

**ARCTIC CAT
SERVICE MANUAL
SUPPLEMENT**

'80 PANTHER/PANTERA



FOREWORD

Since Arctic constantly refines and improves its products, several improvements in the 1980 Panther and Pantera Snowmobiles occurred during the 1979-1980 snowmobile season. This supplement will cover the most significant improvements. Use this supplement in conjunction with the Arctic Cat Service Manual -1980 Panther/Pantera January 1980 edition.

Major changes may be added to or deleted from the Service Manual in entirety as noted by the words "Add" or "Delete". Minor deletions are noted by lining out (— — —); minor additions are noted by underlining (_____).

This supplement uses the words Warning, Caution, and Note to emphasize certain information. The symbol **▲ WARNING ▲** identifies personal safety-related information. Therefore, be sure to read the directive because it deals with the possibility of personal injury. The symbol **● CAUTION ●** identifies snowmobile-related information. Be sure to read the directive because it deals with the possibility of damaging a part or parts of the snowmobile. If the directive is violated, the snowmobile will usually sustain major damage. The symbol **■ NOTE:** identifies supplementary information worthy of particular attention.

At the time of publication, all information, photographs, specifications, and illustrations were technically correct. Because Arctic Enterprises, Inc. constantly refines and improves its products, no retroactive obligation is incurred.

Keep this supplement and the corresponding Service Manual accessible in the shop area for reference.

Publications Section
Product Services Department
Arctic Enterprises, Inc.



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SECTION 1 — GENERAL INFORMATION

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Specifications

Page 2 of the 1980 Panther/Pantera Service Manual.

ENGINE AND DRIVE	Pantera	Panther
Brake Type	Hydraulic <u>Caliper</u> Disc w/ <u>Parking Brake</u>	Hydraulic <u>Caliper</u> Disc w/ <u>Parking Brake</u>

Preparation After Storage

Page 5 of the 1980 Panther/Pantera Service Manual.

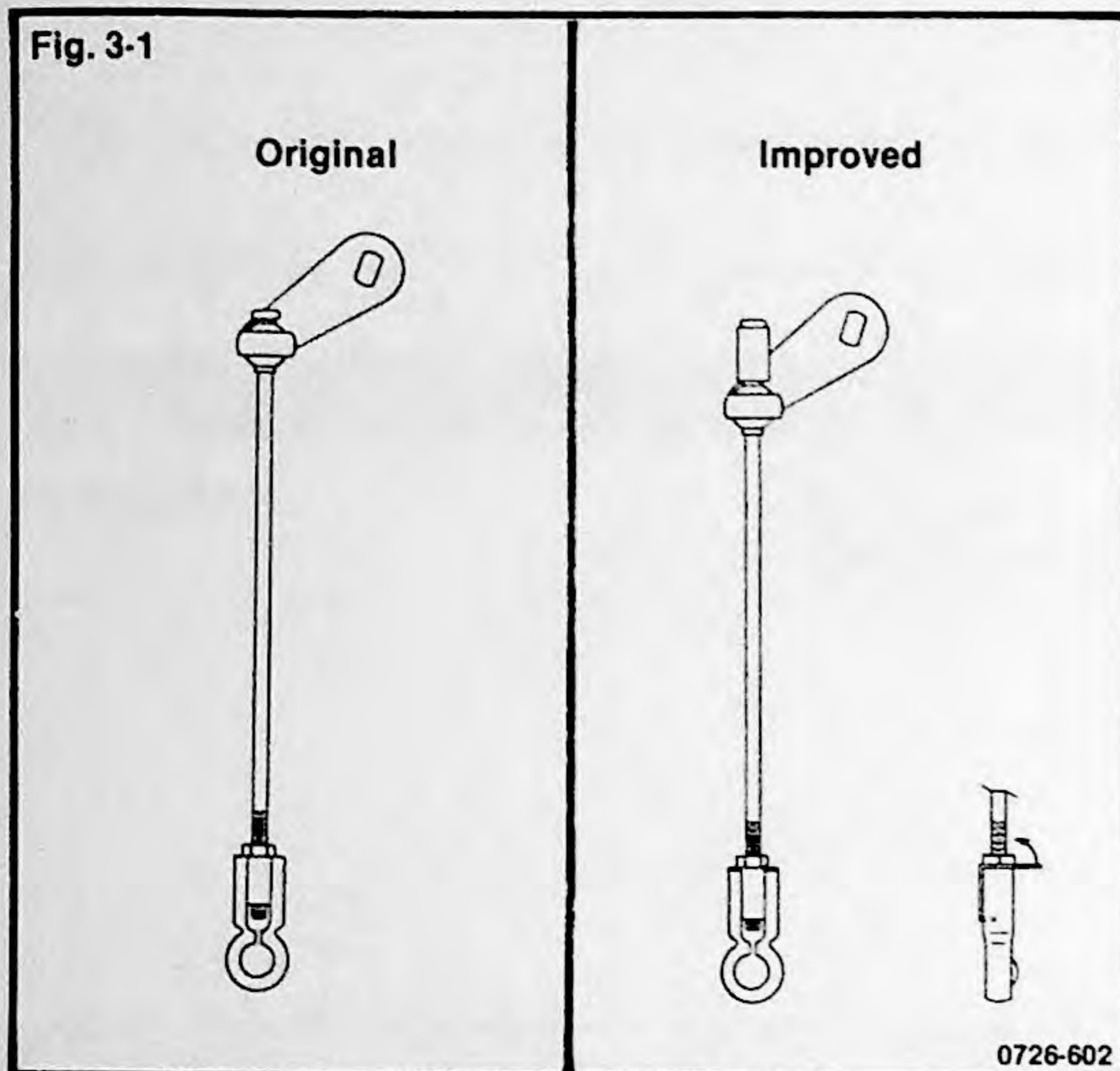
Step 5. - Inspect brake lever travel, ~~brake fluid level, brake puck/brake disc clearance,~~ all controls, headlight, taillight, brakelight, ski alignment, ski wear-bars, wear-strips, and headlight aim; adjust or replace as necessary.

SECTION 3 – FUEL SYSTEM

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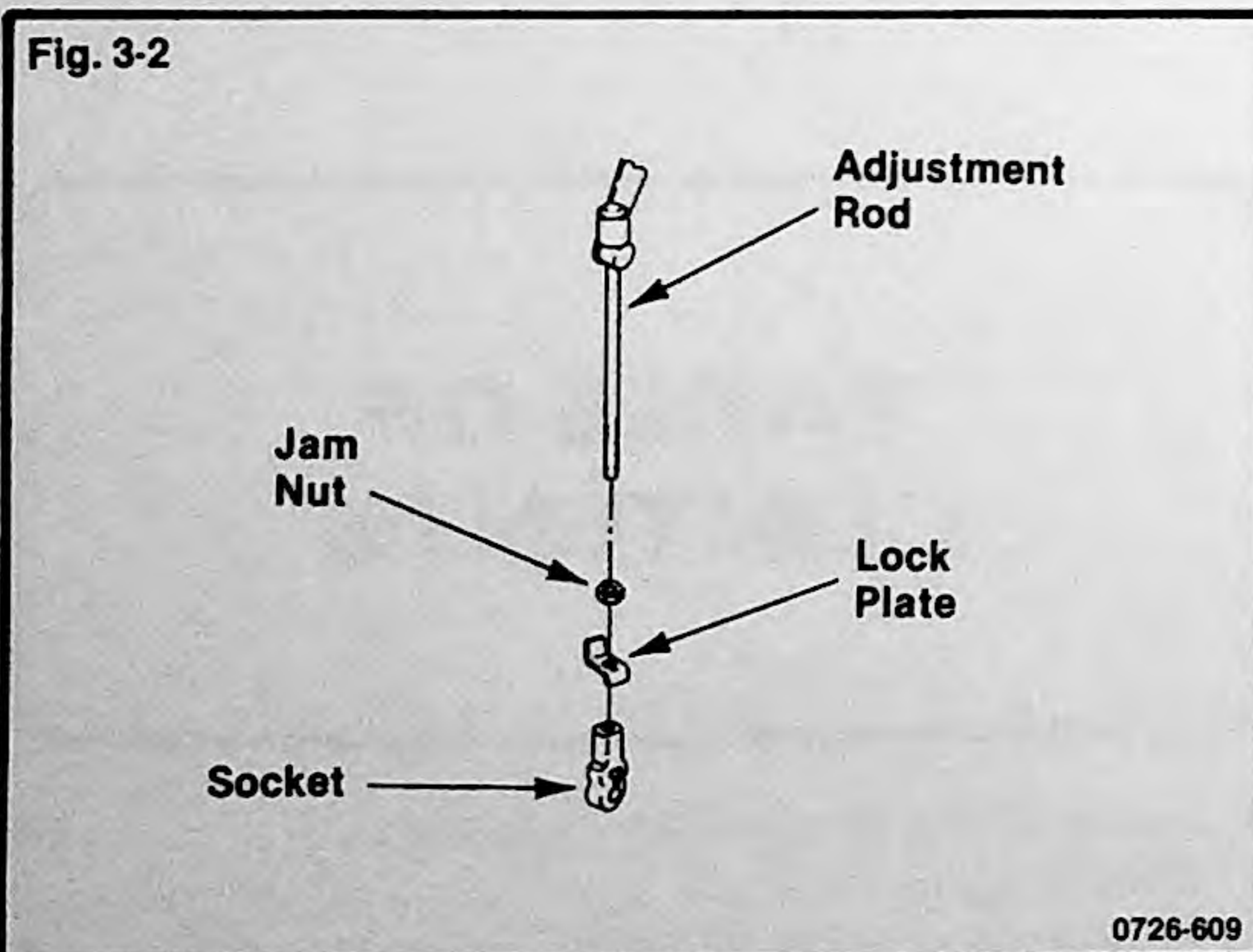
Synchronizing Oi-Injection System	4
Checking	4
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NOTE: Figures 3-2 to 3-33 on pages 32-42 of the 1980 Panther/Pantera Service Manual show the original oil-injection linkage which has been improved as specified in Service Bulletin 80-13 Revised. The improved linkage is shown in the following figure along with the original.



If the oil-injection linkage needs to be serviced, use the following:

1. To disassemble the linkage, bend the lock plate away from the jam nut and loosen the jam nut. In order remove the socket, lock plate, jam nut, and adjustment rod w/spacer.
2. To assemble the linkage, insert the adjustment rod w/spacer through lever bushing, install the jam nut, place lock plate over socket, and install the socket.
3. After the oil-injection system is adjusted correctly, tighten the jam nut and bend the lock plate against the jam nut to secure the adjustment.



Synchronizing Oil-Injection System

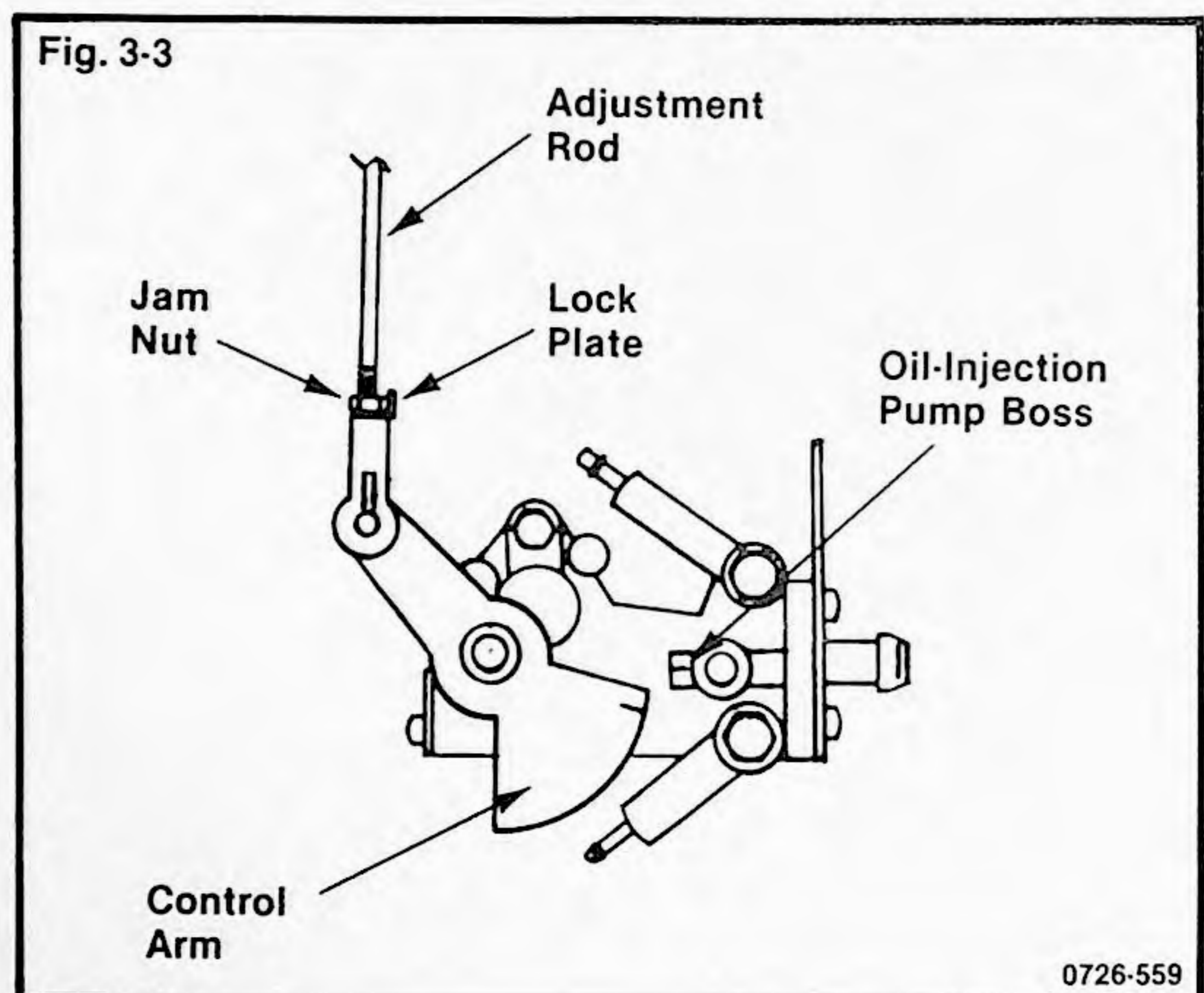
Page 41 of the 1980 Panther/Pantera Service Manual.

CHECKING

Step 2. - Delete original step and substitute the following:

The upper edge of the control arm must align with the lower edge of the oil-injection pump boss. If the upper edge of the control arm does not align with the lower edge of the oil-injection pump boss, an adjustment is necessary.

Fig. 3-31 - Ignore illustration and substitute the following illustration:



ADJUSTING

Step 2. - Delete original step and substitute the following:

Bend the lock plate away from the adjustment rod jam nut and loosen the jam nut.

Fig. 3-32 - Ignore illustration and substitute Fig. 3-3 above.

Step 4. - Add: Bend lock plate against jam nut.

SECTION 4 — DRIVE SYSTEM

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Drive Train

DISASSEMBLING

Page 62 of the 1980 Panther/Pantera Service Manual

Step 11. - Add: Remove the collar positioned against the brake disc. Discard the collar since it is no longer used.

ASSEMBLING

Pages 63-65 of the 1980 Panther/Pantera Service Manual.

Fig. 4-52 - Delete item 65, Lock Collar.

Step 9. - Should read: Install key into driven shaft brake disc keyway.

Step 15. - Delete entire step; ignore Fig. 4-58.

Hydraulic Brake

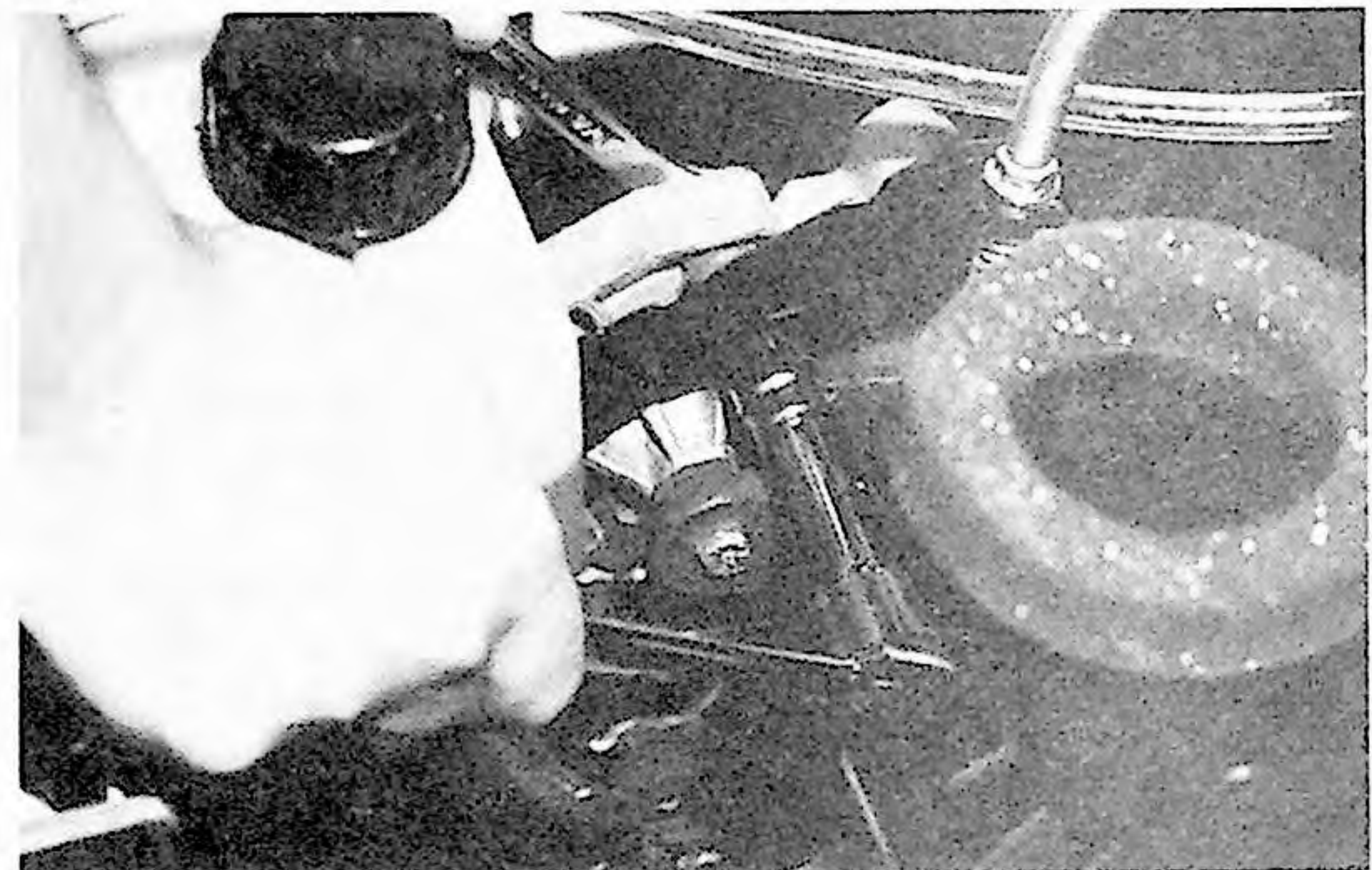
Delete entire section pages 66-71. When servicing a Panther or Pantera brake, use the following section.

Brake

REMOVING AND DISASSEMBLING

1. Remove the two cap screws and lock nuts securing the brake assembly to the chain case; then remove the bracket, actuator assembly, backing plate, and movable brake puck.

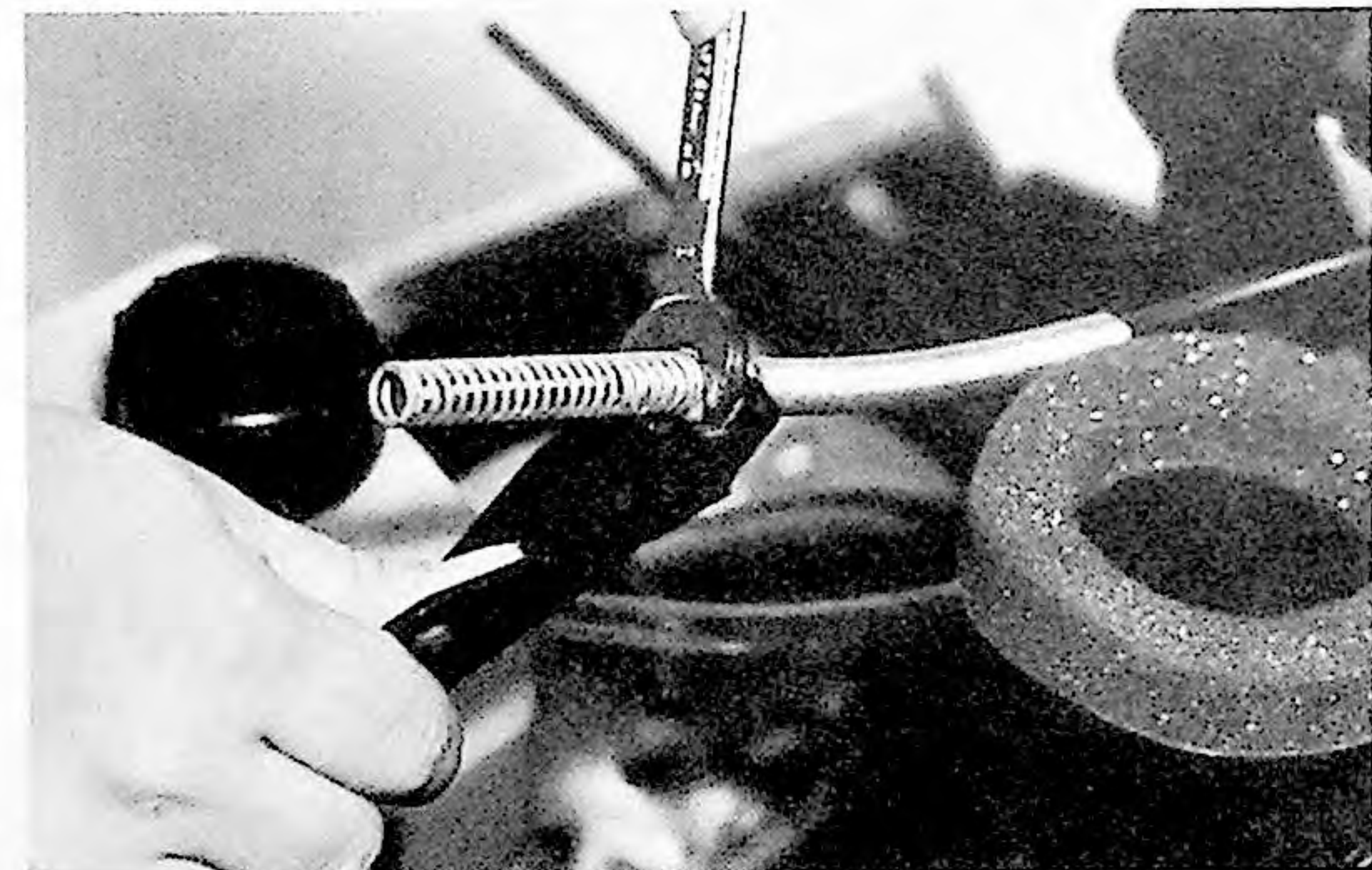
Fig. 4-1



B527

2. Disconnect the brake cable from the clevis and account for the spring. Loosen a cable flange nut and separate cable and bracket.

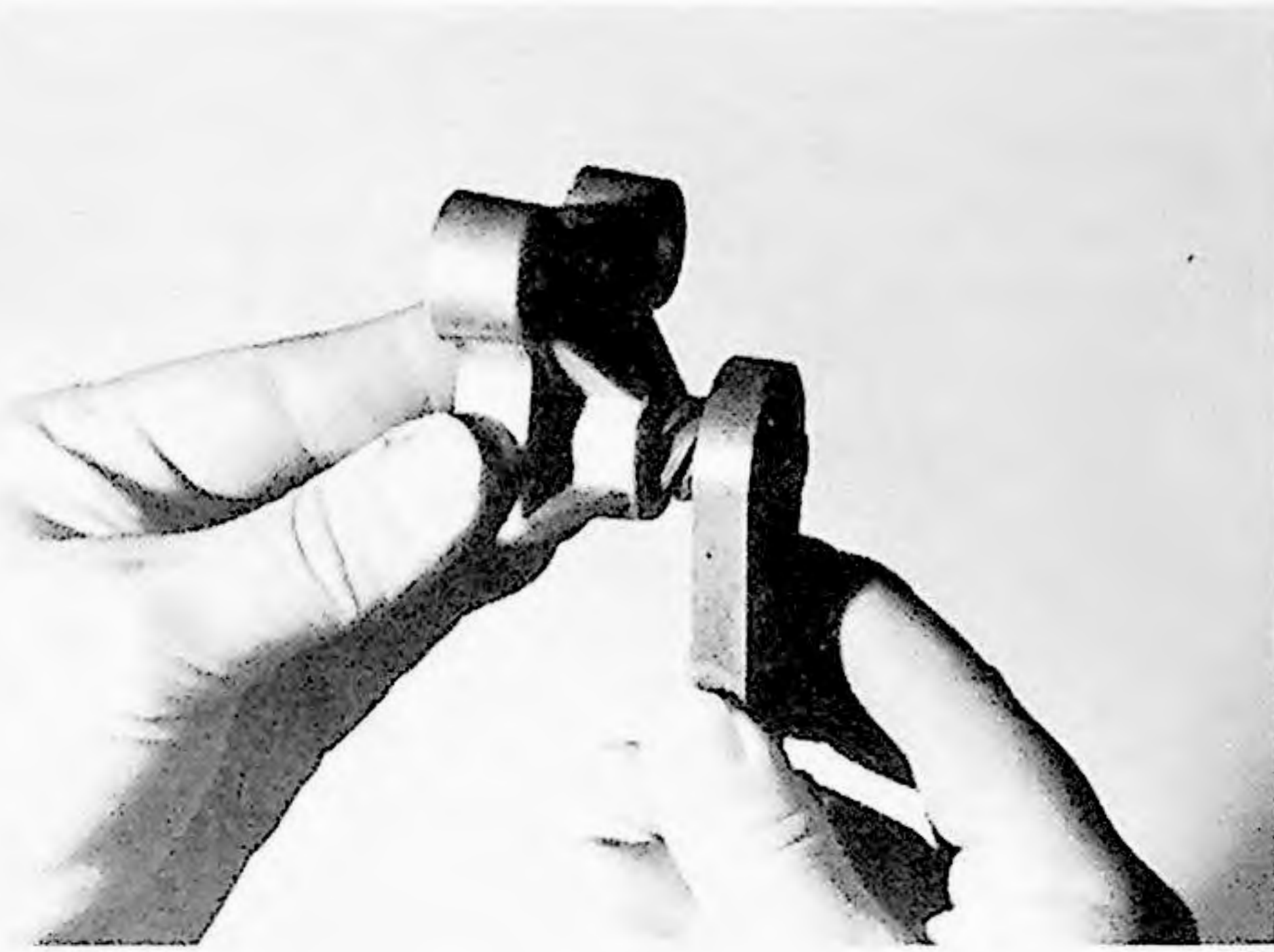
Fig. 4-2



B528

3. Rotate the spiral shaft w/actuator collar and actuator lever out of the housing.

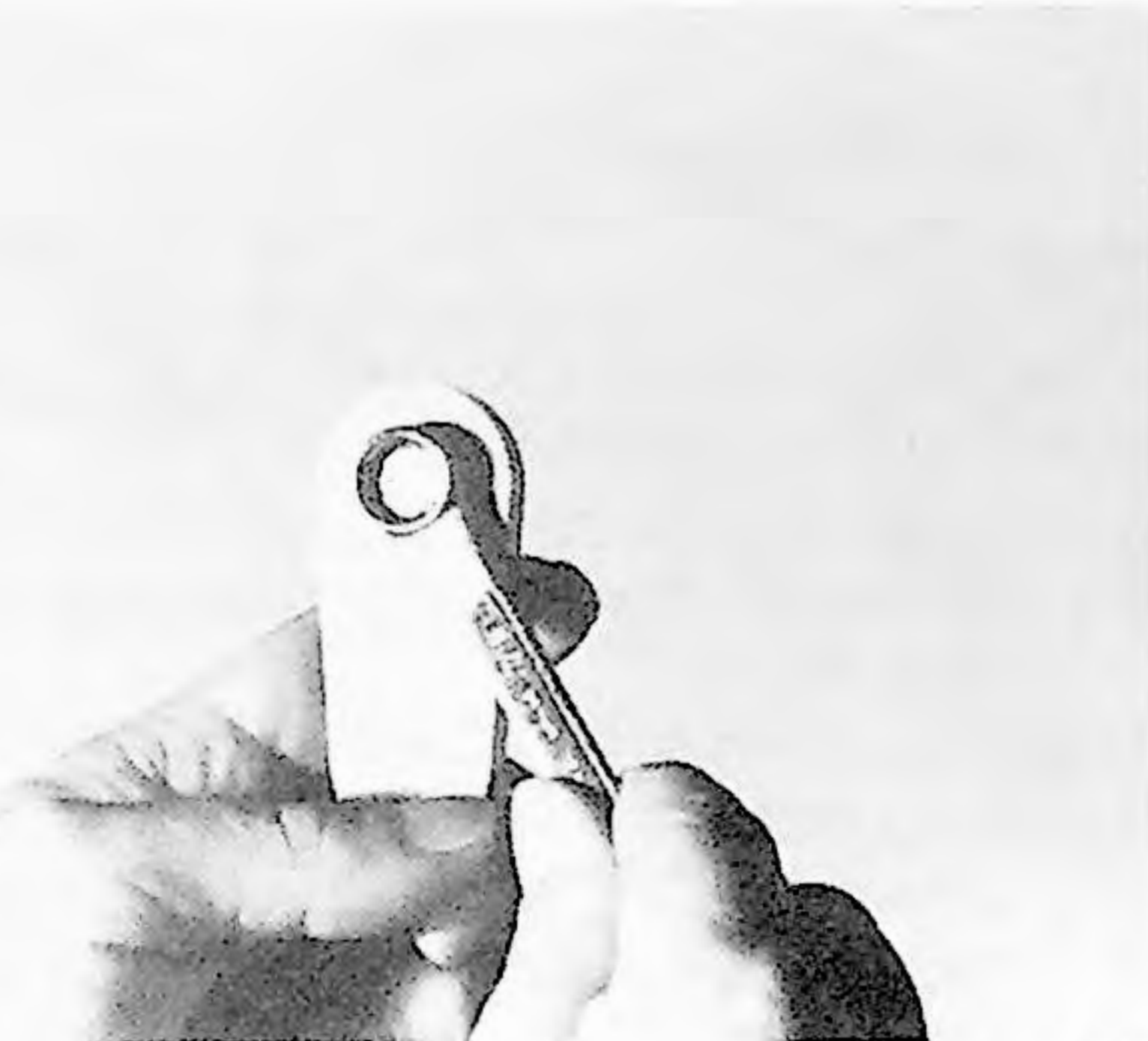
Fig. 4-3



B529

4. Remove the cap-lock screw securing the actuator lever, actuator collar, and the spiral shaft; then separate components.

Fig. 4-4



B530

5. Remove the cap screw and thin-lock nut securing the clevis and bushing to the actuator lever; then separate components.

Fig. 4-5



B531

6. Remove the stationary brake puck.

NOTE: Do not remove the stationary brake puck unless replacement is necessary.

7. Cut the cable ties securing the handlebar pad; then roll pad forward to expose brake cable and wiring harness.
8. Remove the handlebar grip from the handlebar.

NOTE: Because of the adhesive used, it may be necessary to cut the handlebar grip off the handlebar.

9. Disconnect the wiring harness from the brake switch.
10. Remove the retaining ring from the retaining pin; then carefully remove the retaining pin from the brake switch. Account for the parking brake actuator and spring.

Fig. 4-6



B030

11. Disconnect the brake cable from the "seat" in the brake lever; then slide cable free of brake switch and remove the brake cable. Account for the brake lever.
12. Remove the tapping screw securing brake switch to the handlebar; then slide brake switch off handlebar.

Fig. 4-7



B031

CLEANING AND INSPECTING

NOTE: Whenever a part is worn excessively, cracked, defective, or damaged in any way, replacement is necessary.

1. Wash all metallic parts in parts-cleaning solvent. Dry thoroughly.
2. Wash all non-metallic parts with soap and hot water. Dry thoroughly.
3. Inspect parts for any signs of cracking or fatigue.
4. Inspect all threaded areas for damaged or stripped threads.
5. Inspect the brake cable for excessive bends, kinks, or fraying.
6. Inspect the springs for cracks or unusual bends.
7. Inspect the brake pucks for wear. Brake pucks must be at least 4.5 mm (0.18 in.) thick.

NOTE: If a brake puck needs to be replaced, replace both pucks as a set.

8. Inspect the brake disc for any signs of cracking or gouging.
9. Inspect the brake disc hub for cracking or wear.
10. Inspect the brake hub/driven shaft key and keyways for excessive clearance or wear. The brake hub must float freely on the driven shaft.

ASSEMBLING AND INSTALLING

1. Slide the brake switch into position on the handlebar; then secure with the tapping screw.

Fig. 4-8



B031

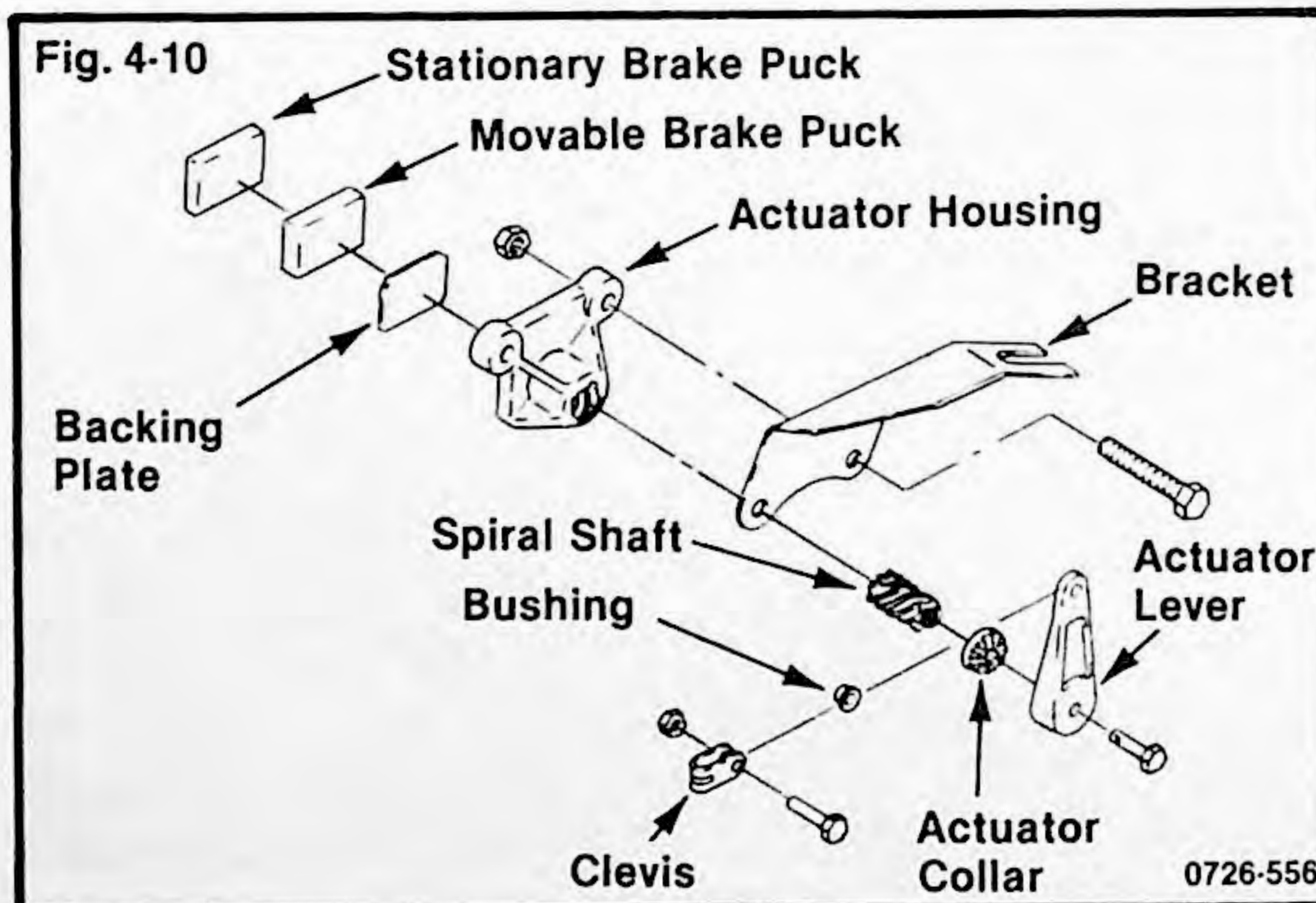
2. Route the brake cable through the handlebar pad.
3. Slide the brake cable into position in the brake switch; then apply petroleum jelly to the end of the cable and secure to the "seat" in the brake lever.
4. Install the parking brake actuator and spring. Secure actuator, spring, and brake lever to the brake switch with the retaining pin and retaining ring.

Fig. 4-9



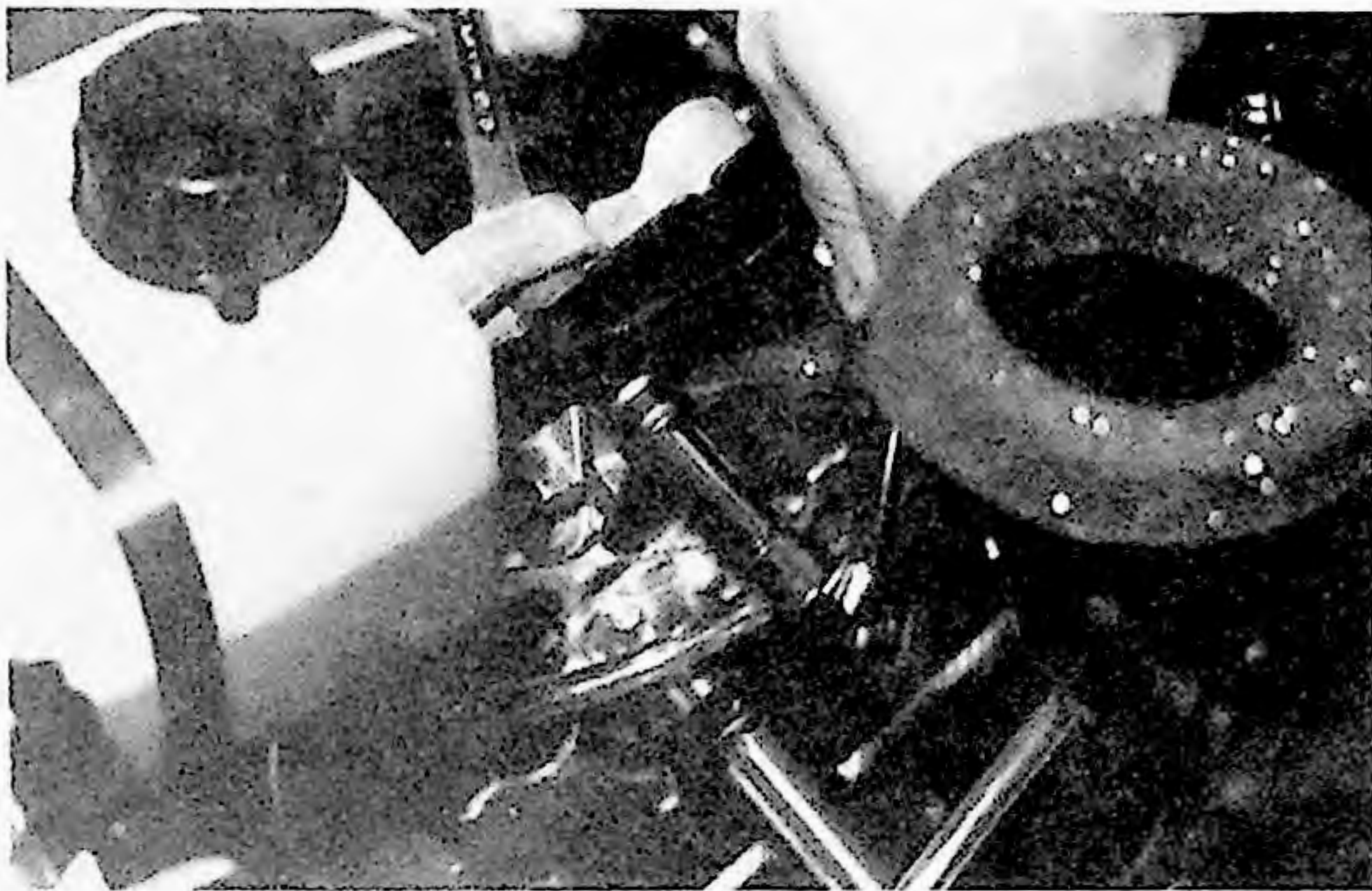
B030

5. Connect the wiring harness to the brake switch.
6. Apply Scotch-Grip Industrial Adhesive 847 (p/n 0219-408) to the bore of the handlebar grip and using a rubber hammer, drive the grip into position.
7. Install the stationary brake puck into the chain case using LOCTITE SUPERBONDER ADHESIVE or a high-strength adhesive equivalent.



8. Place the backing plate and movable brake puck into the actuator housing.
9. Place the actuator housing w/backing plate and movable brake puck and the bracket into position on the chain case. Secure with two cap screws and lock nuts.

Fig. 4-11



B532

■ **NOTE:** Be sure the heads of the cap screws are positioned toward the engine.

10. Apply a light coat of Molykote Spray Lubricant (Dow Corning 321 R or equivalent) to the spiral shaft; then install shaft into actuator housing.
11. Place the bushing into position in the actuator lever; then secure the clevis to the lever using a cap screw and thin-lock nut. Carefully tighten thin-lock nut to a point just ensuring free clevis movement.

■ **NOTE:** The head of the cap screw must be on the collar side of the actuator lever.

Fig. 4-12



B531

● **CAUTION** ●

Overtightening the thin-lock nut may restrict clevis movement and cause premature brake cable failure.

12. Slide the return spring onto the end of the brake cable; then attach ball of the brake cable to the clevis.

Fig. 4-13



B533

13. Place the brake cable assembly into position in the bracket and adjust the flange nuts until an equal number of threads are exposed above and below the flange nuts.
14. Place the actuator collar onto the spiral shaft; then install the actuator lever onto the collar making sure the return spring is properly preloaded (tensioned) and the actuator lever and actuator collar are properly meshed. Secure with the cap-lock screw.

Fig. 4-14



B534

● **CAUTION** ●

The return spring must be properly preloaded (tensioned).

15. Install all necessary cable ties; then install handlebar pad and secure with cable ties.

● **CAUTION** ●

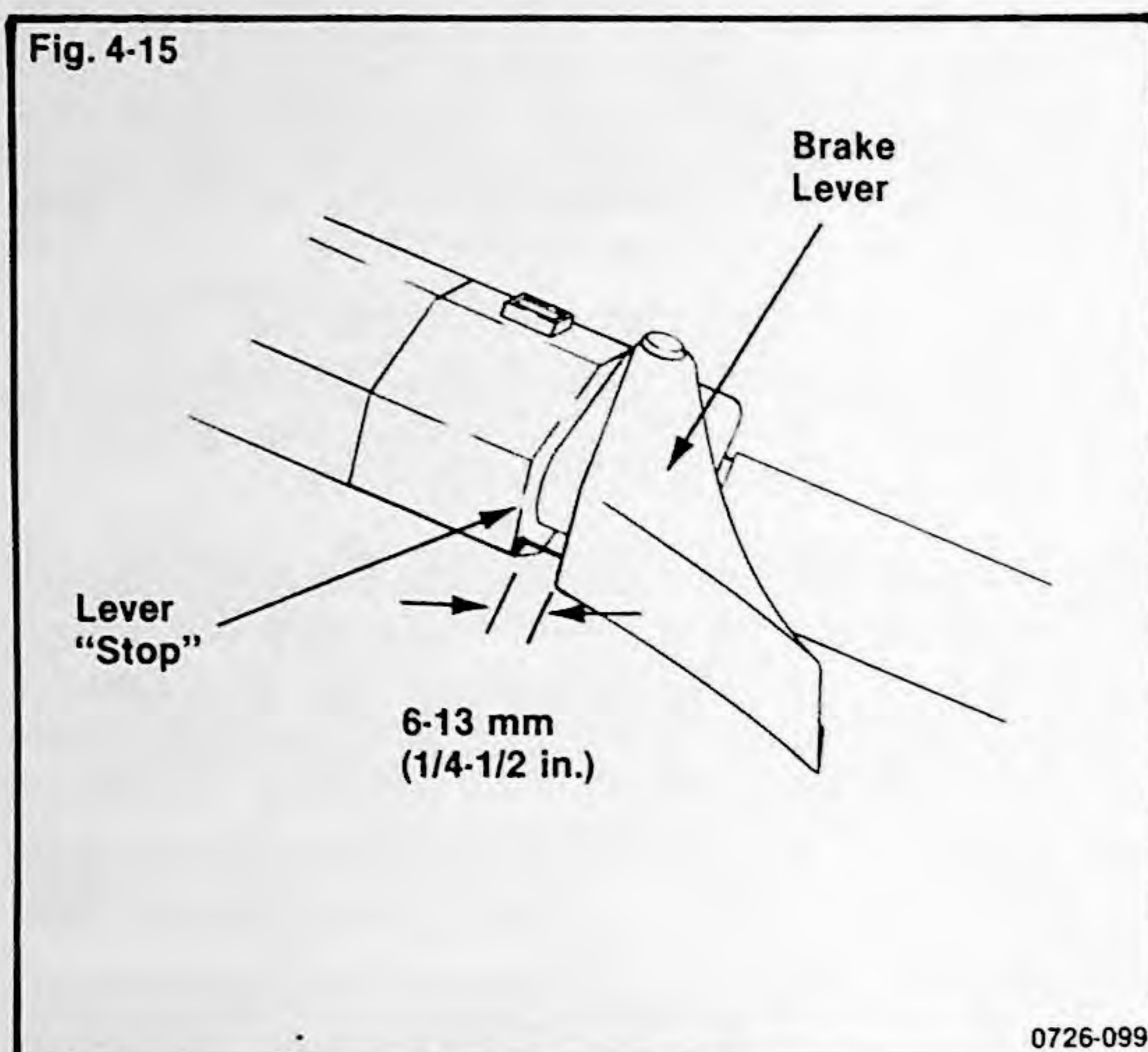
Route and secure all cables and electrical wires away from the actuator assembly and any moving or rotating components.

16. Check and adjust brake-lever travel.

CHECKING BRAKE-LEVER TRAVEL

1. Rotate the brake disc alternately forward and backward while slowly compressing the brake lever.
2. At the point where the disc cannot be easily rotated, check the travel distance between the brake lever and the lever "stop". The correct distance is 6-13 mm ($\frac{1}{4}$ - $\frac{1}{2}$ in.).

Fig. 4-15

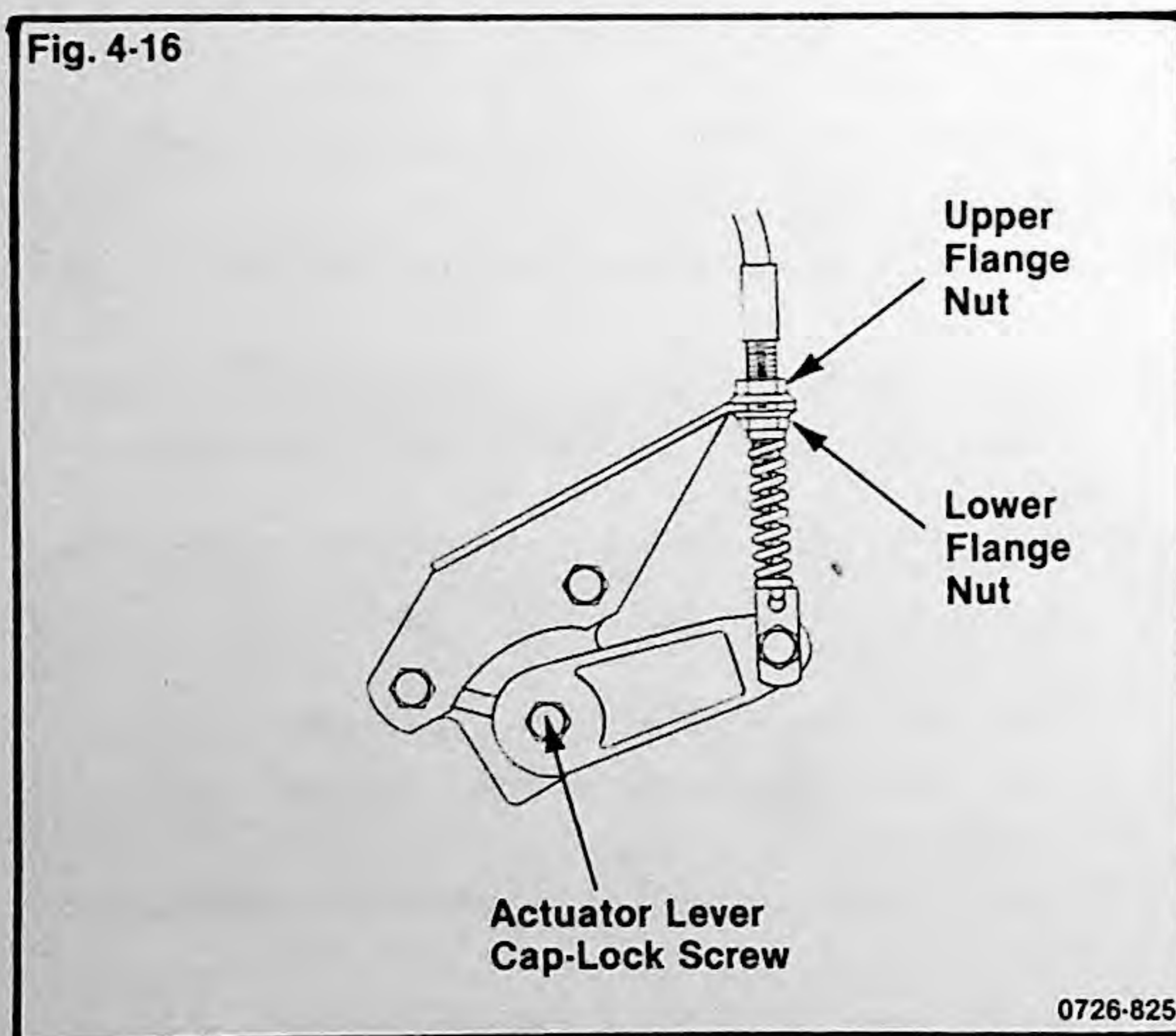


3. If travel distance is not within the tolerance given, adjust brake-lever travel.

ADJUSTING BRAKE-LEVER TRAVEL

NOTE: If a minor adjustment is needed, use steps 1-3. If a major adjustment is needed, use steps 4-11.

Fig. 4-16



1. To decrease the brake-lever travel (set up the brake), loosen the lower flange nut while tightening the upper flange nut. Check the brake-lever travel distance periodically until correct travel distance is attained.
2. To increase the brake-lever travel, loosen the upper flange nut while tightening the lower flange nut. Check the brake-lever travel distance periodically until correct travel distance is attained.
3. Lock the flange nuts securely after adjustment is completed.



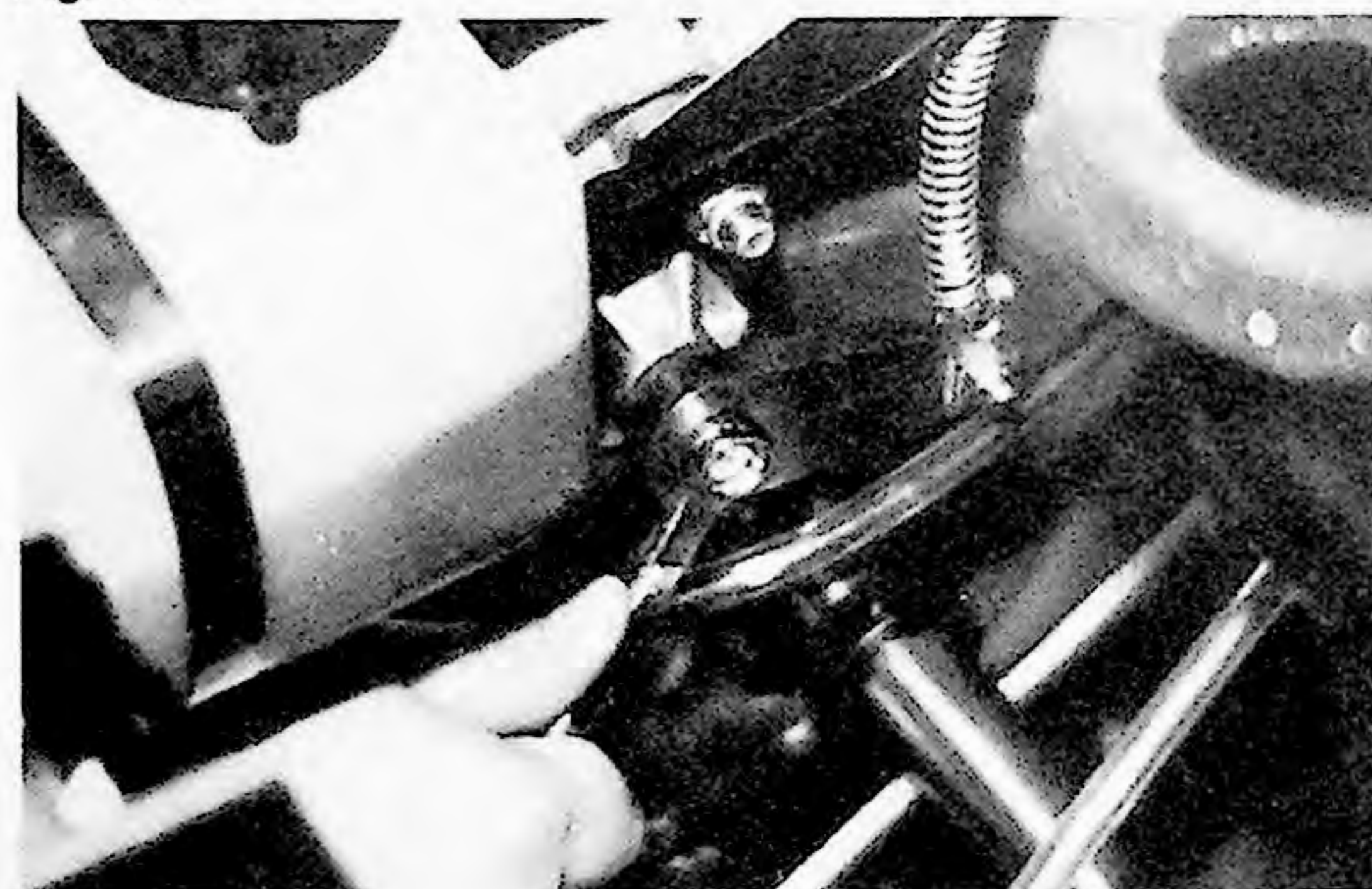
WARNING

A minimum of 3 mm ($\frac{1}{8}$ in.) of threads of the brake cable must be maintained on the spring side of the lower flange nut. Neglecting to maintain this distance or neglecting to lock the flange nuts may cause a malfunction in the brake system resulting in possible personal injury.

NOTE: If further adjustment is required to maintain the specified brake-lever travel distance once the limit is reached on the initial adjustment, use steps 4-11.

4. Loosen the upper flange nut while tightening the lower flange nut until three coils of the spring are visible over the threads of the brake cable adjuster.
5. Loosen the actuator lever cap-lock screw several revolutions.

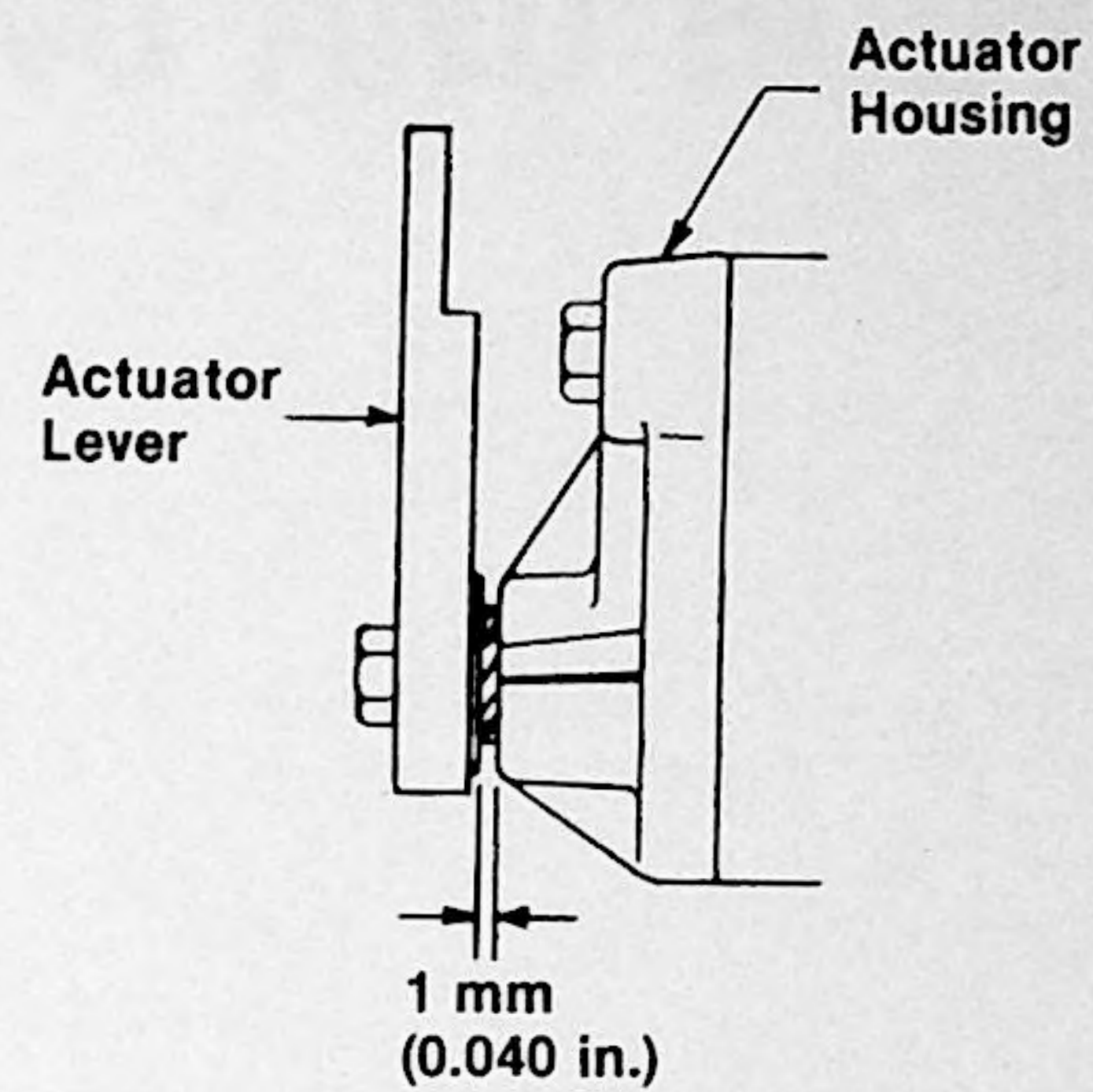
Fig. 4-17



6. Fully compress the brake lever; then hold the cap-lock screw in position with a wrench.
7. Release the brake lever to allow the actuator lever to slip one position on the actuator collar.
8. Tighten the actuator lever cap-lock screw.

9. Make the final adjustment using the flange nuts on the brake cable bracket to obtain the correct travel distance.
10. Lock the flange nuts securely.
11. Compress the brake lever fully and check the clearance between the actuator collar and the actuator housing. The clearance must be greater than 1 mm (0.040 in.). If the clearance is less, replacement of both brake pucks is necessary.

Fig. 4-18



0726-153



SECTION 6 – STEERING AND BODY

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Assembling and Installing Throttle Switch

When installing a Panther or Pantera throttle switch, note the following changes on page 90.

Step 2. - Should read: Apply petroleum jelly to the end of the throttle cable; then slide the throttle cable into groove of throttle switch and secure with retaining ring.

Step 4. - Should read: Apply a thin film of NYE 723-E grease to the pin and seals of the throttle lever; then secure throttle lever with pin, seals, and retaining ring.

Step 6. - Apply glue (Scotch-Grip ~~Plastic~~ Industrial Adhesive 4099-847 (p/n 0219-408) or equivalent) to the bore of the handle grip and using a rubber hammer, drive the handle grip into position.

Removing Master-Cylinder Housing

Delete entire section page 91. When removing a Panther or Pantera brake switch, use the following section.

Removing Brake Switch

1. Cut the cable ties securing the handlebar pad; then roll the pad forward to expose brake cable and wiring harness.

2. Disconnect wiring harness from the brake switch.
3. Remove the retaining ring from the retaining pin; then carefully remove the retaining pin from the brake switch. Account for the parking brake actuator and spring.

Fig. 6-1



B030

4. Disconnect the brake cable from the "seat" in the brake lever; then slide cable free of the brake switch. Account for the brake lever.
5. Remove the handlebar grip from the handlebar.

NOTE: Because of the adhesive used, it may be necessary to cut the handlebar grip off the handlebar.

6. Remove the tapping screw securing the brake switch to the handlebar; then slide brake switch off the handlebar.

Fig. 6-2



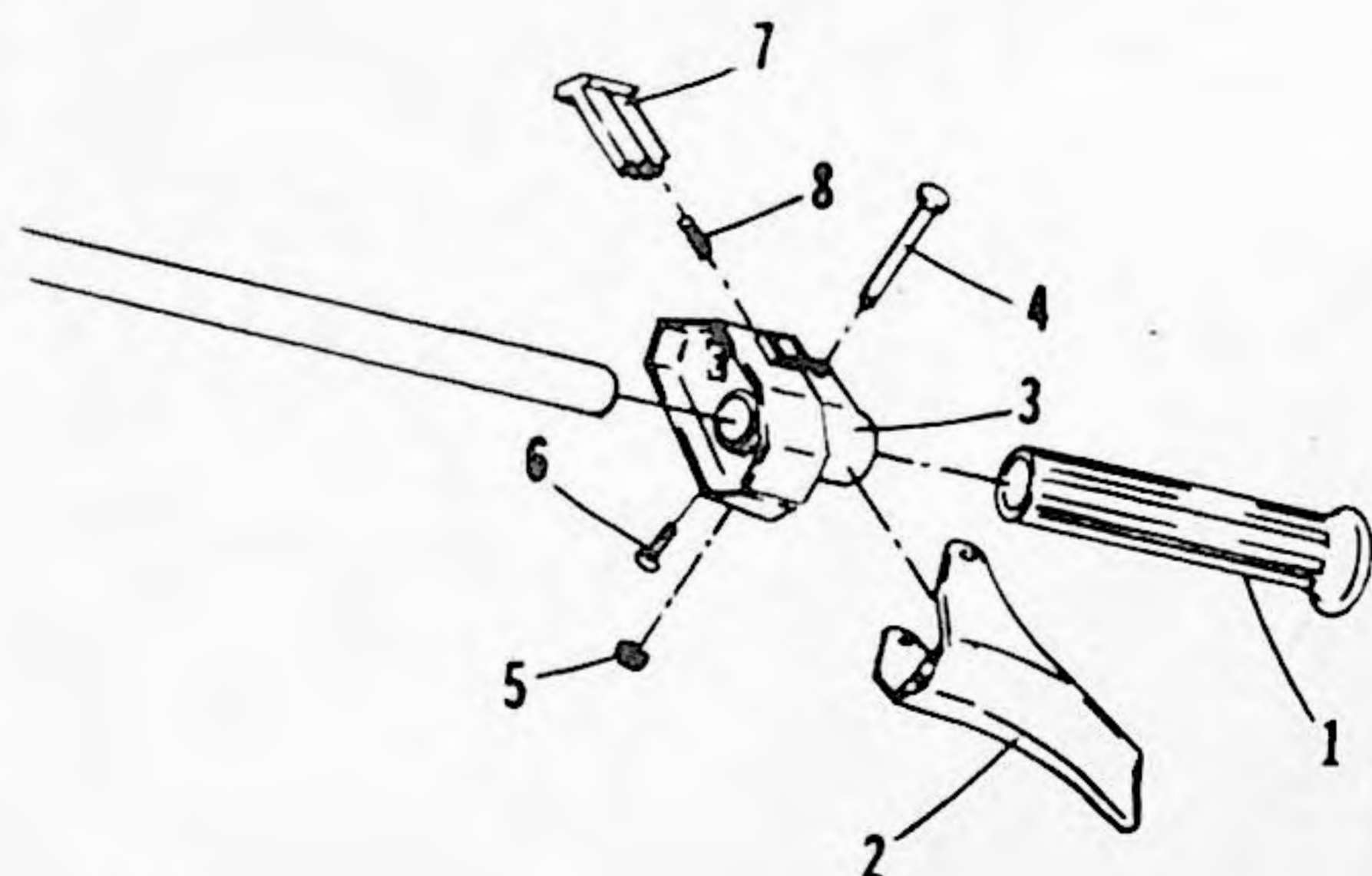
B031

Installing Master-Cylinder Housing

Delete entire section page 91. When installing a Panther or Pantera brake switch, use the following section.

Installing Brake Switch

Fig. 6-3



KEY

1. Handlebar Grip
2. Brake Lever
3. Brake Switch
4. Retaining Pin
5. Retaining Ring
6. Tapping Screw
7. Parking Brake Actuator
8. Spring

0726-210

1. Slide the brake switch into position on the handlebar; then secure with a tapping screw.

Fig. 6-4



B031

2. Slide brake cable into position in the brake switch.
3. Apply petroleum jelly to the end of the cable and secure to the "seat" in the brake lever.
4. Install the parking brake actuator and spring. Secure actuator, spring, and brake lever to the brake switch with the retaining pin and retaining ring.

Fig. 6-5



B030

5. Connect the wiring harness to the brake switch.
6. Apply Scotch-Grip Industrial Adhesive 847 (p/n 0219-408) to the bore of the handlebar grip and using a rubber hammer, drive the grip into position.
7. Install handlebar pad and secure with cable ties.

