CHAPTER

79

OIL

TO: RECIPIENTS OF JT12 OVERHAUL MANUAL, PART NUMBER 435108

REVISION NO. 74 DATED APRIL 1, 2007

HIGHLIGHTS - OIL

CHAPTER/ SECTION	PAGE NO	DESCRIPTION OF CHANGE	EFFECT OF CHANGE
79-00-00 ACCY	1101 1103 1106	Added oil component section.	-ALL

LIST OF EFFECTIVE PAGES

Please insert the revised pages into this manual and delete obsoleted pages in accordance with the following List of Effective Pages. Revised pages are indicated by the letter "R", added pages by the letter "A", and deleted pages by the letter "D". Superseded pages shall be removed and destroyed.

The List of Effective Pages records not only each page of subject revision but also each previously issued page which is still current. Blank pages and pages which are no longer current do not appear on this list. If there is any question about the currency of the maintained copy, it is recommended that each page of the manual be checked off against this List of Effective Pages. Any page which does not check out with this list, either by number or by date, shall be discarded. This list is reissued in its entirety whenever this manual section is revised.

CHAPTER/ SECTION		PAGE	EFFECTIVITY	DATE
Tab Separator - Oil				
List of Effective Pages - Oil See end of list.				
Table of Contents - Oil				
79-00-00	R	01/ 02		APR 1/07
79-00-00	R	1101	-ALL	APR 1/07
ACCY	R	1102		APR 1/07
	R	1103		APR 1/07
	R	1104		APR 1/07
	R	1105		APR 1/07
	R	1106		APR 1/07
		1107		APR 1/07
		1108		APR 1/07
		1109		APR 1/07
		1110		APR 1/07
		1111		APR 1/07
		1112		APR 1/07
		1113		APR 1/07
		1114		APR 1/07
		1115		APR 1/07
		1116		APR 1/07
		1117		APR 1/07
		1118		APR 1/07
		1119		APR 1/07
		1120		APR 1/07
		1121		APR 1/07
		1122		APR 1/07
		1123		APR 1/07
		1124		APR 1/07
		1125		APR 1/07
		1126		APR 1/07
		1127		APR 1/07
		1128		APR 1/07
		1129		APR 1/07
		1130		APR 1/07
LIST OF EFFECTIVE PAGES		A		APR 1/07

OIL

TABLE OF CONTENTS

R 1. Oil Components - General

R A. General

R (1) In this section are procedures for Cleaning, Inspection,
R Repair, and Test of oil components for the JT12/JFTD12
R engine. This section includes the oil tank and external
R engine parts related to the oil system.

2. Fuel Coolant Oil Cooler

NOTE: Refer to Tool Group A2 and Figure 1101.

See Figure 1101.

A. Disassembly

NOTE: Clean the oil cooler assembly before disassembly.

(1) Remove the cover from the cooler housing.

NOTE: Discard all packings and seals after disassembly.

CAUTION: DO NOT BEND OR TWIST THE CORE DURING DISASSEMBLY OR CAUSE DAMAGE TO ITS TUBES OR CONNECTIONS.

(2) Remove the core from the housing.

(3) Remove the thermostat from the housing with the Wrench.

(4) Remove the plug from the housing.

B. Cleaning

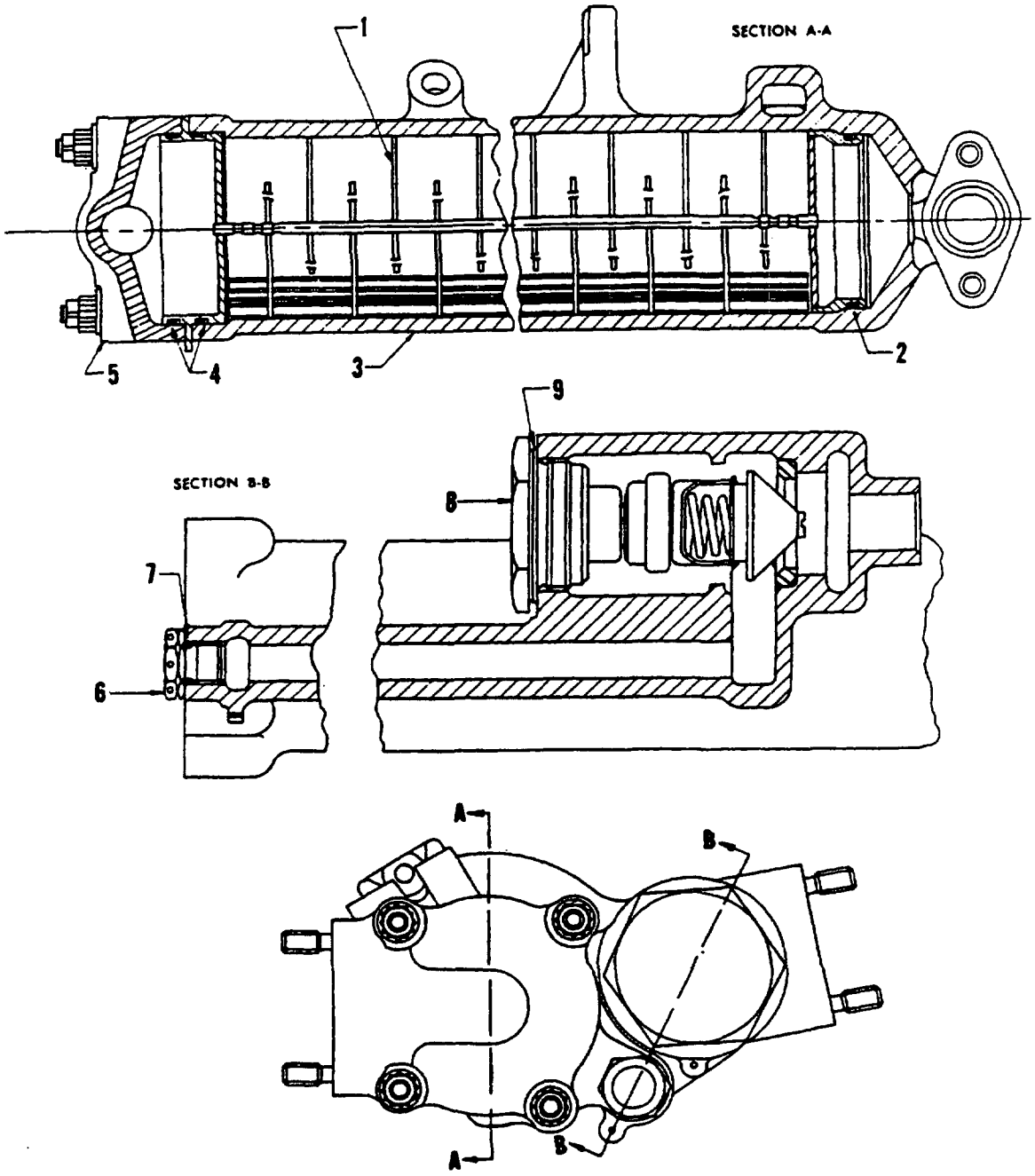
(1) Put the oil cooler in a tank full of SPMC 9047 compound for two hours.

NOTE: After the cooler is under the surface, turn the core to be sure that it is filled with compound.

(2) Flush the cooler with Varsol (at room temperature) as follows:

(a) Connect a flushing line to the fuel outlet port. Flush for 15 minutes. Remove the flushing line.

(b) Connect a flushing line to the fuel inlet port. Flush for five minutes. Remove the flushing line.



L-09057 (0000)

1. Core
2. Packing
3. Housing
4. Packings
5. Cover
6. Plug
7. Seal
8. Thermostat
9. Washer

Key To Figure 1101

(c) Drain the fuel passages fully.

(d) Connect a flushing line to the oil outlet port. Flush for 30 minutes. Remove the flushing line.

(e) Connect a flushing line to the oil inlet port. Flush for 10 minutes. Remove the flushing line.

(f) Drain the oil passages fully.

(3) Blow out the oil and fuel passages with air to remove remaining solvent.

R (4) Clean the exterior surfaces. Use SPOP 208 solvent and a soft brush if necessary.

(5) Dry the oil cooler fully.

C. Inspection

(1) Examine the oil cooler assembly for cracks, dents, and damaged threads.

(2) Examine all sealing surfaces for nicks and scratches.

(3) Examine the core for distortion or dents in tubes, parts that are not aligned, or breaks in welds.

(4) For housings with a steel thermostatic valve seat, examine the seat for damage which could cause the valve to not seal correctly.

(5) For housings with an aluminum thermostatic valve seat, examine the seat for damage and repair as specified in this section.

D. Repair

(1) Thermostatic Valve Seat Repair

See Figure 1102 and Figure 1103.

(a) Machine a steel thermostatic valve seat to remove it.

(b) Heat the oil cooler housing and chill the new valve seat.

(c) Install a new seat on the Drift and use the Drift to push the seat fully into the housing.

(d) Finish machine the valve seat as shown in Figure 1102 (Sheet 2).

(e) If a housing has a damaged aluminum seat, machine the seat from the housing to the dimensions shown in Figure 1103 and install a steel thermostatic seat as specified above.

(f) After installation of a steel thermostatic valve seat in a housing assembly, remove the two studs (with Index 1 distance in Sheet 1 of the figure) and replace them with new studs (with Index 1 distance in Figure 1102, Sheet 2).

(2) Oil Cooler Housing Crack Weld Repair

See Figure 1105 and Figure 1106.

(a) Weld cracks in the area of the oil passage stud holes and in the stud bosses at the forward end of the housing as follows:

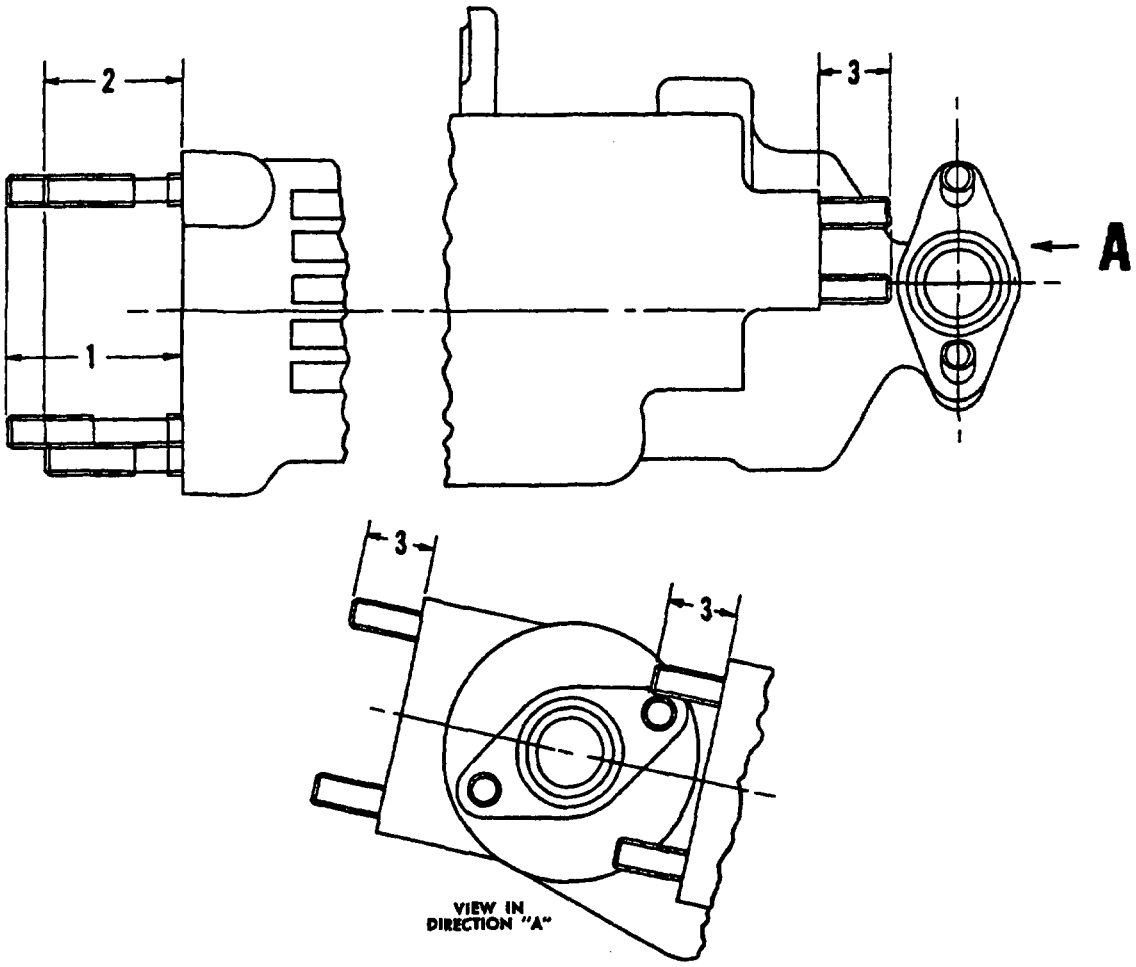
1 Remove the studs from damaged holes.

2 Remove damaged material with a vee-groove (remove only the minimum material).

3 Do a penetrant check to be sure that all cracks were removed:

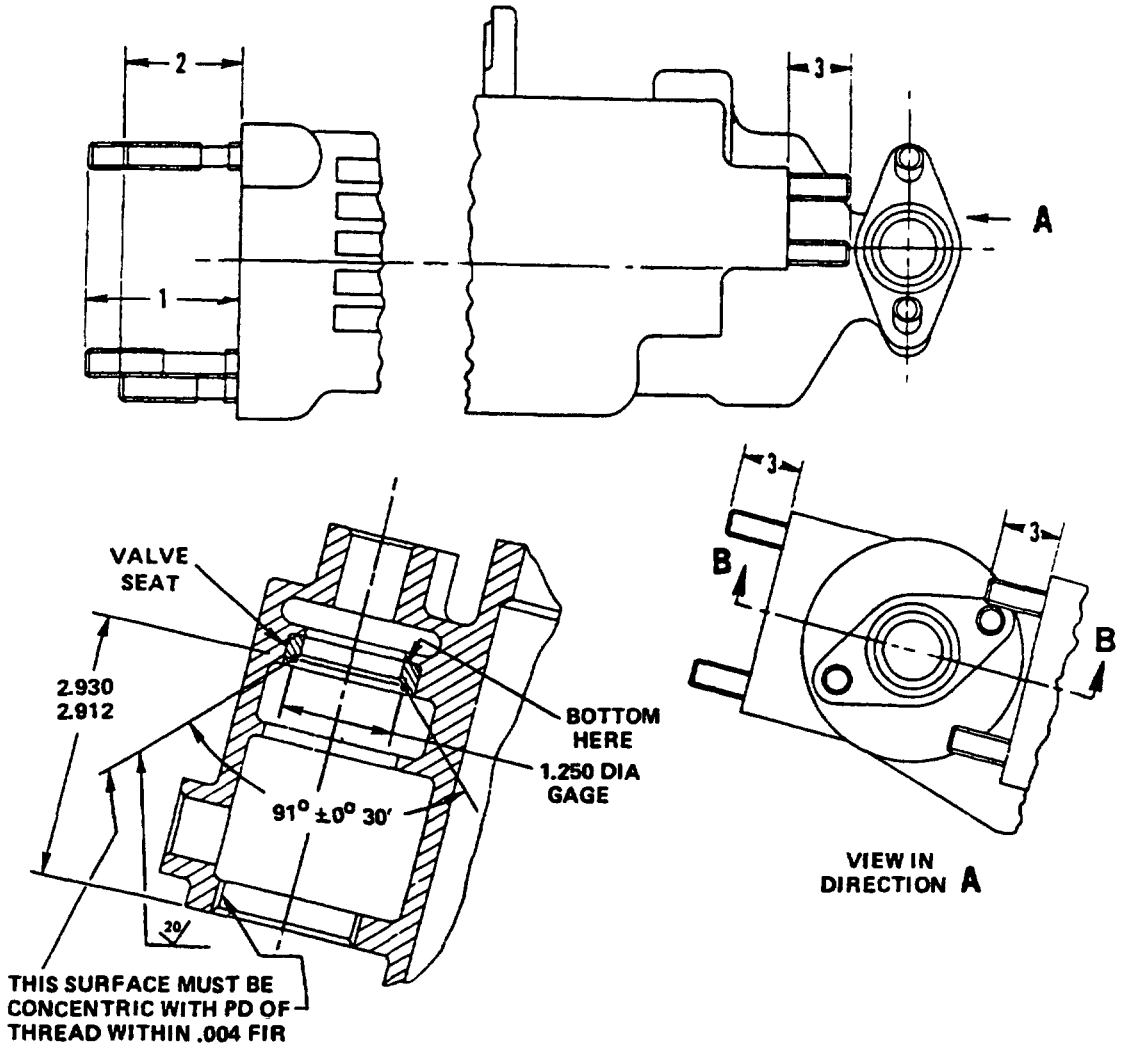
a Degrease the housing by SPOP 209. Refer to Section 70-21-00 in the Standard Practices Manual.

b Apply penetrant like Spotcheck Red Penetrant.



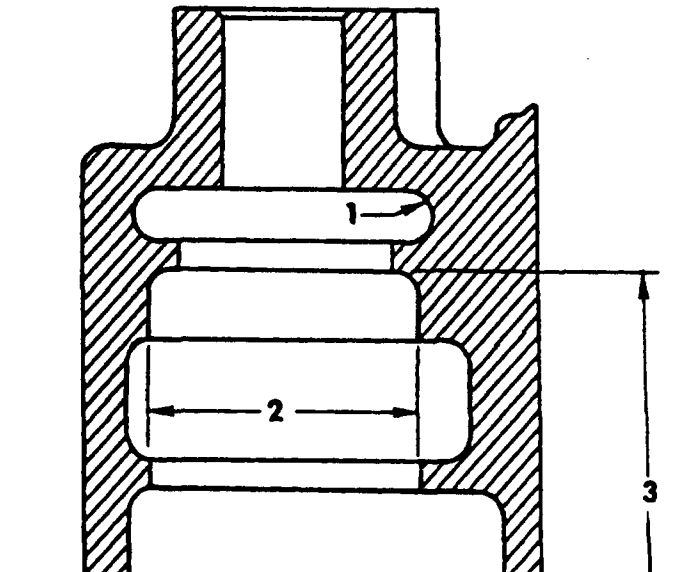
L-09153 (0000)

1. Stud (2), 1.500 - 1.520 Inch Projection
2. Stud (2), 1.160 - 1.180 Inch Projection
3. Stud (6), 0.560 - 0.580 Inch Projection



L-11669 (0876)

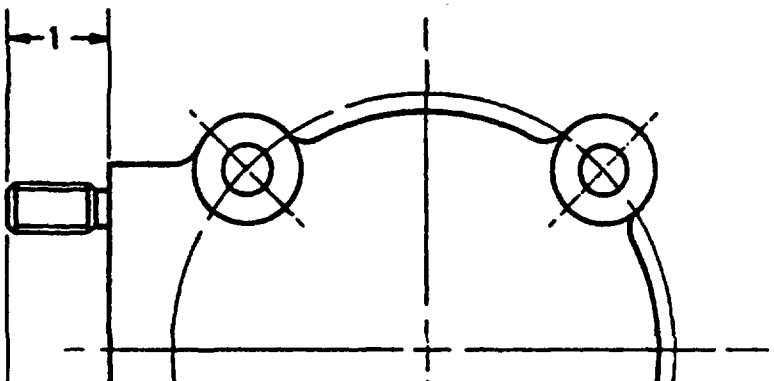
R 1. Stud (2), 1.390 - 1.140 Inch Projection
2. Stud (2), 1.160 - 1.180 Inch Projection
3. Stud (6), 0.560 - 0.580 Inch Projection



L-13859 (0000)

1. 0.016 - 0.047 Inch Radius
2. 1.460 - 1.461 Inch Diameter, Concentric With Pitch Diameter Of Index 4 Thread 0.005 Inch FIR Maximum
3. 3.105 - 3.115 Inches
4. 1.625 Inch Thread (Reference)

Fuel Coolant Oil Cooler Housing
Modification (PN 401404 Housing)
Figure 1103



L-09148 (0000)

1. Stud (2), 0.560 - 0.580 Inch Projection

Fuel Coolant Oil Cooler
Housing Cover Stud Replacement
Figure 1104

c Remove penetrant which is seen with SPOP 208 solvent. Refer to Section 70-21-00 in the Standard Practices Manual.

d Apply Spotcheck developer (white) and let it dry. Look for cracks.

4 Install a work stud for which the usual full torque will not be necessary in a damaged hole.

5 Heat the housing and a ceramic blanket to 177°C (350°F) for one hour, then put the hot blanket around the housing repair area.

6 Weld the damaged area with AMS 4190 rod.

7 Stress-relieve the housing at 177° - 204°C (350° - 400°F) for one hour. Let the housing become cool (to 65°C/150°F) before you remove the blanket.

8 Do a fluorescent penetrant inspection of the repair area by SPOP 62. Refer to Section 70-33-00 in the Standard Practices Manual.

9 Remove the work stud from the stud hole. Tap the threads in the hole and machine the face as necessary to bring the part back to initial dimensions. See Figure 1106.

(3) Oil Cooler Core Repair

See Figure 1107.

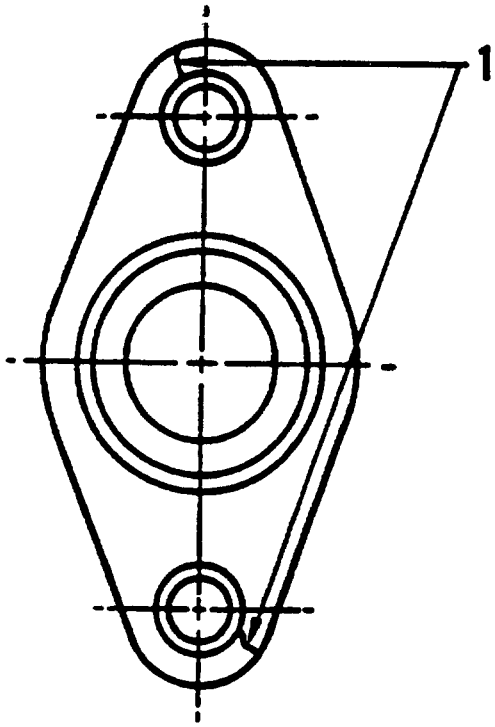
NOTE: If cracks occur, a maximum of two tubes in a core can get this repair.

(a) Fully clean the tube IDs (turn a rolled piece of 120 grit abrasive cloth through a tube until the surface that the plug will touch is bright).

(b) Degrease the core tubes by SPOP 209. Refer to Section 70-21-00 in the Standard Practices Manual.

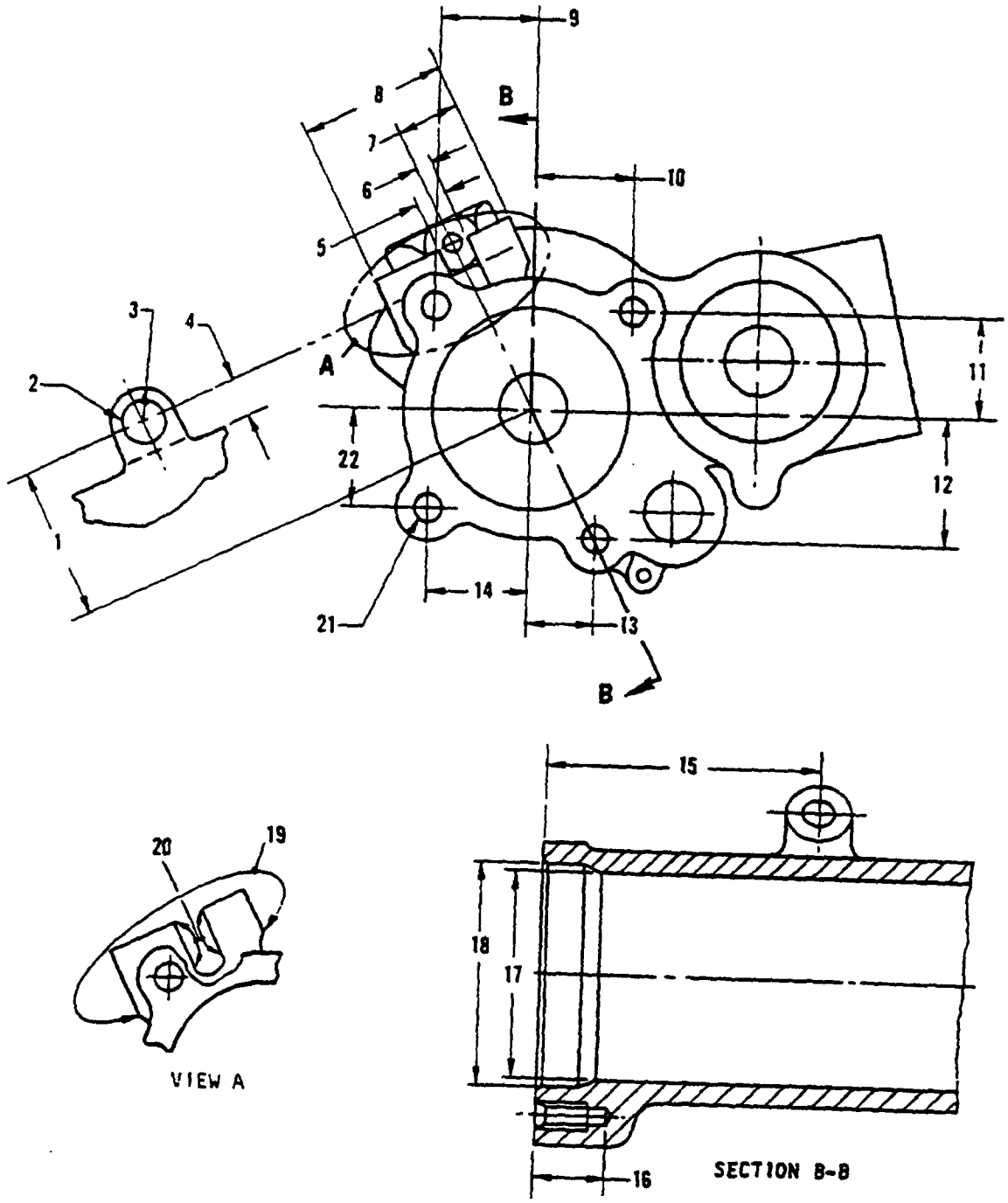
(c) Drill a 0.040 inch diameter hole, 0.8125 inch from either end of the tube (the location around the circumference of the tube is not important).

(d) Measure the tube ID.



L-I4400 (0000)

1. Crack



L-22595 (0000)

Fuel Coolant Oil Cooler Housing
Mount Lug/Stud Boss Repair
Figure 1106

1. 1.630 Inch
2. 0.312 - 0.314 Inch Diameter Through, Chamfer 85 - 95 Degrees Included Angle To 0.330 - 0.350 Inch Diameter. Each End Must be 0.005 Inch Radius Maximum Of True Position. Hole Elongation Of 0.015 Inch Is Permitted (Repair Elongation Which Is More Than This Limit)
3. 0.281 - 0.344 Inch Radius
4. 0.280 - 0.300 Inch
5. 0.278 - 0.282 Inch
6. 0.140 - 0.142 Inch
7. 0.620 - 0.630 Inch
8. 1.380 - 1.400 Inch
9. 1.034 Inch
10. 1.034 Inch
11. 1.034 Inch
12. 1.267 Inch
13. 0.731 Inch
14. 1.034 Inch
15. 2.895 Inches
16. 0.760 Inch (Four Places)
17. 2.199 - 2.201 Inch Diameter, Square With Housing Front Face 0.002 Inch FIR Maximum
18. 2.324 - 2.326 Inch Diameter, Concentric With Index 17 Diameter 0.001 Inch FIR Maximum
19. Repair Support If Failed Or Cracked In This Area
20. Surface Damage To 0.010 Inch Depth Is Permitted (Repair Damage More Than This Limit)
21. 0.250-20 UNC-3B Mod: PD 0.2175 - 0.2201 MOD, Major Diameter 0.250 Inch Minimum, Minor Diameter 0.1959 - 0.2067 Inch, Depth 0.760 Inch Maximum. Chamfer 55 - 65 Degrees Included Angle To 0.250 - 0.280 Inch Diameter. Minimum Thread Depth 0.550 Inch. Hole Must BE 0.005 Inch Radius Of True Position Maximum.
22. 1.034 Inch

Key To Figure 1106

(e) Make two plugs from AMS 5646 for each tube repair. Plug diameter (Index 3 in the figure) must have a 0.0000 - 0.0005 inch tight fit in the tube, and Index 4 diameter must be 0.003 - 0.008 inch smaller than Index 3.

(f) Apply AMS 3410 flux to the plug and to the tube ID.

(g) Install the plug into both ends of the same line, flush with the tube end and with the larger diameter towards the center. Apply the flux to the tube and the plug ends.

(h) Braze by AMS 2665. Heat all of the end plate at an equal temperature (use a gas torch with a reducing flame). As fast as possible increase the temperature to where the flux becomes fluid and stays fluid after the flame is removed. Put the heat on the repair area. When the area is at braze temperature, apply braze alloy to the plug and fill the tube cavity fully. Be careful not to get the tube ends too hot.

(i) When the assembly is cool, put it in hot alkali solution to remove all flux and remaining material. Make sure that all flux and remaining material are removed from the tube inner diameters.

(j) Assemble the cooler and do the necessary tests (refer to Assembly and Testing).

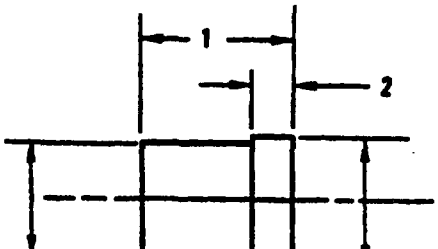
(4) Oil Cooler Housing Mount Lug Crack Weld Repair

See Figure 1106 and Figure 1108.

(a) Examine housing mount lugs and compare them with the dimensions shown in the figure. Repair mount lugs with cracks or with damage more than the limits shown as follows:

1 Remove cracks in lugs (or in that part of a damaged lug that the repair will save). Use a rotary file to rout out cracks and damaged material with a vee-groove.

2 Do a penetrant check to be sure that all cracks were removed:



L-19311 (0000)

1. 0.170 - 0.180 Inch
2. 0.040 - 0.060 Inch
3. Large Diameter
4. Small Diameter

Fuel Coolant Oil Cooler
Core Plug
Figure 1107

OIL

a Degrease the housing by SPOP 209. Refer to Section 70-21-00 in the Standard Practices Manual.

b Apply penetrant like Spotcheck Red Penetrant.

c Remove penetrant which is seen with SPOP 208 solvent. Refer to Section 70-21-00 in the Standard Practices Manual.

d Apply Spotcheck developer (white) and let it dry. Look for cracks.

3 Heat the housing and a ceramic blanket to 177°C (350°F) for one hour, then put the hot blanket around the housing repair area.

4 Weld the damaged area with AMS 4190 weld rod.

5 Stress-relieve the housing at 177° - 204°C (350° - 400°F) for one hour. Let the housing become cool (to 65°C/150°F) before you remove the blanket.

6 Do a fluorescent penetrant inspection of the repair area by SPOP 62. Refer to Section 70-33-00 in the Standard Practices Manual.

7 Measure the housing bore diameters to find how much heat distortion is in these areas. Correct shrinkage of internal diameters (to a maximum of 0.010 inch less than minimum accepted dimensions) with a machining operation. If there is shrinkage more than the 0.010 inch limit (or if the dimensions are expanded to more than maximum values), reject the housing.

8 Finish machine the new lug surface(s) (Index 1, 3, 7, and 21 in the figure) and the slot (Index 5) to make washer installation possible. See Figure 1108.

9 Apply Hot Strength Retaining Compound No. 40 (available from Loctite) to the washer and lug face.

10 Hold the washer in position with a clamp on the lug face and let the compound cure as specified.

11 Finish machine the washer face (Index 13) as shown in the figure.

(5) Oil Cooler Housing Mount Lug Hole Repair

See Figure 1109.

(a) Machine lug holes to the dimensions shown in the figure.

(b) Apply plastic resin (PWA 549-2) to the bushing and install it as shown. Refer to Section 70-12-00 in the Standard Practices Manual.

(c) Cure for a minimum of 24 hours.

(d) Machine the bushings to the dimensions shown in the figure.

E. Assembly

NOTE: For an oil cooler with weepholes, install a packing in each of the four grooves in the ends of the core.

(1) Install a packing in each of the three grooves in the ends of the core.

(2) Put the small end of the core into the housing (align the two parts carefully).

CAUTION: INSTALL THE CORE CAREFULLY. MAKE SURE THAT ALL PACKINGS AND SEALS ARE IN POSITION AND ARE NOT DAMAGED DURING THE ASSEMBLY PROCEDURE.

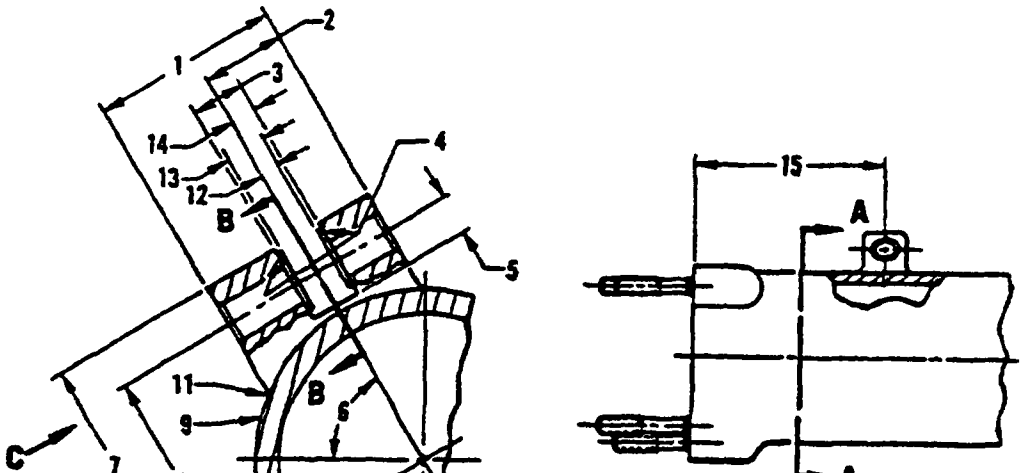
(3) Use an arbor press to push the core into the housing until it is at the bottom.

(4) Install the cover on the housing and attach it with washers and nuts tightened to the specified torque.

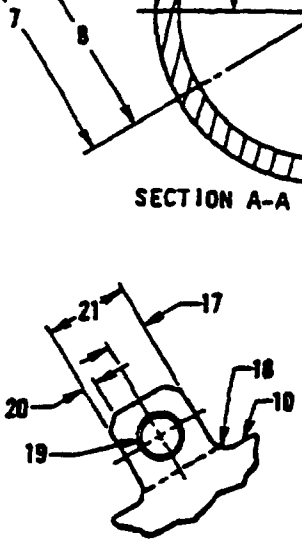
(5) Put a washer on the thermostat and install the thermostat in the housing. Tighten the thermostat with the Wrench. Safety the thermostat with lockwire.

(6) Install the seal in the groove in the plug and install the plug in the housing. Tighten the plug to the specified torque and safety it with lockwire.

F. Testing



SECTION A-A



VIEW IN DIRECTION C

SECTION B-B

L-32352 (0771)

1. 1.380 - 1.400 Inches (Machine To This Dimension)
2. 0.620 - 0.630 Inch
3. 0.360 - 0.364 Inch Radius
4. PN 64900 Washer. Apply Plastic Resin. ID Of Washer Must Be Concentric With ID Of Lug 0.020 Inch FIR Maximum.
5. 0.280 - 0.300 Inch Finish Dimension
6. 58° 45' ± 0° 30'
7. 1.920 - 1.960 Inch Finish Dimension
8. 1.630 Inch
9. Remove Unwanted Weld Material In These Areas
10. Remove Unwanted Weld Material In These Areas. Blend To Smooth Contour On Each Side
11. 0.094 - 0.156 Inch Radius
12. 0.140 - 0.142 Inch
13. 0.278 - 0.282 Inch Finish Dimension
14. 0.179 - 0.183 Inch
15. 2.895 Inches (2.145 Inches for PN 575763 Housing)
16. 0.020 Inch Minimum (Each Washer)
17. 0.300 - 0.320 Inch
18. 0.094 - 0.156 Inch Radius
19. 0.312 - 0.314 Inch Diameter Through, Chamfer 5 ± 90 Degrees Included Angle To 0.330 - 0.350 Inch Diameter. Each End Must be 0.005 Inch Radius Maximum Of True Position.
20. Chamfer 0.080 - 0.110 Inch By 5 ± 45 Degrees Each Side (Two Places)
21. 0.610 - 0.630 Inch Finish Dimension

Key To Figure 1108

(1) General

(a) Equipment

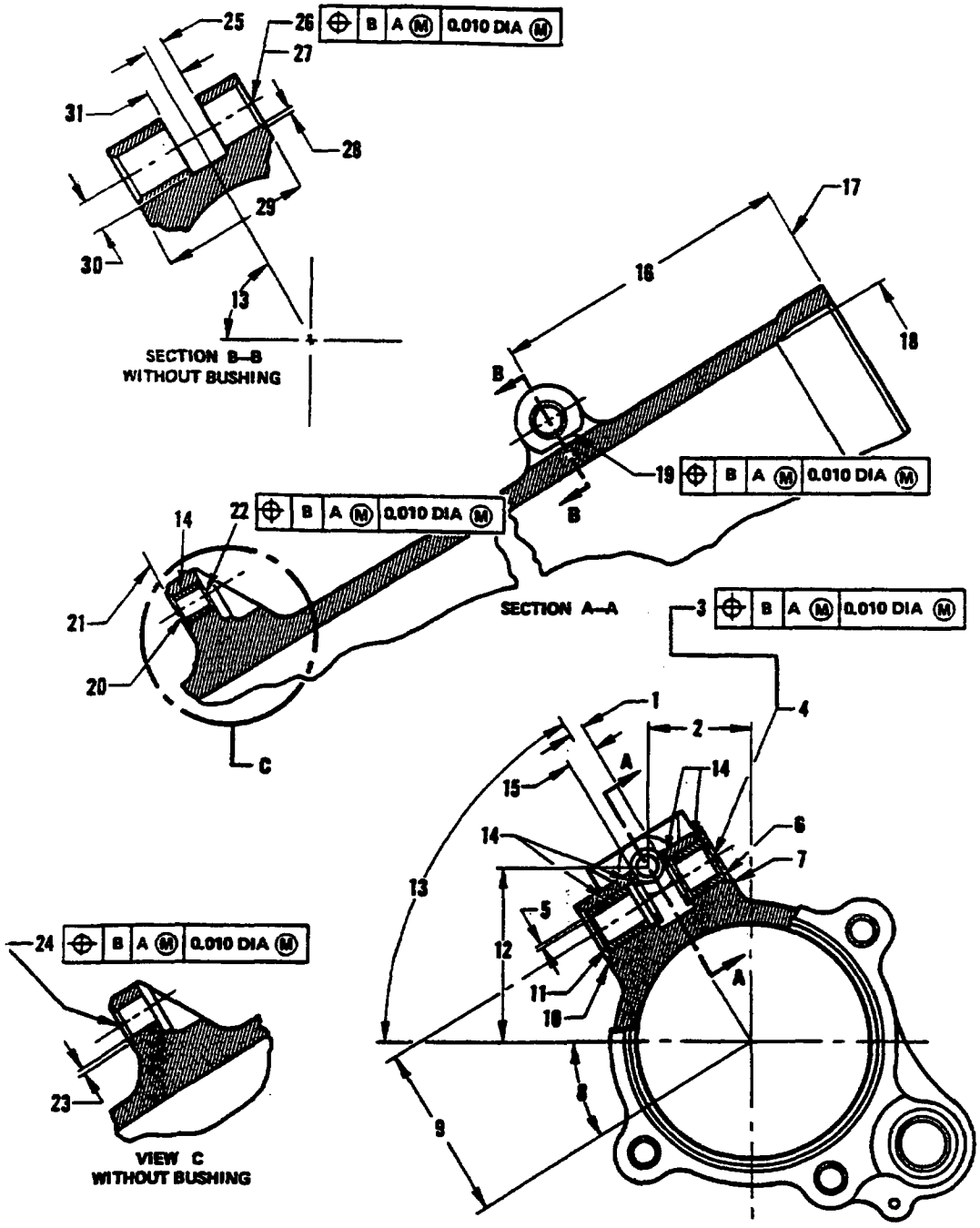
1 Flow bench and flowmeters that can supply and measure fuel flow to a maximum of 900 pounds per hour and oil flow to a maximum of 40 pounds per minute.

2 Fuel heater that can keep a fuel temperature of 60°C (140°F) at 900 pounds per hour.

3 Oil heater that can keep an oil temperature of 177°C (350°F) at 40 pounds per minute.

4 Fuel supply of 1600 psi with no flow.

5 Oil supply of 80 psi maximum with 40 pounds per minute flow.



L-42654 (1273)

ORIGINAL
As Received By
ATP

Fuel Coolant Oil Cooler Housing
Mount Lug Bushing Repair
Figure 1109

1. 0.140 - 0.142 Inch
2. 0.986 Inch
3. 0.313 - 0.314 Inch Diameter Through, Chamfer 85 - 95 Degrees Included Angle To 0.330 - 0.350 Inch Diameter. Hole Position Must Be As Shown.
4. Gage As Continuous Diameter Across Distance C (Index 29)
5. 0.005 Inch Minimum Each End
6. Bushing PN 730461 Must Be 0.005 - 0.020 Inch Below Surface D (Index 7)
7. Surface D
8. 31 Degrees 15 Minutes
9. 1.630 Inch
10. Surface E
11. Bushing PN 730460 Must Be 0.005 - 0.020 Inch Below Surface E (Index 10)
12. 1.624 Inch
13. 58 Degrees 45 Minutes
14. Apply Plastic Resin (See Text)
15. 0.278 - 0.282 Inch
16. 2.895 Inches (2.145 Inches for PN 575763 Housing Assembly)
17. Datum B
18. Datum A
19. Washer PN 730462 (2), In True Position As Shown
20. Washer PN 730463, 0.000 - 0.010 Inch Below Surface F (Index 21)
21. Surface F
22. 0.198 - 0.202 Inch Diameter Through
23. 0.006 Inch Minimum
24. 0.296 - 0.298 Inch Diameter Through, Chamfer 85 - 95 Degrees Included Angle To 0.320 - 0.340 Inch Diameter. Hole Position Must Be As Shown.
25. 0.192 - 0.194 Inch
26. 0.441 - 0.442 Inch Diameter Through, Chamfer 85 - 95 Degrees Included Angle To 0.460 - 0.480 Inch Diameter. Hole Position Must Be As Shown.
27. Gage As Continuous Diameter Across Distance C (Index 29)
28. 0.005 Inch Minimum
29. Distance C
30. 0.280 - 0.300 Inch
31. 0.380 - 0.385 Inch

Key To Figure 1109

6 Gage to measure the thermostatic valve length at room temperature (refer to Tool Group A2).

7 Housing PN 401404 with an added Valve to stop oil flow (refer to Tool Group A2).

8 Fuel and oil test Adapters for the oil cooler (refer to Tool Group A2).

(b) Test fluids

1 Test fluid that is in compliance with PWA 522 (jet engine fuel, Jet A) or PMC 9041 calibration fluid is permitted on the fuel and oil sides for static leak check only.

2 Use test fluid that is in compliance with PWA 521B for all tests on the oil side of the oil cooler (but not for the static leak check).

(c) All pressure gages must be accurate to plus or minus one psi. All temperature gages must be accurate to plus or minus ± 0.5°C (1°F).

(2) Test procedure

(a) Use the Thermostatic Valve Length Gage to measure the length of the valve at room temperature. The valve length must not be more that 2.800 inches.

(b) Bypass flow test

1 Remove the end cover, remove the core, and install the Valve on the oil cooler body. Attach the Adapter to the oil inlet and outlet ports. Put a cap on the fuel-out port.

2 With the thermostatic valve installed, flow oil at 21 pounds per minute. Keep this oil-in pressure and stop the oil flow. Increase the oil-out temperature to 118° ± 3°C (245° ± 5°F). The bypass oil should must decrease to one pound per minute or less.

3 With core oil flow stopped, increase the oil-in pressure until the flow is at 30 pounds per minute. The oil-in/oil-out pressure differential must not be more than 65 psi.

(c) Static leak check

1 Open the oil side to ambient and pressurize the fuel side to 1000 psi (± 10) (stable pressure after air is released). With no added pressure, the pressure must not decrease and there must be no leakage (one drop) measured during a two minute test period.

2 Open the fuel side to ambient and pressurize the oil side to 270 psi (± 10) (stable pressure after air is released). With no added pressure, the pressure must not decrease and there must be no leakage (one drop) measured during a two minute test period.

NOTE: The temperature of the cooler and the temperature of the test fluid must be ± 8°C (15°F) during static leak checks.

NOTE: As an alternate test procedure, it is permitted to use nitrogen gas and not test fluid. To do a leak check with nitrogen, put the cooler in water to look for leaks.

(d) Temperature regulation test

1 Do a test of the thermostatic valve for temperature regulation in the fuel oil cooler assembly:

a Set conditions on the test assembly:

Oil flow at 20.5 - 21.5 pounds per minute

Fuel flow at 830 pounds per hour

Fuel-in temperature at 49° - 60°C (120° - 140°F)

b Increase the oil inlet temperature to 110°C (230°F), 121°C (250°F), 127°C (260°F), 138°C (280°F), and 149°C (300°F). Each increment must be ± 1°C (± 2°F). At each temperature, record the oil-out temperature, oil-in pressure, and oil-out pressure.

c At an oil-in temperature of 127°C (260°F), the maximum oil-out temperature must be 96° - 107°C (204° - 224°F). At other points the oil-out temperature cannot be more than 109°C (228°F).

(3) Preservation and storage

(a) If the estimated storage period is less than 21 days, no special preparation for storage is necessary. Drain unwanted fuel and oil, then put caps on all ports.

(b) If the estimated storage period is 21 days or more, prepare the cooler assembly for storage as follows:

1 Drain all remaining fluid from the fuel and oil sections of the cooler assembly.

2 Put approximately one pint of 10 micron filtered PWA 521B oil or equivalent in the OIL IN port. Move the assembly around to get the oil on all surfaces. Drain the unwanted oil and put caps on the OIL IN and OIL OUT ports.

3 Put approximately one pint of 10 micron filtered Exxon Turbo Oil No. 10 or equivalent in the FUEL IN port. Move the assembly around to get the oil on all surfaces. Drain the unwanted oil and put caps on the FUEL IN and FUEL OUT ports.

3. Oil Tank Bracket

A. Repair

(1) Bracket Bumper Replacement

(a) Remove a worn or loose bumper. Rub or scrape away as much of the remaining silicone rubber as possible.

(b) To use Silastic 140 RTV adhesive/sealant:

1 Dry abrasive blast the bond area on the bracket with nonmetallic No. 80 - 100 grit at a pressure 40 - 50 psig get a uniform matt finish.

2 Use a vacuum to remove remaining abrasive.

3 Fully clean the bond surfaces by SPOP 208 (Task 70-21-00-110-040). Refer to Section 70-21-00 in the Standard Practices Manual.

WARNING: REFER TO THE MANUFACTURER'S MATERIAL SAFETY DATA SHEET (MSDS) FOR HAZARDS RELATED TO THE PRIMER OR ADHESIVE.

4 Apply a thin film of Dow Corning A-4094 primer to the bond area on the bracket and let it air dry for 30 minutes at room temperature.

5 If the surfaces were not fully cleaned, clean them by SPOP 208 to remove dirt, oil, and grease. Let the surfaces dry.

6 Apply a uniform layer of adhesive (Dow Corning Silastic 140 RTV adhesive/sealant or High Strength General Electric RTV 159 adhesive/sealant (PWA 616), 0.010 - 0.030 inch thick one of the bond surfaces. Refer to Section 70-12-00 in the Standard Practices Manual.

7 Hold the bumper on the bracket with sufficient pressure to displace air caught in the joint but not to push adhesive out of the joint.

8 Cure at 25°C (77°F) and 50 percent relative humidity for 72 hours.

NOTE: The cure process starts when atmospheric moisture goes into the rubber compound. The reaction will occur at a slower rate at relative humidity levels as low as 20 percent.

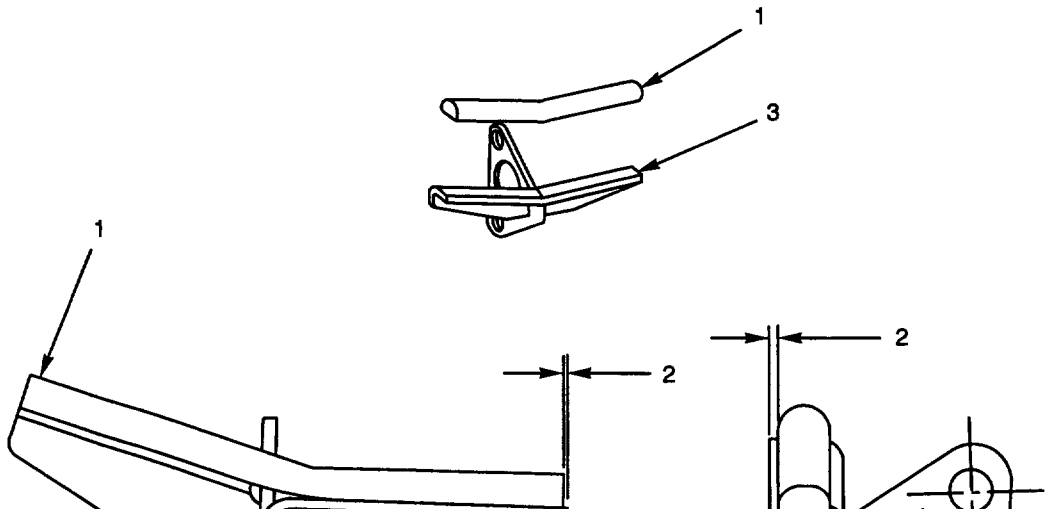
9 Remove bumper material which is more than necessary.

4. Oil Tank

A. Inspection

(1) These defects are permitted without repair:

(a) Dents in the skin of the oil tank that are across an area of six square inches or less, with a maximum depth of 3/8 inch and a round contour.



L-61583 (0000)
PW V

1. Bumper
2. 0.000 - 0.040 Inch
3. Oil Tank Bracket Assembly

(b) A total of three dents which are in the limits in (a) are permitted if they are not adjacent to each other.

(c) Scratches and/or nicks with depth not more than 20 percent of the tank skin thickness without skin distortion are permitted if rough edges are removed. If the depth is more than 20 percent, do the repair below.

(d) Slight distortion in mounting bosses and/or of the adjacent tank skin are permitted if the mounts continue to be aligned for installation.

(2) Repair tank damage which is more than the above limits.

B. Repair

(1) Dent repair. See Figure 1111.

(a) If dent areas are across more than six square inches, bring back the initial skin contour as follows:

1 Pressurize the tank to 8 - 10 psi.

2 Heat the area with the damage and tap around the perimeter of the dent with a mallet. If the correct technique is used and the ratio of area to depth is large, the dent will come out.

3 If the dent does not come out, drill a 9/16 inch hole in the center of the dent. Use a tool like that shown in the figure and (with heat applied to the dent), with low force lift the dent area (turn the tool approximately 15 degrees between strokes). Continue this procedures until the dent area is flush with the adjacent skin contour.

4 Use a 17/32 inch diameter patch of AMS 5510 equal in thickness to the tank material to repair the hole. Weld the patch in position by inert gas fusion with AMS 5680 welding wire. Refer to Section 70-42-01 in the Standard Practices Manual.

(2) Repair all skin penetrations (cuts, tears, or gouges) by inert gas fusion with AMS 5680 welding wire. Refer to Section 70-42-01 in the Standard Practices Manual.

(3) If there is deformation of the tank skin where weld repairs will be necessary, get the skin contour back to its initial shape with the procedure in step (1) above before weld repair.

(4) Use welded patches only on holes 9/16 inch diameter or less.

(5) Repair cracks no longer than six inches by fusion welding with AMS 5680 welding wire. If there are cracks longer than this limit, the tank is not serviceable.

(6) If necessary, decrease the height of the weld bead to 0.030 inch or less above the adjacent skin.

NOTE: Do not stress-relieve the tank after weld repair.

(7) Do a pressure test of the tank after repair at 8 - 10 psi.

5. Oil Cooler Fuel Outlet Elbow

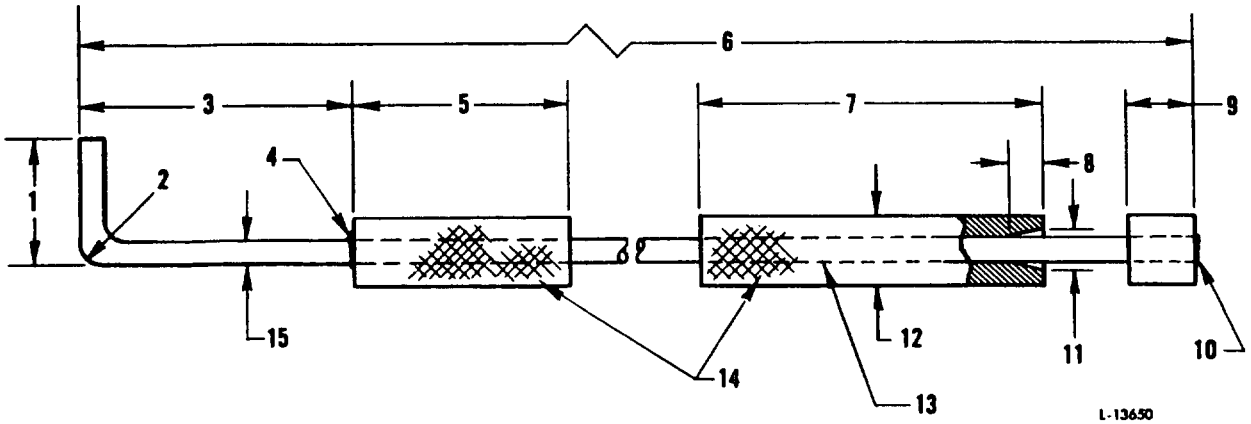
A. Repair

See Figure 1112.

(1) To remove damage, machine the bore diameter (Index 8 in the figure) to no more than 0.922 inch. Make sure that the depth of the bore (Index 6) stays in limits.

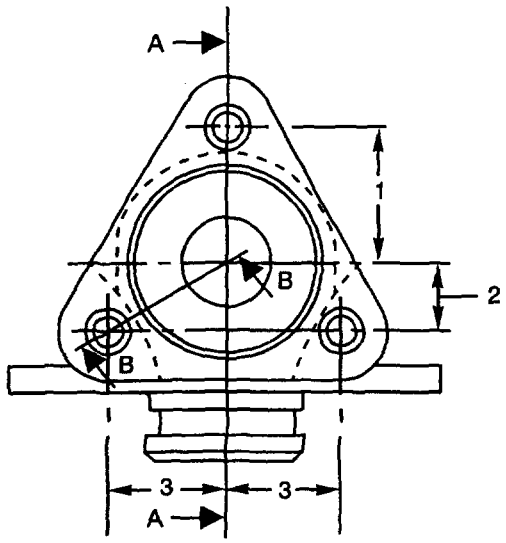
(2) Apply chromium plate as shown by SPOP 22 (Task 70-44-01-330-002). Refer to Section 70-44-01 in the Standard Practices Manual.

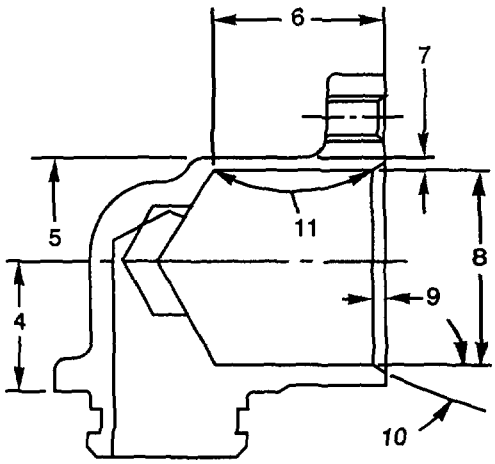
(3) Machine to the dimensions shown.



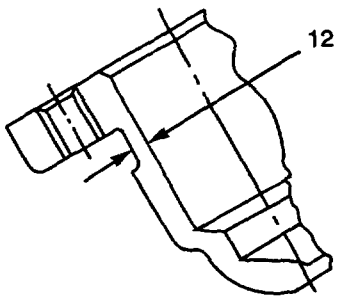
1. 3 Inches
2. 3/4 Inch Radius
3. 6 1/4 Inches
4. Weld
5. 5 Inches
6. 26 1/2 Inches
7. 8 Inches
8. 3/4 Inch
9. 1 1/2 Inch
10. Weld
11. 3/4 Inch
12. 1 1/2 Inch Diameter
13. 0.008 Inch Loose Fit Between Sliding Hammer and Rod
14. Knurl
15. 1/2 Inch Diameter

Oil Tank Repair Tool
Figure 1111





SECTION A-A



SECTION B-B

L-26150 (0000)
PW V

1. 0.650 Inch
2. 0.325 Inch
3. 0.563 Inch
4. 0.560 - 0.570 Inch
5. 0.547 Inch Radius
6. 0.770 - 0.800 Inch
7. 0.060 Inch Minimum
8. 0.913 - 0.917 Inch Diameter 0.005 Inch Maximum Radius of True Position of Index 1, 2, and 3 Hole Centers
9. 0.020 - 0.050 Inch
10. 18 - 22 Degrees
11. Plate Area (Plate on Other Surfaces Is Optional and Full Coverage is not Necessary)
12. 0.070 - 0.090 Inch

Key to Figure 1112