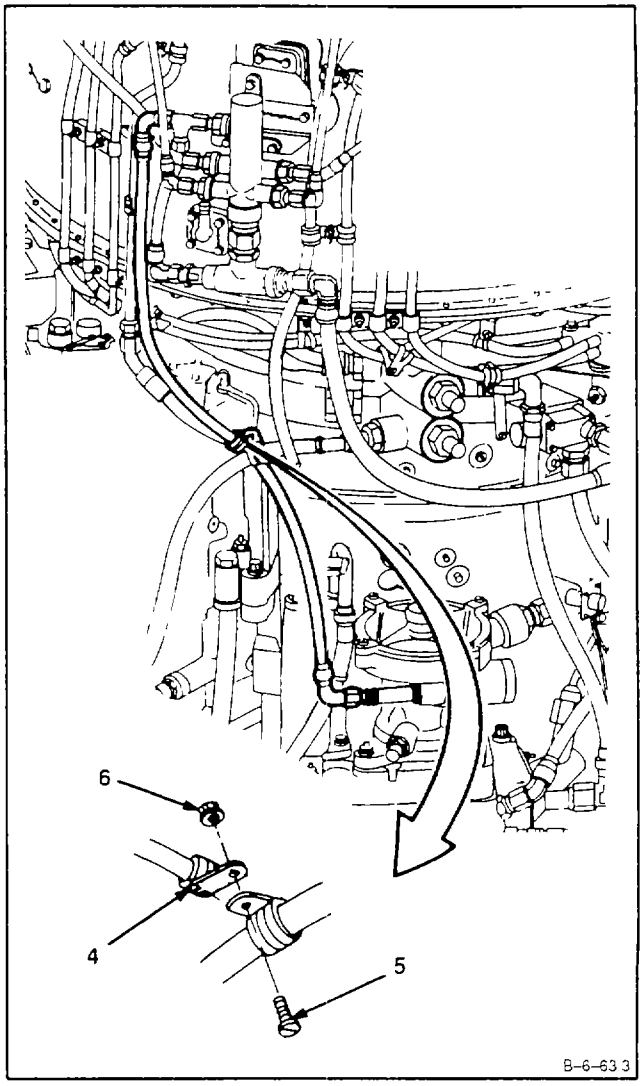
6-75 INSTALL HOSE ASSEMBLY (FUEL FLOW DIVIDER TO FUEL CHECK VALVE) (Continued) 6-75

2. **Install clamp (4)**, screw (5), and nut (6).



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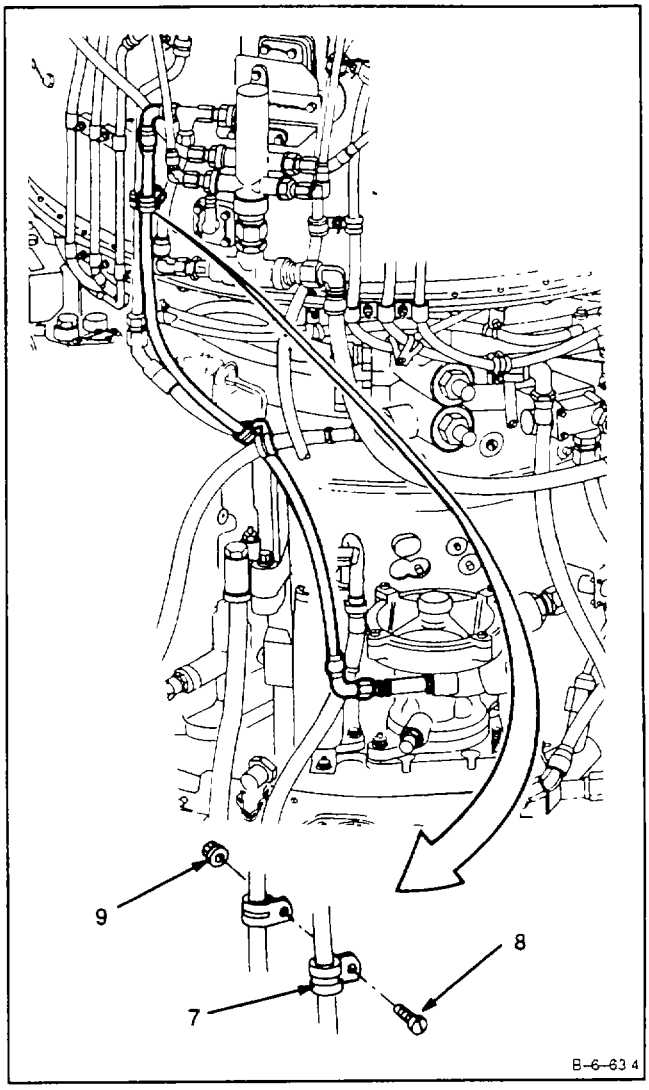
3. **Install clamp (7)**, screw (8), and nut (9).



INSPECT

FOLLOW-ON MAINTENANCE:
None

END OF TASK

6-76 REMOVE HOSE ASSEMBLY (FUEL FLOW DIVIDER LEFT SIDE PRIMARY TO MANIFOLD ASSEMBLY) 6-76

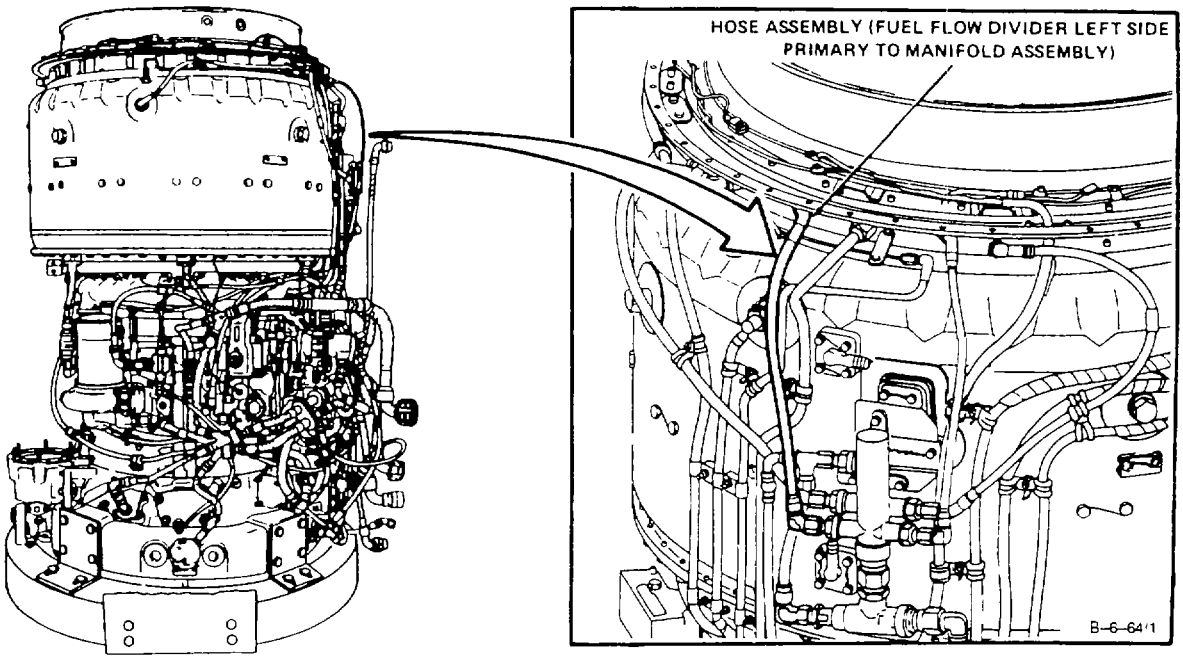
INITIAL SETUP

Applicable Configurations:
All
Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Container, 1 Quart
Materials:
Wiping Rag (E64)
Personnel Required:
Aircraft Powerplant Repairer

General Safety Instructions:

WARNING

Turbine fuels are very flammable. They may cause drying and irritation of skin or eyes. Handle only in well-ventilated areas away from heat and open flame. Drain and store in approved metal safety containers. Avoid prolonged or repeated contact with skin, and do not tale internally. Wash contacted areas of skin thoroughly after handling. If irritation of skin results, get medical attention. Get medical attention for eyes.



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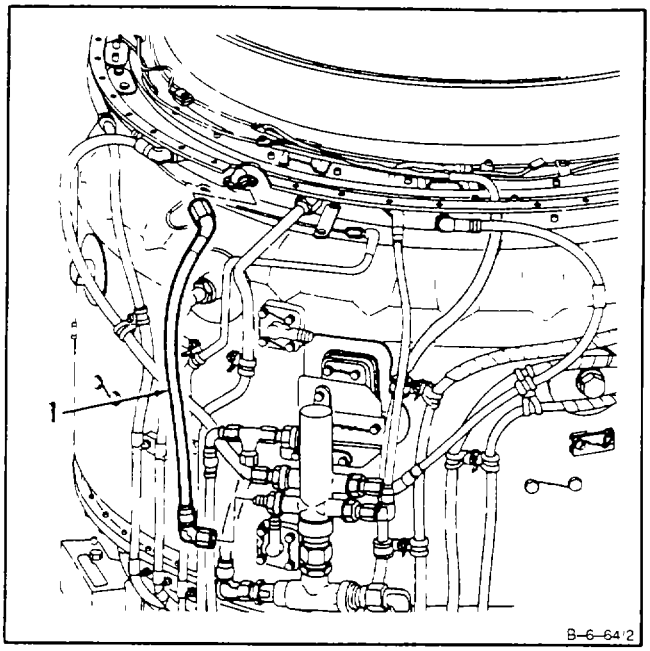
6-76 REMOVE HOSE ASSEMBLY (FUEL FLOW DIVIDER LEFT SIDE PRIMARY TO MANIFOLD ASSEMBLY) (Continued) 6-76

1. Disconnect and remove hose assembly (1).



FOLLOW-ON MAINTENANCE:
None

END OF TASK

6-77 INSTALL HOSE ASSEMBLY (FUEL FLOW DIVIDER LEFT SIDE PRIMARY TO MANIFOLD ASSEMBLY) 6-77

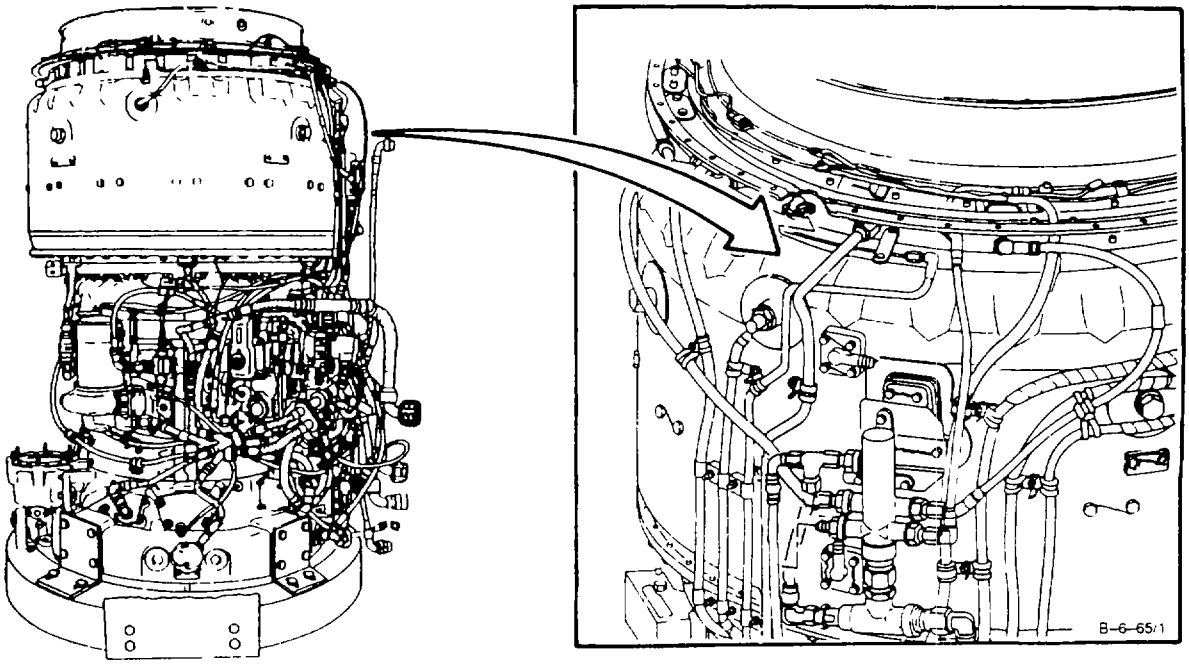
INITIAL SETUP

Applicable Configurations
All

Tools:
Powerplant Mechanic's Tool Kit, NSN 5180-00-323-4944
Technical Inspection Tool Kit, NSN 5180-00-323-5114

Materials:
None

Personnel Required
Aircraft Powerplant Repairer
Aircraft Powerplant Inspector



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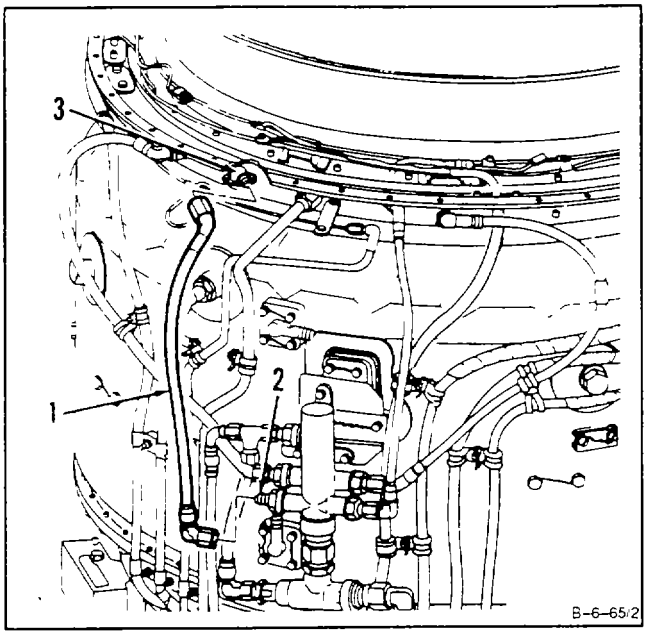
6-77 INSTALL HOSE ASSEMBLY (FUEL FLOW DIVIDER LEFT SIDE PRIMARY TO MANIFOLD ASSEMBLY) (Continued) **6-77**

1. **Install hose assembly (1)** on nipple (2) and elbow (3).



INSPECT

FOLLOW-ON MAINTENANCE:
None

END OF TASK

6-78 REMOVE HOSE ASSEMBLY (FUEL FLOW DIVIDER RIGHT SIDE PRIMARY TO MANIFOLD ASSENBLY) 6-78

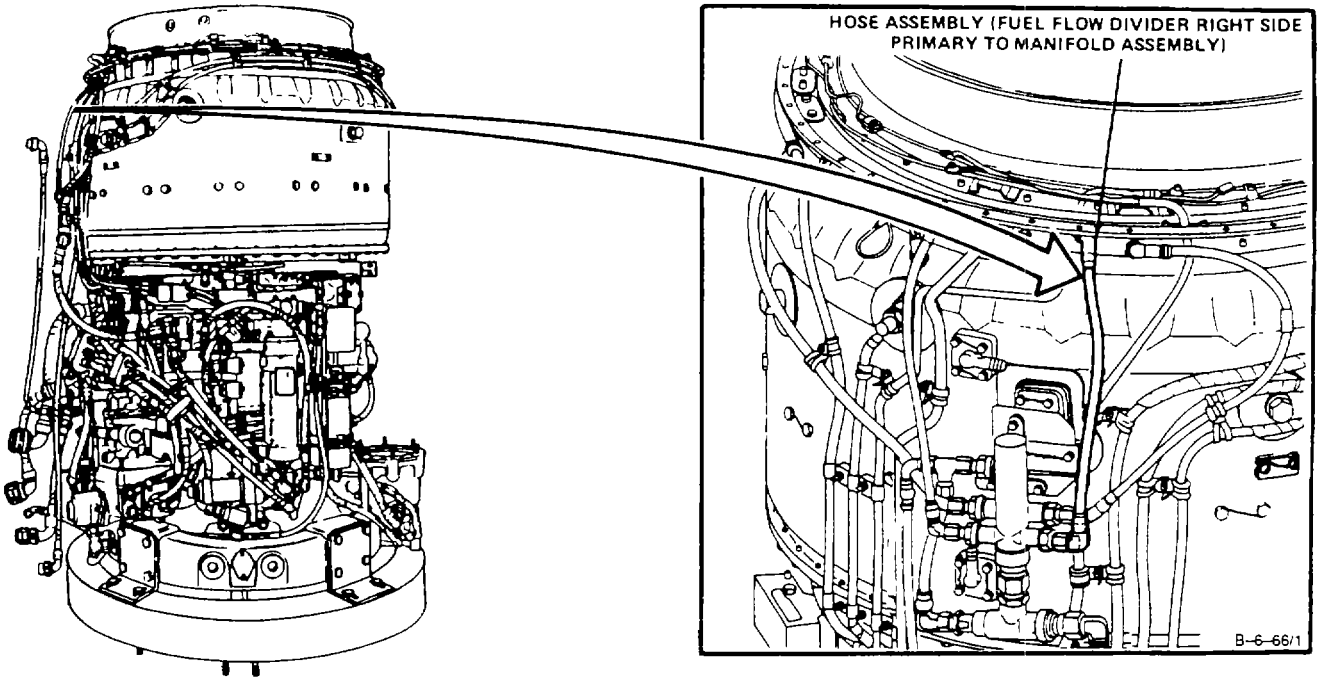
INITIAL SETUP

Applicable Configurations:
All
Tools:
Powerplant Mechanic's Tool Kit, NSN 5180-00-323-4944
Container, 1 Quart
Materials:
Wiping Rag (E64)
Personnel Required:
Aircraft Powerplant Repairer

General Safety Instructions:

WARNING

Turbine fuels are very flammable. They may cause drying and irritation of skin or eyes. Handle only in well-ventilated areas away from heat and open flame. Drain and store in approved metal safety containers. Avoid prolonged or repeated contact with skin and do not take internally. Wash contacted area of skin thoroughly after handling. If irritation of skin results, get medical attention for eyes.



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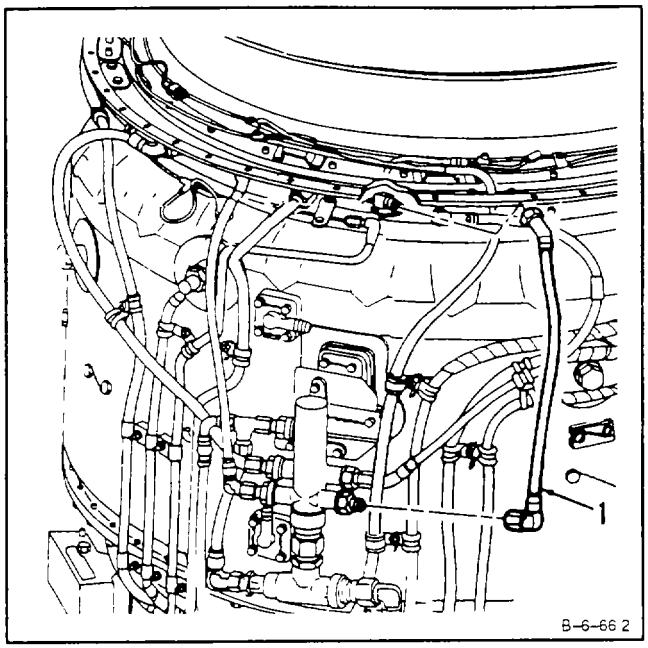
6-78 REMOVE HOSE ASSEMBLY (FUEL FLOW DIVIDER RIGHT SIDE PRIMARY TO MANIFOLD ASSEMBLY) (Continued) 6-78

1. Disconnect and remove hose assembly (1).

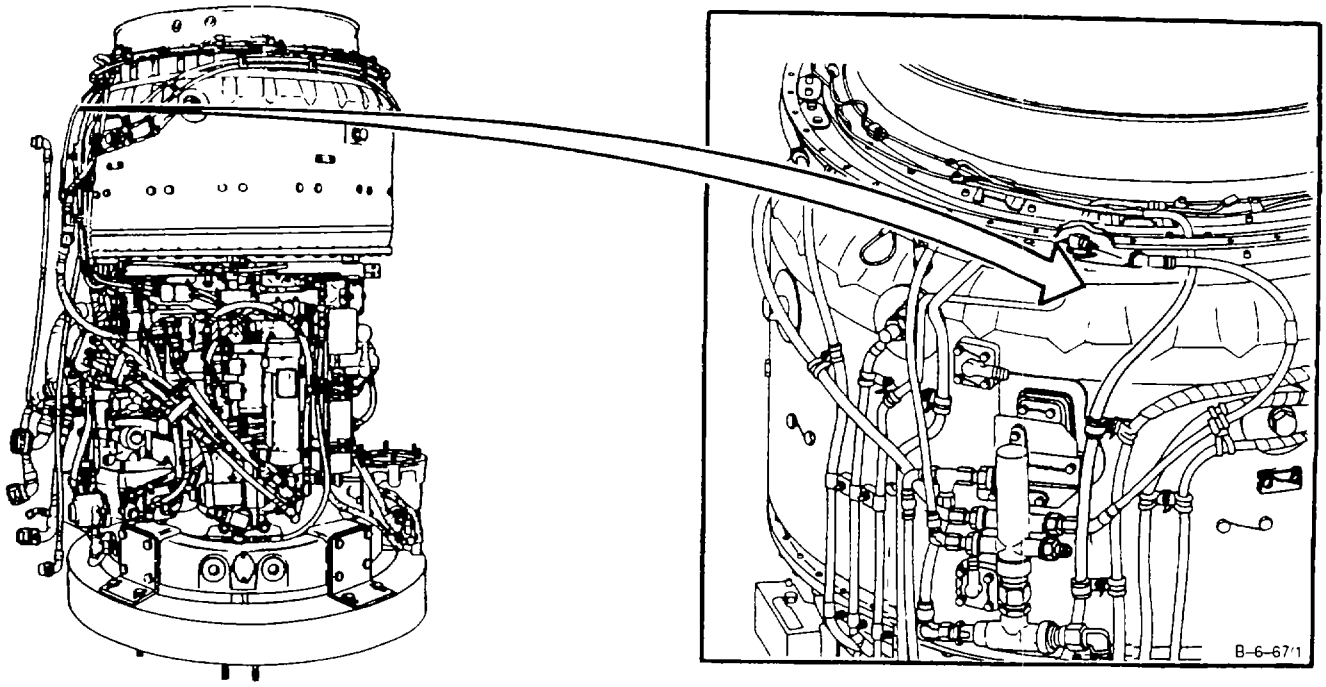


FOLLOW-ON MAINTENANCE:
None

END OF TASK

6-79 INSTALL HOSE ASSEMBLY (FUEL FLOW DIVIDER RIGHT SIDE PRIMARY TO MANIFOLD ASSEMBLY) 6-79

INITIAL SETUP
Applicable Configurations:
All
Tools:
Powerplant Mechanic's Tool Kit, NSN 5180-00-323-4944
Technical Inspection Tool Kit, NSN 5180-00-323-5114
Materials:
None
Personnel Required:
Aircraft Powerplant Repairer
Aircraft Powerplant Inspector



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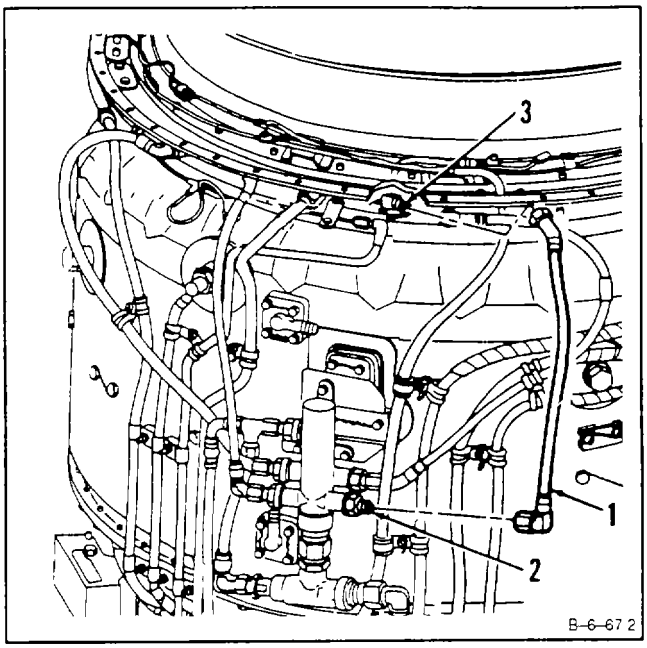
6-79 INSTALL HOSE ASSEMBLY (FUEL FLOW DIVIDER RIGHT SIDE PRIMARY TO MANIFOLD ASSEMBLY) (Continued) **6-79**

1. Install hose assembly (1) on nipple (2) and elbow (3).



INSPECT

FOLLOW-ON MAINTENANCE:
None

END OF TASK

6-80 REMOVE HOSE ASSEMBLY (FUEL FLOW DIVIDER LEFT SIDE SECONDARY TO MANIFOLD ASSEMBLY) 6-80

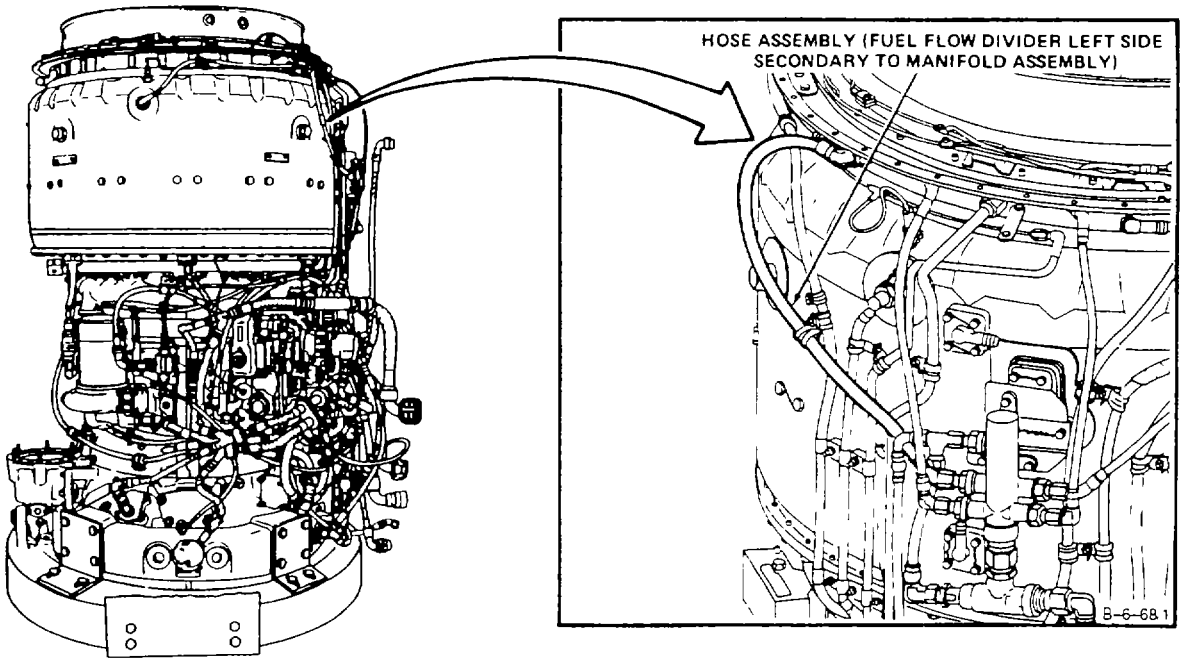
INITIAL SETUP

Applicable Configurations:
All
Tools:
Powerplant Mechanic's Tool Kit, NSN 5180-00-323-4944
Container, 1 Quart
Materials:
Wiping Rag (E64)
Personnel Required:
Aircraft Powerplant Repairer

General Safety Instructions:

WARNING

Turbine fuels are very flammable. They may cause drying and Irritation of skin or eyes. Handle only in well-ventilated areas away from heat and open flame. Drain and store in approved metal safety containers. Avoid prolonged or repeated contact with skin and do not take internally. Wash contacted area of skin thoroughly after handling. If irritation of skin results, get medical for eyes



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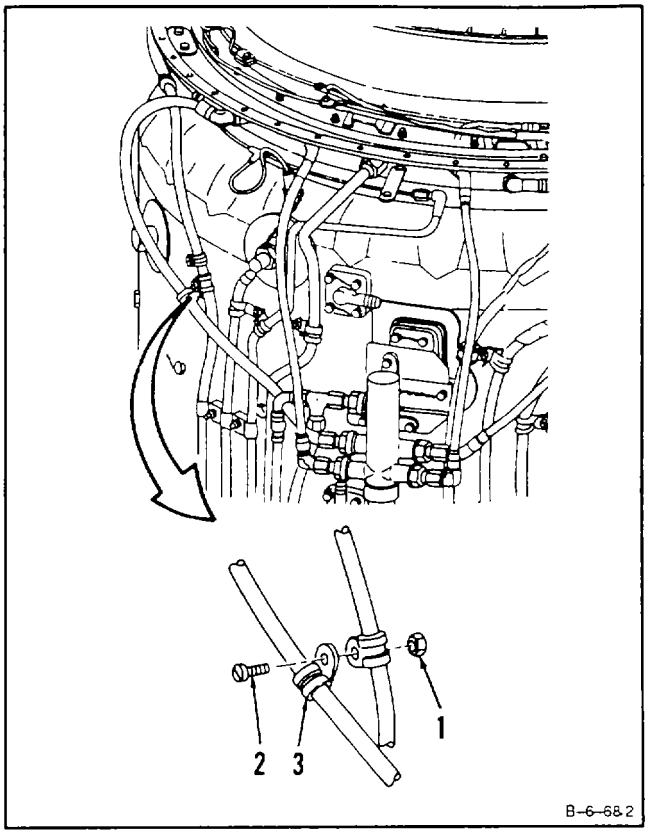
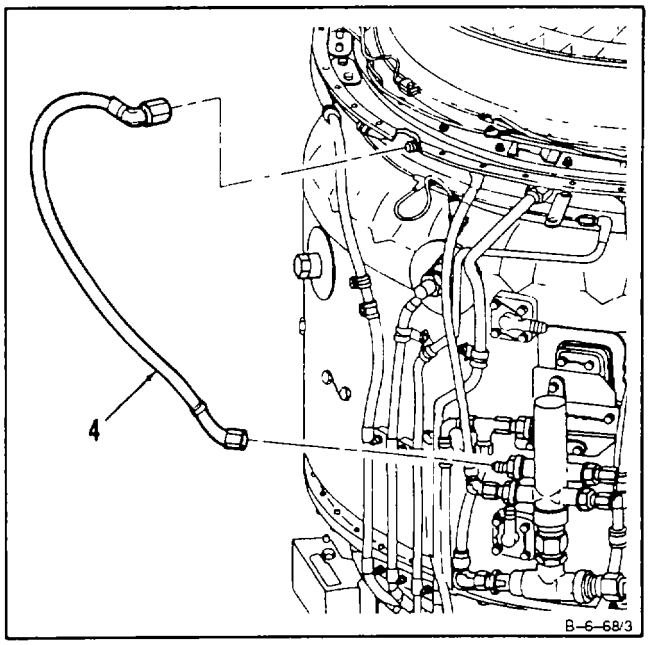
6-80 REMOVE HOSE ASSEMBLY (FUEL FLOW DIVIDER LEFT SIDE SECONDARY TO MANIFOLD ASSEMBLY) (Continued) **6-80**

1. **Remove** nut (1), screw (2) and **clamp (3).**



2. Disconnect and **remove hose assembly (4).**



FOLLOW-ON MAINTENANCE:
None

END OF TASK

6-81 INSTALL HOSE ASSEMBLY (FUEL FLOW DIVIDER LEFT SIDE SECONDARY TO MANIFOLD ASSEMBLY) 6-81

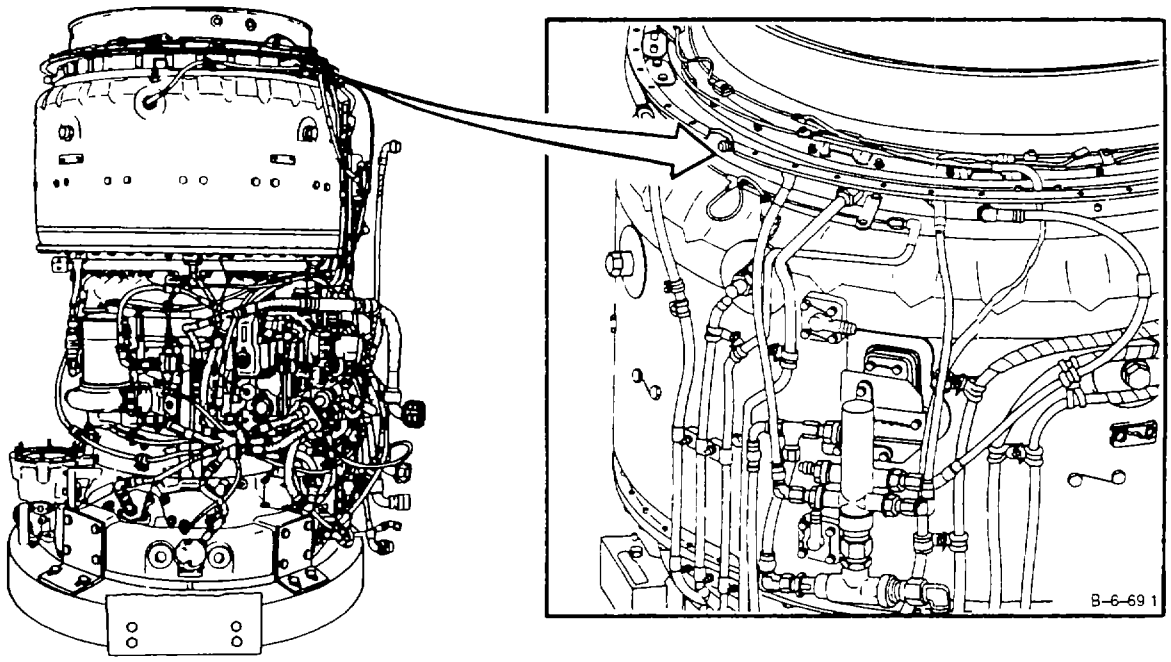
INITIAL SETUP

Applicable Configurations
All

Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Technical Inspection Tool Kit,
NSN 5180-00-323-5114

Materials:
None

***Personnel Required*:**
Aircraft Powerplant Repairer
Aircraft Powerplant Inspector



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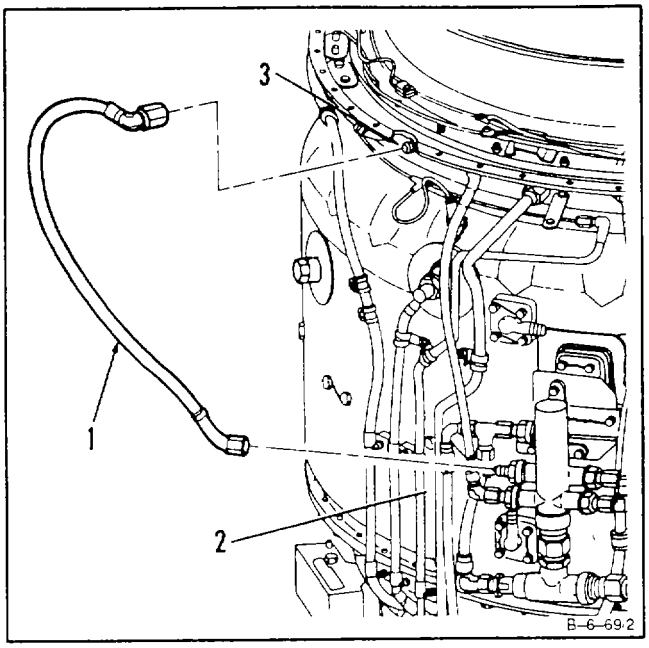
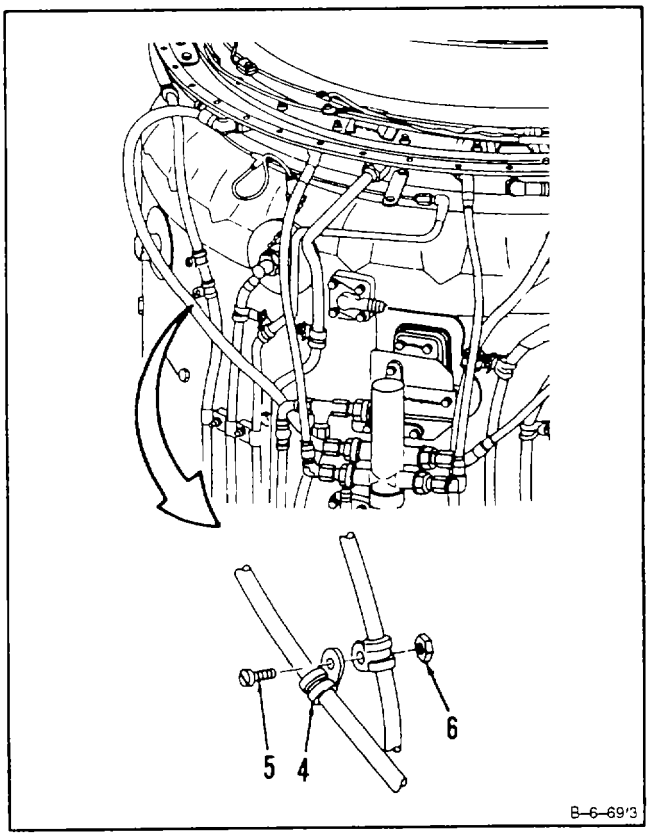
6-81 INSTALL HOSE ASSEMBLY (FUEL FLOW DIVIDER LEFT SIDE SECONDARY TO MANIFOLD ASSEMBLY) (Continued) 6-81

1. **Install hose assembly (1)** on reducer (2) and elbow (3).



2. **Install clamp (4),** screw (5), and nut (6).



INSPECT

FOLLOW-ON MAINTENANCE:
None

END OF TASK

6-82 REMOVE HOSE ASSEMBLY (FUEL FLOW DIVIDER RIGHT SIDE SECONDARY TO MANIFOLD ASSEMBLY) 6-82

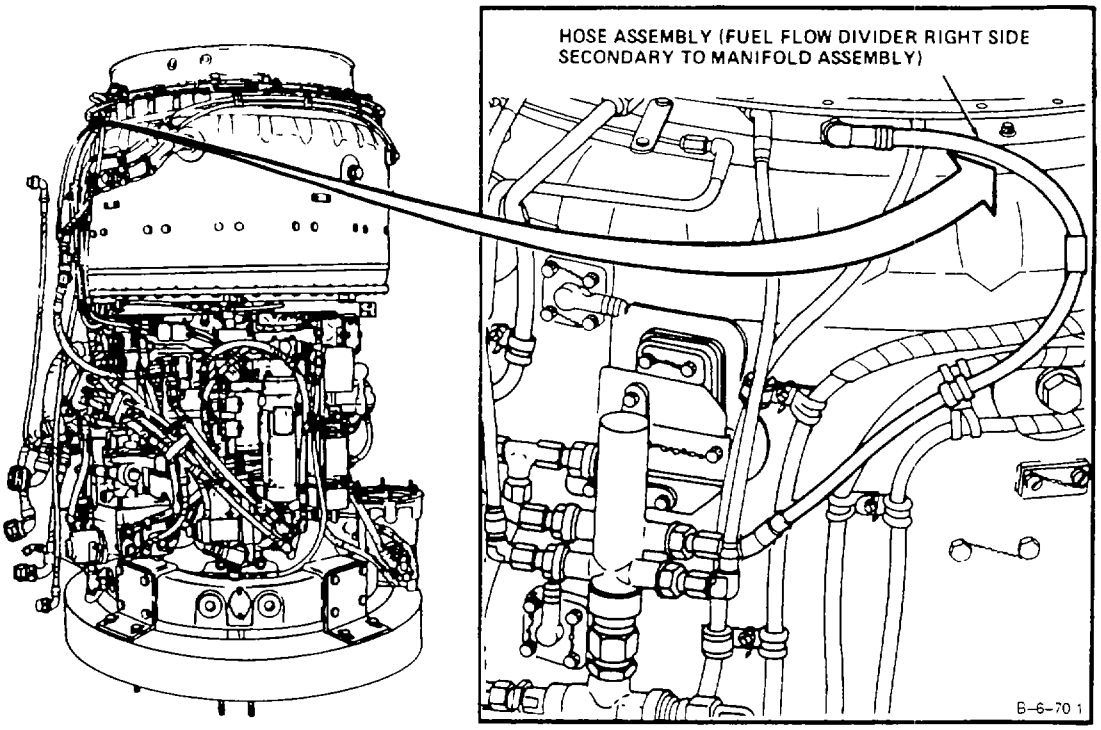
INITIAL SETUP

Applicable Configurations:
All
Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Container, 1 Quart
Materials:
Wiping Rag (E64)
Personnel Required:
Aircraft Powerplant Repairer

General Safety Instructions:

WARNING

Turbine fuels are very flammable. They may cause drying and irritation of skin or eyes. Handle only in well-ventilated areas away from heat and open flame. Drain and store in approved metal safety containers. Avoid prolonged or repeated contact with skin and do not take internally. Wash contacted area of irritation of skin results, get medical attention. Get medical attention for eyes.



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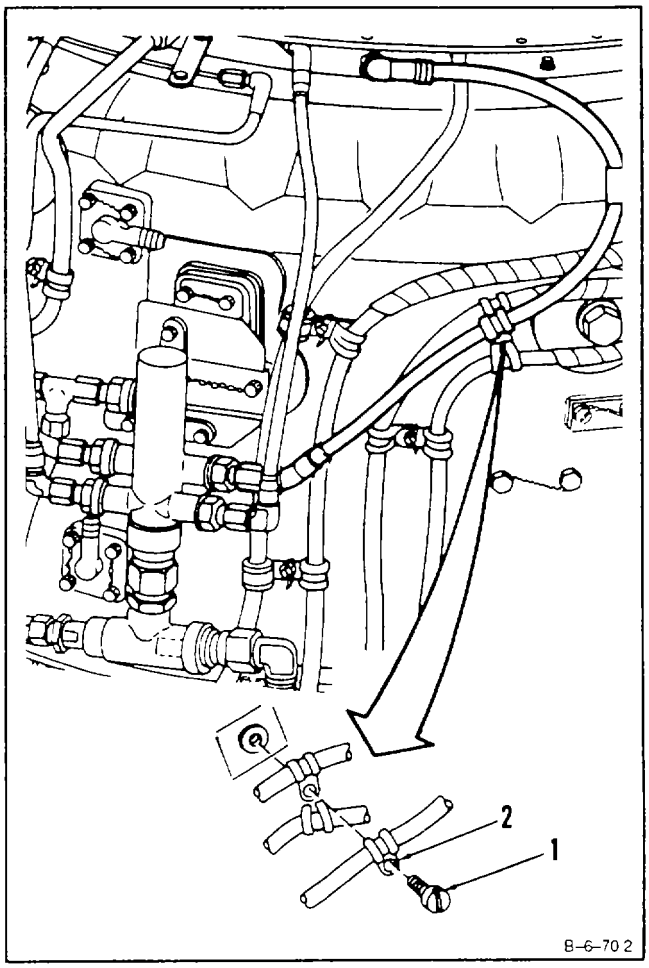
6-82 REMOVE HOSE ASSEMBLY (FUEL FLOW DIVIDER RIGHT SIDE SECONDARY TO MANIFOLD ASSEMBLY) (Continued) 6-82

1. **Remove** lockwire, screw (1), and clamp (2).



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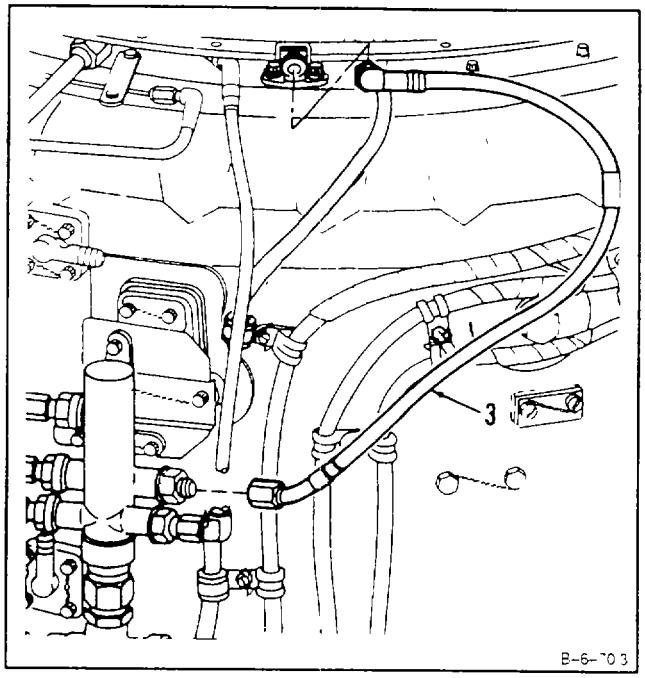
6-82 REMOVE HOSE ASSEMBLY (FUEL FLOW DIVIDER RIGHT SIDE SECONDARY TO MANIFOLD ASSEMBLY) (Continued) **6-82**

2. Disconnect and **remove hose assembly (3).**



FOLLOW-ON MAINTENANCE:
None

END OF TASK

6-83 INSTALL HOSE ASSEMBLY (FUEL FLOW DIVIDER RIGHT SIDE SECONDARY TO MANIFOLD ASSEMBLY) 6-83

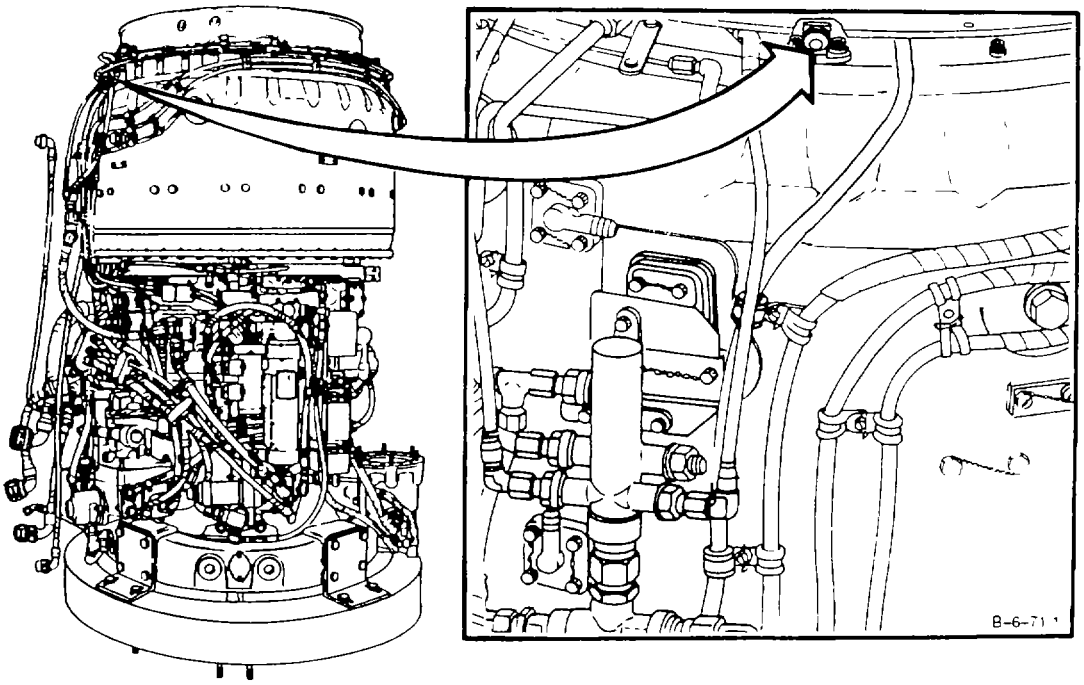
INITIAL SETUP

Applicable Configurations
All

Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Technical Inspection Tool Kit,
NSN 5180-00-323-5114

Materials:
Lockwire (E33)

Personnel Required:
Aircraft Powerplant Repairer
Aircraft Powerplant Inspector



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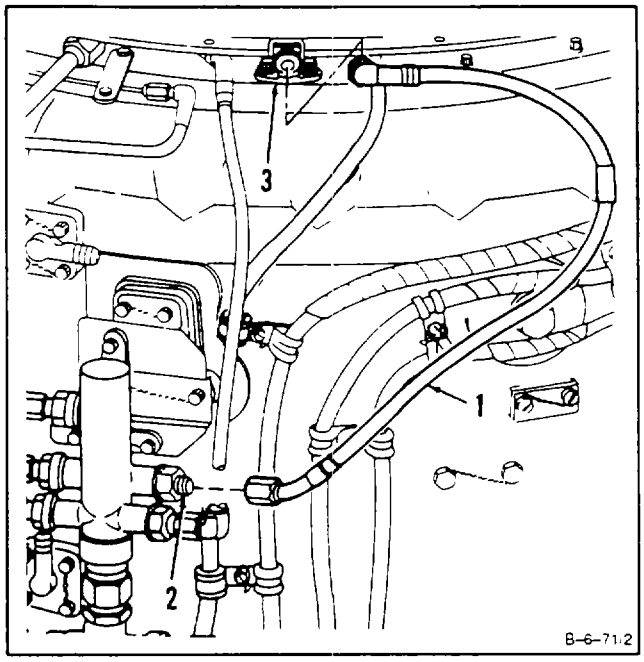
6-83 INSTALL HOSE ASSEMBLY (FUEL FLOW DIVIDER RIGHT SIDE SECONDARY TO MANIFOLD ASSEMBLY (Continued) **6-83**

1. **Install hose assembly (1)** on reducer (2) and elbow (3).



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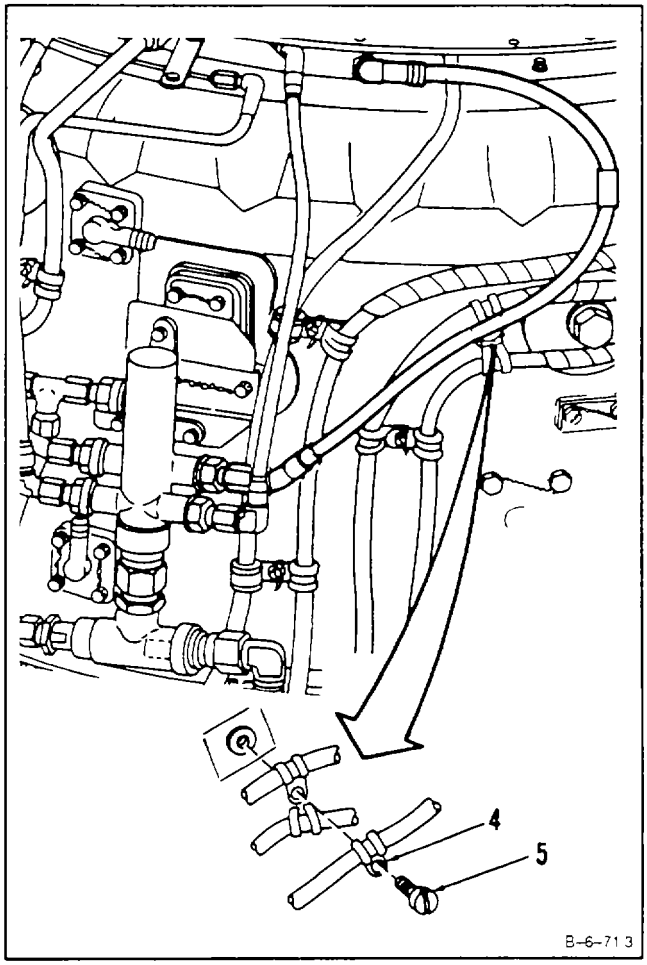
6-83 INSTALL HOSE ASSEMBLY (FUEL FLOW DIVIDER RIGHT SIDE SECONDARY TO MANIFOLD ASSEMBLY) (Continued) **6-83**

2. **Install clamp (4)** and screw (5). Lockwire screw (5). Use lockwire (E33).



INSPECT

FOLLOW-ON MAINTENANCE:
None

END OF TASK

6-84 REMOVE HOSE ASSEMBLY (MAIN FUEL FILTER TO HMA 6-84

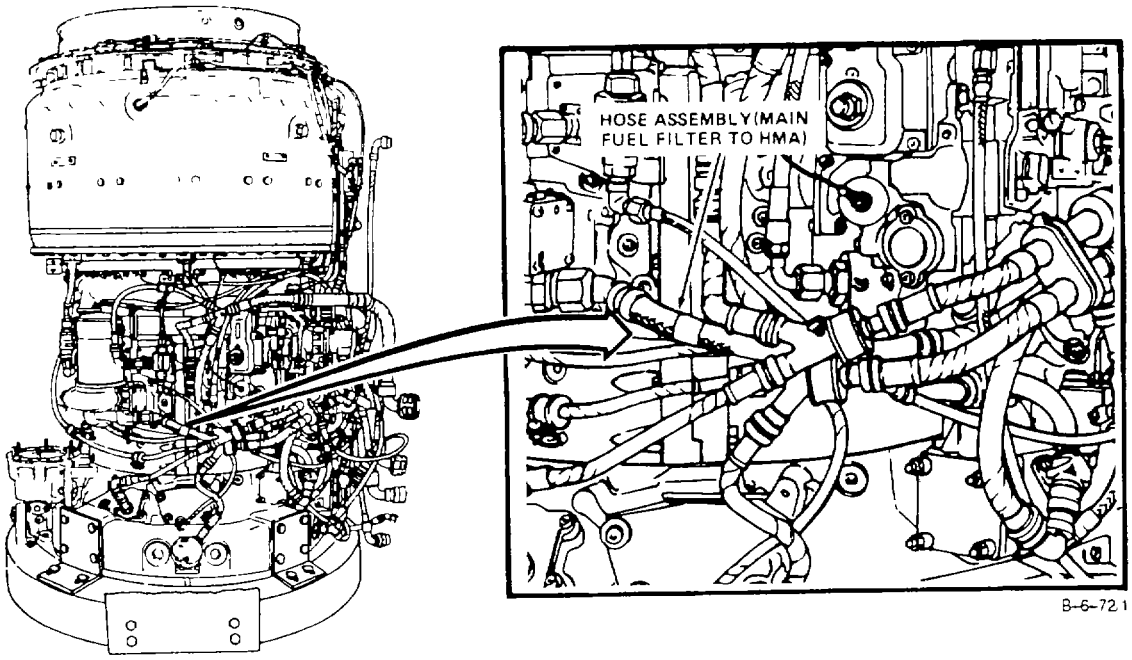
INITIAL SETUP

Applicable Configurations:
All
Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Open-End Wrench, 1-Inch
Container, 1 Quart
Materials:
Wiping Rag (E64)
Personnel Required:
Aircraft Powerplant Repairer

General Safety Instructions:

WARNING

Turbine fuels are very flammable. They may cause drying and irritation of skin or eyes. Handle only in well-ventilated areas away from heat and open flame. Drain and store in approved metal safety containers. Avoid prolonged or repeated contact with skin and do not take internally. Wash contacted area of skin thoroughly after handling. If irritation of skin results, get medical attention. Get medical attention for eyes.



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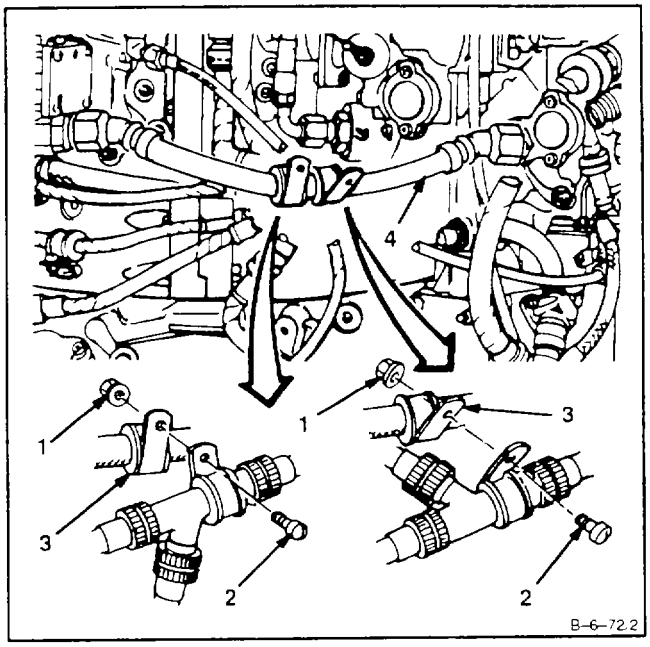
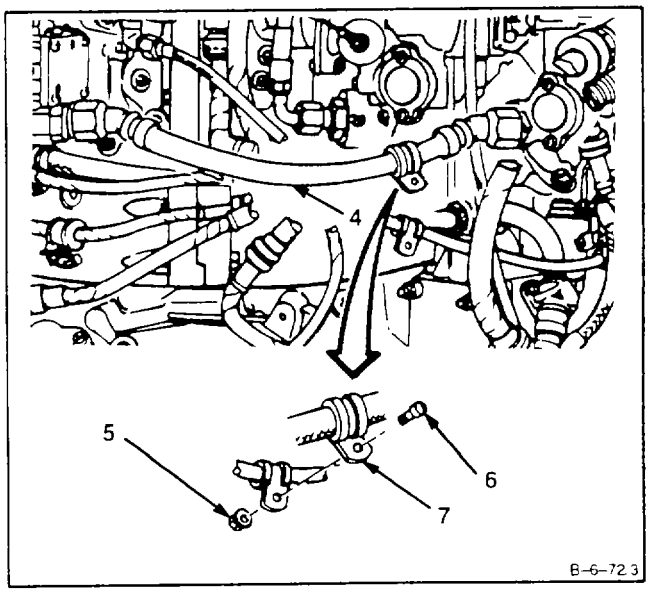
6-84 REMOVE HOSE ASSEMBLY (MAIN FUEL FILTER TO HMA) (Continued) **6-84**

1. **Remove** nuts (1), screws (2), and **clamps (3)** from hose assembly (4).



2. **Remove** nut (5), screw (6), and **clamp (7)** from hose assembly (4).



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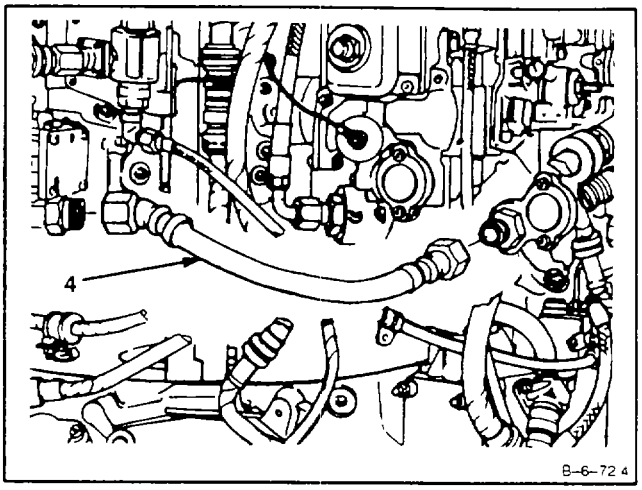
6-84 REMOVE HOSE ASSEMBLY (MAIN FUEL FILTER TO HMA) (Continued) **6-84**

3. Disconnect and remove hose assembly (4) using 1-inch open-end wrench.



FOLLOW-ON MAINTENANCE:
None

END OF TASK

6-85 INSTALL HOSE ASSEMBLY (MAIN FUEL FILTER TO HMA) 6-85

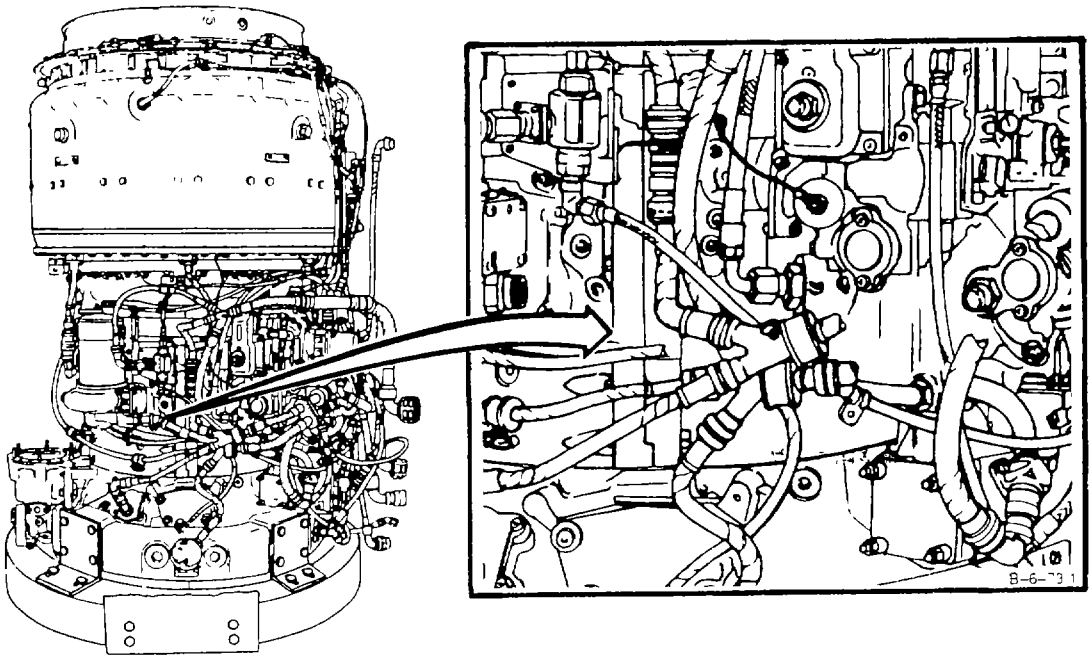
INITIAL SETUP

Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit
NSN 5180-00-323-4944
Technical Inspection Tool Kit
NSN 5180-00-323-5114
Torque Wrench 700-1600 Inch-Pounds
Crowfoot Attachment, 1-inch

Materials
None

Personnel Required:
Aircraft Powerplant Repairer
Aircraft Powerplant Inspector



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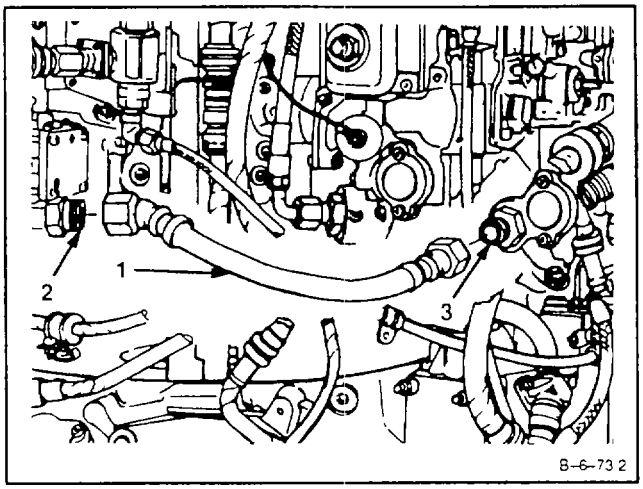
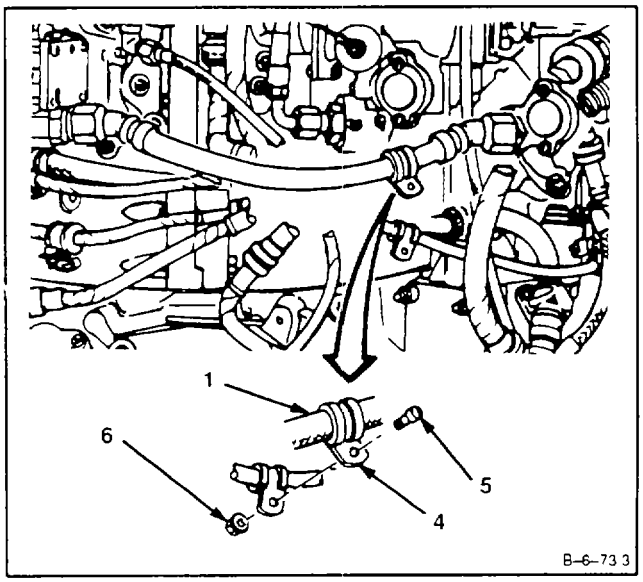
6-85 INSTALL HOSE ASSEMBLY (MAIN FUEL FILTER TO HMA) (Continued) **6-85**

1. **Install hose assembly (1)** on unions (2 and 3) using 1-inch crowfoot attachment.



2. **Install clamp (4)** on hose assembly (1), and install screw (5) and nut (6).



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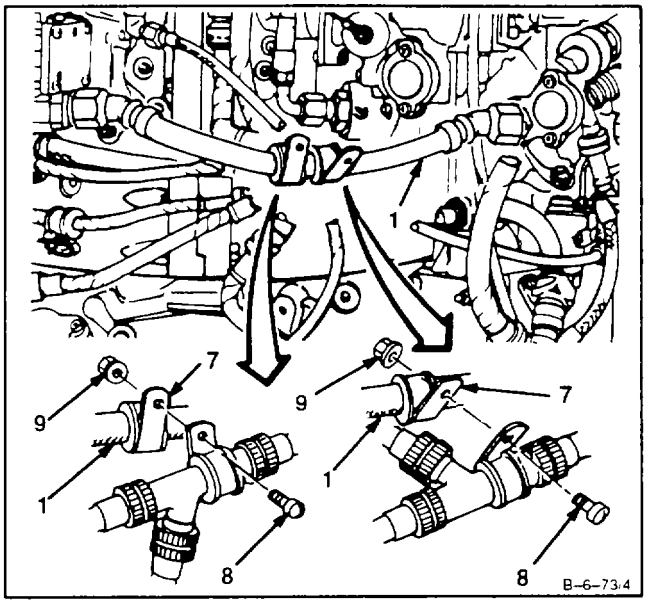
6-85 INSTALL HOSE ASSEMBLY (MAIN FUEL FILTER TO HMA) (Continued) **6-85**

3. Install clamps (7) onto hose assembly (1), and install screws (8) and nuts (9).



INSPECT

FOLLOW-ON MAINTENANCE:
None

END OF TASK

6-86 REMOVE HOSE ASSEMBLY (HMA TO STARTING FUEL SOLENOID VALVE) 6-86

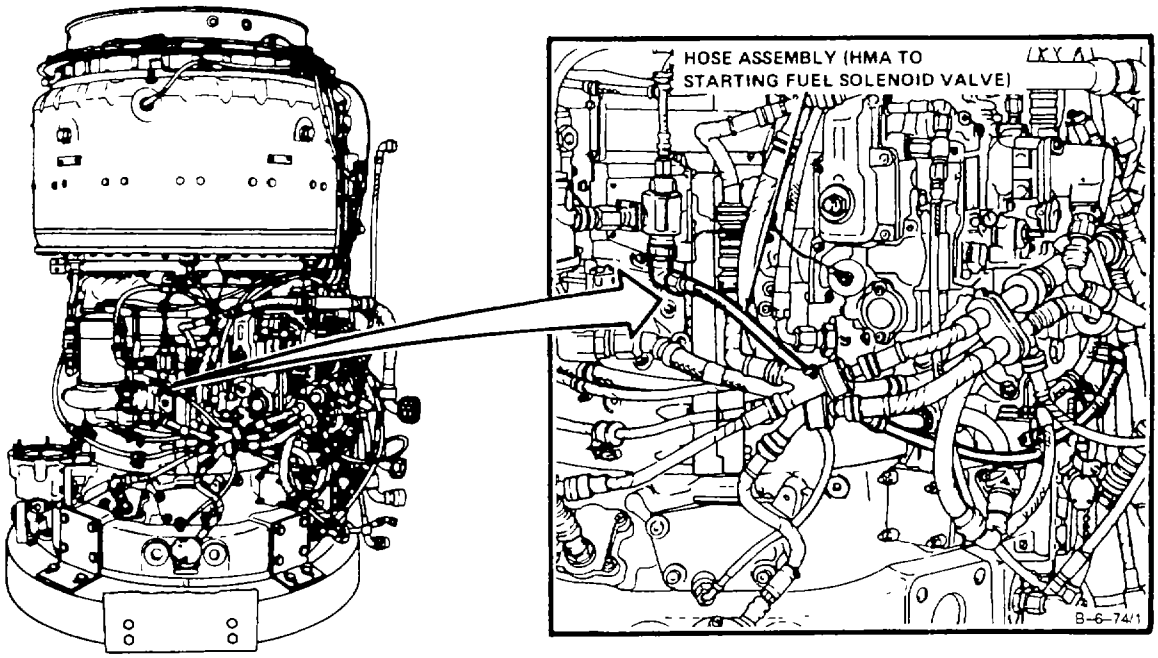
INITIAL SETUP

Applicable Configurations:
All
Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Container, 1 Quart
Materials:
Wiping Rag (E64)
Personnel Required:
Aircraft Powerplant Repairer

General Safety Instructions:

WARNING

Turbine fuels are very flammable. They may cause drying and irritation of skin or eyes. Handle only in well-ventilated areas away from heat and open flame. Drain and store in approved metal safety containers. Avoid prolonged or repeated contact with skin and do not take internally. Wash contacted area of skin thoroughly after handling. If irritation of skin results, get medical attention. Get medical attention for eyes.



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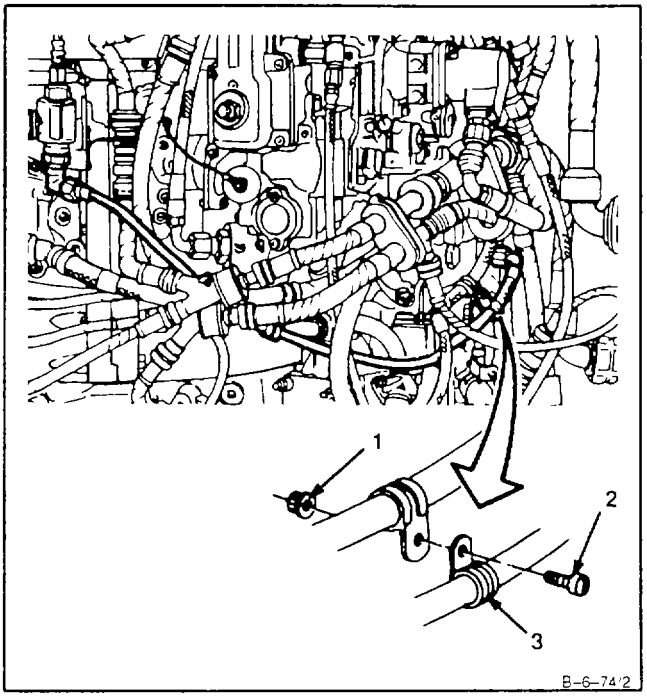
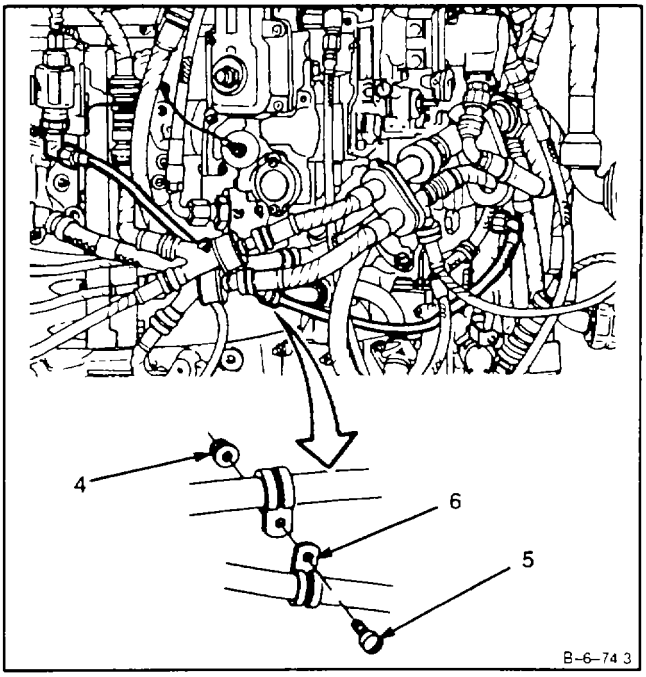
6-86 REMOVE HOSE ASSEMBLY (HMA TO S3ARTING FUEL SOLENOID VALVE) (Continued) **6-86**

1. **Remove** nut (1), screw (2), and **clamp (3).**



2. **Remove** nut (4), screw (5), and **clamp (6).**



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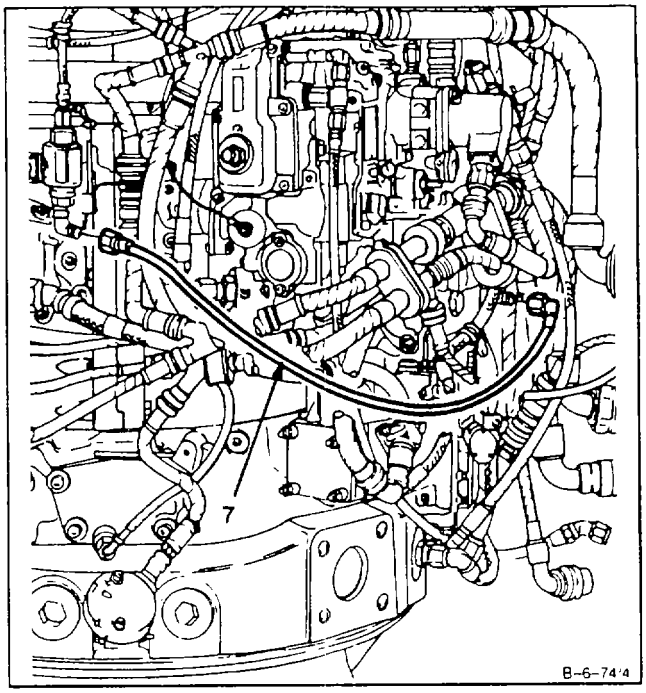
3. Disconnect and remove hose assembly (7).



FOLLOW-ON MAINTENANCE:
None

END OF TASK

6-87 INSTALL HOSE ASSEMBLY (HMA TO STARTING FUEL SOLENOID VALVE) 6-87

INITIAL SETUP

Applicable Configurations:

All

Tools:

Powerplant Mechanic's Tool Kit, NSN 5180-00-323-4944

Technical Inspection Tool Kit, NSN 5180-00-323-5114

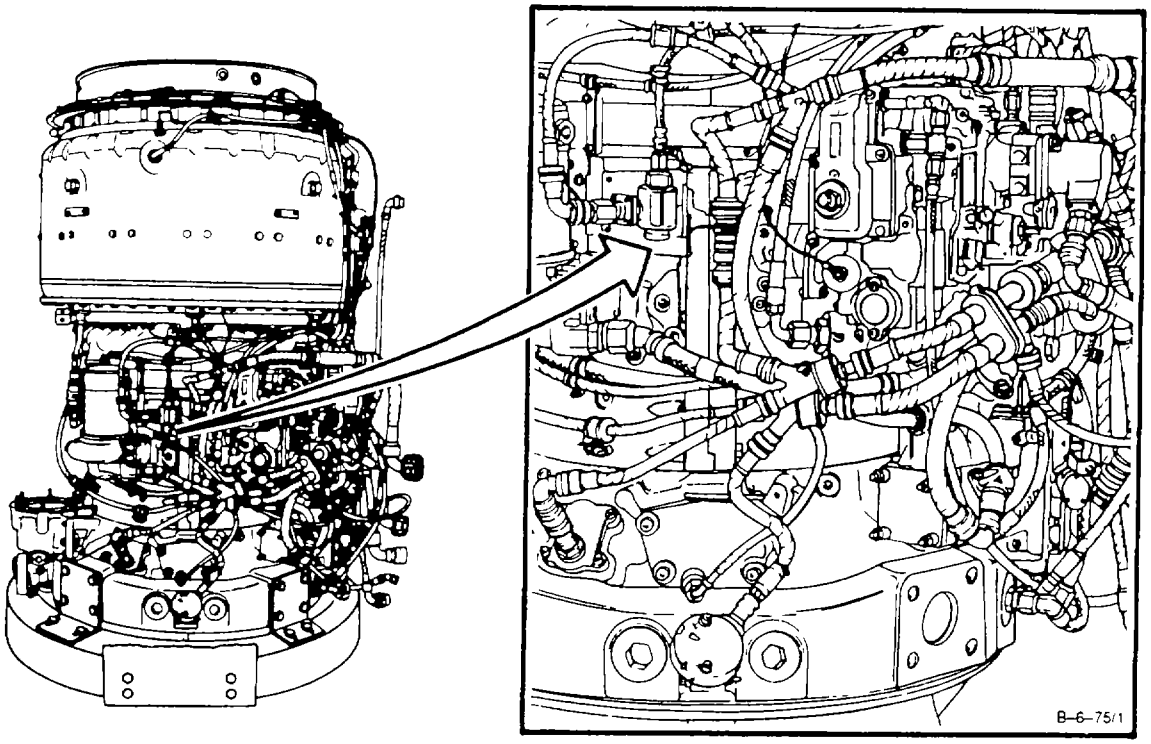
Materials:

None

Personnel Required:

Aircraft Powerplant Repairer

Aircraft Powerplant Inspector



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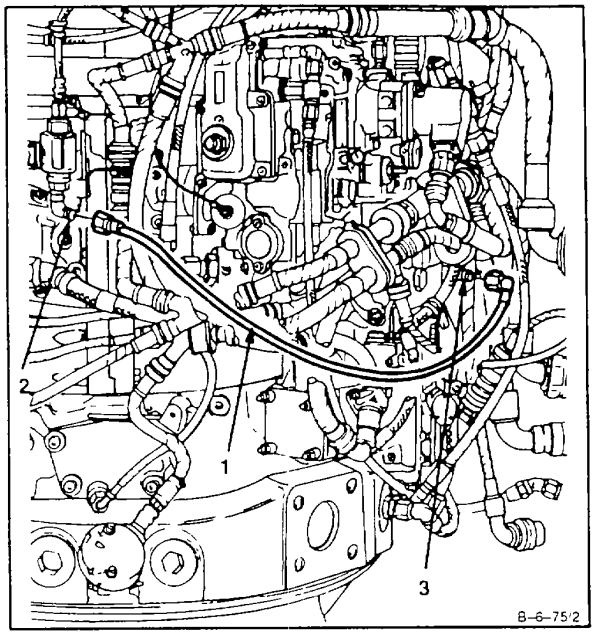
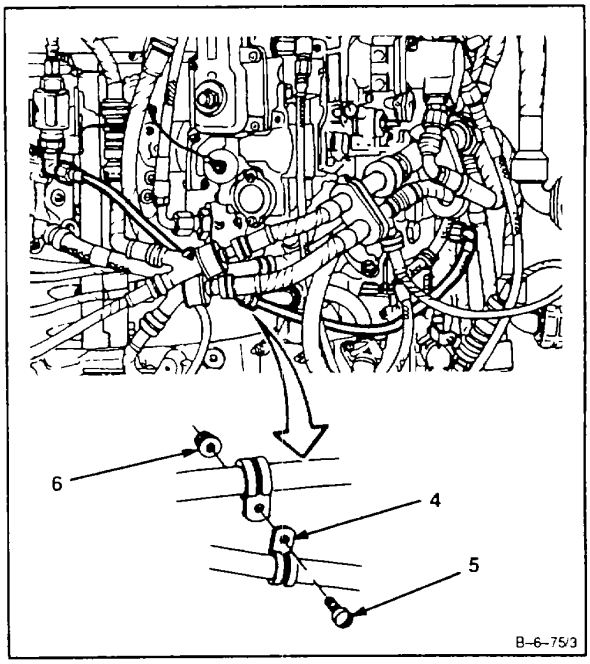
6-87 INSTALL HOSE ASSEMBLY (HMA TO STARTING FUEL SOLENOID VALVE) (Continued) **6-87**

1. **Install hose assembly (1)** on elbow (2) and nipple (3).



2. **Install clamp (4),** screw (5), and nut (6).



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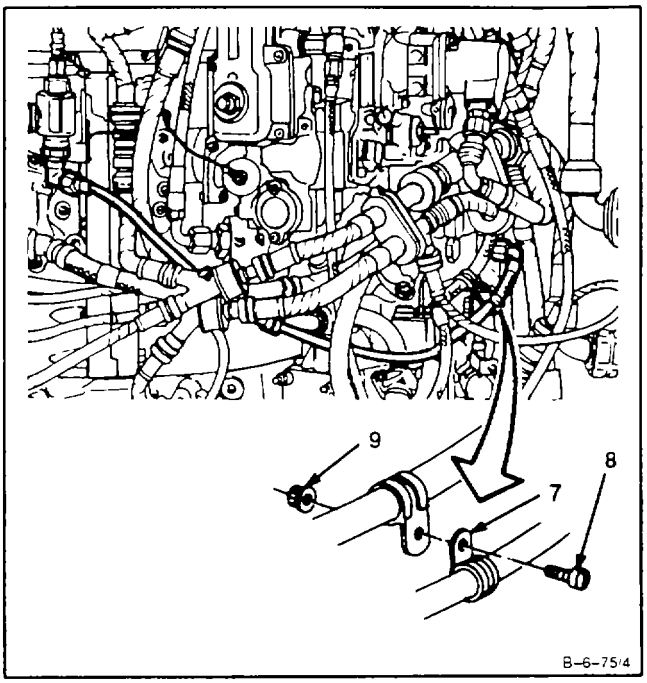
3. Install clamp (7), screw (8), and nut (9).



INSPECT

FOLLOW-ON MAINTENANCE:
None

END OF TASK

6-88 REMOVE HOSE ASSEMBLY (STARTING FUEL SOLENOID VALVE TO TUBE ASSEMBLY) 6-88

INITIAL SETUP

Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Container, 1 Quart

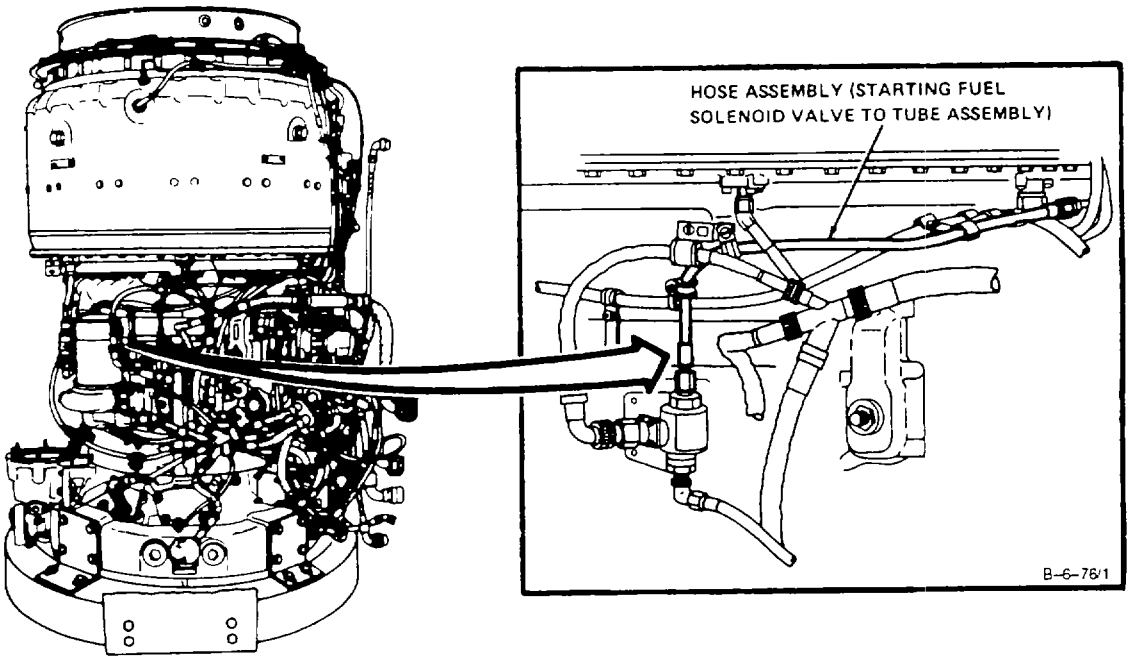
Materials:
Wiping Rag (E64)

Personnel Required:
Aircraft Powerplant Repairer

General Safety Instructions:

WARNING

Turbine fuels are very flammable. They may cause drying and irritation of skin or eyes. Handle only in well-ventilated areas away from heat and open flame. Drain and store in approved metal safety containers. Avoid prolonged or repeated contact with skin and do not take internally. Wash contacted area of skin thoroughly after handling. If irritation of skin results. Get medical attention for eyes



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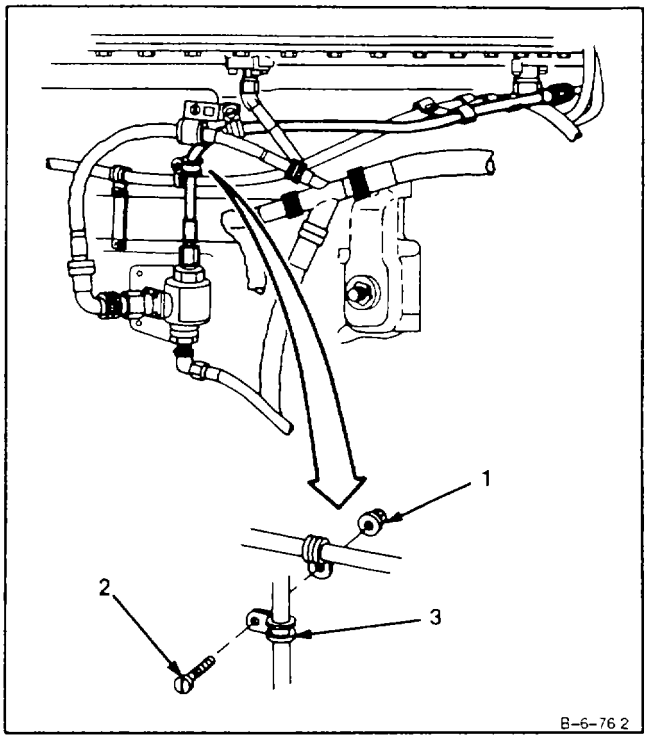
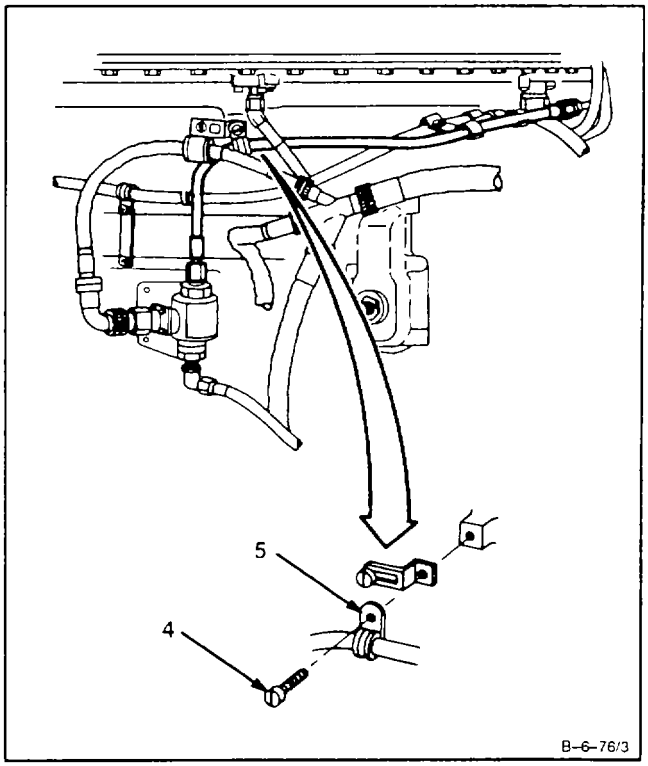
6-88 REMOVE HOSE ASSEMBLY (STARTING FUEL SOLENOID VALVE TO TUBE ASSEMBLY) (Continued) 6-88

1. **Remove** nut (1), screw (2), and **clamp (3).**



2. **Remove** lockwire, screw (4) and **clamp (5).**



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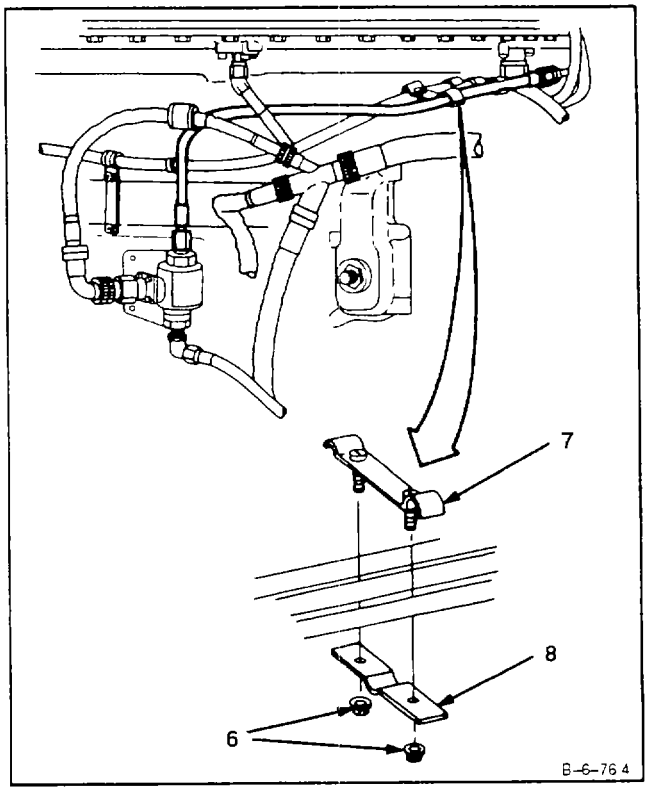
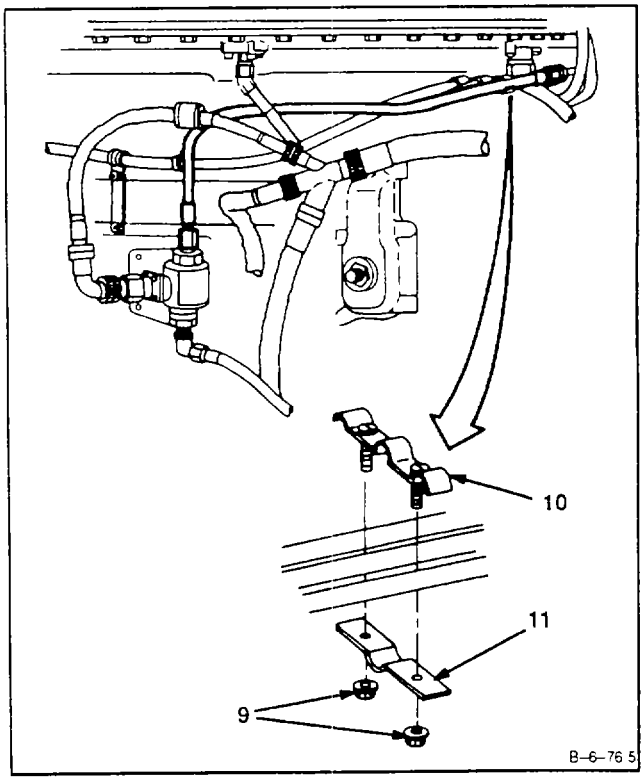
3. **Remove** two nuts (6) and **clamps (7 and 8).**



4. **Remove** two nuts (9) and **clamps (10 and 11).**



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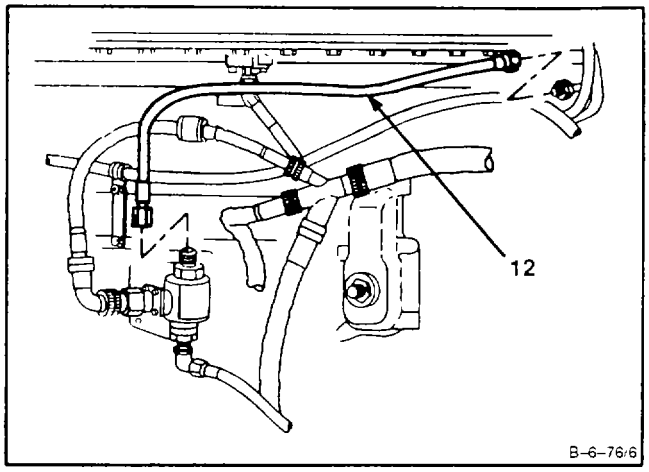
6-88 REMOVE HOSE ASSEMBLY (STARTING FUEL SOLENOID VALVE TO TUBE ASSEMBLY) (Continued) **6-88**

5. Disconnect and **remove hose assembly (12).**



FOLLOW-ON MAINTENANCE:
None

END OF TASK

6-89 INSTALL HOSE ASSEMBLY (STARTING FUEL SOLENOID VALVE TO TUBE ASSEMBLY) 6-89

INITIAL SETUP

Applicable Configurations:

All

Tools:

Powerplant Mechanic's Tool Kit, NSN 5180-00-323-4944

Technical Inspection Tool Kit, NSN 5180-00-323-5114

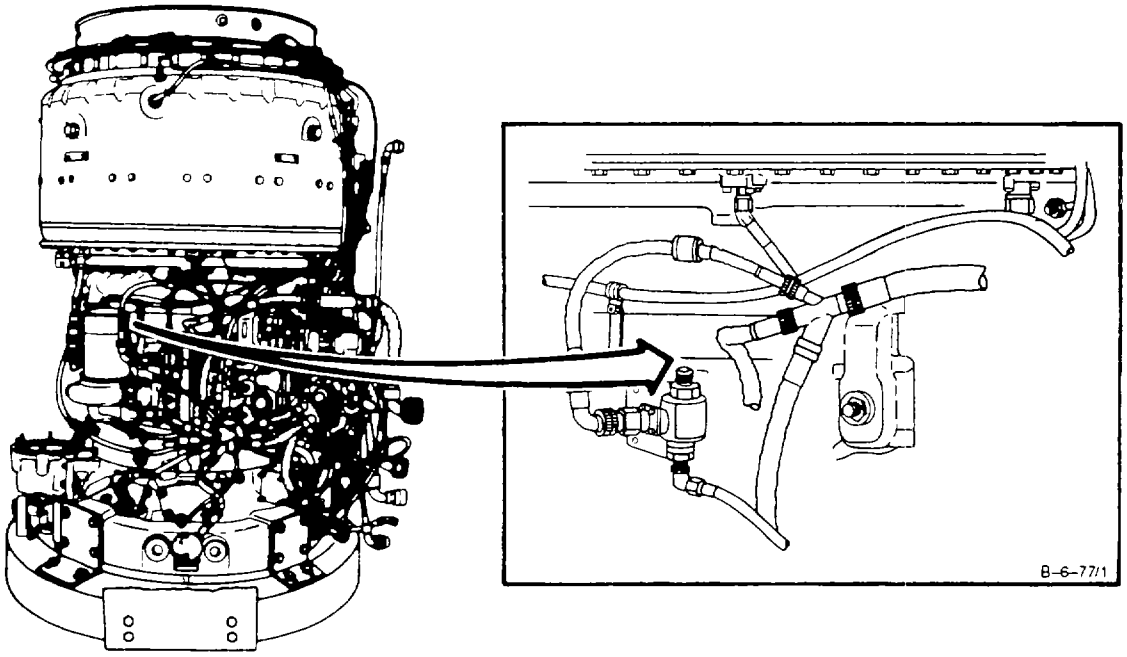
Materials:

Lockwire (E33)

Personnel Required:

Aircraft Powerplant Repairer

Aircraft Powerplant Inspector



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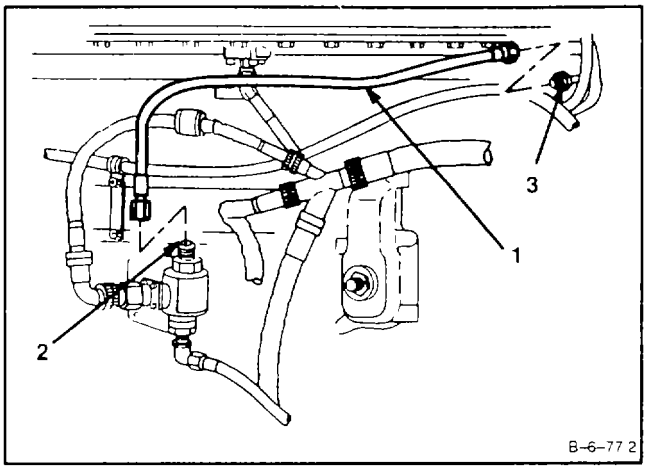
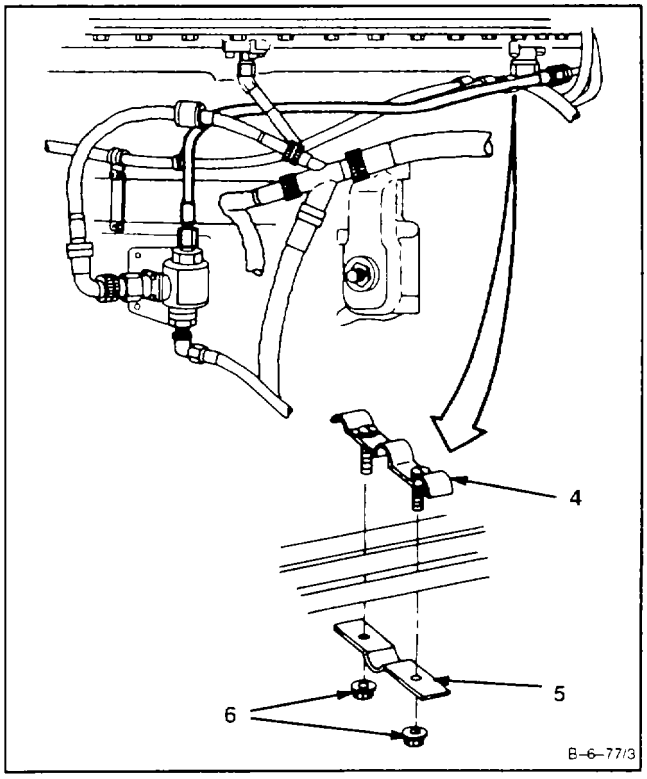
6-89 INSTALL HOSE ASSEMBLY (STARTING FUEL SOLENOID VALVE TO TUBE ASSEMBLY) (Continued) 6-89

1. Install hose assembly (1) on starting fuel solenoid valve (2) and tube assembly (3).



2. Install clamps (4 and 5) and two nuts (6).



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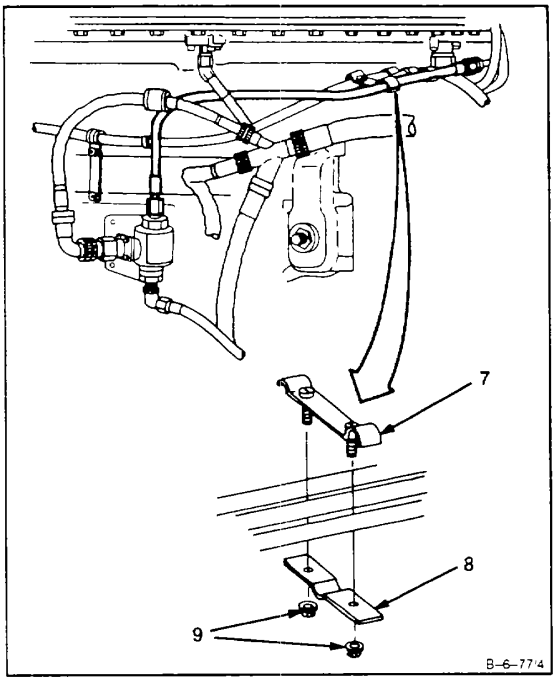
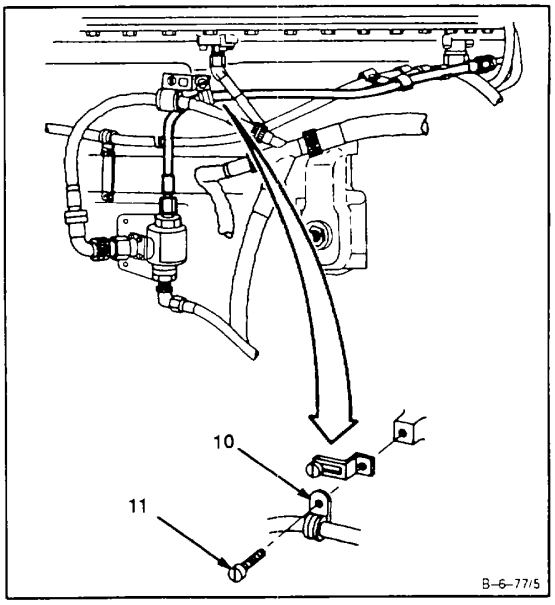
6-89 INSTALL HOSE ASSEMBLY (STARTING FUEL SOLENOID VALVE TO TUBE ASSEMBLY) (Continued) 6-89

3. Install clamps (7 and 8) and two nuts (9).



4. Install clamp (10) and screw (11). Lockwire screw (11). Use lockwire (E33).



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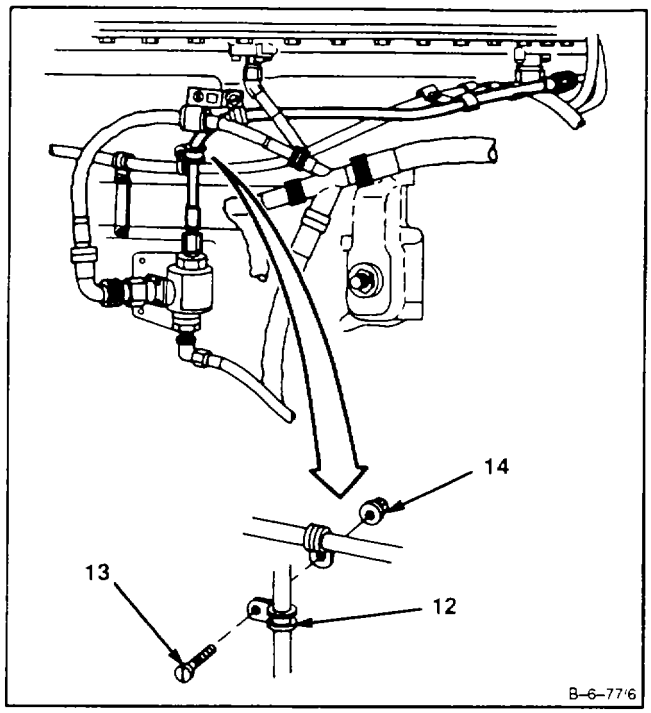
5. Install clamp (12), screw (13), and nut (14).



INSPECT

FOLLOW-ON MAINTENANCE:
None

END OF TASK

6-90 REMOVE TUBE ASSEMBLY (HOSE ASSEMBLY TO PRIMER TUBE ASSEMBLY) 6-90

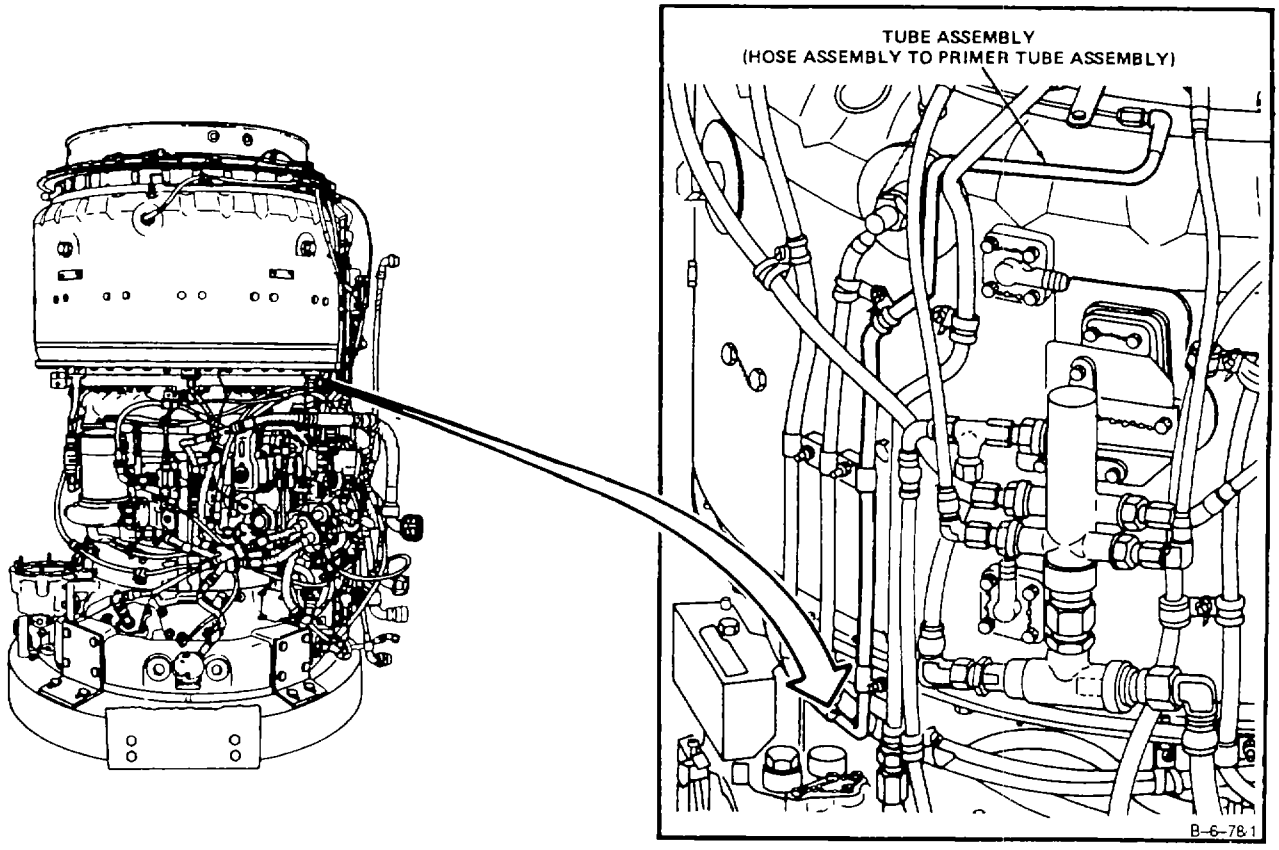
INITIAL SETUP

Applicable Configurations:
All
Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Container, 1 Quart
Materials:
Wiping Rag (E64)
Personnel Required:
Aircraft Powerplant Repairer

General Safety Instructions:

WARNING

Turbine fuels are very flammable. They may cause drying and irritation of skin or eyes. Handle only in well-ventilated areas away from heat and open flame. Drain and store in approved metal safety containers. Avoid prolonged or repeated contact with skin and do not take internally. Wash contacted area of skin thoroughly after handling. If irritation of skin results, get medical attention. Get medical attention for eyes.



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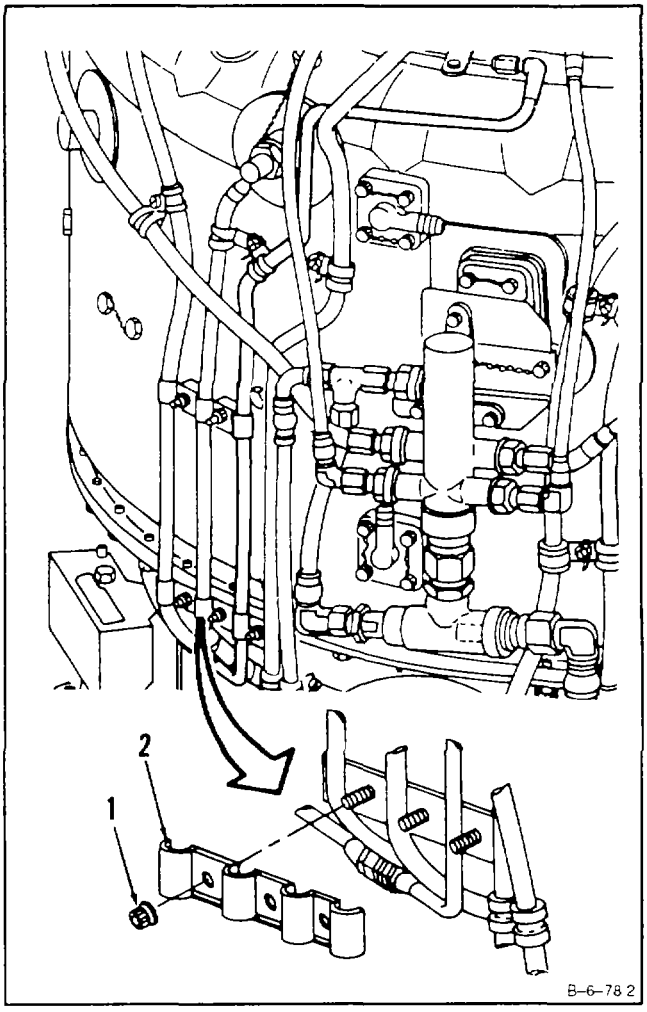
6-90 REMOVE TUBE ASSEMBLY (HOSE ASSEMBLY TO PRIMER TUBE ASSEMBLY) (Continued) 6-90

1. Remove three nuts (1) and **clamp (2**).



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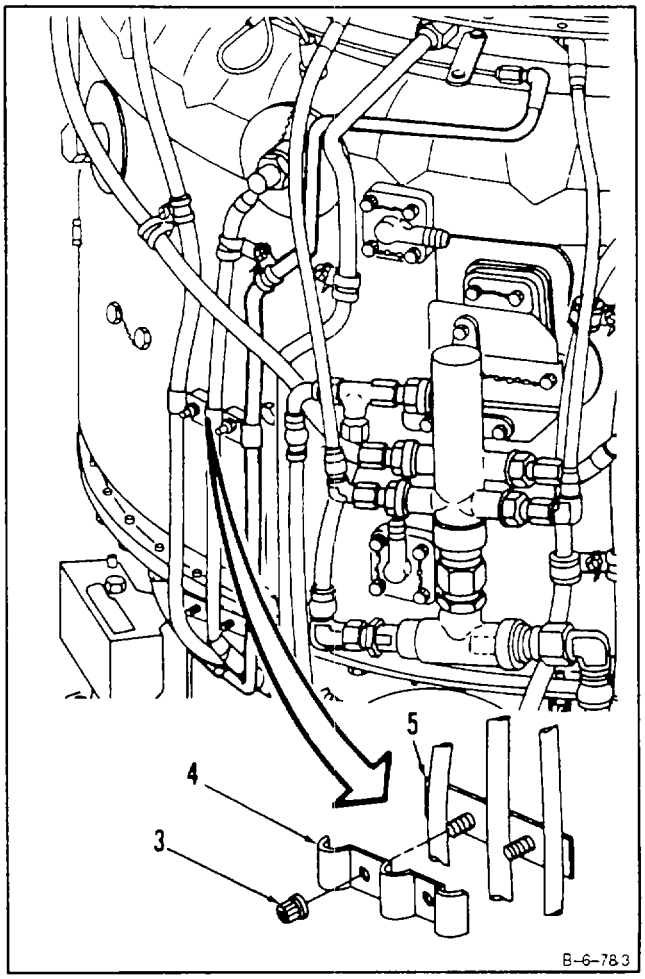
6-90 REMOVE TUBE ASSEMBLY (HOSE ASSEMBLY TO PRIMER TUBE ASSEMBLY) (Continued) **6-90**

2. Remove two nuts (3) and **clamps (4 and 5).**



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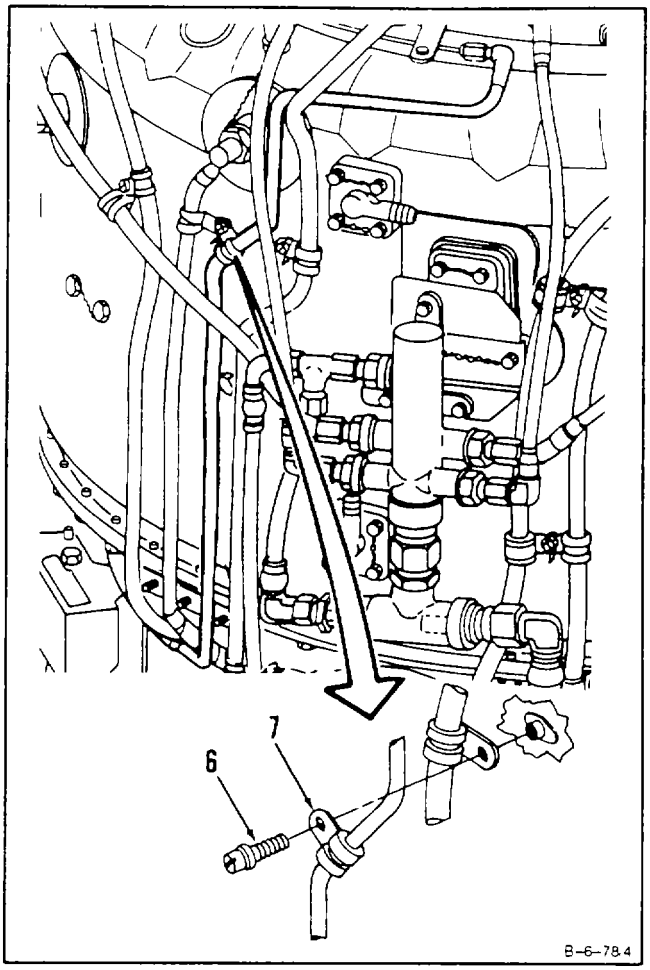
6-90 REMOVE TUBE ASSEMBLY (HOSE ASSEMBLY TO PRIMER TUBE ASSEMBLY) (Continued) **6-90**

3. Remove lockwire, screw (6) and **clamp (7).**



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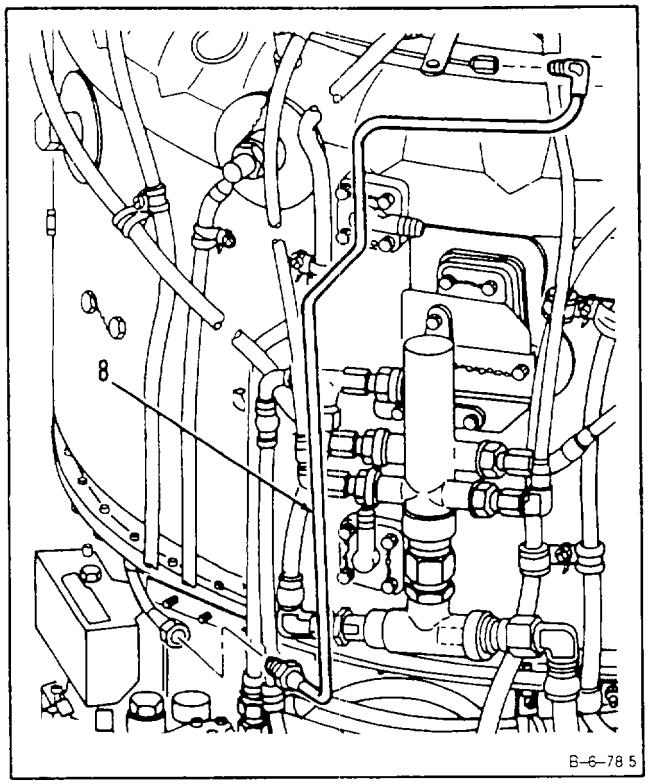
6-90 REMOVE TUBE ASSEMBLY (HOSE ASSEMBLY TO PRIMER TUBE ASSEMBLY) (Continued) 6-90

4. Disconnect and **remove tube assembly (8).**



FOLLOW-ON MAINTENANCE:
None

END OF TASK

6-91 INSTALL TUBE ASSEMBLY (HOSE ASSEMBLY TO PRIMER TUBE ASSEMBLY) 6-91

INITIAL SETUP

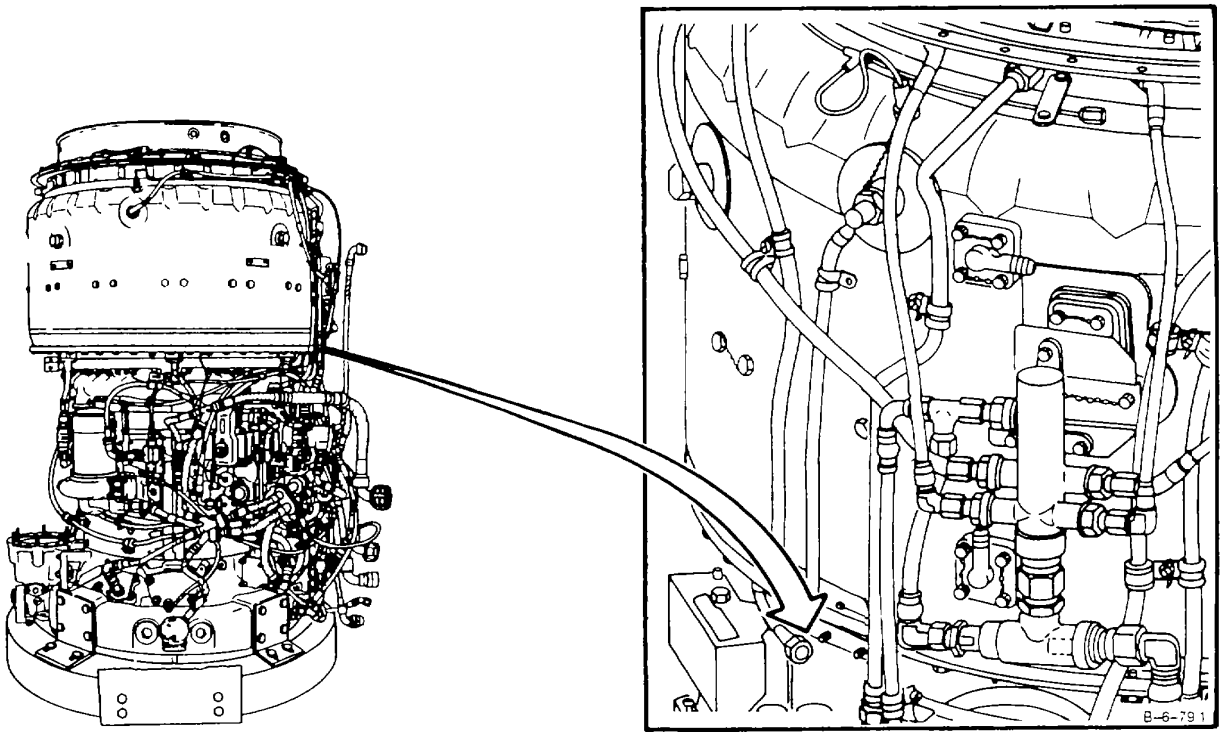
Applicable Configurations:
All
Tools:

Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944

Technical Inspection Tool Kit,
NSN 5180-00-323-5114

Materials:
Lockwire (E33)
Personnel Required:

Aircraft Powerplant Repairer
Aircraft Powerplant Inspector



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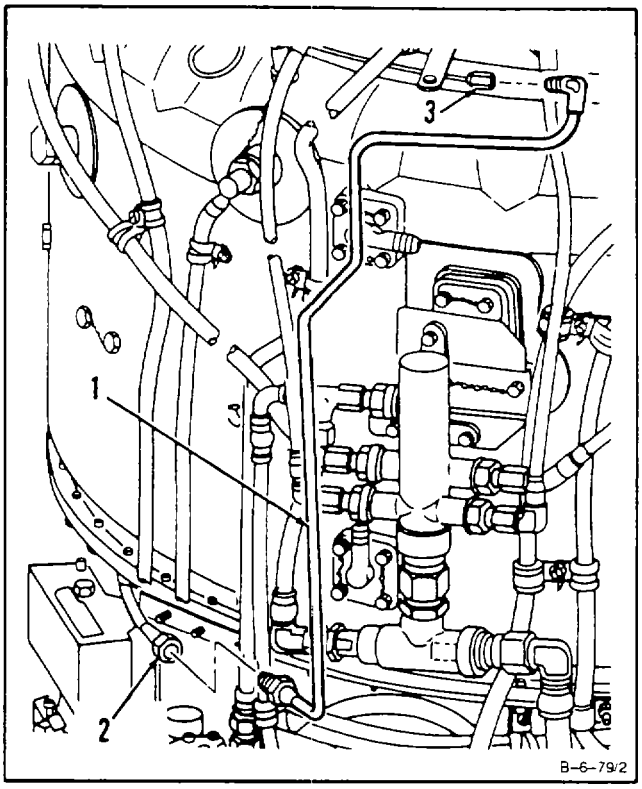
1. **Install tube assembly (1)** on hose assembly (2) and primer tube assembly (3).



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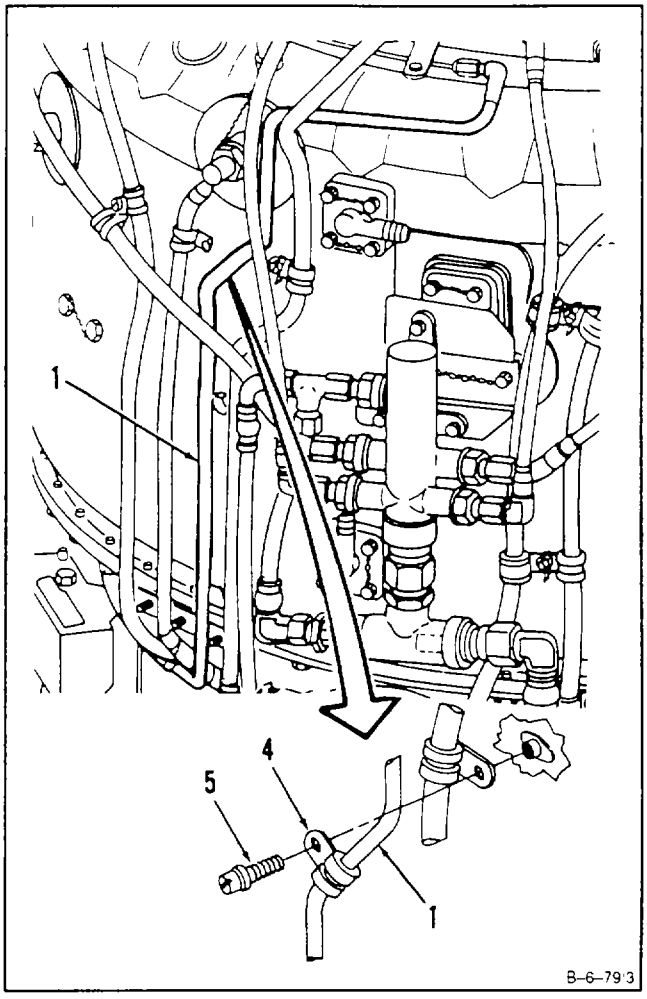
2. **Install clamp (4)** on tube assembly (1) and install screw (5). Lockwire screw (5). Use lockwire (E33).



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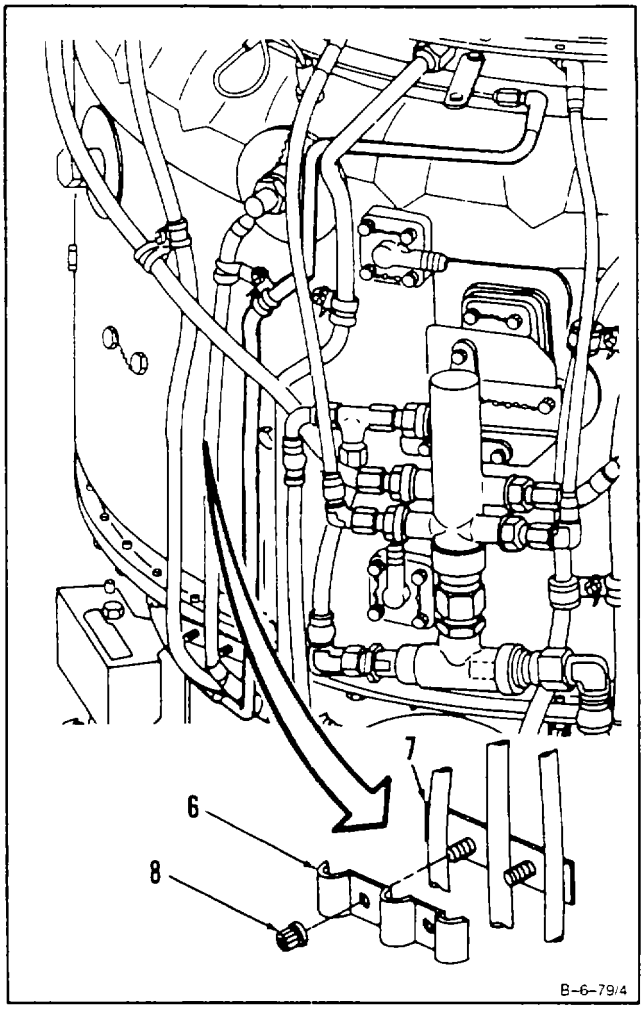
3. **Install two clamps (6 and 7)** and two nuts (8).



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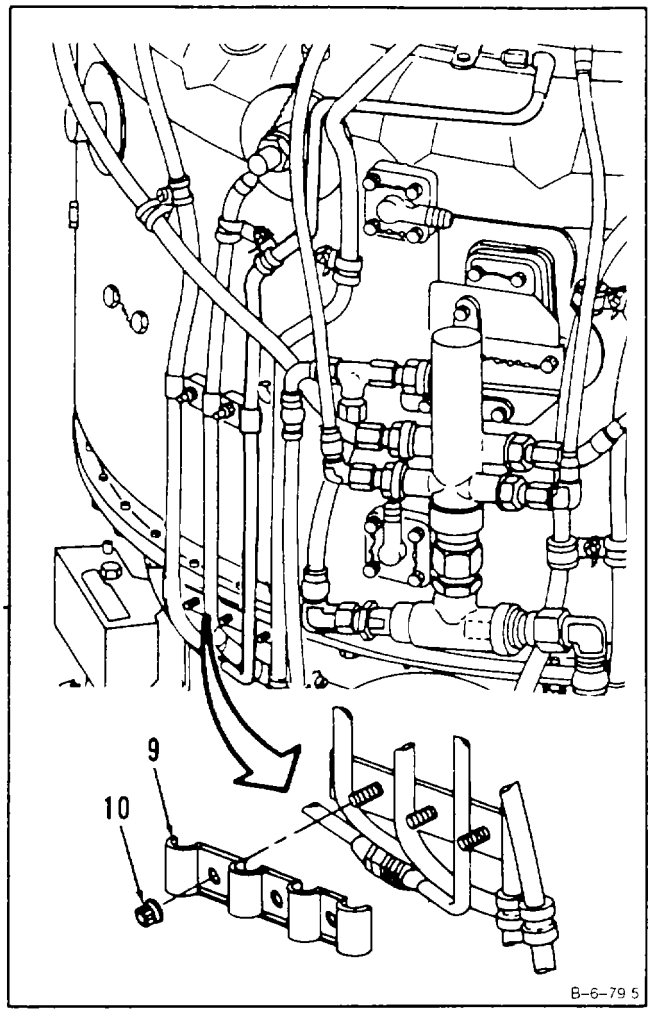
4. **Install clamp (9)** and three nuts (10).



INSPECT

FOLLOW-ON MAINTENANCE:

None

END OF TASK

CHAPTER 7

ELECTRICAL AND IGNITION SYSTEMS - MAINTENANCE INSTRUCTIONS

CHAPTER OVERVIEW

This chapter contains maintenance procedures for the electrical and ignition systems. It is divided into the following sections and tasks:

SECTION I

IGNITION COIL AND CABLE ASSEMBLY

7-1 REMOVE IGNITION COIL AND CABLE ASSEMBLY 7-1

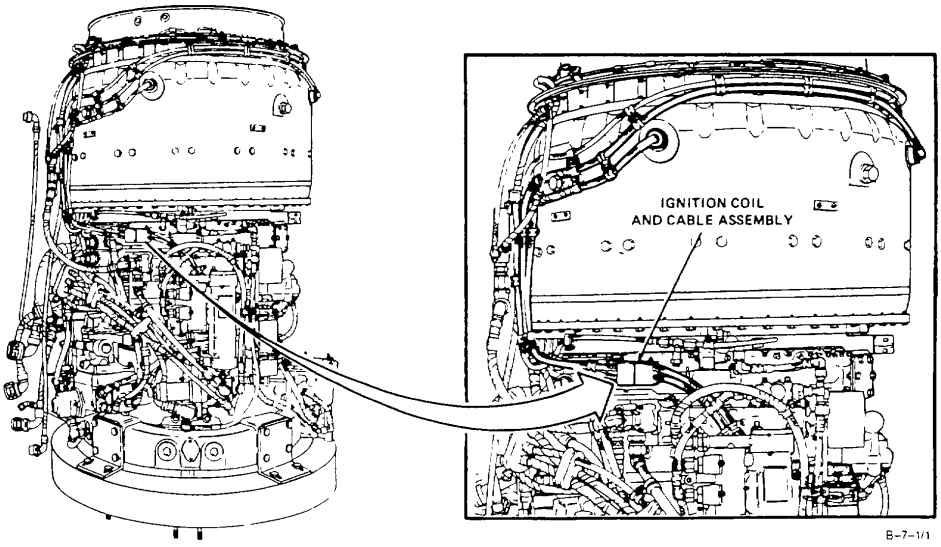
INITIAL SETUP

***Applicable Configurations*:**
All
Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Materials:
None
***Personnel Required*:**
Aircraft Powerplant Repairer

General Safety Instructions:

WARNING

The ignition exciter stores very high and possibly fatal voltage. Use extreme care when working around ignition exciter. Serious Injury could result if exciter Is accidentally grounded. Do not probe Inside of output receptacles with fingers or metal object. Discharge exciter only with Insulated screwdriver. In case of shock or Injury, get medical attention.



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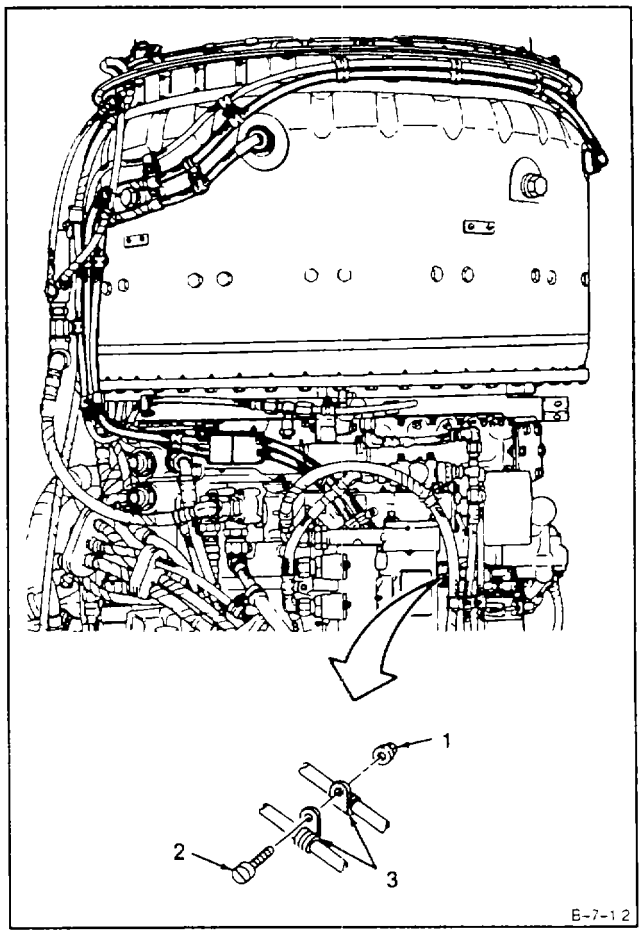
1. **Remove** nut (1), screw (2), and **two clamps (3)**.

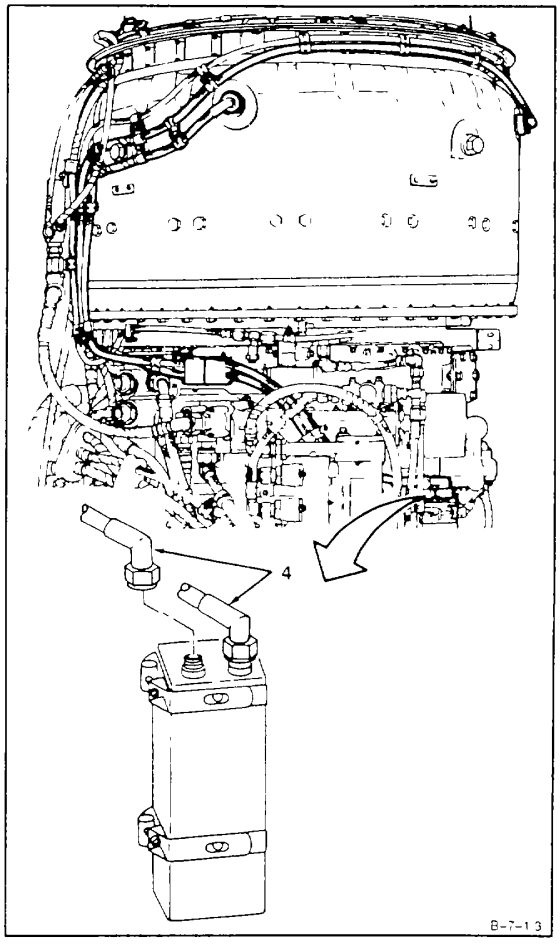


GO TO NEXT PAGE

WARNING

The Ignition exciter stores very high and possibly fatal voltage. Use extreme care when working around ignition exciter. Serious Injury could result if exciter is accidentally grounded. Do not probe inside of output receptacles with fingers or metal object. Discharge exciter only with Insulated screwdriver. In case of shock or injury, get medical attention.

2. Remove lockwire and **disconnect two coil and cable assembly leads (4).** Place leads to one side.



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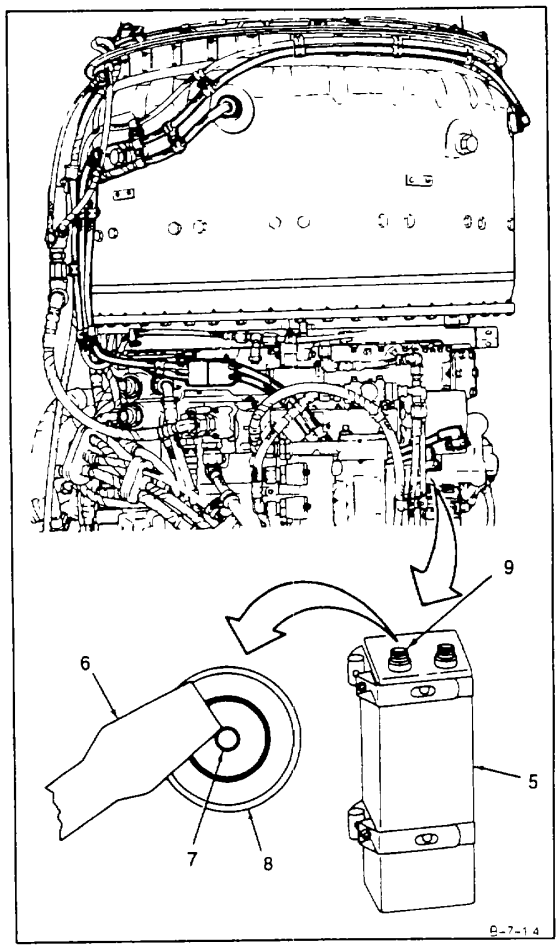
WARNING

When discharging ignition exciter, re- move one lead at a time and discharge receptacle that lead was removed from. Failure to do so may result in serious shock when you are removing second lead. In case of serious shock, get medical attention.

NOTE

Step 3 applies to both output receptacles.

3. **Discharge ignition exciter (5)** by placing tip of insulated screwdriver (6) against pin (7) and edge (8) of receptacle (9).



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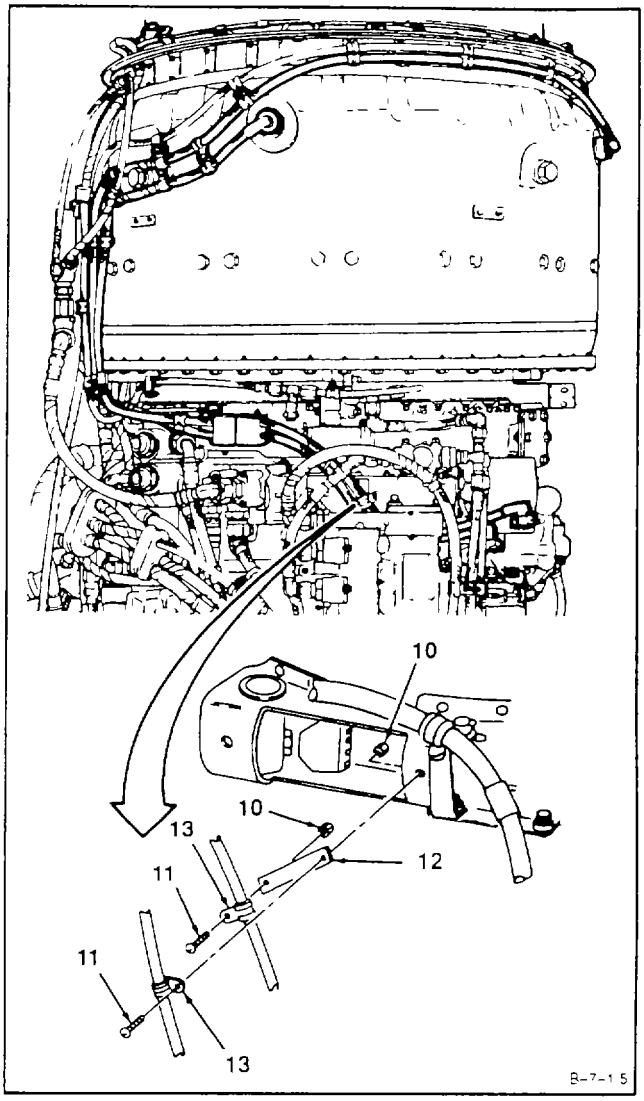
4. **Remove** two nuts (10), screws (11), **bracket (12), and two clamps (13).**



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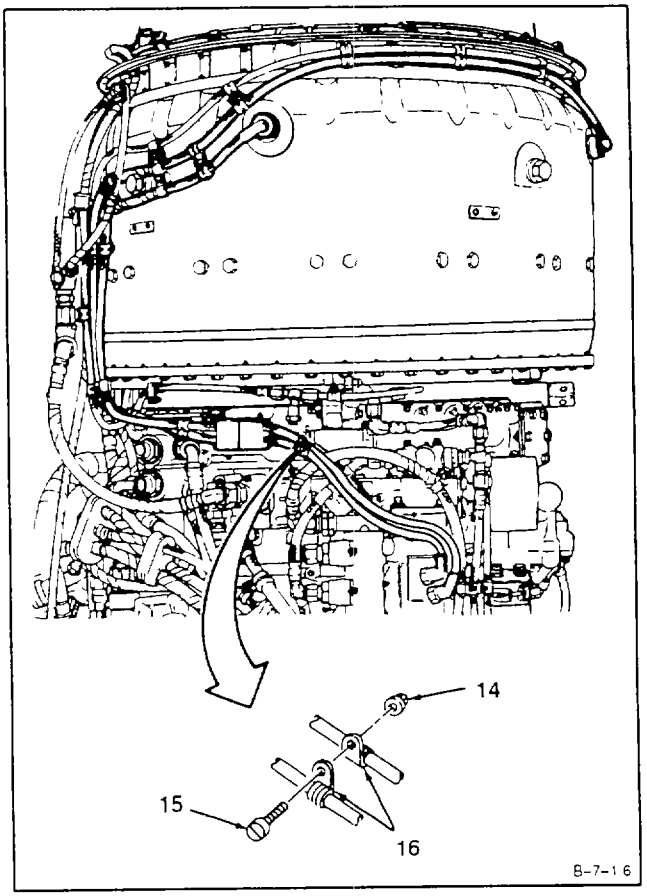
5. **Remove** nut (14), screw (15), **and two clamps (16).**



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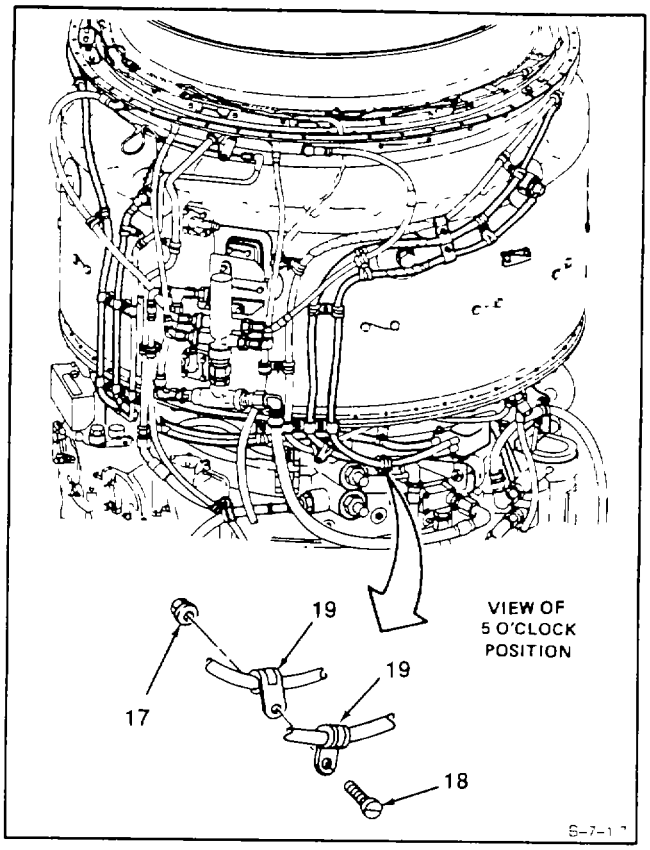
6. **Remove** nut (17), screw (18), and **two clamps (19).**



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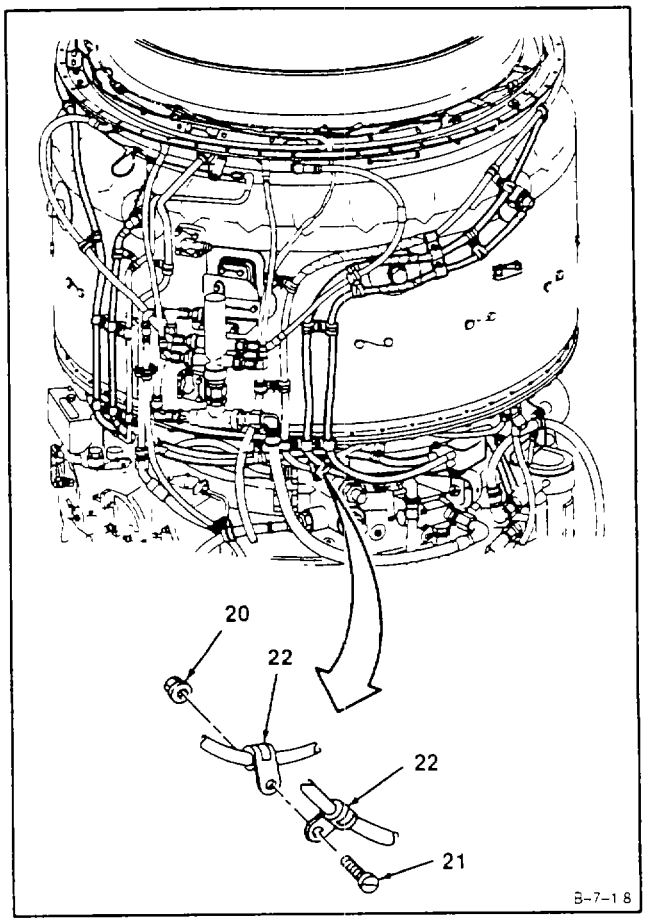
7. **Remove** nut-(20), screw (21), and **two clamps (22).**



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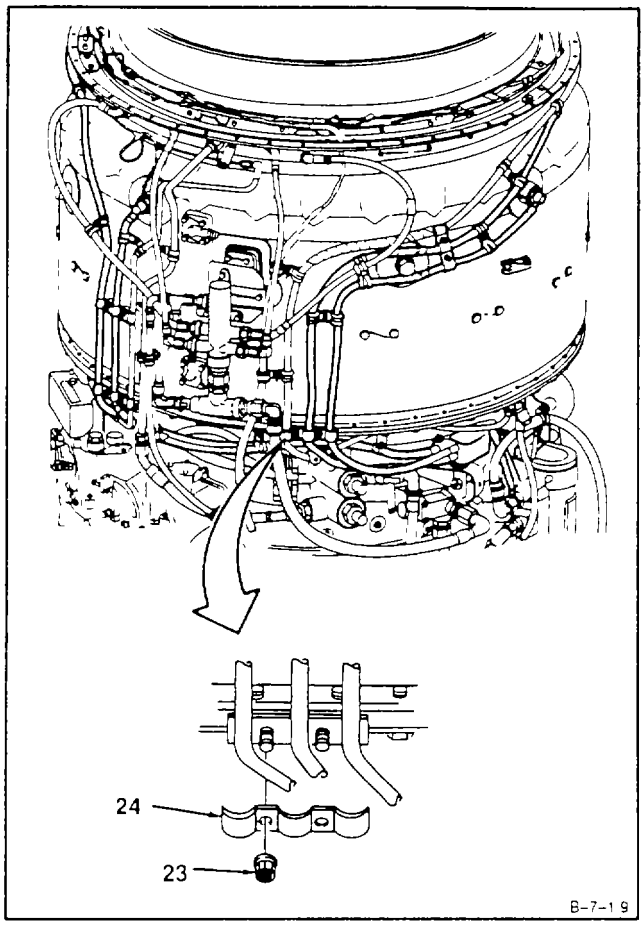
8. **Remove** two nuts (23) and **retaining strap (24).**



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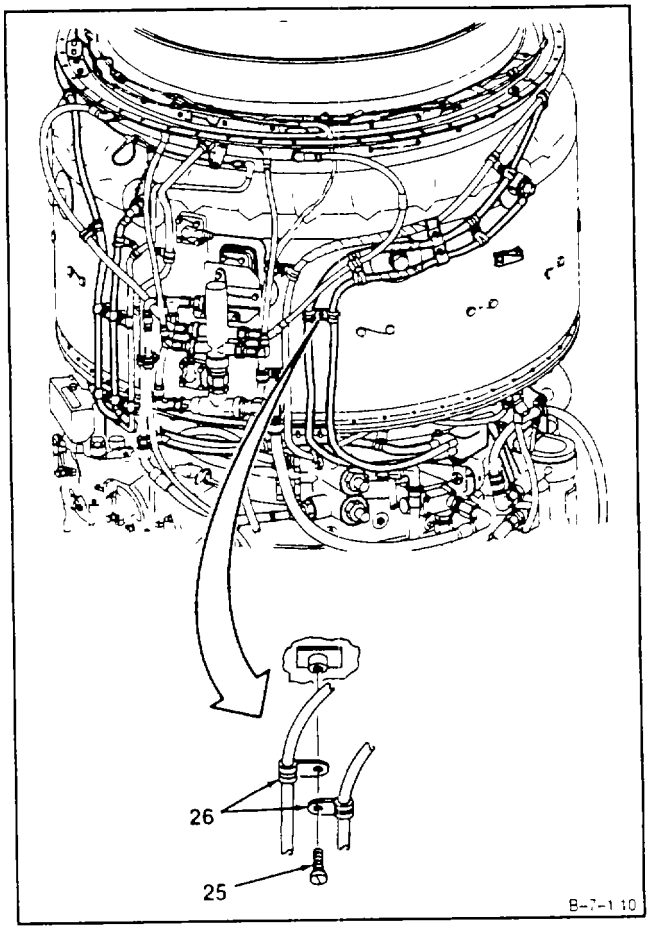
9. **Remove** lockwire, screw (25), and **two clamps (26).**



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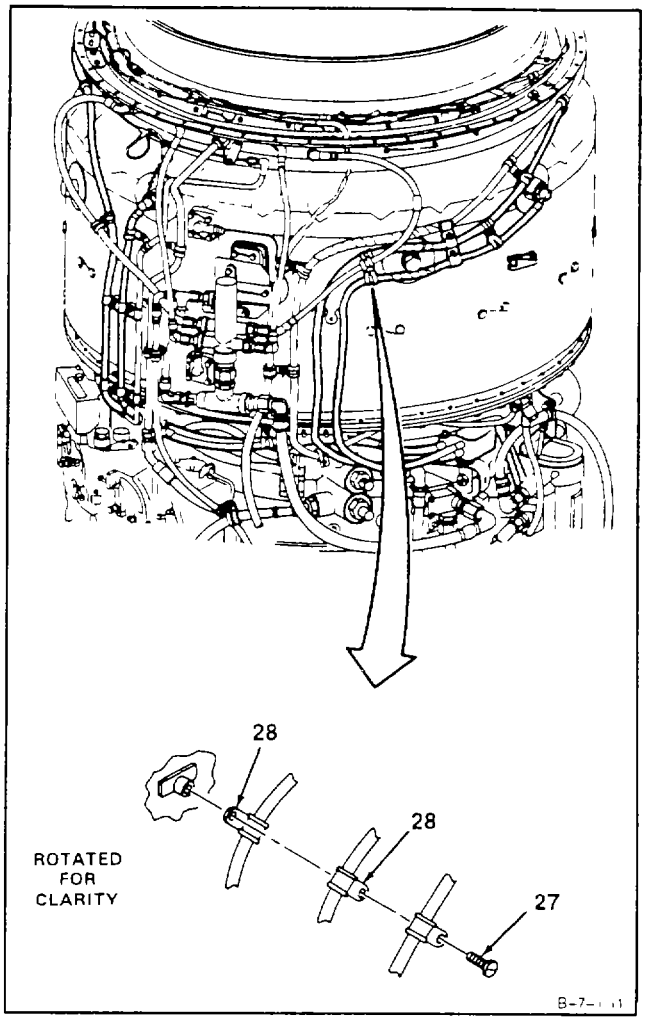
10. **Remove** lockwire, screw (27), and **two clamps (28).**



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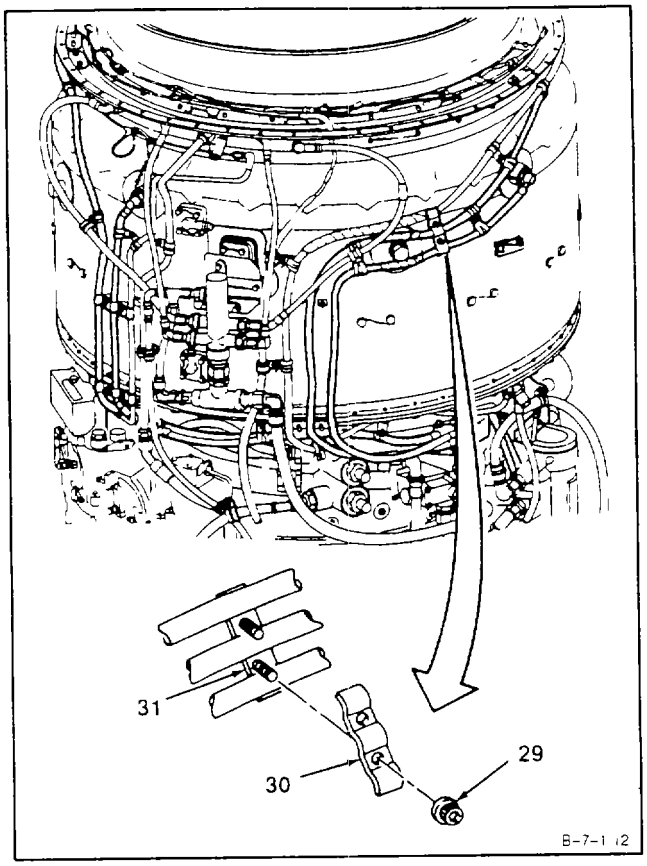
11. **Remove** two nuts (29) and **clamps (30 and 31).**



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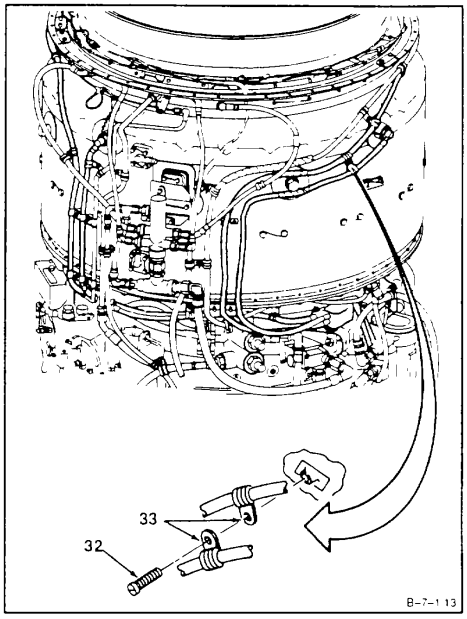
12. **Remove** lockwire, screw (32), **and two clamps (33).**

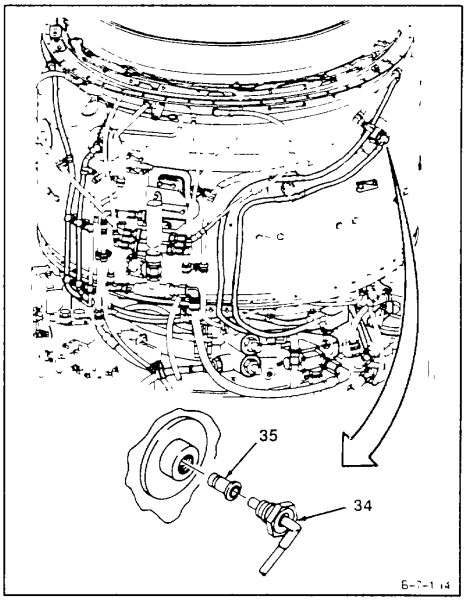


13. Remove lockwire. **Disconnect and remove ignition lead (34).**

NOTE

Spark igniter may remain in combustion chamber housing or on ignition lead.

14. **Remove spark igniter (35).**



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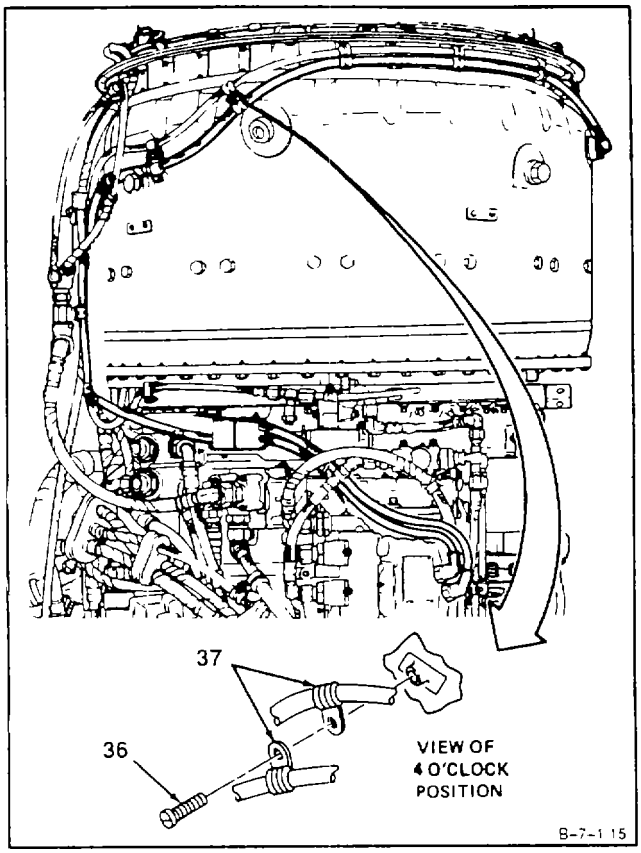
15. **Remove** lockwire, screw (36), and **two clamps (37).**



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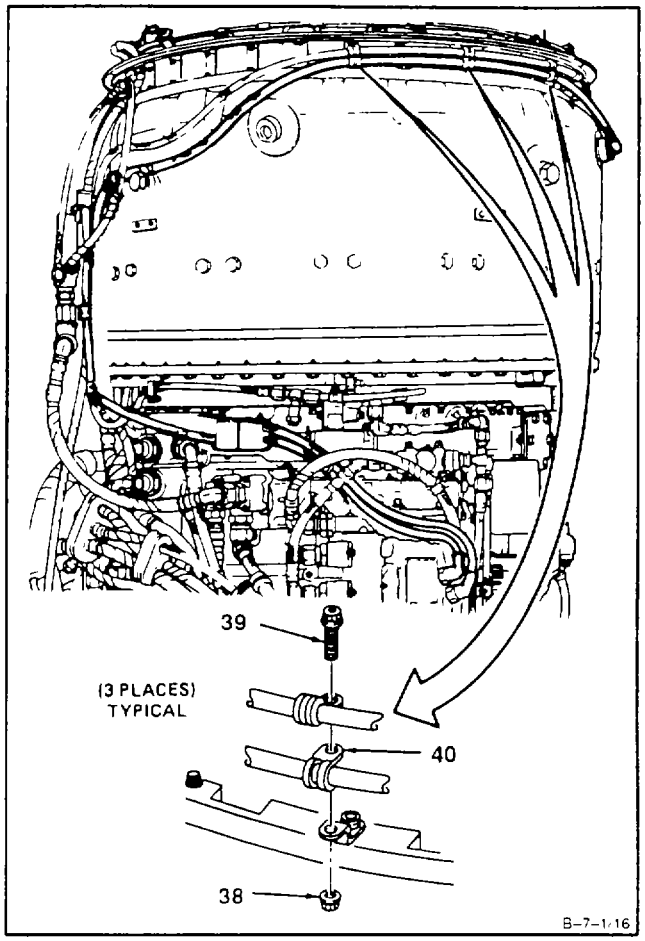
16. **Remove** three nuts (38), bolts (39), **and clamps (40).**



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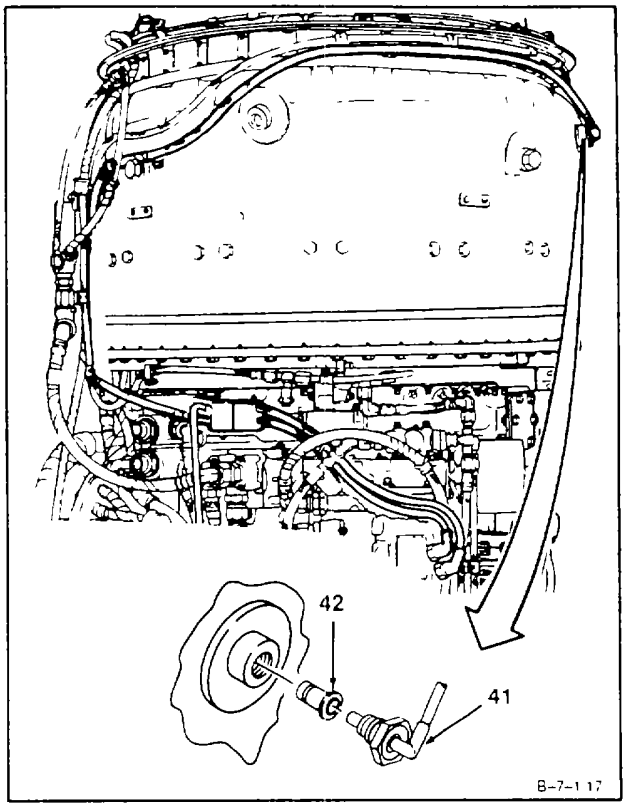
17. Remove lockwire. **Disconnect and remove ignition lead (41).**

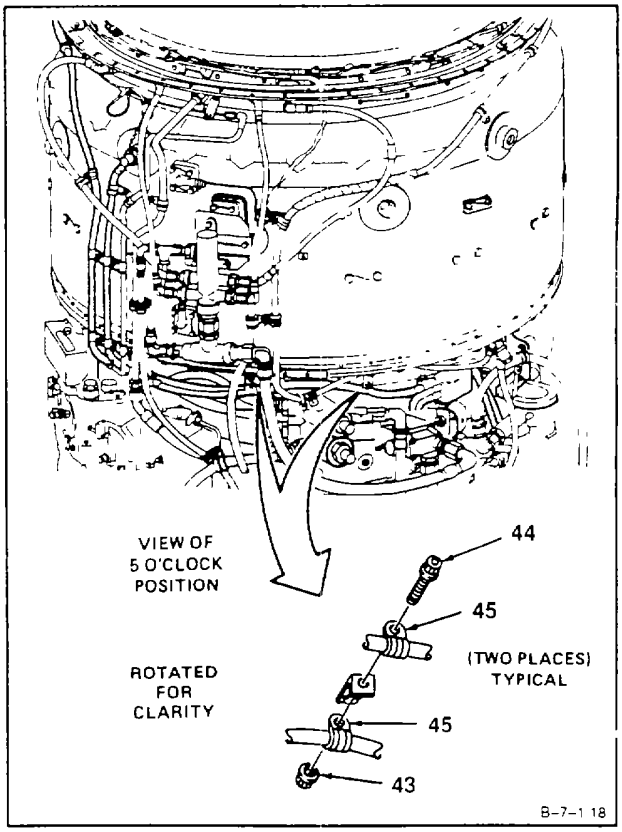
NOTE

Spark igniter may remain in combustion chamber housing or on ignition lead.

18. **Remove spark igniter (42).**



19. **Remove** two nuts (43), bolts (44), and **four clamps (45)**.



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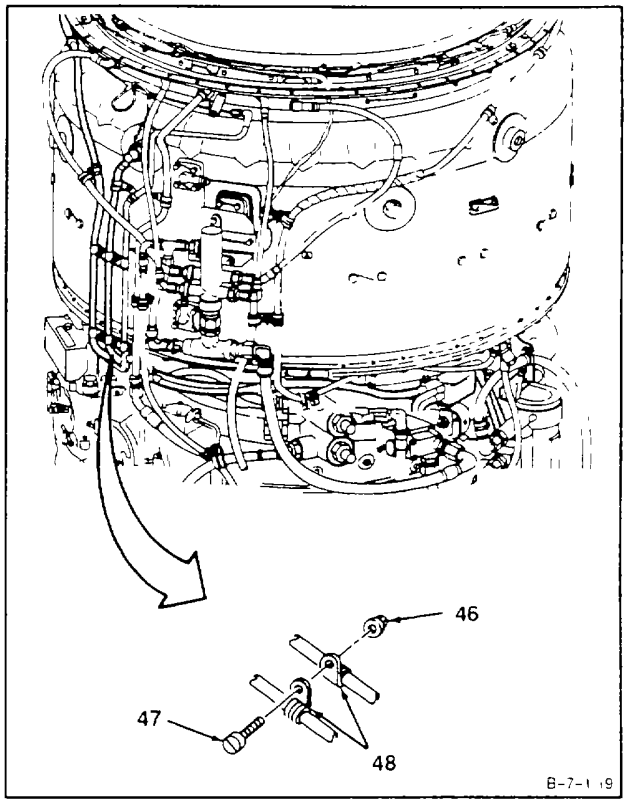
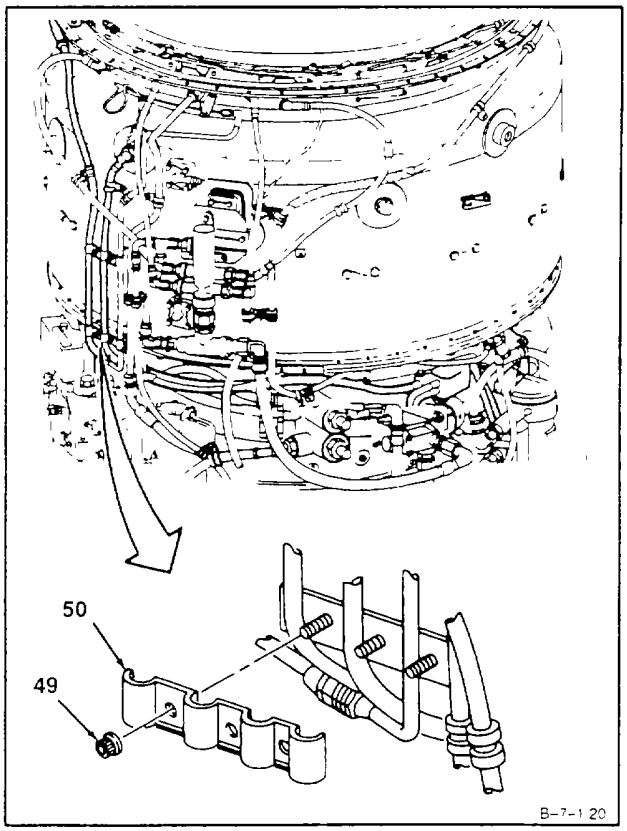
20. **Remove nut** (46), screw (47), and **two clamps (48).**



21. **Remove** three nuts (49) and **clamp (50).**



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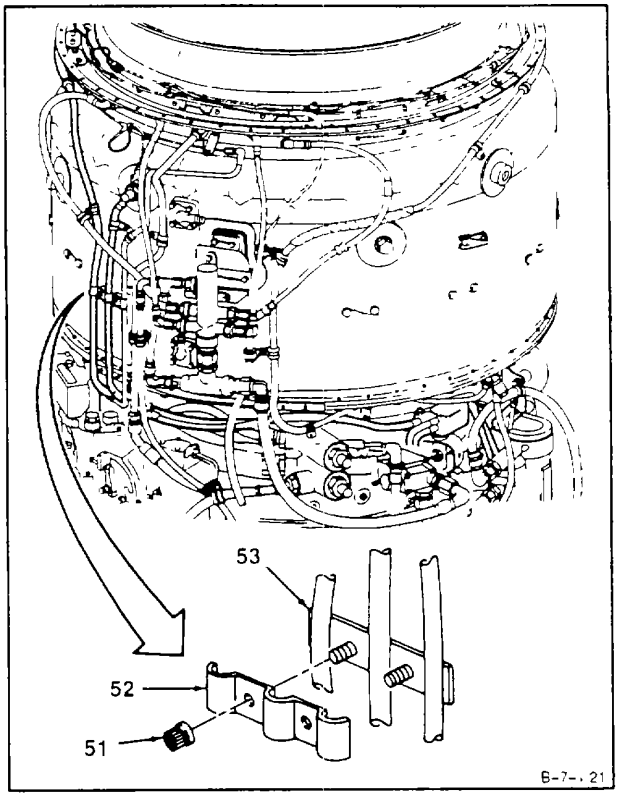
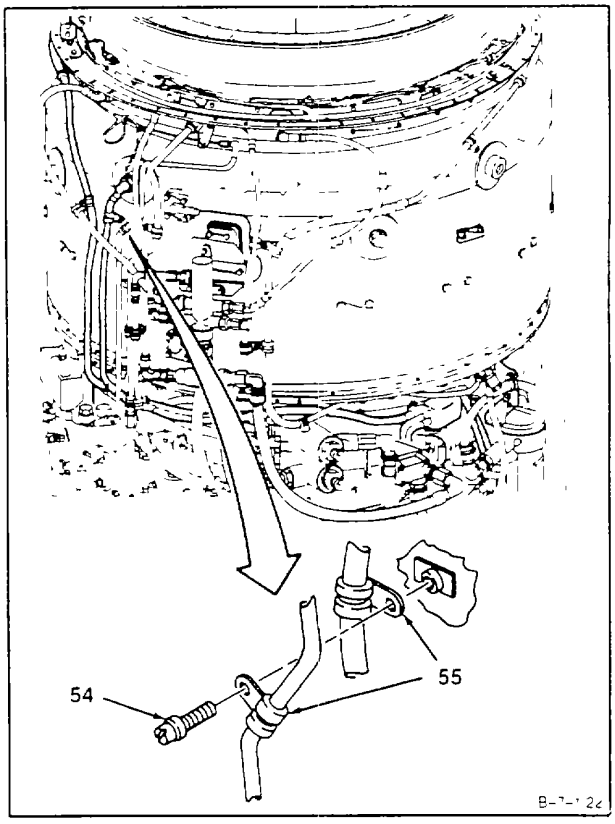
7-1 REMOVE IGNITION COIL AND CABLE ASSEMBLY (Continued) 7-1

22. **Remove** two nuts (51) and **clamps (52 and 53).**



23. **Remove** lockwire, screw (54), **and two clamps (55).**



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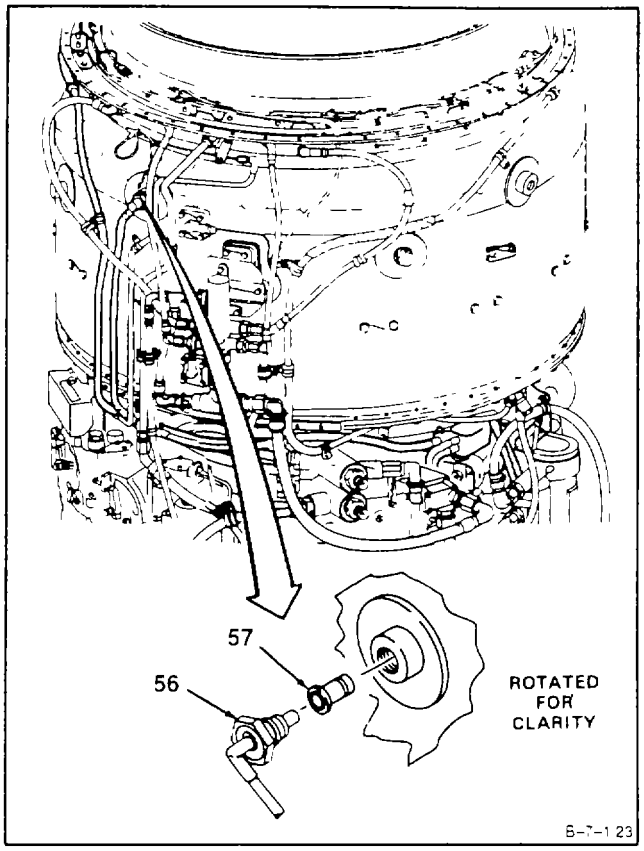
24. Remove lockwire. **Disconnect and remove ignition lead (56).**

NOTE

Spark igniter may remain in combustion chamber housing or on ignition lead.

25. **Remove spark igniter (57).**



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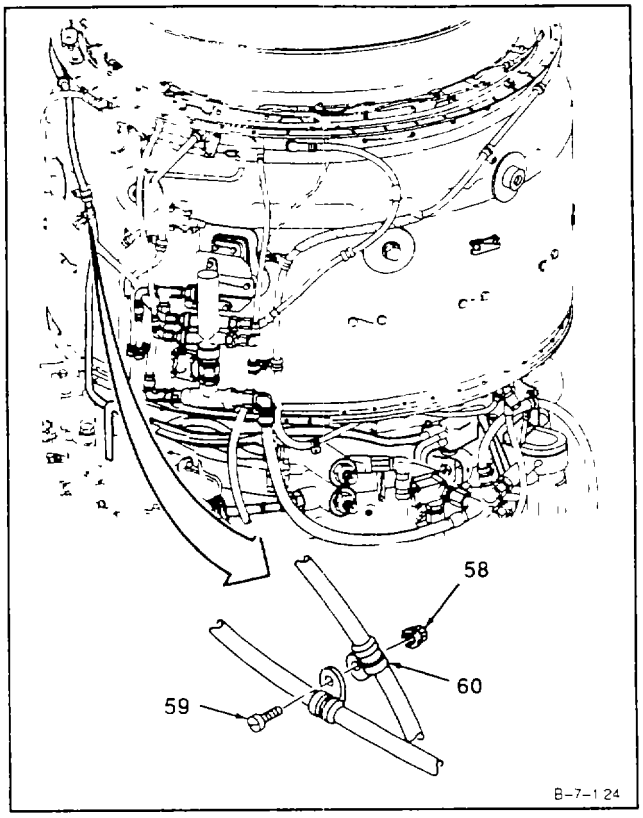
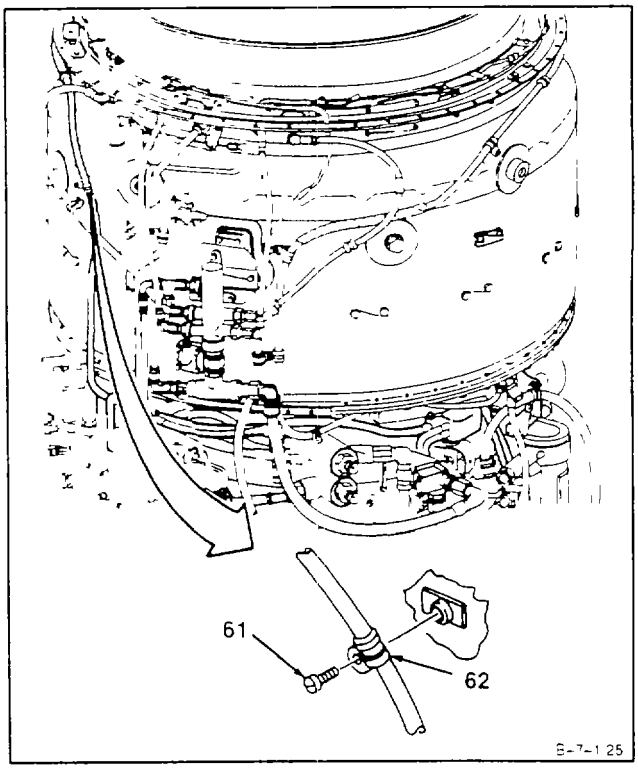
26. **Remove** nut (58), screw (59), and **two clamps (60).**



27. **Remove** lockwire, screw (61), and **clamp (62).**



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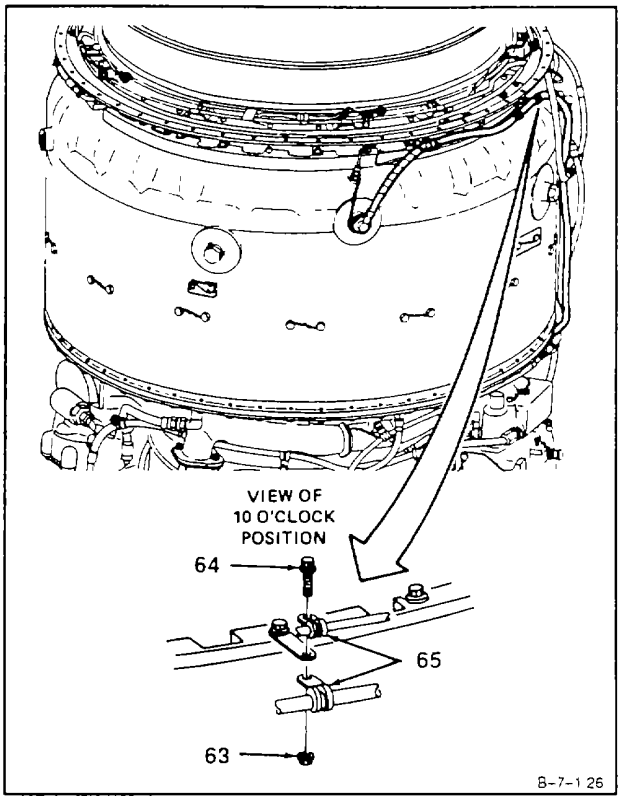
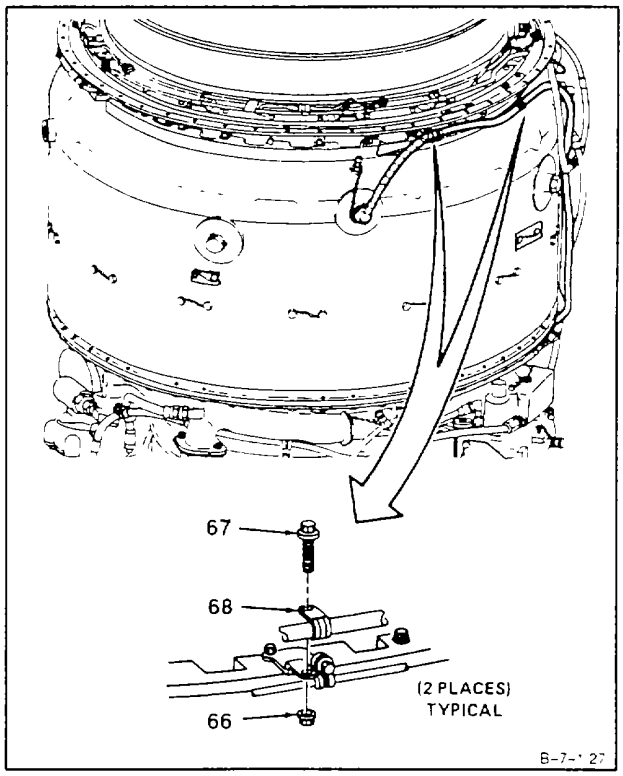
28. **Remove** nut (63), bolt (64), and **clamps (65).**



29. **Remove** two nuts (66), bolts (67), and **clamps (68).**



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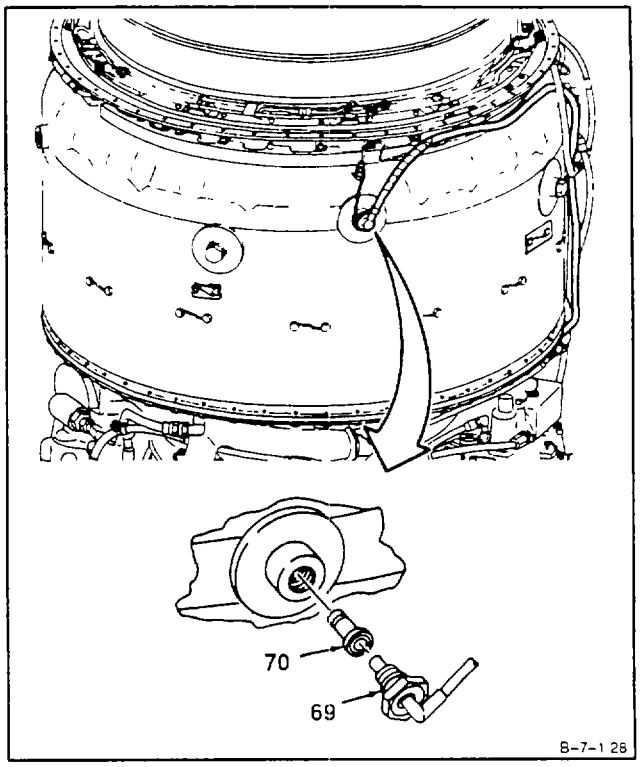
30. Remove lockwire. **Disconnect and remove ignition lead (69).**

NOTE

Spark igniter may remain in combustion chamber housing or on igniter lead.

31. **Remove spark igniter (70).**



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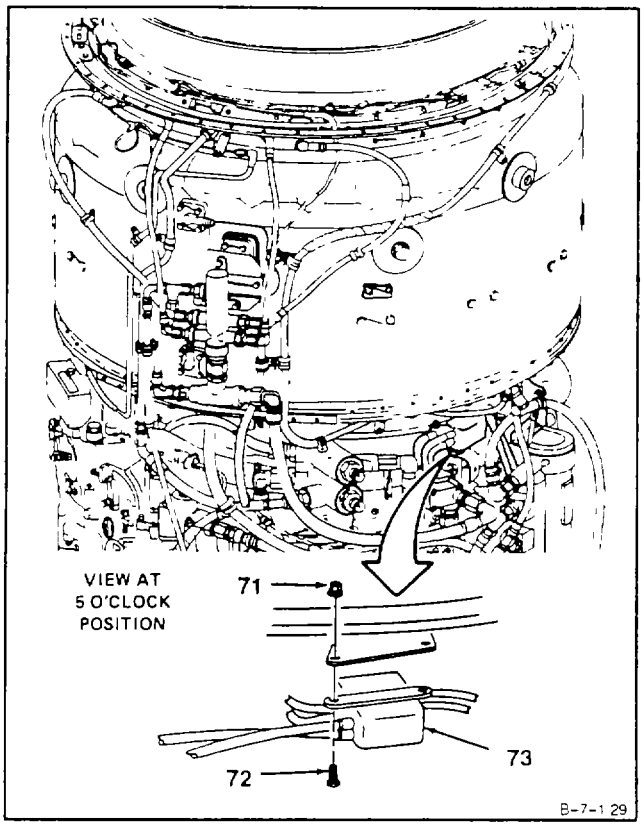
32. **Remove** two nuts (71) and **bolts (72).**

33. **Remove ignition coil and cable assembly (73).**



FOLLOW-ON MAINTENANCE:

None

END OF TASK

7-2 CLEAN IGNITION COIL AND CABLE ASSEMBLY 7-2

INITIAL SETUP

***Applicable Configurations*:**
All

Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Goggles
Dry, Compressed Air Source

Materials:
Dry Cleaning Solvent (El9)
Gloves (E24)
Lint-Free Cloth (E30)

Personnel Required:
Aircraft Powerplant Repairer

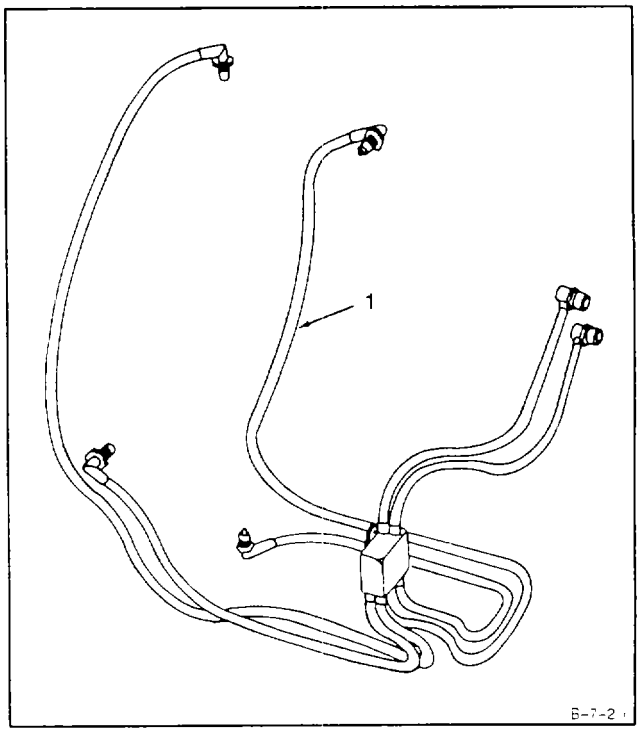
Equipment Condition:
Off Engine Task

General Safety Instructions:

WARNING

Dry cleaning solvent (E19) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

1. Wear gloves (E24). **Clean ignition coil and cable assembly (1)** with lint-free cloth (E30) and brush dampened in dry cleaning solvent (E19).



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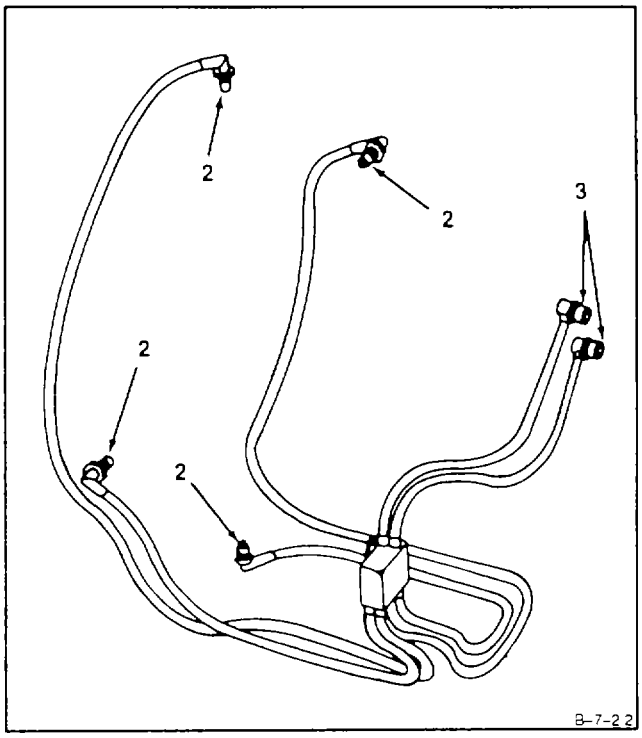
WARNING

When using compressed air for cleaning, use approved protective equipment for eyes and face. Do not use more than 30 psig air pressure. Do not direct air toward yourself or another person. Failure to comply could result in injury to eyes or skin. In case of Injury, get medical attention.

2. Wear goggles. **Blow dry four spark plug connectors (2) and two exciter connectors (3)** thoroughly using clean, dry, compressed air.



FOLLOW-ON MAINTENANCE:

Inspect Ignition Coil and Cable Assembly (Task 7-3).

END OF TASK

7-3 INSPECT IGNITION COIL AND CABLE ASSEMBLY 7-3

INITIAL SETUP

Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit
NSN 5180-00-323-4944
Multimeter

Materials:
None

Personnel Required:
Aircraft Powerplant Repairer

Equipment Condition:
Off Engine Task

1. **Inspect ignition coil and cable assembly (1)** as follows:

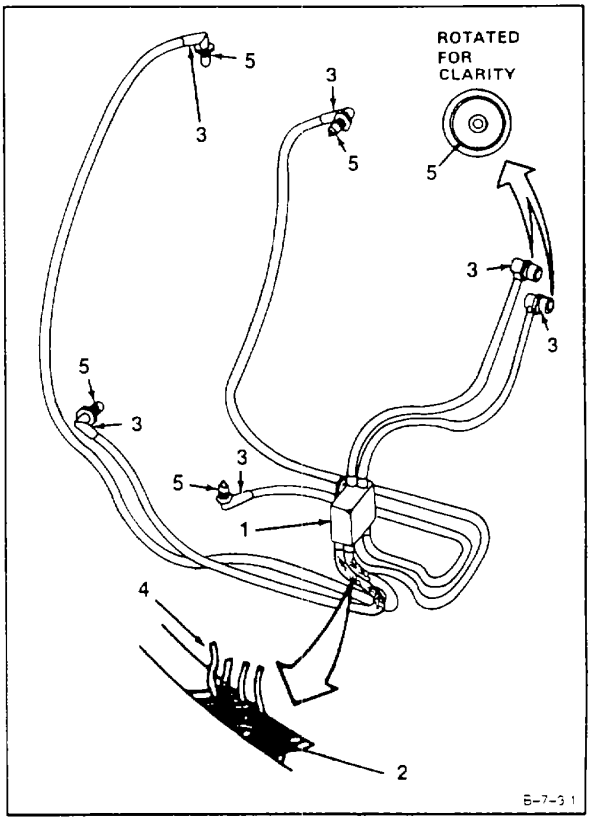
   a. There shall be no burned insulation (2).

   b. Check connectors (3) attached to sheathing. There shall be no loose connectors (3).

   c. Frayed or worn outer steel braid is acceptable up to 3/4 of the cable circumference; 1/4 of the cable circumference shall remain intact to provide continuity for ground. Repair frayed or broken wires (4) on sheathing (Ref. Task 7-4). Replace coil and cable assembly if damage is exceeded.

   d. The outer steel braid shall not be frayed or worn over more than 3/4 of the cable circumference. Remaining continuity for ground shall be over at least 1/4 of the braid.

   e. There shall be no cracked or broken insulators (5).



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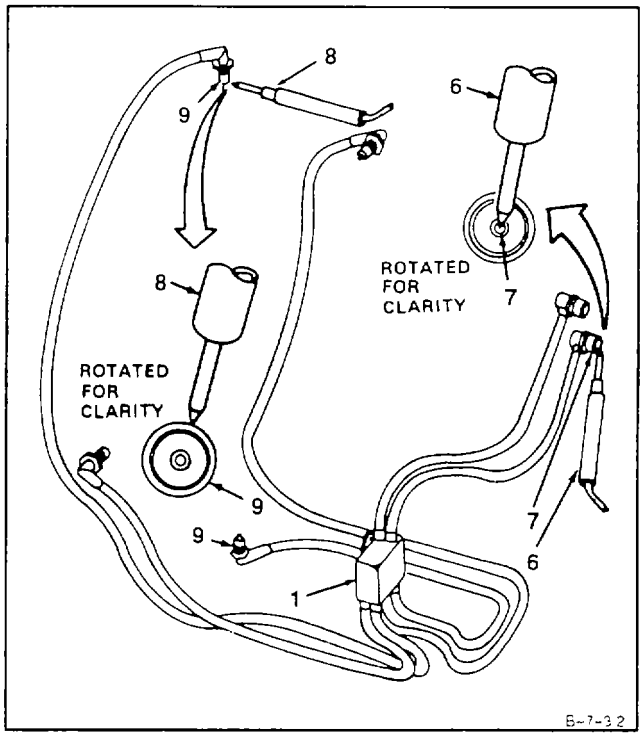
2. **Measure insulation resistance on ignition coil and cable assembly (1)** as follows:

a. Set multimeter range switch to R x 1000. Touch red probe (6) to electrical connector conductor (7).

b. Touch black probe (8) to electrical connector outer housing (9).

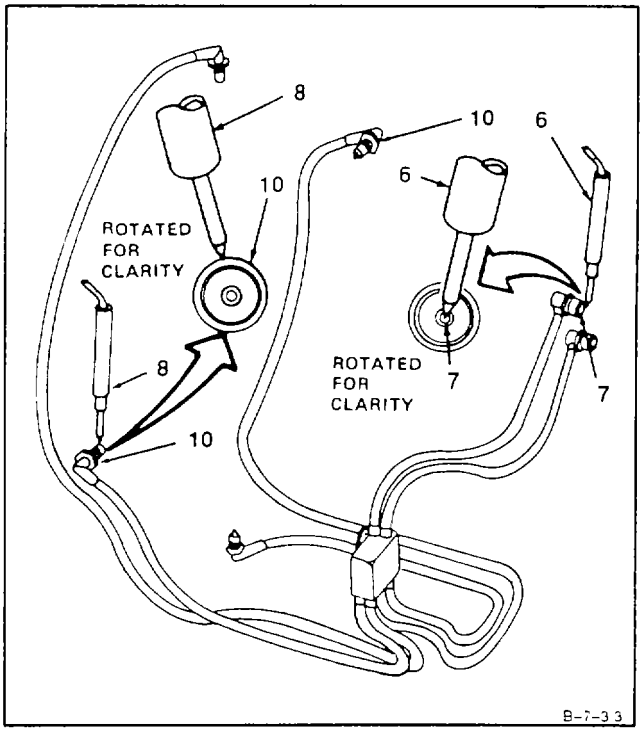
c. Meter shall indicate 1000 ohms minimum.



d. Touch red probe (6) to electrical connector conductor (7).

e. Touch black probe (8) to electrical connector outer housing (10).

f. Meter shall indicate 1000 ohms minimum.



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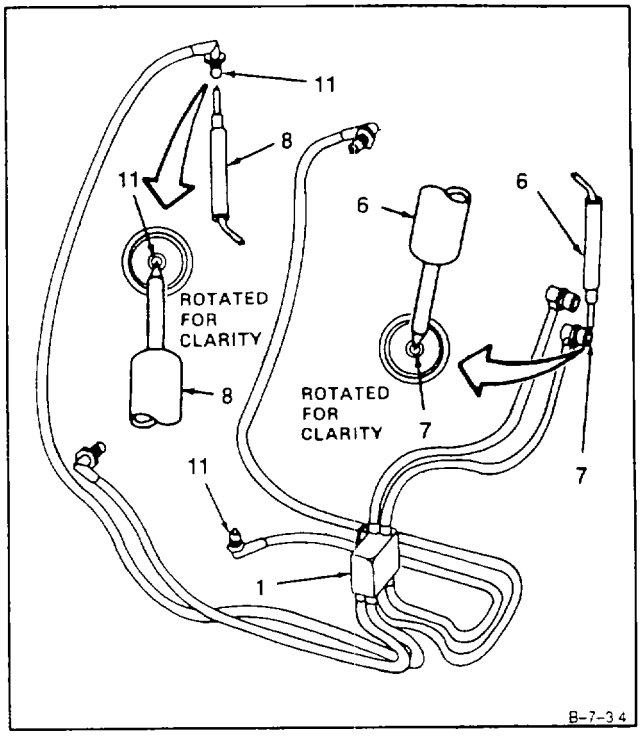
3. **Measure continuity on ignition coil and cable assembly (1)** as follows:

a. Set multimeter range switch to R x 1. Touch red probe (6) to electrical connector conductor (7).

b. Touch black probe (8) to electrical connector conductors (11).

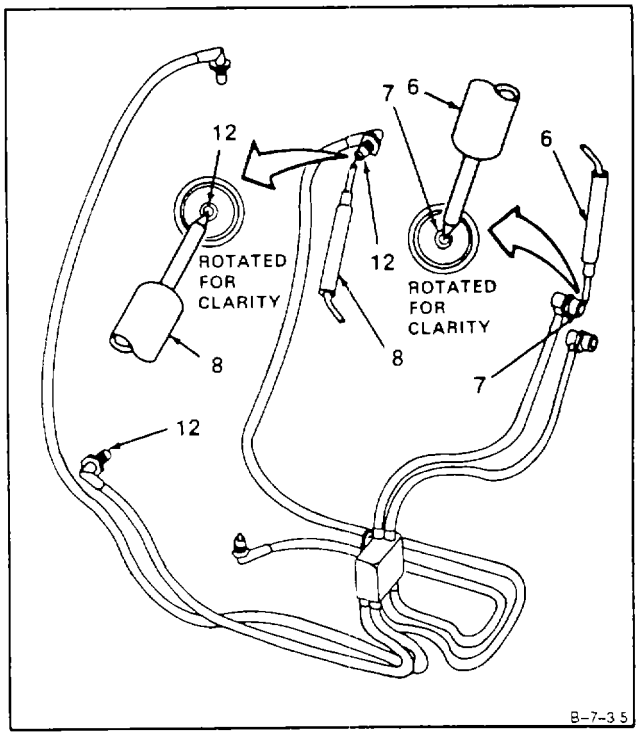
c. Meter shall indicate 1 ohm maximum.



d. Touch red probe (6) to electrical connector conductor (7).

e. Touch black probe (8) to electrical connector center conductors (12).

f. Meter shall indicate 1 ohm maximum.



FOLLOW-ON MAINTENANCE:
None

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Technical Inspection Tool Kit,
NSN 5180-00-323-5114
Retaining Ring Pliers

Materials:

Lockwire (E32)
Spiral Chafing Sleeve (E55)

Parts:

Retaining Ring
Insulator
Retaining Ring
Sleeve
Packing
Washer

Personnel Required:

Aircraft Powerplant Repairer
Aircraft Powerplant Inspector

References:

TM 1-2840-252-23P

Equipment Condition:

Off Engine Task

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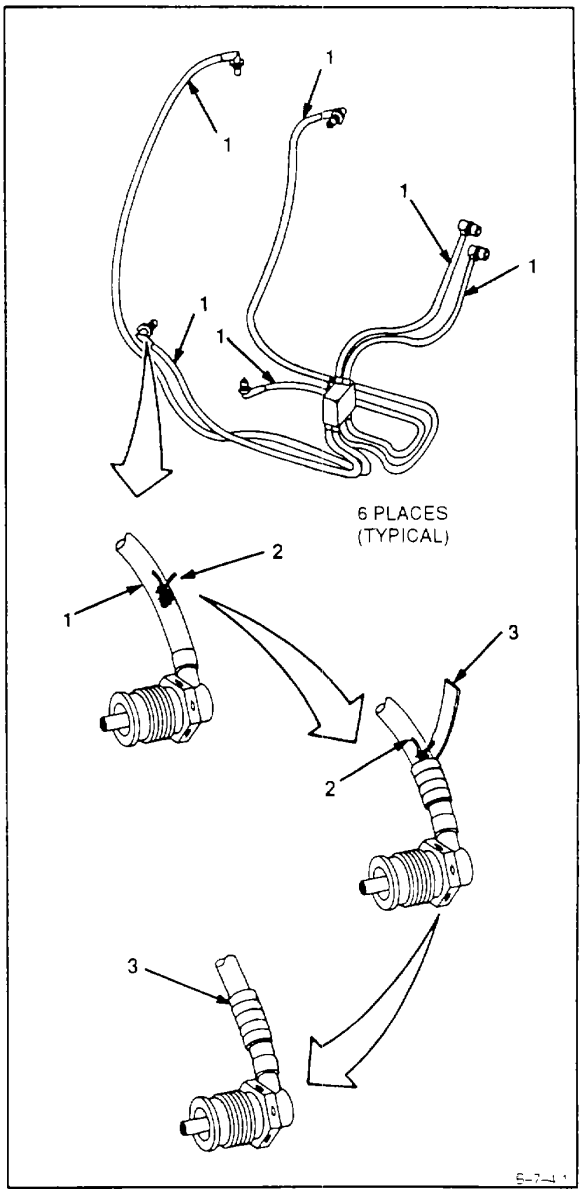
1. **Repair fraying (broken) individual cable leads (1)** as follows:

   a. Wrap individual broken wires (2) in cable lead (1) with spiral chafing sleeve (E55) (3). Be sure that spiral chafing sleeve (3) extends beyond damaged area.



INSPECT

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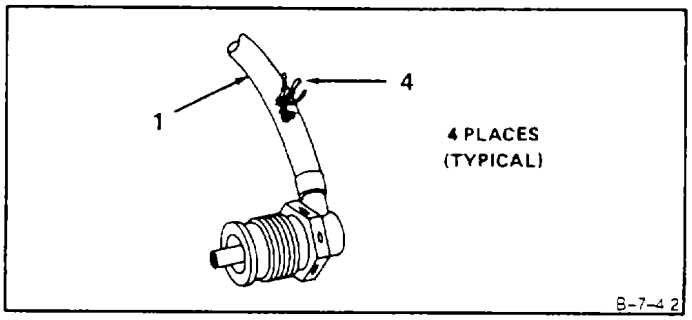
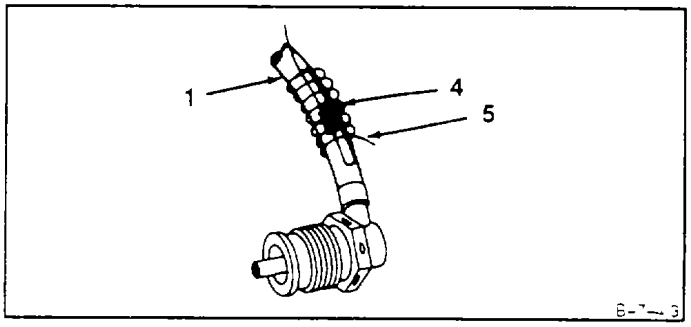
NOTE

This cable assembly consists of a transformer and shielded cabling which has six leads. Two leads are connected to the ignition exciter which carry high voltages to the transformer to be distributed equally to four individual cable leads. Two repairs total shall be allowed to the two shorter individual cable leads and three repairs total shall be allowed to the two longer individual cable leads.

b. If three or more wires (4) of individual cable leads are broken, flatten broken wires (4) without damaging insulation of individual cable lead (1) at damaged area. The outer steel braid shall have a minimum of 1/4 of its circumference intact to provide continuity of grounding purposes. Damaged area shall be 3 inches minimum from either the transformer or spark igniter end of each cable lead (1). Damaged areas on each cable lead (1) shall be a minimum of 6 inches apart.

c. Use lockwire (E32) (5) to wind clockwise around damaged cable lead (1). Lockwire (5) should cover damaged area by 3/8 inch. Do not pass wrapping limits of 1-1/4 inch length.





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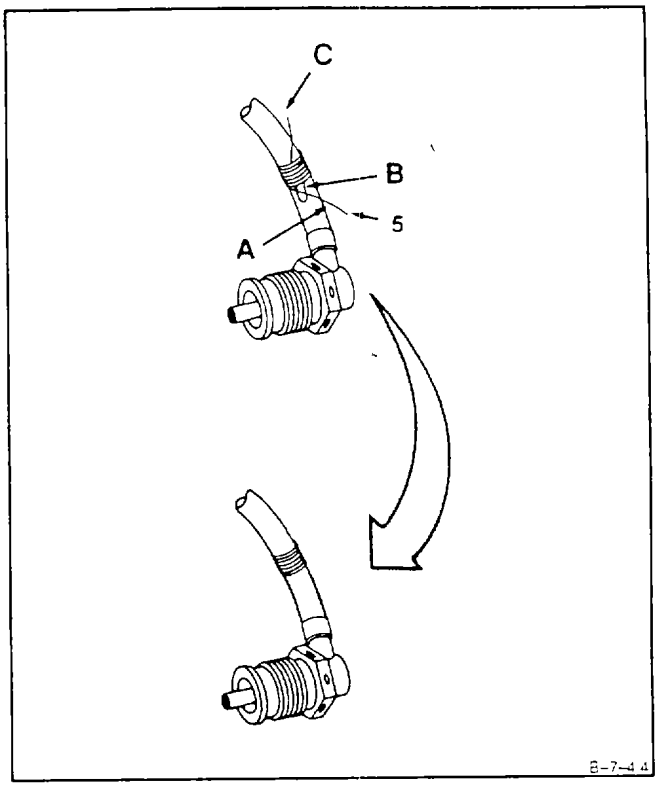
NOTE

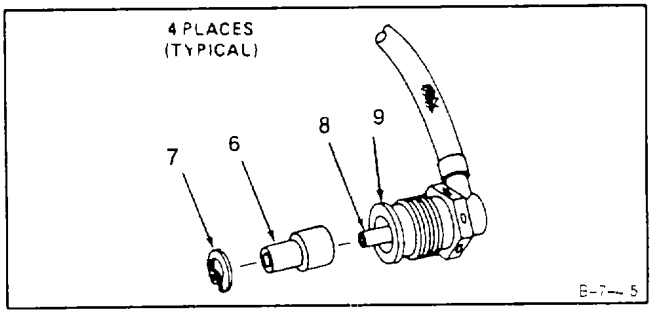
In following step, use care when pulling end C. Pull only far enough to firmly anchor end A beneath several wraps of the lockwire.

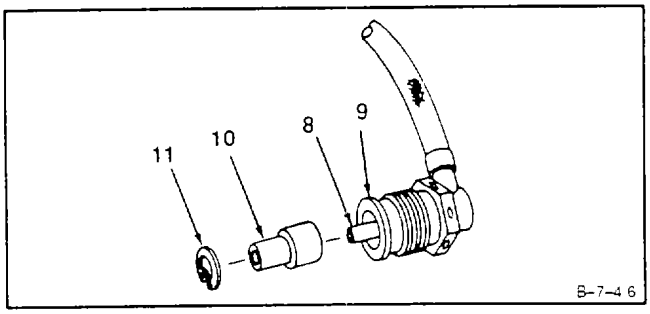
d. Finish wrap by inserting lockwire (5) end A through loop B. Hold A tight while pulling C to close loop. Release A and carefully pull C until end A is anchored beneath wrapping. Cut excess wire ends.



INSPECT

2. **Replace cracked insulator (6)** as follows:
   a. Remove retaining ring (7).
   b. Remove insulator (6) from wire (8) and out of sleeve (9).
   c. Insert new insulator (10) in sleeve (9) and over wire (8).
   d. Install new retaining ring (11).





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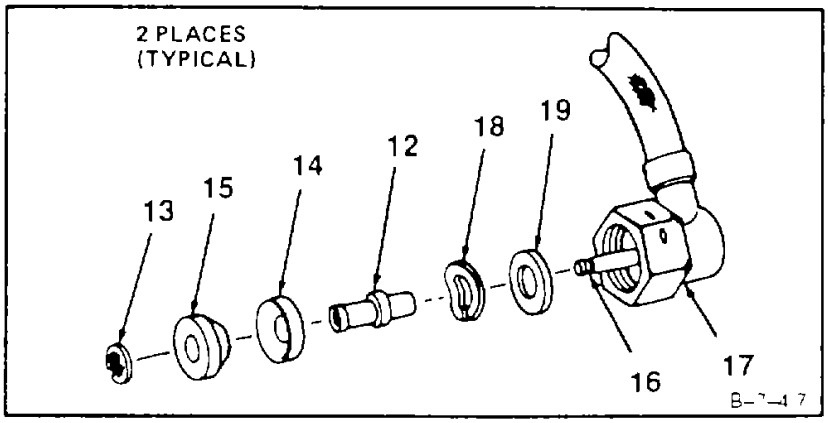
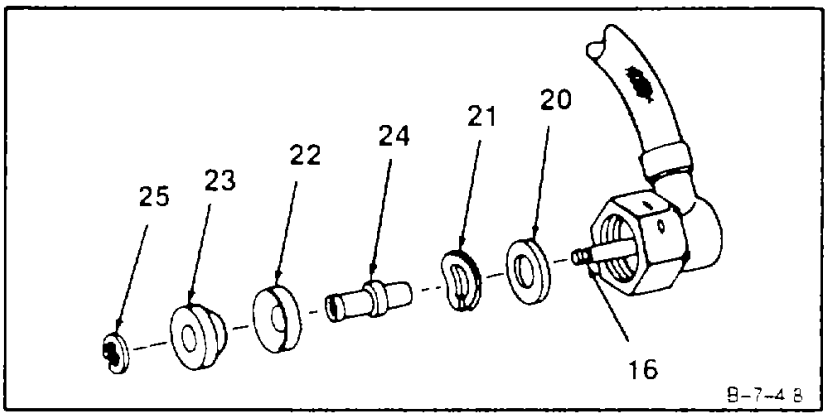
3. **Replace cracked sleeve** (12) as follows:
   a. Remove retaining ring (13).
   b. Remove sleeve (12) with packing (14) and washer (15) from wire (16) and out of sleeve (17).
   c. Remove washer (18) and washer (19) from wire (16) and out of sleeve (17).
   d. Insert new washer (20) and new washer (21) over wire (16).
   e. Insert new washer (22) and new packing (23) on new sleeve (24). Insert over wire (16).
   f. Install new retaining ring (25).





INSPECT

FOLLOW-ON MAINTENANCE:
None

END OF TASK

7-5 INSTALL IGNITION COIL AND CABLE ASSEMBLY 7-5

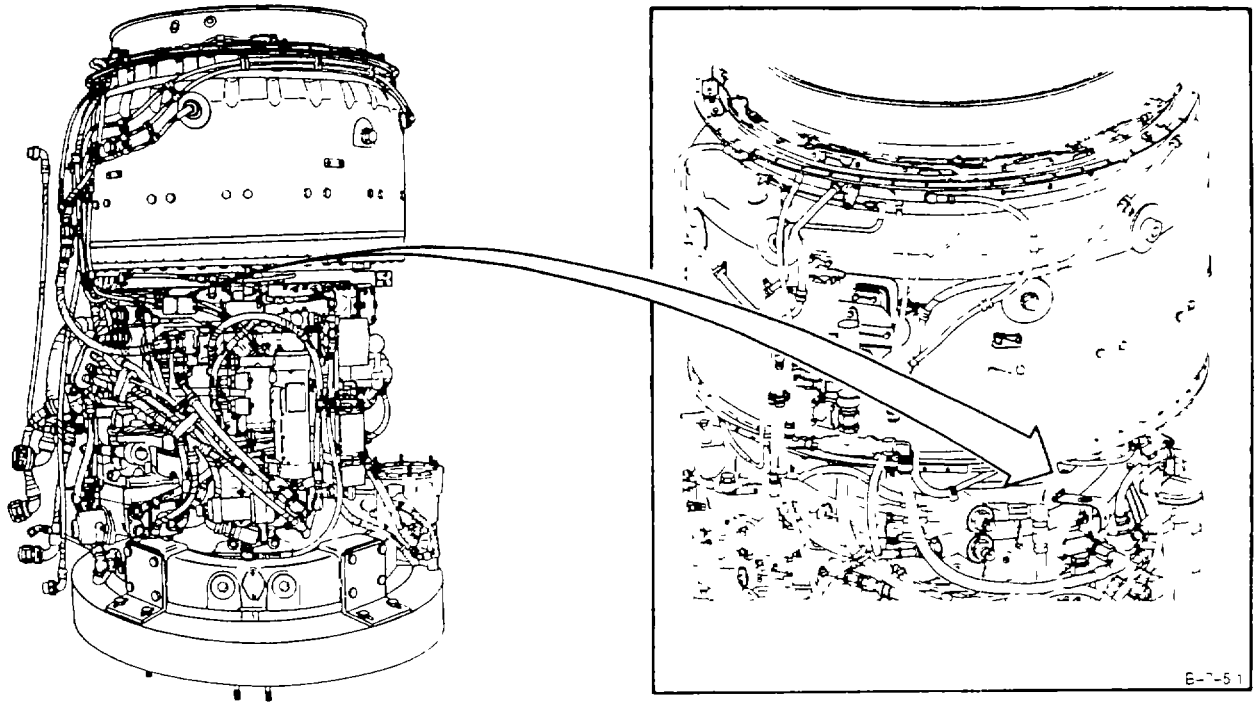
INITIAL SETUP

Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Technical Inspection Tool Kit,
NSN 5180-00-323-5114
Torque Wrench, 30-150 Inch-Pounds
Crowfoot Attachment, 7/8 inch

Materials:
Anti-Seize Compound (E6)
Lockwire (E33)

Personnel Required:
Aircraft Powerplant Repairer
Aircraft Powerplant Inspector



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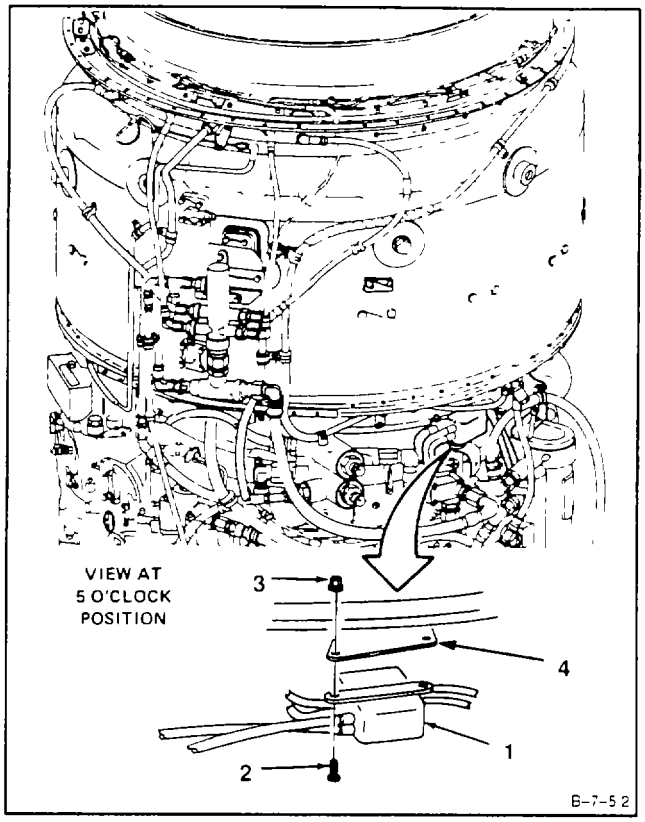
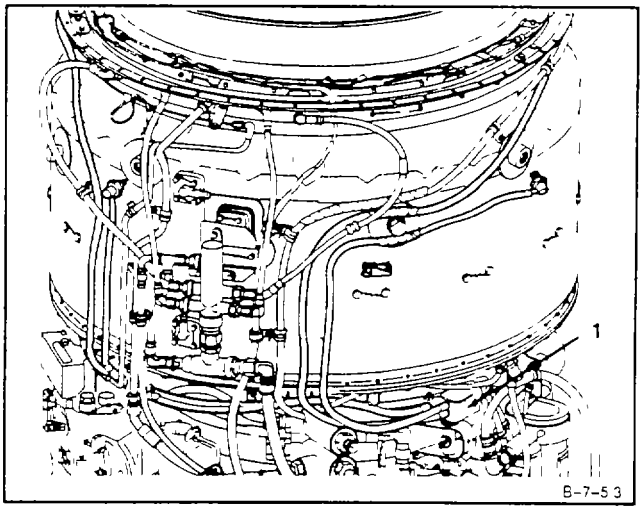
7-5 INSTALL IGNITION COIL AND CABL E ASSEMBLY (Continued) 7-5

1. **Install Ignition coil and cable assembly** (1), two bolts (2), and nuts (3) on bracket (4).



2. **Route ignition coil and cable assembly (1)** as shown.



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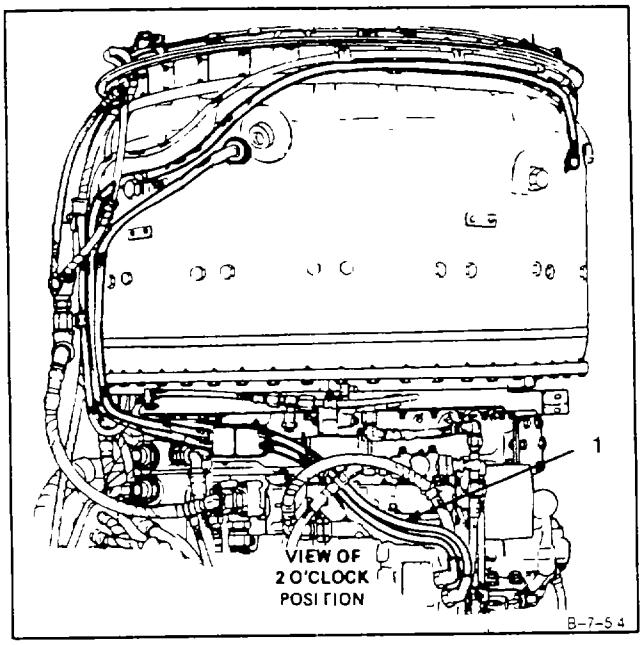
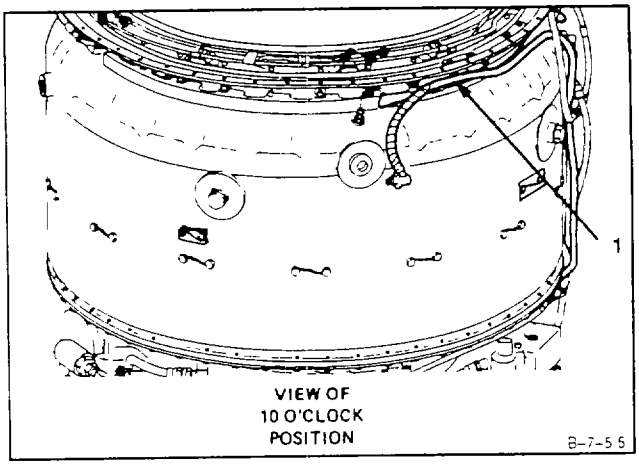
2. (Continued)





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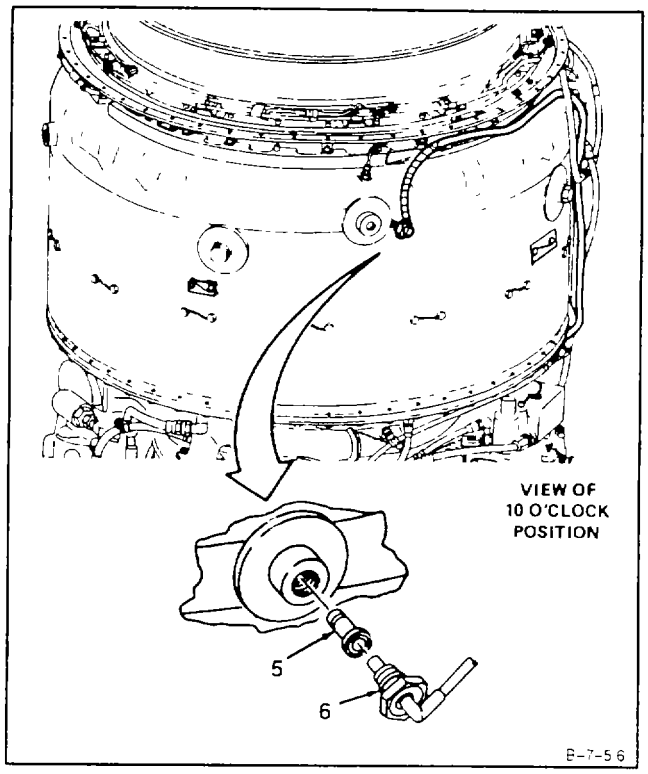
3. **Install spark Igniter (5)** on ignition lead (6).

CAUTION

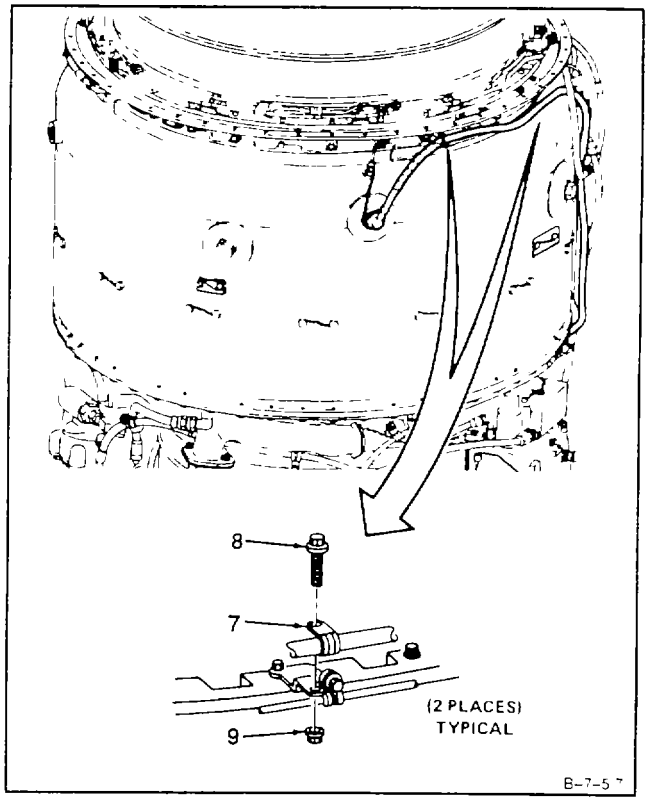
To prevent shorting of ignition lead, do not allow anti-seize compound to touch electrical contacts and insulators.

4. **Coat threads of ignition lead (6)** with anti-seize compound (E6).

5. **Install ignition lead (6). Torque to 135 inch-pounds**. Use crowfoot attachment. Lockwire ignition lead (6). Use lockwire (E33).



6. **Install two clamps (7),** bolts (8), and nuts (9).



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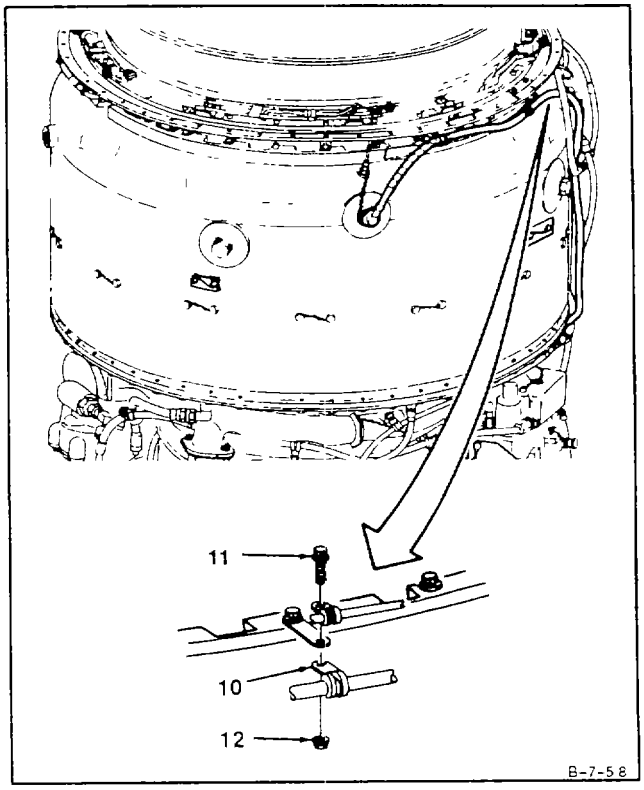
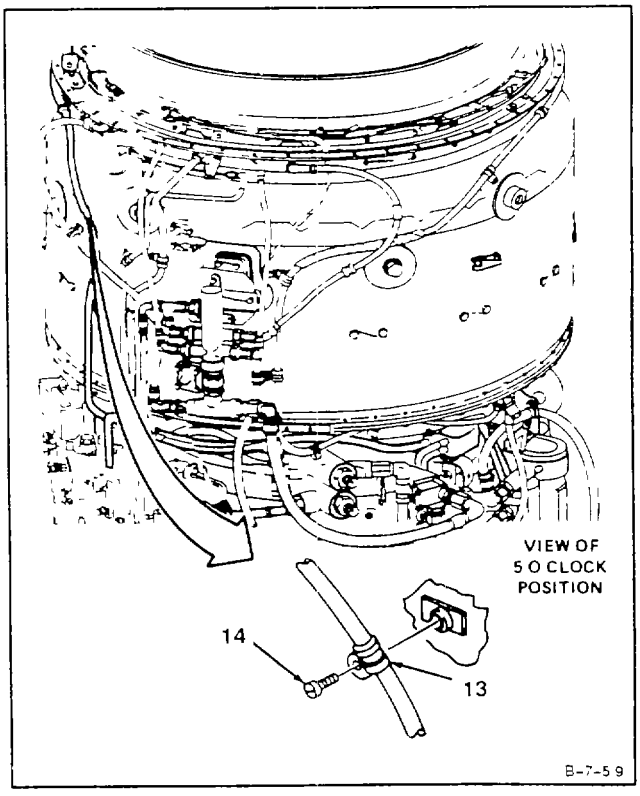
7-5 INSTALL IGNITION COIL AND CABLE ASSEMBLY (Continued) 7-5

7. **Install clamp (10)**, bolt (11), and nut (12).



8. **Install clamp (13)** and screw (14). Lockwire screw (14). Use lockwire (E33).



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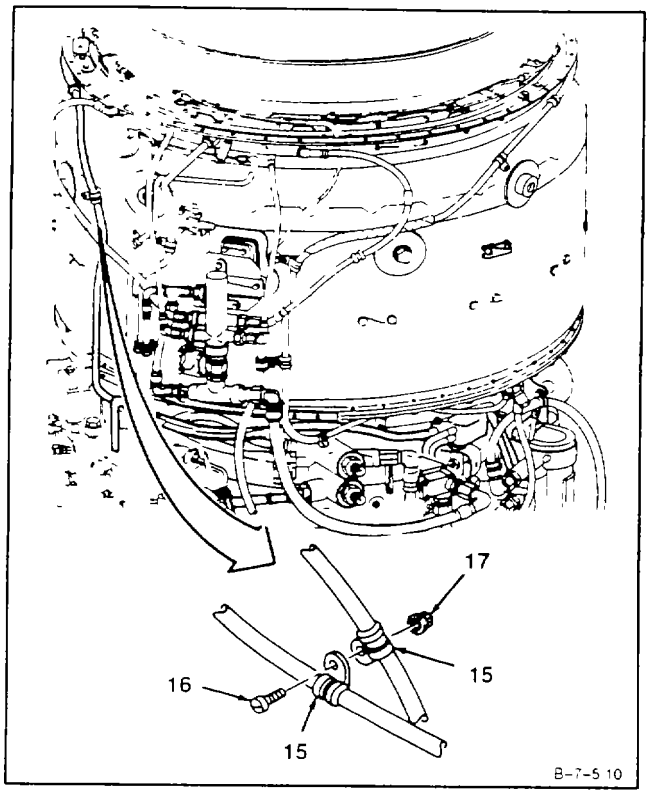
9. **Install two clamps (15),** screw (16), and nut (17).



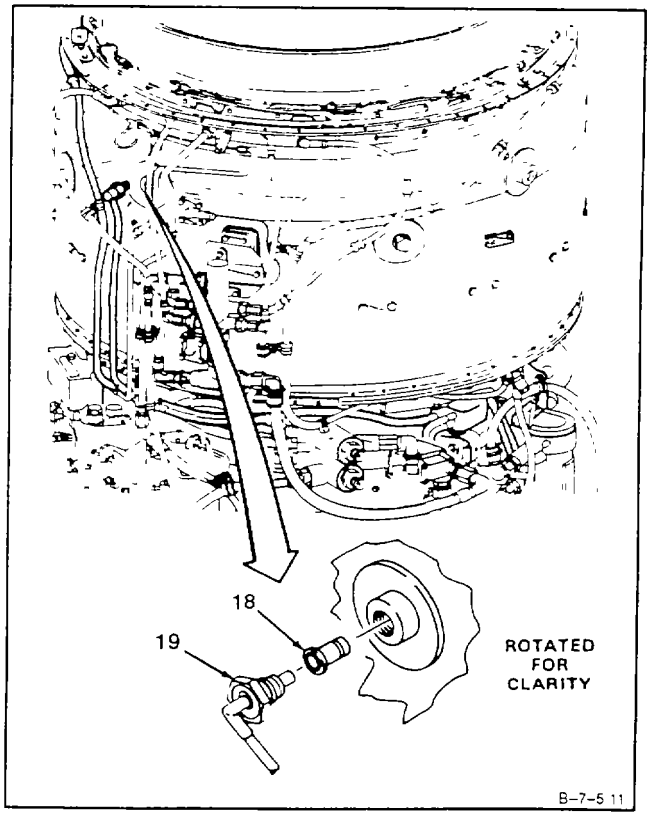
10. **Install spark igniter (18)** on ignition lead (19).

CAUTION

To prevent shorting of ignition lead, do not allow anti-seize compound to touch electrical contacts and insulators.

11. **Coat threads of ignition lead (19)** with anti-seize compound (E6).

12. **Install ignition lead (19). Torque to <u>135 inch-pounds</u>**. Use crowfoot attachment. Lockwire ignition lead (19). Use lockwire (E33).



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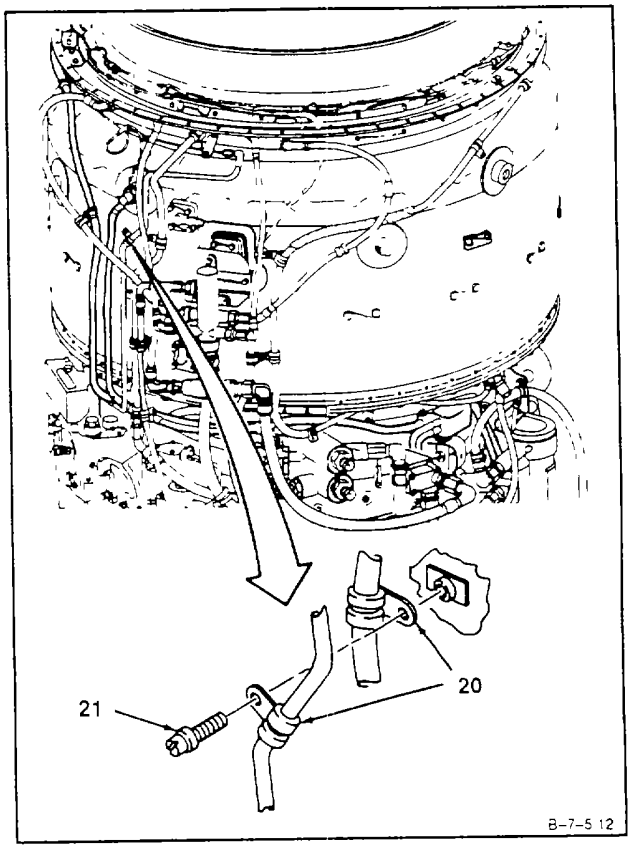
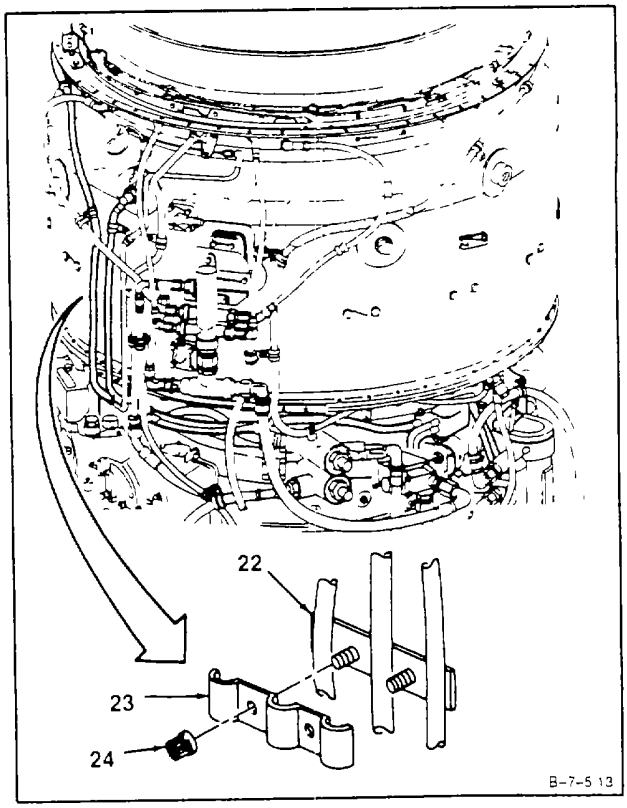
13. **Install two clamps (20)** and screw (21). Lockwire screw (21). Use lockwire (E33).



14. **Install clamps (22 and 23)** and two nuts (24).



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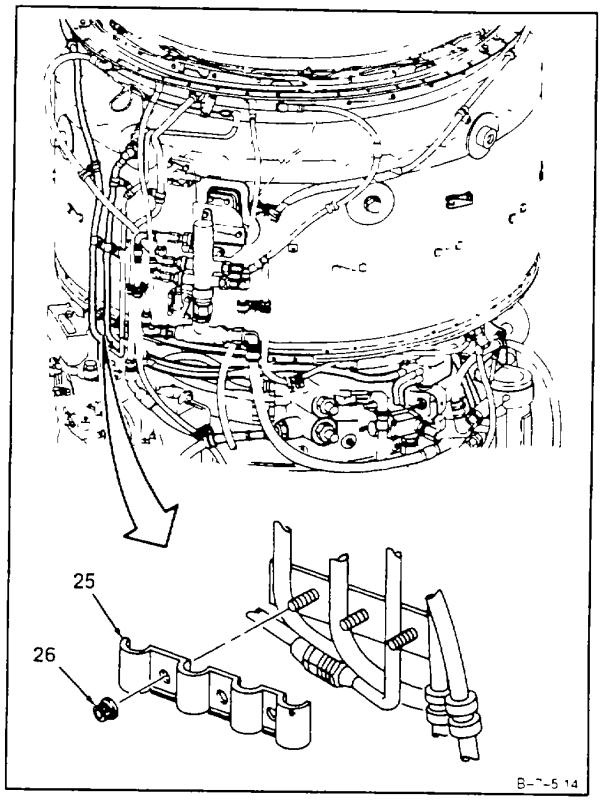
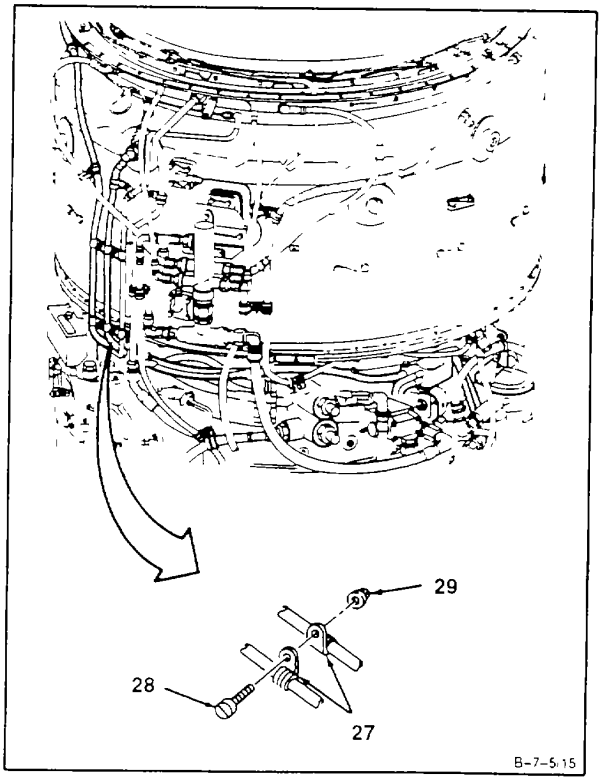
15. **Install clamp (25)** and three nuts (26).



16. **Install two clamps (27),** screw (28), and nut (29).



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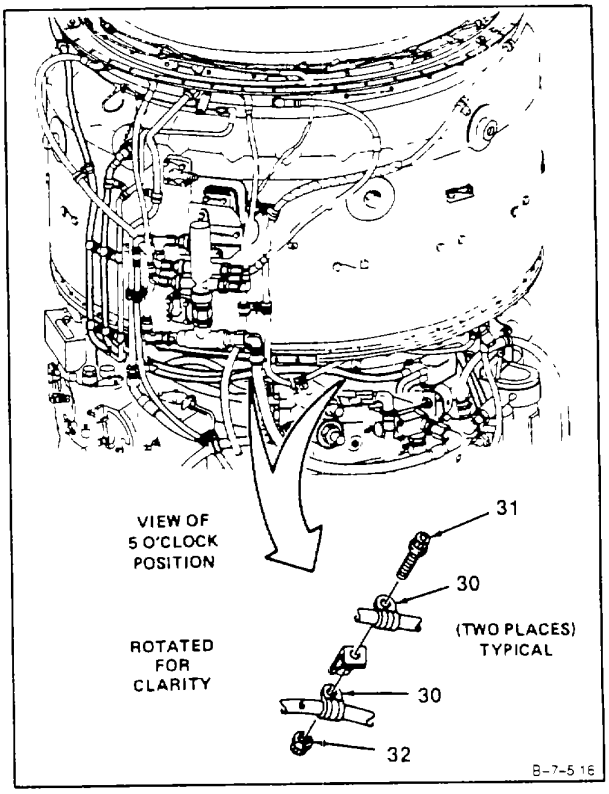
17. **Install four clamps (30)**, two bolts (31), and nuts (32).



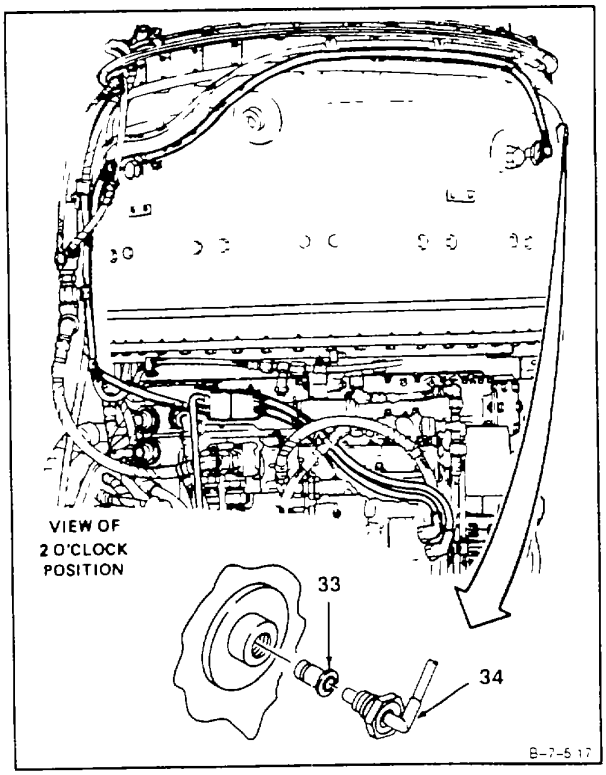
18. **Install spark igniter (33)** on ignition lead (34).

CAUTION

To prevent shorting of ignition lead, do not allow anti-seize compound to touch electrical contacts and insulators.

19. **Coat threads of ignition lead (34)** with anti-seize compound (E6).

20. **Install ignition lead (34). Torque to <u>135 inch-pounds</u>.** Use crowfoot attachment. Lockwire ignition lead (34). Use lockwire (E33).



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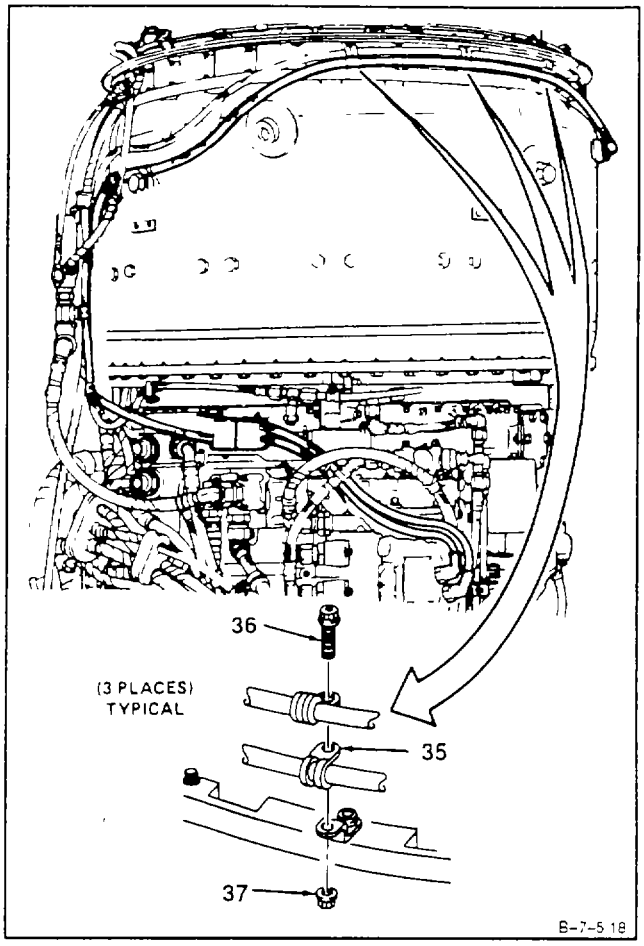
21. **Install three clamps (35),** bolts (36), and nuts (37).



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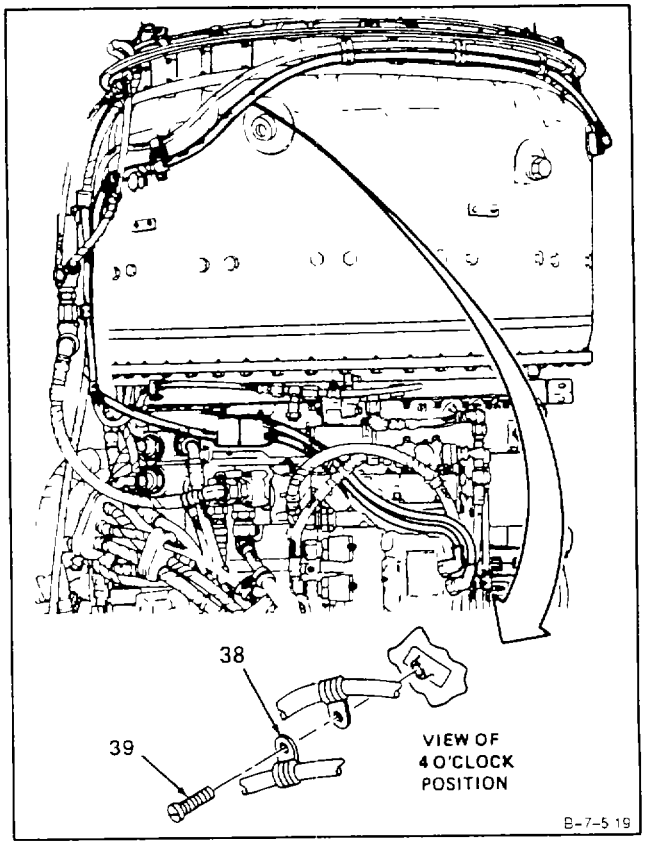
22. **Install clamp (38)** and screw (39). Lockwire screw (39). Use lockwire (E33).



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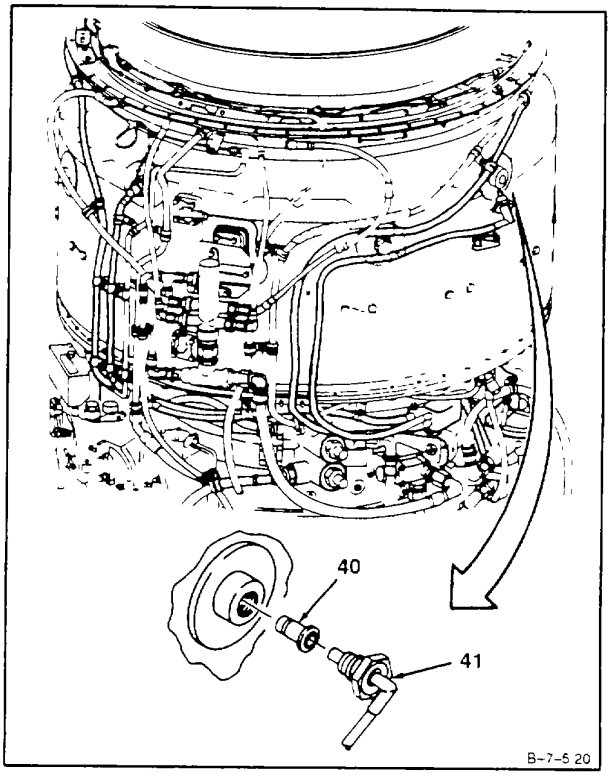
23. **Install spark Igniter (40)** on ignition lead (41).

CAUTION

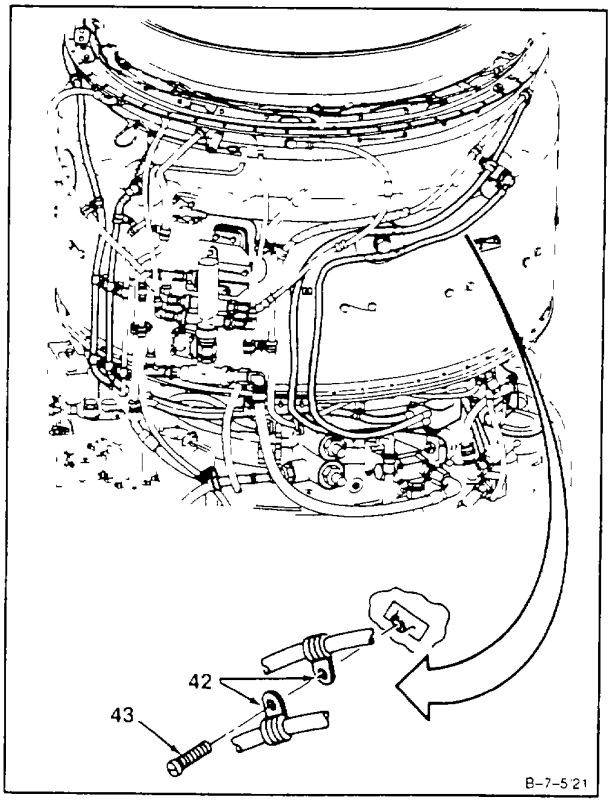
To prevent shorting of ignition lead, do not allow anti-seize compound to touch electrical contacts and insulators.

24. **Coat threads of ignition lead (41)** with anti-seize compound (E6).

25. **Install ignition lead (41). Torque to <u>135 inch-pounds</u>.** Use crowfoot attachment. Lockwire ignition lead (41). Use lockwire (E33).



26. **Install two clamps (42)** and screw (43). Lockwire screw (43). Use lockwire (E33).



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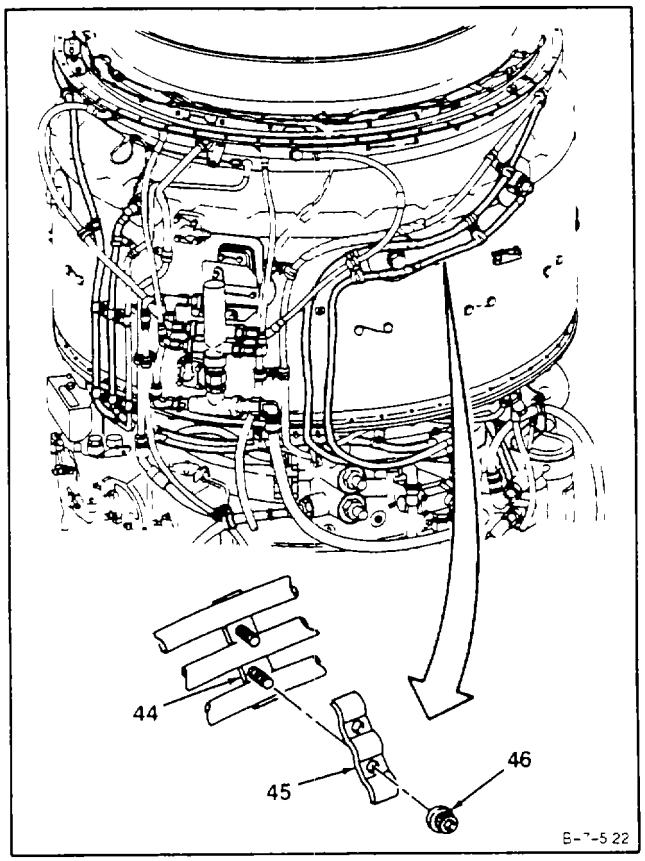
27. **Install clamps (44 and 45)** and two nuts (46).



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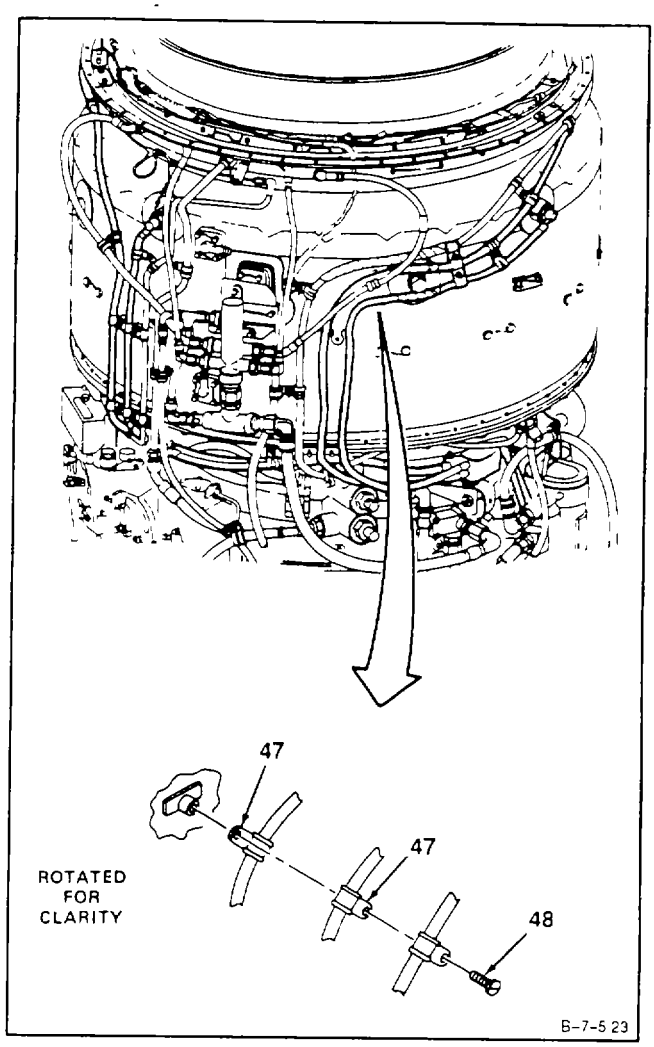
28. **Install two clamps (47)** and screw (48). Lockwire screw (48). Use lockwire (E33).



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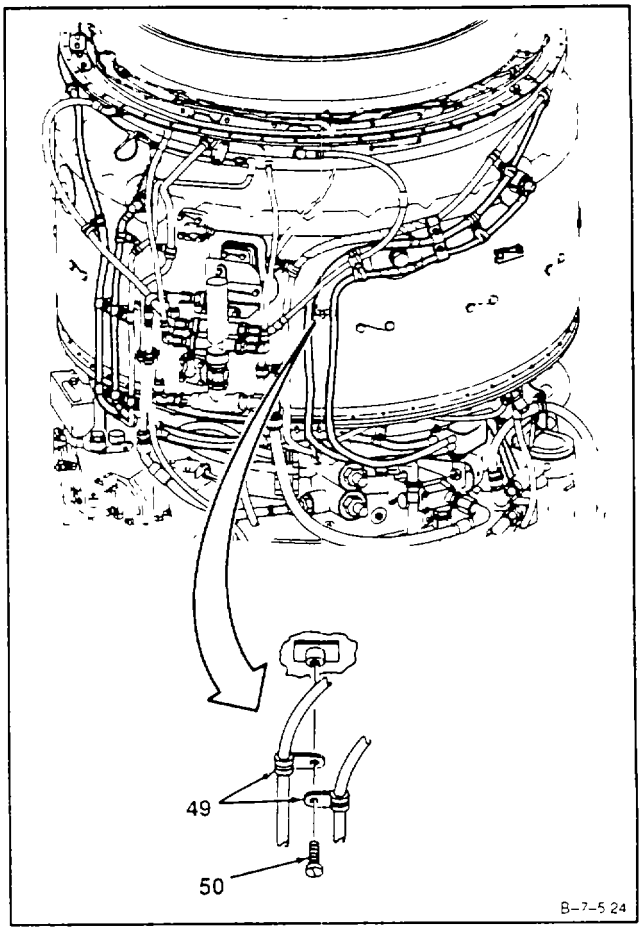
29. **Install two clamps (49)** and screw (50). Lockwire screw (50). Use lockwire (E33).



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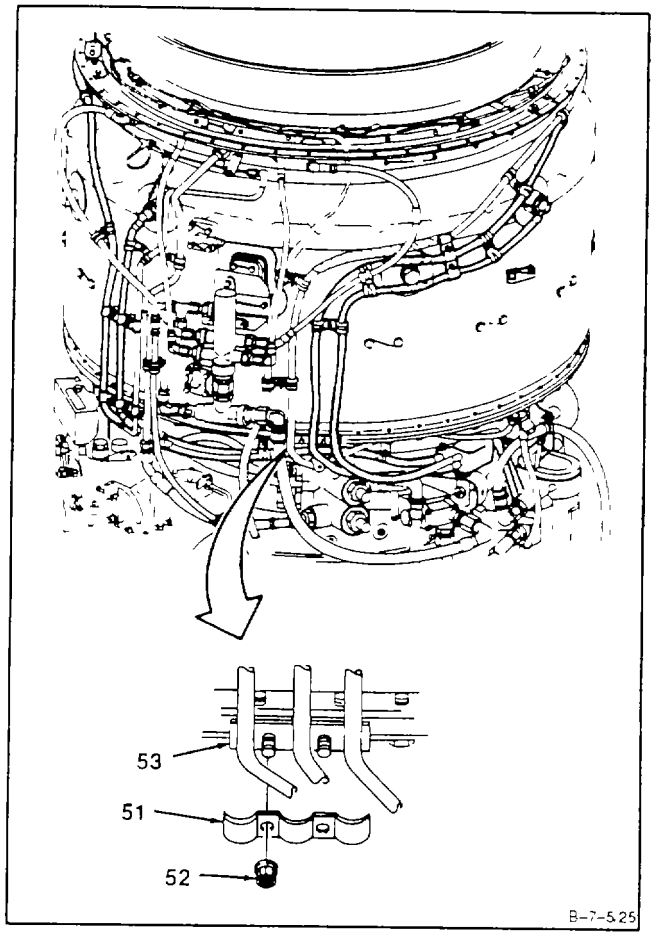
30. **Install retaining strap (51)** and two nuts (52) to bracket (53).



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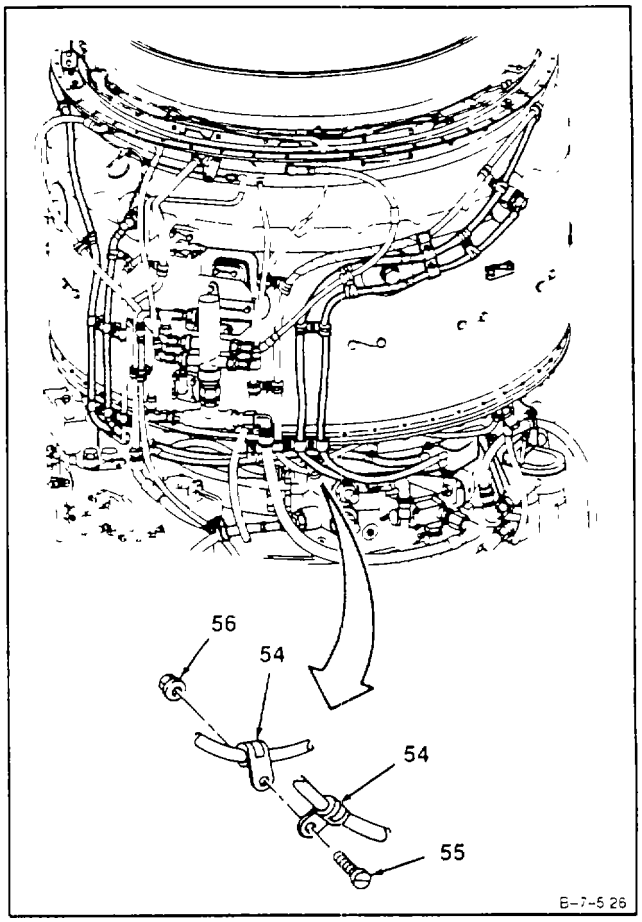
31. **Install two clamps (54)**, screw (55), and nut (56).



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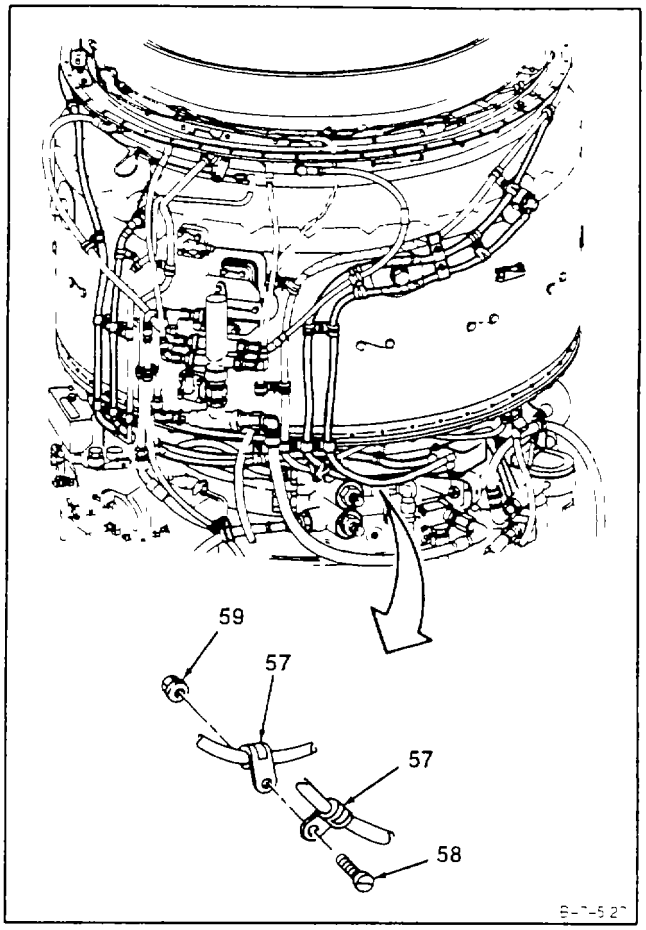
32. **Install two clamps (57)**, screw (58), and nut (59).



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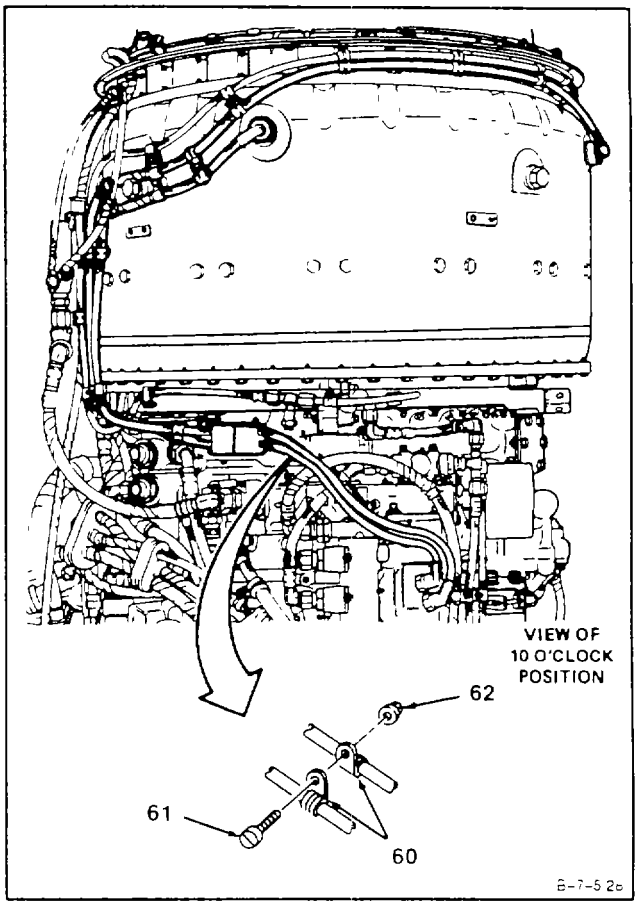
33. **Install two clamps (60),** screw (61), and nut (62).



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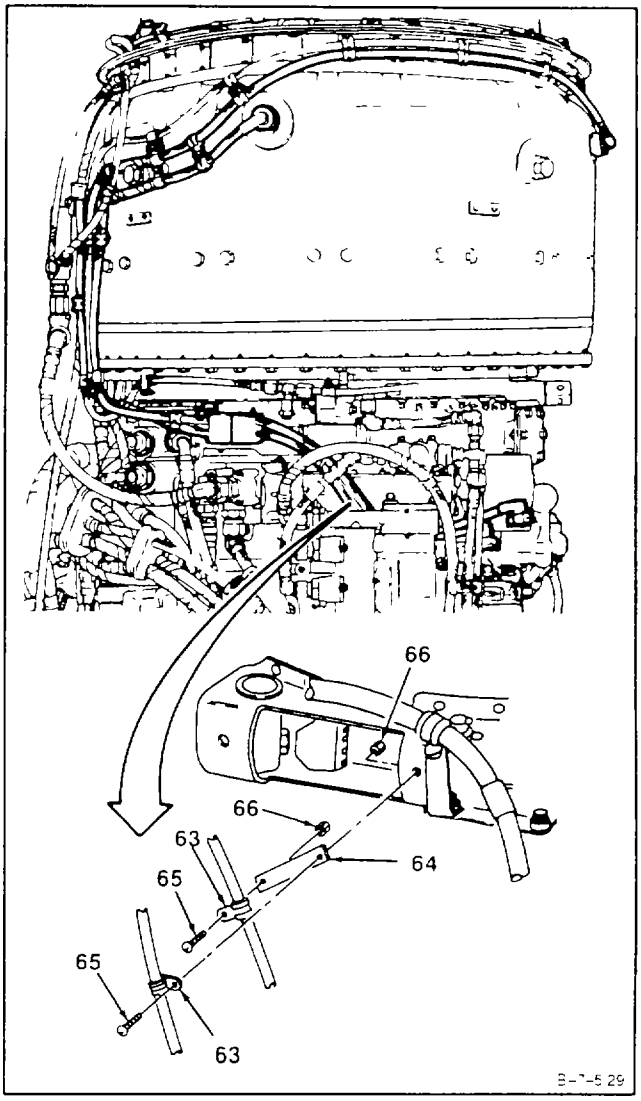
34. **Install two clamps (63), bracket (64)**, two screws (65), and nuts (66).



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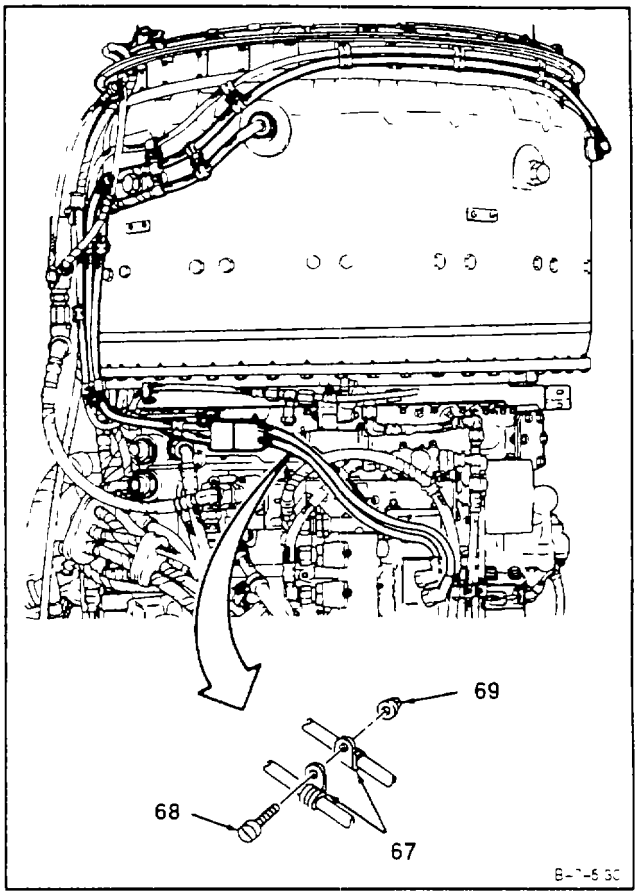
35. **Install two clamps (67)**, screw (68), and nut (69).



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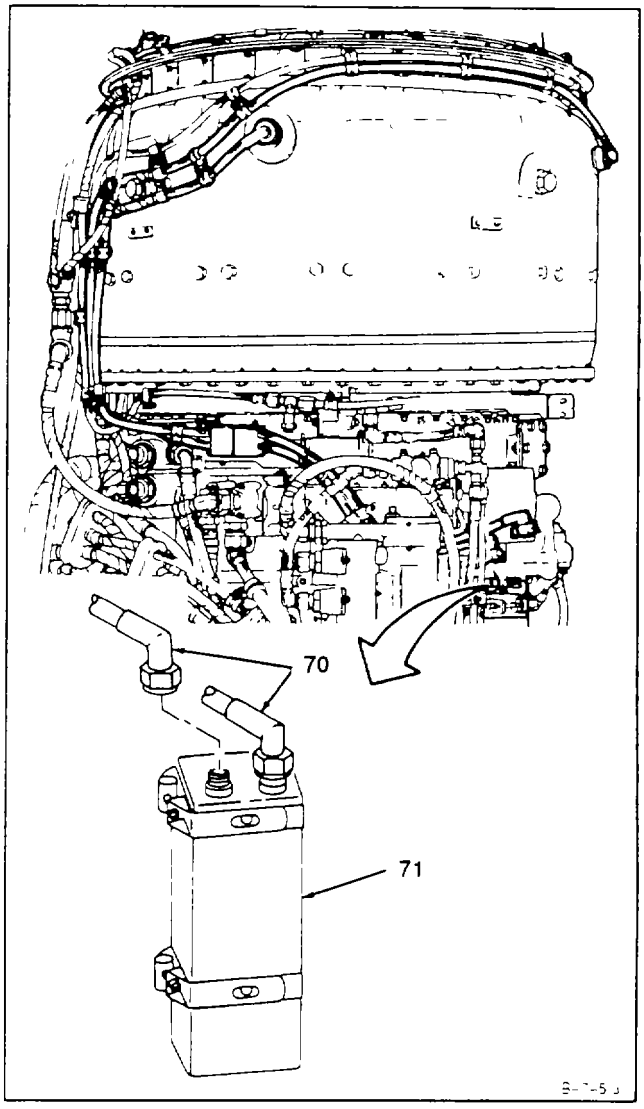
36. **Connect two coil and cable assembly leads (70)** to ignition exciter (71). Lockwire leads (70). Use lockwire (E33).



INSPECT

FOLLOW-ON MAINTENANCE:
None

END OF TASK

SECTION II
SPARK IGNITERS

7-6 REMOVE SPARK IGNITERS 7-6

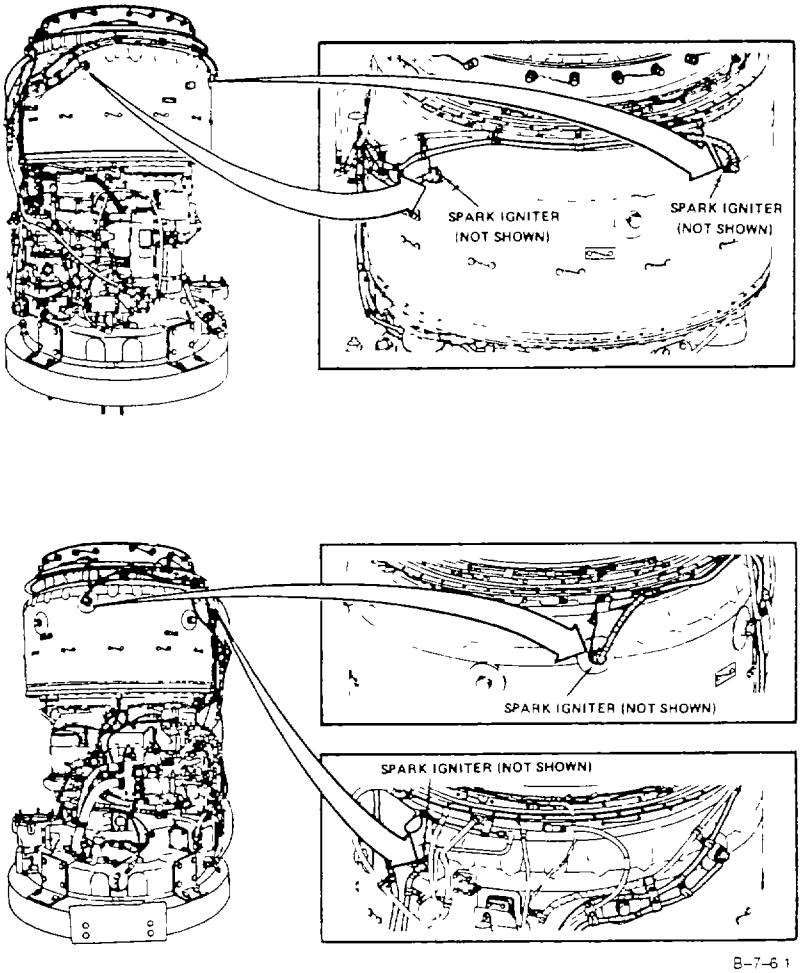
INITIAL SETUP

Applicable Configurations:
All
Tools:
Powerplant Mechanic's Tool Kit, NSN 5180-00-323-4944
Materials:
None
Personnel Required:
Aircraft Powerplant Repairer

General Safety Instructions:

WARNING

The ignition exciter stores very high and possibly fatal voltage. Use extreme care when working around ignition exciter. Serious injury could result if exciter is accidentally grounded. Do not probe inside of output receptacles with fingers or metal object. Discharge exciter only with insulated screwdriver. In case of shock or injury, get medical attention.



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WARNING

When discharging ignition leads, remove one lead at a time and discharge to combustor housing. Failure to do so may result in serious shock when you are removing other leads. In case of serious shock, get medical attention.

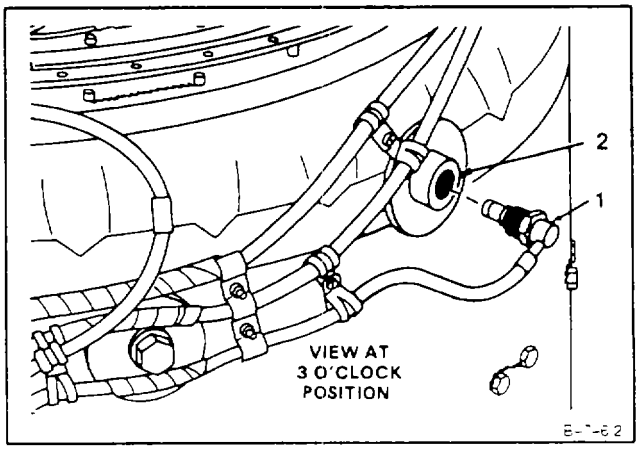
NOTE

The procedure for removal of four spark igniters located at the 3-, 6-, 9-, and 12-o'clock positions is the same. Only the 3-o'clock position is shown.

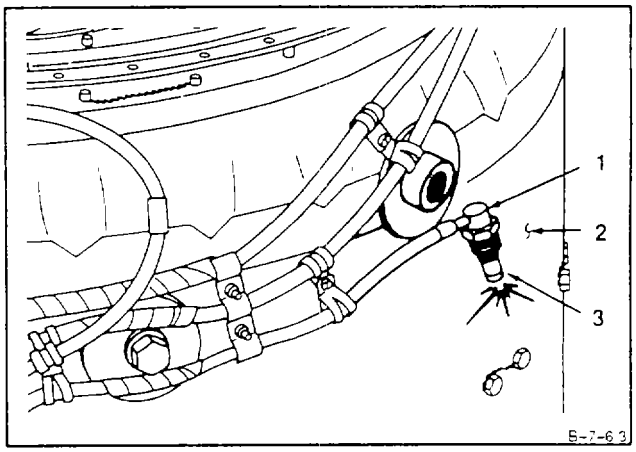
1. **Remove** lockwire and **ignition lead (1)** from combustor housing (2).

NOTE

If spark igniter stays with ignition lead, do steps 2 and 3. If spark igniter stays in combustor housing do steps 4 and 5.



2. **Discharge ignition lead (1) and spark igniter (3)** by touching to combustor housing (2).



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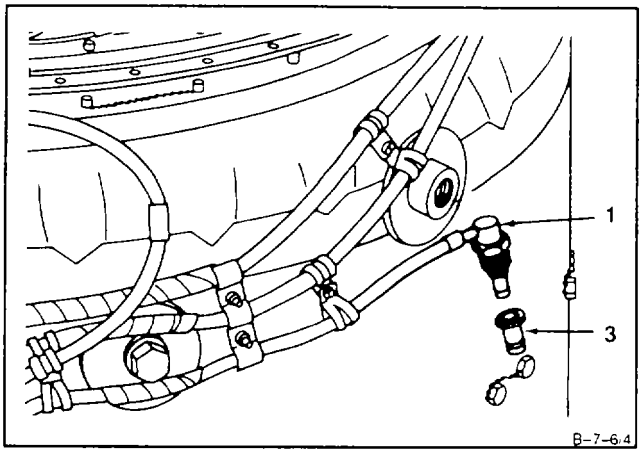
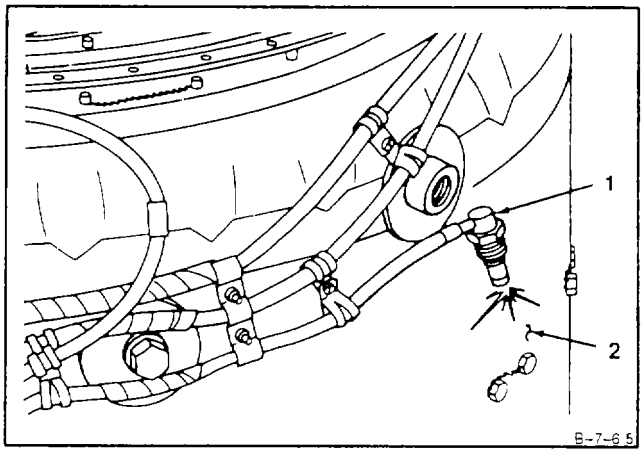
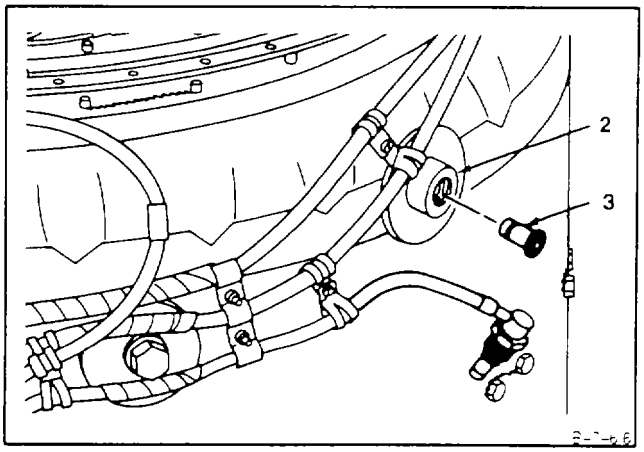
3. **Remove spark igniter (3)** from ignition lead (1).



4. **Discharge ignition lead (1)** by touching to combustor housing (2).



5. **Remove spark igniter (3)** from combustor housing (2).



FOLLOW-ON MAINTENANCE:
None

END OF TASK

INITIAL SETUP

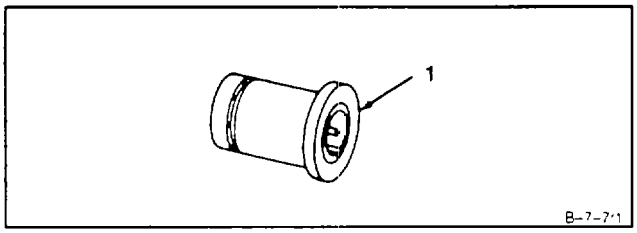
Applicable Configurations:
All
Tools:
Powerplant Mechanic's Tool Kit, NSN 5180-00-323-4944
Materials:
Dry Cleaning Solvent (E19)
Gloves (E24)
Lint-Free Cloth (E30)
Personnel Required:
Aircraft Powerplant Repairer
Equipment Condition:
Off Engine Task
Spark Igniters Removed (Task 7-6)
General Safety Instructions:

WARNING

Dry cleaning solvent (E19) is flammable and toxic. It can Irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

1. Wear gloves (E24). **Clean four spark igniters (1),** using dry cleaning solvent (El9) and brush.
2. **Remove any remaining solvent** using clean, dry, lint-free cloth (26).

FOLLOW-ON MAINTENANCE:
Inspect Spark Igniters (Task 7-8).



END OF TASK

7-8 INSPECT SPARK IGNITERS 7-8

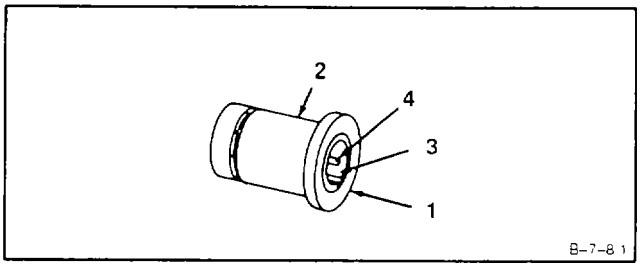
INITIAL SETUP

Applicable Configurations:
All
Tools:
Technical Inspection Tool Kit,
NSN 5180-00-323-5114
Materials:
None
Personnel Required:
Aircraft Powerplant Inspector
Equipment Condition:
Off Engine Task

1. Inspect four spark igniters (1).

a. There shall be no cracks or gouges in shank (2). Chafing allowed to 0.010 inch depth.
b. There shall be no chips or cracks in ceramic surface (3).
c. Pin (4) shall not be bent or broken.

FOLLOW-ON MAINTENANCE:
None



END OF TASK

INITIAL SETUP

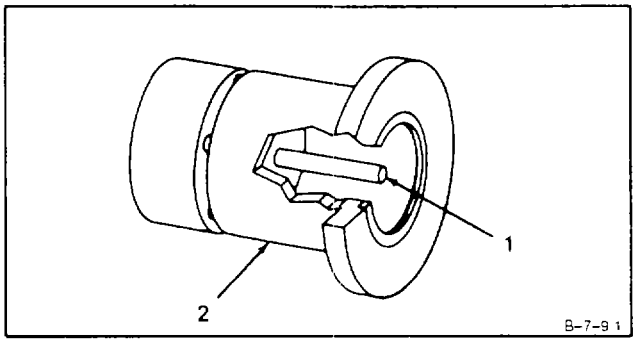
Applicable Configurations:
All
Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Technical Inspection Tool Kit,
NSN 5180-00-323-5114
Goggles
Dry, Compressed Air Source
Materials:
Crocus Cloth (E16)
Personnel Required:
Aircraft Powerplant Repairer
Aircraft Powerplant Inspector
Equipment Condition:
Off Engine Task

NOTE

This repair is allowed provided it does not cause pin to break or crack.

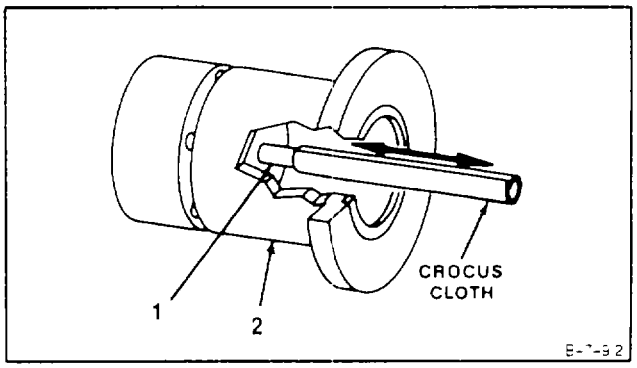
1. **Straighten bent pin (1)** of spark igniter (2). Using long-nose pliers, gently move pin (1) until straight.

2. **Remove corrosion from pin (1)** of spark igniter (2). Polish pin, using in and out motion over entire length of pin until corrosion is removed. Use crocus cloth (E16).



WARNING

When using compressed air for cleaning, use approved protective equipment for eyes and face. Do not use more than 30 psig air pressure. Do not direct air toward yourself or another person. Failure to comply could result in injury to eyes or skin. In case of injury, get medical attention.



3. Wear goggles. **Remove loosened particles from pin (1)**, using clean, dry, compressed air.

INSPECT

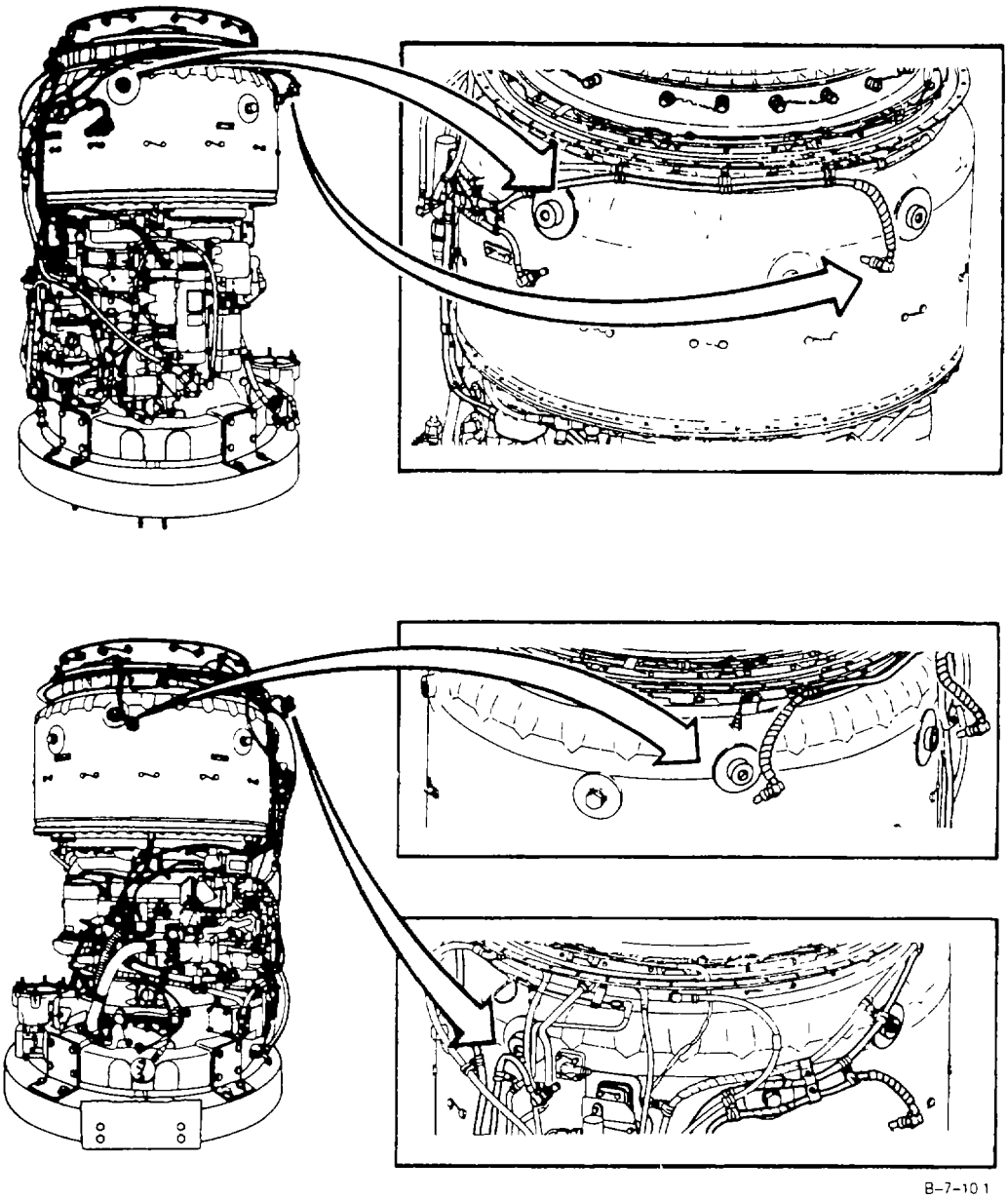
FOLLOW-ON MAINTENANCE:
Clean Spark Igniters (Task 7-7).

END OF TASK

7-10 INSTALL SPARK IGNITERS 7-10

INITIAL SETUP

Applicable Configurations:
All
Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Technical Inspection Tool Kit,
NSN 5180-00-323-5114
Torque Wrench, 30-150 Inch-Pounds
Crowfoot Attachment, 7/8 Inch
Materials:
Anti-Seize Compound (E6)
Lockwire (E33)
Personnel Required:
Aircraft Powerplant Repairer
Aircraft Powerplant Inspector



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NOTE

The procedure for installing four spark igniters at 3-, 6-, 9-, and 12-o'clock positions is the same except for lockwiring. Only the 3-o'clock position is shown for installation.

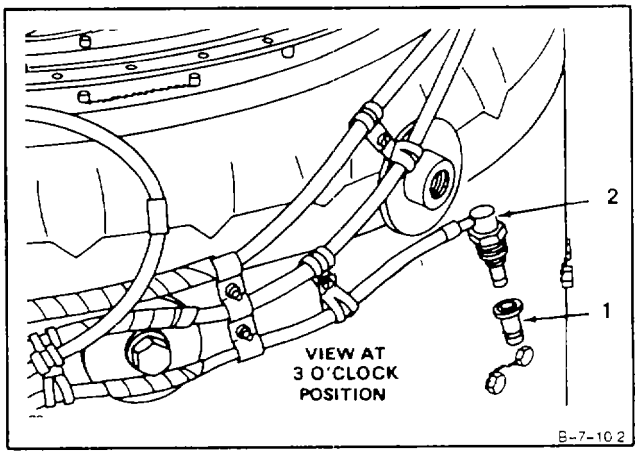
NOTE

Install gently by hand until fully engaged.

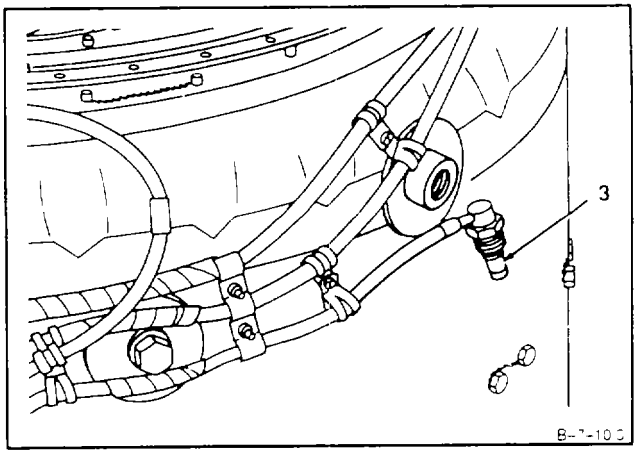
1. Install spark igniter (1) on ignition lead (2).

CAUTION

To prevent shorting of ignition lead, do not allow anti-seize compound to touch electrical contacts and insulators.



2. Apply a light coat of anti-seize compound (E6) to ignition lead threads (3).



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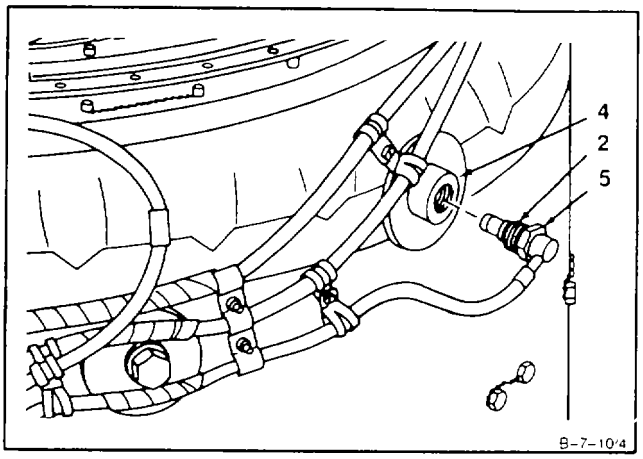
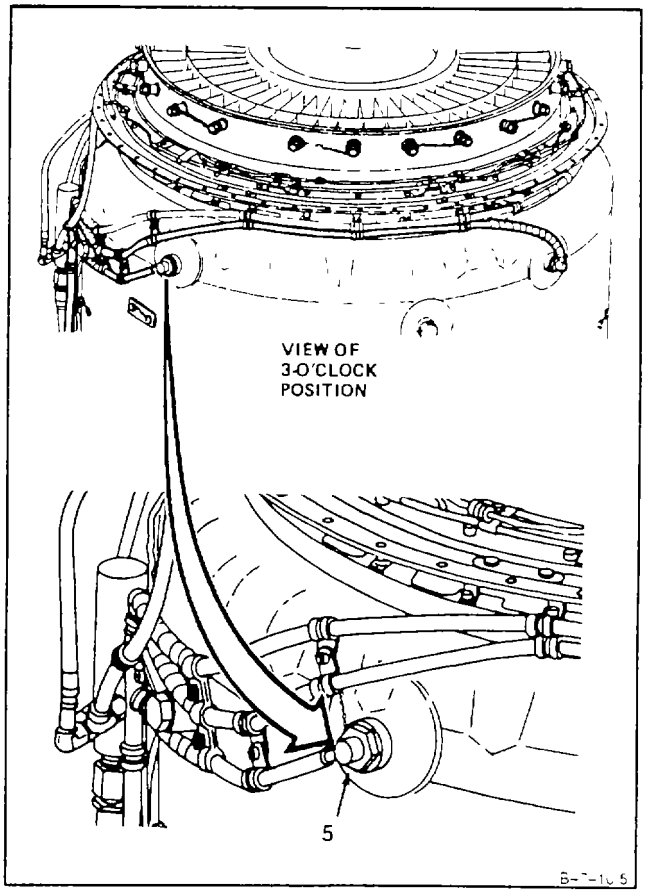
3. **Install ignition lead (2)** in combustor housing (4). Torque ignition lead connector (5) to 135 inch-pounds. Use crowfoot attachment.



4. Lockwire connector (5) at 3-o'clock position. Use lockwire (E33).



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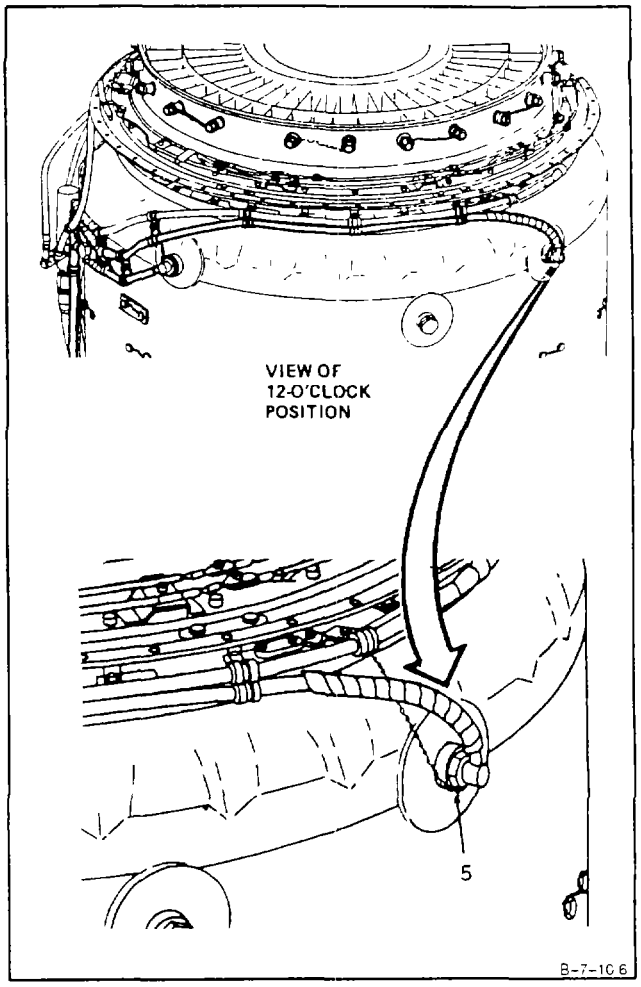
5. Lockwire connector (5) at 12-o'clock position. Use lockwire (E33).



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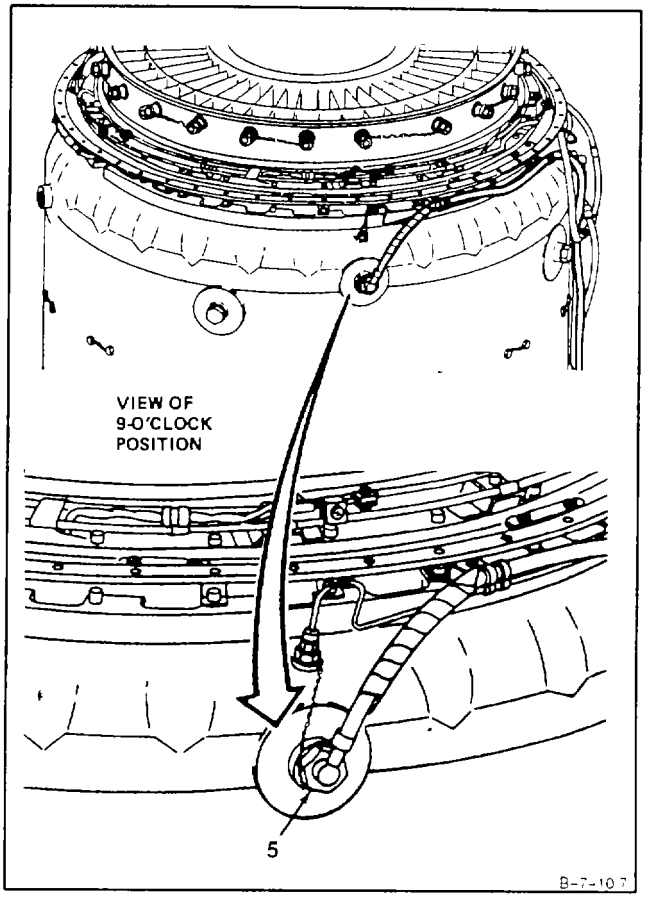
6. Lockwire connector (5) at 9-o'clock position. Use lockwire (E33).



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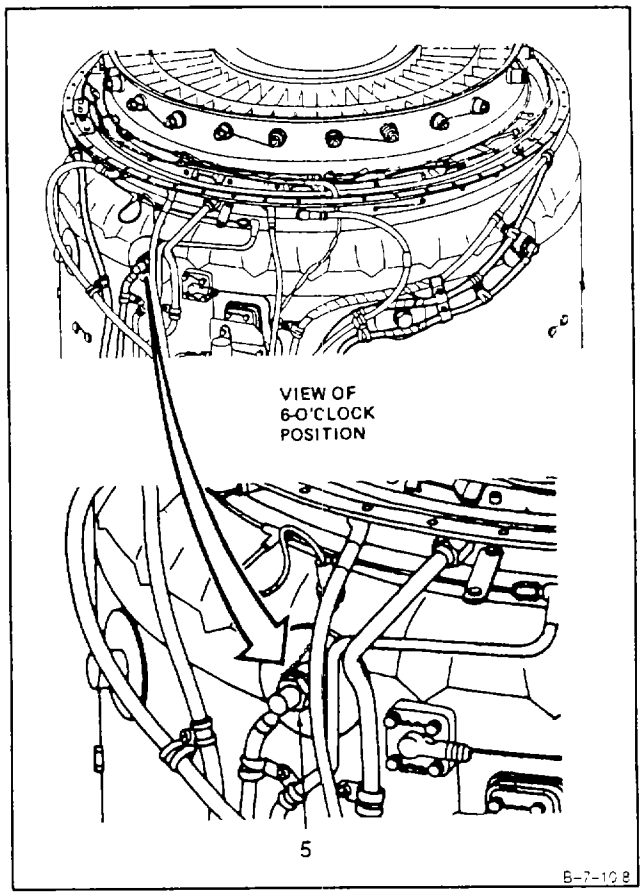
7. Lockwire connector (5) at 6-o'clock position. Use lockwire (E33).



INSPECT

FOLLOW-ON MAINTENANCE:
None

END OF TASK

SECTION III
IGNITION EXCITER

7-11 REMOVE IGNITION EXCITER 7-11

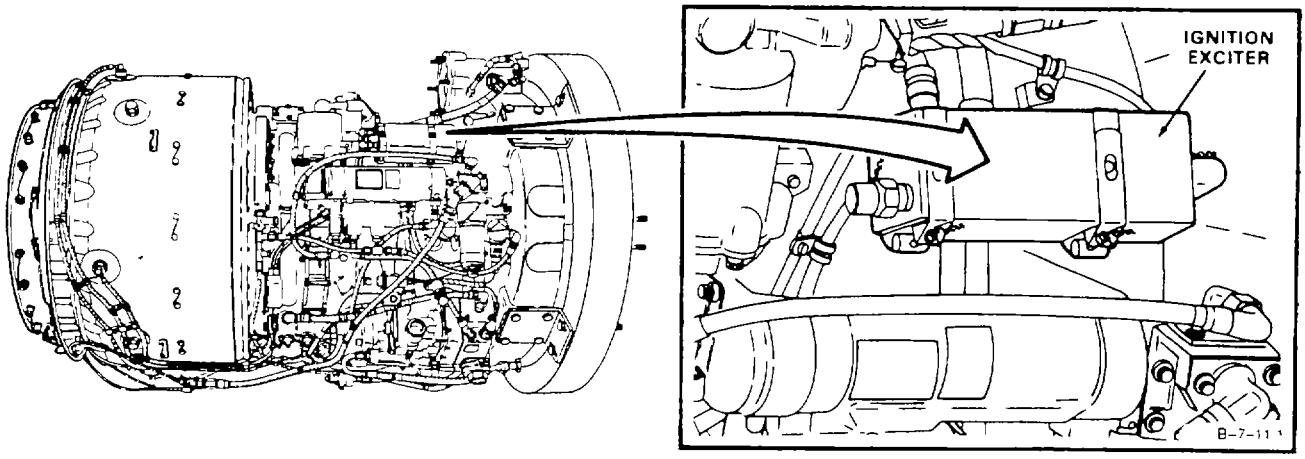
INITIAL SETUP

Applicable Configurations:
All
Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Materials:
None
Personnel Required:
Aircraft Powerplant Repairer

General Safety Instructions:

WARNING

The ignition exciter stores very high and possibly fatal voltage. Use extreme care when working around ignition exciter. Serious injury could result if exciter is accidentally grounded. Do not probe inside of output receptacles with fingers or metal object. Discharge exciter only with insulated screwdriver. In case of shock or injury, get medical attention.



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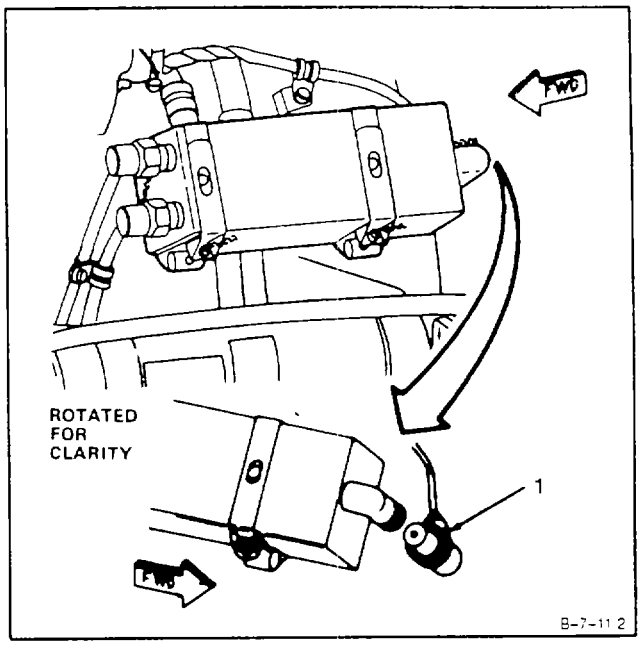
1. Remove lockwire and **disconnect electrical connector (1).**



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WARNING

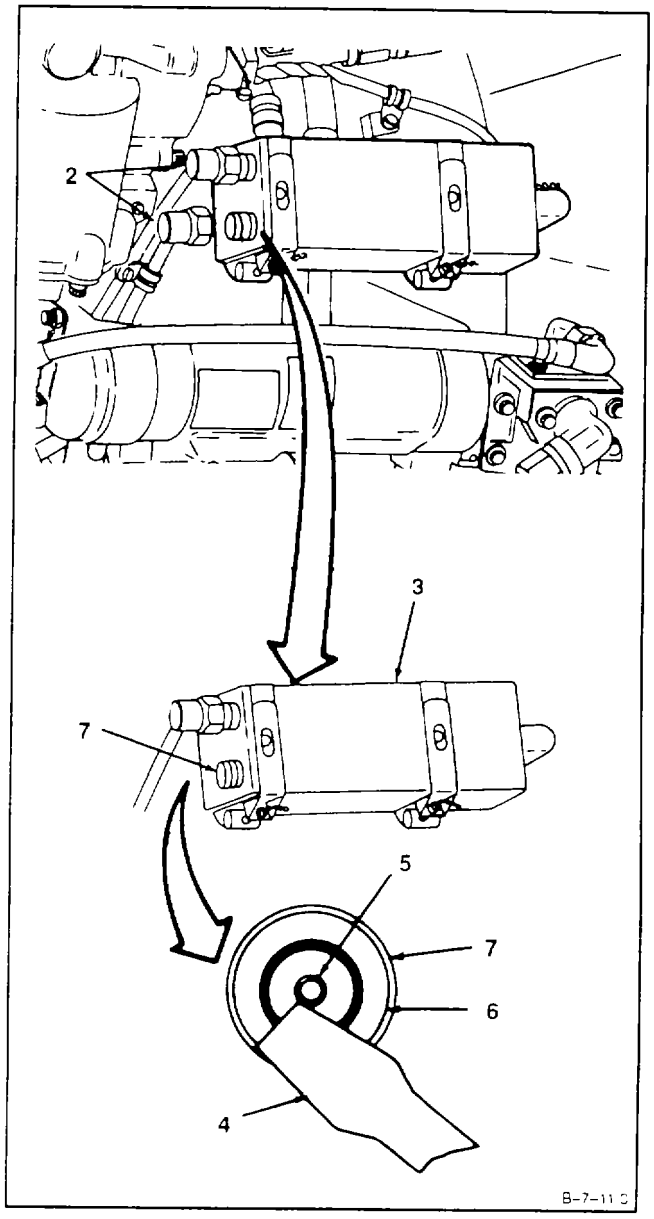
When discharging ignition exciter, remove one lead at a time and discharge receptacle that lead was removed from. Failure to do so may result in serious shock when you are removing second lead. In case of serious shock, get medical attention.

NOTE

Step 2 applies to both output receptacles.

2. Remove lockwire and **disconnect coil and cable assembly leads (2).**

3. **Discharge ignition exciter (3)** by placing tip of insulated screwdriver (4) against pin (5) and edge (6) of receptacle (7).



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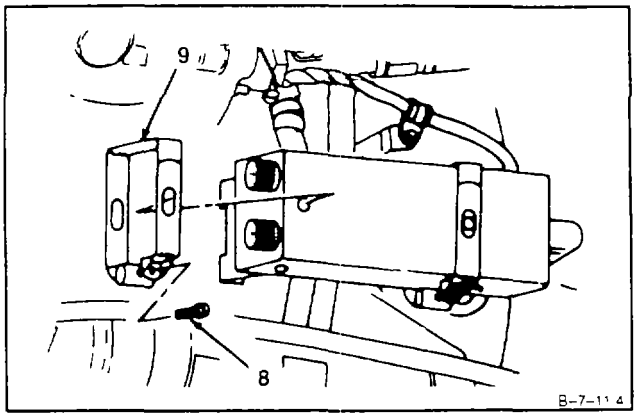
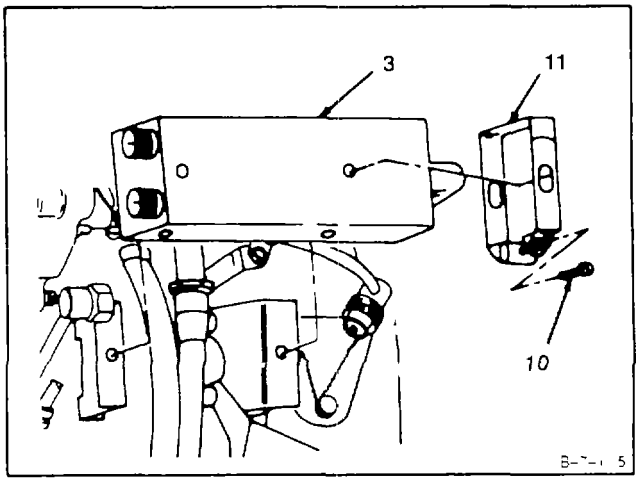
4. **Remove** lockwire, screw (8), and **clamp (9).**



5. **Remove** lockwire, screw (10), clamp (11), and **ignition exciter (3).**



FOLLOW-ON MAINTENANCE:
None

END OF TASK

7-12 CLEAN IGNITION EXCITER 7-12

INITIAL SETUP

Applicable Configurations:
All

Tools:
None

Materials:
Dry Cleaning Solvent (E19)
Gloves (E24)
Lint-Free Cloth (E30)

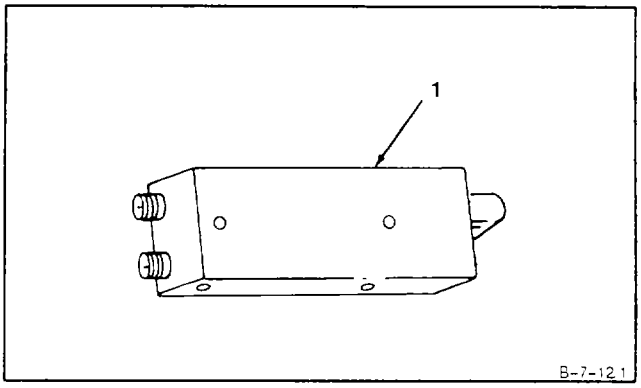
Personnel Required:
Aircraft Powerplant Repairer

Equipment Condition:
Off Engine Task
Ignition Exciter Removed (Task 7-11)

WARNING

Dry cleaning solvent (E19) is flammable and toxic. It can Irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

1. Wear gloves (E24). Clean ignition exciter (1) with clean lint-free cloth (E30) dampened in dry-cleaning solvent (E19).



FOLLOW-ON MAINTENANCE:
Inspect Ignition Exciter (Task 7-13).

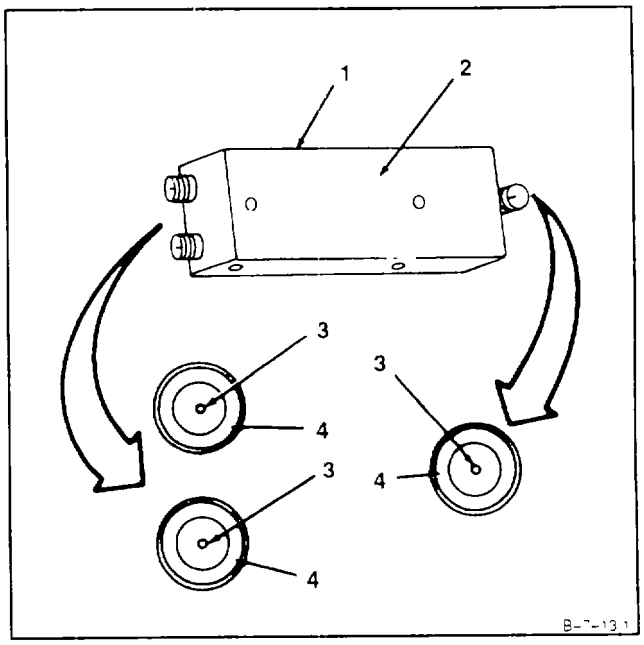
END OF TASK

7-13 INSPECT IGNITION EXCITER 7-13

INITIAL SETUP
Applicable Configurations:
All
Tools:
Technical Inspection Tool Kit,
NSN 5180-00-323-5114
Materials:
None
Personnel Required:
Aircraft Powerplant Inspector

1. **Inspect ignition exciter (1).**
   a. There shall be no cracks or dents in housing (2).
   b. There shall be no bent or broken pins (3).
   c. There shall be no cracks in insulators (4).
   d. There shall be no corrosion.

FOLLOW-ON MAINTENANCE:
None



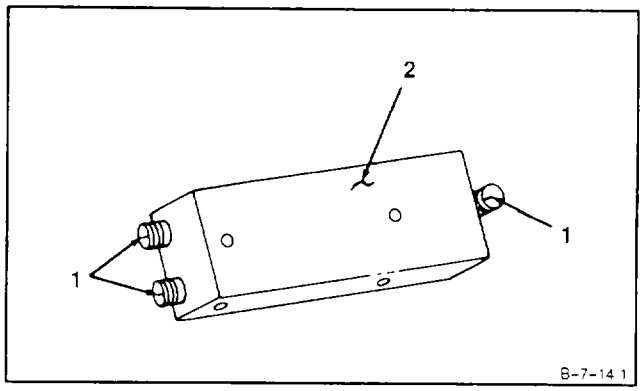
END OF TASK

INITIAL SETUP
Applicable Configurations:
All
Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Technical Inspection Tool Kit,
NSN 5180-00-323-5114
Goggles
Dry, Compressed Air Source
Materials:
Crocus Cloth (E16)
Personnel Required:
Aircraft Powerplant Repairer
Aircraft Powerplant Inspector
Equipment Condition:
Off Engine Task

NOTE

This repair is allowed provided it does not cause pins to break or crack.

1. **Straighten bent pins (1)** of ignition exciter (2). Using long-nose pliers, gently move pins (1) until they are straight.

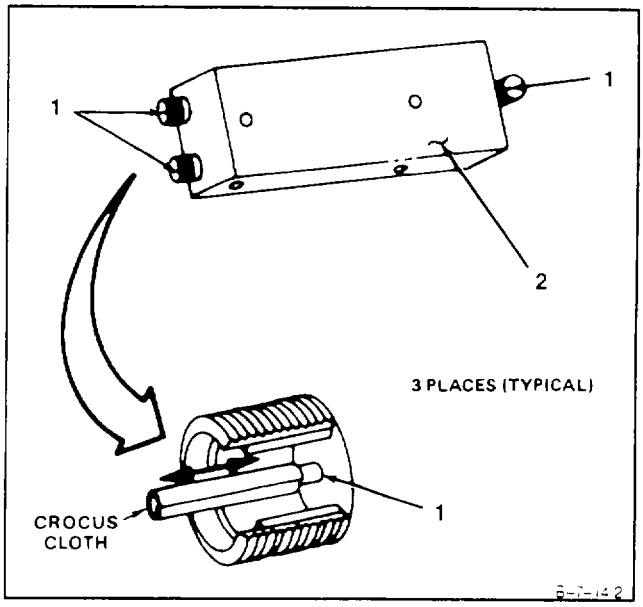


2. **Remove corrosion from pins (1)** of ignition exciter (2). Polish pins, using in and out motion over entire length of pin until corrosion is removed. Use crocus cloth (E16) .

WARNING

When using compressed air for cleaning, use approved protective equipment for eyes and face. Do not use more than 30 psig air pressure. Do not direct air toward yourself or another person. Failure to comply could result in injury to eyes or skin. In case of injury, get medical attention.

3. Wear goggles. **Remove loosened particles from pins (1)** using clean, dry, compressed air.



INSPECT

FOLLOW-ON MAINTENANCE:
None

END OF TASK

7-15 INSTALL IGNITION EXCITER 7-15

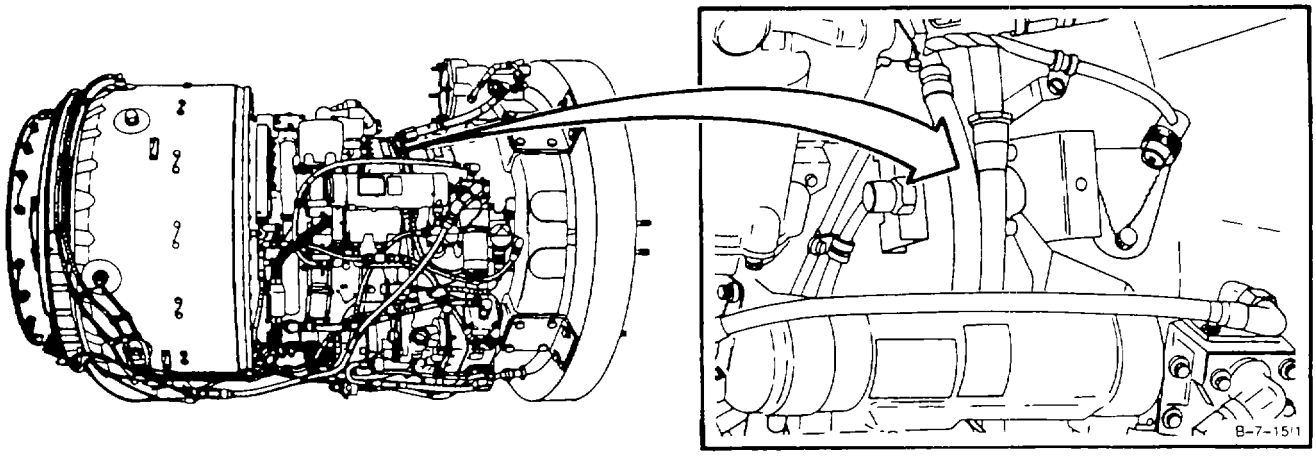
INITIAL SETUP

Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit, NSN 5180-00-323-4944
Technical Inspection Tool Kit, NSN 5180-00-323-5114

Materials:
Lockwire (E33)

Personnel Required:
Aircraft Powerplant Repairer
Aircraft Powerplant Inspector



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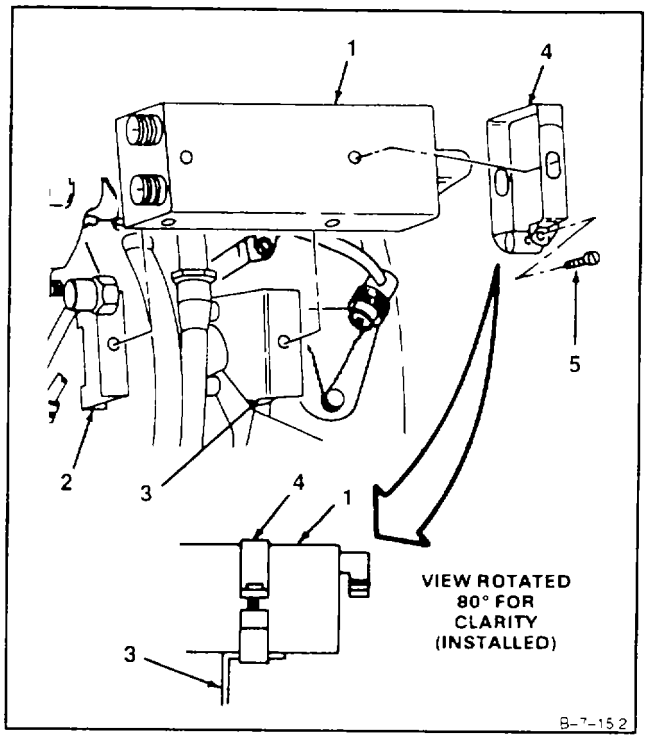
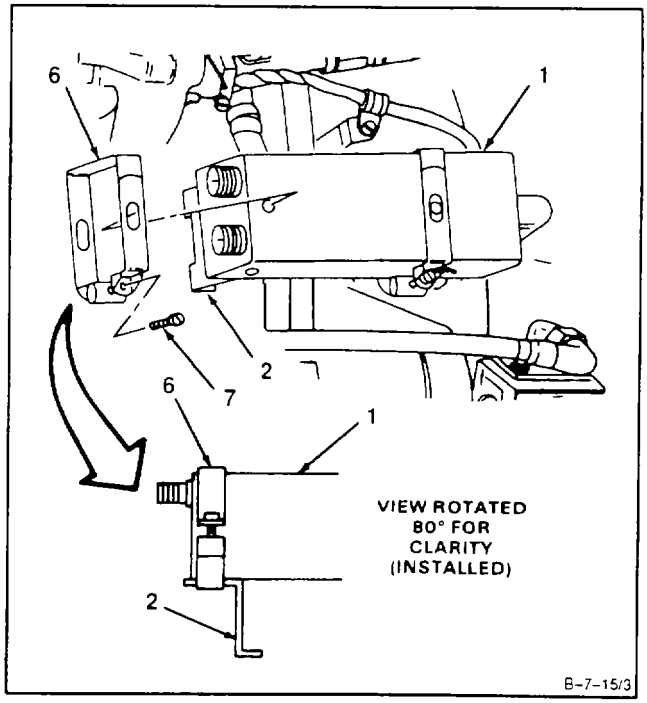
1. **Install ignition exciter (1)** on brackets (2 and 3).

a. Loosely install clamp (4) and screw (5) on ignition exciter (1) and bracket (3).



b. Loosely install clamp (6) and screw (7) on ignition exciter (1) and bracket (2).



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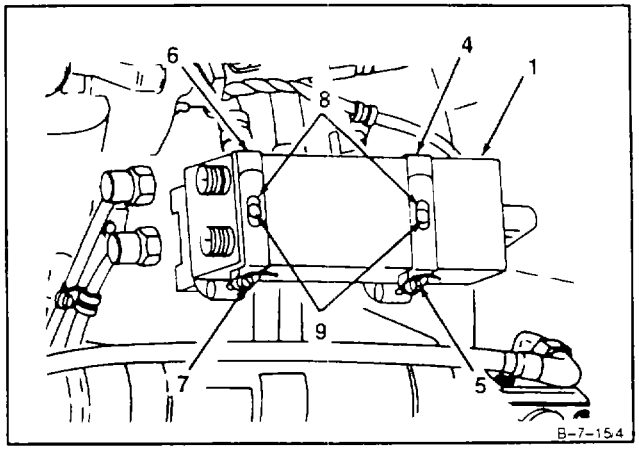
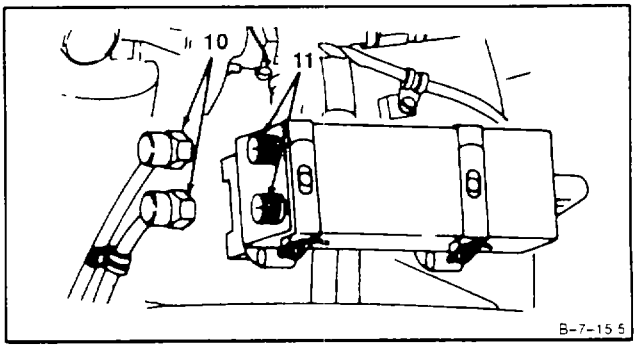
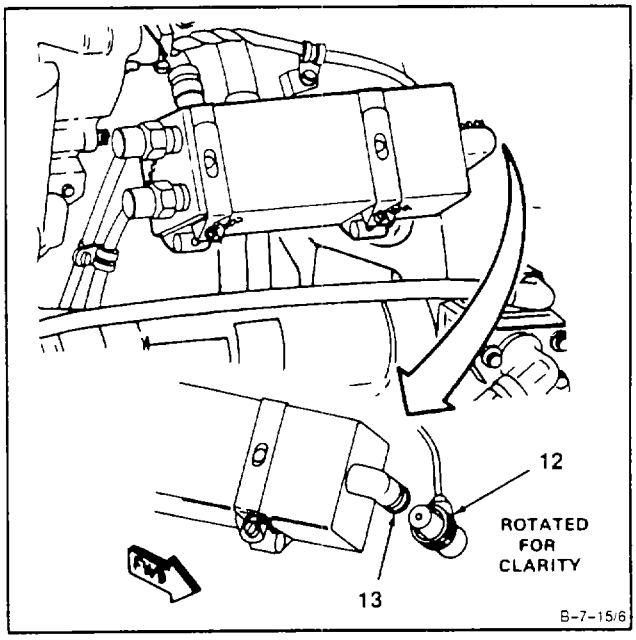
c. Align slots (8) in clamps (4 and 6) with locating lugs (9) on ignition exciter (1). Tighten screws (5 and 7) and lockwire. Use lockwire (E33).



2. **Connect two coil and cable assembly leads (10)** to ignition exciter output receptacles (11). Lockwire leads. Use lockwire (E33).



3. **Connect electrical connector (12)** to input receptacle (13). Lockwire electrical connector (12). Use lockwire (E33).



INSPECT

FOLLOW-ON MAINTENANCE:
None

END OF TASK

SECTION IV
PRIMARY ELECTRICAL HARNESS ASSEMBLY

7-16 REMOVE PRIMARY ELECTRICAL HARNESS ASSEMBLY 7-16

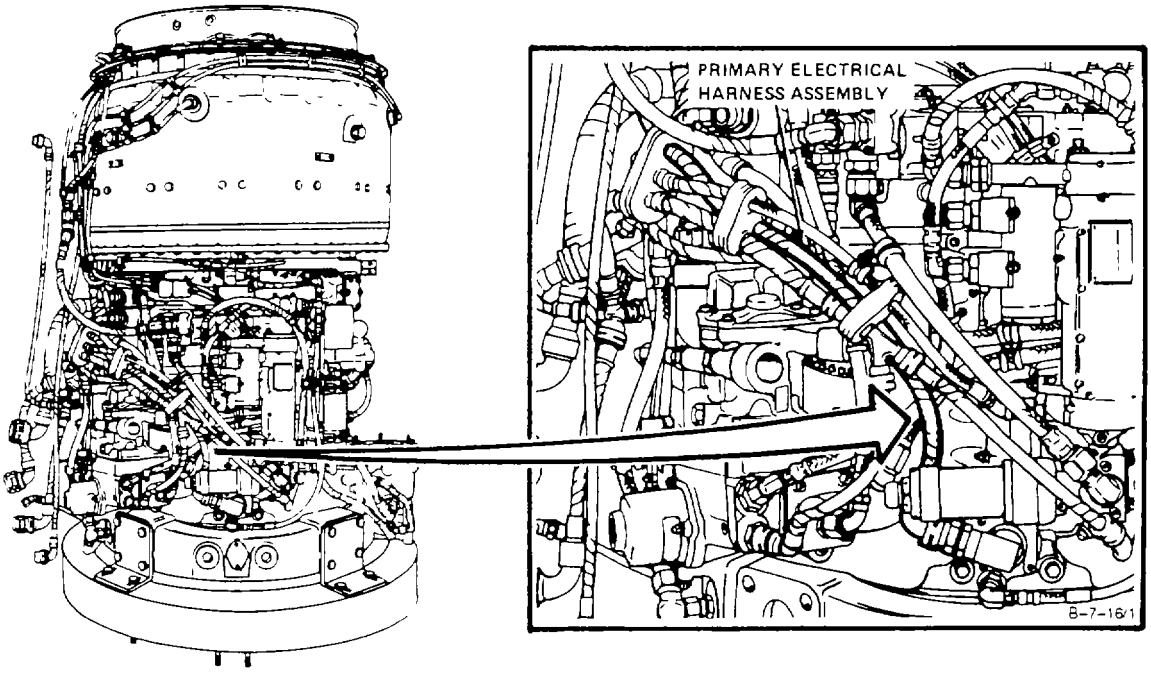
INITIAL SETUP

Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit
NSN 5180-00-323-4944

Materials:
None

Personnel Required:
Aircraft Powerplant Repairer



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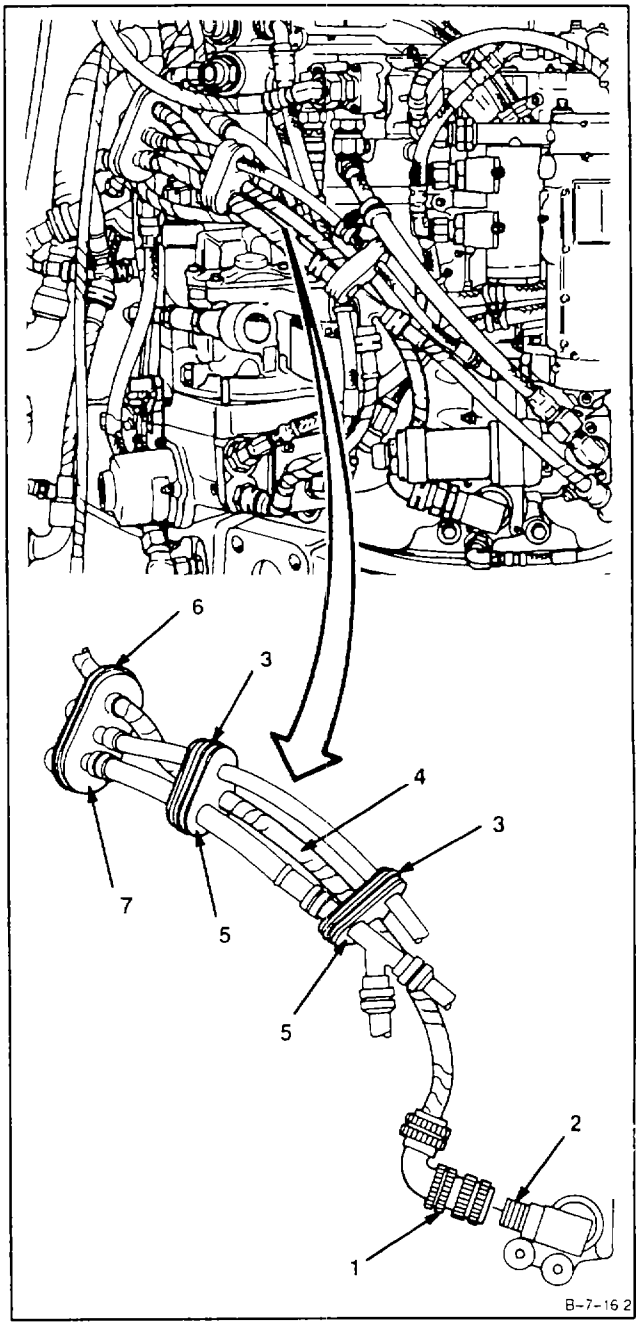
1. **Disconnect electrical connector (1)** from torque sensor (2).
2. Cut two straps (3) and **remove harness (4)** from two cushions (5).
3. Cut strap (6) and **remove harness** from cushion (7).



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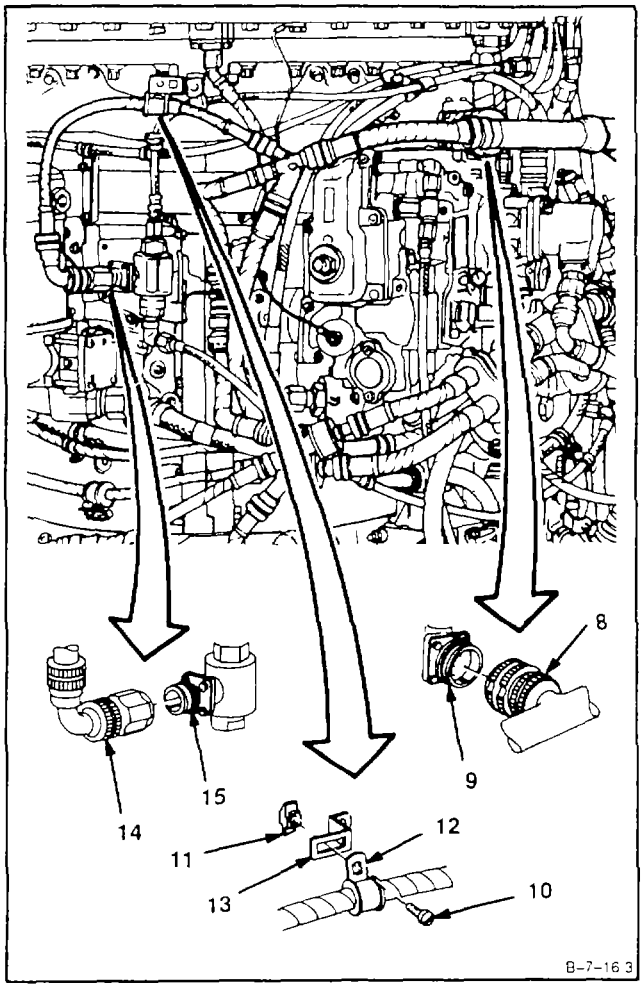
4. **Disconnect electrical connector (8)** from hydromechanical assembly (9).

5. **Remove** screw (10), nut (11), and **clamp (12)** from bracket (13).

6. **Disconnect electrical connector (14)** from starting fuel solenoid valve (15).



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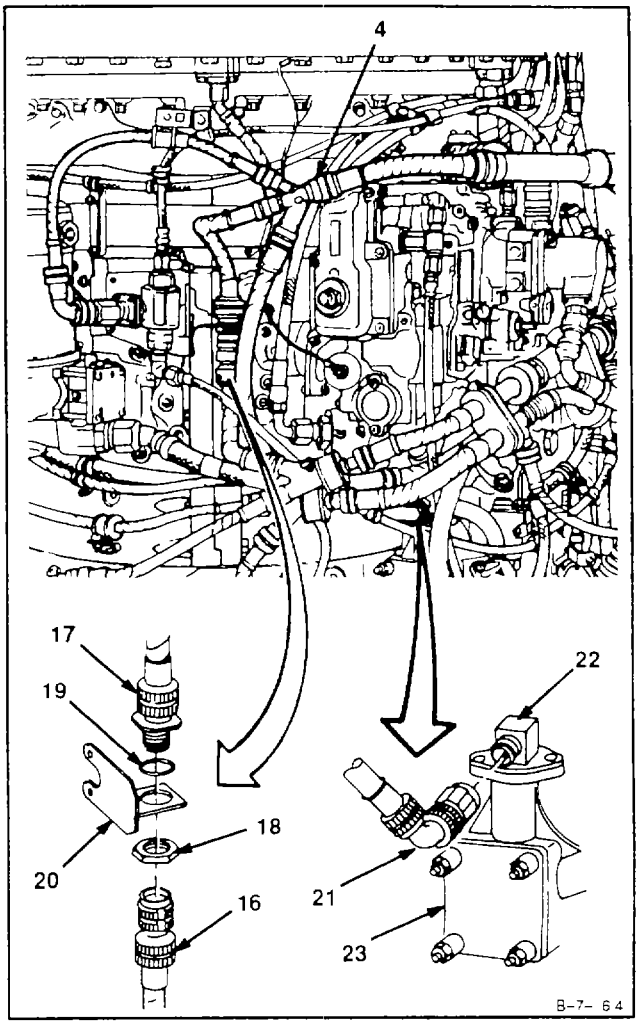
7. **Disconnect electrical connector (16)** from electrical connector (17).

8. Cut lockwire, **remove** nut (18), packing (19), and connector (17) from bracket (20).

9. **Disconnect electrical connector (21)** from speed pickup (22) on accessory gearbox assembly (23). Remove primary electrical harness assembly (4).



FOLLOW-ON MAINTENANCE:
None

END OF TASK

7-17 CLEAN PRIMARY ELECTRICAL HARNESS ASSEMBLY 7-17

INITIAL SETUP

Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Goggles
Dry, Compressed Air Source

Materials:
Gloves (E24)
Lint-Free Cloth (E30)
Denatured Alcohol (E17)

Personnel Required:
Aircraft Powerplant Repairer

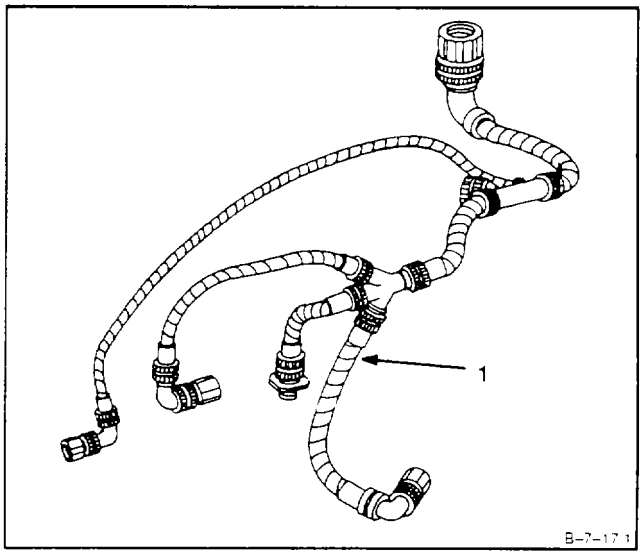
Equipment Condition:
Off Engine Task
Primary Electrical Harness Assembly Removed (Task 7-16)

General Safety Instructions:

WARNING

Denatured alcohol (E17) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

1. Wear gloves (E24). **Clean primary electrical harness assembly (1).** Use lint-free cloth (E30) dampened with denatured alcohol (E17). Wipe dry using clean, dry, lint-free cloth (E30).



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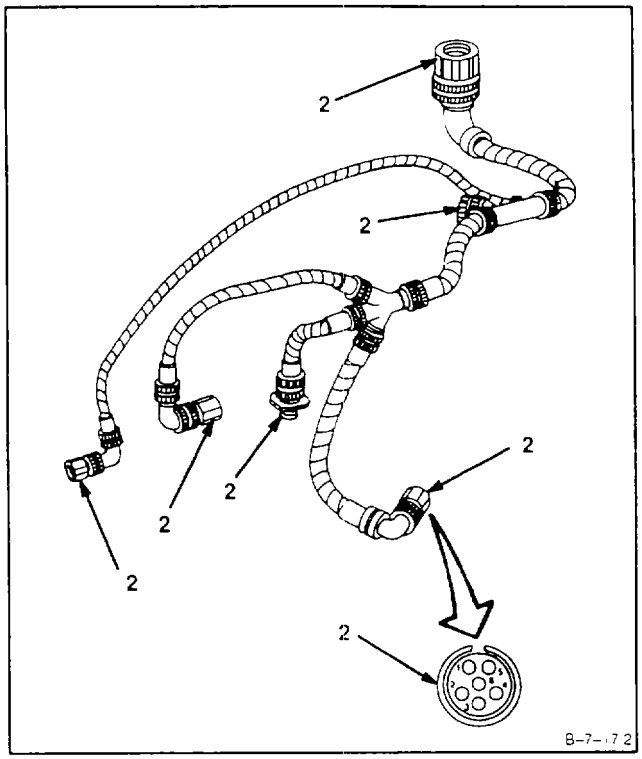
2. **Clean six electrical connectors (2).** Use denatured alcohol (E17) and brush.

WARNING

When using compressed air for cleaning, use approved protective equipment for eyes and face. Do not use more than 30 psig air pressure. Do not direct air toward yourself or another person. Failure to comply could result in injury to eyes or skin. In case of injury, get medical attention.

3. Wear goggles. **Blow dry electrical connectors (2).** Use clean, dry, compressed air.

FOLLOW-ON MAINTENANCE:
Inspect Primary Electrical Harness Assembly (Task 7-18).



END OF TASK

INITIAL SETUP

Applicable Configurations:
All

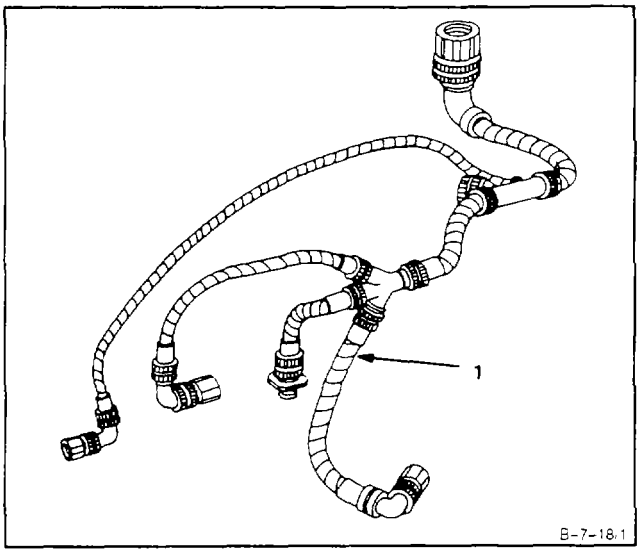
Tools:
Technical Inspection Tool Kit,
NSN 5180-00-323-5114

Materials:
None

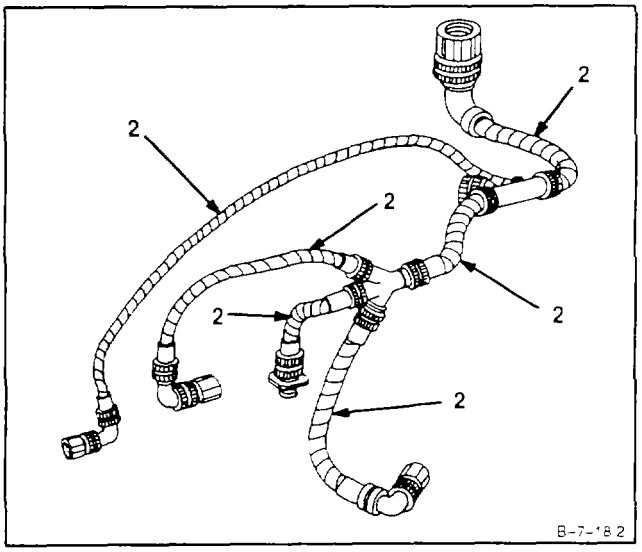
Personnel Required:
Aircraft Powerplant Inspector

Equipment Condition:
Off Engine Task

1. **Inspect primary electrical harness assembly** (1). There shall be no frayed or burned insulation. There shall be no loose connections or broken wires.



2. **Inspect sleeving (2).** There shall be no frayed or broken sleeving.



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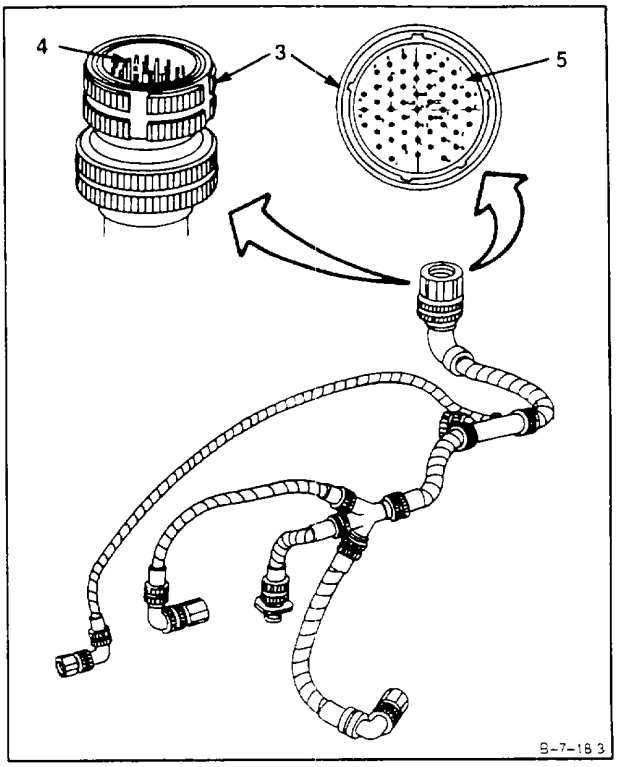
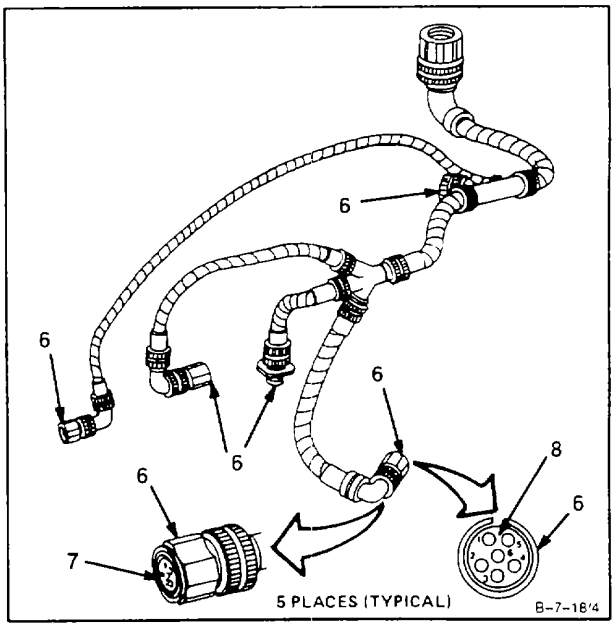
3. **Inspect electrical connector (3).** There shall be no corrosion, broken or bent pins (4), or cracked insulation (5).



4. **Inspect five electrical connectors (6)**. There shall be no corrosion, broken or bent sleeves (7) or cracked insulation (8).



FOLLOW-ON MAINTENANCE:
None

END OF TASK

7-19 REPAIR PRIMARY ELECTRICAL HARNESS ASSEMBLY 7-19

INITIAL SETUP
Applicable Configurations:
All
Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Technical Inspection Tool Kit
NSN 5180-00-323-5114
Hand File Set
Materials:
Crocus Cloth (El 6)
Personnel Required:
Aircraft Powerplant Repairer
Aircraft Powerplant Inspector
Equipment Condition:
Off Engine Task

NOTE
This repair is allowed provided it does not cause pin to break or crack.

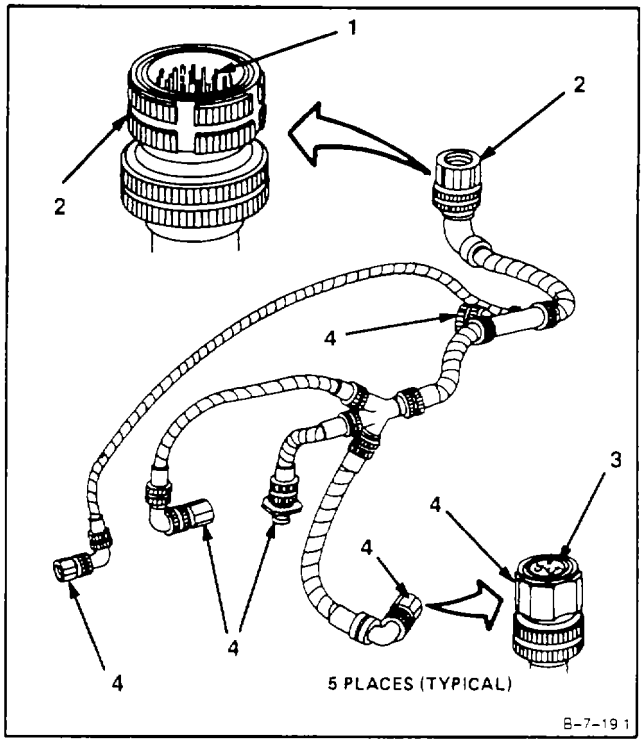
1. **Straighten bent pin (1)** of electrical connector (2). Use long nose pliers to gently move pin (1) until it is straight.

2. **Remove corrosion from pin (1)** of electrical connector (2). Use crocus cloth (E16).

3. **Remove corrosion from sleeve (3)** of electrical connectors (4). Use round hand file.

INSPECT

FOLLOW-ON MAINTENANCE:
None



END OF TASK

7-20 TEST PRIMARY ELECTRICAL HARNESS ASSEMBLY 7-20

INITIAL SETUP

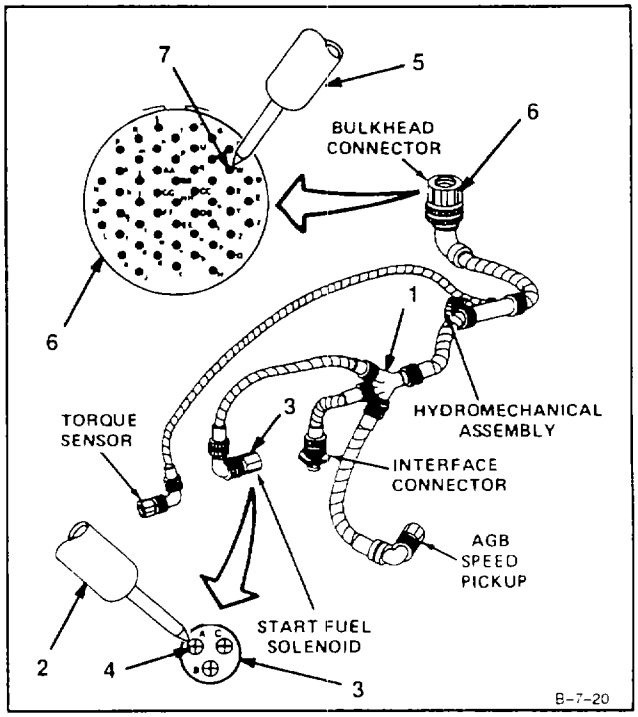
Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Multimeter

Materials:
None

Personnel Required:
Aircraft Powerplant Repairer

1. Using multimeter, **measure continuity and insulation resistance of electrical harness assembly (1)** as follows:
   a. Set multimeter range switch to R x 1.
   b. Touch red probe (2) to electrical connector (3), sleeve A (4).
   c. Touch black probe (5) to electrical connector (6), pin W (7).
   d. Meter shall indicate **zero ohms.**
   e. Set multimeter range switch to R x 1000.
   f. Touch black probe (5) to all other pins on electrical connector (6).
   g. Meter shall indicate **1000 ohms** minimum.



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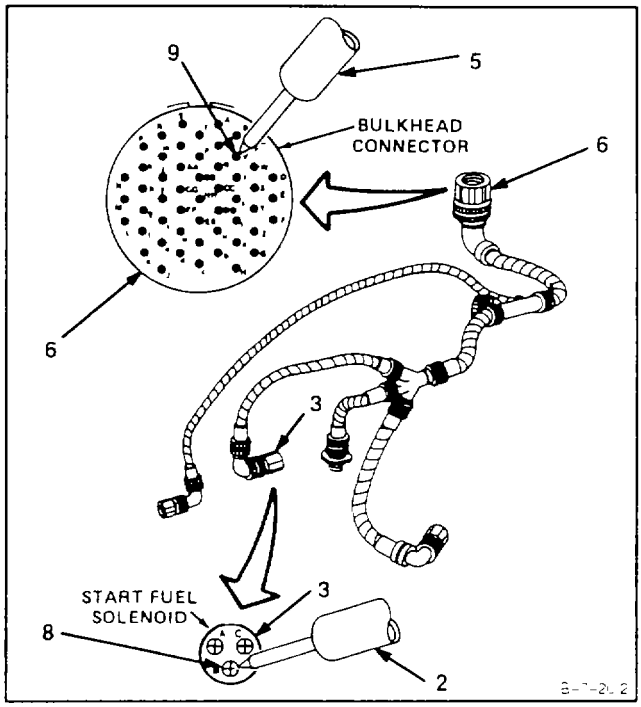
h. Set multimeter range switch to R x 1.

i. Touch red probe (2) to electrical connector (3), sleeve B (8).

j. Touch black probe (5) to electrical connector (6), pin V (9).

k. Meter shall indicate **zero ohms**.



l. Set multimeter range switch to R x 1.

m. Touch red probe (2) to electrical connector (10), sleeve 1 (11).

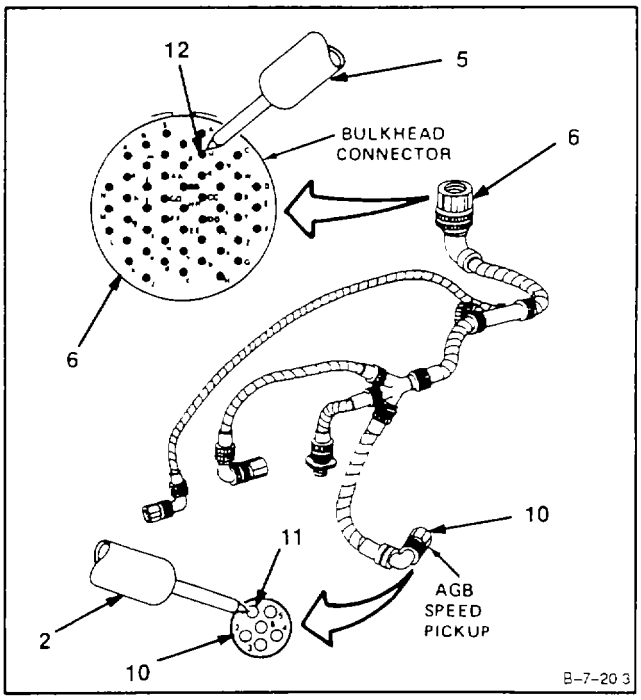
n. Touch black probe (5) to electrical connector (6), pin U (12).

o. Meter shall indicate **zero ohms**.

p. Set multimeter range switch to R x 1000.

q. Touch black probe (5) to all other pins on electrical connector (6).

r. Meter shall indicate **1000 ohms** minimum.



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s. Set multimeter range switch to R x 1.

t. Touch red probe (2) to electrical connector (10), sleeve 2 (13).

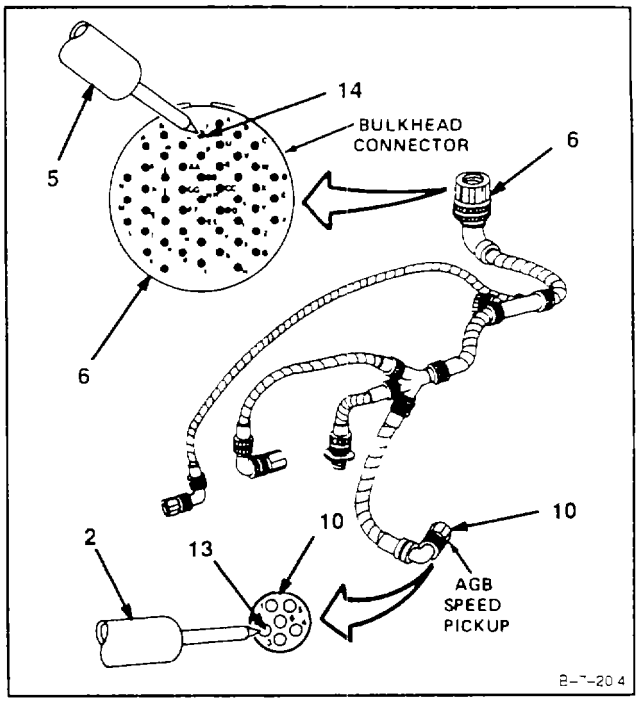
u. Touch black probe (5) to electrical connector (6), pin T (14).

v. Meter shall indicate **zero ohms**.

w. Set multimeter range switch to R x 1000.

x. Touch black probe (5) to all other pins on electrical connector (6).

y. Meter shall indicate **1000 ohms** minimum.



z. Set multimeter range switch to R x 1.

aa. Touch red probe (2) to electrical connector (10), sleeve 3 (15).

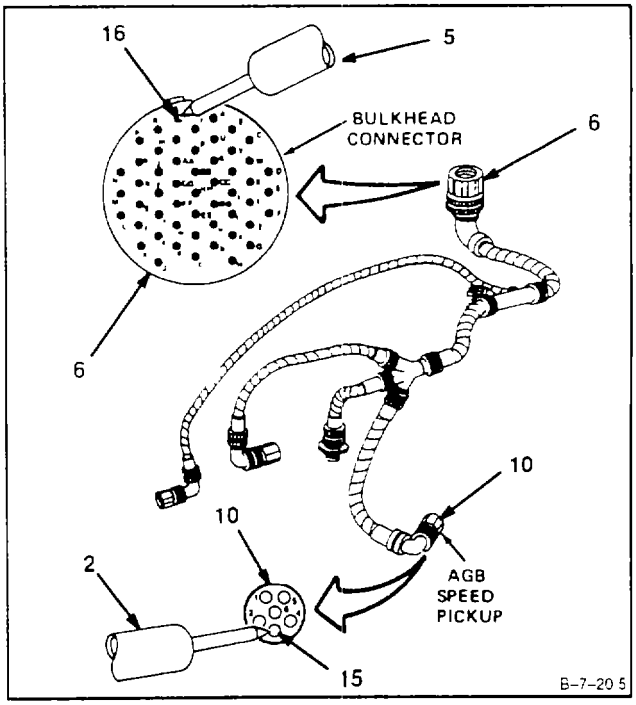
ab. Touch black probe (5) to electrical connector (6), pin S (16).

ac. Meter shall indicate **zero ohms.**

ad. Set multimeter range switch to R x 1000.

ae. Touch black probe (5) to all other pins on electrical connector (6).

af. Meter shall indicate **1000 ohms** minimum.



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ag. Set multimeter range switch to R x 1.

ah. Touch red probe (2) to electrical connector (10), sleeve 4 (17).

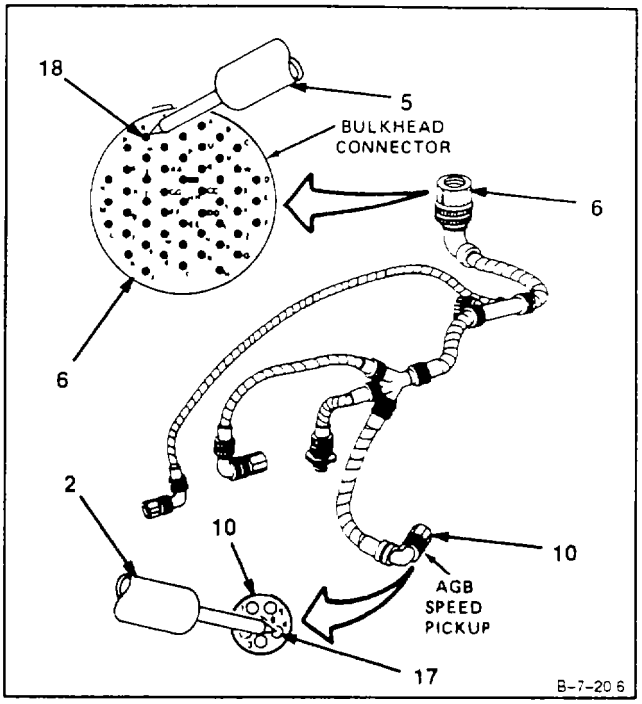
ai. Touch black probe (5) to electrical connector (6), pin R (18).

aj. Meter shall indicate **zero ohms.**

ak. Set multimeter range switch to R x 1000.

al. Touch black probe (5) to all other pins on electrical connector (6).

am. Meter shall indicate **1000 ohms** minimum.



an. Set multimeter range switch to R x 1.

ao. Touch red probe (2) to electrical connector (19), sleeve A (20).

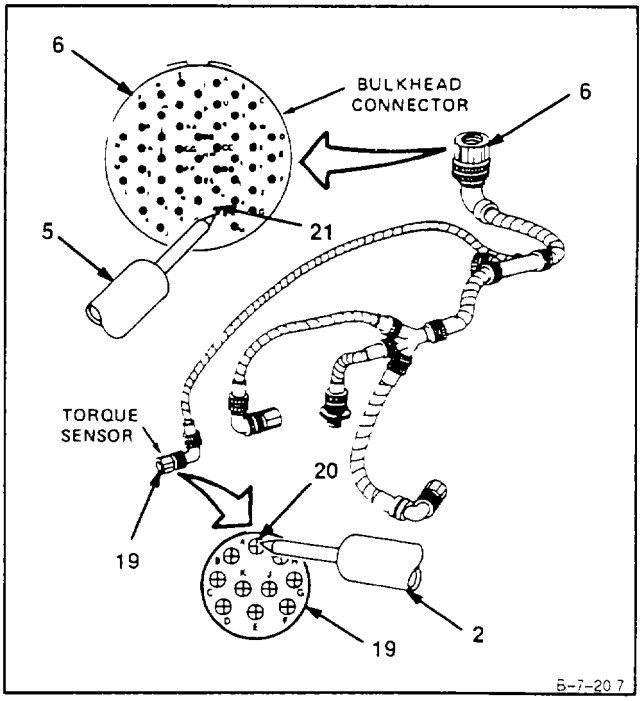
ap. Touch black probe (5) to electrical connector (6), pin b (21).

aq. Meter shall indicate **zero ohms**.

ar. Set multimeter range switch to R x 1000.

as. Touch black probe (5) to all other pins on electrical connector (6).

at. Meter shall indicate **1000 ohms** minimum.



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au. Touch red probe (2) to electrical connector (19), sleeve B (22).

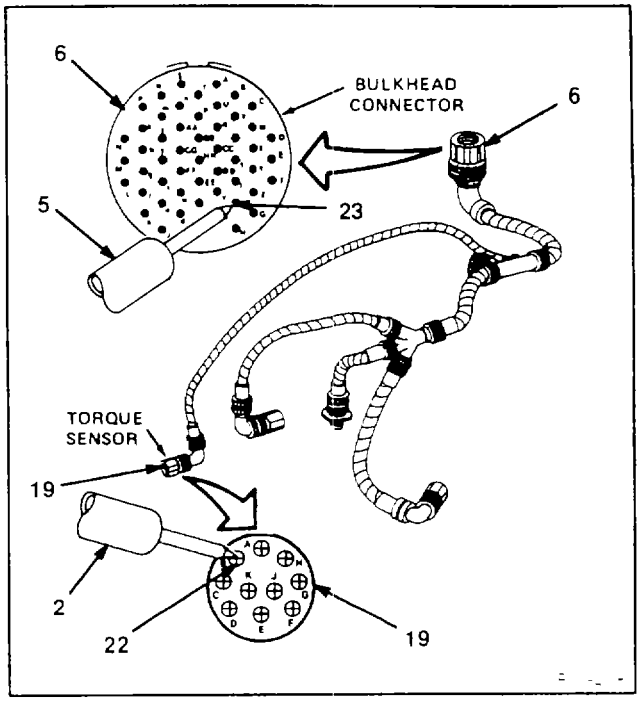
av. Touch black probe (5) to electrical connector (6), pin a (23).

aw. Meter shall indicate **zero ohms**.

ax. Set multimeter range switch to R x 1000.

ay. Touch black probe (5) to all other pins on electrical connector (6).

az. Meter shall indicate **1000 ohms** minimum.



ba. Set multimeter range switch to R x 1.

bb. Touch red probe (2) to electrical connector (19), sleeve C (24).

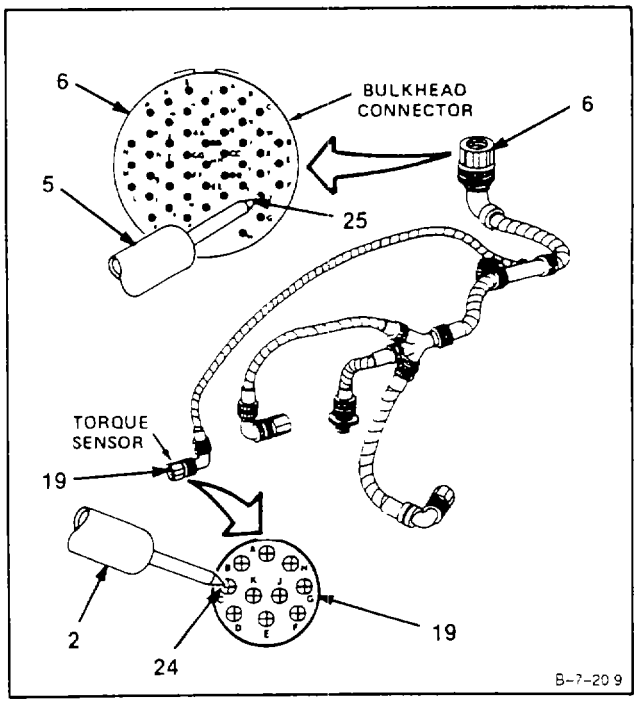
bc. Touch black probe (5) to electrical connector (6), pin z (25).

bd. Meter shall indicate **zero ohms.**

be. Set multimeter range switch to R x 1000.

bf. Touch black probe (5) to all other pins on electrical connector (6).

bg. Meter shall indicate **1000 ohms** minimum.



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bh. Touch red probe (2) to electrical connector (19), sleeve D (26).

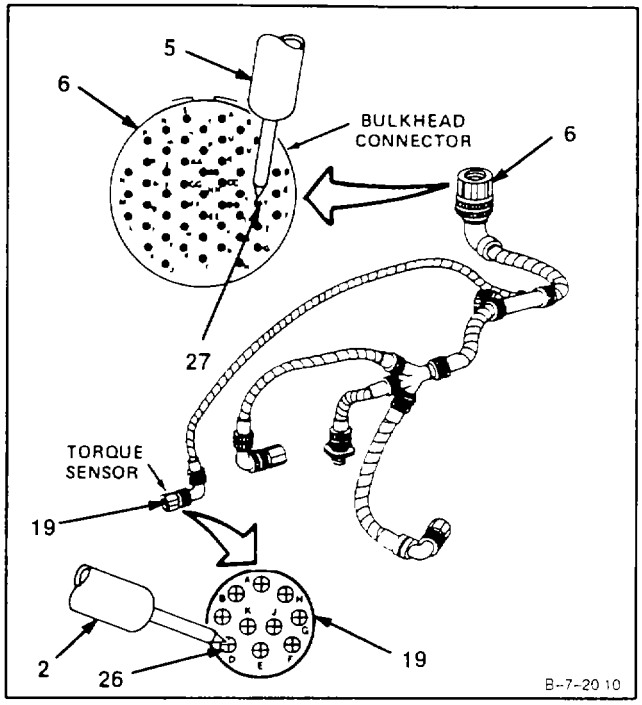
bi. Touch black probe (5) to electrical connector (6), pin y (27).

bj. Meter shall indicate **zero ohms**.

bk. Set multimeter range switch to R x 1000.

bl. Touch black probe (5) to all other pins on electrical connector (6).

bm. Meter shall indicate **1000 ohms** minimum.



bn. Set multimeter range switch to R x 1.

bo. Touch red probe (2) to electrical connector (19), sleeve E (28).

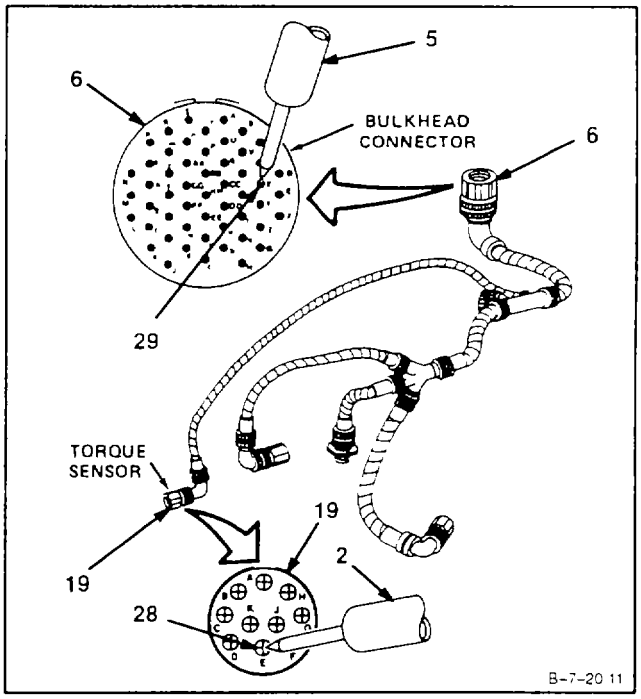
bp. Touch black probe (5) to electrical connector (6), pin x (29).

bq. Meter shall indicate **zero ohms**.

br. Set multimeter range switch to R x 1000.

bs. Touch black probe (5) to all other pins on electrical connector (6).

bt. Meter shall indicate **1000 ohms** minimum.



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bu. Set multimeter range switch to R x 1.

bv. Touch red probe (2) to electrical connector (3U), sleeve S (31).

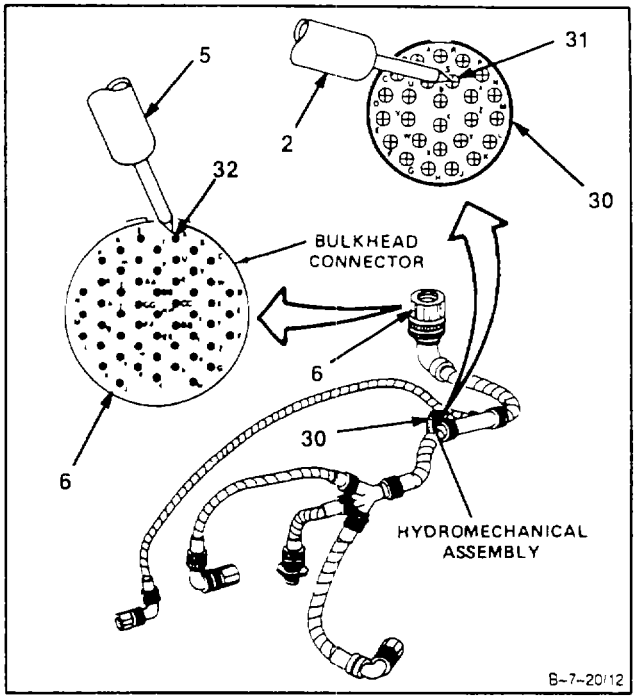
bw. Touch black probe (5) to electrical connector (6), pin A (32).

bx. Meter shall indicate **zero ohms**.

by. Set multimeter range switch to R x 1000.

bz. Touch black probe (5) to all other pins on electrical connector (6).

ca. Meter shall indicate **1000 ohms** minimum.



cb. Set multimeter range switch to R x 1.

cc. Touch red probe (2) to electrical connector (30), sleeve R (33).

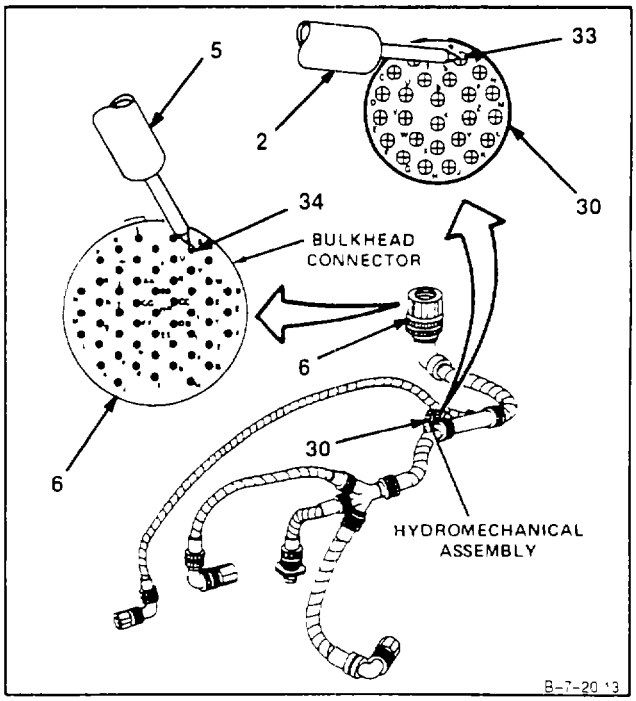
cd. Touch black probe (5) to electrical connector (6), pin B (34).

ce. Meter shall indicate **zero ohms**.

cf. Set multimeter range switch to R :x 1000.

cg. Touch black probe (5) to all other pins on electrical connector (6).

ch. Meter shall indicate **1000 ohms** minimum.



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ci. Set multimeter range switch to R x 1.

cj. Touch red probe (2) to electrical connector (30), sleeve F (35).

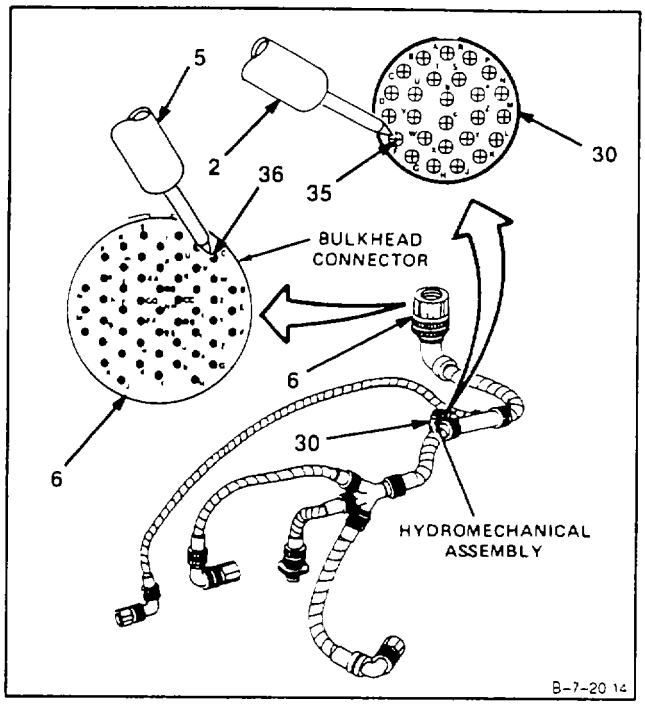
ck. Touch black probe (5) to electrical connector (6), pin C (36).

cl. Meter shall indicate **zero ohms**.

cm. Set multimeter range switch to R x 1000.

cn. Touch black probe (5) to all other pins on electrical connector (6).

co. Meter shall indicate **1000 ohms** minimum.



cp. Set multimeter range switch to R x 1.

cq. Touch red probe (2) to electrical connector (30), sleeve E (37).

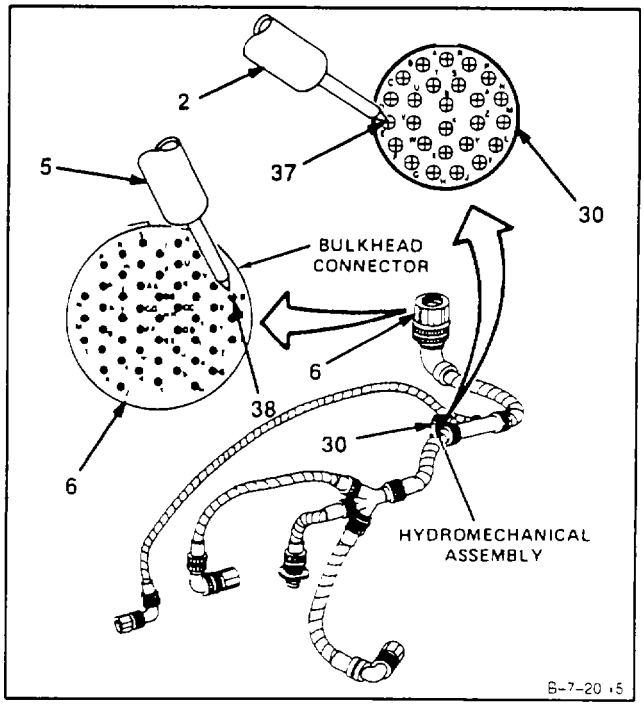
cr. Touch black probe (5) to electrical connector (6), pin D (38).

cs. Meter shall indicate **zero ohms**.

ct. Set multimeter range switch to R x 1000.

cu. Touch black probe (5) to all other pins on electrical connector (6).

cv. Meter shall indicate **1000 ohms** minimum.



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cw. Set multimeter range switch to R x 1.

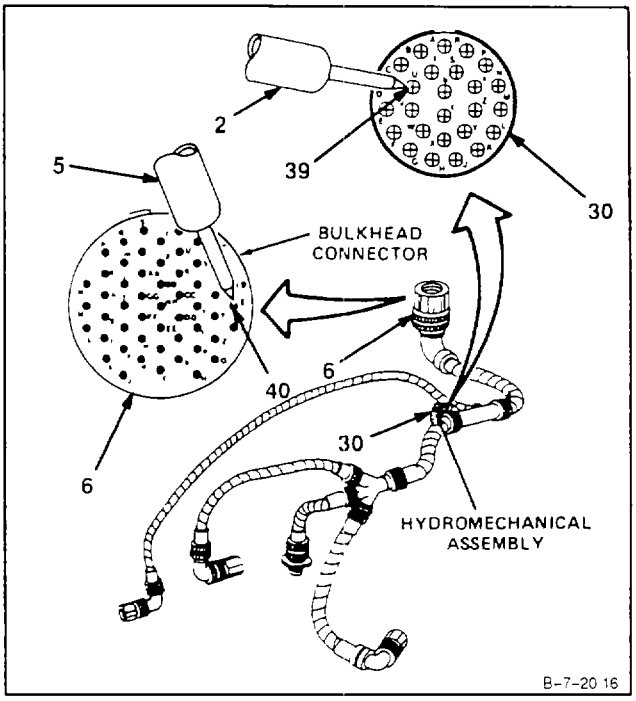
cx. Touch red probe (2) to electrical connector (30), sleeve U (39).

cy. Touch black probe (5) to electrical connector (6), pin E (40).

cz. Meter shall indicate **zero ohms.**

da. Set multimeter range switch to R x 1000.

db. Touch black probe (5) to all other pins on electrical connector (6).



dc. Meter shall indicate 1000 ohms minimum.

dd. Set multimeter range switch to R x 1.

de. Touch red probe (2) to electrical connector (30), sleeve V (41).

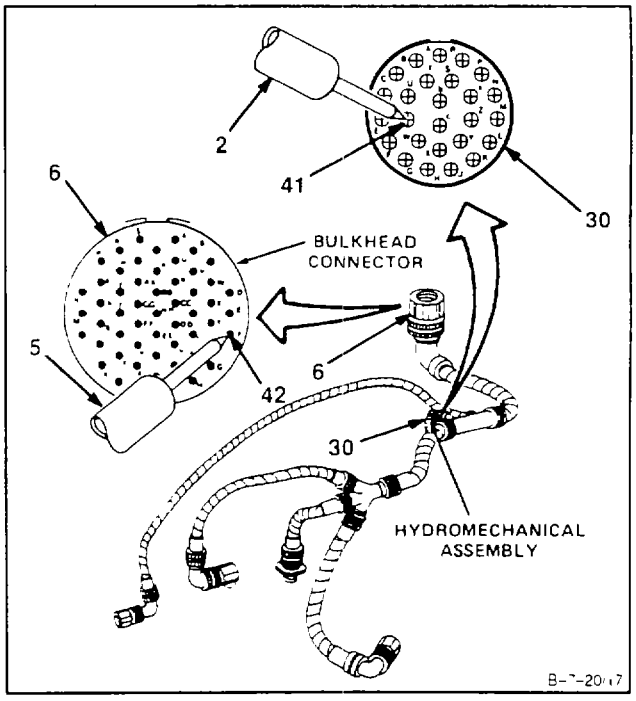
df. Touch black probe (5) to electrical connector (6), pin F (42).

dg. Meter shall indicate **zero ohms.**

dh. Set multimeter range switch to R x 1000.

di. Touch black probe (5) to all other pins on electrical connector (6).

dj. Meter shall indicate **1000 ohms** minimum.



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dk. Set multimeter range switch to R x 1.

dl. Touch red probe (2) to electrical connector (30), sleeve T (43).

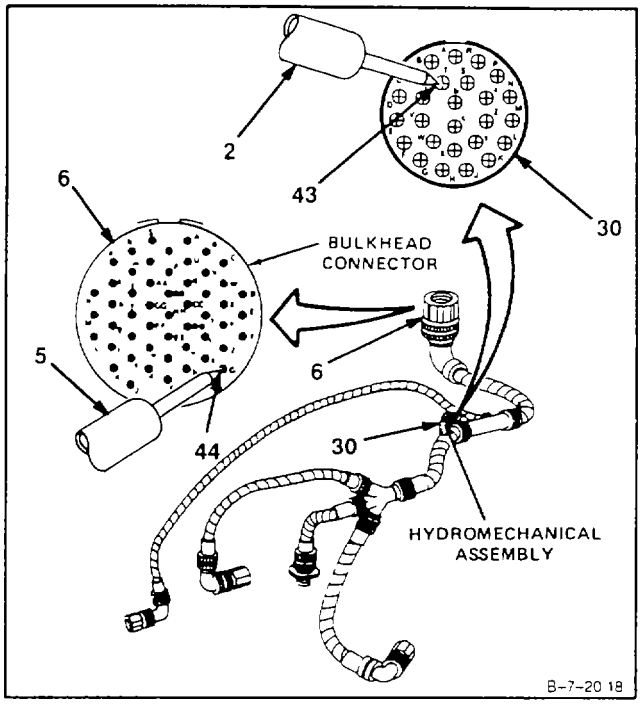
dm. Touch black probe (5) to electrical connector (6), pin G (44).

dn. Meter shall indicate **zero ohms.**

do. Set multimeter range switch to R x 1000.

dp. Touch black probe (5) to all other pins on electrical connector (6).

dq. Meter shall indicate **1000 ohms** minimum.



dr. Set multimeter range switch to R x 1.

ds. Touch red probe (2) to electrical connector (30), sleeve A (45).

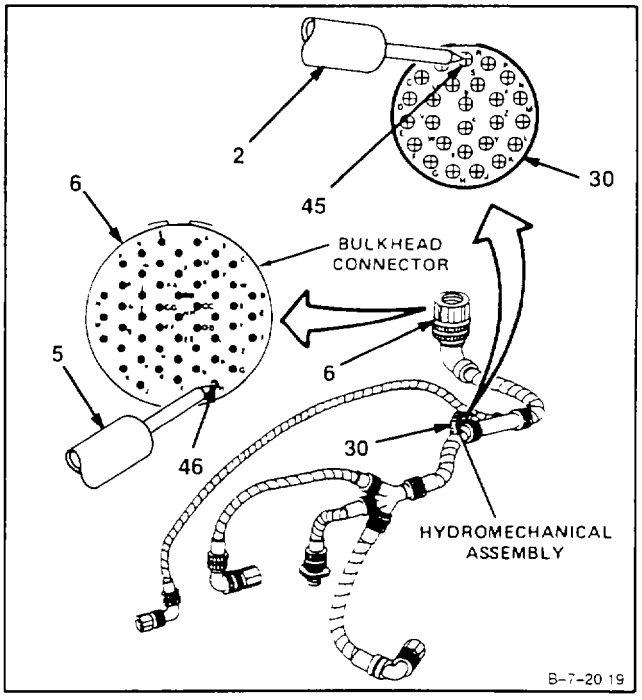
dt. Touch black probe (5) to electrical connector (6), pin H (46).

du. Meter shall indicate **zero ohms**.

dv. Set multimeter range switch to R x 1000.

dw. Touch black probe (5) to all other pins on electrical connector (6).

dx. Meter shall indicate **1000 ohms** minimum.



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dy. Set multimeter range switch to R x 1.

dz. Touch red probe (2) to electrical connector (30), sleeve B (47).

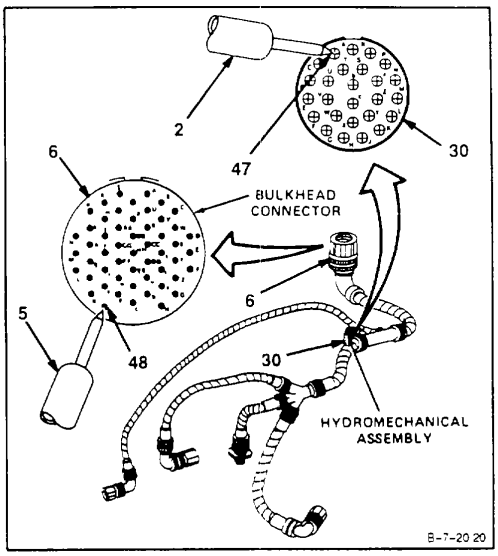
ea. Touch black probe (5) to electrical connector (6), pin J (48).

eb. Meter shall indicate **zero ohms.**

ec. Set multimeter range switch to R x 1000.

ed. Touch black probe (5) to all other pins on electrical connector (6).

ee. Meter shall indicate **1000 ohms** minimum.



ef. Set multimeter range switch to R x 1.

eg. Touch red probe (2) to electrical connector (30), sleeve C (49).

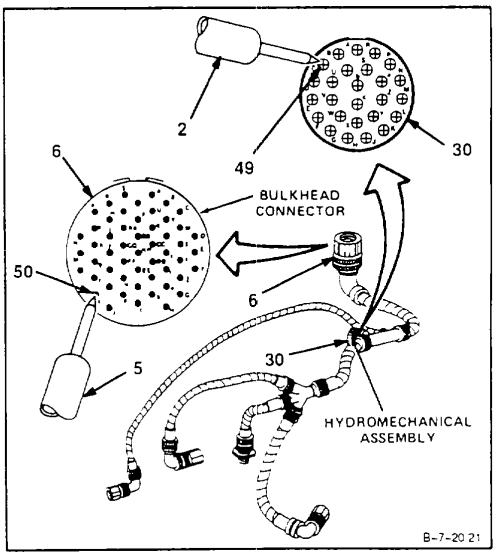
eh. Touch black probe (5) to electrical connector (6), pin K (50).

ei. Meter shall indicate **zero ohms**.

ej. Set multimeter range switch to R x 1000.

ek. Touch black probe (5) to all other pins on electrical connector (6).

el. Meter shall indicate **1000 ohms** minimum.



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em. Set multimeter range switch to R x 1.

en. Touch red probe (2) to electrical connector (30), sleeve D (51).

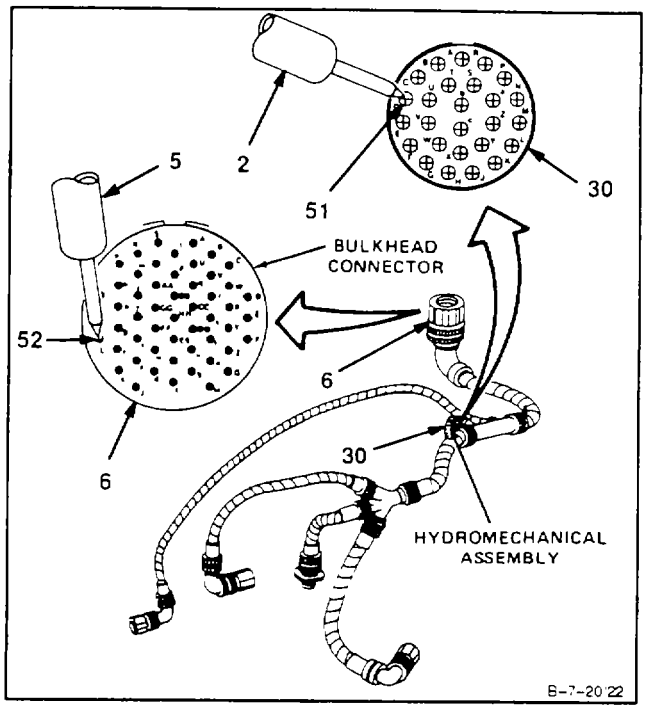
eo. Touch black probe (5) to electrical connector (6), pin L (52).

ep. Meter shall indicate **zero ohms**.

eq. Set multimeter range switch to R x 1000.

er. Touch black probe (5) to all other pins on electrical connector (6).

es. Meter shall indicate **1000 ohms** minimum.



et. Set multimeter range switch to R x 1.

eu. Touch red probe (2) to electrical connector (30), sleeve P (53).

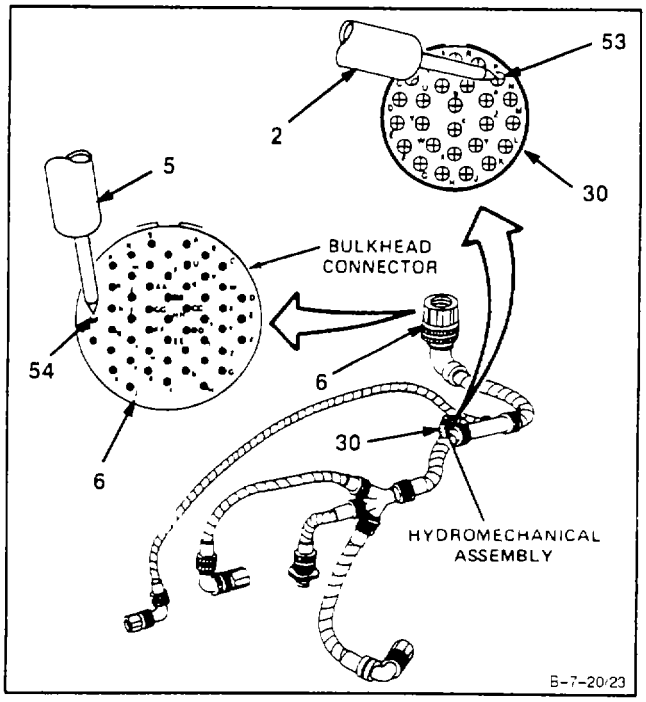
ev. Touch black probe (5) to electrical connector (6), pin M (54).

ew. Meter shall indicate **zero ohms**.

ex. Set multimeter range switch to R x 1000.

ey. Touch black probe (5) to all other pins on electrical connector (6).

ez. Meter shall indicate **1000 ohms** minimum.



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fa. Set multimeter range switch to R x 1.

fb. Touch red probe (2) to electrical connector (30), sleeve N (56).

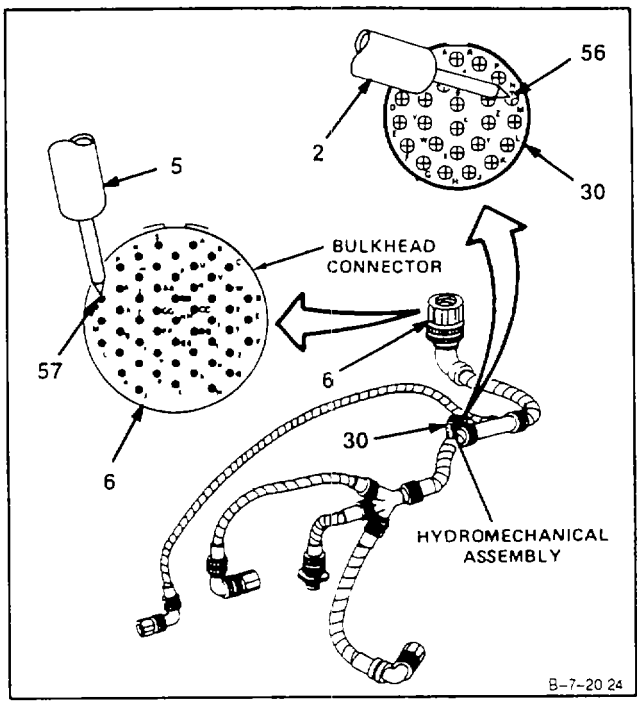
fc. Touch black probe (5) to electrical connector (6), pin N (57).

fd. Meter shall indicate **zero ohms**.

fe. Set multimeter range switch to R x 1000.

ff. Touch black probe (5) to all other pins on electrical connector (6).

fg. Meter shall indicate **1000 ohms** minimum.



fh. Set multimeter range switch to R x 1.

fi. Touch red probe (2) to electrical connector (30), sleeve M (58).

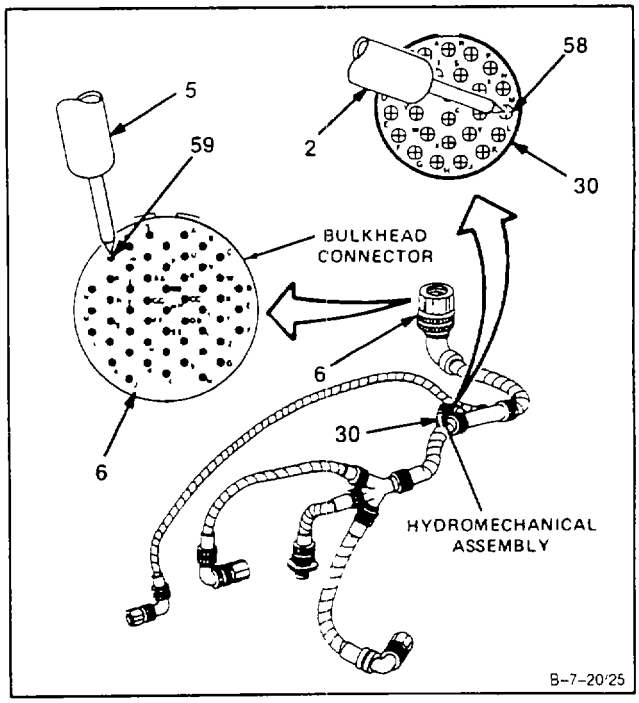
fj. Touch black probe (5) to electrical connector (6), pin P (59).

fk. Meter shall indicate **zero ohms.**

fl. Set multimeter range switch to R x 1000.

fm. Touch black probe (5) to all other pins on electrical connector (6).

fn. Meter shall indicate **1000 ohms** minimum.



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fo. Set multimeter range switch to R x 1.

fp. Touch red probe (2) to electrical connector (30), sleeve Z (61).

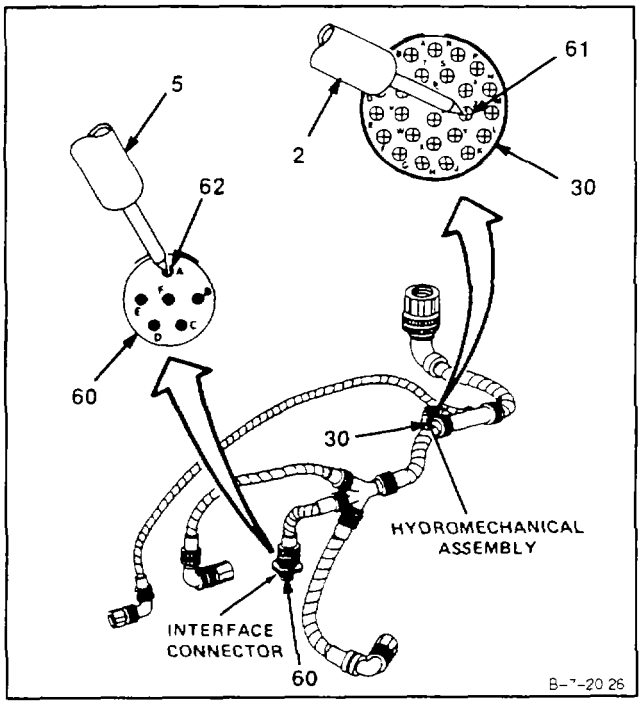
fq. Touch black probe (5) to electrical connector (60), pin A (62).

fr. Meter shall indicate **zero ohms**.

fs. Set multimeter range switch to R x 1000.

ft. Touch black probe (5) to all other pins on electrical connector (60).

fu. Meter shall indicate **1000 ohms** minimum.



fv. Set multimeter range switch to R x 1.

fw. Touch red probe (2) to electrical connector (30), sleeve Y (63).

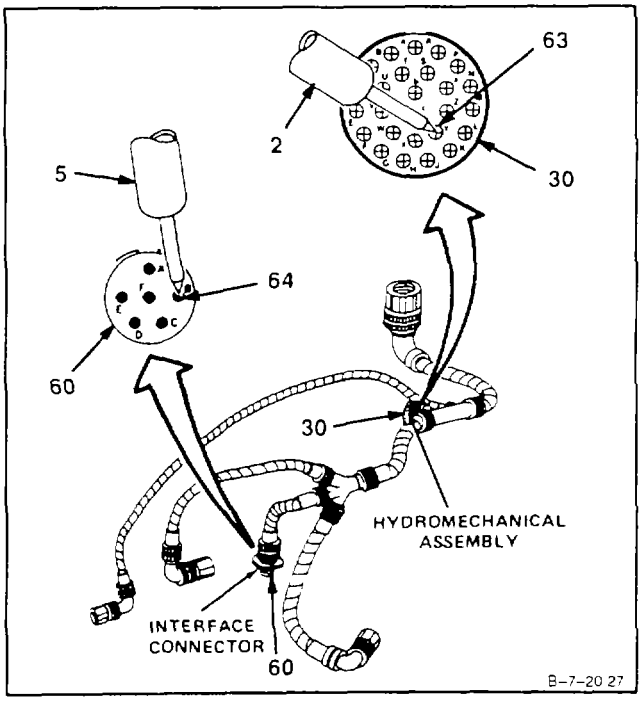
fx. Touch black probe (5) to electrical connector (60), pin B (64).

fy. Meter shall indicate **zero ohms**.

fz. Set multimeter range switch to R x 1000.

ga. Touch black probe (5) to all other pins on electrical connector (60).

gb. Meter shall indicate **1000 ohms** minimum.



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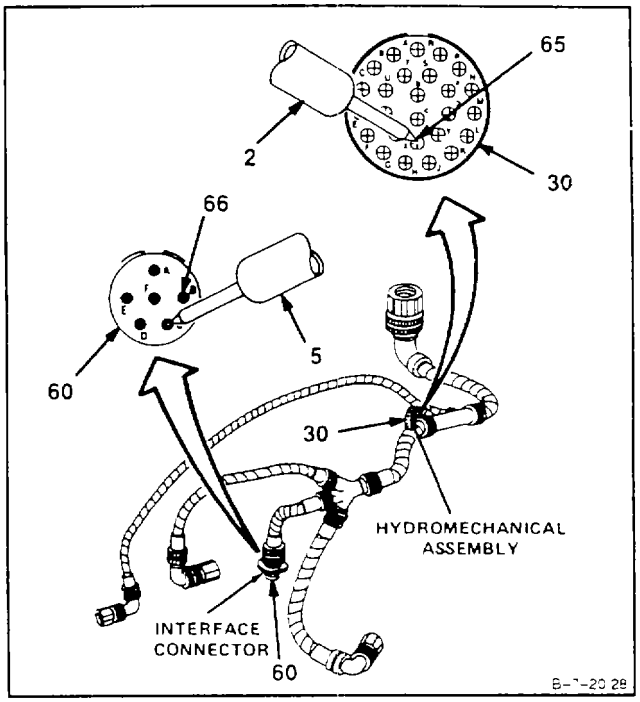
gc. Set multimeter range switch to R x 1.
gd. Touch red probe (2) to electrical connector (30), sleeve X (65).
ge. Touch black probe (5) to electrical connector (60), pin C (66).
gf. Meter shall indicate **zero ohms**.
gg. Set multimeter range switch to R x 1000.
gh. Touch black probe (5) to all other pins on electrical connector (60).
gi. Meter shall indicate **1000 ohms** minimum.

FOLLOW-ON MAINTENANCE:
None



END OF TASK

7-21 INSTALL PRIMARY ELECTRICAL HARNESS ASSEMBLY 7-21

INITIAL SETUP

Applicable Configurations:
All

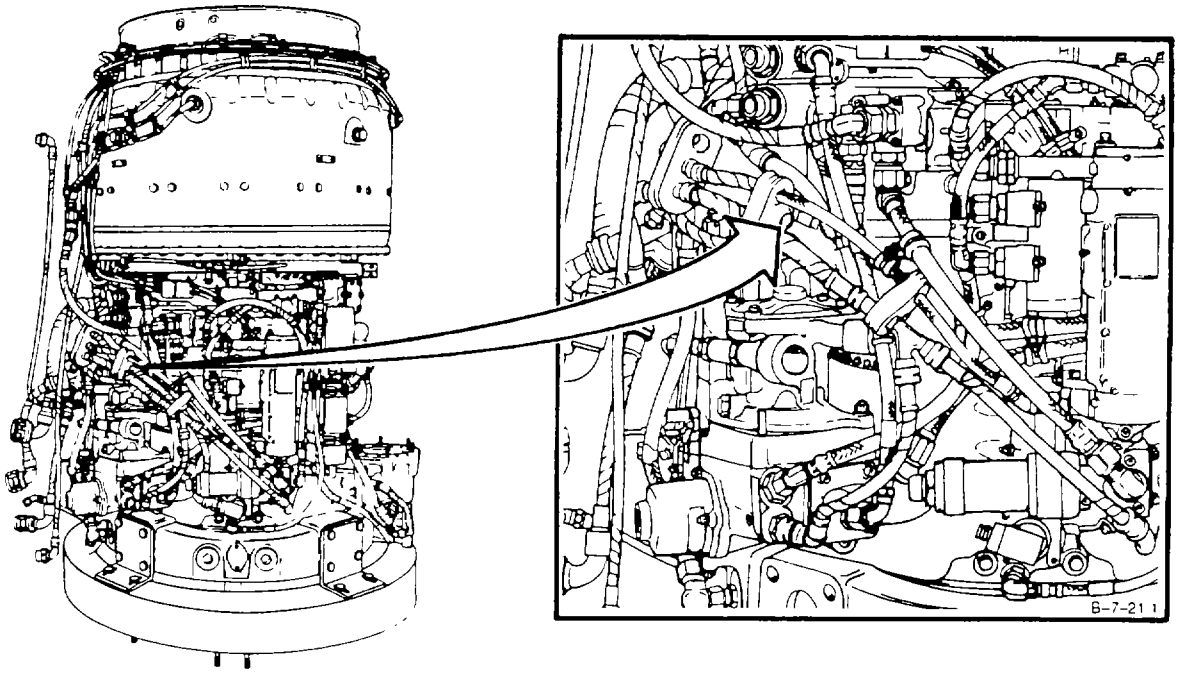
Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Technical Inspection Tool Kit,
NSN 5180-00-323-5114

Materials:
Lockwire (E33)

Parts:
Strap

Personnel Required:
Aircraft Powerplant Repairer
Aircraft Powerplant Inspector

References:
TM 1-2840-252-23P



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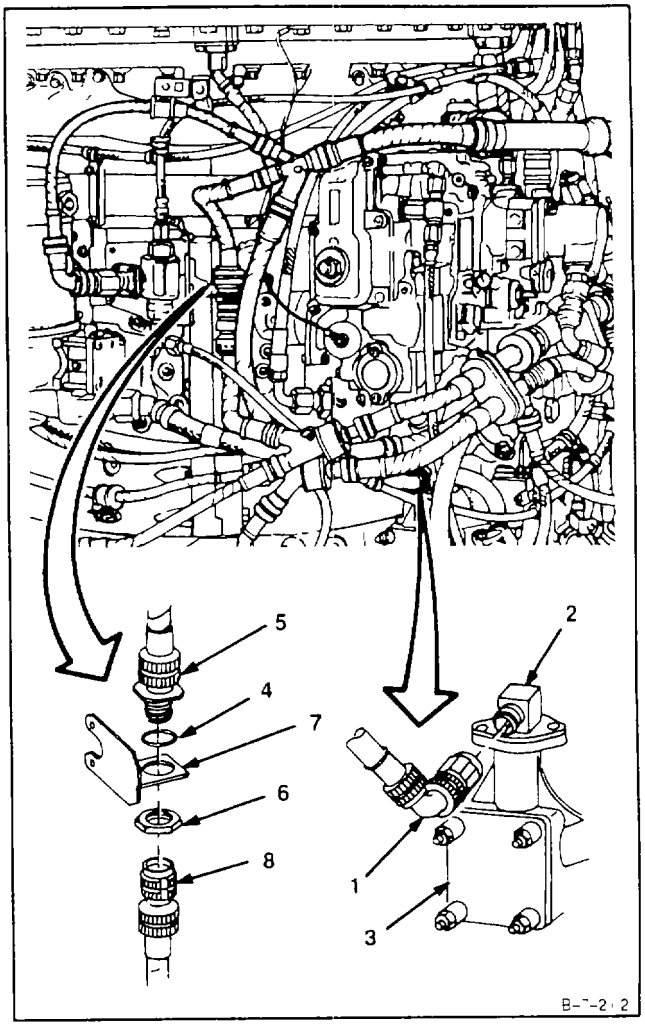
7-21 INSTALL PRIMARY ELECTRICAL HARNESS ASSEMBLY (Continued) 7-21

1. **Install electrical connector (1)**, to speed pickup (2) on accessory gearbox assembly (3).
2. **Install** packing (4), **connector (5)**, and nut (6) to bracket (7). Lockwire nut (6). Use lockwire (E33).
3. **Install electrical connector (8)** to electrical connector (5).



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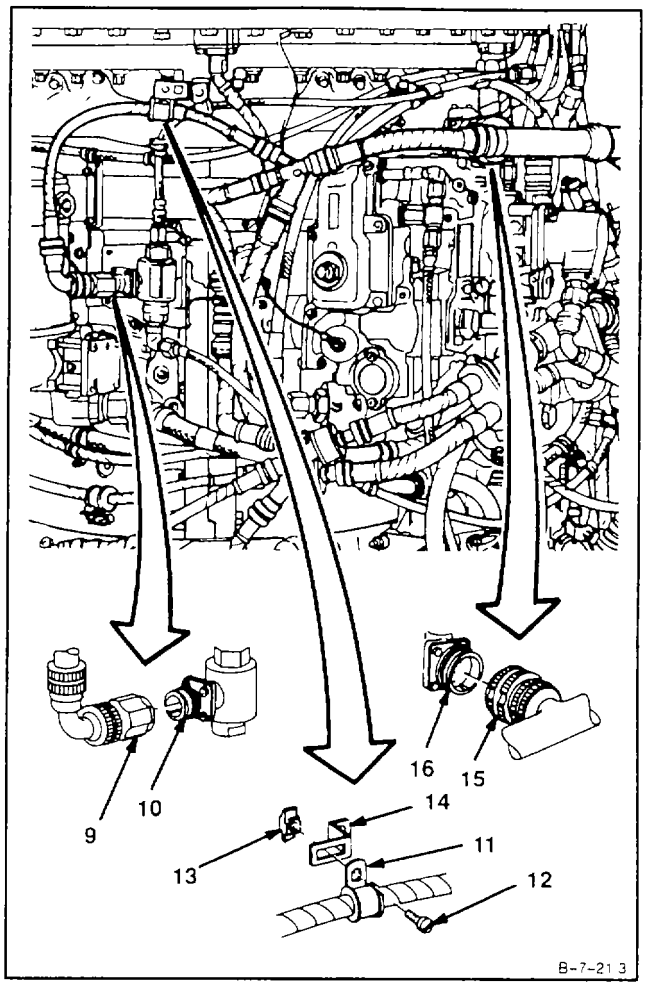
4. **Install electrical connector (9)** to starting fuel solenoid valve (10).

NOTE

Make sure that nut (13) is securely fastened to bracket with long section of nut perpendicular to slot.

5. **Install clamp (11)**, screw (12), and nut (13) to bracket (14).

6. **Install electrical connector (15)** to hydromechanical assembly (16).



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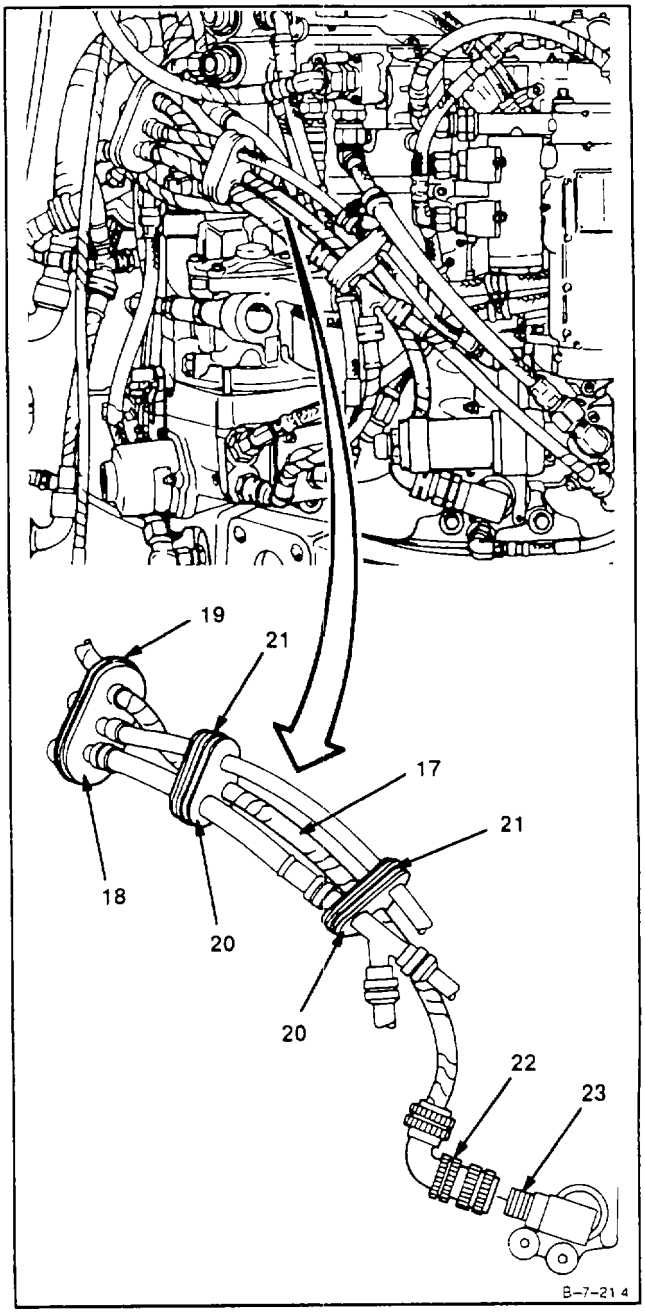
7. **Install harness (17) to cushion (18)** and install strap (19) to cushion (18).

8. **Install harness (17) to two cushions (20)** and install straps (21) to cushions (20).

9. **Install electrical connector (22)** to torque sensor (23).

INSPECT

FOLLOW-ON MAINTENANCE:
None



END OF TASK

SECTION V

REVERSIONARY ELECTRICAL HARNESS ASSEMBLY

7-22 REMOVE REVERSIONARY ELECTRICAL HARNESS ASSEMBLY 7-22

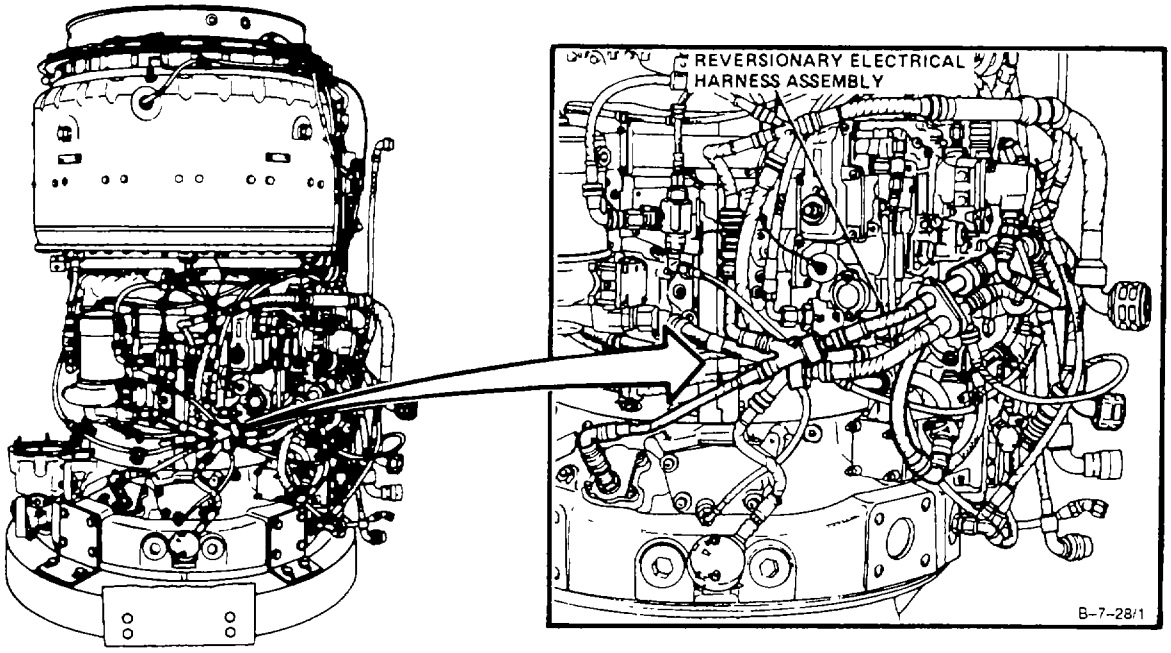
INITIAL SETUP

Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944

Materials:
None

Personnel Required:
Aircraft Powerplant Repairer



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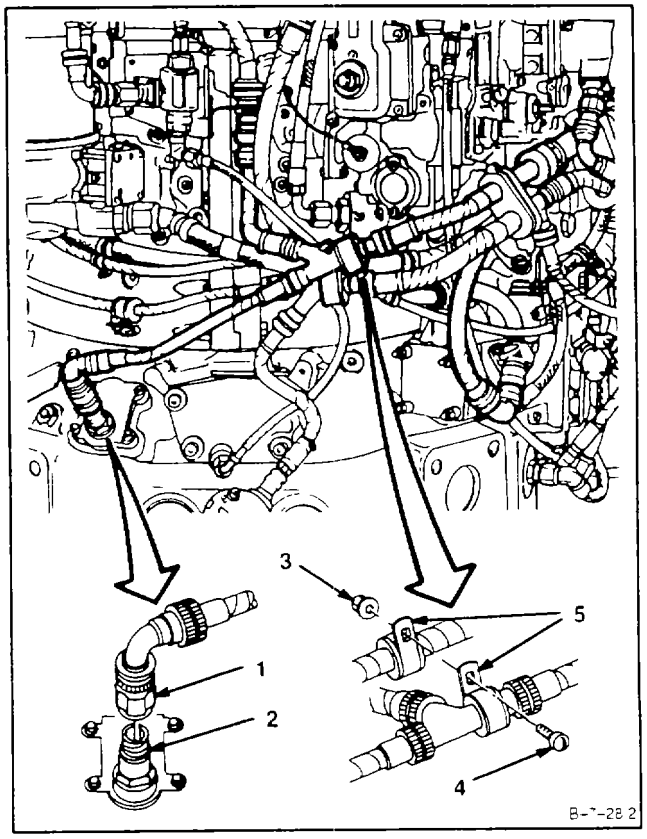
7-22 REMOVE REVERSIONARY ELECTRICAL HARNESS ASSEMBLY (Continued) 7-22

1. Disconnect electrical connector (1) from T1 sensor (2).
2. Remove nut (3), screw (4), and clamps (5).



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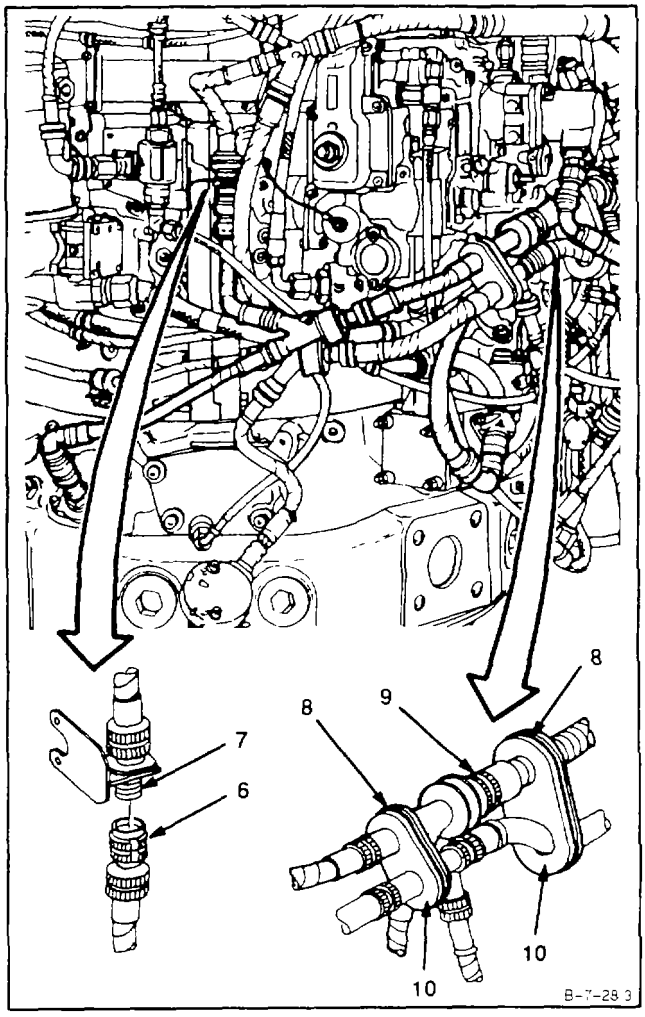
3. Disconnect electrical connector (6) from primary electrical connector (7).

4. Cut two straps (8) and remove harness (9) from two cushions (10).



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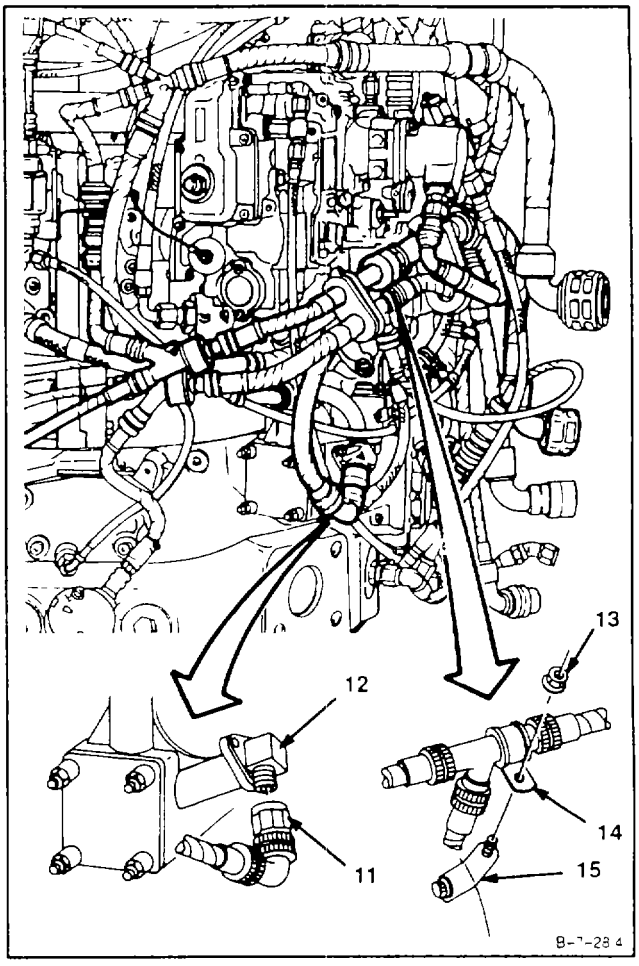
5. **Disconnect electrical connector** (11)from PT speed pickup (12).

6. **Remove** nut (13) and **clamp (14)** from bracket (15).



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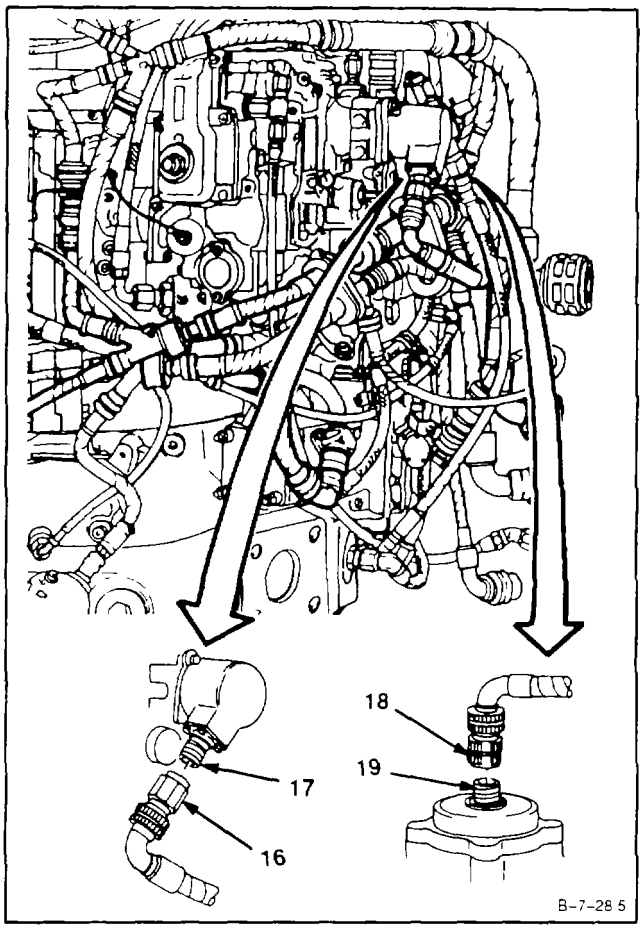
7. **Disconnect electrical connector (16)** from stepper motor (17).

8. **Disconnect electrical connector (18)** from alternator (19), located on rear of HMA.



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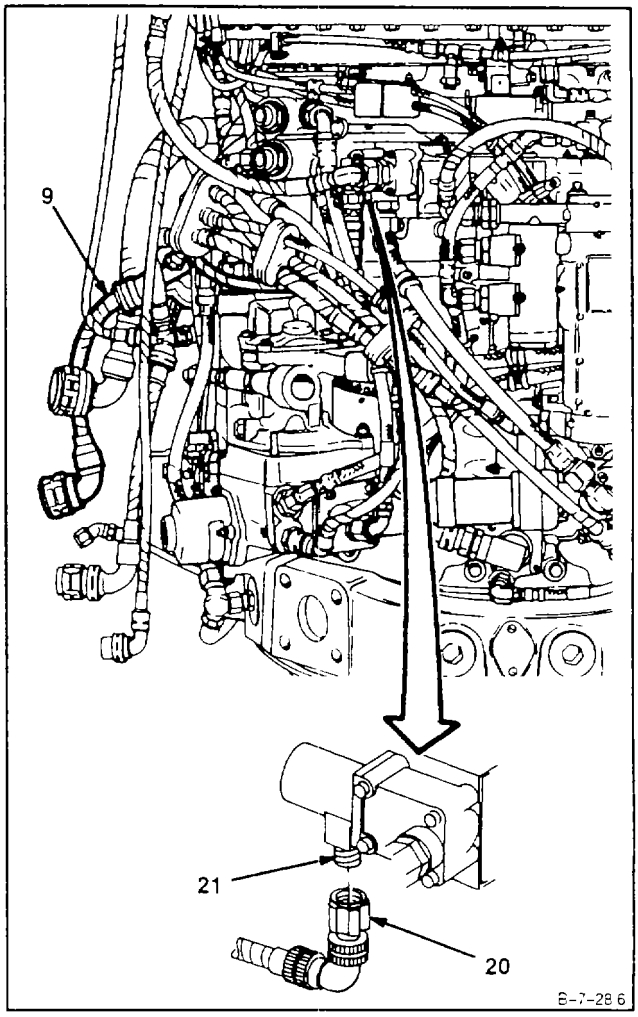
9. **Disconnect electrical connector (20)** from solenoid valve (21). **Remove reversionary electrical harness assembly (9).**

FOLLOW-ON MAINTENANCE:
None



END OF TASK

7-23 CLEAN REVERSIONARY ELECTRICAL HAIRNESS ASSEMBLY 7-23

INITIAL SETUP

Applicable Configurations:

All

Tools:

Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Goggles
Dry, Compressed Air Source

Materials:

Gloves (E24)
Lint-Free Cloth (E30)
Denatured Alcohol (E17)

Personnel Required:

Aircraft Powerplant Repairer

Equipment Condition:

Off Engine Task
Reversionary Electrical Harness Assembly Removed (Task 7-22)

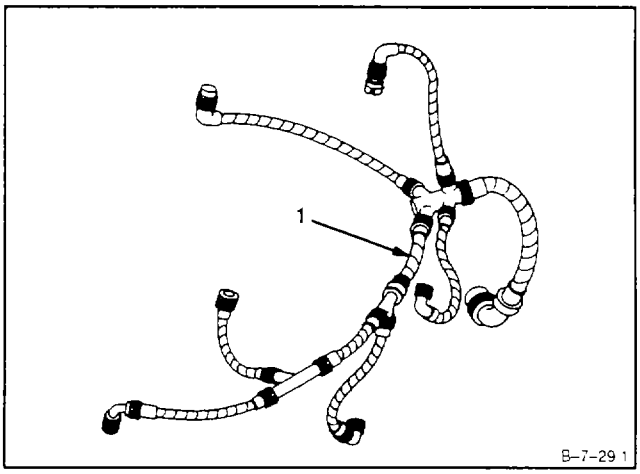
General Safety Instructions:

WARNING

Denatured alcohol (E17) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

---

1. Wear gloves (E24). **Clean reversionary electrical harness assembly (1)**. Use lint-free cloth dampened with Denatured alcohol (E17). Wipe dry using clean, dry, lint-free cloth (E30).

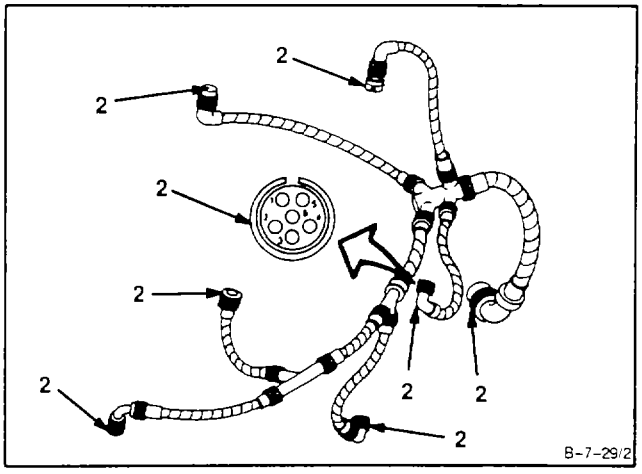


2. **Clean seven electrical connectors (2).** Use denatured alcohol (El 7) and brush.

WARNING

When using compressed air for cleaning, use approved protective equipment for eyes and face. Do not use more than 30 psig air pressure. Do not direct air toward yourself or another person. Failure to comply could result in injury to eyes or skin. In case of injury, get medical attention.

3. Wear goggles. **Blow dry electrical connectors (2).** Use clean, dry, compressed air.



FOLLOW-ON MAINTENANCE:

Inspect Reversionary Electrical Harness Assembly (Task 7-24).

END OF TASK

7-24 INSPECT REVERSIONARY ELECTRICAL HARNESS ASSEMBLY 7-24

INITIAL SETUP

Applicable Configurations:
All

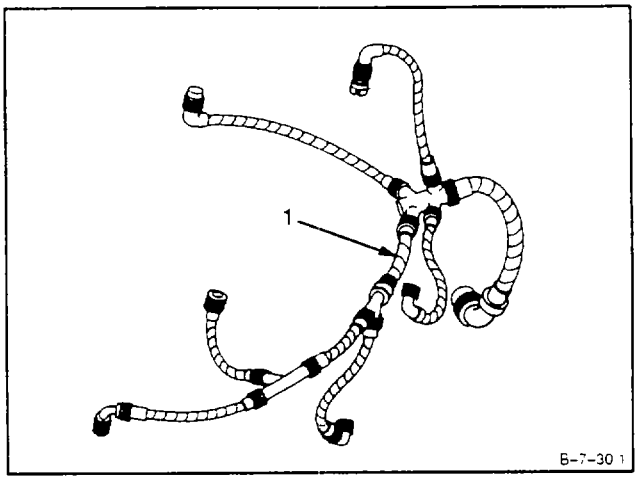
Tools:
Technical Inspection Tool Kit,
NSN 5180-00-323-5114

Materials:
None

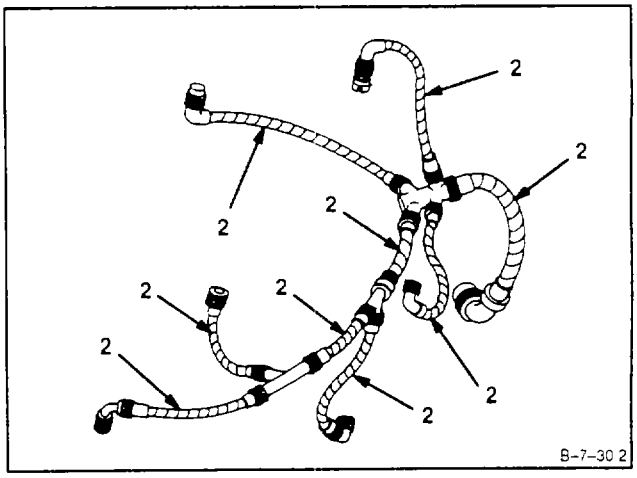
Personnel Required:
Aircraft Powerplant Inspector

Equipment Condition:
Off Engine Task

1. **Inspect reversionary electrical harness assembly** (1). There shall be no frayed or burned insulation. There shall be no loose connections or broken wires.



2. **Inspect sleeving (2).** There shall be no frayed or broken sleeving.



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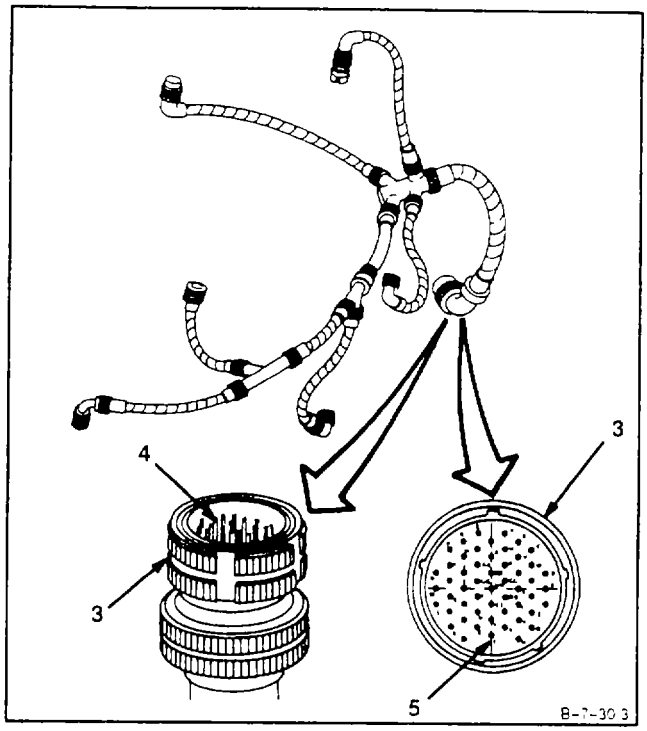
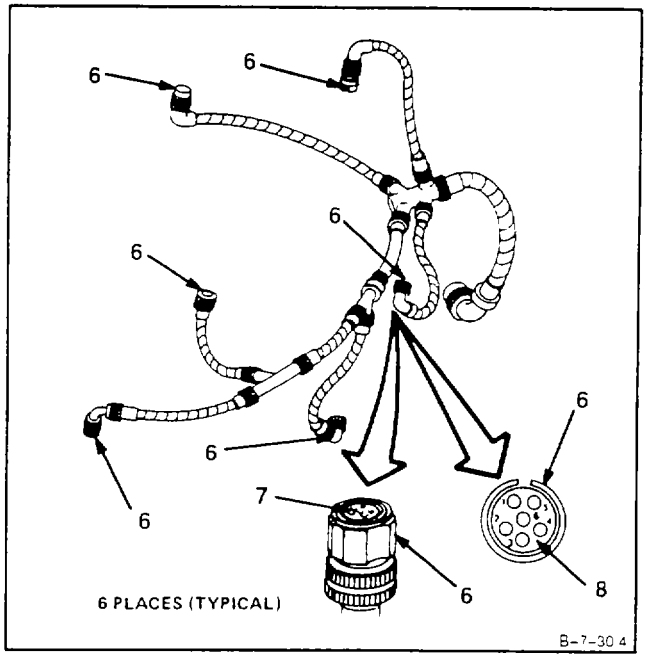
3. **Inspect electrical connector (3).** There shall be no corrosion, broken or bent pins (4), or cracked insulation (5).



4. **Inspect six electrical connectors (6).** There shall be no corrosion, broken or bent sleeves (7) or cracked insulation (8).



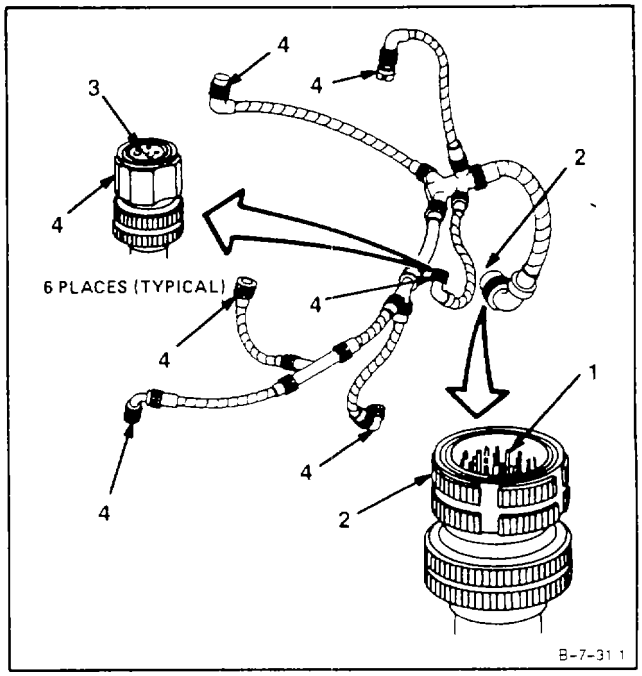
FOLLOW-ON MAINTENANCE:
None

END OF TASK

INITIAL SETUP
Applicable Configurations:
All
Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Technical Inspection Tool Kit
NSN 5180-00-323-5114
Hand File Set
Materials:
Crocus Cloth (El 6)
Personnel Required:
Aircraft Powerplant Repairer
Aircraft Powerplant Inspector
Equipment Condition:
Off Engine Task

NOTE
This repair is allowed provided it does not cause pin to break or crack.

1. **Straighten bent pin (1)** of electrical connector (2). Use long nose pliers to gently move pin (1) until it is straight.
2. **Remove corrosion from pin (1)** of electrical connector (2). Use crocus cloth (E16).
3. **Remove corrosion from sleeve (3)** of electrical connectors (4). Use round hand file.



INSPECT

FOLLOW-ON MAINTENANCE:
None

END OF TASK

7-26 TEST REVERSIONARY ELECTRICAL HARNESS ASSEMBLY 7-26

INITIAL SETUP

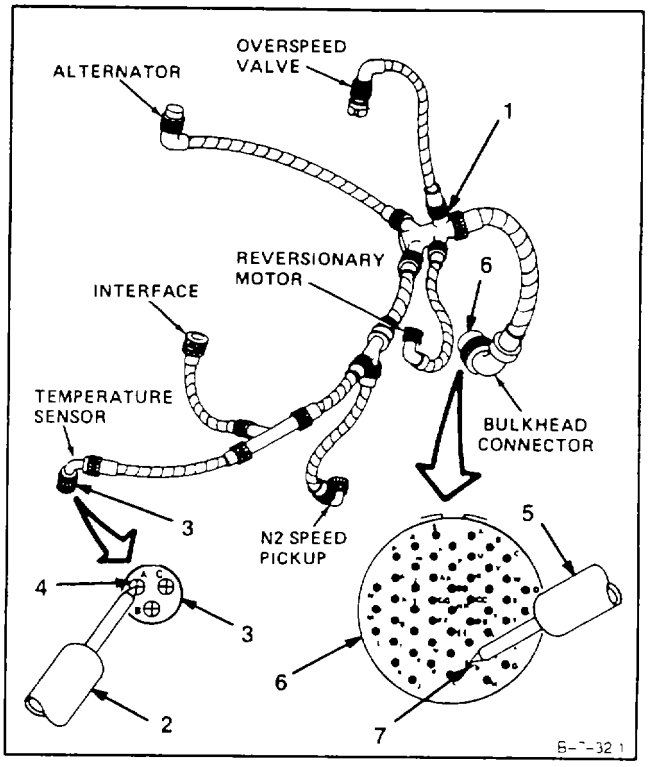
Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Multimeter

Materials:
None

Personnel Required:
Aircraft Powerplant Repairer

1. Using multimeter, **measure continuity and insulation resistance of electrical harness assembly (1)** as follows:
   a. Set multimeter range switch to R x 1.
   b. Touch red probe (2) to electrical connector (3), sleeve A (4).
   c. Touch black probe (5) to electrical connector (6), pin b (7).
   d. Meter shall indicate **zero ohms**.
   e. Set multimeter range switch to R x 1000.
   f. Touch black probe (5) to all other pins on electrical connector (6).
   g. Meter shall indicate **1000 ohms** minimum.



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h. Set multimeter range switch to R x 1.

i. Touch red probe (2) to electrical connector (3), sleeve B (8).

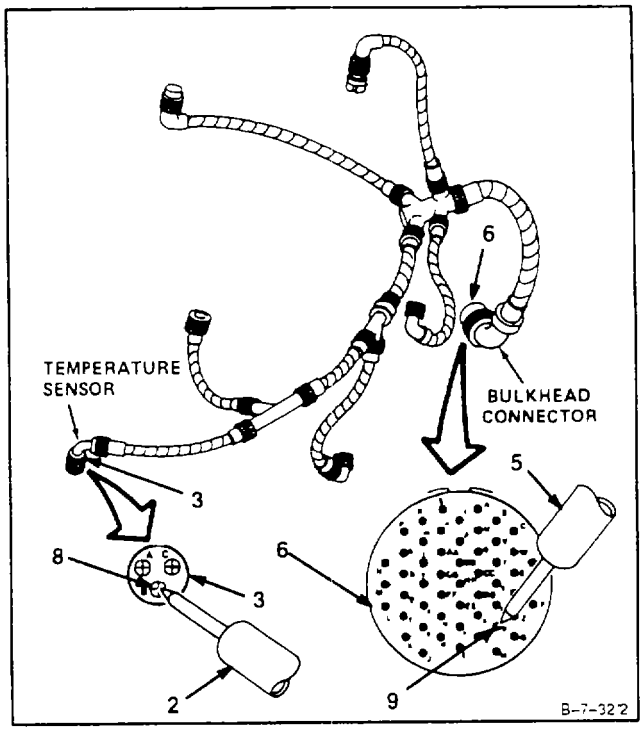
j. Touch black probe (5) to electrical connector (6), pin a (9).

k. Meter shall indicate **zero ohms.**

l. Set multimeter range switch to R x 1000.

m. Touch black probe (5) to all other pins on electrical connector (6).

n. Meter shall indicate **1000 ohms** minimum.



o. Set multimeter range switch to R x 1.

p. Touch red probe (2) to electrical connector (3), sleeve C (10).

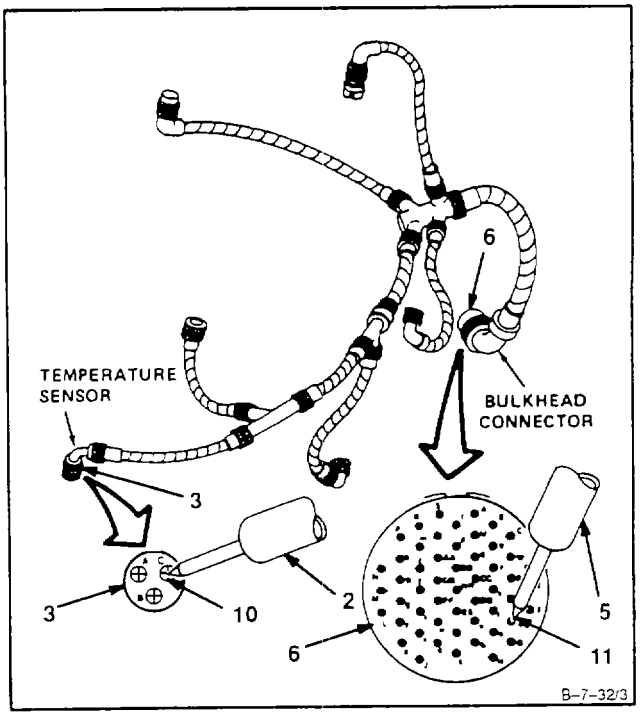
q. Touch black probe (5) to electrical connector (6), pin 2 (11).

r. Meter shall indicate **zero ohms**.

s. Set multimeter range switch to R x 1000.

t. Touch black probe (5) to all other pins on electrical connector (6).

u. Meter shall indicate **1000 ohms** minimum.



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v. Set multimeter range switch to R x 1.

w. Touch red probe (2) to electrical connector (12), sleeve 1 (13).

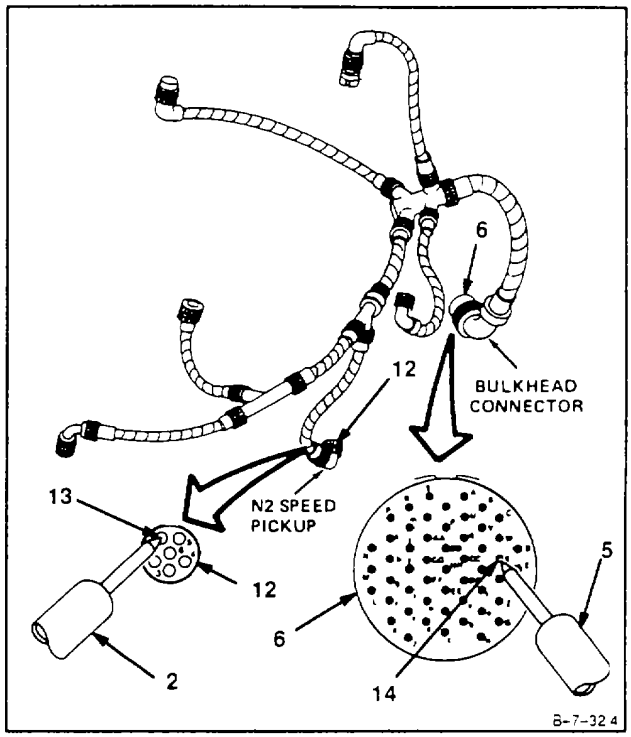
x. Touch black probe (5) to electrical connector (6), pin X (14).

y. Meter shall indicate **zero ohms**.

z. Set multimeter range switch to R x 1000.

aa. Touch black probe (5) to all other pins on electrical connector (6).

ab. Meter shall indicate **1000 ohms** minimum.



ac. Set multimeter range switch to R x 1.

ad. Touch red probe (2) to electrical connector (12), sleeve 2 (15).

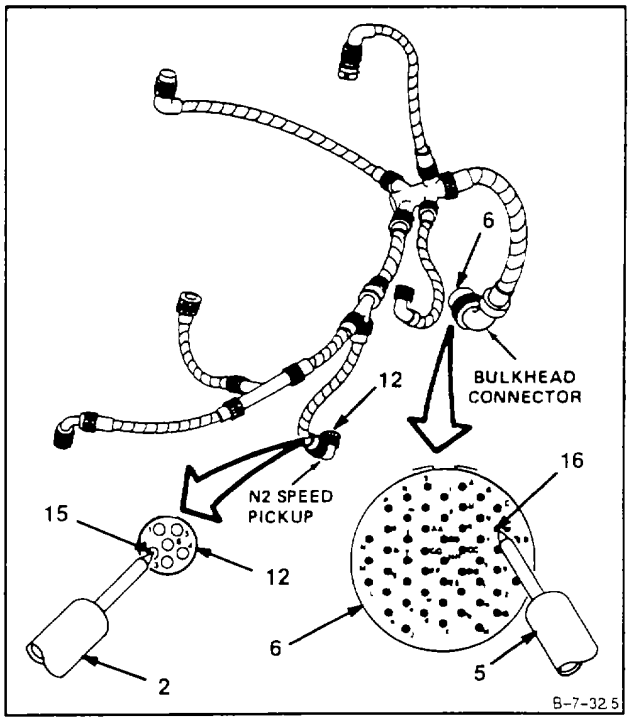
ae. Touch black probe (5) to electrical connector (6), pin W (16).

af. Meter shall indicate **zero ohms**.

ag. Set multimeter range switch to R x 1000.

ah. Touch black probe (5) to all other pins on electrical connector (6).

ai. Meter shall indicate **1000 ohms** minimum.



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aj. Set multimeter range switch to R x 1.

ak. Touch red probe (2) to electrical connector (12), sleeve 3 (17).

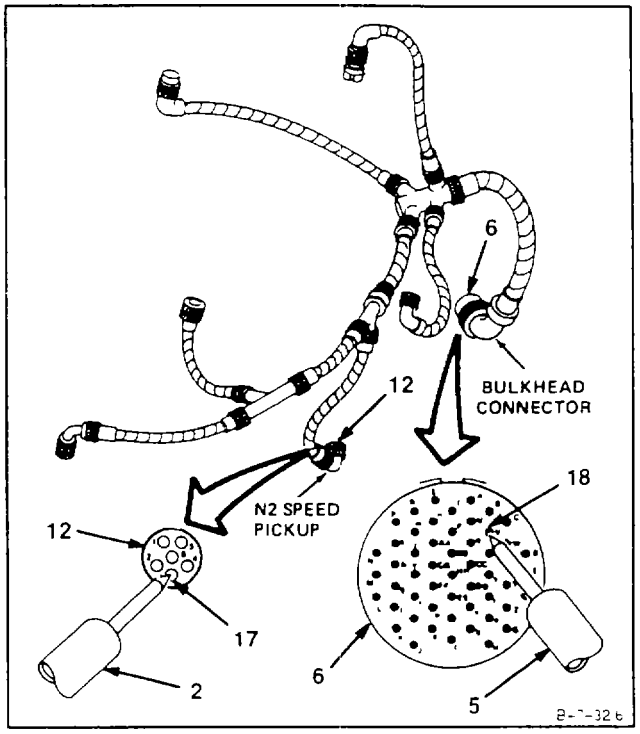
al. Touch black probe (5) to electrical connector (6), pin V (18).

am. Meter shall indicate **zero ohms**.

an. Set multimeter range switch to R x 1000.

ao. Touch black probe (5) to all other pins on electrical connector (6).

ap. Meter shall indicate **1000 ohms** minimum.



aq. Set multimeter range switch to R x 1.

ar. Touch red probe (2) to electrical connector (12), sleeve 4 (19).

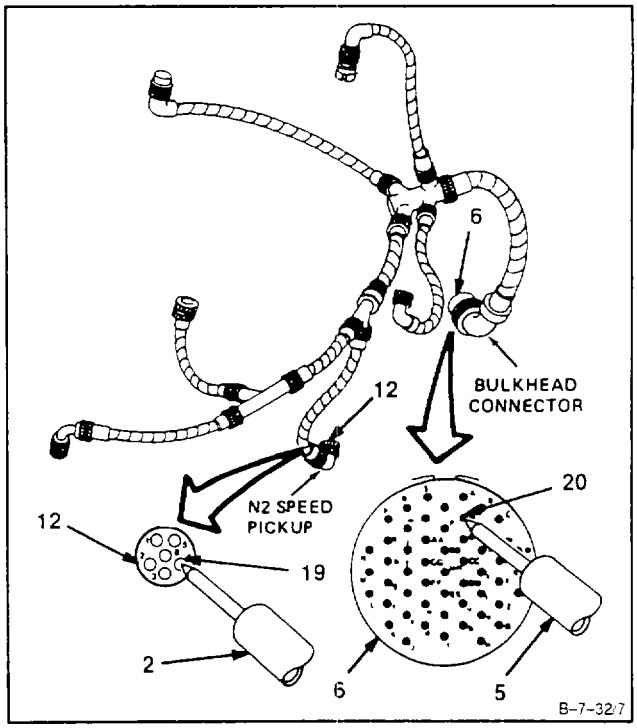
as. Touch black probe (5) to electrical connector (6), pin V (20).

at. Meter shall indicate **zero ohms**.

au. Set multimeter range switch to R x 1000.

av. Touch black probe (5) to all other pins on electrical connector (6).

aw. Meter shall indicate **1000 ohms** minimum.



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ax. Set multimeter range switch to R x 1.

ay. Touch red probe (2) to electrical connector (21), sleeve 2 (22).

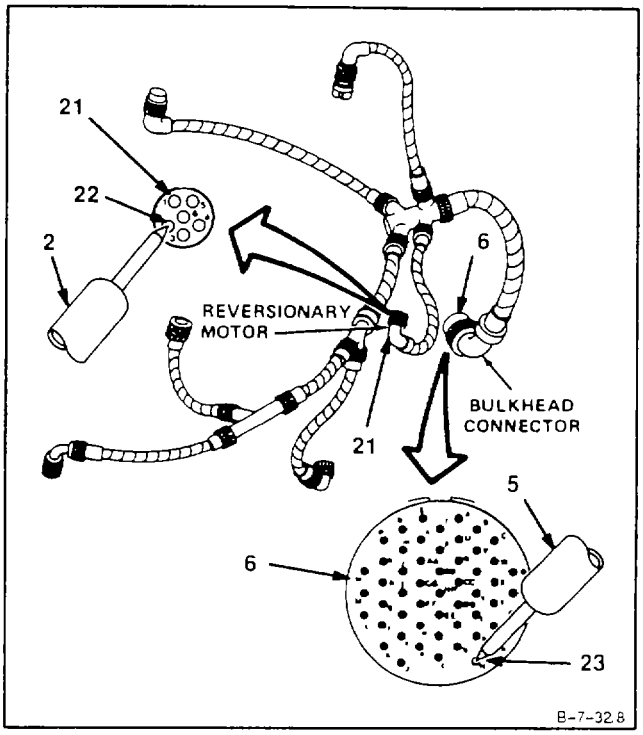
az. Touch black probe (5) to electrical connector (6), pin H (23).

ba. Meter shall indicate **zero ohms**.

bb. Set multimeter range switch to R x 1000.

bc. Touch black probe (5) to all other pins on electrical connector (6).

bd. Meter shall indicate **1000 ohms** minimum.



be. Set multimeter range switch to R x 1.

bf. Touch red probe (2) to electrical connector (21), sleeve 3 (24).

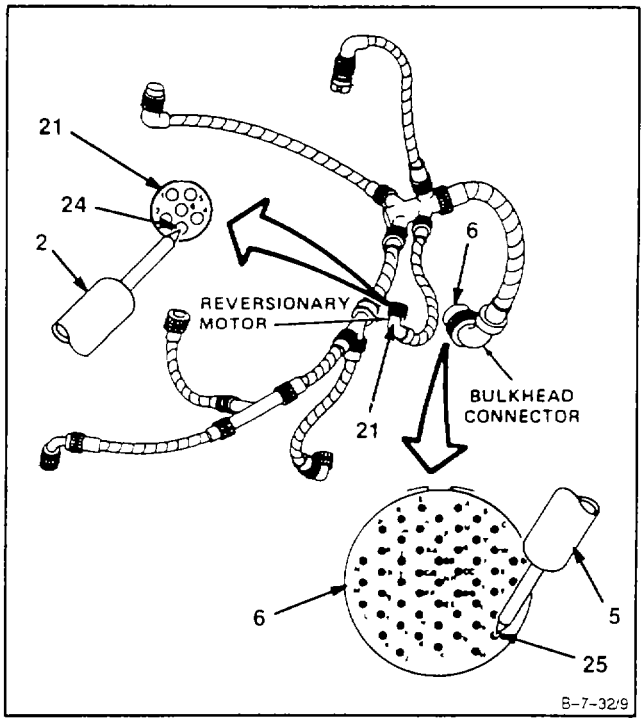
bg. Touch black probe (5) to electrical connector (6), pin G (25).

bh. Meter shall indicate **zero ohms**.

bi. Set multimeter range switch to R x 1000.

bj. Touch black probe (5) to all other pins on electrical connector (6).

bk. Meter shall indicate **1000 ohms** minimum.



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bl. Set multimeter range switch to R x 1.

bm. Touch red probe (2) to electrical connector (21), sleeve 4 (26).

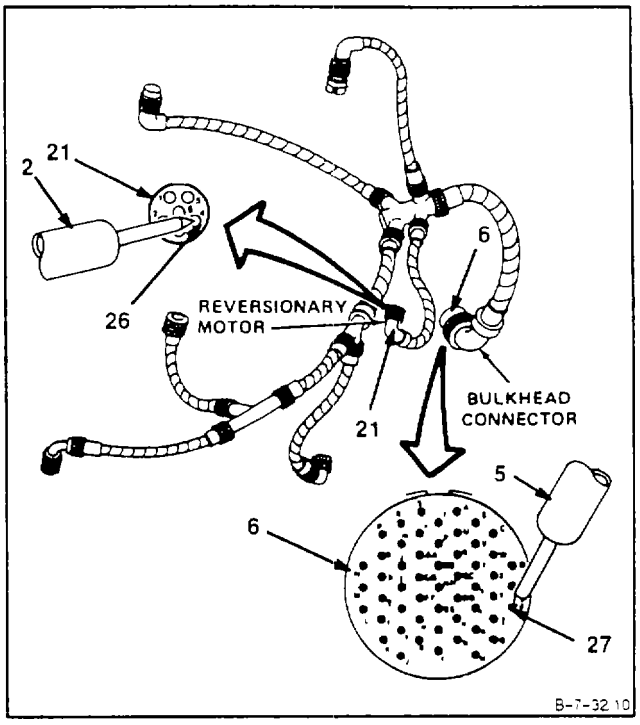
bn. Touch black probe (5) to electrical connector (6), pin F (27).

bo. Meter shall indicate **zero ohms**.

bp. Set multimeter range switch to R x 1000.

bq. Touch black probe (5) to all other pins on electrical connector (6).

br. Meter shall indicate **1000 ohms** minimum.



bs. Set multimeter range switch to R x 1.

bt. Touch red probe (2) to electrical connector (21), sleeve 5 (28).

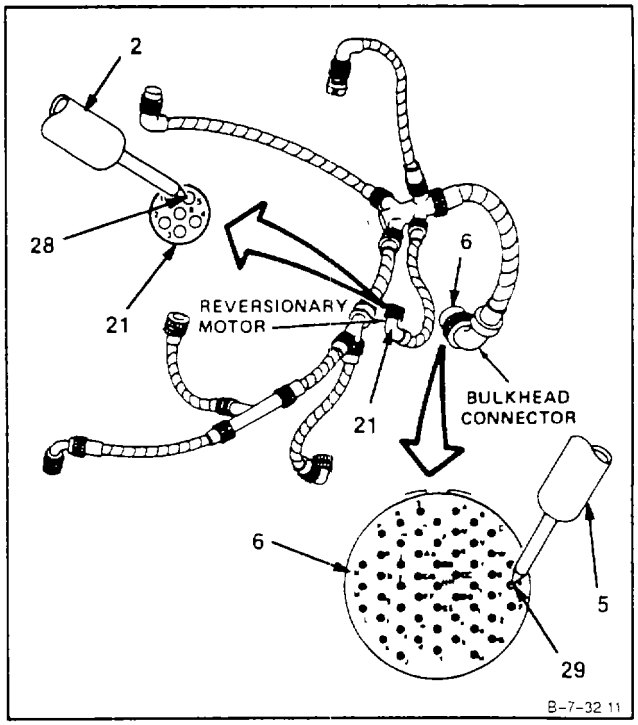
bu. Touch black probe (5) to electrical connector (6), pin E (29).

bv. Meter shall indicate **zero ohms.**

bw. Set multimeter range switch to R x 1000.

bx. Touch black probe (5) to all other pins on electrical connector (6).

by. Meter shall indicate **1000 ohms** minimum.



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bz. Set multimeter range switch to R x 1.

ca. Touch red probe (2) to electrical connector (21), sleeve 6 (30).

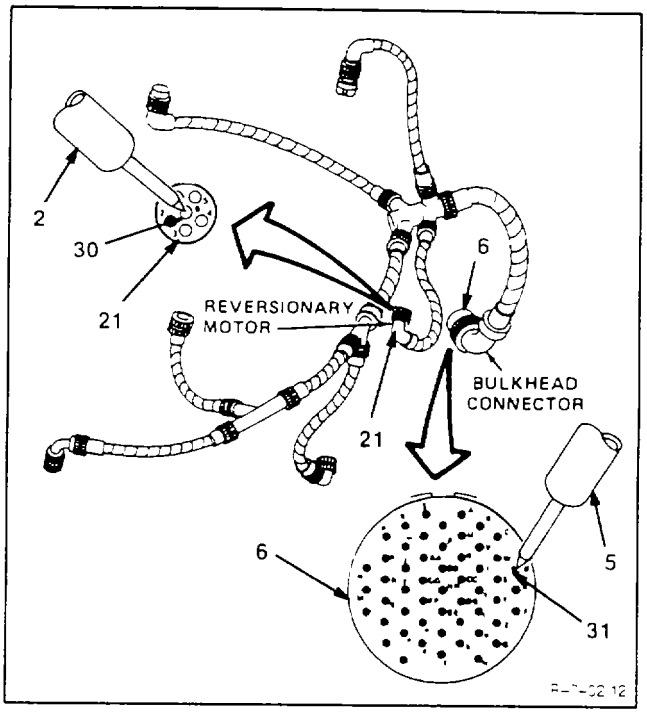
cb. Touch black probe (5) to electrical connector (6), pin D (31).

cc. Meter shall indicate **zero ohms.**

cd. Set multimeter range switch to R x 1000.

ce. Touch black probe (5) to all other pins on electrical connector (6).

cf. Meter shall indicate **1000 ohms** minimum.



cg. Set multimeter range switch to R x 1.

ch. Touch red probe (2) to electrical connector (32), sleeve A (33).

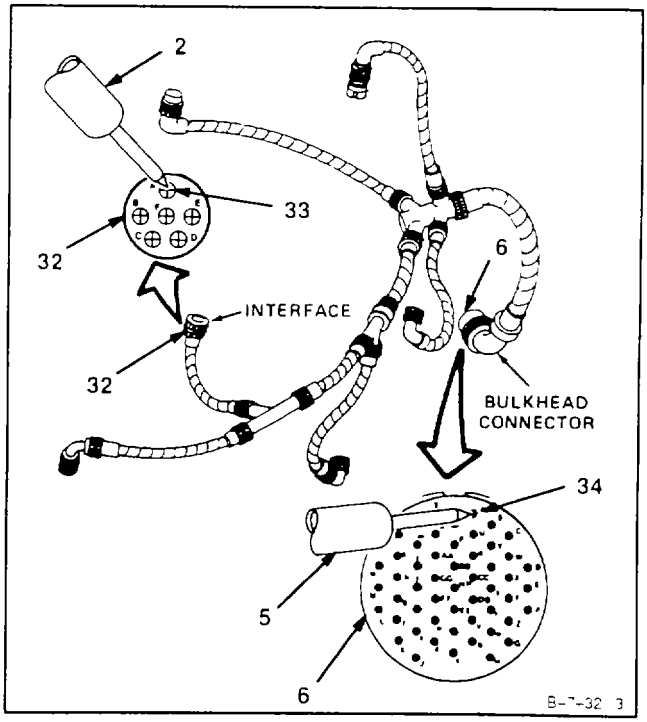
ci. Touch black probe (5) to electrical connector (6), pin A (34).

cj. Meter shall indicate **zero ohms**.

ck. Set multimeter range switch to R x 1000.

cl. Touch black probe (5) to all other pins on electrical connector (6).

cm. Meter shall indicate **1000 ohms** minimum.



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cn. Set multimeter range switch to R x 1.

co. Touch red probe (2) to electrical connector (32), sleeve B (35).

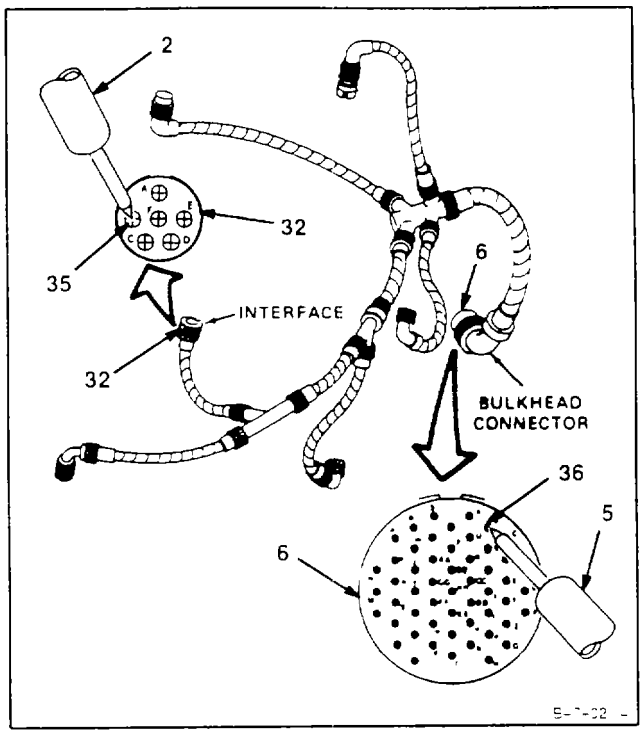
cp. Touch black probe (5) to electrical connector (6), pin B (36).

cq. Meter shall indicate **zero ohms**.

cr. Set multimeter range switch to R x 1000.

cs. Touch black probe (5) to all other pins on electrical connector (6).

ct. Meter shall indicate **1000 ohms** minimum.



cu. Set multimeter range switch to R x 1.

cv. Touch red probe (2) to electrical connector (32), sleeve C (37).

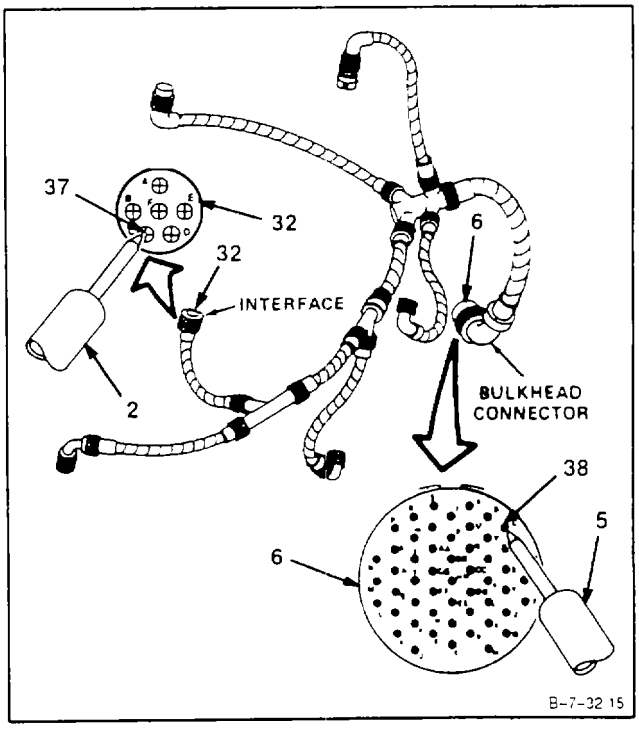
cw. Touch black probe (5) to electrical connector (6), pin C (38).

cx. Meter shall indicate **zero ohms**.

cy. Set multimeter range switch to R x 1000.

cz. Touch black probe (5) to all other pins on electrical connector (6).

da. Meter shall indicate **1000 ohms** minimum.



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db. Set multimeter range switch to R x 1.

dc. Touch red probe (2) to electrical connector (39), sleeve A (40).

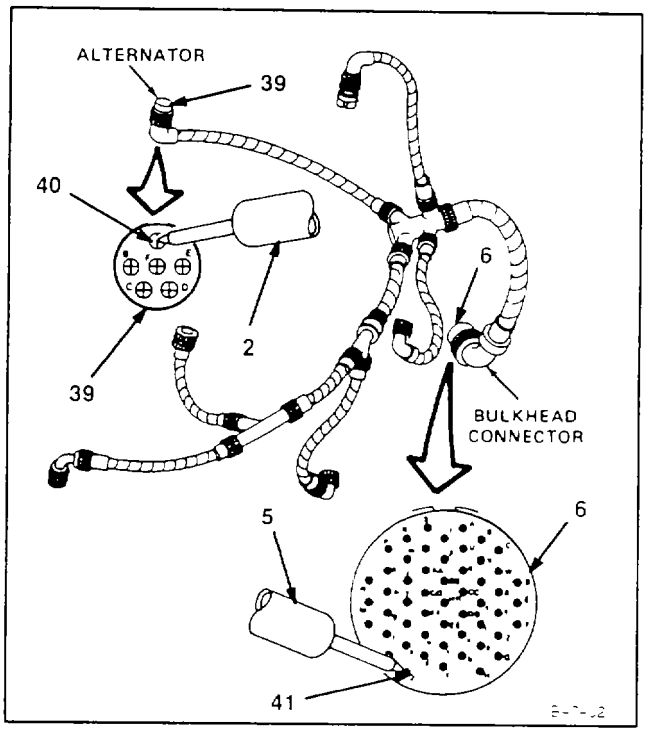
dd. Touch black probe (5) to electrical connector (6), pin J (41).

de. Meter shall indicate **zero ohms**.

df. Set multimeter range switch to R x 1000.

dg. Touch black probe (5) to all other pins on electrical connector (6).

dh. Meter shall indicate **1000 ohms** minimum.



di. Set multimeter range switch to R x 1.

dj. Touch red probe (2) to electrical connector (39), sleeve B (42).

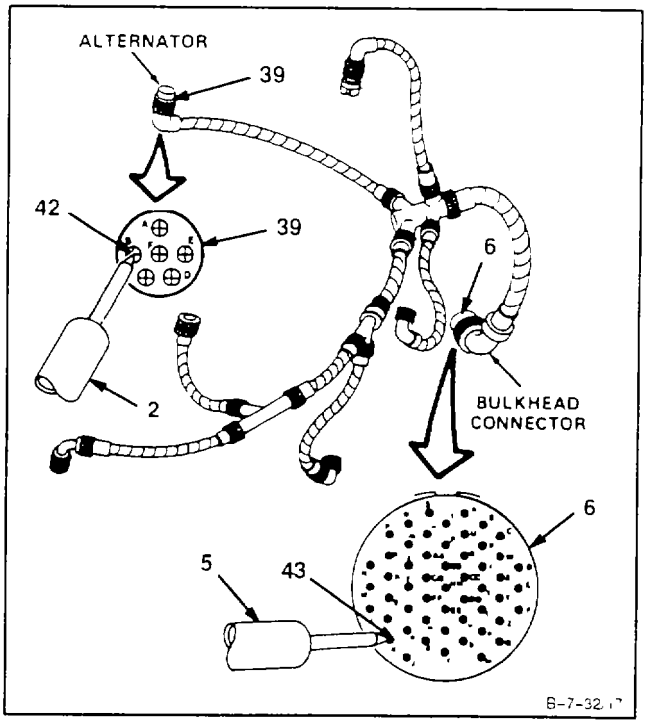
dk. Touch black probe (5) to electrical connector (6), pin K (43).

dl. Meter shall indicate **zero ohms**.

dm. Set multimeter range switch to R x 1000.

dn. Touch black probe (5) to all other pins on electrical connector (6).

do. Meter shall indicate **1000 ohms** minimum.



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dp. Set multimeter range switch to R x 1.

dq. Touch red probe (2) to electrical connector (39), sleeve C (44).

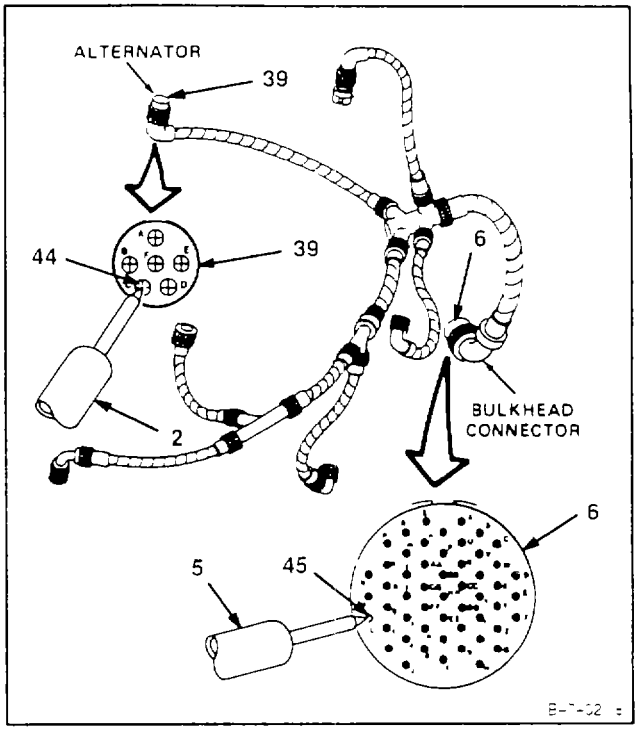
dr. Touch black probe (5) to electrical connector (6), pin L (45).

ds. Meter shall indicate **zero ohms**.

dt. Set multimeter range switch to R x 1000.

du. Touch black probe (5) to all other pins on electrical connector (6).

dv. Meter shall indicate **1000 ohms** minimum.



dw. Set multimeter range switch to R x 1.

dx. Touch red probe (2) to electrical connector (39), sleeve E (46).

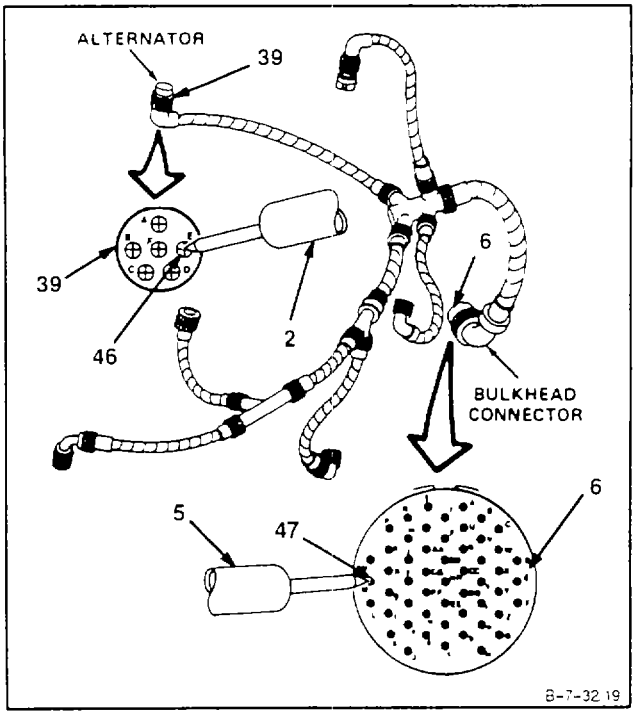
dy. Touch black probe (5) to electrical connector (6), pin M (47).

dz. Meter shall indicate **zero ohms.**

ea. Set multimeter range switch to R x 1000.

eb. Touch black probe (5) to all other pins on electrical connector (6).

ec. Meter shall indicate **1000 ohms** minimum.



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ed. Set multimeter range switch to R x 1.

ee. Touch red probe (2) to electrical connector (39), sleeve F (48).

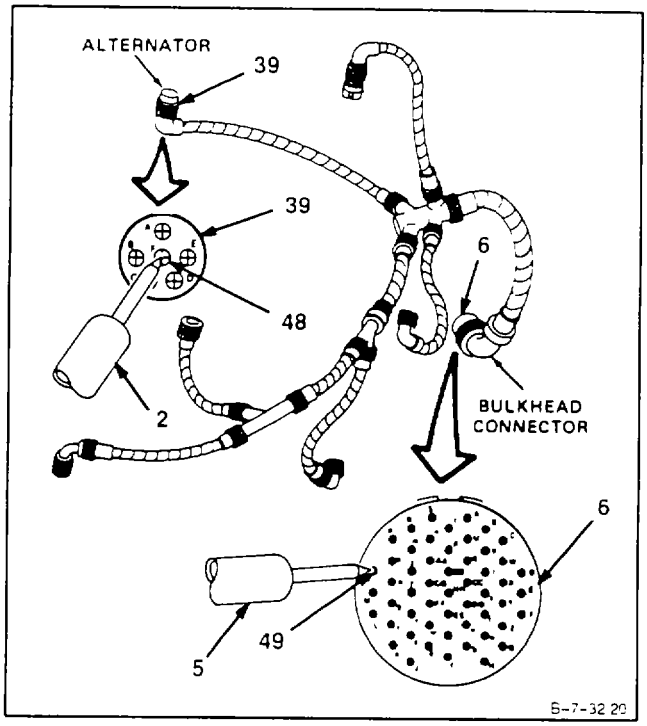
ef. Touch black probe (5) to electrical connector (6), pin N (49).

eg. Meter shall indicate **zero ohms.**

eh. Set multimeter range switch to R x 1000.

ei. Touch black probe (5) to all other pins on electrical connector (6).

ej. Meter shall indicate **1000 ohms** minimum.



ek. Set multimeter range switch to R x 1.

el. Touch red probe (2) to electrical connector (50), sleeve A (51).

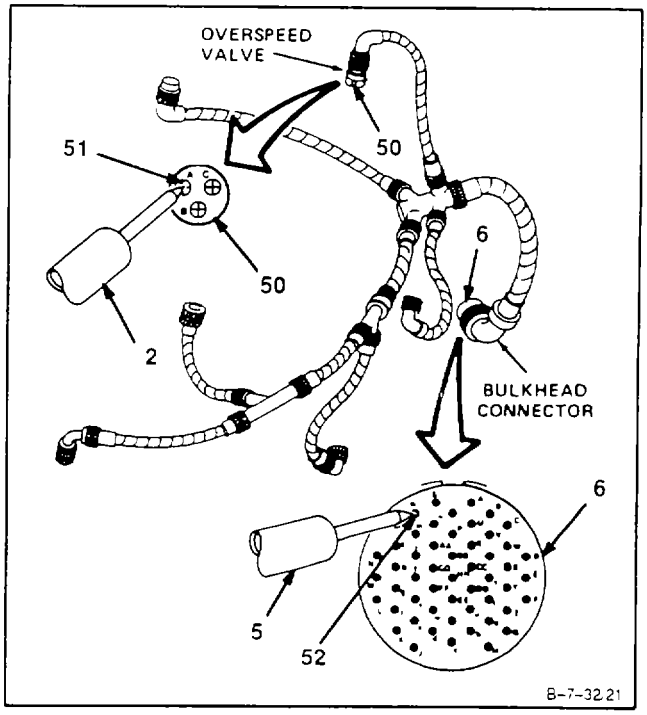
em. Touch black probe (5) to electrical connector (6), pin R (52).

en. Meter shall indicate **zero ohms.**

eo. Set multimeter range switch to R x 1000.

ep. Touch black probe (5) to all other pins on electrical connector (6).

eq. Meter shall indicate **1000 ohms** minimum.



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er. Set multimeter range switch to R x 1.

es. Touch red probe (2) to electrical connector (50), sleeve B (53).

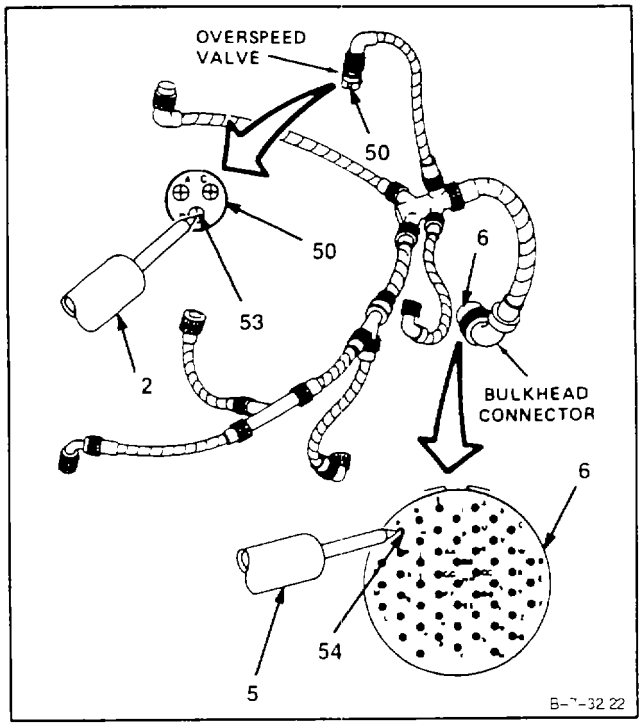
et. Touch black probe (5) to electrical connector (6), pin P (54).

eu. Meter shall indicate **zero ohms.**

ev. Set multimeter range switch to R x 1000.

ew. Touch black probe (5) to all other pins on electrical connector (6).

ex. Meter shall indicate **1000 ohms** minimum.



FOLLOW-ON MAINTENANCE:

None

END OF TASK

7-27 INSTALL REVERSIONARY ELECTRICAL HARNESS ASSEMBLY 7-27

INITIAL SETUP

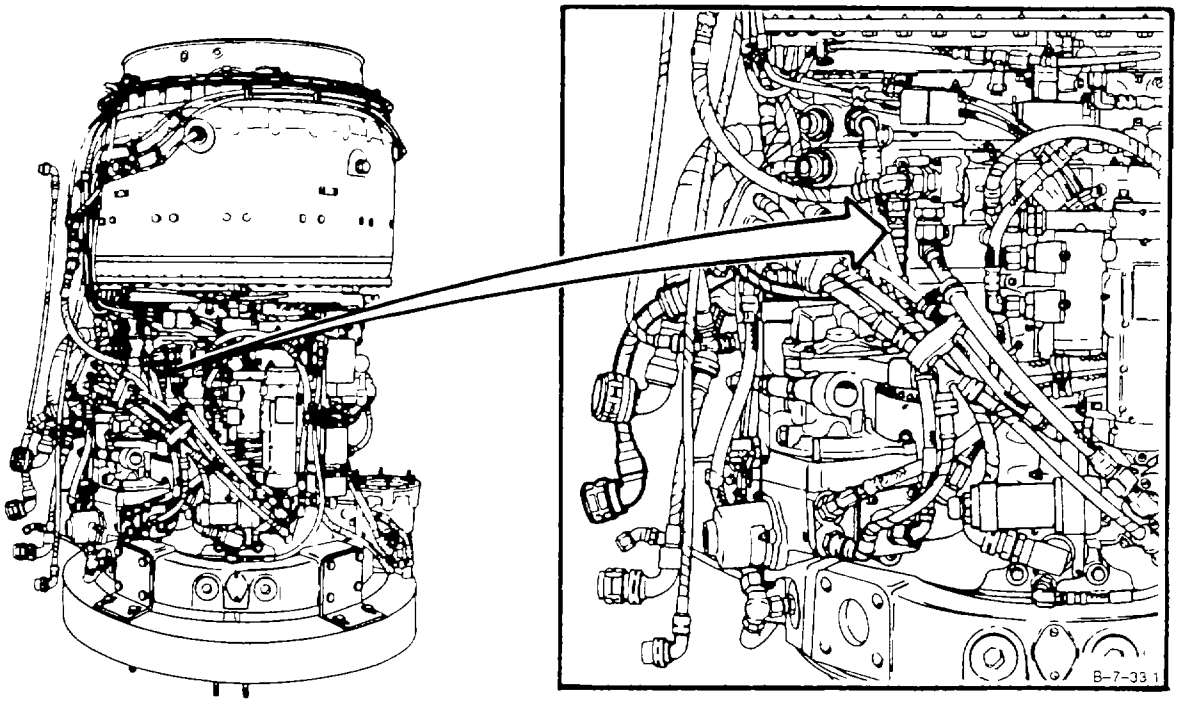
Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Technical Inspection Tool Kit,
NSN 5180-00-323-5114

Parts:
Strap

Personnel Required:
Aircraft Powerplant Repairer
Aircraft Powerplant Inspector

References:
TM 1-2840-252-23P



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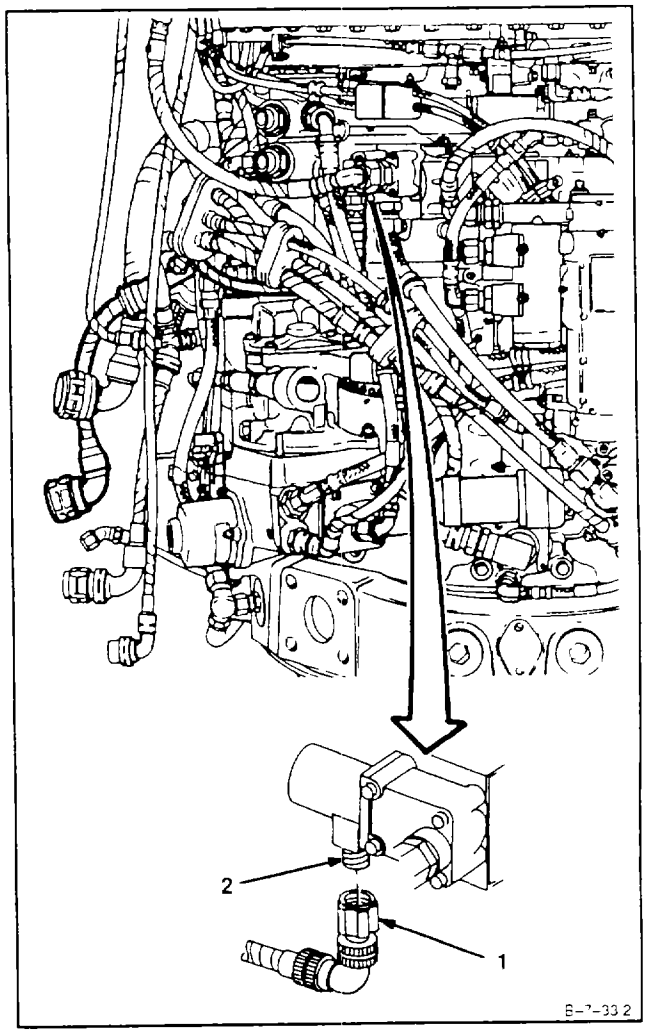
7-27 INSTALL REVERSIONARY ELECTRICAL HARNESS ASSEMBLY (Continued) 7-27

NOTE

In following step, it may be necessary to remove lockwire from electrical connector and reorient connector for proper installation. Be sure to lockwire electrical connector if lockwire was removed.

1. **Install electrical connector (1)** to solenoid valve (2).



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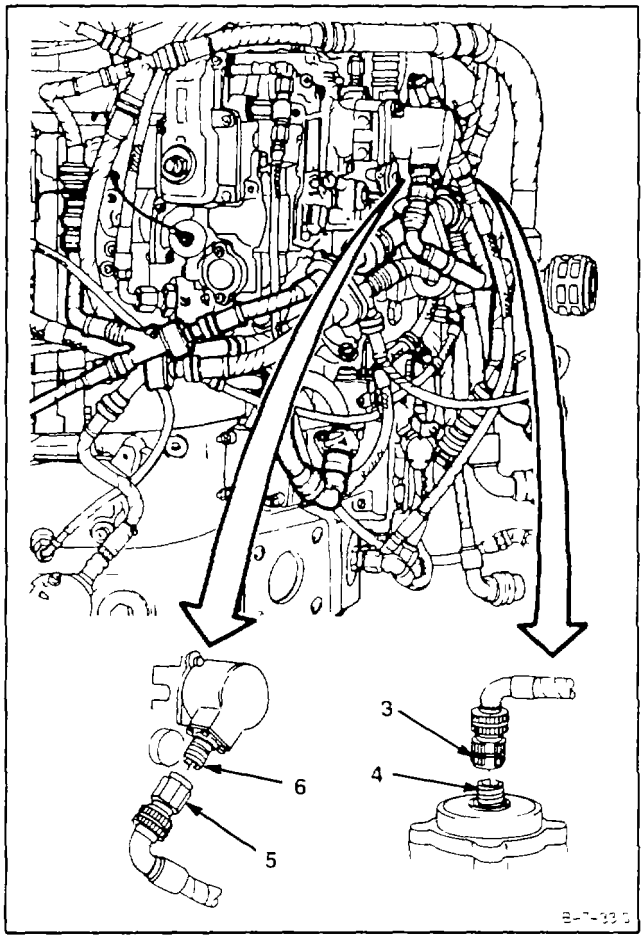
2. **Install electrical connector (3)** to alternator (4).
3. **Install electrical connector (5)** to stepper motor (6).



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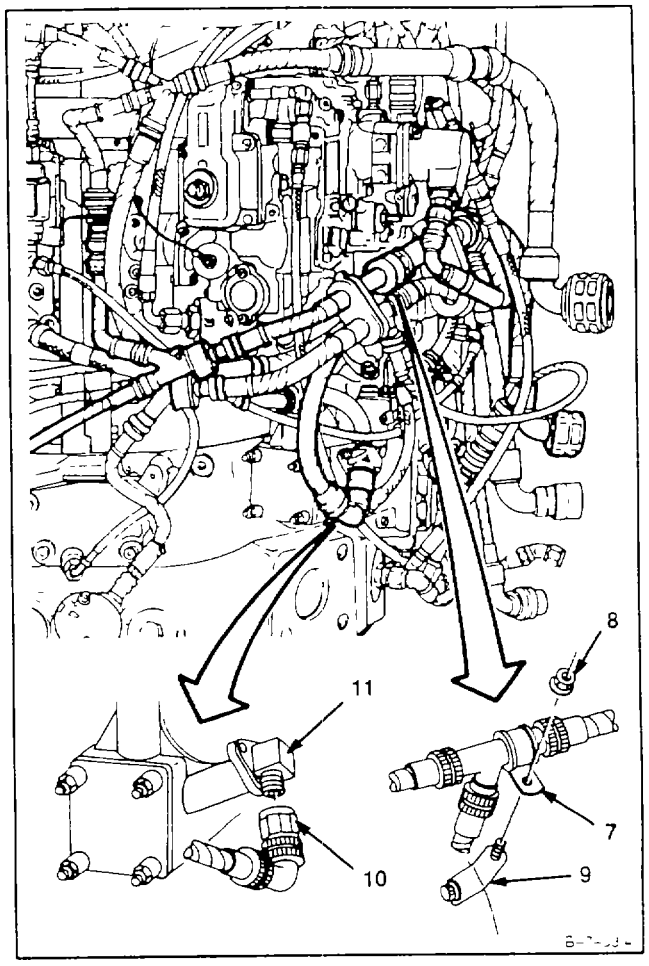
4. **Install clamp (7)** and nut (8) to bracket (9).

5. **Install electrical connector (10)** to PT speed pickup (11).



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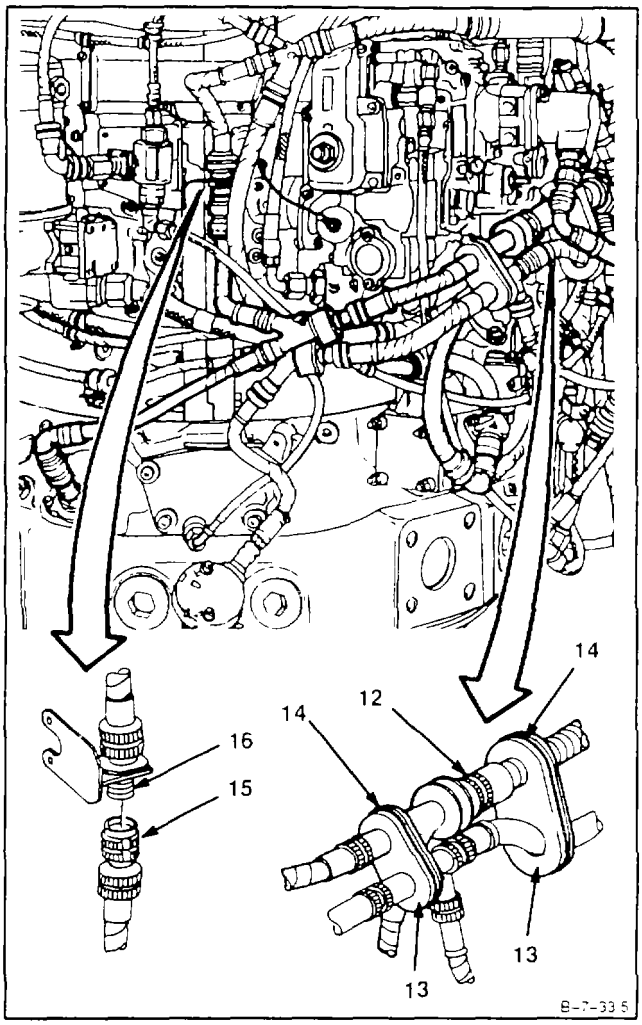
6. **Install harness (12)** to two cushions (13) and install straps (14) to cushions (13).

7. **Install electrical connector (15)** to primary electrical connector (16).



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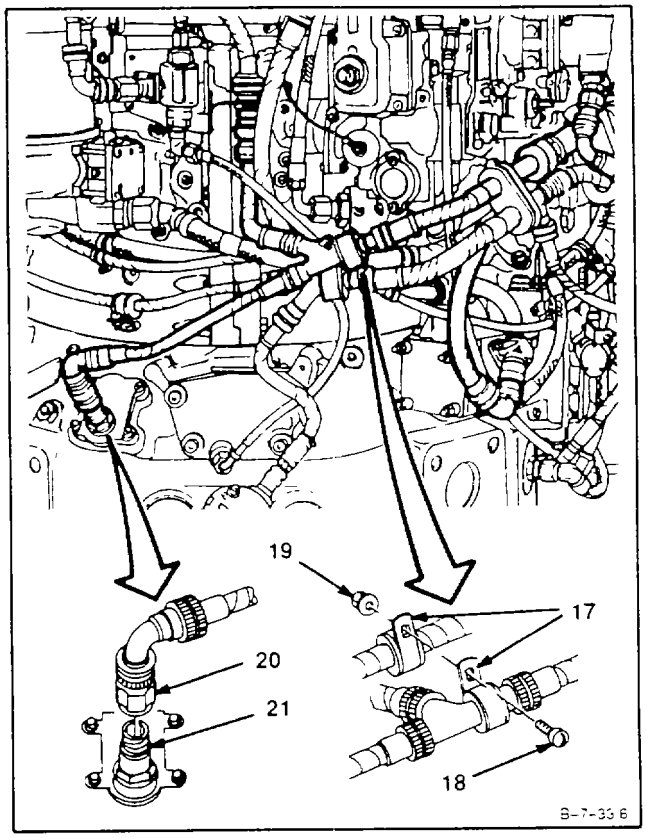
8. **Install clamps (17**), screw (18), and nut (19).

9. **Install electrical connector (20)** to T1 sensor (21).



INSPECT

FOLLOW-ON MAINTENANCE:
None

END OF TASK

SECTION VI
ACCESSORY ELECTRICAL HARNESS ASSEMBLY

7-28 REMOVE ACCESSORY ELECTRICAL HARNESS ASSEMBLY 7-28

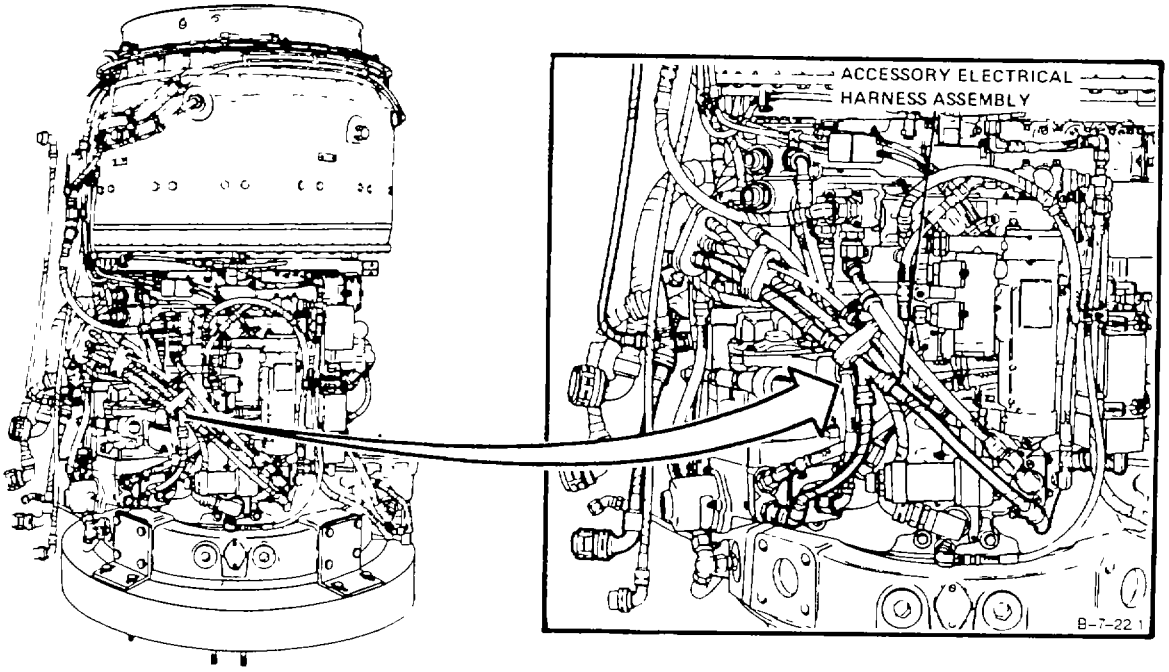
INITIAL SETUP

Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944

Materials:
None

Personnel Required:
Aircraft Powerplant Repairer



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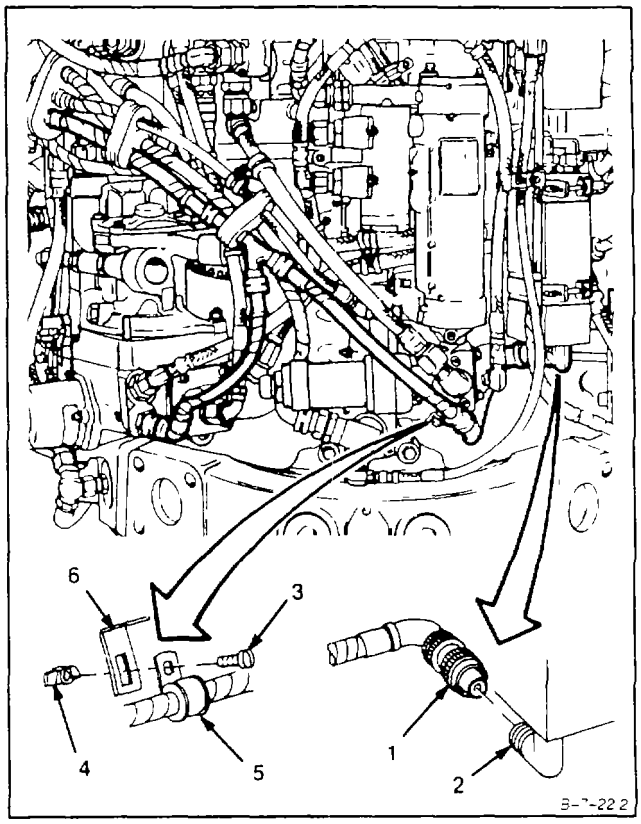
7-28 REMOVE ACCESSORY ELECTRICAL HARNESS ASSEMBLY (Continued) 7-28

1. **Disconnect electrical connector (1**) from ignition exciter (2).
2. **Remove** screw (3), nut (4), and **clamp** (5) from bracket (6).



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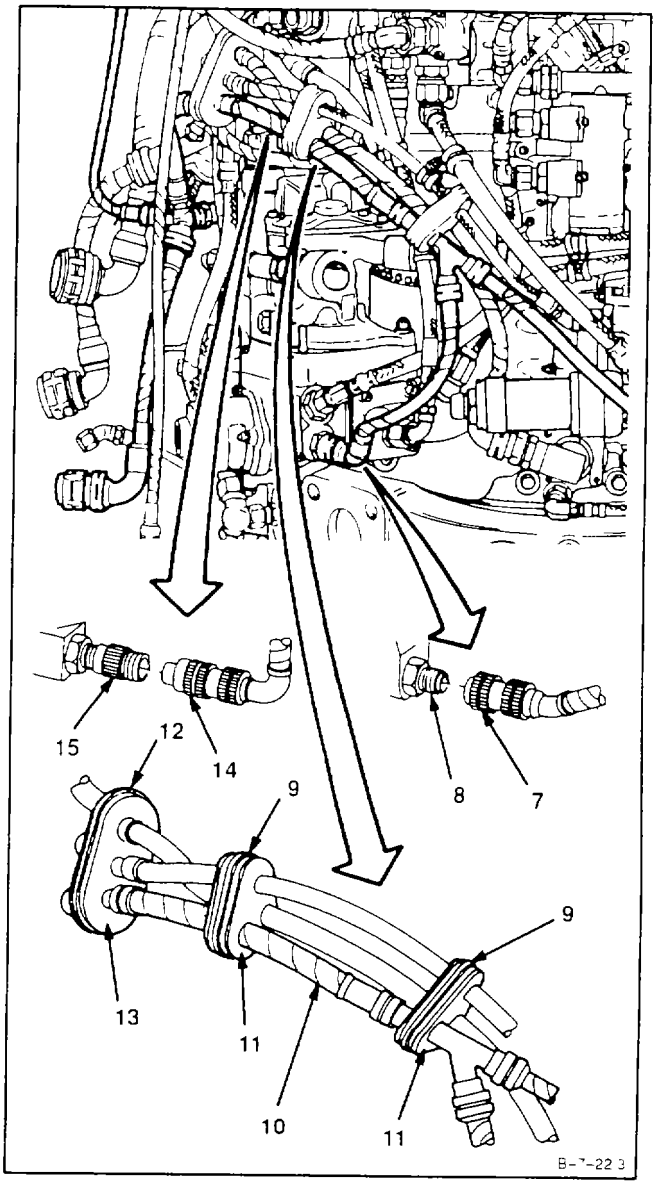
3. **Disconnect electrical connector (7)** from oil temperature bulb (8).
4. Cut two straps (9) and **remove harness (10)** from two cushions (11).
5. **Cut strap** (12) and **remove harness (10**) from cushion (13).
6. **Disconnect electrical connector (14)** from pick- up assembly (15).



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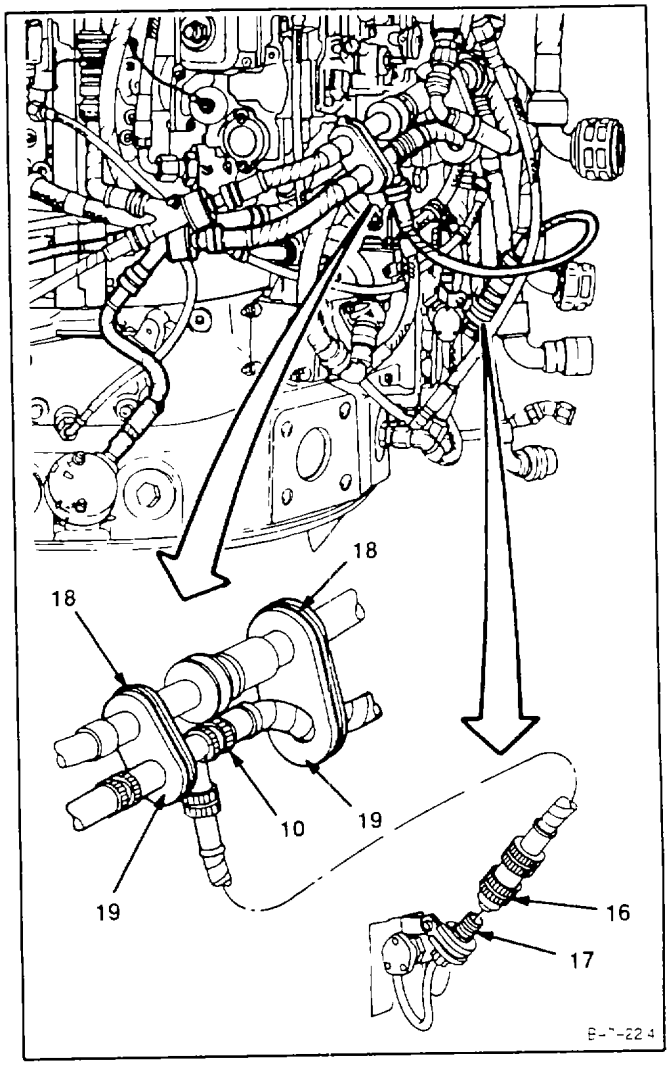
7. **Disconnect electrical connector (16)** from accessory gearbox chip detector (17).
8. Cut two straps (18) and **remove harness (10)** from two cushions (19).



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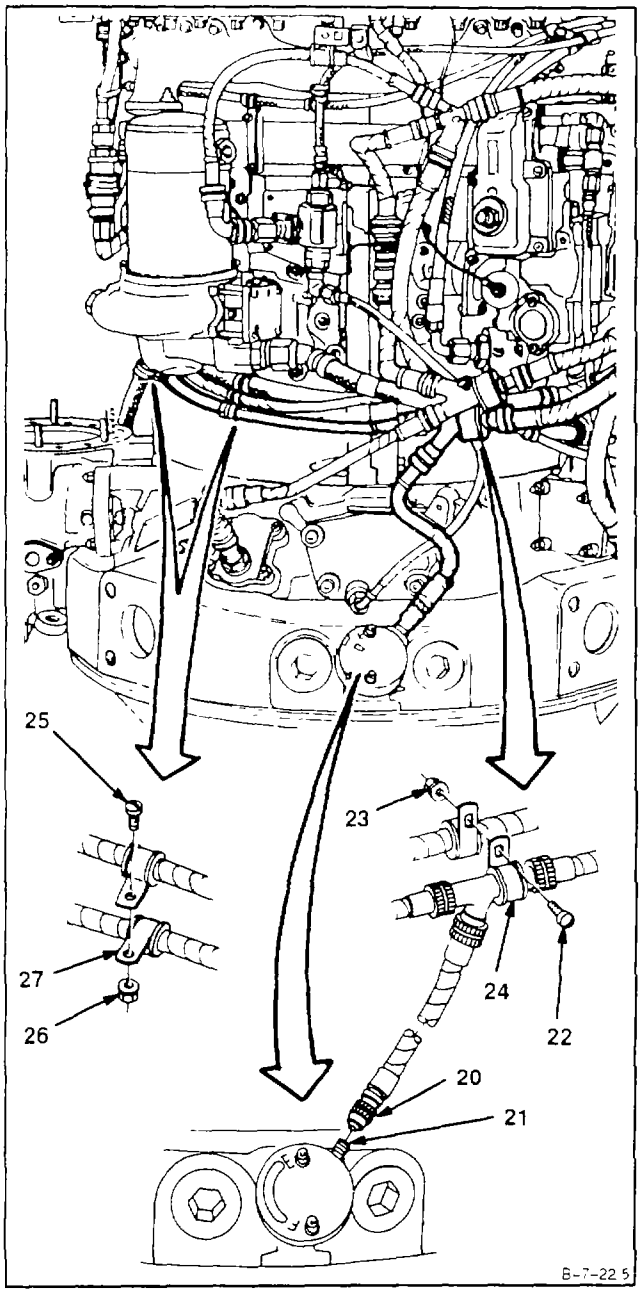
9. **Disconnect electrical connector (20)** from oil level indicator (21).
10. **Remove** screw (22), nut (23), and **clamp (24).**
11. **Remove** two screws (25), two nuts (26), and **two clamps (27).**



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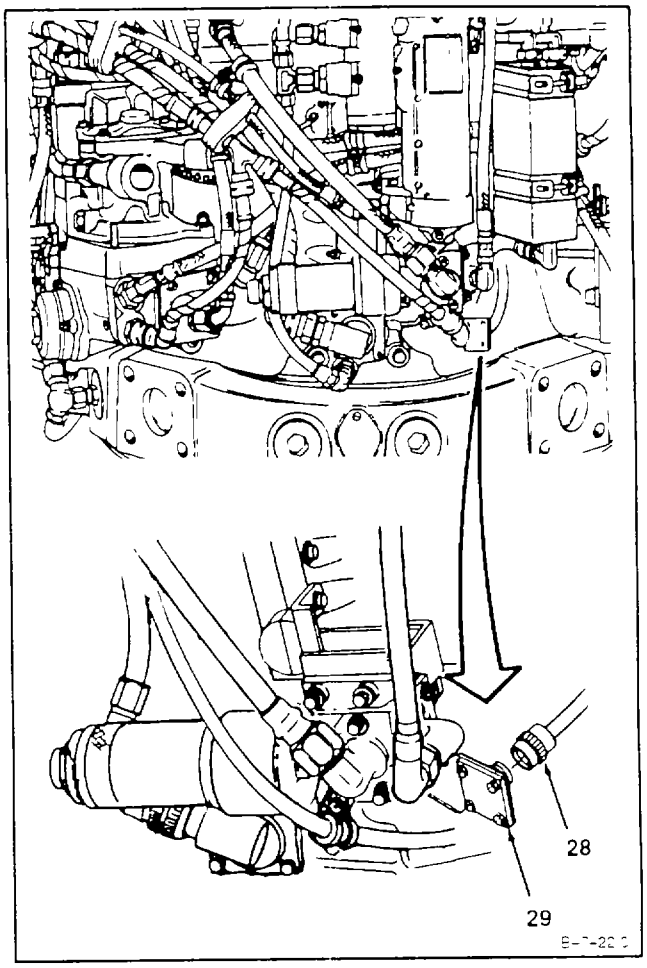
12. **Disconnect electrical connector (28)** from dummy connector (29).



FOLLOW-ON MAINTENANCE:
None

END OF TASK

7-29 CLEAN ACCESSORY ELECTRICAL HARNESS ASSEMBLY 7-29

INITIAL SETUP
Applicable Configurations:
All
Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944

Goggles

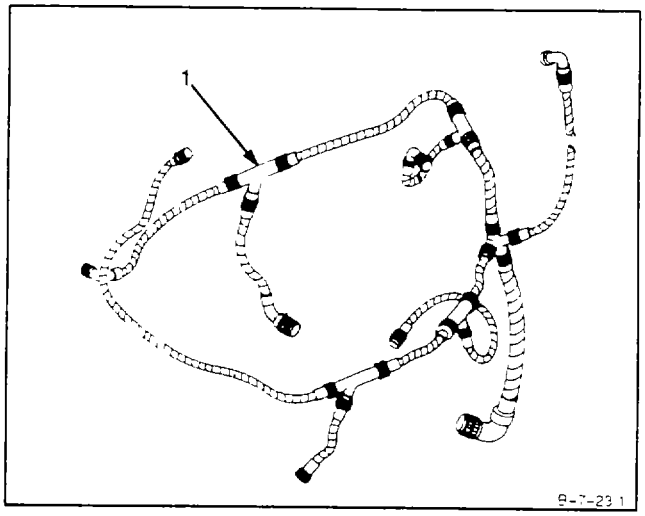
Dry, Compressed Air Source
Materials:
Gloves (E24) burns.
Lint-Free Cloth (E30)
Denatured Alcohol (E17)
Personnel Required:
Aircraft Powerplant Repairer

Equipment Condition:
Off Engine Task
Accessory Electrical Harness Assembly Removed (Task 7-28)
General Safety Instructions:

WARNING

Denatured alcohol (E17) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

1. Wear gloves (E24). **Clean accessory electrical harness assembly (1).** Use lint-free cloth (E30) dampened with denatured alcohol (El 7). Wipe dry using clean, dry, lint-free cloth (E30).

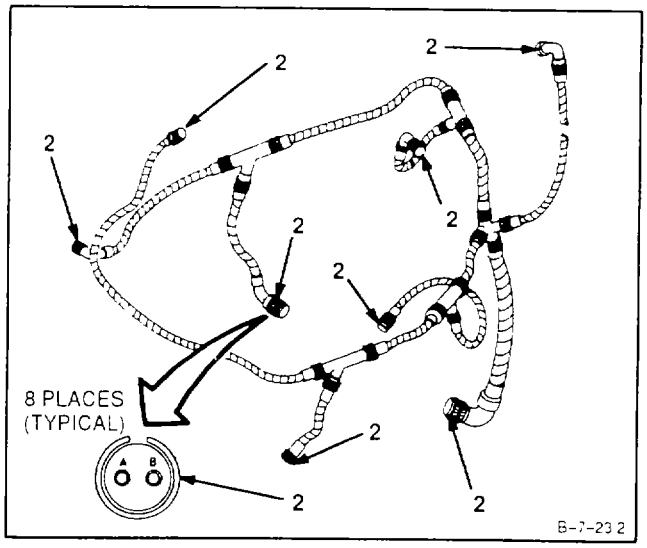


2. **Clean eight electrical connectors** (2). Use denatured alcohol (El 7) and brush.

WARNING

When using compressed air for clean- ing, use approved protective equipment for eyes and face. Do not use more than 30 psig air pressure. Do not direct air toward yourself or another person. Failure to comply could result in injury to eyes or skin. In case of injury, get medical attention.

3. Wear goggles. **Blow dry electrical connector (2)**. Use clean, dry, compressed air.



FOLLOW-ON MAINTENANCE:
Inspect Accessory Electrical Harness Assembly (Task 7-30).

END OF TASK

7-30 INSPECT ACCESSORY ELECTRICAL HARNESS ASSEMBLY 7-30

INITIAL SETUP

Applicable Configurations:
All

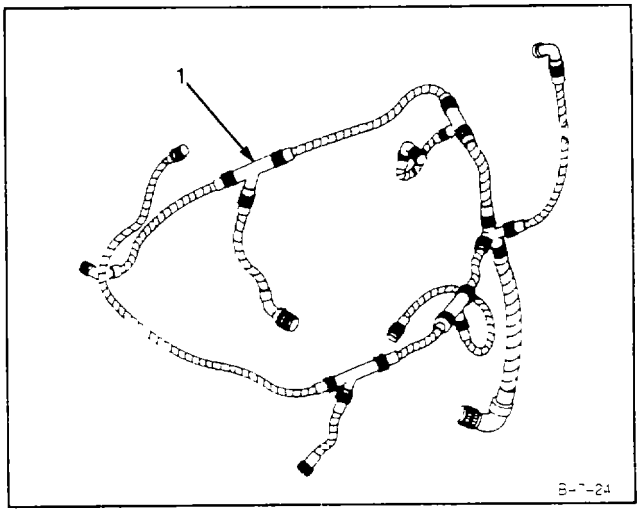
Tools:
Technical Inspection Tool Kit,
NSN 5180-00-323-5114

Materials:
None

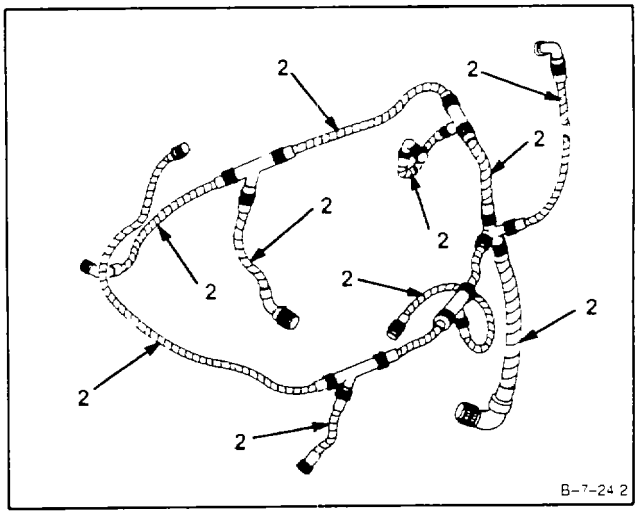
Personnel Required:
Aircraft Powerplant Inspector

Equipment Condition:
Off Engine Task

1. **Inspect accessory electrical harness assembly (1).** There shall be no frayed or burned insulation. There shall be no loose connections or broken wires.



2. **Inspect sleeving (2).** There shall be no frayed or broken sleeving.



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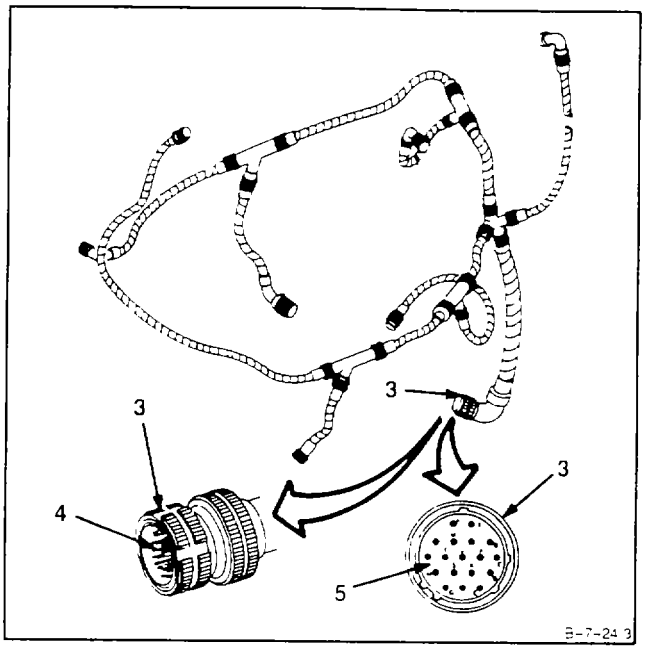
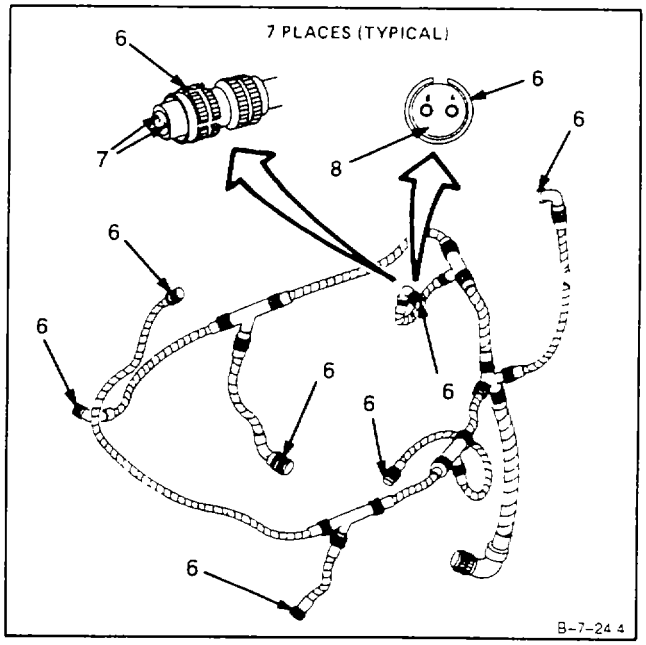
3. **Inspect electrical connector (3).** There shall be no corrosion, broken or bent pins (4), or cracked insulation (5).



4. **Inspect seven electrical connectors (6).** There shall be no corrosion, broken or bent sleeves (7) or cracked insulation (8).



FOLLOW-ON MAINTENANCE:
None

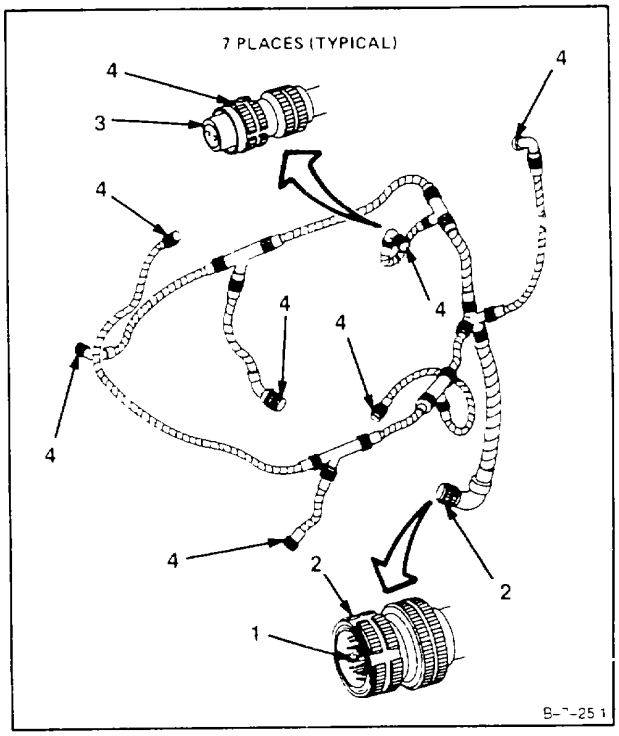
END OF TASK

7-31 REPAIR ACCESSORY ELECTRICAL HARNESS ASSEMBLY 7-31

INITIAL SETUP
Applicable Configurations
All
Tools:
Powerplant Mechanic's Tool Kit, NSN 5180-00-323-4944
Technical Inspection Tool Kit, NSN 5180-00-323-5114
Hand File Set
Materials:
Crocus Cloth (E16)
Personnel Required:
Aircraft Powerplant Repairer
Aircraft Powerplant Inspector
Equipment Condition:
Off Engine Task

NOTE
This repair is allowed provided it does not cause pin to break or crack.

1. **Straighten bent pin (1)** of electrical connector (2). Use long nose pliers to gently move pin (1) until it is straight.
2. **Remove corrosion from pin (1)** of electrical connector (2). Use crocus cloth (E16).
3. **Remove corrosion from sleeve (3)** of electrical connectors (4). Use round hand file.



INSPECT

FOLLOW-ON MAINTENANCE:
None

END OF TASK

7-32 TEST ACCESSORY ELECTRICAL HARNESS ASSEMBLY 7-32

INITIAL SETUP
Applicable Configurations:
All
Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Multimeter
Materials:
None
Personnel Required:
Aircraft Powerplant Repairer

1. Using multimeter, **measure continuity and insulation resistance of cable harness assembly** (1) as follows:

   a. Set multimeter range switch to R x 1.

   b. Touch red probe (2) to electrical connector (3), center sleeve (4).

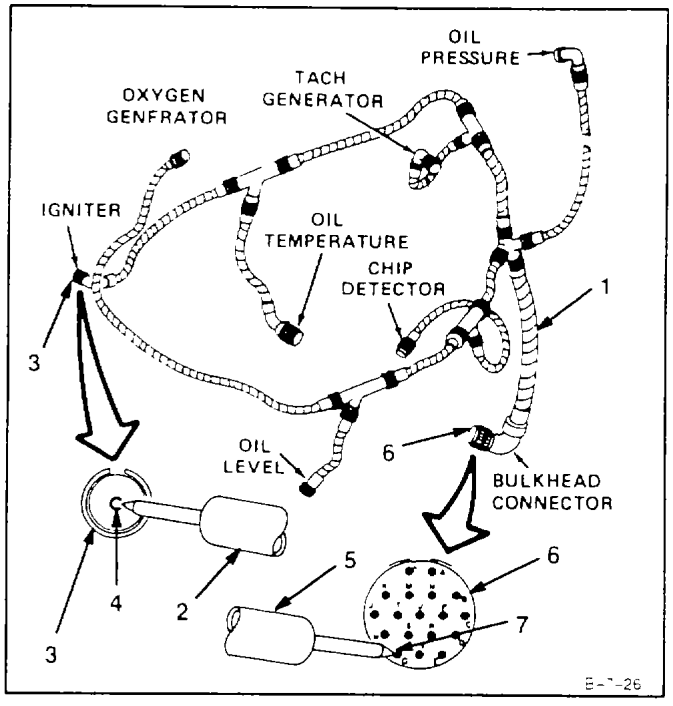
   c. Touch black probe (5) to electrical connector (6), pin G (7).

   d. Meter shall indicate **zero ohms.**

   e. Set multimeter range switch to R x 1000.

   f. Touch black probe (5) to all other pins on electrical connector (6).

   g. Meter shall indicate **1000 ohms** minimum.



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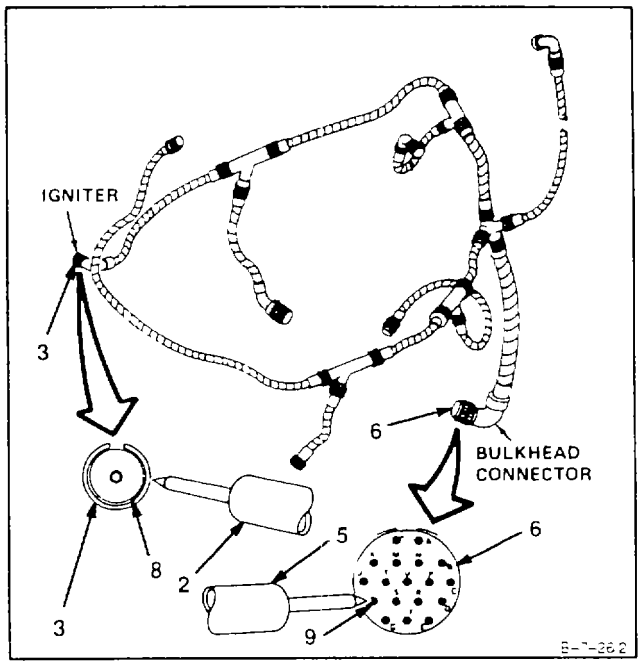
h. Set multimeter range switch to R x 1.

i. Touch red probe (2) to electrical connector (3), shell (8).

j. Touch black probe (5) to electrical connector (6), pin H (9).

k. Meter shall indicate **zero ohms.**



l. Set multimeter range switch to R x 1.

m. Touch red probe (2) to electrical connector (10), sleeve A (11).

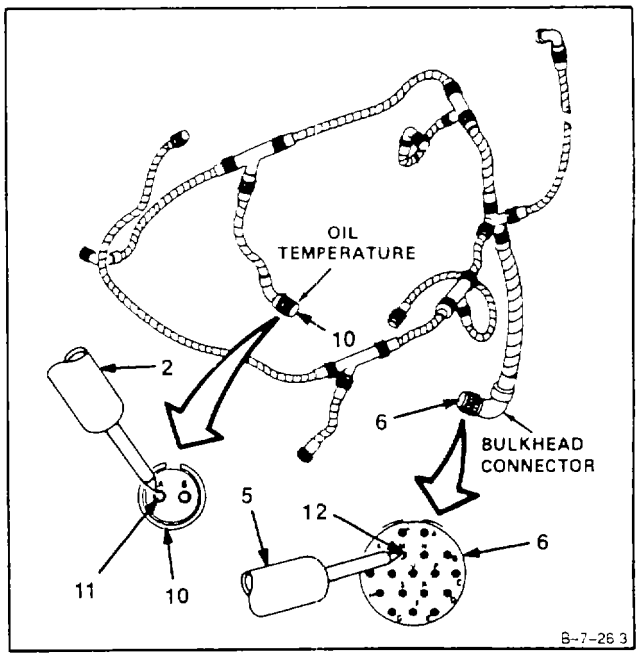
n. Touch black probe (5) to electrical connector (6), pin M (12).

o. Meter shall indicate **zero ohms.**

p. Set multimeter range switch to R x 1000.

q. Touch black probe (5) to all other pins on electrical connector (6).

r. Meter shall indicate **1000 ohms** minimum.



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s. Set multimeter range switch to R x 1.

t. Touch red probe (2) to electrical connector (10), sleeve B (13).

u. Touch black probe (5) to electrical connector (6), pin N (14).

v. Meter shall indicate **zero ohms.**

w. Set multimeter range switch to R x 1000.

x. Touch black probe (5) to all other pins on electrical connector (6).

y. Meter shall indicate **1000 ohms** minimum.

z. Set multimeter range switch to R x 1.

aa. Touch red probe (2) to electrical connector (14), sleeve A (15).

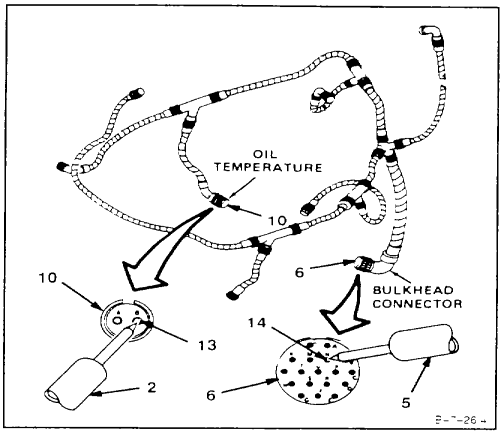
ab. Touch black probe (5) to electrical connector (6), pin A (16).

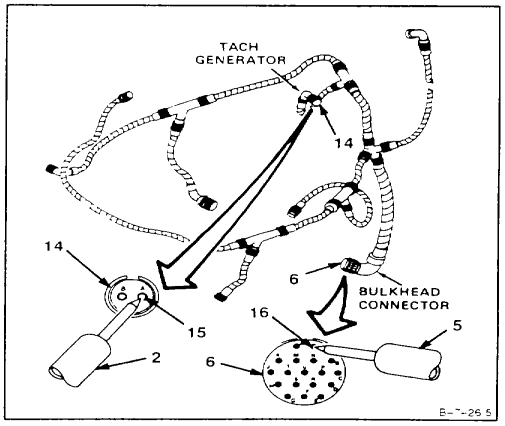
ac. Meter shall indicate **zero ohms.**

ad. Set multimeter range switch to R x 1000.

ae. Touch black probe (5) to all other pins on electrical connector (6).

af. Meter shall indicate **1000 ohms** minimum.





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ag. Set multimeter range switch to R x 1.

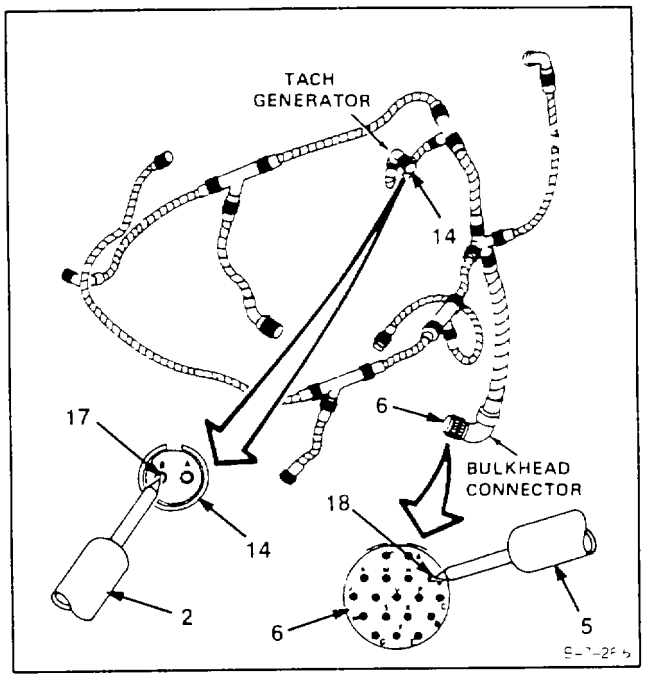
ah. Touch red probe (2) to electrical connector (14), sleeve B (17).

ai. Touch black probe (5) to electrical connector (6), pin B (18).

aj. Meter shall indicate **zero ohms.**

ak. Set multimeter range switch to R x 1000.

al. Touch black probe (5) to all other pins on electrical connector (6).



am. Meter shall indicate **1000 ohms** minimum.

an. Set multimeter range switch to R x 1.

ao. Touch red probe (2) to electrical connector (14), shell (19).

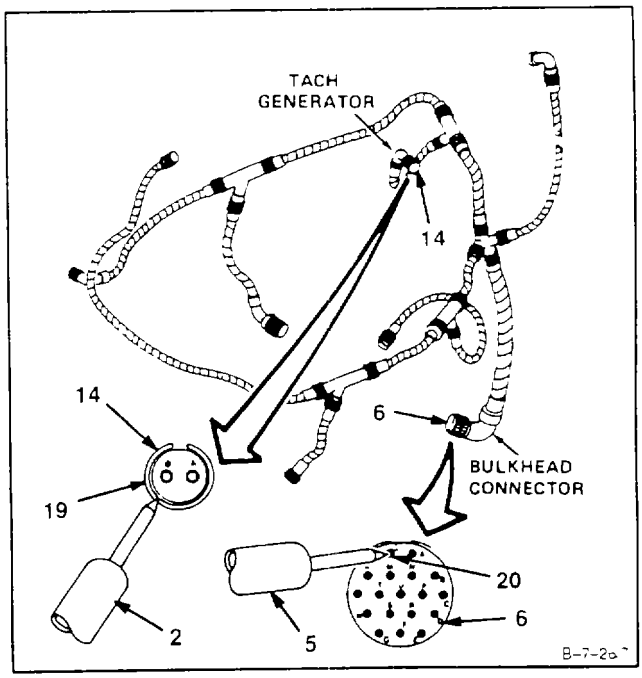
ap. Touch black probe (5) to electrical connector (6), pin L (20).

aq. Meter shall indicate **zero ohms.**

ar. Set multimeter range switch to R x 1000.

as. Touch black probe (5) to all other pins on electrical connector (6).

at. Meter shall indicate **1000 ohms** minimum.



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au. Set multimeter range switch to R x 1.

av. Touch red probe (2) to electrical connector (21), pin A (22).

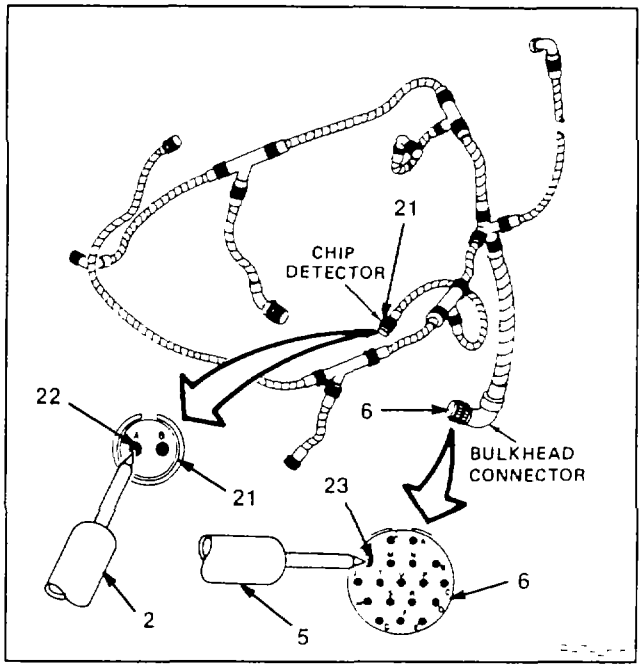
aw. Touch black probe (5) to electrical connector (6), pin K (23).

ax. Meter shall indicate **zero ohms.**

ay. Set multimeter range switch to R x 1000.

az. Touch black probe (5) to all other pins on electrical connector (6).

ba. Meter shall indicate **1000 ohms** minimum.



bb. Set multimeter range switch to R x 1.

bc. Touch red probe (2) to electrical connector (21), pin B (24).

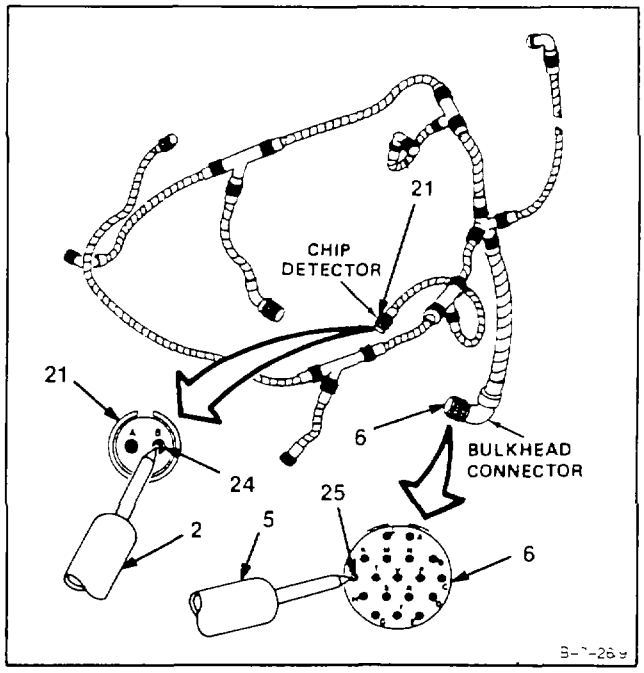
bd. Touch black probe (5) to electrical connector (6), pin J (25).

be. Meter shall indicate **zero ohms.**

bf. Set multimeter range switch to R x 1000.

bg. Touch black probe (5) to all other pins on electrical connector (6).

bh. Meter shall indicate **1000 ohms** minimum.



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bi. Set multimeter range switch to R x 1.

bj. Touch red probe (2) to electrical connector (26), center sleeve (27).

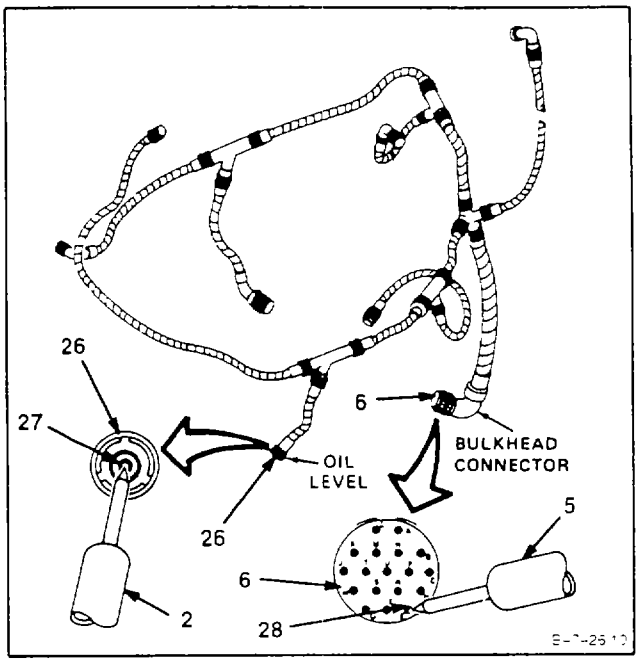
bk. Touch black probe (5) to electrical connector (6), pin E (28).

bl. Meter shall indicate **zero ohms.**

bm. Set multimeter range switch to R x 1000.

bn. Touch black probe (5) to all other pins on electrical connector (6).

bo. Meter shall indicate **1000 ohms** minimum.

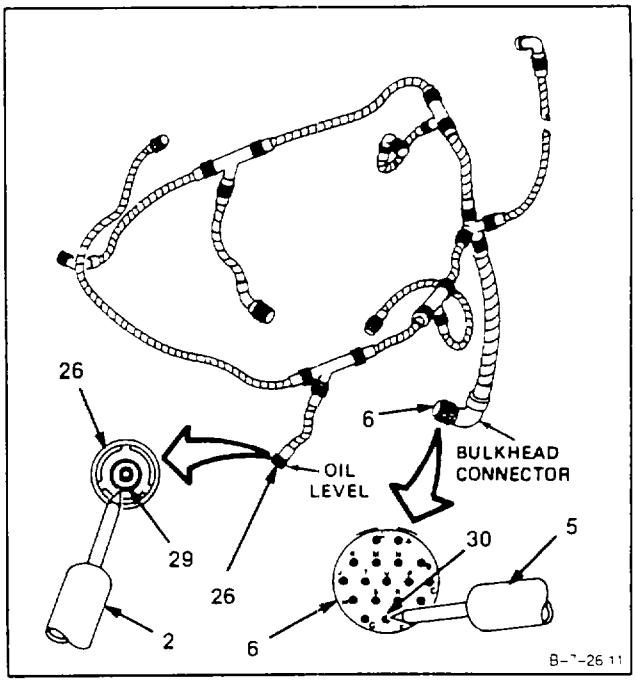


bp. Set multimeter range switch to R x 1.

bq. Touch red probe (2) to electrical connector (26), shell (29).

br. Touch black probe (5) to electrical connector (6), pin F (30).

bs. Meter shall indicate **zero ohms.**



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bt. Set multimeter range switch to R x 1.

bu. Touch red probe (2) to electrical connector (31), sleeve A (32).

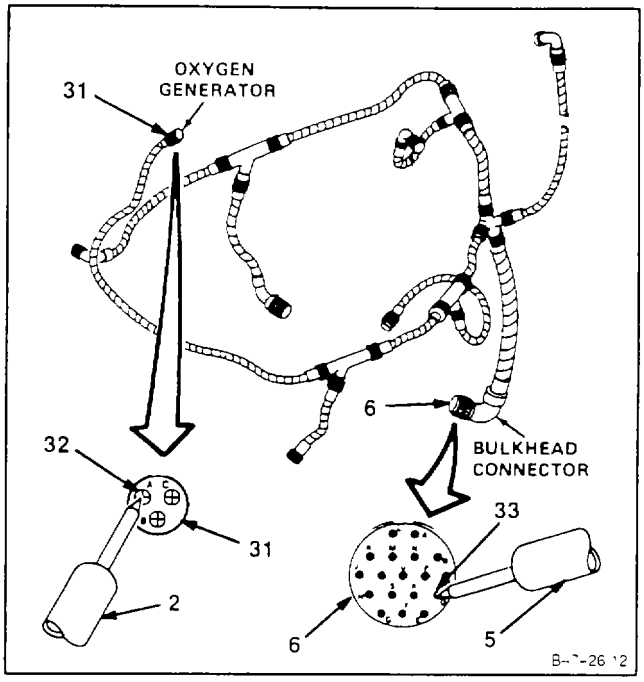
bv. Touch black probe (5) to electrical connector (6), pin D (33).

bw. Meter shall indicate **zero ohms.**

bx. Set multimeter range switch to R x 1000.

by. Touch black probe (5) to all other pins on electrical connector (6)

bz. Meter shall indicate **1000 ohms** minimum.



ca. Set multimeter range switch to R x 1.

cb. Touch red probe (2) to electrical connector (31), sleeve B (34).

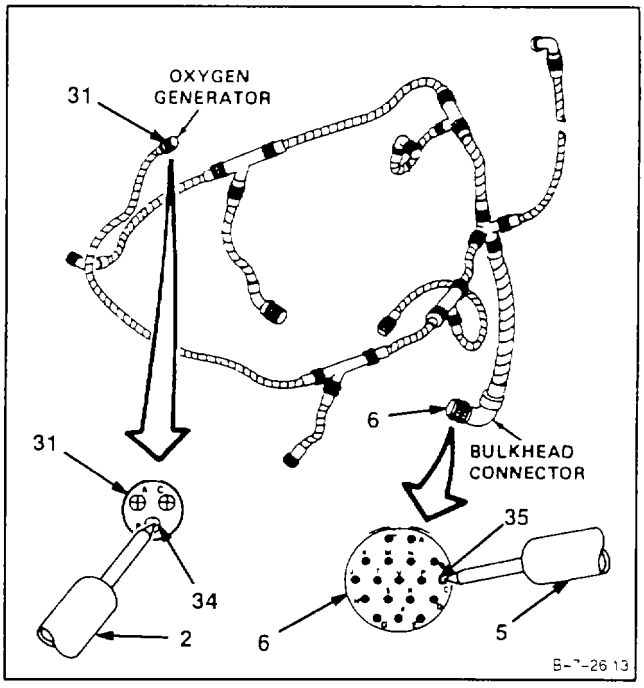
cc. Touch black probe (5) to electrical connector (6), pin C (35).

cd. Meter shall indicate **zero ohms.**

ce. Set multimeter range switch to R x 1000.

cf. Touch black probe (5) to all other pins on electrical connector (6).

cg. Meter shall indicate **1000 ohms** minimum.



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ch. Set multimeter range switch to R x 1.

ci. Touch red probe (2) to electrical connector (36), sleeve A (37).

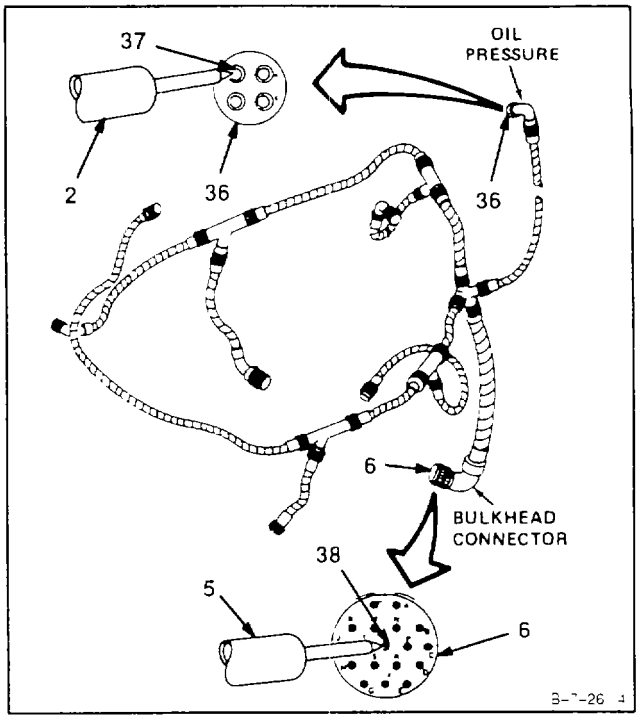
cj. Touch black probe (5) to electrical connector (6), pin U (38).

ck. Meter shall indicate **zero ohms.**

cl. Set multimeter range switch to R x 1000.

cm. Touch black probe (5) to all other pins on electrical connector (6).

cn. Meter shall indicate **1000 ohms** minimum.



co. Set multimeter range switch to R x 1.

cp. Touch red probe (2) to electrical connector (36), sleeve B (39).

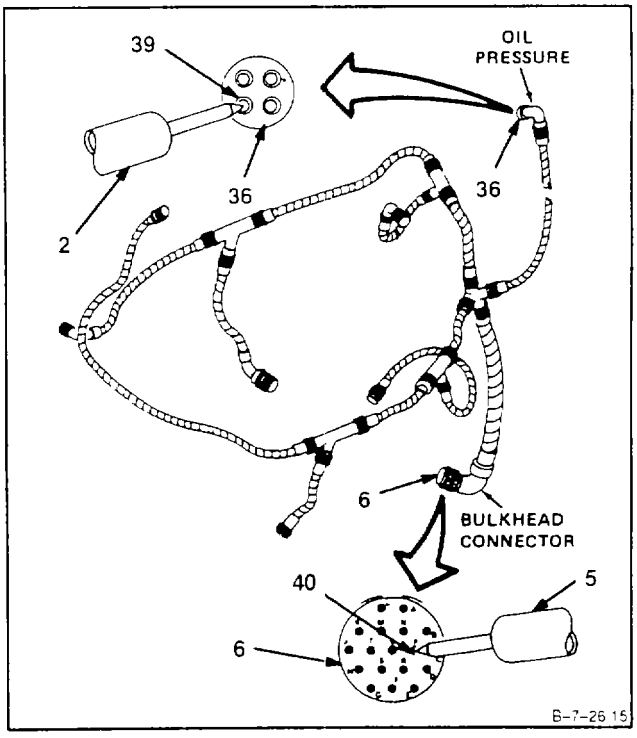
cq. Touch black probe (5) to electrical connector (6), pin P (40).

cr. Meter shall indicate **zero ohms.**

cs. Set multimeter range switch to R x 1000.

ct. Touch black probe (5) to all other pins on electrical connector (6).

cu. Meter shall indicate **1000 ohms** minimum.



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cv. Set multimeter range switch to R x 1.

cw. Touch red probe (2) to electrical connector (36), sleeve C (41).

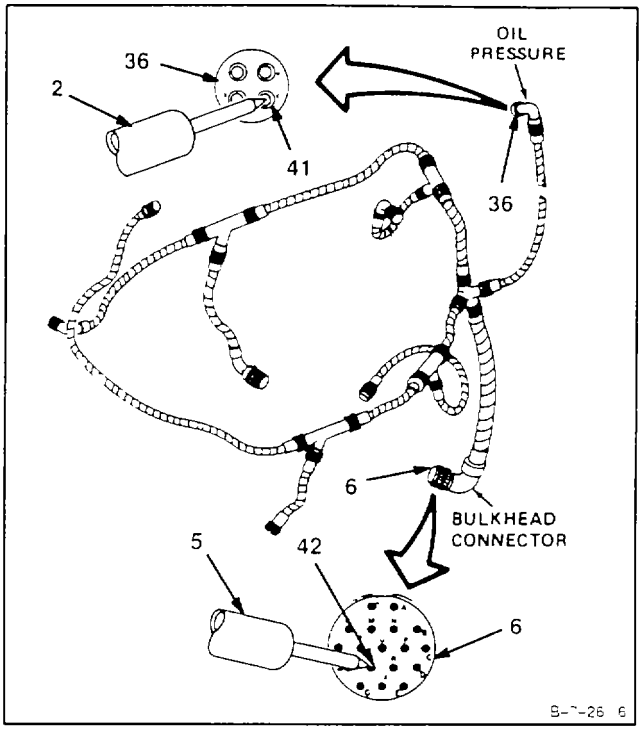
cx. Touch black probe (5) to electrical connector (6), pin S (42).

cy. Meter shall indicate **zero ohms.**

cz. Set multimeter range switch to R x 1000.

da. Touch black probe (5) to all other pins on electrical connector (6).

db. Meter shall indicate **1000 ohms** minimum.



dc. Set multimeter range switch to R x 1.

dd. Touch red probe (2) to electrical connector (36), sleeve D (43).

de. Touch black probe (5) to electrical connector (6), pin R (44).

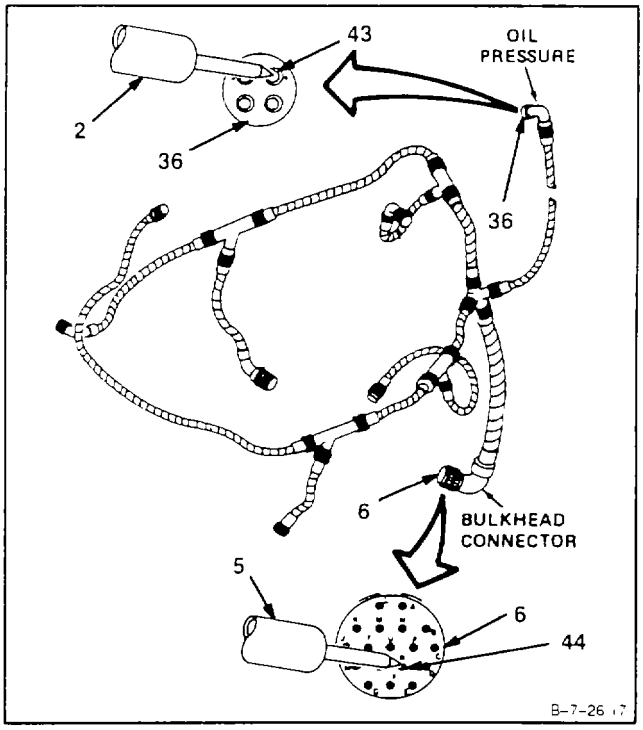
df. Meter shall indicate **zero ohms**.

dg. Set multimeter range switch to R x 1000.

dh. Touch black probe (5) to all other pins on electrical connector (6).

di. Meter shall indicate **1000 ohms** minimum.

FOLLOW-ON MAINTENANCE:
None



END OF TASK

7-33 INSTALL ACCESSORY ELECTRICAL HARNESS ASSEMBLY 7-33

INITIAL SETUP

Applicable Configurations

All

Tools:

Powerplant Mechanic's Tool Kit, NSN 5180-00-323-4944

Technical Inspection Tool Kit, NSN 51 80-00-323-5114

Parts:

Strap

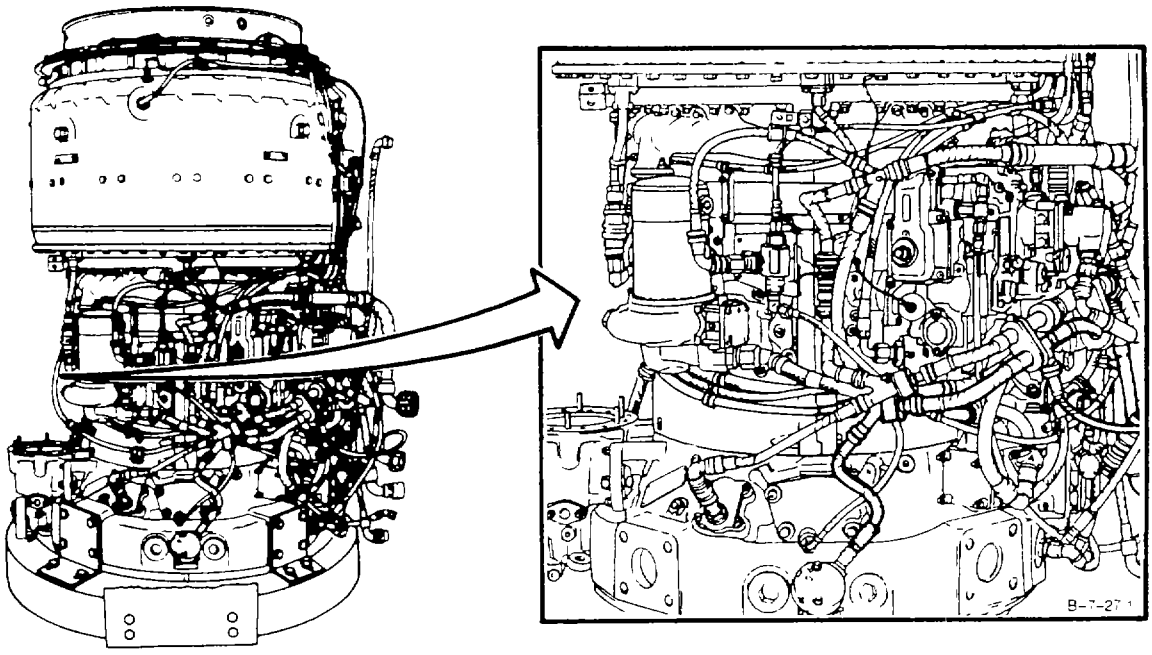
Personnel Required:

Aircraft Powerplant Repairer

Aircraft Powerplant Inspector

References:

TM 1-2840-252-23P



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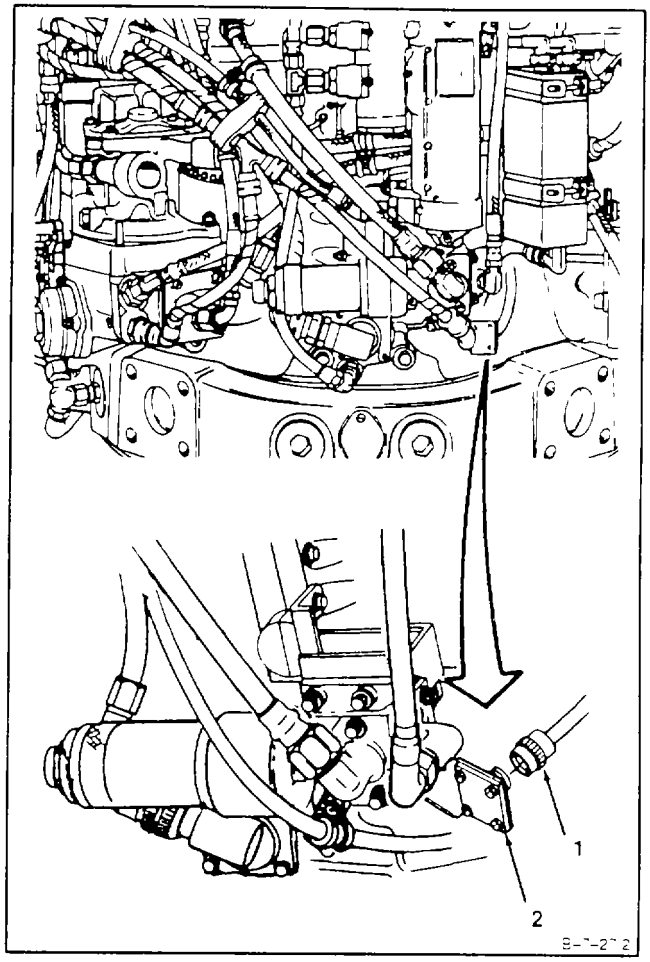
1. **Connect electrical connector** (1) to dummy connector (2).



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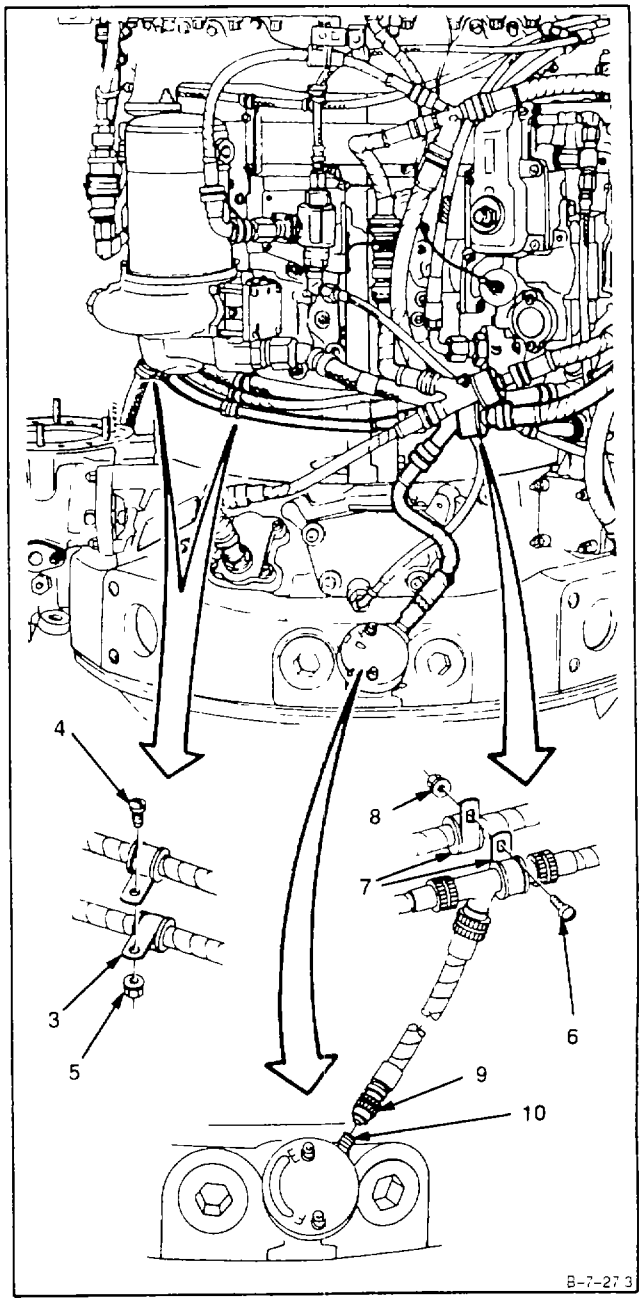
2. **Install two clamps (3),** two screws (4), and two nuts (5).
3. **Install** screw (6), **clamps (7**), and nut (8).
4. **Install electrical connector (9)** to oil level indicator (10).



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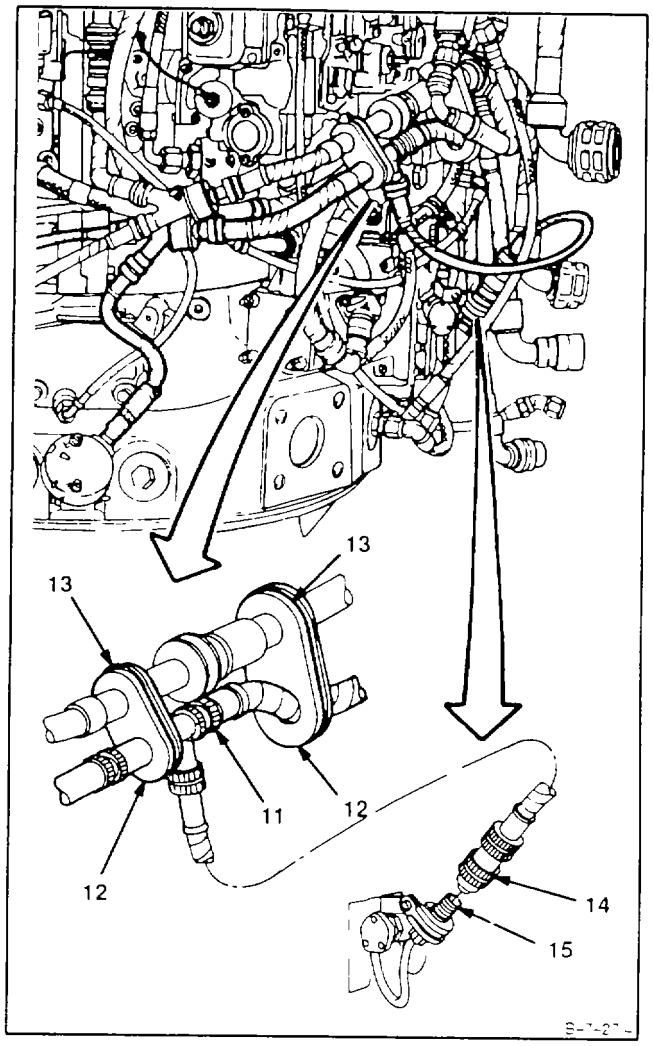
5. **Install harness assembly (11)** to two cushions (12) and two straps (13).

6. **Install electrical connector (14)** to accessory gearbox chip detector (15).



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NOTE

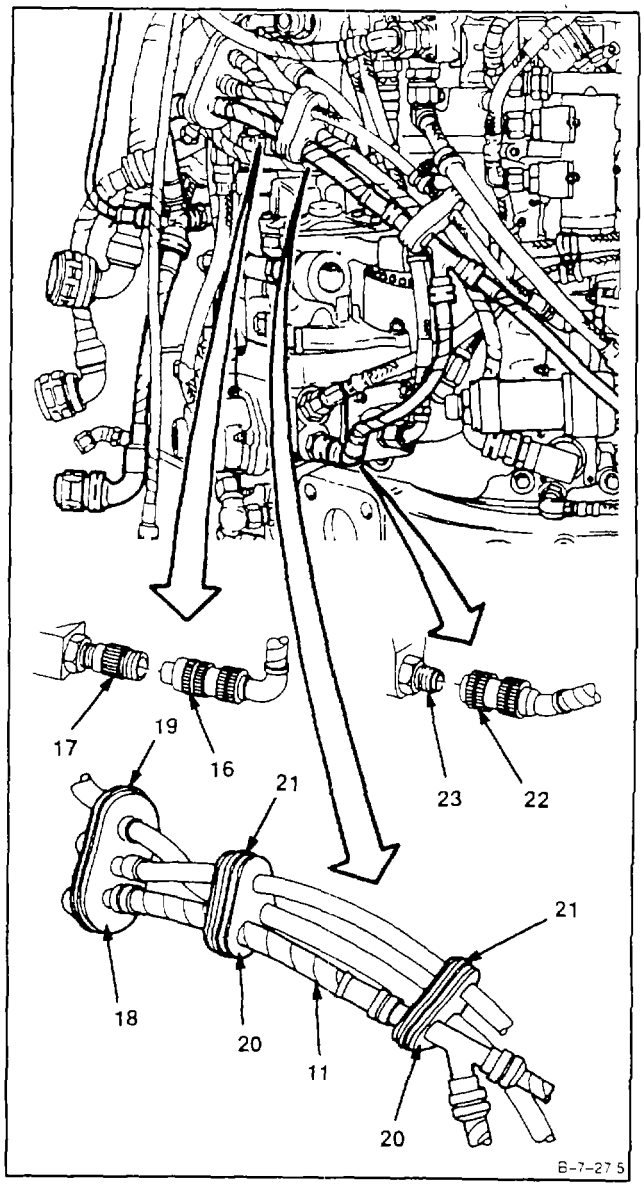
In following step, it may be necessary to remove lockwire from electrical connector and reorient connector for proper installation. Be sure to lockwire electrical connector if lockwire was removed.

7. **Install electrical connector (16)** to pickup assembly (17).

8. **Install harness assembly (11)** to cushion (18) and strap (19).

9. **Install harness assembly (11)** to two cushions (20) and straps (21).

10. **Install electrical connector (22)** to oil temperature bulb (23).



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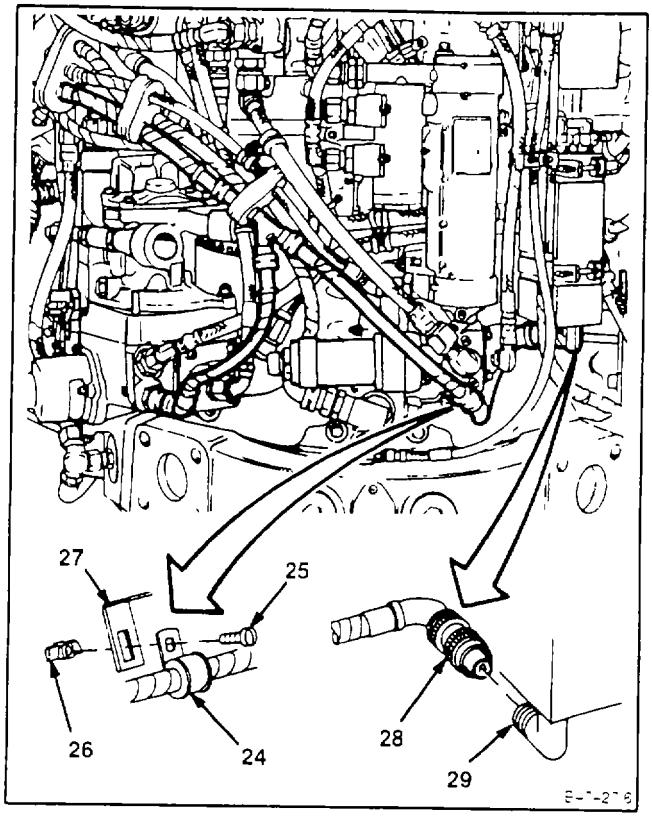
NOTE

Make sure that nut (26) is securely fastened to bracket with long section of nut perpendicular to slot.

11. **Install clamp (24),** screw (25), and nut (26) to bracket (27).

12. **Install electrical connector (28)** to ignition igniter (29).



INSPECT

FOLLOW-ON MAINTENANCE:
None

END OF TASK

CHAPTER 8

LUBRICATION SYSTEM - MAINTENANCE INSTRUCTIONS

CHAPTER OVERVIEW

This chapter contains maintenance procedures for the lubrication system. It is divided into the following sections
and tasks:

SECTION I

MAIN OIL PUMP, SPEED PICKUP DRIVE ASSEMBLY, SCAVENGE OIL SCREEN, AND RELATED PARTS

8-1 REMOVE MAIN OIL PUMP, SPEED PICKUP DRIVE ASSEMBLY, SCAVFNGE OIL SCREEN, AND RELATED PARTS

INITIAL SETUP

Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit, NSN 5180-00-323-4944
Container, 1 Quart
Crowfoot Attachment, 7/8 inch

Materials:
Lockwire (E33)
Wiping Rag (E64)

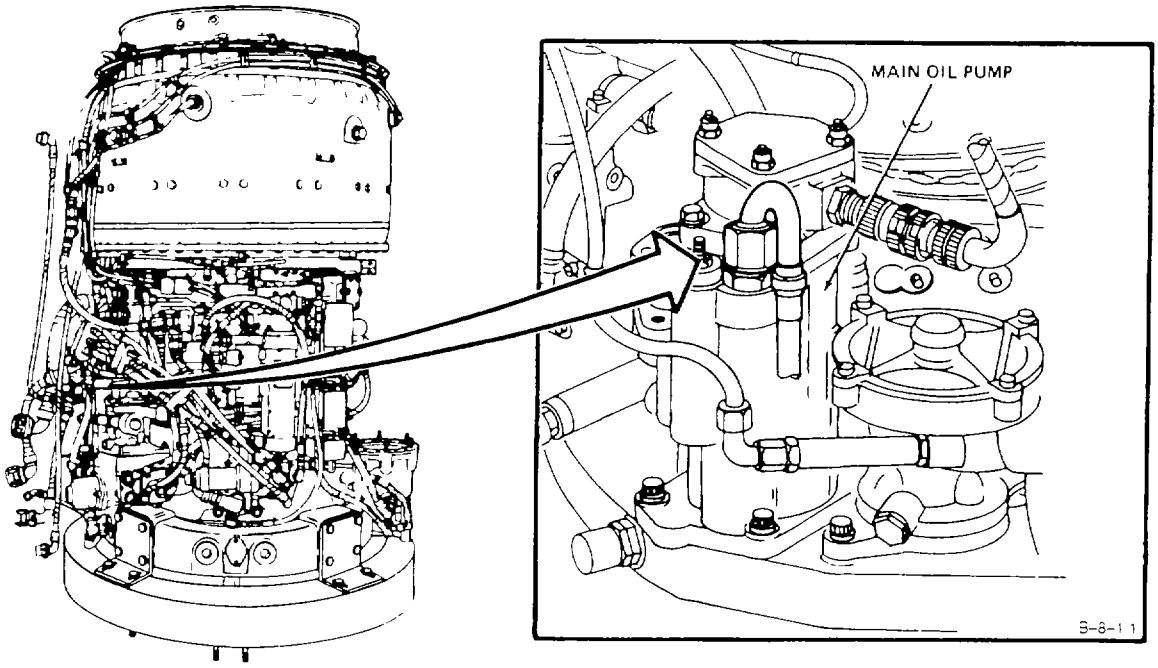
Personnel Required:
Aircraft Powerplant Repairer

Equipment Condition:
Tube Assembly Removed (Inlet Housing to Main Oil Pump) (Task 8-65)

General Safety Instructions:

WARNING

Lubricating oils cause paralysis if swallowed. Prolonged contact with them may irritate the skin. Handle only in well-ventilated areas away from heat and flame. Drain and store in approved metal safety containers. Avoid prolonged or repeated contact with skin and do not take internally. Wash contacted area of skin thoroughly after handling. If irritation of skin results, get medical attention. Get medical attention for eyes.



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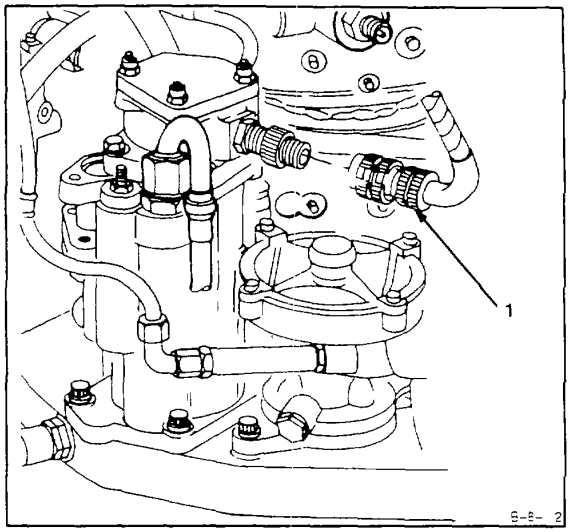
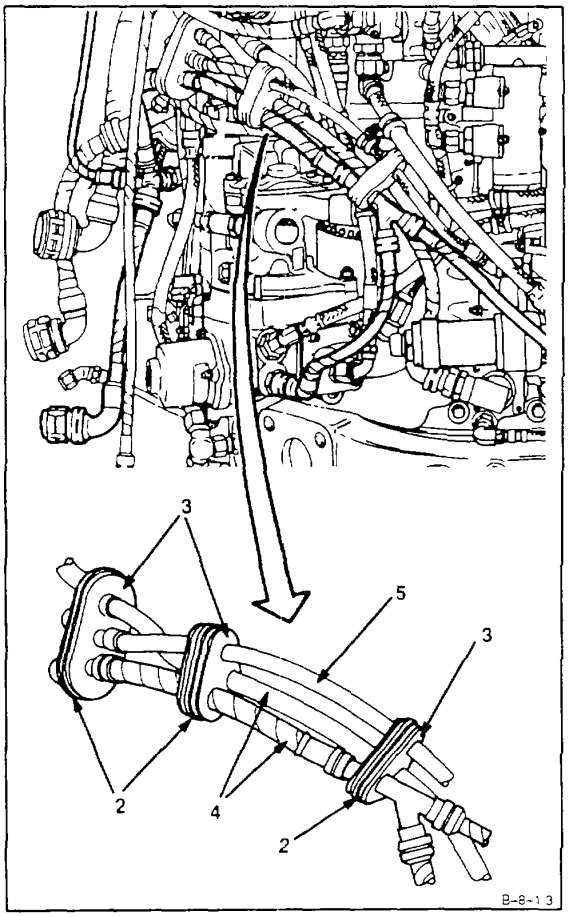
1. **Disconnect electrical connector (1).**



2. Cut three straps (2) and remove three cushions (3).
Reposition two harness assemblies (4), and one fuel hose assembly (5).



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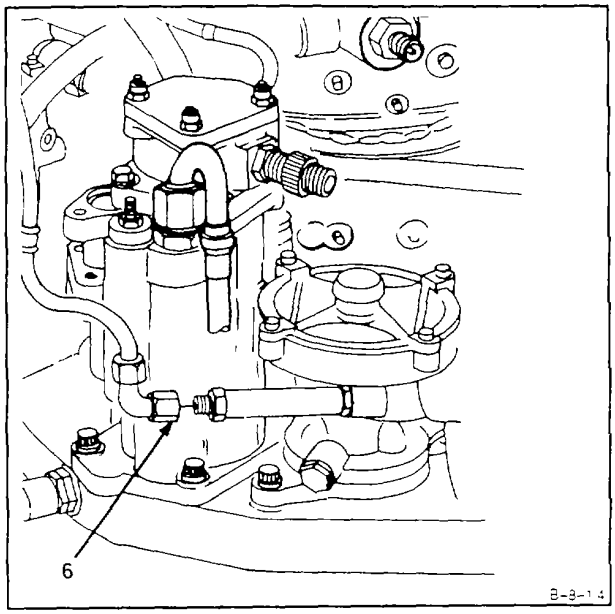
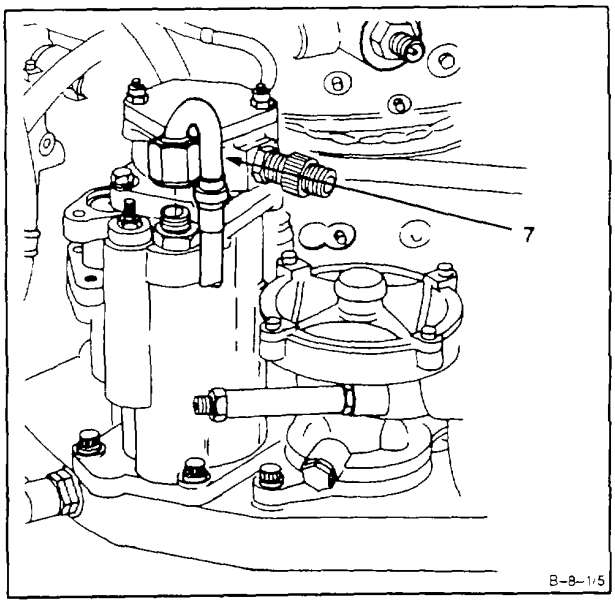
WARNING

Turbine fuels are very flammable. They may cause drying and irritation of skin or eyes. Handle only in well-ventilated areas away from heat and open flame. Drain and store In approved metal safety containers. Avoid prolonged or repeated contact with skin and do not take internally. Wash contacted area of skin thoroughly after handling. If irritation of skin results, get medical attention. Get medical attention for eyes.

3. **Disconnect fuel hose assembly (6).**



4. **Disconnect tube assembly (7).**



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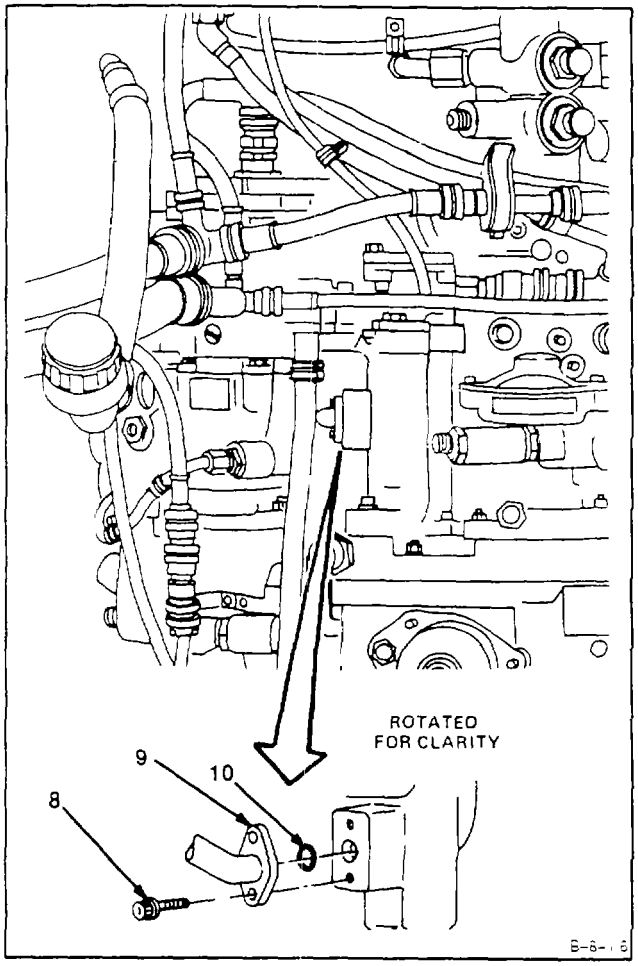
5. **Remove** lockwire, two bolts (8), **end of tube assembly (9),** and packing (10).



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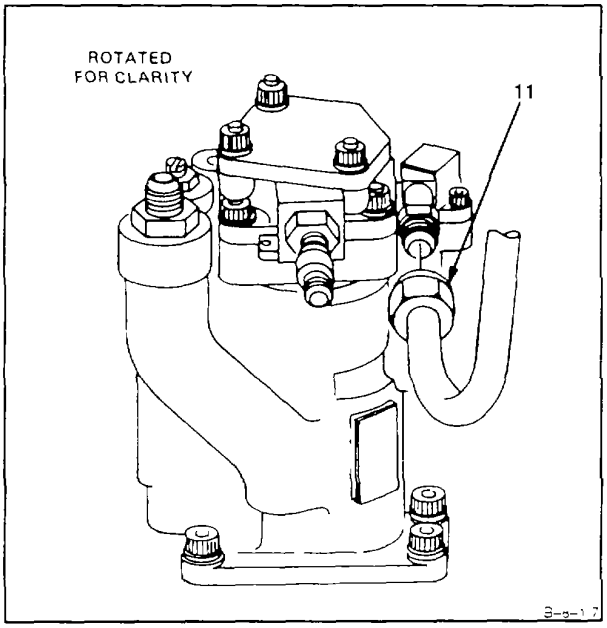
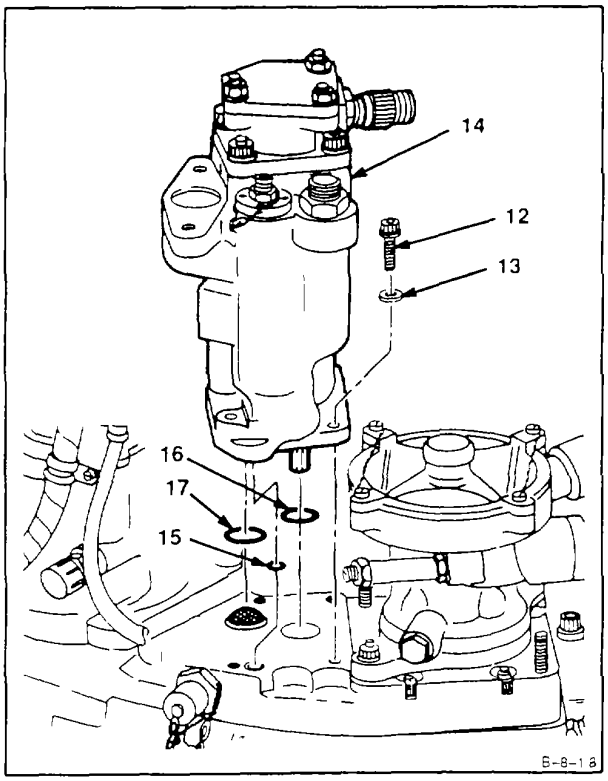
6. **Disconnect tube assembly (11).** Use 7/8 inch crowfoot attachment.



7. **Remove** lockwire, four bolts (12), washers (13), **main oil pump (14),** and packings (15, 16, and 17).



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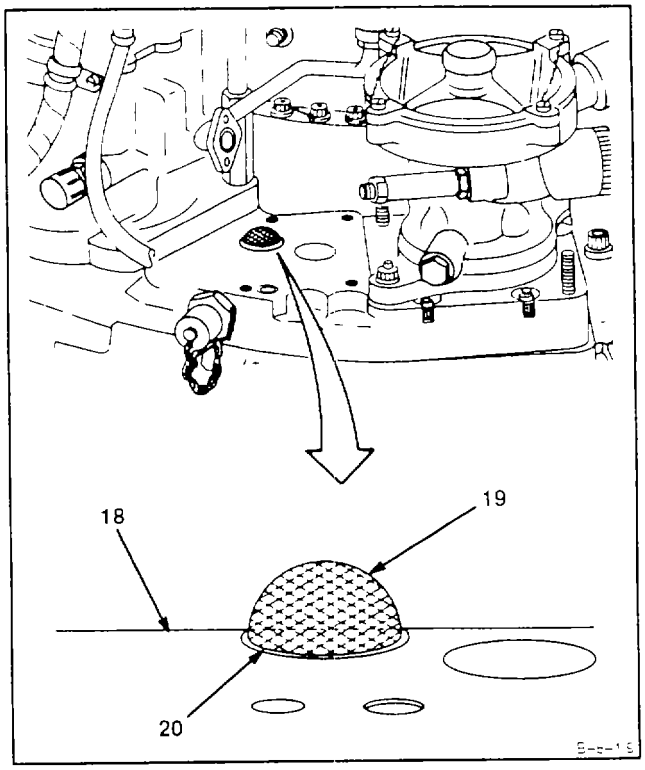
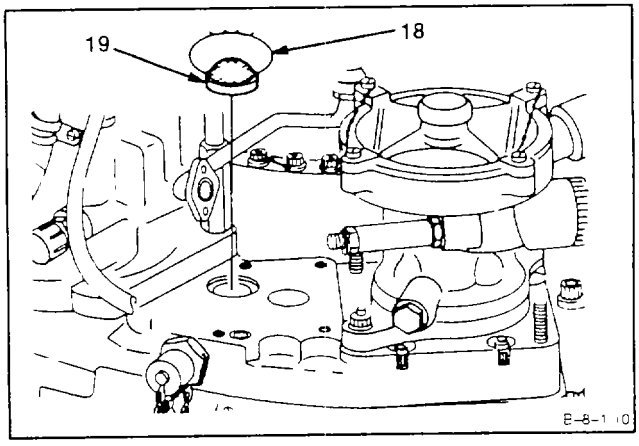
8. Insert 9 inch length of lockwire (E33) (18) through center of screen (19) near base (20) and form loop by twisting ends.



9. Using lockwire (18), **remove screen (19).** Remove lockwire (18).



FOLLOW-ON MAINTENANCE:
None

END OF TASK

8-2 DISASSEMBLE MAIN OIL PUMP, SPEED PICKUP DRIVE ASSEMBLY, SCAVENGE OIL SCREEN, AND RELATED PARTS **8-2**

INITIAL SETUP

Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit, NSN 5180-00-323-4944
Crowfoot Attachment, 5/16 - inch

Materials:
None

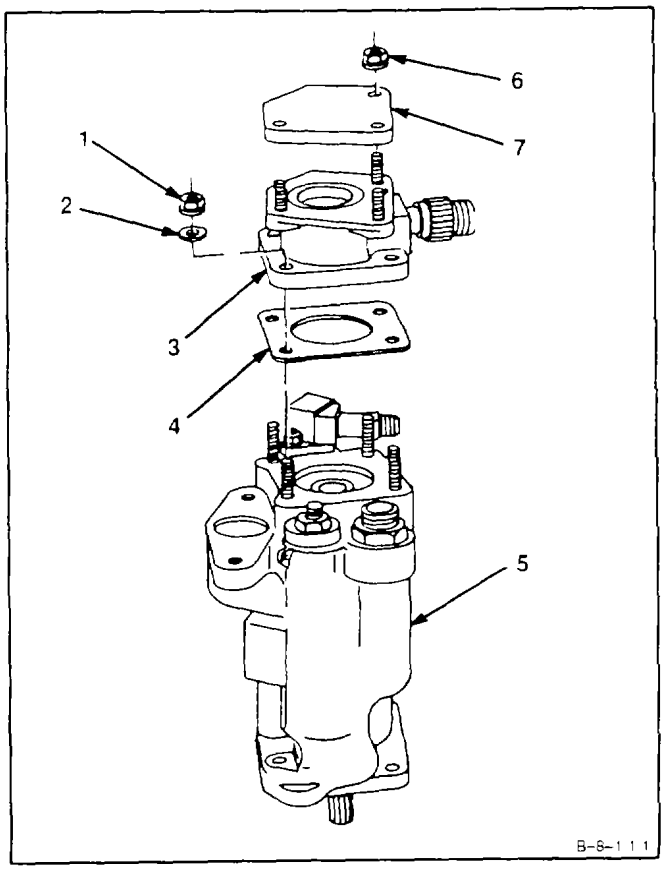
Personnel Required:
Aircraft Powerplant Repairer

Equipment Condition:
Off Engine Task
Engine Oil System Drained (Task 1-69)
Remove Main Oil Pump Speed Pickup Drive Assembly. Scavenge Oil Screen and Related Parts (Task 8-1)

1. Remove four nuts (1), washers (2), **speed pick-up drive assembly** (3), and gasket (4) from main oil pump (5).

2. **Remove three nuts (6) and cover (7)** from speed pickup drive assembly (3).

FOLLOW-ON MAINTENANCE:
None



END OF TASK

8.3 CLEAN MAIN OIL PUMP, SPEED PICKUP DRIVE ASSEMBLY, SCAVENGE OIL SCREEN, AND RELATED PARTS 8.3

INITIAL SETUP

Applicable Configurations:

All

Tools:

Powerplant Mechanic's Tool Kit, NSN 5180-00-323-4944
Goggles
Dry, Compressed Air Source

Materials:

Dry Cleaning Solvent (E19)
Gloves (E24)
Lint-Free Cloth (E30)

Personnel Required:

Aircraft Powerplant Repairer

Equipment Condition:

Off Engine Task
Main Oil Pump, Speed Pickup Drive Assembly.
Scavenge Oil Screen, and Related Parts Removed (Task 8-1)
Main Oil Pump, Speed Pickup Drive Assembly, Scavenge Oil Screen, and Related Parts Disassembled (Task 8-2)

General Safety Instructions:

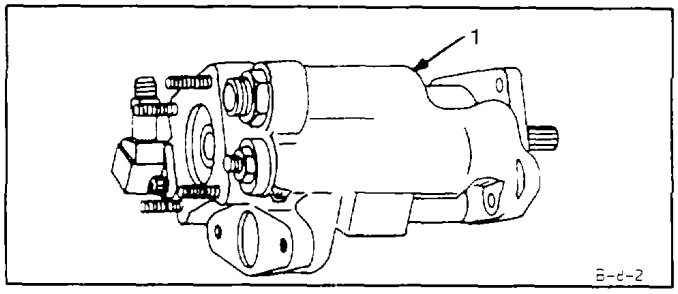
WARNING

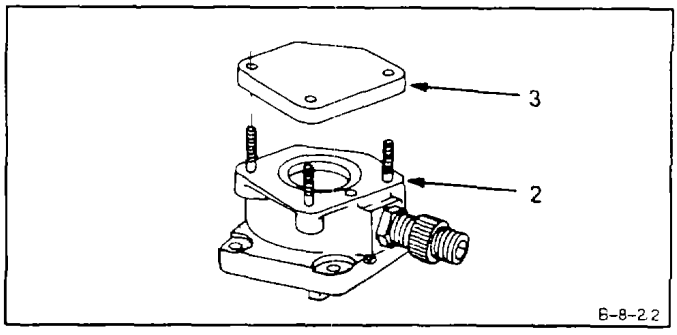
Dry cleaning solvent (E19) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

1. Wear gloves (E24). **Clean oil pump** (1) using dry cleaning solvent (E19) and brush.

2. **Clean exterior of pickup drive assembly (2), and cover (3).** Use dry cleaning solvent (E19) and brush.

3. **Remove any remaining solvent** using clean, dry, lint-free cloth (E30).





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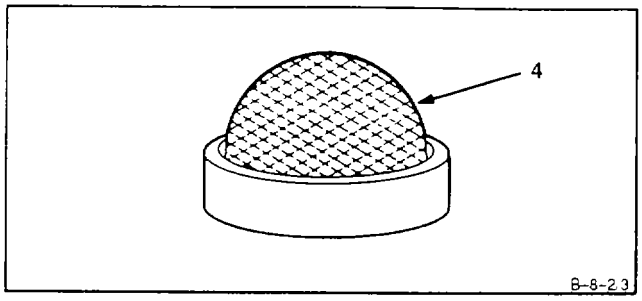
4. **Clean scavenge oil screen (4).** Use dry cleaning solvent (E19) and brush.

WARNING

When using compressed air for cleaning, use approved protective equipment or eyes and face. Do not use more than 30 psig air pressure. Do not direct air toward yourself or another person. Failure to comply could result in injury to eyes or skin. In case of injury, get medical attention.

5. Wear goggles. **Blow dry screen (4)** using clean, dry, compressed air.

FOLLOW-ON MAINTENANCE:
Inspect Main Oil Pump, Speed Pickup Drive Assembly, Scavenge Oil Screen, and Related Parts (Task 8-4).



END OF TASK

8-4 INSPECT MAIN OIL PUMP, SPEED PICKUP DRIVE ASSEMBLY, SCAVENGE OIL SCREEN, AND RELATED PARTS 8-4

INITIAL SETUP
Applicable Configurations:
All
Tools:
Technical Inspection Tool Kit,
NSN 5180-00-323-5114
Materials:
None
Personnel Required:
Aircraft Powerplant inspector
References:
Task 1-111
Equipment Condition:
Off engine Task

1. **Inspect main oil pump (1).** There shall be no cracks in housing (2) or, nicks or cracks in splines of gearshaft (3).

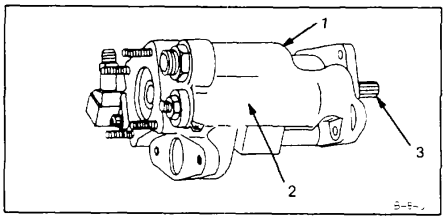
2. **Inspect gearshaft (3).** There shall be no improper wear pattern. Inspect gearshaft (3) for wear (Ref. Task 1-109).

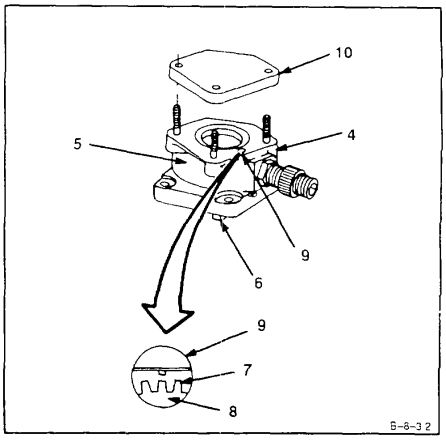
3. **Inspect speed pickup drive assembly (4).** There shall be no cracks in housing (5), or nicks or cracks in splines of driveshaft (6).

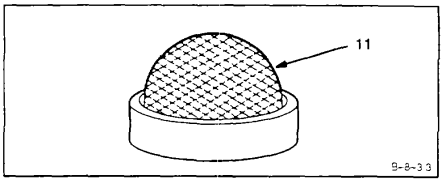
4. **Inspect driveshaft (6).** There shall be no improper wear pattern. Inspect driveshaft (6) for wear (Ref. Task 1-109).
5. **Inspect** for missing teeth (7) on **wheel** (8) in air gap adjustment hole (9).

6. **Inspect cover (10).** There shall be no cracks.

7. Inspect scavenge oil screen (11). There shall be no tears in screen.







FOLLOW-ON MAINTENANCE:
None
END OF TASK

8-5 ASSEMBLE MAIN OIL PUMP, SPEED PICKUP DRIVE ASSEMBLY, SCAVENGE OIL PUMP, AND RELATED PARTS 8-5

INITIAL SETUP

Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit, NSN 5180-00-323-4944
Technical Inspection Tool Kit, NSN 5180-00-323-5114
Crowfoot Attachment, 5/16 - inch

Materials:
None

Parts:
Gasket

Personnel Required:
Aircraft Powerplant Repairer
Aircraft Powerplant Inspector

References:
TM 1-2840-252-23P

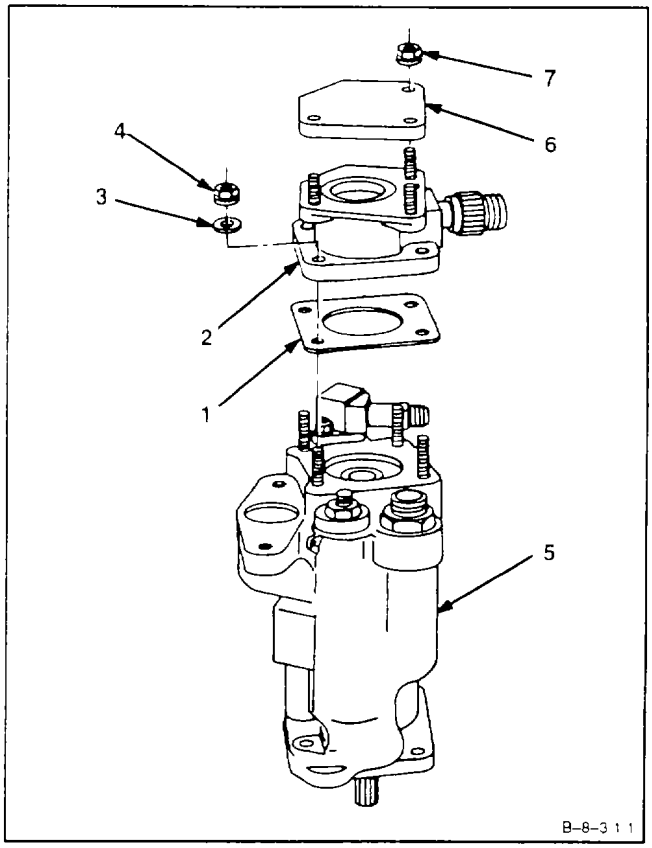
Equipment Condition:
Off Engine Task
Disassemble Main Oil Pump, Speed Pickup Drive Assembly, Scavenge Oil Screen and Related Parts (Task 8-2)

1. **Install** gasket (1), **speed pickup drive assembly (2),** four washers (3), and nuts (4) on serviceable main oil pump (5).

2. **Install cover (6),** three nuts (7), on speed pickup drive assembly (2).

INSPECT

FOLLOW-ON MAINTENANCE:
None



END OF TASK

8-6 INSTALL MAIN OIL PUMP, SPEED PICKUP DRIVE ASSEMBLY, SCAVENGE OIL SCREEN, AND RELATED PARTS 8-6

INITIAL SETUP

Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit, NSN 5180-00-323-4944
Technical Inspection Tool Kit, NSN 5180-00-323-5114
Torque Wrench, 30-150 Inch-Pounds
Crowfoot Attachment, 5/16 inch
Crowfoot Attachment, 7/8 inch

Materials:
Lockwire (E33)

Parts:
Packings
Gasket
Straps

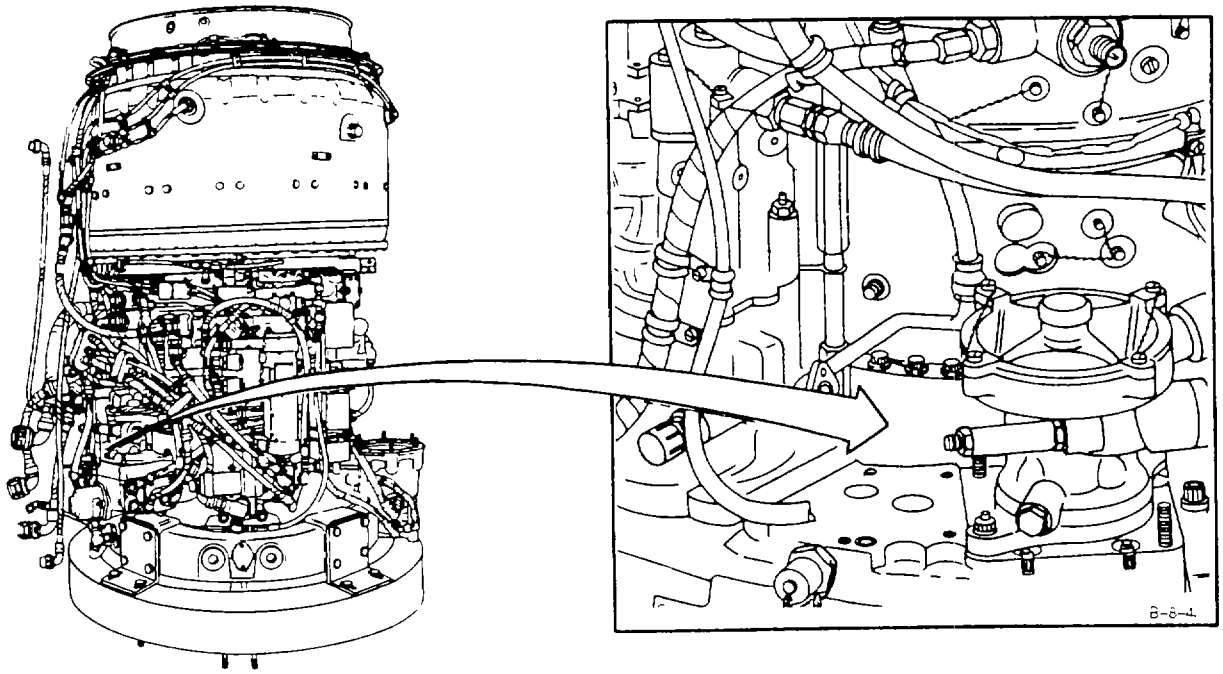
Personnel Required:
Aircraft Powerplant Repairer
Aircraft Powerplant Inspector

References:
TM 1-2840-252-23P

General Safety Instructions:

WARNING

Lubricating oils cause paralysis if swallowed. Prolonged contact with them may irritate the skin. Handle only in well-ventilated areas away from heat and flame. Drain and store in approved metal safety containers. Avoid prolonged or repeated contact with skin and do not take internally. Wash contacted area of skin thoroughly after handling. If irritation of skin results, get medical attention. Get medical attention for eyes.



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8-6 INSTALL MAIN OIL PUMP, SPEED PICKUP DRIVE ASSEMBLY, SCAVENGE OIL SCREEN, AND RELATED PARTS (Continued) **8-6**

NOTE

If main oil pump is a replacement, do steps 1 thru 6. If same oil pump that was removed is to be installed, omit steps 1 thru 6.

1. **Remove nipple (1),** and packing (2).

2. **Remove** two bolts (3), **flange assembly (4),** and packing (5).

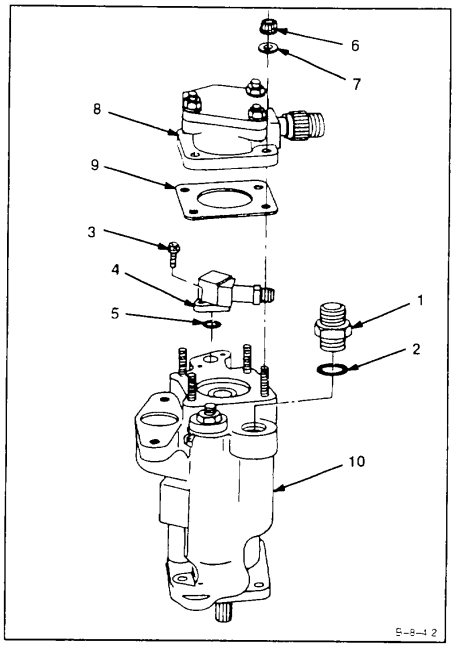
3. **Remove** nuts (6), washers (7), **speed pickup drive assembly (8),** and gasket (9).

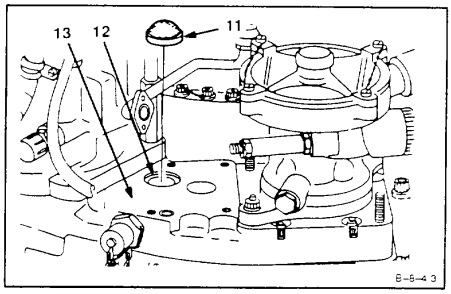
4. **Install** gasket (9), **speed pickup drive assembly (8),** four washers (7), and nuts (6) on serviceable main oil pump (10).

5. **Install** packing (5), **flange assembly (4),** and two bolts (3) on serviceable main oil pump (10) and lockwire. Use lockwire (E33).

6. **Install** packing (2) **and nipple (1)** on serviceable main oil pump (10).

7. **Install scavenge oil screen (11)** in hole (12) in accessory gearbox assembly (13).





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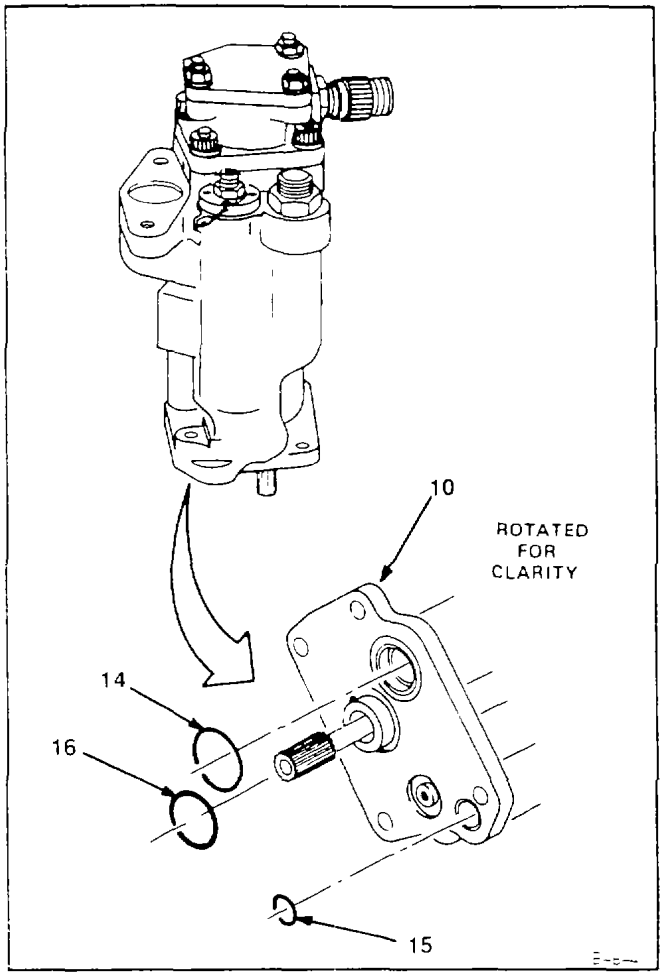
8. Install three packings (14, 15, and 16) on main oil pump (10).



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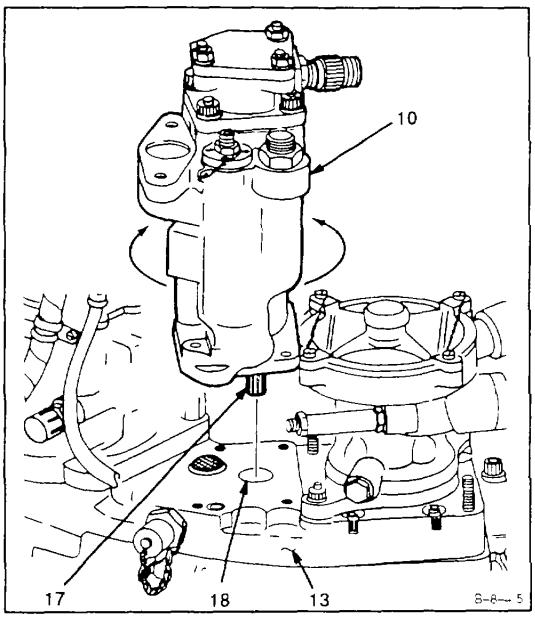
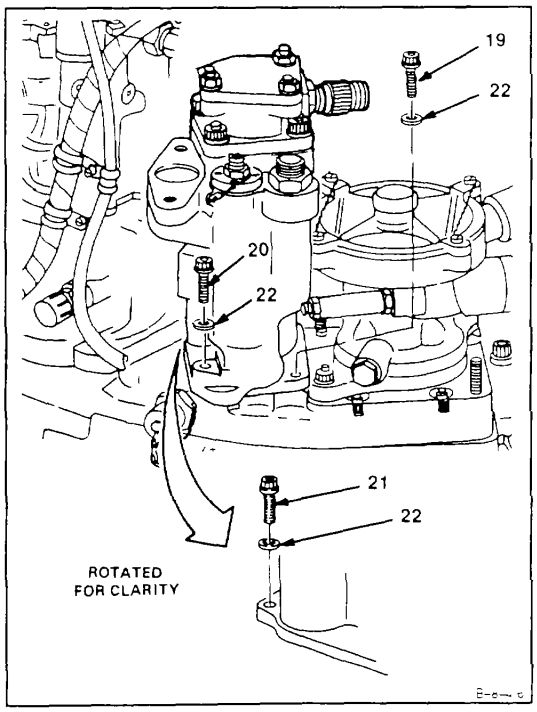
9. Position main oil pump (10) over accessory gearbox assembly (13).

10. If required, rotate main oil pump (10) slightly left or right to align splines (17) with coupling in hole (18).

11. **Install main oil pump (10)** on accessory gearbox assembly (13).

12. **Install bolt (19), bolt (20), two self-locking bolts (21),** and four washers (22). Torque bolts (19, 20, and 21) to 70 to 75 inch-pounds. Lockwire bolts (19 and 20). Use lockwire (E33).





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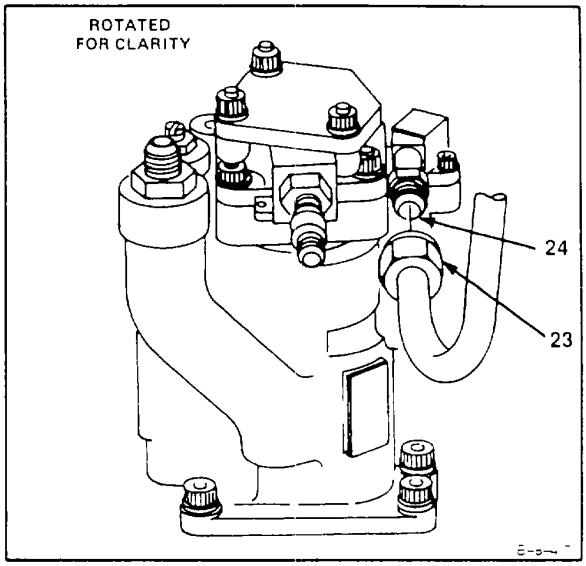
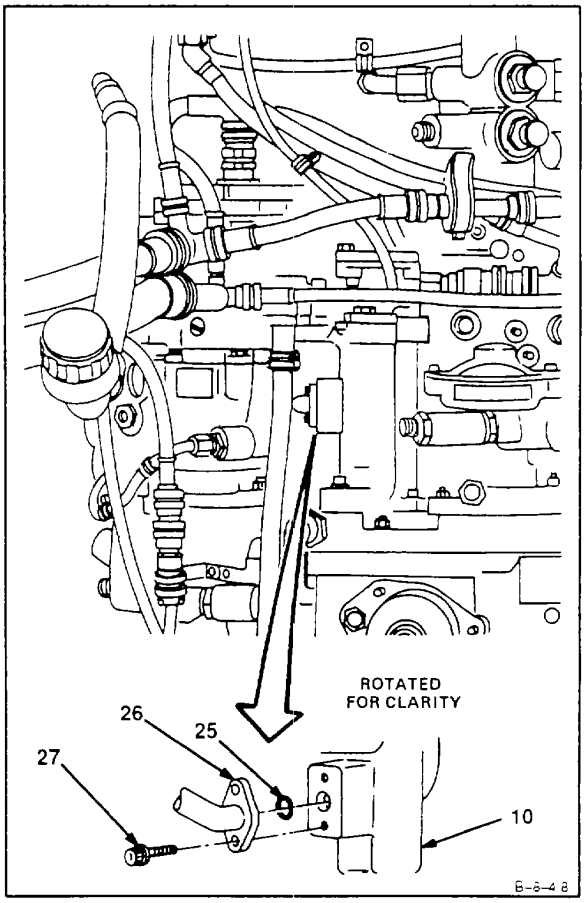
8-6 INSTALL MAIN OIL. PUMP, SPEED PICKUP DRIVE ASSEMBLY, SCAVENGE OIL SCREEN. AND RELATED PARTS (Continued- **8-6**

13. **Connect tube assembly (23)** to flange assembly (24). Use 7/8 inch crowfoot attachment.

14. **Install** packing (25), **end of tube assembly (26),** and two bolts (27) on main oil pump (10). Lockwire bolts (27). Use lockwire (E33).





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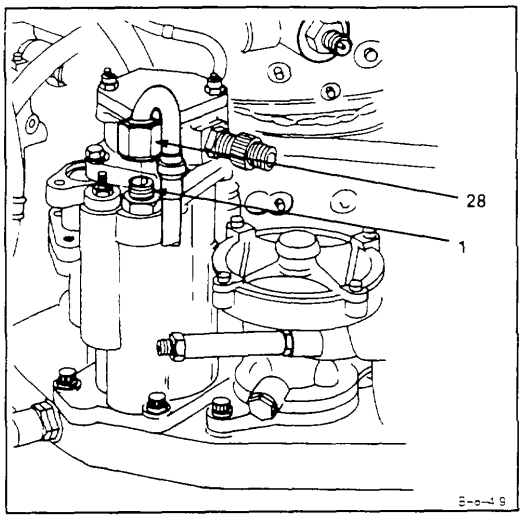
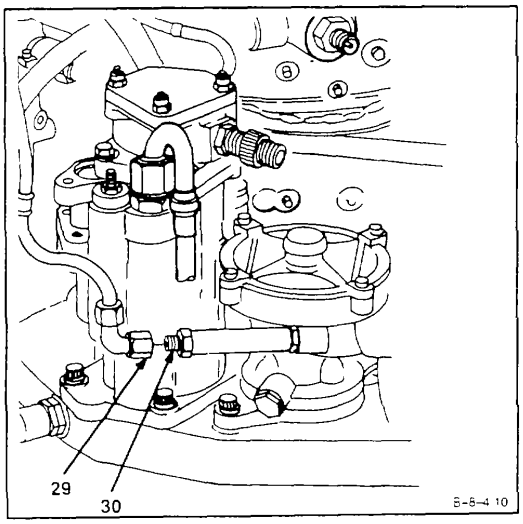
15. **Connect tube assembly (28)** to nipple (1).

WARNING

Turbine fuels are very flammable. They may cause drying and Irritation of skin or eyes. Handle only In well-ventilated areas away from heat and open flame. Drain and store in approved metal safety containers. Avoid prolonged or repeated contact with skin and do not take internally. Wash contacted area of skin thoroughly after handling. If irritation of skin results, get medical attention. Get medical attention for eyes.

16. **Connect fuel hose assembly (29)** to check valve (30).





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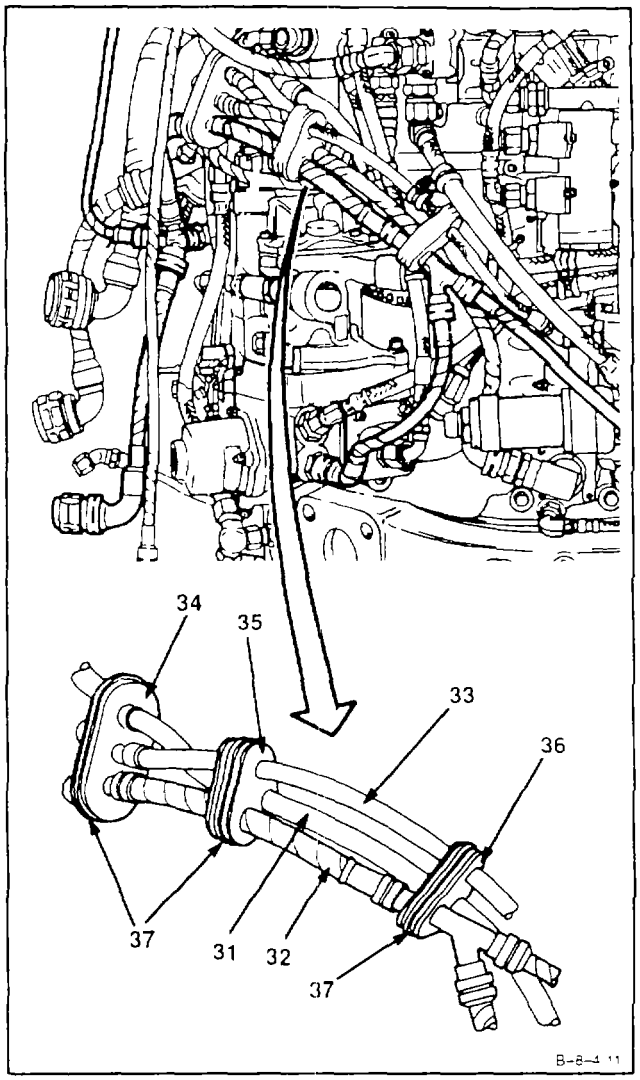
17. **Install two harness assemblies (31 and 32) and fuel hose assembly (33)** into three cushions(34, 35, and 36). Install strap (37) on each cushion (34, 35, and 36).



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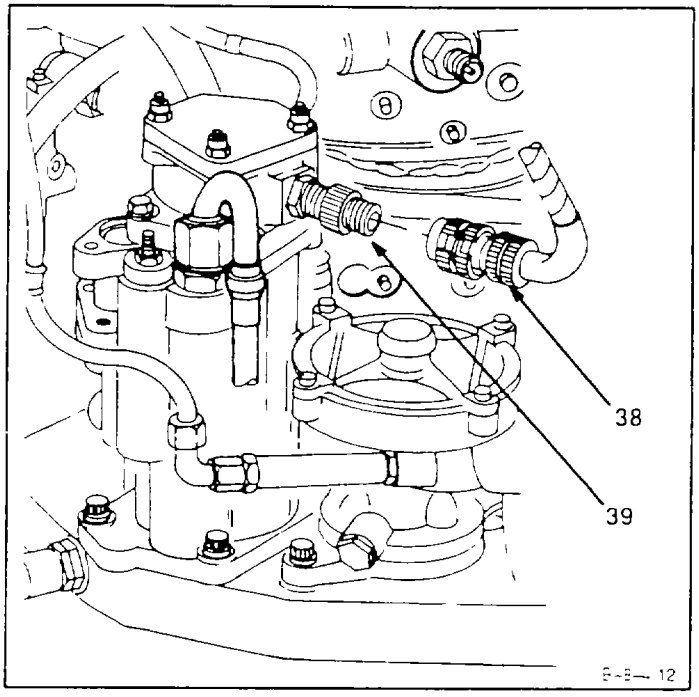
18. **Connect electrical connector (38)** to GP speed pickup (39).

INSPECT

FOLLOW-ON MAINTENANCE:
Install Tube Assembly (Inlet Housing to Main Oil Pump) (Task 8-66).



END OF TASK

SECTION II

GAS PRODUCER SPEED PICKUP

8-7 REMOVE GAS PRODUCER SPEED PICKUP 8-7

INITIAL SETUP

Applicable Configurations:

All

Tools:

Powerplant Mechanic's Tool Kit, NSN 5180-00-323-4944

Materials:

Wiping Rag (E64)

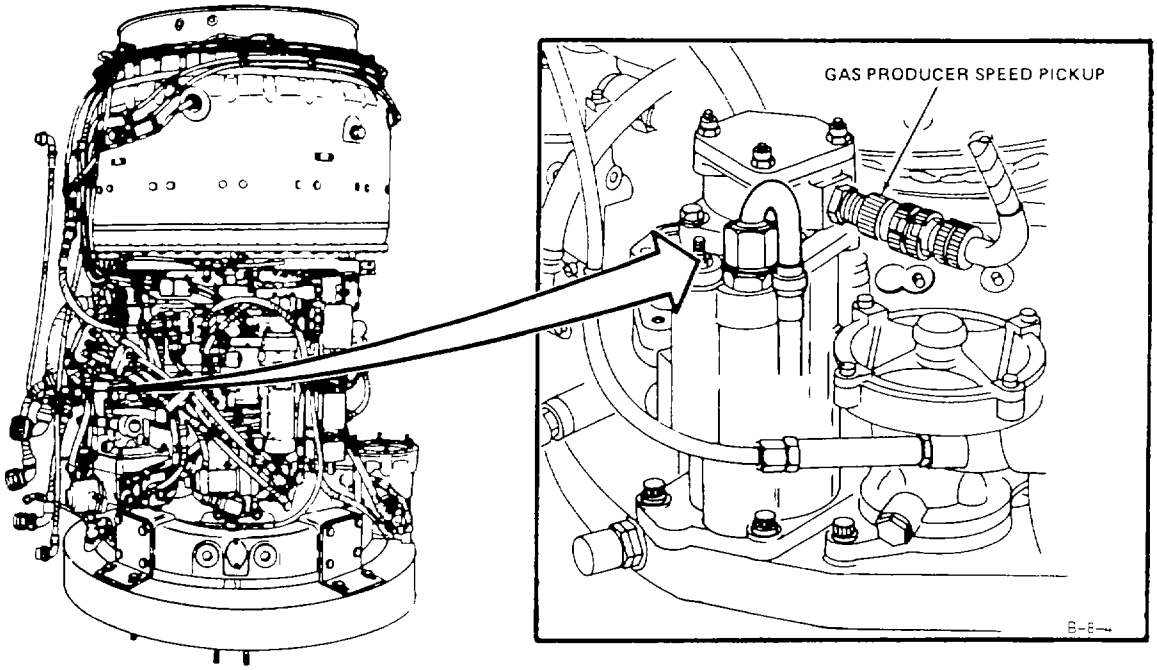
Personnel Required:

Aircraft Powerplant Repairer

General Safety Instructions:

WARNING

Lubricating oils cause paralysis if swallowed. Prolonged contact with them may irritate the skin. Handle only in well-ventilated areas away from heat and flame. Drain and store in approved metal safety containers. Avoid prolonged or repeated contact with skin and do not take internally. Wash contacted area of skin thoroughly after handling. If irritation of skin results, get medical attention. Get medical attention for eyes.



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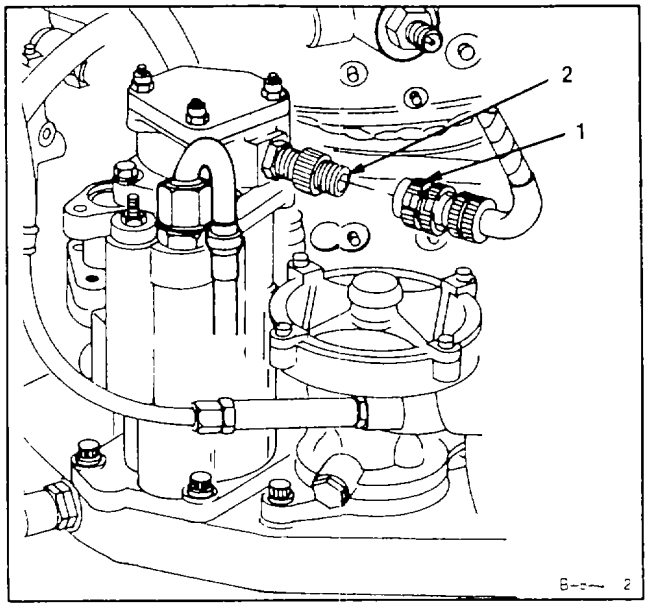
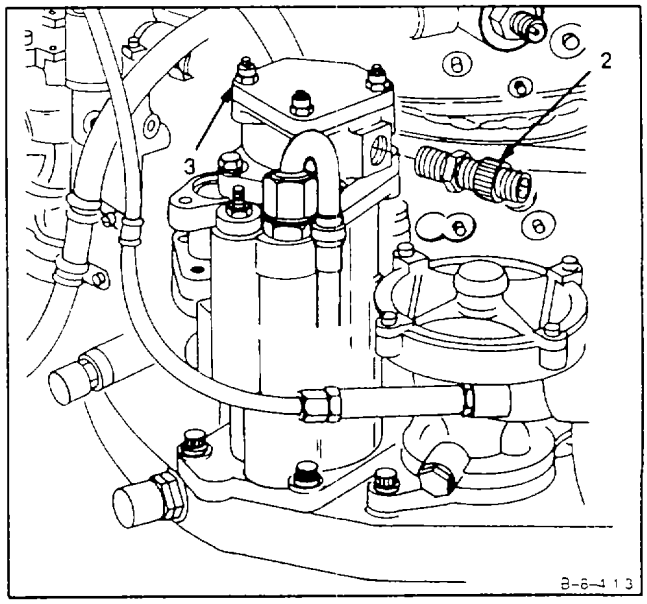
1. **Disconnect electrical connector (1)** from gas producer speed pickup (2).

2. **Remove** lockwire and **gas producer speed pickup (2)** from housing (3).

FOLLOW-ON MAINTENANCE:
None





END OF TASK

8-8 CLEAN GAS PRODUCER SPEED PICKUP 8-8

INITIAL SETUP

Applicable Configurations:

All

Tools:

Powerplant Mechanic's Tool Kit, NSN 5180-00-323-4944
Goggles
Dry, Compressed Air Source

Materials:

Dry Cleaning Solvent (E19)
Gloves (E24)
Lint-Free Cloth (E30)

Personnel Required:

Aircraft Powerplant Repairer

Equipment Condition:

Off Engine Task
Remove Gas Producer Speed Pickup (Task 8-7)

General Safety Instructions:

WARNING

Dry cleaning solvent (E19) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

1. Clean gas producer speed pickup (1) as follows:
   a. Wear gloves (E24) and clean gas producer speed pickup (1). Use lint-free cloth (E30) dampened with dry cleaning solvent (E19).
   b. Use dry, lint-free cloth (E30) to remove solvent.

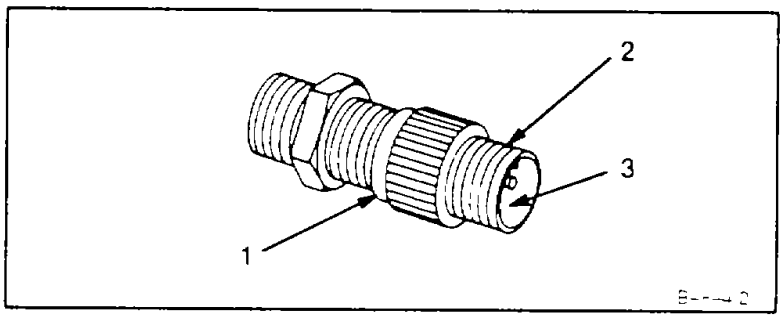
WARNING

When using compressed air for cleaning, use approved protective equipment for eyes and face. Do not use more than 30 psig air pressure. Do not direct air toward yourself or another person. Failure to comply could result in injury to eyes or skin. In case of injury, get medical attention.

   c. Wear goggles. Blow dry electrical connector (2) and inside surfaces (3). Use clean, dry, compressed air.

FOLLOW-ON MAINTENANCE:

Inspect Gas Producer Speed Pickup (Task 8-9).



END OF TASK

8-9 INSPECT GAS PRODUCER SPEED PICKUP 8-9

INITIAL SETUP

Applicable Configurations:
All

Tools:
Technical Inspection Tool Kit,
NSN 5180-00-323-5114
Multimeter

Materials:
None

Personnel Required:
Aircraft Powerplant Inspector

Equipment Condition:
Off Engine Task

1. **Inspect gas producer speed pickup (1)** as follows:

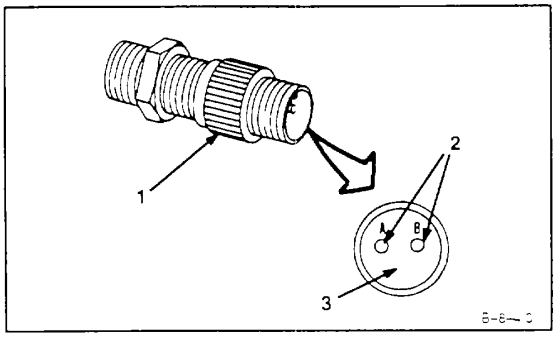
a. **Inspect body of gas producer speed pickup (1).** There shall be no cracks, distortion or damaged threads.

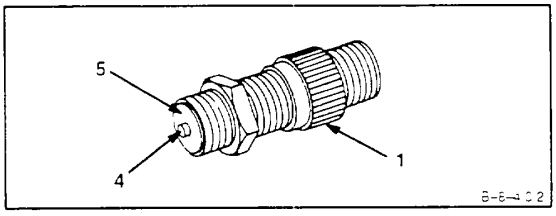
b. **Inspect two electrical pins (2).** There shall be no broken, corroded or bent pins (2) or damaged insulation (3).

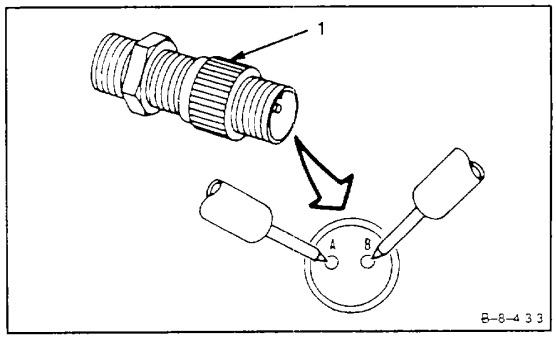
c. **Inspect tip (4) of gas producer speed pickup (1).** There shall be no broken or worn tips (4) or cracks in insulation (5).

d. **Inspect coil resistance of gas producer speed pickup (1).** Use multimeter with function switch set to ohms and range set to R x 10. Place one lead to pin A and the other lead to pin B. The multimeter should not read less than 98 ohms and not greater than 132 ohms resistance.

FOLLOW-ON MAINTENANCE:
None







END OF TASK

8-10 REPAIR GAS PRODUCER SPEED PICKUP 8-10

INITIAL SETUP

Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit, NSN 5180-00-323-4944
Technical Inspection Tool Kit, NSN 5180-00-323-5114
Goggles
Dry, Compressed Air Source

Materials:
Crocus Cloth (E16)

Personnel Required:
Aircraft Powerplant Repairer
Aircraft Powerplant Inspector

Equipment Condition:
Off Engine Task

NOTE

This repair is allowed provided it does not cause pins to break or crack.

1. Straighten bent pins (1) of electrical connector (2). Using long-nose pliers, gently move pins (1) until they are straight.

2. Remove corrosion from pins (1) of electrical connector (2). Polish pins using in and out motion over entire length of pin until corrosion is removed. Use crocus cloth (E16).

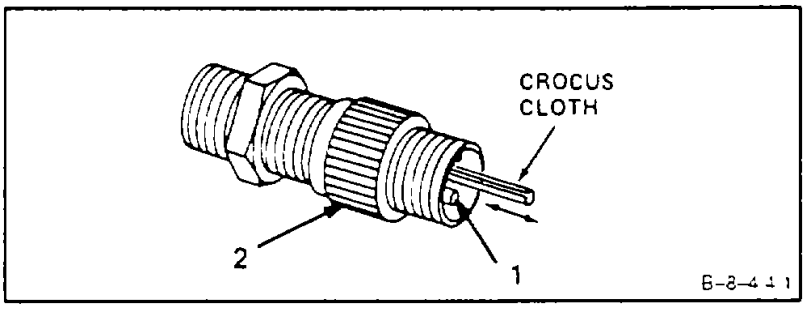
WARNING

When using compressed air for cleaning, use approved protective equipment for eyes and face. Do not use more than 30 psig air pressure. Do not direct air toward yourself or another person. Failure to comply could result in injury to eyes or skin. In case of injury, get medical attention.

3. Wear goggles. Remove loosened particles from electrical connector (2), using clean, dry, compressed air.

INSPECT

FOLLOW-ON MAINTENANCE:
None



END OF TASK

8-11 INSTALL GAS PRODUCER SPEED PICKUP 8-11

INITIAL SETUP

Applicable Configurations:

All

Tools:

Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Technical Inspection Tool Kit,
NSN 5180-00-323-5114
Feeler Gage, 1/4 Wide. 0.010 Inch

Materials:

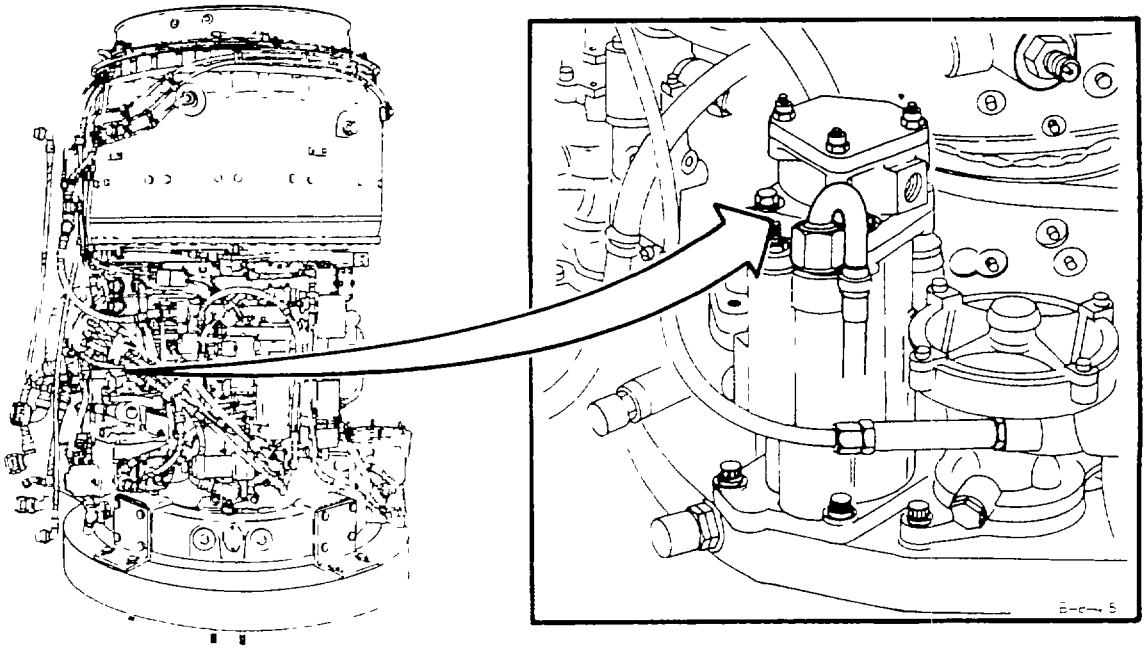
Lockwire (E33)

Personnel Required:

Aircraft Powerplant Repairer
Aircraft Powerplant Inspector

References:

TM 1-2840-252-23P



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8-11 INSTALL GAS PRODUCER SPEED PICKUP (Continued) 8-11

1. Install gas producer speed pickup (1) as follows:

   a. Screw on locknut (2) on gas producer speed pickup (1) until locknut stops.

   b. Engage threads of gas producer speed pickup (1) and housing (3).

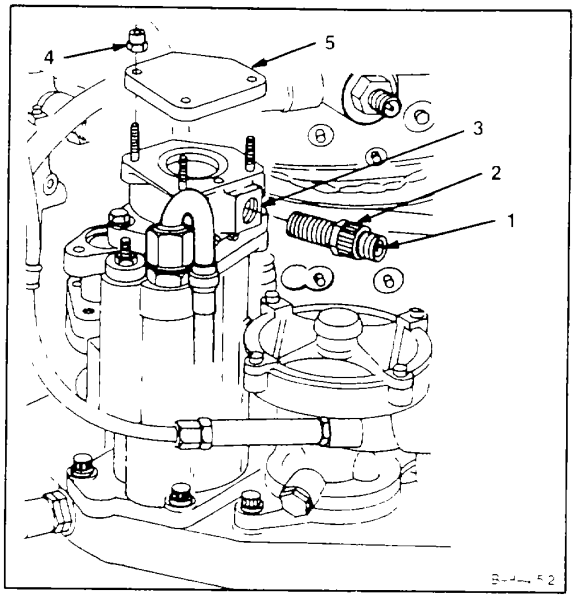
   c. Establish proper air gap as follows:

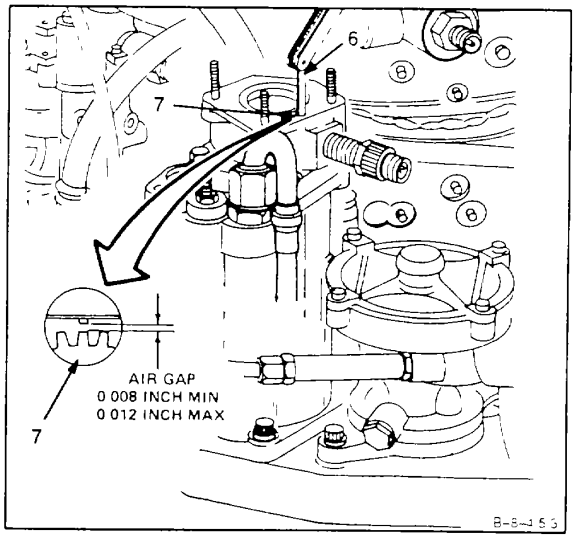
      (1) Remove three nuts (4) and cover (5) from housing (3).

NOTE

In following step (2), gear tooth must be aligned under center of speed pickup.

      (2) Insert 1/4 inch wide. 0.010 inch feeler gage (6) into housing adjustment hole (7).





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(3) Screw in gas producer speed pickup (1) until light drag is felt against feeler gage (6) when moved in and out of housing adjustment hole (7).

(4) Hold gas producer speed pickup (1) stationary and screw down locknut (2) against housing (3) and snug tighten locknut.

(5) Check for light drag on feeler gage (6). If gap is incorrect, loosen locknut (2) and repeat steps (2) thru (5).

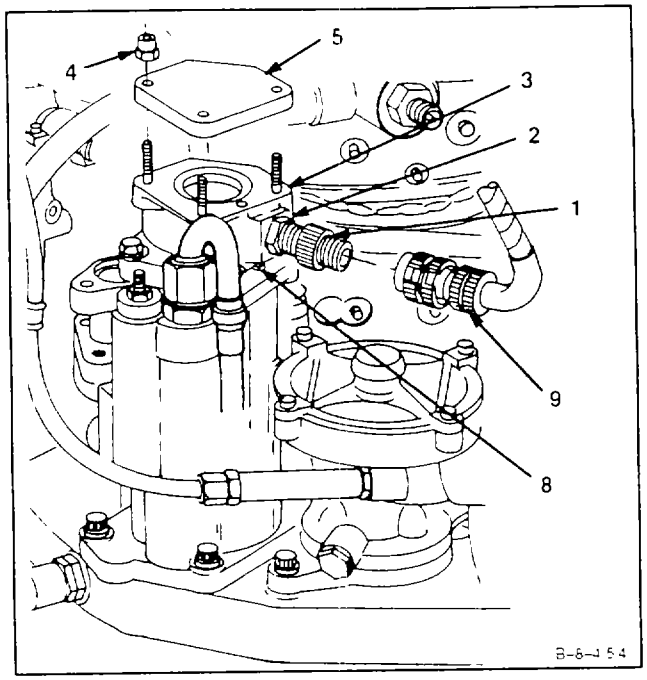
(6) Lockwire locknut (2) to housing lockwire hole (8). Use lockwire (E33).

(7) Install cover (5) and three nuts (4).

d. Connect electrical connector (9) to gas producer speed pickup (1).

INSPECT

FOLLOW-ON MAINTENANCE:
None



END OF TASK

SECTION III

OIL COOLER ASSEMBLY

8-12 REMOVE OIL COOLER ASSEMBLY 8-12

INITIAL SETUP

Applicable Configurations:

All

Tools:

Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Container, 2 Quart

Materials:

Wiping Rag (E64)

Personnel Required:

Aircraft Powerplant Repairer

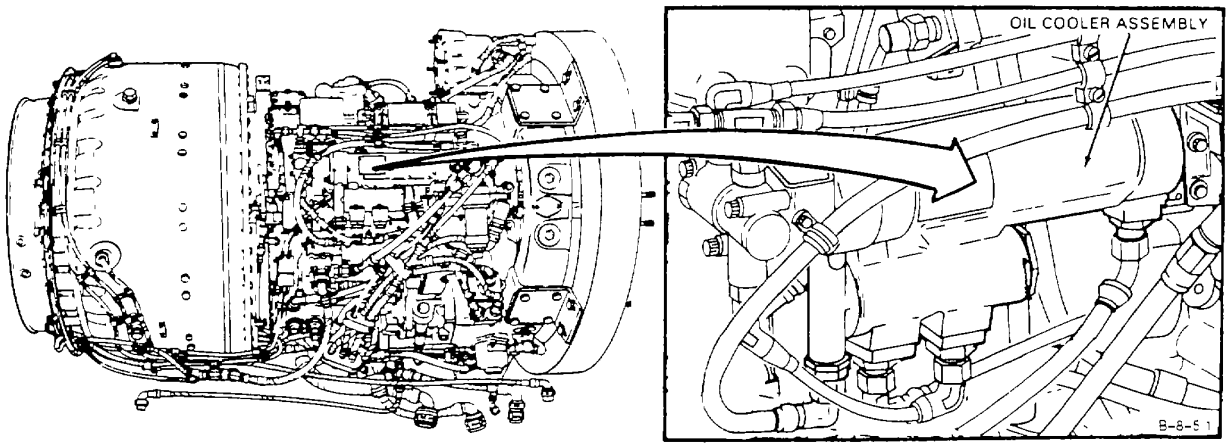
General Safety Instructions:

WARNING

Lubricating oils cause paralysis if swallowed. Prolonged contact with them may irritate the skin. Handle only in well-ventilated areas away from heat and flame. Drain and store in approved metal safety containers. Avoid prolonged or repeated contact with skin and do not take internally. Wash contacted area of skin thoroughly after handling. If irritation of skin results, get medical attention. Get medical attention for eyes.

WARNING

Turbine fuels are very flammable. They may cause drying and irritation of skin or eyes. Handle only in well-ventilated areas away from heat and open flame. Drain and store in approved metal safety containers. Avoid prolonged or repeated contact with skin and do not take internally. Wash contacted area of skin thoroughly after handling. If irritation of skin results, get medical attention. Get medical attention for eyes.



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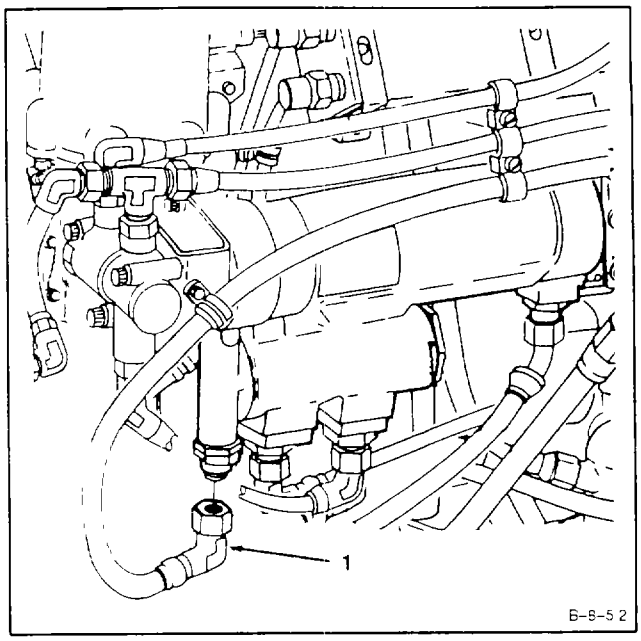
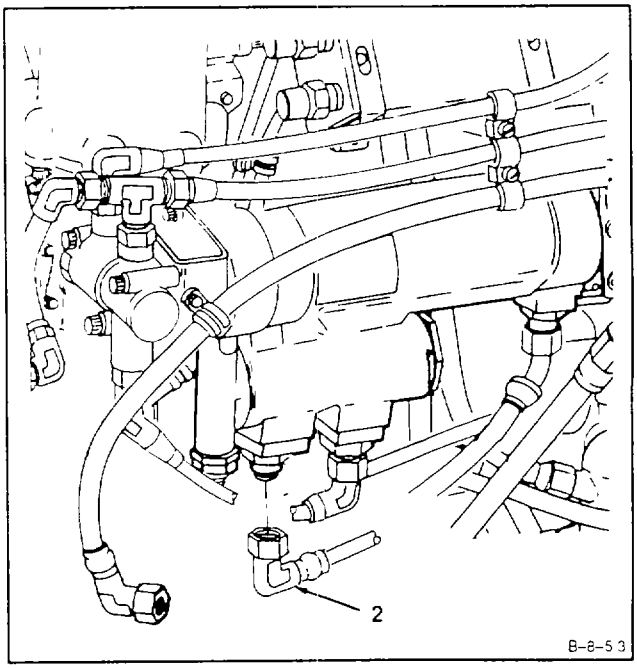
1. Disconnect hose assembly (1).





2. Disconnect hose assembly (2).

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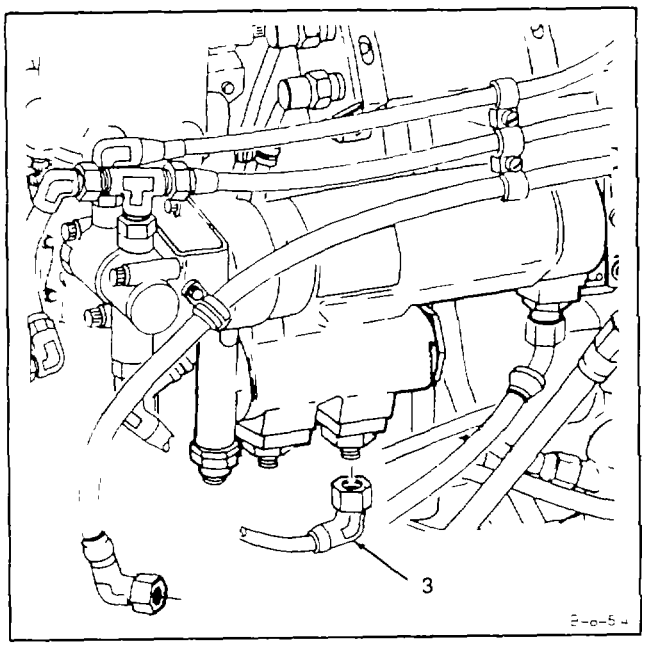
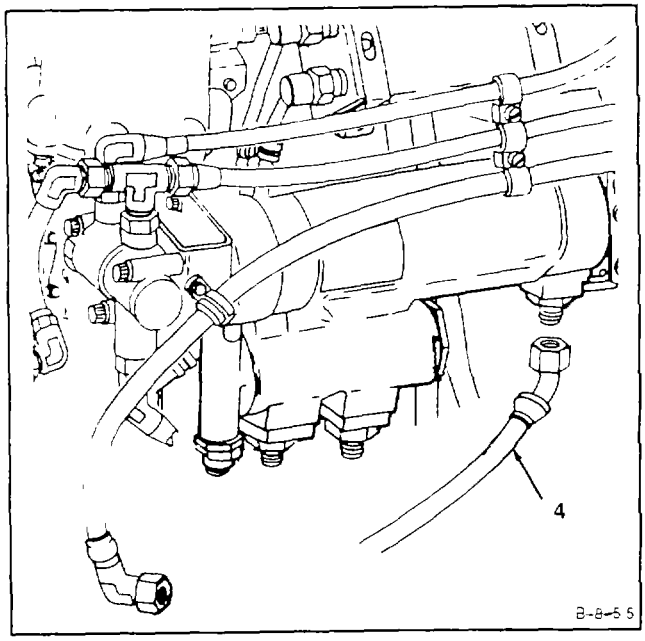
3. Disconnect hose assembly (3).





4. Disconnect hose assembly (4).

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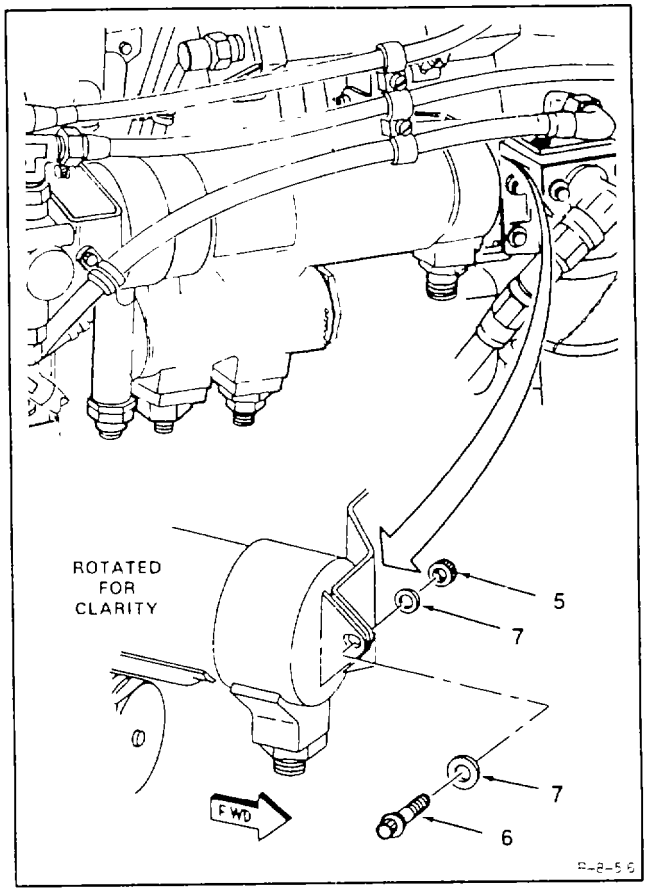
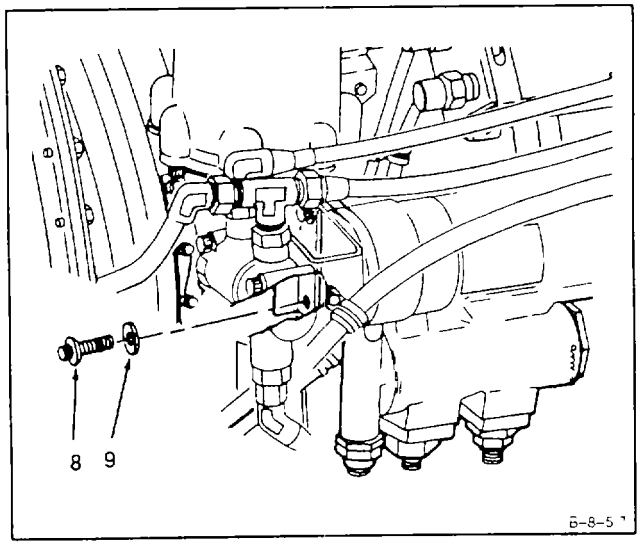
5. Remove nut (5), bolt (6), and two washers (7).





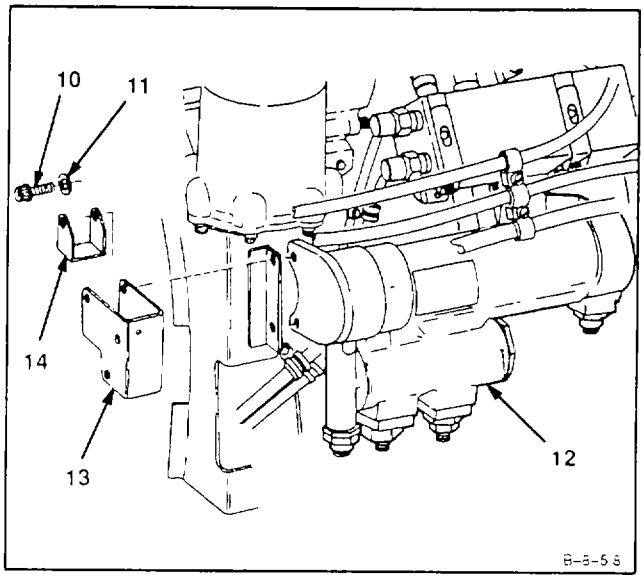
6. Remove lockwire, bolt (8), and washer (9).

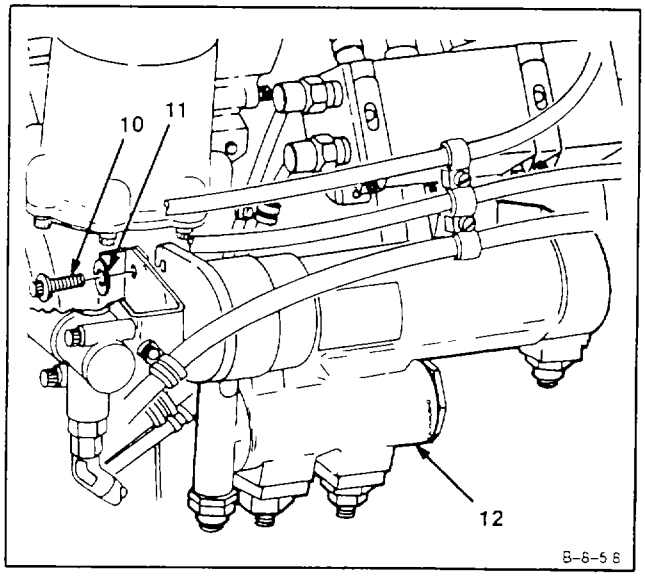
GO TO NEXT PAGE

NOTE

If flow programming valve has already been removed, do step 7. If flow programming valve has not been removed, omit step 7.

7. Remove lockwire, bolt (10), washer (11), oil cooler assembly (12), bracket (13), and bracket (14).





8. Remove lockwire, bolt (10), washer (11) and oil cooler assembly (12).

FOLLOW-ON MAINTENANCE:
None

END OF TASK

8-13 DISASSEMBLE OIL COOLER ASSEMBLY 8-13

INITIAL SETUP

Applicable Configurations:

All

Tools:

Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Deep-Style Socket, 1-Inch
Machinist's Vise
Jaw Caps

Materials:

Wiping Rag (E64)

Personnel Required:

Aircraft Powerplant Repairer

Equipment Condition:

Off Engine Task
Oil Cooler Assembly Removed (Task 8-12)

General Safety Instructions:

WARNING

Lubricating oils cause paralysis if swallowed. Prolonged contact with them may irritate the skin. Handle only in well-ventilated areas away from heat and flame. Drain and store in approved metal safety containers. Avoid prolonged or repeated contact with skin and do not take internally. Wash contacted area of skin thoroughly after handling. If irritation of skin results, get medical attention. Get medical attention for eyes.

WARNING |

Turbine fuels are very flammable. They may cause drying and irritation of skin or eyes. Handle only in well-ventilated areas away from heat and open flame. Drain and store in approved metal safety containers. Avoid prolonged or repeated contact with skin and do not take internally. Wash contacted area of skin thoroughly after handling. If irritation of skin results, get medical attention. Get medical attention for eyes.

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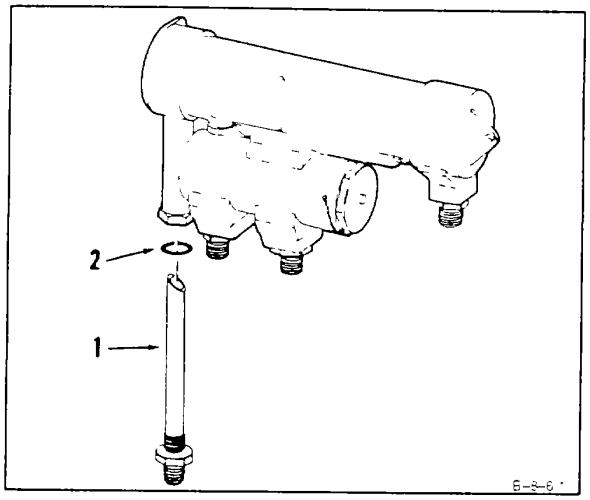
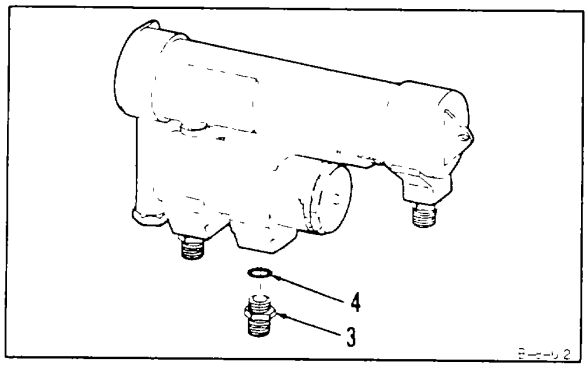
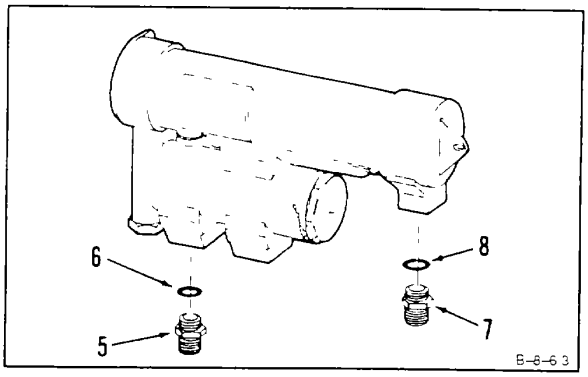
1. Remove tube assembly (1) and packing (2). Use vise with jaw caps.
2. Using 1-inch deep-style socket, remove reducer (3) and packing (4).







3. Using 1-inch deep-style socket, remove reducer (5) and packing (6).
4. Remove nipple (7) and packing (8).

FOLLOW-ON MAINTENANCE:
None

END OF TASK

8-14 CLEAN OIL COOLER ASSEMBLY 8-14

INITIAL SETUP

Applicable Configurations:

All

Tools:

Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944

Materials:

Dry Cleaning Solvent (E19)
Gloves (E24)

Personnel Required:

Aircraft Powerplant Repairer

Equipment Condition:

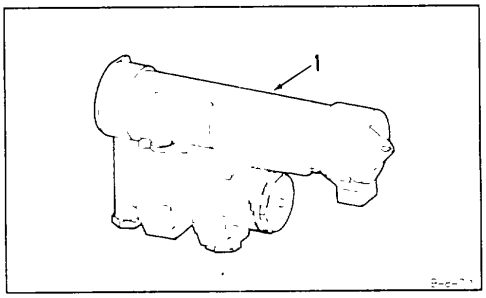
Off Engine Task
Oil Cooler Assembly Removed (Task 8-12)
Oil Cooler Assembly Disassembled (Task 8-13)

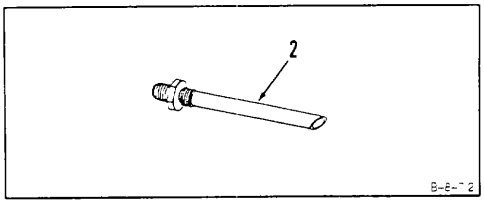
General Safety Instructions:

WARNING

Dry cleaning solvent (E19) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

1. Wear gloves (E24). Flush internal passages of oil cooler (1) with dry cleaning solvent ((E19).
2. Clean external surfaces of oil cooler (1). Use dry cleaning solvent (E19) and brush.
3. Allow to drain and air-dry.
4. Clean tube assembly (2). Use dry cleaning solvent (E19).





FOLLOW-ON MAINTENANCE:

Inspect Oil Cooler Assembly (Task 8-15).

END OF TASK

8-15 INSPECT OIL COOLER ASSEMBLY 8-15

INITIAL SETUP

Applicable Configurations:

All

Tools:

Technical Inspection Tool Kit,
NSN 5180-00-323-5114

Materials:

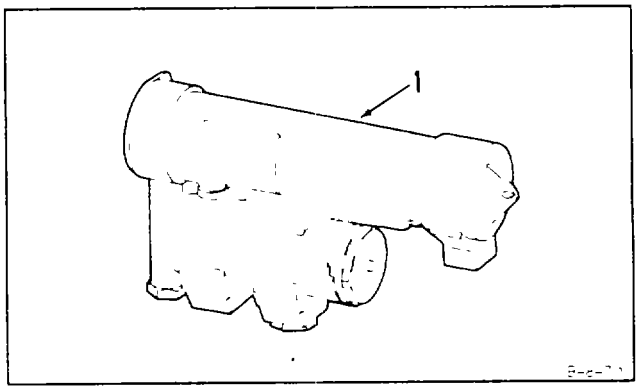
None

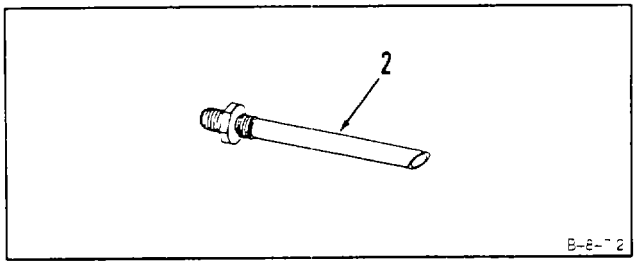
Personnel Required:

Aircraft Powerplant Inspector

Equipment Condition:

Off Engine Task





1. Inspect oil cooler (1). There shall be no cracks.

2. Inspect tube assembly (2). There shall be no cracks, dents or bends.

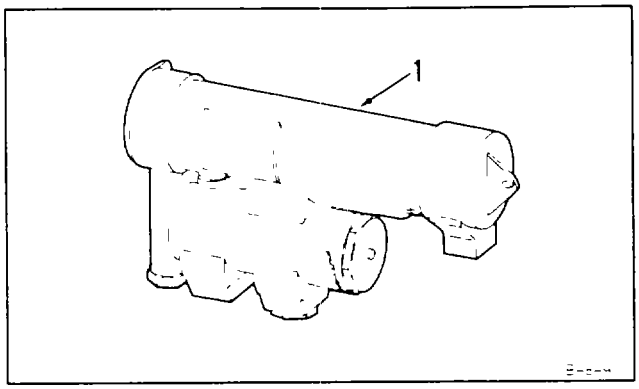
FOLLOW-ON MAINTENANCE:

None

END OF TASK

INITIAL SETUP
Applicable Configurations:
All
Tools:
Technical Inspection Tool Kit,
NSN 5180-00-323-5114
Materials:
Acid Swabbing Brush
Engine Gray Enamel (E26)
Personnel Required:
Aircraft Powerplant Repairer
Aircraft Powerplant Inspector
References:
Task 1-110
Equipment Condition:
Off Engine Task

1. Repair damaged paint on oil cooler assembly (1) (Ref. Task 1-110). Use engine gray enamel (E26).



INSPECT

FOLLOW-ON MAINTENANCE:
None

END OF TASK

8-17 ASSEMBLE OIL COOLER ASSEMBLY 8-17

INITIAL SETUP

Applicable Configurations:

All

Tools:

Powerplant Mechanic's Tool Kit.
NSN 5180-00-323-4944
Technical Inspection Tool Kit,
NSN 5180-00-323-5114
Deep Style Socket, 1-Inch
Machinist's Vise
Jaw Caps

Materials:

None

Parts:

Packings

Personnel Required:

Aircraft Powerplant Repairer
Aircraft Powerplant Inspector

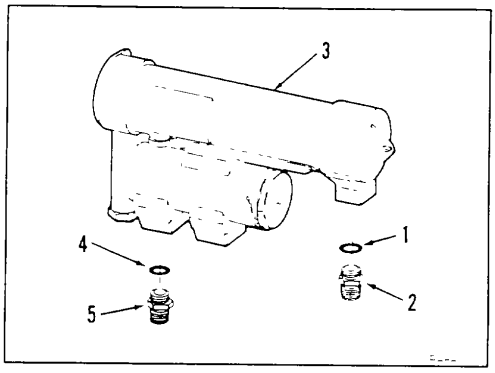
References:

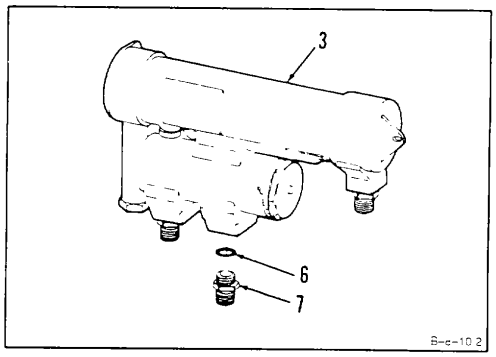
TM 1-2840-252-23P

Equipment Condition:

Off Engine Task

1. Install packing (1) and nipple (2) in oil cooler (3). Use vise and jaw caps.
2. Install packing (4) and reducer (5) in oil cooler (3). Use 1-inch deep-style socket.
3. Install packing (6) and reducer (7) in oil cooler (3). Use 1-inch deep-style socket.





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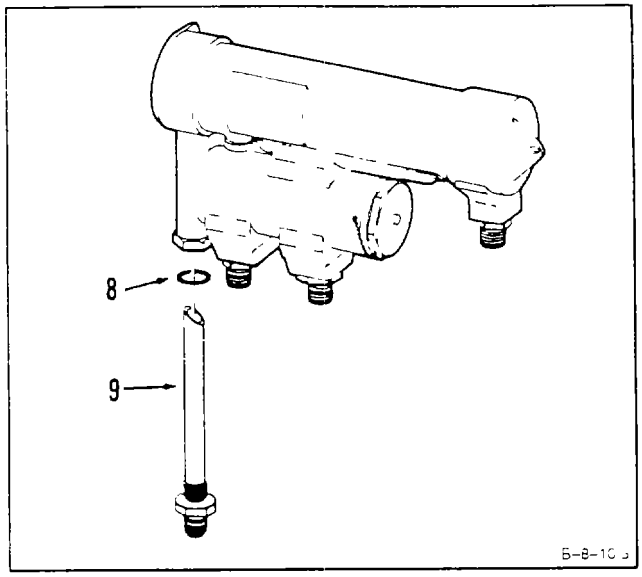
4. Install packing (8) and tube assembly (9) in oil cooler (3).



INSPECT

FOLLOW-ON MAINTENANCE:
None

END OF TASK

8-18 INSTALL OIL COOLER ASSEMBLY 8-18

INITIAL SETUP

Applicable Configurations:

All

Tools:

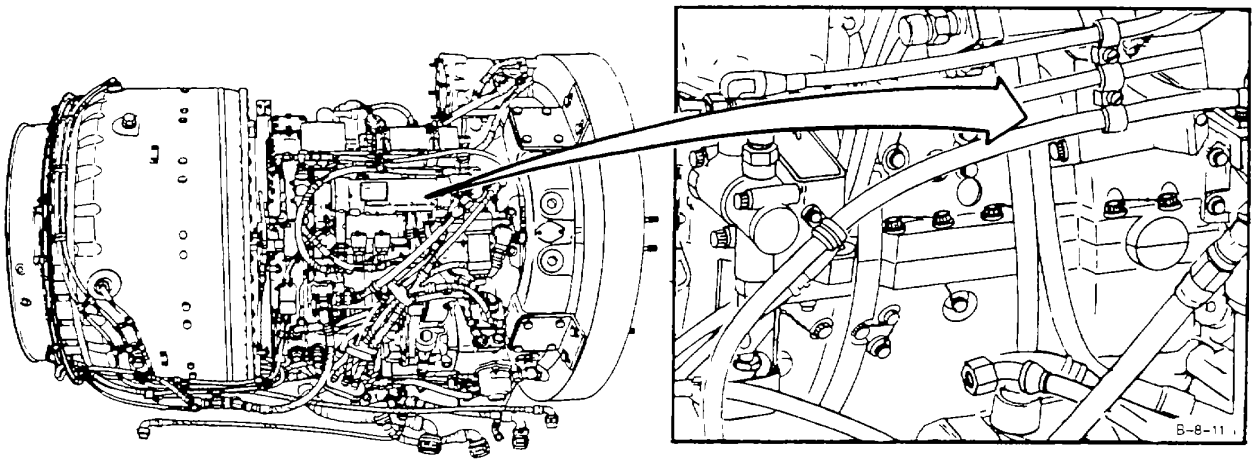
Powerplant Mechanic's Tool Kit
NSN 5180-00-323-4944
Technical Inspection Tool Kit.
NSN 5180-00-323-5114

Materials:

Lockwire (E33)

Personnel Required:

Aircraft Powerplant Repairer
Aircraft Powerplant Inspector



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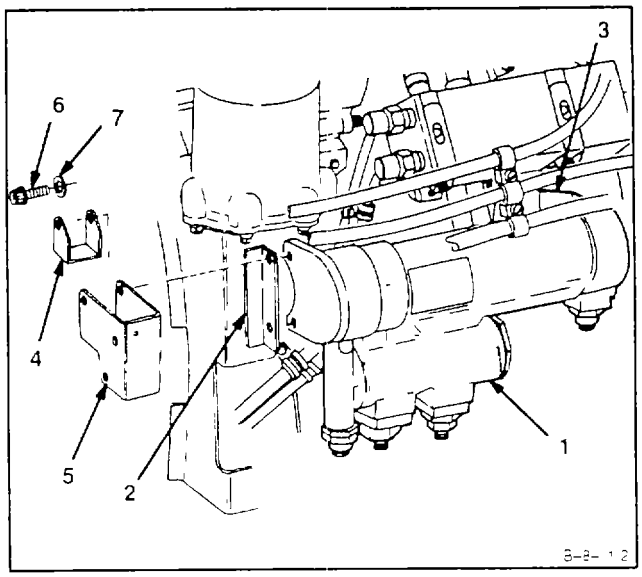
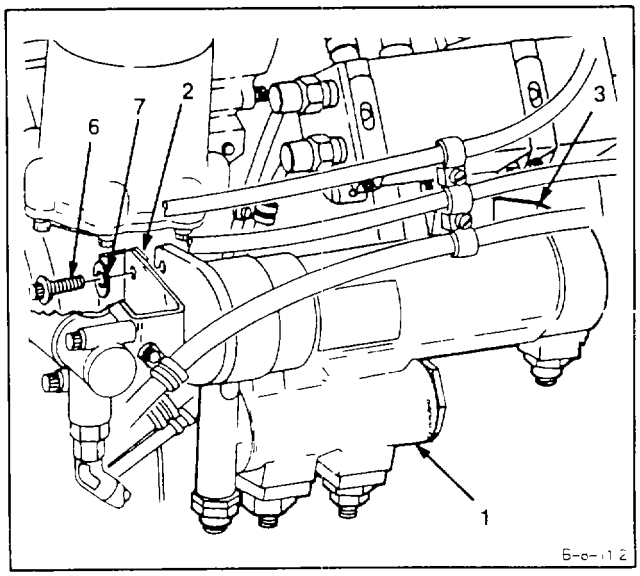
NOTE

If flow programming valve is not installed, do step 1.. If flow programming valve is installed, omit step 1..

1. Install oil cooler assembly (1) on interstage airbleed actuator (2) and bracket (3). Position bracket (4), and bracket (5) on air bleed actuator (2). Loosely install bolt (6) and washer (7).

2. Install oil cooler assembly (1) on interstage-airbleed actuator (2) and bracket (3). Loosely install bolt (6) and washer (7).





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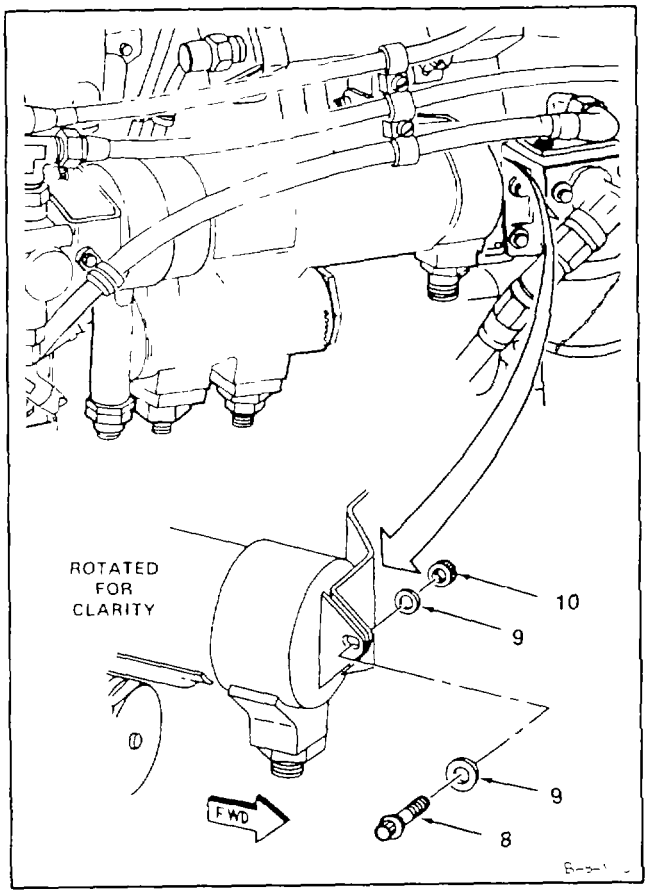
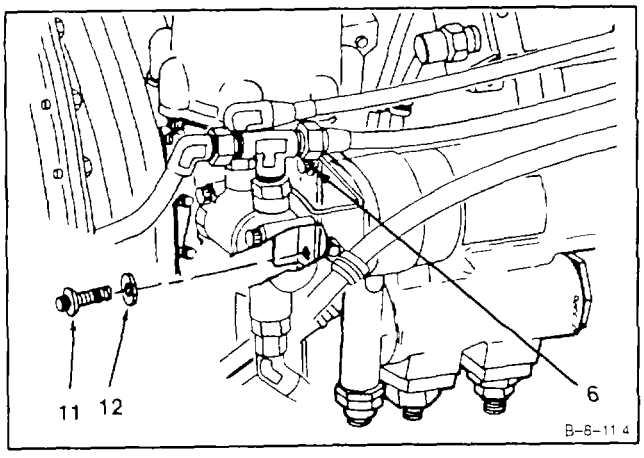
3. Install bolt (8), two washers (9), and nut (10).

4. Install bolt (11), washer (12), and tighten bolt (6). Lockwire bolts (6) and (11). Use lockwire (E33).





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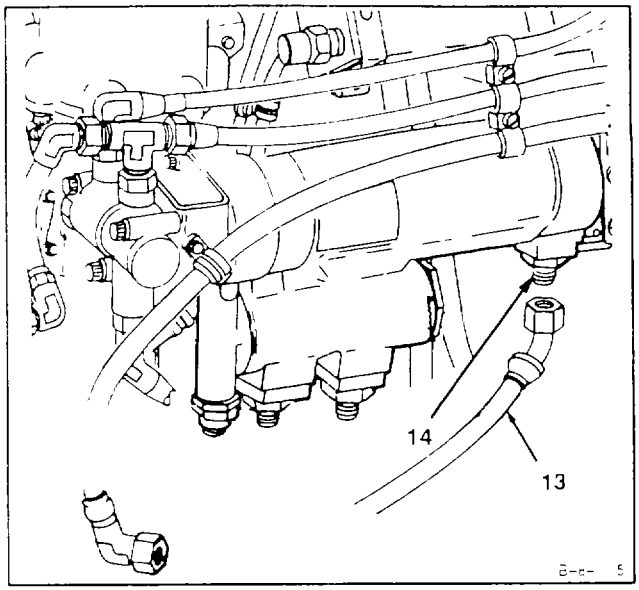
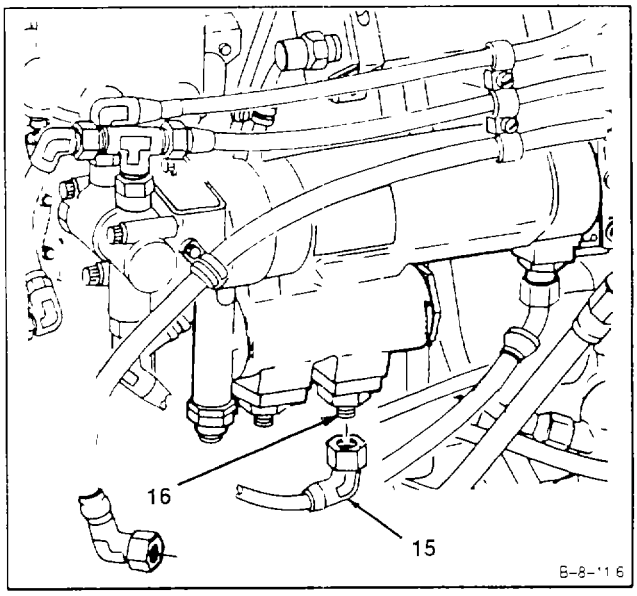
5. Connect hose assembly (13) to nipple (14).

6. Connect hose assembly (15) to reducer (16).





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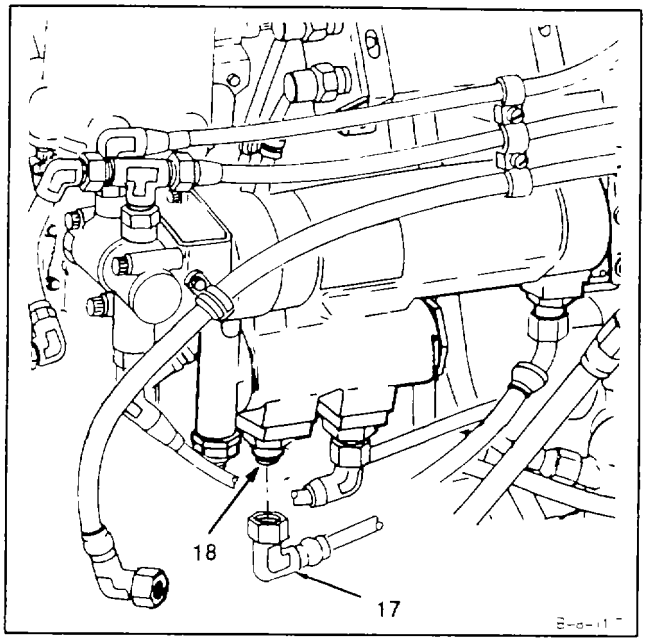
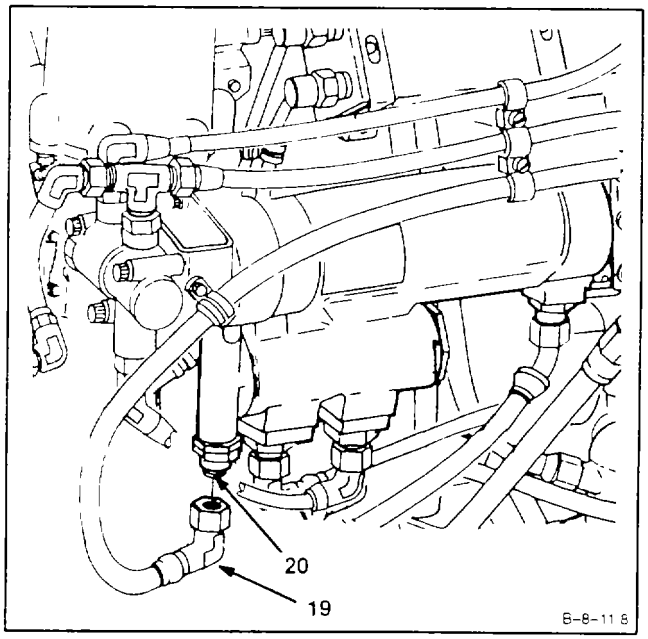
7. Connect hose assembly (17) to reducer (18).

8. Connect hose assembly (19) to tube assembly (20).





INSPECT

FOLLOW-ON MAINTENANCE:
None

END OF TASK

SECTION IV

FLOW PROGRAMMING VALVE

8-19 REMOVE FLOW PROGRAMMING VALVE 8-19

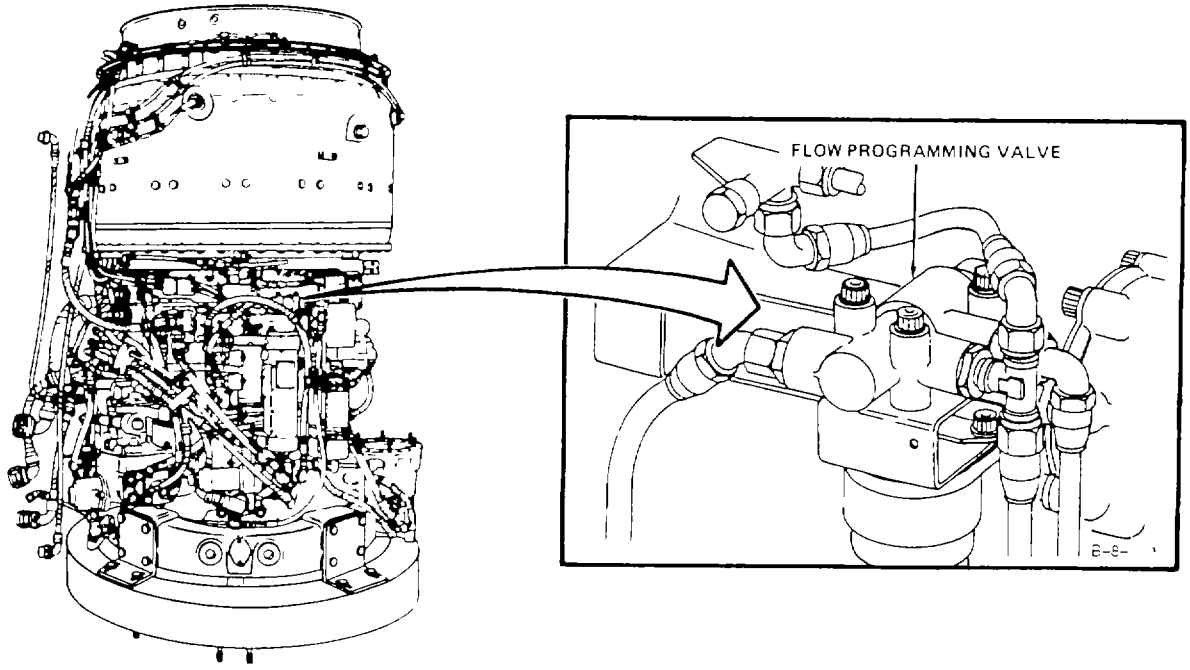
INITIAL SETUP

Applicable Configurations:
All
Tools:
Powerplant Mechanic's-Tool Kit, NSN 5180-00-323-4944
Materials:
Wiping Rag (E64)
Personnel Required:
Aircraft Powerplant Repairer

General Safety Instructions:

WARNING

Lubricating oils cause paralysis if swallowed. Prolonged contact with them may irritate the skin. Handle only in well-ventilated areas away from heat and flame. Drain and store in approved metal safety containers. Avoid prolonged or repeated contact with skin and do not take internally. Wash contacted areas of skin thoroughly after handling. If irritation of skin results, get medical attention. Get medical attention for eyes.



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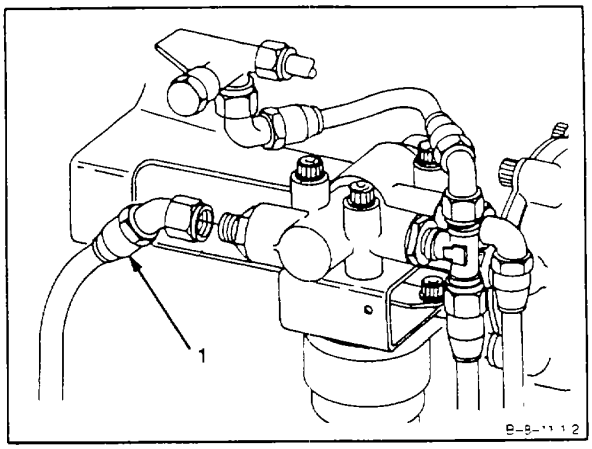
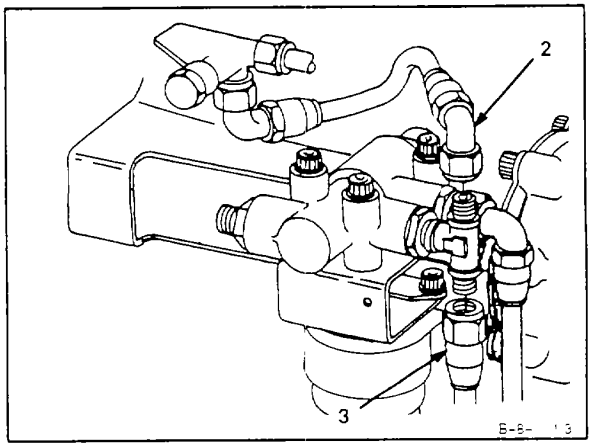
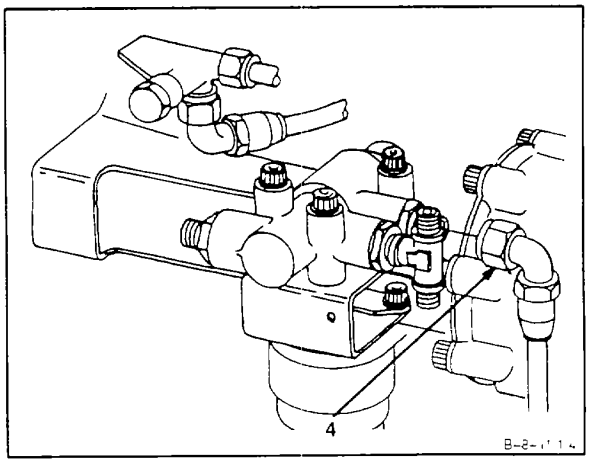
1. **Disconnect hose assembly (1).**
2. **Disconnect hose assemblies (2) and (3).**
3. **Disconnect hose assembly (4).**







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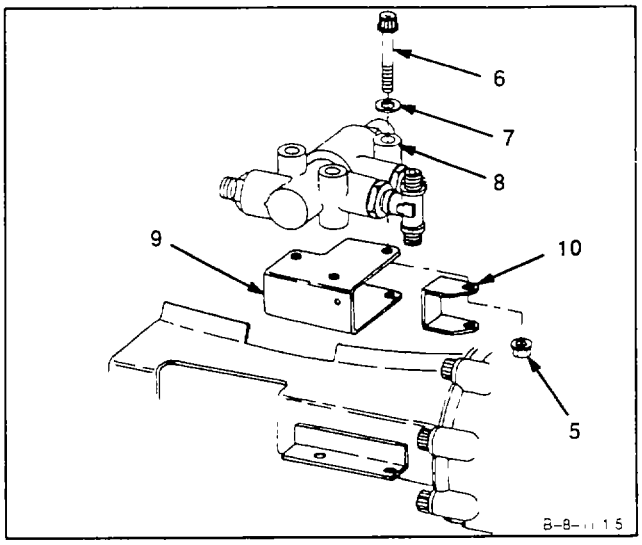
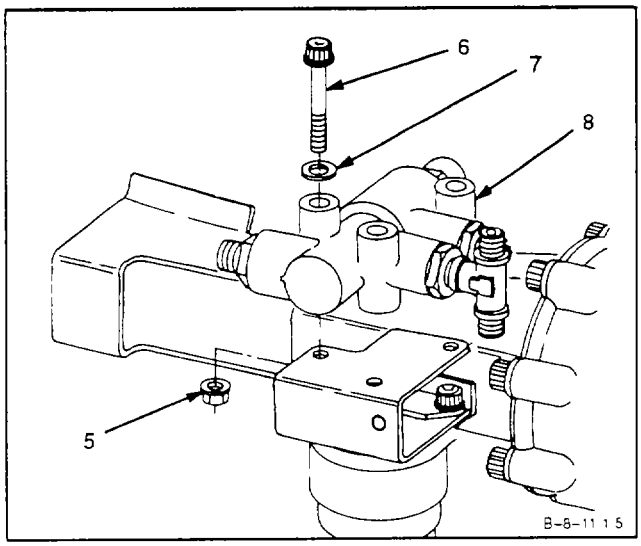
NOTE

If oil cooler assembly has already been removed, do step 4.. If oil cooler assembly has not been removed, omit step 4..

4. **Remove** three nuts (5), three bolts (6), three washers (7),**flow programming valve (8).** bracket (9), and bracket (10).

5. **Remove** three nuts (5), three bolts (6), three washers (7), and**flow programming valve (8).**





FOLLOW-ON MAINTENANCE:
None

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Powerplant Mechanic's Tool Kit, NSN 5180-00-323-4944

Goggles

Dry, Compressed Air Source

Materials:

Dry Cleaning Solvent (E19)

Gloves (E24)

Lint-Free Cloth (E30)

Personnel Required:

Aircraft Powerplant Repairer

Equipment Condition:

Off Engine Task

Flow Programming Valve Removed (Task 8-19)

General Safety Instructions:

WARNING

Dry cleaning solvent (E19) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

1. Wear gloves (E24). **Clean flow programming valve (1)**. Use dry cleaning solvent (E19) and brush.

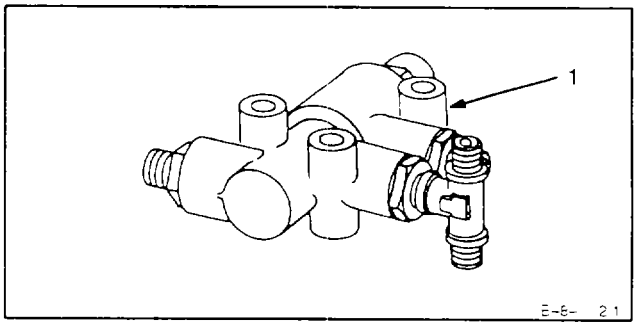
WARNING

When using compressed air for cleaning, use approved protective equipment for eyes and face. Do not use more than 30 psig air pressure. Do not direct air toward yourself or another person. Failure to comply could result in injury to eyes or skin. In case of injury, get medical attention.

2. Wear goggles. **Blow dry flow programming valve (1)**, using clean, dry, compressed air.

FOLLOW-ON MAINTENANCE:

Inspect Flow Programming Valve (Task 8-21).



END OF TASK

8-21 INSPECT FLOW PROGRAMMING VALVE 8-21

INITIAL SETUP

Applicable Configurations:

All

Tools:

Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944

Materials:

None

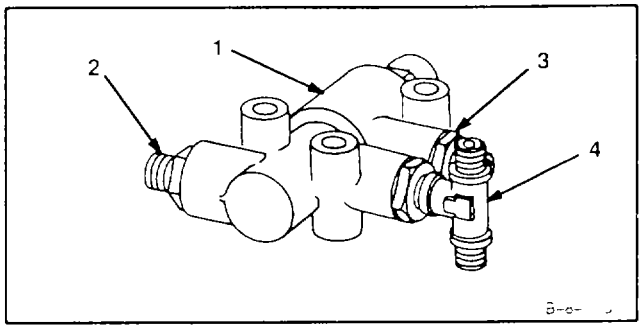
Personnel Required:

Aircraft Powerplant Repairer

Equipment Condition:

Off Engine Task

1. **Inspect flow programming valve (1).**
   a. There shall be no nicks, scratches, or gouges on sealing surface.
   b. There shall be no damaged threads on unions (2 and 3), and tee (4).
   c. Unions (2 and 3) shall not be loose. If unions are loose, tighten unions.



FOLLOW-ON MAINTENANCE:

None

END OF TASK

8-22 INSTALL FLOW PROGRAMMING VALVE 8-22

INITIAL SETUP

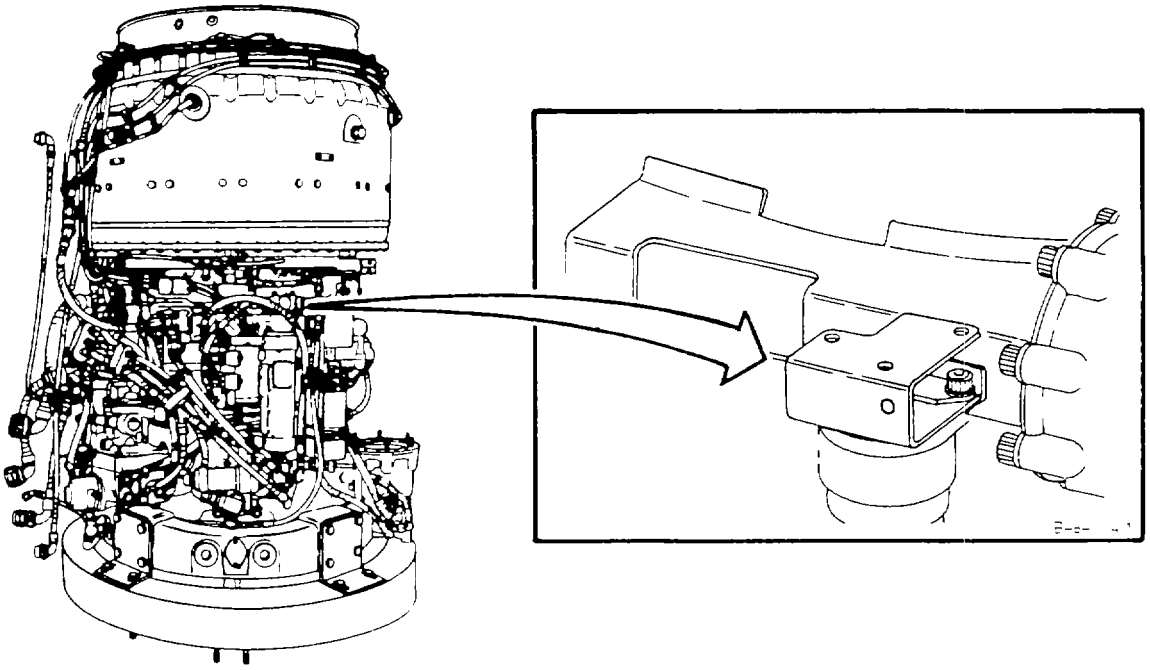
Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Technical Inspection Tool Kit,
NSN 5180-00-323-5114

Materials:
Lockwire (E33)

Personnel Required:
Aircraft Powerplant Repairer
Aircraft Powerplant Inspector

References:
TM 1-2840-252-23P



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NOTE

If flow programming valve is a replacement, do steps 1. thru 5.. If same flow programming valve that was removed is to be installed, omit steps 1. thru 5..

1. **Remove two unions (1)** and packings (2) **from removed flow programming valve (3).**

2. **Remove tee (4),** nut (5), and packing (6) **from removed flow programming valve (3).**

3. **Install nut (5)** on tee (4). **Install packing (6)** on tee (4). Position nut to. make sure packing is in groove between two sets of threads on tee.

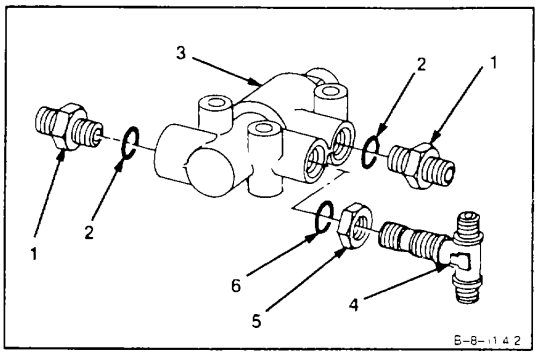
4. **Install tee (4) on serviceable flow programming valve (3).**

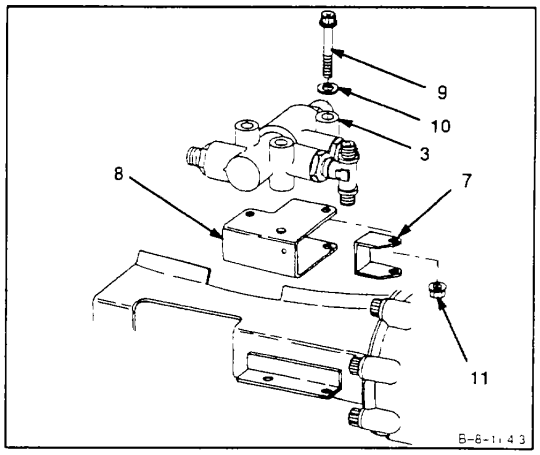
5. **Install** two packings (2) and **unions (1) on serviceable flow programming valve (3).**

NOTE

If oil cooler assembly is not installed, do step 6.. If oil cooler assembly is installed, omit step 6..

6. **Install flow programming valve (3), bracket (7) , bracket (8),** three bolts (9), three washers (10), and three nuts (11).





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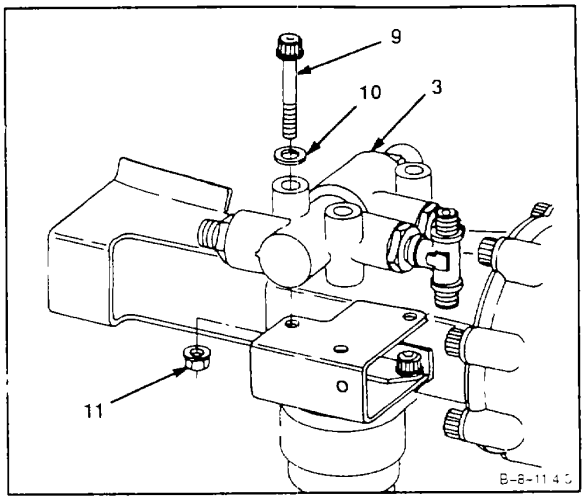
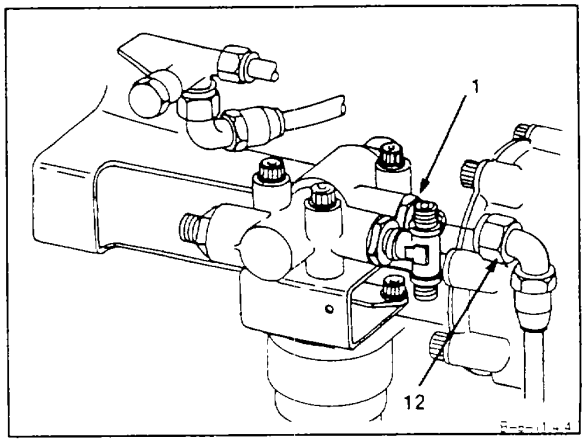
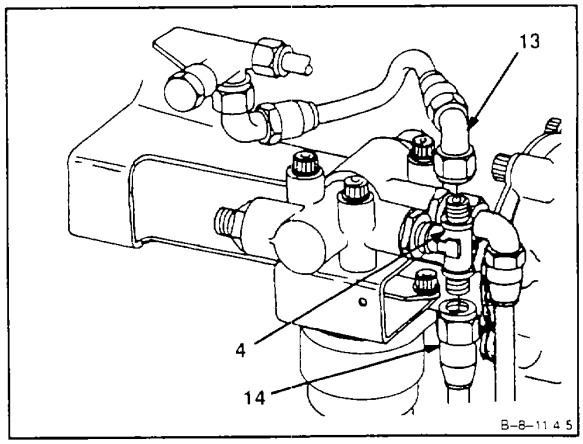
7. **Install flow programming valve (3),** three bolts (9), three washers (10), and three nuts (11).
8. **Connect hose assembly (12)** to union (1).
9. **Connect hose assemblies (13) and (14)** to tee (4).







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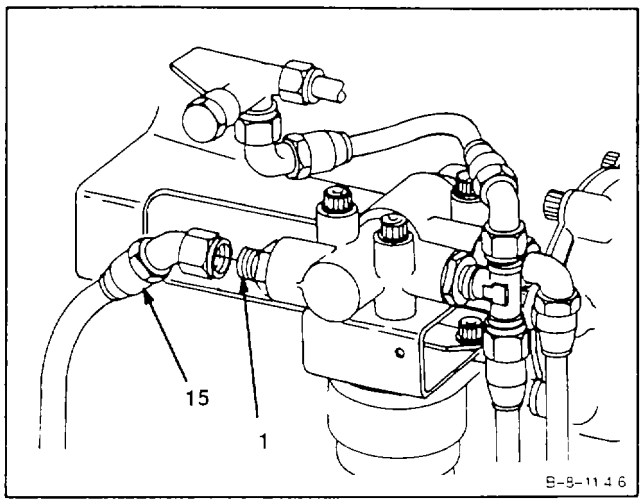
10. **Connect hose assembly (15)** to union (1).



INSPECT

FOLLOW-ON MAINTENANCE:
None

END OF TASK

SECTION V

OIL TEMPERATURE TRANSMITTER

8-23 REMOVE OIL TEMPERATURE TRANSMITTER 8-23

INITIAL SETUP

Applicable Configurations:

All

Tools:

Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944

Materials:

None

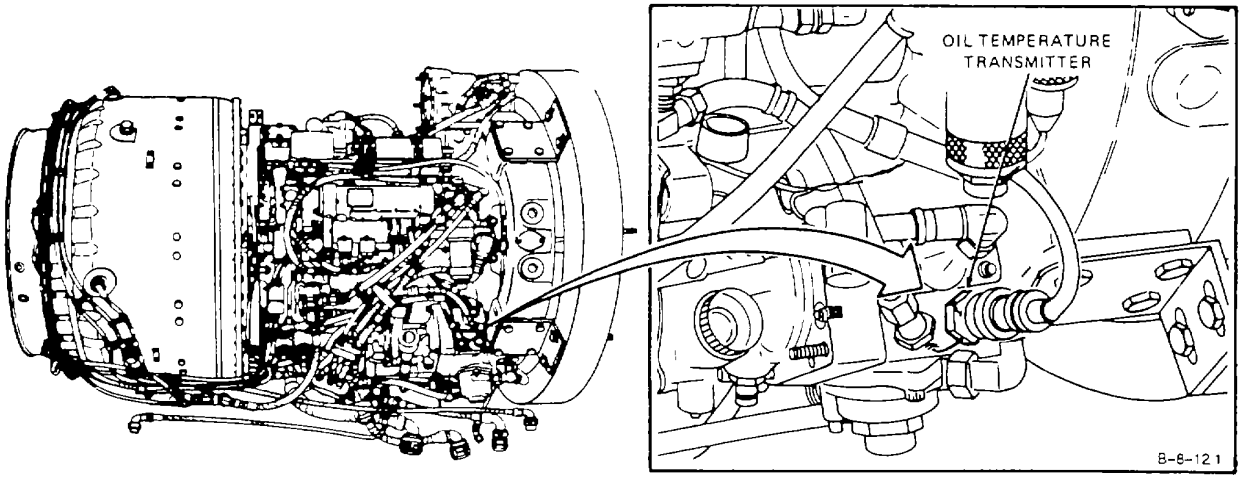
Personnel Required:

Aircraft Powerplant Repairer

General Safety Instructions:

WARNING

Lubricating oils cause paralysis if swallowed. Prolonged contact with them may irritate the skin. Handle only in well-ventilated areas away from heat and flame. Drain and store in approved metal safety containers. Avoid prolonged or repeated contact with skin and do not take Internally. Wash contacted area of skin thoroughly after handling. If irritation of skin results, get medical attention. Get medical attention for eyes.



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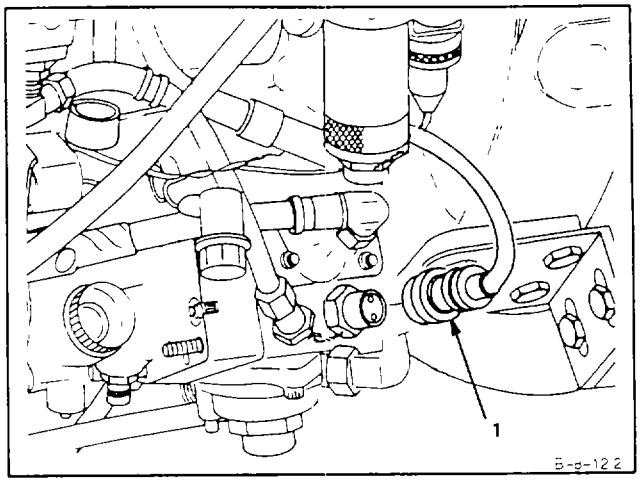
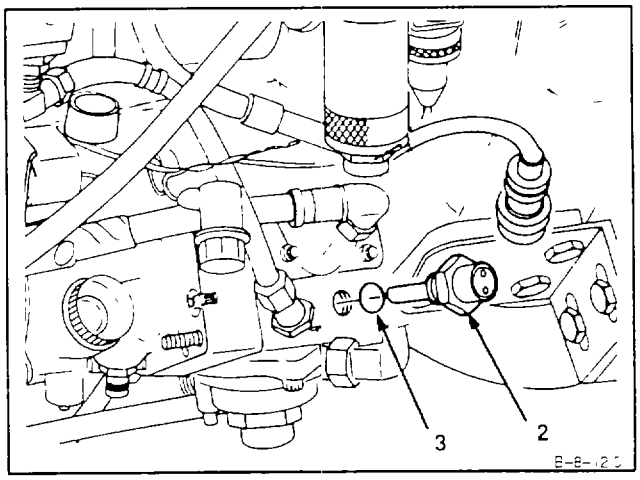
1. **Remove electrical connector (1).**

2. **Remove** lockwire, **oil temperature transmitter (2),** and gasket (3).





FOLLOW-ON MAINTENANCE:
None

END OF TASK

8-24 CLEAN OIL TEMPERATURE TRANSMITTER 8-24

INITIAL SETUP

Applicable Configurations:

All

Tools:

Powerplant Mechanic's Tool Kit, NSN 5180-00-323-4944

Materials:

Dry Cleaning Solvent (E19)
Gloves (E24)
Lint-Free Cloth (E30)

Personnel Required:

Aircraft Powerplant Repairer

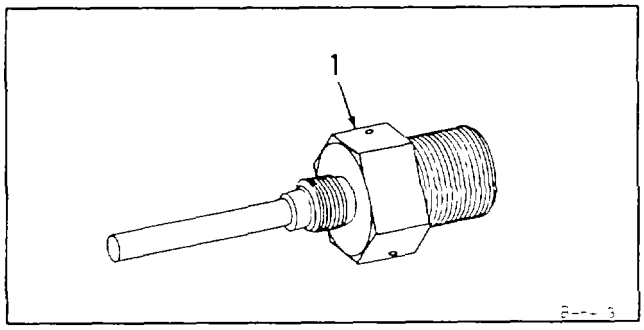
Equipment Condition:

Off Engine Task
Oil Temperature Transmitter Removed (Task 8-23)

General Safety Instructions:

WARNING|

Dry cleaning solvent (E19) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes: Get medical attention for eyes.



1. Wear gloves (E24). **Clean oil temperature transmitter (1).** Use dry cleaning solvent (El 9) and brush.

2. **Wipe dry** using clean, dry, lint-free cloth (E30).

FOLLOW-ON MAINTENANCE:

Inspect Oil Temperature Transmitter (Task 8-25).

END OF TASK

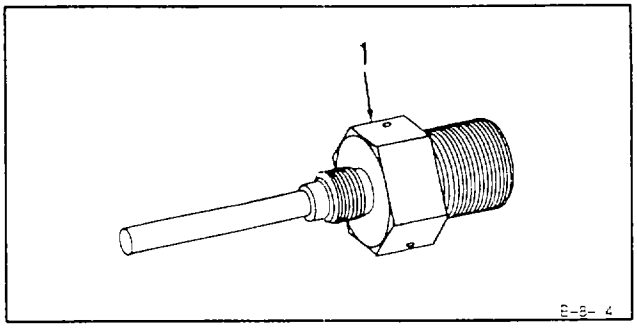
8-25 INSPECT OIL TEMPERATURE TRANSMITTER 8-25

INITIAL SETUP
Applicable Configurations:
All
Tools:
Technical Inspection Tool Kit,
NSN 5180-00-323-5114
Materials:
None
Personnel Required:
Aircraft Powerplant Inspector
Equipment Condition:
Off Engine Task

1. **Inspect oil temperature transmitter (1).** as follows:

   a. Their shall be no cracks.

   b. There shall be no damaged threads.



FOLLOW-ON MAINTENANCE:
None

END OF TASK

8-26 INSTALL OIL TEMPERATURE TRANSMITTER 8-26

INITIAL SETUP

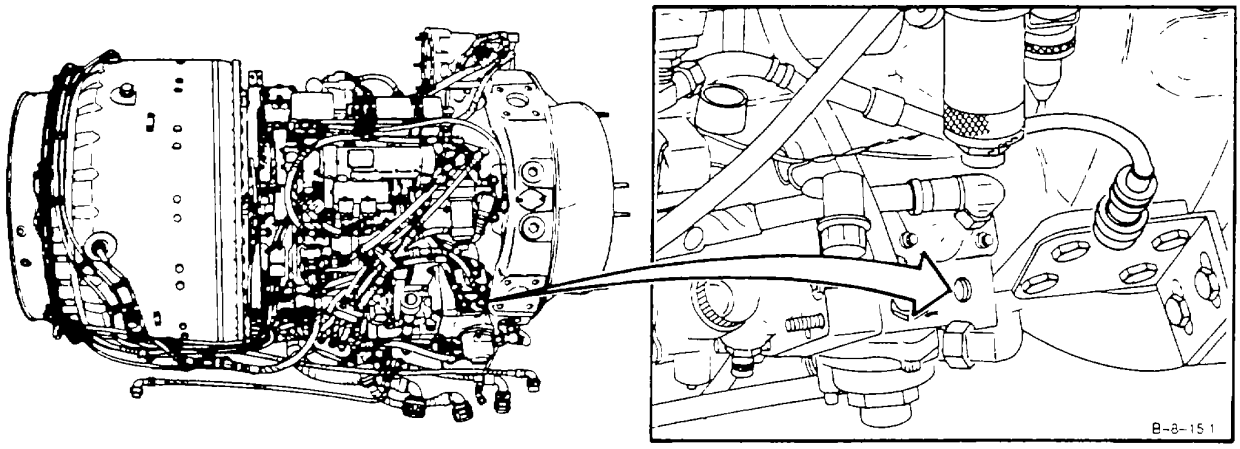
Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Technical Inspection Tool Kit,
NSN 5180-00-323-5114

Materials:
Lockwire (E33)

Personnel Required:
Aircraft Powerplant Repairer
Aircraft Powerplant Inspector

References:
TM 1-2840-252-23P



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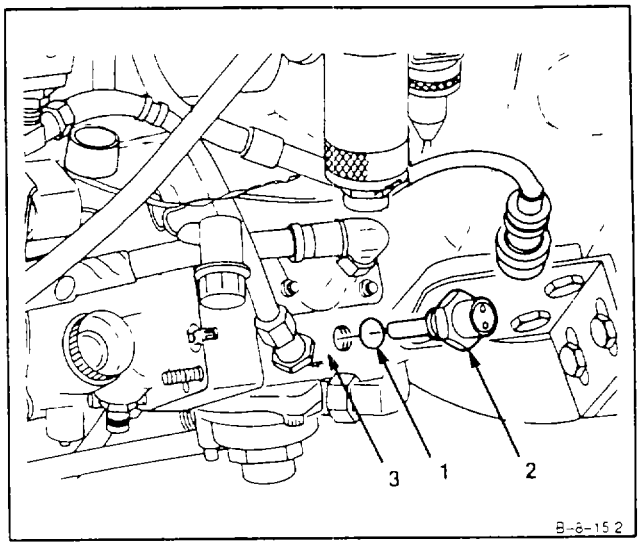
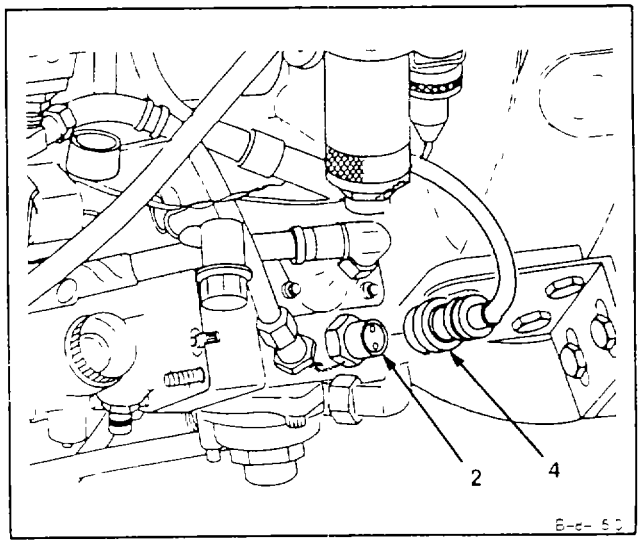
1. **Install** gasket (1) and **oil temperature transmitter (2)** in accessory gearbox assembly (3). Lockwire oil temperature transmitter (2). Use lockwire (E33).

2. **Install electrical connector (4)** on oil temperature transmitter (2).





INSPECT

FOLLOW-ON MAINTENANCE:
None

END OF TASK

SECTION VI

OIL FILLER ASSEMBLY AND OIL FILLER STRAINER

8-27 REMOVE OIL FILLER ASSEMBLY AND OIL FILLER STRAINER 8-27

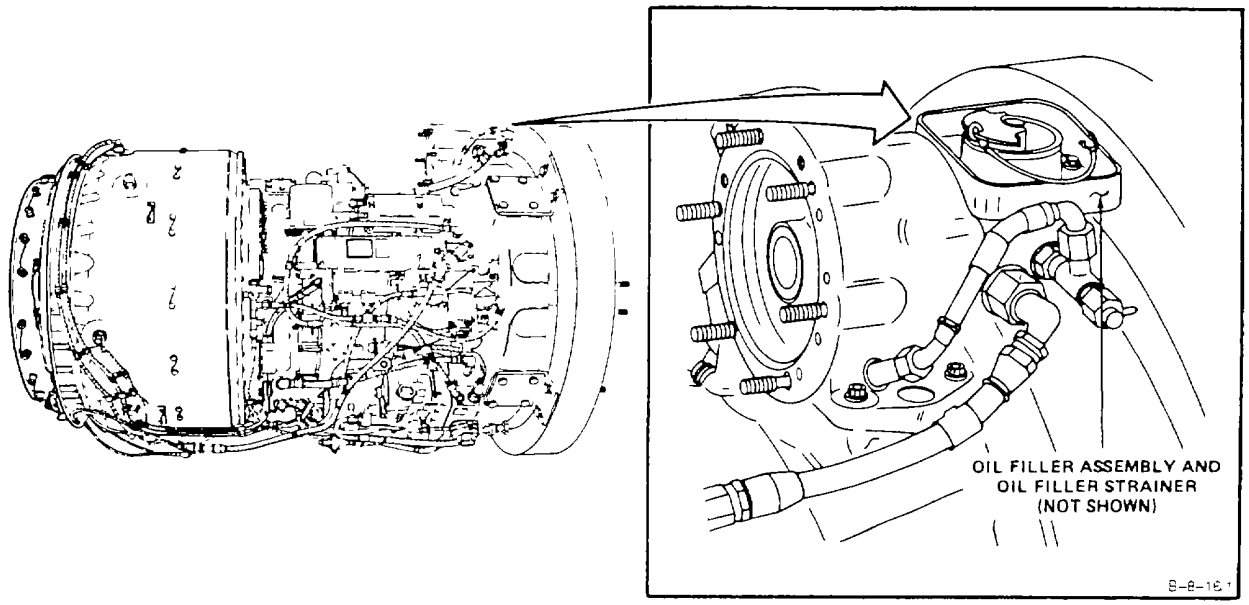
INITIAL SETUP

Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944

Materials:
Wiping Rag (E64)

Personnel Required:
Aircraft Powerplant Repairer



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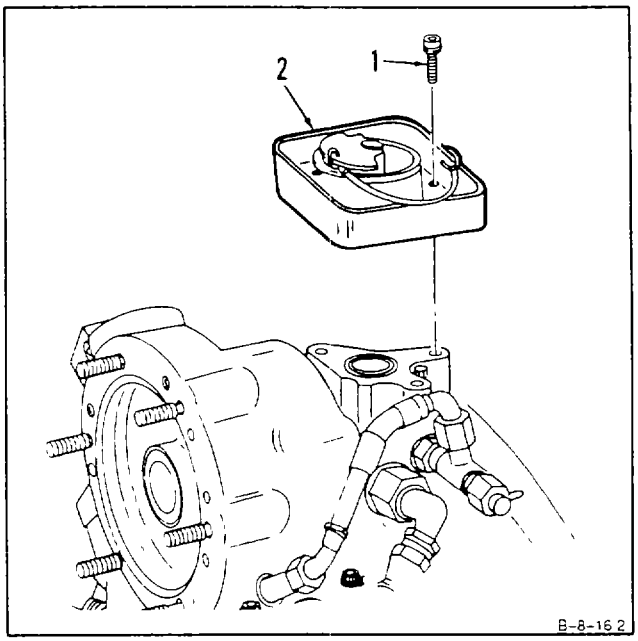
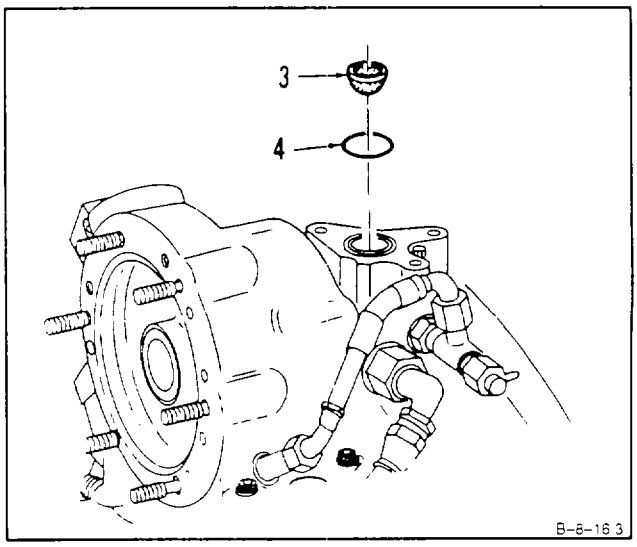
1. **Remove** lockwire, three bolts (1) and **oil filler assembly (2).**

CAUTION

If tools must be used to remove strainer care must be exercised to prevent damage to mating surfaces.

2. **Remove oil filler strainer (3) and packing (4).**





FOLLOW-ON MAINTENANCE:
None

END OF TASK

8-28 DISASSEMBLE OIL FILLER ASSEMBLY AND OIL FILLER STRAINER 8-28

INITIAL SETUP

Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944

Materials:
None

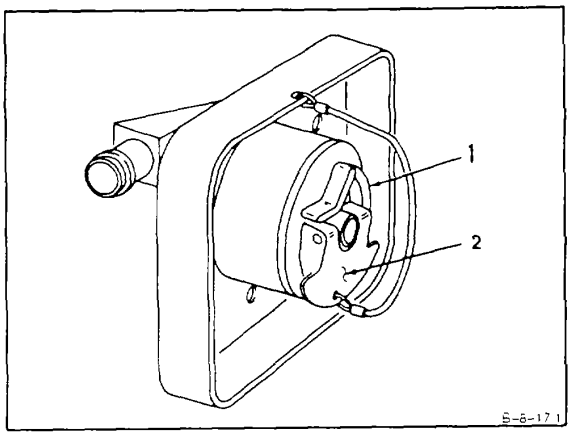
Personnel Required:
Aircraft Powerplant Repairer

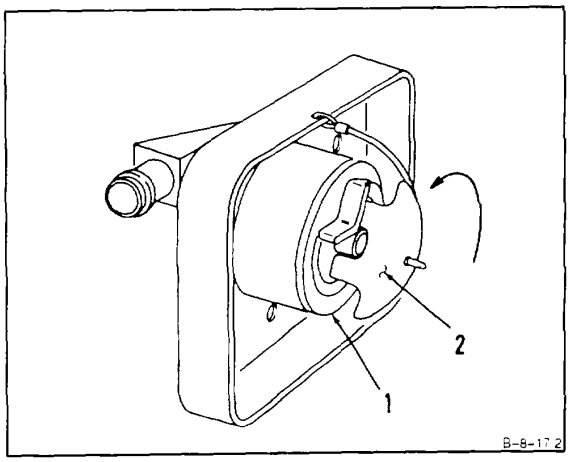
Equipment Condition:
Off Engine Task
Oil Filler Assembly and Oil Filler Strainer
Removed (Task8-27)

1. **Remove cap assembly (1)** as follows:

   a. Lift handle (2).

   b. Turn handle (2) counterclockwise and remove cap assembly (1).





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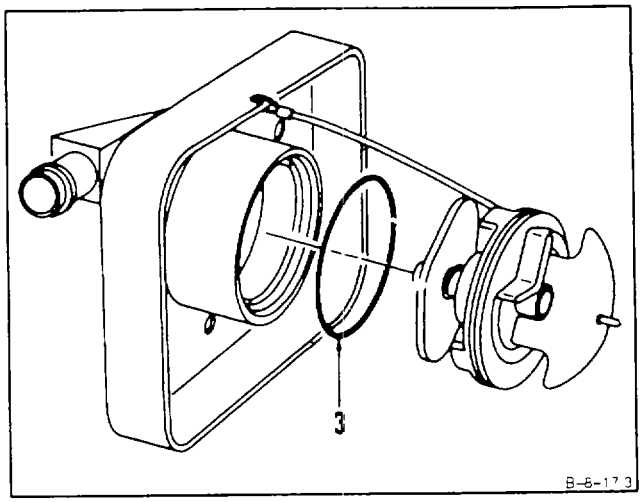
c. Remove packing (3).



FOLLOW-ON MAINTENANCE:
None

END OF TASK

8-29 CLEAN OIL FILLER ASSEMBLY AND OIL FILLER STRAINER (Continued) 8-29

INITIAL SETUP

Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Goggles
Dry, Compressed Air Source

Materials:
Dry Cleaning Solvent (E19)
Gloves (E24)

Personnel Required:
Aircraft Powerplant Repairer

Equipment Condition:
Off Engine Task
Oil Filler Assembly and Oil Filler Strainer Removed (Task 8-27)
Oil Filler Assembly and Oil Filler Strainer Disassembled (Task 8-28)

General Safety Instructions:

WARNING

Dry cleaning solvent (E19) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

WARNING

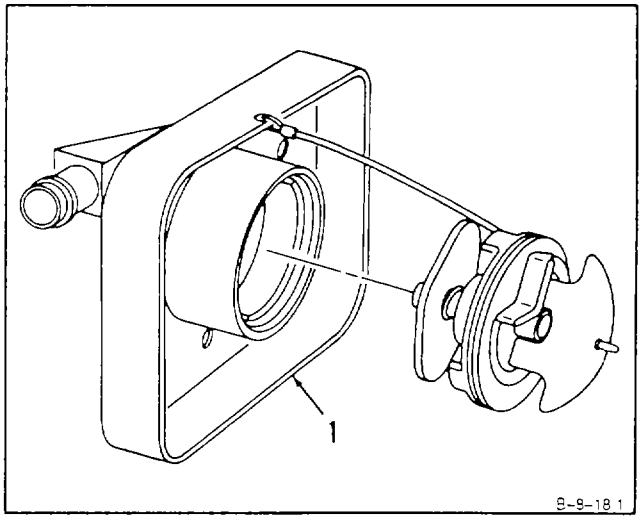
When using compressed air for cleaning, use approved protective equipment for eyes and face. Do not use more than 30 psig air pressure. Do not direct air toward yourself or another person. Failure to comply could result in injury to eves or skin. In case of injury, get medical attention.

---

1. Clean oil filter assembly (1) as follows:

a. Wear gloves (E24). Immerse filler assembly (1) in dry cleaning solvent (E19) and agitate. Use brush on inner surface.

b. Wear goggles. Blow dry any remaining solvent. Use clean, dry, compressed air.



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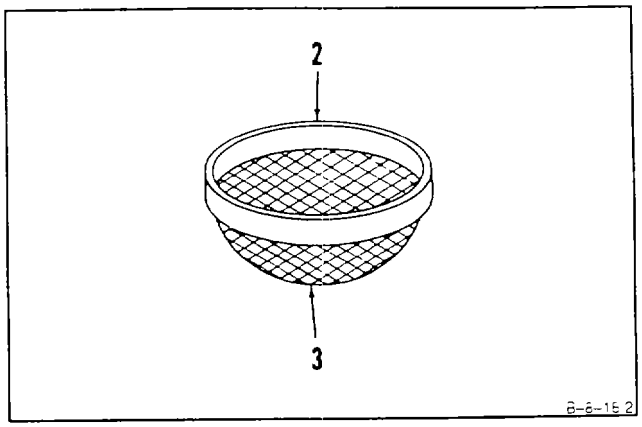
2. Clean oil filler strainer (2) as follows:

a. Immerse in dry cleaning solvent (E19) and agitate. Use brush on screen (3).

b. Blow dry screen (3). Use clean, dry, compressed air.

FOLLOW-ON MAINTENANCE:
Inspect Oil Filler Assembly and Oil Filler Strainer (Task 8-30).



END OF TASK

8-30 INSPECT OIL FILLER ASSEMBLY AND OIL FILLER STRAINER 8-30

INITIAL SETUP

Applicable Configurations:
All

Tools:
Technical Inspection Tool Kit,
NSN 5180-00-323-5114

Materials:
None

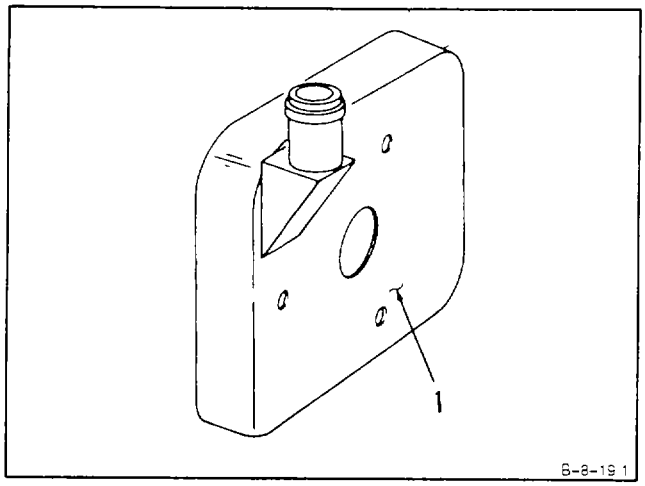
Personnel Required:
Aircraft Powerplant Inspector

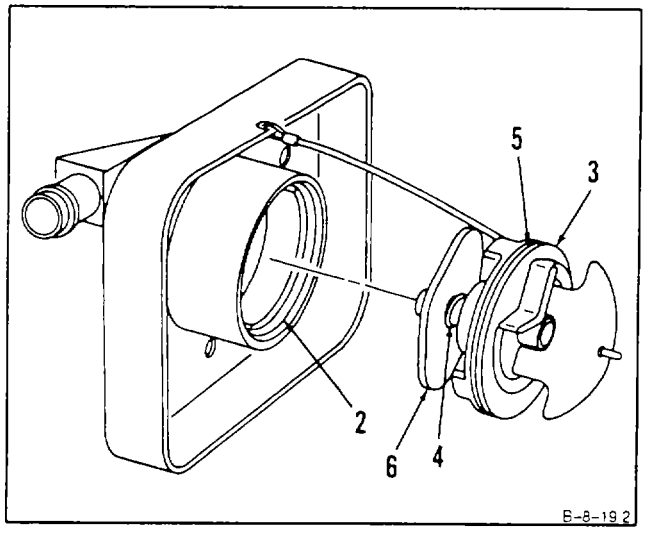
Equipment Condition:
Off Engine Task

---

1. Inspect pan mounting surface (1). There shall be no cracks.

2. Inspect packing sealing surface (2). There shall be no nicks, dents and scratches greater than 0.015 inch. Inspect cap assembly (3). Spring (4) shall not be broken. There shall be no nicks, dents or scratches deeper than 0.015 inch in packing groove (5). Locking tabs (6) shall not be bent or distorted.





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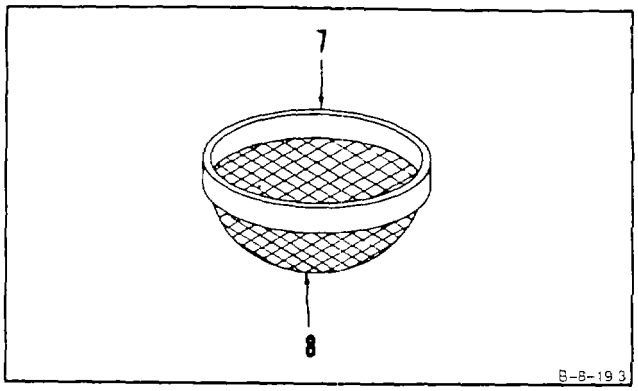
3. Inspect oil filler strainer (7). There shall be no broken wires (8).



FOLLOW-ON MAINTENANCE:
None

END OF TASK

8-31 REPAIR OIL FILLER ASSEMBLY AND OIL FILLER STRAINER 8-31

INITIAL SETUP

Applicable Configurations:
All

Tools:
Technical Inspection Tool Kit,
NSN 5180-00-323-5114

Materials:
Crocus Cloth (E16)

Personnel Required:
Aircraft Powerplant Repairer
Aircraft Powerplant Inspector

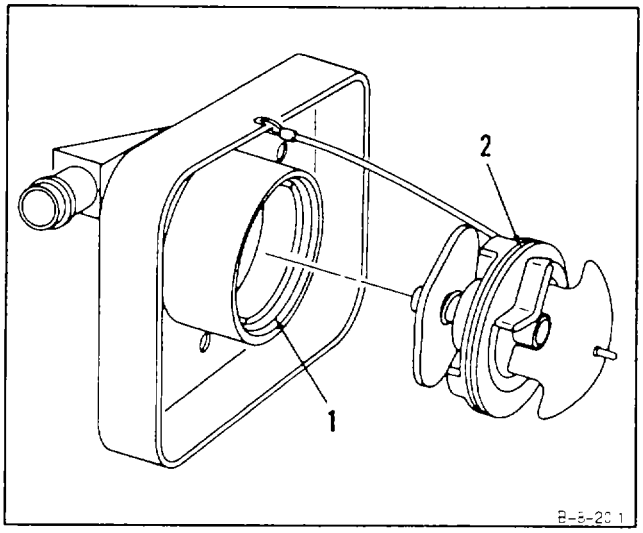
Equipment Condition:
Off Engine Task

1. Repair nicks, dents and scratches in packing sealing surface (1) or in packing groove (2) as follows:

NOTE
Repair is allowed only if depth after repair is not more than 0.015 inch.

a. Blend-repair using file.

b. Polish repaired area. Use crocus cloth (E16).



INSPECT

FOLLOW-ON MAINTENANCE:
None

END OF TASK

8-32 ASSEMBLE OIL FILLER ASSEMBLY AND OIL FILLER STRAINER 8-32

INITIAL SETUP

Applicable Configurations:
All

Tools:
Technical Inspection Tool Kit,
NSN 5180-00-323-5114

Materials:
None

Personnel Required:
Aircraft Powerplant Repairer
Aircraft Powerplant Inspector

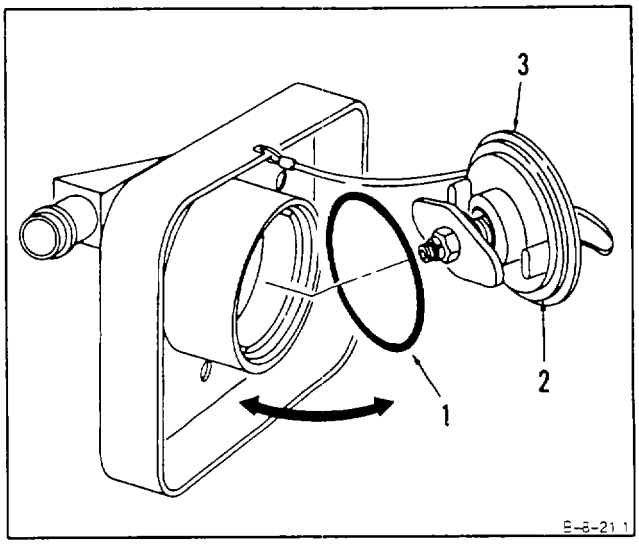
Parts:
Packing

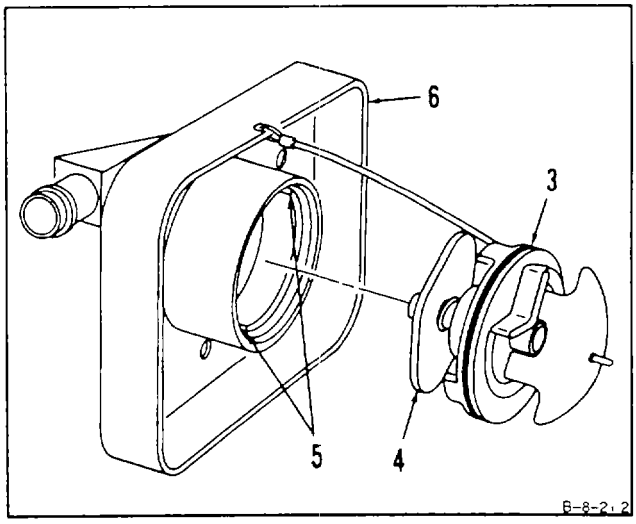
References:
TM 1-2840-252-23P

Equipment Condition:
Off Engine Task

1. **Install packing (1)** in groove (2) of cap assembly (3).

2. Align ends of lug (4) with slots (5) and **install cap assembly (3)** in pan (6).





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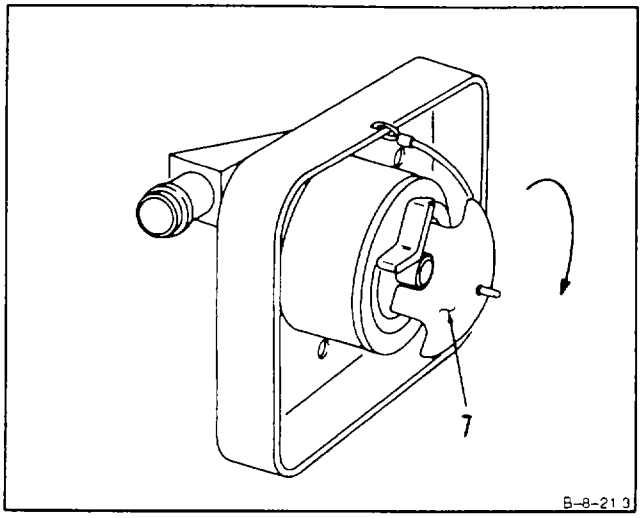
3. Turn handle (7) 1/8-turn clockwise and press down.



INSPECT

FOLLOW-ON MAINTENANCE:
None

END OF TASK

8-33 INSTALL OIL FILLER ASSEMBLY AND OIL FILLER STRAINER 8-33

INITIAL SETUP

Applicable Configurations:
All

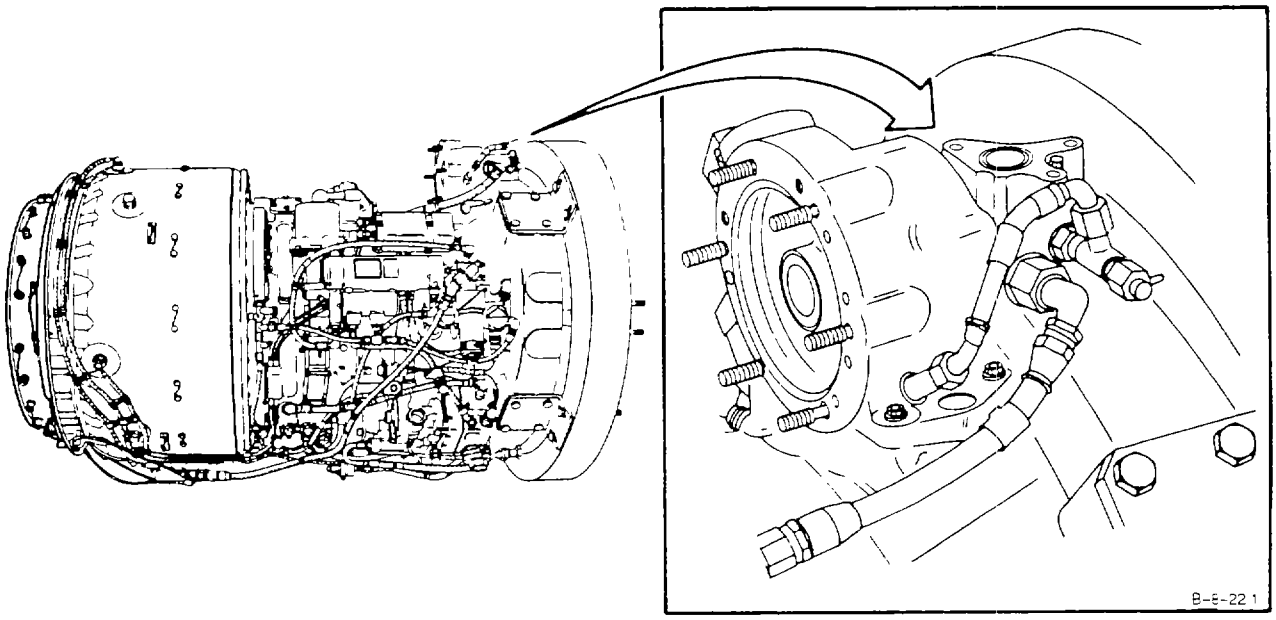
Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Technical Inspection Tool Kit,
NSN 5180-00-323-5114

Materials:
Lockwire (E33)

Parts:
Packing

Personnel Required:
Aircraft Powerplant Repairer
Aircraft Powerplant Inspector

References:
TM 1-2840-252-23P



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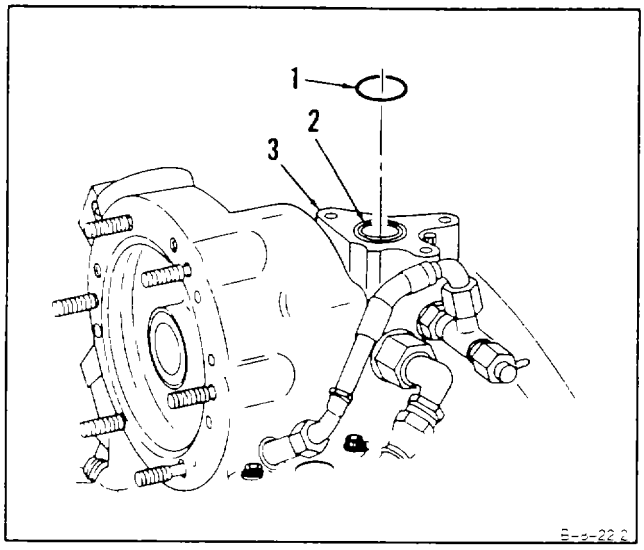
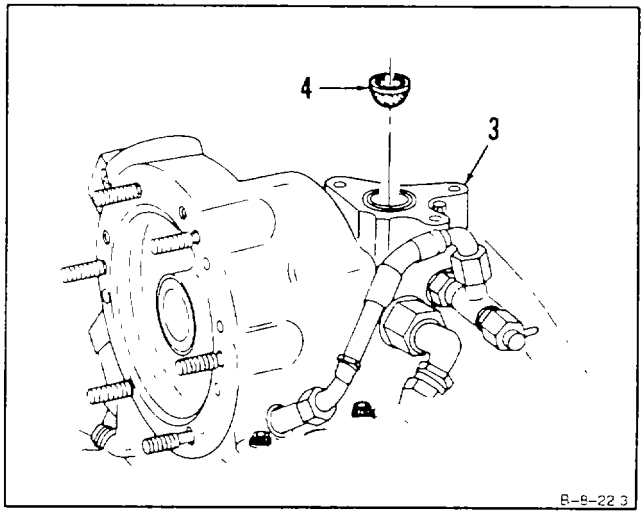
1. **Install packing (1)** in groove (2) in housing (3).

2. **Install oil filler strainer (4)** in housing (3).





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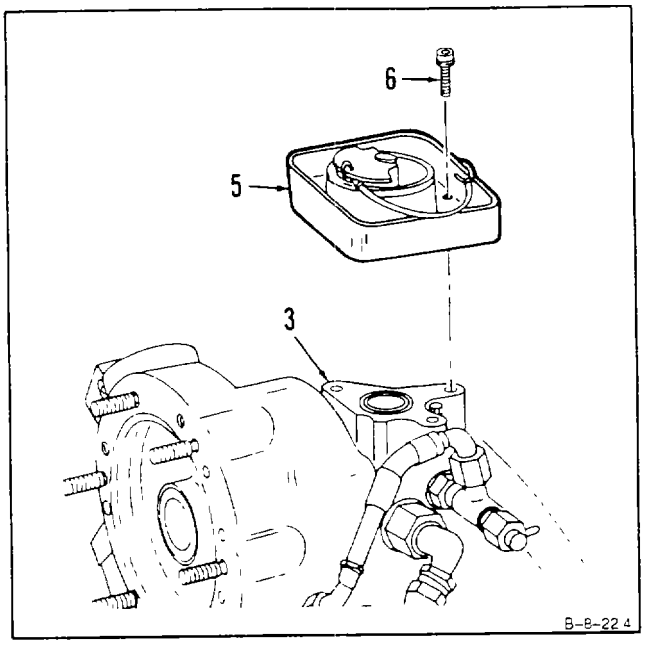
3. **Install oil filler assembly (5)** and three bolts (6) on housing (3). Lockwire bolts (6). Use lockwire (E33)

INSPECT

FOLLOW-ON MAINTENANCE:
None



END OF TASK

SECTION VII
OIL FILTER COVER ASSEMBLY AND OIL FILTER ELEMENT

8-34 REMOVE OIL FILTER COVER ASSEMBLY AND OIL FILTER ELEMENT 8-34

INITIAL SETUP

Applicable Configurations:
All

Tools:

Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Container, 1-Quart

Materials:
Wiping Rag (E64)

Personnel Required:
Aircraft Powerplant Repairer

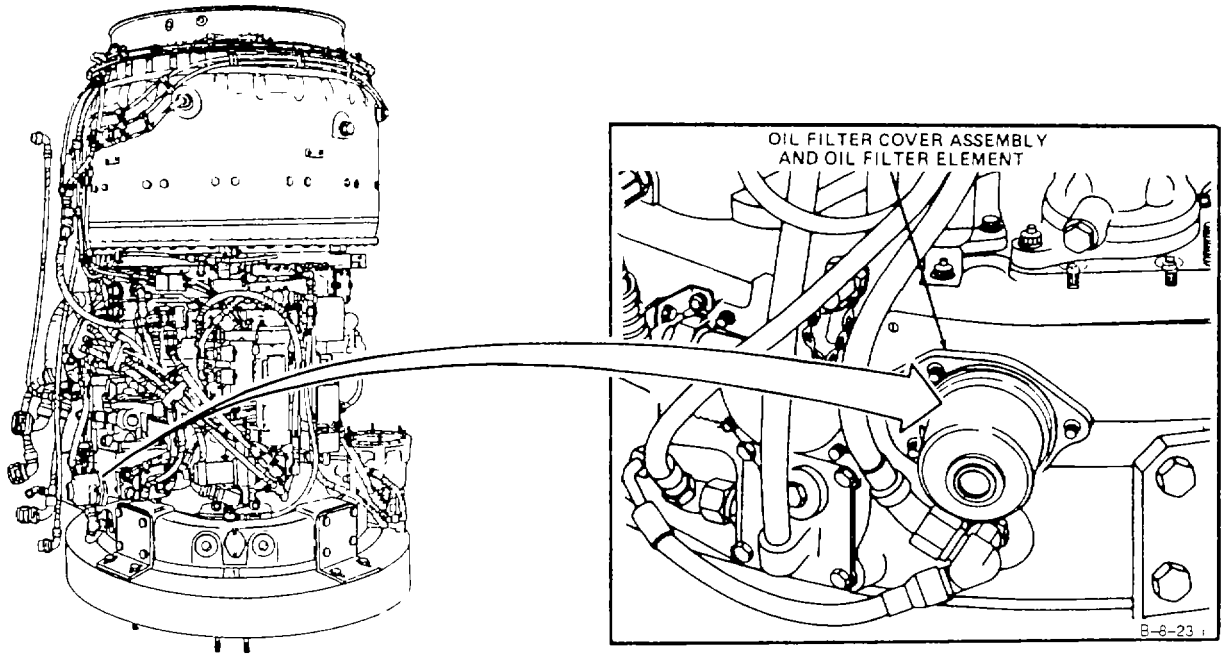
References:
Task 1-80

Equipment Condition:
Engine Oil System Drained (Task 1-69)

General Safety Instructions:

WARNING

Lubricating oils cause paralysis if swallowed. Prolonged contact with them may irritate the skin. Handle only in well-ventilated areas away from heat and flame. Drain and store in approved metal safety containers. Avoid prolonged or repeated contact with skin and do not take internally. Wash contacted area of skin thoroughly after handling. If irritation of skin results, get medical attention. Get medical attention for eyes.



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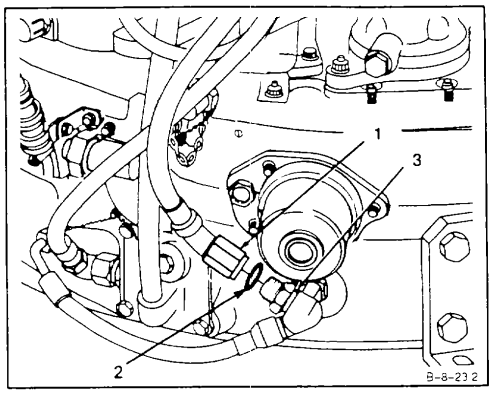
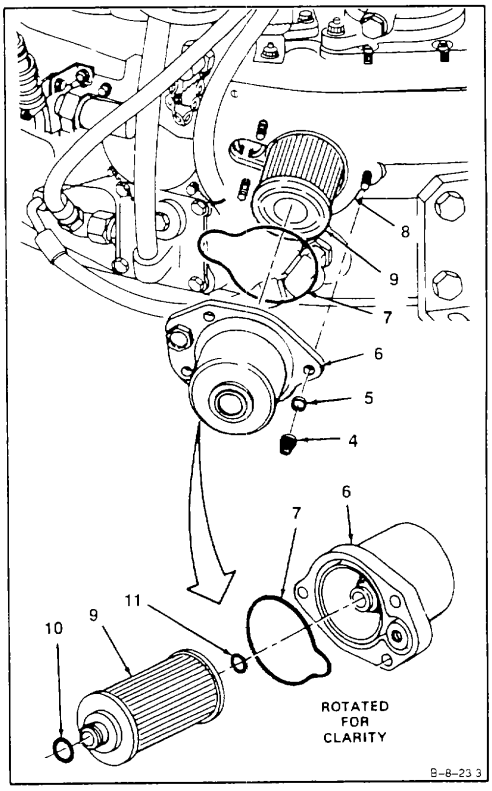
8-34 REMOVE OIL FILTER COVER ASSEMBLY AND OIL FILTER ELEMENT (Continued) **8-34**

1. **Disconnect hose assembly (1)** and remove gasket (2) from tee (3).
2. **Remove** three nuts (4) and three washers (5). Remove lockwire and oil filter**cover assembly (6).**
3. Remove packing (7) from accessory gearbox assembly (8).
4. **Remove oil filter element (9)** from oil filter cover assembly (6) and remove packings (10 and 11).
5. **Inspect oil filter element (9).** There shall be no contamination. If contamination is found, inspect contaminated oil system (Ref. Task 1-80).

FOLLOW-ON MAINTENANCE:
None





END OF TASK

8-35 CLEAN OIL FILTER COVER ASSET[VBLY AND OIL FILTER ELEMENT 8-35

INITIAL SETUP

Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit, NSN 5180-00-323-4944
Goggles
Dry, Compressed Air Source

Materials:
Dry Cleaning Solvent (E19)
Gloves (E24)
Lint-Free Cloth (E30)

Personnel Required:
Aircraft Powerplant Repairer

Equipment Condition:
Off Engine Task
Engine Oil System Drained (Task 1-69)
Oil Filter Cover Assembly and Oil Filter Element Removed (Task 8-34)

General Safety Instructions:

WARNING

Dry cleaning solvent (E19) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

1. **Clean oil filter cover assembly (1)** as follows:

a. Wear gloves (E24). Immerse and agitate oil filter cover assembly (1) in dry cleaning solvent (E19). Use brush on outside surfaces.

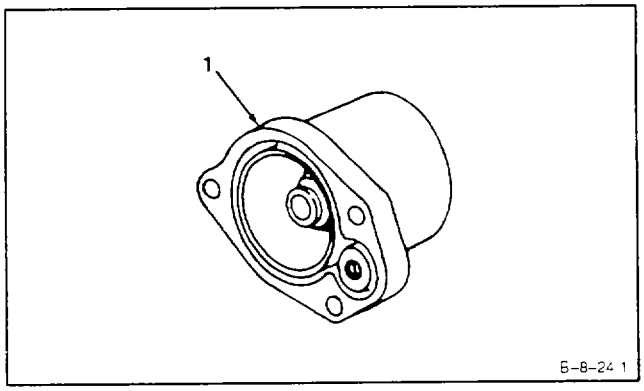
b. Wipe outside surfaces dry with clean, dry, lint-free cloth (E30).

WARNING

When using compressed air for cleaning, use approved protective equipment for eyes and face. Do not use more than 30 psig air pressure. Do not direct air toward yourself or another person. Failure to comply could result in injury to eyes or skin. In case of injury, get medical attention.

c. Wear goggles. Blow dry internal and external surfaces using clean, dry, compressed air.

FOLLOW-ON MAINTENANCE:
Inspect Oil Filter Cover Assembly and Oil Filter Element (Task 8-36).



END OF TASK

8-36 INSPECT OIL FILTER COVER ASSEMBLY AND OIL FILTER ELEMENT 8-36

INITIAL SETUP

Applicable Configurations:
All

Tools:
Technical Inspection Tool Kit,
NSN 5180-00-323-5114

Materials:
None

Personnel Required:
Aircraft Powerplant Inspector

Equipment Condition:
Off Engine Task

1. **Inspect oil filter cover assembly (1)** as follows:

   a. There shall be no cracks.

   b. There shall be no nicks, dents or scratches deeper than 0.015 inch.

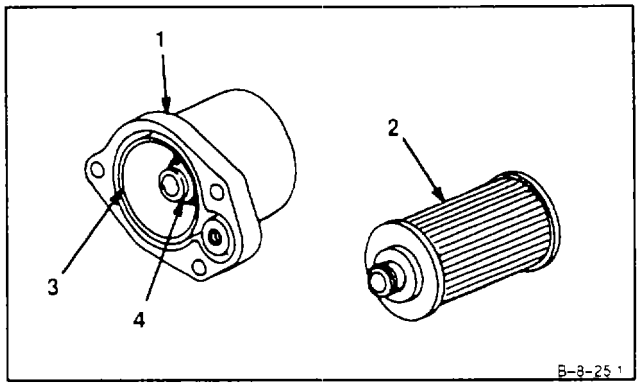
   c. There shall be no nicks, dents or scratches deeper than 0.010 inch on packing grooves (3 and 4).

2. **Inspect oil filter element (2)** as follows:

   a. There shall be no damage.

   b. There shall be no contamination. If contamination is found, inspect contaminated oil system (Ref. Task 1-80).

FOLLOW-ON MAINTENANCE:
None



END OF TASK

8-37 REPAIR OIL FILTER COVER ASSEMBLY AND OIL FILTER ELEMENT 8-37

INITIAL SETUP

Applicable Configurations:
All

Tools:
Technical Inspection Tool Kit,
NSN 5180-00-323-5114

Materials:
Carborundum Stone (Ell)
Crocus Cloth (E16)

Personnel Required:
Aircraft Powerplant Repairer
Aircraft Powerplant Inspector

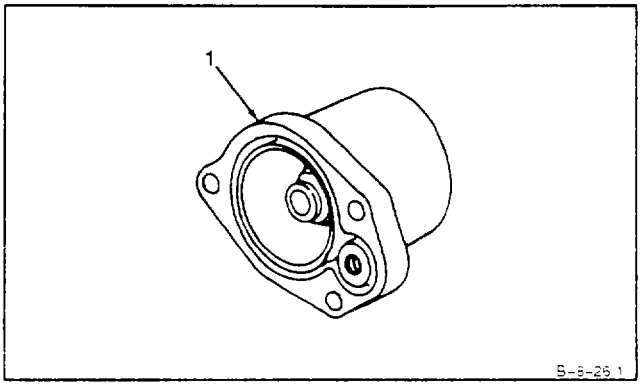
Equipment Condition:
Off Engine Task

1. **Repair nicks, dents, and scratches on oil filter cover assembly (1)** up to 0.015 inch deep. Blend repair. Use carborundum stone (Ell).

2. Final polish using crocus cloth (E16).

INSPECT

FOLLOW-ON MAINTENANCE:
None



END OF TASK

8-38 INSTALL OIL FILTER COVER ASSEMBLY AND OIL FILTER ELEMENT 8-38

INITIAL SETUP

Applicable Configurations:
All

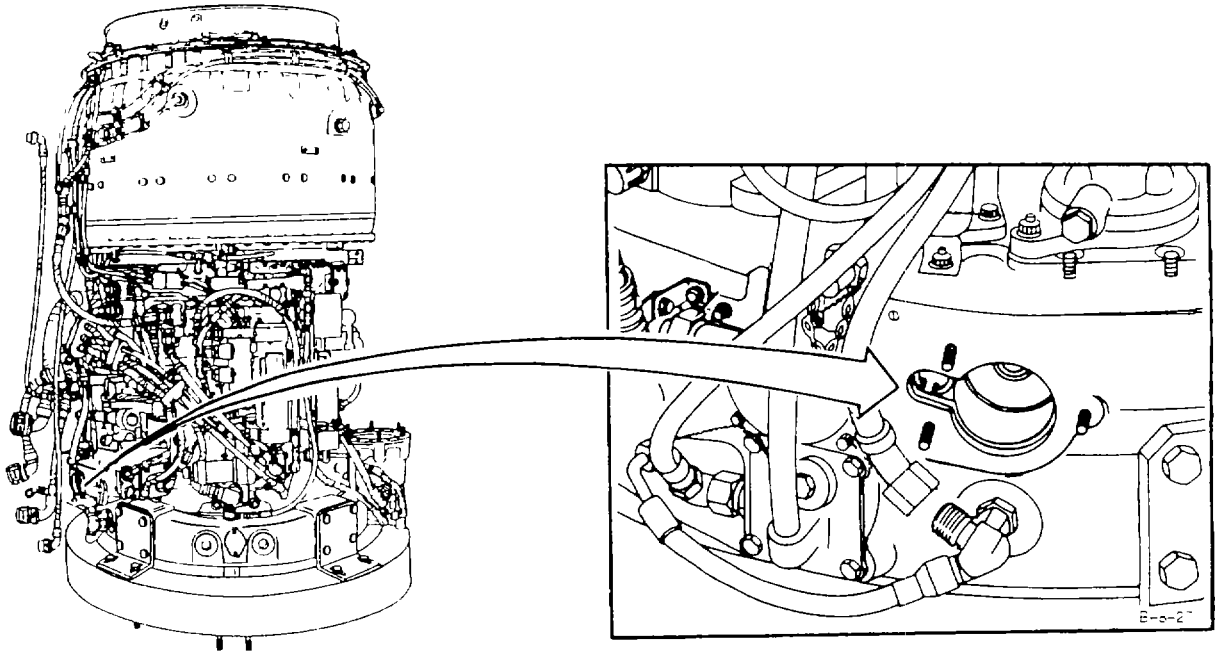
Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Technical Inspection Tool Kit,
NSN 5180-00-323-5114
Torque Wrench, 30-150 Inch-Pounds

Materials:
Lockwire (E33)

Parts:
Gasket
Oil Filter Element
Packings

Personnel Required:
Aircraft Powerplant Repairer
Aircraft Powerplant Inspector

References:
TM 1-2840-252-23P



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8-38 INSTALL OIL FILTER COVER ASSEMBLY AND OIL FILTER ELEMENT (Continued) 8-38

NOTE

If oil filter cover assembly is a replacement, do steps 1 and 2. If same oil filter cover assembly that was removed is to be installed, omit steps 1 and 2.

1. **Remove plug (1**) and packing (2) **from removed oil filter cover assembly (3).**

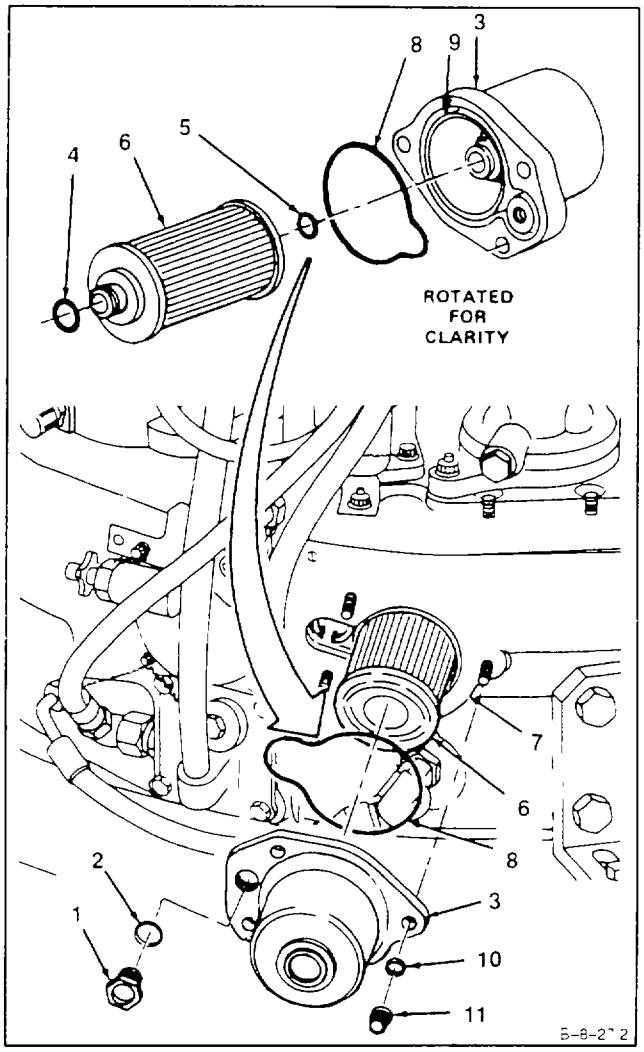
2. **Install plug (1)** and packing (2) **on serviceable oil filter cover assembly (3).**

3. Install packings (4 and 5) on oil filter element(6).

4. **Install oil filter element (6) into accessory gearbox assembly (7).**

5. Install packing (8) into oil filter cover assembly packing groove (9).

6. **Install oil filter cover assembly (3),** on accessory gearbox assembly (7). Install three washers (10) and three nuts (11).



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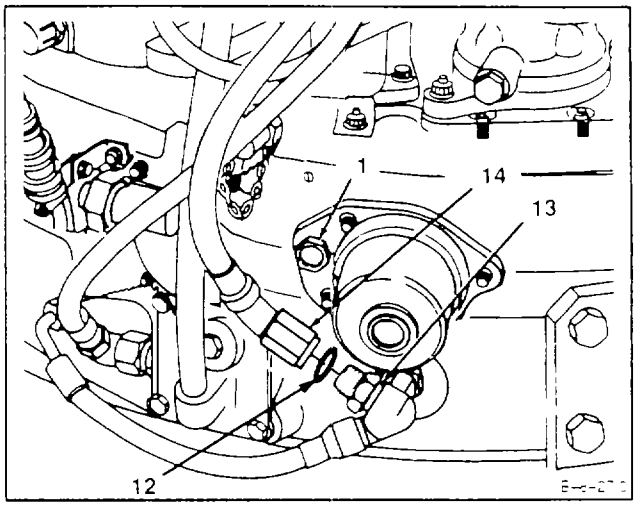
8-38 INSTALL OIL FILTER COVER ASSEMBLY AND OIL FILTER ELEMENT

7. **Check if plug (1) is tight**, and re-lockwire if required. Use lockwire (E33).

8. Install gasket (12) on tee (13) and **connect hose assembly (14)** to tee (13).

INSPECT

FOLLOW-ON MAINTENANCE:
Service Engine Oil System (Task 1-68).



END OF TASK

SECTION VIII
DUAL CHIP DETECTOR

8-39 REMOVE DUAL CHIP DETECTOR 8-39

INITIAL SETUP

Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Container, 1-Quart

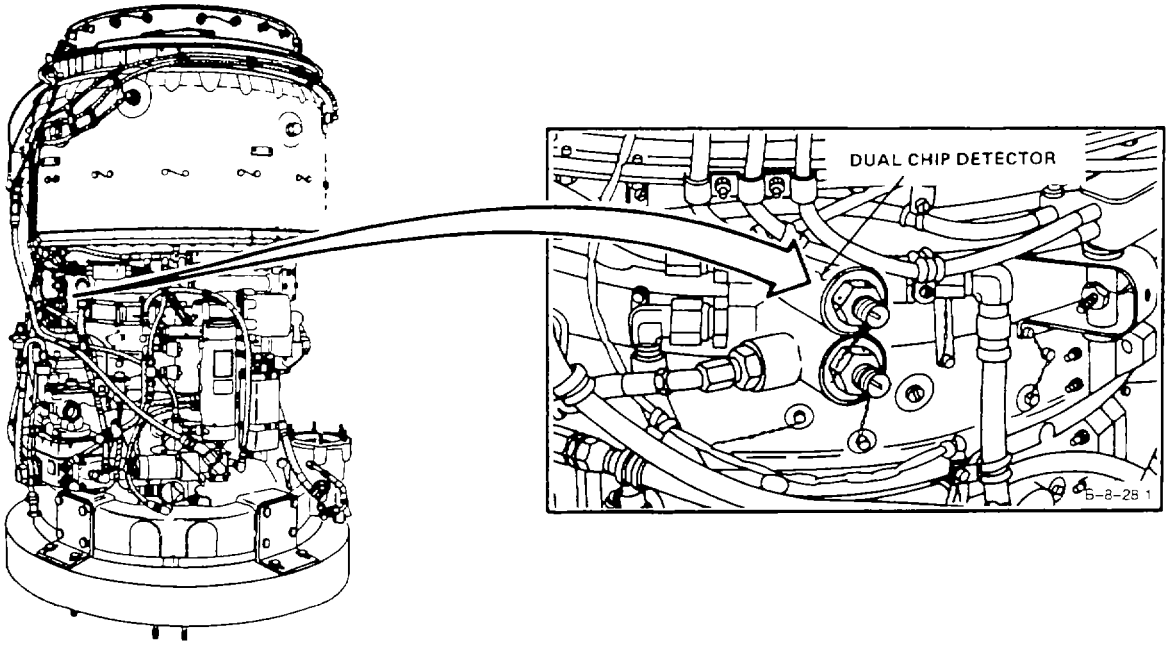
Materials:
Wiping Rag (E64)

Personnel Required:
Aircraft Powerplant Repairer

General Safety Instructions:

WARNING

Lubricating oils cause paralysis if swallowed. Prolonged contact with them may irritate the skin. Handle only in well-ventilated areas away from heat and flame. Drain and store in approved metal safety containers. Avoid prolonged or repeated contact with skin and do not take internally. Wash contacted area of skin thoroughly after handling. If irritation of skin results, get medical attention. Get medical attention for eyes.



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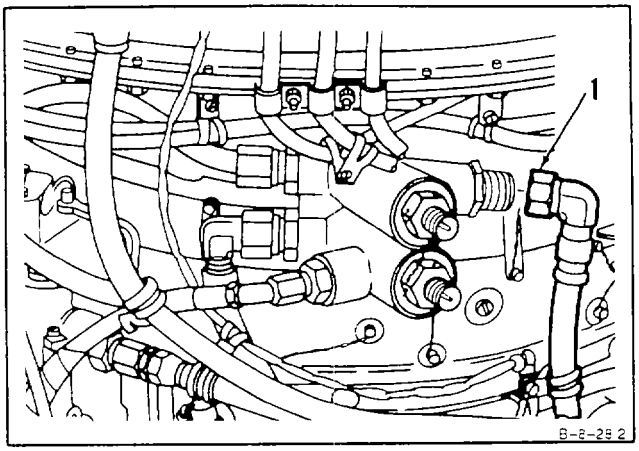
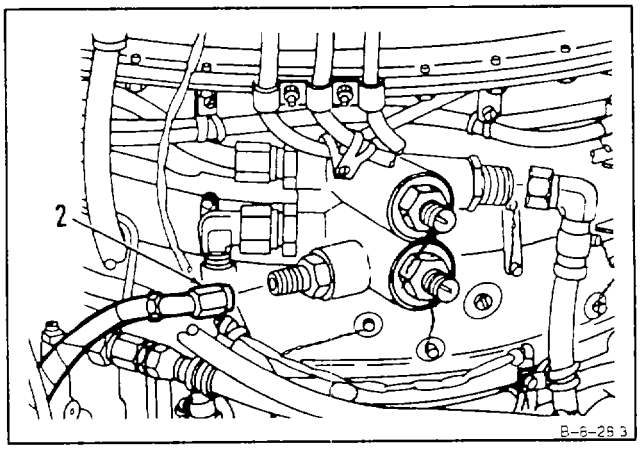
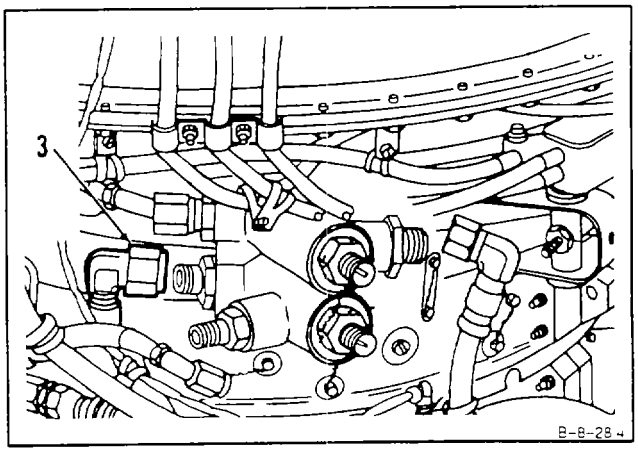
8-39. REMOVE DUAL CHIP DETECTOR (Continued) 8-39

1. **Disconnect hose assembly (1).**
2. **Disconnect hose assembly (2).**
3. **Disconnect hose assembly (3).**







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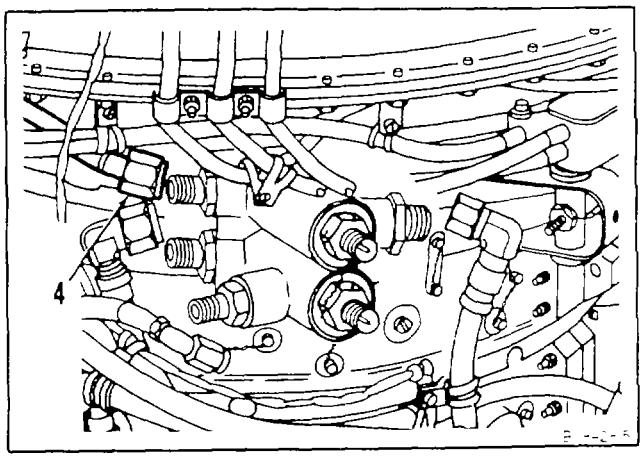
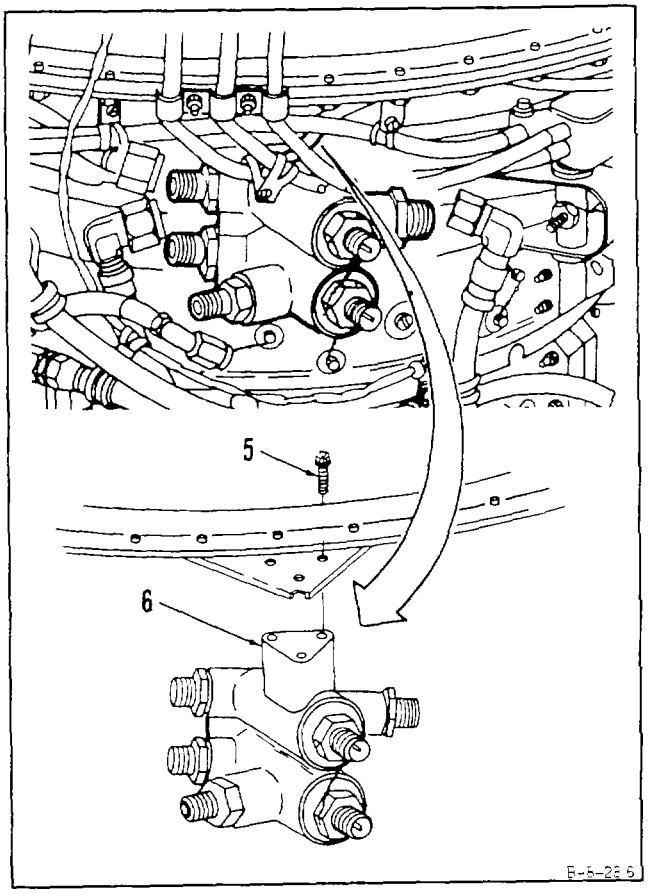
4. Disconnect hose assembly (4).

5. Remove lockwire, three bolts (5), and dual chip detector (6).

FOLLOW-ON MAINTENANCE:
None





END OF TASK

3-40 DISASSEMBLE DUAL CHIP DETECTOR 8-40

INITIAL SETUP

Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Vise
Jaw Caps

Materials:
Wiping Rag (E64)

Personnel Required:
Aircraft-Powerplant Repairer

Equipment Condition:
Off Engine Task
Dual Chip Detector Removed (Task 8-39)

References:
Task 1-80

General Safety Instructions:

WARNING

Lubricating oils cause paralysis if swallowed. Prolonged contact with them may irritate the skin. Handle only in well-ventilated areas away from heat and flame. Drain and store in approved metal safety containers. Avoid prolonged or repeated contact with skin and do not take internally. Wash contacted area of skin thoroughly after handling. If irritation of skin results, get medical attention. Get medical attention for eyes.

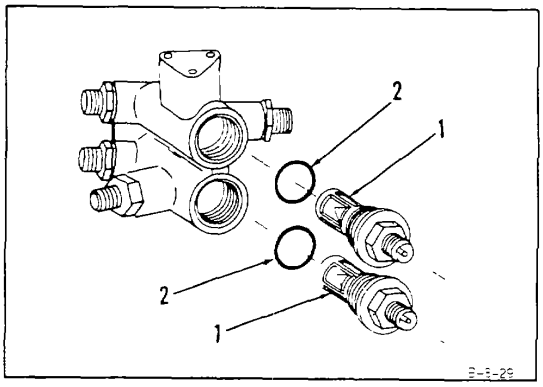
1. Remove lockwire, two magnetic chip detectors (1) and packings (2). Use vise with jaw caps.

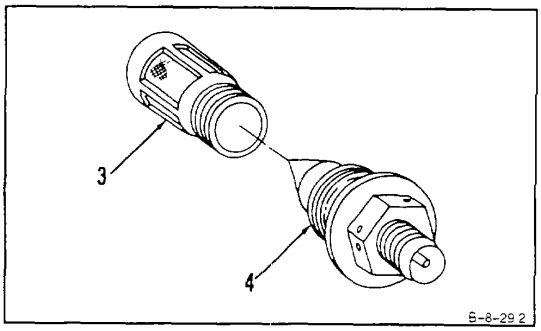
CAUTION

When removing filter from connector, be careful not to push in or deform screen of filter. Pushed in or deformed screen are cause for rejection.

NOTE
The following step applies to both magnetic chip detectors.

2. Unscrew and remove filter (3) from connector (4).





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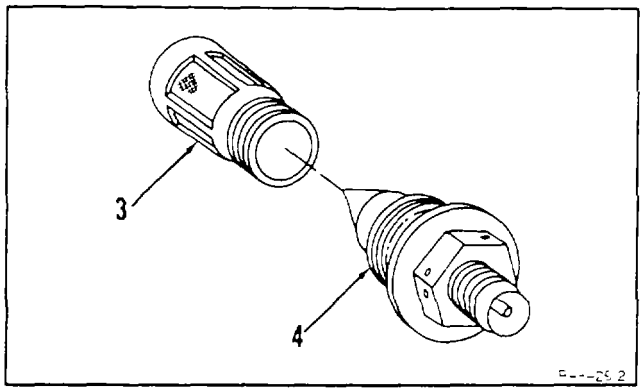
8-40 DISASSEMBLE DUAL CHIP DETECTOR (Continued) 8-40

3. Inspect chip detector filter (3). There shall be no visible chips on screen. If numerous chips are found on the screen, it is an indication of component distress. Inspect the oil system for contamination (Ref. Task 1-80).

4. Inspect chip detector connector (4). There shall be no visible chips on the magnetic probe. If chips are found on the probe, it is an indication of component distress. Inspect the oil system for contamination (Ref. Task 1-80).

FOLLOW-ON MAINTENANCE:
None



END OF TASK

8-41 CLEAN DUAL CHIP DETECTOR 8-41

INITIAL SETUP

Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit, NSN 5180-00-323-4944
Goggles
Dry, Compressed Air Source

Materials:
Dry Cleaning Solvent (E19)
Gloves (E24)
Lint-Free Cloth (E30)

Personnel Required:
Aircraft Powerplant Repairer

Equipment Condition:
Off Engine Task
Dual Chip Detector Removed (Task 8-39)
Dual Chip Detector Disassembled (Task 8-40)

General Safety Instructions:

WARNING

Dry cleaning solvent (E19) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

1. Wear gloves (E24). Clean housing (1) and two filters (2). Use dry cleaning solvent (E19) and brush.

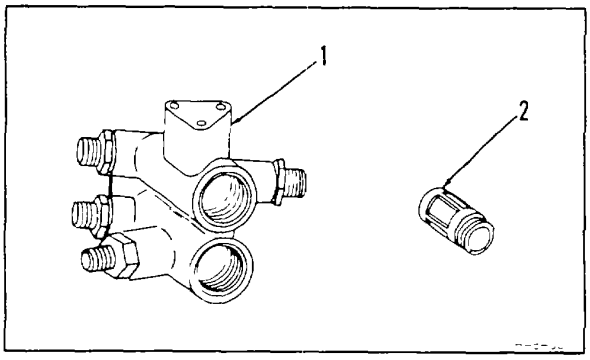
WARNING

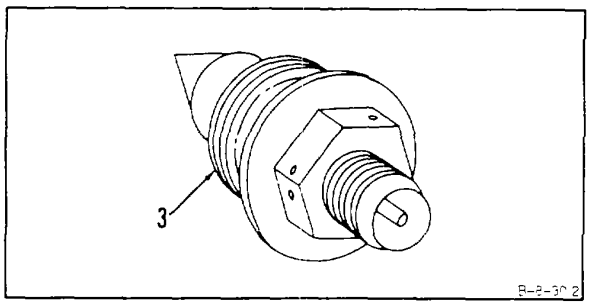
When using compressed air for cleaning, use approved protective equipment for eyes and face. Do not use more than 30 psig air pressure. Do not direct air toward yourself or another person. Failure to comply could result in injury to eyes or skin. In case of injury, get medical attention.

2. Wear goggles. Blow dry housing (1) and filters (2), using clean, dry, compressed air.

3. Clean two connectors (3) with lint-free cloth (E30) dampened in dry cleaning solvent (E19)

FOLLOW-ON MAINTENANCE:
Inspect Dual Chip Detector (Task 8-42).





END OF TASK

8-42 INSPECT DUAL CHIP DETECTOR 8-42

INITIAL SETUP

Applicable Configurations:
All

Tools:
Technical Inspection Tool Kit,
NSN 5180-00-323-5114

Materials:
None

Personnel Required:
Aircraft Powerplant Inspector

References:
Task 1-80

Equipment Condition:
Off Engine Task

1. Inspect housing (1). There shall be no cracks.

NOTE
Following steps apply to both filters.

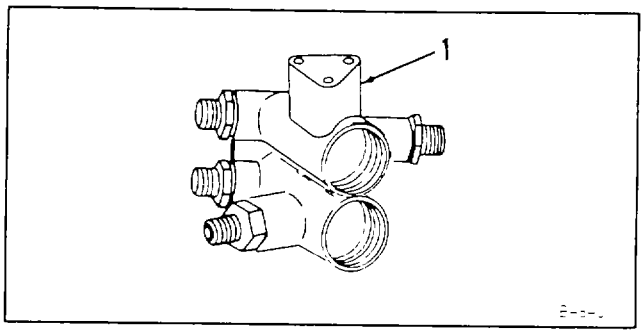
2. Inspect filter (2).

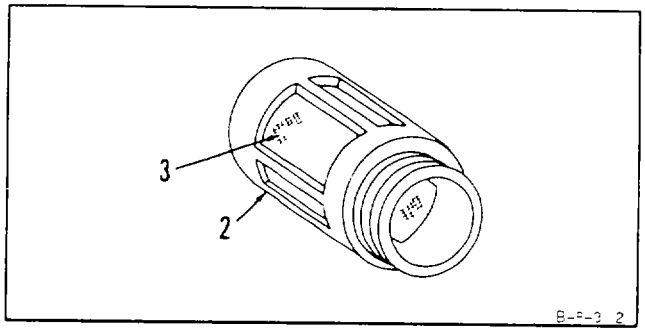
   a. There shall be no tears, punctures, or broken wires in screen (3).

   b. Screen (3) shall not be pushed in or broken away from filter (2).

   c. There shall be no contamination.

NOTE
If there is contamination, further inspection of oil system must be done to determine cause. Inspect contaminated oil system (Ref. Task 1-80).





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NOTE

Following steps apply to both connectors.

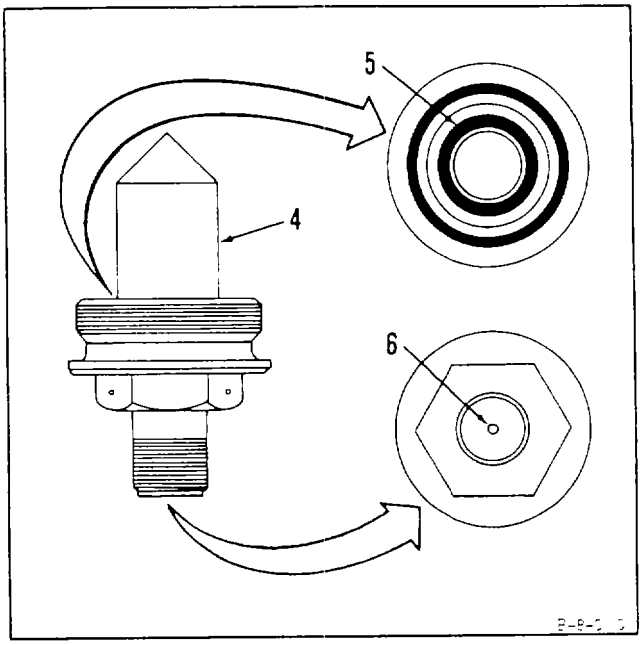
3. Inspect connector (4).

   a. There shall be no cracks in phenolic insert (5).

   b. Pin (6) shall not be broken or bent.

   c. There shall be no corrosion on pin (6).

FOLLOW-ON MAINTENANCE:
None



END OF TASK

8-43 REPAIR DUAL CHIP DETECTOR 8-43

INITIAL SETUP

Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit, NSN 5180-00-323-4944
Technical Inspection Tool Kit, NSN 5180-00-323-5114
Goggles
Dry, Compressed Air Source

Materials:
Crocus Cloth (E16)

Personnel Required:
Aircraft Powerplant Repairer
Aircraft Powerplant Inspector

Equipment Condition:
Off Engine Task

NOTE

This repair is allowed, provided it does not cause pin to break or crack.

1. Straighten bent pin (1) of connector (2). Use long-nose pliers to gently move pin (1) until it is straight.

2. Remove corrosion from pin (1) of connector (2). Polish pin, using in and out motion over entire length of pin until corrosion is removed. Use crocus cloth (E16).

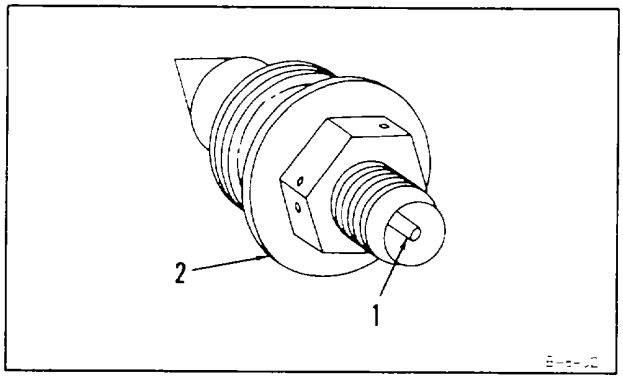
WARNING

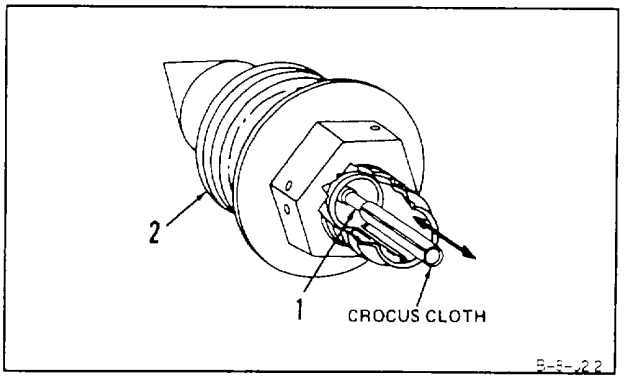
When using compressed air for cleaning, use approved protective equipment for eyes and face. Do not use more than 30 psig air pressure. Do not direct air toward yourself or another person. Failure to comply could result in injury to eyes or skin. In case of injury, get medical attention.

3. Wear goggles. Remove loosened particles, using clean, dry, compressed air.

INSPECT

FOLLOW-ON MAINTENANCE:
None





END OF TASK

8-44 ASSEMBLE DUAL CHIP DETECTOR 8-44

INITIAL SETUP

Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit, NSN 5180-00-323-4944
Technical Inspection Tool Kit, NSN 5180-00-323-5114
Vise
Jaw Caps

Materials:
Lockwire (E33)

Parts:
Packings

Personnel Required:
Aircraft Powerplant Repairer
Aircraft Powerplant Inspector

References:
TM 1-2840-252-23P

Equipment Condition:
Off Engine Task

NOTE
The following step applies to both magnetic chip detectors.

CAUTION

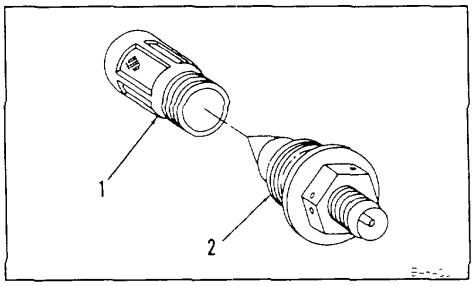
When installing filter on connector, be careful not to push in or deform screen or filter. Pushed in or deformed screen may cause false chip indications.

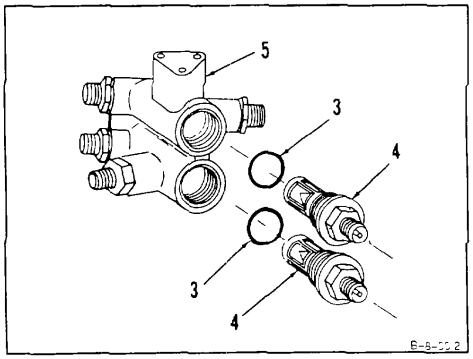
1. Install filter (1) on connector (2).

2. Install two packings (3) and magnetic chip detectors (4) in housing (5). Lockwire chip detector (4). Use lockwire (E33). Use vise with jaw caps.

INSPECT

FOLLOW-ON MAINTENANCE:
Test Dual Chip Detector (Task 8-45).





END OF TASK

8-45 TEST DUAL CHIP DETECTOR 8-45

INITIAL SETUP

Applicable Configurations:
All

Tools:
Multimeter

Materials:
None

Personnel Required:
Aircraft Powerplant Repairer

Equipment Condition:
Off Engine Task

1. Measure insulation resistance of magnetic chip detectors (1) as follows: Use multimeter.

NOTE
The following steps apply to both magnetic chip detectors.

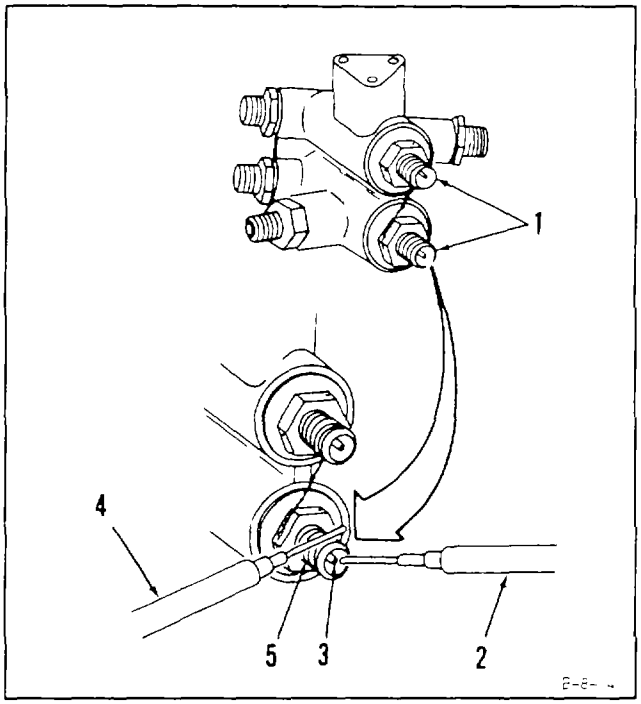
a. Set multimeter range switch to R x 1000.

b. Touch red probe (2) to pin (3).

c. Touch black probe (4) to threads (5).

d. Meter shall indicate 10 000 ohms, minimum.

FOLLOW-ON MAINTENANCE:
None



END OF TASK

8-46 INSTALL DUAL CHIP DETECTOR 8-46

INITIAL SETUP

Applicable Configurations:
All

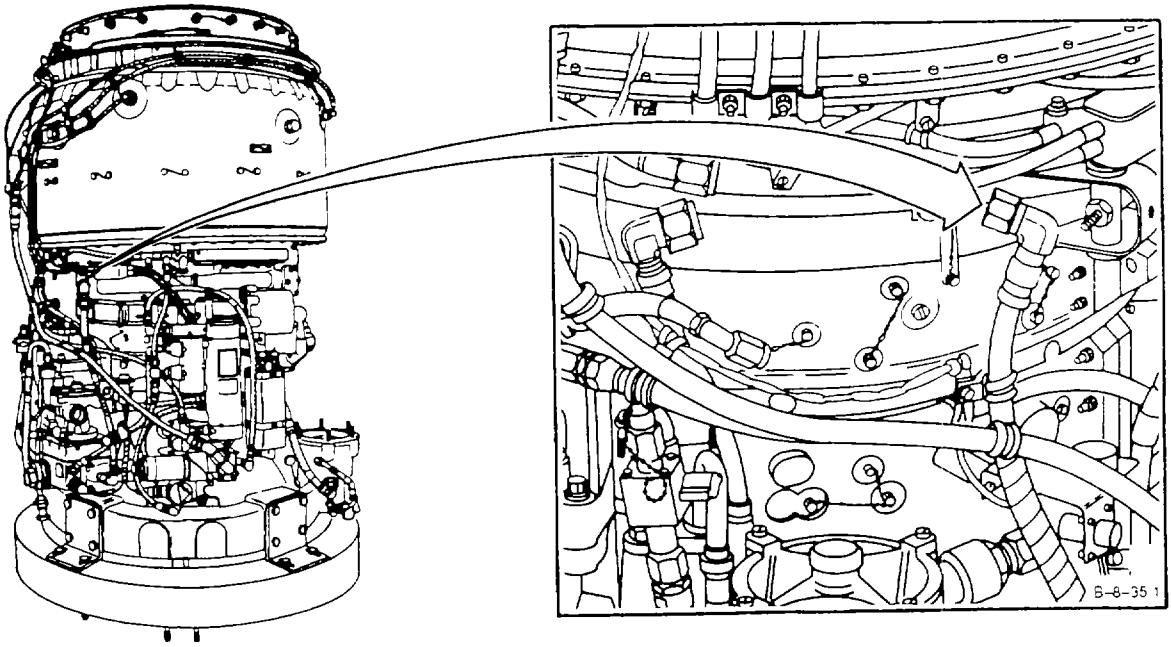
Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Technical Inspection Tool Kit,
NSN 5180-00-323-5114

Materials:
Lockwire (E33)

Parts:
Packing

Personnel Required:
Aircraft Powerplant Repairer
Aircraft Powerplant Inspector

References:
TM 1-2840-252-23P



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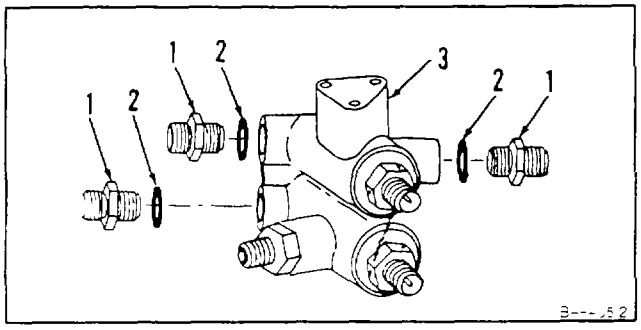
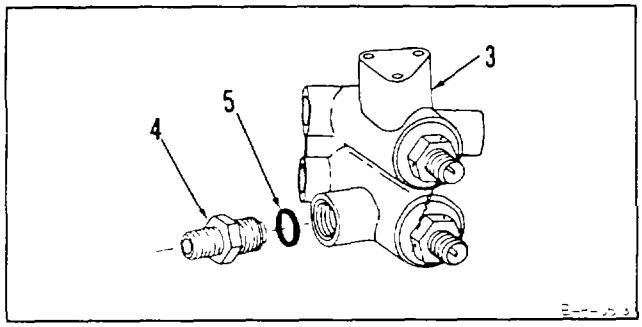
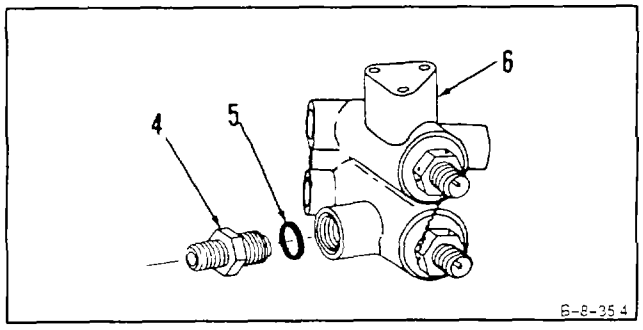
NOTE

If dual chip detector is a replacement, do steps 1 through 4. If same dual chip detector that was removed is to be installed, skip steps 1 through 4.

1. Remove three unions (1) and packings (2) from removed dual chip detector (3).
2. Remove reducer (4) and packing (5) from removed dual chip detector (3).
3. Install packing (5) and reducer (4) in serviceable dual chip detector (6).







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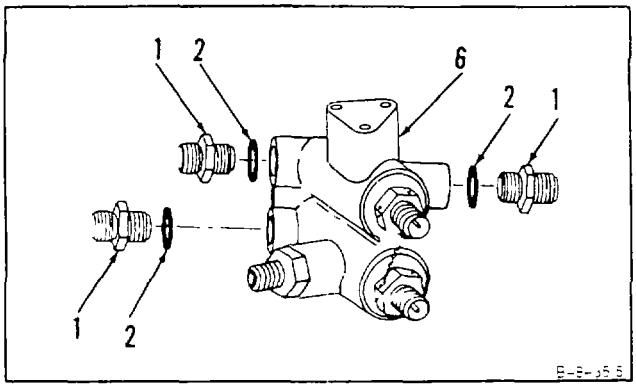
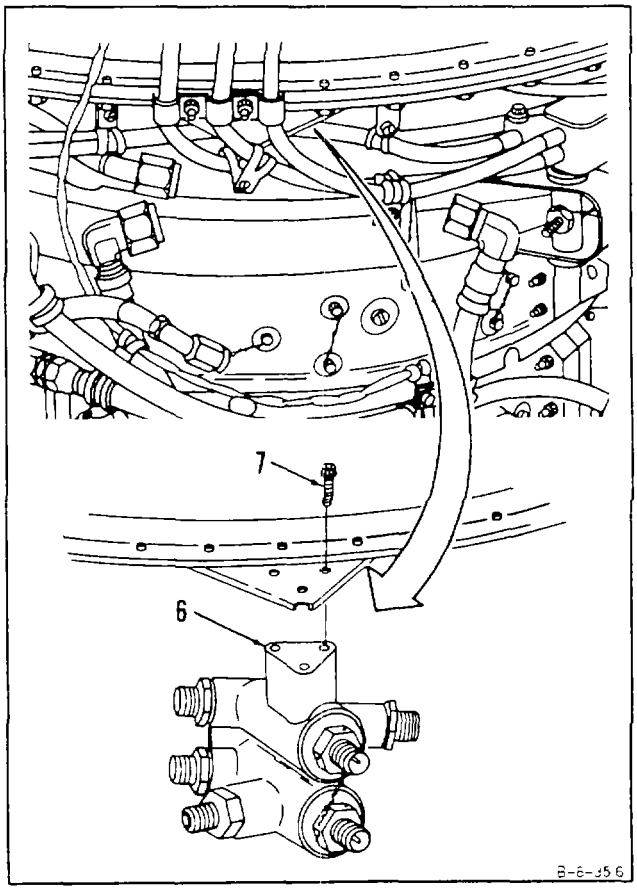
8-46 INSTALL DUALCHIP DETECTOR (Continued) 8-46

4. Install three packings (2) and unions (1) in serviceable dual chip detector (6).

5. Install dual chip detector (6) and three bolts (7). Lockwire bolts (7). Use lockwire (E33).





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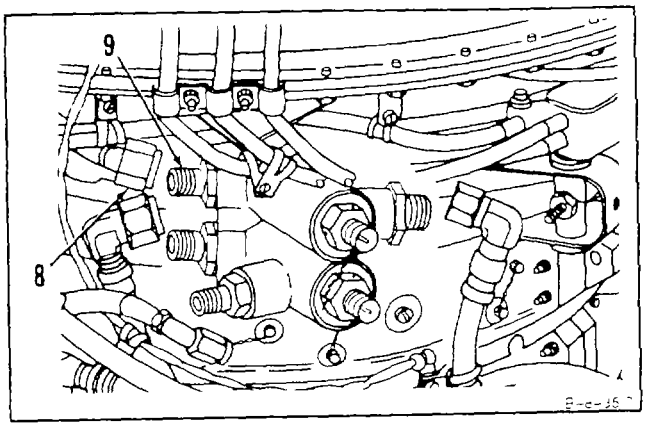
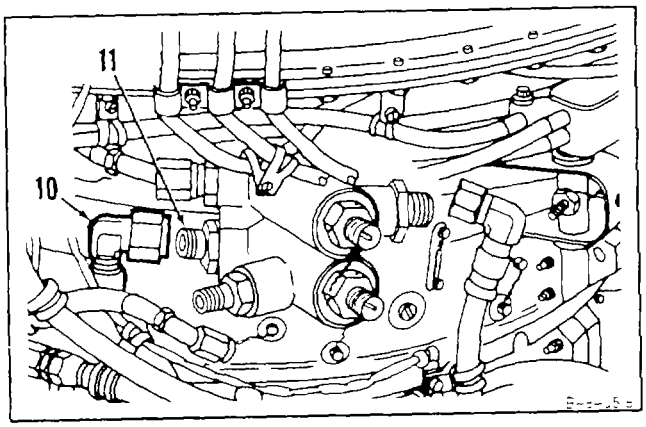
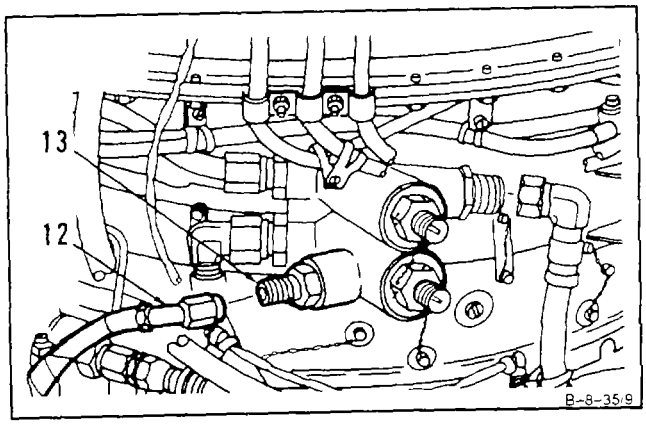
8-46 INSTALL DUAL CHIP DETECTOR (Continued) 8-46

6. Connect hose assembly (8) to union (9).
7. Connect hose assembly (10) to union (11).
8. Connect hose assembly (12) to reducer (13).







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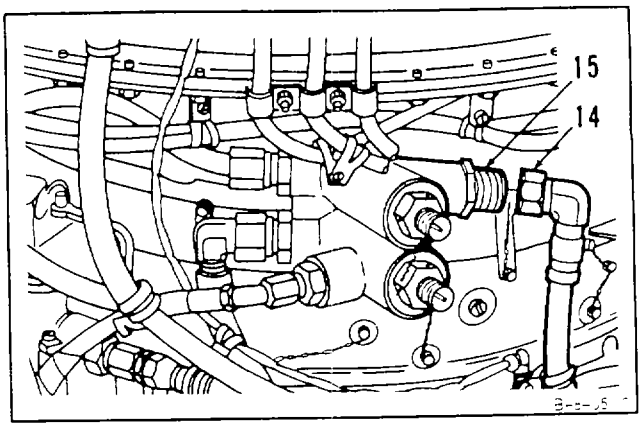
9. Connect hose assembly (14) to union (15).

INSPECT

FOLLOW-ON MAINTENANCE:
None



END OF TASK

SECTION IX
OIL LINES

8-47 REMOVE HOSE ASSEMBLY (FLOW PROGRAMMING VALVE TEE TO INLET HOUSING) 8-47

INITIAL SETUP

Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit.
NSN 5180-00-323-4944
Container, 1 Quart

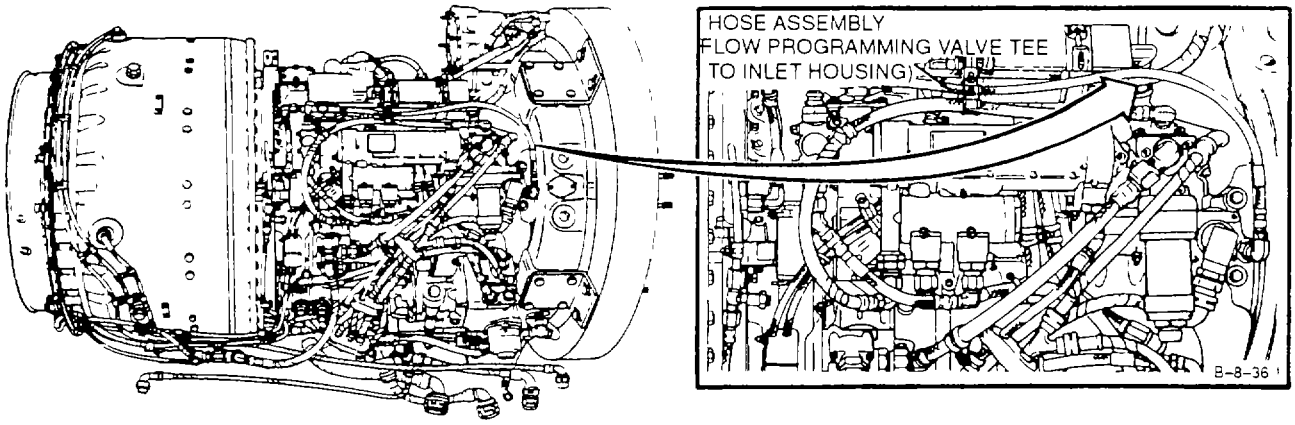
Materials:
Wiping Rag (E64)

Personnel Required:

General Safety Instructions:

WARNING

Lubricating oils cause paralysis if swallowed. Prolonged contact with them may irritate the skin. Handle only in well-ventilated areas away from heat and flame. Drain and store in approved metal safety containers. Avoid prolonged or repeated contact with skin and do not take internally. Wash contacted area of skin thoroughly after handling. If irritation of skin results, get medical attention. Get medical attention for eyes.



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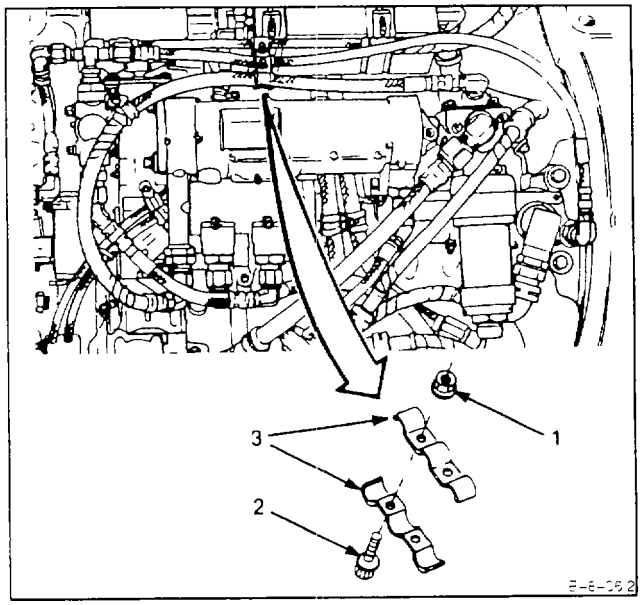
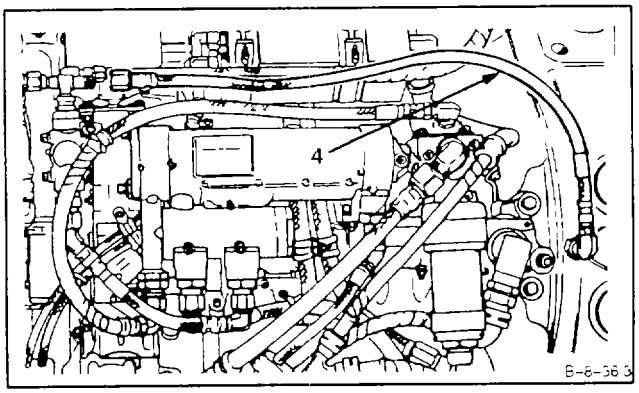
8-47 REMOVE HOSE ASSEMBLY (FLOW PROGRAMMING VALVE TEE TO INLET HOUSING) (Continued) **8-47**

1. Remove two nuts (1), two bolts (2), and two brackets (3).

2. Disconnect and remove hose assembly (4).

FOLLOW-ON MAINTENANCE:
None





END OF TASK

8-48 INSTALL HOSE ASSEMBLY (FLOW PROGRAMMING VALVE TEE TO INLET HOUSING) 8-48

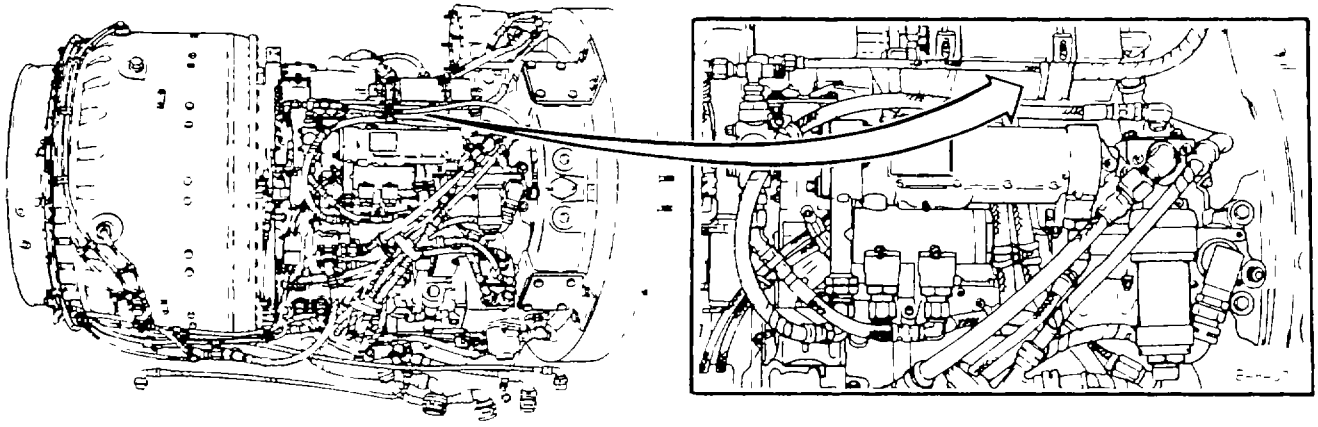
INITIAL SETUP

Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Technical Inspection Tool Kit.
NSN 5180-00-323-5114

Materials:
None

Personnel Required:
Aircraft Powerplant Repairer
Aircraft Powerplant Inspector



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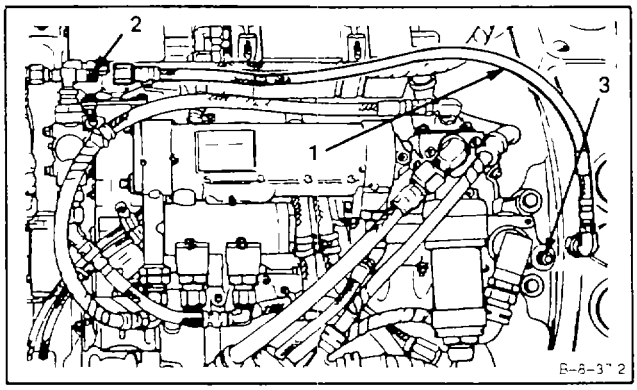
8-48 INSTALL HOSE ASSEMBLY (FLOW PROGRAMMING VALVE TEE TO INLET HOUSING) (Continued) **8-48**

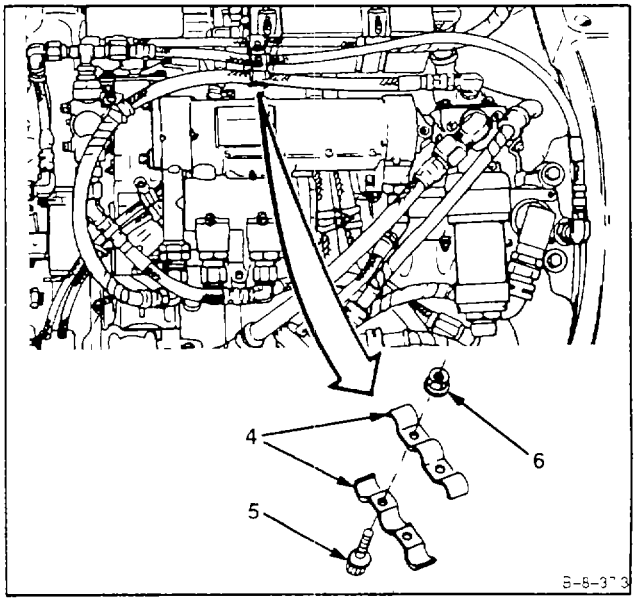
1. Install hose assembly (1) on tee (2) and union (3).

2. Install two brackets (4), two bolts (5), and two nuts (6).

INSPECT

FOLLOW-ON MAINTENANCE:
None





END OF TASK

8-49 REMOVE HOSE ASSEMBLY (FLOW PROGRAMMING VALVE TO INFLIGHT FILLING P ORT TEE) 8-49

INITIAL SETUP

Applicable Configurations:
All

Tools:

Powerplant Mechanics Tool Kit
NSN 5180-00-323-4944
Container, 1 Quart

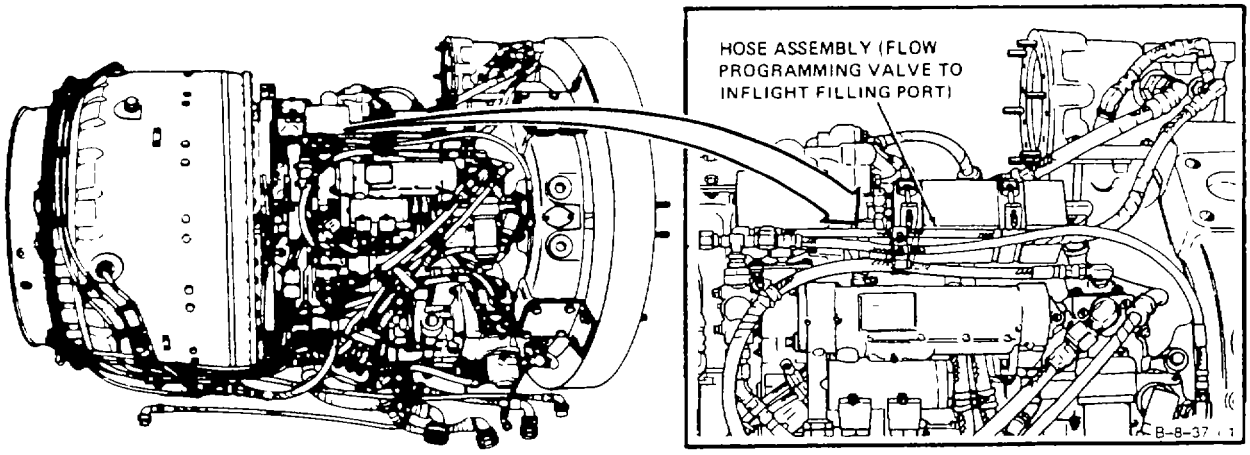
Materials:
Wiping Rag (E64)

Personnel Required:
Aircraft Powerplant Repairer

General Safety Instructions:

WARNING

Lubricating oils cause paralysis if swallowed. Prolonged contact with them may irritate the skin. Handle only in well-ventilated areas away from heat and flame. Drain and store in approved metal safety containers. Avoid prolonged or repeated contact with skin and do not take internally. Wash contacted area of skin thoroughly after handling. If irritation of skin results, get medical attention. Get medical attention for eyes.



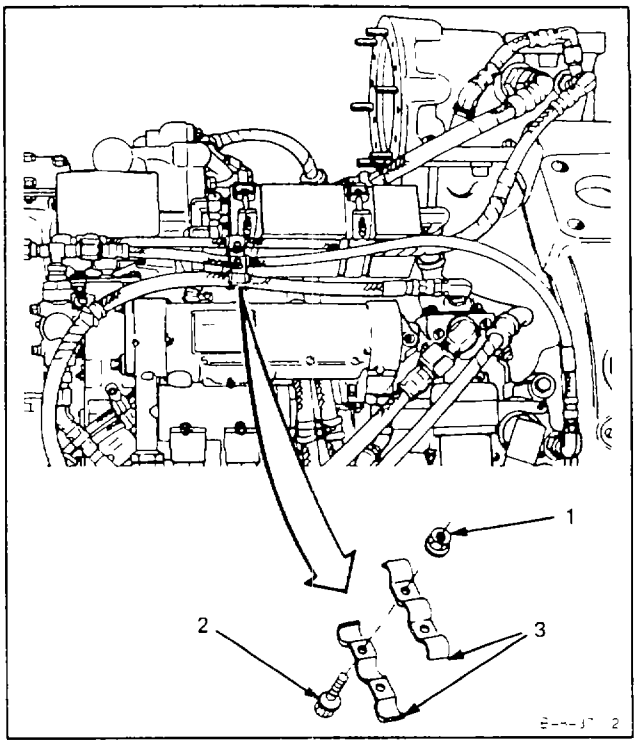
GO TO NEXT PAGE

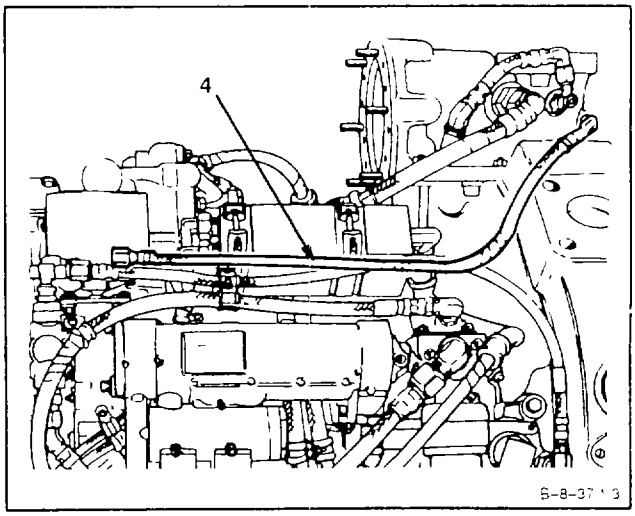
8-49 REMOVE HOSE ASSEMBLY (FLOW PROGRAMMING VALVE TO INFLIGHT FILLING PORT TEE) (Continued) **8-49**

3. Remove two nuts (1), two bolts (2), and bracket assembly (3).

4. Disconnect and remove hose assembly (4).

FOLLOW-ON MAINTENANCE:
None





END OF TASK

8-50 INSTALL HOSE ASSEMBLY (FLOW PROGRAMMING VALVE TO INFLIGHT FILLING PORT TEE) 8-50

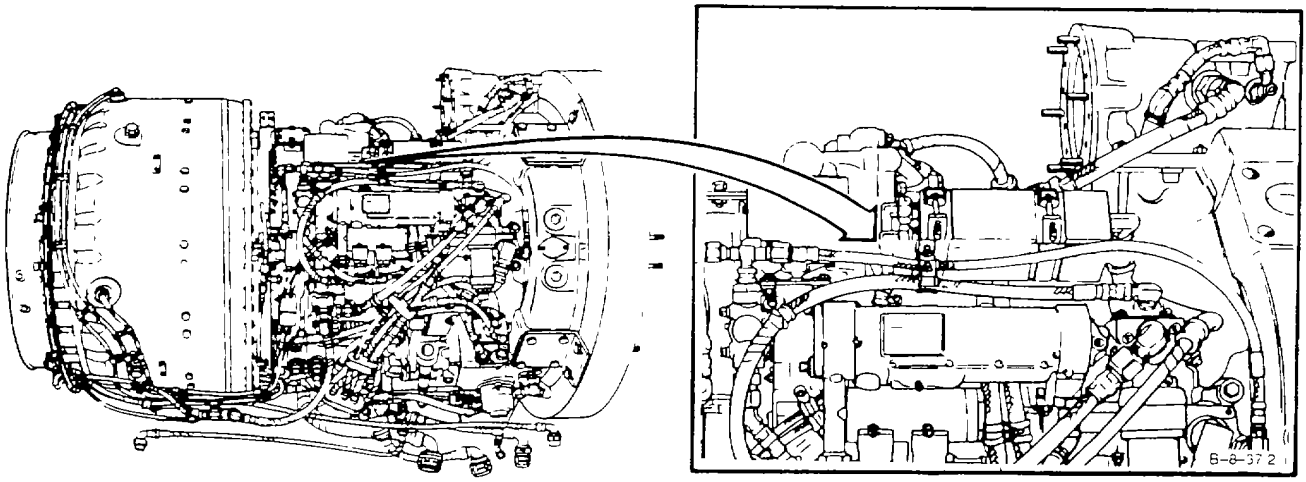
INITIAL SETUP

Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit
NSN 5180-00-323-4944
Technical Inspection Tool Kit,
NSN 5180-00-323-5114

Materials:
None

Personnel Required:
Aircraft Powerplant Repairer
Aircraft Powerplant Inspector



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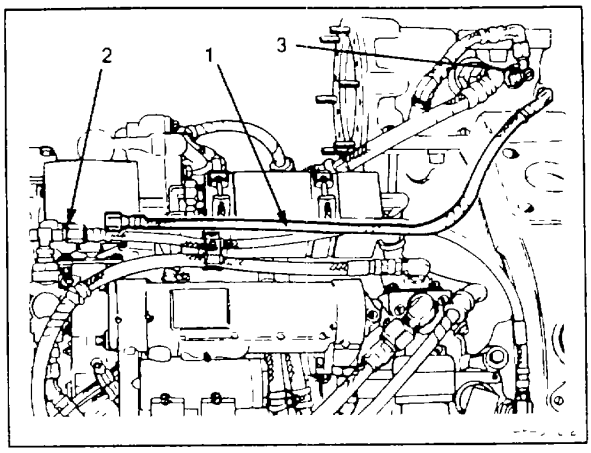
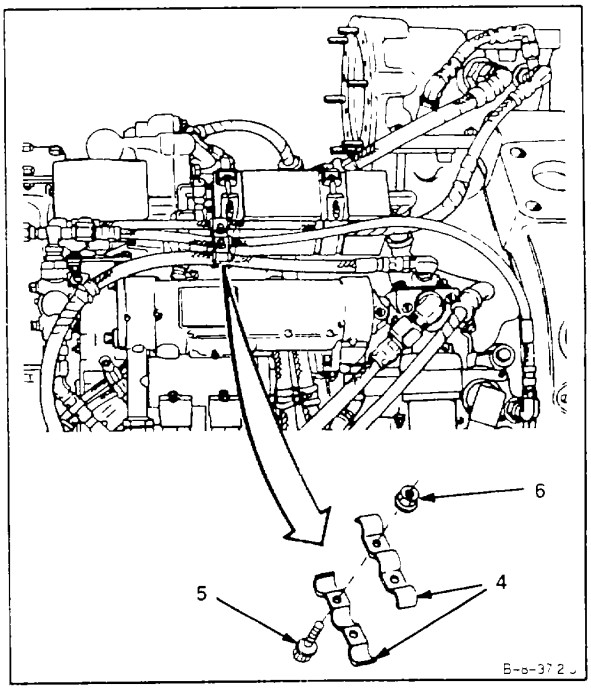
8-50 INSTALL HOSE ASSEMBLY (FLOW PROGRAMMING VALVE TO INFLIGHT FILLING PORT TEE) (Continued) **8-50**

1. **Install hose assembly (1)** on tee (2), and union (3).



2. **Install bracket assembly (4),** two bolts (5), and two nuts (6).



INSPECT

FOLLOW-ON MAINTENANCE:
None

END OF TASK

8-51 REMOVE HOSE ASSEMBLY (ACCESSORY GEARBOX ASSEMBLY TO OIL COOLER) 8-51

INITIAL SETUP

Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Container, 1 Quart

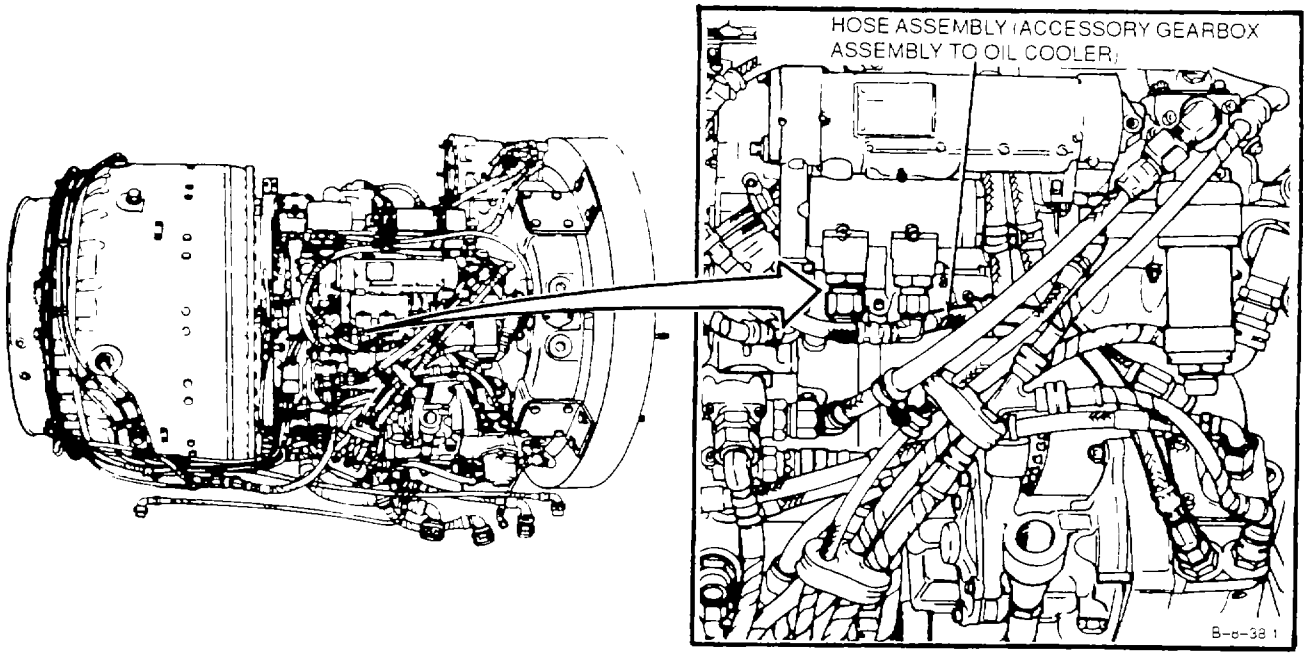
Materials:
Wiping Rag (E64)

Personnel Required:
Aircraft Powerplant Repairer

General Safety Instructions:

WARNING

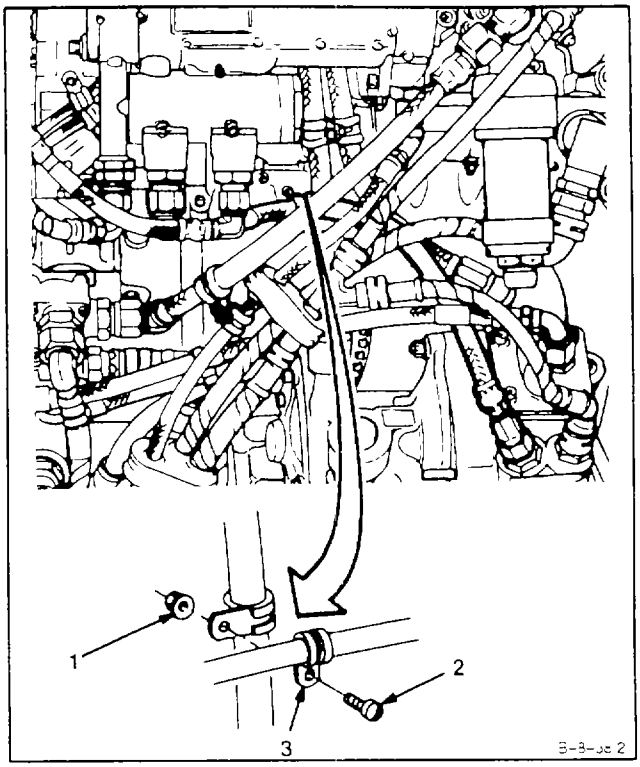
Lubricating oils cause paralysis if swallowed. Prolonged contact with them may irritate the skin. Handle only in well-ventilated areas away from heat and flame. Drain and store in approved metal safety containers. Avoid prolonged or repeated contact with skin and do not take internally. Wash contacted area of skin thoroughly after handling. If irritation of skin results, get medical attention. Get medical attention for eyes.



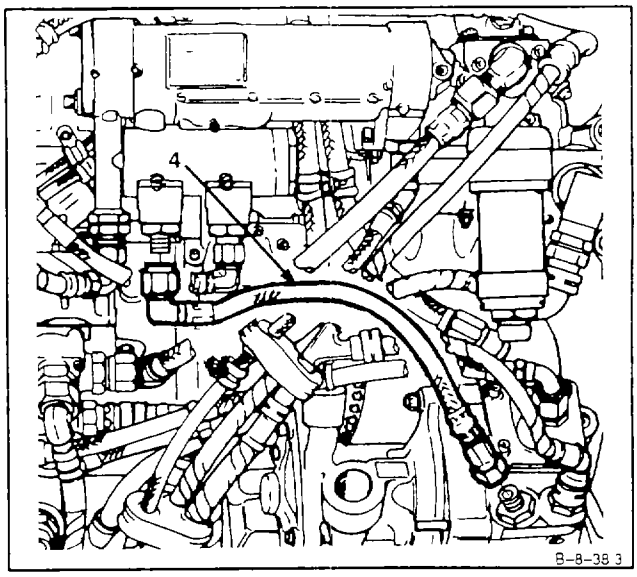
GO TO NEXT PAGE

8-51 REMOVE HOSE ASSEMBLY (ACCESSORY GEARBOX ASSEMBLY TO OIL COOLER) (Continued) 8-51

1. **Remove** nut (1), screw (2), and **clamp** (3).



2. Disconnect and **remove hose assembly** (4).



FOLLOW-ON MAINTENANCE:
None

END OF TASK

8-52 INSTALL HOSE ASSEMBLY (ACCESSORY GEARBOX ASSEMBLY TO OIL COOLER) 8-52

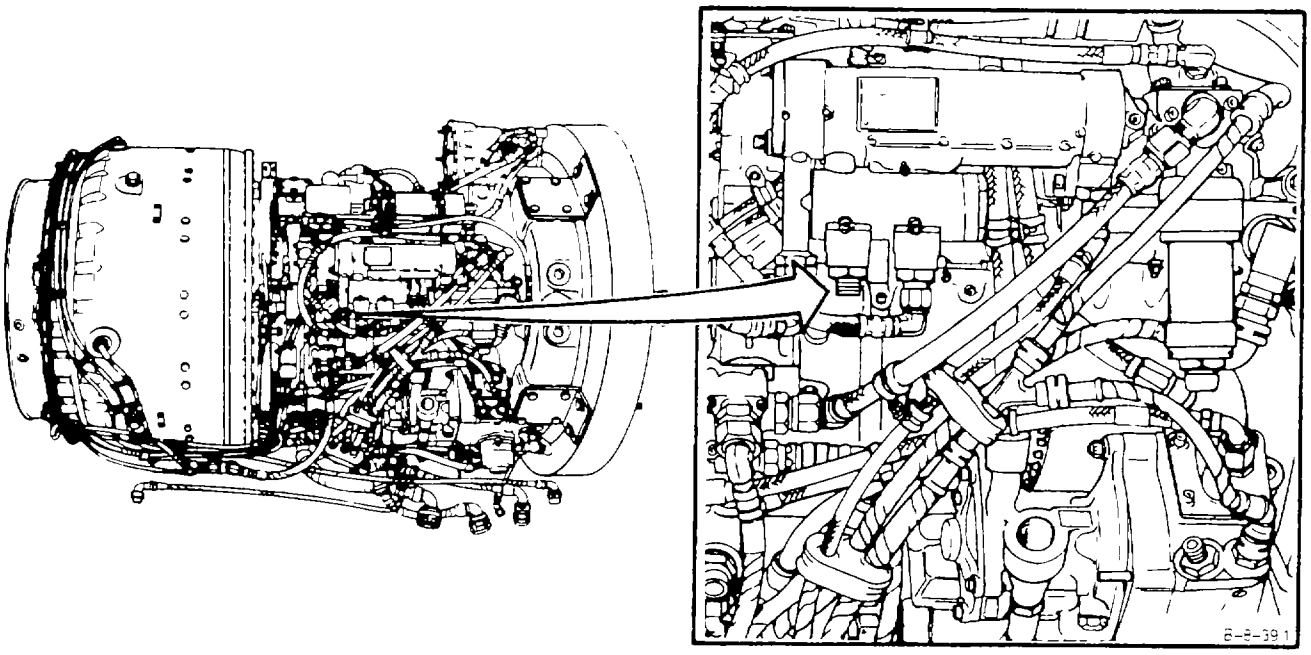
INITIAL SETUP

Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit, NSN 5180-00-323-4944
Technical Inspection Tool Kit. NSN 5180-00-323-5114

Materials:
None

Personnel Required:
Aircraft Powerplant Repairer
Aircraft Powerplant Inspector



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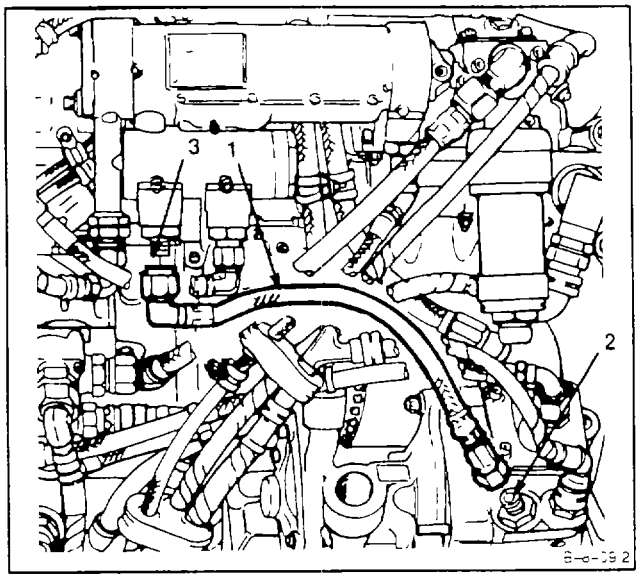
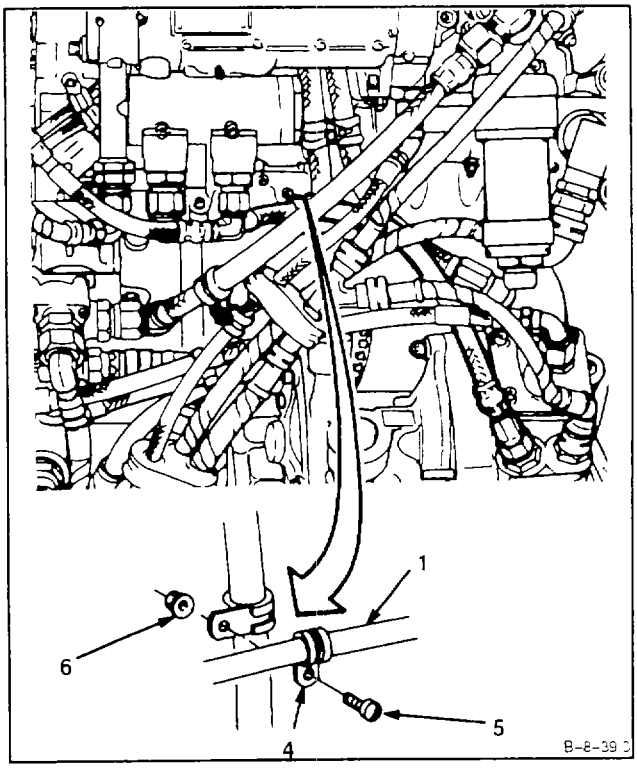
8-52 INSTALL HOSE ASSEMBLY (ACCESSORY GEARBOX ASEMBLY TO OIL COOLER) (Continued) 8-52

1. Install hose assembly (1) on union (2) and reducer (3).



2. Install clamp (4) on hose assembly (1), and install screw (5) and nut (6).



INSPECT

FOLLOW-ON MAINTENANCE:
None

END OF TASK

8-53 REMOVE HOSE ASSEMBLY (OIL COOLER TO FL OW PROGRAMMING VALVE) 8-53

INITIAL SETUP

Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit
NSN 5180-00-323-4944
Container, 1 Quart

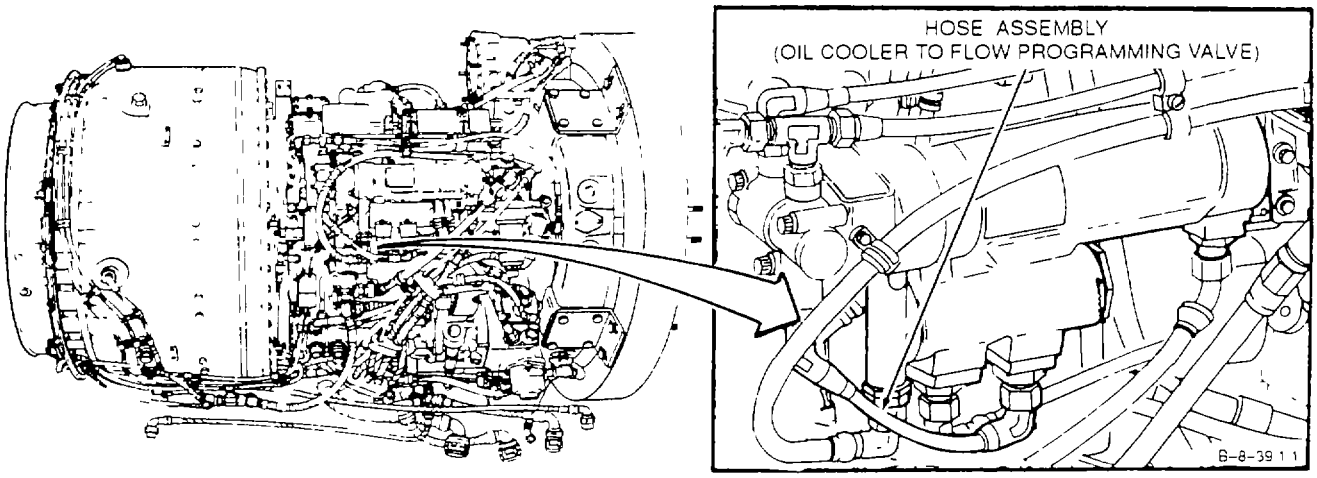
Materials:
Wiping Rag (E64)

Personnel Required:
Aircraft Powerplant Repairer

General Safety Instructions:

WARNING

Lubricating oils cause paralysis if swallowed. Prolonged contact with them may irritate the skin. Handle only in well-ventilated areas away from heat and flame. Drain and store in approved metal safety containers. Avoid prolonged or repeated contact with skin and do not take internally. Wash contacted area of skin thoroughly after handling. If irritation of skin results, get medical attention. Get medical attention for eyes.



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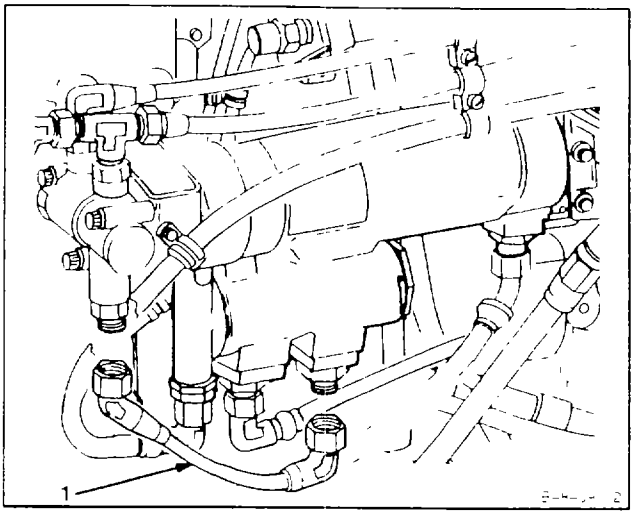
8-53 REMOVE HOSE ASSEMBLY (OIL COOLER TO FLOW PROGRAMMING VALVE) (Continued) 8-53

1. Disconnect and remove hose assembly (1).



FOLLOW-ON MAINTENANCE:
None

END OF TASK

8-54 INSTALL HOSE ASSEMBLY (OIL COOLER TO FLOW PROGRAMMING VALVE) 8-54

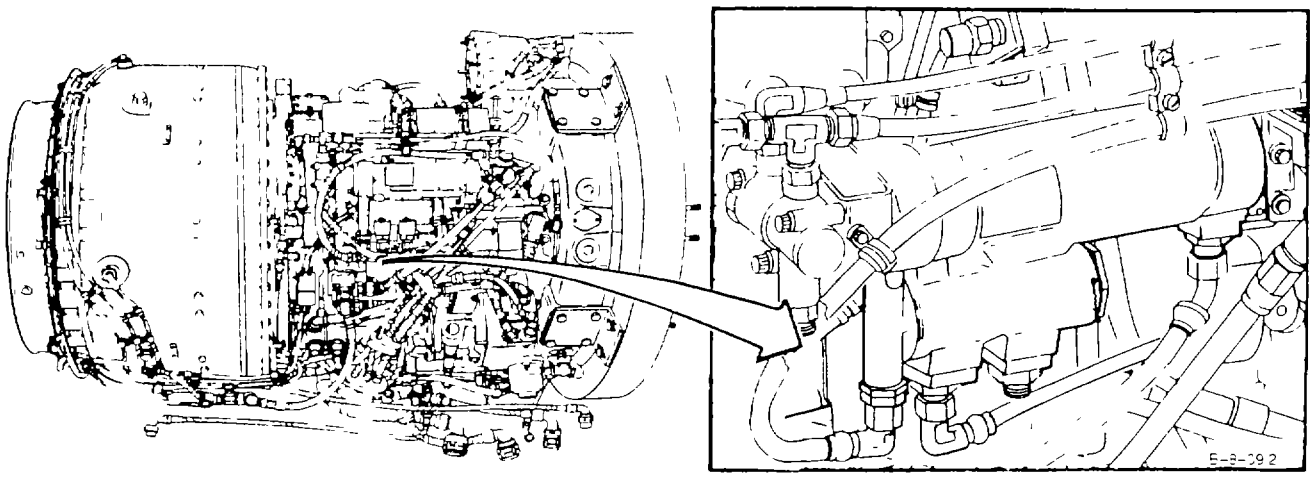
INITIAL SETUP

Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit, NSN 5180-00-323-4944
Technical Inspection Tool Kit, NSN 5180-00-323-5114

Materials:
None

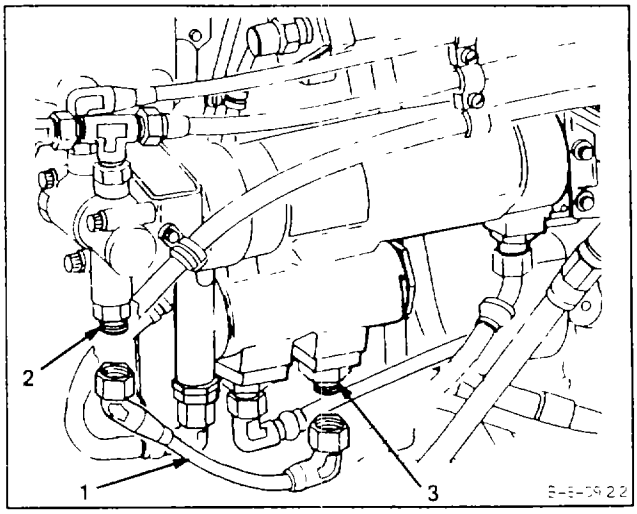
Personnel Required:
Aircraft Powerplant Repairer
Aircraft Powerplant Inspector



GO TO NEXT PAGE

8-54 INSTALL HOSE ASSEMBLY (OIL COOLER TO FLOW PROGRAMMIN VALVE) (Continued) **8-54**

1. **Install hose assembly (1)** on union (2) and reducer (3).



INSPECT

FOLLOW-ON MAINTENANCE:
None

END OF TASK

8-55 REMOVE HOSE ASSEMBLY (FLOW PROGRAMMING VALVE TEE TO NO. 2 BEARING PRESSURE CONNECTOR) 8-55

INITIAL SETUP

Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Container, 1 Quart

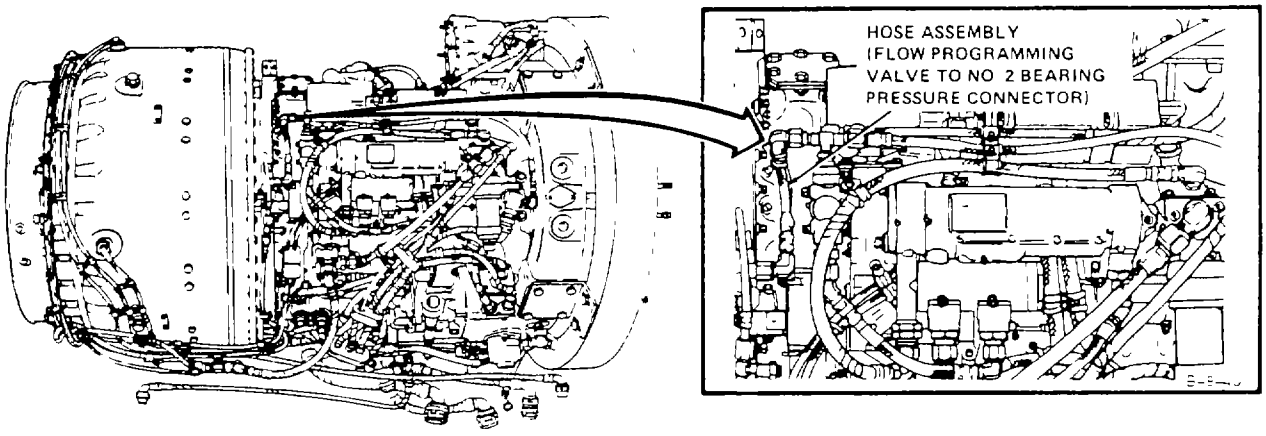
Materials:
Wiping Rag (E64)

Personnel Required:
Aircraft Powerplant Repairer

General Safety Instructions:

WARNING

Lubricating oils cause paralysis if swallowed. Prolonged contact with them may irritate the skin. Handle only in well-ventilated areas away from heat and flame. Drain and store in approved metal safety containers. Avoid prolonged or repeated contact with skin and do not take internally. Wash contacted area of skin thoroughly after handling. If irritation of skin results, get medical attention. Get medical attention for eyes.



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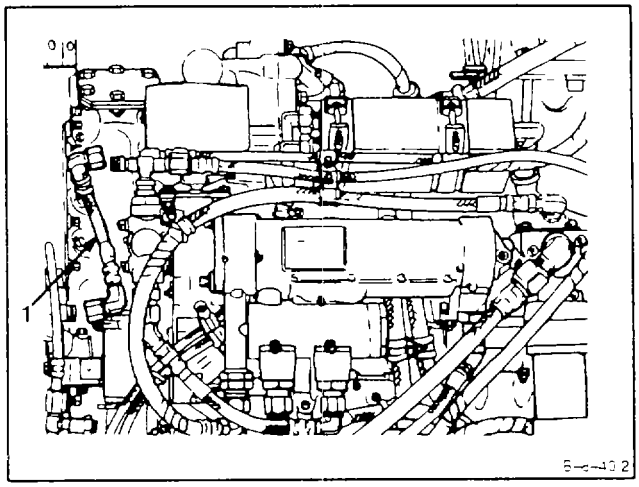
8-55 REMOVE HOSE ASSEMBLY (FLOW PROGRAMMING VALVE TEE TO NO. 2 BEARING PRESSURE CONNECTOR (Continued) 8-55

1. Disconnect and **remove hose assembly (1).**



FOLLOW-ON MAINTENANCE:
None

END OF TASK

8-56 INSTALL HOSE ASSEMBLY (FLOW PROGRAMMING VALVE TEE TO NO. 2 BEARING PRESSURE CONNECTOR) 8-56

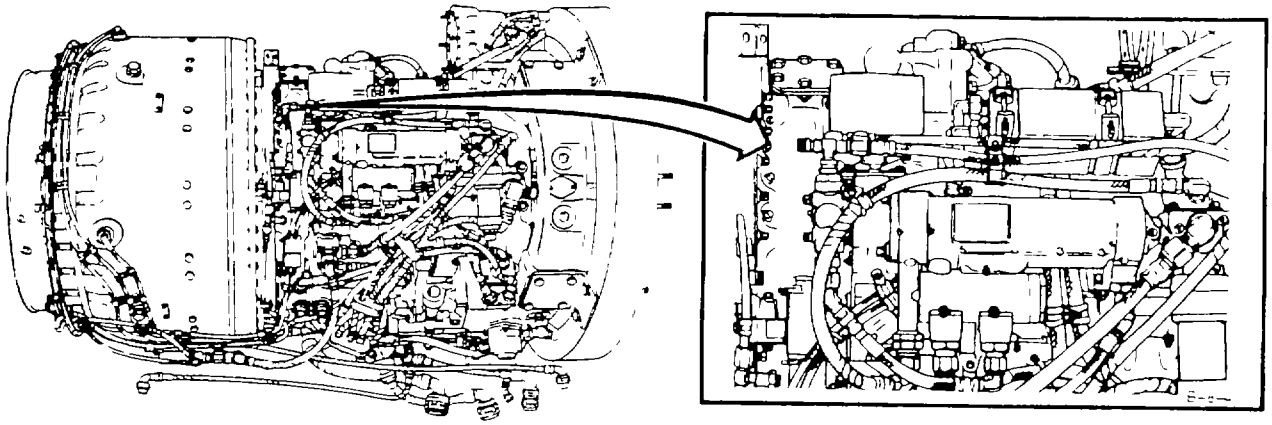
INITIAL SETUP

Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit, NSN 5180-00-323-4944
Technical Inspection Tool Kit, NSN 5180-00-323-5114

Materials:
None

Personnel Required:
Aircraft Powerplant Repairer
Aircraft Powerplant Inspector



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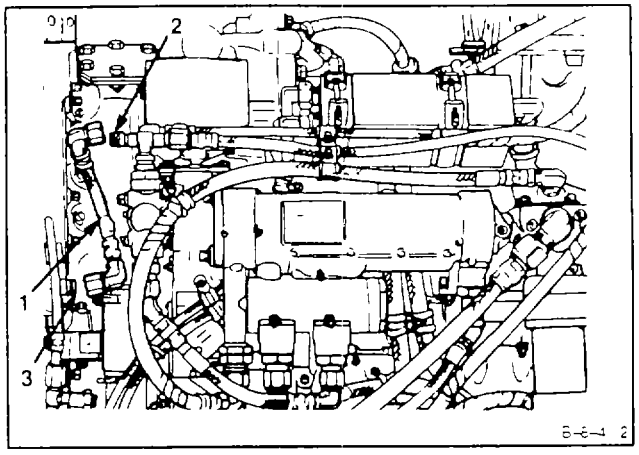
8-56 INSTALL HOSE ASSEMBLY (FLOW PROGRAMMING VALVE TEE TO NO. 2 BEARING PRESSURE CONNECTOR) (Continued) **8-56**

1. **Install hose assembly (1)** on tee (2) and No. 2 bearing pressure connector (3).



INSPECT

FOLLOW-ON MAINTENANCE:
None

END OF TASK

8-57 REMOVE HOSE ASSEMBLY (DUAL CHIP DETECTOR TO ACCESSORY GEARBOX ASSEMBLY) 8-57

INITIAL SETUP

Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Container, 1 Quart

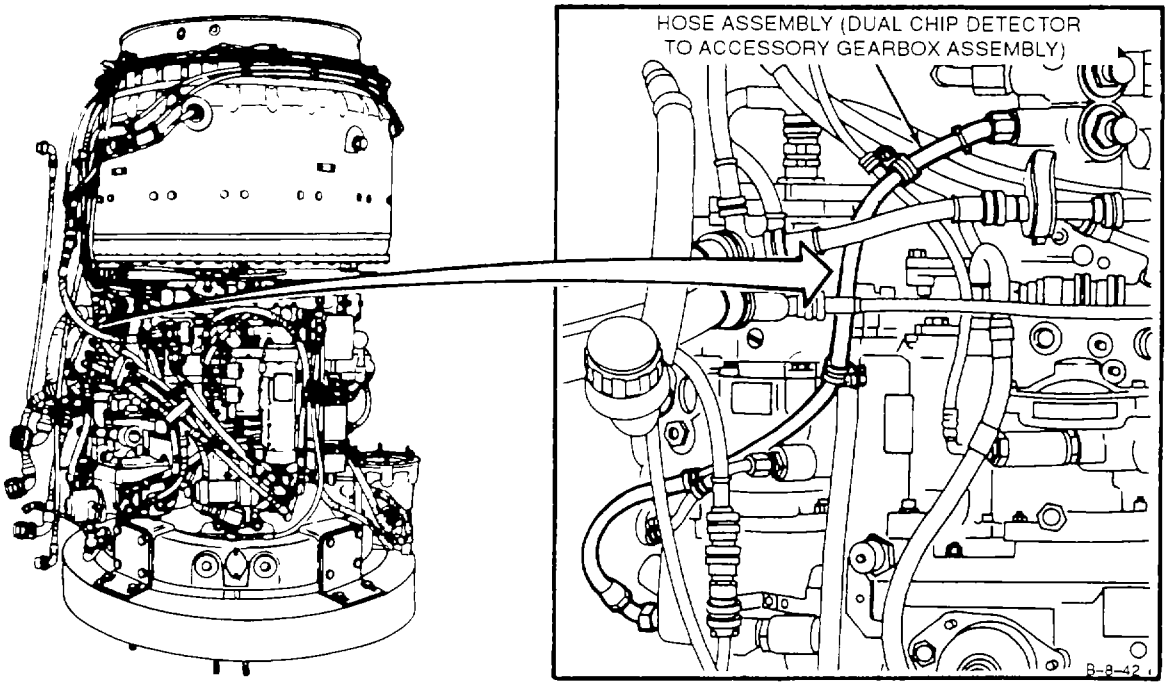
Materials:
Wiping Rag (E64)

Personnel Required:
Aircraft Powerplant Repairer

General Safety Instructions:

WARNING

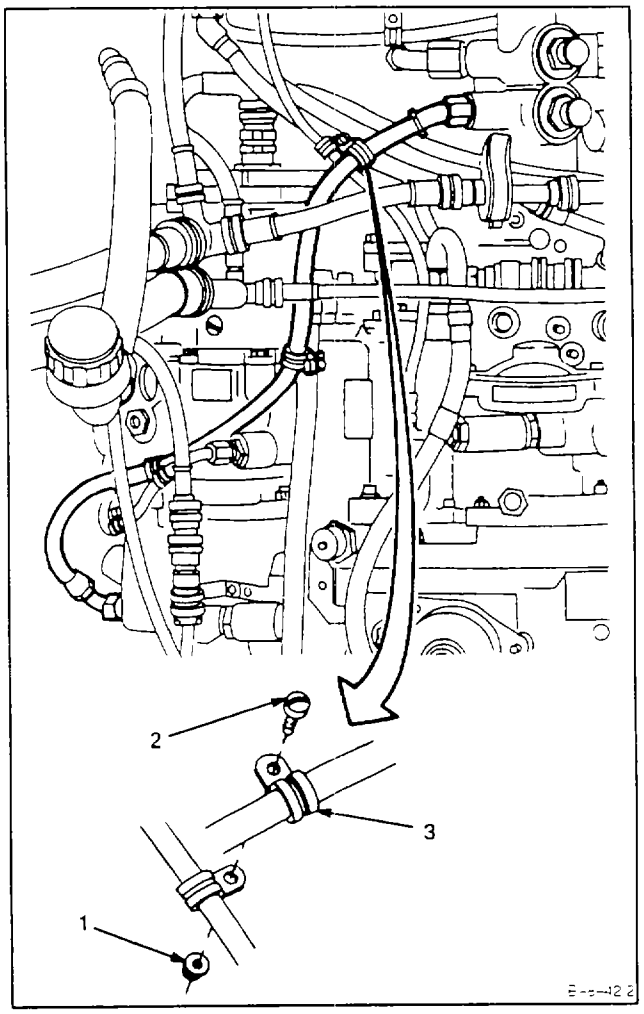
Lubricating oils cause paralysis if swallowed. Prolonged contact with them may irritate the skin. Handle only in well-ventilated areas away from heat and flame. Drain and store in approved metal safety containers. Avoid prolonged or repeated contact with skin and do not take internally. Wash contacted area of skin thoroughly after handling. If irritation of skin results, get medical attention. Get medical attention for eyes.



GO TO NEXT PAGE

8-57 REMOVE HOSE ASSEMBLY (DUAL CHIP DETECTOR TO ACCESSORY GEARBOX ASSEMBLY) (Continued) 8-57

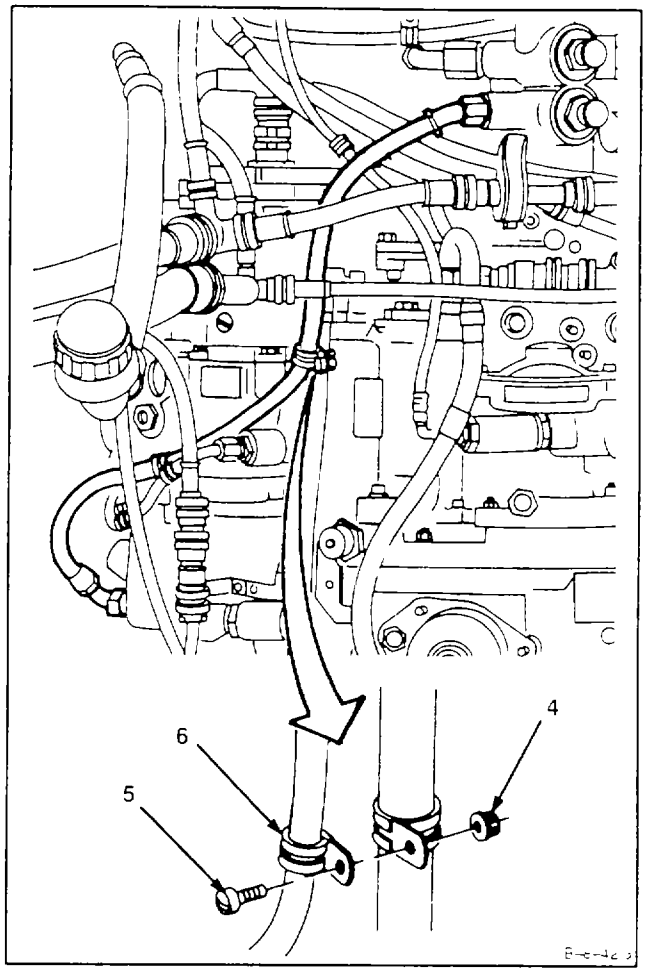
1. Remove nut (1), screw (2), and clamp (3).



GO TO NEXT PAGE

8-57 REMOVE HOSE ASSEMBLY (DUAL CHIP DETECTOR TO ACCESSORY GEARBOX ASSEMBLY) (Continued) **8-57**

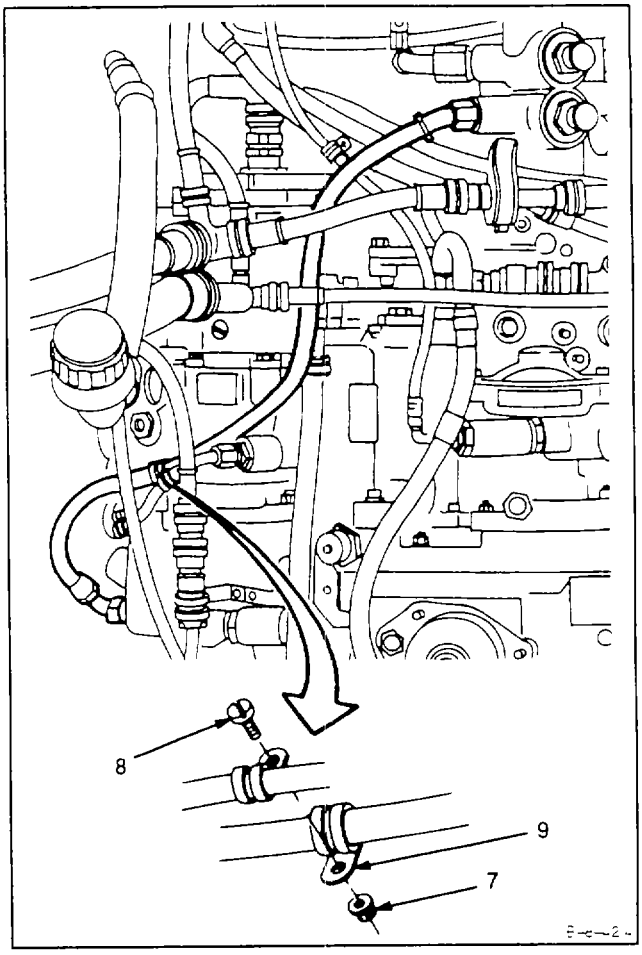
2. Remove nut (4). screw (5), and clamp (6).



GO TO NEXT PAGE

8-57 REMOVE HOSE ASSEMBLY (DUAL CHIP DETECTOR TO ACCESSORY GEARBOX ASSEMBLY) (Continued) **8-57**

3. Remove nut (7), screw (8), and clamp (9).



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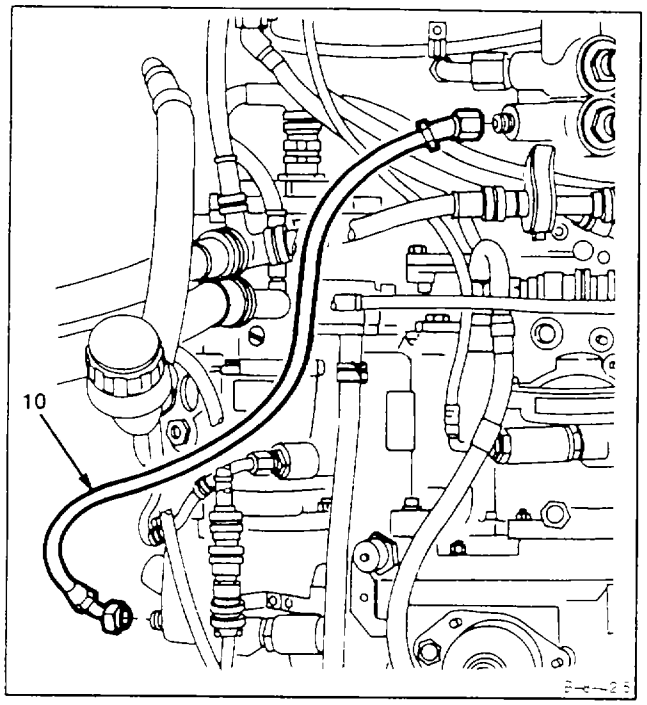
8-57 REMOVE HOSE ASSEMBLY (DUAL CHIP DETECTOR TO ACCESSORY GEARBOX ASSEMBLY) (Continued) **8-57**

4. Disconnect and remove hose assembly (10).

FOLLOW-ON MAINTENANCE:
None



END OF TASK

8-58 INSTALL HOSE ASSEMBLY (DUAL CHIP DETECTOR TO ACCESSORY GEARBOX ASSEMBLY) 8-58

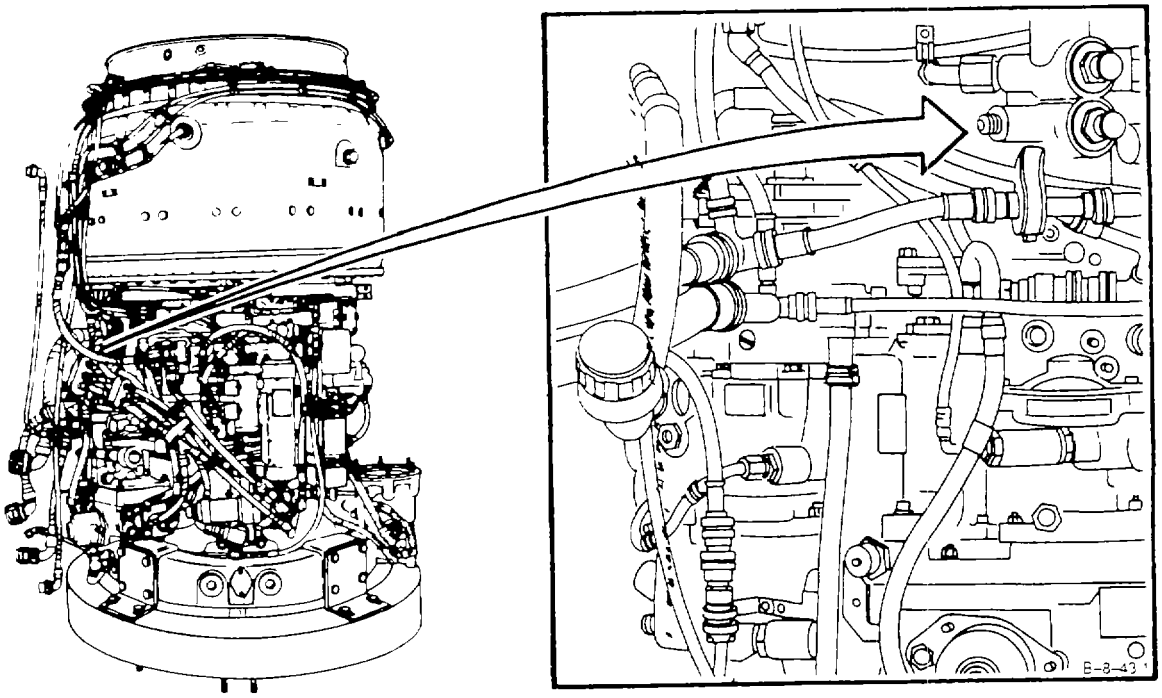
INITIAL SETUP

Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit, NSN 5180-00-323-4944
Technical Inspection Tool Kit, NSN 5180-00-323-5114

Materials:
None

Personnel Required:
Aircraft Powerplant Repairer
Aircraft Powerplant Inspector



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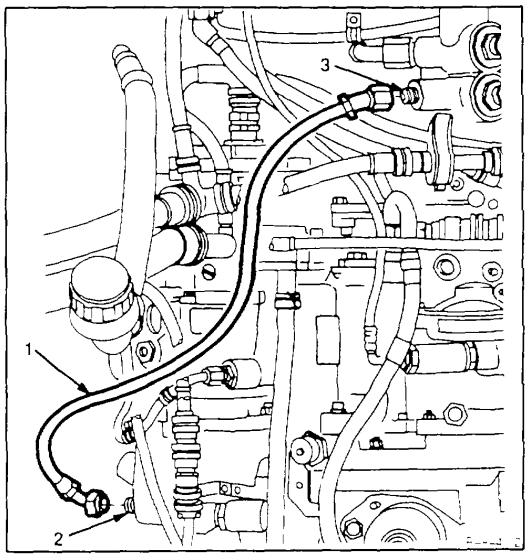
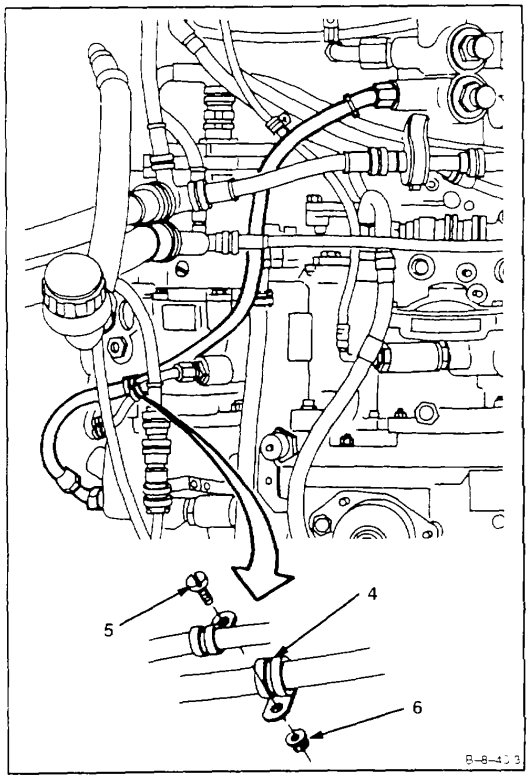
8-58 INSTALL HOSE ASSEMBLY (DUAL CHIP DETECTOR TO ACCESSORY GEARBOX ASSEMBLY) (Continued) 8-58

1. Install hose assembly (1) on reducer (2) and adapter (3).
2. Install clamp (4), screw (5), and nut (6).

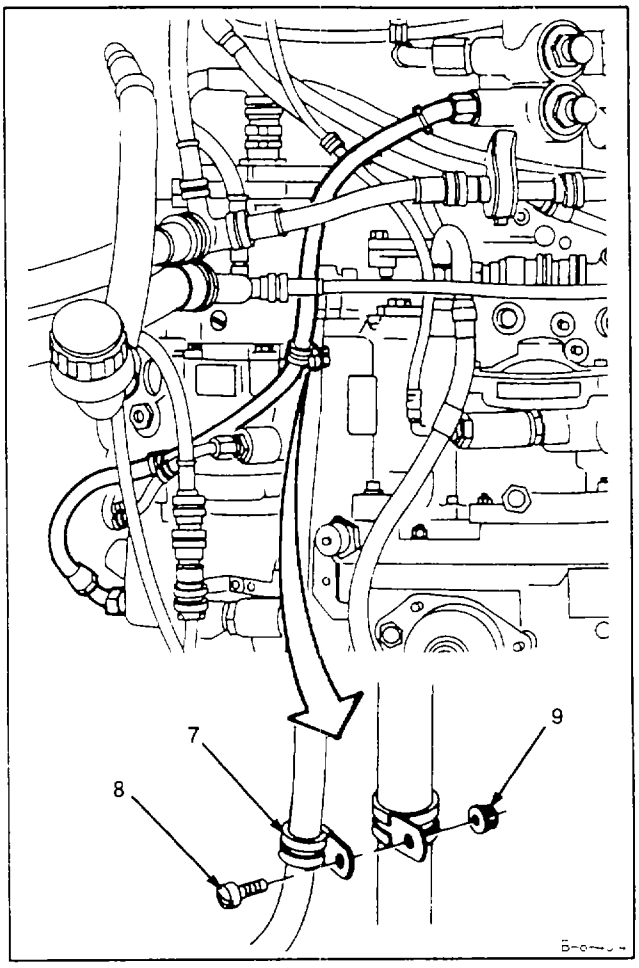




GO TO NEXT PAGE

8-58 INSTALL HOSE ASSEMBLY (DUAL CHIP DETECTOR TO ACCESSORY GEARBOX ASSEMBLY) (Continued) **8-58**

3. Install clamp (7), screw (8), and nut (9).



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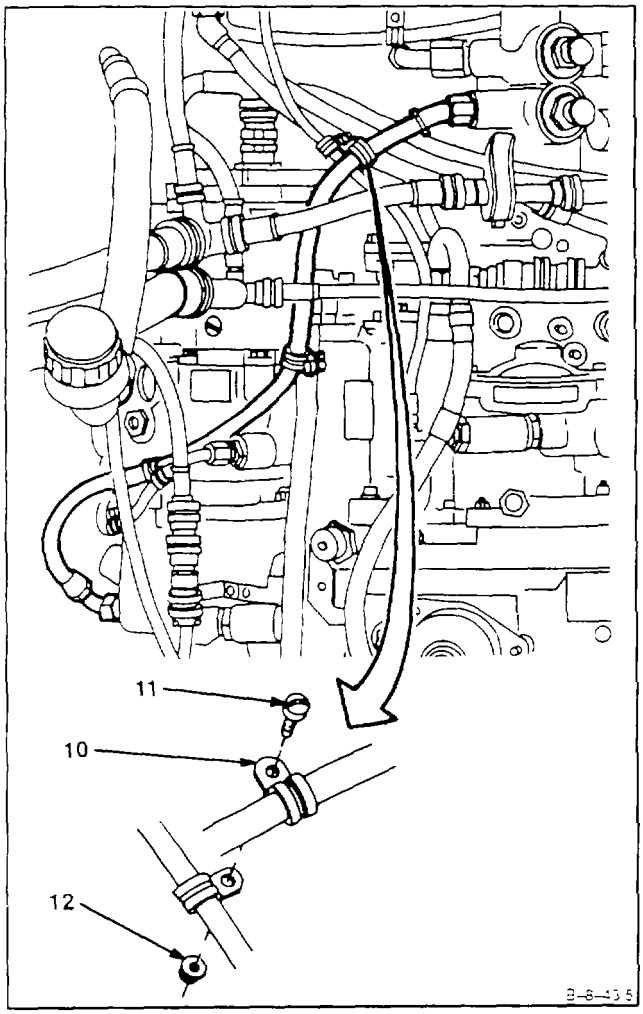
8-58 INSTALL HOSE ASSEMBLY (DUAL CHIP DETECTOR TO ACCESSORY GEARBOX ASSEMBLY) (Continued) **8-58**

4. Install clamp (10), screw (11), and nut (12).

INSPECT

FOLLOW-ON MAINTENANCE:
None



END OF TASK

8-59 REMOVE HOSE ASSEMBLY (DUAL CHIP DETECTOR TO ACCESSORY GEARBOX COLLECTOR) 8-59

INITIAL SETUP

Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Container, 1 Quart

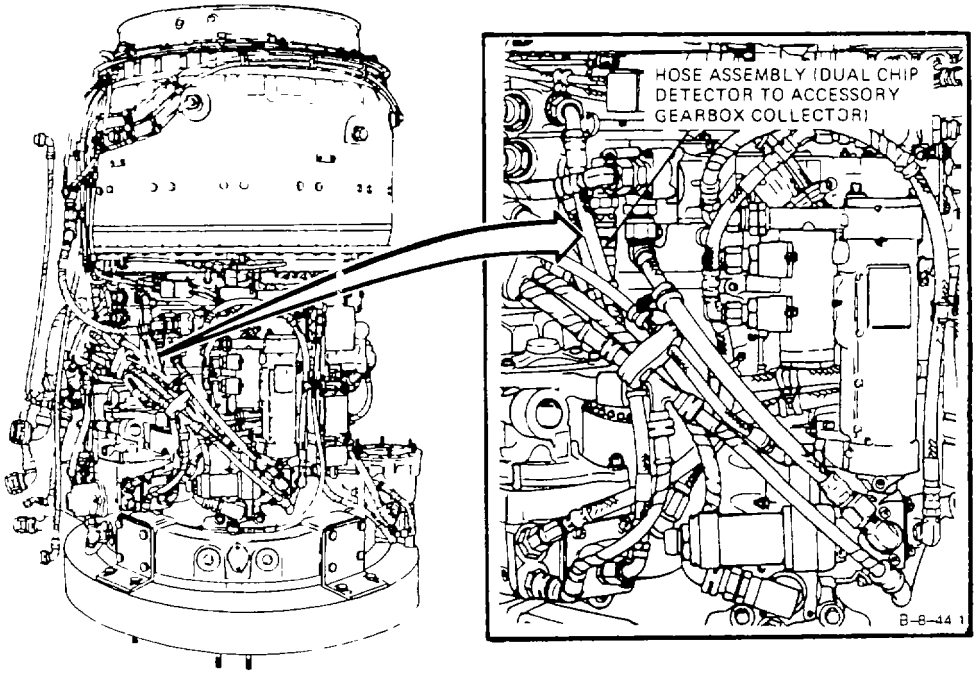
Materials:
Wiping Rag (E64)

Personnel Required:

General Safety Instructions:

WARNING

Prolonged contact with lubricating oil may irritate the skin. Use in ventilated areas and minimize breathing vapor, mist or fumes. Do not store near heat, sparks or flame. Avoid prolonged contact with skin. Wash contacted areas with soap and water. If irritation of skin results, get medical attention. In case of eye contact, flush with water and get medical attention. Do not take internally. If ingested, get medical attention. Do not induce vomiting.



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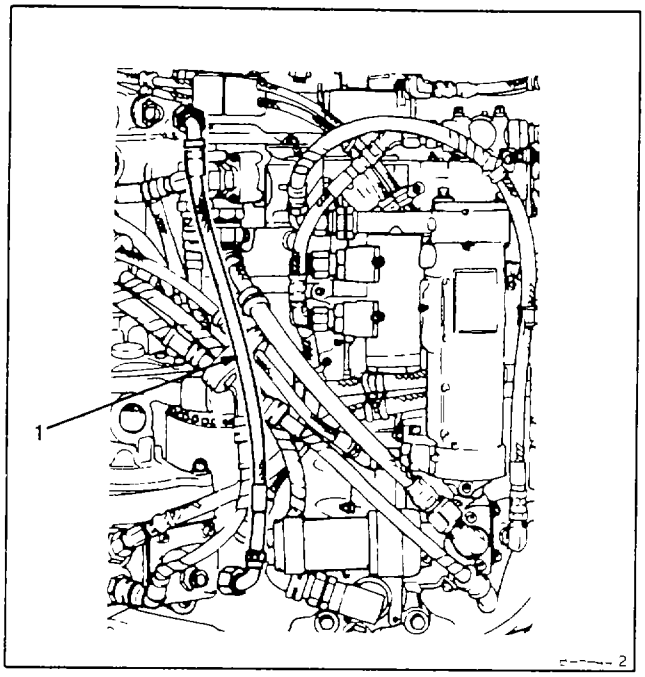
8-59 REMOVE HOSE ASSEMBLY (DUAL CHIP DETECTOR TO ACCESSORY GEARBOX COLLECTOR) (Continued) 8-59

1. Disconnect and remove hose assembly (1).

FOLLOW-ON MAINTENANCE:
None



END OF TASK

8-60 INSTALL HOSE ASSEMBLY (DUAL CHIP DETECTOR TO ACCESSORY GEARBOX COLLECTOR) 8-60

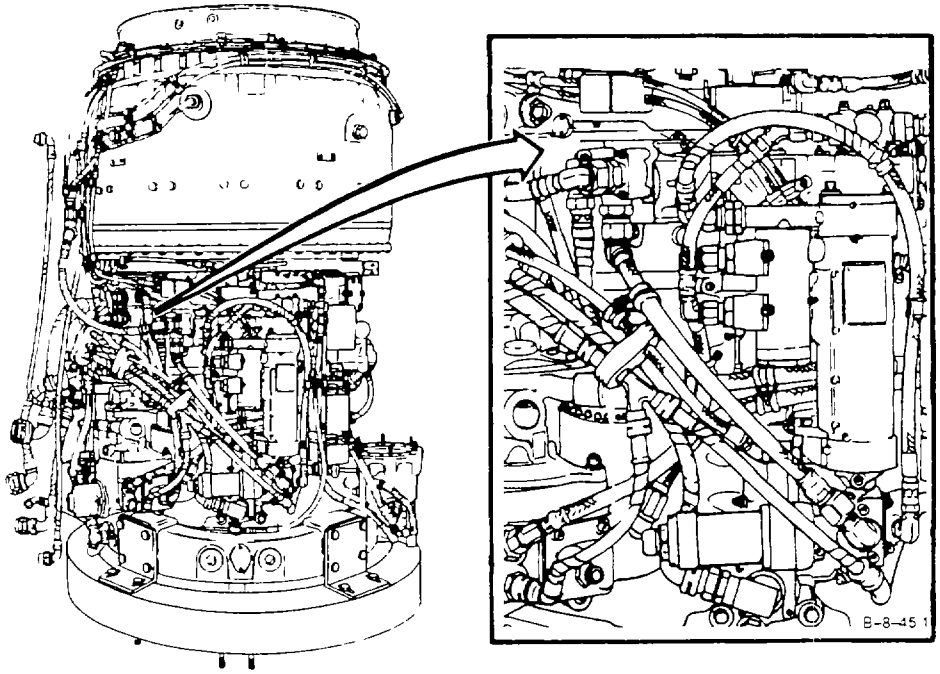
INITIAL SETUP

Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit, NSN 5180-00-323-4944
Technical Inspection Tool Kit, NSN 5180-00-323-5114

Materials:
None

Personnel Required:
Aircraft Powerplant Repairer
Aircraft Powerplant Inspector



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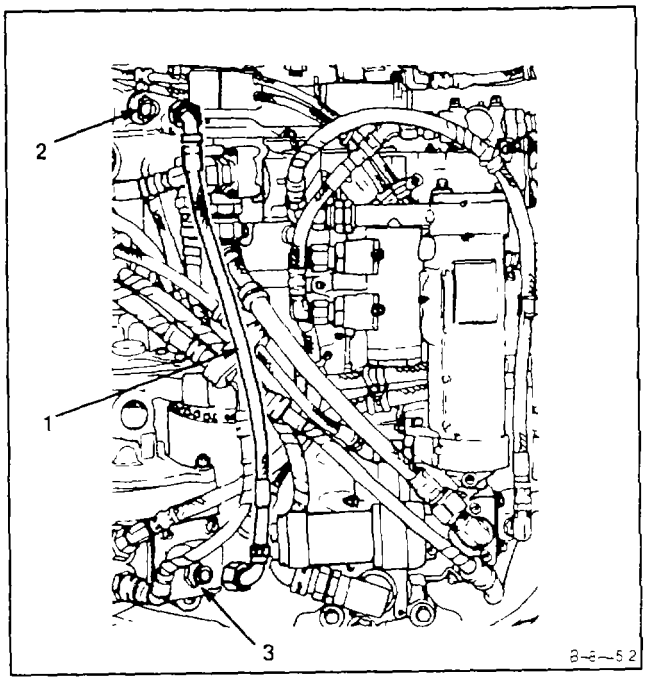
8-60 INSTALL HOSE ASSEMBLY (DUAL CHIP DETE CTOR TO ACCESSORY GEARBOX COLLECTOR) (Continued) **8-60**

1. Install hose assembly (1) on union (2) and nipple (3).

FOLLOW-ON MAINTENANCE:
None



END OF TASK

8-61 REMOVE HOSE ASSEMBLY (DUAL CHIP DETECTOR TO AIR DIFFUSER ASSEMBLY) 8-61

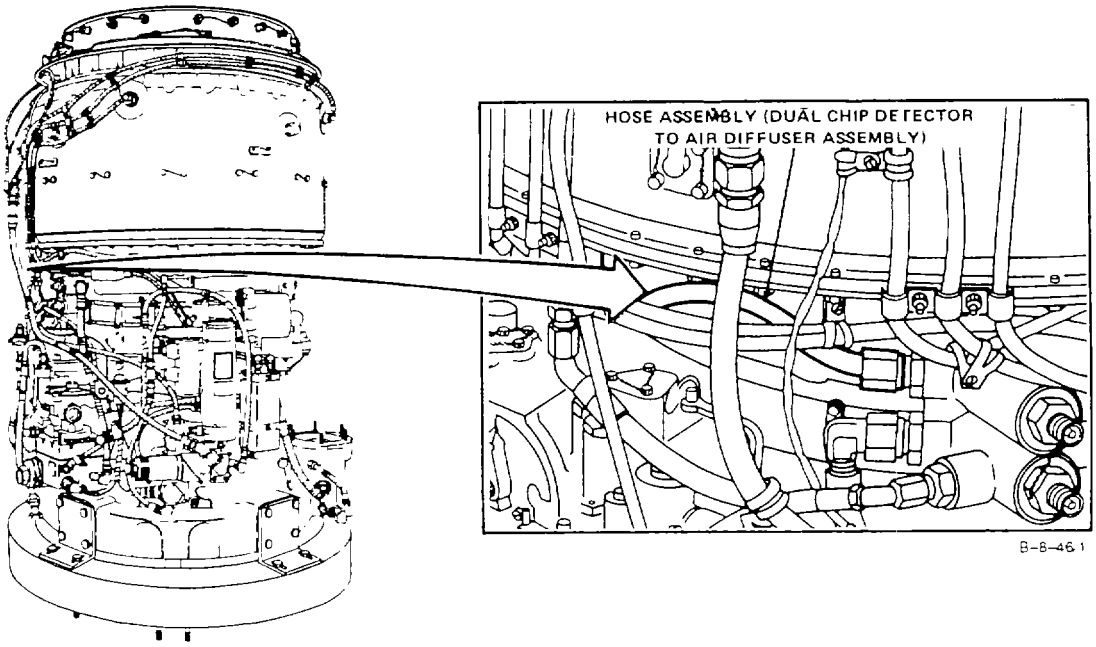
INITIAL SETUP

Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Container 1 Quart

Materials:
Wiping Rag (E64)

Personnel Required:
Aircraft Powerplant Repairer



GO TO NEXT PAGE

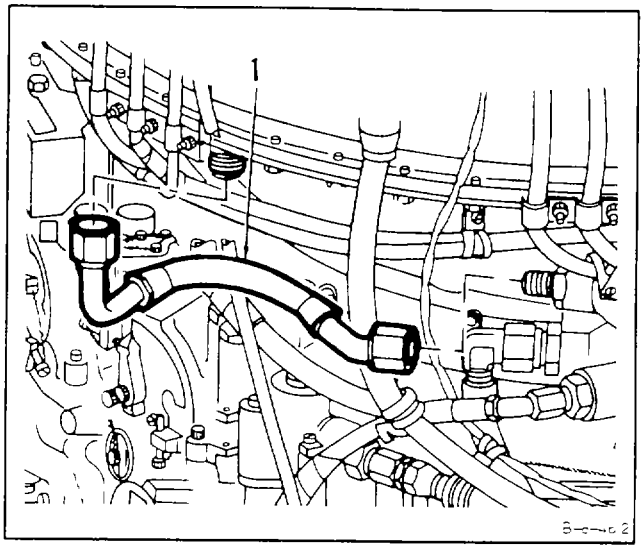
8-61 REMOVE HOSE ASSEMBLY (DUAL CHIP DETECTOR TO AIR DIFFUSER ASSEMBLY) (Continued) **8-61**

WARNING

Lubricating oils cause paralysis if swallowed. Prolonged contact with them may irritate the skin. Handle only in well-ventilated areas away from heat and flame. Drain and store in approved metal safety containers. Avoid prolonged or repeated contact with skin and do not take internally. Wash contacted area of skin thoroughly after handling. If irritation of skin results, get medical attention. Get medical attention for eyes.

1. Disconnect and remove hose assembly (1).

FOLLOW-ON MAINTENANCE:
None



END OF TASK

8-62 INSTALL HOSE ASSEMBLY (DUAL C HIP DETECTOR TO AIR DIFFUSER ASSEMBLY) 8-62

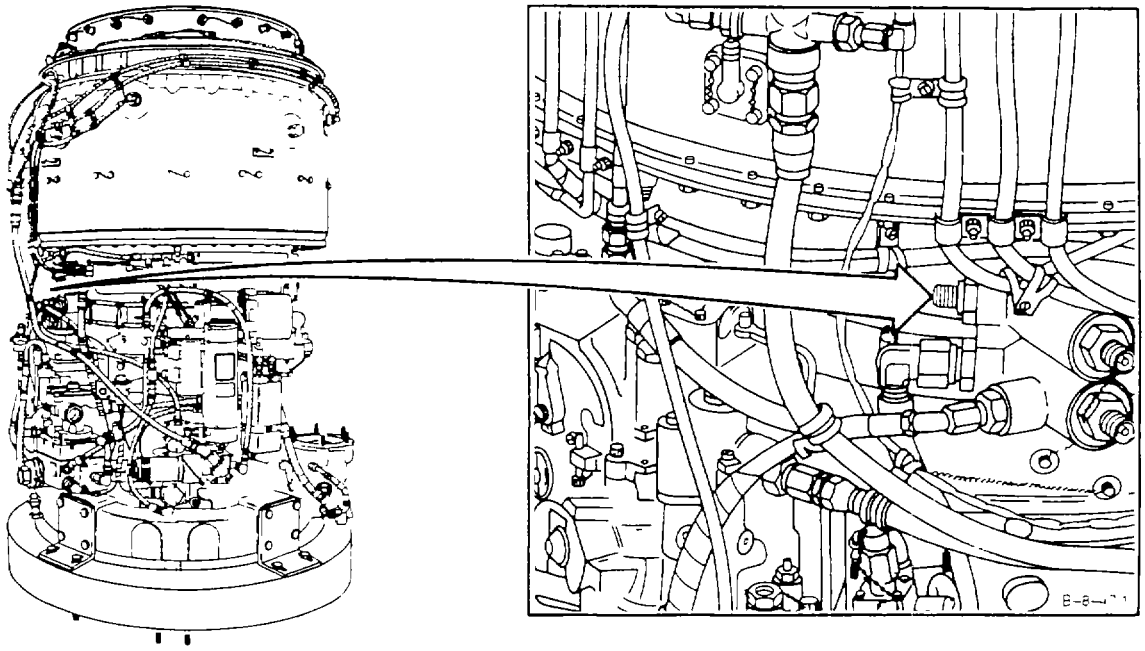
INITIAL SETUP

Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit, NSN 5180-00-323-4944
Technical Inspection Tool Kit, NSN 5180-00-323-5114

Materials:
None

Personnel Required:
Aircraft Powerplant Repairer
Aircraft Powerplant Inspector



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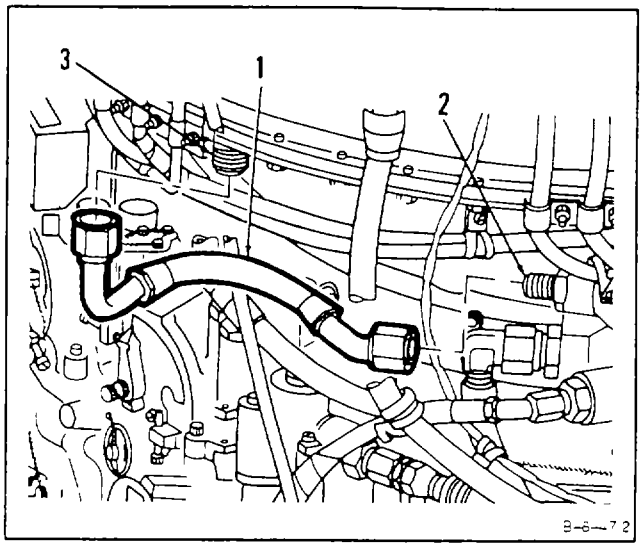
8-62 INSTALL HOSE ASSEMBLY (DUAL CHIP DETEC TOR TO AIR DIFFUSER ASSEMBLY) (Continued) 8-62

1. Install hose assembly (1) to unions (2 and 3).

INSPECT

FOLLOW-ON MAINTENANCE:
None



END OF TASK

8-63 REMOVE HOSE ASSEMBLY (MAIN OIL PUMP TO DUAL CHIP DETECTOR) 8-63

INITIAL SETUP

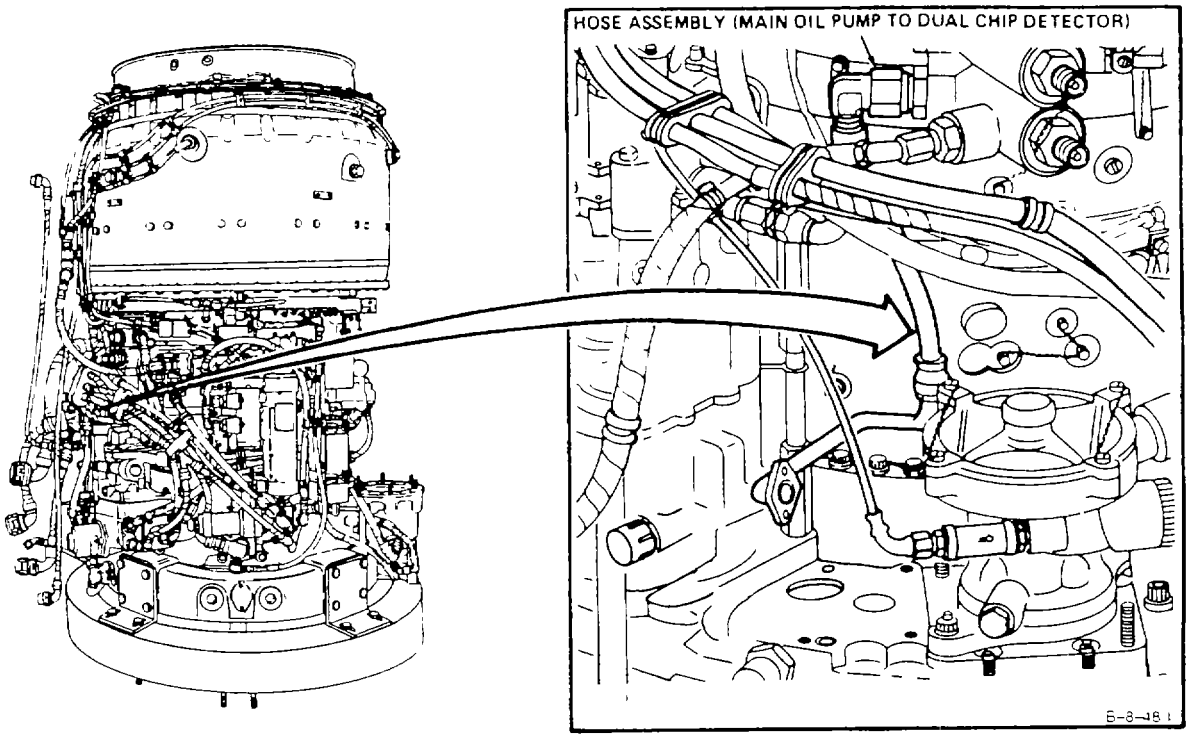
Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit, NSN 5180-00-323-4944

Materials:
Wiping Rag (E64)

Personnel Required:
Aircraft Powerplant Repairer

Equipment Condition:
Main Oil Pump, Speed Pickup Assembly, Scavenge Oil Screen, and Related Parts Removed (Task 8-1)
Tube Assembly Removed (Inlet Housing to Main Oil Pump) (Task 8-65)



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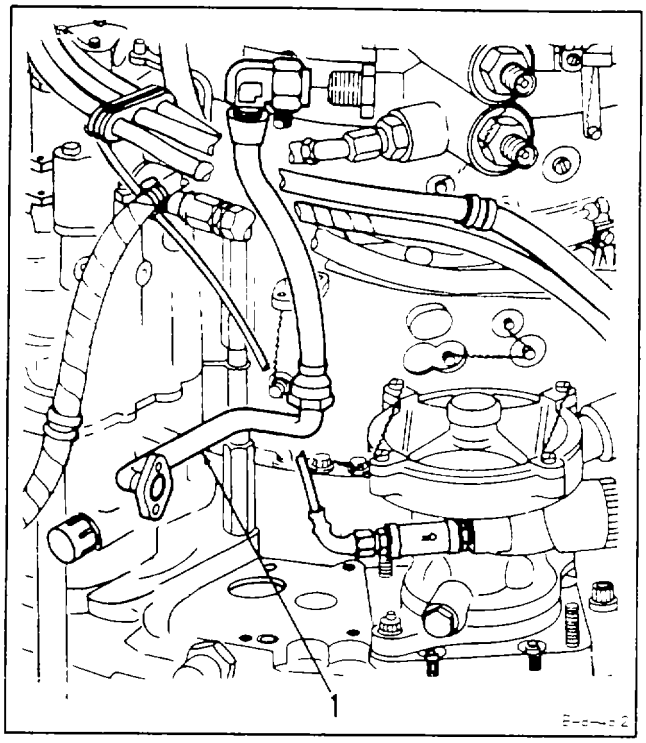
8-63 REMOVE HOSE ASSEMBLY (MAIN OIL PUMP TO DUAL CHIP DETECTOR (Continued) 8-63

WARNING

Lubricating oils cause paralysis if swallowed. Prolonged contact with them may irritate the skin. Handle only in well-ventilated areas away from heat and flame. Drain and store in approved metal safety containers. Avoid prolonged or repeated contact with skin and do not take internally. Wash contacted area of skin thoroughly after handling. If irritation of skin results, get medical attention. Get medical attention for eyes.

1. Disconnect and remove hose assembly (1).

FOLLOW-ON MAINTENANCE:
None



END OF TASK

8-64 INSTALL HOSE ASSEMBLY (MAIN OIL PUMP TO DUAL CHIP DETECTOR) 8-64

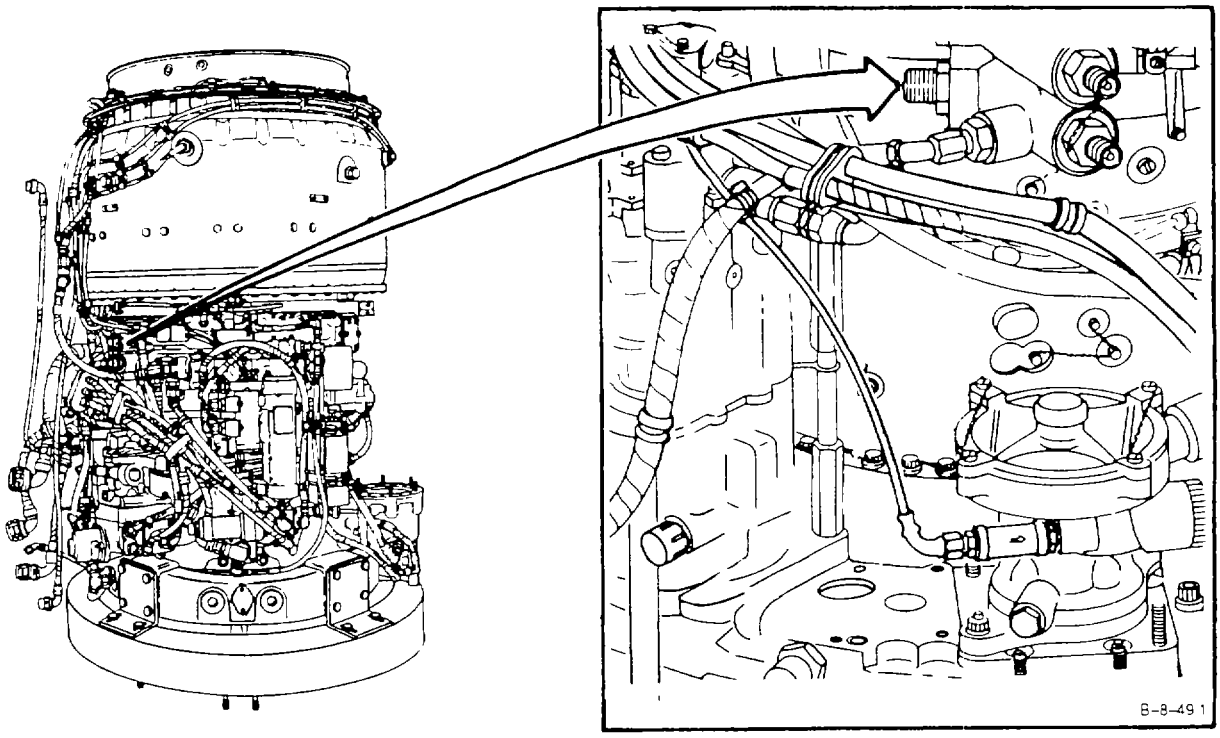
INITIAL SETUP

Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit, NSN 5180-00-323-4944
Technical Inspection Tool Kit, NSN 5180-00-323-5114

Materials:
None

Personnel Required:
Aircraft Powerplant Repairer
Aircraft Powerplant Inspector



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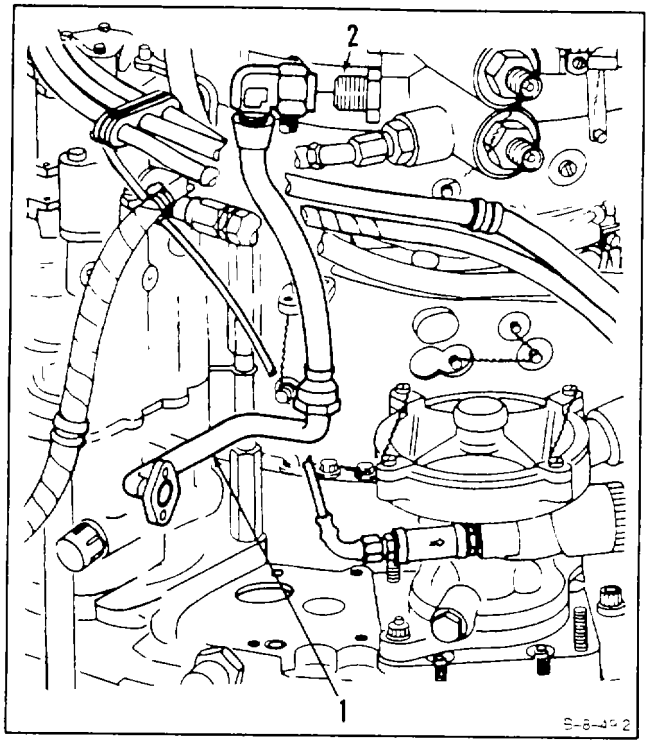
8-64 INSTALL HOSE ASSEMBLY (MAIN OIL PUMP TO DUAL CHIP DETECTOR) (Continued) 8-64

1. Install hose assembly (1) on union (2).

INSPECT

FOLLOW-ON MAINTENANCE:
Install Main Oil Pump, Speed Pickup Assembly,
Scavenge Oil Screen, and Related Parts (Task 8-6).
Install Tube Assembly (Inlet Housing to Main Oil Pump) (Task 8-66).



END OF TASK

8-65 REMOVE TUBE ASSEMBLY (INLET HOUSING TO MAIN OIL PUMP) 8-65

INITIAL SETUP

Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Container, 1 Quart

Materials:
Wiping Rag (E64)

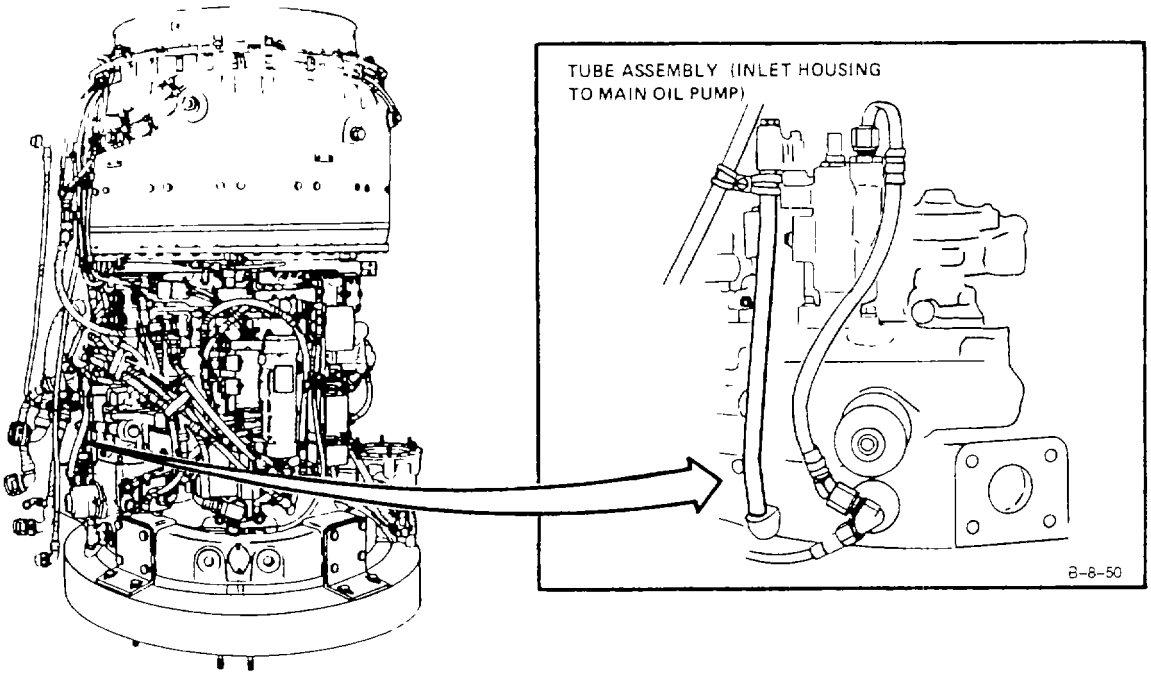
Personnel Required:
Aircraft Powerplant Repairer

Equipment Condition:
Engine Oil System Drained (Task 1-69)

General Safety Instructions:

WARNING

Lubricating oils cause paralysis if swallowed. Prolonged contact with them may irritate the skin. Handle only in well-ventilated areas away from heat and flame. Drain and store in approved metal safety containers. Avoid prolonged or repeated contact with skin and do not take internally. Wash contacted area of skin thoroughly after handling. If irritation of skin results, get medical attention. Get medical attention for eyes.



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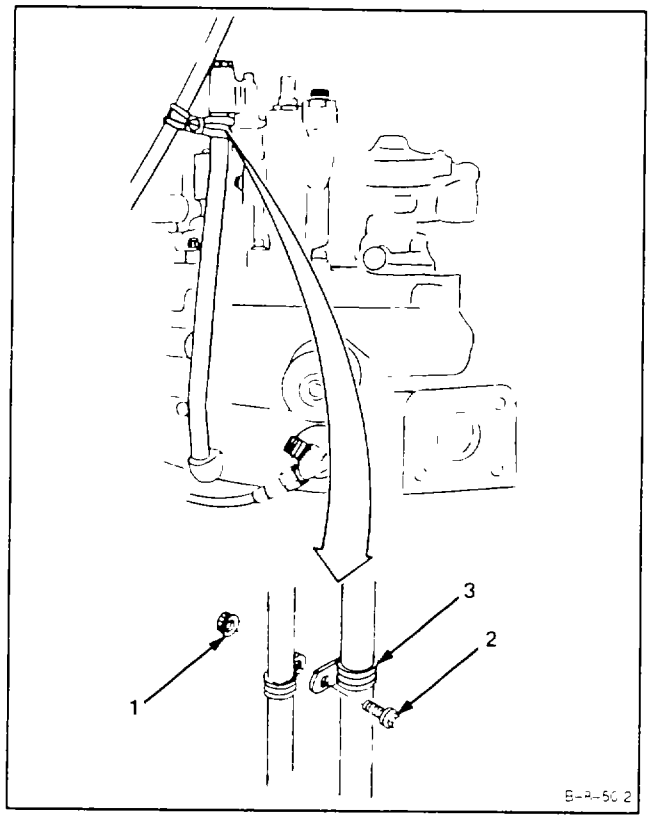
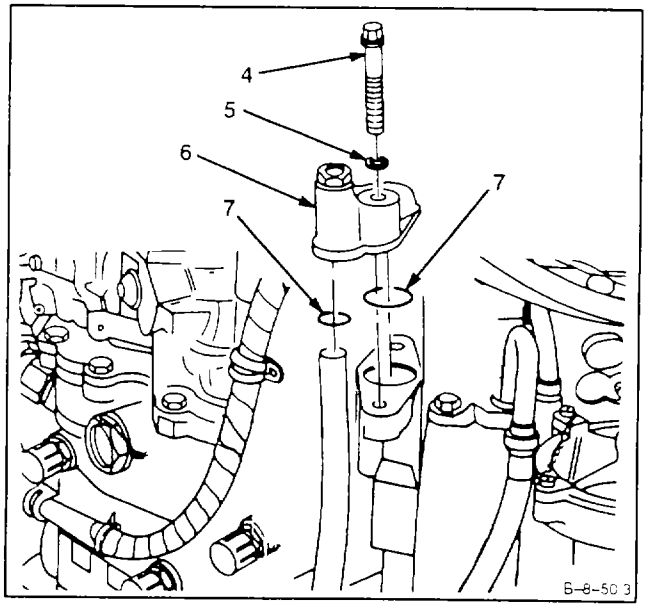
8-65 REMOVE TUBE ASSEMBLY (INLET HOUSING TO MAIN OIL PUMP) (Continued) 8-65

1. Remove nut (1), screw (2), and clamp (3).

2. Remove lockwire, two bolts (4), two washers (5), connector (6), and two packings (7).



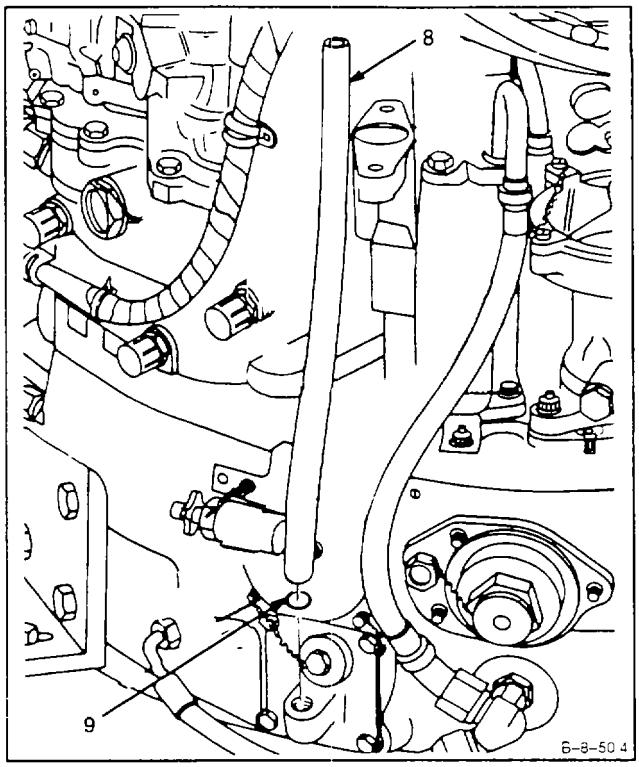


GO TO NEXT PAGE

8-65 REMOVE TUBE ASSEMBLY (INLET HOUSING TO MAIN OIL PUMP) (Continued) **8-65**

3. Remove tube assembly (8) and packing (9).

FOLLOW-ON MAINTENANCE:
None



END OF TASK

8-66 INSTALL TUBE ASSEMBLY (INLET HOUSING TO MAIN OIL PUMP) 8-66

INITIAL SETUP

Applicable Configurations:
All

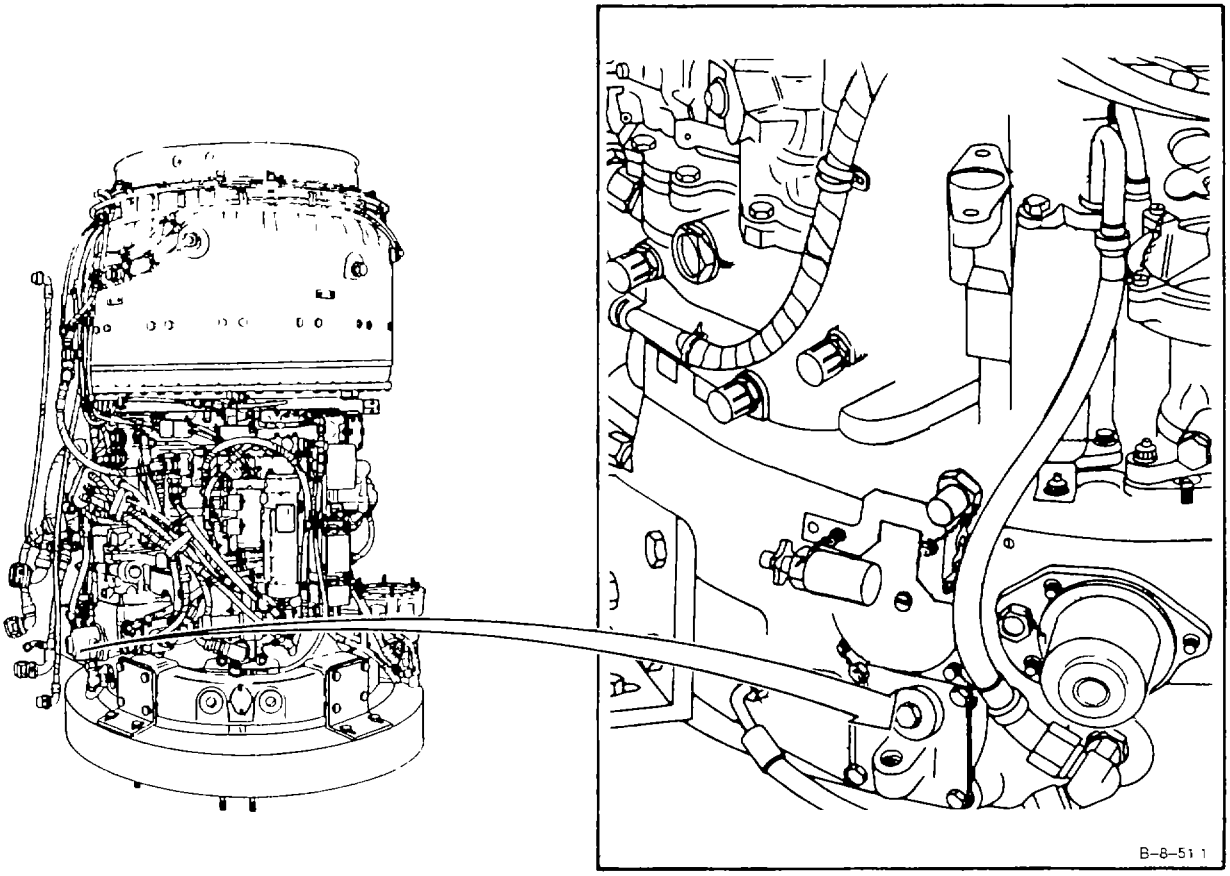
Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Technical Inspection Tool Kit,
NSN 5180-00-323-5114

Materials:
Lockwire (E33)

Parts:
Packings

Personnel Required:
Aircraft Powerplant Repairer
Aircraft Powerplant Inspector

References:
TM 1-1520-252-10
Task 8-65



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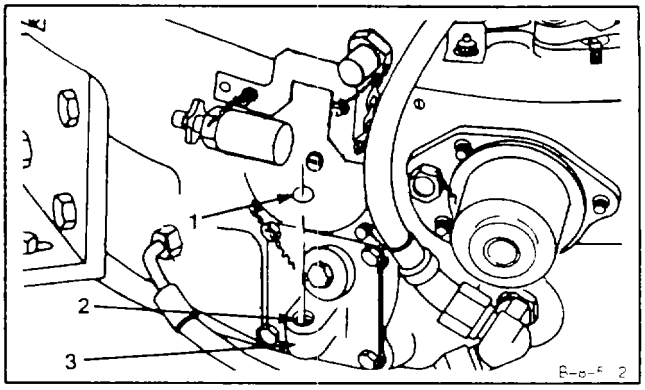
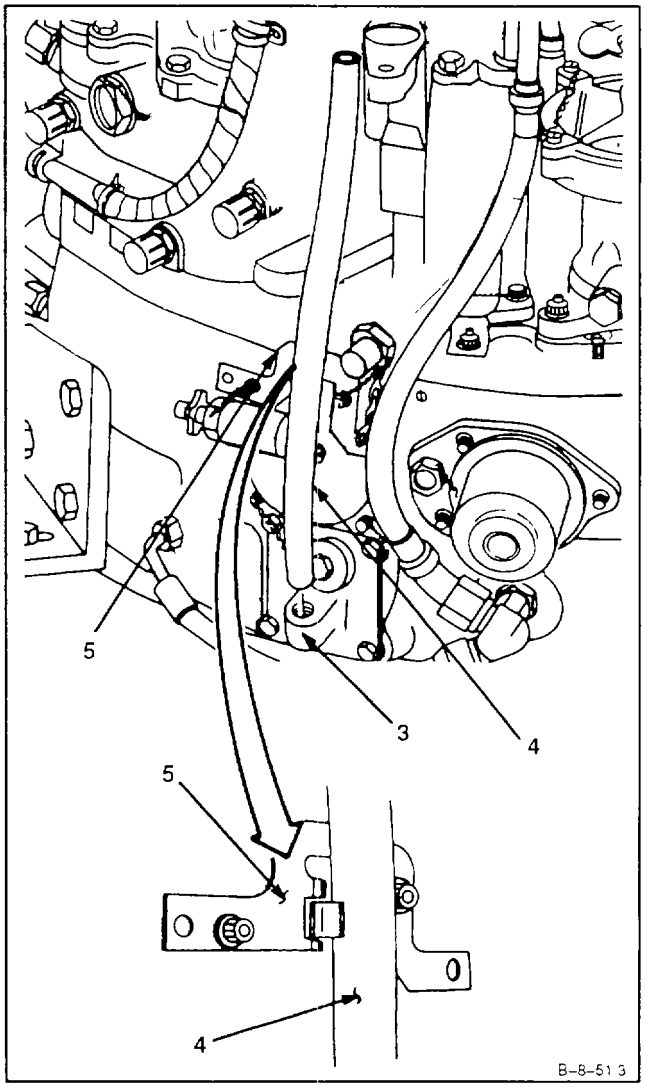
8-66 INSTALL TUBE ASSEMBLY (INLET HOUSING TO MAIN OIL PUMP) (Continued) **8-66**

1. Install packing (1) in groove (2) in cover assembly (3).
2. Install tube assembly (4) in cover assembly (3) and bracket (5).





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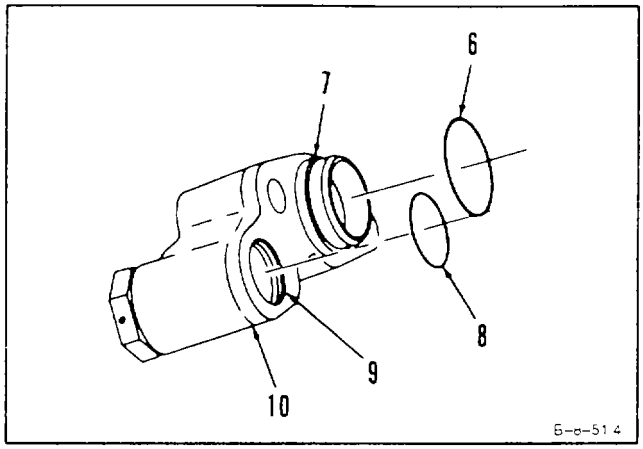
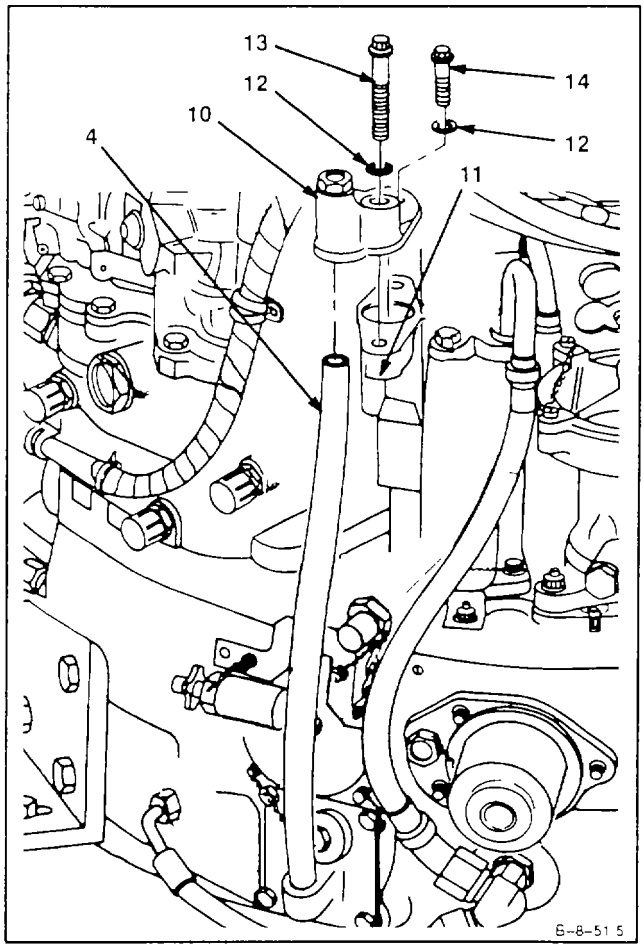
3. Install packing (6) in groove (7) and packing (8) in groove (9) of connector (10).

4. **Install connector (10)** on tube assembly (4), and oil pump (11). Install two washers (12), bolt (13), and bolt (14).





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8-66 INSTALL TUBE ASSEMBLY (INLET HOUSING TO MAIN OIL PUMP) (Continued) **8-66**

5. Check for proper installation of tube assembly (4) as follows:

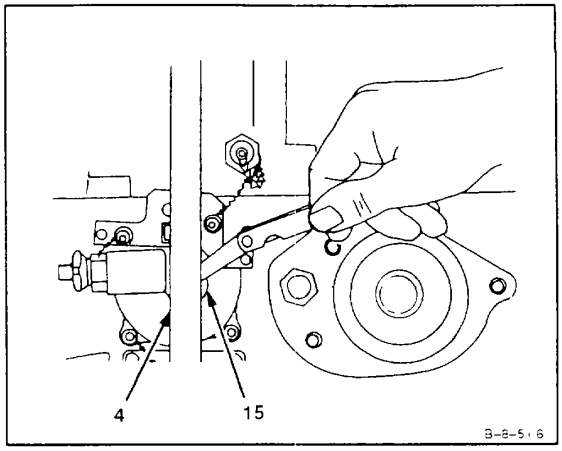
a. Check clearance between tube assembly (4) and washer (15). Clearance shall be 0.002 inch minimum.

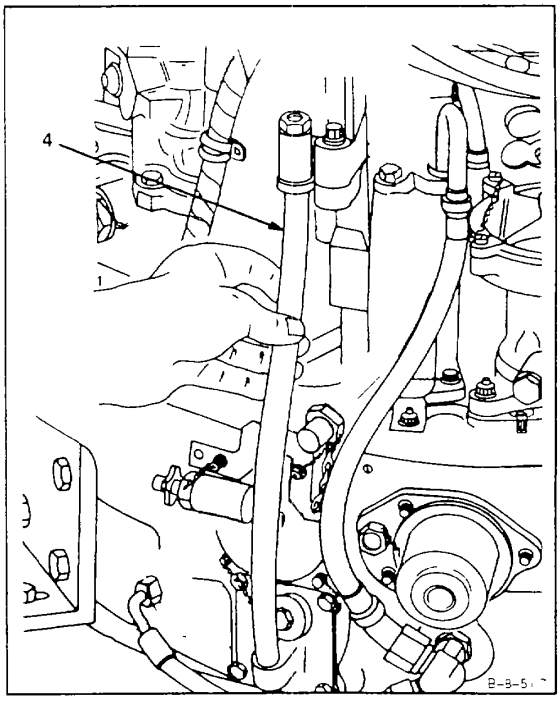
b. Check tube assembly (4) for freedom of movement in all directions. Tube assembly (4) shall be free to move forward and aft a total of 3/32 inch minimum. Tube assembly (4) shall be free to move sideways a total of 0.002 inch minimum. Tube Assembly (4) shall be free to move radially a total of 0.004 inch minimum.

INSPECT

NOTE

If clearance is not obtained or if tube assembly is not free to move, go to step 6. If proper clearance is obtained and tube assembly is free to move, go to step 9.





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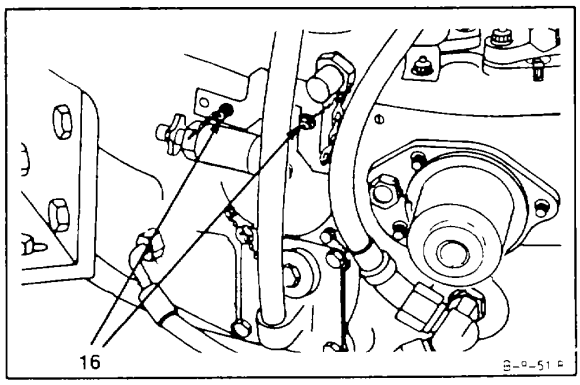
8-66 INSTALL TUBE ASSEMBLY (INLET HOUSING TO MAIN OIL PUMP) (Continued) **8-66**

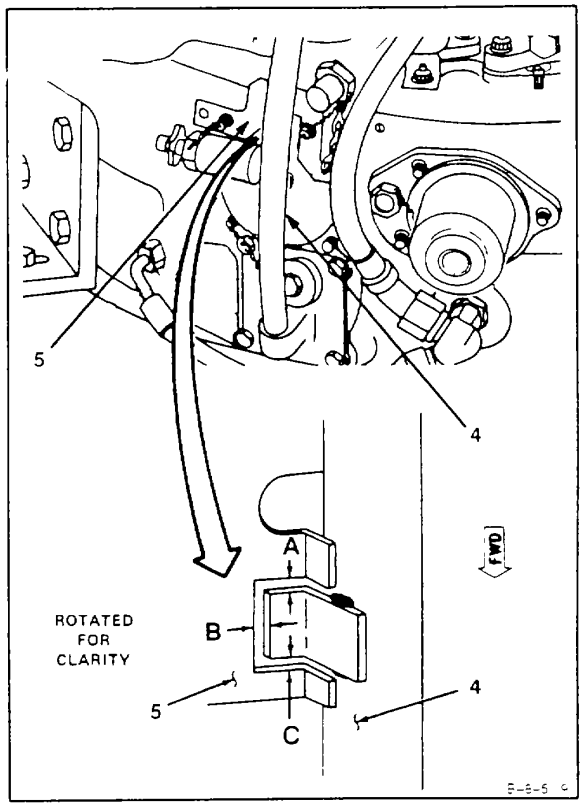
6. Remove lockwire and loosen bolts (16).

CAUTION

In following step 7, make sure bracket is positioned properly. This will ensure that tube assembly does not hit housing at either end when engine is hot. This could cause tube assembly to bend and result in oil leakage.

7. Reposition bracket (5) to obtain equal clearance at points A, B, and C between bracket (5) and tube assembly (4).





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8-66 INSTALL TUBE ASSEMBLY (INLET HOUSING TO MAIN OIL PUMP) (Continued) **8-66**

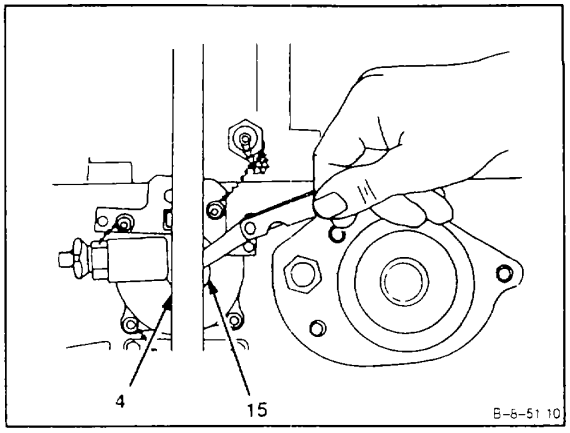
8. **Check for proper installation of tube assembly (4)** as follows:

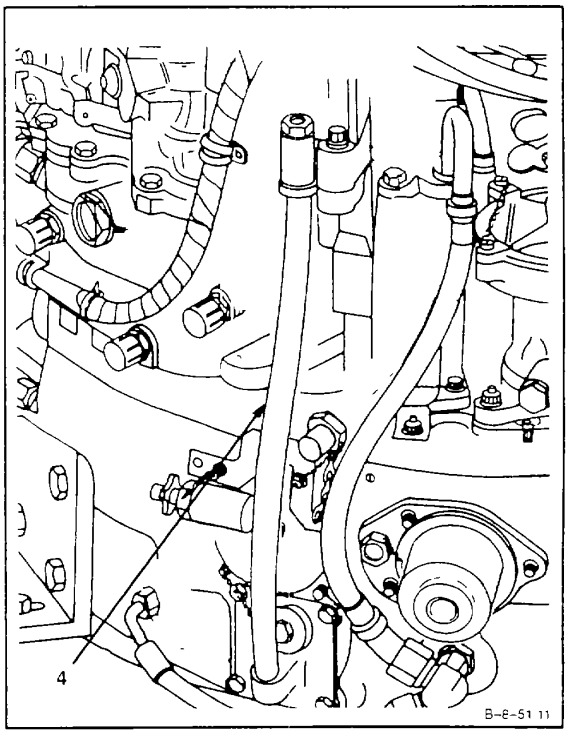
a. Check clearance between tube assembly (4) and washer (15). Clearance shall be 0.002 inch minimum.

b. Check tube assembly (4) for freedom of movement in all directions. Tube assembly (4) shall be free to move forward and aft a total of 3/32 inch minimum. Tube assembly (4) shall be free to move sideways a total of 0.002 inch minimum. Tube assembly (4) shall be free to move radially a total of 0.004 inch minimum.

NOTE

If proper clearance and freedom of movement is still not obtained, remove tube assembly (Ref. Task 8-65) and install serviceable tube assembly (Steps 1 thru 8).





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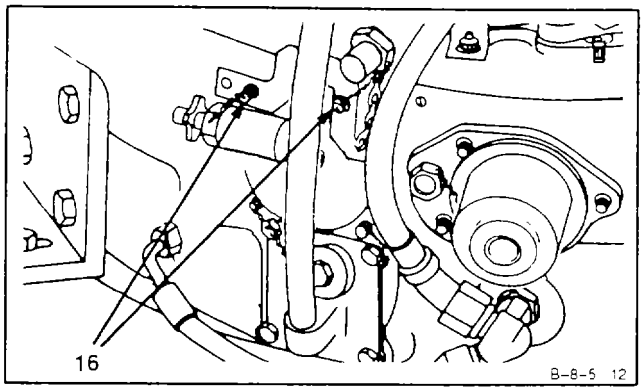
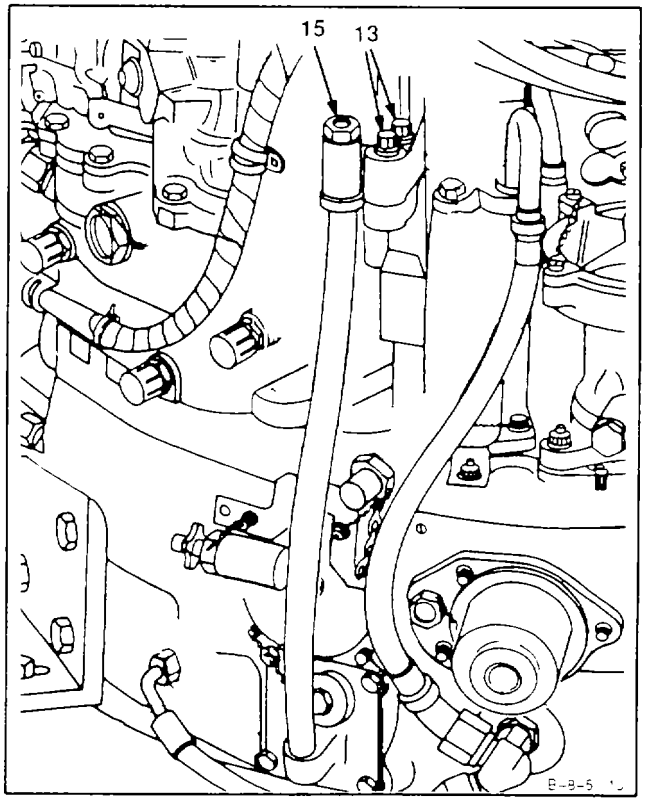
8-66 INSTALL TUBE ASSEMBLY (INLET HOUSING TO MAIN OIL PUMP) (Continued) **8-66**

9. Install two bolts (16) and lockwire. Use lockwire (E33).

10. Lockwire bolts (13) and plug (15). Use lockwire (E33).





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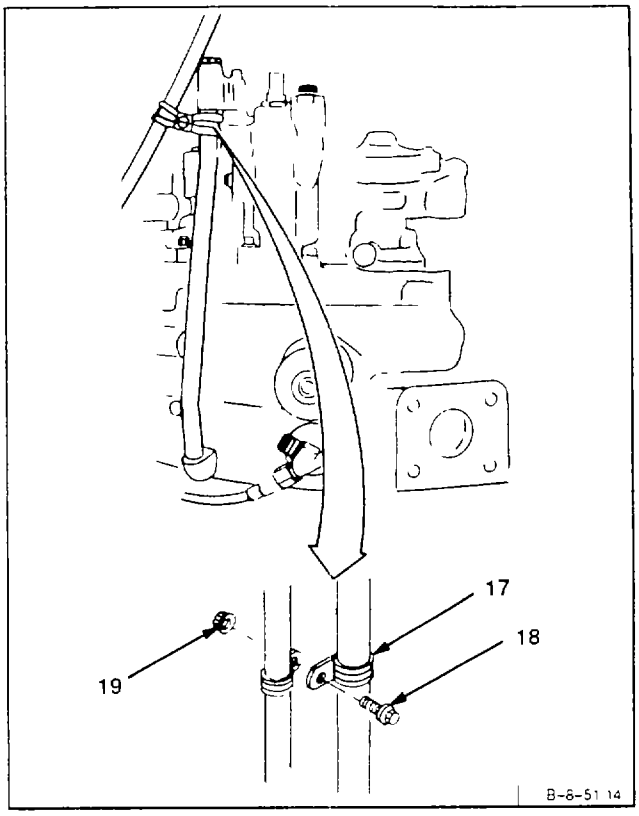
8-66 INSTALL TUBE ASSEMBLY (INLET HOUSING TO MAIN OIL PUMP) (Continued) **8-66**

11. **Install clamp** (17), screw (18), and nut (19).

INSPECT

FOLLOW-ON MAINTENANCE:
Service Engine Oil System (Task1-68)



END OF TASK

8-67 REMOVE TUBE ASSEMBLY (MAIN OIL PUMP TO INLET HOUSING OIL SCAVENGE TEE) 8-67

INITIAL SETUP

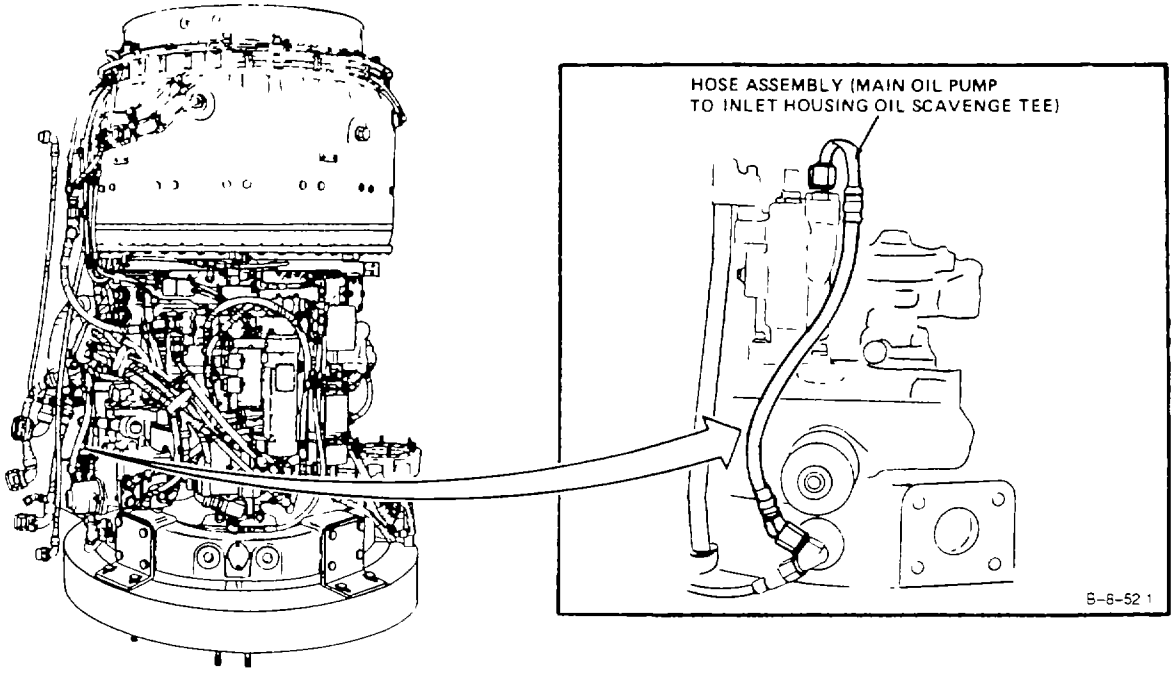
Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Container, 1 Quart

Materials:
Wiping Rag (E64)

Personnel Required:
Aircraft Powerplant Repairer

Equipment Condition:
Engine Oil System Drained (Task 1-69)



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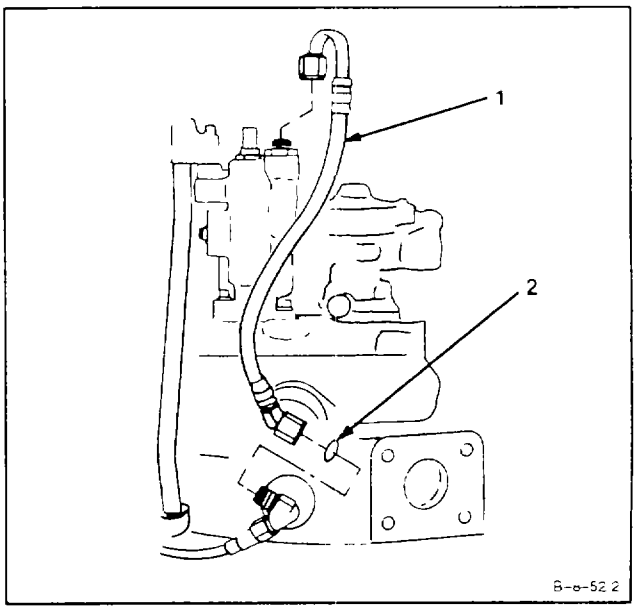
WARNING

Lubricating oils cause paralysis if swallowed. Prolonged contact with them may irritate the skin. Handle only in well-ventilated areas away from heat and flame. Drain and store in approved metal safety containers. Avoid prolonged or repeated contact with skin and do not take internally. Wash contacted area of skin thoroughly after handling. If irritation of skin results, get medical attention. Get medical attention for eyes.

1. Disconnect and remove tube assembly (1) and gasket (2).

FOLLOW-ON MAINTENANCE:
None



END OF TASK

8-68 INSTALL TUBE ASSEMBLY (MAIN OIL PUMP TO INLET HOUSING OIL SCAVENGE TEE) 8-68

INITIAL SETUP

Applicable Configurations:
All

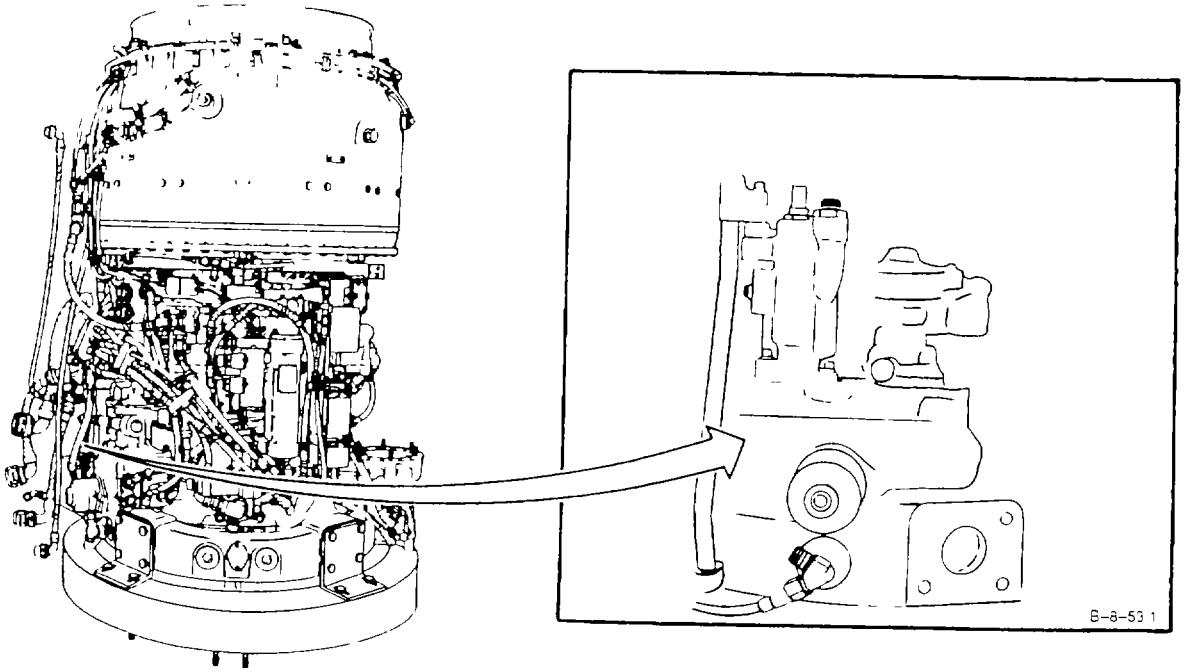
Tools:
Powerplant Mechanic's Tool Kit, NSN 5180-00-323-4944
Technical Inspection Tool Kit, NSN 5180-00-323-5114

Materials:
None

Parts:
Gasket

Personnel Required:
Aircraft Powerplant Repairer
Aircraft Powerplant Inspector

References:
TM 1-2840-252-23P



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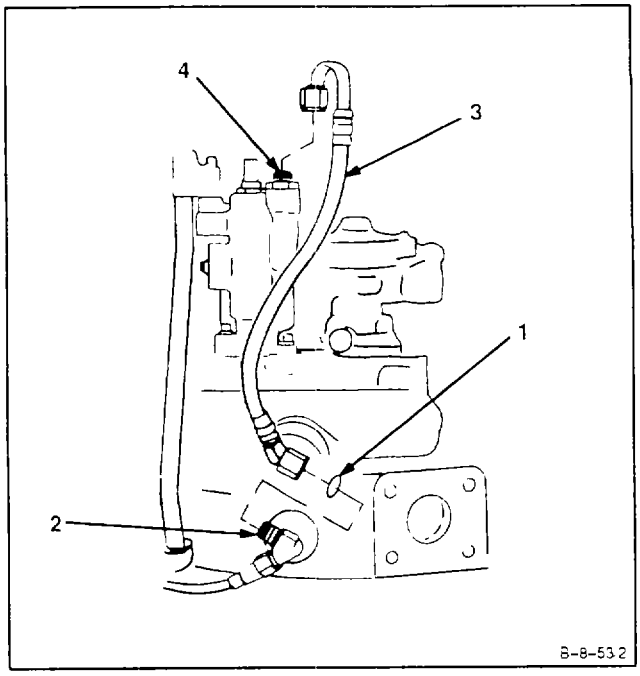
8-68 INSTALL TUBE ASSEMBLY (MAIN OIL PUMP TO INLET HOUSING OIL SCAVENGE TEE) (Continued) **8-68**

1. Install gasket (1) on tee (2) and install **tube assembly (3)** on nipple (4) and tee (2).

INSPECT

FOLLOW-ON MAINTENANCE:
Service Engine Oil System (Task1-68)



END OF TASK

8-69 REMOVE TUBE ASSEMBLY (NO. 4 AND 5 BEARING SCAVENGE TUBE ASSEMBLY TO MAIN OIL PUMP FLANGE) 8-69

INITIAL SETUP

Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Container, 1 Quart

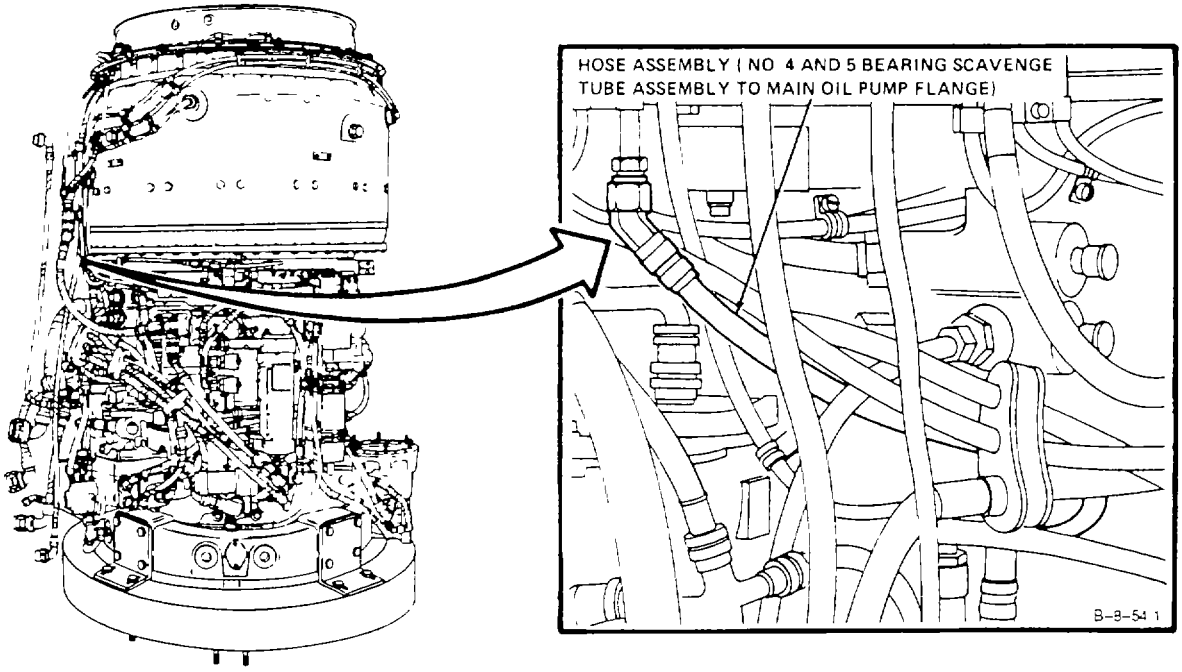
Materials:
Wiping Rag (E64)

Personnel Required:
Aircraft Powerplant Repairer

General Safety Instructions:

WARNING

Lubricating oils cause paralysis if swallowed. Prolonged contact with them may irritate the skin. Handle only in well-ventilated areas away from heat and flame. Drain and store in approved metal safety containers. Avoid prolonged or repeated contact with skin and do not take internally. Wash contacted area of skin thoroughly after handling. If irritation of skin results, get medical attention. Get medical attention for eyes.



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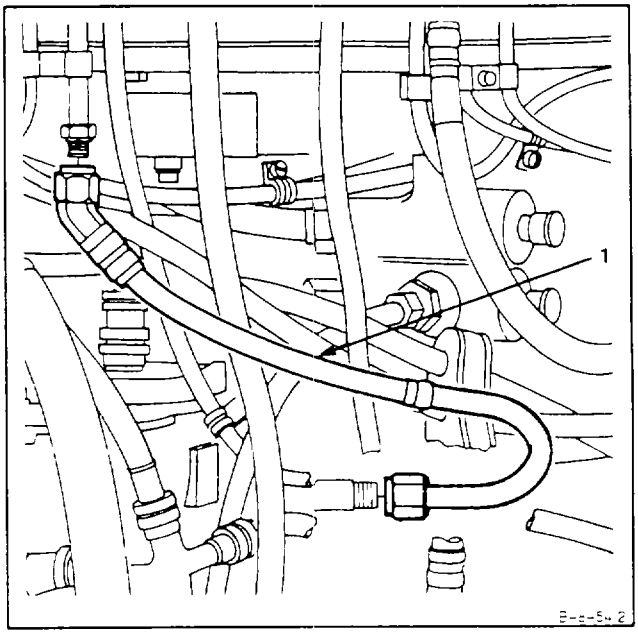
8-69 REMOVE TUBE ASSEMBLY (NO. 4 AND 5 BEARING SCAVENGE TUBE ASSEMBLY TO MAIN OIL PUMP FLANGE) (Continued) **8-69**

1. Disconnect and remove hose assembly (1).

FOLLOW-ON MAINTENANCE:
None



END OF TASK

8-70 INSTALL TUBE ASSEMBLY (NO. 4 AND 5 BEARING SCAVENGE TUBE ASSEMBLY TO MAIN OIL PUMP FLANGE) 8-70

INITIAL SETUP

Applicable Configurations:

All

Tools:

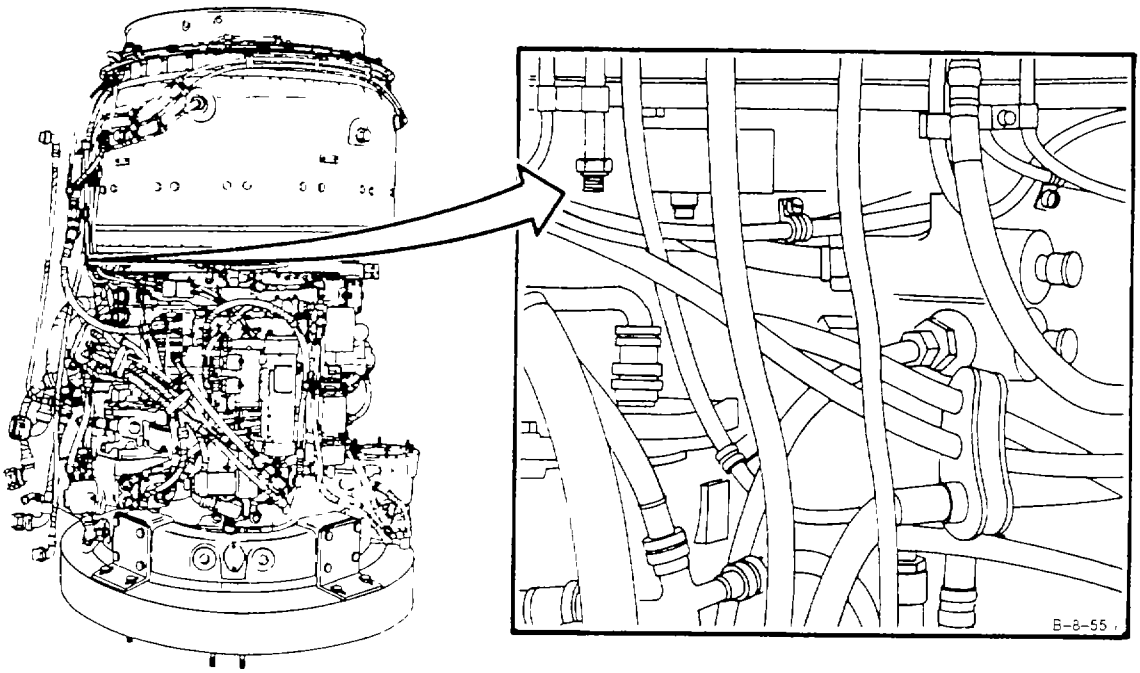
Powerplant Mechanic's Tool Kit, NSN 5180-00-323-4944

Technical Inspection Tool Kit, NSN 5180-00-323-5114

Personnel Required:

Aircraft Powerplant Repairer

Aircraft Powerplant Inspector



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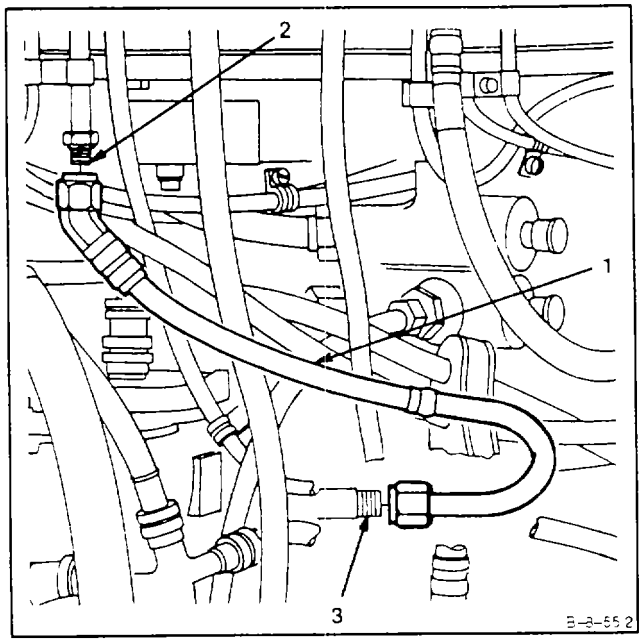
8-70 INSTALL TUBE ASSEMBLY (NO. 4 AND 5 BEARING SCAVENGE TUBE ASSEMBLY TO MAIN OIL PUMP FLANGE) (Continued) **8-70**

1. Install hose assembly (1) on tube assembly (2) and flange (3).

INSPECT

FOLLOW-ON MAINTENANCE:
None



END OF TASK

8-71 REMOVE TUBE ASSEMBLY (NO. 4 AND 5 BEARING SCAVENGE CONNECTOR TO TUBE ASSEMBLY) 8-71

INITIAL SETUP

Applicable Configurations:

All

Tools:

Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Container, 1 Quart
Open-End Wrench (T24)

Materials:

Wiping Rag (E64)

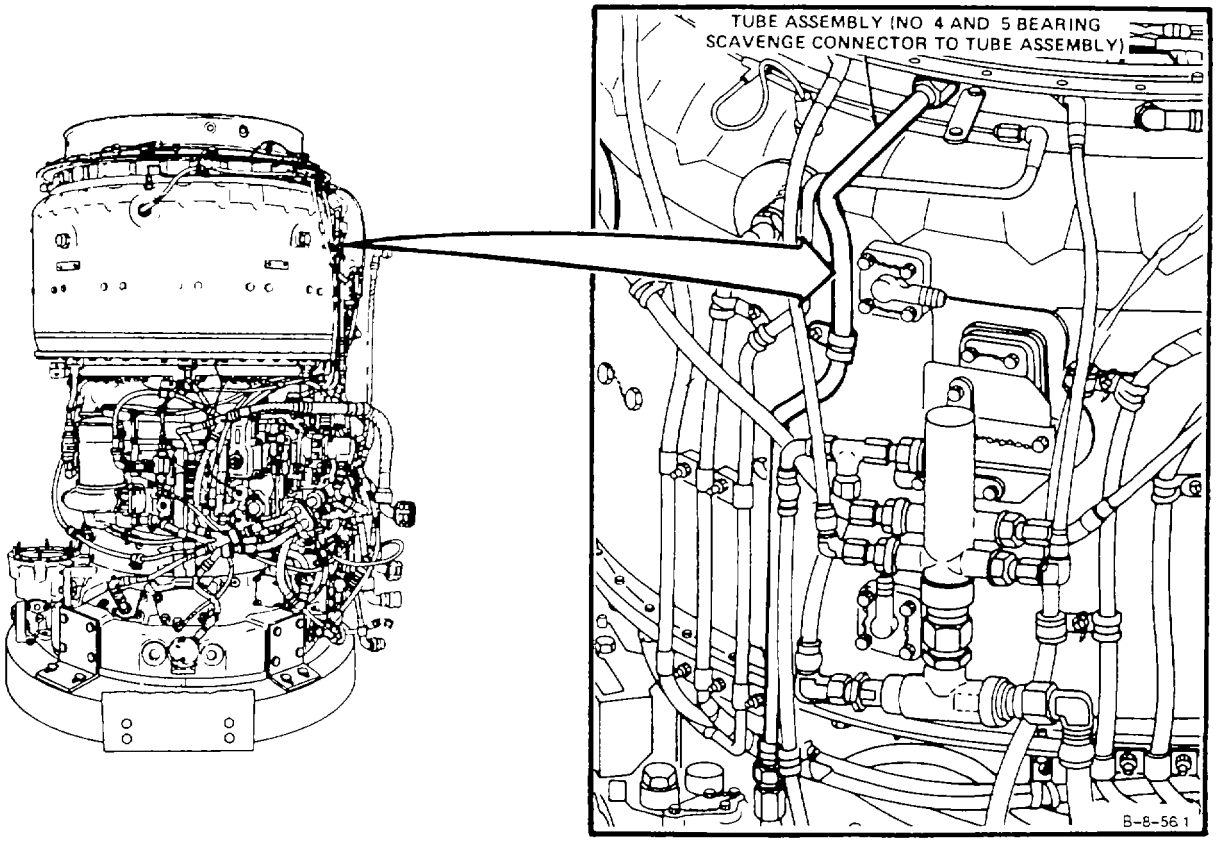
Personnel Required:

Aircraft Powerplant Repairer

General Safety Instructions:

WARNING

Prolonged contact with lubricating oil may irritate the skin. Use in ventilated areas and minimize breathing vapor, mist or fumes. Do not store near heat, sparks or flame. Avoid prolonged contact with skin. Wash contacted areas with soap and water. If irritation of skin results, get medical attention. In case of eye contact, flush with water and get medical attention. Do not take internally. If ingested, get medical attention. Do not induce vomiting



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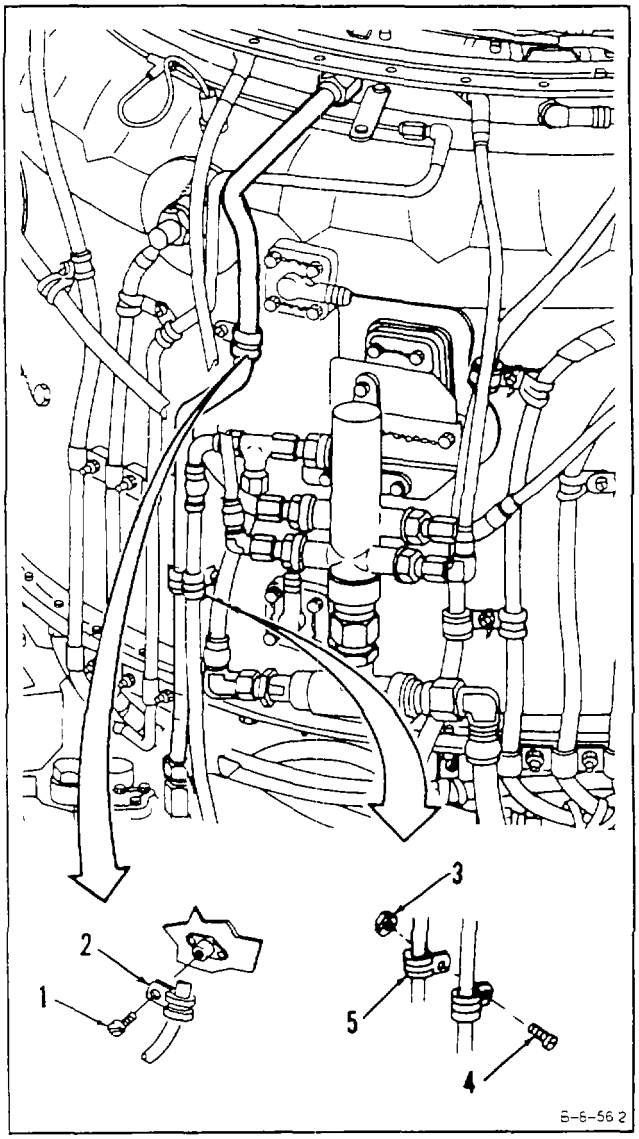
8-71 REMOVE TUBE ASSEMBLY (NO. 4 AND 5 BEARING SCAVENGE CONNECTOR TO TUBE ASSEMBLY) (Continued) **8-71**

1. **Remove** lockwire, screw (1), and **clamp (2).**

2. **Remove** nut (3), screw (4), and **clamp (5).**



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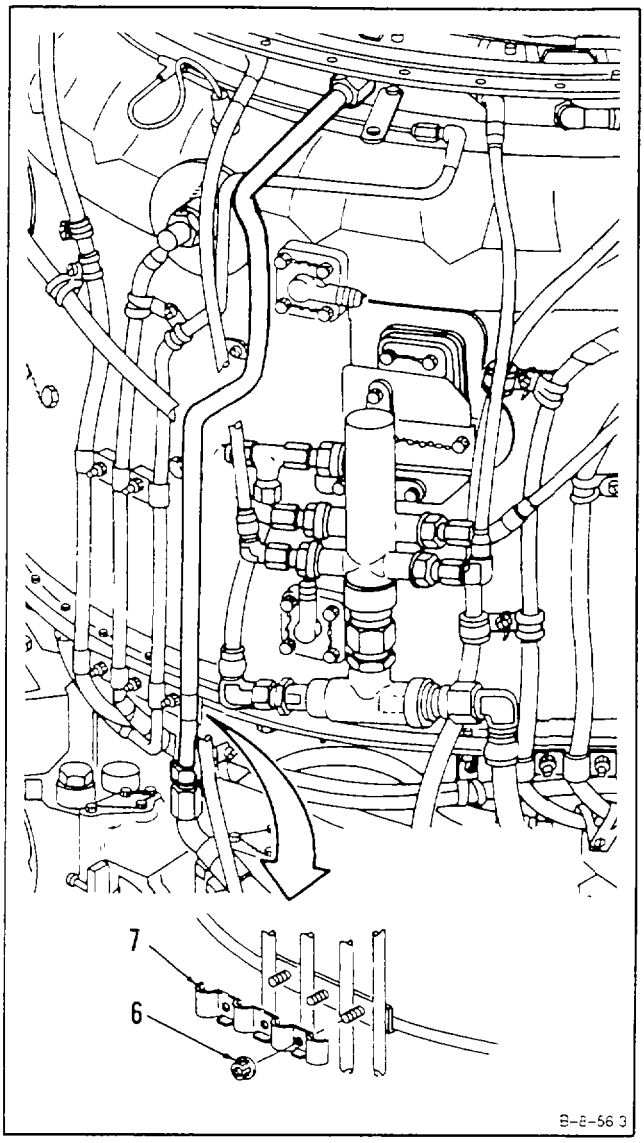
8-71 REMOVE TUBE ASSEMBLY (NO. 4 AND 5 BEARING SCAVENGE CONNECTOR TO TUBE ASSEMBLY) (Continued) **8-71**

3. Remove three nuts (6) and strap (7).



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8-71 REMOVE TUBE ASSEMBLY (NO. 4 AND 5 BEARING SCAVENGE CONNECTOR TO TUBE ASSEMBLY) (Continued) **8-71**

CAUTION

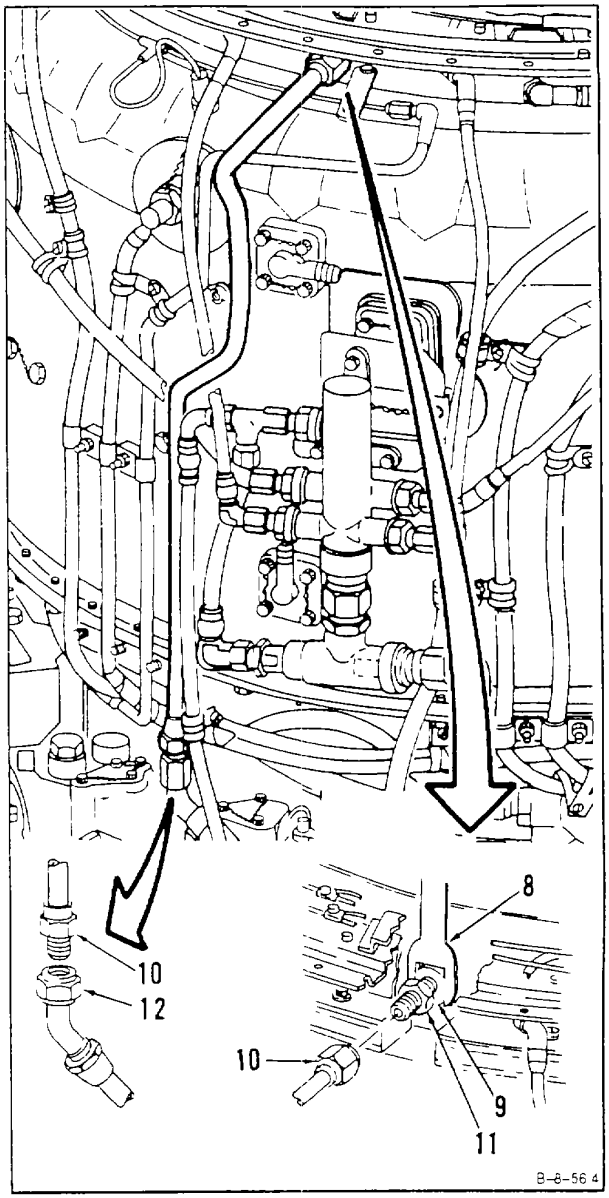
In following step, hold No. 4 and 5 bearing scavenge adapter using open-end wrench (T24). Failure to use wrench may result in damage and mislocation of oil transfer tube resulting in oil leaks.

4. Place open-end wrench (T24) (8) on No. 4 and 5 bearing scavenge adapter (9).

5. Disconnect tube assembly (10) from reducer (11).

6. Disconnect tube assembly (10) from tube assembly (12) and remove tube assembly (10).

FOLLOW-ON MAINTENANCE:
None



END OF TASK

8-72 INSTALL TUBE ASSEMBLY (NO. 4 AND 5 BEARING SCAVENGE CONNECTOR TO TUBE ASSEMBLY) 8-72

INITIAL SETUP

Applicable Configurations:

All

Tools:

Powerplant Mechanic's Tool Kit, NSN 5180-00-323-4944

Technical Inspection Tool Kit, NSN 5180-00-323-5114

Open-End Wrench (T24)

Torque Wrench

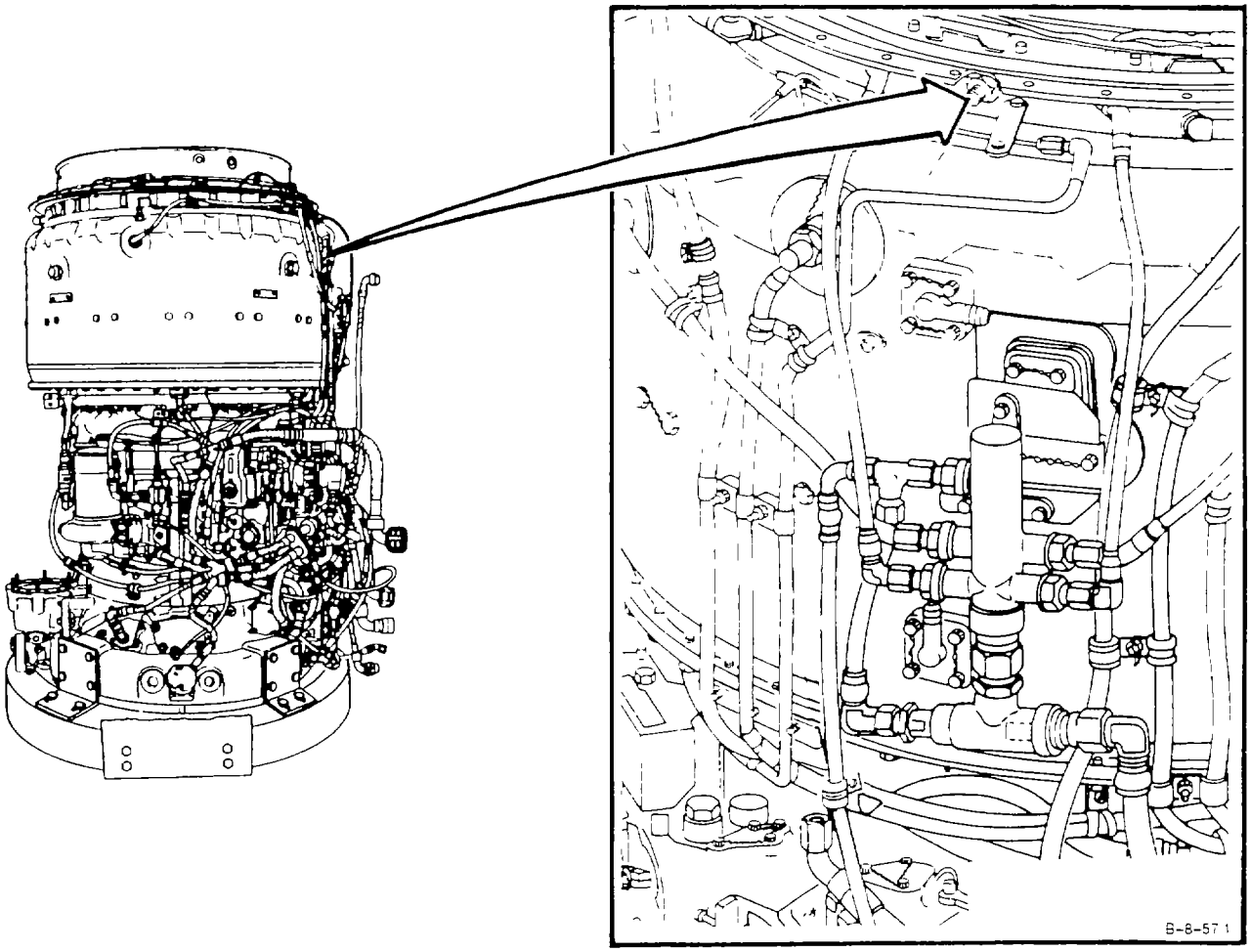
Materials:

Lockwire (E33)

Personnel Required:

Aircraft Powerplant Repairer

Aircraft Powerplant Inspector



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8-72 INSTALL TUBE ASSEMBLY (NO. 4 AND 5 BEARING SCAVENGE CONNECTOR TO TUBE ASSEMBLY) 8-72

CAUTION

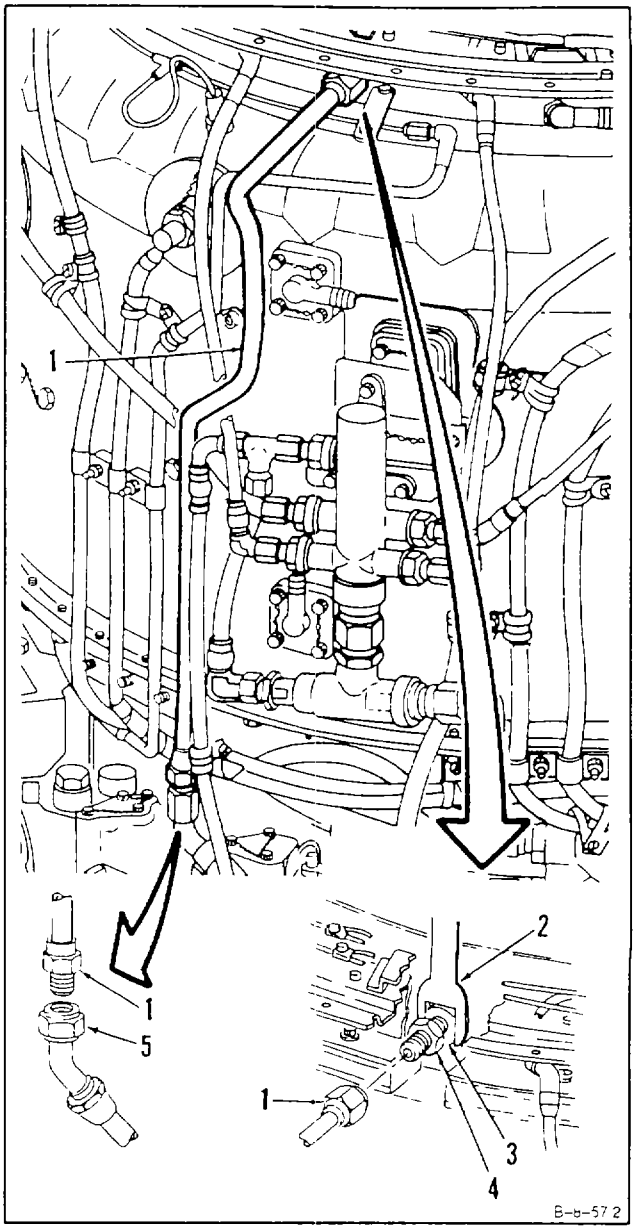
In following step, hold No. 4 and 5 bearing and scavenge adapter using open-end wrench (T24). Failure to use wrench may result in damage and mislocation of oil transfer tube resulting in oil leaks.

1. **Install tube assembly (1)** as follows:

   a. Place open-end wrench (T24) (2) on No. 4 and 5 bearing scavenge adapter (3).

   b. Connect tube assembly (1) to reducer (4).

   c. Connect tube assembly (1) to tube assembly (5).



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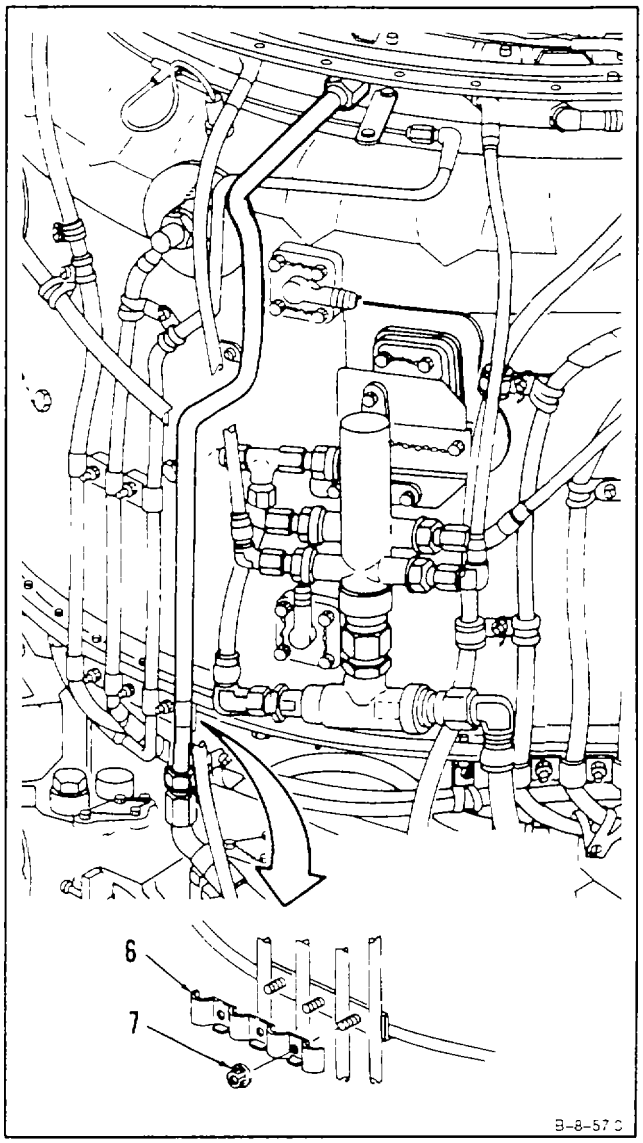
2. Install strap (6) and three nuts (7).



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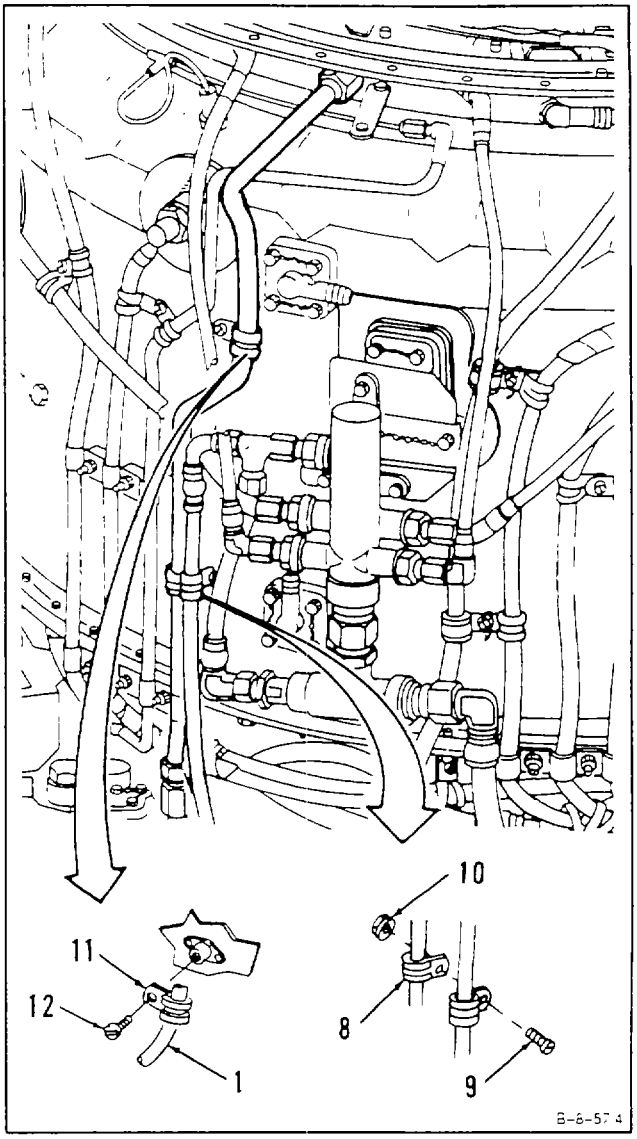
8-72 INSTALL TUBE ASSEMBLY (NO. 4 AND 5 BEARING SCAVENGE CONNECTOR TO TUBE ASSEMBLY) (Continued) **8-72**

3. Install clamp (8), screw (9), and nut (10).
4. Install clamp (11) on tube assembly (1) and install screw (12). Lockwire screw. Use lockwire (E33).



INSPECT

FOLLOW-ON MAINTENANCE:
None

END OF TASK

8-73 REMOVE TUBE ASSEMBLY (NO. 2 BEARING PRESSURE CONNECTOR TO TEE AND SNUBBER) 8-73

INITIAL SETUP

Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool kit,
NSN 5180-00-323-4944

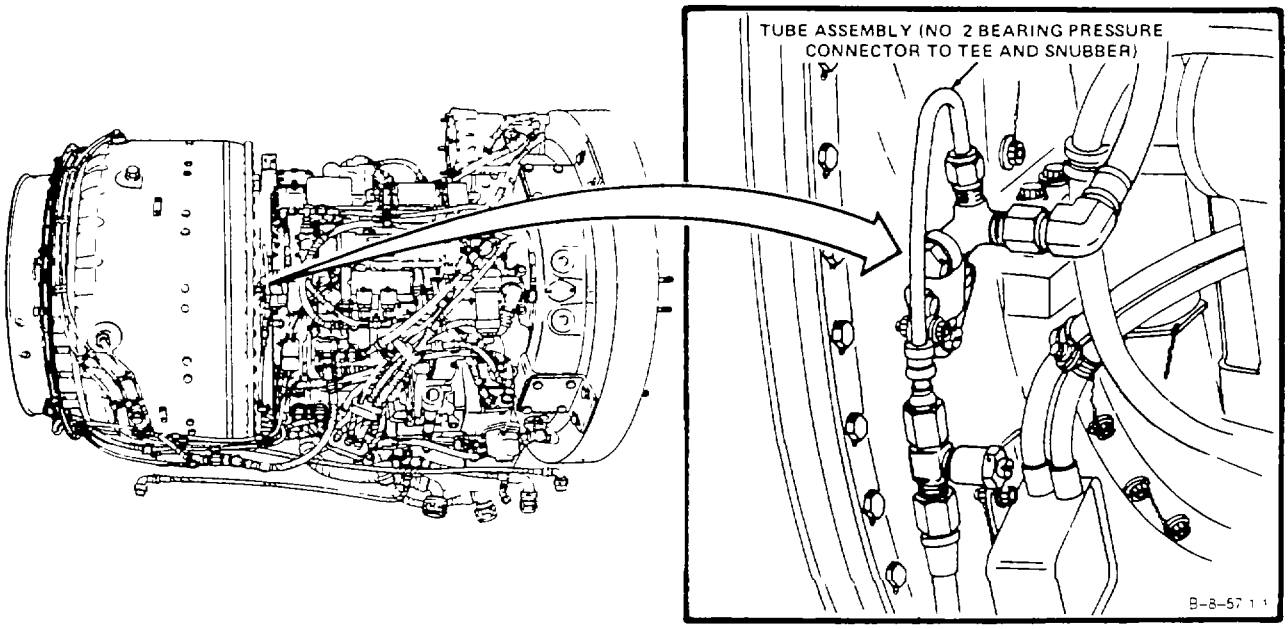
Materials:
Wiping Rag (E64)

Personnel Required:
Aircraft Powerplant Repairer

General Safety Instructions:

WARNING

Lubricating oils cause paralysis if swallowed. Prolonged contact with them may irritate the skin. Handle only in well-ventilated areas away from heat and flame. Drain and store in approved metal safety containers. Avoid prolonged or repeated contact with skin and do not take internally. Wash contacted areas of skin thoroughly after handling. If irritation of skin results, get medical attention. Get medical attention for eyes.



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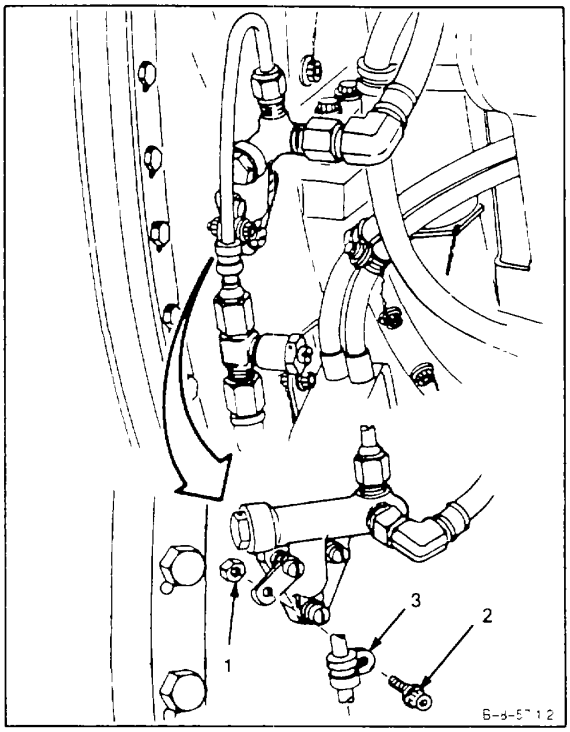
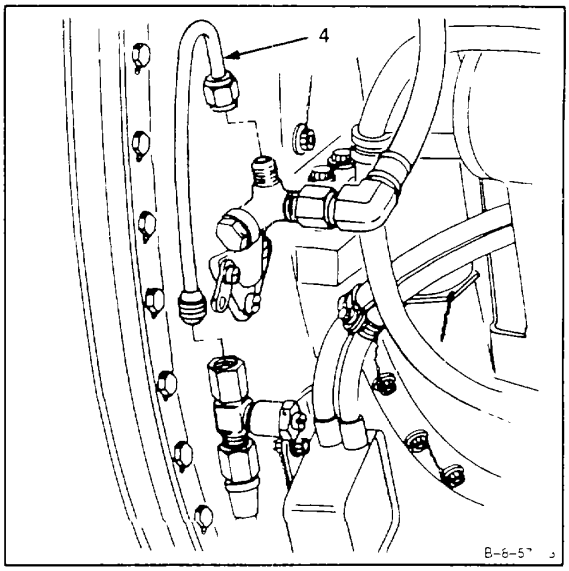
8-73 REMOVE TUBE ASSEMBLY (NO. 2 BEARING PRESSURE CONNECTOR TO TEE AND SNUBBER) (Continued) **8-73**

1. Remove nut (1), bolt (2), and clamp (3).



2. Disconnect and remove tube assembly (4).



FOLLOW-ON MAINTENANCE:
None

END OF TASK

8-74 INSTALL TUBE ASSEMBLY (NO. 2 BEARING PRESSURE CONNECTOR TO TEE AND SNUBBER) 8-74

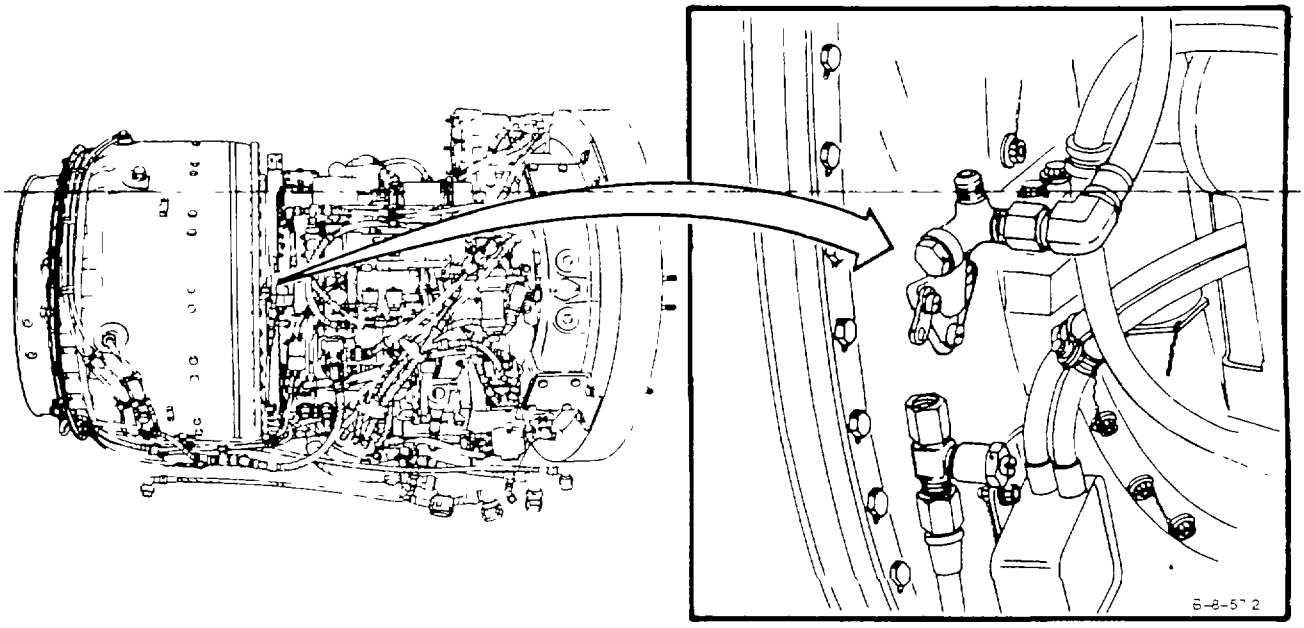
INITIAL SETUP

Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Technical Inspection Tool Kit,
NSN 5180-00-323-5114

Materials:
None

Personnel Required:
Aircraft Powerplant Repairer
Aircraft Powerplant Inspector



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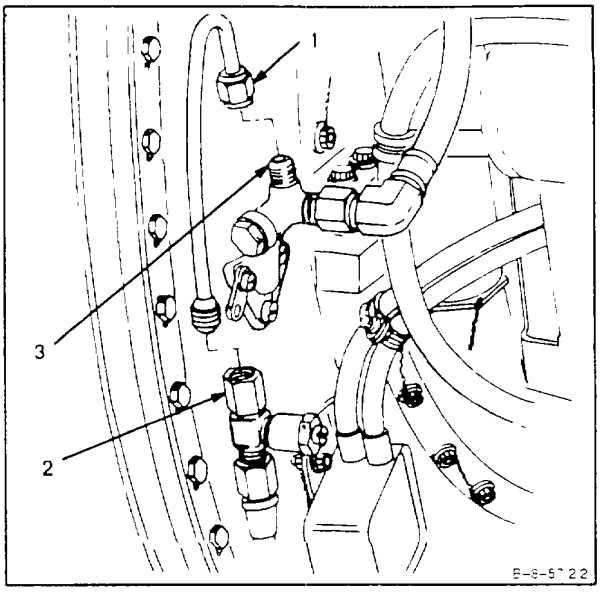
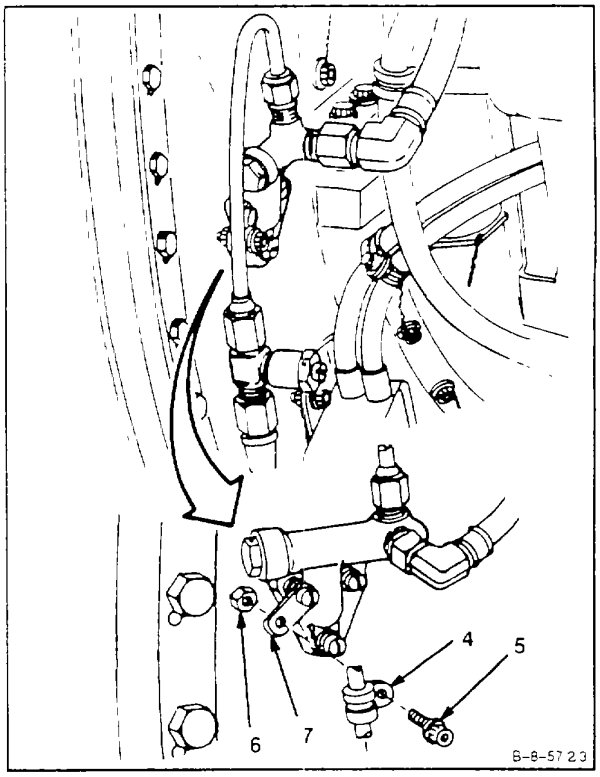
1. Install tube assembly (1) on tee and snubber (2) and No. 2 bearing pressure oil connector (3).



2. Install clamp (4), bolt (5), and nut (6), onto bracket (7).



INSPECT

FOLLOW-ON MAINTENANCE:
None

END OF TASK

8-75 REMOVE HOSE ASSEMBLY (PRESSURE CONNECTOR TO NO. 4 AND 5 BEARING FILTER) 8-75

INITIAL SETUP

Applicable Configurations:
All

Tools:

Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Container, 1 Quart
Open-End Wrench (T24)

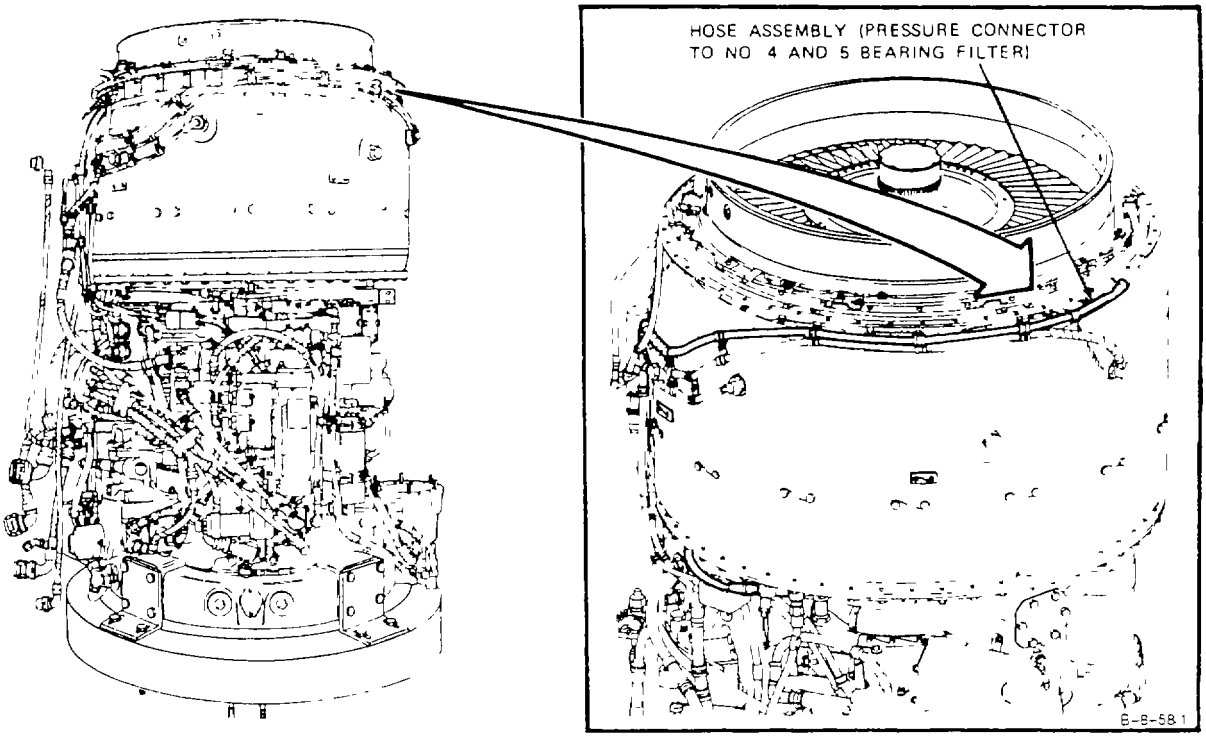
Materials:
Wiping Rag (E64)

Personnel Required:
Aircraft Powerplant Repairer

General Safety Instructions:

WARNING

Lubricating oils cause paralysis if swallowed. Prolonged contact with them may irritate the skin. Handle only in well-ventilated areas away from heat and flame. Drain and store in approved metal safety containers. Avoid prolonged or repeated contact with skin and do not take internally. Wash contacted area of skin thoroughly after handling. If irritation of skin results, get medical attention. Get medical attention for eyes.



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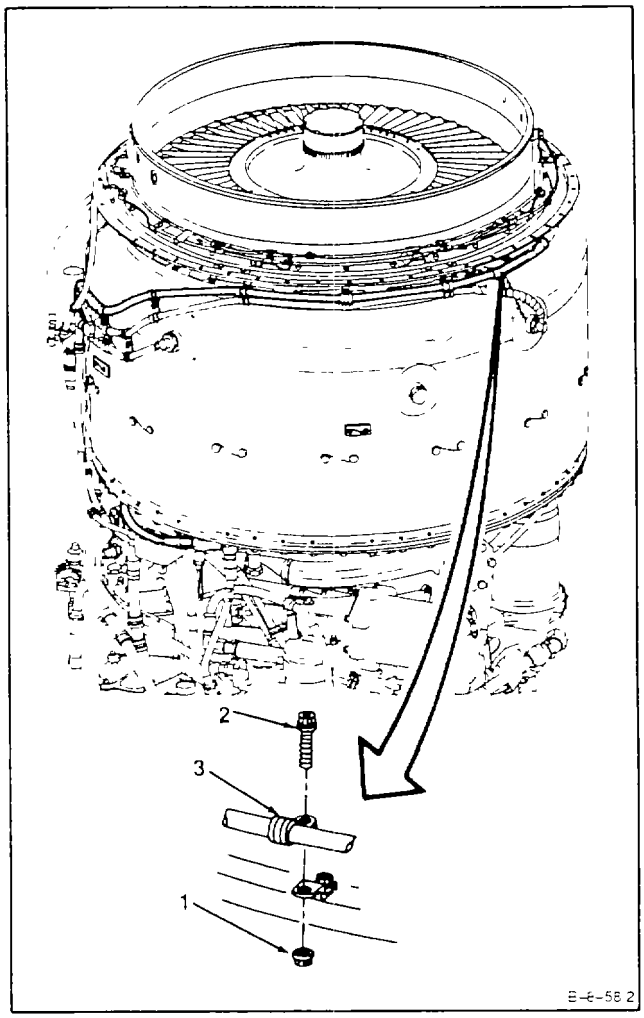
8-75 REMOVE HOSE ASSEMBLY (PRESSURE CONNECTOR TO NO. 4 AND 5 BEARING FILTER) (Continued) 8-75

1. Remove nut (1), bolt (2), and clamp (3).



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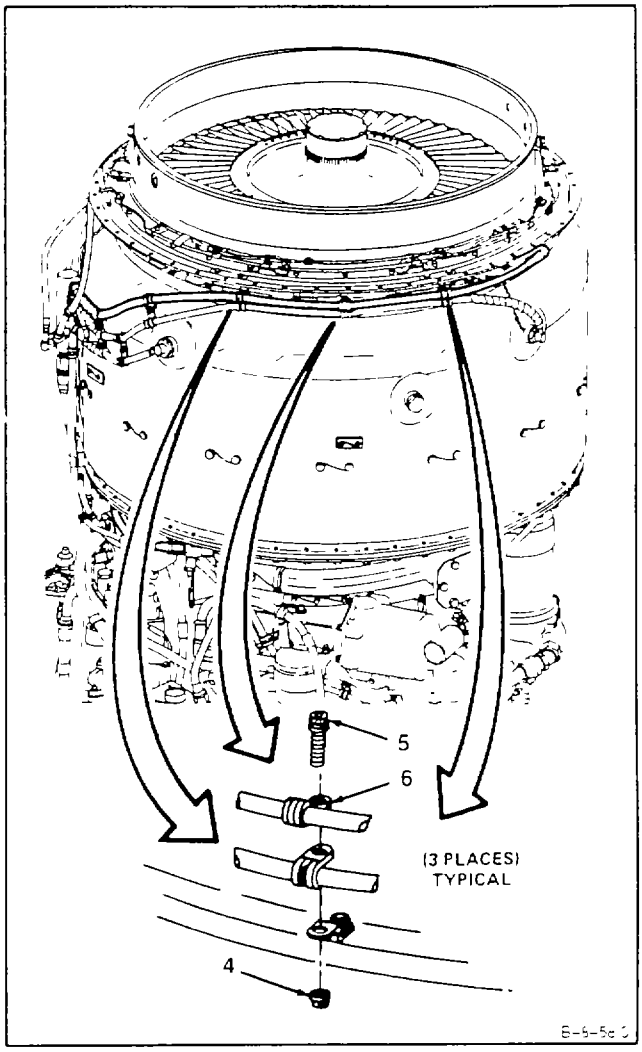
8-75 REMOVE HOSE ASSEMBLY (PRESSURE CONNECTOR TO NO. 4 AND 5 BEARING FILTER) (Continued) **8-75**

2. Remove three nuts (4), bolts (5), and clamps (6).



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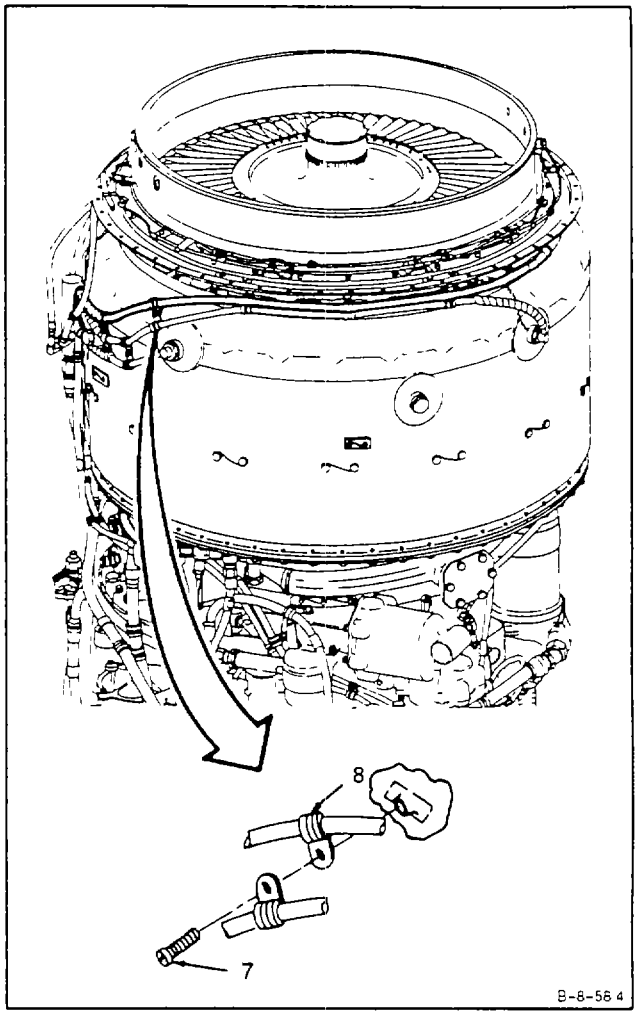
3. Remove lockwire, screw (7), and clamp (8).



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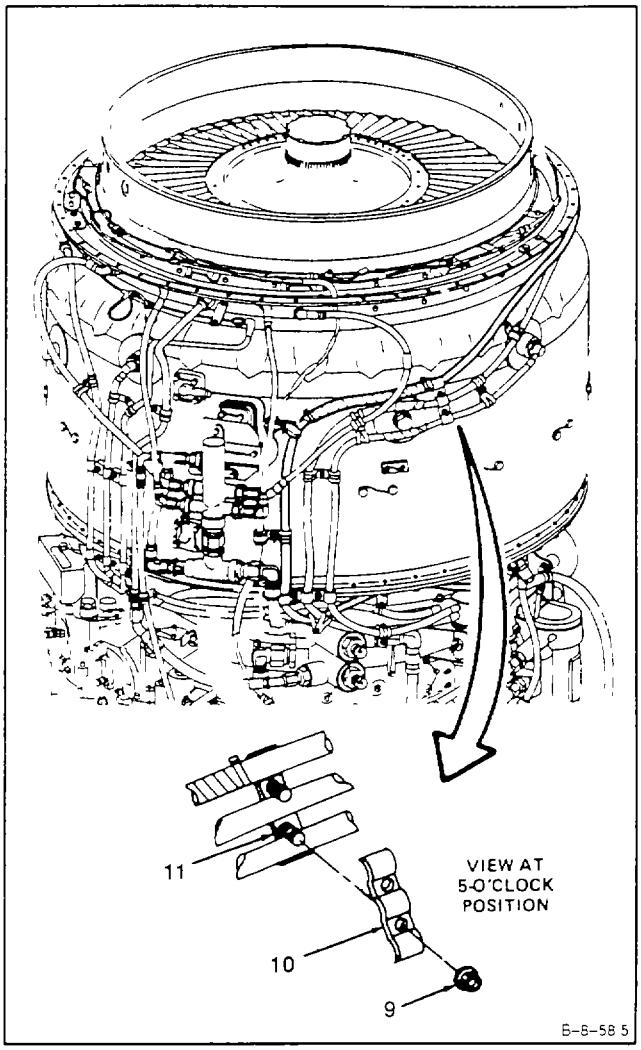
4. Remove two nuts (9) and clamps (10 and 11).



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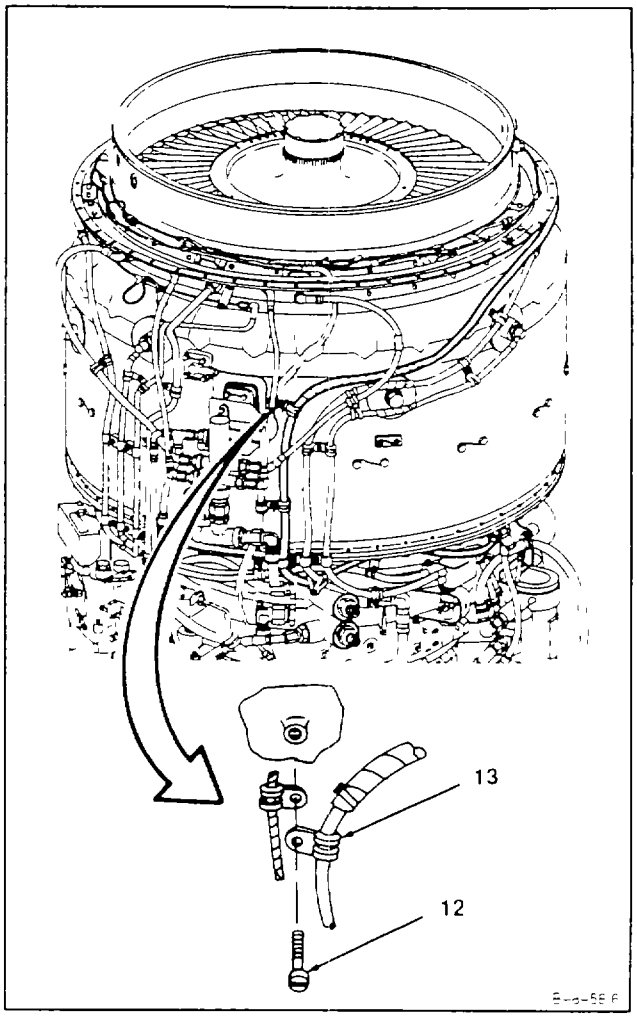
5. Remove lockwire, screw (12), and clamp (13).



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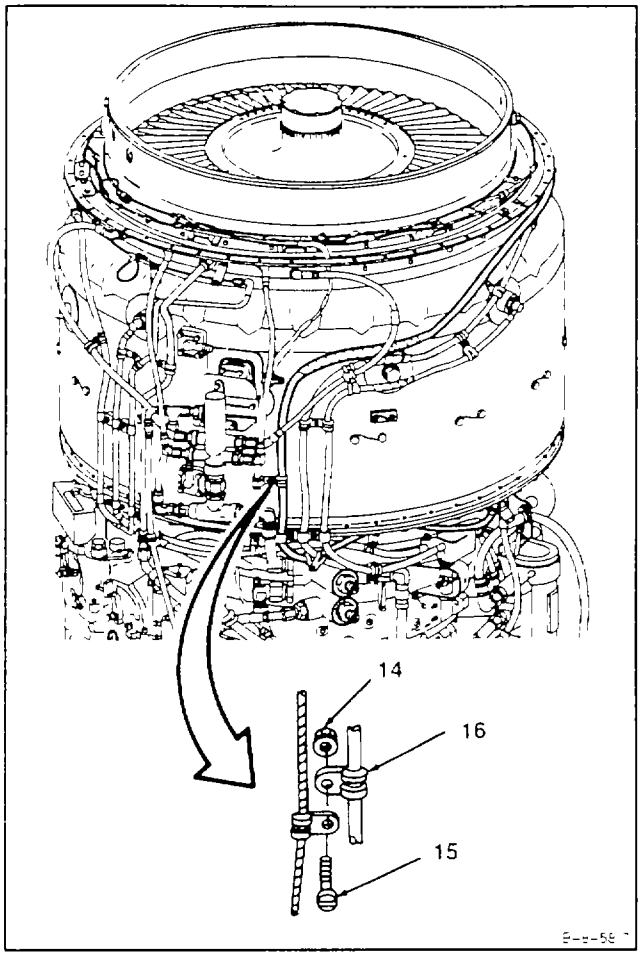
6. Remove nut (14), screw (15), and clamp (16).



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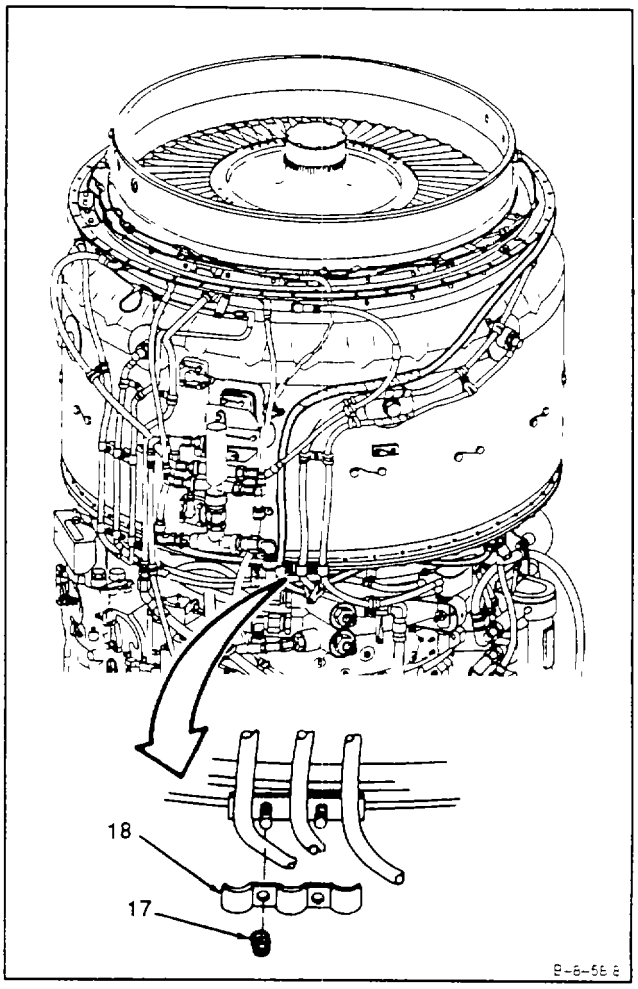
7. Remove two nuts (17) and clamp (18).



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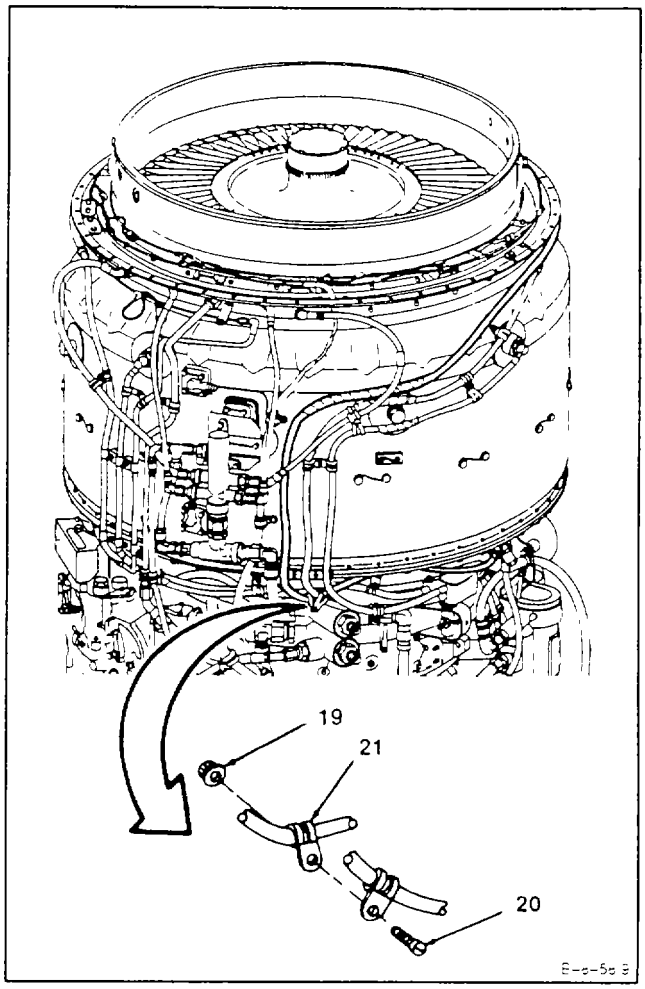
8. Remove nut (19), screw (20), and clamp (21).



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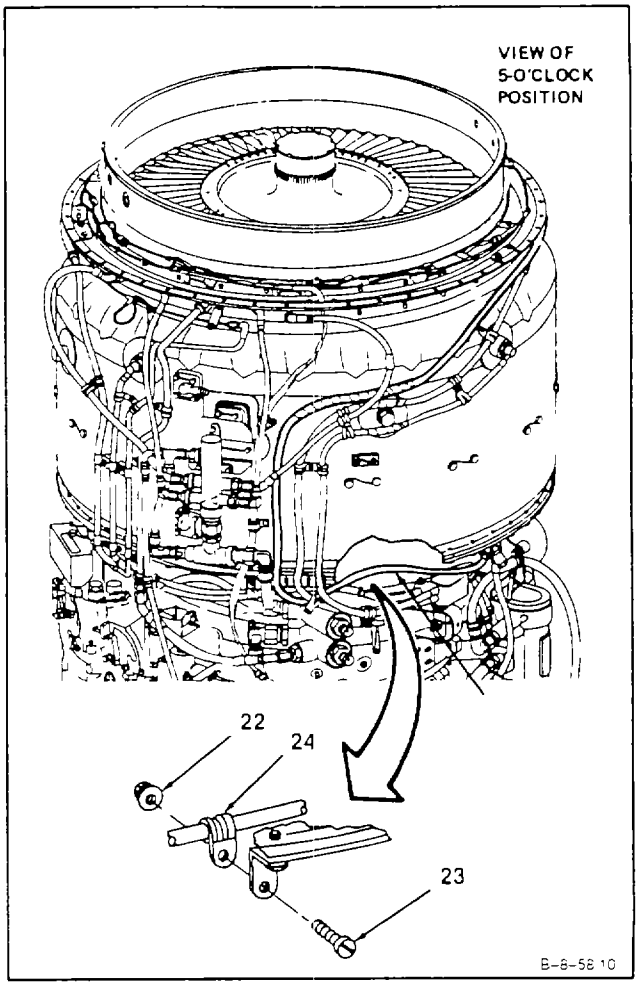
9. Remove nut (22). screw (23), and clamp (24).



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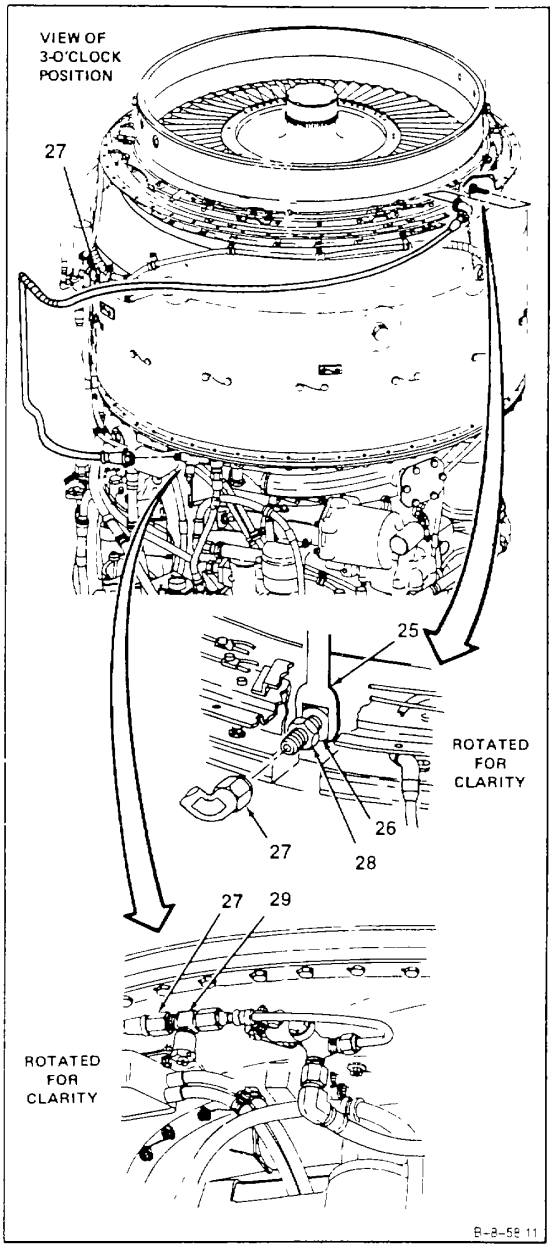
CAUTION

In following step, hold No. 4 and 5 bearing lube adapter using open-end wrench (T24). Failure to use wrench may result in damage and mislocation of oil transfer tube resulting in oil leaks.

10. Place open-end wrench (T24) (25) on No. 4 and 5 bearing lube adapter (26).

11. Disconnect hose assembly (27) from reducer (28).

12. Disconnect hose assembly (27) from oil tee and snubber (29) and remove hose assembly (27).



FOLLOW-ON MAINTENANCE:
None

END OF TASK

8-76 INSTALL HOSE ASSEMBLY (PRESSURE CONNECTOR TO NO. 4 AND 5 BEARING FILTER) 8-76

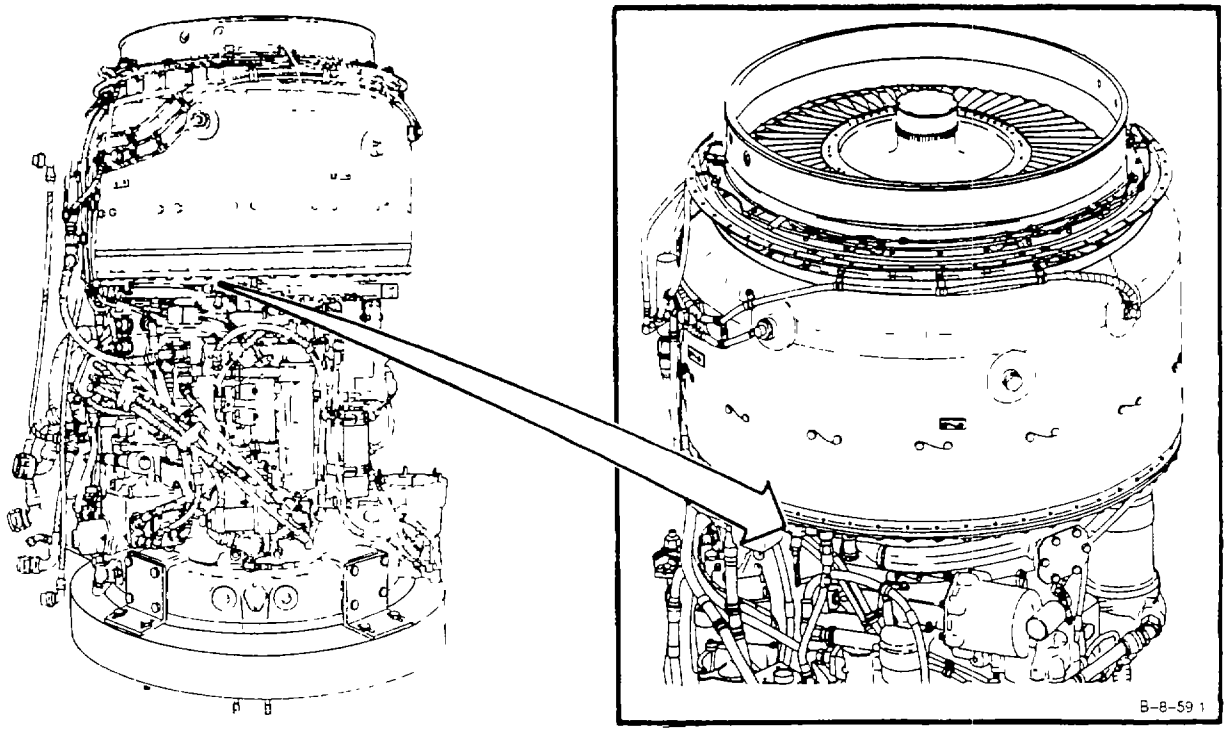
INITIAL SETUP

Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Technical Inspection Tool Kit,
NSN 5180-00-323-5114
Open-End Wrench (T24)

Materials:
Lockwire (E33)

Personnel Required:
Aircraft Powerplant Repairer
Aircraft Powerplant Inspector



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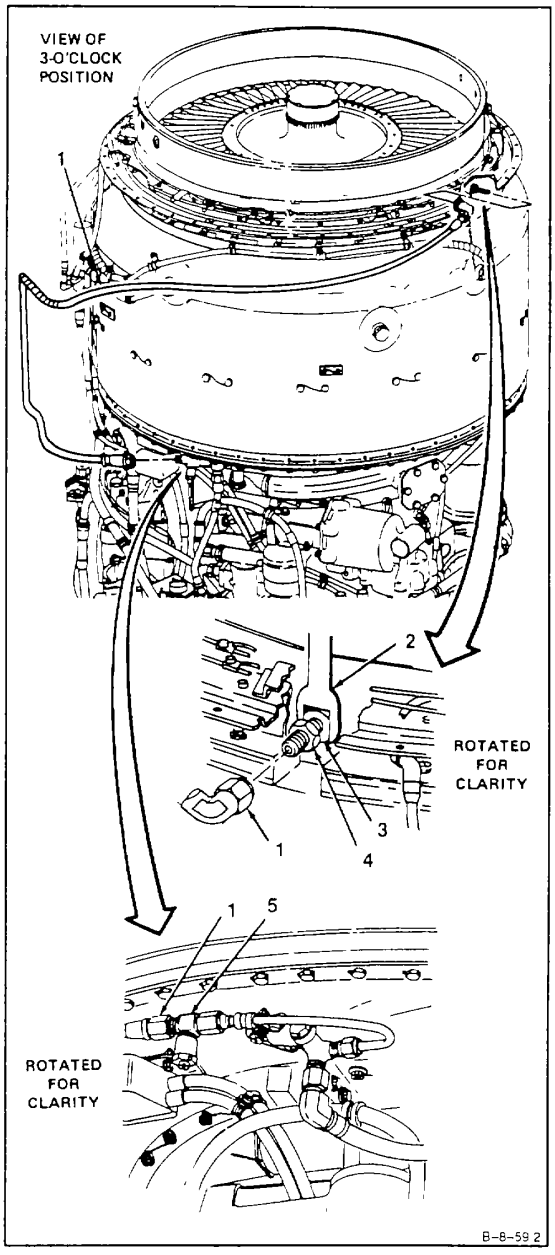
8-76 INSTALL HOSE ASSEMBLY (PRESSURE CONNECTOR TO NO. 4 AND 5 BEARING FILTER) 8-76

CAUTION

In following step, hold No. 4 and 5 bearing lube adapter, using open-end wrench (T24). Failure to use wrench may result in damage and mislocation of oil transfer tube resulting in oil leaks.

1. Install hose assembly (1) as follows:

   a. Place open-end wrench (T24) (2) on No. 4 and 5 bearing lube adapter (3).
   b. Connect hose assembly (1) to reducer (4).
   c. Connect hose assembly (1) to tee and snubber (5).



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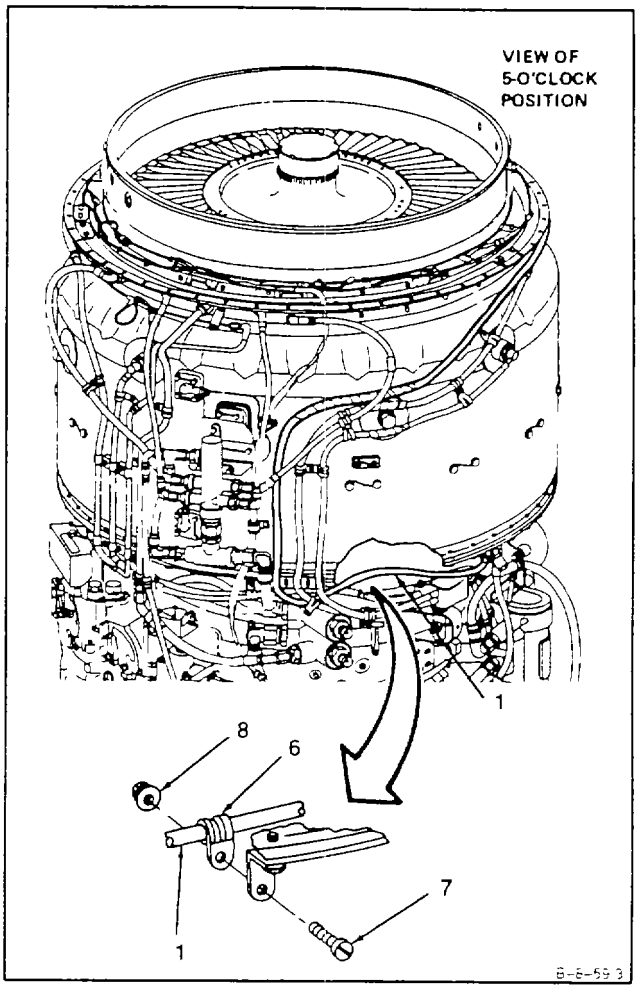
2. Install clamp (6) on hose assembly (1), and install screw (7) and nut (8).



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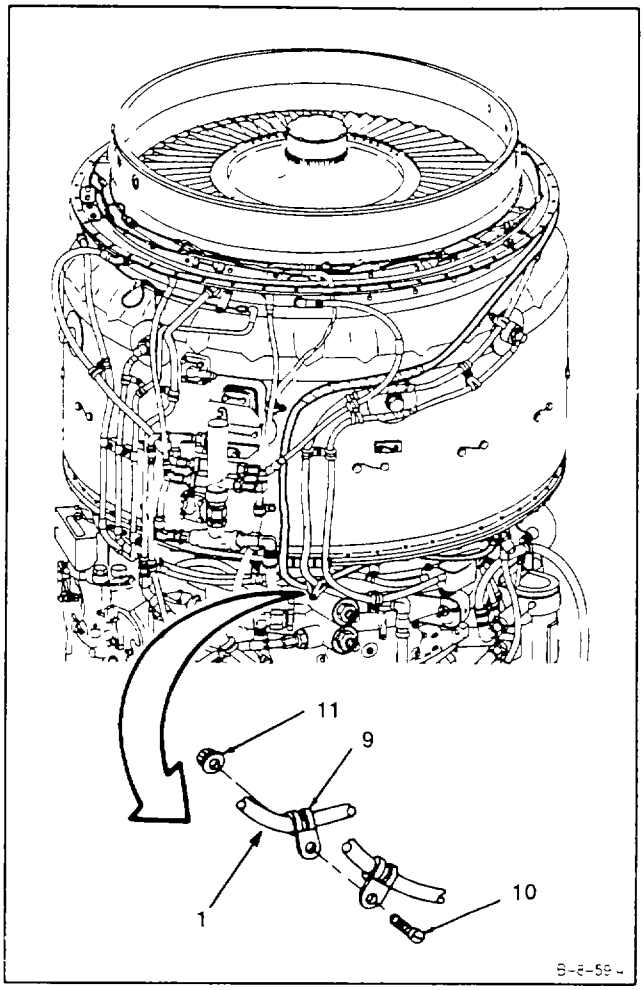
3. Install clamp (9) on hose assembly (1), and install screw (10) and nut (11).



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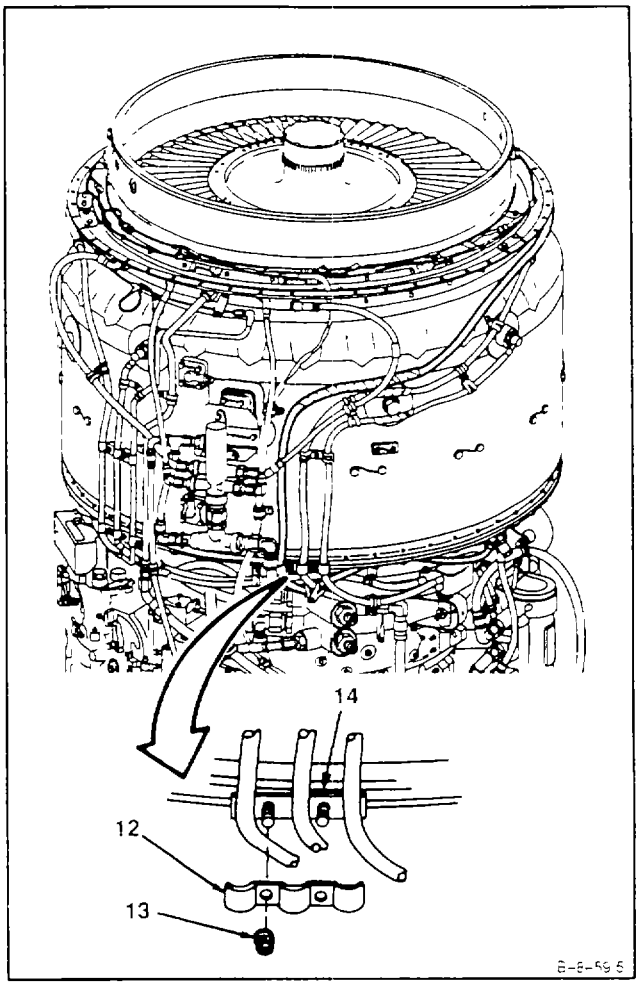
4. Install clamp (12) and two nuts (13) on bracket (14).



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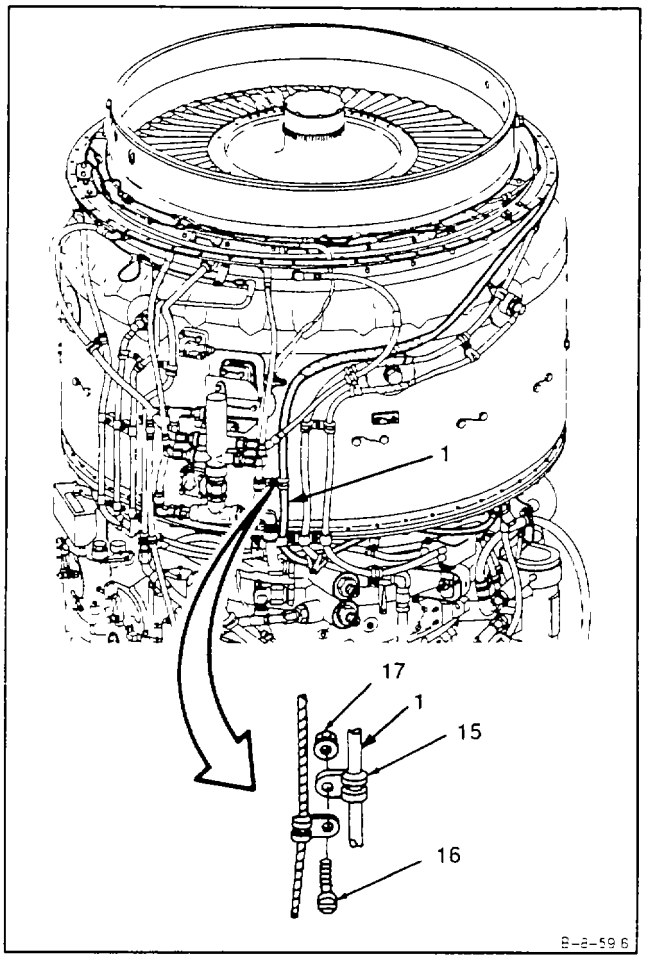
8-76 INSTALL HOSE ASSEMBLY (PRESSURE CONNECTOR TO NO. 4. AND 5 BEARING FILTER) (Continued) **8-76**

5. Install clamp (15) on hose assembly (1), and install screw (16) and nut (17).



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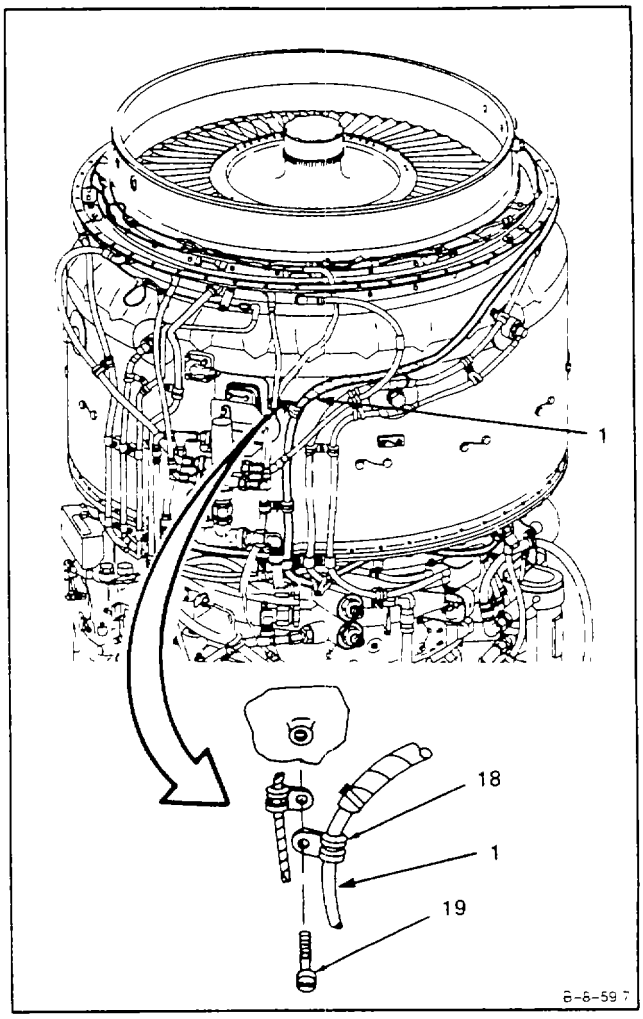
8-76 INSTALL HOSE ASSEMBLY (PRESSURE CONNECTOR TO NO. 4. AND 5 BEARING FILTER) (Continued) **8-76**

6. Install clamp (18) on hose assembly (1), and install screw (19). Lockwire screw. Use lockwire (E33).



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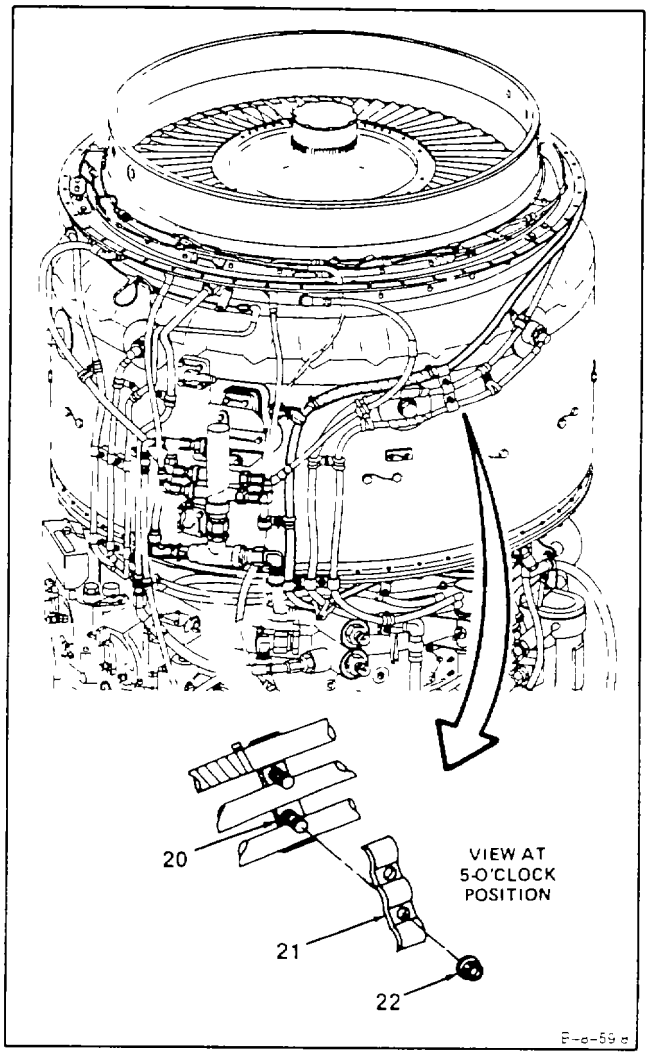
8-76 INSTALL HOSE ASSEMBLY (PRESSURE CONNECTOR TO NO. 4. AND 5 BEARING FILTER) (Continued) **8-76**

7. Install clamps (20 and 21) and two nuts (22).



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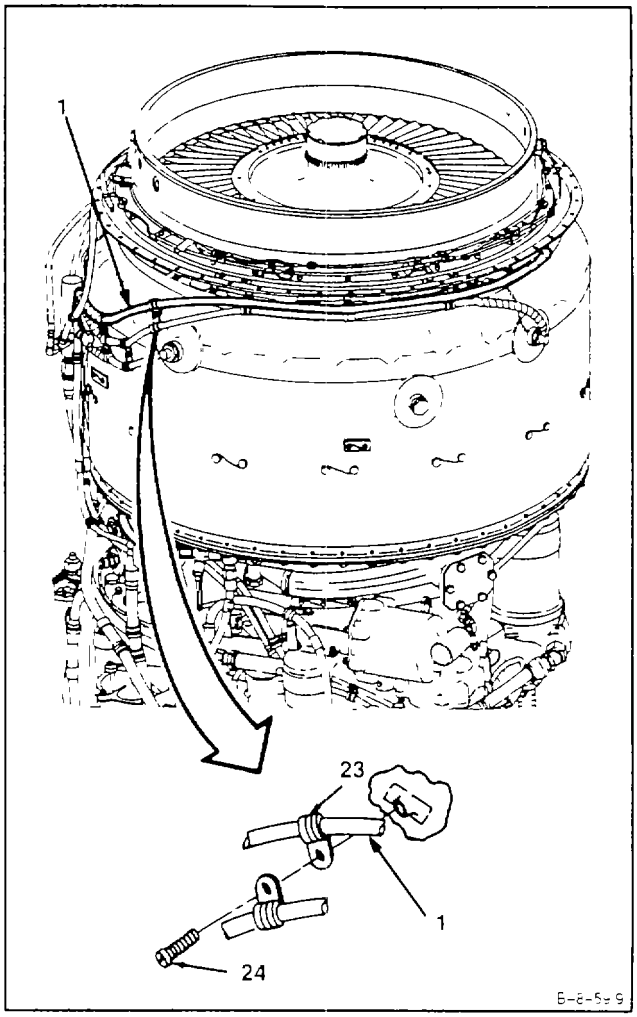
8-76 INSTALL HOSE ASSEMBLY (PRESSURE CONNECTOR TO NO. 4. AND 5 BEARING FILTER) (Continued) **8-76**

8. Install clamp (23) on hose assembly (1) and install screw (24). Lockwire screw. Use lockwire (E33).



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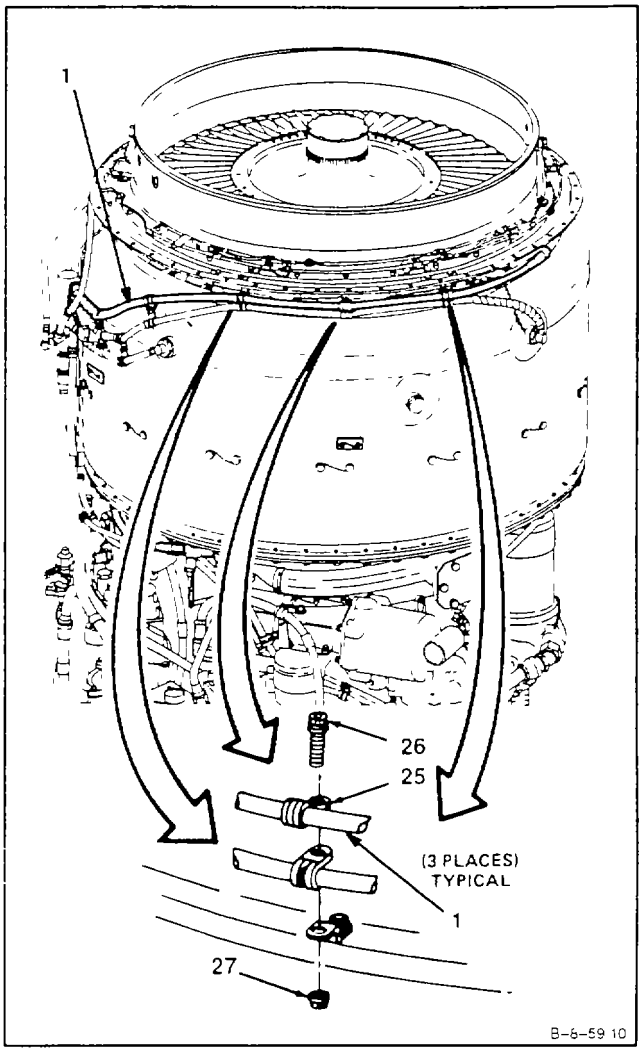
8-76 INSTALL HOSE ASSEMBLY (PRESSURE CONNECTOR TO NO. 4. AND 5 BEARING FILTER) (Continued) **8-76**

9. Install three clamps (25) on hose assembly (1), and install three bolts (26) and nuts (27).



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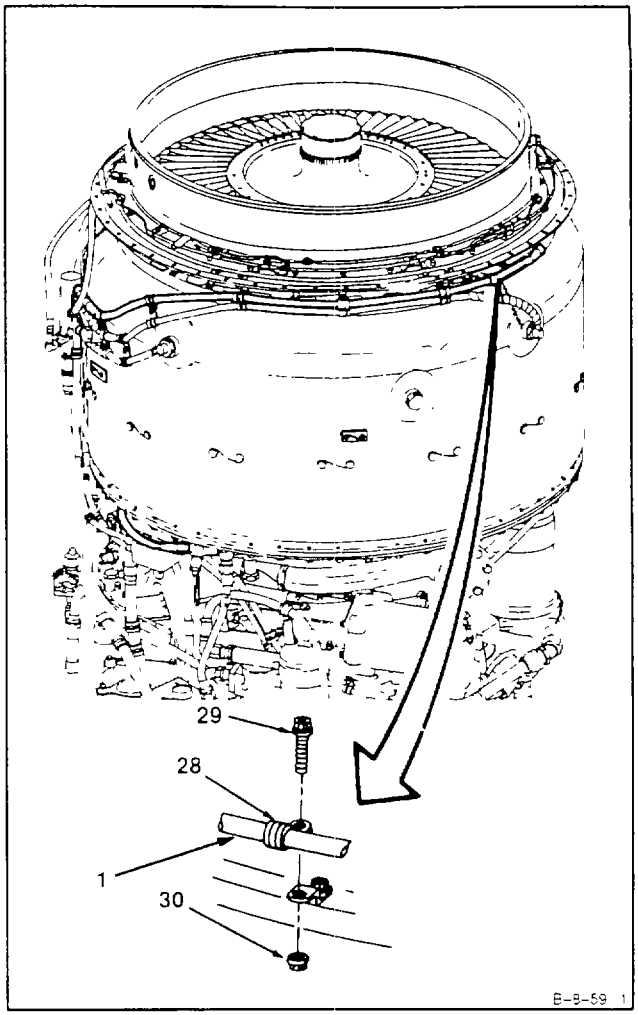
8-76 INSTALL HOSE ASSEMBLY (PRESSURE CONNECTOR TO NO. 4. AND 5 BEARING FILTER) (Continued) **8-76**

10. Install clamp (28) on hose assembly (1), and install bolt (29) and nut (30).



INSPECT

FOLLOW-ON MAINTENANCE:
None

END OF TASK

8-77 REMOVE HOSE ASSEMBLY (INLET HOUSING TO OIL SCAVENGE TEE) 8-77

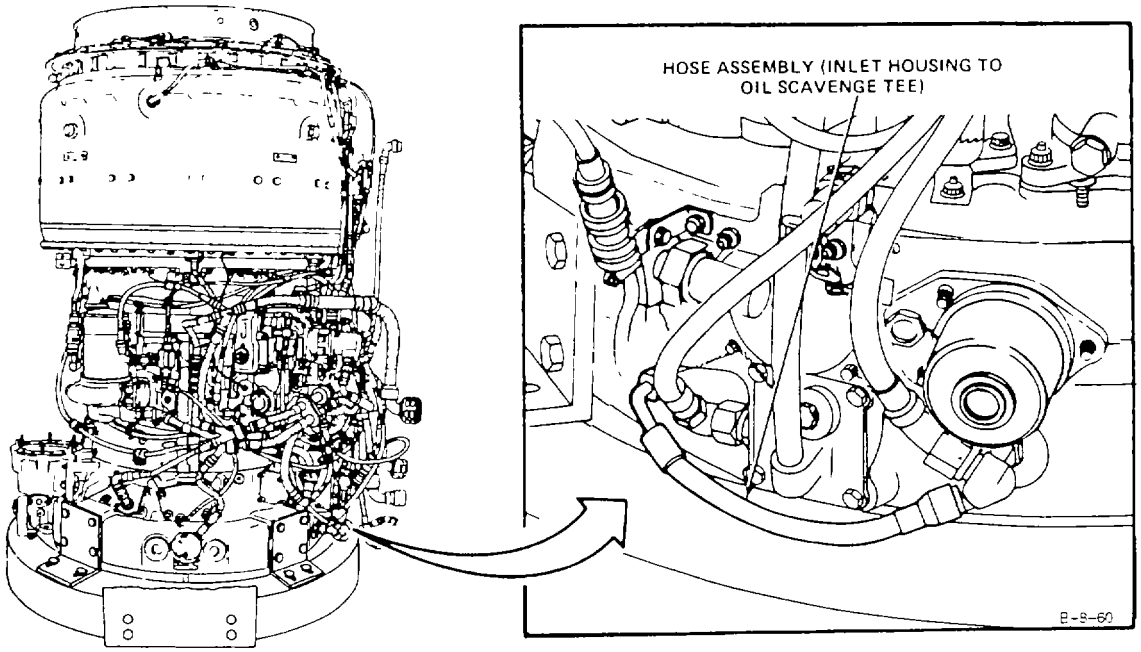
INITIAL SETUP

Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit,
NSN
5180-00-323-4944
Container, 1 Quart

Materials:
Wiping Rag (E64)

Personnel Required:
Aircraft Powerplant Repairer



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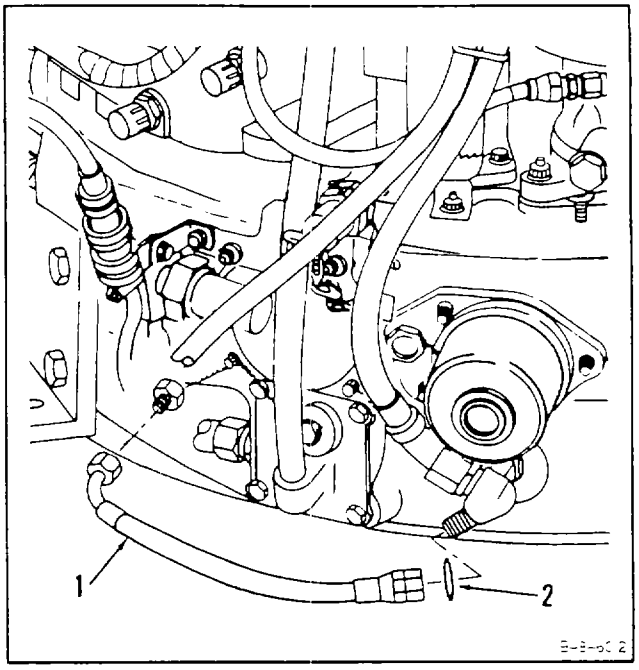
8-77 REMOVE HOSE ASSEMBLY (INLET HOUSING TO OIL SCAVENGE TEE)(Continued) 8-77

WARNING

Lubricating oils cause paralysis if swallowed. Prolonged contact with them may irritate the skin. Handle only in well-ventilated areas away from heat and flame. Drain and store in approved metal safety containers. Avoid prolonged or repeated contact with skin and do not take internally. Wash contacted area of skin thoroughly after handling. If irritation of skin results, get medical attention. Get medical attention for eyes.

1. Disconnect and remove hose assembly (1) and gasket (2).



FOLLOW-ON MAINTENANCE:
None

END OF TASK

8-78 INSTALL HOSE ASSEMBLY (INLET HOUSING TO OIL SCAVENGE TEE) 8-78

INITIAL SETUP

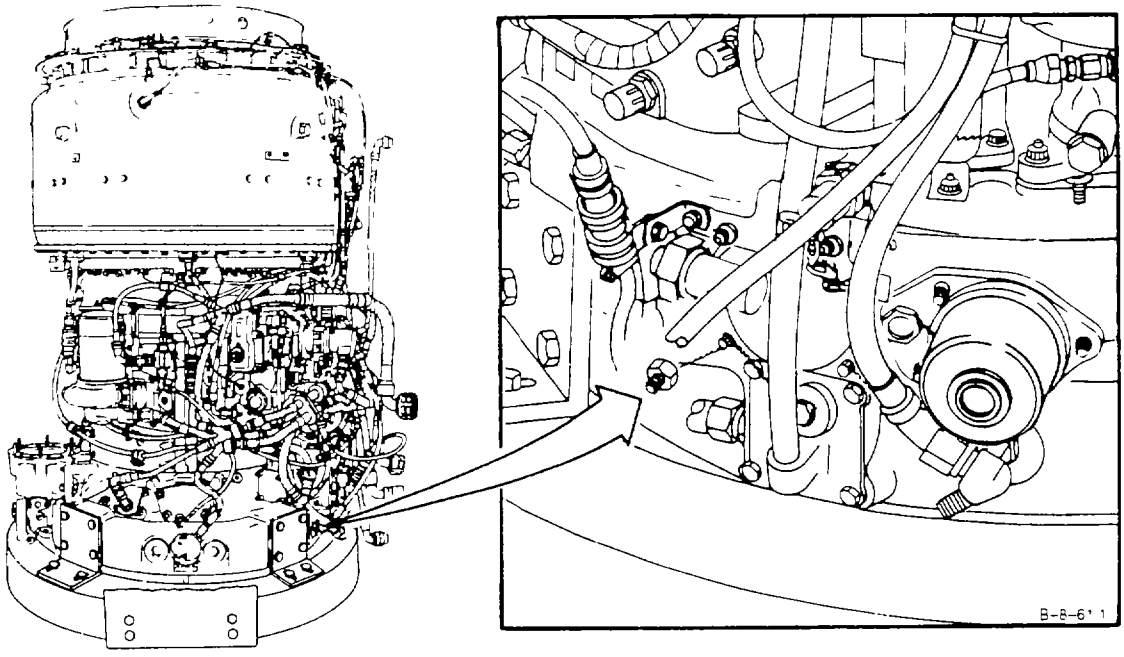
Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Technical Inspection Tool Kit,
NSN 5180-00-323-5114

Materials:
None

Parts:
Gasket

Personnel Required:
Aircraft Powerplant Repairer
Aircraft Powerplant Inspector



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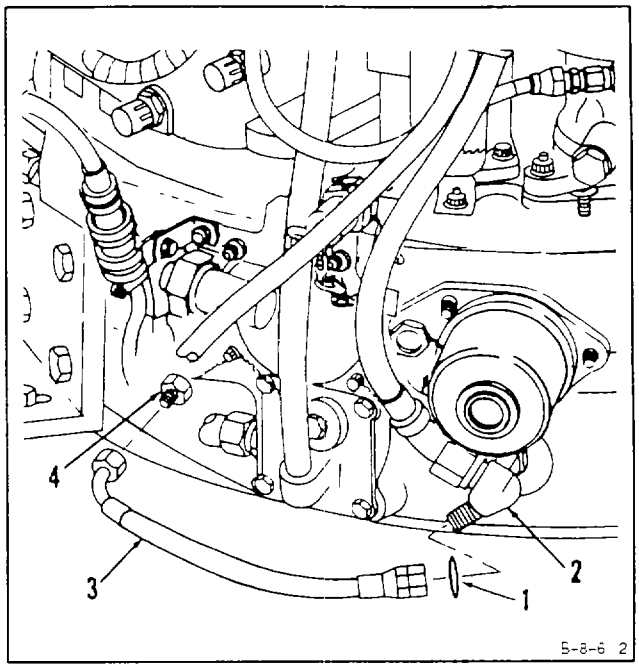
1. Install washer (1) on oil scavenge tee (2) and install hose assembly (3) on oil scavenge tee (2) and fluid passage bolt (4).



INSPECT

FOLLOW-ON MAINTENANCE:
None

END OF TASK

8-79 REMOVE HOSE ASSEMBLY (INLET HOUSING TO OIL DRAIN COCK) 8-79

INITIAL SETUP

Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Container, 1 Quart

Materials:
Wiping Rag (E64)

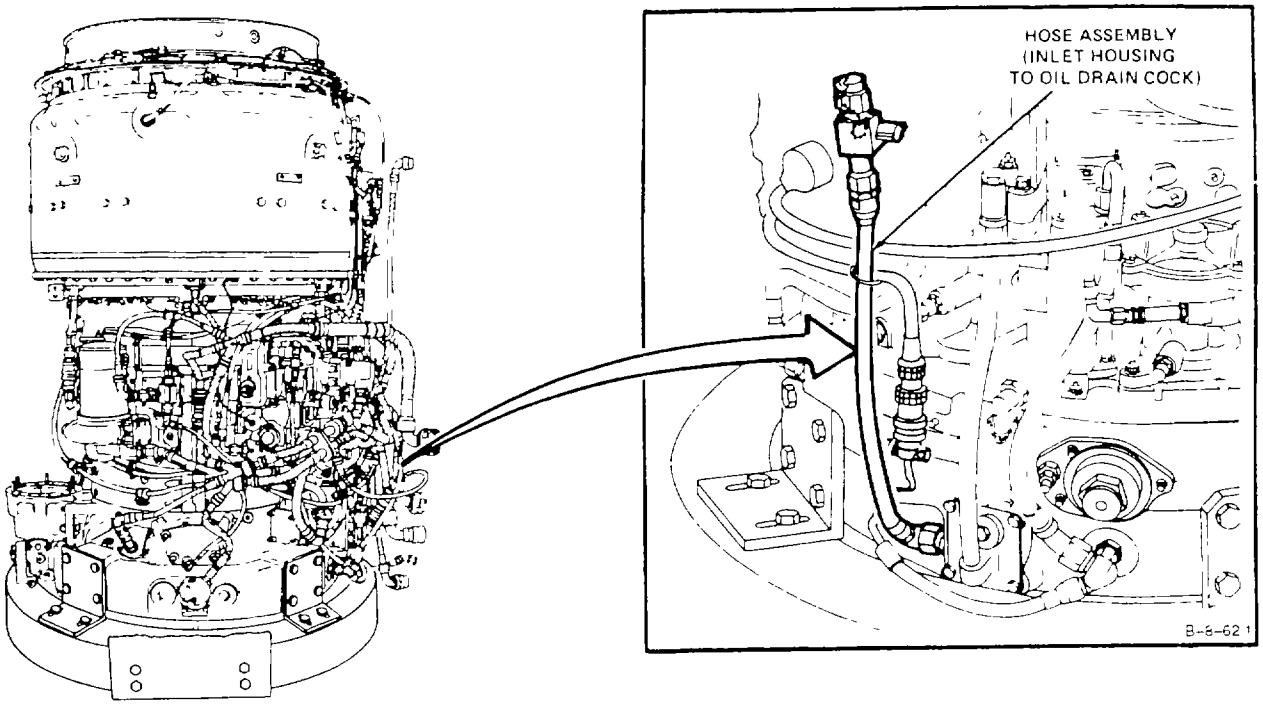
Personnel Required:
Aircraft Powerplant Repairer

Equipment Condition:
Engine Oil System Drained (Task 1-69)

General Safety Instructions:

WARNING

Lubricating oils cause paralysis if swallowed Prolonged contact with them may irritate the skin. Handle only in well-ventilated areas away from heat and flame. Drain and store in approved metal safety containers. Avoid prolonged or repeated contact with skin and do not take internally. Wash contacted area of skin thoroughly after handling. If irritation of skin results, get medical attention. Get medical attention for eyes.



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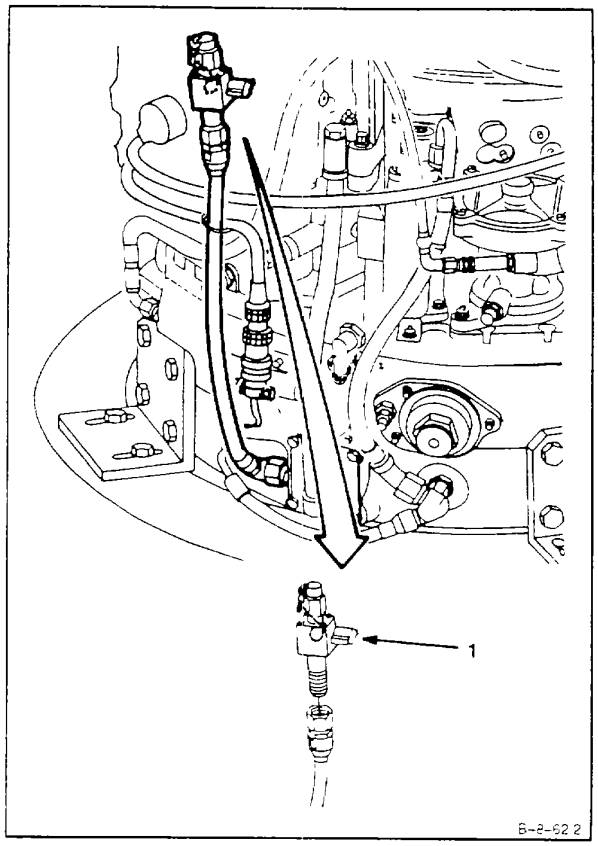
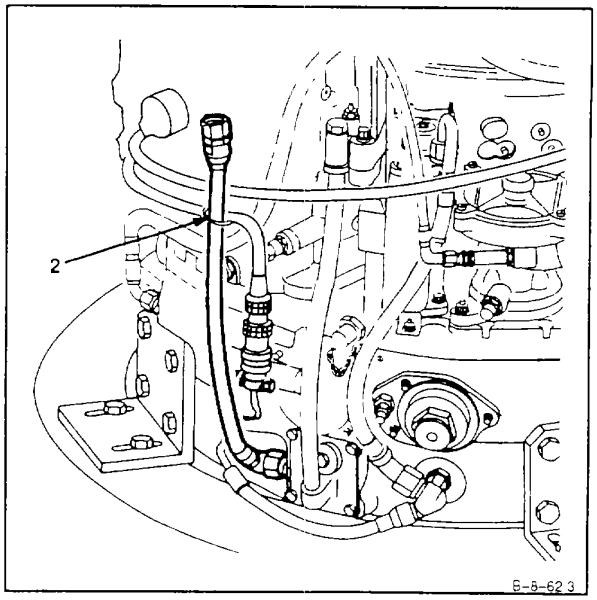
1. Remove oil drain cock (1).



2. Remove cable tie (2).



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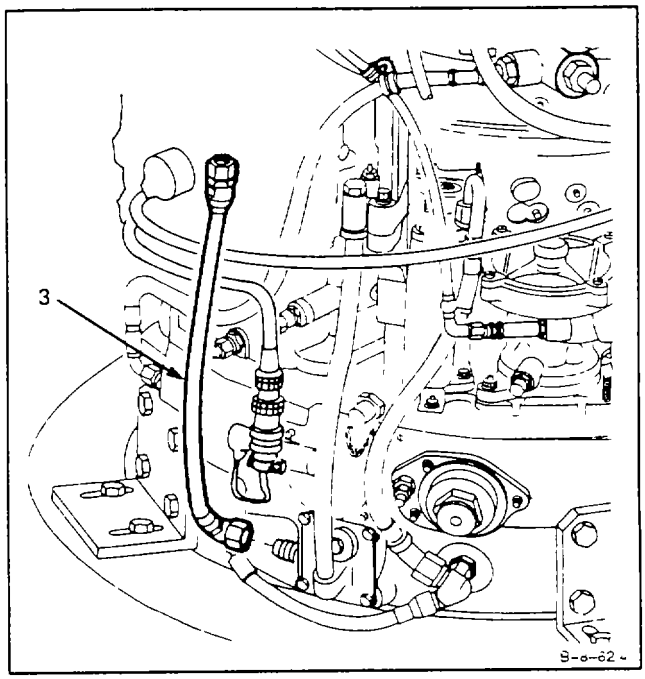
3. Disconnect and remove hose assembly (3).



FOLLOW-ON MAINTENANCE:
None

END OF TASK

8-80 INSTALL HOSE ASSEMBLY (INLET HOUSING TO OIL DRAIN COCK) 8-80

INITIAL SETUP

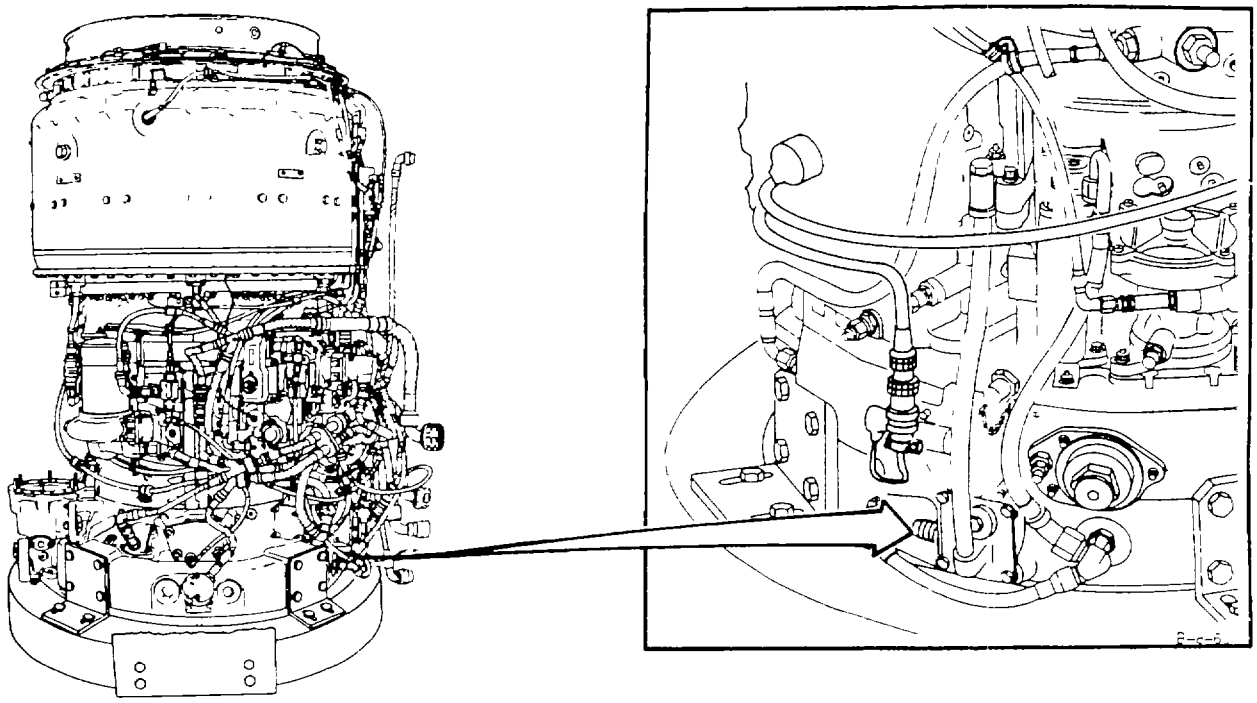
Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Technical Inspection Tool Kit,
NSN 5180-00-323-5114

Materials:
None

Parts:
Cable Tie

Personnel Required:
Aircraft Powerplant Repairer
Aircraft Powerplant Inspector



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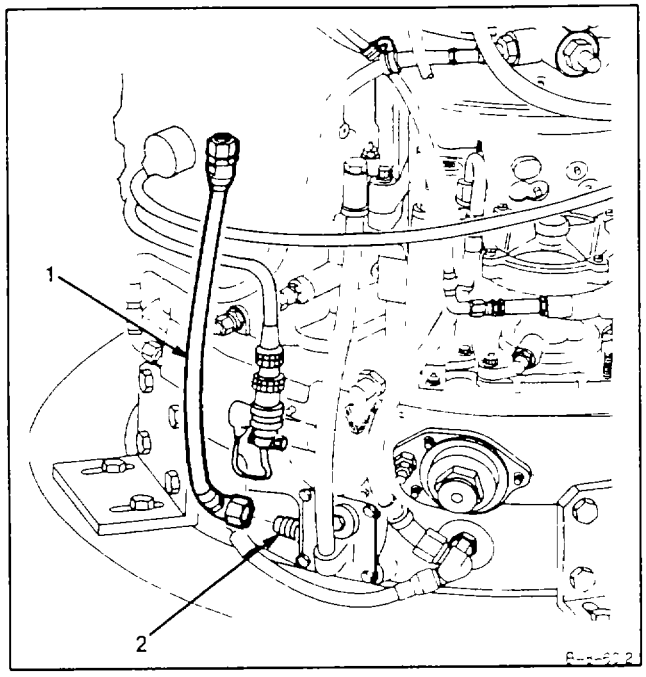
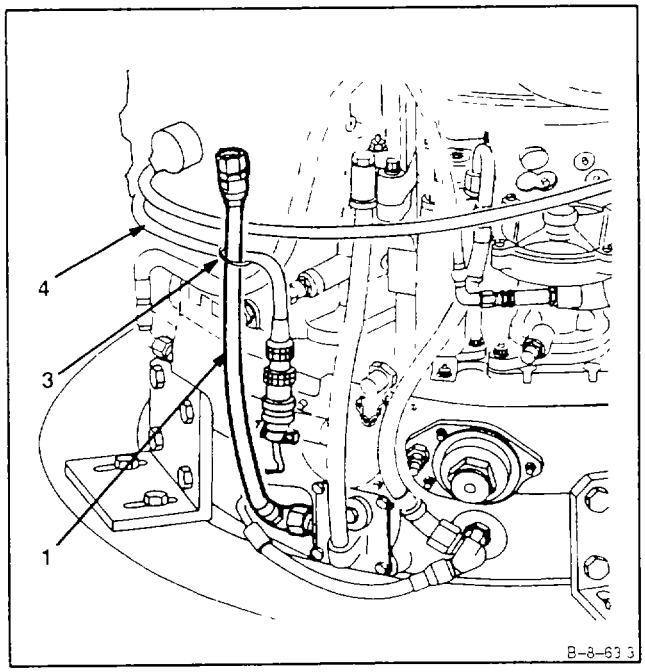
1. Install hose assembly (1) on nipple (2).



2. Install cable tie (3) on hose assembly (1) and hose assembly (4).



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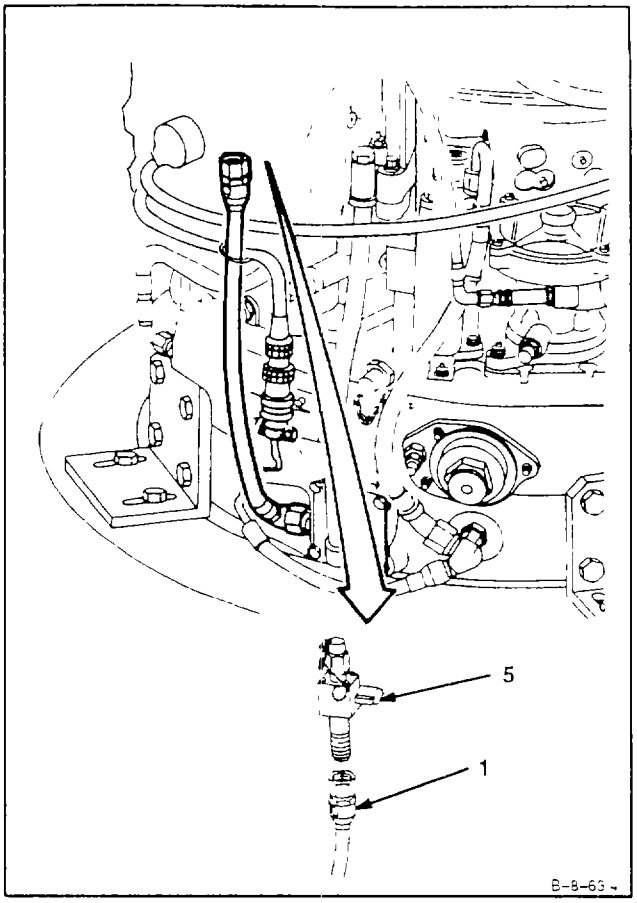
3. Install oil drain cock (5) on hose assembly (1).



INSPECT

FOLLOW-ON MAINTENANCE:
None

END OF TASK

8-81 REMOVE HOSE ASSEMBLY (STARTER DRIVE TO OIL FILLER) 8-81

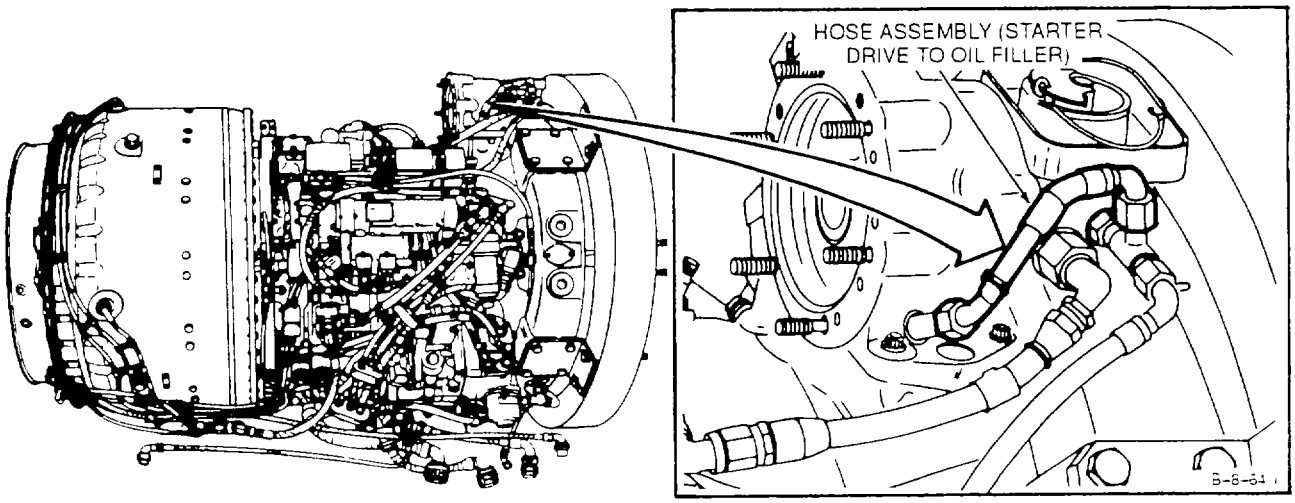
INITIAL SETUP

Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Container, 1 Quart

Materials:
Wiping Rag (E64)

Personnel Required:
Aircraft Powerplant Repairer



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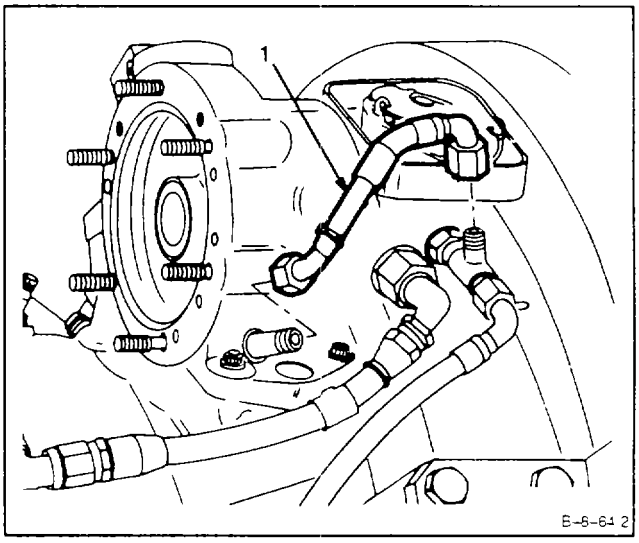
WARNING

Lubricating oils cause paralysis if swallowed. Prolonged contact with them may irritate the skin. Handle only in well-ventilated areas away from heat and flame. Drain and store in approved metal safety containers. Avoid prolonged or repeated contact with skin and do not take internally. Wash contacted area of skin thoroughly after handling. If irritation of skin results, get medical attention. Get medical attention for eyes.

1. Disconnect and remove hose assembly (1).



FOLLOW-ON MAINTENANCE:
None

END OF TASK

8-82 INSTALL HOSE ASSEMBLY (STARTER DRIVE TO OIL FILLER) 8-82

INITIAL SETUP

Applicable Configurations:

All

Tools:

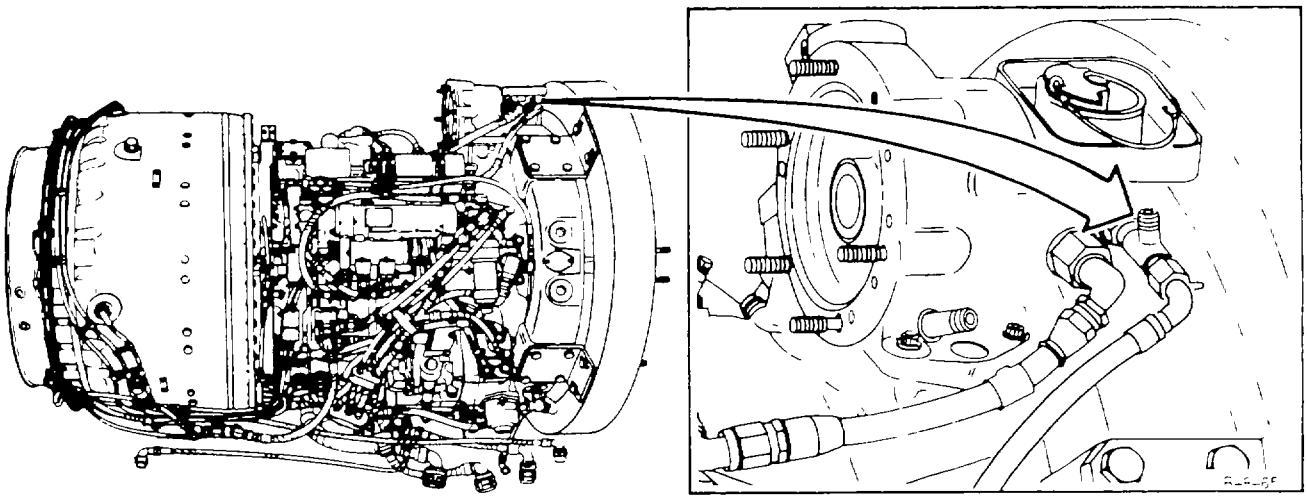
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Technical Inspection Tool Kit.
NSN 5180-00-323-5114

Materials:

None

Personnel Required:

Aircraft Powerplant Repairer
Aircraft Powerplant Inspector



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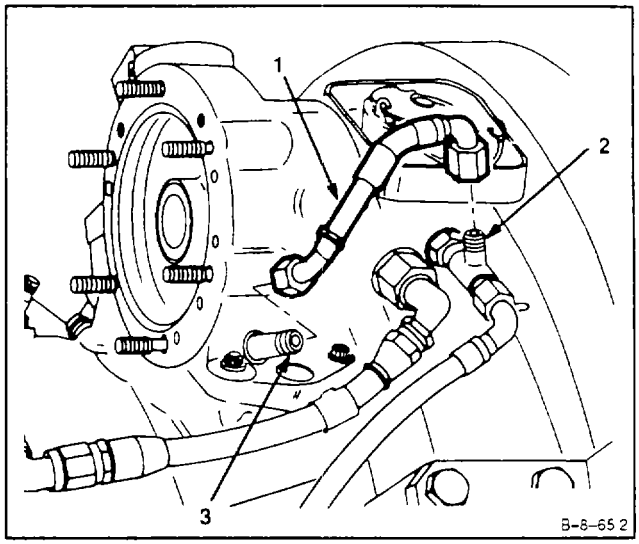
8-82 INSTALL HOSE ASSEMBLY (STARTER DRIVE TO OIL FILLER) (Continued)

1. **Install hose assembly (1)** on tee (2) and fitting (3).

INSPECT

FOLLOW-ON MAINTENANCE:
None



END OF TASK

8-83 REMOVE HOSE ASSEMBLY (STARTER DRIVE TO TUBE AND HOSE ASSEMBLY) 8-83

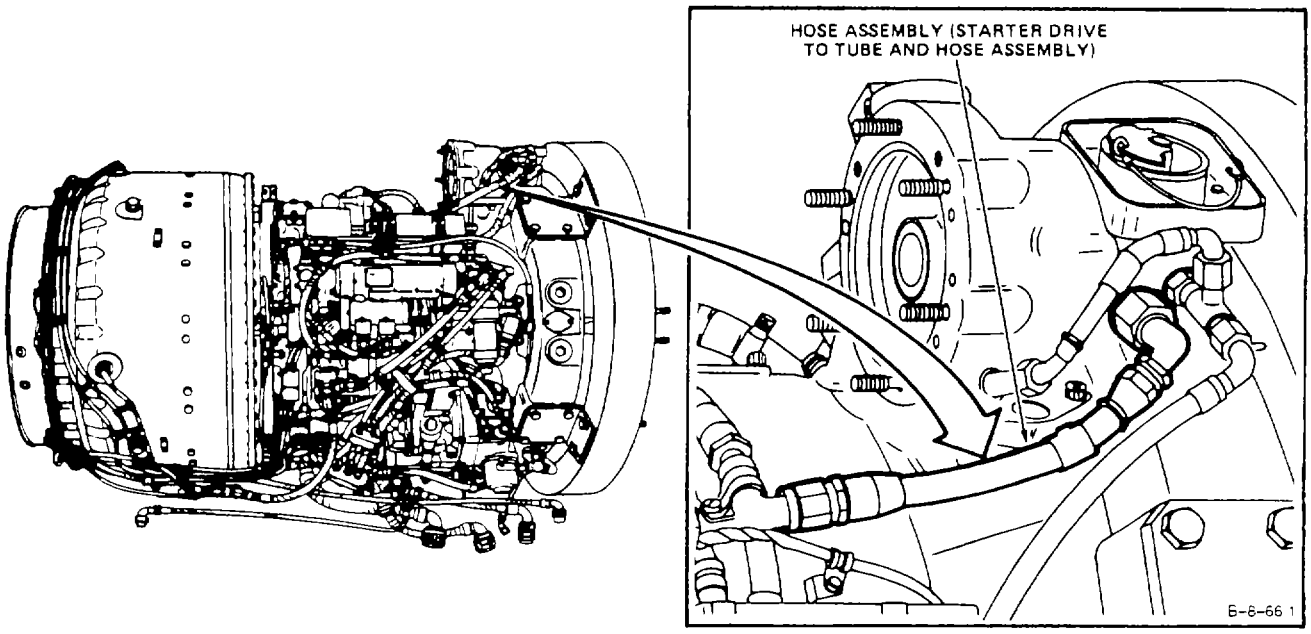
INITIAL SETUP

Applicable Configurations:
All

Tools:
Open-End Wrench, 1-Inch
Container, 1 Quart

Materials:
Wiping Rag (E64)

Personnel Required:
Aircraft Powerplant Repairer



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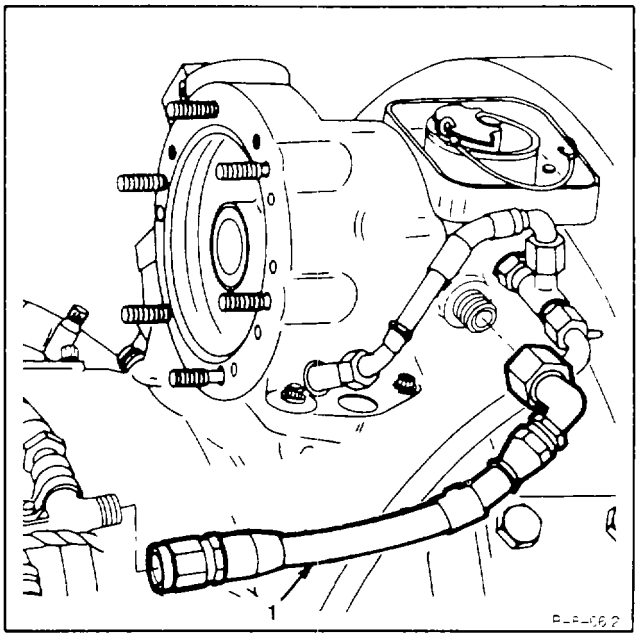
WARNING

Lubricating oils cause paralysis if swallowed. Prolonged contact with them may irritate the skin. Handle only in well-ventilated areas away from heat and flame. Drain and store in approved metal safety containers. Avoid prolonged or repeated contact with skin and do not take internally. Wash contacted area of skin thoroughly after handling. If irritation of skin results, get medical attention. Get medical attention for eyes.

1. Disconnect and **remove hose assembly (1),** using 1-inch, open-end wrench.

FOLLOW-ON MAINTENANCE:
None



END OF TASK

8-84 INSTALL HOSE ASSEMBLY (STARTER DRIVE TO TUBE AND HOSE ASSEMBLY) 8-84

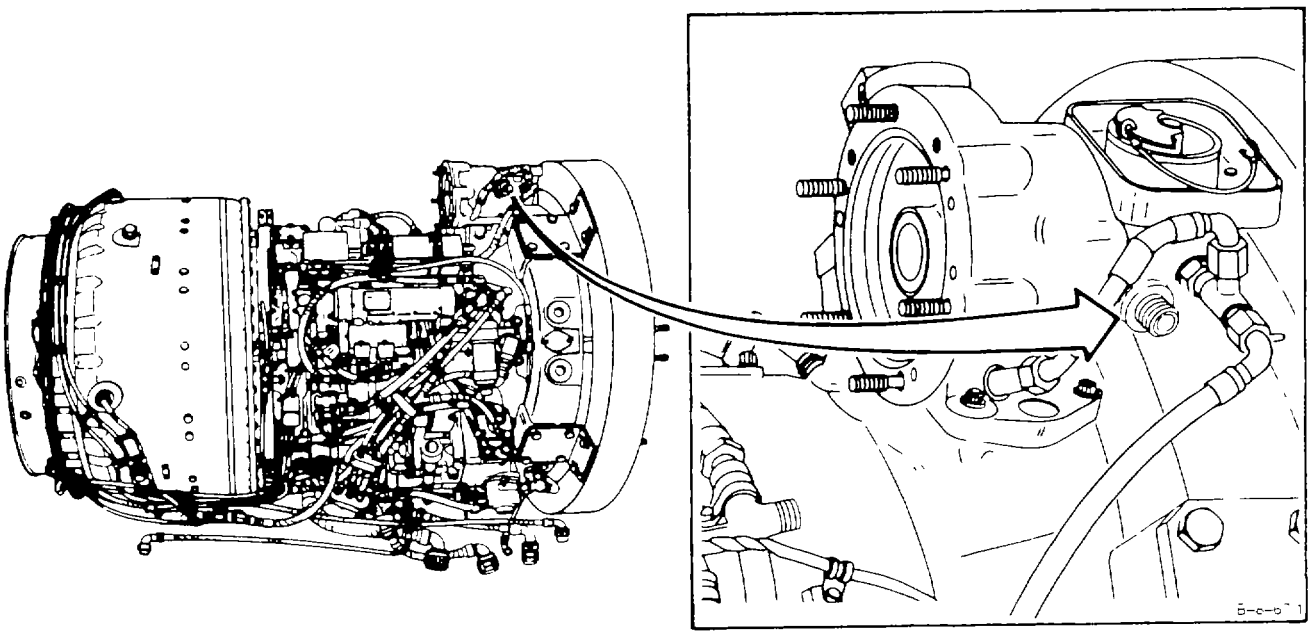
INITIAL SETUP

Applicable Configurations:
All

Tools:
Technical Inspection Tool Kit,
NSN 5180-00-323-5114
Open-End Wrench, 1-Inch
Crowfoot Attachment, 1-inch

Materials:
None

Personnel Required:
Aircraft Powerplant Repairer
Aircraft Powerplant Inspector



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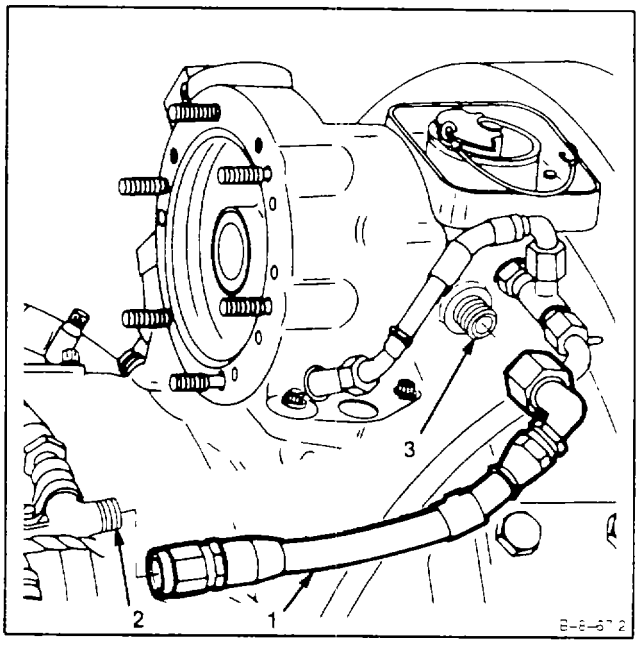
1. **Install hose assembly (1)** on tube and hose assembly (2) and reducer (3). Use 1-inch crowfoot attachment.

INSPECT

FOLLOW-ON MAINTENANCE:
None



END OF TASK

8-85 REMOVE TUBE AND HOSE ASSEMBLY (ACCESSORY GEARBOX COLLECTOR TO TUBE ASSEMBLY) 8-85

INITIAL SETUP

Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944

Open-End Wrench, 1-inch

Materials:

Wiping Rag (E64)

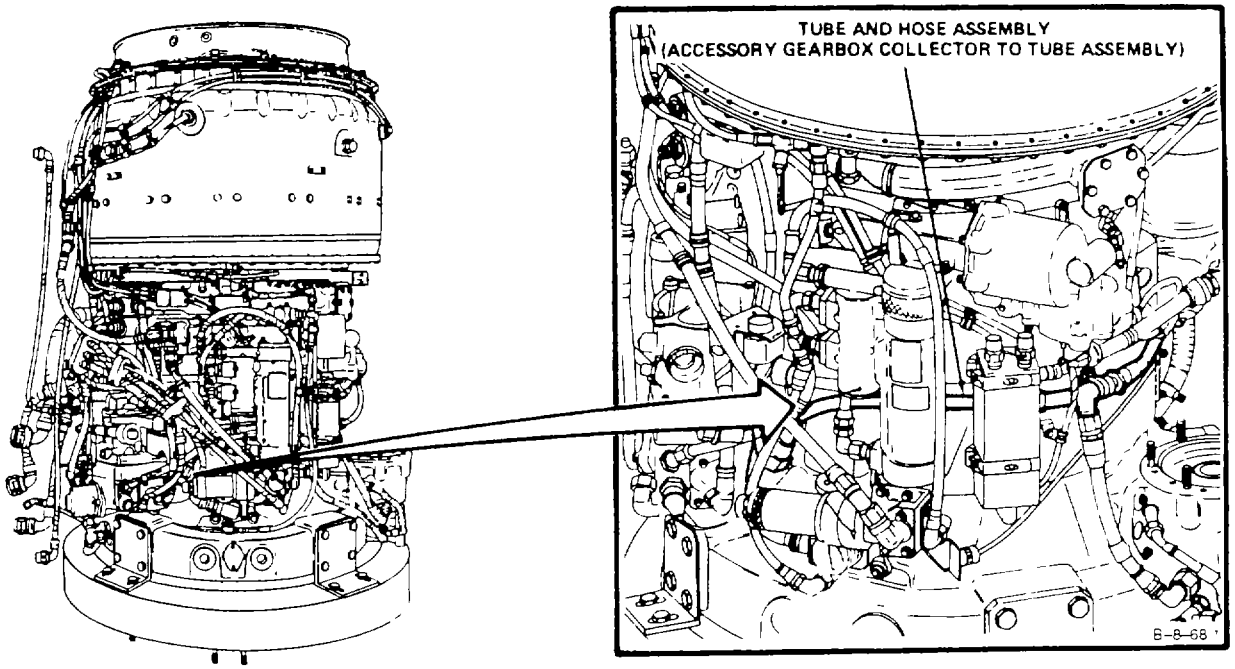
Personnel Required:

Aircraft Powerplant Repairer

General Safety Instructions:

WARNING

Lubricating oils cause paralysis if swallowed. Prolonged contact with them may irritate the skin. Handle only in may irritate the skin. Handle only in well-ventilated areas away from heat and flame. Drain and store in approved metal safety containers. Avoid prolonged or repeated contact with skin and do not take internally.
Wash contacted area of skin thoroughly after handling. If irritation of skin results, get medical attention. Get medical attention for eyes.



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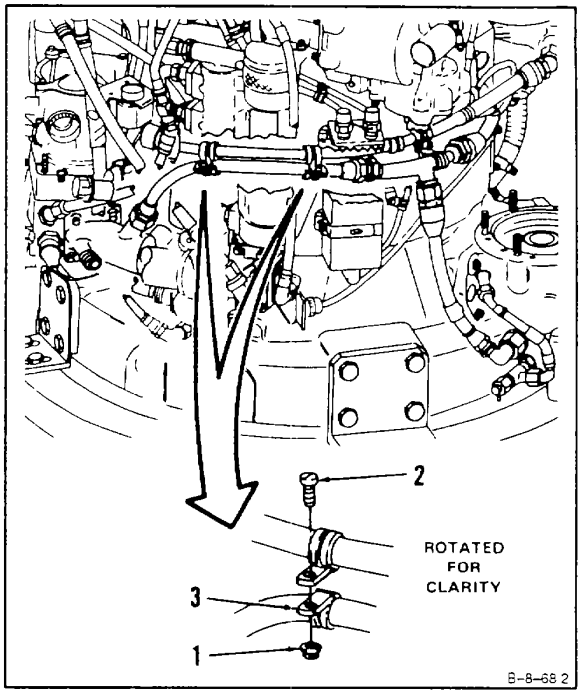
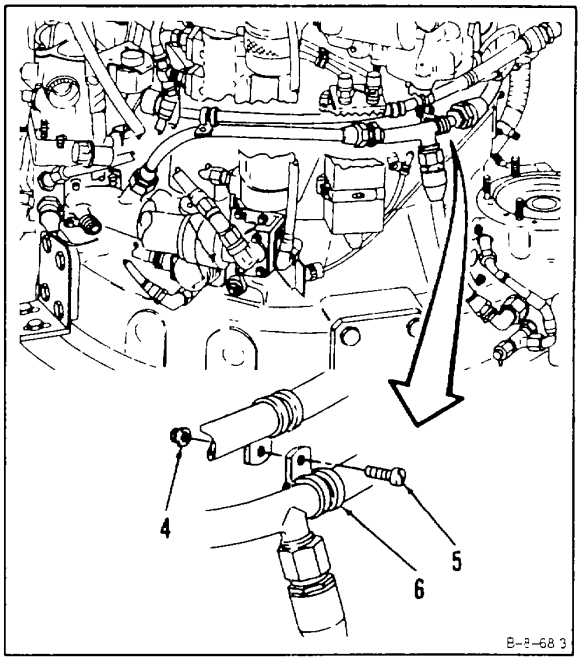
8-85 REMOVE TUBE AND HOSE ASSEMBLY (ACCESSORY GEARBOX COLLECTOR TO TUBE ASSEMBLY) (Continued) **8-85**

1. **Remove** nuts (1), screws (2), and **clamps (3).**

2. **Remove** nut (4), screw (5), and **clamp (6**).





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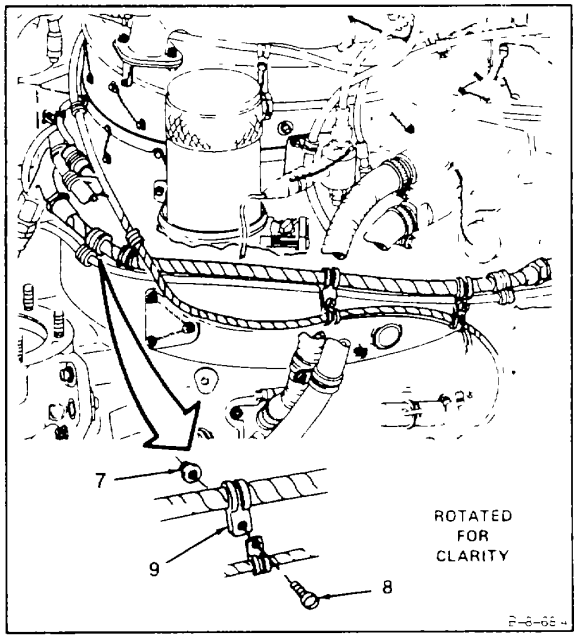
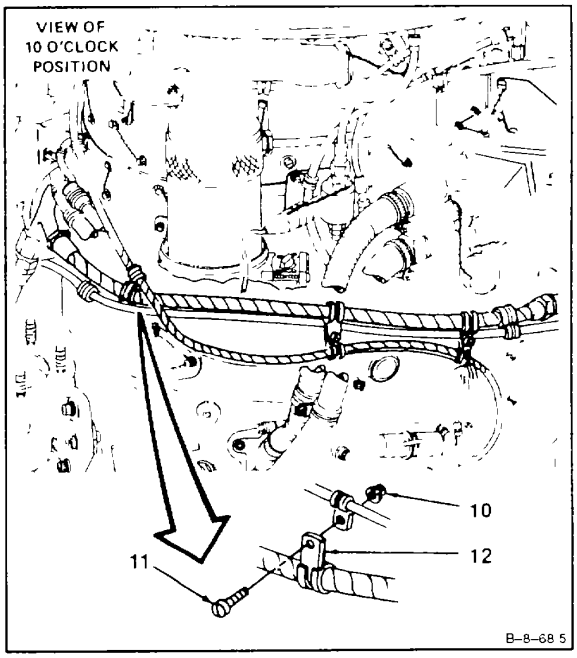
3. **Remove** nut (7), screw (8) and **clamp (9).**

4. **Remove** nut (10), screw (11), and **clamp (12).**





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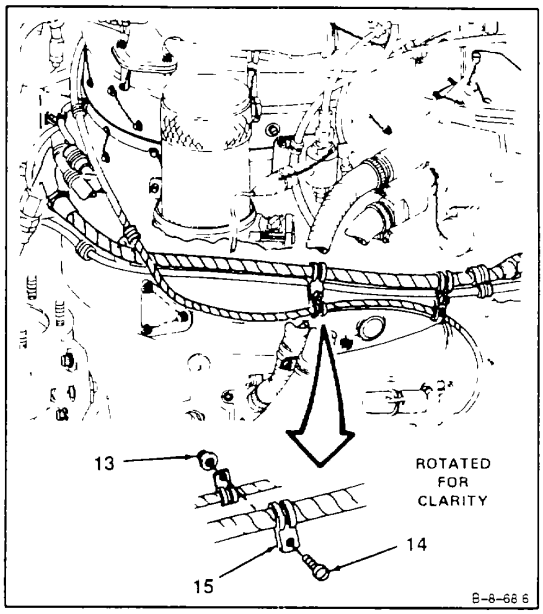
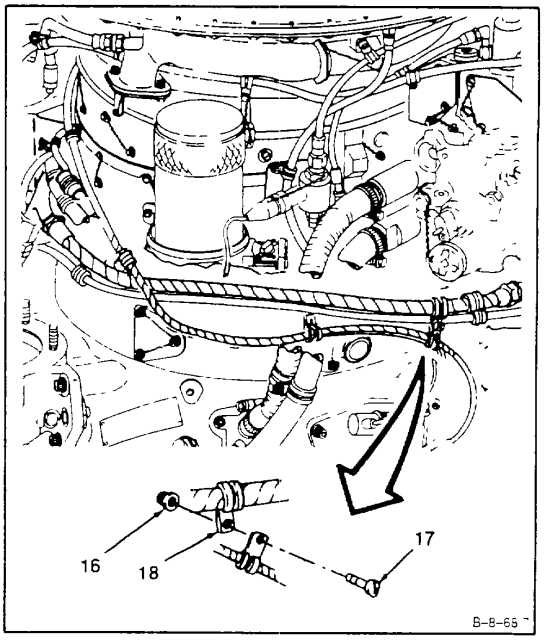
8-85 REMOVE TUBE AND HOSE ASSEMBLY (ACCESSORY GEARBOX COLLECTOR TO TUBE ASSEMBLY) (Continued) **8-85**

5. **Remove** nut (13), screw (14), and **clamp (15)**.

6. **Remove** nut (16), screw (17), and **clamp (18).**





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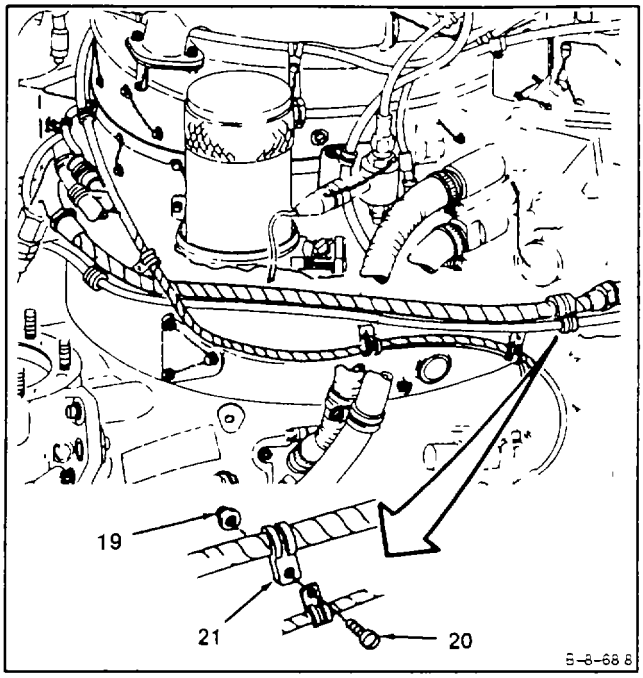
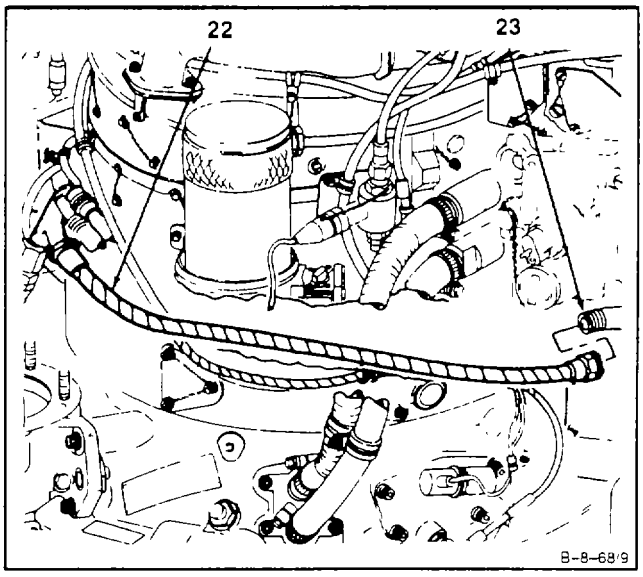
7. **Remove** nut (19), screw (20), and **clamp (21).**

8. **Disconnect tube and hose assembly (22)** from tube assembly (23), Use 1-inch open-end wrench.





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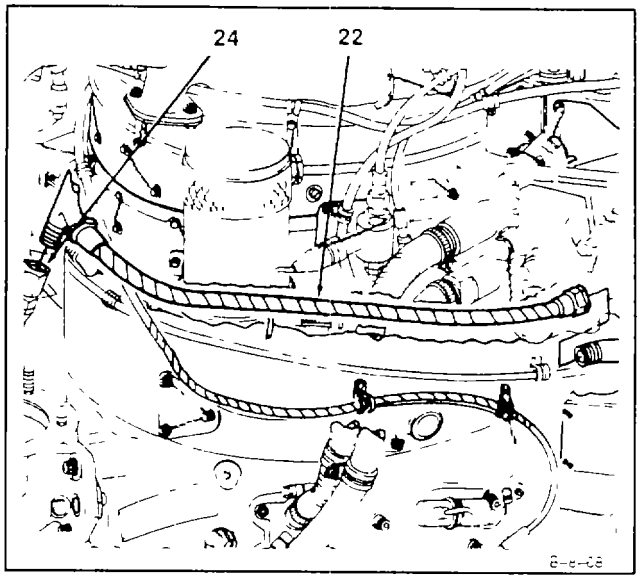
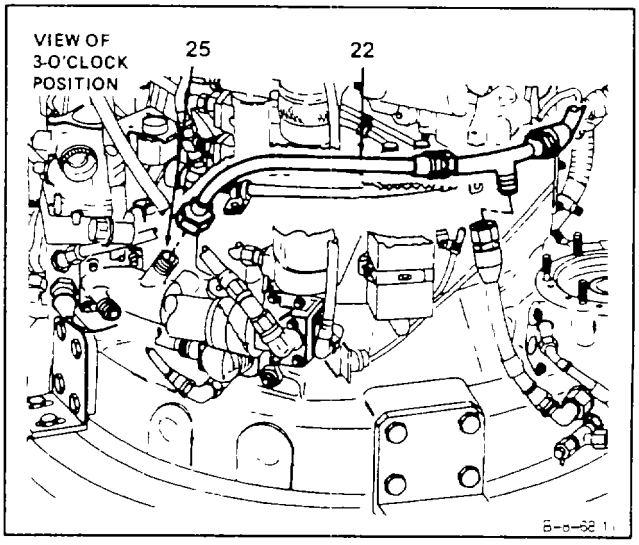
8-85 REMOVE TUBE AND HOSE ASSEMBLY (ACCESSORY GEARBOX COLLECT OR TO TUBE ASSEMBLY) (Continued) 8-85

9. Disconnect hose assembly (24) from tube and hose assembly (22).

10. Disconnect tube and hose assembly (22) from nipple (25). Remove tube and hose assembly (22).

FOLLOW-ON MAINTENANCE:
None





END OF TASK

8-86 INSTALL TUBE AND HOSE ASSEMBLY (ACCESSORY GEARBOX COLLECTOR TO TUBE ASSEMBLY) 8-86

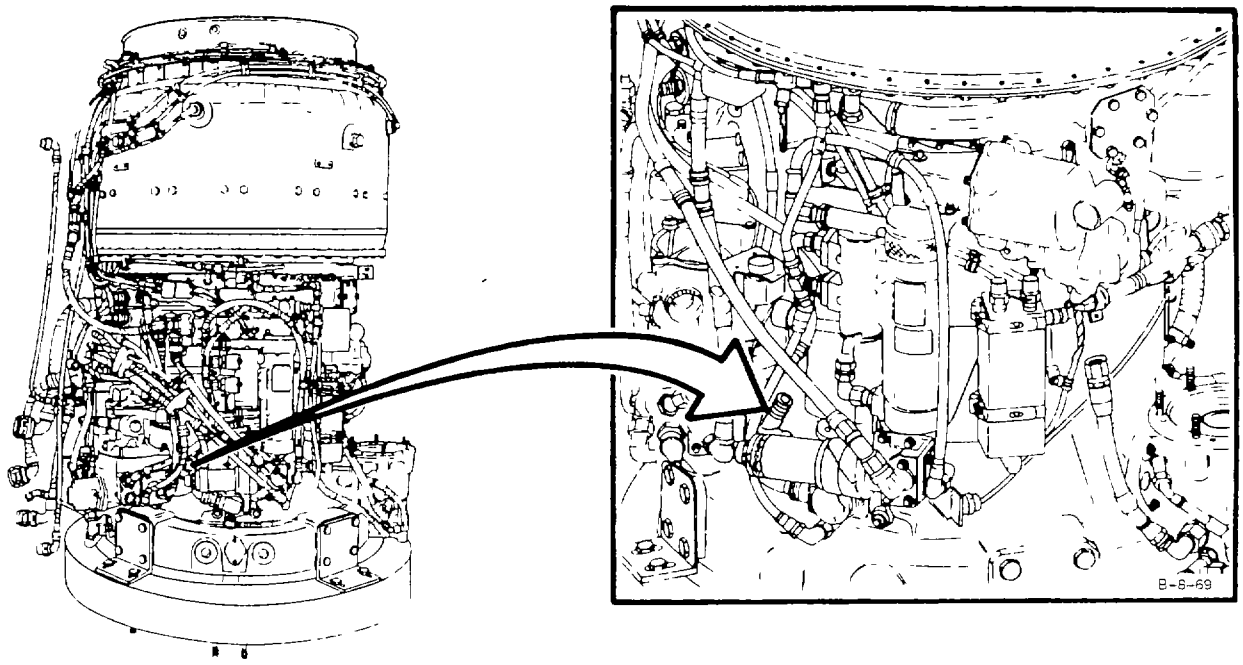
INITIAL SETUP

Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit, NSN 5180-00-323-4944
Technical Inspection Tool Kit, NSN 5180-00-323-5114
Crowfoot Attachment, 1-Inch

Materials:
None

Personnel Required:
Aircraft Powerplant Repairer
Aircraft Powerplant Inspector



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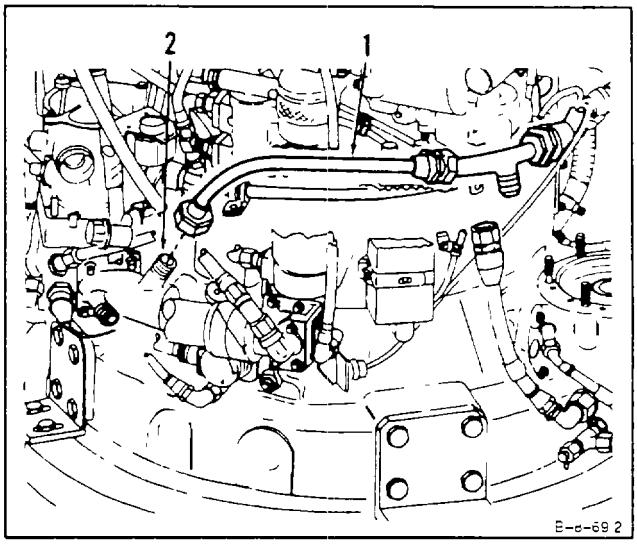
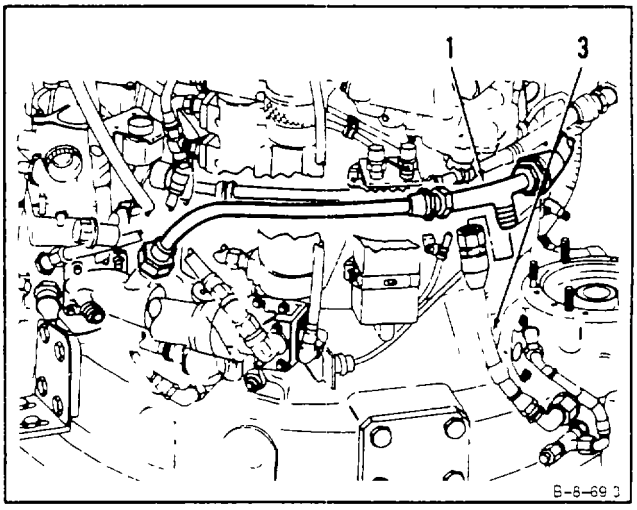
1. **Connect tube and hose assembly (1)** to nipple (2).

2. **Connect hose assembly (3)** to tube and hose assembly (1).





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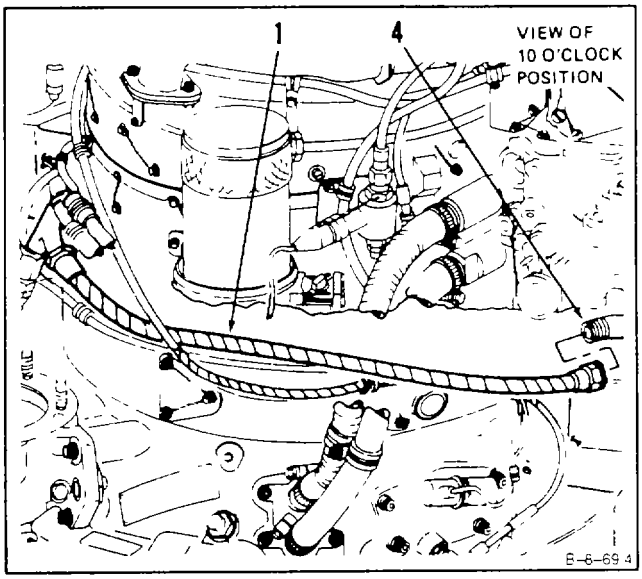
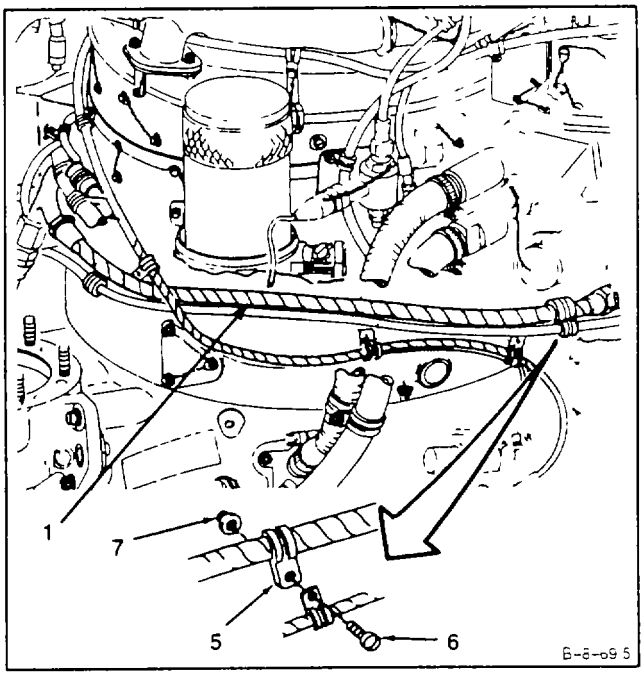
3. **Connect tube and hose assembly (1)** to tube assembly (4). Use 1-inch crowfoot attachment.

4. **Install clamp (5)** on tube and hose assembly (1), and install screw (6) and nut (7).





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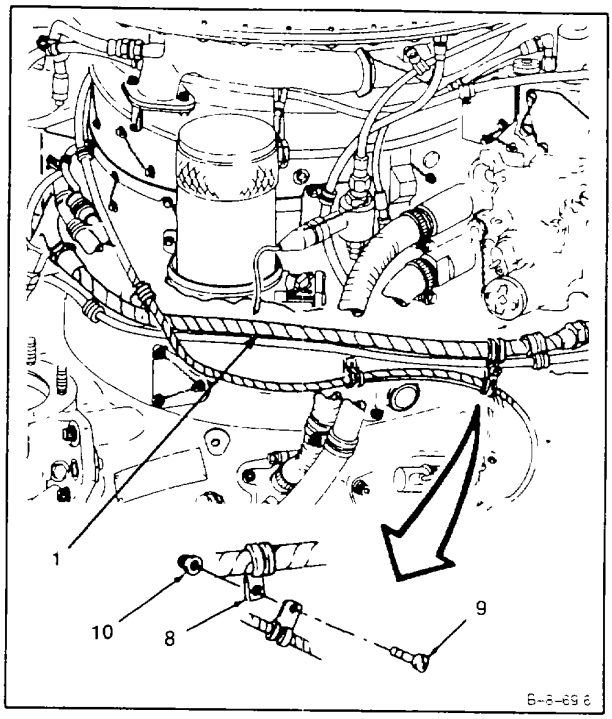
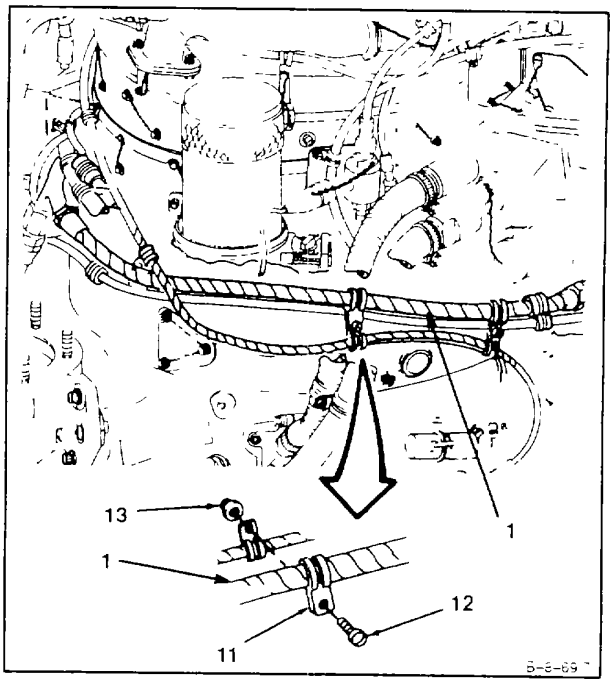
5. **Install clamp (8)** on tube and hose assembly (1) and install screw (9) and nut (10).

6. **Install clamp (11)** on tube and hose assembly (1) and install screw (12) and nut (13).





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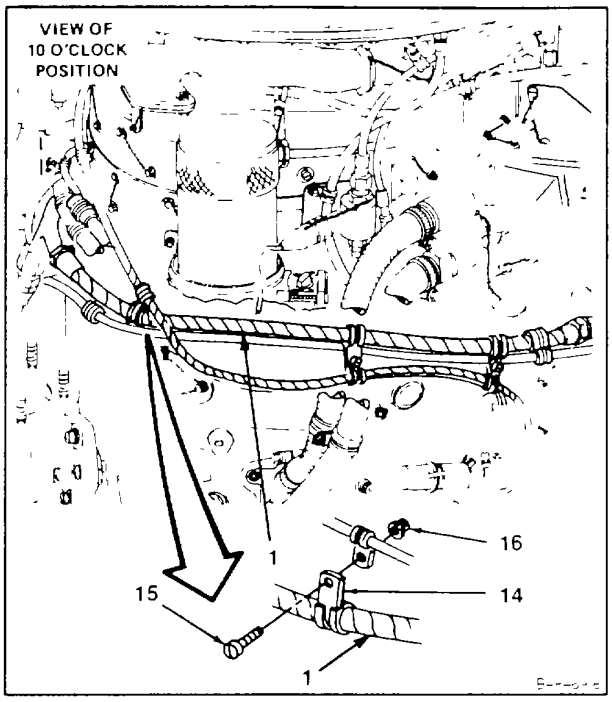
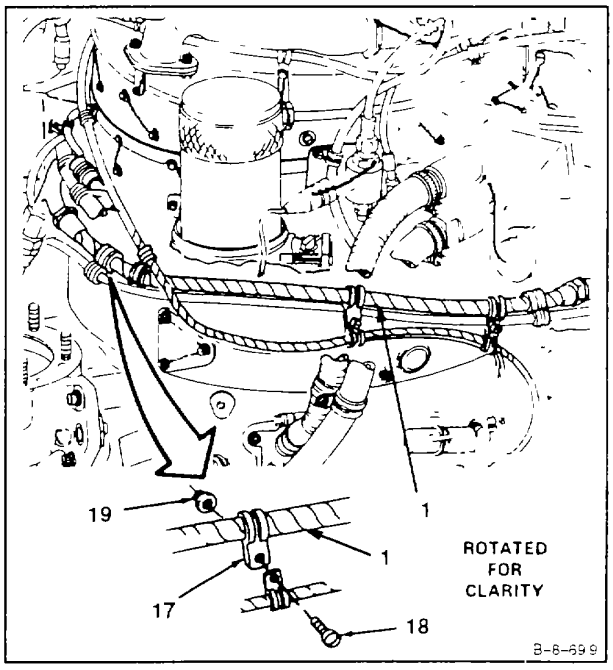
7. **Install clamp (14)** on tube and hose assembly (1) .and install screw (15) and nut (16).

8. **Install clamp (17)** on tube and hose assembly (1) and install screw (18) and nut (19).





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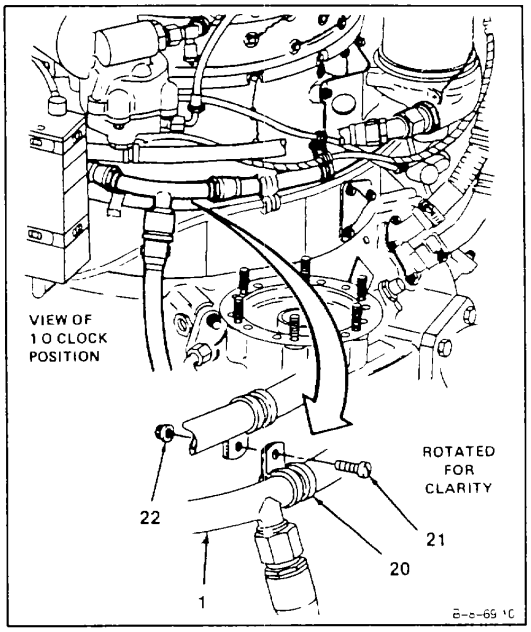
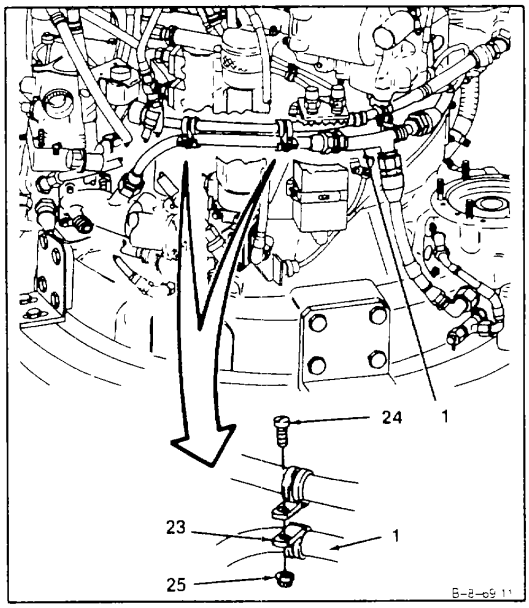
9. **Install clamp (20)** on tube and hose assembly (1) and install screw (21) and nut (22).

10. **Install clamps (23)** on tube and hose assembly (1) and install screws (24) and nuts (25).

INSPECT

FOLLOW-ON MAINTENANCE:
None





END OF TASK

8-87 REMOVE TUBE ASSEMBLY (TUBE AND HOSE ASSEMBLY TO ACCESSORY GEARBOX ASSEMBLY) 8-87

INITIAL SETUP

Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tools: Kit, NSN 5180-00-323-4944
Container, 1 Quart
Open-End Wrench, 1-Inch
Socket Head Screw Key, 1/2-Inch

Materials:
Wiping Rag (E64)

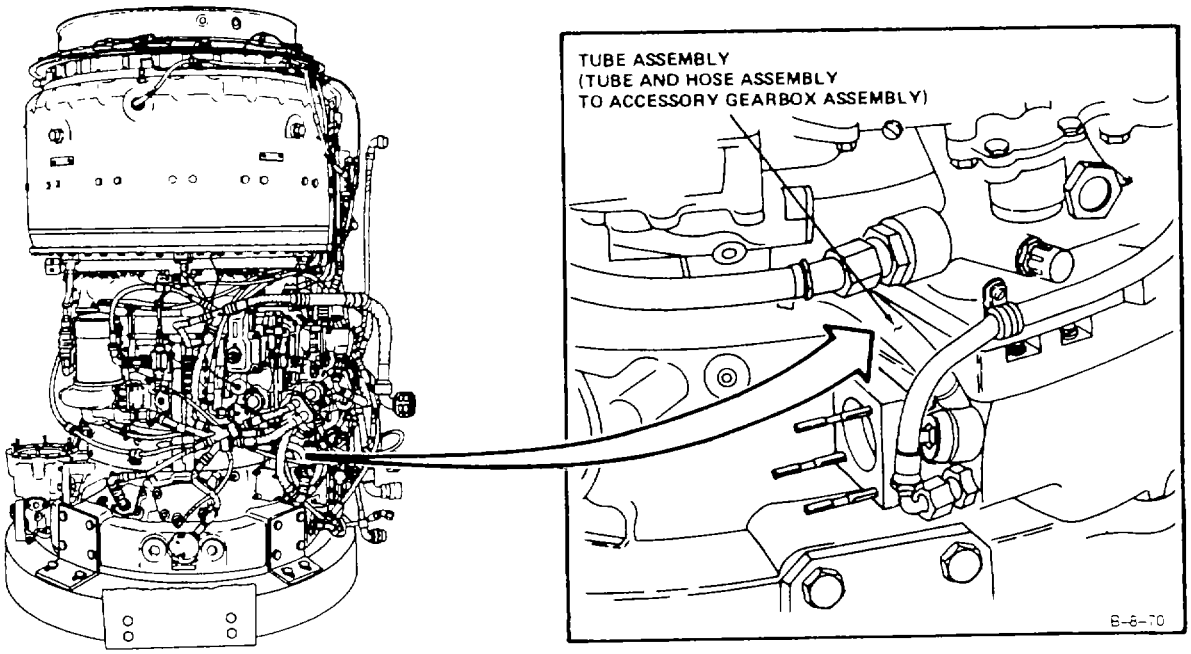
Personnel Required:
Aircraft Powerplant Repairer

References:
PT Speed Pickup Drive Assembly Removed Task (5-13)

General Safety Instructions:

WARNING

Lubricating oils cause paralysis if swallowed. Prolonged contact with them may irritate the skin. Handle only in well-ventilated areas away from heat and flame. Drain and store in approved metal safety containers. Avoid prolonged or repeated contact with skin and do not take internally. Wash contacted area of skin thoroughly after handling. If irritation of skin results, get medical attention. Get medical attention for eyes.



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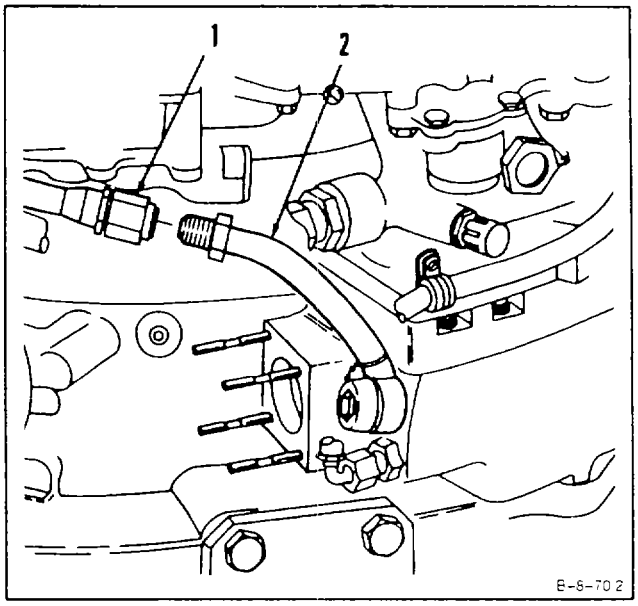
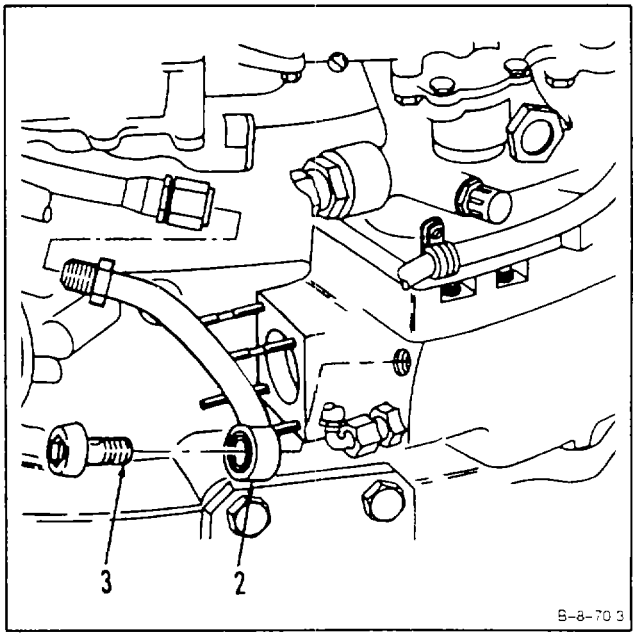
8-87 REMOVE TUBE ASSEMBLY (TUBE AND HOSE ASSEMBLY TO ACCESSORY GEARBOX ASSEMBLY) (Continued) **8-87**

1. **Disconnect tube and hose assembly (1)** from tube assembly (2). Using a 1-inch open-end wrench.

2. Remove lockwire and bolt (3). Using a 1/2-inch socket head screw key. **Remove tube assembly (2).**





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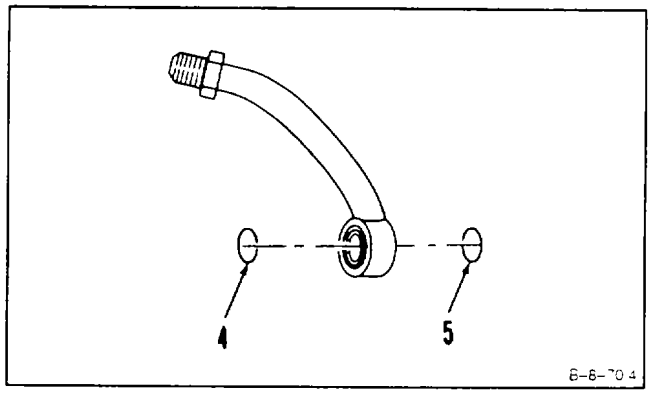
8-87 REMOVE TUBE ASSEMBLY (TUBE AND HOSE ASSEMBLY TO ACCESSORY GEARBOX ASSEMBLY) (Continued) **8-87**

3. Remove packings (4 and 5).

FOLLOW-ON MAINTENANCE:
None



END OF TASK

8-88 INSTALL TUBE ASSEMBLY (TUBE AND HOSE ASSEMBLY TO ACCESSORY GEARBOX ASSEMBLY) 8-88

INITIAL SETUP

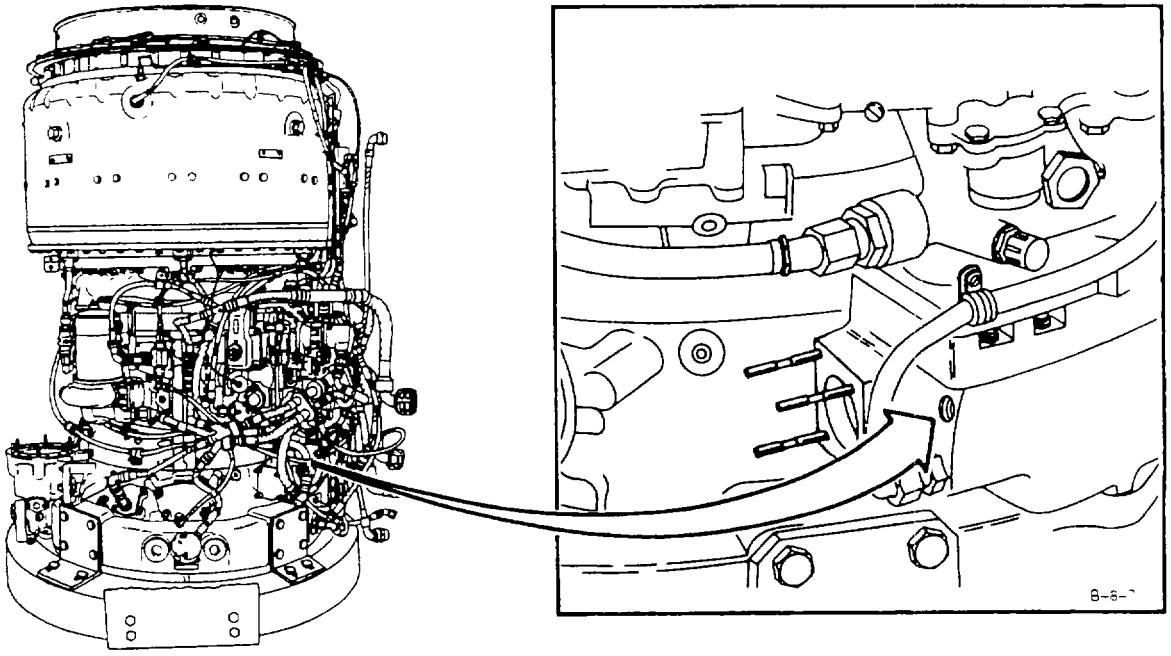
Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit, NSN 5180-00-323-4944
Technical Inspection Tool Kit, NSN 5180-00-323-5114
Open-End Wrench, 1-Inch
Socket Head Screw Key. 1/2-Inch
Crowfoot Attachment

Materials:
Lockwire (E33)

Personnel Required:
Aircraft Powerplant Repairer
Aircraft Powerplant Inspector

References:
TM 1-2840-252-23P



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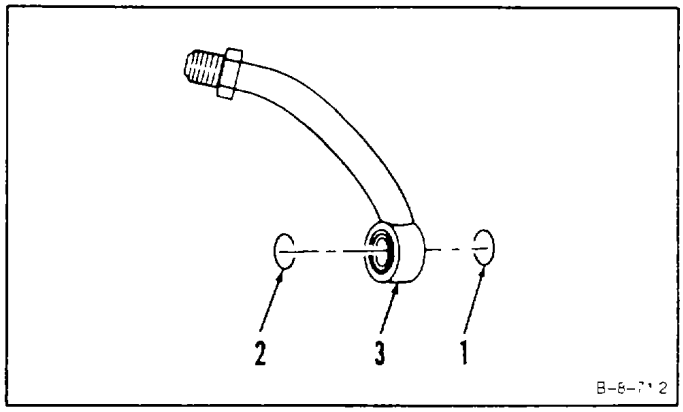
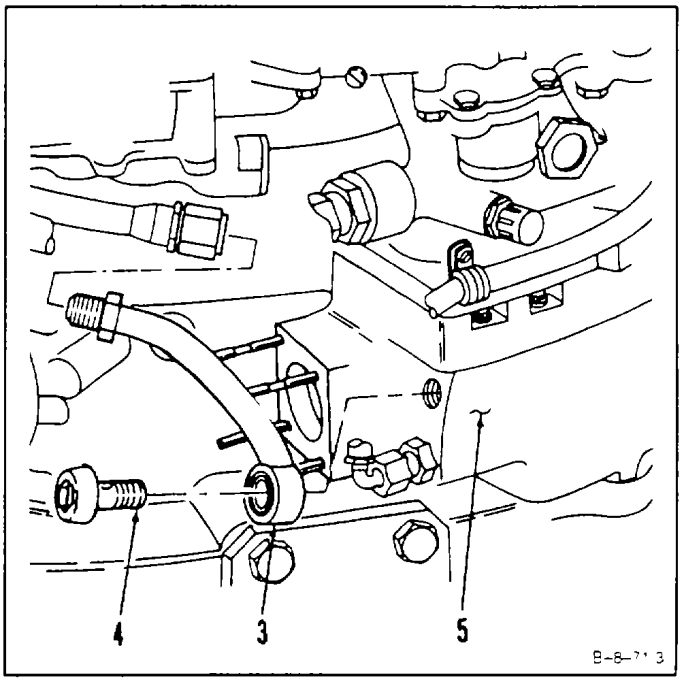
8-88 INSTALL TUBE ASSEMBLY (TUBE AND HOSE ASSEMBLY TO ACCESSORY GEARBOX ASSEMBLY) (Continued) **8-88**

1. Install packings (1 and 2) into tube assembly (3).

2. Install tube assembly (3) and bolt (4) on accessory gearbox assembly (5). Use 1/2-inch socket head screw key. Lockwire bolt (4). Use lockwire (E33).





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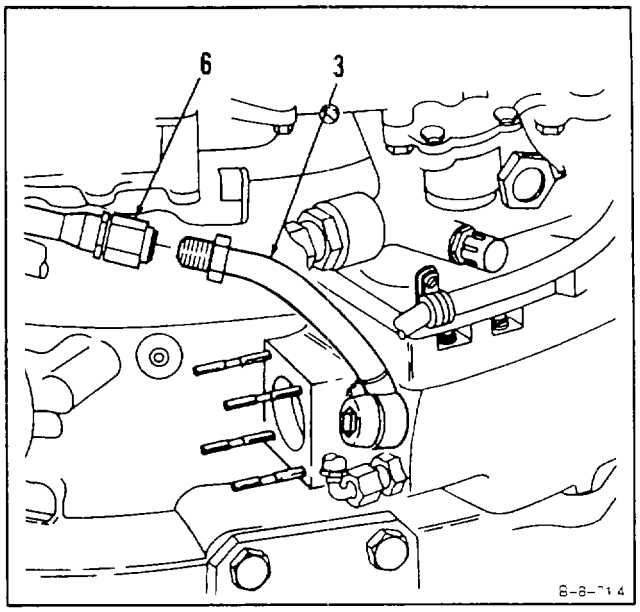
3. **Connect tube and hose assembly (6)** to tube assembly (3). Use 1-inch crowfoot attachment.

INSPECT

FOLLOW-ON MAINTENANCE:
None



END OF TASK

SECTION X

STARTER GEARBOX FILTER

8-89 REMOVE STARTER GEARBOX FILTER 8-89

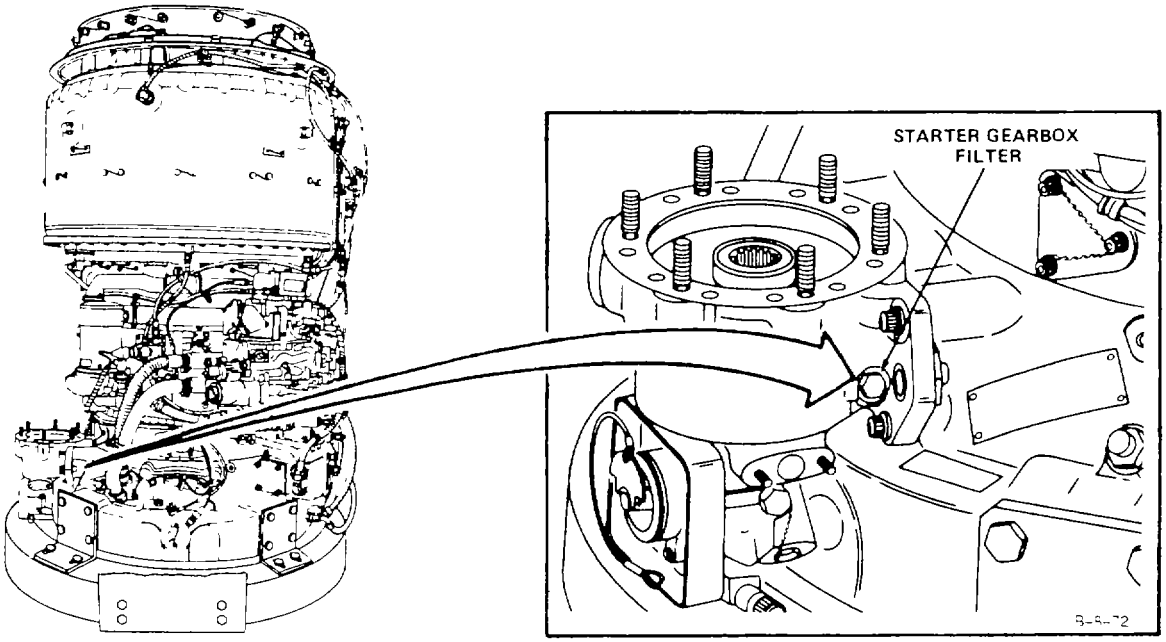
INITIAL SETUP

Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944

Materials:
Wiping Rag (E64)

Personnel Required:
Aircraft Powerplant Repairer



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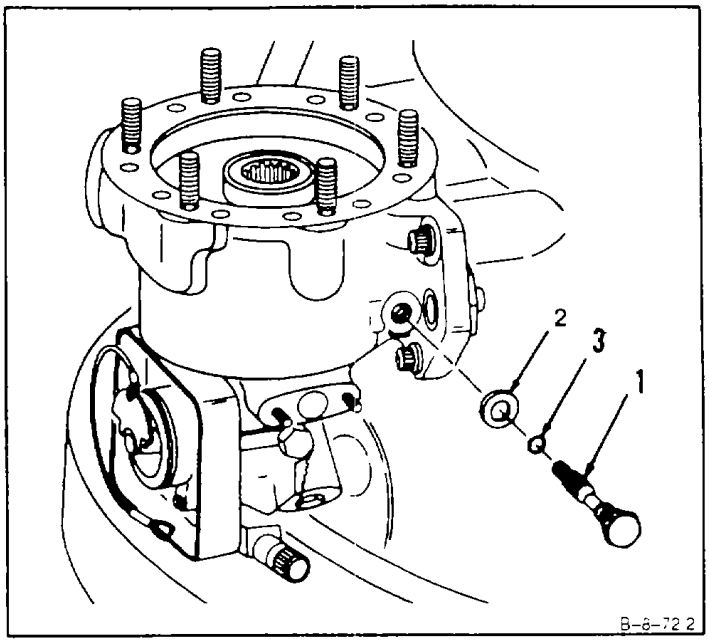
WARNING

Lubricating oils cause paralysis if swallowed. Prolonged contact with them may irritate the skin. Handle only in well-ventilated areas away from heat and flame. Drain and store in approved metal safety containers. Avoid prolonged or repeated contact with skin and do not take internally. Wash contacted area of skin thoroughly after handling. If irritation of skin results, get medical attention. Get medical attention for eyes.

1. **Remove** lockwire, **starter gearbox filter (1)**, washer (2), and packing (3).

FOLLOW-ON MAINTENANCE:
None



END OF TASK

8-90 CLEAN STARTER GEARBOX FILTER 8-90

INITIAL SETUP

Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Goggles
Dry, Compressed Air Source

Materials:
Dry Cleaning Solvent (E19)
Gloves (E24)
Lint-Free Cloth (E30)

Personnel Required:
Aircraft Powerplant Repairer

Equipment Condition
Off Engine Task
Starter Gearbox Filter Removed (Task 8-89)

General Safety Instructions

WARNING

Dry cleaning solvent (E19) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

---

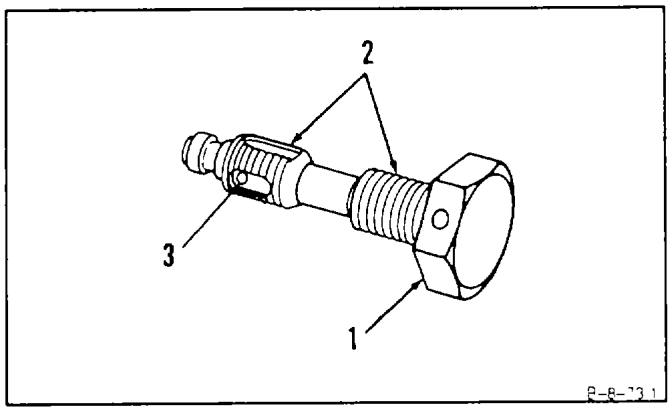
1. **Clean starter gearbox filter (1)** as follows:
   a. Wear gloves (E24). Immerse filter in dry cleaning solvent (E19) and agitate. Use brush on external surfaces (2).
   b. Use lint-free cloth (E30) to remove solvent.

WARNING

When using compressed air for cleaning, use approved protective equipment for eyes and face. Do not use more than 30 psig air pressure. Do not direct air toward yourself or another person. Failure to comply could result in injury to eyes or skin. In case of injury, get medical attention.

   c. Wear goggles. Blow dry internal passage (3). Use clean, dry, compressed air.

FOLLOW-ON MAINTENANCE:
Inspect starter gearbox filter (Task 8-91).



END OF TASK

8-91 INSPECT STARTER GEARBOX FILTER 8-91

INITIAL SETUP

Applicable Configurations:
All

Tools:
Technical Inspection Tool Kit,
NSN 5180-00-323-5114

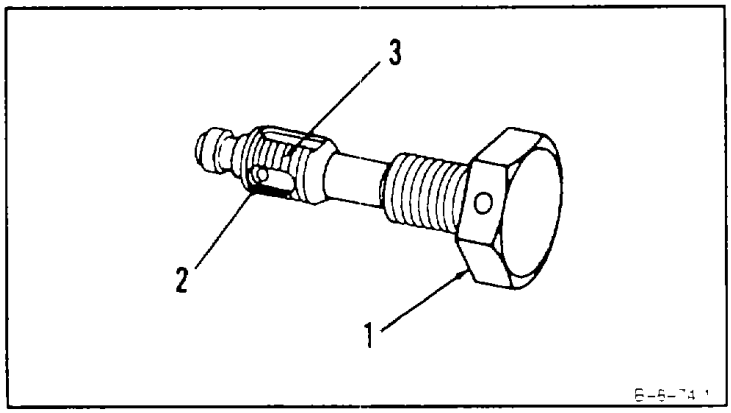
Materials:
None

Personnel Required:
Aircraft Powerplant Inspector

Equipment Condition:
Off Engine Task

1. **Inspect starter gearbox filter (1).**
   a. There shall be no cracks.
   b. There shall be no clogged holes (2).
   c. There shall be no clogged threads (3).

FOLLOW-ON MAINTENANCE:
None



END OF TASK

8-92 INSTALL STARTER GEARBOX FILTER 8-92

INITIAL SETUP

Applicable Configurations:
All

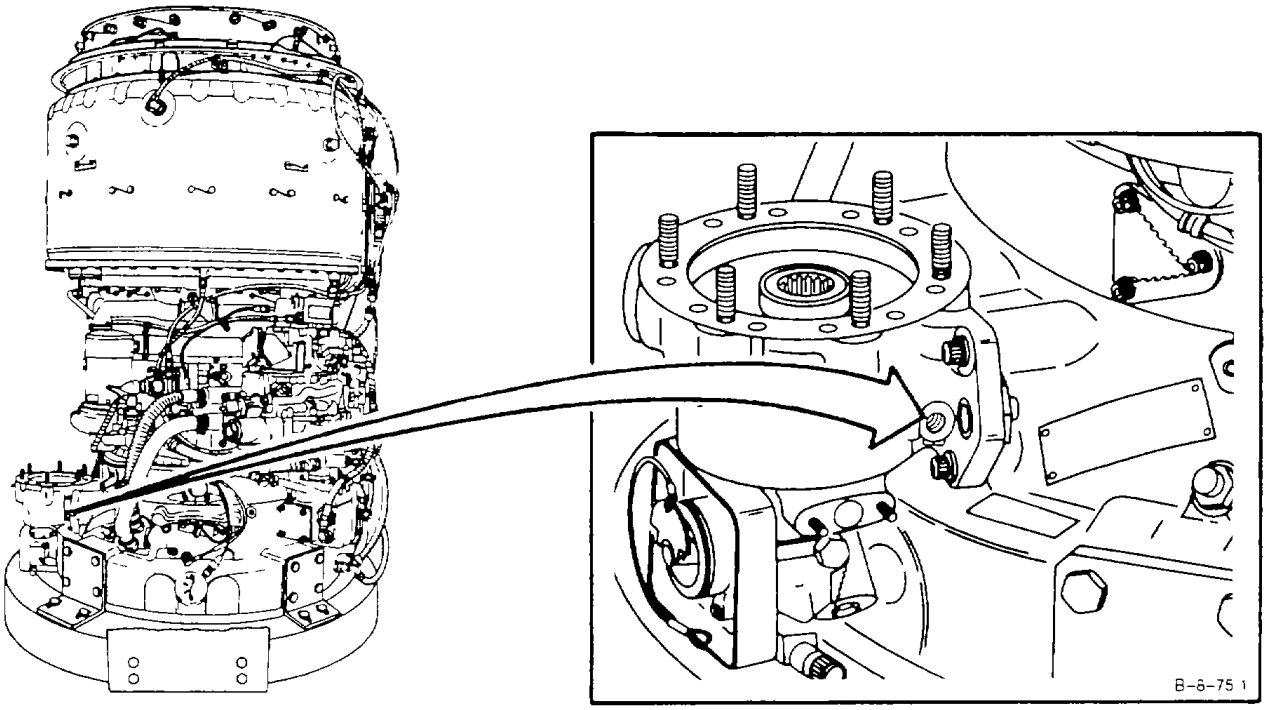
Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Technical Inspection Tool Kit,
NSN 5180-00-323-5114

Materials:
Lockwire (E33)

Parts:
Packing
Washer

Personnel Required:
Aircraft Powerplant Repairer
Aircraft Powerplant Inspector

References:
TM 1-2840-252-23P



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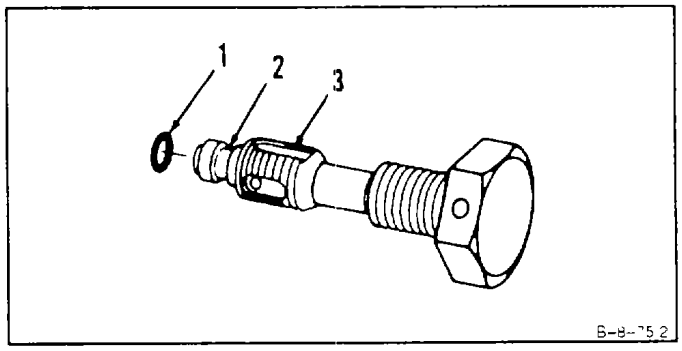
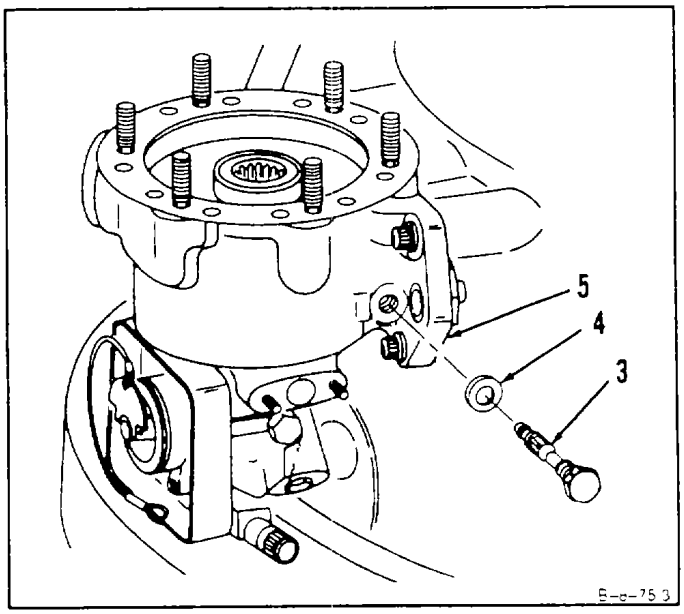
1. **Install packing (1)** in groove (2) on starter gearbox filter (3).

2. **Install** washer (4) and **starter gearbox filter (3)** in housing (5). Tighten starter gearbox filter (1) to 22-inch-pounds. Lockwire starter gearbox filter (3). Use lockwire (E33).

INSPECT

FOLLOW-ON MAINTENANCE:
None





END OF TASK

SECTION XI

NO. 2 BEARING PRESSURE OIL CONNECTOR

8-93 REMOVE NO. 2 BEARING PRESSURE OIL CONNECTOR 8-93

INITIAL SETUP

Applicable Configurations:
All

Tools:

Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944

Materials:

None

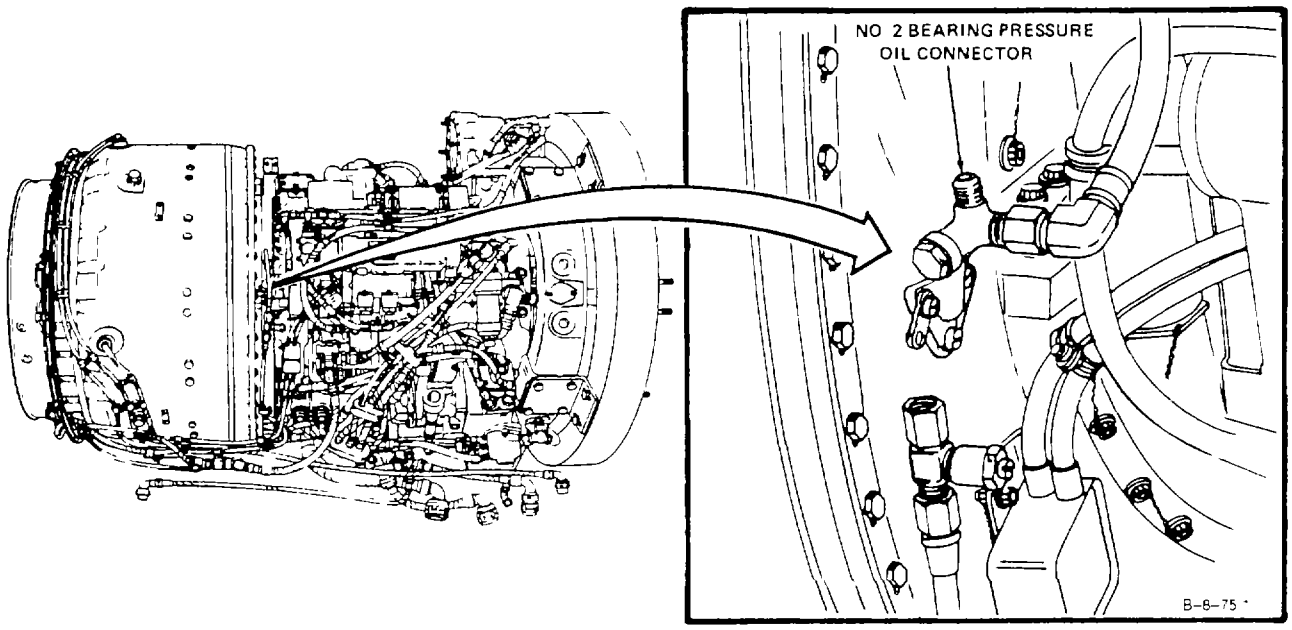
Personnel Required:
Aircraft Powerplant Repairer

Equipment Condition:
Tube Assembly (No. 2 Bearing Pressure Connector to Tee and Snubber) Removed (Task 8-73)

General Safety Instructions:

WARNING

Lubricating oils cause paralysis if swallowed. Prolonged contact with them may irritate the skin. Handle only in well-ventilated areas away from heat and flame. Drain and store in approved metal safety containers. Avoid prolonged or repeated contact with skin and do not take internally. Wash contacted areas of skin thoroughly after handling. If irritation of skin results, get medical attention. Get medical attention for eyes.



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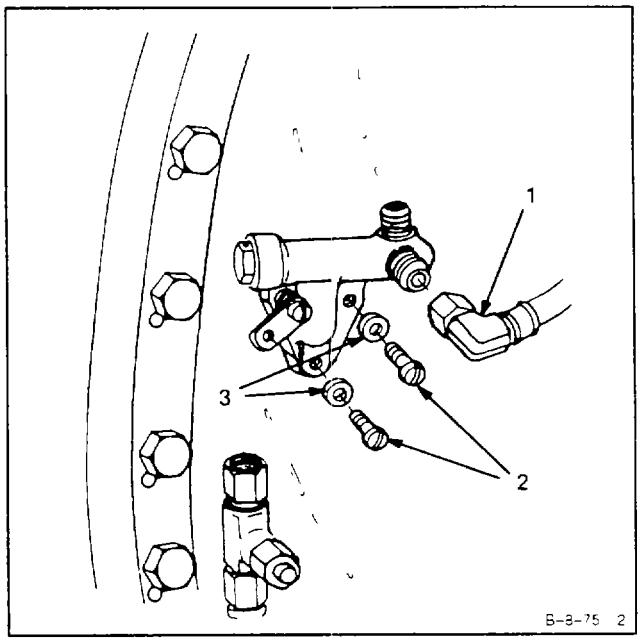
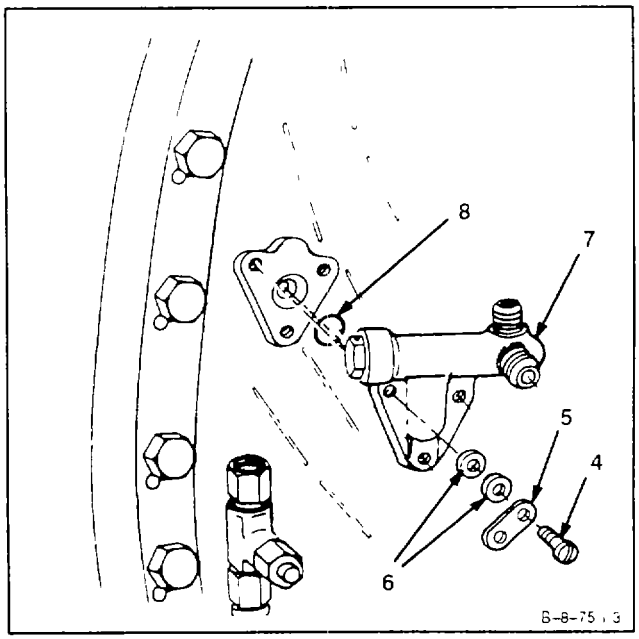
1. **Disconnect hose assembly (1).**

2. **Remove** lockwire, **two screws (2)** and two washers (3).

3. Remove screw (4), bracket (5), two washers (6),**No. 2 bearing pressure connector (7)**, and packing (8).

FOLLOW-ON MAINTENANCE:
None





END OF TASK

8-94 CLEAN NO. 2 BEARING PRESSURE OIL CONNECTOR 8-94

INITIAL SETUP

Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit, NSN 5180-00-323-4944
Dry, Compressed Air Source
Goggles

Materials:
Dry Cleaning Solvent (El9)
Gloves (E24)

Personnel Required:
Aircraft Powerplant Repairer

Equipment Condition:
Off Engine Task
No. 2 Bearing Pressure Oil Connector Removed (Task 8-93)

General Safety Instructions:

WARNING

Dry cleaning solvent (E19) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

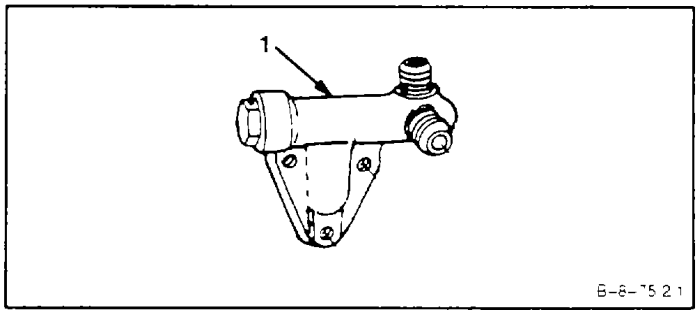
1. Wear gloves (E24). **Clean No. 2 bearing pressure oil connector (1)**, using brush and dry cleaning solvent (E19).

WARNING

When using compressed air for cleaning, use approved protective equipment for eyes and face. Do not use more than 30 psig air pressure. Do not direct air toward yourself or another person. Failure to comply could result in injury to eyes or skin. In case of injury, get medical attention.

2. Wear goggles. **Blow dry No. 2 bearing pressure oil connector (1)**, using clean, dry, compressed air.

FOLLOW-ON MAINTENANCE:
Inspect No. 2 Bearing Pressure Oil Connector (Task 8-95).



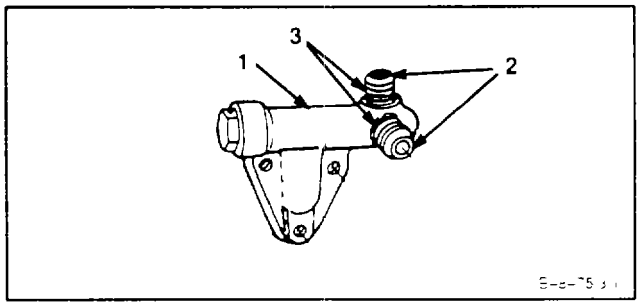
END OF TASK

8-95 INSPECT NO. 2 BEARING PRESSURE OIL CONNECTOR 8-95

INITIAL SETUP
Applicable Configurations:
All
Tools:
Powerplant Mechanic's Tool Kit, NSN 5180-00-323-4944
Materials:
None
Personnel Required:
Aircraft Powerplant Repairer
Equipment Condition:
Off Engine Task

1. **Inspect No. 2 bearing pressure oil connector (1) as follows:**
   a. There shall be no nicks, scratches, and gouges on sealing surfaces (2).
   b. There shall be no damaged threads (3).

FOLLOW-ON MAINTENANCE:
None



END OF TASK

8-96 INSTALL NO. 2 BEARING PRESSURE OIL CONNECTOR 8-96

INITIAL SETUP

Applicable Configurations:
All

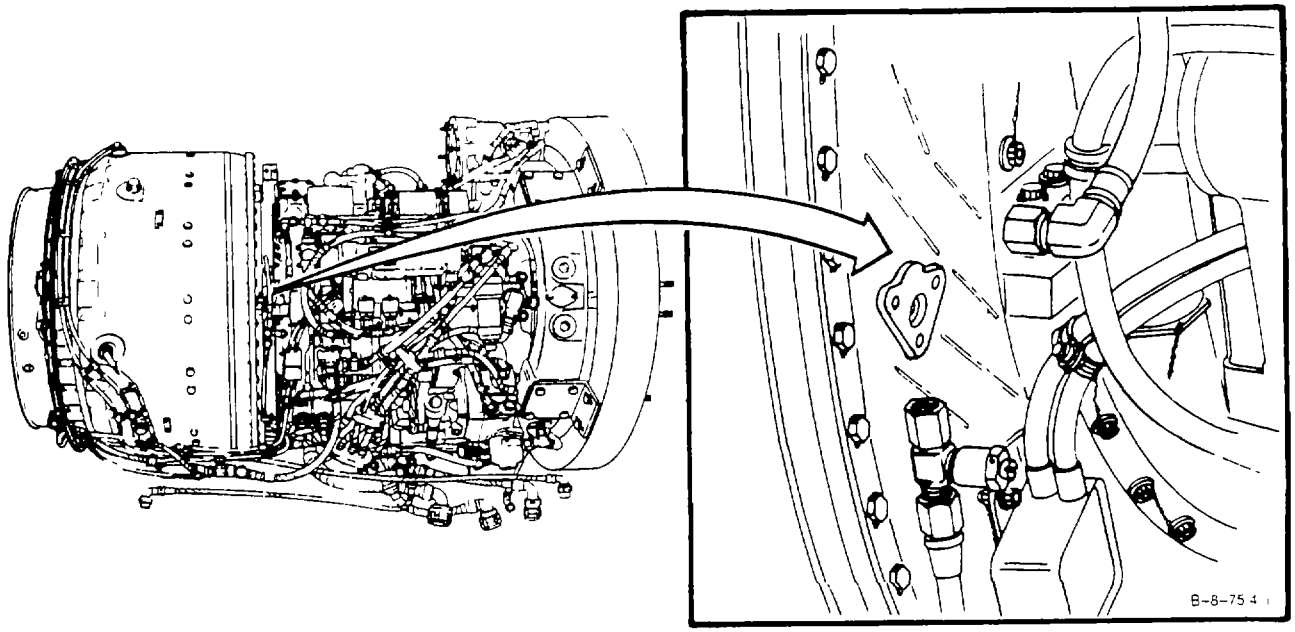
Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Technical Inspection Tool Kit,
NSN 5180-00-323-5114

Materials:
None

Parts:
Packing

Personnel Required:
Aircraft Powerplant Repairer
Aircraft Powerplant Inspector

References:
TM 1-2840-252-23P



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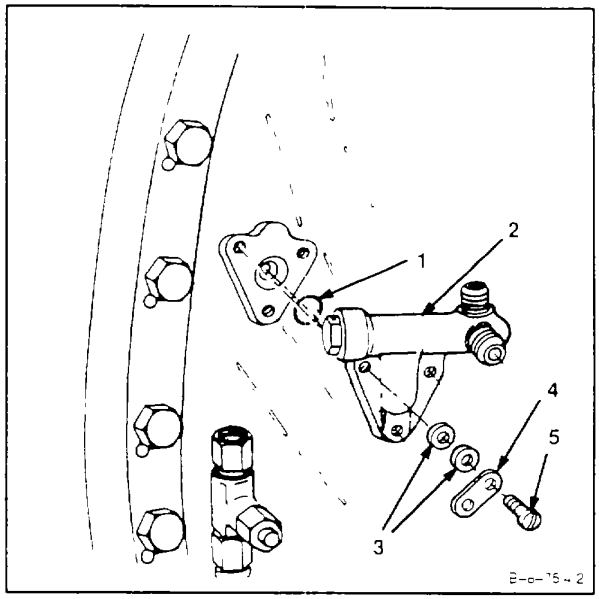
1. **Install** packing (1), **No. 2 bearing pressure connector (2)**, two washers (3), bracket (4), and screw (5).

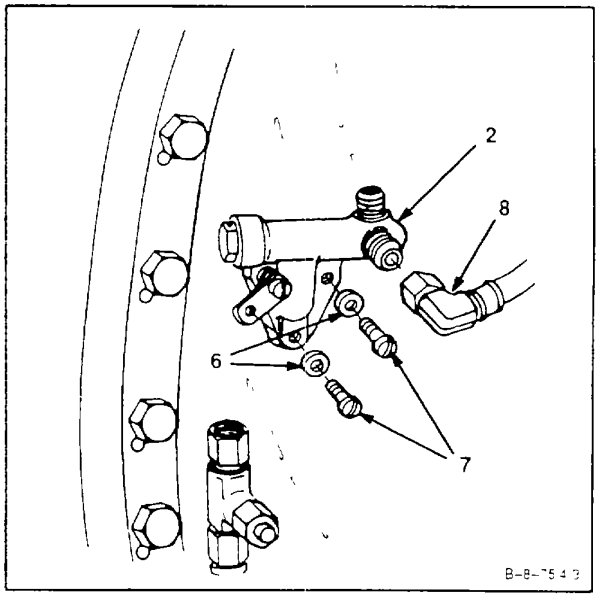
2. **Install** two washers (6) and **two screws (7)**.

3. **Connect hose assembly (8)** to No. 2 bearing pressure oil connector (2).

INSPECT

FOLLOW-ON MAINTENANCE:
Install Tube Assembly (No. 2 Bearing Pressure Connector to Tee and Snubber) (Task 8-74).





END OF TASK

SECTION XII

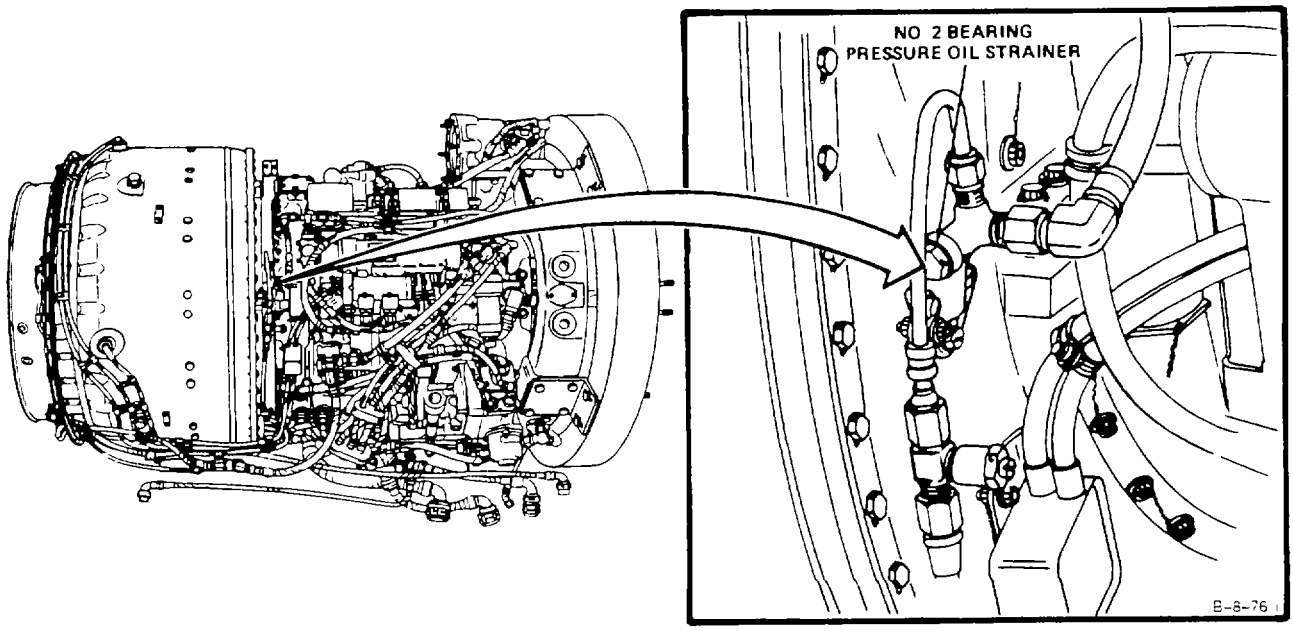
NO. 2 BEARING PRESSURE OIL STRAINER

8-97 REMOVE NO. 2 BEARING PRESSURE OIL STRAINER 8-97

INITIAL SETUP
Applicable Configurations:
All
Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Materials:
None
Personnel Required:
Aircraft Powerplant Repairer

General Safety Instructions:
WARNING

Lubricating oils cause paralysis if swallowed. Prolonged contact with them may irritate the skin. Handle only in well-ventilated areas away from heat and flame. Drain and store in approved metal safety containers. Avoid prolonged or repeated contact with skin and do not take internally. Wash contacted area of skin thoroughly after handling. If irritation of skin results, get medical attention. Get medical attentionforeyes.



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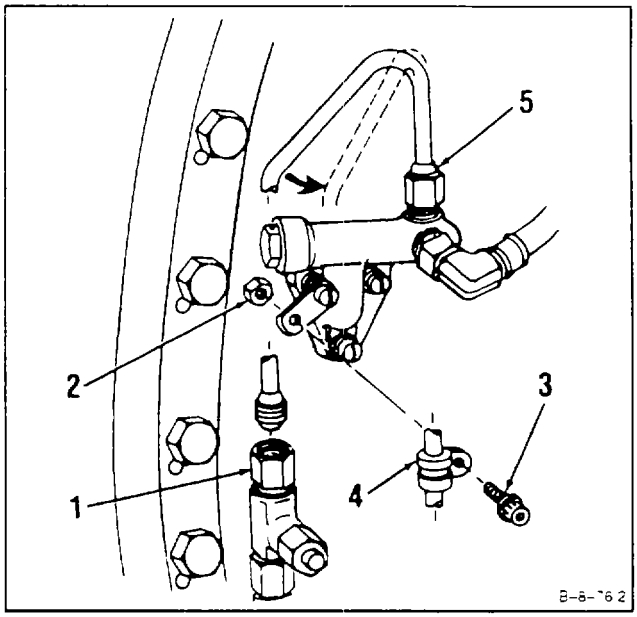
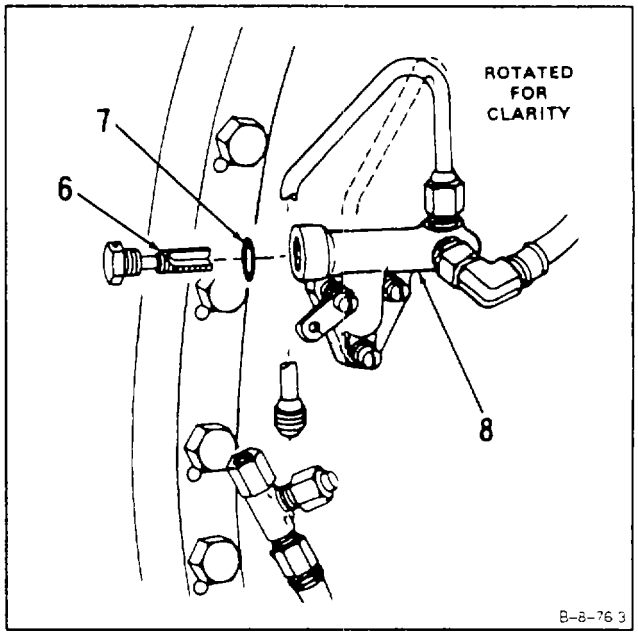
1. **Disconnect oil tee and snubber (1).**
2. **Remove** nut (2), bolt (3) and **clamp (4).**
3. **Loosen tube assembly (5)** and swing tube assembly to side.
4. **Remove** lockwire, **No. 2 bearing pressure oil strainer (6)** and packing (7) from No. 2 bearing pressure oil connector (8).

FOLLOW-ON MAINTENANCE:
None





END OF TASK

8-98 CLEAN NO. 2 BEARING PRESSURE OIL STRAINER 8-98

Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Dry, Compressed Air Source
Goggles

Materials:
Dry Cleaning Solvent (E19)
Gloves (E24)

Personnel Required:
Aircraft Powerplant Repairer

Equipment Condition:
Off Engine Task
No. 2 Bearing Pressure Oil Strainer Removed (Task 8-97)

General Safety Instructions:

WARNING

Dry cleaning solvent (E19) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

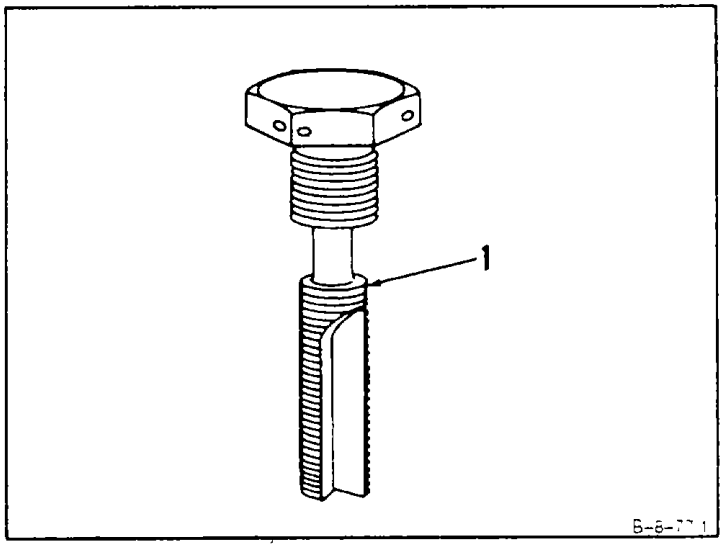
1. Wear gloves (E24). **Clean strainer (1)**, using brush and dry cleaning solvent (E19).

WARNING

When using compressed air for cleaning, use approved protective equipment for eyes and face. Do not use more than 30 psig air pressure. Do not direct air toward yourself or another person. Failure to comply could result in injury to eyes or skin. In case of Injury, get medical attention.

2. Wear goggles. **Blow dry strainer (1**), using clean, dry, compressed air.

FOLLOW-ON MAINTENANCE:
Inspect No. 2 Bearing Pressure Oil Strainer (Task 8-99).



END OF TASK

INITIAL SETUP

Applicable Configurations:
All

Tools:
Technical Inspection Tool Kit,
NSN 5180-00-323-5114

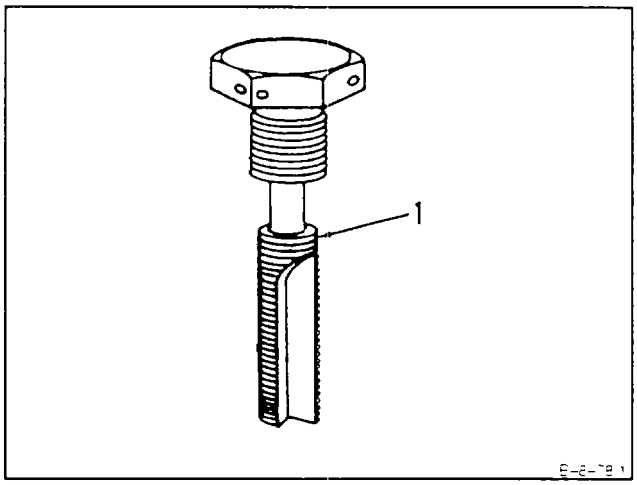
Materials:
None

Personnel Required:
Aircraft Powerplant Inspector

Equipment Condition:
Off Engine Task

1. **Inspect No. 2 bearing pressure oil strainer (1)**. There shall be no cracks.

FOLLOW-ON MAINTENANCE:
one



END OF TASK

8-100 INSTALL NO. 2 BEARING PRESSURE OIL STRAINER 8-100

INITIAL SETUP

Applicable Configurations:
All

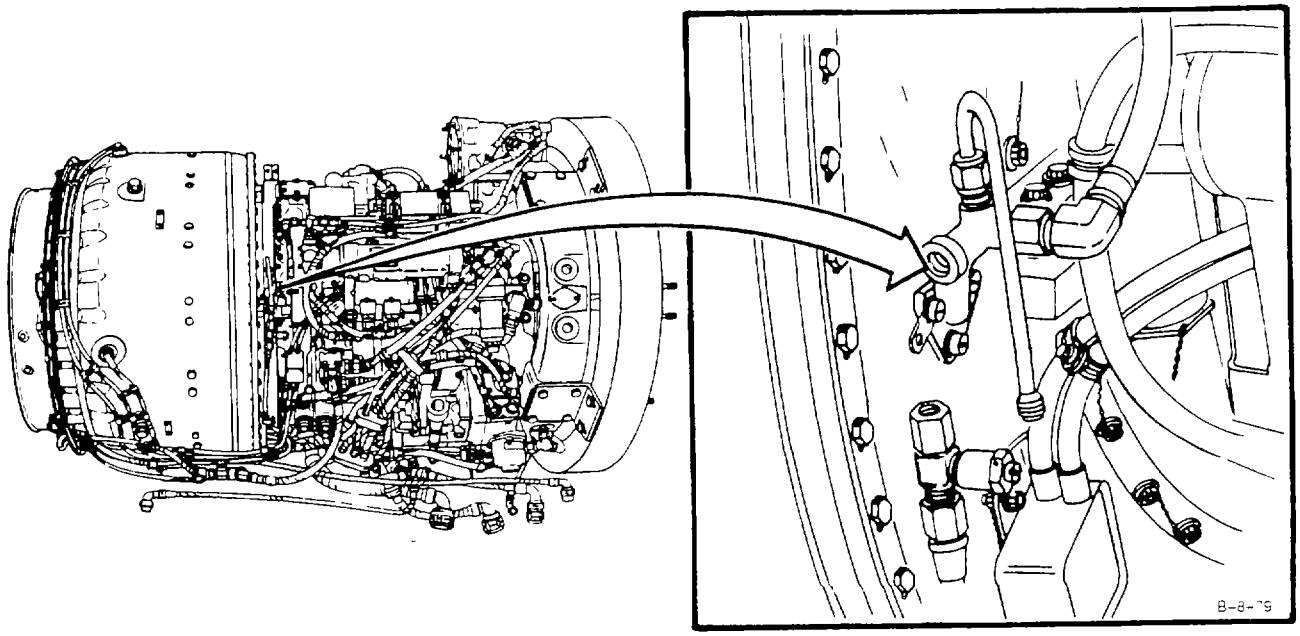
Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Technical Inspection Tool Kit,
NSN 5180-00-323-5114

Materials:
Lockwire (E33)

Parts:
Packing

Personnel Required:
Aircraft Powerplant Repairer
Aircraft Powerplant Inspector

References:
TM 1-2840-252-23P



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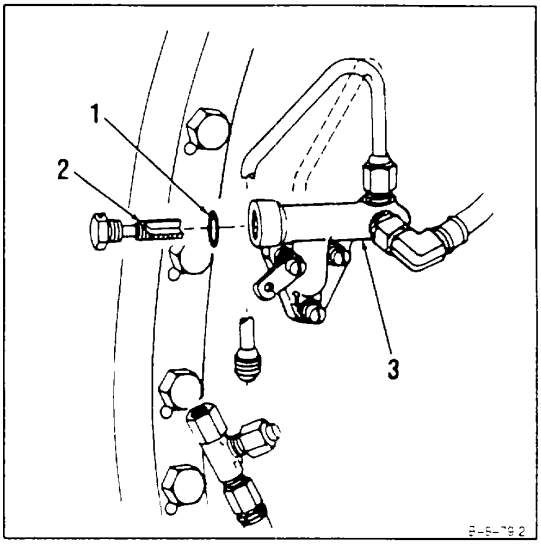
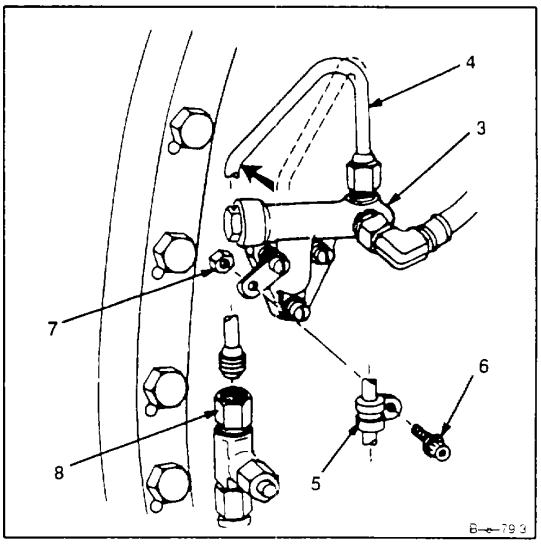
1. **Install** packing (1) and **No. 2 bearing pressure oil strainer** (2) in No. 2 bearing pressure oil connector (3). Lockwire strainer (2). Use lockwire (E33).

2. Swing tube assembly (4) to clamp position and **install clamp** (5), bolt (6), and nut (7).

3. **Connect tube assembly** (4) to No. 2 bearing pressure oil connector (3) and oil tee and snubber (8).





INSPECT

FOLLOW-ON MAINTENANCE:
None

END OF TASK

SECTION XIII

NO. 5 AND 5 BEARING FILTER

8-101 REMOVE NO. 4 AND 5 BEARING FILTER 8-101

INITIAL SETUP

Applicable Configurations:

All

Tools:

Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Open-End Wrench (T24)
Container, 1-Quart
Goggles
Slave Screw, Part Number NAS1352-01-6,
NSN 5305-00-224-1168

Materials:

Wiping Rag (E64)

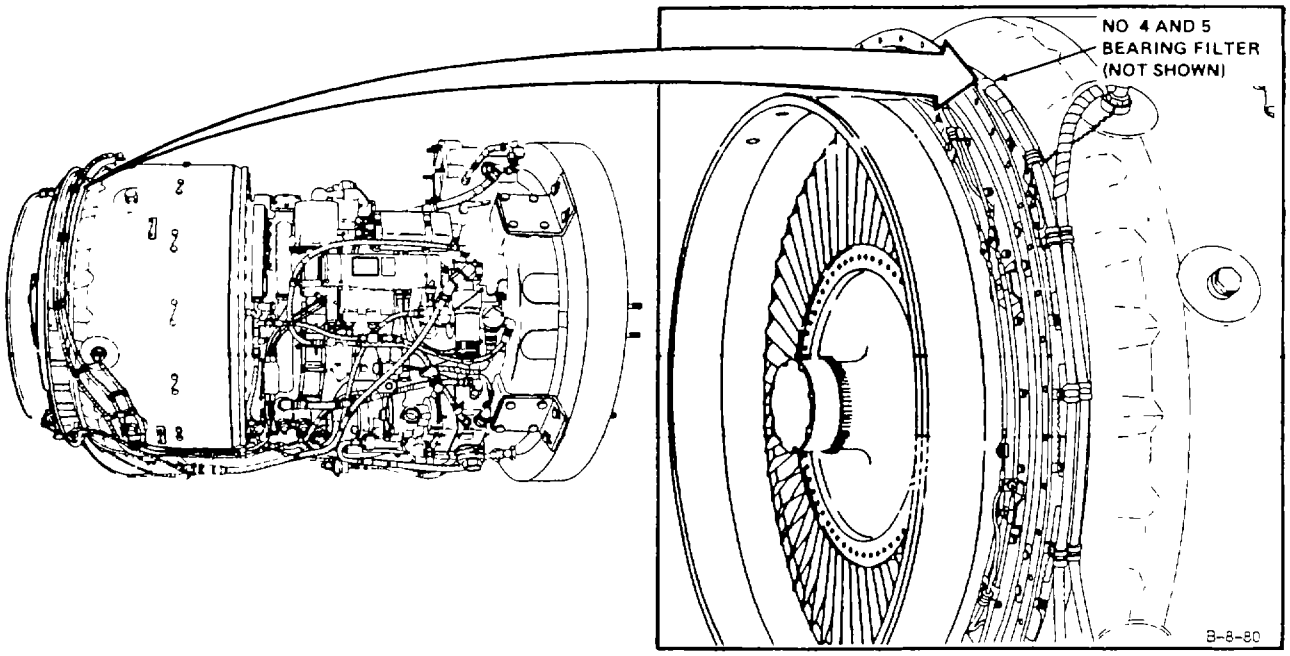
Personnel Required:

Aircraft Powerplant Repairer

General Safety Instructions:

WARNING

Lubricating oils cause paralysis if swallowed Prolonged contact with them may irritate the skin. Handle only in well-ventilated areas away from heat and flame. Drain and store in approved metal safety containers. Avoid prolonged or repeated contact with skin and do not take internally. Wash contacted area of skin thoroughly after handling. If irritation of skin results, get medical attention. Get medical attention for eyes.



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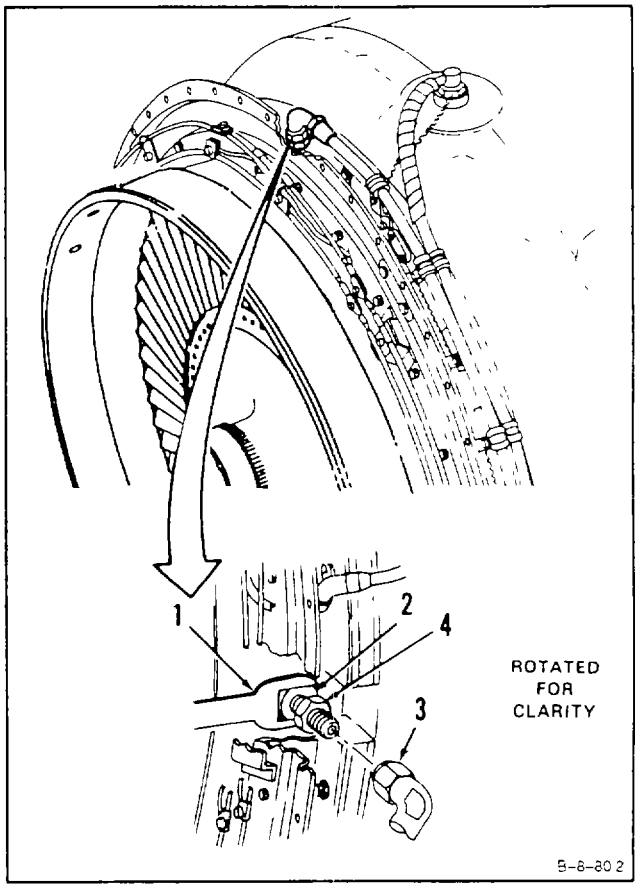
CAUTION

In following step, hold No. 4 and 5 bearing lube adapter using open-end wrench (T24). Failure to use wrench may result in damage and mislocation of oil transfer tube resulting in oil leaks.

1. Place open-end wrench (T24) (1) on No. 4 and 5 bearing lube adapter (2).

2. **Disconnect hose assembly (3)** from reducer (4).



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WARNING

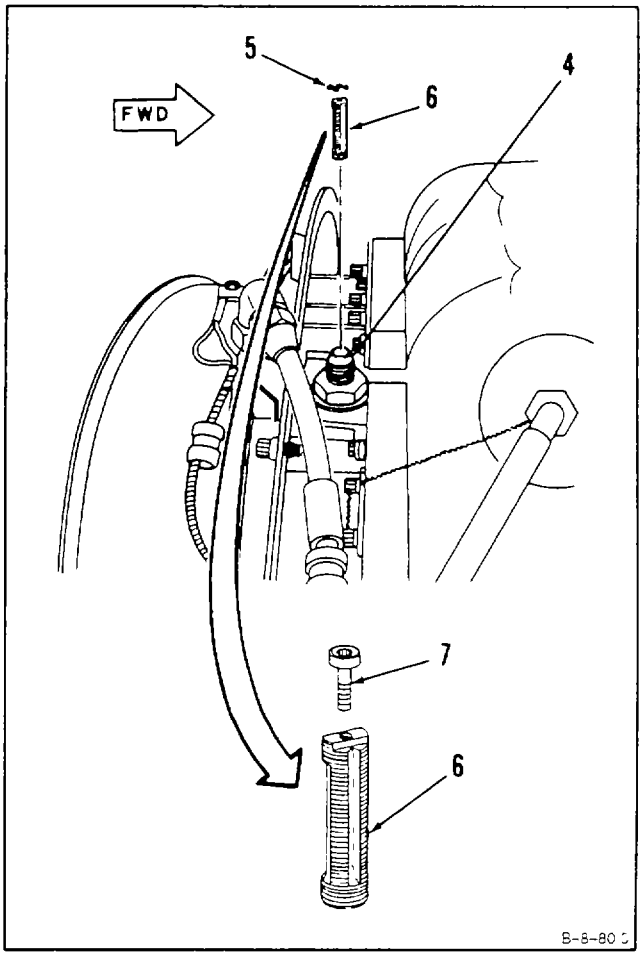
In following step, wear goggles when removing spring. Spring may fly apart when removed. Failure to comply may cause serious eye injury. If eye Injury occurs, get medical attention.

3. **Remove spring (5).**

4. **Remove filter (6)** from reducer (4). Use slave screw (7).

NOTE

If it is not possible to remove filter from reducer, do steps 5 thru 7.



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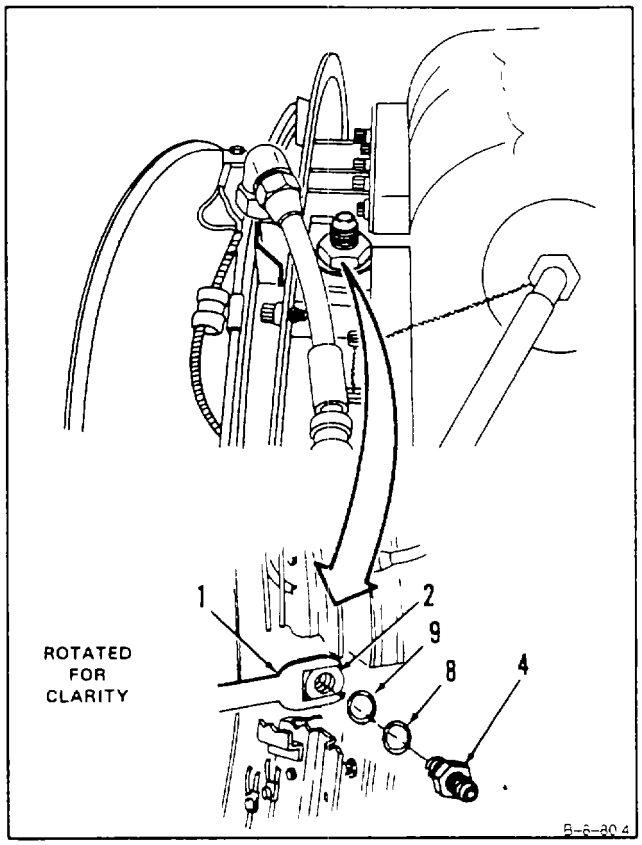
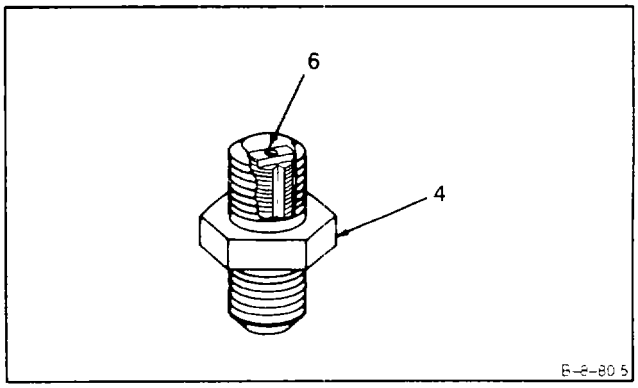
5. Place open-end wrench (T24) (1) on No. 4 and 5 bearing lube adapter (2).

6. **Remove reducer (4),** washer (8), and shim (9) from adapter (2).

7. **Discard reducer (4) and filter (6).**

FOLLOW-ON MAINTENANCE:
None





END OF TASK

8-102 CLEAN NO. 4 AND 5 BEARING FILTER 8-102

INITIAL SETUP

Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Goggles
Dry, Compressed Air Source

Materials:
Dry Cleaning Solvent (E19)
Gloves (E24)
Lint-Free Cloth (E30)

Personnel Required:
Aircraft Powerplant Repairer

Equipment Condition:
Off Engine Task
No. 4 and 5 Bearing Filter Removed (Task 8-101)

General Safety Instructions:

WARNING

Dry cleaning solvent (E19) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

1. Wear gloves (E24). **Clean** No. 4 and 5 **bearing filter** (1). Use brush and dry cleaning solvent (E19).

2. **Clean spring** (2). Immerse in dry cleaning solvent (E19) and agitate.

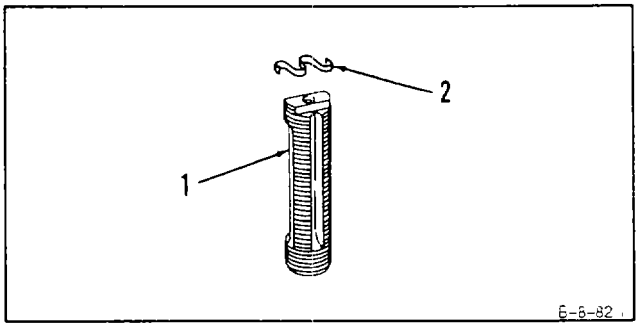
WARNING

When using compressed air for cleaning, use approved protective equipment for eyes and face. Do not use more than 30 psig air pressure. Do not direct air toward yourself or another person. Failure to comply could result in injury to eyes or skin. In case of injury, get medical attention.

3. Wear goggles. **Blow dry No. 4 and 5 bearing filter (1)**. Use clean, dry, compressed air.

4. **Blow dry spring (2)**. Use clean, dry, compressed air).

FOLLOW-ON MAINTENANCE:
Inspect No. 4 and 5 Bearing Filter (Task 8-103).



END OF TASK

8-103 INSPECT NO. 4 AND 5 BEARING FILTER 8-103

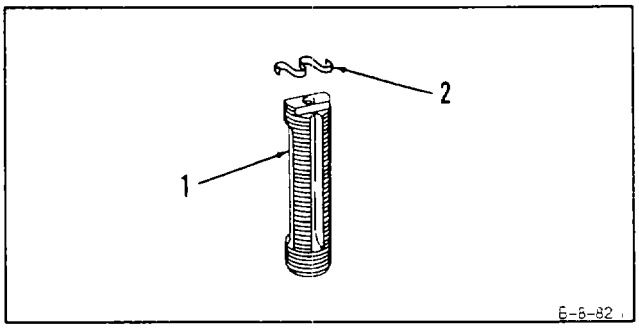
INITIAL SETUP
Applicable Configurations:
All
Tools:
Technical Inspection Tool Kit,
NSN 5180-00-323-5114

Materials:
None
Personnel Required:
Aircraft Powerplant Inspector
***Equipment** Condition:*
Off Engine Task

1. **Inspect No. 4 and 5 bearing filter (1)**. There shall be no nicks, tears, or broken segments.

2. **Inspect spring (2)**. Spring shall not be broken.

FOLLOW-ON MAINTENANCE:
None



END OF TASK

8-104 INSTALL NO. 4 AND 5 BEARING FILTER 8-104

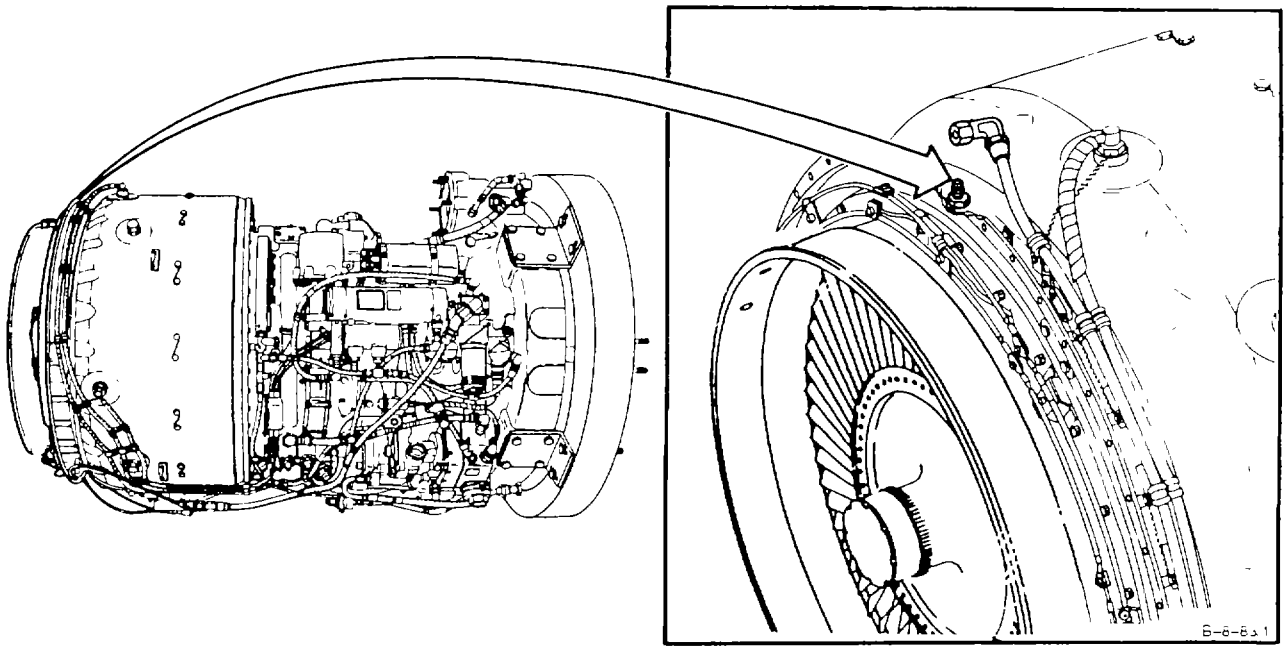
INITIAL SETUP

Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Technical Inspection Tool Kit,
NSN 5180-00-323-5114
Open-End Wrench (T24)
Torque Wrench, 30-150 Inch-Pounds
Outside Micrometer Caliper Set
Goggles

Materials:
Lockwire (E33)

Personnel Required:
Aircraft Powerplant Repairer
Aircraft Powerplant Inspector



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NOTE

If reducer was removed in Task 8-101, per- form steps 1 thru 3. If reducer was not re- moved, omit steps 1 thru 3.

1. **Determine shims needed under reducer (1)** as follows:

CAUTION

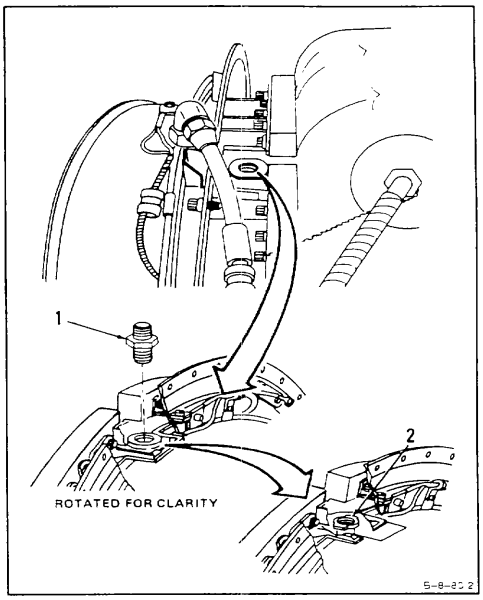
Do not tighten reducer in following step. Tightening of reducer may dam- age Internal oil tube.

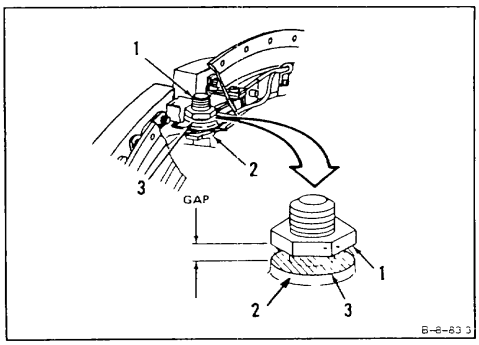
a. Thread reducer (1) in adapter (2) until it is seated.

CAUTION

In following step, fireshield must be seated against adapter to obtain correct measurement. Failure to do so will result in incorrect gap.

b. Seat fireshield section (3) against adapter (2) and measure gap between fireshield section and reducer (1).





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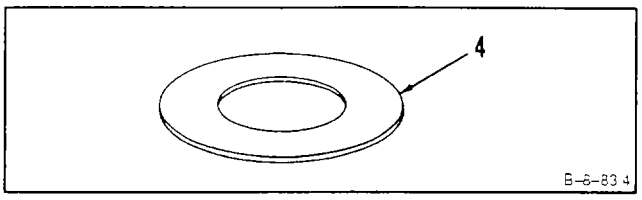
c. Find gap measured in shim selection table. Read across table to find shim thickness needed

IF GAP MEASURES INCH	SHIM THICKNESS REQUIRED INCH
0.060	NONE
0.061	NONE
0.062	0.003 to 0.005
0.063	0.003 to 0.005
0.064	0.003 to 0.005
0.065	0.006 to 0.010
0.066	0.006 to 0.010
0.067	0.006 to 0.010
0.068	0.008 to 0.012
0.069	0.008 to 0.012
0.070	0.008 to 0.012
0.071	0.009 to 0.015
0.072	0.011 to 0.017
0.073	0.011 to 0.017
0.074	0.011 to 0.017
0.075	0.012 to 0.020
0.076	0.014 to 0.022
0.077	0.014 to 0.022
0.078	0.016 to 0.024
0.079	0.016 to 0.024
0.080	0.016 to 0.024
0.081	0.016 to 0.024
0.082	0.019 to 0.029
0.083	0.019 to 0:029
0.084	0.019 to 0.029
0.085	0.022 to 0.034
0.086	0.022 to 0.034
0.087	0.022 to 0.034
0.088	0.022 to 0.034
0.089	0.024 to 0.036
0.090	0.024 to 0.036

d. Measure thickness of shims (4). Check against shim selection table. Use outside micrometer caliper.



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CAUTION

Concave side of washer must face fire- shield section. Failure to comply will place wrong tension on internal oil tube.

CAUTION

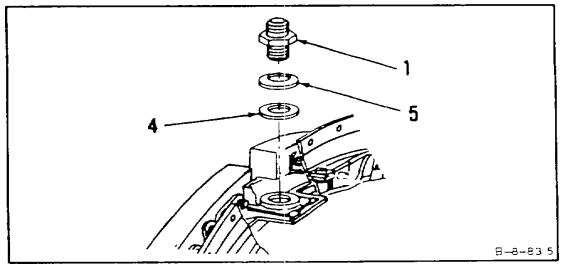
Do not tighten reducer in following step. Tightening of reducer may damage internal oil tube.

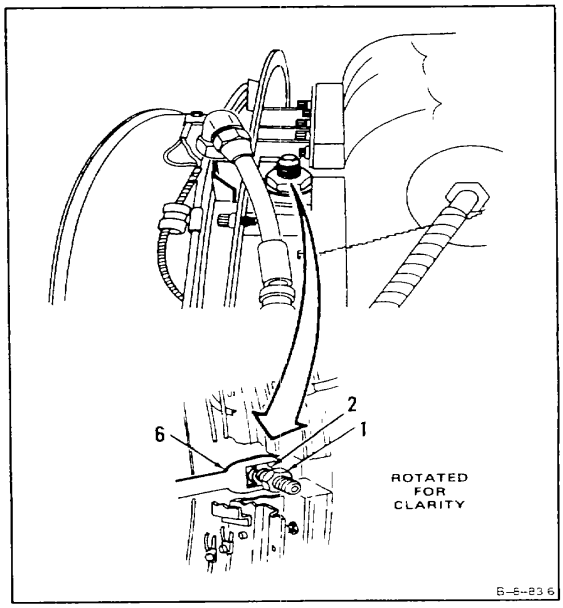
2. Remove reducer (1). **Loosely install shims (4), washer (5),** concave side down, **and reducer (1).**

CAUTION

Adapter must be held firmly when tightening reducer. Failure to comply will cause damage to internal tube assembly.

3. Hold adapter (2) with open-end wrench (T24) (6). **Torque reducer (1) to 115 inch-pounds** and lockwire. Use lockwire (E33).





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WARNING

In following step, wear goggles when installing spring. Spring may fly apart when installing. Failure to comply may cause serious eye injury. If eye injury occurs, get medical attention.

CAUTION

In following step, be sure that filter is installed in reducer with small diameter hole facing up. Failure to comply will cause less oil flow to bearings and result in bearing failure.

4. Wear goggles. **Install No. 4 and 5 bearing filter (7) and spring (8)** in reducer (1).

CAUTION

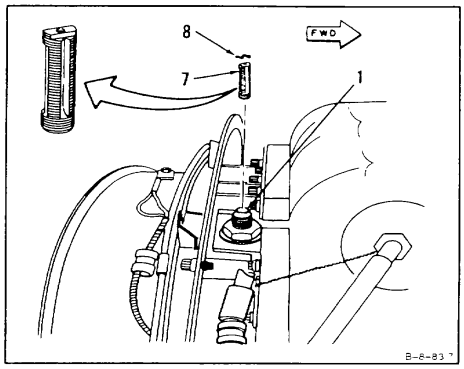
In following step, hold No. 4 and 5 bearing lube adapter using open-end wrench (T24). Failure to use wrench may result in damage and mislocation of oil transfer tube resulting in oil leaks.

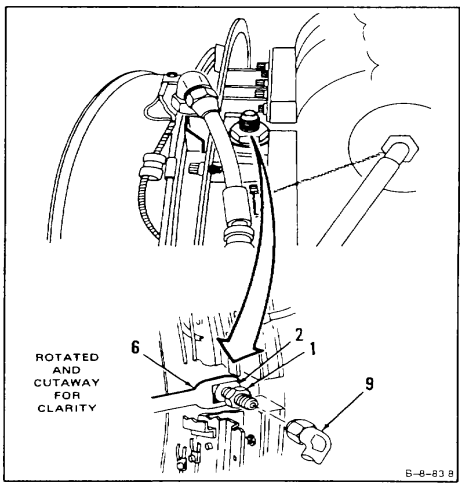
5. Place open-end wrench (T24) (6) on adapter (2).

6. **Install hose assembly (9)** on reducer (1).

INSPECT

FOLLOW-ON MAINTENANCE:
None





END OF TASK

SECTION XIV

OIL DRAIN COCK

8-105 REMOVE OIL DRAIN COCK 8-105

INITIAL SETUP

Applicable Configurations:

All

Tools:

Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Container, 1-Quart

Materials:

Wiping Rag (E64)

Personnel Required:

Aircraft Powerplant Repairer

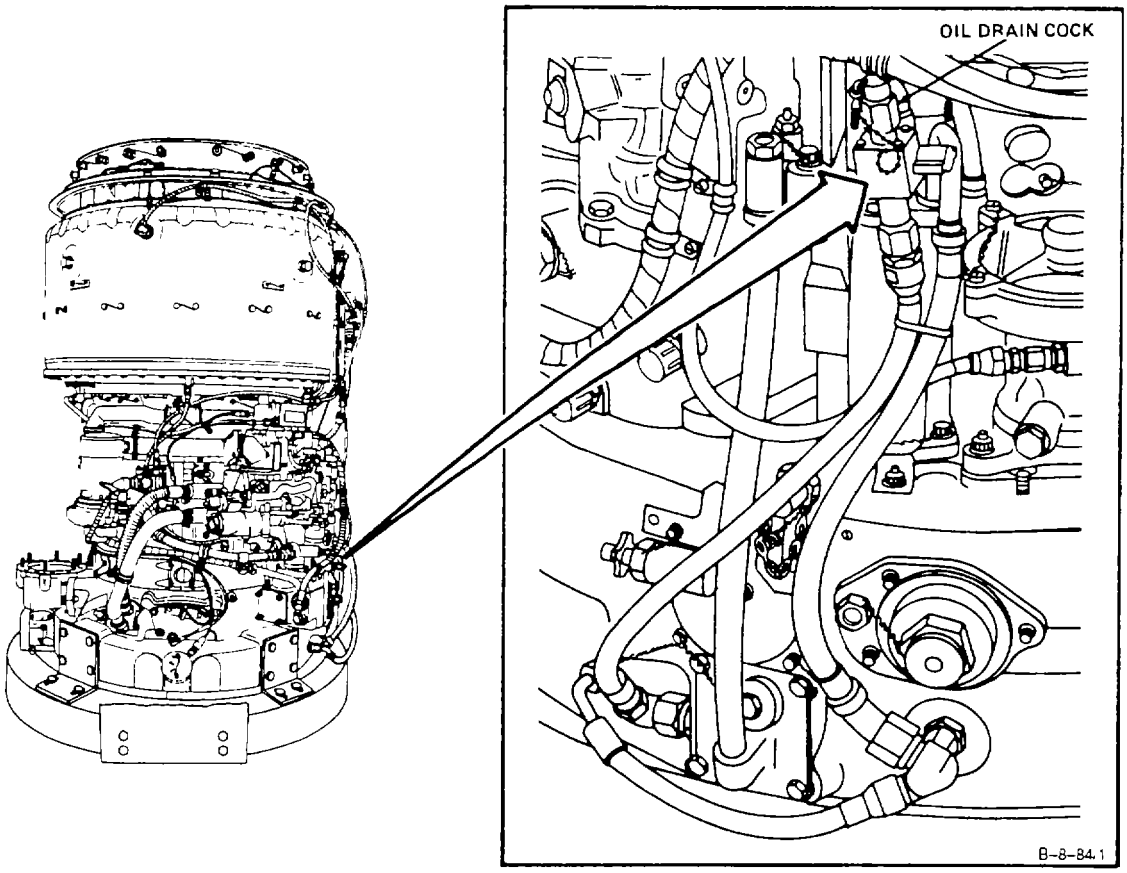
Equipment Condition:

Engine Oil System Drained (Task 1-69)

General Safety Instructions:

WARNING

Lubricating oils cause paralysis if swallowed. Prolonged contact with them may irritate the skin. Handle only in well-ventilated areas away from heat and flame. Drain and store in approved metal safety containers. Avoid prolonged or repeated contact with skin and do not take internally. Wash contacted area of skin thoroughly after handling. If irritation of skin results, get medical attention. Get medical attention for eyes.



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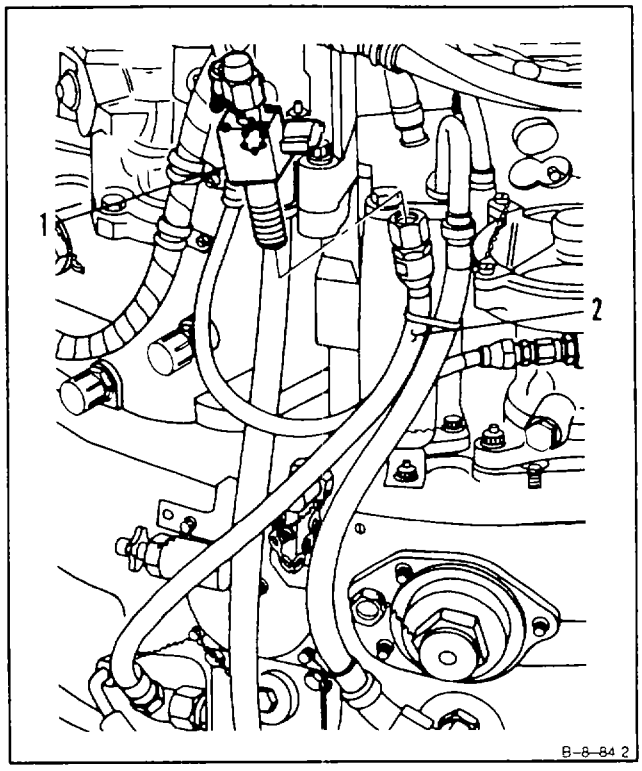
1. **Remove oil drain cock** (1) from hose assembly (2).

FOLLOW-ON MAINTENANCE:
None



END OF TASK

8-106 CLEAN OIL DRAIN COCK 8-106

INITIAL SETUP
Applicable Configurations:
All
Tools:
Goggles
Dry, Compressed Air Source
Materials:
Dry Cleaning Solvent (E19)
Gloves (E24)
Lint-Free Cloth (E30)
Personnel Required:
Aircraft Powerplant Repairer
Equipment Condition:
Off Engine Task
Oil Drain Cock Removed (Task 8-105)
General Safety Instructions:

WARNING

Dry cleaning solvent (E19) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

1. Remove cap (1).

NOTE

Make sure valve is in open position in following step 2.

2. **Clean oil drain cock** (2) as follows:

   a. Wear gloves (E24). Immerse in dry cleaning solvent (E19) and agitate. Use brush on external surfaces.

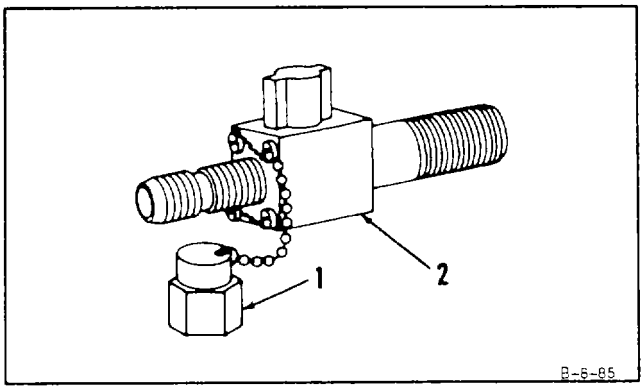
   b. Use lint-free cloth (E30) to remove solvent.

WARNING

When using compressed air for cleaning, use approved protective equipment for eyes and face. Do not use more than 30 psig air pressure. Do not direct air toward yourself or another person. Failure to comply could result in injury to eyes or skin. In case of injury, get medical attention.

   c. Wear goggles and **blow dry internal passage.** Use clean, dry, compressed air.

FOLLOW-ON MAINTENANCE:
Inspect Oil Drain Cock (Task 8-107).



END OF TASK

8-107 INSPECT OIL DRAIN COCK 8-107

INITIAL SETUP

Applicable Configurations:
All

Tools:
Technical Inspection Tool Kit,
NSN 5180-00-323-5114

Materials:
None

Personnel Required:
Aircraft Powerplant Inspector

1. **Inspect oil drain cock** (1) as follows:

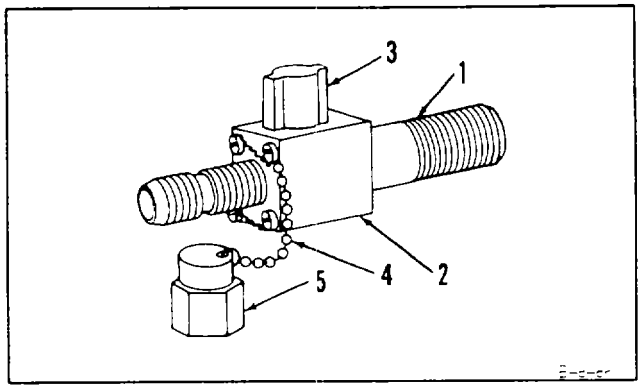
   a. Inspect housing (2). There shall be no cracks.

   b. Turn valve (3). There shall be no binding.

   c. Inspect chain (4). There shall be broken links.

2. Install cap (5).

FOLLOW-ON MAINTENANCE:
None



END OF TASK

8-108 INSTALL OIL DRAIN COCK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Technical Inspection Tool Kit,
NSN 5180-00-323-5114

Materials:-

Wiping Rag (E64)

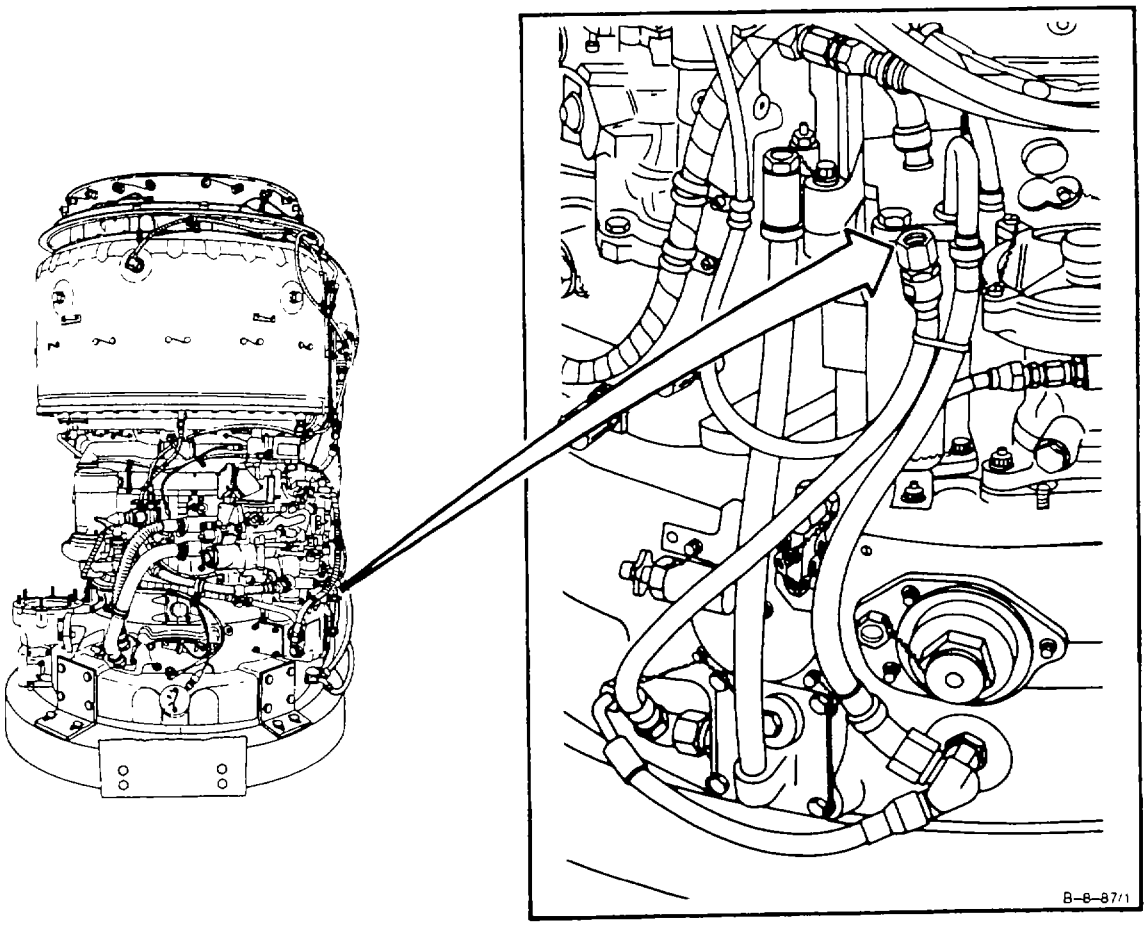
Personnel Required:

Aircraft Powerplant Repairer
Aircraft Powerplant Inspector

General Safety Instructions:

WARNING

Lubricating oils cause paralysis if swallowed. Prolonged contact with them may irritate the skin. Handle only in well-ventilated areas away from heat and flame. Drain and store in approved metal safety containers. Avoid pro longed or repeated contact with skin and do not take internally. Wash contacted area of skin thoroughly after handling. If irritation of skin results, get medical attention. Get medical attention for eyes.



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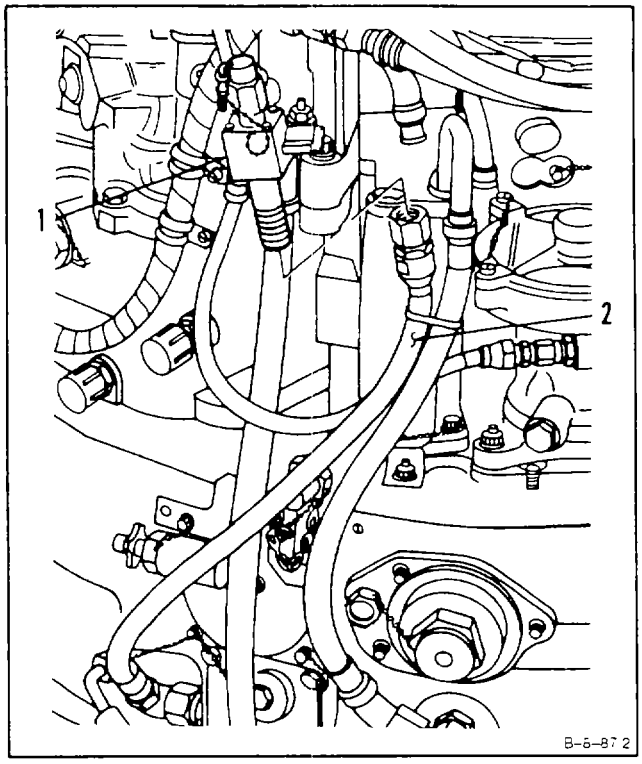
1. **Install oil drain cock (1)** on hose assembly (2).

INSPECT

FOLLOW-ON MAINTENANCE:
Service Engine Oil System (Task 1-68).



END OF TASK

SECTION XV
CHIP DETECTOR

8-109 REMOVE CHIP DETECTOR **8-109**

INITIAL SETUP

Applicable Configurations:
All

Tools:
Powerplant Mechanics' Tool Kit,
NSN 5180-00-323-4944

Materials:
Wiping Rag (E64)

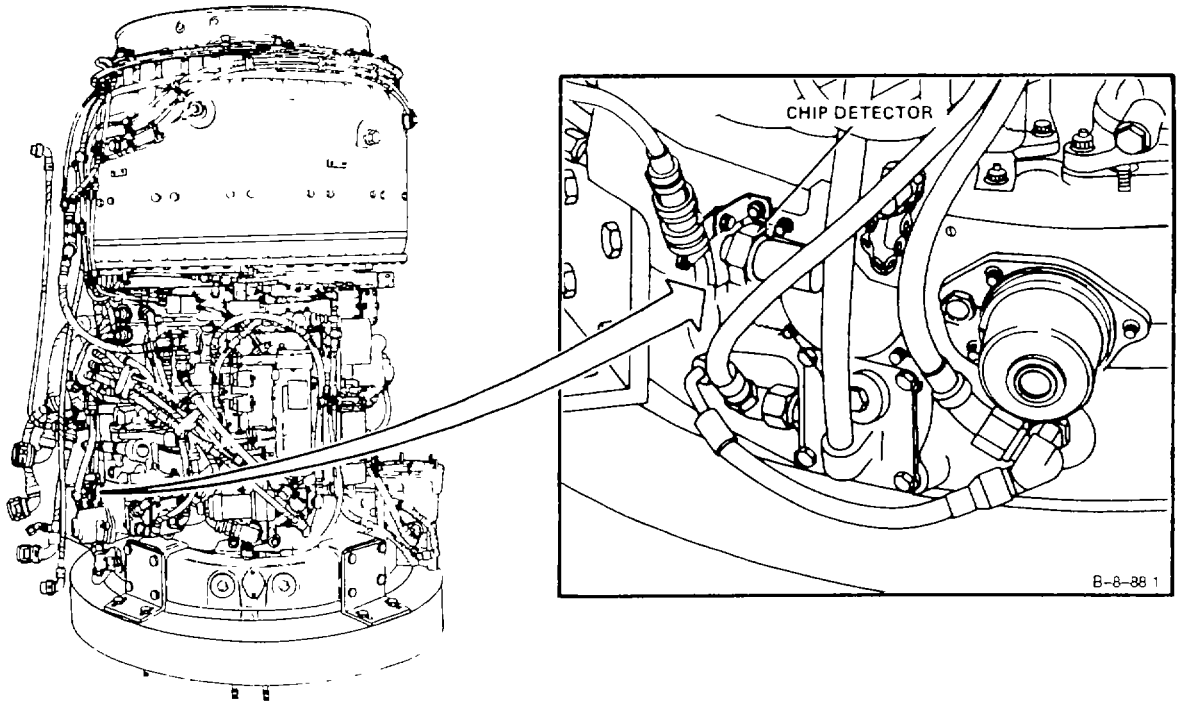
Personnel Required:
Aircraft Powerplant Repairer

Equipment Condition:
Engine Oil System Drained (Task 1-69)

General Safety Instructions:

WARNING

Lubricating oils cause paralysis if swallowed. Prolonged contact with them may irritate the skin. Handle only in well-ventilated areas away from heat and flame. Drain and store in approved metal safety containers. Avoid prolonged or repeated contact with skin and do not take internally. Wash contacted area of skin thoroughly after handling. If irritation of skin results, get medical attention. Get medical attention for eyes.



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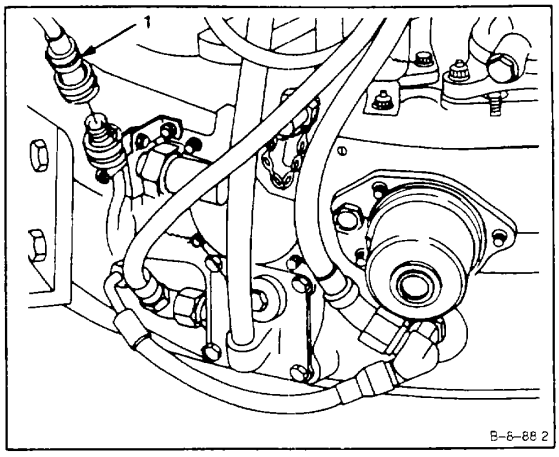
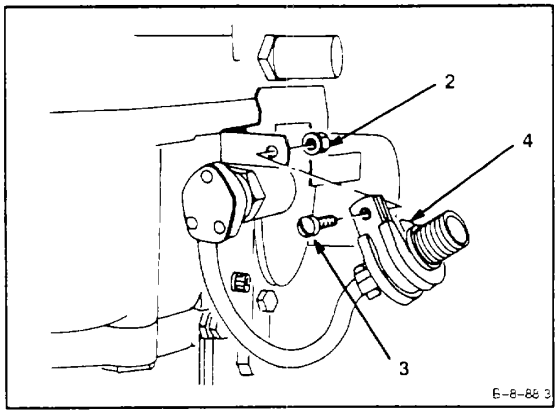
8-109 REMOVE CHIP DETECTOR (Continued) 8-109

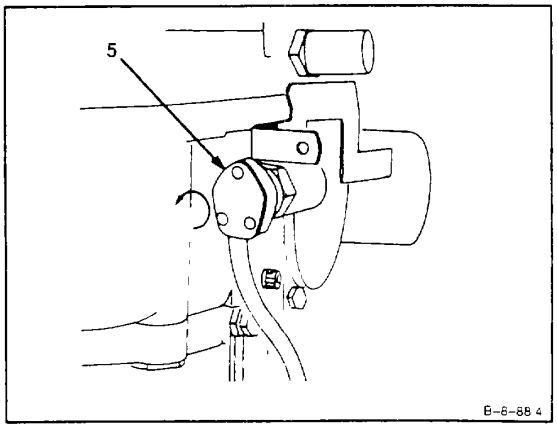
1. Disconnect electrical connector (1).



2. Remove nut (2), screw (3), and clamp (4).



3. Push plug (5) in and turn counterclockwise.



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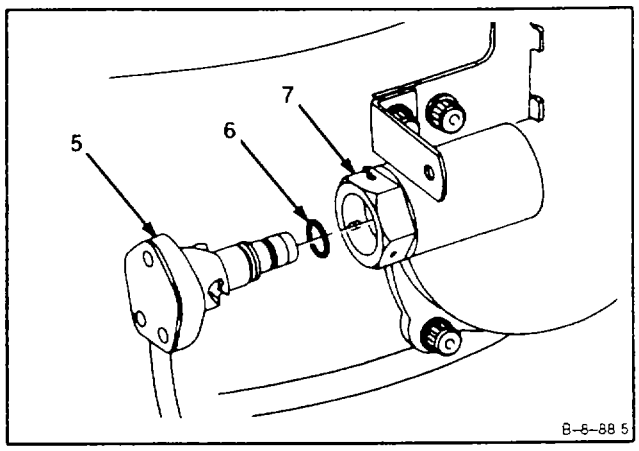
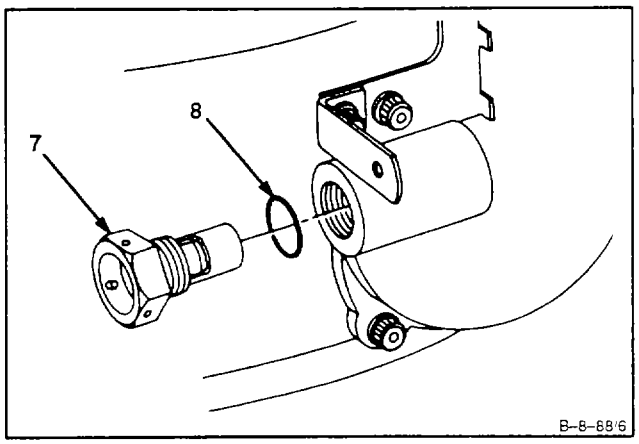
4. Remove plug (5) and packing (6) from housing (7).

5. Inspect plug (5). There shall be no contamination, or chips. If contamination or chips are found, Inspect Contaminated Oil System (Ref. Task 1-80).



6. Remove lockwire, housing (7) and packing (8).



FOLLOW-ON MAINTENANCE:
None

END OF TASK

8-110 CLEAN CHIP DETECTOR 8-110

INITIAL SETUP

Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Goggles
Dry, Compressed Air Source

Materials:
Dry Cleaning Solvent (E19)
Gloves (E24)
Lint-Free Cloth (E30)

Personnel Required:
Aircraft Powerplant Repairer

Equipment Condition:
Off Engine Task
Engine Oil System Drained (Task 1-69)
Chip Detector Removed (Task 8-109)

General Safety Instructions:

WARNING

Dry cleaning solvent (E19) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

WARNING

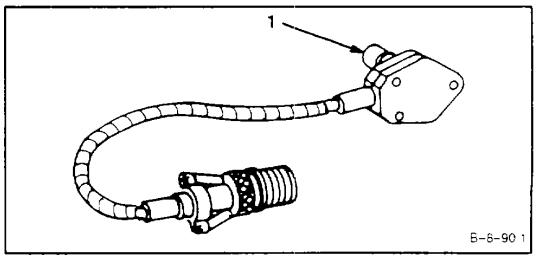
When using compressed air for cleaning, use approved protective equipment for eyes and face. Do not use more than 30 psig air pressure. Do not direct air toward yourself or another person. Failure to comply could result in injury to eys or skin. In case of injury, get medical attention.

1. Clean plug (1) as follows:

   a. Wear gloves (E24). Clean plug (1) with dry cleaning solvent (E19) and agitate. Use brush on external surfaces.

   b. Use lint-free cloth (E30) to remove solvent.

   c. Wear goggles. Blow dry plug. Use clean, dry, compressed air.

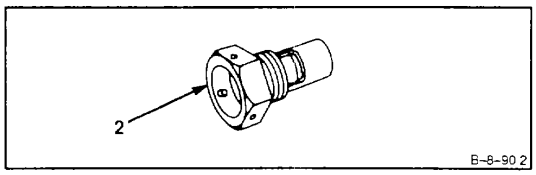


2. Clean housing (2) as follows:

   a. Immerse in dry cleaning solvent (E19) and agitate. Use brush on external surfaces.

   b. Use lint-free cloth (E30) to remove solvent.

   c. Wear goggles. Blow dry internal passage. Use clean, dry, compressed air.



FOLLOW-ON MAINTENANCE:
Inspect Chip Detector (Task 8-111).

END OF TASK

8-111 INSPECT CHIP DETECTOR **8-111**

INITIAL SETUP

Applicable Configurations:
All

Tools:
Technical Inspection Tool Kit,
NSN 5180-00-323-5114
Steel Nut, 1/4-28

Materials:
None

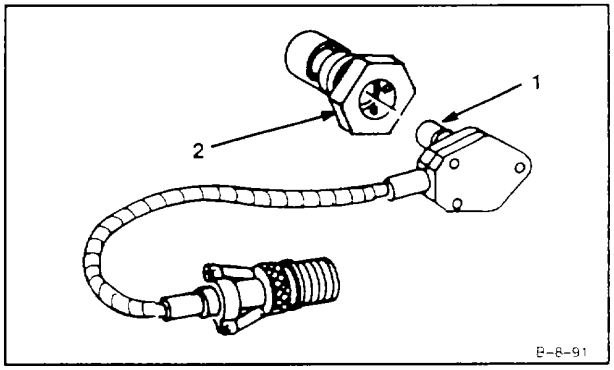
Personnel Required:
Aircraft Powerplant Inspector

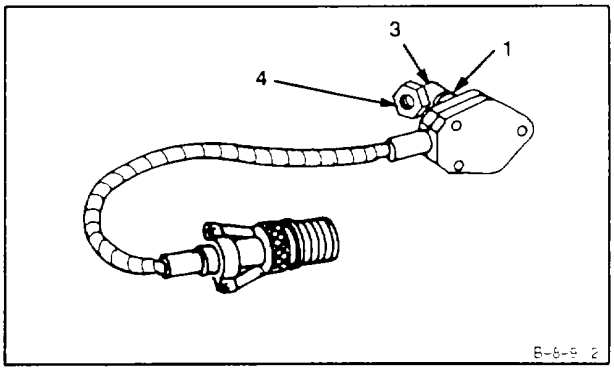
Equipment Condition:
Off Engine Task

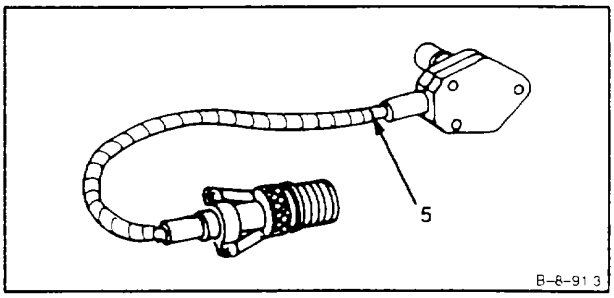
1. Inspect plug (1) and housing (2). There shall be no cracks.

2. Check strength of magnet (3) on plug (1) by placing1/4-28 steel nut (4) against it. Magnet (3) shall be strong enough to support weight of steel nut (4).

3. Inspect cable assembly (5). There shall be no frayed or burned installation. There shall be no loose connections or broken wires.







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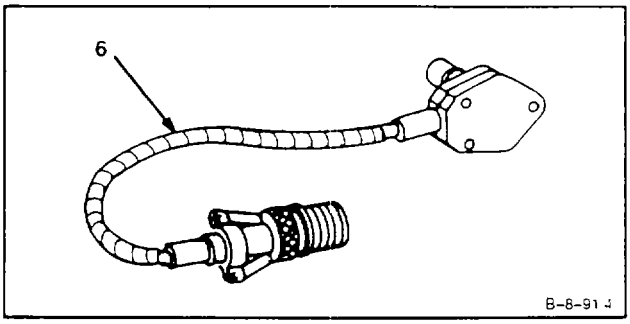
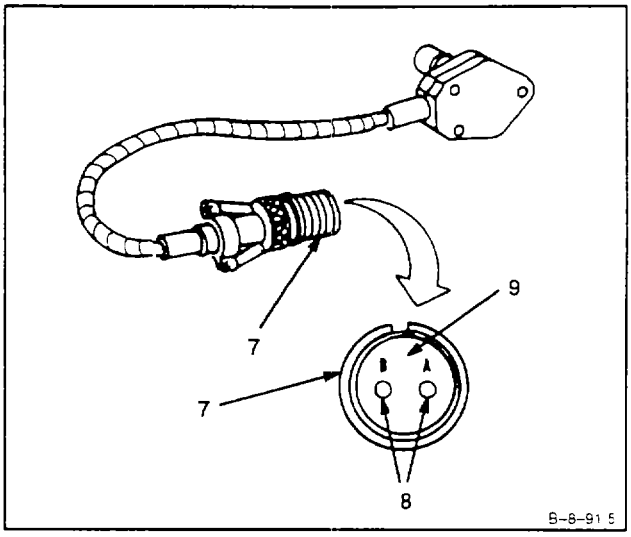
4. Inspect sleeving (6). There shall be no frayed or broken sleeving.



5. Inspect electrical connector (7). There shall be no corrosion, broken or bent sleeves (8) or cracked insulation (9).



FOLLOW-ON MAINTENANCE:
None

END OF TASK

8-112 TEST CHIP DETECTOR **8-112**

INITIAL SETUP

Applicable Configurations:
All

Tools:
Multimeter

Materials:
None

Personnel Required:
Aircraft Powerplant Repairer

Equipment Condition:
Off Engine Task

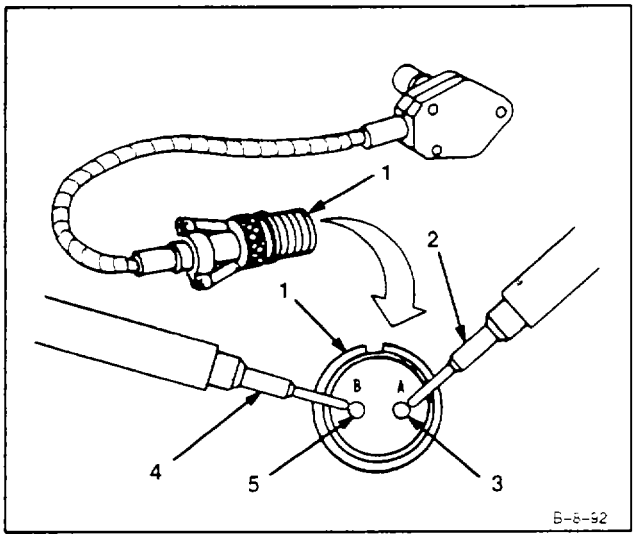
1. Measure insulation resistance of chip detector (1) as follows: Use multimeter.

   a. Set multimeter range switch to R X 1000.

   b. Touch red probe (2) to pin A (3).

   c. touch black probe (4) to pin B (5).

   d. Meter shall indicate 10.000 ohms minimum.



FOLLOW-ON MAINTENANCE:
None

END OF TASK

8-113 INSTALL CHIP DETECTOR 8-113

INITIAL SETUP

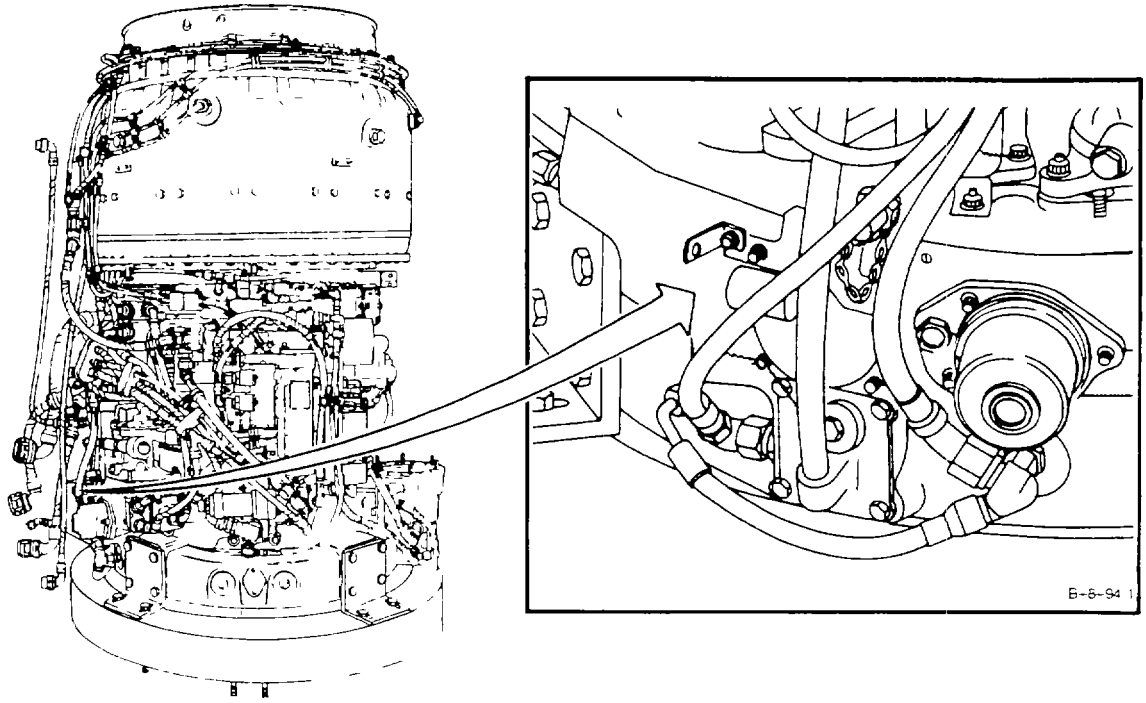
Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Technical Inspection Tool Kit,
NSN 5180-00-323-5114
Crowfoot Attachment, 7/8-Inch
Torque Wrench, 30-150 Inch-Pounds

Materials:
Lockwire (E33)
Packings

Personnel Required:
Aircraft Powerplant Repairer
Aircraft Powerplant Inspector

References:
TM 1-2840-252-23P



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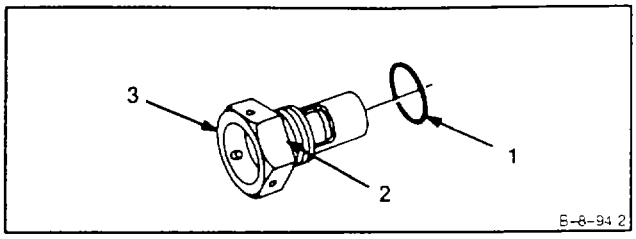
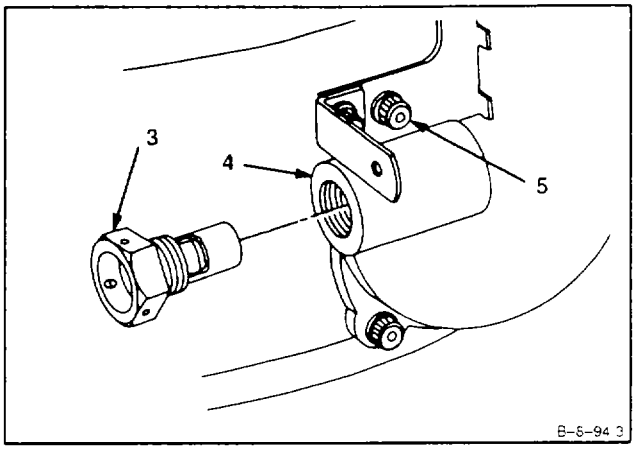
8-113 INSTALL CHIP DETECTOR (Continued) 8-113

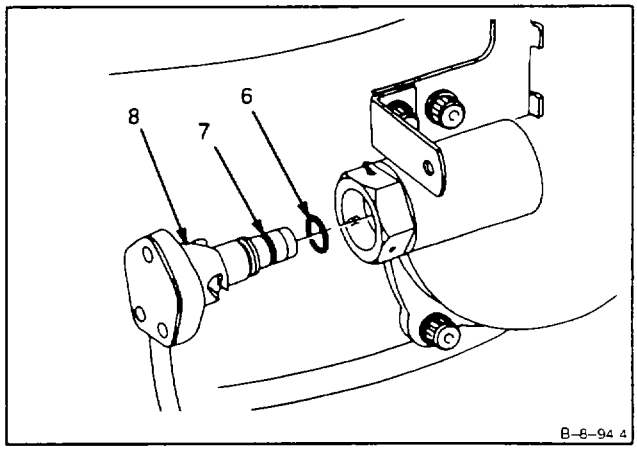
1. Install packing (1) in groove (2) on chip detector housing (3).



2. Install chip detector (3) in housing (4). Torque to 95 inch-pounds. Use crowfoot attachment.



3. Lockwire chip detector (3) to bolt (5). Use lock-wire (E33).



4. Install packing (6) in groove (7) on plug (8).

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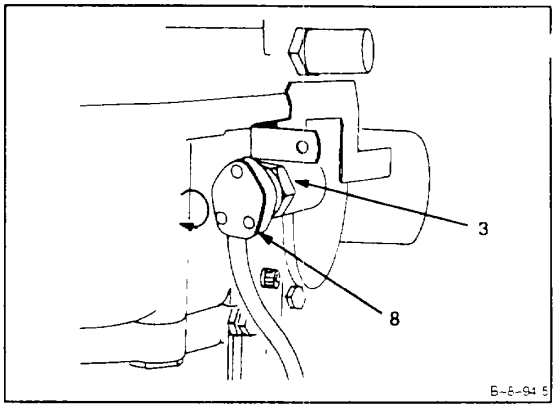
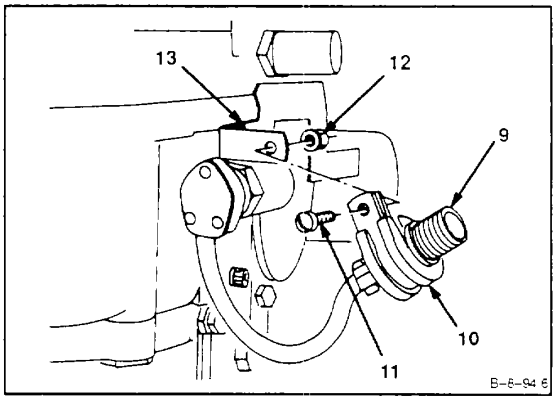
5. Install plug (8) in chip detector housing (3). Lock plug (8) by pushing in and turning clockwise.

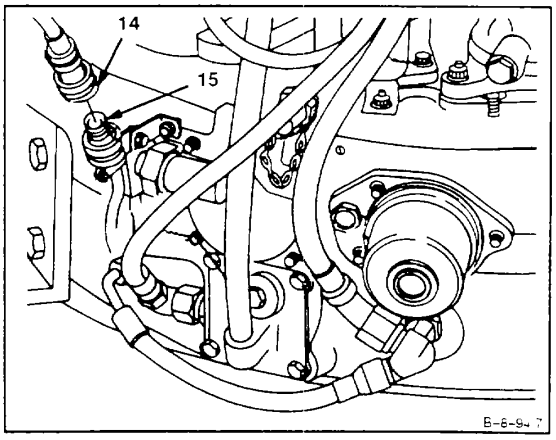


6. Insert electrical connector (9) into clamp (10).

7. Install clamp (10), screw (11), and nut (12) to bracket (13).



8. Connect electrical connector (14) to chip detector (15).



FOLLOW-ON MAINTENANCE:
None

END OF TASK

SECTION XVI
OIL LEVEL INDICATOR

8-114 REMOVE OIL LEVEL INDICATOR 8-114

INITIAL SETUP

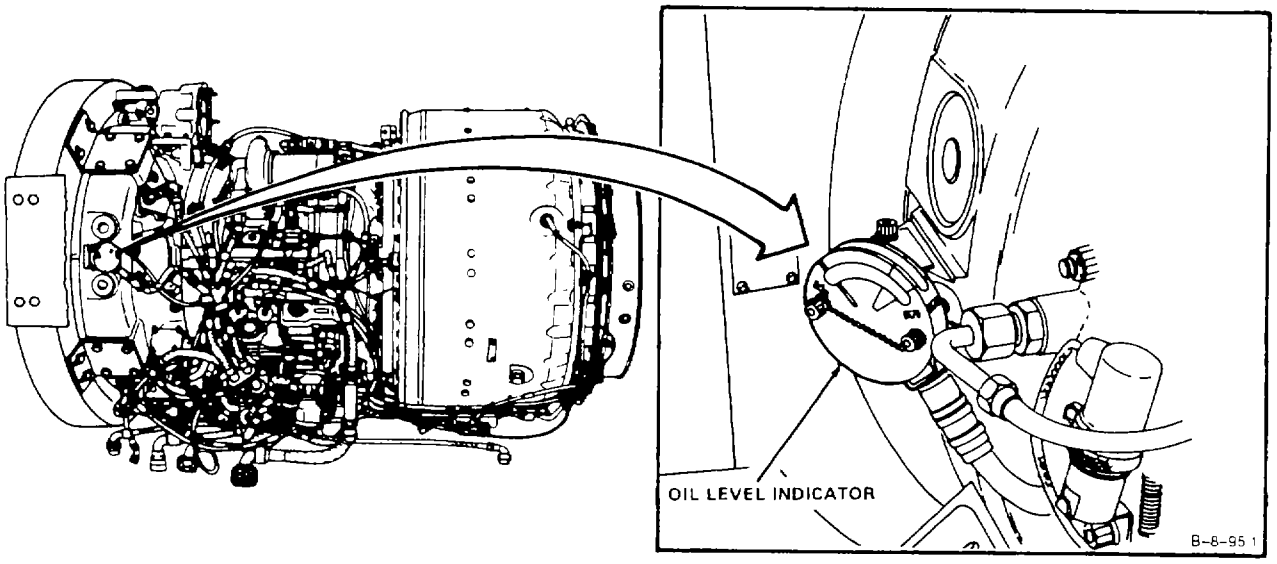
Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944

Materials:
Twine (E52)
Wiping Rag (E64)

Personnel Required:
Aircraft Powerplant Repairer

Equipment Condition:
Engine Oil System Drained (Task 1-69)



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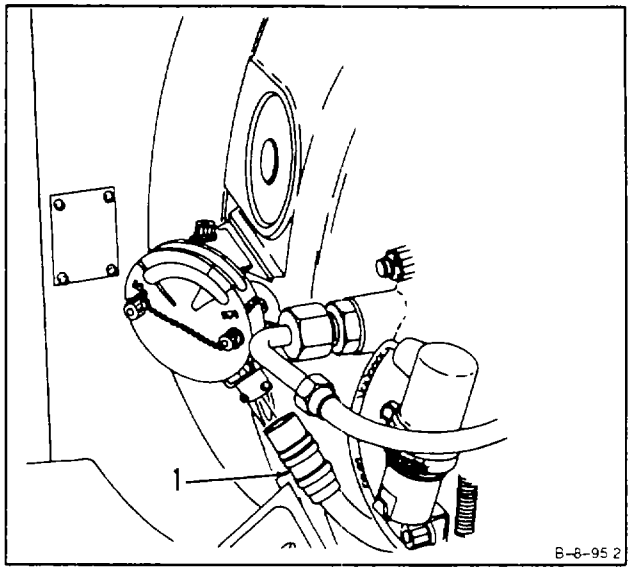
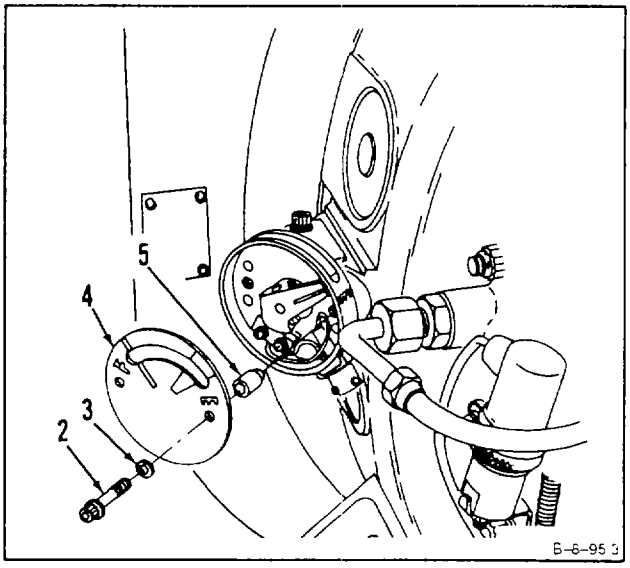
8-114 REMOVE OIL LEVEL INDICATOR (Continued) 8-114

1. Disconnect electrical connector (1).



2. Remove lockwire, two bolts (2), two washers (3), cover (4), and two spacers (5).



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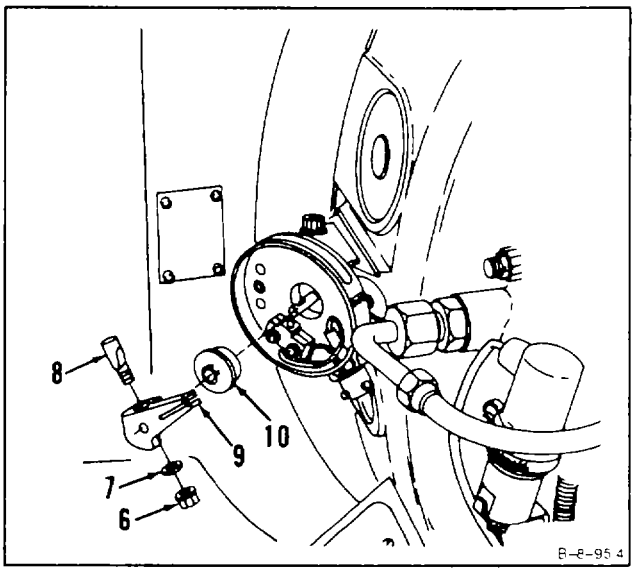
8-114 REMOVE OIL LEVEL INDICATOR (Continued) 8-114

CAUTION

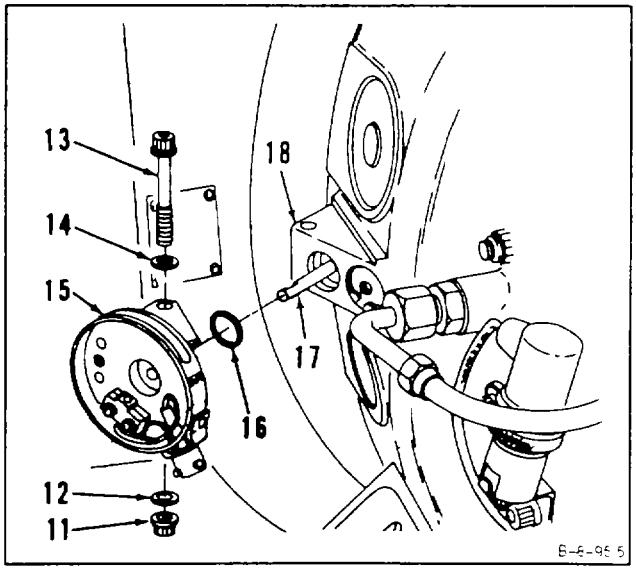
In following steps 3 and 4, do not let shaft of float slip back into housing. Failure to comply will result in engine damage.

3. Remove nut (6), washer (7), bolt (8), pointer (9), and washer (10).



4. Remove nut (11), washer (12), bolt (13), washer (14), housing assembly (15), and packing (16).

5. Secure shaft (17) with twine (E52) to keep it from slipping back into inlet housing (18).



FOLLOW-ON MAINTENANCE:
None

END OF TASK

8-115 DISASSEMBLE OIL LEVEL INDICATOR 8-115

INITIAL SETUP

Applicable Configurations:
All

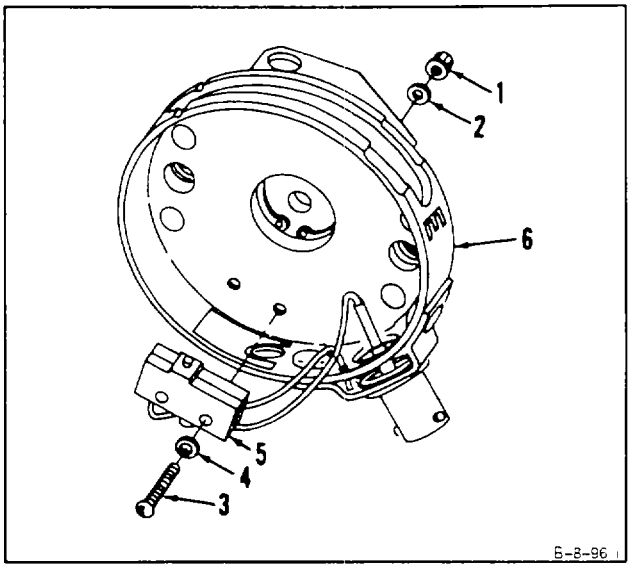
Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Soldering Iron, 15/32-Pound
Twist Drill, 15/64-Inch
Retaining Ring Pliers

Materials:
None

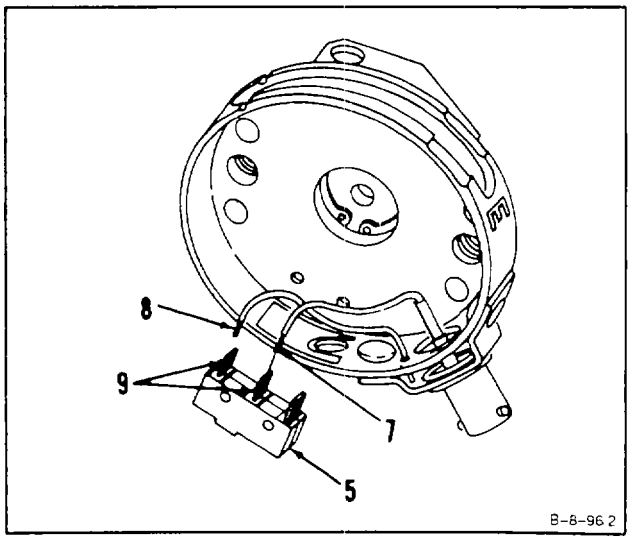
Personnel Required:
Aircraft Powerplant Repairer
Aircraft Electrician

Equipment Condition:
Off Engine Task
Oil Level Indicator Removed (Task 8-114)

1. **Remove** two nuts (1), two washers (2),**two screws (3),** two washers (4), and pull switch (5) clear of housing (6).



2. Unsolder two wires (7 and 8) from two switch terminals (9) and **remove switch (5).**



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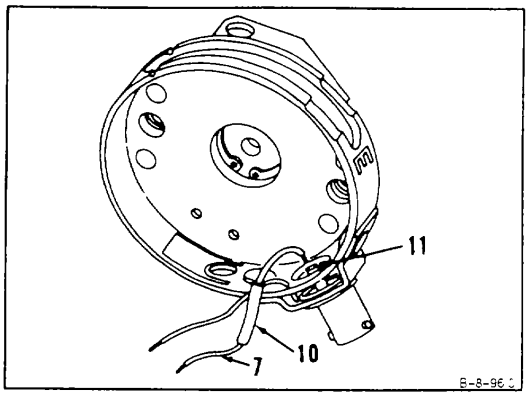
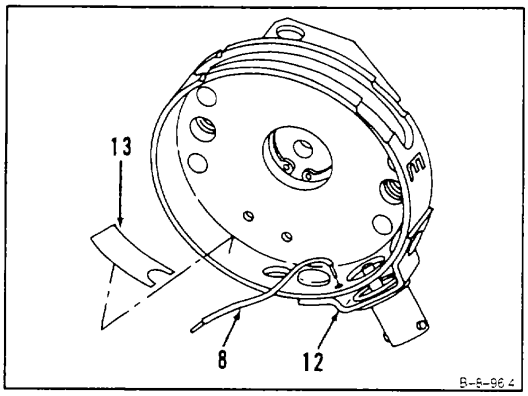
8-115 DISASSEMBLE OIL LEVEL INDICATOR (Continued) 8-115

3. Slide insulation sleeving (10) back along wire (7). Unsolder and remove wire (7) from electrical connector pin (11).

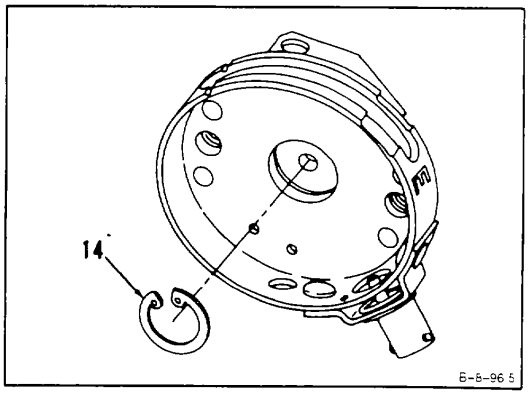


4. Unsolder and remove wire (8) from bracket (12).

5. Remove tape (13).



6. Remove retaining ring (14). Use retaining ring pliers.



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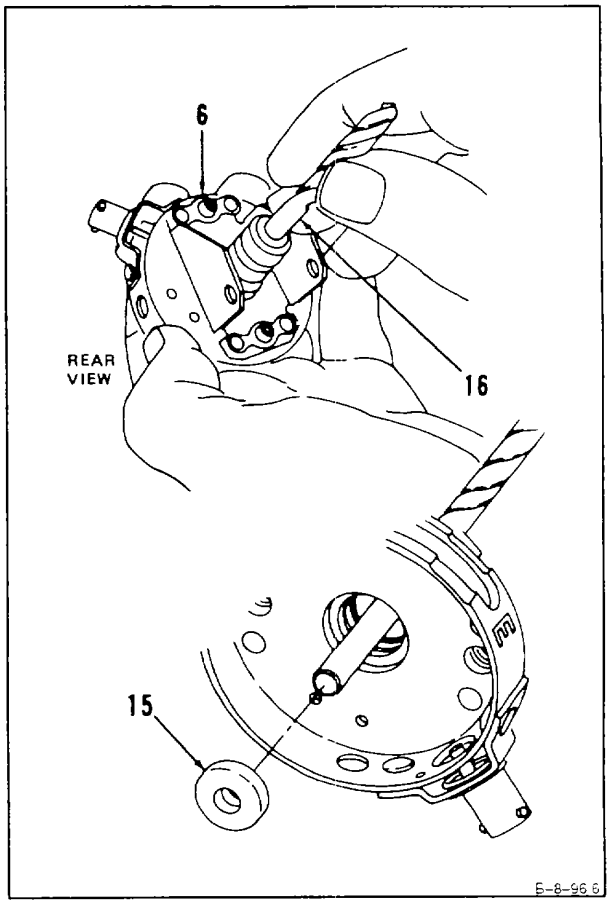
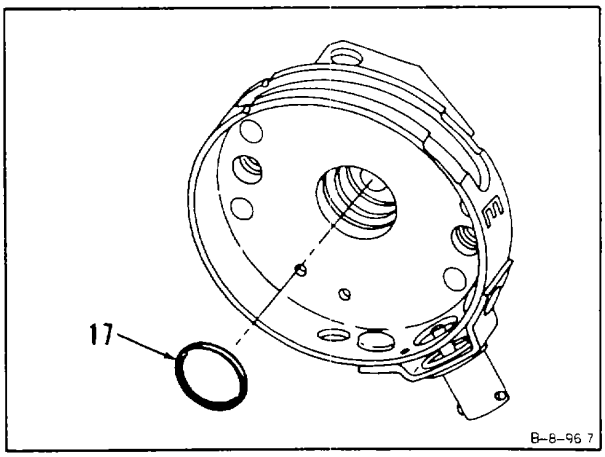
7. **Remove seal (15).** Push out from rear of housing (6). Use shaft of twist drill (16) as pusher.



8. **Remove packing (17).**



FOLLOW-ON MAINTENANCE:
None

END OF TASK

8-116 CLEAN OIL LEVEL INDICATOR 8-116

INITIAL SETUP

Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Goggles
Dry, Compressed Air Source

Materials:
Dry Cleaning Solvent (E19)
Gloves (E24)
Lint-Free Cloth (E30)

Personnel Required:
Aircraft Powerplant Repairer

Equipment Condition:
Off Engine Task
Oil Level Indicator Removed (Task 8-114)
Oil Level Indicator Disassembled (Task 8-115)

General Safety Instructions:

WARNING

Dry cleaning solvent (E19) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

WARNING

When using compressed air for cleaning, use approved protective equipment for eyes and face. Do not use more than 30 psig air pressure. Do not direct air toward yourself or another person. Failure to comply could result in injury to eyes or skin. In case of injury, get medical attention.

1. Wear gloves (E24) and **clean housing (1).** Use dry cleaning solvent (E19) and brush.

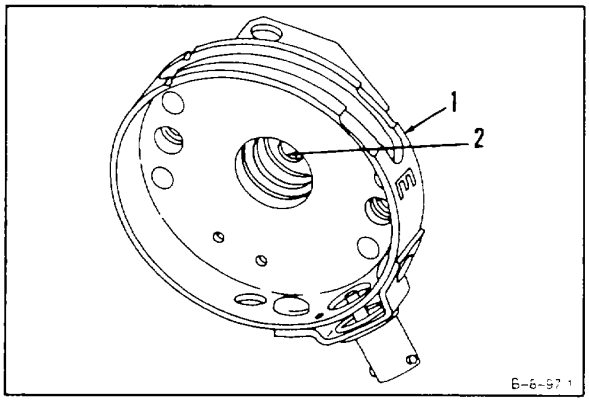
2. Wipe dry using lint-free cloth (E30).

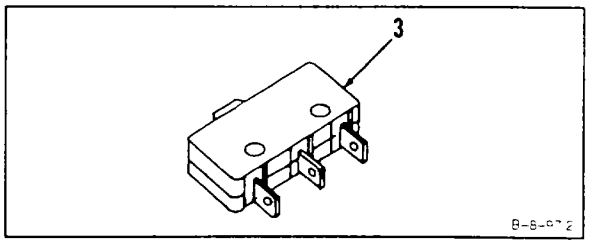
3. Wear goggles. **Blow dry internal passage** (2). Use clean. dry compressed air.

4. **Clean switch (3)** using lint-free cloth (E30) dampened in dry cleaning solvent (E19).

5. **Blow dry switch (3)** using clean, dry, compressed air.

FOLLOW-ON MAINTENANCE:
Inspect Oil Level Indicator (Task 8-117).





END OF TASK

8-117 INSPECT OIL LEVEL INDICATOR 8-117

INITIAL SETUP

Applicable Configurations:
All

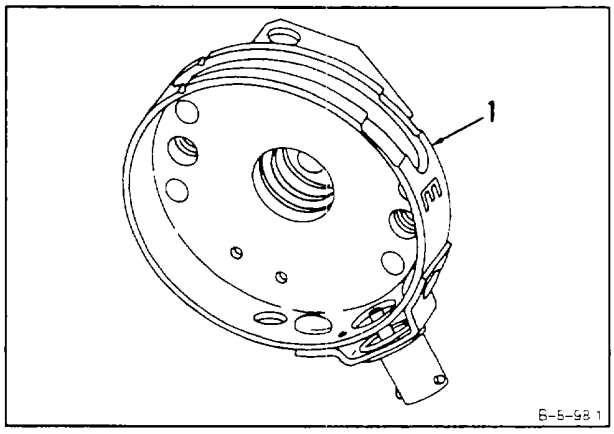
Tools:
Technical Inspection Tool Kit,
NSN 5180-00-323-5114

Materials:
None

Personnel Required:
Aircraft Powerplant Inspector

Equipment Condition:
Off Engine Task

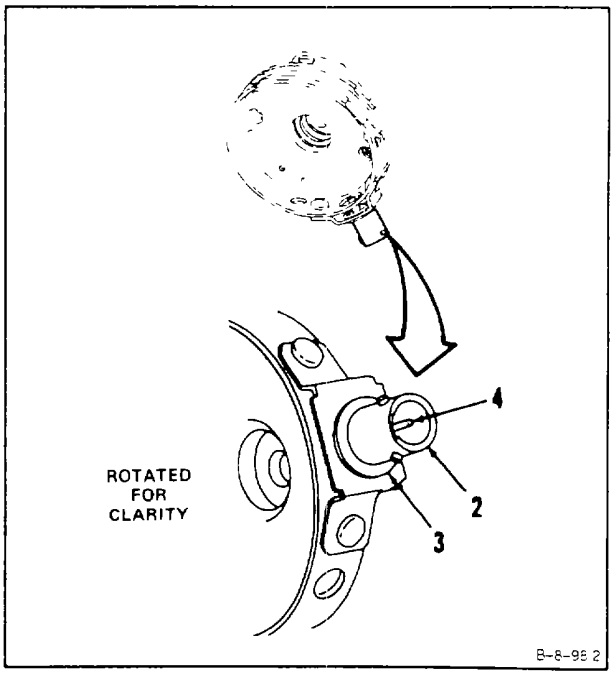
1. **Inspect housing (1).** There shall be no cracks.



2. **Inspect electrical connector (2).**

   a. There shall be no cracks, corrosion, or looseness at joint (3).

   b. Pin (4) shall not be bent, broken, or corroded.



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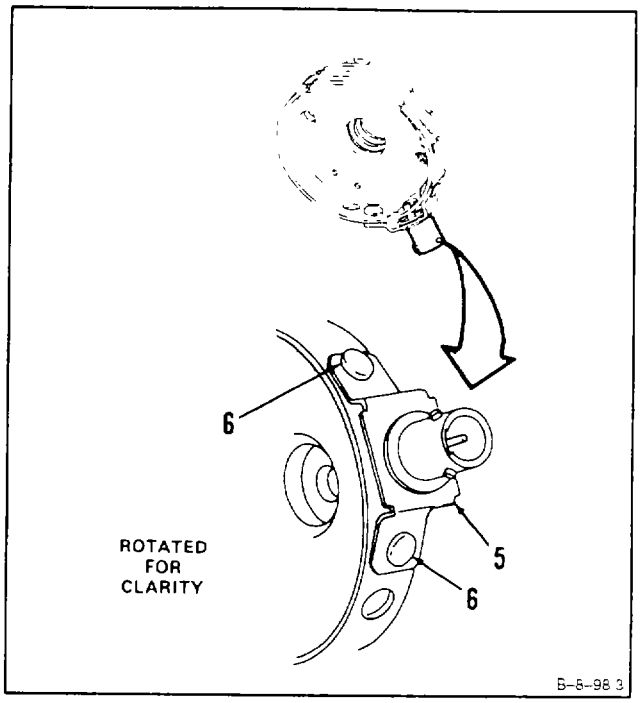
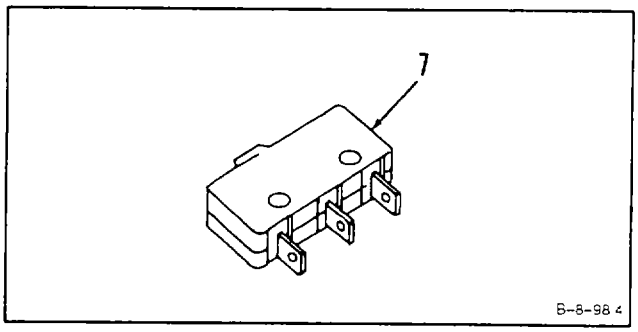
8-117 INSPECT OIL LEVEL INDICATOR (Continued) 8-117

3. **Inspect bracket (5).** There shall be no cracks or loose rivets (6).



4. **Inspect switch (7).** There shall be no cracks.



FOLLOW-ON MAINTENANCE:
None

END OF TASK

8-118 REPAIR OIL LEVEL INDICATOR 8-118

INITIAL SETUP

Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit, NSN 5180-00-323-4944
Technical Inspection Tool Kit, NSN 5180-00-323-5114
Soldering Iron, 15/32-Pound
Stainless Steel Wire Brush

Materials:
Black Baking Enamel (E9)
Crocus Cloth (E16)
Solder (E54)

Personnel Required:
Aircraft Powerplant Repairer
Aircraft Electrician
Aircraft Powerplant Inspector

Equipment Condition:
Off Engine Tank

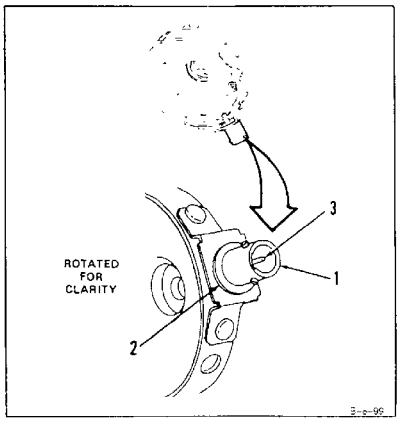
1. Repair loose electrical connector (1) as follows:
   a. Remove all surface contamination near joint (2). Use stainless steel wire brush.
   b. Solder joint (2). Use solder (E54) and soldering iron.
2. Repair electrical connector pin (3) as follows:

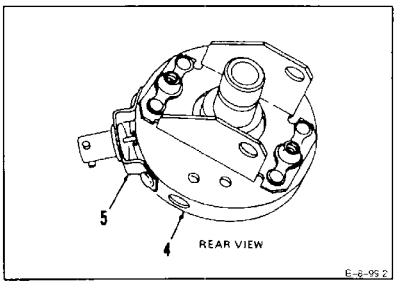
NOTE
This repair is allowed provided it does not cause pin to break or crack.

   a. Straighten bent pin (3). Use long nose pliers to gently move pin (3) until it is straight.
   b. Remove corrosion from pin (3). Polish pin (3), using in and out motion over entire length of pin until corrosion is removed. Use crocus cloth (El 6).
3. Repair damaged paint on outside of housing (4) and bracket (5). Use black baking enamel (E9).

INSPECT

FOLLOW-ON MAINTENANCE:
None





END OF TASK

8-119 ASSEMBLE OIL LEVEL INDICATOR 8-119

INITIAL SETUP

Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit, NSN 5180-00-323-4944
Technical Inspection Tool Kit, NSN 5180-00-323-5114
Twist Drill, 15/64-Inch
Retaining Ring Pliers
Soldering Iron, 15/32-Pound

Materials:
Insulation Sleeving (E28)
Pressure Sensitive Teflon Tape (E46)
Solder (E54)
Wire (E65)

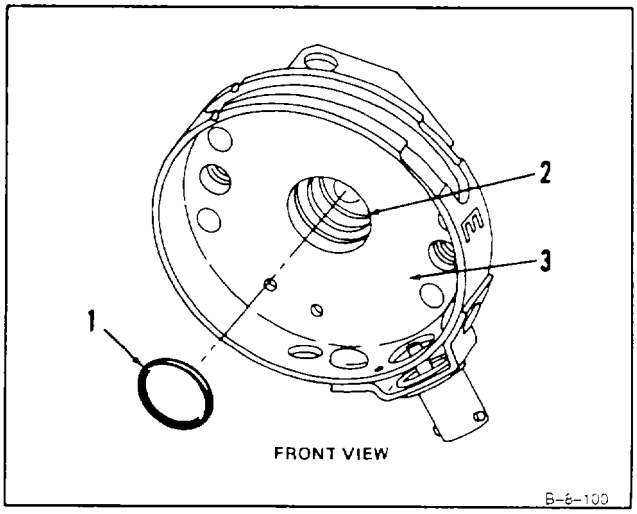
Parts:
Packing
Seal

Personnel Required:
Aircraft Powerplant Repairer
Aircraft Electrician
Aircraft Powerplant Inspector

References:
TM 1-2840-252-23P

Equipment Condition:
Off Engine Task

1. Install packing (1) in groove (2) in housing (3).



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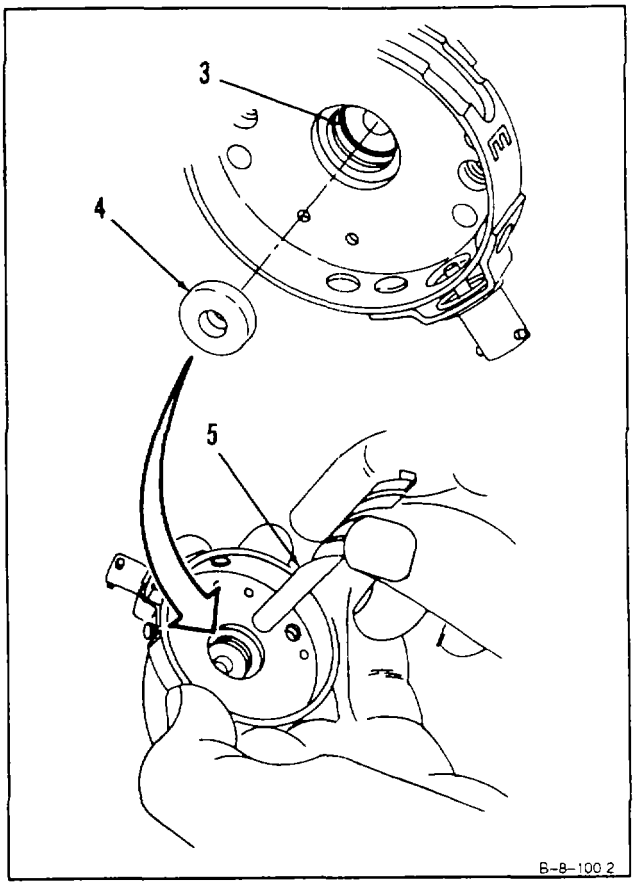
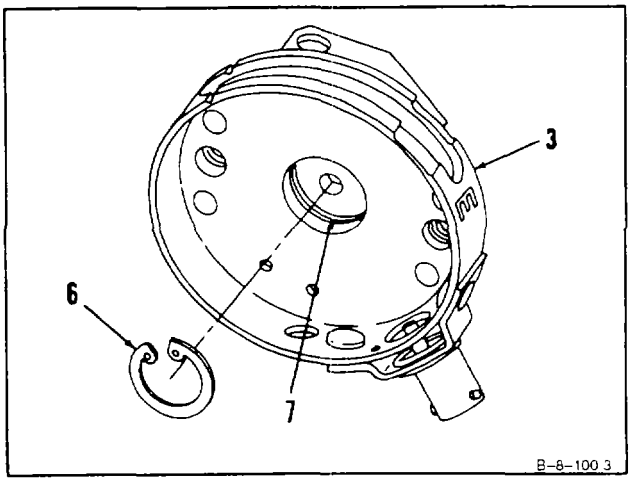
8-119 ASSEMBLE OIL LEVEL INDICATOR (Continued) 8-119

2. Install seal (4) in housing (3). Use shaft of twist drill (5) to push seal (4) into housing until fully seated.

3. Install retaining ring (6) in groove (7) in housing (3). Use retaining ring pliers.





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CAUTION

In following step 4, do not cover drain hole with tape. Failure to comply could cause accumulation of oil. This could cause faulty oil level Indication.

4. Install teflon tape (8) inside housing (3). Use Pressure sensitive teflon tape (E46). Do not cover drain hole (9). Center teflon tape between switch mounting holes (10).

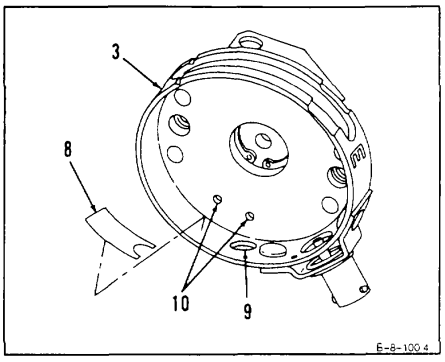
5. Install two wires (11 and 12) as follows:
   a. Cut wires (11 and 12) to 1-1/2-inch length. Use wire ((E65).

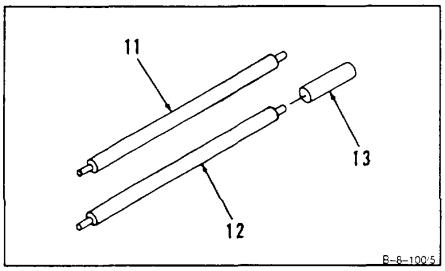
   b. Strip both ends of wires (11 and 12) to 1/4-inch length.

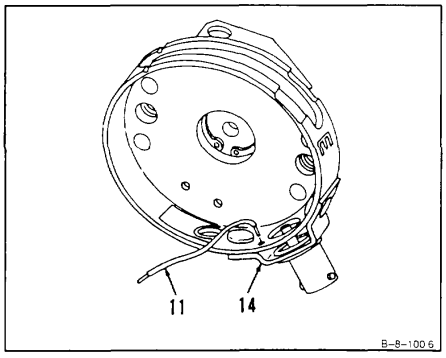
   c. Tin both ends of wires (11 and 12). Use solder (E54) and soldering iron.

   d. Cut 1/2-inch piece of insulation sleeving (E28). Slide sleeving (13) over wire (12).

   e. Solder wire (11) to bracket (14). Use solder (E54) and soldering iron.







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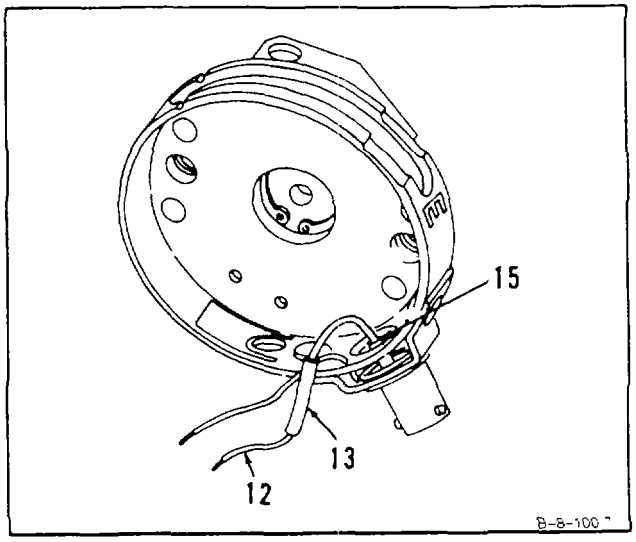
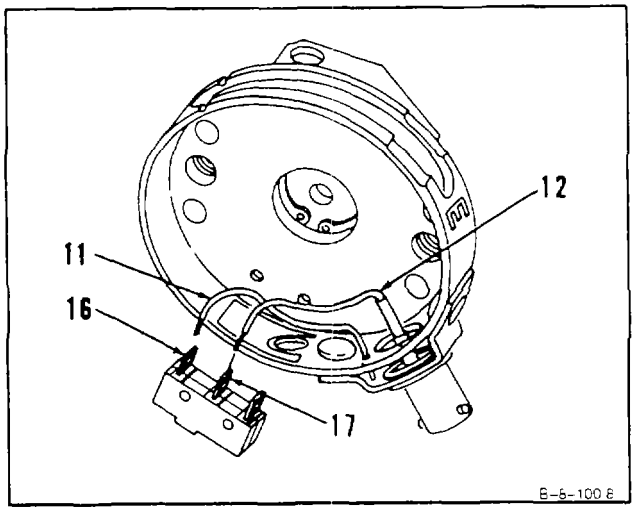
8-119 ASSEMBLE OIL LEVEL INDICATOR (Continued) 8-119

f. Solder wire (12) to electrical connector pin (15). Use solder (E54) and soldering iron. Slide insulation sleeving (13) over pin (15).

g. Solder wire (11) to switch terminal (16). Use solder (E54) and soldering iron.

h. Solder wire (12) to switch terminal (17). Use solder (E54) and soldering iron.





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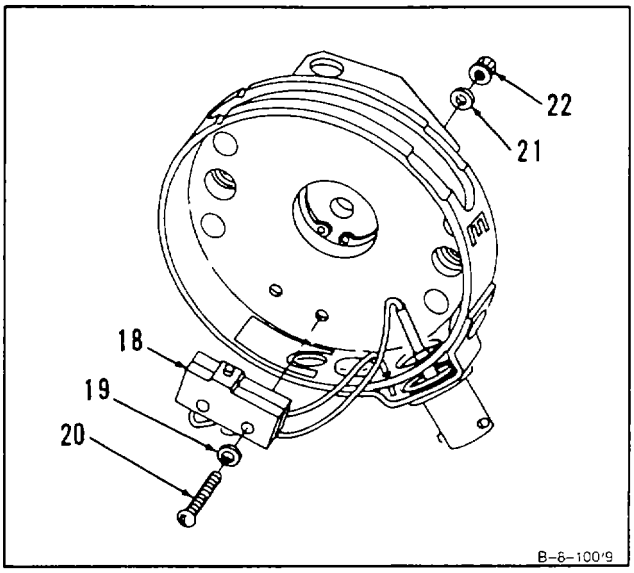
CAUTION

In following step 6, do not strain or kink wires. Defective wiring could cause faulty oil level indication.

6. Install switch (18), two washers (19), two screws (20), two washers (21), and two nuts (22).

INSPECT

FOLLOW-ON MAINTENANCE:
None



END OF TASK

8-120 INSTALL OIL LEVEL INDICATOR **8-120**

INITIAL SETUP

Applicable Configurations:
All

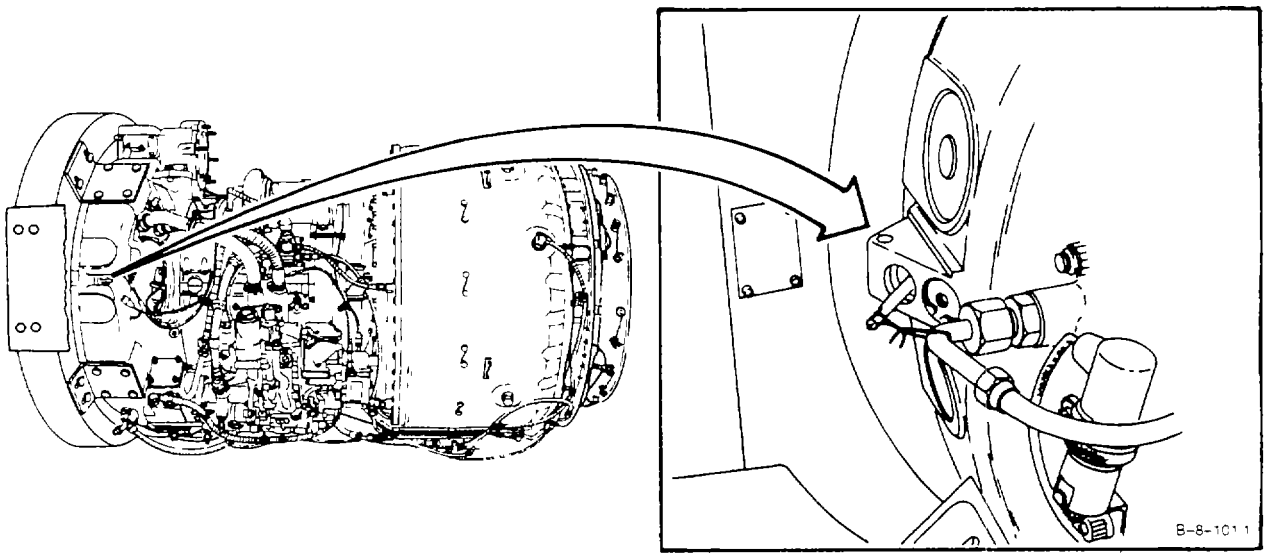
Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Technical Inspection Tool Kit,
NSN 5180-00-323-5114
Torque Wrench, 0-30 Inch-Pounds

Materials:
Lockwire (E33)

Parts:
Packing

Personnel Required:
Aircraft Powerplant Repairer
Aircraft Powerplant Inspector

References:
TM 1-2840-252-23P
Task 8-121



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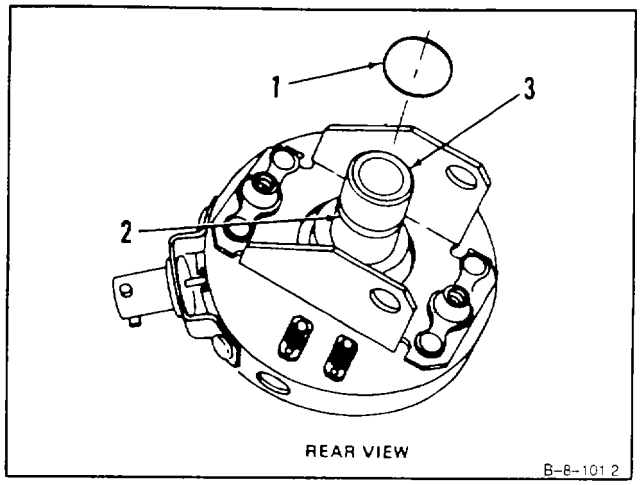
8-120 INSTALL OIL LEVEL INDICATOR (Continued) 8-120

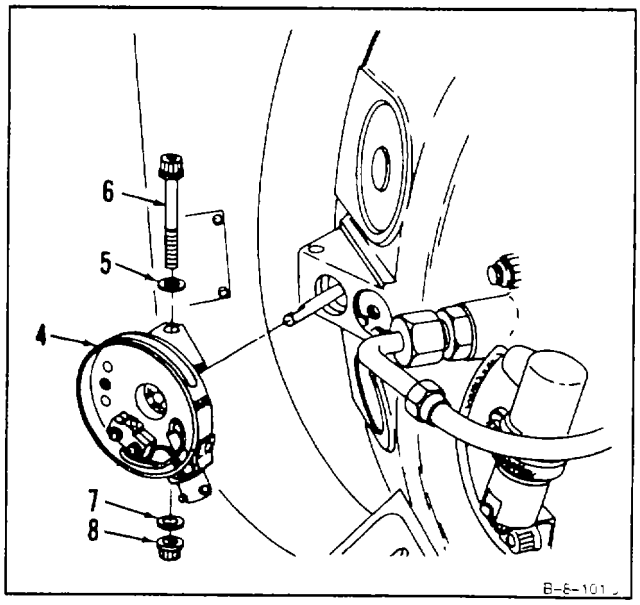
1. Install packing (1) in groove (2) in shaft (3).

NOTE

In following steps 2 thru 5, do not let shaft of float slip back into inlet housing.

2. Remove twine. Install assembly (4), washer (5), bolt (6), washer (7), and nut (8).





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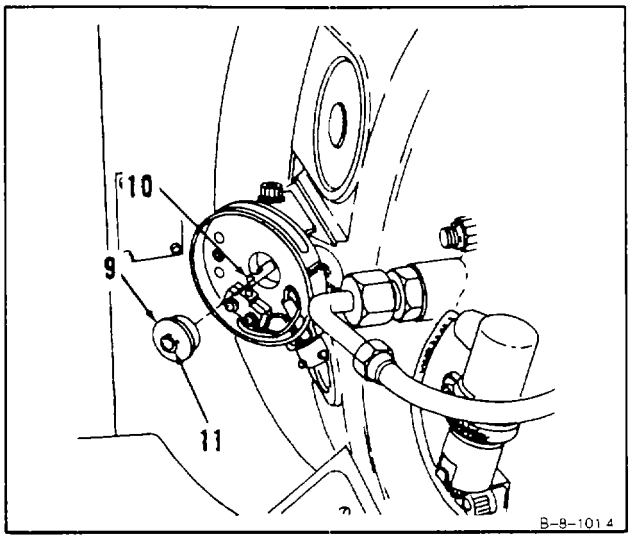
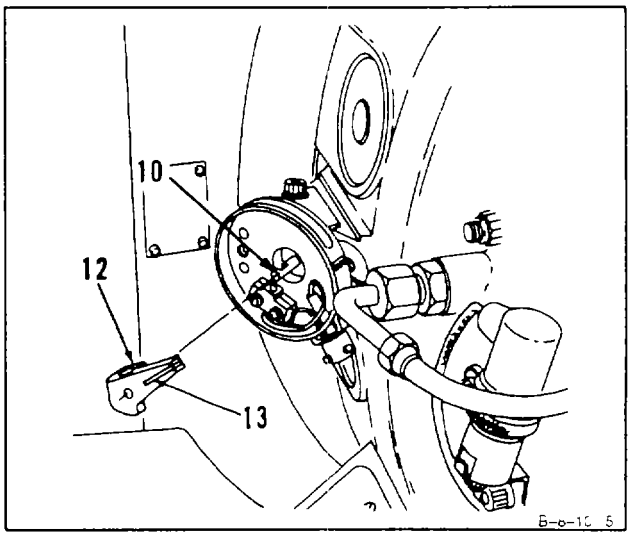
3. Install washer (9) on shaft (10) with smaller diameter (11) facing out.

4. Install pointer (12) on shaft (10) with white stripe (13) facing out.





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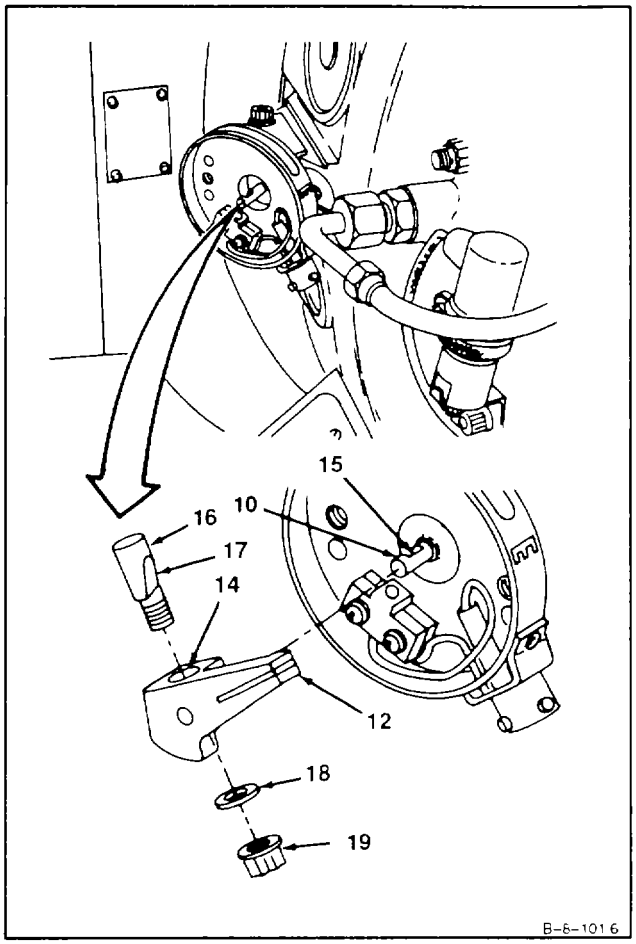
8-120 INSTALL OIL LEVEL INDICATOR (Continued) 8-120

5. Position pointer (12) on shaft (10), so hole (14) is aligned with notch (15).

6. Install bolt (16) with flat (17) against notch (15). Install washer (18) and nut (19).



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8-120 INSTALL OIL LEVEL INDICATOR (Continued) 8-120

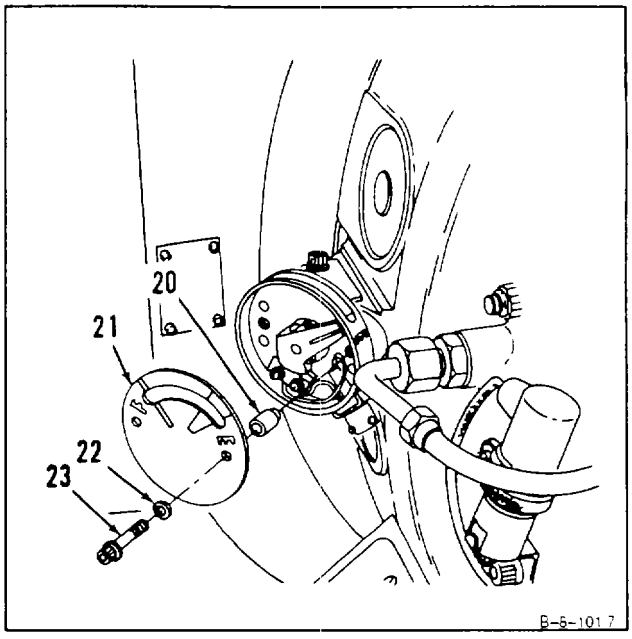
7. Adjust oil level indicator (Ref. Task 8-121, steps 3 thru 7).

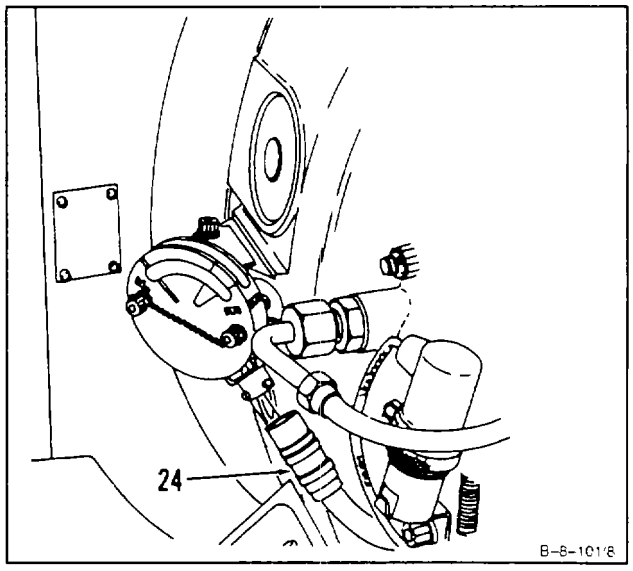
8. Install two spacers (20), cover (21), two washers (22), and bolts (23). Torque two bolts (23) to 15 inch-pounds. Lockwire bolts (23). Use lockwire (E33).

9. Connect electrical connector (24).

INSPECT

FOLLOW-ON MAINTENANCE:
Service Engine Oil System (Task1-68).





END OF TASK

8-121 ADJUST OIL LEVEL INDICATOR 8-121

INITIAL SETUP

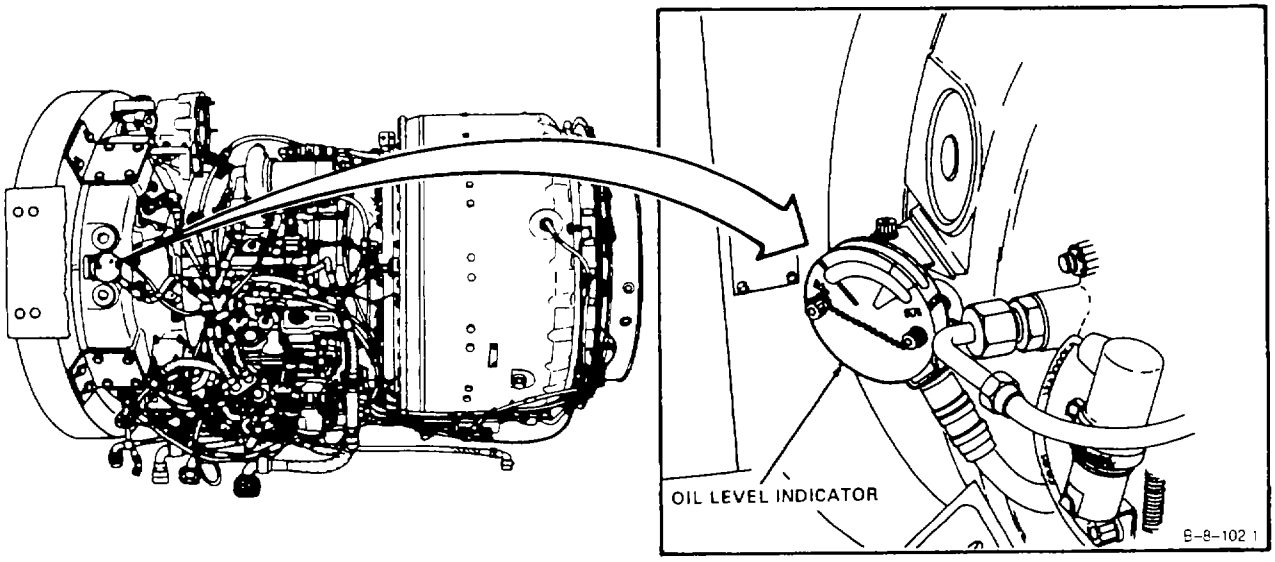
Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Technical Inspection Tool Kit,
NSN 5180-00-323-5114
Oil Level Test Light (T9)
Torque Wrench, 0-30 Inch-Pounds

Materials:
Lockwire (E33)

Personnel Required:
Aircraft Powerplant Repairer
Aircraft Powerplant Inspector

Equipment Condition:
Engine Oil System Drained (Task 1-69)



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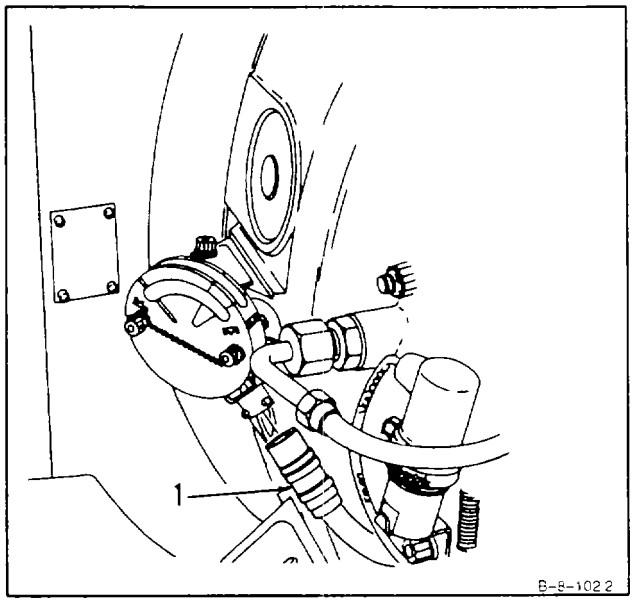
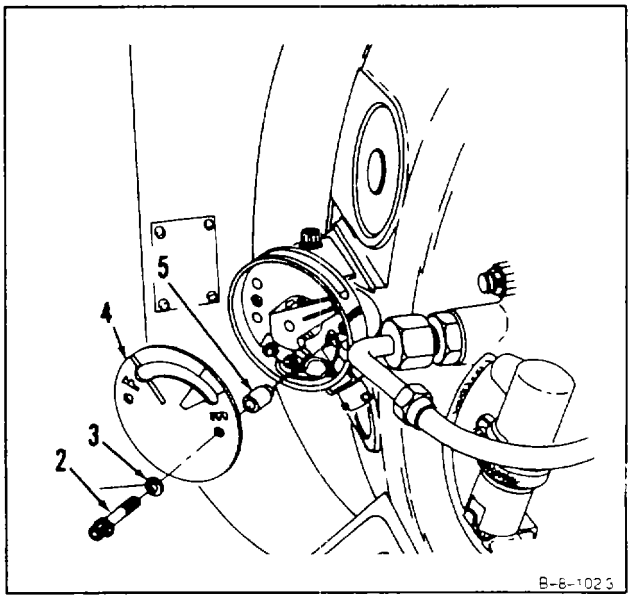
8-121 ADJUST OIL LEVEL INDICATOR (Continued) 8-121

1. Disconnect electrical connector (1).

2. Remove lockwire, two bolts (2), two washers (3), cover (4), and two spacers (5).





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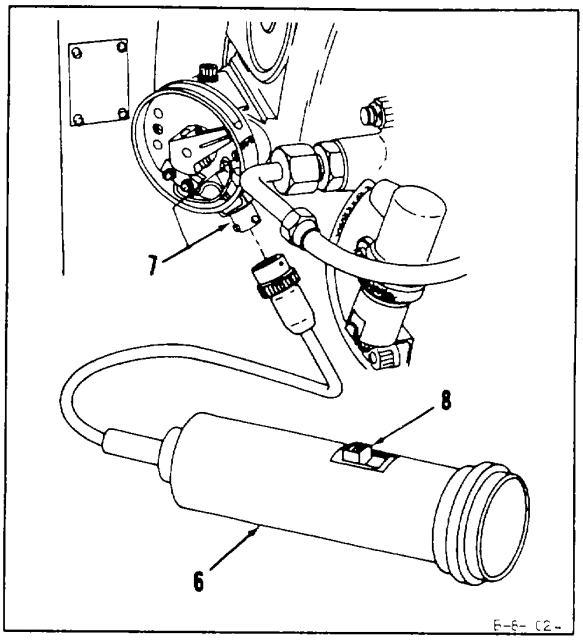
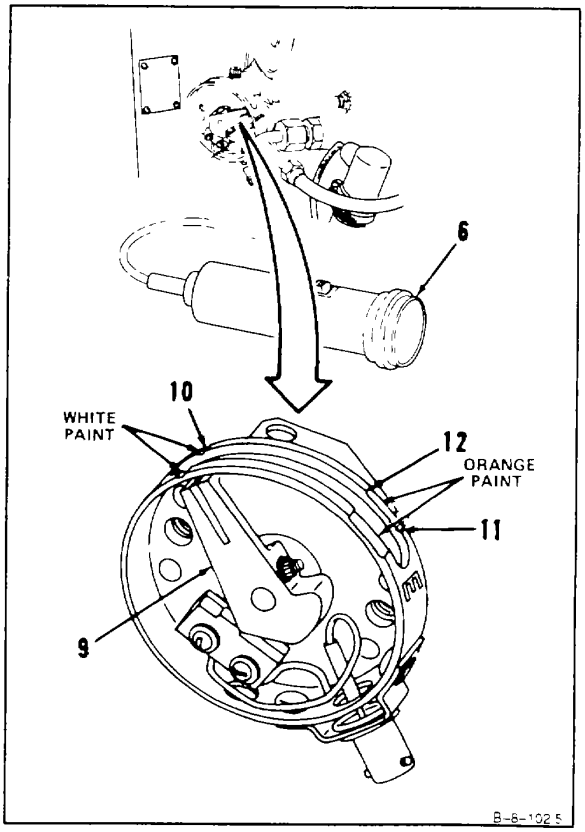
8-121 ADJUST OIL LEVEL INDICATOR (Continued) 8-121

3. Connect oil level test light (T9) (6) to electrical connector (7) and turn switch (8) on.

4. Move pointer (9) from full position (10) toward empty position (11). Test light (T9) (6) shall come on at low oil level warning position (12).





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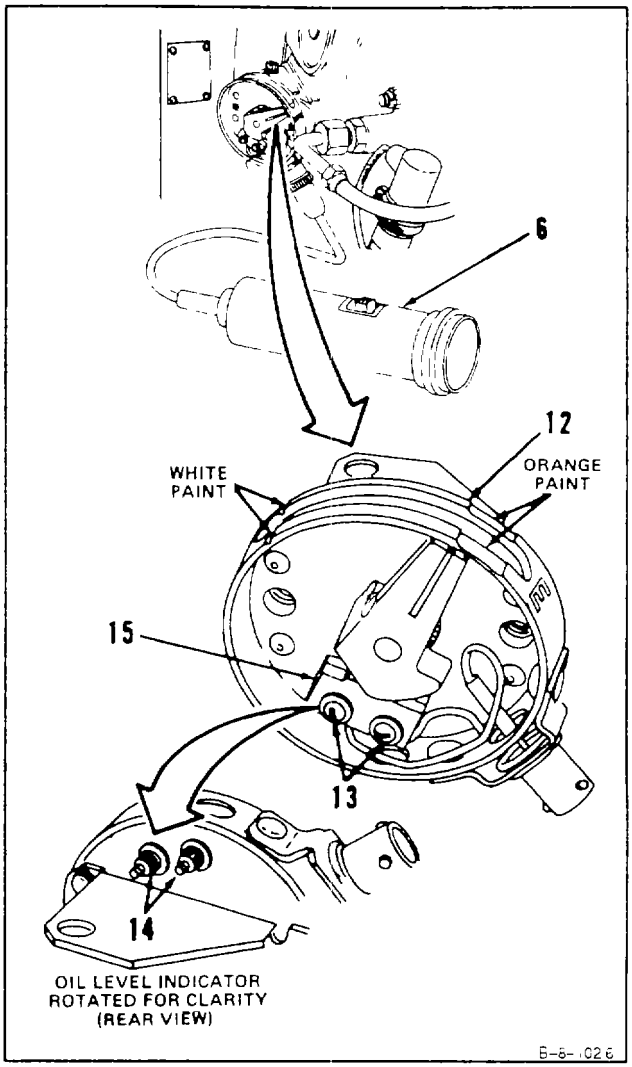
8-121 ADJUST OIL LEVEL INDICATOR (Continued) 8-121

NOTE

If test light indicates adjustment is needed, do steps 5 and 6. If test light indicates adjustment is not needed, omit steps 5 and 6.

5. Loosen two screws (13) and two nuts (14). Move switch (15) until test light (T9) (6) comes on at low oil level warning position (12).

6. Tighten two nuts (14) and two screws (13).



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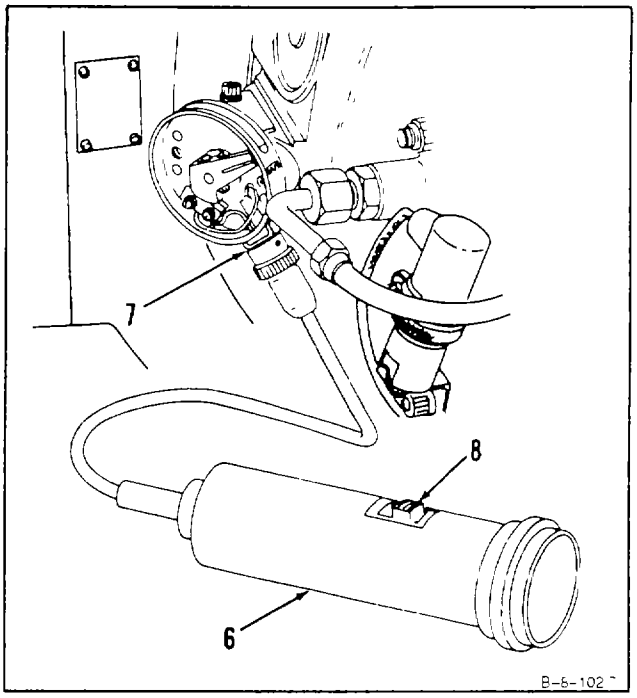
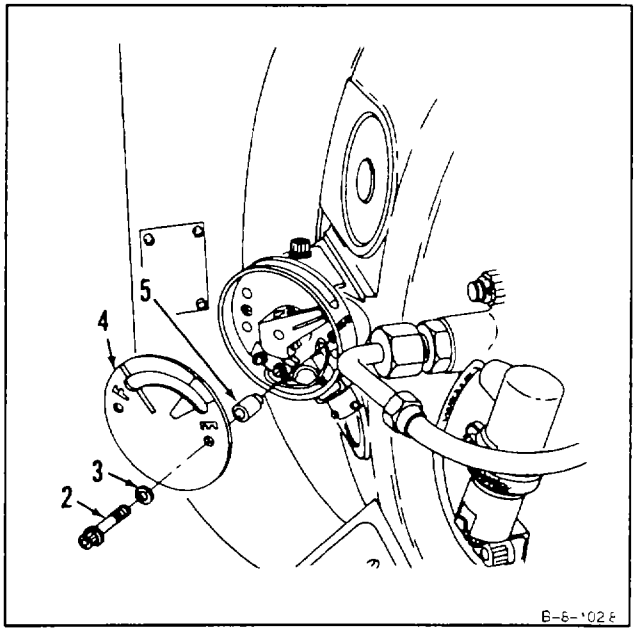
8-121 ADJUST OIL LEVEL INDICATOR (Continued) 8-121

7. Turn switch (8) off and disconnect test light (T9) (6) from electrical connector (7).

8. Install two spacers (5), cover (4), two washers (3), and two bolts (2). Torque two bolts (2) to 15 inch-pounds. Lockwire two bolts (2). Use lockwire (E33).





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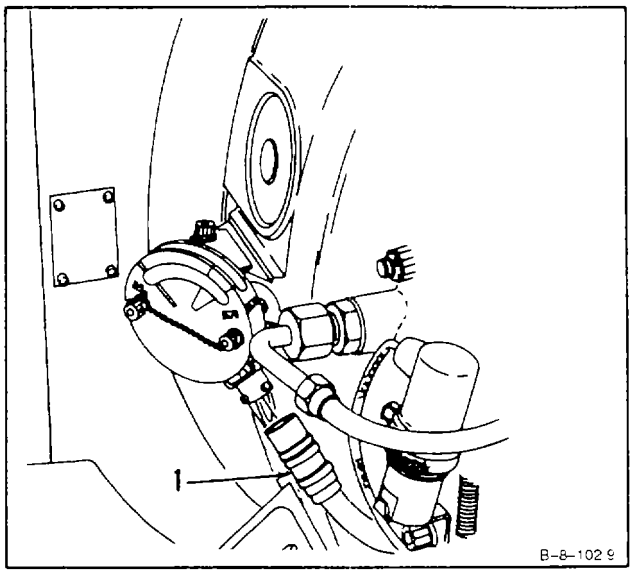
9. Connect electrical connector (1).

INSPECT

FOLLOW-ON MAINTENANCE:
Service Engine Oil System (Task 1-68).



END OF TASK

SECTION XVII
OIL LEVEL FLOAT ASSEMBLY

8-122 REMOVE OIL LEVEL FLOAT ASSEMBLY (AVIM) 8-122

INITIAL SETUP

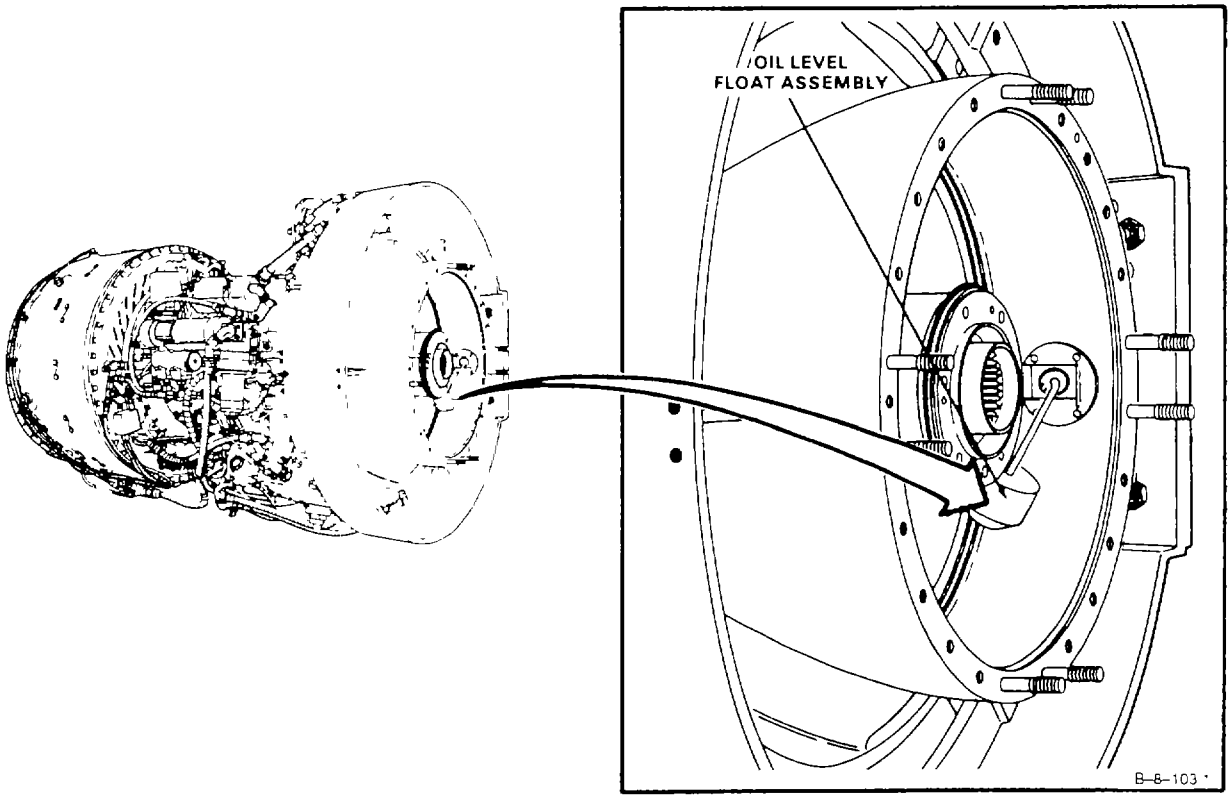
Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit, NSN 5180-00-323-4944

Materials:
Wiping Rag (E64)

Personnel Required:
Aircraft Powerplant Repairer

Equipment Condition:
Engine Oil System Drained (Task 1-69)
Output Shaft Seal and Housing Assembly Removed (Task 2-39)
Inlet Housing Cover Assembly Removed (Task 2-44)



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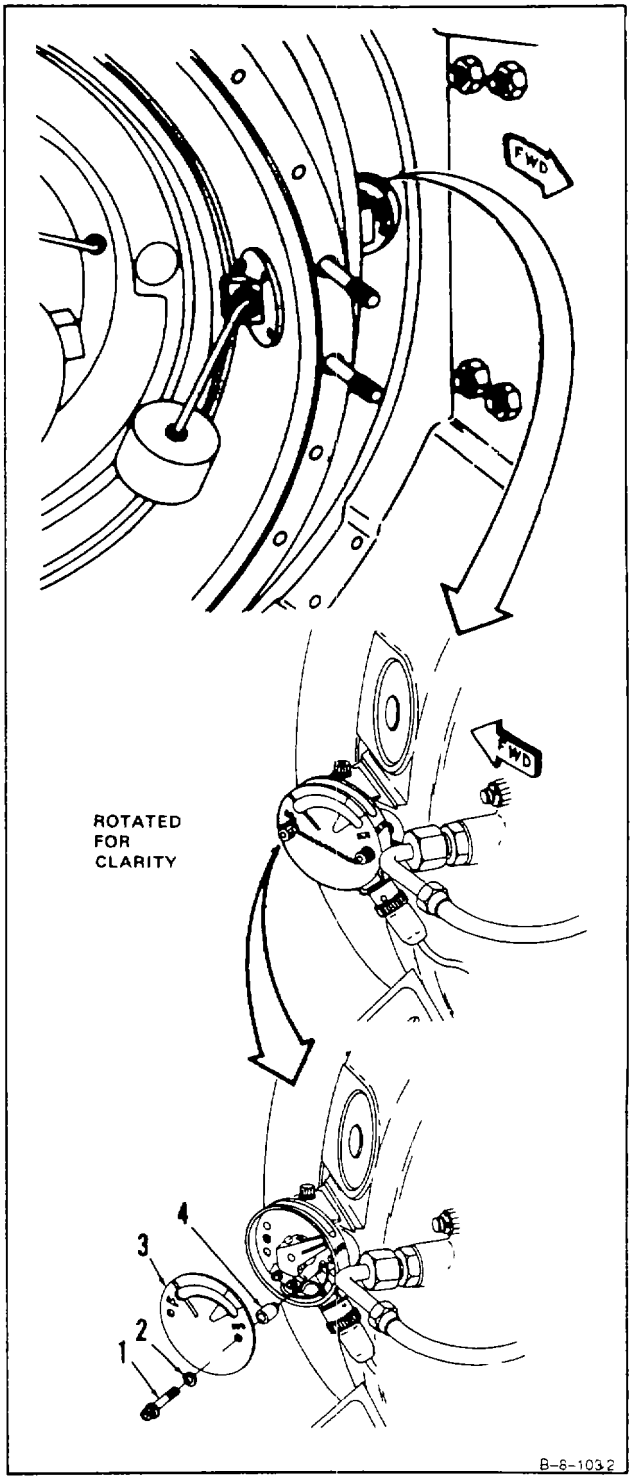
8-122 REMOVE OIL LEVEL FLOAT ASSEMBLY (AVIM) (Continued) 8-122

1. Remove lockwire, two bolts (1), two washers (2), cover (3), and two spacers (4).



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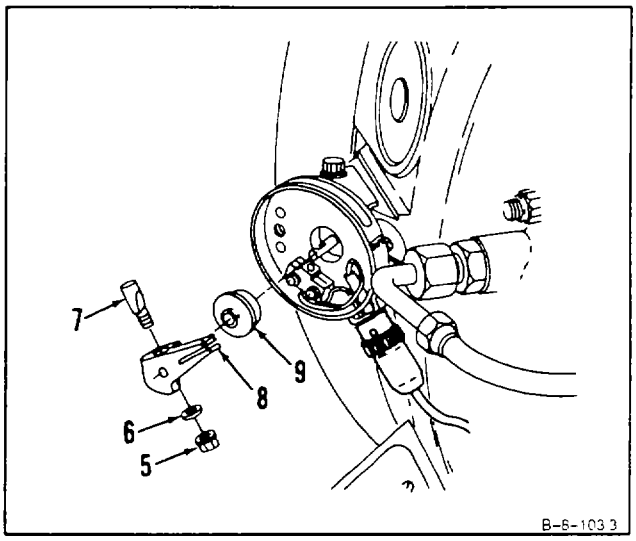
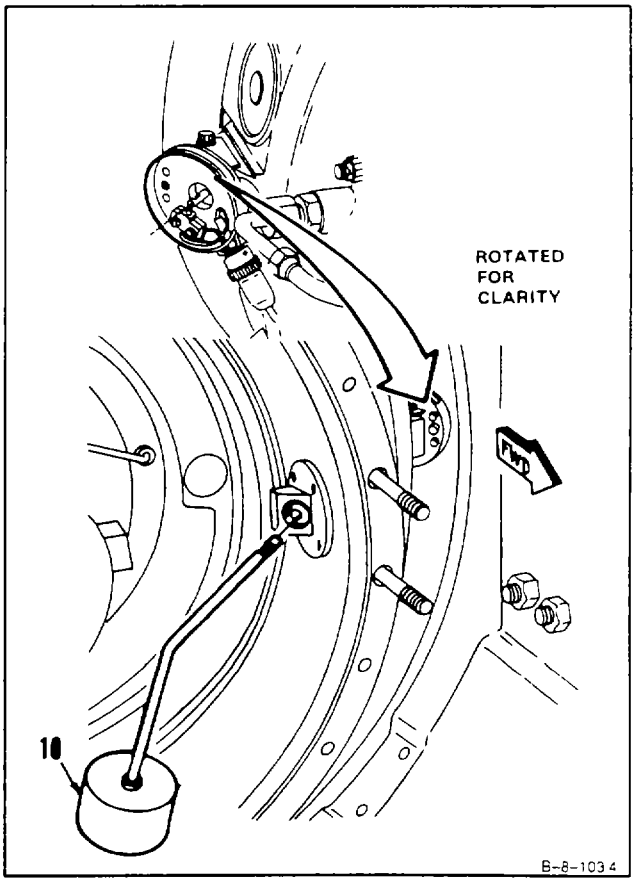
2. Remove nut (5), washer (6), bolt (7), pointer (8), and washer (9).

3. Remove oil level float assembly (10).

FOLLOW-ON MAINTENANCE:
None





END OF TASK

8-123 DISASSEMBLE OIL LEVEL FLOAT ASSEMBLY (AVIM) 8-123

INITIAL SETUP

Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944

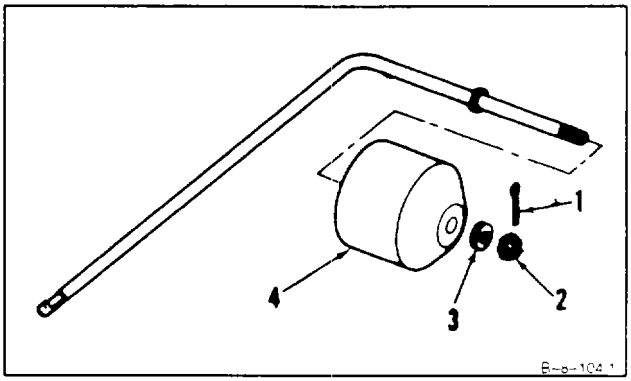
Materials:
None

Personnel Required:
Aircraft Powerplant Repairer

Equipment Condition:
Off Engine Task
Engine Oil System Drained (Task 1-69)
Output Shaft Seal and Housing Assembly Removed (Task 2-39)
Inlet Housing Cover Assembly Removed (Task 2-44)
Oil Level Float Assembly Removed (Task 8-122)

1. Remove cotter pin (1), nut (2), washer (3), and float (4).

FOLLOW-ON MAINTENANCE:
None



END OF TASK

8-124 CLEAN OIL LEVEL FLOAT ASSEMBLY (AVIM) 8-124

INITIAL SETUP

Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit, NSN 5180-00-323-4944

Materials:
Dry Cleaning Solvent (E19)
Gloves (E24)
Lint-Free Cloth (E64)

Personnel Required:
Aircraft Powerplant Repairer

Equipment Condition:
Off Engine Task
Engine Oil System Drained (Task 1-69)
Output Shaft Seal and Housing Assembly Removed (Task 2-39)
Inlet Housing Cover Assembly Removed (Task 2-44)
Oil Level Float Assembly Removed (Task 8-122)
Oil Level Float Assembly Disassembled (Task 8-123)

General Safety Instructions:

WARNING

Dry cleaning solvent (E19) is flammable and toxic. It can Irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

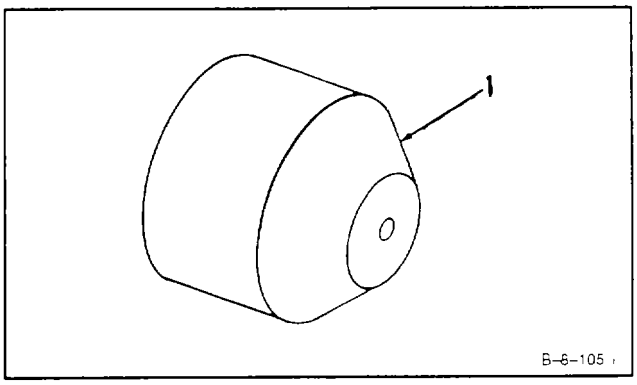
1. Wear gloves (E24) and clean float (1). Use dry cleaning solvent (E19) and brush.

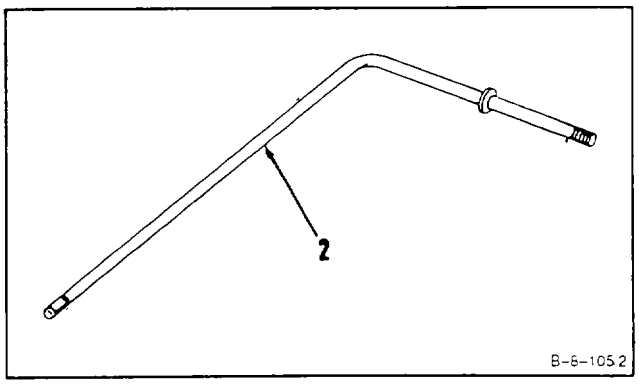
2. Wipe dry using lint-free cloth (E64).

3. Clean shaft (2). Use dry cleaning solvent (E19) and brush.

4. Wipe dry using lint-free cloth (E64).

FOLLOW-ON MAINTENANCE:
Inspect Oil Level Float Assembly (Task 8-125).





END OF TASK

8-125 INSPECT OIL LEVEL FLOAT ASSEMBLY (AVIM) 8-125

INITIAL SETUP

Applicable Configurations:
All

Tools:
Technical Inspection Tool Kit,
NSN 5180-00-323-5114
Outside Micrometer Caliper Set

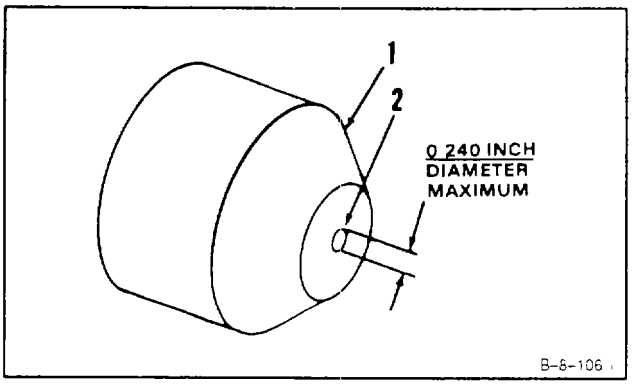
Materials:
None

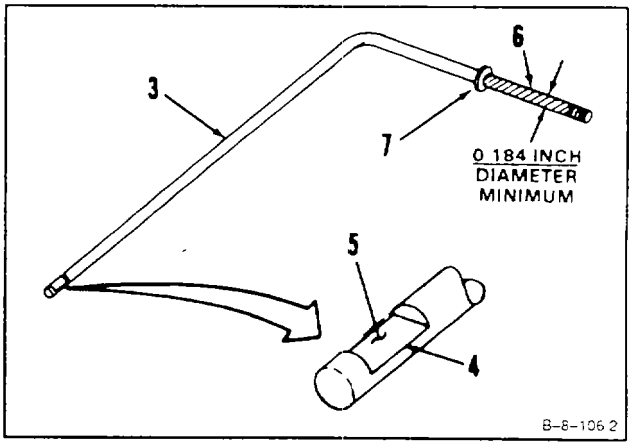
Personnel Required:
Aircraft Powerplant Inspector

Equipment Condition:
Off Engine Task

1. Inspect float (1). There shall be no cracks.
2. Inspect hole (2) in float (1). Hole diameter shall be 0.240 inch maximum.
3. Inspect shaft (3). There shall be no cracks.
4. Inspect notch (4). There shall be no nicks, burrs, or scratches deeper than 0.020 inch on flat surface (5).
5. Inspect float mounting area (6). Use outside micrometer caliper. Shaft diameter shall be 0.184 inch minimum.
6. Inspect washer (7). Washer (7) shall not be cracked, loose, or missing.

FOLLOW-ON MAINTENANCE:
None





END OF TASK

8-126 REPAIR OIL LEVEL FLOAT ASSEMBLY (AVIM) 8-126

INITIAL SETUP

Applicable Configurations:
All

Tools:
Technical Inspection Tool Kit,
NSN 5180-00-323-5114

Materials:
Carborundum Stone (Ell)
Crocus Cloth (E16)

Personnel Required:
Aircraft Powerplant Repairer
Aircraft Powerplant Inspector

Equipment Condition:
Off Engine Task

1. Repair nicks, burrs, and scratches on flat surface (1) of float shaft notch (2) as follows:

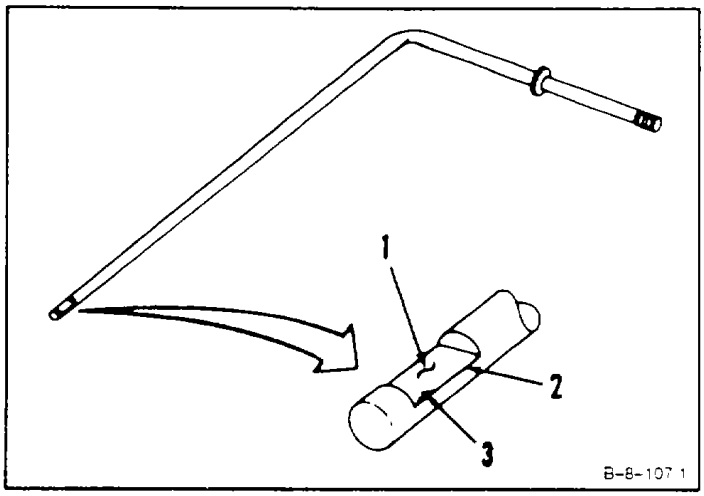
NOTE
Repair is allowed only if depth of defect after repair is not more than 0.020 inch.

a. Blend all raised edges (3). Use carborundum stone (Ell).

b. Polish to smooth finish. Use crocus cloth (E16).

INSPECT

FOLLOW-ON MAINTENANCE:
None



END OF TASK

8-127 ASSEMBLE OIL LEVEL FLOAT ASSEMBLY (AVIM) 8-127

INITIAL SETUP

Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Technical Inspection Tool Kit,
NSN 5180-00-323-5114

Materials:
None

Parts:
Cotter Pin

Personnel Required:
Aircraft Powerplant Repairer
Aircraft Powerplant Inspector

References:
TM 1-2840-252-23P

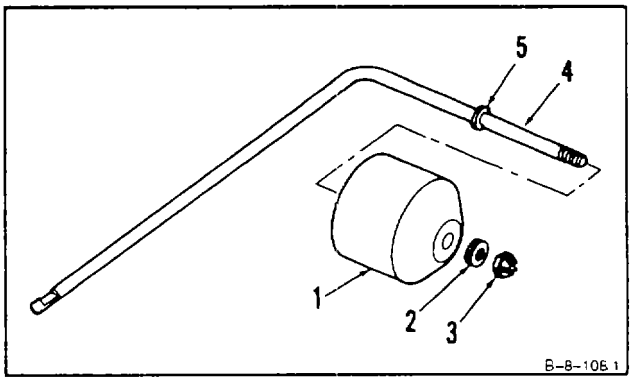
Equipment Condition:
Off Engine Task

CAUTION

When Installing float, tighten nut only enough to seat float against washer. If nut Is overtightened, damage to float will occur.

1. **Install float (1)**, washer (2), and nut (3) on shaft (4).

2. **Hand-tighten nut (3)** until float (1) is seated against washer (5).



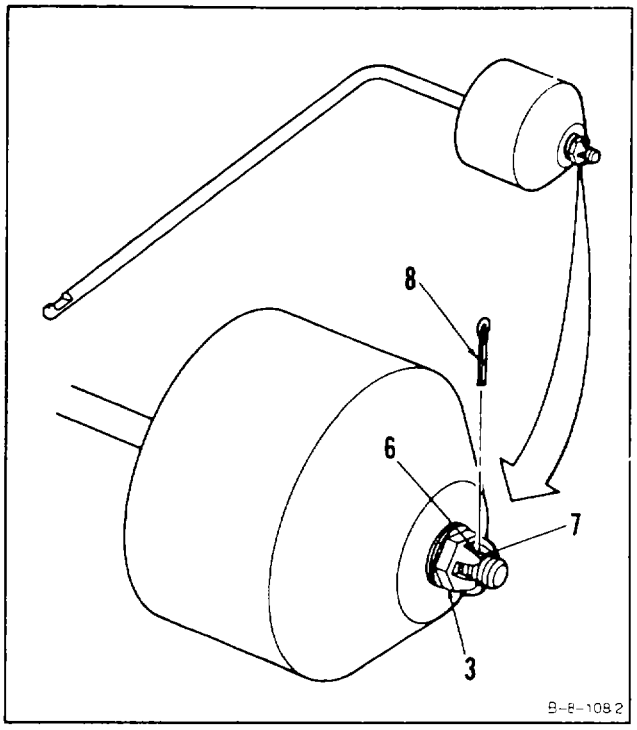
GO TO NEXT PAGE

3. Back off nut (3), a maximum of one slot, until slot (6) in nut (3) aligns with shaft hole (7).

4. Install cotter pin (8).

INSPECT

FOLLOW-ON MAINTENANCE:
None



END OF TASK

8-128 INSTALL OIL LEVEL FLOAT ASSEMBLY (AVIM) 8-128

INITIAL SETUP

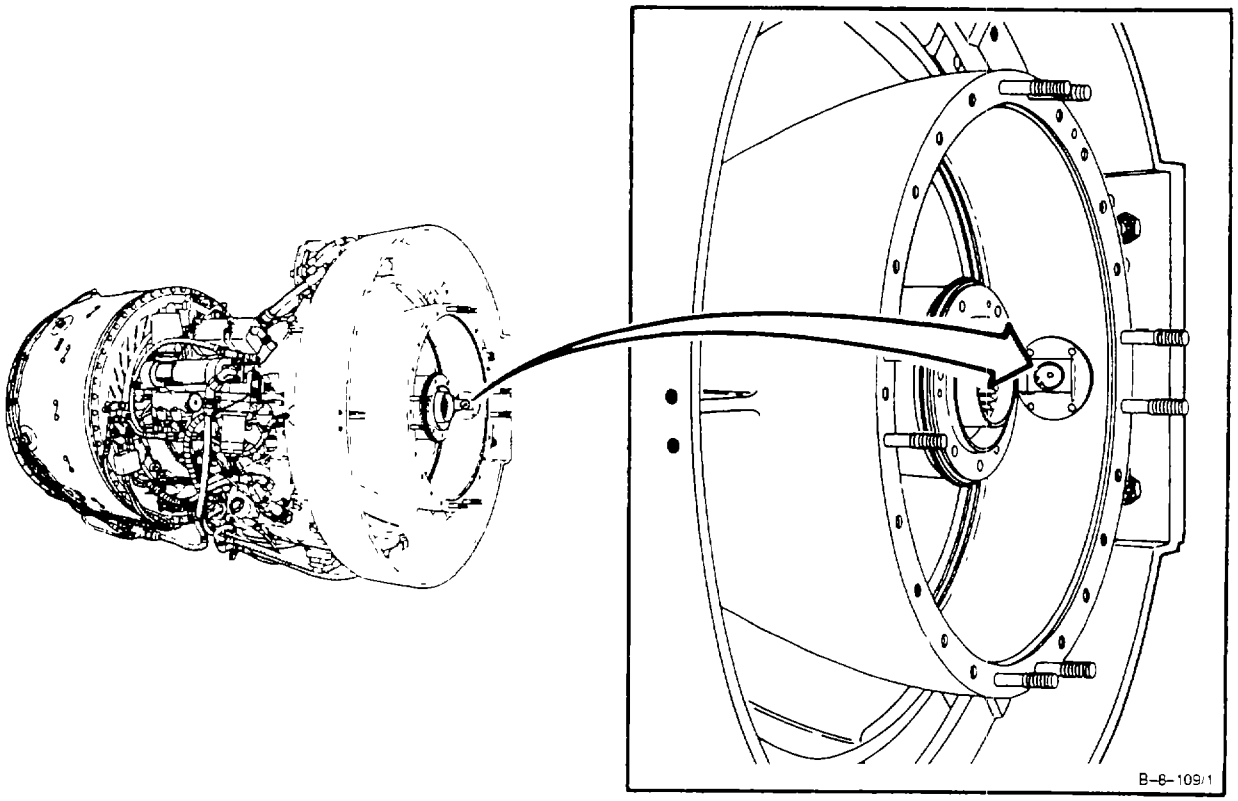
Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit, NSN 5180-00-323-4944
Technical Inspection Tool Kit, NSN 5180-00-323-5114
Torque Wrench, 0-30 Inch-Pounds

Materials:
Lockwire (E33)

Personnel Required:
Aircraft Powerplant Repairer
Aircraft Powerplant Inspector

References:
Task 8-121



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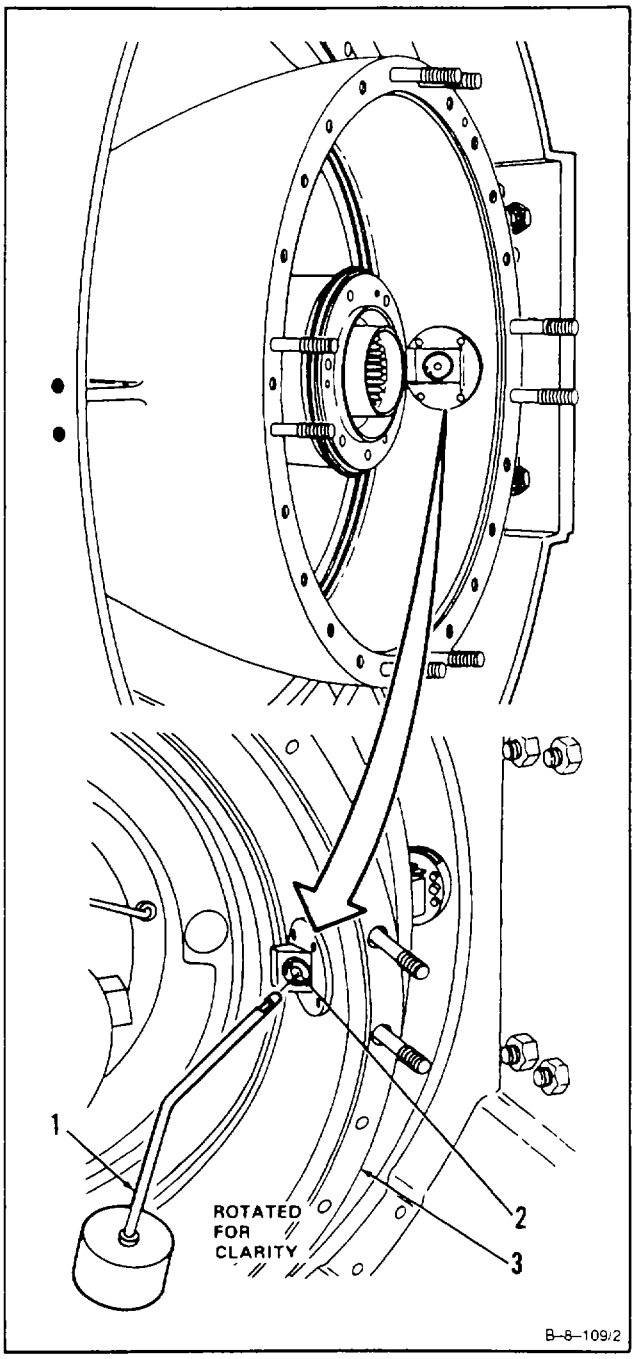
8-128 INSTALL OIL LEVEL FLOAT ASSEMBLY (AVIM) (Continued) 8-128

1. Install oil level float assembly (1) in hole (2) in inlet housing (3).



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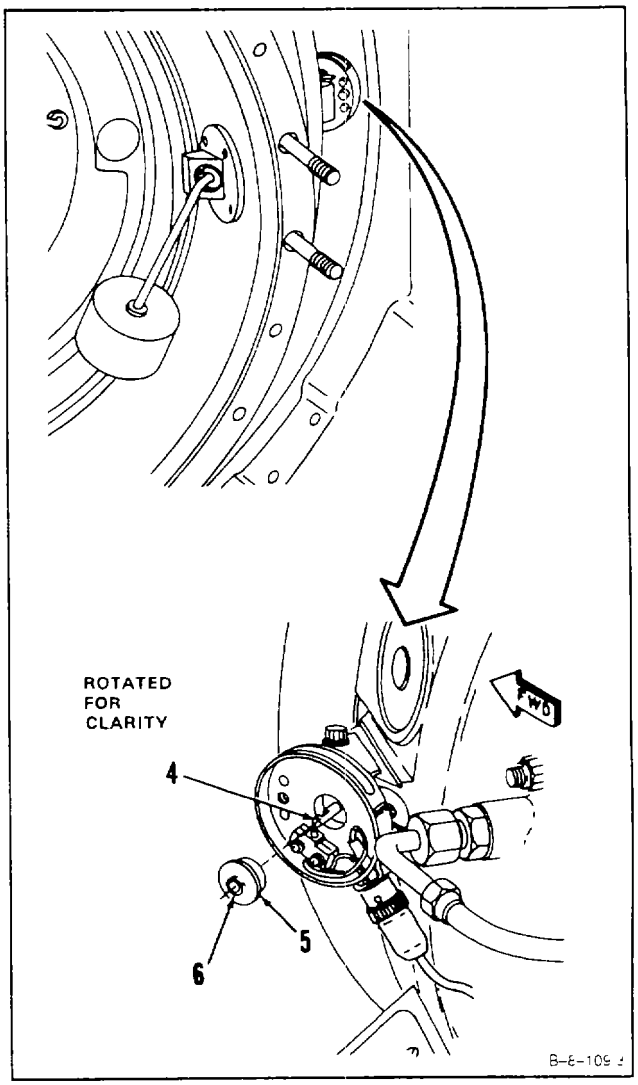
8-128 INSTALL OIL LEVEL FLOAT ASSEMBLY (AVIM) (Continued) 8-128

2. Hold shaft (4) in place. Install washer (5) on shaft (4) with smaller diameter (6) facing out.



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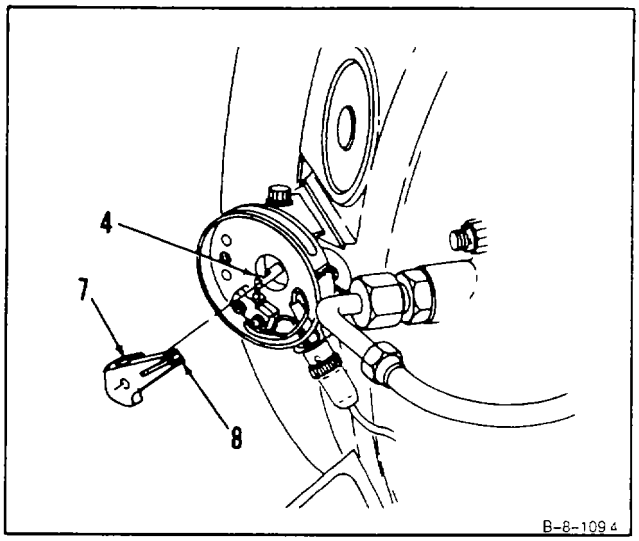
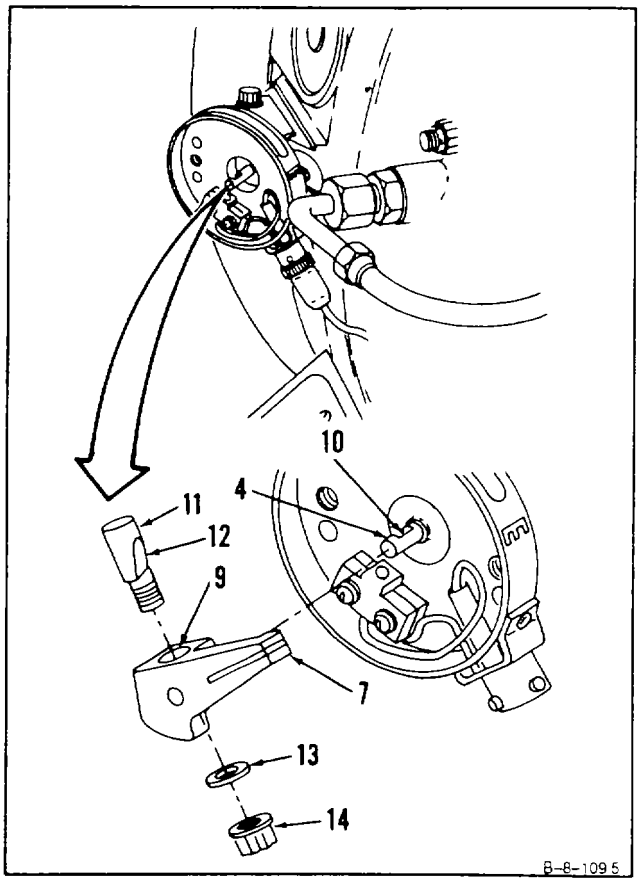
8-128 INSTALL OIL LEVEL FLOAT ASSEMBLY (AVIM) (Continued) 8-128

3. Install pointer (7) on shaft (4) with white stripe (8) facing out.
4. Position pointer (7) on shaft (4) with hole (9) aligned with notch (10).
5. Install bolt (11) with flat (12) against notch (10). Install washer (13) and nut (14).





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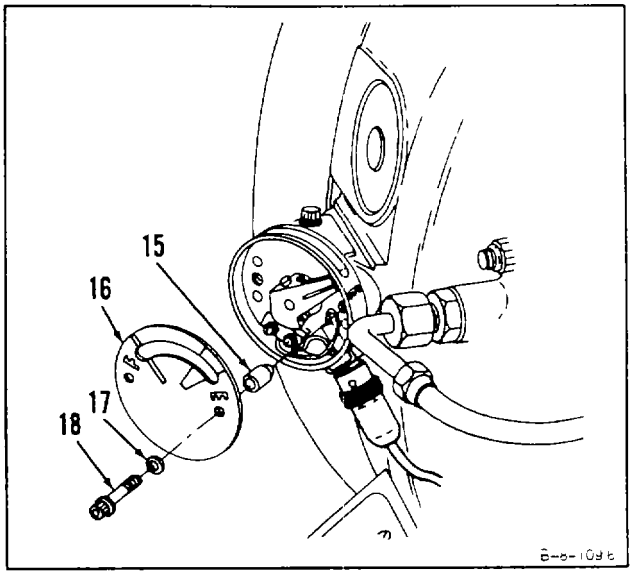
8-128 INSTALL OIL LEVEL FLOAT ASSEMBLY (AVIM) (Continued) 8-128

6. Adjust oil level indicator (Ref. Task 8-121, steps 3 thru 7).

7. Install two spacers (15), cover (16), two washers (17), and two bolts (18). Torque bolts (18) to 15 inch-pounds. Lockwire bolts (18). Use lockwire (E33).

INSPECT

FOLLOW-ON MAINTENANCE:
Install Inlet Housing Cover Assembly (Task 2-48).
Install Output Shaft Seal and Housing Assembly (Task 2-43).
Service Engine Oil System (Task 1-68).



END OF TASK

CHAPTER 9
TORQUEMETER SYSTEM - MAINTENANCE SYSTEM

CHAPTER OVERVIEW

This chapter contains maintenance procedures for the torquemeter system. It is divided into the following sections and tasks:

SECTION I
TORQUEMETER SENSOR

9-1 REMOVE TORQUEMETER SENSOR 9-1

INITIAL SETUP

Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944

Materials:

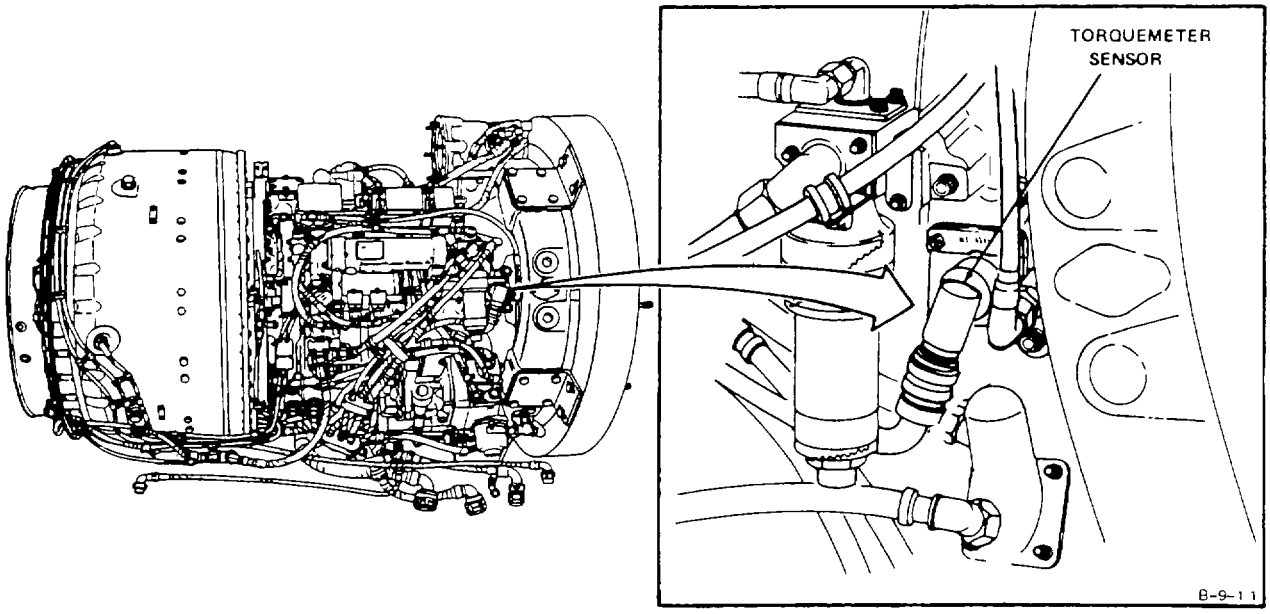
Wiping Rag (E64)

Personnel Required:
Aircraft Powerplant Repairer

General Safety Instructions:

WARNING

Lubricating oils cause paralysis if swallowed. Prolonged contact with them may irritate the skin. Handle only in well-ventilated areas away from heat and flame. Drain and store in approved metal safety containers. Avoid prolonged or repeated contact with skin and do not take internally. Wash contacted area of skin thoroughly after handling. If irritation of skin results, get medical attention. Get medical attention for eyes.



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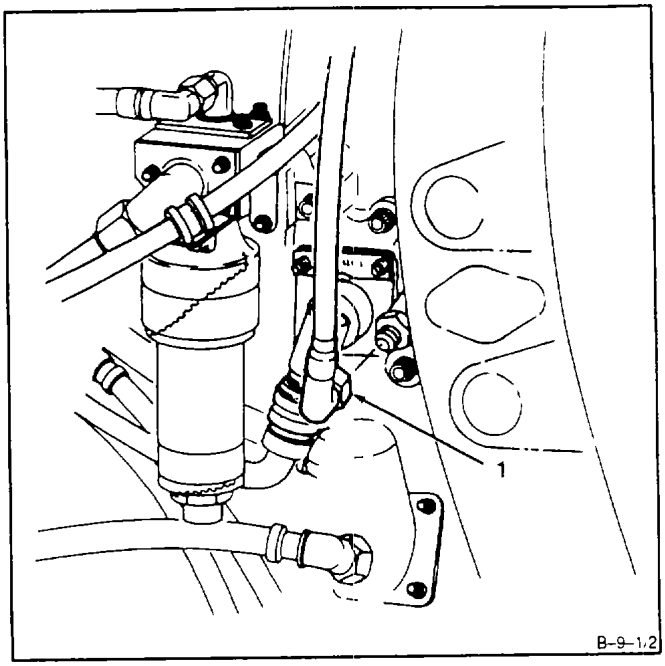
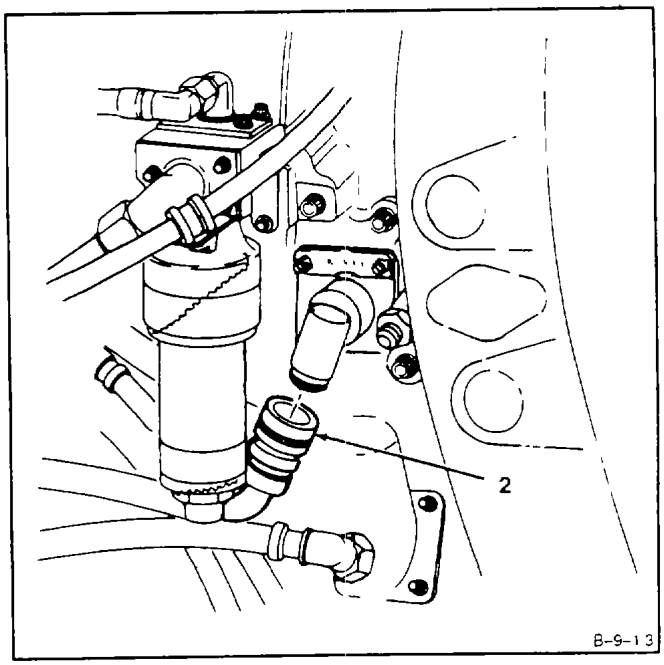
9-1 REMOVE TORQUEMETER SENSOR (Continued) 9-1

1. Disconnect hose assembly (1).

2. Disconnect electrical connector (2).





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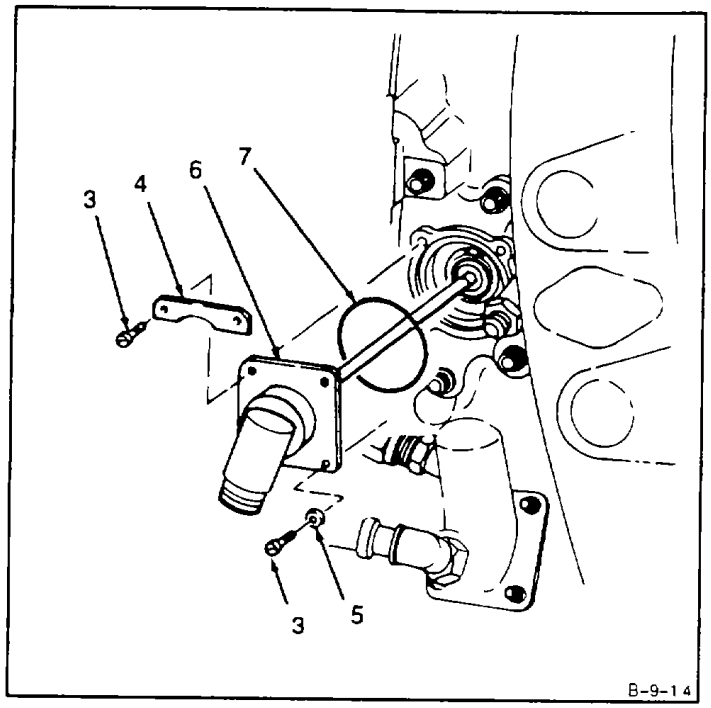
9-1 REMOVE TORQUEMETER SENSOR (Continued) 9-1

3. Remove lockwire, four screws (3), data plate (4), two washers (5), torquemeter sensor (6), and packing (7).

FOLLOW-ON MAINTENANCE:
None



END OF TASK

9-2 CLEAN TORQUEMETER SENSOR 9-2

INITIAL SETUP

Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Goggles
Compressed Air Source

Materials:
Dry Cleaning Solvent (E19)
Gloves (E24)
Lint-Free Cloth (E30)

Personnel Required:
Aircraft Powerplant Repairer

Equipment Condition:
Off Engine Task
Torquemeter Sensor Removed (Task 9-1)

General Safety Instructions:

WARNING

Dry cleaning solvent (E19) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

1. Clean torquemeter sensor (1) as follows:

a. Wear gloves (E24) and clean torquemeter sensor (1). Use lint-free cloth (E30) dampened with dry cleaning solvent (E19).

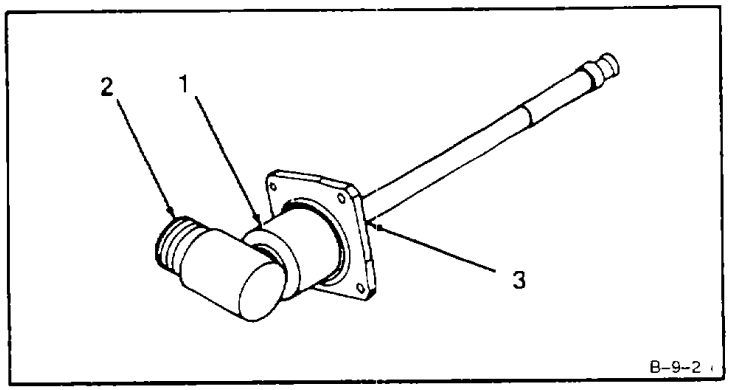
b. Use dry, lint-free cloth (E30) to remove solvent.

WARNING

When using compressed air for cleaning, use approved protective equipment for eyes and face. Do not use more than 30 psig air pressure. Do not direct air toward yourself or another person. Failure to comply could result in injury to eyes or skin. In case of injury, get medical attention.

c. Wear goggles. Blow dry electrical connector (2) and inside surfaces (3). Use clean, dry compressed air.

FOLLOW-ON MAINTENANCE:
Inspect Torquemeter Sensor (Task 9-3).



END OF TASK

9-3 INSPECT TORQUEMETER SENSOR 9-3

INITIAL SETUP

Applicable Configurations:
All

Tools:
Technical Inspection Tool Kit,
NSN 5180-00-323-5114

Materials:
None

Personnel Required:
Aircraft Powerplant Inspector

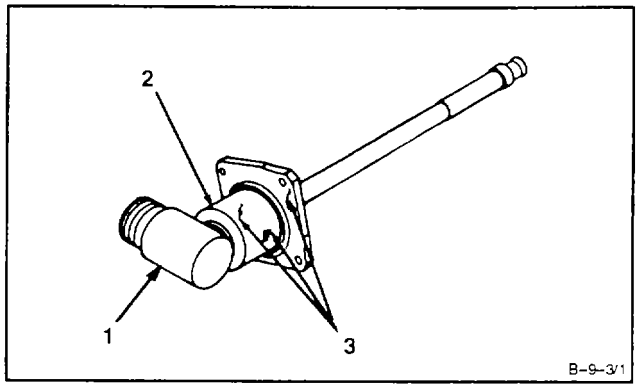
Equipment Condition:
Off Engine Task

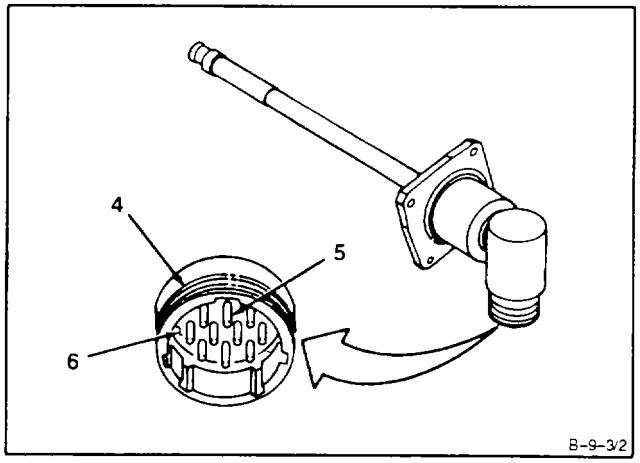
1. Inspect torquemeter sensor (1) as follows:

   a. Inspect body (2). There shall be no cracks, distortion, or dents (3).

   b. Inspect electrical connector (4). There shall be no broken, corroded or bent pins (5), or damaged insulation (6).

FOLLOW-ON MAINTENANCE:
None





END OF TASK

9-4 REPAIR TORQUEMETER SENSOR 9-4

INITIAL SETUP

Applicable Configurations:
All

Tools:
Powerplant Mechanic's Tool Kit, NSN 5180-00-323-4944
Technical Inspection Tool Kit, NSN 5180-00-323-5114
Goggles
Dry, Compressed Air Source

Materials:
Crocus Cloth (E16)

Personnel Required:
Aircraft Powerplant Repairer
Aircraft Powerplant Inspector

Equipment Condition:
Off Engine Task

NOTE

This repair is allowed provided it does not cause pins to break or crack.

1. Straighten bent pins (1) of electrical connector (2). Using long-nose pliers, gently move pins (1) until they are straight.

2. Remove corrosion from pin (1) of electrical connector (2). Polish pins using in and out motion over entire length of pin until corrosion is removed. Use crocus cloth (E16).

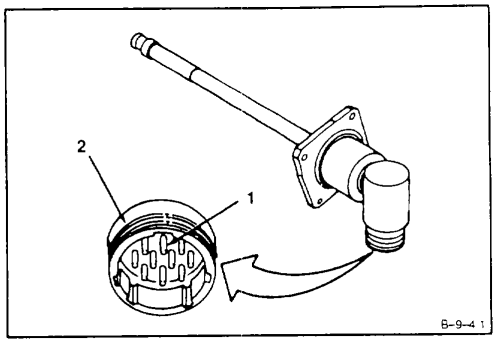
WARNING

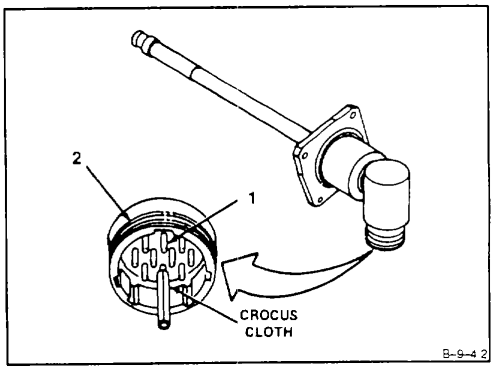
When using compressed air for cleaning, use approved protective equipment for eyes and face. Do not use more than 30 psig air pressure. Do not direct air toward yourself or another person. Failure to comply could result in injury to eyes or skin. In case of injury, get medical attention.

3. Wear goggles. Remove loosened particles from connector (2), using clean, dry, compressed air.

INSPECT

FOLLOW-ON MAINTENANCE:
None





END OF TASK

9-5 INSTALL TORQUEMETER SENSOR 9-5

INITIAL SETUP

Applicable Configurations:
All

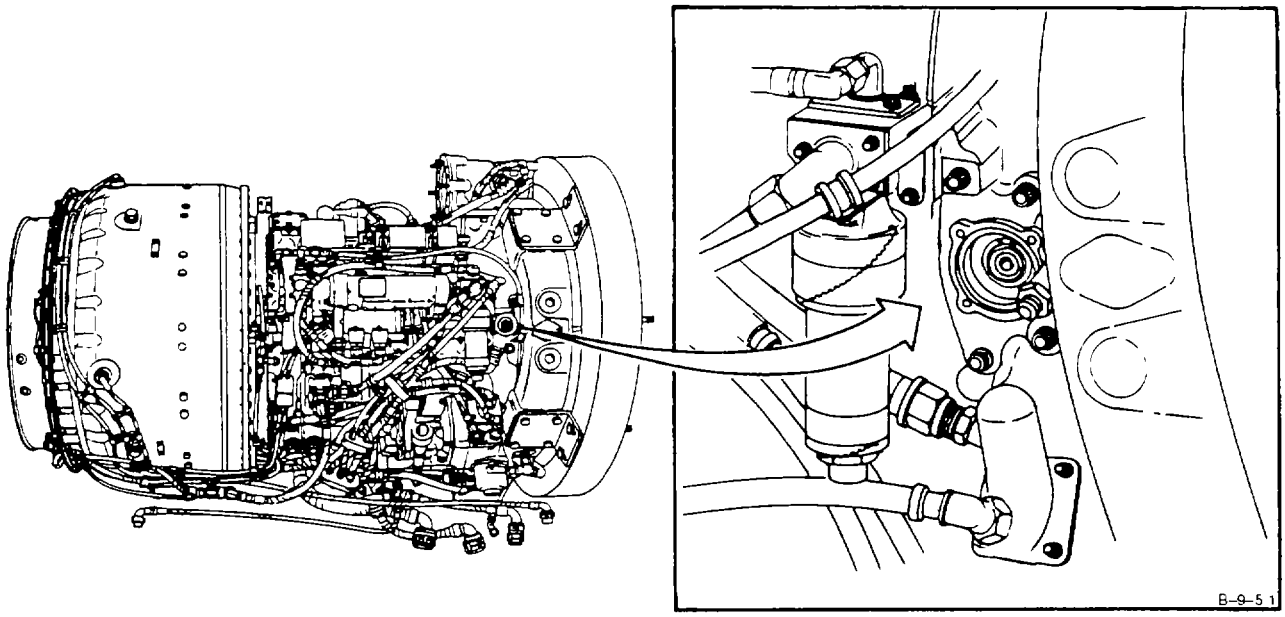
Tools:
Powerplant Mechanic's Tool Kit,
NSN 5180-00-323-4944
Technical Inspection Tool Kit,
NSN 5180-00-323-5114

Materials:
Lockwire (E33)
Anti-Seize Compound (E6)

Parts:
Packing

Personnel Required:
Aircraft Powerplant Repairer (2)
Aircraft Powerplant Inspector

References:
TM 1-2840-252-23P



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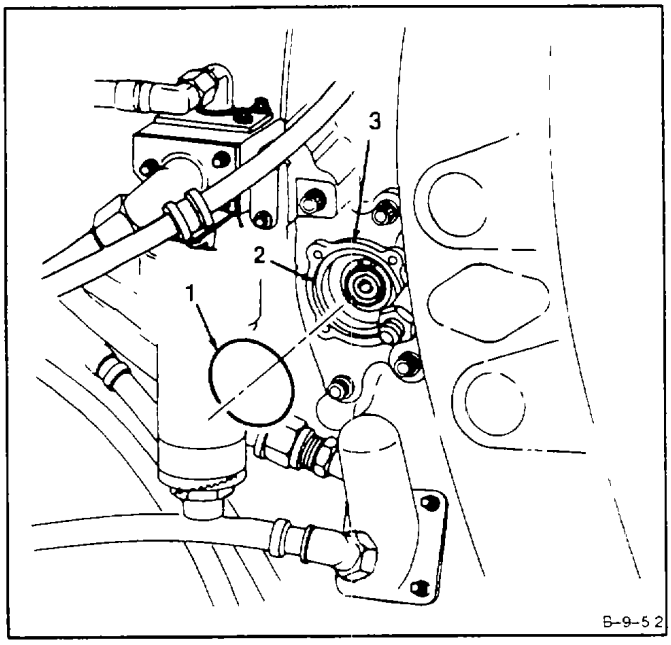
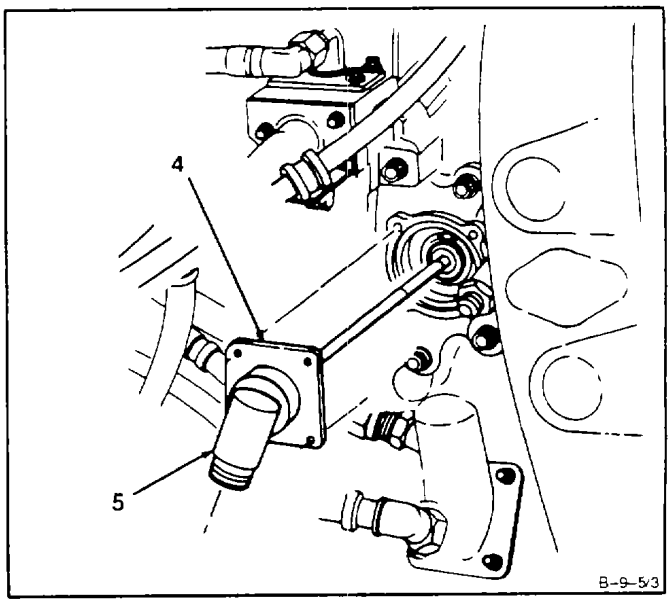
9-5 INSTALL TORQUEMETER SENSOR (Continued) 9-5

1. Install packing (1) in groove (2) of flange (3).

2. Position torquemeter sensor (4) with electrical connector (5) at 7-o'clock location.





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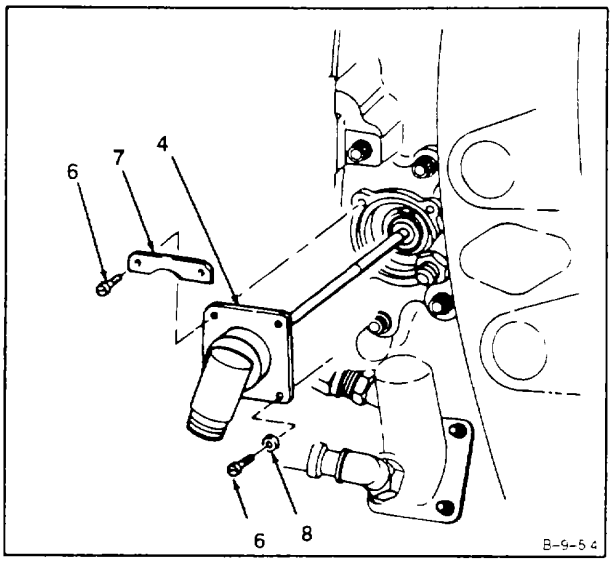
CAUTION

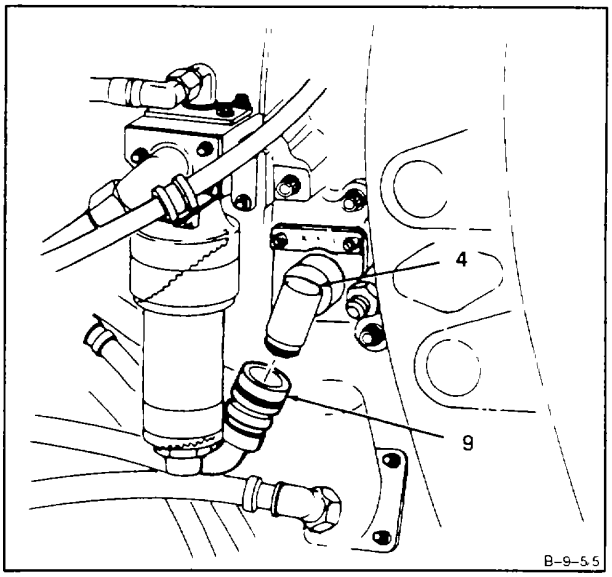
Torquemeter sensor Is spring-loaded into housing and must be installed squarely and evenly. Failure to do so could result in damage to sensor.

NOTE
Do not lockwire over data plate.

3. Install torquemeter sensor (4), four screws (6), data plate (7), and two washers (8). Stagger-tighten and lockwire screws (6). Use lockwire (E33).

4. Connect electrical connector (9) to torquemeter sensor (4).





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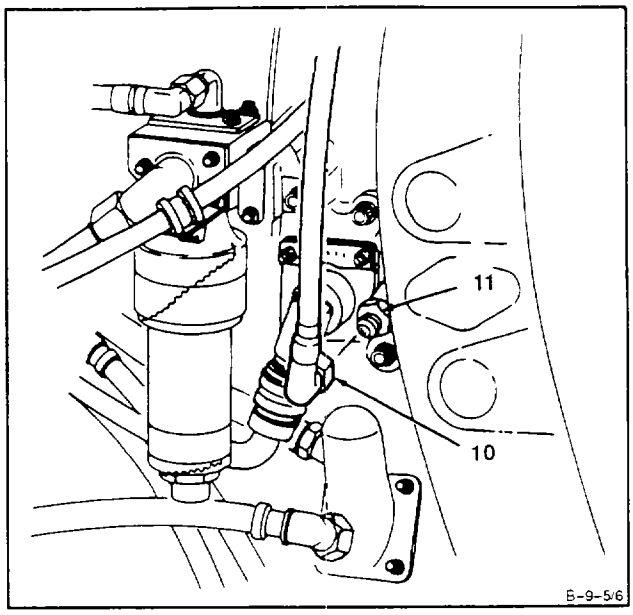
5. Connect hose assembly (10) to adapter nipple (11).

INSPECT

FOLLOW-ON MAINTENANCE:
None



END OF TASK

APPENDIX A
REFERENCES

PUBLICATION NUMBER	TITLE
AR 750–50	Army Material Maintenance Concepts and Policies.
TM 1 1520–252–MTF	Maintenance Test Flight Manual Army Model MH47E Helicopter
TM 1–1520–252–T	Aviation Unit and Aviation Intermediate Troubleshooting Manual Army MH47E Helicopter.
TM 1–1520–252–10	Operator's Manual Army MH47E Helicopter Aircraft.
TM 1–1520–252–23	Aviatioin Unit and Aviation Intermediate Maintenance Manual Army MH47E Helicopter.
TM 1–2840–252–23	Aviation Unit and Aviation Intermediate Maintenance Repair Parts and Special Tools List.
CTA 50–970	Expendable Items (Except Medical, Class V, Repair Parts, and Heraldic Items).
TB 43–0106	Spectrographic Oil Analysis.
TB 43–0142	Lifting Devices, Inspection, Testing and Maintenance.
TB 1–1500–341–01	Aircraft Components Requiring Maintenance Management and Historical Data.
TB 55–8100–200–25	Maintenance of Specialized Reusable Containers for Aircraft Equipment.
TB 55–9150–200–25	Engine and Transmission Oils, Fuels, and additives for Army Aircraft.
DA PAM 738–751	The Army Maintenance Management System (TAMMS).
TM 1–1500–335–23	Non Destructive Inspection Methods
TM 1–1500–204–23	General Aircraft Maintenance Manual
TM 55–1500–328–25	Aeronautical Equipment Maintenance Management Policies and Procedures.

APPENDIX A (Continued)
REFERENCES

PUBLICATION NUMBER	TITLE
TM 55-4920-328-13	Modular Engine Test Systems Maintenance Manual.
FM 1-511	Maintenance Quality Control and Technical Inspection Guide for Army Aircraft.
TM 750-244-1-5	Procedures for the Destruction of Aircraft and Associated Equipment to Prevent Enemy Use.

APPENDIX B
MAINTENANCE ALLOCATION CHART

SECTION I. INTRODUCTION

B-1 MAINTENANCE ALLOCATION CHART

a. This Maintenance Allocation Chart (MAC) assigns maintenance functions in accordance with the Three Levels of Maintenance concept for Army aviation. These maintenance levels (categories) Aviation Unit Maintenance (AVUM), Aviation intermediate Maintenance (AVIM), and Depot Maintenance are depicted on the MAC as:

AVUM, which corresponds to an O Code in the Repair Parts and Special Tools List (RPSTL).

AVIM, which corresponds to an F Code in the Repair Parts and Special Tools List (RPSTL).

DEPOT, which corresponds to a D Code in the Repair Parts and Special Tools List (RPSTL).

b. The maintenance to be performed below depot and in the field is described as follows:

(1) Aviation Unit Maintenance (AVUM) activities will be staffed and equipped to perform high frequency "On-Aircraft" maintenance tasks required to retain or return aircraft systems to a serviceable condition. The maintenance capability of the AVUM will be governed by the Maintenance Allocation Chart (MAC) and limited by the amount and complexity of ground support equipment (GSE), facilities required, authorized manning strength, and critical skills available. The range and quantity of authorized spare modules/components will be consistent with the mobility requirements dictated by the air mobility concept. (Assignments of maintenance tasks to divisional company size aviation units will consider the overall maintenance capability of the division, the requirement to conserve personnel and equipment resources, and air mobility requirements.)

(a) Company Size Aviation Units: Perform those tasks which consist primarily of preventive maintenance and maintenance repair and replacement functions associated with sustaining a high level of aircraft operational readiness. Perform maintenance inspections and servicing to include preflight, daily, intermediate, periodic (or phased), and special inspections as authorized by the MAC or high headquarters. Identify the cause of equipment/system malfunctions using applicable technical manual troubleshooting instructions, built-in test equipment (BITE), installed aircraft instruments, or test, measurement, and diagnostic equipment (TMDE). Replace worn or damaged modules/components that do not require complex adjustments or system alinement and which can be removed/installed with available skills, tools, and ground support equipment. Perform operational and continuity checks and make minor repairs to the electrical system. Inspect, service and make operational, capacity, and pressure checks to hydraulic systems. Perform servicing, functional adjustments, and minor repair/ replacement to the flight control, propulsion, power train, and fuel systems. Accomplish airframe repair that does not require extensive disassembly, jigging, or alignment. The manufacture of airframe repair will be limited to those items which can be fabricated with tools and equipment found in current air mobile tool and shop sets. Evacuate unserviceable modules/components and end items beyond the repair capability of AVUM to the supporting AVIM.

(b) Less than Company Size Aviation Units: Aviation elements organic to brigade, group, battalion headquarters, and detachment size units are normally small and have less than ten aircraft assigned. Maintenance tasks performed by these units will be those which can be accomplished by the aircraft crew chief or assigned aircraft repairman and will normally be limited to preventive maintenance, inspections, servicing, spot painting, stop drilling, application of nonstress patches, minor adjustments, module/component fault diagnosis, and replacement of selected modules/components. Repair functions will normally be accomplished by the supporting AVIM unit.

(2) Aviation Intermediate Maintenance (AVIM) provides mobile, responsive "One-Stop" maintenance support. (Maintenance functions which are not conducive to sustaining air mobility will be assigned to depot maintenance). AVIM may perform all maintenance functions authorized to be done at AVUM. Repair of equipment for return to user will emphasize support or operational readiness requirements. Authorized maintenance includes replacement and repair of modules/components and end items which can be accomplished efficiently with available skills, tools, and equipment. AVIM establishes the Direct Exchange (DX) program for AVUM units by repairing selected items for return to stock when such repairs cannot be accomplished at the AVUM level. The AVIM level inspects, troubleshoots, performs diagnostic tests, repairs, adjusts, calibrates, and aligns aircraft system modules/components. AVIM units will have capability to determine the serviceability of specified modules/components removed prior to the expiration of the Time Between Overhaul (TBO) or finite life. Module/component disassembly and repair will support the DX program and will normally be limited to tasks requiring cleaning and the replacement of seals, fittings, and items of common hardware. Airframe repair and fabrication of parts will be limited to those maintenance tasks which can be performed with available tools and test equipment. Unserviceable repairable modules/components and end items which are beyond the capability of AVIM to repair will be evacuated to Depot Maintenance. AVIM will perform aircraft weight and balance inspections and other special inspections which exceed AVUM capability. Provides quick response maintenance support, including aircraft recovery and air evacuation, on-the job training, and technical assistance through the use of mobile maintenance contact teams. Maintains authorized operational readiness float aircraft. Provides collection and classification services for serviceable/unserviceable material. Operates a cannibalization activity in accordance with AR 750-1. (The aircraft maintenance company within the maintenance battalion of a division will perform AVIM functions consistent with air mobility requirements and conservation of personnel and equipment resources. Additional intermediate maintenance support will be provided by the supporting nondivisional AVIM unit.)

B-2 USE OF THE MAINTENANCE ALLOCATION CHART (SECTION II)

NOTE

Nomenclatures used throughout the MAC are approved item names. Those terms/nomenclatures expressed in parentheses are generic in nature and are not to be considered as official terminology.

a. The Maintenance Allocation Chart assigns maintenance functions based on past experience and the following consideration:

(1) Skills available.

(2) Work time required.

(3) Tools and test equipment required and/or available.

b. The assigned levels of maintenance authorized to perform a maintenance function are indicated.

c. A maintenance function assigned to a maintenance category will automatically be authorized to be performed at any higher maintenance category.

d. A maintenance function that cannot be performed at the assigned category of maintenance for any reason may be evacuated to the next higher maintenance category. Higher maintenance categories will perform the maintenance functions of lower maintenance categories when required or directed by the commander that has the authority to direct such tasking.

e. The assignment of a maintenance function will not be construed as authorization to carry the related repair parts or spares in stock. Information to requisition or otherwise secure the necessary repair parts will be as specified in the associated Repair Parts and Special Tools List (RPSTL).

f. Normally there will be no deviation from the assigned level of maintenance. In cases of operational necessity, maintenance functions assigned to a maintenance level may, on a one-time basis and at the request of the lower maintenance level, be specifically authorized by the maintenance officer of the level of maintenance to which the function is assigned. The special tools, equipment, etc., required by the lower level of maintenance to perform this function will be furnished by the maintenance level to which the function is assigned. This transfer of a maintenance function to a lower maintenance level does not relieve the higher maintenance level of the responsibility for the function. The higher level of maintenance will provide technical supervision and inspection of the function being performed at the lower level.

g. Changes to the Maintenance Allocation Chart will be based on continuing evaluation and analysis by responsible technical personnel and-on reports received from field activities.

B-3 MAINTENANCE FUNCTIONS

Maintenance functions will be limited to and defined as follows:

a. Inspect. To determine the serviceability of an item by comparing its physical, mechanical, and/or electrical characteristics with established standards through examination (e.g. , by sight, sound, or feel).

b. Test. To verify serviceability by measuring the mechanical, pneumatic, hydraulic, or electrical characteristics of an item and comparing those characteristics with prescribed standards.

c. Service. Operations required periodically to keep an item in proper operating condition, i.e., to clean (includes decontaminate, when required), to preserve, to drain, to paint, or to replenish fuel, lubricants, chemical fluids, or gases.

d. Adjust. To maintain or regulate, within prescribed limits, by bringing into proper or exact position, or by setting the operating characteristics to specified parameters.

e. Align. To adjust specified variable elements of an item to bring about optimum or desired performance.

f. Calibrate. To determine and cause corrections to be made or to be adjusted on instruments or test, measuring, and diagnostic equipment used in precision measurement. Consists of comparisons of two instruments, one of which is a certified standard of known accuracy, to detect and adjust any discrepancy in the accuracy of the instrument being compared.

g. Remove/Install. To remove and install the same item when required to perform service or other maintenance functions. Install may be the act of emplacing, seating, or fixing into position a spare, repair part, or module (component or assembly) in a manner to allow the proper functioning of equipment or system.

h. Replace. To remove an unserviceable item and install a serviceable counterpart in its place. "Replace" is authorized by the MAC and is shown as the third position code of the SMR code.

i. Repair. The application of maintenance services[1], including fault location/troubleshooting[2], removal/installation, and disassembly/assembly[3] procedures, and maintenance actions[4] to identify troubles and restore serviceability to an item by correcting specific damage, fault, malfunction, or failure in a part, subassembly, module (component or assembly), end item, or system.

j. Overhaul. That maintenance effort (service/action) prescribed to restore an item to a completely serviceable/operational condition as required by maintenance standards in appropriate technical publications (i.e., DMWR). Overhaul is normally the highest degree of maintenance performed by the Army. Overhaul does not normally return an item to like new condition.

k. Rebuild. Consists of those services/actions necessary for the restoration of unserviceable equipment to a like new condition in accordance with original manufacturing standards. Rebuild is the highest degree of material maintenance applied to Army equipment. The rebuild operation includes the act of returning to zero those age measurements (hours/miles, etc.) considered in classifying Army equipment/components.

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1. Services - inspect, test, service, adjust, align, calibrate, and/or replace.

2. Fault locate/troubleshoot - The process of investigating and detecting the cause of equipment malfunctioning; the act of isolating a fault within a system or unit under test (UUT).

3. Disassemble/assemble - encompasses the step-by-step taking apart (or breakdown) of a spare/functional group coded item to the level of its least componency identified as maintenance significant (i.e., assigned an SMR code) for the category of maintenance under consideration.

4. Actions - welding, grinding, riveting, straightening, facing, remachining and/or resurfacing.

B-4 FUNCTIONAL GROUPS (COLUMNS 1 AND 2)

The functional groupings shown in the sample below identify maintenance significant components, assemblies, subassemblies, and modules with the next higher assembly.

GROUP NUMBER	DESCRIPTION	GROUP NUMBER	DESCRIPTION
04	POWERPLANT	0406	FUEL SYSTEM
0401	ENGINE GENERAL Servicing, handling, inspection requirements, lubrication charts, overhaul and retirement schedules, External lines & hoses. (As applicable)		Hydromechanical assembly, fuel boost pump, governors, fuel filter assembly, sequence valve, fuel manifold, fuel nozzle, external lines and hoses.
0402	COMPRESSOR SECTION (COLD SECTION MODULE) Rotor, blades, vanes, impeller, Stators, inlet guide vanes, main frame, particle separator, bleed valve, bearings, seals, external lines & hoses.	0407	ELECTRICAL SYSTEM Electrical control units, exciters, thermocouples, ignition harness, electrical cables, history record, torque overspeed sensor, NP sensor, alternate stator, and blowers.
0403	COMBUSTION SECTION (HOT SECTION MODULE) Liners, nozzles, stators, rotor, seals, couplings, blades.	0408	OIL SYSTEM Tanks, oil filter, oil cooler, lube and scavenge pumps, oil filter bypass sensor, external lines and hoses.
0404	POWER-TURBINE (POWER TURBINE MODULE) Nozzles, rotors, blades, exit guide vanes, exhaust frame, drive shaft, bearings, seals, external lines and hoses.	0409	DRIVE SYSTEM Reduction gear assembly, output shaft, seal, and bearing.
0405	ACCESSORY GEAR SECTION Input/and output gears, seals, chip detector, housings, drive shaft, bearings, and seals.	0410	MISCELLANEOUS EQUIPMENT (As applicable)

B-5 MAINTENANCE FUNCTION (COLUMN 3)

Column 3 lists the functions to be performed on the items listed in column 2.

B-6 MAINTENANCE CATEGORIES AND WORK TIMES (COLUMN 4)

The maintenance categories (levels) AVUM, AVIM, and DEPOT are listed on the Maintenance Allocation Chart with individual columns that include the work times for maintenance functions at each maintenance level. Work time presentations such as "0.1" indicate the average time it requires a maintenance level to perform a specified maintenance function. If a work time has not been established, the columnar presentation shall indicate "-.Maintenance levels higher than the level of maintenance indicated are authorized to perform the indicated function.

B-7 TOOLS AND TEST EQUIPMENT (COLUMN 5 AND SECTION III)

Common tool sets (not individual tools), special tools, test, and support equipment required to perform maintenance functions are listed alphabetically in Section III with a reference number to permit cross-referencing to column 5 in the MAC. In addition, the maintenance category authorized to use the device is listed along with the item National stock number (NSN), and, if applicable, the tool number to aid in identifying the tool/device.

B-8 REMARKS (COLUMN 6 AND SECTION IV)

Remarks (identified by an alphabetic code in column 6) and other notes (identified by a number in parentheses in the applicable column) are listed in Section IV to provide a ready reference to the definition of the remark/note.

SECTION II

MAINTENANCE ALLOCATION CHART

NOMENCLATURE OF END ITEMS

T55-L-714

(1) GROUP NUMBER	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY AVUM	AVIM	DEPOT	(5) TOOLS AND EQUIPMENT	(6) REMARKS
	NOTE The maintenance functions identified herein, are restricted to company size units. These units are authorized (AVUM #2) Tool Set SC4920-49-CL-A92 and have 10 or more aircraft assigned. Refer to paragraph B-1.						
0400	POWERPLANT AND RELATED SYSTEMS						
0401	ENGINE, COMPLETE ASSEMBLY	INSPECT	-.-			51,52	
		TEST	-.-				A
	(METS) TRAILER			-.-			B
		ADJUST	-.-			51,52	H, I
		SERVICE	-.-			51,52	
		REPLACE	-.-			47,51,52	C
		REPAIR	-.-			51,52	C,D,E,K
				-.-		44,45,46	
		OVERHAUL			-.-		
0402	COMPRESSOR SECTION						
040201	INTERSTAGE AIR-BLEED ACTUATOR	INSPECT	-.-			51,52,53	
		ADJUST	-.-			51,52	A,H,I
		REPLACE	-.-			51,52	C
		REPAIR	-.-			51,52	D,E,G
		OVERHAUL			-.-		
040202	COMPRESSOR BLEED BAND	INSPECT	-.-			51,52,53	
		REPLACE	-.-			51,52	A

MAINTENANCE ALLOCATION CHART

NOMENCLATURE OF END ITEMS

T55-L-714

(1) GROUP NUMBER	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY AVUM	AVIM	DEPOT	(5) TOOLS AND EQUIPMENT	(6) REMARKS
040203	ANTI-ICING, AIR GALLERY	INSPECT	-.-			51,52,53	
		REPLACE	-.-			51,52	C
		REPAIR	-.-			51,52	C,D,E,G
040204	COMPRESSOR HOUSING	INSPECT	-.-			51,52,53	
		REPLACE	-.-			37,43,45, 52	
		REPAIR	-.-			51,52	C,D,E,G
040205	STATOR VANE ASSEMBLIES	INSPECT	-.-			51,52,53	
		REPLACE	-.-			29,32,36, 43,51,52	
		REPAIR	-.-			51,52	C,D,E,G
040206	COMPRESSOR ROTOR BLADES	INSPECT	-.-			51,52,53	
		REPLACE	-.-			10,48,50, 52	
		REPAIR	-.-			52	
040207	OUTPUT SHAFT SEAL AND HOUSING ASSEMBLY	INSPECT	-.-			51,52,53	
		REPLACE	-.-			2,27,51,52	C,K
		REPAIR	-.-			26,51	M
040208	INLET HOUSING COVER ASSEMBLY	INSPECT	-.-			51,52,53	
		REPLACE		-.-		24,51,52	
		REPAIR		-.-		51,52	
040209	AIR INLET HOUSING ASSEMBLY	INSPECT	-.-			51,52,53	
		REPLACE		-.-			
		REPAIR	-.-			51	D,E,F,G
040210	T1 TEMPERATURE SENSOR	INSPECT	-.-			51,52,53	
		REPLACE	-.-			51,52	
		REPAIR	-.-			51,52	

MAINTENANCE ALLOCATION CHART

NOMENCLATURE OF END ITEMS

T55-L-714

(1) GROUP NUMBER	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY			(5) TOOLS AND EQUIPMENT	(6) REMARKS
			AVUM	AVIM	DEPOT		
040211	AIR LINES	INSPECT	-.-			51,52,53	
		REPLACE	-.-			51,52	
0403	COMBUSTION SECTION						
040301	FUEL DRAIN VALVE	INSPECT	-.-			51,52,53	
		REPLACE	-.-			51,52	
		OVER-HAUL			-.-		
040302	COMBUSTION CHAMBER VANE ASSEMBLY	INSPECT		-.-		45,51,52, 53	
		REPLACE		-.-		45,52	
		REPAIR		-.-		45,52	D.E,F,G
040303	COMBUSTION CHAMBER LINER	INSPECT	-.-			45,51,52, 53	
		REPLACE		-.-		45,52	
		REPAIR		-.-		45,52	D,E,F,G
040304	COMBUSTION CHAMBER HOUSING	INSPECT	-.-			51,52,53	
		REPLACE		-.-		18,44,45	
		REPAIR		-.-		44,45,46	D,E,F,G
0404	TURBINE SECTION						
040401	THERMOCOUPLE JUMPER LEAD	INSPECT	-.-			51,52,53	
		TEST	-.-			51,54	
		REPLACE	-.-			51,52	C
040402	LEFT- AND RIGHT-HAND BUS BAR ASSEMBLIES	INSPECT	-.-			51,52,53	
		TEST	-.-			51,53	
		REPLACE	-.-			51,52	C
040403	FIRESHIELD ASSEMBLY	INSPECT	-.-			51,52,53	
		REPLACE	-.-			51,52	C

MAINTENANCE ALLOCATION CHART

NOMENCLATURE OF END ITEMS

T55-L-714

(1) GROUP NUMBER	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY AVUM	AVIM	DEPOT	(5) TOOLS AND EQUIPMENT	(6) REMARKS
040404	FIRESHIELD SECTION	INSPECT	-.-			51,52,53	
		REPLACE	-.-			51,52	C
040405	THERMOCOUPLE HARNESS ASSEMBLIES	INSPECT		-.-		45,51,53	
		TEST		-.-		45,52	
		REPLACE		-.-		45	
040406	THERMOCOUPLE HARNESS ASSEMBLIES	INSPECT		-.-		45,51,52, 53	
		REPLACE		-.-		20,45,52	
		REPAIR		-.-		44,45,46	D,E,F,G
040407	FOURTH STAGE POWER TURBINE ROTOR	INSPECT				45,51,52, 53	
		REPLACE		-.-		3,5,11,16, 20,25,28, 34,42,52, 53	
		REPAIR			-.-		
040408	NO. 4 AND 5 BEARING PACKAGE	INSPECT		-.-		45,49,51, 52,56	
		REPLACE		-.-		5,15,17, 25,28,34, 36,45,46, 49,51,52, 54,56	K
040409	FOURTH STAGE POWER TURBINE NOZZLE	INSPECT		-.-		45,51,52, 53	
		REPLACE		-.-			
		OVERHAUL			-.-		
040410	THIRD STAGE POWER TURBINE ROTOR	INSPECT		-.-		45,51,52, 53	
		REPLACE		-.-		11,45,51, 52,53	
		REPAIR			-.-		

MAINTENANCE ALLOCATION CHART

NOMENCLATURE OF END ITEMS

T55-L-714

(1) GROUP NUMBER	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY AVUM	AVIM	DEPOT	(5) TOOLS AND EQUIPMENT	(6) REMARKS
040411	SECOND TURBINE DISC ASSEMBLY	INSPECT		-.-		51,52,53	
		REPLACE		-.-		3,5,11,12, 21,34,41 52,53	
		REPAIR		-.-		44,52	D,E
040412	FIRST TURBINE DISC ASSEMBLY	INSPECT		-.-		51,52,53	
		REPLACE		-.-		3,5,11,12, 21,34,38, 52,53	
		REPAIR		-.-		44,52	D,E
040413	SECOND TURBINE NOZZLE, SPACER, CASE, AND BUMPER	INSPECT		-.-		51,52,53	
		REPLACE		-.-		3,5,11,12, 21,34,41 52,53	
		REPAIR		-.-		44,52	D,E,F,G
040414	TAILPIPE ASSEMBLY	INSPECT	-.-			51,52,53	
		REPLACE	-.-			51,52	
		REPAIR		-.-		51,52	C,G
0405	ACCESSORY GEAR SECTION						
040501	ACCESSORY GEARBOX ASSEMBLY	INSPECT	-.-			51,52,53	
		REPLACE	-.-			2,3,14,19, 23,24,34, 51,52	
		REPAIR	-.-			15,52	D,E
				-.-		44,45	C,D,E,G, J,K
040502	PT SPEED PICKUP	INSPECT	-.-			51,52,53	
		REPLACE	-.-			51,52	
		REPAIR	-.-			52,53.	E

MAINTENANCE ALLOCATION CHART

NOMENCLATURE OF END ITEMS

T55-L-714

(1) GROUP NUMBER	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY			(5) TOOLS AND EQUIPMENT	(6) REMARKS
			AVUM	AVIM	DEPOT		
040503	PT SPEED PICKUP DRIVE ASSEMBLY	INSPECT		-.-		51,52,53	
		REPLACE		-.-		51,52	
		REPAIR		-.-		53	D
040504	ACCESSORY GEAR ASSEMBLY	INSPECT	-.-			51,52,53	
		REPLACE	-.-			2,3,19,23, 34,35,36	
040505	STARTER DRIVE ASSEMBLY	INSPECT	-.-			51,52,53	
		REPLACE	-.-			51,52	C
		REPAIR	-.-			3,24,30, 51,52	D,E,G,J, M
040506	OVERSPEED DRIVE AND OUTLET COVER ASSEMBLY	INSPECT	-.-			51,52,53	
		REPLACE	-.-			51,52	
		REPAIR	-.-			51,52,53	
0406	FUEL SYSTEM						
040601	HYDROMECHANICAL ASSEMBLY	INSPECT	-.-			51,52,53	
		REPLACE	-.-			51,52	
		OVERHAUL	-.-				
040602	FUEL BOOST PUMP ASSEMBLY	INSPECT	-.-			51,52,53	
		REPLACE	-.-			51,52	
		REPAIR	-.-			51,52	D,E,G,M
		OVERHAUL			-.-		
040603	LEFT- AND RIGHT-HAND FUEL MANIFOLD ASSEMBLIES	INSPECT	-.-			51,52,53	
		REPLACE	-.-			51,52,55	C
		REPAIR	-.-			45	K
		OVERHAUL			-.-		
040604	PRIMER TUBE ASSEMBLY	INSPECT	-.-			51,52,53	

MAINTENANCE ALLOCATION CHART

NOMENCLATURE OF END ITEMS

T55-L-714

(1) GROUP NUMBER	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY AVUM	AVIM	DEPOT	(5) TOOLS AND EQUIPMENT	(6) REMARKS
		REPLACE	-.-			51,52	C
040605	START FUEL NOZZLES	INSPECT	-.-			51,52,53	
		REPLACE	-.-			51,52	C
040606	MAIN FUEL FILTER AND BRACKET	INSPECT	-.-			51,52,53	
		REPLACE	-.-			51,52	C
040607	IN-LINE FUEL FILTER ASSEMBLY	INSPECT	-.-			51,52,53	
		REPLACE	-.-			51,52	C,D,E,J
040608	PRESSURIZING VALVE	INSPECT	-.-			51,52,53	
		REPLACE	-.-			51,52	C
040609	FLOW DIVIDER AND BRACKET	INSPECT	-.-			51,52,53	
		REPLACE	-.-			51,52	C
040610	FUEL CHECK VALVE	INSPECT	-.-			51,52,53	
		REPLACE	-.-			51,52	C
040611	OVERSPEED SOLENOID VALVE	INSPECT	-.-			51,52,53	
		REPLACE	-.-			51,52	C,D
040612	STARTING FUEL SOLENOID VALVE	INSPECT	-.-			51,52,53	
		REPLACE	-.-			51,52	C
040613	FUEL LINES	INSPECT	-.-			51,52	
0407	ELECTRICAL AND IGNITION SYSTEMS						
040701	IGNITION COIL AND CABLE ASSEMBLY	INSPECT	-.-			51,52,53	A
		REPLACE	-.-			51,52	C
040702	SPARK IGNITERS	INSPECT	-.-			51,52,53	A
		REPLACE	-.-			51,52	C
040703	PRIMARY ELECTRICAL HARNESS ASSEMBLY	INSPECT	-.-			51,52,53	

MAINTENANCE ALLOCATION CHART

NOMENCLATURE OF END ITEMS

T55-L-714

(1) GROUP NUMBER	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY AVUM	AVIM	DEPOT	(5) TOOLS AND EQUIPMENT	(6) REMARKS
		REPLACE	-.-			51,52	C
040704	REVERSIONARY ELECTRICAL HARNESS ASSEMBLY	INSPECT	-.-			51,52,53	
		REPLACE	-.-			51,52	C
040705	ACCESSORY ELECTRICAL HARNESS ASSEMBLY	INSPECT	-.-			51,52,53	
		REPLACE	-.-			51,52	C
0408	LUBRICATION SYSTEM						
040801	MAIN OIL PUMP, SPEED PICK-UP DRIVE ASSEMBLY, SCAV-ENGE OIL SREEN, AND RE-LATED PARTS	INSPECT	-.-			51,52,53	
		ADJUST	-.-			51,52	
		REPLACE	-.-			51,52	C
		REPAIR		-.-		51,52	D,G,J,M
		OVERHAUL			-.-		
040802	GAS PRODUCER SPEED PICK-UP	INSPECT	-.-			51,52,53	
		REPLACE	-.-			51,52	
040803	OIL COOLER ASSEMBLY	INSPECT	-.-			51,52,53	
		REPLACE	-.-			51,52	C
		REPAIR	-.-			51,52	D,E
		OVERHAUL			-.-		
040804	FLOW PROGRAMMING VALVE	INSPECT	-.-			51,52,53	
		ADJUST	-.-				
		REPLACE	-.-			51,52	
040805	OIL TEMPERATURE TRANS-MITTER	INSPECT	-.-			51,52,53	

MAINTENANCE ALLOCATION CHART

NOMENCLATURE OF END ITEMS

T55-L-714

(1) GROUP NUMBER	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY AVUM	AVIM	DEPOT	(5) TOOLS AND EQUIPMENT	(6) REMARKS
		REPLACE	-.-			51,52	C
040806	OIL FILLER ASSEMBLY AND OIL FILLER STRAINER	INSPECT	-.-			51,52,53	
		SERVICE	-.-			51,52	
		REPLACE	-.-			51,52	
040807	OIL FILLER COVER ASSEMBLY AND OIL FILLER ELEMENT	INSPECT	-.-			51,52,53	
		SERVICE	-.-			51,52	C
		REPLACE	-.-			51,52	C
040808	DUAL CHIP DETECTOR	INSPECT	-.-			51,52,53	
		SERVICE	-.-			51,52	C
		REPLACE	-.-			51,52	C
040809	OIL LINES	INSPECT	-.-			51,52,53	
		REPLACE	-.-			51,52	C
040810	STARTER GEARBOX FILTER	INSPECT	-.-			51,52,53	
		SERVICE	-.-			51,52	C
		REPLACE	-.-			51,52	C
040811	NO. 2 BEARING PRESSURE OIL CONNECTOR	INSPECT	-.-			51,52,53	
		REPLACE	-.-			51,52	
040812	NO. 2 BEARING PRESSURE OIL STRAINER	INSPECT	-.-			51,52,53	
		SERVICE	-.-			51,52	
		REPLACE	-.-			51,52	
040813	NO. 4 AND 5 BEARING FILTER	INSPECT	-.-			51,52,53, 56	
		SERVICE	-.-			51,52,56	C
		REPLACE	-.-			51,52,56	C
040814	OIL DRAIN COCK	INSPECT	-.-			51,52,53	

MAINTENANCE ALLOCATION CHART

NOMENCLATURE OF END ITEMS

T55-L-714

(1) GROUP NUMBER	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY AVUM	AVIM	DEPOT	(5) TOOLS AND EQUIPMENT	(6) REMARKS
		REPLACE	-.-			51,52	
040815	CHIP DETECTOR	INSPECT	-.-			51,52,53	
		SERVICE	-.-			51,52	C
		REPLACE	-.-			51,52	C
040816	OIL LEVEL INDICATOR	INSPECT	-.-			33,51,52, 53	
		ADJUST	-.-			33,51,52	
		SERVICE	-.-			33,51,52	C
		REPLACE	-.-			33,51,52	C
040817	OIL LEVEL FLOAT	INSPECT		-.-		45,51,52, 53	
		REPLACE		-.-		45,51,52	
		REPAIR		-.-		44,45,46	
0409	DRIVE SYSTEM						
040901	TORQUEMETER SENSOR	INSPECT	-.-			45,51,52, 53	
		REPLACE	-.-			45,51,52	L

SECTION III

TOOL AND TEST EQUIPMENT REQUIREMENTS

NOMENCLATURE OF END ITEMS

Tool and Test Equipment Requirements. T55-L-714 Turbine Engine

TOOL OR TEST EQUIPMENT REF CODE	MAINTENANCE CATEGORY	NOMENCLATURE	NATIONAL/NATO STOCK NUMBER	TOOL NUMBER
1	AVIM	Alignment Pin	5120-00-898-0974	LTCT13038
2	AVIM	Alignment Pin	5120-00-898-0697	LTCT387-01
3	AVIM	Bar, Locating	5120-00-671-2129	LTCT153
4	AVIM	Clinching Tool	5120-00-481-3117	LTCT13411-01
5	AVIM	Control Unit	6110-00-631-7196	LTCT14547-01
6	AVIM	Coupling Half, Clamp	5340-00-156-1191	LTCT9917
7	AVIM	Cover, Aircraft Group	1730-00-134-0979	LTCT6271
8	AVIM	Cover, Aircraft Group	1730-00-133-9550	LTCT3936
9	AVUM	Cover, Protective Engine	4920-00-916-2448	LTCT1278
10	AVUM	Drift Assembly	4920-00-891-4653	LTCT1643
11	AVIM	EHRT Computer		LTCT29014-01
12	AVIM	Fixture, Assembling (Bore Heater)	4920-00-134-0162	LTCT6354
13	AVIM	Fixture, Holding Gear	4920-00-012-9091	LTCT1184
14	AVUM	Fixture, Holding Gear	4920-00-872-7858	LTCT1260
15	AVIM	Fixture, Holding Tube	4920-01-137-3557	LTCT7202-01
16	AVIM	Fixture, Holding	4920-01-115-6995	LTCT14616-01
17	AVIM	Fixture, Pressure Check	4920-00-866-0849	LTCT13442
18	AVIM	Fixture, Power Turbine	4920-00-834-2182	LTCT14360-01
19	AVIM	Fixture, Torque	4920-00-834-2178	LTCT13771
20	AVIM	Fixture, Torque	4920-00-372-4596	LTCT13857-01
21	AVIM	Fixture, Torque	4920-00-866-0863	LTCT13344
22	AVIM	Gage, Backlash	5220-00-015-6982	LTCT1229
23	AVUM	Handling Tool	5120-00-959-7636	LTCT1431-01

TOOL AND TEST EQUIPMENT REQUIREMENTS

NOMENCLATURE OF END ITEMS

Tool and Test Equipment Requirements. T55-L-714 Turbine Engine

TOOL OR TEST EQUIPMENT REF CODE	MAINTENANCE CATEGORY	NOMENCLATURE	NATIONAL/NATO STOCK NUMBER	TOOL NUMBER
24	AVUM	Handling Tool	5120-00-959-7633	LTCT1428-01
25	AVIM	Heater, Induction	4920-00-372-4595	LTCT13873-01
26	AVUM	Installation Tool	4920-00-475-2552	LTCT1228
27	AVUM	Installation Tool	4920-00-509-8087	LTCT1230
28	AVIM	Installing Tool, Bearing	5120-00-370-3939	LTCT13874-01
29	AVIM	Kit, Application (RTV)		LTCT11527-01
30	AVUM	Kit, Blade Installation	5180-00-125-4106	LTCT7660-01
31	AVIM	Kit, Maintenance (Skimming)	4920-00-134-0163	LTCT6629-03
32	AVUM	Kit, Masking (RTV)		LTCT7612-01
33	AVUM	Light, Test, Oil Level	4920-00-940-2910	LTCT1259
34	AVIM	Multiplier Torque	5120-00-382-2543	PD2501-SD
35	AVIM	Plate, Wrenching Pin	4920-00-509-8060	LTCT1252
36	AVIM	Puller, Mechanical	5120-00-012-8865	LTCT1009-01
37	AVUM	Puller, Mechanical	5120-00-509-2965	LTCT1218
38	AVIM	Puller, Mechanical	5120-00-110-4235	LTCT1379-01.
39	AVIM	Puller, Mechanical	5120-00-370-3934	LTCT1 3877-01
40	AVIM	Puller, Mechanical	5120-00-109-4674	LTCT6173
41	AVIM	Puller, GP Spacer		LTCT7923-01
42	AVIM	Puller, Wheel, Hydraulic	5130-01-115-6996	LTCT14672-01
43	AVUM	Punch, Drive Pin	5120-00-951-8622	LTCT1960
44	AVIM	Shop Set, Machine	4920-00-405-9279	SC492099CLA91-MMAM
45	AVIM	Shop Set, Turbine Engine	4920-00-224-3684	SC492099CLA91-ENTAM
46	AVIM	Shop Set, Welding	4920-00-163-5093	SC492099CLH91-WEAM
47	AVUM	Sling, Aircraft Maintenance	1730-01-007-6990	LTCT14700-40

TOOL AND TEST EQUIPMENT REQUIREMENTS

NOMENCLATURE OF END ITEMS

Tool and Test Equipment Requirements. T55-L-714 Turbine Engine

TOOL OR TEST EQUIPMENT REF CODE	MAINTENANCE CATEGORY	NOMENCLATURE	NATIONAL/NATO STOCK NUMBER	TOOL NUMBER
48	AVIM	Support, Dial Indicator	4920-00-110-9986	LTCT6098
49	AVIM	Tester, Seal Leakage	4920-00-444-2362	LTCT13606-01
50	AVUM	Tool, Installing	4920-00-898-7925	LTCT1644
51	AVUM	Tool Kit, AVUM #2	4920-00-567-0476	SC492099LA92
52	AVUM	Tool Kit, Engine RMS	5180-00-323-4944	SC518099CLA07
53	AVUM	Tool Kit, Technical Inspect	5180-00-323-5114	
54	AVUM	Tool Set, Seal Removal	4920-00-866-0858	LTCT13868
55	AVIM	Torque Adapter, Wrench	5120-00-792-8191	LTCT1409
56	AVUM	Wrench, Open End	5120-00-834-2141	LTCT13911-01

SECTION IV

REMARKS

REFERENCE CODE	REMARKS/NOTES
A	Functional Test at AVUM - Engine in Airframe
B	Functional Test at AVIM - Engine in METS/FEDS
C	Repairs at AVUM includes minor repair of the engine and minor repair/replacement of components and accessories
D	Blend Repair
E	Corrosion Control, Pitting
F	Magnetic-Particle Inspection
G	Nicks, Dents, Burrs, Cracks & Distortion
H	Adjust, Engine in Airframe
I	Bleed Band, Ground Idle, Maximum Power, Engine in Airframe
J	O-Rings, Drive Shaft Seal, Solenoid Valve
K	Seals and O-Rings
L	Torque Sensor, Output Shaft, and Signal Conditioner Unit are individually replaceable, but the Output Shaft calibration must be set into the Signal Conditioner Unit (Refer to TM 1-1520-252-23).
M	Repair is limited to Blend Repair and Seal/O-Ring Replacement

APPENDIX C
EXPENDABLE SUPPLIES AND MATERIAL LIST

SECTION I. INTRODUCTION

C-1 SCOPE

This appendix lists expendable supplies and materials you will need to operate and maintain the engine. 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 - Item 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 (E19)."

b. Column 2 - National Stock Number. This is the National Stock Number assigned to the item; use it to request or requisition the item.

c. Column 3 - Description. Indicates the Federal item name and, if required, a description to identify the item. The last line for each item indicates the part number followed by the Commercial and Government Entity Code (CAGEC) in parenthesis, if applicable.

SECTION II.
EXPENDABLE SUPPLIES AND MATERIAL LIST

(1) ITEM NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION
E1	6810-00-184-4796	Acetone, Technical (O-A-51)
E2	7920-00-514-2417	Acid Swabbing Brush
E3	5350-00-224-7201	Aluminum Oxide Abrasive Paper (180 to 320 Grit)
E4	5350-00-161-9715	Aluminum Oxide Cloth Carborundum Co. Niagara Falls, NY
E5		Anti-Detonating Injection Fluid Mixture Lyndhurst Chemical Corp. (or equivalent)
E6	8030-00-105-0270	Anti-Seize Compound Nickel Ease, Nickel Special Fel-Pro Inc. Division of Felt Product Manufacturing Co. Skokie, IL
E7	8335-00-224-8885	Barrier Material MIL-B-121, Grade A
E8	8135-00-282-0565	Barrier Material MIL-B-130
E9	8030-00-664-6146	Black Baking Enamel (AMS3120)
E10	5340-00-292-0886	Bonding Seal
E11		Carborundum Stone Carborundum Co. Niagara Falls, NY
E12	6850-00-181-7594	Cleaning Solution B&B 3100 B&B Chemical Co. Miami, FL
E13		Clear Synthetic Sealant Reliance 456 Reliance Varnish Co. Irvington, NJ
E14	8030-00-231-2354	Corrosion Preventive Compound MIL-C-11796, Class 3

EXPENDABLE SUPPLIES AND MATERIALS LIST (Continued)

(1) Item Number	(2) National Stock Number	(3) Description
E15	8030-00-838-7789	Corrosion Preventative Compound, WD40 WD40 Co. San Diego, CA OR LPS Research Laboratories Inc. Los Angeles, CA
E16	5350-00-221-0872	Crocus Cloth (P–C–458)
E17	6810-00-281-2785	Denatured Alcohol, (Ethanol) (O–E–760) MIL–STD–1201
E18	6850-00-264-6562	Desicant Bag MIL–D–3464, Type III W.R. Grace & Co. Davison Chemical Div. Baltimore, MD 21203
E19	6850-00-285-8011	Dry Cleaning Solvent (P–D–680) Type II
E20		Emery Cloth (No. 500) Carborundum Co. Niagara Falls, NY
E21	DELETED	Refer to Item # E73
E22	3030-00-213-3079	Gear Marking Compound, Non–Lead Compound G2 Stutz Co. Chicago, IL OR No. 89 Organic Products Co. P.O. Box 428 1963 E. Irving Blvd., Irving TX 75060

EXPENDABLE SUPPLIES AND MATERIALS LIST (Continued)

(1) ITEM NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION
E23	8415–00–227–1220	Gloves, Small MIL–G–10902
	8415–00–227–1221	Gloves, Medium MIL–G–10902
	8415–00–227–1222	Gloves, Large MIL–G–10902
E 24	8415–00–266–8677	Gloves ZZ–G–381
E25	6810–00–264–6548	Glycerol (O–G–491)
E26	8010–00–584–3078	Gray Enmel (TT–E–489)
E27	9150–00–269–8255	Grease, MIL–G–4343 Dow Corning Corp. Midland, MI
E28	5970–00–929–8595	Insulation Sleeving for No. 18 wire MIL–I–23053/12 Flexite HT105C
E29	8010–00–007–8164	Iron Blue Pigment (TT–P–385)
E30	7920–00–205–3453	Lint–Free Cloth (CCC–C–46A)
E31	8520–00–141–2519	Liquid Soap (P–S–624)
E32	9505–00–221–2650	Lockwire, MS20995C20
E33	9505–00–847–1663	Lockwire, MS20995C32
E34	9150–00–141–4481	Lubricant Plastilube Moly No. 3 Waren Refining and Chemical Co., Cleveland, OH
E35	9150–00–273–2388	Lubricating Oil MIL–L–6081, Grade 1010
E36	9150–00–782–2627	Lubricating Oil MIL–L–7808
E37	9150–00–180–6266	Lubrication Oil MIL–L–23699
E38	7510–00–465–0994	Marking Pencil, Yellow Colorbrite No. 2127, 4127, or 2101 Eberhard Faber Inc. Crestwood Industrial Park, Wilkes–Barre, PA 18707
E39	7510–00–266–6712	Masking Tape (UU–T–106)

EXPENDABLE SUPPLIES AND MATERIAL LIST (Continued)

(1) ITEM NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION
E23	8415-00-227-1220	Gloves, Small MIL-G-10902
	8415-00-227-1221	Gloves, Medium MIL-G-10902
	8415-00-227-1222	Gloves, Large MIL-G-10902
E24	8415-00-266-8677	Gloves ZZ-G-381
E25	6810-00-264-6548	Glycerol (O-G-491)
E26	8010-00-584-3078	Gray Enamel (TT-E-489)
E27	9150-00-269-8255	Grease, MIL-G-4343 Dow Corning Corp. Midland, Ml
E28	5970-00-929-8595	Insulation Sleeving for No. 18 Wire- MIL-1-23053/12 Flexite HT1 05C
E29	8010-00-007-8164	Iron Blue Pigment (TT-P-385)
E30	7920-00-205-3453	Lint-Free Cloth (CCC-C-46A)
E31	8520-00-141-2519	Liquid Soap (P-S-624)
E32	9505-00-221-2650	Lockwire, MS20995C20
E33	9505-00-847-1663	Lockwire, MS20995C32
E34	9150-00-141-4481	Lubricant, Plastilube Moly No. 3 Warren Refining and Chemical Co., Cleveland, OH
E35	9150-00-273-2388	Lubricating Oil MIL-L-6081, Grade 1010
E36	9150-00-782-2627	Lubricating Oil MIL-L-7808
E37	9150-00-180-6266	Lubricating Oil MIL-L-23699
E38	7510-00-465-0994	Marking Pencil, Yellow Colorbrite No. 2127,4127, or 2101 Eberhard Faber Inc. Crestwood Industrial Park, Wilkes-Barre, PA 18707
E39	7510-00-266-6712	Masking Tape (U U-T-1 06)

EXPENDABLE SUPPLIES AND MATERIAL LIST (Continued)

(1) ITEM NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION
E40	6810-00-275-6010	Methanol (0-M-232)
E41	8030-01-064-4951	Mold Release Compound Freekote No.1, P/N RAMN0225 Hysol Div., Subsidiary of The Dexter Corporation 170 Spanish River Blvd. West Boca Raton, FL 33431 OR Dexter Adhesives and Structural Materials Division One Dexter Dr., Seabrook, NH 03874 CAGE#22401
E42	6810-00-237-2918	Nitric Acid (O-N-350)
E43	9150-00-261-7899	Penetrating Oil (VV-P-216)
E44	9150-00-250-0926	Petrolatum (VV-P-236)
E45	1730-00-181-4202	Plastic Cover (PSK 3355)
E46	5970-00-833-1702	Pressure Sensitive Teflon Tape, 3/8-inch wide by 0.006 inch thick with temperature range of -65 to 350°F Connecticut Hard Rubber Co. New Haven, Connecticut 06509
E47	8040-00-902-3871	RTV Silicone Rubber Adhesive Sealant RTV106 General Electric Co., Silicone Products Div., Waterford, NY 12188
E48	8030-00-744-1293	Rust Inhibitor and Preservative MIL-C-23411
E49		Safety Cable AS3510-0206L
E50	5350-00-214-7203	Sandpaper (P-P-101)
E51	8945-01-066-8210	Shortening Compound (A-A-20100)

EXPENDABLE SUPPLIES AND MATERIAL LIST (Continued)

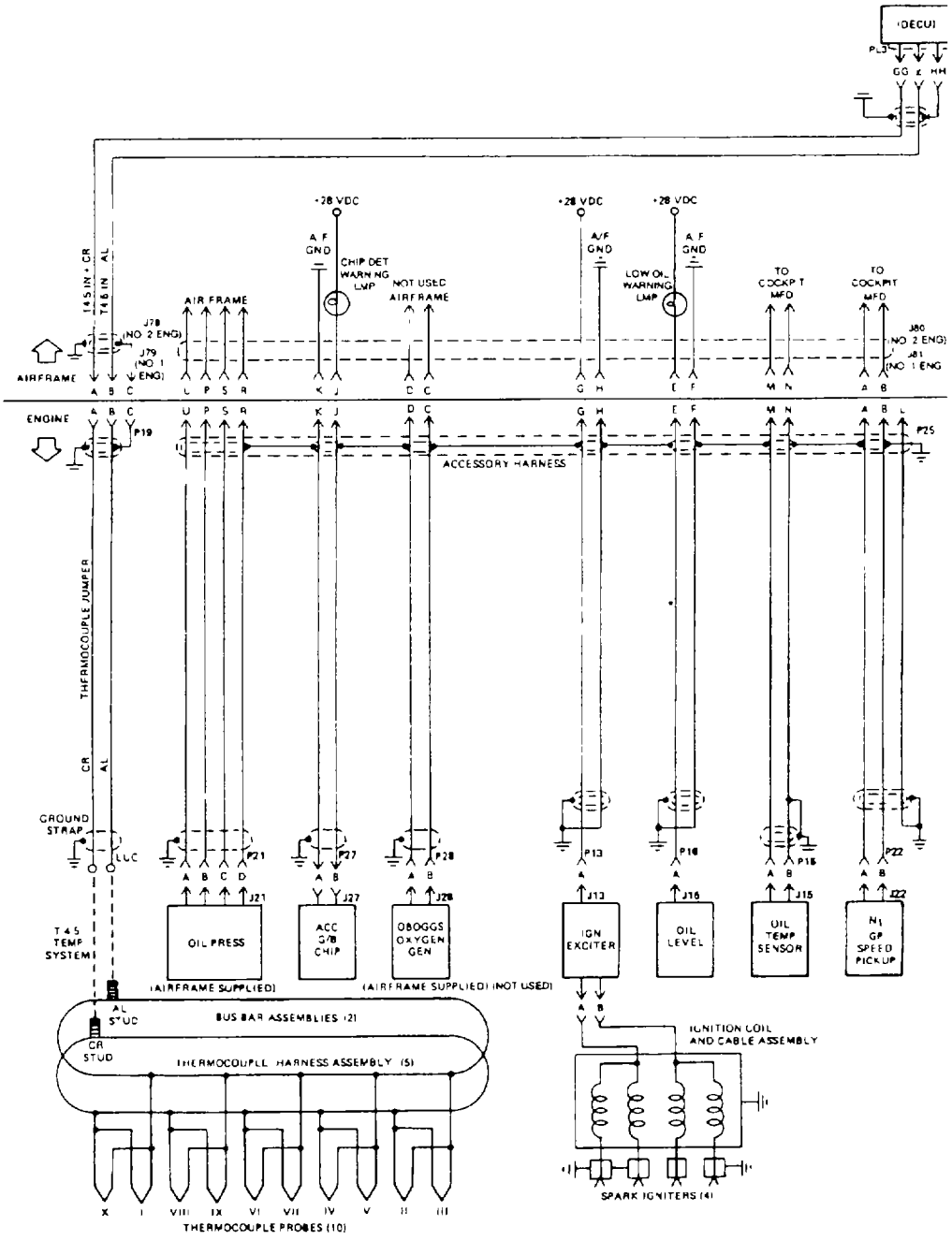
(1) ITEM NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION
E52		Sisal Twine 2 ply hard fiber, light manila color, 265 pound tensile strength (minimum)
E53	6810-00-143-2000	Sodium Dichromate (O-S-595)
E54	3439-00-224-3567	Solder, 60/40 Tin Lead (QQ-S-571 D)
E55	2835-01-120-2884	Spiral Chafing Sleeve 94835-1 Titeflex Co. Inc. Springfield, MA
E56	9330-00-688-7856	Spiral Chafing Sleeve 94835-2 Titeflex Co. Inc. Springfield, MA
E57	9330-00-688-7857	Spiral Chafing Sleeve 94835-3 Titeflex Co. Inc. Springfield, MA
E58	8135-00-066-0043	Tag (UU-T-81)
E59	7510-00-079-7906	Tape (PPP-T-60) Type IV
E60	4470-01-011-3748	Tape, Acetate Fiber, 3 inch (PPP-T-60B, Class 2, Scratch 27), Minnesota Mining & Manufacturing, St. Paul MN
E61	6505-01-050-8714	Tar Ashland Petroleum Co. Division of Ashland Oil Inc. Ashland, KY 41101
E62		Vexar Nylon Webbing E.I. Dupont de Nemours Wilmington, DE
E63	8010-00-515-1596	White Enamel (TT-E-489)
E64	7920-00-205-1711	Wiping Rag 50 Pound Bale (A-A-531)

EXPENDABLE SUPPLIES AND MATERIALS LIST (Continued)

(1) Item Number	(2) National Stock Number	(3) Description
E65		Wire, 22 Gauge Standard No. 8522–1 Type 4 (71002) Birnback Co. Inc. Freeport, NY 11520
E66	3439–00–166–9584	Wire, Welding AMS5786
E67	3439–00–882–7350	Wire Welding AMS5794
E68	8010–00–155–2208	Zinc Chromate Primer MIL–P–8585, or MIL–P–6899 Type II
E69	6850–01–372–6303	MIL–C–85704 Type II, 5 Gal
E70	6850–01–372–8304	MIL–C–85704 Type II, 55 Gal
E71	6850–01–370–5245	MIL–C–85704 Type IIA, 5 Gal
E72	6850–01–370–5244	MIL–C–85704 Type IIA, 55 Gal
E73		Penetrant Inspection Material AMS2644 Level 3 or Higher
E74	6850–01–450–6162	N–Propyl Bromide Type IIA, 55 Gal
E75	7930–01–367–0995	DS–108
E76	6850–01–375–5553	Electron Dielectric Solvent
E77	6850–01–412–0026	Positron Dielectric Solvent
E78	6810–00–855–6160	Isopropyl Alcohol TT–I–735

APPENDIX D

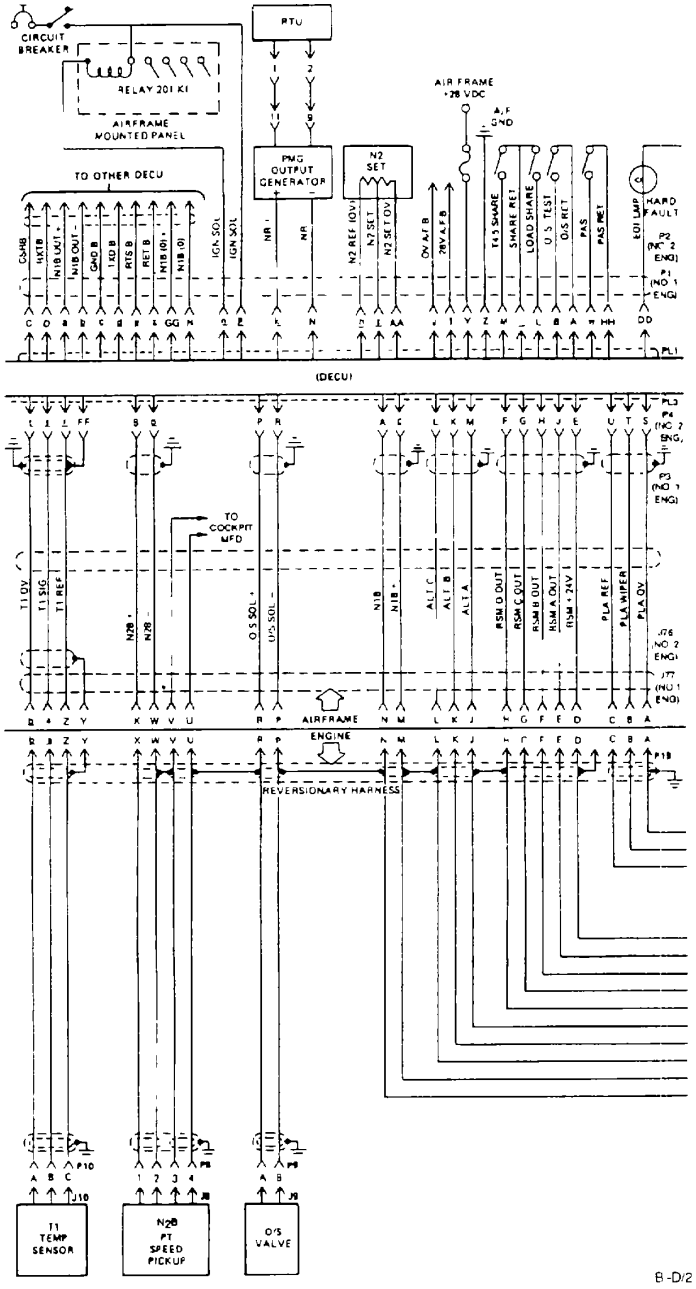
WIRING DIAGRAM



B-D 1

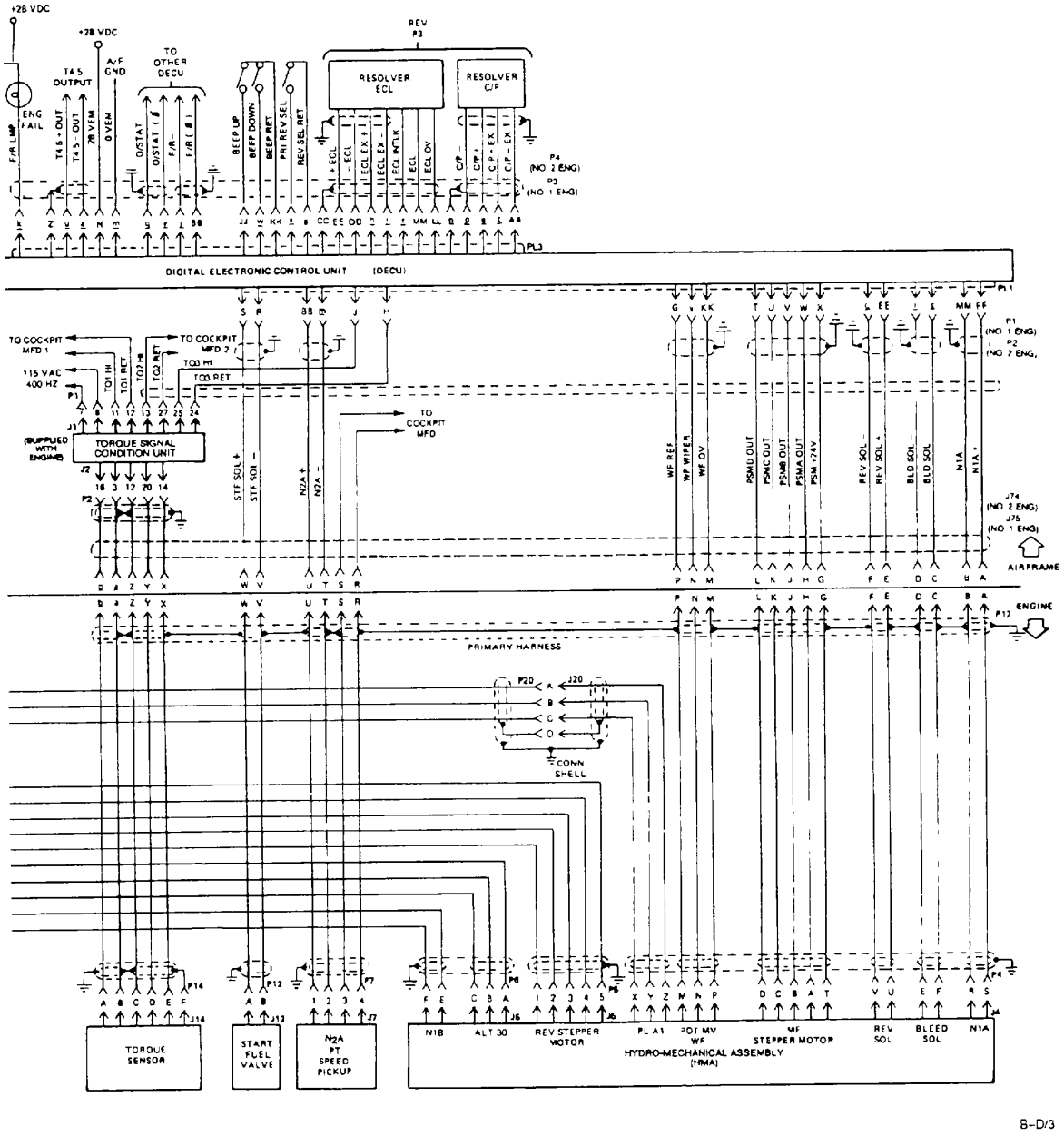
Electrical System Schematic

WIRING DIAGRAM



Electrical System Schematic

WIRING DIAGRAM



Electrical System Schematic

APPENDIX E

ILLUSTRATED LIST OF MANUFACTURED ITEMS

APPENDIX E

TABLE OF CONTENTS

APPENDIX E

ILLUSTRATED LIST OF MANUFACTURED ITEMS

Nomenclature	Reference Task No.	Material Required
Bent Wire Gage (0.053 Inch) (AVIM)	4-62	AMS5645 QQ-S-763 (CRES321) or AMS5754 (Hastelloy X)

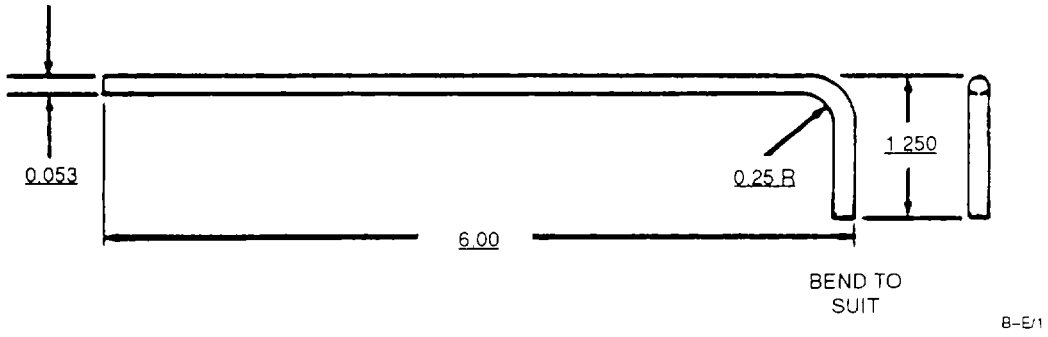
Fabrication Instructions:

Fabricate bent wire gage out of specified material as follows:

1. Form in accordance with sketch shown below.
2. Break all sharp edges.

NOTE: All dimensions are in inches.

Sketch or Diagram:



ILLUSTRATED LIST OF MANUFACTURED ITEMS (Continued)

Nomenclature	Reference Task No.	Material Required
Bent Wire Gage (0.100 Inch) (AVIM)	4-67	AMS5645 QQ-S-763 (CRES321) or AMS5754 (Hastelloy X)

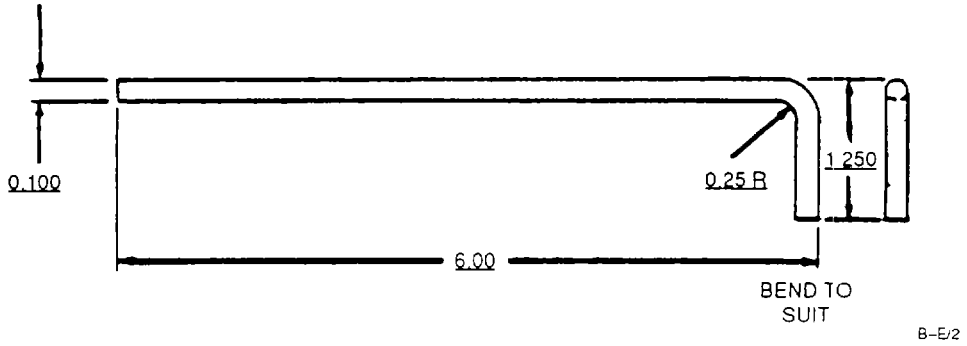
Fabrication Instructions:

Fabricate bent wire gage out of specified material as follows:

1. Form in accordance with sketch shown below.
2. Break all sharp edges.

NOTE: All dimensions are in inches.

Sketch or Diagram:



ILLUSTRATED LIST OF MANUFACTURED ITEMS (Continued)

Nomenclature	Reference Task No.	Material Required
Bent Wire Gage (0.104 Inch) (AVIM)	4-36	AMS5645 QQ-S-763 (CRES321) or AMS5754 (Hastelloy X)

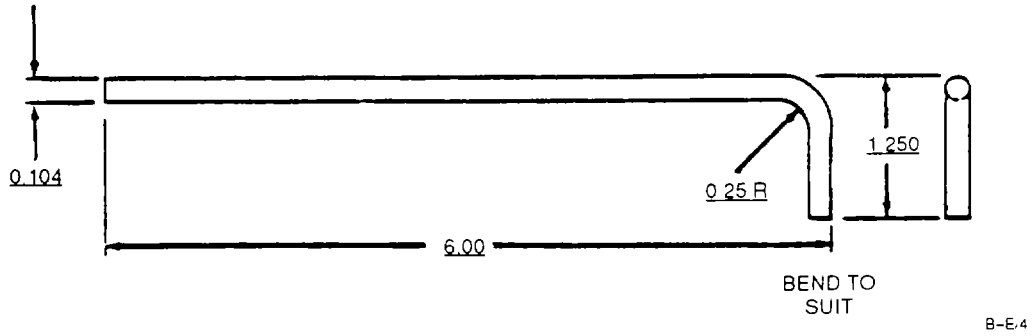
Fabrication Instructions:

Fabricate bent wire gage out of specified material as follows:

1. Form in accordance with sketch shown below.
2. Break all sharp edges.

NOTE: All dimensions are in inches.

Sketch or Diagram:



ILLUSTRATED LIST OF MANUFACTURED ITEMS (Continued)

Nomenclature	Reference Task No.	Material Required
Bent Wire Gage (0.115 Inch) (AVIM)	4-36	AMS5645 QQ-S-763 (CRES321) or AMS5754 (Hastelloy X)

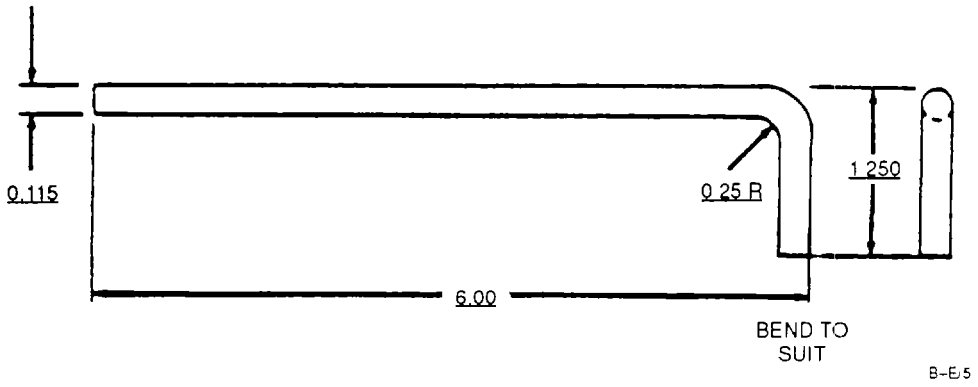
Fabrication Instructions:

Fabricate bent wire gage out of specified material as follows:

1. Form in accordance with sketch shown below.
2. Break all sharp edges.

NOTE: All dimensions are in inches.

Sketch or Diagram:



ILLUSTRATED LIST OF MANUFACTURED ITEMS (Continued)

Nomenclature	Reference Task No.	Material Required
Bent Wire Gage (0.225 Inch) (AVIM)	4-57	AMS5645 QQ-S-763 (CRES321) or AMS5754 (Hastelloy X)

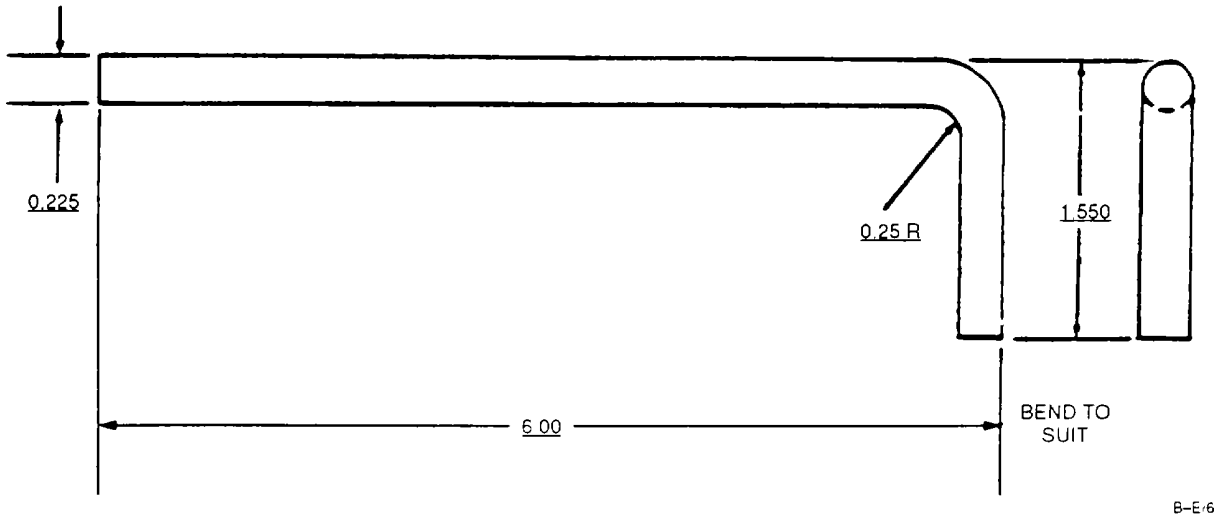
Fabrication Instructions:

Fabricate bent wire gage out of specified material as follows:

1. Form in accordance with sketch shown below.
2. Break all sharp edges.

NOTE: All dimensions are in inches.

Sketch or Diagram:



ILLUSTRATED LIST OF MANUFACTURED ITEMS (Continued)

Nomenclature	Reference Task No.	Material Required
Bent Wire Gage (0.228 Inch) (AVIM)	4-36	AMS5645 QQ-S-763 (CRES321) or AMS5754 (Hastelloy X)

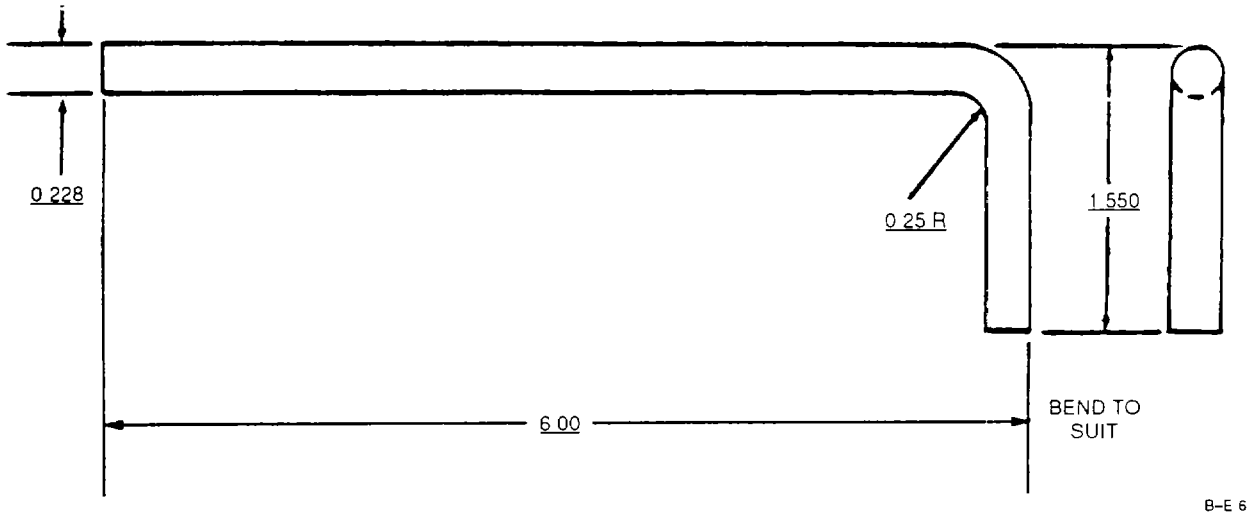
Fabrication Instructions:

Fabricate bent wire gage out of specified material as follows:

1. Form in accordance with sketch shown below.
2. Break all sharp edges.

NOTE: All dimensions are in inches.

Sketch or Diagram:



ILLUSTRATED LIST OF MANUFACTURED ITEMS (Continued)

Nomenclature	Reference Task No.	Material Required
Bent Wire Gage (0.290 Inch) (AVIM)	4-36	AMS5645 QQ-S-763 (CRES321) or AMS5754 (Hastelloy X)

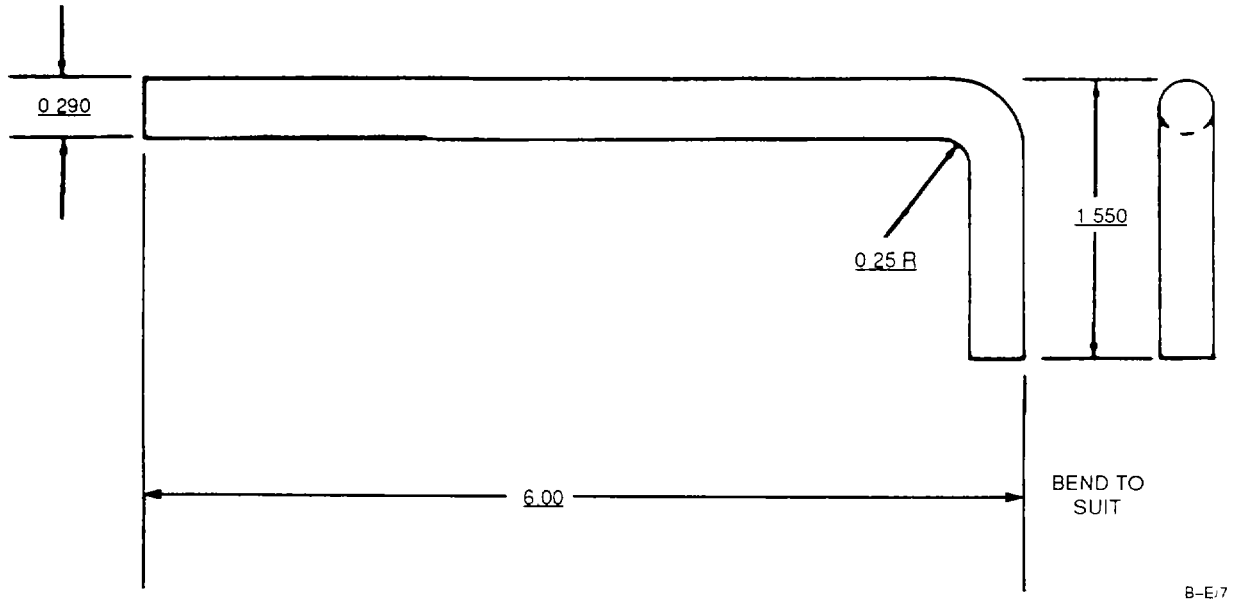
Fabrication Instructions:

Fabricate bent wire gage out of specified material as follows:

1. Form in accordance with sketch shown below.
2. Break all sharp edges.

NOTE: All dimensions are in inches.

Sketch or Diagram:



ILLUSTRATED LIST OF MANUFACTURED ITEMS (Continued)

Nomenclature	Reference Task No.	Material Required
Chain with Hooks	1-26,1-103,1-104	(1) Slip hooks (2 ea.), (2) pins (2 ea.), (3) 3/8 inch welded link steel alloy chain (2ea.),(4) couplings (2), (5) crosby 1/2 oblong link (1). (See sketch).

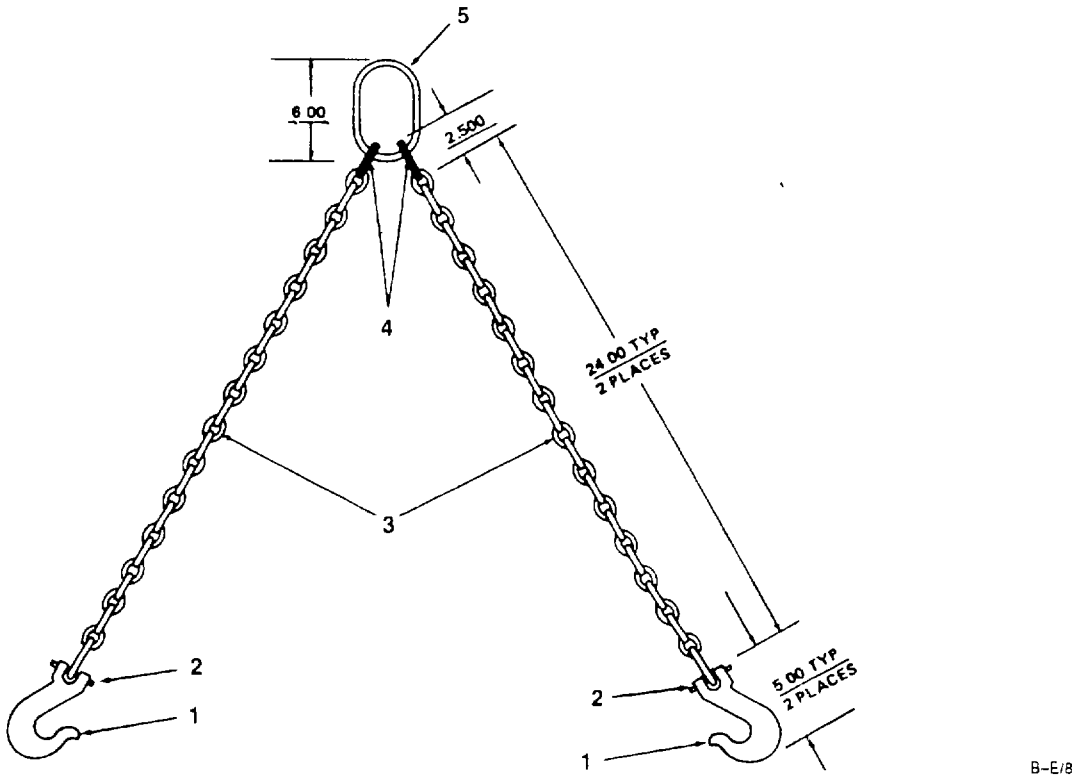
Fabrication Instructions:

NOTE: The chain and hooks must have a certified 1 ton load limit capacity. Therefore it is suggested that only certified vendors be used to procure this item. The specifications require a 1 ton steel heavy duty chain hoist.

Suggested certified vendors are: (1) Paul's Wire, Rope & Sling Inc., 4 Indian Neck Ave., Branford, CT 06405.
(2) McMaster-Carr Supply, P.O. Box 4355, Chicago, Ill., 60680.

NOTE: All dimensions are in inches.

Sketch or Diagram:



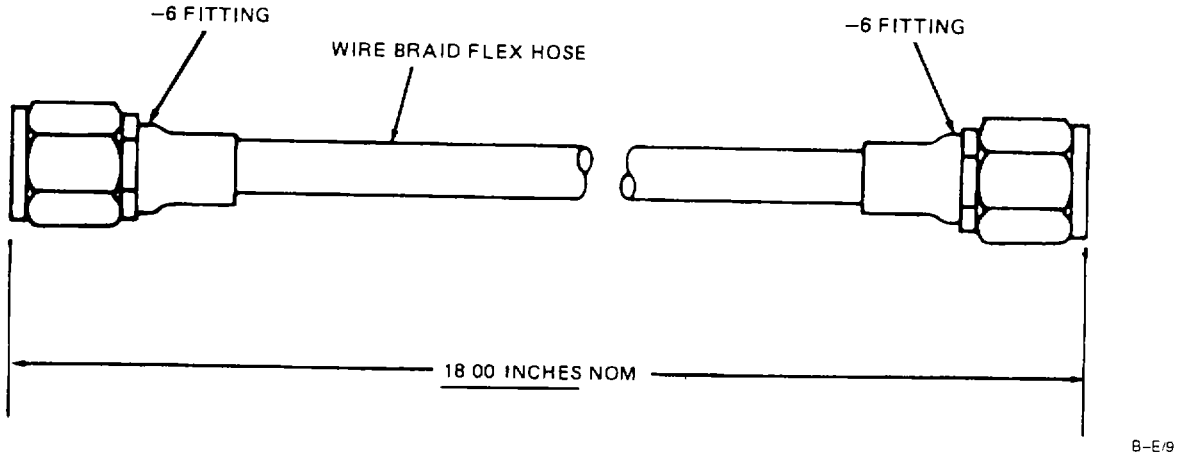
ILLUSTRATED LIST OF MANUFACTURED ITEMS (Continued)

Nomenclature	Reference Task No.	Material Required
Drain Hose	1-28,1-102	Scrap flexible hose with -6 fittings

Fabrication Instructions:

NOTE: Use suitable scrap hose (see sketch). If no such hose is available use any scrap hose providing priming task can be accomplished successfully.

Sketch or Diagram:



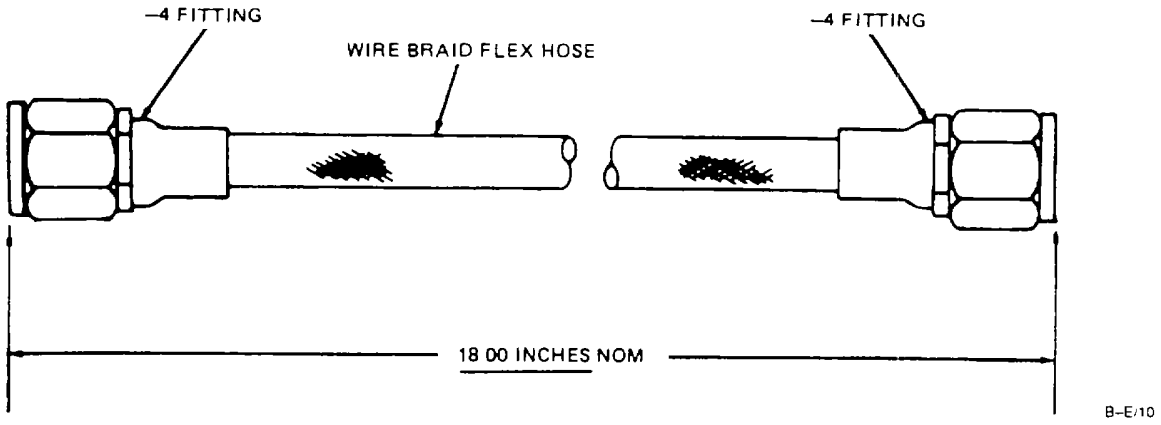
ILLUSTRATED LIST OF MANUFACTURED ITEMS (Continued)

Nomenclature	Reference Task No.	Material Required
Drain Hose	1-102	Scrap flexible hose with -4 fittings

Fabrication Instructions:

NOTE: Use suitable scrap hose (see sketch). If no such hose is available, use any scrap hose providing draining task can be successfully accomplished.

Sketch or Diagram:



ILLUSTRATED LIST OF MANUFACTURED ITEMS (Continued)

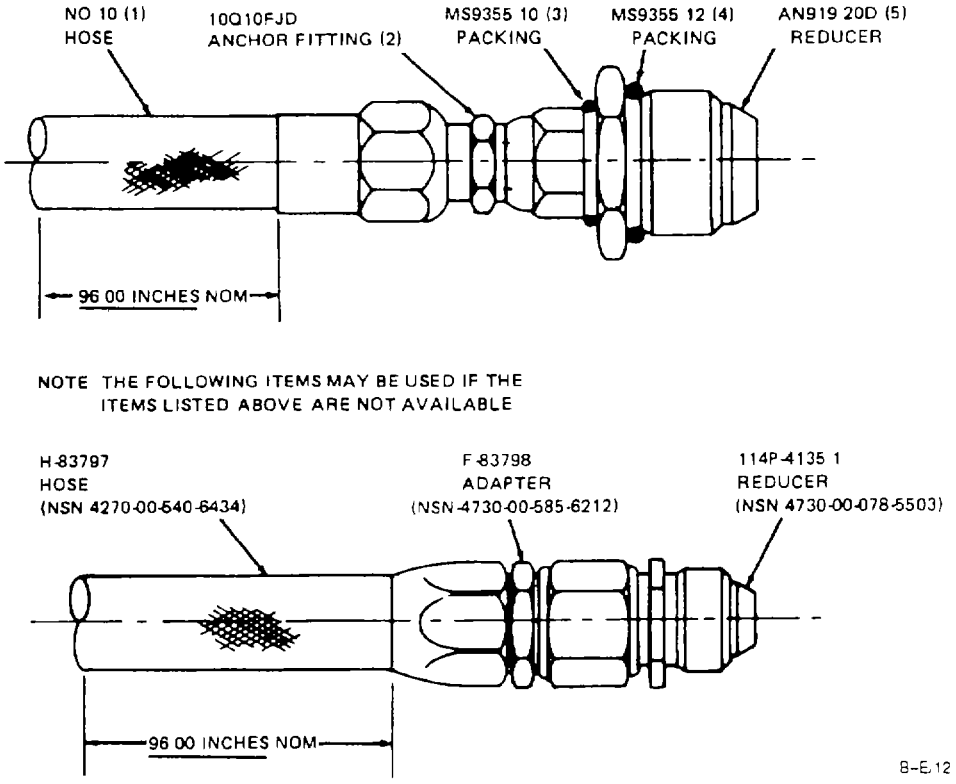
Nomenclature	Reference Task No.	Material Required
Hose Assembly	1-102	(8 Feet) No. 10 Hose, (1) MS9355-10 Packing (1) MS9355-12 Packing, (1) AN919-20D Reducer (1) 1OQ10FJD Anchor Fitting

Fabrication Instructions:

Assemble hose assembly from material required and sketch shown below as follows:

1. Install 1OQ1 OFJD Anchor fitting (2) on No. 10 hose (1).
2. Coat MS9355-10 Packing (3) and MS9355-12 Packing (4) with silicone grease MIL-G-4343.
3. Install Packing (3) and Packing (4) on AN919-20D Reducer (5).
4. Connect reducer (5) to anchor fitting (2).

Sketch or Diagram:



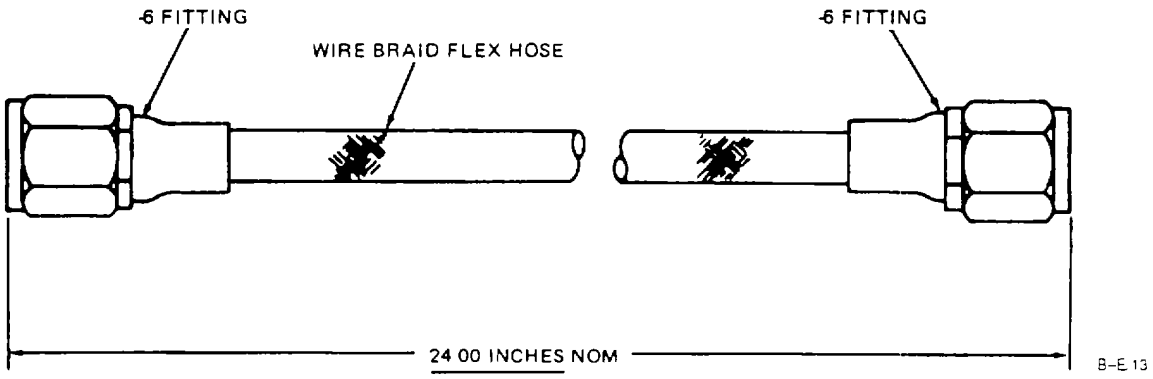
ILLUSTRATED LIST OF MANUFACTURED ITEMS (Continued)

Nomenclature	Reference Task No.	Material Required
Hose Assembly	6-6	Scrap flexible hose with -6 fittings

Fabrication Instructions:

NOTE: Use suitable scrap hose (see sketch). If no such hose is available use any scrap hose providing preservation task can be successfully accomplished.

Sketch or Diagram:



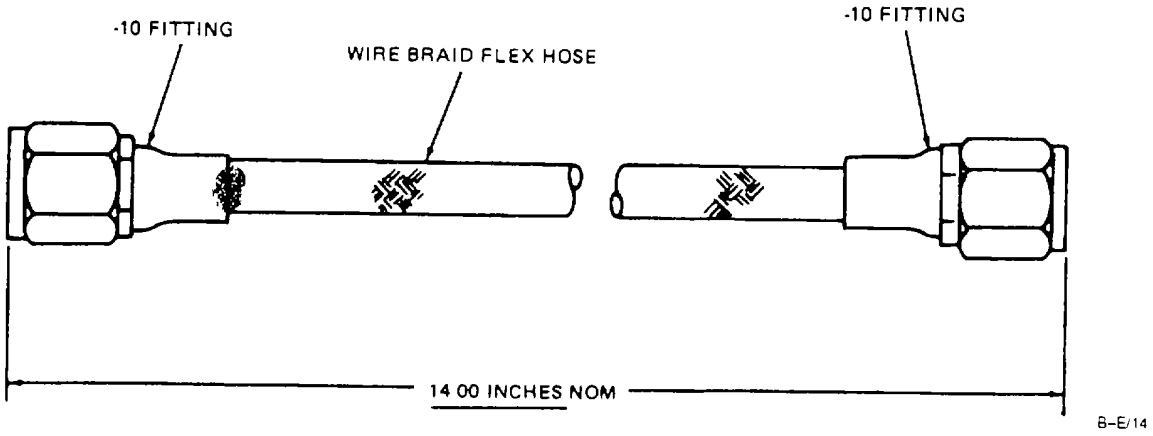
ILLUSTRATED LIST OF MANUFACTURED ITEMS (Continued)

Nomenclature	Reference Task No.	Material Required
Hose Assembly	6-6	Scrap flexible hose with -10 fittings

Fabrication Instructions:

NOTE: Use suitable scrap hose (see sketch). If no such hose is available use any scrap hose providing preservation task can be successfully accomplished.

Sketch or Diagram:



ILLUSTRATED LIST OF MANUFACTURED ITEMS (Continued)

Nomenclature	Reference Task No.	Material Required
Oil Seal Installation Tool	5-21	Aluminum QQ-A-200/8T6

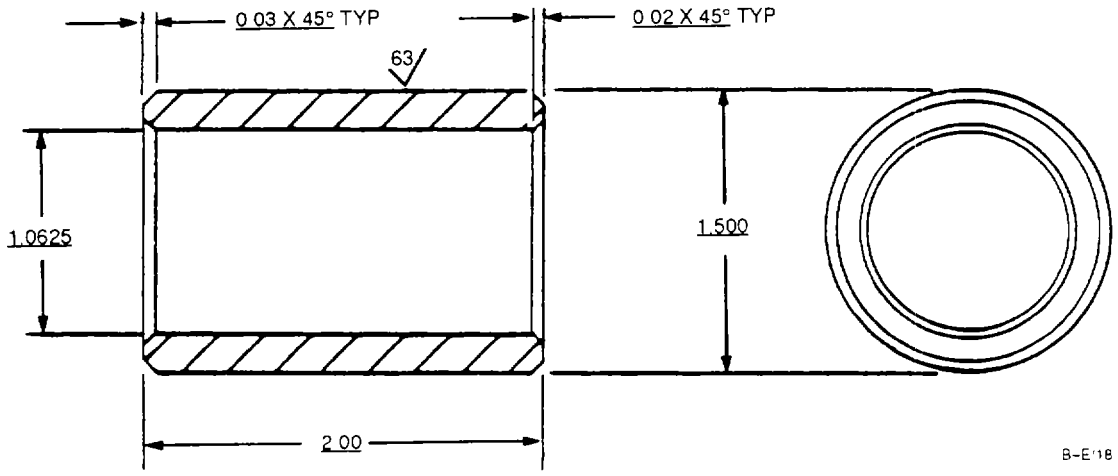
Fabrication Instructions:

Fabricate oil seal installation tool out of aluminum stock as follows:

1. Machine in accordance with sketch shown below.
2. Surface treat with anodize MIL-A-8625 Type II.

NOTE: All dimensions are inches.

Sketch or Diagram:



ILLUSTRATED LIST OF MANUFACTURED ITEMS (Continued)

Nomenclature	Reference Task No.	Material Required
Oil Seal Removal Tool	5-21	Aluminum QQ-A-225/8T6

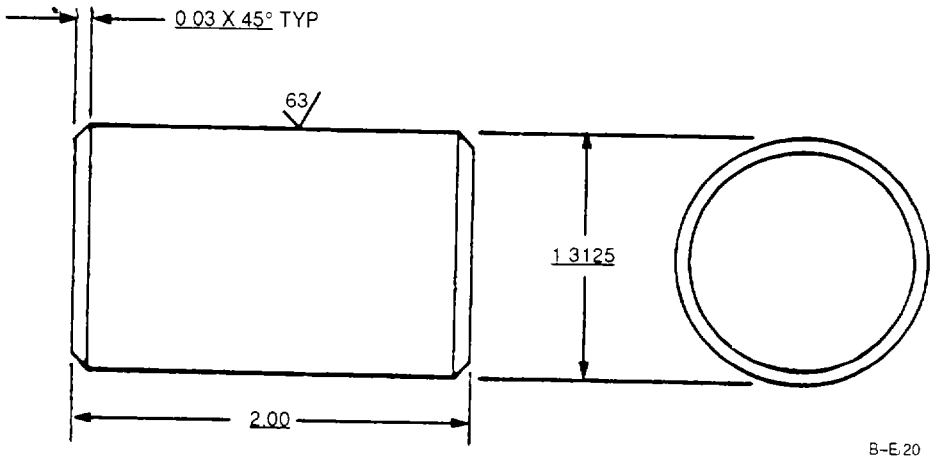
Fabrication Instructions:

Fabricate oil seal removal tool out of aluminum stock as follows:

1. Machine in accordance with sketch shown below.
2. Surface treat with anodize per MIL-A-8625 Type I.

NOTE: All dimensions are in inches.

Sketch or Diagram:



ILLUSTRATED LIST OF MANUFACTURED ITEMS (Continued)

Nomenclature	Reference Task No.	Material Required
Phenolic Drift (AVIM)	3-9	AMS3903 - Cloth Organic Fiber - Epoxy Resin Impregnated

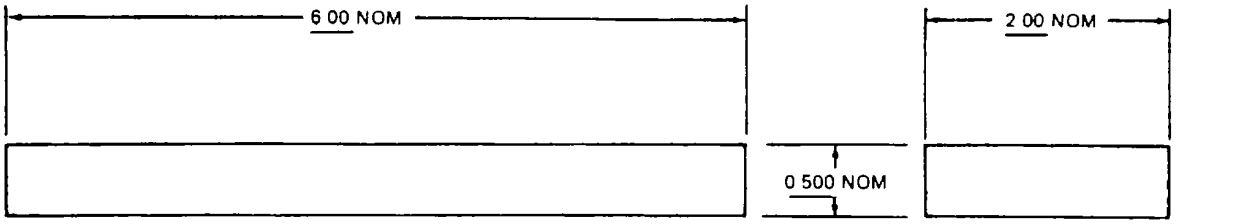
Fabrication Instructions:

Fabricate phenolic drift out of specified material as follows:

1. Machine in accordance with sketch shown below.

NOTE: All dimensions are in inches.

Sketch or Diagram:



B-E 21

ILLUSTRATED LIST OF MANUFACTURED ITEMS (Continued)

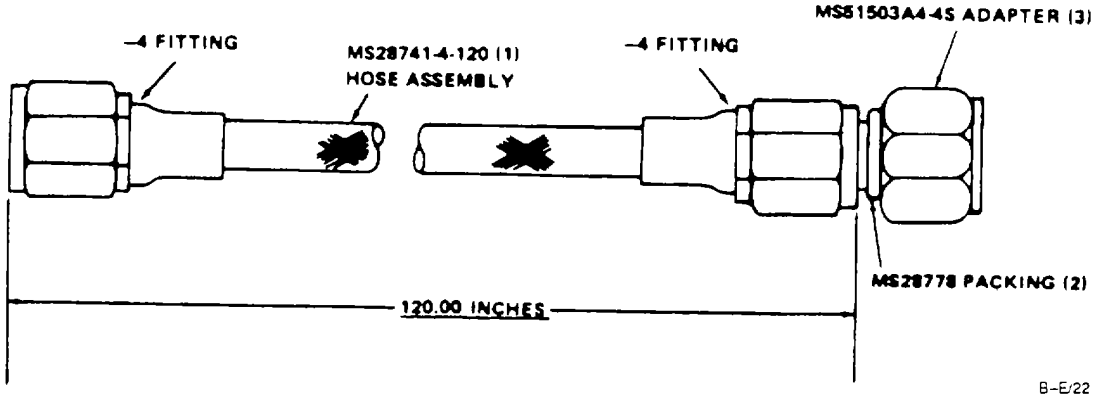
Nomenclature	Reference Task No.	Material Required
Pressure Gage Tube Assembly	1-101	(2) MS28741-4-120 Hose Assembly (2) MS28778 Packing (2) MS51503A4-4S Adapter

Fabrication Instructions:

Assemble two pressure gage tube assemblies from material required and sketch shown below as follows:

1. Coat MS28778 packing (2) with silicone grease MIL-G-4343.
2. Install packing (2) on MS51503A4-4S adapter (3).
3. Connect adapter (3) to MS287414-120 hose assembly (1).

Sketch or Diagram:



ILLUSTRATED LIST OF MANUFACTURED ITEMS (Continued)

Nomenclature	Reference Task No.	Material Required
Sleeve	2-42	Aluminum QQ-A-200/8T6

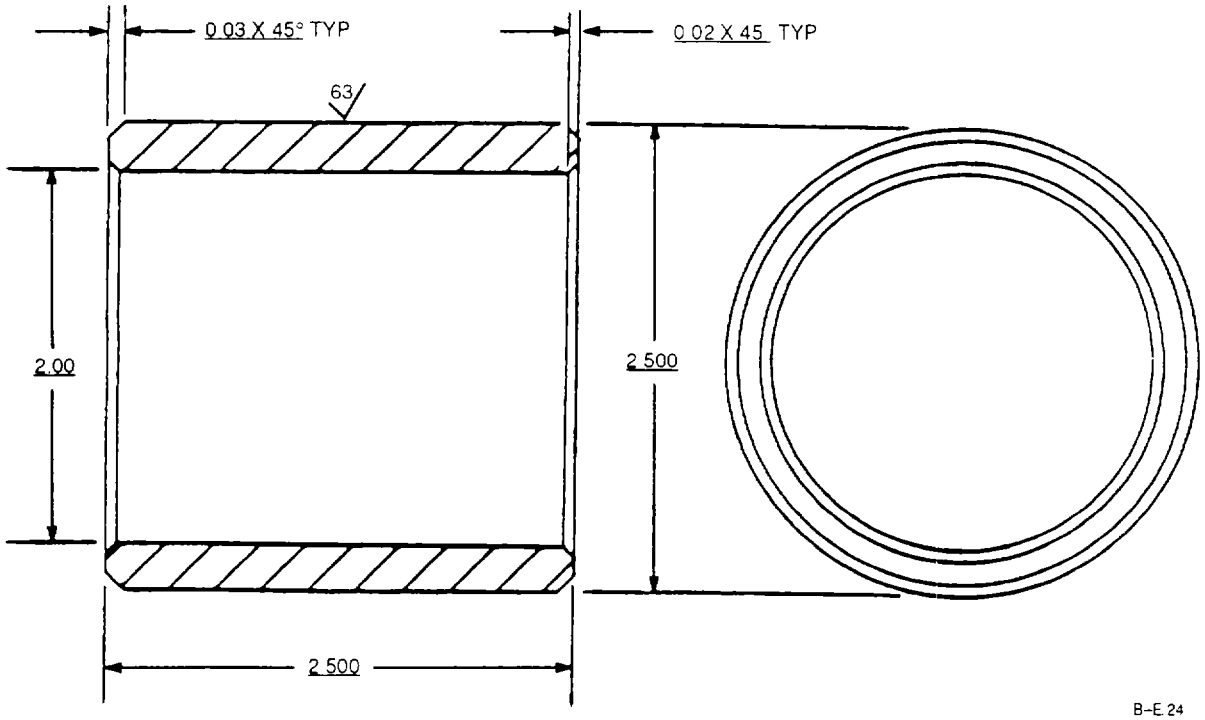
Fabrication Instructions:

Fabricate sleeve bushing out of aluminum stock as follows:

1. Machine in accordance with sketch shown below.
2. Surface treat with anodize MIL-A-8625 Type II.

NOTE: All dimensions are in inches.

Sketch or Diagram:



ILLUSTRATED LIST OF MANUFACTURED ITEMS (Continued)

Nomenclature	Reference Task No.	Material Required
Sleeve Bushing	5-21	Aluminum QQ-A-200/8T6

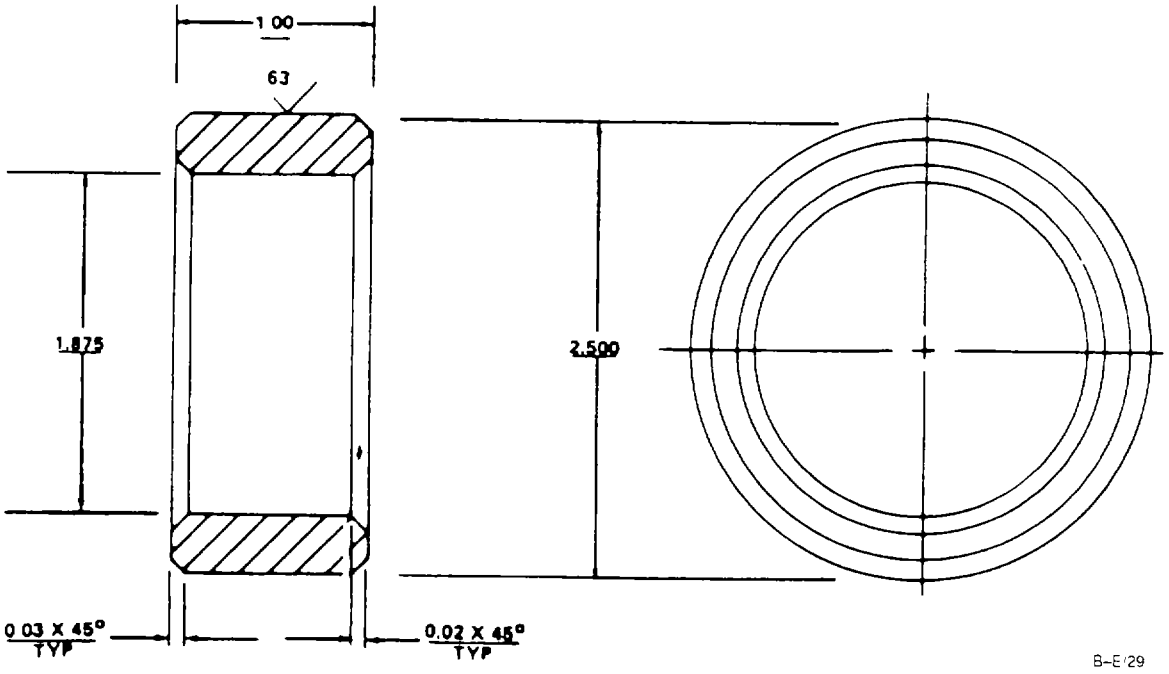
Fabrication Instructions:

Fabricate sleeve bushing out of aluminum stock as follows:

1. Machine in accordance with sketch shown below.
2. Surface treat with anodize per MIL-A-8625 Type II.

NOTE: All dimensions are in inches.

Sketch or Diagram:



ILLUSTRATED LIST OF MANUFACTURED ITEMS (Continued)

Nomenclature	Reference Task No.	Material Required
Stirring Rod	1-110	Hardwood Stock

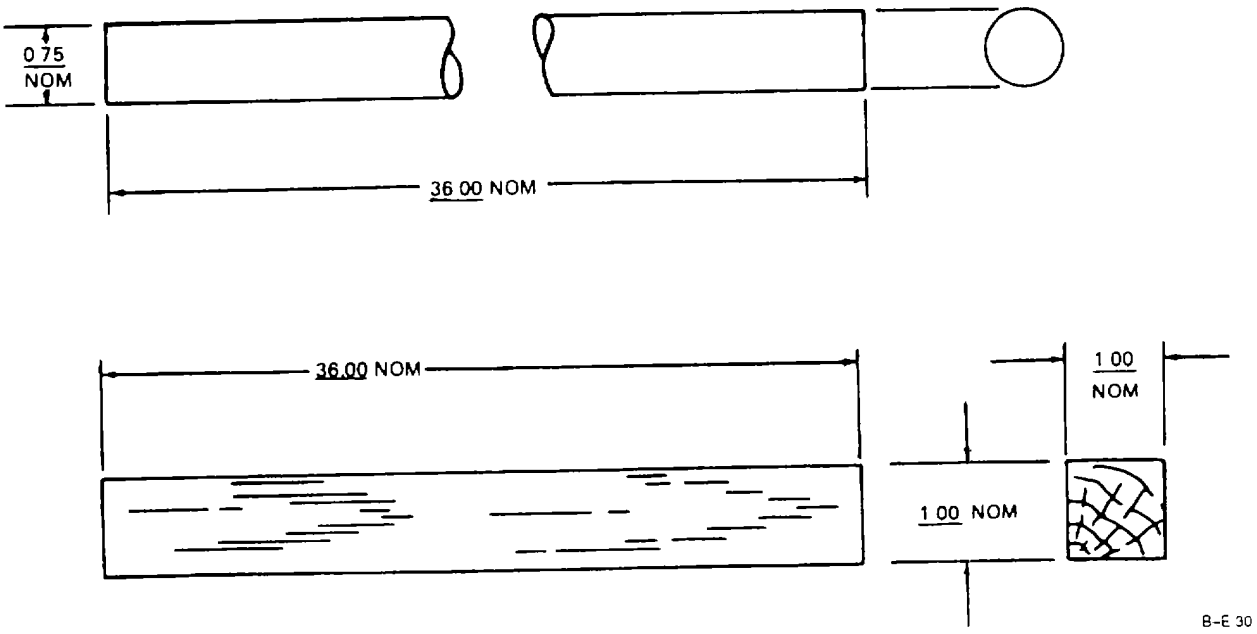
Fabrication Instructions:

Fabricate stirring rod from hardwood stock as follows:

1. Machine wood in accordance with sketch shown below.
2. Remove all rough edges with fine grain sandpaper.

NOTE: All dimensions are in inches.

Sketch or Diagram:



ILLUSTRATED LIST OF MANUFACTURED ITEMS (Continued)

Nomenclature	Reference Task No.	Material Required
Swirler Installation Too (AVIM)	3-18	Hardwood Stock

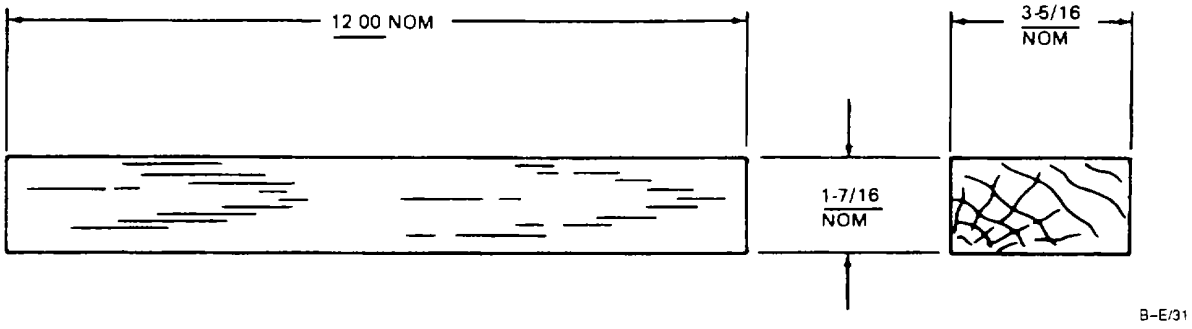
Fabrication Instructions:

Fabricate swirler installation tool out of hardwood stock as follows:

1. Saw wood in accordance with sketch shown below.
2. Remove all rough edges with fine grain sandpaper.

NOTE: All dimensions are in inches.

Sketch or Diagram:



ILLUSTRATED LIST OF MANUFACTURED ITEMS (Continued)

Nomenclature	Reference Task No.	Material Required
Thickness Gage (AVIM)	1-87, 4-58, 4-62	AMS5519 (CRES301) Steel

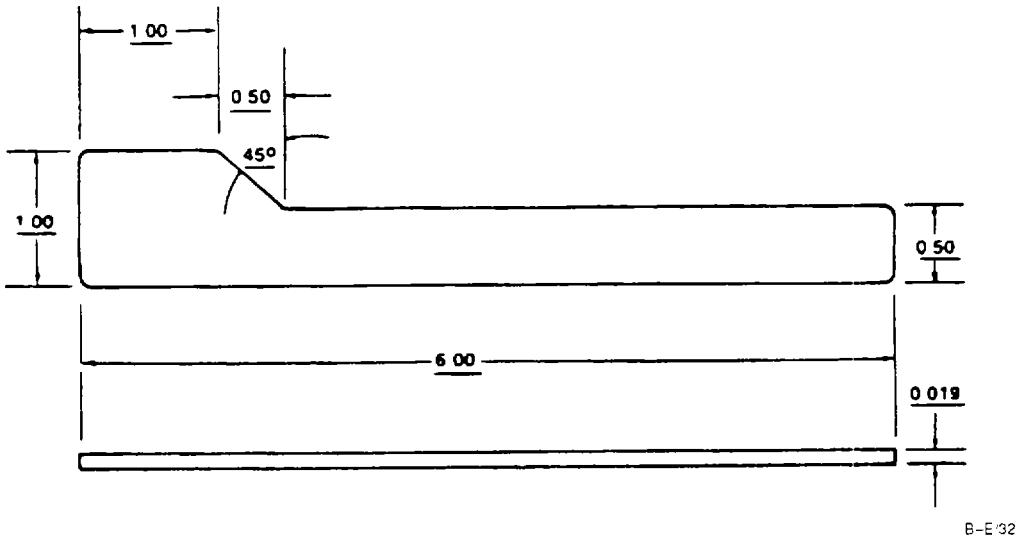
Fabrication Instructions:

Fabricate feeler gage out of steel as follows:

1. Fabricate in accordance with sketch shown below.
2. Break all sharp edges.

NOTE: All dimensions are in inches.

Sketch or Diagram:



ILLUSTRATED LIST OF MANUFACTURED ITEMS (Continued)

Nomenclature	Reference Task No.	Material Required
Third Turbine Rotor Support Block (AVIM)	4-37	Hardwood Stock

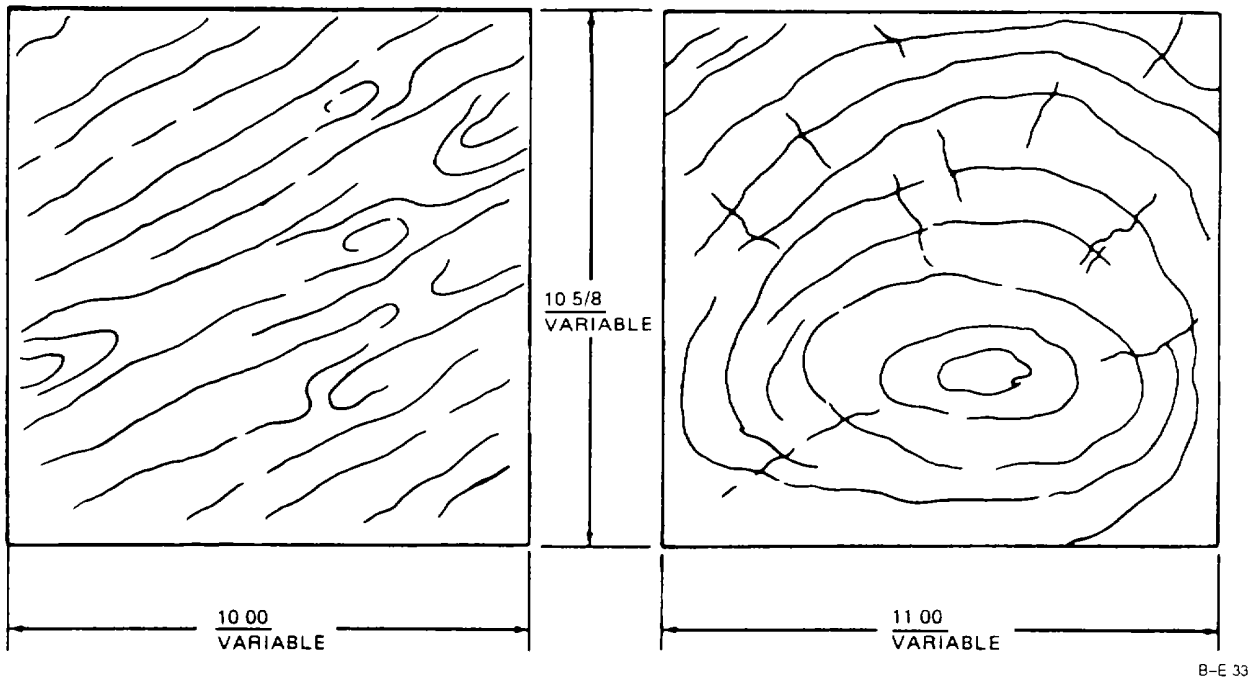
Fabrication Instructions:

Fabricate third turbine rotor support block out of hardwood stock as follows:

1. Saw wood in accordance with sketch shown below.
2. Remove all rough edges with fine grain sandpaper.

NOTE: Size of required block may vary with distance from floor to turbine shaft. All dimensions are in inches.

Sketch or Diagram:



ILLUSTRATED LIST OF MANUFACTURED ITEMS (Continued)

Nomenclature	Reference Task No.	Material Required
Wood Block (AVIM)	3-15	Hardwood Stock

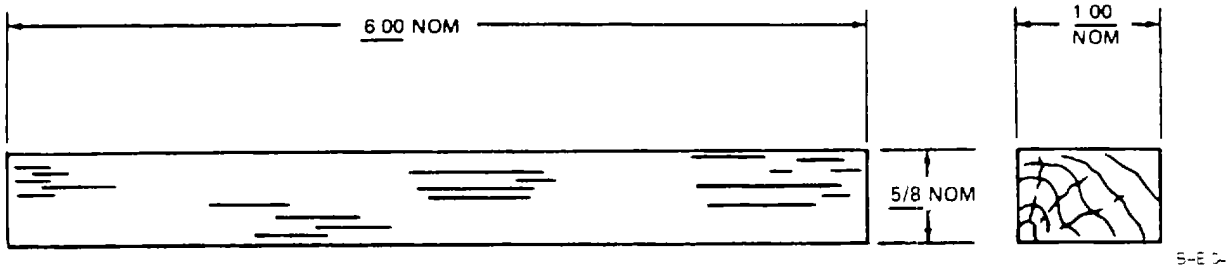
Fabrication Instructions:

Fabricate wood block out of hardwood stock as follows:

1. Saw wood in accordance with sketch shown below.
2. Remove all rough edges with fine grain sandpaper.

NOTE: All dimensions are in inches.

Sketch or Diagram:



ILLUSTRATED LIST OF MANUFACTURED ITEMS (Continued)

Nomenclature	Reference Task No.	Material Required
Wrench	5-24	Crowfoot Wrench NSN 5120-00-541-4071

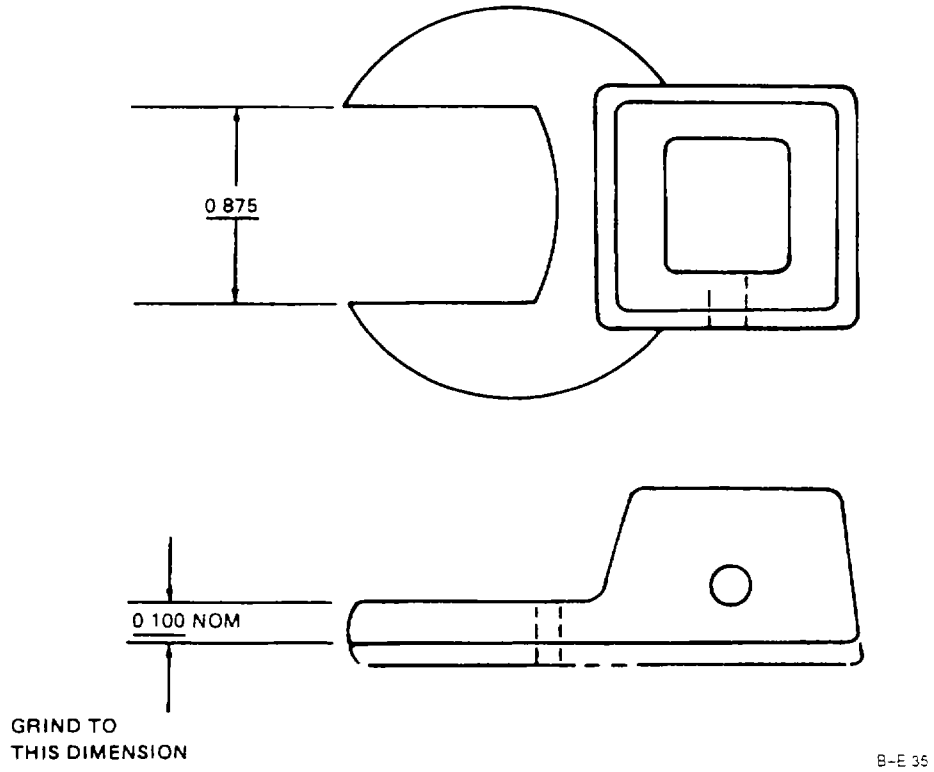
Fabrication Instructions:

Fabricate crowfoot wrench out of specified material as follows:

1. Machine in accordance with sketch shown below.
2. Break all sharp edges.

NOTE: All dimensions are in inches.

Sketch or Diagram:



APPENDIX F

ABBREVIATIONS

NOTE

See Appendix G, Paragraph G-12, for additional abbreviations pertinent to FADEC.

A

A/F ..... Airframe
ALT ..... Alternator
AVIM ..... Aviation Intermediate Maintenance
AVUM ..... Aviation Unit Maintenance

B

BITE ..... Built-in Test Equipment

C

°C ..... Degrees Celsius
C/P ..... Cockpit
CC ..... Cubic Centimeters

D

DECU ..... Digital Electronic Control Unit
DMWR ..... Depot Maintenance Work Requirement
DSRB ..... Data Set Ready-Channel B
DX ..... Direct Exchange

E

ECL ..... Engine Control Lever
EHRT ..... Engine History Recording Terminal
EIR ..... Equipment Improvement Recommendations
EM ..... Emergency
EOI ..... Engine Out Indicator

F

°F ..... Degrees Fahrenheit
FADEC ..... Full Authority Digital Electronic Control
FEDS ..... Flexible Engine Diagnostic System
FI ..... Flight Idle
FOD ..... Foreign Object Damage
FSCM ..... Federal Supply Code for Manufacturers
FWD ..... Forward

G

GI ..... Ground Idle
GNDB ..... Ground-Channel B
GP ..... Gas Producer
GSE ..... Ground Support Equipment
GT ..... Gas Turbine

APPENDIX F

ABBREVIATIONS (Continued)

H

Hg ..... Mercury
HMA ..... Hydromechanical Assembly
HMU ..... Hydromechanical Unit
Hz ..... Hertz

L

LCCS ..... Life Cycle Contractor Support
L/H ..... Left Hand

M

MAC ..... Maintenance Allocation Chart
Max ..... Maximum
METS ..... Modular Engine Test Systems
MFD ..... Multi-Function Display
MFP ..... Main Fuel Pump
Min ..... Minimum
MOS ..... Military Occupation Specialty
MTOE ..... Modified Table of Organization and Equipment

N

N_1 ..... Compressor Rotor RPM
N_2 ..... Power Turbine RPM
NATO ..... North Atlantic Treaty Organization
No ..... Number
NSN ..... National Stock Number

P

P_3 ..... Air Pressure (Air Diffuser)
PAS ..... Power Assurance Switch
PHR ..... Pounds per Hour
P_m ..... Air Pressure (Modulated)
PMG ..... Permanent Magnet Output Generator
PSI ..... Pounds per Square Inch
PSIG ..... Pounds per Square Inch Gage
PT ..... Power Turbine
PTIT ..... Power Turbine Inlet Temperature

Q

QA ..... Quality Assurance
QC ..... Quality Control

APPENDIX F
ABBREVIATIONS (Continued)

R

R/H ..... Right Hand
RETB ..... Return-Channel B
REV ..... Reversionary
RPM ..... Revolutions per Minute
RPSTL ..... Repair Parts and Special Tool List
RTSB ..... Request to Send-Channel B
RTU ..... Remote Terminal Unit
RTV ..... Room Temperature Vulcanizing
RXTB ..... Receive Data-Channel B

S

SCU ..... Signal Conditioning Unit
SHP ..... Shaft Horsepower
SMR ..... Source, Maintenance and Recoverability
STF ..... Start Fuel

T

T_1 ..... Inlet Air Temperature
TBO ..... Time Between Overhaul
TM ..... Technical Manual
TMDE ..... Test Measurement and Diagnostic Equipment
TQ ..... Torque
TXDB ..... Transmit Data-Channel B

U

UUT ..... Unit Under Test

V

Vac ..... Volts Alternating Current
Vdc ..... Volts Direct Current

W

WF or W_f ..... Fuel Flow

APPENDIX G

FAULT ISOLATION MANUAL

APPENDIX G

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TABLE OF CONTENTS (CONTINUED)

DECU TROUBLESHOOTING

SECTION I. INTRODUCTION

G-1 GENERAL

a. This Appendix provides fault isolation instructions for the Model EMC-32T Full Authority Digital Electronic Control (FADEC) supplied by Chandler Evans, Control Systems Division, Coltec Industries, Inc., Charter Oak Blvd., Box 330651, West Hartford, CT 06133-0651.

b. In subsequent revisions to this manual, changes or additions to the text, tables or illustrations will be indicated by a vertical line in the left margin of affected material.

G-2 DESCRIPTION

a. The EMC-32T Full Authority Digital Electronic Control (FADEC) includes all control functions required for proper and complete control of the Textron Lycoming T55 turboshaft engine. The EMC-32T version operates the T55-L-714 engine on the MH47E helicopter.

b. Fuel Control System. The control system consists of a digital electronic control unit (DECU) and a hydromechanical assembly (HMA) manufactured by Chandler Evans, and Lycoming-supplied sensors and electrical harnesses. The system requires signal inputs from airframe components and utilizes airframe harnesses for inter- connection between HMA, DECU, engine, and airframe components (see figure 201). The system provides two operating modes: primary and reversionary. The primary mode is the normal mode of operation. In the event of a primary failure. the system automatically switches to the reversionary backup mode. Reversionary mode can also be selected by the pilot.

c. Hydromechanical Assembly (HMA). The HMA consists of two units: The hydromechanical metering unit (HMU) and the fuel pumping unit (FPU). The HMU includes all fuel metering components to support both primary and reversionary fuel metering, a self-contained alternator for powering the electronics, both primary and reversionary compressor bleed air control, and redundant core speed sensing. The FPU includes a jet-induced boost into a main stage gear section. When operating in primary mode, the HMU receives actuation signals from the DECU that operate the primary stepper motor. The stepper motor controls the position of the fuel metering valve. A potentiometer connected to the rotary portion of the metering valve provides closed-loop feedback to the DECU. When operating in reversionary mode, the primary stepper motor is de-energized, and fuel flow is deter- mined by the hydromechanical Wf/P3 reversionary control. The scheduled Wf/P3 is multiplied by P3 to give altitude-sensitive control of metered fuel flow. A mechanical P3 transducer, mechanical Wf/P3 times P3 multiplier, Wf/P3 servomechanism and reversionary stepper motor comprise this function. The output of the mechanical multiplier drives the fuel metering valve to the required flow.

d. Digital Electronic Control Unit (DECU). The DECU includes a microcomputer-based primary control section and an independent reversionary section, controlled through an independent microcomputer for backup. In primary mode, the DECU provides engine load matching through either shaft torque or engine temperature as selected by the pilot. The DECU sends signals to the HMU to control fuel flow based on the required engine load match. The DECU's primary section also provides automatic start logic, surge detection and recovery, torque sharing and management, control of the bleed valve actuator, and self-diagnostic capabilities. In the event of a serious failure within the primary section, the system automatically switches to the redundant electronic reversionary control. Engine load anticipation is provided using rotor thrust lever position, with trimming provided by beep up and beep down switches. The DECU's reversionary section operates with the hydromechanical Wf/P3 manual system by controlling the reversionary stepper motor and changeover solenoid.

G-3 TEST EQUIPMENT

a. Some fault isolation procedures require the use of a volt-ohmmeter to indicate resistance across the wire harnesses or across component connector pins. To avoid unstringing harnesses, use test cables with size 20 pins to mate with the harness plugs and sockets.

b. The voltmeter used for measuring voltages shall have an accuracy of 0.1 percent full scale or better on the 200V range.

c. The ohmmeter used for measuring all resistances except ground strap resistance shall have an accuracy of 0.05 percent full scale or better on the 2000 range and 0.5 percent full scale or better on all other ranges. The ohmmeter used for measuring ground strap resistance during the insulation/voltage check shall be capable of measuring 50mΩ with an accuracy of ±5mΩ, using a four wire configuration. The meter should always be set to the lowest possible range for the specified limits. If the autoscale function is used, an automatic switch from one range to another can appear to be a discontinuity in the component being measured. If this occurs, turn off the autoscale function and manually set the meter to the appropriate range.

CAUTION

DO NOT USE A METER THAT WILL SUPPLY MORE THAN 5mA WHEN MEASURING PLA OR METERING VALVE POTENTIOMETER RESIS- TANCES (FAULT CODES B7, F4 AND F6) AS THIS CAN DAMAGE THE POTENTIOMETER.

G-4 RESISTANCE AND INSULATION TESTS

a. Components which fail the resistance and insulation test specified herein are suspected to be faulty. Consult the manufacturer's procedure for diagnosis and troubleshooting of these components before replacing. Note that conductive solvents may cause temporary resistance and insulation shorts or failure. If wetting is a possible cause of the problem, allow the affected component to dry out, then recheck the resistance.

G-5 HIGH FUEL CONSUMPTION

a. The engine HMA cannot cause high fuel consumption. Fuel consumption depends upon turbine engine condition, fuel characteristics or operating conditions. No troubleshooting of the HMA system is required.

G-6 FAULT ISOLATION

a. Effective fault isolation is the determination of the actual problem by an intelligent analysis of the symptoms of the fault, followed by a systematic series of checks to isolate the fault and to correct the cause. Fault isolation is not complete until the symptom(s) has been proven to be cured. Replacement of the fuel control hydromechanical assembly (HMA) or the electronic control unit (DECU) for fault isolation purposes should be at- tempted as a last resort. If the symptoms are not corrected by this method, reinstall the original HMA or DECU on the engine. If the new components completely correct the fault, make certain to include complete symptom data together with accumulated operating time on maintenance forms returned with the component. If such data is not supplied, the item must be returned to overhaul, regardless of condition.

b. For faults related to signals supplied from components external to FADEC, it is recommended that these external components be functionally tested per manufacturer specified procedures. Fault isolation procedures for the FADEC system may not detect all problems occurring in external signal sources.

WARNING

THE EMC-32T FADEC FAULT DETECTION SYSTEM IS A LIMITED DIAGNOSTIC TOOL. IT MONITORS CRITICAL INPUT AND OUTPUT SIG- NALS OF THE FADEC SYSTEM AND INTERNAL FUNCTIONS OF THE DECU. THE FAULT LOGIC DOES NOT MONITOR ALL COMPONENTS OR FUNCTIONS OF THE T55-L-714 HMA SYSTEM SINCE MANY TYPES OF FAILURES ARE NOT ELECTRONICALLY (BIT) DETECTABLE. THE FAULT LOGIC MONITORS ONLY THOSE COMPONENTS AND FUNCTIONS AS SPECIFIED IN THE CECO SYSTEM SPECIFICATION 109597.

THEREFORE, THE ABSENCE OF FAULT CODES DOES NOT GUARANTEE HMA SYSTEM INTEGRITY. ANY HMA SYSTEM PROBLEM OR ANOMALY SHOULD BE FULLY INVESTIGATED BY MAINTENANCE PER- SONNEL FOR CAUSE AND RESOLUTION PRIOR TO DETERMINING READINESS FOR FLIGHT. READINESS FOR FLIGHT SHOULD NOT BE DETERMINED SOLELY ON THE ABSENCE OF FAULT CODES.

CAUTION

DIRECTION IN THIS MANUAL TO REPLACE HMA OR DECU COM- PONENTS IS IN SOME CASES BASED ON DEFAULT, THAT IS, IT IS CONCLUDED TO BE TO BE THE ONLY REMAINING POSSIBILITY OF PROBLEM CAUSE WITHIN THE SYSTEM AFTER ALL OTHER CAUSES HAVE BEEN ELIMINATED.

IF THE SYSTEM PROBLEM IS NOT ALLEVIATED BY REPLACEMENT OF THE DECU OR HMA, IT IS LIKELY THAT THESE COMPONENTS WERE NOT DISCREPANT. IN SUCH CASE IT SHOULD BE VERIFIED THAT ALL PRECEDING FAULT ISOLATION STEPS WERE CONDUCTED CORRECTLY. IT SHOULD ALSO BE INVESTIGATED WHETHER THE PROBLEM HAS CAUSES EXTERNAL TO THE HMA SYSTEM OR CAUSES DUE TO INCORRECT OPERATING PROCEDURE.

CAUTION

DIRECTION TO REPLACE AIRFRAME OR ENGINE COMPONENTS WHICH ARE NOT MANUFACTURED BY CECO IS BASED ON THE LIM-

ITED INFORMATION WHICH CAN BE DETERMINED WITH SIMPLE VOLT-OHMMETER CHECKS. THE INTENT IS TO ISOLATE A SUS- PECTED PROBLEM AREA RATHER THAN MAKE A FINAL DETERMINA- TION TO REJECT THESE COMPONENTS. APPLICABLE CHECKOUT PROCEDURES FOR THESE COMPONENTS SPECIFIED BY THE AIR- FRAME OR ENGINE MANUFACTURER SHOULD BE APPLIED TO DE- TERMINE THE INTEGRITY OF THESE COMPONENTS.

CAUTION

ELECTRICAL PARAMETERS GIVEN IN THIS MANUAL REFLECT CHARACTERISTICS OF ACTUAL AIRCRAFT COMPONENTS. WHEN USING THIS MANUAL IN A TEST CELL INSTALLATION, IT SHOULD BE NOTED THAT SIGNAL INPUTS FOR AIRCRAFT COMPONENTS MAY BE PRO- VIDED BY REPRESENTATIVE TEST CELL EQUIPMENT. IN SOME INSTANCES, THE ELECTRICAL CHARACTERISTICS OF THE TEST CELL EQUIPMENT MAY NOT BE THE SAME AS THOSE OF THE ACTU- AL AIRCRAFT COMPONENTS. THIS CAN RESULT IN FAULTS BEING LOGGED BY THE DECU AND CAN POSSIBLY DAMAGE THE DECU. IF DIFFERENCES ARE FOUND, THE TEST CELL EQUIPMENT SHOULD BE REPLACED BEFORE FADEC TESTING CONTINUES.

NOTE

Before replacing any component, be sure that a contaminated or corroded connector is not the cause of the fault. Clean connectors with contact cleaner and blow-dry using compressed nitrogen (preferred) or filtered dry air.

G-7 DISPLAY OF FAULT CODES

a. Code Display. All faults are classified into two main categories of criticality. Hard faults are failures which could cause unacceptable engine and/or aircraft performance if operation were to continue in the normal primary mode of control. Soft faults are failures which do not impact normal control of the engine or aircraft. Fault information is logged in an electrically erasable nonvolatile memory (EEPROM), and is available through a two-digit hexadecimal display on the DECU. See figure 201 for location of the display. The most significant digit is used to identify the source of the faulty component, as defined below:

F -- Fluid Controller (HMU/Pump)
A -- Airframe-Supplied Sensor
D, 1, or B -- DECU
E-- Engine-Supplied Sensor
C -- Communication Between DECUs

The least significant digit is used to identify the specific fault. The codes are listed in Table 1 in numeric/ alpha order with their descriptions and fault isolation procedure numbers.

TABLE 1. FAULT CODE INDEX

Fault Code	Fault Description	Procedure Figure No.
10	Microprocessor Hard Fault	141
11	Non-volatile RAM Checksum Hard Fault	141
12	Non-volatile RAM Engine History Data Soft Fault	141
13	Non-volatile RAM Fault Data Soft Fault	141
14	Non-volatile RAM Accumulated Fault Data Soft Fault	141
15	Non-volatile RAM Write Test Soft Fault	141
16	Non-volatile RAM Storage Incomplete	141
17	Non-volatile RAM History Data Inconsistent	141
18	Minor Cycle Not Completed Hard or Soft Fault	141
1B	EMS Cycle Not Completed Soft Fault	141
1C	A/D Conversion Not Completed Hard or Soft Fault	141
1E	RAM Failure Hard Fault	141
1F	Opcode Error Hard Fault	141
Al	Q Sensor Soft Fault	112
A2	N2 Set Potentiometer Soft Fault	113
A3	Primary and Reversionary C/P Angle LVDT Soft Fault	114
A4	NR Sensor Soft Fault	115
A5	Primary and Reversionary ECL Resolver Soft Fault	116
A6	Airframe Emergency +28V DC Supply Soft Fault	117
A7	Airframe +28V DC Supply Soft Fault	118
B2	Primary or Reversionary N1 B Sensor Soft Fault	133
B3	Primary or Reversionary N2B Sensor Soft Fault	134
B4	Primary or Reversionary T4.5 Sensor Soft Fault	135
B5	Primary or Reversionary C/P Angle LVDT Soft Fault	136
B6	Primary or Reversionary ECL Resolver Soft Fault	137
B7	Primary or Reversionary PLA Potentiometer Soft Fault	138
B9	Primary or Reversionary CJC Soft Fault	139
BA	Reversionary +28V Soft Fault	139
BB	Reversionary T4.5 Calibration Soft Fault	139
BC	Primary or Reversionary 400Hz Resolver Reference Soft Fault	140
C1	Communication Line Soft Fault on T4.5 (0) Signal	129
C2	Communication Line Hard or Soft Fault on P1 (O) Signal	129
C3	Communication Line Hard or Soft Fault on T1 (0) Signal	129
C4	Communication Line Soft Fault on Q (0) Signal	130
C5	Communication Line Soft Fault on N2 SET (0) Signal	129
C6	Communication Line Soft Fault on C/P (0) Signal	129
C7	Communication Line Soft Fault on NR (0) Signal	129
C8	Communication Link Soft Fault	129
C9	Communication Line Soft Fault on N1B (0) Signal	131
CF	Loss of Load Share Signals Hard Fault	132
DO	Overspeed Drive Soft Fault	119
D1	P3 Transducer Soft Fault	121
D2	P1 Transducer Soft Fault	122
D3	28V "OR" Diodes Soft Fault	119

TABLE 1. FAULT CODE INDEX (CONT)

Fault Code	Fault Description	Procedure Figure No.
D4	+10V Reference Hard Fault	120
D5	+/-15V Hard Fault	120
D6	+12V Reversionary or +/-12V Overspeed Soft Fault	119
D7	+5V Hard Fault	120
D8	Primary and Reversionary CJC Soft Fault	120
D9	+24V Regulator Soft Fault	120
DA	+5V Reversionary Soft Fault	119
DB	Reversionary System Soft Fault or Idle Check Soft Fault	119
DC	T4.5 Calibration Soft Fault	120
DD	Overspeed Check Soft Fault	119
DE	Primary and Reversionary 400Hz Resolver Reference Soft Fault	123
DF	Watchdog Timer Test Hard Fault	120
El	Primary and Reversionary T4.5 Sensor Soft Fault	124
E2	T1 Sensor Soft Fault	125
E3	N2A Sensor Soft Fault	126
E4	Primary and Reversionary N2B Sensor Hard Fault	127
E5	N2A/N2B Difference Soft Fault	128
F1	N1A Sensor Soft Fault	101
F2	Primary or Reversionary N1 B Sensor Hard Fault	102
F3	N1A/NIB Difference Soft Fault	103
F4	MV Potentiometer Hard or Soft Fault	104
F5	Wf/Stepcount Difference Hard Fault	105
F6	Primary and Reversionary PLA Potentiometer Soft Fault	106
F7	Bleed Valve Solenoid Hard Fault	107
F8	Primary/Reversionary Solenoid Hard Fault	108
F9	Alternator Voltage Soft Fault	109
FA	Start Fuel Solenoid Soft Fault	110
FB	Reversionary Step Count Soft Fault	111
None	Unable to Switch to Reversionary Mode	142
None	Unable to Switch to Primary Mode	143
None	System Toggles Between Primary and Reversionary Mode	144
None	Q Load Share Selected, Qs Not Matched	145
None	T4.5 Load Share Selected, T4.5 Not Matched	146
None	Ignition Relay Does Not Function	147
None	Bleed Band Does Not Function Properly	148
None	Engine Out Indicator (EOI) Does Not Illuminate During Normal Shutdown	149
None	No Observed Engine Speed Reduction During Overspeed Test	150
None	No Beeper Switch Response in Reversion	151
None	Unable to Perform Power Assurance Test (Results Not Indicated on Hex Display)	152
None	Moving ECL Lever to Stop Causes Increase in Engine Power	153
None	Moving ECL Lever to Flight Causes Engine Shutdown	154
None	Engine Out Indicator (EOI) Is Always Illuminated	155
None	F/R Lamp Does Not Illuminate When Reversion Is Selected	156
None	F/R Lamp Is Illuminated When Primary Is Selected	157
	NOTE If fault code displayed is not listed in Table 1, follow procedures in Figure 158.	

b. To View Current Faults and Faults From Last Engine Run. Faults displayed in shutoff cannot be cleared until the engine is run above 48 percent N1.

(1) Turn on power to DECU.

(2) Set engine condition lever (ECL) to stop position.

(3) The display will indicate current fault codes and fault codes from the last engine run in sequence. After all applicable fault codes have been displayed, the sequence will repeat. If there are no applicable fault codes, an "88" will be displayed. Record all codes displayed.

NOTE

If an ECL fault occurs, the DECU holds the second to last good ECL value until DECU power is removed. If the ECL fault is still present when DECU power is reapplied, the ECL value defaults to GROUND. Therefore, if the second to last good ECL value is FLIGHT, the hex display will not display any faults until DECU power is cycled. If the second to last good ECL value is GROUND, the hex display will display both current faults and faults from the last engine run until DECU power is cycled. In either case , when DECU power is reapplied, the ECL value will default to GROUND, and only current faults. can be displayed until the ECL fault has been cleared.

G-8 POWER SUPPLY INTERRUPT

a. The DECU is designed to operate normally with three separate power buses. The primary control lane is powered by either the engine HMA alternator (28V ALT) at engine speeds greater than idle, or the 28V airframe DC bus (28V AF) whichever is higher. The reversionary control lane is powered by either 28V AF or the 28V emergency bus (28V EM),whichever is higher. During pilot generator switching actions, which normally take place at flight idle conditions before and then subsequent to a flight, simultaneous aircraft bus interrupts on the 28V AF and 28V EM can occur, causing the reversion control lane to be depowered. The primary control lane continues operating normally since it is receiving its power from 28V ALT.

b. The primary lane monitors specific reversionary lane signals. When both power supplies to reversionary are interrupted, these signals are temporarily seen as out of range by the primary lane. If the interrupts are of sufficient duration (>50ms), the primary lane will latch the faults. The faults remain latched in primary until primary lane power is removed, even if a reversionary reset has cleared the reversionary lane of all faults. The end result is one or more nuisance faults that are due to the power interruption, not to an actual FADEC problem. The possible faults are listed below. The actual combination of faults will depend on both the operating conditions at the time of the interrupt and the duration of the interrupt. FADEC faults caused by power interrupts are expected to be an occasional random occurrence, not a regular occurrence.

FAULT CODE	FAULT
A1	Q
A6	28V EM
A7	28V EM
B2	N1B
B3	N2B
B5	C/P LVDT
B6	ECL
B7	PLA
BC	RESOLVER REFERENCE
DO	OVERSPEED DRIVE
D3	OR DIODES
D6	+12V REVERSIONARY
DA	+5V REVERSIONARY
DB	REVERSIONARY SYSTEM
DD	OVERSPEED CHECK
E5	N2A/N2B DIFFERENCE
F3	N1A/N1B DIFFERENCE

c. If any of the above faults occur, the engine must be shut down and power to the DECU cycled to clear the faults. After power is cycled. the appropriate action must be taken to confirm the fault (run engine with ECL at GROUND, run engine with ECL at FLIGHT, etc.) If the faults clear (hex display of '88" with ECL in ground), the faults are to be considered due to power interrupts, and not indicative of a FADEC system fault. If the faults do not clear, then the appropriate fault isolation action should be taken.

G-9 OPERATIONAL PROBLEMS WITHOUT CODES

There are some operational problems that may be noted that do not result in fault codes on the diagnostic display, such as, engine torques not matched, no response to cockpit switch, etc. Refer to fault isolation procedure figures 142 through 157 for these problems.

G-10 USING THE FAULT ISOLATION DIAGRAMS

a. Display current fault codes using the procedure defined in paragraph G-7. Record all fault codes. If a system fault has been observed that does not result in a fault code, record the symptom(s).

NOTE

Under specific conditions, it is possible for an undefined fault code not listed in Table 1 to appear on the hex display. In this event, the procedure given in figure 158 shall be followed.

b. If only one fault is noted, locate the fault by fault code or description in Table 1. Go to the figure listed for that fault and follow the procedure.

c. If multiple fault codes and/or symptoms are noted, use the following guidelines to determine the order of troubleshooting. Faults listed in step c.(1) should be investigated first, then faults listed in step c.(2), etc. Faults listed within the same item may generally be investigated in any order with respect to each other; exceptions are given at the beginning of the affected fault code procedures.

(1) All fault codes beginning with '1'.

(2) B9, BA, BB, and BC.

(3) All fault codes beginning with "D" except D1, D2, DE, and DF.

(4) D1, D2, and DE.

(5) All remaining fault codes beginning with "B".

(6) All fault codes beginning with "A".

(7) All fault codes beginning with "E".

(8) All fault codes beginning with "C" except CF.

(9) All fault codes beginning with "F".

(10) CF.

(11) DF.

(12) Any symptoms noted that do not cause a fault code.

d. Once the first fault to be investigated has been determined, locate the fault in table 1. Go to the figure listed for that fault and follow the procedure. Once the fault has been cleared, check to see if any other faults still exist. If there are still faults, use the guidelines above to determine which fault to troubleshoot next. Continue investigating faults one at a time until all faults are cleared.

e. If the engine exhibits erratic behavior but no fault codes are displayed, perform the insulation/voltage check per figure 159 to determine if a bad ground connection is causing the problem.

G-11 DIAGRAMS

a. Fuel Control System Harness Connections. See figure 201.

b. Electrical Connector Pin Locations. See figure 202.

c. HMU Schematic Diagram. See figure 203.

d. Interface wiring diagram (Ref. APPENDIX D).

G-12 ABBREVIATIONS

A/D	Analog-to-digital	N2A N2B	N2 signals from dual magnetic pickup
AL	Alumel		
BLD	Bleed	N2SET	Power turbine set speed
C/P	Collective pitch angle (same as RTL)	O/S	Overspeed
CDP	Compressor discharge pressure	O/STAT	Overspeed status
CJC	Cold junction compensation for temperature signal	Paf	Metering head regulator bypass return pressure
CR	Chromel	Pbc	Mechanical speed sensor pressure out-put
DC	Direct current	Pf	Pump discharge pressure
DECU	Digital Electronic Control Unit	Pfm	Pump discharge pressure metered
EEPROM	Electrically erasable programmable read-only memory	PLA	Power lever angle
ECL	Engine control lever	Pm	Bleed system pressure
ECLEX	ECL excitation	Pme	Metering valve discharge pressure
EGT	Exhaust gas temperature	Pn	Fuel pressure to engine
EMS	Engine monitoring system	Pot.	potentiometer
EX	Excitation	PSM	Primary stepper motor
E01	Engine out indicator #1	Pw	Windmill bypass valve pressure
E02'	Engine out indicator #2	P1	Atmospheric air pressure
FADEC	Full Authority Digital Electronic Control	P3	Compressor discharge pressure
F/R	Failure/reversionary selected	Q	Torque
FPU	Fuel Pump Unit	RAM	Random access memory
GND	Ground	REF	Reference
HMA	Hydromechanical Assembly	RET	Return
HMU	Hydromechanical Unit	RSM	Reversion stepper motor
IGN	Ignition	RTL	Rotor thrust lever (same as collective pitch)
LRU	Line Replaceable Unit	REV	Reversionary control mode
LVDT	Linear variable displacement transformer	SEL	Select
MAG	Magnetic	SIG	Signal
MV	Metering valve	SOL	Solenoid
NR	Sensed rotor speed	T1	Ambient temperature
NVM	Non-volatile memory	T4.5	Power turbine inlet temperature
N1	Sensed core speed	VDC	Volts direct current
N1A	N1 from magnetic speed pickup	VEM	Emergency voltage
N1B	N1 from alternator	Wf	Fuel flow
N2	Sensed power turbine speed	Ω	Ohms
TBD	To be determined		

FAULT ISOLATION TREES

G-13 FAULT TREES

a. The maintenance procedures required to isolate the fault codes displayed on the DECU to line replaceable units (LRUs) are depicted in the following fault tree diagrams. Fault trees are listed according to fault codes. The procedures are biased against removing the HMU until other more accessible possibilities have been eliminated.

b. In the fault trees, "DECU #1" is used to indicate the FADEC under investigation, be it the right-hand or left-hand engine. "DECU #2" is used to indicate the FADEC on the opposite-side engine.

c. Each of the fault trees is accompanied by a facing page that contains expanded instructions for some of the steps. The expanded instructions contain more detail for certain steps, reference to helpful diagrams (which are at the end of this manual), and resistance limits.

d. The term "manufacturer" as stated in this manual refer to either Textron Lycoming or Boeing Helicopters. dependent on whether the context refers to an airframe component or an engine component.

G-14 DIAGRAMS

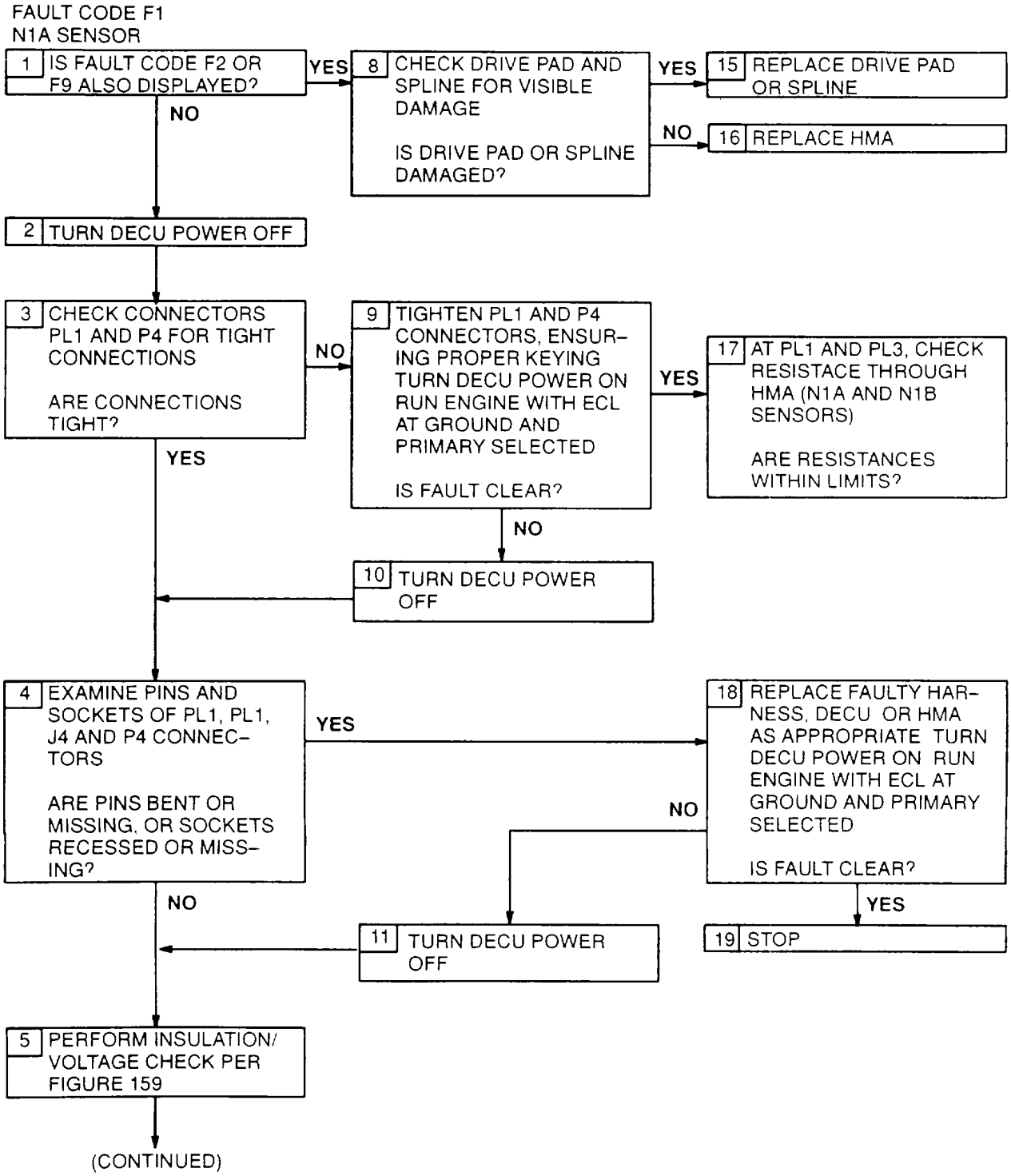
The following diagrams appear in this manual.

a. Figure 201, Fuel Control System Harness Connections. This diagram shows the physical location of each harness connector and component connector. It can be used to locate the connectors as called out in the charts.

b. Figure 202, Electrical Connector Pin Locations. This diagram can be used to identify the physical location of each connector pin of the component (DECU or HMA) connectors. Note that the socket locations for the harness connectors are the same except that they are reversed to form a mirror image.

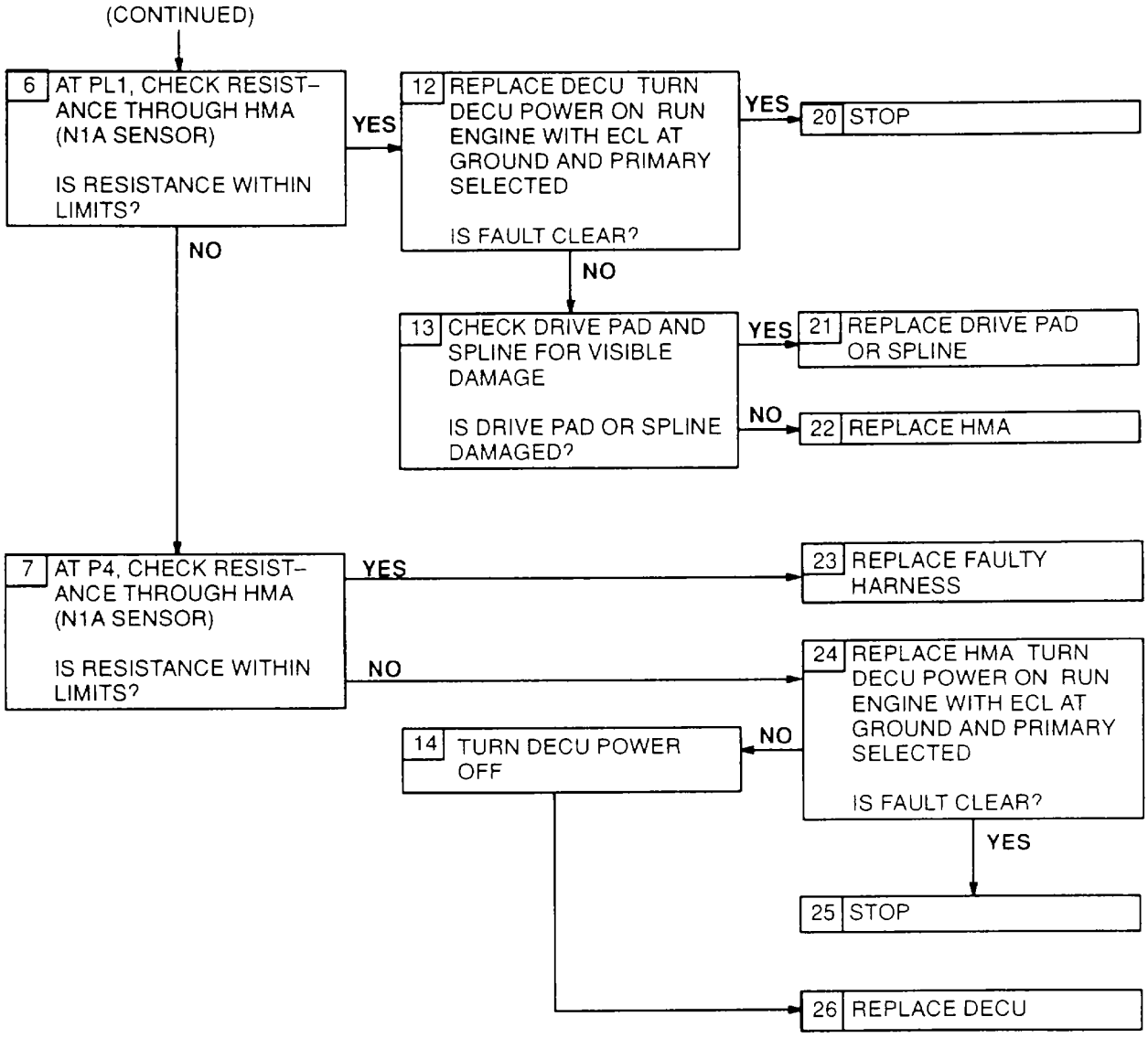
c. Electrical System Schematic (Ref. APPENDIX D). This diagram can be used to trace the termination of each terminal on each connector. For instance, find the N1 A SPEED PICKUP at lower right corner of the diagram on page D-3. The diagram shows that it is in the HMU at J4 connector terminals R and S. Follow up to top to trace through harness P1 7/J75 connector to harness PL1 connector to DECU PL1 connector terminals MM and FF.

d. Figure 203, HMA Schematic Diagram. This diagram gives an operational overview of the HMU.



Fault Code F1, N1A Sensor
Figure 101 (Sheet 1 of 2)

FAULT CODE F1
N1A SENSOR



Fault Code F1, N1A Sensor
Figure 101 (Sheet 2 of 2)

G-15 FAULT CODE F1, N1A SENSOR EXPANDED INSTRUCTIONS

Refer to numbered steps in figure 101.

Step 3. Check harness connector PL1 (figure 201) at DECU, and P4 at HMA for tight connections.

Step 4. Disconnect connectors PL1 and P4 to check pins and sockets.

Step 6. With PL1 disconnected, check resistance of HMA (N1A sensor) at harness PL1 connector sockets MM and FF (figure 202). Limit is 200-550Q.

Step 7. With P4 disconnected, check resistance of HMA (N1A sensor) at HMA J4 connector pins R and S. Limit is 200-550Q.

Step 8. Refer to manufacturer's procedure for checking drive pad and spline.

Step 9. Before tightening harness connectors PL1 and P4, be sure that keyways in harness connectors are aligned with keyways in component connectors.

Step 13. Refer to manufacturer's procedure for checking drive pad and spline.

Step 15. Refer to manufacturer's procedure for checking drive pad and spline.

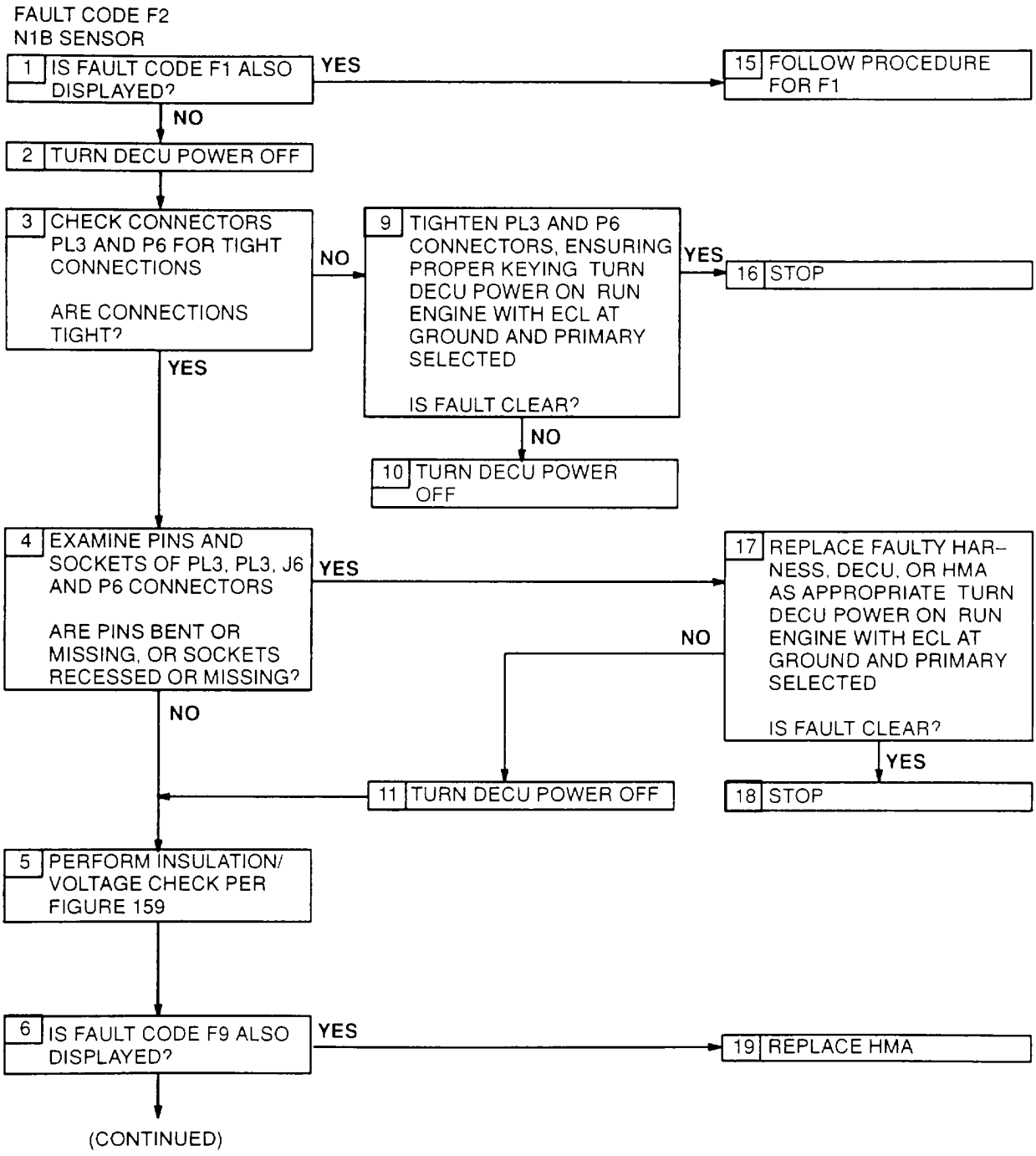
Step 18. Refer to manufacturer's procedure for diagnosing and replacing harness.

Step 21. Refer to manufacturer's procedure for checking drive pad and spline

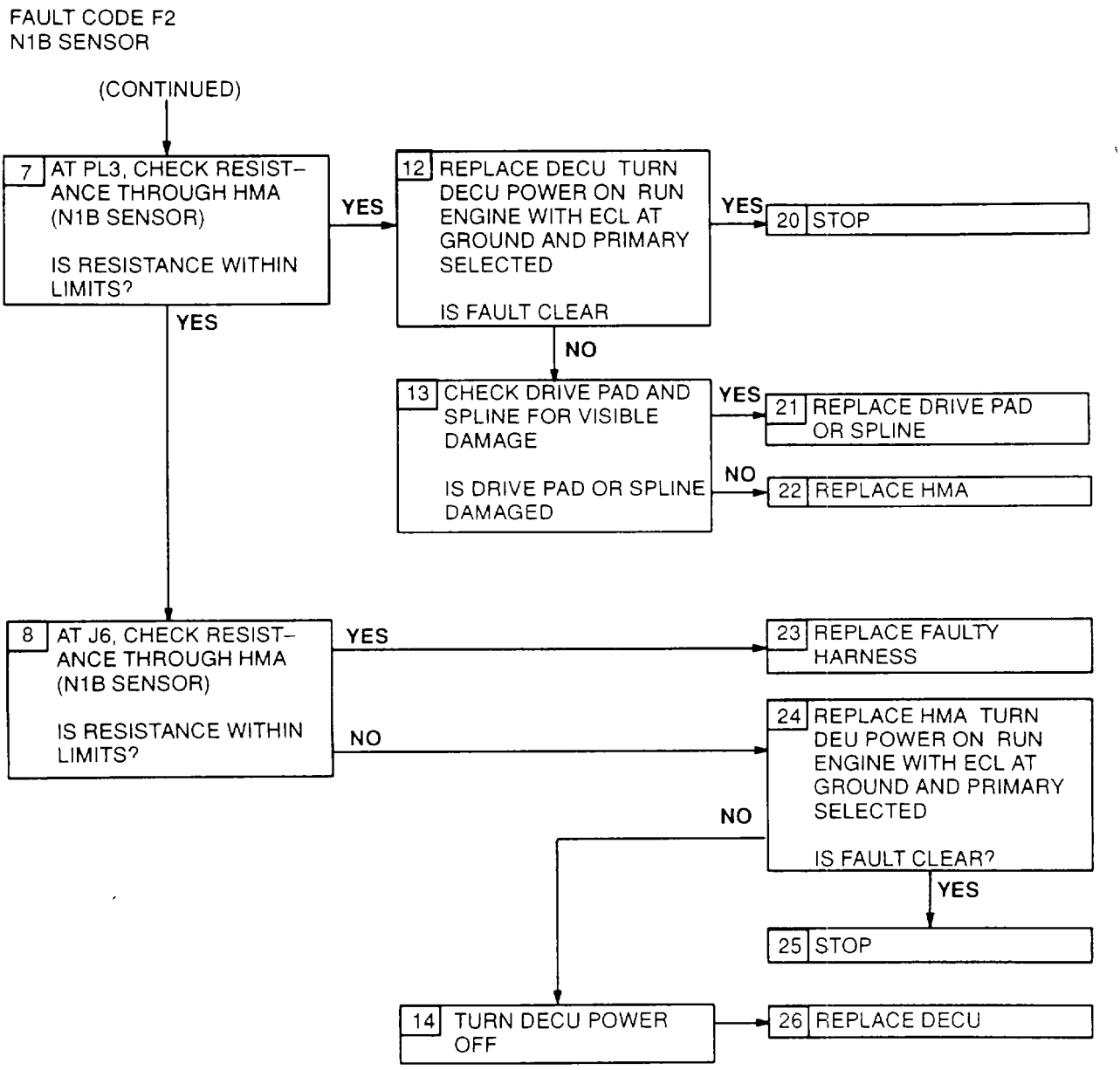
Step 23. Refer to manufacturer's procedure for diagnosing and replacing harness.

RESISTANCE-CHECK SUMMARY

Component	Connector No.	Connector Contacts	Resistance (Ω) Limits	Resistance (Ω) Nominal*
HMA - N1A Sensor	PL1	MM & FF	200-550	390
*At 25°C	J4	R & S	200-550	390



Fault Code F2, N1B Sensor
Figure 102 (Sheet 1 of 2)



Fault Code F2, N1B Sensor
Figure 102 (Sheet 2 of 2)

G-16 FAULT CODE F2, NIB SENSOR EXPANDED INSTRUCTIONS

Refer to numbered steps in figure 102.

Step 3. Check harness connector PL3 (figure 201) at DECU, and P6 at HMA for tight connections.

Step 4. Disconnect connectors PL3 and P6 to check pins and sockets.

Step 7. With PL3 disconnected, check resistance of N1 B sensor at harness PL3 connector sockets A and c (figure 202). Limit is 0.3-3.55.

Step 8 With P6 disconnected, check resistance of HMA (N1B sensor) at HMA J6 connector pins E and F. Limit is 0.3-3.0Q.

Step 9. Before tightening harness connectors PL3 and P6, be sure that keyways in harness connectors are aligned with keyways in component connectors.

Step 13. Refer to manufacturer's procedure for checking drive pad and spline.

Step 17. Refer to manufacturer's procedure for diagnosing and replacing harness.

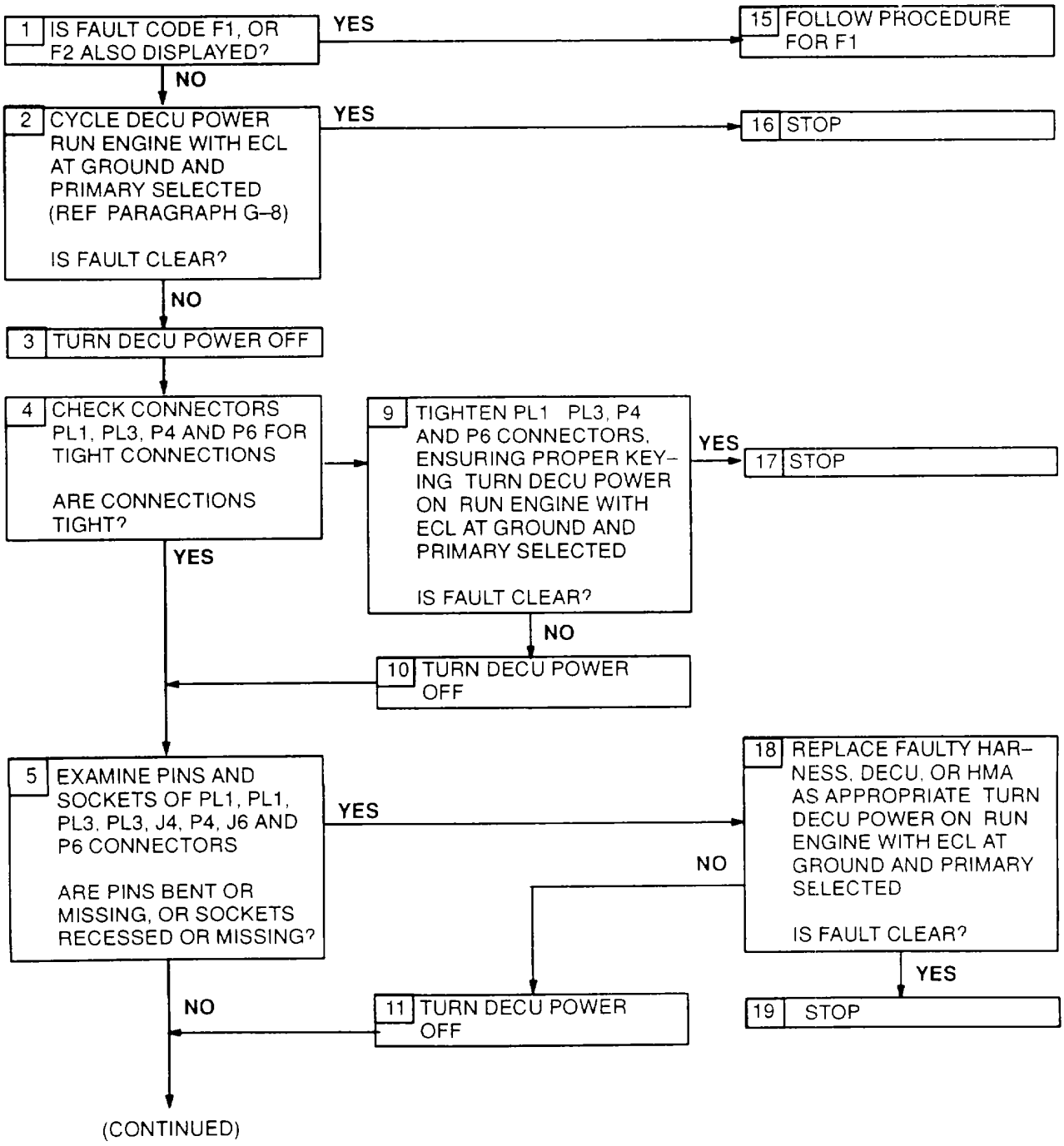
Step 21. Refer to manufacturer's procedure for replacing drive pad or spline.

Step 23. Refer to manufacturer's procedure for diagnosing and replacing harness.

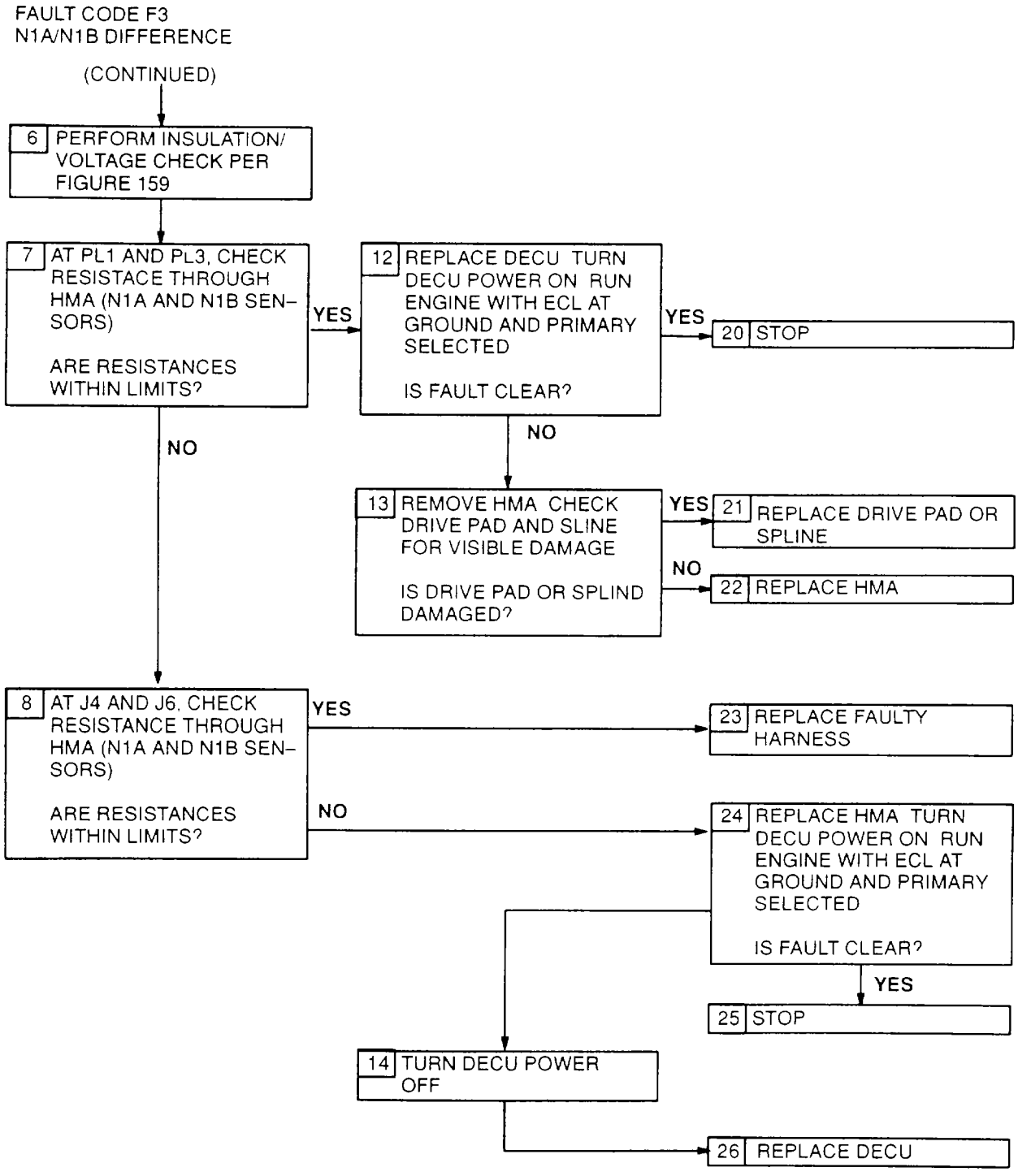
RESISTANCE-CHECK SUMMARY

		Connector	Resistance (Ω)	
Component	No.	Contacts	Limits	Nominal
HMA - NIB Sensor	PL3	A & c	0.3 - 3.5	0.7
*At 25°C	J6	E& F	0.3 - 3.0	0.7

FAULT CODE F3
N1A/N1B DIFFERENCE



Fault Code F3, N1/N1B Difference
Figure 103 (Sheet 1 of 2)



Fault Code F3, N1/N1B Difference
Figure 103 (Sheet 2 of 2)

G-17 FAULT CODE F3, NIA/NIB DIFFERENCE EXPANDED INSTRUCTIONS

Refer to numbered steps in figure 103.

Step 4. Check harness connectors PL1 and PL3 (figure 201) at DECU, and P4 and P6 at HMA for tight connections.

Step 5. Disconnect connectors PL1, PL3, P4 and P6 to check pins and sockets.

Step 7. With PL1 disconnected, check resistance of HMA (N1A sensor) at harness PL1 connector sockets MM and FF (figure 202). Limit is 200-550Q. With PL3 disconnected, check resistance of HMA (N1 B sensor) at harness PL3 connector sockets A and c. Limit is 0.3-3.5o2.

Step 8. With P4 disconnected, check resistance of HMA (N1A sensor) at HMA J4 connector pins R and S. Limit is 200-550Q. With P6 disconnected, check resistance of HMA (N1 B sensor) at HMA T. J6 connector pins E and F. Limit is 0.3-3.3Q.

Step 9. Before tightening harness connectors PL1, PL3, P4 and P6, be sure that keyways in harness connectors are aligned with keyways in component connectors.

Step 13. Refer to manufacturer's procedure for checking drive pad and spline.

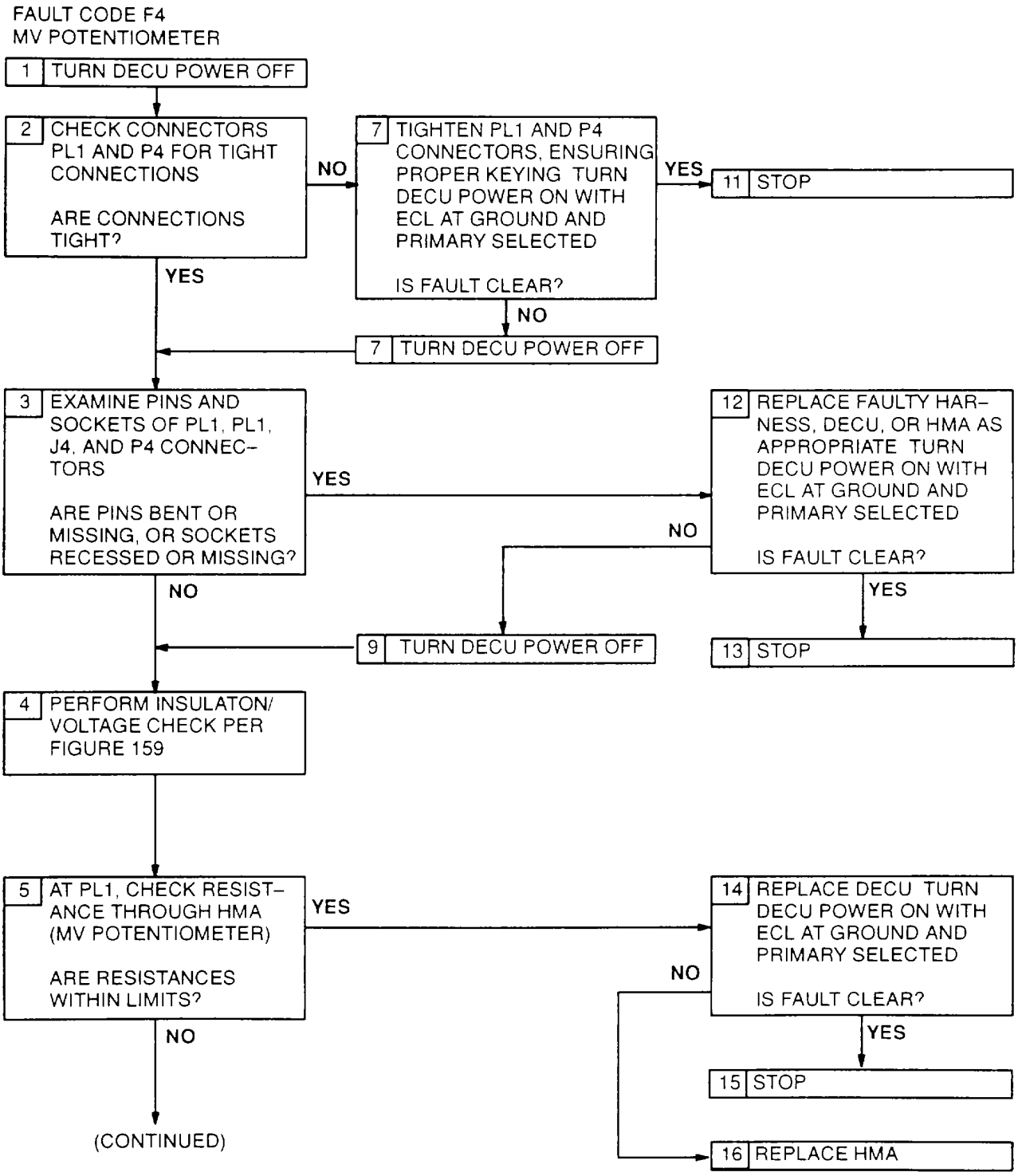
Step 18. Refer to manufacturer's procedure for diagnosis and replacing harness.

Step 21. Refer to manufacturer's procedure for replacing drive pad or spline.

Step 23. Refer to manufacturer's procedure for diagnosing and replacing harness.

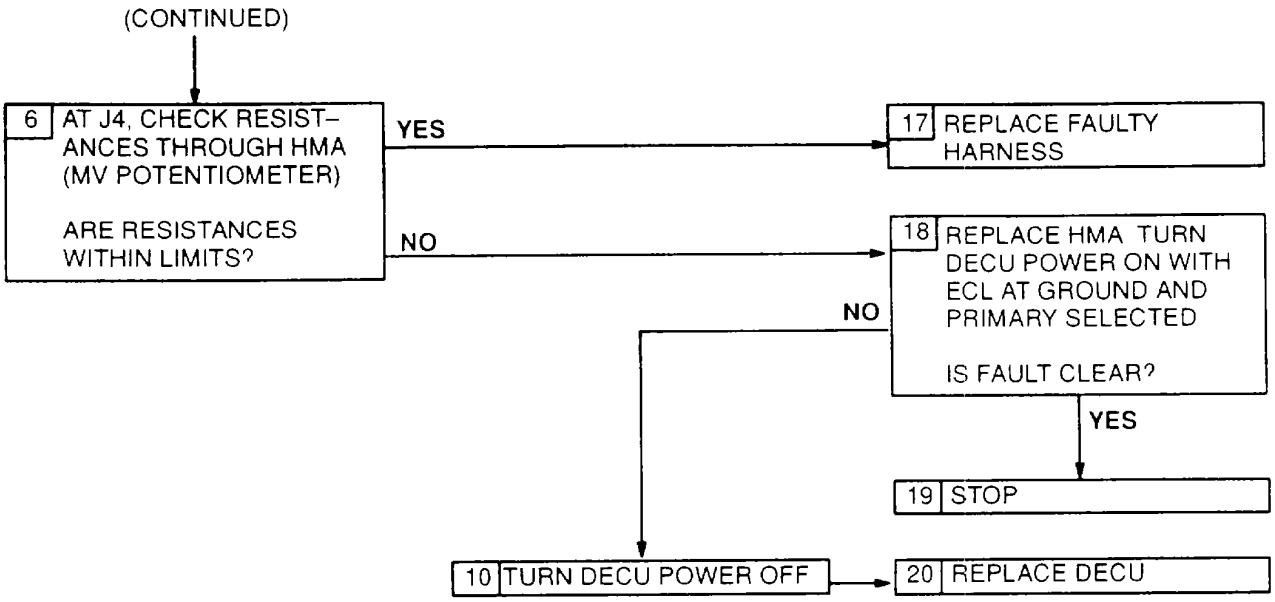
RESISTANCE-CHECK SUMMARY

		Connector	Resistance (Ω)	
Component	No.	Contacts	Limits	Nominal *
HMA - N1A Sensor	PL1	MM &FF	200 - 550	390
	J4	R & S	200 - 550	390
HMA - N1A Sensor	J4	A-c	0.3 - 3.5	0.7
*At 25°C	J6	E & F	0.3 - 3.0	0.7



Fault Code F4, MV Potentiometer
Figure 104 (Sheet 1 of 2)

FAULT CODE F4
MV POTENTIOMETER



Fault Code F4, MV Potentiometer
Figure 104 (Sheet 2 of 2)

G-18 FAULT CODE F4, MV POTENTIOMETER EXPANDED INSTRUCTIONS

Refer to numbered steps in figure 104.

Step 2. Check harness connector PL1 (figure 201) at DECU, and P4 at HMA for tight connections.

Step 3. Disconnect connectors PL1 and P4 to check pins and sockets.

Step 5. CAUTION: DO NOT USE AN OHMMETER THAT CAN APPLY MORE THAN 5 mA WHEN MEASURING RESISTANCES, TO AVOID DAMAGING THE FUEL METERING VALVE POTENTIOMETER.

With PL1 disconnected, check resistance of HMA (fuel metering valve potentiometer) at harness PL1 connector sockets Q and y .(results are "a") and y and KK (results are "b"). Limit for "a" and "b" is 300 - 5800Ω. Check resistance at sockets g and KK (results are "c"). Limit for "c" is 4250 - 5750Ω. Use the following equation to check wiper resistance:

$$a + b - c \div 2 = d$$

Limit for "d" is ≤ 300-. Use the following equation to check if the high or low limit of the metering valve potentiometer has been exceeded:

$$b - d \div c = e$$

Limit for "e" is 0.0710 - 0.9573.

Step 6. CAUTION: DO NOT USE AN OHMMETER THAT CAN APPLY MORE THAN 5 mA WHEN MEASURING RESISTANCES, TO AVOID DAMAGING THE FUEL METERING VALVE POTENTIOMETER.

With P4 disconnected, check resistance of HMA (fuel metering valve potentiometer) at HMA J4 connector pins M and N (results are "f") and N and P (results are "g"). Limit for "" and "g" is 300 - 5800Ω. Check resistance at pins M and P (results are "h"). Limit for "h" is 4250 - 5750Ω. Use the following equation to check wiper resistance.

$$f + g - h \div 2 = i$$

Limit for "i" is ≤ 30052'. Use the following equation to check if the high or low limit of the metering valve potentiometer has been exceeded:

$$g - i \div h = j$$

Limit for "j" is 0.0710 - 0.9573.

Step 7. Before tightening harness connectors PL1 and P4, be sure that keyways in harness connectors are aligned with keyways in component connectors.

Step 12. Refer to manufacturer's procedure for diagnosing and replacing harness.

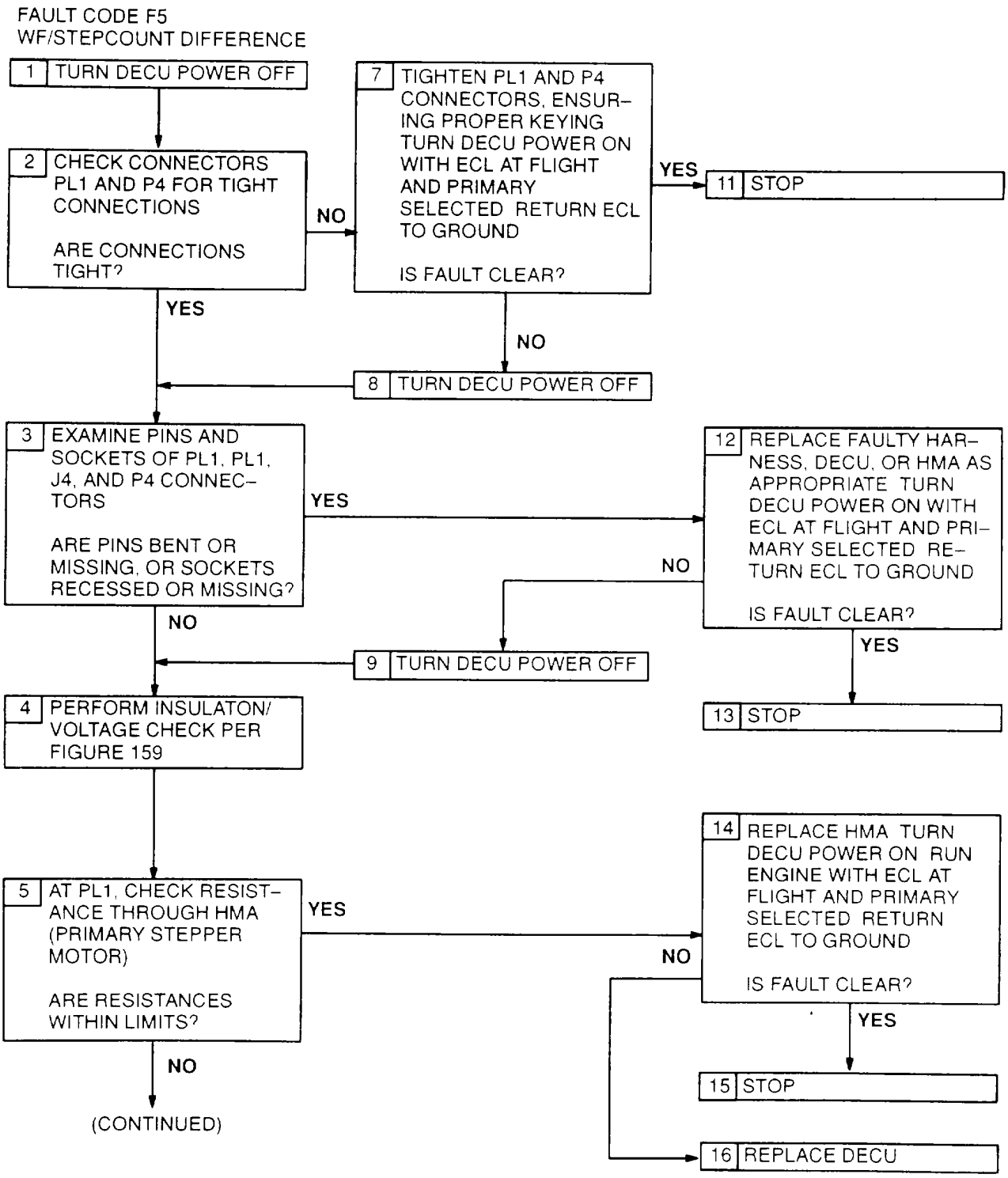
Step 17. Refer to manufacturer's procedure for diagnosing and replacing harness.

G-18 FAULT CODE F4, MV POTENTIOMETER EXPANDED INSTRUCTIONS (CONTINUED)

RESISTANCE-CHECK SUMMARY

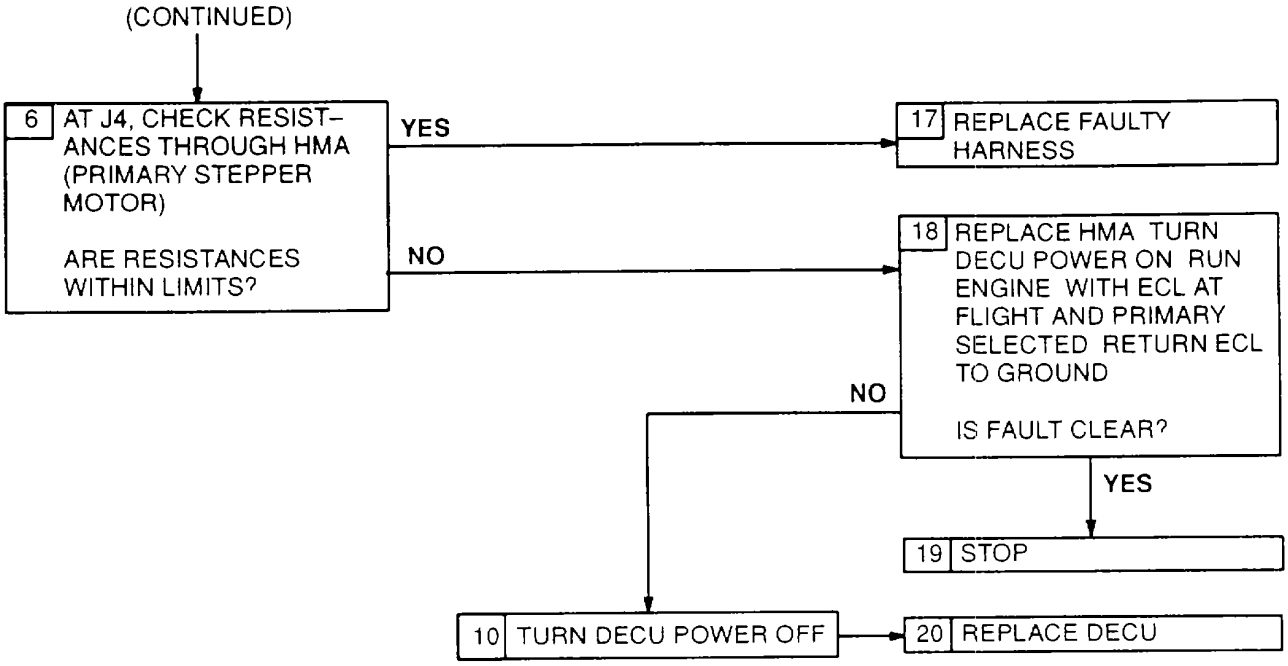
Component	No.	Connector Contacts		Resistance (Ω) Limits	Nominal*
HMA - Fuel Metering Valve Potentiometer	PL1	g & y	(a)	300 - 5800	*
		y & K	(b)	300 - 5800	**
		g and KK	(c)	4250 - 5750	5000
		a + b - c ÷ 2	(d)	≤ 300	195
		b - d ÷ c	(e)	0.0710-0.9573	**
	J4	M & N	(f)	300- 5800	
		N & P.	(g)	300 - 5800	
		M & P	(h)	4250-5750	5000
		f + g- h ÷ 2	(I)	≤300	195
		g - i ÷ h	(j)	0.0710-0.9573	**

* At 25°C
** Dependent on MMV Position



Fault Code F5, Wf/Stepcount Difference
Figure 105 (Sheet 1 of 2)

FAULT CODE F5
WF/STEPCOUNT DIFFERENCE



Fault Code F5, Wf/Stepcount Difference
Figure 105 (Sheet 2 of 2)

G-19 FAULT CODE F5 Wf/STEPCOUNT DIFFERENCE EXPANDED INSTRUCTIONS

Refer to numbered steps in figure 105.

Step 2. Check harness connector PL1 (figure 201) at DECU, and P4 at HMA for tight connections.

Step 3. Disconnect connectors PL1 and P4 to check pins and sockets.

Step 5. With PL1 disconnected, check resistance of HMA (primary stepper motor) at harness PL1 connector sockets T and X (figure 202), U and X, V and X, and W and X. In each case limit is 45-111Q.

Step 6. With P4 disconnected, check resistance of (primary stepper motor) at HMA J4 connector. pins D and T, C and T, B and T, and A and T. In each case,.limit is45-111Q.

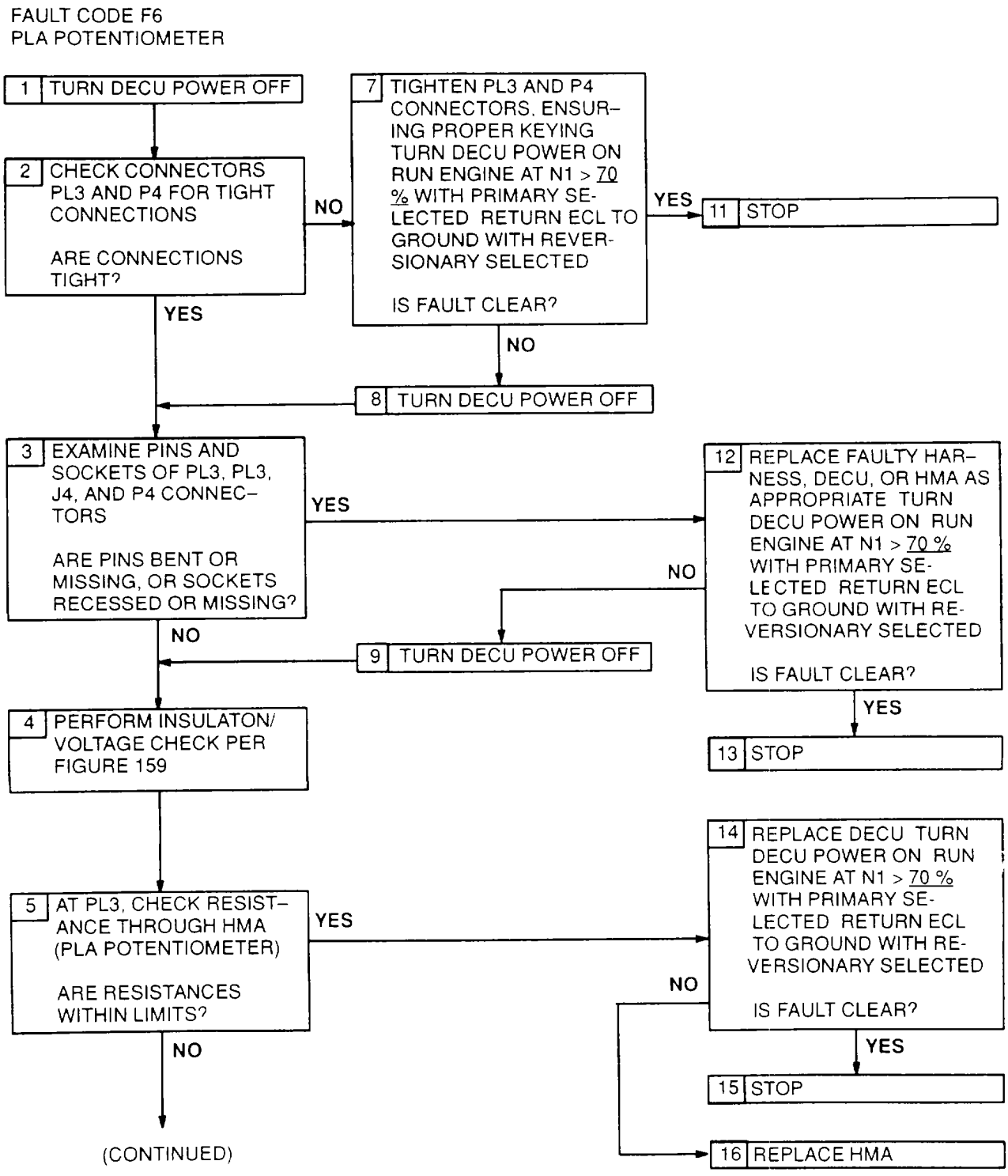
Step 7. Before tightening harness connectors PL1 and P4, be sure that keyways in harness connectors are aligned with keyways in component connectors.

Step 12. Refer to manufacturer's procedure for diagnosing and replacing harness.

Step 17. Refer to manufacturer's procedurefor diagnosing and replacing harness.

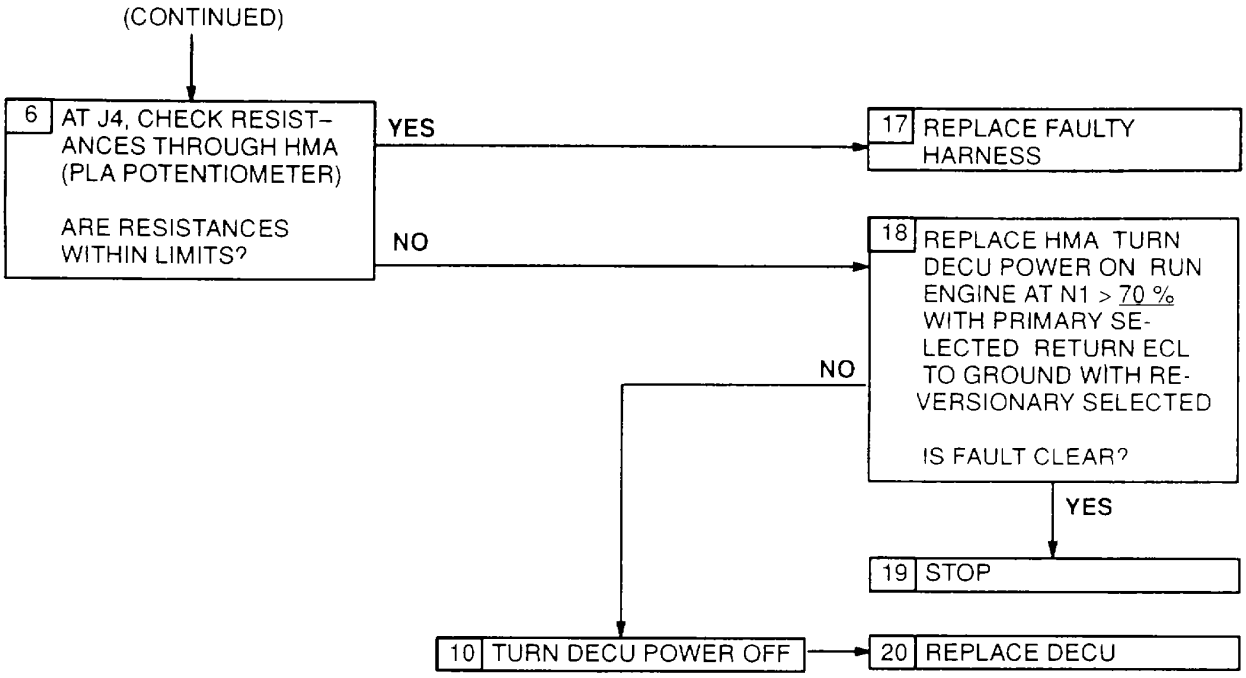
RESISTANCE-CHECK SUMMARY

		Connector	Resistance (Ω)	
Component	No.	Contacts	Limits	Nominal*
HMA - Primary Stepper Motor	PL1	T & X	45 - 111	73
		U & X	45 - 111	73
		V & X	45 - 111	73
		W & X	45 - 111	73
	J4	D & T	45 - 111	73
		C & T	45 - 111	73
		B & T	45 - 111	73
* At 25°C		A&T	45 - 111	73



Fault Code F6, PLA Potentiometer
Figure 106 (Sheet 1 of 2)

FAULT CODE F6
PLA POTENTIOMETER



Fault Code F6, PLA Potentiometer
Figure 106 (Sheet 2 of 2)

G-20 FAULT CODE F6, PLA POTENTIOMETER EXPANDED INSTRUCTIONS

Refer to numbered steps in figure 106.

Step 2. Check harness connector PL3 (figure 201) at DECU, and P4 at HMA for tight connections.

Step 3. Disconnect connectors PL3 and P4 to checkpins and sockets.

Step 5. CAUTION: DO NOT USE AN OHMMETER THAT CAN APPLY MORE THAN 5 mA WHEN MEASURING RESISTANCES, TO AVOID DAMAGING THE PLA POTENTIOMETER.

With PL3 disconnected, check resistance of HMA (PLA potentiometer) at harness PL3 connector sockets U and T (results are "a") and T and S (results are "b"). Limit for "a" and "b" is 510 - 5750Ω. Check resistance at sockets U and S (results are "c"). Limit for "c" is 4250 - 5750Ω. Use the following equation to check wiper resistance:

$$a + b - c \div 2 = d$$

Limit for "d" is ≤ 300Ω. Use the following equation to check if the high or low limit of the PLA potentiometer has been exceeded:

$$b - d \div c = e$$

Limit for "e" is 0.120 - 0.950.

Step 6. CAUTION: DO NOT USE AN OHMMETER THAT CAN APPLY MORE THAN 5 mA WHEN MEASURING RESISTANCES, TO AVOID DAMAGING THE PLA POTENTIOMETER.

With P4 disconnected, check resistance of HMA (PLA potentiometer) at HMA J4 connector pins X and Y (results are "f") and Y and Z (results are "g"). Limit for "f" and "g" is 510 - 5750Ω. Check resistance at pins X and Z (results are "h"). Limit for "h" is 4250 - 5750Ω. Use the following equation to check wiper resistance.

$$f + g - h \div 2 = i$$

Limit for "i" is ≤300Ω. Use the following equation to check if the high or low limit of the metering valve potentiometer has been exceeded:

$$g - i \div h = j$$

Limit for "j" is 0.120 - 0.950.

Step 7. Before tightening harness connectors PL3 and P4, be sure that keyways in harness connectors are aligned with keyways in component connectors.

Step 12. Refer to manufacturer's procedure for diagnosing and replacing harness.

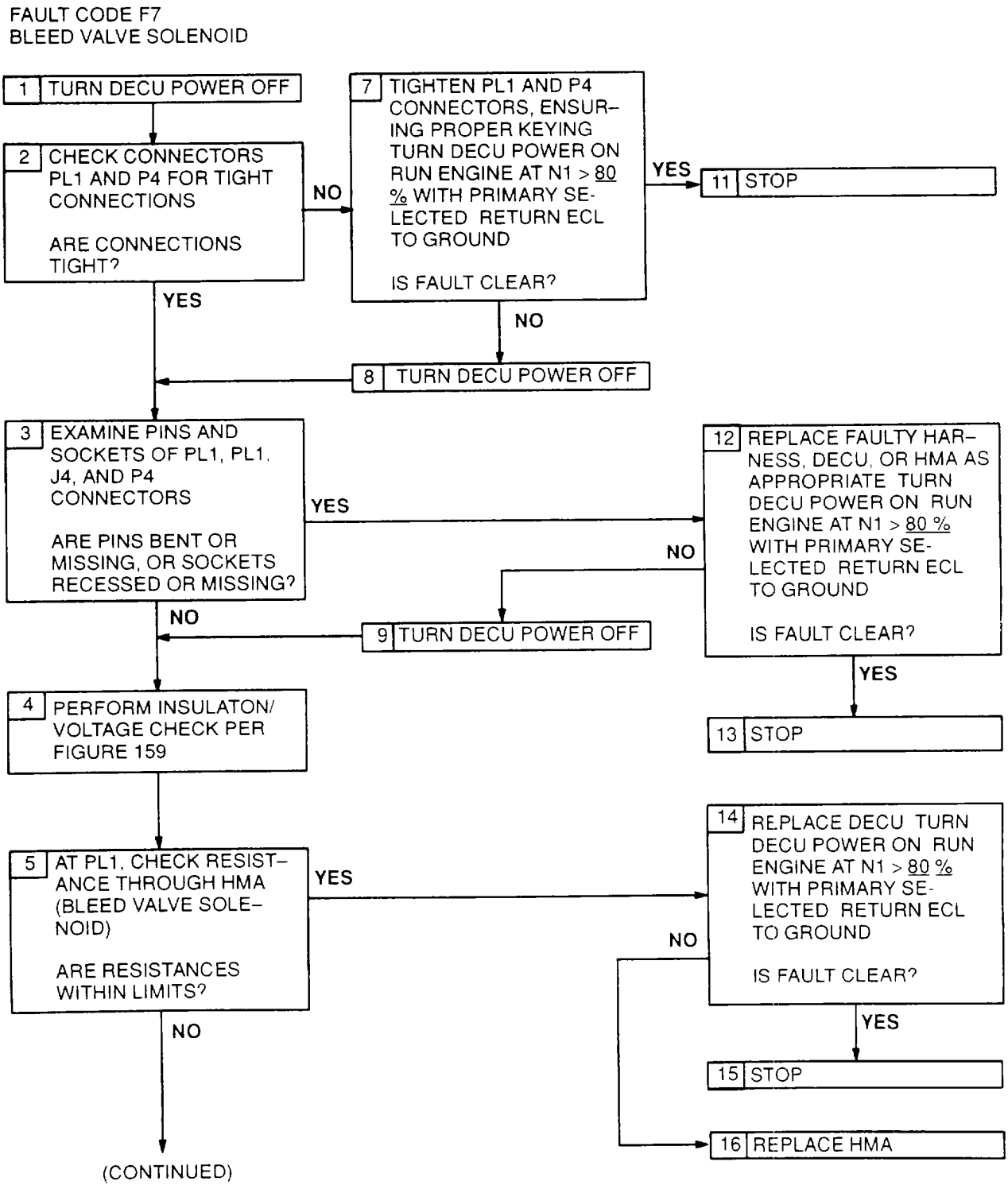
Step 17. Refer to manufacturer's procedure for diagnosing and replacing harness.

G-20 FAULT CODE F6, PLV POTENTIOMETER EXPANDED INSTRUCTIONS (CONTINUED)

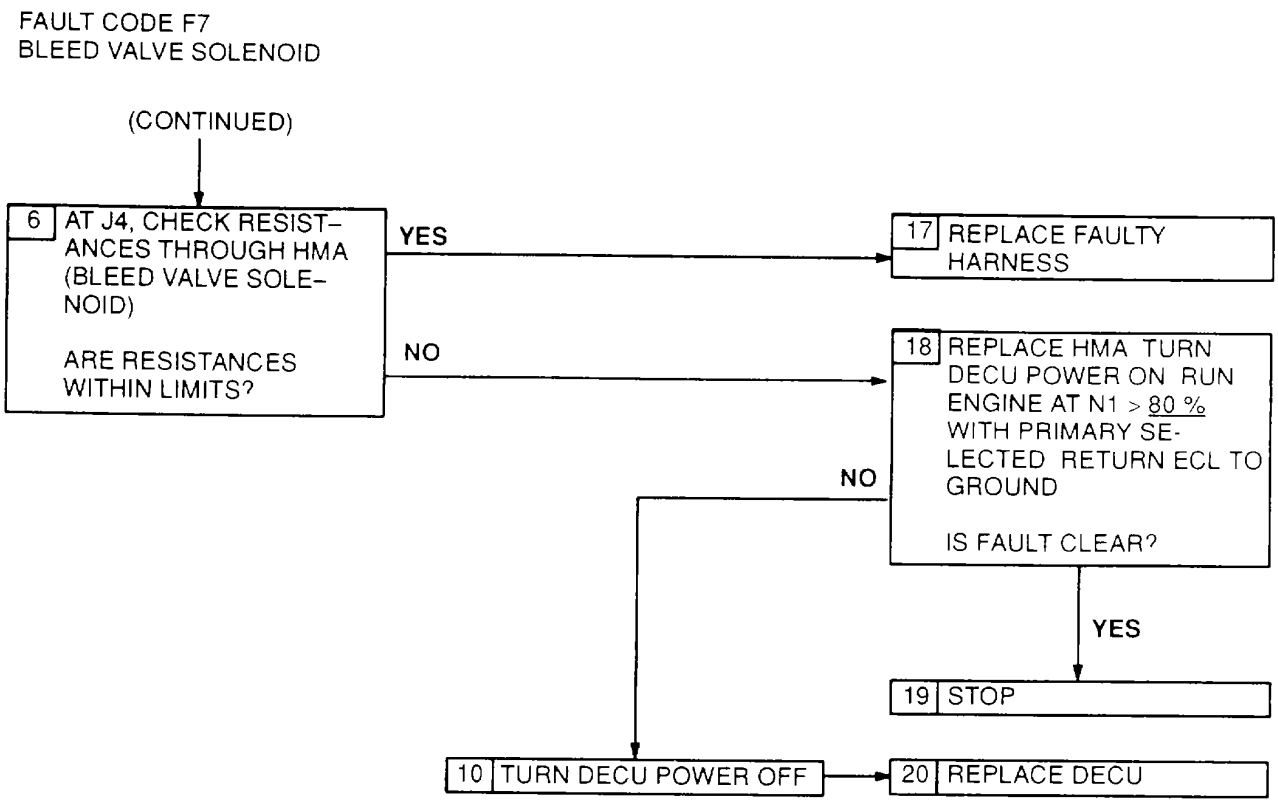
RESISTANCE-CHECK SUMMARY

Component		Connector No. / Contacts		Resistance (Ω) Limits	Nominal *
HMA - PLA Potentiometer	PL3	U & T	(a)	510 - 5750	**
		T & S	(b)	510 - 5750	**
		U & S	(c)	4250 - 5750	5000
		a + b- c -2	(d)	<-300	195
		b - d + c	(e)	0.120 - 0.950	**
	J4	X & Y	(f)	510 - 5750	**
		Y & Z.	(g)	510 - 5750	**
		X & Z	(h)	4250-5750	5000
		f + g - h ÷ 2	(i)	<300	195
		g - i ÷ h	(j)	0.120 - 0.950	**

* At 25°C
** Dependent on PLA Position



Fault Code F7, Bleed Valve Solenoid
Figure 107 (Sheet 1 of 2)



Fault Code F7, Bleed Valve Solenoid
Figure 107 (Sheet 2 of 2)

G-21 FAULT CODE F7, BLEED VALVE SOLENOID EXPANDED INSTRUCTIONS

Refer to numbered steps in figure 107.

Step 2. Check harness connector PL1 (figure 201) at DECU, and P4 at HMA for tight connections.

Step 3. Disconnect connectors PL1 and P4 to check pins and sockets.

Step 5. With PL1 disconnected, check resistance of HMA (bleed valve solenoid) at harness PL1 connector sockets r and s (figure 202). Limit is 27 - 62Ω.

Step 6. With P4 disconnected, check resistance of HMA (bleed valve solenoid) at HMA J4 connector pins E and F. Limit is 27- 62Ω.

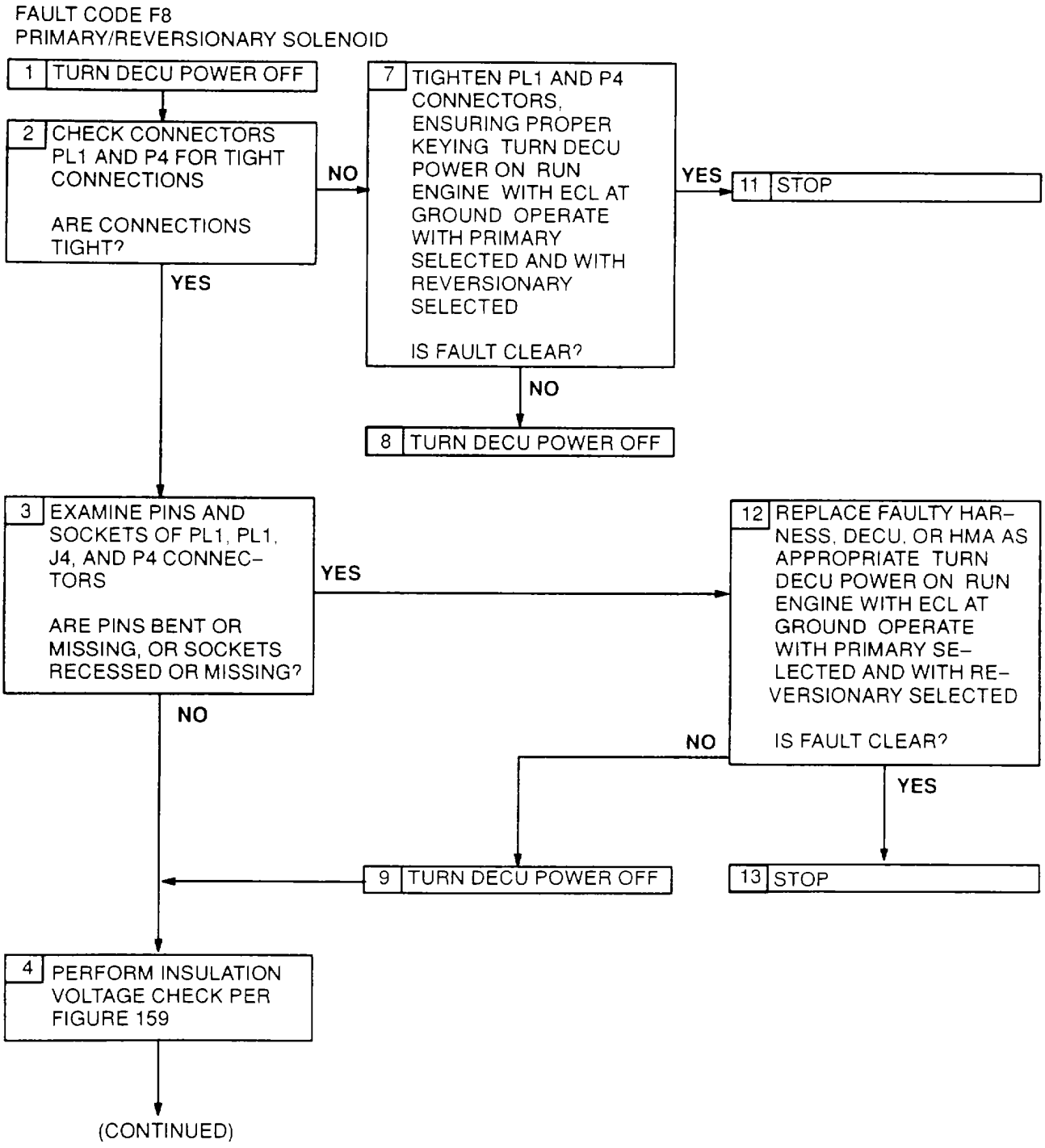
Step 7. Before tightening harness connectors PL1 and P4, be sure that keyways in harness connectors are aligned with keyways in component connectors.

Step 12. Refer to manufacturer's procedure for diagnosing and replacing harness.

Step 14 Refer to manufacturer's procedure for diagnosing and replacing harness.

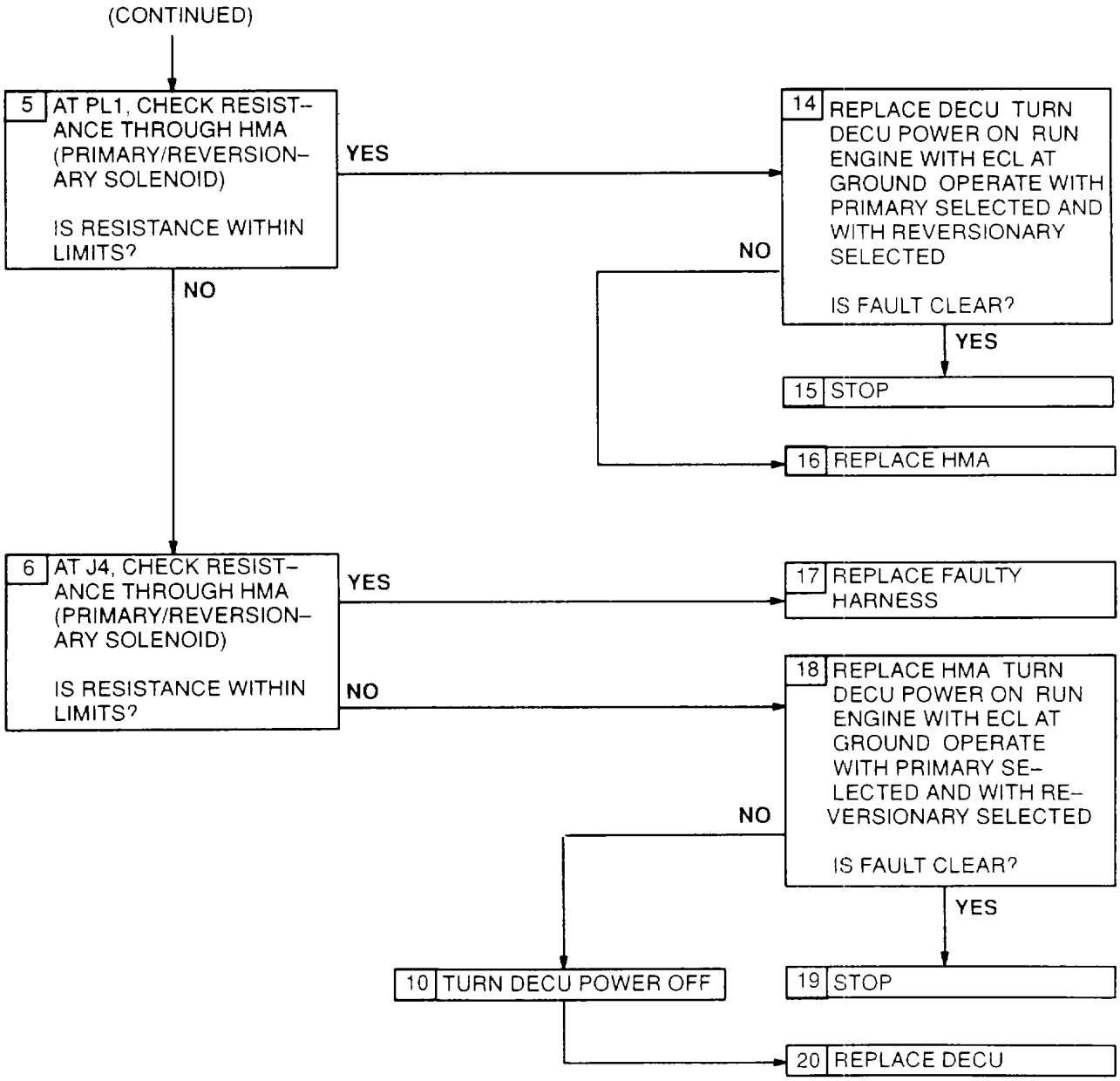
RESISTANCE-CHECK SUMMARY

Component	Connector		Resistance (Ω)	
	No.	Contacts	Limits	Nominal *
HMA - Bleed Valve Solenoid	PL1	r & s	27 - 62	42
*At 25°C	J4	E & F	27 - 62	42



Fault Code F8, Primary/Reversionary Solenoid
Figure 108 (Sheet 1 of 2)

FAULT CODE F8
PRIMARY/REVERSIONARY SOLENOID



Fault Code F8, Primary/Reversionary Solenoid
Figure 108 (Sheet 2 of 2)

G-22 FAULT CODE F8, PRIMARY/REVERSIONARY SOLENOID EXPANDED INSTRUCTIONS

Refer to numbered steps in figure 108.

Step 2. Check harness connector PL1 (figure 201) at DECU,and P4 and HMA for tight connections.

Step 3. Disconnect connectors PL1 and P4 to check pins and sockets.

Step 5. With PL1 disconnected, check resistance of HMA (primary/reversionary solenoid) at harness PL1 connector sockets I and EE (figure 202). Limit is 27 - 62Q.

Step 6. With P4 disconnected, check resistance of HMA (primary/reversionary solenoid) at HMA J4 connector pins V and U. Limit is 27 - 62Q.

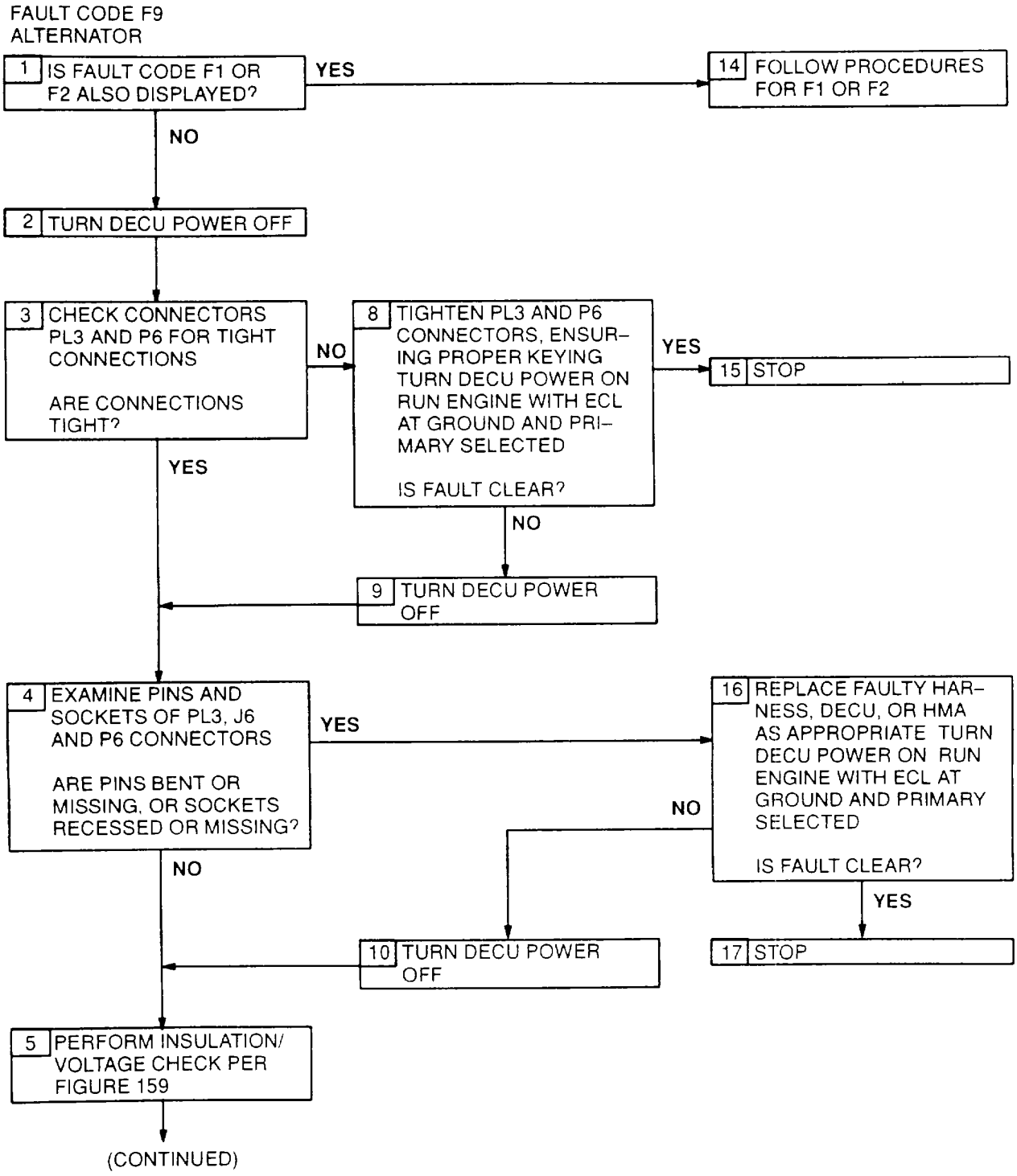
Step 7. Before tightening harness connectors PL1 and P4, be sure that keyways in harness connectors are aligned with keyways in component connectors.

Step 12. Refer to manufacturer's procedure for diagnosing and replacing harness.

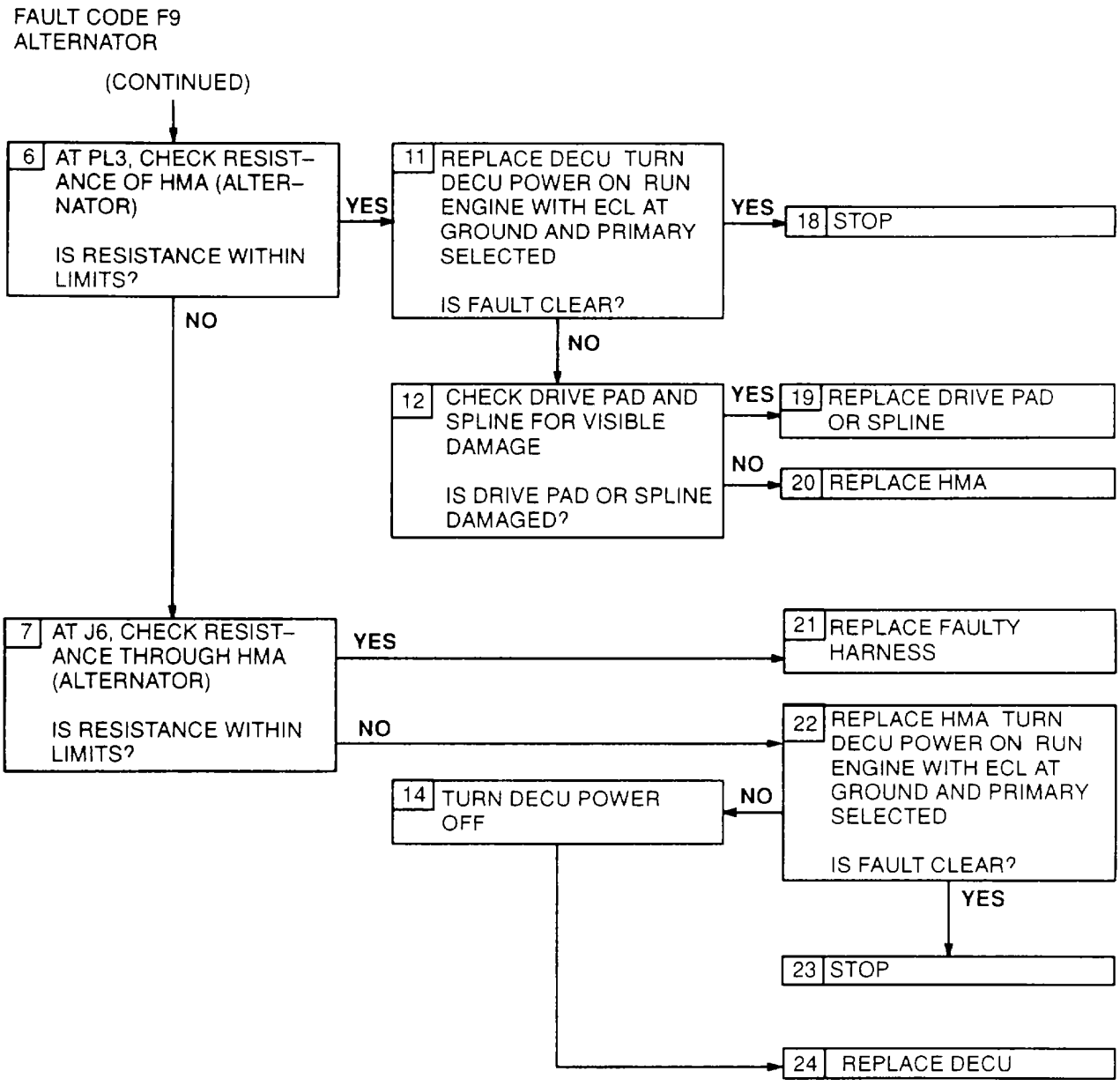
Step 17. Refer to manufacturer's procedure for diagnosing and replacing harness.

RESISTANCE-CHECK SUMMARY

Component	Connector		Resistance (Ω)	
	No.	Contacts	Limits	Nominal *
HMA - Primary/Reversionary Solenoid	PL1	g & EE	27 - 62	42
*At 25°C	J4	U & V	27 - 62	42



Fault Code F9, Alternator
Figure 109 (Sheet 1 of 2)



Fault Code F9, Alternator
Figure 109 (Sheet 2 of 2)

G-23 FAULT CODE F9, ALTERNATOR EXPANDED INSTRUCTIONS

Refer to numbered steps in figure 109.

Step 3. Check harness connector PL3 (figure 201) at DECU, and P6 at HMA for tight connections.

Step 4. Disconnect connectors PL3 and P6 to check pins and sockets.

Step 6. With PL3 disconnected, check resistance of HMA (alternator) at harness PL3 connector sockets K and L (figure 202), and sockets M and L. In each case, limit is 0.5 - 10.5Ω.

Step 7. With P6 disconnected, check resistance of HMA (alternator) at HMA J6 connector pins B and C. and pins A and C. In each case, limit is 0.5 - 10.5Ω.

Step 8. Before tightening harness connectors PL3 and P6, be sure that keyways in harness connectors are aligned with keyways in component connectors.

Step 12. Refer to manufacturer's procedure for checking drive pad and spline.

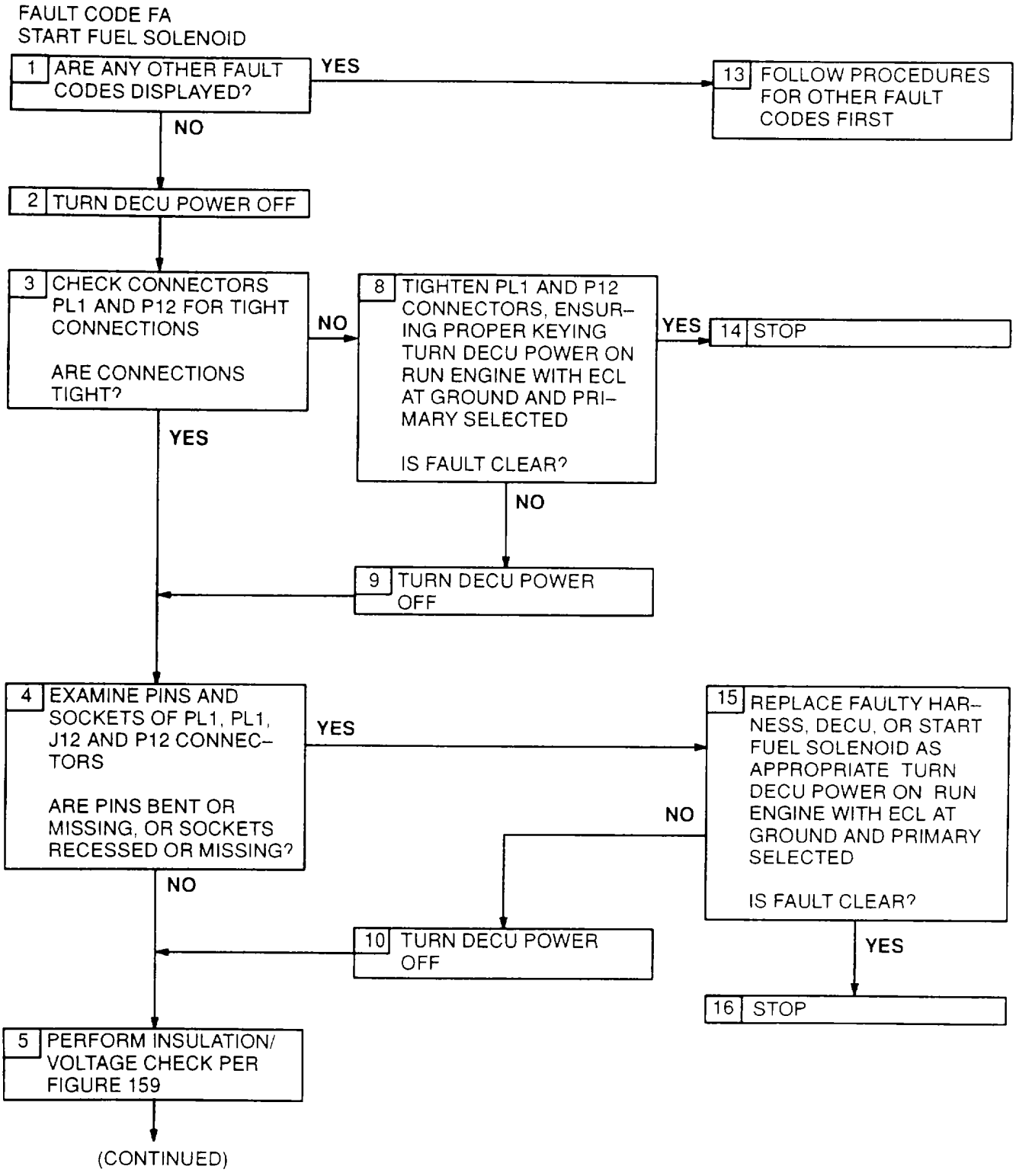
Step 16. Refer to manufacturer's procedure for diagnosing and replacing harness.

Step 19. Refer to manufacturer's procedure for replacing drive pad or spline.

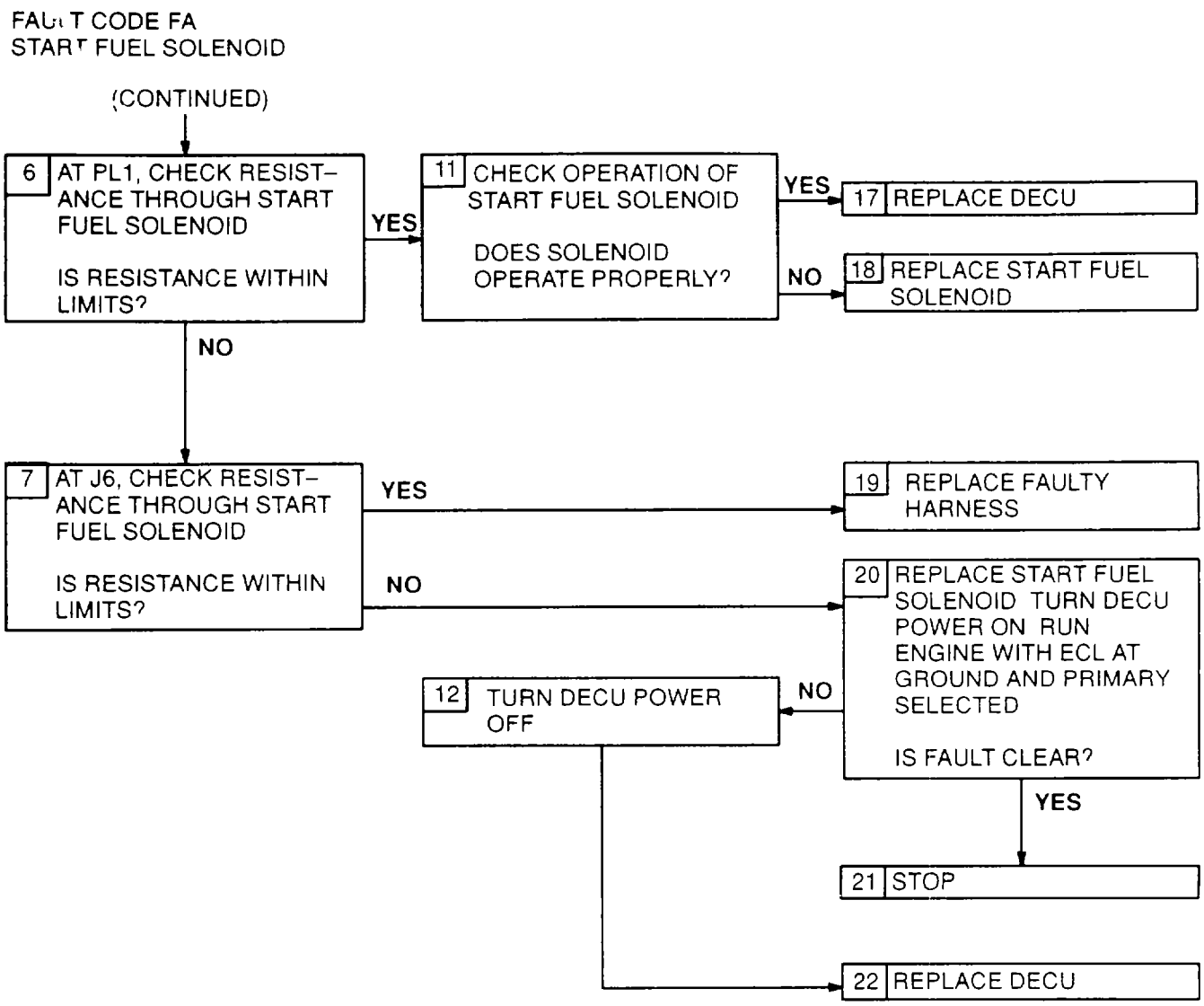
Step 21. Refer to manufacturer's procedure for diagnosing and replacing harness.

RESISTANCE-CHECK SUMMARY

Component	Connector		Resistance (Ω)	
	No.	Contacts	Limits	Nominal *
HMA - Alternator	PL3	K & L	0.5 - 10.5	3.0
		M & L	0.5 - 10.5	3.0
	J6	B & C	0.5 - 10.5	3.0
*At 25°C		A&C	0.5 - 10.5	3.0



Fault Code FA, Start Fuel Solenoid Valve
Figure 110 (Sheet 1 of 2)



Fault Code FA, Start Fuel Solenoid Valve
Figure 110 (Sheet 2 of 2)

G-24 FAULT CODE FA, START FUEL SOLENOID EXPANDED INSTRUCTIONS

Refer to numbered steps in figure 110.

Step 3. Check harness connector PL1 (figure 201) at DECU, and P12 at start fuel valve assembly for tight connections.

Step 4. Disconnect connectors PL1 and P12 to check pins and sockets.

Step 6. With PL1 disconnected, check resistance of start fuel solenoid at harness PL1 connector sockets S and R (figure 202). Limit is 10.0 - 40.5Q.

Step 7. With P12 disconnected, check resistance of start fuel solenoid at start fuel valve assembly J12 connector pins A and B. Limit is 10.0 - 40.0Q.

Step 8. Before tightening harness connectors PL1 and P12., be sure that keyways in harness connectors are aligned with keyways in component connectors.

Step 11. Refer to manufacturer's procedure for checking operation of start fuel solenoid.

Step 15. Refer to manufacturer's procedure for diagnosing and replacing harness or start fuel solenoid.

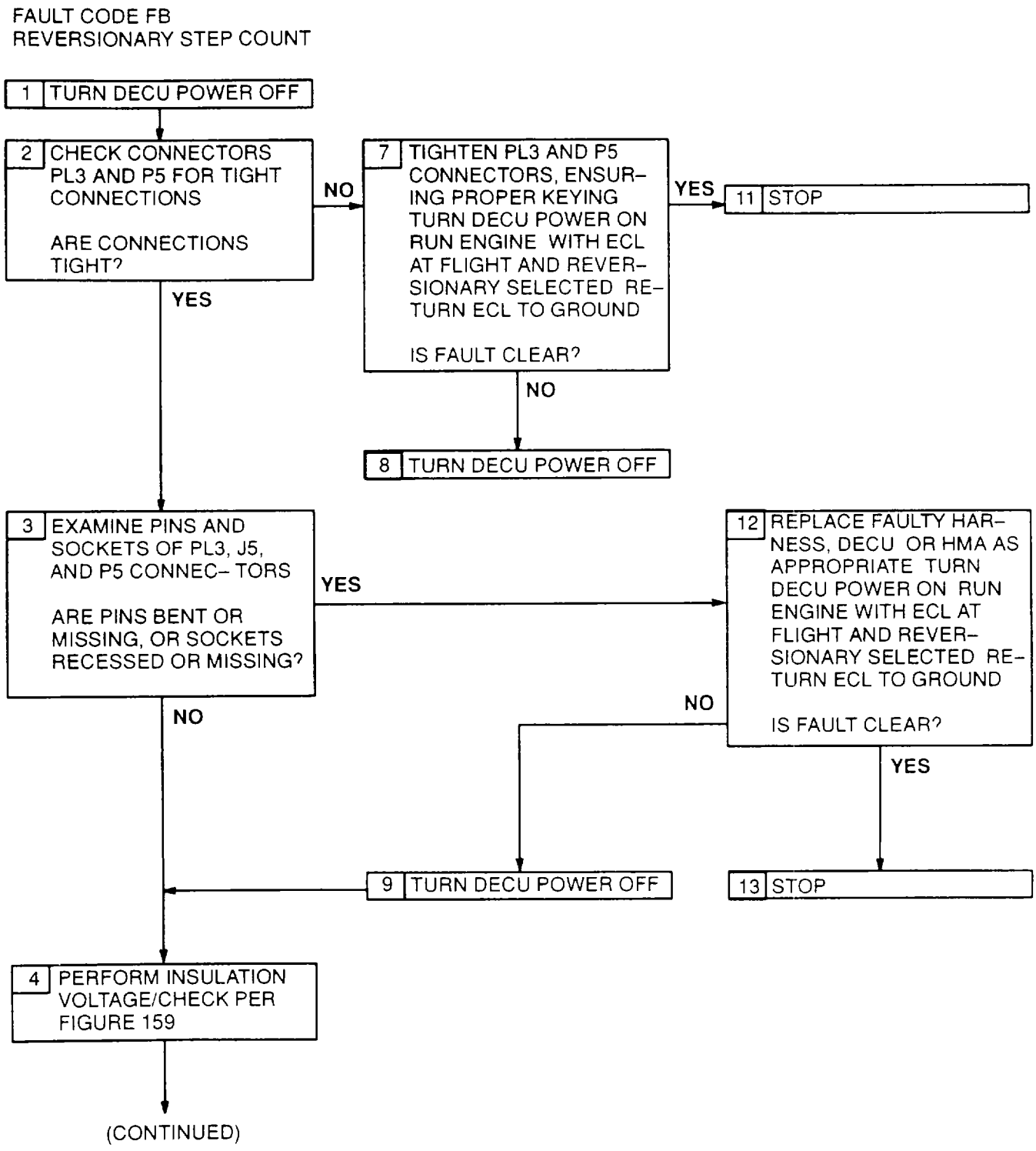
Step 18 Refer to manufacturer's procedure for diagnosing and replacing start fuel solenoid.

Step 19 Refer to manufacturer's procedure for diagnosing and replacing harness.

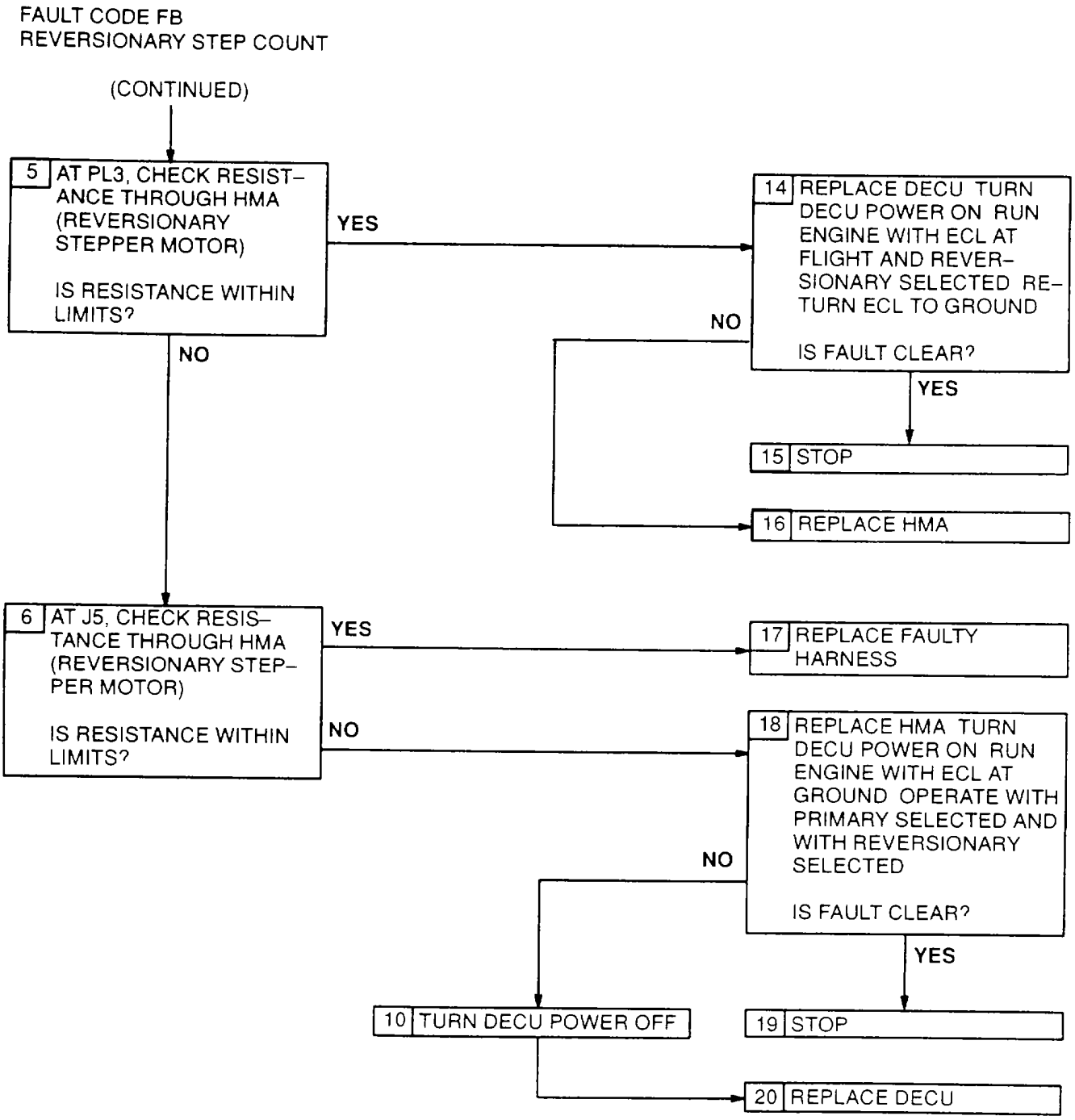
Step 20 Refer to manufacturer's procedure for diagnosing and replacing start fuel solenoid.

RESISTANCE-CHECK SUMMARY

Component	Connector		Resistance (Ω)	
	No.	Contacts	Limits	Nominal*
Start Fuel Solenoid	PL1	S & R	10.0 - 40.5	21.5
*At 25°C	J12	A & B	10.0 - 40.0	21.5



Fault Code FB, Reversionary Step Count
Figure 111 (Sheet 1 of 2)



Fault Code FB, Reversionary Step Count
Figure 111 (Sheet 2 of 2)

G-25 FAULT CODE FB, REVERSIONARY STEP COUNT EXPANDED INSTRUCTIONS

Refer to numbered steps in figure 111.

Step 2. Check harness connector PL3 (figure 201) at DECU, and P5 at HMA for tight connections.

Step 3. Disconnect connectors PL3 and P5 to check pins and sockets.

Step 5. With PL3 disconnected, check resistance of HMA (reversionary stepper motor) at harness PL3 connector sockets F and E (figure 202), G and E, H and E, and J and E. In each case, limit is 11.0 - 24.5Q.

Step 6. With P5 disconnected, check resistance of HMA (reversionary stepper motor) at HMA J5. connector pins 2 and 6, 3 and 6, 4 and 6, and 5 and 6. In each case, limit is11.0 - 24.0Q.

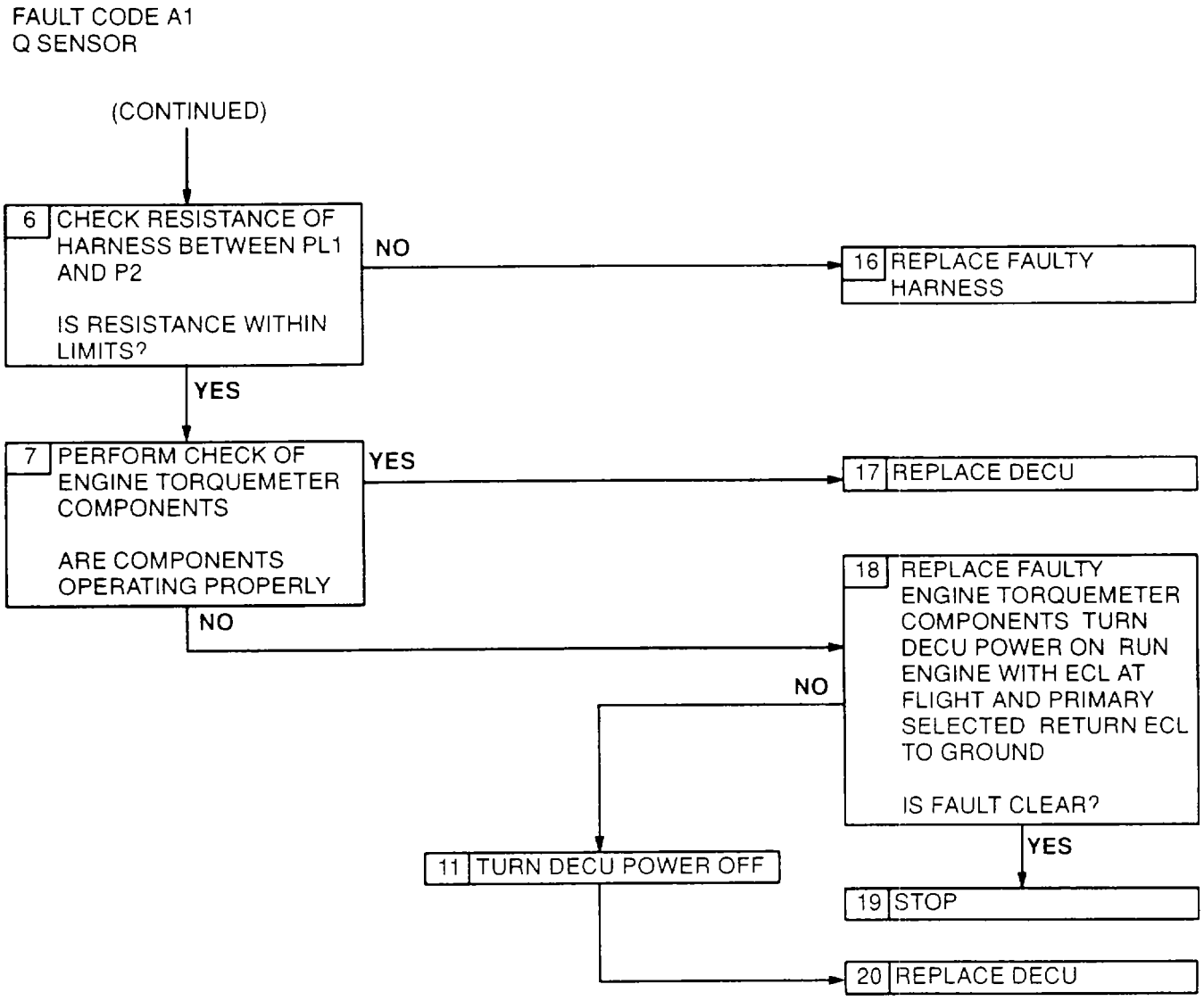
Step 7. Before tightening harness connectors PL3 and P5, be sure that keyways in harness connectors are aligned with keyways in component connectors.

Step 12. Refer to manufacturer's procedure for diagnosing and replacing harness.

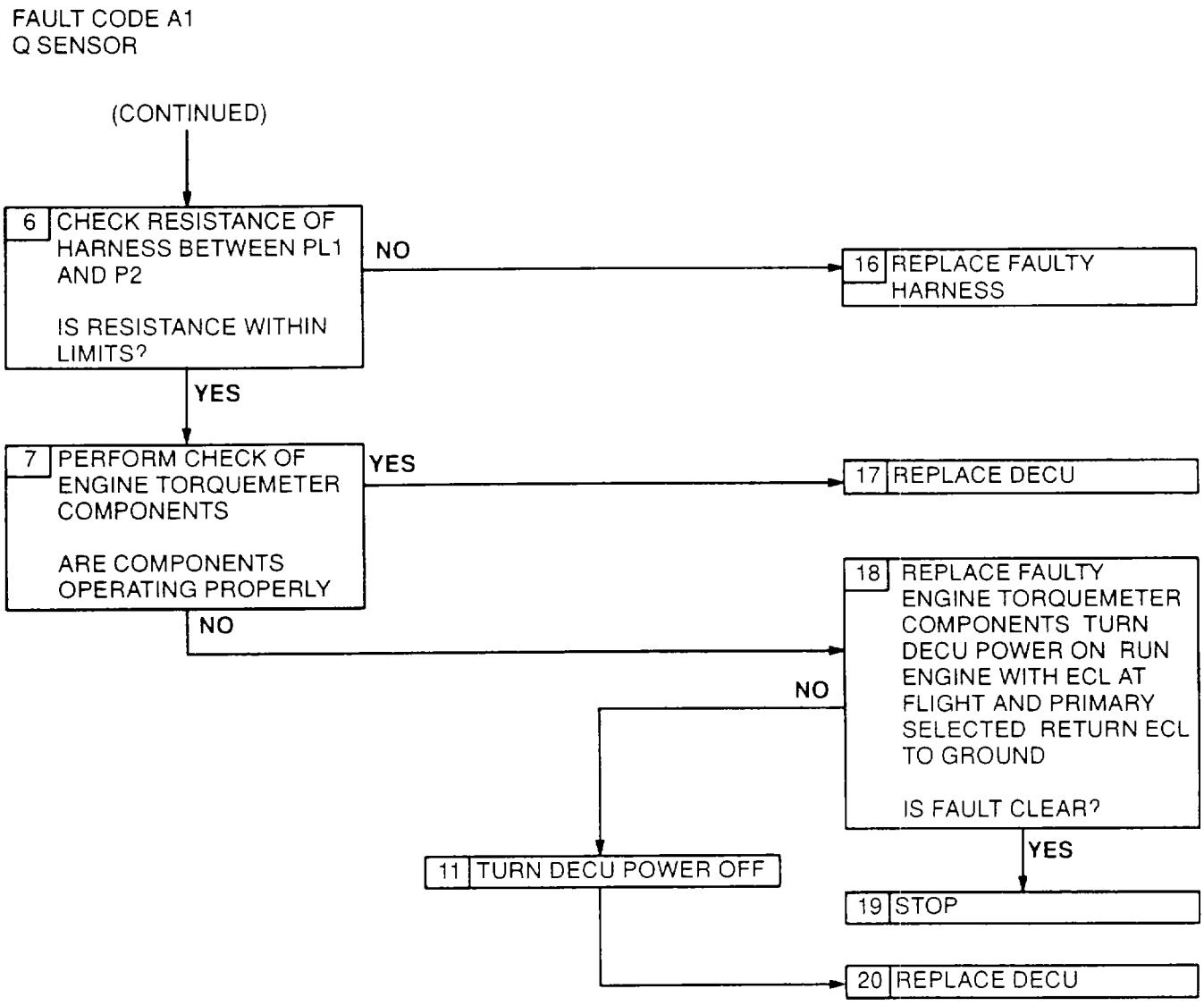
Step 17 Refer to manufacturer's procedure for diagnosing and replacing harness.

RESISTANCE-CHECK SUMMARY

Component	Connector		Resistance (Ω)	
	No.	Contacts	Limits	Nominal*
HMA - Primary Stepper Motor	PL3	F & E	11.0 - 24.5	17.0
		G & E	11.0 - 24.5	17.0
		H & E	11.0 - 24.5	17.0
		J & E	11.0 - 24.5	17.0
	J5	2 & 6	11.0 - 24.0	17.0
		3 & 6	11.0 - 24.0	17.0
		4 & 6	11.0 - 24.0	17.0
*At 25°C		5 & 6	11.0 - 24.0	17.0



Fault Code AI, Q Sensor
Figure 112 (Sheet 1 of 2)



Fault Code AI, Q Sensor
Figure 112 (Sheet 2 of 2)

G-26 FAULT CODE AI, Q SENSOR EXPANDED INSTRUCTIONS

Refer to numbered steps in figure 112.

Step 3. Check harness connector PL1 (figure 201) at DECU, and P2 at signal conditioner for tight connections.

Step 4. Disconnect connectors PL1 and P2 to check pins and sockets.

Step 6. With PL1 and P2 disconnected, short P2 connector sockets D and K together. Check resistance at harness PL1 connector sockets H and J (figure 202). Limit is < 1Q.

Step 7. Refer to manufacturer's procedure for checking operation of engine torquemeter components.

Step 8. Before tightening harness connectors PL1 and P2, be sure that keyways in harness connectors are aligned with keyways in component connectors.

Step 14. Refer t- manufacturer's procedure for diagnosing and replacing harness or signal conditioner.

Step 16. Refer to manufacturer's procedure for diagnosing and replacing harness.

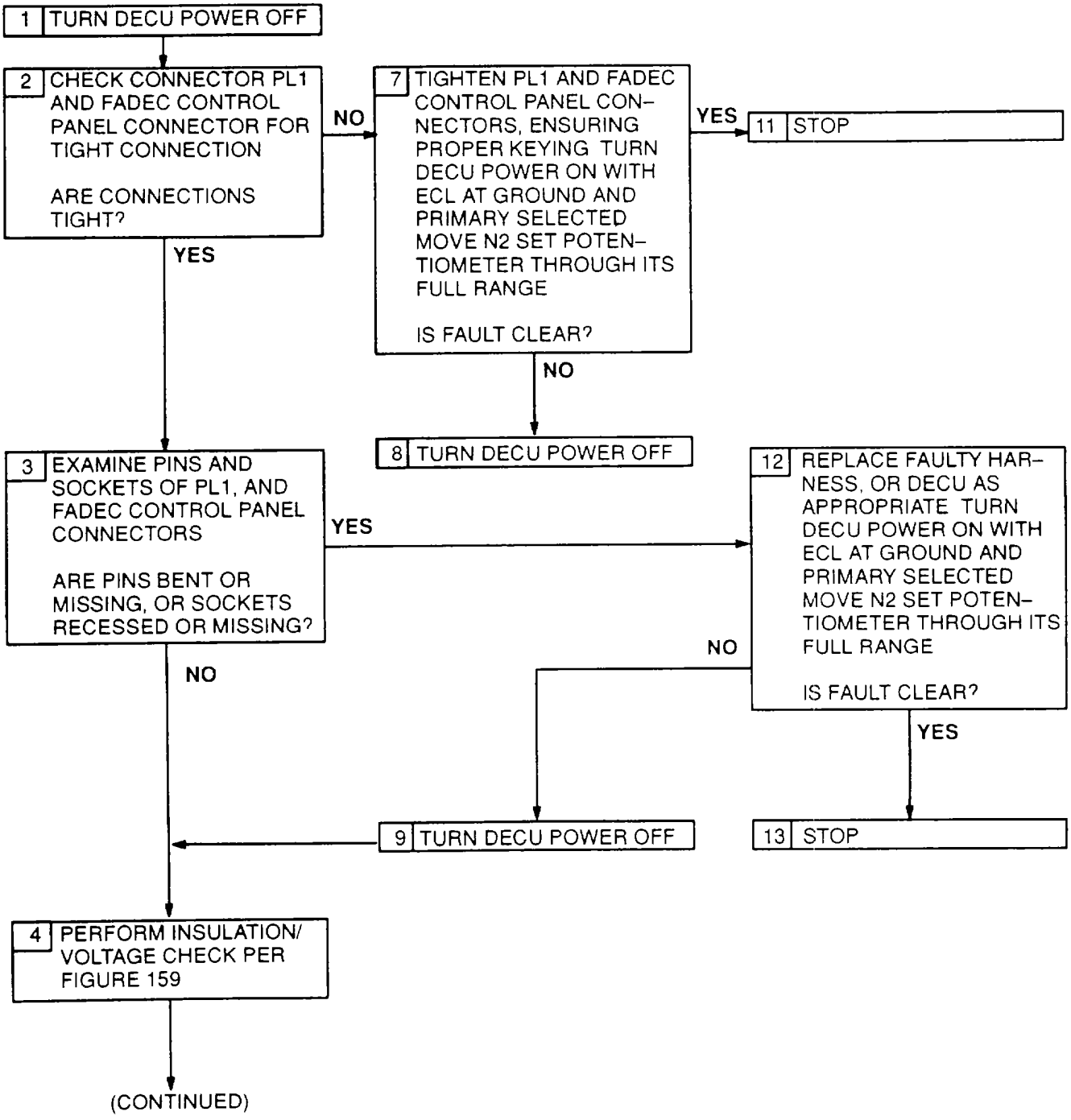
Step 18 Refer to manufacturer's procedure for diagnosing and replacing engine torquemeter components.

RESISTANCE-CHECK SUMMARY

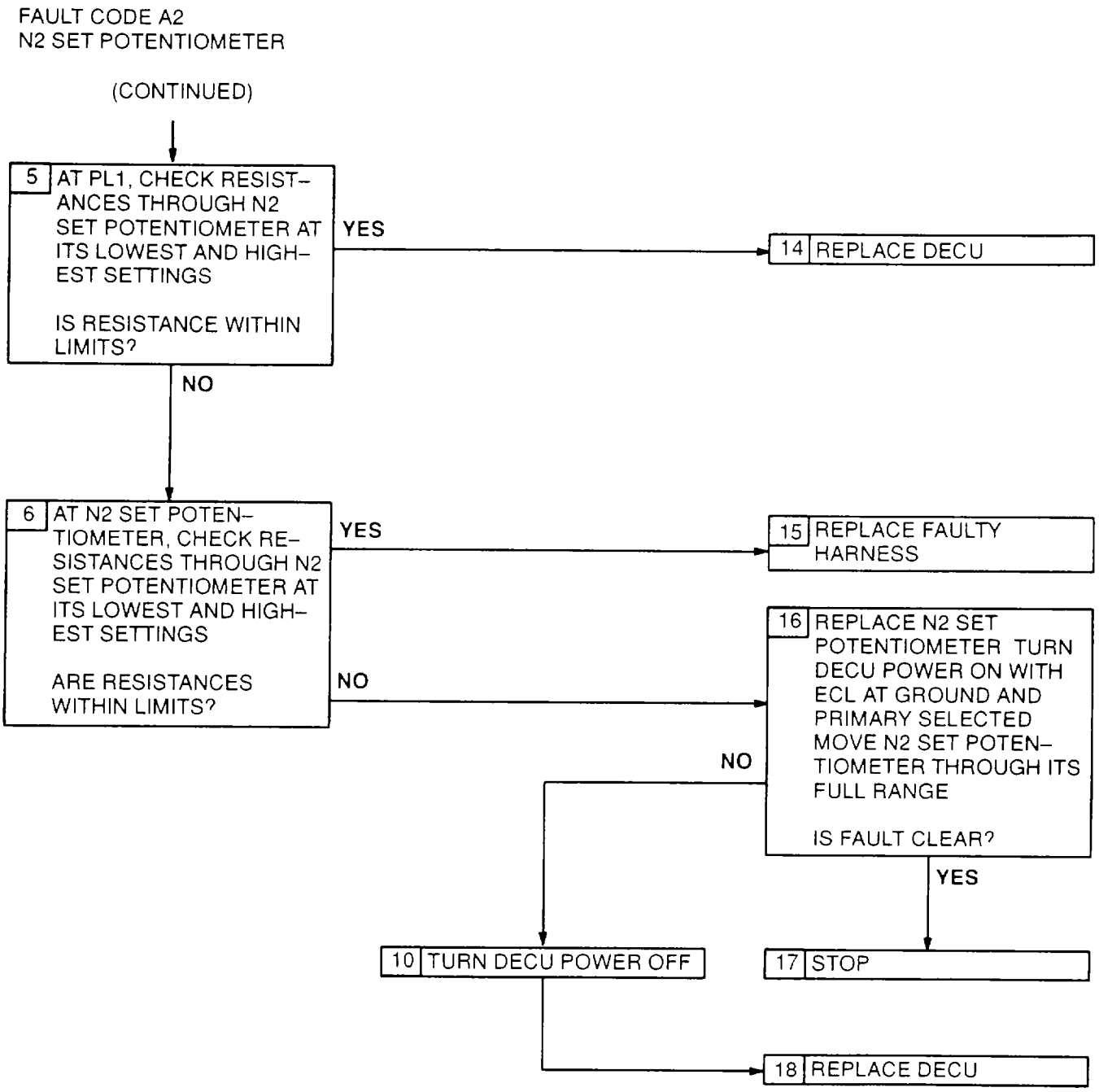
Component	Connector		Resistance (Ω)	
	No.	Contacts	Limits	Nominal*
Q Sensor Harness	PL1	H & J (with P2 D & K shorted)	≤1	≤1

*At 25°C

FAULT CODE A2
N2 SET POTENTIOMETER



Fault Code A2, N2 Set Potentiometer
Figure 113 (Sheet 1 of 2)



Fault Code A2, N2 Set Potentiometer
Figure 113 (Sheet 2 of 2)

G-27 FAULT CODE A2, N2 SET POTENTIOMETER EXPANDED INSTRUCTIONS

Refer to numbered steps in figure 113.

Step 2. Check harness connector PL1 (figure 201) at DECU and FADEC control panel connector for tight connections.

Step 3. Disconnect connector PL1 and FADEC control panel connector to check pins and sockets.

Step 5. Set the N2 set potentiometer to its lowest setting. With PL1 disconnected, check resistance of N2 set potentiometer at harness PL1 connector sockets h and z. Limit is 3600 - 4200Ω. Check resistance at sockets z and AA (results are "a"). :Limit is 800 - 1400Ω Check resistance at sockets h and AA (results are "b"). Limit is 4500 - 5500Ω. Use the following equation to check if the low limit of the N2 set potentiometer has been exceeded:

$$a \div b = c$$

Limit on "c" is > 0.10.

Set the N2 set potentiometer to its highest setting. Check resistance at sockets h and z. Limit is 800 1400Ω. Check resistance at sockets z and AA (results are "d"). Limit is 3600 4200Ω. Check resistance at sockets h and AA (results are "e"). Limit is 4500 5500Ω. Use the following equation to check if the high limit of the N2 set potentiometer has been exceeded:

$$d \div e = f$$

Limit on "f" is < 0.90.

Step 6. Set the N2 set potentiometer to its lowest setting. With FADEC control panel connector disconnected, check resistance at panel connector pins A and B. Limit is 3600 4200Ω. Check resistance at pins B and C (results are g). Limit is 800 1400Ω. Check resistance at pins A and C (results are "h"). Limit is 4500 5500Ω. Use the following equation to check if the low limit of the N2 set potentiometer has been exceeded:

$$g \div h = i$$

Limit on "i" is > 0.10.

Set the N2 set potentiometer to its highest setting. Check resistance at panel connector pins A and B. Check resistance at pins B and C (results are "j"). Limit is 3600 4200Ω. Check resistance at pins A and C (results are "k"). Limit is 4500 5500Ω. Use the following equation to check if the low limit of the potentiometer has been exceeded.

$$j \div k = l$$

Limit on "l" is < 0.90.

Step 7. Before tightening harness connector PL1 and FADEC control panel connector, be sure that keyway in harness connectors is aligned with keyways in component connectors.

G-27 FAULT CODE A2, N2 SET POTENTIOMETER EXPANDED INSTRUCTIONS(CONTINUED)

Step 12 Refer to manufacturer's procedure for diagnosing and replacing harness.

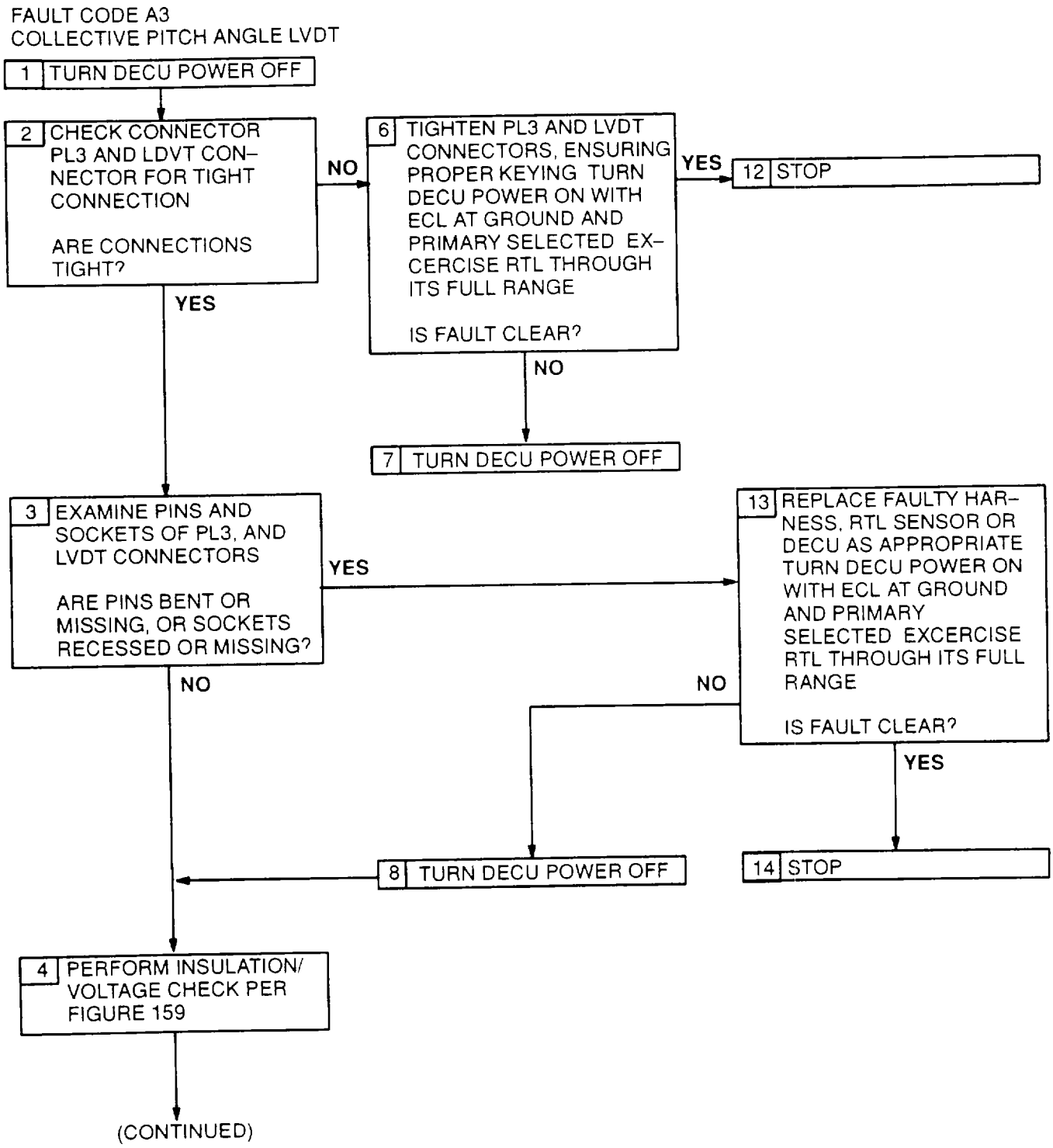
Step 15 Refer to manufacturer's procedure for diagnosing and replacing harness.

Step 16 Refer to manufacturer's procedure for diagnosingand replacing potentiometer.

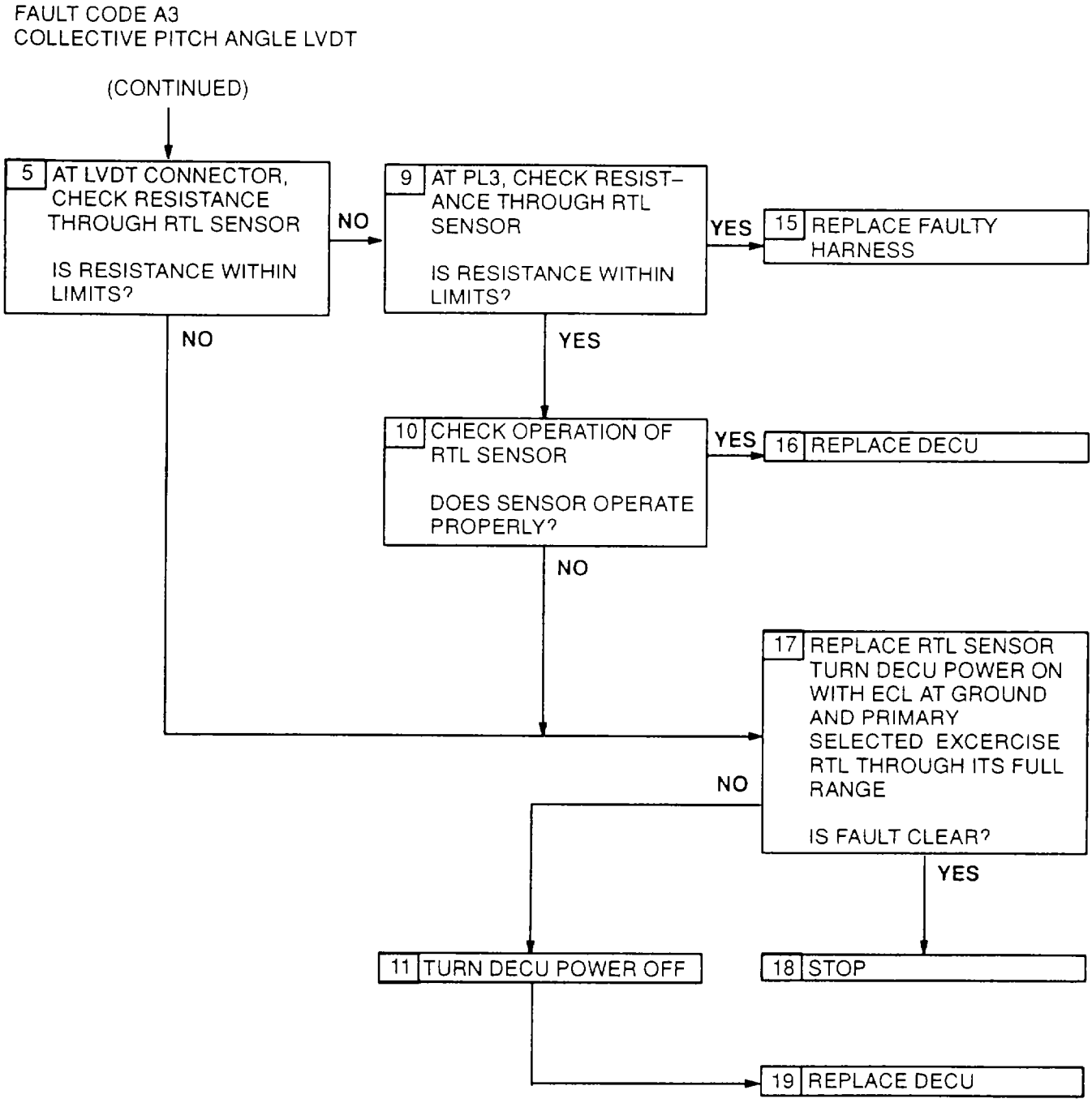
RESISTANCE-CHECK SUMMARY

Component	Connector		Resistance (Ω)	
	No.	Contacts	Limits	Nominal*
N2 Set Potentiometer Lowest Setting	PL1	h & z (a)	3600 - 4200	4000
		z & AA (b)	800 - 1400	1000
		h & AA (c)	4500 - 5500	5000
		a ÷ b (c)	≥0.10	0.20
N2 Set Potentiometer Highest Setting	PL1	h & z	800 - 1400	1000
		z & AA (d)	3600 - 4200	4000
		h & AA (e)	4500 - 5500	5000
		d ÷ e (f)	≤0.90	0.80
N2 Set Potentiometer Lowest Setting	FADEC Control Panel	A & B	3600 - 4200	4000
		B & C (g)	800 - 1400	1000
		A & C (h)	4500 - 5500	5000
		g ÷ h (i)	≤0.10	0.20
N2 Set Potentiometer Highest Setting	FADEC Control Panel	A & B	800 - 1400	1000
		B & C (j)	3600 - 4200	4000
		A & C (k)	4500 - 5500	5000
		j ÷ k (l)	≤0.90	0.80

*At 25°C



Fault Code A3, Collective Pitch Angle LVDT
Figure 114 (Sheet 1 of 2)



Fault Code A3, Collective Pitch Angle LVDT
Figure 114 (Sheet 2 of 2)

G-28 FAULT CODE A3, COLLECTIVE PITCH ANGLE LVDT EXPANDED INSTRUCTIONS

Refer to numbered steps in figure 114.

Step 2. Check harness connector PL3 (figure 201) at DECU and LVDT for tight connections.

Step 3. Disconnect connector PL3 and LVDT to check pins and sockets.

Step 5. With LVT connector disconnected, check resistance of RTL sensor at sensor connector pins 1 and 2. Limit is 110 140Ω. Check resistance at pins 3 and 4. Limit is 210 260Ω.. Check resistance at pins 3 and 5, and pins 4 and 5. Limit is < 230Ω.

Step 6. Before tightening harness connector PL3 and LVDT connector, be sure that keyway in harness connectors is aligned with keyways in component connectors.

Step 9. With PL3 disconnected, check resistance of RTL sensor at harness PL3 connector sockets q and p (figure 202). Limit is 210 - 260Ω. Check resistance at sockets z and AA. Limit is 110 - 140Ω

Step 10. Refer to manufacturer's procedure for checking operation of RTL sensor.

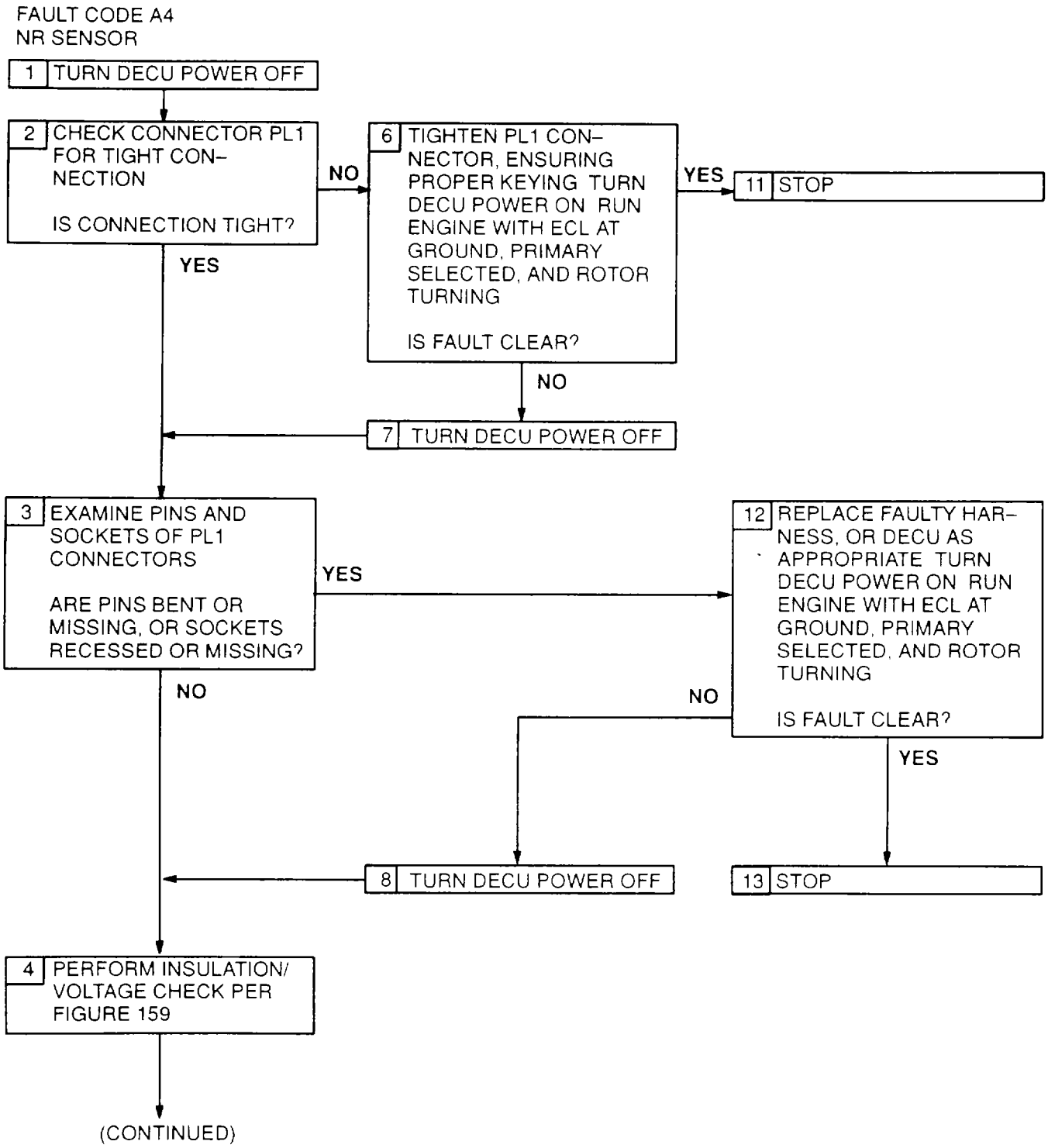
Step 13. Refer to manufacturer's procedure for diagnosing and replacing harness or RTL sensor.

Step 15. Refer to manufacturer's procedure for diagnosing and replacing harness.

Step 17. Refer to manufacturer's procedure for diagnosing and replacing RTL sensor.

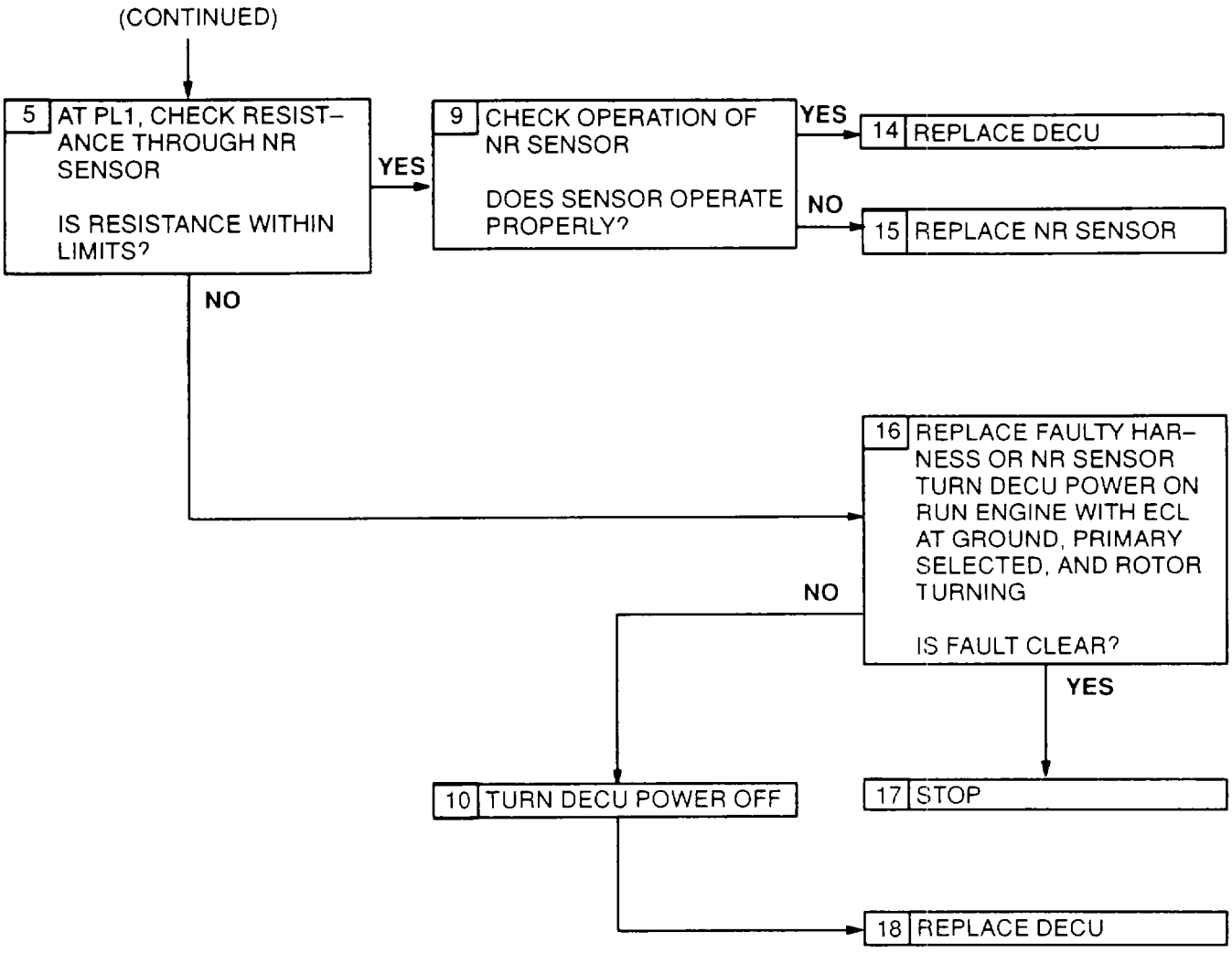
RESISTANCE-CHECK SUMMARY

Component	Connector		Resistance (Ω)	
	No.	Contacts	Limits	Nominal*
RTL Sensor C/P Signal	LVDT	3 & 4	210 - 26-	225
		3 & 5	<230	-
		4 & 5	<230	-
C/P Excitation	PL3	q & p	210 - 260	-
*At 25°C		z & AA	110 - 140	120



Fault Code A4. NR Sensor
Figure 115 (Sheet 1 of 2)

FAULT CODE A4
NR SENSOR



Fault Code A4, NR Sensor
Figure 115 (Sheet 2 of 2)

G-29 FAULT CODE A4, NR SENSOR EXPANDED INSTRUCTIONS

Refer to numbered steps in figure 115.

Step 2. Check harness connector PL1 (figure 201) at DECU for tight connections.

Step 3. Disconnect connector PL1 to check pins and sockets.

Step 5. With PL1 disconnected, check resistance of NR sensor at harness PL1 connector sockets k and N (figure 202). Limit is 110 - 130Ω.

Step 6. Before tightening harness connector PL1, be sure that keyway in harness connectors is aligned with keyway in DECU connector.

Step 9. Refer to manufacturer's procedure for checking operation of NR sensor.

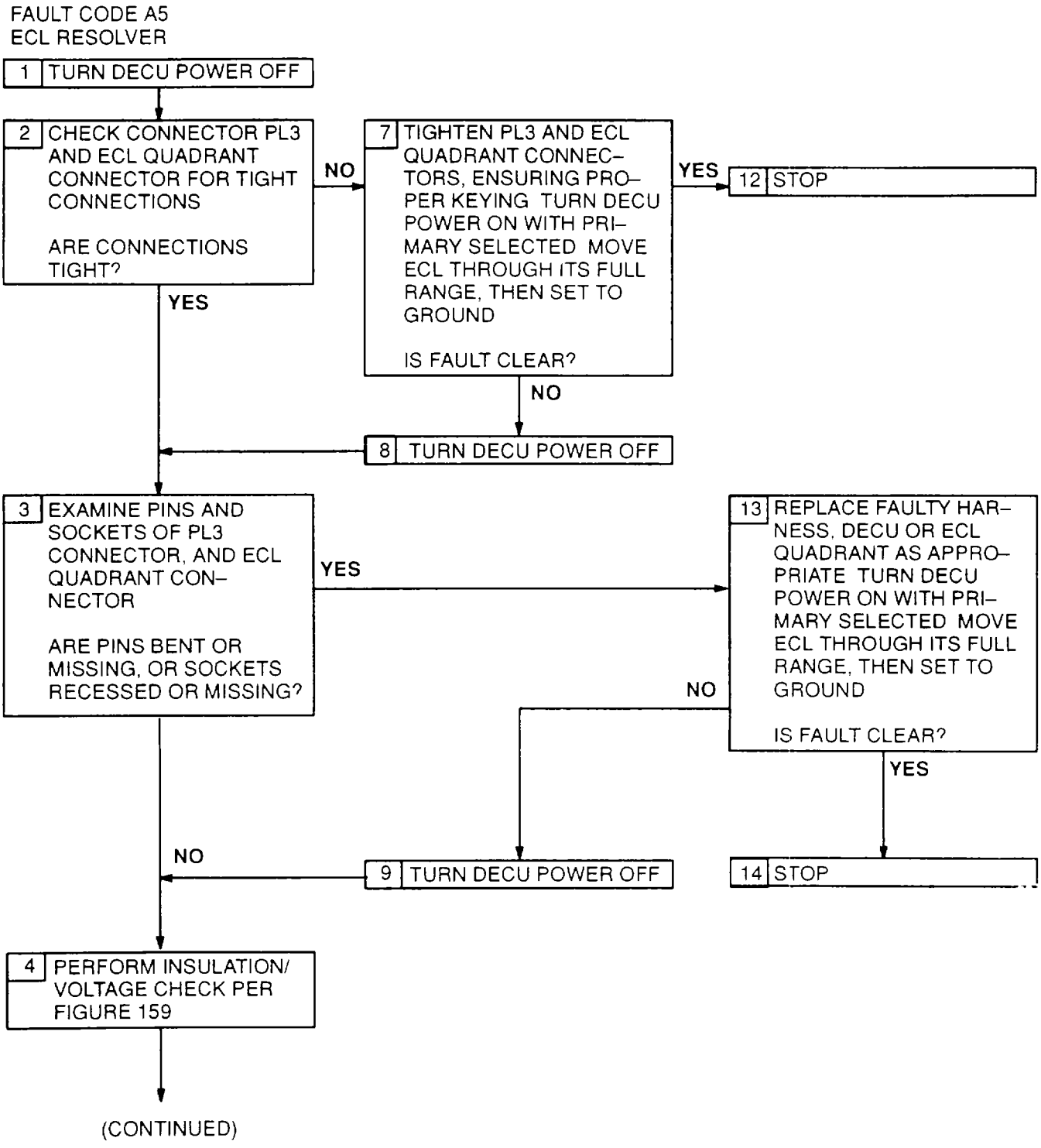
Step 12. Refer to manufacturer's procedure for diagnosing and replacing harness.

Step 15. Refer to manufacturer's procedure for diagnosing and replacing NR sensor.

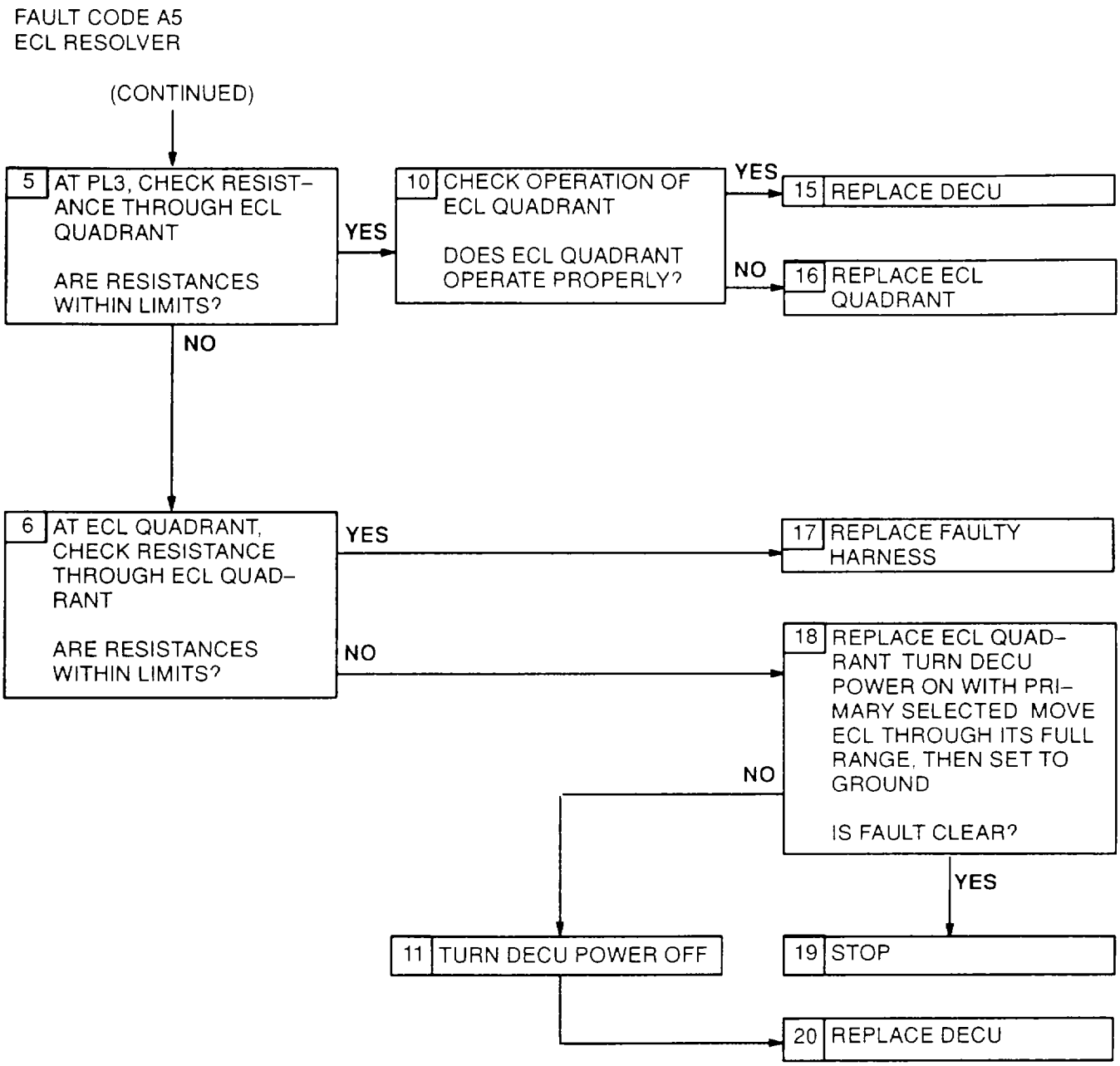
Step 16. Refer to manufacturer's procedure for diagnosing and replacing harness or NR sensor.

RESISTANCE-CHECK SUMMARY

Component	Connector		Resistance (Ω)	
	No.	Contacts	Limits	Nominal*
NR Sensor *At 25°C	PL1	k & N	110 - 130	120



Fault Code A5, ECL Resolver
Figure 116 (Sheet 1 of 2)



Fault Code A5, ECL Resolver
Figure 116 (Sheet 2 of 2)

G-30 FAULT CODE A5, ECL RESOLVER EXPANDED INSTRUCTIONS

Refer to numbered steps in figure 116.

Step 2. Check harness connector PL3 (figure 201) at DECU, and connector at ECL quadrant for tight connections.

Step 3. Disconnect PL3 and ECL quadrant connectors to check pins and sockets.

Step 5. Set ECL to STOP. With PL3 disconnected, check resistance of ECL quadrant (excitation) at harness PL3 connector sockets h and i (figure 202). Limit is 35 - 42Ω. Check resistance of ECL quadrant (signal) at sockets EE and DD. Limit is 90 102Ω. Monitor resistance of ECL quadrant (interlock discrete) at sockets f and LL while moving ECL from STOP to GROUND to FLIGHT. Limits are defined in table below. Monitor resistance of ECL quadrant (gain discrete) at sockets MM and LL while moving ECL from STOP to GROUND to FLIGHT. Limits are as defined in table below. (Note: Gain discrete resistance is not checked at GROUND because switch can be open or closed at that point.)

Step 6. Set ECL to STOP. With ECL quadrant connector disconnected, check resistance of ECL quadrant (excitation) at quadrant pins 1 and 2. Limit is 35 - 40Ω. Check resistance of ECL quadrant (signal) at quadrant pins 3 and 4. Limit is 90 100Ω. Monitor resistance of ECL quadrant (interlock discrete) at pins 11 and 12 while moving ECL from STOP to GROUND to FLIGHT. Limits are as defined in table below. Monitor resistance of ECL quadrant (gain discrete) at pins 5 and 11 while moving ECL from STOP to GROUND to FLIGHT. Limits are as defined in table below. (Note: Gain discrete resistance is not checked at GROUND because switch can be open or closed at that point.

Step 7. Before tightening harness connector PL3 and connector at ECL resolver, be sure that keyways in harness connectors are aligned with keyways in component connectors.

Step 10 Refer to manufacturer's procedure for checking operation of ECL quadrant.

Step 13. Refer to manufacturer's procedure for diagnosing and replacing harness or ECL quadrant.

Step 16. Refer to manufacturer's procedure replacing ECL quadrant.

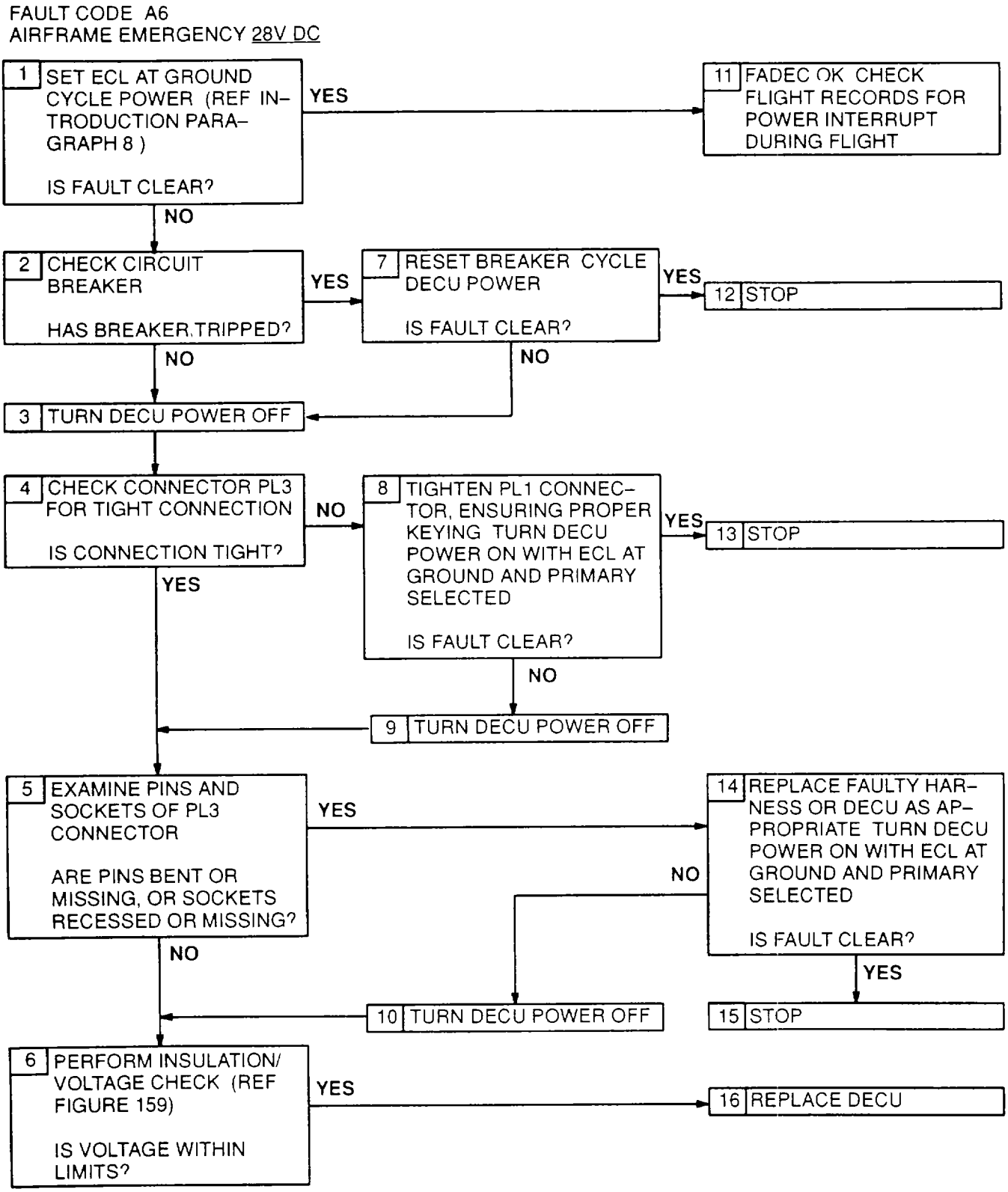
Step 17. Refer to manufacturer's procedure for diagnosing and replacing harness

Step 18. Refer to manufacturer's procedure for diagnosing and replacing ECL quadrant.

G-30 FAULT CODE A5, ECL RESOLVER EXPANDED INSTRUCTIONS(CONTINUED)

RESISTANCE-CHECK SUMMARY

Component	Connector		Resistance (Ω)	
	No.	Contacts	Limits	Nominal*
ECL Quadrant - Excitation	PL3	h & i	35 - 42	-
	ECL Quadrant	1 & 2	35 - 40	-
ECL Quadrant - Signal	PL3	EE & DD	90 - 102	-
	ECL Quadrant	3 & 4	90 - 100	-
ECL Quadrant - Interlock Discrete:				
ECL at STOP	PL3	f & LL	>150K	∞
ECL between STOP and GROUND		f & LL	<50	1
ECL at GROUND		f & LL	>150K	∞
ECL between GROUND and FLIGHT		f & LL	<50	1
ECL at FLIGHT		f & LL	>140K	∞
ECL Quadrant - Interlock Discrete:				
ECL at STOP	ECL Quadrant	12 & 11	>150K	∞
ECL between STOP and GROUND		12 & 11	<50	1
ECL at GROUND		12 & 11	>150K	∞
ECL between GROUND and FLIGHT		12 & 11	<50	1
ECL at FLIGHT		12 & 11	>150K	∞
ECL Quadrant - Gain Discrete				
ECL at STOP	PL3	MM & LL	<50	1
ECL between STOP and GROUND		MM & LL	<50	1
ECL between GROUND and FLIGHT		MM & LL	>150K	∞
ECL at Flight		MM & LL	>150K	∞
ECL Quadrant - Gain Discrete				
ECL at STOP	ECL Quadrant	5 & 11	<50	1
ECL between STOP and GROUND		5 & 11	<50	1
ECL between GROUND AND FLIGHT		5 & 11	>150K	∞
ECL at FLIGTH		5 & 11	>150k	∞
*At 25°C				



Fault Code A6, Airframe Emergency 28V DC
Figure 117

G-31 FAULT CODE A6, AIRFRAME EMERGENCY 28V DC EXPANDED INSTRUCTIONS

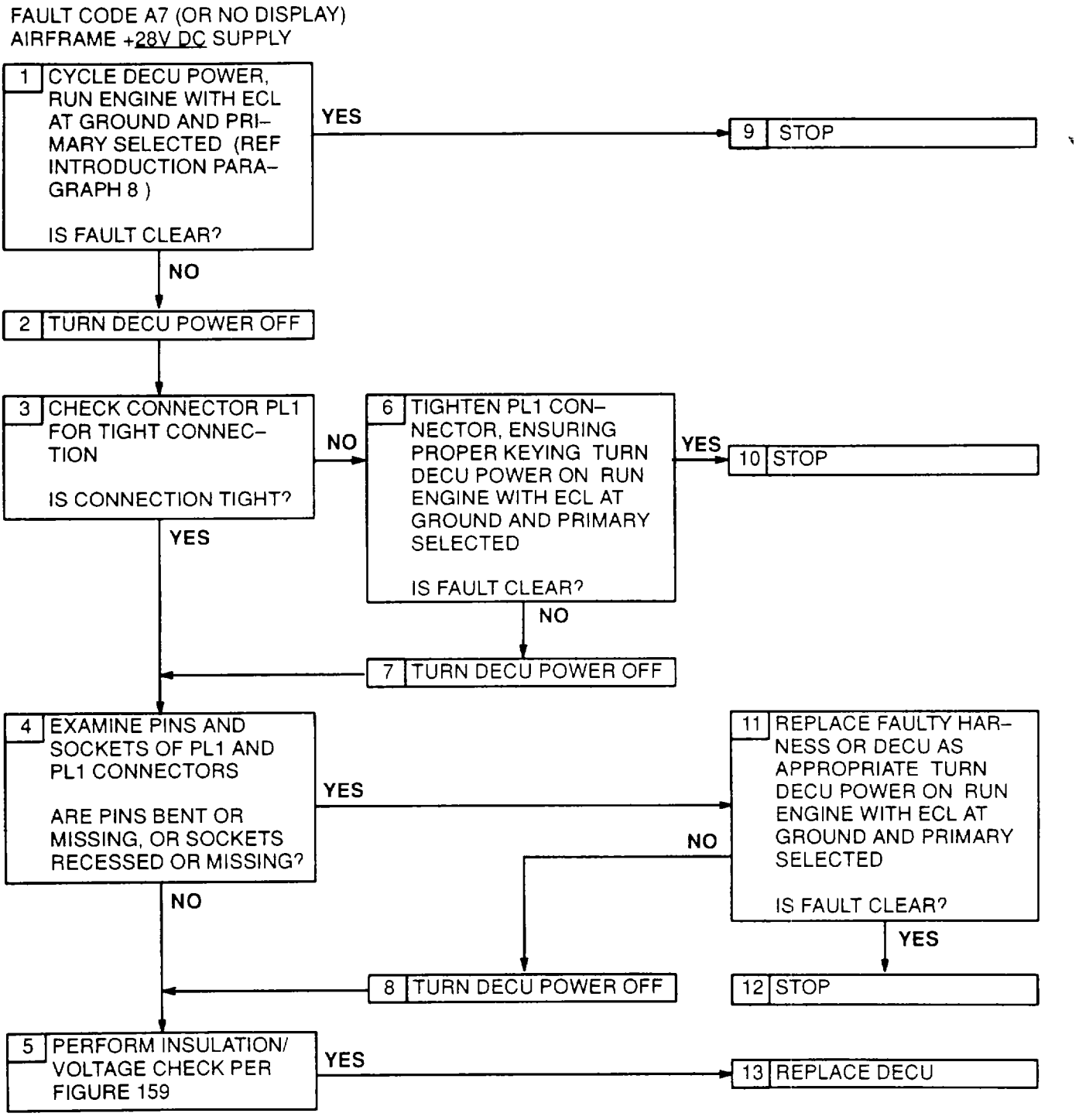
Refer to numbered steps in figure 117.

Step 4. Check harness connector PL3 (figure 201) at DECU for tight connections.

Step 5. Disconnect connector PL3 to check pins and sockets.

Step 8. Before tightening harness connector PL3, be sure that keyway in harness connector is aligned with keyway in DECU connector.

Step 14. Refer to manufacturer's procedure for diagnosing and replacing harness.



NOTE FAULT A7 CAN ONLY BE ILLUMINATED WHEN THE ENGINE IS RUNNING. SINCE THE DECU WILL BE UNPOWERED (PRIMARY) AT SHUTDOWN IF THE AIRFRAME +28V IS NOT PRESENT

Fault Code A7 (or No Display), Airframe +28V DC Supply
Figure 118

G-32 FAULT CODE A7 (OR NO DISPLAY), AIRFRAME +28V DC SUPPLY EXPANDED INSTRUCTIONS

Refer to numbered steps in figure 118.

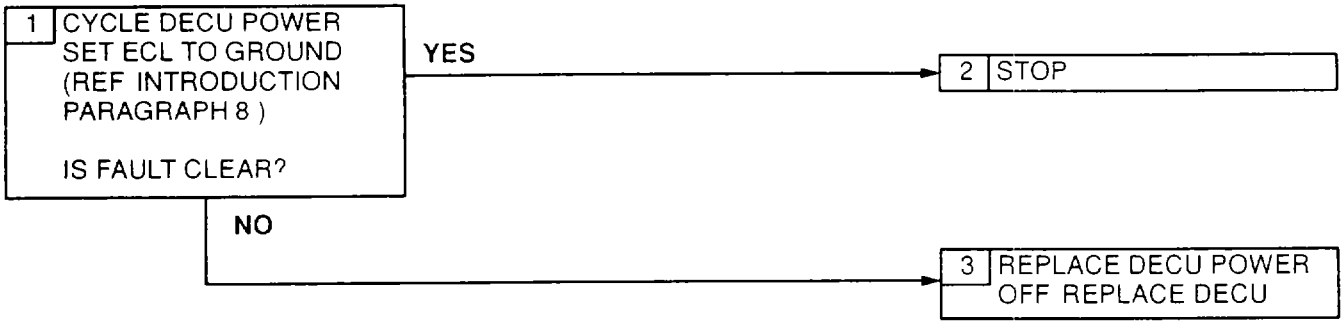
Step 3. Check harness connector PL1 (figure 201) at DECU for tight connections.

Step 4. Disconnect connector PL1 to check pins and sockets.

Step 6. Before tightening harness connector PL1, be sure that keyway in harness connector is aligned with keyway in DECU connector.

Step 11. Refer to manufacturer's procedure for diagnosing and replacing harness.

FAULT CODES	D0	OVERSPEED DRIVE
	D3	28V "OR" DIODES
	D6	+12V REVERSIONARY OR ± 12V OVERSPEED
	DA	+5V REVERSIONARY
	DB	REVERSIONARY SYSTEM
	DD	OVERSPEED CHECK



Fault Codes D0, D3, D6, DA, DB, DD Internal DECU Faults
Figure 119

FAULT CODES	D4	+10V DC
	D5	+15V SUPPLY
	D7	+5V SUPPLY
	D8	COLD JUNCTION COMPENSATION
	D9	+24V REGULATOR
	DC	T4.5 CALIBRATION
	DF	WATCHDOG TIMER TEST

1 TURN DECU POWER
OFF. REPLACE DECU.

NOTE: FAULT CODE DF CAN OCCUR AS A RESULT OF A PRE-EXISTING HARD FAULT WHEN THE WATCHDOG TIMER TEST IS PERFORMED AT POWER-UP. IF DF OCCURS IH CONJUCTION WITH ANOTHER HARD FAULT, FOLLOW THE PROCEDURE FOR THE OTHER FAULT CODE FIRST.

Faults Codes D4, D5, D7, D8, D9, DC, DF Internal DECU Faults
Figure 120

G-33 FAULT CODES DO, D3, D6, DA, DB, DD INTERNAL DECU FAULTS EXPANDED IN STRUCTIONS

Refer to numbered steps in figure 119.

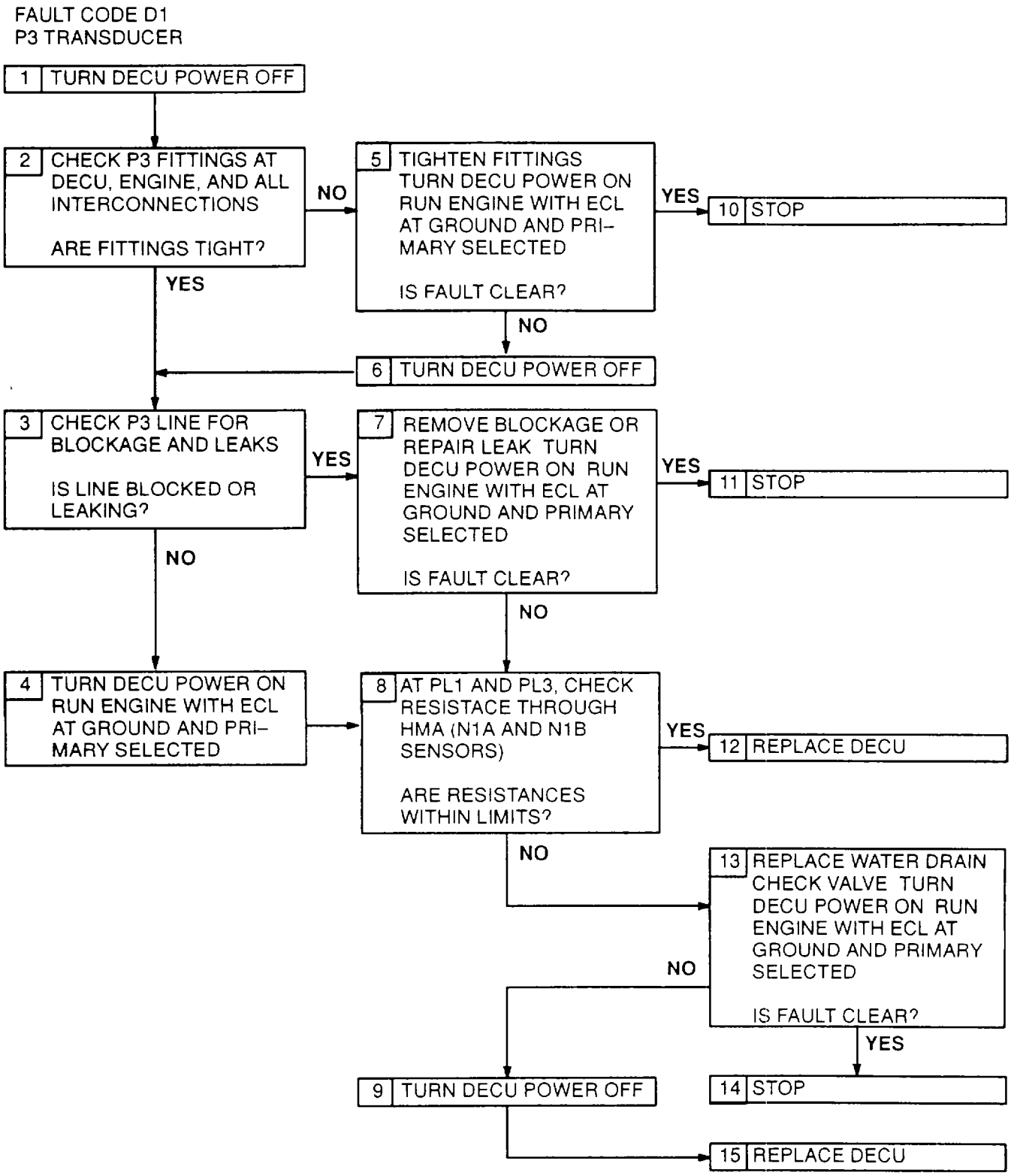
Step 1. Cycle DECU power to determine if fault is a DECU problem or was caused by an interrupt to both reversionary power supplies.

Step 3. An internal DECU fault exists. No further troubleshooting is possible.

G-34 FAULT CODES D4, D5, D7, D8, D9, DC, DF INTERNAL DECU FAULTS EXPANDED INSTRUCTIONS

Refer to numbered steps in figure 120.

These codes indicate internal DECU problems. No further troubleshooting is possible.



Fault Code D1, P3 Transducer
Figure 121

G-35 FAULT CODE D1, P3 TRANSDUCER EXPANDED INSTRUCTIONS

Refer to numbered steps in figure 121.

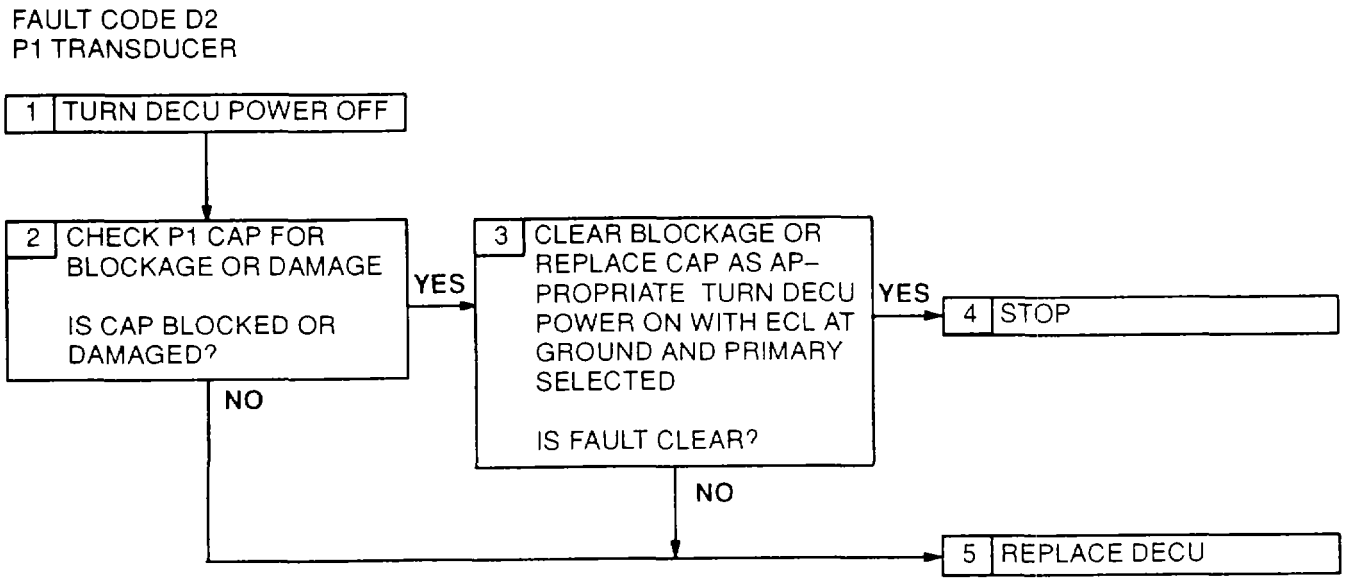
Step 3. Refer to manufacturer's procedure to check line for blockage and leaks.

Step 5. Tighten fittings to torque as specified by the manufacturer.

Step 7. Refer to manufacturer's procedure for repairing/replacing P3 line.

Step 8. Refer to manufacturer's procedure for checking the water drain check valve.

Step 13. Refer to manufacturer's procedure for replacing the water drain check valve.



Fault Code D2, P1 Transducer
Figure 122

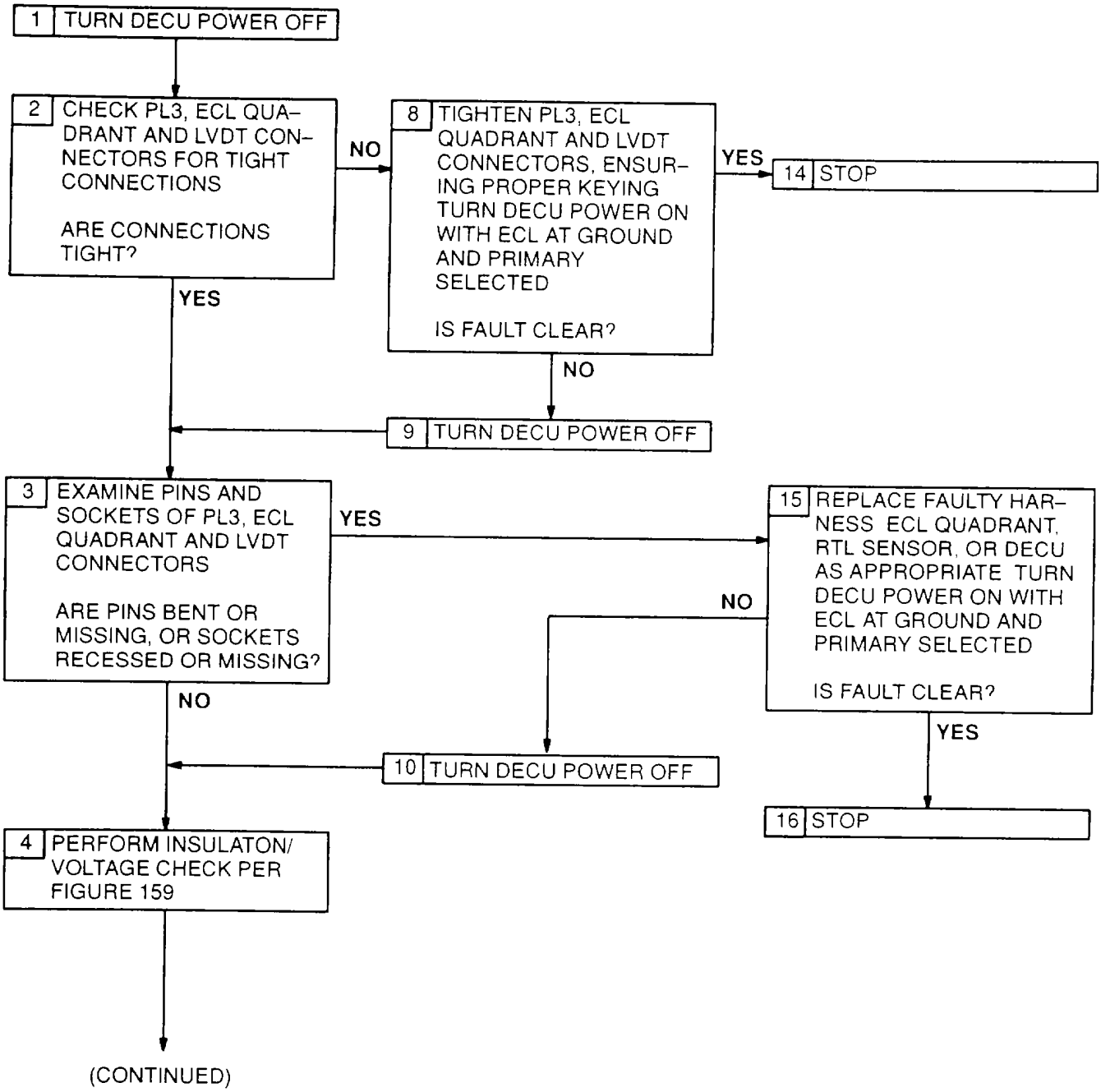
G-36 FAULT CODE D2, P1 TRANSDUCER EXPANDED INSTRUCTIONS

Refer to numbered steps in figure 122.

Step 2. Check P1 cap for blockage or damage.

Step 3. Tighten cap to torque.

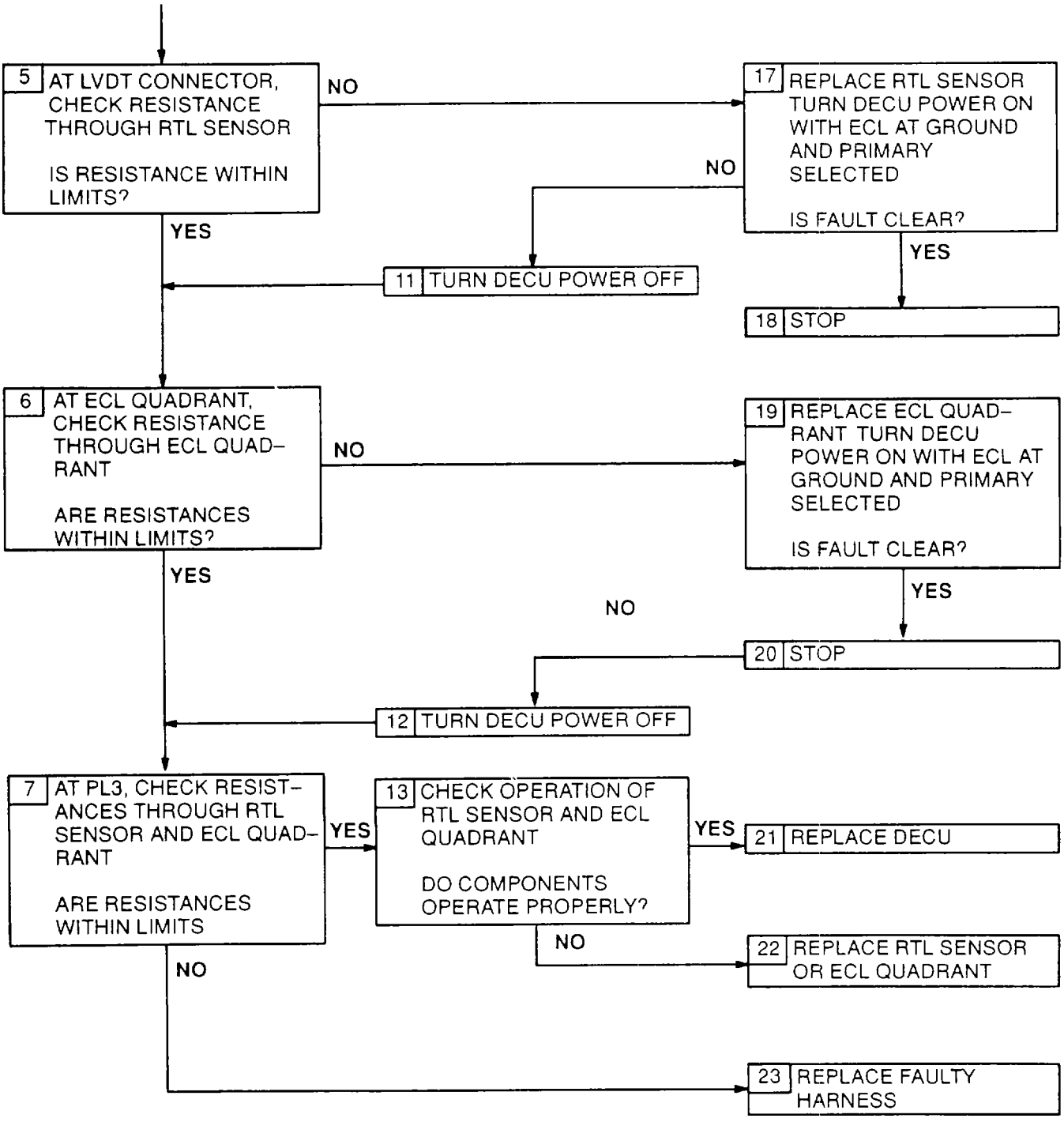
FAULT CODE DE
400 HZ RESOLVER REFERENCE



Fault Code DE, 400 Hz Resolver Reference
Figure 123 (Sheet 1 of 2)

FAULT CODE DE
400 HZ RESOLVER REFERENCE

(CONTINUED)



Fault Code DE, 400 Hz Resolver Reference
Figure 123 (Sheet 2 of 2)

G-37 FAULT CODE DE, 400 HZ RESOLVER REFERENCE EXPANDED INSTRUCTIONS

Refer to numbered steps in figure 123.

Step 2. Check harness connector PL3 (figure 201) at DECU, ECL quadrant connector and LVDT connector for tight connections.

Step 3. Disconnect PL3, ECL quadrant and LVDT connectors to check pins and sockets.

Step 5. With LVDT connector disconnected, check resistance of RTL sensor at sensor connector pins 1 and 2. Limit is 110 - 140Ω. Check resistance at pins 3 and 4. Limit is 210 - 260Ω. Check resistance at pins 3 and 5, and pins 4 and 5. Limit is < 230Ω.

Step 6. With ECL quadrant connector disconnected, check resistance of ECL quadrant at quadrant pins 1 and 2. Limit is 35 - 40Ω. Check resistance at pins 3 and 4. Limit is 90 - 1 OOΩ.

Step 7. With PL3 disconnected, check resistance of ECL quadrant at harness PL3 connector sockets h and i (figure 202). Limit is 35 - 42Ω. Check resistance at sockets EE and DD. Limit is 90 - 1 00Ω. Check resistance of RTL sensor at sockets g and p. Limit is 210 - 260Ω. Check resistance of sockets z and AA. Limit is 110 - 140Ω.

Step 8. Before tightening PL3, ECL quadrant and LVDT connectors, be sure that keyways in harness connectors are aligned with keyways in component connectors.

Step 13. Refer to manufacturer's procedure for checking operation of ECL quadrant and RTL sensor.

Step 15 Refer to manufacturer's procedure for diagnosing and replacing harness, ECL quadrant or RTL sensor.

Step 17. Refer to manufacturer's procedure for diagnosing and replacing RTL sensor.

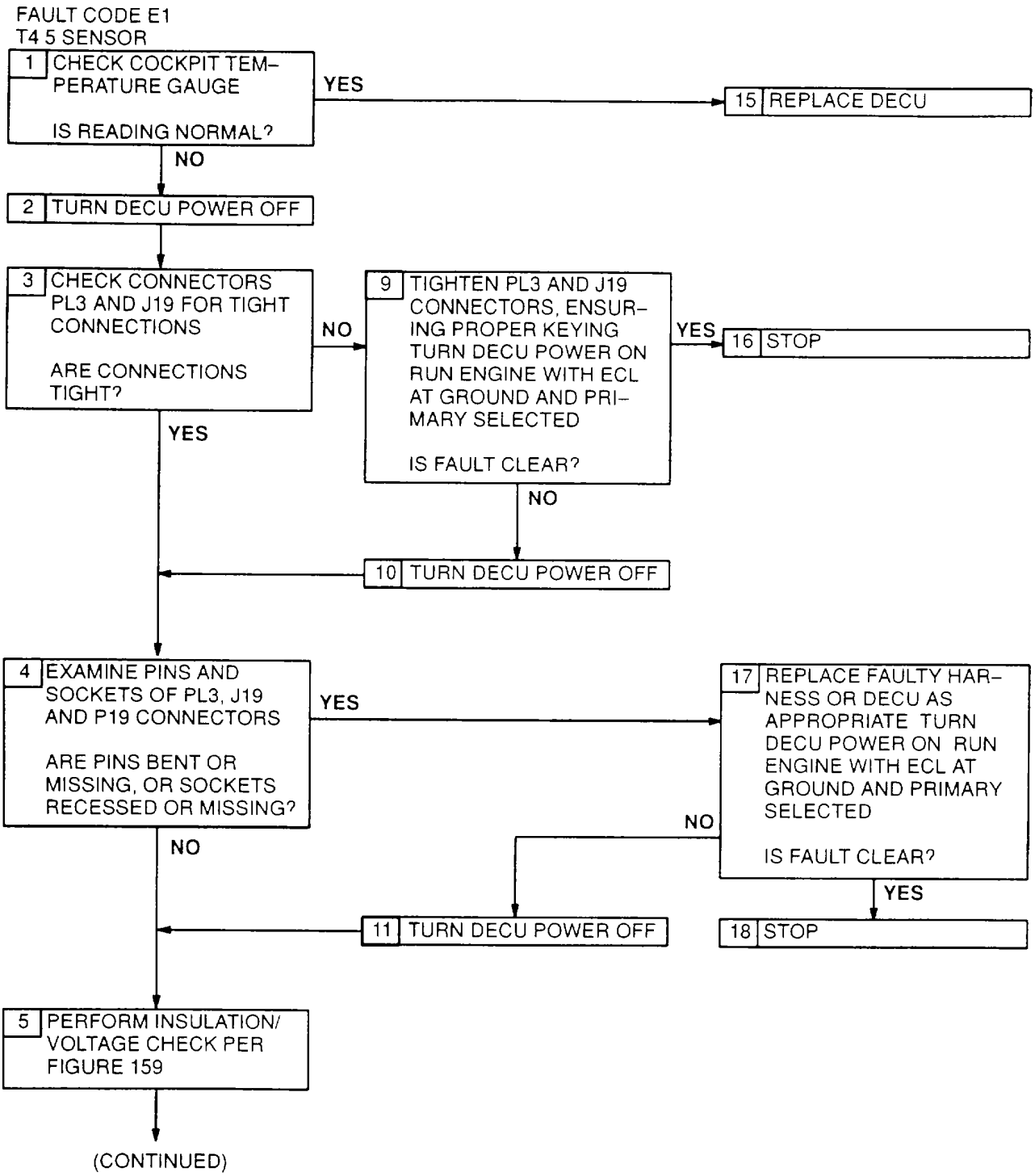
Step 19. Refer to manufacturer's procedure for diagnosing andreplacing ECL quadrant.

Step 23. Refer to manufacturer's procedure for diagnosing and replacing harness.

G-37 FAULT CODE DE, 400 HZ RESOLVER REFERENCE EXPANDED INSTRUCTIONS (CONTINUED)

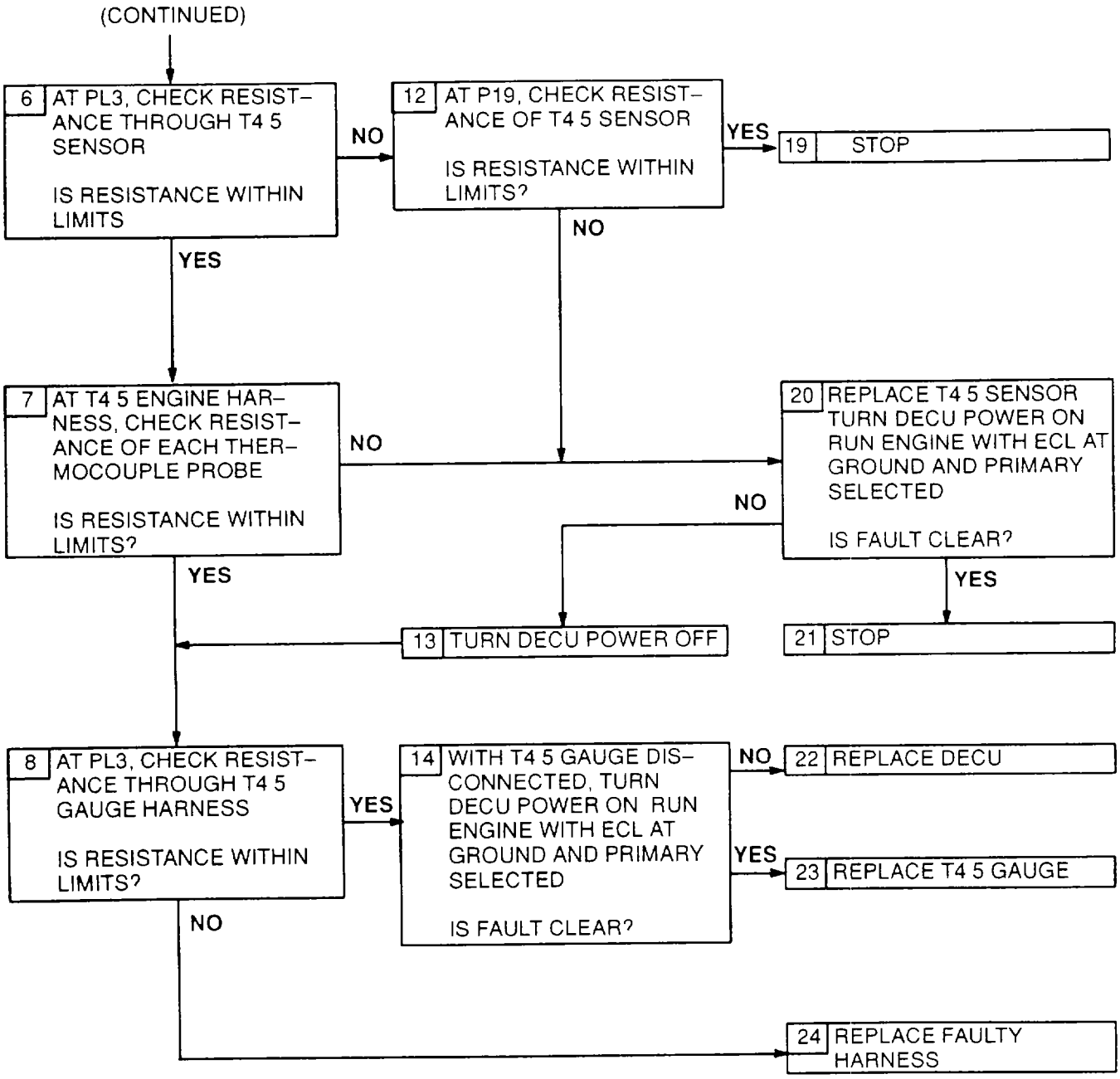
RESISTANCE-CHECK SUMMARY

Component	Connector		Resistance (Ω)	
	No.	Contacts	Limits	Nominal*
ECL Quadrant	PL3	h & i	35 - 42	-
		EE & DD	90- 102	-
	ECL Quadrant	1 & 2	35 - 40	-
		3 &4	90 - 100	-
RTL Sensor	PL3	z & AA	110 - 140	-
		q & p	210 -260	-
	LVDT	1 & 2	110 - 140	-
		3 & 4	210 - 260	-
		3 & 5	< 230	-
		4 & 5	< 230	-
*At 25°C				-



Fault Code E1, T4.5 Sensor
Figure 124 (Sheet 1 of 2)

FAULT CODE E1
T4 5 SENSOR



Fault Code E1, T4.5 Sensor
Figure 124 (Sheet 2 of 2)

G-38 FAULT CODE E1, T4.5 SENSOR EXPANDED INSTRUCTIONS

Refer to numbered steps in figure 124.

Step 3. Check harness connector PL3 (figure 201) at DECU, and J19 at T4.5 harness for tight connections.

Step 4. Disconnect connectors PL3 and J19 to check pins and sockets.

Step 6. With PL3 disconnected, check resistance of T4.5 sensor at harness PL3 connector sockets v and GG (figure 202). Limit is 3.5 - 20Ω.

Step 7. To measure resistance of T4.5 thermocouple probe, disconnect one leg of probe from the bus bar. Measure resistance. Reverse polarity and measure resistance again. Average the two readings to obtain final results. (Note: An analog ohmmeter is recommended for measuring probe resistance.)

Step 8. With PL3 and T4.5 gauge disconnected, check resistance of T4.5 harness at harness PL3 connector sockets u and a (figure 202). Limit is >1 MΩ.

Step 9. Before tightening harness connectors PL3 and P19, be sure that keyways in harness connectors are aligned with keyways in component connectors.

Step 12. With J19 disconnected, check resistance of T4.5 sensor at sensor P19 connector sockets A and B (figure 202). Limit is 3.5 - 5.5Ω.

Step 17. Refer to airframe manufacturer's procedure for diagnosing and replacing harness.

Step 19. Refer to manufacturer's procedure for diagnosing and replacing harness.

Step 20. Refer to manufacturer's procedure for diagnosing and replacing T4.5 sensor.

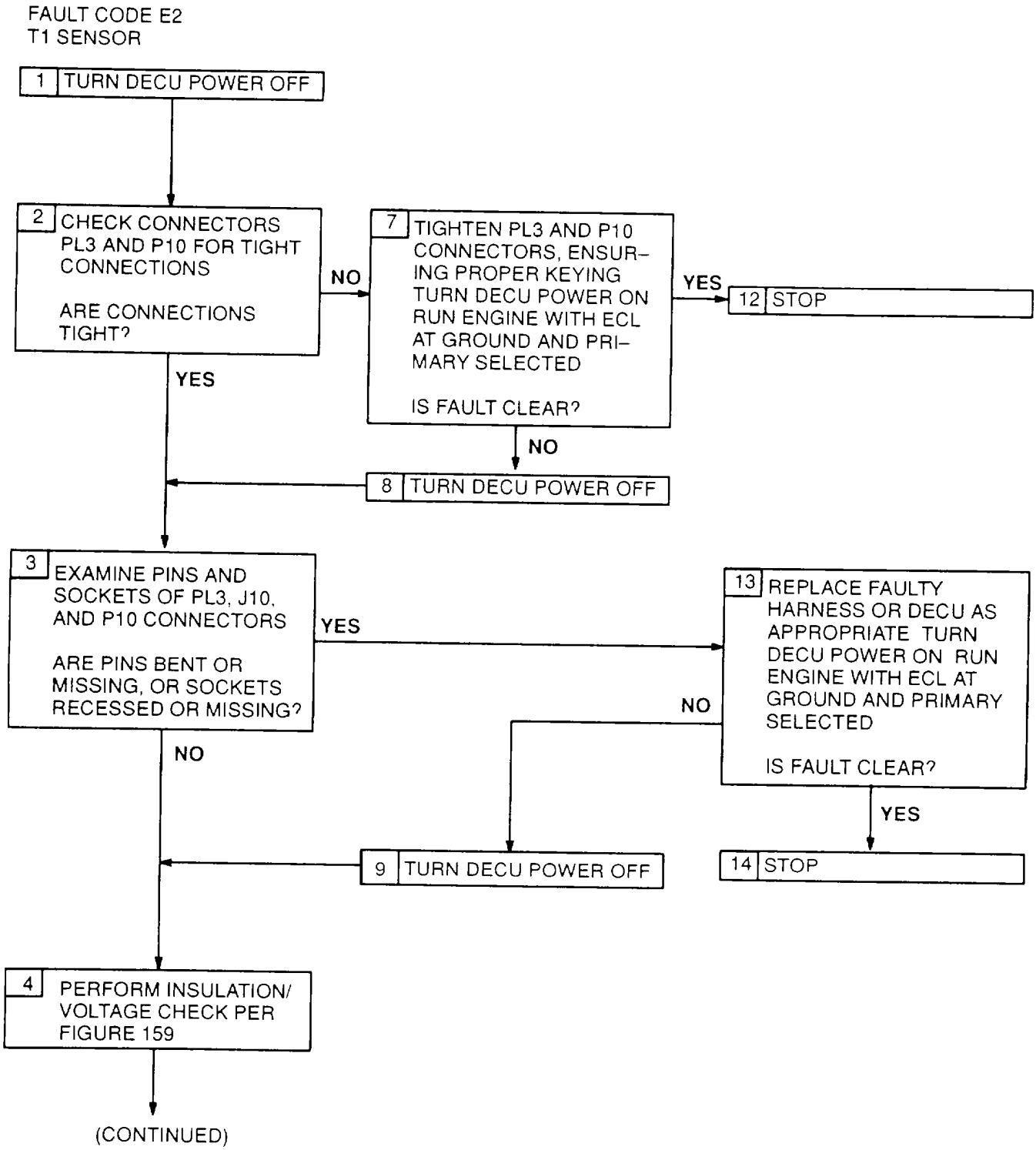
Step 23. Refer to manufacturer's procedure for diagnosing and replacing harness or T4.5 gauge.

Step 24. Refer to manufacturer's procedure for diagnosingand replacing harness.

RESISTANCE-CHECK SUMMARY

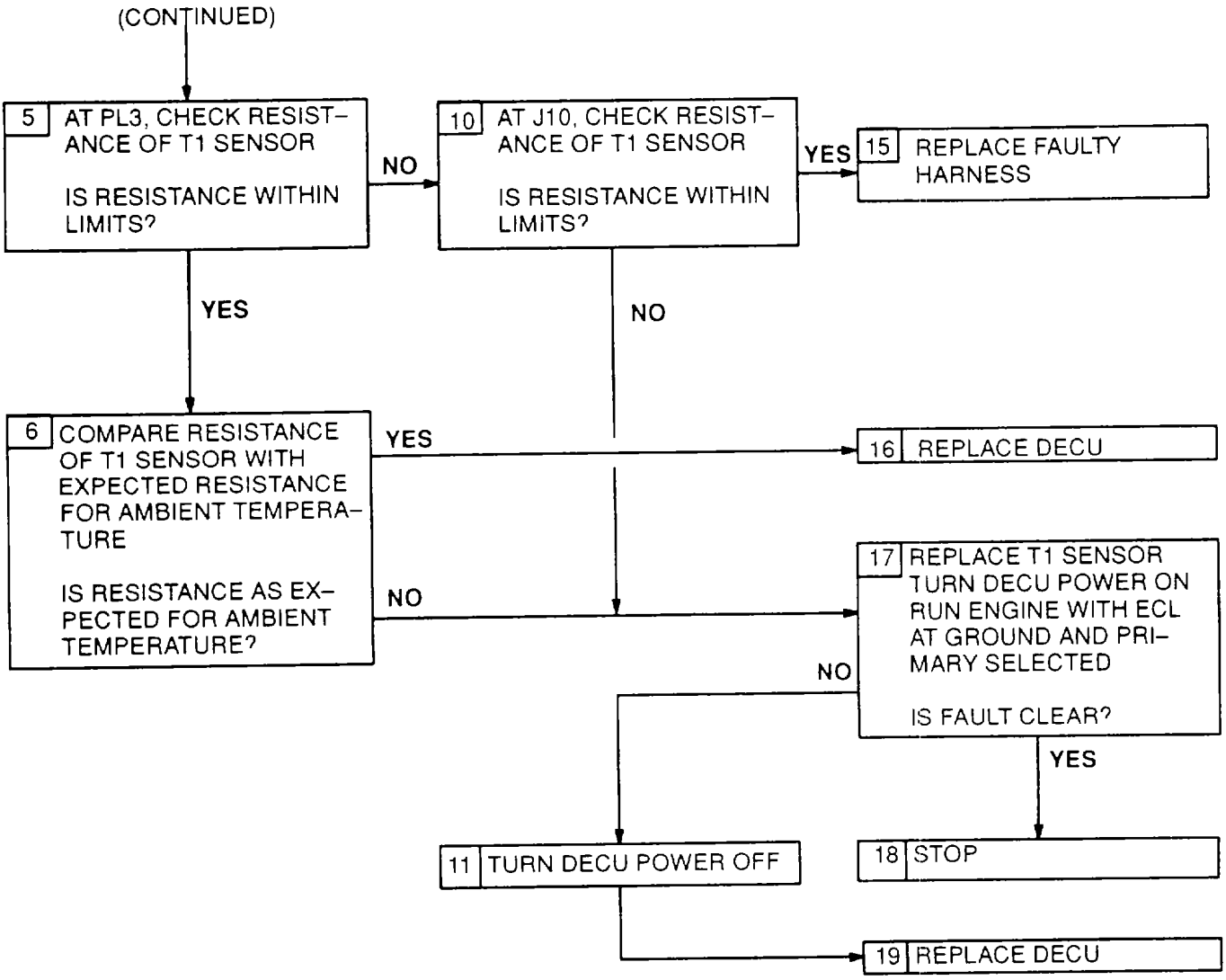
Component	Connector		Resistance (Ω)	
	No.	Contacts	Limits	Nominal*
T4.5 Gauge Harness	PL3	u & a	>1 M	>1 M
T4.5 Sensor	PL3	v & GG	3.5 - 20.0	10.0
	P19	A & B	3.5 - 5.5	4.0
T4.5 Thermocouple Probe	-	-	≥4.0	-

*At 25°C



Fault Code E2, T1 Sensor
Figure 125 (Sheet 1 of 2)

FAULT CODE E2
T1 SENSOR



Fault Code E2, T1 Sensor
Figure 125 (Sheet 2 of 2)

G-39 FAULT CODE E2, T1 SENSOR EXPANDED INSTRUCTIONS

Refer to numbered steps in figure 125.

Step 2. Check harness connector PL3 (figure 201) at DECU, and P10 at T1 sensor for tight connections.

Step 3. Disconnect connectors PL3 and P10 to check pins and sockets.

Step 5. With PL3 disconnected, check resistance of T1 sensor at harness PL3 connector sockets r and t (figure 202), and s and t. Limit in each case is 356 - 637Ω.

Step 6 Refer to the T12 Temp vs. Resistance graph to determine the expected resistance for the ambient temperature.

Step 7. Before tightening harness connectors PL3 and P10, be sure that keyways in harness connectors are aligned with keyways in component connectors.

Step 10. With P10 disconnected, check resistance of T1 sensor at T1 sensor J10 connector pins C and A (figure 202), and B and A. Limit in each case is 356 - 637Ω.

Step 14. Refer to manufacturer's procedure for diagnosing and replacing harness.

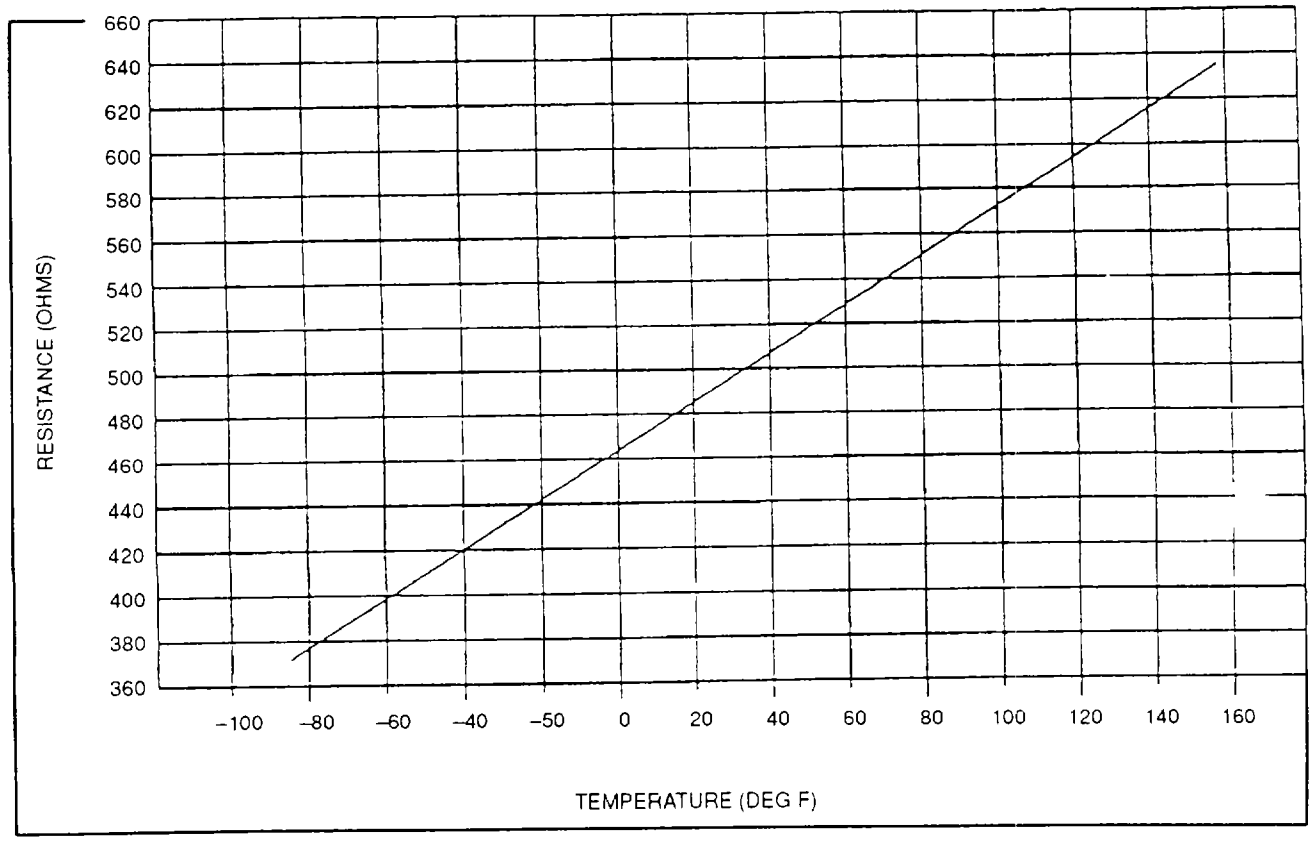
Step 15. Refer to manufacturer's procedure for diagnosing and replacing harness.

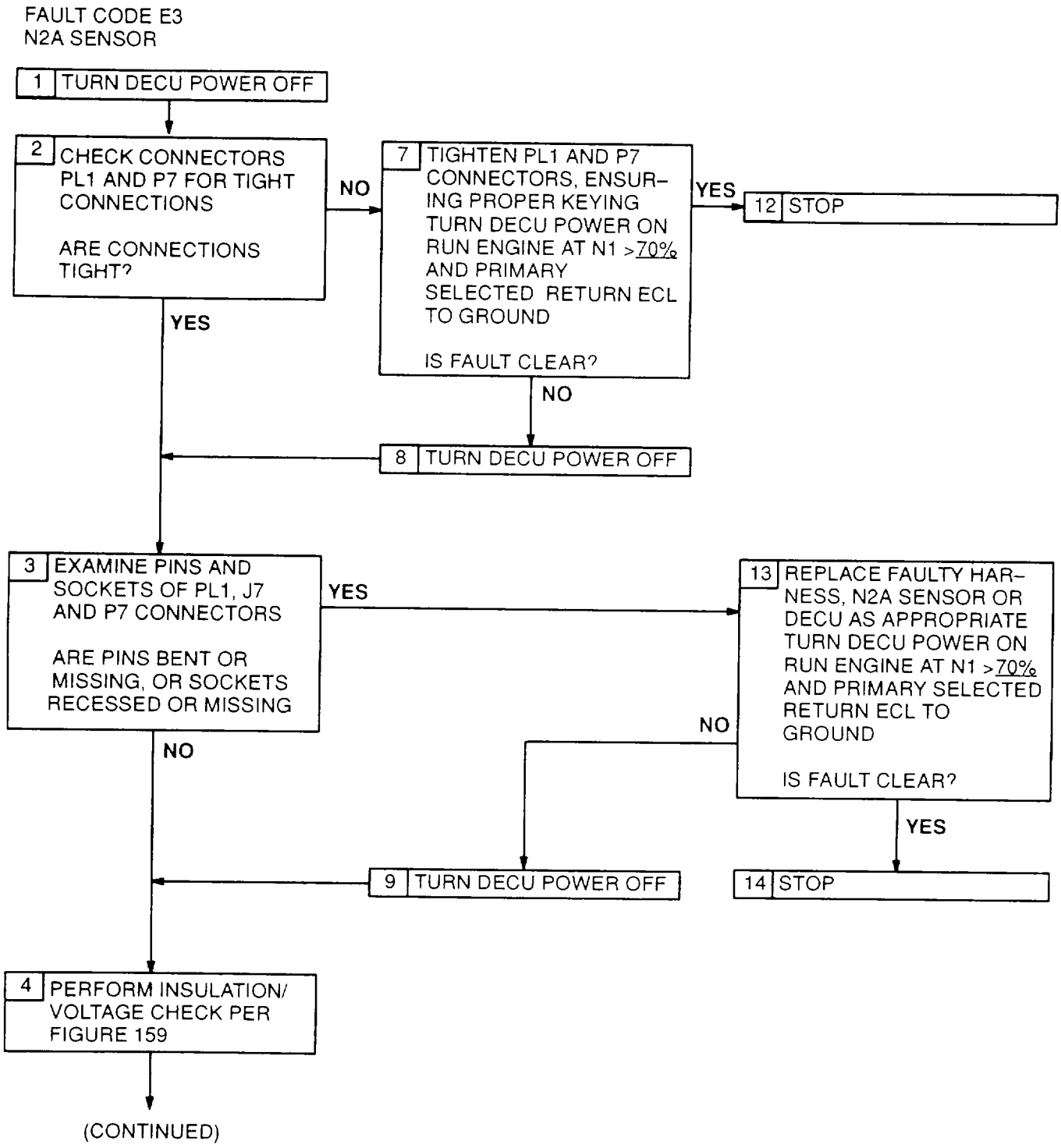
Step 17. Refer to manufacturer's procedure for diagnosing and replacing T1 sensor.

RESISTANCE-CHECK SUMMARY

Component	Connector		Resistance (Ω)	
	No.	Contacts	Limits	Nominal*
T1 Sensor	PL3	r & t	356 - 637	549
		s & t	356 - 637	549
	J10	C & A	356 - 637	549
		B & A	356 - 637	549
*At 25°C				

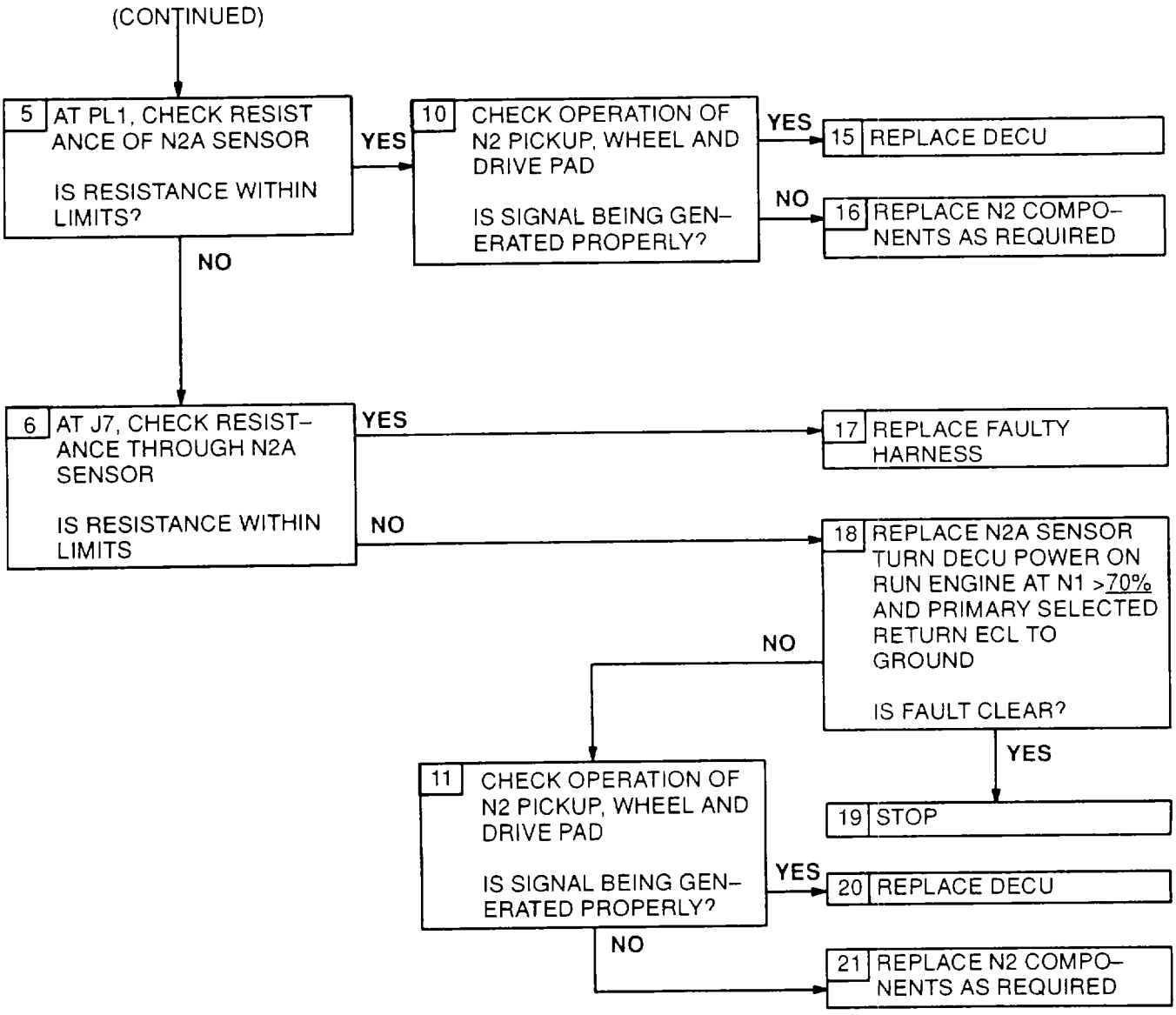
G-39 FAULT CODE E2, T1 SENSOR EXPANDED INSTRUCTIONS (CONTINUED)





Fault Code E3, N2A Sensor
Figure 126 (Sheet 1 of 2)

FAULT CODE E3
N2A SENSOR



Fault Code E3, N2A Sensor
Figure 126 (Sheet 2 of 2)

G-40 FAULT CODE E3, N2A SENSOR EXPANDED INSTRUCTIONS

Refer to numbered steps in figure 126.

Step 2. Check harness connector PL1 (figure 201) at DECU, and P7 at N2A sensor for tight connections.

Step 3. Disconnect connectors PL1 and P7 to check pins and sockets.

Step 5. With PL1 disconnected, check resistance of N2A sensor at harness PL1 connector sockets BB and m (figure 202). Limit is 10.0 - 45.5Ω.

Step 6. With P7 disconnected, check resistance of N2A sensor at N2A sensor J7 connector pins 1 and 2 (figure 202). Limit is 10.0 - 45.5Ω

Step 7. Before tightening harness connectors PL1 and P7, be sure that keyways in harness connectors are aligned with keyways in component connectors.

Step 10 Refer to manufacturer's procedure for checking operation of N2 pickup, wheel and drive pad.

Step 11 Refer to manufacturer's procedure for checking operation of N2 pickup,wheel and drive pad.

Step 13. Refer to manufacturer's procedure for diagnosing and replacing harness or N2A sensor.

Step 16. Refer to manufacturer's procedure for diagnosing and replacing N2 components.

Step 17. Refer to manufacturer's procedure for diagnosing and replacing harness.

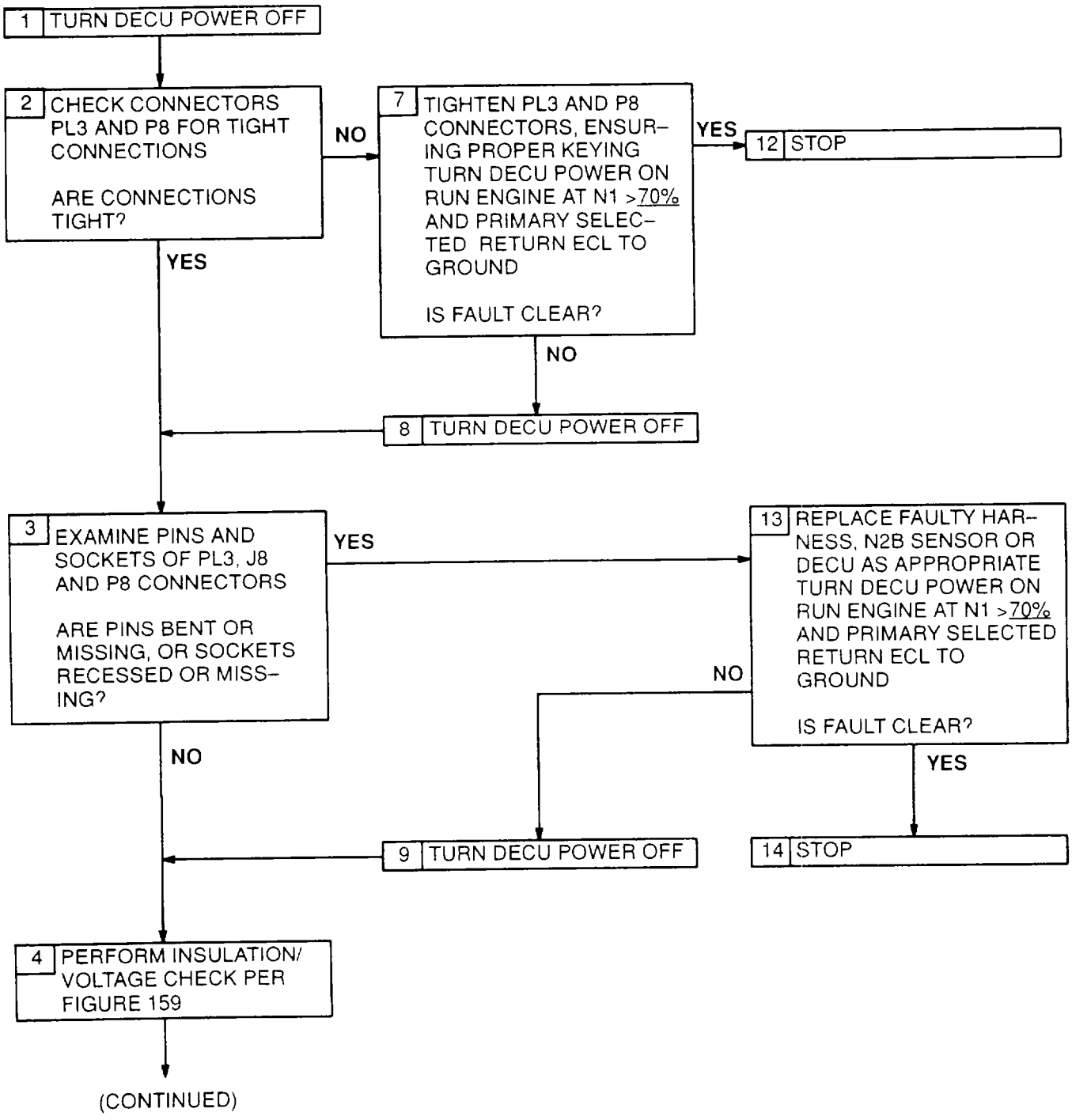
Step 18. Refer to manufacturer's procedure for diagnosing and replacing N2A sensor.

Step 21. Refer to manufacturer's procedure for diagnosing and replacing N2 components.

RESISTANCE-CHECK SUMMARY

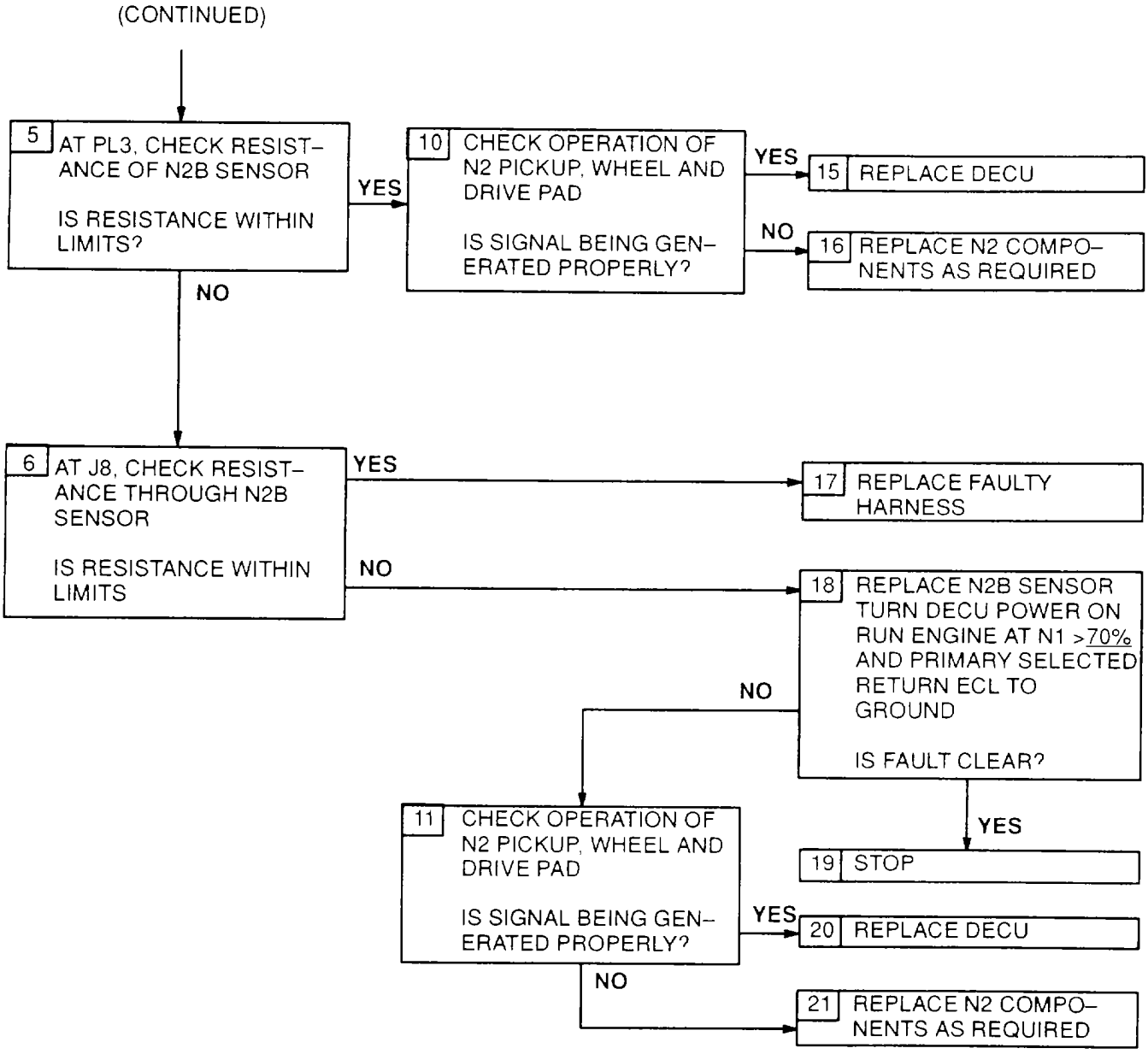
Component	Connector		Resistance (Ω)	
	No.	Contacts	Limits	Nominal*
N2A Sensor	PL1	BB & m	10.0 - 45.5	25.5
At 25°C	J7	1 & 2	10.0 - 45.5	25.5

FAULT CODE E4
N2B SENSOR



Fault Code E4, N2B Sensor
Figure 127 (Sheet 1 of 2)

FAULT CODE E4
N2B SENSOR



Fault Code E4, N2B Sensor
Figure 127 (Sheet 2 of 2)

G-41 FAULT CODE E4, N2B SENSOR EXPANDED INSTRUCTIONS

Refer to numbered steps in figure 127.

Step 2. Check harness connector PL3 (figure 201) at DECU, and P8 at N2B sensor for tight connections.

Step 3. Disconnect connectors PL3 and P8 to check pins and sockets.

Step 5. With PL3 disconnected, check resistance of N2B sensor at harness PL3 connector sockets B and d (figure 202). Limit is 10.0 - 45.5Ω.

Step 6. With P8 disconnected, check resistance of N2B sensor at sensor J8 connector pins 1 and 2 (figure 202). Limit is 10.0 - 45.5Ω.

Step 7. Before tightening harness connectors PL3 and P8, be sure that keyways in harness connectors are aligned with keyways in component connectors.

Step 10 Refer to manufacturer's procedure for checking operation of N2 pickup, wheel and drive pad.

Step 11 Refer to manufacturer's procedure for checking operation of N2 pickup, wheel and drive pad.

Step 13. Refer to manufacturer's procedure for diagnosing and replacing harness or N2B sensor.

Step 16. Refer to manufacturer's procedure for diagnosing and replacing N2 components.

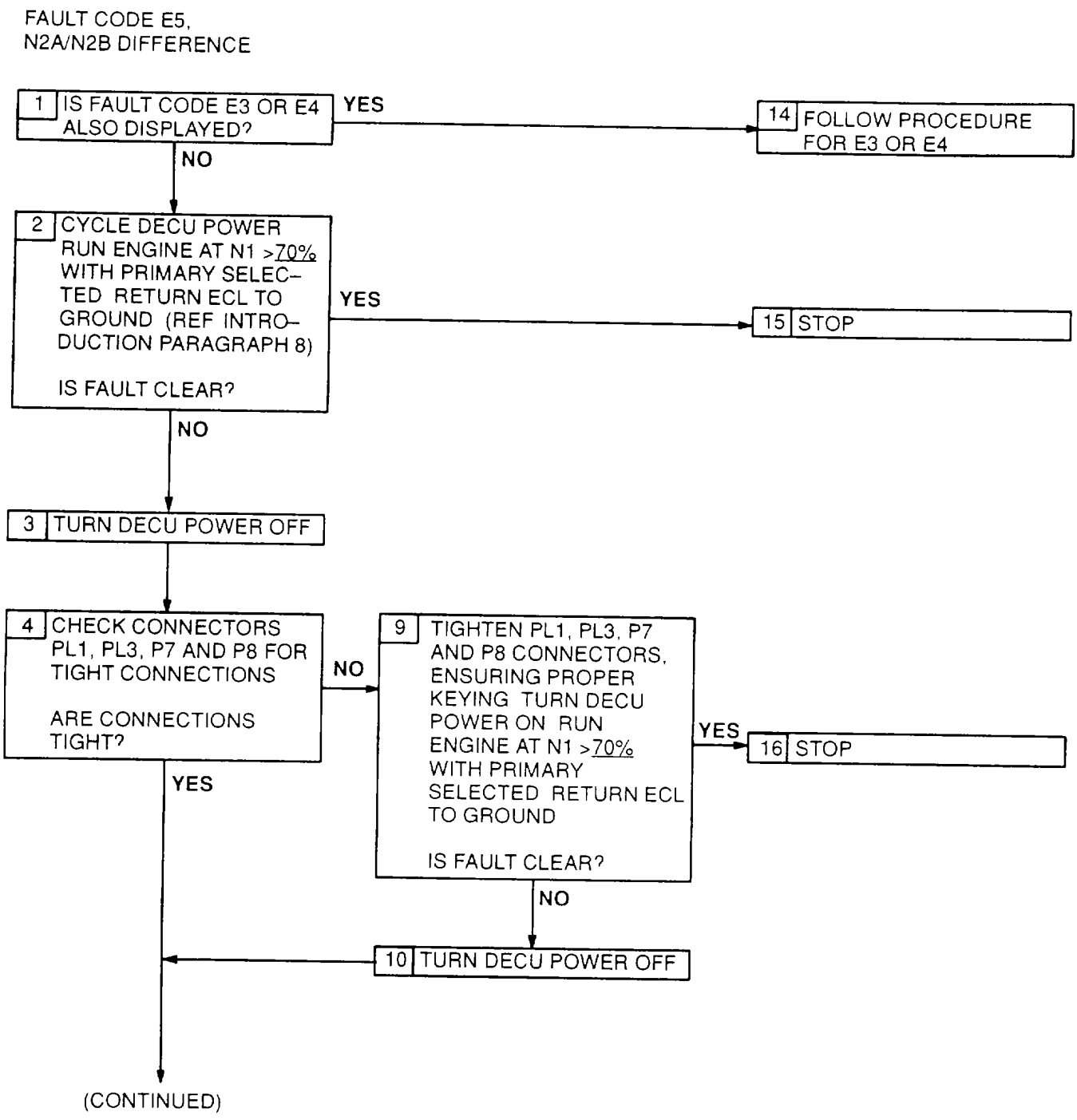
Step 17. Refer to manufacturer's procedure for diagnosing and replacing harness.

Step 18. Refer to manufacturer's procedure for diagnosing and replacing N2B sensor.

Step 21. Refer to manufacturer's procedure for diagnosing and replacing N2 components.

RESISTANCE-CHECK SUMMARY

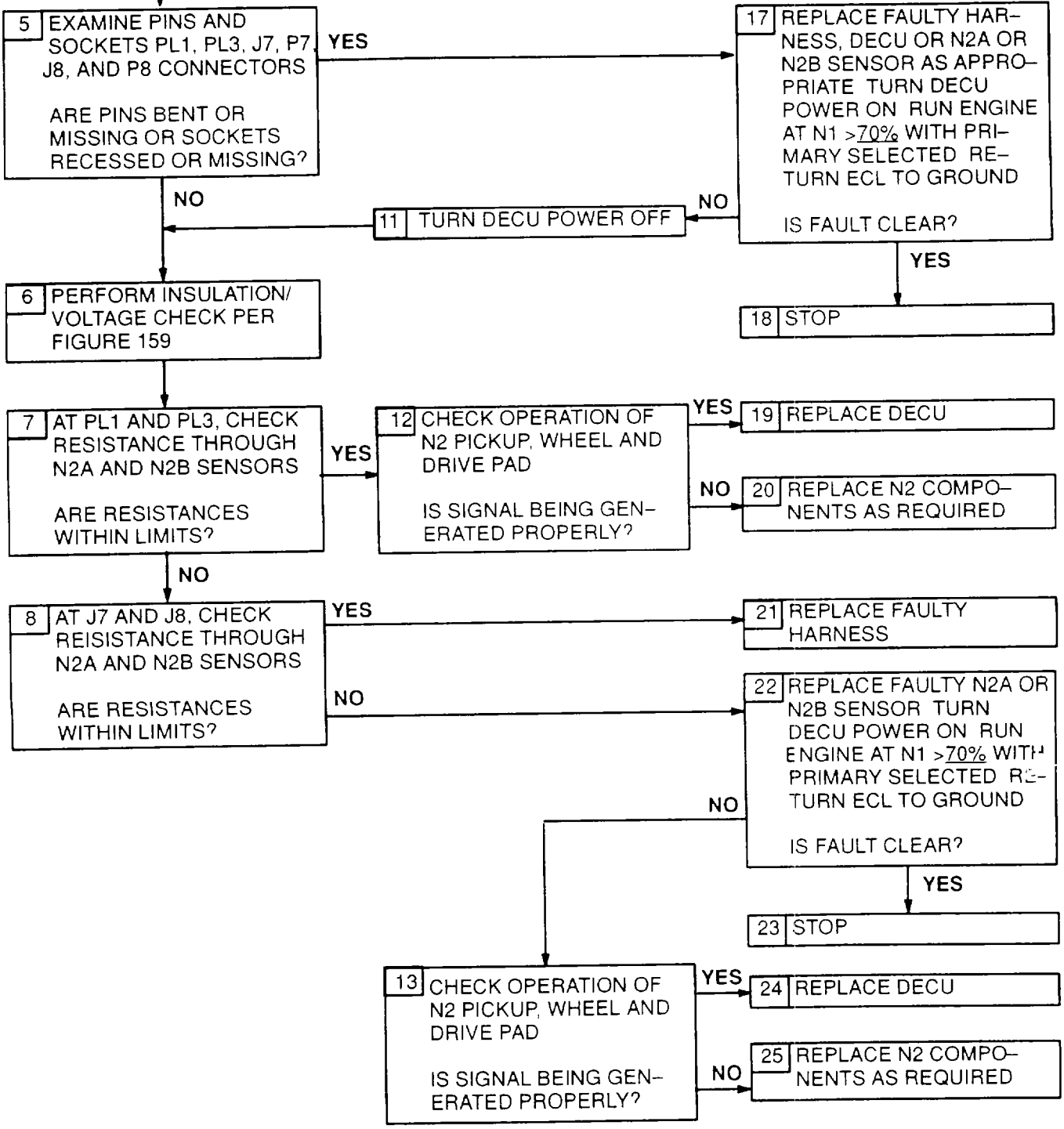
Component	Connector		Resistance (Ω)	
	No.	Contacts	Limits	Nominal*
N2B Sensor	PL3	B & d	10.0 - 45.5	25.5
At 25°C	J8	1 & 2	10.0 - 45.5	25.5



Fault Code E5, N2A/N2B Sensor
Figure 128 (Sheet 1 of 2)

FAULT CODE E5,
N2A/N2B DIFFERENCE

(CONTINUED)



Fault Code E5, N2A/N2B Sensor
Figure 128 (Sheet 2 of 2)

G-42 FAULT CODE E5, N2A/N2B SENSOR EXPANDED INSTRUCTIONS

Refer to numbered steps in figure 128.

Step 4. Check harness connector PL1 and PL3 (figure 201) atDECU, P7 at N2A sensor and P8 at N2B sensor for tight connections.

Step 5. Disconnect connectors PL1, PL3, P7 and P8 to check pins and sockets.

Step 7. With PL3 disconnected, check resistance of N2A sensor at harness PL1 connector sockets BB and m 202). With PL3 disconnected, check resistance of N2B sensor at harness PL3 connector sockets B and m. In each case, limit is 10.0 - 45.5Ω.

Step 8. With P7 disconnected, check resistance of N2A sensor at sensor J7 connector pins 1 and 2. With P8 disconnected, check resistance of N2B sensor at sensor J8 connector pins 1 and 2. In each case limit is 10.0 - 45.5Ω.

Step 9. Before tightening harness connectors PL1, PL3, P7 and P8, be sure that keyways in harness connectors are aligned with keyways in component connectors.

Step 10. Refer to manufacturer's procedure for checking operation of N2 pickup, wheel and drive pad.

Step 13. Refer to manufacturer's procedure for checking operation of N2 pickup, wheel and drive pad.

Step 17. Refer to manufacturer's procedure for diagnosing and replacing harness or N2A and N2B sensor.

Step 20. Refer to manufacturer's procedure for diagnosing and replacing N2 components.

Step 21. Refer to manufacturer's procedure for diagnosing and replacing harness.

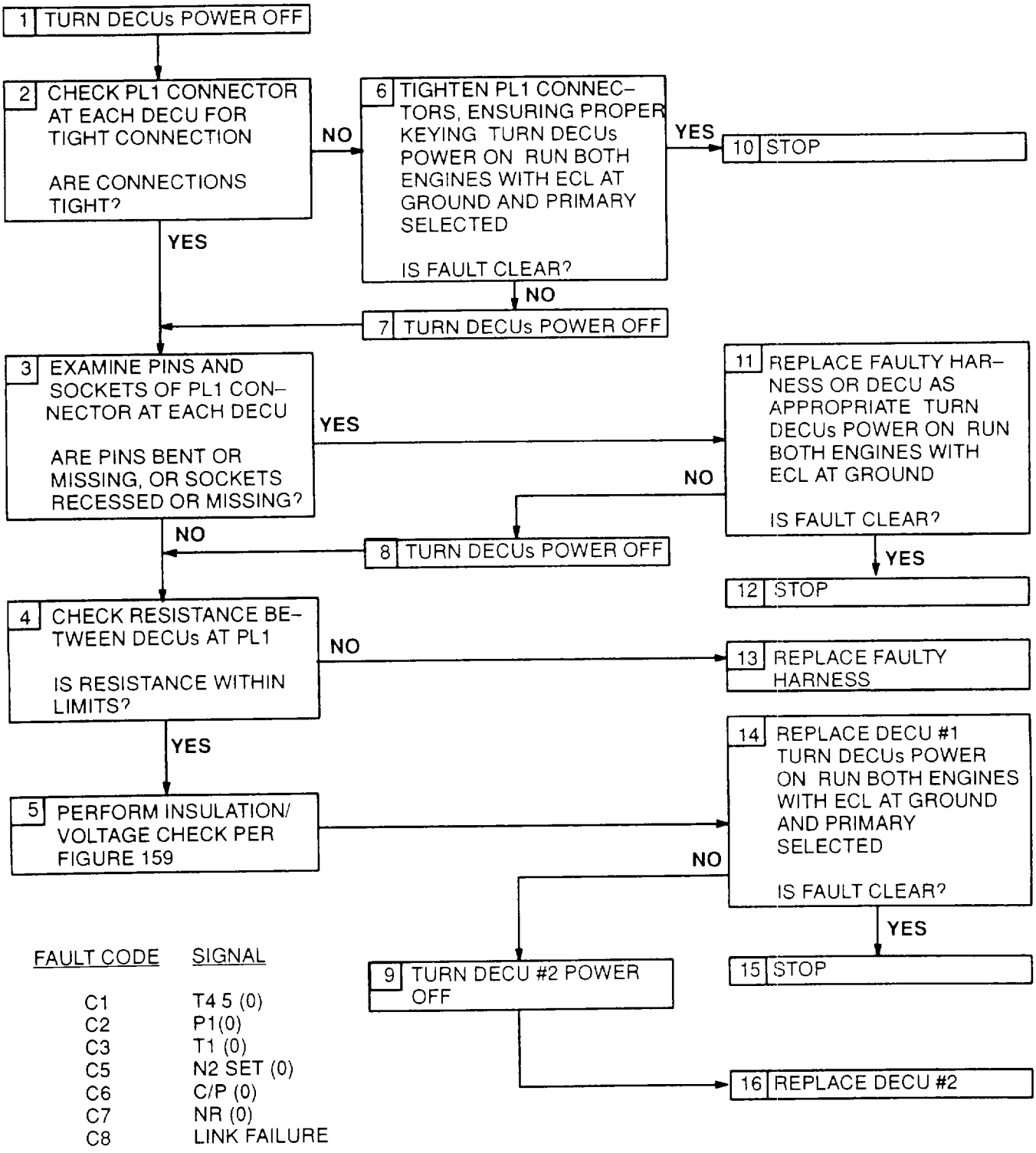
Step 22. Refer to manufacturer's procedure for diagnosing and replacing N2A or N2B sensor.

Step 25. Refer to manufacturer's procedure for diagnosing and replacing N2 components.

RESISTANCE-CHECK SUMMARY

	Connector		Resistance (Ω)	
Component	No.	Contacts	Limits	Nominal*
N2A Sensor	PL1	B & m	10.0 - 45.5	25.5
	J7	1 & 2	10.0 - 45.5	25.5
N2B Sensor	PL3	B & d	10.0 - 45.5	25.5
	J8	1 & 2	10.0 - 45.5	25.5
At 25°C				

FAULT CODES C1–C3, C5–C8
COMMUNICATION LINE FAULTS



Fault Codes C1-C3, C5-C8, Communication Line Faults
Figure 129

Refer to numbered steps in figure 129.

Step 2. Check harness connector PL1 (figure 201) at each DECU for tight connection.

Step 3. Disconnect connector PL1 at each DECU to check pins and sockets.

Step 4. With PL1 disconnected at both DECUs, check the resistance of the harness between the two DECUs at the following pins:

DECU #1	DECU #2
C	e
D	d
c	x
d	D
e	C
x	c

Limit in each case is < 1Ω.

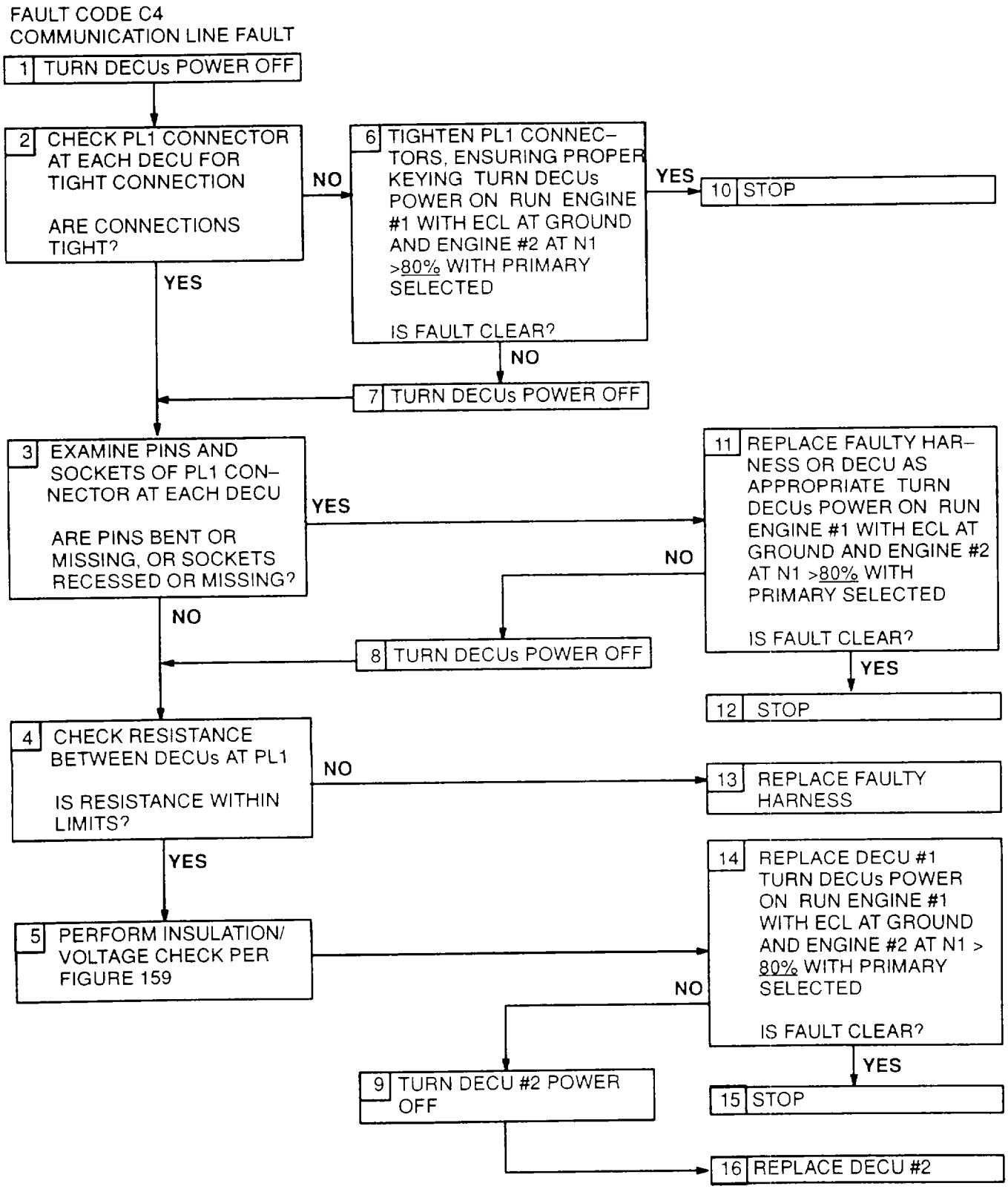
Step 6. Before tightening harness connector PL1 at each DECU, be sure that keyway in harness connector is aligned with keyway in component connector.

Step 11. Refer to manufacturer's procedure for diagnosing and replacing harness.

Step 13 Refer to manufacturer's procedure for diagnosing and replacing harness.

RESISTANCE-CHECK SUMMARY

Component	Connector				Resistance Limits (Ω)
	DECU #1		DECU #2		
	No.	Contact	No.	Contact	
Harness	PL1	C	PL1	e	<1
	PL1	D	PL1	d	< 1
	PL1	c	PL1	x	< 1
	PL1	d	PL1	D	< 1
	PL1	e	PL	C	< 1
	PL1	x	PL1	c	< 1



Fault Code C4, Communication Line Fault
Figure 130

G-44 FAULT CODES C4, COMMUNICATION LINE FAULT Q (O) SIGNAL EXPANDED INSTRUCTIONS

Refer to numbered steps in figure 130.

Step 2. Check harness connector PL1 (figure 201) at each DECU for tight connection.

Step 3. Disconnect connector PL1 at each DECU to check pins and sockets.

Step 4. With PL1 disconnected at both DECUs, check the resistance between the two DECUs at the following harness PL1 sockets:

DECU #1	DECU #2
C	e
D	d
c	x
d	D
e	C
x	c

Limit in each case is < 1.

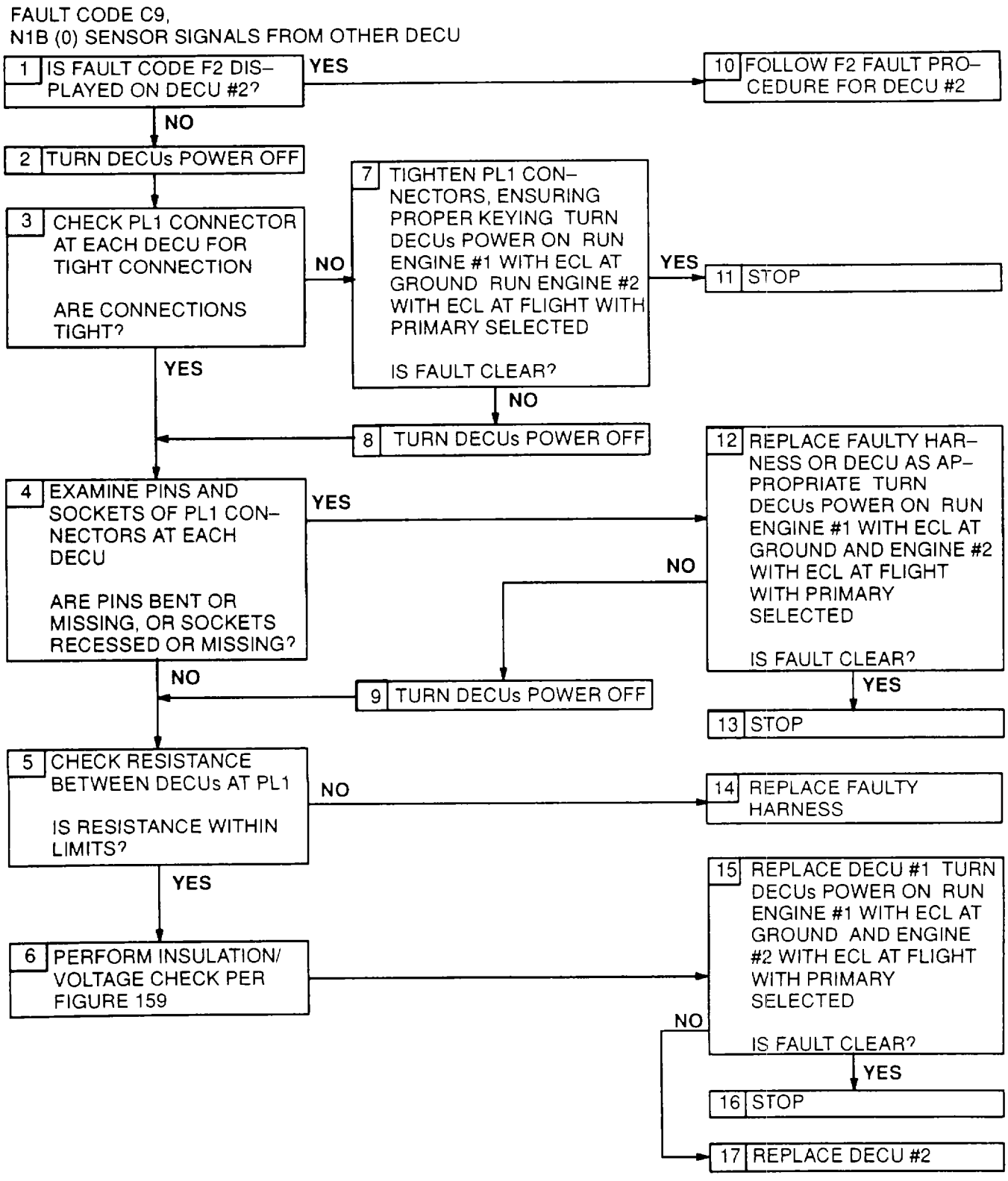
Step 6. Before tightening harness connector PL1 at each DECU, be sure that keyway in harness connector is aligned with keyway in component connector.

Step 11. Refer to manufacturer's procedure for diagnosing and replacing harness.

Step 13 Refer to manufacturer's procedure for diagnosing and replacing harness.

RESISTANCE-CHECK SUMMARY

Component	Connector				Resistance Limits (Ω)
	DECU #1		DECU #2		
	No.	Contact	No.	Contact	
Harness	PL1	C	PL1	e	< 1
	PL1	D	PL1	d	< 1
	PL1	c	PL1	x	< 1
	PL1	d	PL1	D	< 1
	PL1	e	PL	C	< 1
	PL1	x	PL1	c	< 1



Fault Code C9, N1B (0) Sensor Signals From Other DECU
Figure 131

G-45 FAULT CODE C9, N1B (O) SENSOR SIGNALS FROM OTHER DECU EXPANDED INSTRUCTIONS

Refer to numbered steps in figure 131.

Step 3. Check harness connector PL1 (figure 201) at each DECU for tight connection.

Step 4, Disconnect connector PL1 at each DECU to check pins and sockets.

Step 5. With PL1 disconnected at both DECUs, check the resistance between the two DECUs at the following harness PL1 sockets:

DECU #1	DECU #2
a	GG
b	NN
GG	a
NN	b

Limit in each case < 1Ω

Step 7. Before tightening harness connector PL1 at each DECU, be sure that keyway in harness connector is aligned with keyway in component connector.

Step 12. Refer to manufacturer's procedure for diagnosing and replacing harness.'

Step 14. Refer to manufacturer's procedure for diagnosing and replacing harness.

RESISTANCE-CHECK SUMMARY

Component	Connector				Resistance Limits (Ω)
	DECU #1		DECU #2		
	No.	Contact	No.	Contact	
Harness	PL1	a	PL1	GG	< 1
	PL1	b	PL1	NN	< 1
	PL1	GG	PL1	a	< 1
	PL1	NN	PL1	b	< 1

FAULT CODE CF
LOSS OF LOAD SHARE SIGNALS

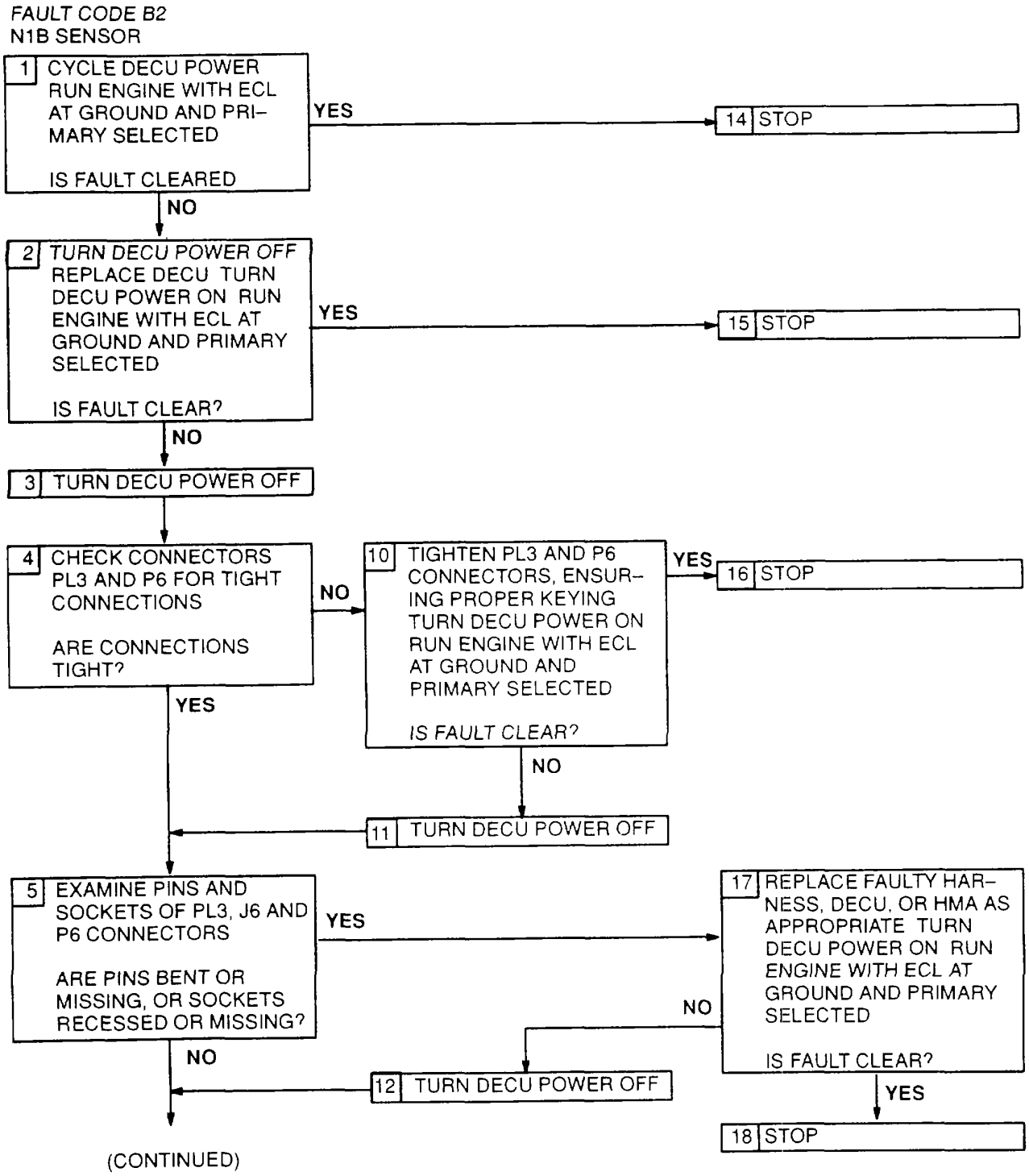
1	NOTE OTHER FAULT CODES ON DECU #1 AND DECU #2. FOLLOW FAULT ISOLATION PROCEDURES FOR THESE FAULT CODES

Fault Code CF, Loss of Load Share Signals
Figure 132

G-46 FAULT CODE CF, LOSS OF LOAD SHARE SIGNALS EXPANDED INSTRUCTIONS

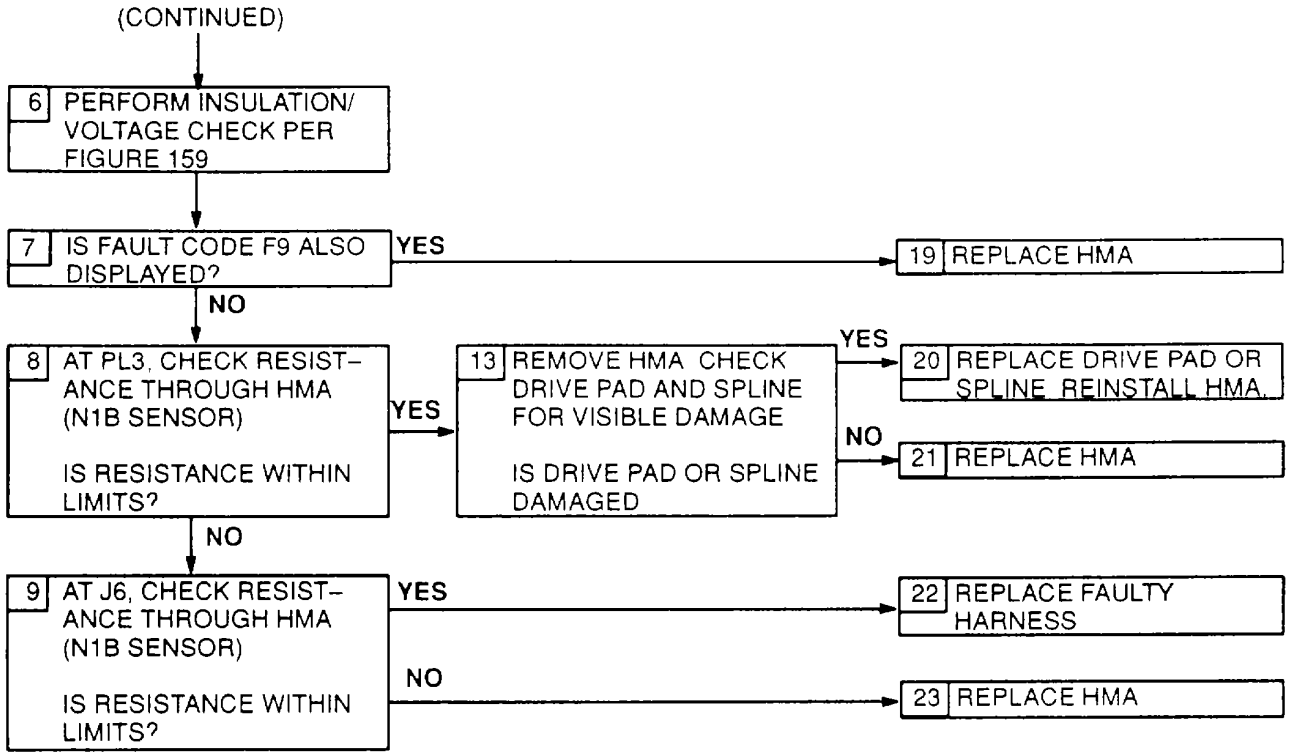
Refer to numbered steps in figure 132.

Step 1. In combination with a CF fault code there must exist both an engine torque signal and an N1 speed signal fault code on either or both DECUs. Fault isolation procedures should continue normally using the directions specified for these fault codes.



Fault Code B2, N1B Sensor
Figure 133 (Sheet 1 of 2)

FAULT CODE B2
N1B SENSOR



Fault Code B2, N1B Sensor
Figure 133 (Sheet 2 of 2)

G-47 FAULT CODE B2, N1B SENSOR EXPANDED INSTRUCTIONS

Refer to numbered steps in figure 133.

Step 4. Check harness connector PL3 (figure 201) at DECU, and P6 at HMA.. for tight connections.

Step 5. Disconnect connectors PL3 and P6 to check pins and sockets.

Step 8. With PL3 disconnected, check resistance of HMA (N1B sensor) at harness PL3 connector sockets A and c (figure 202). Limit is 0.3 - 3.5Ω

Step 9. With P6 disconnected, check resistance of HMA (N1 B sensor) at HMA J6 connector pins E and F. Limit is 0.3 - 3.0Ω..

Step 10. Before tightening harness connectors PL3 and P6, be sure that keyways in harness connectors are aligned with keyways in component connectors.

Step 13. Refer to manufacturer's procedure for checking drive pad and spline.

Step 17. Refer to manufacturer's procedure for diagnosing and replacing harness.

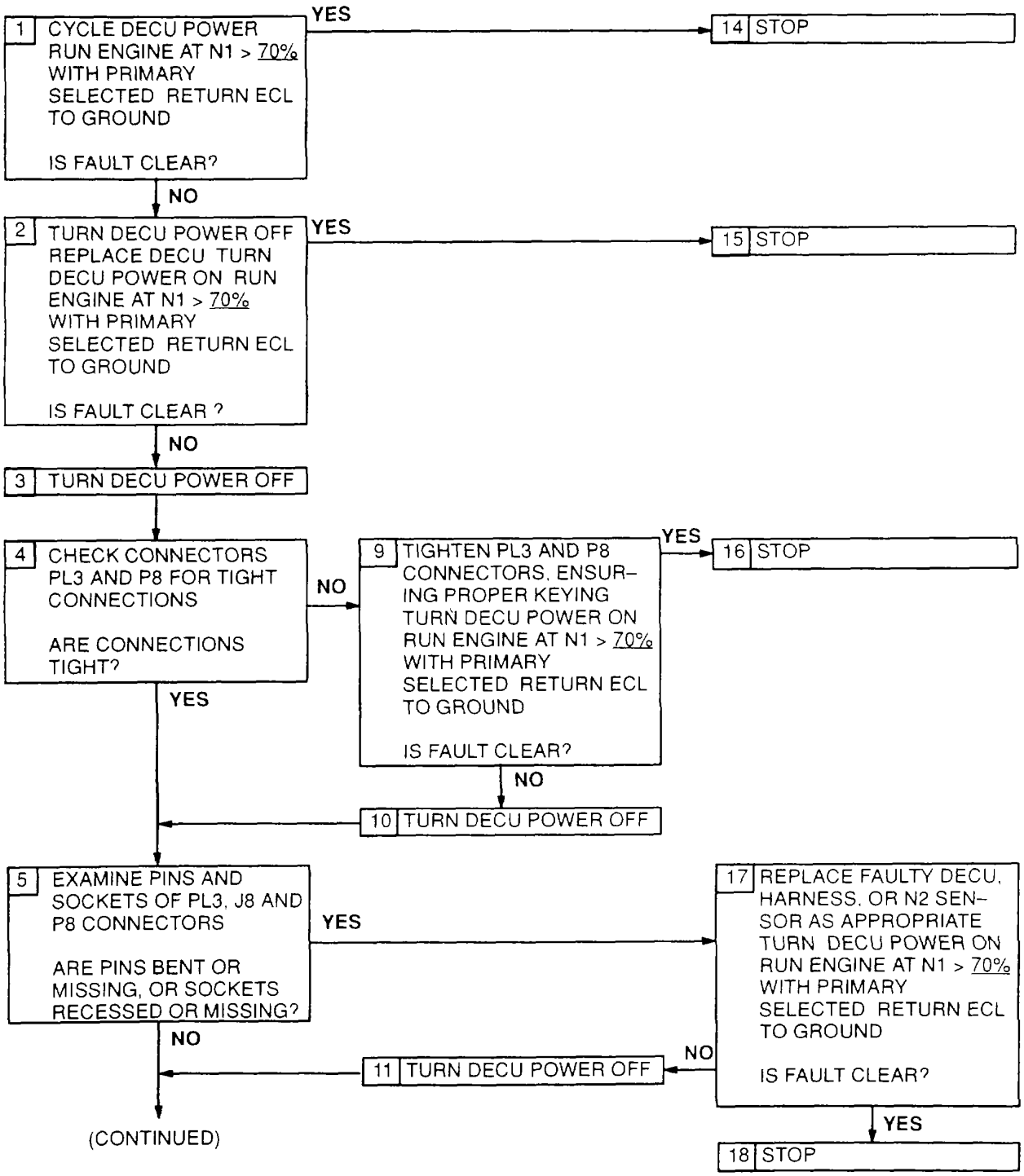
Step 20. Refer to manufacturer's procedure for replacing drive pad or spline.

Step 22. Refer to manufacturer's procedure for diagnosing and replacing harness.

RESISTANCE-CHECK SUMMARY

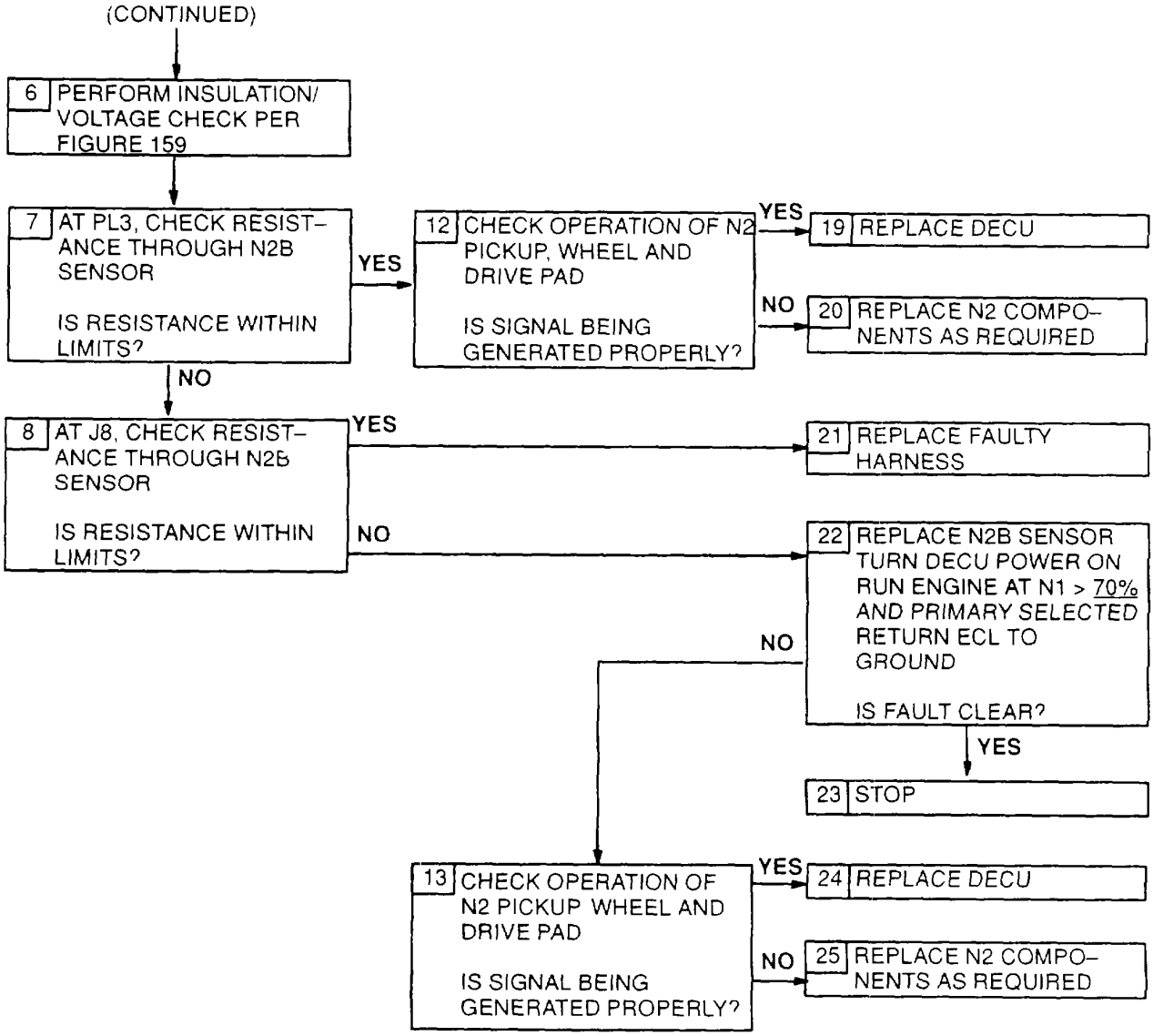
Component	Connector		Resistance (Ω)	
	No	Contacts	Limits	Nominal *
HMA – N1B Sensor	PL3	A & c	0 3 – 3 5	0 7
	J6	E & F	0 3 – 3 0	0 7
*At 25°C				

FAULT CODE B3
N2B SENSOR



Fault Code B3, N2B Sensor
Figure 134 (Sheet 1 of 2)

FAULT CODE B3
N2B SENSOR



Fault Code B3, N2B Sensor
Figure 134 (Sheet 2 of 2)

G-48 FAULT CODE B3, N2B SENSOR EXPANDED INSTRUCTIONS

Refer to numbered steps in figure 134.

Step 4. Check harness connector PL3 (figure 201) at DECU, and P8 at N2B sensor for tight connections.

Step 5. Disconnect connectors PL3 and P8 to check pins and sockets.

Step 7. d. With PL3 disconnected, check resistance of N2B sensor at harness PL3 connector sockets B and (figure 202). Limit is 10.0 - 45.5Ω..

Step 8. is With P8 disconnected, check resistance of N2B sensor at sensor J8 connector pins 1 and 2. Limit 10.0 - 45.0Ω.

Step 9. Before tightening harness connectors PL3 and P8, be sure that keyways in harness connectors are aligned with keyways in component connectors.

Step 12 Refer to manufacturer's procedure for checking operation of N2 pickup, wheel and drive pad.

Step 13 Refer to manufacturer's procedure for checking operation of N2 pickup, wheel and drive pad.

Step 17. Refer to manufacturer's procedure for diagnosing and replacing harness or N2B sensor.

Step 20. Refer to manufacturer's procedure for replacing N2 components.

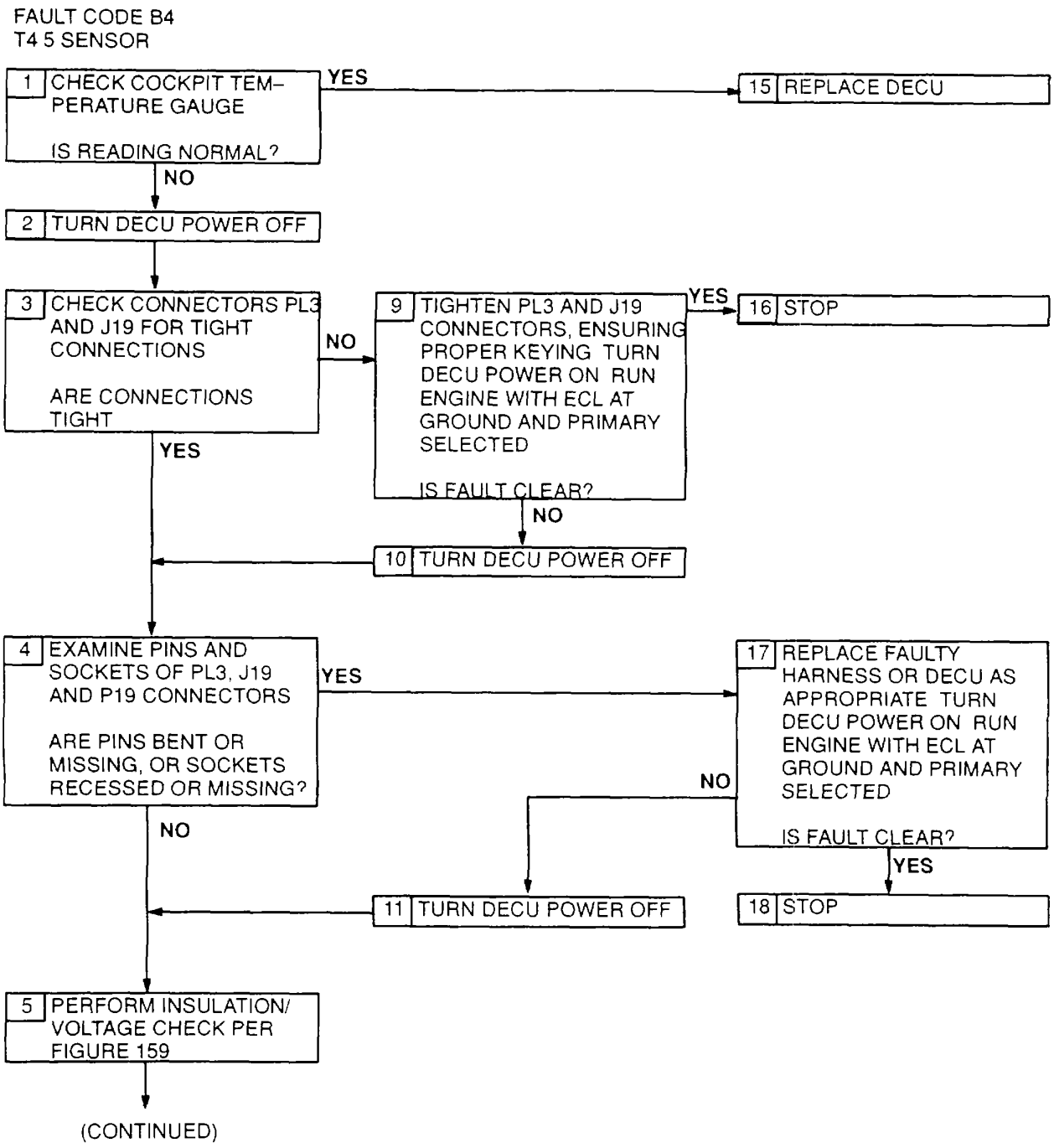
Step 21. Refer to manufacturer's procedure for diagnosing and replacing harness.

Step 22. Refer to manufacturer's procedure for diagnosing and replacing N2B sensor.

Step 25. Refer to manufacturer's procedure for replacing N2 components.

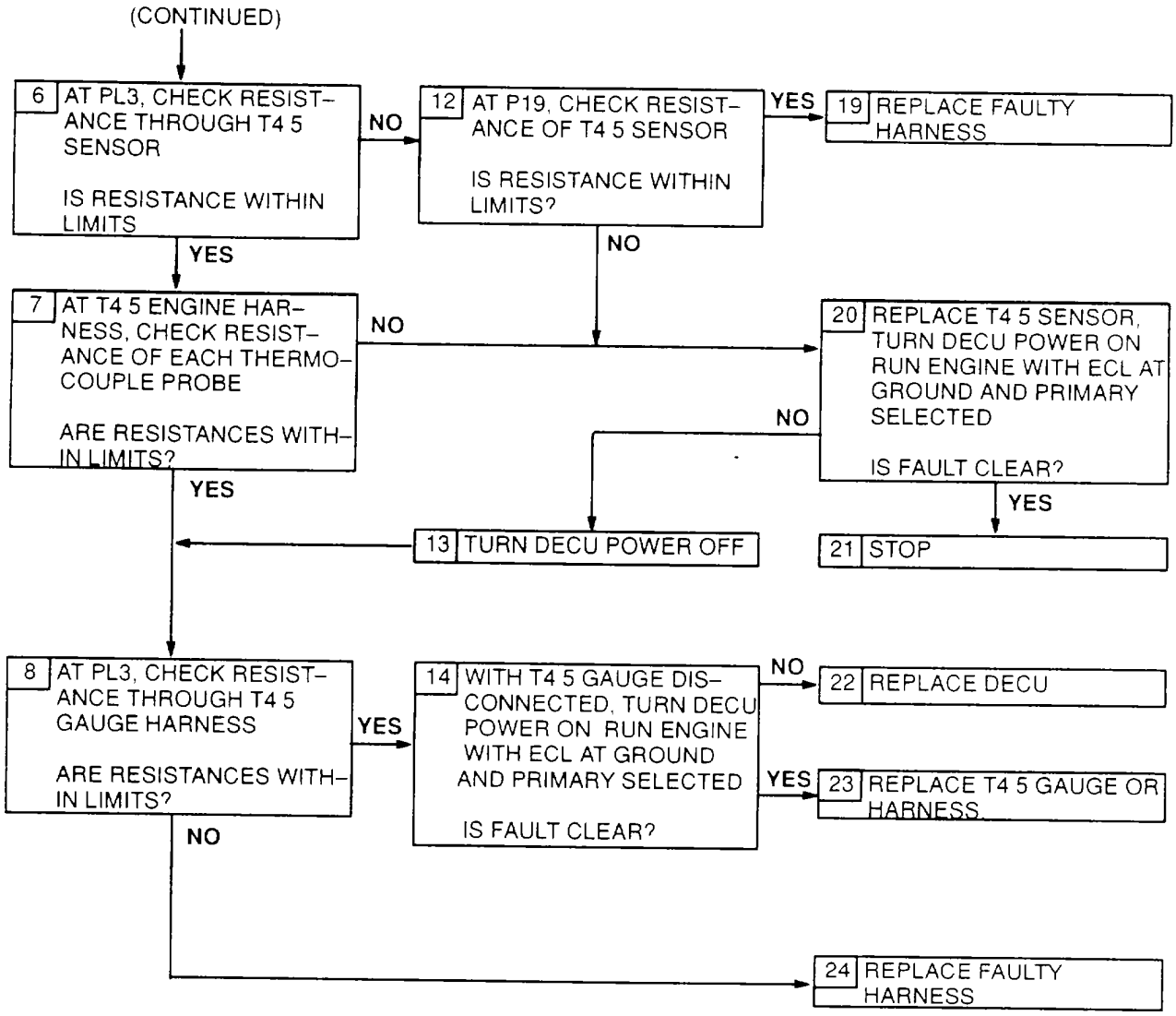
RESISTANCE-CHECK SUMMARY

Component	Connector		Resistance (Ω)	
	No	Contacts	Limits	Nominal *
N2B Sensor	PL3	B & d	10 0 – 45 5	25 5
	J8	1 & 2	10 0 – 45 0	25 5
*At 25°C				



Fault Code B4, T4.5 Sensor
Figure 135 (Sheet 1 of 2)

FAULT CODE B4
T4.5 SENSOR



Fault Code B4, T4.5 Sensor
Figure 135 (Sheet 2 of 2)

G-49 FAULT CODE B4, T4.5 SENSOR EXPANDED INSTRUCTIONS

Refer to numbered steps in figure 135.

Step 3. Check harness connector PL3 (figure 201) at DECU, and J19 at T4.5 harness for tight connections.

Step 4. Disconnect connectors PL3 and J19 to check pins and sockets.

Step 6. With PL3 disconnected, check resistance of T4.5 sensor at harness PL3 connector sockets v and GG (figure 202).Limit is 3.5 - 20.0Ω.

Step 7. To measure resistance of T4.5 thermocouple probe, disconnect one leg of probe from the bus bar. Measure resistance. Reverse polarity and measure resistance again. Average the two readings to obtain final results. (Note: An analog ohmmeter is recommended for measuring probe resistance.)

Step 8. With PL3 and T4.5 gauge disconnected, check resistance of T4.5 harness at harness connector sockets u and a (figure 202). Limit is > 1MΩ.

Step 9. Before tightening harness connectors PL3 and P19, be sure that keyways in harness connectors are aligned with keyways in component connectors.

Step 12. With J19 .disconnected, check resistance of T4.5 sensor at sensor P19 connector sockets A and B (figure 202). Limit is 3.5 - 5.5Q.

Step 17. Refer to manufacturer's procedure for diagnosing and replacing harness.

Step 19. Refer to manufacturer's procedure for diagnosing and replacing harness.

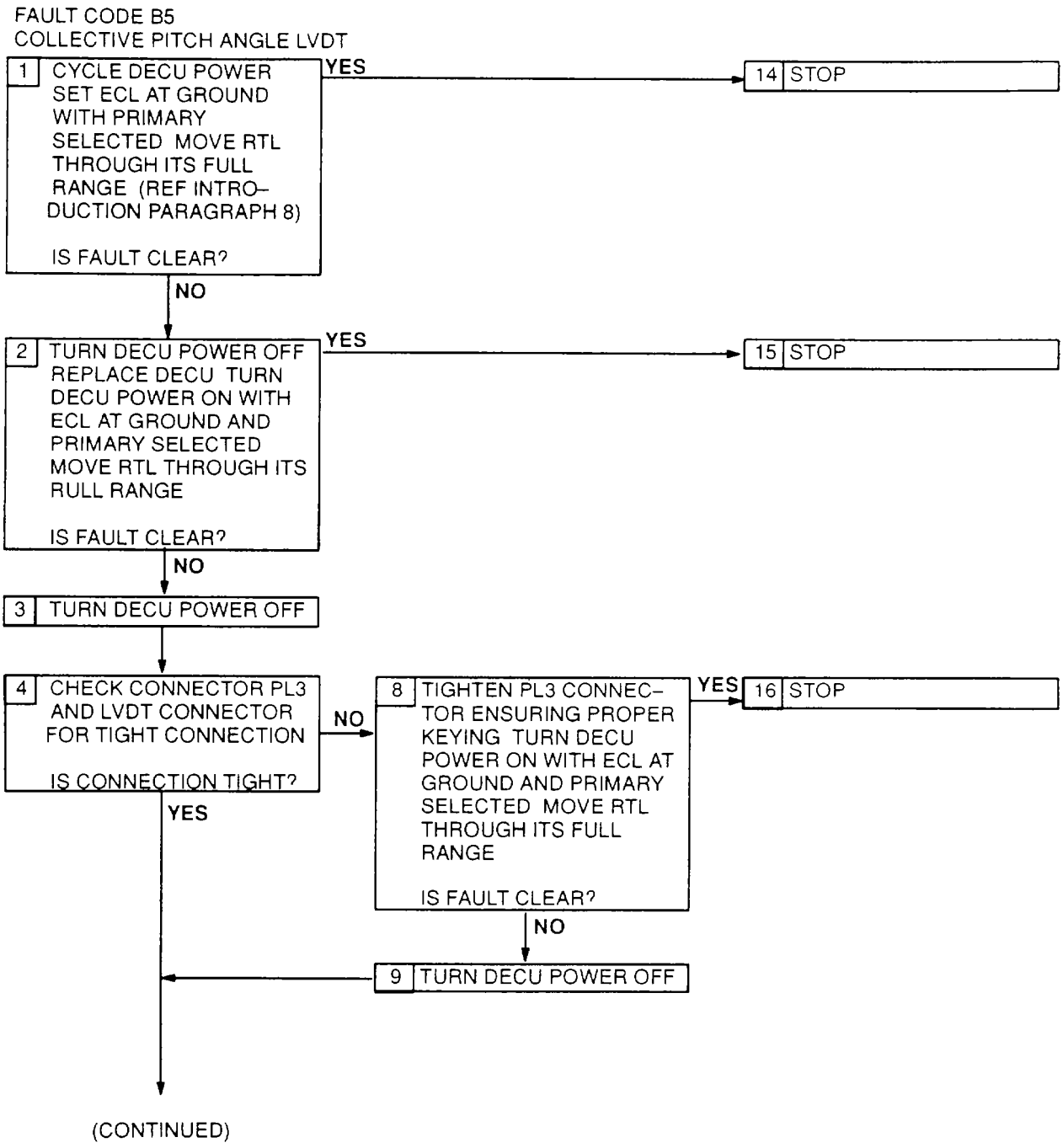
Step 20. Refer to manufacturer's procedure for diagnosing and replacing T4.5 sensor.

Step 23. Refer to manufacturer's procedure for diagnosing and replacing harness or T4.5 gauge.

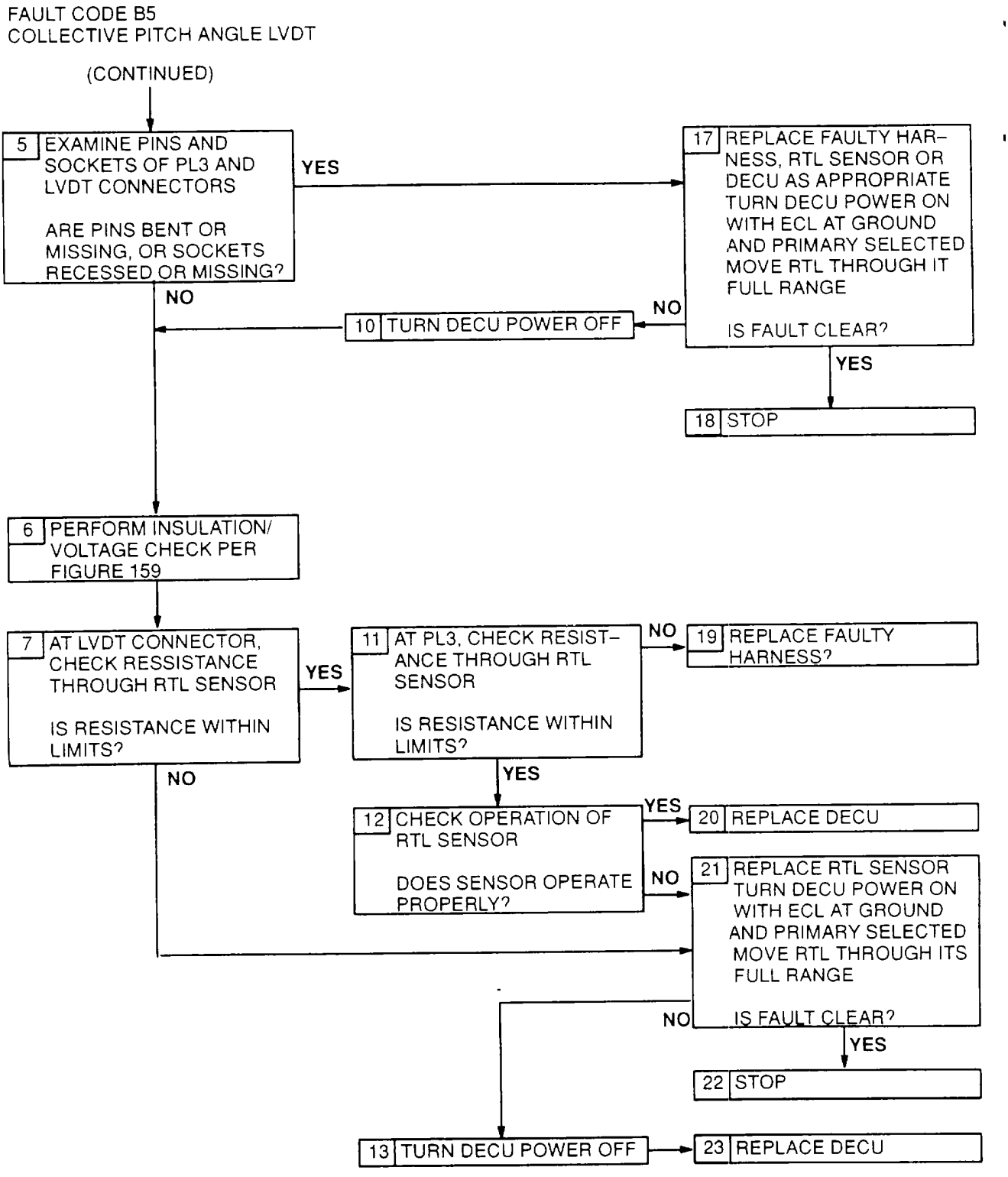
Step 24. Refer to manufacturer's procedure for diagnosing and replacing harness.

RESISTANCE-CHECK SUMMARY

Component	Connector		Resistance (Ω)	
	No	Contacts	Limits	Nominal *
T4 5 Gauge Harness	PL3	u & a	> 1MΩ	> 1MΩ
T4 5 Sensor	PL3	v & GG	3 5 – 20 0	10 0
	P19	A & B	3 5 – 5 5	4 0
T4,5 Thermocouple Probe	–	–	< 4 0	–
*At 25°C				



Fault Code B5, Collective Pitch Angle LVDT
Figure 136 (Sheet 1 of 2)



Fault Code B5, Collective Pitch Angle LVDT
Figure 136 (Sheet 2 of 2)

G-50 FAULT CODE B5, COLLECTIVE PITCH ANGLE LVDT EXPANDED INSTRUCTIONS

Refer to numbered steps in figure 136.

Step 4. Check harness connector PL3 (figure 201) at DECU and LVDT connector for tight connections.

Step 5. Disconnect connector PL3 and LVDT connector to check pins and sockets.

Step 7. With LVDT connector disconnected, check resistance of RTL sensor at sensor connector pins 1 and 2. Limit is 110 - 140Ω. Check resistance at pins 3 and 4. Limit is 210 -260Ω. Check resistance at pins 3 and 5, and pins 4 and 5. Limit is <230Ω.

Step 8. Before tightening harness connector PL3 and LVDT connector, be sure that keyway in harness connectors are aligned with keyways incomponent connectors.

Step 11. With PL3 disconnected, check resistance of RTL sensor at harness PL3 connector sockets q and p (figure 202). Limit is 220 - 260Ω. Check resistance at sockets z and AA. Limit is 110 - 140Ω.

Step 12. Refer to manufacturer's procedure for checking RTL sensor operation.

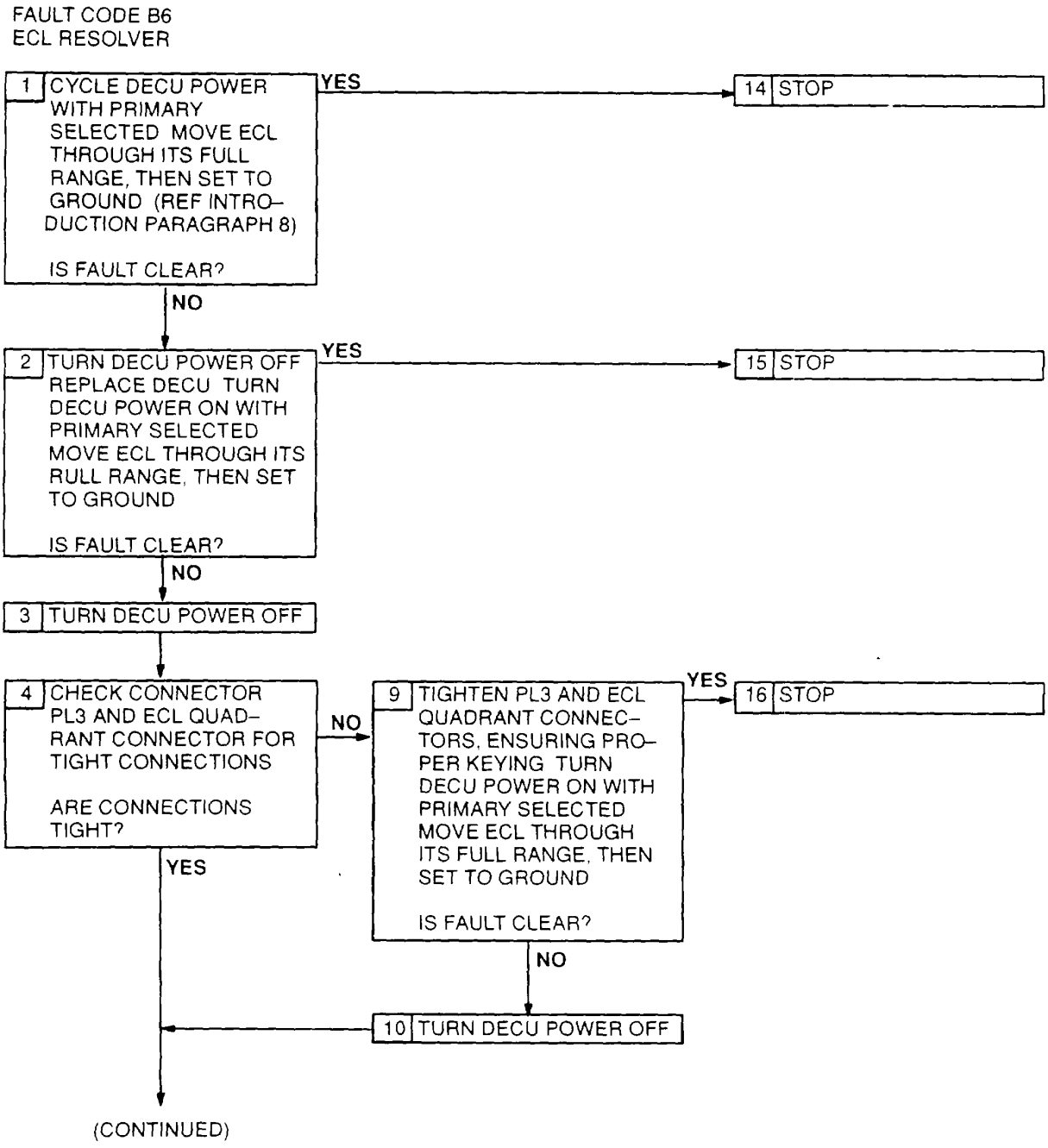
Step 17. Refer to manufacturer's procedure for diagnosing and replacing harness or RTL sensor.

Step 19. Refer to manufacturer's procedure for diagnosing and replacing harness.

Step 21. Refer to manufacturer's procedure for replacing RTL sensor.

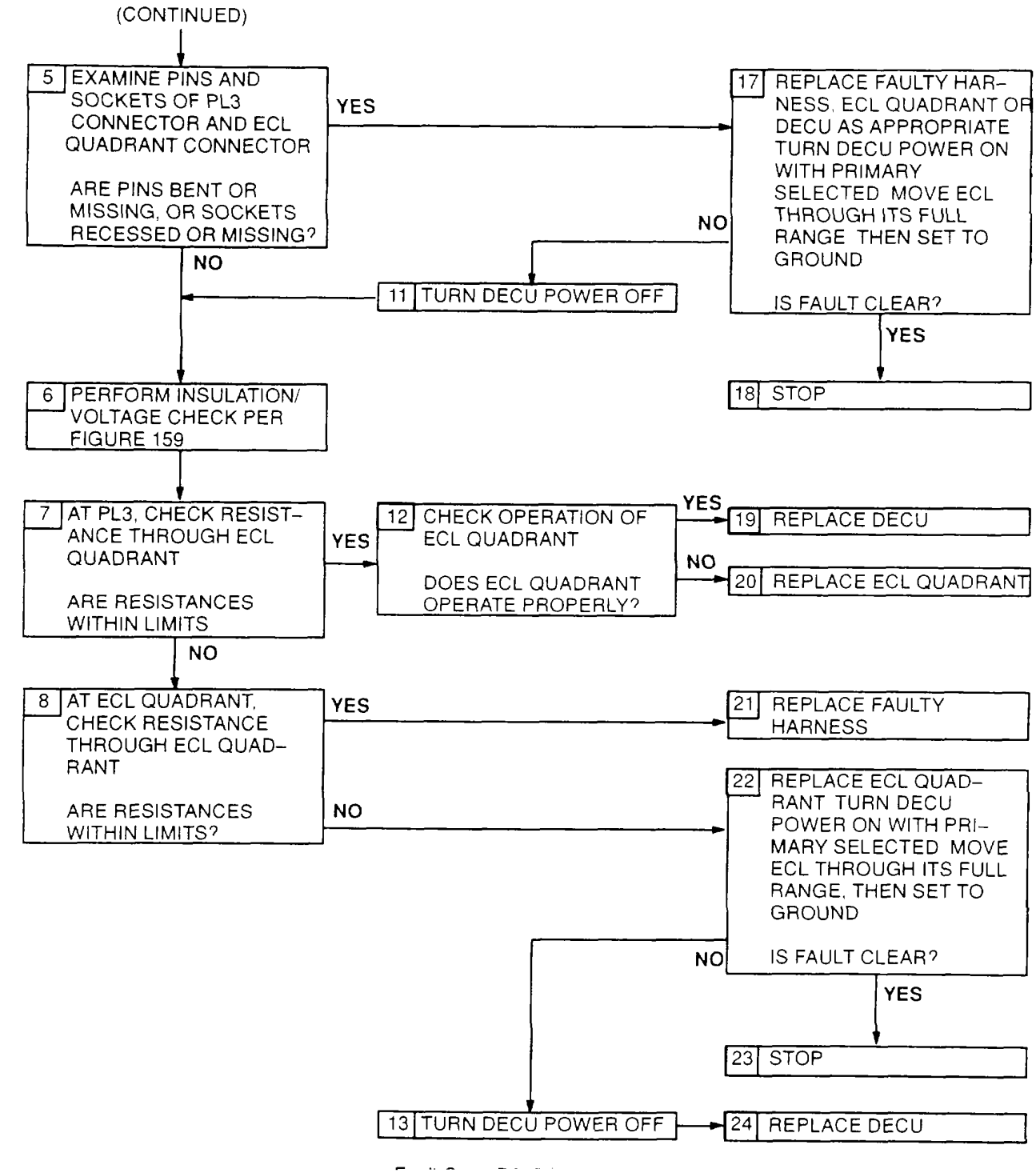
RESISTANCE-CHECK SUMMARY

Component	Connector		Resistance (Ω)	
	No	Contacts	Limits	Nominal *
RTL Sensor (C/P Signal)	LVDT	3 & 4	210 – 260	225
		3 & 5	< 230	–
		4 & 5	< 230	
RTL Sensor (C/P Excitation)	PL3	q & p	210 – 260	225
		z & AA	110 – 140	120
*At 25°C				



Fault Code B6, ECL Resolver
Figure 137 (Sheet 1 of 2)

FAULT CODE B6
ECL RESOLVER



Fault Code B6. ECL Resolver
Figure 137 (Sheet 2 of 2)

G-51 FAULT CODE B6, ECL RESOLVER EXPANDED INSTRUCTIONS

Refer to numbered steps in figure 137.

Step 4. Check harness connector PL3 (figure 201) at DECU, and connector at ECL quadrant for tight connections.

Step 5. Disconnect PL3 and ECL quadrant connectors to check pins and sockets.

Step 7. Set ECL to STOP. With PL3 disconnected, check resistance of ECL quadrant (excitation) at harness PL3 connector sockets h and i (figure 202). Limit is 35 - 42Ω. Check resistance of ECL quadrant (signal) at sockets EE and DD. Limit is 90-102Ω. Monitor resistance of ECL quadrant (interlock discrete) at sockets f and LL while moving ECL from STOP to GROUND to FLIGHT. Limits are defined in table below. Monitor resistance of ECL quadrant (gain discrete) at sockets MM and LL while moving ECL from STOP to GROUND to FLIGHT. Limits are as defined in table below. (Note: Gain discrete resistance is not checked at GROUND because switch can be open or closed at that point.)

Step 8. Set ECL to STOP. With ECL quadrant connector disconnected, check resistance of ECL quadrant (excitation) at quadrant pins 1 and 2. Limit is 35-40Ω. Check resistance of ECL quadrant (signal) at quadrant pins 3 and 4. Limit is 90 -1 00Ω. Monitor resistance of ECL quadrant (interlock discrete) at pins 11 and 12 while moving ECL from STOP to GROUND to FLIGHT. Limits are as defined in table below. Monitor resistance of ECL quadrant (gain discrete) at pins 5 and 11 while moving ECL from STOP to GROUND to FLIGHT. Limits are as defined in table below. (Note: Gain discrete resistance is not checked at GROUND because switch can be open or closed at that point.)

Step 9. Before tightening harness connector PL3 and connector at ECL resolver, be sure that keyways in harness connectors are aligned with keyways in component connectors.

Step 12. Refer to manufacturer's procedure for checking operation of ECL quadrant.

Step 17. Refer to manufacturer's procedure for diagnosing and replacing harness or ECL quadrant.

Step 20. Refer to manufacturer's procedure replacing ECL quadrant.

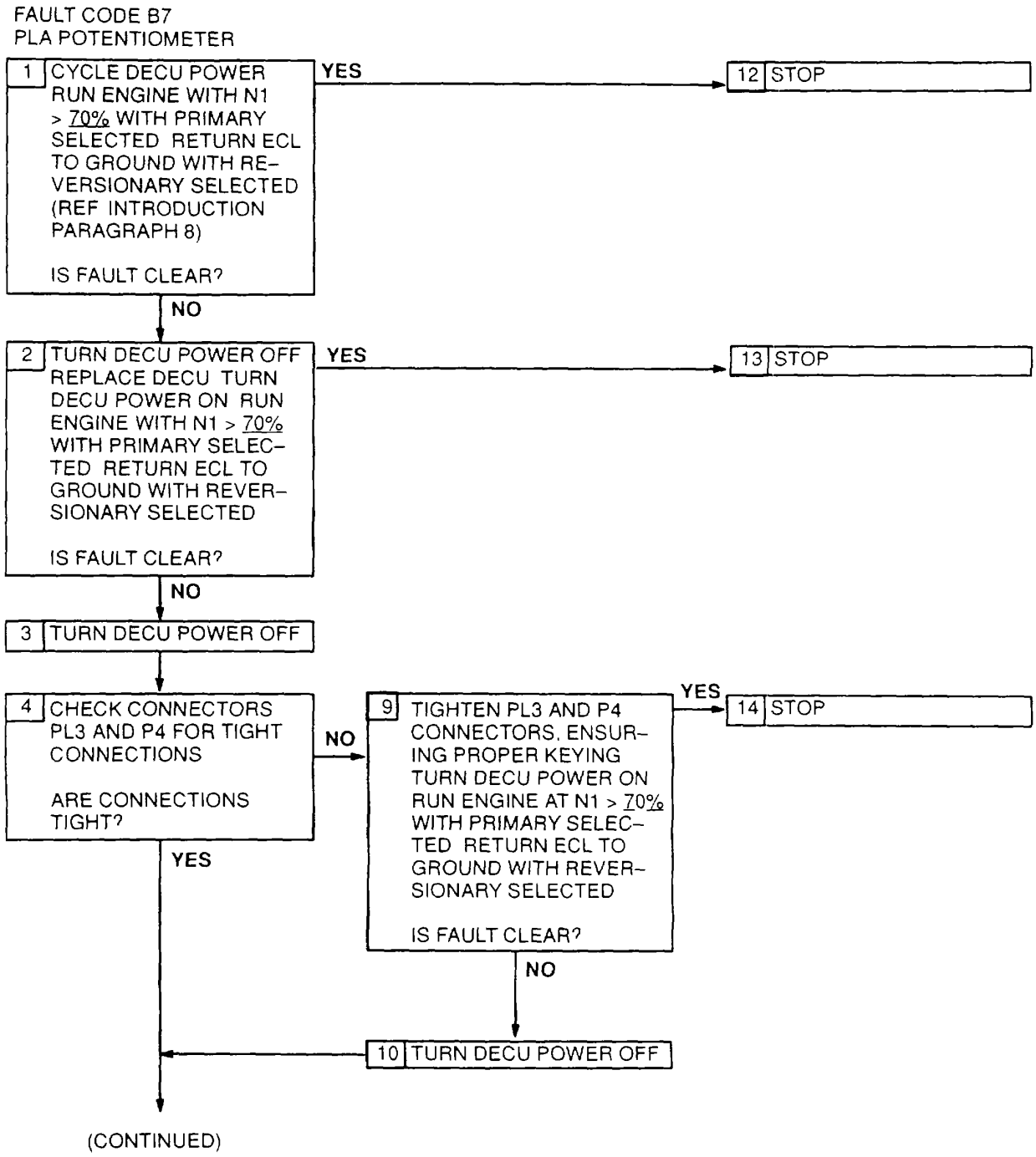
Step 21. Refer to manufacturer's procedure for diagnosing and replacing harness.

Step 22. Refer to manufacturer's procedure for diagnosing and replacing ECL quadrant.

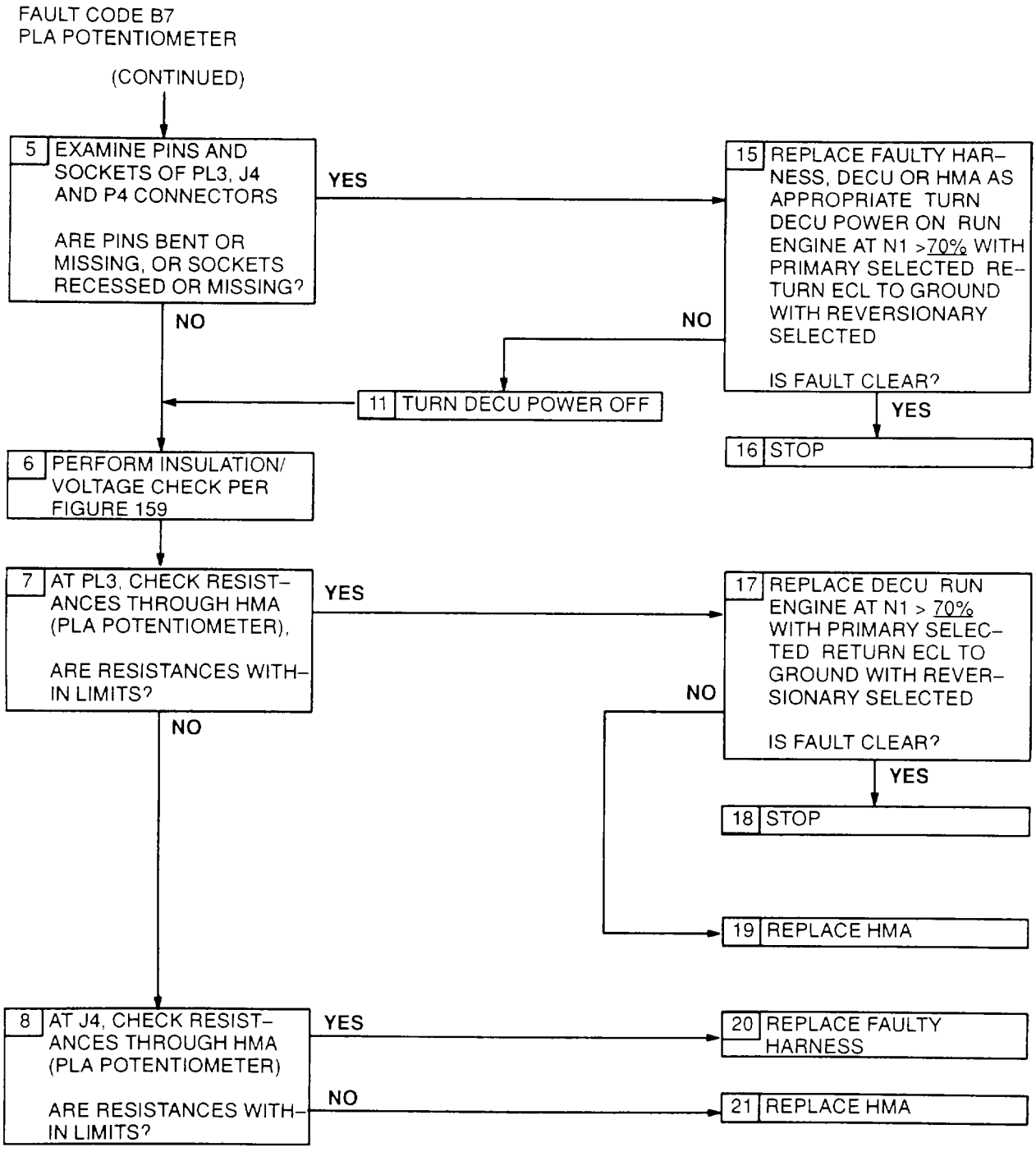
G-51 FAULT CODE B6, ECL RESOLVER EXPANDED INSTRUCTIONS(CONTINUED)

RESISTANCE-CHECK SUMMARY

Component	Connector		Resistance (Ω)	
	No	Contacts	Limits	Nominal *
ECL Quadrant – Excitation	PL3	h & l	35 – 42	–
	ECL Quadrant	1 & 2	35 – 40	–
ECL Quadrant – Signal	PL3	EE & DD	90 – 102	–
	ECL Quadrant	3 & 4	90 – 100	–
ECL Quadrant – Interlock Discrete				
ECL at STOP	PL3	f & LL	> 150K	∞
ECL between STOP and GROUND		f & LL	< 50	1
ECL at GROUND		f & LL	> 150K	∞
ECL between GROUND and FLIGHT		f & LL	< 50	1
ECL at FLIGHT		f & LL	> 150K	∞
ECL Quadrant – Interlock Discrete				
ECL at STOP	ECL Quadrant	12 & 11	> 150K	∞
ECL between STOP and GROUND		12 & 11	< 50	1
ECL at GROUND		12 & 11	> 150K	∞
ECL between GROUND and FLIGHT		12 & 11	< 50	1
ECL at FLIGHT		12 & 11	> 150K	∞
ECL Quadrant – Gain Discrete				
ECL at STOP	PL3	MM & LL	< 50	1
ECL between STOP and GROUND		MM & LL	< 50	1
ECL between GROUND and FLIGHT		MM & LL	> 150K	∞
ECL at FLIGHT		MM & LL	> 150K	∞
ECL Quadrant – Gain Discrete				
ECL at STOP	ECL Quadrant	5 & 11	< 50	1
ECL between STOP and GROUND		5 & 11	< 50	1
ECL between GROUND and FLIGHT		5 & 11	> 150K	∞
ECL at FLIGHT		5 & 11	> 150K	∞
*At 25°C				



Fault Code B7, PLA Potentiometer
Figure 138 (Sheet 1 of 2)



Fault Code B7, PLA Potentiometer
Figure 138 (Sheet 2 of 2)

G-52 FAULT CODE B7, PLA POTENTIOMETER EXPANDED INSTRUCTIONS

Refer to numbered steps in figure 138.

Step 4. Check harness connector PL3 (figure 201) at DECU, and P4 at HMA for tight connections.

Step 5. Disconnect connectors PL3 and P4 to check pins and sockets.

Step 7. CAUTION: DO NOT USE AN OHMMETER THAT CAN APPLY MORE THAN 5 mA WHEN MEASURING RESISTANCES, TO AVOID DAMAGING THE PLA POTENTIOMETER

With PL3 disconnected, check resistance of HMA (PLA potentiometer) at harness PL3 connector sockets U and T (results are "a") and T and S (results are "b"). Limitfor "a" and "b" is 510-5750Ω. Check resistance at sockets U and S (results are "c"). Limit for "c" is4250-5750Ω. Use the following equation to check wiper resistance:

$$a + b - c \div 2 = d$$

Limit for "d" is ≤ 300Ω. Use the following equation to check if the high or low limit of the PLA potentiometer has been exceeded:

$$b - d \div c = e$$

Limit for "e" is 0.120 - 0.950.

Step 8. CAUTION: DO NOT USE AN OHMMETER THAT CAN APPLY MORE THAN 5 mA WHEN MEASURING RESISTANCES, TO AVOID DAMAGING THE PLA POTENTIOMETER.

With P4 disconnected, check resistance of HMA (PLA potentiometer) at HMA J4 connector pins X and Y (results are "f") and Y and Z (results are "g"). Limit for "f" and "g" is 510 - 5750Ω. Check resistance at pins X and Z (results are "h"). Limit for "h" is 4250 - 5750Ω. Use the following equation to check wiper resistance.

$$f + g - h \div 2 = i$$

Limit for "i" is < 300Ω. Use the following equation to check if the high or low limit of the PLA potentiometer has been exceeded:

$$g - i \div h = j$$

Limit for "j" is 0.120 - 0.950.

Step 9. Before tightening harness connectors PL3 and P4, be sure that keyways in harness connectors are aligned with keyways in component connectors.

Step 15. Refer to manufacturer's procedure for diagnosing and replacing harness.

Step 20. Refer to manufacturer's procedure for diagnosing and replacing harness.

G-52 FAULT CODE B7, PLA POTENTIOMETER EXPANDED INSTRUCTIONS(CONTINUED)

RESISTANCE–CHECK SUMMARY

Component	Connector No	Contacts		Resistance (Ω) Limits	Nominal *
HMA – PLA Potentiometer	PL3	U & T	(a)	510 – 5750	**
		T & S	(b)	510 – 5750	**
		U & S	(c)	4250 – 5750	5000
		a + b – c — 2	(d)	≤ 300	195
		b – d — c	(e)	0 120 – 0 950	**
	J4	X & Y	(f)	510 – 5750	**
		Y & Z	(g)	510 – 5750	**
		X & Z	(h)	4250–5750	5000
		f + g – h — 2	(i)	≤ 300	195
		g – i — h	(j)	0 120 – 0 950	**

* At 25°C
** Dependent on PLA Position

FAULT CODES
B9 COLD JUNCTION COMPENSATION
BA REVERSIONARY +28V
BB REVERSIONARY T4 5 CALIBRATION

1 TURN DECU POWER OFF
REPLACE DECU

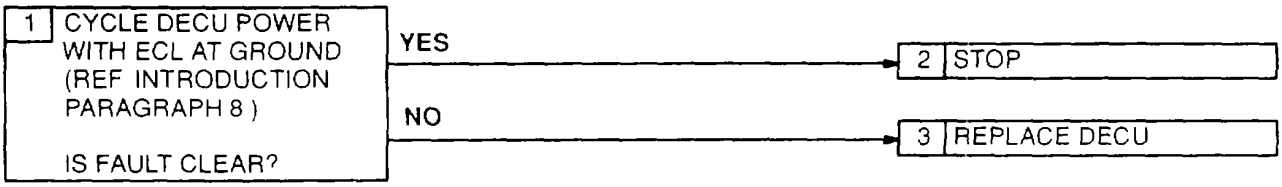
Fault Codes B9, BA, BB, Internal DECU Faults
Figure 139

G-53 FAULT CODES B9, BA, BB, INTERNAL DECU FAULTS EXPANDED INSTRUCTIONS

Refer to numbered steps in figure 139.

These codes indicate internal DECU problems. No further troubleshooting is possible.

FAULT CODE BC
400 Hz RESOLVER REFERENCE



Fault Code BC, 400 Hz Resolver Reference
Figure 140

G-54 FAULT CODE BC, 400 Hz RESOLVER REFERENCE EXPANDED INSTRUCTIONS

Refer to numbered steps in figure 140.

Step 1. Cycle DECU power to determine if fault is due to a DECU problem or was caused by an interrupt to both reversionary power supplies.

Step 3. An internal DECU fault exists. No further troubleshooting is possible.

FAULT CODES	10	MICROPROCESSOR
	11	NVM CHECKSUM
	12	NVM ENGINE HISTORY
	13	NVM FAULT DATA
	14	NVM ACCUMULATED FAULT DATA
	15	NVM WRITE TEST
	16	NVM STORAGE INCOMPLETE
	17	NVM HISTORY DATA INCONSISTENT
	18	MINOR CYCLE NOT COMPLETED
	1B	EMS CYCLE NOT COMPLETED
	1C	A/D CONVERSION NOT COMPLETED
	1E	RAM FAILURE
	1F	Op CODE ERROR

1	REPLACE DECU

Fault Codes 10-1 F, Internal DECU Faults
Figure 141

G–55 FAULT CODES 10–1F, INTERNAL DECU FAULTS EXPANDED INSTRUCTIONS

With power to DECU and before starting engine, if code “10” or “10 and 1F” are displayed, refer to figure 141A.

For all other faults or combinations, refer to numbered steps in figure 141.

These codes indicate internal DECU problems. No further troubleshooting is possible.

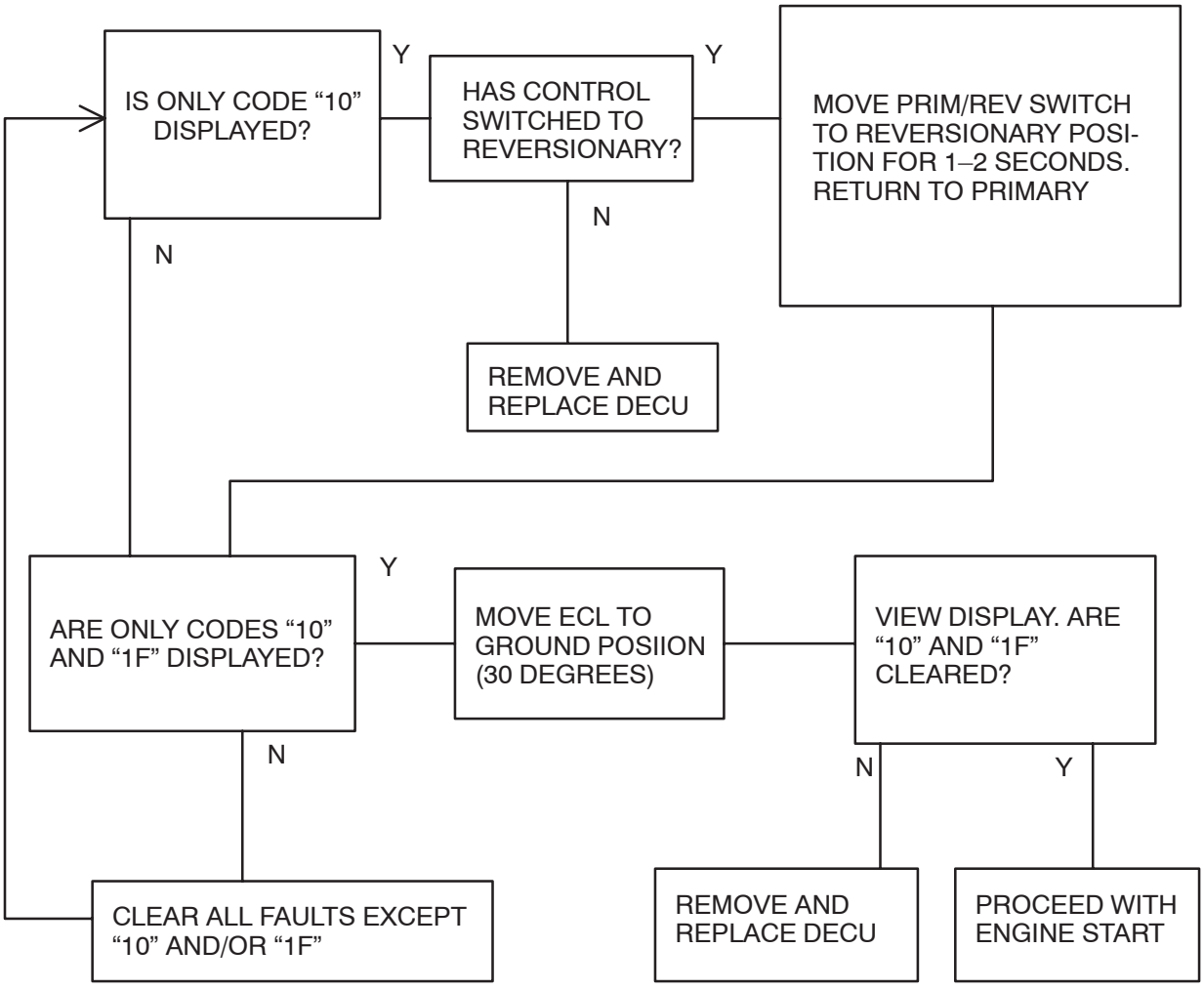
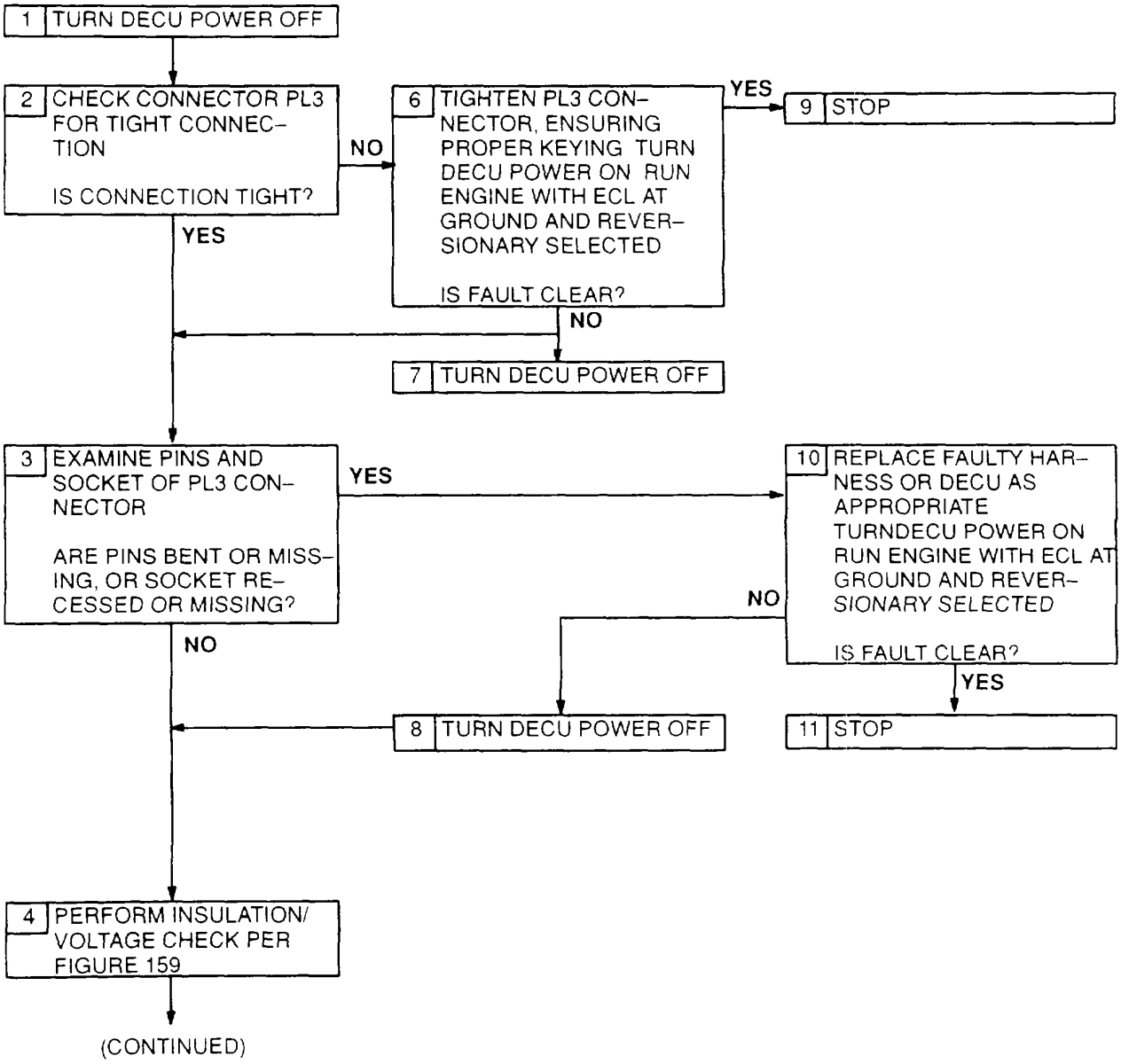


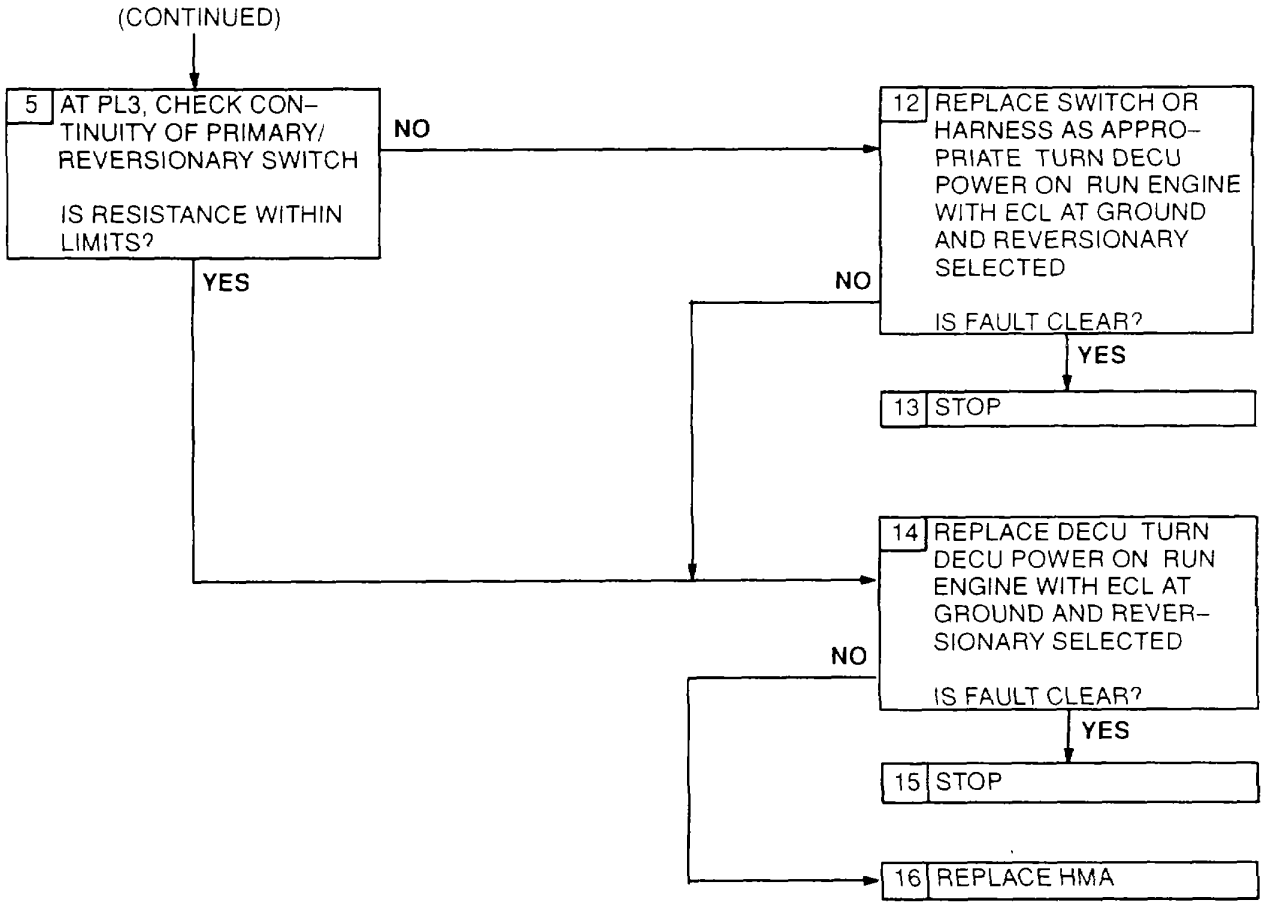
Figure 141a. Procedure to Clear Fault code “10” and/or “1F” Before Engine Start

FAULT CODE - NONE
UNABLE TO SWITCH TO REVERSIONARY MODE



Unable to Switch to Reversionary Mode (Sheet 1 of 2)
Figure 142

FAULT CODE - NONE
UNABLE TO SWITCH TO REVERSIONARY MODE



Unable to Switch to Reversionary Mode (Sheet 2 of 2)
Figure 142

G-56 UNABLE TO SWITCH TO REVERSIONARY MODE EXPANDED INSTRUCTIONS

Refer to numbered steps in figure 142.

Step 2. Check harness connector PL3 (figure 201) at DECU for tight connection.

Step 3. Disconnect connectors PL3 to check pins and sockets.

Step 5. With PL3 disconnected and primary mode selected, check resistance of primary/reversionary switch at harness PL3 connector sockets x and e (figure 202). Limit is ≥150KΩ. With reversionary mode selected, check resistance again. Limit is <50Ω.

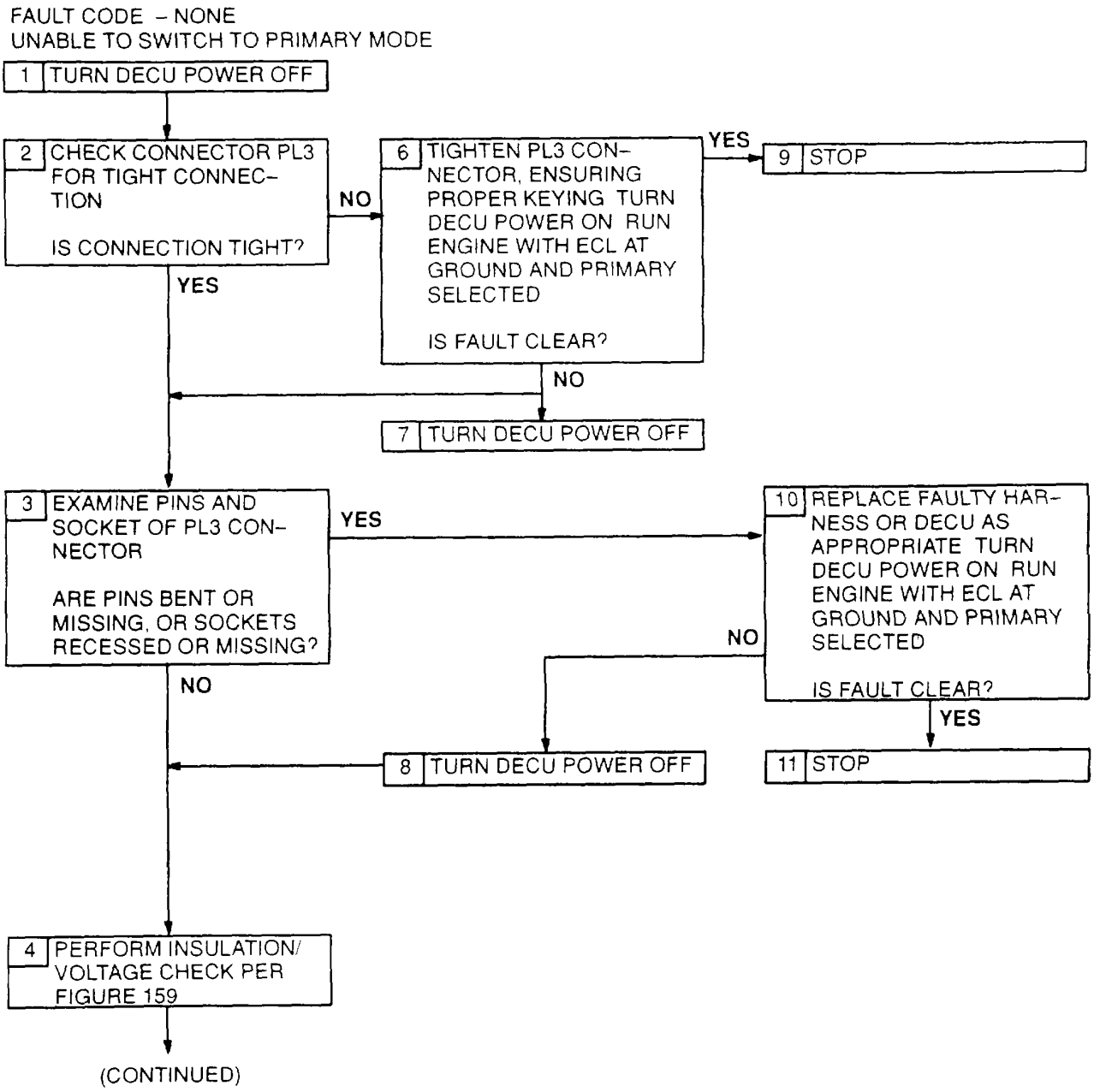
Step 6. Before tightening harness connectors PL3, be sure that keyway in harness connector is aligned with keyway in component connector.

Step 10. Refer to manufacturer's procedure for diagnosing and replacing harness.

Step 12. Refer to manufacturer's procedure for diagnosing and replacing switch or harness.

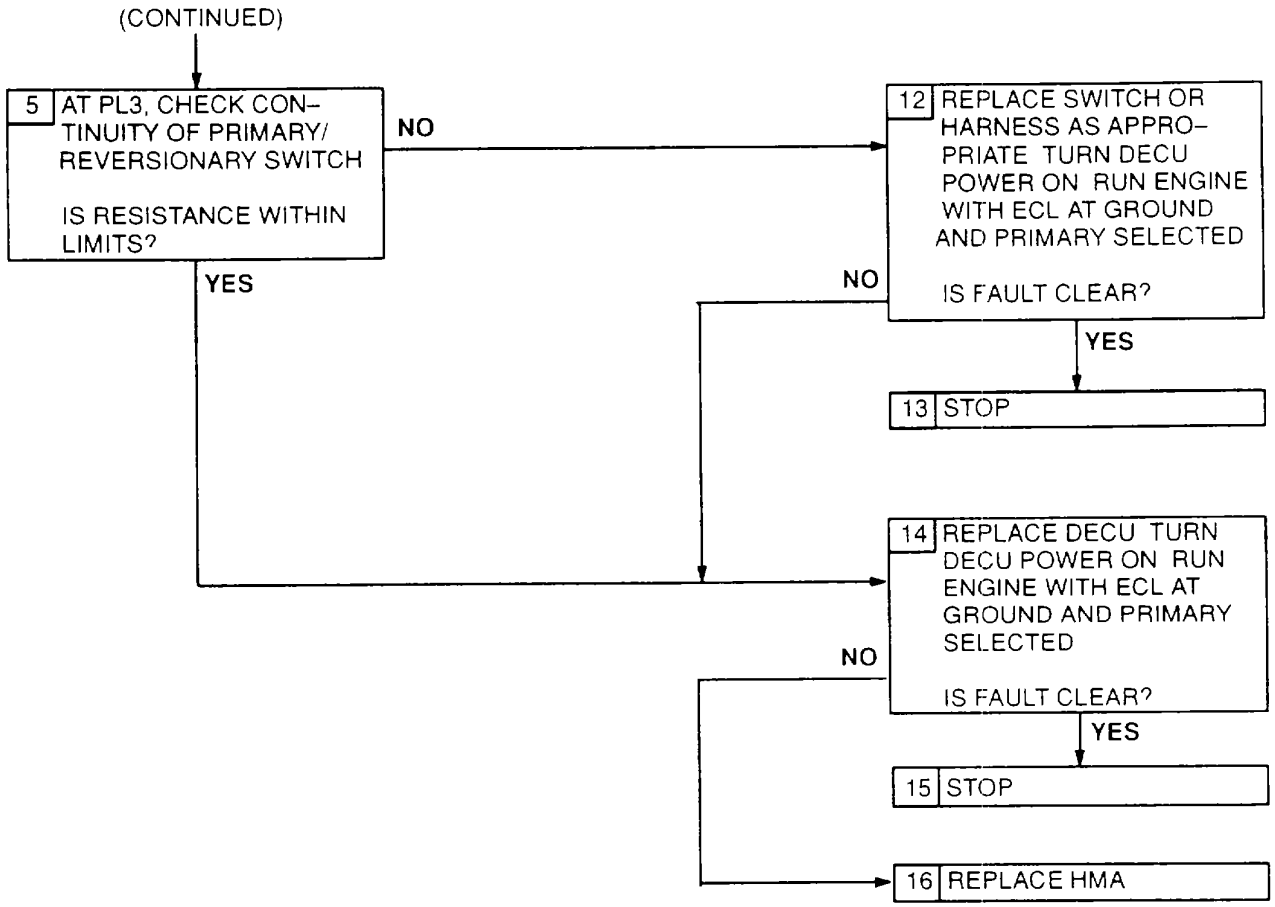
RESISTANCE-CHECK SUMMARY

Component	Connector		Resistance (Ω)	
	No	Contacts	Limits	Nominal *
Cockpit Primary/Reversionary Switch				
Primary	PL3	x & e	> 150K	∞
Reversionary	PL3	x & e	< 50	1
*At 25°C				



Unable to Switch to Primary Mode (Sheet 1 of 2)
Figure 143

FAULT CODE - NONE
UNABLE TO SWITCH TO PRIMARY MODE



Unable to Switch to Primary Mode (Sheet 2 of 2)
Figure 143

G-57 UNABLE TO SWITCH TO PRIMARY MODE EXPAND ED INSTRUCTIONS

Refer to numbered steps in figure 143.

Step 2.. Check harness connector PL3 (figure 201) at DECU for tight connection.

Step 3. Disconnect connector PL3 to check pins and sockets.

Step 5. With PL3 disconnected and primary mode selected, check resistance of primary/reversionary switch at harness PL3 connector sockets x and e (figure 202). Limit is >150KW. With reversionary mode selected, check resistance again. Limit is <50W.

Step 6. Before tightening harness connector PL3, be sure that keyway in harness connector is aligned with keyway in component connector.

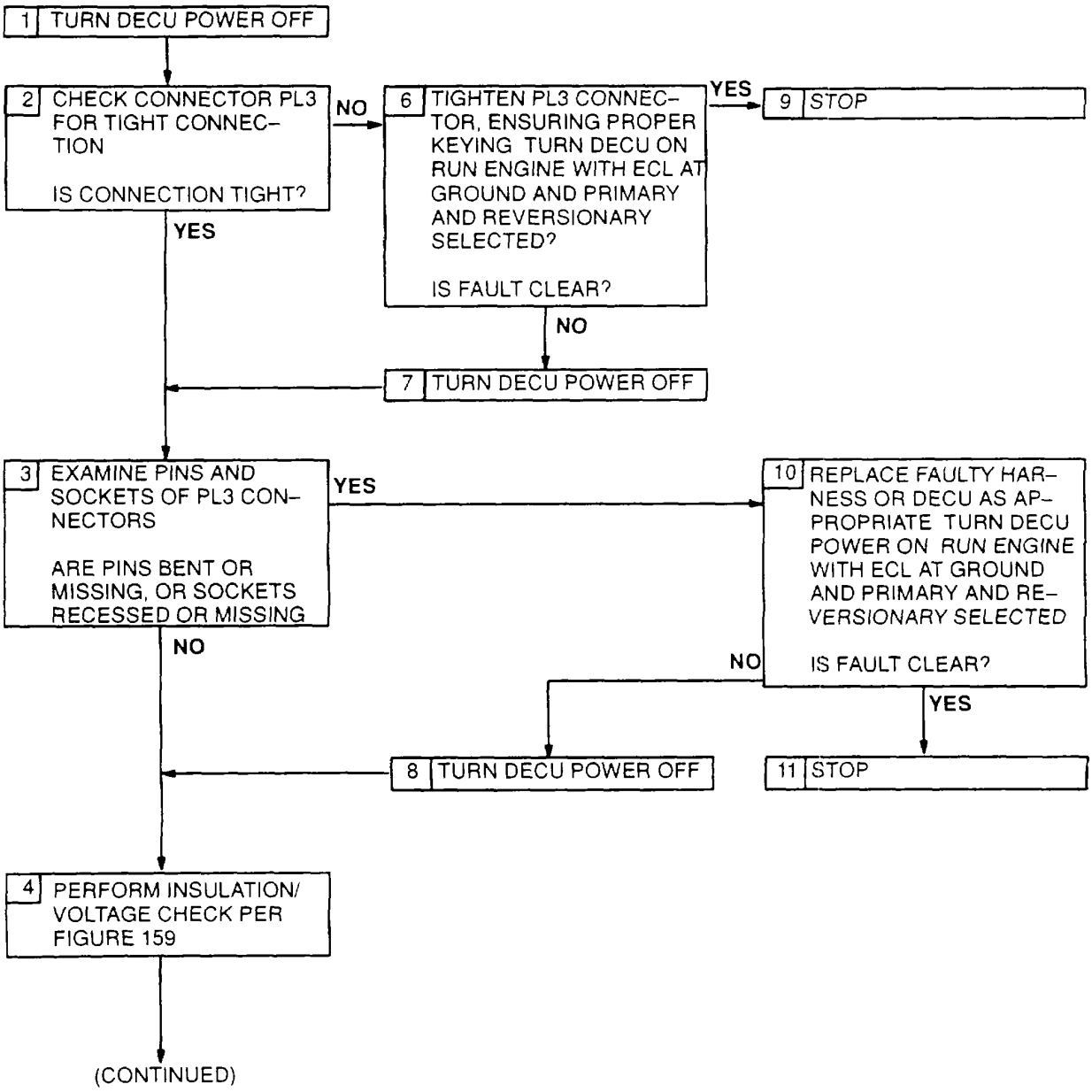
Step 10. Refer to manufacturer's procedure for diagnosing and replacing harness.

Step 12. Refer to manufacturer's procedure for diagnosing and replacing switch or harness.

RESISTANCE-CHECK SUMMARY

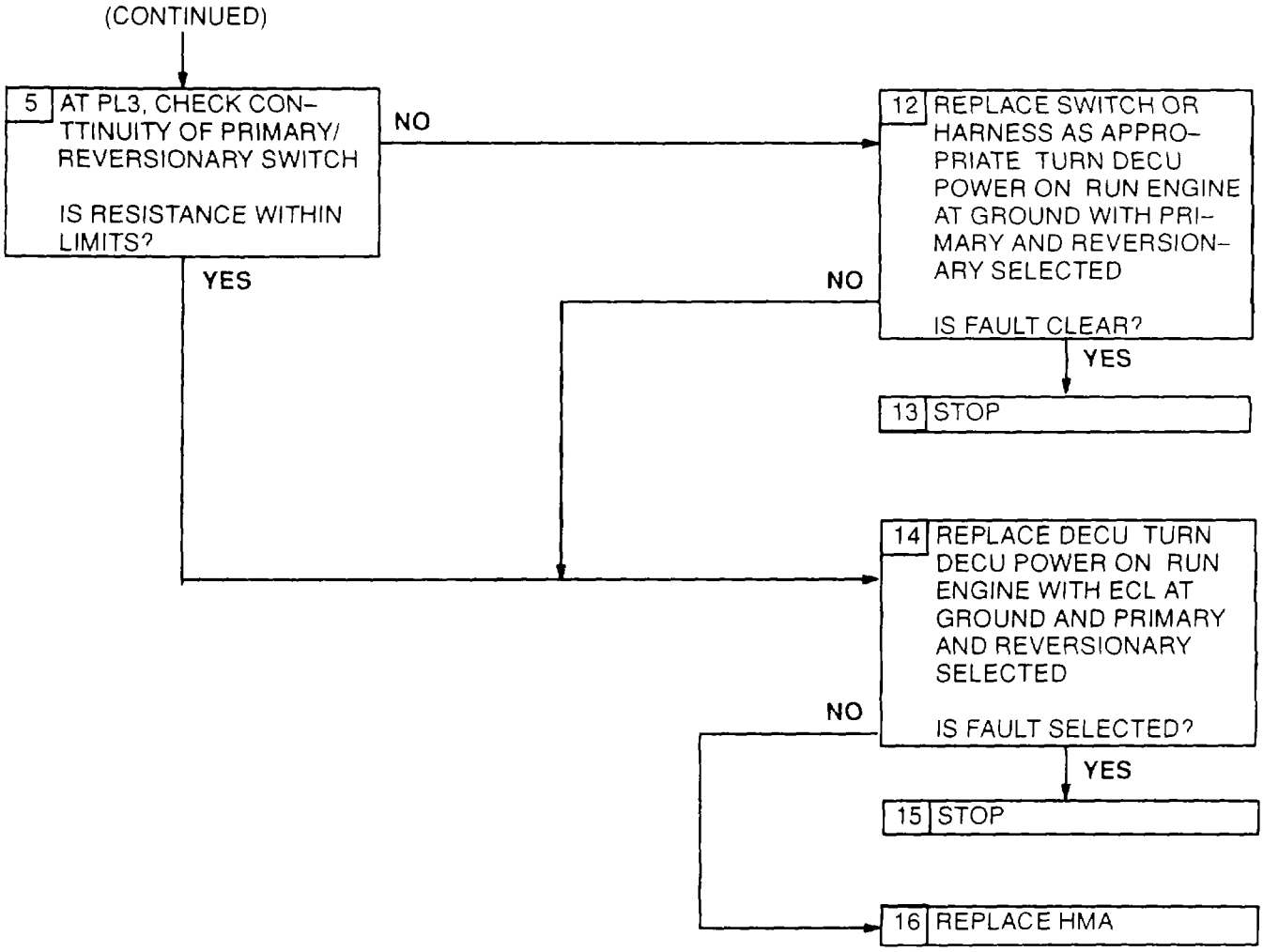
Component	Connector		Resistance (Ω)	
	No	Contacts	Limits	Nominal *
Cockpit Primary/Reversionary Switch				
Primary	PL3	x & e	> 150K	∞
Reversionary	PL3	x & e	< 50	1
*At 25°C				

FAULT CODE – NONE
SYSTEM TOGGLES BETWEEN PRIMARY AND REVERSIONARY MODE



System Toggles Between Primary and Reversionary Mode
Figure 144 (Sheet 1 of 2)

FAULT CODE - NONE
SYSTEM TOGGLE BETWEEN PRIMARY AND REVERSIONARY MODE



System Toggles Between Primary and Reversionary Mode
Figure 144 (Sheet 2 of 2)

G-58 SYSTEM TOGGLES BETWEEN PRIMARY AND REVERSIONARY MODE EXPANDED INSTRUCTIONS

Refer to numbered steps in figure 144.

Step 2. Check harness connector PL3 (figure 201) at DECU for tight connection.

Step 3. Disconnect connector PL3 to check pins and sockets.

Step 5. With PL3 disconnected and primary mode selected, check resistance of primary/reversionary switch at harness PL3 connector sockets x and e (figure 202). Limit is ≥150KΩ. With reversionary mode selected, check resistance again. Limit is <50Ω.

Step 6. Before tightening harness connector PL3, be sure that keyway in harness connector is aligned with keyway in component connector.

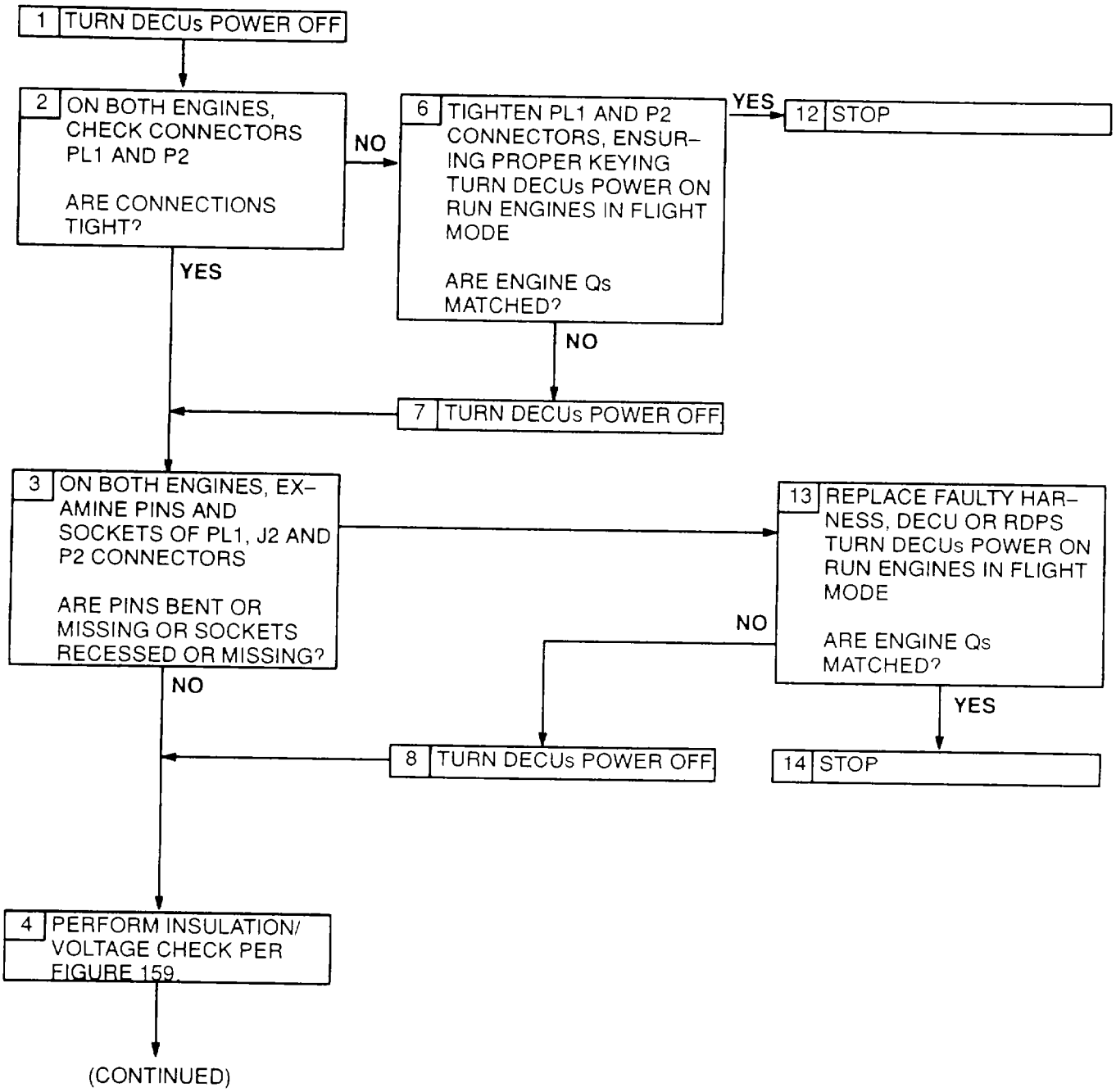
Step 10. Refer to manufacturer's procedure for diagnosing and replacing harness.

Step 12. Refer to manufacturer's procedure for diagnosing and replacing switch or harness.

RESISTANCE-CHECK SUMMARY

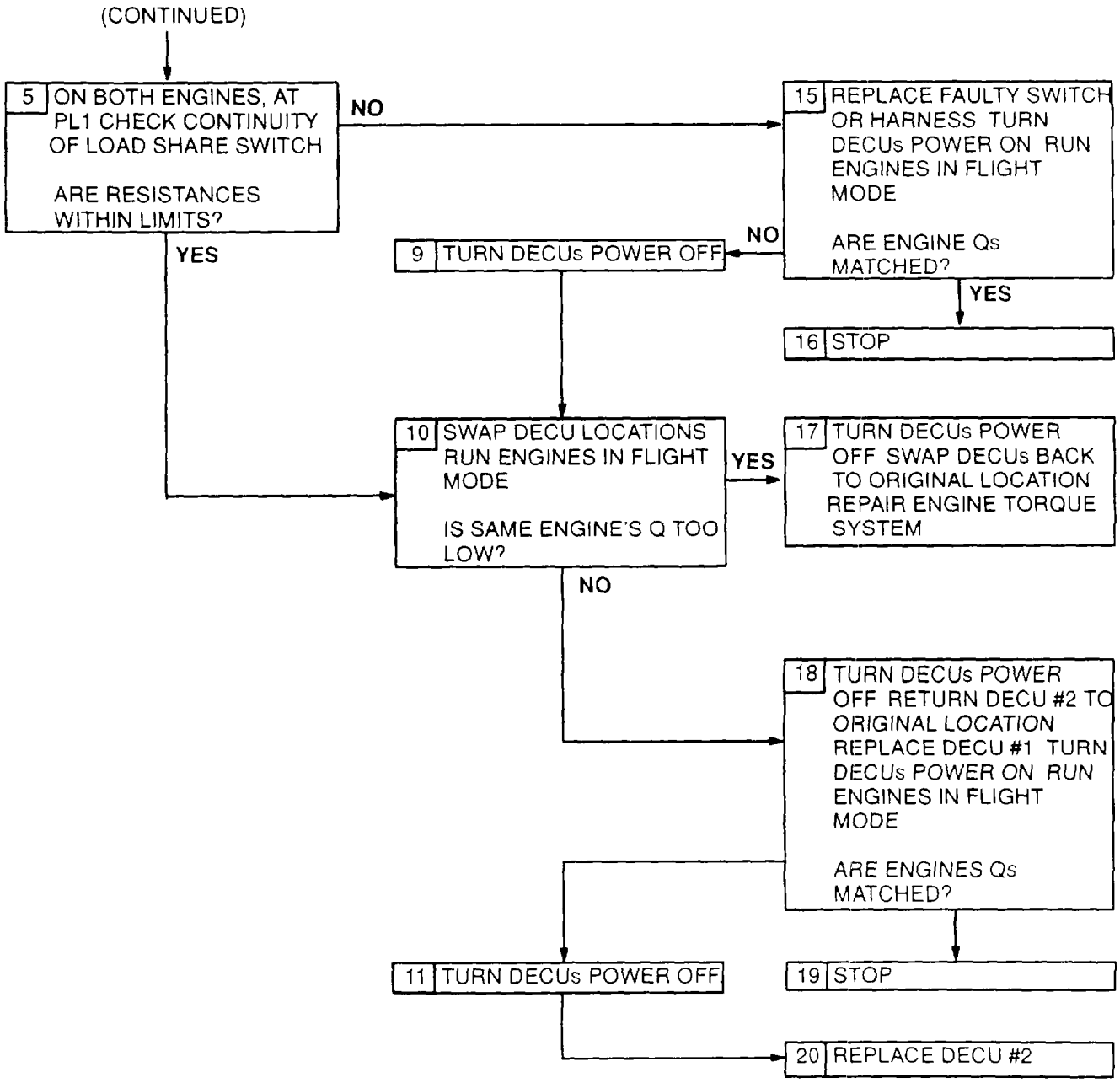
Component	Connector		Resistance (Ω)	
	No.	Contacts	Limits	Nominal*
Cockpit Primary/Reversionary Switch Primary	PL3	x & e	>150K	∞
Reversionary	PL3	x & e	<50	1
*At 25°C				

FAULT CODE - NONE
Q LOAD SHARE SELECTED, Qs NOT MATCHED



Q Load Share Selected, Qs Not Matched
Figure 145 (Sheet 1 of 2)

FAULT CODE - NONE
Q LOAD SHARE SELECTED, Qs NOT MATCHED



Q Load Share Selected, Qs Not Matched
Figure 145 (Sheet 2 of 2)

G-59 Q LOAD SHARE SELECTED, Qs NOT MATCHED EXPANDED INSTRUCTIONS

Refer to numbered steps in figure 145.

Step 2. Check harness connector PL1 (figure 201) at each DECU and P2 at each signal conditioner for tight connection.

Step 3. At each DECU and signal conditioner, disconnect connectors PL1 and P2 to check pins and sockets.

Step 5. At each DECU, with PL1 disconnected and load share switch in Q position, check resistance of load share switch at harness PL1 connector sockets L and j. (figure 202). Limit is <50Ω. Check resistance at sockets M and i. Limit is >150KΩ. With load share switch in T4.5 position, check resistance at sockets L and j. Limit is >150KΩ. Check resistance at sockets M and j. Limit is <50Ω. With load share switch in N1 position, check resistance at sockets L and i. and M and j. In each case, limit is >150KΩ.

Step 6. Before tightening harness connectors PL1 and P2, be sure that keyway in harness connector is aligned with keyway in component connector.

Step 10. Swap DECU locations on engines, such that DECU #1 is on engine #2, and DECU #2 is on engine #1. Compare Q mismatch to determine if the engine with lower Q is the same engine that had lower Q before the swap.

Step 13. Refer to manufacturer's procedure for diagnosing and replacing harness and signal conditioner.

Step 15. Refer to manufacturer's procedure for diagnosing and replacing harness or switch.

Step 17. Swap DECU locations on engines, such that DECU #1 is on engine #1, and DECU #2 is on engine #2. Refer to manufacturer's procedure for diagnosing and replacing signal conditioner.

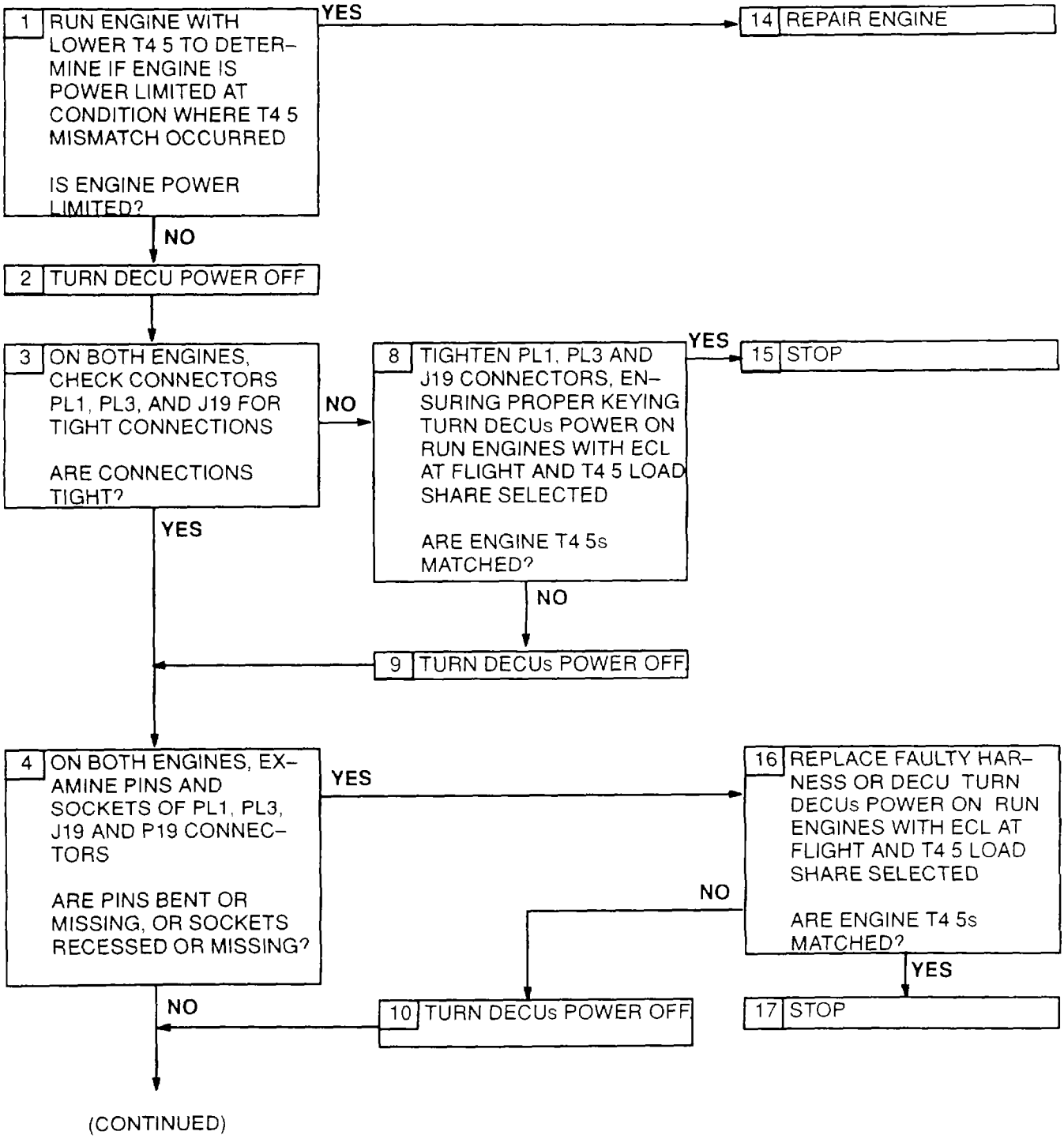
Step 18. Return DECU #2 to engine #2. Install replacement DECU on engine #1.

G-59 Q LOAD SHARE SELECTED, Qs NOT MATCHED EXPANDED INSTRUCTIONS(CONTINUED)

RESISTANCE-CHECK SUMMARY

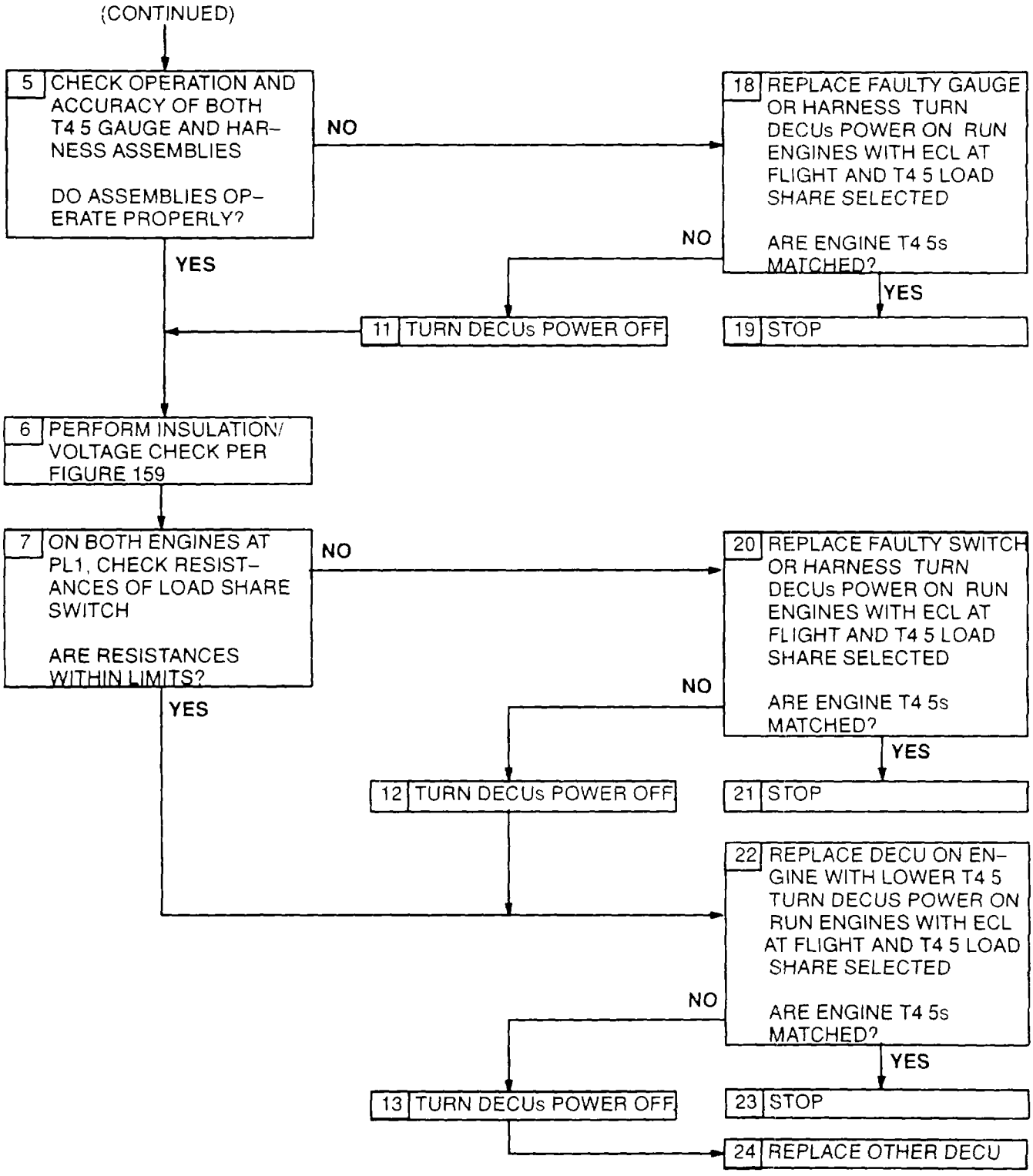
Component	Connector		Resistance (Ω)	
	No.	Contacts	Limits	Nominal
Load Share Switch Q Position	PL1	L & M &j	<50 > 150K	1 ∞
Load Share Switch -	PL1	L & j	> 150K	∞
T4.5 Position		M & j	< 50	1
Load Share Switch	PL1	L & j	> 150K	∞
N1 Position *At 25°C		M &j	> 150K	∞

FAULT CODE - NONE
T4.5 LOAD SHARE SELECTED, T4.5s NOT MATCHED



T4.5 Load Share Selected. T4.5s Not Matched
Figure 146 (Sheet 1 of 2)

FAULT CODE - NONE
T4.5 LOAD SHARE SELECTED, T4.5s NOT MATCHED



T4.5 Load Share Selected, T4.5s Not Matched
Figure 146 (Sheet 2 of 2)

G-60 T4.5 LOAD SHARE SELECTED, T4.5s NOT MATCHED EXPANDED INSTRUCTIONS

Refer to numbered steps in figure 146.

Step 1. Refer to manufacturer's procedure to check for power limiting.

Step 3. Check harness connectors PL1 and PL3 (figure 201) at each DECU,and J19 at each T4.5 harness for tight connections.

Step 4. At each DECU and T4.5 harness, disconnect connectors PL1, PL3 and J19 to check pins and sockets.

Step 5. Refer to manufacturer's procedure for checking operation and accuracy of T4.5 gauge and harness assemblies.

Step 7. At each DECU, with PL1 disconnected and load share switch in Q position, check resistance of load share switch at harness PL1 connector sockets L and j. (figure 202). Limit is <50Ω. Check resistance at sockets M and j. Limit is >150KΩ. With load share switch in T4.5 position, check resistance at sockets L and j. Limit is >150KΩ. Check resistance at sockets M and j. Limit is <50Ω. With load share switch in N1 position, check resistance at sockets L and i., and M and j. In each case, limit is >150KΩ.

Step 8. Before tightening harness connectors PL1, PL3 and J19, be sure that keyway in harness connectors are aligned with keyways in component connectors.

Step 14. Refer to manufacturer's procedure for diagnosing and repairing engine.

Step 16. Refer to manufacturer's procedure for diagnosing and replacing harness.

Step 20. Refer to manufacturer's procedure for diagnosing and replacing switch or harness.

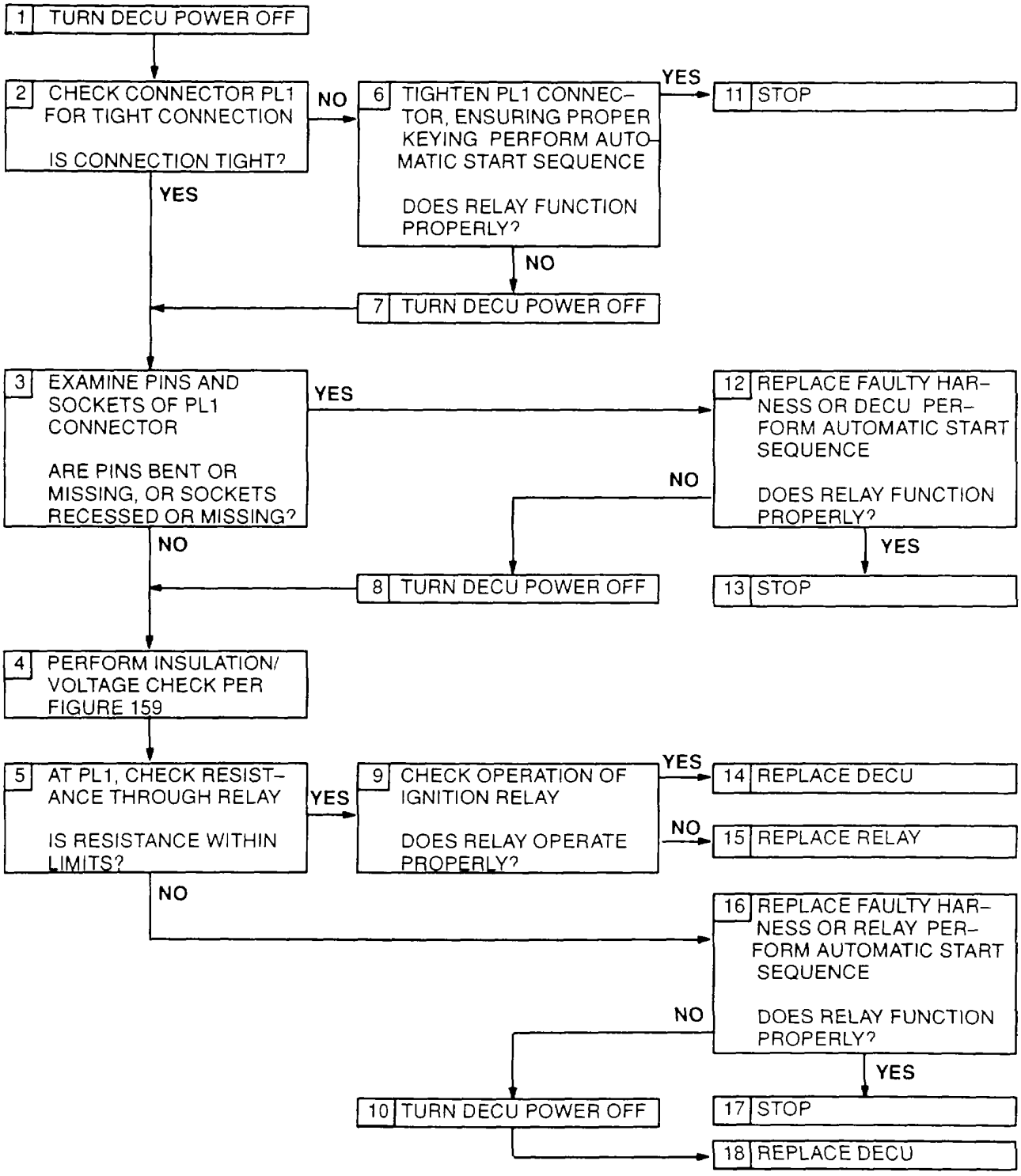
Step 22 Refer to manufacturer's procedure for diagnosing and replacing harness or T4.5 gauge.

G-60 T4.5 LOAD SHARE SELECTED, T4.5S NOT MATCHED EXPANDED INSTRUCTIONS (CONTINUED)

RESISTANCE-CHECK SUMMARY

	Connector		Resistance (Ω)	
Component	No.	Contacts	Limits	Nominal *
Load Share Switch Q Position	PL1	L & j M & j	< 50 > 150K	1 ∞
Load Share Switch	PL1	L & j	>150K	∞
T4.5 Position		M & j	< 50	1
Load Share Switch	PL1	L & j	> 150K	∞
N1 Position *At 25°C		M & j	> 150K	∞

FAULT CODE - NONE
IGNATION REPLAY DOES NOT FUNCTIN



Ignition Relay Does Not Function
Figure 147

G-61 IGNITION RELAY DOES NOT FUNCTION EXPANDED INSTRUCTIONS

Refer to numbered steps in figure 147.

Step 2. Check harness connector PL1 (figure 201) at DECU for tight connections.

Step 3. Disconnect harness connector PL1 to check pins and sockets.

Step 5. With PL1 disconnected, check resistance of ignition relay at harness PL1 connector sockets n and p (figure 202). Limit is 190 - 430Ω.

Step 6. Before tightening harness connector PL1, be sure that keyway in harness connector is aligned with keyway in component connector.

Step 9. Refer to manufacturer's procedure for checking operation of ignition relay.

Step 12. Refer to manufacturer's procedure for diagnosing and replacing harness.

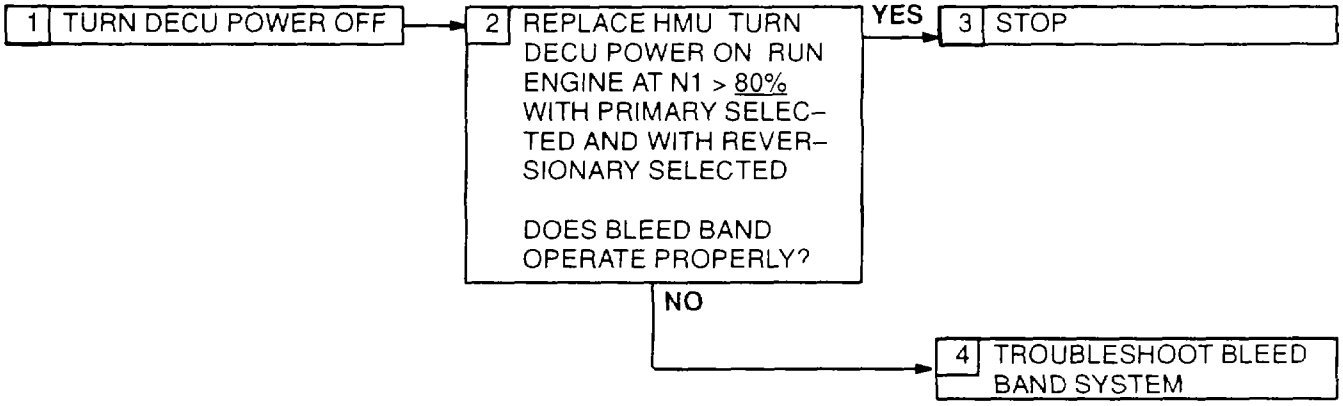
Step 15. Refer to manufacturer's procedure for replacing ignition relay.

Step 16. Refer to manufacturer's procedure for diagnosing and replacing harness or relay.

RESISTANCE-CHECK SUMMARY

	Connector		Resistance (5)	
Component	No.	Contacts	Limits	Nominal
Ignition Relay *At 25°C	PL1	n & p	190 - 430	310

FAULT CODE - NONE
BLEED BAND DOES NOT FUNCTION PROPERLY



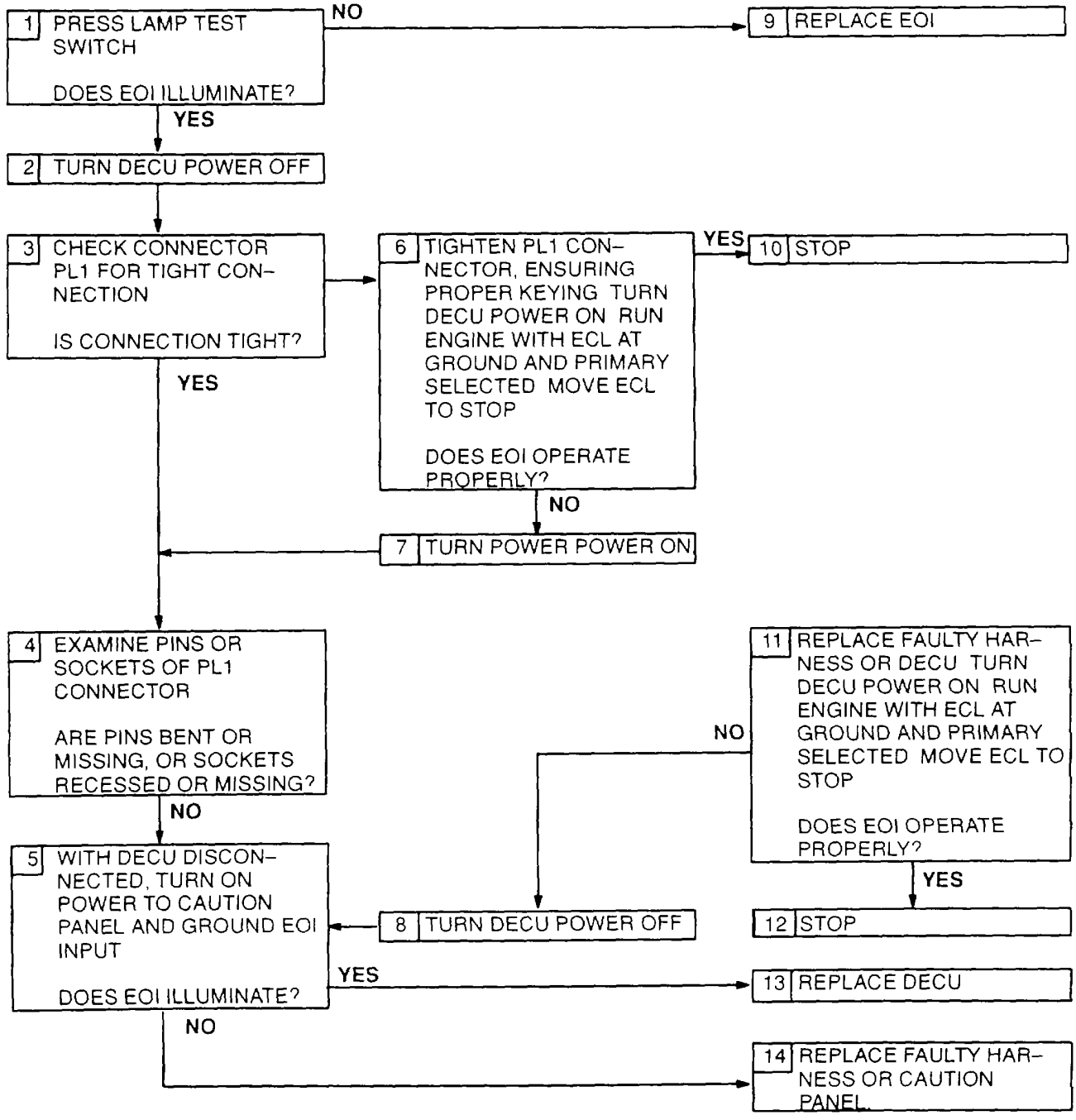
Bleed Band Does Not Function Properly
Figure 148

G-62 BLEED BAND DOES NOT FUNCTION PROPERLY EXPANDED INSTRUCTIONS

Refer to numbered steps in figure 148.

Step 4. Refer to manufacturer's procedure for diagnosing engine bleed band.

FAULT CODE - NONE
ENGINE OUT INDICATOR (EOI) DOES NOT ILLUMINATE DURING NORMAL SHUTDOWN



Engine Out Indicator (EOI) Does Not Illuminate During Normal Shutdown
Figure 149

G-63 ENGINE OUT INDICATOR (EOI) DOES NOT ILLUMINATE DURING NORMAL SHUTDOWN EXPANDED INSTRUCTIONS.

Refer to numbered steps in figure 149.

Step 3. Check harness connector PL1 (figure201) at each DECU for tight connections.

Step 4. Disconnector connector PL1 to check pins and sockets.

Step 5. With PL1 and PL3 disconnected, turn on power to caution panel. Short harness PL1 connector socket DD (figure 202) to airframe ground. EOI should illuminate when DD is grounded.

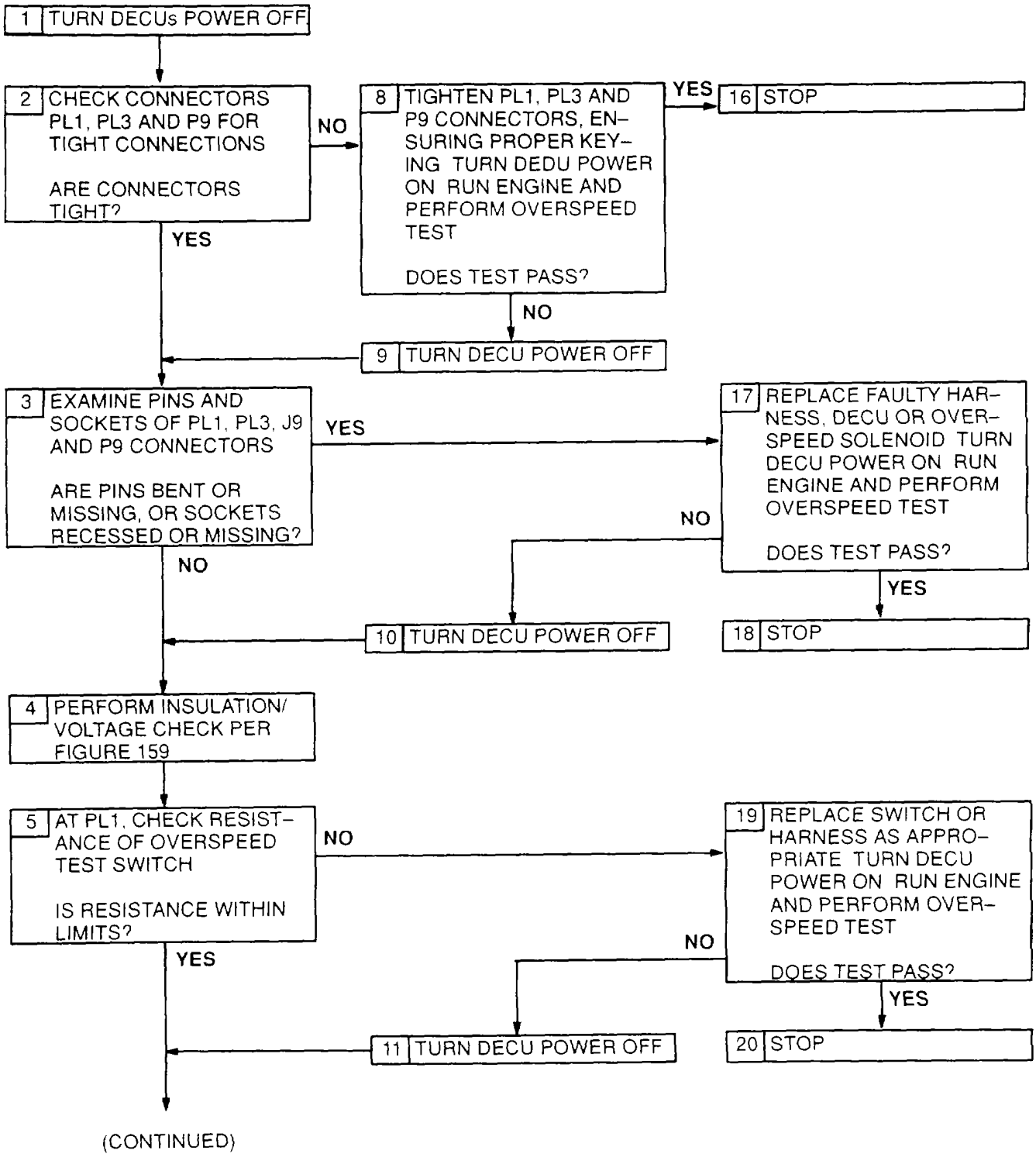
Step 6. Before tightening harness connector PL1, be sure that keyway in harness connector is aligned with keyway in component connector.

Step 9. Refer to manufacturer's procedure for diagnosing and replacing of EOI.

Step 11. Refer to manufacturer's procedure for diagnosing and replacing harness.

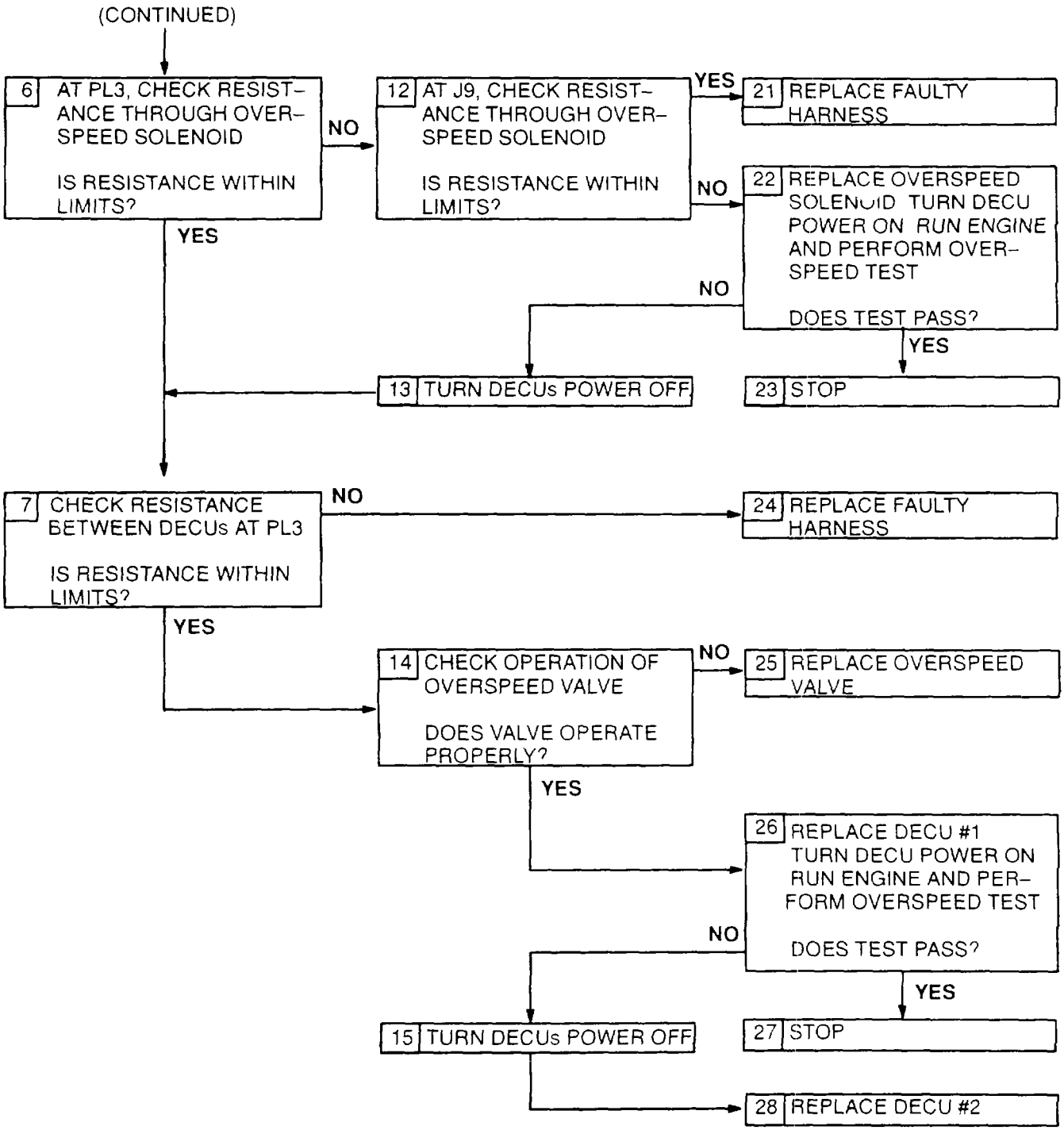
Step 14 Refer to manufacturer's procedure for diagnosing and replacing harness or caution panel.

FAULT CODE - NONE
NO OBSERVED ENGINE SPEED REDUCTION DURING OVERSPEED TEST



No Observed Engine Speed Reduction During Overspeed Test (Sheet 1 of 2)
Figure 150

FAULT CODE - NONE
NO OBSERVED ENGINE SPEED REDUCTION DURING OVERSPEED TEST



No Observed Engine Speed Reduction During Overspeed Test (Sheet 2 of 2)
Figure 150

G-64 NO OBSERVED ENGINE SPEED REDUCTION DURING OVERSPEED TEST EXPANDED INSTRUCTIONS.

Step 2. Check harness connectors PL1 AND PL3 (figure 201) at DECU, and P9 at overspeed solenoid for tight connection.

Step 3. Disconnect connectors PL1, PL3 and P9 to check pins and sockets.

Step 5. With PL1 disconnected and overspeed test not selected, check resistance of overspeed switch at harness PL1 connector sockets A and B (figure 202). Limit is ≥150KΩ. With overspeed test selected. check resistance again. Limit is <50Ω.

Step 6. With PL3 disconnected, check resistance of overspeed solenoid at harness PL3 connector sockets P and R (figure 202). Limit is 15.0 - 55.0Ω.

Step 7. With PL3 disconnected at both DECUs, check the resistance between the DECUs at the following harness PL3 sockets:

DECU #1	DECU #2
g	Y
Y	g

Limit in each case is <1Ω.

Step 8. Before tightening harness connectors PL1, PL3 and P9, be sure that keyways in harness connectors are aligned with keyways in component connectors.

Step 12. With P9 disconnected, check resistance of overspeed solenoid at solenoid J9 connector pins A and B. Limit is 15.0 - 55.0Ω.

Step 14. Refer to manufacturer's procedure for checking overspeed valve operation.

Step 17. Refer to manufacturer's procedure for diagnosing and replacing harness or overspeed solenoid.

Step 19. Refer to manufacturer's procedure for diagnosing and replacing harness or switch.

Step 21. Refer to manufacturer's procedure for diagnosing and replacing harness.

Step 22. Refer to manufacturer's procedure for diagnosing and replacing overspeed solenoid.

Step 24. Refer to manufacturer's procedure for diagnosing and replacing harness.

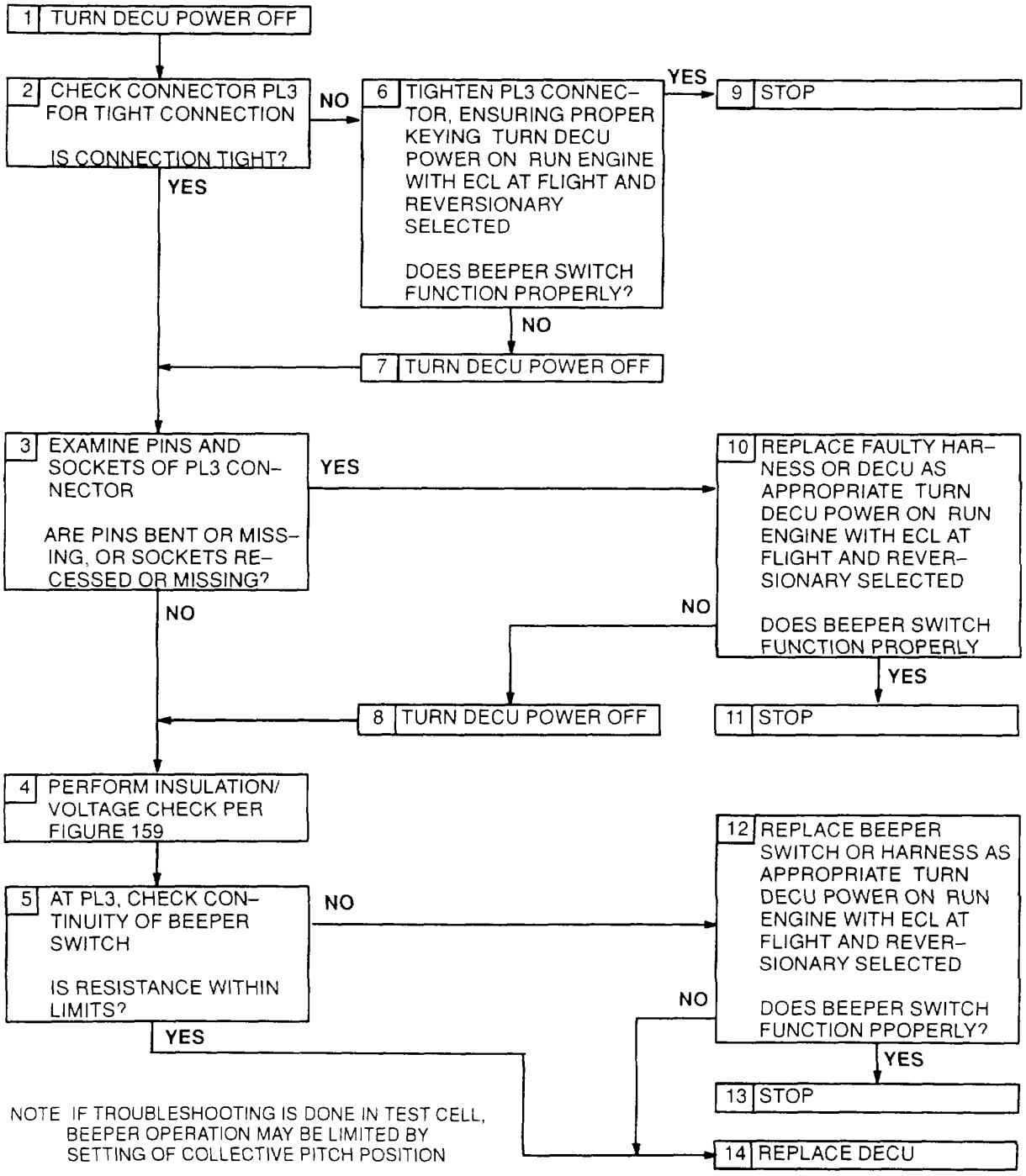
Step 25. Refer to manufacturer's procedure for diagnosing and replacing overspeed valve.

G-64 NO OBSERVED ENGINE SPEED REDUCTION DURING OVERSPEED TEST EXPANDED INSTRUCTIONS.(CONTINUED)

RESISTANCE-CHECK SUMMARY

Component	Connector				Resistance Limits (Ω)
	DECU #1		DECU #2		
	No.	Contacts	No.	Contacts	
Overspeed Test Switch					
Test Not Selected	PL1	A & B	--	--	>150K
Test Selected		A & B	--	--	< 50
Overspeed Solenoid	PL3	P & R	--	--	15.0 - 55.5
	J9	A & B	--	--	15.0 - 55.0
Harness	PL3	g	PL3	Y	<1
	PL3	y	PL3	g	<1

FAULT CODE - NONE
NO BEEPER SWITCH RESPONSE IN REVERSION



Beeper Switch Does Not Function in Reversion
Figure 151

G-65 NO BEEPER SWITCH RESPONSE IN REVERSION EXPANDED INSTRUCTIONS

Refer to numbered steps in figure 151.

Step 2. Check harness connector PL3 (figure 201) at each DECU for tight connection.

Step 3. Disconnect connector PL3 to check pins and sockets.

Step 5. With PL3 disconnected and beeper switch in increase position, check resistance of beeper switch at harness PL3 connector sockets JJ and KK (figure 202). Limit is <50Ω. Check resistance at sockets w and KK. Limit is >150KΩ. With beeper switch in decrease position, check resistance at sockets JJ and KK. Limit is >150KΩ.. Check resistance at sockets w and KK. Limit is <50Ω. With beeper switch in neutral position, check resistance at sockets JJ and KK, and w and KK. In each case limit is >150KΩ.

Step 6. Before tightening harness connector PL3,be sure that keyway in harness connector is aligned with keyway in component connector.

Step 10. Refer to manufacturer's procedure for diagnosing and replacing harness.

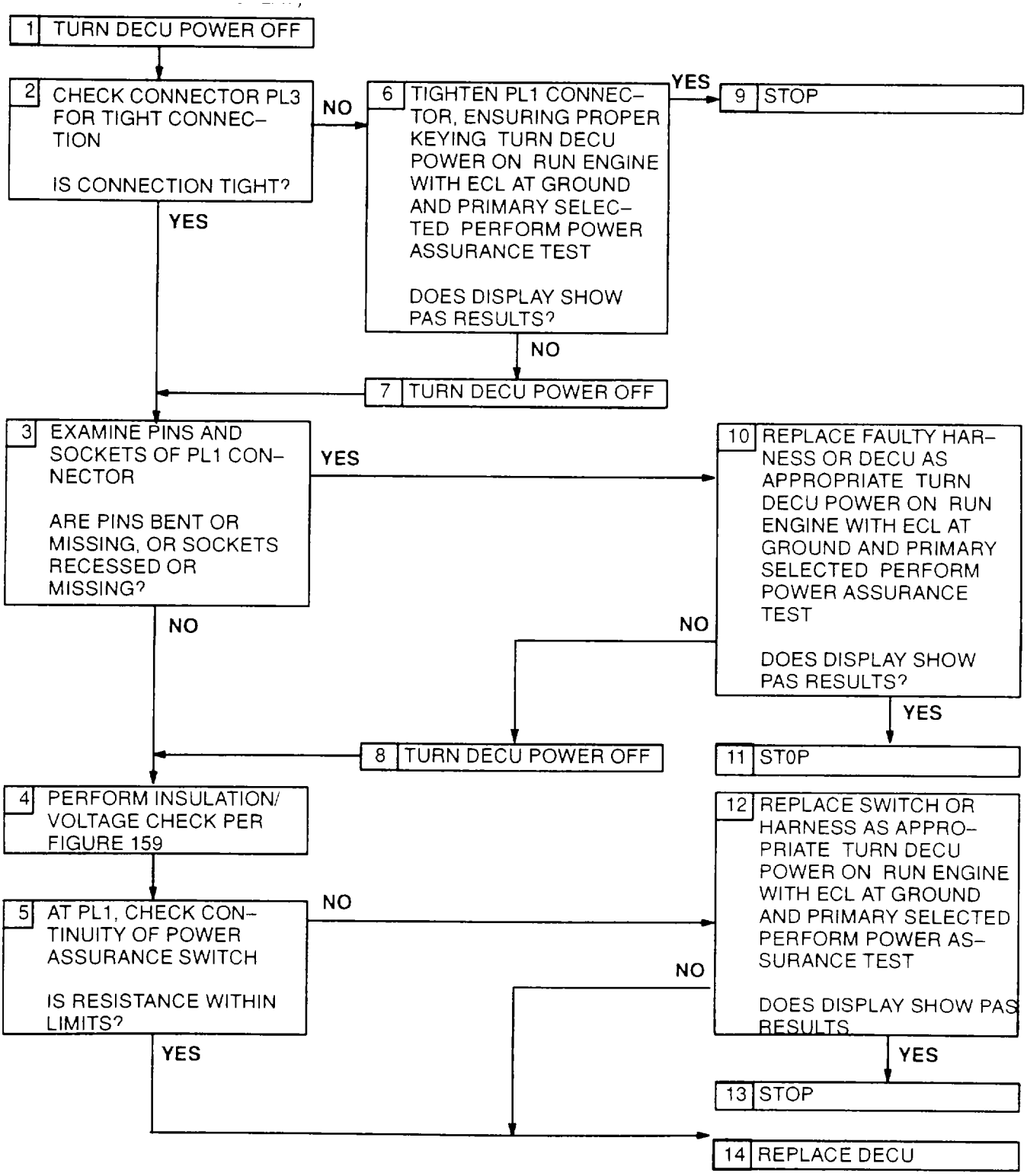
Step 12. Refer to manufacturer's procedure for diagnosing and replacing harness or switch.

RESISTANCE-CHECK SUMMARY

Component	Connector		Resistance (Q)	
	No.	Contacts	Limits	Nominal *
Beeper Switch Increase Position	PL3	JJ & KK w & KK	< 50 > 150K	1 ∞
Beeper Switch	PL3	JJ & KK	> 150K	∞
Decrease Position		w & KK	< 50	1
Beeper Switch	PL3	JJ & KK	> 150K	∞
Neutral Position		w & KK	> 150K	

*At 25°C

FAULT CODE - NONE
UNABLE TO PERFORM POWER ASSURANCE TEST (RESULTS NOT INDICATED ON HEX DISPLAY)



Unable to Perform Power Assurance Test (Results Not Indicated On Hex Display)
Figure 152

G-66 UNABLE TO PERFORM POWER ASSURANCE TEST (RESULTS NOT INDICATED ON HEX DISPLAY) EXPANDED INSTRUCTIONS

Refer to numbered steps in figure 152.

Step 2. Check harness connector PL1 (figure 201) at DECU for tight connection.

Step 3. Disconnect connector PL1 to check pins and sockets.

Step 5. With PL1 disconnected, and power assurance switch in PAS not selected position, check resistance of power assurance switch at harness PL1 connector sockets HH and w (figure 202). Limit is >150KΩ. With switch in PAS selected position, check resistance again. Limit is< 50Ω.

Step 6. Before tightening harness connector PL1, be sure that keyway in harness connector is aligned with keyway in component connector.

Step 10. Refer to manufacturer's procedure for diagnosing and replacing harness.

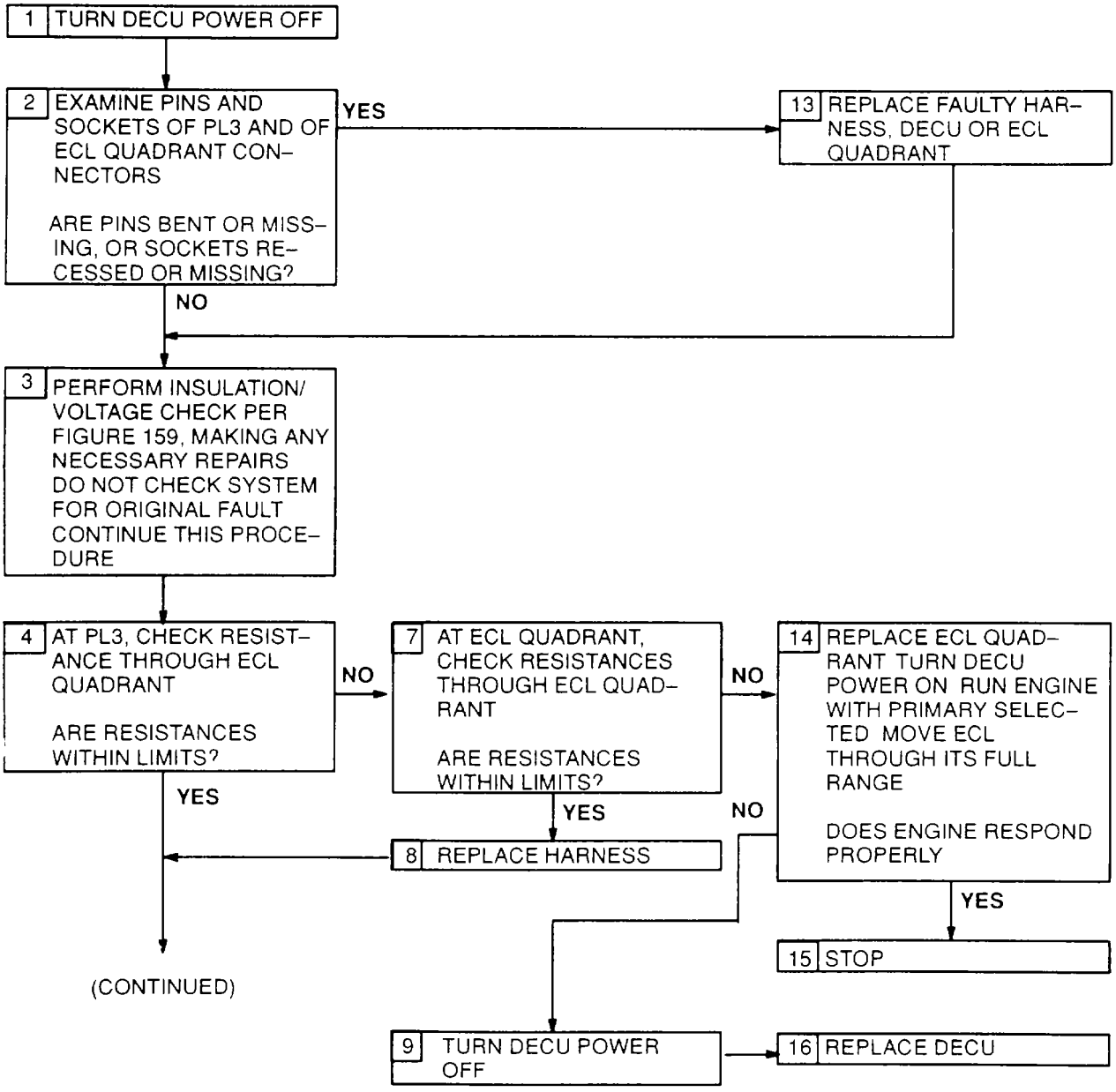
Step 12. Refer to manufacturer's procedure for diagnosing and replacing harness or switch.

RESISTANCE-CHECK SUMMARY

Component	Connector		Resistance (Q)	
	No.	Contacts	Limits	Nominal *
Power Assurance Switch Test Not Selected	PL1	HH & w	> 150K	∞
Test Selected	PL1	HH & w	<50	1
*At 25°C				

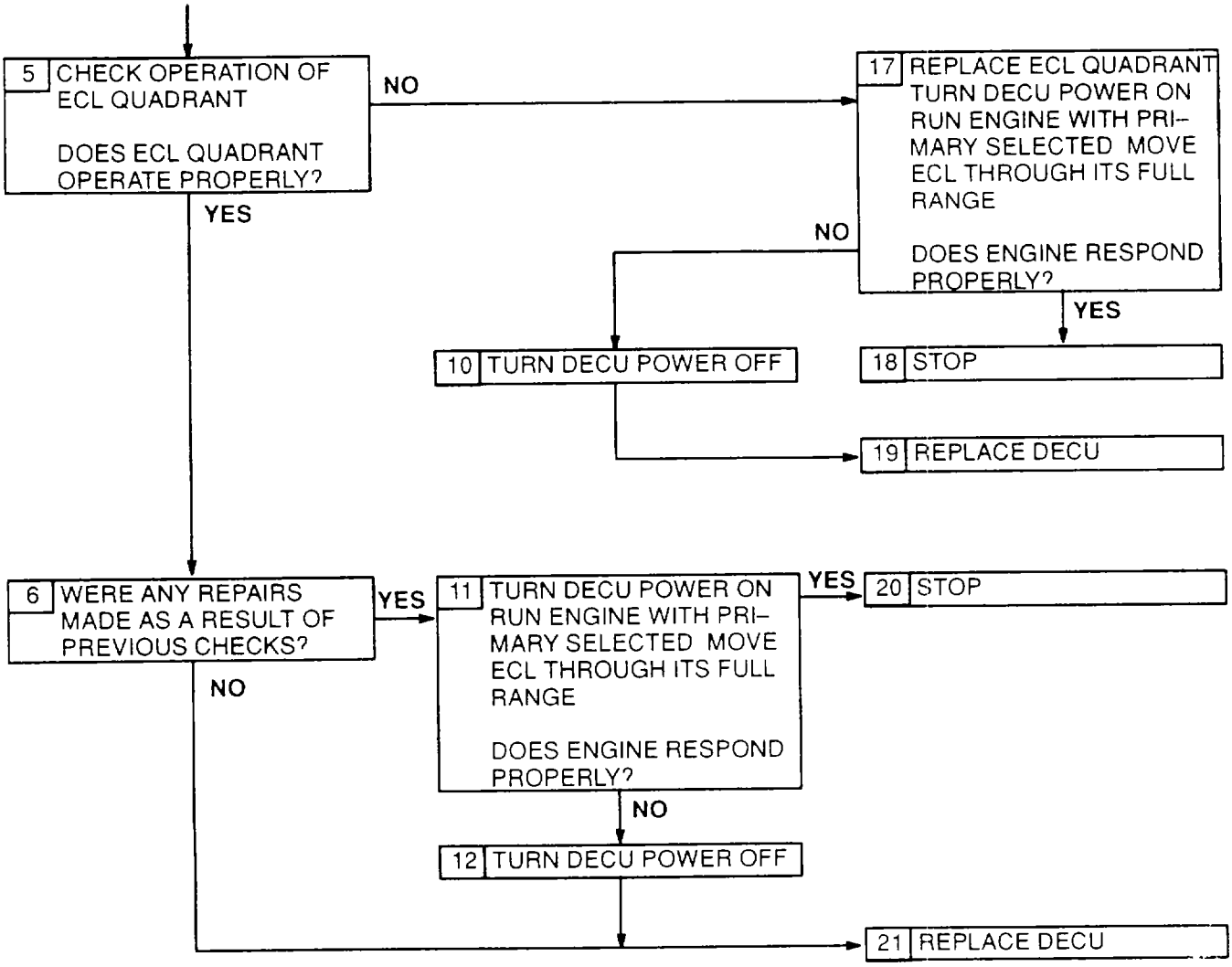
FAULT CODE - NONE
MOVING ECL TO STOP CAUSES INCREASE IN ENGINE POWER

NOTE The engine shall not be run following any repairs until all electrical checks have been completed The pilot may experience loss of control on an unexpected event if a problem with the ECL system still exists



Moving ECL to Stop Causes Increase in Engine Power (Sheet 1 of 2)
Figure 153

FAULT CODE - NONE
MOVING ECL TO STOP CAUSES INCREASE IN ENGINE POWER
(CONTINUED)



Moving ECL to Stop Causes Increase in Engine Power (Sheet 2 of 2)
Figure 153

G-67 MOVING ECL TO STOP CAUSES INCREASE IN ENGINE POWER EXPANDED INSTRUCTIONS

Refer to numbered steps in figure 153.

Step 2. Disconnect PL3 and ECL quadrant connectors to check pins and sockets.

Step 3. Follow instructions as required in figure 159, except do not check system for original fault after any repairs are made. After all checks from figure 159 are completed, go to step 4 of this procedure.

Step 4. Set ECL to STOP. With PL3 disconnected, check resistance of ECL quadrant (excitation) at harness PL3 connector sockets h and j (figure 202). Limit is 35 - 42Ω. Check resistance of ECL quadrant (signal) at sockets EE and DD. Limit is 90 - 102 Ω. Monitor resistance of ECL quadrant (interlock discrete) at sockets f and LL while moving ECL from STOP to GROUND to FLIGHT. Limits are defined in table below. Monitor resistance of ECL quadrant (gain discrete) at sockets MM and LL while moving ECL from STOP to GROUND to FLIGHT. Limits are as defined in table below. (**NOTE**: Gain discrete resistance is not checked at GROUND because switch can be open or closed at that point.)

Step 5. Refer to manufacturer's procedure for checking operation of ECL quadrant.

Step 7. Set ECL to STOP. With ECL quadrant connector disconnected, check resistance of ECL quadrant (excitation) at quadrant pins 1 and 2. Limit is 35 - 40Ω. Check resistance of ECL quadrant (signal) at quadrant pins 3 and 4. Limit is 90 - 100Ω. Monitor resistance of ECL quadrant (interlock discrete) at pins 11 and 12 while moving ECL from STOP to GROUND to FLIGHT. Limits are as defined in table below. Monitor resistance of ECL quadrant (gain discrete) at pins 5 and 11 while moving ECL from STOP to GROUND to FLIGHT. Limits are as defined in table below. (**NOTE:** Gain discrete resistance is not checked at GROUND because switch can be open or closed at that point.)

Step 8. Refer to manufacturer's procedure for diagnosing and replacing harness.

Step 13. Refer to manufacturer's procedure for diagnosing and replacing harness or ECL quadrant.

Step 14. Refer to manufacturer's procedure replacing ECL quadrant.

Step 17. Refer to manufacturer's procedure for diagnosing and replacing ECL quadrant.

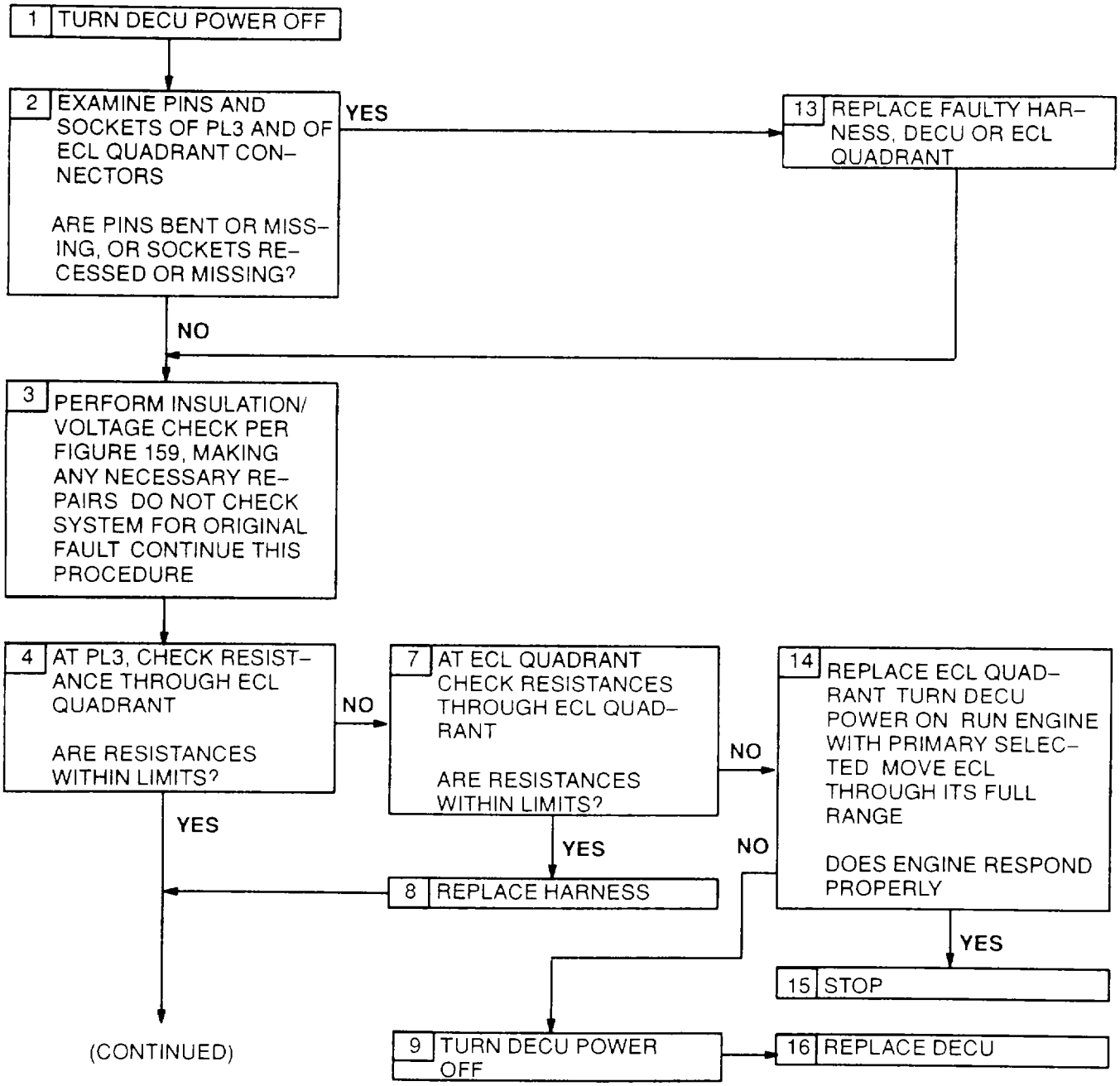
G-67 MOVING ECL TO STOP CAUSES INCREASE IN ENGINE POWER EXPANDED INSTRUCTIONS(CONTINUED)

RESISTANCE-CHECK SUMMARY

Component	Connector		Resistance (Ω)	
	No.	Contacts	Limits	Nominal
ECL Quadrant - Excitation	PL3 ECL Quadrant	h & i 1 & 2	35 - 42 35 - 40	-- --
ECL Quadrant- Signal	PL3	EE & DD	90 - 102	--
	ECL Quadrant	3 & 4	90 - 100	--
ECL Quadrant - Interlock Discrete:				
ECL at STOP	PL3	f & LL	> 150K	∞
ECL between STOP and GROUND		f & LL	<50	1
ECL at GROUND		f & LL	> 150K	∞
ECL between GROUND and FLIGHT		f & LL	< 50	1
ECL at FLIGHT		f & LL	> 150K	∞
ECL Quadrant - Interlock Discrete:				
ECL at STOP	ECL Quadrant	12 & 11	> 150K	∞
ECL between STOP and GROUND		12 & 11	< 50	
ECL at GROUND		12 & 11	> 150K	∞
ECL between GROUND and FLIGHT		12 & ii	<50	1
ECL at FLIGHT		12 & 11	> 150K	∞
ECL Quadrant - Gain Discrete				
ECL at STOP ECL between STOP and GROUND ECL between GROUND and FLIGHT	PL3	MM & LL MM & LL MM &'LL	<50 < 50 > 150K	1 1 ∞
ECL at FLIGHT		MM & LL	> 150K	∞
ECL Quadrant - Gain Discrete				
ECL at STOP	ECL Quadrant	5 & 11	<50	1
ECL between STOP and GROUND		5 & 11	<50	1
ECL between GROUND and FLIGHT		5 & 11	> 150K	∞
ECL at FLIGHT		5 & 11	> 150K	∞
*At 25°C				

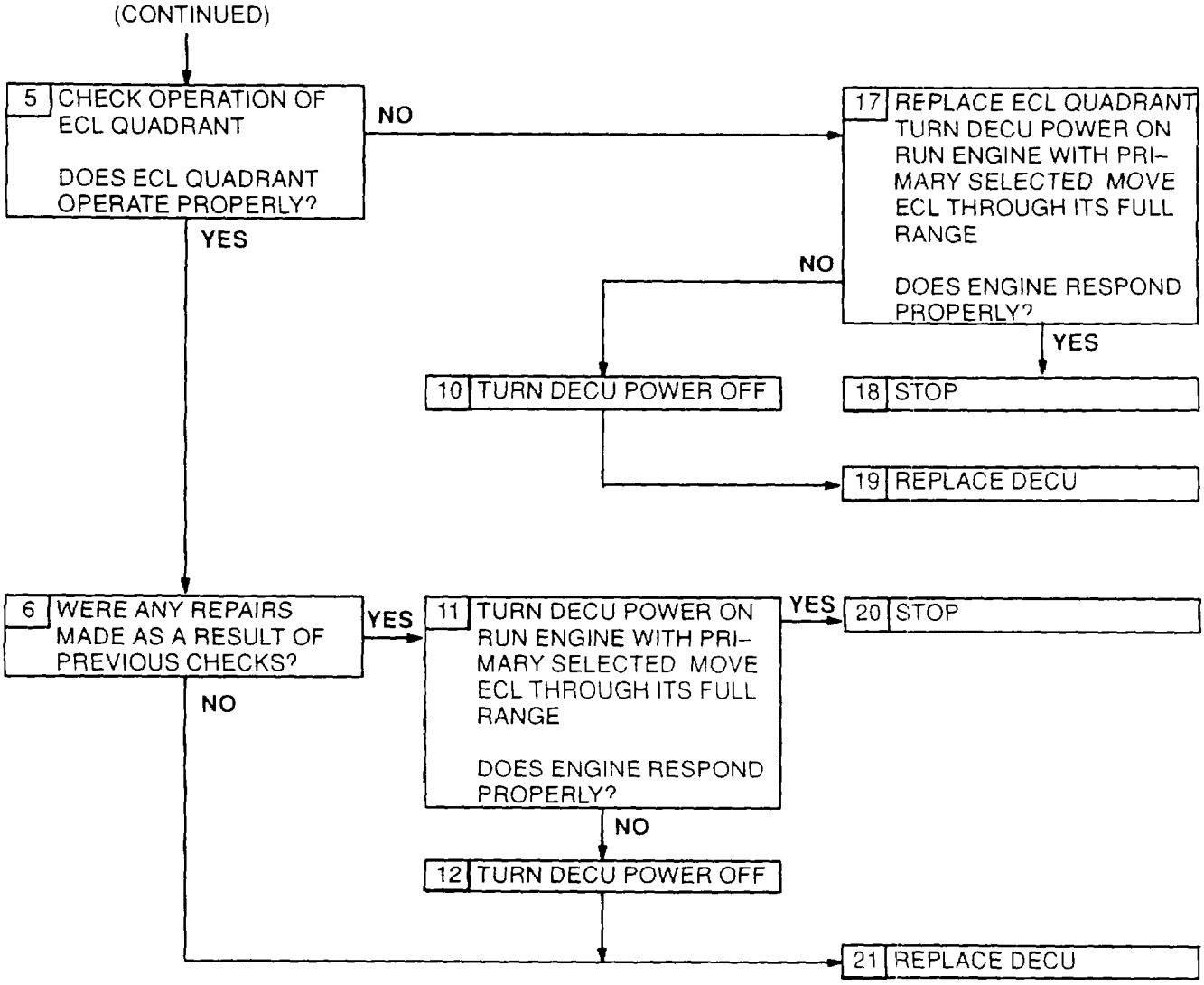
FAULT CODE - NONE
MOVING ECL TO FLIGHT CAUSES DECREASE IN ENGINE POWER

NOTE The engine shall not be run following any repairs until all electrical checks have been completed The pilot may experience loss of control on an unexpected event if a problem with the ECL system still exists



Moving ECL to Flight Causes Decrease in Engine Power (Sheet 1 of 2)
Figure 154

FAULT CODE - NONE
MOVING ECL TO FLIGHT CAUSES DECREASE IN ENGINE POWER



Moving ECL to Flight Causes Decrease in Engine Power (Sheet 2 of 2)
Figure 154

G-68 MOVING ECL TO FLIGHT CAUSES DECREASE IN ENGINE POWER EXPANDED INSTRUCTIONS

Refer to numbered steps in figure 154.

Step 2. Disconnect PL3 and ECL quadrant connectors to check pins and sockets.

Step 3. Follow instructions as required in figure 159, except do not check system for original fault after any repairs are made. After all checks from figure 159 are completed, go to step 4 of this procedure.

Step 4. Set ECL to STOP. With PL3 disconnected, check resistance of ECL quadrant (excitation) at harness PL3 connector sockets h and i (figure 202). Limit is 35 42Ω Check resistance of ECL quadrant (signal) at sockets EE and DD. Limit is 90 102Ω Monitor resistance of ECL quadrant (interlock discrete) at sockets f and LL while moving ECL from STOP to GROUND to FLIGHT. Limits are defined in table below. Monitor resistance of ECL quadrant (gain discrete) at sockets MM and LL while moving ECL from STOP to GROUND to FLIGHT. Limits are as defined in table below. (Note: Gain discrete resistance is not checked at GROUND because switch can be open or closed at that point.)

Step 5. Refer to manufacturer's procedure for checking operation of ECL quadrant.

Step 7. Set ECL to STOP. With ECL quadrant connector disconnected, check resistance of ECL quadrant (excitation) at quadrant pins 1 and 2. Limit is 35-40Ω. Check resistance of ECL quadrant (signal) at quadrant pins 3 and 4. Limit is 90-100Ω. Monitor resistance of ECL quadrant (interlock discrete) at pins 11 and 12 while moving ECL from STOP to GROUND to FLIGHT. Limits are as defined in table below. Monitor resistance of ECL quadrant (gain discrete) at pins 5 and 11 while moving ECL from STOP to GROUND to FLIGHT. Limits are as defined in table below. (Note: Gain discrete resistance is not checked at GROUND because switch can be open or closed at that point.)

Step 8. Refer to manufacturer's procedure for diagnosing and replacing harness.

Step 13. Refer to manufacturer's procedure for diagnosing and replacing harness or ECL quadrant.

Step 14. Refer to manufacturer's procedure replacing ECL quadrant.

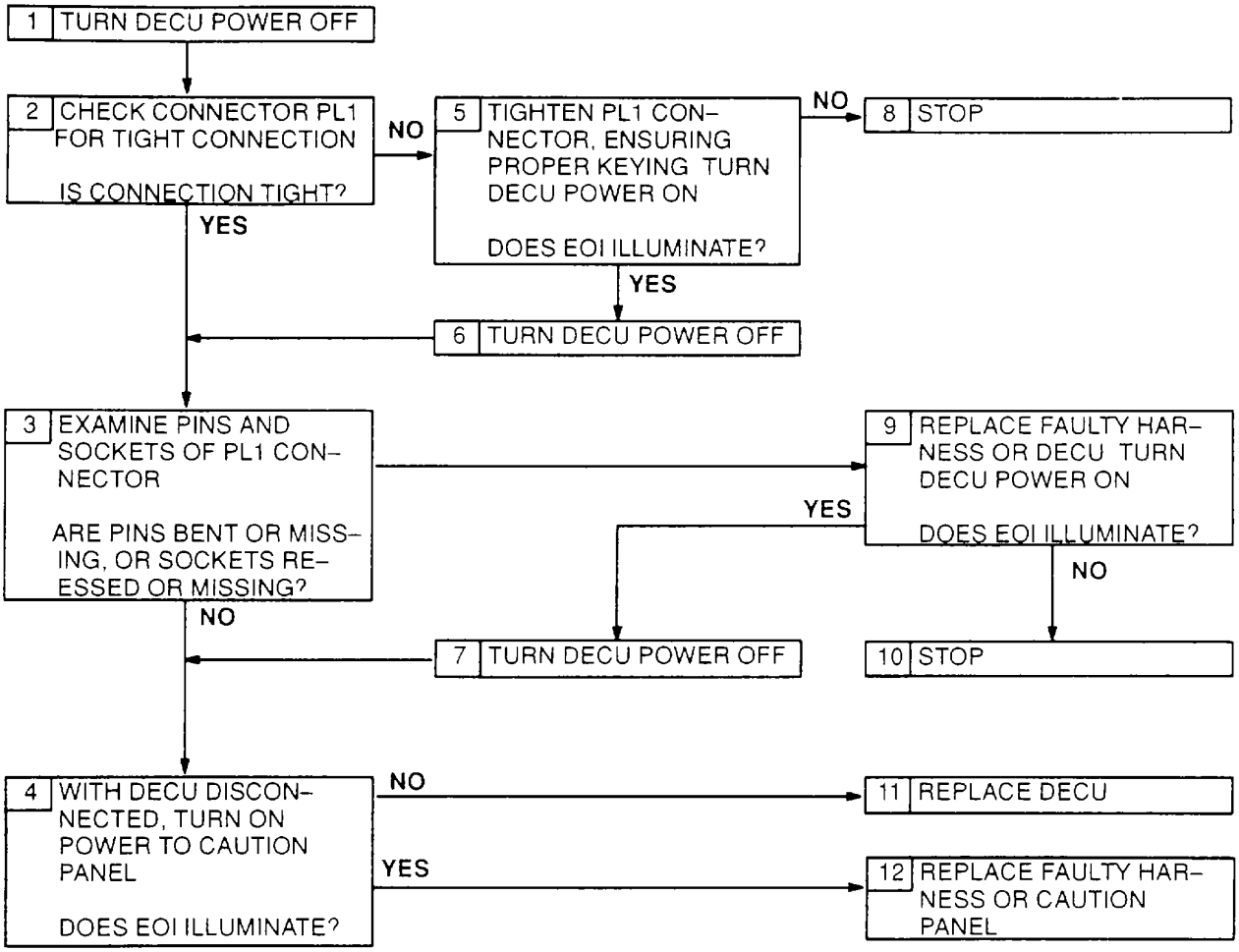
Step 17. Refer to manufacturer's procedure for diagnosing and replacing ECL quadrant.

G-68 MOVING ECL TO FLIGHT CAUSES DECREASE IN ENGINE POWER EXPANDED INSTRUCTIONS(CONTINUED)

RESISTANCE–CHECK SUMMARY

Component	Connector		Resistance (Ω)	
	No	Contacts	Limits	Nominal *
ECL Quadrant – Excitation	PL3	h & i	35 – 42	–
	ECL Quadrant	1 & 2	35 – 40	–
ECL Quadrant – Signal	PL3	EE & DD	90 – 102	–
	ECL Quadrant	3 & 4	90 – 100	–
ECL Quadrant – Interlock Discrete				
ECL at STOP	PL3	f & LL	> 150K	∞
ECL between STOP and GROUND		f & LL	< 50	1
ECL at GROUND		f & LL	> 150K	∞
ECL between GROUND and FLIGHT		f & LL	< 50	1
ECL at FLIGHT		f & LL	> 150K	∞
ECL Quadrant – Interlock Discrete				
ECL at STOP	ECL Quadrant	12 & 11	> 150K	∞
ECL between STOP and GROUND		12 & 11	< 50	1
ECL at GROUND		12 & 11	> 150K	∞
ECL between GROUND and FLIGHT		12 & 11	< 50	1
ECL at FLIGHT		12 & 11	> 150K	∞
ECL Quadrant – Gain Discrete				
ECL at STOP	PL3	MM & LL	< 50	1
ECL between STOP and GROUND		MM & LL	< 50	1
ECL between GROUND and FLIGHT		MM & LL	> 150K	∞
ECL at FLIGHT		MM & LL	> 150K	∞
ECL Quadrant – Gain Discrete				
ECL at STOP	ECL Quadrant	5 & 11	< 50	1
ECL between STOP and GROUND		5 & 11	< 50	1
ECL between GROUND and FLIGHT		5 & 11	> 150K	∞
ECL at FLIGHT		5 & 11	> 150K	∞
*At 25°C				

FAULT CODE – NONE
ENGINE OUT INDICATOR (EOI) IS ALWAYS ILLUMINATED



Engine Out Indicator (EOI) Is Always Illuminated
Figure 155

G-69 ENGINE OUT INDICATOR (EOI) IS ALWAYS ILLUMINATED EXPANDED INSTRUCTIONS

Refer to numbered steps in figure 155.

Step 2. Check harness connector PL1 (figure 201) at DECU for tight connection.

Step 3. Disconnect connector PL1 tocheck pins and sockets.

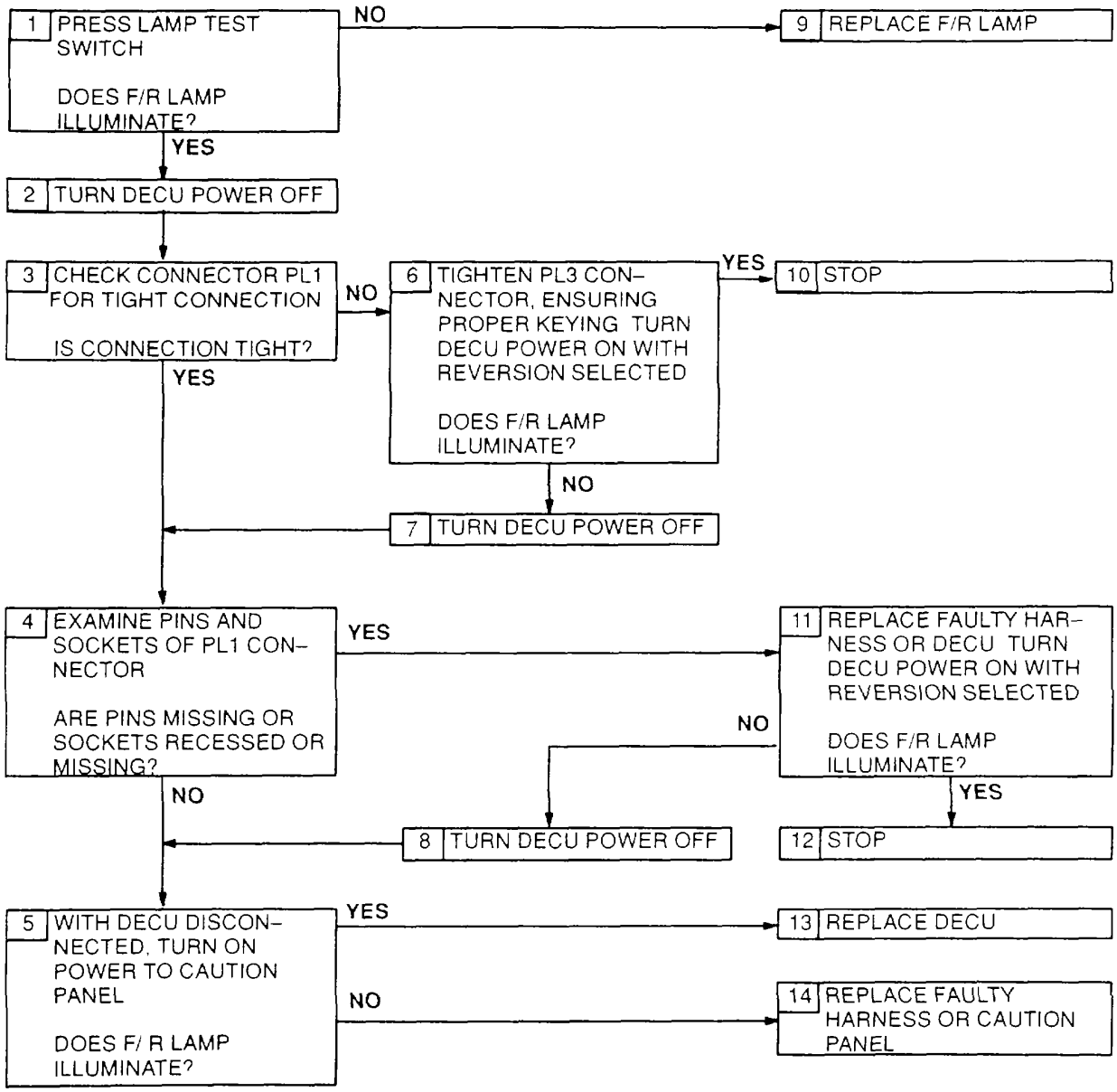
Step 4. With PL1 and PL3 disconnected, turn on power to caution panel.

Step 5. Before tightening harness connector PL1, be sure that keyway in harness connector is aligned with keyway in component connector.

Step 9. Refer to manufacturer's procedure for diagnosing and replacing harness.

Step 12. Refer to manufacturer's procedure for diagnosing and replacing harness or caution panel.

FAULT CODE – NONE
F/R LAMP DOES NOT ILLUMINATE WHEN REVERSION IS SELECTED



F/R Lamp Does Not Illuminate When Reversion Is Selected
Figure 156

G-70 F/R LAMP DOES NOT ILLUMINATE WHEN REVERSION IS SELECTED EXPANDED INSTRUCTIONS

Refer to numbered steps in figure 156.

Step 3. Check harness connector PL3 (figure 201) at DECU for tight connection.

Step 4. Disconnect connector PL3 to check pins and sockets.

Step 5. With PL1 and PL3 disconnected, turn on power to caution panel.

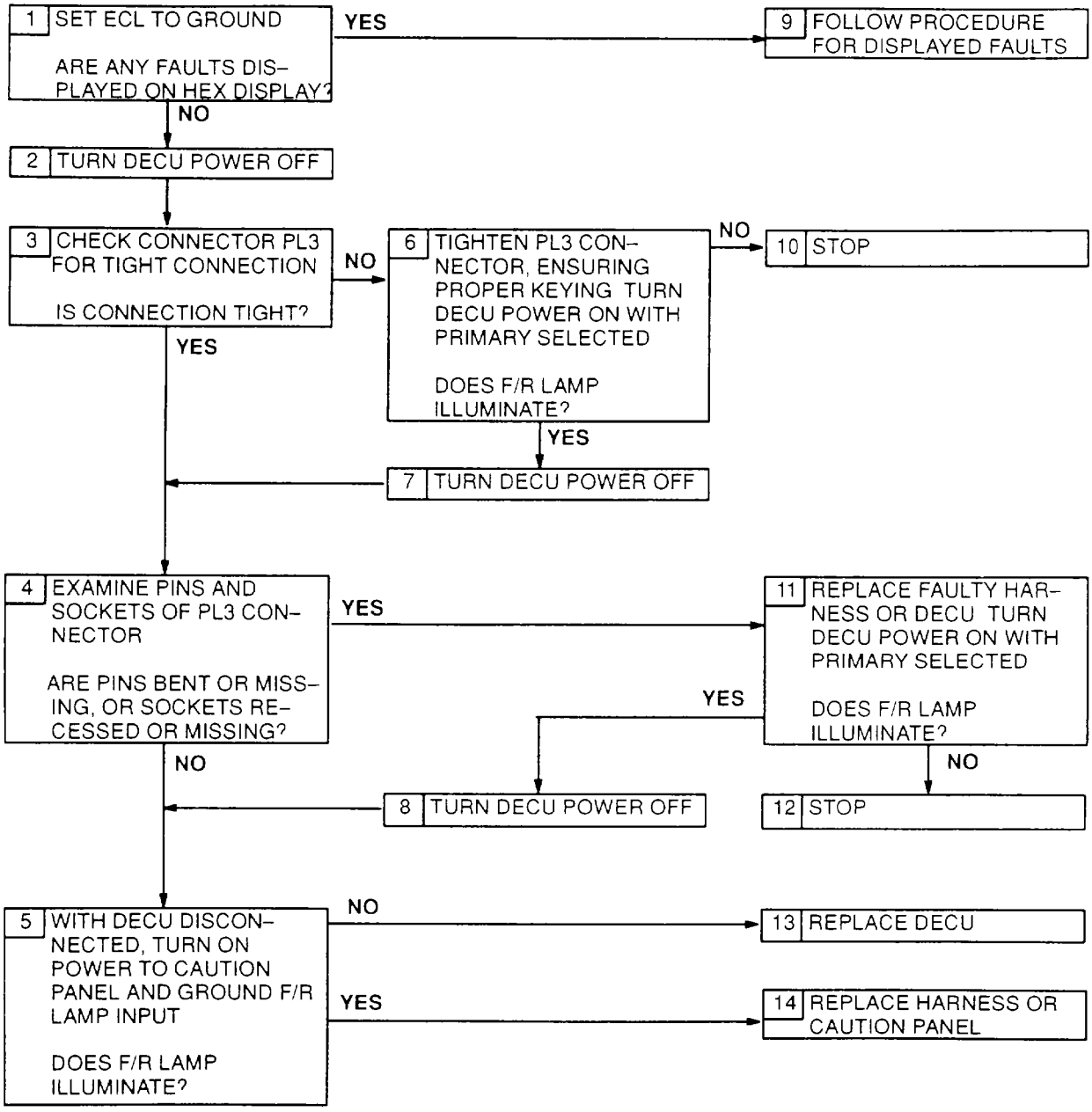
Step 6. Before tightening harness connector PL3, be sure that keyway in harness connector is aligned with keyway in DECU connector.

Step 9. Refer to manufacturer's procedure for diagnosing and replacing F/R lamp.

Step 11. Refer to manufacturer's procedure for diagnosing and replacing harness.

Step 14. Refer to manufacturer's procedure for diagnosing and replacing harness or caution panel.

FAULT CODE – NONE
F/R LAMP IS ILLUMINATED WHEN PRIMARY IS SELECTED



F/R Lamp is Illuminated When Primary Is Selected
Figure 157

G-71 F/R LAMP IS ILLUMINATED WHEN PRIMARY IS SELECTED EXPANDED INSTRUCTIONS

Refer to numbered steps in figure 157.

Step 3. Check harness connector PL3 (figure 201) at DECU for tight connection.

Step 4. Disconnect connector PL3 to check pins and sockets.

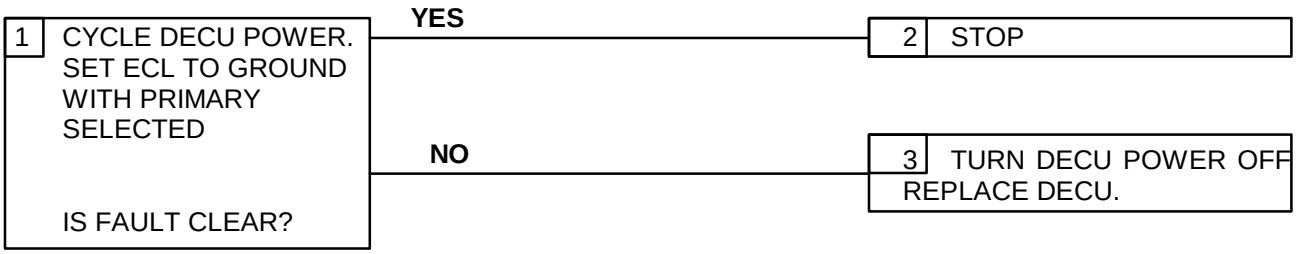
Step 5. With PL1 and PL3 disconnected, turn on power to caution panel. Short harness PL3 connector socket k to airframe ground. F/R lamp should not illuminate when k is grounded.

Step 6. Before tightening harness connector PL3, be sure that keyway in harness connector is aligned with keyway in component connector.

Step 11. Refer to manufacturer's procedure for diagnosing and replacing harness.

Step 14. Refer to manufacturer's procedure for diagnosing and replacing harness or caution panel.

FAULT CODE - UNDEFINED
FAULT CODES NOT DEFINED IN TABLE 1



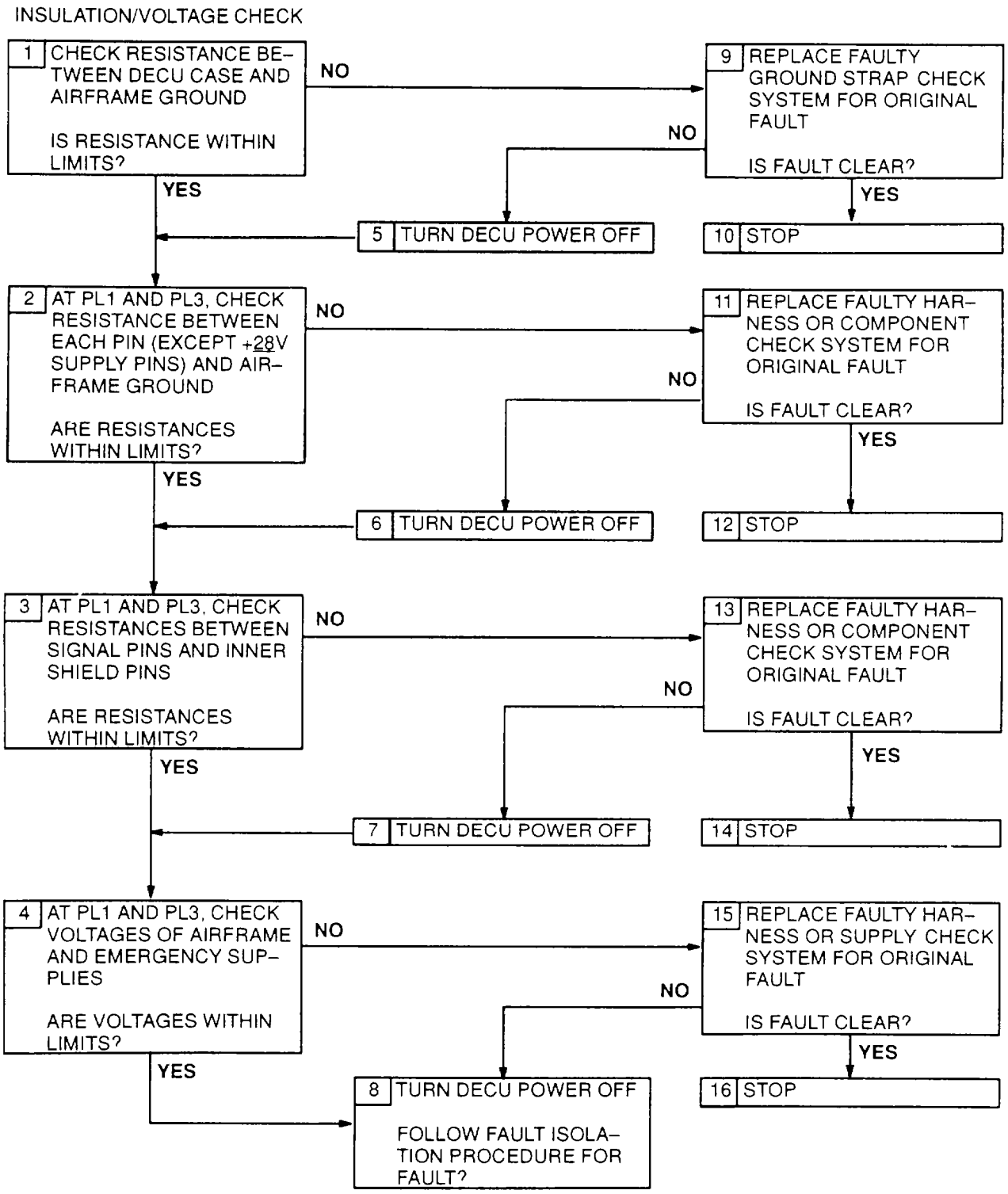
Fault Codes Not Defined in Table 1
Figure 158

G-72 FAULT CODES NOT DEFINED IN TABLE 1 EXPANDED INSTRUCTIONS

Refer to figure 158.

Step 1. Cycle DECU power to verify fault code.

Step 3. An internal DECU fault exists. No further troubleshooting is necessary.



Insulation/Voltage Check
Figure 159

G-73 INSULATION/VOLTAGE CHECK EXPANDED INSTRUCTIONS

Refer to numbered steps in figure 159.

Step 1. Check the resistance between the DECU case at the ground strap and airframe ground using a 4-wire configuration. Limit is < 50Ω.

Step 2.. With PL1 and PL3 (figure 201) disconnected, check the resistance between each harness PL1 and PL3 connector socket (except PL1 -Y, PL1-t and PL3-N) and airframe ground. For PL1 sockets Z and u (figure 202), and PL3 sockets R and m, limit is < 2Ω. For PL3 sockets v and GG, limit is > 1000Ω. For all others, limit is > 1MΩ.

Step 3. With PL1 and PL3 disconnected, check the resistance between the pin pairs listed in the table below at harness PL1 and PL3 connector sockets. Limit in each case is >1 MΩ

Step 4. With PL1 and PL3 disconnected. turn on airframe supply and emergency supply. Check voltage of the airframe supply at harness PL1 connector sockets Y and Z, and t and u. Limit is 16-30V. Check voltage of the emergency supply at harness PL3 connector sockets N and m. Limit is 16 -30V.

Step 9. Refer to manufacturer's procedure for diagnosing and replacing ground strap. See instructions for fault check defined by original procedure being followed.

Step 11. Refer to manufacturer's procedure for diagnosing and replacing harness or component. See instructions for fault check defined by original procedure being followed.

Step 13. Refer to manufacturer's procedure for diagnosing and replacing harness or component. See instructions for fault check defined by original procedure being followed.

Step 15. Refer to manufacturer's procedure for diagnosing and replacing harness or component. See instructions for fault check defined by original procedure being followed.

RESISTANCE-CHECK SUMMARY - STEP 1

Connection	Measurement Locations	Resistance Limits (mΩ)
Ground Strap	DECU case and airframe ground	<50

G-52 INSULATION/VOLTAGE CHECK EXPANDED INSTRUCTIONS(CONTINUED)

RESISTANCE–CHECK SUMMARY – STEP 2

Signal	Connector		Resistance Limits (Ω)
	No	Contact to Airframe Ground	
OV A/F	PL1	Z	< 2
		u	< 2
OV EM	PL3	m	< 2
O/S – OUT	PL3	R	< 2
T4 5 Sensor	PL3	v	> 1000
		GG	> 1000
All others	PL1, PL3	All others*	> 1M
*Except PL1–Y, PL1–t, and PL3–N			

RESISTANCE–CHECK SUMMARY – STEP 3

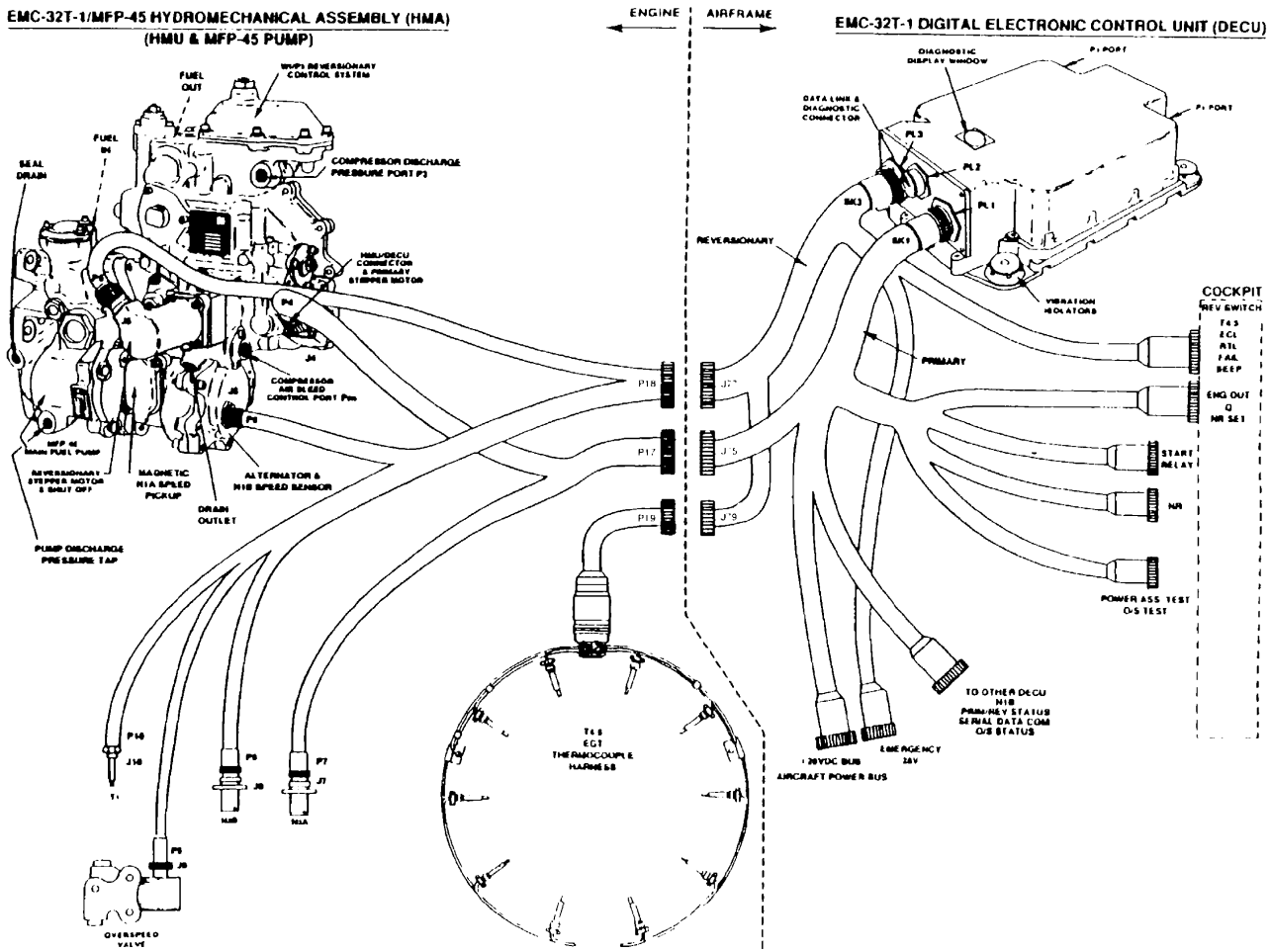
Component	Connector		Resistance
	No	Contacts	Limits (Ω)
T4 5 Gauge	PL3	Z & a	> 1M
		Z & u	> 1M
RTL Sensor	PL3	n & p	> 1M
		n & q	> 1M
		n & z	> 1M
		n & AA	> 1M
ECL Quadrant	PL3	CC & h	> 1M
		CC & l	> 1M
		CC & DD	> 1M
		CC & EE	> 1M
T1 Sensor	PL3	FF & r	> 1M
		FF & s	> 1M
		FF & t	> 1M
T4 5 Harness	PL3	HH & v	> 1M
		HH & GG	> 1M

G-52 INSULATION/VOLTAGE CHECK EXPANDED INSTRUCTIONS(CONTINUED)

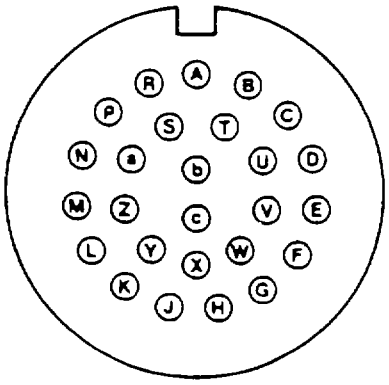
VOLTAGE-CHECK SUMMARY - STEP 3

Component	Connector		Voltage (V)	
	No.	Contacts	Limits	Nominal *
Airframe Power Supply	PL1	Y & Z	16 - 30	28
		t & u	16 - 30	28
Airframe Emergency Supply	PL3	N & m	16 - 30	28

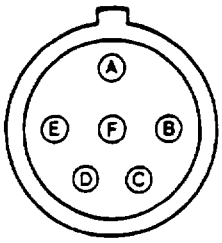
*At 25°C



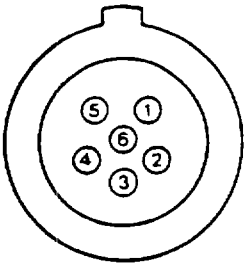
Fuel Control System Harness Connections
Figure 201



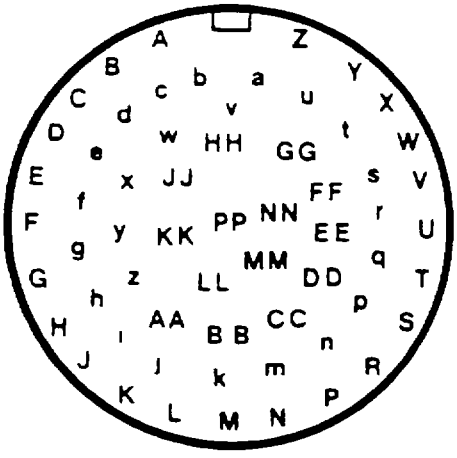
HMU J4



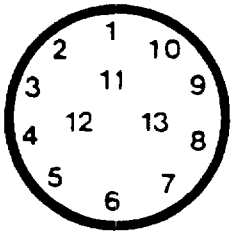
HMU J6



HMU J5



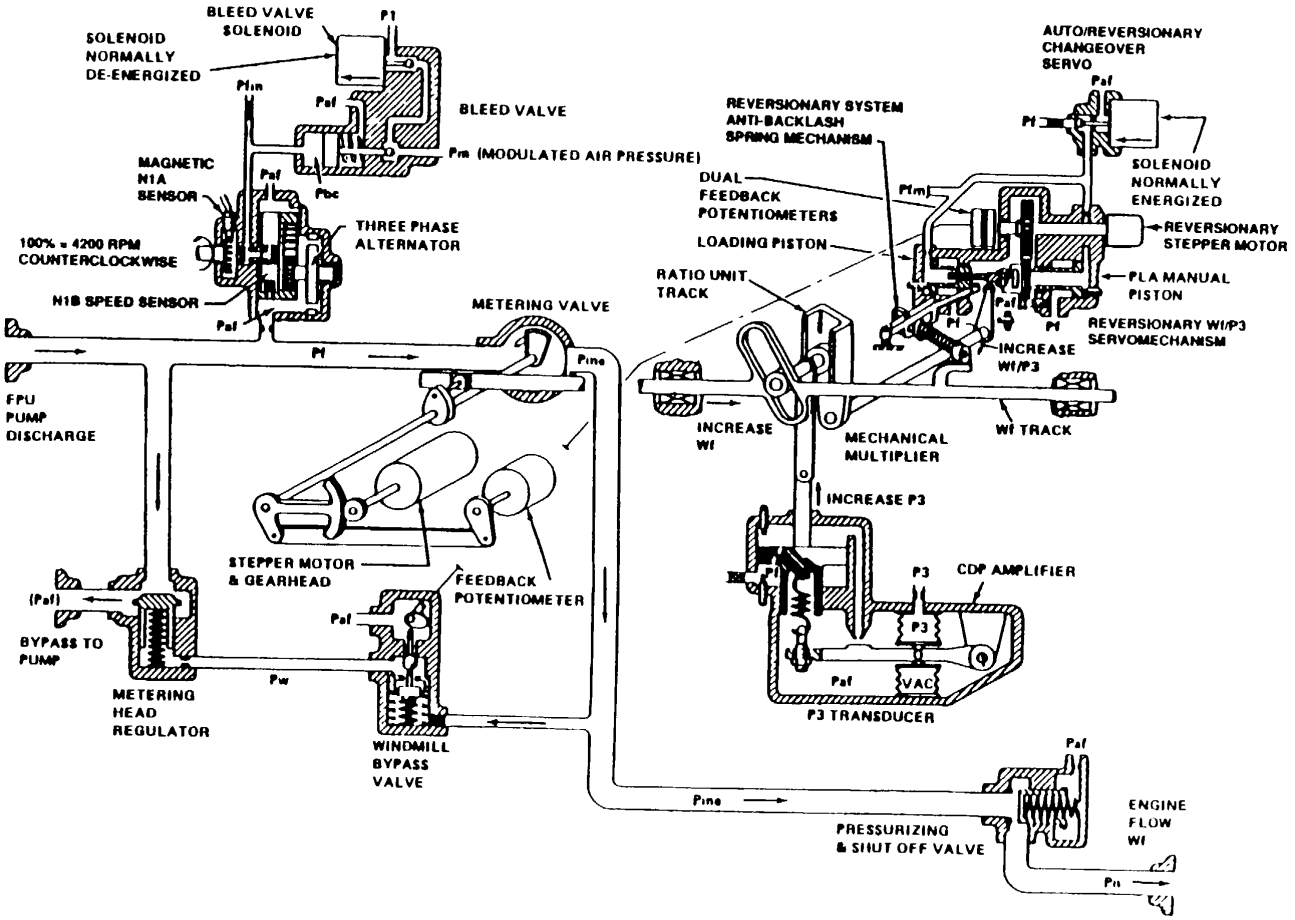
DECU PL1 & PL3



DECU PL2

NOTE These are pin locations for connectors on the HMU and DECU Note that the socket locations for the harness connectors are the same except that they are reversed to form a mirror image

Electrical Connector Pin Locations
Figure 202



HMU Schematic Diagram
Figure 203

GLOSSARY

	Definition
A	
Abrasion	A roughened surface.
B	
Bend	Distortion in a part.
Binding	To confine and restrict the liberty of a free moving part, material, or component. May cause serious damage if a chafing force is being imposed.
Break	Separation of a part.
Buckling	A large-scale deformation of the original contour of a part, usually due to pressure or impact from a foreign object, structural stresses, excessive localized heating, high pressure differentials, or to any combination of these.
Burn	A rapid destructive oxidizing action usually caused by higher temperatures than the material can withstand structurally. Change in color and appearance often indicates this condition.
Burr	A rough or sharp edge on a hole or corner, usually caused by matching, sometimes by wearing.
C	
Carborundum	The trade name for a manufactured aluminum oxide abrasive similar to natural emery. It is used for grinding wheels and for abrasive papers.
Chafing	A worn or rubbed area caused by friction: refers to the wear produced by parts such as fuel, air, and oil lines rubbing against other parts.
Chipping	Breaking away of metallic particles.
Chordal	Progressing in a straight line from one edge to another on a curved surface. Typically, on an airfoil, a direction or measurement from leading to trailing edge.
Concave	A hollow surface curved like the inside of a bowl.
Contamination (Foreign Material)	Any foreign substance such as metal chips, lint, rust, and water that would be harmful to the functioning of a part or system.
Converging	Tending to move toward one point or another.
Convex	A surface shaped like the outside of a sphere or a ball.
Corrosion	A mass of small pits which cumulatively create a large cavity (usually shallow) in the surface of the parent metal.

GLOSSARY (Continued)

	Definition
C (Continued)	
Corrosion Pitting	Irregular surface depressions having ragged edges due to metal removed caused by corrosive substance adhering to exposed surfaces.
Corrugated	The forming and shaping of sheet metal into wrinkles or folds or into alternating ridges and grooves.
Crack	Parting of parent metal.
D	
Dent	A completely smooth surface depression caused bypressure or impact from a smooth ball-like foreign object. The parent material is displaced, but usually none is separated.
Desiccant	A drying agent; usually placed in containers along with parts being stored, to absorb moisture and preventcorrosion.
Diagnostic Equipment	Test equipment used to determine what the defective part is.
Distortion	Twisting or bending out of a normal, natural or original shape, usually caused from being exposed to excessive pressure or temperature either when restrained orunrestrained.
F	
Fatigue	The progressive weakening of a material under repeated cycles of stress.
Foreign Material	See Contamination.
Foreign Object	Any object such as a tool, piece of equipment, engine part (nut, bolt,.lockwire) that could in any way damage the engine.
Fraying	Wearing or rubbing of areas, generally used in reference to damage on wire-braid covering (of Teflon hose) or on thermocouple harness.
Fretting	Discoloration or damage caused by rubbing, chafing, or wearing away of original surface material resulting from movement of contacting surfaces. Can cause grooving in severe cases.
G	
Gouge	A wide rough scratch or group of scratches,usually, with one or more sharply impressed corners, and frequently accompanied by deformation or removal of parent metal.

GLOSSARY (Continued)

	Definition
G (Continued)	
Grooving	Wearing away of material, caused by movement of contacting surfaces, in such a manner as to cause a long, thin, sharp depression in the surface. Can cause steps in severe cases..
H	
Heat Discoloration	Characterized by a discoloring film. Color varies from light straw, tan, or light brown changing to red purple, purple or blue. Caused by high temperature operation.
I	
Insulation	A material or device used to prevent passage of heatelectricity, or sound from one medium to another.
K	
Kinks	Short, tight twists or curls caused by a doubling or winding of a hose or line upon itself. Likely to cause difficulties in the operation.
L	
Loose	Abnormal movement of a part.
N	
Nick	A surface impression with sharp corners or bottom, usually caused by pressure or impact from a sharp-edged foreign body. The parent material is displaced but usually none is separated.
0	
Overhaul	To restore an item to a completely serviceable condition as prescribed by serviceability standards developed and published by the Government.
Overshooting	When the expected N1 or N2 speed is exceededmomentarily and then drops below the expected level.
Overspeed	When the expected N1 or N2 speed is exceeded.
Oxidation	A chemical action in which a metallic element is united with oxygen causing deterioration of the metal or material.

GLOSSARY (Continued)

	Definition
P	
Parent Metal	The basic metal of a part, sometimes referred to as a base metal; the term is used particularly in connection with welding, where the parent metal is that being welded rather than that used in welding rod.
Peening	Surface deformation.
Phenolic	A thermosetting resin or plastic made especially for molding and insulating, coatings and adhesives.
Pitting	Very shallow depressions in a surface, usually caused by chemical reaction (rusting chemical corrosion).
Popping	Sharp abrupt noise normally caused by erratic bleed band operation.
Protrusion	Projection sticking out from the rest of the surrounding material or surface.
Puncture	A hole that is pierced in a material.
R	
Repair	To restore a defective part, component, subassembly or assembly to a serviceable condition.
Rollover	A curl usually on the leading edge of a blade, resulting from deformation by the peening action of foreign objects.
Rub	When one component contacts another and is moved in relationship to it causing material to be removed from it.
Rust	Oxidation of iron. A red, crusty product which forms on iron or steel when it unites with oxygen.
S	
Scoring	Multiple scratches, usually parallel and resulting from the same cause.
Scratch	A long, narrow sharp-cornered impression caused by the movement of a sharp object across the surface of parent material.
Serviceable	Equipment or parts that are in condition which allows them to be returned to operational status on an aircraft.
Step	Wearing away of material, caused by movement of contacting surfaces, in such a manner as to cause sharp edged ridges or depressions. Usually a severe form of grooving.
Subassembly	A self-contained unit of an assembly that can be removed, replaced, and repaired separately; turbine nozzles and combustion liner are typical subassemblies.

GLOSSARY (Continued)

	Definition
T	
Tear	A forcible, somewhat crude pulling or wrenching away of material so that ragged or irregular edges result.
Testing	Testing of equipment to determine that the unit functions properly within specified limits.
Tight-Lipped	Type of crack in which edges have separated enough to allow visibility of inner edges. Usually, in vanes, core will be visible.
Tolerance	The range of variation allowed in maintaining a specified dimension in making part.
Torque	To tighten a nut, bolt, or fitting, using a torque wrench, to a specified torque value expressed as inch-pounds or as foot-pounds.
U	
Undershooting	When the expected N1 or N2 speed is not reached and then creeps up to the expected level.
Underspeed	When the expected N1 or N2 speed is not reached.
Upset	A part of a rod (as a head on a bolt) that is upset.
V	
Void	A continuous lack of braze material through a braze joint cross-section caused by improper repair.
W	
Wear	Relatively slow removal of parent material from any cause, frequently not visible to the naked eye.

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By Order of the Secretary of the Army:

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

Official:
MILTON H. HAMILTON
Administrative Assistant to the
Secretary of the Army
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7. ***Date Sent:*** 19−OCT−93
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18. *Page:* 2
19. *Paragraph:* 3
20. *Line:* 4
21. *NSN:* 5
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26. *Total:* 123
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PUBLICATION/FORM NUMBER	DATE	TITLE
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ITEM NO.	PAGE NO.	PARA–GRAPH	LINE NO. *	FIGURE NO.	TABLE NO.	RECOMMENDED CHANGES AND REASON
1	WP0005 PG 3		2			Test or Corrective Action column should identify a different WP number.

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TYPED NAME, GRADE OR TITLE	TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION	SIGNATURE
MSG, Jane Q. Doe, SFC	788–1234	

RECOMMENDED CHANGES TO PUBLICATIONS AND BLANK FORMS For use of this form, see AR 25–30; the proponent agency is ODISC4.	Use Part II (*reverse)* for Repair Parts and Special Tool Lists (RPSTL) and Supply Catalogs/ Supply Manuals (SC/SM)	DATE
TO: (*Forward to proponent of publication or form)(Include ZIP Code)* Commander, U.S. Army Aviation and Missile Command ATTN: AMSAM-MMC-MA-NP Redstone Arsenal, AL 35898	FROM: (*Activity and location)(Include ZIP Code)*	

PART 1 – ALL PUBLICATIONS (EXCEPT RPSTL AND SC/SM) AND BLANK FORMS

PUBLICATION/FORM NUMBER	DATE	TITLE

ITEM NO.	PAGE NO.	PARA–GRAPH	LINE NO. *	FIGURE NO.	TABLE NO.	RECOMMENDED CHANGES AND REASON

** Reference to line numbers within the paragraph or subparagraph.*

TYPED NAME, GRADE OR TITLE	TELEPHONE EXCHANGE/ AUTOVON, PLUS EXTENSION	SIGNATURE

TO: (*Forward direct to addressee listed in publication)* Commander, U.S. Army Aviation and Missile Command ATTN: AMSAM-MMC-MA-NP Redstone Arsenal, AL 35898	**FROM:** (*Activity and location) (Include ZIP Code)*	**DATE**

PART II – REPAIR PARTS AND SPECIAL TOOL LISTS AND SUPPLY CATALOGS/SUPPLY MANUALS

PUBLICATION NUMBER	DATE	TITLE

PAGE NO.	COLM NO.	LINE NO.	NATIONAL STOCK NUMBER	REFERENCE NO.	FIGURE NO.	ITEM NO.	TOTAL NO. OF MAJOR ITEMS SUPPORTED	RECOMMENDED ACTION

PART III – REMARKS (*Any general remarks or recommendations, or suggestions for improvement of publications and blank forms. Additional blank sheets may be used if more space is needed.)*

TYPED NAME, GRADE OR TITLE	TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION	SIGNATURE

The Metric System and Equivalents

Linear Measure

1 centimeter = 10 millimeters = .39 inch
1 decimeter = 10 centimeters = 3.94 inches
1 meter = 10 decimeters = 39.37 inches
1 dekameter = 10 meters = 32.8 feet
1 hectometer = 10 dekameters = 328.08 feet
1 kilometer = 10 hectometers = 3,280.8 feet

Weights

1 centigram = 10 milligrams = .15 grain
1 decigram = 10 centigrams = 1.54 grains
1 gram = 10 decigram = .035 ounce
1 decagram = 10 grams = .35 ounce
1 hectogram = 10 decagrams = 3.52 ounces
1 kilogram = 10 hectograms = 2.2 pounds
1 quintal = 100 kilograms = 220.46 pounds
1 metric ton = 10 quintals = 1.1 short tons

Liquid Measure

1 centiliter = 10 milliters = .34 fl. ounce
1 deciliter = 10 centiliters = 3.38 fl. ounces
1 liter = 10 deciliters = 33.81 fl. ounces
1 dekaliter = 10 liters = 2.64 gallons
1 hectoliter = 10 dekaliters = 26.42 gallons
1 kiloliter = 10 hectoliters = 264.18 gallons

Square Measure

1 sq. centimeter = 100 sq. millimeters = .155 sq. inch
1 sq. decimeter = 100 sq. centimeters = 15.5 sq. inches
1 sq. meter (centare) = 100 sq. decimeters = 10.76 sq. feet
1 sq. dekameter (are) = 100 sq. meters = 1,076.4 sq. feet
1 sq. hectometer (hectare) = 100 sq. dekameters = 2.47 acres
1 sq. kilometer = 100 sq. hectometers = .386 sq. mile

Cubic Measure

1 cu. centimeter = 1000 cu. millimeters = .06 cu. inch
1 cu. decimeter = 1000 cu. centimeters = 61.02 cu. inches
1 cu. meter = 1000 cu. decimeters = 35.31 cu. feet

Approximate Conversion Factors

To change	*To*	*Multiply by*	*To change*	*To*	*Multiply by*
inches	centimeters	2.540	ounce-inches	Newton-meters	.007062
feet	meters	.305	centimeters	inches	.394
yards	meters	.914	meters	feet	3.280
miles	kilometers	1.609	meters	yards	1.094
square inches	square centimeters	6.451	kilometers	miles	.621
square feet	square meters	.093	square centimeters	square inches	.155
square yards	square meters	.836	square meters	square feet	10.764
square miles	square kilometers	2.590	square meters	square yards	1.196
acres	square hectometers	.405	square kilometers	square miles	.386
cubic feet	cubic meters	.028	square hectometers	acres	2.471
cubic yards	cubic meters	.765	cubic meters	cubic feet	35.315
fluid ounces	milliliters	29,573	cubic meters	cubic yards	1.308
pints	liters	.473	milliliters	fluid ounces	.034
quarts	liters	.946	liters	pints	2.113
gallons	liters	3.785	liters	quarts	1.057
ounces	grams	28.349	liters	gallons	.264
pounds	kilograms	.454	grams	ounces	.035
short tons	metric tons	.907	kilograms	pounds	2.205
pound-feet	Newton-meters	1.356	metric tons	short tons	1.102
pound-inches	Newton-meters	.11296			

Temperature (Exact)

°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C

PIN: 073439-000