

# SERVICE



# LETTER

Service Letter No. 277

*Void*

March 29, 1956

TO: All Distributors, Dealers, Owners and Operators

SUBJECT: Brake Bleeding - Model PA-23

MODELS AFFECTED: PA-23, Serials 23-1 to 23-479 inclusive

A new bleeding procedure on the brakes on the Apache has been developed by the B. F. Goodrich Company to improve brake performance. The enclosed Goodrich Service Bulletins Nos. 100 and 101 explain the procedure in detail and it is requested that the above noted aircraft be modified at the next 100 hour inspection.

No warranty labor will be allowed by the Piper Aircraft Corporation.

Very truly yours,

PIPER AIRCRAFT CORPORATION

Rolland Boardman  
Service Manager

RB:gh:z  
Encs. 2

PIPER AIRCRAFT CORPORATION, LOCK HAVEN, PA., U. S. A.

# SERVICE BULLETIN

The B. F. Goodrich Company

Tire and Equipment Division

Troy, Ohio

No.: 100

Date: 25 November 1955

Model: PIPER PA-23

## REWORK OF B208-73 ADJUSTER BODY USED ON B107-82 ADJUSTER USED ON G2-622R/L BRAKE USED ON THE PIPER PA-23

### PURPOSE:

To provide a method of reworking adjusters to incorporate a brake bleeder.

### PROCEDURE:

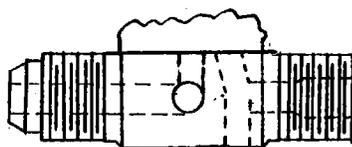
1. Disassemble adjuster: Remove adjuster cap, lock screw, piston, piston spring, packing gland, and nut and bleeder screws.
2. Layout hole to be drilled in adjuster body as shown in bottom view.
3. Drill and tap hole as shown in bottom view.
4. Reassemble adjuster adding additional screw and washer to new hole.

The extra screw and washer can be obtained from Piper Aircraft Distributors.

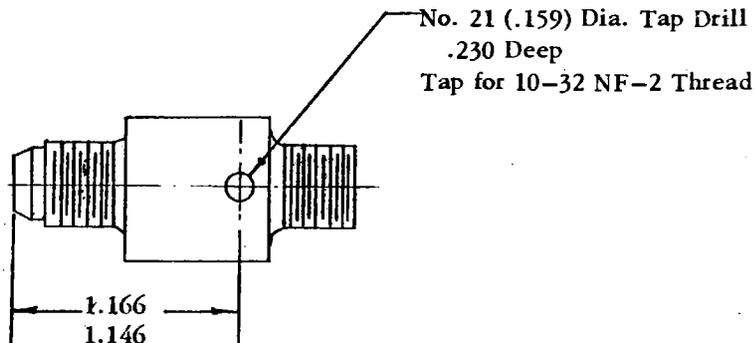
### NOTE

*This rework is not mandatory for immediate conformance. It should be done the next time there is any reason for breaking the brake system lines. To make use of this bleeder refer to Service Bulletin No. 101.*

*Adjusters B107-82 in stock will be reworked and those supplied from this date on will have the brake bleeder.*



Side View



Bottom View

# SERVICE BULLETIN

The B. F. Goodrich Company

Tire and Equipment Division

Troy, Ohio

No. 100 Date: 20 December 1955 Model: PIPER PA-23

## BRAKE BLEEDING PROCEDURE FOR PIPER PA-23

### PURPOSE:

To prescribe procedure for bleeding the G2-C22R/L Brake.

### SERVICE HISTORY:

In its original configuration the G2-C22R/L Brake could not be properly bled. To correct this condition, Service Bulletin 100 was issued to rework the brake adjuster to provide a brake bleeder.

### RECOMMENDATION:

The brakes can be bled in either of two methods: (1) bench bleeding of the brake prior to installation on the aircraft, or (2) normal bleeding on the aircraft using the aircraft brake system. The better of the two methods is bench bleeding, recommended in the case where Piper distributors have several PA-23 aircraft in service and are responsible for their maintenance.

### BENCH BLEEDING:

1. Suggested bench bleeder set-up: See Figure 1.
2. Suggested bleeder valve for use with bench bleeder: See Figure 2.
3. BLEEDING PROCEDURE:

- 3.1 Place brake, with adjuster (reworked as described in Service Bulletin 100), attached, in the drum.

### NOTE

*Be sure the expander tube nozzle is up at the point where it extends through the brake frame. This position places the adjuster at approximately 15° right or left of center, depending upon which brake is being bled.*

- 3.2 Attach flexible hose (F) to brake adjuster. Screw down the adjuster cap lock nut as far as possible and tighten adjuster cap finger tight.
- 3.3 Bleed the line as follows:
  - 3.3.1 Remove the bleeder screw from the bleeder valve and install bleeder hose (C) into this hole and run into reservoir.

**NOTE**

*Keep end of hose under oil at all times.*

- 3.3.2. Open bleeder valve (D) and apply pressure to the line from master cylinder (A), forcing air and oil from the line into the reservoir. Close bleeder valve (D) and release the master cylinder so that air will not be sucked back up into the line.
- 3.3.3 Repeat procedure of 3.3.2 until all air is removed and oil runs clear and free of air bubbles. Close valve (D), remove bleeder hose (G) from valve, and replace screw.
- 3.4 Bleed the brake as follows:
  - 3.4.1 Remove the brake bleeder screw (opposite the adjuster cap) and install the bleeder valve (shown in Figure 2) into this hole.
  - 3.4.2 Open the adjuster cap 1/2 turn counter clockwise. Apply pressure from master cylinder (A) and, while holding pressure, tighten the adjuster cap finger – tight, then release pressure.

**NOTE**

*The adjuster cap is retightened to insure against the return of air from the expander tube to the line before normal return of the adjuster spring.*

- 3.4.3 Open bleeder valve and allow air and oil to spurt from the brake through the bleeder valve and hose (G) into the reservoir.
- 3.4.4 Close the bleeder valve.
- 3.4.5 Repeat steps 5, 6, and 7, until air no longer appears in oil discharged from the brake.

**NOTE**

*Check to see that the tube nozzle is up to maximum verticle position.*

- 3.5 Open the adjuster and apply pressure, repeating until the brake will slide freely from the test drum.
- 3.6 Remove the bleeder valve assembly and bleeder hose from the adjuster and insert bleeder screw and washer until approximately three threads are exposed. Apply light pressure to the brake to permit slight seepage of oil around the screw. While the oil is seeping, tighten screw with screw driver until the seepage stops.
- 3.7 Leaving the adjuster cap tightened, disconnect the flexible hose (F). Remove brake from the drum. It is now ready to install on the aircraft.

**CAUTION**

*Be sure that the adjuster cap remains tight during storage or transit to the aircraft so that air will not bleed back into the brake and oil will not leak.*

**BLEEDING AIRCRAFT BRAKE LINES:**

To insure complete bleeding and to improve performance of the brake, the aircraft brake lines should also be bled. The recommended method is to drain the aircraft brake lines and reservoir completely before connecting the brakes. Then connect the lines to the brakes and refill, by removing the line bleeder screw from the side of the adjuster and connecting a low pressure oil source to the hole. Pump fluid through the adjuster into the lines, master cylinder, and reservoir, forcing all air in the line out through the cylinders into the reservoir.

**AIRCRAFT BLEEDING:**

The following procedure is prescribed, assuming that the brake adjuster has been reworked as described in Service Bulletin 100. The "bleeding device" may be either a bleeder hose with the end wired solidly to the fitting, or a unit similar to that of Figure 2. To close off the hose while in use, pinch it together.

1. Install brake (with adjuster mounted) and wheel. Hook up the brake lines. Check the fluid reservoir. Maintain fluid level high enough to insure against air being drawn into the cylinder.
2. Remove brake bleeder screw (See Service Bulletin 100) and install bleeding device.

**NOTE**

*If bleeder hose is used, the person applying brake pressure should be careful to apply the brake slowly and not at full pedal. It is not necessary to use full pressure to bleed brakes.*

3. Open the adjuster cap 1/2 to 3/4 turn, close the bleeding device, and apply brake pressure.
4. Close the adjuster cap finger-tight and release brake pressure. Open the bleeding device and allow oil and air mixture to discharge into a suitable container. Keep end of hose under oil at all times.
5. Repeat 3 and 4 until oil flows free and clear of air bubbles.
6. Remove bleeding device and thread screw and washer seal back into the hole, leaving a slight gap between screw head and washer. Apply light pressure and permit oil to seep around the screw head. With pressure still applied, tighten screw.
7. Recheck the reservoir for fluid level and bleed the other brake.
8. After bleeding both brakes, the aircraft system should be filled from the bottom by removing the screw from the side of the adjuster and pumping fluid up through the brake lines and master cylinder into the reservoir.

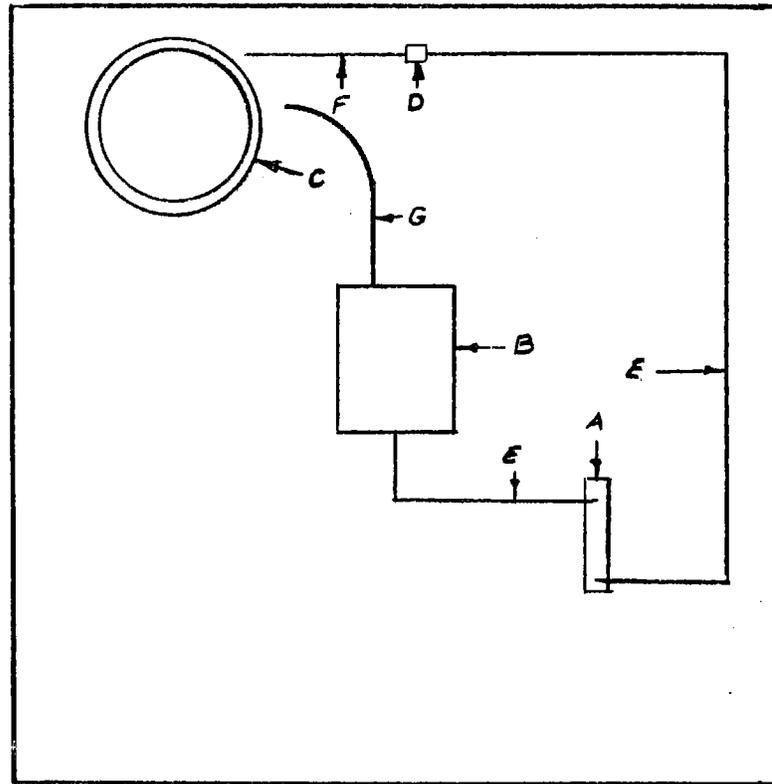
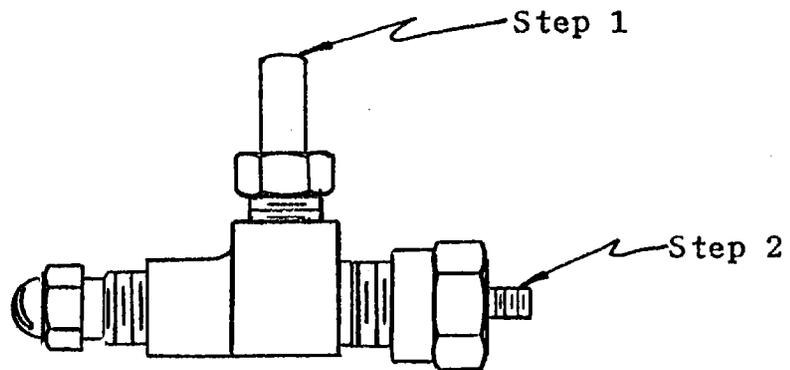


Figure 1

- A. Master Cylinder
- B. Reservoir
- C. 5 x 1 $\frac{3}{4}$  (FA-23) Drum
- D. Line Bleeder (PA-18-20 Brake Inlet Connection)
- E. Copper Tube  $\frac{1}{4}$  in.
- F. Flexible Tube (Hose)
- G. Bleeder Hose



**Figure 2**

- STEP 1:** 1/4" tubing approximately 1" long, pinched together and end soldered to prevent air or oil seepage. Flare and install same as brake line for PA-18-20 aircraft.
- STEP 2:** 10-32 hose fitting from bleeder hose, solder to regular cap or direct to body if desired.

**NOTE**

***This must be 10-32 thread to fit adjuster body.***

WDM:bp