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GAS GENERATOR ASSEMBLY - DESCRIPTION AND OPERATION

1. Description and Operation (Ref. Fig. 1)

The gas generator assembly consists of coupled turbine and compressor rotor assemblies mounted within two concentric cylindrical casings, that also contain a vane ring/shroud assembly, exit ducting, combustion chamber and plenum chamber. The gas generator assembly forms the main body of the engine, providing the external attachment points for installation in the airframe and assembly stand. A flange at the front end of the gas generator casing forms the attachment point for the power section and studs at the rear of the inlet case carry the accessory gearbox.

A combined single-stage turbine and multi-stage compressor rotor assembly is supported on two anti-friction bearings; a roller bearing (No. 2) is housed in the gas generator case, and a ball thrust bearing (No. 1) is contained in a flexible housing assembly attached to the air inlet case.

The external face at the forward end of the impeller housing is located in the inner casing of the gas generator case and is secured by a retaining ring. At the rear end of the compressor, a lip on the first-stage stator housing engages in an annular recess in the air inlet case.

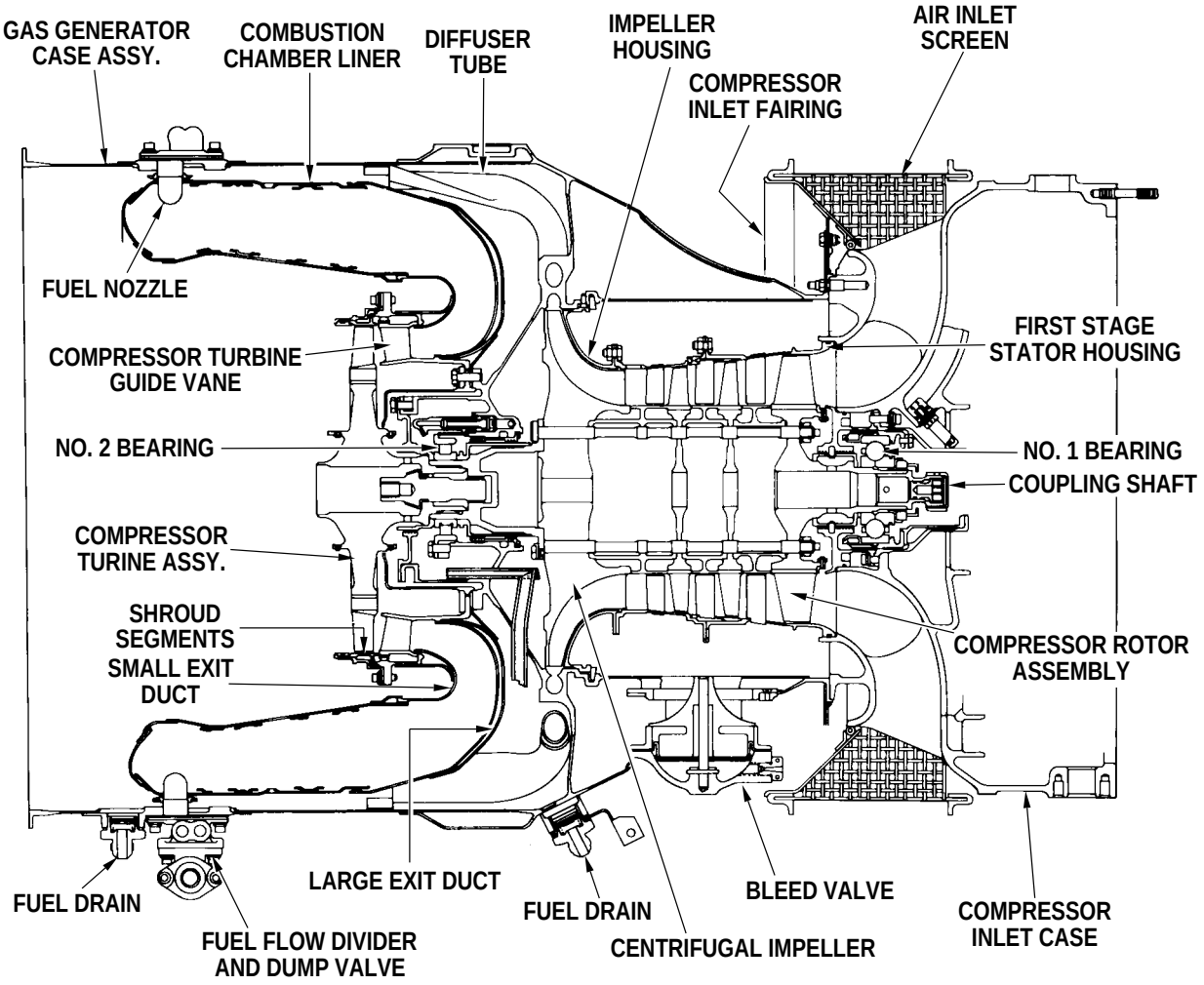
The combustion chamber assembly consists of an annular combustion chamber liner, and inner and outer exit ducts that are attached to the vane ring and gas generator case with bolts. The whole assembly encloses the compressor turbine, with the inner and outer exit ducts directing gas flow onto compressor turbine vane ring and turbine. Protuding into and supporting the domed end of the combustion chamber liner are two igniters and 14 fuel manifold nozzle adapter assemblies. A wire mesh screen around the annular plenum chamber of the air inlet case prevents entry of foreign objects and debris into the inlet zone of the engine.

A ported mounting face at the 7 o'clock position of the gas generator case carries the compressor bleed valve assembly.

The fuel manifold assembly, which consists of 14 fuel nozzle adapters interconnected by paired transfer tubes, is attached around the exterior of the gas generator case in the combustion zone. A flow divider and dump or purge valve unit (PT6A-21 Engines), attached to the base of the fuel manifold assembly, performs the dual function of dividing fuel flow between Nos. 1 and 2 manifolds during engine start and operation, and also dumps or purges residual fuel remaining in the manifolds at engine shutdown. Interconnecting tubes from the starting flow control (PT6A-27/-28 Engines) direct fuel to Nos.1 and 2 manifolds during engine start and operation. At engine shutdown, fuel is dumped from manifold via the starting flow control.

Two spring-located drain valves, installed in the base of the gas generator case, allow residual fuel to drain after engine shutdown. P3 pressure acting against the spring-loaded valves keeps the valves closed when the engine is operating.

Air enters the engine through the annular plenum chamber of inlet case and is directed into the compressor. It passes through three axial stages, enters the centrifugal impeller and is expelled into 21 diffuser tubes surrounding the combustion chamber liner. After mixing fuel



C9179

Gas Generator Assembly - Cross-section
Figure 1

sprayed through manifold nozzles, resultant air/fuel mixture is ignited, expands rearward and passes inward and forward again through exit duct and stator vanes to impinge on blades of the compressor turbine. From the compressor turbine, the gas stream flows forward to drive the power turbine.

In addition to providing motive power for compressor rotor, the compressor turbine drives the accessory gearbox through a coupling shaft attached to the rear hub of the rotor. The hub is an extension of the first-stage compressor disk.

The compressor bleed valve is a self-contained unit designed to prevent compressor stall by spilling interstage compressor air (P2.5) to atmosphere below a predetermined gas generator speed.

CENTER FIRESEAL MOUNT RING - DESCRIPTION AND OPERATION

1. Description and Operation

The center fireseal mount ring, which forms a bulkhead between the compressor air inlet zone and the front of the engine, consists of upper and lower halves with bolting flanges. Each half is manufactured from stainless steel sheet, with the outer circumference contoured to suit airframe fuselage and/or nacelle requirements. Clearance holes for external tubes, lines, and bolt holes for attaching parts are provided at appropriate locations in the upper and lower halves. An insulating strip is bonded to the inner circumference to provide a seal between the mount ring and the gas generator case. The upper and lower halves are bolted together to form a complete ring which is fastened to the gas generator case by mounting brackets Pre-SB1445 attached to the assembly, or by bolts Post-SB1445 which integrally mounts the center fireseal mount ring to the gas generator case.

The center fireseal provides a bulkhead between the compressor air inlet zone and the front of the engine.

CENTER FIRESEAL MOUNT RING - MAINTENANCE PRACTICE

1. General

   A. It is not a necessary practice to remove the mount ring during maintenance of the engine. Removal should be dictated by the extent of repair necessary as determined during inspection. Refer to the relevant chapters in this manual for the removal/installation of lines/tubes and components passing through the rings.

2. Consumable Materials

   The consumable materials listed below are used in the following procedures.

Item No.	Name
PWC05-101	Cloth, Abrasive
PWC08-002	Adhesive, Fluorosilicone
PWC11-002	(Use PWC11-014)
PWC11-014	Alcohol, Isopropyl

3. Special Tools

   Not Applicable

4. Fixtures, Equipment and Supplier Tools

   Not Applicable

5. Removal/Installation

   A. Removal of Pre-SB1445 Center Fireseal Mount Ring (Ref. Fig. 202)

      (1) Remove external lines and components passing through fireseal mount ring (Ref. Relevant Chapters).

      (2) Remove nuts and bolts joining ring halves at flanges.

      (3) Remove nuts, washers and bolts that secure ring halves to brackets on gas generator case. Remove ring halves.

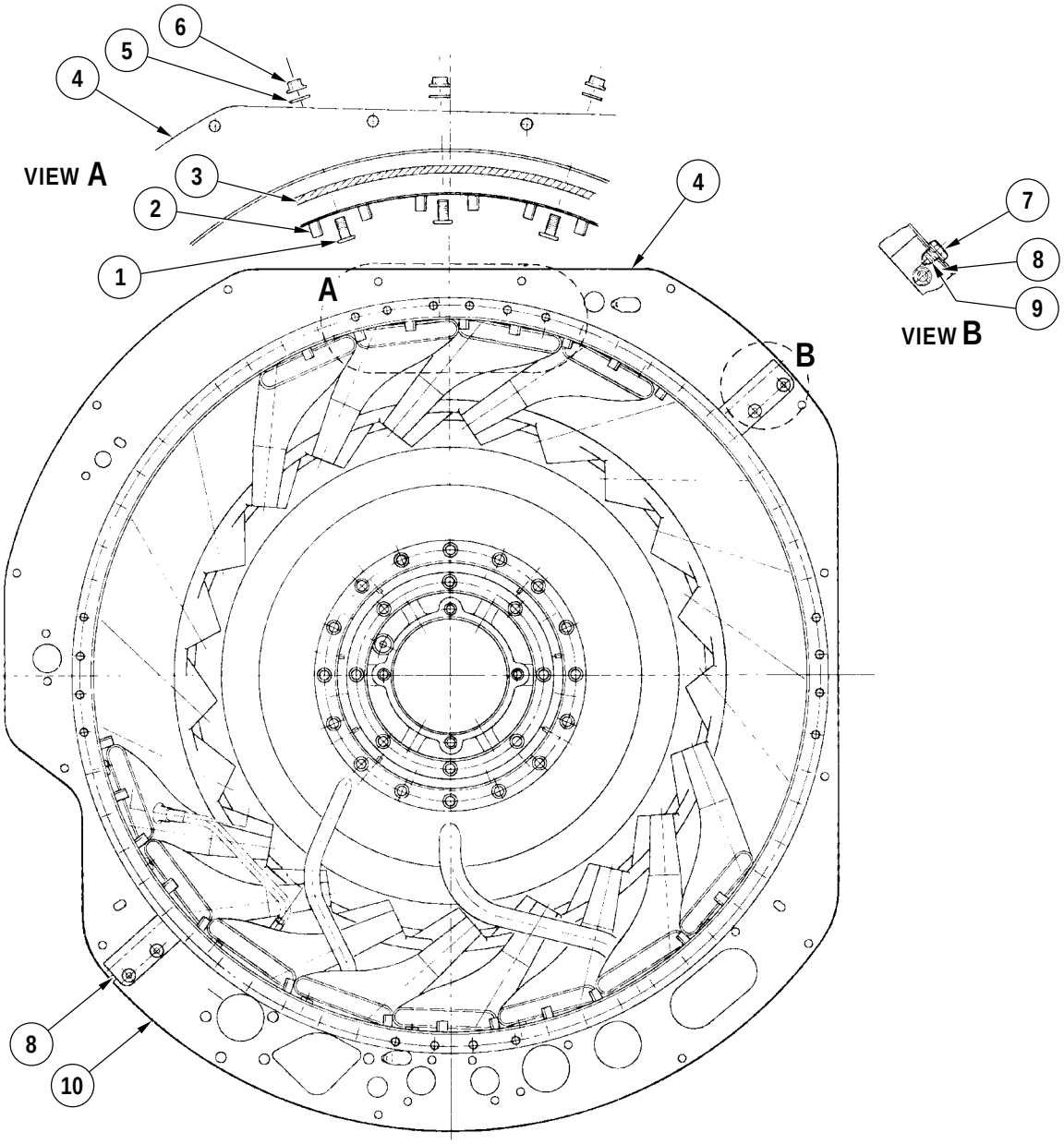
   B. Removal of Post-SB1445 Center Fireseal Mount Ring (Ref. Fig. 201)

      (1) Remove the power section (Ref. 72-00-00, REMOVAL/INSTALLATION).

      (2) Remove the external lines and components passing through the fireseal mount ring (Ref. Relevant Chapters).

      (3) Remove the combustion chamber liner (Ref. 72-40-01, Removal/Installation).

      (4) Remove the nuts (9) and bolts (7) joining the fireseal ring halves (4 and 10).



Post-SB1445 C41527

Removal/Installation of Center Fireseal Mount Ring Assembly
Figure 201

Key to Figure 201

1. Bolt
2. Vane Segment Strip
3. Gas Generator Case
4. Fireseal Mount Ring, Top Half
5. Washer
6. Nut, Self-locking
7. Bolt
8. Flange, Joining
9. Nut, Self-locking
10. Fireseal Mount Ring, Bottom Half

CAUTION: EXTREME CARE SHOULD BE TAKEN AT DISASSEMBLY, THAT BOLTS SECURING THE FIRESEAL RING HALVES DO NOT FALL INTO THE GAS GENERATOR CASE.

(5) Remove the nuts (6), washers (5) and bolts (1) securing the ring halves (4 and 10) and vane segment strips (2) to the gas generator case (3).

(6) Remove the vane segment strips (2) and note the location for reinstallation.

(7) Remove the fireseal ring halves (4 and 10).

NOTE: A sharp blow with a soft faced hammer may be necessary to break the adhesive bond.

C. Installation of Pre-SB1445 Center Fireseal Mount Ring (Ref. Fig. 202)

(1) Position the ring halves on the gas generator case and secure to the mounting brackets with bolts, washers and nuts. Tighten and torque the nuts 32 to 36 lb.in.

(2) Join the ring halves at the flanges with bolts and self-locking nuts. Insert the bolts from the bottom on left side and from the top on the right side. Tighten and torque the nuts 32 to 36 lb.in.

(3) Install the external lines and components passing through the fireseal mount ring (Ref. Relevant Chapters).

D. Installation of Post-SB1445 Center Fireseal Mount Ring (Ref. Fig. 201)

(1) Prior to assembly, apply silicone adhesive (PWC08-002) to the mating surfaces surrounding the ring mounting holes in the gas generator case and to the shank of the mounting bolts.

(2) Locate the top ring half (4) on the gas generator case (3), with the mounting holes aligned with the holes in the gas generator case.

(3) Locate the vane segment strip (2) inside the gas generator case (3) in the position noted on removal. With the mounting holes aligned, secure with bolts (1) inserted from the inside. Install and tighten the washers (5) and nuts (6) fingertight.

(4) Locate the bottom ring half (10) on the gas generator case (3) with the mounting holes aligned with the holes in the gas generator case. Install the vane segment strip (2) (Ref. Step (3)).

(5) Secure the top and bottom ring halves (4 and 10) at the joining flanges (8) with the bolts (7) and nuts (9) tightened fingertight.

NOTE: Dependent on the aircraft installation, two outboard bolts, one on each fireseal lap joint, may be removed to overcome interference with the airframe fireseal.

(6) Install the remaining vane segments strips (2) (Ref. Step (3)) and secure with the bolts (1) inserted from the inside. Tighten the washers (5) and nuts (6) and torque 45 to 55 lb.in. for all twenty-one locations.

(7) Tighten the joining flange nuts (9), as applicable, 32 to 36 lb.in.

(8) Remove any excessive silicone adhesive.

(9) Install the combustion chamber liner (Ref. 72-40-01, Removal/Installation).

(10) Install the power section (Ref. 72-00-00, REMOVAL/INSTALLATION).

(11) Install the external lines and components passing through the fireseal mount ring (Ref. Relevant Chapters).

6. Inspection/Check

A. Center Fireseal Mount Ring

(1) Examine the mount ring halves (Pre-SB1445 or Post-SB1445) for attachment, damage and condition.

NOTE: For the external tubes/lines passing through the mount rings, refer to relevant chapters in this manual.

(2) Examine the circumferential packing material for security (Pre-SB1445 or Post-SB1445). A loose strip may be rebonded (Ref. Approved Repairs).

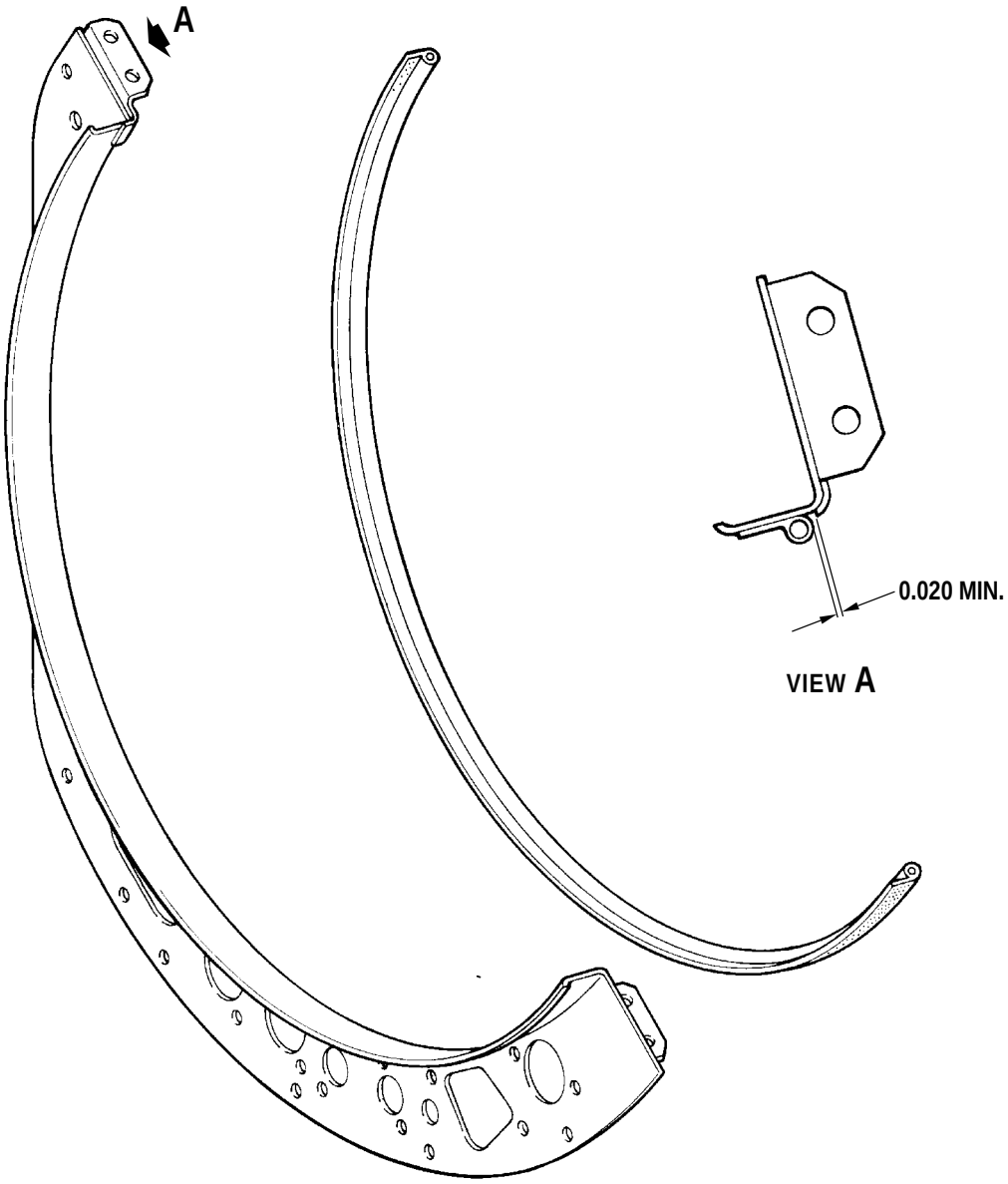
7. Approved Repairs (Pre-SB1445) (Ref. Fig. 202)

A. Center Fireseal Mount Ring Packing Material

(1) A detached fireseal packing material, if serviceable, may be rebonded:

(a) Clean surfaces to be bonded with alcohol (PWC11-002) or (PWC11-014).

(b) Roughen the surface of the packing material with abrasive cloth (PWC05-101), and clean with alcohol (PWC11-002) or (PWC11-014).



Pre-SB1445 C7050

Center Fireseal Mount Ring - Insulating Strip Replacement
Figure 202

(c) Bond the packing material to the center ring halves using adhesive sealant (PWC08-002).

(d) Allow the sealant to cure at room temperature for approximately 72 hours.

NOTE: The ring half may be returned to service after two to four hours elapsed time, but avoid exerting pressures that would cause the sealant to exude and weaken the bond.

REAR FIRESEAL MOUNT RING - DESCRIPTION AND OPERATION

1. Description and Operation

The rear fireseal mount ring which forms a bulkhead between the compressor air inlet zone and the accessory gearbox, consists of upper and lower halves with bolting flanges. Construction is similar to the center fireseal mount ring except for the outer circumference contours. The upper and lower halves are bolted together and secured to the compressor inlet case by mounting brackets attached to the assembly.

The rear fireseal mount ring includes provisions for installation of a compressor wash ring around the air inlet screen. The spray ring is supported by clips trapped under the rear edge of the air inlet screen (Ref. 72-20-00).

The rear fireseal forms a bulkhead between the compressor air inlet zone and the accessory gearbox, with associated equipment, at the rear of the engine.

REAR FIRESEAL MOUNT RING - MAINTENANCE PRACTICES

1. General

   A. It is not a necessary practice to remove the rear fireseal mount ring during maintenance of the engine. Removal should be dictated by the extent of repair necessary as determined during inspection.

2. Consumable Materials

   The consumable materials listed below are used in the following procedures.

Item No.	Name
PWC03-001	Oil, Engine Lubricating
PWC05-061	Cloth, Abrasive
PWC08-002	Adhesive, Fluorosilicone
PWC11-002	(Use PWC11-014)
PWC11-014	Alcohol, Isopropyl
PWC11-027	Solvent, Petroleum
PWC11-031	Cleaner, Engine

3. Special Tools

   Not Applicable

4. Fixtures, Equipment and Supplier Tools

   Not Applicable

5. Removal/Installation

   It is not a necessary practice to remove the rear fireseal mount ring at maintenance of the engine. Removal should be dictated by the extent of the repair necessary as determined at inspection. On Post-SB1441 installation, a maximum of four washers may be used as spacers between the top and bottom mounting ring assemblies (Ref. IPC).

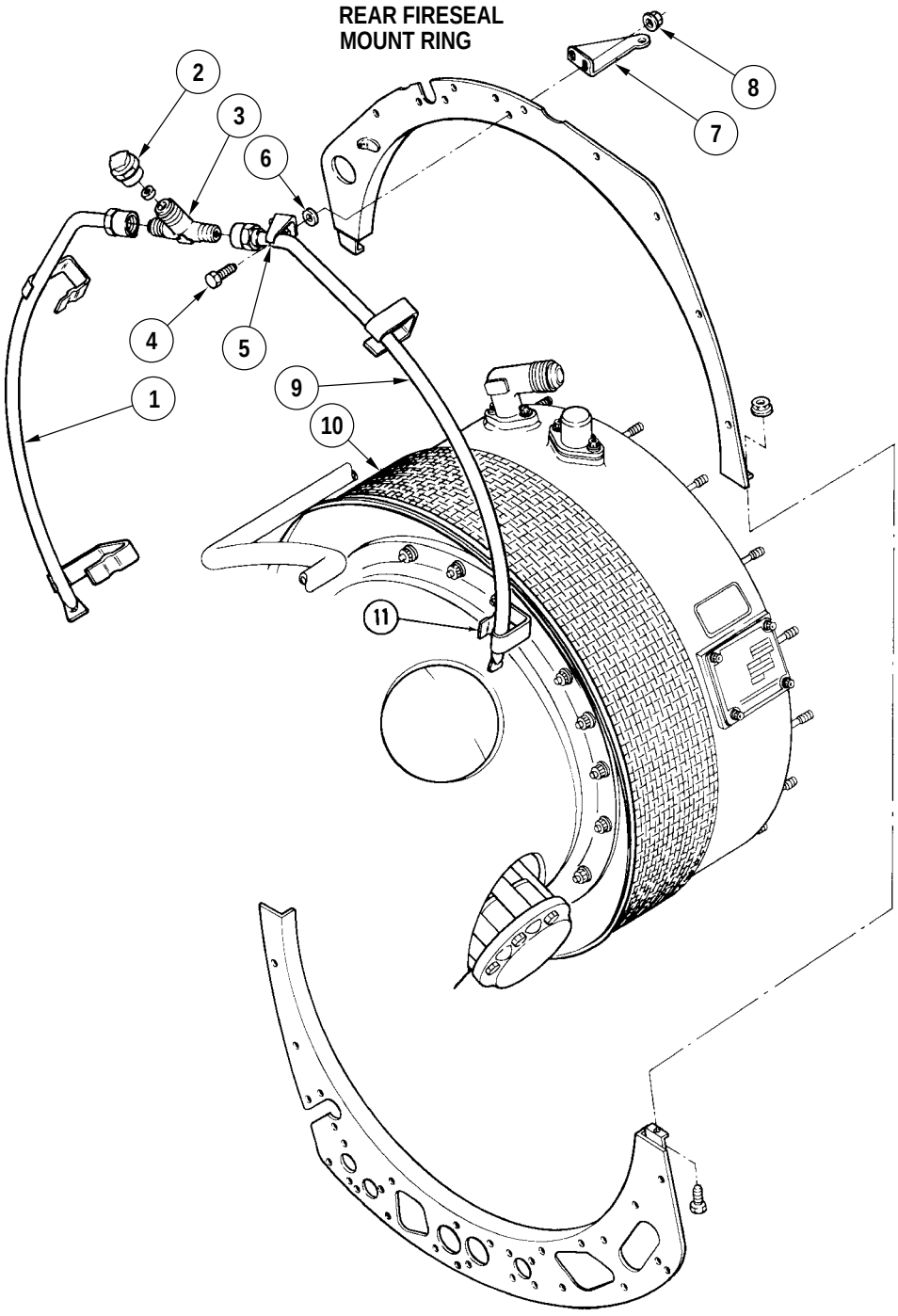
   A. Removal of Compressor Wash Ring (Ref. Fig. 201)

   CAUTION: KEEP INLET AREA CLEAR OF ALL FOREIGN OBJECTS WHICH COULD ENTER THE ENGINE AND CAUSE INTERNAL DAMAGE IF COMPRESSOR IS INADVERTENTLY TURNED.

   (1) Remove air inlet screen (Ref. 72-20-00).

   (2) Loosen coupling nut and remove right-hand spray tube (1) from tee (3).

   (3) Remove cover (2) and remove tee (3) from left-hand spray tube (9) by loosening coupling nut of tube.



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Removal/Installation of Compressor Wash Ring
Figure 201

Key to Figure 201

1. Spray Tube (RH)
2. Cover
3. Tee
4. Bolt
5. Washer
6. Self-locking Nut
7. Support Bracket
8. Top Fireseal Mount Ring
9. Spray Tube (LH)
10. Bolts
11. Self-locking Nut

(4) Remove left-hand spray tube (9) from front face of rear mount ring by removing two self-locking nuts (8), bolts (4) and washers (6). Exercise care as washers are fitted between mount ring and tube locating bracket (5).

B. Installation of Compressor Wash Ring (Ref. Fig. 201)

(1) Locate left-hand spray tube (9) on front face of rear fireseal and align mounting holes in tube locating bracket (5) with holes in fireseal mount ring and support bracket (7). Secure assembly with two bolts (4) (heads to be on front face of mount ring), washers (6) (between bracket (5) and mount ring) and self-locking nuts (8). Tighten nuts and torque 35 to 40 lb.in.

(2) Install tee (3) on tube (9). Coupling nut to be fingertight.

(3) Locate right-hand spray tube (1) on front face of fireseal mount ring and screw tube coupling nut onto tee (3), fingertight.

(4) Position tee at an angle of 20 degrees (± 5 degrees) relative to face of mount ring. Tighten coupling nuts of both spray tubes, torque 270 to 300 lb.in., and lockwire.

(5) Install cover (2) on tee and lockwire.

(6) Reinstall air inlet screen (Ref. 72-20-00).

6. Cleaning/Painting

A. Compressor Wash Ring (When fitted)

(1) Clean the tee and plugs with solvent (PWC11-027) or (PWC11-031). Dry with clean, dry, compressed air.

NOTE: If necessary, pressure flush the tee to make sure all the ports are clean and clear.

(2) Clean the spray tubes:

(a) Clean the exterior of the spray tubes with a soft cloth moistened in solvent (PWC11-027) or (PWC11-031).

(b) Pressure flush each spray tube:

1 Using a suitable flexible, coiled nonmetallic brush and a liberal quantity of petroleum solvent, thoroughly scrub the interior of each tube.

2 Temporarily tape over the spray holes in each tube.

3 Install a rubber hose over the plug end of each tube, and provide a suitable container for spillage.

4 Pressure flush through each tube from the coupling end, using petroleum solvent, and remove the rubber tubing.

5 Remove the tape from each tube, making sure that the tubes are completely free of tape residue.

6 Pressure flush with petroleum solvent, making sure all spray holes in each tube are clean and clear.

7 Remove the slave plugs and dry each tube with clean, dry, compressed air.

7. Inspection/Check

A. Rear Fireseal Mount Rings

(1) Examine the rear fireseal mount ring halves for attachment, damage and condition.

NOTE: For the external tubes/lines passing through the mount rings, refer to the relevant chapters in this manual.

(2) Examine the circumferential insulating strips for attachment. Loosened strips may be rebonded.

(3) Inspect mount ring spacers (Post-SB1441) for damage and condition. Replace as necessary.

B. Compressor Wash Ring

(1) Examine the tee and cap for condition/damage. Repair damaged threads with a suitable chaser/die.

(2) Examine the plugs for condition/damage. Replace the plugs as required.

(3) Inspect the spray tubes as follows:

(a) Check the spray holes in each tube. Clear the holes of any foreign matter with a 0.052 to 0.057 in. drill bit. DO NOT break sharp edges.

(b) Examine the brazed joints in the area of the coupling nuts and plugs. Cracks are not acceptable.

(c) Examine the locating brackets and support clips for proper attachment. Cracks are not acceptable.

(d) Dents which could alter the direction of the spray are not acceptable in the area of the holes.

(e) Inspect the tubes for general condition and surface damage as follows:

1 Scratches with no appreciable depth are acceptable. Scratches to 0.005 in. deep should be smoothed out. Replace the tube assembly if scratches exceed 0.005 in.

2 Nicks 0.0625 in. long by 0.010 in. wide and 0.003 in. deep are acceptable. Nicks to 0.005 in. should be smoothed out to remove sharp edges.

3 Dents are acceptable provided the length or depth does not exceed 10 percent of the tube OD nor greater than 5 percent in the swaged areas. No more than one dent, to the maximum depth, per 12-inch length of tubing is acceptable. Dents on tube bends, which can cause restriction by flattening and local weakening, are not acceptable.

4 Minor isolated pitting to 0.003 in. deep is acceptable. Clusters of pits not exceeding a maximum depth of 0.005 in should be blended.

5 Corrosion, rust or stains are acceptable if they can be removed by light polishing with abrasive cloth (PWC05-061) and oil (PWC03-001).

8. Approved Repairs

A. Repair Mount Ring Insulating Strips (Ref. Fig. 202)

(1) Detached fireseal insulating strips, if serviceable, may be rebonded:

NOTE: A new strip must be trimmed to the same length as that removed from fireseal.

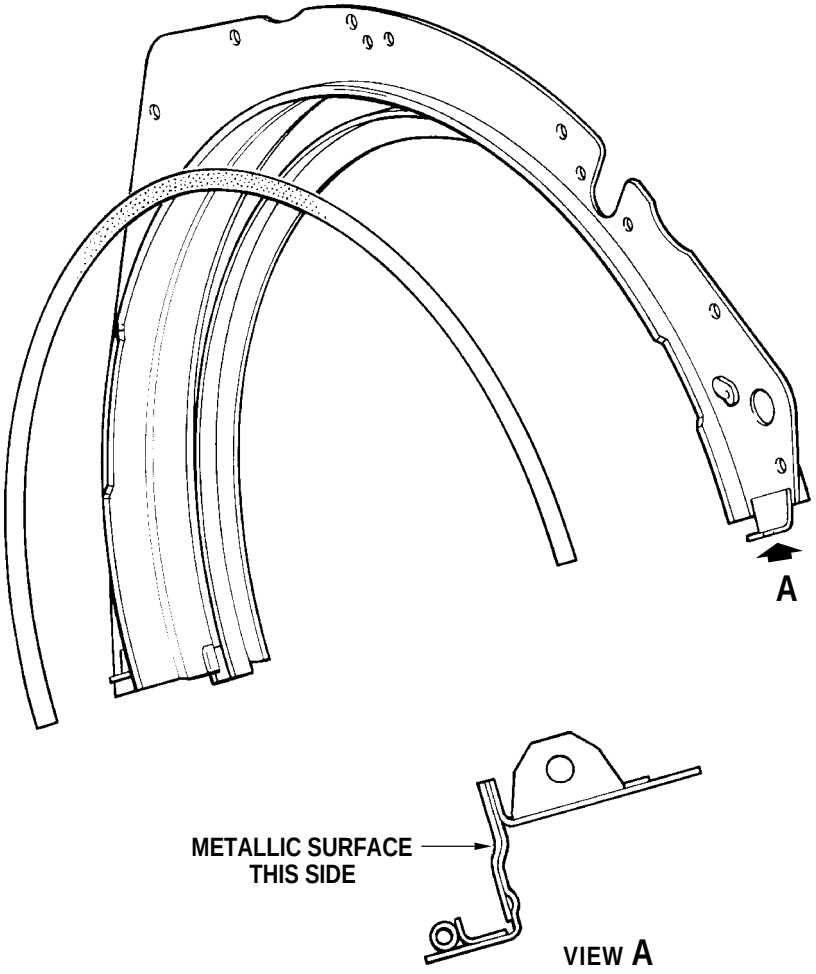
(a) Remove the old adhesive from the mount ring and insulating strip with solvent (PWC11-027) or (PWC11-031).

(b) Clean the surfaces to be bonded using inhibited trichloroethane solvent (PWC11-002) or (PWC11-014).

(c) Bond the insulating strip to the mount ring halves using an adhesive sealant (PWC08-002).

(d) Allow the sealant to cure at room temperature for approximately 72 hours.

NOTE: Seventy two hours is the normal curing time of bond. The ring half may be returned to service after two to four hours, but avoid exerting pressure that would cause the sealant to exude and weaken bond.



C7051

Rear Fireseal Mount Ring - Insulating Strip Replacement
Figure 202

GAS GENERATOR CASE - DESCRIPTION AND OPERATION

1. General

The gas generator case comprises the components necessary for the compression of the incoming air, and the mixing and combustion of fuel and air. It also provides the main attachment points for mounting the engine in the airframe.

2. Description and Operation (Ref. Fig. 1)

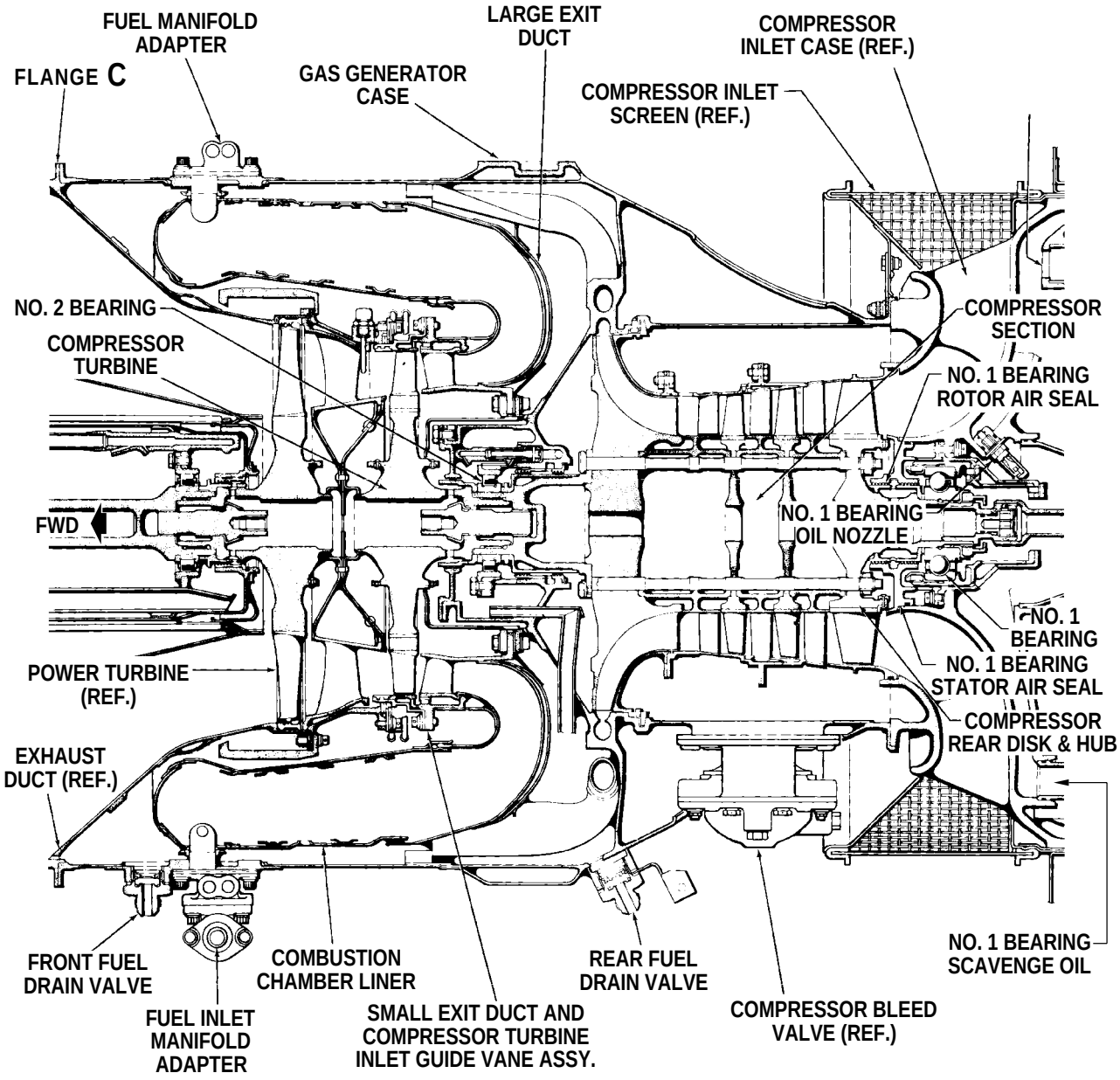
The gas generator case is located between the compressor inlet case at the rear and the exhaust duct at the front. The case consists of two stainless steel sections fabricated into a single structure, and may be coated with a diffused aluminide process treatment for increased resistance to corrosion attack. The rear inner section provides a housing for the compressor rotor and stator assembly. A bleed port for the compressor bleed valve (Ref. 75-30-00) is located at the 7 o'clock position on the conical outer section of the case. The No. 2 bearing, with compressor and compressor turbine stator air seals, is located in the case centerbore. The compressor double labyrinth stator air seal is secured in the centerbore by a double coil retaining ring, while the compressor turbine stator air seal is secured to the front flange at the centerbore by eight bolts.

Diffuser tubes, brazed inside the center section of the case, increase the static pressure of the compressor discharge air and direct it through straightening vanes to the combustion area. Compressor discharge air (P3) is piped from a diffuser tube at approximately the 4 o'clock position to a boss at the 5 o'clock position on the case to provide controlling pressure for the fuel control system (Ref. 73-20-00). A vent pipe located at the 8 o'clock position on the case provides P3 air for bleed valve operation.

Pressure oil to lubricate the No. 2 bearing is applied to the bearing area from a inlet port at the 5 o'clock position on the gas generator case, an internal pressure tube and a cored passage in the centerbore of the case. A dual nozzle assembly at the 2 o'clock position on the cored passage applies oil to the front and rear faces of the bearing. Scavenge oil from the bearing area is returned to the accessory gearbox through an internal tube installed at the 6 o'clock position in the bearing area to a boss at the 5 o'clock position on the gas generator case. An external transfer tube connects the boss to a similar boss on the accessory gearbox.

The front section of the gas generator case forms the outer housing for the combustion chamber liner. The case is of cylindrical form, with mounting bosses for the 14 fuel manifold adapters, the front and rear drain valves and the two glow plugs or spark igniters. The drain valves are located at the 6 o'clock position while the glow plugs or spark igniter bosses are at the 4 and 9 o'clock positions.

The glow plugs or spark igniters and the fuel nozzles and sheaths of the manifold adapters pass through the case and outer wrapper of the combustion chamber liner to protrude into the combustion area. The fuel nozzle sheaths are utilized to support the front end of the combustion chamber liner. Three pads are provided on the gas generator case at the 4, 8 and 12 o'clock positions for engine mounting in the airframe.



C7926A

Gas Generator Case - Cross-section
Figure 1

GAS GENERATOR CASE - MAINTENANCE PRACTICES

1. General

   A. Maintenance personnel should make reference to the INTRODUCTION section and Chapter 70-00-00 STANDARD PRACTICES of this manual to familiarize themselves with general procedures.

   B. Install suitable protective caps/covers over all disconnected tubes/lines and component openings.

   C. Lockwire shall comply with specification AMS 5687, heat and corrosion resistant steel wire MS9226-03, which is 0.025 inch diameter, and will not be specified in instructions.

2. Consumable Materials

   The consumable materials listed below are used in the following procedures.

Item No.	Name
PWC03-001	Oil, Engine Lubricating
PWC05-003	Cloth, Abrasive
PWC05-014	Cloth, Abrasive, Scotch Brit
PWC05-101	Cloth, Abrasive
PWC05-118	Insert, Threaded
PWC07-023	Coating, Aluminum and Zinc
PWC09-002	Compound, Locking and Retaining
PWC11-033	Cleaner, Aqueous
PWC15-013	Inhibitor, Corrosion

3. Special Tools

   The special tools listed below are used in the following procedures.

Tool No.	Name	Application
PWC30271-100	Spreader, Shanknuts	Replaced by PWC31771
PWC31771	Spreader, Shanknuts	
PWC32483	Cutter	
PWC32484	Gage	

4. Fixtures, Equipment and Supplier Tools

   The fixtures, equipment and supplier tools listed below are used in the following procedures.

Name
Locking Tool (Keensert)

5. Removal/Installation

A. Removal of Gas Generator Assembly (Heavy Maintenance)

(1) Should it be necessary to do approved repairs within the gas generator case:

(a) If required, remove the engine from the airframe and install in the stand (Ref. 72-00-00, REMOVAL/INSTALLATION and SERVICING).

(b) Remove the power section from the gas generator assembly and install in the stand (Ref. 72-00-00, SERVICING).

(c) Remove the compressor turbine disk and blade assembly (Ref. 72-50-02, Removal/Installation).

(d) Remove the combustion chamber liner (Ref. 72-40-00, Removal/Installation).

(e) Remove the compressor turbine vane ring, shroud housing assembly and exit ducts (Heavy Maintenance only) (Ref. 72-50-01, Removal/Installation).

B. Installation of Gas Generator Assembly

(1) Assemble the gas generator assembly:

(a) Install the compressor turbine vane ring, shroud housing assembly and exit ducts (Ref. 72-50-01, Removal/Installation).

(b) Install the combustion chamber liner (Ref. 72-40-00, Removal/Installation).

(c) Install the compressor turbine disk and blade assembly (Ref. 72-50-02, Removal/Installation).

(d) Remove the power section from the stand, and install on the gas generator assembly (Ref. 72-00-00, SERVICING).

(e) Install the engine in the airframe (Ref. 72-00-00, REMOVAL/INSTALLATION AND SERVICING).

6. Cleaning/Painting

A. Cleaning of Gas Generator Case

(1) Wash salt, smog and agricultural chemical deposits from the gas generator case with clean water. Dry with clean, dry compressed air.

(2) Clean corrosion buildup with a non-metallic brush.

NOTE: On engines with the diffused aluminide conversion-coated gas generator case , corrosion products (sacrificial) may become visually apparent. Coloring will be reddish brown to rust, which may give the impression that premature attack has occurred on the base material. Light brushing with a soft bristle brush will show that apparent ‘‘rust’’ is superficial. Depending on the coating vendor, the conversion coating color may be green to gray and glaze-like in appearance or may be similar to burnished aluminized enamel. Diffused intermetallic coating should be matte gray to brown. Damaged coating should be touch-up repaired (Ref. Para. 8.(2)).

7. Inspection/Check

A. Inspection of Gas Generator Case

(1) External:

(a) Examine for general condition, including cracks, distortion, corrosion and evidence of overheating.

(b) Minor corrosion on exposed surface of gas generator case may be removed (Ref. Approved Repairs).

NOTE: If condition of gas generator case indicates further inspection is required, remove fuel manifold adapters (Ref. 73-10-05, Removal/Installation) and spark igniters (Ref. 74-20-00, Removal/ Installation).

1 Machined surfaces (bosses and pads) with corrosion pitting less than 0.010 inch deep and less than 75 percent of the surface is acceptable without repair.

(c) On engines INSTALLED in the airframe, examine the engine mounts for attachment and condition (Ref. Aircraft Maintenance Manual).

(d) On engines NOT INSTALLED in the airframe, examine the condition of the mounting pads and threaded holes. Damage to the threaded holes may be repaired (Ref. Approved Repairs).

(2) Internal (Heavy Maintenance Only):

(a) Examine the shanknuts on the flanges in the area of the No. 2 bearing. Loose or damaged nuts shall be replaced (Ref. Approved Repairs).

(b) Reject engine if two adjacent diffuser exit ducts are missing or if more than two non-adjacent diffuser exit ducts are missing.

(c) An engine missing a maximum of two non-adjacent diffuser exit ducts may continue in service only if all other existing diffuer exit ducts are within allowable limits and engine performance remains acceptable. Remove debris and sharp edges.

(d) Inspect for minimum clearance of 0.020 inch at the following locations (Ref. Fig. 201) :

1 Between adjacent diffuser exit ducts.

2 Between diffuser exit ducts and adjacent straightening vanes.

3 Between diffuser exit ducts and inner wall of the gas generator case.

(e) Fretting wear on the outer face and edge adjacent to the next diffuser exit duct is acceptable. Blend repair any sharp edges by removal of excessively thinned metal.

(f) Any cracks on the inner or outer surfaces which will not converge and allow metal to become detached are acceptable (Ref. Details A, B and D) provided they are stop drilled (Ref. Approved Repairs). For any cracks which could converge and allow metal to become detached (Ref. Detail C), refer to Para. 8.

NOTE: Cracking of diffuser pipes may be associated with vibrations. The source of vibration should be identified and corrective action taken to reduce it.

(g) Loss of material on a maximum of four diffuser exit ducts is acceptable provided:

1 The detached material is removed from engine.

2 The size of the detached material does not exceed 0.50 x 0.80 inches on the inner surface, 0.30 x 0.30 inches on the outer surface (Ref. Details A and B, Ref. Fig. 201).

3 The hole in the inner surface is blended to remove uneven edges .

4 Fretted areas are blended to remove excessively thinned material .

NOTE: If any of the preceding limits are exceeded, the diffuser exit ducts must be replaced (Ref. Para. 8.E.).

(h) Examine the straightening vanes for cracks and missing material. Up to seven vanes with one side broken off is acceptable provided no more than two are adjacent to one another and sharp material is blended to make sure no further detachment of material.

NOTE: Operating with missing diffuser exit ducts may lead to accelerated hot section deterioration. If the engine is kept in service, do a borescope inspection of the hot section and combustion chamber at recommended intervals (Ref. 72-00-00, INSPECTION, Periodic Inspection).

(3) Inspect gas generator case for corrosion:

NOTE: For engines with a diffused aluminide conversion-coated gas generator case, the corrosion products may become visually apparent. Coloring will be reddish brown to rust, which may give the impression that premature attack has occurred on the base material. Light brushing with a soft bristle brush will show that apparent ‘‘rust’’ is superficial. Appearance of coating may vary. Damaged coating should be touch-up repaired (Ref. Approved Repairs).

(a) Minor corrosion on the exposed surfaces of the gas generator case may be removed (Ref. Para. 8.B.).

(b) If the condition of the corrosion exhibited on the exposed surfaces of the gas generator case indicates that further examination of the fuel manifold and igniter bosses is required, remove the fuel manifold adapters (Ref. 73-10-05, Removal/Installation) and spark igniters (Ref. 74-20-00, Removal/Installation). Examine the mounting pads, fuel nozzle bosses and machined surfaces for corrosion and wear. Isolated corrosion pitting not closely grouped, less than 0.010 inch deep, not covering more than 75 percent of the surface is acceptable without repair.

8. Approved Repairs

A. Mount Pad Threads

(1) Drill hole 0.386 in. in diameter to a maximum depth of 0.490 in.

(2) Remove all swarf.

(3) Tap hole to 0.375 in. 24UNF-3B threads using plug and bottoming taps to a minimum depth of 0.400 in.

(4) Using inserting tool, install helicoil insert finishing 1 to 1½ thread pitch below surface.

(5) Remove driving tang of insert with break off tool.

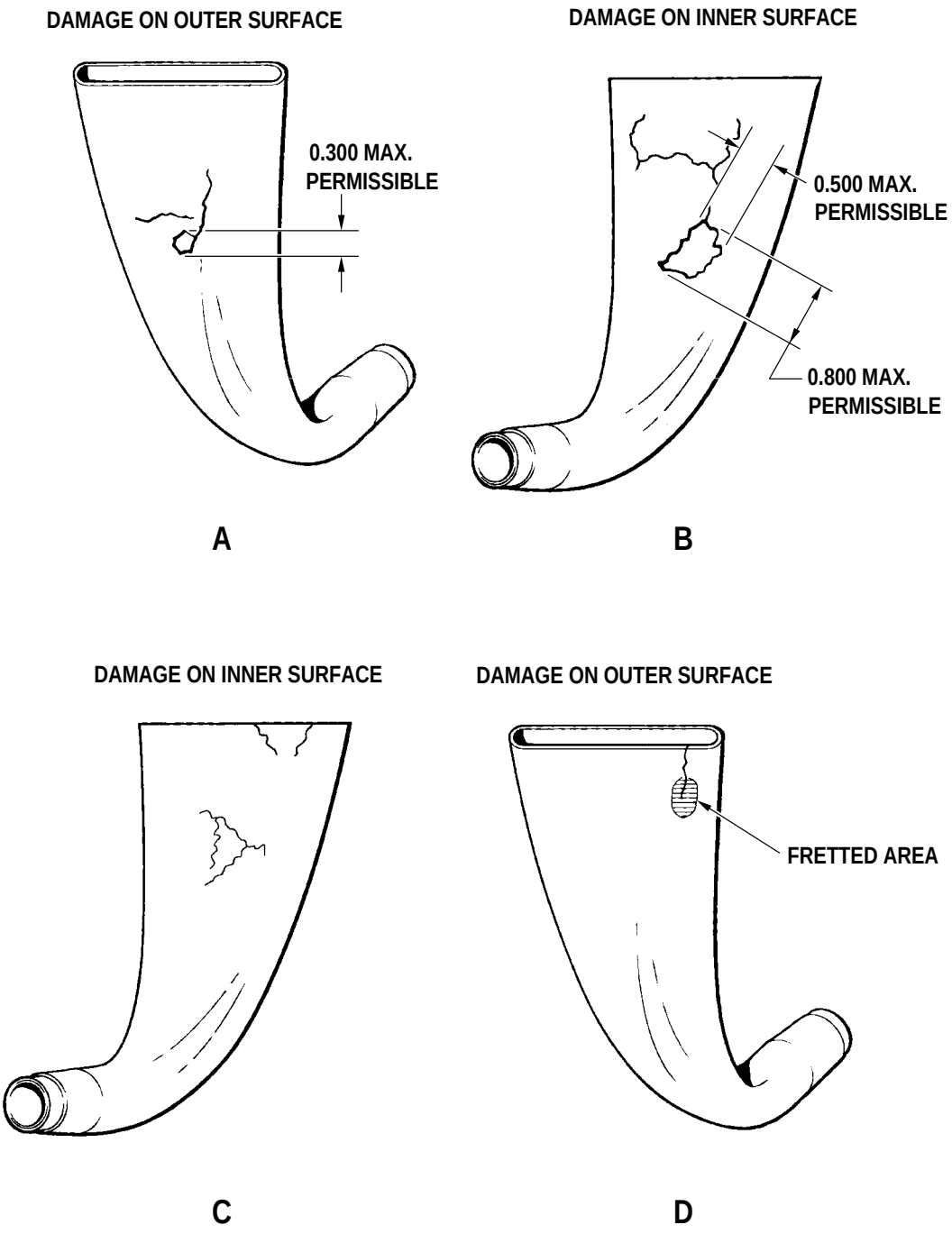
B. Corrosion Removal

WARNING: GAS GENERATOR CASE MUST HAVE COOLED TO AMBIENT TEMPERATURE.

(1) Remove all visible corrosion with coarse abrasive cloth (PWC05-003) exposing bare metal. Use pad (PWC05-014) or a soft bristle brush to provide a clean surface.

NOTE: Do not use power tools for corrosion removal.

(2) Restore coating on gas generator case that exhibit small localized areas of coating loss :



C347D

Diffuser Exit Ducts - Inspection
Figure 201

(a) Clean all touch-up areas with cleaner (PWC11-033). If necessary, scrub area with a soft non-metallic bristle brush.

(b) Mask all exposed holes in fuel or igniter pads.

(c) Feather touch-up area with abrasive cloth (PWC05-101).

(d) Thoroughly agitate, on a paint shaker or equivalent, coating material.

(e) Apply to two or three brush, spray or damp sponge coats of (PWC07-023). Excess coating must be wiped off.

(f) Allow each coat of touch-up conversion coating to air dray for four hours between coats.

(3) Clean all touch-up areas with cleaner (PWC11-033). If necessary, scrub area with a soft non-metallic bristle brush.

(4) Mask all areas that are to remain free of corrosion inhibitor (PWC15-013).

(5) Apply inhibitor in accordance with manufacturer's instructions.

C. Replacement of Shanknut (Heavy Maintenance Only) (Ref. Figs. 202 and 203)

(1) Using a suitable drill, partially remove the flared end of shanknut (2, Fig. 202).

NOTE: Do not drill through to contact the flange.

(2) Remove the shanknut using a parallel pin punch at the drilled end to shear the weakened flare, and retrieve from the case.

(3) Install a new shanknut and hold against the flange (Ref. Fig. 203).

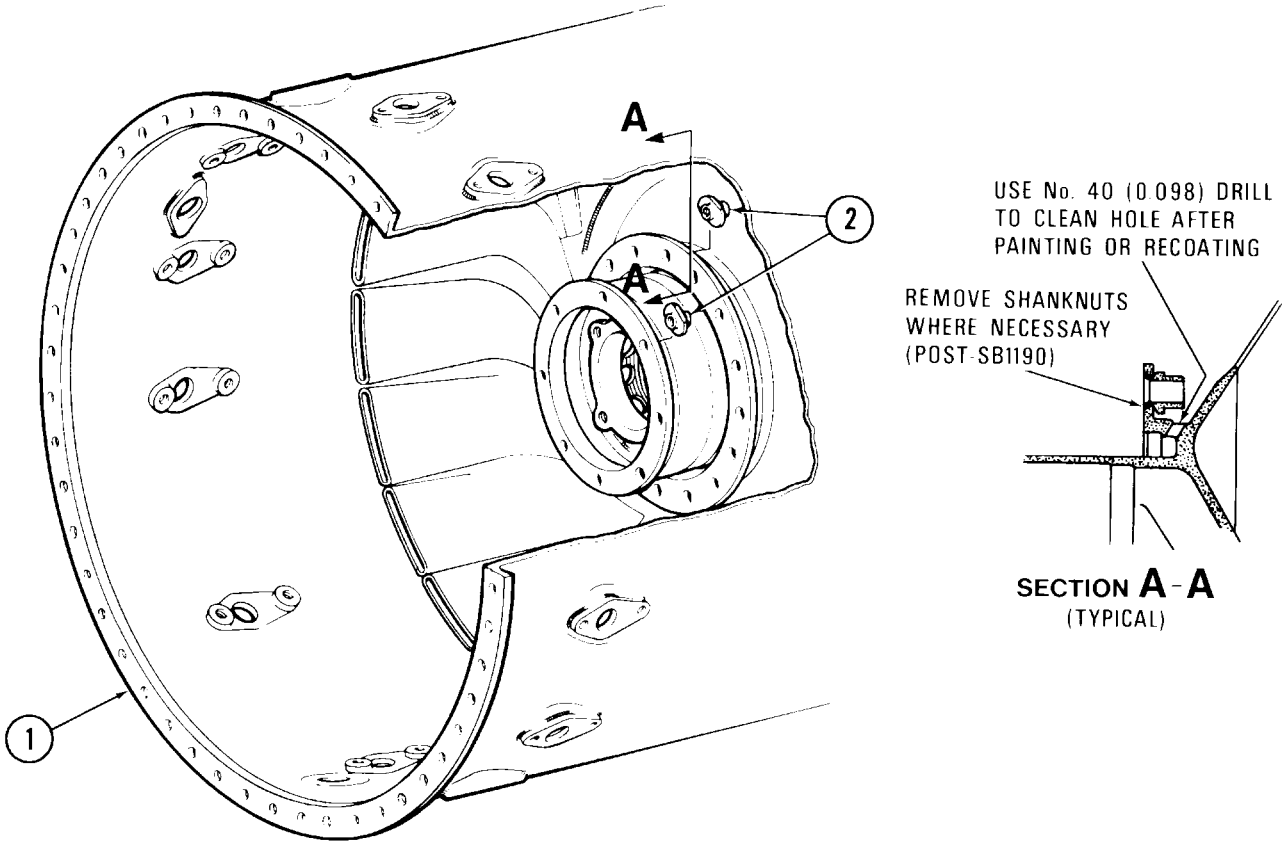
(4) Lightly lubricate the tapered portion of the shanknut spreader (PWC30271-100) or (PWC31771) with engine oil (PWC03-001) and screw into the shanknut until shank end is flared against the flange.

(5) Remove the spreader and examine the flared end of the shanknut for correct forming with no evidence of deformation or cracks.

D. Repair Diffuser Exit Ducts (Heavy Maintenance Only) (Ref. Fig. 204)

(1) Stop drill the cracks using a 1/16 (0.0625) inch drill (Ref. Details A, B and C). Cracks in the outer wall of the diffuser exit ducts may be reached by drilling access holes in the inner walls using a 1/4 (0.250) inch drill, then stop drill the outer wall using a 1/16 (0.0625) inch drill (Ref. Detail D). Access holes are acceptable without repair.

(2) Remove the metal that can become detached if any converging cracks are allowed to progress.



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Gas Generator Case - Repair
Figure 202

Key to Figure 202

1. Gas Generator Case
2. Shanknut

(3) Blend out the areas where the metal has become detached, or has been removed (Ref. Details A, B and C), or where the metal has been thinned excessively due to fretting.

E. Replacement of Diffuser Exit Ducts

CAUTION: BEFORE MACHINING, MASK OFF THE HARDWARE IN THE VICINITY TO PREVENT THE INGRESS OF METAL PARTICLES INTO THE BEARING AREAS IN PARTICULAR AND THE ENGINE IN GENERAL.

(1) Replacement/repair of all diffuser exit ducts except at locations (5, Fig. 205):

(a) Carefully remove the damaged diffuser exit duct(s) using the appropriate tooling; part-off to dimension (Ref. Dim. B, View B). To avoid damaging the gas generator case, insert a suitable shim (brass or steel) between the diffuser exit ducts and case wall during the part-off operation.

(b) Face (machine) the remaining stub to dimension 1.290 - 1.280 inch using a cutter (PWC32483) with a gage (PWC32484) and a suitable bar to apply pressure. Break sharp edges and chamfer as required (Ref. Dim. 'A', View B).

(c) Open up the clamp assembly (2) sufficiently to install onto the replacement diffuser exit duct assembly (1).

(d) Coat the OD of the stub (3) with sealing compound (PWC09-002) and install the assembly over the stub as shown.

(e) Tighten the bolt (4) progressively, maintaining the clearances shown, and finally tighten the bolt 60 to 65 lb.in. Fasten the bolt head with lockwire.

(f) On completion of repair, thoroughly clean and vacuum the gas generator case before and after removal of the masking tape. Remove the masking tape residue.

NOTE: Diffuser exit ducts (5) can only be replaced at an overhaul facility.

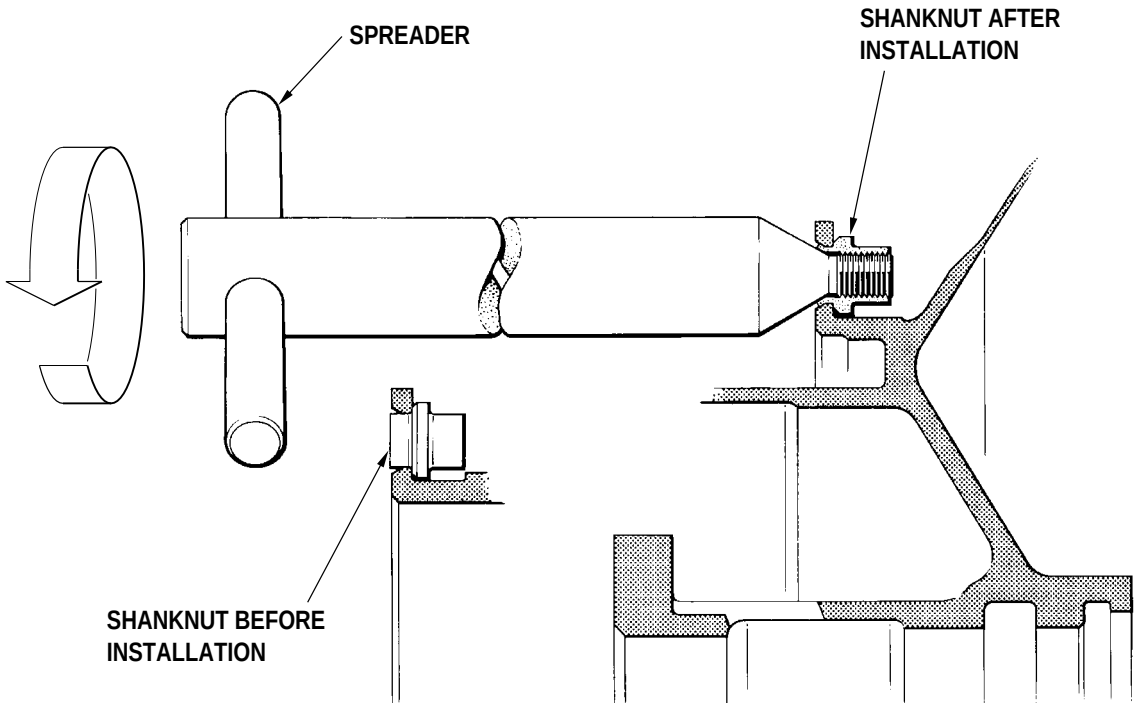
F. Repair Bleed Valve Mount Pad and/or Fuel Nozzle Pad Rear Threaded Holes

(1) Mask gas generator openings to prevent ingress of swarf.

(2) Open up the damaged hole(s) using a 9/32 (0.281) inch drill. Chamfer 0.323 to 0.333 inch x 90 ± 5 degrees included angle.

(3) Tap the hole using 0.3125-18 UNC-2B tap.

(4) Install threaded insert (PWC05-118) fingertight as follows:

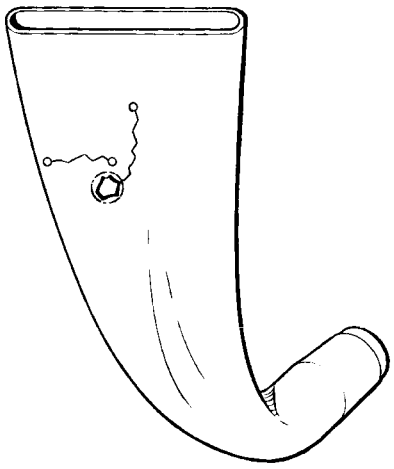


TYPICAL CROSS–SECTION AREA AND APPLICATION

C1997A

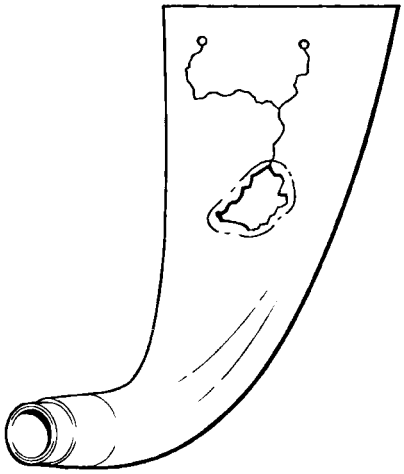
Shanknut Replacement
Figure 203

STOP–DRILL AND SMOOTH OUT HOLE



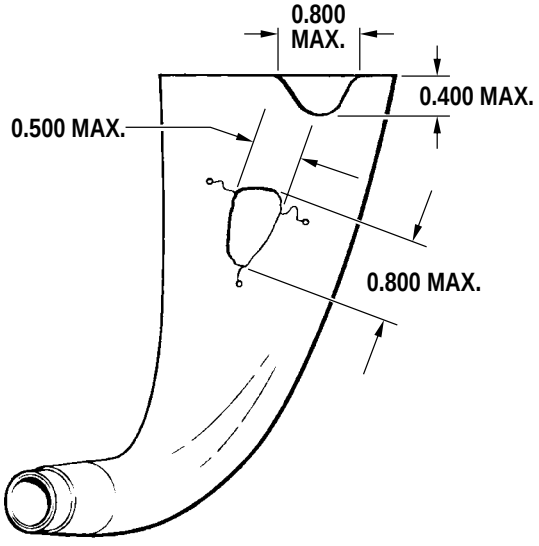
A

STOP–DRILL AND SMOOTH OUT HOLE



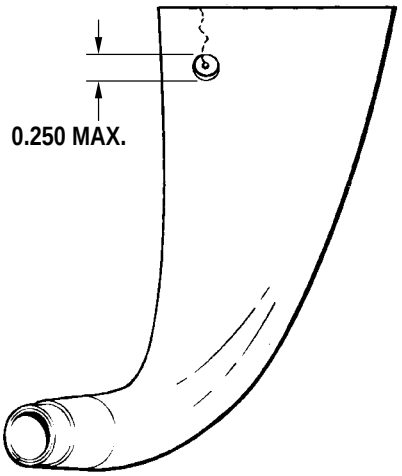
B

STOP–DRILL, REMOVE METAL AND BLEND OUT HOLE



C

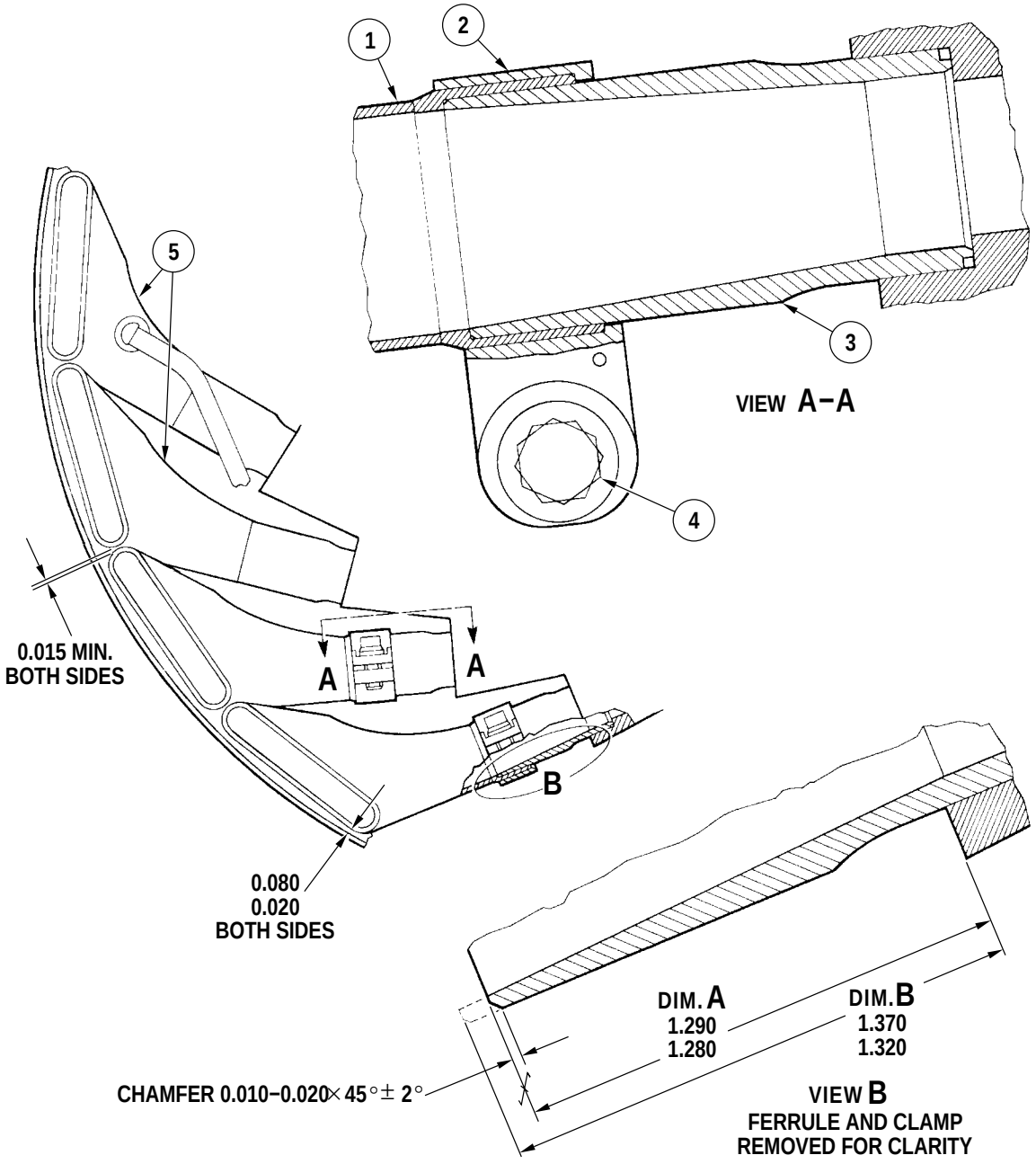
STOP–DRILL THROUGH WINDOW
ON INNER WALL



D

C348C

Diffuser Exit Duct Repair
Figure 204



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Diffuser Exit Duct Repair/Replacement
Figure 205

Key to Figure 205

1. Replacement Diffuser Exit Duct Assembly
2. Clamp
3. Stub
4. Bolt
5. Diffuser Exit duct Assembly (Repair not applicable at these locations)

(a) Fuel nozzle inserts 0.010 to 0.015 inch above surface with keys aligned.

(b) Bleed valve inserts 0.010 to 0.015 inch below surface .

(c) Drive keys down with locking tool and hammer.

(5) Remove all masking material.

G. Replacement of Bleed Valve Mount and/or Fuel Nozzle Pad Damaged Threaded Inserts

(1) Remove insert material between keys and thread to 5/32 (0.157) inch deep maximum with a 7/32 (0.219) inch drill.

(2) Deflect keys inward, break off using suitable pin punch.

(3) Remove insert with suitable extraction tool.

(4) Install new insert (Ref. Para. F.).

H. Repair of Fuel Nozzle Pad Front Damaged Threaded Hole(s)

NOTE: This is a temporary (field level) repair. Holes repaired using these instructions will require removal of the threaded insert at overhaul.

(1) Remove power section (Ref. 72-00-00, REMOVAL/INSTALLATION).

(2) Remove fuel manifold adapter(s) (Ref. 73-10-05, Removal/Installation).

(3) Remove combustion chamber liner (Ref. 73-10-05, Removal/Installation).

(4) Mask gas generator openings to prevent ingress of debris.

(5) Open up damaged front hole with a 0.203 (13/64) inch drill bit.

(6) Chamfer hole 0.220 - 0.250 inch diameter X 120 degrees ± 5 degrees.

(7) Tap hole and install helical insert (MS124655 or equivalent).

NOTE: The insert must be installed 3/4 to one thread pitch below surface.

(8) Break and remove driving tangs.

(9) Remove all masking material.

(10) Clean inside gas generator case with suitable suction cleaner.

(11) Install combustion chamber liner (Ref. 73-10-05, Removal/Installation).

(12) Install fuel manifold adapter(s) (Ref. 73-10-05, Removal/Installation).

(13) Install power section (Ref. 72-00-00, REMOVAL/INSTALLATION).

COMPRESSOR ROTOR - DESCRIPTION AND OPERATION

1. General

The compressor rotor is housed in the rear section of the gas generator case and is driven by the compressor turbine. It compresses incoming air for delivery to the combustion chamber.

2. Description and Operation (Ref. Fig. 1)

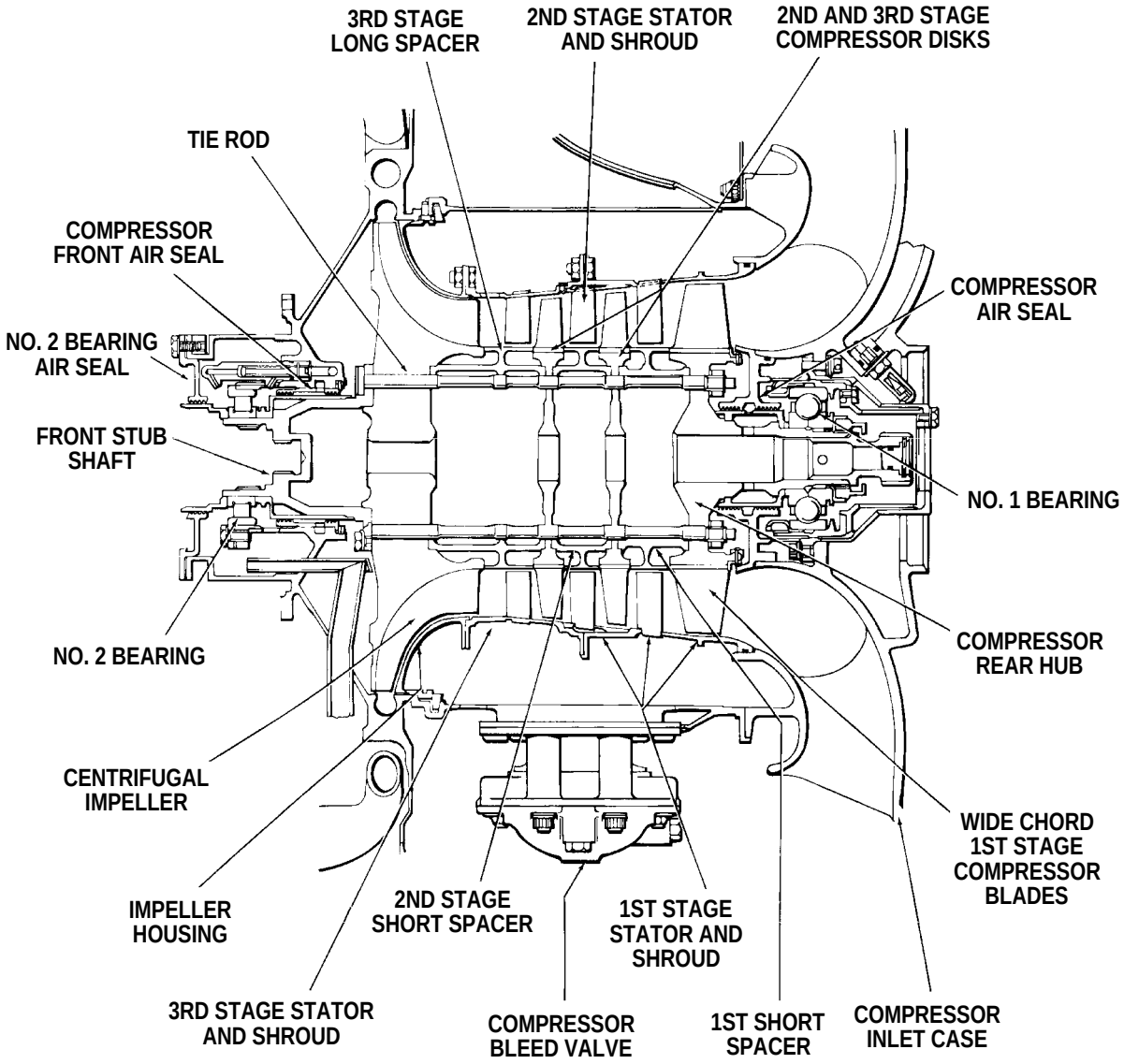
The compressor rotor comprises a three axial stages, three interstage spacers and a single-stage centrifugal impeller. First-stage rotor blades are of titanium, while second- and third-stage rotor blades are cadmium-plated stainless steel. The rotor blades fit into dovetail grooves machined in the rims of respective disks. The limited clearance between the blade roots and grooves produces the characteristic clicking heard during compressor run-down. Axial movement of the blades is limited by interstage spacers installed between the rotor disks. The airfoil section of the first-stage blades differs from that of the second- and third-stage blades. The first-stage rotor has 16 blades while the second- and third-stage rotors each have 32 blades. The centrifugal impeller is bolted to the three axial stages and associated spacers by six numbered tie rods to form an integral unit.

The first-stage and second-stage stators have 44 vanes; the third-stage has 40 vanes. The vanes in each stage are of stainless steel. Each set of vanes is held in position by its respective compressor stator assembly through which the outer ends of the vanes protrude and to which the vane ends are brazed. The first- and third-stage stator assemblies are bolted together, while the second-stage stator assembly is retained between flanges in the first- and third-stage stator assemblies. The third-stage stator is also bolted to the impeller housing. Rotation is prevented by slots and lugs in the mating flanges. Interstage pressure (P2.5) is vented to the compressor bleed valve chamber in the gas generator case through slots in the third-stage stator assembly.

The compressor stubshaft, centrifugal impeller, impeller housing and third-stage compressor stator assembly are positioned, in that order from front to rear, followed by the third-stage disk spacer and rotor disk, the second-stage stator assembly, second-stage disk spacer and rotor disk, the first-stage stator assembly, first-stage disk spacer and compressor rear hub (first-stage disk and blade assembly). The impeller housing is secured to the gas generator case by a wedge shaped retaining ring while the first-stage stator assembly is retained within a flange on the front face of the compressor inlet case. Sealing is accomplished by a preformed packing at the interface.

The compressor front stubshaft is a hollow steel forging, machined to accommodate the compressor air seal rotor and the No. 2 bearing assembly. The No. 2 bearing is a roller-type and supports the stubshaft and forward end of the compressor rotor assembly in the gas generator case. The compressor turbine rotor seal is fitted on the stubshaft forward of the No. 2 bearing.

The compressor rear hub is an integral part of the first-stage compressor rotor disk. The hub consists of a hollow component machined to accommodate the No. 1 bearing rotor air seal, adjusting spacer, and the No. 1 bearing. The No. 1 bearing is a ball-type and supports the compressor rear hub and the rear end of the compressor assembly in the compressor inlet case. A short, hollow, steel coupling, externally splined at the rear end, is secured in the hollow end of the rear hub by a transverse pin which passes through the hub and coupling.



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Compressor Rotor - Cross-section
Figure 1

A hollow steel coupling shaft, internally splined at each end, extends the compressor drive rearward to drive the accessory gearbox. The front end is secured by a ball-lock arrangement while the rear end is splined to the gearbox drive shaft.

The No. 1 and 2 bearings support the compressor assembly in the rear section of the gas generator case. The No. 1 bearing outer race is held in the adapter of the flexible housing and adapter assembly by a keywasher and spanner nut. The outer housing and stator air seal are bolted to the inlet case. The split inner race of the No. 1 bearing, spacer and rotor air seal are stacked against a shoulder on the rear hub and secured by a keywasher and spanner nut. A puller groove embodied in the OD of the rear half of the inner race facilitates removal.

The flange of the No. 2 bearing outer race is secured to the centerbore of the gas generator case by four bolts and tablock washers. The inner race of the No. 2 bearing is interposed between compressor rotor air seal and the compressor turbine rotor air seal, with the compressor rotor air seal bearing against a shoulder on the stubshaft. The bearing and rotor air seals are retained by the compressor turbine disk.

COMPRESSOR ROTOR - MAINTENANCE PRACTICES

1. General

   A. Maintenance personnel should make reference to the INTRODUCTION section and Chapter 70-00-00 STANDARD PRACTICES of this manual to familiarize themselves with general procedures.

   B. Maintenance of the compressor rotor is restricted to inspection and repair of the first-stage rotor.

   C. Install suitable protective caps/covers over all disconnected tubes/lines and component openings.

   D. Lockwire shall comply with specification AMS 5687, heat and corrosion resistant steel wire MS9226-03, 0.025 inch diameter, and will not be specified in instructions.

2. Consumable Materials

   Not Applicable

3. Special Tools

   Not Applicable

4. Fixtures, Equipment and Supplier Tools

   Not Applicable

5. Inspection/Check- (First-stage Compressor Rotor)

   A. General

   CAUTION: KEEP COMPRESSOR INLET AREA CLEAR OF ALL FOREIGN OBJECTS THAT COULD BE INGESTED BY ENGINE AND CAUSE DAMAGE DURING SUBSEQUENT OPERATION.

   NOTE: The following inspection should be done whenever the air inlet screen is removed (Ref. 72-20-00). Due to limited access, the use of a mirror is recommended.

   (1) The limits stated under 'Acceptable Damage Limits' and 'Acceptable Erosion Limits' are considered acceptable without repair. The actual damage must be documented and additional inspections scheduled to assess the rate of defect progression.

   NOTE: If acceptable limits are exceeded, the blades may still be repaired (Ref. Approved Repairs).

(2) Continued operation of a compressor with FOD, either accepted as-is or blended is dependent on satisfactory engine performance.

NOTE: When assessing damage, it should be understood that continued operation with a large number of blades damaged or eroded at or near maximum acceptable limits may result in reduction of compressor efficiency and engine performance.

(3) Acceptable damage limits are based primarily on structural integrity considerations. Rotors with damage exceeding 'Acceptable Damage Limits' cannot remain in service unless damage can be removed by blending (Ref. Approved Repairs):

TABLE 201, Example of FOD (Ref. Fig. 202, Sheet 1)

Type of Damage	Disposition
A nick, 0.020 inch deep by 0.025 inch wide, in blade root.	Engines may not continue in operation with damage in blade root. However, if the damage can be removed by performing a leading edge cutback (Ref. Approved Repairs) the engine can return to service provided performance is satisfactory.

NOTE: Remove the minimum material required to remove the damage. Document the damage (Ref. Subpara. B.).

(4) If damaged blade is within acceptable limits and is not reworked, inspect area at 100 hours. Subsequent inspections are at the discretion of the operator but must not exceed 400 hours.

(5) If damage to the blades is acceptable, and/or after blending, engine performance is within acceptable limits, inspection of the subsequent stages, (rotors, stators and impeller) is not required. Under these conditions, the engine is considered acceptable for service.

(6) If damage exceeds limits and cannot be removed by blending or engine performance is unsatisfactory after repair, the engine or gas generator must be removed from service.

B. Documenting Damage

(1) Defects/damage should be documented (i.e., engine module TSN/TSO, cycles, component description, location and dimensions, if obtainable).

(2) If the blade is repaired document the amount of material removed, (i.e. if the blade was cut back, the amount of cutback should be documented).

C. Acceptable Damage Limits (Ref. Fig. 201)

CAUTION: NICKS IN LEADING AND TRAILING EDGES BECOME INCREASINGLY CRITICAL TOWARD ROOT. DAMAGE IS NOT PERMITTED WITHIN 0.050 INCH OF BLADE ROOT FILLET RADIUS. THE ENGINE MAY REMAIN IN SERVICE PROVIDED THE DAMAGE IS COMPLETELY REMOVED BY LEADING EDGE CUTBACK.

(1) Multiple leading edge nicks 0.050 inch deep on any number of blades are acceptable.

(2) Leading or trailing edge nicks 0.100 inch deep maximum. Two per blade on any number of blades.

NOTE: A nick is considered to be a sharp surface indentation caused by impact resulting in loss of parent material.

(3) Leading or trailing edge dents 0.100 inch deep by 0.100 inch long. Two per blade on any number of blades.

(4) Leading or trailing edge tip curl, without tearing, maximum is 0.100 inch deformation on one edge, up to four blades.

(5) Leading edge nicks 0.030 to 0.050 inch deep by 0.080 inch wide, more than 0.200 inch apart, and more than 0.250 inch from blade tip, on any number of blades, are acceptable provided there are no tears and/or cracks.

(6) Trailing edge dents and nicks, maximum of four (4) per blade, 0.030 to 0.050 inch deep by 0.080 inch wide, more than 0.200 inch apart, and more than 0.250 inch from blade tip, on any number of blades, are acceptable provided there are no tears or cracks.

(7) Blade tip rub is acceptable providing there is no rolled over material and an engine performance check is acceptable.

D. Acceptable Erosion Limits

(1) Inspect first-stage compressor blades for erosion of leading edge.

(2) Erosion at the root is acceptable providing the chord is not reduced by more than 0.250 inch and there is no feathered, (i.e., sharp) edge(s).

NOTE: The chord of an airfoil section is the shortest distance between the leading and trailing edges.

(3) Feathered edges must be removed (Ref. Approved Repairs) or the engine or gas generator module removed from service. The original airfoil chord of the repaired section must not be reduced by more than 0.250 inch and the original leading edge profile must be restored.

(4) Blade tip rub is acceptable, providing an engine performance check (Ref. Aircraft Maintenance Manual) is acceptable and there is no ‘‘rolled’’ over material at the blade tip.

E. Unacceptable Damage (Ref. Fig. 202)

(1) Tears and cracks due to deformation of leading or trailing edges and cracks on any blade surface are not acceptable. The blade must be repaired if the defect is within repairable limits (Ref. Approved Repairs), or the engine or gas generator module removed from service.

6. Approved Repairs - (First-stage Compressor Rotor)

A. Repair of Leading Edge (Ref. Fig. 203)

CAUTION: KEEP THE COMPRESSOR INLET AREA CLEAR OF ALL FOREIGN MATERIAL AND OBJECTS WHICH COULD BE INGESTED BY THE ENGINE AND CAUSE SERIOUS DAMAGE DURING OPERATION.

(1) Repair the first-stage blade leading edge within the following limits using fine hand files and stones.

WARNING: AN ACCUMULATION OF TITANIUM DUST IS A FIRE HAZARD. CLEAN UP TITANIUM DUST ON COMPLETION OF REPAIR AND DO NOT ALLOW DUST TO ACCUMULATE ON CLOTHING.

(2) Suitably mask the entire first-stage compressor area to prevent contamination of the compressor with filing residue.

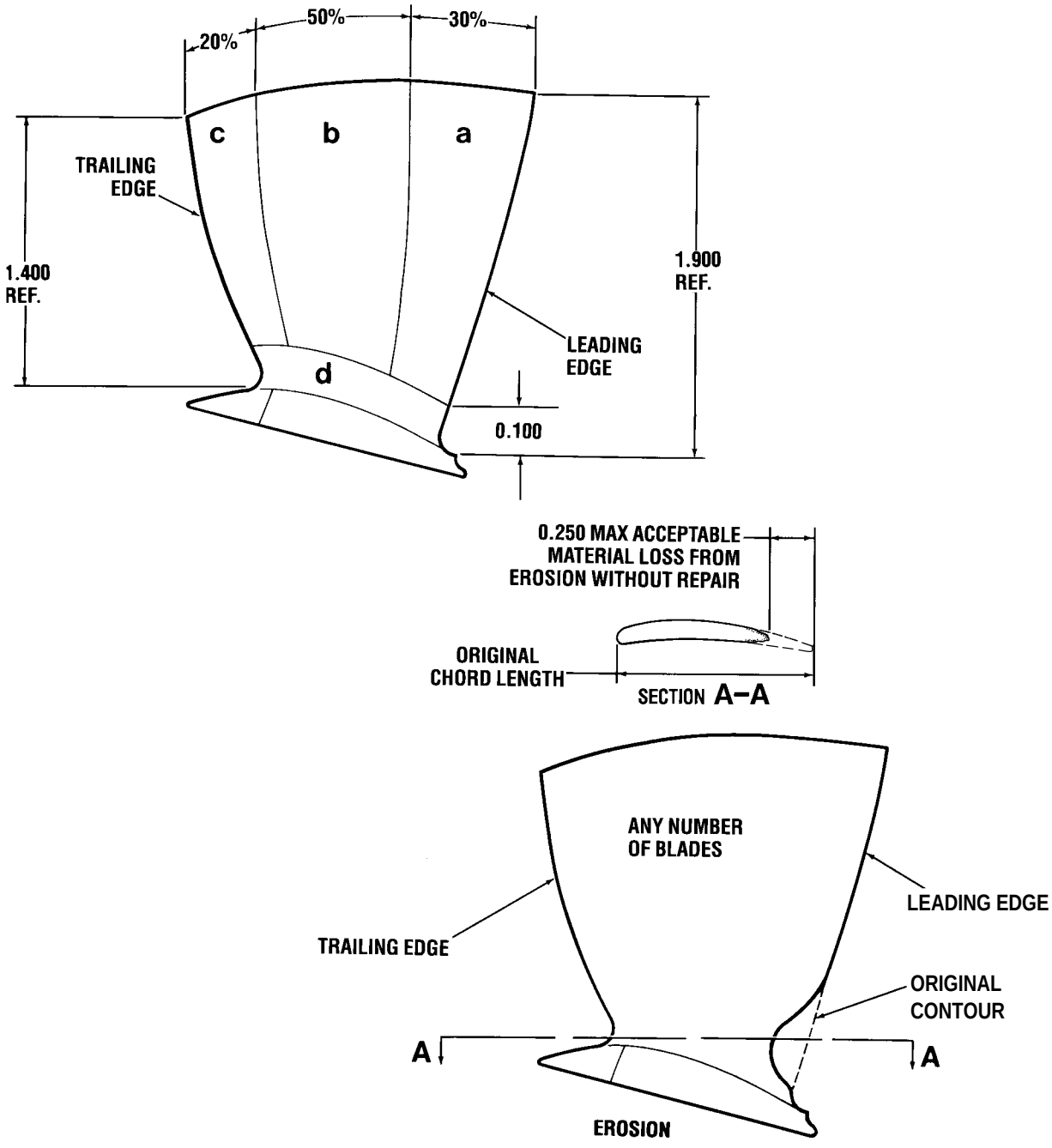
(3) In case of multiple leading edge defects situated closer than 0.200 in., the entire leading edge of an unlimited number of blades may be cut back 0.025 in. maximum (Detail A). If blade has been previously cut back, reduce repair limit by previous cut back. Maintain the leading edge profile and fillet radius as close as possible to the original.

NOTE: If cutting back the leading edge by 0.025 in. does not eliminate or make defects acceptable, the blade cutbacks may be extended to 0.050 in. maximum, providing engine performance is within limits. This is acceptable to permit the engine to remain in service; however, the affected components may have to be replaced at the next overhaul.

(4) Nicks and tears may be smoothed to 0.300 inch wide maximum by 0.165 inch deep maximum, provided repaired area is 0.220 in. minimum from blade tip (Detail C).

NOTE: 1. If repairing within the above limits does not eliminate the defects or make them acceptable, individual defects may be smoothed to 0.500 inch wide maximum and 0.250 inch deep maximum, provided repair area is 0.350 inch minimum from blade tip, and engine performance is within limits. However, the affected components may have to be replaced at next overhaul.

NOTE: 2. If any blade is smoothed to the maximum limit, the blade 180 degrees opposite must be smoothed to the same shape to prevent compressor rotor imbalance.



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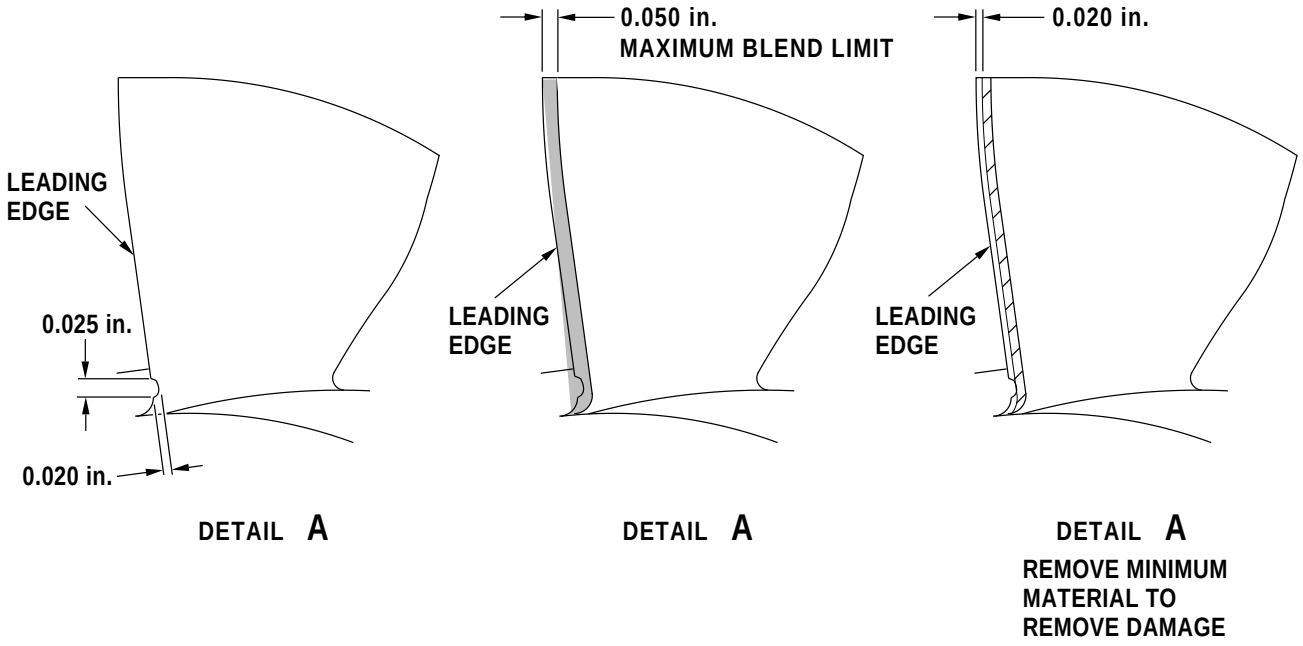
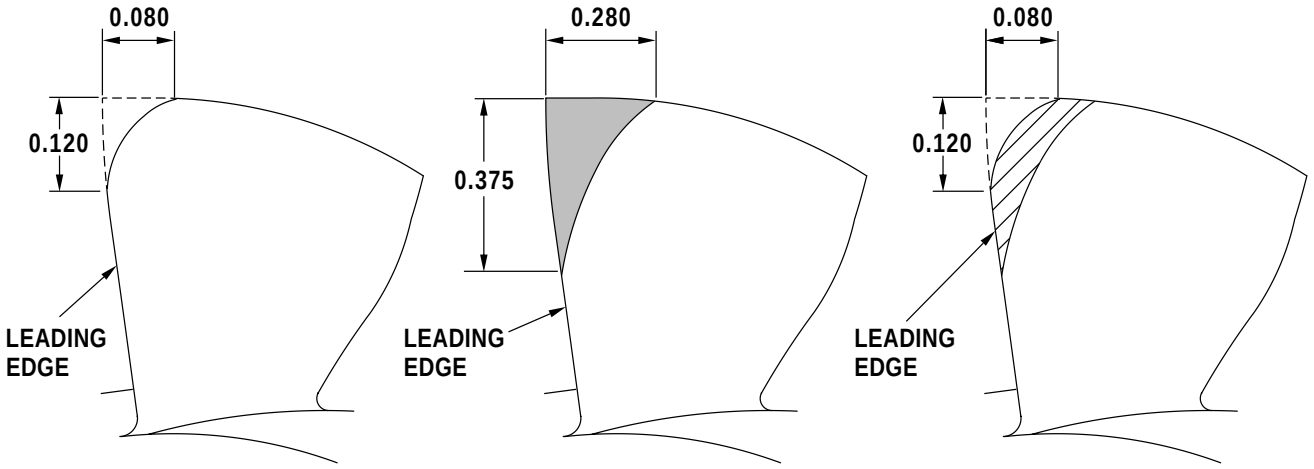
Compressor First-stage Blades Inspection
Figure 201



C60975

Example of Damage Removal
Figure 202 (Sheet 1 of 3)



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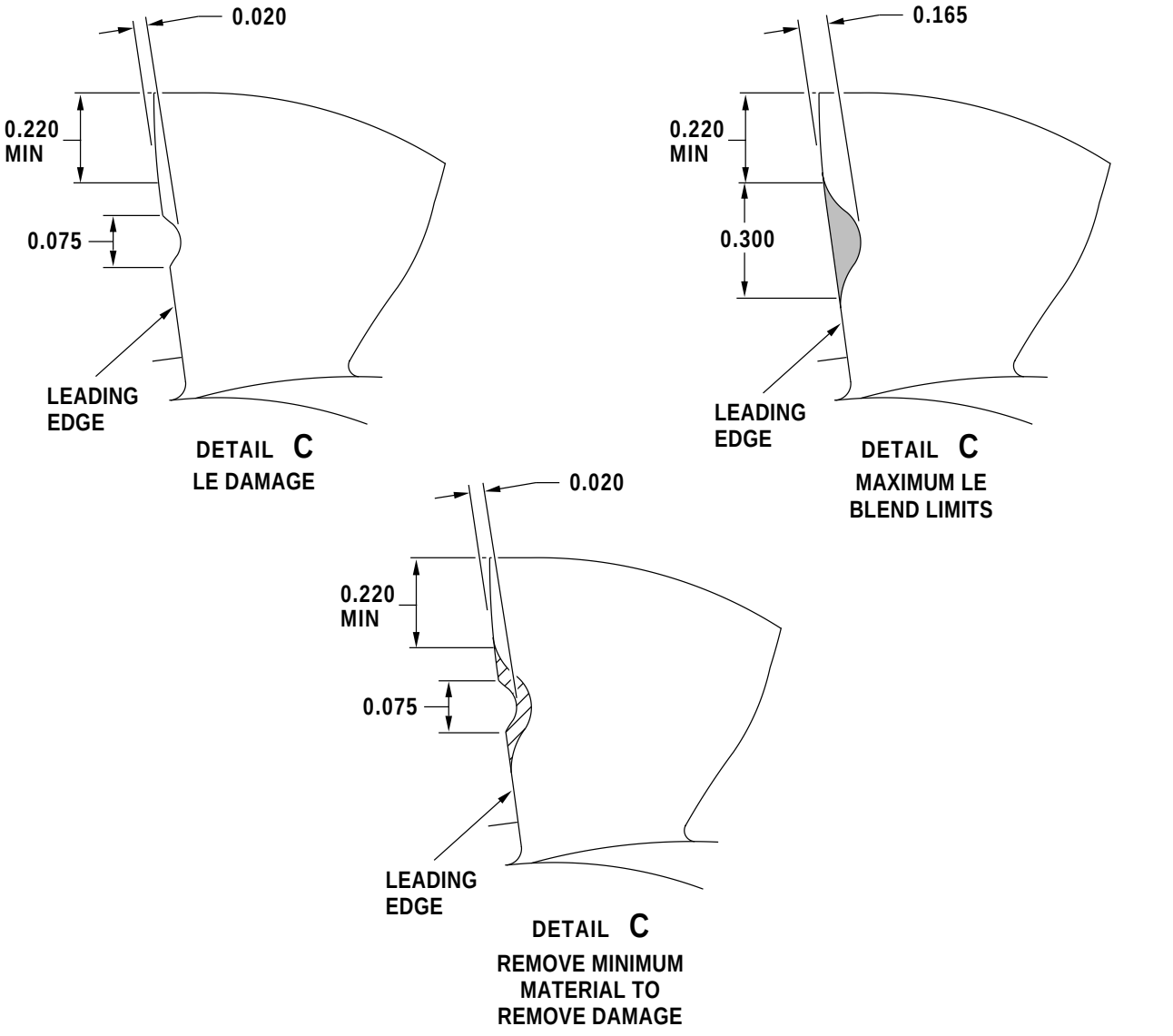
Example of Damage Removal
Figure 202 (Sheet 2)



Example of Damage Removal
Figure 202 (Sheet 3)

(5) Bent or torn leading edge tips may be repaired to 0.375 inch wide maximum by 0.280 inch deep maximum (Detail D).

NOTE: If any blade is smoothed to the maximum limits, the blade 180 degrees opposite must be smoothed to the same shape to prevent compressor rotor imbalance.

(6) Smooth sharp edge at the blade leading edge root eroded area to restore as near as possible the original radius and smoothness (Detail E). After repair, make sure the original airfoil chord at the repair area was not reduced by more than 0.250 inch.

CAUTION: KEEP COMPRESSOR AIR INLET AREA CLEAR OF ALL FOREIGN MATERIAL AND OBJECTS WHICH COULD BE INGESTED BY THE ENGINE AND CAUSE SERIOUS DAMAGE DURING ENGINE OPERATION.

(7) Using a suitable suction cleaner, thoroughly clean entire compressor inlet area. Remove masking material and repeat cleaning.

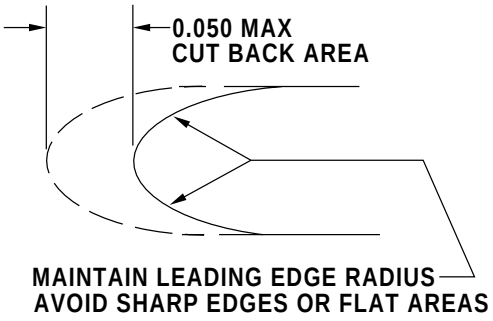
B. Repair of First-stage Blade Trailing Edge

(1) Dents and nicks up to 0.050 in. deep and wide, not less than 0.200 in. apart and not within 0.250 in. of blade tip, are acceptable (maximum 4 per blade), providing there are no tears or cracks.

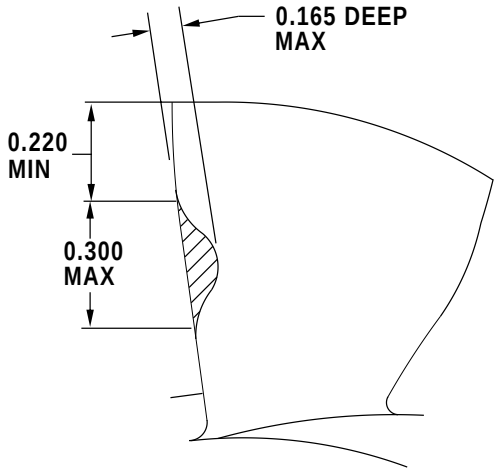
(2) Sharp corners must be smoothed to an approximate radius of 0.050 in. and a maximum of 0.050 in. deep and wide. Tip corner radius must not exceed 0.100 in.

CAUTION: KEEP COMPRESSOR INLET AREA CLEAR OF ALL FOREIGN OBJECTS WHICHCOULD BE INGESTED BY ENGINE AND CAUSE DAMAGE DURING ENGINE OPERATION.

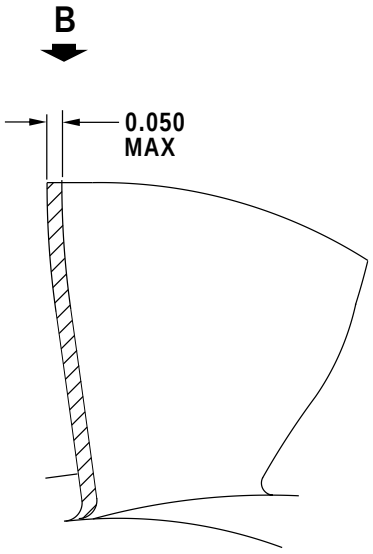
(3) Using suitable suction cleaner, thoroughly clean entire compressor inlet area. Remove all masking material and repeat cleaning. Make sure all filing residue is removed from inlet area and first-stage compressor blades.



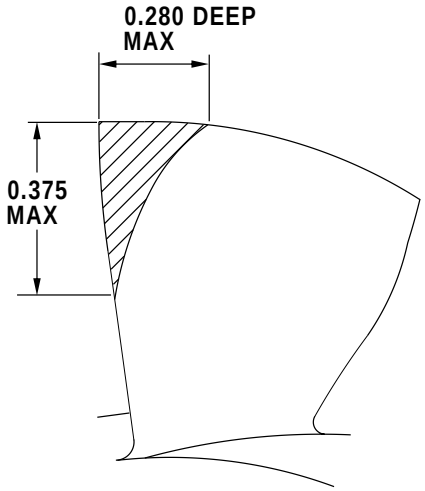
ENLARGED VIEW **B**



DETAIL **C**



DETAIL **A**



DETAIL **D**

NOTE: **THE MAXIMUM PERMITTED MATERIAL REMOVAL IS SHOWN. ONLY REMOVE THE MINIMUM MATERIAL NECESSARY TO BLEND OUT DAMAGE.**

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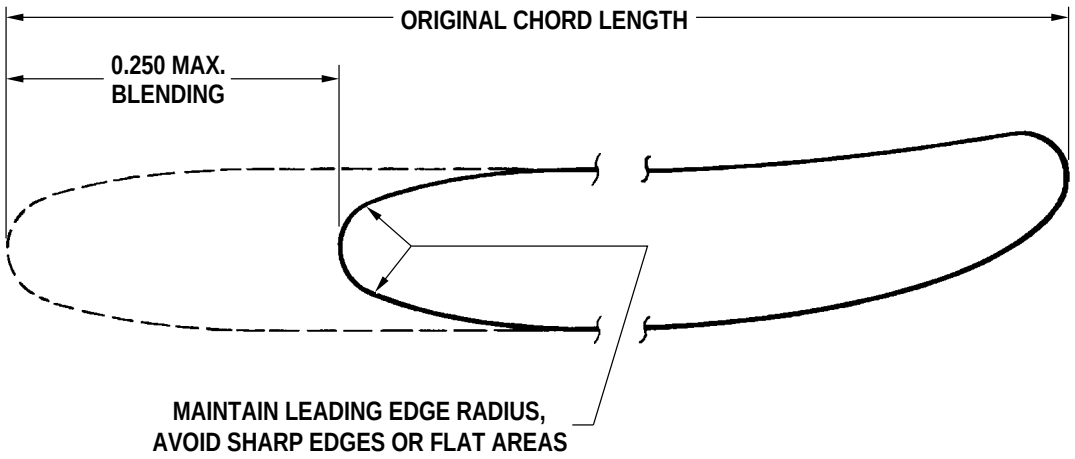
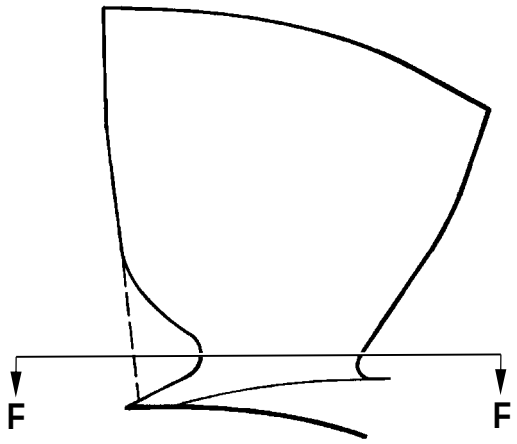
Compressor First-stage Repair Limits
Figure 203 (Sheet 1 of 2)



ENLARGED SECTION **F–F**

NOTE: THE MAXIMUM PERMITTED MATERIAL REMOVAL IS SHOWN. ONLY REMOVE THE MINIMUM MATERIAL NECESSARY TO BLEND OUT DAMAGE.



DETAIL **E**

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Compressor First-stage Repair Limits
Figure 203 (Sheet 2)