

TECHNICAL MANUAL

AVIATION UNIT AND INTERMEDIATE
MAINTENANCE

GAS TURBINE ENGINE
(AUXILIARY POWER UNIT-APU)

MODEL T-62T-40-1

PART NUMBERS 116305-100
AND 116305-200

NSN 2835-01-083-9978 AND
2835-01-166-9129

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29 MAY 1987

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NO. 5

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Aviation Unit and Intermediate Maintenance
Gas Turbine Engine
(Auxiliary Power Unit - APU)
Model T-62T-40-1
Part Numbers 116305-100, 116305-200,
116305-201, 116305-300 and 116305-302
NSN 2835-01-083-9978, 2835-01-166-9129,
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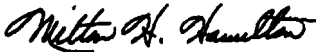
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| 2-93 and 2-94 | 2-93 and 2-94 |
| 2-113 and 2-114 | 2-113 and 2-114 |
| 2-139 and 2-140 | 2-139 and 2-140 |
| 2-143 and 2-144 | 2-143 and 2-144 |
| 2-151 through 2-154 | 2-151 through 2-154 |
| 2-154.1 through 2-154.3/ (2-154.4 blank) | 2-154.1 through 2-154.3/ (2-154.4 blank) |
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Model T-62T-40-1
Part Numbers 116305-100
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1-5 through 1-12
1-14.1/1-14.2
1-15 and 1-16
1-25 through 1-28
1-31 through 1-38
2-13 through 2-16
2-19 and 2-20
2-23 through 2-34
2-39 through 2-50
2-55 through 2-60
2-65 through 2-68
2-71 through 2-76
2-81 and 2-82
2-89 through 2-98
2-103 and 2-104
2-107 through 2-128
2-133 through 2-136
2-139 through 2-144
2-147 through 2-150
2-163 through 2-168
2-175 through 2-182
- - - -
2-191 through 2-194

Insert pages

i and ii
v and vi
1-1 through 1-4
1-4.1/1-4.2
1-5 through 1-12
1-14.1/1-14.2
1-15 and 1-16
1-25 through 1-28
1-31 through 1-38
2-13 through 2-16
2-19 and 2-20
2-23 through 2-34
2-39 through 2-50
2-55 through 2-60
2-65 through 2-68
2-71 through 2-76
2-81 and 2-82
2-89 through 2-98
2-103 and 2-104
2-107 through 2-128
2-133 through 2-136
2-139 through 2-144
2-147 through 2-150
2-163 through 2-168
2-175 through 2-182
2-182.1 through 2-182.4
2-191 through 2-194

Remove pages

2-199 through 2-201/2-202
B-7 and B-8
B-15 and B-16
Index 1 through Index 6

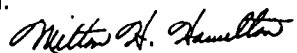
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| 1-13 and 1-14 | 1-13 and 1-14 |
| --- | 1-14.1/1-14.2 |
| 2-67 through 2-82 | 2-67 through 2-82 |
| 2-89 and 2-90 | 2-89 and 2-90 |
| 2-93 and 2-94 | 2-93 and 2-94 |
| 2-141 through 2-154 | 2-141 through 2-154 |
| --- | 2-154.1 through 2-154.3/2-154.4 |
| B-5 and B-6 | B-5 and B-6 |
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| --- | D-3/D-4 |
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Gas Turbine Engine
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2-9/2-10

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URGENT

WARNING

PRECAUTIONARY DATA

Personnel performing instructions involving operating procedures and practices, which are included or implied in this technical manual, shall observe the following instructions. Disregard of these warnings and precautionary information may cause serious injury, death, or destruction of material.

GENERAL WARNING

Observe all cautions and warnings on containers when using consumables. When applicable, wear necessary protective gear during handling and use. If a consumable is flammable or explosive, MAKE CERTAIN consumable and its vapors are kept away from heat, spark and flame.

COMPRESSED AIR

Do not direct compressed air near or directly against skin. Do not use air under high pressure, or from a source not having a moisture trap, when drying parts. Do not roll bearings with compressed air.

TOXIC POISONS

Contains additives which are poisonous and are readily absorbed through the skin. Avoid prolonged contact with the skin.

TEST EQUIPMENT OPERATION

Test equipment shall be operated by authorized personnel only.

NOISE

Operation and maintenance personnel shall wear ear protection devices when working near or around an operating test stand.

WARNING

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

CAUTION

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

Note

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

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HOW TO USE THIS MANUAL viii

| | | | |
|----------------|-------------|--|------|
| CHAPTER | 1. | INTRODUCTION AND ENGINE - GENERAL | |
| Section | I | General Information | 1-1 |
| Section | II | Equipment Description | 1- 1 |
| Section | III | Principle of Operation | 1-2 |
| Section | IV | Repair Parts; Special Tools, Measurement and | 1-5 |
| | | Diagnostic Equipment (TMDE); and Support Equipment | 1-15 |
| Section | V | Service Upon Request | 1-16 |
| Section | VI | Hoisting | 1-26 |
| Section | VII | Troubleshooting | 1-27 |
| Section | VIII | Servicing | 1-28 |
| Section | IX | Preventive Maintenance Checks and Services | 1-34 |
| Section | X | Maintenance Procedures | 1-35 |
| Section | XI | Preparation for Storage or Shipment | 1-39 |

| | Page |
|---|------|
| CHAPTER 2 MAINTENANCE | 2-1 |
| Engine General | |
| Air Screen Assembly | |
| Task 2-1. Remove Air Screen Assembly | 2-2 |
| Task 2-2. Clean and Inspect Air Screen Assembly | 2-4 |
| Task 2-3. Repair Air Screen Assembly | 2-6 |
| Task 2-4. Install Air Screen Assembly | 2-7 |
| Compressor Section | |
| Compressor Rotor | |
| Task 2-5. Inspect Compressor Rotor | 2-9 |
| External Lines and Fittings | |
| Task 2-6. Clean and Inspect External Lines | 2-13 |
| and Fittings | |
| Task 2-7. Remove External Lines and Fittings | 2-16 |
| Task 2-8. Install External Lines and Fittings | 2-19 |
| Start Bypass Valve | |
| Task 2-9. Clean and Inspect Start Bypass Valve | 2-22 |
| Task 2-10. Remove Start Bypass Valve | 2-23 |
| Task 2-11. Install Start Bypass Valve. | 2-24 |
| Combustor Section | |
| Combustor Assembly | |
| Task 2-12. Inspect Combustor Assembly | 2-25 |
| Task 2-13. Remove Combustor Section | 2-26 |
| Task 2-14. Disassemble Combustor Assembly | 2-30 |
| Task 2-15. Clean and Inspect Combustor Housing | 2-31 |
| Task 2-16. Clean and Inspect Combustor Liner | 2-33 |
| Task 2-17. Repair Combustor Liner | 2-35 |
| Task 2-18. Repair Combustor Housing | 2-38 |
| Task 2-19. Assemble Combustor Assembly | 2-40 |
| Task 2-20. Install Combustor Section | 2-42 |
| Turbine Assembly | |
| Task 2-21. Inspect Turbine Wheel | 2-45 |
| Task 2-22. Clean and Inspect Turbine Air Inlet | 2-47 |
| Housing | |
| Task 2-23. Repair Turbine Air Inlet | 2-49 |
| Housing | |

CHAPTER 2 MAINTENANCE (Continued)

Fuel System

Start Fuel Nozzle Holder Assembly

| | | |
|------------|---|------|
| Task 2-24. | Remove Start Fuel Nozzle Holder | 2-50 |
| | Assembly | |
| Task 2-25. | Clean and Inspect Start Fuel Nozzle | 2-52 |
| | Holder Assembly | |
| Task 2-26. | Service Start Fuel Nozzle Holder | 2-54 |
| | Assembly (Adjustable) | |
| Task 2-27. | Install Start Fuel Nozzle Holder | 2-55 |
| | Assembly | |

Purge Valve Assembly

| | | |
|------------|--|------|
| Task 2-28. | Remove Purge Valve Assembly | 2-56 |
| Task 2-29. | Clean and Inspect Purge Valve Assembly . | 2-58 |
| Task 2-30. | Install Purge Valve Assembly | 2-60 |

Compressor Fitting Assembly

| | | |
|------------|--|------|
| Task 2-31. | Remove Compressor Fitting Assembly | 2-61 |
| Task 2-32. | Clean and Inspect Compressor Fitting . . . | 2-63 |
| | Assembly | |
| Task 2-33. | Install Compressor Fitting Assembly | 2-65 |

Restrictor

| | | |
|------------|--|------|
| Task 2-34. | Remove Restrictor | 2-67 |
| Task 2-35. | Clean and Inspect Restrictor | 2-69 |
| Task 2-36. | Install Restrictor Assembly | 2-71 |

Tee Fitting Bracket Assembly

| | | |
|------------|---|------|
| Task 2-37. | Remove Tee Fitting Bracket Assembly | 2-72 |
| Task 2-38. | Clean and Inspect Tee Fitting | 2-74 |
| | Bracket Assembly | |
| Task 2-39. | Install Tee Fitting Bracket Assembly . . . | 2-76 |

Compressor Fitting Assembly

| | | |
|------------|--|------|
| Task 2-40. | Remove Compressor Fitting Assembly | 2-77 |
| Task 2-41. | Clean and Inspect Compressor Fitting . . . | 2-79 |
| | Assembly | |
| Task 2-42. | Install Compressor Fitting Assembly | 2-81 |

| | Page |
|---|-------|
| CHAPTER 2 MAINTENANCE (Continued) | |
| Fuel Cover Assembly | |
| Task 2-43. Remove Fuel Cover Assembly | 2-83 |
| Task 2-44. Clean and Inspect Fuel Cover Assembly . . | 2-84 |
| Task 2-45. Repair Fuel Cover Assembly. | 2-86 |
| Task 2-46. Install Fuel Cover Assembly | 2-88 |
| Fuel Drain Check Valve Assembly | |
| Task 2-47. Remove Fuel Drain Check Valve Assembly . | 2-89 |
| Task 2-48. Clean and Inspect Fuel Drain Check | 2-90 |
| Valve Assembly | |
| Task 2-49. Install Fuel Drain Check Valve | 2-92 |
| Assembly | |
| Fuel Control | |
| Task 2-50. Inspect Fuel Control | 2-94 |
| Task 2-51. Remove Fuel Control | 2-96 |
| Task 2-52. Disassemble Fuel Control | 2-99 |
| Task 2-53. Clean and Inspect Acceleration | 2-101 |
| Control Unit | |
| Task 2-54. Service Fuel Pump Filter | 2-103 |
| Task 2-55. Clean and Inspect Fuel Pump | 2-105 |
| Task 2-56. Assemble Fuel Control | 2-107 |
| Task 2-57. Install Fuel Control | 2-109 |
| Fuel Inlet Filter | |
| Task 2-58. Remove Fuel Inlet Filter | 2-111 |
| Task 2-59. Install Fuel Inlet Filter | 2-113 |
| Fuel Manifold Assembly | |
| Task 2-60. Remove Fuel Manifold Assembly. | 2-115 |
| Task 2-61. Clean and Inspect Fuel Manifold. | 2-116 |
| Assembly | |
| Task 2-62. Install Fuel Manifold Assembly | 2-118 |
| Main Fuel Solenoid Valve | |
| Task 2-63. Remove Main Fuel Solenoid Valve | 2-120 |
| Task 2-64. Install Main Fuel Solenoid Valve | 2-122 |
| Max and Start Fuel Solenoid Valves | |
| Task 2-65. Remove Max and Start Fuel Solenoid | 2-124 |
| Valves | |
| Task 2-66. Install Max and Start Fuel Solenoid | 2-126 |
| Valves | |

CHAPTER 2 MAINTENANCE

Base assembly

| | | |
|------------|---|-------|
| Task 2-67. | Remove Base Assembly. | 2-128 |
| Task 2-68. | Clean and Inspect Base Assembly | 2-130 |
| Task 2-69. | Repair Base Assembly. | 2-132 |
| Task 2-70. | Install Base Assembly | 2-134 |

Electrical assembly

Ignition Exciter

| | | |
|------------|--|-------|
| Task 2-71. | Remove Ignition Exciter | 2-136 |
| Task 2-72. | Repair Ignition Exciter | 2-138 |
| Task 2-73. | Clean and Inspect Ignition Exciter | 2-139 |
| Task 2-74. | Install Ignition Exciter. | 2-140 |

Ignition Cable

| | | |
|------------|--|-------|
| Task 2-75. | Remove Ignition Cable. | 2-142 |
| Task 2-76. | Install Ignition Cable | 2-144 |
| Task 2-77. | Remove Igniter Plug | 2-145 |
| Task 2-78. | Clean and Inspect Igniter Plug | 2-146 |
| Task 2-79. | Install Igniter Plug | 2-147 |

Engine Electrical Harness Assembly

| | | |
|------------|--|-------|
| Task 2-80. | Inspect Engine Electrical Harness Assembly. | 2-148 |
| Task 2-81. | Remove Engine Electrical Harness Assembly. | 2-150 |
| Task 2-82. | Install Engine Electrical Harness Assembly. | 2-152 |

Meter Assembly

| | | |
|-------------|--|---------|
| Task 2-82.1 | Remove Meter Assembly | 2-154.1 |
| Task 2-82.2 | Install Meter Assembly | 2-154.2 |
| Task 2-82.3 | Clean and Inspect Meter Assembly | 2-154.3 |

Magnetic Pickup

| | | |
|------------|-----------------------------------|-------|
| Task 2-83. | Remove Magnetic Pickup | 2-155 |
| Task 2-84. | Install Magnetic Pickup | 2-156 |

Low Oil Pressure Switch

| | | |
|------------|---|-------|
| Task 2-85. | Remove Low Oil Pressure Switch | 2-158 |
| Task 2-86. | Install Low Oil Pressure Switch | 2-159 |

High Oil Temperature Switch

| | | |
|------------|---|-------|
| Task 2-87. | Remove High Oil Temperature Switch | 2-161 |
| Task 2-88. | Install High Oil Temperature Switch | 2-163 |

CHAPTER 2 MAINTENANCE (Continued)

Oil System

Oil Filter and Bypass Valve

Task 2-89. Remove Oil Filter and Bypass Valve 2-165
 Task 2-90. Clean and Inspect Filter Bypass Valve 2-166
 Task 2-91. Install Oil Filter and Bypass Valve 2-168

Oil Sight Gage

Task 2-92. Remove Oil Sight Gage 2-169
 Task 2-93. Clean and Inspect Oil Sight Gage 2-170
 Task 2-94. Install Oil Sight Gage 2-172

Magnetic Drain Plug and Valve

Task 2-95. Remove Magnetic Drain Plug and Valve 2-173
 Task 2-96. Clean and Inspect Magnetic Drain Plug
 and Valve 2-174
 Task 2-97. Install Magnetic Drain Plug and Valve 2-176

Oil Plug and Dipstick

Task 2-98. Remove Oil Plug and Dipstick 2-178
 Task 2-99. Clean and Inspect Oil Plug and Dipstick 2-179
 Task 2-100. Install Oil Plug and Dipstick 2-181

Oil Filler Tube and Dipstick Assembly

Task 2-100.1. Remove Oil Filler Tube and Dipstick Assembly 2-181.1
 Task 2-100.2. Clean and Inspect Oil Filler Tube and
 Dipstick Assembly 2-181.2
 Task 2-100.3. Install Oil Filler Tube and Dipstick Assembly 2-181.4

Drive System

Task 2-101. Remove Drive System 2-182
 Task 2-102. Clean and Inspect Drive System 2-185
 Task 2-103. Replace Drive System Studs and Inserts 2-187

Accessory Drive Assembly

Task 2-104. Remove Accessory Drive Assembly 2-188
 Task 2-105. Replace Accessory Drive Assembly Oil 2-190
 Task 2-106. Install Accessory Drive Assembly 2-192

Reduction Drive Assembly

Task 2-107. Replace Reduction Drive Assembly Oil Seals 2-194
 Task 2-108. Install Drive System 2-196

Spline Adapter

Task 2-109. Inspect Spline Adapter 2-199
 Task 2-110. Replace Spline Adapter 2-200

| | | Page |
|------------|--|------------|
| APPENDIX A | REFERENCES | A-1 |
| APPENDIX B | MAINTENANCE ALLOCATION CHART | B-1 |
| APPENDIX C | REPAIR PARTS AND SPECIAL TOOLS LIST | C-1 |
| APPENDIX D | EXPENDABLE SUPPLIES AND MATERIALS LIST | D-1 |
| APPENDIX E | MANUFACTURED ITEMS LIST (Not applicable) | E-1 |
| APPENDIX F | TORQUE LIMITS | F-1 |
| | GLOSSARY | GLOSSARY-1 |
| | ALPHABETICAL INDEX | INDEX-1 |

How to Use This Manual

1. Description of Manual. This manual has two chapters and six appendices. Each chapter is divided into sections. Each section in Chapter 1 is divided into paragraphs. The paragraphs have specific information you will need to know. Chapter 2 is divided into tasks. The tasks tell you what you need and how to do any job. The appendices have general information you will need to know. They list references, maintenance allocation chart, expendable supplies and materials, wiring diagrams, and manufactured items.

a. Paragraph/Tasks. Paragraphs make up sections in Chapter 1. They contain specific information about the APU. Tasks make up Chapter 2. It is the tasks that have the information you need to do any job. All paragraphs and tasks are numbered. This helps you find what you need when you need it. USE THE TABLE OF CONTENTS or THE INDEX TO FIND THE PARAGRAPH OR TASK YOU NEED. Tasks and tables are identified by the number of the chapter in which it appears, followed by a dash and a number indicating the sequence in which it appears in the chapter.

Examples: Table 1-2 is the second table in Chapter 1.
Task 2-11 is the eleventh task in Chapter 2.

b. Initial Setup. Initial setup is the first part of every task in the manual. It lists what tools, materials and parts you will need before you can do the task. The following headings are used when they apply.

(1) Task Title. The task title after the paragraph number describes the job to be done in the task.

(2) Tools. Tools, tool kits or shop sets needed to do the task are listed here. If tools from your repairman's kit are needed, the kit is listed. Tools you need that are not in the kit or set, are listed by name, type and size. Special tools and test support equipment are listed by a T-number. Find these items in Table 1-1.

(3) Materials. Expendable items and support materials are listed under this heading. These are things like solvent, rags, grease, safety wire, etc. They are listed by an E-number;

Example: Grease (E2)

Find these items in Appendix C.

(4) Parts. All mandatory replacement, parts are listed. These are things like gaskets, packings, cotter pins, lockwashers, etc. They are listed by the Repair Parts and Special Tools List (RPSTL) name.

(5) Personnel Required. The people needed to do the task are listed under this heading. They are identified by their MOS. When more than one of any MOS is needed, the number needed is shown in parentheses. The text will tell you when a helper is needed.

(6) References. Related tasks and TM's you will need to do the task are listed under this heading. The task steps tell you when these tasks and TM's are needed.

(7) Equipment Condition. All the things to be done before you start the task are listed under this heading. To help, the number of the task tells you how to do them is given when applicable.

Note

All tasks covered in this manual are off helicopter tasks. If a task is other than an off helicopter task, it will be brought to your attention under "Equipment Condition". Example: "Off APU Task".

(8) General Safety Instructions. Safety precautions that must be observed when you are doing the job are described under this heading. Warnings also include immediate first aid instructions.

c. Locator Illustrations. When needed (for removal, installation and other procedures) a locator illustration is included in initial setup. They show you the area of the APU to be worked on. Parts involved in the task are called out.

d. Procedures. Step-by-step procedures tell you how to do the task. They are arranged in logical sequence to help you get the task done efficiently.

2. How To Prepare For a Task. Read the initial setup carefully before starting. It tells you what you will need and what you have to know to start the task. DO NOT START A TASK UNTIL:

You know what is needed

You have the things you need

You understand what to do.

a. If a tool has a T-code after it, go to the Special Tools and Test and Support Equipment List in Table 1-1. Read down the far left-hand column to your T-code. This is the tool you need for your task.

b. If an expendable material has an E-number after it, go to the Expendable Supplies and Materials List in Appendix D. Read down the Item Number column to your E-number. This is the expendable you need for your task.

c. If parts are listed, they can be drawn from tech supply. Before you start the task, check and make sure you can get the needed parts; National Stock Numbers (NSN) and part numbers are listed in TM 55-2835-208-23P.

d. Check for personnel required.

e. If preliminary procedures are listed under "Equipment Conditions", BE SURE THE LISTED TASKS ARE DONE; then do this task.

3. How To Do The Task. Before starting, read the entire task. Familiarize yourself with the entire procedure before you begin the task. As you read, remember the following:

a. PAY ATTENTION TO WARNINGS, CAUTIONS AND NOTES.

b. When values are underlined or followed by the word INSPECT, an inspector must OK the completed step.

c. Key procedural steps are underlined for ease of task completion for those familiar with the manual.

d. A GLOSSARY is provided. It lists the special words and unusual terms used in this manual and gives their meaning. Check it out. It may help you understand the instructions.

e. The following are considered standard maintenance practices. Instructions about these practices will not normally be included in task steps. Task steps will tell you when standard maintenance practices do not apply.

(1) Lines will be tagged before they are disconnected. Tubes and parts will be capped or plugged when they are disconnected.

(2) Used preformed packings, retainers, gaskets, cotter pins, lockwashers, etc. are discarded. New parts shall be installed.

(3) Packings are coated before installation in accordance with the following:

(a) Assembly Fluid, No. 1 (E31)

(4) Tubes and related parts will be tied out of the way with twine, not lockwire.

(5) In disassembly tasks, components are removed and wires disconnected.

(6) Disassembly procedures reflect disassembly needed to support total authorized repair. You may not need to disassemble a part as far as described in the task. Follow the steps to disassemble as far as needed to repair/replace worn or damaged parts.

(7) Before a components or the disassembled parts of a components are inspected, they are cleaned as required.

(8) Components and mating surface area will be inspected for serviceable condition before installation.

(9) Guide lines will be used when any item is hoisted overhead.

(10) When a nut is tightened or loosened on a bolt, the bolt head will be held with a wrench.

(11) A special torque will be cited when the words TORQUE TO are used. A standard torque is required when work install is used.

(12) When torquing hardware, observe compliance with drag torque as required. To determine drag torque, thread nut onto screw or bolt until at least two threads protrude. The nut shall not contact the mating part. The torque necessary to begin turning the nut is the drag torque.

(13) Appendix F provides standard torque limits for general type screws, nuts, bolts, fittings and coupling nuts. These standard torque values apply only when special torque values are not specified in procedures. Included in the torque tables are the applicable torque wrenches.

(14) If additional setup tools are required such as crowfoot wrenches, they will be listed in the task INITIAL SETUP.

(15) When cotter pin is required, cotter pin holes will be aligned within allowable torque range.

(16) Following installation, paint will be touched up as required.

(17) Following maintenance, inspect for foreign objects.

f. General maintenance procedures (e.g. "replace studs and inserts") are not included in the maintenance instructions. A reference is made to General Aircraft Maintenance Manual (TM 55-1500-204-25/1) for these procedures.

4. Appendices.

a. Appendix A - References. This appendix lists all referenced publications needed to perform the maintenance procedures in this manual.

b. Appendix B - Maintenance Allocation Chart (MAC). This appendix consists of four sections as follows:

Section I - Introduction. This section is a summary of what is in the MAC.

Section II. This section is the MAC. The MAC assigns maintenance functions in accordance with the Three Levels of Maintenance concept for Army Aviation. The MAC has six columns, containing the following information:

Columns 1 and 2 - Functional Groups. These columns identify maintenance significant components, assemblies, subassemblies and modules.

Column 3 - Maintenance Function. This column lists the maintenance functions to be performed on the items listed in column 2.

Column 4 - Maintenance Categories. The maintenance categories (levels) AVUM, AVIM and DEPOT are listed with individual columns. These columns identify the maintenance level at which each maintenance function is to be performed. Numbers in parenthesis identify the corresponding numbered remarks in Section IV.

Column 5 - Tools and Equipment. This column lists the reference code identifying the tools or test equipment required, as listed in Section III.

Column 6 - Remarks. Remarks identified by an alphabetical code, where applicable, and listed in Section IV and identified in column 6.

Section III - Tool and Test Equipment Requirements. This section consists of five columns, containing the following information:

Tool or Test Equipment Reference Code. This column lists the reference code listed in Column 5 - Tools and Equipment in the MAC.

Maintenance Category. This column lists the maintenance category (level) authorized to use the tool or test equipment.

Nomenclature. This column lists the nomenclature of the tools and test equipment.

National/Nato Stock Number. This column lists the stock number applicable to each tools or test equipment.

Tool Number. The tool number is listed to aid in identifying the tool or test equipment.

Section IV - Remarks. This section has two columns, containing the following information.

Reference Code. This column contains alphabetical codes or numbers in parentheses corresponding to the codes appearing in the applicable columns in the MAC.

Remarks/Notes. This column contains the actual notes as referenced by the reference codes to the MAC.

C. Appendix C - Repair Parts and Special Tools List. This appendix contains a reference to TM 55-2835-208-23P.

d. Appendix D - Expendable Supplies and Materials List. This appendix consists of two sections as follows:

Section I - Introduction. This section is a summary of what is in the Expendable Supplies and Materials List.

Section II - This section is the Expendable Supplies and Materials List and has four columns, containing the following information:

Column 1 - Item Number. This is the E-number assigned to the expendable item. It is referred to in the detail procedures.

Example: "Use lockwire (E16)."

Column 2 - National Stock Number. This is the National Stock Number (NSN) assigned to item. Use it to request or requisition the item.

Column 3 - Description. This column lists the name and, if required, a description to identify the item. The last line for each item shows the part number followed by the Federal Supply Code for Manufacturer (FSCM) in parentheses, if there is no NSN in Column (2).

Column 4 - U/M. This column lists the measure used in performing the maintenance function, expressed as a two-character alphabetical abbreviation (e.g., ea, ln, pr).

e. Appendix E - Manufactured Items List. This appendix lists and illustrates any parts you may have to locally manufacture to do a task.

f. Appendix F - Torque Limits. This appendix provides standard torque limits for general type screws, nuts, bolts, fitting and coupling nuts.

5. Glossary. Definitions of abbreviations and unusual terms you find in the manual are listed here to help you.

6. Index. This appears at the end of the manual. It lists all subjects in the manual by alphabetical order and the entries are in everyday language of the user. This index contains many possible ways of locating the subject, i.e., pressure fluid filter; fuel inlet filter; filter, fuel; filter, pressure fluid. This is necessary since the official nomenclature is not always readily recognized by the user.

CHAPTER I
INTRODUCTION AND ENGINE-GENERAL
Section I. GENERAL INFORMATION

1-1. SCOPE

| | |
|--|---|
| Type of Manual: | Aviation Unit and Intermediate Maintenance |
| Model Number Name and Equipment Name: | T-62T-40-1 Gas Turbine Engine (Auxiliary Power Unit - APU) |
| Purpose of Equipment: | Supplies air and electrical power to the H60 Series helicopter during preflight, staffing, and post flight. |

1-2. MAINTENANCE FORMS, RECORDS, AND REPORTS

Department of the Army forms, records and reporting procedures used for equipment maintenance will be those prescribed by DA PAM 738-751, The Army Maintenance Management System (TAMMS).

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

NOTE

Decision to destroy an APU shall be made by appropriate authority.

Destroy APU to prevent use by enemy when evacuation to safety is not possible. Refer to TM 43-0002-1.

1-4. QUALITY ASSURANCE/QUALITY CONTROL (QA/QC)

Refer to FM 55-411.

1-5. REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR)

If your gas turbine engine (APU) needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about your equipment. Let us know why you do not like the design. Put it on a SF-368, Quality Deficiency Report (QDR). Mail it to us at:

Commander
USAAVSCOM
ATTN: AMSAV-QR
4300 Goodfellow Blvd
St. Louis, MO 63120-1798

We will send you a reply.

Section II. EQUIPMENT DESCRIPTION AND DATA

1-6. EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES

CHARACTERISTICS

- Supplies rotary power for driving a generator
- Supplies air for engine starting
- Gas turbine engine

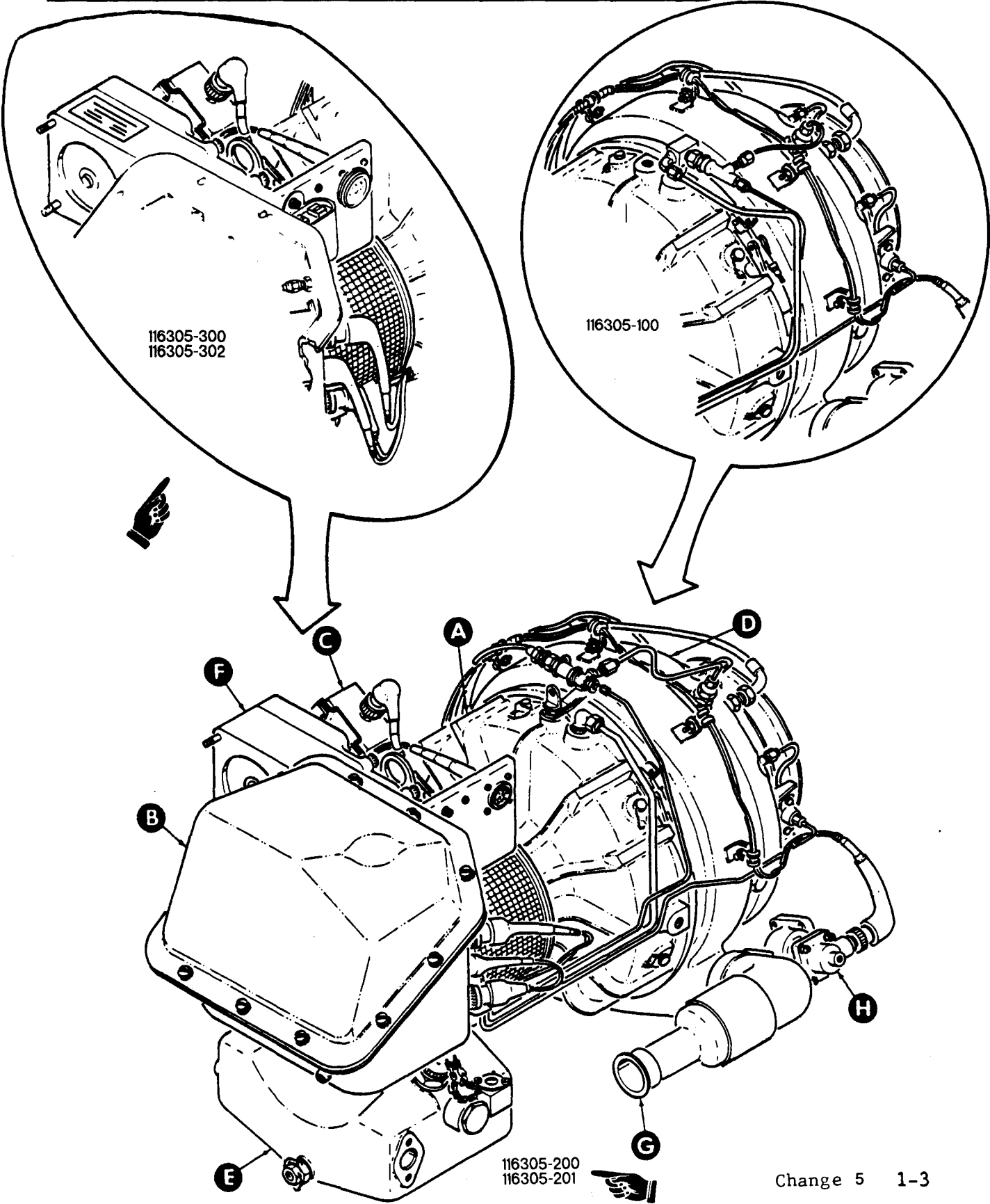
CAPABILITIES AND FEATURES

- Maximum rotational speed is 61,565 rpm
- Axial pad output shaft speed is 12,000 rpm

1-7. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS

- A TURBINE ASSEMBLY: Air enters air inlet assembly through air inlet screen. Air is compressed by the compressor rotor and supplied to the combustor assembly. Diffuser directs exhaust gas to the turbine wheel to generate rotational power.
- B FUEL CONTROL SYSTEM: Supplies and meters fuel flow to combustor assembly.
- C IGNITION EXCITER: Provides high voltage to the igniter plug.
- D COMBUSTOR ASSEMBLY: Area where fuel and compressed air are ignited and burned to drive the turbine wheel.
- E REDUCTION DRIVE ASSEMBLY: Mounted to and driven by the turbine assembly, Reduces turbine speed to main drive pad (generator) and drive assembly.
- F ACCESSORY DRIVE ASSEMBLY: Mounted on the reduction drive. Provides mounting and drive for the fuel control system and APU starter.
- G BLEED AIR MANIFOLD: Connects bleed air from combustor assembly to the aircraft system.
- H START BYPASS VALVE: Bypass bleed air during APU operation to avoid compressor surge.

1-7. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS (CONTINUED)

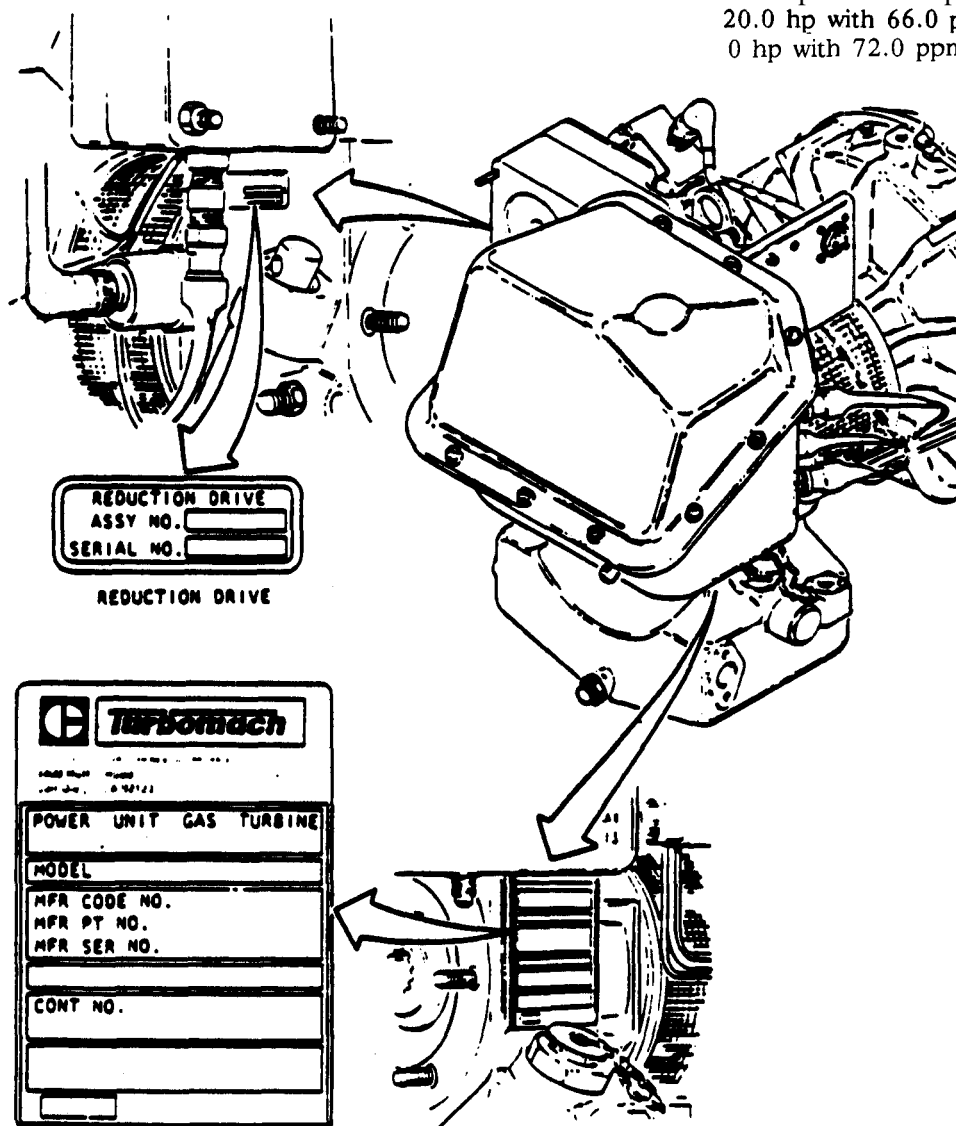


1-8. EQUIPMENT DATA

Weight84.8 lb (38.5 kg)
 Length29.30 in. (74.4 cm)
 Height17.91 in. (45.4 cm)
 Width 16.84 in. (42.7 cm)

Lubrication OilsMIL-L-23699 (general use)
 MIL-L-7808 (artic use)

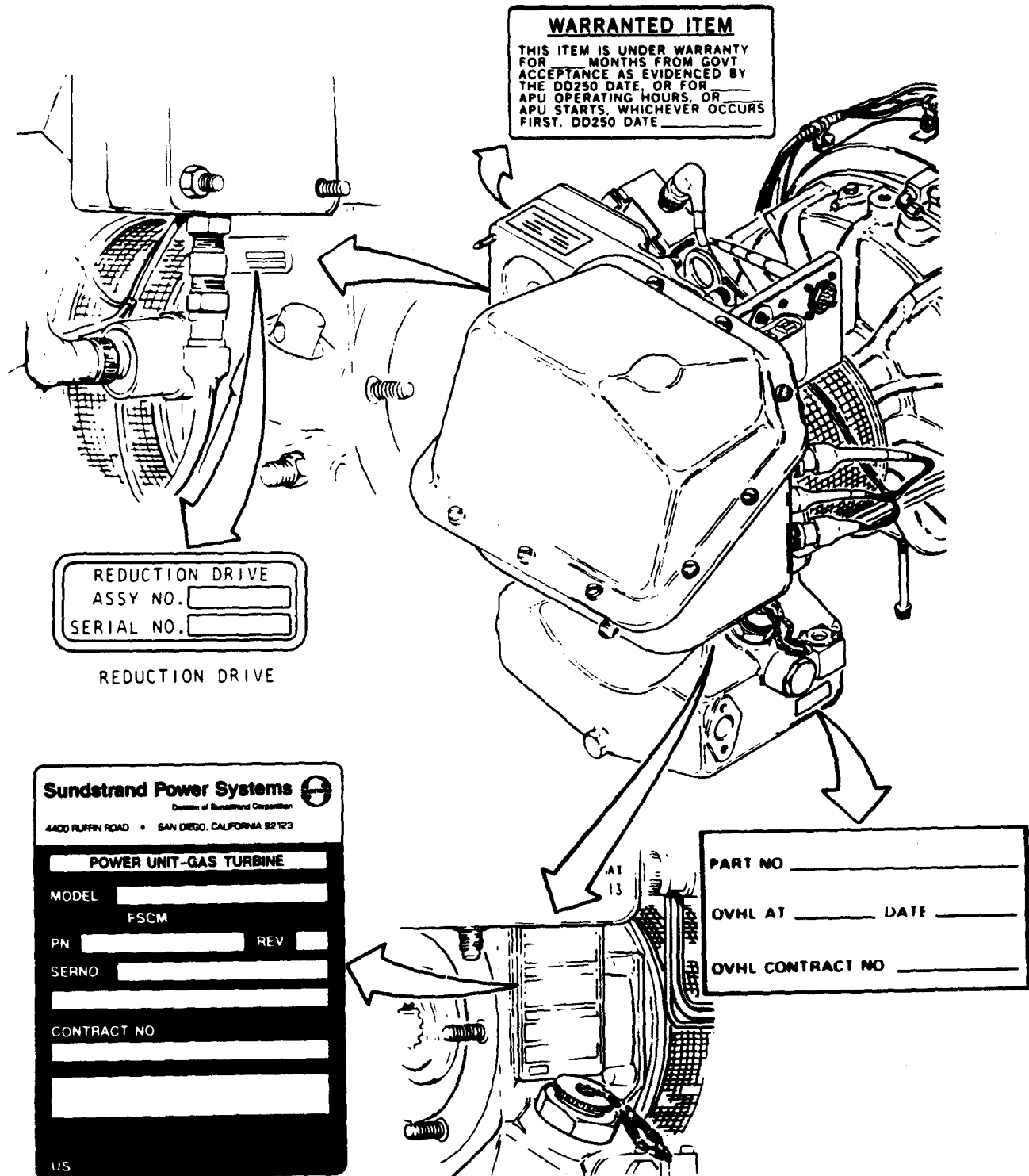
Power Output90.0 hp with 0 ppm bleed flow
 60.0 hp with 52.6 ppm bleed flow
 40.0 hp with 60.0 ppm bleed flow
 20.0 hp with 66.0 ppm bleed flow
 0 hp with 72.0 ppm bleed flow



APU

APU PN 116305-100, 116305-200 and 116305-201

1-8. EQUIPMENT DATA (CONT)



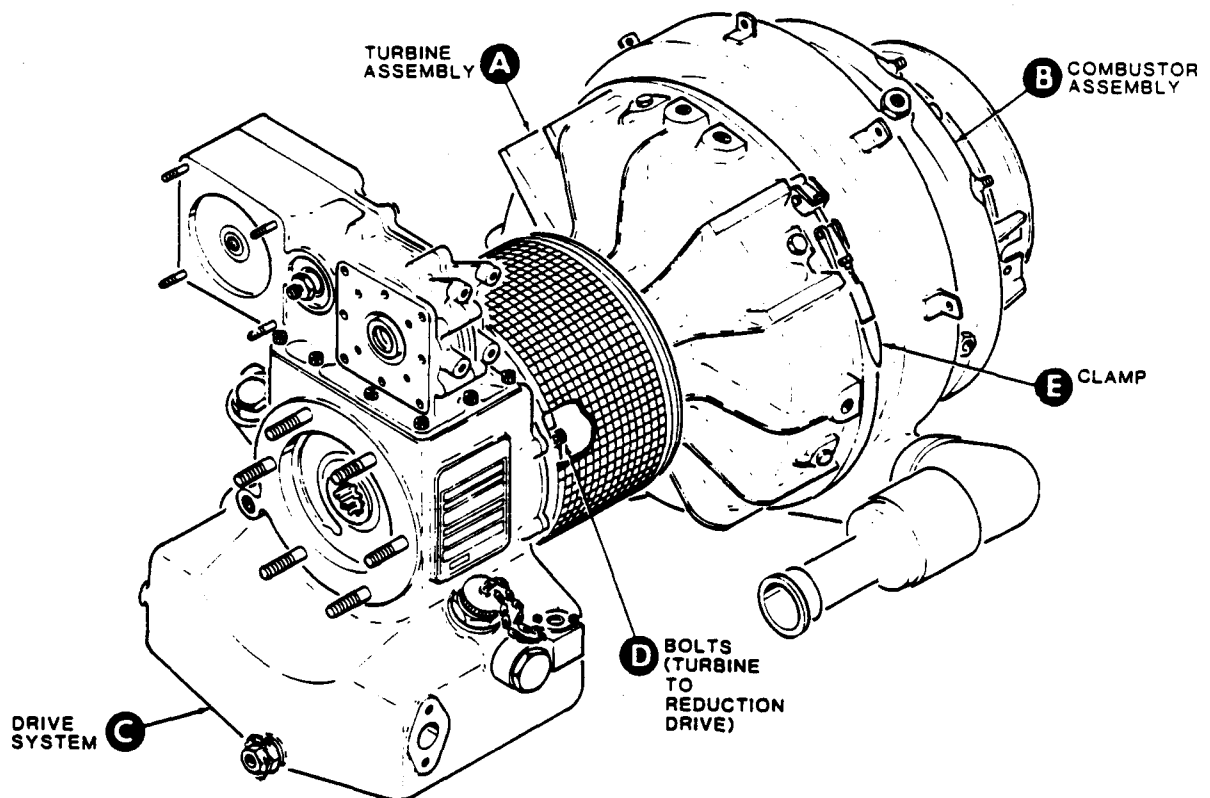
APU PN 116305-300 and 116305-301

1-9. SAFETY, CARE, AND HANDLING

Observe all general precautions and safety regulations when handling the APU.

1-10. POWERPLANT ASSEMBLY

a. The powerplant assembly consists of a turbine assembly (A), combustor assembly (B), and drive system (C). The forward end of the air inlet portion of the turbine assembly is secured by bolts (D) to the drive system. The combustor assembly is secured by clamp (E) to a flange on the aft end of the air inlet housing. Principles of operation for major components of the powerplant assembly are described in the following paragraphs.

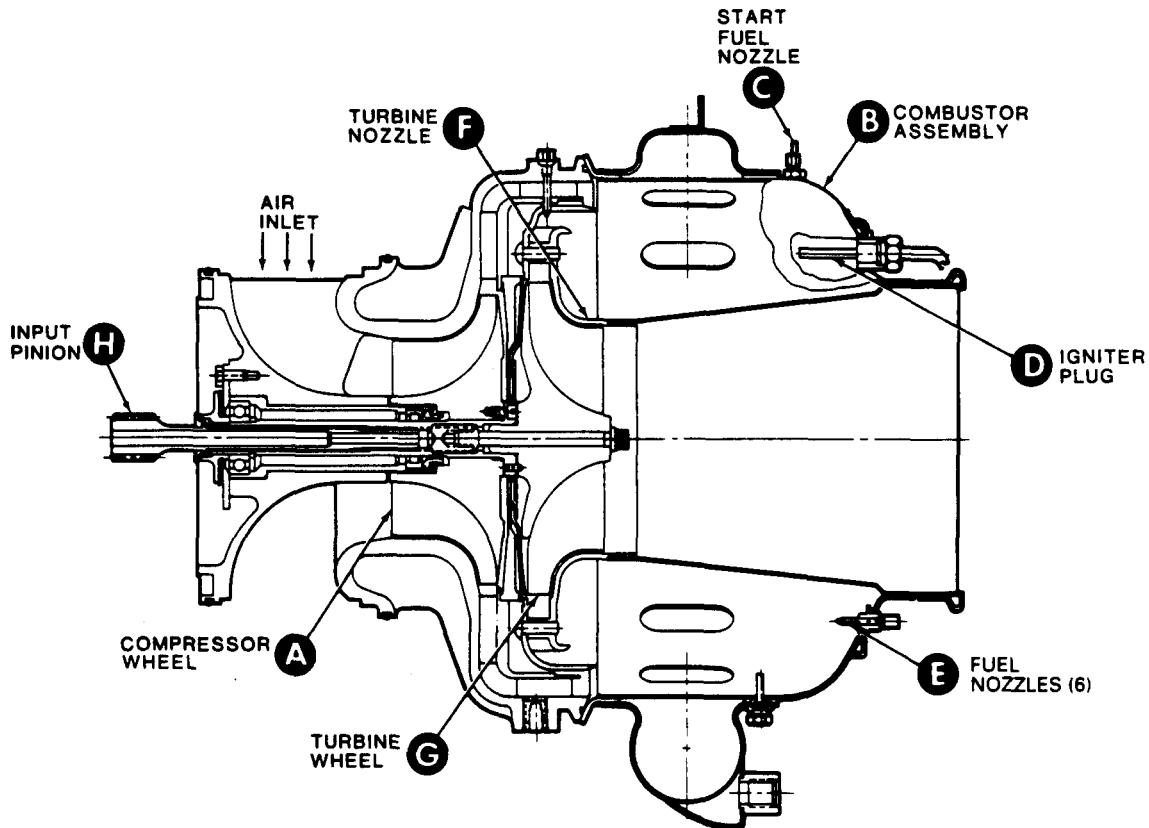


1-11. TURBINE AND COMBUSTOR ASSEMBLIES

a. During the start cycle, air is drawn by the compressor wheel (A) into the compressor section of the turbine assembly. The air is compressed and directed into the combustor assembly (B). Fuel entering the combustor assembly from the start fuel nozzle (C) is mixed with compressed air and ignited by the igniter plug (D).

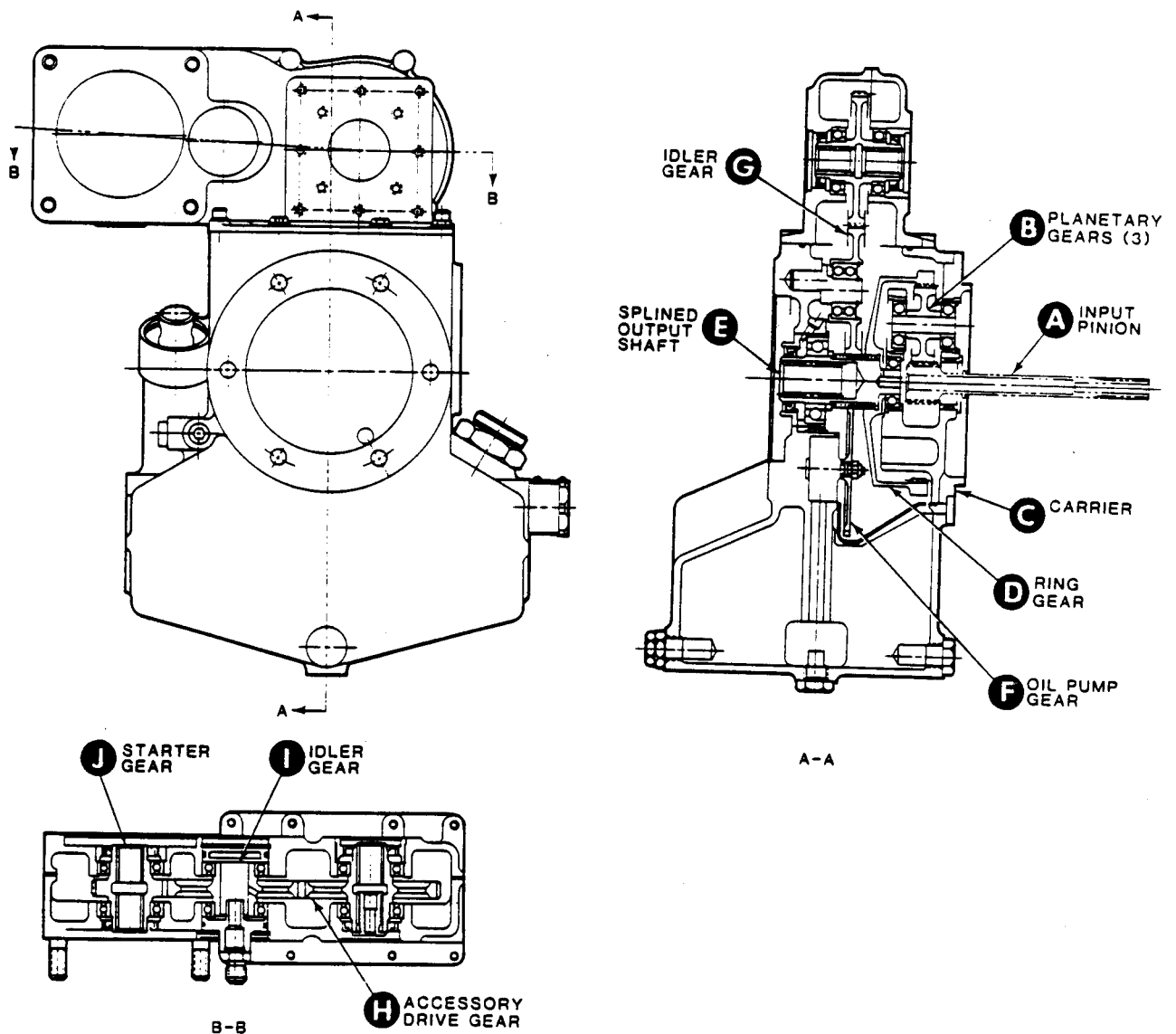
b. At a predetermined speed, six fuel nozzles (E) add fuel, resulting in additional hot gas mass flow. The hot gasses flow through the turbine nozzle (F) and impact the turbine wheel blades (G). The rotation of the turbine rotor shaft provides power to drive the compressor and input pinion (H) of the turbine assembly.

c. The compressor wheel (A), mounted on the same shaft as the turbine wheel (G), continues to draw air into the compressor. Ignition and start fuel are cut off at a predetermined point. All fuel is then supplied through the six fuel nozzles (E). Combustion is self-sustaining. A continuous cycle of intake, compression, combustion, and exhaust is maintained within the engine.



1-12. DRIVE SYSTEM

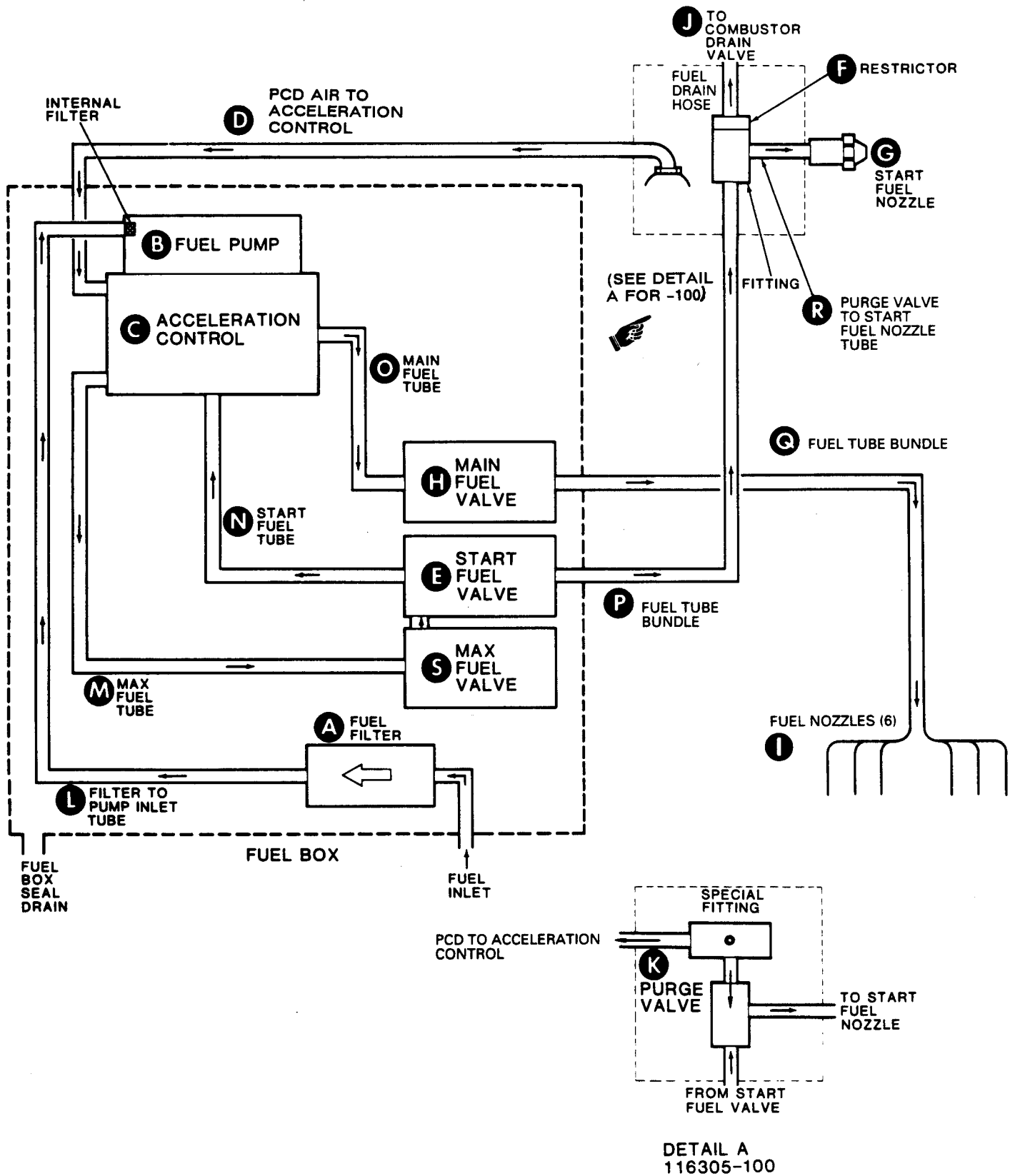
- a. The drive system consists of the reduction drive and accessory drive assemblies. The reduction drive assembly reduces the rotational speed of the turbine to the speeds necessary to drive the engine accessories and driven equipment. The input pinion (A) of the turbine assembly, splined to the rotor shaft, drives three planetary gears (B) that are mounted in carrier (C).
- b. The planetary gears (B) drive an internally splined ring gear (D) mounted on a splined output shaft (E).
- c. The output shaft drives the oil pump gear (F) and the idler gear (G). The idler gear (G) in turn drives the accessory drive assembly gears, gear (H), idler gear (I) and starter gear (J).



1 -13. FUEL SYSTEM

- A INLET FUEL FILTER Fuel from the aircraft system is supplied to the inlet of a disposable 10-micron fuel filter.
- B FUEL PUMP. The fuel pump is a positive-displacement, gear-type pump. A wire-mesh, 25-micron filter is installed in the top of the pump housing.
- C ACCELERATION CONTROL ASSEMBLY. The acceleration control assembly is mounted on, and shaft-coupled to the fuel pump. The acceleration control meters the amount of fuel supplied to the start fuel nozzle and main fuel manifold.
- D PCD TUBE ASSEMBLY. Compressor discharge pressure (PCD) is supplied to the differential pressure regulating valve of the acceleration control. PCD increases as the speed of the APU increases. As the PCD increases, the fuel metering valve in the acceleration control opens. This results in additional fuel flow to the turbine.
- E START FUEL VALVE ASSEMBLY. The start fuel valve is a solenoid activated valve. The valve is normally closed and is energized by a signal from the electronic sequence unit (ESU). At 5 percent speed, the start fuel valve opens to allow fuel flow to the start fuel nozzle.
- F RESTRICTOR (all except -100). The restrictor controls the amount of air flow that purges fuel from the start fuel nozzle.
- G START FUEL NOZZLE. Fuel is sprayed into the combustor and is ignited by an igniter plug.
- H MAIN FUEL VALVE ASSEMBLY. The main fuel valve is a solenoid activated valve. The valve is normally closed and is energized by a signal from the electronic sequence unit (ESU). At 14 percent speed, the main fuel valve opens to allow fuel flow to the six fuel nozzles.
- I FUEL MANIFOLD ASSEMBLY. The six fuel nozzles are mounted in bosses on the combustor assembly. These six fuel nozzles are connected to form the fuel manifold assembly.
- J COMBUSTOR DRAIN CHECK VALVE. The check valve, spring loaded open, opens when the APU is shut down and drains unburned fuel from the combustor.
- K PURGE VALVE (-100 ONLY). The purge valve, in the “purge” position, allows compressor discharge (PCD) airflow through the start fuel nozzle to clear nozzle of residual fuel.
- L FILTER TO PUMP INLET TUBE ASSEMBLY. Connects the fuel filter to the fuel pump inlet.

1-13. FUEL SYSTEM (Continued)



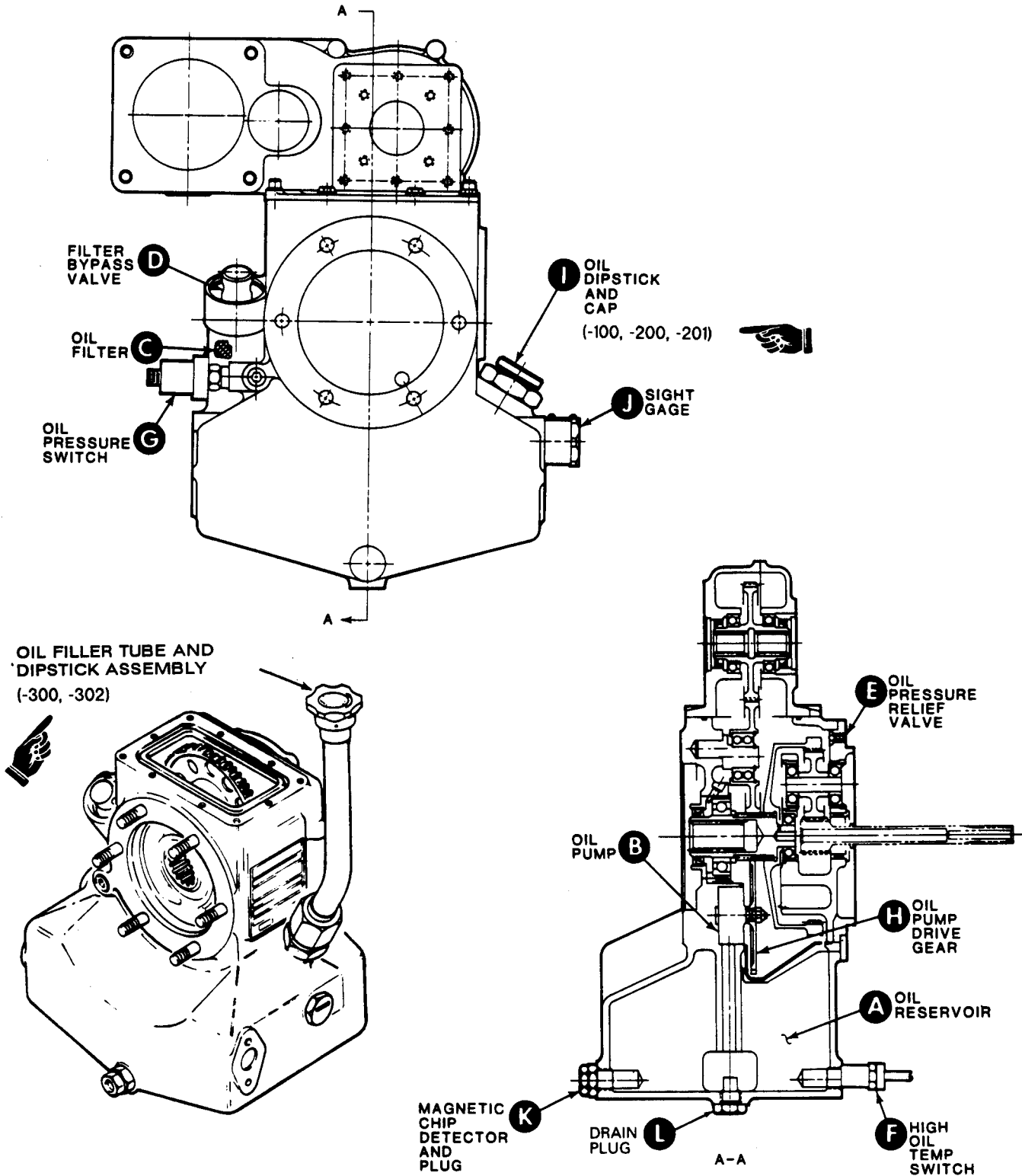
1-13. FUEL SYSTEM (Continued)

- M MAX FUEL TUBE ASSEMBLY. Connects acceleration control to max fuel valve.
- N START FUEL TUBE ASSEMBLY. Connects acceleration control to start fuel valve.
- O MAIN FUEL TUBE ASSEMBLY. Connects acceleration control to main fuel valve.
- P FUEL TUBE BUNDLE. Connects start fuel valve assembly to purge valve.
- Q FUEL TUBE BUNDLE. Connects main fuel valve assembly to manifold and fuel nozzles.
- R PURGE VALVE TO START VALVE NOZZLE TUBE ASSEMBLY. Connects purge valve to start fuel nozzle.
- S MAX FUEL VALVE. The max fuel valve is a solenoid operated valve. The valve is normally closed and is energized by a signal from the electronic sequence unit (ESU). At 90 percent rated speed, +1.5 seconds, the max fuel valve opens to allow "on" demand fuel flow to the main fuel manifold.

1-14. LUBRICATION SYSTEM

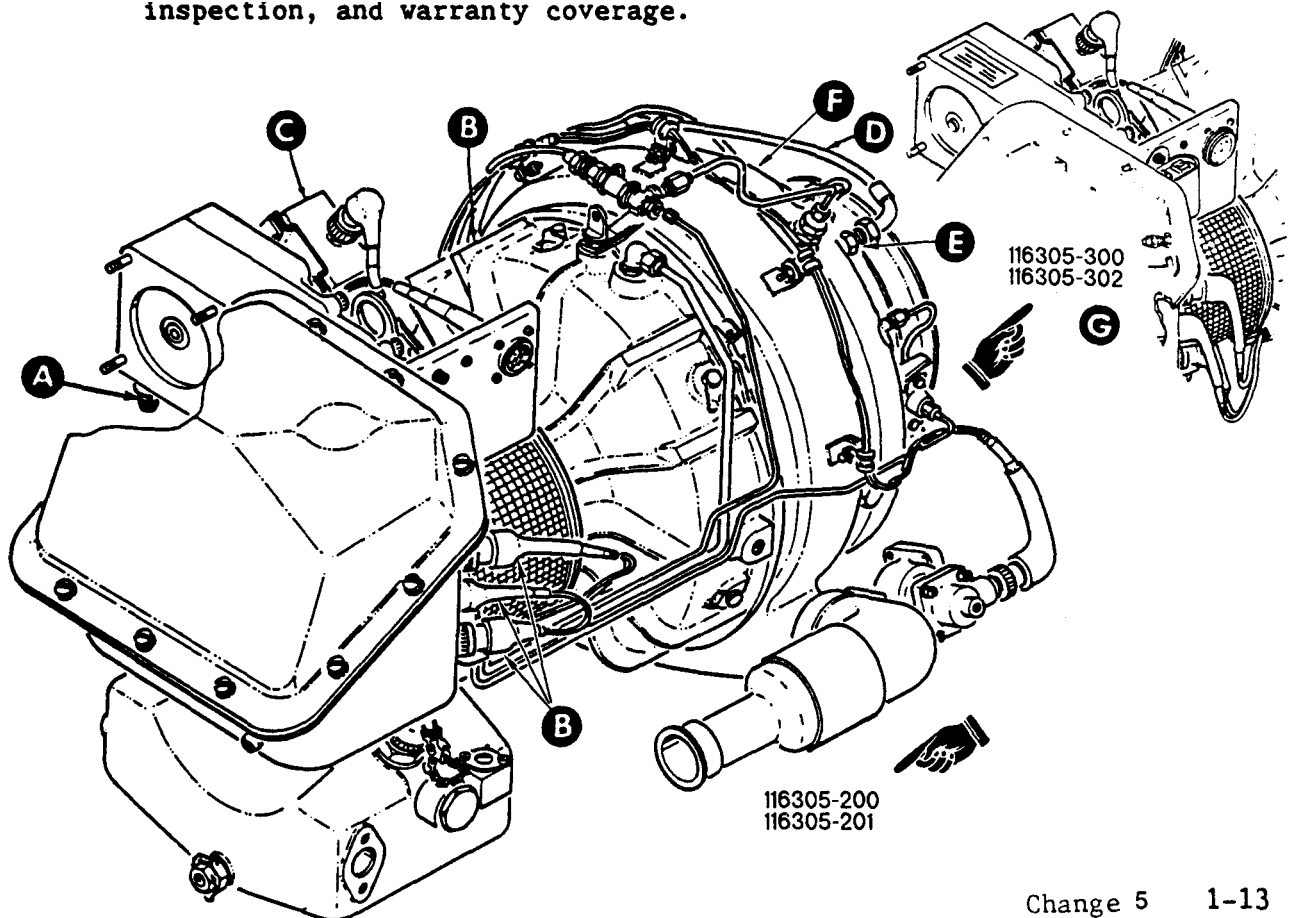
- A OIL RESERVOIR. The oil reservoir is a part of the reduction drive assembly. A magnetic drain plug, high oil temperature switch and oil and drain plug are located at the base and bottom of the oil reservoir. An oil level sight-glass and a dipstick are mounted on the reduction drive.
- B OIL PUMP. The oil pump is a part of the reduction drive assembly. The oil pump draws oil from the oil reservoir and pumps oil through drilled passages to the oil filter.
- C OIL FILTER. The oil filter is a disposable, 10 micron filter element contained in a filter cavity in the reduction drive assembly.
- D FILTER BYPASS VALVE. The filter bypass valve consists of a spring-loaded ball in a housing above the oil filter. The housing serves as a cap for the filter. The bypass valve opens to allow oil to bypass the oil filter should the oil filter become clogged.
- E OIL PRESSURE RELIEF VALVE. The oil pressure relief valve is located in the main oil gallery. The oil pressure relief valve regulates system oil pressure between 15 and 40 psig.
- F HIGH OIL TEMPERATURE SWITCH. The high oil temperature switch is located in the reduction drive assembly, and is electrically connected to the ESU. The ESU monitors the oil temperature, and the high oil temperature switch activates a cockpit indicator when the temperature exceeds a preset limit.
- G OIL PRESSURE SWITCH. The oil pressure switch is located in the reduction drive assembly, and is electrically connected to the ESU. The ESU monitors the oil pressure, and the oil pressure switch shuts down the engine if the pressure drops too low.
- H OIL PUMP DRIVE GEAR. The oil pump drive gear is driven by the output shaft. The turbine assembly input pinion drives the oil pump.
- I OIL DIPSTICK AND CAP. The combined oil dipstick and cap is mounted on the left side of the reduction drive assembly. The oil dipstick and cap is used to check the oil level and service sump.
- J SIGHT GAGE. The sight gage is located on a portion of the oil reservoir housing of the reduction drive assembly. The sight gage provides for visual viewing of oil level.
- K MAGNETIC CHIP DETECTOR AND PLUG. The magnetic chip detector and plug is a two part plug which is mounted in the front end of the reduction drive assembly. The magnetic chip detector and plug is used to collect metal chips.
- L DRAIN PLUG. The drain plug is located at the bottom of the reduction drive assembly. The drain plug is used to drain the oil.

1-14. LUBRICATION SYSTEM (CONTINUED)

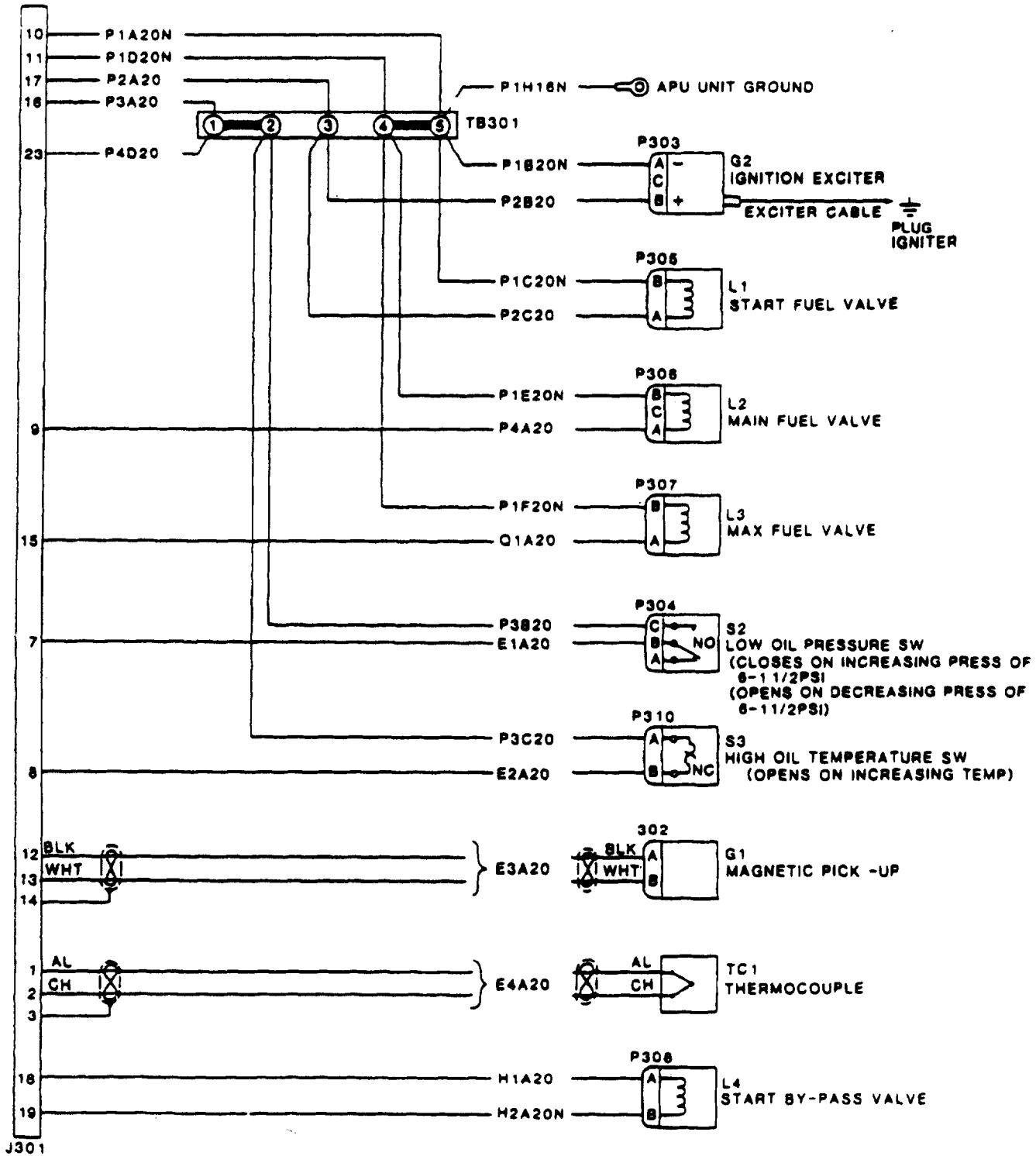


1-15. ELECTRICAL SYSTEM

- A **MAGNETIC PICKUP.** The magnetic pickup provides speed signals to the electronic sequence unit (ESU) in the aircraft.
- B **ELECTRICAL HARNESS.** A single harness connects all electrical components of the APU to the Main electrical connector. Connection to the aircraft electrical system is through this main electrical connector to the harness. Refer to schematic for electrical harness details.
- C **IGNITION EXCITER.** The ignition exciter is a capacitor-discharge type. The exciter converts direct-volts input to a high-potential alternating voltage for ignition.
- D **IGNITION CABLE.** The ignition cable connects the ignition system to the igniter plug.
- E **IGNITER PLUG.** A shunted-gap type igniter plug provides the igniter for initial ignition of fuel during start of the APU.
- F **THERMOCOUPLE.** A single-element, chromel/alumel thermocouple is part of the electrical harness. The thermocouple senses exhaust gas temperature (EGT) and provides the signal to the ESU. The output signal is used by the ESU for overtemperature protection, shutting down the APU if EGT exceeds safe limits.
- G **METER ASSEMBLY.** The meter assembly provides accurate tracking of APU operational hours and number of starts for purposes of maintenance, **inspection, and warranty coverage.**

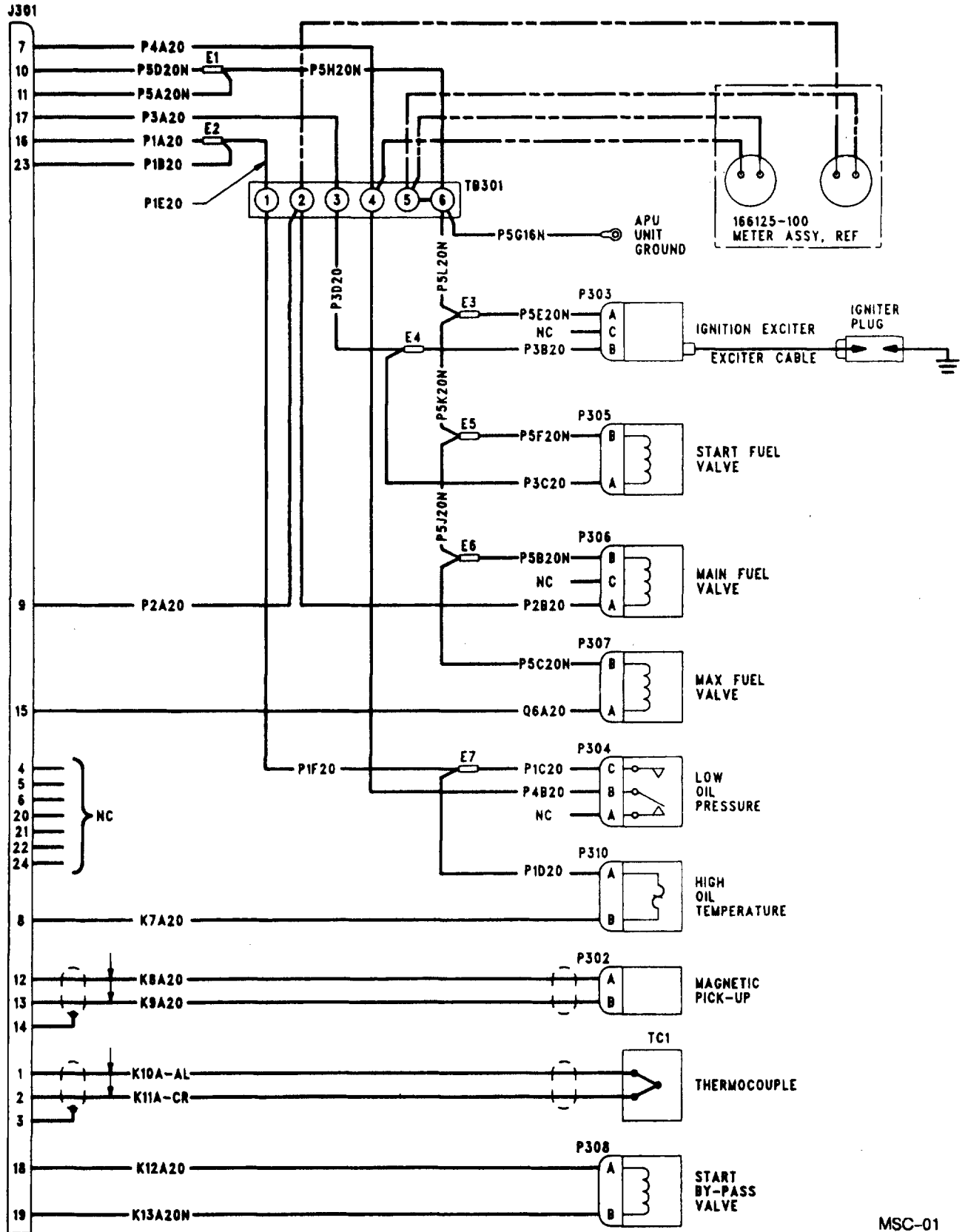


1-15. ELECTRICAL SYSTEM (CONTINUED)



APU PN 116305-100, 116305-200 and 116305-201

I-15. ELECTRICAL SYSTEM (CONTINUED)



MSC-01

Electrical Harness for APU PN 116305-300 and 116305-302

Change 5 1-14.1/(1-14.2 blank)

Section IV. REPAIR PARTS; SPECIAL TOOLS; TEST, MEASUREMENT, AND DIAGNOSTIC EQUIPMENT (TMDE); AND SUPPORT EQUIPMENT

1-16 COMMON TOOLS AND EQUIPMENT

For authorized common tools and equipment, refer to the Modified Table of Organization and Equipment (TMOE) applicable to your unit.

1-17 SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT

Refer to TM 55-2835-208-23P; Appendix B, Maintenance Allocation Chart; for special tools, TMDE, and support equipment. Tools to be fabricated are listed and shown in the illustrated list of manufactured items (Appendix E).

Table 1-1

| TOOLS AND TEST EQUIPMENT REQUIREMENTS | | | | |
|---------------------------------------|----------------------|---------------------------------------|----------------------------|--------------------|
| NOMENCLATURE OF END ITEMS | | | | |
| T-62 T-40- 1 Auxiliary Power Unit | | | | |
| REFERENCE CODE | MAINTENANCE CATEGORY | NOMENCLATURE | NATIONAL/NATO STOCK NUMBER | TOOL NUMBER |
| 1 | AVUM | Assembly Fixture | 2835-00-620-9846 | ST70396 |
| 2 | AVUM | Driver Sealer | 5120-01-212-2906 | ST90889-03 |
| 3 | AVUM | Puller, Combustor | 5120-01-435-0132 | ST91 125 |
| 4 | AVUM | Driver, Seal | 5120-01-212-2906 | ST90889-06 |
| 5 | AVUM | Gage Set, Wire | 5220-01-145-7448 | ST60880 |
| 6 | AVUM | Lifting Sling | 4910-01-253-6279 | ST93473 |
| 7 | AVUM | Tool Set, AVUM, Set No. 2 | 4920-00-569-0476 | SC492099CLA92 |
| 8 | AVUM | Tool Kit, Electrical | 5180-00-323-4915 | SC518099CLA06 |
| 9 | AVUM | Tool Kit, Engine Repairman | 5180-00-323-4944 | SC492099CLA08 |
| 10 | AVIM | Shopset, AVIM | 4920-00-405-9279 | SC492099CLA9 1MAAM |
| 11 | AVUM | Combustor, Puller Adapter | 5120-01-212-2885 | ST93014 |
| 12 | AVIM | Shopset, AVIM, Welding | 4920-00-163-5093 | SC492099CLA9 1WEAM |
| 13 | AVIM | Removal Tool, Seal | 5120-00-435-5707 | ST91017 |
| 14 | AVUM | Aircraft Inspection Tool Kit | 5180-00-323-5114 | SC518099CLA09 |
| 15 | AVUM | Power Supply, 28 VDC | | - - - |
| 16 | AVUM | Assembly, Welded | 4920-00-939-1501 | ST70106-39 |
| 17 | AVUM | Installer-Vespel Spline | 5120-01-156-0969 | 1106841-1 |
| 18 | AVUM | Remover-Vespel Spline | 5120-01-165-5544 | 1106769-4 |
| 19 | AVUM | Removal Tool, Seal | 5120-01-203-1974 | ST93057 |
| 20 | DELETED | | | |
| 21 | AVUM | Exhaust Port Closure | | MS29531 |
| 22 | AVUM | Driver, Seal | 5180-01-236-9665 | ST93228 |
| 23 | AVUM | Oil Filter By-pass Valve Removal Tool | 5120-01-266-1933 | ST80211 |
| 24 | AVIM | Flaring Tool | 5120-00-152-2013 | ST91262-300 |
| 25 | AVUM | Alignment Tool | 5120-01-248-1804 | ST94416 |
| 26 | AVUM | Inlet Cover | | 162400-200 |

1-18 REPAIR PARTS

Repair parts are listed and illustrated in the Repair Parts and Special; Tools List (RPSTL) TM 2835-208-23P covering Aviation Unit and Intermediate Maintenance (including Depot Maintenance Repair Parts) RPSTL for this equipment.

INITIAL SETUP

Applicable Configurations:

All

Tools:

Engine Repairman's Tool Kit
NSN 5180-00-323-4944

Materials:

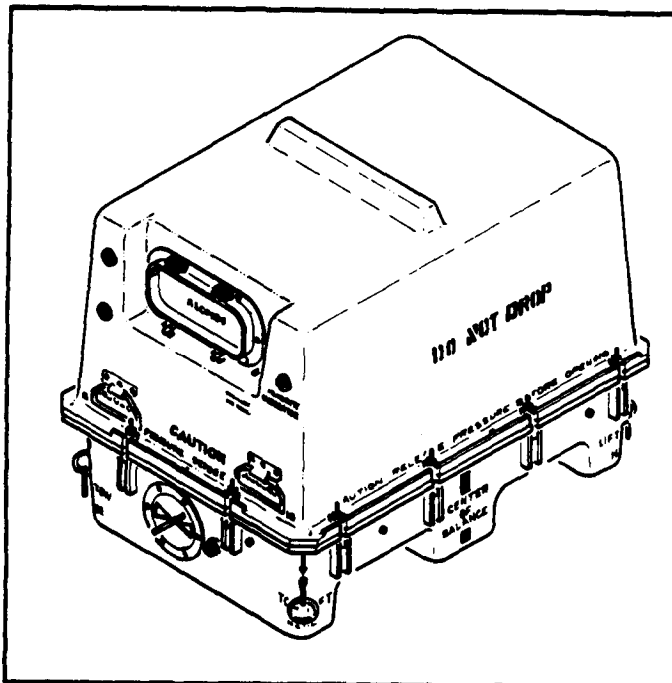
None

Personnel Required:

68B Aircraft Powerplant
Repairer (2)
68B Powerplant Inspector

References:

TB 55-8100-200-24



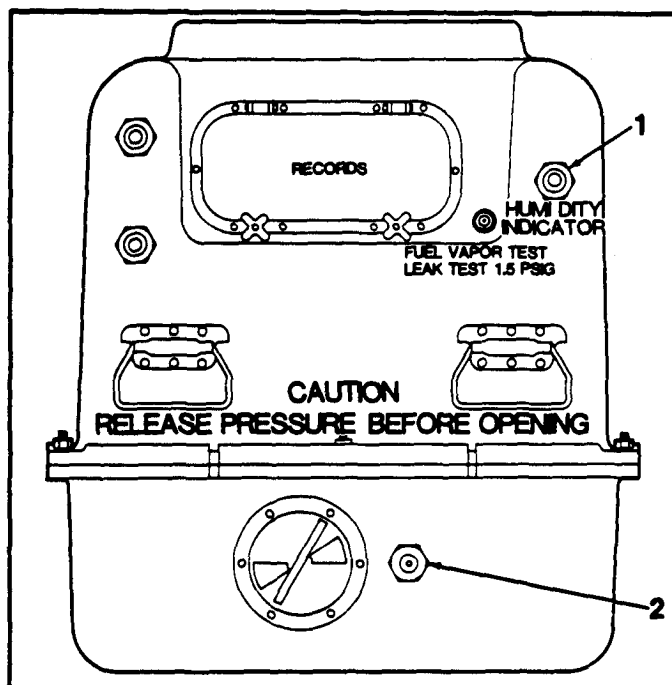
Note

Inspect container as follows, upon receipt and every 90 days thereafter.

1. Refer to TB 55-8100-200-24. Check humidity indicator (1). If indicator is blue, it indicates humidity is within limits and no further maintenance is required. If indicator is pink, inspection of the APU is necessary; proceed as follows:

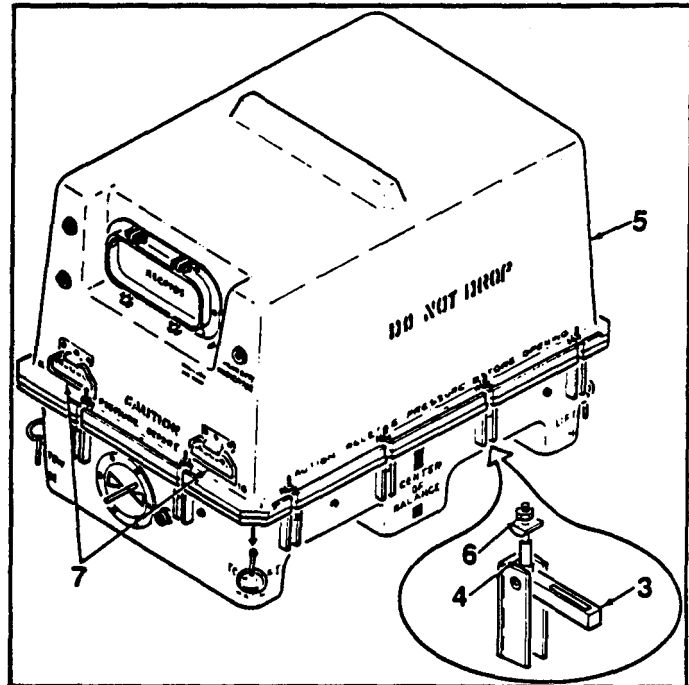
WARNING

Release pressure in container by depressing the relief valve (2) prior to opening.



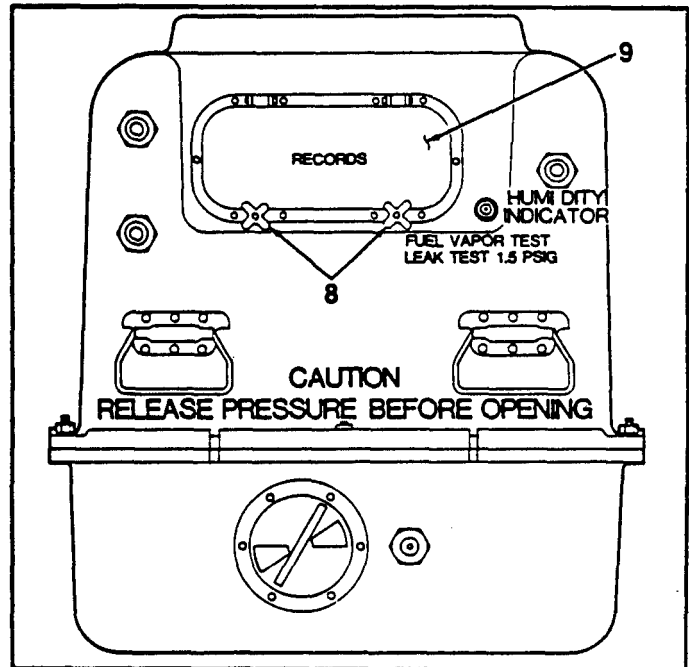
GO TO NEXT PAGE

2. Lift twelve latches (3) and pull latch bolts (4) away from container (5). Loosen nut (6) to lift latch (3) if necessary.
3. Remove top half of shipping container (5) using handles (7).
4. Inspect APU for external corrosion (Task 1-35).
5. Inspect container for damage and corrosion (TB 55-8100-200-24).



INSPECT

6. If APU is found to be serviceable, it may be placed in service or storage.
7. If APU is found to be unserviceable, complete the installation in container (Task 1-38) for storage or shipment.
8. Gain access to records by loosening knobs (8) and opening cover (9). Make appropriate entry in APU History Records. Close cover (9) and secure with knobs (8).



FOLLOW-ON MAINTENANCE:

None

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Engine Repairman's Tool Kit
NSN 5180-00-323-4944

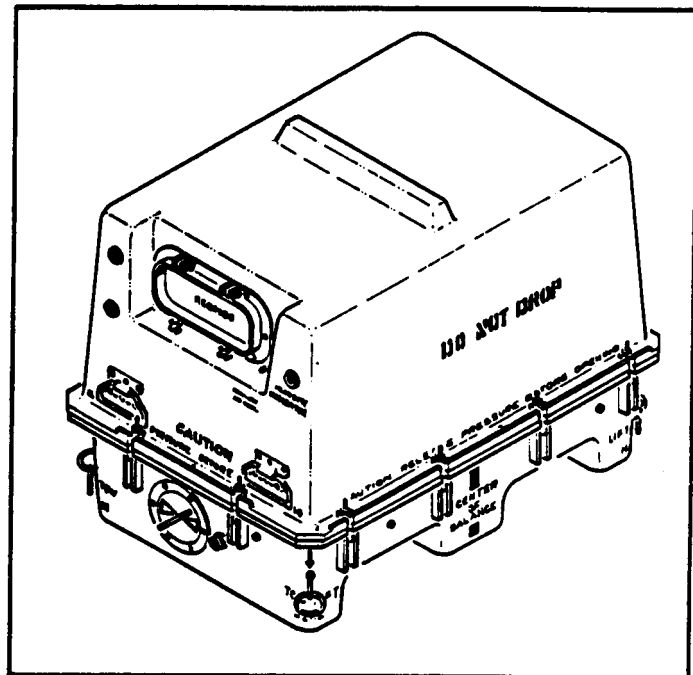
Lifting Sling (T6)
Hoist

Materials:

None

Personnel Required:

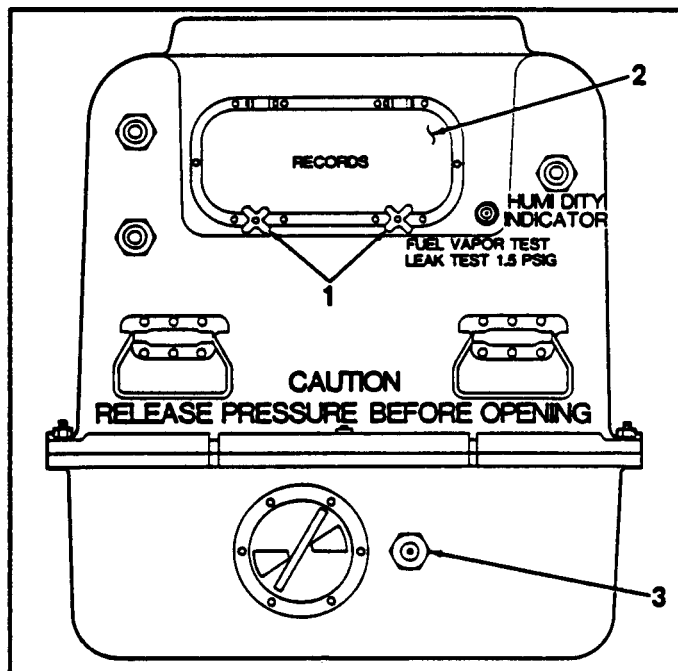
68B Aircraft Powerplant
Repairer (2)



1. Loosen knobs (1) and open records cover (2). Remove APU history record. Close cover (2) and tighten knobs (1).

WARNING

Release pressure in container by depressing the relief valve (3) prior to opening.

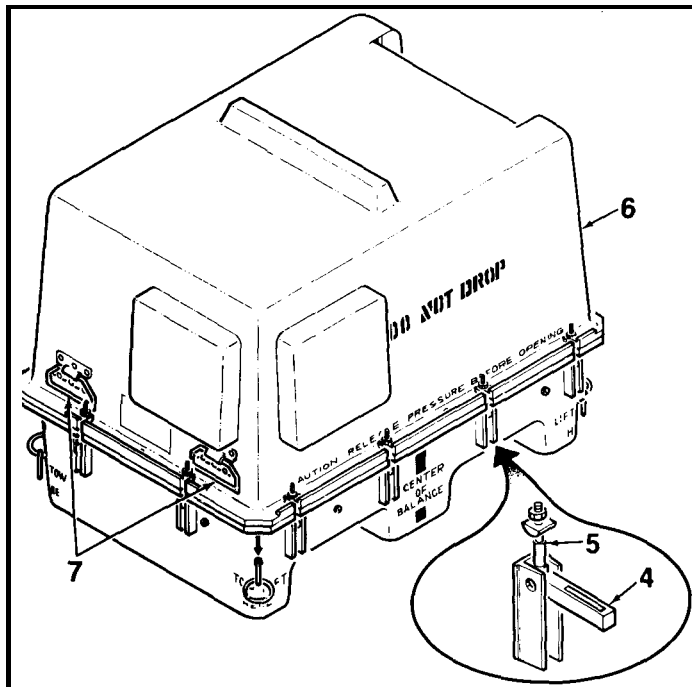


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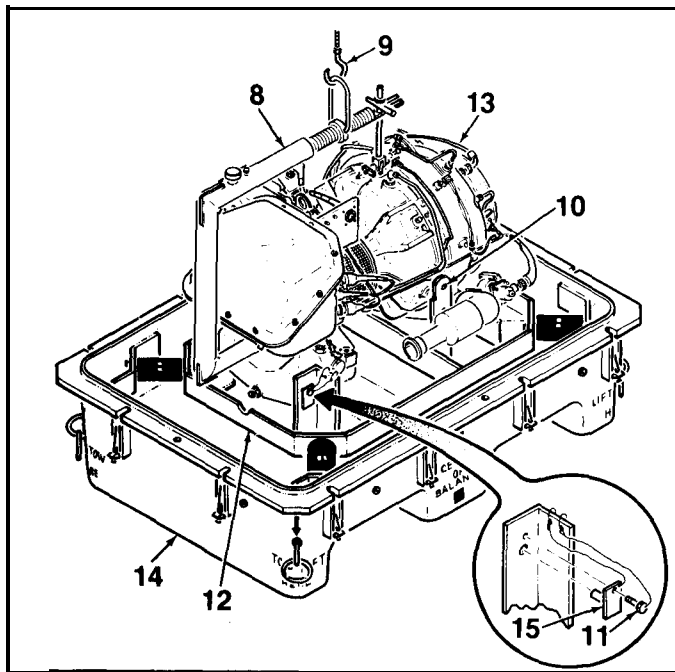
1-20 REMOVE APU FROM REUSABLE SHIPPING CONTAINER (Continued)

1-20

2. Lift twelve latches (4) and pull latch bolts (5) away from container (6). Loosen nut to lift latch (4) if necessary.
3. Remove top half of shipping container (6) using handles (7).



4. Attach lifting sling (T6) (8) on APU (Task 1-21).
5. Hook hoist (9) to lifting sling (8).
6. Remove and discard lockwire. Remove captive bolts (10, 11) that secure container frame mounting assembly (12) to APU (13). Remove trunnions (15).
7. With helper guiding APU (13), hoist APU from container (14) (Task 1-24).
8. Refer to Task 1-39 for APU installation into reusable shipping container.

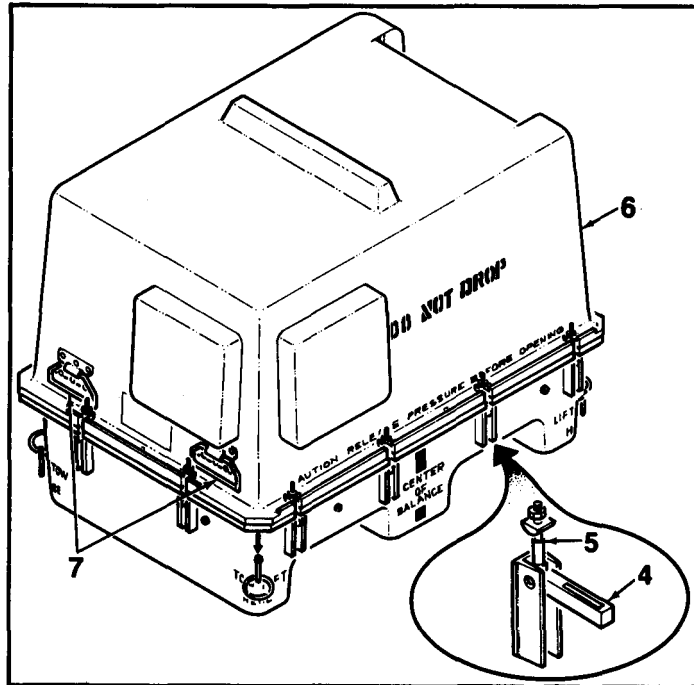


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9. Using handles (7), install to half of container (6). Secure fasteners (4) to engage top half of container (6). Tighten using latch bolt (5) nuts.

FOLLOW ON MAINTENANCE:

Install APU in assembly fixture (Task 1-22).



END OF TASK

1-21 INSTALL LIFTING SLING

1-21

INITIAL SETUP

Applicable Configurations:

All

Tools:

Lifting Sling (T6)

Materials:

None

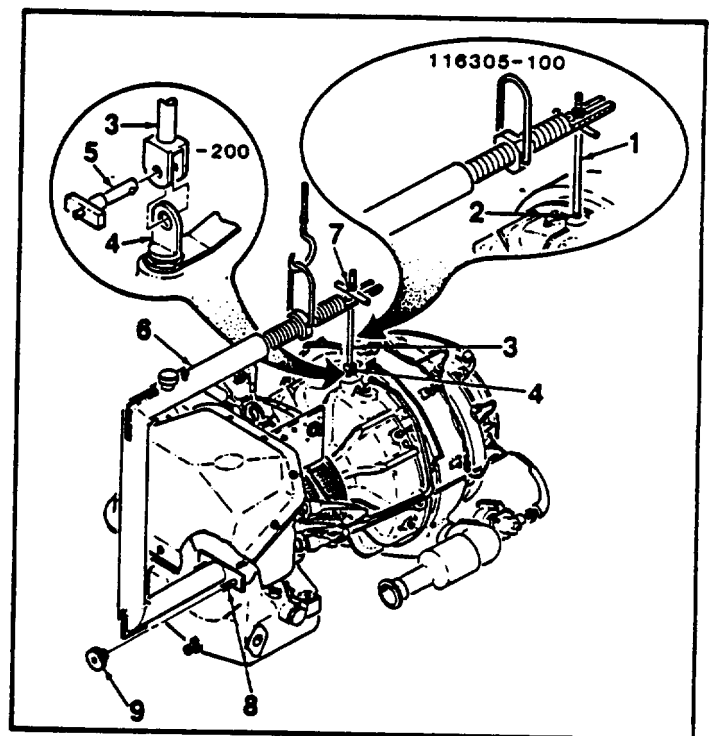
Personnel Required:

68B Aircraft Powerplant
Repairer (2)

1. For the -100 APU, install cross screw (1) into threaded boss at top of air inlet housing (2).
2. For the -200 APU, install cross screw with bracket (3) onto eyebolt at top of inlet housing (4). Secure with push pin (5).
3. Place lifting sling (T6) (6) over cross screw (3).
4. Attach at opposite end by inserting onto studs (8) and securing with nuts (9).

FOLLOW-ON MAINTENANCE:

None

**END OF TASK**

INITIAL SETUP

Applicable Configurations:

All

Tools:

Engine Repairman's Tool Kit

NSN 5180-00-323-4944

Assembly Fixture (T1)

Hoist

Lifting Sling(T6)

Weld Assemblies (T16)

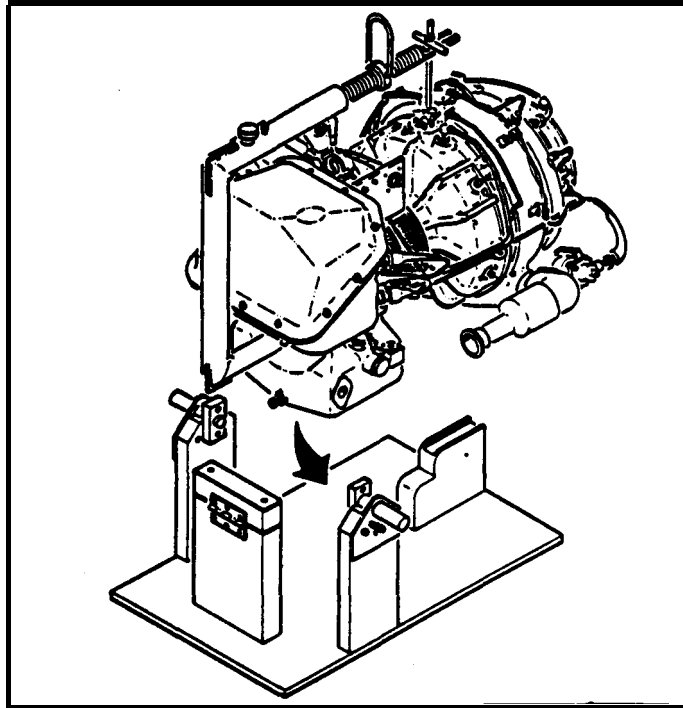
Materials:

Bolt (E25)

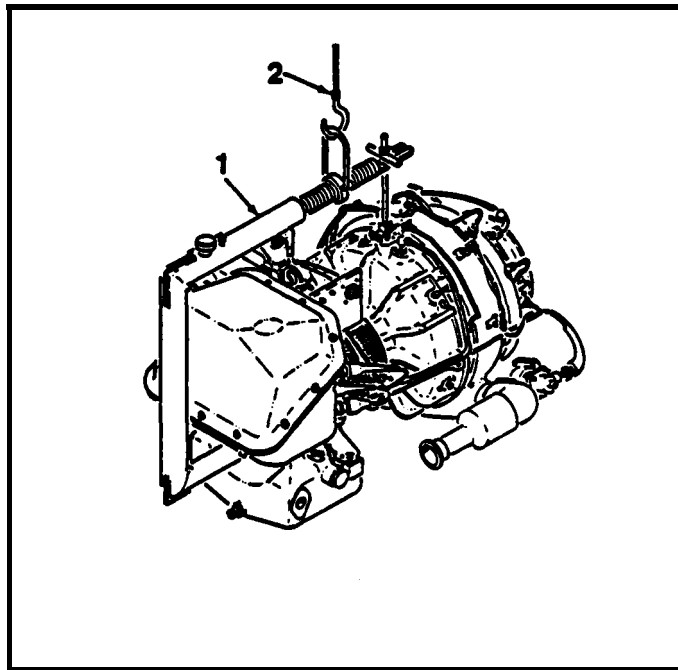
Bolt (E26)

Personnel Required:

68B Aircraft Powerplant
Repairer (2)



1. Install lifting sling (1) and connect hoist (2) (Tasks 1-21 and 1-24).

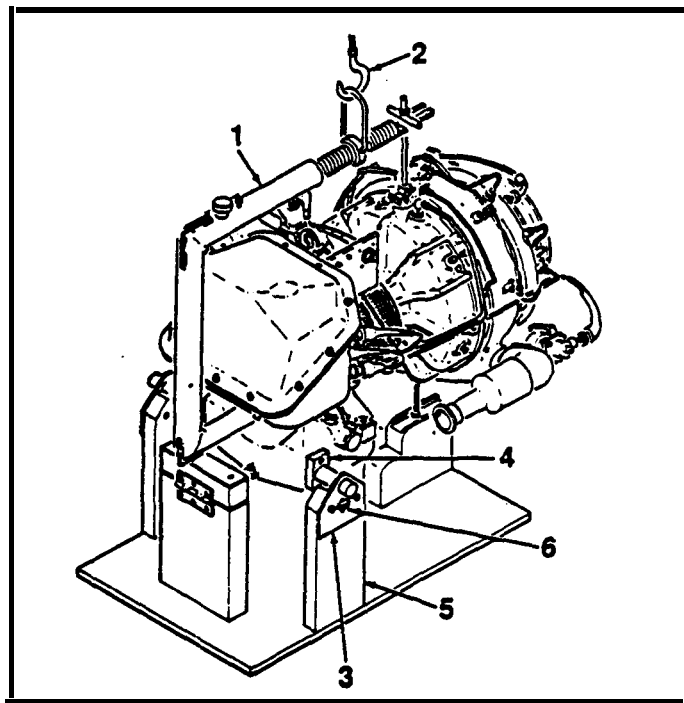


GO TO NEXT PAGE

6. With aid of helper, lower APU into assembly fixture so that weld assemblies (4) rest on supports (5).
7. Install plates (3) and turn quarter turn screws (6) to lock plates.
8. Remove hoist (2) and lifting cling (1).

FOLLOW-ON MAINTENANCE:

None



END OF TASK

1-23. PREPARE APU FOR USE

1-23

INITIAL SETUP**Materials:**

None

Applicable Configurations:

All

Personnel Required

68B Aircraft Powerplant Repairer

Tools :

Engine Repairman's Tool Kit

NSN 5180-00-323-4944

Equipment Condition:

APU in Assembly Fixture (Task 1-22)

-
1. Remove exhaust port closure.
 2. Remove inlet cover Part No. 162400-200 from inlet screen.
 3. Service APU (Task 1-26).

FOLLOW-ON MAINTENANCE:

None

END OF TASK

Section VI. HOISTING

1-24 HOIST APU

1-24

INITIAL SETUP

Materials:

Applicable Configurations:

None

All

Personnel:

Tools:

68B Aircraft Powerplant
Repairer (2)

Engine Repairman's Tool Kit
NSN 5180-00-323-4944
Lifting Sling (T6)
Hoist

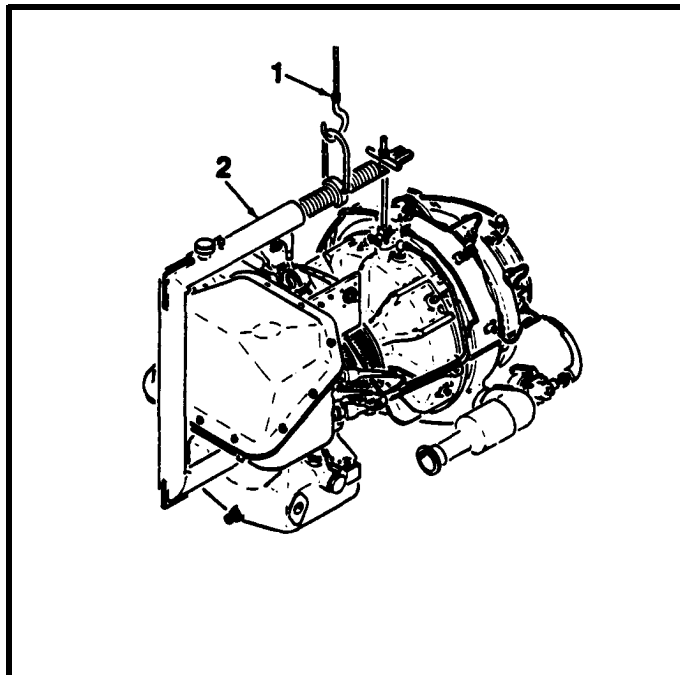
Equipment Condition:

Lifting Sling Installed (Task
1-21)

-
1. Connect hoist (1) to lifting sling (2).
 2. With aid of helper, lift APU with hoist (1).

FOLLOW-ON MAINTENANCE:

None



END OF TASK

Section VIII SERVICING**1-25. TROUBLESHOOTING**

Troubleshooting is performed with the APU installed in the aircraft. Refer to TM55-1520-237-T for troubleshooting and fault isolation procedures with the APU installed in the aircraft. ■

Section VIII SERVICING

1-26.SERVICE APU

1-26

INITIAL SETUP

Materials

Oil (E23 or E24)

Lockwire (E16)

Applicable configurations:

All

Personnel Required

68B Aircraft Powerplant Repairer

Tools:

Funnel NSN 7240-00-165-6925

Equipment Condition:

APU in Assembly Fixture (Task 1-22)

Warning

Lubricating oil MIL-L-23699 and MIL-L-7808, contain material hazardous to health. It produces paralysis if swallowed or from prolonged skin contact. Wash hands thoroughly after handling. It may burn if exposed to heat or flames. Use only with proper ventilation.

CAUTION

Do not overfill oil sump. Damage to APU can result.

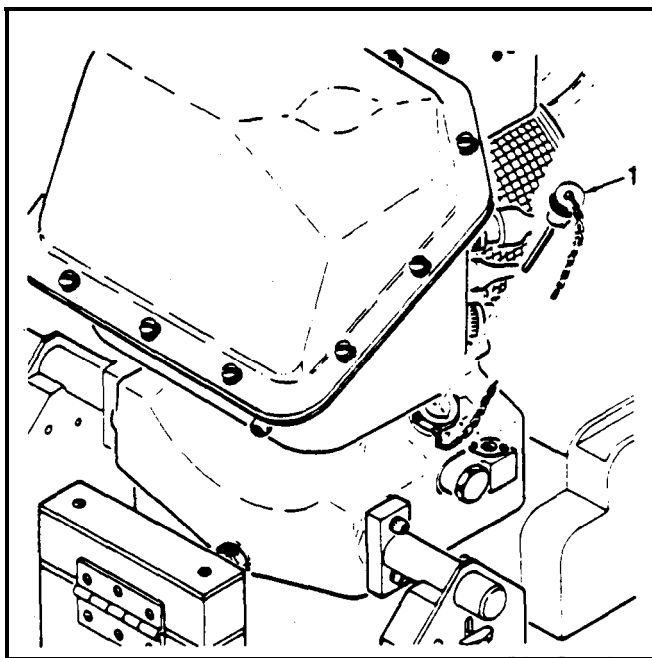
CAUTION

Do not mix lubricating oils. If type oil is being changed, the oil sump must be drained.

NOTE

Do not use DOD-L-85734 oil in turbine engines. DOD-L-65734 oil is to be used in transmissions and gearboxes only. If DOD-L-85734 oil is inadvertently added to the APU, the oil should be drained and the APU serviced with the correct oil.

1. Check Oil level using dipstick (1). Oil level shall be filled if below add mark but no more than 1/4 inch below full mark when oil is cold.



GO TO NEXT PAGE

- 2.. If oil system requires replenishment, remove dipstick (1) and add oil(E23 or E24). Oil (E24) is preferred for general use. Oil (E23) is preferred for artic use.
3. Check engine oil level on dipstick (1) make sure it reads above the add mark but no more than 1/4 inch below full mark. Re-install dipstick.

FOLLOW-ON MAINTENANCE:

None

END OF TASK

INITIAL SETUP

Materials:

Applicable Configurations:

- Lockwire (E16)
- Packing
- Assembly Fluid No. 1 (E31)

All

Tools:

Personnel Required:

- Engine Repairman's Tool Kit
NSN 5180-00-323-4944
- Container, 4 Quart Capacity
- Torque Wrench
NSN 5120-00-542-4489

68B Aircraft Powerplant Repairer

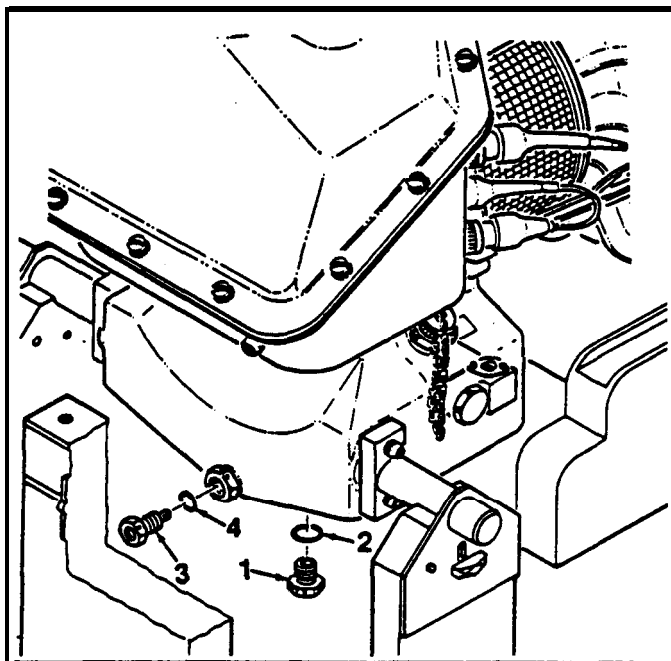
Equipment Condition:

APU in Assembly Fixture (Task 1-22)

WARNING

Lubricating oil MIL-L-23699 and MIL-L-7808, contain material hazardous to health. It produces paralysis if swallowed or from prolonged skin contact. Wash hands thoroughly after handling. It may burn if exposed to heat or flames. Use only with proper ventilation.

1. Remove lockwire and remove oil drain plug (1) and drain lubricating oil into suitable container. Let oil drain until dripping stops. Discard packing (2) and lockwire.
2. Remove lockwire and remove magnetic drain plug (3). Discard lockwire and packing (4).
3. Inspect for particle contamination. Refer to paragraph 1-30 for inspection criteria.
4. Dispose of drained oil in authorized manner.



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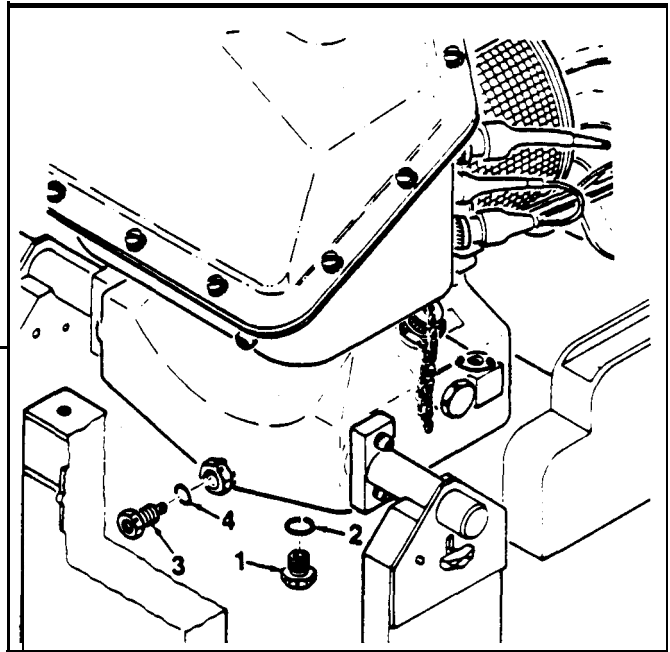
NOTE

Do not use DOD-L-85734 oil in turbine engines. DOD-L-65734 oil is to be used in transmissions and gearboxes only. If DOD-L-85734 oil is inadvertently added to the APU, the oil should be drained and the APU serviced with the correct oil.

5. Lightly lubricate new packing (4) with assembly fluid (E31) and reinstall magnetic drain plug (3) with new packing (4). Torque to 45 inch-pounds and safety wire with lockwire (E16).
6. Lightly lubricate new packing (4) with assembly fluid (E31). Lubricate new packing (2) and reinstall drain plug (1) with new packing (2). Torque to 165 inch-pounds and safety wire with lockwire (E16).
7. Service APU (Task 1-26).

FOLLOW ON MAINTENANCE

None



END OF TASK

INITIAL SETUP

Materials:

Applicable Configurations:

All

Assembly Fluid, No. 1 (E31)
 Oil (E23 or E24)
 Oil Filter, Part No. 7509213 or
 038062-42
 Packing

Tools :

Engine Repairman's Tool Kit
 NSN 5180-00-323-4944
 Container, 4 Quart Capacity
 Funnel NSN 7240-00-165-6925
 Valve Removal Tool (T23)

Personnel Required:

68B Aircraft Powerplant Repairer

Equipment Condition:

APU in Assembly Fixture (Task 1-22)

WARNING

Lubricating oil MIL-L-23699 and MIL-L-7808, contain material hazardous to health. It produces paralysis if swallowed or from prolonged skin contact. Wash hands thoroughly after handling. It may burn if exposed to heat or flames. Use only with proper ventilation.

CAUTION

Do not overfill oil sump. Damage to APU can result.

CAUTION

Do not mix lubricating oils. If type oil is being changed, the oil sump must be drained (Task 1-27).

1. Drain APU Oil (Task 1-27).

GO TO NEXT PAGE

NOTE

Do not use DOD-L-85734 oil in turbine engines. DOD-L-65734 oil is to be used in transmissions and gear-boxes only. If DOD-L-85734 oil is inadvertently added to the APU, the oil should be drained and the APU serviced with the correct oil.

2. Clean top of by-pass valve housing (2) before removal to prevent contamination.
3. Remove retaining ring (1), by-pass valve housing (2) and filter element (4) using tool (T23). Discard packing (3).

NOTE

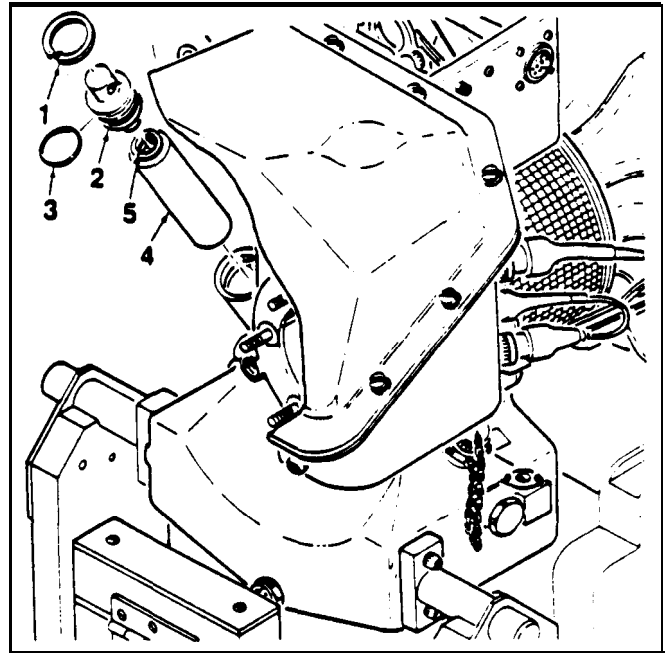
Inspect filter element (4) for contamination (refer to paragraph 1-30).

4. Ensure packing (5) is properly lubricated and seated inside filter element (4).
5. Lightly lubricate new packing (4) with assembly fluid (E31). Lubricate and install new packing (3) on by-pass valve housing (2).
6. Install new filter element (4), by-pass valve housing (2) and retaining ring (1).
7. Install drain plugs (Task 1-27).
8. Service APU (Task 1-26).

FOLLOW ON MAINTENANCE:

None

END OF TASK



Section IX PREVENTIVE MAINTENANCE CHECKS AND SERVICES

1-29. DROPPED ENGINE INSPECTION

Technical Inspector shall perform overall inspection of APU if it was dropped. Check for any broken, bent or kinked tube assemblies, broken air inlet screen, dented combustor housing, damaged electrical harness/connectors, damaged fuel manifold assembly and other obvious damage. Refer to DA PAM 738-751 for applicable forms, records and worksheets.

1-30. OIL CONTAMINATION INSPECTION

Technical Inspector shall refer to Table 1-2 for oil contamination criteria.

Table 1-2. Contamination Criteria

| METAL TYPE | PARTICLE FORM (NOTE 2) | DISPOSITION |
|-------------|---------------------------------------|---|
| Magnetic | Fuzz | Change oil and filter (Task 1-28). Run APU, refer to TM55-1520-237-T. Recheck magnetic plug and oil filter. (Note 1). |
| | Splinter or granular | Forward APU to Depot |
| | Flakes smaller than 0.060 square inch | Change oil and filter (Task 1-28). Run APU, refer to TM55-1520-237-T. Recheck magnetic plug and oil filter. (Note 1). |
| Nonmagnetic | Flakes larger than 0.060 square inch | Forward APU to Depot |
| | Splinter or granular | Forward APU to Depot |
| | Flakes smaller than 0.060 square inch | Change oil and filter (Task 1-28). Run APU, refer to TM55-1520-237-T. Recheck magnetic plug and oil filter. (Note 1). |
| | Flakes larger than 0.060 square inch | Forward APU to Depot |

- NOTES:
1. If particles are found after test; forward APU to Depot
 2. Definitions of particle forms:
 - Flake: thin flat piece or layer
 - Fuzz: light particles or fibers
 - Granular: consisting of or appearing to consist of grains
 - Splinter: thin piece or sliver split off lengthwise

1-31. FOREIGN OBJECT DAMAGE (FOD) INSPECTION

Inspect APU components during detailed applicable inspection tasks of Chapter 2.

1-32. HOT END INSPECTION ON CONDITION

Inspect hot end components (combustor housing, liner etc.) in accordance with the detailed inspection tasks of Chapter 2.

1-33. OIL AND FUEL FILTER SERVICING

Servicing of the oil and fuel filter is limited to the replacement of the filter. Refer to applicable maintenance task in Chapter 2 for detailed procedures.

1-34. OVERHAUL/RETIREMENT SCHEDULE

- A The maximum allowable operating time (MAOT) for the -100, -200 and -300 APU is 1000 hours or 3000 starts. The MCAT for the -201 and -300 APU is 6000 starts.
- B RETIREMENT SCHEDULE. The APU turbine wheel retirement life is 1000 hours or 3000 starts since last turbine wheel replacement for the -100, -200 and -300 APU. The -201 and -302 APU turbine wheel retirement life is 6000 starts.

NOTE

The -300 and -302 engine are the only engines with an hour meter and start counter.

1-35. CORROSION INSPECTION

Technical inspector shall perform overall inspection of APU for corrosion. Corrosion is to be repaired by blending out pits with an abrasive pad. Refer to TM55-1520-237-23-5 for repair materials. If pits exceed 0.050 inch in depth APU requires depot repair. Refer to Glossary Section 2 for specific corrosion definitions.

Section X MAINTENANCE PROCEDURES

1-36. TESTING AND ADJUSTMENT

Testing and adjustment of the APU is accomplished with the APU installed in the aircraft, refer to TM55-1520-237-T.

1-37. APU PRESERVATION FOR STORAGE OR SHIPMENT

1-37

INITIAL SETUP

Applicable Configurations:

All

Tools:

Engines Repairman's Tool Kit
 NSN 5180-00-323-4944
 Container, 4 Quart Capacity
 Container 1 Pint Capacity
 (2 req'd)
 External DC Power Supply (T15)
 Eye Protection
 Inlet cover (T26)
 Exhaust Port Closure (T21)

Materials:

Oil (E27)
 Nitrogen (E3)
 Low Pressure Compressed air (30 psig)

Personnel Required;

68B Aircraft Powerplant Repairer
 68F Aircraft Electrician

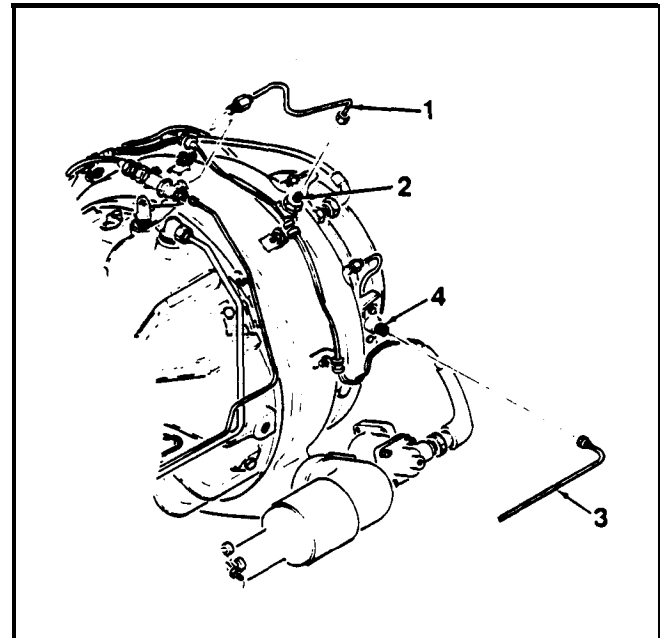
Equipment Condition:

APU in Assembly Fixture (Task 1-22)

1. Disconnect start fuel line (1) at start fuel nozzle (2).
2. Disconnect main fuel line (3) at fuel manifold (4).
3. Connect suitable drain tubes to start fuel (1) and main fuel (3) tube assemblies. Place open end of drain lines into suitable containers.

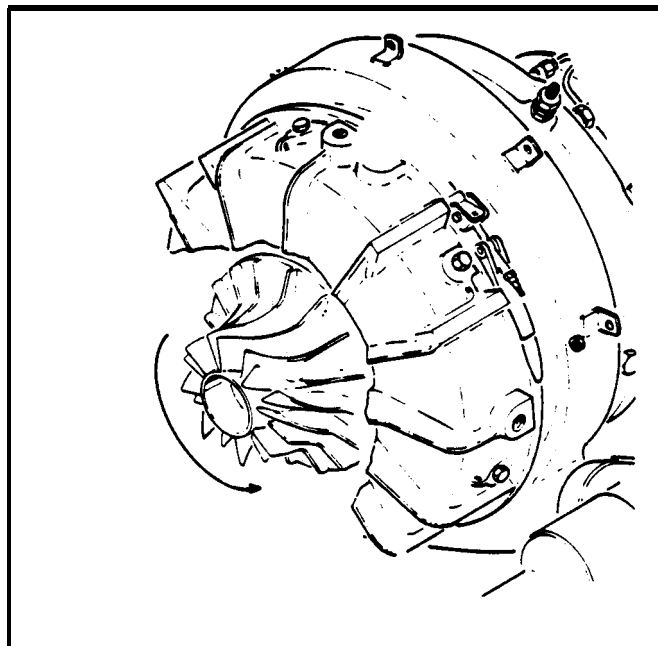
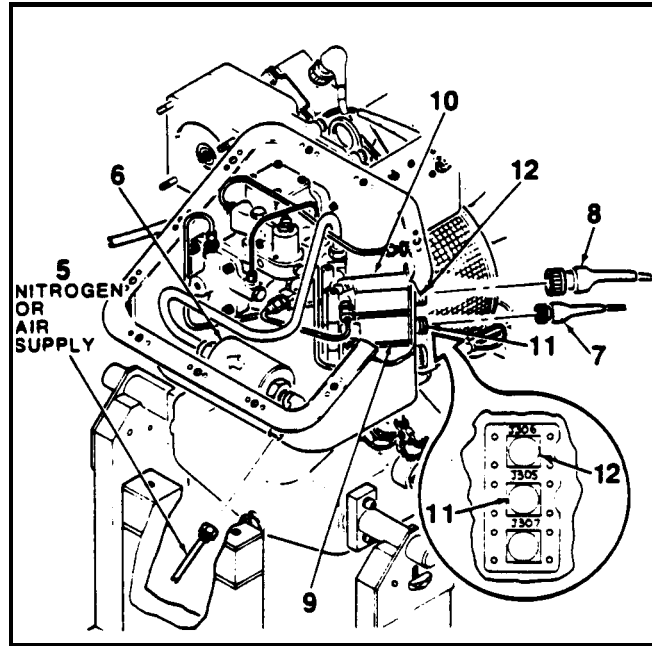
WARNING

Use approved personnel protective equipment (goggles/face shield) when using compressed air or nitrogen. Provide protection from flying particles. Do not direct airstream towards self or other personnel.



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4. Apply 30 psig air or nitrogen (E3) (5) to fuel inlet filter (6) until fuel system is purged of fuel.
5. Disconnect connectors P305 (7) and P306 (8). Apply 28 vdc (T15) to start (9) and main fuel (10) solenoid valve connectors, J305 (11) and J306 (12).
6. Connect gravity feed oil supply (E27) to fuel inlet filter (6).
7. Turn rotor assembly, by hand, counter-clockwise until oil flows freely (no air) from drain lines.
8. Disconnect 28 vdc (T15) from start (9) and main fuel (10) solenoid valves. Connect connectors P305 (7) and P306 (8).
9. Disconnect drain lines and oil supply at air inlet filter (6).
10. Connect start fuel line (1) to start fuel nozzle (2).
11. Connect main fuel line (3) to fuel manifold (4).
12. Drain APU oil (Task 1-27).
13. Install inlet cover (T26) onto air inlet housing.
14. Install exhaust port closure (T27).



FOLLOW ON MAINTENANCE:

None

END OF TASK

Section XI. PREPARATION FOR STORAGE OR SHIPMENT

1-38 REMOVE APU FROM ASSEMBLY FIXTURE

1-38

INITIAL SETUP

Applicable Configurations:

All

Tools :

Engine Repairman's Tool Kit
NSN 5180-00-323-4944

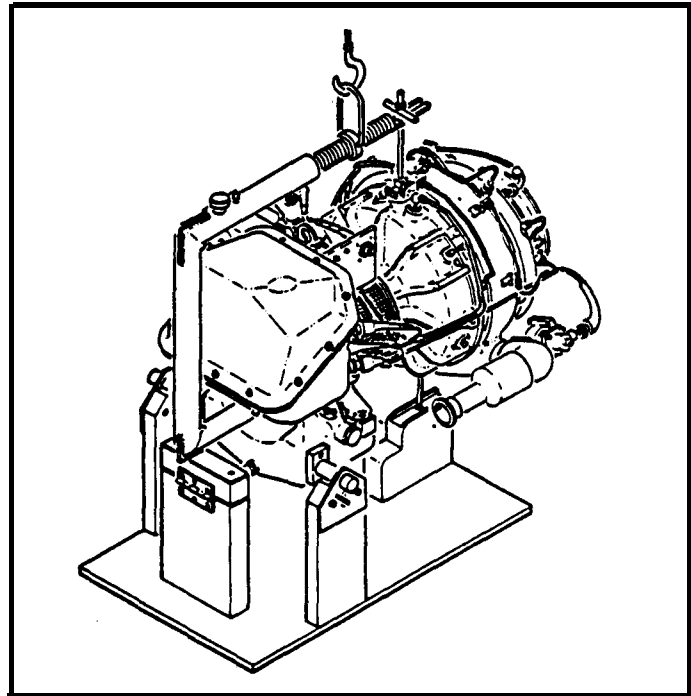
Lifting Sling(T6)
Hoist

Equipment Condition:

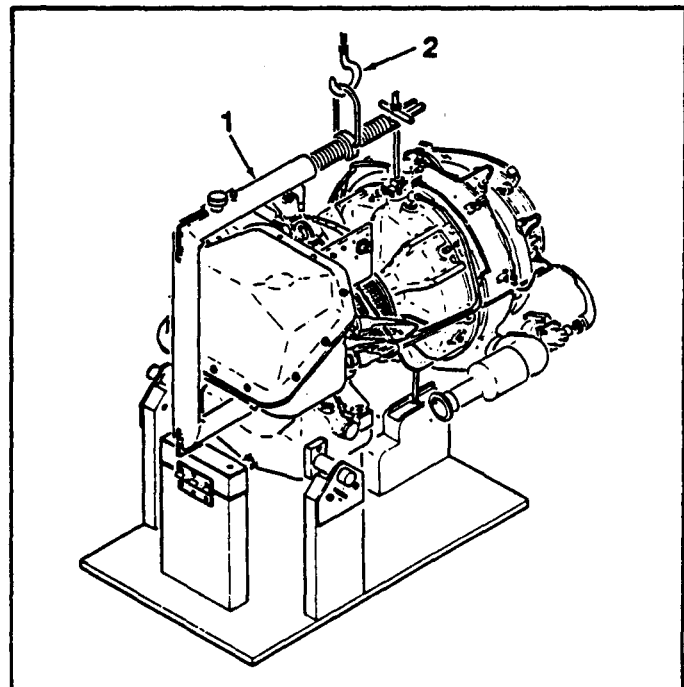
APU in Assembly Fixture
(Task 1-22)

Personnel Required:

68B Aircraft Powerplant
Repairer (2)

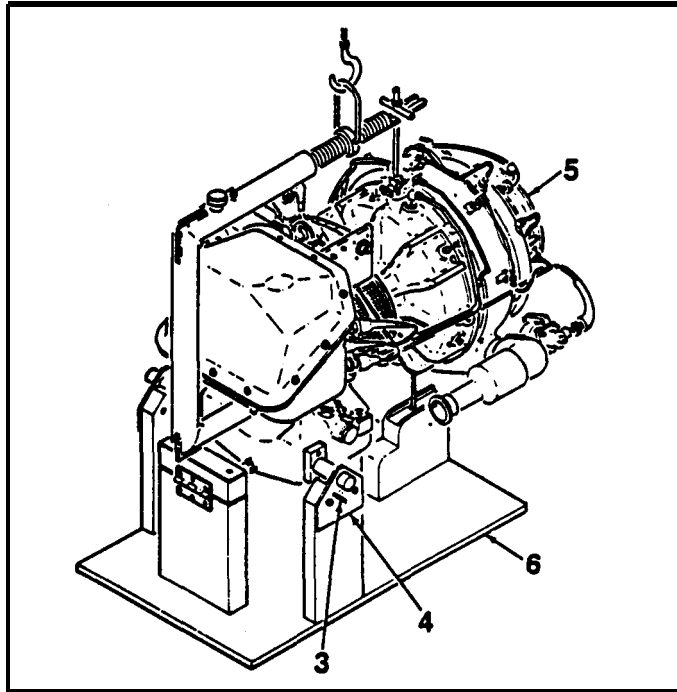


1. Install lifting sling (1) and connect hoist (2) (Task 1-21).



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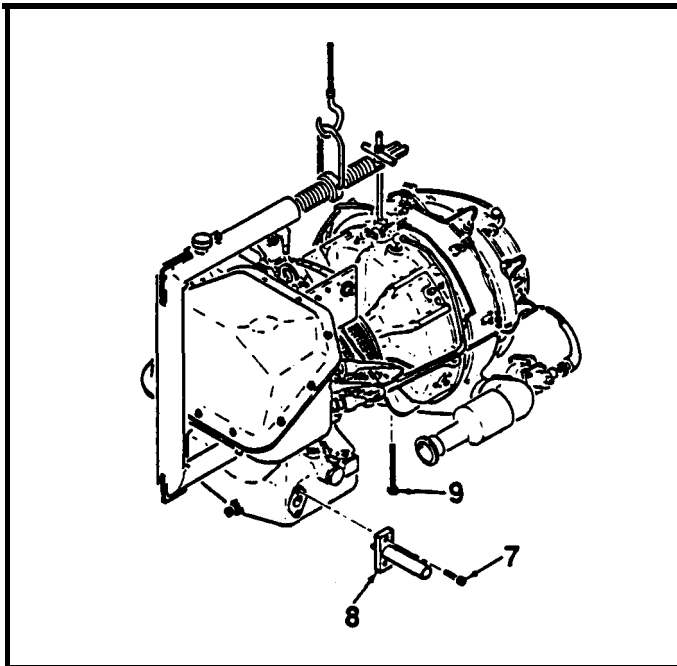
2. Turn quarter turn screws (3) and remove plates (4).
3. With aid of helper, hoist APU (5) clear of assembly fixture (6).



4. Remove four bolts (E25) (7) and two weld assemblies (8).
5. Remove bolt (E26) (9).

FOLLOW-ON MAINTENANCE:

Install APU in reusable shipping container (Task 1-39).



END OF TASK

NOTE

Ensure airframe part numbers 169037 -1 Seal Fuel Line, 169036-1 Plate Assembly Firewall, 160362- 100 Seal Assembly Ignition, and 70303-03016-044 Tube Assembly Drain are attached to the APU before placing the engine in the shipment container.

INITIAL SETUP

Applicable Configurations:

All

Tools:

Engine Repairman's Tool Kit
NSN 5180-00-323-4944

Hoist

Nitrogen Pressurizing System

Materials:

Nitrogen (E3)

Soap (E5)

Desiccant (E4)

Humidity Indicator (E6)

Personnel Required:

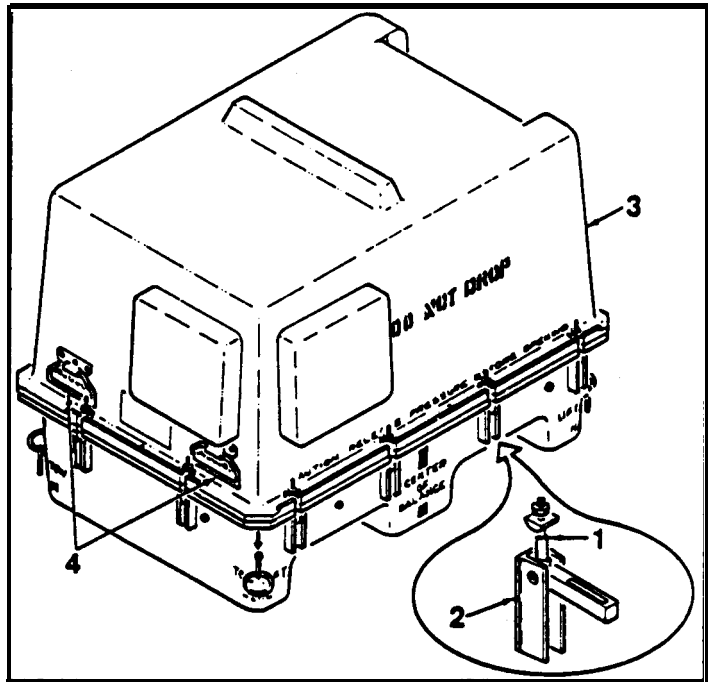
68B Aircraft Powerplant Repairer (2)

References:

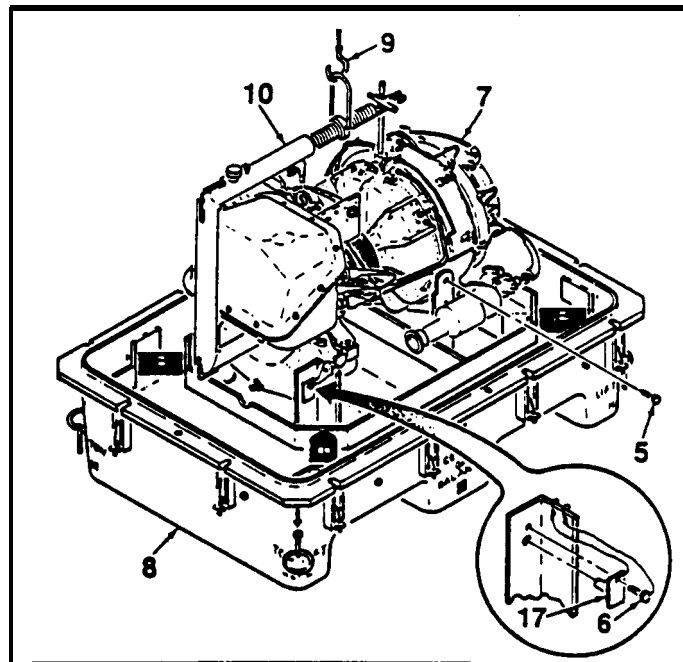
TB 55-8100-200-24

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1. Loosen nut (1) and remove fasteners (2) from top half of container (3). Remove top half of container using handles (4).
2. Set top half aside.

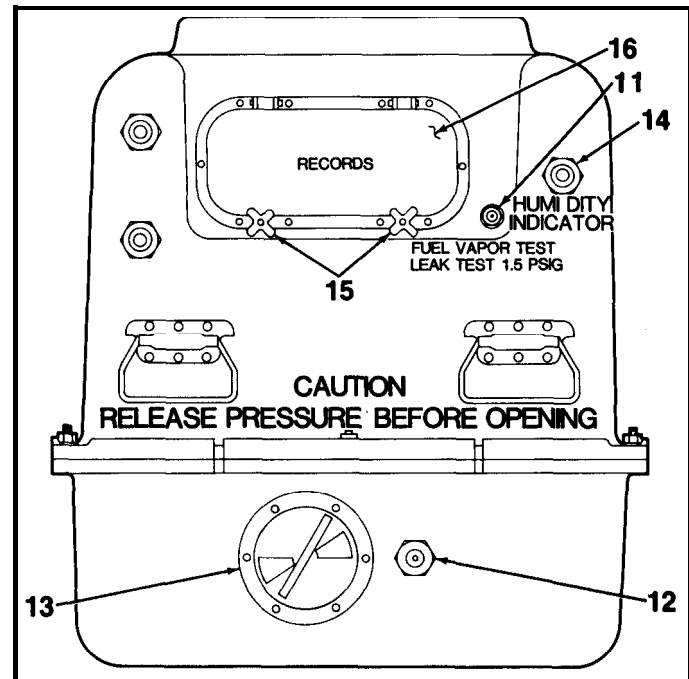


3. Remove bolts (5, 6) and trunnions (17).
4. With helper guiding APU (7), hoist APU into container (8) aligning holes for captive bolt and pin holes.
5. Secure APU (7) to container frame using captive bolts (5) and captive pins (6).
6. Remove hoist (9) and lifting sling (10).
7. Using handles (4), install top half of container (3). Secure fasteners (2) to engage top half of container (3). Tighten using nuts (1).



GO TO NEXT PAGE

8. Remove desiccant cover (13).
9. Remove old desiccant and install 24 units of fresh desiccant (D4).
10. Replace desiccant cover (13).
11. Install new humidity indicator (D6) (14).
12. Connect nitrogen pressurizing system to fill valve (11).
13. Purge container with nitrogen (D3) at 1 ± 0.5 psig for two minutes.
14. Pressurize container with nitrogen pressurizing system to 1 ± 0.5 psig.
15. Brush solution of soap (D5) over all seams and closures and observe leaks indicated by air bubbles. If there is a leak, refer to TB 55-8100-200-24.
16. Disconnect nitrogen pressurizing system.
17. Press relief valve (12) to depressurize container.
18. Loosen knobs (15) and open records cover (16). Place APU history records in container. Close cover and secure by tightening knobs (15).



FOLLOW-ON MAINTENANCE:

None

END OF TASK

CHAPTER 2

MAINTENANCE
(AVUM/AVIM TASKS)

INITIAL SETUP

Applicable Configurations:

All

Tools:

Engine, Repairman's Tool Kit
NSN 5180-00-323-4944

Materials:

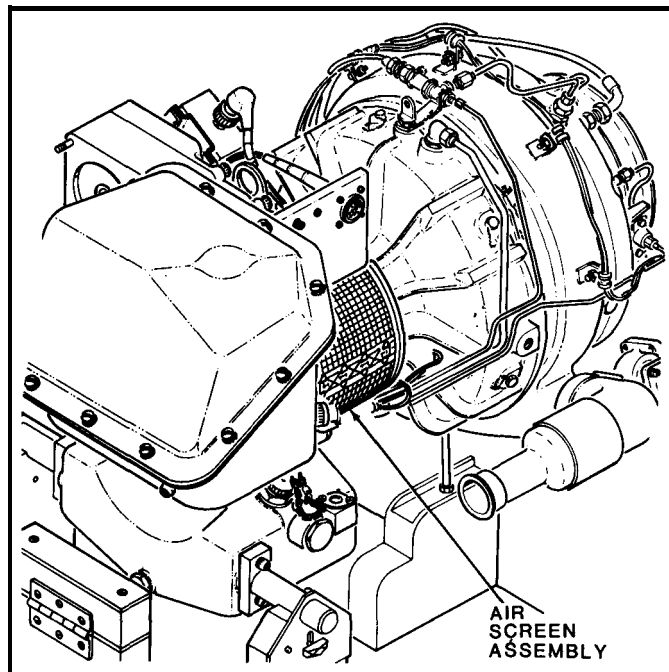
Barrier Material (E7)
Masking Tape (E8)

Personnel Required:

68B Aircraft Powerplant Repairer

Equipment Condition:

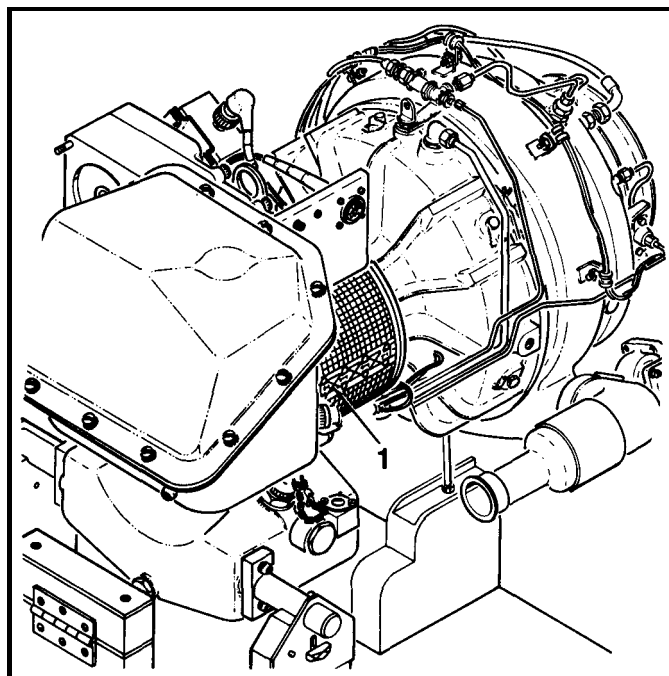
APU in Assembly Fixture (Task 1-22)



CAUTION

Make certain that pieces of lockwire or broken screen do not fall into air inlet. Foreign material can damage APU.

1. Remove lockwire (1).

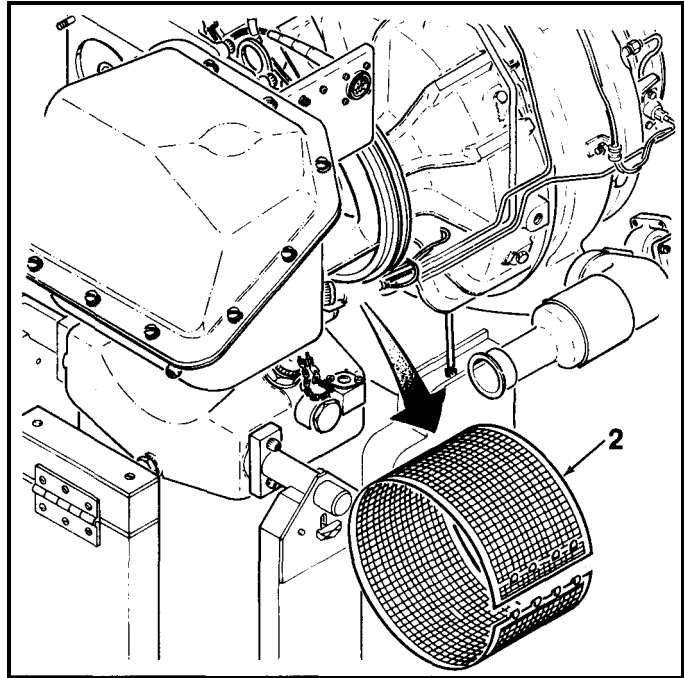


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2-1 REMOVE AIR SCREEN ASSEMBLY (Continued)

2-1

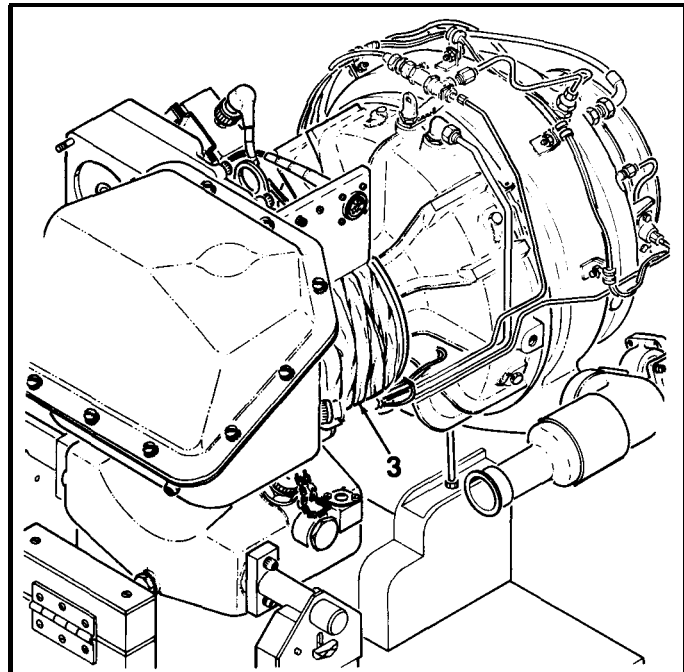
2. Remove air screen assembly (2).



3. Cover air inlet with barrier material (E7) (3). Secure with masking tape (E8).

FOLLOW-ON MAINTENANCE:

None



END OF TASK

INITIAL SETUP

Materials:

Applicable Configurations:

Methyl-Ethyl-Ketone (MEK) (E9)
Stiff Fiber Brush (E10)

All

Personnel Required:

Tools:

68B Aircraft Powerplant Repairer
68B Powerplant Inspector

Rubber Gloves
NSN 8415-00-266-8677
Container
Eye Protection

Equipment Condition:

Off APU Task

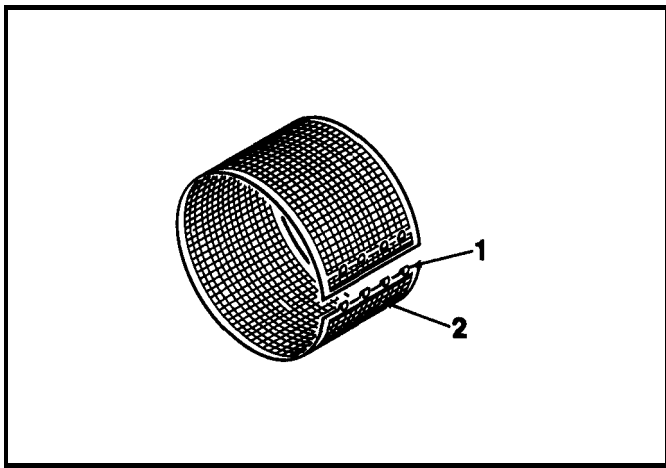
WARNING

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

Note

Use a stiff fiber brush (E10) to remove deposits.

1. Wearing gloves and eye protection, degrease air screen assembly(2) using MEK (E9).
2. Inspect for loose, missing, or cracked lacing hooks (1). There shall be no loose, cracked or missing lacing hooks (1). If loose, repair (Task 2-3). If missing or cracked, replace air screen assembly (2).

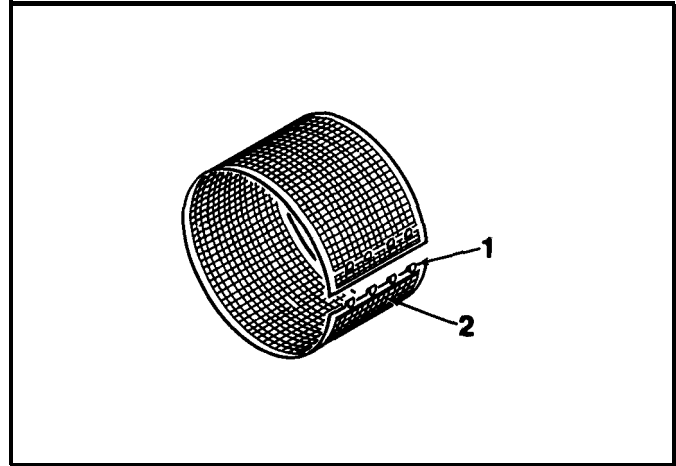


GO TO NEXT PAGE

3. Inspect for dents or breaks in screen wire (2). There shall be no dents or breaks. If dents or breaks are found, repair (Task 2-3).

FOLLOW-ON MAINTENANCE:

None



END OF TASK

INITIAL SETUP

Personnel Required:

Applicable Configurations:

44E Welder
68B Powerplant Inspector

All

References:

Tools :

TM 55-1500-204-25/1

Welding Shop Set
NSN 4920-00-163-5093

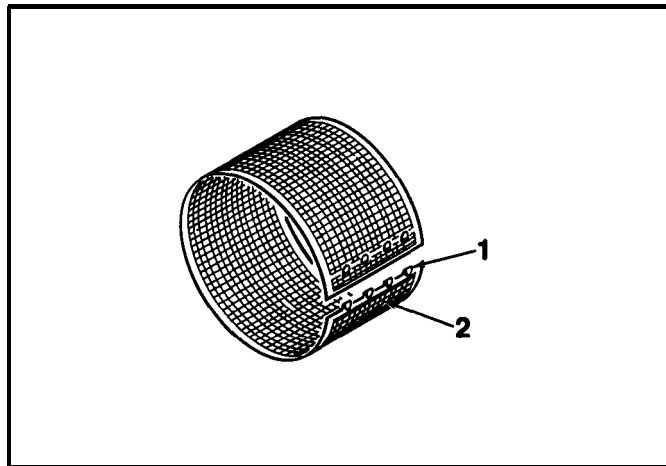
Equipment Condition:

Materials:

Off APU Task

Brazing Alloy (E11)
Brazing Flux (E12)

-
1. Repair loose lacing hooks (1) by brazing in accordance with TM55-1500-204-25/1. Use brazing alloy (E11) and brazing flux (E12).
 2. Reform screen wire (2) to smooth out dents.



INSPECT

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-4 INSTALL AIR SCREEN ASSEMBLY

2-4

INITIAL SETUP

Applicable Configurations:

All

Tools:

Engine Repairman's Tool Kit
NSN 5180-00-323-4944

Materials:

Lockwire (E16)

Personnel Required:

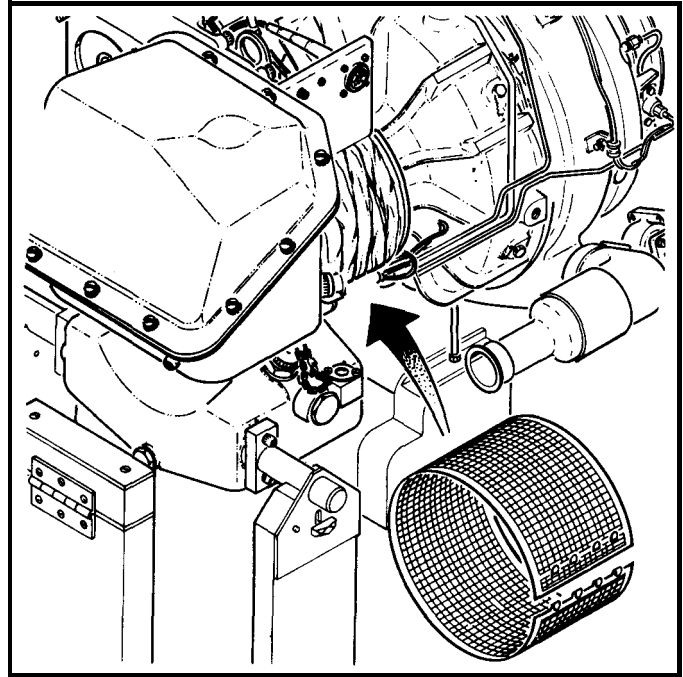
68B Aircraft Powerplant Repairer
68B Powerplant Inspector

References:

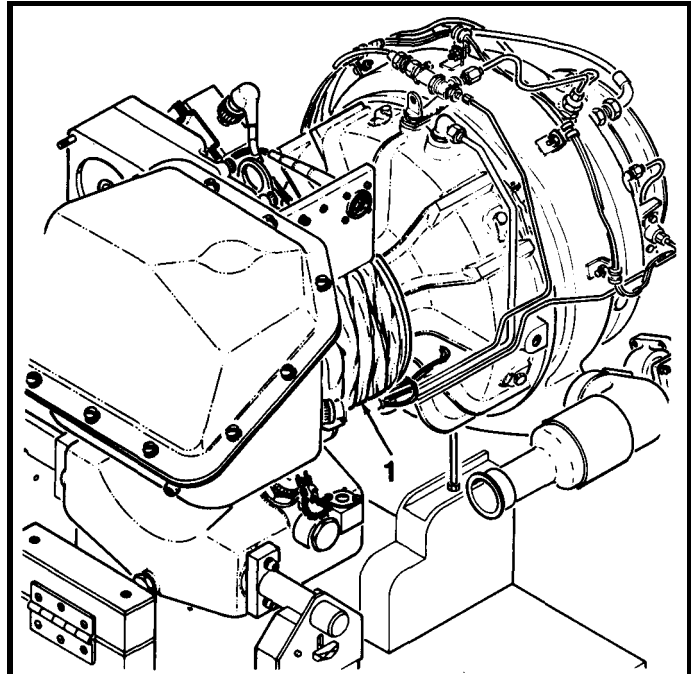
TM55-2835-208-23P

Equipment Condition:

APU in Assembly Fixture (Task 1-22)



1. Remove barrier material (E7)
(1).



GO TO NEXT PAGE

CAUTION

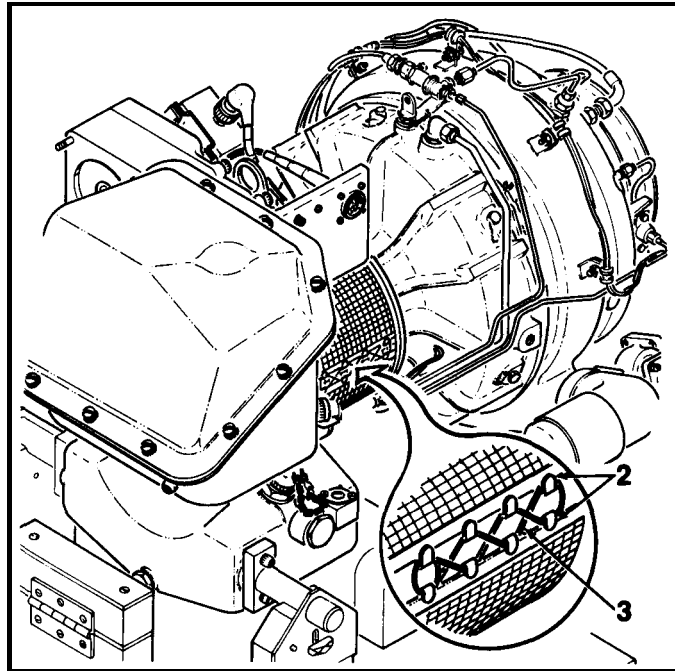
Make certain pieces of lockwire do not fall into air inlet. Foreign material can damage APU.

2. Install air screen assembly (2).
3. Join mating edges of air screen assembly (2) and lockwire using lockwire (E16) (3).

INSPECT

FOLLOW-ON MAINTENANCE:

None



END OF TASK

2-5 INSPECT COMPRESSOR ROTOR

2-5

INITIAL SETUP

Applicable Configurations:

All

Tools:

Wire Gage Set (T5)
Machinists Scale

Materials:

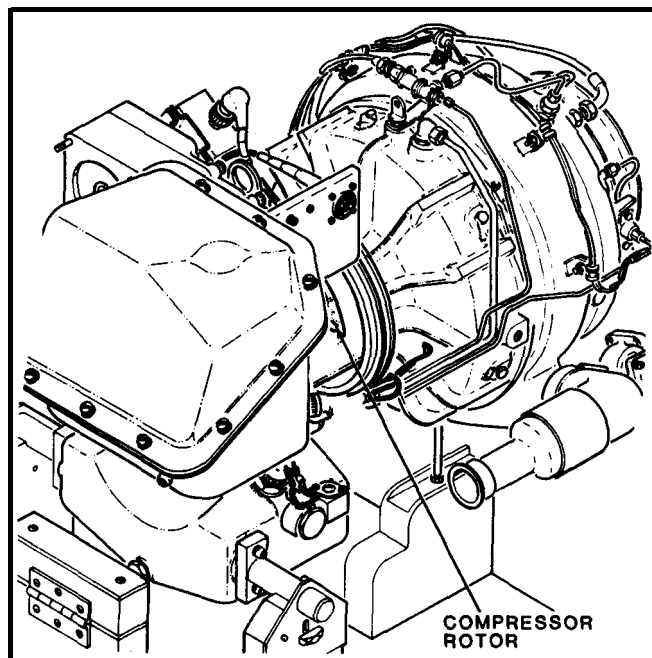
None

Personnel Required:

68B Powerplant Inspector

Equipment Condition:

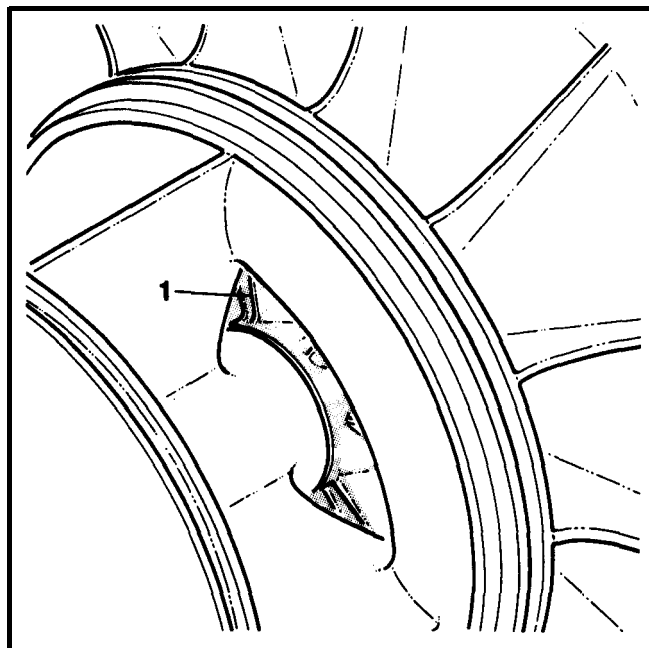
Remove Air Screen Assembly (Task 2-1)
APU in Assembly Fixture (Task 1-22)



Note

Barrier material must be temporarily removed from air inlet to perform this task.

1. Reach through combustor assembly and turn rotor so that all vanes can be inspected. Listen for noise or rubbing sound while turning rotor.
2. Looking through air inlet, inspect compressor rotor (1) for cracks, broken vanes, and marks indicating that rotor has been rubbing on air inlet housing. There shall be no cracked or broken vanes. There shall be no marks or noise indicating rotor rub.



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Pages 2-10 through 2-12 are deleted.

Change 1 2-9/(2-10 blank)

2-5 INSPECT COMPRESSOR ROTOR (Continued)

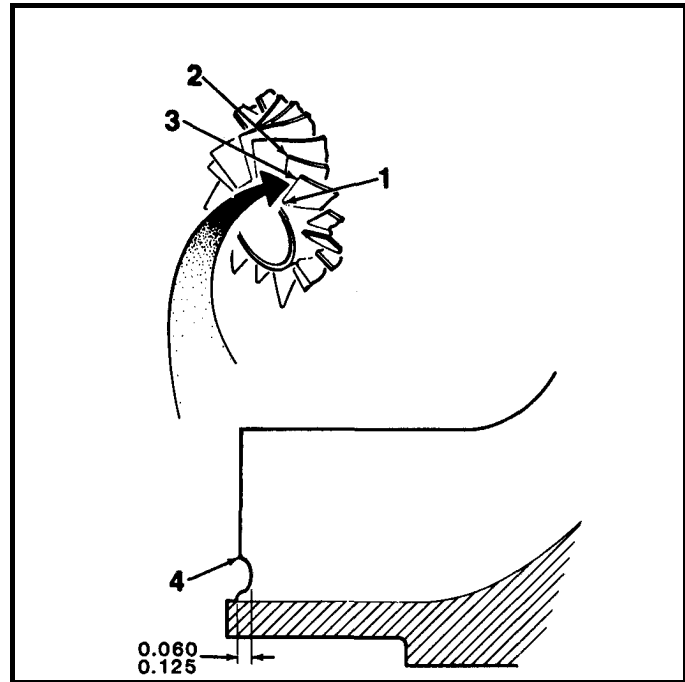
2-5

4. Using a machinists scale and a small mirror, measure the depth of any eroded areas near the root of the compressor blade (1). Measure short blades (2) as well as long blades (3).

CAUTION

Erosion up to 0.060 inch depth permits continued APU operation but requires a 10 hour APU operation inspection cycle. Maximum use is 50 hours or until the availability of a replacement APU.

5. Erosion at blade roots shall not exceed 0.125 inch depth, measured axially from blade leading edge (4). Replace APU assembly if erosion exceeds 0.125 inch.

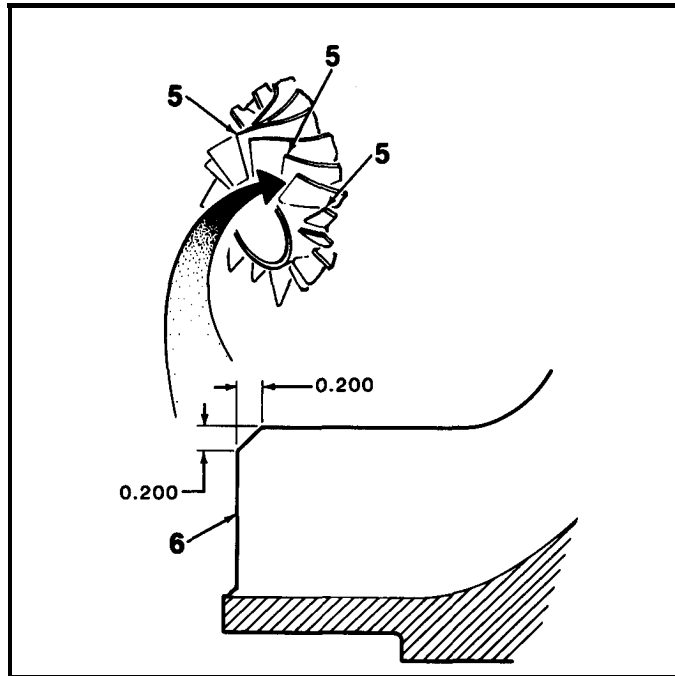


GO TO NEXT PAGE

- 6. Using a machinists scale and a small mirror, measure the depth of any eroded areas at the rotor blade tips (5). Use the leading edge (6) of the blade as a reference.
- 7. Erosion shall not exceed 0.200 inch depth. If erosion exceeds 0.200 inch, replace turbine assembly.

FOLLOW-ON MAINTENANCE:

None



END OF TASK

2-6 CLEAN AND INSPECT EXTERNAL LINES AND FITTINGS

2-6

INITIAL SETUP

Materials:

Applicable Configurations:

Dry-Cleaning Solvent (E20)
Lint-Free Cloth (E13)

All

Tools :

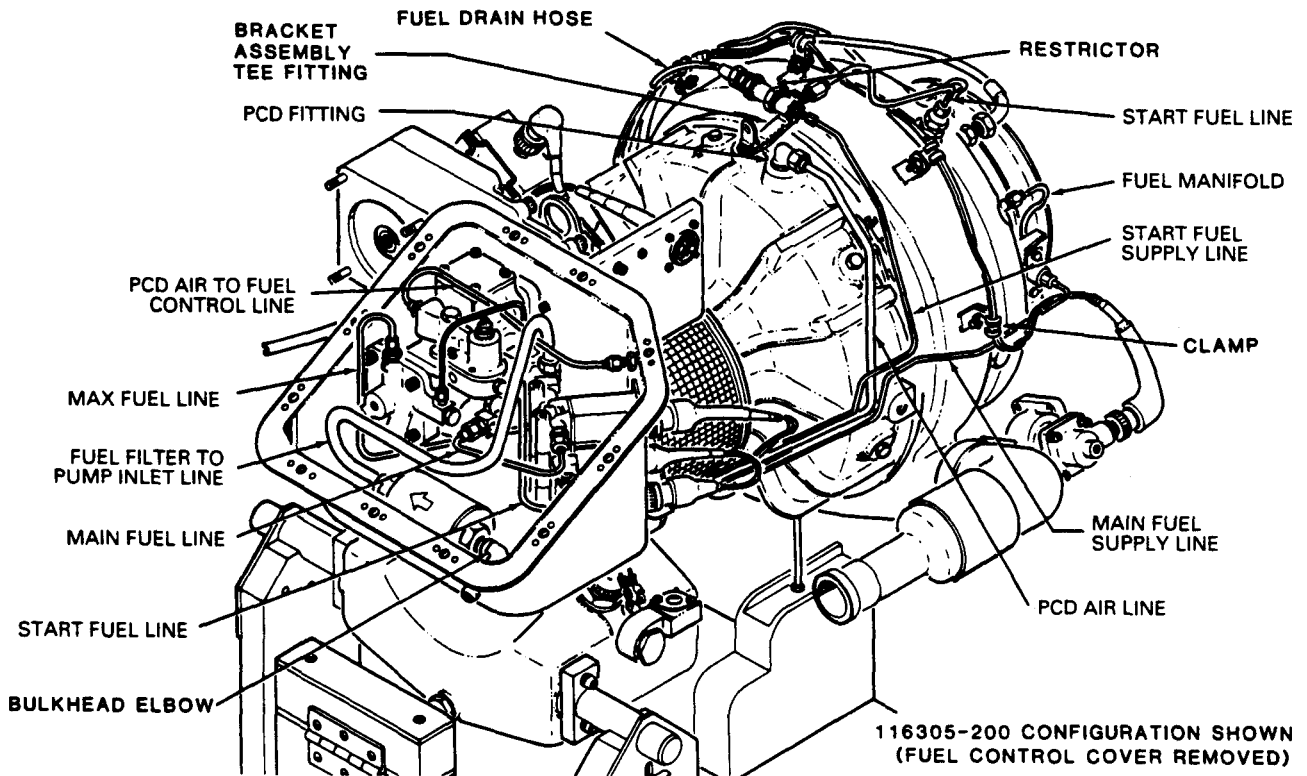
Personnel Required:

Engines Repairman's Tool Kit
NSN 5180-00-323-4944
Rubber Gloves
NSN 8415-00-266-8677
Eye Protection

68B Aircraft Powerplant Repairer
68B Powerplant Inspector

Equipment Condition:

Fuel Control Cover Removed (Task 2-45)
APU in Assembly Fixture (Task 1-22)



GO TO NEXT PAGE

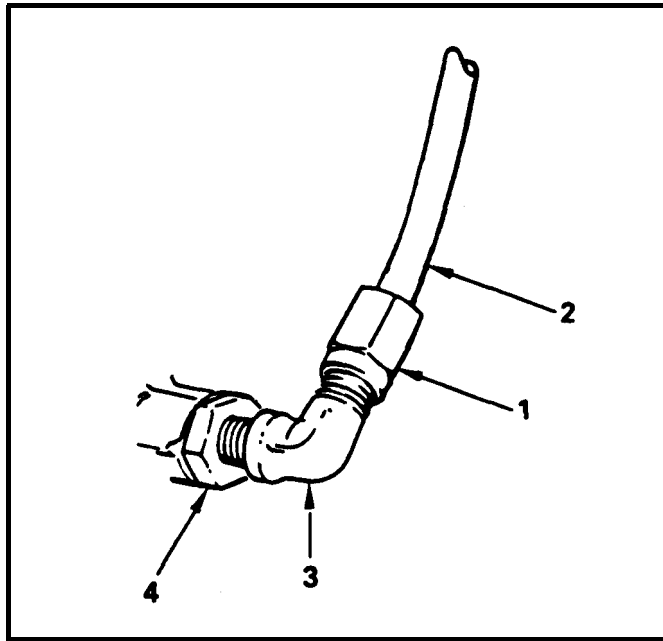
Note

If disassembly is required to further inspect for cause of leakage, refer to Task 2-7. Reinstall in accordance with Task 2-8.

1. Inspect for signs of fuel leakage around coupling nuts (1). If there is a sign of leakage, check coupling nut (1) for tightness. Tighten if loose.

WARNING

Dry-cleaning solvent (E20) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. Wear gloves. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

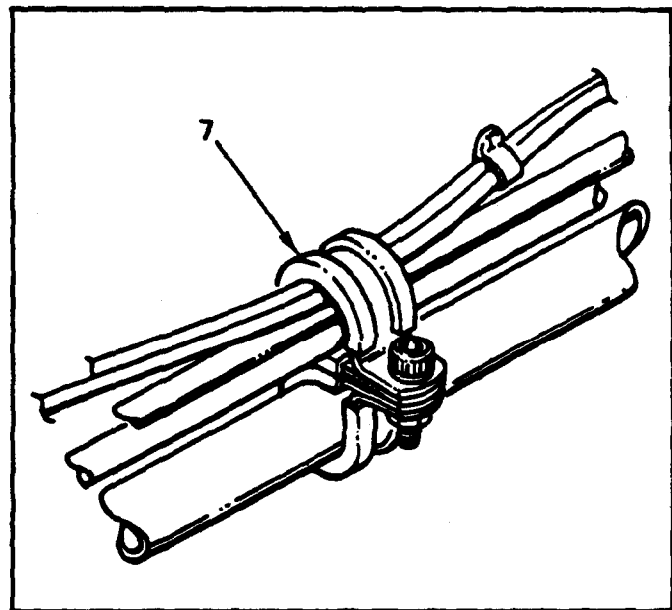
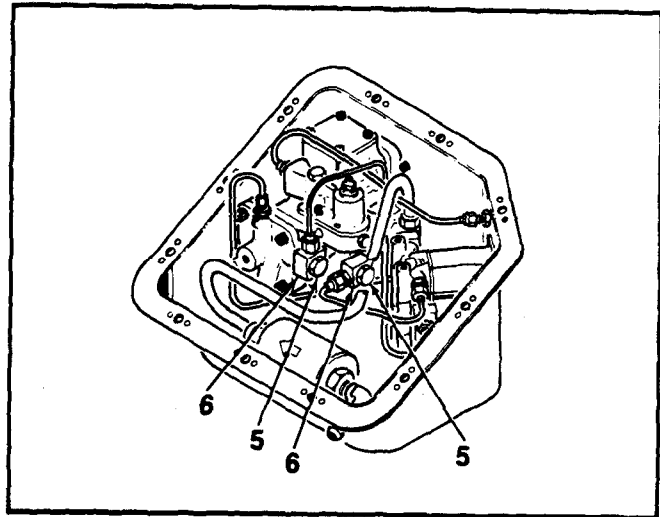


2. Wipe external lines and fittings with a clean cloth (E13) moistened with dry-cleaning solvent (E20).
3. Inspect all tube assemblies (2) for dents, kinks, or cracks. There shall be no damage.
4. Inspect fittings (3) and nuts (4) on bulkhead fittings for tightness. If loose, tighten.

GO TO NEXT PAGE

2-6 CLEAN AND INSPECT EXTERNAL LINES AND FITTINGS (Continued) 2-6

5. Inspect for signs of leakage around fittings in fuel containment box. If there is leakage, remove fitting and replace packings. Inspect fitting for nicks, dents or cracks. There shall be no damage.
6. Inspect for connection bolt (5) and fitting (6) for signs of leakage. If there are signs of leakage, remove bolt and fitting and replace packing and seal. Inspect bolt and fitting for nicks, dents or cracks. If there is damage, remove bolts (5) and fittings (6) (Task 2-7).



7. Inspect all clamps (7) and brackets for condition and security. If loose, tighten. There shall be no damage.

FOLLOW-ON MAINTENANCE:

None

END OF TASK

INITIAL SETUP

General Safety Precautions:

WARNING

Applicable Configurations:

All

Tools:

Engine Repairman's Tool Kit
 NSN 5180-00-323-4944
 Eye Protection

Materials:

Lint-Free Cloth (E 13)

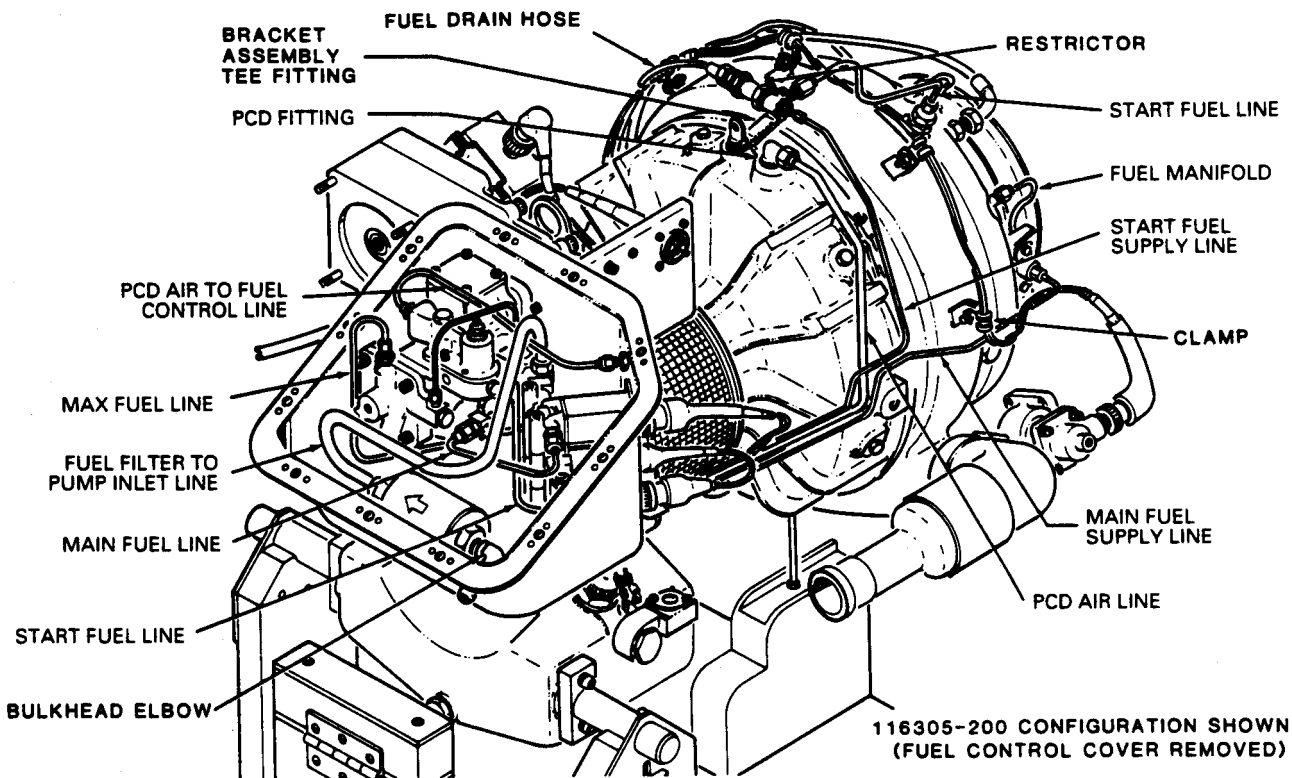
Personnel Required:

68B Aircraft Powerplant Repairer

Equipment Condition:

APU in Assembly Fixture (Task 1-22)

Turbine fuels are very flammable. They 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 areas of skin thoroughly after handling. If irritation of skin results, get medical attention. Get medical attention for eyes.



GO TO NEXT PAGE

Note

This task describes typical procedures for removing external lines and fittings.

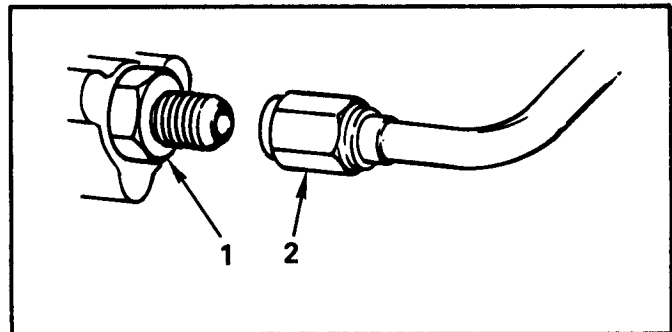
1. Place a cloth (E13) below fuel connections to absorb dripping fuel when disconnecting tubes.

CAUTION

Handle tubes carefully during removal. Tubes are easily bent or kinked.

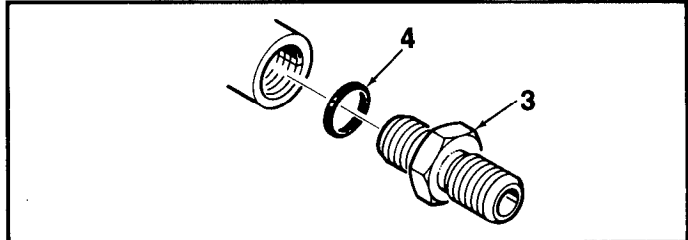
2. Remove and discard lockwire (E16).
3. Disconnect external lines as follows:

- a. Hold fitting (1) with an open end wrench to keep it from turning.
- b. Loosen coupling nut (2). Disconnect tube assembly.



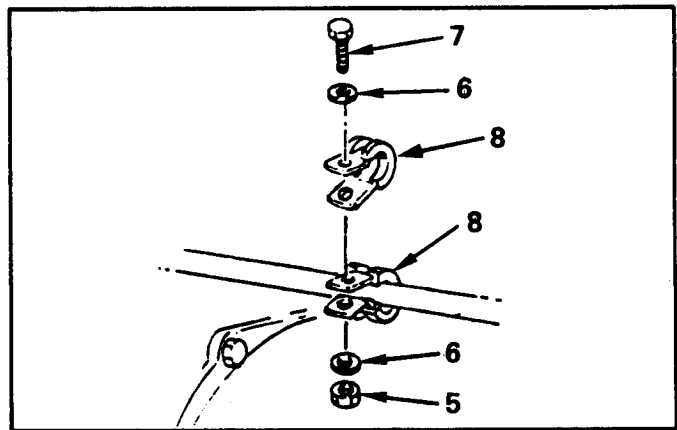
4. Remove unions as follows:

- a. Remove union (3).
- b. Remove packing (4) from union (3) and discard packing.



5. Remove clamp as follows:

- a. Remove nut (5), washers (6), and screw (7).
- b. Remove clamp (8) from tube assembly.

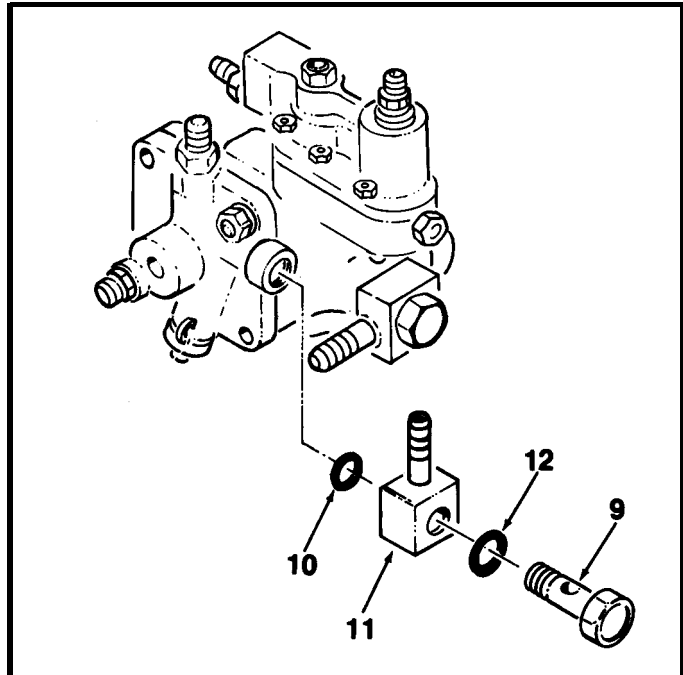


GO TO NEXT PAGE

6. Remove fuel connection bolt and fitting as follows:
- a. Remove fuel connection bolt (9).
 - b. Remove packing (10), fitting (11) and packing (12) from bolt (9). Discard packings.

FOLLOW-ON MAINTENANCE:

None



END OF TASK

2-8 INSTALL EXTERNAL LINES AND FITTINGS

2-8

INITIAL SETUP

Parts:

Applicable Configurations:

All

Tools:

Engines Repairman's Tool Kit
NSN 5180-00-323-4944

Materials:

Assembly Fluid No. 1 (E31)
Lockwire (E16)

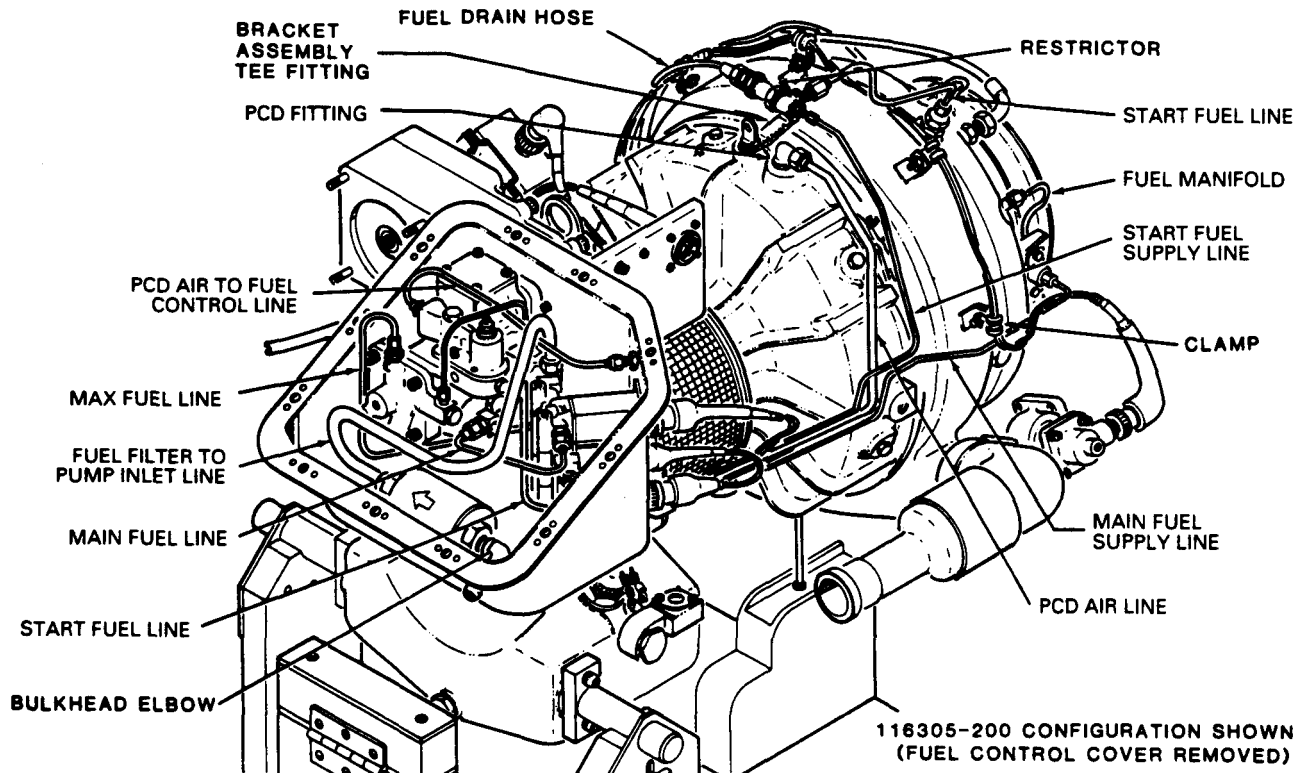
Packings
Seals

Personnel Required:

68B Aircraft Powerplant Repairer
68B Powerplant Inspector

Equipment Condition:

APU in Assembly Fixture (Task 1-22)



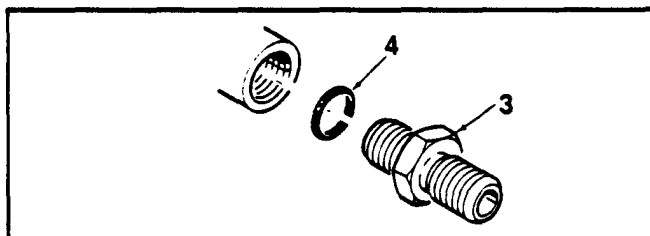
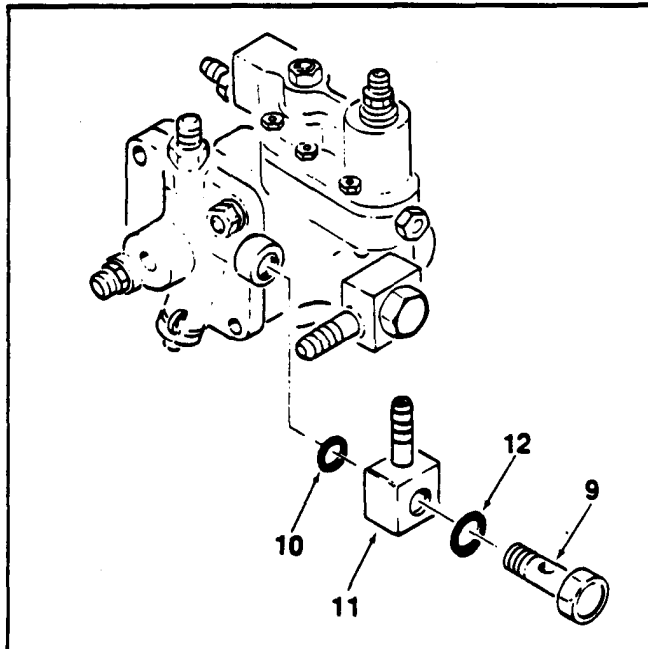
GO TO NEXT PAGE

NOTE

This task describes typical procedures for installing external lines and fittings. Lightly lubricate packings with assembly fluid (E31).

1. Install fuel connection bolt and elbow as follows:
 - a. Using assembly fluid No. 1 (E31), lubricate and install packing (12) on fuel connection bolt (9).
 - b. Lubricate and install fuel connection bolt (9) through fuel connection fitting (11).
 - c. Using assembly fluid No. 1 (E31), lubricate and install packing (10) on fuel connection bolt (9).
 - d. Install fuel connection bolt (9) into acceleration control assembly. Align fuel connection fitting (11) with tube assembly, then tighten fuel connection bolt.

2. Install unions as follows:
 - a. Lubricate and install packing (4) on union (3).
 - b. Install union (3)



GO TO NEXT PAGE

2-8 INSTALL EXTERNAL LINES AND FITTINGS (Continued)

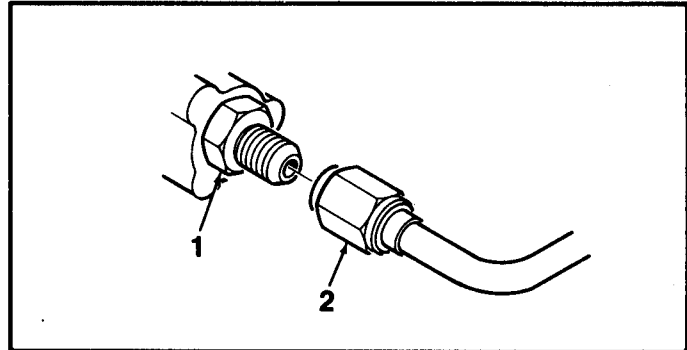
2-8

CAUTION

Handle tube assemblies carefully during installation. Tubes are easily bent or kinked. Threads can be damaged.

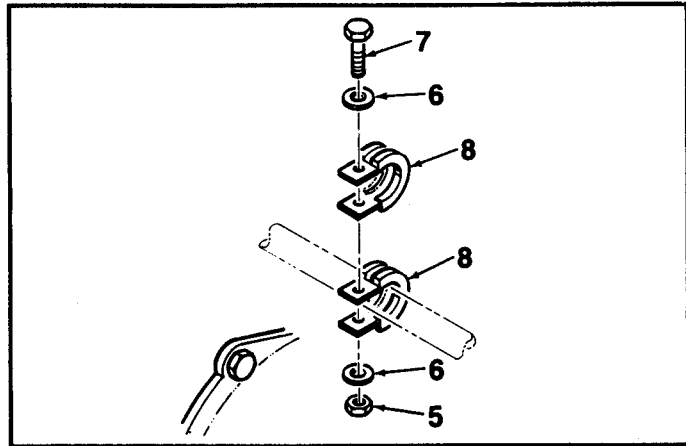
4. Connect external lines as follows:

- a. Screw coupling nut (2) on fitting (1) hand tight.
- b. Hold fitting (1) with an open end wrench and tighten nut (2).



5. Install clamps as follows:

- a. Install clamp (8) on tube assembly.
- b. Secure clamp (8) to other clamp (8) or bracket, if used, with screw (7), two washers (6) and nut (5). Tighten nut (5).



6. Safety wire the fitting assembly, fuel drain hose and restrictor fittings with lock-wire (E16).

INSPECT

FOLLOW-ON MAINTENANCE:

None

END OF TASK

INITIAL SETUP

Materials:

Applicable Configurations:

Dry-Cleaning Solvent (E20)
Lint-Free Cloth (E13)

All

Personnel Required:

Tools :

68B Aircraft Powerplant Repairer
68B Powerplant Inspector

Engine Repairman's Tool Kit
NSN 5180-00-323-4944
Rubber Gloves
NSN 8415-00-266-8677
Eye Protection

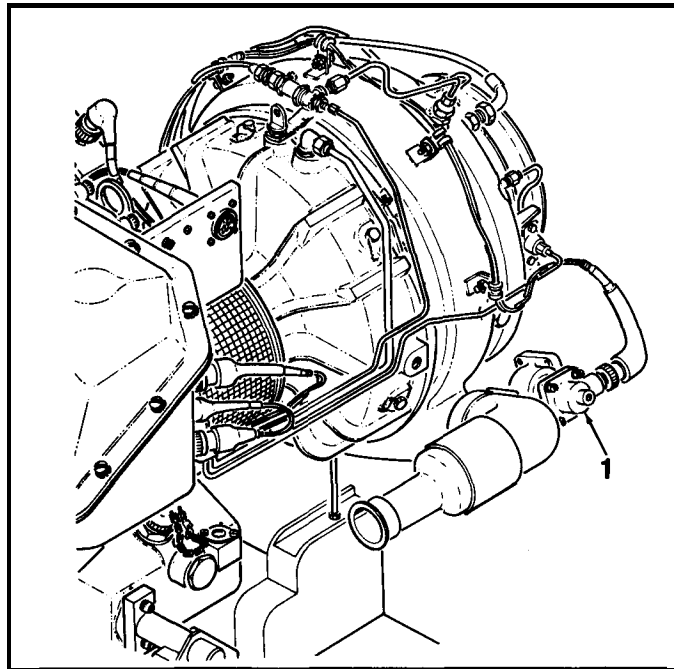
Equipment Condition:

APU in Assembly Fixture (Task 1-22)

1. Inspect start bypass valve (1) for chafing, security of installation, gouges and cracks. If damage exists replace valve (Task 2-10).



Dry-cleaning solvent (E20) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. Wear gloves and eye protection. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.



2. Wipe exterior of start bypass valve (1) with a clean cloth (E13) moistened with dry-cleaning solvent (E20).
3. Allow to air dry.

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-10 REMOVE START BYPASS VALVE**2-10**

INITIAL SETUP

Materials:

Applicable Configurations:

Brazing Rod (E33)

All

Personnel Required:

Tools:

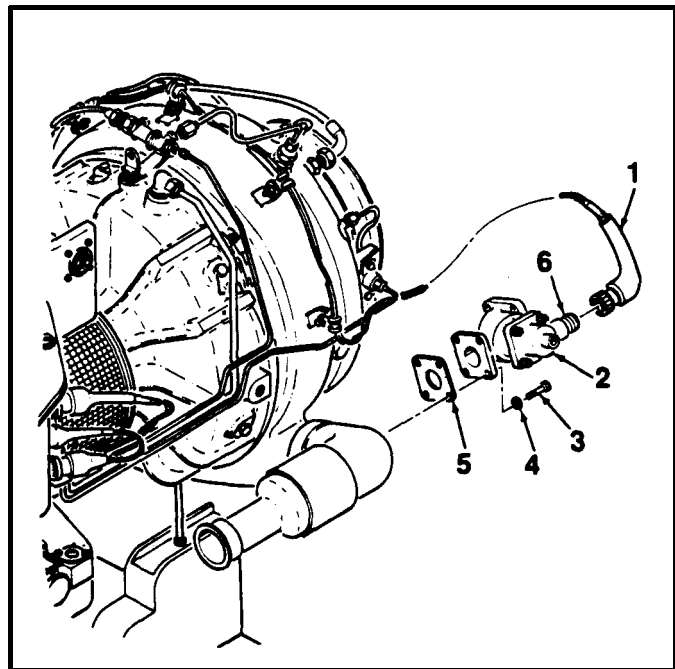
68B Aircraft Powerplant Repairer

Engine Repairman's Tool Kit
 NSN 5180-00-323-4944
 Brazing Rod E33

Equipment Condition:

APU in Assembly Fixture (Task 1-22)

1. Remove and discard lockwire (E16).
2. Disconnect connector P308 (1) from start bypass valve (2).
3. Remove start bypass valve (2) by removing bolts (3) and washers (4).
4. Remove and discard gasket (5).
5. Bend brazing rod (E33) at 90° to reach a depth of 0.4 inch into valve opening and press against piston. Piston should move 0.2 in. without restriction. Replace bypass valve if piston binds.
6. Inspect start bypass valve (2) and connector (6) for broken pins and stripped or crossed threads. If damaged, replace start bypass valve.



FOLLOW-ON MAINTENANCE:

None

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Engines Repairman's Tool Kit
NSN 5180-00-323-4944

Materials:

Lockwire (E32)

Parts:

Gasket

Personnel Required:

68B Aircraft Powerplant Repairer
68B Powerplant Inspector

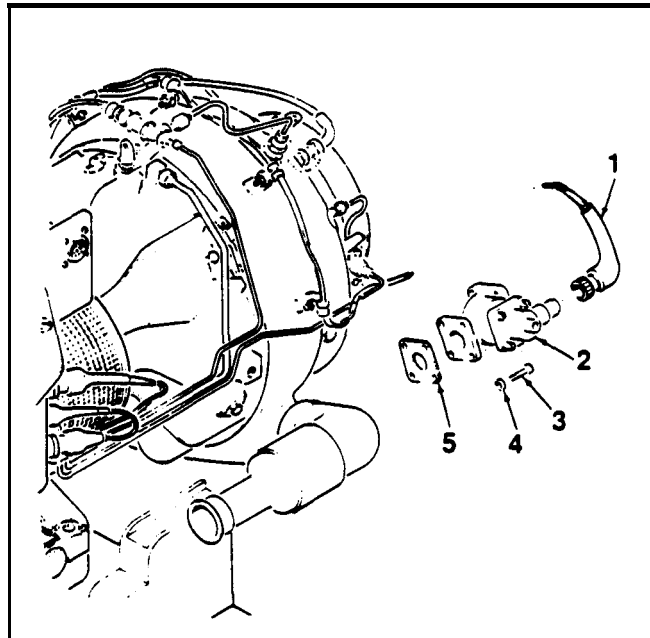
References:

TM 55-2835-208-23P

Equipment Condition:

APU in Assembly Fixture (Task 1-22)

1. Install new gasket (5).
2. Install start bypass valve (2) by installing bolts (3) and washers (4). Torque bolts (3) to 47-53 inch-pounds.
3. Connect connector P308 (1) to start bypass valve (2).
4. Safety wire bypass valve (2) and connector (1) with lockwire (E32).



INSPECT

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-12 INSPECT COMBUSTOR ASSEMBLY

2-12

INITIAL SETUP

Applicable Configurations:

All

Equipment Condition:

APU in Assembly Fixture (Task 1-22)

Tools:

None

Personnel Required:

68B Aircraft Powerplant Repairer
68B Powerplant Inspector

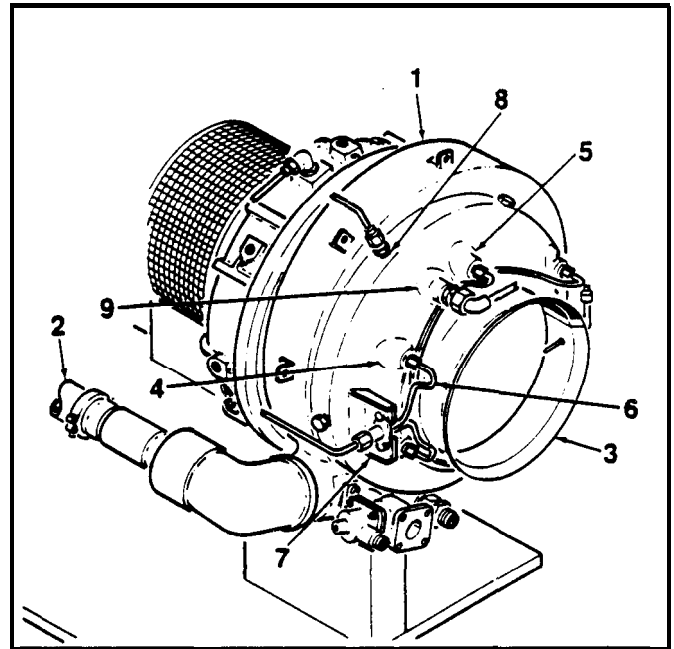
Materials:

None

NOTE

If repairable damage is found, remove combustor section (Task 2-13) and disassemble (Task 2-14).

1. Inspect combustor housing (1) and exhaust flange (3) for cracks in parent metal, welds, and brazed joints. If cracks are found, repair combustor housing (Task 2-18).
2. Inspect brazed joints (4) around fuel manifold bosses (5) for cracks.
3. Inspect fuel manifold (6) for bending or crimping. If damage is found, replace manifold assembly (7) (Task 2-60).
4. Inspect start nozzle boss (8) and igniter boss (9) for cracks in brazed joints. If cracks are found, repair combustor housing (Task 2-18).
5. Inspect bleed air manifold (2) for cracks. If damaged, return to depot.



FOLLOW-ON MAINTENANCE:

None

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

- Engine Repairman's Tool Kit
NSN 5180-00-323-4944
- Combustor Puller (T3)
- Combustor Adapter (T11)
- Eye Protection

Materials:

- Lint-Free Cloth (E13)
- Colorbrite Pencil (E14)

Personnel Required:

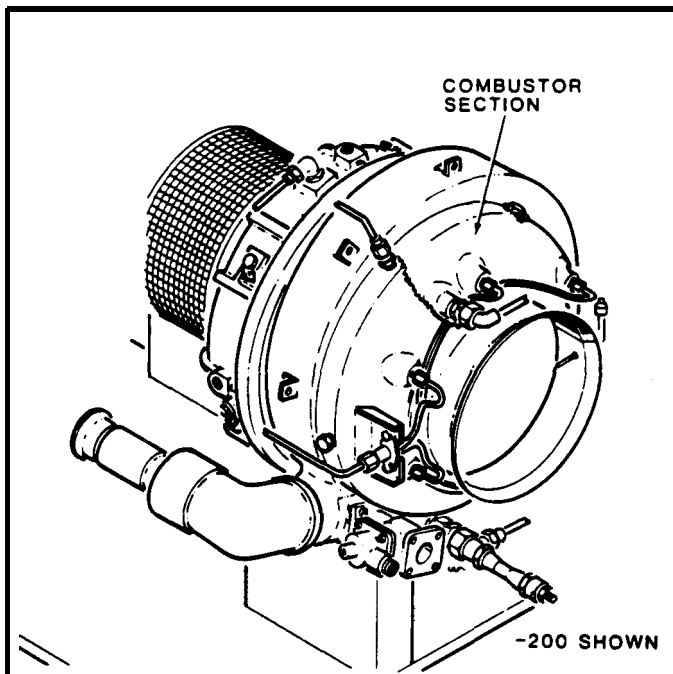
68B Aircraft Powerplant Repairer

Equipment Condition:

APU in Assembly Fixture (Task 1-22)

WARNING

Products of combustion may be toxic. Avoid getting exhaust deposits in open wounds.



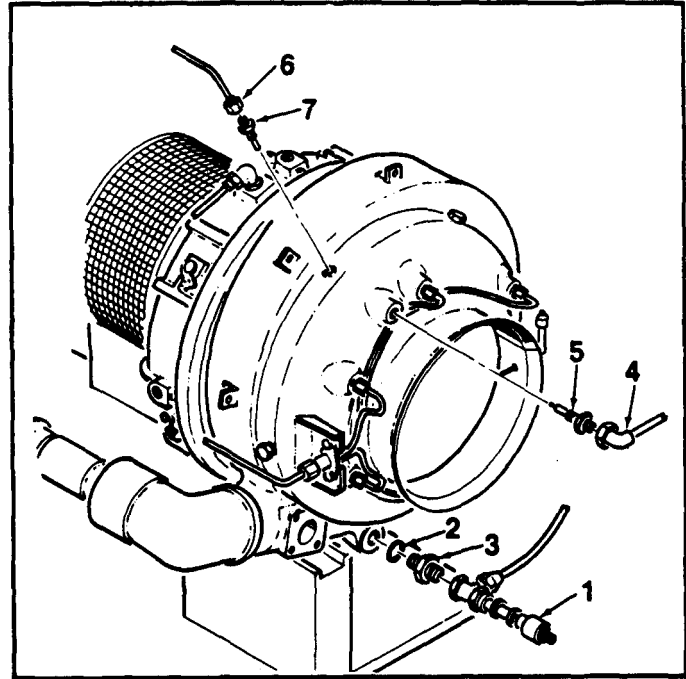
1. Remove start bypass valve (Task 2-10)

GO TO NEXT PAGE

WARNING

Turbine fuels are very flammable. They 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 containers. Avoid prolonged 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.

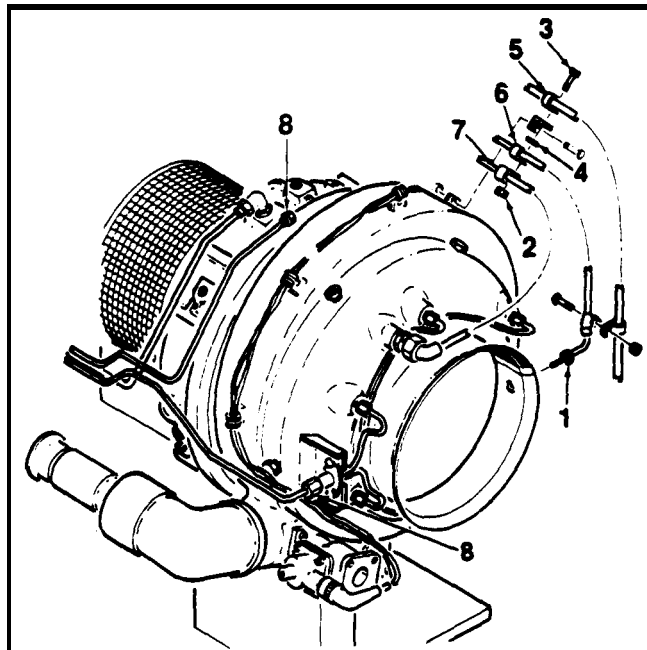
2. Remove check valve (3) (Task 2-47).
3. Remove igniter plug (5) (Task 2-77).
4. Remove start fuel nozzle holder assembly (7) (Task 2-24).



GO TO NEXT PAGE

5. Remove thermocouple (1).
6. Remove nut (2), bolt (3) and spacer (4) to release clamps (5, 6, 7).
7. Disconnect fuel tube bundle (8).
8. Remove engine electrical harness (Task 2-81).
9. Remove fuel manifold assembly (Task 2-60)

GO TO NEXT PAGE



2-13 REMOVE COMBUSTOR SECTION (Continued)

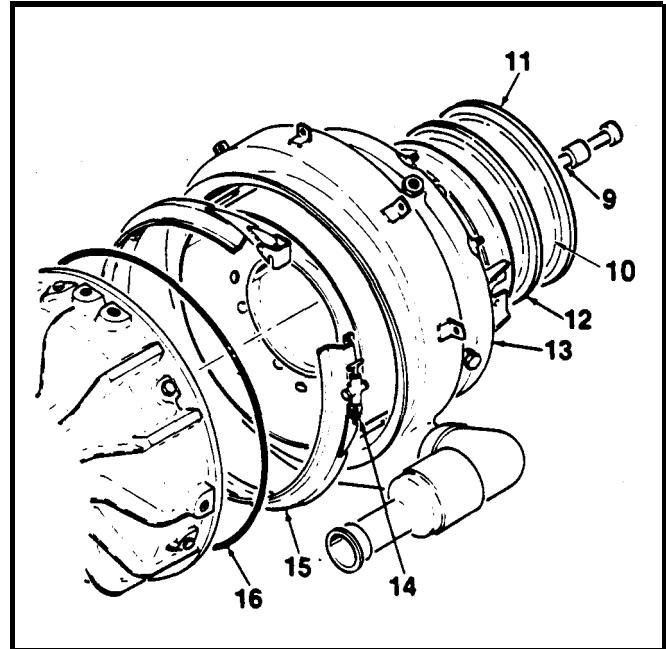
2-13

10. Assemble combustor puller (T3) (9) to adapter (T11) (10) with clamp (11).
11. Install puller (9) with adapter (10) onto combustor housing (13). Secure with pipe assembly exhaust clamp (12).

CAUTION

To prevent damage to combustor housing, support assembly during removal

12. Loosen nut (14) to free combustor clamp (15). Move loosened clamp (15) up onto combustor housing (13).
13. Match-mark combustor housing (13) to turbine using color brite pencil (E14). Remove combustor housing (13) using slide hammer action of puller (T3) (9).
14. Remove and discard seal (16).



FOLLOW-ON MAINTENANCE:

None

END OF TASK

INITIAL SETUP

General Safety Instructions:



Applicable Configurations:

All

Tools:

Engine Repairman's Tool Kit
NSN 5180-00-323-4944

Rubber Gloves

NSN 8415-00-266-8677

Eye Protection

Materials:

None

Personnel Required:

68B Aircraft Powerplant Repairer

Equipment Condition:

Off APU Task
Remove combustor section
(Task 2-13)

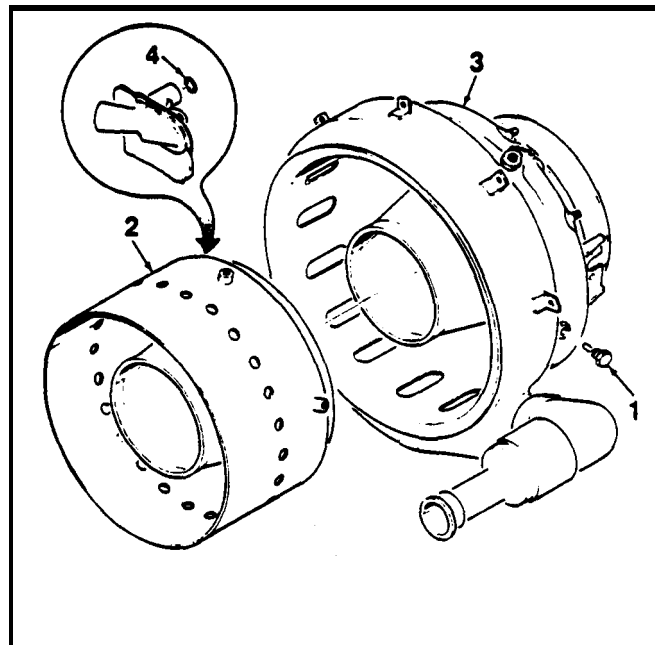
When handling combustor assembly internal parts that have been exposed to fuels containing tetra-ethyl lead, ensure that the by product (poisonous lead oxide) is not inhaled or taken into the body through cuts or other external openings. If accidental exposure occurs, drench affected area with large amounts of clear water, and obtain immediate medical attention. Gloves and goggles shall be worn at all times when handling contaminated parts.

1. Place combustor assembly on clean work surface with exhaust end down.
2. Remove lockwire (E16) from bolts (1) and discard.
3. Remove four (4) combustor locating bolts (1) and lift combustor liner (2) out of combustor housing (3).
4. Remove and discard six packings (4) from combustor liner (2).

FOLLOW-ON MAINTENANCE:

None

END OF TASK



2-15 CLEAN AND INSPECT COMBUSTOR HOUSING

2-15

INITIAL SETUP

Equipment Condition:

General Safety Instructions

All

Off APU Task

Disassemble combustor assembly (Task 2-14)

General Safety Instructions:

WARNING

Tools:

Engine Repairman's Tool Kit

NSN 5180-00-323-4944

Rubber Gloves

NSN 8415-00-266-8677

Stainless Steel Wire Brush

NSN 7920-00-269-1259

Eye Protection

When handling combustor assembly internal parts that have been exposed to fuels containing tetra-ethyl lead, ensure that the by product (poisonous lead oxide) is not inhaled or taken into the body through cuts or other external openings. If accidental exposure occurs, drench affected area with large amounts of clear water, and obtain immediate medical attention. Gloves and goggles shall be worn at all times when handling contaminated parts.

Materials:

Methyl-Ethyl-Ketone (MEK) (E9)

Personnel Required:

68B Aircraft Powerplant Repairer

68B Powerplant Inspector

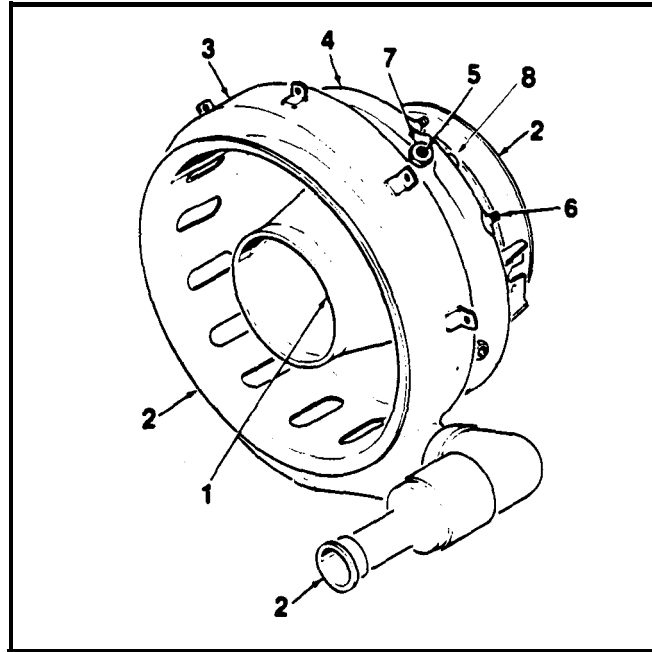
WARNING

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

1. Wearing gloves and goggles, clean combustor housing using MEK (E9). Scrub with stainless steel wire brush.

GO TO NEXT PAGE

2. Allow combustor housing to air dry after cleaning.
3. Visually inspect exit diffuser (1), flanges (2) and housing (3) for cracks in metal, welds and brazed joints. If cracks are found, repair (Task 2-18).
4. Inspect brazed joints (4) for cracks (Task 2-12).
5. Inspect start fuel nozzle boss (7) and igniter boss (6) for cracks in brazed joints (Task 2-12). If cracks are found, repair (Task 2-18).
6. Inspect threads (5,6) for stripping. If damaged, return to depot for repair,



FOLLOW-ON MAINTENANCE:

None

END OF TASK

 2-16 CLEAN AND INSPECT COMBUSTOR LINER

2-16

INITIAL SETUP

Equipment Condition:

Applicable Configurations:

All

Off APU Task
Disassemble combustor assembly (Task
2-14)

General Safety Instructions:

WARNING

Tools:

Engine Repairman's Tool Kit
NSN 5180-00-323-4944
Rubber Gloves
NSN 8415-00-266-8677
Stainless Steel Wire Brush
NSN 7920-00-269-1259
Eye Protection

When handling combustor assembly internal parts that have been exposed to fuels containing tetra-ethyl lead, ensure that the by product (poisonous lead oxide) is not inhaled or taken into the body through cuts or other external openings. If accidental exposure occurs, drench affected area with large amounts of clear water, and obtain immediate medical attention. Gloves and goggles shall be worn at all times when handling contaminated parts.

Materials:

Methyl-Ethyl-Ketone (MEK) (E9)

Personnel Required:

68B Aircraft Powerplant Repairer
68B Powerplant Inspector

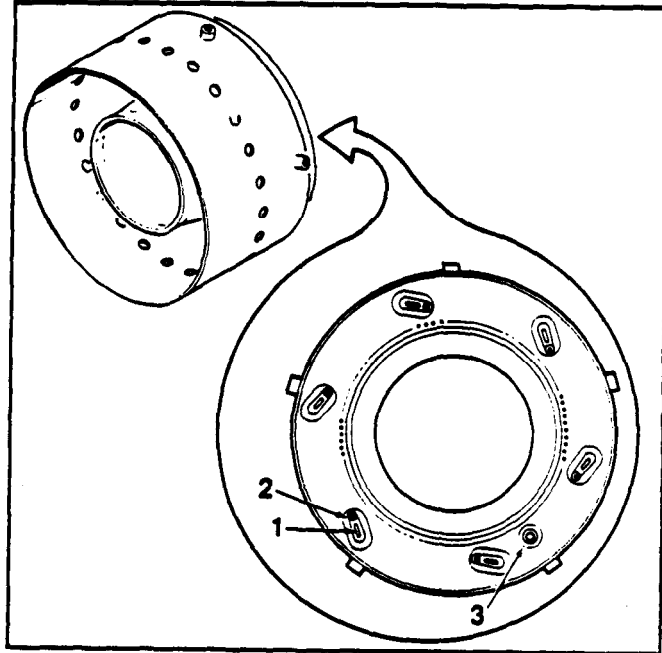
WARNING

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

1. Wearing gloves and goggles, clean combustor liner using MEK (E9). Scrub with stainless steel wire brush.

GO TO NEXT PAGE

2. Allow combustor liner to air dry after cleaning.
3. Clean venturi throat (1) and U-tubes (2) (see cross-section) with a stainless steel wire brush or pipe cleaner.
4. Visually inspect igniter plug grommet (3) for sticking due to carbon build-up. If sticking is present, refer to Task 2-17.
5. Visually inspect liner for cracks in metal, welds and brazed joints. If cracks are found, repair (Task 2-17).
6. Inspect U-tubes (2) to ensure centering in venturi throat. If incorrect, return combustor liner to depot.
7. Inspect atomizer for tip erosion. If erosion is found, replace liner.



FOLLOW-ON MAINTENANCE:

None

END OF TASK

INITIAL SETUP

Personnel Required:

Applicable Configurations:

44E Welder
68B Powerplant Inspector

All

References:

Tools :

TM 55-1500-204-25/1

AVIM Welding Shopset
NSN 4920-00-163-5093
Flaring Tool (T24)

Equipment Condition:

Disassemble combustor assembly (Task 2-14)

Materials:

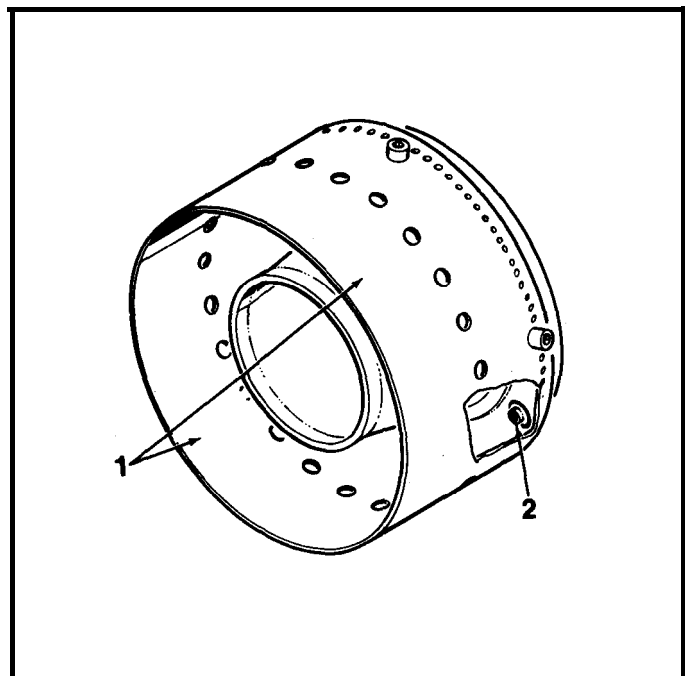
Brazing Flux (E12)
Welding Flux (E17)
Brazing Alloy (E11)
Welding Rod (E18)

1. Repair cracks (1) or resistance welds in parent metal (not at welds) as follows:

- a. Stop drill a 0.0625-inch hole, 0.125-inch beyond ends of crack.
- b. Prior to welding, coat underside of crack with welding flux E17).
- c. Back up with inert gas.

Note

If crack is longer than one inch, level edges and tack weld every 0.5 inch.



GO TO NEXT PAGE

d. Weld crack using welding rod (E18) by inert gas shielded method (TM 55-1500-204-25/1). Start welding from ends of crack and work toward center. Keep welds flat or slightly convex on welded side.

2. Repair cracks in brazed joints (2) as follows:

a. Wire brush or buff repair area until bright and clean.

b. Apply brazing flux (E12) generously to repair area.

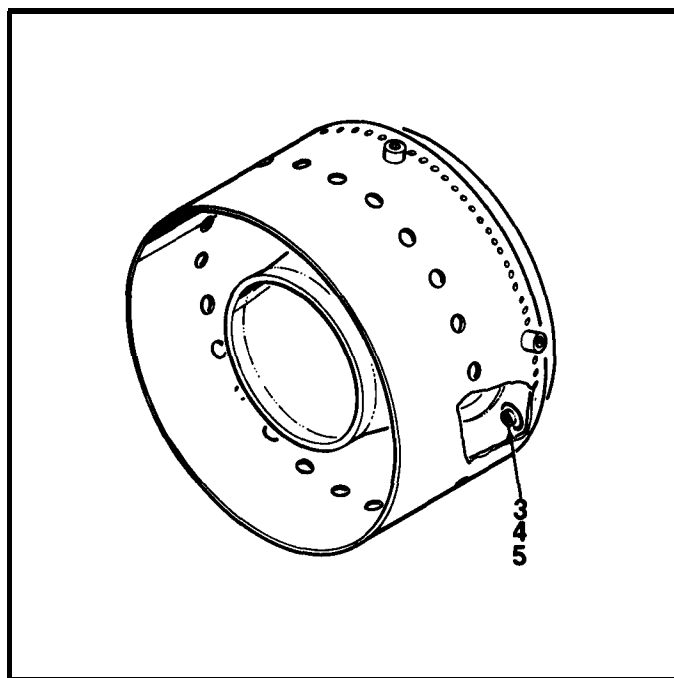
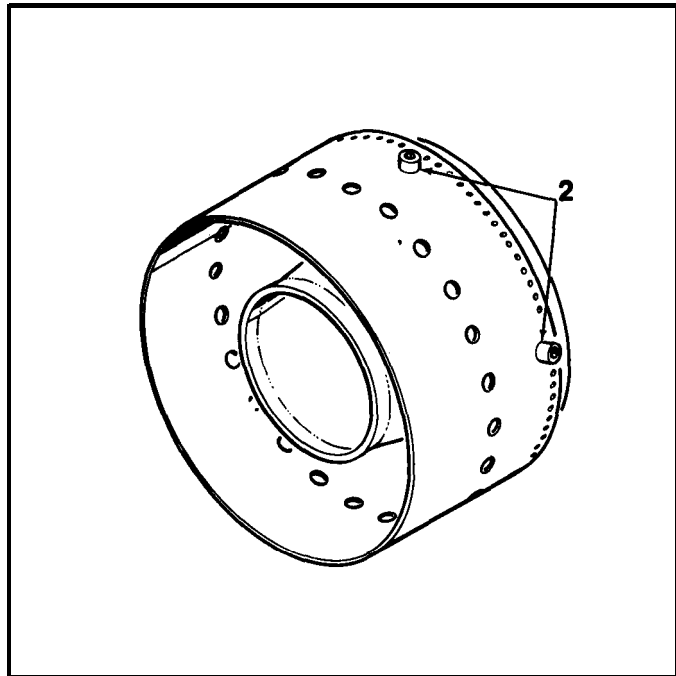
c. Heat area evenly with neutral flame from gas torch while applying a small fillet of brazing alloy (E11).

d. Remove flux residue with hot water.

3. Repair sticking igniter plug grommet (3) as follows:

a. Apply a few drops of non-carbon penetrating oil (E19) grommet (3), spring (4) and washer (5).

b. If grommet remains frozen, replace by collapsing with pliers and tapping out using a wood drift.



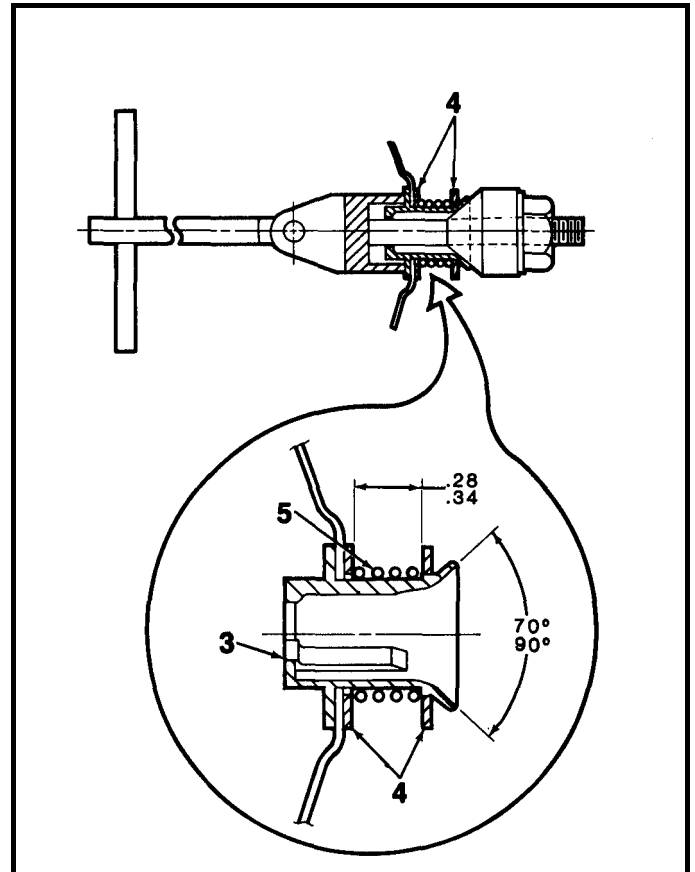
GO TO NEXT PAGE

- c. Remove and discard grommet (3) from liner (1). Remove washers (4) and compression spring (5).
- d. Insert new grommet (3) into liner making certain flange is on inside of liner. Install washers (4) and spring (5).
- e. Install grommet (3) using flaring tool (T24). While holding grommet in place with tool, flare grommet.
- f. Ensure igniter plug grommet moves freely.

INSPECT

FOLLOW-ON MAINTENANCE:

None



END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools :

AVIM Welding Shopset
NSN 4920-00-163-5093

Materials:

Brazing Flux (E12)
Welding Flux (E17)
Brazing Alloy (E11)
Welding Rod (E18)

Personnel Required:

44E Welder
68B Powerplant Inspector

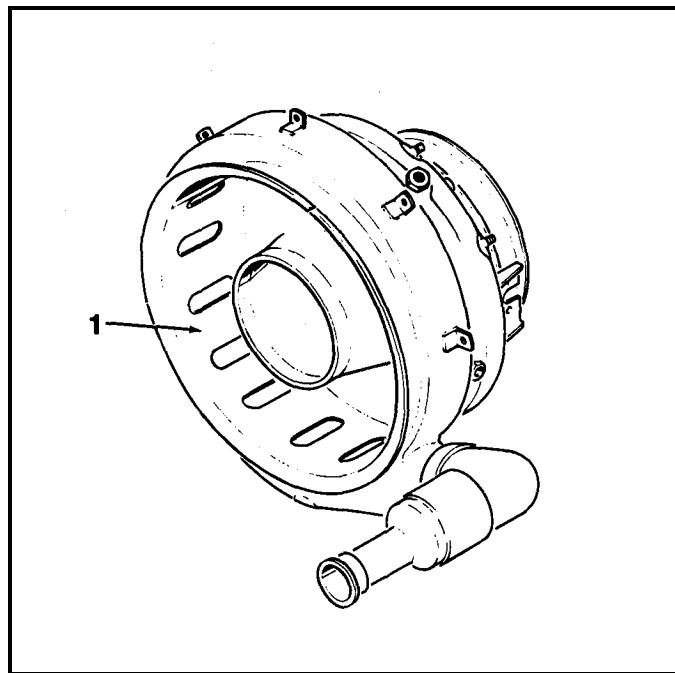
References:

TM 55-1500-204-25/1

Equipment Condition:

Disassemble combustor assembly (Task
2-14)

1. Repair cracks (1) in resistance welds in combustor housing (1) as follows:
 - a. Stop drill a 0.0625-inch hole, 0.125-inch beyond ends of crack.
 - b. Prior to welding, coat underside of crack with welding flux (E17).
 - c. Back up with inert gas.

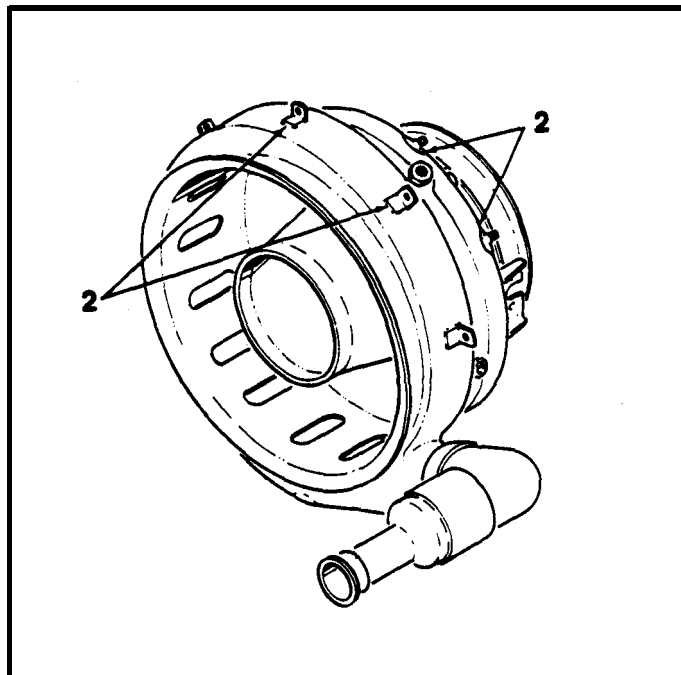


GO TO NEXT PAGE

Note

If crack is longer than one inch, level edges and tack weld every 0.5 inch.

- d. Weld crack using welding rod (E18) by inert gas shielded method (TM 55-1500-204-25/1). Start welding from ends of crack and work toward center. Keep welds flat or slightly convex on welded side.
2. Repair cracks in brazed joints (2) as follows:
 - a. Wire brush or buff repair area until bright and clean.
 - b. Apply brazing flux (E12) generously to repair area.
 - c. Heat area evenly with neutral flame from gas torch while applying a small fillet of brazing alloy (E11).
 - d. Remove flux residue with hot water.
 3. Replace start bypass valve boss thread inserts if damaged (TM 55-1500-204-25/1).



INSPECT

FOLLOW-ON MAINTENANCE:

None

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Engines Repairman's Tool Kit
NSN 5180-00-323-4944

Materials:

Assembly Fluid, No. 1 (E31)
Anti-Seize Compound (E15)
Methyl-Ethyl-Ketone (MEK) (E9)
Masking Tape (E8)
Abrasive Material (E28)
Lockwire (E16)
Brazing Rod (E33)

References:

TM 55-2835-208-23P

Equipment Condition:

OFF APU Task

Personnel Required:

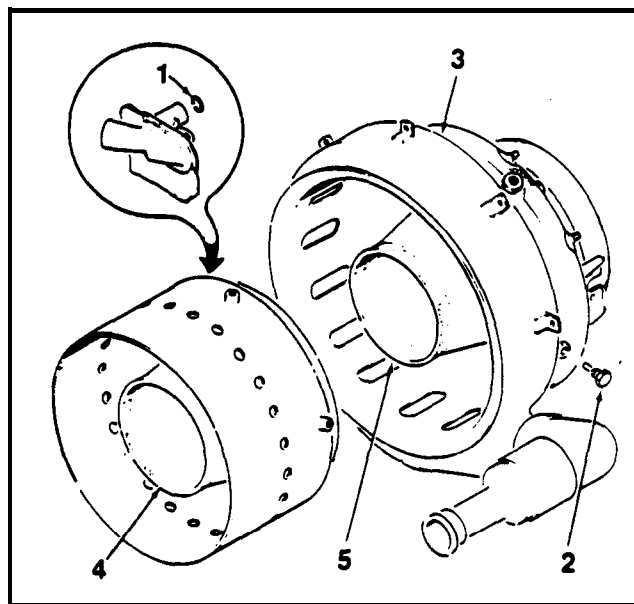
68B Aircraft Powerplant Repairer
68B Powerplant Inspector

Parts:

Packing

1. Using assembly fluid No. 1 (E31), lubricate and insert packings (1) in six vaporizer fittings of combustor liner (4).
2. Insert brazing rod (E33) with rounded end into each vaporizer fitting to ensure packings are seated in grooves.
3. Apply light coat of anti-seize compound (E15) to threads of four combustor locating bolts (2), and to mating surfaces of combustor liner (4) and housing exit diffuser (5).

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2-19 ASSEMBLE COMBUSTOR ASSEMBLY (Continued)

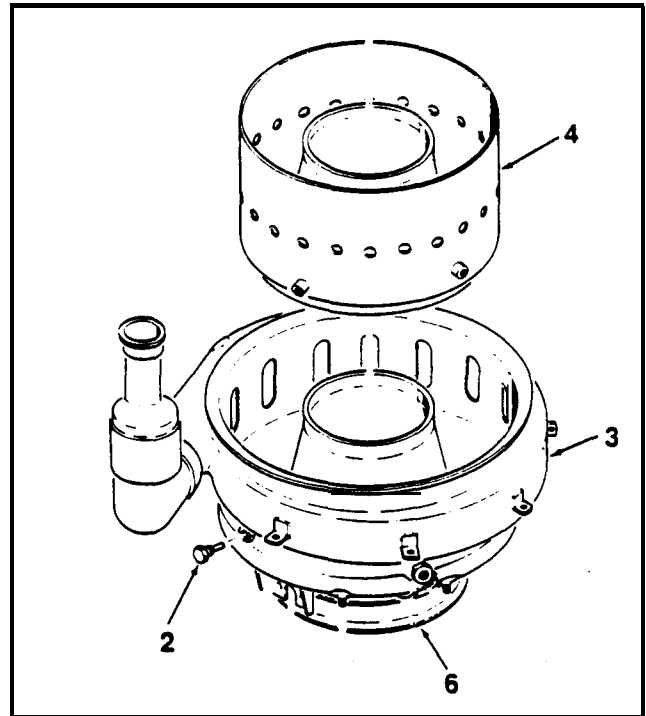
2-19

4. Place combustor housing (3) vertical with the exhaust flange (6) down.
5. Position combustor liner (4) in combustor housing. Make certain start fuel nozzle and igniter plug mounting holes are lined up.
6. Install four combustor locating bolts (2). Make certain the bolts have free entry into the combustor liner (4).
7. Tighten bolts (2) after combustor assembly is assembled to turbine assembly inlet housing, making certain turbine nozzle is lined up with combustor liner (4) (Task 2-20).

INSPECT

FOLLOW-ON MAINTENANCE:

None



END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

- Torque Wrench
NSN 5120-00-542-4489
- Engines Repairman's Tool Kit
NSN 5180-00-323-4944
- Combustor Puller (T3)
- Combustor Puller Adapter (T11)
- Alignment Tool (T25)

Parts:

Seal Ring

Materials:

- Lubricating Oil (E24)
- Anti-Seize Compound (E1 5)
- Lockwire (E16)
- Assembly Fluid, No. 1 (E31)

Personnel Required:

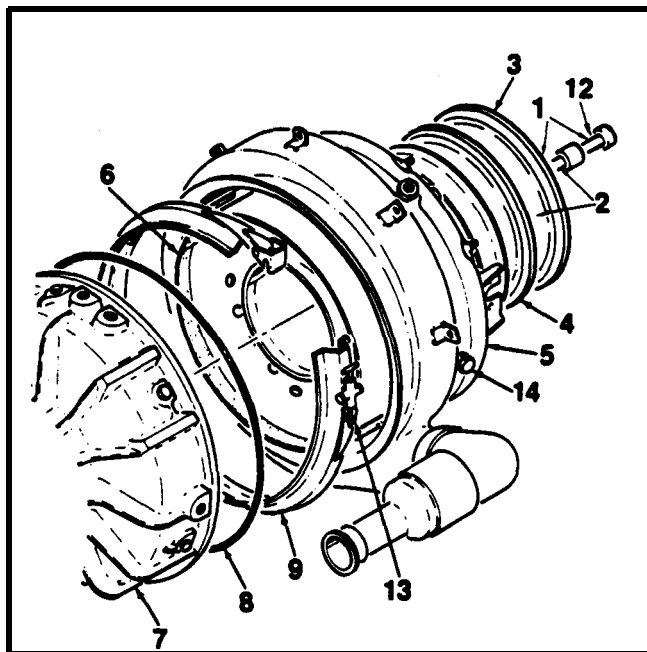
- 68B Aircraft Powerplant Repairer
- 68B Powerplant Inspector

Equipment Condition:

APU in Assembly Fixture (Task 1-22)

1. Assemble combustor puller (T3) (1) to adapter (T11) (2) with clamp (3).
2. Install combustor puller (T3) (1) with adapter (T11) (2) onto combustor housing (5). Secure with pipe assembly exhaust clamp (4).
3. Apply a light coating of anti-seize compound (E15) to mating surfaces of combustor housing (6) and nozzle of turbine assembly (7).
4. Apply assembly fluid (E31) to seal ring (8) and install in air inlet housing groove on turbine assembly (7).
5. Position clamp (9) on combustor housing (5).

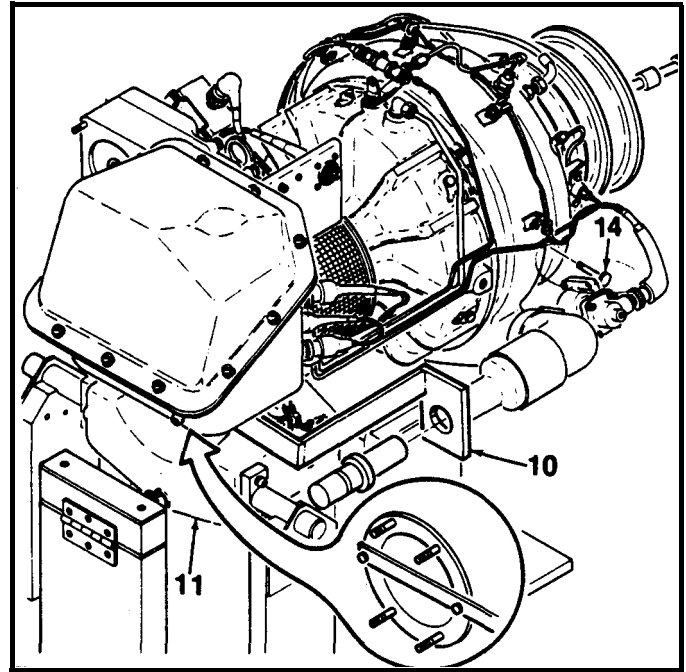
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CAUTION

To prevent damage to seal ring (8), do not turn combustor assembly once it is installed.

6. Install alignment tool (T25) (10) on reduction drive assembly (11).
7. Install assembly using alignment tool (T25) as a guide. Slide combustor puller hammer (12) until combustor assembly is seated.
8. Secure housing (5) to air inlet housing with clamp (9) and nut (13) at the ten o'clock position.
9. Torque nut (13) to 50 inch-pounds. Loosen and re-torque nut.
10. Tighten combustor locating bolts (14) installed in Task 2-19, in a criss-cross pattern. Torque to 45 inch-pounds, and safety-wire using lockwire (E16).
11. Remove combustor puller (T3), adapter (T11) and alignment tool (T25).



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2-20 INSTALL COMBUSTOR SECTION (Continued)

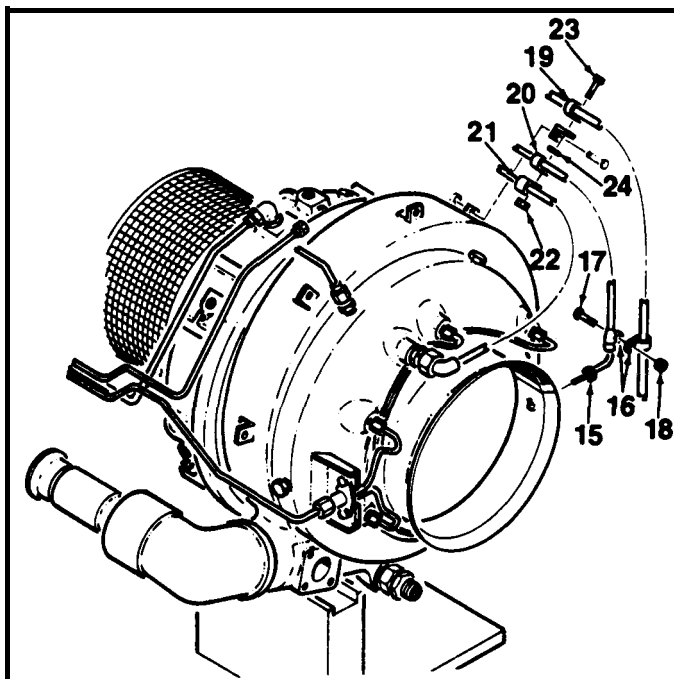
2-20

12. Install start bypass valve (Task 2-11).
13. Install check valve assembly (Task 2-49).
14. Install igniter plug (Task 2-79).
15. Install start fuel nozzle holder (Task 2-27).
16. Install thermocouple (15). Torque to 100 inch-pounds.
17. Secure clamps (16) with bolts (17) and nuts (18),
18. Secure clamps (19, 20, 21) and spacer (22) with bolt (23) and washer (24).
19. Install fuel manifold assembly (Task 2-62).

INSPECT

FOLLOW-ON MAINTENANCE

■ Leak Check During Operation



END OF TASK

2-21 INSPECT TURBINE WHEEL

2-21

INITIAL SETUP**Applicable Configurations:**

All

Tools:

Wire Gage Set (T5)

Materials:

None

Materials:

None

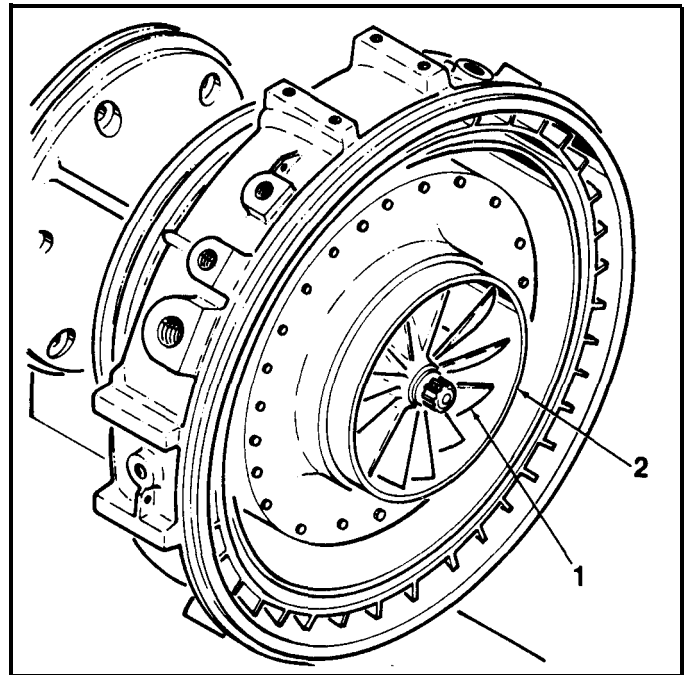
Personnel Required:

68B Powerplant Inspector

Equipment Condition:

Remove Combustor Section (Task 2-13)

-
1. Inspect turbine wheel (1) for cracks and broken vanes. If found, APU requires depot repair.
 2. Inspect for marks indicating turbine wheel has been rubbing on turbine nozzle (2). Rotate turbine wheel and listen for rubbing sound. If found, APU requires depot repair.



GO TO NEXT PAGE

3. Deleted.

4. Deleted.

5. Deleted.

FOLLOW-ON MAINTENANCE:

Install Combustor Section (Task 2-20).

END OF TASK

2-22 CLEAN AND INSPECT TURBINE AIR INLET HOUSING

2-22

INITIAL SETUP

Applicable Configurations:

All

Tools:

Engine Repairman's Tool Kit
 NSN 5180-00-323-4944
 Rubber Gloves
 NSN 8415-00-266-8677
 Container
 Eye Protection

Materials:

Dry-Cleaning Solvent (E20)
 Lint-Free Cloth (E13)
 Brush (E10)

Personnel Required:

68B Aircraft Powerplant Repairer
 68B Powerplant Inspector

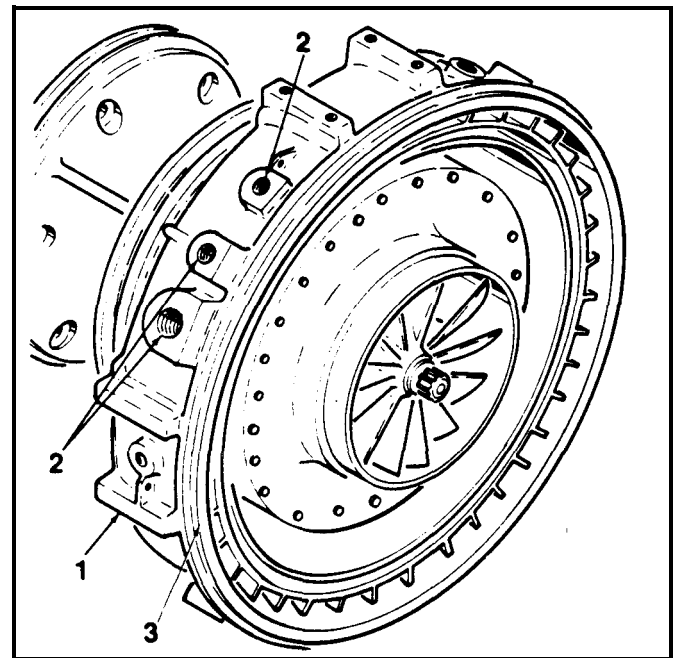
Equipment Condition:

Off APU Task
 Combustor removed (Task 2-13)

WARNING

Dry cleaning solvent (E20) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. Wear gloves. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

1. Clean air inlet housing (1) with bristle brush and dry-cleaning solvent (E20).
2. Wipe dry with lint-free cloth (E13).
3. Inspect threaded inserts (2) for looseness from air inlet housing or damaged threads. If loose, or damaged, repair (Task 2-23).
4. Inspect combustor mating flange (3) for distortion or gouges. If found, depot repair is required.



GO TO NEXT PAGE

2-22 CLEAN AND INSPECT TURBINE AIR INLET HOUSING (Continued)

2-22

5. Inspect housing (1) for cracks. If found depot repair is required.

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-23 REPAIR TURBINE AIR INLET HOUSING (AVIM)

2-23

INITIAL SETUP

Applicable Configurations:

All

Tools:

Machine Shop Set
NSN 4020-00-405-9279

Materials:

None

Parts:

Lock Ring
Screw Thread Inset

Personnel Required:

44E Machinist
68B Powerplant Inspector

References:

TM 55-1500-204-25/1

1. Replace loose or damaged inserts (1) in accordance with TM-1500-204-25/1.

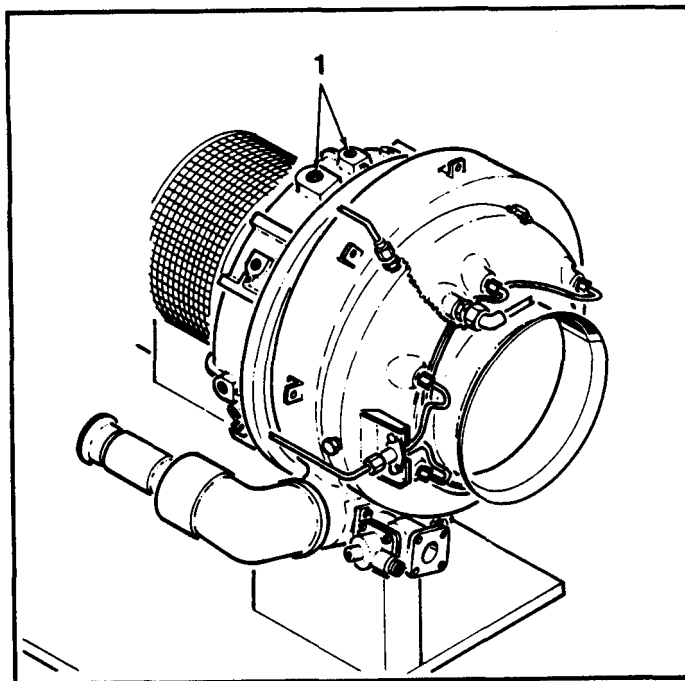
NOTE

For air inlet inserts, P/N 1207SB11, apply sealing compound (item 36, Appendix D) over the entire length of the inserts prior to installing.

INSPECT

FOLLOW-ON MAINTENANCE:

None



END OF TASK

INITIAL SETUP

General Safety Instructions:

WARNING

Applicable Configurations:

All

Tools:

Engine Repairman's Tool Kit
 NSN 5180-00-323-4944
 Eye Protection

Materials:

Lint-Free Cloth (E13)

Personnel Required:

68B Aircraft Powerplant Repairer

Equipment Condition:

APU in Assembly Fixture (Task 1-22)

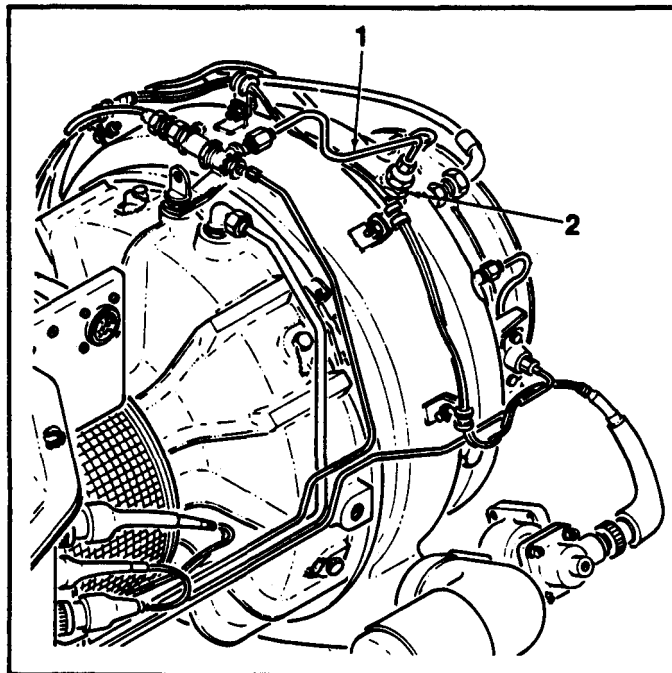
Turbine fuels are very flammable. They cause drying and irritation of skin or eyes. Handle only in well-ventilated areas away from open flame. Drain and store in approved metal safety containers. Avoid prolonged or repeated contact with skin, and do not take internally. Wash contacted areas of skin thoroughly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

1. Place a cloth (E13) below connection to absorb dripped fuel when disconnecting tube assembly (1).

CAUTION

Handle tube assembly (1) carefully when disconnecting. Tube assemblies are easily bent or kinked.

2. Remove lockwire (E16) from fuel nozzle assembly (2) and discard (-100 APU Only).
3. Disconnect tube assembly (1) from fuel nozzle assembly (2).



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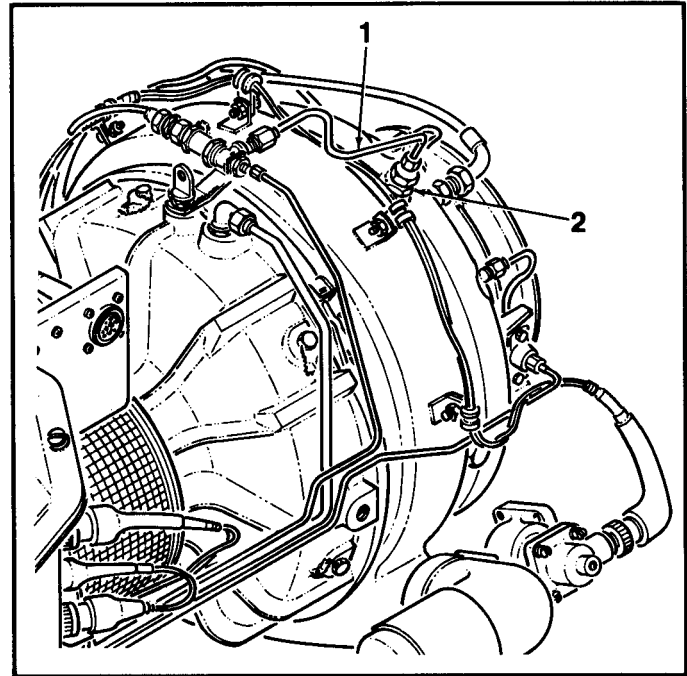
2-24 REMOVE START FUEL NOZZLE HOLDER ASSEMBLY (Continued)

2-24

4. Remove start fuel nozzle assembly (2).

FOLLOW-ON MAINTENANCE:

None



END OF TASK

INITIAL SETUP

Materials:

Applicable Configurations:

Methyl-Ethyl Ketone (MEK) (E9)
Lint-Free Cloth (E13)

All

Tools:

Personnel Required:

Rubber Gloves
NSN 8415-00-266-8677
Container
Eye Protection

68B Aircraft Powerplant Repairer
68B Powerplant Inspector

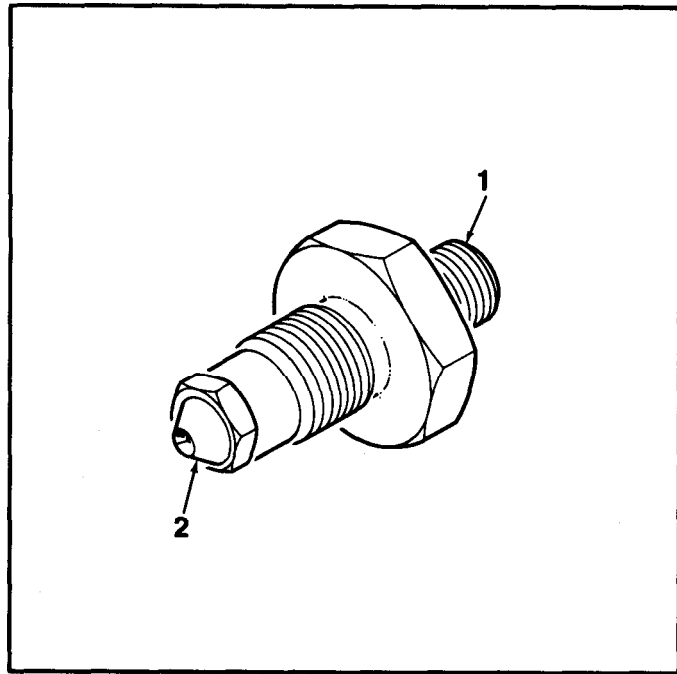
Equipment Condition:

Off APU Task

WARNING

MEK (E9) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. Wear gloves and eye protection. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

1. Soak in MEK (E9) for 5 minutes.
2. Remove from MEK and dry with clean lint-free cloth (E13).
3. Inspect fitting (1) and nozzle (2) for carbon deposits or clogging in orifices.
4. There shall be no carbon deposits or clogging. If so, repeat steps 1 and 2.



GO TO NEXT PAGE

2-25 CLEAN AND INSPECT START FUEL NOZZLE HOLDER ASSEMBLY (Continued) 2-25

5. Inspect start fuel nozzle assembly for cracks and stripped or crossed threads. If damaged, replace.

FOLLOW-ON MAINTENANCE:

None

END OF TASK

INITIAL SETUP

Personnel Required:

Applicable Configurations:

68B Aircraft Powerplant Repairer

Only those with the adjustable nozzle

References:

TM 55-2835-208-23P

Tools:

Engine Repairman's Tool Kit
NSN 5180-00-323-4944

Equipment Condition:

Off APU Task

Materials:

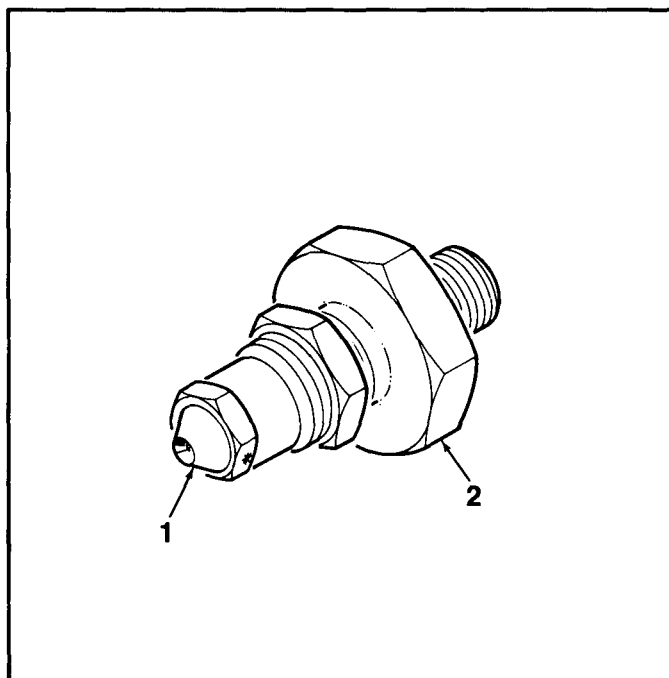
Note

The only service performed on the adjustable nozzle of the start fuel nozzle assembly is an adjustment during installation (Task 2-27).

1. Install nozzle (1) into fitting (2) and screw all the way in. Stake nozzle (1) to fitting (2) using center punch.

FOLLOW-ON MAINTENANCE:

None



END OF TASK

2-27 INSTALL START FUEL NOZZLE HOLDER ASSEMBLY2-27

INITIAL SETUP

Applicable Configurations:

All

Tools:

Engine Repairman's Tool Kit
 NSN 5180-00-323-4944
 Torque Wrench
 NSN 5120-00-542 -4489

Materials:

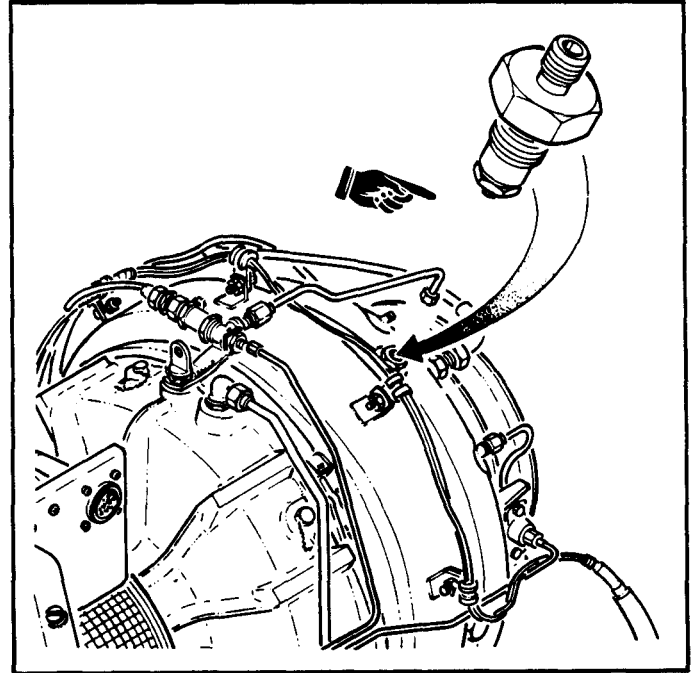
AntiSeize Compound (E15)
 Lockwire (E16)

Personnel Required:

68B Aircraft Powerplant Repairer
 68B Powerplant Inspector

Equipment Condition:

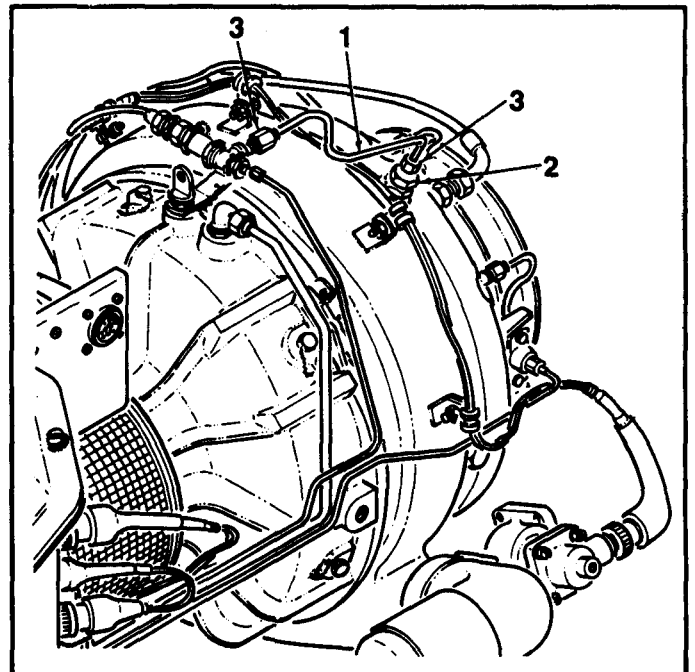
APU in Assembly Fixture (Task 1-22)



1. Apply a light coat of antiseize compound (E15) to threads of start fuel nozzle (2).
2. Install start fuel nozzle holder assembly (2) and torque to 100 inch-pounds.
- 2A. (For older -100with adjustable nozzle only.) Turn jam nut against nozzle holder body. Install start fuel nozzle holder (2) until tip lightly bottoms, then back out 2 to 2-1/2 turns. Tighten jam nut to lock holder in position (no torque required). Install lockwire (E16) on jam nut.
3. Connect start fuel tube (1). Torque B-nuts (3) to 80 inch-pounds.

INSPECT

Safety Jam Nut (adjustable nozzle only)



FOLLOW-ON MAINTENANCE

Leak Check During Operation

END OF TASK

INITIAL SETUP

Applicable Configurations:

APU 116305-100

Tools:

Engine Repairman's Tool Kit
 NSN 5180-00-323-4944
 Eye Protection

Materials:

Lint-Free Cloth (E13)

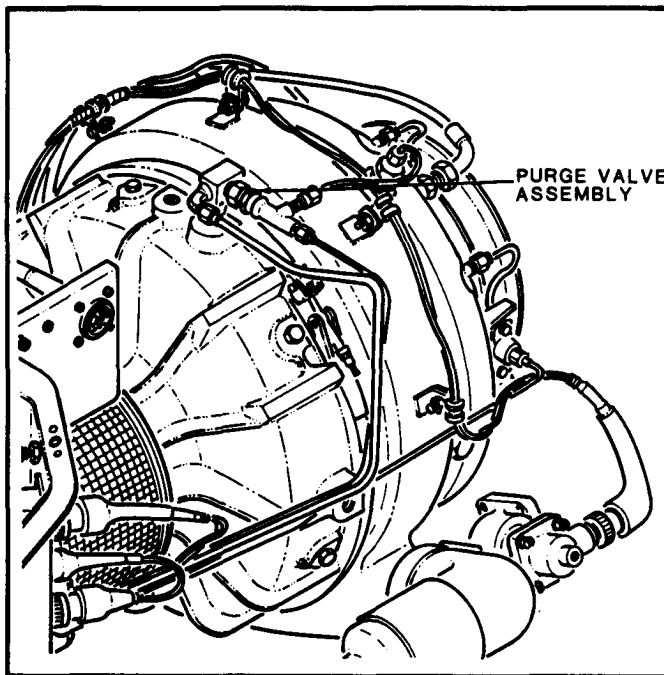
Personnel Required:

68B Aircraft Powerplant Repairer

General Safety Instructions:



Turbine fuels are very flammable. They cause drying and irritation of skin or eyes. Handle only in well-ventilated areas away from open flame. Wear gloves and eye protection. 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.



Equipment Condition:

APU in Assembly Fixture (Task 1-22)

GO TO NEXT PAGE

2-28 REMOVE PURGE VALVE ASSEMBLY (Continued)

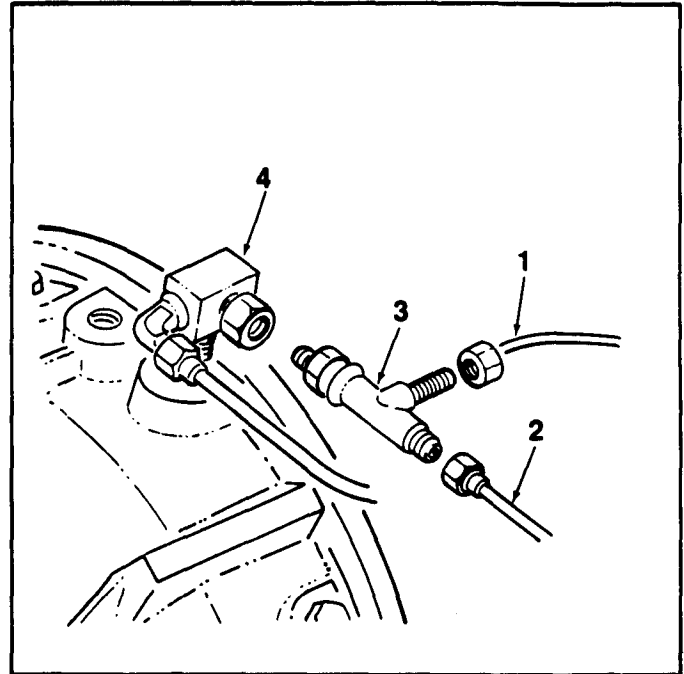
2-28

1. Place a cloth (E13) below connection to absorb dripped fuel when disconnecting start fuel tube assemblies (1) and (2).

CAUTION

Handle tube assemblies (1) and (2) carefully when disconnecting. Tube assemblies are easily bent or kinked.

2. Remove lockwire (E16) from fitting assembly nut (4) and discard.
3. Disconnect start fuel tube assemblies (1) and (2).
4. Unscrew purge valve assembly (3) from special fitting assembly (4).



FOLLOW-ON MAINTENANCE:

None

END OF TASK

INITIAL SETUP

Materials:

Applicable Configurations:

Methyl-Ethyl Ketone (MEK) (E9)
Lint-Free Cloth (E13)

APU 116305-100

Tools:

Personnel Required:

Rubber Gloves
NSN 8415-00-266-8677
Container
Eye Protection

68B Aircraft Powerplant Repairer
68B Powerplant Inspector

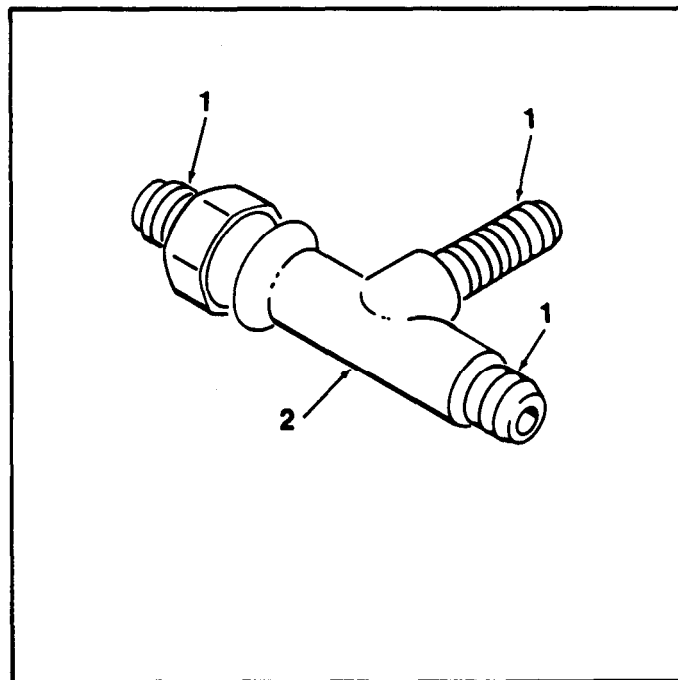
Equipment Condition:

Off APU Task

WARNING

MEK (E9) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. Wear gloves and eye protection. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

1. Soak purge valve assembly in MEK (E9) for 5 minutes.
2. Remove from MEK and dry with clean lint-free cloth (E13).
3. Inspect thread fittings (1) for crossed or stripped threads. If damaged, discard.
4. Inspect purge valve body (2) for cracks or gouges. If damaged, discard.



GO TO NEXT PAGE

2-29 CLEAN AND INSPECT PURGE VALVE ASSEMBLY (Continued)

2 - 29

5. Tap purge valve assembly
against hand. Purge valve
should rattle. If no rattle,
discard.

INSPECT

FOLLOW-ON MAINTENANCE:

None

END OF TASK

INITIAL SETUP

Applicable Configuration:

APU 116305-100

Materials:

Lockwire (E16)

Tools:

Engine Repairman's Tool Kit
NSN 5180-00-323-4944

Torque Wrench
NSN 5120-00-542-4489

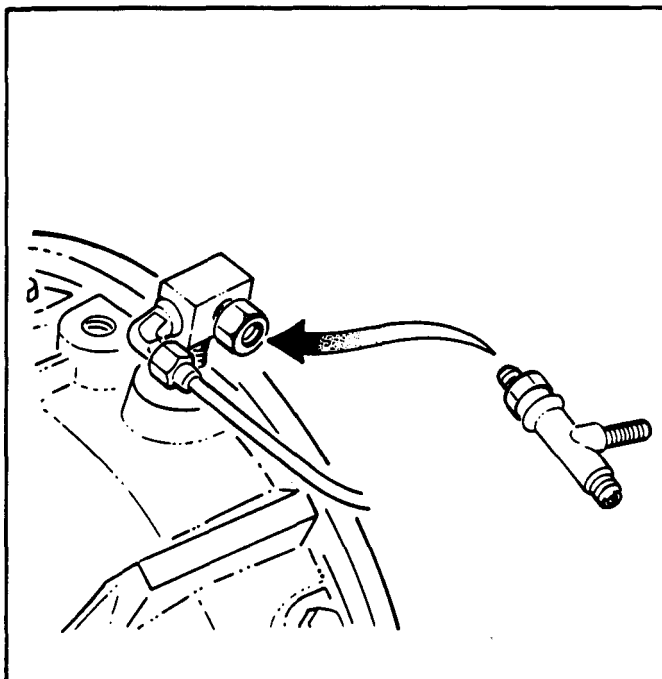
Personnel Required:

68B Aircraft Powerplant Repairer

68B Powerplant Inspector

Equipment Condition:

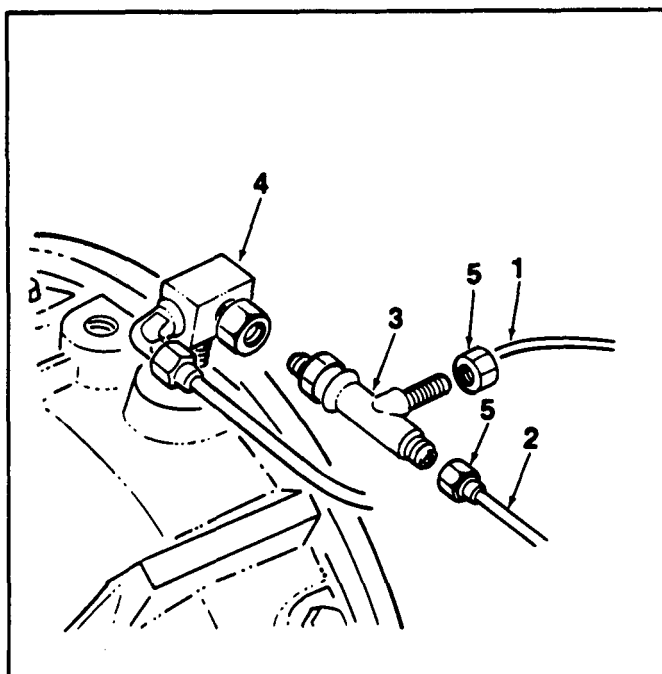
APU in Assembly Fixture (Task 1-22)



1. Install purge valve assembly (3) into compressor fitting (4). Torque to 135 inch-pounds.
2. Connect start fuel tubes (1) and (2). Torque B-nuts (5) to 80 inch-pounds.
3. Safety wire fitting assembly nut (4) (-100 APU only) with lockwire (E16).

FOLLOW-ON MAINTENANCE:

None



END OF TASK

INITIAL SETUP

Applicable Configurations:

APU 116305-100

Tools:

Engine Repairman's Tool Kit
NSN 5180-00-323-4944
Eye Protection

Materials:

Lint-Free Cloth (E13)

Personnel Required:

68B Aircraft Powerplant Repairer

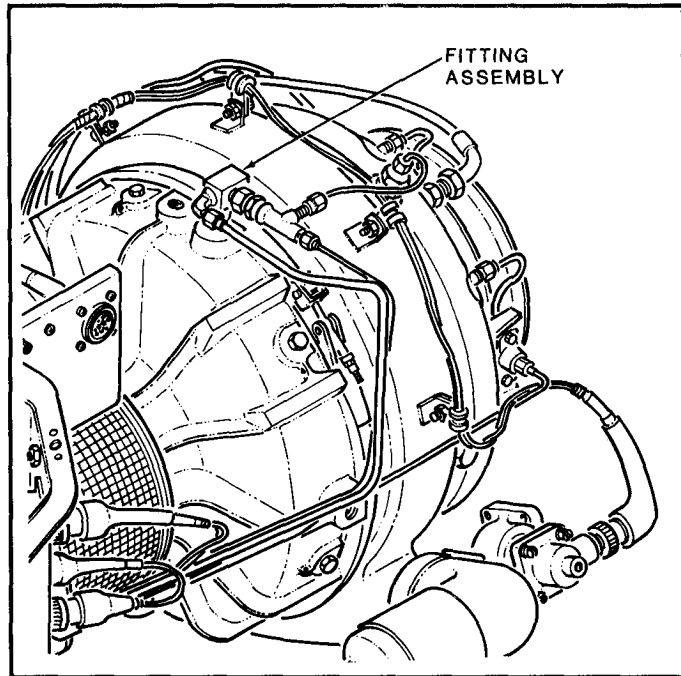
General Safety Instructions:

WARNING

Turbine fuels are very flammable. They cause drying and irritation of skin or eyes. Wear gloves and eye protection. Handle only in well-ventilated areas away from open 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.

Equipment Condition:

APU in Assembly Fixture (Task 1-22)



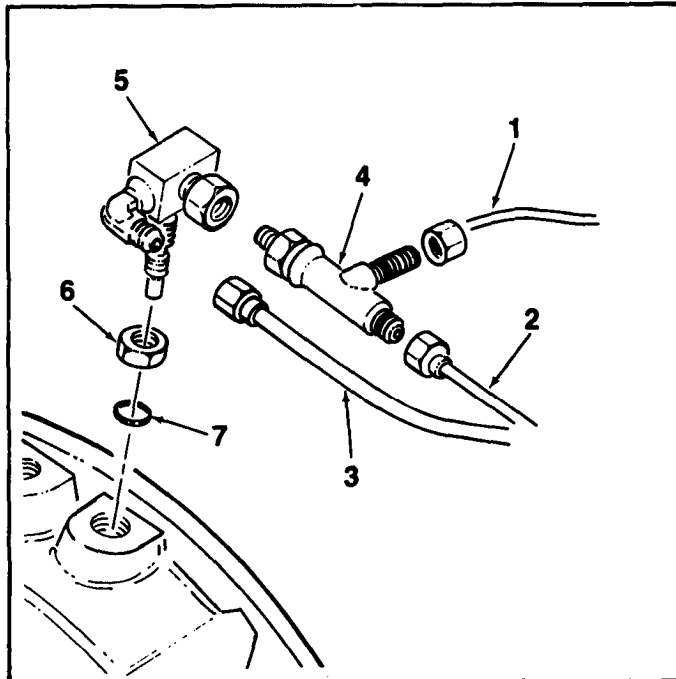
GO TO NEXT PAGE

1. Place a cloth (E13) below connection to absorb dripped fuel when disconnecting tube assemblies (1), (2) and (3) and purge valve assembly (4).

CAUTION

Handle tube assemblies carefully when disconnecting. Tube assemblies are easily bent or kinked.

2. Remove lockwire (E16) from fitting assembly nut (5) and discard.
3. Disconnect tube assemblies (1), (2) and (3).
4. Unscrew purge valve assembly (4) from compressor fitting assembly (5).
5. Loosen jam nut (6) and remove compressor fitting assembly (5).
6. Remove and discard packing (7).



FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-32 CLEAN AND INSPECT COMPRESSOR FITTING ASSEMBLY

2-32

INITIAL SETUP**Applicable Configurations:**

APU 116305-100

Tools:

Rubber Gloves
 NSN 8415-00-266-8677
 Container
 Eye Protection

Materials:

Methyl-Ethyl Ketone (MEK) (E9)
 Lint-Free Cloth (E13)

Personnel Required:

68B Aircraft Powerplant Repairer
 68B Powerplant Inspector

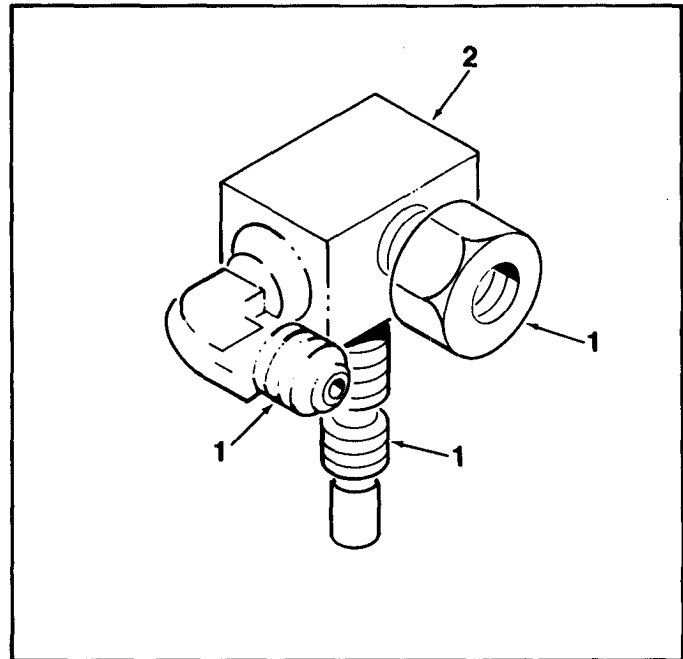
Equipment Condition:

Off APU Task

WARNING

MEK (E9) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. Wear gloves and eye protection. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

1. Soak in MEK (E9) for 5 minutes.
2. Remove from MEK and dry with clean lint-free cloth (E13).
3. Inspect thread fittings (1) for crossed or stripped threads. If damaged, discard.



GO TO NEXT PAGE

4. Inspect compressor fitting body
(2) for cracks or gouges. If
damaged, discard.

INSPECT

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-33 INSTALL COMPRESSOR FITTING ASSEMBLY

2-33

INITIAL SETUP

Applicable Configurations:

APU 116305-100

Tools:

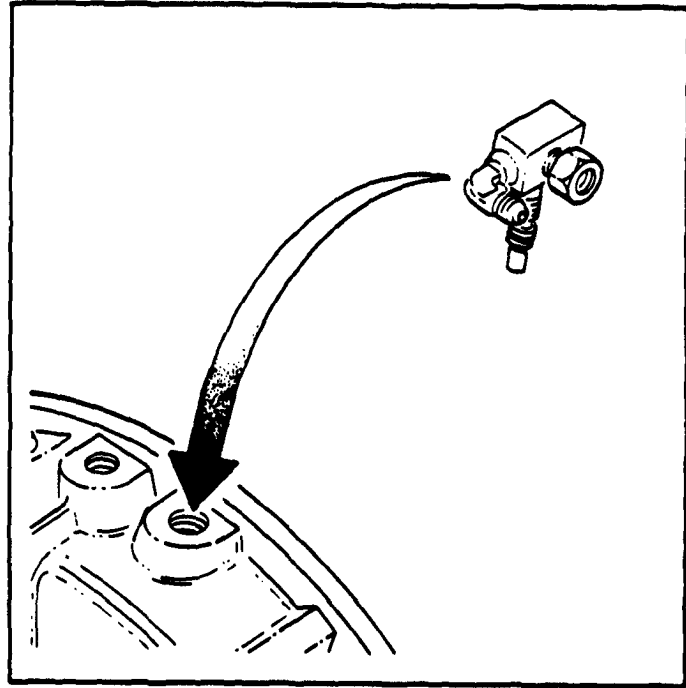
Engine Repairman's Tool Kit
 NSN 5180-00-323-4944
 Torque Wrench
 NSN 5120-00-542-4489

Materials:

Assembly Fluid, No. 1 (E31)
 Lockwire (E16)

Personnel Required:

68B Aircraft Powerplant Repairer
 68B Powerplant Inspector



References:

TM 55-2835-208-23P

Parts:

Packing

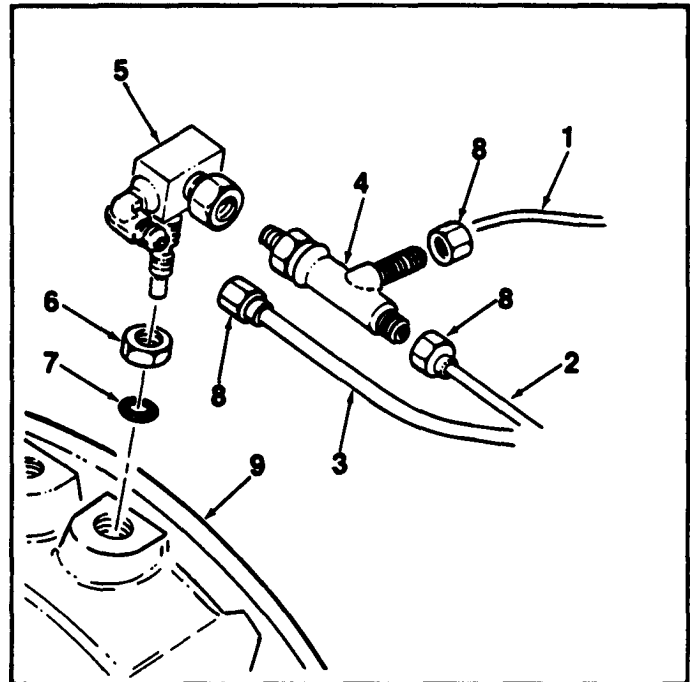
Equipment Condition:

APU in Assembly Fixture (Task 1-22)

GO TO NEXT PAGE

2-33 INSTALL COMPRESSOR FITTING ASSEMBLY (Continued) 2-33

1. Thread nut (6) onto compressor fitting (5). Using Assembly Fluid No. 1 (E31), lubricate and install packing (7).
2. Install compressor fitting (5) into turbine assembly (9).
3. Tighten nut (6) to 140 inch-pounds.
4. Install purge valve assembly (4). Torque to 135 inch-pounds.
5. Connect tube assemblies (1), (2) and (3). Torque B-nuts (8) to 80 inch-pounds.
6. Safety wire fitting assembly nut with lock-wire (E16).



FOLLOW-ON MAINTENANCE:

- Leak Check During Operation

END OF TASK

2-34 REMOVE RESTRICTOR

2-34

INITIAL SETUP**Applicable Configurations:**

- All except APU 116305-100

Tools:

Engine Repairman's Tool Kit
NSN 5180-00-323-4944
Eye Protection

Materials:

Lint-Free Cloth (E13)

Personnel Required:

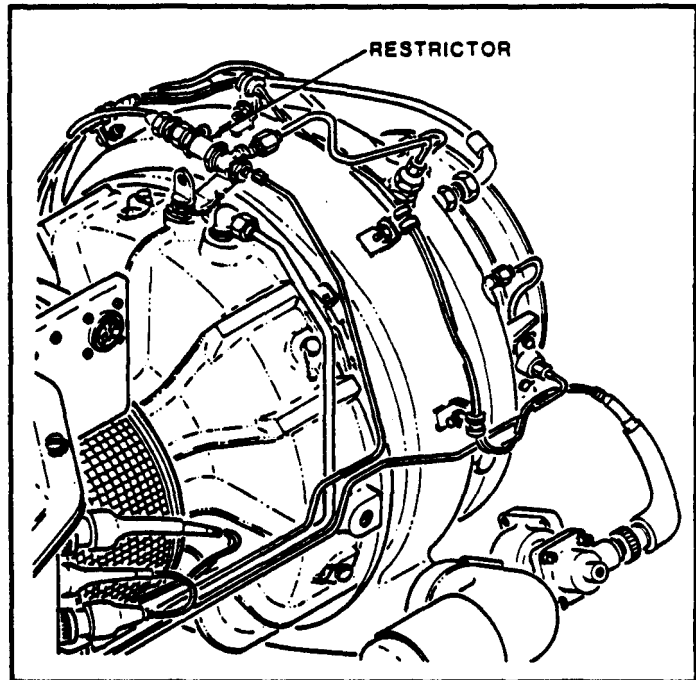
68B Aircraft Powerplant Repairer

General Safety Instructions:**WARNING**

Turbine fuels are very flammable. They cause drying and irritation of skin or eyes. Wear gloves and eye protection. Handle only in well-ventilated areas away from open 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.

Equipment Condition:

APU in Assembly Fixture (Task 1-22)



GO TO NEXT PAGE

1. Place a cloth (E13) below connection to absorb dripped fuel when disconnecting tube assembly (1).

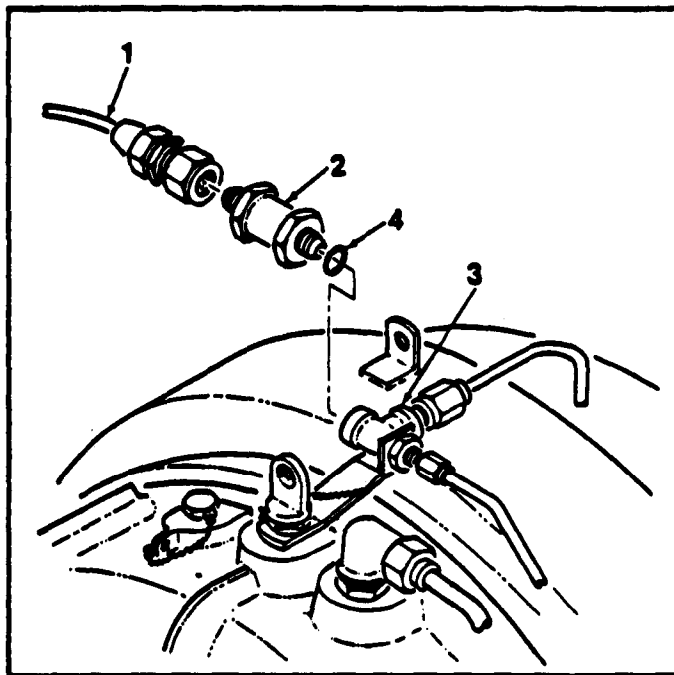
CAUTION

Handle tube assembly (1) carefully when disconnecting. Tube assemblies are easily bent or kinked.

2. Disconnect fuel drain tube assembly (1).
3. Remove restrictor (2) from tee fitting bracket assembly (3).
4. Remove and discard packing (4).

FOLLOW-ON MAINTENANCE:

None



END OF TASK

2-35 CLEAN AND INSPECT RESTRICTOR**2-35****INITIAL SETUP****Applicable Configurations:**

- All except APU 116305-100

Tools:

Rubber Gloves
 NSN 8415-00-266-8677
 Container
 Eye Protection

Materials:

Methyl-Ethyl Ketone (MEK) (E9)
 Lint-Free Cloth (E13)

Personnel Required:

68B Aircraft Powerplant Repairer
 68B Powerplant Inspector

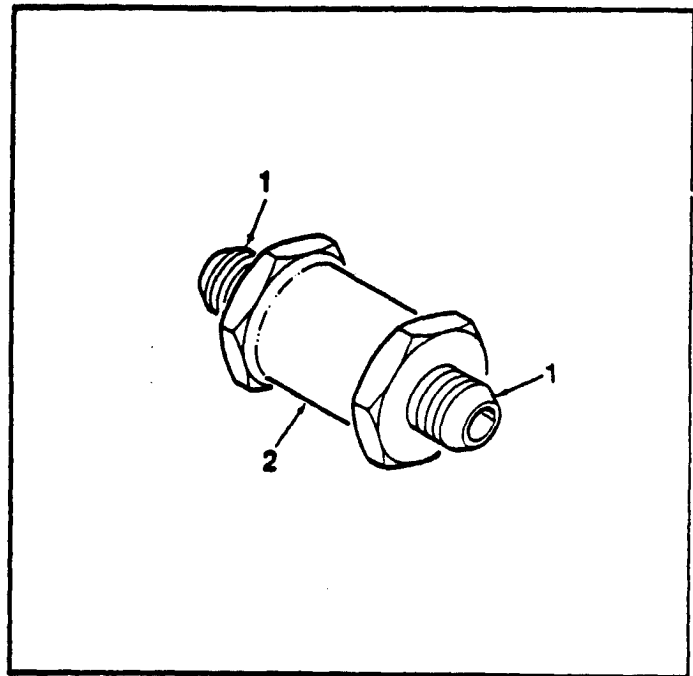
Equipment Condition:

Off APU Task

WARNING

MEK (E9) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. Wear gloves and eye protection. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

1. Soak restrictor in MEK (E9) for 5 minutes.
2. Remove from MEK and dry with clean lint-free cloth (E13).
3. Inspect thread fittings (1) for crossed or stripped threads. If damaged, discard.



GO TO NEXT PAGE

4. Inspect restrictor body (2)
for cracks or gouges. If damaged, discard.

INSPECT

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-36 INSTALL RESTRICTOR ASSEMBLY

2-36

INITIAL SETUP

Applicable Configurations:

- All except APU 116305-100

Tools:

Engine Repairman's Tool Kit
 NSN 5180-00-323-4944
 Torque Wrench
 NSN 5120-00-542-4489

Personnel Required:

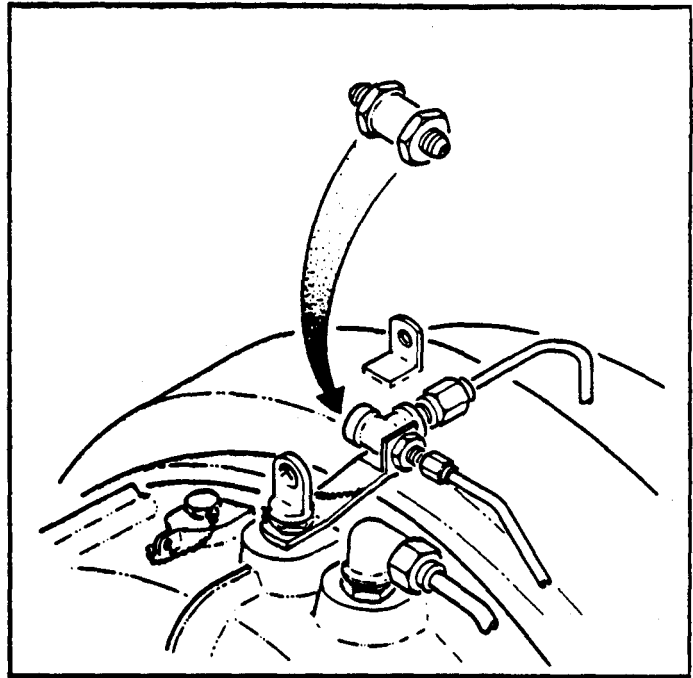
68B Aircraft Powerplant Repairer
 68B Powerplant Inspector

Materials:

Assembly Fluid No. 1 (E31)

Equipment Condition:

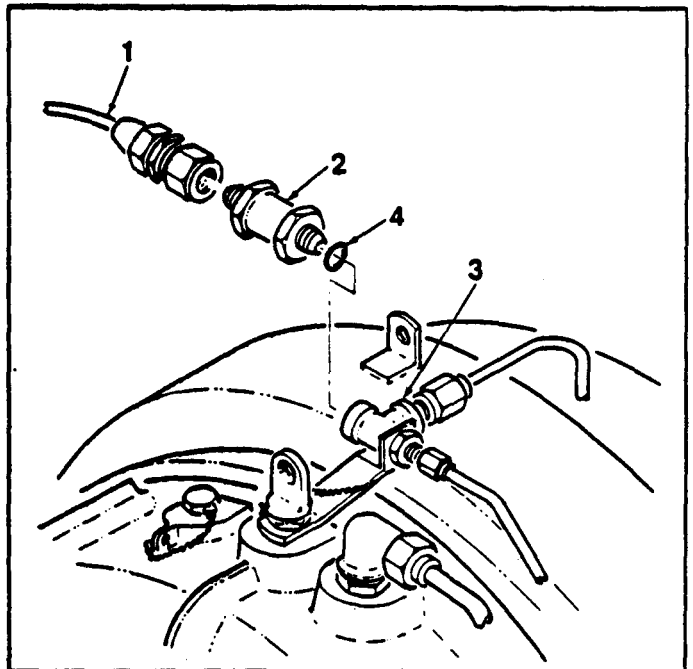
APU in Assembly Fixture (Task 1-22)



1. Using Assembly Fluid No. 1 (E31), lubricate new packing (4) and install. Install restrictor (2) into tee fitting bracket assembly (3).
2. Connect fuel drain tube assembly (1). Torque B-nuts to 80 inch-pounds.

FOLLOW-ON MAINTENANCE:

Leak Check During Operation



END OF TASK

INITIAL SETUP

Applicable Configurations:

■ All except APU 116305-100

Tools:

Engine Repairman's Tool Kit
NSN 5180-00-323-4944
Eye Protection

Materials:

Lint-Free Cloth (E13)

Personnel Required:

68B Aircraft Powerplant Repairer

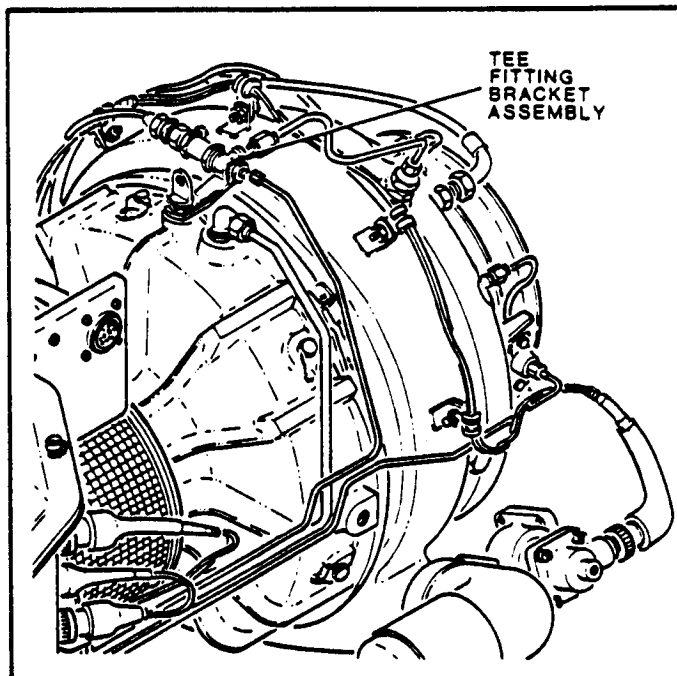
General Safety Instructions:

WARNING

Turbine fuels are very flammable. They cause drying and irritation of skin or eyes. Wear gloves and eye protection. Handle only in well-ventilated areas away from open 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.

Equipment Condition:

APU in Assembly Fixture (Task 1-22)



GO TO NEXT PAGE

2-37 REMOVE TEE FITTING BRACKET ASSEMBLY (Continued)

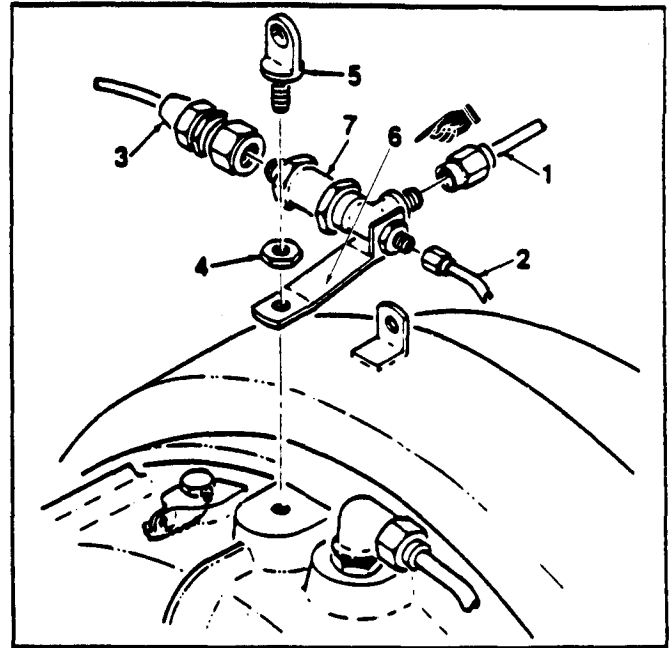
2-37

1. Place a cloth (E13) below connection to absorb dripped fuel when disconnecting tube assemblies (1), (2) and (3).

CAUTION

Handle tube assemblies (1), (2) and (3) carefully when disconnecting. Tube assemblies are easily bent or kinked.

2. Disconnect tube assemblies (1), (2) and (3).
3. Remove lockwire from jam nut (4). Loosen jam nut (4) and remove eye-bolt (5).
4. Remove tee fitting bracket assembly (6) with restrictor (7) attached. Remove restrictor as required (Task 2-34).

**FOLLOW-ON MAINTENANCE:**

None

END OF TASK

INITIAL SETUP

Materials:

Applicable Configurations:

Methyl-Ethyl Ketone (MEK) (E9)
Lint-Free Cloth (E13)

All except APU 116305-100

Tools:

Personnel Required:

Rubber Gloves
NSN 8415-00-266-8677
Container
Eye Protection

68B Aircraft Powerplant Repairer
68B Powerplant Inspector

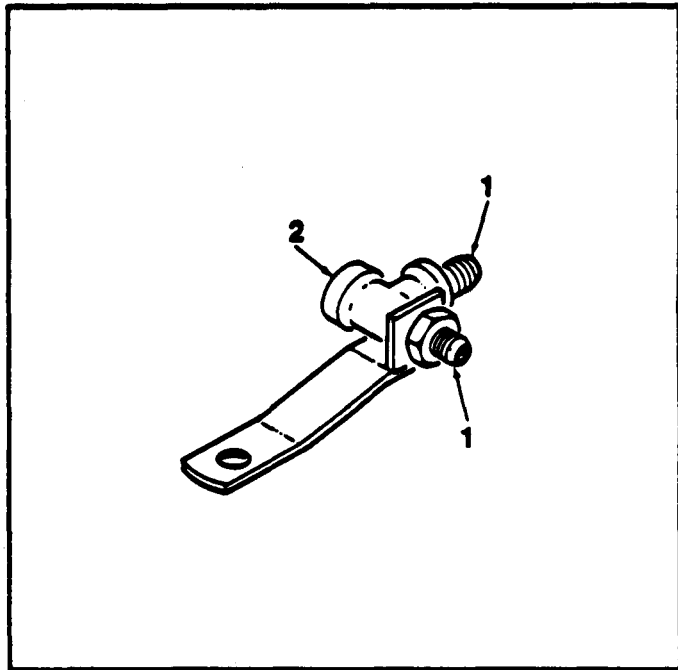
Equipment Condition:

Off APU Task

WARNING

MEK (E9) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. Wear gloves and eye protection. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

1. Soak tee fitting bracket assembly in MEK (E9) for 5 minutes.
2. Remove from MEK and dry with clean lint-free cloth (E13).
3. Inspect threaded fittings (1) for crossed or stripped threads. If damaged discard.



GO TO NEXT PAGE

2-38 CLEAN AND INSPECT TEE FITTING BRACKET ASSEMBLY (Continued) 2-38

1. Inspect tee fitting bracket assembly (2) for cracks and sharp edged gouges. If damaged, discard.

INSPECT

FOLLOW ON MAINTENANCE

None

END OF TASK

INITIAL SETUP

Applicable Configuration:

All except APU 116305-100

Tools:

Engine Repairman's Tool Kit
NSN 5180-00-323-4944

Torque Wrench
NSN 5120-00-542-4489

Materials:

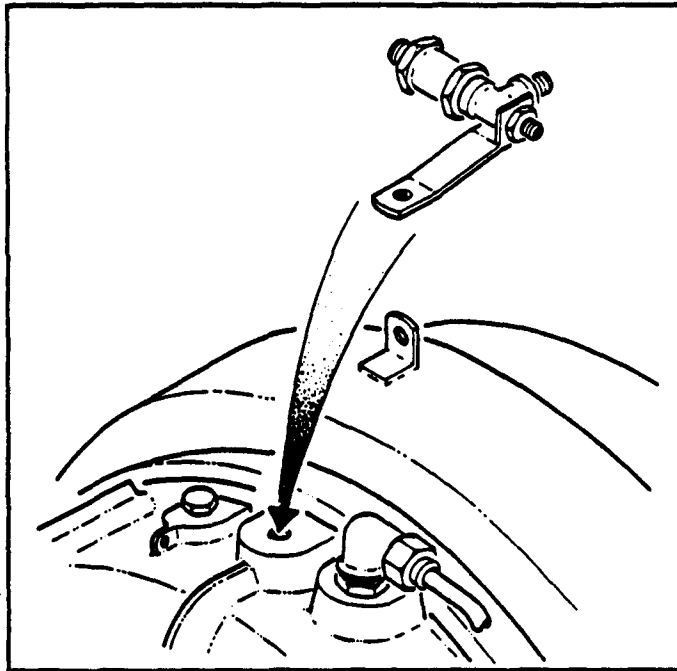
Lockwire (E16)

Personnel Required:

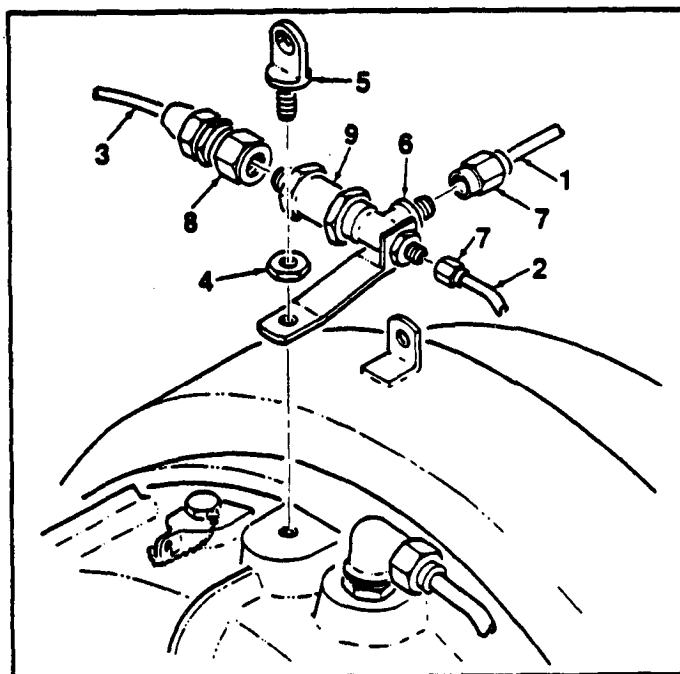
68B Aircraft Powerplant Repairer
68B Powerplant Inspector

Equipment Condition:

APU in Assembly Fixture (Task 1-22)



1. Install restrictor (9) if removed.
2. Install eye-bolt (5) and jam nut (4) in tee fitting bracket assembly (6).
3. Screw in eye-bolt (5) until it bottoms out and back out until aligned as shown.
4. Torque jam nut (4) to 135 inch-pounds.
5. Safety wire jam nut (4) with lockwire (E16).
6. Connect tube assemblies (3), (1) and (2). Torque B-nuts (7) to 60 inch-pounds, and B-nut (8) to 80 inch-pounds.



FOLLOW-ON MAINTENANCE:

Leak Check During Operation

END OF TASK

2-40 REMOVE COMPRESSOR FITTING ASSEMBLY

2-40

INITIAL SETUP**Applicable Configurations:**

■ All except APU 116305-100

Tools:Engine Repairman's Tool Kit
NSN 5180-00-323-4944**Materials:**

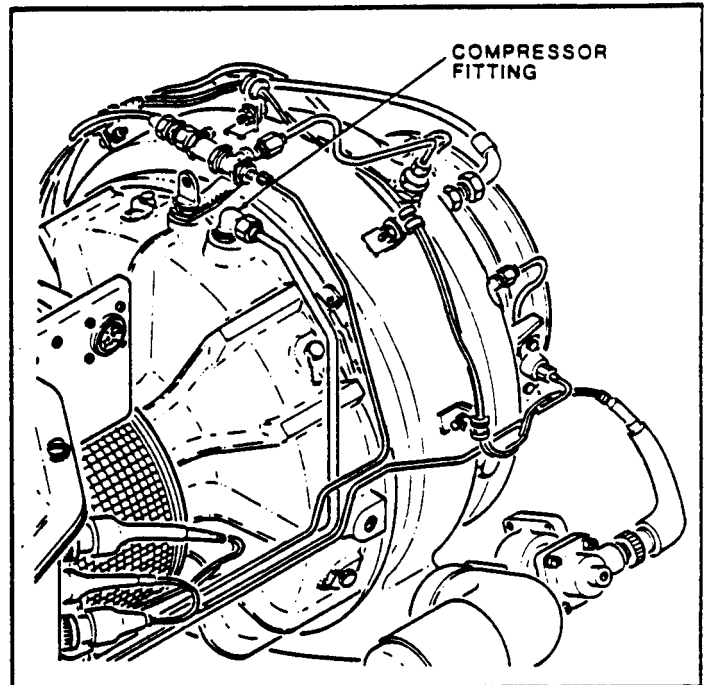
Lint-Free Cloth (E13)

Personnel Required:

68B Aircraft Powerplant Repairer

Equipment Condition:

APU in Assembly Fixture (Task 1-22)



CAUTION

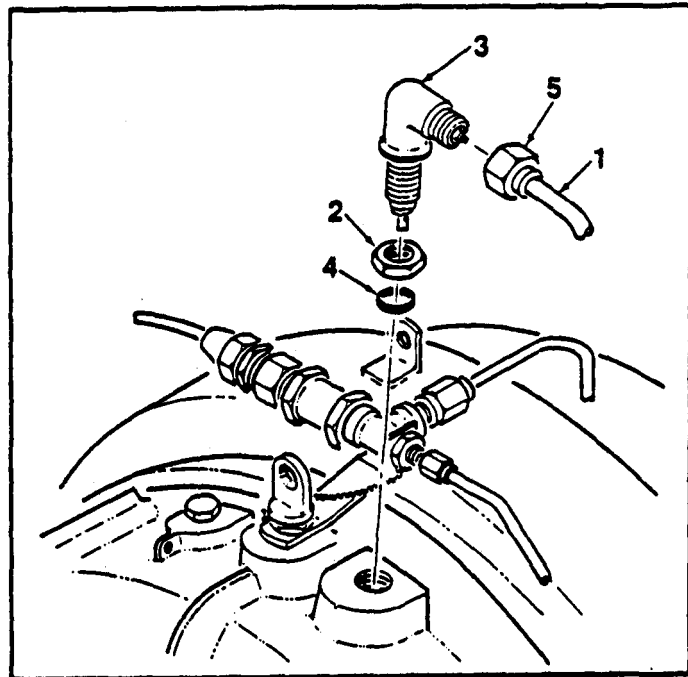
Handle tube assemblies carefully when disconnecting. Tube assemblies are easily bent or kinked.

GO TO NEXT PAGE

1. Disconnect tube assembly (1).
2. Loosen nut (2) and remove compressor fitting assembly (3).
3. Remove and discard packing (4).

FOLLOW-ON MAINTENANCE:

None



END OF TASK

2-41 CLEAN AND INSPECT COMPRESSOR FITTING ASSEMBLY

2-41

INITIAL SETUP

Materials:

Applicable Configurations:

Methyl-Ethyl Ketone (MEK) (E9)
Lint-Free Cloth (E13)

■ AU except APU 116305-100

Tools:

Rubber Gloves
NSN 8415-00-266-8677
Container
Eye Protection

Personnel Required:

68B Aircraft Powerplant Repairer
68B Powerplant Inspector

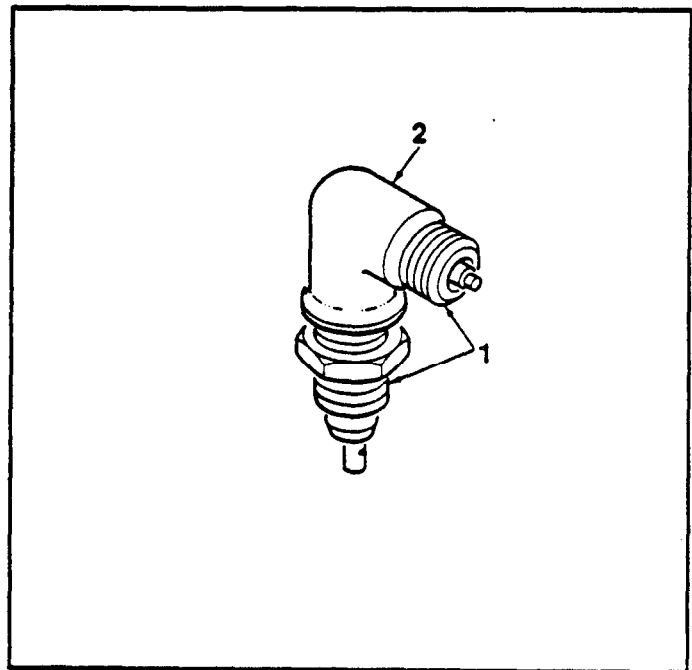
Equipment Condition:

Off APU Task

WARNING

MEK (E9) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. Wear gloves and eye protection. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

1. Soak compressor fitting in MEK (E9) for 5 minutes.
2. Remove from MEK and dry with clean lint-free cloth (E13).
3. Inspect thread fittings (1) for crossed or stripped threads. If damaged, discard.



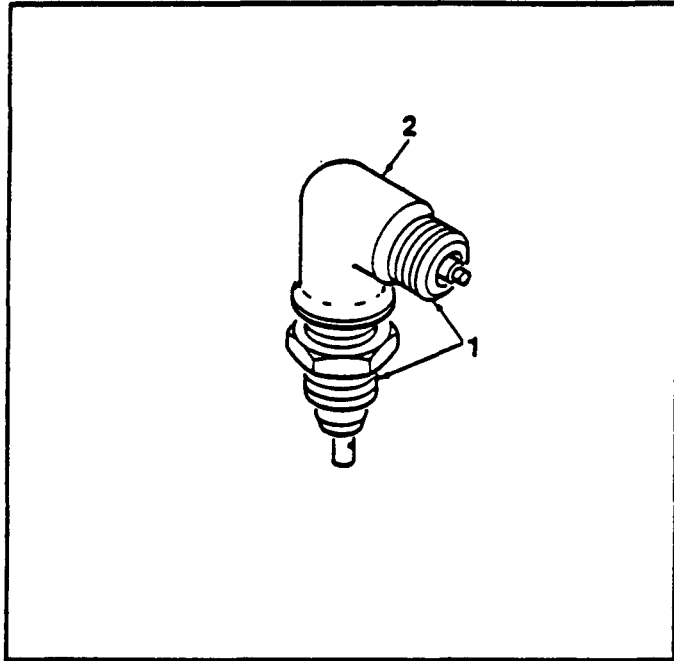
GO TO NEXT PAGE

4. Inspect compressor fitting body (2) for cracks or gouges. If damaged, discard.

INSPECT

FOLLOW-ON MAINTENANCE:

None



END OF TASK

2-42 INSTALL COMPRESSOR FITTING ASSEMBLY

2-42

INITIAL SETUP

Applicable Configuration:

- All except APU 116305-100

Tools:

- Engine Repairman's Tool Kit
NSN 5180-00-323-4944
- Torque Wrench
NSN 5120-00-542-4489

Personnel Required:

- 68B Aircraft Powerplant Repairer
- 68B Powerplant Inspector

Materials:

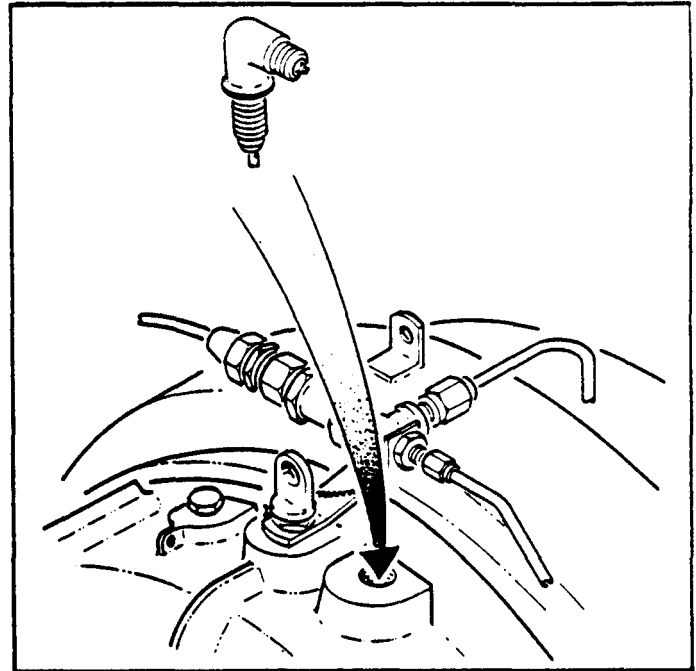
- Assembly Fluid, No. 1 (E31)

Parts:

- Packing

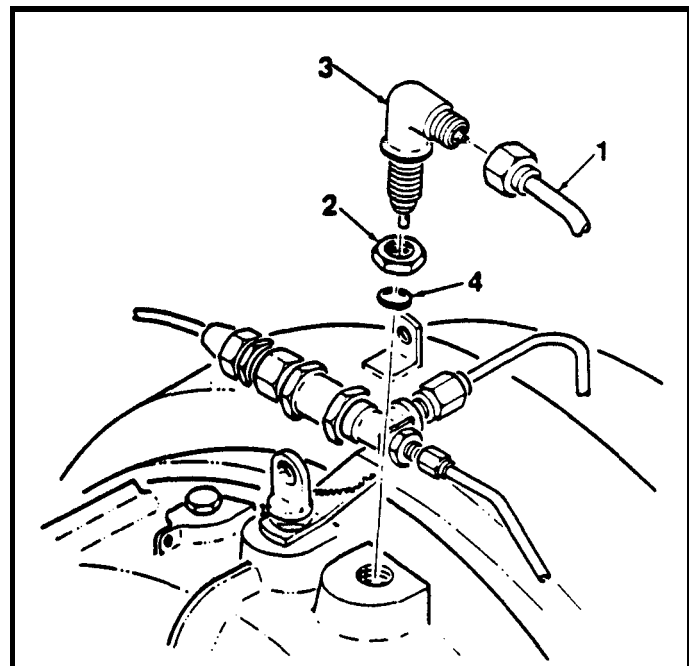
Equipment Condition:

- APU in Assembly Fixture (Task 1-22)



1. Using Assembly Fluid No. 1 (E31), lubricate packing (4) and install packing (4) and nut (2) on compressor fitting assembly (3).
2. Install compressor fitting assembly (3). Do not tighten yet.
3. Connect tube assembly (1), torque B-nut (5) to 80 inch-pounds.

GO TO NEXT PAGE



4. Torque nut (2) to 140 inch-
pounds.

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-43 REMOVE FUEL COVER ASSEMBLY

2-43

INITIAL SETUP

Applicable Configurations:

All

Tools:

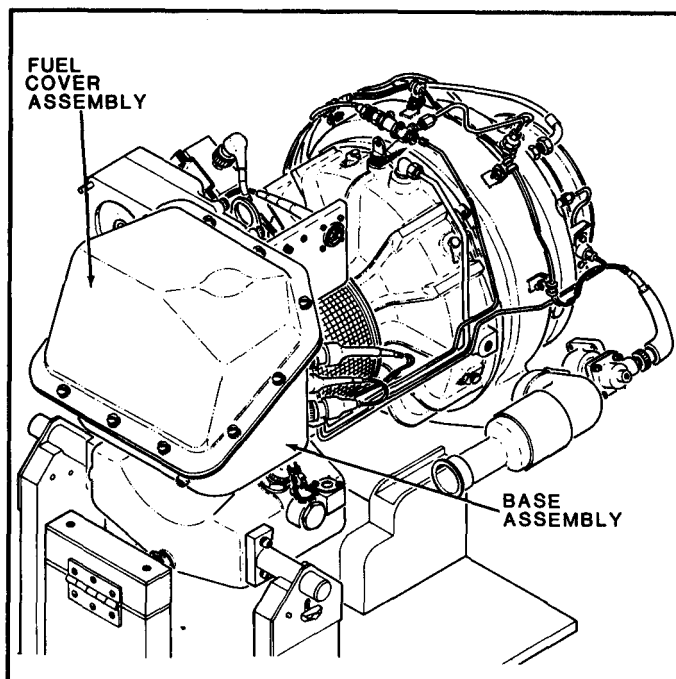
Engine Repairman's Tool Kit
NSN 5180-00-323-4944

Personnel Required:

68B Aircraft Powerplant Repairer

Equipment Condition:

APU in Assembly Fixture (Task 1-22)

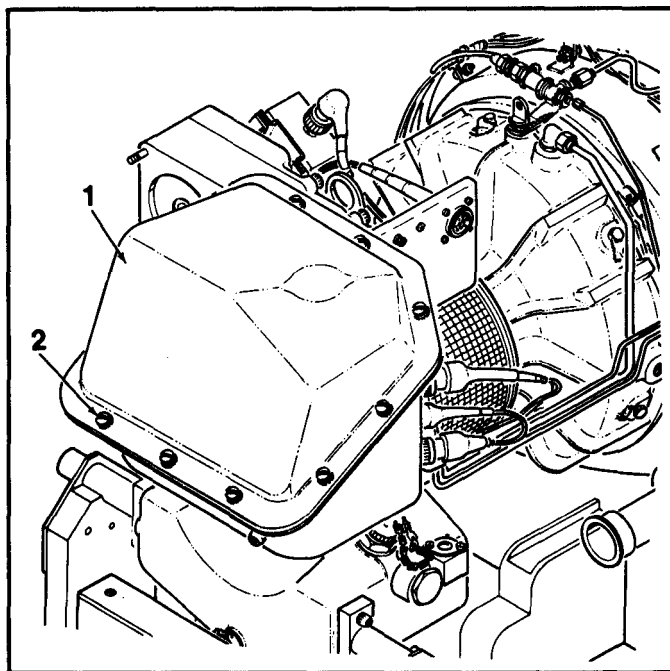


1. Remove cover assembly (1) by unlocking slotted headed studs (2).

FOLLOW-ON MAINTENANCE:

None

END OF TASK



INITIAL SETUP

Applicable Configurations:

All

Tools:

- Rubber Gloves
NSN 8415-00-266-8677
- Container
- Eye Protection

Materials:

- Lint-Free Cloth (E13)
- Cleaning Solvent (E20)

Personnel Required:

- 68B Aircraft Powerplant Repairer
- 68B Powerplant Inspector

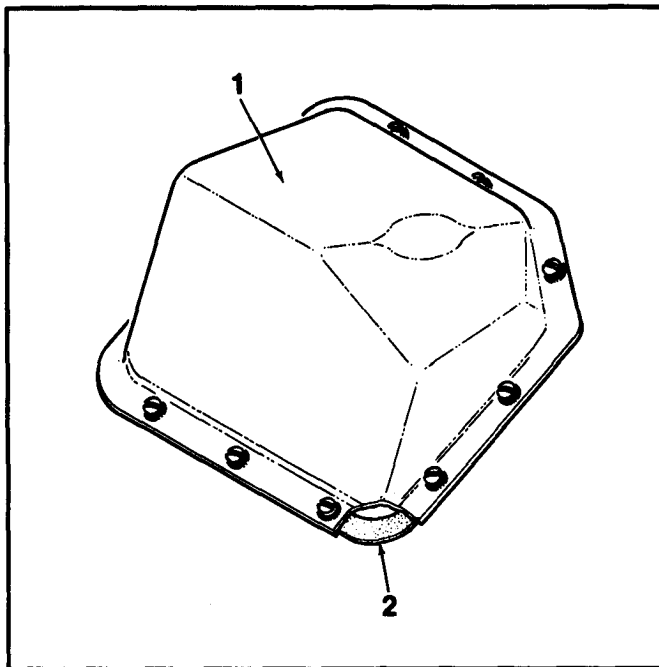
Equipment Condition:

Off APU Task

WARNING

Cleaning solvent (E20) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. Wear gloves and eye protection. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

1. Clean cover assembly with cloth (E13) dampened with cleaning solvent (E20).
2. Inspect cover (1) for dents or cracks. If damaged, repair (Task 2-45).



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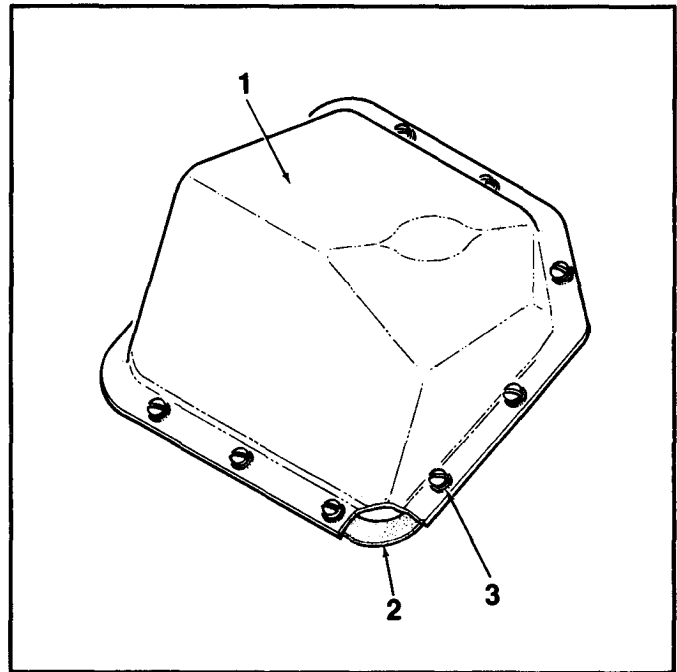
2-44 CLEAN AND INSPECT FUEL COVER ASSEMBLY (Continued)

2-44

3. Inspect for missing or bent studs (3). If damaged, replace (Task 2-45).
4. Inspect for corrosion (Task 1-35).
5. Inspect gasket (2) for security of attachment. Replace if loose.

FOLLOW-ON MAINTENANCE:

None

**END OF TASK**

INITIAL SETUP

Applicable Configurations:

All

Tools:

- Engine Repairman's Tool Kit
NSN 5180-00-323-4944
- Welding Shop Set
NSN 4920-00-163-5093
- Rubber Gloves
NSN 8415-00-166-8678
- Eye Protection

Parts:

- Gasket
- Studs
- Split Ring
- Spring
- Washer

Materials:

- Welding Rod (E18)
- Welding Flux (E17)
- Naphtha (E29)
- Adhesive (E30)

Personnel Required:

- 44E Welder
- 68B Powerplant Inspector

References:

- TM 55-1500-204-25/1
- TM 55-2835-208-23P

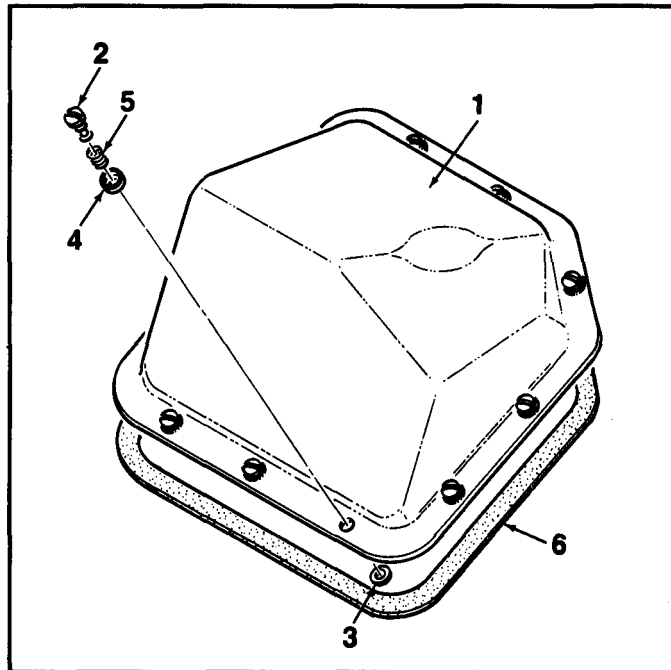
Equipment Condition:

Off APU Task

1. Repair cracks in cover (1) by welding in accordance with TM 55-1500-204-25/1.
2. Replace damaged studs (2) by removing split ring (3), washer (4) and spring (5).



Naphtha (E29) is flammable and toxic. Use only in well-ventilated area away from heat and open flame. Wear gloves and eye protection. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. get medical attention for eyes.



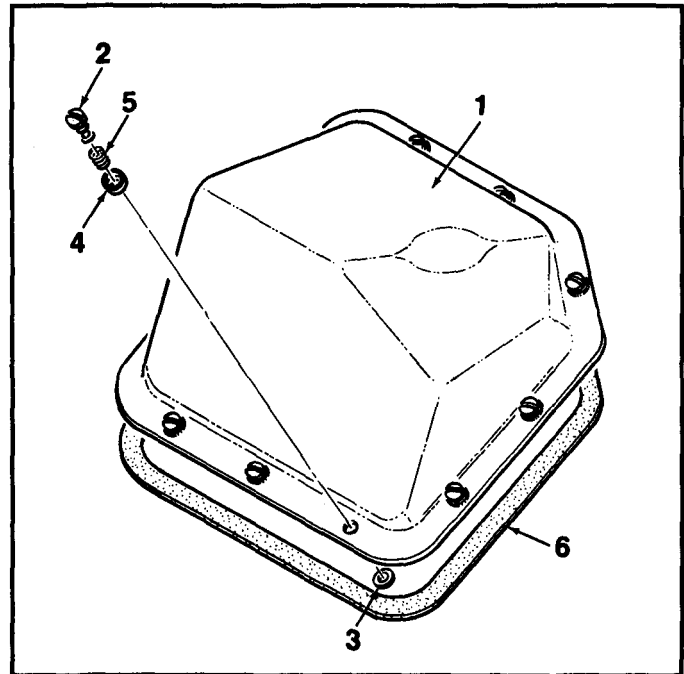
GO TO NEXT PAGE

3. Replace damaged gasket (6).
Remove traces of adhesive using Naphtha (E29).
4. Apply adhesive (E30) to gasket area of cover (1) and install gasket (6). Allow to air-dry.

INSPECT

FOLLOW-ON MAINTENANCE:

None



END OF TASK

INITIAL SETUP

Personnel Required:

Applicable Configurations:

68B Aircraft Powerplant Repairer
68B Powerplant Inspector

All

Equipment Condition:

Tools:

APU in Assembly Fixture (Task 1-22)

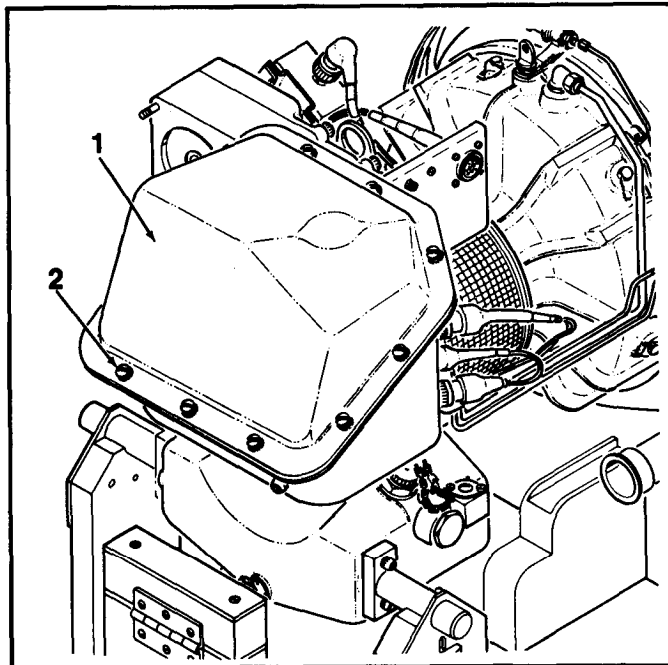
Engine Repairman's Tool Kit
NSN 5180-00-323-4944

-
1. Install cover (1) and secure with studs (2).

INSPECT

FOLLOW-ON MAINTENANCE:

None



END OF TASK

2-47 REMOVE FUEL DRAIN CHECK VALVE ASSEMBLY

2-47

INITIAL SETUP

Applicable Configurations:

All

Tools:

Engine Repairman's Tool Kit
NSN 5180-00-323-4944

Materials:

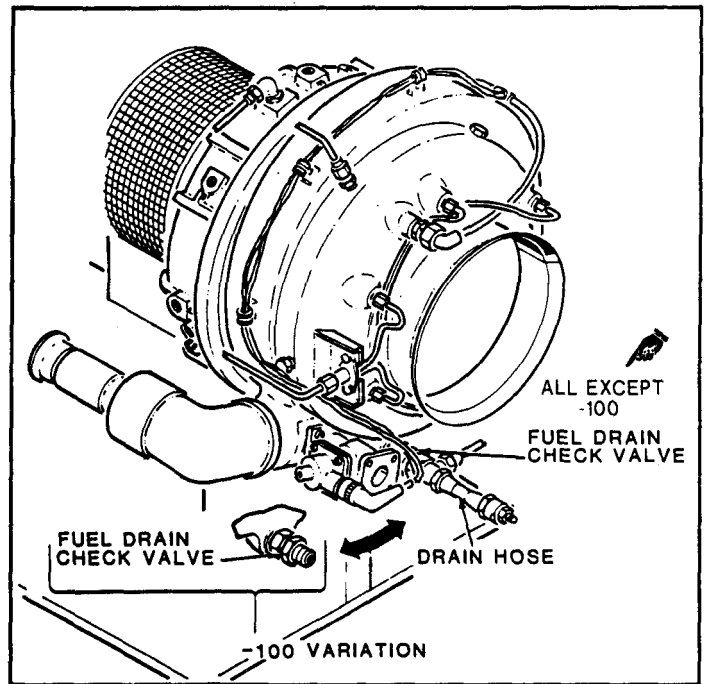
None

Personnel Required:

68B Aircraft Powerplant Repairer

Equipment Condition:

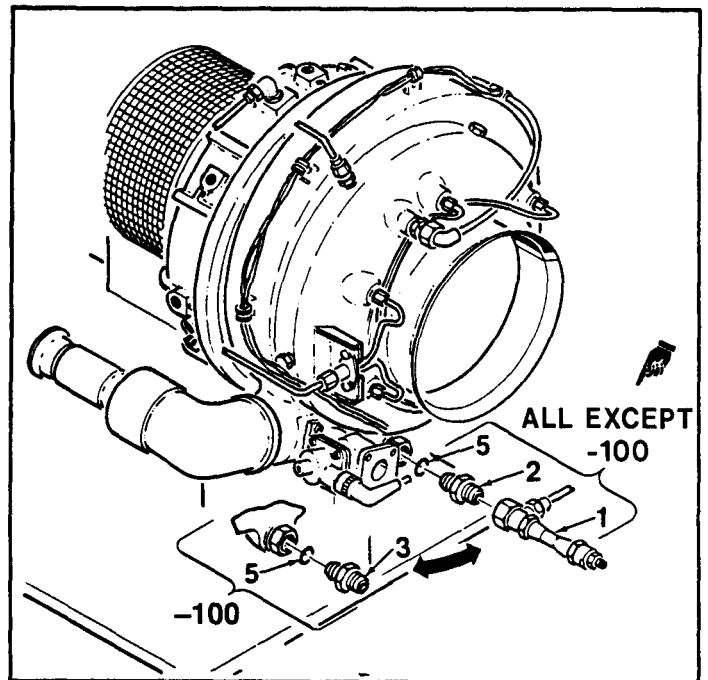
APU in Assembly Fixture (Task 1-22)



1. On all except the 116305-100 configuration. Disconnect drain hose assembly (1) and remove fuel drain check valve assembly (2).
2. On the 116305-100 configuration, remove fuel drain check valve assembly (3).
3. Remove and discard packing (5).

FOLLOW-ON MAINTENANCE:

None



END OF TASK

INITIAL SETUP

Materials:

Applicable Configurations:

Dry-Cleaning Solvent (E20)

All

Personnel Required:

Tools:

68B Aircraft Powerplant Repairer

Engine Repairman's Tool Kit

68B Powerplant Inspector

NSN 5180-00-323-4944

Rubber Gloves

NSN 8415-00-266-8677

Container

Source of Low Pressure Compressed

Air

Eye Protection

Equipment Condition:

Off APU Task

WARNING

Dry-cleaning solvent (E20) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area away from heat and open flame. Wear gloves and eye protection. In case of contact, immediately flush skin or eyes with water for at least 15 minutes. Get medical attention for eyes.

1. Wearing gloves, flush fuel drain check valve assembly with dry-cleaning solvent (E20).

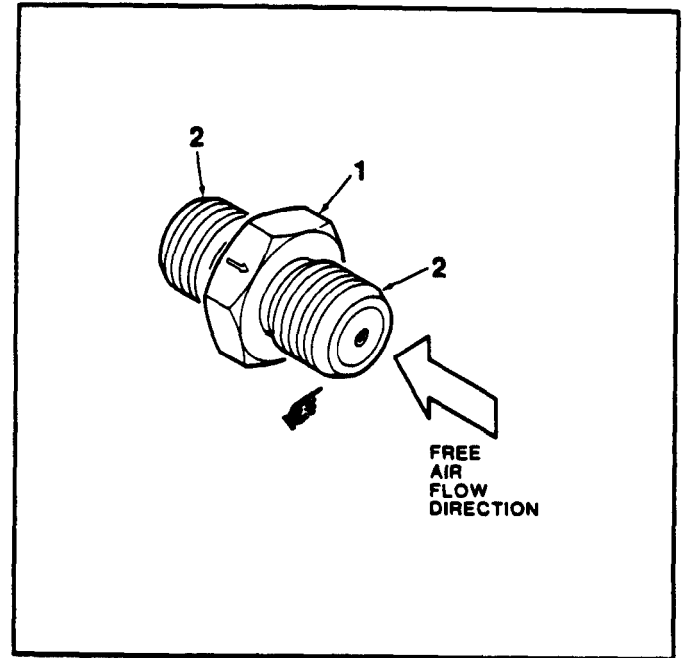
GO TO NEXT PAGE

2-48 CLEAN AND INSPECT FUEL DRAIN CHECK VALVE ASSEMBLY (Continued) 2-48

WARNING

Use goggles to protect eyes and face when using compressed air. Do not exceed 30 psig. Do not direct airstream towards yourself or another person. Failure to comply may result in injury to personnel.

2. Dry with low pressure compressed air at 30 psig maximum pressure.
3. Direct compressed air 10 psig minimum into fuel drain check valve assembly in direction of free air flow. Air shall flow freely.
4. Inspect fuel drain check valve assembly for (1) cracks or stripped threads (2). If damaged, discard.
5. Direct compressed air at 5 psig maximum into fuel drain check valve assembly in opposite direction of free air flow. Air shall flow freely.
6. Increase compressed air to 10 psig minimum. Air shall force fuel drain check valve assembly closed.



FOLLOW-ON MAINTENANCE:

None

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Engine Repairman's Tool Kit
NSN 5180-00-323-4944
Torque Wrench
NSN 5120-00-542-4489

Materials:

Packing
Assembly Fluid, No. 1 (E31)
Anti-Seize Compound (E15)

Personnel Required:

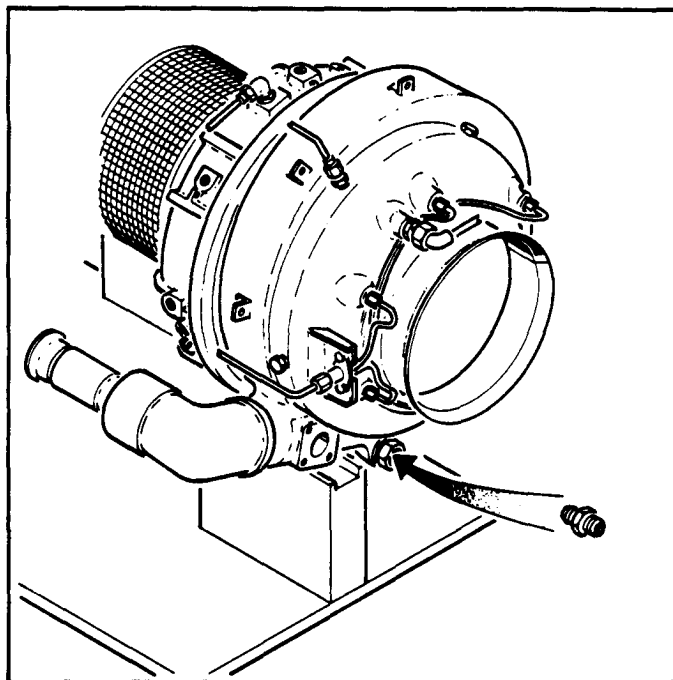
68B Aircraft Powerplant Repairer
68B Powerplant Inspector

Reference:

TM 55-2835-208-23P

Equipment Condition:

APU in Assembly Fixture (Task 1-22)

**WARNING**

To prevent injury to personnel or damage to APU, make certain fuel drain check valve assembly is installed with larger orifice toward combustor housing (arrow pointing away from combustor housing).

GO TO NEXT PAGE

2-49. INSTALL FUEL DRAIN CHECK VALVE ASSEMBLY (Continued)

2-48

1. Using Assembly Fluid No. 1 (E31), lubricate packing (5) and install on fuel drain check valve assembly (2).
2. Apply a light coat of antiseize compound (E15) to threads of fuel drain check valve assembly (2).
3. Install fuel drain check valve assembly (2) with arrow pointing away from combustor housing (see insert). Torque to 190 inch-pounds.
4. On all except the 116305-100 configuration, connect drain hose assembly (1) to fuel drain check valve assembly (2).

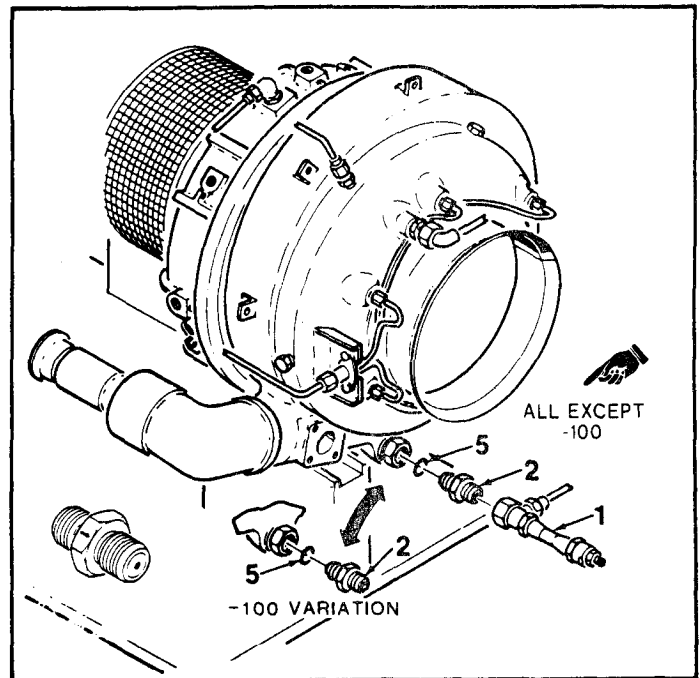
NOTE

When replacing -100 APU with -200 or -201, be sure to remove and retain tubing from check valve to firewall.

INSPECT

FOLLOW ON MAINTENANCE

None



END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Engine Repairman's Tool Kit
NSN 5180-00-323-4944

Materials:

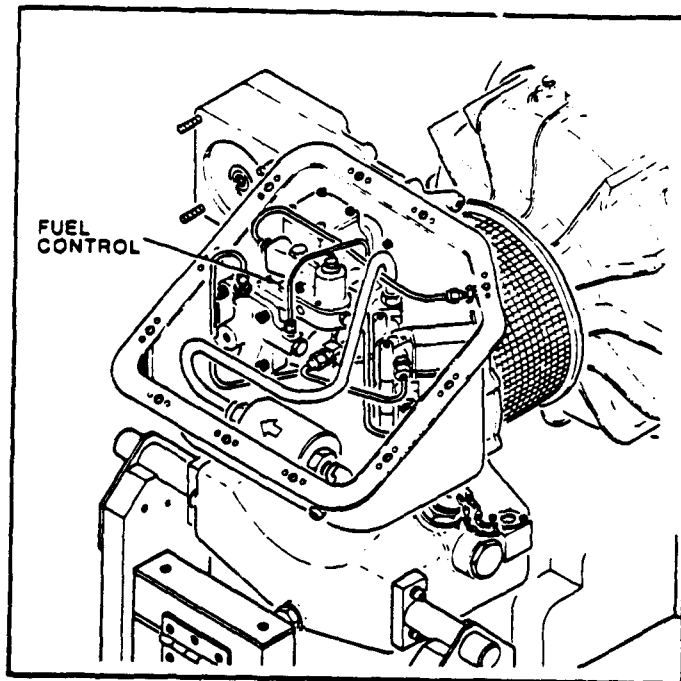
None

Personnel Required:

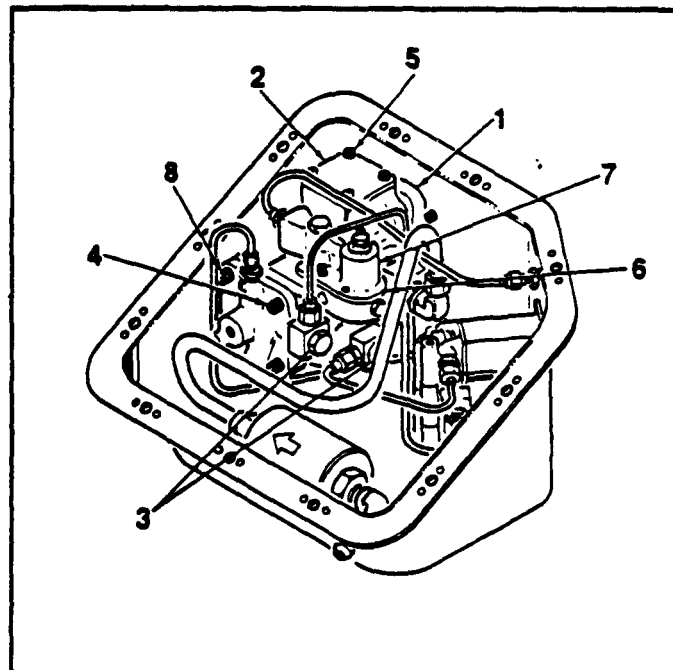
68B Aircraft Powerplant Repairer
68B Powerplant Inspector

Equipment Condition:

APU in Assembly Fixture (Task 1-22)
Remove Fuel Cover (Task 2-43)



1. Remove fuel control cover (Task 2-43).
2. Inspect for leakage in area (1) where fuel pump (2) mounts on drive pad. If leakage is found, remove fuel control (Task 2-51) and replace (Task 2-57).
3. Check bolts (4, 8) for tightness. If loose, torque (4) to 25 inch-pounds and (8) to 4.5 inch-pounds.
4. Check screws (5) for tightness. If loose, torque to 4.5 inch-pounds.

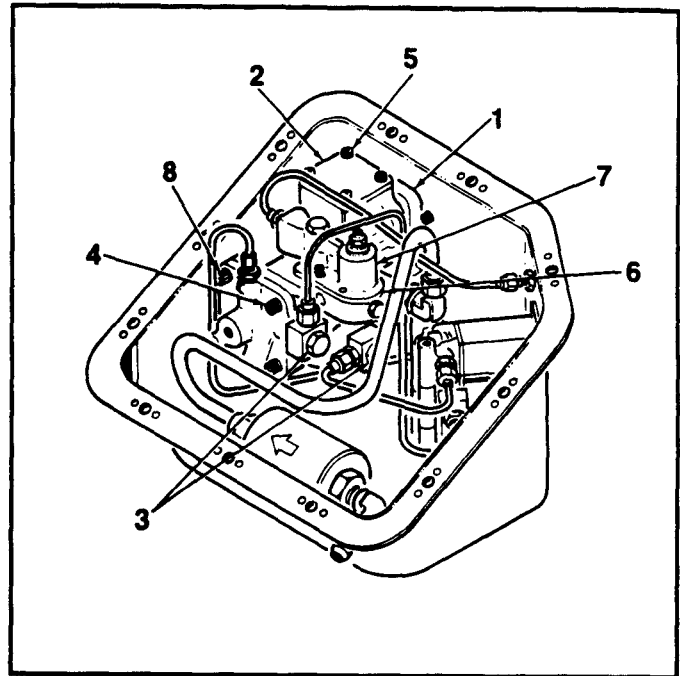


GO TO NEXT PAGE

2-50 INSPECT FUEL CONTROL (Continued)

2-50

5. Check for signs of leaks at seam (6) between fuel pump (2) and acceleration control assembly (7). If leakage is found, remove fuel control (Task 2-51), disassemble (Task 2-52) and assemble (Task 2-56) with new packing. Install (Task 2-57).
6. Check fuel connection bolts (3) for tightness. If loose, torque to 40 inch-pounds.
7. Inspect for leakage from fuel pump drain boss on the bottom of the fuel pump. No more than 4 drops per minute leakage is allowable. If leakage from the fuel pump drain exceeds 4 drops per minute, then remove fuel control (Task 2-51), disassemble fuel control (Task 2-52) to remove the fuel pump. Assemble the fuel control (Task 2-56) with new packings and install the fuel control (Task 2-57).



FOLLOW-ON MAINTENANCE:

None

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Engine Repairman's Tool Kit
NSN 5180-00-323-4944
Eye Protection

Materials:

Lint Free Cloth (E13)

Personnel Required:

68B Aircraft Powerplant Repairer

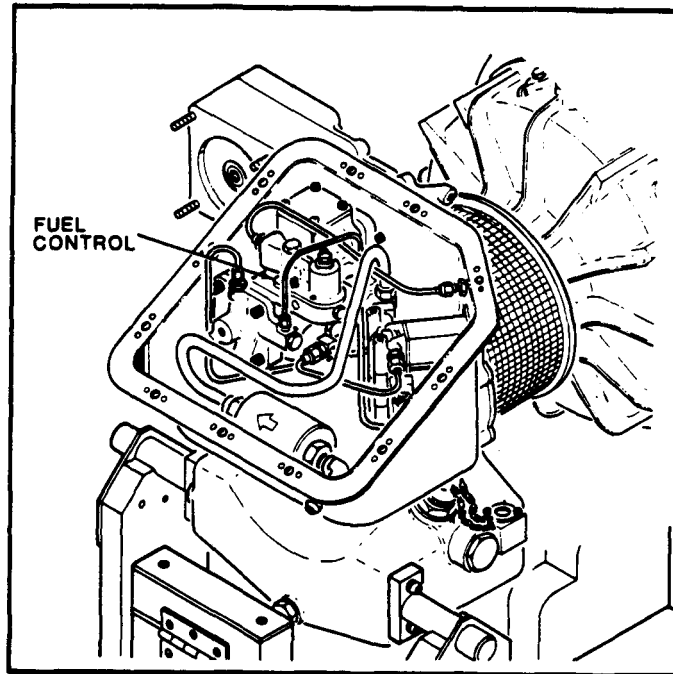
General Safety Instructions:

WARNING

Turbine fuels are very flammable. They cause drying and irritation of skin and eyes. Wear gloves and eye protection. Handle only in well-ventilated areas away from heat and open flame. Drain and store in approved metal 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.

Equipment Condition:

APU in Assembly Fixture (Task 1-22)
Remove Fuel Cover (Task 2-43)



GO TO NEXT PAGE

NOTE

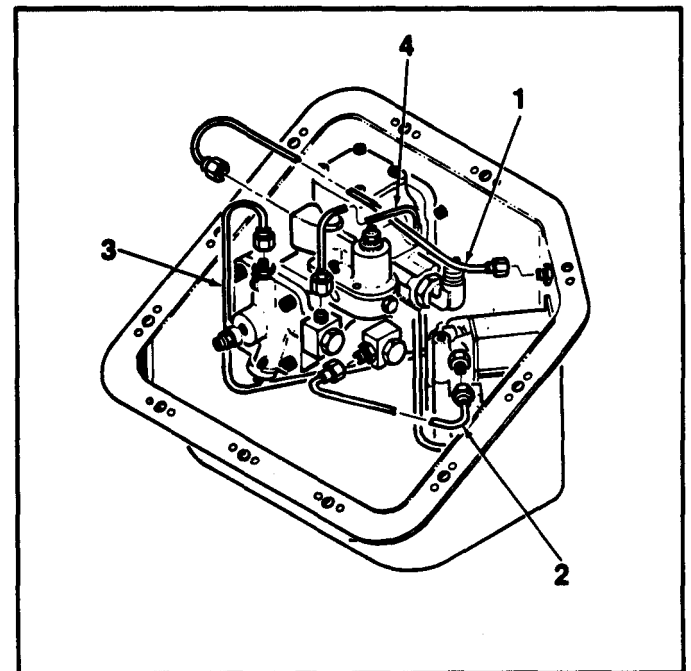
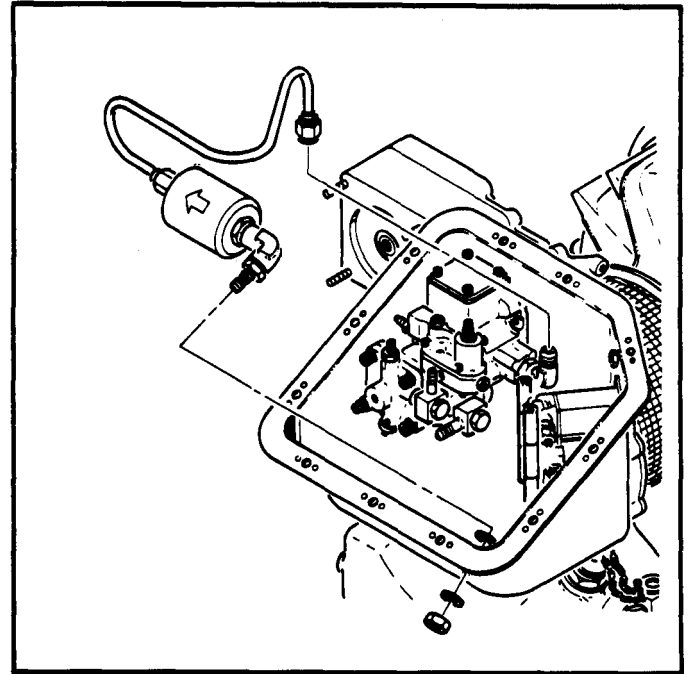
The acceleration control unit and fuel pump assembly are removed from the APU as a combined unit. They are separated after removal (Task 2-52).

1. Remove fuel control cover (Task 2-43).
2. Remove fuel inlet filter (Task 2-58).
3. Place a cloth (E13) below connections to absorb dripping fuel when disconnecting tubes.

CAUTION

- Handle tubes (1 thru 4) carefully when disconnecting. Tubes are easily bent or kinked.
- 4. Remove tube assemblies (1), (2), (3), and (4).
- 5. Cover tube ends to prevent FOD.

GO TO NEXT PAGE



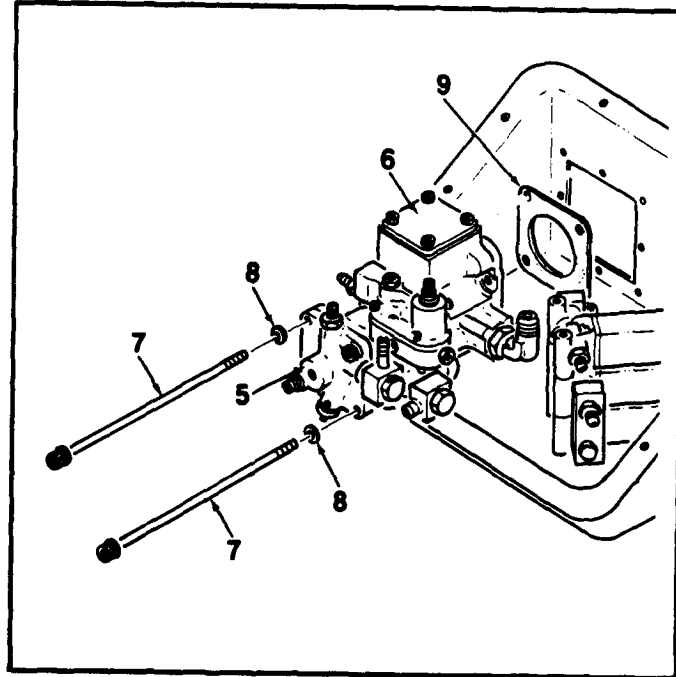
CAUTION

When removing fuel control, make certain fuel pump drive shaft is protected from damage.

5. Remove acceleration control unit (5) and fuel pump (6) as a unit by removing bolts (7) and washers (8).
6. Remove and discard gasket (9).

FOLLOW-ON MAINTENANCE:

None



END OF TASK

INITIAL SETUP

Materials:

Applicable Configurations:

None

All

Personnel Required:

Tools:

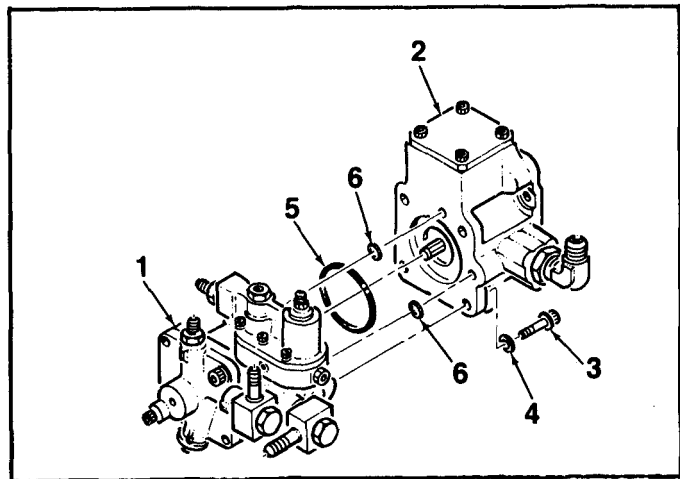
68B Aircraft Powerplant Repairer

Engine Repairman's Tool Kit
NSN 5180-00-323-4944
Container

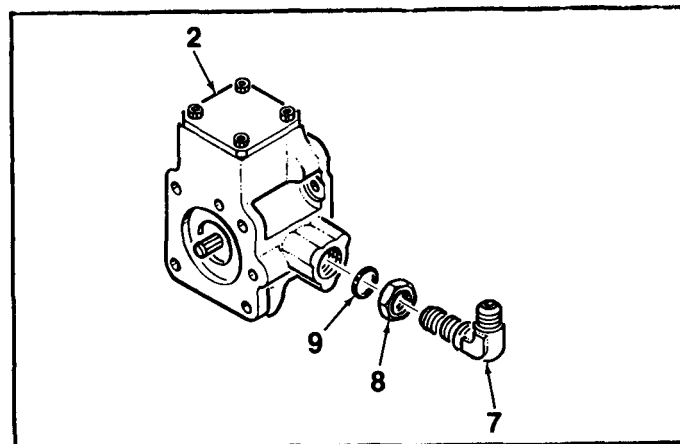
Equipment Condition:

Off APU Task

1. Remove acceleration control unit (1) from fuel pump (2) by removing bolts (3) and washers (4). Drain fuel into container.
2. Remove and discard packings (5) and (6).



3. Loosen nut (8) and remove elbow (7) on fuel pump (2).
4. Remove and discard packing (9).

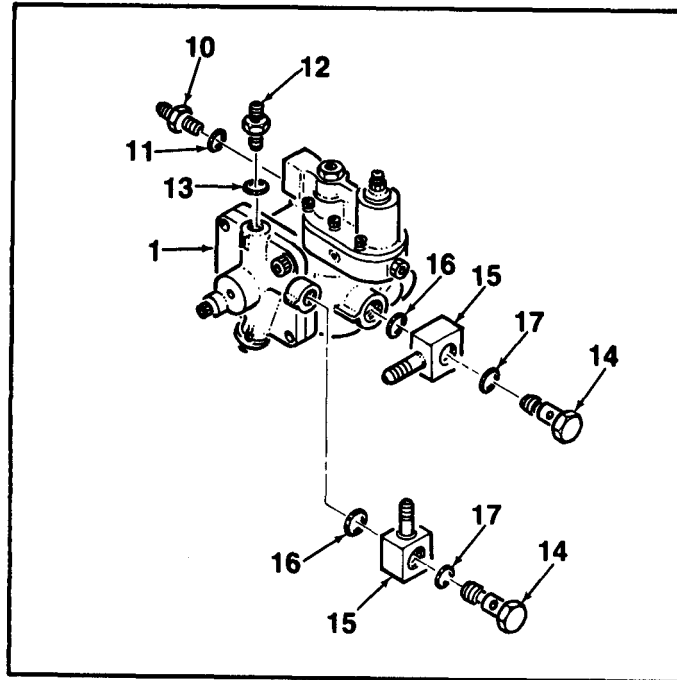


GO TO NEXT PAGE

5. Remove union (10) from acceleration control unit (1). Remove and discard packing (11).
6. Remove union (12). Remove and discard packing (13).
7. Remove fuel connection bolts (14) and fittings (15).
8. Remove and discard packings (16) and (17).

FOLLOW-ON MAINTENANCE:

None



END OF TASK

2-53 CLEAN AND INSPECT ACCELERATION CONTROL UNIT

2-53**INITIAL SETUP****Materials:****Applicable Configurations:**

Dry-Cleaning Solvent (E20)
Lint-Free Cloth (E13)

All

Personnel Required:**Tools:**

68B Aircraft Powerplant Repairer
68B Powerplant Inspector

Engine Repairman's Tool Kit
NSN 5180-00-323-4944
Rubber Gloves
NSN 8415-00-266-8677
Container
Eye Protection

Equipment Condition:

Off APU Task
Disassemble Fuel Control (Task 2-52)

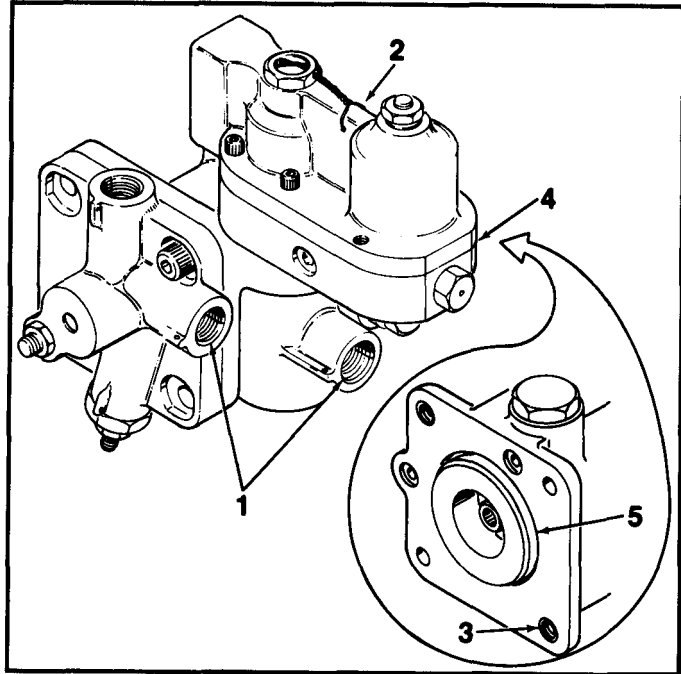
WARNING

Dry-cleaning solvent (E20) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. Wear gloves and eye protection. In case of contact, immediately flush eyes or skin with water for at least 15 minutes. Get medical attention for eyes.

1. Using gloves and eye protection, wipe external surfaces with lint-free cloth (E13) moistened with dry-cleaning solvent (E20).
2. Dry with clean lint-free cloth (E13).

GO TO NEXT PAGE

3. Inspect ports (1) for crossed or stripped threads. If damaged, acceleration control requires depot repair.
4. Inspect acceleration control unit (2) for cracks. If damaged, unit requires depot repair.
5. Inspect screw thread inserts (3) for crossed or stripped threads. Inspect mounting surface (4) for gouges. If damaged, mounting surface requires depot repair.
6. Inspect packing recesses (5) for caked sediment. If sediment is found, clean per steps 1 and 2.



FOLLOW-ON MAINTENANCE:

None

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Engine Repairman's Tool Kit
 NSN 5180-00-323-4944
 Rubber Gloves
 NSN 8415-00-266-8677
 Container
 Source of Low Pressure
 Compressed Air
 Eye Protection

Materials:

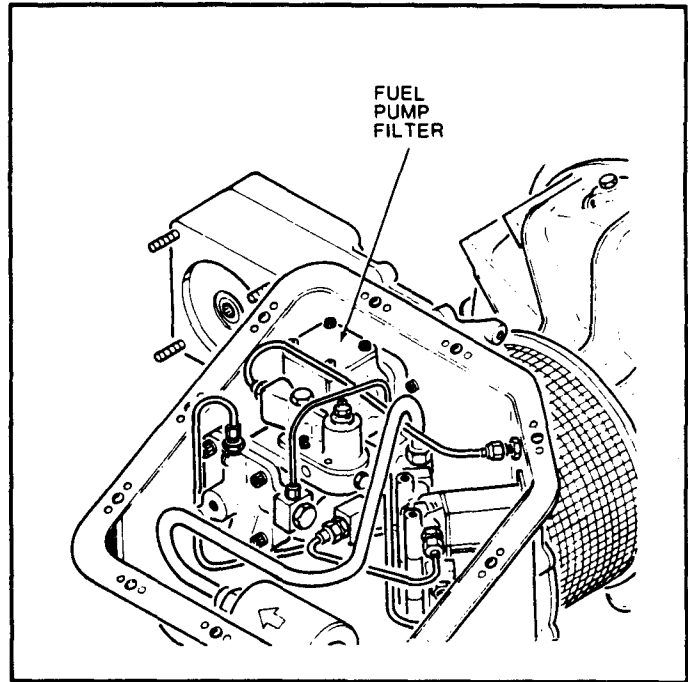
Assembly Fluid, No. 1 (E31)
 Dry-Cleaning Solvent (E20)

Parts:

Packing

Personnel Required:

68B Aircraft Powerplant Repairer
 68B Powerplant Inspector



References:

TM 55-2835-208-23P

Equipment Condition:

APU in Assembly Fixture (Task 1-22)
 Fuel Cover Removed (Task 2-43)

WARNING

Dry-cleaning solvent (E20) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. Wear gloves and eye protection. In case of contact, immediately flush eyes or skin with water for at least 15 minutes. Get medical attention for eyes.

GO TO NEXT PAGE

2-54 SERVICE FUEL PUMP FILTER (Continued)

2-54

1. Remove screws (1) and remove cover (2) with packing (3), discard packing (3).
2. Remove filter element (4) remove and discard packing (5).
3. Inspect filter element (4) for foreign particles. If metallic particles are found, return fuel pump to depot.
4. Soak filter element (4) in dry-cleaning solvent (E20) for five minutes.

WARNING

Use goggles to protect eyes and face when using compressed air. Do not exceed 30 psig. Do not direct airstream towards yourself or another person. Failure to comply may result in injury to personnel.

5. Remove from solvent and dry with low pressure compressed air at 30 psig maximum.
6. If filter element (4) is not clean, replace.

NOTE

When installing filter element (4), use steady even pressure to seat filter to prevent damage to packing (5).

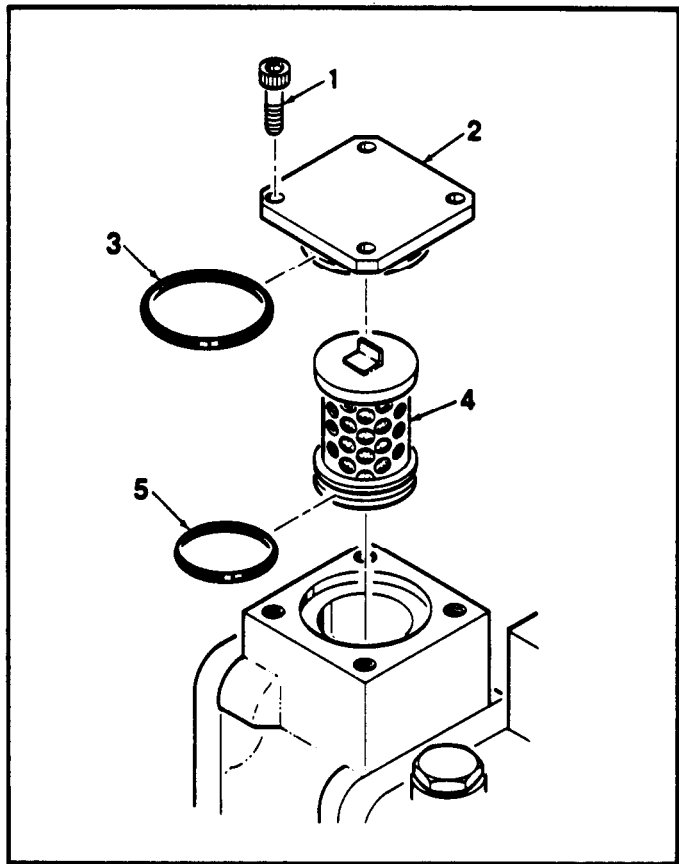
7. Using Assembly Fluid No. 1 (E31), lubricate packing (5) and install on filter element (4) and install element.
8. Using Assembly Fluid No. 1 (E31), lubricate packing (3) and install on cover (2) and install cover. Secure with screws (1).

INSPECT

FOLLOW-ON MAINTENANCE:

None

END OF TASK



2-55 CLEAN AND INSPECT FUEL PUMP

2-55

INITIAL SETUP

Materials:

Applicable Configurations:

Dry-Cleaning Solvent (E20)
Lint-Free Cloth (E13)

All

Personnel Required:

Tools:

68B Aircraft Powerplant Repairer
68B Powerplant Inspector

Engine Repairman's Tool Kit
NSN 5180-00-323-4944

Rubber Gloves
NSN 5145-00-266-8677

Container
Eye Protection

Equipment Condition:

Off APU Task
Disassemble Fuel Control (Task 2-52)

WARNING

Dry-cleaning solvent (E20) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. Wear gloves. In case of contact, immediately flush eyes or skin with water for at least 15 minutes. Get medical attention for eyes.

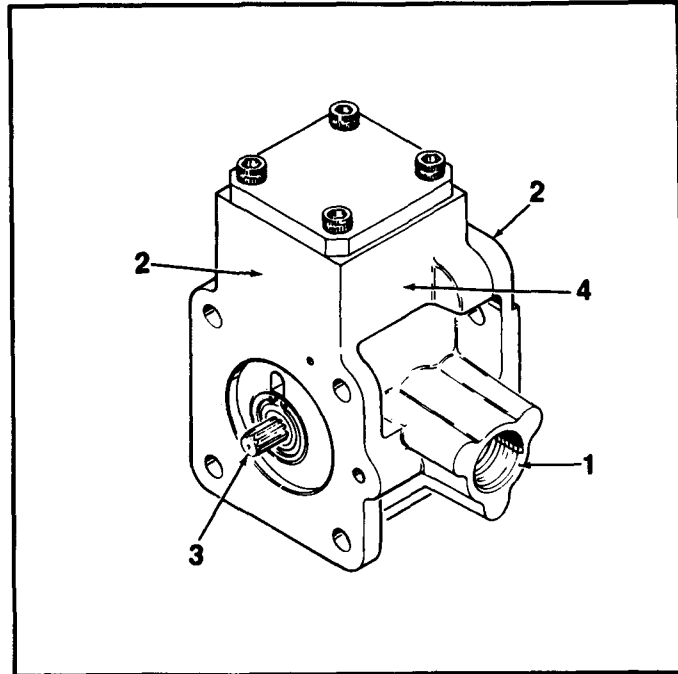
1. Using gloves, wipe external surfaces with lint-free cloth (E13) moistened with dry-cleaning solvent (E20).
2. Dry with clean lint-free cloth (E13).

GO TO NEXT PAGE

3. Inspect port (1) for crossed or stripped threads. Inspect mounting surfaces (2) for gouges. Inspect shaft splines (3) for chipped or broken splines. If damaged, fuel pump requires depot repair.
4. Inspect housing (4) for cracks. If cracked, fuel pump requires depot repair.
5. Inspect for seal leakage at shaft (3). If leaking, fuel pump requires depot repair.

FOLLOW-ON MAINTENANCE:

None



END OF TASK

2-56 ASSEMBLE FUEL CONTROL2-56

INITIAL SETUP

Applicable Configurations:

All

Tools:

Engine Repairman's Tool Kit
 NSN 5180-00-323-4944
 Torque Wrench
 NSN 5120-00-542-4489

Materials:

Assembly Fluid No. 1 (E31)

Parts:

Packings

Personnel Required:

68B Aircraft Powerplant Repairer
 68B Powerplant Inspector

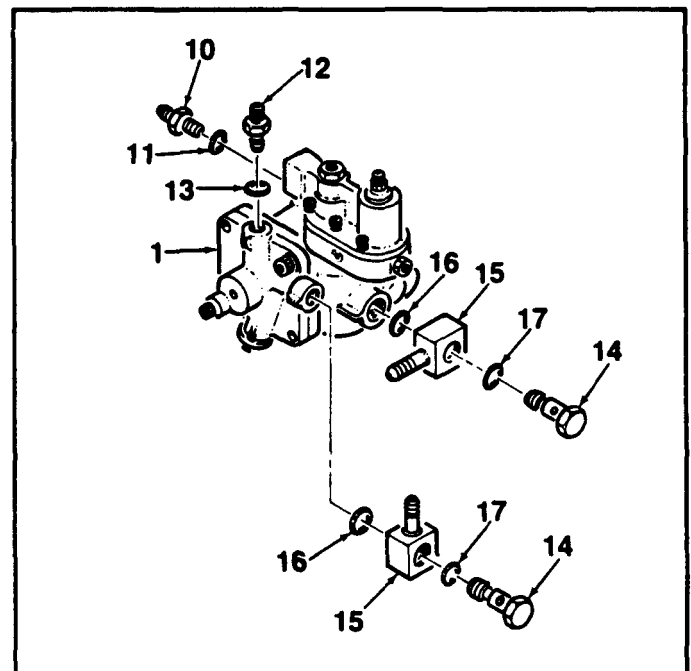
References:

TM 55-2835-208-23P

Equipment Conditions:

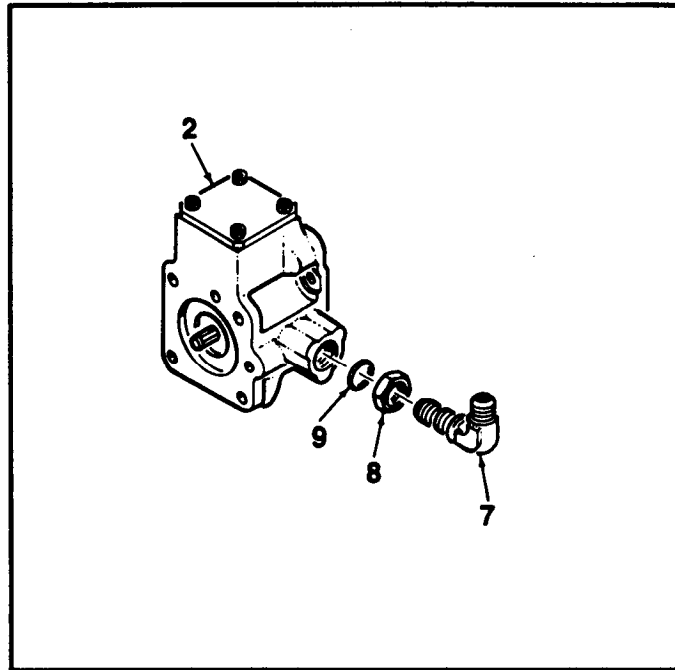
Off APU Task

1. Using Assembly Fluid No. 1 (E31), lubricate packings (17) and install packings (17) on bolts (14). Install fuel connection bolts (14) through fittings (15).
2. Using Assembly Fluid No. 1 (E31), lubricate packings (16). Install packings (16) on fuel connection bolts (14) and install bolts (14) into acceleration control unit (1). Do not tighten bolts (14) until fuel control installation (Task 2-57).
3. Using Assembly Fluid No. 1 (E31), lubricate packing (13). Install packing (13) on union (12). Install union (12) and torque to 90-100 inch-pounds.
4. Using Assembly Fluid No. 1 (E31), lubricate packing (11). Install packing (11) on union (10). Install union (10) and torque to 135-150 inch pounds.

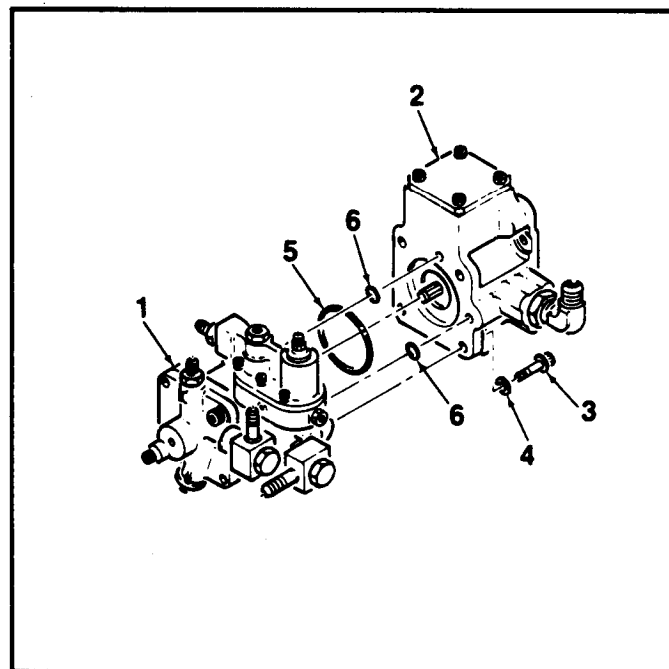


GO TO NEXT PAGE

5. Install nut (8) on elbow (7). Using Assembly Fluid No. 1 (E31), lubricate packing (9). Install packing (9) on elbow (7) and install elbow on fuel pump (2). Do not tighten elbow (7) until fuel control installation (Task 2-57).



6. Using Assembly Fluid No. 1 (E31), lubricate packings (6) and (5). Install packings (6) and (5) into packing grooves of acceleration control unit (1).
7. Assemble acceleration control unit (1) and fuel pump (2). Secure with screws (3) and washers (4).
8. Torque screws (3) to 25 inch-pounds.



INSPECT

FOLLOW-ON MAINTENANCE:

Install Fuel Control (Task 2-57)

END OF TASK

2-57 INSTALL FUEL CONTROL

2-57

INITIAL SETUP**Applicable Configurations:**

All

Tools:

Engine Repairman's Tool Kit
 NSN 5180-00-323-4944
 Torque Wrench
 NSN 5120-00-542-4489

Materials:

Assembly Fluid No. 1 (E31)

Parts:

Gasket
 Packings

Personnel Required:

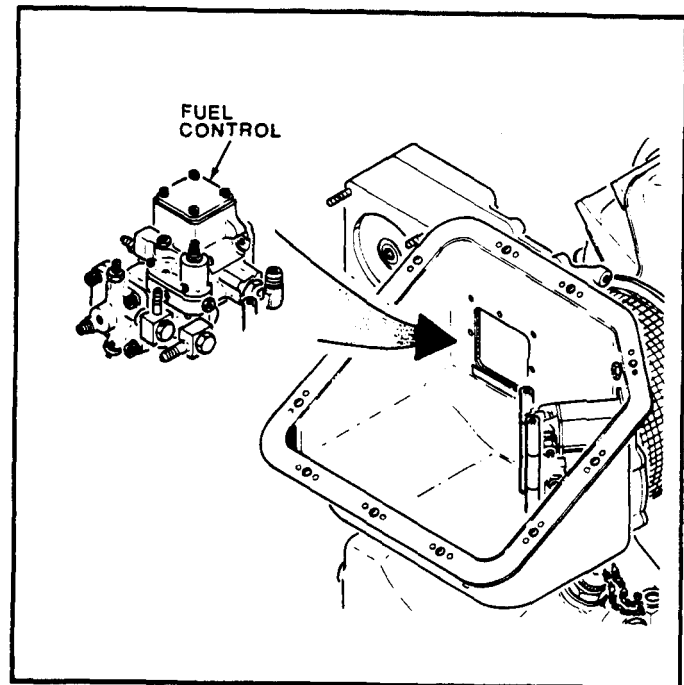
68B Aircraft Powerplant Repairer
 68B Powerplant Inspector

References:

TM 55-2835-208-23P

Equipment Condition:

APU in Assembly Fixture (Task 1-22)

**Note**

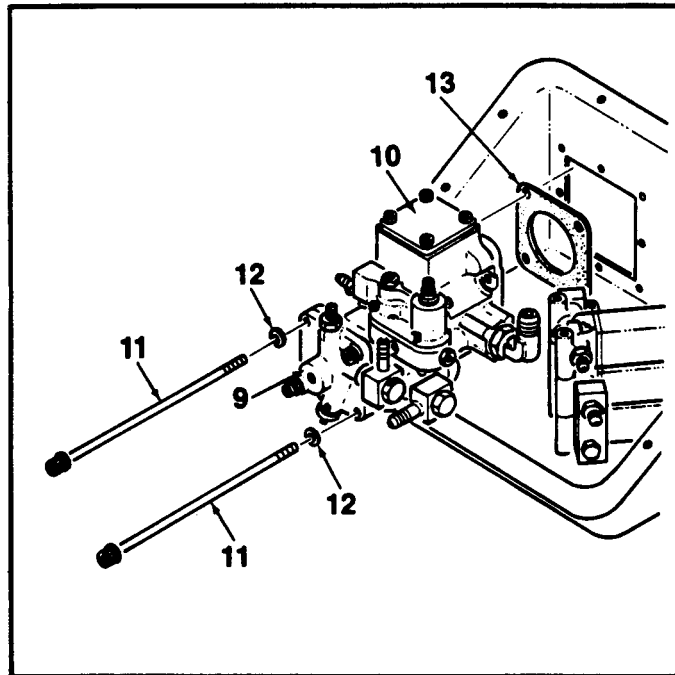
Make certain all mating
 surfaces are clean
 before gasket installation.

GO TO NEXT PAGE

2-57 INSTALL FUEL CONTROL (Continued)

2-57

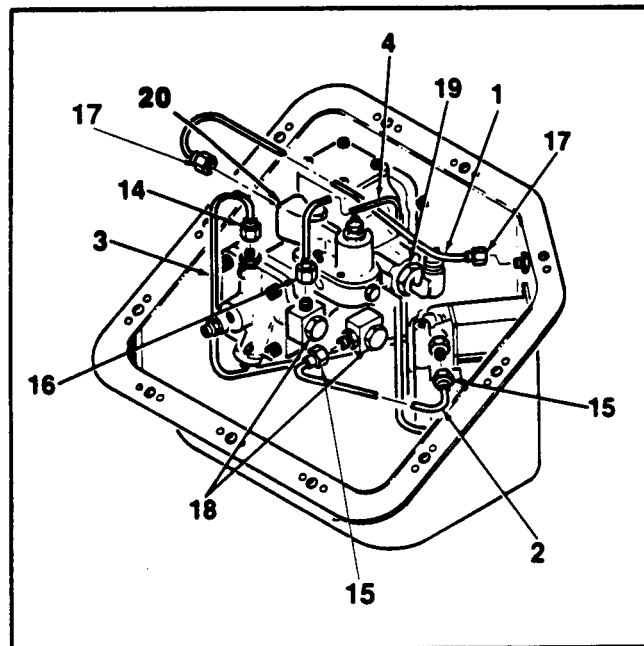
1. Install fuel pump(10) and acceleration control (9) as a unit with gasket (13).
2. Secure with two bolts (11) and washers (12). Torque bolts to 40-60 inch-pounds.
3. Install tube assemblies (1), (2), (3) and (4). Torque B-nuts (14) and (16) to 90-105 inch-pounds. B-nuts (15) to 75-85 inch-pounds. and B-nuts (17) to 135-150 inch-pounds.
4. Tighten fuel connection bolts (18) and nut (19). Torque to 45foot-pounds.
5. Tighten fuel control union (20). Torque to 190 inch-pounds.
6. Install fuel inlet filter (Task 2-59).
7. Install fuel control cover (Task 2-46).



INSPECT

FOLLOW-ON MAINTENANCE:

Leak Check During Operation



END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Engine Repairman's Tool Kit
NSN 5180-00-323-4944
Eye Protection

Materials:

Lint-Free Cloth (E13)

Personnel Required:

68B Aircraft Powerplant Repairer

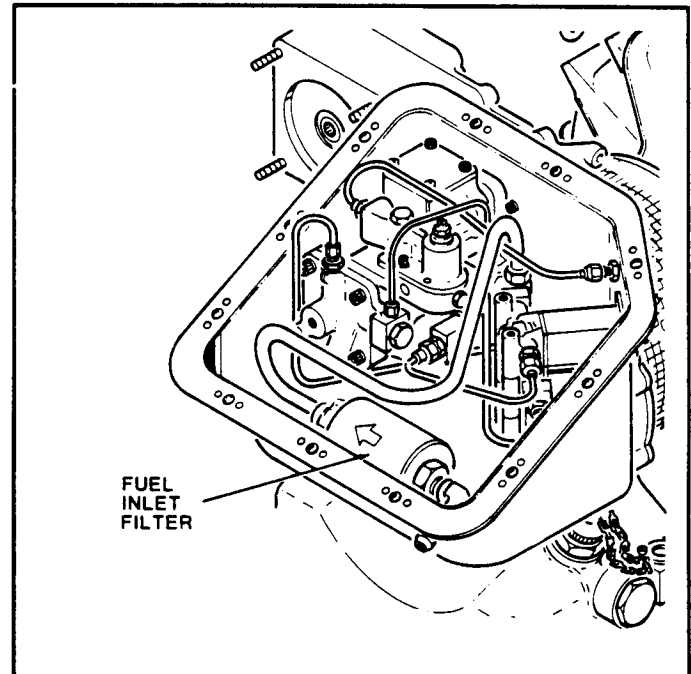
General Safety Instructions:

WARNING

Turbine fuels are very flammable. They cause drying and irritation of skin and eyes. Wear gloves and eye protection. Handle only in well-ventilated areas away from heat and open flame. Drain and store in approved metal 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.

Equipment Condition:

APU in Assembly Fixture (Task 1-22)
Remove Fuel Cover (Task 2-43)



GO TO NEXT PAGE

2-58 REMOVE FUEL INLET FILTER (Continued)

2-58

1. Place a cloth (E13) below connections to absorb dripping fuel when disconnecting fuel inlet filter connections.

CAUTION

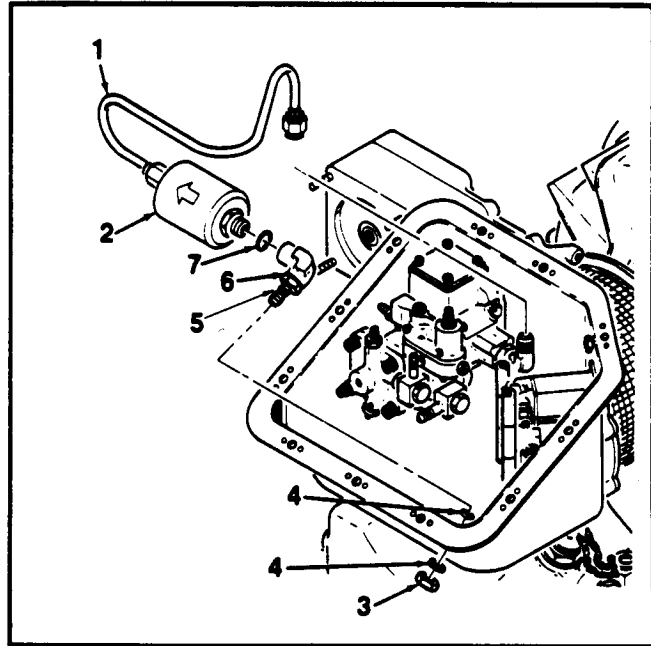
Put wrench on union (5) when removing nut (3) to prevent damage.

2. Remove nut (3) and washer (4).

CAUTION

Put wrench on filter flats (2) when removing tube assembly (1) nut to prevent damage.

3. Remove tube assembly (1) from fuel inlet filter (2).
4. Remove fuel inlet filter (2) from elbow (6) and discard filter (2). Remove and discard packing (7). Remove union (5) and elbow (6) as necessary.

**FOLLOW-ON MAINTENANCE:**

None

END OF TASK

2-59 INSTALL FUEL INLET FILTER

2-59

INITIAL SETUP

Applicable Configurations:

All

Tools:

Engine Repairman's Tool Kit

NSN 5180-00-323-4944

Torque Wrench

NSN 5120-00-542-4489

Materials:

Assembly Fluid, No. 1 (E31)

Packings

Personnel Required:

68B Aircraft Powerplant Repairer

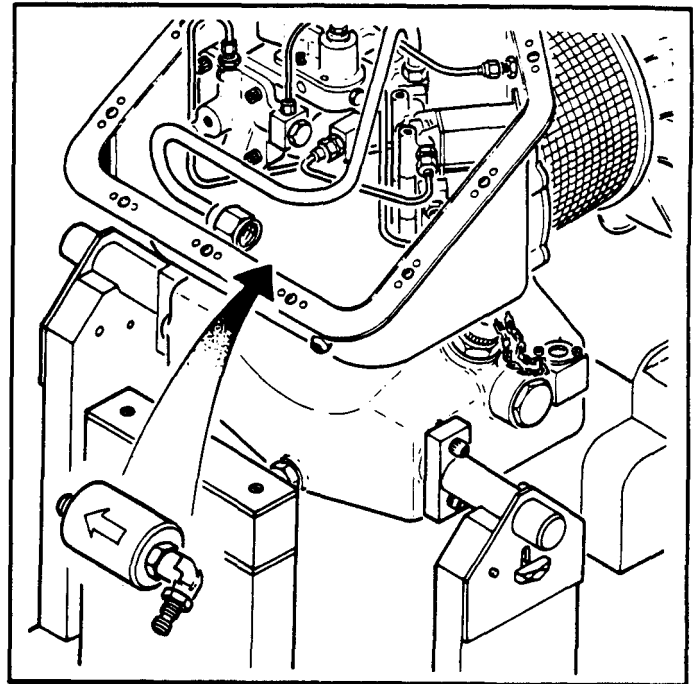
68B Powerplant Inspector

References:

TM 55-2835-208-23P

Equipment Condition:

APU in Assembly Fixture (Task 1-22)

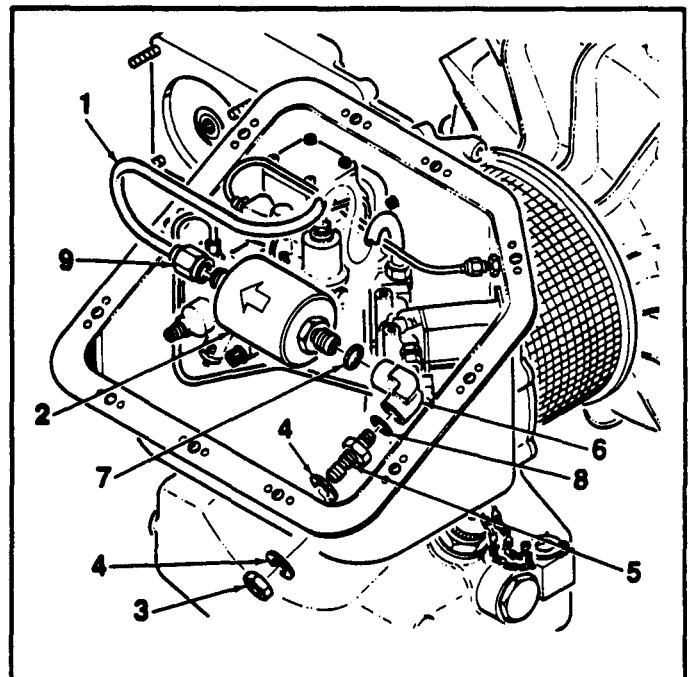


1. Using Assembly Fluid, No. 1 (E31), lubricate packing (7) and (8). Install packing (7) on inlet filter (2) and packing (8) on union (5)
2. Install union (5) into elbow (6) and torque to 190 inch-pounds.

CAUTION

When torquing elbow (6) and B-nut of tube (1), use an anti-torque wrench on the end of inlet filter (2) that is being torqued. Do not torque across inlet filter (2) or the filter may crack, causing fuel leaks.

- 2A. Install elbow (6) into inlet filter (2) and torque elbow to 80 inch-pounds.



GO TO NEXT PAGE

3. Connect tube assembly (1) and torque B-nut (9) to 80 inch-pounds. Install filter and tube assembly as a unit.

CAUTION

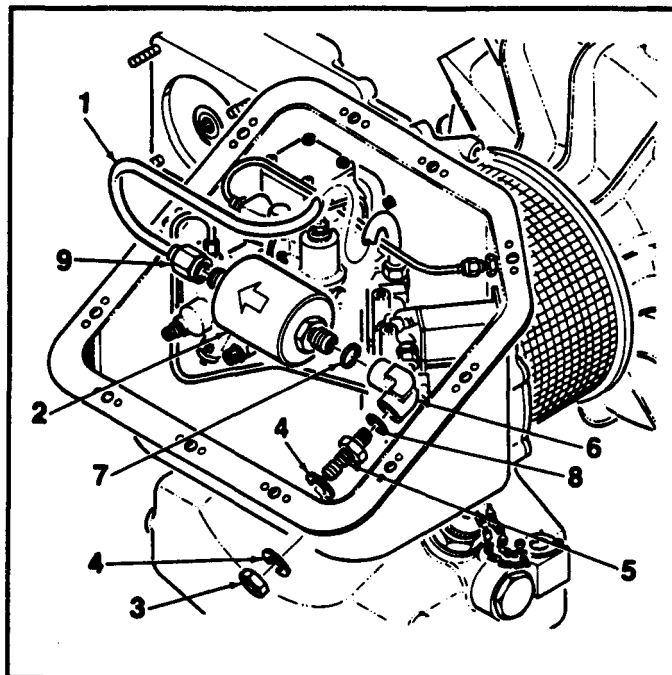
Put wrench on union (5) when tightening nut (3) to prevent damage.

4. Install fuel inlet filter (2) and secure with washer (4) and nut (3). Torque nut (3) to 190 inch-pounds.

INSPECT

FOLLOW-ON MAINTENANCE:

Leak Check During Operation



END OF TASK

2-60 REMOVE FUEL MANIFOLD ASSEMBLY

2-60

INITIAL SETUP

Applicable Configurations:

All

Tools:

Engine Repairman's Tool Kit
NSN 5180-00-323-4944

Materials:

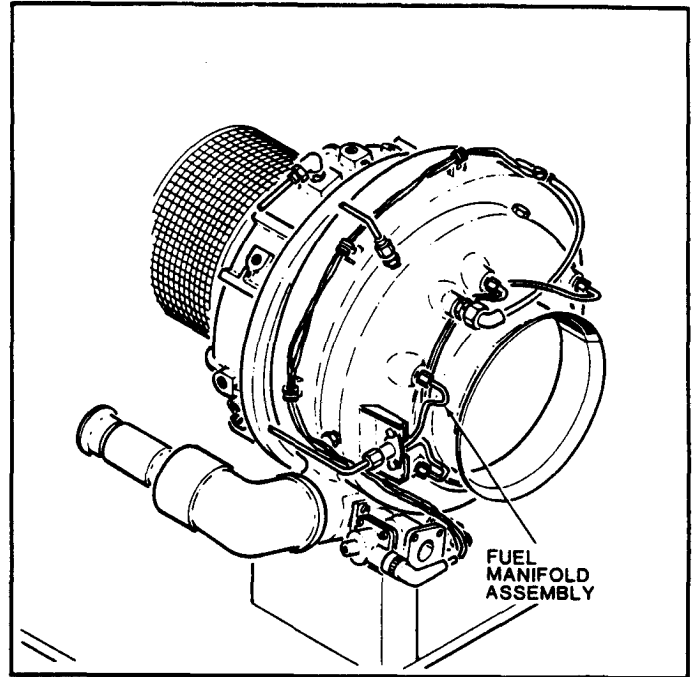
None

Personnel Required:

68B Aircraft Powerplant Repairer

Equipment Condition:

APU in Assembly Fixture (Task 1-22)



1. Disconnect tube assembly (1) connection to fuel manifold assembly (2).
2. Remove nuts (3), washers (4) and bolts (5).

CAUTION

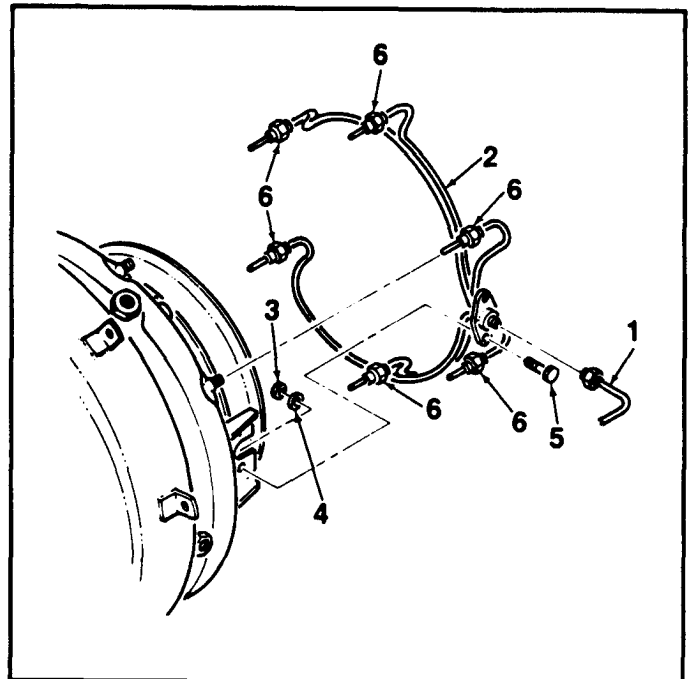
Handle fuel manifold assembly (2) carefully during removal. Make certain fuel manifold nozzles are not damaged during fuel manifold assembly removal.

3. Disconnect B-nuts (6), then carefully and evenly remove fuel manifold assembly (2).

NOTE

When removing fuel manifold assembly, fuel manifold packings must be replaced.

Remove combustor housing assembly (Tasks 2-13, 2-14, 2-19, 2-20). Remove and replace packings.



END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

- Engine Repairman's Tool Kit
NSN 5180-00-323-4944
- Rubber Gloves
NSN 8415-00-266-8677
- Container
- Eye Protection

Materials:

- Dry-Cleaning Solvent (E20)
- Lint-Free Cloth (E13)

Personnel Required:

- 68B Aircraft Powerplant Repairer
- 68B Powerplant Inspector

Equipment Condition:

Off APU Task

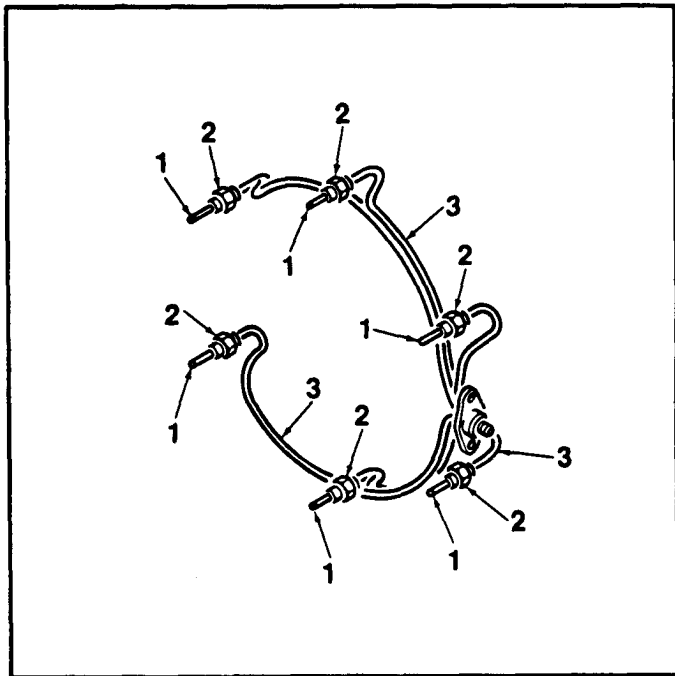
Remove fuel manifold assembly
(Task 2-60)

General Safety Instructions:



Dry-cleaning solvent (E20) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. Wear gloves and eye protection. In case of contact, immediately flush eyes or skin with water for at least 15 minutes. Get medical attention for eyes.

1. Wearing gloves and eye protection, wipe external surfaces and nozzles with lint-free cloth (E13) moistened with dry-cleaning solvent (E20).
2. Dry with clean lint-free cloth (E13).
3. Inspect for erosion or distortion on fuel nozzles (1). If eroded or distorted, discard.



GO TO NEXT PAGE

2-61 CLEAN AND INSPECT MANIFOLD ASSEMBLY (Continued) 2-61

4. Inspect B-nuts (2) and tube assemblies (3) for cracks, distortion, kinks and crossed or stripped threads. If damaged, discard.
5. Using low pressure air blow through manifold and check each tip for air flow. If air flow cannot be detected, replace fuel manifold assembly (2).

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2 - 6 2 I N S T A L L F U E L M A N I F O L D A S S E M B L Y 2 - 6 2

INITIAL SETUP

Applicable Configurations:

All

Tools:

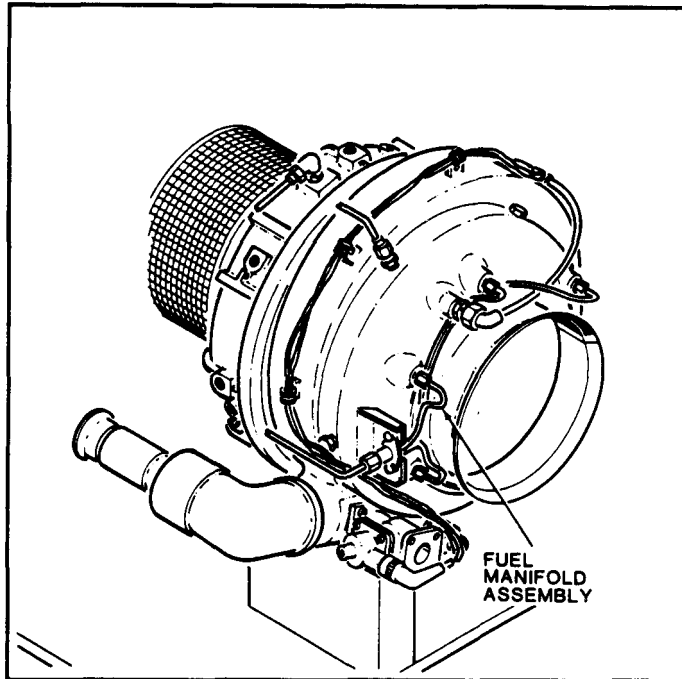
Engine Repairman's Tool Kit
NSN 5180-00-323-4944
Torque Wrench
NSN 5120-00-542-4489

Materials:

Lubricating Oil (E24)
Anti-Seize Compound (E15)

Personnel Required:

68B Aircraft Powerplant Repairer
68B Powerplant Inspector



Equipment Condition:

APU in Assembly Fixture (Task 1-22)

WARNING

Lubricating Oil, MIL-L-23699, contains material hazardous to health. It produces paralysis if swallowed or from prolonged skin contact. Wash hands thoroughly after handling. It may burn if exposed to heat or flames. Use only with proper ventilation.

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2-62 INSTALL MANIFOLD ASSEMBLY (Continued)

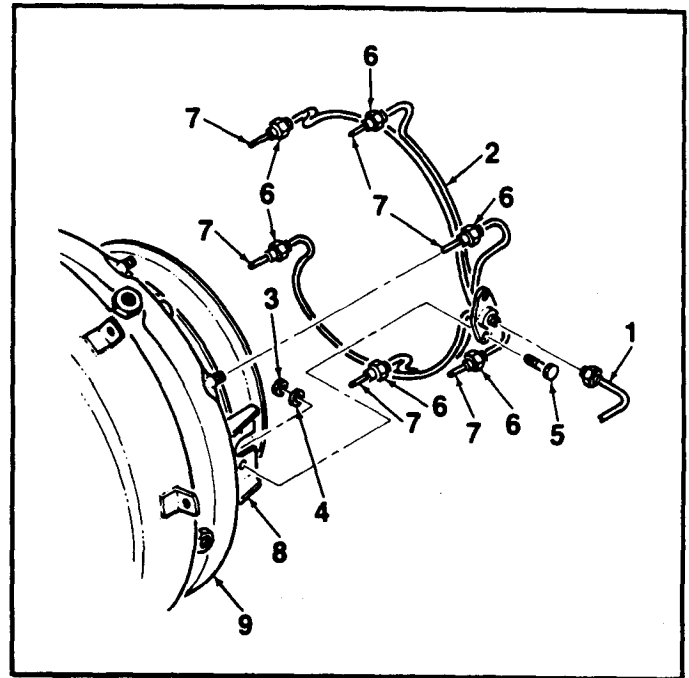
2-62

1. Apply a light coating of lubricating oil (E24) to manifold assembly nozzles (7).
2. Apply a light coat of antiseize compound (E15) to fuel manifold attaching parts on combustor housing.

CAUTION

Handle fuel manifold assembly (2) carefully during installation. Make certain fuel manifold nozzles are not damaged during fuel manifold assembly installation.

3. Install manifold assembly (2) onto combustor assembly (9). Torque B-nuts (6) to 60 inch-pounds evenly following in sequence: 8 and 10 o'clock position, 6 and 12 o'clock position and finally 2 and 4 o'clock.
4. Secure manifold assembly (2) to combustor housing bracket (8) with bolts (5), washers (4) and nuts (3).
5. Connect tube assembly (1). Torque tube assembly to 80 inch-pounds.



INSPECT

FOLLOW-ON MAINTENANCE:

None

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Engine Repairman's Tool Kit
NSN 5180-00-323-4944
Eye Protection

Materials:

Lint-Free Cloth (E13)

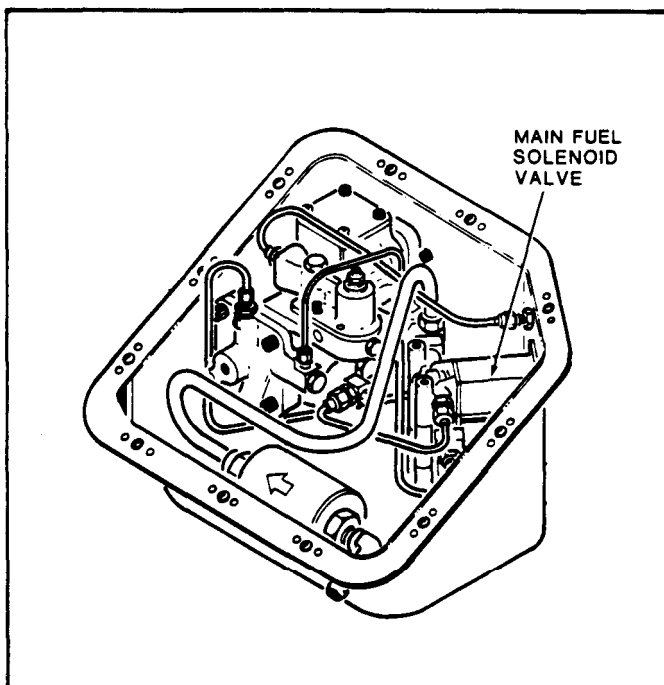
Personnel Required:

68B Aircraft Powerplant Repairer

General Safety Instructions:

WARNING

Turbine fuels are very flammable. They cause drying and irritation of skin and eyes. Wear gloves and eye protection. Handle only in well-ventilated areas away from heat and open flame. Drain and store in approved metal 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.



Equipment Condition:

APU in Assembly Fixture (Task 1-22)

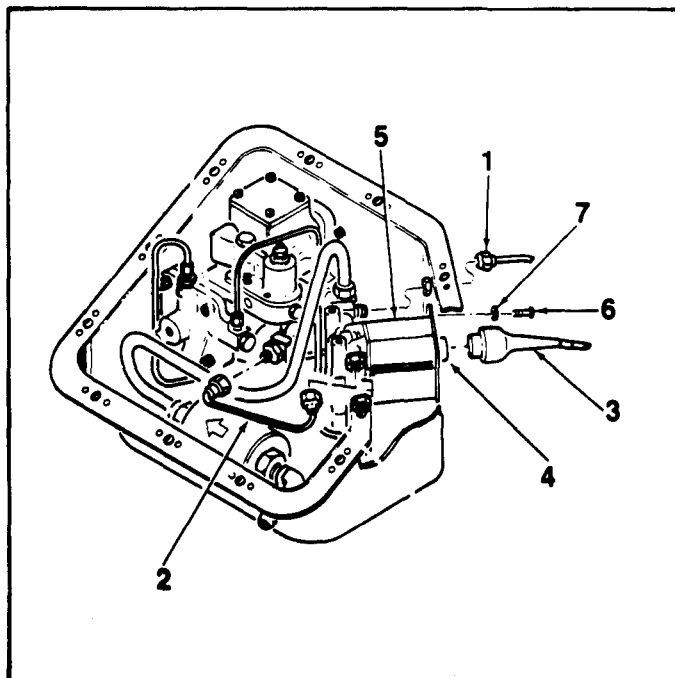
GO TO NEXT PAGE

1. Remove fuel control cover (Task 2-43).
2. Place a cloth (E13) below connections to absorb dripping fuel when disconnecting tubes.

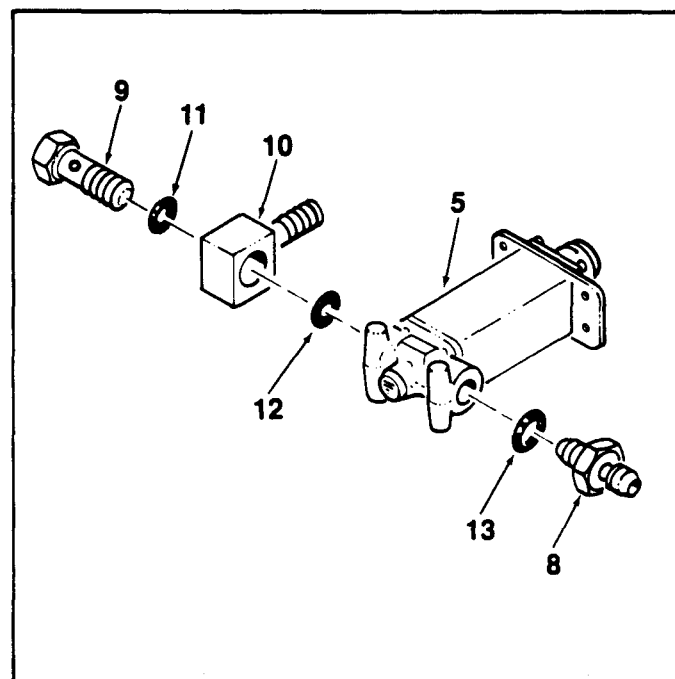
CAUTION

Handle tube assemblies carefully. Tubes are easily bent or kinked.

3. Disconnect tube assembly (1).
4. Remove tube assembly (2).
5. Remove lockwire from connector (3) and discard.
6. Disconnect connector P306 (3) from main fuel solenoid valve receptacle J306 (4). Inspect connector (3) for broken pins and crossed or stripped threads. If damaged, return to depot.
7. Remove main fuel solenoid valve (5) by removing lockwire, screws (6) and washers (7).



8. Remove reducer (8).
9. Remove fuel connection bolt (9) and fuel connection fitting (10). Remove and discard packings (11), (12) and (13).



FOLLOW-ON MAINTENANCE:

None

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Engine Repairman's Tool Kit

NSN 5180-00-323-4944

Torque Wrench

NSN 5120-00-542-4489

Materials:

Packing

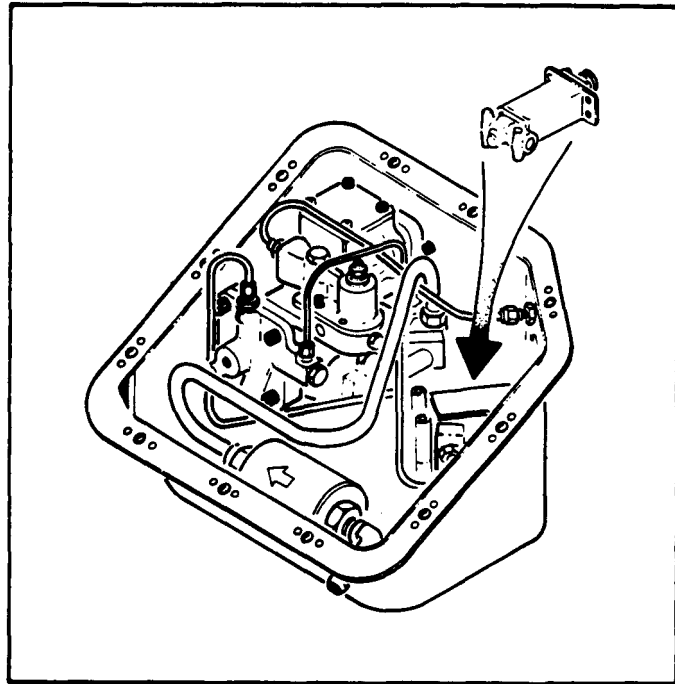
Assembly Fluid No. 1 (E31)

Lockwire (E32)

Personnel Required:

68B Aircraft Powerplant Repairer

68B Powerplant Inspector



References:

TM 55-2835-208-23P

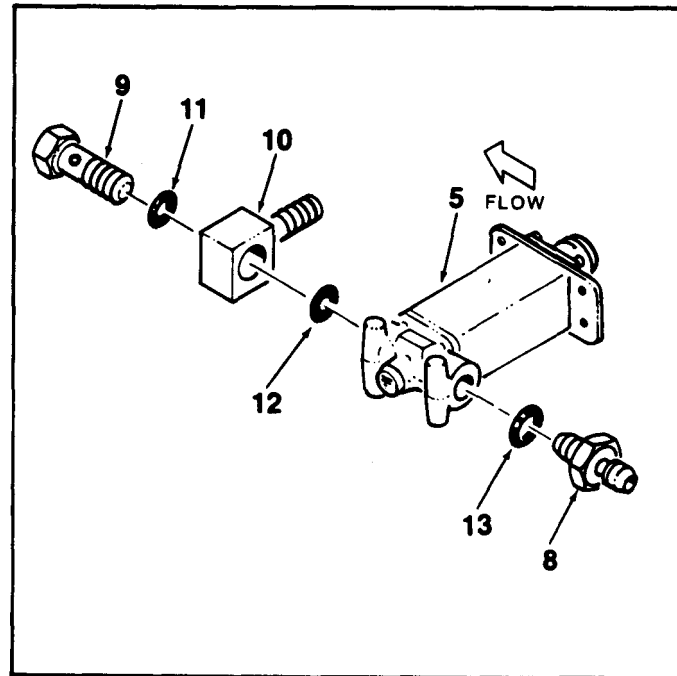
Equipment Condition:

APU in Assembly Fixture (Task 1-22)

NOTE

When installing main fuel solenoid valve (5), be sure direction of flow arrow is in the correct direction. (See illustration.)

1. Using Assembly Fluid No. 1 (E31), lubricate packing (13), (12) and (11). Install packing (13) and reducer (8) into main fuel solenoid valve (5). Torque to 45 inch-pounds
2. Install fuel connection fitting (10) and fuel connection bolt (9) with packings (12) and (11).



GO TO NEXT PAGE

2-64 INSTALL MAIN FUEL SOLENOID VALVE (Continued)

2-64

3. Install main fuel solenoid valve (5) and secure with washers (7) and screws (6). Safety wire screws with lockwire (E32).
4. Connect tube assembly (1). Torque B-nut (15) to 80 inch-pounds. Torque fuel connection bolt (9) to 45 inch-pounds.
5. Install tube assembly (2). Torque B-nut (14) to 80 inch-pounds.
6. Connect connector P306 (3) to receptacle J306 (4). Safety wire connector (3) with lockwire (E32).

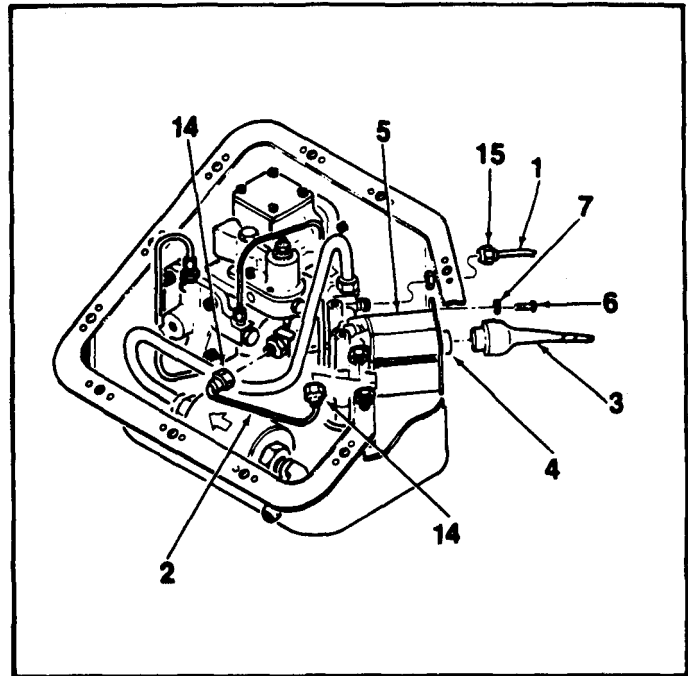
INSPECT

FOLLOW-ON MAINTENANCE:

Install fuel control cover (Task 2-46).



Leak Check During Operation.



END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Engine Repairman's Tool Kit
 NSN 5180-00-323-4944
 Eye Protection

Materials:

Lint-Free Cloth (E13)

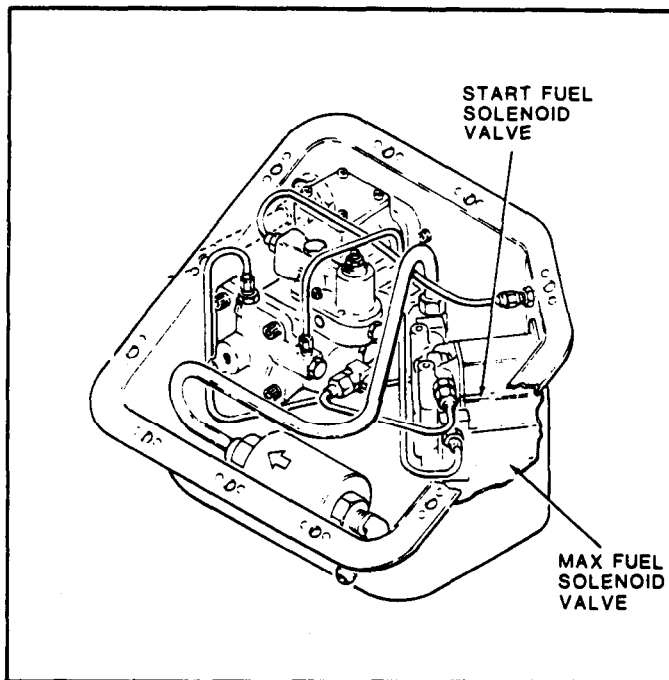
Personnel Required:

68B Aircraft Powerplant Repairer

General Safety Instructions:

WARNING

Turbine fuels are very flammable. They cause drying and irritation of skin and eyes. Wear gloves and eye protection. Handle only in well-ventilated areas away from heat and open flame. Drain and store in approved metal 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.



Equipment Condition:

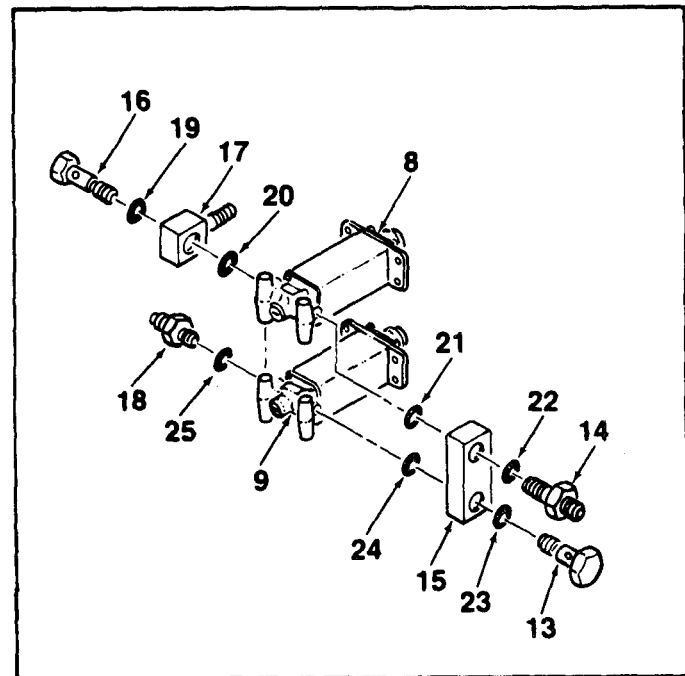
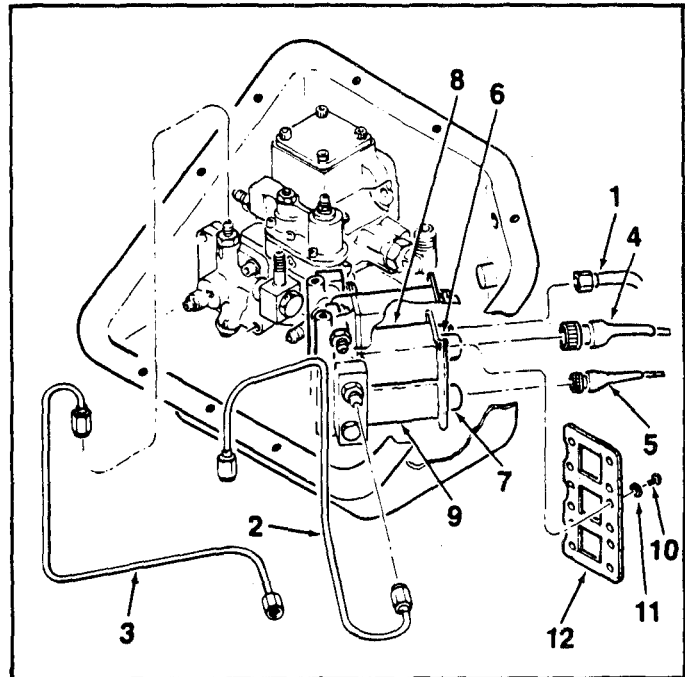
APU in Assembly Fixture (Task 1-22)

GO TO NEXT PAGE

2-65 REMOVE MAX AND START FUEL SOLENOID VALVES (Continued)

2-65

1. Remove fuel control cover (Task 2-43).
2. Remove main fuel solenoid valve (Task 2-63).
3. Remove inlet fuel filter (Task 2-58).
4. Disconnect tube assembly (1).
5. Remove tube assemblies (2) and (3).
6. Remove lockwire from connectors (4) and (5) and discard.
7. Disconnect connectors P305 (4) and P307 (5) from start fuel solenoid valve receptacle J305 (6) and max fuel solenoid valve receptacle J307 (7). Inspect connectors for broken pins and stripped or crossed threads. If damaged, return to depot.
8. Remove start (8) and max fuel solenoid (9) valves as a unit by removing lockwire, screws (10), washers (11) and doubler (12).
9. To separate start and max solenoid valves remove fuel connection bolts (13), (14) and fuel connection fitting (15).
10. Remove fuel connection bolt (16) and fuel connection fitting (17). Remove reducer (18). Remove and discard packings (19-25).



FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-66 INSTALL MAX AND START FUEL SOLENOID VALVES

2-66

INITIAL SETUP

Personnel Required:

Applicable Configurations:

68B Aircraft Powerplant Repairer
68B Powerplant Inspector

All

References:

Tools:

TM 55-2835-208-23P

Engines Repairman's Tool Kit
NSN 5180-00-323-4944
Aircraft Inspector's Tool Kit
NSN 5180-00-323-5114
Torque Wrench
NSN 5120-00-542-4489

Equipment Condition:

APU in Assembly Fixture (Task 1-22)

Materials:

Assembly Fluid No. 1 (E31)
Lockwire (E32)

NOTE

Refer to TM 55-2835-208-23P for correct valve number positioning.

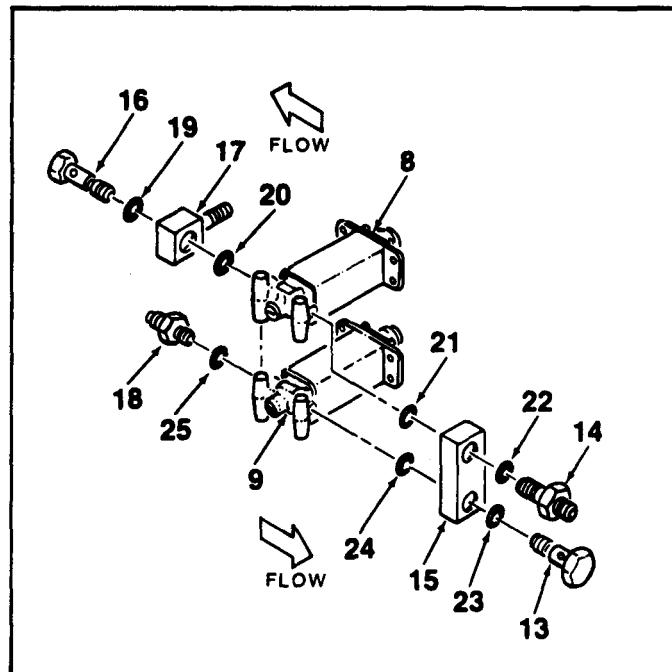
1. Using Assembly Fluid No. 1 (E31), lubricate packings (19 thru 25). Install packing (25) and reducer (18) in max fuel solenoid valve (9). Torque to 45 inch-pounds.
2. Install fuel connection fitting (17), bolt (16) and packings (19), (20) in start fuel solenoid valve (8).

NOTE

When installing start fuel solenoid valve (8), be sure direction of flow arrow is in the correct direction. (See illustration.)

3. Install fuel connection fitting (15), bolt (13) and packings (23), (24) in max fuel solenoid valve (9).
4. Connect valves by installing fuel connection bolt (14), and packings (22), (21). Torque bolts (13) and (14) to 45 inch-pounds.

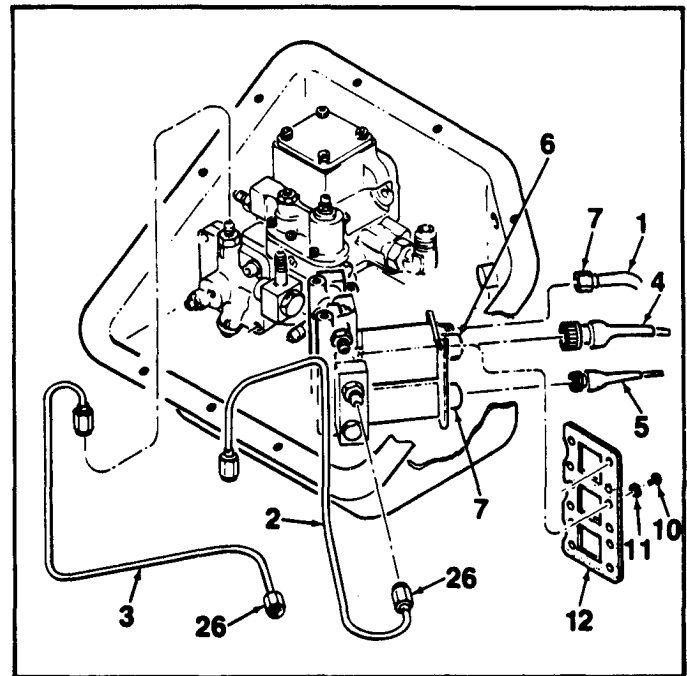
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2-66 INSTALL MAX AND START FUEL SOLENOID VALVES (Continued)

2-66

5. Install combined max and start fuel solenoid valves and doubler (12). Secure with washers (11) and screws (10). Safety wire screws (10) with lockwire (E32).
6. Connect tube assembly (1). Torque B-nuts (7) to 80 inch-pounds. Torque bolt (16) to 45 inch-pound.
7. Install tube assemblies (3, 2) and torque B-nuts (26) to 80 inch-pounds.
8. Install fuel inlet filter (Task 2-59).
9. Connect connector P305 (4) to J305 (6) and connector P307 (5) to J307 (7). Safety wire connectors with lockwire (E32).
10. Install main fuel solenoid valve (Task 2-64).
11. Install fuel control cover (Task 2-46).



INSPECT

FOLLOW-ON MAINTENANCE:

- Leak Check During Operation

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Engine Repairman's Tool Kit
NSN 5180-00-323-4944
Eye Protection

Materials:

Lint-Free Cloth (E13)

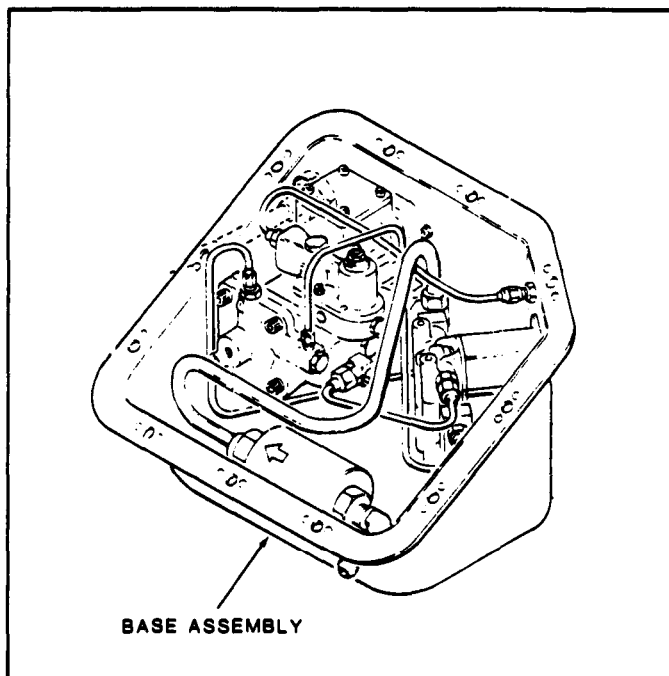
Personnel Required:

68B Aircraft Powerplant Repairer

General Safety Instructions:

WARNING

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



Equipment Condition:

APU in Assembly Fixture (Task 1-22).
Remove Fuel Cover (Task 2-45).
Remove Fuel Inlet Filter (Task 2-58).
Remove Fuel Control (Task 2-51).
Remove Main Fuel Solenoid Valve (Task 2-63).
Remove Max and Start Fuel Solenoid Valves (Task 2-65).

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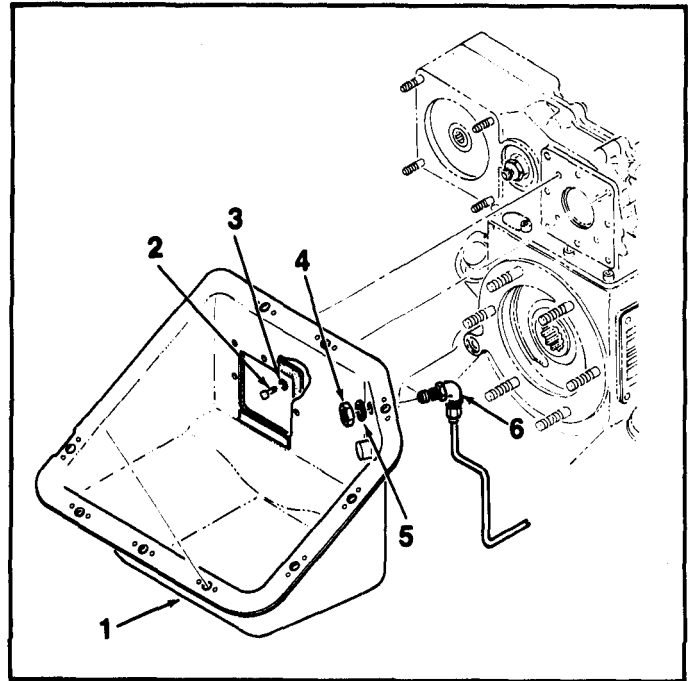
2-67 REMOVE BASE ASSEMBLY (Continued)

2-67

1. Remove nut (4) and washer (5) from elbow (6).
2. Remove base (1) by removing screws (2) and washers (3).

FOLLOW-ON MAINTENANCE:

None



END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Engine Repairman's Tool Kit
 NSN 5180-00-323-4944
 Rubber Gloves
 NSN 8415-00-266-8677
 Container
 Eye Protection

Materials Required:

Dry-Cleaning Solvent (E20)
 Lint-Free Cloth (E13)

Personnel Required:

68B Aircraft Powerplant Repairer
 68B Powerplant Inspector

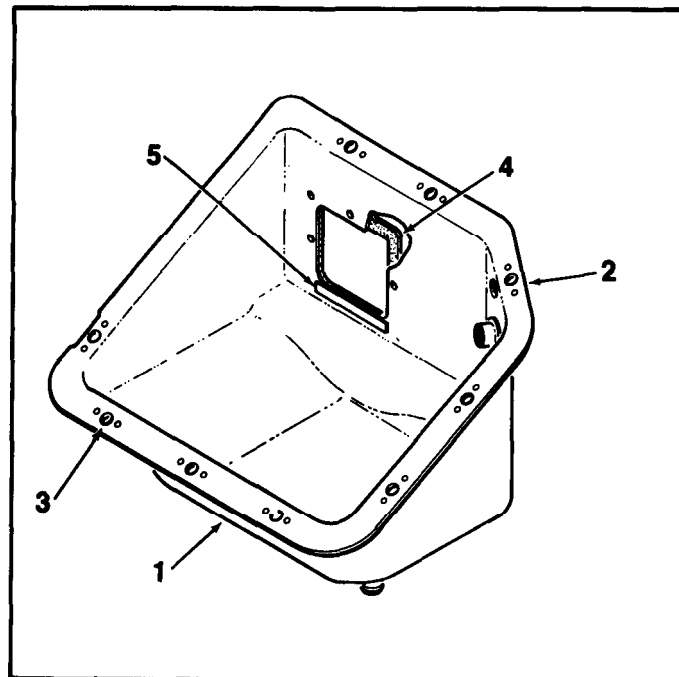
Equipment Condition:

Off APU Task

WARNING

Dry-cleaning solvent (E20) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. Wear gloves and eye protection. In case of contact, immediately flush eyes or skin with water for at least 15 minutes. Get medical attention for eyes.

1. Wearing gloves, wipe base (1) with clean cloth (E13) dampened with dry-cleaning solvent (E20).
2. Dry base (1) with clean dry cloth (E13).
3. Inspect base (1) for dents, cracks or deformed flange (2). Repair if damaged (Task 2-69).
4. Inspect for broken receptacles (3). Replace if damaged (Task 2-69).



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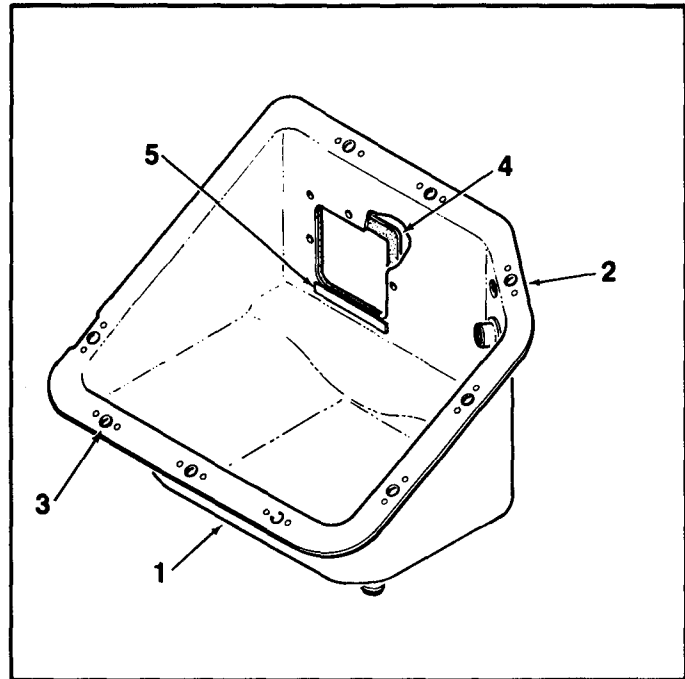
2-68 CLEAN AND INSPECT BASE ASSEMBLY (Continued)

2-68

5. Inspect gasket (4) for damage and secure attachment. Replace if damaged (Task 2-69).
6. Inspect base for corrosion (Task 1-35).
7. Inspect spacer (5) for secure attachment. If loose, repair (Task 2-69).

FOLLOW-ON MAINTENANCE:

None

**END OF TASK**

INITIAL SETUP

Personnel Required:

Applicable Configurations:

- 44E Welder
- 68B Powerplant Inspector

All

References:

Tools:

- TM 55-1500-204-25/1
- TM 55-2835-208-23P

- Engine Repairman's Tool Kit
NSN 5180-00-323-4944
- Welding Shop Set
NSN 4920-00-163-5093
- Rubber Gloves
NSN 8415-00-260-8677
- Eye Protection

Equipment Condition:

Off APU Task

Parts:

Materials:

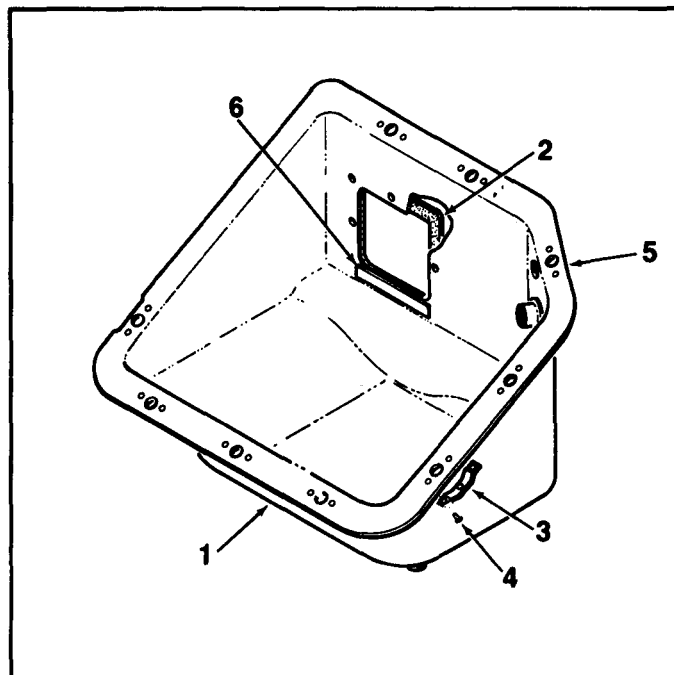
- Gasket
- Receptacles
- Rivets

- Welding Rod (E18)
- Welding Flux (E17)
- Naphtha (E29)
- Adhesive (E30)

WARNING

Naphtha (E29) is flammable and toxic. Use only in well-ventilated area away from heat and open flame. Wear gloves and eye protection. In case of contact, immediately flush skin or eyes with water for at least 15 minutes, get medical attention for eyes.

1. Repair cracks in base (1) by welding in accordance with TM 55-1500-204-25/1.
2. Remove damaged gasket (2). Remove traces of adhesive using Naphtha (E29).

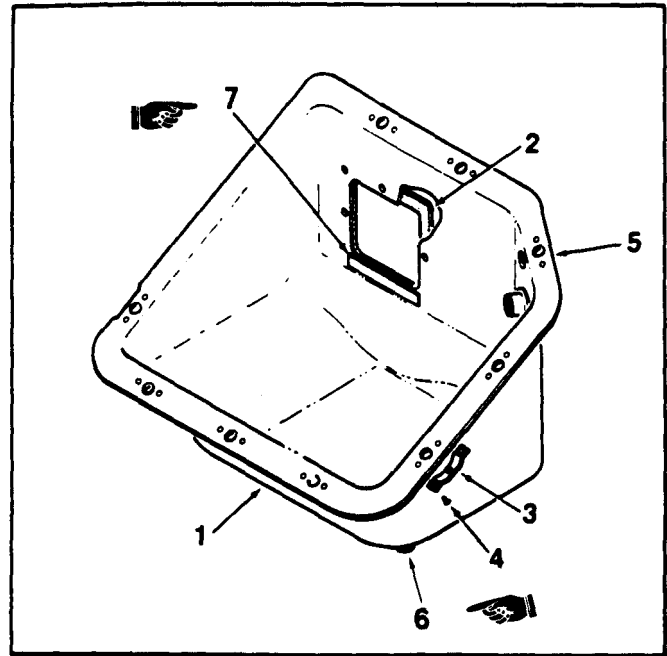


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2-69 REPAIR BASE ASSEMBLY (AVIM) (Continued)

2-69

3. Apply adhesive (E30) to gasket area of base (1) and install gasket (2). Allow to air dry.
4. Remove receptacles (3) by drilling out rivets (4). Install new receptacle using rivets
5. Remove dents in base (1) and straighten deformed flange (5). Restore original contour.
6. If drain boss (6) is damaged, remove by grinding through weld. Install new drain boss by welding in accordance with aluminum alloy welding procedures contained in MIL-W-8604.
7. Repair corrosion (Task 1-35). Repair loose spacer (7) by applying adhesive (E30) to surface and installing. Allow to air dry.



INSPECT

FOLLOW-ON MAINTENANCE:

None

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

- Engine Repairman's Tool Kit
NSN 5180-00-323-4944
- Torque Wrench
NSN 5120-00-542-4489

Materials:

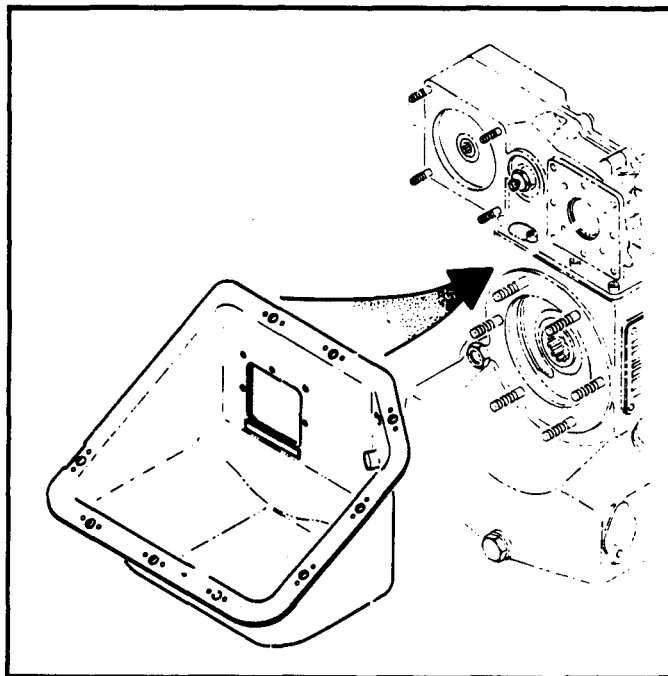
None

Persomel Required:

- 68B Aircraft Powerplant Repairer
- 68B Powerplant Inspector

Equipment Condition:

APU in Assembly Fixture (Task 1-22)



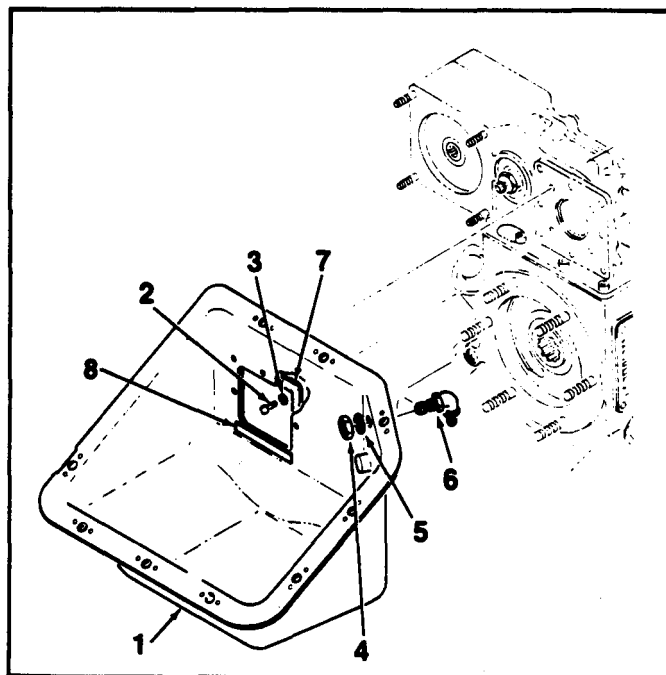
1. Make certain gasket (7) and spacer (8) are securely attached to base (1) (Task 2-70). Clean mounting surface prior to installation.

NOTE

Do not install washers (3) at top center or three lower bolt positions.

2. Install base (1) and secure with screws (2) and washers (3).
3. Install elbow (6) and secure with washers (5) and nut (4).

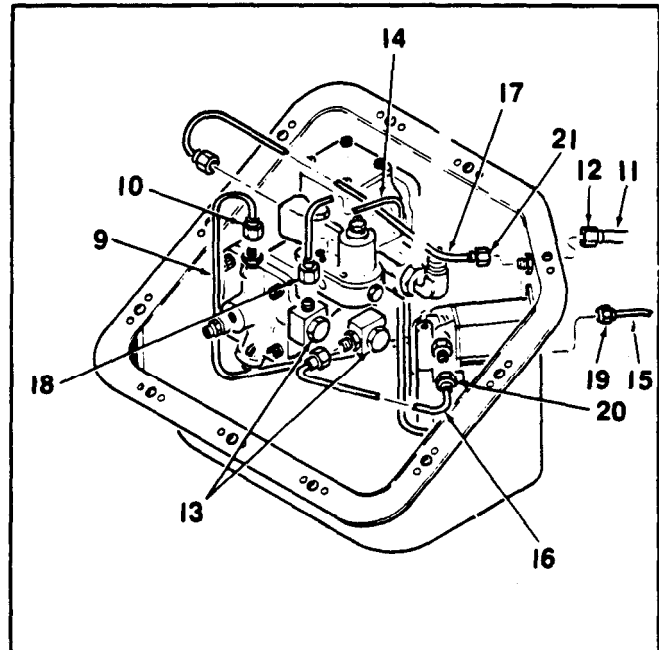
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NOTE

Perform steps 4, 6, and 7 without installation of tubing or fuel inlet filter for ease of access.

4. Install solenoid valves (Task 2-68).
5. Install tube assembly (9) and torque B-nut (10) to 80 inch-pounds.
6. Install solenoid valve (Task 2-66).
- 7. Install fuel control (Task 2-57).
8. Install tube assembly (11) and torque B-nut (12) to 80 inch-pounds.
9. Install tube assemblies (14, 15, 16, 17). Torque B-nuts (18, 20) to 100 inch-pounds, B-nuts (19) to 80 inch-pounds and B-nuts (21) to 135-150 inch-pounds. Torque fuel connection bolts (13) to 45 inch-pounds.
10. Install fuel inlet filter (Task 2-61).
11. Install fuel control cover (Task 2-48).

**INSPECT****FOLLOW-ON MAINTENANCE:**

- Leak Check During Operation

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Engine Repairman's Tool Kit
NSN 5180-00-323-4944

Materials:

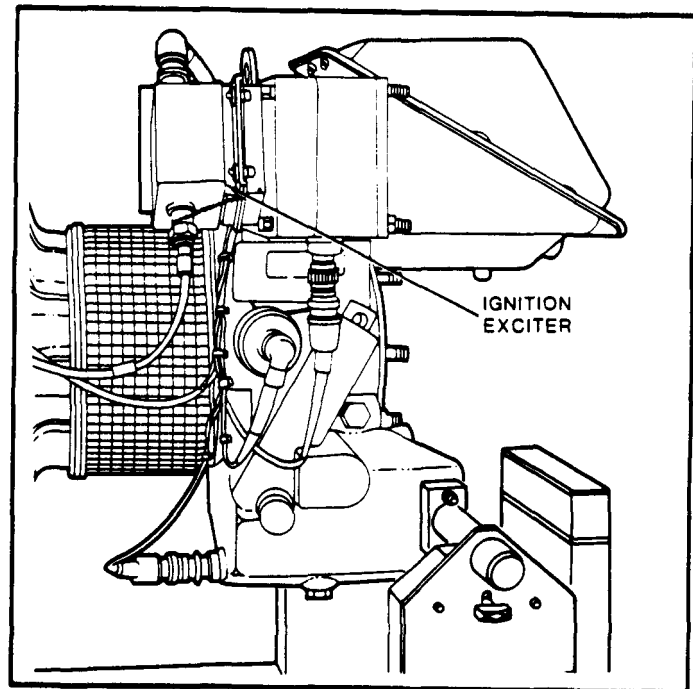
None

Personnel Required:

68B Aircraft Powerplant Repairer

Equipment Condition:

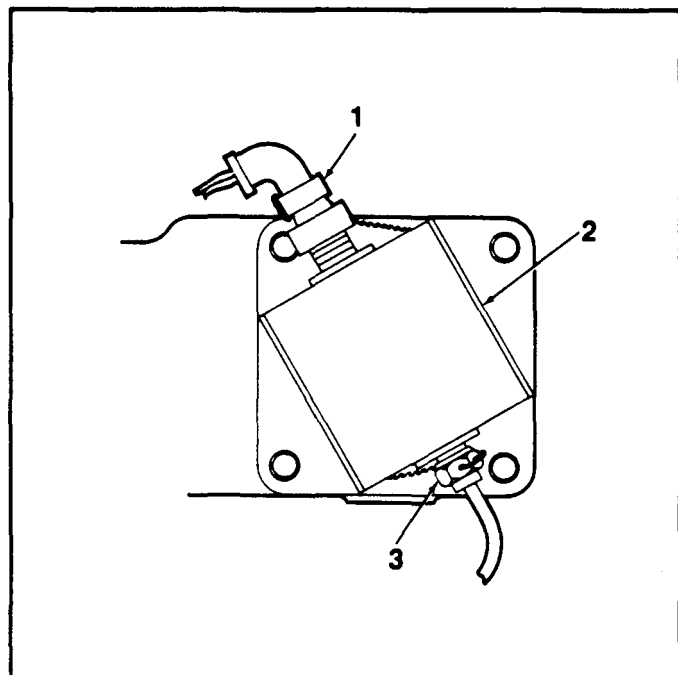
APU in Assembly Fixture (Task 1-22)



WARNING

Do not disconnect ignition cable within 30 minutes of running or attempting to start APU. Voltages used can cause arcing which may result in severe burns. Use extreme care when working with ignition system. Failure to observe all precautions may result in serious injury or death.

1. Remove lockwire from connectors (1) and cable (3).
2. Disconnect connector P303 (1) from ignition exciter (2). Inspect connector for broken pins and crossed or stripped threads. If damaged, return to depot.



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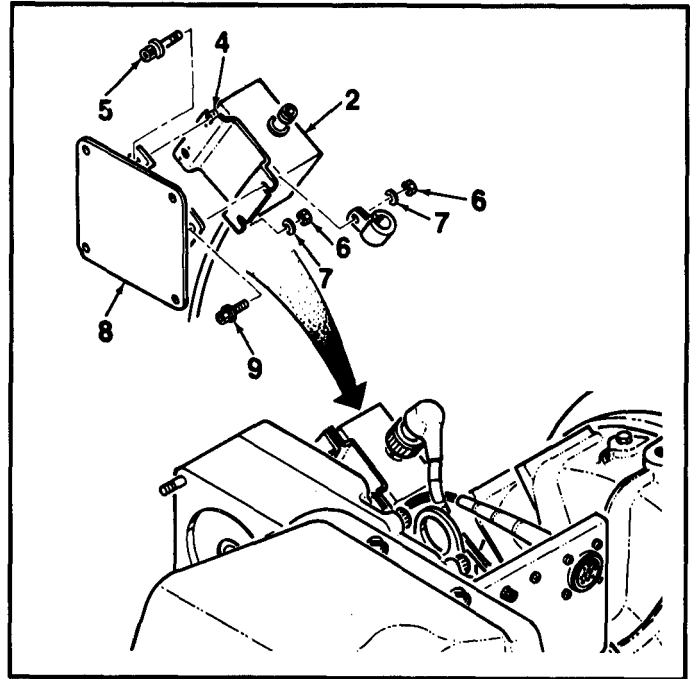
2-71 REMOVE IGNITION EXCITER (Continued)

2-71

3. Disconnect ignition cable (3) from ignition exciter (2).
4. Remove two bolts (5) from nut-plates (4).
5. Loosen nuts (6) from bolts (9) until ignition exciter (2) is free from bracket (8).

FOLLOW-ON MAINTENANCE:

None



END OF TASK

INITIAL SETUP

References:

Applicable Configurations:

TM 55-1500-204-25/1

All

Parts:

Tools:

Nutplates
Rivets

Engine Repairman's Tool Kit
NSN 5180-00-323-4944

Materials:

None

Personnel Required:

68B Aircraft Powerplant Repairer

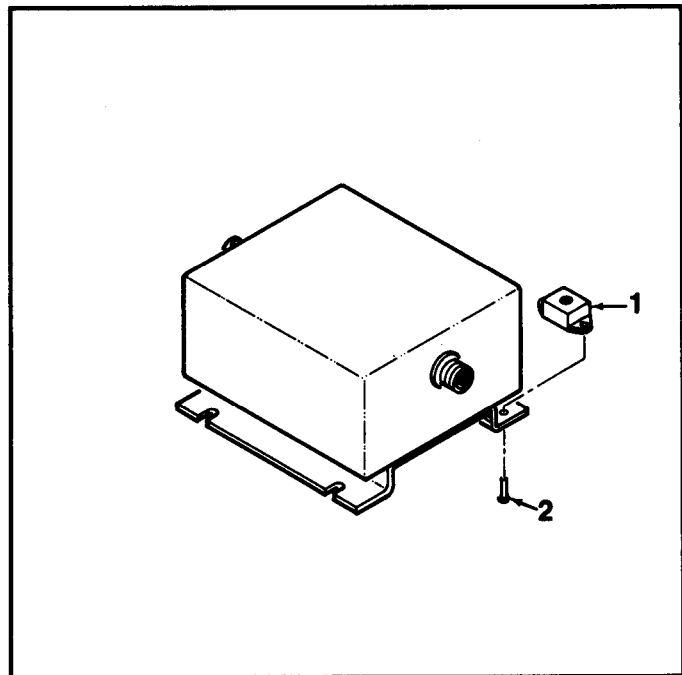
Equipment Condition:

Remove Ignition Exciter (Task 2-71)

1. Replace damaged nutplates (1) by drilling out rivets (2). Discard nutplates and rivets. Install new nutplates (1) using rivets (2).

FOLLOW-ON MAINTENANCE:

None



END OF TASK

2-73 CLEAN AND INSPECT IGNITION EXCITER

2-73

INITIAL SETUP

Applicable Configurations:

All

Tools:

None

Materials:

Lint-Free Cloth (E13)

Personnel Required:

68B Aircraft Powerplant Repairer

68B Powerplant Inspector

Equipment Condition:

Off APU Task

CAUTION

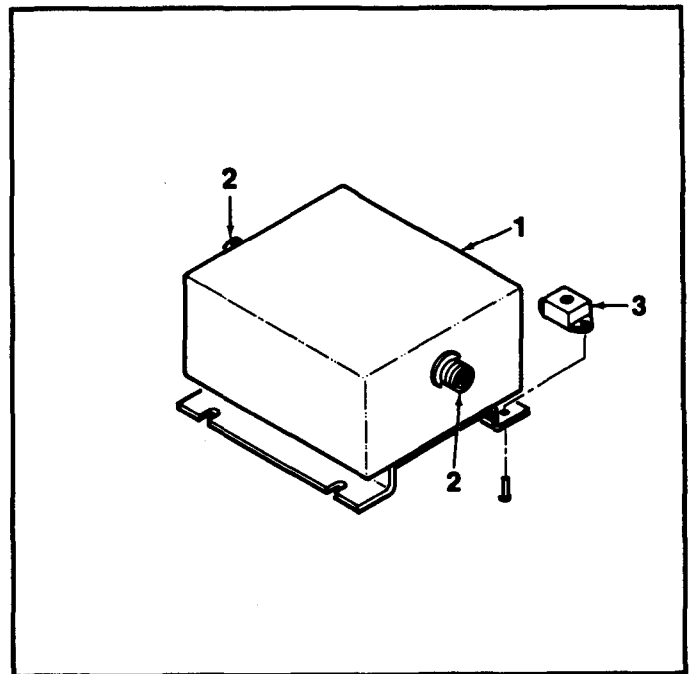
Do not use cleaning solvent to clean exciter. Use of solvent can result in failure of the exciter.

1. Wipe external surfaces of ignition exciter (1) with clean dry cloth (E13).
2. Inspect ignition exciter for dents, cracks and crossed or stripped connection threads (2). If damaged discard.

NOTE

Slight bulging of the exciter is acceptable provided exciter functions properly.

3. Inspect nutplates (3) for security and crossed threads. If damaged, repair, (Task 2-72).
4. Check plugs (2) for damaged or bent pins. Repair or replace as required.

**FOLLOW-ON MAINTENANCE:**

None

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Engine Repairman's Tool Kit
NSN 5180-00-323-4944

Materials:

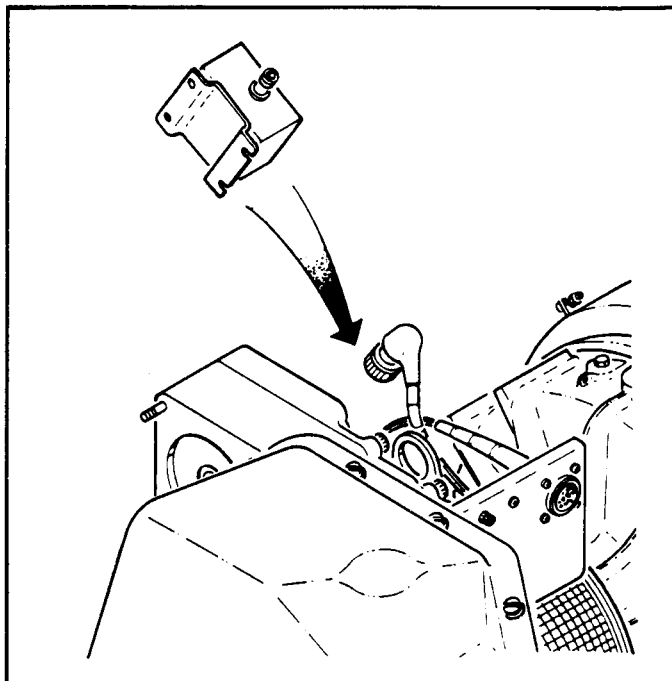
Lockwire (E16)

Personnel Required:

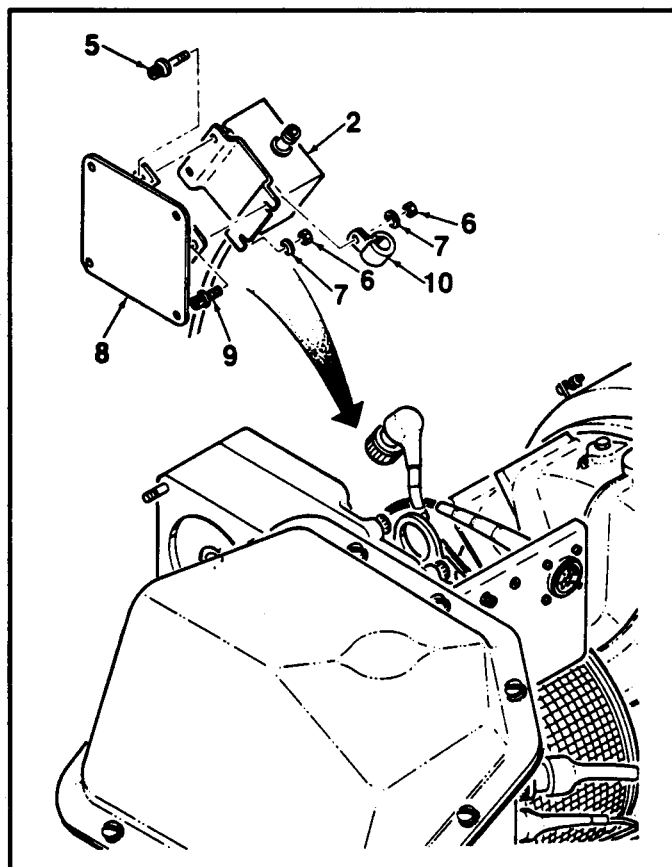
68B Aircraft Powerplant Repairer
68B Powerplant Inspector

Equipment Condition:

APU in Assembly Fixture (Task 1-22)



1. Position ignition exciter (2) under washer (7) and clamp
2. Secure ignition exciter (2) with bolts (5) and (9). Tighten nuts (6) to secure clamp (10) and washers (7). Torque bolts (5) and (9) to 25 inch pounds.



GO TO NEXT PAGE

2-74 INSTALL IGNITION EXCITER (Continued)

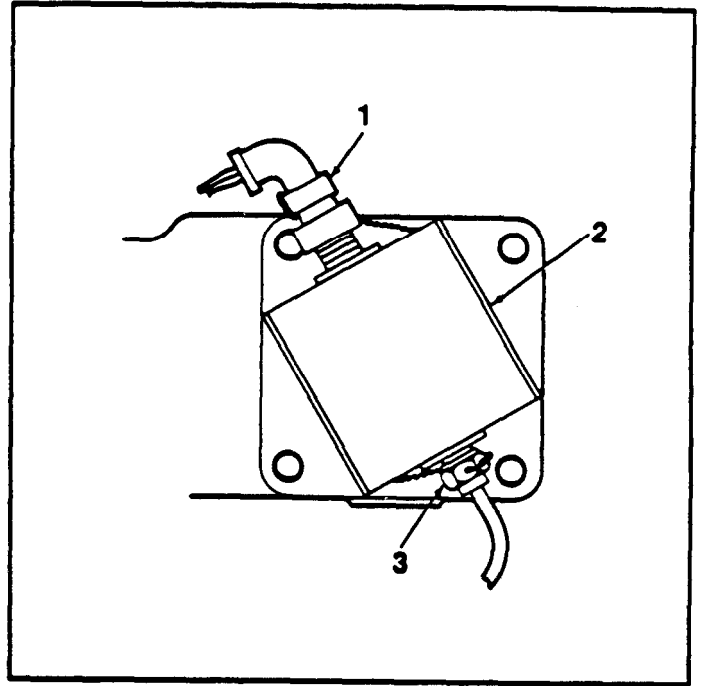
2-74

3. Connect ignition cable (3) and connector P303 (1) to ignition exciter (2). Torque ignition cable (3) to 145 inch-pounds. Secure wire connectors with lockwire (E16).

INSPECT

FOLLOW-ON MAINTENANCE:

None



END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Engine Repairman's Tool Kit
NSN 5180-00-323-4944

Materials:

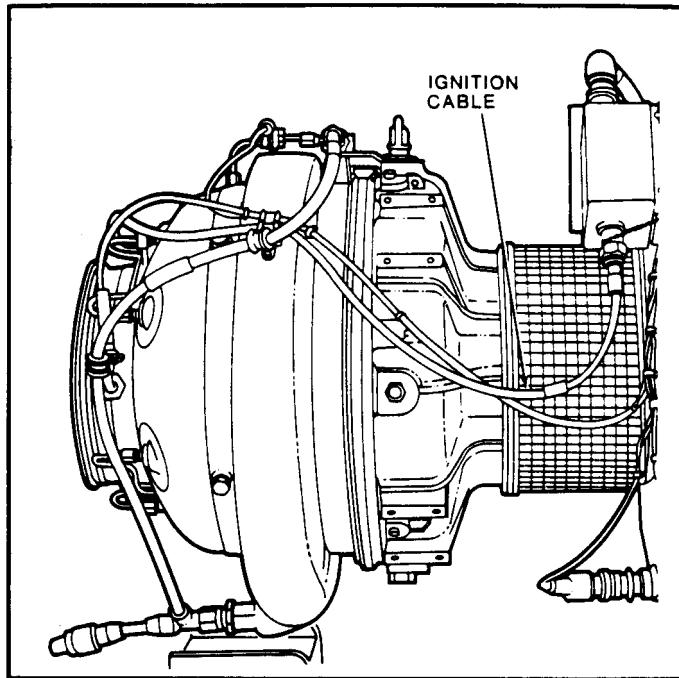
None

Personnel Required:

68B Aircraft Powerplant Repairer

Equipment Condition:

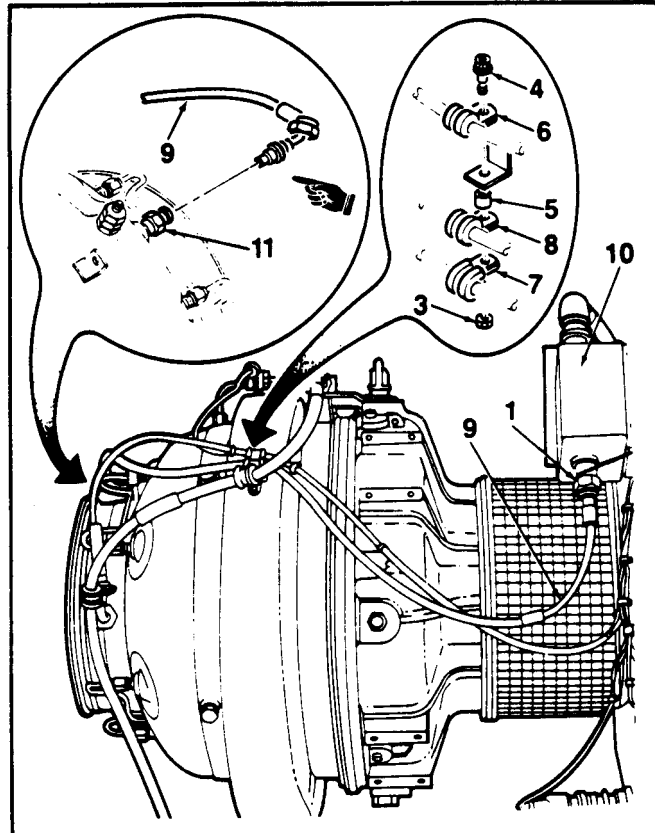
APU in Assembly Fixture (Task 1-22)



WARNING

Do not disconnect ignition cable within 30 minutes of running or attempting to start APU. Voltages used can cause arcing which may result in severe burns. Use extreme care when working with ignition system. Failure to observe all precautions may result in serious injury or death.

1. Remove lockwire from connector (1).
2. Remove nut (3), bolt (4) and spacer (5) to release clamps (6), (7) and (8).
3. Disconnect ignition cable (9) from ignition exciter (10).



GO TO NEXT PAGE

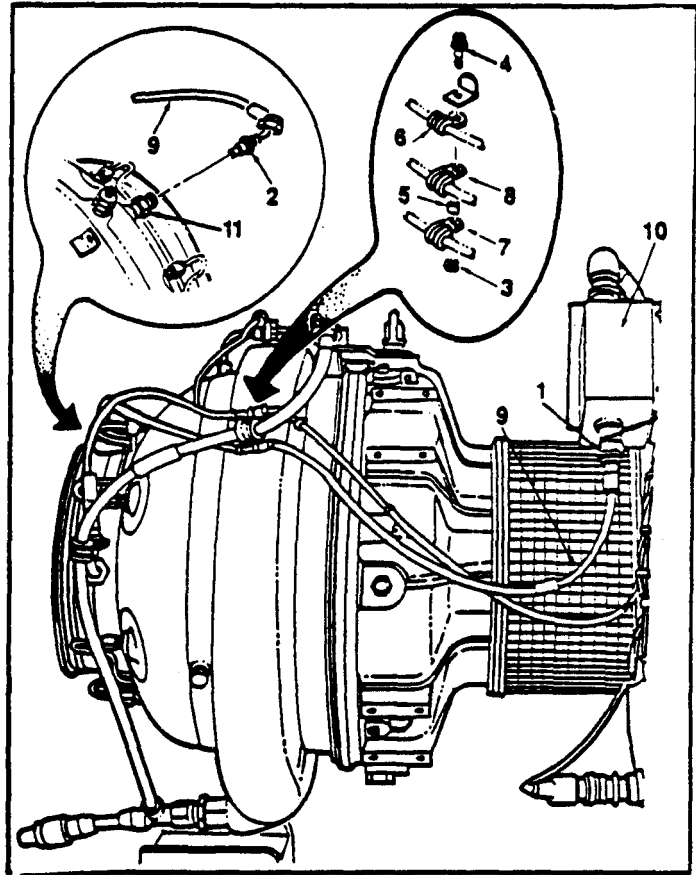
2-75 REMOVE IGNITION CABLE (Continued)

2-75

- 4. Remove ignition cable (9) by disconnecting from igniter plug (11) and removing clamp (8).

FOLLOW-ON MAINTENANCE

None



END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Engine Repairman's Tool Kit

NSN 5180-00-323-4944

Torque Wrench

NSN 5120-00-542-4489

Materials:

Lockwire (E16)

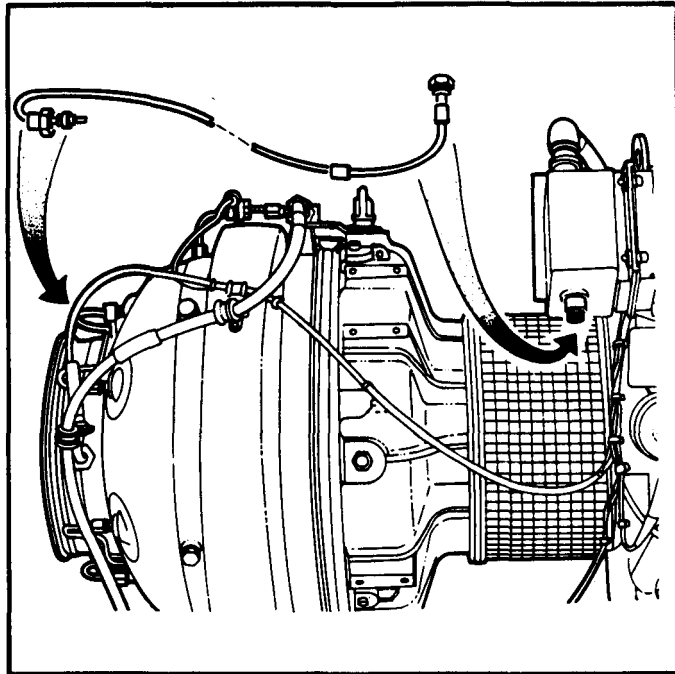
Personnel Required:

68B Aircraft Powerplant Repairer

68B Powerplant Inspector

Equipment Condition:

APU in Assembly Fixture (Task 1-22)



1. Connect ignition cable (2) to ignition exciter (9) and igniter plug (10). Torque ignition cable to 95 - 100 inch-pounds. Secure wire connectors (1) with lockwire (E16).

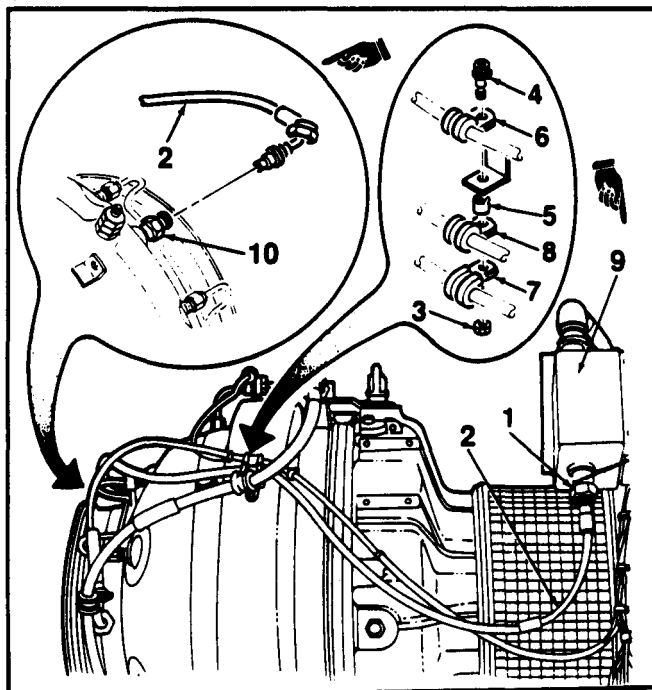
2. Position clamp (8) on ignition cable (2).

3. Secure clamps (6), (7), (8) and spacer (5) with bolt (4) and nut (3).

INSPECT

FOLLOW- ON MAINTENANCE:

None



END OF TASK

2-77 REMOVE IGNITER PLUG

2-77

INITIAL SETUP

Applicable Configurations:

All

Tools:

Engine Repairman's Tool Kit
NSN 5180-00-323-4944

Materials:

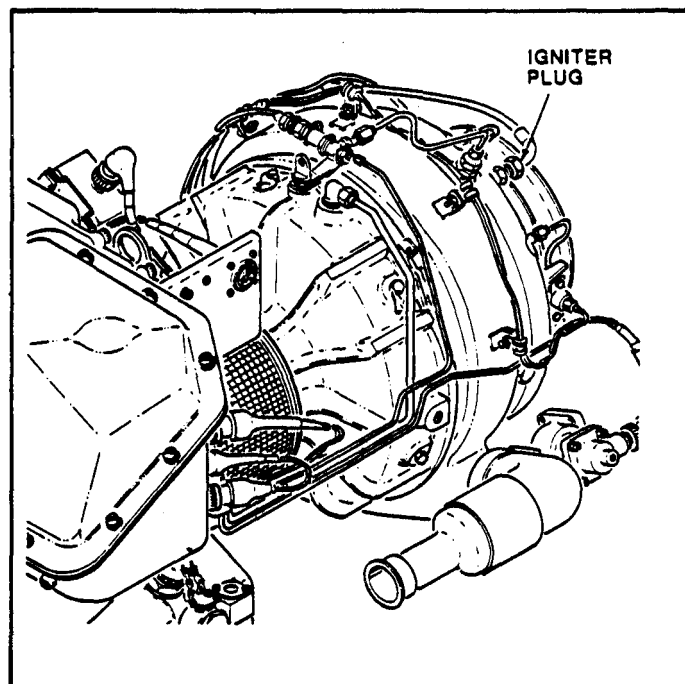
None

Personnel Required:

68B Aircraft Powerplant Repairer

Equipment Condition:

APU in Assembly Fixture (Task 1-22)

**WARNING**

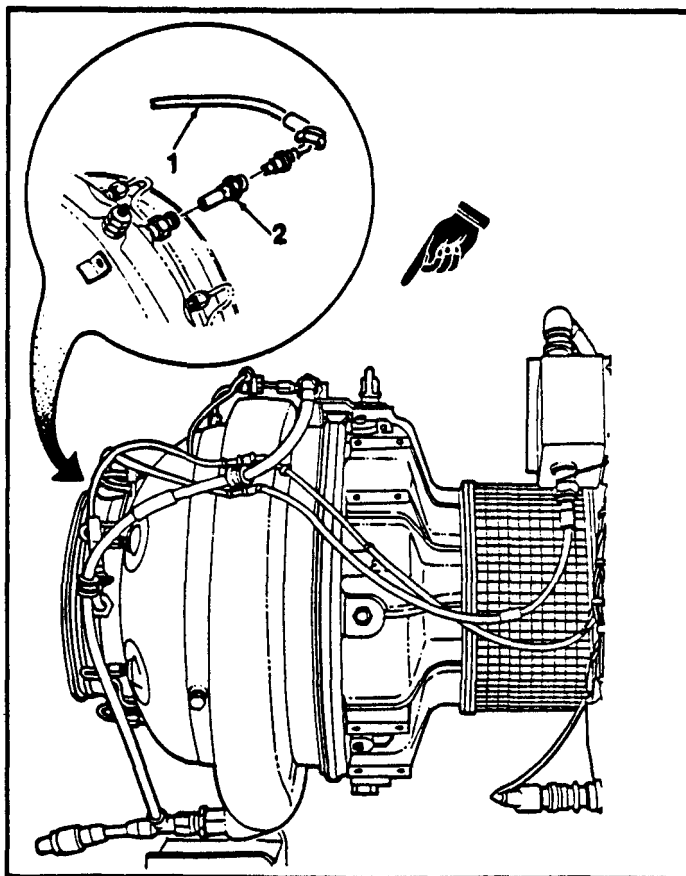
Do not disconnect ignition cable within 30 minutes of running or attempting to start APU. Voltages used can cause arcing which may result in severe burns. Use extreme care when working with ignition system. Failure to observe all precautions may result in serious injury or death.

1. Remove lockwire from ignition cable (1). Disconnect ignition cable (1) from igniter plug (2).
2. Remove igniter plug (2).

FOLLOW-ON MAINTENANCE:

None

END OF TASK



INITIAL SETUP

Personnel Required:

Applicable Configurations:

68B Aircraft Powerplant Repairer
68B Powerplant Inspector

All

Equipment Condition:

Tools:

Off APU Task

None

Materials:

Lint-Free Cloth (E13)

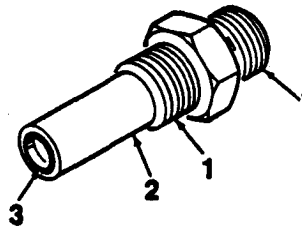
CAUTION

Do not use solvent to clean igniter plug. Solvent can foul plug and cause plug not to operate.

1. Clean carbon deposits with clean cloth (E13).
2. Inspect for crossed or stripped threads (1). If damaged, discard.
3. Inspect for cracked or eroded insulator (2). If damaged, discard.
4. Check for eroded electrode (3). If damaged, discard.

FOLLOW-ON MAINTENANCE:

None



END OF TASK

2-79 INSTALL IGNITER PLUG

2-79

INITIAL SETUP**Applicable Configurations:**

All

Tools:

Engine Repairman's Tool Kit

NSN 5180-00-323-4944

Torque Wrench

NSN 5120-00-542-4489

Materials:

Lockwire (E16)

Anti-Seize Compound (E15)

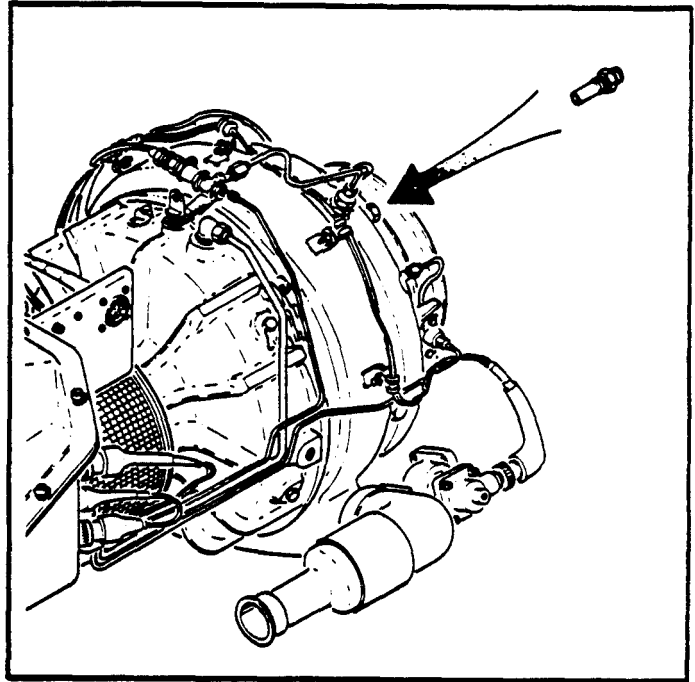
Personnel Required:

68B Aircraft Powerplant Repairer

68B Powerplant Inspector

Equipment Condition:

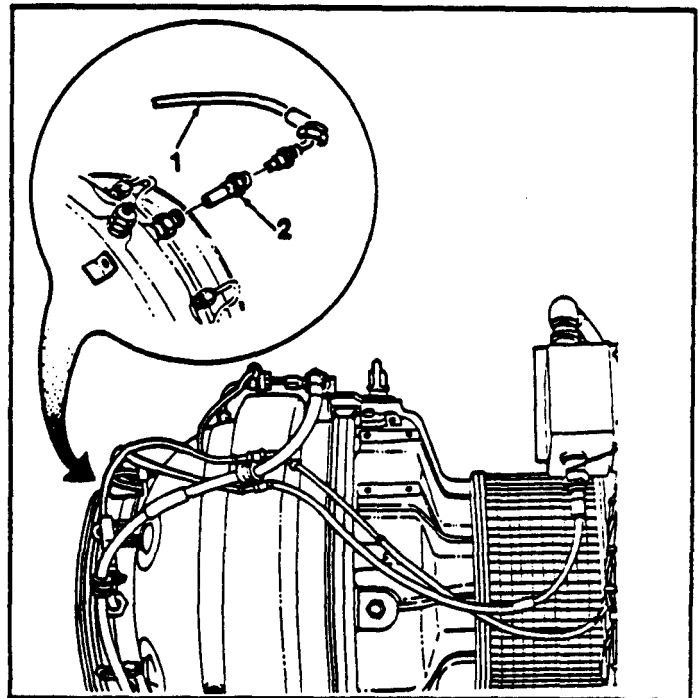
APU in Assembly Fixture (Task 1-22)



1. Apply light coat of antiseize compound (E15) to mounting threads of igniter plug (2).
2. Install igniter plug (2) and torque to 120 inch-pounds.
3. Connect ignition cable (1). Torque to 95 - 105 inch-pounds. Safety wire using lockwire (E16).

INSPECT**FOLLOW-ON MAINTENANCE:**

None

**END OF TASK**

INITIAL SETUP

Applicable Configurations:

All

Tools:

Engine Repairman's Tool Kit
NSN 5180-00-323-4944

Materials:

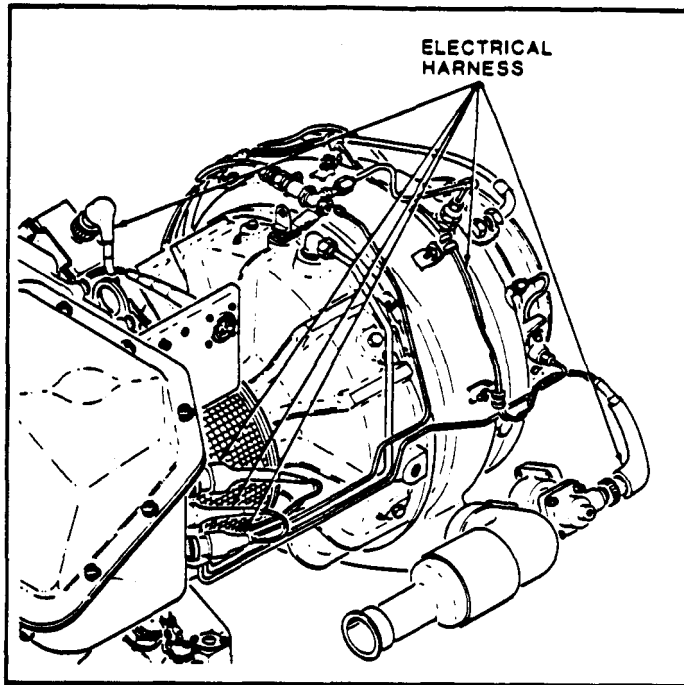
None

Personnel Required:

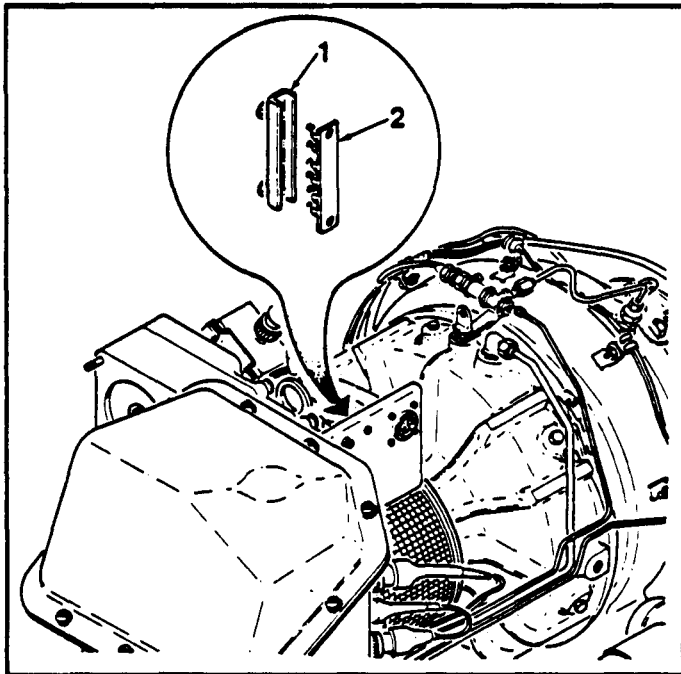
68B Aircraft Powerplant Repairer
68B Powerplant Inspector

Equipment Condition:

APU in Assembly Fixture (Task 1-22)

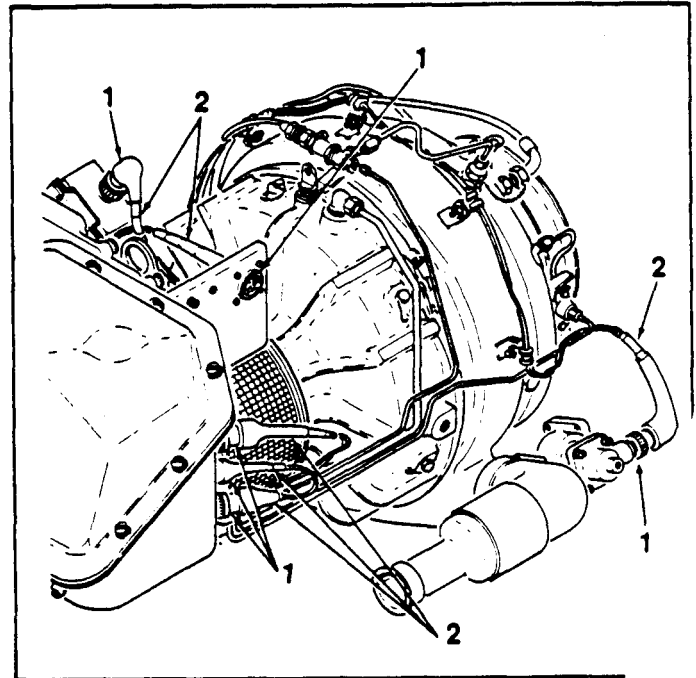


1. Remove terminal board cover (1).
2. Inspect terminal board (2) for damage. If damaged, remove and replace harness assembly. (Task 2-81, 2-82).
3. Inspect terminal board (2) connections for secure attachment. Connections must be tight.
4. Install terminal board cover (1).

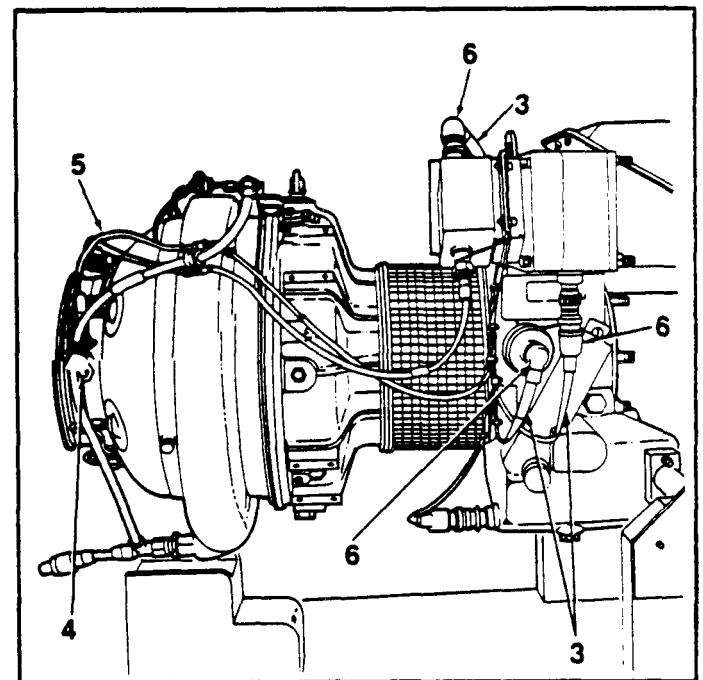


GO TO NEXT PAGE

5. Inspect wires and sleeving (2) for cuts, breaks or deterioration. If damaged, replace harness assembly (Tasks 2-81, 2-82, or 2-82.1, 2-82.2).
6. Remove connectors (1). Inspect connectors (1) for broken or bent pins and crossed or stripped threads. If damaged, replace (Tasks 2-81, 2-82, or 2-82.1, 2-82.2).



7. Inspect wires and sleeving (3) for cuts, breaks or deterioration. If damaged, replace harness assembly (Tasks 2-81, 2-82, or 2-82.1, 2-82.2).
8. Remove connectors (6) and inspect for broken or bent pins. If damaged, replace harness assembly (Tasks 2-81, 2-82, or 2-82.1, 2-82.2).
9. Inspect thermocouple (4) and thermocouple lead (5) for cracked connector nut and crimped or broken lead. If damaged, replace harness assembly (Tasks 2-81, 2-82, or 2-82.1, 2-82.2).



FOLLOW-ON MAINTENANCE:

None

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Engine Repairman's Tool Kit
NSN 5180-00-323-4944

Materials:

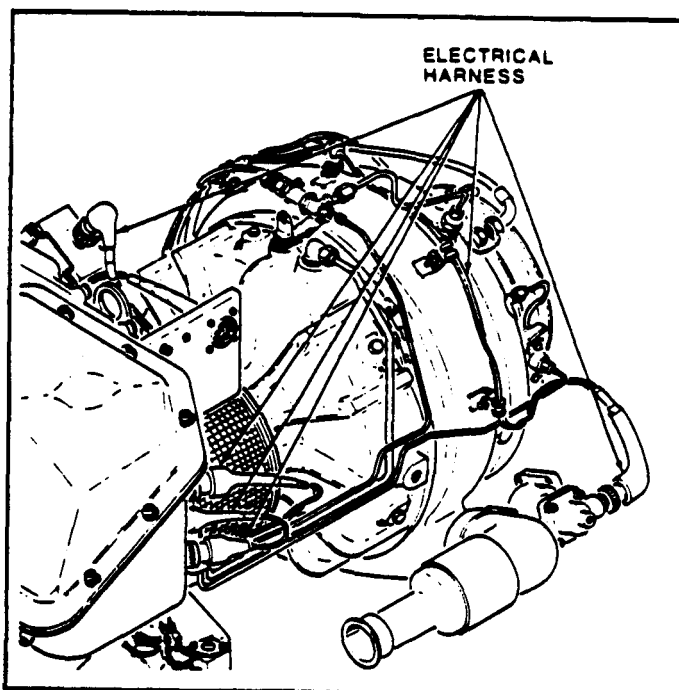
None

Personnel Required:

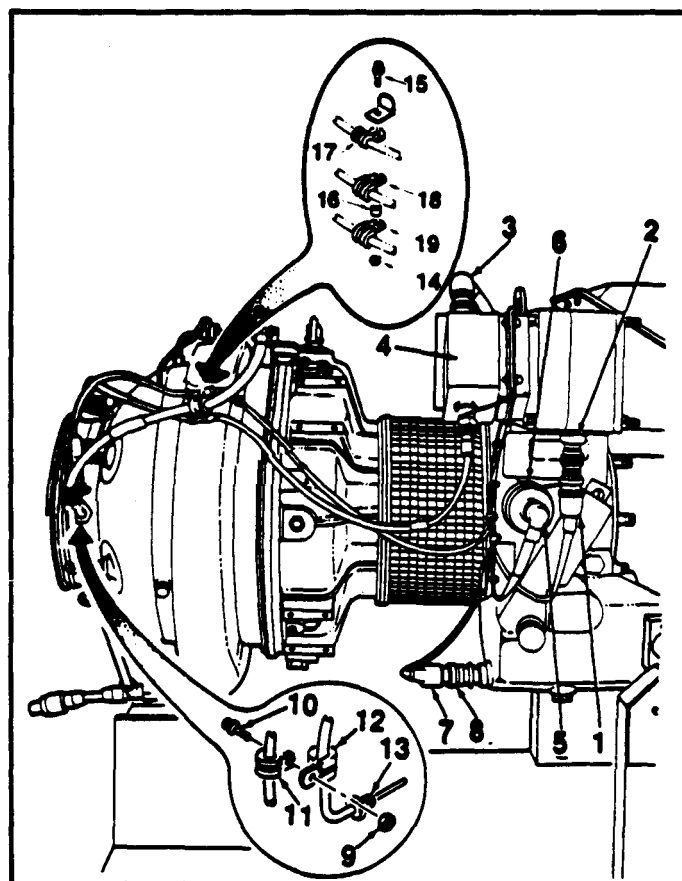
68B Aircraft Powerplant Repairer

Equipment Condition:

APU in Assembly Fixture (Task 1-22)



1. Remove all lockwiring from electrical harness connectors.
2. Disconnect connector P302 (1) from magnetic pickup (2).
3. Disconnect connector P303 (3) from ignition exciter (4).
4. Disconnect connector P304 (5) from low oil pressure switch (6).
5. Disconnect connector P310 (7) from high oil temperature switch (8).
6. Remove nut (9) and bolt (10) to release clamps (11) and (12).
7. Remove thermocouple (13).
8. Remove nut (14), bolt (15) and spacer (16) and remove clamps (17), (18) and (19).

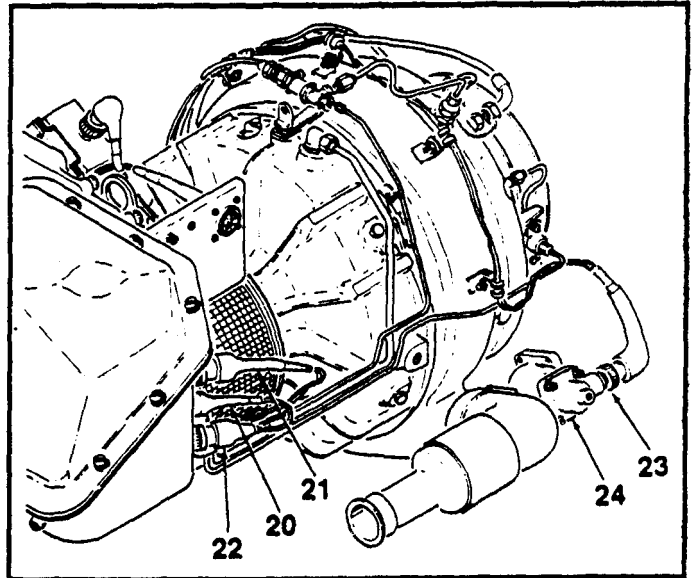


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2-81 REMOVE ENGINE ELECTRICAL HARNESS ASSEMBLY (Continued)

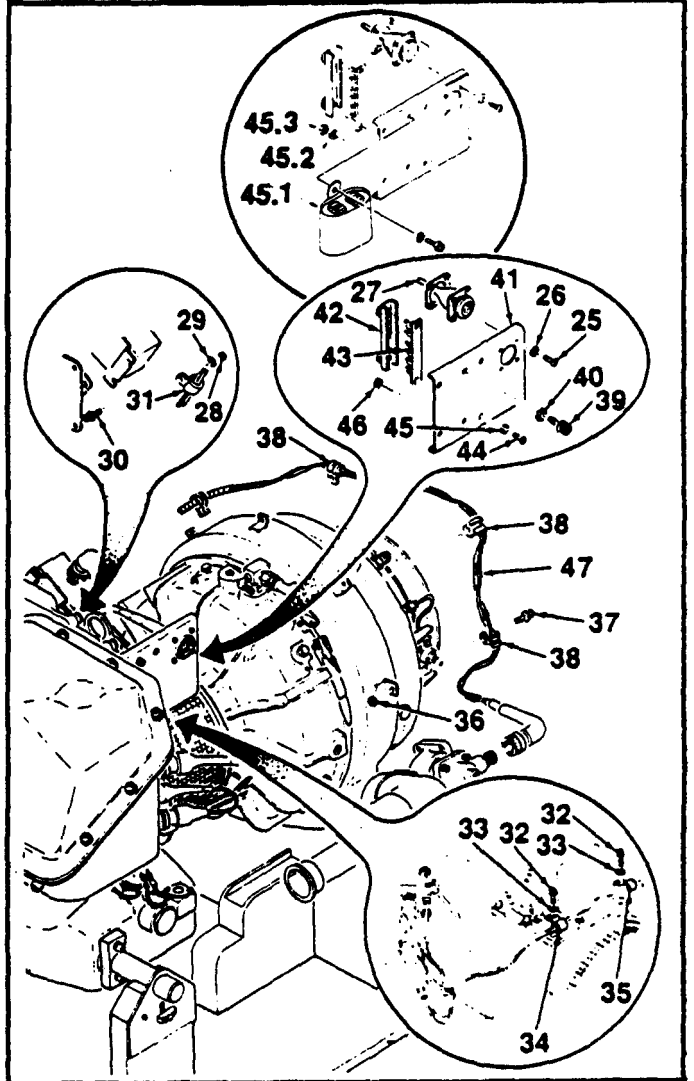
2-81

8. Remove nut (14), bolt (15) and spacer (16) to release clamps (17), (18) and (19).
9. Disconnect connector P305 (20) from start fuel solenoid valve receptacle J305.
10. Disconnect connector P306 (21) from main fuel solenoid valve receptacle J306.
11. Disconnect connector P307 (22) from max fuel solenoid valve receptacle J307.
12. Disconnect connector P308 (23) from start by-pass valve (24).



13. Remove screws (25) and washers (26) to disconnect connector J301 (27).

13.1 On APU PN 116305-300 or 116305-302, disconnect meter assembly terminal lugs by removing nuts (45.3) and washers (45.2). Remove meter assembly (45.1) by removing two bolts (39) and washers (40).



14. Disconnect terminal board (43) by removing screws (44), washers (45) and nuts (46). Remove bracket (41) by removing bolts (39) and washers (40).
15. Remove nut (28), washer (29) and bolt (30) to release clamp (31).
16. Remove bolts (32) and washers (33) to release clamps (34) and (35).
17. Remove nuts (36) and bolts (37) to release clamps (38).
18. Remove harness assembly (47).

FOLLOW-ON MAINTENANCE:

None

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Engine Repairman's Tool Kit
NSN 5180-00-323-4944

Materials:

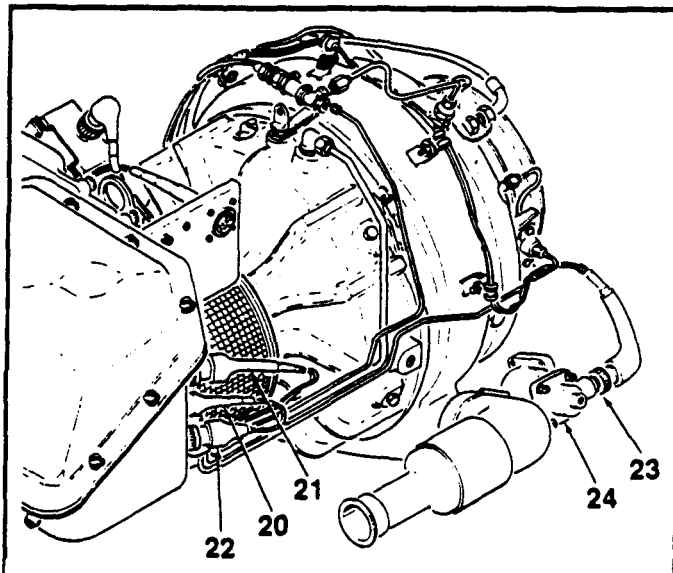
Lockwire (E32)
Anti-Seize Compound (E15)
Fiberglass tape (E34)

Personnel Required:

68B Aircraft Powerplant Repairer
68B Powerplant Inspector

Equipment Condition:

APU in Assembly Fixture (Task 1-22)



1. Secure connector J301 (27) to bracket (41) with screws (25) and washers (26).

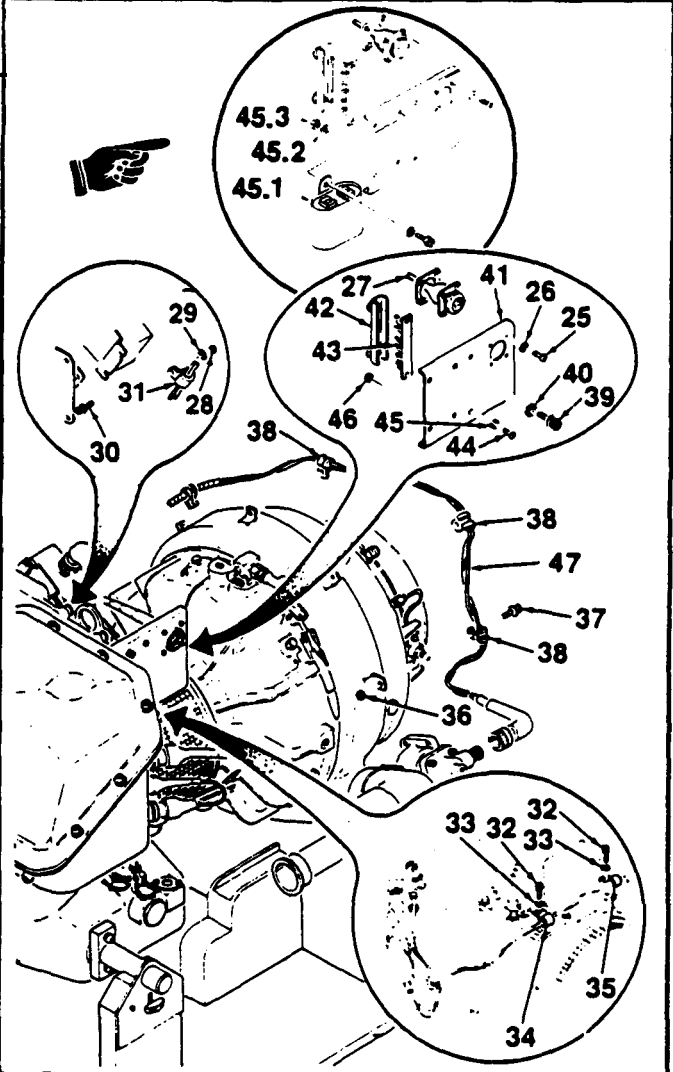
2. Install terminal board (43) using screws (44), washers (45) and nuts (46).

2.1 On APU PN 116305-300, wrap wiring harness at mount positions of clamps (38) with fiberglass tape (E34) to ensure proper clamp fit.

3. Position clamps (31), (38) on harness assembly.

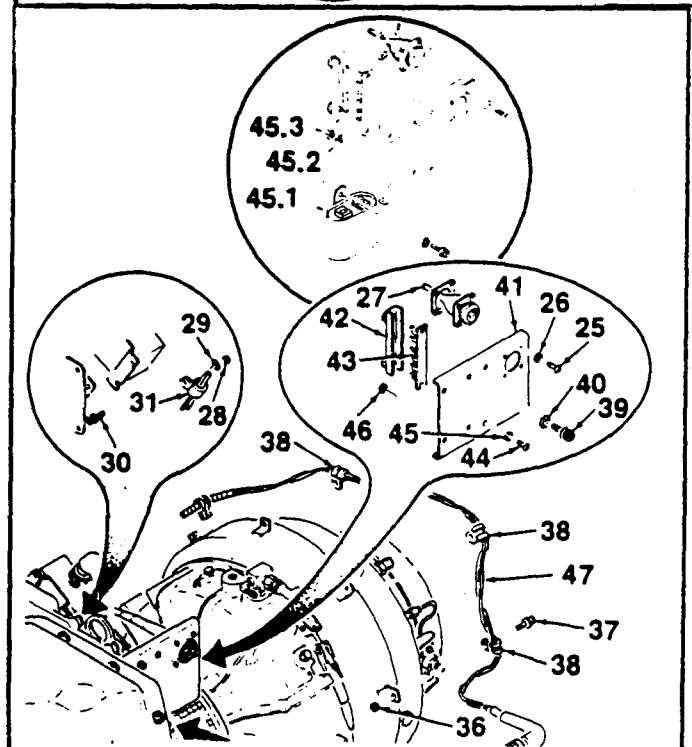
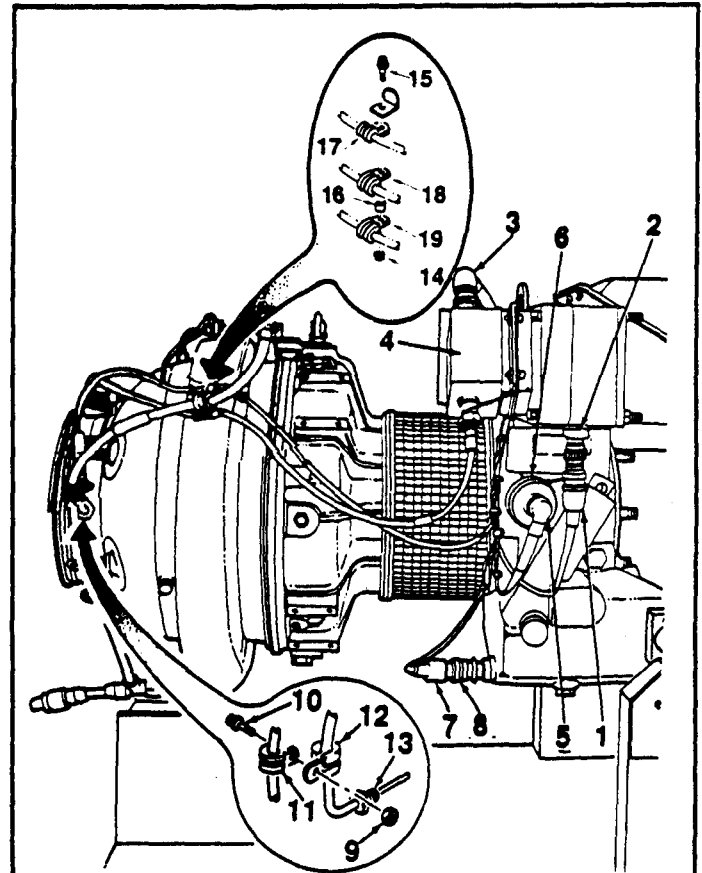
4. Secure clamps (34) and (35) with bolts (32) and washers (33).

4.1 On APU PN 116305-300, secure bracket (41) with two leftmost screws (44) and washers (45). Secure meter assembly (45.1) with remaining screws (44) and washers (45). Secure ground wire using bolt and washer.



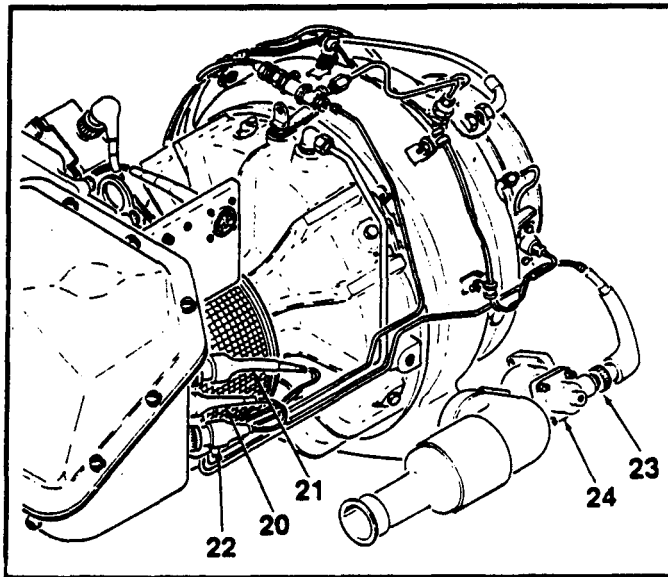
GO TO NEXT PAGE

5. On APU PN 116305-100, -200, AND -201, secure bracket (41) with screws (44), washers (45), and nuts (46). Secure ground wire using bolt and washer.
6. Secure clamp (31) with bolt (30), washer (29) and nut (28).
7. Secure clamps (38) with bolts (37) and nuts (36).
- 7.1 On APU PN 116305-300, and 16305-302, wrap thermocouple and ignition leads at mount positions of clamps (17 and 19) with fiberglass tape (E34) to ensure proper clamp fit.
8. Position clamps (17) and (12) on harness assembly. Secure clamps (12) and (11) with bolt (10) and nut (9).
9. Secure clamps (17, 18) and (19) with bolt (15), spacer (16) and nut (14).
10. Connect connector P302 (1) to magnetic pickup (2).
11. Connect connector P303 (3) to ignition exciter (4).
12. Connect connector P304 (5) to low oil pressure switch (6).
13. Connect connector P310 (7) to high oil temperature switch (8).
- 13.1 On APU PN 116305-300 and 116305-302, remove terminal board cover and connect leads of meter assembly (45.1) to terminal board as shown. Secure leads using tie-down straw as required. Install terminal board cover.



GO TO NEXT PAGE

14. Connect connector P305 (20) to start fuel solenoid valve receptacle J305.
15. Connect connector P306 (22) to main fuel solenoid valve receptacle J306.
16. Connect connector P307 (21) to max fuel solenoid valve receptacle J307.
17. Connect connector P308 (23) to start by-pass valve (24).
18. Safety wire all connectors with lockwire (E32).



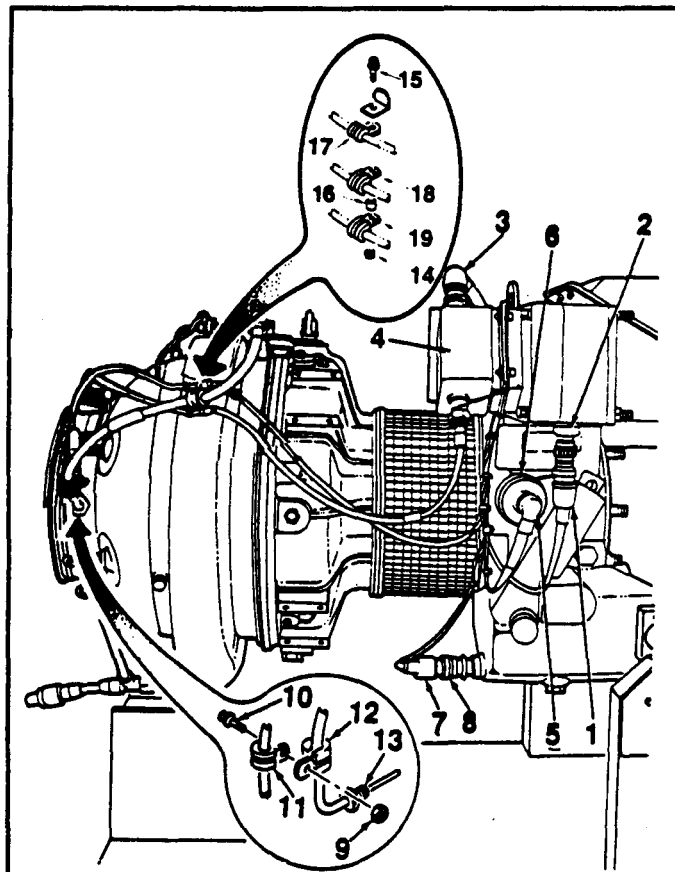
- 18.1 On APU PN 116305-300, wrap thermocouple and wiring harness, together, from clamp (17) on combustor housing forward for approximately 12 inches using fiberglass tape (E34).

19. Apply light coat of anti-seize compound (E15) to threads of thermocouple (13). Install thermocouple (13) and torque to 100 inch-pounds.

INSPECT

FOLLOW-ON MAINTENANCE:

None



END OF TASK

2-82.1 REMOVE METER ASSEMBLY

2-82.1

INITIAL SETUP

Applicable Configurations:

APU 116305-300

APU 116305-302

Tools:

Engine Repairman's Tool Kit
NSN 5180-00-323-4944

Materials:

None

Personnel Required:

68B Aircraft Powerplant Repairer

Equipment Condition:

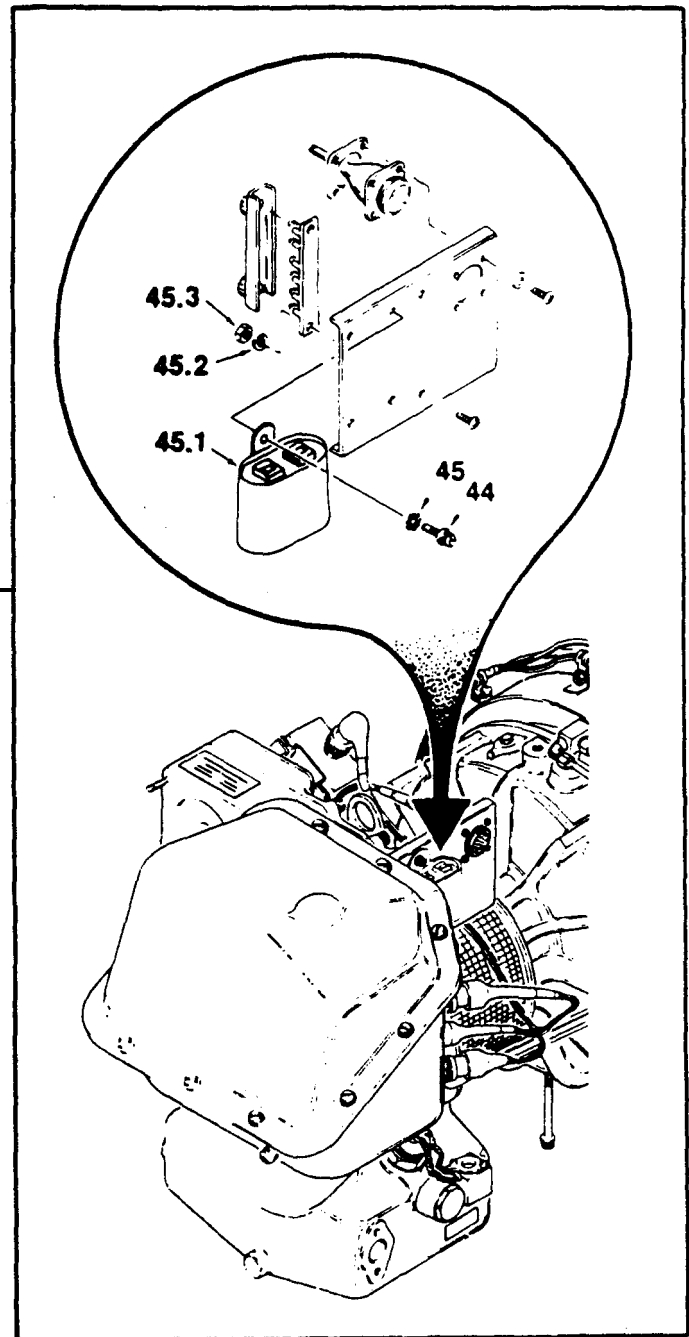
APU in Assembly Fixture (Task 1-22)

1. Remove terminal board cover (42) and disconnect meter assembly (45.1) leads by removing nuts (45.3) and washers (45.2).
2. Remove meter assembly (45.1) by removing screws (44) and washers (45).

FOLLOW-ON MAINTENANCE:

None

END OF TASK



INITIAL SETUP

Applicable Configurations:

116305-300

Tools:

Engine Repairman's Tool Kit
NSN 5180-00-323-4944

Materials:

None

Personnel Required:

68B Aircraft Powerplant Repairer

Equipment Condition:

APU in Assembly Fixture (Task 1-22)

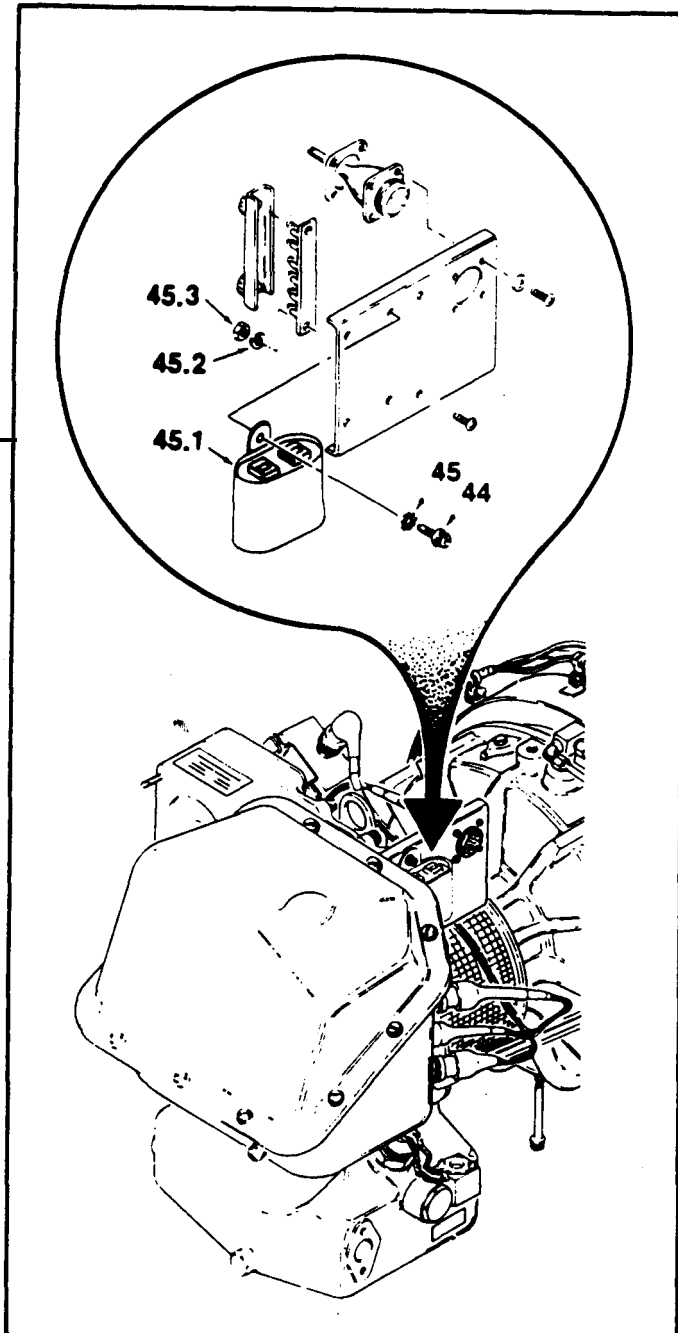
1. Secure meter assembly (45.1) using screws (44) and washers (45).
2. Remove terminal board cover (42) and connect meter assembly (45.1) leads using nuts (45.3) and washers (45.2). Install terminal board cover.

INSPECT

FOLLOW-ON MAINTENANCE:

None

END OF TASK



2-82.3 CLEAN AND INSPECT METER ASSEMBLY

2-82.3

INITIAL SETUP

Applicable Configurations:

APU 116305-300

APU 116305-302

Tools:

None

Materials:

Lint-Free Cloth (E13)

Personnel Required:

68B Aircraft Powerplant Repairer

68B Powerplant Inspector

Equipment Condition:

Off APU Task

CAUTION

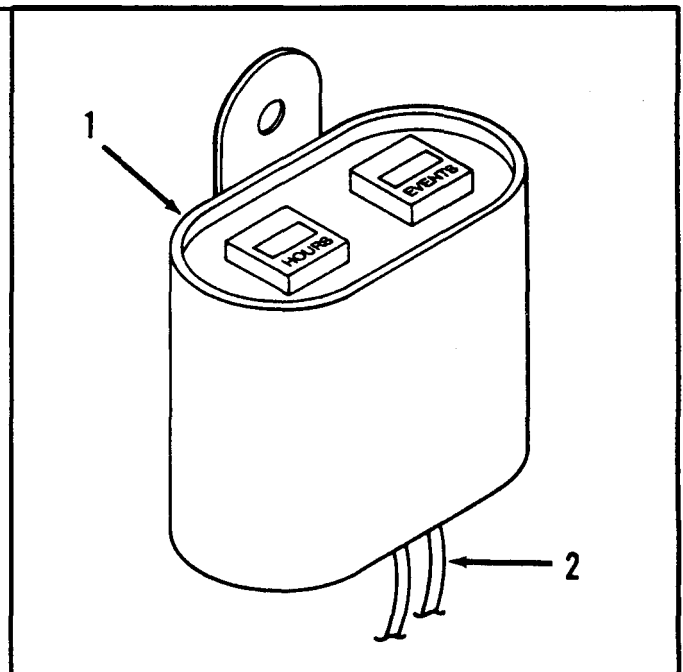
Do not use cleaning solvent to clean. Use of solvent can result in failure of the meter assembly.

1. Wipe external surfaces of meter assembly (1) and leads (2) with clean, dry cloth (E13).
2. Inspect meter assembly for dents, cracks, and corrosion. If damaged, discard.

FOLLOW-ON MAINTENANCE:

None

END OF TASK



2-83 REMOVE MAGNETIC PICKUP

2-83

INITIAL SETUP

Applicable Configurations:

All

Tools:

Engine Repairman's Tool Kit
NSN 5180-00-323-4944

Materials:

None

Personnel Required:

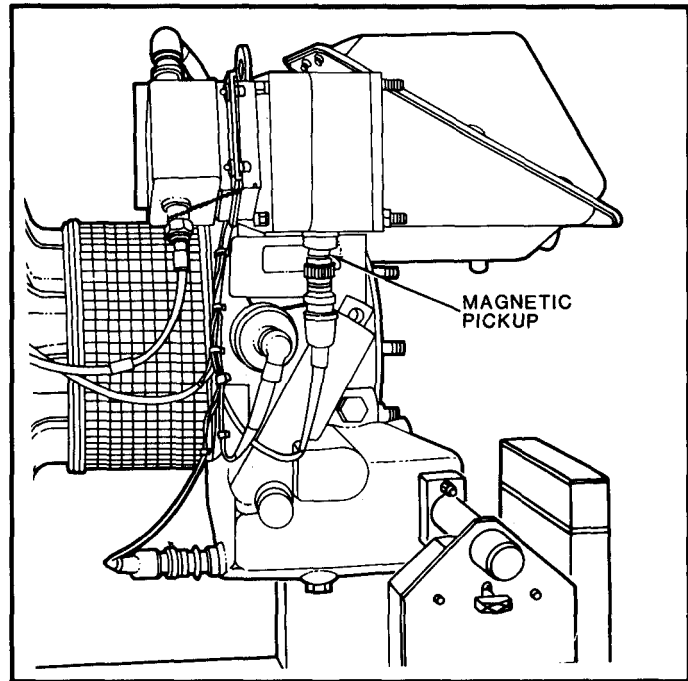
68B Aircraft Powerplant Repairer

Equipment Condition:

APU in Assembly Fixture (Task 1-22)

References:

TM 55-1520-237-23-3

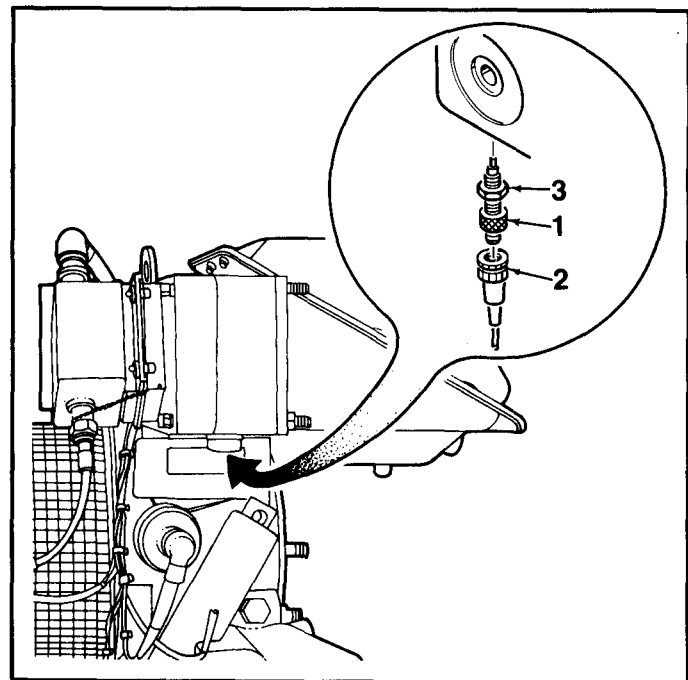


1. Remove lockwire from magnetic pickup (1) and connector P302 (2).
2. Disconnect connector P302 (2) from magnetic pickup (1). Inspect connector for broken pins and crossed or stripped threads. If damaged, return to depot.
3. Loosen locknut (3) and remove magnetic pickup (1). Discard magnetic pickup (1) if determined to be faulty during troubleshooting (TM 55-1520-237-23-3).

FOLLOW-ON MAINTENANCE:

None

END OF TASK



INITIAL SETUP

Personnel Required:

Applicable Configurations:

68B Aircraft Powerplant Repairer
68B Powerplant Inspector

All

Equipment Condition:

Tools:

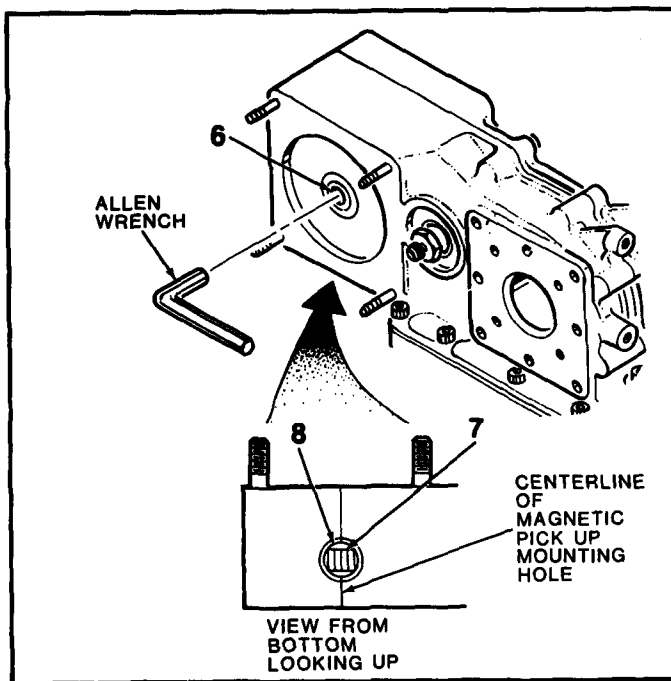
APU in Assembly Fixture (Task 1-22)

Engine Repairman's Tool Kit
NSN 5180-00-323-4944
Torque Wrench
NSN 5120-00-542-4489

Materials:

Lockwire (E32)
Screw Lock (E22)

- Using a 1/2-inch allen wrench inserted in starter adapter (6), manually turn APU gear train until one tooth of starter gear (7) is in line with center of magnetic pickup mounting hole (8).



GO TO NEXT PAGE

2-84 INSTALL MAGNETIC PICKUP (Continued)

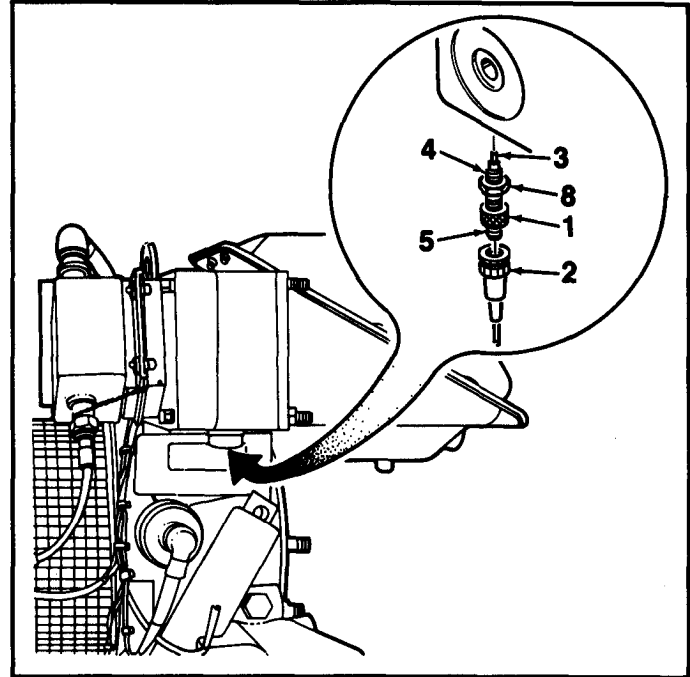
2-84

2. Apply a light coat of screw lock (E22) to mounting threads (4) of magnetic pickup (1).
3. Screw in magnetic pickup (1) until pickup pole (3) lightly bottoms on starter gear tooth crest.

Note

One quarter turn of magnetic pickup (1) is equal to a clearance of 0.014 inch between magnetic pickup and starter gear.

4. Using key (as a position reference) in electrical connector portion (5) of magnetic pickup (1), back off magnetic pickup one-quarter turn.
5. Lock magnetic pickup (1) in position with locknut (8). Torque to 90 inch-pounds. Safety wire using lockwire (E16).
6. Rotate allen wrench to ensure gear and pickup do not rub.
7. Connect connector P302 (2). Safety wire using lockwire (E32).



INSPECT

FOLLOW-ON MAINTENANCE:

None

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

- Engine Repairman's Tool Kit
- NSN 5180-00-323-4944
- Strap Wrench
- NSN 5120-00-242-3249

Personnel Required:

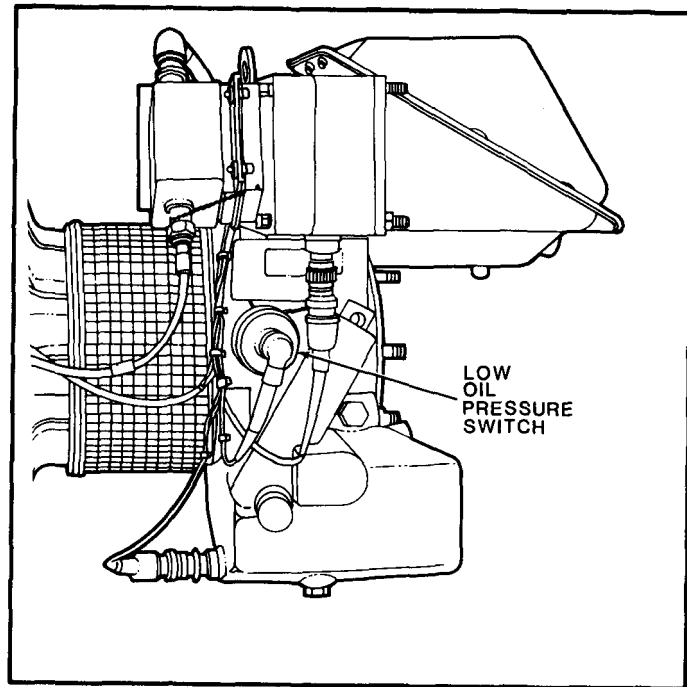
68B Aircraft Powerplant Repairer

Equipment Condition:

APU in Assembly Fixture (Task 1-22)

References:

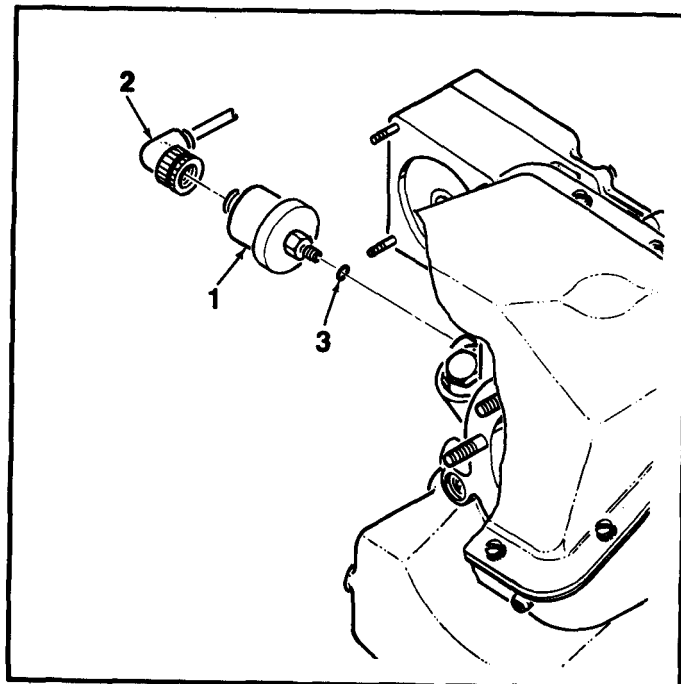
TM 55-1520-237-23-3



1. Remove lockwire from low oil pressure switch (1) and connector P304 (2).
2. Disconnect connector P304 (2) from low oil pressure switch (1). Inspect connector for broken pins and crossed or stripped threads. If damaged, return to depot.
3. Remove low oil pressure switch (1) and packing (3) using strap wrench. Discard switch if determined to be faulty during troubleshooting (TM 55-1520-237-23-3).

FOLLOW-ON MAINTENANCE

None



END OF TASK

2-86 INSTALL LOW OIL PRESSURE SWITCH

2-86

INITIAL SETUP

Applicable Configurations:

All

Tools:

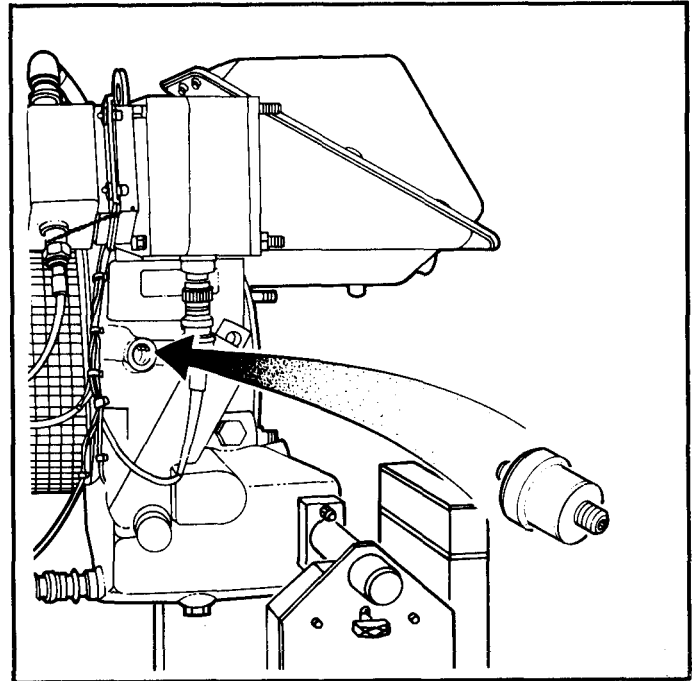
Engine Repairman's Tool Kit
 NSN 5180-00-323-4944
 Strap Wrench
 NSN 5120-00-242-3249

Materials:

Lockwire (E32)
 Assembly Fluid, No. 1 (E31)

Personnel Required:

68B Aircraft Powerplant Repairer
 68B Powerplant Inspector



References:

TM 55-2835-208-23P

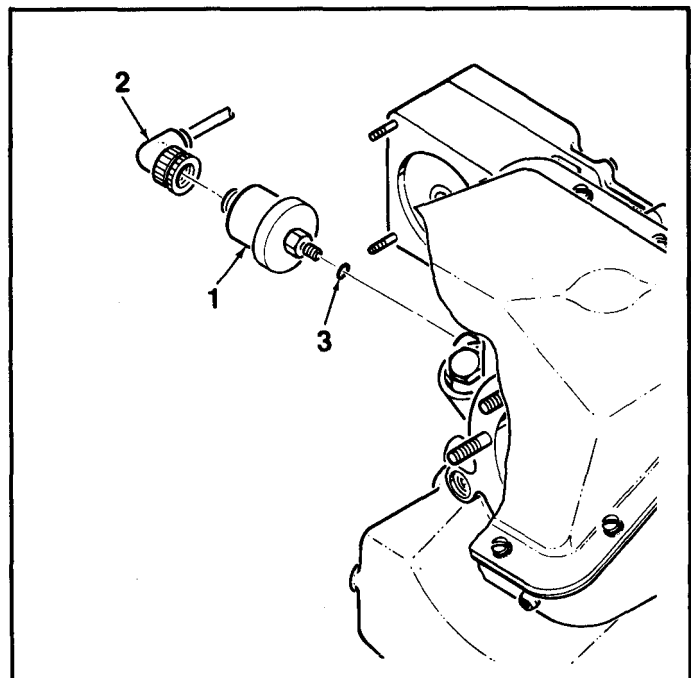
Equipment Condition:

APU in Assembly Fixture (Task 1-22)

Parts:

Packing

1. Install packing (3) on low oil pressure switch (1).
2. Using a strap wrench, install low oil pressure switch (1).
3. Connect connector P304 (2) to low oil pressure switch (1).



GO TO NEXT PAGE

4. Safety wire low oil pressure switch (1) and connector (2) with lockwire (E32).

INSPECT

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-87 REMOVE HIGH OIL TEMPERATURE SWITCH

2-87

INITIAL SETUP**Applicable Configurations:**

All

Tools:

Engine Repairman's Tool Kit
NSN 5180-00-323-4944

Materials:

Container

Personnel Required:

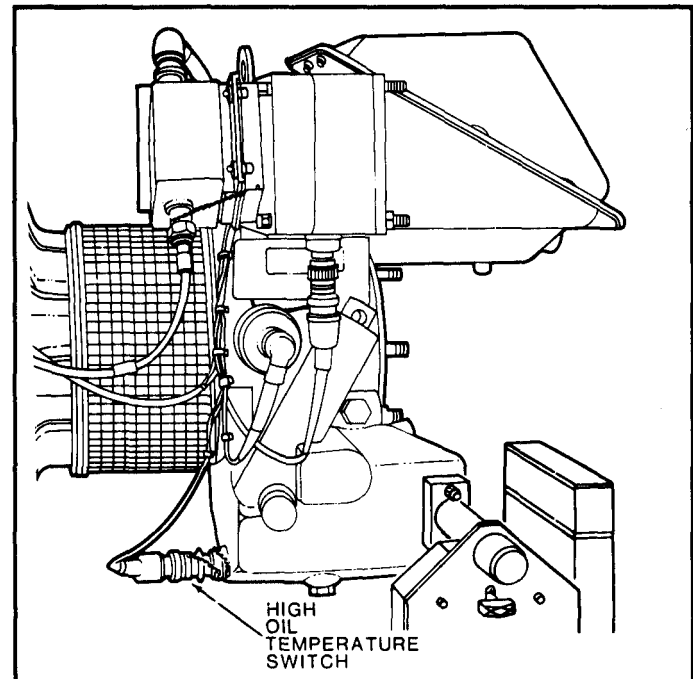
68B Aircraft Powerplant Repairer

Equipment Condition:

APU in Assembly Fixture (Task 1-22)
Drain Oil (Task 1-27)

References:

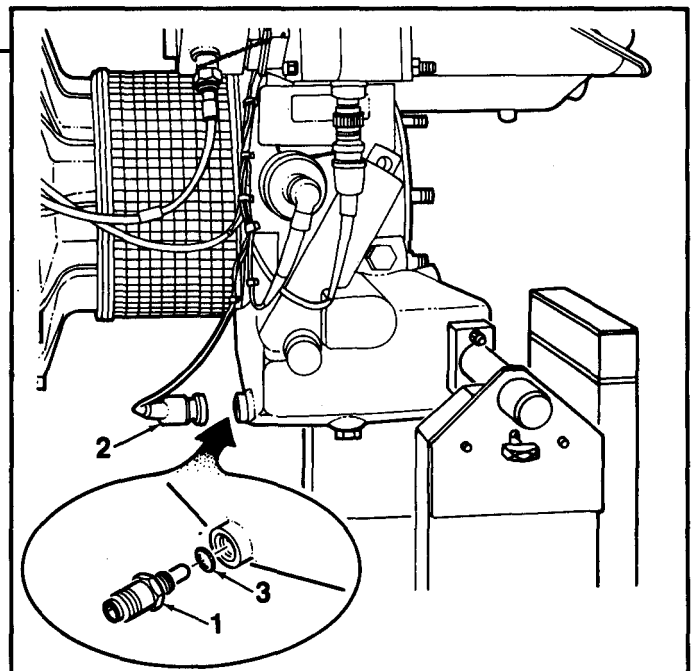
TM 55-1520-237-23-3

**WARNING**

Lubricating Oil, MIL-L-23699, contains material hazardous to health. It produces paralysis if swallowed or from prolonged skin contact. Wash hands thoroughly after handling. It may burn if exposed to heat or flames. Use only with proper ventilation.

1. Remove lockwire from high oil temperature switch (1) and connector (2).

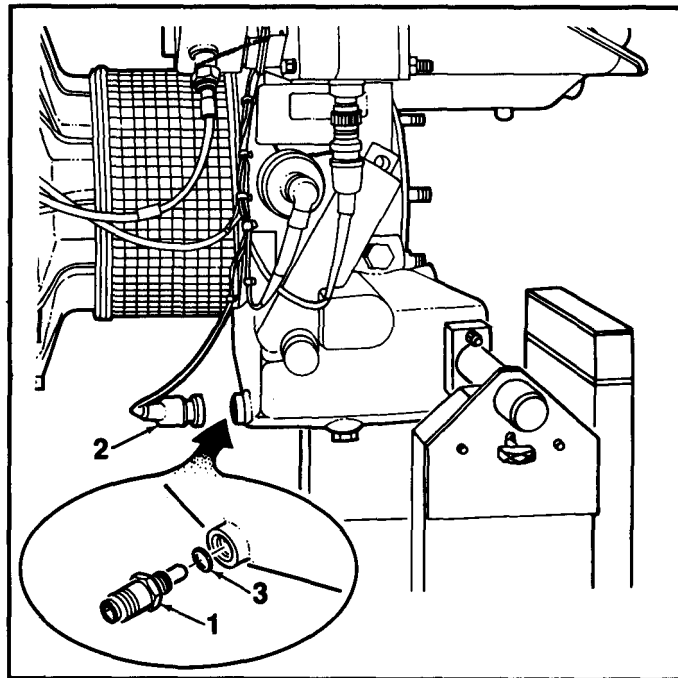
GO TO NEXT PAGE



2. Disconnect connector P310 (2) from high oil temperature switch (1). Inspect connector for broken pins and crossed or stripped threads. If damaged, return to depot.
3. Remove high oil temperature switch (1) and remove and discard packing (3). Discard switch if trouble shooting has determined it to be faulty (T M 55-1520-237-23-3).

FOLLOW-ON MAINTENANCE:

None



END OF TASK

2-88 INSTALL HIGH OIL TEMPERATURE SWITCH

2-88

INITIAL SETUP

Applicable Configurations:

All

Tools:

Engine Repairman's Tool Kit

NSN 5180-00-323-4944

Torque Wrench

NSN 5120-00-542-4489

Materials:

Lockwire (E32)

Assembly Fluid No. 1 (E31)

Personnel Required:

68B Aircraft Powerplant Repairer

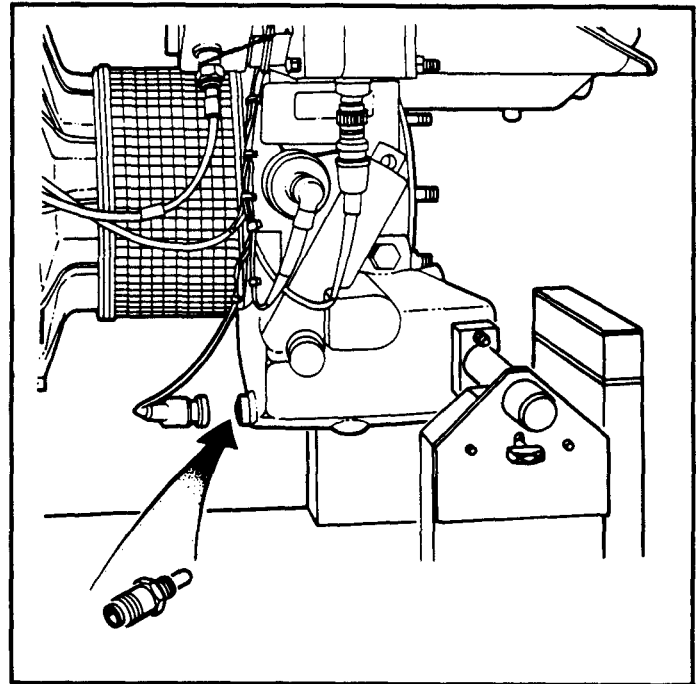
68B Powerplant Inspector

References:

TM 55-2835-208-23P

Equipment Condition:

APU in Assembly Fixture (Task 1-22)



Parts:

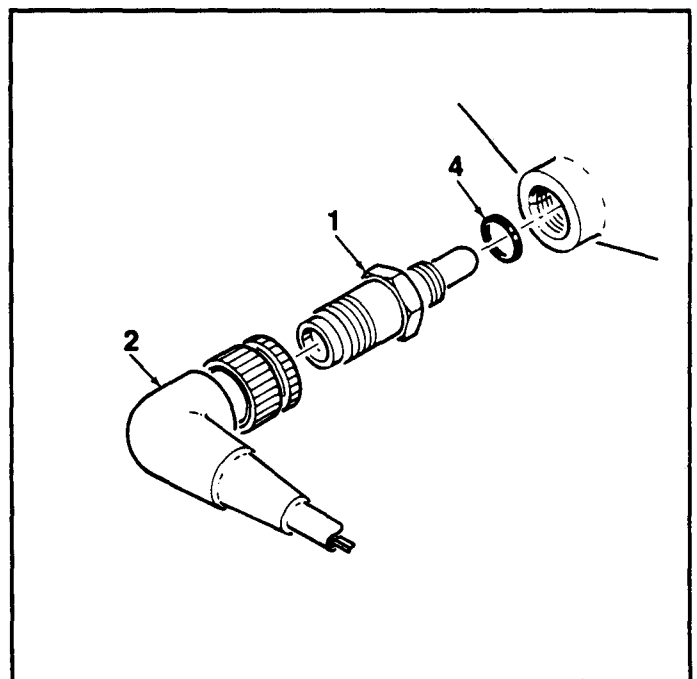
Packing

1. Using Assembly Fluid No. 1 (E31) lubricate packing (4). Install packing (4) on high oil temperature switch (1).

Install high oil temperature switch (12) and torque to 180 inch-pounds.

3. Connect connector P310 (2) to high oil temperature switch (1).

GO TO NEXT PAGE



4. Safety wire high oil temperature switch (1) and connector (2) to gearbox with lockwire (E32).

INSPECT

FOLLOW-ON MAINTENANCE:

- Service Lube Oil Tank (Task 1-26)
- Leak Check During Operation

END OF TASK

2-89 REMOVE OIL FILTER AND BYPASS VALVE

2-89

INITIAL SETUP

Applicable Configuration:

All

Tools:

Engine Repairman's Tool Kit
 NSN 5180-00-323-4944
 Oil Filter Cap Removal Tool (T23)

Materials:

None

Personnel Required:

68B Aircraft Powerplant Repairer

Equipment Condition:

APU in Assembly Fixture (Task 1-22)

WARNING

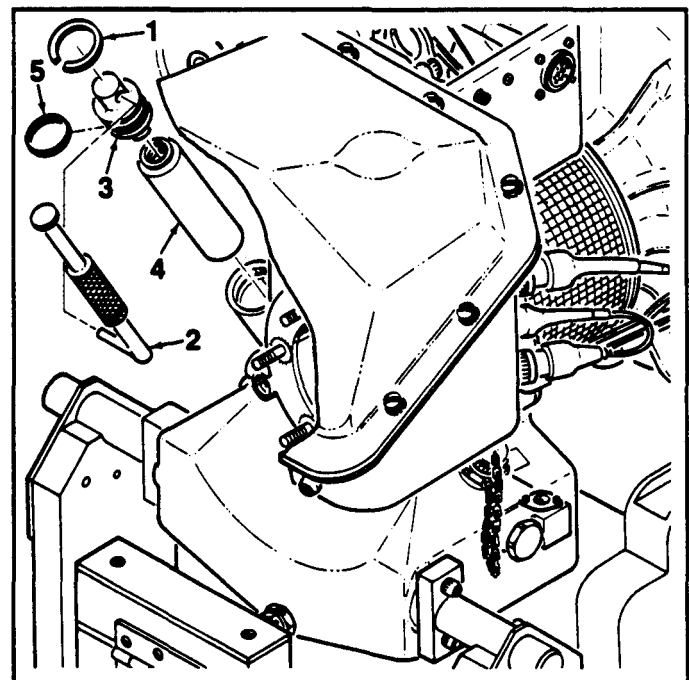
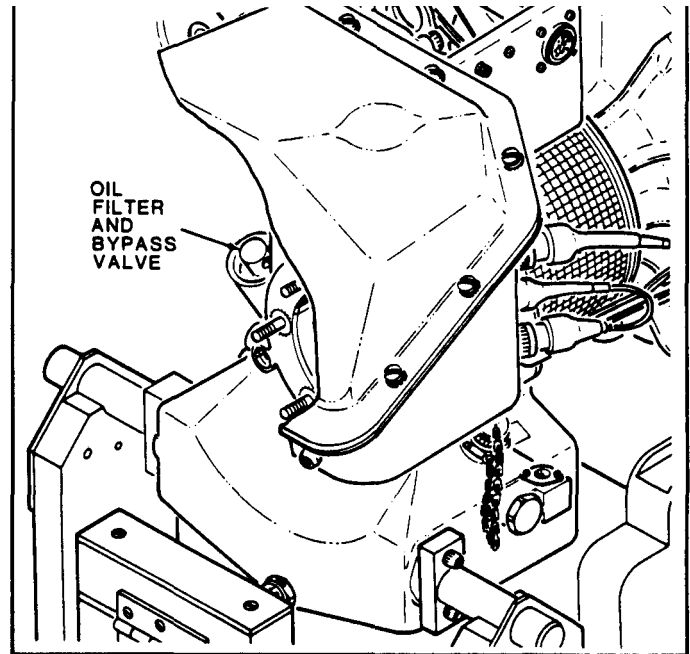
Lubricating Oil, MIL-L-23699, contains material hazardous to health. It produces paralysis if swallowed or from prolonged skin contact. Wash hands thoroughly after handling. It may burn if exposed to heat or flames. Use only with proper ventilation.

1. Remove retaining ring (1).
2. Using oil filter cap removal tool (2) (T23), remove by-pass valve (3) and filter (4). Remove and discard packing (5).
3. Inspect filter element (4) for particle contamination (paragraph 1-30).
4. Discard filter element (4).
5. Remove the residue oil and sludge from the filter well using a suction pump or a rod with cloth wrapped on the end. Assure the well is clean prior to the installation of a new filter.

FOLLOW-ON MAINTENANCE:

None

END OF TASK



INITIAL SETUP

Applicable Configurations:

All

Tools:

Engine Repairman's Tool Kit
NSN 5180-00-323-4944
Rubber Gloves
NSN 8415-00-266-8677
Source of Low Pressure Compressed
Air
Eye Protection

Materials Required:

Dry-Cleaning Solvent (E20)
Lint-Free Cloth (E13)

Personnel Required:

68B Aircraft Powerplant Repairer
68B Powerplant Inspector

Equipment Condition:

Off APU Task

WARNING

Dry-cleaning solvent (E20) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. Wear gloves and eye protection. In case of contact, immediately flush eyes or skin with water for at least 15 minutes. Get medical attention for eyes.

1. Wearing gloves, wipe filter bypass valve with clean cloth (E13) dampened with dry-cleaning solvent (E20).

WARNING

Use goggles to protect eyes and face when using compressed air. Do not exceed 30 psig. Do not direct airstream towards yourself or another person. Failure to comply may result in injury to personnel.

GO TO NEXT PAGE

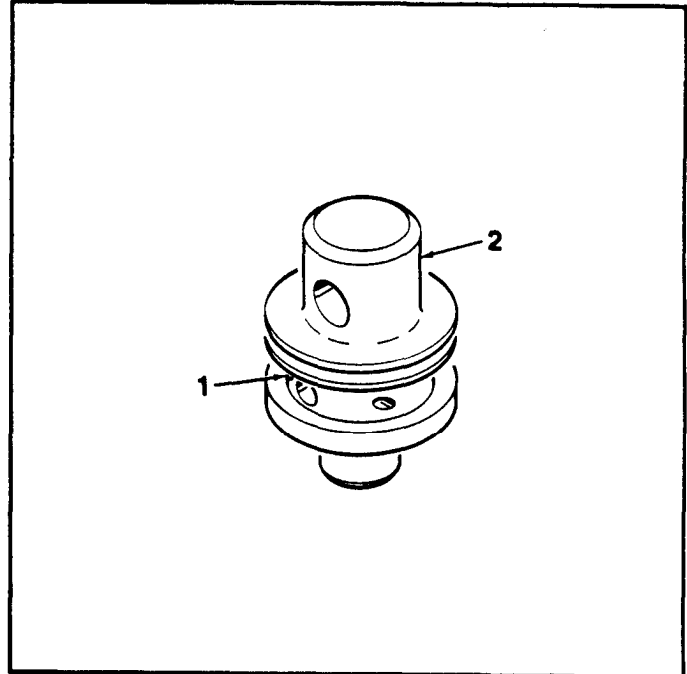
2-90 CLEAN AND INSPECT FILTER BYPASS VALVE (Continued)

2-90

2. Dry with low pressure compressed air at 30 psig maximum.
3. Inspect bypass valve passages (1) for clogging. If clogged, re-clean.
4. Inspect housing (2) for gouges and cracks. If damaged, discard.

FOLLOW-ON MAINTENANCE:

None

**END OF TASK**

INITIAL SETUP

Applicable Configurations:

All

Tools:

Engine Repairman's Tool Kit
NSN 5180-00-323-4944

Materials:

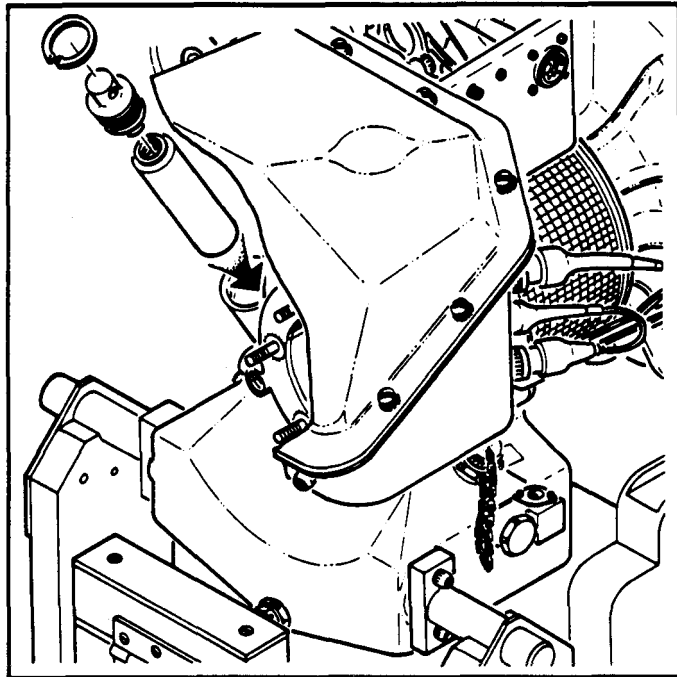
Assembly Fluid No. 1 (E31)

Personnel Required:

68B Aircraft Powerplant Repairer
68B Powerplant Inspector

References:

TM 55-2835-208-23P



Equipment Condition:

APU in Assembly Fixture (Task 1-22)

Parts:

Packing
Filter

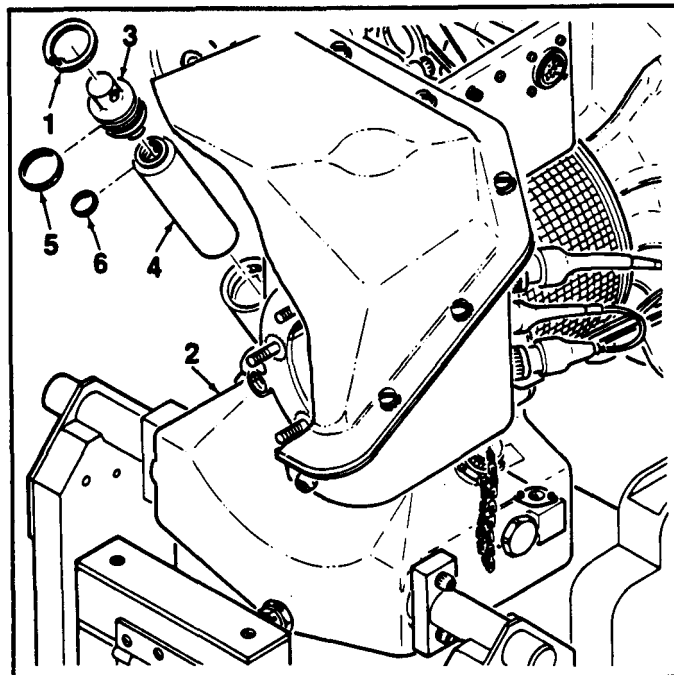
1. Using Assembly Fluid No. 1 (E31) lubricate packing (6). Install packing (6) onto filter element (4).
2. Using Assembly Fluid No. 1 (E31) lubricate packing (5). Install packing (5) and filter element (4) onto bypass valve (3).
3. Install assembled filter element and bypass valve into reduction drive housing assembly (2).
4. Install retaining ring (1).

INSPECT

FOLLOW-ON MAINTENANCE:

Leak Check During Operation

END OF TASK



2-92 REMOVE OIL SIGHT GAGE

2-92

INITIAL SETUP**Applicable Configurations:**

All

Tools:

Engine Repairman's Tool Kit
NSN 5180-00-323-4944

Materials:

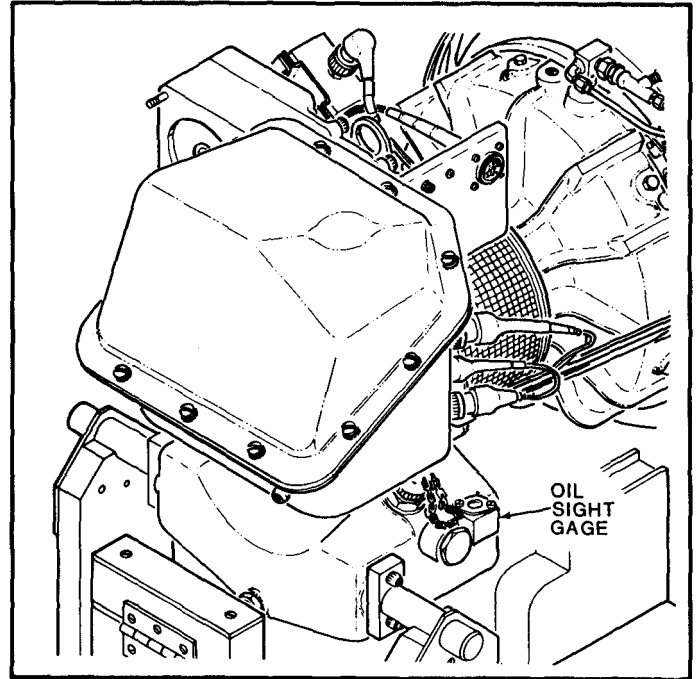
None

Personnel Required:

68B Aircraft Powerplant Repairer

Equipment Condition:

APU in Assembly Fixture (Task 1-22)
Drain Oil (Task 1-27)

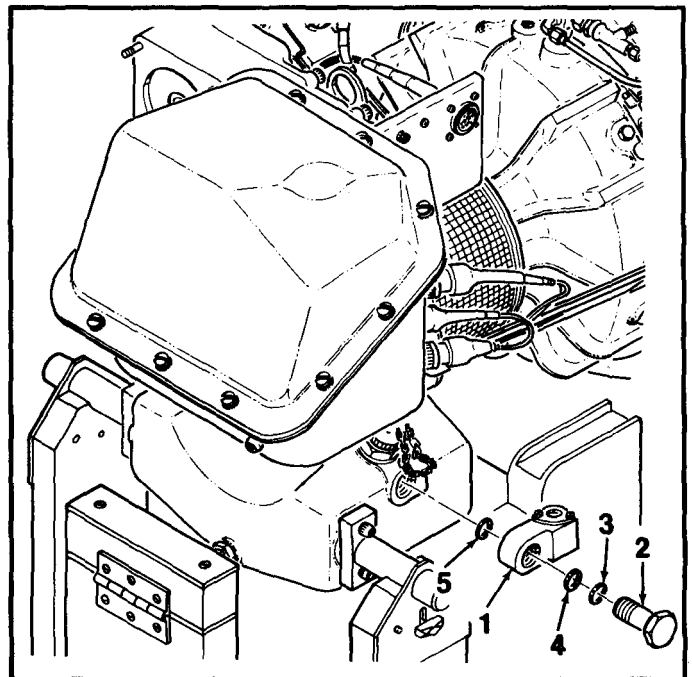
**WARNING**

Lubricating Oil, MIL-L-23699, contains material hazardous to health. It produces paralysis if swallowed or from prolonged skin contact. Wash hands thoroughly after handling. It may burn if exposed to heat or flames. Use only with proper ventilation.

1. Remove oil sight gage (1) by removing bolt (2). Remove and discard packings (3), (4) and (5).

FOLLOW-ON MAINTENANCE:

None

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Engine Repairman's Tool Kit
NSN 5180-00-323-4944
Rubber Gloves
NSN 8415-00-266-8677
Container
Eye Protection

Materials Required:

Dry-Cleaning Solvent (E20)
Lint-Free Cloth (E13)

Personnel Required:

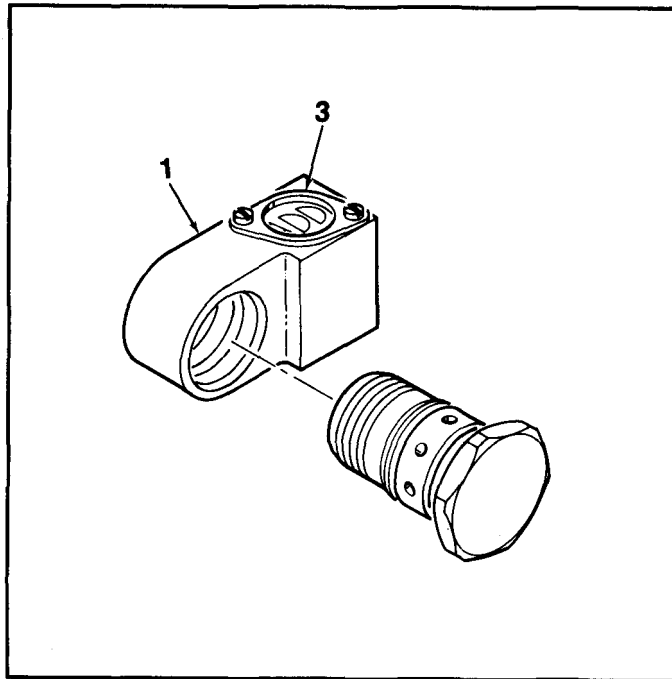
68B Aircraft Powerplant Repairer
68B Powerplant Inspector

Equipment Condition:

Off APU Task

Dry-cleaning solvent (E20) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. Wear gloves and eye protection. In case of contact, immediately flush eyes or skin with water for at least 15 minutes. Get medical attention for eyes.

1. Wearing gloves, wipe oil sight gage with clean cloth (E13) dampened with dry-cleaning solvent (E20).
2. Allow to drain dry, then wipe clean with dry clean cloth (E13).
3. Inspect oil sight gage body (1) for cracks, dents or gouges. If damaged, discard assembly.

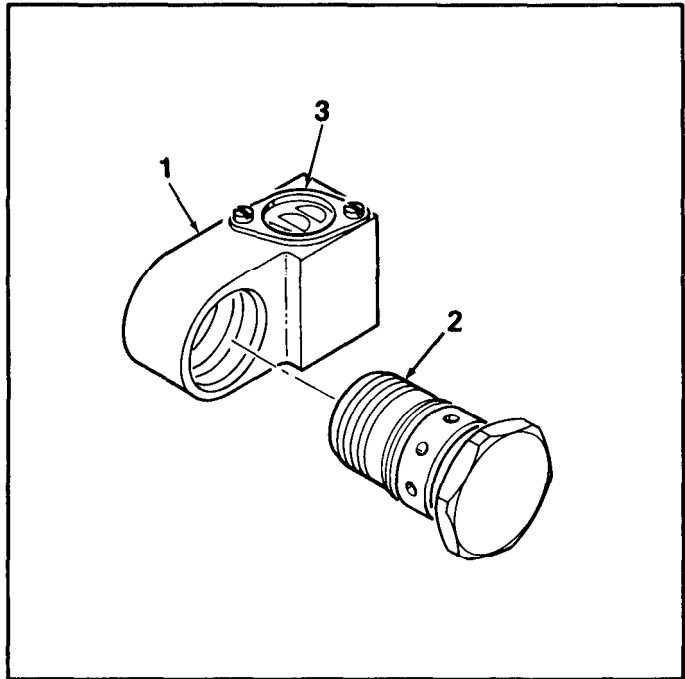


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4. Inspect threaded portion (2) of oil sight gage for crossed or stripped threads. If damaged, discard assembly.
5. Inspect sight window (3) for cracks. If damaged, discard assembly.

FOLLOW-ON MAINTENANCE:

None



END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

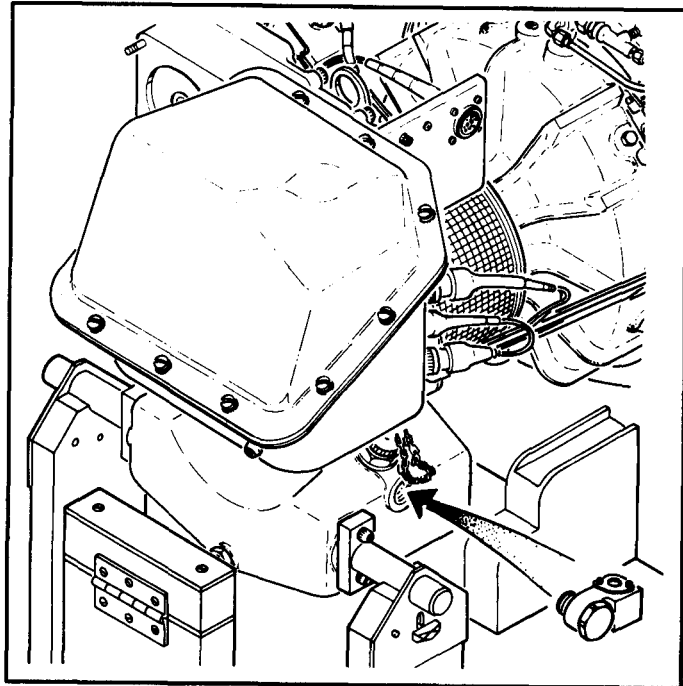
- Engine Repairman's Tool Kit
NSN 5180-00-323-4944
- Torque Wrench
NSN 5120-00-542-4489

Materials:

Assembly Fluid, No. 1 (E31)

Personnel Required:

- 68B Aircraft Powerplant Repairer
- 68B Powerplant Inspector



References:

TM 55-2835-208-23P

Equipment Condition:

APU in Assembly Fixture (Task 1-22)

Parts:

Packing

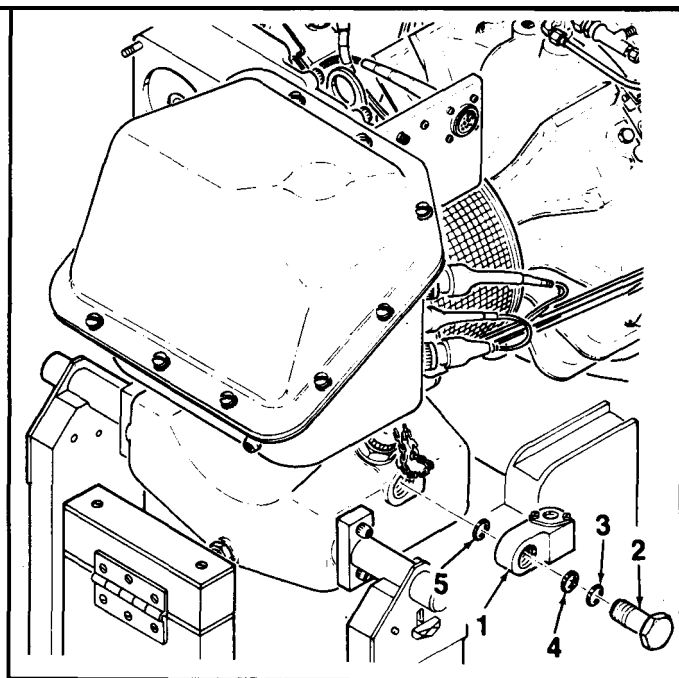
1. Install packings in oil sight gage (1) and bolt (2).
2. Install oil sight gage (1) using bolt (2). Torque to 75 inch-pounds.

INSPECT

FOLLOW-ON MAINTENANCE:

None

END OF TASK



2-95 REMOVE MAGNETIC DRAIN PLUG AND VALVE 2-95

INITIAL SETUP

Applicable Configurations:

All

Tools:

Engine Repairman's Tool Kit
NSN 5180-00-323-4944

Materials:

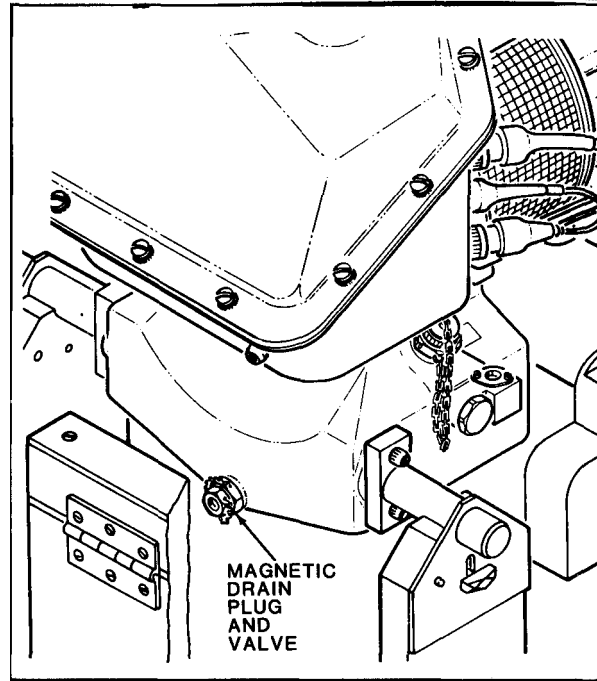
None

Personnel Required:

68B Aircraft Powerplant Repairer

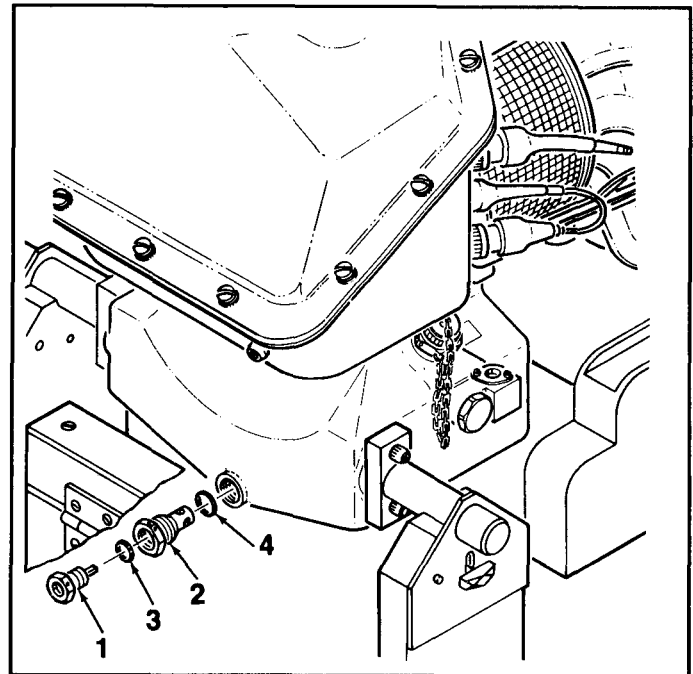
Equipment Condition:

APU in Assembly Fixture (Task 1-22)
Drain Oil (Task 1-27)



Lubricating Oil, MIL-L-23699, contains material hazardous to health. It produces paralysis if swallowed or from prolonged skin contact. Wash hands thoroughly after handling. It may burn if exposed to heat or flames. Use only with proper ventilation.

1. Remove lockwire from magnetic plug (1) and valve (2).
2. Remove magnetic plug (1).
3. Remove valve (2) and drain oil. Remove and discard packings (3) and (4).



FOLLOW-ON MAINTENANCE:

None

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Engine Repairman's Tool Kit
NSN 5180-00-323-4944

Rubber Gloves
NSN 8415-00-266-8677

Container
Eye Protection

Materials Required:

Dry-Cleaning Solvent (E20)
Lint-Free Cloth (E13)

Personnel Required:

68B Aircraft Powerplant Repairer
68B Powerplant Inspector

Equipment Condition:

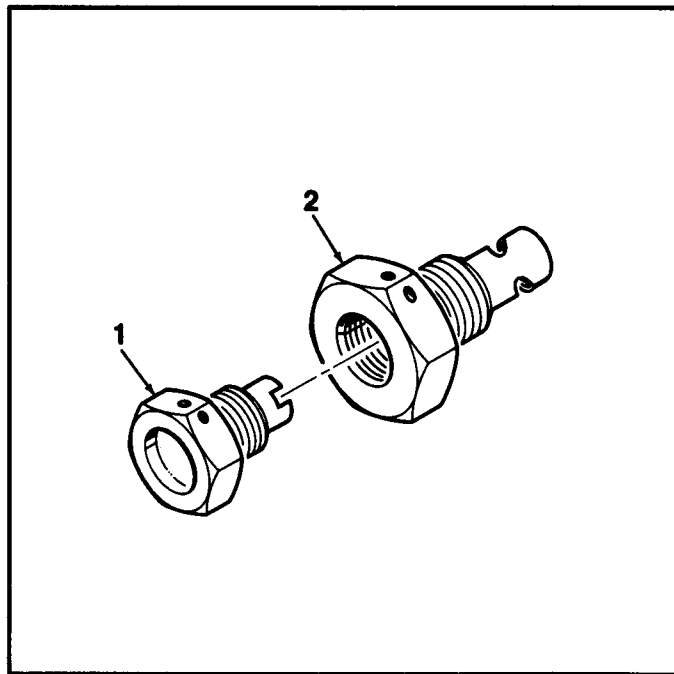
Off APU Task

1. Inspect magnetic plug (1) for metal particles (paragraph 1-30).

WARNING

Dry-cleaning solvent (E20) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. Wear gloves and eye protection. In case of contact, immediately flush eyes or skin with water for at least 15 minutes. Get medical attention for eyes.

2. Wearing gloves and eye protection, wipe magnetic plug (1) and valve (2) with clean cloth (E13) dampened with dry-cleaning solvent (E20).
3. Wipe dry with clean dry cloth (E13).



GO TO NEXT PAGE

2-96 CLEAN AND INSPECT MAGNETIC DRAIN PLUG AND VALVE (Continued)

2-96

4. Check that magnetic plug (1) holds its own weight when magnetically attached to a steel surface. Replace if weak.

FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-97 INSTALL MAGNETIC DRAIN PLUG AND VALVE

2-97

INITIAL SETUP

Applicable Configurations:

All

Tools:

Engine Repairman's Tool Kit
NSN 51 80-00-323-4944

Torque Wrench
NSN 5120-00-542-4489

Materials:

Assembly Fluid No. 1 (E31)

Personnel Required:

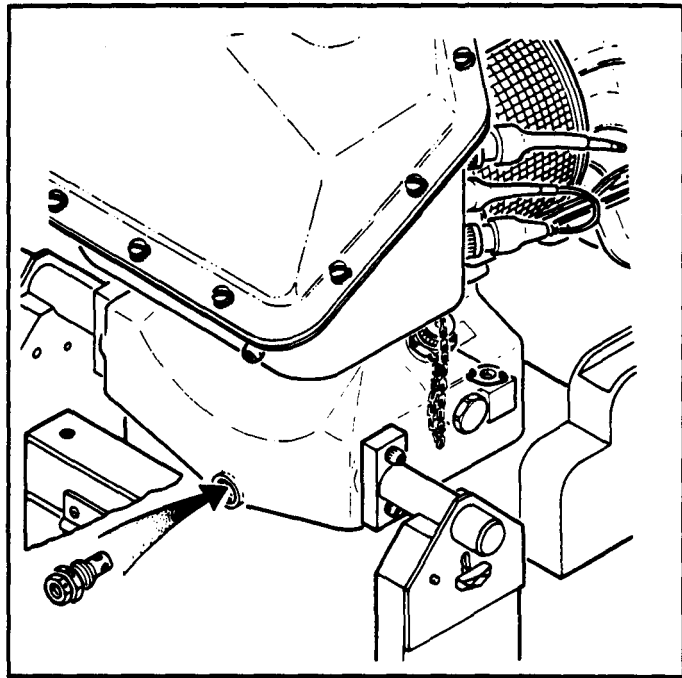
68B Aircraft Powerplant Repairer
68B Powerplant Inspector

References:

TM 55-2835-208-23P

Equipment Condition:

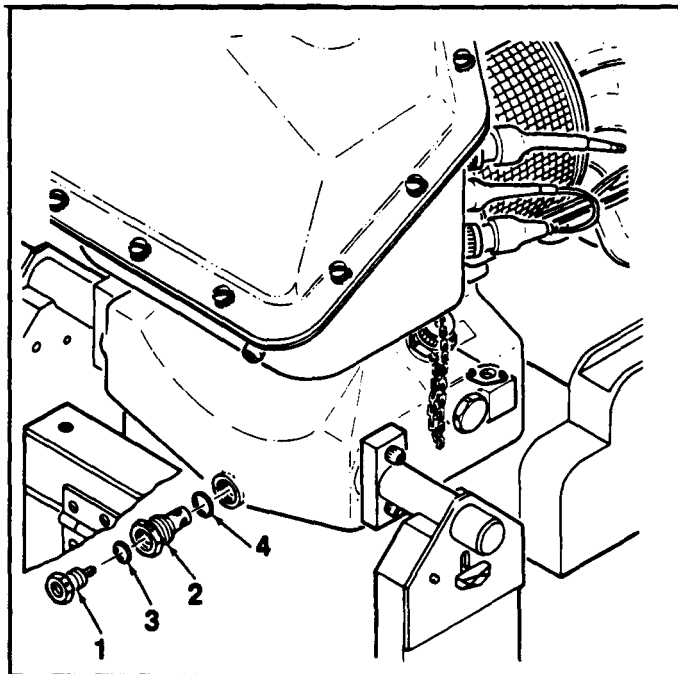
APU in Assembly Fixture (Task 1-22)



Parts:

Packing

1. Using Assembly Fluid No. 1 (E31) lubricate packings (4) and (3). Install packing (4) on valve (2) and packing (3) on magnetic plug (1).
2. Install valve (2) and torque to 80 inch-pounds.
3. Install magnetic plug (1) and torque to 45 inch-pounds.



GO TO NEXT PAGE

2-97 INSTALL MAGNETIC DRAIN PLUG AND VALVE (Continued)

2-97

- 4. This paragraph deleted.

INSPECT

FOLLOW ON MAINTENANCE:

None

END OF TASK

INITIAL SETUP

Applicable Configurations:

- APU 116305-100
- APU 116305-200
- APU 116305-201

Tools:

Engine Repairman's Tool Kit
NSN 5180-00-323-4944

Materials:

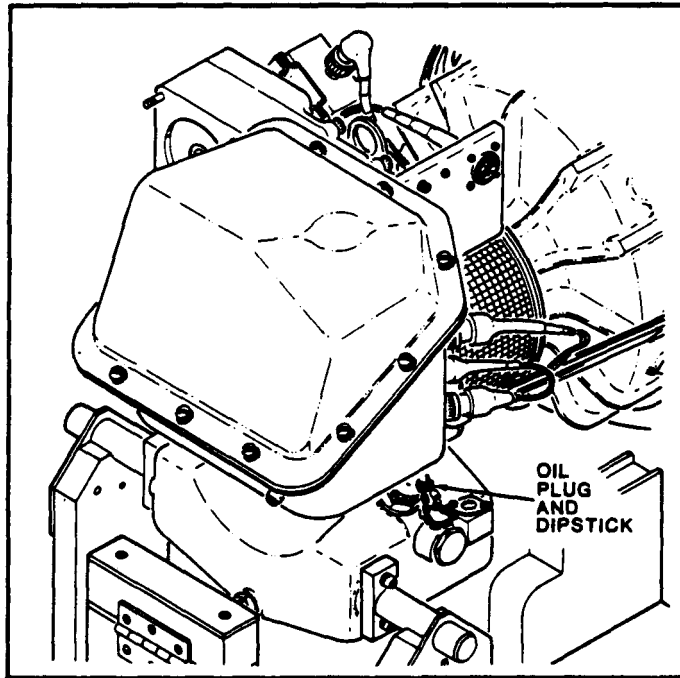
None

Personnel Required:

68B Aircraft Powerplant Repairer

Equipment Condition:

APU in Assembly Fixture (Task 1-22)



WARNING

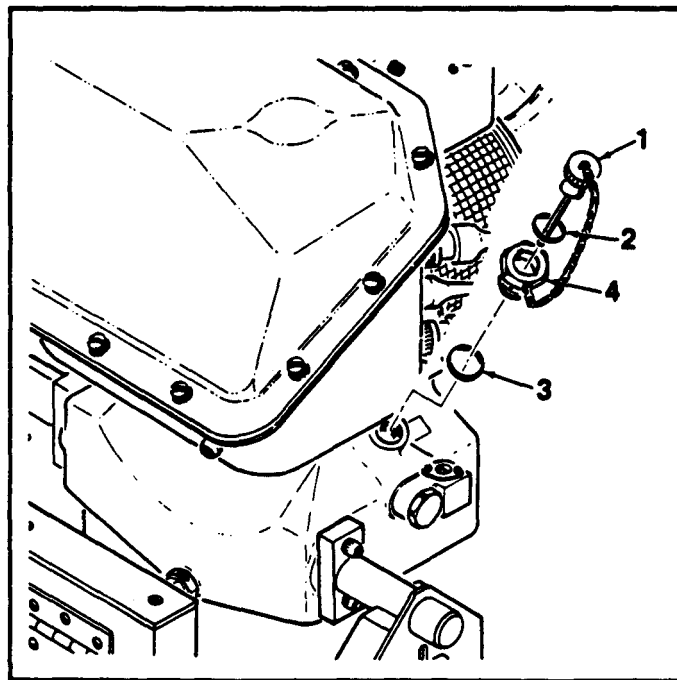
Lubricating Oil, MIL-L-23699, contains material hazardous to health. It produces paralysis if swallowed or from prolonged skin contact. Wash hands thoroughly after handling. It may burn if exposed to heat or flames. Use only with proper ventilation.

1. Remove body (4) with plug and dipstick (1).
2. Remove plug and dipstick (1) from body (4). Remove and discard packings (2) and (3).

FOLLOW-ON MAINTENANCE:

None

END OF TASK



2-99 CLEAN AND INSPECT OIL PLUG AND DIPSTICK

2-99

INITIAL SETUP**Applicable Configurations:**

APU 116305-100

APU 116305-200

APU 116305-201

Tools:

Engine Repairman's Tool Kit

NSN 5180-00-323-4944

Rubber Gloves

NSN 8415-00-266-8677

Container

Eye Protection

Materials Required:

Dry-Cleaning Solvent (E20)

Lint-Free Cloth (E13)

Personnel Required:

68B Aircraft Powerplant Repairer

68B Powerplant Inspector

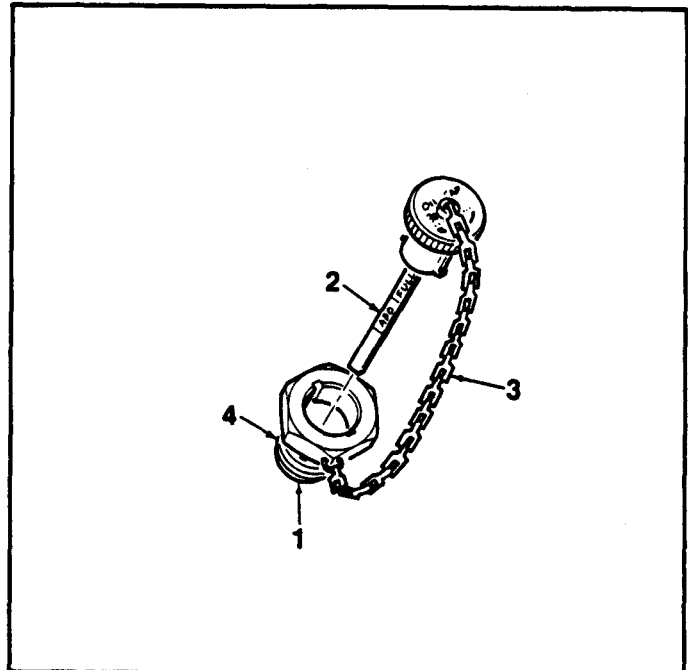
Equipment Condition:

Off APU Task

WARNING

Dry-cleaning solvent (E20) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. Wear gloves and eye protection. In case of contact, immediately flush eyes or skin with water for at least 15 minutes. Get medical attention for eyes.

1. Wearing gloves and eye protection, wipe body (1) and plug and dipstick (2) with clean cloth (E13) dampened with solvent (E20).
2. Wipe dry with dry clean cloth (E13).
3. Inspect chain (3) for broken links or loose attachment. Chain shall be secure and have no broken links.

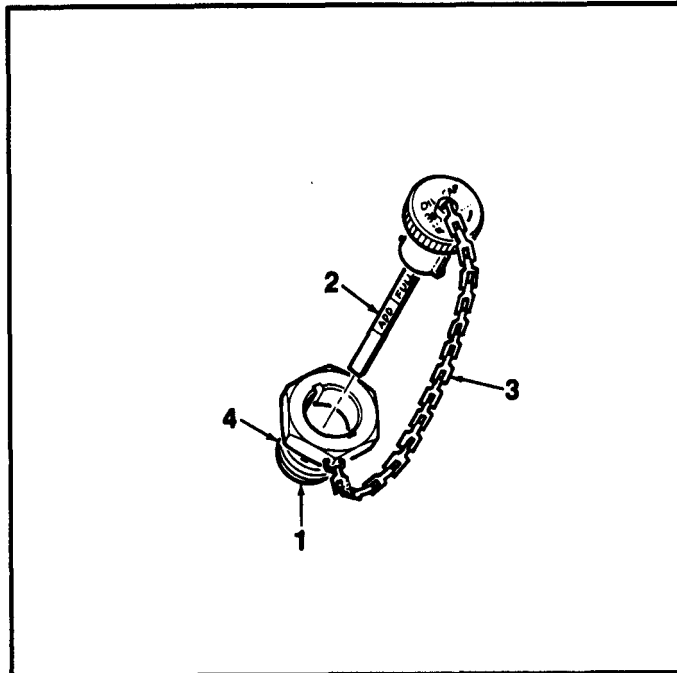


GO TO NEXT PAGE

4. Inspect dipstick (2) for cracks, deformation or gouges. If damaged, replace assembly.
5. Inspect threads (4) for crossing or stripping. If damaged, replace assembly.

FOLLOW ON MAINTENANCE:

None



END OF TASK

2-100 INSTALL OIL PLUG AND DIPSTICK

2-100

INITIAL SETUP**Applicable Configurations:**

All

Tools:

Engine Repairman's Tool Kit
 NSN 5180-00-323-4944
 Torque Wrench
 NSN 5120-00-542-4489

Materials:

Assembly Fluid, No. 1 (E31)

Personnel Required:

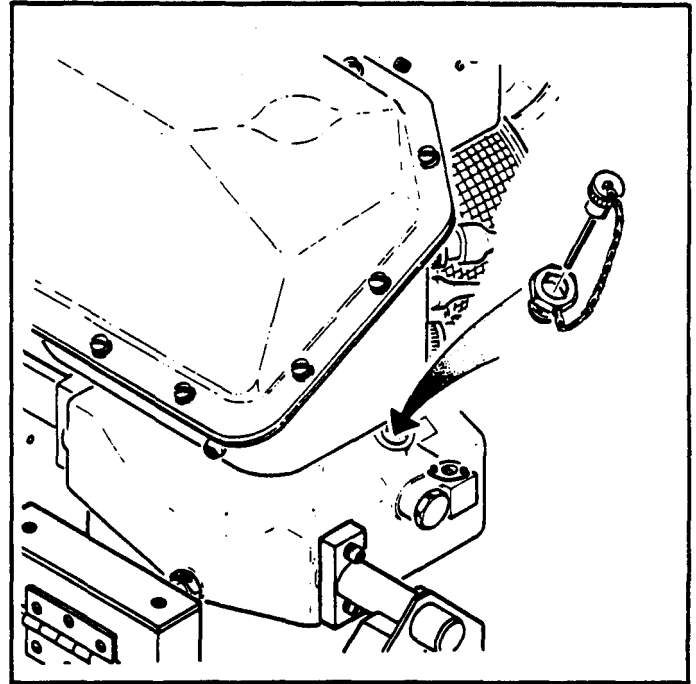
68B Aircraft Powerplant Repairer
 68B Powerplant Inspector

References:

TM 55-2835-208-23P

Equipment Condition:

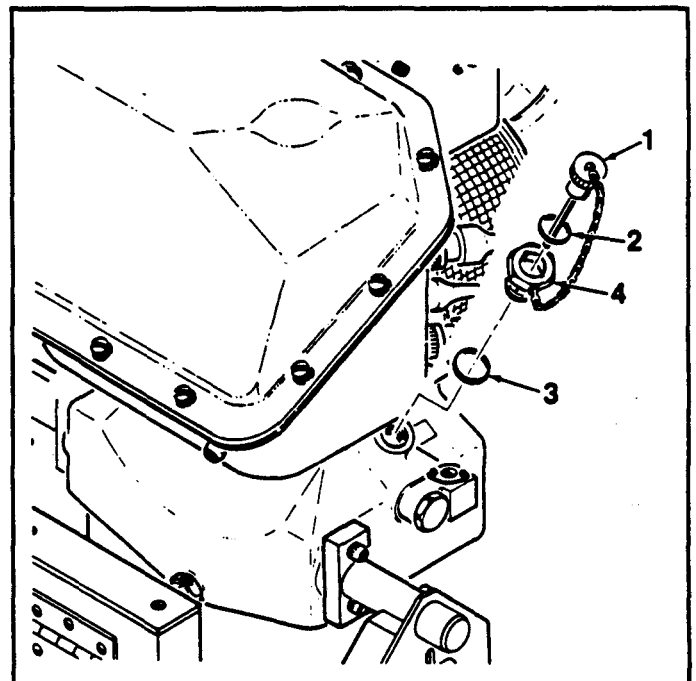
APU in Assembly Fixture (Task 1-22)



1. Install packing (2) on plug and dipstick (1).
2. Install packing (3) on body (4).
3. Install body (4) and plug and dipstick (1). Torque to 160 inch-pounds.

INSPECT**FOLLOW-ON MAINTENANCE:**

None

END OF TASK

2-100.1 REMOVE OIL FILLER TUBE AND DIPSTICK ASSEMBLY

2-100.1

INITIAL SETUP

Applicable Configurations:

APU 116305-300

APU 116305-302

Engine Repairman's Tool Kit
NSN 5180-00-323-4944

Materials:

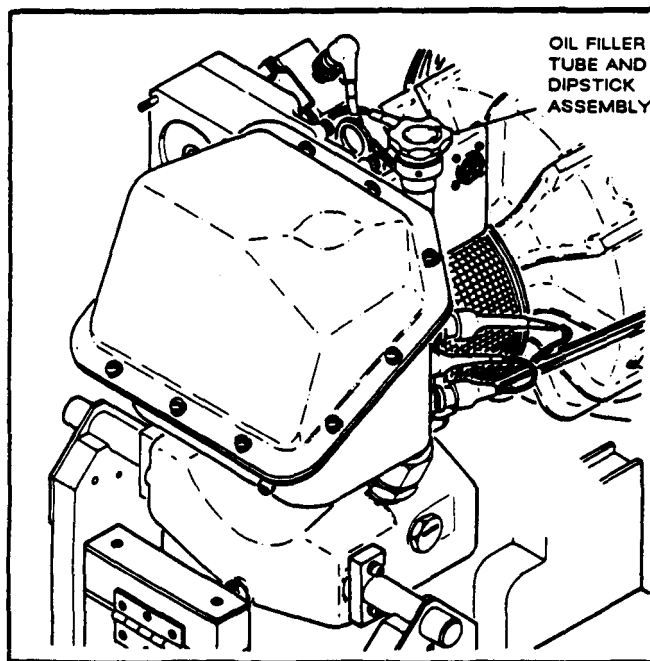
None

Personnel Required:

68B Aircraft Powerplant Repairer

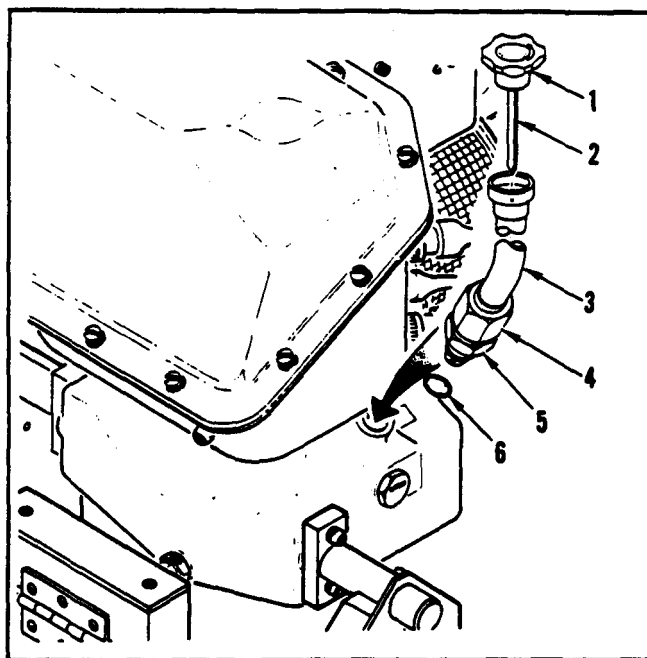
Equipment Condition:

APU in Assembly Fixture (Task 1-22)

**WARNING**

Lubricating Oil, MIL-L-23699, contains material hazardous to health. It produces paralysis if swallowed or from prolonged skin contact. Wash hands thoroughly after handling. It may burn if exposed to heat or flames. Use only with proper ventilation.

1. Push down and turn cap assembly (1) approximately 1/8 turn counterclockwise and remove cap assembly with dipstick (2) from oil filler tube (3).
2. Disconnect B-nut (4) and remove oil filler tube assembly (3).
3. Remove adapter (5) from oil sump.
4. Remove and discard packing (6) from oil sump.



FOLLOW-ON MAINTENANCE:

None

END OF TASK

2-100.2 CLEAN AND INSPECT OIL FILLER TUBE AND DIPSTICK ASSEMBLY 2-100.2

INITIAL SETUP

Applicable Configurations:

APU 116305-300
APU 116305-302

Tools:

Engine Repairman's Tool Kit
NSN 5180-00-323-4944
Rubber Gloves
NSN 8415-00-266-8677
Container
Eye Protection

Materials:

Lint-Free Cloth (E13)
Dry Cleaning Solvent (E20)

Personnel Required:

68B Aircraft Powerplant Repairer
68B Powerplant Inspector

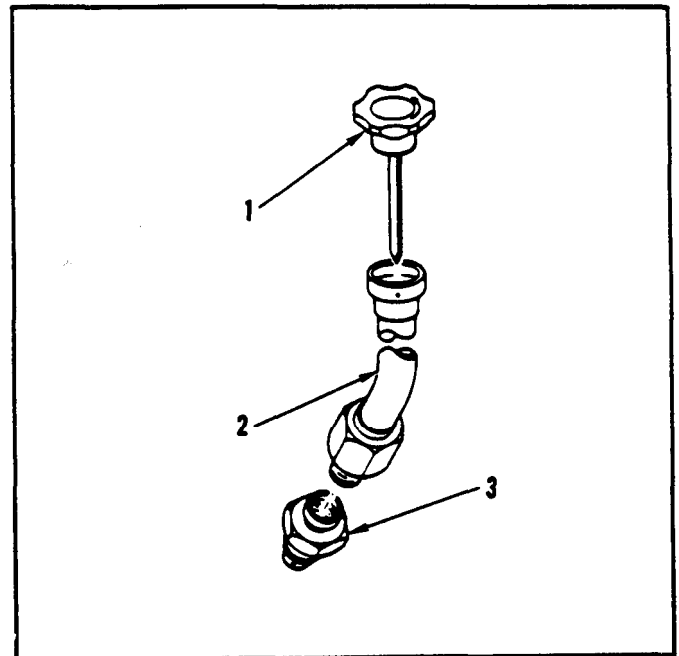
Equipment Conditions:

Off APU Task

WARNING

Dry cleaning solvent (E20) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. Wear gloves and eye protection. In case of contact, immediately flush eyes or skin with water for at least 15 minutes. Get medical attention for eyes.

1. Wearing gloves and eye protection, clean cap assembly with dipstick (1) with lint-free cloth (E 13) dampened with solvent (E20).
2. Flush oil filler tube assembly (2) with solvent (E20). Allow to air dry.
3. Clean adapter (3) with lint-free cloth (E13) dampened with solvent (E20)
4. Wipe dry with clean lint-free cloth (E13).



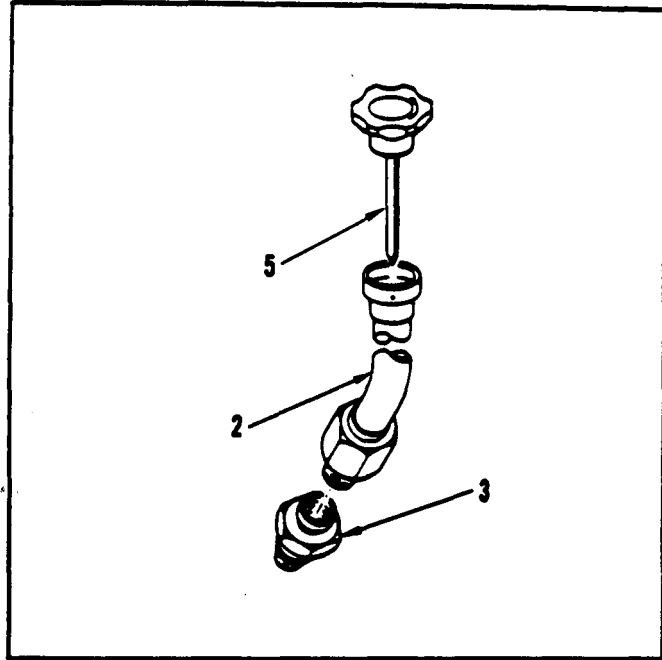
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2-100.2 CLEAN AND INSPECT OIL FILLER TUBE AND DIPSTICK ASSEMBLY 2-100.2
(Continued)

5. Inspect dipstick (5) for cracks, deformation or gouges. If damaged replace assembly.
6. Inspect oil filler tube assembly (2) for dents, cracks or deformation. If damaged replace assembly.
7. Inspect adapter (3) for crossing or stripping. If damaged replace adapter (3).

FOLLOW-ON MAINTENANCE:

None



END OF TASK.

2-100.3 INSTALL OIL FILLER TUBE AND DIPSTICK ASSEMBLY

2-100.3

INITIAL SETUP**Applicable Configurations:**

APU 116305-300

APU 116305-302

Tools:

Engine Repairman's Tool Kit

NSN 5180-00-323-4944

Torque Wrench

NSN 5120-00-542-4489

Materials:

Assembly Fluid No. 1 (E31)

Personnel Required:

68B Aircraft Powerplant Repairer

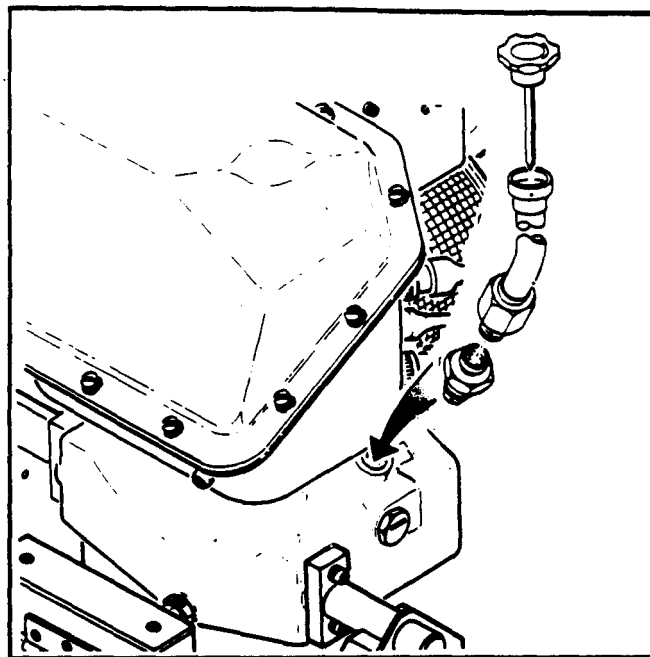
68B Powerplant Inspector

References:

TM 55-2835-208-23P

Equipment Condition:

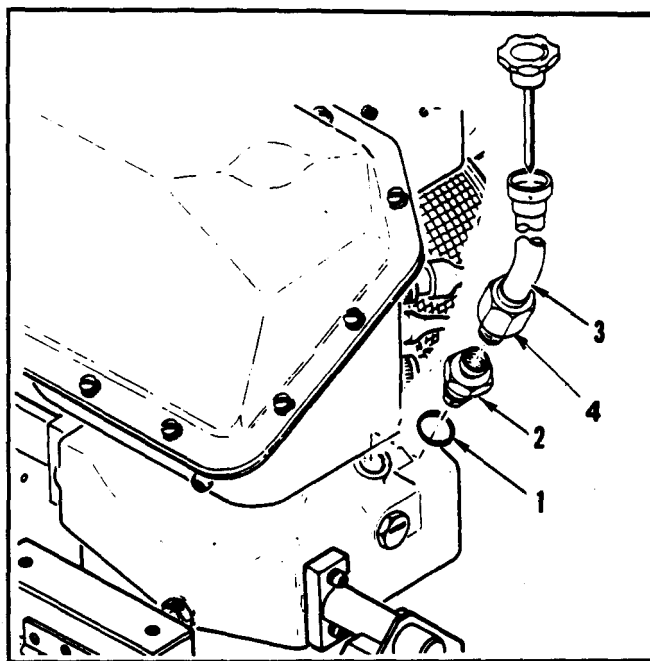
APU in Assembly Fixture (Task 1-22)



1. Using Assembly Fluid No. 1 (E31), lubricate packing (1) and install on oil sump.
2. Install adapter (2) on oil sump. Using open end crowfoot wrench, torque to 65 foot-pounds.
3. Position oil filler tube and dipstick assembly (3) on adapter (2) and hand tighten B-nut (4).
4. Adjust oil filler tube and dipstick assembly (3) (twist) until top of filler tube is level.
5. Using 1-1/2 inch open end crowfoot wrench, torque B-nut to 60 foot-pounds.

INSPECT**FOLLOW ON MAINTENANCE:**

None

END OF TASK

INITIAL SETUP**Applicable Configurations:**

All

Tools:

Engine Repairman's Tool Kit
NSN 5180-00-323-4944
Assembly Fixture (T1)

Materials:

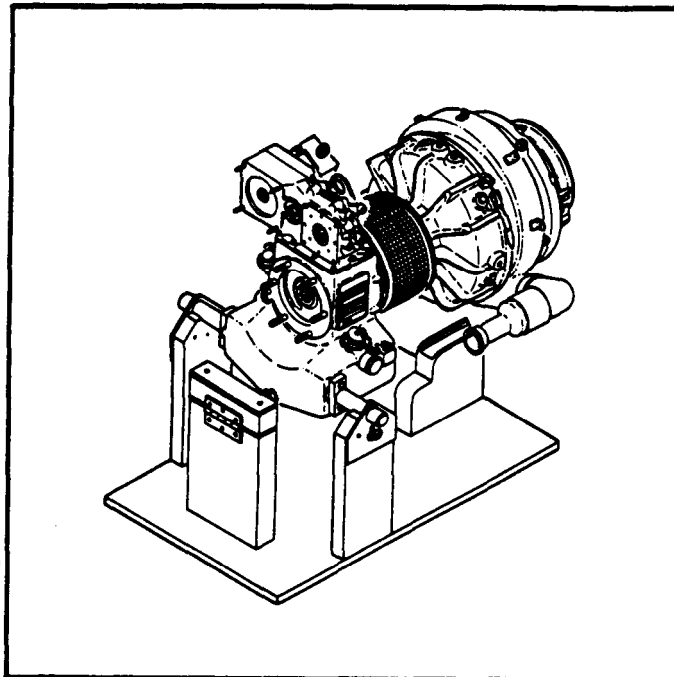
Colorbrite Pencil (E14)

Personnel Required:

68B Aircraft Powerplant Repairer (2)

Equipment Condition:

APU in Assembly Fixture (Task 1-22)
Drain Oil System (Task 1-27)
Remove Base Assembly (Task 2-67)
Remove Magnetic Pickup (Task 2-83)
Remove Low Oil Pressure Switch
(Task 2-85)
Remove High Oil Temperature Switch
(Task 2-87)
Remove Air Inlet Screen Assembly
(Task 2-1)
Remove Electrical Harness Assembly
(Task 2-81)
Remove Tube Bundle Assembly
(Task 2-7)

**General Safety Precautions:****WARNING**

Lubricating Oil, MIL-L 23699, contains material hazardous to health. It produces paralysis if swallowed or from prolonged skin contact. Wash hands thoroughly after handling. It may burn if exposed to heat or flames. Use only with proper ventilation.

GO TO NEXT PAGE

1. Remove cover (1) with ignition exciter (2) attached, by removing bolts (3) and washers (4). Remove gasket (20).
2. Remove cover (17) by removing screws (18). Remove gasket (19).

GO TO NEXT PAGE

2-101 REMOVE DRIVE SYSTEM (Continued)

2-101

3. Position APU vertically in assembly fixture (T1).

CAUTION

Do not use pencil or scribes. Damage to equipment will result.

Note

Barrier material must be temporarily removed from air inlet to perform this task.

4. Matchmark turbine assembly (5) and drive system (6) with colorbrite pencil (E14).

5. Remove six bolts (7) and washers (8).

6. With helper, carefully lift turbine assembly (5) and combustor section (9) (as a unit) from drive system (6).

7. Place turbine assembly (5) and combustor section (9) on work-bench.

8. Remove gasket (10).

9. Turn quarter screws (11) and remove plates (12).

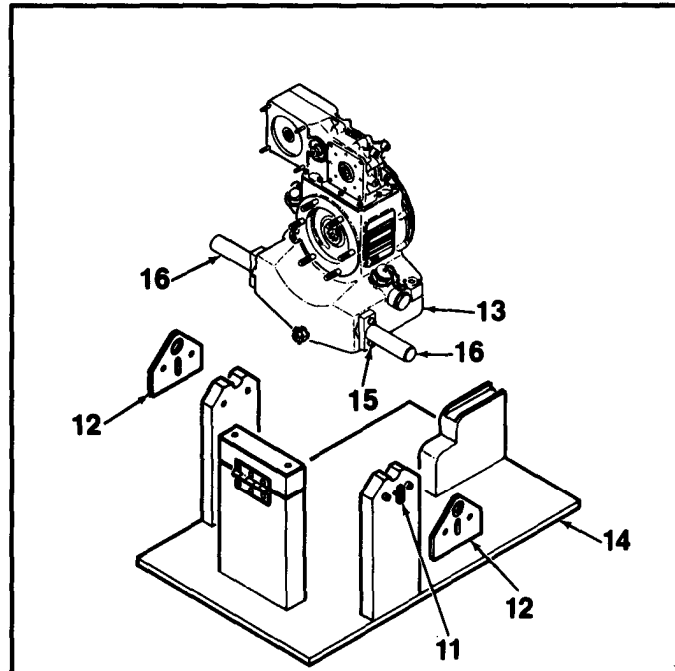
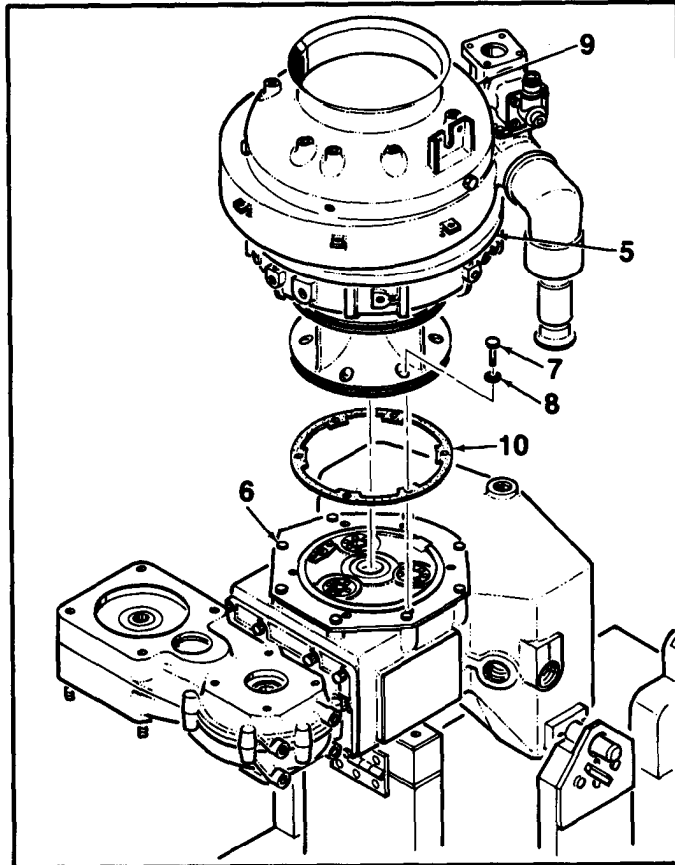
10. Lift drive system (13) from assembly fixture (14).

11. Remove bolts (15) and weld assemblies (16).

FOLLOW-ON MAINTENANCE:

None

END OF TASK



INITIAL SETUP**Applicable Configurations:**

All

Tools:

Engine Repairman's Tool Kit

NSN 5180-00-323-4944

Rubber Gloves

NSN 8415-00-266-8677

Container

Eye Protection

Materials:

Dry-Cleaning Solvent (E20)

Lint-Free Cloth (E13)

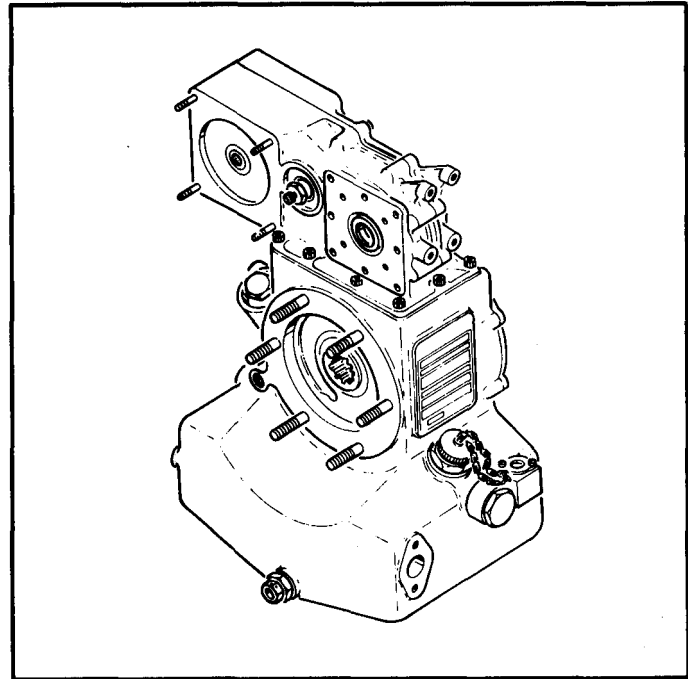
Personnel Required:

68B Aircraft Powerplant Repairer

68B Powerplant Inspector

Equipment Condition:

Remove Drive System (Task 2-107)

**WARNING**

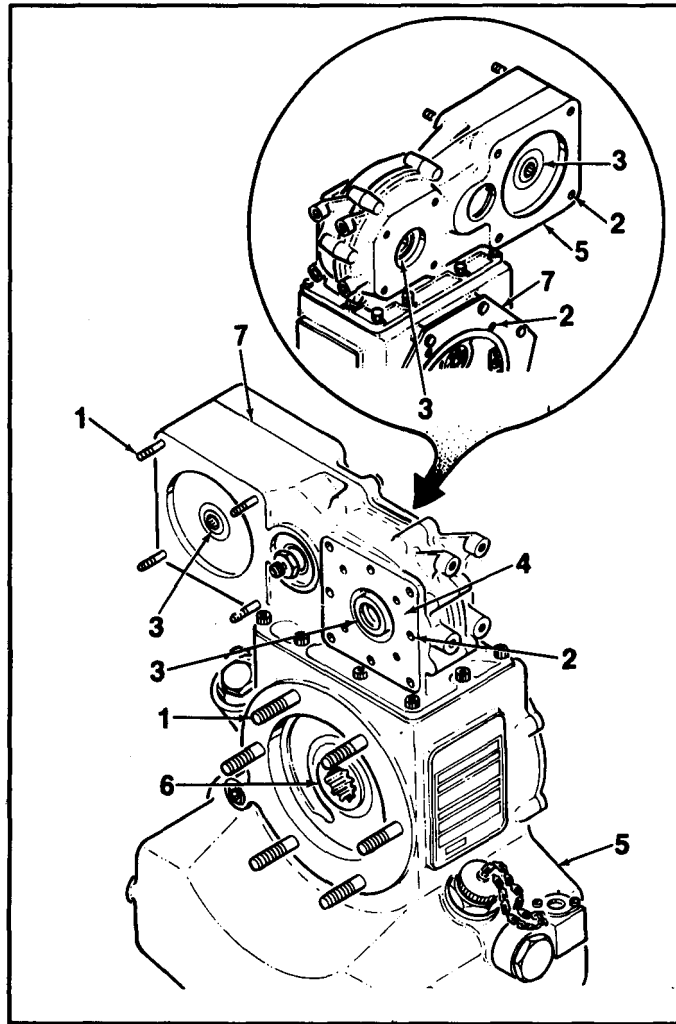
Dry-cleaning solvent (E20) is flammable and toxic. It can irritate skin and cause burns. Use only in well-ventilated area, away from heat and open flame. Wear gloves and eye protection. In case of contact, immediately flush eyes or skin with water for at least 15 minutes. Get medical attention for eyes.

GO TO NEXT PAGE

1. Wearing gloves and eye protection clean drive system with clean cloth (E13) dampened with dry-cleaning solvent (E20).
2. Wipe dry with clean, dry cloth (E13).
3. Inspect studs (1) for looseness and for stripped threads. If damaged, replace (Task 2-103).
4. Inspect screw thread inserts (2) for stripped threads. If damaged, replace (Task 2-103).
5. Inspect seals (3, 6) for oil leakage. If leaking, replace seal (Tasks 2-105 and 2-107).
6. Inspect housings (5) for cracks. If damaged, return APU to depot for repair.
7. Inspect for leaking between mating surfaces (7). If leaky, return to depot for repair.

FOLLOW-ON MAINTENANCE:

None



END OF TASK

2-103 REPLACE DRIVE SYSTEM STUDS AND INSERTS (AVIM)**2-103****INITIAL SETUP****Applicable Configurations:**

All

Tools:AVIM Machine Shop Set
NSN 4920-00-405-9279**Materials:**

None

Equipment Condition:

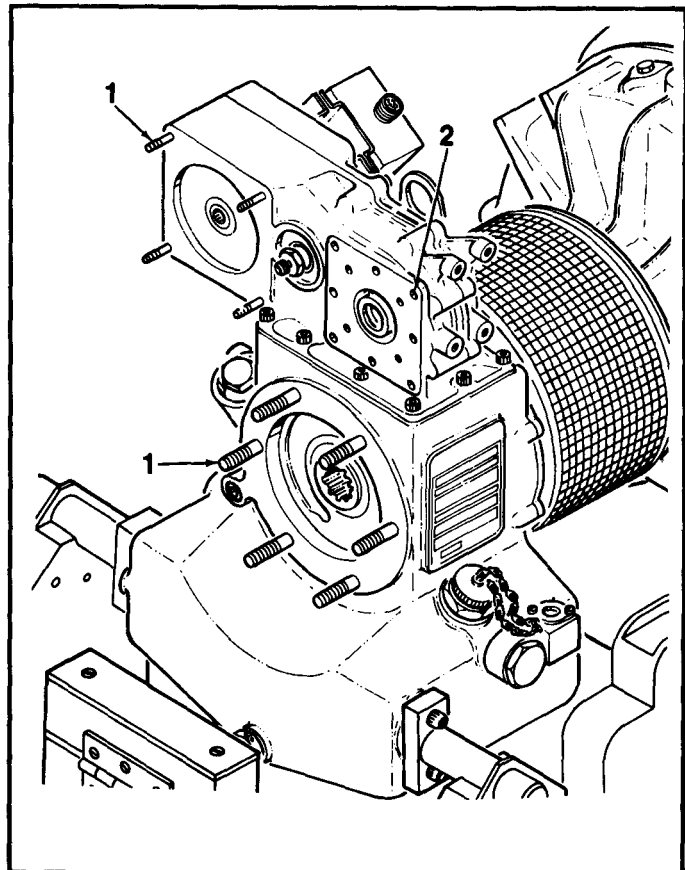
Remove Drive System (Task 2-109)

Parts:Lock Ring
Stud
Screw Thread Insert**Personnel Required:**44E Machinist
68B Powerplant Inspector**References:**TM 55-2835-208-23P
TM 55-1500-204-25/1

1. Replace stripped, broken or loose studs (1) in accordance with TM 55-1500-205-25/1.
2. Replace crossed or stripped inserts (2) in accordance with TM 55-1500-204-25/1.

INSPECT**FOLLOW-ON MAINTENANCE:**

None

**END OF TASK**

INITIAL SETUP

Applicable Configurations:

All

Tools:

Engine Repairman's Tool Kit
NSN 5180-00-323-4944
AVIM Machine Shop Set
NSN 4920-00-405-9279

Reference:

TM 55-1500-204-25/1

Materials:

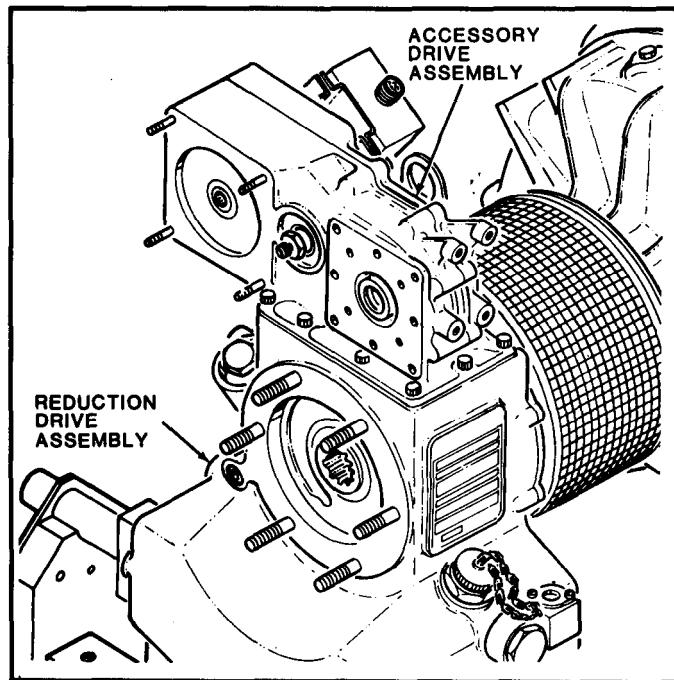
None

Personnel Required:

44E Machinist
68B Aircraft Powerplant Repairer

Equipment Condition:

Remove Electrical Harness Assembly
(Task 2-80)
APU in Assembly Fixture (Task 1-22)
Remove Base Assembly (Task 2-67)



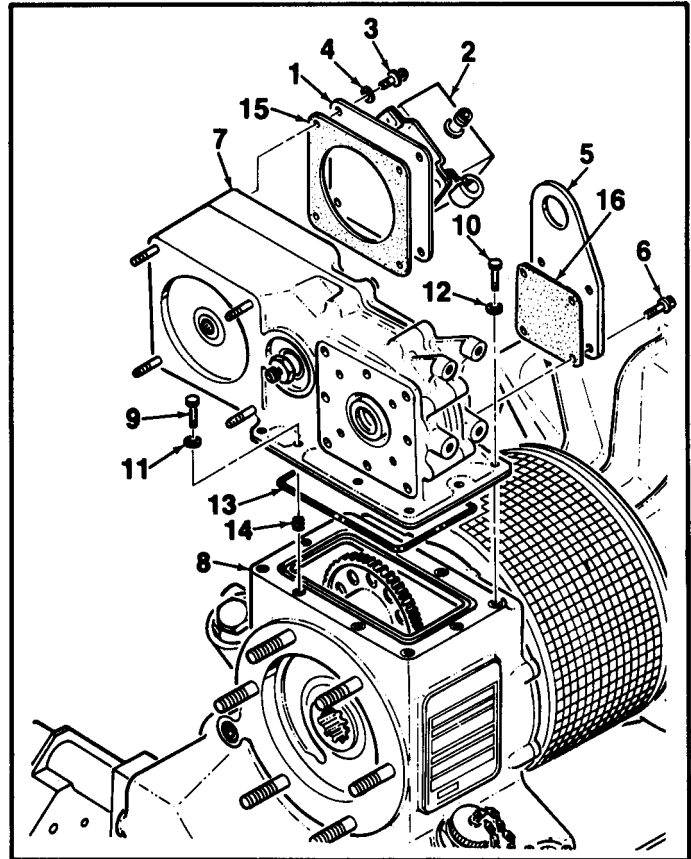
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2-104 REMOVE ACCESSORY DRIVE ASSEMBLY (Continued)**2-104**

1. Remove cover (1) with ignition exciter (2) attached, by removing bolts (3) and washers (4). Remove gasket (15).
2. Remove cover (5) by removing screws (6). Remove gasket (16).
3. Remove accessory drive assembly (7) from reduction drive assembly (8) by removing bolts (9), screws (10) and washers (11) and (12).
4. Remove and discard packing (13).
5. Replace stripped inserts (14) (TM 55-1500-207-25/1).

FOLLOW-ON MAINTENANCE:

None



END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

- Engine Repairmans Tool Kit
NSN 5180-00-323-4944
- AVUM Tool Set No. 2
NSN 4920-00-569-0476
- Seal Puller (T13)
- Seal Driver (T2)
- Seal Driver (T4)

Materials:

Assembly Fluid, No. 1 (E31)

Parts:

Seal

Personnel Required:

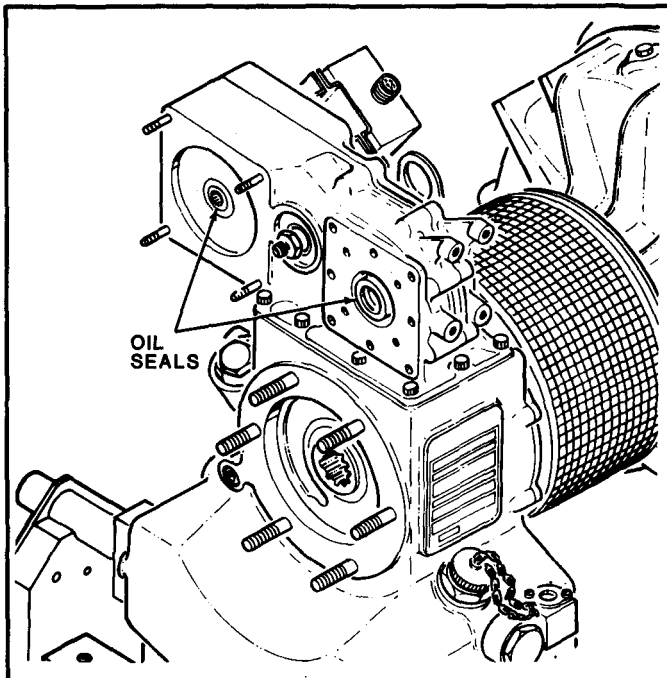
- 68B Aircraft Powerplant Repairer
- 68B Powerplant Inspector
- 44E Machinist

References:

TM 55-2835-208-23P

Equipment Condition:

- Remove Electrical Harness Assembly
(Task 2-81)
- Remove Base Assembly (Task 2-67)
- Remove Ignition Exciter (Task 2-71)

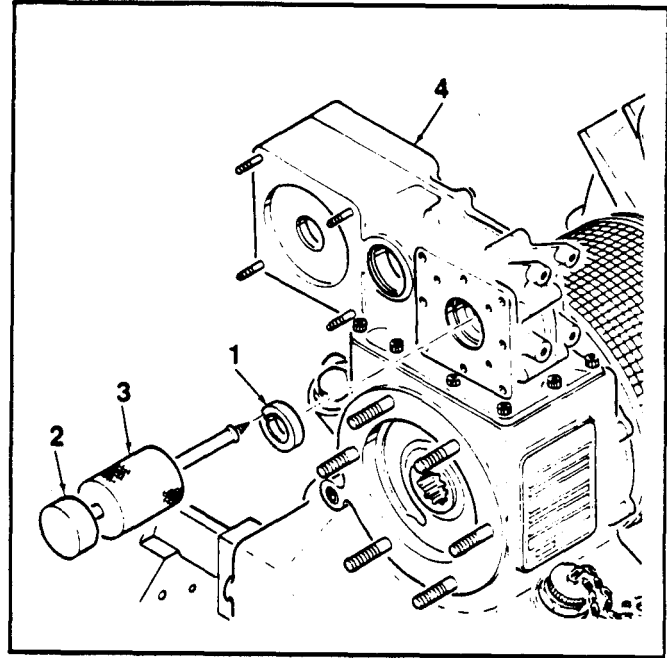


NOTE

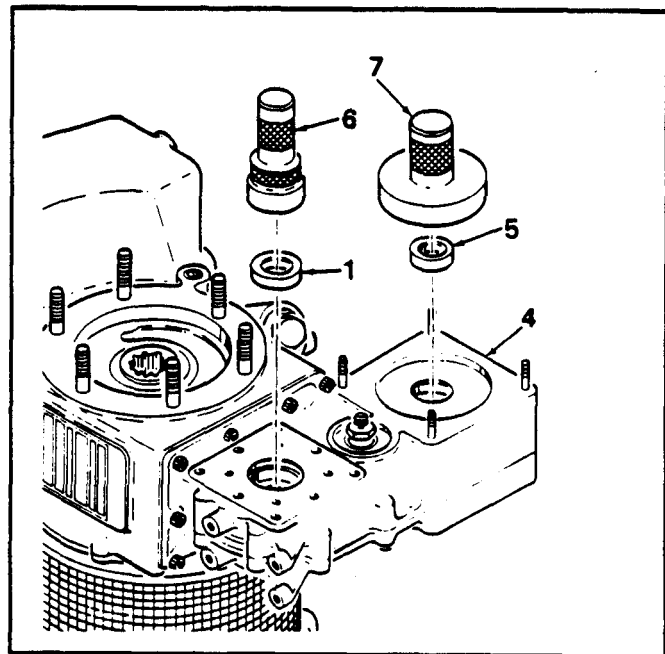
The procedure for removing
all oil seals is the same.

GO TO NEXT PAGE

1. Drill 0.1250 inch diameter hole into casing of oil seals (1) and (5). Do not drill through seal.
2. Screw seal puller (T13) (2) into drilled hole. Operate slide hammer (3) to pull out seals (1) and (5) from housing (4).



3. Apply a light coat of assembly fluid (E31) to lip of seals (1) and (5).
4. Using seal driver (T4) (6) install seals (1), and drive until flush with recessed surfaces of housing (4).
5. Using seal driver (T2) (7) Install seals (5) and drive in seal until flush with recessed surfaces of housing (4).



INSPECT

FOLLOW-ON MAINTENANCE:

None

INITIAL SETUP

Applicable Configurations:

All

Tools:

Engine Repairman's Tool Kit

NSN 5180-00-323-4944

Torque Wrench

NSN 5120-00-542-4489

Materials:

Assembly Fluid No. 1 (E31)

Sealant (E37)

Sealant Gun with 2-1/2 ounce barrel,
Model 250, Semco

Parts:

Packing

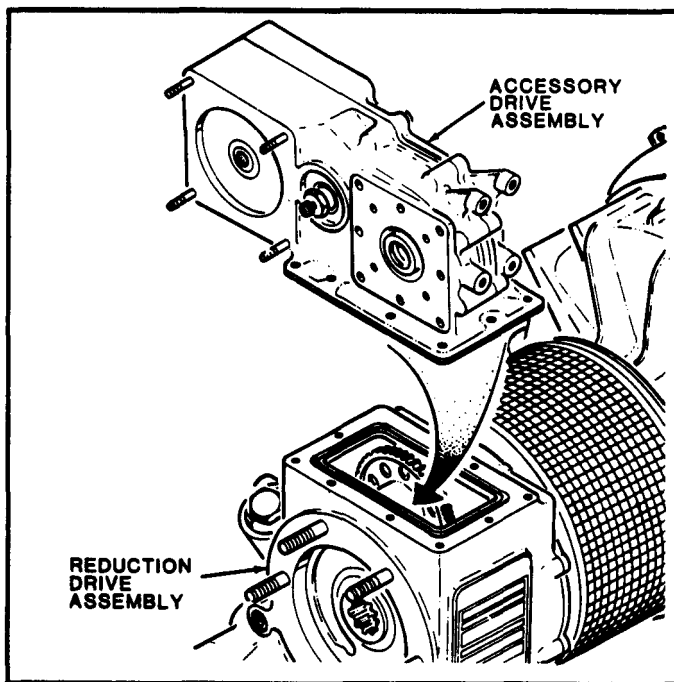
Personnel Required:

68B Aircraft Powerplant Repairer

68B Powerplant Inspector

References:

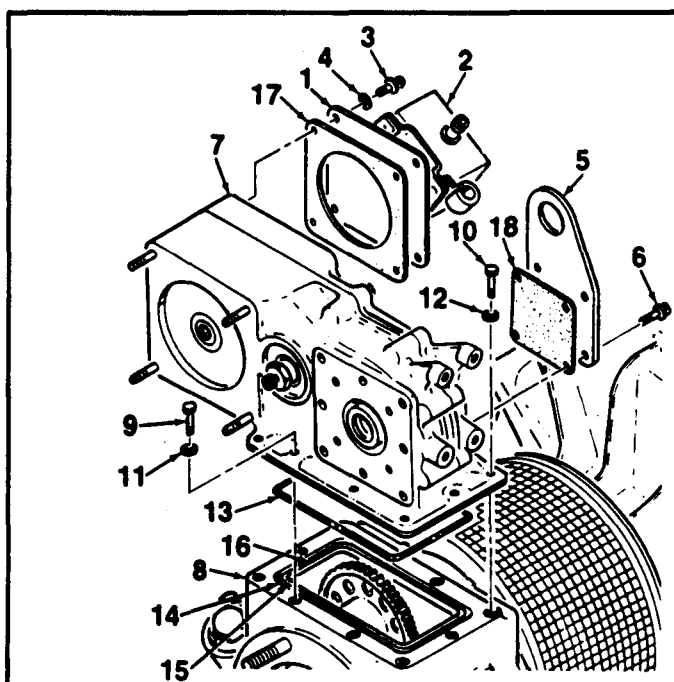
TM 55-2835-208-23P



Note

Make certain mating surfaces of accessory (7) and reduction drive assemblies (8) are clean.

- Using sealant gun, apply sealant (E37) on reduction drive assembly (8) mating surface (15) outboard of packing groove.

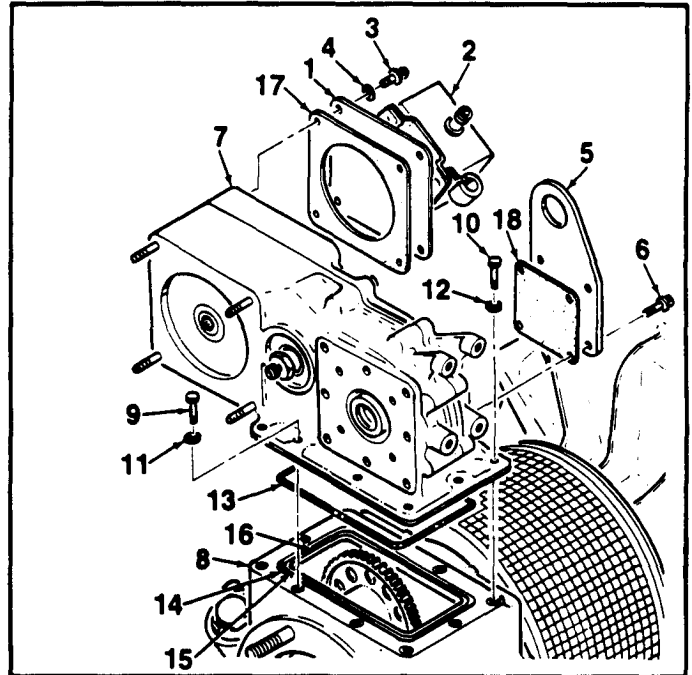


2. Using Assembly Fluid No. 1 (E31), lubricate and install packing (13) in groove of reduction drive assembly (8).

Note

Two accessory drive assembly attaching bolts are installed during installation of harness assembly (Task 2-82).

3. Install accessory drive assembly (7) using washers (12), (11) and bolts (10) and (9). Tighten bolts in criss-cross pattern and torque to 60 inch-pounds.
4. Install gasket (18) and cover (5) using screws (6). Install gasket (17). Install ignition exciter (2) with cover (1) attached, using bolts (3) and washers (4). Torque bolts to 40-60 inch-pounds.



INSPECT

FOLLOW-ON MAINTENANCE:

- Install electrical assembly (Task 2-82)
- Install base assembly (Task 2-70)

END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

- Engine Repairman's Tool Kit
NSN 5180-00-323-4944
- AVUM Tool Set No. 2
NSN 4920-00-569-0476
- Seal Removal Tool (T19)
- Seal Driver (T22)

Materials:

- Assembly Fluid, No. 1 (E31)
- Screws No. 10 Sheet Metal
(3 Required)

Parts:

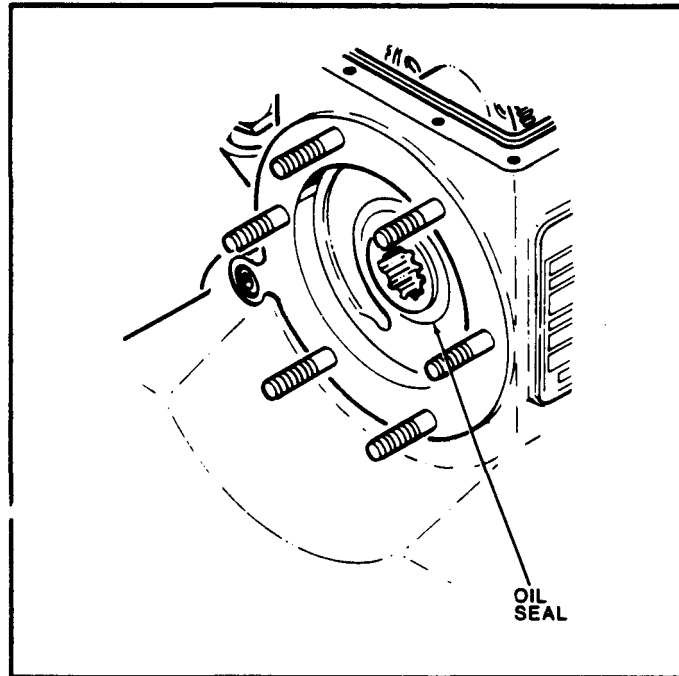
Seal

References:

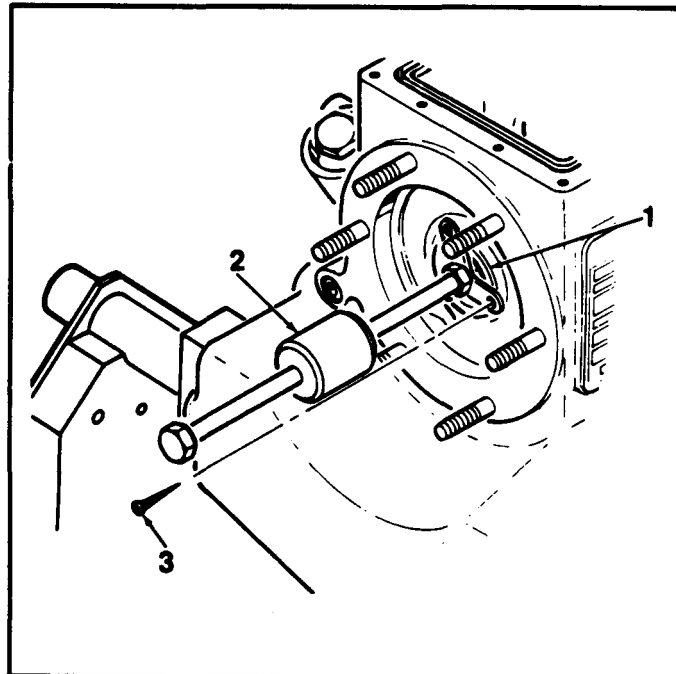
TM 55-2835-208-23P

Personnel Required:

- 68B Aircraft Powerplant Repairer
- 68B Powerplant Inspector



1. Drill three equally spaced 0.1250 inch diameter holes in seal (1) to match mounting holes of seal removal tool (T19) (2).
2. Install seal removal tool (T19) (2) using three No. 10 sheet metal screws (3).
3. Remove seal (1) with slide hammer action.



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2-107 REPLACE REDUCTION DRIVE ASSEMBLY OIL SEALS (AVIM) (Continued)

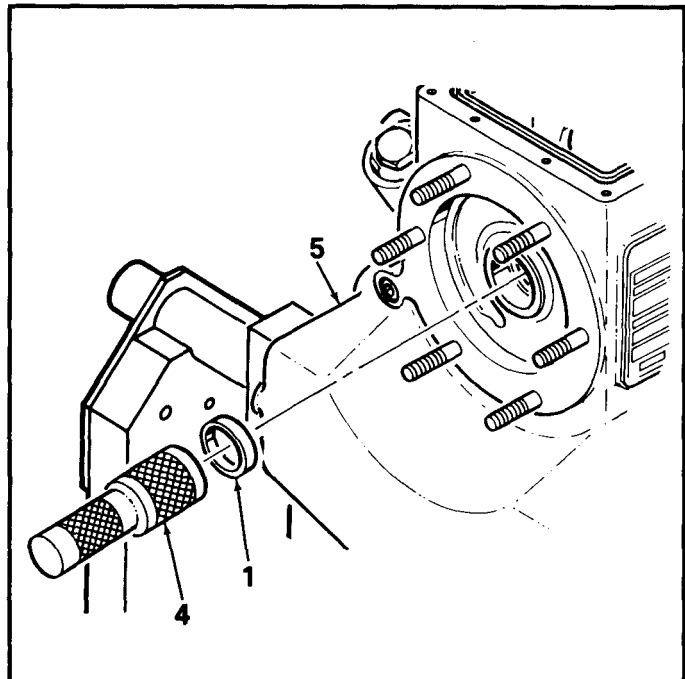
2-107

4. Apply a light coat of assembly fluid (E31) to lip of seal (1).
5. Install seal (1) with seal driver (T22) (4) into housing (5).

INSPECT

FOLLOW-ON MAINTENANCE:

None



END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

Engine Repairman's Tool Kit
NSN 5180-00-323-4944
Assembly Fixture (TI)
Torque Wrench
NSN 5120-00-542-4489

Materials:

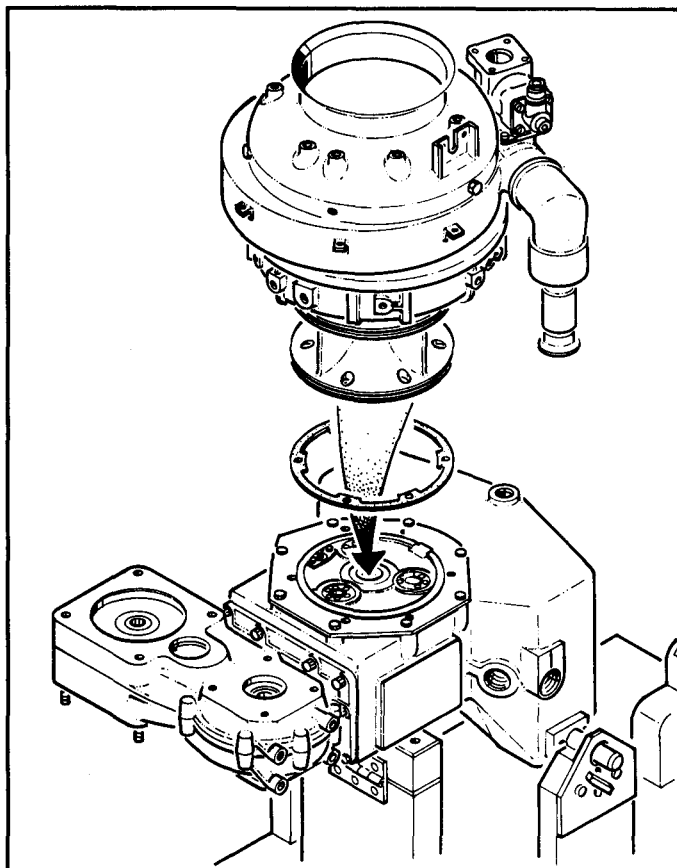
None

Parts:

Bolts
Packing
Gasket

Personnel Required:

68B Aircraft Powerplant
Repairer (2)
68B Powerplant Inspector



References:

TM 55-2835-208-23P

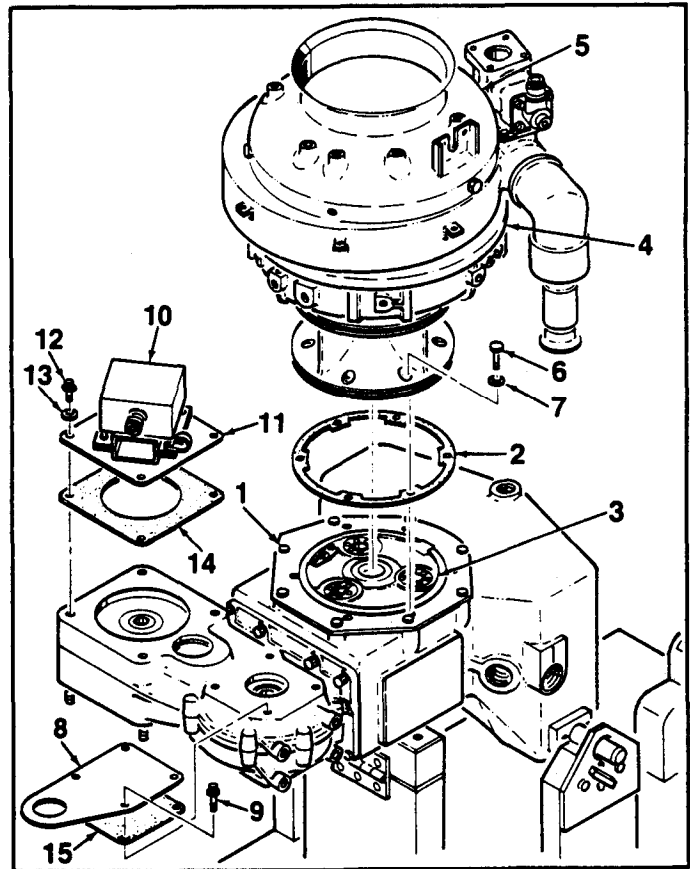
Equipment Condition:

Drive System in Assembly Fixture (Task 1-22)

1. Position drive system (1) in a vertical position with turbine mounting face uppermost.

GO TO NEXT PAGE

2. Install gasket (2) on drive system mating surface (3). Make certain TOP marking on gasket is at 12 o'clock position.
3. Using helper, align match marks on turbine assembly (4) and drive system (1) and install turbine assembly (4) and combustor section (5) (as a unit). Make certain turbine assembly input pinion meshes with reduction drive assembly star gears.
4. Install using new bolts (6) and washers (7). Tighten bolts (6) evenly using a criss-cross pattern. Torque to 60 inch-pounds.
8. Turn drive system to horizontal position.
9. Install gaskets (14) and (15). Install cover (8) using screws (9). Install ignition exciter (10) with cover (11) attached, using screws (12) and washers (13). Torque screws (9) and (12) to 50 inch-pounds.



INSPECT

FOLLOW-ON MAINTENANCE:

Install Air Inlet Screen Assembly (Task 2-4)

Install High Oil Temperature Switch (Task 2-88)

Install Low Oil Pressure Switch (Task 2-86)

Install Magnetic Pickup (Task 2-84)

GO TO NEXT PAGE

Install Base Assembly (Task
2-70)

Service APU (Task 1-26)

Install Electrical Harness
Assembly (Task 2-82)

END OF TASK

2-109 INSPECT SPLINE ADAPTER

2-109

INITIAL SETUP

Engine Repairman's Tool Kit

Applicable Configurations:

All

Tools:

None

Materials:

None

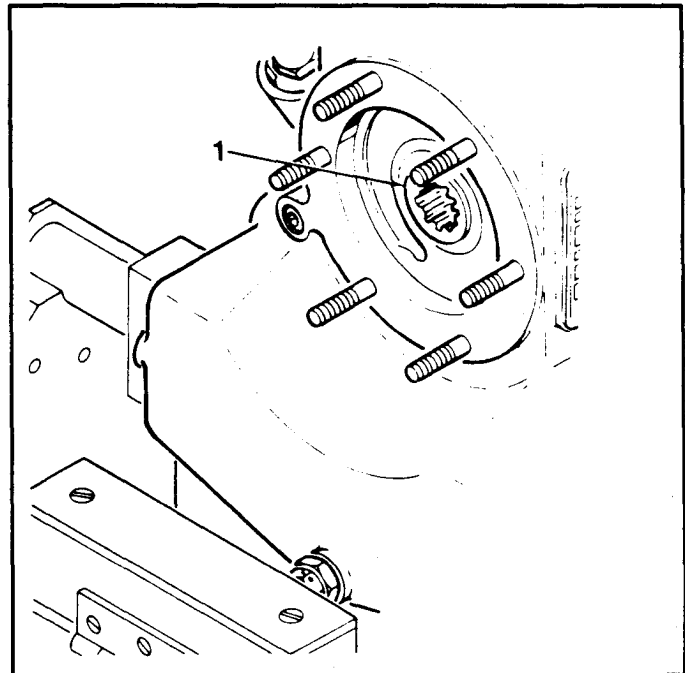
Personnel Required:68B Aircraft Powerplant Repairer
68B Powerplant Inspector**Equipment Condition:**

APU in Assembly Fixture (Task 1-22)

-
1. Inspect spline adapter splines (1) for chipped or broken teeth. If damaged, replace (Task 2-110).
 2. Inspect spline adapter for cracks. If damaged, replace (Task 2-110).

FOLLOW-ON MAINTENANCE:

None



END OF TASK

INITIAL SETUP

Applicable Configurations:

All

Tools:

- Engine Repairman's Tool Kit
NSN 5180-00-323-4944
- Spline Adapter Remover Tool (T18)
- Spline Adapter Installer (T17)

Materials:

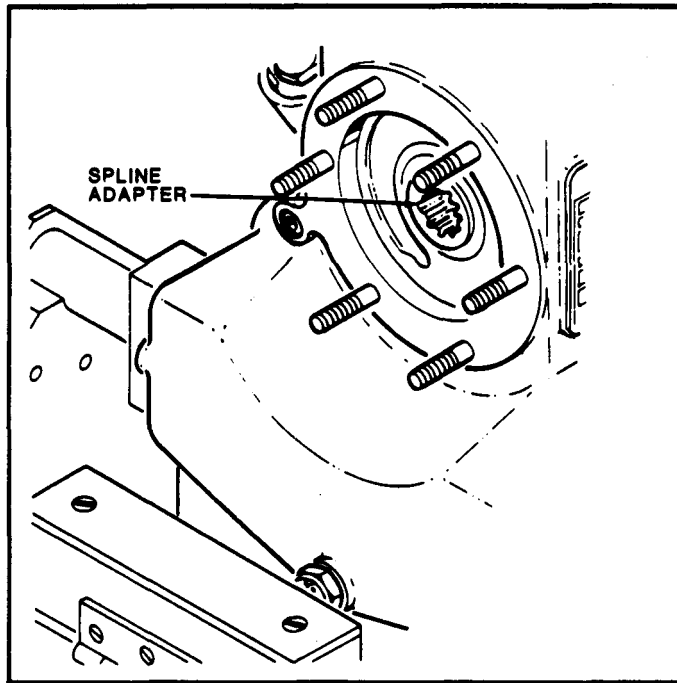
None

Personnel Required:

- 68B Aircraft Powerplant Repairer
- 68B Powerplant Inspector

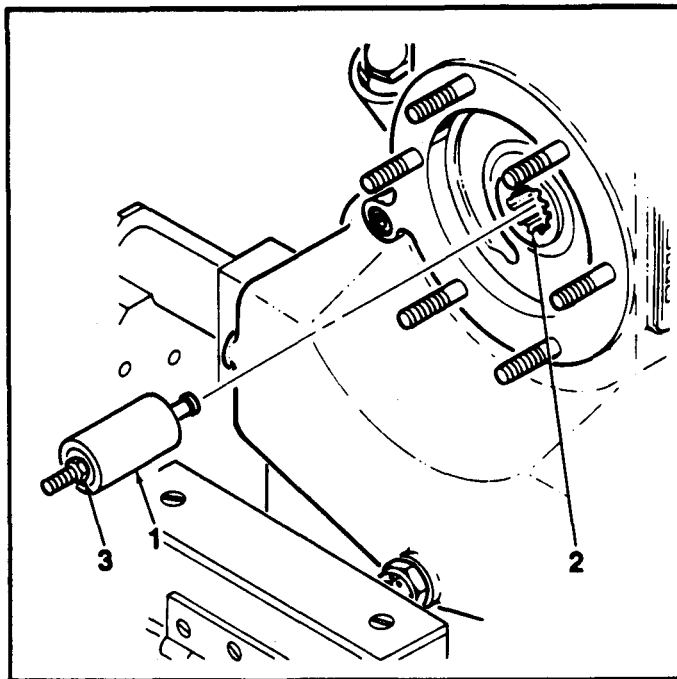
Equipment Condition:

APU in Assembly Fixture (Task 1-22)



1. Install spline adapter tools (T18) (1) into spline adapter (2) making certain splines engage each other.
2. Tighten nut (3) of spline adapter tool (T18) (1) until tight and remove spline adapter (2).
3. When spline adapter (2) is removed, remove spline adapter tool (T18) (1) by loosening nut (3) and removing from spline adapter (2)

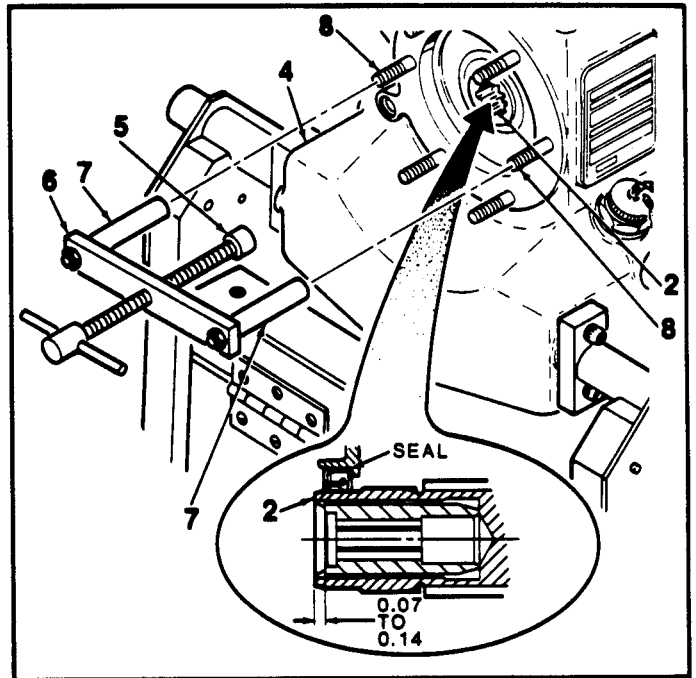
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2-110 REPLACE SPLINE ADAPTER (Continued)

2-110

4. **Insert** new spline adapter (2) (tapered end in first) into reduction drive assembly (4).
5. **Back off driver (5)** of spline adapter installer tool (T17) (6).
6. Mount spline adapter installer tool (T17) (6) onto reduction drive assembly studs (8) and tighten installer bolts (7).
7. **Turn driver (5)** and engage spline adapter (2). Continue turning driver (5) until spline adapter is installed to an insertion depth of 0.07 to 0.14 inch.
8. **Remove spline adapter installer tool (T17) (6).**



INSPECT

FOLLOW-ON MAINTENANCE:

None

END OF TASK

APPENDIX A

REFERENCES

A-1. DA Technical Bulletins

- TM 55-1520-237-23-11 Aviation Unit & Intermediate Maintenance Aircraft Corrosion Control Manual (UH-60A Helicopter)
- TB 55-8100-200-24 Maintenance of Specialized Reusable Containers for Aircraft Equipment

A-2. DA Technical Manuals

- DA-PAM-738-751 Functional Users Manual for the Army Maintenance Management System Aviation (TAMMS-A)
- TM 43-0002-1 Procedure for Destruction of Air Support Delivery Equipment to Prevent Enemy Use
- TM 55-1500-204-25/1 General Aircraft Maintenance Manual
- TM 55-1520-237-23-3 Aviation Unit and Intermediate Maintenance Aircraft Fault Isolation Procedures Manual (UH-60A Helicopter)
- TM 55-1520-237-23-6 Power Plant Fuel and Related Systems, Aviation Unit and Intermediate Maintenance, UH-60A Helicopter
- TM 55-2835-208-23P Aviation Unit and Intermediate Maintenance Repair Parts and Special Tools List for Gas Turbine Engine (Auxiliary Power Unit - APU) Model T-62T-40-1

A-3. DA Field Manuals

- FM 21-11 First Aid for Soldiers Maintenance
- FM 55-411 Maintenance, Quality Control and Technical Inspection Guide for Army Aircraft

A-4. Specifications and Standards

- MIL-B-121 Barrier Material, Greaseproofed, Waterproofed, Flexible
- MIL-B-15395 Brazing Alloy, Silver
- MIL-B-20100 Brush, Wire
- MIL-A-21300 Abrasive Material
- MIL-S-23190 Strap, Cable, Adjustable, Plastic

MIL-L-23699 Lubricating Oil, Aircraft Turbine Engines,
Synthetic Base

MIL-D-3464 Desiccants, Activated, Bagged, Packaging Use and
Static Dehumidification

A-4. Specifications and Standards (Continued)

MIL-G-4343 Grease, Pneumatic System

MIL-C-5646 Cloth, Airplane, Cotton

MIL-F-7516 Fluxes, Welding, Corrosion and Heat Resistant Alloy

MIL-L-7808 Lubricating Oil, Aircraft Turbine Engines,
Synthetic Base

H-B-001621 Brush, Stencil

O-F-499 Flux, Brazing, Silver Alloy, Low Melting Point

P-D-680 Dry Cleaning Solvent

P-S-624 Soap, Toilet, Liquid and Paste

TT-M-261 Methyl-Ethyl-Ketone

UU-T-106 Tape, Pressure-Sensitive Adhesive, Masking, Paper

VV-P-216 Penetrating Oil

VV-P-236 Petrolatum, Technical

MS20995 Wire, Lock

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 an 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 higher 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 remove/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 air frame repair that does not require extensive disassembly, jiggling or alinement. The manufacture of air frame parts 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. Air frame 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 inspection 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 750-50. (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**

Nomenclature 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 assign 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. Aline. 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 equipments 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 an 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 3d position code of the SMR code.

i. Repair. The application of maintenance services, including fault location/troubleshooting, removal installation, and disassembly/assembly procedures, and maintenance actions 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.

1. Services - inspect, test, service, adjust, aline, 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 | AUXILIARY POWER UNIT | 0405 | ELECTRICAL SYSTEM |
| 0401 | ENGINE GENERAL Servicing, handling, inspection requirements, lubrication charts, overhaul and retirement schedules. External lines and hoses. (As applicable) | | Electrical control units, exciters, thermocouples, ignition harness, harness, meter assembly, electrical cables, history record, torque overspeed sensor, Np sensor, alternate stator, blowers. |
| 0402 | COMBUSTION SECTION Liners, nozzles, stators, rotor, seals, couplings, blades and housing. | 0406 | OIL SYSTEM Tanks, oil filter, oil cooler, lube and scavenge pumps, oil filter bypass sensor, external lines and hoses. |
| 0403 | POWER-TURBINE (POWER TURBINE MODULE) Nozzles, rotors, blades, exit guide vanes, exhaust frame, drive shaft, bearings, seals, external lines and hoses. | 0407 | DRIVE SYSTEM Reduction gear assembly, output shaft, seal, bearing. |
| 0404 | FUEL SYSTEM Fuel control, fuel boost pump, governors, fuel filter assembly, sequence valve, fuel manifold, fuel nozzle, external lines and hoses. | 0408 | 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. Numbers in parentheses identify the correspondingly numbered remarks in Section IV.

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 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 and other notes, if applicable (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

T-62T-40-1 Auxiliary Power Unit

| (1) | (2) | (3) | (4) | (5) | (6) |
|--------------|----------------------------|----------------------|-----------------------|----------------|---|
| GROUP NUMBER | COMPONENT/ASSEMBLY | MAINTENANCE FUNCTION | MAINTENANCE AVUM AVIM | CATEGORY DEPOT | TOOLS AND EQUIPMENT REMARKS |
| 04 | AUXILIARY POWER UNIT | INSPECT | - . - (7) | | 5, 14 |
| 0401 | ENGINE GENERAL | INSPECT | - . - (2) | | 5, 14, 22 |
| | | TEST | - . - (1) | | |
| | | SERVICE | - . - (3) | | 9, 23 |
| | | REPLACE | - . - (2) | | 1, 6, 16, 9 A |
| | | REPAIR | - . - (5) | | 1, 2, 4, 6, 9, A 13, 14, 15, 16, 17, 18, 19, 21, 22, 23, 25, 26, 27 |
| | | OVERHAUL | - . - | | |
| 040101 | AIR INLET SCREEN | INSPECT | - . - | | 14 |
| | | REMOVE/ INSTALL | - . - | | 9, 14 |
| | | REPLACE | - . - | | 9, 14 A |
| | | REPAIR | - . - (4) | | 12 A |
| 040102 | EXTERNAL LINES AND FITINGS | INSPECT | - . - (7) | | 14 |
| | | REMOVE/ INSTALL | - . - (6) | | 9, 14 |
| | | REPLACE | - . - | | 9, 14 A |

NOTE

THE AVUM MAINTANANCE FUNCTIONS IDENTIFIED HEREIN ARE RESTRICTED TO COMPANY SIZE UNITS. THESE UNITS ARE AUTHORIZED SC 4920-99-CL-A92 (AVUM #2) TOOL SET AND HAVE 10 OR MORE AIRCRAFT ASSIGNED. REFER TO PARAGRAPH B-1 (1) (a).

Section II (cont)
MAINTENANCE ALLOCATION CHART

NOMENCLATURE OF END ITEMS

T-62T-40-1 Auxiliary Power Unit

| (1) | (2) | (3) | (4) | (5) | (6) | |
|-----------------|---------------------|-------------------------|--------------------------|-------------------|---------------------------|---------|
| GROUP NUMBER | COMPONENT/ASSEMBLY | MAINTENANCE FUNCTION | MAINTENANCE AVUM AVIM | CATEGORY DEPOT | TOOLS AND EQUIPMENT | REMARKS |
| 040103 | START BY-PASS VALVE | INSPECT | - . - (7) | | 14 | |
| | | REMOVE/ INSTALL | - . - (6) | | 9, 14 | |
| | | REPLACE | - . - | | 9, 14 | |
| 0402 | COMBUSTION SECTION | INSPECT | - . - | | 14 | |
| 040201 | COMBUSTOR HOUSING | INSPECT | - . - (7) | | 14 | |
| | | REMOVE/ INSTALL | - . - | | 3, 9, 11, 14, 25 | |
| | | REPLACE | - . - | | 3, 9, 11, 14 | A |
| | | REPAIR | - . - (4,5) | | 9, 12, 14 | A |
| 040202 | COMBUSTOR LINER | INSPECT | - . - | | 9, 14 | |
| | | REMOVE/ INSTALL | - . - | | 9, 14 | |
| | | REPLACE | - . - | | 11, 14 | A |
| | | REPAIR | - . - (4,5) | | 12, 14, 24 | A |
| 0403 | TURBINE ASSY | INSPECT | - . - (7) | | 5, 14 | |
| | | REPAIR | - . - (5) | | 10 | A |
| 0404 | FUEL SYSTEM | INSPECT | - . - | | 14 | |

Section II (cont)
 MAINTENANCE ALLOCATION CHART

NOMENCLATURE OF END ITEMS

T-62T-40-1 Auxiliary Power Unit

| (1) | (2) | (3) | (4) | | (5) | (6) | |
|-----------------|------------------------------------|-------------------------|---------------------|---------------------------|---------------------------|---------|---|
| GROUP NUMBER | COMPONENT/ASSEMBLY | MAINTENANCE FUNCTION | MAINTENANCE AVUM | CATEGORY AVIM DEPOT | TOOLS AND EQUIPMENT | REMARKS | |
| 040401 | START FUEL NOZZLE HOLDER (ASSY) | INSPECT | - | . | - | 14 | |
| | | SERVICE | - | . | - | 9, 14 | |
| | | REMOVE/ INSTALL | - | . | - | 9, 14 | |
| | | REPLACE | - | . | - | 9, 14 | A |
| 040402 | PURGE VALVE ASSY | INSPECT | - | . | - | 14 | |
| | | REMOVE/ INSTALL | - | . | - | 9, 14 | |
| | | REPLACE | - | . | - | 9, 14 | A |
| 040403 | SPECIAL FITTING ASSY | INSPECT | - | . | - | 14 | |
| | | REMOVE / INSTALL | - | . | - | 9, 14 | |
| | | REPLACE | - | . | - | 9, 14 | A |
| 040404 | RESTRICTOR | INSPECT | - | . | - | 14 | |
| | | REMOVE/ INSTALL | - | . | - | 9, 14 | |
| | | REPLACE | - | . | - | 9, 14 | A |
| 040405 | TEE FITTING BRACKET ASSY | INSPECT | - | . | - | 14 | |
| | | REMOVE/ INSTALL | - | . | - | 9, 14 | |
| | | REPLACE | - | . | - | 9, 14 | A |
| 040406 | COMPRESSOR FITTING ASSY | INSPECT | - | . | - | 14 | |
| | | REMOVE/ INSTALL | - | . | - | 9, 14 | |
| | | REPLACE | - | . | - | 9, 14 | A |

Section II (cont)
MAINTENANCE ALLOCATION CHART

NOMENCLATURE OF END ITEMS

T-62T-40-1 Auxiliary Power Unit

| (1) | (2) | (3) | (4) | (5) | (6) | |
|--------------|-----------------------------|----------------------|--------------------------------|----------------|---------------------|---------|
| GROUP NUMBER | COMPONENT/ASSEMBLY | MAINTENANCE FUNCTION | MAINTENANCE CATEGORY AVUM AVIM | CATEGORY DEPOT | TOOLS AND EQUIPMENT | REMARKS |
| 040407 | FUEL COVER ASSY | INSPECT | - . - | | 14 | |
| | | REMOVE/ INSTALL | - . - | | 9,14 | |
| | | REPLACE | - . - | | 9,14 | A |
| | | REPAIR | | - . - (4,5) | 9,12,14 | A |
| 040408 | FUEL DRAIN CHECK VALVE ASSY | INSPECT | - . - | | 14 | |
| | | REMOVE/ INSTALL | - . - | | 9,14 | |
| | | REPLACE | - . - | | 9,14 | A |
| 040409 | ACCELERATION CONTROL | INSPECT | - . - | | 14 | |
| | | REMOVE/ INSTALL | - . - | | 9,14 | |
| | | REPLACE | - . - | | 9,14 | A1 |
| | | ADJUST | - . - | | | |
| | | OVERHAUL | | | - . - | |
| 040410 | FUEL PUMP | INSPECT | - . - | | 14 | |
| | | REMOVE/ INSTALL | - . - | | 9,14 | |
| | | REPLACE | - . - | | 9,14 | A |
| | | REPAIR | - . - (5) | | 9,14 | A |
| | | OVERHAUL | | | - . - | |

Section II (cont)
 MAINTENANCE ALLOCATION CHART

NOMENCLATURE OF END ITEMS

T-62T-40-1 Auxiliary Power Unit

| (1) | (2) | (3) | (4) | | | (5) | (6) |
|--------------|--|----------------------|------------------|------------------|----------------|---------------------|---------|
| GROUP NUMBER | COMPONENT/ASSEMBLY | MAINTENANCE FUNCTION | MAINTENANCE AVUM | MAINTENANCE AVIM | CATEGORY DEPOT | TOOLS AND EQUIPMENT | REMARKS |
| 040411 | FUEL INLET FILTER | REMOVE/INSTALL | - | . | - | 9,14 | |
| | | REPLACE | - | . | - | 9,14 | A |
| 040412 | FUEL MANIFOLD ASSEMBLY | INSPECT | - | . | - | 14 | |
| | | REMOVE/INSTALL | - | . | - | 9,14 | |
| | | REPLACE | - | . | - | 9,14 | A |
| 040413 | MAIN, MAX AND START FUEL SOLENOID VALVES | REMOVE/INSTALL | - | . | - | 9,14 | |
| | | REPLACE | - | . | - | 9,14 | A |
| 040414 | BASE ASSEMBLY | INSPECT | - | . | - | 14 | |
| | | REMOVE/INSTALL | - | . | - | 9,14 | |
| | | REPLACE | - | . | - | 9,14 | A |
| | | REPAIR | - | . | - | (4,5) | 9,12,14 |
| 0405 | ELECTRICAL SYSTEM | INSPECT | - | . | - | 14 | |
| 040501 | IGNITION EXCITER | INSPECT | - | . | - | 14 | |
| | | REMOVE/INSTALL | - | . | - | 9,14 | |
| | | REPLACE | - | . | - | 9,14 | A |
| | | REPAIR | - | . | - | (8) | |

Section II (Cont)

MAINTENANCE ALLOCATION CHART

NOMENCLATURE OF END ITEMS

T-62T-40-1 Auxiliary Power Unit

| (1) | (2) | (3) | (4) | (5) | (6) | |
|--------------|--------------------------------|----------------------|-----------------------|----------------|---------------------|---------|
| GROUP NUMBER | COMPONENT/ASSEMBLY | MAINTENANCE FUNCTION | MAINTENANCE AVUM AVIM | CATEGORY DEPOT | TOOLS AND EQUIPMENT | REMARKS |
| 040502 | IGNITION CABLE | REMOVE/ INSTALL | -- | | 9,14 | |
| | | REPLACE | -- | | 9,14 | A |
| 040503 | IGNITER PLUG | INSPECT | -- | | 14 | |
| | | REMOVE/ INSTALL | -- | | 9,14 | |
| | | REPLACE | -- | | 9,14 | |
| 040504 | ENGINE ELECTRICAL HARNESS ASSY | INSPECT | -- | | 14 | |
| | | REMOVE/ INSTALL | -- | | 9,14 | |
| | | REPLACE | -- | | 9,14 | |
| 040505 | MAGNETIC PICKUP | REMOVE/ INSTALL | -- | | 9,14 | |
| | | REPLACE | -- | | 9,14 | |
| 040506 | METER ASSEMBLY | REMOVE/ INSTALL | -- | | 9,14 | |
| | | REPLACE | -- | | 9,14 | A |
| 0406 | OIL SYSTEM | INSPECT | -- | | 9,14 | A |
| 040601 | LOW OIL PRESSURE SWITCH | REMOVE/ INSTALL | -- | | 9,14 | |
| | | REPLACE | -- | | 9,14 | A |
| 040602 | HIGH OIL TEMPERATURE SWITCH | REMOVE/ INSTALL | -- | | 9,14 | |
| | | REPLACE | -- | | 9,14 | A |

Section II (Cont)

| MAINTENANCE ALLOCATION CHART | | | | | | |
|---------------------------------|-------------------------------|----------------------|------------------|------------------|----------------|-----------------------------|
| NOMENCLATURE OF END ITEMS | | | | | | |
| T-62T-40-1 Auxiliary Power Unit | | | | | | |
| (1) | (2) | (3) | (4) | | (5) | (6) |
| GROUP NUMBER | COMPONENT/ASSEMBLY | MAINTENANCE FUNCTION | MAINTENANCE AVUM | MAINTENANCE AVIM | CATEGORY DEPOT | TOOLS AND EQUIPMENT REMARKS |
| 040603 | OIL FILTER | INSPECT | -.- | | | 14 |
| | | REPLACE | -.- | | | 9,23 A |
| 040604 | OIL FILTER BYPASS VALVE | INSPECT | -.- | | | 14 |
| | | REPLACE | -.- | | | 9,23 A |
| 040605 | OIL SIGHT GAGE | INSPECT | -.- | | | 14 |
| | | REMOVE/ INSTALL | -.- | | | 9,14 |
| | | REPLACE | -.- | | | 9,14 A |
| | | REPAIR | -. (5) | | | 9,14 A |
| 040606 | MAGNETIC DRAIN PLUG AND VALVE | INSPECT | -.- | | | 14 |
| | | REPLACE | -.- | | | 9,14 A |
| 040607 | OIL PLUG AND DIPSTICK | INSPECT | -.- | | | 14 |
| | | REPLACE | -.- | | | 9,14 A |
| 0407 | DRIVE SYSTEM | INSPECT | -.- | | | 14 |
| 040701 | ACCESSORY DRIVE ASSY | INSPECT | -.- | | | 14 |
| | | REPAIR | -. (5) | | | 2,4,9, 13,14 A |
| 040702 | REDUCTION DRIVE ASSY | INSPECT | -.- | | | 14 |
| | | REPAIR | -. (5) | | | 9,14, 19,22 A |
| 040703 | SPLINE ADAPTER | INSPECT | -.- | | | 14 |
| | | REPLACE | -.- | | | 9,14,77 18 A |

Section III

TOOL AND TEST EQUIPMENT REQUIREMENTS

NOMENCLATURE OF END ITEMS

T-62T-40-1 Auxillary Power Unit

TOOL OR TEST
EQUIPMENT

REFERENCE MAINTENANCE

| CODE | CATEGORY | NOMENCLATURE | NATIONAL/NATO STOCK NUMBER | TOOL NUMBER |
|------|----------|------------------------------------|-------------------------------|---------------------------|
| 1 | AVUM | Assembly Fixture | 2835-00-620-9846 | ST70396 |
| 2 | AVUM | Driver, Seal | 5120-01-212-2906 | ST90889-03 |
| 3 | AVUM | Puller, Combustor | 5120-00-435-0132 | ST91125 |
| 4 | AVUM | Driver, Seal | 5120-01-212-2906 | ST90889-06 |
| 5 | AVUM | Gage Set, Wire | 5220-01-145-7448 | ST60880 |
| 6 | AVUM | Lifting Sling | 4910-01-253-6279 | ST93473 |
| 7 | AVUM | Tool Set, AVUM, Set No. 2 | 4920-00-569-0476 | SC492099CLA92 |
| 8 | AVUM | Tool Kit, Electrical | 5180-00-323-4915 | SC518099CLA06 |
| 9 | AVUM | Tool Kit, Engine Repairman | 5180-00-323-4944 | SC492099CLA08 |
| 10 | AVIM | Shopset, AVIM, Machine Shop | 4920-00-405-9279 | SC492099CLA91MAAM |
| 11 | AVUM | Combustor, Puller (Adapter) | 5120-01-212-2885 | ST93014 |
| 12 | AVIM | Shopset, AVIM, Welding | 4920-00-163-5093 | SC492099CXA91WEAM |
| 13 | AVIM | Removal Tool, Seal | 5120-00-435-5707 | ST91017 |
| 14 | AVUM | Aircraft Inspection Tool kit | 5180-00-323-5114 | SC518099CLA09 |
| 15 | AVUM | Power Supply, 28 VDC | | - - - |
| 16 | AVUM | Assembly, Welded | 4920-00-939-1501 | ST70106-39 |
| 17 | AVUM | Installer-Vespel Spline Adapter | 5120-01-156-0969 | 1106841-1 (Bendix P/N) |

Section III (Cont)

TOOL AND TEST EQUIPMENT REQUIREMENTS

NOMENCLATURE OF END ITEMS

T-62T-40-1 Auxiliary Power Unit

| TOOL OR TEST EQUIPMENT REFERENCE CODE | MAINTENANCE CATEGORY | NOMENCLATURE | NATIONAL/NATO STOCK NUMBER | TOOL NUMBER |
|--|-------------------------|--|-------------------------------|---------------------------|
| 18 | AVUM | Remove - Vespel Spline Adapter | 5120-01-165-5544 | 1106769-4 (Bendix P/N) |
| 19 | AVUM | Removal Tool Seal | 5120-01-203-1974 | ST93057 |
| ■ 20 | DELETED | | | |
| 21 | AVUM | Exhaust Port Closure | | MS29351 |
| 22 | AVUM | Driver, Seal | 5180-01-236-9665 | ST93228 |
| ■ 23 | AVUM | Oil Filter By-pass Valve Removal Tool | 5120-01-266-1933 | ST80211 |
| ■ 24 | AVIM | Flaring Tool | 5120-00-152-2013 | ST91262-300 |
| ■ 25 | AVUM | Alignment Tool | 5120-01-248-1804 | ST94416 |
| ■ 26 | AVUM | Inlet Cover | | 162400-200 |

Section IV

REMARKS

T-62T-40-T TURBINE ENGINE

| REFERENCE CODE | REMARKS/NOTES |
|-------------------|--|
| (1) | Functional Test at AVUM |
| (2) | Reference TM 55-1520-237-23-6 |
| (3) | Water/Solvent |
| (4) | Weld Repair |
| (5) | Replace Inserts, Helicoils, Studs, Seals and Packings |
| (6) | Replace Support brackets, Plugs and Packings |
| (7) | Inspect for Chafing, Security of Installation, Dents, Kinks and Cracks |
| (8) | Replace Nut Plates |
| (9) | Replace Electrical Connectors, Terminal Block |
| A | All repair and replacement of parts performed by AVUM or AVIM is limited to authorized items listed in TM 55-2835-208-23P. |

APPENDIX C

REPAIR PARTS AND SPECIAL TOOL LIST

Refer to TM 55-2835-208-23P for repair parts and special tools list.

APPENDIX D

EXPENDABLE SUPPLIES AND MATERIALS LIST

Section I. INTRODUCTION

D-1. Scope

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

to request or requisition the item.

c. Column 3 - Description. Indicates the item name and, if required, a description to identify the item. The last line for each item indicates the part number followed by the Federal Supply Code for Manufacturer (FSCM) in parentheses, if there is no NSN in column 2.

D-2. Explanation of Columns

a. Column 1 - Item E Number. This number is assigned to the entry in the listing and is referenced in the maintenance Tasks to identify the material (e.g., Use lint-free cloth (E13)).

Column 4 - Unit of Measure (U/M). Indicates the measure used in performing the actual maintenance function. This measure is expressed by a two-character alphabetical abbreviation (e.g., ea, in, pr). If the unit of measure differs from the unit of issue, requisition the lowest unit of issue that will satisfy your requirements.

b. Column 2 - National Stock Number. This is the National Stock Number assigned to the item; use it

Section II. EXPENDABLE SUPPLIES AND MATERIALS LIST

| (1) Item E Number | (2) National Stock Number | (3) Description | (4) U/M |
|-------------------------|---------------------------------|--|------------|
| 1 | 9150-00-250-0926 | Petrolatum, Technical VV-P-236, Type 5, Class 2 | 1.75 lb |
| 2 | 9150-00-269-8255 | Grease, Aircraft MIL-G-4343 | 1.75 lb |
| 3 | 6830-00-327-2929 | Nitrogen, Technical BBN411, Type 1, Class 1, Grade B | lb |
| 4 | 6850-00-999-1094 | Dessicant, Activated, Bagged MIL-D-3464, Type 1 | bg |
| 5 | 8520-00-228-0598 | Soap, Toilet P-S-624, Type 1 | gal |
| 6 | 6685-00-167-9235 | Indicator, Humidity, TA357-2435-RFI | ea |
| 7 | 8135-00-753-4661 | Barrier Material, Greaseproof, Waterproof, Flexible MIL-B-121, Type 1, Class 2, Grade A | yd |
| 8 | 7510-00-266-6709 | Tape, Pressure-Sensitive Adhesive, Masking, Paper UUT106 | r1 |
| 9 | 6810-00-264-8983 | Methyl-Ethyl-Ketone TTM261 | oz |
| 10 | 7520-00-223-8000 | Brush, Stencil H-B-00621, Type 1 | ea |

Section II. EXPENDABLE SUPPLIES AND MATERIALS LIST (CONT)

| (1) Item E Number | (2) National Stock Number | (3) Description | (4) U/M |
|-------------------------|---------------------------------|--|------------|
| 11 | 3439-00-052-1899 | Brazing, Alloy, Silver MIL-B-15395 | oz |
| 12 | 3439-00-051-2834 | Flux, Brazing O-F-499 | oz |
| 13 | 8305-00-191-3977 | Cloth, Airplane, Cotton MIL-C-5646 | yd |
| 14 | 7510-00-465-0994 | Pencil Marking | ea |
| 15 | 8030-00-087-8630 | Compound, Anti-Seize MIL-T-83483 | lb |
| 16 | 9505-00-293-4208 | Wire, Non-Electrical MS20995C32 | r l |
| 17 | 3439-00-255-0431 | Flux, Welding MIL-F-7516 | oz |
| 18 | 3439-00-166-9584 | Rod, Welding, AMS5786, Box | 10 lb |
| 19 | 9150-00-261-7899 | Penetrating Oil VV-P-216 | pt |
| 20 | 6850-00-285-8011 | Dry Cleaning Solvent P-D-680, Type 2 | gal |
| 21 | 5975-00-074-2072 | Strap Tiedown, Electrical MS3367-1-9 | ea |
| 22 | 5305-01-126-9460 | Screw Lock, Mild Strength, P/N 222 | oz |
| 23 | 9150-00-270-4057 | Lubricating Oil, Aircraft Engine, Synthetic Base MIL-L-7808 | qt |
| 24 | 9150-00-180-6266 | Lubricating Oil, Aircraft Turbine Engines, Synthetic Base MIL-L-23699 | qt |
| 25 | 5306-00-760-7299 | Bolt, Machine Steel, Hex Head .250-28 UNJF-3A MS9519-15 | ea |
| 26 | | Bolt, Machine Steel, Hex Head .3125-24 UNF-3A MS9520-42 | ea |
| 27 | 9150-00-273-2388 | Lubricating Oil, MIL-L-6081, Grade 1010 | qt |
| 28 | 5350-00-184-5824 | Abrasive Material, MIL-A-21380, Type 1, Grade C, 180 Grit | qt |
| 29 | 6810-00-238-8119 | Naphtha, Cleaning Solution TT-N-95 | gal |
| 30 | 8030-00-843-4605 | Adhesive, Silastic, 730 RTV | oz |
| 31 | 9150-00-159-5012 | Assembly Fluid, No. 1 (56385) | oz |
| 32 | 9505-00-221-2650 | Wire, Non-Electrical MS20995C20 | r l |
| 33 | 3439-00-753-2086 | Rod, Brazing, 14 in x 0.125 dia | ea |

Section II. EXPENDABLE SUPPLIES AND MATERIALS LIST (CONT)

| (1) Item Number | (2) National Stock Number | (3) Description | (4) U/M |
|-----------------------|---------------------------------|--|------------|
| 34 | 5970-01-095-0528 | Electrical Tape, Class B (Fiberglass, 1/2 inch) Scotch No. 27 | rl |
| 35 | 8040-0225-4548 | Adhesive, RTV 102 | tb |
| 36 | 8030-01-171-7628 | Compound, Sealing | 50cc |
| 37 | 8030-01-124-7622 | Sealant (injection style) Pro Seal 870B-2 (MIL-S-81733) (83527) | A/R |

APPENDIX E
MANUFACTURED ITEMS LIST

Not Applicable

APPENDIX F

TORQUE LIMITS

TORQUE VALUES FOR BOLTS, SCREWS, AND NUTS

| <u>Thread Size</u> | <u>Torque Value</u> |
|--------------------|---------------------|
| 3-48 | 5-7 inch-pounds |
| 6-32 | 11-13 inch-pounds |
| 8-32 | 13-16 inch-pounds |
| 10-32 | 24-27 inch-pounds |
| 1/4-28 | 55-70 inch-pounds |
| 9/16-18 | 480-600 inch-pounds |

MINIMUM DRAG TORQUE FOR SELF-LOCKING NUTS

| <u>Thread Size</u> | <u>Torque Value</u> |
|--------------------|---------------------|
| 10-32 | 2.0 inch-pounds |
| 1/4-28 | 3.5 inch-pounds |
| 3/8-24 | 9.5 inch-pounds |

TORQUE VALUES FOR PLUGS, UNIONS, ELBOWS, AND NIPPLES

| <u>Size</u> | <u>Thread Size</u> | <u>Torque Value</u> |
|-------------|--------------------|---------------------|
| 4 | 7/16-20 | 135-150 inch-pounds |
| 6 | 9/16-18 | 180-200 inch-pounds |

TORQUE VALUES FOR FLARED TUBE COUPLING NUTS

| <u>Tube Size</u> | <u>Torque Value</u> |
|------------------|---------------------|
| 4 | 135-150 inch-pounds |
| 6 | 270-300 inch-pounds |

TORQUE VALUES FOR FLARELESS TUBE COUPLING NUTS

| <u>Tube Size</u> | <u>Torque Value</u> |
|------------------|---------------------|
| 2 | 75-85 inch-pounds |
| 4 | 135-145 inch-pounds |

Torque Wrench, 0-30 inch-pounds
 NSN 5120-00-117-4832
 Torque Wrench, 30-150 inch-pounds
 NSN 5120-00-542-4489
 Torque Wrench, 150-750 inch-pounds
 NSN 5120-00-821-3441

GLOSSARY

Section 1. ABBREVIATIONS

| | |
|----------------|-------------------------------|
| bg | bag |
| DA | Department of the Army |
| ea | Each |
| EGT | exhaust gas temperature |
| ESU | electronic sequence unit |
| FM | field manual |
| FOD | foreign object damage |
| gal | Gallon |
| in. | Inch |
| l | Liter |
| lb | Pound |
| MAC. | Maintenance Allocation Chart |
| max | Maximum |
| min | Minimum |
| oz | Ounce |
| PCD | Compressor discharge pressure |
| psig | pounds per square inch gage |
| pt | Pint |
| QDR. | Quality Deficiency Report |
| qt | Quart |
| rl | Roll |
| rpm | Revolutions per Minute |
| TB | Technical Bulletin |
| TM. | Technical Manual |
| U/M | Unit of Measure |
| yd | Yard |

GLOSSARY

Section 2. DEFINITIONS

| TERM | DEFINITION |
|--------------------------------------|---|
| 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. |
| Burnishing | Smoothing minor damage using a hand tool. |
| Burr | A rough or sharp edge on a hole or corner, usually caused by machining, sometimes by wearing. |
| C | |
| Chipping | Breaking away of metallic particles. |
| 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. |
| Corrosion (Direct Surface Attack) | A type of corrosion that results from direct reaction between a metal surface and the atmosphere. Rust on iron is a common example. |
| Corrosion (Galvanic) | Accelerated corrosion as a result of electrical contact between dissimilar metals. |
| Corrosion (Intergranular) | A corrosion type which attacks along the grain boundaries of a metal. |
| Corrosion (Pitting) | Formation of small cavities on a metallic surface caused by chemical or physical nonhomogeneities. |
| Corrosion (Stress Cracking) | A type of corrosion which causes cracking and part failure due to a combination of corrosion and sustained tensile stress. |
| Crack | Parting of parent metal. |

GLOSSARY

Section 2. DEFINITIONS (Continued)

| TERM | DEFINITION |
|------------------|--|
| D | |
| Dent | A completely smooth surface depression caused by pressure or impact from a smooth ball-like foreign object. The parent material is displaced, but usually none is separated. |
| 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 or unrestrained. |
| E | |
| Errosion | Wearing away of metal. |
| F | |
| Ferrules | Metal band or socket. |
| Foreign Material | See Contamination. |
| Foreign Object | Any object such as a tool, piece of equipment, APU part (nut, bolt, lockwire) that could in any way damage the APU. |
| Fraying | Wearing or rubbing of areas, generally used in reference to damage on wire-braid covering (of teflon hose) or on thermocouple harness. |
| 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. |
| 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. |

GLOSSARY

Section 2. DEFINITIONS (Continued)

| TERM | DEFINITION |
|--------------|---|
| 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. |
| P | |
| Parent Metal | The basic metal of a part, sometimes referred to as 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. |
| Puncture | A hole that is pierced in a material. |
| R | |
| Repair | To restore a defective part, component, subassembly or assembly to a serviceable condition. |
| Rub | When one component contacts another and is moved in relationship to it causing material to be removed from it. |
| D | |
| 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 a condition which allows them to be returned to operational status on an aircraft. |

GLOSSARY

Section 2. DEFINITIONS (Continued)

| TERM | DEFINITION |
|-----------|---|
| T | |
| Testing | Testing of equipment to determine that the unit functions properly within specified limits. |
| 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. |
| W | |
| Wear | Relatively slow removal of parent material from any cause, frequently not visible to the naked eye. |

ALPHABETICAL INDEX

| Subject, Para. | Subject, Para. |
|--|---|
| A | B |
| Accessory Drive System | Base Assembly |
| Install, 2-106 | Clean, 2-68 |
| Remove, 2-104 | Inspect, 2-68 |
| Replace, 2-105 | Install, 2-70 |
| Air Inlet Housing | Remove, 2-67 |
| Clean, 2-22 | Repair, 2-69 |
| Inspect, 2-22 | |
| Repair, 2-23 | Bypass Valve, Oil Filter and |
| Air Screen Assembly | Clean, 2-90 |
| Clean, 2-2 | Inspect, 2-90 |
| Inspect, 2-2 | Install, 2-91 |
| Install, 2-4 | Remove, 2-89 |
| Remove, 2-1 | Bypass Valve, Start |
| Repair, 2-3 | Clean, 2-9 |
| APU | Inspect, 2-9 |
| Drive System, 1-12 | Install, 2-10 |
| Electrical System, 1-15 | Remove, 2-8 |
| Equipment Characteristics, Capabilities and Features, 1-6 | |
| Equipment Data, 1-8 | C |
| Fuel System, 1-13 | |
| Hoist APU, 1-24 | Cable, Ignition |
| Install APU in Reusable Shipping Container, 1-38 | Install, 2-76 |
| Install APU in Assembly Fixture, 1-22 | Remove, 2-75 |
| Location and Description of Major Components, 1-7 | Changing APU Oil, 1-28 |
| Lubrication System, 1-14 | Characteristics, Capabilities and Features, Equipment, 1-6 |
| Powerplant Assembly, 1-10 | Clean |
| Prepare APU for Use, 1-23 | Acceleration Control Unit, 2-53 |
| Remove APU from Assembly Fixture, 1-38 | Air Inlet Housing, 2-22 |
| Remove APU from Reusable Shipping Container, 1-20 | Air Screen Assembly, 2-2 |
| Safety, Care and Handling, 1-9 | Base Assembly, 2-68 |
| Service APU, 1-26 | Bypass Valve, Oil Filter and, 2-90 |
| Turbine and Combustor System, 1-11 | Bypass Valve, Start, 2-9 |
| Assemble | Combustor Housing, 2-15 |
| Combustor Assembly, 2-19 | Combustor Liner, 2-16 |
| Fuel Control, 2-56 | Compressor Fitting Assembly, 2-32, 2-41 |
| Assembly Fixture | Drain Check Valve, Fuel, 2-48 |
| Install APU in, 1-22 | Drain Plug, Magnetic, 2-96 |
| Remove APU from, 1-38 | Drive System, 2-102 |

ALPHABETICAL INDEX (CONTINUED)

| Subject, Para. | Subject, Para.. |
|---|-----------------------------------|
| Clean (continued) | Inspect, 2-41 |
| External Lines and Fittings, 2-6 | Install, 2-42 |
| Filter Bypass Valve, 2-90 | Remove, 2-40 |
| Fuel Cover Assembly, 2-44 | Compressor Rotor, Inspect, 2-5 |
| Fuel Manifold Assembly, 2-61 | Container, reusable Shipping |
| Fuel Pump, 2-55 | Inspect, 1-21 |
| Gage, Oil Sight, 2-93 | Install APU in, 1-38 |
| Housing, Combustor, 2-15 | Remove APU from, 1-20 |
| Igniter Plug, 2-78 | Control, Fuel |
| Liner, Combustor, 2-16 | Assemble, 2-56 |
| Magnetic Drain Plug, 2-96 | Disassemble, 2-52 |
| Oil Filler Tube and Dipstick Assembly, 2-100.2 | Inspect, 2-50 |
| Oil Plug and Dipstick, 2-99 | Install, 2-57 |
| Oil Sight Gage, 2-93 | Remove, 2-51 |
| Plug, Magnetic Drain, 2-96 | |
| Purge Valve Assembly, 2-29 | D |
| Restrictor, 2-35 | Data, Equipment, 1-8 |
| Screen Assembly, 2-2 | Destruction of Army Material to |
| Sight Gage, Oil, 2-93 | Prevent Enemy Use, 1-3 |
| Start Bypass Valve, 2-9 | Directional References, 1-7 |
| Start Fuel Nozzle Holder Assembly, 2-25 | Disassemble |
| Tee Fitting Bracket Assembly, 2-37 | Combustor Assembly, 2-14 |
| Valve, Filter and Bypass, 2-90 | Fuel Control, 2-52 |
| Combustor Assembly | Draining APU Oil, 1-27 |
| Assemble, 2-19 | Drain Check Valve, Assembly, Fuel |
| Disassemble, 2-14 | Clean, 2-48 |
| Inspect, 2-12 | Inspect, 2-48 |
| Combustor Housing | Install, 2-49 |
| Clean, 2-15 | Remove, 2-47 |
| Inspect, 2-15 | Drain Plug, Magnetic |
| Repair, 2-18 | Clean, 2-96 |
| Combustor Liner | Inspect, 2-96 |
| Clean, 2-16 | Install, 2-97 |
| Inspect, 2-16 | Remove, 2-95 |
| Repair, 2-17 | Drive Assembly, Accessory |
| Combustor Section | Install, 2-106 |
| Install, 2-20 | Remove, 2-104 |
| Remove, 2-13 | Drive System |
| Common Tools and Equipment, 1-16 | Clean, 2-102 |
| Compressor Fitting Assembly | Inspect, 2-108 |
| Clean, 2-41 | Install, 2-102 |
| | Remove, 2-101 |
| | Dropped Engine Inspection, 1-29 |

ALPHABETICAL INDEX (CONTINUED)

| Subject, Para. | Subject, Para. |
|--------------------------------------|---------------------------------------|
| E | |
| Engine Electrical Harness Assembly | Fuel Manifold Assembly |
| Inspect, 2-80 | Clean, 2-61 |
| Install, 2-82 | Inspect, 2-61 |
| Remove, 2-81 | Install, 2-62 |
| Enemy Use Destruction of Material to | Remove, 2-60 |
| Prevent, 1-3 | Fuel Pump |
| Equipment Characteristics, | Clean, 2-55 |
| Capabilities and Features, 1-6 | Inspect, 2-55 |
| Equipment Data, 1-8 | Fuel Pump Filter, 2-54 |
| Equipment Improvement | Fuel System, Principles of Operation, |
| Recommendations, 1-5 | 1-13 |
| Exciter, Ignition | Fuel Solenoid Valve, Main |
| Clean, 2-73 | Install, 2-64 |
| Install, 2-74 | Remove, 2-63 |
| Remove, 2-71 | Fuel Solenoid Valves, Max and Start |
| Repair, 2-72 | Install, 2-66 |
| External Lines and Fittings | Remove, 2-65 |
| Clean and Inspect, 2-6 | G |
| Install, 2-8 | Gage, Oil Sight |
| Remove, 2-7 | Clean, 2-93 |
| F | Inspect, 2-93 |
| Filter, Fuel Inlet | Install, 2-94 |
| Install, 2-59 | Remove, 2-92 |
| Remove, 2-58 | H |
| Filter, Fuel Pump, 2-54 | Harness Assembly, Engine Electrical |
| Filter and Bypass Valve, Oil | Inspect, 2-80 |
| Clean, 2-90 | Install, 2-82, |
| Inspect, 2-90 | Remove, 2-81, |
| Install, 2-91 | High Oil Temperature Switch |
| Remove, 2-89 | Install, 2-88 |
| Foreign Object Damage Inspection, | Remove, 2-87 |
| 1-31 | Hoist APU, 1-29 |
| Forms, Records and Reports, 1-2 | Housing, Air Inlet |
| Fuel Control | Inspect, 2-22 |
| Assemble, 2-56 | Repair, 2-23 |
| Clean, 2-50 | Housing, Combustor |
| Disassemble, 2-52 | Clean and Inspect, 2-15 |
| Inspect, 2-50 | Repair, 2-18 |
| Install, 2-57 | |
| Remove, 2-51 | |
| Fuel Cover Assembly | |
| Clean, 2-44 | |
| Inspect, 2-44 | |
| Install, 2-46 | |
| Remove, 2-43 | |
| Repair, 2-45 | |

ALPHABETICAL INDEX (CONTINUED)

| Subject, Para. | Subject, Para.. |
|---------------------------------------|----------------------------------|
| I | |
| Igniter Plug | Inspect (continued) |
| Clean, 2-78 | Restrictor, 2-35 |
| Inspect, 2-78 | Reusable Shipping Container, |
| Ignition Cable | 1-21 |
| Install, 2-76 | Screen Assembly, Air, 2-2 |
| Remove, 2-75 | Sight Gage, Oil, 2-93 |
| Ignition Exciter | Spline Adapter, 2-109 |
| Clean, 2-73 | Start Bypass Valve, 2-9 |
| Inspect, 2-73 | Start Fuel Nozzle Holder |
| Install, 2-74 | Assembly, 2-25 |
| Remove, 2-71 | Tee fitting bracket Assembly, |
| Repair, 2-72 | 2-37 |
| Inspect | Valve, Filter Bypass, 2-90 |
| Air Inlet Housing, 2-22 | Valve, Start Bypass, 2-9 |
| Air Screen Assembly, 2-2 | Install |
| Base Assembly, 2-68 | Air Screen Assembly, 2-4 |
| Bypass Valve Filter, 2-90 | Base Assembly, 2-70 |
| Bypass Valve Start, 2-9 | Bypass Valve, Filter, 2-91 |
| Combustor Assembly, 2-12 | Bypass Valve, Start, 2-10 |
| Combustor Housing, 2-15 | Combustor Section, 2-20 |
| Combustor Liner, 2-16 | Compressor Fitting Assembly, |
| Compressor Fitting Assembly, | 2-32, 2-41 |
| 2-32, 2-41 | Drain Check Valve Assembly, |
| Drain Check Valve Assembly, | Fuel, 2-49 |
| Fuel, 2-48 | Drain Plug, Magnetic, 2-97 |
| Drain Plug, Magnetic, 2-96 | Drive Assembly, Accessory, 2-106 |
| Drive System, 2-102 | Drive System, 2-108 |
| Engine Electrical Harness | Engine Electrical Harness, 2-82 |
| Assembly, 2-80 | Exciter, Ignition, 2-74 |
| External Lines and Fittings, 2-6 | External Lines and Fittings, |
| Fuel Control, 2-50 | 2-8 |
| Fuel Cover Assembly, 2-44 | Filter Bypass Valve, 2-91 |
| Fuel Manifold Assembly, 2-61 | Fuel Control, 2-57 |
| Gage, Oil Sight, 2-93 | Fuel Cover Assembly, 2-46 |
| Harness, Engine Electrical, 2-80 | Fuel Inlet Filter, 2-59 |
| Housing, Air Inlet, 2-22 | Fuel Manifold Assembly, 2-62 |
| Igniter Plug, 2-78 | Fuel Solenoid Valve Assembly, |
| Liner, Combustor, 2-16 | Main, 2-64 |
| Magnet Drain Plug, 2-96 | Fuel Solenoid Valve Assembly, |
| Nozzle Holder Assembly, Start | Max and Start, 2-66 |
| Fuel, 2-25 | Gage, Oil Sight, 2-94 |
| Oil Filler Tube and Dipstick Assembly | Harness, Engine Electrical, 2-82 |
| 2-100.2 | High Oil Temperature Switch, |
| Oil Plug and Dipstick, 2-99 | 2-88 |
| Oil Sight Gage, 2-93 | Igniter Plug, 2-79 |
| Plug Magnetic Drain, 2-96 | Ignition Cable, 2-76 |
| Purge Valve Assembly, 2-29 | Ignition Exciter, 2-74 |
| | Low Oil Pressure Switch, 2-86 |
| | Magnetic Pickup, 2-84 |

ALPHABETICAL INDEX (CONTINUED)

- | Subject, Para. | Subject, Para.. |
|---|---|
| Install (continued) | Main Fuel Solenoid Valve |
| Magnetic Drain Plug, 2-97 | Install, 2-64 |
| Main Fuel Solenoid Valve, 2-64 | Remove, 2-63 |
| Max and Start Fuel Solenoid Valves, 2-66 | Maintenance Forms, Records and Reports, 1-2 |
| Meter Assembly, 2-82.2 | Major Components, Location and Description, 1-7 |
| Nozzle Holder Assembly, Start 2-27 | Max and Start Fuel Solenoid Valves |
| Oil Filler Tube and Dipstick Assembly 2-100.1 | Install, 2-66 |
| Oil Plug and Dipstick, 2-100 | Remove 2-65 |
| Oil Sight Gage, 2-94 | Meter Assembly |
| Pickup, Magnetic, 2-84 | Remove, 2-82.1 |
| Plug, Magnetic Drain, 2-97 | Install, 2-82,2 |
| Purge Valve Assembly, 2-30 | Clean, 2-82.3 |
| Restrictor, 2-36 | Inspect, 2-82.3 |
| Screen Assembly, Air, 2-4 | |
| Sight Gage, Oil, 2-94 | N |
| Start Bypass Valve, 2-11 | Nozzle Holder Assembly, Start Fuel |
| Start Fuel Nozzle Holder Assembly, 2-27 | Clean, 2-25 |
| Tee Fitting Bracket Assembly, 2-39 | Inspect, 2-25 |
| Valve, Filter Bypass, 2-91 | Install, 2-27 |
| Valve, Start Bypass, 2-10 | Remove, 2-24 |
| | Service, 2-26 |
| L | O |
| Liner, Combustor | Oil Contamination Inspection, 1-30 |
| Clean, 2-16 | Oil Filler Tube and Dipstick Assembly |
| Inspect, 2-16 | Clean, 2-100.2 |
| Repair, 2-17 | Inspect, 2-100.2 |
| Location and Description of Major Components, 1-7 | Install, 2-100.3 |
| Low Oil Pressure Switch | Remove, 2-100.1 |
| Install, 2-86 | Oil Filter and Bypass Valve |
| Remove, 2-85 | Clean, 2-90 |
| Lubrication System, Principles of Operation, 1-14 | Inspect, 2-90 |
| | Install, 2-91 |
| M | Remove, 2-89 |
| Magnetic Pickup | Oil Plug and Dipstick |
| Install, 2-84 | Clean, 2-99 |
| Remove, 2-83 | Inspect, 2-99 |
| Magnetic Drain Plug and Valve | Install, 2-100 |
| Clean, 2-96 | Remove, 2-98 |
| Inspect, 2-96 | Oil Sight Gage |
| Install, 2-97 | Clean, 2-93 |
| Remove, 2-95 | Inspect, 2-93 |
| | Install, 2-94 |
| | Remove, 2-92 |
| | Overhaul Schedule, 1-34 |

ALPHABETICAL INDEX (CONTINUED)

| Subject, Para. | Subject, Para.. |
|---|--|
| P | |
| Pickup, Magnetic Install, 2-84 Remove, 2-83 | Remove (Continued) Fuel Solenoid Valve Assembly, Main, 2-63 Fuel Solenoid Valve Assembly, Max and Start, 2-65 Gage, Oil Sight, 2-92 Harness, Engine Electrical, 2-81 High Oil Temperature Switch, 2-87 Igniter Plug, 2-77 Ignition Cable, 2-75 Ignition Exciter, 2-71 Low Oil Pressure Switch, 2-85 Magnetic Pickup, 2-83 Magnetic Drain Plug, 2-95 Main Fuel Solenoid Valve, 2-63 Max and Start Fuel Solenoid Valves, 2-65 Nozzle Holder Assembly, Start, 2-24 Oil Filler Tube and Dipstick Assembly, 2-100.1 Oil Plug and Dipstick, 2-98 Oil Sight Gage, 2-92 Pickup, Magnetic, 2-83 Plug, Magnetic Drain, 2-95 Restrictor, 2-34 Screen Assembly, Air 2-1 Sight Gage, Oil, 2-92 Start Fuel Nozzle Holder Assembly, 2-24 Tee Fitting bracket Assembly, 3-36 Valve, Filter Bypass, 2-89 Valve, Start Bypass, 2-8 |
| Plug and Valve, Magnetic Drain Clean, 2-96 Inspect, 2-96 Install, 2-97 Remove, 2-95 | |
| Preservation for Storage or Shipment, 1-36 | |
| Pump Filter, Fuel, 2-54 | |
| Purge Valve Assembly Clean, 2-29 Inspect, 2-29 Install, 2-30 Remove, 2-28 | |
| R | |
| Reduction Drive Assembly Oil Seals Replace, 2-107 | |
| Remove Air Screen Assembly, 2-1 Base Assembly, 2-67 Bypass Valve Filter, 2-89 Bypass Valve, Start, 2-8 Combustor Section, 2-13 Compressor Fitting Assembly, 2-33, 2-42 Drain Check Valve Assembly, Fuel, 2-47 Drain Plug, Magnetic, 2-95 Drive Assembly, Accessory, 2-104 Drive System, 2-101 Engine Electrical Harness, 2-81 Exciter, Ignition, 2-71 External Lines and Fittings, 2-7 Filter Bypass Valve, 2-89 Fuel Control, 2-51 Fuel Cover Assembly, 2-43 Fuel Inlet Filter, 2-58 Fuel Manifold Assembly, 2-60 | Repair Air Inlet Housing, 2-23 Air Screen Assembly, 2-3 Combustor Housing, 2-18 Combustor Liner, 2-17 Housing, Air Inlet, 2-23 Housing, Combustor, 2-18 Liner, Combustor, 2-17 Screen Assembly, Air, 2-3 |

ALPHABETICAL INDEX (CONTINUED)

| Subject, Para. | Subject, Para. |
|---------------------------------|------------------------------------|
| Replace | Start Fuel Nozzle Holder Assembly |
| Accessory Drive Assembly Oil | Clean, 2-25 |
| Seals, 2-105 | Inspect, 2-25 |
| Reduction Drive Assembly Oil | Install, 2-27 |
| Seals, 2-107 | Remove, 2-24 |
| Spline Adapter, 2-110 | Service, 2-26 |
| Reporting Equipment Improvement | |
| Recommendations, 1-5 | T |
| Reports, 1-2 | |
| Restrictor | Tee Fitting Bracket Assembly |
| Clean, 2-35 | Clean, 2-38 |
| Inspect, 2-35 | Inspect, 2-38 |
| Install, 2-36 | Install, 2-39 |
| Remove, 2-34 | Remove, 2-37 |
| Reusable Shipping Container | Testing and Adjustment, 1-35 |
| Inspect, 1-19 | TDME, 1-17 |
| Install APU in, 1-38 | Tools, Special, 1-17 |
| Remove APU from, 1-20 | Turbine and Combustor System, 1-11 |
| | Turbine Wheel, 2-21 |
| S | v |
| Safety, Care and Handling, 1-9 | |
| Screen Assembly, Air | Valve, Oil Filter Bypass |
| Clean, 2-2 | Clean, 2-90 |
| Inspect, 2-2 | Inspect, 2-90 |
| Install, 2-4 | Install, 2-91 |
| Remove, 2-1 | Remove, 2-89 |
| Repair, 2-3 | Valve, Start Bypass |
| Shipping Container, Reusable | Clean, 2-9 |
| Inspect, 1-19 | Inspect, 2-9 |
| Install APU in, 1-39 | Install, 2-10 |
| Remove APU from, 1-20 | Remove, 2-8 |
| Sight Gage, Oil | Valve, Main Fuel Solenoid |
| Clean, 2-93 | Install, 2-64 |
| Inspect, 2-93 | Remove, 2-63 |
| Install, 2-94 | Valve, Max and Start Fuel Solenoid |
| Remove, 2-92 | Install, 2-66 |
| Spline Adapter | Remove, 2-65 |
| Inspect, 2-109 | W |
| Replace, 2-110 | |
| Start Bypass Valve | Wheel, Turbine, 2-21 |
| Clean, 2-9 | |
| Inspect, 2-9 | |
| Install, 2-11 | |
| Remove, 2-10 | |

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PUBLICATION DATE
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| 9-19 | | 9-5 | |
| 21-2 | step 1C | 21-2 | |

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"B" Ready Relay K11 is shown with two #9 contacts. That contact which is wired to pin 8 of relay K16 should be changed to contact #10.

Reads: Multimeter B indicates 600 K ohms to 9000 K ohms.

Change to read: Multimeter B indicates 600 K ohms minimum.

Reason: Circuit being checked could measure infinity. Multimeter can read above 9000 K ohms and still be correct.

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The Metric System and Equivalents

Linear Measure

1 centimeter = 10 millimeter = 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 = 3,260.8 feet

Weights

1 centigram = 10 milligrams = .15 grain
 1 decigram = 10 centigrams = 1.54 grains
 1 gram = 10 decigrams = .035 ounce
 1 dekagram = 10 grams = .35 ounce
 1 hectogram = 10 dekagrams = 3.52 ounces
 1 kilogram = 10 hectograms = 2.2 pounds
 1 quintal = 100 kilogramas 220.46 pounds
 1 metric ton = 10 quintals = 1.1 short tone

Liquid Measure

1 centiliter = 10 milliliters = .34 fl. ounce
 1 deciliter = 10 centiliters = 3.38 fl. ounces
 1 liter = 10 deciliters = 38.82 fl. ounces
 1 dekaliter = 10 liters = 2.64 gallons
 1 hectoliter = 10 dekaliter = 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. centimeter = 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. decimeter = 35.31 cu. feet

Approximate Conversion Factors

| <i>To change</i> | <i>To</i> | <i>Multiply by</i> | <i>To change</i> | <i>To</i> | <i>Multiply by</i> |
|------------------|--------------------|--------------------|--------------------|---------------|--------------------|
| inches | centimeters | 2.540 | ounce- inches | newton-meters | 007062 |
| feet | meters | .305 | centimeter | inches | .394 |
| yards | meters | .914 | meters | feet | 3.280 |
| miles | kilometer | 1.609 | meters | yards | 1.094 |
| square inches | square centimeter | 6.451 | kilometer | miles | .62 |
| square feet | square meters | .093 | square centimeter | square inches | .155 |
| square yards | square meters | .836 | square meters | square feet | 10764 |
| square miles | square kilometers | 2590 | square meters | square yards | 1.190 |
| acres | square hectometers | .406 | square kilometer | 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 tone | .807 | kilograms | pounds | 2.205 |
| pound-feet | newton-meters | 1.365 | metric tone | short tons | 1.102 |
| pound-inches | newton-meters | .11375 | | | |

Temperature (Exact)

°F Fahrenheit temperature 5/9 (after subtracting 32) Celsius temperature °C

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| I0434 | 1 | EA | | 5348 | |
| PKG SIZE | ITEM NO. | BULK/Rcpt DATE | SLAPDC CONTROL NO. | | |
| | 403853 | BLK5348 | 5353 | 04796 | |

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