TB 55-2840-248-20-17

TECHNICAL BULLETIN

SANDY ENVIRONMENT AND/OR COMBAT OPERATIONS

FOR

T700 SERIES ENGINES

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

HEADQUARTERS, DEPARTMENT OF THE ARMY

5 DECEMBER 1990

CHANGE
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WASHINGTON, D. C., 30 NOVEMBER 1992

Technical Bulletin

SANDY ENVIRONMENT AND/OR COMBAT OPERATIONS FOR T700 SERIES ENGINES

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TB 55-2840-248-20-17,5 December 1990, is changed as follows:

1. The title of this Technical Bulletin is changed as shown above.

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Remove pages	Insert pages
1 and 2	1 and 2
-- - - -	2.1/(2.2 Blank)
3 through 6	3 through 5/(6 Blank)
7 through 10	-----
11 and 12	11 and 12
15 through 18	15 through 18
- - - -- -	18.1 through 18.10
19 through 22	19 through 22
23 and 24	- - - - - -
25 and 26	25 and 26
26.1 and 26.2	26.1 through 26.5/(26.6 Blank)
37 and 38	37 and 38
49 and 50	49 and 50
87 and 88	87 and 88
91 and 92	91 and 92
- - - - -	92.1 through 92.4
93 through 100	93 through 100
187 and 188	187 and 188
Cover 1/(Cover 2 Blank)	Cover 1/(Cover 2 Blank)

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

By Order of the Secretary of the Army:

GORDON R. SULLIVAN
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TB 55-2840-248-20-17

DEPARTMENT OF THE ARMY TECHNICAL BULLETIN

SANDY ENVIRONMENT AND/OR COMBAT OPERATIONS FOR T700 SERIES ENGINES

Headquarters, Department of the Army Washington, D.C.
5 December 1990

NOTE

This publication is effective until rescinded or superseded.

1. Purpose. This bulletin is to be used as guidance while operating Army engines in a sandy environment, and/or during combat operations.

2. Priority Classification. This technical bulletin is classified as NORMAL.

Equipment in Use (Including Equipment in Supply or Maintenance Activities Below Depot Level and Equipment in Administrative Storage), Equipment in use will be inspected as soon as practicable.

3. End Items to be Inspected.

NOMENCLATURE	PART NUMBER	NSN
T700-GE-700 ENGINE	6035T00G01	2840-01-070-1003
T700-GE-701 ENGINE	6044T06G01	2840-01-114-2211
T700-GE-701C ENGINE	6071 T24G01	2840-01-284-4011

4. MODULES (COMPONENTS, ASSEMBLIES, AND SUBASSEMBLIES) TO BE INSPECTED. Not applicable.

5. Parts to be Inspected. Refer to paragraphs 9c, 9d, 13.1, 14, 15, and Section II.

6. Application.

a. Level of Maintenance. AVUM/AVIM.

b. Applied by. AVUM/AVIM.

(1) In-Flight HIT Check — Operator.

(2) Cleaning of Anti-Icing Bleed and Start Valve — AVIM.

(3) Engine Water Wash — AVUM.

(4) Hot Section Cleaning — AVIM.

(5) OBP Seal Replacement — AVIM.

c. Time Required. Not applicable.

d. Additional Information. These instructions and Tables are for sandy environment and combat operations only unless specifically stated to the contrary. Refer to Appendix A for List of Tables.

e. Any questions regarding this TB should be addressed to U.S. Army Aviation and Troop Command (ATCOM), AMSAT-R-EPE (ATTN: Richard Hazlewood), 4300 Goodfellow Blvd., St. Louis, MO 63120-1798, DSN 693-1145 or Commerical (314) 263-1145.

7. Supply Kits, Parts, and Disposition.

a. Parts Required to Accomplish Technical Bulletin. Refer to Section I.

NOTE

All records should be maintained as before. Any inspection/component removal/other maintenance action which is deferred as a result of this Technical Bulletin shall bc performed after the aircraft is removed from a sandy environment.

b. Parts Disposition. Refer to Section I.

c. Expendable Supplies.

Nomenclature	Part No./MIL Spec	National Stock Number
Brush, Soft Bristle	A-A-289	7920-00-514-2417
Brush, Wire Rifle	MIL/FED SPEC	9150-00-331-6915
Container, Plastic (5 - gallon) (Commercial)	A-A-1235	8115-00-145-0038
Crocus Cloth	A-A-1206	5350-00-221-0872
Detergent, Liquid Dish-washing (Commercial)	MIL-D- 16791	7930-00-282-9699
Fine Jewelers File	MIL/FED SPEC	
Fine Stone	SS-S-736 TY2, CLA2, ST 1	5345-00-161-9695
Fitting, Reducer	22150-10-65 FED/MIL SPEC	
Fitting, Reducer	22150-10-68 FED/MIL SPEC	
Grain, Abrasive (Aluminum Oxide)	MIL-A-21380 (120 Grit) MIL-19-21380 (150 Grit)	5350-00-184-6255 5350-01-261-9065
Moly Lubricant, High Temperature	616(71431)	9150-01-331-6975
“O” Ring	M83248/1-129	5330-01-290-2115
“O” Ring	M83248/1-273	5330-01-005-0522
“O" Ring	M83248-1-177	5330-01-005-0511
"O" Ring	M83248/1-043	5330-00-166-1049
Oil, Lubricating	MIL-L-23699 (1 - qt can) (81349)	9150-00-985-7099

c. Expendable Supplies. (Continued)

Nomenclature	Part No./MIL Spec	National Stock Number
Oil, Lubricating	MIL-L-7808 (1 - qt can) (81349)	9150-00-782-2627
Pad, Scotch Brite	L-P-0050 TY1, SZ1	7920-00-659-9175

SECTION I. SANDY ENVIRONMENT AND COMBAT OPERATIONS PROCEDURES.

NOTE

Some procedures required to accomplish sandy environment and combat operations are contained in TM 55-2840-248-23. When referencing procedures in the TM, the paragraph or figure number reference will be followed by (TM). All other paragraph or figure numbers refer to those contained in this TB.

8. In-Flight HIT Check for Sandy Environment Operations.

NOTE

This in-flight HIT CHECK data procedure shall be used to minimize engine sand ingestion in a heavy sandy environment, and shall be accomplished at an altitude where there is minimum sand intrusion.

a. Recommendations are as follows:

(1) Clean the engine using cleaning procedures (para 1-134, TM) and paragraph 10 prior to establishing a new in-flight baseline data point (para b).

(2) Establish a HIT CHECK routine during return to base.

(3) The procedure is for evaluating trends in performance, not actual engine performance. Actual performance can only be determined at unit level through accomplishmcnt of maximum power checks.

b. Procedure for baseline HIT CHECK.

(1) Perform a maximum power check in accordance with paragraphs 1-125 **(UH-60A),** 1-125.1 **(AH-64A);** and 1-125.2 **(UH-60L),** TM.

(2) Re-establish a new baseline for the HIT CHECK as follows:

(a) Establish a forward airspeed of 80 knots and a constant pressure altitude with both PCL's in fly position.

NOTE

Anti-ice and heater switches at "Off"

(b) Allow forward airspeed to increase until approximately 62% torque is read on both engines torque displays.

(c) Hold for 30 seconds. Record FAT, pressure altitude, indicated TGT, and percent TORQUE. Repeat this step three times.

(d) Use the HIT Baseline Worksheet (fig. 1), and compute the new baseline limits. Record percent TORQUE on the HIT Baseline Worksheet.

c. HIT CHECK. Procedure for Daily and Return Flight/Last Flight of Each Day.

(1) Establish same torque as shown on the HIT Baseline Worksheet.

(2) Wait 30 seconds and record FAT, pressure altitude and indicated TGT.

(3) Use the Engine Health Indicator Test Log to determine if the TGT margin is within the baseline limits.

A/C S/N _____ % TORQUE _____

A/C HOURS _____ ENGINE S/N _____

FAT _____ ENGINE HOURS _____

PA _____

NOTE

Set 62% torque on both engines simultaneously

INDICATED TGT

1. _____
2. _____
3. _____

TOTAL _____ ÷ 3 = _____ = _____AVERAGE INDICATED TGT

— _____(TABLE TGT)

_____TGT MARGIN

TGT Acceptance Limits – TGT Margin + 20 Deg C = _____

TGT Margin - 20 Deg C = _____

Record limits in A/C Engine Health Indicator Test Log

Figure 1. HIT Baseline Worksheet.

Figure 2 not used.

Tables 1 through 7 not used.

CAUTION

The anti-icing bleed and start valve is a flight-safety part. An internal binding valve under some PCL movement conditions can cause an engine flame-out.

9. Cleaning of Anti-Icing Bleed and Start Valve, Lanyard and Clip, Seal Housings, and Seal Retainer. Refer to paragraph 10-27, TM.

All Data on Pages 6 through 10 Deleted.

10. Engine Water Wash.

a. Normal on aircraft compressor cleaning in sandy or dusty/dirty environments should be performed every 50 engine hours (para 1-134.1, TM). Hot section cleaning of engines should be accomplished at 50 hours or sooner depending upon hot section component condition as determined in paragraph 11.

NOTE

This procedure requires standard cleaning chemicals, clean water, and a sprayer which an operator could fabricate locally or obtain from local AVSCOM representative.

b. In order to wash the hot section area, it is necessary to use a sprayer LMT 777 (fig. 5). The sprayer can be inserted into the combustion liner through the 4 or 8 o'clock igniter plug ports.

c. Spray-wash hot section as follows:

(1) Fill water-wash supply tank with cleaning solution. Attach sprayer to supply line.

(2) Remove either the 4 or 8 o'clock igniter plug.

(3) Insert sprayer into combustion liner (through either 4 or 8 o'clock igniter port) (fig. 6).

(4) Spray-wash entire interior of combustion liner and stage 1 nozzle surfaces for a minimum of 30 seconds by rotating sprayer 360 degrees.

NOTE

If cleaning compound (item 45, Appendix D, TM) is not available, clean water only may be used. Also, ZOK 27 (NSN 7930-99-741-1559) may be substituted for item 45, Appendix D, TM. Ratio of cleaner to water is 1 to 4. ZOK 27 is biodegradeable.

(5) Motor engine (para 1-134 1.b, TM) for one minute while continuing to spray.

(6) Continue to spray-wash entire interior of combustion liner and stage 1 nozzle surfaces for a minimum of one (1) minute by rotating sprayer 360 degrees.

NOTE

This procedure will not remove an already heavy buildup of dirt on Hot Section Rotors; it is intended to be used after the cleaning in paragraph 11 has been performed or on new (clean) engines, to prevent heavy buildup.

(7) Reposition sprayer so that spray tip is between combustion liner and midframc casing (fig. 7). Spray-wash entire area by rotating sprayer 360 degrees.

(8) Allow wash solution to soak the hot section parts for 10 minutes, then rinse the washed areas with clean water. Run the rinse water until clean water is observed running out the engine tailpipe. The rinse cycle can also be performed by connecting the wash cart to the compressor spray manifold (para 1-134.1, TM).

(9) Remove sprayer.

(10) Install igniter plug and ignition lead into either the 4 or 8 o'clock igniter plug port. Torque nut to 15° wrench arc.

(11) Run washed engines above ground idle for at least 5 minutes to dry out the engine flowpaths.

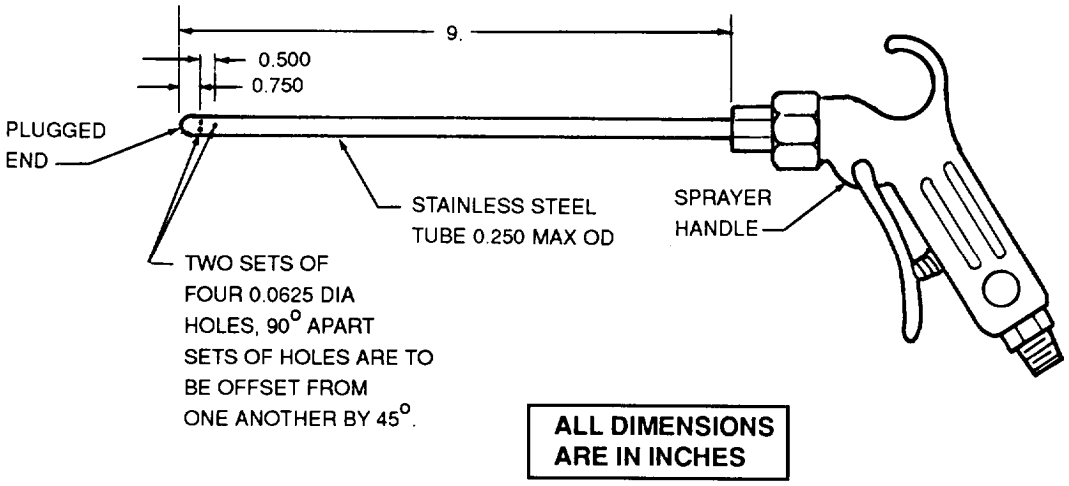


Figure 5. Hot Section Module Sprayer LMT 777.

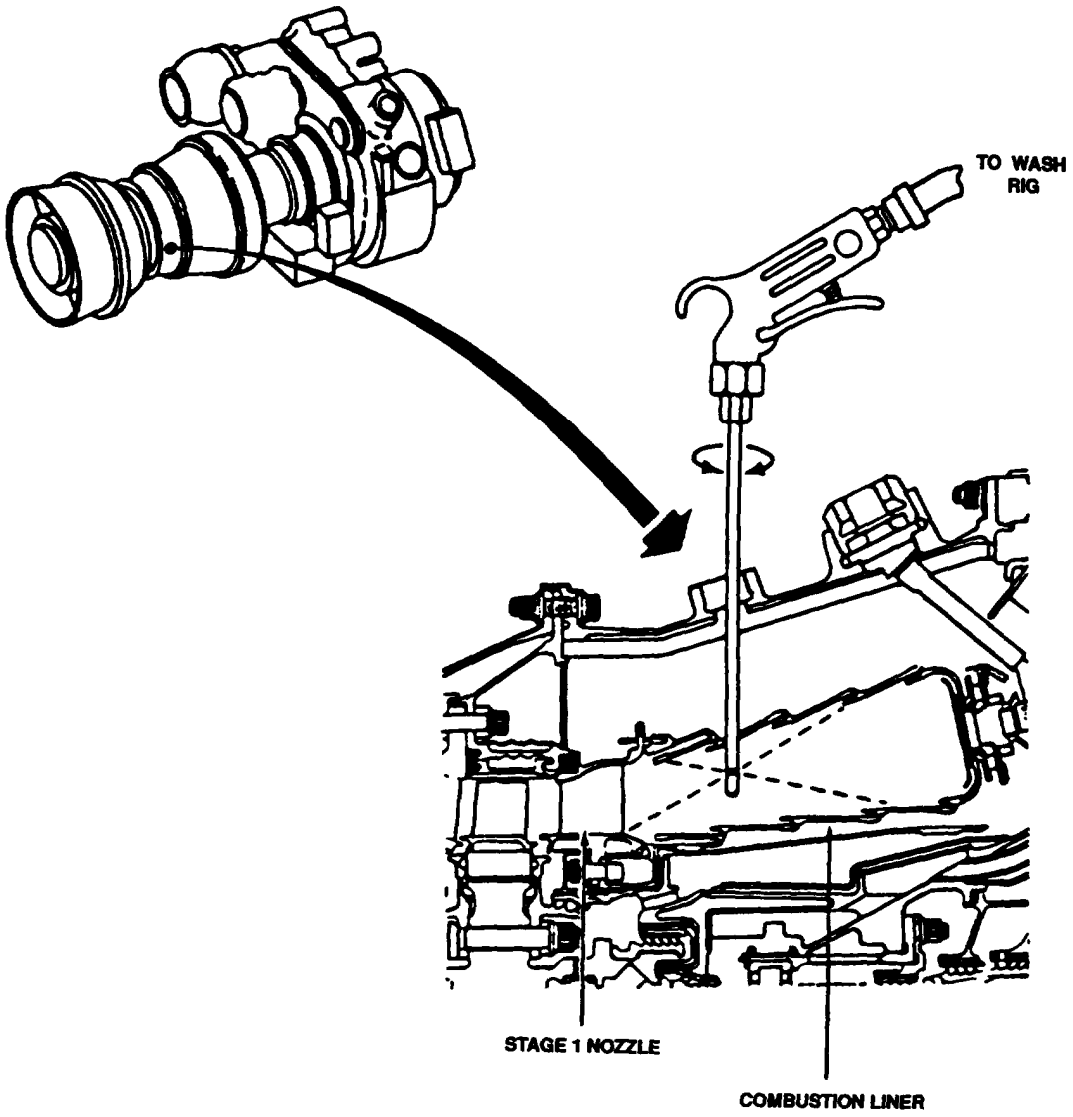


Figure 6. Washing Combustion Liner and Stage 1 Nozzle.

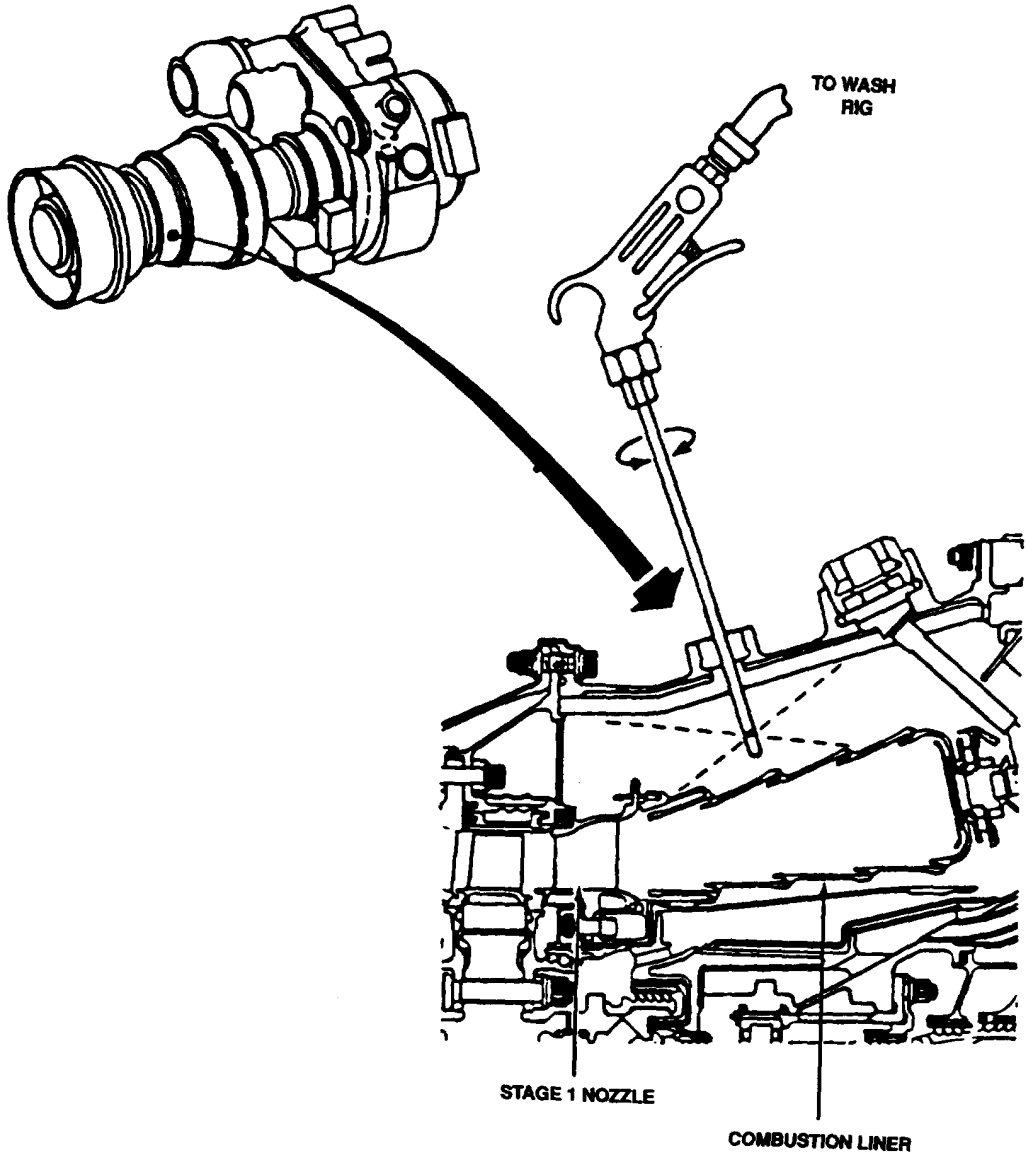


Figure 7. Washing Area Between Combustion Liner and Midframe Casing.

11. Hot Section Component Cleaning of Engines Operating in a "Dirty" Environment.

a. If a unit has been operating for 50 hours or more in sandy or dusty/dirty environments and has not had compressor and hot section cleaned at least every 50 hours from the beginning of the operation, engines should be systematically dispatched to AVIM for cleaning and inspection (paragraph 1-135, TM). Once cleaned in this manner, a 50 hour compressor cleaning (paragraph 1-134.1, TM) and hot section cleaning (paragraph 1-135.1, TM) shall be instituted. The engine hot section will again be disassembled and cleaned at the next TM 55-1520-237-PMS-2 inspection (so long as the next PMS-2 inspection is greater than 250 hours away (BH) or 125 hours (AH) and every PMS-2 thereafter if the aircraft continues to operate under these environmental conditions. Engines equipped with dampers need not be dispatched to AVIM until the next aircraft PMS-2 inspection is due, but 50 hour washings are required.

b. If a unit is to begin operations in dusty/dirty or sandy environments, a 50 hour compressor cleaning (paragraph 1-134.1, TM) coupled with a 50 hour hot section cleaning (paragraph 1-135.1, TM) is to be instituted. At the next TM 55-1520-237-PMS-2 inspection, the engine hot section will be cleaned and inspected per paragraph 1-135, TM. At this time, the unit maintenance officer shall decide, based on inspection results, to either continue with the 50 hour intervals or decrease them to less than 50 hours. Engines will continue to be cleaned and inspectcd (paragraph 1-135, TM) every PMS-2 inspection thereafter so long as the aircraft continues to operate under these conditions.

CAUTION

Grit blasting is intended for the stage 1 nozzle only. However, Stage 1 turbine blade buildup may also be cleaned in this manner provided the gas generator rotor components are masked, Grit blasting gas generator disc's and cooling plates can damage them and/or remove identification data. Overblasting can also remove blade CODEP coating. Blasting should be stopped as soon as obvious foreign material buildup is removed.

CAUTION

Check that all turbine blades move freely (side to side) in their dovetails. Failure to move freely could mean clogging of blade cooling holes which can lead to blade stress rupture.

c. A soft wire brush such as a rifle bore cleaner (para 7c) may be used to clean the nozzle surfaces of Stage 1 nozzle assembly (Fig. 7.1). Mounting the brush in a 1/4 inch drill will further facilitate cleaning. Nozzle segments may also be cleaned as a unit by using aluminum oxide grit (para 7c). Use a 1/2 inch spray nozzle with 20-35 pounds pressure and 120 or 150 grit aluminum oxide particles. A complete nozzle assembly can be cleaned by this method in less than 5 minutes taking care not to dwell in any area too long causing removal of nozzle coating. After cleaning, flush nozzle using fixture 21C7731G01.

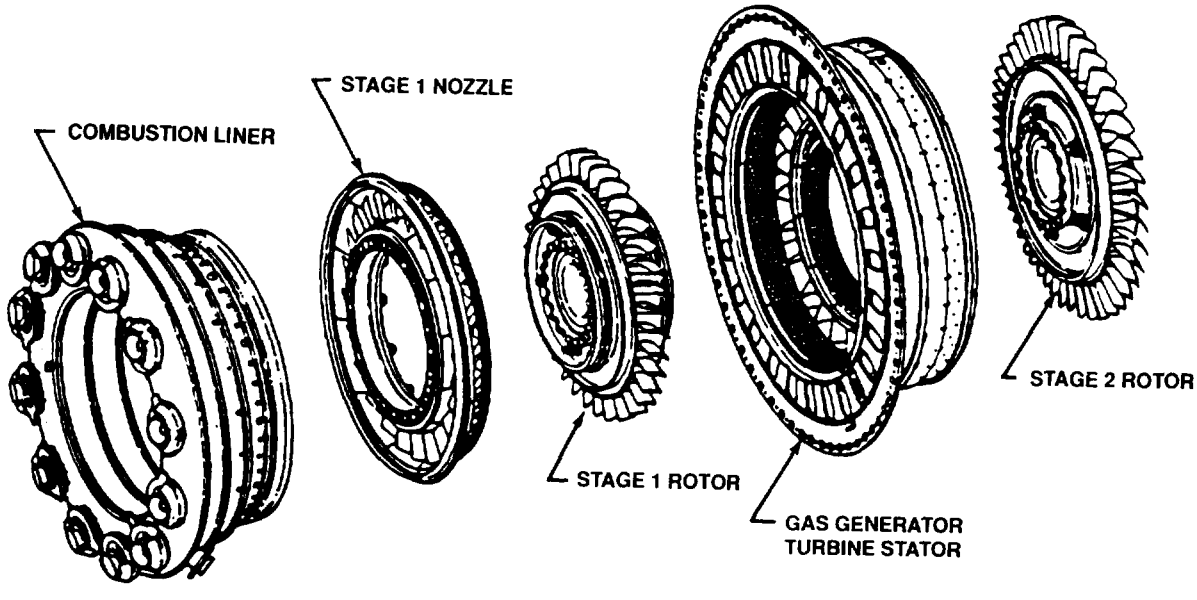


Figure 7.1 Hot Section Module; Cleaning.

Figure 8. Deleted.

11.1 Hot Section High Pressure Flow Fixture Cleaning.

a. The purpose of this cleaning procedures is to remove any accumulation of particles which may impede cooling air flow through hot section parts. Cooling hole clogging causes excessive temperature in the hot section, which can cause material fatigue, decreased parts clearances, and corrosion. Periodic cleaning will also help maintain hot section efficiency, resulting in better performance, fuel conservation, and parts life resulting in lower operational costs. It is recommended that the periodic cleaning interval for this procedure be performed in conjunction with "Hot Section Cleaning of Engines Operating in a Dirty Environment", paragraph 11.

b. Cooling hole, pressure flush, stages 1 and 2 gas generator rotor, and stage 1 nozzle assembly (T700, T701, T701C).

(1) Remove the following engine components:

(a) Power turbine module (Chapter 4, TM).

(b) Gas generator rotor assembly (Chapter 3, TM).

(c) Stage 1 nozzle assembly (Chapter 3, TM).

(d) Combustion liner (Chapter 3, TM).

(e) Face type seal (Chapter 3, TM).

(2) The power turbine module does not require flushing as there are no internal cooling passages in the rotor assemblies. A visual inspection of overall module for cracks, nicks, dents, leaks, etc. may be done at this time. The seven thermocouple harness probes should be inspected for cleanliness. They can be cleaned, if necessary, by brushing with a soft bristle brush (para 7c).

(3) Mix one cup of liquid dish-washing detergent (para 7c) with five gallons of clean, hot, tap water in a large bucket or pan.

(4) Clean the external surfaces of the hot section components (para 11, steps (4) thru (6)).

(5) Visually inspect the external surfaces for cleanliness. Repeat step (4) as required

(6) Pressure flush all asswmblies using the specified flushing fixture connected to the universal wash unit 21C2438G01 (fig. 8.1) to circulate the detergent solution. The stages 1 and 2 rotor assemblies and the (T700, T701) stage 1 nozzle are both forward and reverse flushed. The purpose of forward flushing is to identify the cooling passages that are plugged. Plugged holes will be unplugged during the forward flushing procedure using a thin wire. The reverse flushing precedure is used to carry away those particles that have been dislodged by the use of the thin wire.

(a) Forward pressure flush the stage 1 or stage 2 gas generator rotor as follows:

NOTE

Forward pressure flushing will identify the cooling passages that are plugged.

1 Remove retaining knob (fig. 8.2 or 8.3) from stage 1 gas generator rotor forward flushing fixture 21C7729G01 (fig. 8.2) or stage 2 gas generator rotor forward flushing fixture 21C7730G01 (fig. 8.3).

2 Remove cover from fixture.

3 Using a clean-lint free wiper, clean the sealing surfaces that mate with the rotor assembly.

4 Inspect o-ring part number M83248/1-273 (stage 2) or part number M83248/1-129 (stage 1) (para 7c) for wear and replace if necessary.

WARNING

Handling Bladed Components

Wear leather palm gloves (welder's type with gauntlet) when handling components with assembled blades and vanes. Blades and vanes are sharp and can cause serious injury.

5 Install rotor onto center hub so that trailing edges of blades arc facing up.

6 Install cover and secure it with retaining knob.

7 Using reducer fitting part number 22150-10-65 (para 7c) connect the discharge hose fitting (5, fig. 8.1), to the fixture inlet fitting (fig. 8.2 or 8.3).

8 Immerse the fixture into a bucket or pan of detergent solution.

9 Install the pickup assembly (6, fig 8.1) into the container of detergent solution.

10 Using the remote switch (3), start the wash unit (1) and circulate the solution 15 to 30 minutes.

11 Raise the fixture (fig. 8.2 or 8.3) slightly above the solution. Then, observe the flow from the cooling air holes at the tips and trailing edges of the blades.

12 If any cooling air holes arc plugged, stop the wash unit (1, fig. 8.1).

13 Using an 0.010 inch wire, remove foreign material from plugged hole.

14 Repeat steps 8 thru 13 until all holes are unplugged.

15 Disconnect discharge hose fitting (5, fig. 8.1) from fixture inlet fitting (fig. 8.2 or 8.3).

16 Remove retaining knob and cover from fixture (fig. 8.2 or 8.3).

WARNING

Handling Bladed Components

Wear leather palm gloves (welder's type with gauntlet) when handling components with assembled blades and vanes. Blades and vanes are sharp and can cause serious injury.

17 Remove the rotor from the fixture (fig. 8.2 or 8.3).

(b) Reverse pressure flush the stage 1 or stage 2 gas generator rotor as follows:

1 Remove retaining knob (fig. 8.4 or 8.5) from stage 1 gas generator rotor reverse flushing fixture 21C7786G01 (fig. 8.4) or stage 2 gas generator rotor reverse flushing fixture 21C7787G01 (fig. 8.5).

2 Remove cover from fixture.

NOTE

The stage 2 gas generator rotor reverse pressure flushing fixture 21C7787G01 has a lifting ring to be used with the stage 2 rotor.

3 (Stage 2 rotor) Remove lifting ring from fixture,

4 Using a clean lint-free wiper, clean the sealing surfaces that mate with the rotor assembly.

5 Inspect o-ring part number M83248/1-273 (stages 1 and 2) (para 7c) for wear and replace if necessary.

WARNING

Handling Bladed Components

Wear leather palm gloves (welder's type with gauntlet) when handling components with assembled blades and vanes. Blades and vanes are sharp and can cause serious injury.

6 Install stage 2 rotor into lifting ring so that trailing edges of blades face up.

7 Install lifting ring and stage 2 rotor onto center hub of base.

8 Install and secure cover with retaining knob.

9 Using reducer fitting part number 22150-10-65 (para 7c), connect the discharge hose fitting (5, fig. 8.1) to the fixture inlet fitting (fig. 8.4 or 8.5).

10 Immerse the fixture into the bucket or pan of detergent solution.

11 Install the pickup assembly (6, fig. 8.1) into the container of detergent solution.

12 Using the remote switch (3), start the wash unit (1) and circulate the solution 15 to 30 minutes.

13 Turn remote switch (3) to off.

14 Remove pickup assembly (6) and fixture from container.

15 Disconnect discharge hose fitting (5, fig. 8.1) from fixture inlet fitting (fig. 8-2 or 8.3).

16 Remove retaining knob (fig, 8.4 or 8.5) and cover from base.

WARNING

Handling Bladed Components

Wear leather palm gloves (welder's type with gauntlet) when handling components with assembled blades and vanes. Blades and vanes are sharp and can cause serious injury.

17 Remove rotor from base. Then, go to step (5).

(c) Forward pressure flush the stage 1 nozzle as follows:

NOTE

These procedures do not replace other nozzle cleaning procedures such as grit blasting or use of soft wire brush.

1 Remove retaining bolts (fig. 8.6) and cover from stage 1 nozzle assembly forward flush fixture 21C7731G01 (17A8820G01).

NOTE

Forward pressure flushing will identify the cooling passages that arc plugged.

2 Using a clean lint-free wiper, clean the sealing surfaces that mate with the nozzle assembly.

3 Inspect o-ring part number M83248/1-177 (para 7c) for wear and replace if necessary.

4 Install nozzle assembly, leading edge facing up, into base of fixture,

5 Aline holes in cover with threaded hole in base. Secure cover by tightening retaining bolts until the cover is flush with the base.

6 Using reducer fitting part number 22150-10-68 (para 7c), connect the discharge hose fitting (5, fig. 8.1) to the fixture inlet fitting (fig. 8.6).

7 Immerse the fixture into the bucket or pan of detergent solution.

8 Place the pickup assembly (6, fig. 8.1) into the container of detergent solution.

9 Using the remote switch (3), start the wash unit (1) and circulate the solution for 15 to 30 minutes.

10 Raise the fixture (fig. 8.6) slightly above the solution. Then, observe the flow from the cooling air holes in the leading and trailing edges.

11 If any cooling air holes are plugged, stop the wash unit (1, fig. 8.1).

12 Using an 0.010 inch diameter wire, remove foreign material from plugged hole.

13 Repeat steps 7 thru 12 until all holes are unplugged.

14 Disconnect discharge hose fitting (5, fig. 8.1) from fixture inlet fitting (fig. 8.2 or 8.3).

15 Remove retaining bolts.

16 Remove the cover by evenly walking the hands around the circumference of the fixture.

17 Remove the stage 1 nozzle from the base of the fixture.

(d) Reverse flush the stage 1 nozzle as follows:

1 Remove center retaining bolt (fig. 8.7) and cover from the stage 1 nozzle reverse flush fixture 21C7731G10 (17A8819G01).

2 Using a clean lint-free wiper, clean the sealing surfaces that mate with the nozzle assembly.

3 Inspect o-ring part number M83248/1-043 (para 7c) for wear and replace if necessary.

4 Install nozzle assembly, leading edge facing down, into base of fixture.

5 Install cover and secure it with retaining bolt.

6 Connect the discharge hose fitting (5, fig 8.1) to the fixture inlet fitting (fig. 8.7).

7 Immerse the fixture into the bucket or pan of detergent solution.

8 Place the pickup assembly (6, fig. 8.1) into the container of detergent solution.

9 Using the remote switch (3), start the wash unit (1) and allow the solution to circulate for 15 to 30 minutes.

10 Raise the fixture (fig. 8.7) slightly above the solution. Then, observe the flow from the outer ring of the stage 1 nozzle. The solution should flow equally from all openings.

11 If solution does not flow equally then, forward flush the stage 1 nozzle step (3).

12 If solution does flow equally then, turn remote switch (3, fig. 8.1) off and remove pickup assembly (6) and fixture from container.

13 Remove center retaining bolt (fig. 8.7), and cover from base.

14 Remove stage 1 nozzle from the base. Go to step (5).

(e) Rinse all cleaned parts with clean running tap water, being sure all detergent solution is removed.

WARNING

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

(f) Dry all parts with clean, dry, filtered, compressed air. Use a high-pressure air nozzle to blow loose particles from air passages and from under cooling plates and rotor blades. It is very important that all particles are removed. It may require several applications of compressed air to remove all traces of dirt and sand. Oven drying of parts is not required.

(g) Carefully inspect each part to be sure it is well cleaned, free. of detergent solution, and dry before assembly.

WARNING

Lubrication Oil

- If oil is decomposed by heat, toxic gases are released.
- Prolonged contact with liquid or mist may cause dermatitis and irritation.
- If there is any prolonged contact with skin, wash area with soap and water.
- If solution contacts eyes, flush eyes with water immediately. Remove clothing.
- If oil is swallowed, do not try to vomit. Get immediate medical attention.
- When handling liquid, wear rubber gloves. If prolonged contact with mist is likely, wear approved respirator.

(h) Apply a fww drops of lubrication oil (para 7c) onto each of the injector swirlers on combustion liner, and reassemble engine as instructed in Chapters 3 and 4 (TM).

(i) Make required checks listed in table 1-11 (TM) or in table 1-25 (AVIM) (TM).

1. UNIVERSAL WASH UNIT
2. DISCHARGE HOSE
3. REMOTE SWITCH
4. SUCTION HOSE
5. DISCHARGE HOSE FITTING
6. PICKUP ASSEMBLY

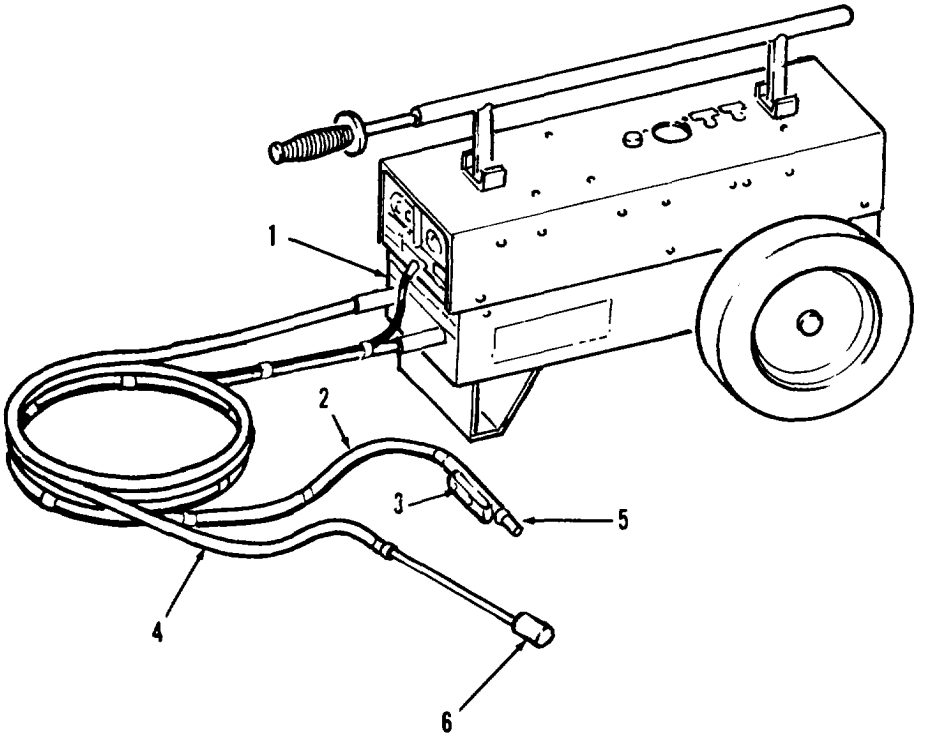


Figure 8.1. Universal Wash Unit-21C2438G01

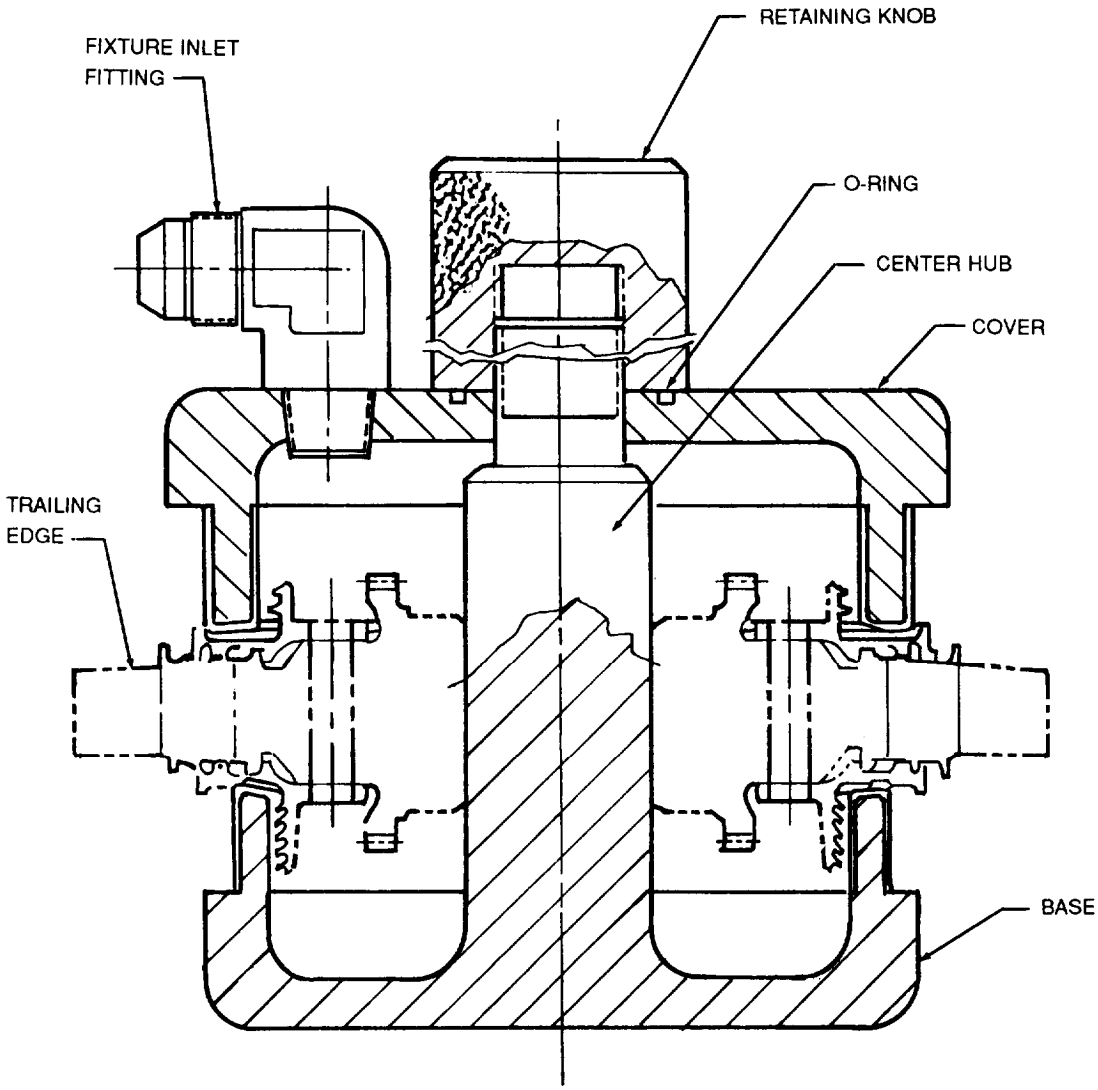


Figure 8.2. Stage 1 Gas Generator Rotor Forward Flushing Fixture—21C7729C01

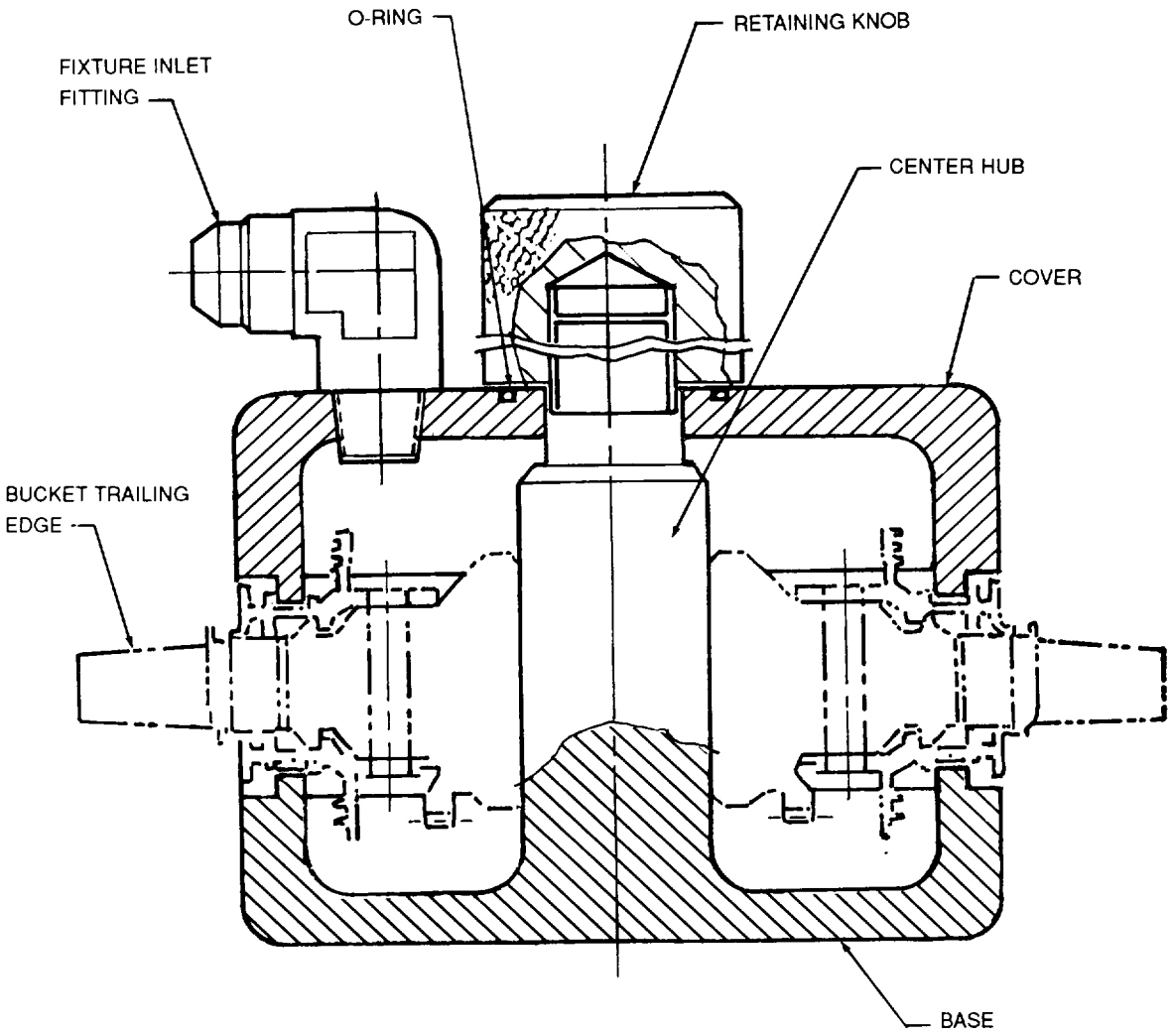


Figure 8.3. Stage 2 Gas Generator Rotor Forward Flushing Fixture—21C7730G01

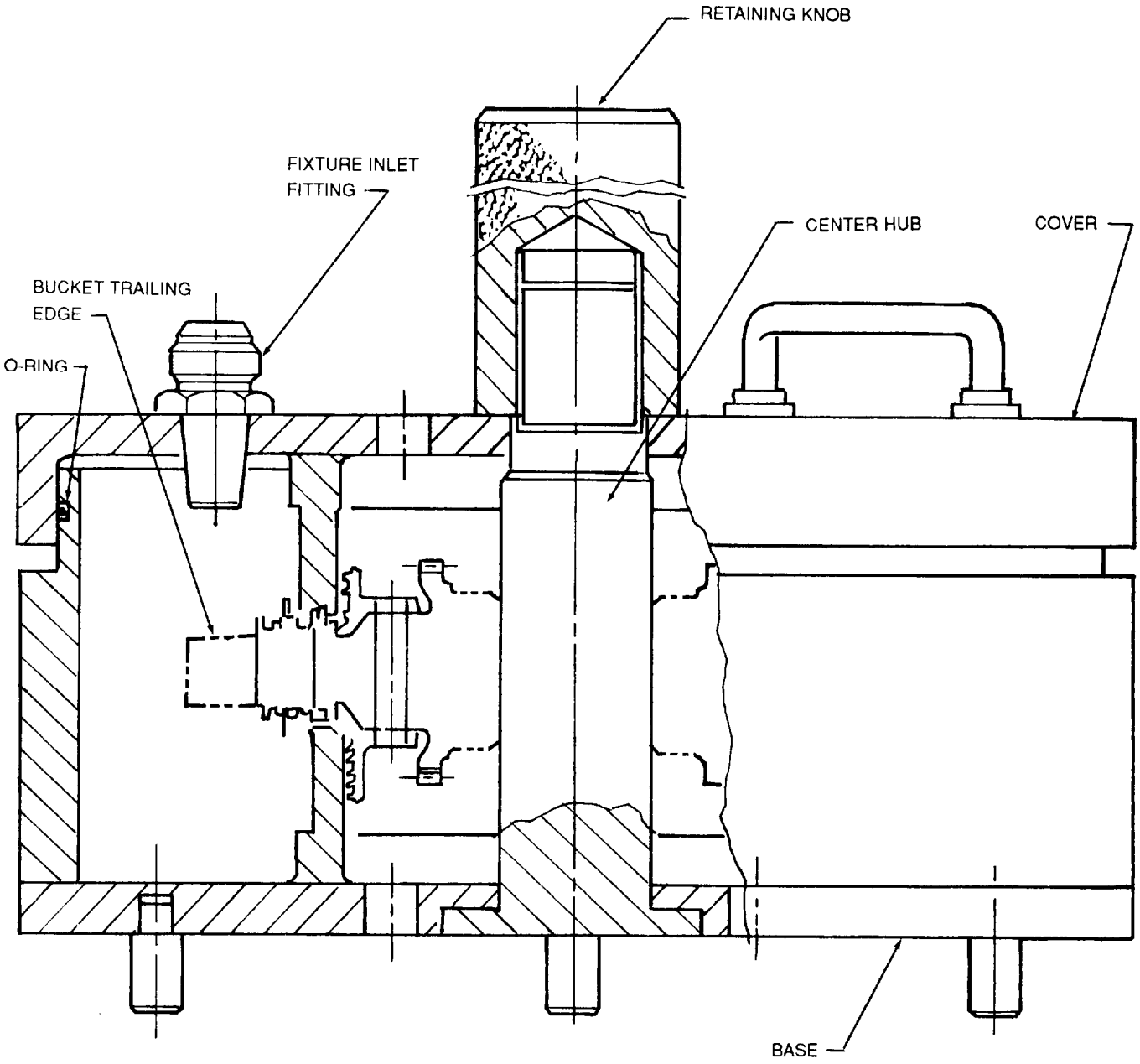


Figure 8.4. Stage 1 Gas Generator Rotor Reverse Flushing Fixture—21C7786G01

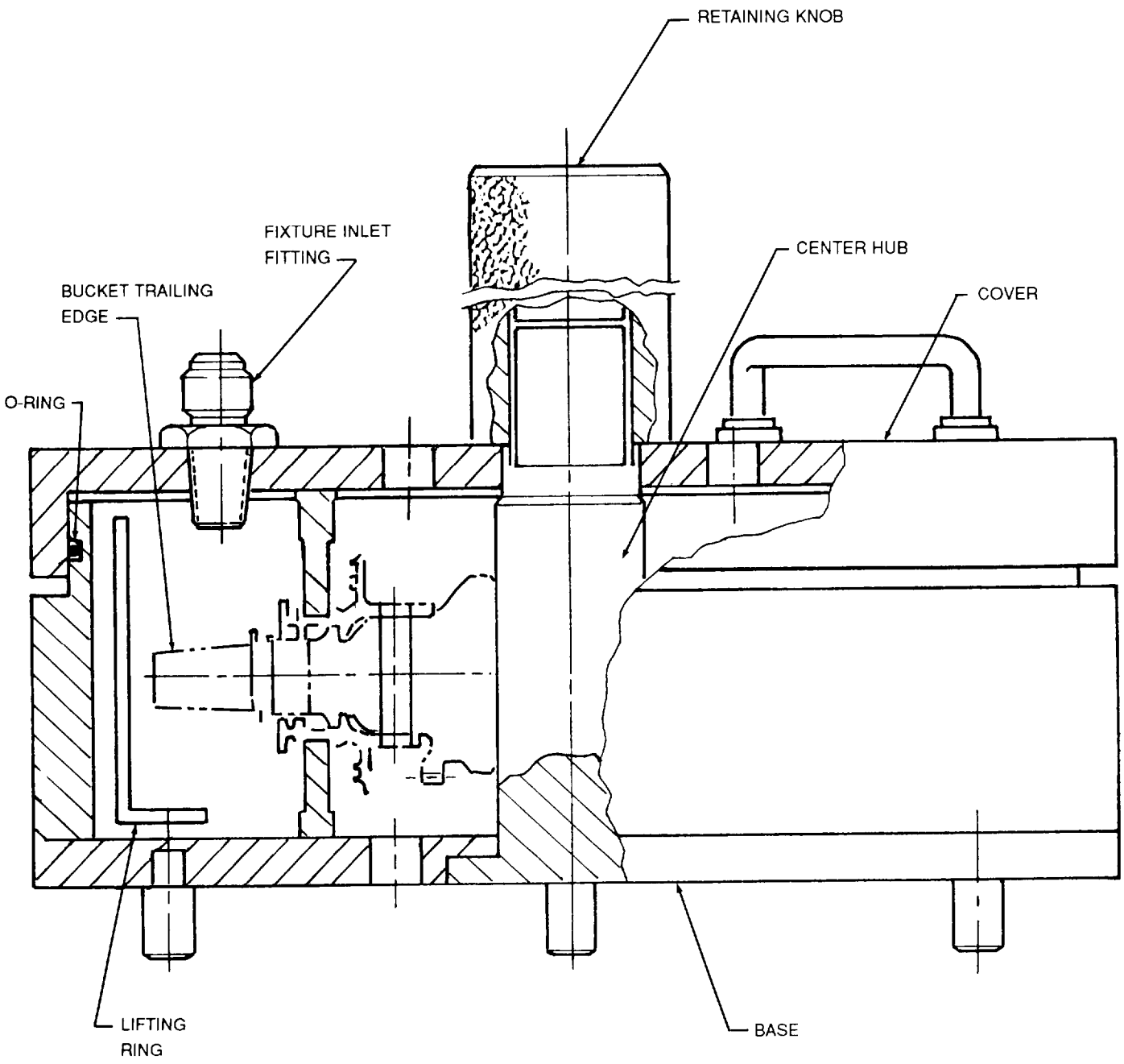


Figure 8.5. Stage 2 Gas Generator Rotor Reverse Flushing Fixture—21C7787G01

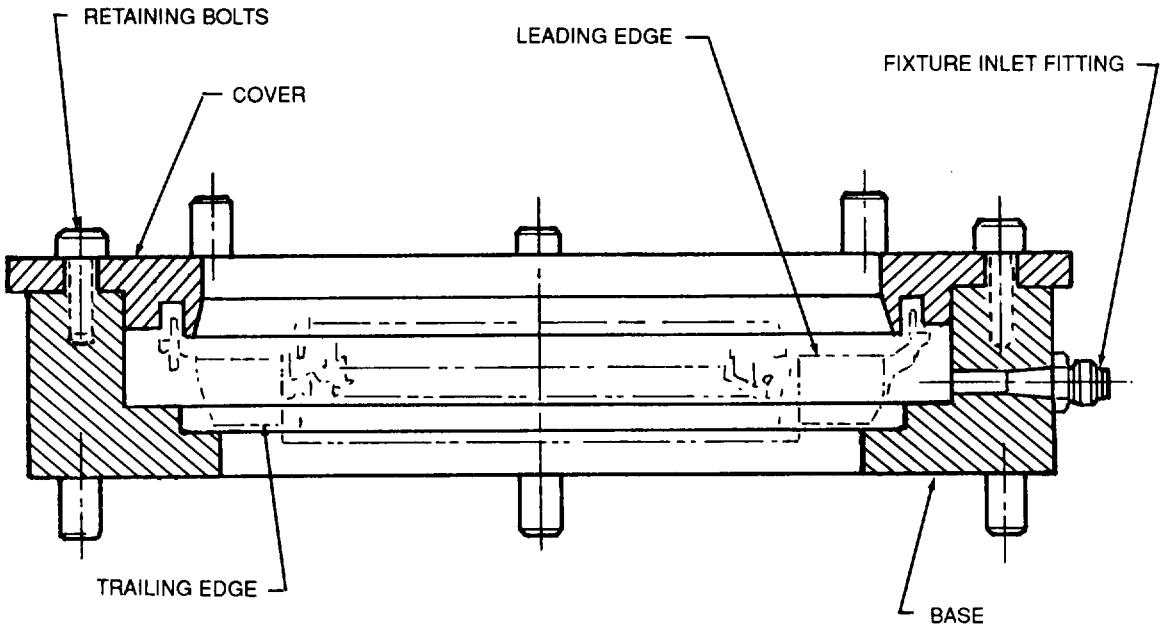


Figure 8.6. Stage 1 Nozzle Assembly Forward Pressure Flush Fixture—21C7731G01

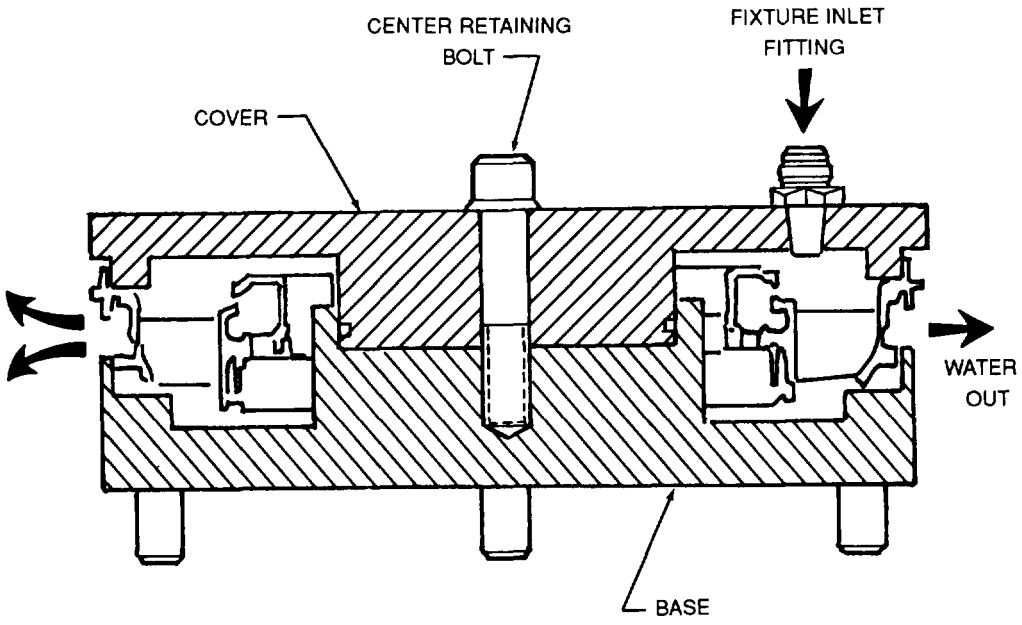


Figure 8.7. Stage 1 Nozzle Reverse Flush Fixture — 17A8819G01 (T700/T701) and 17A8819G02 (T701C)

12. Procedure For Sealing Hot End Connectors.

NOTE

The following procedure shall be used on:

- Yellow Cable Np Speed Sensor connector.
- Blue Cable Torque and Overspeed Sensor connector.

a. RTV 106 only (Option 1).

(1) Clean electrical connector (para H-11, Appendix H, TM). Use only approved solutions and procedures. Allow full recommended drying time.

(2) Connect and tighten per standard maintenance procedures.

WARNING

RTV Silicone RTV Adhesive/Sealant

- Vapor released during curing is combustible. Do not use near open flames, near welding areas, or on hot surfaces.
- Vapor is corrosive. Contact of vapor with skin or eyes will cause burns. Inhalation of vapor may cause severe nose and throat irritation. Repeated inhalation may result in chronic bronchitis.
- If any vapor contacts skin or eyes, immediately flush affected area thoroughly with water. If vapors cause irritation, go to fresh air. Get medical attention.
- When mixing uncured rubber, and during curing of rubber wear approved respirator, gloves, and goggles or face shield.

(3) Using RTV 106, (item 62.1, Appendix D, TM), seal over entire coupling nut from point A to point B on figure 9. Sealant must be 360° around connector and should be 1/8 - 1/4 inches thick.

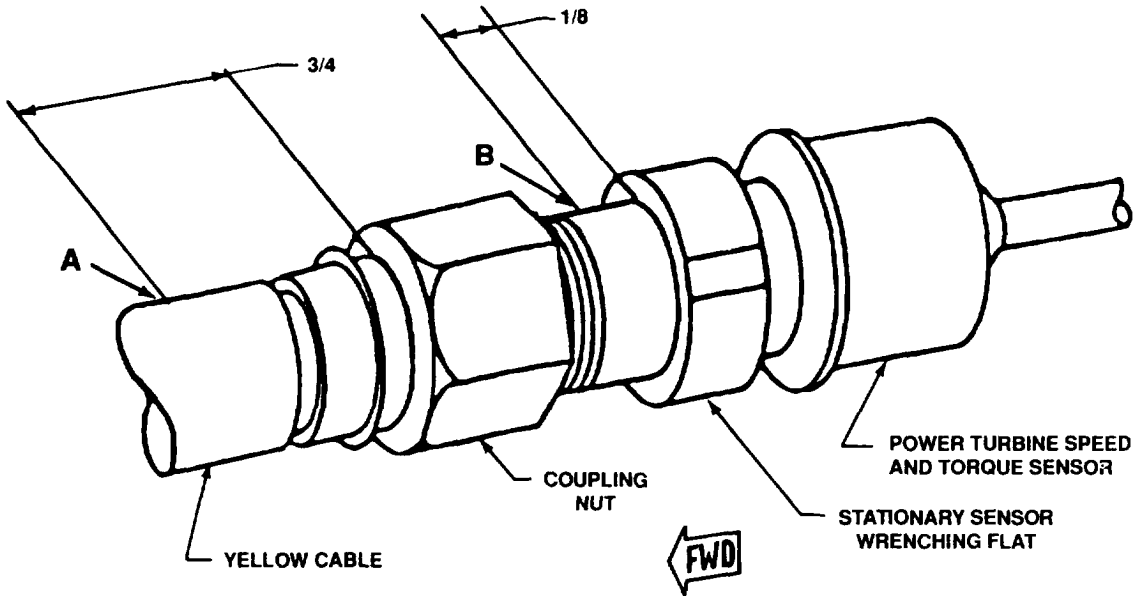
b. RTV over silicon tape (Option 2).

If silicone tape is desired to aid in the removal of the RTV, the following procedure can be followed to waterproof the connectors.

(a) Clean electrical connector (para H-11, Appendix H, TM). Use only approved solutions and procedures. Allow full recommended drying time.

(b) Connect and tighten per standard maintenance procedures.

(c) Center between points A and B, wrap towards point A, back over center to point B, and back to center. (See fig. 9). Overlap tape approximate 1/2 tape width each rotation. Keep tension on tape as you wrap in order to assure a good seal.



Note:

Tape should extend from point A to point B. RTV should extend from point A to point B plus an additional 1/8 to 1/4 inches.

Figure 9. Electrical Connectors.

WARNING

RTV Silicone RTV Adhesive/Sealant

- Vapor released during curing is combustible. Do not use near open flames, near welding areas, or on hot surfaces.
- Vapor is corrosive. Contact of vapor with skin or eyes will cause burns. Inhalation of vapor may cause severe nose and throat irritation. Repeated inhalation may result in chronic bronchitis.
- If any vapor contacts skin or eyes, immediately flush affected area thoroughly with water. If vapors cause irritation go to fresh air. Get medical attention.
- When mixing uncured rubber, and during curing of rubber wear approved respirator, gloves, and goggles or face shield.

(d) Apply RTV 106 (item 62.1, Appendix D, TM) over entire taped area. Extend RTV slightly over ends of tape to assure a watertight seal. Sealant must be 360° around connector and should be 1/8 - 1/4 inches thick.

13. Cleaning of Electrical Control Units (ECUs) and Digital Electronic Control (DECS).

ECU's and DECs shall be removed at 100 engine hours cleaning intervals and inspected for sand and dust clogging of the ECU cooling fins. The scroll case shall also be inspected and accumulations of sand and dirt at the 6 o'clock position removed. The above cleaning interval may be adjusted as required based on previous engine assessments.

13.1. Inspection and Cleaning of HMU T2 Sensor.

The T2 sensor should be removed from the T2 holster and inspected for sand clogging every 100 hours. Clean and remove any accumulated sand deposits using soft brush or shop air.

14. Inspection of P3 Bellows O-Rings.

Heat usually associated with sandy environments has shown that the P3 bellows o-rings within the Hamilton-Standad Hydromechanical Unit (HMU) will take a heat set and become brittle when the HMU is exposed to high temperatures for extended periods of time. (This is not applicable to Woodward HMU). Above occurrence can lead to internal fuel leakage. The inspection shall be performed every 100 engine hours. (Paragraph 1-58a and 1-118.1, (TM))

15. Inspection of Particle Separator Blower.

Inspect particle separator blower impeller vanes (item 4, fig. 5-6) in accordance with Table 61. Perform every 100 engine operating hours. Clean inlet particle separator blower with a damp cloth.

CAUTION

Do not soak blowers in solvent as it will remove grease packing from blower sealed bearings and cause eventual sudden stoppage.

16. Deleted.

All Data on Pages 23 and 24 Deleted.

17. Engine Cool Down.

a. Cooling of all gas turbine engines for 2 minutes prior to shutdown is absolutely essential.

b. Not performing a 2 minute cool down prior to shutdown subjects the engine(s) to excessive temperature change which may result in warping, twisting, and in extreme cases cracking of engine components.

c. Failure to properly cool the engine(s) may also cause coking of bearings and seals with resultant oil leakage.

d. For T700 engines, failure to cool down will increase the chance of number four (4) bearing failures due to loss of clearance/increased load.

17.1 (T700) Maximum Performance Check.

a. Figure 10.1, Determining Target Torque Value for UH-60A, has been revised to reflect extreme free air temperature (above 113°F or 45°C).

b. On removal of engine for performance recovery, the following guidance is provided to ensure that once reassembled, satisfactory engine power will be available.

(1) If ETF is .80 to .85, blend stage 1 compressor blades (eroded/curled) and replace gas generator rotors/stator. If stage 1 blades are not eroded or curled, replace cold section module, if available, and gas generator rotor assembly. If cold section module is not available, satisfactory performance recovery probably cannot be achieved. Replace engine.

(2) If ETF is .86 to .90, blend stage 1 blades (if eroded/curled) and clean the hot section components. If blades are not eroded/curled, replace the gas generator rotor assembly.

17.2. Engine Fuels.

Use JP-5 or JP-8 fuel if at all possible. Minimize the use of JP4 fuel (UH-60). When using JP-4, turn on boost pump immediately if fuel caution light illuminates. Operate with boost pumps “ON”, if engines are operated for more than 10 minutes on the ground. In an emergency, leaded or unleaded gasoline may be used to exceed 20 hours engine operating time or diesel fuel (specification VV-F-800C), not to exceed 50 hours.

17.3. Compressor Blade Blending. Refer to paragraph 2-4.1, TM for procedures.

a. There are three methods for repair of 1st stage compressor blades:

(1) Blending (step paragraph 2-4.1, TM) is for minor repair of blades damaged by nicks, dents, Foreign object Damage (FOD) or erosion.

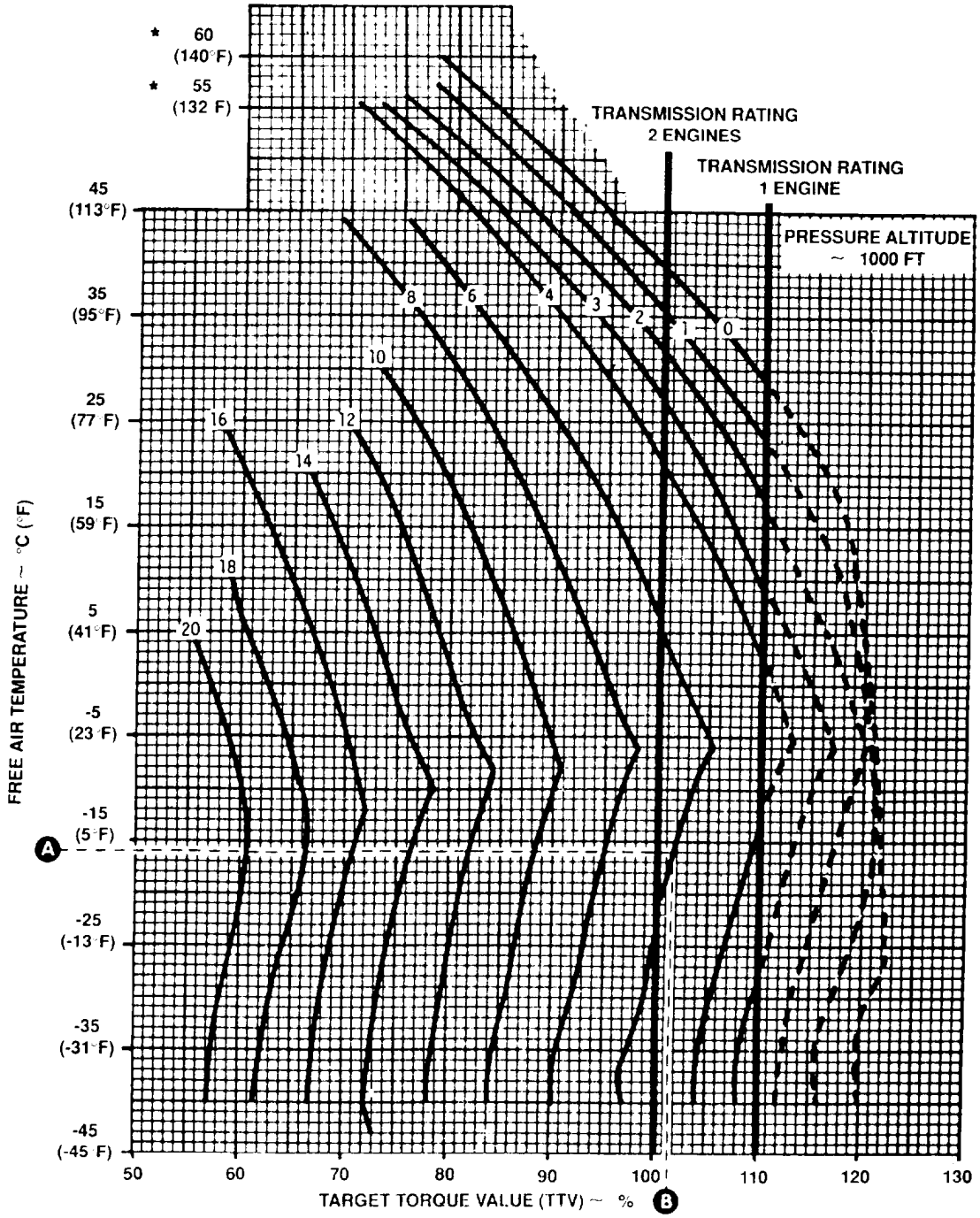
(2) Blade clipping (paragraph 2-4.2, TM) is for repair of a maximum of 4 blades due to FOD.

(3) Chamfering (paragraph 2-4.3, TM) is for repair of blade tips due to FOD.

A combination of these methods may be utilized to restore blade contour. Erosion results when operating in sandy environments and causes chord length reduction and the leading edge tips to become rounded. FOD typically causes nicks, dents, or curled leading edges and tips.

b. Only when blending is chord length measurements required. To avoid the rounded leading edge tip, chord length must be measured 0.250 inches radially from tip (see Figure 10). When leading edge tips are not rounded, chord length may be measured along the tip chord (Figure 2-1.3, TM).

Figure 10 shall be furnished at a later date.



WANTED
TARGET TORQUE VALVE

EXAMPLE
KNOWN
FAT = -16 C (3.2 F)
PRESSURE ALTITUDE = 6,000 FEET
ENGINE % RPM 1 OR 2 = .99
% TRQ = .97
TGT = 820 C (1508 F)

METHOD
ENTER CHART ON LEFT AT -16 C (3.2 F) FAT - - - - - (A)
MOVE RIGHT TO INTERSECTION OF -16 C (3.2 F) LINE AND 6,000 FOOT LINE
MOVE STRAIGHT DOWN TO READ 101.5% - - - - - - (B)

*BATTLEFIELD LIMITS (BFL)

Figure 10.1 (T700) Determining Torque Value (TTV) for UH-60A.

SECTION II.

INSPECTION LIMITS FOR COMBAT CONDITIONS

18. Battlefield Parts Interchangeability.

a. Tables 8 through 17 indicates where parts not normally considered interchangeable may be used in a combat emergency to continue operation on various engine models. Such emergency operation is expanded to include engine configurations that have not been previously qualified or have not been specifically approved by the airframe manufacturer, or both.

b. In context, where a part is coded "P' for Prime, interchangeability can occur with no degradation whatsoever of part and system integrity. Where an "E" (Emergency Use) is noted, there may be some reduction in durability or functionality while still being considered acceptable for emergency operation. The Hydromechanical Control Unit (HMU) and Electrical Control Unit (ECU) have specific notation provided to indicate functionality concerns. The "X" indicator is not inter--changeable and the part will either not physically fit on the engine model considered or the part would not function properly, causing significant degradation of engine capability.

NOTE

This information is preliminary. Actual flight test has not occurred. In case emergency, war time conditions require this configuration.

c. The T700-GE-701C engine can be installed in an UH-60A helicopter. (Refer to Table 8.) With the exception of the electrical El Digital Electronic Control (DEC) 31 Pin connector, the T700GE-701C engine interfaces the same as the T700-GE-700 engine into the UH-60A. By use of a 24 Pin to 31 Pin adapter cable (P/N 6071T14) and two support clamps or use of the L model aircraft E 1 harness (P/Ns 70552-10901 and 70552-10900) in the A model, the engine can be installed and operated as follows.

NOTE

It is recommended that both engines be -701 C in order to reduce pilot workload as both T4, 5s, oil pressures, etc. will be the same.

(1) If -700 and -701C engines are installed one on each side of the aircraft:

(a) Luge Oil Pressure Transmitter.

1 Both -700 and 701C provide lube oil pressure indication, however, the delta P indication will be different. The -700 uses the atmosphere pressure for reference, while the -701 C uses the B-sump pressure for reference.

2 The UH-60A engine oil pressure gauge red lines are applicable to the -701C engine, (minimum 20 psi and maximum 100 psi). The UH-60L normal operation range (green area) for delta P is 26 psi to 100 psi. The UH-60A delta P gauge green area is 40 psi to 100 psi and yellow area is 20 psi to 40 psi. This means if the -701C engines were used in the UH-60A and the delta P reading is in the yellow area of 26 psi to 40 psi, it should be considered as normal operation.

(b) Turbine Gas Temperature (TGT) Limiter.

The TGT red line in the UH-60A is 850°C which is higher than the -700 ECU TGT limiter setting (843°C). The -701 DEC has dual engine TGT limiter set at 866°C and the automatic contingency power (OEI) limiter set at 891°C, which arc much higher than the red line. Therefore the -701 C has higher limiter settings than the red line in the UH-60A. Pilots should not expect the (-700) limiter setting to limit the (-701 C) engine before it reaches the TGT red line.

(c) Gearbox Limits.

1 The UH-60A transmission limits are: dual engine maximum 100% continuous, and maximum 125% transient up to 10 seconds. Or single engine maximum 110%, and maximum 135% transient up to 10 seconds. Pilots should be aware that the -701C engine can provide higher power than the -700 and the -701C DEC has automatic contingency power switch, so that it is more likely to exceed the torque limits with the -701C engines.

2 Example: At Sea Level Standard Day (SLSD). If total aircraft load demand is 710 ft-lb (100% torque per engine), and suddenly the -700 engine drops off line, the -701C engine now will automatically switch to One Engine Inoperative (OEI) power to produce more than 134% torque and therefore exceeds the single engine transient torque limit.

(d) Engine Starts.

1 The indicated TGT may be different between -700 and -701C prior to engine starts. If the aircraft 400 Hz power is available, the -701C DEC will always be powered and indicates the TGT plus the bias (-71°C). The -700 ECU cannot be powered by 400 Hz power solely, therefore the ECU will only indicate the TGT without the bias.

2 Prior to engine cold starts, cockpit TGT indication maybe erroneous.

3 The -701C engine provides Hot Start Preventor (HSP) function. If engine experienced hot start, and the TGT exceeded 900°C, the -701C DEC HSP will command the Overspeed Drain Valve (ODV) to by-pass fuel to shutdown the engine. During an emergency, HSP can be disabled by pressing and holding either one of the overspeed test buttons during the starting sequence.

(e) Overspeed System.

The -700 overspeed system provides a non-flameout system and uses Pressurizing and Overspeed Unit (POU) and the overspeed trip point set at 106% (22,200 rpm) Np for minimum fuel flow cutback. The -701 C overspeed system provides a flameout system by using the ODV with the trip point set at 120% (25,000 rpm) Np. When the -701C engine is installed in the UH-60A, the auto-ignition function will not be wired to the aircraft. Therefore, if the A/B button overspeed test is performed or the Np exceeds 120% (25,000 rpm), the -701C engine will flameout.

(f) Engine Performance.

The engine “hit check” and max power data are different between -700 versus -701C. Refer to TM 55-2840-248-23.

(g) Engine Response.

1 Transient and steady state TGT and Ng splits can occur.

2 Engine torque splits may occur and acceleration rates will differ.

3 If neither engine is limited, by temperature or power, the steady state torque will match within 5% engine torque. When the -700 engine becomes power or temperature limited and the aircraft load demand is demanding more power, the -701C engine will provide more torque than the -700 engine and the steady state torque splits will occur.

4 During rapid load change applications (e.g. fast auto-recoveries), -701C could have higher transient torque overshoots than -700. Transient torque splits also could get worse during hot day or collective inputs at high collective. Pilots should take precautions not to exceed the UH-60A transmission torque limit requirements.

(h) Engine Shutdown.

1 The -701C DEC provides fault validation to selected signals. Since the Collective and NR signals are not available on the UH-60A, the NR fault code will be flashing on the cockpit engine torque meter every time after both engines are shut down along with any other fault code(s) generated by the DEC.

2. If the Collective fault code (115% ± 3% torque) or the NR fault code (125% ± 3% torque) appears on the engine torque meter, it should be ignored. If any other fault codes appear on the meter, appropriate action shall be taken in accordance with TM 55-2840-248-23.

(2) If -701C engines are installed on both sides of the aircraft:

Refer to above paragraphs (a) through (h) for -700/-701C differences and precautions.

Table 8. Engine.

Key:
P = PRIME
E = EMERGENCY USE
X = NOT USABLE

Model	Dwg. No.	Black Hawk -700	Apache -701	Sea Hawk -401	Sea Hawk -401C	AH1W -401B	214ST CT7 -2A	Black Hawk -701C	Desert Hawk -701A
-700	6035T00	P	X	E (5)	E (5)	X	X	X	E (5)
-401	6043T80 (SH)	E (2)	X	P	E (7)	X	X	X	E (3)
-401B	6043T80 (AHIW)	X	X	X	X	P	X	X	X
-401C	6064T25	E (2)	X	E	P	X	X	X	E (3)
-701C	6071T24	E (8)	X	X	x	X	X	P	X
-701	6044T06	E (1)	P	E (6)	E (6)	X	X	X	E
-701A	6058T75	E (1)	X	E (4)	E (4)	X	X	X	P
CT7-2A	6044T52	X	X	X	X	X	P	X	X

Notes:

(1) - Engine (701) would flameout on O/S Test.
- Engine (701) would have contingency power (Automatic).
- Possible Q splits - Δ P oil system.

(2) - -401's would flameout on O/S test.
-Would not have contingency or max ratings power.
-Possible Q splits.
-401 has A P oil system; B/H does not.
- T4.5 indicator TIC marks and color changes may be incorrect.

(3) - No contingency or max ratings on 401/401C engine.

(4) - 701A would have auto contingency.
-Limited to 701A power.

(5) - Limited to -700 power.
- -No contingency power available.
- T4.5 indicator TIC marks and color changes maybe incorrect.

(6) - No response to manual contingency.
- Has auto contingency.

(7) - Limited to -401 power.

(8) - Usage of -701C in UH-60A helicopter.
- Refer to paragraph 18c.

Table 9. Major Modules.

Key:
P= PRIME
E= EMERGENCY USE
X = NOT USABLE

Dwg. No.	Black Hawk -700	Apache -701	Sea Hawk -401	Sea Hawk -401C	A H 1 W -401B	214ST C T 7 -2A	Black Hawk -701C	Desert Hawk -701A
G/G ROTOR/STATOR ASSY								
6055T20G01	P	X	X	X	X	X	X	X
G03	P	X	X	X	X	X	X	X
6055T26G01	X	P	E	E	E	E	E	E
G05	X	P	E	E	E	E	E	E
G08	X	P	E	E	E	E	E	E
6055T26G02	X	E	P	E	P	E	E	E
G06	X	E	P	E	P	E	E	E
6039T54G13	X	X	X	X	X	E	X	X
6039T54G08	X	X	X	X	X	P	X	X
6053T40G22	X	P	P	P	P	X	P	P
6053T40G25	X	P	P	P	P	X	P	P
PT MODULE								
6038T61G01	P	E	E	E	E	E	E	E
6043T89G01	P	E	E	E	E	E	E	E
G01A	P	E	E	E	E	E	E	E
6064T98G01	P	E	E	E	E	E	E	E
G01A	P	E	E	E	E	E	E	E
6044T08G01	E	P	E	E	E	E	E	E
6064T99G01	E	P	E	E	E	E	E	P
6043T81G01	E	E	P	E	P	E	E	E
6064T27G01	E	E	E	P	E	E	E	E
6071T26G01	E	E	E	E	E	E	P	E
6055T87G01	E	E	E	E	E	P	E	E
6043T21G01	E	E	E	E	E	P	E	E
6039T70G01	E	E	E	E	E	P	E	E

Table 10. Electrical Control Unit (ECU).

Key:
P = PRIME
E = EMERGENCY USE
X = NOT USABLE

Dwg. No.	Black Hawk -700	Apache -701	Sea Hawk -401	Sea Hawk -401C	AH1W -401B	214ST CT7 -2A	Black Hawk -701C	Desert Hawk -701A
4046T29G02	P	X	X	X	X	X	X	X
G03	P	X	X	X	X	X	X	X
G06	P	X	X	X	X	X	X	X
G07	P	X	X	X	X	X	X	X
G09	P	X	X	X	X	X	X	X
G10	P	X	X	X	X	X	X	X
G11	P	X	X	X	X	X	X	X
G12	P	X	X	X	X	X	X	X
G13	P	X	X	X	X	X	X	X
4076T60G03	X	E(1)	X	X	X	X	X	X
G04	X	E (1)	X	X	X	X	X	X
4082T99G01	X	P*	X	X	X	X	X	E (1)
G02	X	P*	X	X	X	X	X	E (1)
4082T38G01	X	X	X	X	X	X	X	P
G02	X	X	X	X	X	X	X	P
G05	X	X	X	X	X	X	X	P
4076T61G03	X	X	P	E (2)	X	X	X	X
G04	X	X	P	E (2)	X	X	X	X
4076T61G06	X	X	X	X	P*	X	X	X
G05	X	X	X	X	P*	X	X	X
G08	X	X	X	X	P*	X	X	X
G07	X	X	X	X	P*	X	X	X
4082T65G01	X	X	X	X	P*	X	X	X
G02	X	X	X	X	P*	X	X	X
G04	X	X	X	X	P*	X	X	X
G03	X	X	X	X	P*	X	X	X

Table 10. Electrical Control Unit (ECU) (Cont).

Key:
P = PRIME
E = EMERGENCY USE
X = NOT USABLE

Dwg. No.	Black Hawk -700	Apache -701	Sea Hawk -401	Sea Hawk -401C	AH1W -401B	214ST CT7 -2A	Black Hawk -701C	Desert Hawk -701A
4076T61G10	X	X	X	P*	X	X	X	X
G11	X	X	X	P*	X	X	X	X
4046T29G15	X	X	X	X	X	X	P	X
4076T27G01	X	X	X	X	X	P	X	X
G02	X	X	X	X	X	P	X	X

* Requires Unique Bracket

Notes:
(1) - No transient droop improvement.
(2) - Limited to 401 power.

Table 11. Hydromechanical Control Unit (HMU).

Key:
P = PRIME
E = EMERGENCY USE
X = NOT USABLE

Dwg. No.	Black Hawk -700	Apache -701	Sea Hawk -401	Sea Hawk -401C	AH1W 401B	214ST CT7 -2A	Black Hawk -701C	Desert Hawk -701A
4046T52G01	P	X	X	X	X	E	X	X
G04	P	X	X	X	X	E	X	X
G06	P	X	X	X	X	E	X	X
G09	P	X	X	X	X	E	X	X
G11	P	X	X	X	X	E	X	X
G08	x	E(1)	P	X	P	X	X	P
G10	x	E(1)	P	X	P	X	X	P
G12	x	E(1)	P	X	P	X	X	P
G13	x	P	E	X	E	X	X	E
G14	x	P	E	X	E	X	X	E
G17	x	X	X	P	X	X	P	X
G21	x	X	X	P	X	X	P	X
4076T26G01	E	X	X	X	X	P	X	X
G02	E	X	X	X	X	P	X	X

Note:

(1) No TDI capability.

Table 12. Electrical Harnesses.

Key:
P = PRIME
E = EMERGENCY USE
X = NOT USABLE

Dwg. No.	Black Hawk -700	Apache -701	Sea Hawk -401	Sea Hawk -401C	AH1W 401B	214ST CT7 -2A	Black Hawk -701C	Desert Hawk -701A
YELLOW HARNESS								
6038T53P01	P	X	X	X	X	P	X	X
P02	P	X	X	X	X	P	X	X
6044T60P01	X	P	P	X	P	X	X	P
P03	x	P	P	X	P	X	X	P
P04	X	X	X	P	X	X	P	X
P05	x	X	X	E	X	X	E	X
BLUE HARNESS								
6038T52P01	P	X	X	X	X	P	X	X
P03	P	X	X	X	X	E	X	X
6044T83P02	x	P	X	X	X	X	X	P
P05	x	E	X	X	X	X	X	E
P03	x	X	P	P	P	X	P	X
P06	X	X	P	P	P	X	P	X
GREEN HARNESS								
3036T52G01	X	X	X	X	X	P	X	X
3036T53G01	P	E	P	P	P	X	P	P
G03	E(1)	P	E (1)	E (1)	E (1)	X	E (1)	E (1)

Note:

(1) No oil temperature indication.

Table 13. Electrical Components.

Key:
P = PRIME
E = EMERGENCY USE
X = NOT USABLE

Dwg. No.	Black Hawk -700	Apache -701	Sea Hawk -401	Sea Hawk -401C	AH1W -401B	214ST CT7 -2A	Black Hawk -701C	Desert Hawk -701A
ALTERNATOR STATOR								
6038T46P01	P	X	X	X	X	P	X	X
6043T28P02	X	P	P	P	P	X	P	P
ALTERNATOR ROTOR								
4042T50P01	P	X	X	X	X	P	X	X
4068T18P02	X	P	P	P	P	X	P	P
EXCITER ASSY								
4042T42G04	P	X	X	X	X	P	X	X
G05	E	X	X	X	X	E	X	X
G02	E	P	P	P	P	E	P	P
G03	E	E	E	E	E	E	E	E
IGNITION LEADS								
4052T54P02LH	P	P	P	P	P	P	P	P
P01RH	P	P	P	P	P	P	P	P
IGNITER PLUG								
4053T22P01	P	X	X	X	X	P	X	X
P06	P	X	X	X	X	P	X	X
5044T67P01	X	P	E	E	E	X	E	E
P02	X	E	P	E	E	X	E	P
P03	X	P	P	P	P	X	P	P
P07	X	P	P	P	P	X	P	P
TORQUE SENSOR								
5035G27G04	P	P	P	P	P	P	P	P
G05	E	E	E	E	E	E	E	E
G07	E	E	E	E	E	E	E	E

Table 14. Fuel Components

Key:
P = PRIME
E = EMERGENCY USE
X = NOT USABLE

Dwg. No.	Black Hawk -700	Apache -701	Sea Hawk 401	Sea Hawk -401C	AH1W -401B	214ST CT7 -2A	Black Hawk -701C	Desert Hawk -701A
SEQ VALVE. POU. ODV								
3046T06G01	X	X	X	X	X	P	X	X
3046T17G01	X	P	P	P	P	X	P	P
3033T32G01	P	X	X	X	X	X	X	X
4076T64G01	P	X	X	X	X	X	X	X
INJECTOR ASSY								
4045T30G04	P	P	P	P	P	X	E	P
G05	P	P	P	P	P	X	E	P
G07	E	E	E	P	E	X	P	E
5051T38G01	X	X	X	X	X	P	X	X

Table 15. Fuel Filter and Fuel Filter Assembly.

Key:
P = PRIME
E = EMERGENCY USE
X = NOT USABLE

Dwg. No.	Black Hawk -700	Apache -701	Sea Hawk -401	Sea Hawk -401C	AH1W -401B	214ST C17 -2A	Black Hawk -701C	Desert Hawk -701A
FILTER ASSY								
5035T76P07	E	E	X	X	X	X	X	E
P08	P	P	X	X	X	X	X	P
5043T68P03	X	X	X	X	X	P	X	X
5044T43P03	X	X	P	P	P	X	X	X
P11	X	X	X	X	X	X	P	X
FILTERS								
AC-9985F-30	X	X	P	P	P	X	X	X
-10	P	P	X	X	X	P	P	P

Table 16. Lube System Components.

Key:
P= PRIME
E = EMERGENCY USE
X = NOT USABLE

Dwg. No.	Black Hawk -700	Apache -701	Sea Hawk -401	Sea Hawk -401C	AH1W -401B	214ST CT7 -2A	Black Hawk -701C	Desert Hawk -701A
LUBE PUMP								
5034T11P02	P	E	E	E	E	E	E	E
P04	P	P	P	E	E	P	P	P
P05	P	P	P	P	P	P	P	P
OIL CAP ASSY								
6038T99P01	P	P	E	E	E	E	E	E
6046T53P02	E	E	E	P	E	P	P	E
6055T06P01	E	E	P	P	P	E	P	E
6064T39P01	P	P	E	P	E	E	P	E
P02	P	P	E	P	E	E	P	P
OIL COOLER ASSY								
4046T25G01	E	E	E	E	E	P	E	P
002	E	E	E	E	E	E	E	E
003	P	P	P	P	P	P	P	P
G06	E	E	E	E	E	E	E	E
LUBE FILTER ASSY								
5044T09P01	P	P	P	P	P	E	P	P
5044T15P01	E	E	E	E	E	P	E	E
5066T30P01	x	X	X	X	X	P	X	X

Table 16. Lube System Components (Cont).

Key:
P= PRIME
E = EMERGENCY USE
X = NOT USABLE

Dwg. No.	Black Hawk -700	Apache -701	Sea Hawk 401	Sea Hawk -401C	AH1W -401B	214ST CT7 -2A	Black Hawk -701C	Desert Hawk -701A
FILTERS								
AC9718F2	P	P	P	P	P	X	P	P
AC9718F25	X	X	X	X	X	P	X	X
AA9718E-25KF1	P	P	P	P	P	X	P	P
AA9718E-25KF1	X	X	X	X	X	P	X	X
OIL PRESS TRANSMITTER								
4053T78P01	P	P	X	X	X	A/C	X	P
5051T25P01	E	X	P	P	P	A/C	P	X

Table 17. Miscellaneous Components.

Key:
P = PRIME
E = EMERGENCY USE
X = NOT USABLE

Dwg. No.	Black Hawk -700	Apache -701	Sca Hawk -401	Sea Hawk -401C	AH1W -401B	214ST CT7 -2A	Black Hawk -701C	Desert Hawk -701A
IPS BLOWER								
6034T62P11	P	E	E	E	E	E	E	E
P13	E	E	E	E	E	E	E	E
P15	P	E	E	E	E	E	E	E
P16	P	P	P	P	P	E	P	P
6038T59P02	E	E	E	E	E	P	E	E
AI/SBV								
4046T28G05LF	E	E	E	E	E	E	E	E
4046T28G06	E	E	E	E	E	E	E	E
G14	P	P	E	E	E	P	P	E
4046T28G15	P	P	E	E	E	E	P	E
5066T38G04	P	P	P	P	P	E	P	P
AGB ASSY								
6039T19G07	P	P	P	P	P	P	P	P
G01	E	E	E	E	E	E	E	E
G02	E	E	E	E	E	E	E	E
G03	E	E	E	E	E	E	E	E
G05	E	E	E	E	E	E	E	E

19. Preventive Maintenance Checks and Services.

a. Ten-Hour /Fourteen-Day Inspetion Requirements (THIR). The 10 hour/14 day inspection requirements for the T700-GE-700, T700-GE-701, or for the T700-GE-701 C turbine engine does not contain instructions for repair, adjustment, or correcting any problems, nor does it contain instructions for troubleshooting. Specific tolerances, limits, etc., can be found in TM 55-2840-248-23. A 10 hour inspection is done every 10 flight hours or every 14 days, whichever comes first. The 10 hour flight intervals may be extended to complete the day's mission, but the 10 hour inspection must be done before starting the next day's flight. The inspection requirements listed in Table 18 are to make sure that defects are found and corrected before malfunctions occur or serious trouble happens.

Table 18. Ten-Hour /Fourteen-Day Inspection Checks.

BFL	Item	Inspect
	1.	Oil tank level.
	2.	Oil tank filler cap for proper installation (cap release is down and locked).
*	3.	Electrical cables for chafing, and for broken, or missing brackets or clamps.
*	4.	Connectors for security.
*	5.	Fuel, oil, and air tubes and hoses for security, evidence of chafing, or leakage. Broken or missing clamps. Specifically, check fuel manifolds for chafing.
*	6.	PAS and LDS actuation controls for security. Anti-ice bleed and start valve clips are in place.
*	7.	V-band clamps on HMU, particle separator blower, and customer bleed piping for security.
*	8.	Exterior of engine and oil cooler for oil, fuel, and evidence of air leaks, missing or broken bolts and nuts.
	9.	Oil filter for impending bypass indication. (Button must not be popped.)
	10.	Fuel filter for impending bypass indication. (Button must not be popped.)
*	11.	Engine mounts for security.
	12.	Manually check full engagement of quick release pins in HMU and anti-ice bleed and start valve linkage. If quick release pins are loose (release pin 'c' rings offer little or no resistance to removal of the pin) inspect connecting linkage pin holes for elongation. Pins may be replaced with appropriate bolt and locknut; do not overtighten. Upper lever arm bolt/nut is J713P034A/R1181P003. Lower lever arm bolt/nut is J712P033A/R1181P002.
*	13.	Engine inlet and exhaust for foreign objects or foreign object damage (FOD).
*	14	P3 line to HMU for cracks. Remove T2 sensor from holster. Clean by brushing/tapping.
*	15.	Turbine case for cracks and for loose or broken stage 3 turbine nozzle bolts.
*	16.	Oil cooler PNs 6044T95P01 or 6044T95P02 for fuel or oil leak from the weep hole at the 12 o'clock position.

* Increase interval to 50 hour/30 day.

b. Battlefield limits. The following abbreviations are applicable to extend battlefield limits for desert operations. (Refer to Tables 19 through 113.)

Abbreviations	Definitions
BFL	Battlefield Limits
A^{3}	AAA = Any Amount Allowed
A^{3*}	Any Amount Allowed -- Repair at first opportunity recommended.
NC	No Change Recommended

Note: "Any Amount Allowed" presumes engine performance is acceptable and no stalls occur.

c. Periodic Inspection Requirements (BLF). A periodic inspection will be made after engine has run for 750 flight hours since the last periodic inspection. It can be made with the engine installed in the aircraft or on the maintenance trailer. The inspection consists of checking certain components, areas, and systems of the engine. The periodic inspection will be made to find out whether there are conditions which, if not corrected, could result in failure of a component During the inspection, maintenance personnel should observe both the engine and other components in the engine bay area for obvious defects.

d. (T700) Retirement Schedule for Life-Limited Parts. Table 19 lists life-limited parts which have an established operating interval before they are retired from service.

Table 19. (T700) Retirement Interval for Life-Limited Parts.

Part Number	Nomenclature	Retirement Interval	BFL
4045T30G04	Fuel Injector Assembly (Sequence valve equipped engines only.)	1000 (± 100) hours (paragraph 1-59.1, TM) (Replace all twelve assemblies. Return assemblies to Depot for repair.)	1500hrs
6034T62P11	Particle Separator Blower	See paragraph 1-60, TM.	2000 hrs
6034T62P15	Particle Separator Blower	See paragraph 1-60, TM.	2000 hrs
6039T54G02 and 6039T54G03	Stages 1 and 2 Gas Generator Turbine Rotor	See TB 55-2840-248-20-18	NC

e. Engine Operating Parameters. Observe engine operating limits in Table 20 **(T700)** or Table 21 **(T701, T701C)** during all phases of engine testing.

Table 20. (T700) Engine Operating Limits (In Aircraft) (BFL).

Item	Limits	Remarks	BFL
	NOTE • 100% Ng = 44,700rpm • 100% Np = 20,900 rpm • Overspeed trips at 106 ± 1% Np (22,200 rpm) • Overspeed test position trips at 99 ± 1% Np (20,600 ± 200 rpm)		
Ng:			
a. Max continuous	99% (44,152 rpm)		107%
b. Intermediate (30 minutes)	102% (45,652 rpm)		107%
c. Transient (12 seconds)	105% (47,000 rpm)		107%
d. Ground idle	63% (28,161 rpm) minimum		60%
Np:			
a. No time limit	105% (22,000 rpm)	For power turbine over-speed replacement limits, see Figure 10.2.	NC
b. Transient (12 seconds)	121% (25,300 rpm)		
TGT:			
a. Max continuous	775° C (1427° F)		800° C
b. Max steady-state (red line)	850° C (1562° F)		875° C
c. Transient (12 seconds)	886° C (1627° F)		925° C
Time limits at temperature:			
a. No time limit	Up to 775°C (Up to 1427 °F)	For engine overtemperature replacement limits, see Figures 1-36 and 1-37, TM.	800° C
b. 30 minutes	775° - 850°C (1427° - 1562°F)		875° C
c. Transient (12 seconds)	850° - 886°C (1562° - 1627°F)		925° C
d. No operation allowed	Above 886°C (1627°F)		925° C
Output shaft torque:			
a. Max continuous	410 foot-pounds	Do not exceed aircraft transmission torque limits. For engine torque limits, see Figure 10.3.	NC
b. Intermediate (30 seconds)	500 foot-pounds		
c. Transient (12 seconds)	700 foot-pounds		
Free air temperature (FAT).	-54°-55°C (-65°- 131° F)		A[3]

Table 20. (T700) Engine Operating Limits (In Aircraft) (BFL) (Cont).

Item	Limits	Remarks	BFL
Fuel leakage.	2cc/hr maximum (approximately 10 drops per minutes).	Leakage from all drains with engine running.	20 cc/hr * 100 drops/min
HMU vent drain leakage:			
a Running b. Static (excluding leakage during priming of HMU)	50 cc/hr 50 cc/hr (about 4 drops per minute)		500 cc/hr * 40 drops/min
Oil cooler (PNs 6044T95P01 or 6044T95P02) weephole.	No leakage allowed.		500 cc/hr *
POU drain (at shutdown)	75 cc maximum		750 cc*
Swirl frame drain (running)	5 cc/hr		50 cc/hr *
Al drains after a false start	200 cc maximum		2000 cc*
Ignition exciter duty cycle	2 minutes ON 3 minutes OFF. 2 minutes ON 23 minutes OFF.		NC
Starting: a. Time between ground starts b. Time-to-idle c. Time-to-lightoff	30 seconds minimum see figure 1-41, TM. 30 seconds.	• If engine does not light off, abort start. Motor engine on starter (ignition at OFF, power control lever at OFF) for 30 seconds to purge system of fuel.	10 sec A[3] 60 sec*
		• If power turbine does not rotate within 30 seconds after reaching ground idle speed, abort start. Try to turn power turbine by hand, and listen for unusual noises or any other indication of problems.	NC

* Trouble-shoot at first oppportunity and correct.

Table 20. (T700) Engine Operating Limits (In Aircraft) (BFL) (Cont).

Item	Limits	Remarks	BFL
Oil pressure:			
	CAUTION Do not use lubricating oil MIL-L-23699 (TYPE II) when operating engine in FAT below -34° C (-30°F); otherwise, engine may be damaged.		
Engine Power Setting	Normal Pressure Range (psig) / Max Pressure (psig) / Min Pressure (psig)		
GROUND and FLIGHT IDLE 90% Ng to INTERMEDIATE	20-40 35-100	40 50* 20 NC • 100 110* 35 30* Oil pressure limits apply to both MIL-L-7808 (Type I) and MIL-L-23699 (Type II) oils.	NC
		• It is normal for oil pressure to be high during first start when oil is cold. Oil pressure should return to normal after 5 minutes operation at idle speed. During these 5 minutes do not accelerate above ground idle speed until oil pressure can be held to maximum limit throughout acceleration.	NC
		• Normal oil pressure is defined as the pressure reading obtained during stabilized power settings with a clean lubrication system and with normal operating oil temperatures.	NC
Oil pressure fluctuation	± 5 psi maximum		±10psi*
Oil consumption	133 cc/hr (0.3 lb/hr) maximum 200 cc/hr*	• Oil consumption of 0.3 lb/hr is equal to consumption of one quart in 6.5 hours. For an accurate oil consumption check, add up the engine running time for each of the last 3 quarts of oil added. Divide this total by 3. The result shall not be less than 6.5 hours per quart.	0.45 lb/hr 4.3 hrs 4.3 hrs

* BFL Trouble-shoot at first opportunity and correct.

Table 20. (T700) Engine Operating Limits (In Aircraft) (BFL) (Cont).

Item	Limits			Remarks	BFL
				• See paragraph 1-124, TM for an example of calculating oil consumption in cc/hr.	NC
Oil temperature (at pump discharge).					
Engine Power Setting	Normal Temp Range	Max Temp	Min Temp		
All	35°-135°C (95° - 275°F)	15°C (302°F)	None	• Oil temperature limits apply to both MIL-L-7808 (Type I) and MIL-L-23699 (Type II) oils.	NC
				• If oil temperature is out-of-limits, trouble-shoot problem as directed in trouble-shooting procedures (paragraph 1-62, TM).	NC
				• Do not run engine when oil temperatures are above maximum limit.	NC
Anti-icing bleed and start valve closing	The engine anti-ice advisory light in the cockpit will be off at 60% torque (HIT CHECK) and above unless engine anti-ice is turned on.				NC

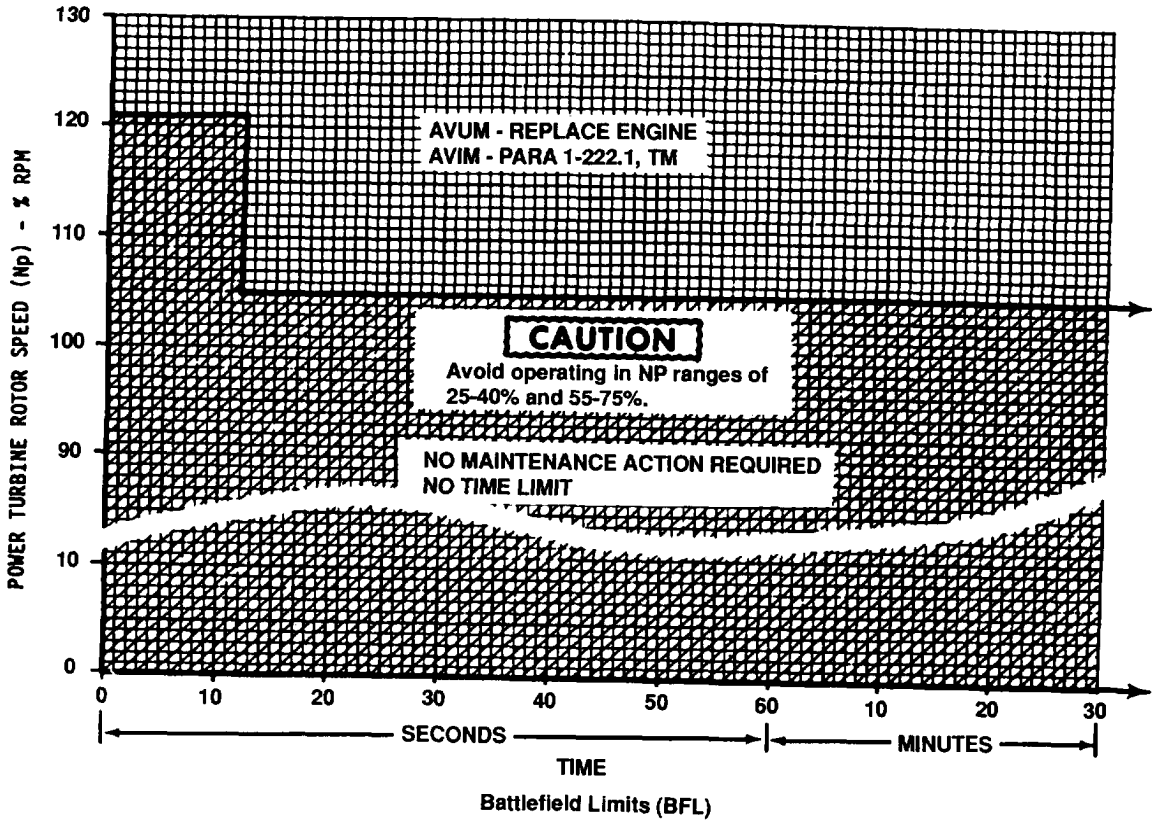


Figure 10.2. Maintenance Requirements Following Np Overspeed (Above 22,0006 rpm).

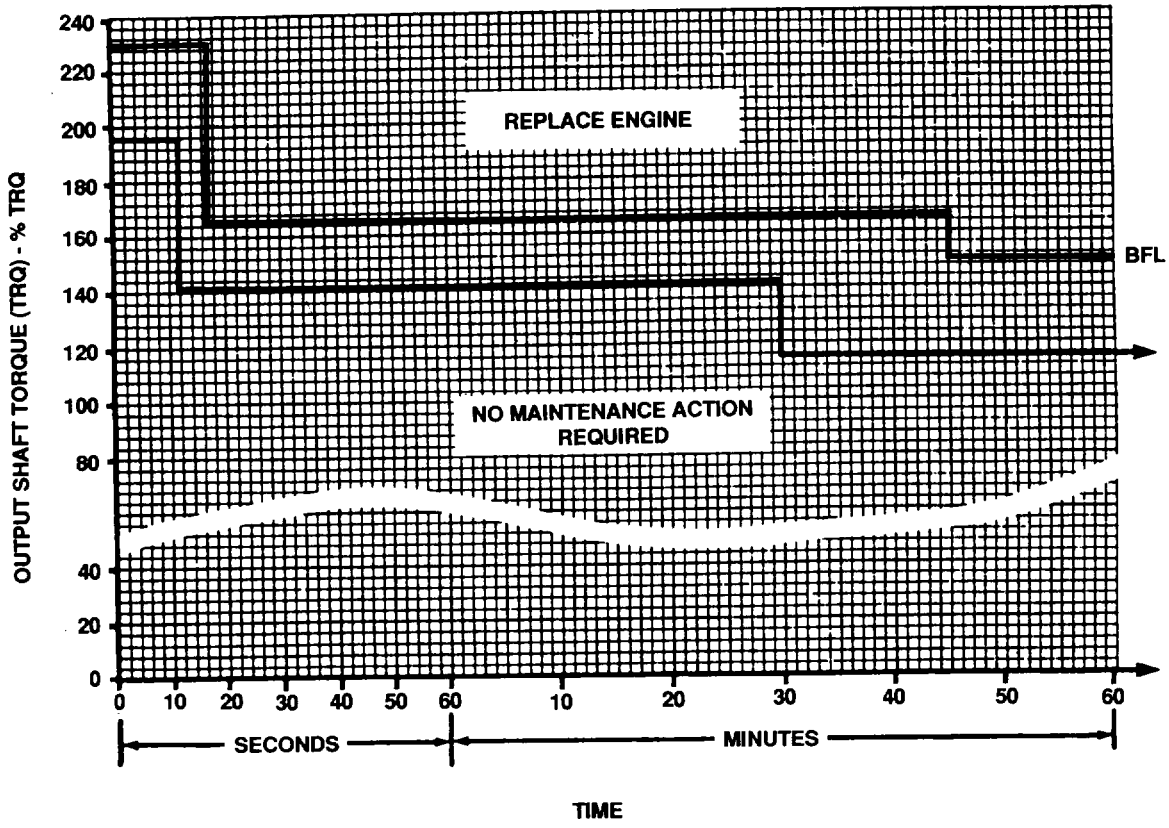


Figure 10.3. Maintenance Requirements Following Engine Overtorque (Above 116%) (BFL).

Table 21. (T701, T701C) Engine Operating Limits (In Aircraft) (BFL).

Item	Limits	Remarks	BFL
	NOTE • 100% Ng = 44,700 rpm • 100% Np = 20,900 rpm • Overspeed trips at 119.6 ± 1 Np (25,000 rpm) • Overspeed test position trips at 95.7 ±1% Np (20,000 ± 200 rpm)		NC
Ng:			
a Max continuous	99% (44,152 rpm)		107%
b. Intermediate (30 minutes)	102% (45,652 rpm)		107%
c. Transient (12 seconds)	105% (47,000 rpm)		107%
d. Ground idle	63% (28,161 rpm) minimum		60%
Np:			
a. No time limit	105.3% (22,000 rpm)	For power turbine over-speed replacement limits, see Figure 11.	NC
b. Transient (12 seconds)	121% (25,300 rpm)		
TGT:			
a. Max continuous	(T701) 805°C (1481°F) or (T701C) 811°C (1492°F)		830°C 836°C
b. Intermediate (30 minutes)	(T701) 867°C (1593°F) or (T701C) 852°C (1564°F)		892°C 877°C
c. Contingency (2.5 minutes)	(T701) 917°C (1683°F) or (T701C) 904°C (1659°F)		942°C 929°C
d. Transient (12 seconds)	(T701) 965°C (1769°F) or (T701C) 950°C (1742°F)		1000°C 990°C
Time limits at temperature:			
a. No time limit	(T701) Up to 805°C (Up to 1481°F) or (T701C) Up to 811°C (1492°F)	For engine overtemperature replacement limits, see Figures (T701) 1-36.1 or (T701C) 1-36.2, and (T701) 1-37.1 or (T701C) 1-37.2, (TM).	830°C 836°C
b. 30 minutes	(T701) 805°- 867°C (1481° - 1593°F) or (T701C) 810°- 852°C (1490° - 1564°F)		892°C 877°C
c. 2.5 minutes	(T701) 867°- 917°C (1593° - 1683°F) or (T701C) 851°- 904°C (1564° - 1659°F)		942°C 929°C

Table 21. (T701, T701C) Engine Operating Limits (In Aircraft) (BFL) (Cont).

Item	Limits		Remarks	BFL
d. Transient (12 seconds)	(T701) 917°- 965°C (1683° - 1769%) or (T701C) 903°- 950°C (1658° - 1742°F)			1000°F 990%
e. No operation allowed	Above (T701) 965°C (1769°F) or (T701C) 950°C (1742°F)			1000°C 990°C
Output shaft torque (foot-pounds):				
	(T700, T701)	(701C)		
a. Max continuous	410	502	Do not excceed aircraft transmission torque limits. For engine torque limits, see Figure 12.	NC
b. Intermediate (30 minutes)	500	543		
c. Transient (12 seconds)	700	700		
Free air temperature (FAT)	-72° to 57°C (-98° to 135° F)			A[3]
Fuel leakage	2 cc/min maximum (approximately 10 drops per minute).		Leakage from all drains with engine running.	20 cc/min * 100 drops/min
HMU vent drain leakage:				
a. Running	50 cc/hr			500 cc/hr *
b. Static (excluding leakage during priming of HMU)	50 cc/hr (about 4 drops per minute)			500 cc/hr * 40 drops/min
Oil cooler (PNs 6044T95P01 or 6044T95P02) weephole	No leakage allowed			500 cc/hr *
ODV drain (running)	5 cc/hr maximum			50 cc/hr *
Swirl frame drain (running)	5 cc/hr maximum			50 cc/hr *
All drains after a false start	200 cc maximum			2000 cc*
Ignition exciter duty cycle	2 minutes ON 3 minutes OFF. 2 minutes ON 3 minutes OFF. 2 minutes ON 48 minutes OFF.			NC

* Trouble-shoot at first opportunity and correct.

Table 21. (T701, T701C) Engine Operating Limits (In Aircraft) (BFL) (Cont).

Item	Limits	Remarks	BFL
Starting:			
a. Time between ground starts	30 seconds minimum.	• If engine does not light off, abort start. Motor engine on starter (ignition at OFF, power control lever at OFF) for 30 seconds to purge system of fuel.	10 sec
b. Time-to-idle	See Figure 1-41, TM.		A[3]
c. Time-to-lightoff	30 seconds.		60 sec *
		• If power turbine does not rotate within 30 seconds after reaching ground idle speed, abort start. Try to turn power turbine by hand, and listen for unusual noises or any other indication of problems.	NC
Oil pressure:			
	CAUTION To avoid engine damage, do not use lubricating oil MIL-L-23699 (Type II) when operating engine in FAT below -34°C (-30°F).		
Engine Power Setting	Min Pressure (psig) / Max Pressure (psig)		
All power settings	22.5 / 100 20* / 110*	• Oil pressure limits apply to both MIL-L-7808 (Type I) and MIL-L-23699 (Type II) oils.	NC
		• It is normal for oil pressure to be high during first start when oil is cold. Oil pressure should return to normal after 5 minutes operation at idle speed. During these 5 minutes, do not accelerate above ground idle speed until oil pressure can be held to maximum limit throughout acceleration.	NC
		• Normal oil pressure is defined as the pressure reading obtained during stabilized power settings with a clean lubrication system.	NC

* BFL Trouble-shoot at first opportunity and correct.

Table 21. (T701, T701C) Engine Operating Limits (In Aircraft) (BFL) (Cont).

Item	Limits	Remarks	BFL
Oil pressure fluctuation	± 5 psi maximum		±10 psi*
Oil consumption	133 cc/hr (0.3 lb/hr) maximum 200 cc/hr*	• Oil consumption of 0.3 lb/hr is equal to consumption of one quart in 6.5 hours. For an accurate oil consumption check, add up the engine running time for each of the last 3 quarts of oil added. Divide this total by 3. The result shall not be less than 6.5 hours per quart.	0.45 lb/hr 4.3 hrs 4.3 hrs
		• See paragraph 1-124 (TM) for an example of calculating oil consumption in cc/hr.	NC
Anti-icing bleed and start valve closing	The engine anti-icing advisory light in the cockpit will be off at 60% torque (HIT CHECK) and above unless engine anti-ice is turned on.		NC

* BFL Trouble-shoot at first opportunity and correct.

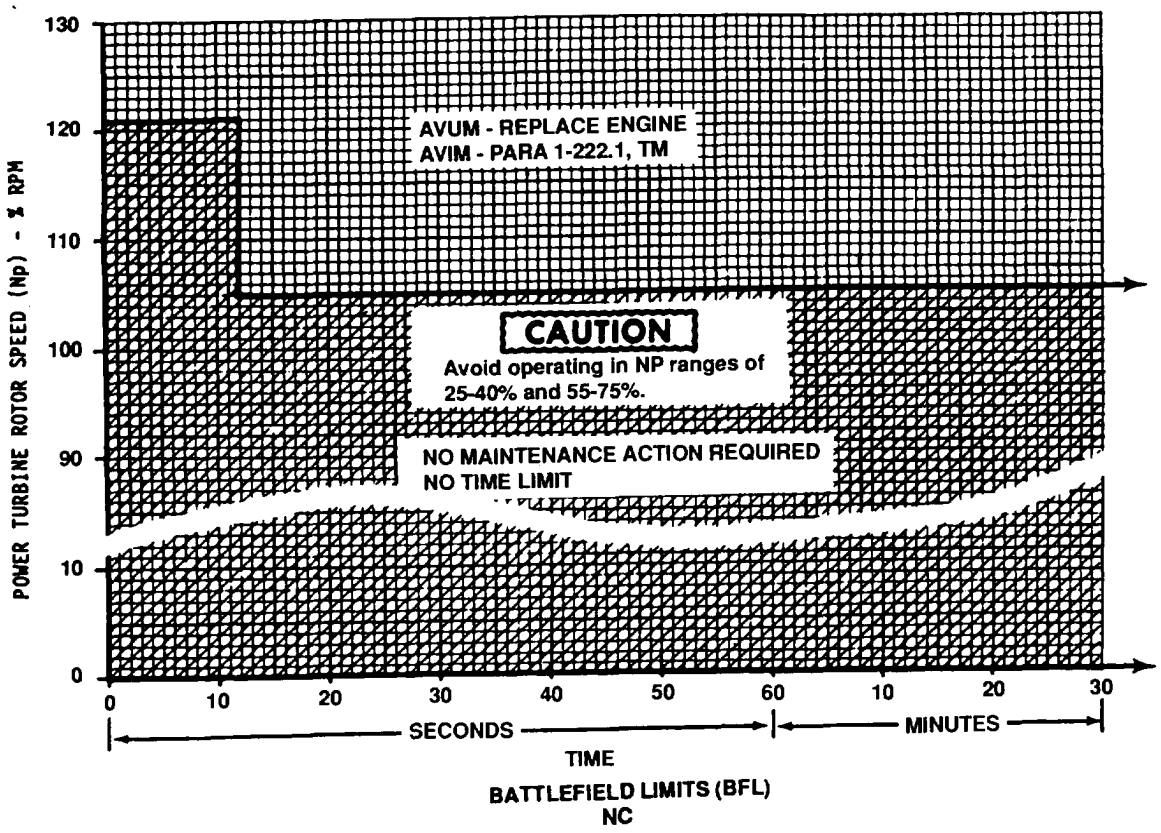


Figure 11. Maintenance Requirements Following Np Overspeed (Above 22,000 rpm).

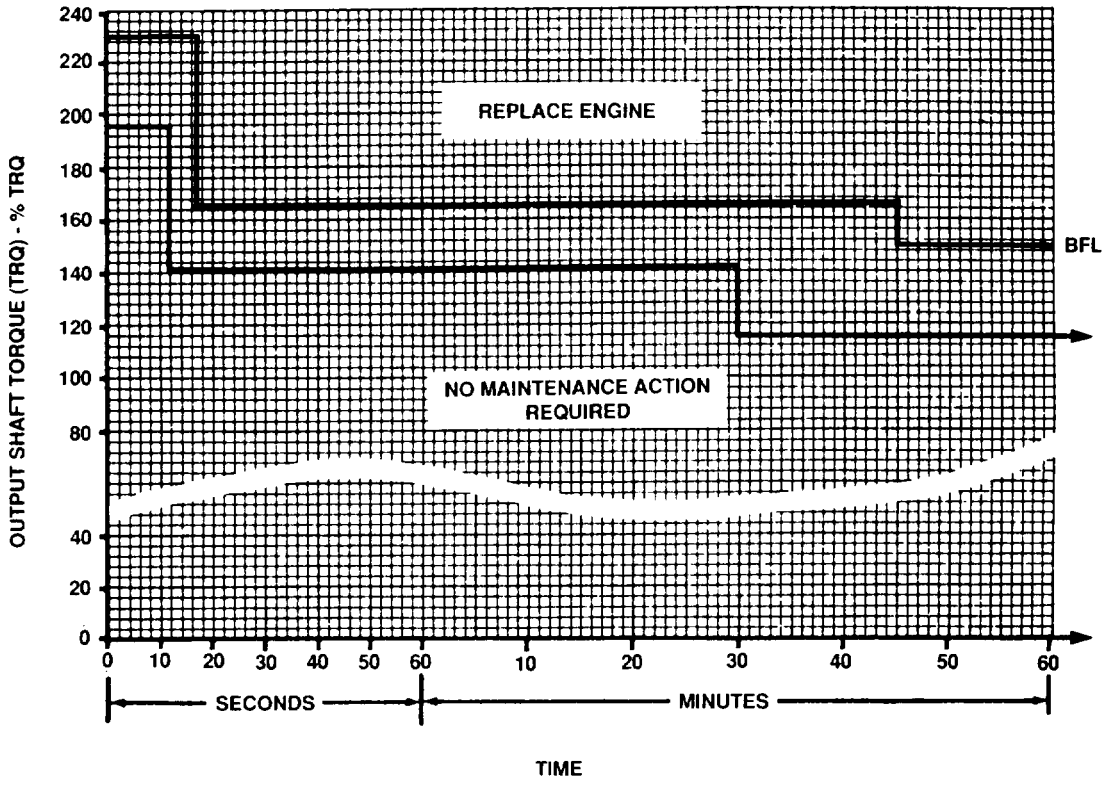


Figure 12. Maintenance Requirements Following Engine Overtorque (Above 116%) (BFL).

Table 22. Inspection of Compressor Rotor, Stage 1 Blades, Inlet Guide Vanes, and Areas Forward of Compressor (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
		NOTE Blended blades and vanes are common in engines returned to service from overhaul.		
a. Blades (fig. 1-50, TM) for:				
(1) Dents and bends.	Smooth minor deformation allowed.	Not repairable. AVIM: Replace cold section module.	AVUM: Replace engine.	A[3]
(2) Cracks.	None allowed.	Not repairable. AVIM: Replace cold section module.	AVUM: Replace engine.	NC
(3) Erosion and associated tears and nicks.	Any amount, unless there is an unacceptable loss in engine performance. Refer to maximum power check [para 1-125 (T700), 1-125.1 (T701, T701C), or 1-125.2 (T701C), TM].	AVUM: Not repairable. AVIM: Any amount as long as engine passes the maximum power check [para 1-125 (T700), 1-125.1 (T701, T701C), or 1.125.2 (T701C), TM] or performance evaluation test (para 1-193 (T700) or 1-196.1 (T701, T701C), TM] after blending.	AVUM: Replace engine. AVIM: Blend and recontour leading edges of stage 1 blades (para 2-4.1, TM) or replace cold section module.	A[3]
(4) Tears and nicks not associated with erosion.	None allowed on inner 25% of airfoil leading edge [(area A (fig. 1-50, TM)]. Any number, 1/16-inch deep over the-middle 25%-50% of airfoil leading edge (area B). Any number, 1/8-inch deep on outer 50% of airfoil leading edge (area C).	AVUM: Not repairable. AVIM: Any amount as long as minimum chord lengths arc maintained after blending. See paragraph 2-4.1, TM.	AVUM: Replace engine. AVIM: Blend and recontour leading edges of stage 1 blades (para 2-4.1, TM) or replace cold section moduls.	A[3]
(5) Curled leading edges resulting from FOD.	Not allowed.	AVUM: Not repairable. AVIM: Damage to four damaged blades and four blades that arc directly 180° opposite them, whether they are damaged or not damaged. A total of eight blades can be repaired.	AVUM: Replace engine. AVIM: Repair leading edge of stage 1 blade (para 2-4.2, TM) or replace cold section module.	A[3*]

Table 22. Inspection of Compressor Rotor, Stage 1 Blades, Inlet Guide Vanes, and Areas Forward of Compressor (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
b. Inlet guide vane airfoils for:				
(1) Cracks and tom metal except in sheet metal cover.	None allowed.	Not repairable.	AVUM: Replace engine. AVIM: Replace cold section module.	NC
(2) Cracks in sheet metal cover	Any number, any length, with no pieces in danger of breaking out.	Not repairable.	AVUM: Replace engine. AVIM: Replace cold section module	A[3]
(3) Tom or missing metal in sheet metal cover.	Not allowed.	Not repairable.	AVUM: Replace engine. AVIM: Replace cold section module.	NC
(4) Nicks.	None allowed.	Not repairable	AVUM: Replace engine. AVIM: Replace cold section module.	A[3]
(5) Dents and bends.	Smooth minor deformation is allowed.	Not repairable.	AVUM: Replace engine. AVIM: Replace cold section module.	A[3]
(6) Erosion.	Any amount, unless there is an unacceptable loss in engine performance.	Not repairable.	AVUM: Replace engine. AVIM: Replace cold section module.	NC
c. Mainframe flowpath and IGV support for rubs or scrapes caused by movement of IGV.	Any amount without high metal, provided engine performance is acceptable.	Same as usable limits with high metal.	AVUM: Replace engine. AVIM: Remove case half (para 2-4.1, TM) and blend high metal or replace cold section module.	NC
d. Compressor rotor flowpath coating for:				
(1) Rub marks and grooves.	Any amount, provided engine performance is acceptable, and grooves or wear do not penetrate into parent metal.	Not repairable.	AVUM: Replace engine. AVIM: Replace cold section module.	NC
(2) Delamination, flaking, or loose material	Any amount, provided engine performance is acceptable.	Nor repairable.	AVUM: Replace engine. AVIM: Replace cold section module.	NC

Table 22. Inspection of Compressor Rotor, Stage 1 Blades, Inlet Guide Vanes, and Areas Forward of Compressor (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
NOTE When removing coating material from blades or vanes, be careful not to round out or damage the edges of blade or vane tips.				
e. Blades and vanes for coating material.	Any amount, provided engine performance is acceptable.	Same as usable limits, provided engine performance can be restored to acceptable limits.	AVUM: Replace engine. AVIM: Remove case half (para 2-4.1, TM) and blend high metal or replace cold section module.	NC

g. Inspection of Main Frame Borescope Plug. See table 23.

Table 23. Inspection of Main Frame Borescope Plug (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
Plug (fig. 1-54, TM) for:				
a. Cracks.	None allowed.	Not repairable.	Replace plug.	A[3]
b. Missing or damaged threads.	Not allowed.	Not repairable.	Replace plug.	A[3]
c. Wrench damage in each comer of square drive sockets.	Any amount, without high metal, if plug can be installed properly.	Not repairable.	Replace plug.	NC
d. Discoloration.	Any amount.	Not applicable.	Not applicable.	NC
e. Nicks and scratches, except on threads.	Any number.	Not applicable.	Not applicable.	NC

h. Inspection of Compressor Rotor, Stage 5 Blades, Stage 5 Vanes, and Impeller Vanes. See table 24.

Table 24. Inspection of Compressor Rotor, Stage 5 Blades, Stage 5 Vanes, and Impeller Vanes (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	(BFL)
Blades and vanes (fig. 1-55, TM) for:				
a. Sharp nicks, tears, and cracks.	None allowed.	Not repairable.	AVUM: Replace engine, AVIM: Replace cold section module.	NC
b. Erosion.	Allowed, unless there is an unacceptable loss in engine performance.	AVUM: Not repairable. AVIM: Any amount as long as minimum chord lengths are maintained after blending. See paragraph 2-4.1 (TM).	AVUM: Replace engine. AVIM: Blend and recontour leading edges of stage 5 blades (para 2-4.1, TM) or replace cold section module.	A[3]
c. Dents and bends.	Smooth or minor deformations allowed.	Not repairable.	AVUM: Replace engine. AVIM: Replace cold section module.	A[3]
d. Compressor rotor flowpath coating for:				
(1) Rub marks and grooves.	Any amount, provided engine performance is acceptable, and grooves or wear do not penetrate into parent metal.	Not repairable.	AVUM: Replace engine. AVIM: Replace cold section module.	NC
(2) Delamination, flaking, or loose material.	Any amount, provided engine performance is acceptable.	Not repairable.	AVUM: Replace engine. AVIM: Replace cold section module.	NC
NOTE When removing coating material from blades or vanes, be careful not to round out or damage the edges of blade or vane tips.				
e. Coating material.	Any amount, provided engine performance is acceptable.	Same as usable limits, provided engine performance can be restored to acceptable limits.	AVUM: Replace engine. AVIM: Remove case half (para 2-4.1, TM) or replace cold section module.	NC

i. Inspection of Compressor Case Borescope Port Caps and Plugs. See table 25.

Table 25. Inspection of Compressor Case Borescope Port Caps and Plugs (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
a. Caps (fig. 1-56, TM) for:				
(1) Cracks.	None allowed.	Not repairable.	Replace cap.	A[3]
(2) Missing or damaged threads.	Up to one damaged or missing thread without crossed threads or loose material.	Same as usable limits, with crossed threads or loose material.	AVUM: Replace cap. AVIM: Remove loose materials and chase threads.	A[3]
(3) Wrench damage on each corner of hex flats.	Any amount, without high metal, if cap can be installed properly.	Any amount that can be reworked to usable limits.	Remove high metal on hex flats.	NC
(4) Discoloration.	Any amount.	Not applicable.	Not applicable.	NC
(5) Nicks and scratches, except on threads.	Any number, 1/64-inch deep, without high metal.	Same as usable limits, with high metal.	Blend high metal to adjacent contour.	A[3]
b. Plugs (fig. 1-56, TM) for:				
(1) Cracks.	None allowed.	Not repairable.	Replace plug.	A[3]
(2) Missing or damaged threads.	Up to one damaged or missing thread without crossed threads or loose material.	Same as usable limits, with crossed threads or loose material.	AVUM: Replace plug. AVIM: Remove loose material and chase threads.	A[3]
(3) Wrench damage in each comer of square drive socket.	Any amount, without high metal, if plug can be installed properly.	Not repairable.	Replace plug.	NC
(4) Discoloration.	Any amount.	Not applicable,.	Not applicable.	NC
(5) Nicks and scratches, except on threads.	Any number, 1/64-inch deep, without high metal.	Same as usable limits, with high metal.	Blend high metal to adjacent contour.	A[3]

j. Inspection of Stage 1 Turbine Nozzle Vanes and Combustion Liner. Refer to table 26.

Table 26. Inspection of Stage 1 Turbine Nozzle Vanes and Combustion Liner (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
a. Stage 1 turbine nozzle vanes (fig. 1-57 and 1-58, TM) for:				
(1) Cracks in leading edges.	Any amount if no danger of piece falling out.	Not repairable.	AVUM: Replace engine. AVIM: Replace nozzle assembly.	NC
(2) Burn-through.	Not allowed.	Not repairable.	AVUM: Replace engine. AVIM: Replace nozzle assembly.	A[3*]
(3) Discoloration or surface roughness.	Any amount if no evidence of separation or blistering.	Not applicable.	Not applicable.	A[3*]
(4) Blistering or separation.	Approximately 1/2 inch x 1/4 inch, two places per vane.	Not repairable.	AVUM: Replace engine. AVIM: Replace nozzle assembly.	A[3*]
(5) Sand buildup on surface of vane.	Any amount.	Any amount.	Continue operation if performance is low. Clean with high pressure water wash.	NC
(6) Plugged cooling holes.	Not allowed.	Not repairable.	AVUM: Replace engine. AVIM: Replace nozzle assembly.	A[3*]
b. Combustion liner for:				
(1) Excessive carbon buildup that blocks air holes and completely resists airflow passages, or that is built up enough to hold flame, or that accumulates on tips of fuel injectors.	Not allowed.	Not repairable.	AVUM: Replace engine. AVIM: Replace liner.	A[3]

Table 26. Inspection of Stage 1 Turbine Nozzle Vanes and Combustion Liner (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
(2) Cracks.	Any number if they do not form a network that would allow a piece of liner to fall out if crack got longer.	Not repairable.	AVUM: Replace engine. AVIM: Replace liner.	NC
(3) Burn-through or missing pieces.	Not allowed.	Not repairable.	AVUM: Replace engine. AVIM: Replace liner.	A[3]

k. (T700) Inspection of Midframe Borescope Part Plug. See table 27.

Table 27. (T700) Inspection of Midframe Borescope Port Plug (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
Plug (fig. 1-59, TM-) for:				
a. Cracks.	None allowed.	Not repairable.	Replace plug.	A[3]
b. Missing or damaged threads.	None allowed.	Not repairable.	Replace plug.	A[3]
c. Wrench damage on each corner of hex flats.	Any amount, without high metal, if plug can be installed properly.	Any amount that can be reworked to usable limits.	Remove high metal on hex flats.	NC
d. Distortion.	Any amount if plug can be torqued properly.	Not repairable.	Replace plug.	NC
e. Discoloration.	Any amount.	Not applicable.	Not applicable.	NC
f. Nicks and scratches, except on threads.	Any number.	Not applicable.	Not applicable.	NC

1. Inspection of Compressor Rotor and Compressor Rotor Blades. See table 28.

Table 28. Inspection of Compressor Rotor and Compressor Rotor Blades (BFL).

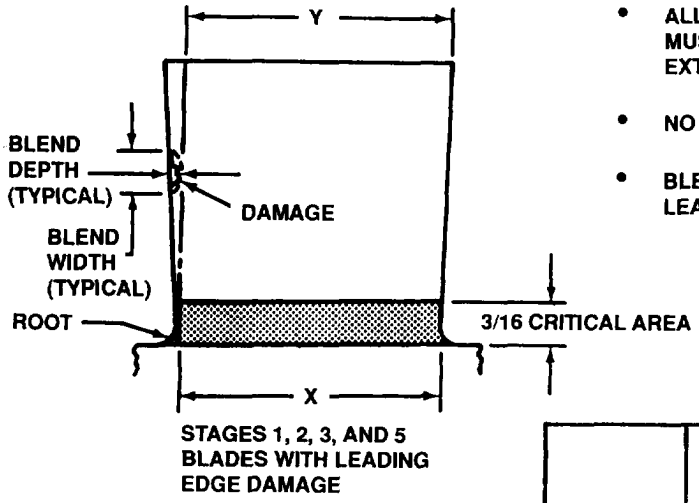
Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
		NOTE		
		Blended blades and vanes are common in engines returned to service from overhaul.		
a. Stage 1 blades for:				
(1) Dents and bends.	Smooth minor deformation allowed.	Any number that can be blended to within limits of figure 13.	Blend blades (para 2-4.1, steps c and d, TM) or replace cold section module.	A[3]
(2) Cracks.	None allowed.	Not repairable.	Replace cold section module.	NC
(3) Erosion and associated tears and nicks.	Any amount, unless there is an unacceptable loss in engine performance.	Any amount if engine passes the maximum power check (para 1-125 (T700), 1-125.1 (T701, T701C), or 1-125.2 (T701C), TM) or the performance evaluation test (pars 1-193 (T700), 1-196.1 (T701, T701C), TM) or after blending.	Blend blades (para 2-4.1 steps c and d, TM) or replace cold section module.	NC
(4) Tears and nicks not associated with erosion.	None allowed on inner 25% of airfoil leading edge (area A, (fig. 1-50, TM)). Any number, 1/32-inch deep, over the middle 25% of airfoil leading edge (area B). Any number, 1/84-inch deep, on outer 50% of airfoil leading edge (area C).	Any amount that can be blended to within limits of figure 13.	Blend blades (para 2-4.1, steps c and d, TM) or replace cold section module.	NC
(5) Damaged tip comers.	Not allowed.	(a) Any amount that can be blended to within limits of figure 13.	(a) Blend tip comers (para 2-4.1, steps c and d, TM) or replace cold section module.	A[3]
		(b) Any amount that can be chamfered within limits of figure 14.	(b) Chamfer tip comers (para 2-4.3, TM) or replace cold section module.	NC

Table 28. Inspection of Compressor Rotor and Compressor Rotor Blades (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
(6) Curled leading edges resulting from FOD.	Not allowed.	(a) Four damaged blades and the four blades that are directly 180° opposite, whether or not they are damaged. A total of eight blades may be repaired.	(a) Repair leading edge of stage 1 blade (para 2-4.2, TM) or replace cold section module.	A[3]
		(b) Any amount that can be chamfered within limits of figure 14.	(b) Repair leading edge of stage 1 blade (para 2-4.3, TM) or replace cold section module.	NC
b. Stages 2 thru 5 blades for:				
(1) Cracks.	None allowed.	Not repairable.	Replace cold section module.	NC
(2) Critical areas of blades for nicks, dents, pits, and scratches.	Any number 0.005 inch maximum depth.	Not repairable.	Replace cold section module.	A[3]
(3) Noncritical areas of blades for:				
(a) Nicks, pits, and scratches in leading and trailing edges.	Any number, up to 0.010 inch deep, without high metal.	Any number that can be blended to within limits of figure 13.	Blend blades (para 2-4.1, steps c and d, TM) or replace cold section module.	A[3]
(b) Nicks, pits, and scratches in other noncritical areas.	Any number, up to 0.010 inch deep.	Not repairable.	Replace cold section module.	A[3]
(c) Dents and bends in leading and trailing edge.	Any number, up to 0.015 inch deep.	Any number that can be blended to within limits of figure 13.	Blend blades (pars 2-4.1, steps c and d, TM) or replace cold section module.	A[3]

Table 28. Inspection of Compressor Rotor and Compressor Rotor Blades (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
(d) Dents and bends in other noncritical areas.	Any number, up to 0.015 inch deep.	Not repairable.	Replace cold section module.	A[3]
(e) Damaged tip comers.	Not allowed.	(a) Any amount that can be blended to within limits of figure 13.	(a) Blend tip comers (para 2-4.1, steps c and d, TM) or replace cold section module.	A[3]
		(b) Any amount that can be chamfered within limits of figure 14.	(b) Chamfer tip comers (para 2-4.3, TM) or replace cold section module.	NC
(f) Erosion and associated tears and nicks.	Any amount, unless there is an unacceptable loss in engine performance.	Any amount if engine passes the maximum power check (para 1-125 (T700), para 1-125.1 (T701) or para 1-125.2 (T701C), (TM)) or the performance evaluation test (para 1-193 (T700) or 1-196.1 (T701, T701C), (TM)) after blending.	Blend blades (para 2-4.1, steps c and d, TM) or replace cold section module.	NC
c. Compressor rotor flowpath coating for:				
(1) Rub marks and grooves.	Any amount, provided performance is acceptable, and grooves or wear do not penetrate into parent metal.	Not repairable.	AVUM: Replace engine. AVIM: Replace cold section module.	NC
(2) Delamination, flaking, or loose material.	Any amount, provided engine performance is acceptable.	Not repairable.	AVUM: Replace engine. AVIM: Replace cold section module.	NC
		NOTE When removing coating material from blade tips, be careful not to round out or damage the edges of blade tips.		
d. Blades for coating material.	Any amount, provided engine performance is acceptable.	Same as usable limit, provided engine performance can be restored to acceptable limits.	AVUM: Replace engine. AVIM: Replace pickup material or replace cold section module.	NC



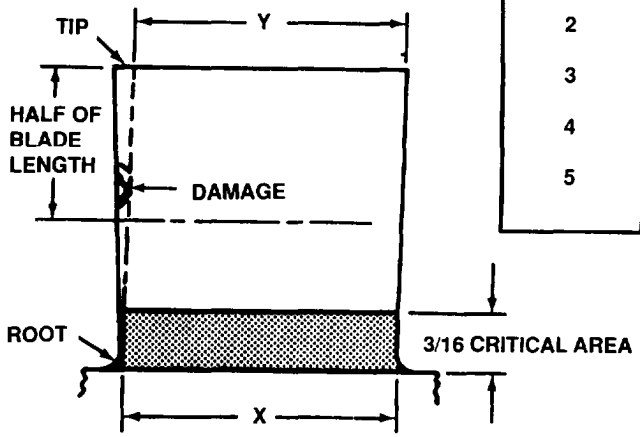
STAGES 1, 2, 3, AND 5 BLADES WITH LEADING EDGE DAMAGE

NOTE

- ALL BLENDING IN TOP HALF OF STAGE 4 BLADES MUST BE CONSISTENT FROM DAMAGED AREA TO EXTREME TIP.
- NO BLENDING ALLOWED IN CRITICAL AREAS.
- BLENDED WIDTH IN ROOT HALF SHALL BE AT LEAST THREE TIMES BLENDED DEPTH.

BATTLEFIELD LIMITS

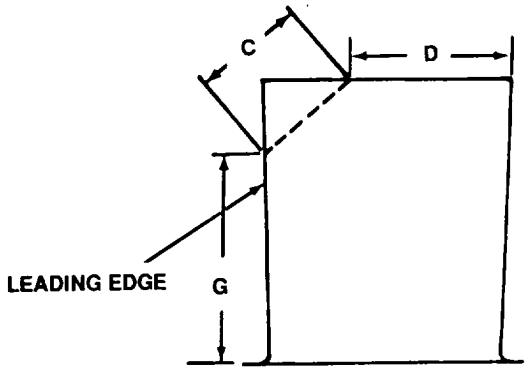
STAGE	X MINIMUM ROOT CHORD		Y MINIMUM TIP CHORD	
	EROSION	FOD	EROSION	FOD
1	1.090	0.080	1.210	1.140
2	0.870	0.860	0.910	0.850
3	0.650	0.630	0.670	0.620
4	0.600	0.590	0.620	0.580
5	0.490	0.480	0.510	0.480

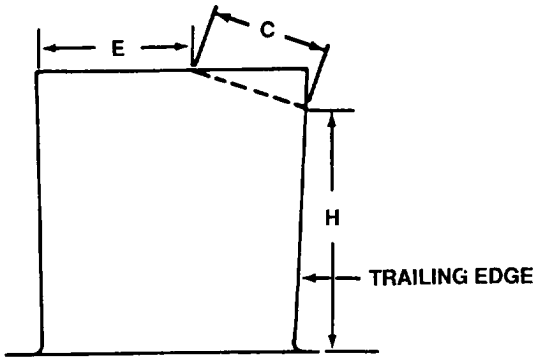


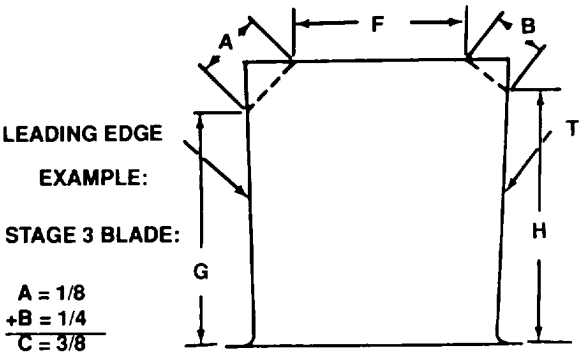
STAGE 4 BLADES WITH LEADING EDGE DAMAGE

ALL DIMENSIONS ARE IN INCHES

Figure 13. Compressor Rotor Blades; Usable Limits After Blending.







EXAMPLE:

STAGE 3 BLADE:

A = 1/8
+B = 1/4
C = 3/8

NOTE

WHEN BOTH LEADING AND TRAILING EDGE TIP CORNERS ARE CHAMFERED, THE SUM OF A AND B MUST NOT EXCEED MAXIMUM CHAMFER LENGTH (C).

NOTE

- ANY ANGLE OF CHAMFER IS ALLOWED AT TIP CORNER OF LEADING OR TRAILING EDGE IF LENGTH DOES NOT EXCEED MAXIMUM CHAMFER LENGTH (C).
- AN EQUAL AMOUNT OF MATERIAL MUST BE REMOVED FROM THE BLADE DIAGONALLY OPPOSITE THE DAMAGED BLADE TO MAINTAIN ROTOR BALANCE.
- DURING COMPRESSOR BLADE INSPECTION, IF A BLADE WITH AN EXISTING CHAMFER IS OBSERVED, NO ADDITIONAL CHAMFER IS REQUIRED ON 180° OPPOSITE BLADE.

BLADES	
STAGE	MAX CHAMFER LENGTH (C)
1	3/4
2	5/8
3	3/8
4	11/32
5	9/32

BATTLEFIELD LIMITS (BFL)

INCREASE DIMENSION C 20%.

ALL DIMENSIONS ARE IN INCHES

Figure 14. Compressor Rotor Blades; Usable Limits After Chamfering.

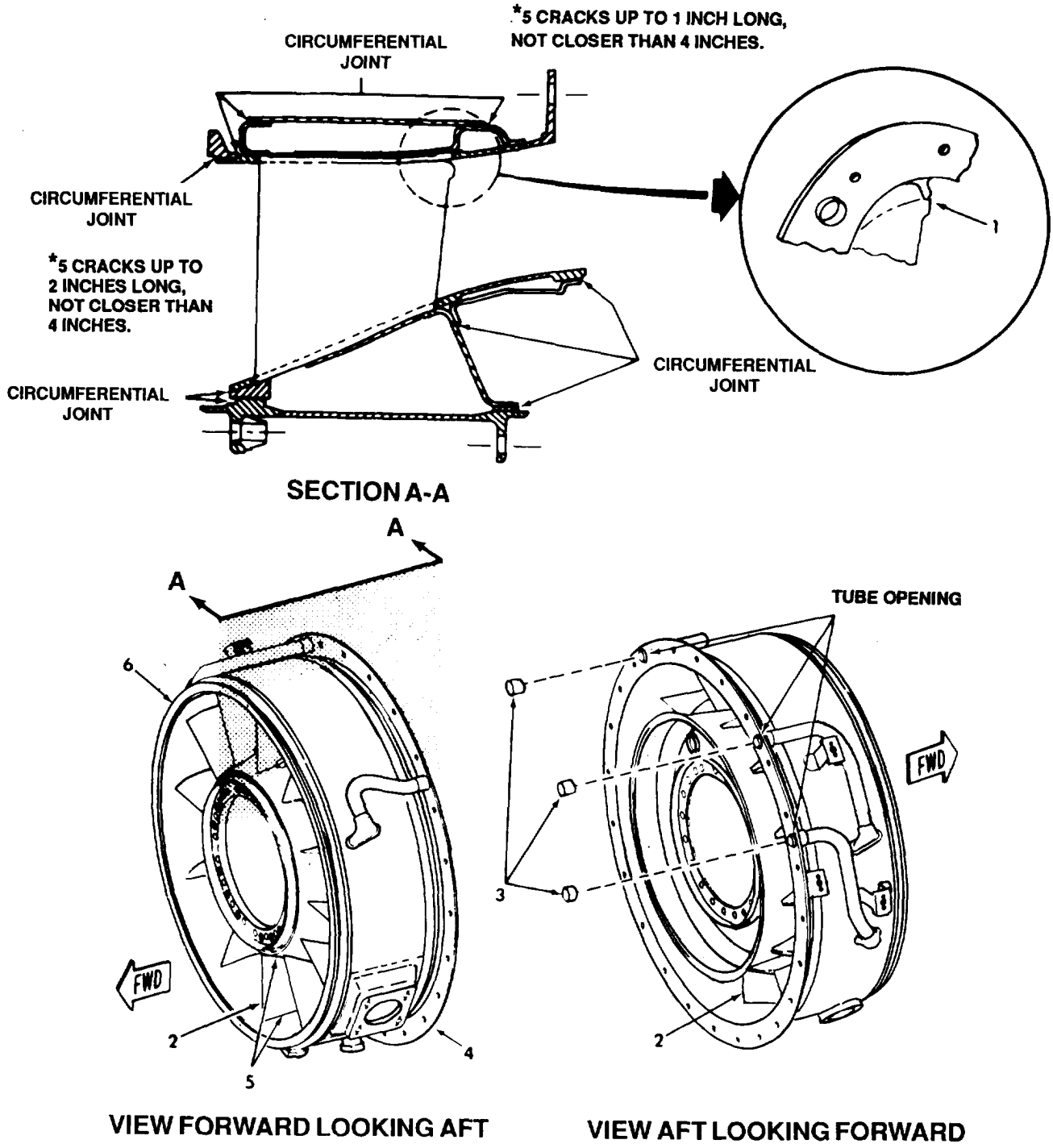
m. Inspection of Swirl Frame. See table 31. At AVIM, inspection of the swirl frame and the front frame (Table 29) is done at the same time.

Table 29. Inspection of Swirl Frame (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
Swirl frame (fig. 15) for:				
a. Cracks.	None allowed.	Not repairable.	AVUM: Replace engine. AVIM: Replace swirl frame (para 2-10, TM).	See Fig. 15.
	NOTE Swirl frames that have been repaired may have a combination of gray, gold, green, and brown touchup paint. Regardless of the colors, do not reject the swirl frame.			
b. Flaking or missing coating.	Any amount without any loose pieces.	Any amount.	Remove loose pieces, using cloth (item 41 or 42, appendix D, TM). Touchup frame (para 2-9.2, TM).	A[3]
c. Nicks, dents, and scratches in:				
(1) Flanges (4, 6).	Arty number, up to 1/32 inch deep, without high metal.	Same as usable limits, with high metal.	Remove high metal.	A[3]
(2) Walls and vanes (2).	Any number, up to 1/32 inch from original contour.	Not repairable.	AVUM: Replace engine. AVIM: Replace swirl frame (para 2-10, TM).	A[3]
d. AVIM: Loose or damaged inserts.	See Inspection of Studs and Threaded Inserts (para H-27, Appendix H, TM).			
e. AVIM: Missing inserts.	None allowed.	Not repairable.	Replace insert (para H-29, Appendix H, TM).	Two of four inserts may be non-functional.

Table 29. Inspection of Swirl Frame (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
f. AVIM: Self-locking feature of inserts.	Mating bolt should not be able to be threaded completely through insert, using fingers.	Not repairable.	Replace insert (para H-29, Appendix H, TM).	Two of four inserts may be non-functional.
g. Cracks or voids in brazed joints of:				
(1) Circumferential joints.	Five per joint up to 0.250 inch long if they are not closer than 1.000 inch.	Not repairable.	AVUM: Replace engine. AVIM: Replace swirl frame (para 2-10, TM).	NC
(2) Vane joint (5).	One per joint up to 0.250 inch long.	Not repairable.	AVUM: Replace engine. AVIM: Replace swirl frame (para 2-10, TM).	NC
(3) (T700) Air shute (1) (on swirl frame PN 6038T05).	One per cover up to 0.250 inch long.	Not repairable.	AVUM: Replace engine. AVIM: Replace swirl frame (para 2-10, TM).	A[3] Remove loose metal.
h. (T700) Cracks in parent metal of air shute (1) (on swirl frame PN 6038T05).	Any amount if pieces will not fall out.	Not repairable.	AVUM: Replace engine. AVIM: Replace swirl frame (para 2-10, TM).	NC
i. AVIM: Damaged sleeves (3).	None allowed.	Any amount.	Replace sleeve (para 2-9.1, TM).	A[3] Bevel high metal.
j. Outer casing surface for:				
(1) Surface ripples or irregularities on casing outer surface.	Any number within 0.125 inch of normal contour provided there are no sharp creases or high metal.	Not repairable.	AVUM: Replace engine. AVIM: Replace swirl frame (para 2-10, TM).	NC
(2) Discoloration (whitish blotchy condition which will leave a greenish trace on a cloth when wiped).	Any amount.	Not applicable.	Not applicable.	NC



1. (T700) Air shute (on swirl frame PN 6038T05)
2. Vane
3. Sleeve (3)
4. Aft flange
5. Vane joint
6. Forward flange

*BATTLEFIELD LIMITS (BFL)

Figure 15. Swirl Frame; Inspection (BFL)

n. Inspection of A-Sump Output Shaft Assembly (AVIM). See table 30.

Table 30. Inspection of A-Sump Output Shaft Assembly (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
a. A-sump output shaft assembly (1, fig. 2-5, TM) for:				
(1) Cracks.	None allowed.	Not repairable.	Replace output shaft assembly (para 2-14, TM).	NC
(2) Missing silver plate on splines.	Any amount.	Not applicable.	Not applicable.	NC
(3) Nicks, dents, and scratches (except on spline teeth).	Up to 1/64 inch deep (except 0.005 inch deep maximum on beams), if no more than 1/5 of area is affected. No high metal allowed.	Same as usable limits, with high metal.	Remove high metal and blend to smooth contour.	A[3]
(4) Loss of black oxide.	Any amount.	Not applicable.	Not applicable.	NC
b. Studs (5) for:				
(1) Damaged threads.	Up to one damaged or missing thread, with no crossed threads or loose material.	Not repairable.	Replace output shaft assembly (para 2-14, TM).	A[3]
(2) Looseness.	Radial looseness is allowed if there is no axial looseness. Make sure that retainer (Kee) is not loose or missing.	Not repairable.	Replace output shaft assembly (para 2-14, TM).	NC
c. Loose or missing expansion plugs and tapered pins (4).	Not allowed	Not repairable.	Replace output shaft assembly (pars 2-14, TM).	NC

Table 30. Inspection of A-Sump Output Shaft Assembly (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action BFL
d. A-sump transfer tubes (2) for:			
(1) Nicks, scratches, gouges, chafing, and fretting (except packing groove (3)).	Any amount, up to 0.010 inch deep, without high metal.	Same as usable limits with high metal.	Remove high metal and A[3] blend to smooth contour.
(2) Nicks and scratches on floor of packing groove (3).	Any amount, up to 0.003 inch deep, without high metal or sharp edges. Defect must not extend across floor of packing groove (3).	Same as usable limits with high metal or sharp edges.	Carefully store and blend NC to smooth contour.
(3) Nicks and scratches on walls of packing groove (3).	Any amount, up to 0.010 inch deep, without high metal or sharp edges.	Same as usable limits with high metal or sharp edges.	Carefully stone and blend NC to smooth contour.

o. Inspection of No. 1 Carbon Seal (AVIM). See table 31.

Table 31. Inspection of No. 1 Carbon Seal (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action BFL
CAUTION The carbon segments of the seal are extremely brittle and are easily damaged.			
a. Carbon seal for:			
(1) Chipped sealing dam (4, fig. 2-7, TM).	Not allowed.	Not repairable.	Replace seal (para 2-18, NC TM).
(2) Cracks in carbon segments (3).	None allowed.	Not repairable.	Replace seal (para 2-18, NC TM).
(3) Foreign material imbedded in carbon segments (3).	Not allowed.	Not repairable.	Replace seal (pars 2-18, NC TM).

Table 31. Inspection of No. 1 Carbon Seal (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
(4) Chips, other than on sling dam (4) or axial gaps (7).	Any amount, not over 1/16 inch.	Not repairable.	Replace seal (para 2-18, TM).	NC
(5) Ragged corners.	Any amount.	Not applicable.	Not applicable.	NC
(6) Surface pitting (sandblasted appearance).	Any amount.	Not applicable.	Not applicable.	NC
(7) Scratches in carbon segments (3).	Any number, not over 1/8 inch long.	Not repairable.	Replace seal (para 2-18, TM).	NC
(8) Buildup of coked oil or hard material in:				
(a) Axial grooves (2).	Groove will be at least 0.010 inch deep.	Not repairable.	Replace seal (para 2-18, TM).	NC
(b) Axial gaps (7).	Not allowed.	Not repairable.	Replace seal (para 2-18, TM).	NC
(9) Excessive wear of carbon segments (3).	Dimension from bottom of axial groove (2) to working surface will be at least 0.010 inch.	Not repairable.	Replace seal (para 2-18, TM).	NC
(10) Damage to windback seal threads (4A).	Up to 3 separate dents (0.010 inch deep); chips or missing pieces not allowed.	Not repairable.	Replace seal (para 2-18, TM).	A[3]
b. Housing (1), retainer (5), and snapring (6) for:				
(1) Nicks, dents, burrs, and scratches.	Any number, 1/64 inch deep on any surface, without high metal.	Same as usable limits, with high metal.	Remove high metal.	A[3]
(2) Discoloration, carbon, and varnish deposits.	Any amount.	Not applicable.	Not applicable.	A[3]
(3) Cracks.	None allowed.	Not repairable.	Replace seal if a sump drain leakage exceeds 50 cc/hr (para 2-18, TM).	A[3]

p. Inspection of Power Takeoff Drive Assembly (AVIM). See table 32

Table 32. Inspection of Power Takeoff Drive Assembly (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
a. Power takeoff drive assembly (fig. 2-9, TM) for cracks.	None allowed.	Not repairable.	Replace drive assembly (para 2-22, TM).	NC
b. Body for nicks, dents, and scratches.	Any number, 1/64 inch deep, without sharp edges or high metal.	Same as usable limits, with sharp edges and high metal.	Blend smooth.	A[3]
c. Gear and spline teeth for:				
(1) Missing silver (on gear teeth).	Any amount.	Not applicable.	Not applicable.	NC
(2) Nicks, burrs, and scratches on:				
(a) Face of teeth.	None allowed.	Not repairable.	Replace drive assembly (para 2-22, TM).	A[3*]
(b) Other areas.	Any number, 1/64 inch deep, without high metal.	Same as usable limits with high metal.	Blend high metal by hand, using a fine stone (item 65, Appendix D, TM).	A[3]
(3) Wear.	Smooth finish without evidence of scoring.	Same as usable limits, with evidence of scoring.	Blend high metal by hand, using a fine stone (item 65, Appendix D, TM).	A[3*]
(4) Spalling or flaking.	Not allowed	Not repairable.	Replace drive assembly (para 2-22, TM).	NC
d. Gear for loss of black oxide.	Any amount.	Not applicable.	Not applicable.	NC
CAUTION Mounting nuts must not be loosened.				
e. Three mounting nuts for tightness.	60 inch-pounds minimum.	Any amount of looseness.	Torque nuts to 60-65 inch-pounds in tightening direction only. Do not loosen nuts.	NC

q. Inspection of Oil Inlet and Scavenge Tubes (AVIM). See table 33.

Table 33. Inspection of Oil Inlet and Scavenge Tubes (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
Oil inlet and scavenge tubes (4,6, fig. 2-10, TM) for:				
NOTE Normal inspection of the inlet and scavenge tubes is made with the tubes installed.				
a. Burrs on corners of packing adjacent contour, groove.	None allowed.	Any amount.	Blend to adjacent contour.	A[3]
b. Nicks and scratches.	Any number, 0.002 inch deep, with no high metal.	Same as usable limits, with high metal.	Blend high metal to adjacent contour.	A[3]

r. Inspection of Front Frame (AVIM). See table 34. Inspection of the swirl frame (table 28) and the front frame is done at the same time.

Table 34. Inspection of Front Frame (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
All visible areas of front frame (fig. 2-11, TM) for:				
a Cracks.	None allowed.	Not repairable.	Replace cold section module.	NC
CAUTION If all oil ports are not covered before blending front frame, chips and debris will enter and contaminate oil system passages.				
b. Corrosion pits. (Appendix H, TM).	Not allowed.	Up to 1/64 inch deep, over 10% of area, with no more than 2% in any one location.	Blend pits. Touch up blended area with Alodine (item 3, Appendix D, TM) (para H-30, Appendix H, TM).	A[3]

Table 34. Inspection of Front Frame (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
c. Nicks, dents, and scratches.	Any number, 1/32 inch deep, without high metal.	Same as usable limit with high metal.	Blend high metal. Touch up blended area with Alodine (item 3, Appendix D, TM) (para H-30, Appendix H, TM).	A[3]
d. Damaged studs and inserts.	See Inspection of Studs and Threaded Inserts (para H-27, Appendix H, TM).			50% of studs, inserts must be functional.

s. Inspection of Main frame. See table 35.

Table 35. Inspection of Main Frame (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
a. Casing (3, fig. 2-12, TM) for:				
(1) Cracks.	None allowed.	Not repairable.	AVUM: Replace engine. AVIM: Replace cold section module.	NC
CAUTION If all oil ports are not covered before blending main frame parts, chips and debris will enter and contaminate oil system passages.				
(2) Corrosion pits.	Not allowed.	Any number, up to 1/32 inch deep, with no more than 25% of surface area affected	Blend defect to adjacent contour. Touch up blended area with Alodine 1200 (item 3, Appendix D, TM) (para H-30, Appendix H, TM).	A[3]
(3) Nicks, scratches, and gouges.	Any number, up to 1/64 inch deep, without high metal or sharp comers.	Same as usable limits, with high metal and sharp comers.	Blend high metal to adjacent contour. Blend sharp comers no smaller than 1/16 inch. Touch up blended area with Alodine 1200, (item 3, Appendix D, TM) (para H-30, Appendix H, TM).	A[3]

Table 35. Inspection of Main Frame (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
b. Right-hand oil level indicator pad/sight glass web (11) for:				
(1) Cracks.	None allowed.	Any amount.	Blend defect to adjacent contour. (Web may be entirely removed until adjacent contour is met.)	NC
(2) Dents or bends.	Any amount that does not interfere with assembly of common drain or oil level indicator (12).	Any amount,	Blend defect to adjacent contour. (Web may be entirely removed until adjacent contour is met,) Touch up area with Alodine 1200 (item 3, Appendix D, TM) (para H-30, Appendix H, TM).	A[3]
c. AVIM: Accessory gearbox mounting pad (1, 5) for:				
(1) Defective studs.	See Inspection of Studs and Threaded Inserts (para H-27, Appendix H, TM).			75% of studs must be functional.
(2) Nicks, scratches, and burrs in packing grooves (10).	Any number of nicks and scratches, up to 0.005 inch deep, without high metal. Burrs are not allowed.	Any number that can be reworked to usable limits.	Blend burrs and high metal to adjacent contour. Touch up blended area with Alodine 1200 (item 3, Appendix D, TM) (para H-30, Appendix H, TM).	A[3]
(3) Nicks and scratches in other areas.	Any number, up to 1/64 inch deep, without high metal.	Same as usable limits, with high metal.	Blend high metal to adjacent contour. Touch up blended area with Alodine 1200 (item 3, Appendix D, TM) (para H-30, Appendix H, TM).	A[3]

Table 35. Inspection of Main Frame (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
d. AVIM: Locating pin (2):				
(1) For nicks.	Any number, up to 1/64 inch deep, without high metal.	Same as usable limits, with high metal.	Blend high metal to adjacent contour without making a flat on the pin. Touch up blended area with Alodine 1200 (item 3, Appendix D, TM) (para H-30, Appendix H, TM).	A[3]
(2) Bent or missing,	Not allowed.	Not repairable.	Replace pin.	NC
e. AVIM: Studs and inserts for damage.	See Inspection of Studs and Threaded Inserts (para H-27, Appendix H, TM).			50% of studs must be functional.
f. AVIM: Oil drain pad (6) and oil strainer pad (7) for nicks, burrs, and scratches.	Any number, up to 1/32 inch deep with high metal.	Same as usable limits, with high metal.	Blend high metal to adjacent contour. Touch up blended area with Alodine 1200 (item 3, Appendix D, TM) (para H-30, Appendix H, TM).	A[3]

t. Inspection of Scroll Case. See table 36.

Table 36. Inspection of Scroll Case (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
Scroll case (fig. 2-13, TM) for:				
a Cracks (visible breaks or holes in case).	None allowed	Not repairable.	AVUM: Replace engine. AVIM: Replace cold section module.	A[3] *(1)
b. Dents.	Up to 1/4 inch from original contour	Not repairable.	AVUM: Replace engine. AVIM: Replace cold section module.	A[3]
c. Discoloration.	Any amount.	Not applicable.	Not applicable.	NC
d Missing rivets or brackets.	Not allowed.	Not applicable.	AVUM: Replace engine. AVIM: Replace cold section module.	A[3] **(2)
e. Damaged threads on studs.	Up to two threads damaged, without high metal or crossed threads.	Same as usable limits, with high metal.	Remove high metal.	A[3]
f. Scratches and nicks.	Any number, up to 1/32 inch deep.	Not repairable.	AVUM: Replace engine. AVIM: Replace cold section module.	A[3]
g. Debris inside scroll. (para 7-10, TM).	Not allowed.	Any amount.	Remove (T700, T701) ECU or (T701C) DEC and clean out debris.	A[3]
h. Tears on scroll:				
(1) Between bolt holes.	Not allowed.	Not repairable.	AVUM: Replace engine. AVIM: Replace cold section module.	A[3]
(2) Extending from bolt holes to inside edge of scroll.	Any amount if there is no danger of a piece falling out.	Not repairable.	AVUM: Replace engine. AVIM: Replace cold section module.	A[3]

Table 36. Inspection of Scroll Case (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action BFL
i. Delamination on:			
(1) Scroll body and saddle.	Less than 3/8 inch diameter, not closer than 1/2 inch from any edge, not closer than 1 inch from another delamination, not more than 2 square inches total.	Not repairable.	AVUM: Replace engine. A[3] AVIM: Replace cold section module.
(2) T2 sensor holster.	For fiberglass surrounding intake tube, not to exceed 30% of total area of fiberglass around tube. For remainder of holster assembly, same as scroll body.	Not repairable.	AVUM: Replace engine. A[3] AVIM: Replace cold section module.

Note:

*(1) 3 holes, total area not to exceed 3 inch x 3 inch.

**(2) Rivets - A[3], Brackets - 2 missing max.

u. Inspection of Inlet Separator Boot. See table 37.

Table 37. Inspection of Inlet Separator Boot (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action BFL
Inlet separator boot (fig. 2-14, TM) for:			
a. Tears.	1/4 inch maximum length from one edge or extending from both sides towards center.	Not repairable.	Replace boot. A[3*]

Table 37. Inspection of Inlet Separator Boot (BFL) (Cont)

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
b. Decay.	Not enough to cause cracks when boot is stretched.	Not repairable.	Replace boot.	A[3*] Repair torn/ cracked boot with elec- trical tape.

v. Inspection of Inlet Guide Vane (IGV) Actuating Ring. See table 38.

Table 38. Inspection of Inlet Guide Vane (IGV) Actuating Ring (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
IGV actuating ring (1, fig. 2-15, TM) for:				
a Cracks.	None allowed.	Not repairable.	AVUM: Replace engine. AVIM: Replace cold section module.	NC
b. Missing pins (2).	Not allowed.	Pins not repairable.	AVUM: Replace engine. AVIM: Replace cold section module.	NC
c. Bent parts, noted visually.	Not allowed.	Not repairable.	AVUM: Replace engine. AVIM: Replace cold section module.	A[3]

w. Inspection of Inlet Guide Vane (IGV) Actuator Levers. See table 39.

Table 39. Inspection of Inlet Guide Vane (IGV) Actuator Levers (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
a. IGV actuator levers (4, fig. 2-15, TM) for:				
(1) Cracks in metal.	None allowed.	Not repairable.	AVUM: Replace engine. AVIM Replace cold section module.	NC
(2) Cracks in race (7).	One crack per lever.	Not repairable.	AVUM: Replace engine. AVIM: Replace cold section module.	A[3]
(3) Dents and bends.	None allowed.	Not repairable.	AVUM: Replace engine. AVIM: Replace cold section module.	A[3]
b. IGV sleeve bushing (3) for:				
(1) Axial cracks.	Any number.	Not applicable.	Not applicable.	NC
(2) Missing bushing face segments.	No more than 25% of any face may be missing.	Not repairable.	AVUM: Replace engine. AVIM: Replace cold section module.	A[3]

x. Inspection of Compressor Case. See table 40.

Table 40. Inspection of Compressor Case (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
a. Left and right-hand compressor case halves (17, 15, fig. 2-1.2, sheet 2, TM) for:				
(1) Cracks.	None allowed.	Not repairable.	AVUM: Replace engine. AVIM: Replace cold section module.	NC

Table 40. Inspection of Compressor Case (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
(2) Nicks, dents, and scratches on:				
(a) Flanges of nonmating surfaces.	Any number, a maximum of 1/16 inch deep, without high metal.	Same as usable limits, with high metal.	Blend high metal.	A[3]
(b) AVIM: Flanges of mating surfaces (case half removed).	Any number, a maximum of 1/16 inch deep, provided lesss than 25% of flange width is undamaged.	Same as usable limits with high metal.	Blend high metal.	A[3]
(c) Sealing surface on stage 4 bleed air tube (19).	Any amount, provided there is no leakage or high metal.	Same as usable limits with high metal.	Blend high metal.	A[3]
(d) Other areas.	Any number, 1/64 inch deep, without high metal.	Same as usable limits, with high metal.	Blend high metal.	A[3]
b. Flowpath coating (during borescoping or with case half removed) for:				
(1) Chips, scrapes, scratches, or missing coating at edges, splitlines, flanges or near variable vanes.	Any amount without high metal, provided engine performance is acceptable.	Same as usable limits with high metal.	AVUM: Replace engine. AVIM: Remove right hand case half (para 2-4.1, TM), and blend high metal, or replace cold section nodule.	A[3]
(2) Delamination, flaking, or loose material.	Any amount, provided engine performance is acceptable.	Not repairable.	AVUM: Replace engine. AVIM: Replace cold section module.	NC
(3) Blade rubs and grooves.	Any amount without high metal, provided engine performance is acceptable and grooves in blade rub path do not penetrate parent metal.	Same as usable limits with high metal.	AVUM: Replace engine. AVIM: Remove right-hand case half (para 2-4.1, TM), and blend high metal, or replace cold section module.	A[3]

Table 40. Inspection of Compressor Case (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
c. Coupling nut (18) (right-hand case only) for damaged threads.	No high metal or damaged threads that would cause mating to be difficult.	Not repairable.	AVUM: Replace engine AVIM: Replace cold section module.	A[3]
d. Flange bolt holes for damage or wear on:				
(1) Diameter A.	0.1923-0.1928 inch maximum, without high metal.	Same as usable limits with high metal.	Assemble case halves, using bolts in holes that have met usable limits. Ream holes that have high metal. Do not exceed usable limits when reaming.	A[3]
(2) Diameter B.	0.202-0.208 inch maximum, without high metal.	Same as usable limit with high metal.	Assemble case halves, using bolts in holes that have met usable limits. Ream holes that have high metal. Do not exceed usable limits when reaming.	A[3]
(3) Diameter C.	0.2523-0.2528 inch maximum, without high metal.	Same as usable limits with high metal.	Assemble case halves, using bolts in holes that have met usable limits. Ream holes that have high metal. Do not exceed usable limits when reaming.	A[3]
(4) Diameter D.	0.256-0.272 inch maximum, without high metal.	Same as usable limit with high metal.	Assemble case halves, using bolts in holes that have met usable limits. Ream holes that have high metal. Do not exceed usable limits when reaming.	A[3]
e. Heat discoloration spots on outside surface.	None allowed.	Not repairable.	AVUM: Replace engine. AVIM: Replace cold section module.	A[3]

y. Inspection of Compressor Stator Splitline Shoulder Bolts. See table 41.

Table 41. Inspection of Compressor Stator Splitline Shoulder Bolts (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
Shoulder bolts (fig. 2-15.1, TM) for:				
a. Cracks.	None allowed.	Not repairable.	Replace bolt.	NC
b. Nicks, dents, and scratches on shoulder.	Any number that cannot be detected by feel.	Not repairable.	Replace bolt.	A[3]
c. Nicks, burrs, dents, and high metal on threads.	Up to one thread cumulative damaged, without high metal or crossed threads.	Up to one thread cumulative damaged, with high metal or crossed threads.	Blend high metal. Chase threads to usable limits.	A[3]
d. Worn shoulder.	Shoulder diameter must not be less than limits in figure 2-15.1 (TM).	Not repairable.	Replace bolt.	A[3]
e. Wear or damage to head.	Any amount if bolt can be properly torqued.	Not repairable.	Replace bolt	A[3]

z. Inspection of Stages 1 and 2 Vane Actuating Rings. See table 42.

Table 42. Inspection of Stages 1 and 2 Vane Actuating Rings (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
Stages 1 and 2 vane actuating rings (8, 10, fig. 2-15, TM) for:				
a. Cracks.	None allowed.	Not repairable.	AVUM: Replace engine. AVIM: Replace cold section module.	NC
b. Loose bolts (13) and nuts (12).	Not allowed.	Any number.	Tighten. Torque bolts to 16-19 inch-pounds.	NC
c. Missing pins (2).	Not applicable.	Not applicable.	AVUM: Replace engine. AVIM: Replace cold section module.	NC

Table 42. Inspection of Stages 1 and 2 Vane Actuating Rings (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action BFL
d. Bent parts, noted visually.	Not allowed.	Not repairable.	AVUM: Replace engine. A[3] AVIM: Replace cold section module.

aa. Inspection of Stages 1 and 2 Vane Actuator Levers. See table 43.

Table 43. Inspsection of Stages 1 and 2 Vane Actuator Levers (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action BFL
a. Stages 1 and 2 vane actuator levers (5, 6, fig. 2-15, TM) for:			
(1) Cracks in metal.	None allowed.	Not repairable.	AVUM: Replace engine. NC AVIM: Replace cold section module.
(2) Cracks in race (7).	One crack per lever.	Not repairable.	AVUM: Replace engine. A[3] AVIM: Replace cold section module.
(3) Dents and bends.	None allowed.	Not repairable.	AVUM: Replace engine. A[3] AVIM: Replace cold section module.
b. Stages 1 and 2 sleeve bushings (9, 11) for:			
(1) Axial cracks.	Any number.	Not applicable.	Not applicable. NC
(2) Missing bushing face segments.	No more than 25% of any face may be missing.	Not repairable.	AVUM: Replace engine. A[3] AVIM: Replace cold section module.

ab. Inspection of Diffuser and Midframe Casing Assembly. See table 44.

Table 44. Inspection of Diffuser and Midframe Casing Assembly (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
a. Diffuser case (1, fig. 2-16, TM) for:				
(1) Cracks.	None allowed.	Not repairable.	AVUM: Replace engine. AVIM: Replace cold section module.	NC
(2) Nicks, dents pits, and scratches.	Any number, up to 1/32 inch deep, without high metal.	Same as usable limits, with high metal.	Blend high metal.	A[3]
b. Midframe assembly (2) outer casing for:				
(1) Cracks.	None allowed.	Not repairable.	AVUM: Replace engine. AVIM: Replace cold section module.	NC
(2) Nicks and scratches.	Any number, up to 1/64 inch deep, without high metal.	Same as usable limits, with high metal.	Blend high metal to adjacent contour.	NC
(3) Dents.	Any number, up to 1/64 inch deep, if defect is more than one inch away from any port. None allowed within 1 inch of any port.	Not repairable.	AVUM: Replace engine. AVIM: Replace cold section module.	A[3]
c. Rear flange of midframe assembly (2) for:				
(1) Cracks.	None allowed.	Not repairable.	AVUM: Replace engine. AVIM: Replace cold section module.	NC
(2) Nicks and scratches.	Any number, up to 1/64 inch deep, without high metal.	Same as usable limits, with high metal.	Blend high metal to adjacent contour.	A[3]

Table 44. Inspection of Diffuser and Midframe Casing Assembly (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
d. Present configuration of fuel injector ports (8), igniter plug ports (6), borescope plug port (7), P3 port (3), and (T700) primer nozzle ports (5) for:				
(1) Cracks (including brazed joint on midframe boss (1A)).	None allowed.	Not repairable.	AVUM: Replace engine. AVIM: Replace cold section module.	NC
(2) Nicks and scratches.	Any number, up to 1/64 inch deep, without high metal.	Same as usable limits, with high metal.	Blend high metal to adjacent contour.	A[3]
e. (T700) Former configuration of fuel injector ports (8), igniter plug ports (6), borescope plug port (7), P3 port (3), and primer nozzle ports (5) for:				
(1) Cracks.	None allowed.	Not repairable.	AVUM: Replace engine. AVIM: Replace cold section module.	NC
(2) Nicks and scratches.	Any number, up to 1/64 inch deep without high metal.	Same as usable limits, with high metal.	Blend high metal to adjacent contour.	A[3]
f. Fuel injector ports (8) for burrs or high metal on fuel injector seating surface (15).	None allowed.	Any amount.	AVUM: Repair fuel injector seating surface (para 2-58.1, TM) if fuel injector port is accessible. Otherwise, replace engine. AVIM: Repair fuel injector seating surface (pars 2-58.1, TM).	NC

Table 44. Inspection of Diffuser and Midframe Casing Assembly (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
g. Oil tube (10), scavenge tube (4), and compressor leakage air tube fitting (11) for:				
(1) Cracks (except in braze joints).	None allowed.	Not repairable.	AVUM: Replace engine. AVIM: Replace cold section module.	NC
(2) Cracks in braze joints.	One per port, up to 1/16 inch long, not extending through length of joint.	Not repairable.	AVUM: Replace engine. AVIM: Replace cold section module.	NC
(3) AVIM: Nicks and scratches on sealing surfaces and on ends of scavenge and oil tube.	None allowed.	Not repairable.	Replace cold section module.	A[3]
(4) Nicks and scratches on remaining surfaces.	Any number, up to 1/64 inch deep, without high metal.	Same as usable limits, with high metal.	Blend high metal to adjacent contour.	A[3]
h. Coupling nuts on scavenge tube (4), oil tube (10), and oil drain tube (12) for:				
(1) Cracks.	None allowed.	Not repairable.	AVUM: Replace engine. AVIM: Replace cold section module.	NC
(2) Nicks and scratches.	Any number, up to 1/32 inch deep, without high metal.	Same as usable limits, with high metal.	Blend high metal to adjacent contour.	A[3]
(3) Missing or damaged threads.	One full thread total, damaged or missing, without high metal, if a normal installation with the mating part can be made.	AVUM: Not repairable. AVIM: One full thread total, that can be blended to usable limits.	AVUM: Replace engine. AVIM: Plug end of tube at defective nut. Blend high metal from threads to make threads usable. Blow out all metal filings and then remove plug in tubing.	NC

Table 44. Inspection of Diffuser and Midframe Casing Assembly (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
	WARNING Penetrating Oil • Do not use near open flames or other heat source including smoking. • Do not have any contact with liquid or vapor. Contact of eyes with vapor or liquid can cause severe irritation. Prolonged inhalation of vapor may cause headache, dizziness, and nausea. • If liquid contacts eyes, flush them thoroughly with water. After prolonged skin contact, wash contacted area with soap and water. If vapors cause dizziness, go to fresh air. • When handling or applying liquid, wear goggles or face shield. If prolonged exposure to vapor is likely, wear approved respirator.			
(4) Freedom of movement.	Nut must spin freely on tube.	AVUM: Not repairable. AVIM: Any amount that can be repaired to meet usable limits.	AVUM: Replace engine. AVIM: Apply penetrating oil (item 59, Appendix D, TM) to nut and tube, and work nut free.	NC
i. Oil tube (10) for missing screen (9).	Not allowed.	Not applicable.	Replace screen.	A [3*]
j. Scavenge tube boss (4A), oil tube boss (10A), and air tube boss (11A) for:				
(1) Cracks in parent metal and tube welds.	None allowed.	Not repairable.	AVUM: Replace engine. AVIM: Replace cold section module.	NC
(2) Nicks and scratches.	Any number, up to 0.015 inch deep, without high metal.	Same as usable limits, with high metal.	Blend high metal to adjacent contour.	A [3]
k. AVIM: Cooling air tube (14) for cracks in brazed joint.	One per tube, up to 0.064 inch long, not extending through length of joint.	Not repairable.	Replace cold section module.	NC

ac. Inspection of Combustor Inner Shroud (AVIM). See table 45.

Table 45. Inspection of Combustor Inner Shroud (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
Combustor inner shroud (13, fig. 2-16, TM) for:				
a. Cracks.	None allowed.	Not repairable.	Replace cold section module.	NC
b. Nicks, dents, and scratches.	Any number, up to 1/64 inch deep, without high metal.	Same as usable limits, with high metal.	Remove high metal.	A[3]
c. Distortion.	Any amount, if there are no drastic changes in contour.	Not repairable.	Replace cold section module.	A[3]

ad. Inspection of Actuating System Linkage Assembly. See table 46.

Table 46. Inspection of Actuating System Linkage Assembly (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
Actuating system linkage assembly (fig. 2-16.1, TM) for:				
a. Any missing components.	Not allowed.	Not repairable.	AVUM: Replace engine. AVIM: Replace cold section module.	NC
b. Excessive wear or distortion of components, indicated by the assembly being out-of-shape.	Not allowed.	Not repairable.	AVUM: Replace engine. AVIM: Replace cold section module.	NC
c. Position of spherical bearing (2) and bearings in front and rear brackets (1, 3) on actuator shaft (4).	No looseness of bearings in bearing bore.	Not repairable.	AVUM: Replace engine. AVIM: Replace cold section module.	0.020 in. radial looseness max.

ae. Inspection of Forward Suspension Lug. See table 47.

Table 47. Inpection of Forward Suspension Lug (BFL).

Inpsect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
Forward suspension lug (fig. 2-18, TM) for:				
a. Cracks.	None allowed.	Not repairable.	Replace lug (para 2-62 (T700, T701C, TM) or 2-62.1 (T701), TM).	A[3]
b. Nicks, dents, scratches, and gouges.	Any number, 0.020 inch deep, without high metal.	Same as usable limits, with high metal.	Remove high metal.	A[3]
c. Cracked or broken rivets.	None allowed.	Not repairable.	Replace lug (pars 2-62 (T700, T701C, TM) or 2-62.1 (T701), TM).	A[3]
d. Worn hole A.	0.510 inch diameter.	Not repairable.	Replace lug (para 2-62 (T700, T701C, TM) or 2-62.1 (T701), TM).	A[3]

af. Inspection of Stages 1 and 2 Gas Generator Turbine Rotor (AVIM). See table 48.

Table 48. Inspection of Stages 1 and 2 Gas Generator Turbine Rotor (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
a. Turbine rotor blades (fig. 3-3, TM) for:				
(1) Cracks:				
(a) Radial, at blade tip (2).	No more than three radial cracks per blade, up to 1/16 inch long, at least 1/8 inch apart.	Not repairable.	Replace stages 1 and 2 gas generator turbine rotor and gas generator stator (para 3-10, TM).	A[3]
(b) Axial, near blade tip (2).	None allowed.	Not repairable.	Replace stages 1 and 2 gas generator turbine rotor and gas generator stator (pm 3-10, TM).	A[3]

Table 48. Inspection of Stages 1 and 2 Gas Generator Turbine Rotor (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
(c) In all other areas of blades.	None allowed.	Not repairable.	Replace stages 1 and 2 gas generator turbine rotor and gas generator stator (para 3-10, TM).	NC
(2) Curled tips (2).	1/16 inch long at leading and trailing edges.	Not repairable.	Replace stages 1 and 2 gas generator turbine rotor and gas generator stator (para 3-10, TM).	A[3]
(3) Erosion on leading edge (1).	Any amount, 0.010 inch deep.	Not repairable.	Replace stages 1 and 2 gas generator turbine rotor and gas generator stator (para 3-10, TM).	A[3]
(4) Hot gas corrosion (sulfidation).	Any amount of discoloration or surface roughness if there is no blistering, splitting, or separation (delamination) of airfoil surface.	Not repairable.	Replace stages 1 and 2 gas generator turbine rotor and gas generator stator (para 3-10, TM).	A[3]
(5) Trailing edge (4) bowed from straight line.	0.030 inch from straight line.	Not repairable.	Replace stages 1 and 2 gas generator turbine rotor and gas generator stator (para 3-10, TM).	A[3]
(6) Plugged cooling air holes (3).	None allowed.	Not repairable.	Replace stages 1 and 2 gas generator turbine rotor and gas generator stator (para 3-10, TM).	A[3*]
(7) First stage erosion trailing edge	Any amount, 0.125 by 0.125 inch.	Not repairable.	Replace stages 1 and 2 gas generator turbine rotor and gas generator stator (para 3-10, TM).	A[3*]
b. Cooling plates (5, 6):				
(1) Any areas except labyrinth seals for:				
(a) Cracks.	None allowed.	Not repairable.	Replace stages 1 and 2 gas generator turbine rotor and gas generator stator (para 3-10, TM).	NC
(b) Nicks, dents, and scratches.	Any number, 1/64 inch deep, with no high metal.	Same as usable limits, with high metal.	Remove high metal and polish out sharp nicks.	A[3]

Table 48. Inspection of Stages 1 and 2 Gas Generator Turbine Rotor (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
(2) Labyrinth seal (8) for:				
(a) Cracks.	None allowed.	Not repairable.	Replace stages 1 and 2 gas generator turbine rotor and gas generator stator (para 3-10, TM).	NC
(b) Nicks, dents, and scratches.	Any number, 1/64 inch deep, with no high metal.	Same as usable limits, with high metal.	Remove high metal and blend.	A[3]
(3) Labyrinth seal teeth for:				
(a) Cracks.	None allowed.	Not repairable.	Replace stages 1 and 2 gas generator turbine rotor and gas generator stator (para 3-10, TM).	NC
(b) Nicks and radial dents.	Any number, 0.005 inch deep; four per tooth not over 0.010 inch deep. Total length of all dents, nicks, and blends (per tooth) not over 30% of circumference. No high metal allowed.	Same as usable limits, with high metal.	Remove high metal and blend.	A[3]
(c) Axial dents.	Up to 1/32 inch from original contour if no more than one-third of circumference is displaced.	Not repairable.	Replace stages 1 and 2 gas generator turbine rotor and gas generator stator (para 3-10, TM).	A[3]
(d) Chipped coating.	Up to 50% missing coating per tooth.	Not repairable.	Replace stages 1 and 2 gas generator turbine rotor and gas generator stator (para 3-10, TM).	A[3]

Table 48. Inspection of Stages 1 and 2 Gas Generator Turbine Rotor (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action BFL
(4) (T700) Labyriath seal teeth for wear on:			
(a) Diameter A of stage 1 turbine forward cooling plate (fig. 3-3.1, sheet 1, TM).	4.383 inches minimum.	Not repairable.	Replace stages 1 and 2 A[3] gas generator turbine rotor and gas generator stator (para 3-10, TM).
(b) Diameter B of stage 1 turbine forward cooling plate (fig. 3-3.1, sheet 1, TM).	4.483 inches minimum.	Not repairable.	Replace stages 1 and 2 A[3] gas generator turbine rotor and gas generator stator (para 3-10, TM).
(c) Diameter A of stage 1 turbine rear cooling plate (fig. 3-3.1, sheet 1, TM).	4.270 inches minimum.	Not repairable.	Replace stages 1 and 2 gas generator turbine rotor and gas generator stator (para 3-10, TM). A[3]
(d) Diameter B of stage 1 turbine rear cooling plate (fig. 3-3.1, sheet 1, TM).	4.370 inches minimum.	Not repairable.	Replace stages 1 and 2 gas generator turbine rotor and gas generator stator (para 3-10, TM). A[3]
(e) Diameter C of stage 1 turbine rear cooling plate (fig. 3-3.1, sheet 1, TM).	4.470 inches minimum.	Not repairable.	Replace stages 1 and 2 A[3] gas generator turbine rotor and gas generator stator (para 3-10, TM).
(f) Diameter D of stage 1 turbine rear cooling plate (fig. 3-3.1, sheet 1, TM).	4.570 inches minimum.	Not repairable.	Replace stages 1 and 2 A[3] gas generator turbine rotor and gas generator stator (para 3-10, TM).

Table 48. Inspection of Stages 1 and 2 Gas Generator Turbine Rotor (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
(g) Diameter A of stage 2 turbine rear cooling plate (fig. 3-3.1, sheet 2, TM).	4.417 inches minimum.	Not repairable.	Replace stages 1 and 2 gas generator turbine rotor and gas generator stator (para 3-10, TM).	A[3]
(5) (T701, T701C) Labyrinth seal teeth for wear on:				
(a) Diameter A of stage 1 turbine forward cooling plate (fig. 3-3.2, sheet 1, TM).	4.383 inches minimum	Not repairable.	Replace stages 1 and 2 gas generator turbine rotor and gas generator stator (para 3-10, TM).	A[3]
(b) Diameter B of stage 1 turbine rear cooling plate (fig. 3-3.2, sheet 1, TM).	4.470 inches minimum.	Not repairable.	Replace stages 1 and 2 gas generator turbine rotor and gas generator stator (para 3-10, TM).	A[3]
(c) Diameter C of stage 1 turbine and gas rear cooling plate (fig. 3-3.2, sheet 1, TM).	4.570 inches minimum.	Not repairable.	Replace stages 1 and 2 gas generator turbine rotor and gas generator stator (para 3-10, TM).	A[3]
(d) Diameter A of stage 2 turbine and gas forward cooling plate (fig. 3-3.2, sheet 2, TM).	4.370 inches minimum.	Not repairable.	Replace stages 1 and 2 gas generator turbine rotor and gas generator stator (para 3-10, TM).	A[3]

Table 48. Inspection of Stages 1 and 2 Gas Generator Turbine Rotor (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
(e) Diameter B of stage 2 turbine and gas rear cooling plate (fig, 3-3.2, sheet 2, TM).	4.417 inches minimum.	Not repairable.	Replace stages 1 and 2 gas generator turbine rotor and gas generator stator (para 3-10, TM).	A[3]
c. Turbine disks (7, 9) for:				
(1) Cracks.	None allowed.	Not repairable.	Replace stages 1 and 2 gas generator turbine rotor and gas generator stator (para 3-10, TM).	NC
(2) Nicks, pits, and scratches.	Any number, 0.005 inch deep, without high metal.	Same as usable limits, with high metal.	Remove high metal and blend.	A[3]

af. 1. Inspection of Outer Balance Piston Seal (Fig. 15.1) (AVIM). See table 48.1.

Table 48.1. Inspection of Outer Balance Piston Seal (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
a. Overall seal for:				
(1) Cracks except on sealing surfaces of PN 6071T03.	Cracks are allowed on flange from locating pin holes to edge of flange at two locations.	Not repairable.	Replace seal.	A[3]
(2) Cracks at boltholes.	Four cracks maximum. Cracks must only extend from boltholes toward the OD of flange.	Not repairable.	Replace seal.	A[3]
(3) Cracks on remaining areas.	None allowed.	Not repairable.	Replace seal.	A[3(1)]
(4) Nicks, dents and scratches.	Any number, up to 0.020 inch deep, without high metal.	Same as usable limits, with high metal.	Blend high metal (para 3-444).	A[3]

Table 48.1. Inspection of Outer Balance Piston Seal (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
(5) Erosion at surfaces X.	Any amount, 0.005 inch deep maximum.	Not repairable.	Replace seal.	A[3]
(6) Erosion at area A.	0.048 inch min wall thickness.	Not repairable.	Replace seal.	A[3]
b. Sealing surfaces on outer balance piston seal for:				
(1) Rub grooves.	Any number, up to 0.005 inch deep all around seal. Up to 0.010 inch deep if cumulative length does not exceed 30% of circumfercnce.	Not repairable.	Replace seal.	A[3]
(2) Cracks on PN 6071T03.	Any number, if material is not in danger of coming loose.	Not repairable.	Replace seal.	NC
(3) (T701, T701C) Flaking or delamination.	Not allowed.	Not repairable.	Replace seal.	A[3]
(4) (T701, T701C) Erosion of material between rub grooves.	Maximum of 0.020 inch as measured from original sealing surfaces.	Not repairable.	Replace seal.	A[3]
c. (T700) Silver alloy seal material of outer balance piston seal for:				
(1) Axial cracks.	Any number, if they are circumferentially at least 1 inch apart.	Not repairable.	Replace seal.	A[3(2)]
(2) Oxidation or other surface attack.	Up to 30% of surface if no material appears to be in danger of falling out.	Not repairable.	Replace seal.	A[3]

Table 48.1. Inspection of Outer Balance Piston Seal (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
(3) Separation from backing ring.	No more than four indications at area H; no more than four indications at area G. Max combined length of separations must not exceed 1 inch at area H and 0.75 inch at area G.	Not repairable.	Replace seal.	A [3(2)]
(4) Craze cracking and surface roughness.	Any amount, any pattern, if alloy material is not lifting, missing or separating from parent material.	Not repairable.	Replace seal.	A [3(2)]
(5) Pits and voids.	Any number up to 0.030	Not repairable.	Replace seal.	A [3]

NOTE:

(1) As long as pieces of seal housing are not in danger of falling out.

(2) As long as pieces of seal material are not in danger of falling out.

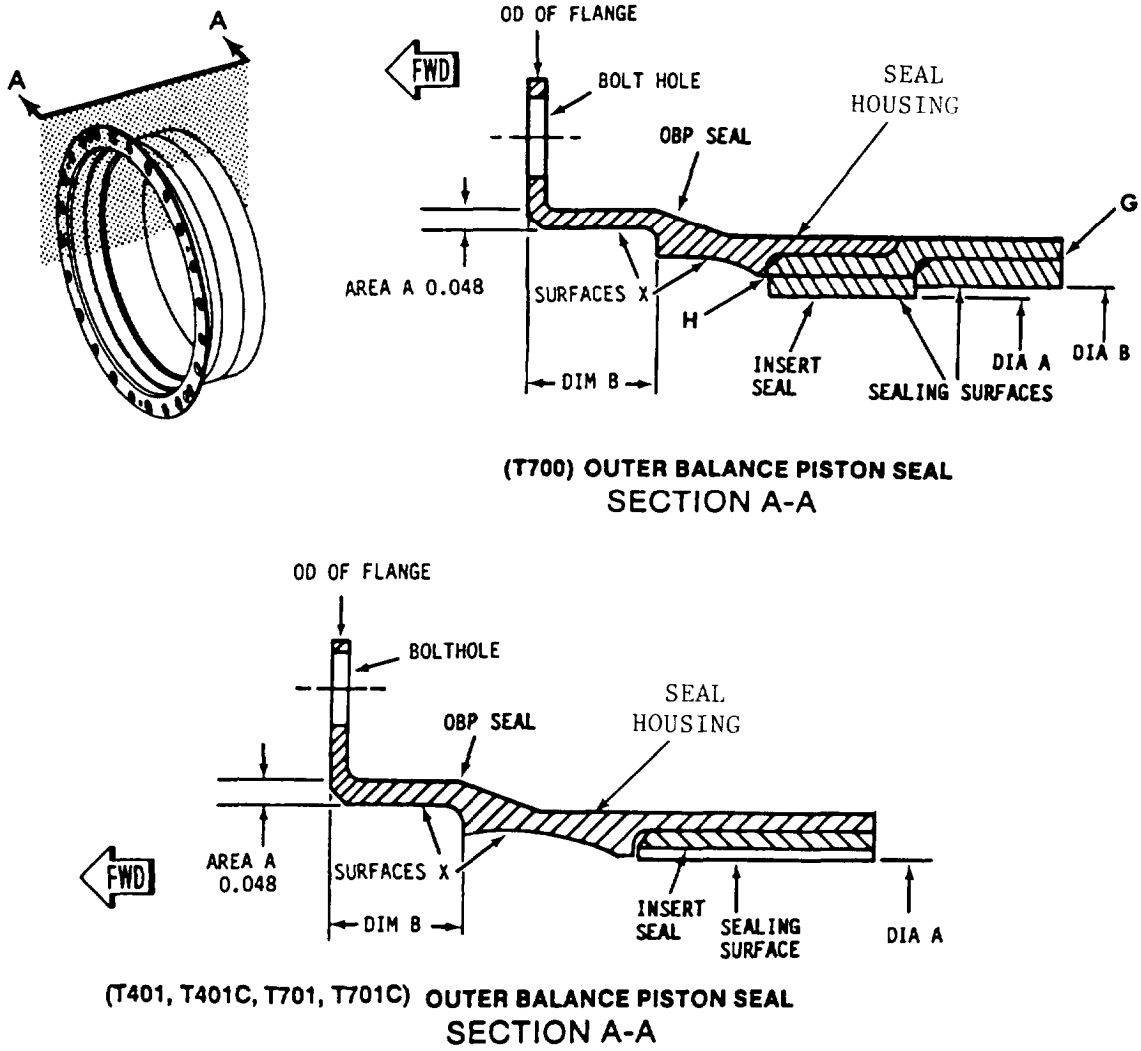


Figure 15.1. Outer Balance Piston Seal; Inspection

ag. Inspection of Curvic Coupling Seals (AVIM). See table 49.

Table 49. Inspection of Curvic Coupling Seals (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
Curvic coupling seals (fig. 3-3.3, TM) for:				
a. Cracks.	None allowed.	Not repairable.	Replace seal (para 3-10, TM).	NC
b. Nicks, dents, and scratches.	Any number, 0.005 inch deep, with no high metal.	Same as usable limits, with high metal.	Blend high metal.	A[3]
c. Distortion.	No visible distortion allowed.	Not repairable.	Replace seal (para 3-10, TM).	A[3]
d. Fretting.	25% (max) of working surface on any one tooth. No high metal. Polished or burnished surface is acceptable.	Same as usable limits with high metal.	Blend high metal.	A[3]

ah. Inspection of Gas Generator Stator (AVIM). See table 50.

Table 50. Inspection of Gas Generator Stator (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
a. Stage 2 turbine nozzle segments (17, fig. 3-4, sheet 1 or sheet 2, TM) for:				
(1) Cracks in the following areas of vanes:				
(a) Trailing edge (3).	Any number less than 1/8 inch long, and 3 cracks up to 1/4 inch long. Pieces must not be in danger of falling out,	Not repairable.	Replace stages 1 and 2 gas generator turbine rotor and gas generator stator (para 3-10, TM).	Any no. to 1/4 in. long. (1)
(b) Leading edge (8).	Two cracks maximum up to 1/2 inch long, and two cracks up to 1/8 inch long.	Not repairable.	Replace stages 1 and 2 gas generator turbine rotor and gas generator stator (para 3-10, TM).	NC
(2) Cracks in outer bands (16) in:				
(a) Fillet area between vane (4) and outer band.	One crack, up to 3/4 inch long per segment.	Not repairable.	Replace stages 1 and 2 gas generator turbine rotor and gas generator stator (para 3-10, TM).	A[3] (1)
(b) Leading edge.	Five cracks, up to 1/2 inch long.	Not repairable.	Replace stages 1 and 2 gas generator turbine rotor and gas generator stator (para 3-10, TM).	A[3] (1)
(c) Area between vanes.	One crack, up to 3/4 inch long.	Not repairable.	Replace stages 1 and 2 gas generator turbine rotor and gas generator stator (para 3-10, TM).	A[3] (1)
(d) All other areas.	Any number if cracks do not cross. Pieces must not be in danger of falling out.	Not repairable.	Replace stages 1 and 2 gas generator turbine rotor and gas generator stator (para 3-10, TM).	NC

Table 50. Inspection of Gas Generator Stator (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
(3) Cracks in inner bands (5).	Four cracks, up to 1/2 inch long, any number, up to 1/8 inch long per segment. Cracks shall not cross each other.	Not repairable.	Replace stages 1 and 2 gas generator turbine rotor and gas generator stator (para 3-10, TM).	A[3] (1)
(4) Burns, blistering, and erosion on				
(a) Vanes (4), except on trailing edge.	1/2 X 1/4 inch, two places per vane.	Not repairable.	Replace stages 1 and 2 gas generator turbine rotor and gas generator stator (para 3-10, TM).	A[3]
(b) Trailing edges (3) of vanes.	1/4 inch high x 1/8 inch back from edge of vane.	Not repairable.	Replace stages 1 and 2 gas generator turbine rotor and gas generator stator (para 3-10, TM).	A[3]
(c) Outer and inner bands (16, 5).	1/2 x 1/2 inch, two places each band.	Not repairable.	Replace stages 1 and 2 gas generator turbine rotor and gas generator stator (para 3-10, TM).	A[3]
(5) Nicks, scratches, and gouges.	Any number, up to 1/64 inch deep, without high metal.	Same as usable limits, with high metal.	Remove high metal and blend.	A[3]
(6) Dents in:				
(a) Trailing edges (3).	Any number, up to 1/64 inch deep, within 1/4 inch of edge with smooth deformation and no high metal.	Same as usable limits, with high metal.	Remove high metal and blend.	A[3]
(b) All other areas.	Any number, up to 1/32 inch deep, with smooth deformation and no high metal.	Same as usable limits, with high metal.	Remove high metal and blend.	A[3]
(7) Buckling of trailing edges (3).	Up to 1/32 inch from straight line.	Not repairable.	Replace stages 1 and 2 gas generator turbine rotor and gas generator stator (para 3-10, TM).	A[3]

Table 50. Inspection of Gas Generator Stator (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
(8) Evidence of hot gas corrosion (sulfadation) leading edges (8) and trailing edges (3) or on airfoil surface.	Any amount of discoloration or surface roughness if there is no blistering, cracking, or separation of the surface on leading and trailing edges.	Not repairable.	Replace stages 1 and gas generator turbine rotor and gas generator stator (para 3-10, TM).	A[3]
b. Stage 2 turbine shroud sectors (2), and stage 1 turbine shroud segments (9) for:				
(1) Cracks in leading and trailing edge flowpath rails (1) and (T701) flowpath side rail (10).	Any number if there arc no loose or missing pieces.	Not repairable.	Replace stages 1 and 2 gas generator turbine rotor and gas generator stator (para 3-10, TM).	NC
(2) Cracks in (T700) honeycomb or (T701) Genaseal filler material:				
(a) Axially.	Two cracks per sector completely across. Four cracks per sector not longer than 1/2 inch. Any number up to 1/8 inch long per sector. Cracks must not intersect each othcr, and pieces must not be in danger of falling out.	Not repairable.	Replace stages 1 and 2 gas generator turbine rotor and gas generator stator (para 3-10, TM).	A[3] (2)
(b) Circumferentially.	Any number, total length not to exceed 2.000 inches.	Not repairable.	Replace stages 1 and 2 gas generator turbine rotor and gas generator stator (para 3-10, TM).	A[3] (2)
(3) (T701, T701C) Cracks in solid alloy filler material:				

Table 50. Inspection of Gas Generator Stator (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
(a) Axially.	None allowed.	Not repairable.	Replace stages 1 and 2 gas generator turbine rotor and gas generator stator (para 3-10, TM).	A[3] (2)
(b) Circumferentially.	None allowed.	Not repairable.	Replace stages 1 and 2 gas generator turbine rotor and gas generator stator (para 3-10, TM).	A[3] (2)
(4) (T701, T701C) Missing solid alloy material.	Not allowed.	Not repairable.	Replace stages 1 and 2 gas generator turbine rotor and gas generator stator (para 3-10, TM).	A[3] (2)
(5) Nicks, gouges, and dents.	Any number, up to 0.015 inch deep, without high metal.	Same as usable limits, with high metal.	Remove high metal and blend.	A[3]
(6) Blade tip wear grooves.	Any amount, up to 0.015 inch deep, if there is a 1/16 inch wide unworn band at forward and aft edges.	Not repairable.	Replace stages 1 and 2 gas generator turbine rotor and gas generator stator (para 3-10, TM).	A[3]
NOTE As manufactured, any amount of honeycomb filler material may be missing in incomplete cells on all edges of shroud sectors.				
(7) (T700) Missing honeycomb filler material.	Defects in filler material and/or cells arc allowed in up to 15% of cells per segment/sector. Defects up to 0.030 inch diameter allowed in no more than 10 adjacent cells. Defects up to 0.030 inch deep are allowed in no more than three adjacent cells.	Not repairable.	Replace stages 1 and 2 gas generator turbine rotor and gas generator slator (para 3-10, TM).	A[3]
(8) (T701) Missing genaseal filler material or (701C) ceramic filler material.	Not allowed.	Not repairable.	Replace stages 1 and 2 gas generator turbine rotor and gas generator stator (para 3-10, TM).	A[3]
(9) Blade material buildup.	Maximum height of 0.005 inch.	Any amount.	Blend to contour of adjacent surface.	A[3]

Table 50. Inspection of Gas Generator Stator (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
c. Stage 2 turbine nozzle static seal (7) for:				
(1) Cracks in honeycomb material.	Any number if no material is in danger of coming loose.	Not repairable.	Replace stages 1 and 2 gas generator turbine rotor and gas generator stator (para 3-10, TM).	NC
(2) Separation of honeycomb from support ring (6).	Not allowed.	Not repairable.	Replace stages 1 and 2 gas generator turbine rotor and gas generator stator (para 3-10, TM).	NC
(3) Wear grooves or rubs in honeycomb material.	Any amount, up to 0.015 inch deep, compared with unworn portion of seal.	Not repairable.	Replace stages 1 and 2 gas generator turbine rotor and gas generator stator (para 3-10, TM).	A [3]
NOTE • The (T700, T701) GG stator has a two-piece configuration shroud support and is called the stage 1 and 2 shroud supports. • The (T701C) GG stator has a one-piece configuration shroud support and is called the stage 1 shroud support. • When inspecting the one-piece (T701C) shroud support, use inspection limits listed for stage 1 and 2 shroud support. The limits provided pertain to both configurations.				
d. Stage 1 turbine shroud support (12) for:				
(1) Cracks on:				
(a) Seal mating surface (11).				
1. Circumferential cracks.	No one crack longer than 1/2 inch. Cumulative length of all cracks shall not exceed 3.000 inches.	Not repairable.	Replace stages 1 and 2 gas generator turbine rotor and gas generator stator (para 3-10, TM).	A [3]
2. Radial cracks.	Any number, up to 1/4 inch long.	Not repairable.	Replace stages 1 and 2 gas generator turbine rotor and gas generator stator (para 3-10, TM).	A [3]

Table 50. Inspection of Gas Generator Stator (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
(b) Conical shell (13).	None allowed.	Not repairable.	Replace stages 1 and 3 gas generator turbine rotor and gas generator stator (para 3-10, TM).	A [3]
(c) Remaining areas.	Any number, up to 1/8 inch long.	Not repairable.	Replace stages 1 and 2 gas generator turbine rotor and gas generator stator (para 3-10, TM).	A [3]
(2) Nicks, scratches, and gouges.	Any number, up to 0.030 inch deep without high metal.	Same as usable limits, with high metal.	Blend high metal.	A [3]
e. (T700, T701) Stage 2 turbine shroud support (14) for:				
(1) Cracks:				
(a) Circum-ferential	None allowed.	Not repairable.	Replace stages 1 and 2 gas generator turbine rotor and gas generator stator (para 3-10, TM).	A [3]
(b) Radial.	Any number, up to 1/4 inch long.	Not repairable.	Replace stages 1 and 2 gas generator turbine rotor and gas generator stator (para 3-10, TM).	A [3]
(2) Nicks, scratches, and gouges.	Any number, up to 0.030 inch deep without high metal.	Same as usable limits, with high metal.	Blend high metal	A [3]
(3) Plugged cooling holes in shield (15).	Up to 5 holes, provided they are not adjacent to each other.	Any number.	Using a 0.020 inch (or smaller) diameter wire, remove foreign material from holes.	A [3]*

Note:

(1) Pieces must not be in danger of falling out.

(2) Any number if there are no loose or missing pieces.

ai. Inspection of Stage 1 Nozzle Assembly and Face-Type Seal (AVIM). See table 51.

Table 51. Inspection of Stage 1 Nozzle Assembly and Face-Type Seal (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
a. Stage 1 nozzle assembly (fig. 3-7, TM) for:				
(1) Cracks in:				
(a) Vane trailing edge (3).	Any number less than 1/8 inch long. Total cumulative length of all cracks must not exceed 3 inches, if no pieces of metal arc in danger of falling out.	Not repairable.	Replace nozzle assembly (para 3-16 (T700) or 3-16.1 (T701, T701C)).	Any number to 1/4 inch. (1)
(b) Vane leading edge (2).	Three cracks maximum, 1/4 inch long, if no pieces are in danger of' falling out.	Not repairable.	Replace nozzle assembly (para 3-16 (T700) or 3-16.1 (T701, T701C)).	Any number. (1)
(c) Outer band (5) and inner band (4).	Two cracks, 1 inch long. Any number, 1/4 inch long, if no pieces of metal are in danger of falling out.	Not repairable.	Replace nozzle assembly (para 3-16 (T700) or 3-16.1 (T701, T701C)).	Four cracks, 1 in. long. (1)
(2) Evidence of burning on leading edges of airfoil surfaces.	Any amount of discoloration or surface roughness. Burning (holes) up to 10% nozzle surface allowable (approximately 4 adjacent leading edge cooling holes).	Not repairable.	Replace nozzle assembly (para 3-16 (T700) or 3-16.1 (T701 , T701C)).	A[3]
(3) Blistering on:				
(a) Vanes (1) except on vane trailing edge (3).	1/2 inch x 1/4 inch, two places per vane.	Not repairable.	Replace nozzle assembly (para 3-16 (T700) or 3-16.1 (T701, T701C), TM).	A[3]
(b) vane trailing edge (3).	Any amount along full radial height it blistering is no more than 1/8 inch back from edge of vane.	Not repairable.	Replace nozzle assembly (para 3-16 (T700) or 3-16.1 (T701, T701C), TM).	A[3]
(c) Outer band (5) and inner band (4).	1/2 inch x 1/2 inch, two places each band.	Not repairable.	Replace nozzle assembly (para 3-16 (T700) or 3-16.1 (T701, T701C), TM).	A[3]

Table 51. Inspection of Stage 1 Nozzle Assembly and Face-Type Seal (BFL)(Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
(4) Nicks, scratches, and gouges.	Any number, 1/64 inch deep, with no high metal.	Same as usable limits, with high metal.	Remove high metal and blend.	A[3]
(5) Pieces missing due to burning or FOD on:				
(a) Vane trailing edge (3).	Full radial height 1/8 inch from edge (max four vanes). 1/4 inch high, 1/4 inch from edge (1 per vane; max of four vanes) or 10% of total trailing edge surface.	Not repairable.	Replace nozzle assembly (para 3-16 (T700) or 3-16.1 (T701, T701C), TM).	A[3]
(b) Other areas of vanes (1).	Not allowed.	Not repairable.	Replace nozzlc assembly (pare 3-16 (T700) or 3-16.1 (T701, T701C), TM).	A[3]
(c) Outer band (5) and inner band (4).	1/2 inch long, 3/32 inch from edge (1 per side; any number of vanes).	Not repairable.	Rep]ace nozzle assembly (para 3-16 (T700) or 3-16.1 (T701, T701C), TM).	A[3]
(6) Dents in:				
(a) Vane trailing edge (3).	Any number, 1/64 inch deep, within 1/4 inch of edge with smooth deformation.	Not repairable.	Replace nozzlc assembly (para 3-16 (T700) or 3-16.1 (T701, T701C), TM).	A[3]
(b) All other areas.	Any number, 1/32 inch deep, with smooth deformation and without high metal.	Same as usable limits, with high metal.	Remove high metal and blend.	A[3]
(7) Buckling of vane trailing edge (3).	1/32 inch from straight line.	Not repairable.	Replace nozzle assembly (para 3-16 (T700) or 3-16.1 (T701, T701C), TM).	A[3]

Table 51. Inspection of Stage 1 Nozzle Assembly and Face-Type Seal (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
(8) Ring (6) for:				
(a) Circumferential cracks.	None allowed.	Not repairable.	Replace nozzle assembly (para 3-16 (T700) or 3-16.1 (T701, T701C) , TM).	A[3]
(b) Radial or axial cracks.	Any number, 1/16 inch long.	Not repairable.	Replace nozzle assembly (para 3-16 (T700) or 3-16.1 (T701, T701C), TM).	A[3]
(c) Nicks and scratches.	Any number, 1/64 inch deep, without high metal.	Same as usable limits, with high metal.	Remove high metal and blend.	A[3]
(d) Dents.	Any number, 1/16 inch deep, without high metal.	Same as usable limits, with high metal.	Remove high metal and blend.	A[3]
(9) Nozzle support (7) for:				
(a) Cracks.	None allowed.	Not repairable.	Replace nozzle assembly (para 3-16 (T700) or 3-16.1 (T701, T701C), TM).	NC
(b) Nicks, pits, and scratches.	Any number, 1/64 inch deep, without high metal.	Same as usable limits, with high metal.	Remove high metal and blend.	A[3]
(10) Plugged cooling holes in vane leading edge (2). (Inspect by holding nozzle assembly up to light source.)	No plugged holes allowed.	Not repairable.	Replace nozzle assembly (para 3-16 (T700) or 3-16.1 (T701, T701C), TM).	A[3*]
(11) Flaking or missing coating where face-type seal contacts segments.	An area up to 0.050 inch diameter, three places per segment. Does not apply if area is within 0.120 inch of joint between nozzle segments or within 0.060 inch of ID and OD of segment.	Not repairable.	Replace nozzle assembly (para 3-16 (T700) or 3-16.1 (T701, T701C), TM).	A[3]

Table 51. Inspection of Stage 1 Nozzle Assembly and Face-Type Seal (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
(12) Flaking or missing coating in other areas.	Any amount.	Not applicable.	Not applicable.	NC
b. Face-type seal (8) for:				
(1) Cracks.	None allowed.	Not repairable.	Replace seal (para 3-16 (T700) or 3-16.1 (T701, T701C), TM).	NC
(2) Dents.	None allowed.	Not repairable.	Replace seal (para 3-16 (T700) or 3-16.1 (T701, T701C), TM).	A[3]
(3) Nicks and scratches:				
(a) On sealing surfaces.	None allowed.	Not repairable.	Replace seal (para 3-16 (T700) or 3-16.1 (T701, T701C), TM).	A[3]
(b) On other areas.	Any number, without high metal.	Any number, with high metal.	Remove high metal and blend.	A[3]
(4) Height.	0.205 inch minimum.	Not repairable.	Replace seal (para 3-16 (T700) or 3-16.1 (T701, T701C), TM).	A[3]
(5) Wear on:				
(a) Area A of coated seal.	0.002 inch reduction of coating thickness as compared to unworn thickness.	Not repairable.	Replace seal (para 3-16 (T700) or 3-16.1 (T701, (T701C), TM).	A[3]
(b) (T700) Sealing surface of uncoated seal.	0.002 inch reduction of bare parent metal thickness as compared to unworn thickness.	Not repairable.	Replace seal (para 3-16, TM).	A[3]

Note:

(1) If no pieces are in danger of falling out.

aj. Inspection of Combustion Liner (AVIM). See table 52.

Table 52. Inspection of Combustion Liner (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action BFL	
a. Inner and outer shells for:				
(1) Cracks in shell bands (5, 11, fig. 3-8, sheet 1 (T700) or fig. 3-8.1, sheet 1 (T701, T701C), TM) which run:				
(a) Circumferentially around the band.	Total length of a crack, including burn holes, not to exceed 5/8 inch, if ends in parent metal have been stop-drilled and if total length of cimcumferential cracks in a band does not exceed 1-1/4 inches.	Not repairable.	Replace combustion liner (para 3-16 (T700) or 3-16.1 (T701, T701C), TM).	Any number. (1)
(b) Other than circumferentially.	Any number, 1/16 inch long; 24 per shell band, 1/8 inch long; six per shell band, 1/4 inch long, if ends in parent metal have been stop drilled and if no piece of metal is in danger of falling out.	Not repairable.	Replace combustion liner (para 3-16 (T700) or 3-16.1 (T701, T701C), TM).	A[3] (2)
(2) Cracks in fusion weld.	None allowed.	Not repairable.	Replace combustion liner (para 3-16 (T700) or 3-16.1 (T701, T701C), TM).	A[3] (2)
(3) Burn holes in shell bands (5, 11).	Six per shell band, if diameter of hole does not exceed 3/16 inch and if cracks extending from defect have been repair welded.	Not repairable.	Replace combustion liner (para 3-16 (T700) or 3-16.1 (T701, T701C), TM).	A[3] (3)

Table 52. Inspection of Combustion Liner (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
(4) Dents.	Contour of defective area must not be more than 1/8 inch above or below adjacent undistorted contour.	Any amount that can be reworked to usable limits.	Cold-wok to adjacent undistorted contour. Fluorescent penetrant inspect (see TM 55-1500-204-25/1). No cracks allowed.	Than 1/4 inch above.
(5) Local distortion due to high temperature.	Contour of defective area must not be more than 1/8 inch above or below adjacent undistorted contour.	Any amount that can be reworked to usable limits.	Cold-work to adjacent undistorted contour. Fluorescent penetrant inspect (see TM 55-1500-204-25/1). See items a.(1) and a.(2).	Than 1/4 inch above.
(6) Distortion of cooling lips (12).	Distortion must be no more than 1/32 inch from adjacent undistorted contour. Gap between lip and shell must not be less than 0.040 inch.	Any amount that can be reworked to usable limits.	Cold-work lip contour until it visually matches adjacent undistorted contour. Fluorescent penetrant inspect (see TM 55-1500-204-25/1). No cracks allowed.	(4)
(7) Cracks in cooling lips (12).	Any number, 3/16 inch long, if no piece is in danger of falling out.	Not repairable.	Replace combustion liner (para 3-16 (T700) or 3-16.1 (T701, T701C), TM).	(5)
(8) Burnout of cooling lips (12).	Five per lip if depth of defect does not exceed 3/32 inch and if there is no high metal along the edges of the defect which extends into the gas flow or cooling flow.	Five per lip if maximum width of defect does not exceed 3/16 inch.	Blend and cold-work defective area as necessary to eliminate high metal and sharp edges. Fluorescent penetrant-inspect (see TM 55-1500-204-25/1). No cracks allowed.	10 per lip not to exceed 3/16 inch.
(9) Nicks, scratches, and gouges.	Any number, 0.010 inch deep, without high metal.	Same as usable limits, with high metal.	Blend high metal to adjacent contour.	A[3]
(10) (T700) Plugged cooling holes.	None allowed.	Any number.	Determine size of defective hole using wire gages or various size drill bits. After determining hole size, run the proper size through defective hole, taking care not to damage cooling lip behind hole.	(6)

Table 52. Inspection of Combustion Liner (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
(11) (T'701, T701C) Plugged cooling holes.	None allowed.	Any number.	Determine size of defective hole using wire gages or various sized drill bits. After determining hole size, run the proper size drill bit through defective hole, taking care not to damage cooling lip behind hole.	(6)
b. Seal (6, fig. 3-8, sheet 1 (T700) or fig. 3-8.1, (T701, T701C), TM) for nicks, scratches, and gouges.	Any number, 1/64 inch deep, without high metal, and without sharp corners along the edge of the defect.	Same as usable limits, with high metal.	Blend defect to usable limits.	A[3]
c. Seal support (7) and outer band (8) for:				
(1) Cracks in parent metal.	Any number, 1/4 inch long.	Not repairable.	Replace combustion liner (para 3-16 (T700) or 3-16.1 (T701, T701C), TM).	(5)
(2) Cracks in fusion welds.	None allowed.	Not repairable.	Replace combustion liner (para 3-16 (T700) or 3-16.1 (T701, T701C), TM).	(7)
(3) Dents, buckles, and warps.	No visible distortion of annular slot formed by band and seal.	Any amount that can be reworked to usable limits.	Cold-work to usable limits. Fluorescent penetrant inspect (see TM 55-1500-204-25/1). No cracks allowed.	A[3]*
(4) Areas of surface erosion due to overtemperature.	Any number if thickness of seal or band at defect is not less than 1/2 the thickness of the adjacent nondefective area.	Not repairable.	Replace combustion liner (para 3-16 (1700) or 3-16.1 (T701, T701C), TM).	A[3]
d. Seal support (7) for burned out trailing edge.	Not allowed	Not repairable.	Replace combustion liner para 3-16 (T700) or 3-16.1 (T701, T701C), TM).	A[3]

Table 52. Inspection of Combustion Liner (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
e. Outer band (8) for burned out trailing edge.	Any number if defect does not extend forward more than 3/16 inch.	Not repairable.	Replace combustion liner (para 3-16 (T700) or 3-16.1 (1701, T701C), TM).	3/8 inch defect allowed.
f. support (10) for:				
(1) Cracks in parent metal.	None allowed.	Not repairable.	Replace combustion liner (para 3-16 (T700) or 3-16.1 (T701, T701C), TM).	1/2 inch defect allowed.
(2) Cracks in fusion welds.	None allowed.	Not repairable.	Replace combustion liner (para 3-16 (T700) or 3-16.1 (T701, T701C), TM).	(8)
(3) Nicks, scratches, and gouges.	Any number, 0.010 inch deep, without high metal.	Same as usable limits, with high metal.	Blend high metal to adjacent contour.	A[3]
g. Dome (14) for:				
(1) Cracks.	None allowed.	Not repairable.	Replace combustion liner (para 3-16 (T700) or 3-16.1 (T701, T701C), TM).	(9)
(2) Dents, buckles, and warps.	No visible distortion from normal contour allowed.	Any number that can be reworked to usable limits.	Cold-work defect to usable limits. Fluorescent penetrant inspect (TM 55-1500-204-25/1). No cracks allowed.	A[3]*
(3) Nicks, scratches, and gouges.	Any number, up to 1/64 inch deep, without high metal.	Same as usable limits, with high metal.	Blend high metal to adjacent contour.	A[3]
h. Splash plate (15) for:				
(1) Cracks.	Any number, any length, if pieces are not in danger of falling out.	If pieces of material are in danger of falling out:		
		(a) 50% or more of splash plate area must remain after pieces are removed.	Remove pieces by blending.	100% missing allowed.

Table 52. Inspection of Combustion Liner (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
		(b) Not repairable if less than 50% of splash plate area will remain after pieces are removed	Replace combustion liner (para 3-16 (T700) or 3-16.1 (T701, T701C), TM).	NC
(2) Burnout.	Any amount, as long as 50% of splash plate remains.	Any amount that can be blended to usable limits.	Blend rough edges along defect to a smooth contour.	100% missing allowed
(3) Buckling.	Up to 1/32 inch deep; not over 25% of edge can be buckled.	Any amount.	Cold-work defect to usable limits. Fluorescent penetrant inspect (TM 55-1500-204-25/1). No cracks allowed.	A[3]
(4) Carbon buildup.	Slight carbon buildup allowed.	Not repairable.	Replace combustion liner (para 3-16 (T700) or 3-16.1 (T701, T701C), TM).	A[3]*
i. Ferrule (4) for:				
(1) Cracks.	None allowed.	Not repairable.	Replace combustion liner (para 3-16 (T700) or 3-16.1 (T701, T701C), TM).	A[3] (2)

WARNING

Penetrating Oil

- Do not use near open flames or other heat source including smoking.
- Do not have any contact with liquid or vapor. Contact of eyes with vapor or liquid can cause severe irritation. Prolonged inhalation of vapor may cause headache, dizziness, and nausea.
- If liquid contacts eyes, flush them thoroughly with water. After prolonged skin contact, wash contacted area with soap and water. If vapors cause dizziness, go to fresh air.
- When handling or applying liquid, wear goggles or face shield If prolonged exposure to vapor is likely, wear approved respirator.

Table 52. Inspection of Combustion Liner (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
(2) Seizure.	Female must slide freely between retainer and pad.	Any amount.	Work ferrule free using NC penetrating oil (item 59, Appendix D, TM) to help free seized parts. Check retainer for distortion when ferrule is free. clean part (para 3-13, TM).	
(3) Nicks, scratches, and gouges.	Any number, 0.010 inch deep, without high metal.	Same as usable limits, with high metal.	Blend high metal to adjacent contour.	A[3]
j. Primary swirler (17) for:				
(1) Cracks.	None allowed.	Not repairable.	Replace combustion liner (para 3-16 (T700) or 3-16.1 (T701, T701C), TM).	A[3] (2)
	WARNING Penetrating Oil Observe warning in step i.			
(2) Seizure.	Swirler must slide freely between retainer and pad.	Any amount.	Work swirler free using NC penetrating oil (item 59, Appendix D, TM) to help free seized parts. Check retainer for distortion when swirler is free. clean part (para 3-13, TM).	
(3) Nicks, scratches, and gouges.	Any number, up to 0.010 inch deep, without high metal.	Same as usable limits, with high metal.	Blend high metal to adjacent contour.	A[3]
k. Ferrule retainer (3) and retainer (16) for:				
(1) Cracks in parent metal.	None allowed.	Not repairable.	Replace combustion liner (para 3-16 (T700) or 3-16.1 (T701, T701C), TM).	A[3] (2)

Table 52. Inspection of Combustion Liner (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
(2) Cracks in fusion welds.	None allowed.	Not repairable.	Replace combustion liner (para 3-16 (T700) or 3-16.1 (T701, T701C), TM).	(2)
(3) Distortion.	Any amount as long as female moves freely.	Any amount.	Cold-work to usable limits. Fluorescent penetrant inspect (see TM 55-1500-204-25/1). No cracks allowed.	NC
1. Guides (13) for:				
(1) Cracks.	None allowed.	Not repairable.	Replace combustion liner (para 3-16 (T700) or 3-16.1 (T701, T701C), TM).	A[3]
(2) Nicks, scratches, and gouges.	Any number, 1/64 inch deep, without high metal.	Same as usable limits, with high metal.	Blend high metal to adjacent contour.	A[3]

Note:

(1) No single crack longer than 4 inches and no piece(s) in danger of falling out.

(2) Provided piece not in danger of falling out.

(3) Provided diameter of hole does not exceed 1/2 inch.

(4) Complete closure allowed up to 5 inch cumulative length, not to exceed 1/2 circumference.

(5) Any number, any length, provided no piece is in danger of falling out.

(6) Up to 50% of holes if random. Clean if possible before reinstallation.

(7) Any number with no single crack over 4 inches and no piece in danger of falling out.

(8) Any number, 4 inches long, if no piece is in danger of falling out.

(9) Any number, if no piece is in danger of falling out.

(10) One crack, any amount.

ak. Inspection of C-Sump Cover and C-Sump Heat Shield. See table 53.

Table 53. Inspection of C-Sump Cover and C-Sump Heat Shield (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action BFL
a. C-sump cover (5, fig. 4-4, TM) for:			
(1) Cracks.	None allowed.	Not repairable.	Replace cover (para 4-16, NC TM).
(2) Nicks and scratches on:			
(a) Floor of packing groove (4A).	Any number, 0.003 inch deep, without sharp edges.	Not repairable.	Replace cover (para 4-16, TM). A3 (1)
(b) Walls of packing groove (4A).	Any number, 0.010 inch deep, without sharp edges.	Not repairable.	Replace cover (para 4-16, TM). A3 (1)
(c) All other areas.	Any number, 1/64 inch deep, without high metal.	Not repairable.	Replace cover (para 4-16, TM). A3 (1)
(3) Dents.	Any amount if function is not affected.	Not repairable.	Replace cover (para 4-16, NC TM). (1)
b. Missing or damaged threads in threaded jacking screw holes (4).	One full thread cumulative, damaged or missing, without high metal.	One full thread cumulative with high metal.	AVUM: Replace cover (para 4-16, TM). A3 AVIM: Chase threads.
c. C-sump heat shield (2) for:			
(1) Cracks, except in radius B.	None allowed.	Not repairable.	Replace heat shield (para 4-16, TM). A3
(2) Cracks in radius B.	Eight cracks allowed. Each one not to exceed 1/8 inch, and must not extend outside radius B.	Not repairable.	Replace heat shield (para 4-16, TM). A3

Table 53. Inspection of C-Sump Cover and C-Sump Heat Shield (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action BFL
(3) Nicks and scratches.	Any amount, up to 1/64 inch deep, without high metal.	Not repairable.	Replace heat shield (para 4-16, TM). A3
(4) Dents.	Any amount, provided function is not affected.	Not repairable.	Replace heat shield (para 4-16, TM). A3

Note:

(1) Bench high metal to adjacent contour.

al. Inspection of Exhaust Frame. See table 54 and Figure 16.

Table 54. Inspection of Exhaust Frame (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action BFL	
a. Exhaust frame (4, fig. 16) for:				
(1) Cracks in parent metal and in welds.	None allowed.	Not repairable.	AVUM: Replace engine. AVIM: Replace module (para 4-11, TM).	NC
(2) Dents and buckling.	Any number, 1/8 inch from original contour.	Any number, any depth.	AVUM: Replace engine A3 AVIM: Cold-work to usable limit. Inspect; cracks are not allowed.	
(3) Holes in sheetmetal.	None allowed.	Not repairable.	AVUM: Replace engine. AVIM: Replace module (para 4-11, TM).	1 sq. in. hole allowed.
(4) Struts (10) for cracks.	None allowed.	Not repairable.	AVUM: Replace engine. AVIM: Replace module (para 4-11, TM).	NC
b. Coupling nut (9) on oil drain tube for:				
(1) Cracks.	None allowed.	Not repairable.	AVUM: Replace engine. AVIM: Replace module (para 4-11, TM).	NC

Table 54. Inspection of Exhaust Frame (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
(2) Nicks and scratches.	Any number, 1/32 inch deep, without high metal.	Same as usable limits, with high metal.	Blend high metal to adjacent contour.	A[3]
(3) Missing or damaged threads.	One full thread total, damaged or missing without high metal, if a normal installation with the mating part can be made.	AVUM: Not repairable. AVIM: One full thread total that can be blended to usable limits.	Replace engine. Plug end of tube at defective nut. Blend high metal. Blow out all metal fillings; then remove plug.	A[3]
	WARNING Penetrating Oil VV-P-216 • Do not have any contact with liquid or vapor. Contact of eyes with vapor or liquid can cause severe irritation. Prolonged inhalation of vapor may cause headache, dizziness, and nausea. • If liquid contacts eyes, flush them thoroughly with water. After prolonged skin contact, wash contacted area with soap and water. If vapors cause dizziness, go to fresh air. • When handling or applying liquid, wear goggles or face shield. If prolonged exposure to vapor is likely, wear approved respirator.			
(4) Freedom of movement.	Nut must spin freely on tube.	AVUM: Not repairable. AVIM: Any amount that can be lubricated to meet usable limits.	Replace engine. Apply NC penetrating oil (item 59, Appendix D, TM) to nut and tube, and work nut free.	

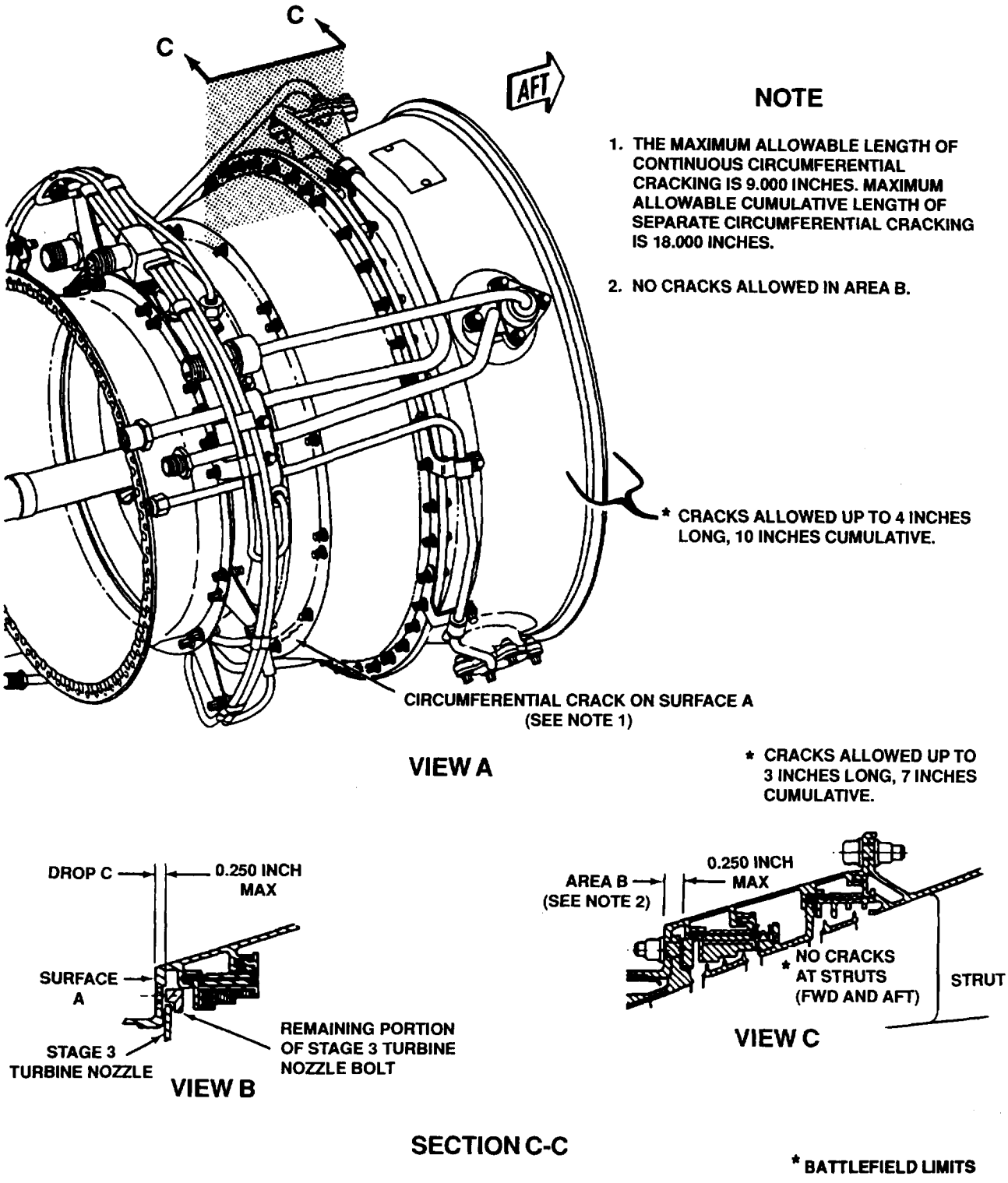


Figure 16. (T700, T701) Power Turbine Module; Inspection.

am. Inspection of Stage 4 Turbine Rotor Blades. See table 55.

Table 55. Inspection of Stage 4 Turbine Rotor Blades (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
Stage 4 turbine rotor blades (7, fig. 16) for:				
1. Cracks.	Not allowed.	Not repairable.	AVUM: Replace engine. AVIM: Replace module (para 4-11, TM).	NC
2. Nicks, pits, scratches, and dents.	Any number, up to 0.005 inch deep, without high metal.	Not repairable.	AVUM: Replace engine. AVIM: Replace module (para 4-11, TM).	A[3]
3. Hot gas corrosion.	Any amount of change in color, without surface roughness or separation of airfoil surface.	Not repairable.	AVUM: Replace engine. AVIM: Replace module (para 4-11, TM).	A[3]
4. Eroded leading edge (11).	Up to 1/64 inch deep.	Not repairable.	AVUM: Replace engine. AVIM: Replace module (para 4-11, TM).	A[3]
5. Bending and twisting of trailing edge (12).	Up to 1/32 inch from original contour.	Not repairable.	AVUM: Replace engine. AVIM: Replace module (para 4-11, TM).	A[3]
6. Wear at tip shroud (13).	0.005 inch max.	Not repairable.	AVUM: Replace engine. AVIM: Replace module (para 4-11, TM).	A[3]

an. Inspection of Stage 4 Seal and Turbine Nozzle. See table 56.

Table 56. Inspection of Stage 4 Seal and Turbine Nozzle (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
Stage 4 seal and turbine nozzle (8, fig. 16) for:				
1. Cracks in inner and outer bands.	6 radial cracks. 1/8 inch long. No circumferential Cracks allowed.	Not repairable.	AVUM: Replace engine. AVIM: Replace module (para 4-11, TM).	(1)
2. Cracks in trailing edge of vanes.	Any number, 1/8 inch long.	Not repairable.	AVUM: Replace engine. AVIM: Replace module (para 4-11, TM).	A[3]
3. Dents along trailing edge of vanes.	Any number, 1/16 inch deep with smooth deformation and no high metal.	Not repairable.	AVUM: Replace engine. AVIM: Replace module (para 4-11, TM).	A[3]
4. Hot gas corrosion on vanes.	Any amount of change in color or surface roughness if there is no blistering, cracking, or separation (delamination) of vane surface.	Not repairable.	AVUM: Replace engine. AVIM: Replace module (para 4-11, TM).	A[3]
5. Burns or erosion on vanes.	Any amount, 1/8 inch from trailing edge over a distance of 1/2 inch.	Not repairable.	AVUM: Replace engine. AVIM: Replace module (para 4-11, TM).	A[3]
6. Nicks, scratches, and gouges.	Any number, 1/32 inch deep, with no high metal.	Not repairable.	AVUM: Replace engine. AVIM: Replace module (para 4-11, TM).	A[3]

Note

(1) 12 radial cracks, 1/4 inch long, no circumferential cracks allowed.

ao. Inspection of Stage 3 Turbine Nozzle Segments (AVIM). See table 57.

Table 57. Inspection of Stage Turbine Nozzle Segments (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
Stage 3 turbine nozzle segments (5, fig. 16) for:				
a. Cracks in inner and outer bands.	10 radial cracks, up to 1/4 inch long. Circumferential cracks are not allowed.	Not repairable.	Replace module (para 4-11, TM).	20 radial cracks, up to 1/2 inch long.
b. Cracks in trailing edge of vanes.	Any number, up to 1/8 inch long.	Not repairable.	Replace module (para 4-11, TM).	A[3]
c. Dents along trailing edge of vanes.	Any number, up to 1/16 inch deep, with smooth deformation and without high metal.	Not repairable.	Replace module (para 4-11, T'M).	A[3]
d. Hot gas corrosion on vanes.	Any amount of change in color or surface roughness if there is no blistering, cracking, or separation of the vane surface.	Not repairable.	Replace module (para 4-11, TM).	A[3]
e. Burns or erosion.	Any amount, up to 1/8 inch from trailing edge over a distance of up to 1/2 inch.	Not repairable.	Replace module (para 4-11, TM)	A[3]
f. Nicks, scratches, and gouges.	Any number, up to 1/32 inch deep, without high metal.	Not repairable.	Replace module (para 4-11, TM).	A[3]
g. (T700, T701) Loose or broken stage three turbine nozzle bolts (6). See note.	One per segment (6 total) may be missing or broken as long as sufficient broken bolt remains in turbine case to seal the bolt hole.	Not repairable.	Replace module (para 4-11, TM).	Two per segment.

Table 57. Inspection of Stage 3 Turbine Nozzle Segments (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
h. (T701C) Loose or broken stage three turbine nozzle bolts (6).	None allowed.	Not repairable.	Replace module (para 4-11, TM).	Two per segment.
	NOTE Do an idle speed leakage check (para 1-182, TM; no leakage allowed.			

ap. Inspection of Outer Turbine Dust (AVIM). See table 58.

Table 58. Inspection of Outer Turbine Duct (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
Outer turbine duct (1, fig. 16) for:				
a. Cracks.	Any number, up to 1 inch long, without intersecting cracks or no danger of pieces falling out.	Not repairable.	Replace module (para 4-11, TM).	NC
b. Nicks, pits, and scratches.	Up to 1/64 inch deep, without high metal.	Same as usable limits, with high metal.	Remove high metal.	A[3]
c. Dents.	Any number, up to 1/32 inch deep, with smooth deformation.	Not repairable.	Replace module (para 4-11, TM)	A[3]

aq. Inspection of Turbine Case. See table 59.

Table 59. Inspection of Turbine Case (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action BFL
Turbine case (2, fig. 16) for:			
a. (T700, T701) Cracks in:			
(1) Surface A (view A); circumferential.	Maximum allowable length of continuous circumferential cracking is 9.000 inches. Maximum allowable cumulative length of separate circumferential cracking is 18.000 inches.	Not repairable.	AVUM: Replace engine. NC AVIM: Replace module (para 4-11, TM).
(2) Cone Area (area B, view C).	None allowed.	Not repairable.	AVUM: Replace engine. NC AVIM: Replace module (para 4-11, TM).
b. Nicks, gouges, and scratches.	Any number, 1/16 inch deep, without high metal.	Same as usable limits, with high metal.	Remove high metal. A[3]
c. Dents.	Any number, 1/8 inch deep.	Any number if they can be reached and they can be cold-worked to usable limits.	AVUM: Replace engine. A[3] AVIM: Cold-work to usable limit. Fluorescent penetrant-inspect (see TM 55-1500-204-25/1). No cracks allowed.
d. Damaged threads on thermocouple bosses (3).	Any amount that does not prevent assembly of thermcouple.	Any amount that can be reworked to usable limits by chasing threads.	AVUM: Replace engine. NC AVIM: Chase threads to allow assembly of thermocouple.
e. Bent flange.	Any amount not more than 1/16 inch from original contour.	Any amount that can be reworked to usable limits by cold-working.	AVUM: Replace engine. (1) AVIM: Cold-work to usable limit and fluorescent penetrant-inspect (see TM 55-1500-204 25/1). No cracks allowed.

Table 59. Inspection of Turbine Case (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
f. (T700, T701) Loose or broken stage 3 turbine nozzle bolts (6).	One per segment (6 total) may be missing or broken as long as sufficient broken bolt remains in turbine case to seal the bolt hole.	Not repairable.	AVUM: Replace engine. AVIM: Replace module (para 4-11, TM).	Two per segment.

Note:

(1) Any amount not more than 1/8 inch from original contour.

ar. Inspection of Power Turbine Drive Shaft Assembly (AVIM). See table 60.

Table 60. Inspection of Power Turbine Drive Shaft Assembly (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
Power turbine drive shaft assembly (14, fig. 16) for:				
a. Cracks.	None allowed.	Not repairable.	Replace module (para 4-11, TM).	NC
b. Nicks and scratches on:				
(1) Floor of packing groove (16).	Any number, 0.003 inch deep, without sharp edges.	Not repairable.	Replace module (para 4-11, TM).	A[3]
(2) Walls of packing groove (16).	Any number, 0.010 inch deep, without sharp edges.	Not repairable.	Replace module (para 4-11, TM).	A[3]
(3) All other areas.	Any number, 0.005 inch deep, without high metal.	Any number, 0.005 inch deep, with high metal.	Remove high metal (para H-21, Appendix H, TM).	A[3]

Table 60. Inspection of Power Turbine Drive Shaft Assembly (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
c. Seal teeth (15) for:				
(1) Radial nicks and dents.	Any number, 0.005 inch deep. 4 per tooth, 0.010 inch deep. 1 per 7 teeth, 0.025 inch deep. Cumulative length of all nicks, dents, and blends per tooth not to exceed 30% of circumference. High metal, sharp edges, or sharp corners are not allowed.	Same as usable limits, with high metal, sharp edges, and sharp comers.	Blend with a fine stone (item 65, Appendix D, TM).	A[3]
(2) Axial dents.	Up to 0.030 inch from original contour if no more than 30% of circumference is displaced.	Not repairable.	Replace module (para 4-11, TM).	A[3]

as. Inspection of Particle Separator Blower and V-Band Coupling Assembly. See table 61.

Table 61. Inspection of Particle Separator Blower and V-Band Coupling Assembly (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
a. Impeller vanes (4, fig. 5-6, view A, TM) for erosion.	Erosion hook on full vane is 3/8 inch maximum from forward face of impeller shroud (2).	Not repairable.	Replace blower (para 5-14, TM).	5/8 inch max.
b. Impeller (5, view B) for:				
(1) Nicks, dents, and scratches on:				
(a) Area A (vane to hub fillet area).	None allowed.	Not repairable.	Replace blower (para 5-14, TM).	A[3]
(b) Area B (hub).	Any number, up to 0.015 inch deep. No more than five defects, 0.020 inch deep.	Not repairable.	Replace blower (para 5-14, TM).	A[3]

Table 61. Inspection of Particle Separator Blower and V-Band Coupling Assembly (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
(c) Area C (vane sides).	No more than five defects, 0.020 inch deep.	Not repairable.	Replace blower (para 5-14, TM).	A[3]
(d) Area D (lower leading edge).	No more than five defects, 0.015 inch deep.	Not repairable.	Replace blower (para 5-14, TM).	A[3]
(e) Area E (upper leading edge).	Any number, up to 0.030 inch deep.	Not repairable.	Replace blower (para 5-14, TM).	A[3]
	NOTE			
	If cracks or missing pieces are found on impeller during inspection, and if HMU is PN 4046T52G08 and below, both blower and HMU shall be replaced. HMU PN 4046T52G08 and below has a P3 bellows that is subject to vibration-caused failure.			NC
(2) Cracks or missing pieces.	None allowed.	Not repairable.	Replace blower (para 5-14, TM) and HMU PN 4046T52G08 and below (para 6-47, TM).	NC
c. Impeller shroud (2) for:				
(1) Erosion damage.	Up to 50% of plating eroded away.	Not repairable.	Replace blower (para 5-14, TM).	A[3]
(2) Nicks and scratches.	Any number, up to 1/32 inch deep, if plating damage is within a 2-inch circle.	Not repairable.	Replace blower (para 5-14, TM).	A[3]
(3) Dents.	Any number, up to 1/8 inch in diameter, if plating damage is within a 2-inch circle.	Not repairable.	Replace blower (para 5-14, TM).	A[3]
(4) Rubs.	None allowed.	Not repairable.	Replace blower (para 5-14, TM).	A[3]
d. Drive shaft (9) for failure (shearing).	Not allowed.	Not repairable.	Replace blower (para 5-14, TM)	NC

Table 61. Inspection of Particle Separator Blower and V-Band Coupling Assembly (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
e. V-band coupling assembly (7) for:				
(1) Cracks in:				
(a) Circumferential band.	None allowed.	Not repairable.	Replace coupling assembly (para 5-14, TM).	NC
(b) Spot weld.	None allowed.	Not repairable.	Replace coupling assembly (para 5-14, TM).	NC
(2) Nicks, dents, scratches, and gouges.	Any number, up to 0.010 inch deep, without high metal.	Same as usable limits, with high metal.	Remove high metal.	A[3]
(3) Threads for damage.	Not more than one thread total without crossed threads or high metal.	Same as usable limits, with high metal.	AVUM: Replace coupling assembly (para 5-14, TM). AVIM: Remove high metal and chase threads.	A[3]
(4) Nut hex for rolled edges.	Any amount if wrench fits properly. High metal is not allowed.	Same as usable limits, with high metal.	Remove high metal.	A[3]

at. Inspection of Panicle Separator Inlet Duct. See table 62.

Table 62. Inspection of Particle Separator Inlet Duct (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
Inlet duct (4, fig. 5-7 or 5-8, TM) for:				
a Damaged or loose pin (5).	Not allowed.	Not repairable.	AVUM: Remove pin. AVIM: Replace pin (para 5-19, step b, TM)	A[3]
b. Missing pin (5).	AVUM: Not applicable.	Not applicable.	Duct may be used without pin.	NC
	AVIM: Not allowed.	Not applicable.	Replace pin (para 5-19, step b, TM).	NC

Table 62. Inspection of Particle Separator Inlet Duct (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
c. AVIM: Studs (9) and inserts (14, fig. 5-7 or 13, fig. 5-8, TM).	See Inspection of Studs and Threaded Inserts (para H-27, Appendix H, TM).			A[3]

au. Inspection of Accessory Drive Gearbox Assembly. See table 63.

Table 63. Inspection of Accessory Drive Gearbox Assembly (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
Rear and front housings (18, 19, fig. 5-9, TM) for:				
a. Cracks.	None allowed.	Not repairable.	AVUM: Replace engine. AVIM: Replace accessory section module (para 5-8, TM).	NC
b. Nicks and scratches in cast surfaces.	Any number, up to 0.030 inch deep, without high metal.	Same as usable limits, with high metal.	Remove high metal.	A[3]
c. Damaged studs and inserts.	Not allowed	Not repairable.	AVUM: Replace engine. AVIM: Replace studs and inserts (para H-28, Appendix H, TM).	(1)
d. High metal in oil and scavenge pump bore.	Not allowed	Any amount within 1/2 inch of front of bore.	Carefully blend high metal. Keep debris out of bore.	NC

Note:

(1) 50% of studs/inserts to be functional.

av. Inspection of Radial Drive Shaft Cover Boot. See table 64.

Table 64. Inspection of Radial Drive Shaft Cover Boot (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
Radial drive shaft cover boot (5, fig. 5-10, TM) for:				
a. Tears.	Minor tears allowed.	Not repairable.	Replace boot (para 5-33, TM).	A [3]
b. Crazing present when boot is stretched.	None allowed.	Not repairable.	Replace boot (para 5-33, TM).	A [3]

aw. Inspection of Radial Drive Shaft Assembly. See table 65.

Table 65. Inspection of Radial Drive Shaft Assembly (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
a Splines on radial drive shaft assembly (1, fig. 5-10, TM) for visible steps on teeth.	Not allowed.	Not repairable.	Replace radial drive shaft assembly (para 5-38, TM).	NC
b. Backlash between radial drive shaft assembly (1) and shaft extension (3).	Any amount if shaft assembly can be driven with wrench.	Not repairable.	Replace radial drive shaft assembly (para 5-38, TM).	NC
c. Upper shaft shoulder (2) for indentations caused by radial contact with spline teeth.	Any amount up to 0.100 inch long.	Not repairable.	Replace radial drive shaft assembly (para 5-38, TM).	A[3]

ax. (T700) Inspection of Primer Nozzles. See table 66.

Table 66. (T700) Inspection of Primer Nozzles (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
a. Primer nozzle tip (4, fig. 6-2, TM) for carbon.	Any amount not clogging orifice.	Not repairable. (Use test procedure in paragraph 6-7, TM).	Replace nozzle (para 6-8, TM).	NC
b. Inlet fitting (2) for missing or damaged threads.	Two threads total, missing or damaged, without high metal, if threads can be used without cross-threading.	Two threads total, missing or damaged, that can be blended to usable limits.	AVUM: Replace nozzle (para 6-8, TM). AVIM: Chase threads	A[3] (1)
c. Retaining nut(1) for:				
(1) Cracks.	None allowed.	Not repairable.	Replace retaining nut (para 6-8, TM).	NC
(2) Missing or damaged threads.	One thread total, missing or damaged, without high metal, if threads can be used without cross-threading.	Not repairable.	Replace retaining nut (para 6-8, TM).	A[3]
(3) Wrench damage on each corner of hex flats.	Any amount, without high metal, if wrench won't slip on nut.	Not repairable.	Replace retaining nut (para 6-8, TM).	A[3]
(4) Distortion.	Any amount if wrench will fit on nut.	Not repairable.	Replace retaining nut (pare 6-8, TM).	A[3]
(5) Discoloration.	Any amount.	Not applicable.	Not applicable.	NC
(6) Nicks and scratches, except on threads.	Any number, 1/64 inch deep, without high metal.	Not repairable.	Replace retaining nut (para 6-8, TM).	A[3]

Note:

(1) Provided no leaks.

ay. Inspection of Fuel Injector Assemblies and Retaining Nuts. See table 67.

Table 67. Inspection of Fuel Injector Assemblies and Retaining Nuts (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
a. Fuel injector assembly (fig. 6-7, TM) for:				
(1) Discoloration.	Any amount.	Not applicable.	Not applicable.	NC
(2) Tube (3) for:				
(a) Cracks.	None allowed.	Not repairable.	Replace fuel injector assembly (para 6-33, TM).	NC
(b) Nicks and scratches.	Any number, 0.005 inch deep, with no high metal.	Same as usable limits, with high metal.	Blend high metal to adjacent contour.	A[3]
(3) Air shroud (1) for:				
(a) Plugged holes.	Not allowed.	Not repairable.	Replace fuel injector assembly (para 6-33, TM).	A
(b) Cracks.	None allowed.	Not repairable.	Replace fuel injector assembly (para 6-33, TM).	NC
(c) Nicks and scratches.	None allowed on end of injector tip (2).	Not repairable.	Replace fuel injector assembly (para 6-33, TM).	A[3]
(d) Wear.	Wear up to 0.005 allowed, any location.	Not repairable.	Replace fuel injector assembly (para 6-33, TM).	A[3]
(4) Injector tip (2) for:				
(a) Carbon buildup.	Not allowed.	Not repairable.	Replace fuel injector assembly (para 6-33, TM).	A
(b) Nicks and scratches on the cone inside end of tip.	None allowed.	Not repairable.	Replace fuel injector assembly (para 6-33, TM).	A[3]

Table 67. Inspection of Fuel Injector Assemblies and Retaining Nuts (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
(5) Mounting flange (4) for:				
(a) Cracks.	None allowed.	Not repairable.	Replace fuel injector assembly (para 6-33, TM).	NC
(b) Nicks and scratches.	Any number, up to 0.015 inch deep; without high metal.	Same as usable limits, with high metal.	Blend high metal to adjacent contour.	A[3]
(c) Worn locating pin (6).	Pin diameter must not be less than 0.122 inch.	Not repairable.	Replace fuel injector assembly (para 6-33, TM).	A[3]
(6) Inlet fitting (5) for:				
(a) Missing or damaged threads.	Two threads total, missing or damaged, without high metal, if threads can be used without crossthreading.	Two threads total, missing or damaged that can be blended to usable limits.	AVUM: Replace fuel injector assembly (para 6-33, TM). AVIM: Chase threads.	A[3] (1)
(b) Cracks.	None allowed.	Not repairable.	Replace fuel injector assembly (para 6-33, TM).	NC
(c) Broken or missing retaining ring (10).	Not allowed.	Not repairable.	Replace fuel injector assembly (para 6-33, TM).	A[3]
(d) Damaged screen mesh on fuel filter (9).	Not allowed	Not repairable.	Replace fuel injector assembly (para 6-33, TM).	A[3]
b. Retaining nut (8) for:				
(1) Cracks.	None allowed.	Not repairable.	Replace retaining nut (para 6-33, TM).	NC

Table 67. Inspection of Fuel Injector Assemblies and Retaining Nuts (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
(2) Missing or damaged threads.	One thread missing or damaged, without high metal, threads can be used without cross-threadng.	Not repairable.	Replace retaining nut (para 6-33, TM).	A[3]
(3) Wrench damage on each corner of hex flats.	Any amount, without high metal, if wrench won't slip on nut.	Not repairable.	Replace retaining nut (para 6-33, TM).	A[3]
(4) Distortion.	Any amount if wrench will fit nut.	Not repairable.	Replace retaining nut (para 6-33, TM).	A[3]
(5) Discoloration.	Any amount.	Not applicable.	Not applicable.	NC
(6) Nicks and scratches except on threads.	Any number, up to 1/64 inch deep, without high metal.	Not repairable.	Replace retaining nut (para 6-33, TM).	A[3]
(7) Blockage in bleed hole (7).	Not allowed.	Any amount.	Run a 0.020-inch diameter wire into blocked hole.	A[3]
(8) Missing silver plating.	None missing on threads. Any amount missing on all other surfaces.	Not repairable.	Replace retaining nut (para 6-33, TM).	A[3]

Note:

(1) Provided no leaks.

az. Inspection of Fuel Boost Pump. See table 68.

Table 68. Inspection of Fuel Boost Pump (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
a. Housing for:				
(1) Visible cracks.	None allowed.	Not repairable.	Replace pump (para 6-45, TM).	NC

Table 68. Inspection of Fuel Boost Pump (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
(2) Leaks.	Not allowed.	Not repairable.	Replace pump (para 6-45, TM).	NC
b. Pilot diameter (5, fig. 6-10, TM) for high metal.	Not allowed.	Any amount.	Remove high metal.	A[3]
c. Spline (3) for visible wear steps.	Not allowed.	Not repairable.	Replace pump (para 6-45, TM).	0.005 step Max.
d. Captive bolts (2) for damaged threads.	Not allowed.	Not repairable.	Replace bolts (pars H-6, Appendix H, TM).	A[3]
e. Captive bolt flanges for damaged threads.	Any number of missing threads with no crossed threads or loose material.	Any number with crossed threads or loose material.	AVUM: Replace pump (para 6-45, TM). AVIM: Remove loose material; plug all openings and chase threads to remove crossed threads.	A[3]
f. Threaded inserts (1) for:				
(1) Damaged threads.	Up to one damaged or missing thread with no crossed threads or loose material.	Same as usable limits with crossed threads or loose material.	AVUM: Replace pump (para 6-45, TM). AVIM: Remove loose material; plug all openings and chase threads to remove crossed threads.	A[3]
(2) Looseness.	Radial looseness is allowed if inserts do not rotate.	Not repairable.	Replace pump (para 6-45, TM).	A[3]
g. Packing grooves (4) for nicks and scratches.	None allowed.	Not repairable.	Replace pump (para 6-45, TM).	A[3]
h. Fuel inlet port(6) for internal nicks and scratches.	Any number, not more than 0.004 inch deep.	Not repairable.	Replace pump (para 6-45, TM).	A[3]

ba. Inspection of Hydromechanical Control Unit (HMU), Grooved Clamp Coupling and Quick-Disconnect Pin. See table 69.

Table 69. Inspection of Hydromechanical Control Unit (HMU), Grooved Clamp Coupling and Quick-Disconnect Pin (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
a Hydromechanical control unit (HMU) (fig. 6-12, TM).				
(1) Casing for:				
(a) Cracks.	None allowed.	Not repairable.	Replace HMU (para 6-50, TM).	NC
(b) Leaks.	Not allowed.	Not repairable.	Replace HMU (para 6-50, TM).	NC
(c) Missing locating pin (4).	Not allowed.	Not repairable.	Replace HMU (para 6-50, TM).	A[3]
(d) High metal on pilot diameter (6).	Not allowed.	Any amount.	Blend high metal to adjacent contour.	A[3]
(2) Drive spline (3) for visible steps.	None allowed.	Not repairable.	Replace HMU (para 6-50, TM).	0.005 max. step.
(3) Threaded fittings (5).	See paragraph H-24, Appendix H, TM.	See paragraph H-24, Appendix H, TM.	Replace fitting. Torque fitting to 40-50 inch-pounds.	A[3]
(4) T2 sensor (2) for:				
(a) Dents or deformation.	Any amount, 1/16 inch from original shape.	Not repairable.	Replace HMU (para 6-50, TM).	A[3]
(b) Dirt in aspirating holes of inner and outer shells.	Not allowed..	Any amount.	Clean T2 sensor (para 6-48, step g, TM).	A[3]*

Table 69. Inspection of Hydromechanical Control Unit (HMU), Grooved Clamp Coupling and Quick-Disconnect Pin (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
(5) Conduit (8) for separations and sharp bends.	Not allowed..	Not repairable.	Replace HMU (para 6-50, TM).	A[3]
(6) Electrical connector for:				
(a) Bent socket pins.	Not allowed.	Up to 1/8 inch out-of-position.	Straighten pin. Check alinement with mating connector.	NC
(b) Damaged threads.	Any amount, with no high metal, if connector can be assembled normally with its mating part.	Any amount that can be reworked to usable limits.	Remove high metal.	NC
(7) Nicks and scratches on packing groove of drive shaft (7).	Up to 0.005 inch deep on bottom; up to 1/64 inch deep on wall of groove, with no sharp edges.	Not repairable.	Replace HMU (para 6-50, TM).	A[3]
b. Grooved clamp coupling (9) for:				
(1) Cracks in clamp.	None allowed.	Not repairable.	Replace clamp coupling (para 6-50, TM).	NC
(2) Bolt threads for:				
(a) Wear, looseness.	Not allowed	Not repairable.	Replace clamp coupling (para 6-50, TM).	A[3]

WARNING

Penetrating Oil

- Do not use near open flames or other heat source including smoking.
- Do not have any contact with liquid or vapor. Contact of eyes with vapor or liquid can cause severe irritation. Prolonged inhalation of vapor may cause headache, dizziness, and nausea.
- If liquid contacts eyes, flush them thoroughly with water. After prolonged skin contact, wash contacted area with soap and water. If vapors cause dizziness, go to fresh air.
- When handling or applying liquid, wear goggles or face shield. If prolonged exposure to vapor is likely, wear approved respirator.

Table 69. Inspection of Hydromechanical Control Unit (HMU), Grooved Clamp Coupling and Quick-Disconnect Pin (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
(b) Binding.	Not allowed.	Any amount.	Apply penetrating oil (item 59, Appendix D, TM) and work locknut (1) free or replace locknut or replace grooved clamp coupling, as applicable (para 6-50, TM).	A[3]*
(c) Damage.	Not allowed.	One thread missing, continuous or cumulative.	AVUM: Replace clamp coupling (para 6-50, TM). AVIM: Chase threads.	A[3]
(3) Cracks in butt welds and spot-welds.	None allowed.	Not repairable.	Replace clamp coupling (para 6-50, TM).	NC
(4) Rolled edges on locknut (1).	Any amount if wrench fits properly. No high metal allowed.	Same as usable limits, with high metal.	Remove high metal.	A[3]
(5) Run-on torque of locknut (1).	Minimum of 6 inch-pounds.	Not repairable.	Replace clamp coupling (para 6-50, TM).	A[3]
c. Link assembly (10) for:				
(1) Cracks.	None allowed.	Not repairable.	Replace HMU (para 6-50, TM).	NC
(2) Nicks, dents, scratches, and gouges.	Any number, up to 0.015 inch deep, without high metal.	Same as usable limits, with high metal.	Blend high metal.	A[3]
(3) Missing bush-ings.	None allowed.	Not repairable.	Replace HMU (para 6-50, TM).	NC
d. Quick-disconnect pin (fig. 6-121, TM):				
(1) Pin shaft (1) for:				
(a) Broken or missing lockring (3).	Not allowed.	Not repairable.	Replace pin (para 6-50, step i, TM).	NC

Table 69. Inspection of Hydromechanical Control Unit (HMU), Grooved Clamp Coupling and Quick-Disconect Pin (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
(b) Nicks scratches, or wear.	None allowed that can be felt with fingernail	Not repairable.	Replace pin (para 6-50, step i, TM).	A[3]
(c) Cracks.	None allowed.	Not repairable.	Replace pin (para 6-50, step i, TM).	NC
(2) Pinhead (2) for:				
(a) Nicks, scratches, dents, and gouges.	Any number, up to 1/32 inch deep.	Not repairable.	Replace pin (para 6-50, step i, TM).	A[3]
(b) Bends.	Any amount, up to 1/16 inch from original shape.	Any amount that can be reworked to usable limits.	Replace pin (para 6-50, step i, TM).	A[3]
(c) Cracks.	None allowed.	Not repairable.	Replace pin (para 6-50, step i, TM).	NC

NOTE

Quick-disconnect pins may be replaced with bolt and locknut of appropriate size. Do not over tighten.

bb. Inspection of Fuel Filter. See table 70.

Table 70. Inspection of Fuel Filter (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
a. Fuel filter (1, fig. 6-19, TM) for:				
(1) Cracks.	None allowed.	Not repairable.	Replace filter (para 6-61, TM).	NC
(2) Leaks.	Not allowed.	Not repairable.	Replace filter (para 6-61, TM).	NC

Table 70. Inspection of Fuel Filter (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
b. Electrical connector (2) for:				
(1) Bent socket pins.	Not allowed.	Up to 1/8 inch out-of-position.	Straighten pin. Check alinement with mating connector.	NC
(2) Damaged threads.	Any amount, without high metal, if connector can be assembled normally.	Any amount that can be reworked to usable limit.	Remove high metal.	A[3]
c. Captive bolts (3) for damaged threads.	Not allowed.	Not repairable.	Replace bolt (para H-6, Appendix H, TM).	A[3]
d. Damaged threads on captive bolt flanges.	Any number of missing threads with no crossed threads or loose material.	Any number with crossed threads or loose material.	AVUM: Replace filter (para 6-61, TM). AVIM: Remove loose material; mask all openings and chase threads to remove creased thread.	A[3]

bc. Inspection of Fuel Filter Bowl. See table 71.

Table 71. Inspection of Fuel Filter Bowl (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
a. Fuel filter bowl (1, fig. 6-20, TM) for:				
(1) Visible cracks.	None allowed.	Not repairable.	Replace bowl (para 6-66, TM).	NC
(2) Nicks or scratches in:				
(a) Area A.	No nicks alloewd. Any amount of scratches, up to 0.003 inch deep, that run circumferentially. No axial scratches allowed. No high metal allowed.	Axial scratches and nicks not repairable. Any amount of circumferential scratches and nicks, up to 0.010 inch deep with high metal.	Remove superficial nicks, scratches, and high metal with fine grit, abrasive cloth (item 41, Appendix D, TM). Move cloth in a circumferential direction.	A[3]

Table 71. Inspection of Fuel Filter Bowl (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
(b) All other areas.	Any amount up to 0.015 inch deep.	Not repairable.	Replace bowl (para 6-66, TM).	A[3]
b. Rod(2) for damaged threads.	One thread cumulative missing or damaged, without high metal, if thread can be used without cross-threading.	Not repairable.	Replace bowl (para 6-66, TM).	A[3]
c. Hex (3) for damage.	Enough flat surfaceto permit torquing to given limits without slipping to next set of flats.	Not repairable.	Replace bowl (para 6-66, TM).	A[3]

bd. Inspection of Fuel Pressure Sensor. See table 72.

Table 72. Inspection of Fuel Pressure Sensor (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
a Fuel pressure Sensor (l, fig. 6-23, TM) for:				
(1) Visible cracks.	None allowed	Not repairable.	Replace sensor (para 6-76, TM).	NC
(2) Leaks.	Not allowed.	Not repairable.	Replace sensor (para 6-76, TM).	NC
b. Electrical connector (2) for:				
(1) Bent socket pins.	None allowed.	Up to 1/16 inch out-of-position.	Straighten pin.	NC
(2) Kinked or sharply bent pins.	None allowed.	Not repairable.	Replace sensor (para 6-76, TM).	A[3]

Table 72. Inspection of Fuel Pressure Sensor (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
(3) Damaged threads.	Any amount, without high metal, if connector can be installed normally with its mating part.	Any amount that can be reworked to usable limits.	Blend high metal.	A[3]
(4) Swelling of socket pin insulation or evidence of leakage.	Not allowed.	Not repairable.	Replace sensor (para 6-76, TM).	A[3]
(5) Looseness.	Not allowed.	Not repairable.	Replace sensor (para 6-76, TM).	A[3]
c. Mounting threads (3) for damage.	One-half of one thread in length (total), without high metal.	One-half of one thread (total), with high metal.	Blend high metal.	A[3]

be. (T701, T701C) Inspection of Overspeed and Drain Valve (ODV) Manifold Assembly. See table 73.

Table 73. (T701, T701C) Inspection of Overspeed and Drain (ODV) Manifold Assembly (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
a. ODV manifold assembly (fig. 6-24, TM) for damaged tubes and fittings.	See Inspection of Tubes, Hoses and Fittings (para H-24, Appendix H, TM).			A[3]
b. Captive bolts (3) for damaged threads.	Not allowed.	Not repairable.	Replace bolt (para H-6, Appendix H, TM).	A[3]
c. Boss (2) (with captive bolt (3) removed) for damaged threads.	No crossed threads or loose material.	Any amount.	AVUM: Replace ODV manifold assembly (para 6-83, TM). AVIM: Cap and plug all openings. Remove loose material and debris. Chase threads.	A[3]
d. Adapter gasket (1) for nicks, cuts, excessive compassion set, and separation of seals (9).	Not allowed.	Not repairable.	Replace gasket (para 6-83.1, TM).	A[3]

bf. (T701, T701C) Inspection of Overspeed and Drain Valve (ODV). See table 74

Table 74. (T701, T701C) Inspection of Overspeed and Drain Valve (ODV) (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
a. ODV housing (3, fig. 6-26, TM) for:				
(1) Cracks.	None allowed.	Not repairable.	Replace ODV (para 6-88, TM).	NC
(2) Leaks.	Not allowed.	Not repairable.	Replace ODV (para 6-88, TM).	NC
(3) Damaged threads (6).	Up to two threads without high metal or crossed threads.	Up to two threads with high metal or crossed threads.	Remove high metal.	A[3]
b. Captive bolts (4) for damaged threads.	Not allowed.	Not repairable.	Replace bolts (para H-6, Appendix H, TM).	A[3]
c. Boss (5) (with captive bolt (4) removed) for damaged threads.	No crossed threads or loose material.	Any amount.	AVUM: Replace ODV (para 6-88, TM). AVIM: Cap and plug all openings. Remove loose material and debris. Chase threads.	A[3]
d. Electrical connector (1) for:				
(1) Contamination or moisture.	Not allowed.	Any amount.	Clean connector (para H-11, Appendix H, TM).	NC
(2) Bent pins.	Not allowed.	Up to 1/8 inch out-of-position.	Straighten pin. Check alinement with mating connector.	NC
(3) Damaged threads (2).	Any amount, without high metal, if connector can be assembled normally with its mating part.	Any amount that can be reworked to usable limits.	Remove high metal.	A[3]
e. Mating flange (7) for nicks and scratches.	Any number, 0.015 inch deep, without high metal.	Any number, 0.015 inch deep, with high metal.	Remove high metal.	A[3]

bg. (T700) Inspection of Pressurizing and Overspeed (POU) Manifold Assembly. See table 75.

Table 75.(T700) Inspection of Pressurizing and Overspeed Unit (POU) Manifold Assembly (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
a POU manifold assembly (7, fig. 6-27, TM) for damaged tubes and fittings.	See Inspection of Tubes, Hoses and Fittings (para H-24, Appendix H, TM).			A[3]
b. Captive bolts (3) for damaged threads.	Not allowed.	Not repairable.	Replace bolt (para H-6, Appendix H, TM).	A[3]
c. Boss (5) (with captive bolt (3) removed) for damaged threads.	Any number of missing threads with no crossed threads or loose material.	Any amount.	AVUM: Replace POU manifold assembly (para 6-95, TM). AVIM: Cap and plug all openings. Remove loose material and debris. Chase threads.	A[3]
d. Adapter gasket (2) for nicks, cuts, excessive compression set, and separation of seals (1).	Not allowed.	Not repairable.	Replace gasket (para 6-95.1, TM).	A[3]

bh. (T700) Inspection of Pressurizing and Overspeed Unit (POU). See table 76.

Table 76. (T700) Inspection of Pressurizing and Overspeed Unit (POU) (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
a POU housing (3, fig. 6-29, TM) for:				
(1) Cracks.	None allowed.	Not repairable.	Replace POU (para 6-100, TM).	NC
(2) Leaks.	Not allowed.	Not repairable.	Replace POU (para 6-100, TM).	NC
(3) Damaged threads (6).	Up to two threads without high metal or crossed threads.	Up to two threads with high metal or crossed threads.	Remove high metal.	A[3]

Table 76. (T700) Inspection of Pressurizing and Overspeed Unit (POU) (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
b. Captive bolts (4) for damaged threads.	Not allowed.	Not repairable.	Replace bolts (para H-6, Appendix H, TM).	A[3]
c. Boss (5) (with captive bolt (4) removed) for damaged threads.	Any number of missing threads with no crossed threads or loose material..	Any amount.	AVUM: Replace POU (para 6-100, TM). AVTM: Cap and plug all openings. Remove loose material and debris. Chase threads.	A[3]
d. Electrical connector (1) for:				
(1) Contamination or moisture.	Not allowed.	Any amount.	Clean connector (para H-11. Appendix H, TM).	NC
(2) Bent pins.	Not allowed	Up to 1/8 inch out-of-position.	Straighten pin. Check alinement with mating connector.	NC
(3) Damaged threads (2).	Any amount, without high metal if connector can be installed normally with its mating part.	Any amount that can be reworked to usable limits.	Remove high metal.	A[3]
e. Mating flange (7) for nicks and scratches.	Any number, 0.015 inch deep, without high metal.	Any number, 0.015 inch deep, with high metal.	Remove high metal.	A[3]

bi. Inspection of Igniter Plugs. See table 77.

Table 77. Inspection of Igniter Plugs (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
a. Threads (4, fig. 7-2, TM) on igniter plug (1) for:				
(1) Damage.	Up to one thread length, cumulative, without high metal.	Same as usable limits, with high metal.	AVIM: Replace igniter plug (para 7-8 (T700) or 7-8.1 (T701, T701C), TM). AVIM: Chase threads and blend high metal.	A[3]

Table 77. Inspection of Igniter Plugs (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
(2) Missing silver plate.	Any amount, if mating part threads on smoothly.	Not repairable.	Replace igniter plug (para 7-8 (T700) or 7-8.1 (T1701, T701C), TM).	A[3]
b. Ceramic insulator (8) for:				
(1) Cracks.	Any number, if the crack is 1/8 inch minimum from ceramic edge.	Not repairable.	Replace igniter plug (para 7-8 (T700) or 7-8.1 (T701, T701C), TM).	A[3]
(2) Looseness.	Any amount.	Not repairable.	Replace igniter plug (para 7-8 (T700) or 7-8.1 (T701, (T701C), TM).	NC
(3) Missing pieces.	Any number, if the missing piece is 1/8 inch from ceramic edge.	Not repairable.	Replace igniter plug (para 7-8 (T700) or 7-8.1 (T701, T701C), TM).	A[3]
(4) Void in cement joint (9).	Any amount.	Not applicable.	Not applicable.	NC
c. Semiconductor (14) (at tip between center and outer electrodes (13, 12)) for:				
(1) Cracks.	Any number.	Not repairable.	Replace igniter plug (para 7-8 (T700) or 7-8.1 (T701, T701C), TM).	NC
(2) Erosion or missing material.	Any amount, up to 1/8 inch deep all around.	Not repairable.	Replace igniter plug (para 7-8 (T700) or 7-8.1 (T701, T701C), TM).	NC
d. Center electrode (13) for:				
(1) Looseness.	Up to 0.015 inch movement when using a 0.015 inch wire gage.	Not repairable.	Replace igniter plug (para 7-8 (T700) or 7-8.1 (T701, T701C), TM).	NC

Table 77. Inspection of Igniter Plugs (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
(2) Erosion.	Any amount.	Not repairable.	Replace igniter plug (para 7-8 (T700) or 7-8.1 (T701, T701C), TM).	NC
(3) Bends (at threaded end).	Not allowed.	Up to 3/32 inch out of position at tip without damage to ceramic insulator (4).	Straighten electrode.	NC
(4) Carbon buildup.	Not allowed.	Any amount.	Clean plug (para 7-6, TM).	NC
e. Outer electrode (12) for:				
(1) Chafing.	Circumferentially, up to 0.010 inch deep, without high metal.	Same as usable limits, with high metal.	Blend high metal.	Up to 0.020 deep
(2) Nicks and scratches.	Any number, up to 0.010 inch deep without high metal.	Same as usable limits, with high metal.	Blend high metal.	Up to 0.020 deep.
(3) Plugged cooling air holes (2).	None allowed.	Any amount.	Using a 0.032 inch diameter wire, remove foreign material. Clean plug (para 7-6, T'M).	A [3]
(4) Enlarged diameter at tip of outer electrode (12).	Any amount that will not prevent installation into combustion liner ferrule.	Not repairable.	Replace igniter plug (para 7-8 (T700) or 7-8.1 (T701, T701C), TM).	NC
(5) Cracks (11) through outer electrode (12) to cooling holes (15).	Up to six places allowed.	Not applicable.	Replace igniter plug (para 7-8 (T700) or 7-8.1 (T701, T701C), TM).	NC
(6) Missing material (Area B).	Circumferentially, up to 0.150 inch long or three holes inclusive.	Not repairable.	Replace igniter plug (para 7-8 (T700) or 7-8.1 (T701, T701C), TM).	NC

Table 77. Inspection of Igniter Plugs (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
(7) Erosion.	Any amount.	Not repairable.	Replace igniter plug (para 7-8 (T700) or 7-8.1 (T701, T701C), TM).	NC
(8) Looseness.	Not allowed.	Not repairable.	Replace igniter plug (para 7-8 (T'700) or 7-8.1 (T701, T701C), TM).	NC
(9) Carbon buildup.	Not allowed.	Any amount.	Clean plug (para 7-6, TM).	A [3]
f. (T700) Mounting flange (3) for:				
(1) Nicks, dents, and scratches.	Any number, 0.020 inch deep, without high metal.	Same as usable limits, with high metal.	Blend high metal.	A [3]
(2) Wear.	0.110 inch minimum thickness.	Not repairable.	Replace igniter plug (para 7-8, TM).	A [3]
g. (T700) Retaining nut (5) for:				
(1) Cracks.	None allowed.	Not repairable.	Replace nut (para 7-8, TM).	NC
(2) Missing or damaged threads (6).	One thread total, missing or damaged, without high metal, if threads can be used without crossthreading.	One thread total, missing or damaged, that can be chased to usable limits.	AVUM: Replace nut (para 7-8, TM). AVIM: Chase threads.	A [3]
(3) Damage on comers of hex (7) caused by wrenching.	Any amount, without high metal, if wrench will not slip off hex.	Same as usable limits with high metal.	AVUM: Replace nut (para 7-8, TM). AVIM: Remove high metal on hex.	A [3]
(4) Distortion.	Any amount if wrench will fit on nut.	Not repairable.	Replace nut (para 7-8, TM).	A [3]
(5) Discoloration.	Any amount.	Not applicable.	Not applicable.	NC
(6) Nicks and scratches, except on threads.	Any number, up to 1/64 inch deep, without high metal.	Same as usable limits with high metal.	AVUM: Replace nut (para 7-8, TM). AVIM Blend high metal to adjacent contour.	A [3]

Table 77. Inspection of Igniter Plugs (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
h. (T701, T701C) Hex (10) for:				
(1) Nicks, dents, and scratches on flats.	Any number, up to 0.020 inch deep, without high metal.	Same as usable limits, with high metal.	Blend high metal.	A[3]
(2) Damaged corners.	Any amount, without high metal, if wrench does not slip.	Any amount that can be reworked to usable limits with high metal.	Blend high metal.	A[3]

bj. Inspection of (T700, T701) Electrical Control Unit (ECU) or (T701) DEC and Scroll Seal. See table 78.

Table 78. Inspection of (T700, T701) Electrical Control Unit (ECU) or (T701C) Digital Electronic Control (DEC) and Scroll Seal (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BF'L
NOTE • The insulation blanket is not removed for inspection of the (T700, T701) ECU. • The (701C) DEC does not have an insulation blanket.				
a. Dropped (T700, T701) ECU (fig. 7-4, TM) or (T701C) DEC (fig. 7-4.1, TM).	Not allowed.	Not repairable.	Replace ECU or DEC (para 7-14, TM).	(1)
b. ECU box (9) or DEC box (4) for:				
(1) Cracks in support area.	None allowed.	Not repairable.	Replace ECU or DEC (para 7-14, TM).	NC
(2) Nicks and scratches.	Any number.	Not applicable.	Not applicable.	NC

Table 78. Inspection of (T700, T701) Electrical Control Unit (ECU) or (T701C) Digital Electronic Control (DEC) and Scroll Seal (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
(3) Dents.	Any number, up to 1/16 inch from original contour.	Not repairable.	Replace ECU or DEC (para 7-14, TM).	A[3]
(4) Missing protective coating.	Any amount.	Not applicable.	Not applicable.	NC
(5) Missing locking seals.	Not allowed.	Not repairable.	Replace ECU (para 7-14, TM).	A[3]
c. (T701C) DEC box (4) for missing protective coating on:				
(1) T-shaped mounting lug (11).	Up to 1/1 6 inch diameter (0.0004 inch square area).	Not repairable.	Replace DEC (para 7-14, TM).	A[3]
(2) All other areas.	Up to 1/4 inch diameter (0.060 inch square area).	Not repairable.	Replace DEC (para 7-14, TM).	A[3]
d. Electrical connectors (12) or (7) for:				
(1) Bent socket pins (13) or (8).	None allowed.	Up to 1/8 inch out-of-position.	Straighten pin. Check alinement with mating connector.	NC
(2) Damaged threads.	Any amount, without high metal, if connector can be assembled normally with its mating part.	Any amount, with high metal, if threads can be reworked to usable limits.	Remove high metal.	A[3]
(3) Missing protective cap (11) or (6).	Not allowed.	Not applicable.	Replace protective cap (para7-13, TM).	A[3]
e. Captive bolt (14) or (9) for damaged threads.	Not allowed.	Not repairable.	Replace bolt (para H-6, Appendix H, TM).	A[3]

Table 78. Inspection of (T700, T701) Electrical Control Unit (ECU) or (T701C) Digital Electronic Control (DEC) and Scroll Seal (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
f. Captive bolt flanges for damaged threads.	Any number of missing threads without crossed threads or loose material.	Any number with crossed threads or loose material.	AVUM: Replace ECU or DEC (para 7-14, TM). AVIM: Remove loose material, or mask all openings and chase threads to remove crossed threads.	A[3]
g. (T700) Scroll seal (former configuration) (5) for:				
(1) Broken seal.	Not allowed if broken all the way through seal.	Not repairable.	Replace seal (para 7-14, TM).	One break allowed
(2) Separation of steel and rubber.	Up to 50% of circumference, if no more than four consecutive stiffeners are separated.	Not repairable.	Replace seal (para 7-14, TM).	NC
(3) Cracks in:				
(a) Stiffeners.	Any number, up to 25% of stiffeners, if no more than two consecutive stiffeners are cracked.	Not repairable.	Replace seal (para 7-14, TM).	(2)
(b) Seal support.	None allowed.	Not repairable.	Replace seal (para 7-14, TM).	A[3]
(c) Rubber.	Any number if forward and aft scaling bead is intact.	Not repairable.	Replace seal (para 7-14, TM).	A[3]
h. Scroll seal (present configuration) (6) or(1)for:				
(1) Missing coating on:				
(a) Surface A.	Any amount.	Not applicable.	Not applicable.	NC
(b) Surface B.	None allowed.	Not repairable.	Replace seal (para 7-14, TM).	A[3]

Table 78. Inspection of (T700, T701) Electrical Control Unit (ECU) or (T701C) Digital Electronic Control (DEC) and Scroll Seal (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
(2) Scratches, cuts or gouges on:				
(a) Surface A.	Any amount which does not affect base material.	Not repairable.	Replace seal (para 7-14, A[3] TM).	
(b) Surface B.	None allowed.	Not repairable.	Replace seal (para 7-14, A[3] TM).	
(3) Swelling of thickness C.	Not to exceed 0.90 inch.	Not repairable.	Replace seal (para 7-14, A[3] TM).	
i. (T700, T701) If insulation blanket (3) is removed, inspect temperature decals (8) for blackened spots.	A black 225°F (107°C) spot is allowed if 250°F (121°C) spot is white. Temperature decals are normally white.	Not repairable.	Replace ECU (para 7-14, TM).	NC
j. ECU Insulation blanket (3) for:				
(1) Tears and holes.	None allowed.	Not repairable.	Replace insulation blanket (para 7-13, TM).	A[3]
(2) Deformed sections.	Any amount if blanket effectively shields ECU, is not loose, and does not chafe on adjacent parts.	Any amount that can be repaired to meet usable limits.	Re-form to original shape.	NC
k. DEC for blackened spots on temperature decals (8).	None allowed.	Not repairable.	Replace DEC (para 7-14, TM).	NC

NOTE:

(1) Dropped ECU/DEC may be used, if functional test is passed.

(2) Any number, up to 50% of stiffeners, if no more than three consecutive stiffeners are cracked.

bk. Inspection of History Recorder or History Counter. See table 79.

Table 79. Inspection of History Recorder or History Counter (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
a. History recorder or history counter chassis (8, fig. 7-6, TM) and chassis cover (11) for:				
(1) Cracks.	None allowed.	Not repairable.	Replace recorder or counter (para 7-20, TM).	A[3]
(2) Nicks and scratches.	Any number.	Not applicable.	Not applicable.	NC
(3) Dents.	Any number, 1/16 inch from original contour.	Not repairable.	Replace recorder or counter (para 7-20, TM).	A[3]
(4) Missing paint.	Any amount.	Not applicable.	Not applicable.	NC
b. Electrical connector (9) for:				
(1) Bent socket pins.	None allowed.	Up to 1/8 inch out-of-position.	Straighten pin. Check alinement with mating connector.	NC
(2) Damaged threads.	Any number, without high metal, if connector can be assembled normally with its mating part.	Any number that can be reworked to usable limits.	Remove high metal (para H-21, Appendix H, TM).	A[3]
c. History recorder or history counter for missing isolators (4).	Not allowed.	Not repairable.	Replace isolator (para 7-19.3, TM).	A[3]
d. Readout windows (10) for:				
(1) Broken glass.	Not allowed.	Not repairable.	Replace recorder or counter (para 7-20, TM).	A[3]

Table 79. Inspection of History Recorder or History Counter (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
(2) Dirt.	Numbers must be legible.	Any amount if the usable limit can be met.	Remove history recorder or history counter guard (7) (para 7-19, TM), and clean window with soft lint-free towel (item 68, Appendix D, TM). Reinstall guard (para 7-19, TM).	A[3]
e. Captive bolts (1) for damaged threads.	None allowed.	Not repairable.	Replace bolt.	A[3]
f. History recorder or history counter guard (12) for:				
(1) Missing guard.	Not allowed	Not applicable.	Replace guard (para 7-19, TM).	A[3]
(2) Cracks.	Any number without missing pieces and numbers must be legible.	Not repairable.	Replace guard (para 7-19, TM).	A[3]
(3) Visibility of readout windows (10).	Numbers must be legible.	Not repairable.	Replace guard (para 7-19, TM).	A[3]
(4) Dirt.	Numbers must he legible.	Any amount if usable limit can be met.	Clean guard with a soft, lint-free towel (item 68, Appendix D, TM).	A[3]
g. Grounding strep (2) for:				
(1) Missing strap.	Not allowed..	Not applicable.	Replace strap (para 7-19, TM).	A[3]
(2) Cracks.	None allowed.	Not repairable.	Replace strap (para 7-19, TM).	A[3]
(3) Broken strands.	None allowed.	Not repairable.	Replace strap (para 7-19, TM).	A[3]

NOTE

Engine operation is not affected, if history recorder does not function.

bl. Inspection of Electrical Ignition Leads. See table 80.

Table 80. Inspection of Electrical Ignition Leads (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
a. Outer conduit (4, fig. 7-8, TM) for:				
(1) Nicks, scratches, and abrasions.	Any number, up to 1/64 inch deep, without high metal.	Same as usable limits with high metal.	Remove high metal (para H-21, Appendix H, TM).	A[3]
(2) Dents.	Any number, up to 1/32 inch deep.	Not repairable.	Replace ignition lead (para 7-26, TM).	A[3]
(3) Cracks.	None allowed.	Not repairable.	Replace ignition lead (para 7-26, TM).	A[3]
b. Flexible lead (2) for:				
(1) Missing teflon spiral wrap (5).	Not allowed.	Any amount.	Replace missing spiral wrap (item 73, Appendix D, TM) and tape both ends with silicone tape (item 67, Appendix D, TM).	A[3]
(2) Broken wires and exposed inner conduit (6) in wirebraid shield (7).	Up to seven broken strands in any l-square inch, provided break is not closer than 2.000 inches to another damaged area and the inner conduit is not exposed	Same as usable limits.	Bend back broken wires. Otherwise, replace ignition lead (para 7-26, TM).	A[3]
(3) Exposed inner conduit (6) in wire-braid shield (7) for cracks, holes, or breaks, using a 10x magnifying glass.	None allowed.	Not repairable.	Replace ignition lead (para 7-26, TM).	A[3]
c. Electrical connectors (1) for:				
(1) Damaged sockets (3).	Not allowed.	Not repairable.	Replace ignition lead (para 7-26, TM).	NC
(2) Missing retaining washers (9).	Not allowed.	Not applicable.	Replace ignition lead (para 7-26, TM).	NC

Table 80. Inspection of Electrical Ignition Leads (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
(3) Damaged threads on coupling nuts (8).	Any amount, without high metal, if connector can be installed normally onto its mating part.	Any amount that can be reworked to usable limits.	Remove high metal (para H-21, Appendix H, TM).	A[3]
(4) Cracked, chipped, or missing ceramic insulator (11).	Small cracks or chips allowed, provided electrical properties of the lead arc not affected.	Not repairable.	Replace ignition lead (para 7-26, TM).	A[3]
(5) Missing or broken fingers (10).	Not allowed.	Not repairable.	Replace ignition lead (para 7-26, TM).	NC
(6) Electrical characteristics.	Must meet criteria in paragraph 1-79 (aircraft) (TM) or paragraph 1-219 (METS) (TM).	Not repairable.	Replace ignition lead (para 7-26, TM).	NC

bm. Inspection of Ignition Exciter Assembly. See table 81.

Table 81. Inspection of Ignition Exciter Assembly (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
a. Ignition exciter (4, fig. 7-10, TM) for:				
(1) Cracks.	None allowed.	Not repairable.	Replace ignition exciter assembly (para 7-32, TM).	NC
(2) Nicks and scratches.	Any number.	Not applicable.	Not applicable.	NC
(3) Dents.	Any number, 1/16 inch from original contour.	Not repairable.	Replace ignition exciter assembly (para 7-32, TM).	A[3]
(4) Missing paint.	Any amount.	Not applicable.	Not applicable.	NC

Table 81. Inspection of Ignition Exciter Assembly (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
(5) Missing or damaged isolators (2).	Not allowed.	Not repairable.	Replace isolators (para 7-31, TM).	NC
b. Electrical connectors (3) for:				
(1) Bent socket pins.	Not allowed.	Up to 1/8 inch out-of-position.	Straighten pin. Check alinement with mating connector.	NC
(2) Damaged threads.	Any amount, without high metal, provided connector can be assembled normally.	Any amount with high metal, if connector can be reworked to usable limits.	Remove high metal (para H-21, Appendix H, TM).	A[3]*
(3) Cracked or missing ceramic insulation (5).	Small cracks or chips allowed, provialed electrical properties of the exciter are not affected.	Not repairable.	Replace ignition exciter assembly (para 7-32, TM).	A[3]
c. Captive bolts (1) for damaged threads.	Not allowed.	Not repairable.	Replace bolt.	A[3]
d. Grounding strap (6) for:				
(1) Broken strands.	None allowed.	Not repairable.	Replace strap (para 7-31, TM).	A[3] (1)
(2) Cracks.	None allowed.	Not repairable.	Replace strap (para 7-31, TM).	A[3]
(3) Strap missing.	Not allowed.	Not applicable,	Replace strap (para 7-31, TM).	NC

Note:

(1) Complete separation not allowed. Jury rig with wire to assure ground is made.

bn. Inspection of Green Electrical Cable (W3). See table 82.

Table 82. Inspection of Green Electrical Cable (W3) (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
a. Green electrical cable (1, fig. 7-12 (T700, T701C) or 7-12.1 (T701), TM) for:				
(1) Worn or damaged backshells (2).	Any amount, if wire braid is not exposed Exposed solid metal, up to one-half of circumference, is acceptable.	Not repairable.	Replace cable (para 7-38, TM).	A[3]
(2) Loose spiral wrap.	Wrap will fit snugly on cable and will not have projecting ends.	Any amount.	Rewrap and tape ends with silicone tape (item 67, Appendix D, TM).	A[3]
(3) Damaged or missing spiral wrap.	Not allowed.	Wrap is not repairable.	Replace damaged or missing wrap (item 75, Appendix D, TM). Tape ends with silicone tape (item 67, Appendix D, TM).	A[3]
b. Electrical connectors (3) for:				
(1) Damaged threads.	Any amount, with high metal, if connector can be installed normally onto its mating part.	Any amount, without if connector can be reworked to usable limits.	Remove high metal (para H-21, Appendix H, TM).	NC
(2) Cracked or missing ceramic insulation.	Small cracks or chips allowed, provided electrical properties of cable are not affected.	Not repairable.	Replace cable (para 7-38, TM).	NC
(3) Damaged or out-of-round knurled coupling rings.	Coupling rings must screw on mating parts with a ratcheting action and must attach securely.	Not repairable.	Replace cable (para 7-38, TM).	NC
c. Electrical connector (W3J1) (4) for:				
(1) Bent pins.	None allowed.	Up to 1/8 inch out-of-position.	Replace cable (para 7-38, TM).	Straighten pin.

Table 82 Inspection of Green Electrical Cable (W3) (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
(2) Damaged threads.	Any number, without high metal, if connector can be installed normally with its mating part.	Any number, with high metal, if connector can be reworked to usable limits.	Remove high metal (para H-21, Appendix H, TM).	NC
d. E3 connector bracket (5) for:				
(1) Cracks.	None allowed.	Not repairable.	Replace bracket (para 7-37, TM).	A[3]
(2) Nicks, dents and scratches.	Any number.	Not applicable.	Not applicable.	A[3]
(3) Deformation.	Any amount, if bracket can be installed normally with its mating parts.	Same as usable limits.	Cold-work to usable limits.	A[3]*

bo. Inspection of Yellow Electrical Cable (W4). See table 83.

Table 83. Inspection of Yellow Electrical Cable (W4) (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
a. Yellow electrical cable (6, fig. 7-14, TM) for:				
(1) Broken wires and exposed inner bundle (2) or inner conduit (5) in wirebraid shield (1).	Up to seven broken strands in any l-square inch, provided break is not closer than 2.000 inches to another damaged area and the inner bundle is not exposed.	Same as usable limits.	Bend back broken wires. Otherwise, replace cable (para 7-43, TM).	A[3]
(2) Exposed inner bundle (2) and inner conduit (5) for cracks or breaks, using a 10x magnifying glass.	None allowed.	Not repairable.	Replace cable (para 7-43, TM).	A[3]

Table 83. Inspection of Yellow Electrical Cable (W4) (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
(3) Worn or damaged backshells (7).	Any amount, if wire braid is not exposed. Exposed solid metal up to one-half of circumference is acceptable.	Not repairable.	Replace cable (para 7-43, TM).	A[3]
(4) Loose teflon chafing sleeve (3).	Wrap will fit snugly on cable and will have no projecting ends.	Any amount.	Rewrap and tape ends with silicone tape (item 67, Appendix D, TM)	A[3]
(5) Damaged or missing chafing sleeve (3).	Not allowed.	Any amount.	Replace damaged or missing sleeve (item 76, Appendix D, TM). Tape ends with silicone tape (item 67, Appendix D, TM).	A[3]
b. Electrical connectors (8) for:				
(1) Damaged threads.	Any number, without high metal, if connector can be installed normally onto mating parts.	Any number, with high metal, if connector can be reworked to usable limits.	Remove high metal (para H-21, Appendix H, TM).	NC
(2) Cracked or missing ceramic insulation (4).	Small cracks or chips allowed, provided electrical properties of cable are not affected.	Not repairable.	Replace cable (para 7-43, TM).	NC
(3) Damaged or out-of-round knurled coupling rings.	Coupling rings must screw on mating parts with a ratcheting action and must attach securely.	Not repairable.	Replace cable (para 7-43, TM).	NC

bp. Inspection of Blue Electrical Cable (W5). See table 84.

Table 84. Inspection of Blue Electrical Cable (W5) (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
a. Blue electrical cable (8, fig. 7-16, TM) for:				
(1) Broken wires and exposed inner bundle (6) in wirebraid shield (4).	Up to seven broken strands in any l-square inch, provided break is not closer than 2.000 inches to another damaged area and the inner bundle is not exposed.	Same as usable limits.	Bend back broken wires. Otherwise, replace cable (para 7-48, TM).	A[3]
(2) Exposed inner bundle (6) and inner conduit (3) *for* cracks, or breaks, using a 10x magnifying glass.	None allowed.	Not repairable.	Replace cable (para 7-48, TM).	A[3]
(3) Worn or damaged backshells (2).	Any amount, if wire-braid is not exposed. Exposed solid metal up to one-half of circumference is acceptable.	Not repairable.	Replace cable (para 7-48, TM).	A[3]
(4) Loose teflon chafing sleeve (5).	Sleeve will fit snugly on cable and have no projecting ends.	Any amount.	Rewrap and tape ends with silicone tape (item 67, Appendix D, TM).	A[3]
(5) Damaged or missing teflon chafing sleeve (5).	Not allowed.	Any amount.	Replace damaged or missing sleeve (item 74, Appendix D, TM). Tape ends with silicone tape (item 67, Appendix D, TM).	A[3]
b. Electrical connectors (1) for:				
(1) Damaged threads.	Any number, without high metal, if connector can be installed normally onto its mating part.	Any number, with high metal, if connector can be reworked to usable limits.	Remove high metal (para H-21, Appendix H, TM).	NC

Table 84. Inspection of Blue Electrical Cable (W5) (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
(2) Cracked or missing ceramic insulation (7).	Small cracks or chips allowed, provided electrical properties of the cable are not affected.	Not repairable.	Replace cable (para 7-48, TM).	NC
(3) Damaged or out-of-round knurled coupling rings.	Coupling rings must screw on mating parts with a ratcheting action and must attach securely.	Not repairable.	Replace cable (para 7-48, TM).	NC

bq. Inspection of Alternator Stator. See table 85.

Table 85. Inspection of Alternator Stator (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
Alternator stator for:				
a. Damaged threads on captive bolts (3, fig. 7-18, TM).	Not allowed.	Not repairable.	Replace bolt (para H-21, Appendix H, TM).	A[3]
b. Cracks.	None allowed.	Not repairable.	Replace alternator stator (para 7-54, TM).	NC
c. Boss (2) (with captive bolt (3) removed) for:				
(1) Missing threads.	Any number.	Not applicable.	Not applicable.	NC
(2) Damaged threads.	No crossed threads or loose material.	Any number.	AVUM: Replace alternator stator (para 7-54, TM). AVIM: Remove loose material and debris. Chase threads to remove crossed threads.	A[3]
d. Diameter A for high metal.	Not allowed.	Any amount.	Remove high metal (para H-2 1, Appendix H, TM).	A[3]*

Table 85. Inspection of Alternator Stator (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action BFL
e. Electical connectors (4, 5) for:			
(1) Contamination or moisture.	Not allowed	Any amount.	Clean connectors (para NC 7-51, TM).
(2) Bent pins.	Not allowed.	up to 1/8 inch out of position.	Straighten pin. check NC alinement with mating connector.
(3) Damaged threads.	Any amount, without high metal, if connector can be assembled normally with its mating part..	Any amount that can be reworked to usable limits.	Remove high metal (para H-21, Appendix H, TM). A[3]
	NOTE Connector seal is commonly known as a grommet.		
(4) Swollen connector seal (6).	Flush or below surface X.	Not repairable.	Replace alternator stator (para 7-54, TM). A[3] (1)
f. Nicks, dents, pits, and scratches on:			
(1) Floor of packing groove (1).	Any number, 0.003 inch deep, without sharp edges.	Not repairable.	Replace alternator stator (para 7-54, TM). A[3]
(2) Wall of packing groove (1).	Any number, 0.010 inch deep, without sharp edges.	Not repairable.	Replace alternator stator (para 7-54, TM). A[3]

Note:

(1) Replace alternator stator as soon as possible.

br. Inspection of Alternator Rotor (AVIM). See table 86.

Table 86. Inspection of Alternator Rotor (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action BFL
a. Alternator rotor (fig. 20, TM) for			
(1) Nicks and scratches.	Any number, 1/64 inch deep, without high metal.	Same as usable limits, with high metal.	Remove high metal (para A[3] H-21, Appendix H, TM).
(2) Dents.	Any number, 1/32 inch deep.	Not repairable.	Replace rotor (para 7-59, A[3] TM).
(3) Cracks.	None allowed.	Not repairable.	Replace rotor (para 7-59, A[3] TM).
(4) Wear on diameter A.	0.4610 inch maximum diameter.	Not repairable.	Replace rotor (para 7-59, A[3] TM).
(5) Wear on diameter B.	0.7810 inch maximum diameter.	Not repairable.	Replace rotor (para 7-59, A[3] TM).
b. Surfaces A and B for:			
(1) Pickup and fretting.	Not allowed.	Any amount of high metal, if no more than 25% of area is affected.	Remove high metal (para A[3] H-21, Appendix H, TM).
(2) Axial scratches and grooves.	4 per 1/4 inch of circumference 0.010 inch deep, without high metal.	Same as usable limits, with high metal.	Remove high metal (para A[3] H-21, Appendix H, TM).
(3) Circumferentail grooves.	Any number, 0.005 inch deep, if no more than 10% of area is affected, without high metal.	Same as usable limits, with high metal.	Remove high metal (para A[3] H-21, Appendix H, TM).

bs. Inspection of Thermocouple Assembly. See table 87.

Table 87. Inspection of Thermocouple Assembly (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
a. Rigid tubing (3, fig. 7-22, TM) for:				
(1) Nicks, scratches, and abrasions.	Any amount, up to 0.015 inch deep, without high metal.	Same as usable limits, with high metal.	Remove high metal (para H-21, Appendix H, TM).	A[3]
(2) Dents.	Any number, up to 0.062 inch deep.	Not repairable.	Replace thermocouple assembly (para 7-65, TM).	A[3]
(3) Loose Uclamp (6) (braze separated).	Both tubes attached to clamp.	Not repairable.	Replace thermocouple assembly (para 7-65, TM).	A[3]
(4) Broken U-clamps(6).	Not allowed.	Not repairable.	Replace thermocouple assembly (para 7-65, TM).	A[3]
(5) Damaged threads on coupling nuts (2).	Any amount if there is no loose or high metal and if connector can be sealed fingertight to mating boss.	Same as usable limits.	Remove loose burrs or high metal (para H-21, Appendix H, TM).	A[3]
b. Electrical connector (5) for:				
(1) Bent pins.	Not allowed	Any amount.	Straighten pins, using care not to damage platinum plated contact surface. Check alinement with mating connector.	NC
(2) Cracked or missing ceramic insulation.	Small cracks or ships allowed provided electrical properties of the harness are not affected.	Not repairable.	Replace thermocouple assembly (para 7-65, TM).	A[3]
(3) Damaged threads.	Any number if there are no loose or hanging burrs, if there is no high metal, and if connector can be assembled normally with its mating part.	Same as usable limits, with loose or hanging burrs or with high metal.	Remove loose or hanging burrs or remove high metal (para H-21, Appendix H, TM).	A[3]

Table 87. Inspection of Thermocouple Assembly (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
c. Probe (4) for:				
(1) Bends.	Maximum 1/16 inch.	Not repairable.	Replace thermocouple assembly (para 7-65, TM). Do not straighten.	NC
(2) Nicks and cracks.	None allowed.	Not repairable.	Replace thermocouple assembly (para 7-65, TM).	A[3]
(3) Smooth dents.	0.020 inch maximum.	Not repairable.	Replace thermocouple assembly (para 7-65, TM).	A[3]
(4) Wear or corrosion.	AVUM: Any amount if there are no cracks and no breakthrough in metal shield	Not repairable.	Replace thermocouple assembly (para 7-65, TM).	A[3]
	AVIM: OD of metal of each probe at diameter A (fig. 7-22, TM) will be 0.240 inch minimum. Cracks or breakthrough in metal shield are not allowed.	Not repairable.	Replace thermocouple assembly (para 7-65, TM).	A[3]
d. (Former Configuration) Wrap-around clamps (7) for crocks or breakage.	Not allowed.	Any amount.	Repair clamps (para 7-63.1, TM).	A[3]

bt. Inspection of Torque and Overspeed Sensor. See table 88.

Table 88. Inspection of Torque and Overspeed Sensor (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
a. Rigid tubing (4, fig. 7-24, TM) for:				
(1) Nicks, scratches, and abrasions.	Any number, 1/64 inch deep.	Same as usable limits, with high metal.	Remove high metal (para H-21, Appendix H, TM).	A[3]
(2) Dents.	Any number, 1/32 inch deep.	Not repairable.	Replace sensor (para 7-71, TM).	A[3]

Table 88. Inspection of Torque and Overspeed Sensor (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
(3) Cracks.	None allowed.	Not repairable.	Replace sensor (para 7-71, TM).	NC
b. Packing grooves (7) for nicks and scratches on:				
(1) Floor of groove.	Any number, 0.003 inch deep, without sharp edges.	Not repairable.	Replace sensor (para 7-71, TM).	A[3]
(2) Walls of groove.	Any number, 0.010 inch deep, without sharp edges.	Not repairable.	Replace sensor (para 7-71, TM).	A[3]
c. Electrical connector (3) for:				
(1) Bent pins (1).	Not allowed	Up to 1/8 inch out of position.	Straighten pin. Check alinement with mating connector.	NC
(2) Damaged threads (2).	Up to one thread missing, without metal, if connector can be assembled normally with its mating part.	Same as usable limits, with high metal..	Remove high metal (para H-21, Appendix H, TM).	A[3]
(3) Cracked or missing ceramic insulation.	Small cracks or chips allowed, provided electrical properties of the sensor are not affected.	Not repairable.	Replace sensor (para 7-71, TM).	NC
d. Lock and retainer (6) for nicks, dents, and scratches.	Any number, 1/32 inch deep, without high metal.	Same as usable limits, with high metal.	Remove high metal (para H-21, Appendix H, TM).	A[3]
e. Broken spring (5).	Not allowed	Not repairable.	Replace sensor (para 7-71, TM).	NC
f. Electrical circuit.	Test and correct as specified in paragraph 7-70, TM).			NC

bu. Inspection of Oil Cooler. See table 89.

Table 89. Inspection of Oil Cooler (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
a. Body (5, fig. 8-2, TM).				
(1) Nicks, dents, and scratches.	Any number, 1/64-inch deep.	Not repairable.	Replace cooler (para 8-10, TM).	A[3]
(2) Cracks.	None allowed.	Not repairable.	Replace cooler (para 8-10, TM).	NC
b. Mounting flange (3) for:				
(1) Nicks, dents, and scratches, except in sealing area.	Any number, l/64-inch deep, with no high metal.	Same as usable limits, with high metal.	Remove high metal (para H-21, Appendix H, TM).	A[3]
(2) Nicks, dents, and scratches in sealing area.	None allowed	Not repairable.	Replace cooler (para 8-10, TM).	NC
c. Oil cooler seal (1) for nicks and cuts in sealing material.	None allowed.	Not repairable.	Replace seal (pars 8-9, TM).	NC
d. Captive bolts (4) for damaged threads.	Not allowed.	Not repairable.	Replace bolt (para H-6, Appendix H, TM).	A[3]
e. Captive bolt flanges for damaged threads.	Any number of missing threads with no crossed threads or loose material.	Any number with crossed threads or loose material.	AVUM: Replace cooler (para 8-10, TM). AVIM: Remove loose material; mask all openings and chase threads to remove crossed threads.	A[3]
f. Threaded insert for damaged threads or looseness.	Up to one damaged or missing thread with no crossed threads or loose material.	Not repairable.	AVUM: Replace cooler (para 8-10, TM). AVIM: Replace insert (para H-29, Appendix H, TM).	A[3]

bv. Inspection of Oil and Scavenge Pump. See table 90.

Table 90. Inspection of Oil and Scavenge Pump (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action BFL
Oil and scavenge pump (fig. 8-4, TM) for:			
a. Visible cracks.	None allowed.	Not repairable.	Replace pump (para 8-15, NC TM).
b. Free rotation of pump elements.	Must rotate.	Not repairable.	Replace pump (para 8-15, NC TM).
c. Spline (3) for wear.	0.015 step in spline.	Not repairable.	Replace pump (para 8-15, (1) TM).
d. Shaft (4) for shearing.	Not allowed.	Not repairable.	Replace pump (para 8-15, NC TM).
e. OD of housing (2) for high metal, burrs, and pickups.	None allowed.	Any amount.	Blend high metal, burrs, and pickup to adjacent surface. Inspect bore of gearbox assembly for high metal (para 5-23, TM). A[3]
f. Scratches on OD of housing (2).	(1) Any number, 0.005 inch deep and 0.010 inch wide, if they do not connect adjacent ports.	Not repairable.	Replace pump (para 8-15, (2) TM).
	(2) Any number, any depth across scavenge discharge port center web (6).	Not repairable.	Replace pump (para 8-15, NC TM).
g. Mounting flange (5) for cracks.	None allowed.	Not repairable.	Replace pump (para 8-15, NC TM).
h. Threads of jacking screw holes (1) for damage.	Jacking screws must thread freely.	Not repairable.	Replace pump (para 8-15, A[3] TM).

Note:

(1) 0.020 step in spline.

(2) Any number 0.010 inch deep and 0.020 inch wide, if they do not connect adjacent ports.

bw. Inspection of Scavenge Screens. See table91.

Table 91. Inspection of Scavenge screens (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
a Scavenge screens (fig. 8-6, TM) for:				
(1) Broken screen mesh (3).	Not allowed.	Not repairable.	Replace scavenge screen (para 8-20 ('1700, TM). 8-20.1 (T701, T701C), TM). Remove loose pieces.	A[3]
		NOTE Do not straighten a distorted screen.		
(2) (T701, T701C) Bent or collapsed screen mesh (3).	Any amount if a 0.300 inch diameter drill rod (or size "N" drill) can be inserted the full length of the screen mesh (3) from DIA B, and DIM A is 1.900 minimum.	Not repairable.	Replace scavenge screen (para 8-20.1, TM).	A[3]
(3) Nicks and burrs on seating area (7).	Not allowed.	Any number.	Blend to adjacent contour (para H-21, Appendix H, TM).	A[3]
(4) Damaged threads (2).	Not allowed.	Not repairable.	Replace scavenge screen (para 8-20 (T700) or 8-20.1 (T701, T701C), TM).	A[3]
(5) Wrench damage in each comer of hex flat (1).	Any amount if screen can be installed properly.	Not repairable.	Replace scavenge screen (para 8-20 (T700) or 8-20.1 (T701, T701C), TM).	A[3]
b. Packing grooves (6) for nicks and scratches in:				
(1) Floor.	Any number, up to 0.003 inch deep without sharp edges.	Not repairable.	Replace scavenge screen (para 8-20 (T700) or 8-20.1 (T701,T701C), TM).	A[3]

Table 91. Inspection of Scavenge Screens (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
(2) Walls.	Any number, up to 0.010 inch deep, without sharp edges.	Not repairable.	Replace scavenge screen (para 8-20 (T700) or 8-20.1 (T701, T701C), TM).	A[3]
c. (T701, T701C) Surfaces (4) for nicks, dents, and scratches.	Any number, up to 0.005 inch deep, without sharp edges.	Not repairable.	Replace scavenge screen (para 8-20.1, TM).	A[3]
d. Vent hole (5) for blockage.	Not allowed.	Any amount.	Using 1/16-inch diameter wire, unplug hole; then clean scavenge screen (para 8-18, TM).	A[3]*
e. (T701, T701C) Wrench damage in comers of square drive socket (8) on B-sump scavenge screen.	Any amount, without high metal, if screen can be installed properly.	Not repairable.	Replace scavenge screen (para 8-20.1, TM).	A[3]

bx. Inspection of Oil Filter Bypass Sensor. See table 92.

Table 92. Inspection of Oil Filter Bypass Sensor (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
Oil filter bypass sensor (fig. 8-8, TM) for:				
a. Cracks.	None allowed.	Not repairable.	Replace sensor (para 8-25, TM).	NC
b. Indication of leaks at joints.	Leaks not allowed.	Not repairable.	Replace sensor (para 8-25, TM).	NC
c. Electrical connector (1) for:				
(1) Looseness.	Not allowed.	Not repairable.	Replace sensor (para 8-25, TM).	NC

Table 92. Inspection of Oil Filter Bypass Sensor (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
(2) Bent pins.	Not allowed.	Up to 1/8 inch out-of-position.	Straighten pin. Check alinement with mating connector.	NC
(3) Damaged threads.	Up to 1-1/2 total damaged or missing threads if crossthreading will not occur. No high metal.	Same as usable limits, with high metal.	AVUM: Replace sensor (para 8-25, TM). AVIM: Blend high metal and chase threads.	A[3]
d. Damaged threads on captive bolts (2).	Not allowed.	Not repairable.	Replace bolt (para H-6, Appendix H, TM).	A[3]
e. Damaged threads on captive bolt flanges (3).	Up to one damaged or missing thread, with no crossed threads or loose material.	Same as usable limits, with crossed threads or loose material.	AVUM: Replace sensor (para 8-25, TM). AVIM: Mask all openings and chase.	A[3]

by. Inspection of Oil Filter Bowl. See table 93.

Table 93. Inspection of OiI Filter Bowl (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
a. Oil filter bowl (fig. 8-10, TM) for:				
(1) Visible cracks.	None allowed.	Not repairable.	Replace bowl (para 8-31, TM).	NC
(2) Leaks.	Not allowed.	Not repairable.	Replace bowl (para 8-31, TM).	NC
(3) Stripped threads.	One missing thread.	Not repairable.	Replace bowl (para 8-31, TM).	NC
(4) Nicks, dents, and scratches in:				
(a) Floor of packing groove.	Any number, up to 0.003 inch deep, without sharp edges.	Not repairable.	Replace bowl (para 8-31. TM).	A[3]

Table 93. Inspection of Oil Filter Bowl (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
(b) Walls of packing groove.	Any number, up to 0.010 inch deep, without sharp edges.	Not repairable.	Replace bowl (para 8-31, TM).	A[3]
(c) All other areas.	Any number, up to 1/64 inch deep, without high metal.	Same as usable limits, with high metal.	Remove high metal (para H-21, Appendix H TM).	A[3]
(5) Damage to the hex flats on bottom of bowl.	Any amount if a wrench will hold. No burrs allowed.	Same as usable limits, with burrs.	Remove burrs.	A[3]
b. Impending bypass indicator button reset operation.	Button will reset when bowl is in vertical position. Button will not reset in horizontal position.	Not repairable.	Replace bowl (para 8-31, TM).	NC

bz. Inspection of Oil Cooler Bypass Relief Valve (AVIM). See table 94.

Table 94. Inspection of Oil Cooler Bypass Relief Valve (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
Oil cooler bypass relief valve (fig. 8-10.1, TM) for:				
a. Cracks on external surfaces and seat.	None allowed.	Not repairable.	Replace valve (para 8-34.4, TM).	NC
b. Nicks and scratches (except in packing grooves).	Any number without high metal.	Not repairable.	Replace valve (para 8-34.4, TM).	A[3]
c. Nicks and scratches in:				
(1) Floor of packing groove.	Any number, 0.003 inch deep, without sharp edges.	Not repairable.	Replace valve (para 8-34.4, TM).	A[3]
(2) Walls of packing grooves.	Any number, 0.010 inch deep, without sharp edges.	Not repairable.	Replace valve (para 8-34.4, TM).	A[3]

ca Inspection of Cold Oil Relief Valve (AVIM). See table 95.

Table 95. Inspection of Cold Oil Relief Valve (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
Cold oil relief valve (fig. 8-10.2, TM) for:				
a Cracks on external surfaces and seat.	None allowed.	Not repairable.	Replace valve (para 8-34.8, TM).	NC
b. Nicks and scratches in:				
(1) Floor of packing grooves.	Any number, 0.003 inch deep, without sharp edges.	Not repairable.	Replace valve (para 8-34.8, TM).	A[3]
(2) Walls of packing grooves.	Any number, 0.010 inch deep, without sharp edges.	Not repairable.	Replace valve (para 8-34.8, TM).	A[3]
(3) All other areas.	Any number, without high metal.	Not repairable.	Replace valve (para 8-34.8, TM).	A[3]

cb. Inspection of Bypass Valve Assembly (AVIM). See table 96.

Table 96. Inspection of Bypass Valve Assembly (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
Bypass valve assembly (fig. 8-12, TM) for:				
a. Metallic and nonmetallic particles.	Not allowed.	Any amount.	Remove particles using a soft-fiber brush.	A[3]*
b. Damaged screen.	Not allowed.	Not repairable.	Replace valve assembly (para 8-39, TM).	A[3] (1)
c. Clogged screen.	Not allowed.	Not repairable.	Replace valve assembly (para 8-39, TM).	A[3] (2)
d. Nicks and scratches on sealing surface.	Any number, up to 0.003 inch deep.	Not repairable.	Replace valve assembly (para 8-39, TM).	A[3]

Table 96. Inspection of Bypass Valve Assembly (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
e. Nicks and scratches on all other areas.	Any number, up to 0.010 inch deep, without high metal.	Any number, up to 0.010 inch deep, with high metal.	Blend high metal.	A[3]

Note:

(1) Remove loose pieces.

(2) Remove particles using a soft fiber brush. (See para 7c).

cc. Inspection of Electrical Chip Detector. See table 97.

Table 97. Inspection of Electrical Chip Detector (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
Electrical chip detector (2, fig. 8-14, TM) for:				
a. Contamination.	Not allowed.	Any amount.	Clean chip detector (2) (para 8-42, TM).	NC
b. Continuity (use multimeter connected to pins 1 and 2 and short out gap (4)).	Must indicate continuity.	Not repairable.	Replace chip detector (para 8-44, TM).	NC
c. Captive bolts (3) for damaged threads.	Not allowed.	Not repairable.	Replace bolt (para H-6, Appendix H, TM).	A[3]
d. Captive bolt flanges for damaged threads.	Any number of missing threads, with no crossed threads or loose material.	Any number, with crossed threads or loose material.	AVUM: Replace chip detector (para 8-44, TM). AVIM: Remove loose material; mask all openings and chase threads to remove crossed threads.	A[3]
e. Electrical connector for:				
(1) Bent socket pins (1).	None allowed.	Up to 1/8 inch out-of-position.	Straighten pin.	NC

Table 97. Inspection of Electrical Chip Detector (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action BFL
(2) Kinked or sharply bent pins (1).	None allowed.	Not repairable.	Replace chip detector NC (para 8-44, TM).
(3) Damaged threads.	Any amount, with no high metal, if connector can be assembled normally with its mating part.	Any amount that can be reworked to usable limits.	Remove high metal (para A[3] H-21, Appendix H, TM).
f. Screen (5) for:			
(1) Breaks or tears.	None allowed.	Not repairable.	Replace chip detector A[3] (para 8-44, TM).
(2) Debris.	Not allowed.	Any amount.	Clean screen (para 8-42, NC TM.
(3) Screen frame for breaks or cracks.	None allowed.	Not repairable.	Replace chip detector NC (para 8-44, TM).

cd. Inspection of Oil Tank Cap and Adapter. See table 98.

Table 98. Inspection of Oil Tank Cap and Adapter (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action BFL
a. Cap assembly (1, fig. 8-17, TM) for damaged preformed packing (2).	Not allowed.	Packing not repairable.	Replace packing (para NC 8-72.1, TM).
b. Adapter (4) for:			
(1) Broken mesh on screen (5).	Not allowed.	Not repairable.	Replace oil tank cap and A[3] adapter (para 8-73, TM).
(2) Broken retaining cable (3).	Not allowed.	Not repairable.	Replace oil tank cap and A[3] adapter (para 8-73, TM).

Table 98. Inspection of Oil Tank Cap and Adapter (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
(3) Nicks and scratches in:				
(a) Floor of packing groove (6).	Any number, up to 0.003 inch deep, without sharp edges.	Not repairable.	Replace oil cap and adapter (para 8-73, TM).	A[3]
(b) walls of packing groove (6).	Any number, up to 0.010 inch deep, without sharp edges.	Not repairable.	Replace oil cap and adapter (para 8-73, TM).	A[3]

ce. Inspection of Oil Manifold Assembly. See table 99.

Table 99. Inspection of Oil Manifold Assembly (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
a. Tubes and fittings on oil manifold assembly (14, fig. 8-18, TM).	See Inspection of Tubes, Hoses, and Fittings (para H-24, Appendix H, TM).			A[3]
b. AVIM: Damaged threads on captive bolts (15).	Not allowed.	Not repairable.	Replace bolt (para H-6, Appendix H, TM).	A[3]
c. AVIM: Damaged threads on flanges of captive bolts.	Up to one damaged or missing thread, with no crossed threads or loose material.	Same as usable limits, with crossed threads or loose material.	Mask all openings and chase threads.	A[3]
d. AVIM: Adapter gasket (16) for nicks and cuts in sealing material.	None allowed.	Not repairable.	Replace gasket.	NC

cf. Inspection of Main Frame Oil Strainer. See table 100.

Table 100. Inspection of Main Frame Oil Strainer (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action BFL
Oil strainer (2, fig. 8-20, TM) for:			
a. Broken screen mesh (3).	Not allowed.	Not repairable.	Replace oil strainer (para A[3] 8-100, TM).
b. Clogged screen mesh (3).	Not allowed.	Any amount.	clean oil strainer (para A[3]* 8-98, TM).
c. Nicks and scratches in:			
(1) Floor of packing groove (2A).	Any number, 0.005 inch deep, without sharp edges.	Not repairable.	Replace oil strainer (para A[3] 8-100, TM).
(2) Walls of packing groove (2A).	Any number, 0.010 inch deep, without sharp edges.	Not repairable.	Replace oil strainer (para A[3] 8-100, TM).

cg. Inspection of Oil Level Indicator. See table 101.

Table 101. Inspection of Oil Level Indicator (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action BFL
Oil level indicator (7, fig. 8-20, TM) for:			
a. Cracked glass.	Not allowed.	Not repairable.	Replace indicator (para NC 8-104, TM).
b. Clouded glass.	Oil level is visible.	Not repairable.	Replace indicator (para NC 8-104, TM).
c. Loose locknuts (8).	Not allowed.	Any amount, if locknuts can be torqued to 45-50 inch-pounds.	Torque locknuts to 45-50 NC inch-pounds.

ch. Inspection of Oil Transfer Sleeves (AVIM). See table 102.

Table 102. Inspection of Oil Transfer Sleeves (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
Oil transfer sleeves (fig. 8-21.1, TM) for:				
a. Broken screen (1).	Not allowed.	Not repairable.	Replace oil transfer sleeve (para 8-108, TM). (1)	A[3]
b. Nicks and scratches in:				
(1) Floor of packing grooves (2).	Any number, 0.003 inch deep, without sharp edges.	Not repairable.	Replace oil transfer sleeve (para 8-108, TM).	A[3]
(2) Walls of packing grooves (2).	Any number, 0.010 inch deep without sharp edges.	Not repairable.	Replace oil transfer sleeve (para 8-108, TM).	A[3]
(3) All other areas.	Any number, 0.002 inch deep, without high metal.	Same as usable limits, with high metal.	Blend high metal to adjacent contour.	A[3]
c. Broken tack welds at the screen ends.	Not allowed.	Not repairable.	Replace oil transfer sleeve (para 8-108, TM).	(2)

Note:

(1) Remove loose pieces.

(2) Remove loose pieces - up to entire screen.

ci. Inspection of Oil Drain Plug. See table 103.

Table 103. Inspection of Oil Drain Plug (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
Oil drain plug (fig. 8-22.1, TM) for:				
a. Damaged threads (1).	Not allowed.	Not repairable.	Replace plug (para 8-112, TM).	A[3]
b. Damaged hex flat (2).	Any amount, if wrench will hold. No burrs allowed.	Any amount of burrs.	Remove burrs.	A[3]

cj. Inspection of Oil Drain Insert. See table 104.

Table 104. Inspection of Oil Drain Insert (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
Oil drain insert (fig. 8-24, TM) for:				
a. Damaged threads (1).	Not allowed.	Not repairable.	Replace oil drain insert (para 8-116, TM).	A[3]
b. Nicks and scratches in:				
(1) Floor of packing groove (2).	Any number, 0.005 inch deep, without sharp edges.	Not repairable.	Replace oil drain insert (para 8-116, TM).	A[3]
(2) Walls of packing groove (2).	Any number, 0.010 inch deep, without sharp edges.	Not repairable.	Replace oil drain insert (para 8-116, TM).	A[3]
(3) All other areas.	Any number, 1/64 inch deep, without high metal.	Same as usable limits, with high metal.	Blend high metal to adjacent contour.	A[3]

ck. (T700, T701C) Inspection of Oil Temperature Sensor. See table 105.

Table 105. (T700, T701C) Inspection of Oil Temperature Sensor (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
a. Temperature probe (3, fig. 8-27, TM) for:				
(1) Cracks.	None allowed.	Not repairable.	Replace oil temperature sensor (para 8-134, TM).	NC
(2) Leaks.	Not allowed.	Not repairable.	Replace oil temperature sensor (para 8-134, TM).	NC
b. Electrical connector (1) for:				
(1) Bent pins (4).	Not allowed.	Up to 1/16 inch out-of-position.	straighten pin.	NC
(2) Kinked or sharply bent pins.	Not allowed.	Not repairable.	Replace oil temperature sensor (para 8-134, TM).	NC
(3) Damaged threads.	Any amount up to one cumulative thread total, without high metal, if connector can be assembled normally to its mating part.	Any amount up to one cumulative thread total, with high metal, that can be reworked to usable limits.	Blend high metal.	A[3]
(4) Swelling of pin insulation or evidence of oil leakage.	Not allowed.	Not repairable.	Replace oil temperature sensor (para 8-134, TM).	NC
(5) Looseness.	Not allowed.	Not repairable.	Replace oil temperature sensor (para 8-134, TM).	NC
c. Mounting threads (2) for damage.	One-half of one thread in length (total), without high metal.	One-half of one thread (total), with high metal.	Blend high metal.	A[3]

cl. Inspection of Oil Pressure Sensor. See table 106.

Table 106. Inspection of Oil Pressure Sensor (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
a. Oil pressure sensor (2, fig. 8-28, TM) for:				
(1) Visible cracks.	None allowed.	Not repairable.	Repairs oil pressure sensor (para 8-137 (T700) or 8-137.1 (T701, T701C), TM).	NC
(2) Visible leaks.	Not allowed.	Not repairable.	Replace oil pressure sensor (para 8-137 (T700) or 8-137.1 (T701, T701C), TM).	NC
b. Electrical connector (3) for:				
(1) Bent socket pins (1).	None allowed.	Up to 1/16 inch out-of-position.	Straighten pin.	NC
(2) Kinked or sharply bent socket pins.	None allowed.	Not repairable.	Replace oil pressure sensor (para 8-137 (T700) or 8-137.1 (T701, T701C), TM).	NC
(3) Damaged threads.	Any amount, without high metal, if connector can be installed normally to its mating part.	Same as usable limits, with high metal.	Blend high metal.	A[3]
(4) Swelling of socket pin insulation or evidence of oil leakage.	Not allowed.	Not repairable.	Replace oil pressure sensor (para 8-137 (T700) or 8-137.1 (T701, T701C), TM).	NC
(5) Looseness.	Not allowed.	Not repairable.	Replace. oil pressure sensor (pars 8-137 (T700) or 8-137.1 (T701, T701C), TM).	NC
c. Mounting threads (2A) for damage.	One-half of one thread in length (total), without high metal.	One-half of one thread (total), with high metal.	Blend high metal.	A[3]

cm. (T701, T701C) Inspection of B-Sump Delta Pressure Tube. See table 107.

Table 107. (T701, T701C) Inspection of B-Sump Delta Pressure Tube (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
B-sump delta pressure tube (fig. 8-30, TM) for:				
a. (T701) Nicks, cuts, gouges, and abrasions on silicone sleeve (6).	Any number, 0.060 inch deep, if wire braid is not visible.	Any number, if wire braid is undamaged, and if silicone sleeve is not torn or missing.	Repair silicone sleeve (para 8-143, TM).	A[3]
b. (T701) Drying, cracking, or charring of silicone sleeve (6) (exposure to 500°F or higher).	Not allowed.	Not repairable.	Replace B-sump delta pressure tube (para 8-144, TM).	A[3]
c. Connector (4) for:				
(1) High metal at connector ends (2).	Not allowed.	Any amount, if 75% of original surface remains undamaged.	Remove high metal (para H-21, Appendix H, TM).	A[3]
(2) Nicks and scratches on sealing surfaces (3) and chamfers (5).	Any number, 0.003 inch deep without sharp edges.	Not repairable.	Replace B-sump delta pressure tube (para 8-144, TM).	A[3*]
d. Damaged coupling nut (1) and tubing.	See Inspection of Tubes, Hoses, and Fittings (para H-24, Appendix H, TM).			
e. (T701C) Clamp (8) for cracks in parent metal or in braze.	Not allowed.	Not repairable.	Replace B-sump delta pressure tube (para 8-144, TM).	A[3]

cn. Inspection of Anti-Icing Bleed Duct. See table 108.

Table 108. Inspection of Anti-Icing Bleed Duct (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
Anti-icing bleed duct (fig. 10-3.1, TM) for:				
a. Damage.	See Inspection of Tubes, Hoses, and Fittings (para H-24, Appendix H, TM).			A[3]
b. AVIM: Nicks and scratches on:				
(1) Floor of packing groove.	Any number, 0.005 inch deep, without sharp edges.	Not repairable.	Replace duct (para 10-14, TM).	A[3]
(2) Walls of packing groove.	Any number, 0.010 inch deep, without sharp edges.	Not repairable.	Replace duct (para 10-14, TM).	A[3]

co. Inspection of Anti-Icing IGV Duct. See table 109.

Table 109. Inspection of Anti-Icing IGV Duct (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
Anti-icing IGV duct (fig. 10-3.2, TM) for:				
a. Damage.	See Inspection of Tubes, Hoses, and Fittings (para H-24, Appendix H, TM).			A[3]
b. AVIM: Nicks and scratches on:				
(1) Floor of packing groove.	Any number, 0.005 inch deep, without sharp edges.	Not repairable.	Replace duct (para 10-19, TM).	A[3]
(2) Walls of packing groove.	Any number, 0.010 inch deep, without sharp edges.	Not repairable.	Replace duct (para 10-19, TM).	A[3]

cp. Inspection of Anti-Icing IGV Feed Tube. See table 110.

Table 110. Inspection of Anti-Icing IGV Feed Tube (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
Anti-icing IGV feed tube (fig. 10-3.3, TM) for:				
a. Damage.	See Inspection of Tubes, Hoses, and Fittings (para H-24, Appendix H, TM).			A[3]
b. AVIM: Nicks and scratches on:				
(1) Floor of packing groove.	Any number, 0.005 inch deep, without sharp edges.	Not repairable.	Replace tube (para 10-24, TM).	A[3]
(2) Walls of packing groove.	Any number, 0.010 inch deep, without sharp edges.	Not repairable.	Replace tube (para 10-24, TM).	A[3]

cq. Inspection of Anti-Icing Bleed and Start Valve, Anti-Icing Seal Housings, Anti-Icing Seal Retainer, (T'701C) Lanyard and Coupling Assembly, and Lanyard and Clip Assembly. See table 111.

Table 111. Inspection of Anti-Icing Bleed and Start Valve, Anti-Icing Seal Housings, Anti-Icing Seal Retainer, (T701C) Lanyard and Coupling Assembly, and Lanyard and Clip Assembly (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
a. Housing of anti-icing bleed and start valve (5, fig. 10-4, sheet 1, TM) for:				
(1) Visible cracks.	None allowed.	Not repairable.	Replace valve (para 10-31, TM).	NC
(2) Nicks, dents, scratches on sealing area.	Any number not detectable by feel. High metal is not allowed.	Same as usable limits, with high metal.	Blend high metal to usable limit, using fine abrasive cloth (item 41, Appendix D, TM) (para H-21, Appendix H, TM).	A[3]

Table 111. Inspection of Anti-Icing Bleed and Start Valve, Anti-Icing Seal Housing, Anti-Icing Seal Retainer, (T701C) Lanyard and Coupling Assembly, and Lanyard and Clip Assembly (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
(3) Nicks, dents, scratches on other areas.	Any number, 0.030 inch deep, without high metal.	Same as usable limits, with high metal.	Blend high metal (para H-21, Appendix H, TM).	A[3]
(4) Leaks.	Not allowed	Not repairable.	Replace valve (para 10-31, TM).	NC
b. Electrical connector (3) for:				
(1) Bent socket pins.	Not allowed.	Up to 1/8 inch out-of-position.	Straighten pin.	NC
(2) Kinked or sharply bent pins.	Not allowed.	Not repairable.	Replace valve (para 10-31, TM).	NC
(3) Damaged threads.	Any amount, without high metal, if connector can be assembled normally with its mating part.	Any amount that can be reworked to usable limits.	Blend high metal (para H-21, Appendix H, TM).	A[3]
c. Captive bolts (1) for:				
(1) Missing threads.	Not allowed.	Not repairable.	Replace bolt (para H-6, Appendix H, TM).	A[3]
(2) Nicks or buried threads.	Any amount that does not prevent installation. No high metal.	Any amount.	AVUM Replace valve (para 10-31, TM). AVIM: Remove high metal. chase threads.	A[3]
d. Captive bolt flanges for damaged threads.	Any number of missing threads with no crossed threads or loose material.	Any number with crossed threads or loose material.	AVUM: Replace valve (para 10-31, TM). AVIM: Remove loose material. Chase threads to remove crossed threads, using a 0.250 x 28 UNF tap.	A[3]

Table 111. Inspection of Anti-Icing Bleed and Start Valve Anti-Icing Seal Housings, Anti-Icing Seal Retainer, (T701C) Lanyard and Coupling Assembly, and Lanyard and Clip Assembly (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
e. Anti-icing seal housings (T700), T701) (6), and (8) for:				
(1) Distortion and dents on both ends of housing where seals seat.	Not allowed.	Not repairable.	Replace seal housing (para 10-31, TM).	(1)
(2) Distortion and dents on remaining areas.	Any amount that does not prevent seal housing from seating properly on valve and on respective duct.	Not repairable.	Replace seal housing (para 10-31, TM)	NC
(3) Cracks.	None allowed.	Not repairable.	Replace seal housing (para 10-31, TM).	NC
(4) Cuts, breaks, or nicks on seals.	Not allowed.	Not repairable.	Replace seal housing (para 10-31, TM).	A[3]
(5) Flattened or distorted seals, including outer cover of seal and seal spring.	Not allowed.	Not repairable.	Replace seal housing (para 10-31, TM).	A[3]
f. (T700, T701) Anti-icing seal retainer (2) for.				
(1) Distortion and dents on both sides at retainer housing where seals seat.	Not allowed.	Not repairable.	Replace retainer (para 10-31, TM).	A[3]
(2) Distortion and dents on remaining area.	Any amount that does not prevent seal housing from seating properly on valve and on respective duct.	Not repairable.	Replace retainer (para 10-31, TM).	A[3]

Table 111. Inspection of Anti-Icing Bleed and Start Valve, Anti-Icing Seal Housing Anti-Icing Seal Retainer, (T701C) Lanyard and Coupling Assembly, and Lanyard and Clip Assembly (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
(3) Cracks.	None allowed.	Not repairable.	Replace retainer (para 10-31, TM).	A[3]
(4) Cuts, breaks, nicks, or twists on seal and seal ring.	Not allowed.	Not repairable.	Replace seal (para 10-30, TM).	A[3]
g. (T701C) Lanyard and coupling assembly (13):				
(1) Distortion and dents on both ends of housing where seals seat.	Not allowed	Not repairable.	Replace (T701C) lanyard and coupling assembly (para 10-31, TM).	A[3]
(2) Distortion and dents on remaining areas.	Any amount that does not prevent seal housing from seating properly on valve and on respective duct.	Not repairable.	Replace (T701C) lanyard and coupling assembly (para 10-31, TM).	A[3]
(3) cracks.	None allowed.	Not repairable.	Replace (T701C) lanyard and coupling assembly (para 10-31, TM).	A[3]
(4) Cuts, breaks, or nicks on seals.	Not allowed.	Not repairable.	Replace (T701C) lanyard and coupling assembly (para 10-31, TM).	A[3]
(5) Flattened or distorted seals, including outer cover of seal and seal spring.	Not allowed.	Not repairable.	Replace (T701C) lanyard and coupling assembly (para 10-31, TM).	A[3]
h. (T700, T701) Lanyard and clip assembly (4) for:				
(1) Distorted clips.	Snug fit on valve.	Any amount that can be bent to fit snugly on valve.	Bend to usable limits.	NC

Table 111. Inspection of Anti-Icing Bleed and Start Valve Anti-Icing Seal Housing Anti-Icing Seal Retainer, (T701C) Lanyard and Coupling Assembly, and Lanyard and Clip Assembly (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
(2) Frayed or broken lanyard.	Not allowed.	Not repairable.	Replace assembly (para 10-31, TM).	A[3]
i. Quick-disconnect pin (fig. 10-4.1, TM).				
(1) Pin shaft (1) for				
(a) Broken or missing lockring (3).	Not allowed.	Not repairable.	Replace pin (para 10-31, TM).	NC
(b) Nicks, scratches, or wear.	Not allowed if they can be felt with fingernail.	Not repairable.	Replace pin (para 10-31, TM)	A[3]
(c) Cracks.	None allowed.	Not repairable.	Replace pin (para 10-31, TM).	NC
(2) Pinhead (2) for:				
(a) Nicks, scratches, dents, and gouges.	Any number, 1/32 inch deep.	Not repairable.	Replace pin (para 10-31, TM).	A[3]
(b) Bends.	Any amount, 1/16 inch from original shape.	Any amount that can be removed to meet usable limits.	Replace pin (para 10-31, TM).	A[3]
(c) Cracks.	None allowed.	Not repairable.	Replace pin (para 10-31, TM).	NC
j. External tubes for:				
(1) Nicks, dents, or scratches.	Any number, 0.020 inch deep, with no high metal.	Same as usable limits, with high metal.	Blend high metal (para H-21, Appendix H, TM).	A[3]
(2) Cracks or breaks.	None allowed.	Not repairable.	Replace valve (para 10-31, TM).	NC

Table 111. Inspection of Anti-Icing Bleed and Start Valve, Anti-Icing Seal Housing, Anti-Icing Seal Retainer, (T701C) Lanyard and Coupling Assembly, and Lanyard and Clip Assembly (BFL) (Cont).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
k. Vent tube for:				
(1) Nicks, dents, scratches.	Any number, 0.005 inch deep, with no high metal.	Same as usable limits, with high metal.	Blend high metal (para H-21, Appendix H, TM).	A[3]
(2) Cracks, breaks, or crushed tubes.	Not allowed.	Not repairable.	Replace valve (para 10-31, TM).	NC

Note:

(1) Any amount that does not prevent seal housing from seating properly on valve and on respective duct.

cr. Inspection of Sensing Tube. See table 112.

Table 112. Inspection of Sensing Tube (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
a Sensing tube (2, fig. 10-8, TM).	See Inspection of Tubes, Hoses, and Fittings (para H-24, Appendix H, TM).			A[3]
b. Temperature-sensing nonmetallic tube (7) for:				
(1) Crazing or splits when tube is flexed.	Not allowed.	Not repairable.	Replace tube (para 10-42, TM).	A[3] (1)
(2) Cuts or tears.	Not allowed.	Not repairable.	Replace tube (para 10-42, TM).	A[3] (1)
(3) Split or heat swollen ends.	Not allowed.	Not repairable.	Replace tube (para 10-42, TM).	A[3] (1)

Note:

(1) Repair with electrical tape.

cs. Inspection of Compressor Leakage Air Tube. See table 113.

Table 113. Inspection of Compressor Leakage Air Tube (BFL).

Inspect	Usable Limits	Max Repairable Limits	Corrective Action	BFL
a. Tubing (2, fig. 10-9, TM).	See Inspection of Tubes, Hoses, and Fittings (para H-24, Appendix H, TM).			A[3]
b. Flange (3) for:				
(1) Flatness.	See Inspection of Tubes, Hoses, and Fittings (para H-24, Appendix H, TM).			A[3]
(2) Cracks.	See Inspection of Tubes, Hoses, and Fittings (para H-24, Appendix H, TM).			NC
(3) Nicks and gouges.	Any number, 1/64 inch deep, with no high metal, if no more than 50% of flange sealing path is damaged	Any number that can be repaired to meet usable limits. Original flange thickness can be reduced up to 25% to meet usable limits.	Remove high metal. Rework to usable limits by lapping, stoning, or machining (if possible).	A[3]
c. Spherical end fitting (1) for:				
(1) Out-of-roundness.	Max diameter 0.876 inch. Min diameter 0.868 inch. There will be no chips in flamesprayed surface.	Not repairable.	Replace tube (para 10-47, TM).	A[3]
(2) Wear.	Min diameter: 0.868 inch.	Not repairable.	Replace tube (para 10-47, TM).	A[3]

20. Special Tools, Jigs, Test Measurement and Diagnostic Equipment (TMDE). See TM 55-2840-248-23.

21. Quality Assurance Requirements. As applicable.

22. Recording and Reporting of Work Accomplished.

a. Record and Reports Forms. Record compliance with this Technical Bulletin on DA Form 2408-5 (Equipment Modification Record), DA Form 2408-13 (Aircraft Inspection and Maintenance Record) and DA Form 2408-15 (AMSAV-M, Overprint) in accordance with DA PAM 738-751.

b. Marking Equipment. Not applicable.

c. Identification. Not applicable.

23. Points of Contact.

For immediate engineering assistance in complying with this Technical Bulletin, contact Mr. Richard Hazlewood, AVSCOM T700 Project Engineer, AMSAV-EPE, AUTOVON/DSN 693-1145 or Commercial (314) 263-1145. For immediate assistance for recording and reporting information with this Technical Bulletin, contact AMSAV-MMD, AUTOVON/DSN 693-1955 or Commercial (314) 263-1955.

24. Reporting of Errors and Recommending Improvements.

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter or DA Form 2028 (Recommended Changes to Publication and Blank Forms) directly to: Commander, U.S. Army Aviation Systems Command, ATTN: AMSAV-MC, 4300 Goodfellow Boulevard, St. Louis, MO 63120-1798. A reply will be furnished to you.

25. Engineering Change Proposal (ECP) Number. Not applicable.

APPENDIX A

LIST OF TABLES

APPENDIX A

LIST OF TABLES (Cont.)

APPENDIX A

LIST OF TABLES (Cont.)

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APPENDIX A

LIST OF TABLES (Cont.)

By Order of the Secretary of the Army:

CARL E. VUONO
General United States Army
Chief of staff

OFFICIAL:

THOMAS G. SIKORA
Brigadier General, United States Army
The Adjutant General

DISTRIBUTION:
To be distributed in accordance with DA Form 12-31 A-R, AVUM and AVIM Maintenance Requirements For Engine, Turboshaft, T700-GE-700 (TM 55-2840-248 Series).

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The Metric System and Equivalents

Linear Measure

1 centimeter = 10 millimeters = .39 inch
1 decimeter = 10 centimeters = 3.94 inches
1 meter = 10 decimeters = 39.37 inches
1 dekameter = 10 meters = 32.8 feet
1 hectometer = 10 dekameters = 328.08 feet
1 kilometer = 10 hectometers = 3,280.8 feet

Weights

1 centigram = 10 milligrams = .15 grain
1 decigram = 10 centigrams = 1.54 grains
1 gram = 10 decigram = .035 ounce
1 dekagram = 10 grams = .35 ounce
1 hectogram = 10 dekagrams = 3.52 ounces
1 kilogram = 10 hectograms = 2.2 pounds
1 quintal = 100 kilograms = 220.46 pounds
1 metric ton = 10 quintals = 1.1 short tons

Liquid Measure

1 centiliter = 10 milliliters = .34 fl. ounce
1 deciliter = 10 centiliters = 3.38 fl. ounces
1 liter = 10 deciliters = 33.81 fl. ounces
1 dekaliter = 10 liters = 2.64 gallons
1 hectoliter = 10 dekaliters = 26.42 gallons
1 kiloliter = 10 hectoliters = 264.18 gallons

Square Measure

1 sq. centimeter = 100 sq. millimeters = .155 sq. inch
1 sq. decimeter = 100 sq. centimeters = 15.5 sq. inches
1 sq. meter (centare) = 100 sq. decimeters = 10.76 sq. feet
1 sq. dekameter (are) = 100 sq. meters = 1,076.4 sq. feet
1 sq. hectometer (hectare) = 100 sq. dekameters = 2.47 acres
1 sq. kilometer = 100 sq. hectometers = .386 sq. mile

Cubic Measure

1 cu. centimeter = 1000 cu. millimeters = .06 cu. inch
1 cu. decimeter = 1000 cu. centimeters = 61.02 cu. inches
1 cu. meter = 1000 cu. decimeters = 35.31 cu. feet

Approximate Conversion Factors

To change	*To*	*Multiply by*	*To change*	*To*	*Multiply by*
inches	centimeters	2.540	ounce-inches	newton-meters	.007062
feet	meters	.305	centimeters	inches	.394
yards	meters	.914	meters	feet	3.280
miles	kilometers	1.609	meters	yards	1.094
square inches	square centimeters	6.451	kilometers	miles	.621
square feet	square meters	.093	square centimeters	square inches	.155
square yards	square meters	.836	square meters	square feet	10.764
square miles	square kilometers	2.590	square meters	square yards	1.196
acres	square hectometers	.405	square kilometers	square miles	.386
cubic feet	cubic meters	.028	square hectometers	acres	2.471
cubic yards	cubic meters	.765	cubic meters	cubic feet	35.315
fluid ounces	milliliters	29,573	cubic meters	cubic yards	1.308
pints	liters	.473	milliliters	fluid ounces	.034
quarts	liters	.946	liters	pints	2.113
gallons	liters	3.785	liters	quarts	1.057
ounces	grams	28.349	liters	gallons	.264
pounds	kilograms	.454	grams	ounces	.035
short tons	metric tons	.907	kilograms	pounds	2.205
pound-feet	newton-meters	1.356	metric tons	short tons	1.102
pound-inches	newton-meters	.11296			

Temperature (Exact)

°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C

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