Component Maintenance Manual

Main Brake Assembly
Aircraft Wheel and Brake, LLC
Part No. 30-289

Publication No.: CM30-289, Revision B

Manufacturer:

AIRCRAFT WHEEL & BRAKE BY KAMAN

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REVISION HIGHLIGHTS

TO: HOLDERS OF CM30-289 COMPONENT MAINTENANCE MANUAL WITH ILLUSTRATED PARTS LIST FOR BRAKE ASSEMBLY PART NO. 30-289.

Revision NC, Dated 2017-12-20

Section/Page No.	Description Of Change
All Sections/All Pages	Initial Release (ECO-0087368)

REVISION HIGHLIGHTS

TO: HOLDERS OF CM30-289 COMPONENT MAINTENANCE MANUAL WITH ILLUSTRATED PARTS LIST FOR BRAKE ASSEMBLY PART NO. 30-289.

Revision A, Dated 2020-02-24

Section/Page No.	Description Of Change
As follows	(ECO-0111717)
Title Page T-1	Updated to reflect current revision.
Record of Revisions RR-1	Updated to reflect current revision.
List of Effective Pages LEP-1, LEP-2	Updated to reflect current revision.
Description and Operation Pg 1	Para. 1. Description, list of base parts (REMOVE) from stator disc assembly, "…with replaceable steel wear pads (200)"
Pg 3	Table 1, every overhaul interval (NOW) Replace stator discs (WAS) Examine criteria (flatness, visual, detailed, non-destructive testing)
Cleaning Pg 4003	Para. 7. (ADD) Note requiring the cleaning and inspection of the stator disc under certain conditions.
Checks Pg 5007	Para. 11. (ADD) Note requiring the cleaning and inspection of the stator disc under certain conditions. Para. 11.A. (ADD) Note requiring the removal of wear pads prior to inspection. Para. 11.B.(1) (NOW) Examine for loose, cracked or worn wear pads (200). Refer to REPAIR section for replacing or re-installing wear pads. (WAS) Examine for loose, cracked or worn wear pads (200). Replace loose rivets (205) and damaged or worn wear pads per the REPAIR section.

Revision A (continued)

Section/Page No.	Description Of Change
Checks Pg 5007	Para. 11.B.(2) (NOW) Examine the six drive tangs that engage the torque tube (215) drive slots for damage. (WAS) Examine the six drive tangs that engage the torque tube (215) drive slots for wear or damage. Para. 11.B.(2)(a) (NOW) Check dimension “A”. If the width of a tang is less than the limit shown, replace the stationary disc assembly. (WAS) Check dimension “A”. If the width of a tang is less than the limit shown, replace the stator. Para. 11.C.(4) (NOW) (4) If required following an unscheduled removal, examine the stator disc for cracks using liquid penetrant inspection. As an alternate, magnetic particle inspection can be used. (WAS) (4) In accordance with the maintenance schedule (Table 1, DESCRIPTION AND OPERATION), examine the pressure plate for cracks using liquid penetrant inspection. As an alternate, magnetic particle inspection can be used. Figure 5004 (REVISED) to add more detailed information.
Repair Pg 6013	Para. 8 (REMOVE) mention of stator disc.

REVISION HIGHLIGHTS

TO: HOLDERS OF CM30-289 COMPONENT MAINTENANCE MANUAL WITH ILLUSTRATED PARTS LIST FOR BRAKE ASSEMBLY PART NO. 30-289.

Revision B, Dated 2023-08-11

Section/Page No.	Description Of Change
As follows	(CA-00000010)
All Sections/All Pages	Page Header (NOW) Aircraft Wheel and Brake, By Kaman logo (WAS) Parker logo
Title Page/T-1	(NOW) Aircraft Wheel and Brake proprietary rights statement and logo (WAS) Parker proprietary rights statement and logo
Record of Revisions/RR-1	Updated to reflect current revision
Service Bulletin List	(NOW) Aircraft Wheel and Brake, LLC (WAS) Parker Hannifin
List of Effective Pages/ LEP-1	Updated to reflect current revision
Introduction/ Pg INTRO-1	(NOW) Aircraft Wheel and Brake, LLC name and contact info (WAS) Parker Hannifin name and contact info
Pg INTRO-2	(NOW) Aircraft Wheel and Brake, LLC (WAS) Parker Hannifin
Disassembly/Pg 3001	(NOW) Aircraft Wheel and Brake, LLC (WAS) Parker Hannifin
Assembly/Pg 7001	(NOW) Aircraft Wheel and Brake, LLC (WAS) Parker Hannifin
Special Equipment and Consumables/Pg 9001	(NOW) Aircraft Wheel and Brake, LLC (WAS) Parker Hannifin
Illustrated parts list/ Pg 10001, 10003	(NOW) Aircraft Wheel and Brake, LLC (WAS) Parker Hannifin

RECORD OF REVISIONS

Check in the following record that all earlier changes have been incorporated.

Rev	Incorporated date	by (signature)	Rev	Incorporated date	by (signature)
NC	2017-12-20	PHC			
A	2020-02-24	PHC			
B	2023-08-11	JAS			

SERVICE BULLETIN LIST

Aircraft Wheel and Brake, LLC Service Bulletins are issued in order to provide general information on product line concerns. The bulletin listings contained herein identify subject matter directly related to the support and function of the assembly and components.

Number	Subject	Rev	Date incorporated at manual revision

LIST OF EFFECTIVE PAGES

SUBJECT	PAGE	DATE	SUBJECT	PAGE	DATE
Title Page	T-1	2023-08-11	Cleaning	4001	2023-08-11
				4002	2023-08-11
Record of Revisions	RR-1	2023-08-11		4003	2023-08-11
				4004	Blank
Service Bulletin List	SB-1	2023-08-11	Checks	5001	2023-08-11
				5002	2023-08-11
				5003	2023-08-11
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	LEP-2	2023-08-11		5005	2023-08-11
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	3008	2023-08-11			

N = New page No.
C = Changed page

LIST OF EFFECTIVE PAGES

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Assembly	7001	2023-08-11
	7002	2023-08-11
	7003	2023-08-11
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	7010	2023-08-11
	7011	2023-08-11
	7012	Blank
Fits and Clearances	8001	2023-08-11
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Special Equipment and Consumables	9001	2023-08-11
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	15002	Blank

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TABLE OF CONTENTS

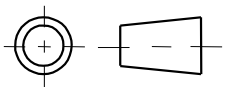
INTRODUCTION

1. General

SAFETY WARNING: ALL TORQUE AND SPECIFIC LIMITS OR VALUES CONTAINED HEREIN MUST BE STRICTLY OBSERVED. IGNORING OF TORQUE LIMITS AND OTHER SPECIFIC VALUES GIVEN BY THIS MANUAL CAN CAUSE PROPERTY DAMAGE, PERSONAL INJURY, OR DEATH.

This manual is published for the guidance of personnel responsible for the overhaul and/or general maintenance of the Aircraft Wheel and Brake, LLC Assembly covered in this publication.

THIRD ANGLE PROJECTION



Third angle projection is used in this manual. All weights and measurements are in U.S. English units with metric units, when applicable, in parentheses.

The manual for the aircraft shall take precedence for the component's interface connections with the functional features as used in the aircraft. This manual may also describe functional features that may or may not be used when installed as a component of a system in the aircraft.

The manufacturer recommends that you ask for the latest revision of the manual before continuing with overhaul or maintenance operations. Ask the Technical Services Department of the Aircraft Wheel and Brake, LLC (AWB) for the latest revision.

Substitutions of critical parts or changes of processes or materials are not permitted without the written approval of the manufacturer.

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INTRODUCTION

2. Manual use

This manual is divided into various section blocks such as Testing and Fault Isolation, Disassembly, Inspection / Check, Repair, etc. Refer to the Table of Contents for the location of the applicable section.

3. Warnings, cautions, and notes

These adjuncts to the text shall be used to highlight or emphasize important points when necessary. Refer to the descriptions of these statements that follow:

- A **"SAFETY WARNING"** flagged by this symbol  , calls attention to possible serious or life threatening situations if procedures are not followed.
- A **"WARNING"** calls attention to use of materials, processes, methods, procedures, or limits which must be followed precisely to avoid injury to persons.
- A **"CAUTION"** calls attention to methods and procedures, which must be followed to avoid damage to equipment.
- A **"NOTE"** calls attention to an essential operating or maintenance procedure, condition, or statement, which must be highlighted.

4. Replacement parts

SAFETY WARNING: AIRCRAFT WHEEL AND BRAKE, LLC (AWB) DOES NOT WARRANT OR ASSUME THE RISK OF THE USE OF REPLACEMENT PARTS NOT AUTHORIZED FOR USE BY AWB. OPERATORS WHO USE REPLACEMENT PARTS NOT AUTHORIZED BY AWB DO SO AT THEIR OWN RISK AND TAKE FULL RESPONSIBILITY FOR ALL PROPERTY DAMAGE, PERSONAL INJURY OR DEATH CAUSED BY SUCH REPLACEMENTS.

Use only the approved parts that are listed in the illustrated parts list of this manual.

DESCRIPTION AND OPERATION

1. Description

Refer to IPL Figure 1 for component identification.

SAFETY WARNING: THIS ASSEMBLY CONTAINS PARTS THAT HAVE A CADMIUM PLATING FINISH: (50), (65), (85), (95), (115), (120), (155), (160), (275), (280). REMOVING THE CADMIUM PLATING CAN CREATE EXPOSURE TO CADMIUM DUST AND CADMIUM COMPOUNDS. THIS CAN BE A POTENTIAL HEALTH HAZARD.

The brake assembly provides the primary decelerating and holding forces during aircraft ground operations. The brake assembly is a single fixed housing, 6-piston, hydraulically actuated three rotating disc design. The brake is designed to operate with MIL-PRF-5606 hydraulic fluid.

Each brake assembly is composed of the following base parts:

- one brake housing subassembly (5). The housing is made from an aluminum alloy and is surface treated and painted for corrosion protection.
- one pressure plate assembly (165) with replaceable steel wear pads (175).
- three rotor discs (185) with sintered friction material on a steel core.
- two steel stator disc assemblies (190).
- one torque tube assembly (210) with replaceable steel wear pads (220).
- four retract subassemblies (75).
- one set of wear indicator components (140), (145), (150).
- one shuttle valve assembly (240).

2. Operation

The brake stack components (165), (185), (190) are sandwiched between the brake housing subassembly (5) and the torque tube assembly (210). Braking action begins to occur when hydraulic pressure is applied to the brake, via the pilot's or co-pilot's braking input. As the hydraulic pressure reaches the brake it forces the pistons outward against the pressure plate assembly (165) which compresses the brake stack against the torque tube assembly (210). This generated frictional force is transferred to the wheel/tire through the three rotor discs (185) which have drive slots that engage the main wheel.

3. Handling procedures

Handle and maintain the brake components properly to protect all paint and surface finishes.

DESCRIPTION AND OPERATION

4. Leading particulars

Hydraulic fluid		MIL-PRF-5606
Brake housing material		Aluminum alloy forging
Brake housing coatings	Surface treatment:	Refer to the REPAIR section
	Primer coating:	Refer to the REPAIR section
	Finish coating:	Refer to the REPAIR section

5. Brake wear check – on aircraft

Refer to Figure 1. Make sure the parking brake is on. Starting at 0 psig, slowly apply hydraulic pressure of 1050 ± 50 psig to the brake. Examine the wear indicator pin (145). When the pin is flush with the wear pin retainer (140), the brake must be removed from the aircraft and is ready for further inspection leading up to an overhaul.

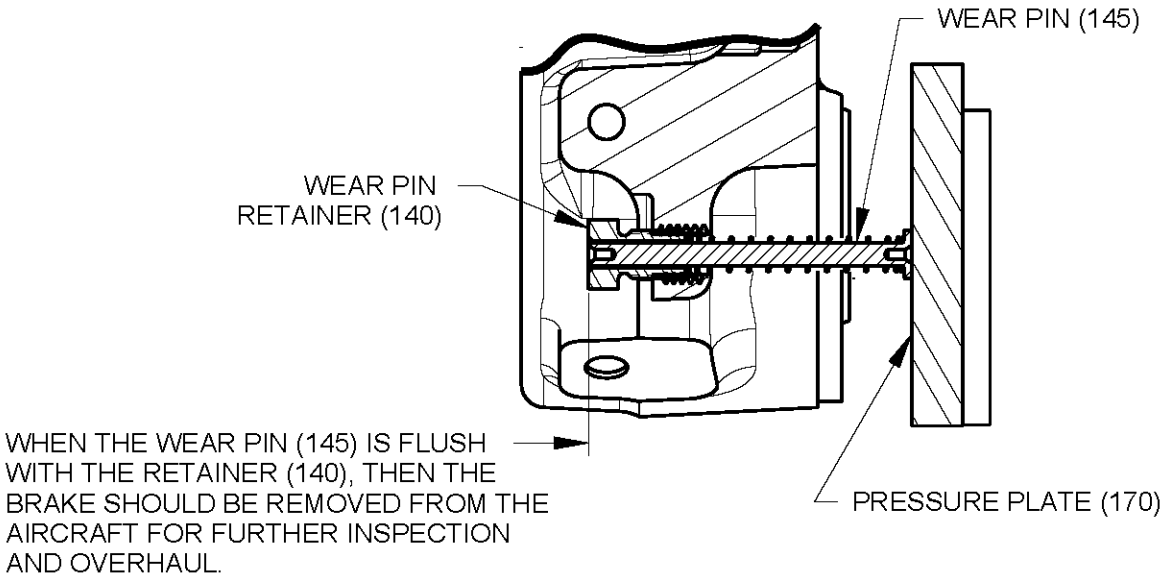


Figure 1 Examine the wear pin

DESCRIPTION AND OPERATION

6. Maintenance schedule

The maintenance schedule is a guideline based on laboratory testing environments that simulate normal conditions. Field operating requirements can vary from aircraft to aircraft. These variations will directly affect the wear rate of the brake assembly components. Operating conditions must be evaluated to determine a suitable schedule to maintain the equipment.

Table 1 Maintenance schedule (sheet 1 of 2)

INTERVAL OR CONDITION	ITEM	TASK (refer to the CHECKS section)
Every time a component of the heat stack has reached the in-service wear limit (refer to Table 8001) or when a brake wear check has warranted further action (refer to para. 5. Brake wear check-on aircraft, in this section). Heat stack components: ➢ Wear pads (175), (200), (220) ➢ Three rotor discs (185)	All components	Visual and detailed examination.
	Bolts (55), (275)	➢ Visual and detailed examination. ➢ Magnetic particle inspection.
	Seals: (20), (25), (30), (35), (125), (135), (250), (255), (265)	Replace.
	Washer (65), spring (70)	Replace.
	Wear pads: (175), (200), (220)	Replace.
	Pressure plate (170)	➢ Check flatness. ➢ Visual and detailed examination. ➢ Liquid penetrant or magnetic particle inspection.
	Rotor discs (185)	Replace all three.
	Stator disc (195)	Replace both discs.
	Threaded inserts (10), (110), (230), (235)	➢ Check for backing out condition.
At the 5th replacement interval and every 3rd replacement interval thereafter of the heat stack components: ➢ Wear pads (175), (200), (220) ➢ Three rotor discs (185)	Brake housing subassy (5)	➢ Visual and detailed examination. ➢ Liquid penetrant inspection.
	Torque tube (215)	➢ Visual and detailed examination. ➢ Liquid penetrant or magnetic particle inspection. ➢ Check flatness of wear pad interface.

DESCRIPTION AND OPERATION

Table 1 Maintenance schedule (sheet 2 of 2)

UNSCHEDULED INTERVAL	ITEM	TASK (refer to the CHECKS section)
After an over speed braking event or an indication of overheating: One of the fusible plugs in the mating main wheel assembly releases the tire pneumatic pressure.	All components	Visual and detailed examination.
	Pressure plate (170)	➢ Check flatness. ➢ Visual and detailed examination. ➢ Liquid penetrant or magnetic particle inspection.
	Rotor discs (185)	➢ Check flatness. ➢ Visual and detailed examination.
	Stator discs (195)	➢ Check flatness. ➢ Visual and detailed examination. ➢ Liquid penetrant or magnetic particle inspection.
	Brake housing subassy (5)	➢ Visual and detailed examination. ➢ Hardness test. ➢ Liquid penetrant inspection.
	Torque tube (215)	➢ Hardness test. ➢ Visual and detailed examination. ➢ Liquid penetrant or magnetic particle inspection. ➢ Check flatness of wear pad interface.
	Bolts (55), (275)	➢ Visual and detailed examination. ➢ Magnetic particle inspection
	Seals: (20), (25), (30), (35), (125), (135), (250), (255), (265)	Replace.

TESTING AND FAULT ISOLATION

1. General

Refer to IPL Figure 1 for component identification.

This section contains test procedures that can be used as troubleshooting measures and means to test overhauled brake assemblies. A test data sheet is included at the end of this section for reference.

A. Equipment and consumables

The term “Commercial Source” allows the repair facility to acquire the product from a supplier of choice.

NOTE: Unless specified differently, equivalent alternatives can be used for the items listed.

Table 1001 Equipment and consumables

NOMENCLATURE	SPECIFICATION / PART NO.	SOURCE
Hydraulic fluid	MIL-PRF-5606	Commercial

Hydraulic test stand	• Hydraulic test stand with hydraulic pump.
	• Filter
	• Regulator
	• Automatic cycler, range: 0-100, accuracy ± 1 count
	• Timer, range: 0-60 minutes, accuracy ± 1 second
	• Pressure gages:
	  ○ high pressure range: 0-2000 psig, accuracy ± 0.5%
	  ○ low pressure range: 0-200 psig, accuracy ± 0.5%
		Commercial

Standard tools (inch units)	Wrenches/sockets: • 6-pt (hex head), external: for (120), (140) Torque wrench Feeler gages: 0.010 inch and 0.100 inch	Commercial

TESTING AND FAULT ISOLATION

2. Testing

Examine all brake assemblies that do not meet the test standards of this section. Refer to Table 1002 Troubleshooting for possible causes.

SAFETY WARNING: FULLY ASSEMBLE THE BRAKE BEFORE TESTING. SERIOUS INJURY OR DEATH CAN OCCUR FROM PRESSURE TESTING A BRAKE THAT IS NOT FULLY ASSEMBLED.

SAFETY WARNING: DO NOT PERFORM TESTING ON ANY BRAKE ASSEMBLY THAT SHOWS SIGNS OF DAMAGE.

SAFETY WARNING: USE SHATTER RESISTANT ENCLOSURES DURING TESTING. CHECK ALL LINES AND FITTINGS. BRAKE ASSEMBLIES ARE UNDER PRESSURE DURING TESTING. FAILURE TO OBEY THESE SAFETY INSTRUCTIONS CAN RESULT IN SERIOUS INJURY OR DEATH.

SAFETY WARNING: WEAR THE APPROPRIATE PROTECTIVE CLOTHING AND EYEWEAR BEFORE DOING THE WORK.

NOTE: Discard all used hydraulic fluid. Obey local regulations.

NOTE: The term dry torque refers to the torqueing of hardware without the application of anti-seize compound.

A. Pretest examination of product

(1) Examine the housing subassembly (5) surfaces for visible defects such as cracks, or any other imperfections.

(2) Examine all fasteners and threaded components for loose fit. Tighten loose fasteners. Refer to Table 8002, Assembly torque values.

(3) Examine all moving parts to ensure that they operate freely without sticking or binding.

B. Static leakage test

Brake inlet ports are designated P1 and P2 and engraved on the shuttle valve (240).

(1) Connect the hydraulic pressure line to the brake inlet port P1. Check all fittings for tightness.

(a) Apply 155 ± 5 psig to port P1.

(b) Reduce pressure supplied to the brake inlet port P1 to less than 3 psig.

(2) Remove the bleeder screw (130) and washer (125) from one side of the housing.

NOTE: Bleeder screw and washer can be removed from both sides of housing if needed.

(3) Place a convenient length of tubing over the bleeder valve (120).

CAUTION: KEEP BRAKE FLUID FROM CONTAMINATING THE BRAKE FRICTION MATERIAL SURFACES OF THE ROTOR DISCS (185). BRAKE FLUID THAT HAS SOAKED INTO THE FRICTION MATERIAL SURFACES OF A DISC CAN DEGRADE BRAKE PERFORMANCE.

(4) Loosen the bleeder valve (120) and bleed the brake by applying 15 ± 5 psig to the inlet port P1.

(a) If there is no flow from the bleeder valve (120), slowly increase pressure to a maximum of 160 psig.

(b) Bleed the brake until entrapped air has escaped.

(c) No fluid flow from the bleeder valve (120) at 160 psig is cause for further examination.

(5) Remove the tubing from the bleeder valve (120) and tighten the bleeder valve to a dry torque of 35 to 38 in-lb.

TESTING AND FAULT ISOLATION

(6) Apply 1050 ± 50 psig to brake inlet port P1 and hold for a minimum of two minutes.

(a) Leakage at the static seals: bleeder seat (115), cylinder sleeve (15), and the brake housing/shuttle valve interface or the Lee plugs in the shuttle valve or cylinder housing shall not exceed a trace.

(b) Leakage at the dynamic seals: piston (40) shall not exceed one drop per seal.

(7) Reduce pressure to less than 3 psig.

(a) Any binding of the pistons is cause for further examination.

(b) Leakage from the open inlet port P2 shall not exceed one drop per minute.

(8) Apply 5 ± 2 psig to brake inlet port P1 and hold for a minimum of five minutes.

(a) Leakage at the static seals: bleeder seat (115), cylinder sleeve (15), and the brake housing/shuttle valve interface or the Lee plugs in the shuttle valve or cylinder housing shall not exceed a trace.

(b) Leakage at the dynamic seals: piston (40) shall not exceed one drop per seal.

(c) Leakage from the open inlet port P2 shall not exceed one drop per minute.

C. Dynamic leakage test

(1) With the hydraulic pressure supply line connected to brake inlet port P1; the bleeder valve (120) tightened to a dry torque of 35 to 38 in-lb; a convenient length of tubing over the bleeder valve (120) and entrapped air removed, apply 25 cycles of brake hydraulic pressure from 1050 ± 50 psig to 0-5 psig.

(2) Reduce pressure to brake inlet port P1 to less than 3 psig.

(a) Leakage at the static seals: bleeder seat (115), cylinder sleeve (15), and the brake housing/shuttle valve interface or the Lee plugs in the shuttle valve or cylinder housing shall not exceed a trace.

(b) Leakage at the dynamic seals: piston (40) shall not exceed one drop per seal.

(c) Leakage from the open inlet port P2 shall not exceed one drop per minute.

(d) Any binding of the pistons is cause for further examination.

TESTING AND FAULT ISOLATION

D. Shuttle valve test

(1) With the hydraulic pressure supply line connected to brake inlet port P1 at less than 1 psig, remove the hydraulic pressure supply line from brake inlet P1.

(2) Connect the hydraulic pressure supply line to the opposite inlet port P2. Check all fittings for tightness.

(3) Apply 155 ± 5 psig to port P2.

(4) Reduce pressure supplied to brake inlet port P2 to less than 3 psig.

(5) Remove the bleeder screw (130) and washer (125).

(6) Place a convenient length of tubing over the bleeder valve (120).

CAUTION: KEEP BRAKE FLUID FROM CONTAMINATING THE BRAKE FRICTION MATERIAL SURFACES OF THE ROTOR DISCS (185). BRAKE FLUID THAT HAS SOAKED INTO THE FRICTION MATERIAL SURFACES OF A DISC CAN DEGRADE BRAKE PERFORMANCE.

(7) Loosen the bleeder valve (120) and bleed the brake by applying 15 ± 5 psig to inlet port P2.

(a) If there is no flow from the bleeder valve (120), slowly increase pressure to a maximum of 160 psig.

(b) Bleed the brake until entrapped air has escaped.

(c) No fluid flow from the bleeder valve (120) at 160 psig is cause for further examination.

(8) Remove the tubing from the bleeder valve (120) and tighten the bleeder valve to a dry torque of 35 to 38 in-lb.

(9) Apply 1050 ± 50 psig to brake inlet port P2 and hold for a minimum of two minutes.

(a) Leakage at brake inlet port P1 shall not exceed one drop per minute.

(10) Reduce pressure to less than 3 psig.

(11) Apply 5 ± 2 psig to brake inlet port P2 and hold for a minimum of five minutes.

(a) Leakage at brake inlet port P1 shall not exceed one drop per minute.

E. Brake running clearance test

(1) Begin at zero psig, slowly increase brake hydraulic pressure applied to brake inlet port P2 to 150 ± 10 psig.

(a) Verify that all pistons are in contact and that the rotor discs (185) cannot be rotated by hand.

(2) Reduce hydraulic pressure to 45 ± 5 psig and hold.

(3) Position the brake assembly so that the torque tube (215) side is resting on a work surface.

(a) Verify the minimum brake running clearance by inserting a 0.010 inch feeler gauge between the pressure plate assembly (165) and the closest rotor disc (185).

1 If the feeler gauge cannot be inserted, further examination is required.

(b) Verify that the maximum brake running clearance does not exceed 0.100 inch. A 0.100 inch feeler gauge shall not pass between the pressure plate assembly (165) and the closest rotor disc (185).

1 If the feeler gauge can be inserted, further examination is required.

TESTING AND FAULT ISOLATION

F. Set the wear pin (145)

Refer to Figure 1001. For an overhauled brake with a new brake stack, wear pin adjustment shall be accomplished as follows.

(1) Apply 1050 ± 50 psig to brake inlet port P2 and hold.

(2) While maintaining pressure; adjust the wear pin retainer (140) so that the wear pin (145) extends 0.300 ± 0.010 inch beyond the retainer hex surface.

(3) Release pressure to the brake and disconnect the hydraulic pressure line.

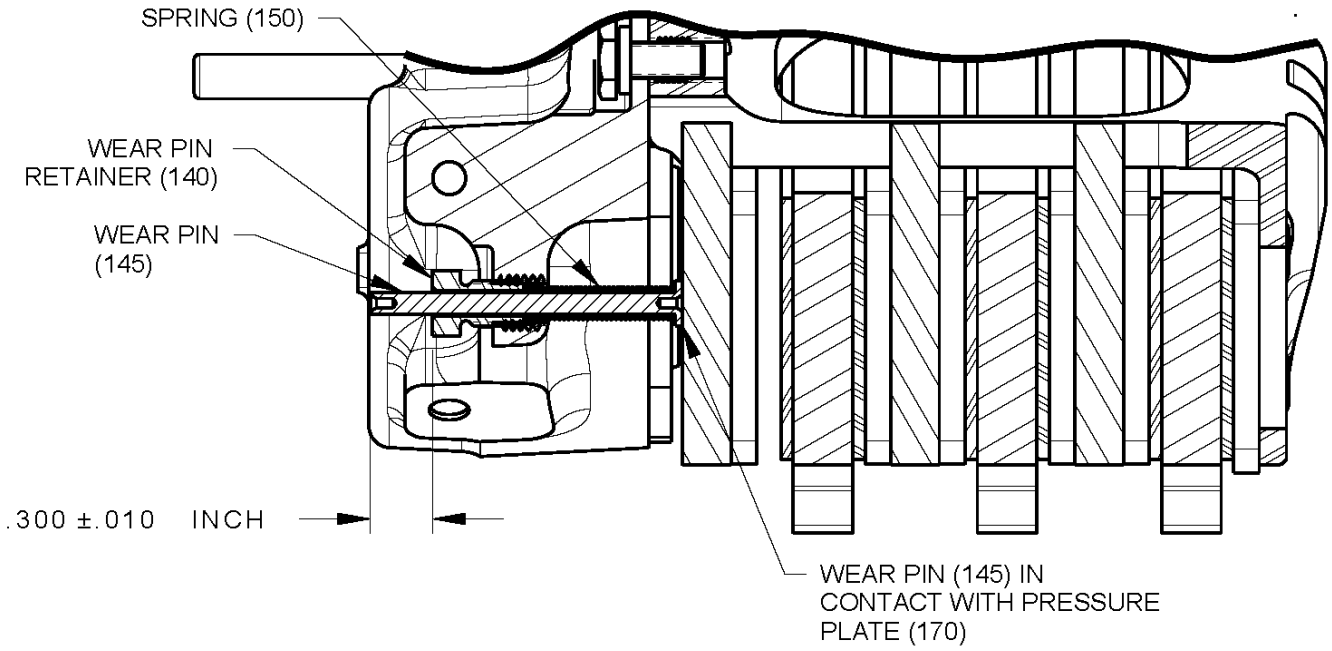


Figure 1001 Adjust the wear pin (145)

G. Preparation for return to service

CAUTION: DO NOT TIGHTEN THE BLEEDER SCREW (130) TO A VALUE GREATER THAN 12 IN-LB. TORQUE GREATER THAN 12 IN-LB MAY DAMAGE THE SEAT.

(1) Wipe excessive oil or foreign material off the brake housing.

(2) Install a washer (125) on each bleeder screw (130) and install the bleeder screw into each bleeder valve (120). Tighten the bleeder screw (130) snug to preclude leakage.

TESTING AND FAULT ISOLATION

3. Troubleshooting

Table 1002 cannot list all possible problems and is intended to assist with troubleshooting.

Table 1002 Troubleshooting

PROBLEM	COMMON CAUSE	CORRECTION
Hydraulic fluid leaking from piston area.	Worn or damaged seal: (20), (25), (30), (35)	Replace the component.
	Piston (40) or cylinder sleeve (15) damaged.	Replace the component.
	Brake housing piston bore damaged.	Replace the housing subassembly (5)
Hydraulic fluid leaking from one of the housing ports or bleeder components.	Loose hydraulic connection, worn or damaged seal (135), or damaged bleeder component.	Tighten the hydraulic connection or replace the seal or bleeder component.
Hydraulic fluid leaking from the brake shuttle valve connection, or ports or fittings.	Worn or damaged seal (250), (255), (265), or damaged fitting (260), or damaged shuttle valve manifold.	Replace the seal, fitting or the shuttle valve assembly (240).
Brake not engaging or releasing correctly.	Air in brake.	Bleed the brake.
	Obstruction in hydraulic line or fluid passage.	Remove the obstruction.
	Pistons (40) sticking, binding or damaged.	Replace seals: (20), (25), (30), (35) Examine piston per CHECKS section.
	Pressure plate (170), rotor disc (185), stator disc (195), or torque tube (215) is excessively dished or warped.	Examine per CHECKS section.
	Brake housing subassembly (5) is damaged.	Examine per CHECKS section.
	Torque tube (215) is damaged.	Examine per CHECKS section.
	Pressure plate (170) is not sliding freely on torque tube (215).	Examine per CHECKS section.
	Stator disc (195) is not sliding freely on torque tube (215).	Examine per CHECKS section.
	Rotor disc (185) is not sliding freely on wheel drive keys.	Examine per CHECKS section.
Insufficient running clearance	Pressure plate (170), rotor disc (185), stator disc (195), or torque tube (215) is excessively dished or warped.	Examine per CHECKS section.
Maximum pedal effort does not decelerate aircraft properly or does not actuate brake.	Air in brake.	Bleed the brake.
	Wear pads (175), (200), (220) are worn beyond limits.	Replace wear pads.
	Friction material on the rotor disc (185) is worn beyond limits.	Replace rotor discs.
	Brakes have overheated.	Examine per CHECKS section.

TESTING AND FAULT ISOLATION

(Sheet 1 of 2)

	(Check One)	**Accept**	**Reject**
1. Brake Assembly Weight: _____ (lb.) (35.5 lb max.) (use MIL-PRF-5606 hydraulic fluid)		_____	_____
2. Examination of Product:		_____	_____
3. Static Leakage Test			
Flow: (160 psig max.)		_____	_____
1100 psig Leakage (1050 ± 50 psig for 2 minutes)			
Dynamic Seals (Less than one drop per seal)		_____	_____
Static Seals and Lee Plugs (Less than a trace)		_____	_____
Open Inlet Port P2 (Less than one drop per minute)		_____	_____
5 psig Leakage (5 ± 2 psig for 5 minutes)			
Dynamic Seals (Less than one drop per seal)		_____	_____
Static Seals and Lee Plugs (Less than a trace)		_____	_____
Open Inlet Port P2 (Less than one drop per minute)		_____	_____
4. Dynamic Leakage Test			
25 Cycle Leakage (0-5 psig to 1050 ± 50 psig)			
Dynamic Seals (Less than one drop per seal)		_____	_____
Static Seals and Lee Plugs (Less than a trace)		_____	_____
Open Inlet Port P2 (Less than one drop per minute)		_____	_____
5. Shuttle Valve Test:			
Flow: (160 psig max.)		_____	_____
Leakage:			
1100 psig (1050 ± 50 psig for 2 minutes)		_____	_____
5 psig (5 ± 2 psig for 5 minutes)		_____	_____
Open Inlet Port P1 (Less than one drop per minute)		_____	_____
6. Brake Running Clearance:			
At 150 ± 10 psig (rotors tight)		_____	_____
At 45 psig (0.010 inch minimum clearance)		_____	_____
At 45 psig (0.100 inch maximum clearance)		_____	_____

TESTING AND FAULT ISOLATION

(Sheet 2 of 2)

	(Check One)	**Accept**	**Reject**
7. Set Wear Pin (0.300 ± 0.010 in)		_____	_____
8. Used MIL-PRF-5606 hydraulic fluid for all testing		_____	_____

Test: **Passed** _____ **Failed** _____

Description of Defect or Imperfection (if applicable):

_____

_____

_____

_____

_____

_____

_____

_____

Tested By: _____ **Inspected By:** _____

Test Date: _____ **Inspection Date:** _____

DISASSEMBLY

1. General

Refer to IPL Figure 1 for component identification.

A. Equipment and consumables

The term “Commercial Source” lets the repair facility get the product from a supplier of choice.

NOTE: Unless specified differently, equivalent alternatives can be used for the items listed.

Table 3001 Equipment and consumables

NOMENCLATURE	SPECIFICATION / PART NO.	SOURCE
Preformed packing tool set	199-18	Aircraft Wheel and Brake, LLC
Standard tools (inch units)	Wrenches/sockets: • 12-pt, external: for (275) • 6-pt (hex head), external: for (55), (115), (120), (140), (160), (260) • 6-pt 1-7/8 socket (may require modification): for (15) 5/32 inch hex key, internal: for (80) Internal snap ring pliers: for (60) Phillips head screwdriver: for (130)	Commercial

2. Replace components

A. In addition to replacement at the scheduled maintenance interval, replace the preformed packings (20), (25), (135), (250), (265), backup rings (30), (255), and wiper rings (35) if they are removed for any reason. Seals can take a set over time and should not be reused.

DISASSEMBLY

2. Remove the brake assembly

In order to gain access to the brake assembly, the wheel/tire unit must first be removed. Refer to the mating main wheel assembly component maintenance manual for the instructions to remove the wheel assembly.

SAFETY WARNING: WEAR THE APPROPRIATE PROTECTIVE CLOTHING AND EYEWEAR BEFORE DOING THE WORK.

SAFETY WARNING: FOLLOW THE AIRFRAME MANUFACTURER'S INSTRUCTIONS AND SAFETY WARNINGS WHEN WORKING WITH AND AROUND THE AIRCRAFT.

SAFETY WARNING: FOLLOW THE MAIN WHEEL ASSEMBLY COMPONENT MAINTENANCE MANUAL INSTRUCTIONS AND DEFLATE THE TIRE IMMEDIATELY AFTER JACKING THE AIRCRAFT AND BEFORE THE AXLE NUT IS LOOSENED. FAILURE TO DEFLATE THE TIRE BEFORE REMOVING THE WHEEL COULD RESULT IN SEVERE PERSONAL INJURY.

A. Remove the main wheel/tire unit. Disconnect the brake system pressure line from the brake assembly in accordance with the airframe manufacturer's instructions. Cap all open lines and fittings.

B. Remove the six bolts (275) and washers (280) that attach the brake assembly to the axle.

C. Slide the brake assembly off the axle.

3. Disassemble the brake assembly

SAFETY WARNING: WEAR THE APPROPRIATE PROTECTIVE CLOTHING AND EYEWEAR BEFORE DOING THE WORK.

SAFETY WARNING: FOLLOW ALL SAFETY PRECAUTIONS WHEN WORKING WITH THE BRAKE ASSEMBLY AND HYDRAULIC FLUIDS. FAILURE TO COMPLY CAN RESULT IN PERSONAL INJURY.

CAUTION: KEEP BRAKE FLUID FROM CONTAMINATING THE BRAKE FRICTION MATERIAL OF THE ROTOR DISCS (185). BRAKE FLUID THAT HAS SOAKED INTO THE FRICTION MATERIAL CAN DEGRADE BRAKE PERFORMANCE.

NOTE: Do not remove the following components unless replacement if necessary due to damage or loss of self-locking feature: housing helicoil inserts (10); torque tube assembly helical coil inserts (230), (235); retract base assembly inserts (110). Refer to the REPAIR section for replacement instructions.

NOTE: Do not disassemble the retract subassembly (75) unless part replacement if necessary due to damage. If a component of the retract subassembly is replaced, the retract will require a reset procedure before being placed back into service. Refer to the ASSEMBLY section for detailed instructions.

A. Position the brake assembly so that the torque tube assembly (210) is resting on the bottom. The brake housing subassembly (5) will be the top component.

B. Remove the two fittings (260) from the shuttle valve assembly (240). Discard the preformed packings (265).

C. Remove the two bolts (160) and washers (155) that attach the shuttle valve assembly (240) to the brake housing subassembly (5).

DISASSEMBLY

CAUTION: BRAKE FLUID MAY SPILL OUT WHEN REMOVING THE SHUTTLE VALVE ASSEMBLY (240). PROVIDE NECESSARY FLUID CONTAINMENT.

D. Remove the shuttle valve assembly (240). Discard the preformed packing (250) and backup rings (255).

E. Remove the two bolts (55) and washers (50) that attach the brake housing subassembly (5) to the torque tube assembly (210).

CAUTION: THE WEAR PIN SPRING (150) IS UNDER A LIGHT COMPRESSION LOAD AGAINST THE PRESSURE PLATE (170). LIFTING THE BRAKE HOUSING SUBASSEMBLY (5) BY ITSELF WILL UNLOAD THE SPRING (150) AND THE WEAR PIN (145) AND SPRING (150) WILL FALL OUT.

F. Take hold of both the brake housing subassembly (5) and the pressure plate assembly (165). Lift both together to remove them from the brake stack. Reposition them to the side of the remaining brake stack so that the pressure plate assembly (165) is resting on the bottom. The brake housing subassembly (5) will be the top component.

G. Lift and remove each of the three rotor discs (185) and 2 stator disc assemblies (190) from the torque tube assembly (210).

H. Refer to Figure 3001

(1) With a 5/32 inch internal hex key wrench (Allen wrench), unthread the retract stud (80) from each retract base assembly (100) and remove each retract subassembly (75) from the brake.

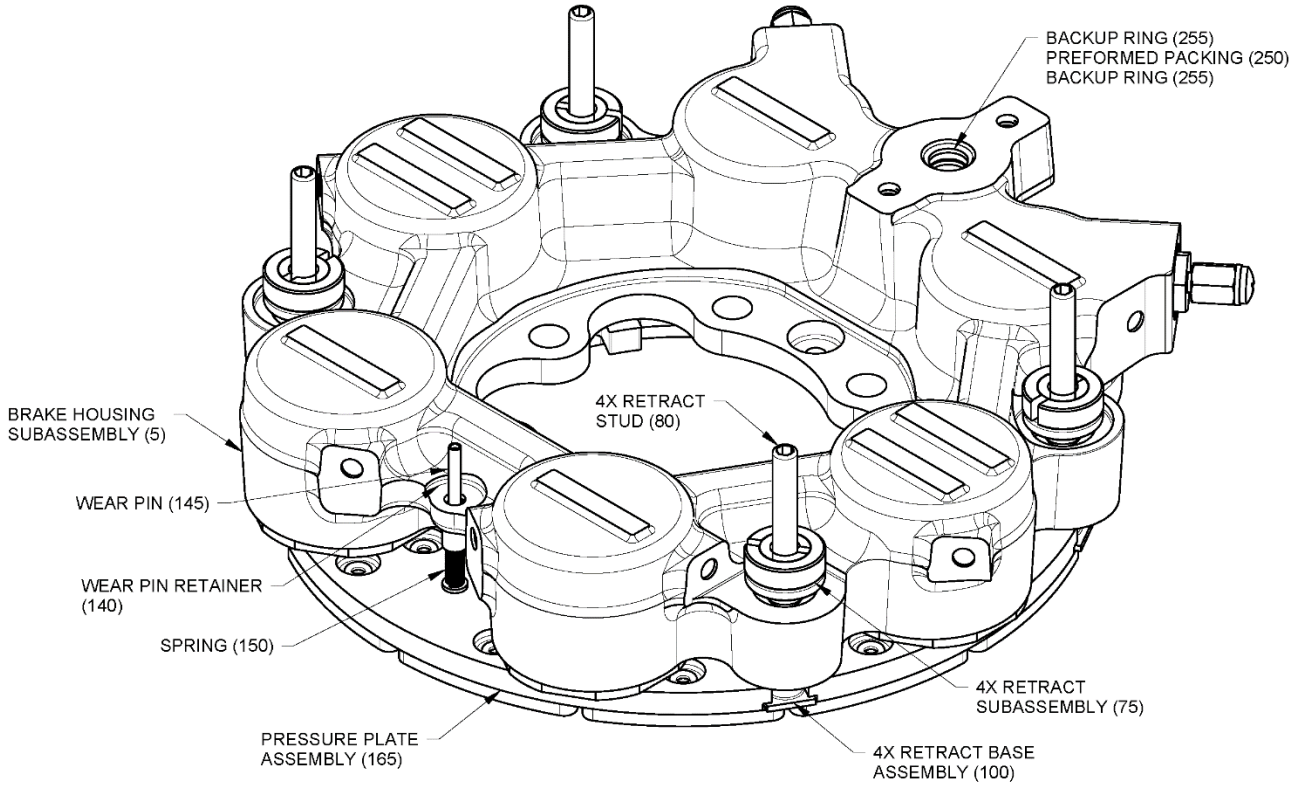


Figure 3001 Remove the retract subassemblies (75)

DISASSEMBLY

CAUTION: THE WEAR PIN SPRING (150) IS UNDER A LIGHT COMPRESSION LOAD AGAINST THE PRESSURE PLATE (170). LIFTING THE BRAKE HOUSING SUBASSEMBLY (5) BY ITSELF WILL UNLOAD THE SPRING (150) AND THE WEAR PIN (145) AND SPRING (150) WILL FALL OUT.

I. Take hold of both the brake housing subassembly (5) and the pressure plate assembly (165). Lift both together and turn over so that the brake housing subassembly (5) is resting on the bottom. The pressure plate assembly (165) will be the top component.

J. Refer to Figure 3002. Carefully lift and remove the pressure plate assembly (165) from the brake housing subassembly (5).

K. Lift out the following from the brake housing (5):

- Wear pin (145) and spring (150).
- Unthread and remove the wear pin retainer (140).

L. Slide out each of the four retract base assemblies (100) from the corresponding pockets in the pressure plate (170).

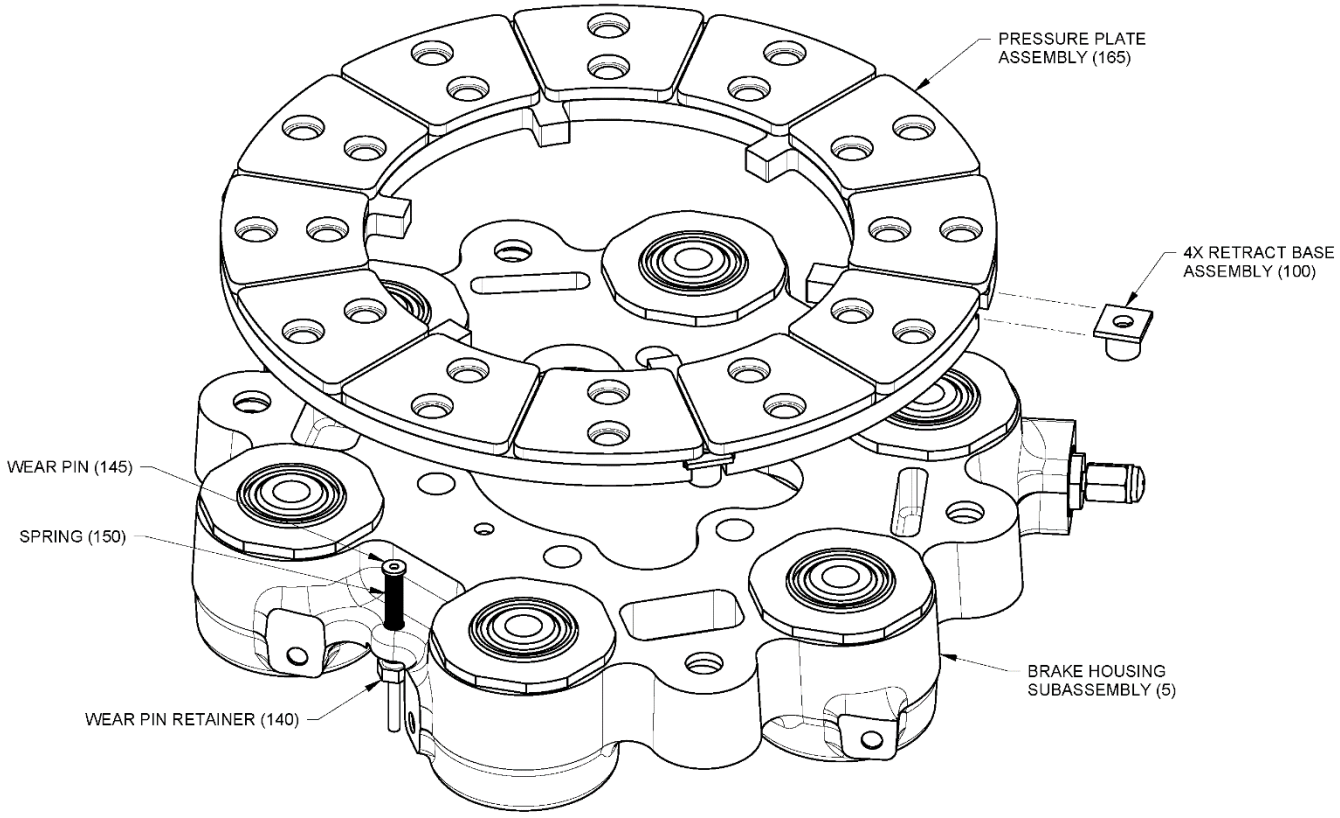


Figure 3002 Remove retract base assemblies (100) and wear indicator components (140), (145), (150)

DISASSEMBLY

CAUTION: BRAKE FLUID MAY SPILL OUT WHEN REMOVING THE BLEEDER COMPONENTS (115), (120), (125), (130), (135). PROVIDE NECESSARY FLUID CONTAINMENT.

M. See Figure 3003. Remove the bleeder components:

- two bleeder screws (130).
- two washers (125).
- two bleeder valves (120).
- two bleeder seats (115). Remove and discard the preformed packing (135) from each.

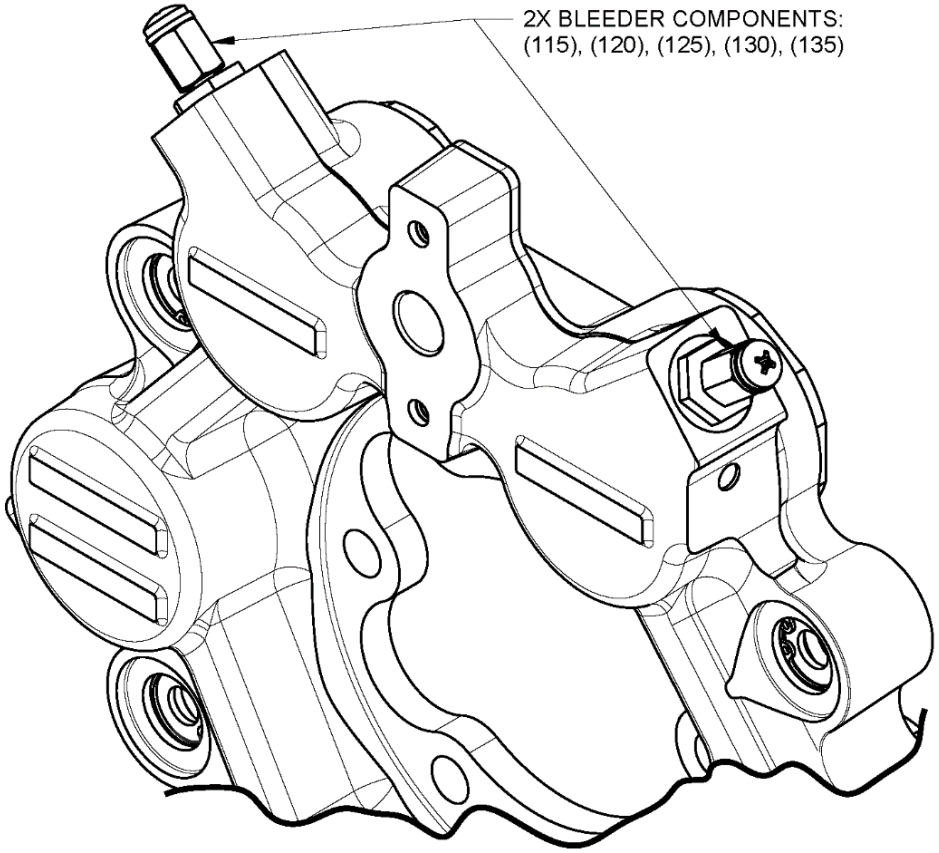


Figure 3003 Remove the bleeder components (115), (120), (125), (130), (135)

DISASSEMBLY

CAUTION: THE PISTON (40) MAY PULL OUT WHEN THE CYLINDER SLEEVE (15) IS UNTHREADED AND REMOVED FROM THE BRAKE HOUSING. THE PISTON IS NOT ATTACHED TO THE CYLINDER SLEEVE, BUT SEAL FRICTION MAY CAUSE THE PISTON TO MOVE WITH THE CYLINDER SLEEVE.

NOTE: Firmly secure the brake housing subassembly (5) before unthreading and removing the cylinder sleeves (15). Once the housing is firmly secured; it will be easier to apply the necessary leverage to overcome the install torque of the cylinder sleeves (15) which is 450 to 500 in-lb.

NOTE: Depending on the design of the 6-pt, 1-7/8 socket obtained, it may be necessary to modify the socket by grinding down the head flat to confirm 100% engagement of the cylinder sleeve hex feature.

N. See Figure 3004. Use a 6-pt, 1-7/8 socket to unthread and then remove the six cylinder sleeves (15).

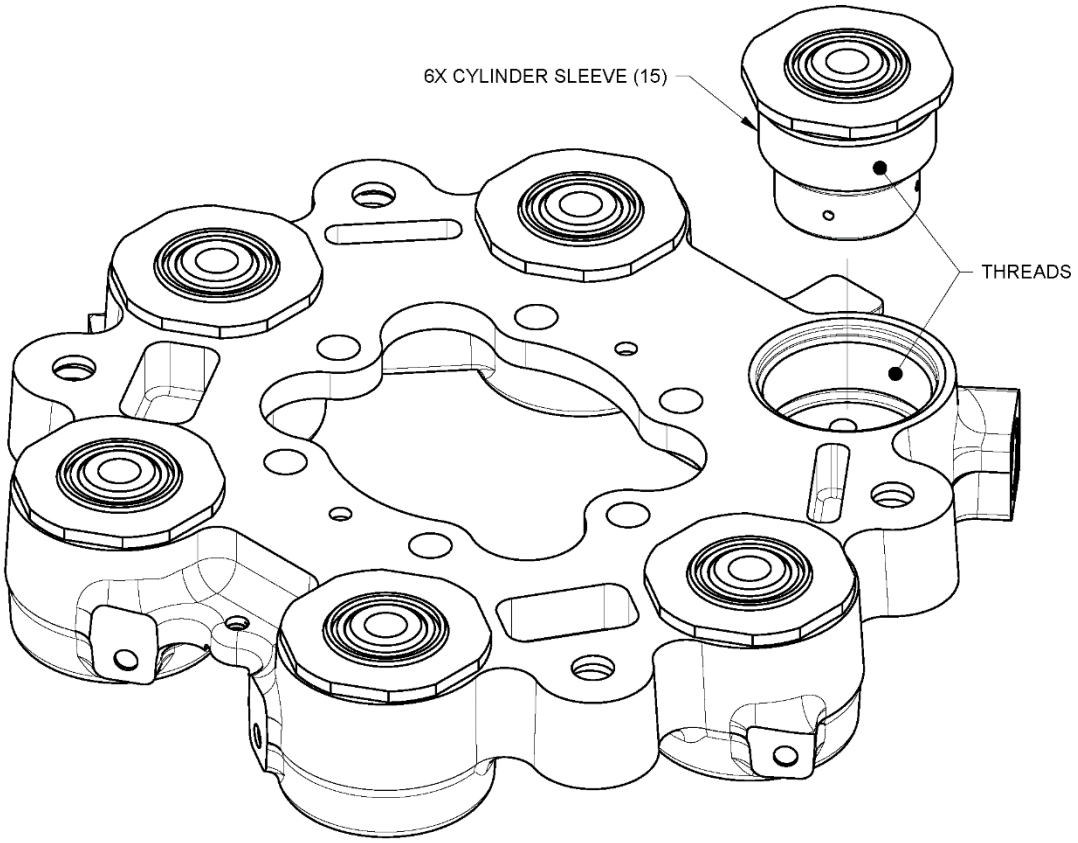


Figure 3004 Remove cylinder sleeves (15)

O. Drain any remaining hydraulic fluid from the brake housing.

DISASSEMBLY

P. See Figure 3005. Disassemble the cylinder sleeve and remove and discard the following seals:

- 1 preformed packing (20).
- 1 wiper ring (35).
- 2 backup ring (30).
- 1 preformed packing (25).

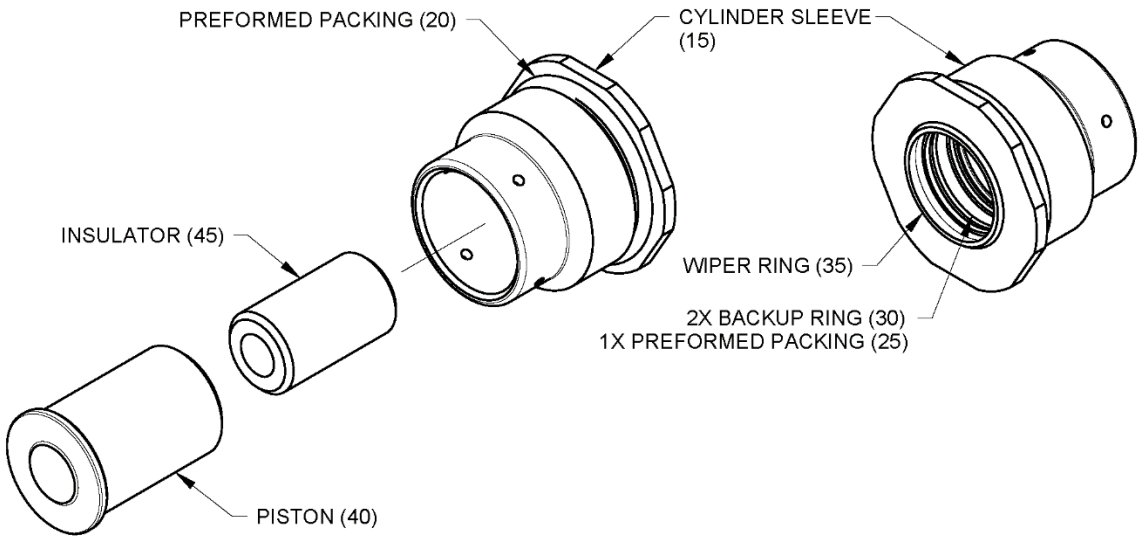


Figure 3005 Disassemble cylinder sleeve (15)

DISASSEMBLY

SAFETY WARNING: THE RETRACT SPRING (70) IS UNDER INSTALLED LOAD. USE CARE WHEN REMOVING THE RETAINING RING (60). PARTS CAN FLY OUT AND CAUSE INJURY, POSSIBLE DAMAGE, OR LOSS OF PARTS.

NOTE: A tool to compress the spring (70) can be fabricated to relieve the installed load on the retaining ring (60).

R. Refer to Figure 3006. Remove the following from the four retract bores: Use internal snap ring pliers and carefully remove the retaining ring (60). Then remove the washer (65) and spring (70).

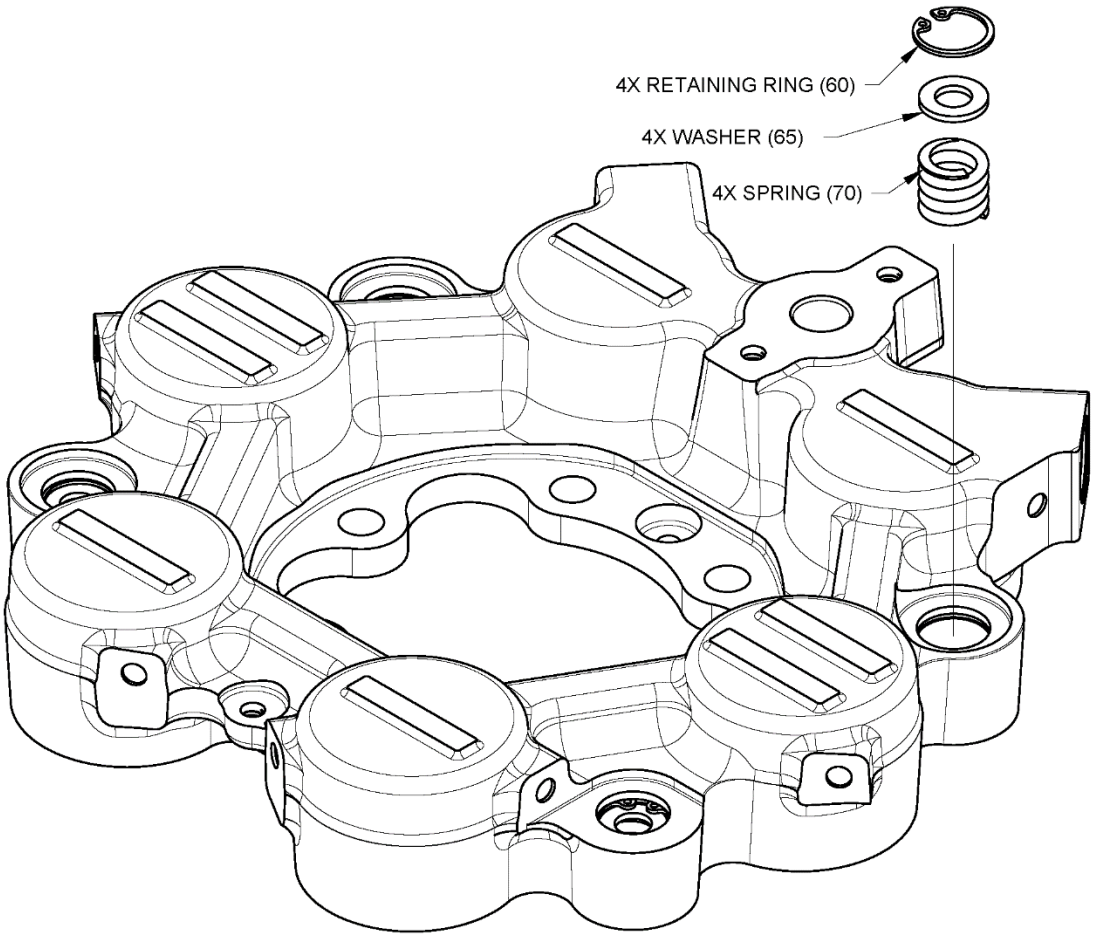


Figure 3006 Remove retract hardware (60), (65), (70)

CLEANING

1. General

Refer to IPL Figure 1 for component identification.

A. Equipment and consumables

The term “Commercial Source” lets the repair facility get the product from a supplier of choice.

NOTE: Unless specified differently, equivalent alternatives can be used for the items listed.

Table 4001 Equipment and consumables

NOMENCLATURE	SPECIFICATION / PART NO.	SOURCE
Blast stripping equipment	• Plastic blast media: MIL-P-85891, Type II or V, Grade 20/30, 3.5 MOH max. • Abrasive blast media: 80 Grit aluminum oxide	U.S. Technology Corp.
Air supply	30 psig maximum	Commercial
Clean cloths	Lint free	Commercial
Brushes	Nonmetallic soft and stiff bristle	Commercial
Stoddard solvent	Type 1 per MIL-PRF-680	Commercial
Cleaner/degreaser	Alkaline based	Commercial
Soap solution	Mild dishwashing liquid	Commercial

SAFETY WARNING: WEAR THE APPROPRIATE PROTECTIVE CLOTHING AND EYEWEAR BEFORE DOING THE WORK.

SAFETY WARNING: USE NO MORE THAN 30 PSIG AIR PRESSURE WHEN USING AIR TO DRY PARTS. EYE PROTECTION IS NECESSARY. EYE INJURY FROM DIRT PARTICLES OR SOLVENT SPRAY IS POSSIBLE WHEN COMPRESSED AIR IS USED.

2. Clean the hardware

The hardware is made from steel (45), (50), (55), (60), (65), (70), (100), (115), (120), (130), (140), (145), (150), (155), (160), (260), (275), (280). The retract subassembly (75) contains steel and brass components.

SAFETY WARNING: FOLLOW THE MANUFACTURER’S INSTRUCTIONS FOR USE AND REFER TO THE MATERIAL DATA SAFETY SHEET FOR SAFETY INSTRUCTIONS.

A. Use an alkaline based degreasing solution or Stoddard Solvent (per MIL-PRF-680) and a nonmetal soft bristle brush to remove any hardened dirt or grease deposits.

B. Rinse in clean water and dry thoroughly.

3. Clean the nonmetallic hardware

A. Wipe the nylon washer (125) with a clean soft cloth dampened in a mild soap and water solution, then dry thoroughly.

CLEANING

4. Clean the piston (40)

The piston is made from aluminum alloy.

SAFETY WARNING: FOLLOW THE MANUFACTURER'S INSTRUCTIONS FOR USE AND REFER TO THE MATERIAL DATA SAFETY SHEET FOR SAFETY INSTRUCTIONS.

A. Use an alkaline based degreasing solution or Stoddard Solvent (per MIL-PRF-680) and a nonmetal soft bristle brush to remove any hardened dirt or grease deposits.

B. Rinse in clean water and dry thoroughly.

5. Clean the brake housing subassembly (5) and shuttle valve assembly (240)

The brake housing is made from aluminum alloy. The shuttle valve manifold is made from aluminum alloy. To remove the protective coating (primer and topcoat) from the brake housing and the shuttle valve manifold, refer to step C.

SAFETY WARNING: FOLLOW THE MANUFACTURER'S INSTRUCTIONS FOR USE AND REFER TO THE MATERIAL DATA SAFETY SHEET FOR SAFETY INSTRUCTIONS.

CAUTION: THE CLEANING PROCESS MAY DAMAGE OR REMOVE THE SHUTTLE VALVE NAMEPLATE (245). A NAMEPLATE THAT IS DAMAGED OR REMOVED DURING THE CLEANING PROCESS WILL REQUIRE REPLACEMENT. REFER TO IPL FIGURE 1 FOR THE NAMEPLATE PART NUMBER.

A. Use an alkaline based degreasing solution and a nonmetal soft bristle brush to remove any hardened dirt or grease deposits.

B. Rinse in clean water and dry thoroughly.

C. Remove the protective coating (primer and topcoat) from the brake housing and shuttle valve manifold.

NOTE: Removal of the protective coating (primer and topcoat) is necessary when doing the liquid penetrant inspection of the brake housing.

NOTE: To achieve best results, always refer to the manufacturer's instructions for use and disposal of blast media.

(1) Part must be clean. This will remove dirt and grease deposits that can contaminate the blast media.

(2) Blast the part per MIL-STD-1504 with plastic media.

CLEANING

6. Clean the torque tube (215)

The torque tube is made from alloy steel. The helical coil inserts (230), (235) are made from corrosion resistant steel. The abrasive blast process will also help to remove any surface corrosion.

SAFETY WARNING: FOLLOW THE MANUFACTURER'S INSTRUCTIONS FOR USE AND REFER TO THE MATERIAL DATA SAFETY SHEET FOR SAFETY INSTRUCTIONS.

A. After the wear pads have been removed, use an alkaline based degreasing solution or Stoddard Solvent (per MIL-PRF-680) and a nonmetal soft bristle brush to remove any hardened dirt or grease deposits.

B. Rinse in clean water and dry thoroughly.

C. Protective coating and corrosion removal

NOTE: To achieve best results, always refer to the manufacturer's instructions for use and also for disposal of blast media.

(1) Part must be clean. This will remove dirt and grease deposits that can contaminate the blast media.

(2) Blast the part per MIL-STD-1504 with aluminum oxide media.

CAUTION: FLASH RUST WILL BEGIN TO DEVELOP ON THE BARE METAL IF PROTECTIVE COATING IS NOT APPLIED.

D. Refer to the REPAIR section to apply protective coat on the torque tube.

7. Clean the pressure plate (170) and stator disc (195)

NOTE: Cleaning and inspection of the stator disc will be required if the stator disc assembly experienced an unscheduled interval condition (refer to the maintenance schedule in the DESCRIPTION AND OPERATION section).

The pressure plate and stator disc are made from alloy steel

SAFETY WARNING: FOLLOW THE MANUFACTURER'S INSTRUCTIONS FOR USE AND REFER TO THE MATERIAL DATA SAFETY SHEET FOR SAFETY INSTRUCTIONS.

A. After the wear pads have been removed, use an alkaline based degreasing solution or Stoddard Solvent (per MIL-PRF-680) and a nonmetal soft bristle brush to remove any hardened dirt or grease deposits.

B. Rinse in clean water and dry thoroughly.

C. Corrosion removal of the pressure plate (170) and stator disc (195)

NOTE: To achieve best results, always refer to the manufacturer's instructions for use and also for disposal of abrasive blast media.

(1) Part must be clean. This will remove dirt and grease deposits that can contaminate the blast media.

(2) Blast the parts per MIL-STD-1504 with aluminum oxide media.

8. Clean the rotor disc (185)

The rotating discs are made from alloy steel and friction material.

CAUTION: DO NOT USE CLEANING SOLUTIONS ON THE FRICTION MATERIAL SURFACES OF THE ROTATING DISC. CLEANING SOLUTION THAT HAS SOAKED INTO THE FRICTIONAL MATERIAL WILL DEGRADE BRAKE PERFORMANCE.

A. Clean the rotating disc with compressed air and a nonmetal stiff bristle brush.

CHECKS

1. General

Refer to IPL Figure 1 for component identification.

NOTE: All parts must be cleaned before examination. Refer to the CLEANING section.

NOTE: In addition to the general inspection, follow detailed inspection of applicable components.

A. Equipment and consumables

The term “Commercial Source” lets the repair facility get the product from a supplier of choice.

NOTE: Unless specified differently, equivalent alternatives can be used for the items listed.

Table 5001 Equipment and consumables

NOMENCLATURE	SPECIFICATION / PART NO.	SOURCE
Inspection surface plate	Commercial source	Commercial
Magnifier	X10 Magnification	Commercial
Micrometers	Commercial source	Commercial
Vernier dial calipers	Commercial source	Commercial
Magnetic particle inspection kit	ASTM E1444	Commercial
Liquid penetrant inspection kit	ASTM E1417 Type 1, method A, sensitivity level 2	Commercial
Hardness tester for (5), (215)	Commercial source	Commercial

SAFETY WARNING: THIS ASSEMBLY CONTAINS PARTS THAT HAVE A CADMIUM PLATING FINISH: (50), (65), (85), (95), (115), (120), (155), (160), (275), (280). REMOVING THE CADMIUM PLATING CAN CREATE EXPOSURE TO CADMIUM DUST AND CADMIUM COMPOUNDS. THIS CAN BE A POTENTIAL HEALTH HAZARD.

SAFETY WARNING: WEAR THE APPROPRIATE PROTECTIVE CLOTHING AND EYEWEAR BEFORE DOING THE WORK.

CAUTION: REPAIR OR REWORK OF PLATED HARDWARE INCLUDING STRIPPING AND RE-PLATING IS NOT ALLOWED. DO NOT STRIP PLATING MATERIAL TO INSPECT A BOLT. REMOVAL OF PLATING MATERIAL WILL CAUSE THE BOLTS TO CORRODE.

2. General inspection

NOTE: Replace hardware that has damage to any protective coating, such as cad plate.

A. Examine visible surfaces of the following for corrosion, distortion, wear, burrs, pitting, nicks, cracks, chips, or other visible signs of damage: (5), (15), (40), (45), (50), (55), (60), (65), (70), (75), (100), (115), (120), (130), (140), (145), (150), (155), (160), (170), (175), (185), (195), (200), (215), (220), (240), (260), (275), (280).

(1) Examine parts with sealing surfaces and grooves. Damage to the sealing surfaces could damage preformed packings during installation.

(2) Examine parts with threads for damage to threaded areas.

B. Examine the following nonmetallic parts for deformation, cuts, tears, cracks, breaks, nicks or other visible signs of damage: (125).

CHECKS

3. Examine the bolts (55), (160), (275)

NOTE: If replacing one or more of the same bolts, it is good practice to replace all of those same bolts. Example: If replacing one of the (55) bolts, then replace both. If replacing one of the (275) bolts, then replace all six.

A. In accordance with the maintenance schedule (Table 1, DESCRIPTION AND OPERATION), use magnetic particle inspection (ASTM E1444) to examine for cracks in the radius under the bolt head and in the threaded area next to the bolt shank.

4. Examine the brake housing subassembly (5)

Refer to Figure 5001.

A. Examine the exterior surface for missing paint.

B. Examine for dents, surface cracks, nicks, burrs, corrosion, or other damage.

C. Examine the 2 bleeder ports for corrosion or damage to the sealing surfaces or threads. Replace the brake housing subassembly if corrosion or damage is indicated.

D. Examine the shuttle valve port. Use a 10X magnifier and examine the port for scratches, wear, corrosion or other damage. If the diameter exceeds Ø 0.486 inch, replace the brake housing subassembly.

E. Examine the pin plugs and helical coil inserts (10).

(1) Examine the six pin plugs for leakage. The pin plugs are not replaceable. If there is leakage from a pin plug, the brake housing subassembly must be replaced.

(2) Examine the three helical coil inserts (10) for looseness, thread damage or loss of self-locking feature. Replace loose or damaged insert in accordance with the REPAIR section.

F. Use a 10X magnifier and examine the six piston bores for scratches, wear, corrosion or other damage. Examine the preformed packing groove for scratches, nicks, burrs, or other damage that could damage or alter the sealing function of the preformed packing (20). Measure the piston bores. If a bore diameter measures more than ∅ 1.470 inch, the brake housing subassembly must be replaced.

(1) Examine the piston bore threads. If threads are damaged, the brake housing subassembly must be replaced.

CHECKS

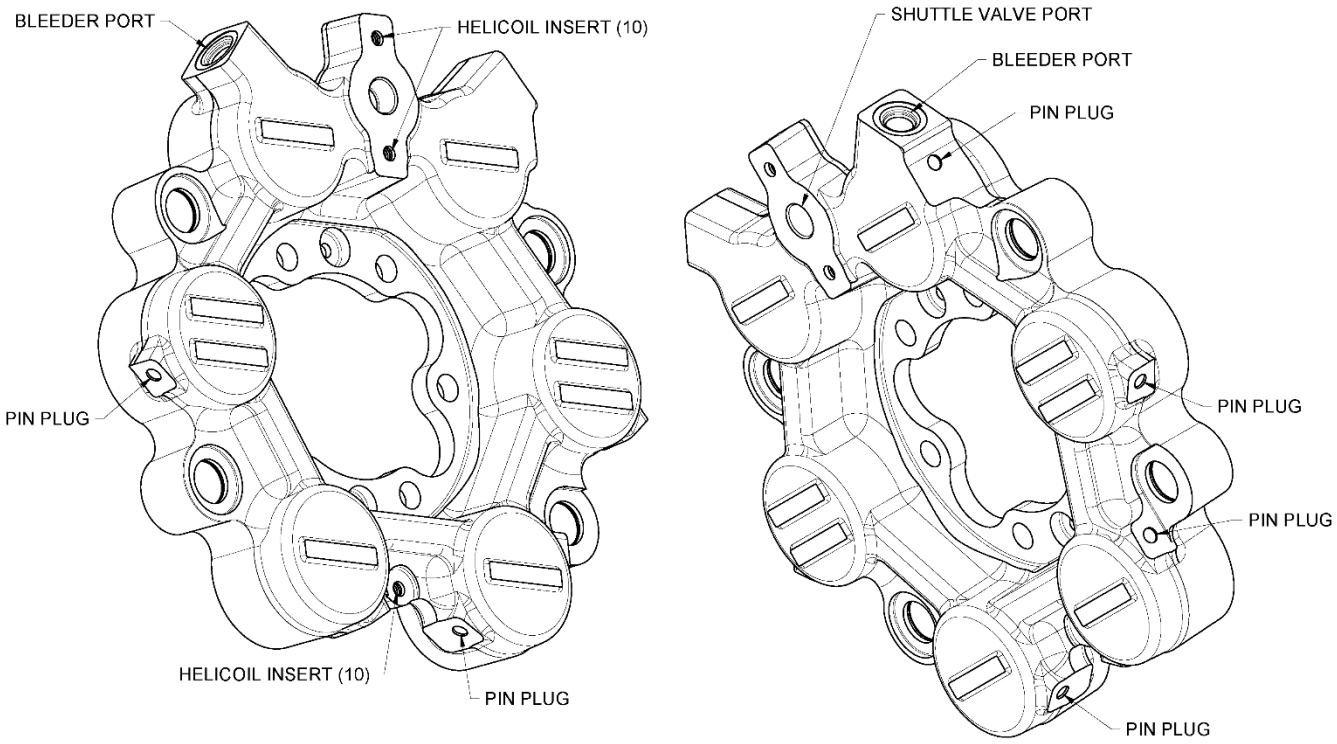


Figure 5001 Inspect brake housing subassembly (5)

SAFETY WARNING: FOLLOW THE MANUFACTURER'S INSTRUCTIONS FOR USE AND REFER TO THE MATERIAL DATA SAFETY SHEET FOR SAFETY INSTRUCTIONS.

G. In accordance with the maintenance schedule (Table 1, DESCRIPTION AND OPERATION), examine the brake housing for cracks using liquid penetrant inspection (ASTM E1417, Type 1, Method A, Sensitivity Level 2; acceptance criteria per MIL-STD-1907, Grade B).

NOTE: The protective coating (topcoat and primer) must be removed from the part and the part must be clean before using liquid penetrant inspection methods.

(1) Remove the protective coating (topcoat and primer) from the housing. Refer to the CLEANING section for paint removal instructions.

(2) Examine the housing for cracks. Replace the brake housing subassembly if cracks are found.

CHECKS

5. Examine the pistons (40)

A. Examine for minor scratches, nicks, burrs, or other damage and replace.

B. Examine the outside diameter for wear of the surface coating, minor scratches, nicks, burrs.

(1) Examine the piston O.D. for wear by measuring at three places around the circumference. If the O.D. measures less than ∅ .996 inch at any point, replace the piston.

6. Examine the piston insulator (45)

A. Examine for minor scratches, nicks, burrs, or other damage and replace.

B. Measure the insulator height. If the height measures less than 1.295 inch , replace the insulator.

7. Examine the retract subassembly (75)

NOTE: Refer to the ASSEMBLY section for resetting the components of the retract subassembly.

A. Examine the retract subassembly components: retract stud (80), friction sleeve (90), sleeve retainer (85) and spacer (95) for the following conditions and replace as needed:

- Nicks, burrs, scoring and corrosion that would obstruct the operation of the subassembly.
- Damaged retract stud (80) internal hex wrenching mechanism.
- Distortion of the retract stud (80).
- Stripped or scored threads on the retract stud (80).

8. Examine the retract base assembly (100)

NOTE: Refer to the REPAIR section for replacement of a damaged insert (110).

A. Examine and replace the retract base assembly components: retract base (105) and insert (110) for the following conditions:

- Nicks, burrs, or other damage to the retract base (105) that would affect the operation of the retract base assembly.
- Damage to the locking feature of the insert (110).

CHECKS

9. Examine the torque tube assembly (210)

A. Examine the exterior surface for missing coating (galvanizing compound) caused by erosion or wear.

B. Examine for surface cracks, corrosion or other damage.

C. Refer to Figure 5002 and examine the following.

(1) Examine for loose, cracked or worn wear pads (220). Replace loose rivets (225) and damaged or worn wear pads per the REPAIR section.

(a) Check wear pad worn condition. If any wear pad is worn down to dimension “B”, all the wear pads must be replaced. Overall measurement can also be made at dimension “C” from the back of torque tube flat (not at the rib).

(2) Examine the six drive slots that engage the pressure plate (170) and stator disc (195) drive tangs for wear of damage.

(a) Check dimension “A”. If the width of a slot is more than the limit shown, replace the torque tube.

(3) Examine the helical coil inserts (230), (235) for thread damage and positioning/backing out. Replace a damaged insert in accordance with the REPAIR section.

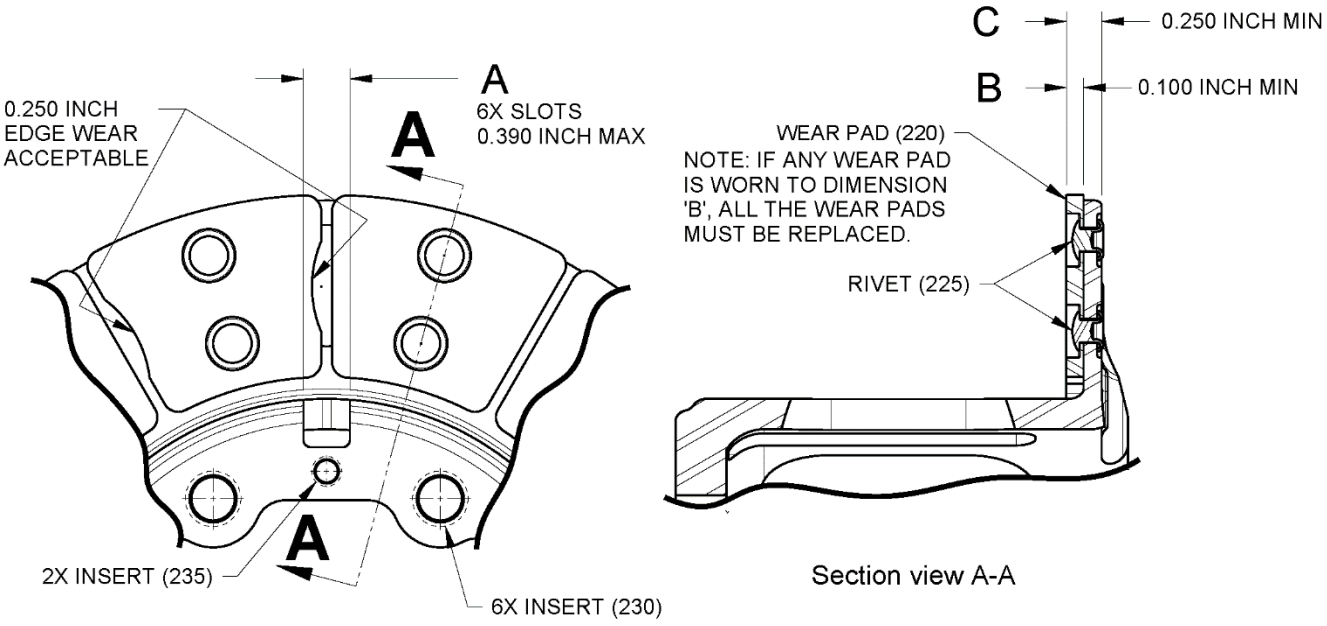


Figure 5002 Inspect torque tube assembly (210)

CHECKS

D. Examine the torque tube (215) for the following before installing new wear pads.

(1) Examine for distortion and out-of-flatness on wear pad mating surface. Replace the torque tube if out-of-flatness more than 0.005 inch. Check for gapping between torque tube and wear pads.

(2) Examine for distortion of the rivet holes and cracks at the rivet hole areas. Cracks are not allowed. Rivet holes must not exceed ∅ 0.205 inch maximum.

(3) In accordance with the maintenance schedule (Table 1, DESCRIPTION AND OPERATION), examine the torque tube for cracks using liquid penetrant inspection. As an alternate, magnetic particle inspection can be used.

NOTE: The protective coating (cold galvanizing compound) must be removed from the part and the part must be clean before doing a liquid penetrant inspection procedure.

(a) Remove the protective coating (cold galvanizing compound) from the torque tube. Refer to the CLEANING section for coating removal instructions.

(b) Examine the torque tube for cracks.

10. Examine the rotor disc (185)

A. Examine for wear, surface cracks near the thermal relief slots, corrosion or other damage.

B. Examine for distortion. Replace any disc that is out-of-flatness more than 0.009 inch.

C. Refer to Figure 5003 and examine the following.

(1) Examine the lining material of the disc for wear, crumbling and pitting.

(a) If the disc is worn down to less than dimension “B” on either side, replace the disc. Overall measurement can also be made at dimension “C”.

(2) Examine for cracks at the six thermal relief slot areas. Cracks are not allowed.

(3) Examine the six drive slots that engage the wheel drive keys for wear or damage.

(a) Check dimension “A”. If the width of a drive slot is more than the limit shown, replace the disc.

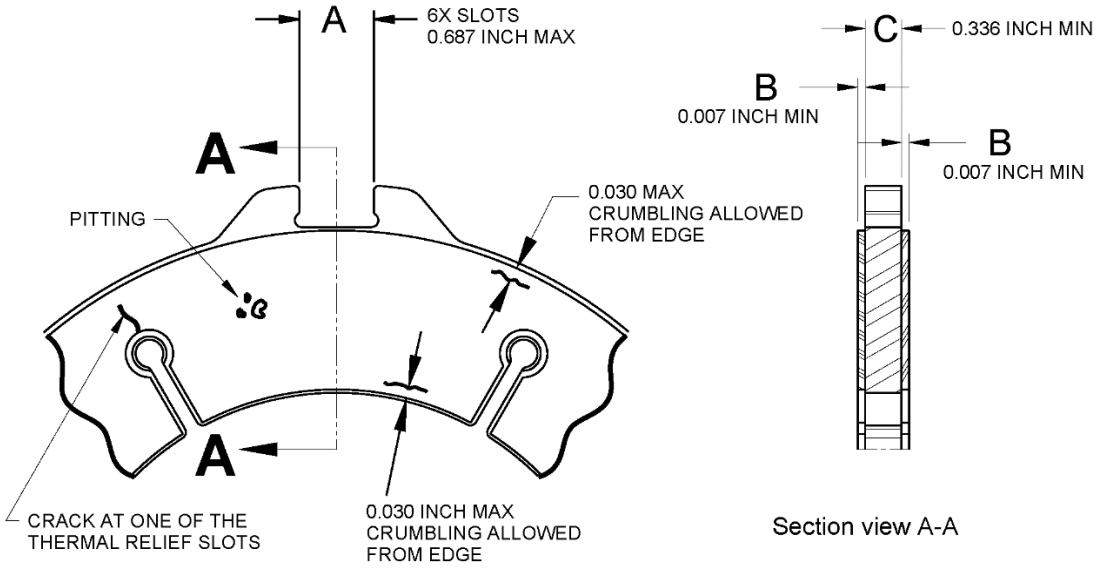


Figure 5003 Inspect rotor disc (185)

CHECKS

11. Examine the stator disc assembly (190)

NOTE: Cleaning and inspection of the stator disc will be required if the stator disc assembly experienced an unscheduled interval condition (refer to the maintenance schedule in the DESCRIPTION AND OPERATION section).

A. Examine the stator for surface cracks, corrosion or other damage.

NOTE: If any of the wear pads (200) have not been damaged, they must still be removed prior to inspection of the stator disc and then re-installed.

B. Refer to Figure 5004 and examine the following.

(1) Examine for loose, cracked or worn wear pads (200). Refer to the REPAIR section for replacing or re-installing wear pads.

(a) Check wear pad worn condition. If any wear pad is worn down to dimension “B”, all the wear pads must be replaced. Overall measurement can also be made at dimension “C”.

(2) Examine the six drive tangs that engage the torque tube (215) drive slots for damage.

(a) Check dimension “A”. If the width of a tang is less than the limit shown, replace the stationary disc assembly.

C. Examine the stator disc (195) for the following before installing wear pads.

(1) Examine for distortion and out-of-flatness on wear pad mating surface. Replace the stator disc if out-of-flatness more than 0.006 inch. Check for gapping between stator and wear pads.

(2) Examine for cracks at the six thermal relief slot areas. Cracks are not allowed.

(3) Examine for distortion of the rivet holes and cracks at the rivet hole areas. Cracks are not allowed. Rivet holes must not exceed ∅ 0.205 inch maximum.

(4) If required following an unscheduled removal, examine the stator disc for cracks using liquid penetrant inspection. As an alternate, magnetic particle inspection can be used.

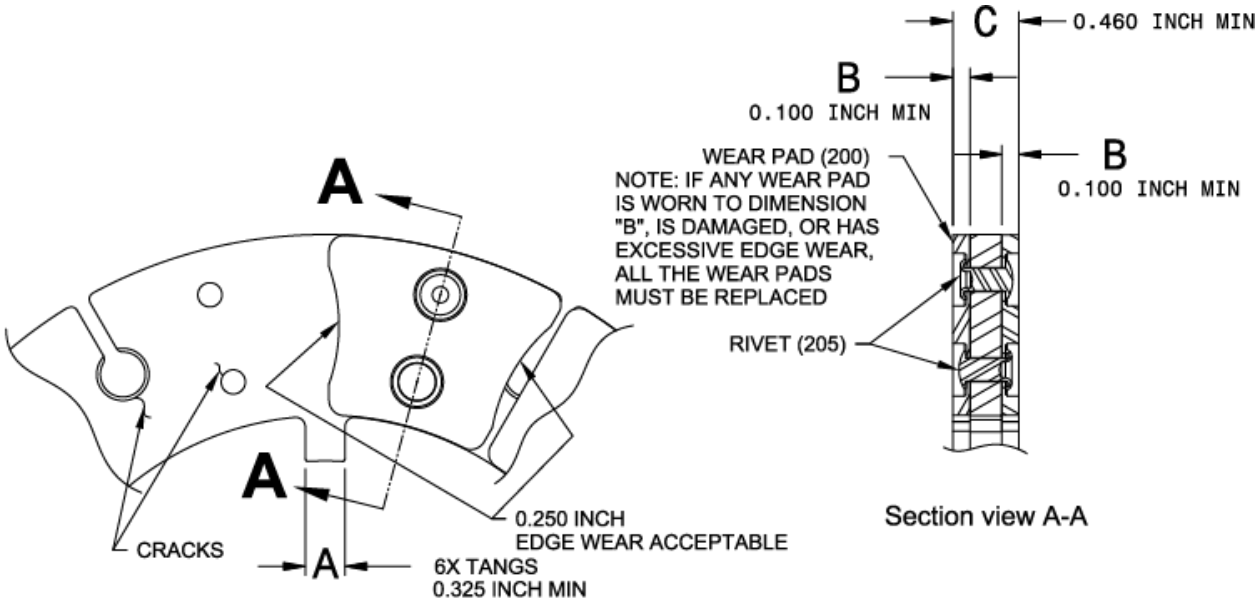


Figure 5004 Inspect stator disc assembly (190)

CHECKS

12. Examine the pressure plate assembly (165)

A. Examine the pressure plate for surface cracks, corrosion or other damage.

B. Refer to Figure 5005 and examine the following.

(1) Examine for loose, cracked or worn wear pads (175). Replace loose rivets (180) and damaged or worn wear pads per the REPAIR section.

(a) Check wear pad worn condition. If any wear pad is worn down to dimension “B”, all the wear pads must be replaced. Overall measurement can also be made at dimension “C”.

(2) Examine the six drive tangs that engage the torque tube (215) drive slots for wear or damage.

(a) Check dimension “A”. If the width of a tang is less than the limit shown, replace the pressure plate.

C. Examine the pressure plate (170) for the following before installing new pads.

(1) Examine for distortion and out-of-flatness on wear pad mating surface. Replace the pressure plate if out-of-flatness more than 0.006 inch. Check for gapping between pressure plate and wear pads.

(2) Examine for distortion of the rivet holes and cracks at the rivet hole areas. Cracks are not allowed. Rivet holes must not exceed ∅ 0.205 inch maximum.

(3) In accordance with the maintenance schedule (Table 1, DESCRIPTION AND OPERATION), examine the pressure plate for cracks using liquid penetrant inspection. As an alternate, magnetic particle inspection can be used.

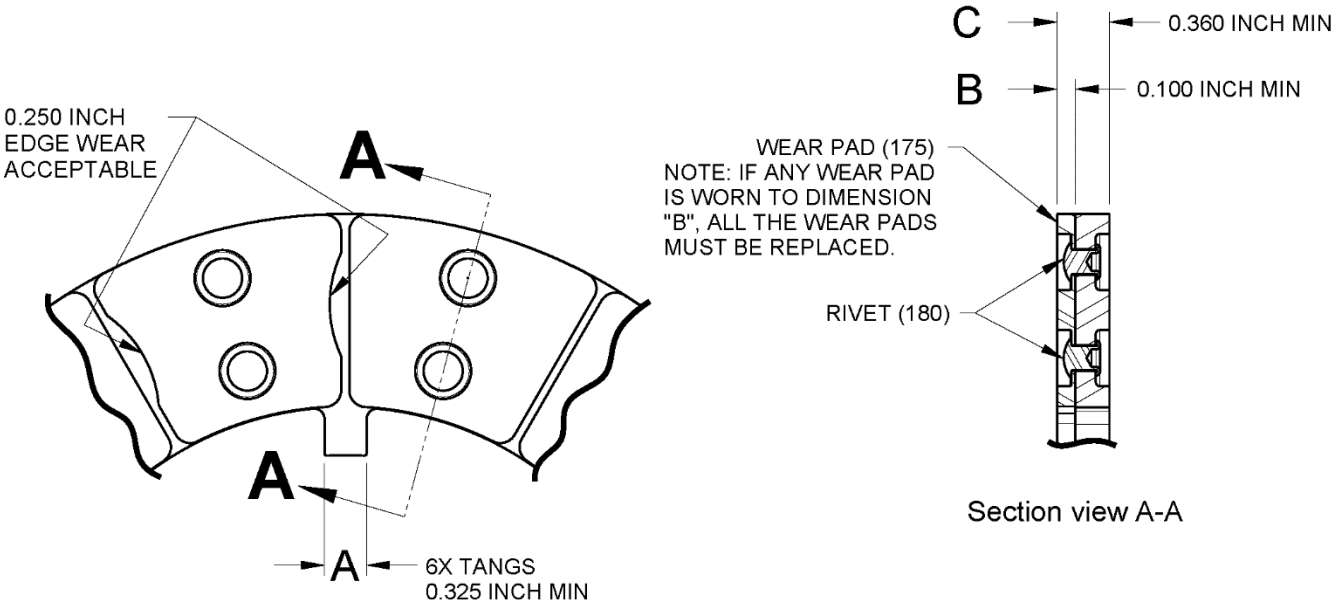


Figure 5005 Inspect pressure plate assembly (165)

CHECKS

13. Procedure for overheated brakes

Result of RTO (Rejected Take Off) or heavy braking event. Indication of overheating: brake housing paint is charred or blistered or one of the fusible plugs in the mating main wheel assembly releases the tire pneumatic pressure.

A. Perform a hardness check on the brake housing subassembly (5).

NOTE: To obtain an accurate reading, remove paint from the test areas (where the hardness ball will actually contact the surface). Use 400 grit or finer wet or dry aluminum oxide cloth. Refer to the REPAIR section for repaint instructions.

(1) Perform a hardness test in the area shown in Figure 5006. Obtain a minimum of three hardness readings (equally spaced). If any reading is below the limit specified in Table 5002, replace the brake housing subassembly.

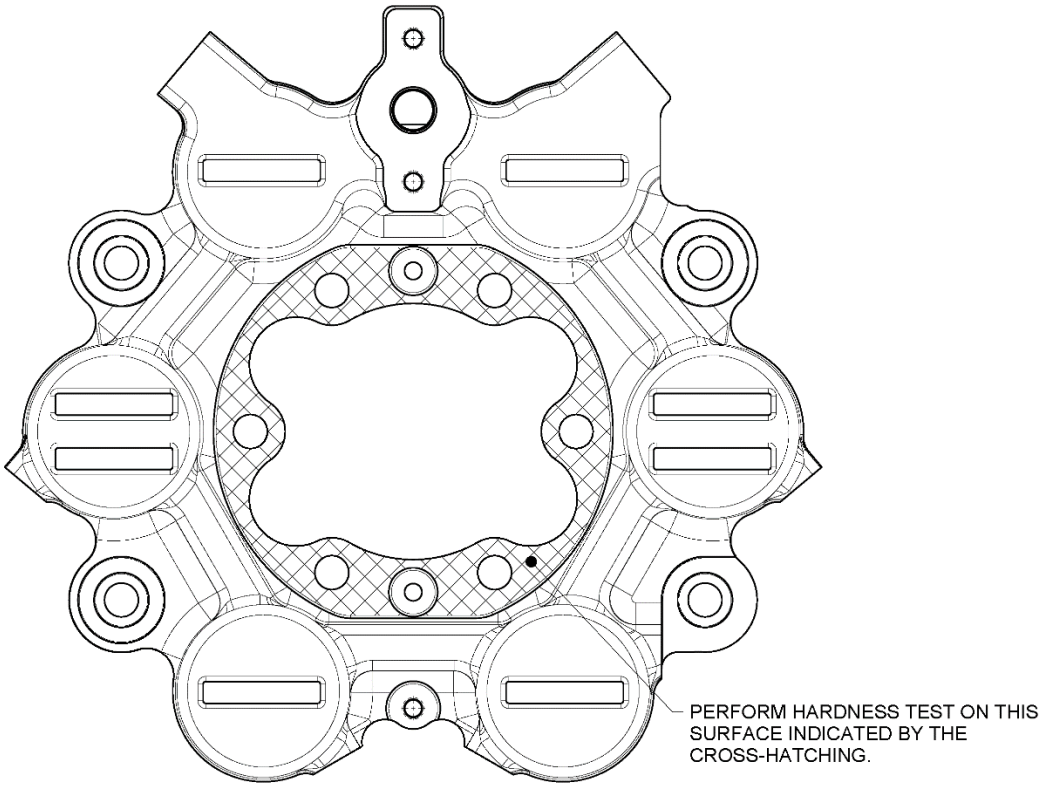


Figure 5006 Hardness test – brake housing subassembly (5)

Table 5002 Hardness test readings – brake housing subassembly

ITEM	BRINELL TEST
Ball Diameter	10 mm
Test Load	500 kg
Minimum number of readings (equally spaced)	3
Acceptable minimum average hardness	135 Bhn

CHECKS

B. Perform a hardness check on the torque tube (215).

NOTE: To obtain an accurate reading, remove paint from the test areas (where the hardness ball will actually contact the surface). Use 400 grit or finer wet or dry aluminum oxide cloth. Refer to the REPAIR section for repaint instructions.

(1) Perform a hardness test on the flat surfaces shown in Figure 5007. There are a total of 12 flat locations. Obtain a minimum of three hardness readings (equally spaced). If any reading is below the limit specified in Table 5003, replace the torque tube assembly.

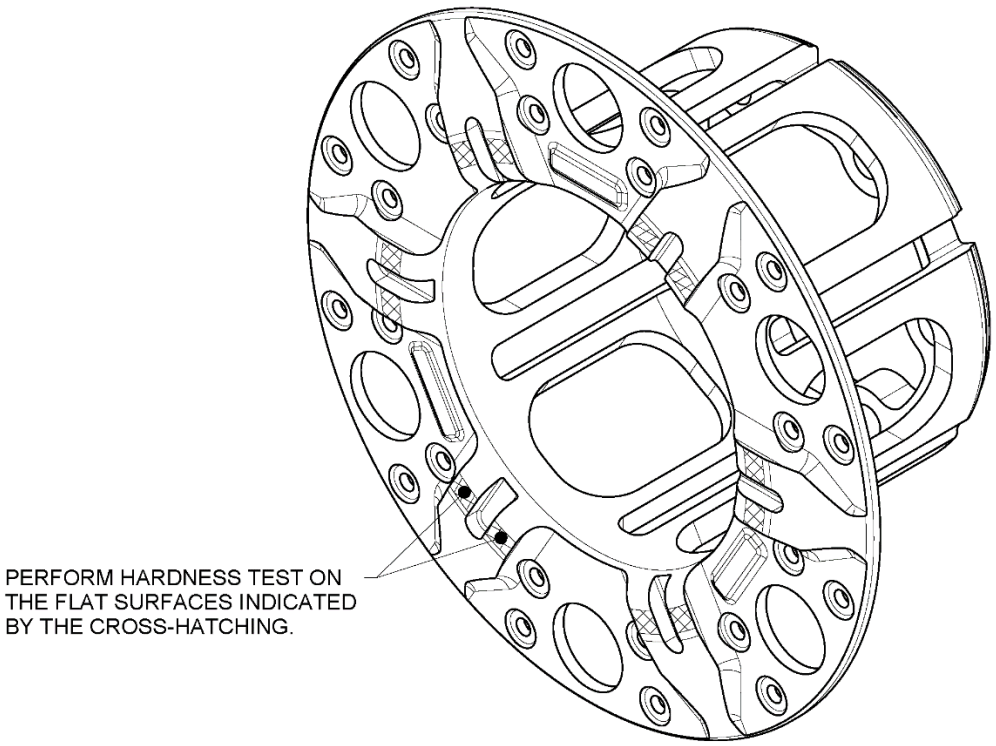


Figure 5007 Hardness test – torque tube (215)

Table 5003 Hardness test readings – torque tube

ITEM	ROCKWELL TEST
Minimum number of readings (equally spaced)	3
Acceptable minimum average hardness	Rc 39

REPAIR

1. General

Refer to IPL Figure 1 for component identification.

A. Equipment and consumables

The term “Commercial Source” lets the repair facility get the product from a supplier of choice.

NOTE: Unless specified differently, equivalent alternatives can be used for the items listed.

Table 6001 Equipment and consumables

NOMENCLATURE	SPECIFICATION / PART NO.	SOURCE
Aluminum oxide cloth	400 to 600 grade or finer, wet or dry	Commercial
Surface treatment	Alodine 1200 or equivalent MIL-C-5541, Class 1A	Commercial
Hand files	Assorted	Commercial
Riveting equipment for (180), (205), (225) Jaws Driver Rollset **Note:** Suitable standard equipment can also be used as additional source for riveting equipment.	Model 305 riveter 63-J-1566-A 563-DS-44 824-1K-7 Contact Source for tooling requirements.	Orbitform Fastening Systems Alternative riveter: National Rivet & Mfg. Co.
Threaded insert tools for (10), (110), (230), (235) Extraction tool Installation tool Tang removal tool	MIL-T-21209 for (110), (235): for (10): for (230): 1227-6 1227-6 1227-6 7552-3 7552-4 7552-6 3695-3 3695-4 3692-6	Emhart Fastening Teknologies
Paint application equipment	Commercial source	Commercial
Protective coatings for (5)	Refer to Table 6002	Deft Chemical Coatings
Protective coating for (215)	ZRC Galvilite, P/N 11011-10014 MIL-PRF-26915, Type I	ZRC Products Company
Stoddard solvent	Type 1 per MIL-PRF-680	Commercial

REPAIR

SAFETY WARNING: THIS ASSEMBLY CONTAINS PARTS THAT HAVE A CADMIUM PLATING FINISH: (50), (65), (85), (95), (115), (120), (155), (160), (275), (280). REMOVING THE CADMIUM PLATING CAN CREATE EXPOSURE TO CADMIUM DUST AND CADMIUM COMPOUNDS. THIS CAN BE A POTENTIAL HEALTH HAZARD.

CAUTION: DO NOT USE ABRASIVES CONTAINING IRON OR COPPER (STEEL WOOL, IRON OXIDE, BRASS OR STEEL WIRE). IRON OR COPPER PARTICLES WILL BECOME EMBEDDED IN THE ALUMINUM COMPONENTS AND WILL CAUSE CORROSION.

CAUTION: REPAIR IS LIMITED TO THE PARTS LISTED IN THIS SECTION. THE FOLLOWING ITEMS ARE NOT REPAIRABLE AND MUST BE REPLACED IF WORN OR DAMAGED:

- HARDWARE: (10), (15), (40), (45), (50), (55), (60), (65), (70), (75), (110), (115), (120), (125), (130), (140), (145), (150), (155), (160), (175), (200), (220), (230), (235), (260), (275), (280)
- COMPONENTS THAT CONTAIN ELASTOMERS OR NONMETALLIC: (20), (25), (30), (35), (125), (135), (250), (255), (265)

CAUTION: THE FOLLOWING ITEMS ARE NOT PROCURABLE. ORDER THE NEXT HIGHER ASSEMBLY IF ITEM CANNOT BE REPAIRED:

- BRAKE HOUSING, PIN PLUGS. MUST ORDER ITEM (5).
- MANIFOLD, SHUTTLE VALVE, PIN PLUGS. MUST ORDER ITEM (240).

2. Repair and paint the brake housing subassembly (5)

The housing is made from aluminum alloy. Repair is limited to the following.

SAFETY WARNING: WEAR THE APPROPRIATE PROTECTIVE CLOTHING AND EYEWEAR BEFORE DOING THE WORK.

A. Repair the brake housing

(1) External surface damage repair.

(a) Blend out small nicks, burrs, scratches and light corrosion.

(2) Piston bore repair

(a) Polish out light scratches and nicks. Surface finish must be 125 rms or better. Repair must not exceed ∅ 1.470 inch maximum.

B. Clean the brake housing. Refer to the CLEANING section.

SAFETY WARNING: FOLLOW THE MANUFACTURER'S INSTRUCTIONS FOR USE AND REFER TO THE MATERIAL DATA SAFETY SHEET FOR SAFETY INSTRUCTIONS.

C. Apply a surface pretreament (Alodine 1200 or equivalent) to repaired areas.

REPAIR

D. Paint the brake housing

SAFETY WARNING: FOLLOW THE MANUFACTURER'S INSTRUCTIONS FOR USE AND REFER TO THE MATERIAL DATA SAFETY SHEET FOR SAFETY INSTRUCTIONS.

(1) For small area paint touchup.

(a) Prepare the area by sanding lightly with 400 to 600 grade or finer, wet or dry aluminum oxide cloth and feather out all edges of the adjacent area.

(b) Clean the area.

(c) Touch up the area with primer and topcoat.

(2) For complete primer and topcoat application.

NOTE: Performed if primer and topcoat was removed from entire part by plastic media blasting.

(a) Confirm that the part has been cleaned and surface treatment applied if repair work was performed.

(b) Mask the brake housing. Refer to Figure 6001.

(c) Apply the primer and the topcoat. Refer to Table 6002.

NOTE: Results can vary and depend on the environment and the equipment used. To achieve the best results, always refer to the manufacturer's instructions for mixing, application and use.

Table 6002 Brake housing primer and topcoat specifications

MANUFACTURER	PRIMER	TOPCOAT
Deft Chemical Coatings Irvine, CA	P/N 44-GN-36, Components A and B MIL-PRF-85582D Type 1, Class C2	P/N 03-W-127A, Components A and B MIL-PRF-85285D Type 1, Class H, Color 17925 (Untinted White)
	Primer Thickness [1]: 0.0006-0.0009 inch Drying Time (air dry) [2]: Touch, mask, topcoat: 1 hour minimum Stack: 4 to 6 hours Hard cure: 14 days minimum	Topcoat Thickness [1]: 0.0017-0.0023 inch Drying Time (air dry) [2]: Recoat: 15 minutes minimum Stack: 4 to 8 hours Hard cure: 7 days minimum

[1] The total dry film thickness of the primer and topcoat to be 0.0023 to 0.0032 inch. This excludes the anodic coating thickness.

[2] Refer to the manufacturer's data sheet for the forced dry (heat accelerated cure) schedule.

REPAIR

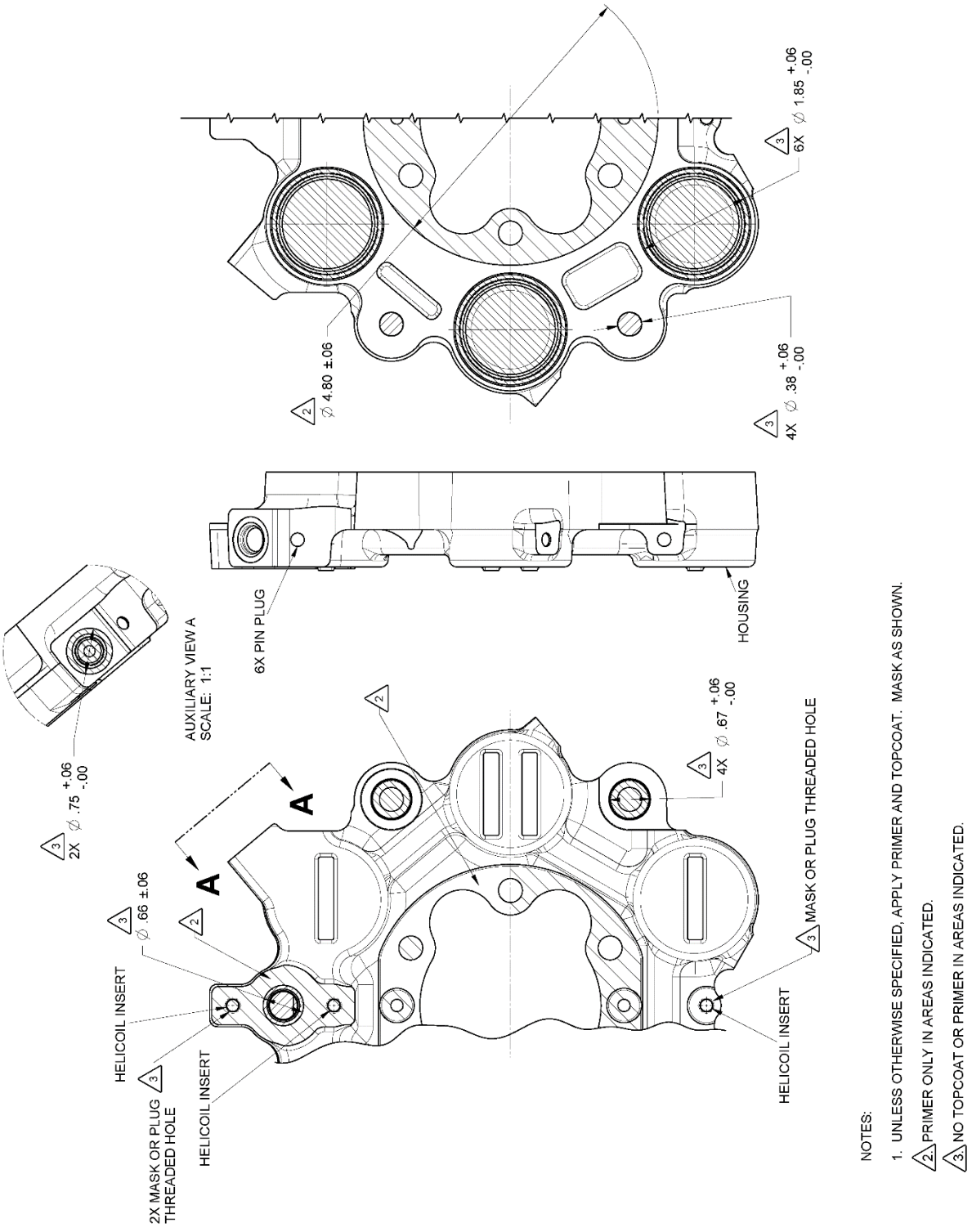


Figure 6001 Mask the brake housing subassembly (5)

REPAIR

3. Replace the brake housing inserts (10)

SAFETY WARNING: WEAR THE APPROPRIATE PROTECTIVE CLOTHING AND EYEWEAR BEFORE DOING THE WORK.

Table 6003 Heli-Coil insert tools

EXTRACTING TOOL	INSTALLATION TOOL	TANG REMOVAL TOOL
1227-6	7552-4	3695-4

A. Removal

Refer to Figure 6002 and the following procedure.

(1) Remove damaged inserts by applying the extracting tool to the insert, striking the head of the tool a light blow and turning it counterclockwise, maintaining steady downward pressure.

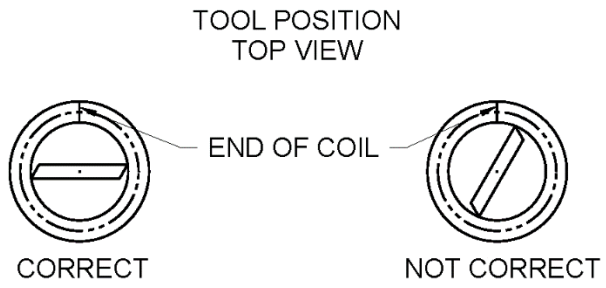


Figure 6002 Use the extracting tool

B. Installation

(1) Use the installation tool and install the insert into the brake housing so that the top coil is 0.035 inch below the surface. Use the tang removal tool to break off the tang.

REPAIR

4. Replace the wear pads (175), (200), and (220)

Procedure for removing the wear pads is the same for the pressure plate assembly (165), stator disc assembly (190), and torque tube assembly (210).

SAFETY WARNING: WEAR THE APPROPRIATE PROTECTIVE CLOTHING AND EYEWEAR BEFORE DOING THE WORK.

CAUTION: DO NOT ENLARGE THE RIVET HOLES IN THE PRESSURE PLATE (170), STATOR DISC (195) OR TORQUE TUBE (215). IF A RIVET HOLE EXCEEDS ∅ 0.205 INCH, THE PRESSURE PLATE, STATOR DISC, OR TORQUE TUBE MUST BE REPLACED.

NOTE: If a wear pad needs to be replaced, then all wear pads must be replaced.

NOTE: The stator disc assembly (190) has wear pads attached on both sides. Each pad has rivets installed from opposite directions.

A. Remove the wear pads

Refer to Figure 6003 and the following procedure.

(1) Use a twist drill bit and carefully drill into the clinched end of the rivet. Remove only enough material to weaken the clinch and allow a press punch or pin punch to force the rivet out of the hole without deforming or enlarging the hole.

(2) Remove and discard the wear pads. Remove any burrs around rivet hole areas without deforming or enlarging the hole.

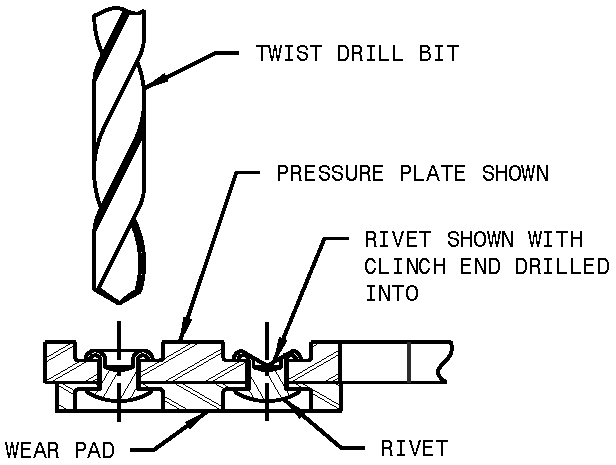


Figure 6003 Remove the rivets (180), (205), (225)

B. Examine the base parts: pressure plate (170), stator disc (195), torque tube (215)

Prior to installing new wear pads, perform the following:

(1) Examine the pressure plate for continued service and applicable repairs. Refer to the CHECKS section for examination and REPAIR paragraph 8. for repair procedures.

(2) Examine the stator disc for continued service and applicable repairs. Refer to the CHECKS section for examination and REPAIR paragraph 8. for repair procedures.

(3) Examine the torque tube for continued service and applicable repairs. Refer to the CHECKS section for examination and REPAIR paragraph 5. for repair procedures.

REPAIR

C. Install new wear pads

Refer to Figure 6004 and the following procedure.

(1) Clean new wear pads (175), (200), (220) with Stoddard Solvent (per MIL-PRF-680) to remove rust inhibitive coating.

NOTE: Failure to degrease wear pads prior to putting brakes back in service may result in smoking brakes during initial braking applications when brakes are returned to service.

(2) Confirm that the pressure plate, stator, and torque tube are clean.

(3) Attach the wear pads to the applicable part: pressure plate (170), stator disc (195), or torque tube (215).

(a) For the pressure plate and torque tube: Rivets are installed so that the head of the rivet is on the wear pad side.

(b) For the stator disc: Wear pads are attached to both sides of the stator disc. Rivets must be oriented as shown. Each pad shall have rivets installed from opposite directions.

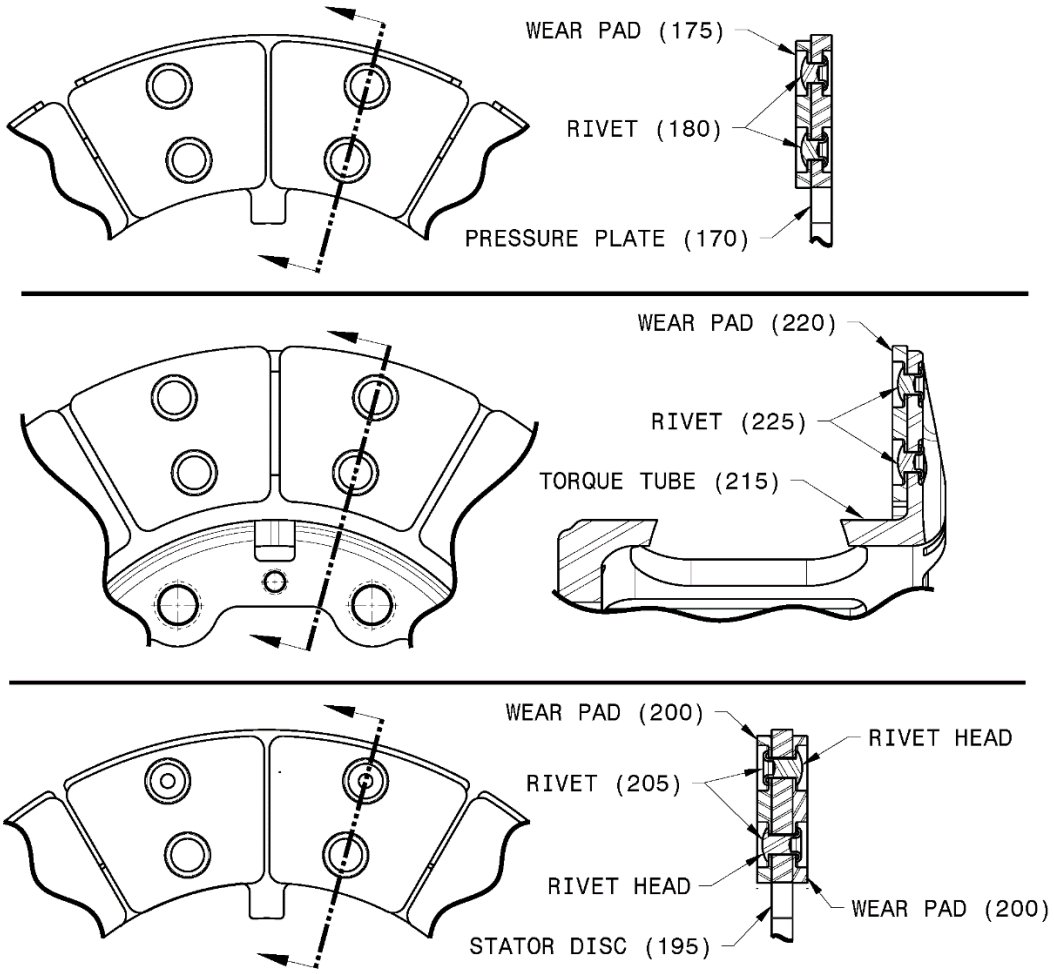


Figure 6004 Install the wear pads (175), (200), (220)

REPAIR

(4) Refer to Figure 6005. All parts assembled by riveting shall fit tightly together, and no perceptible movement shall be allowed between them. In addition:

(a) Parts shall not be distorted by splitting, bulging, buckling, or other characteristics which result from poor assembly procedures.

(b) Splits resulting from the clinching operation are permitted as follows:

1 The split shall not occur inside the crest of the clenched surface.

2 No more than two splits shall occur in a 90 ° area.

3 A total of no more than three splits shall be allowed.

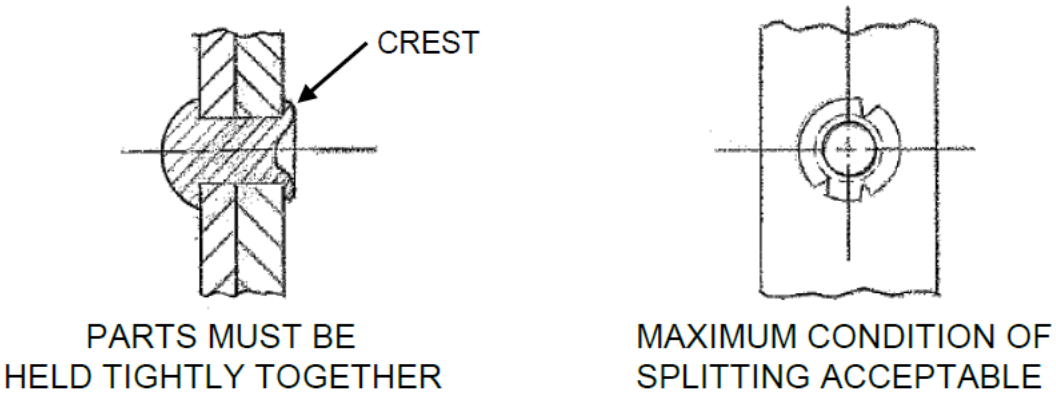


Figure 6005 Installation criteria for the rivets (180), (205), (225)

REPAIR

5. Repair the torque tube (215)

SAFETY WARNING: WEAR THE APPROPRIATE PROTECTIVE CLOTHING AND EYEWEAR BEFORE DOING THE WORK.

A. Torque tube surface damage repair.

The torque tube is made from alloy steel. Repair is limited to the following.

(1) Removing all contaminants such as grease, rust, and scale from the torque tube. Refer to the CLEANING section.

(2) Blending out burrs, sharp edges, small nicks and scratches .005 inch max.

B. Paint the torque tube

(1) For small area paint touchup.

(a) Prepare the area by sanding lightly with 400 to 600 grade or finer, wet or dry aluminum oxide cloth and feather out all edges of the adjacent area.

(b) Clean the area.

(c) Touch up the area with MIL-PRF-26915, Type I.

(2) For complete topcoat application.

NOTE: Performed protective coating was removed from entire part by abrasive media blasting.

(a) Confirm that the torque tube has been cleaned.

(b) Mask the eight threaded holes.

SAFETY WARNING: FOLLOW THE MANUFACTURER'S INSTRUCTIONS FOR USE AND REFER TO THE MATERIAL DATA SAFETY SHEET FOR SAFETY INSTRUCTIONS.

(c) Apply MIL-PRF-26915, Type I. Apply to the entire part except the eight threaded holes. Thickness to be .0015 to .0030 inch.

NOTE: Results can vary and depend on the environment and the equipment used. To achieve the best results, always refer to the manufacturer's instructions for mixing, application and use.

(d) Allow the part to dry for a minimum of thirty minutes before handling.

REPAIR

6. Replace the torque tube inserts (230), (235)

Repair a damaged insert in accordance with the following procedure.

SAFETY WARNING: WEAR THE APPROPRIATE PROTECTIVE CLOTHING AND EYEWEAR BEFORE DOING THE WORK.

Table 6004 Heli-Coil insert tools

IPL ITEM NO.	EXTRACTING TOOL	INSTALLATION TOOL	TANG REMOVAL TOOL
230	1227-6	7552-6	3695-6
235	1227-6	7552-3	3695-3

A. Removal

Refer to Figure 6006 and the following procedure.

(1) Remove damaged inserts by applying the extracting tool to the insert, striking the head of the tool a light blow and turning it counterclockwise, maintaining steady downward pressure.

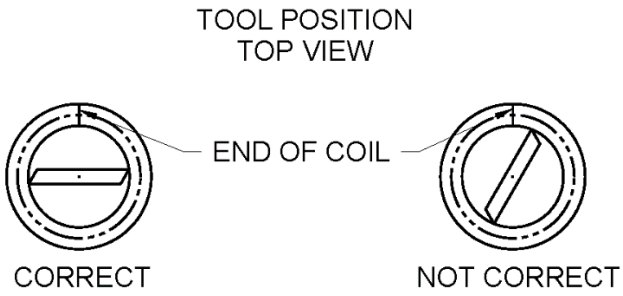


Figure 6006 Use the extracting tool

REPAIR

B. Installation

Refer to Figure 6007 and the following procedure.

(1) Use the installation tool and install the insert into the torque tube as shown. Use the tang removal tool to break off the tang.

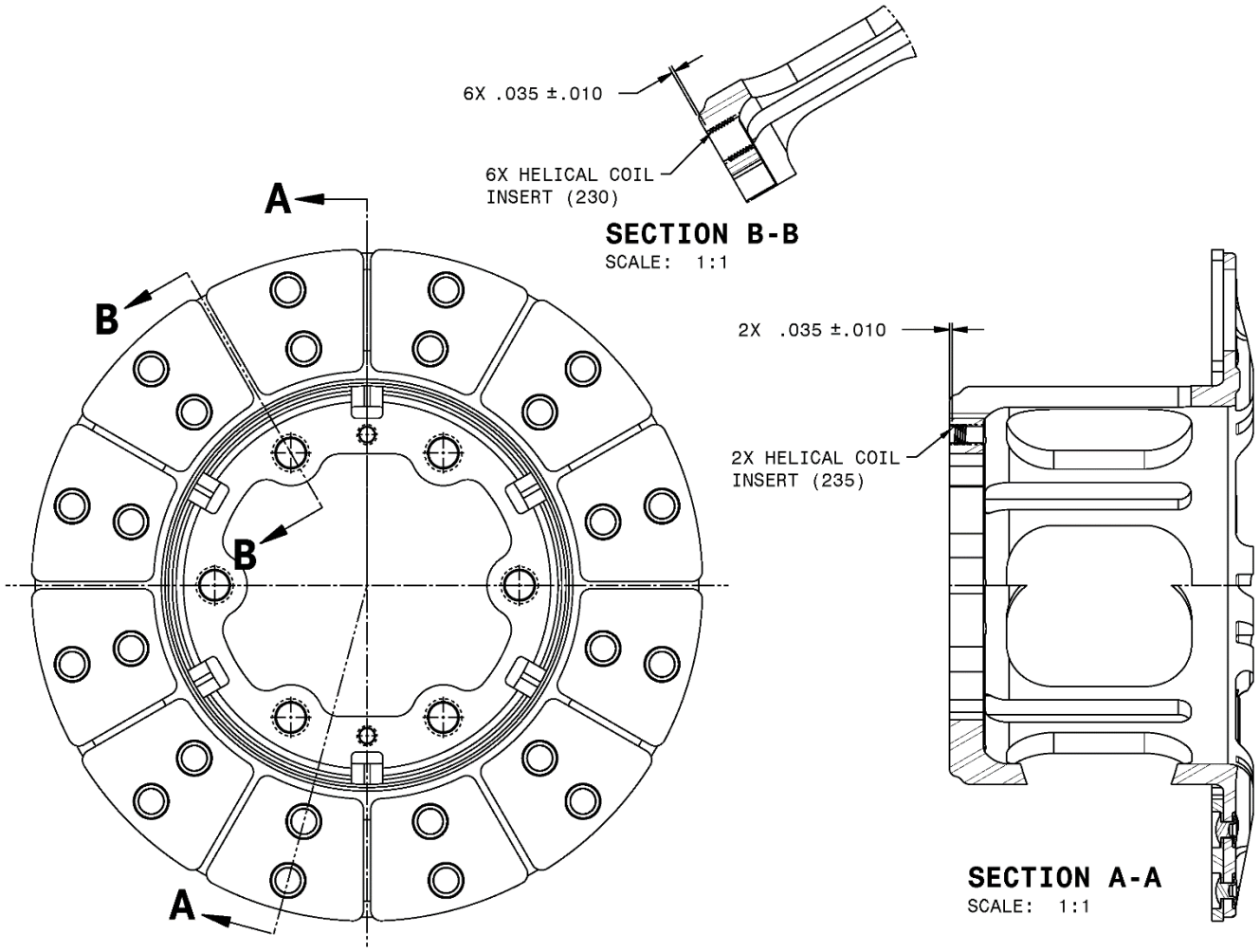


Figure 6007 Install the helical coil inserts (230), (235)

REPAIR

7. Repair the retract base assembly (100)

Repair is limited to replacing the threaded insert (110)

SAFETY WARNING: WEAR THE APPROPRIATE PROTECTIVE CLOTHING AND EYEWEAR BEFORE DOING THE WORK.

A. Threaded insert (110)

Repair a damaged insert in accordance with the following procedure.

Table 6005 Heli-Coil insert tools

EXTRACTING TOOL	INSTALLATION TOOL	TANG REMOVAL TOOL
1227-6	7552-3	3695-3

(1) Removal

Refer to Figure 6008 and the following procedure.

(a) Remove a damaged insert by applying the extracting tool to the insert, striking the head of the tool a light blow and turning it counterclockwise, maintaining steady downward pressure.

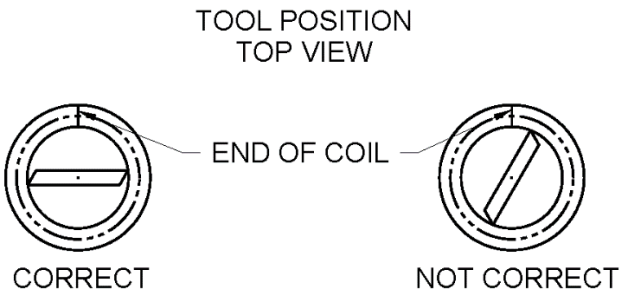


Figure 6008 Use the extracting tool

REPAIR

(2) Installation

Refer to Figure 6009 and the following procedure.

(a) Use the installation tool and install the insert into the retract base as shown. Use the tang removal tool to break off the tang.

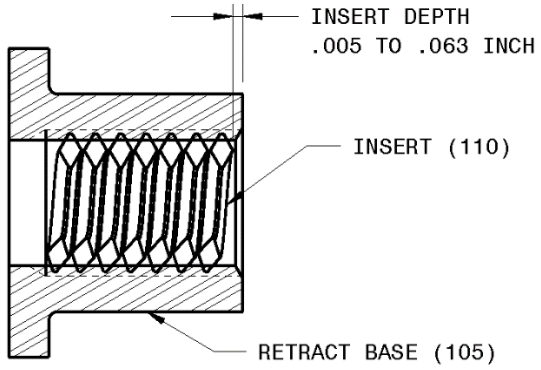


Figure 6009 Install the threaded insert (110)

8. Repair the pressure plate (170)

The pressure plate is made from alloy steel.

SAFETY WARNING: WEAR THE APPROPRIATE PROTECTIVE CLOTHING AND EYEWEAR BEFORE DOING THE WORK.

A. Remove all contaminants such as grease, rust, and scale. Refer to the CLEANING section

B. Steel surface damage repair

(1) Blend out any burrs, sharp edges, small nicks and scratches .005 inch max. deep.

9. Repair the rotating disc (185)

Repair is limited on the rotating disc to the steel core.

SAFETY WARNING: WEAR THE APPROPRIATE PROTECTIVE CLOTHING AND EYEWEAR BEFORE DOING THE WORK.

A. Steel surface damage repair

(1) Blend out any burrs, sharp edges, small nicks and scratches in the steel core only .005 inch max. deep.

REPAIR

10. Repair the shuttle valve assembly (240)

Repair is limited to the manifold body.

SAFETY WARNING: WEAR THE APPROPRIATE PROTECTIVE CLOTHING AND EYEWEAR BEFORE DOING THE WORK.

A. Manifold surface damage repair

The manifold body is made from aluminum alloy.

(1) Polishing and blending out any corrosion, burrs, sharp edges, small nicks and scratches on the outer surfaces up to 0.005 inch maximum. Blend out the tool marks.

B. Clean the shuttle valve assembly. Refer to the CLEANING section.

SAFETY WARNING: FOLLOW THE MANUFACTURER'S INSTRUCTIONS FOR USE AND REFER TO THE MATERIAL DATA SAFETY SHEET FOR SAFETY INSTRUCTIONS.

C. Apply a surface pretreament (Alodine 1200 or equivalent) to repaired areas.

D. Paint the manifold.

SAFETY WARNING: FOLLOW THE MANUFACTURER'S INSTRUCTIONS FOR USE AND REFER TO THE MATERIAL DATA SAFETY SHEET FOR SAFETY INSTRUCTIONS.

(1) For small area paint touchup.

(a) Prepare the area by sanding lightly with 400 to 600 grade or finer, wet or dry aluminum oxide cloth and feather out all edges of the adjacent area.

(b) Clean the area.

(c) Touch up the area with primer and topcoat.

(2) For complete primer and topcoat application.

NOTE: Performed if primer and topcoat was removed from entire part by plastic media blasting.

(a) Confirm that the part has been cleaned and surface treatment applied if repair work was performed.

(b) Mask the manifold. Refer to Figure 6010.

(c) Apply the primer and the topcoat. Refer to Table 6006.

NOTE: Results can vary and depend on the environment and the equipment used. To achieve the best results, always refer to the manufacturer's instructions for mixing, application and use.

REPAIR

Table 6006 Manifold Primer and Topcoat Requirements

MANUFACTURER	PRIMER	TOPCOAT
Deft Chemical Coatings Irvine, CA	P/N 44-GN-36 Components A and B MIL-PRF-85582C Type 1, Class C2	P/N 03-W-127A Components A and B MIL-PRF-85285D Type 1 Color 17925 (Untinted White)
	Primer Thickness [1]: 0.0006-0.0009 inch Drying Time (air dry) [2]: Touch, mask, topcoat: 1 hour minimum Stack: 4 to 6 hours Hard cure: 14 days minimum	Topcoat Thickness [1]: 0.0017-0.0023 inch Drying Time (air dry) [2]: Recoat: 15 minutes minimum Stack: 4 to 8 hours Hard cure: 7 days minimum

[1] The total dry thickness of the primer and topcoat is to be 0.0023 to 0.0032 inch. This excludes the anodic coating thickness.

[2] Refer to the manufacturer's data sheet for the forced dry (heat accelerated cure) schedule.

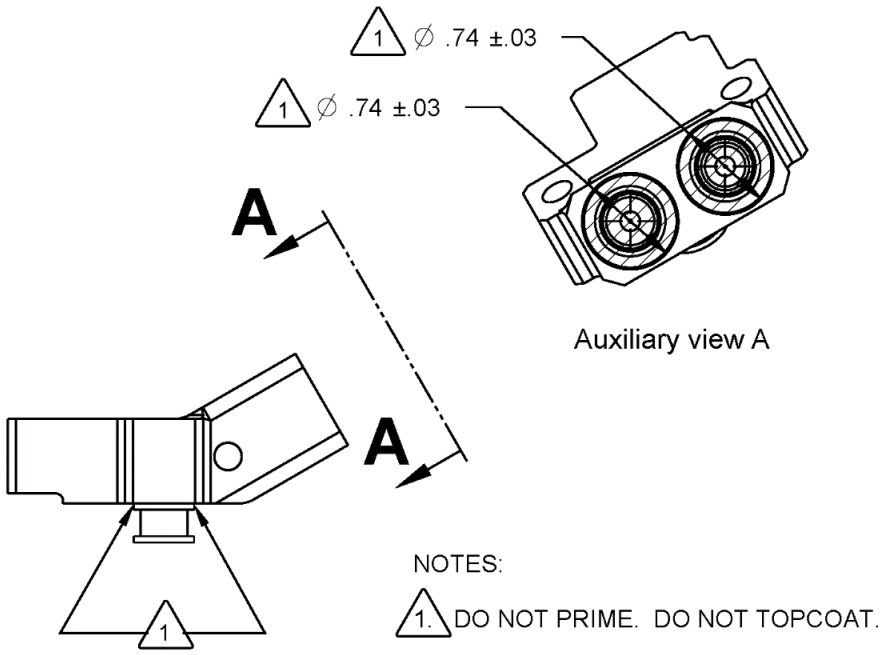


Figure 6010 Mask the shuttle valve manifold

ASSEMBLY

1. General

Refer to IPL Figure 1 for component identification.

NOTE: The term dry torque refers to the torqueing of hardware without the application of anti-seize compound.

A. Equipment and consumables

The term “Commercial Source” lets the repair facility get the product from a supplier of choice.
NOTE: Unless specified differently, equivalent alternatives can be used for the items listed.

Table 7001 Equipment and consumables

NOMENCLATURE	SPECIFICATION / PART NO.	SOURCE
Hydraulic fluid	MIL-PRF-5606 (equivalent alternatives are not allowed)	Commercial
Preformed packing tool set	199-18	Aircraft Wheel and Brake, LLC
Standard tools (inch units)	Wrenches/sockets: • 12-pt, external: for (275) • 6-pt (hex head), external: for (55), (115), (120), (140), (160), (260) • 6-pt 1-7/8 socket (may require modification): for (15) 5/32 inch hex key, internal: for (80) Internal snap ring pliers: for (60) Phillips head screwdriver: for (130) Torque wrench	Commercial
Anti-seize compound	MIL-PRF-83483 (equivalent alternatives are not allowed)	FEL-PRO Chemical Products
Retaining compound	RC 680	Loctite Corp.
Assembly/reset tools for (75)	Figures 9001, 9002, and 9003	Fabrication

ASSEMBLY

2. Reset procedure for the retract subassembly (75)

SAFETY WARNING: WEAR THE APPROPRIATE PROTECTIVE CLOTHING AND EYEWEAR BEFORE DOING THE WORK.

A. During the overhaul procedure, the retract subassembly must be examined for continued service before being reassembled into the brake assembly. Refer to the CHECKS section for examination.

B. Check that the friction sleeve (90) is still flush with the sleeve retainer (85).

(1) If the friction sleeve is not flush with the sleeve retainer, remove the two components using an arbor press and reinstall as follows. Refer to Figure 7001.

(a) Clean any old residue of retaining compound from the friction sleeve and sleeve retainer.

(b) Apply retaining compound (RC 680) to the ID of the sleeve retainer (85). Position the sleeve retainer on the friction sleeve (90). Make sure the split in each part is approximately 180° apart.

(c) Press the friction sleeve (90) into the sleeve retainer (85) so that the two components are flush. A rubber mallet may also be used to strike the friction sleeve and force it into the sleeve retainer. Remove excess retaining compound from mated parts.

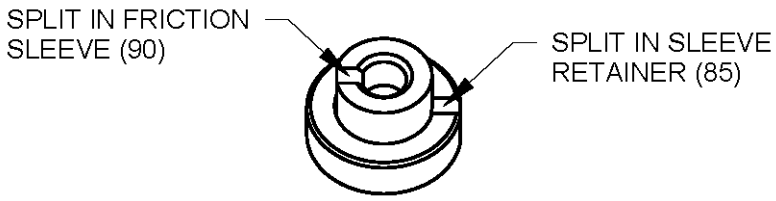


Figure 7001 Installing friction sleeve (90) into sleeve retainer (85)

C. If replacing the retract spacer (95), slide the new spacer onto the retract stud (80).

D. Refer to Figure 7002 to reset the retract subassembly (75) to the dimension shown.

ASSEMBLY

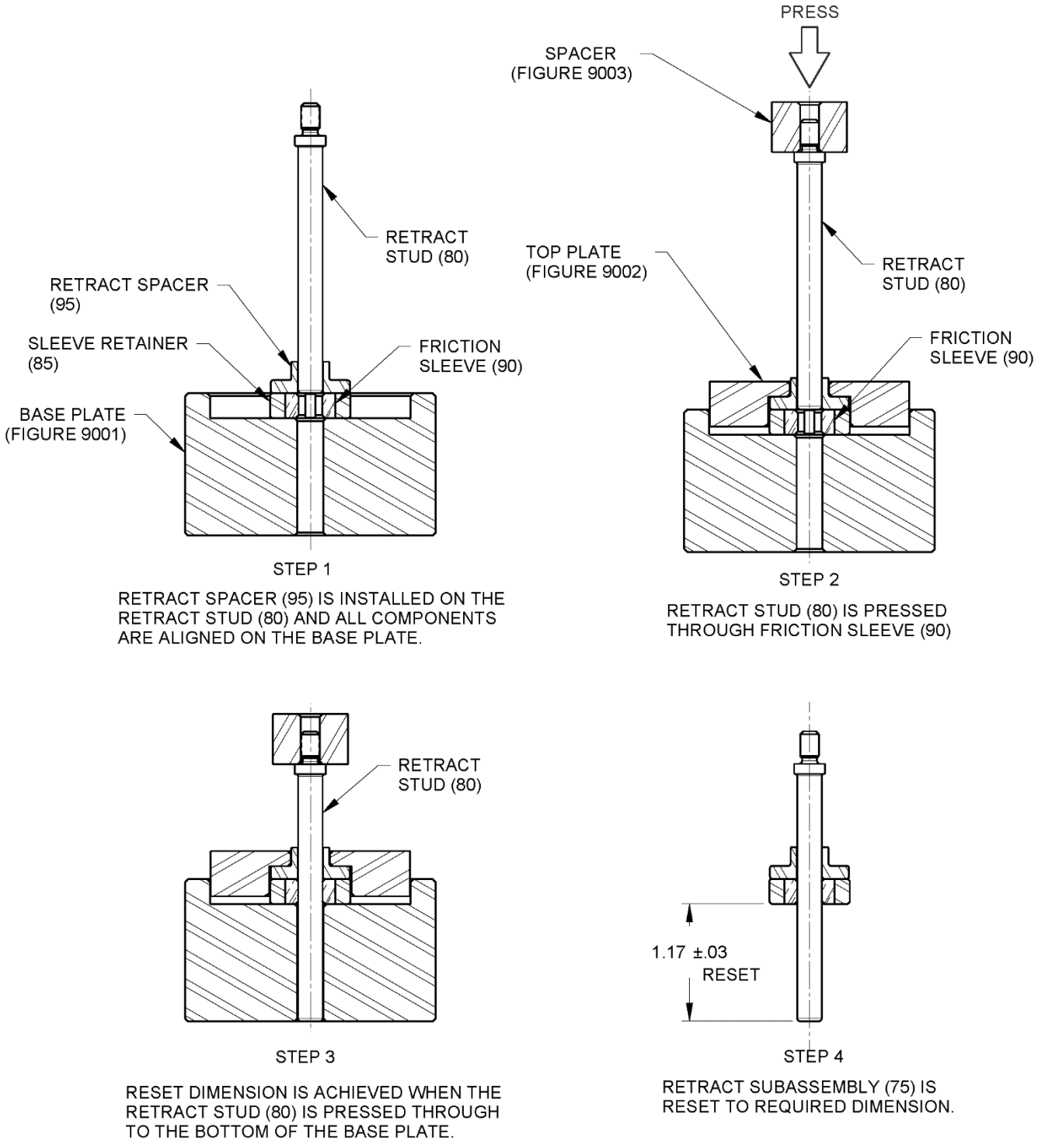


Figure 7002 Retract subassembly (75) reset requirements

ASSEMBLY

3. Install the retract components: spring (70), washer (65), and retaining ring (60)

SAFETY WARNING: WEAR THE APPROPRIATE PROTECTIVE CLOTHING AND EYEWEAR BEFORE DOING THE WORK.

A. Refer to Figure 7003. Place the brake housing subassembly on a clean, flat work surface with the four retract bores facing up.

(1) Install the spring (70) into the bore.

(2) Install the washer (65) on the spring and compress while installing the retaining ring (60).

(3) Repeat for the remaining retract bores.

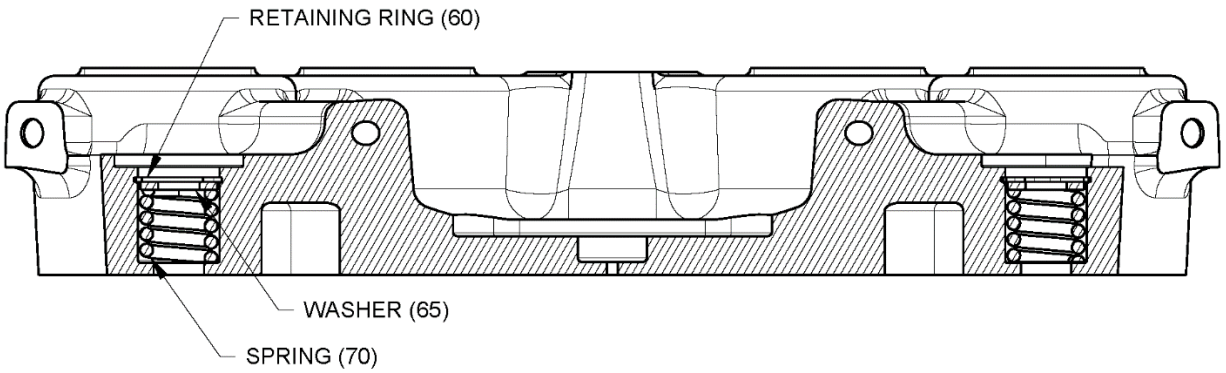


Figure 7003 Install spring (70), washer (65), and retaining ring (60)

4. Sub-assemble the piston (40) and cylinder sleeve (15)

SAFETY WARNING: WEAR THE APPROPRIATE PROTECTIVE CLOTHING AND EYEWEAR BEFORE DOING THE WORK.

A. Refer to Figure 7004.

(1) Lubricate the preformed packings (20), (25) with the hydraulic fluid.

(2) Refer to Figure 7004. Install the backup rings (30), preformed packings (20), (25), and wiper ring (35) on the cylinder sleeve (15) as shown.

(3) Repeat for the remaining cylinder sleeves.

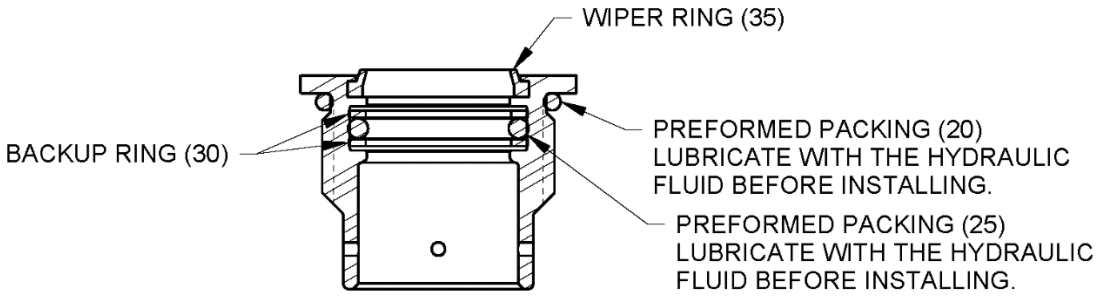


Figure 7004 Install seals (20), (25), (30), (35) on cylinder sleeve (15)

ASSEMBLY

B. Refer to Figure 7005 and insert the piston (40) into the cylinder sleeve (15). Repeat for the remaining pistons.

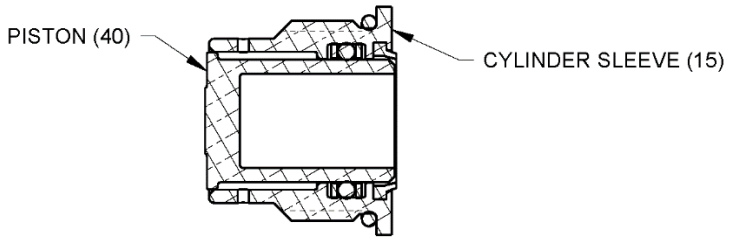


Figure 7005 Insert the piston (40) into the cylinder sleeve (15)

5. Install the piston (40)/cylinder sleeve (15) units

SAFETY WARNING: WEAR THE APPROPRIATE PROTECTIVE CLOTHING AND EYEWEAR BEFORE DOING THE WORK.

A. Refer to Figure 7006 and install the piston/cylinder sleeve units into the brake housing subassembly (5).

(1) Lubricate the six housing bores with hydraulic fluid.

NOTE: Depending on the design of the 6-pt, 1-7/8 socket obtained, it may be necessary to modify the socket by grinding down the head flat to confirm 100% engagement of the cylinder sleeve hex feature.

(2) Thread the six piston/cylinder sleeve units into the housing. Use a 6-pt, 1-7/8 socket and torque each cylinder sleeve to 450 to 500 in-lb dry torque.

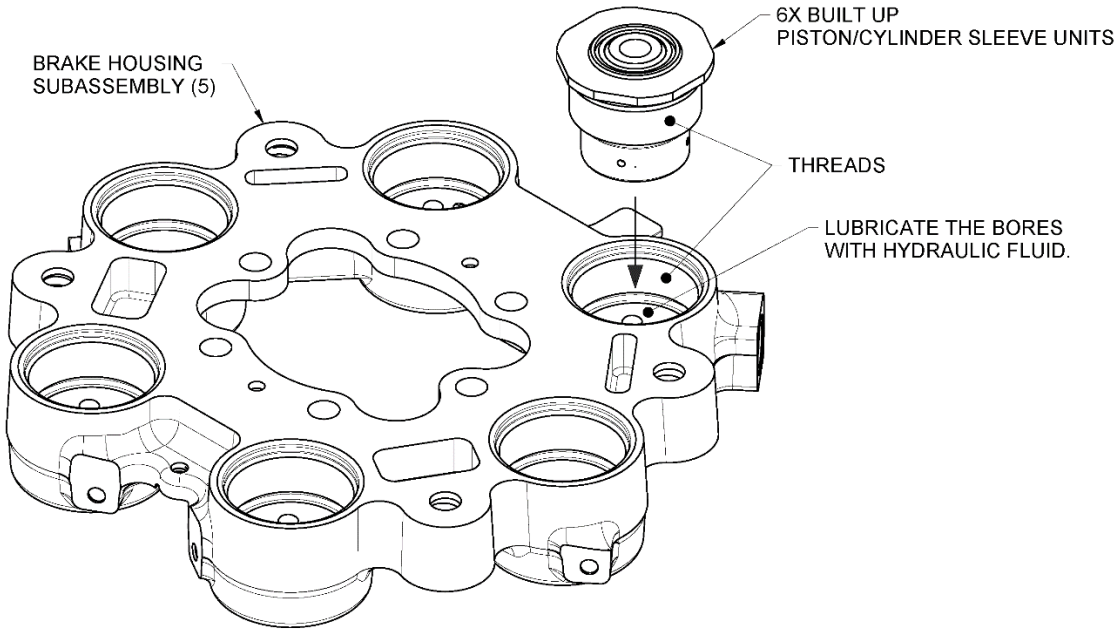


Figure 7006 Install the piston/cylinder sleeve units

ASSEMBLY

6. Install the bleeder components: (115), (120), (125), (130), (135)

SAFETY WARNING: WEAR THE APPROPRIATE PROTECTIVE CLOTHING AND EYEWEAR BEFORE DOING THE WORK.

A. Lubricate the preformed packings (135) with the hydraulic fluid and install a preformed packing on each bleeder seat (115).

B. Install the two bleeder seats (115) in brake housing and torque to 65 to 70 in-lb, dry torque.

C. Install a bleeder valve (120) in each bleeder seat (115). Torque the bleeder valve to 35 to 38 in-lb, dry torque.

CAUTION: DO NOT TIGHTEN THE BLEEDER SCREW (130) TO A VALUE GREATER THAN 12 IN-LB. TORQUE GREATER THAN 12 IN-LB MAY DAMAGE THE SEAT.

D. Install a washer (125) on each bleeder screw (130) and install the bleeder screw into each bleeder valve (120). Tighten the bleeder screw (130) snug to preclude leakage.

7. Install the shuttle valve assembly (240)

SAFETY WARNING: WEAR THE APPROPRIATE PROTECTIVE CLOTHING AND EYEWEAR BEFORE DOING THE WORK.

A. Lubricate the preformed packing (250) with the hydraulic fluid.

B. Refer to Figure 7007. Install the two backup rings (255) and preformed packing (250) on the shuttle valve manifold.

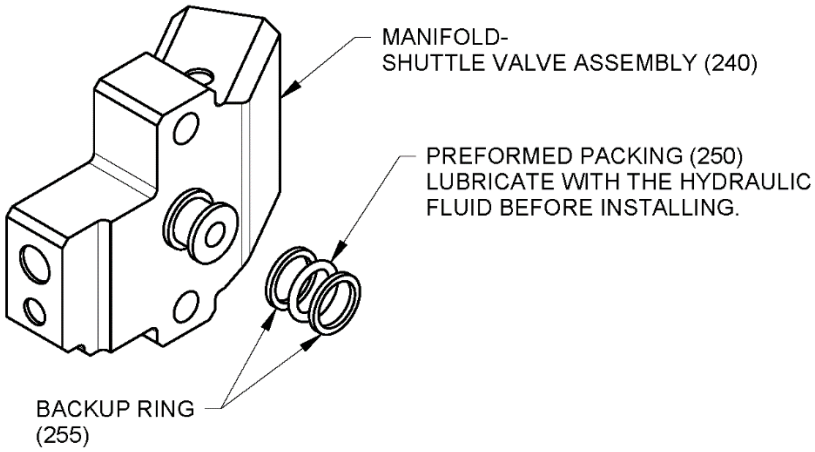


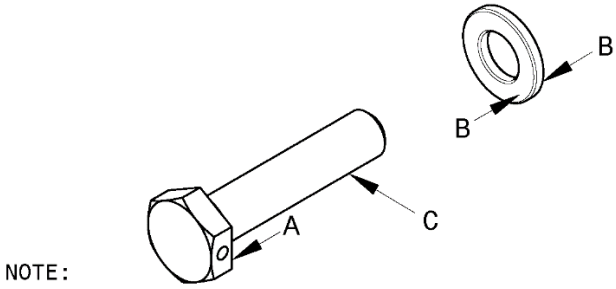
Figure 7007 Install shuttle valve seals (250), (255)

ASSEMBLY

C. Refer to Figure 7008. Prior to installing, lubricate the bolts and washers with anti-seize compound, per MIL-PRF-83483.

D. Install a washer (155) on each bolt (160).

E. Install the shuttle valve assembly on the brake housing subassembly and secure with the bolts and washers. Torque the bolts 40 to 50 in-lb.



NOTE:

1. APPLY ANTIZEIZE COMPOUND TO THE FOLLOWING AREAS:
   A. CONTACT SURFACE UNDER THE BOLT HEAD
   B. BOTH FACES OF THE WASHER
   C. THREADS ON THE BOLT SHANK

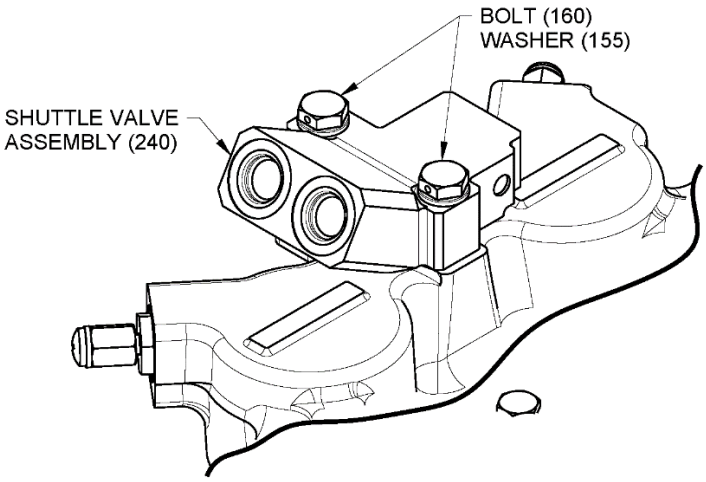


Figure 7008 Installing the shuttle valve assembly (240)

ASSEMBLY

8. Install the piston insulators (45), wear pin (145) and spring (150)

Refer to Figure 7009.

SAFETY WARNING: WEAR THE APPROPRIATE PROTECTIVE CLOTHING AND EYEWEAR BEFORE DOING THE WORK.

A. Insert a piston insulator (45) in each piston (40).

B. Slide the spring (150) over the wear pin (145) and insert wear pin in the brake housing subassembly (5).

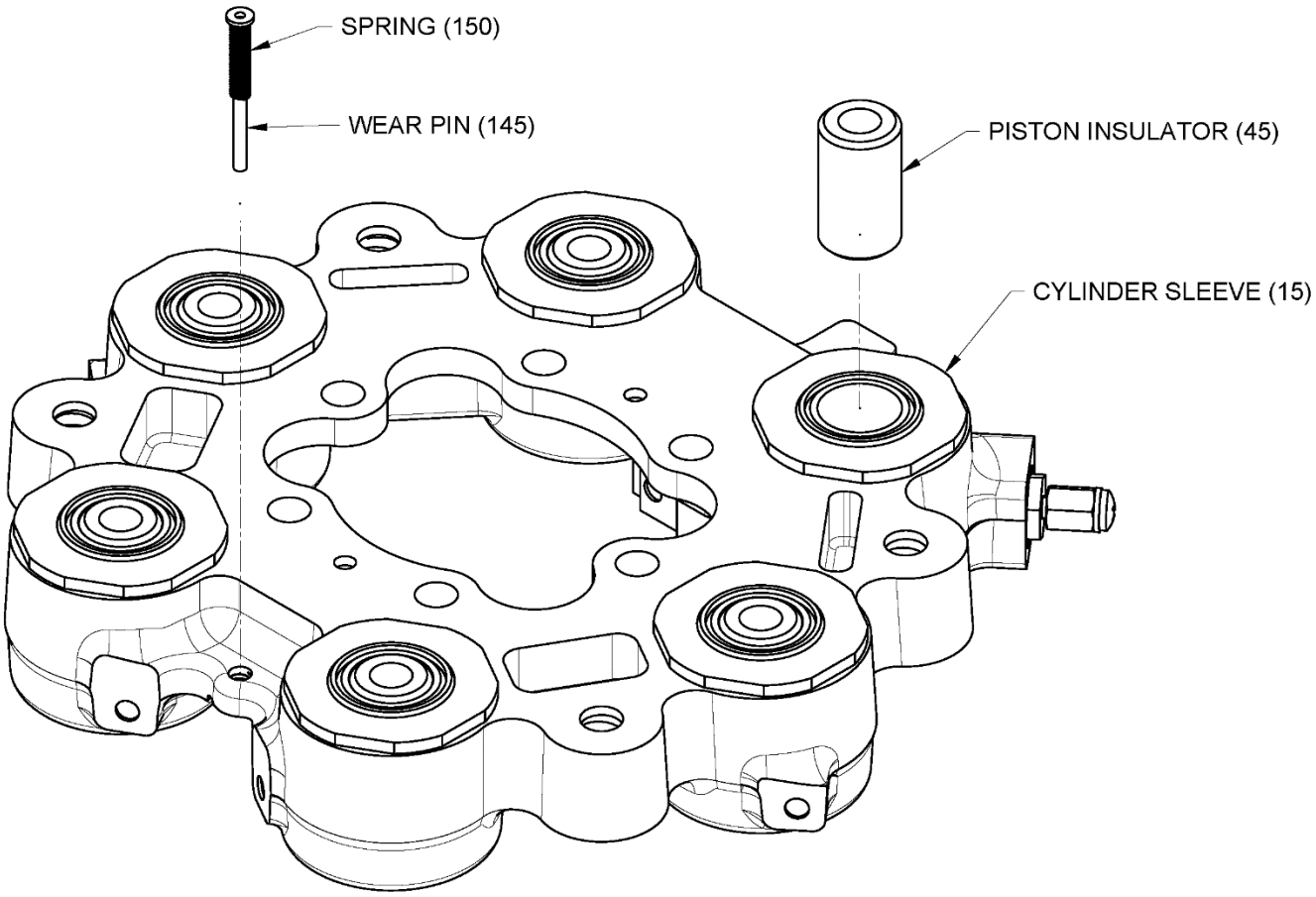


Figure 7009 Install the piston insulators (45), wear pin (145), and spring (150)

ASSEMBLY

9. Assemble the stack

SAFETY WARNING: WEAR THE APPROPRIATE PROTECTIVE CLOTHING AND EYEWEAR BEFORE DOING THE WORK.

A. Refer to Figure 7010.

(1) Position the torque tube assembly (210) with the wear pads (220) facing up.

(2) Stack in place the following components on the torque tube assembly:

- first, a rotor disc (185)
- second, a stator disc assembly (190). The drive tangs of the stator disc will engage the drive slots on the torque tube.
- third, a rotor disc (185)
- fourth, a stator disc assembly (190). The drive tangs of the stator disc will engage the drive slots on the torque tube.
- Fifth, a rotor disc (185).

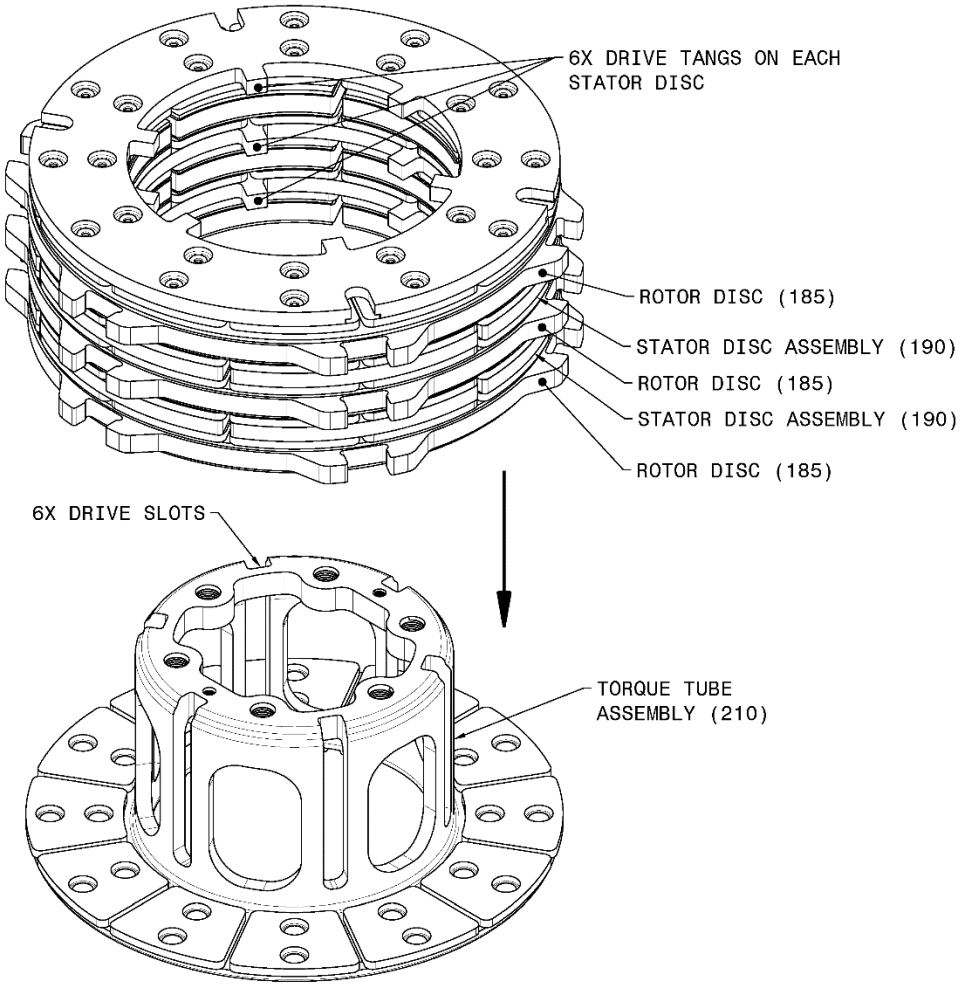


Figure 7010 Assemble the stack

ASSEMBLY

10. Assemble the pressure plate assembly (165), retract base assemblies (100), wear pin retainer (140), and retract subassemblies (75)

SAFETY WARNING: WEAR THE APPROPRIATE PROTECTIVE CLOTHING AND EYEWEAR BEFORE DOING THE WORK.

A. Put the pressure plate assembly (165) (with wear pads facing away) on the brake housing subassembly (5).

B. Take hold of both and turn over and put on the torque tube stack.

C. Refer to Figure 7011.

(1) Slide wear pin retainer (140) over the wear pin (145) and thread into the brake housing subassembly (5). Do not thread the wear pin retainer all the way. Final adjustment will be done after testing of the brake assembly.

(2) Slide the retract base assemblies (100) into the pockets of the pressure plate.

(3) Lubricate the threads of the retract studs with anti-seize compound per MIL-PRF-83483.

(4) Insert the retract subassemblies (75) in the brake housing retract bores.

(5) Thread each retract stud into each retract base assembly. Torque the retract stud to 30 to 40 in-lb.

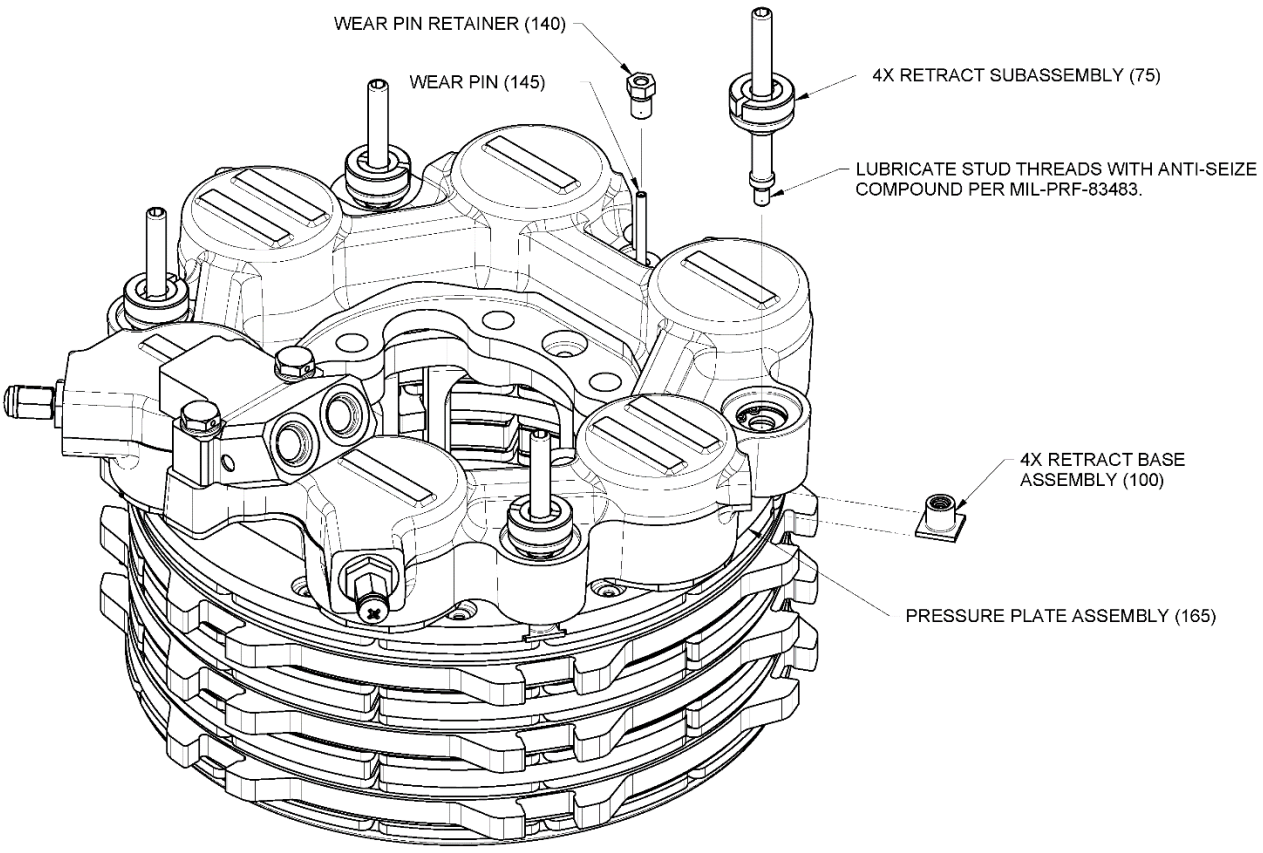


Figure 7011 Install the retract and wear indicator components

ASSEMBLY

11. Install the bolts (55) and washers (50)

SAFETY WARNING: WEAR THE APPROPRIATE PROTECTIVE CLOTHING AND EYEWEAR BEFORE DOING THE WORK.

CAUTION: WASHER (50) IS INSTALLED WITH THE COUNTERSINK FACING THE BOLT HEAD.

B. Install each bolt (55) and washer (50) through the two holes in the brake housing and thread into the two mating holes of the torque tube assembly (210). Torque the bolts to 25 to 35 in-lb, dry torque.

12. Install the fittings (260)

A. Lubricate the preformed packings (265) with the hydraulic fluid.

B. Install a preformed packing on each fitting (260).

C. Install the fittings (260) into the shuttle valve assembly (240) and torque the fittings to 65 to 70 in-lb, dry torque.

13. Test the brake assembly

A. Test the brake and perform the wear pin (145) adjustment in accordance with the TESTING AND FAULT ISOLATION section.

B. Apply any required nameplates.

14. Return to service

SAFETY WARNING: WEAR THE APPROPRIATE PROTECTIVE CLOTHING AND EYEWEAR BEFORE DOING THE WORK.

SAFETY WARNING: FOLLOW THE AIRFRAME MANUFACTURER'S INSTRUCTIONS AND SAFETY WARNINGS WHEN WORKING WITH AND AROUND THE AIRCRAFT.

CAUTION: USE ONLY THE ANTI-SEIZE COMPOUND LISTED IN TABLE 7001. THE USE OF ANOTHER COMPOUND WILL RESULT IN IMPROPER FASTENER TENSION AND COULD LEAD TO FAILURE OF THE FASTENERS AND SUBSEQUENT FAILURE OF THE BRAKE.

A. Prior to installing, lubricate the bolts and washers with anti-seize compound, per MIL-PRF-83483.

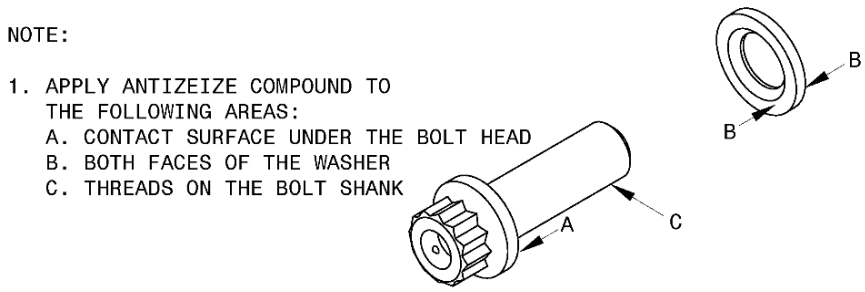


Figure 7012 Apply anti-seize compound to bolts (275) and washers (280)

CAUTION: WASHER (280) IS INSTALLED WITH THE COUNTERSINK FACING THE BOLT HEAD.

A. Install the brake assembly on the aircraft with the six bolts (275) and washers (280). Torque the bolts to 335 to 345 in-lb.

B. Reconnect the aircraft system hydraulic lines to the brake assembly.

FITS AND CLEARANCES

1. General

Refer to IPL Figure 1 for component identification.

A. Assembly wear limits

Table 8001 In-service wear limits

PART NAME (IPL item number)	FIGURE/ DIMENSION	WORN AREA DESCRIPTION	WORN LIMIT
Brake housing subassembly (5)	N/A N/A	Piston bore diameter Shuttle valve port diameter	Ø 1.470 inch max. Ø 0.486 inch max.
Piston (40)	N/A	Outside diameter	Ø 0.996 inch min.
Insulator (45)	N/A	Height	1.295 inch minimum
Torque tube assembly (210)	5002/A 5002/B 5002/C 5002	Slot width Wear pad thickness Wear pad thickness (overall) Wear pad: Allowable edge wear	0.390 inch maximum 0.100 inch minimum 0.250 inch minimum 0.250 inch
Rotor disc (185)	5003/A 5003/B 5003/C	Slot width Lining material thickness (per side) Lining material thickness (overall measurement)	0.687 inch maximum 0.007 inch minimum 0.336 inch minimum
Stator disc assembly (190)	5004/A 5004/B 5004/C 5004	Tang width Wear pad thickness Wear pad thickness (overall measurement) Wear pad: Allowable edge wear	0.325 inch minimum 0.100 inch minimum 0.460 inch minimum 0.250 inch
Pressure plate assembly (165)	5005/A 5005/B 5005/C 5005	Tang width Wear pad thickness Wear pad thickness (overall measurement) Wear pad: Allowable edge wear	0.325 inch maximum 0.100 inch minimum 0.360 inch minimum 0.250 inch

FITS AND CLEARANCES

B. Assembly torque values

NOTE: The term dry torque refers to the torqueing of hardware without the application of anti-seize.

Table 8002 Assembly torque values

PART NAME (IPL item no.)	TORQUE LIMITS
Bolt (55)	25 to 35 in-lb, dry torque
Retract subassembly (75)	30 to 40 in-lb Apply anti-seize compound to threads of item (80). Refer to ASSEMBLY.
Bleeder seat (115)	65 to 70 in-lb, dry torque
Bleeder valve (120)	35 to 38 in-lb, dry torque
Bleeder screw (130)	Tighten snug to preclude leakage **CAUTION:** DO NOT EXCEED 12 IN-LB. TORQUE GREATER THAN 12 IN-LB MAY DAMAGE THE SEAT.
Piston sleeve (15)	450 to 500 in-lb, dry torque
Bolt (160)	40 to 50 in-lb Apply anti-seize compound to items (155), (160). Refer to ASSEMBLY
Fitting (260)	65 to 70 in-lb, dry torque
Bolt (275)	335 to 345 in-lb Apply anti-seize compound to items (275), (280). Refer to ASSEMBLY

SPECIAL EQUIPMENT AND CONSUMABLES

1. General

This section contains source of supply information for all applicable sections of this manual.

A. Source of supply

NOTE: Unless specified differently, equivalent alternatives can be used for the items listed.

Table 9001 List of manufacturers

NOMENCLATURE	SPECIFICATION / PART NO.	SOURCE
Preformed packing tool set	199-18	Aircraft Wheel and Brake, LLC Avon, OH 44011 U.S.A. www.kaman.com/cleveland
Blast stripping equipment	• Plastic blast media: MIL-P-85891, Type II or V, Grade 20/30, 3.5 MOH max. • Abrasive blast media: 80 Grit aluminum oxide	U.S. Technology Corp. www.ustechnology.com
Riveting equipment for (180), (205), (225) Jaws Driver Rollset Note: Suitable standard equipment can also be used as additional source for riveting equipment.	Model 305 riveter 63-J-1566-A 563-DS-44 824-1K-7 Contact Source for tooling requirements.	Orbitform Fastening Systems Jackson, MI 49203 U.S.A. Alternative riveter: National Rivet & Mfg. Co. Waupun, WI 53963 U.S.A.
Threaded insert tools for (10), (110), (230), (235) Extraction tool Installation tool Tang removal tool	MIL-T-21209 for (110), (235): for (10): for (230): 1227-6 1227-6 1227-6 7552-3 7552-4 7552-6 3695-3 3695-4 3692-6	Emhart Fastening Teknologies Shelton, CT 06484 U.S.A.
Protective coatings for (5)	Refer to Table 6002	Deft Chemical Coatings Irvine, CA 92714 U.S.A.
Protective coating for (215)	ZRC Galvilite, P/N 11011-10014 MIL-PRF-26915, Type I	ZRC Products Company Marshfield, MA 02050 U.S.A.
Anti-seize compound	MIL-PRF-83483 (equivalent alternatives are not allowed)	FEL-PRO Chemical Products Skokie, IL 60076 U.S.A.
Retaining compound	RC 680	Loctite Corp. www.loctite.com
Special tools Assembly/reset tools for (75)	Figures 9001, 9002, 9003	Fabrication

SPECIAL EQUIPMENT AND CONSUMABLES

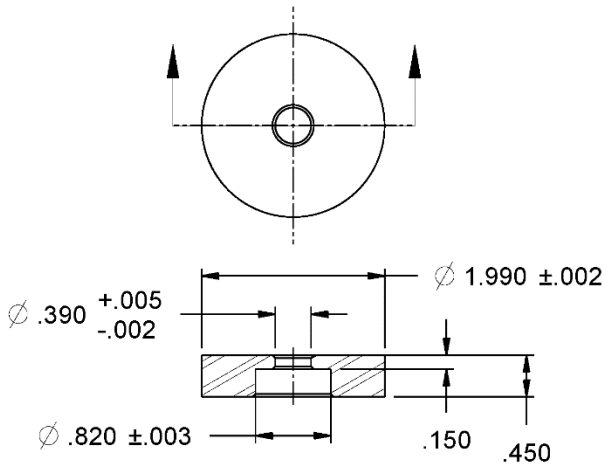


FIGURE 9002 TOP PLATE

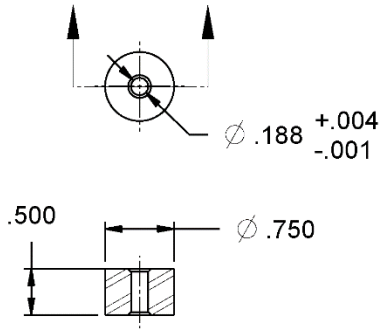


FIGURE 9003 SPACER

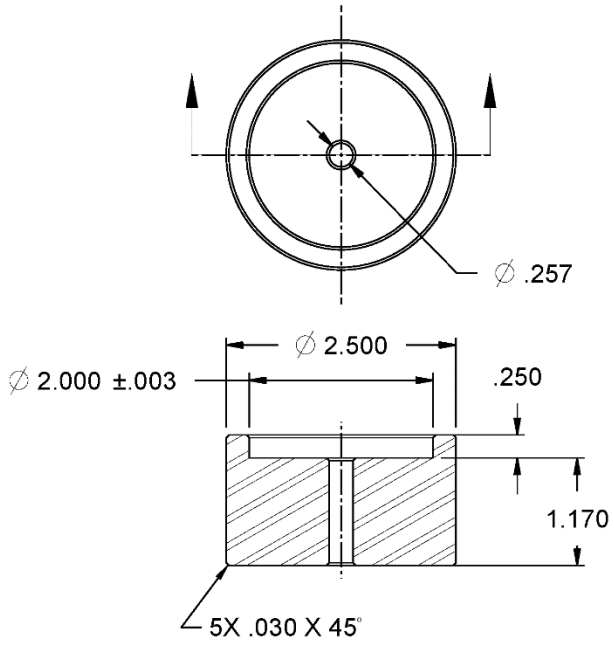


FIGURE 9001 BASE PLATE

NOTES: FOR FIGURES 9001 THRU 9003

1. MATERIAL: 4130 STEEL OR EQUIVALENT. HEAT TREAT TO 40-50 R.C.
2. TOLERANCES UNLESS OTHERWISE SPECIFIED:
   .XXX ±.005 INCH
   .XX ±.030 INCH
3. REMOVE ALL BURRS AND BREAK ALL UNSPECIFIED CORNERS.
4. DIMENSIONS IN INCH UNITS.

Figures 9001, 9002, 9003 Retract subassembly (75) tools

ILLUSTRATED PARTS LIST

1. General

All parts are listed, except parts which lose their identities by being permanently fastened to other parts of assemblies and cannot be disassembled.

A. Explanation of columns

(1) Fig: Refers to the applicable illustrated parts figure. A hyphen "-" is used to indicate that the item is not illustrated.

(2) Item: Refers to the applicable item in the illustrated parts list figure.

(3) Units per assembly: Number of units required for the next higher assembly.

AR..... As Required (for bulk items) REF..... Reference
NP..... Item is Not Procurable

(4) CAGE: Commercial and Government Entity code of part supplier.

(5) Part No.: Part number of the item.

(6) Description: This column identifies the parts being listed by noun name followed by modifiers when applicable. An indenture system using dots are used to show the relationship of the parts to the assembly.

Assembly
- Subassembly or Item
- • Item

(7) Usable on code: This code is used to identify more than one configuration of the basic part number. Effectivity codes only apply to the figure in which they are used.

B. Part numbering system

Unless specified differently by contract, the assigned Aircraft Wheel and Brake, LLC part number will be used in the part number column for all purchased and government standard off-the-shelf parts (such as MS, AN, NAS, etc.).

C. Parts replacement data

The interchangeability relationship between parts is identified in the Nomenclature column of the parts list. A list of the terms used to show interchangeability and their definition is as follows:

Term	Abbreviation	Definition
Optional	OPT	This part is optional to and interchangeable with other parts in the same item number variant group or other item number if designated.
Superseded by	SUPSD BY	The part is replaced by and is not interchangeable with the item listed.
Supersedes	SUPSDS	The part replaces and is not interchangeable with the item listed.
Replaced by	REPLD BY	The part is replaced by and interchangeable with the item listed.
Replaces	REPLS	The part replaces and is interchangeable with the item listed.

D. Alpha variant item numbers

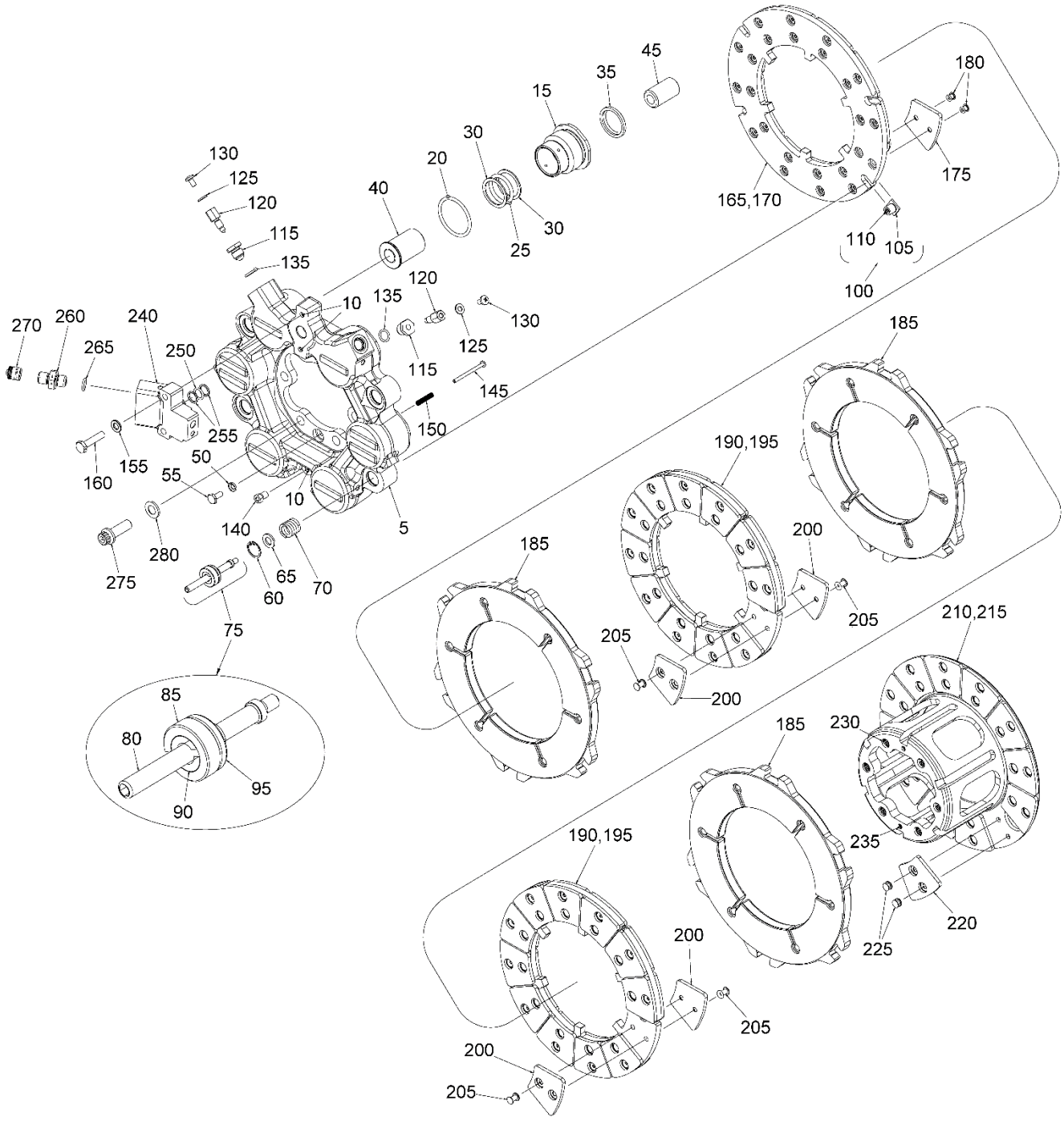
Alpha variants A through Z (except I and O) are assigned to existing numbers when necessary to show:

(1) Added items

(2) Modification or configuration differences

(3) Optional parts

ILLUSTRATED PARTS LIST



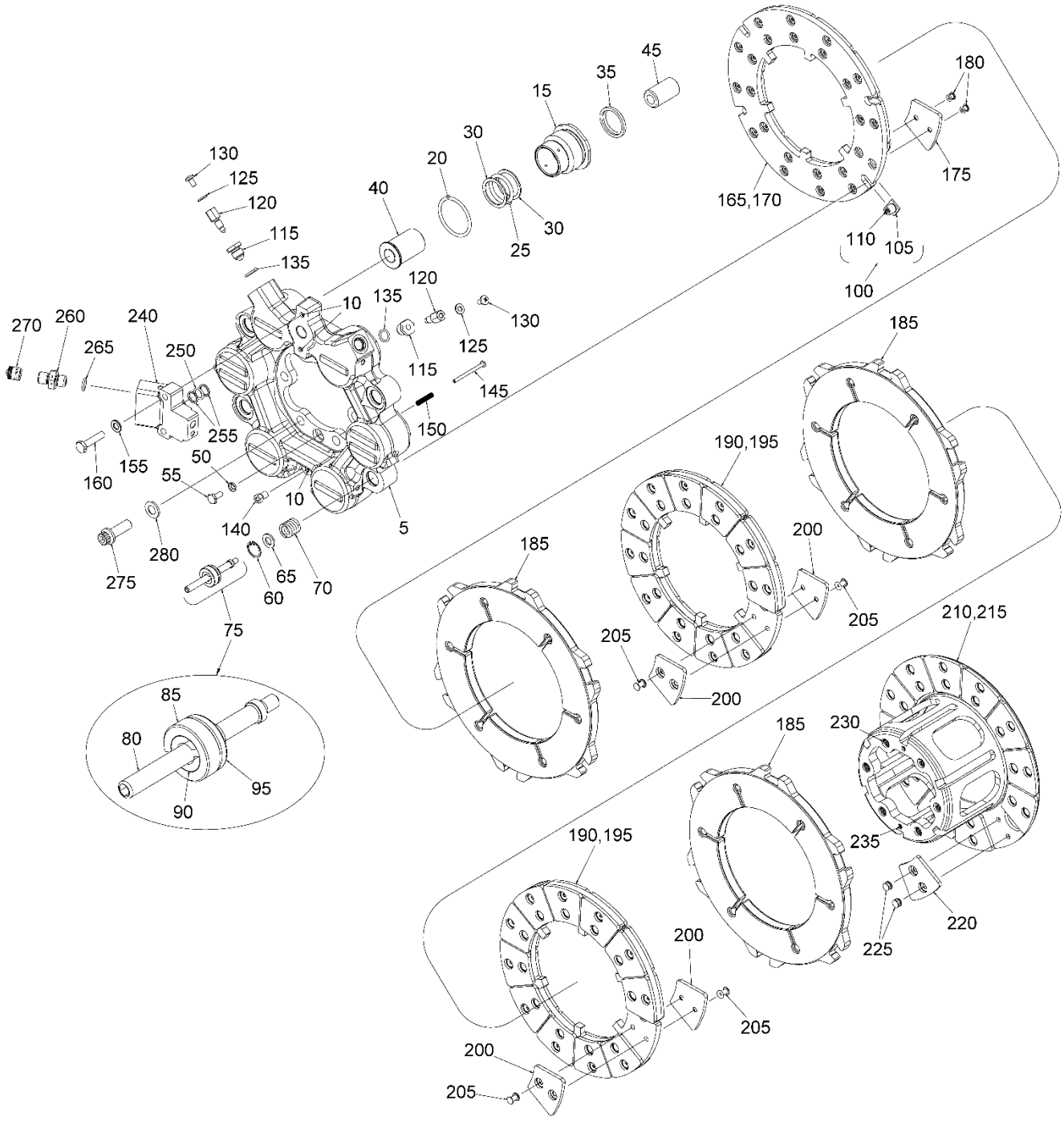
IPL Figure 1 Main brake assembly, exploded view

ILLUSTRATED PARTS LIST

2. Detailed parts list (sheet 1 of 2)

Fig	Item	Units per assembly	CAGE	Part No.	Description
1	1	REF	33269	30-289	Brake assembly, main
	5	1		091-25400	• Subassembly, housing, brake
	10	3		230-07300	• • Helicoil insert (MS21209F4-10L)
	15	6		098-03100	• Sleeve, cylinder
	20	6		101-43600	• Packing, preformed
	25	6		101-10600	• Packing, preformed (MS28775-214)
	30	12		100-15400	• Ring, backup (MS28774-214)
	35	6		107-05400	• Ring, wiper
	40	6		062-14400	• Piston
	45	6		088-06700	• Insulator, piston
	50	2		095-72900	• Washer, countersunk (MS21299-C3)
	55	2		103-41000	• Bolt (AN3CH3)
	60	4		155-07800	• Ring, retaining
	65	4		095-13600	• Washer (MS20002-5)
	70	4		082-22500	• Spring
	75	4		111-16300	• Subassembly, retract
	80	1		139-40900	• • Retract stud
	85	1		139-11900	• • Sleeve retainer
	90	1		139-12000	• • Friction sleeve
	95	1		067-18900	• • Spacer, retract
	100	4		111-11400	• Assembly, retract base
	105	1		139-33800	• • Retract base
	110	1		230-05500	• • Insert (MS21209F1-15L)
	115	2		081-00200	• Seat, bleeder
	120	2		079-00900	• Valve, bleeder
	125	2		095-01100	• Washer
	130	2		102-32700	• Screw, bleeder (MS51958-60)
	135	2		101-00700	• Packing, preformed (MS28775-012)

ILLUSTRATED PARTS LIST



IPL Figure 1 Main brake assembly, exploded view

ILLUSTRATED PARTS LIST

2. Detailed parts list (sheet 2 of 2)

Fig	Item	Units per assembly	CAGE	Part no.	Description
1					
	140	1		202-00700	• Retainer, wear pin
	145	1		177-10000	• Pin, wear
	150	1		082-24100	• Spring
	155	2		095-10400	• Washer (AN960-416)
	160	2		103-40900	• Bolt (AN4H11A)
	165	1		073-12600	• Assembly, plate, pressure
	170	1		063-10800	• • Plate, pressure
	175	12		109-04900	• • Pad, wear
	180	24		105-14200	• • Rivet (MS16535-431)
	185	3		159-12200	• Disc, rotor
	190	2		242-02400	• Assembly, disc, stator
	195	1		232-04900	• • Disc, stator
	200	24		109-04900	• • Pad, wear
	205	24		105-14100	• • Rivet (MS16535-499)
	210	1		075-24700	• Assembly, tube, torque
	215	1		065-22800	• • Tube, torque
	220	12		109-04900	• • Pad, wear
	225	24		105-08701	• • Rivet (MS16535-496)
	230	6		230-07400	• • Helical coil insert (MS21209F6-10L)
	235	2		230-05800	• • Helical coil insert (MS21209F1-10)
	240	1		111-15500	• Assembly, shuttle valve
–	245	1		166-33900	• • Nameplate
	250	1		101-00700	• Packing, preformed (MS28775-012)
	255	2		100-10150	• Ring, backup (MS28774-012)
	260	2		104-12400	• Fitting (AS931J04L)
	265	2		101-39800	• Packing, preformed (M83461/2-904)
	270	2		215-03700	• Cap, shipping
	275	6		103-41100	• Bolt (MS21250-06008)
	280	6		095-03100	• Washer, countersunk (MS20002C6)

STORAGE

1. General

Refer to IPL Figure 1 for component identification.

Brake assemblies which will not be immediately installed on the aircraft must be properly stored. Acceptable storage conditions are listed below.

A. Equipment and consumables

NOTE: Unless specified differently, equivalent alternatives can be used for the items listed.

Table 15001 Equipment and consumables

NOMENCLATURE	SPECIFICATION / PART NO.	SOURCE
Rust foil 2675	VV-L-800	Fuchs Lubricants Company

2. Procedures

CAUTION: BRAKES STORED IN CARDBOARD BOXES, WHICH HAVE BECOME WET OR HAVE BEEN EXPOSED TO HIGH HUMIDITY, CAN BECOME CORRODED.

A. Cap all fittings.

B. Storage life is governed by the elastomer components. The storage life may be shortened by exposure to sunlight, extreme temperatures, humidity, ozone, contamination of fluids, severe operating conditions, etc.

C. Prepare the pressure plate assembly (165), stator disc assemblies (190), and rotor discs (185) as follows if they need to be stored for an unknown period of time:

(1) Lubricate the entire part with a rust inhibitor that conforms to specification VV-L-800.

(2) Wrap the part in a moisture barrier material.

D. Normal storage environmental temperatures of 50°F to 77°F are desired. If this temperature range cannot be maintained, temperatures as high as 125°F and as low as -20°F can be tolerated for shorter periods. Total time above 100°F shall not exceed three months.