

SERVICING AND MAINTENANCE INSTRUCTIONS

Illustrated Parts Breakdown

for the

35-8002-3 Main Wheel Assembly

95-32926 Nose Wheel Assembly

35-8002-25 Brake Assembly (Multi-Disc)

(Supersedes 35-8002-5 Brake Assembly — all parts are interchangeable)

Beechcraft®

Bonanza V35

Debonair C33

Debonair C33A

Travel Air D95A

Beech Aircraft Corporation

Wichita, Kansas 67201

U. S. A.

P/N 98-33281 B

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SPECIFICATIONS
TIRES, WHEELS AND BRAKES

TIRES (Tube Type)

Aircraft	Main Wheel		Nose Wheel	
	Size	Ply Rating	Size	Ply Rating
Bonanza V35	7.00-6	6	5.00-5	4
Debonair C33	6.00-6	6	5.00-5	4
Debonair C33A	6.00-6	6	5.00-5	4
Travelair D95A	7.00-6	6	5.00-5	6

WHEELS

Main Wheel - Beechcraft Assembly Number 35-8002-3
Main Wheel Bolt Nut Torque - 83 pound inches.

Nose Wheel - Assembly Number 9532926
Nose Wheel Bolt Nut Torque - 83 pound inches.

Wheel Bearing and Axle
Nut Adjustment - According to aircraft manufacturers
recommendations.

Lubrication - 1. Wash, then lubricate bearing cones and cups
with Specification MIL-G-3545 grease or
equivalent.
2. Lubricate lips of bearing seals with clean
grease Specification MIL-G-3545 or equivalent.

BRAKES

Beechcraft Assembly Number 35-8002-25
Brake Housing Bolt Nut Torque - 72 pound inches

Brake Wear: To check the brake wear on the aircraft, proceed
as follows:

1. Park the brakes.
2. Measure the distance from the flat surface of
the brake housing near the piston to the back
of the pressure plate.
3. When this distance measures 0.350 inch or
greater remove the brake assembly for overhaul.

SECTION I
INTRODUCTION

1-1 GENERAL

1-2 This manual gives instructions for the maintenance of tires, wheels and brakes used on the Beechcraft, Bonanza V35, Debonair C33, Debonair C33A and Travelair D95A airplanes listed on the cover.

1-3 TIRES - General Description.

1-4 These Beechcraft airplanes are equipped with tube type tires.

1-5 WHEELS - General Description.

1-6 The nose and main landing wheels are made of magnesium alloy and are of the divided type. The two wheel halves are held together by bolts secured by washers and self-locking nuts. Each wheel has two tapered roller bearings which are seated in hardened cups at the end of the wheels. The main wheel bearings are sealed against loss of bearing grease or entrance of foreign material by special bearing seals that fit on the aircraft axle and have rubber lips that rub against the end of the bearing cups. The nose wheel uses Tyseal bearing cones that contain rubber seals which contact the bearing cups.

1-7 The brake side of the main wheels are equipped with hardened steel keyway liners which furnish contact surfaces to drive the rotating discs.

1-8 BRAKES

1-9 These aircraft are equipped with hydraulically operated Tri-Metallic Disc Brakes. The bleeder valve adapter can be used in either inlet port, and the torque flange is reversible which permits the brake assembly to be used for right or left hand installation.

SECTION II

TIRES

CAUTION: TO PREVENT POSSIBLE INJURY TO PERSONNEL OR EQUIPMENT, TIRES SHOULD BE DEFLATED BY REMOVING THE VALVE CORE BEFORE REMOVING THE WHEEL FROM THE AIRCRAFT.

2-1 DISMOUNTING TIRES

- a. Remove the wheel from the aircraft.
- b. Break the tire beads away from both wheel flanges by applying pressure in even increments around the entire sidewall, as close to the tire beads as possible.
- c. Remove the self-locking nuts, washers and bolts and separate the wheel halves.
- d. Remove the tire and inner tube.
- e. Remove the inner tube from the tire.

2-2 MOUNTING TIRES

- a. Inspect the inner tube and tire for damage.
- b. Inflate the inner tube just enough to round it out and install in the tire with the yellow strip on the base of the tube aligned with the red balance dot on the tire.
- c. Install the tire and inner tube on the outboard wheel half and position the valve stem in the valve hole of the wheel half.
- d. Install the outboard wheel half in the tire and align the bolt holes of the two wheel halves.

CAUTION: BE CAREFUL NOT TO PINCH THE INNER TUBE BETWEEN THE WHEEL HALVES.

- e. Secure the wheel halves with bolts, washers and self-locking nuts.

CAUTION: ON THE MAIN WHEEL THE COUNTERSUNK WASHERS MUST BE PLACED UNDER THE BOLT HEADS WITH THE COUNTERSINK FACING THE BOLT HEAD.

- f. Draw up the wheel bolt nuts evenly in a criss-cross pattern and torque to 83 pound inches.
- g. Inflate the inner tube just enough to seat the tire beads, then completely deflate the tire. This will permit the inner tube to equalize itself in the tire.
- h. Inflate the tire to approximately one half operating pressure and install the valve cap.

NOTE: The tire should be inflated to full operating pressure after installation of the wheel on the aircraft.

SECTION III

WHEELS

CAUTION: BEFORE ATTEMPTING TO DISASSEMBLE A WHEEL, COMPLETELY DEFLATE THE TIRE BY REMOVING THE VALVE CORE, TO AVOID INJURY TO PERSONNEL.

3-1 NOSE WHEEL ASSEMBLY 9532926 (See Figure 1)

A. DISASSEMBLY

1. Bearing cones (1) are removed when the wheel is removed from the aircraft.
2. Remove self-locking nuts (2), washers (3) and bolts (4) releasing wheel halves (7 and 9).
3. Remove washer (5) and valve stem bushing (6) from valve stem then remove tire and inner tube from wheel.
4. Bearing cups (8 and 10) should not be removed unless replacement is required.
 - (a) To remove bearing cups, heat wheel half in boiling water or in an oven not to exceed 149°C (300°F) for thirty minutes, then tap cup out of wheel half with a fiber drift pin.

B. CLEANING

1. Clean all metal parts in dry cleaning solution Federal Specification P-D-680 and dry.
2. Clean rubber bearing seals in denatured alcohol.

C. INSPECTION

1. Inspect all parts for nicks or cracks.
2. Inspect bearings for rust, wear, discoloration or damage.
3. Inspect bearing seals for wear or damage.
4. Inspect bolts for cracks at the head junction and at the first two threads nearest the shank.
5. Inspect nuts for holding condition.

D. REPAIR

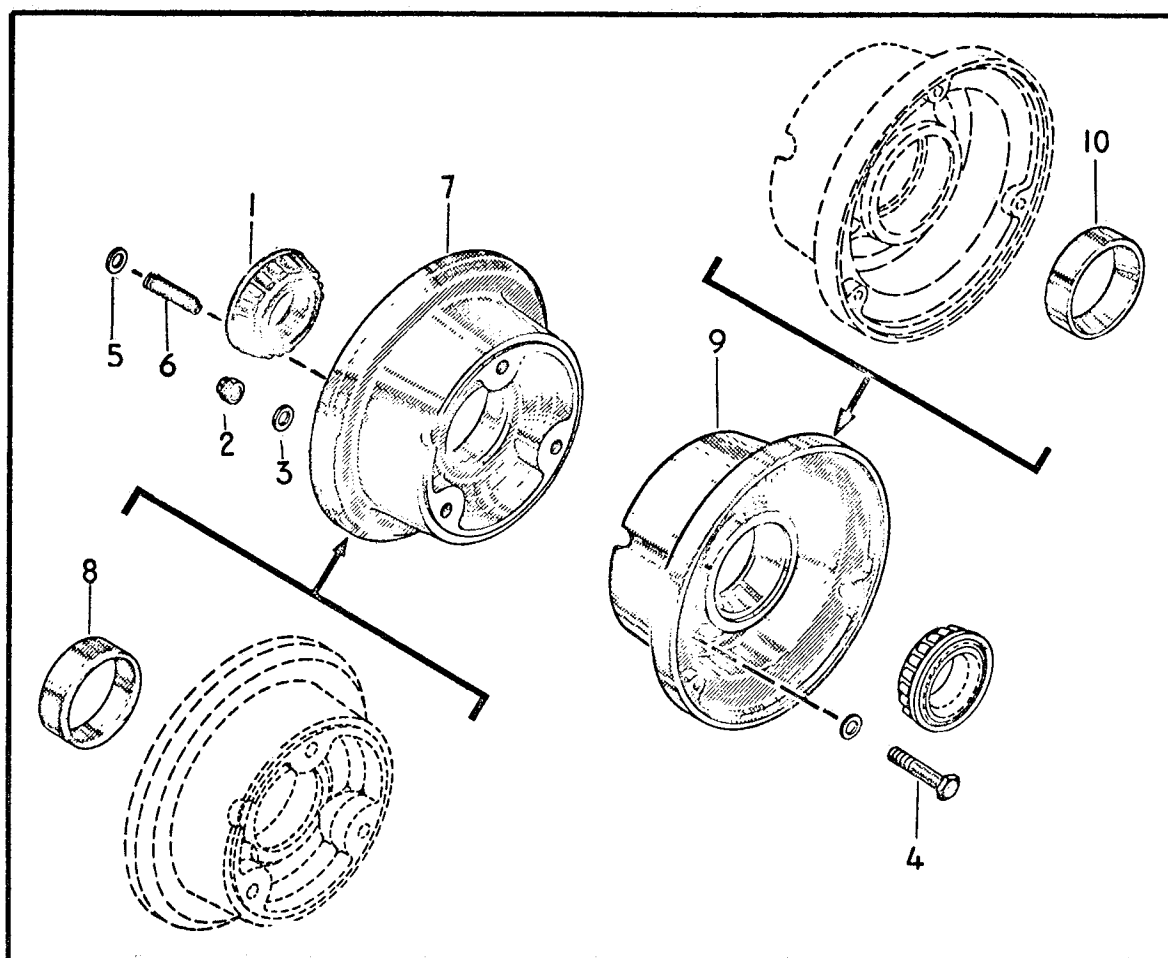
1. Replace any parts that are cracked or badly damaged.
2. Small nicks or scratches in wheel castings should be blended and polished out with fine sandpaper and repainted.
3. Bearing seals which are badly worn or damaged should be replaced.
4. Damaged or badly discolored bearings should be replaced.

E. REASSEMBLY

1. If bearing cups have been removed, heat the wheel half in boiling water or in an oven not to exceed 149°C (300°F) for thirty minutes, then install cup and seat by tapping into position with a fiber drift pin.
2. Install tire and inner tube as described in Section II and secure wheel halves with bolts (4), washers (3) and self-locking nuts (2).

NOTE: One washer (3) should be placed under the bolt head and one washer (3) under the nut.

3. Draw up nuts (2) evenly and torque to 83 pound inches. Inflate tire just enough to seat the beads. Deflate tire, then reinflate to one half operating pressure.
4. Install valve stem bushing (6) and washer (5) on valve stem and secure with valve cap.
5. Pack bearing cones (1) and coat bearing cups (8 and 10) with clean bearing grease Specification MIL-G-3545 and install when the wheel is installed on the aircraft.
6. Inflate tire to operating pressure after the wheel is installed on the aircraft and the bearings and axle nut has been adjusted and saftied.



5.00-5 NOSE WHEEL ASSEMBLY 9532926

FIGURE 1.

F. PARTS LIST 5.00-5 NOSE WHEEL ASSEMBLY 9532926

FIG& INDEX	PART NO.	DESCRIPTION	GOODYEAR CODE NO.	NUMBER PER ASSY.
1-	9532926	WHEEL ASSEMBLY	39532926	1
-1	LM67048XL	CONE, BEARING-TYSEAL	395-6798	2
-2	22FH-428	NUT, SELF-LOCKING	395-6867	3
-3	AN960-416	WASHER	395-0897	6
-4	AN4-14A	BOLT	395-2886	3
-5	AN960-516L	WASHER	395-3809	1
-6	9534587	BUSHING, VALVE STEM	39534587	1
-7	9541899	WHEEL SUBASSY, OUTBOARD	39541899	1
	*9525676	PLATE, DATA, ADHESIVE	39525676	1
-8	LM67010XL	CUP, BEARING-TYSEAL	395-6797	1
-9	9541898	WHEEL SUBASSY, INBOARD	39541898	1
	*9525675	PLATE, DATA, ADHESIVE	39525675	1
-10	LM67010XL	CUP, BEARING-TYSEAL	395-6797	1

* NOT ILLUSTRATED

3-2 MAIN WHEEL ASSEMBLY 35-6002-3 (See Figure 2)

A. DISASSEMBLY

1. Bearing seals (1) and cones (2) are removed when the wheel is removed from the aircraft.
2. With the tire deflated, remove self-locking nuts (3), washers (4), bolts (5) and washers (6) and separate the wheel halves (7 and 12) and remove the tire.
3. Do not remove bearing cups (8 and 15) unless replacement is necessary.
 - (a) To remove bearing cups, heat wheel halves in boiling water or in an oven not to exceed 149°C (300°F) for thirty minutes and tap the cup out of wheel half with a fiber drift pin.
4. Do not remove keyway liners (14) unless replacement is necessary.
 - (a) To remove keyway liners (14), remove heads of rivets (13); then punch out rivets releasing liner.

B. CLEANING

1. Clean all metal parts in dry cleaning solution Federal Specification P-D-680 and dry.
2. Clean rubber bearing seals in denatured alcohol.

C. INSPECTION

1. Inspect all parts for nicks or cracks.
2. Inspect bearings for rust, wear, discoloration or damage.
3. Inspect bearing seals for wear or damage.
4. Inspect bolts for cracks at the head junction and first two threads nearest the shank.
5. Inspect nuts for holding condition.
6. Inspect keyway liners for wear.

D. REPAIR

1. Replace any parts that are cracked or badly damaged.
2. Small nicks or scratches in the wheel castings should be blended and polished with fine sandpaper and repainted.
3. Bearing seals which are worn or badly damaged should be replaced.
4. Damaged or badly discolored bearings should be replaced.
5. Keyway liners that are damaged should be replaced.

E. REASSEMBLY

1. If bearing cups have been removed, heat the wheel half in boiling water or in an oven not to exceed 149°C (300°F) for thirty minutes, then install cup and seat by tapping with a fiber drift pin.
2. If keyway liners have been removed, install new keyway liner and rivet into position.
3. Install tire and inner tube as described in Section II and secure wheel halves with countersunk washers (6), bolts (5), plain washers (4) and self-locking nuts (3).

CAUTION: ONE COUNTERSUNK WASHER (6) MUST BE PLACED UNDER EACH BOLT HEAD (WITH COUNTERSINK FACING BOLT HEAD) AND ONE PLAIN WASHER (4) UNDER EACH NUT (3).

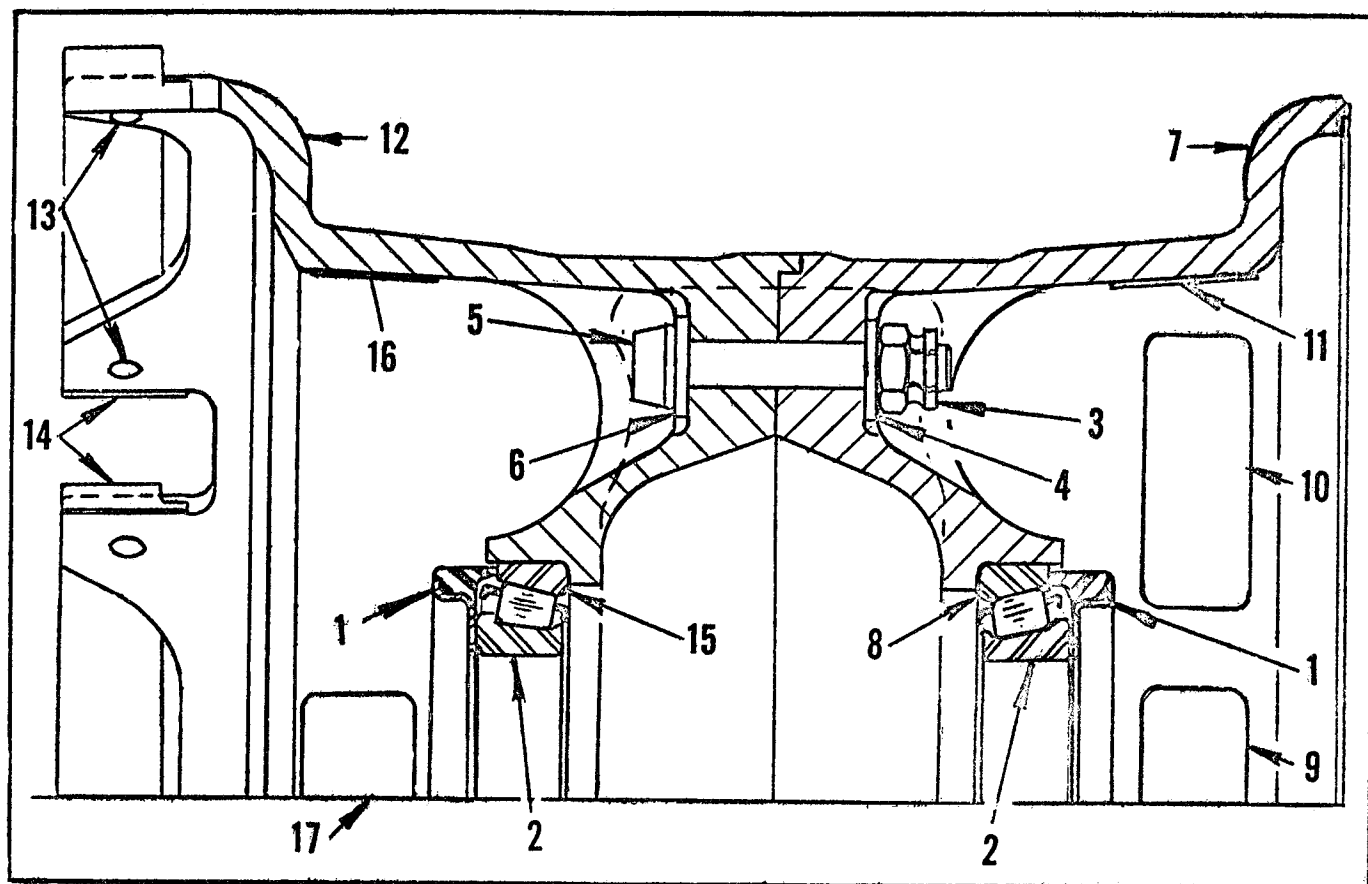
4. Draw up self-locking nuts (3) in a criss-cross pattern and torque to 83 pound inches.
5. Inflate tire just enough to seat the beads, then deflate, to allow the inner tube to equalize itself in the tire. Then, reinflate to one half operating pressure.

NOTE: The tire is to be inflated to operating pressure after it is installed on the aircraft.

6. Pack bearing cones (2) and lubricate bearing cups (8 and 15) and lips of bearing seals (1) with clean bearing grease Specification MIL-G-3545 or equivalent.

NOTE: Bearing cones (2) and seals (1) are installed when the wheel is installed on the aircraft.

7. Data plates are the adhesive type and are to be installed as shown in Figure 2.



MAIN WHEEL ASSEMBLY 35-8002-3

FIGURE 2.

F. PARTS LIST 6.00-6 WHEEL ASSEMBLY 35-8002-3

FIG & INDEX	PART NUMBER	PART NAME	QTY REQD
	35-8002-3	WHEEL, ASSEMBLY	1
-1	9524218	SEAL, BEARING	2
-2	95-0476 (13889)	CONE, BEARING	2
-3	95-6867 (22FH-428)	NUT	4
-4	95-6974 (MS20002-4)	WASHER, PLAIN	4
-5	95-8249 (NAS144-23)	BOLT, WHEEL	4
-6	95-6926 MS20002C4)	WASHER, COUNTERSUNK	4
-7	35-8002-9	WHEEL SUBASSY, O.B. HALF	1
-8	95-0477 (13830)	CUP, BEARING	1
-9	9535523	PLATE DATA - O.B. WHEEL HALF	1
-10	9525546	PLATE, DATA WARNING	1
-11	9535576	PLATE, DATA (BEECHCRAFT)	1
-12	35-8002-7	WHEEL SUBASSY I.B. HALF	1
-13	95-7649 (MS20427-4C7)	RIVET	12
-14	9543686	KEYWAY LINER	6
-15	95-0477 (13830)	CUP, BEARING	1
-16	9535522	PLATE, DATA I.B. WHEEL HALF	1
-17	9525546	PLATE, DATA WARNING	1

SECTION IV

BRAKES

4-1 BRAKE ASSEMBLY 35-8002-25 (See Figure 3)

A. DISASSEMBLY

1. Remove self-locking nut (1) and remove bolt (2) and washer (3).
2. Remove torque flange (4), back plate (5), rotating disc (6), stationary disc (7) and second rotating disc (6).
3. Remove pressure plate (8) and torque plate (9).
4. Remove the four pistons (10) from brake housing (15), then carefully remove O-ring packings (11) from their grooves in the housing.
5. Remove bleeder valve (12), bleeder adapter (13) and its O-ring packing (14) completing the disassembly.

B. CLEANING

1. Wash pistons (10) and O-rings in denatured alcohol and wipe dry.
2. Wash metal parts in dry cleaning solution Federal Specification P-D-680 and wipe with a soft lint-free cloth.

C. INSPECTION, REPAIR OR REPLACEMENT

1. BACK PLATE (5)

- a. Inspect for cracks; if cracked, replace.
- b. Inspect for wear; if worn to a knife edge at the four slots, replace.

2. ROTATING DISC (6)

- a. Inspect relief slot terminal holes for cracks. Discs containing cracks should be replaced.
- b. Discs should be removed from service when the thickness across the disc unchipped mix reaches 0.104 inch or less.
- c. Discs which measure 0.135 inch or more in thickness and are worn evenly on each side should be returned to service. Chipping or pitting is permissible up to 1/2 square inch in any segment. Check disc to see that it fits free on brake.

3. STATIONARY DISC (7)

- a. Replace stationary discs if cracked or worn to a thickness of 0.100 inch or less.
- b. Check disc to see that it fits free on brake.
- c. Check disc for rough spots on surface, and if found, polish off with fine sandpaper.

4. PRESSURE PLATE (8)

- a. Inspect for cracks and replace cracked plates.
- b. Inspect for thickness; replace if worn to 0.150 inch or less in thickness.
- c. Check for rough spots on wearing surface; if found, polish with fine sandpaper.
- d. Check for free fit on brake.

5. PISTON (10)

- a. Check for roughness of surface that contacts O-ring seal. If present, polish with fine sandpaper.
- b. Check diameter of piston and replace if worn to a diameter of 0.990 inch or less.

6. PISTON O-RING PACKINGS (11)

- a. It is recommended that O-ring packings be replaced at each time of brake overhaul. If necessary to reuse, inspect for nicks, deformation or other damage.

7. BRAKE HOUSING (15)

- a. Inspect for cracks. If found, replace.
- b. Inspect for corrosion and small nicks or scratches. If found, polish out with fine sand paper and repaint. Cylinder walls should be free of scratches or sharp edges that might damage O-ring packing.
- c. Check threads for cleanliness and condition.

8. BOLTS (2)

- a. Inspect for cracks at junction of bolt head and first two threads adjacent to the shank. Check threads for condition.

9. SELF-LOCKING NUTS (1)

A check for condition and locking feature

10. TORQUE PLATE (9)

a. Inspect for cracks; if cracked, replace.

D. REASSEMBLY

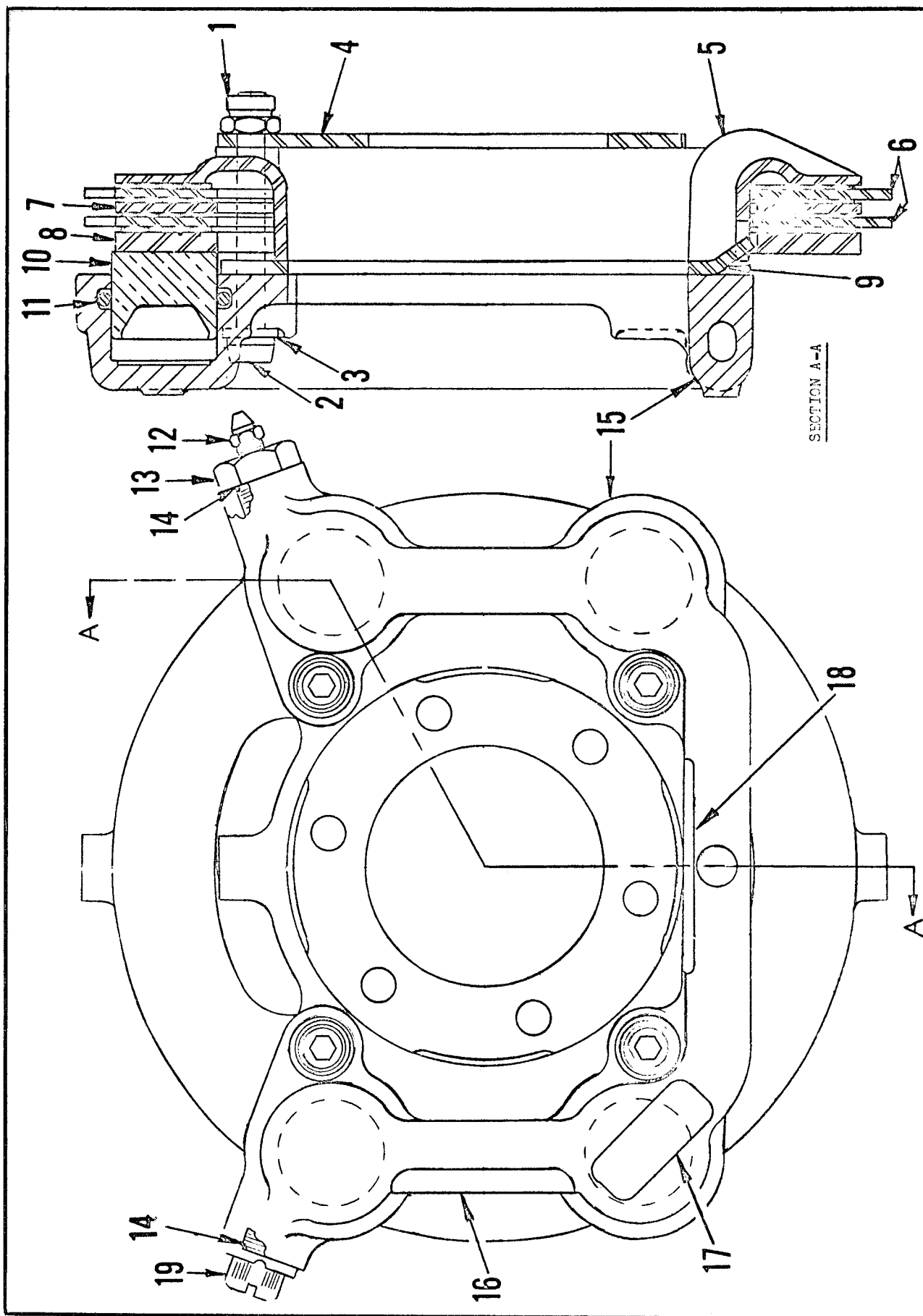
1. Lubricate brake housing (15), cylinder walls, O-ring grooves, piston O-ring packings (11) and contacting surfaces of piston walls (10) with a light coat of grease Specification MIL-G-7711.
2. Install an O-ring packing (11) in the seal groove of each of the four cylinders of the housing (15).
3. Install a piston (10), hollow end first, into each cylinder being careful not to displace the O-ring seal (11).
4. Install a washer (3) countersunk side towards bolt head on each of the four brake bolts (2) then install the bolts through housing (15).
5. Place the housing piston side up on a bench and install torque plate (9) on bolts (2) with bent tangs up.
6. Install pressure plate (8) on the brake bolts.

NOTE: At each time of reassembly of the brake, the pressure plate should be reversed. This will insure maximum service, providing even wear on both sides and counteract dishing.

7. Install one rotating disc (6), then install a stationary disc (7).
8. Install the second rotating disc (6).
9. Install back plate (5), then torque flange (4) on brake and secure with self-locking nuts (1).
10. Draw up self-locking nuts (1) evenly and torque to 72 pound inches.
11. Install O-ring packing (14) on bleeder adapter (13) and screw into housing (15), then screw bleeder valve (12) into bleeder adapter.
12. If brake is to be stored or shipped, install an O-ring packing (14) on shipping plug (19) and install in the other inlet port.
13. Install brake assembly on the aircraft, then connect the hydraulic brake line and bleed the system.
14. Apply the brake and hold pressure for two minutes and check for hydraulic leaks.
15. Release the brake pressure and check the brake to see that the rotating discs are free to move.
16. Let the brake sit for five minutes and check for static leaks.

E. PARTS LIST BRAKE ASSEMBLY 35-8002-25

FIG & INDEX	PART NUMBER	PART NAME	QTY REQD
	35-8002-25	BRAKE, ASSEMBLY	1
-1	95-6867 (22FH-428)	NUT, SELF-LOCKING	4
-2	95-9491 (GY164MS-P28)	BOLT, INTERNAL WRENCHING	4
-3	95-9626 (MS20002-C4)	WASHER, COUNTERSUNK	4
-4	9535451	FLANGE, TORQUE	1
-5	35-8002-13	PLATE, BACK	1
-6	35-8002-21	DISC, ROTATING	2
-7	35-8002-23	DISC, STATIONARY	1
-8	35-8002-19	PLATE, PRESSURE	1
-9	9535454	PLATE, TORQUE	1
-10	9535452	PISTON	4
-11	95-4719 (AN6227B19)	PACKING, O-RING	4
-12	95-9279 (FC-6446)	BLEEDER, VALVE	1
-13	95-3218 (511951)	ADAPTER, BLEEDER, VALVE	1
-14	95-5761 (MS28778-4)	PACKING, O-RING	2
-15	35-8002-11	HOUSING, BRAKE	1
-16	9536091	PLATE, DATA BEECHCRAFT	1
-17	9535625	PLATE, DATA TORQUE	1
-18	9525556	PLATE, DATA SERIAL	1
-19	95-1989 (1604-73)	PLUG, STORAGE AND SHIPPING	1



BRAKE ASSEMBLY 35-8002-25

FIGURE 3