CHAPTER SEVEN

POWER TRAIN

The power train consists of a drive belt, drive and driven pulleys, drive chain and sprockets with chaincase, and a brake assembly.

Three types of brake systems are used: pivot, drum, and disc. Disc brakes are either mechanically adjusted or self-adjusting. A hydraulic disc brake is installed on the 1973 T'NT F/A model. Pivot and drum brakes are mechanically adjusted.

Some procedures in this chapter require the use of special tools for removal and repair work. If such tools are not available and substitutes cannot be locally fabricated, refer the removal and repair work to an authorized dealer.

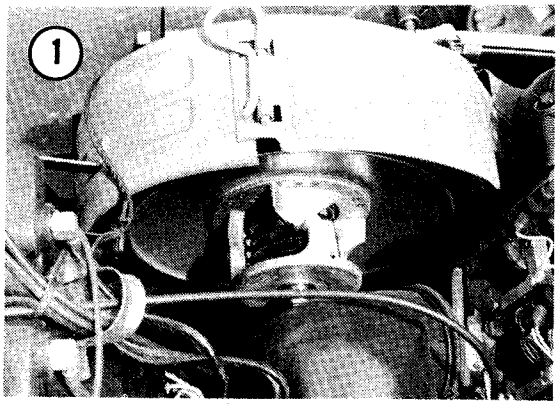
DRIVE BELT

The drive belt transmits power from the drive pulley to the driven pulley. Refer to **Table 1** for drive belt model application. Drive belt should be replaced when its width is reduced by approximately ⅛ in. (3.0mm). Always install the drive belt specified for your type of machine. Drive belts are not interchangeable between different models even though belt width may be the same.

Table 1 DRIVE BELT APPLICATION

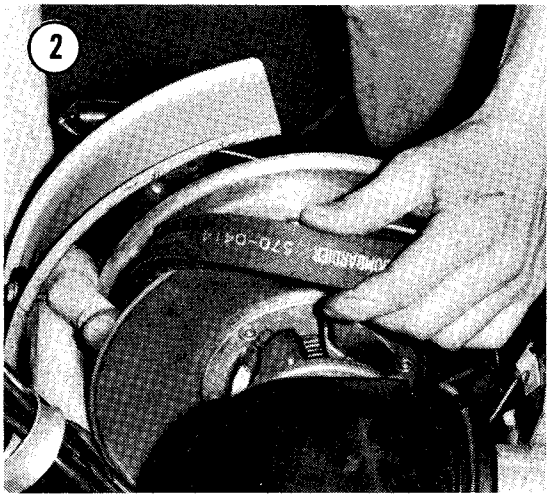
Model	Belt Width
Elan (all models)	13/16 in.
Olympique Plus (1976)	13/16 in.
All 1975 and earlier models except 1975 T'NT R/V 250	13/16 in.
All other models	15/16 in.

Note: Replace belt when width is reduced by ⅛ in. (3mm)



Removal/Installation

1. Tilt cab and remove pulley guard (**Figure 1**).
2. Twist and push sliding half of driven pulley to open pulley.
3. Hold pulley in open position and slip drive belt off of driven pulley then drive pulley (**Figure 2**).



CAUTION

Do not pry belt off over pulleys or belt and/or pulleys may be damaged.

4. Installation is the reverse of these steps. Check drive belt tension.

Drive Belt Tension Adjustment

Drive belt tension must be correct or improper drive and abnormal belt wear may result.

Check tension on all machines with a drive pulley *without* bearings on the shaft.

1. Position a ruler on drive belt for a reference.
2. Using a stick and fish scale apply 15 lb. (6.8 kg) of pressure at center of belt. Belt should deflect 1 3/16 - 1 1/2 in. (30-38mm).
3. If belt tension is incorrect, decrease or increase distance between pulleys. Recheck belt deflection.

DRIVE PULLEY

The following procedures require the use of special tools for removal, installation, and repair. If special tools or locally fabricated equivalents are not available, refer work to an authorized dealer. Refer to **Table 2** for drive pulley model application.

CAUTION

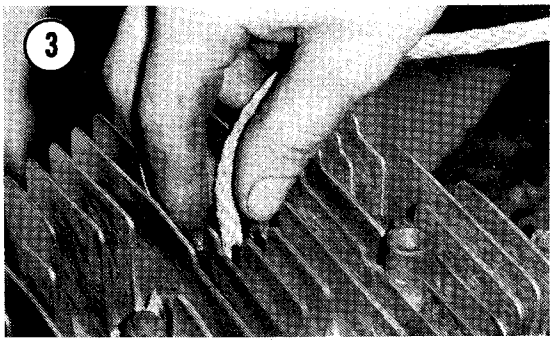
Drive pulleys are matched to driven pulleys and engine. Do not use pulleys not designed for your particular machine or improper operation may result.

Pressure Lever and Roller Round Shaft Type Drive Pulley Removal/Installation

1. Remove drive belt.
2. To hold engine while removing retaining bolt, perform the following:
   a. Remove spark plug(s).
   b. Rotate crankshaft until piston (PTO piston for twin cylinder engines) is approximately 1 in. (25mm) BTDC.
   c. Insert a length of rope such as recoil starter rope into spark plug hole (**Figure 3**).
   d. Slowly rotate crankshaft counterclockwise until piston bears against rope.
3. Make sure alignment marks on pulley halves are visible. If not, make new marks.
4. Apply pressure to governor cup of pulley and remove retaining bolt (**Figure 4**).

NOTE: *Pulley is spring loaded and may spring apart if pressure is not applied during bolt removal.*

5. Gently remove sliding half of pulley with spring and spring seat (**Figure 5**).



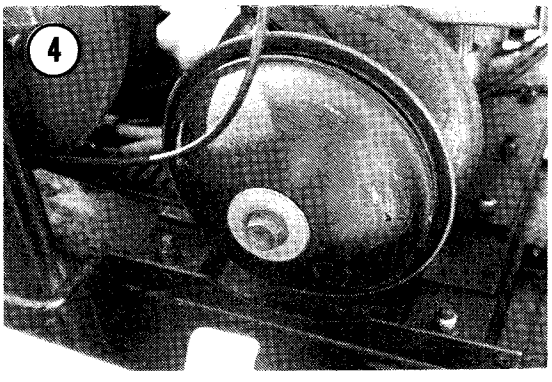


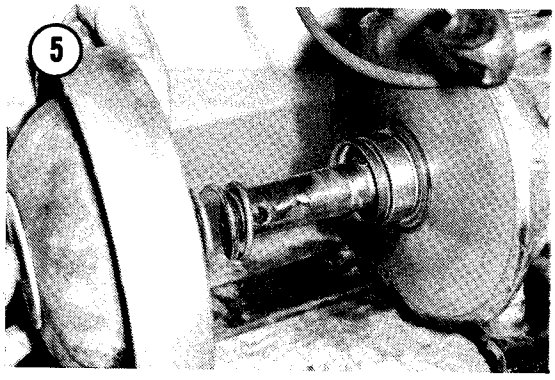
Table 2 DRIVE PULLEY SPECIFICATIONS

Model	Pulley Type	Torque Method	Bolt Torque Ft.-lb.	Bolt Torque Mkg
Elan	1	A	37-54*	(5.1-7.5)
Olympique (1970-1974 and 1976 300 single)	2	A	37-54	(5.1-7.5)
Olympique (all 1975 and 1976 plus 440)	3	A	83-92	(11.5-12.7)
Olympique (1976 300 twin and 340)**	3	B	58-68	(8.0-9.4)
Olympique (1978-1979 300T and 340)	3	B	58-68	(8.0-9.4)
Citation (1978-1979 300)	3	A	58-68	(8.0-9.4)
T'NT F/A 340, 400, 440	4	B	58-68	(8.0-9.4)
T'NT and Everest**	3	A	83-92	(11.5-12.7)
T'NT 245, 250, 340 R/V**	3	B	58-68	(8.0-9.4)
Everest 340, 440, 444LC (1978-1979)	3	B	58-68	(8.0-9.4)
T'NT 340 F/A and 440 F/C (1978)	3	B	58-68	(8.0-9.4)
R/V 340 (1978), Blizzard 5500 and 6500	3	B	58-68	(8.0-9.4)
Blizzard 7500 plus and 9500 plus	5	B	58-68	(8.0-9.4)

Pulley Type
1 — Roller round shaft
2 — Pressure lever
3 — Roller square shaft
4 — High performance
5 — Roller square shaft with 3 ramps

Torque Method
A. Torque to specifications, loosen and retorque to specification.
B. Torque to specification. Start engine and alternately accelerate and brake. Stop engine and retorque to specification.

*On 1975 250 Deluxe models, torque to 83-92 ft.-lb. (11.5-12.7 mkg)
**Models equipped with "Duralon" bushings.



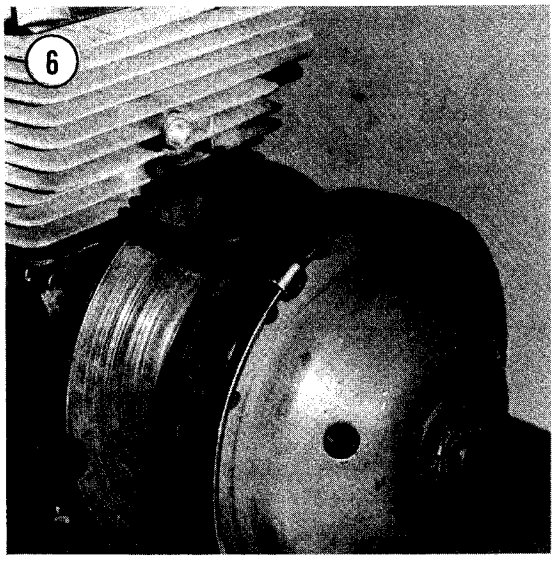
6. To remove fixed half of pulley from crankshaft, it is necessary to locally fabricate a removal tool. Perform the following:
   a. Cut a piece of pipe the approximate length of exposed pulley shaft. Pipe must be large enough to slide over pulley shaft.
   b. Drill a 5/16 in. hole near end of pipe.
   c. Slide pipe over pulley shaft and install a 5/16 in. bolt through pipe and hole in shaft end. Secure bolt with nut.
   d. Use a pipe wrench on pipe and remove fixed half of drive pulley.
7. Refer all necessary inspection and repair to an authorized dealer.
8. Installation is the reverse of these steps. Keep the following points in mind:
   a. Pack inside pulley shaft with clutch lubricant available from an authorized dealer.
   b. Lightly oil retaining bolt threads.
   c. Ensure that pulley marks are aligned.
   d. Torque retaining bolt to 37-54 ft.-lb. (5.1-7.5 mkg). Loosen bolt and retorque to specified value.
   e. Perform *Pulley Alignment.*

Roller Square Shaft and High Performance Type Drive Pulley Removal/Installation

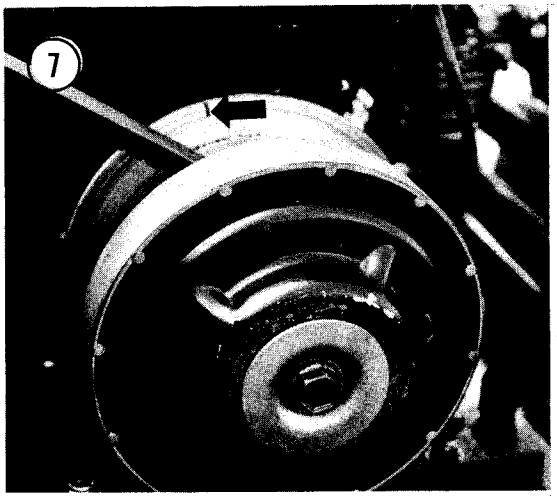
1. Remove drive belt.
2. On some models equipped with high per-

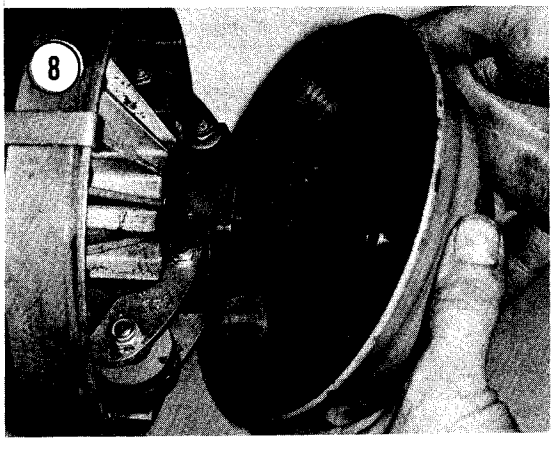
formance type pulley, it is necessary to raise engine from frame. Support engine with a wooden block between engine mount and frame cross support.

NOTE: *Roller shaft pulleys are spring loaded. To avoid pulley springing apart during removal of retaining bolt, pressure must be applied and held against sliding half of pulley. On roller square shaft type pulleys, 1 or 2 clamps secured to outside rims of pulley halves can be used to hold spring tension (**Figure 6**). Exercise care when installing clamp(s) to avoid damaging or distorting pulley rims.*



3. To hold engine while removing retaining bolt, perform the following:
   a. Remove spark plug(s).
   b. Rotate crankshaft until piston (PTO piston for twin cylinder engines) is approximately 1 in. (25mm) BTDC.
   c. Insert a length of rope such as recoil starter rope into spark plug hole (**Figure 3**).
   d. Slowly rotate crankshaft counterclockwise until piston bears against rope.
4. Make sure alignment marks on pulley halves are visible. If not make new marks (**Figure 7**).
5. Loosen retaining bolt. If clamps are not used on pulley, remember to hold pressure against pulley to keep it from springing apart. Remove retaining bolt and governor cup (**Figure 8**).

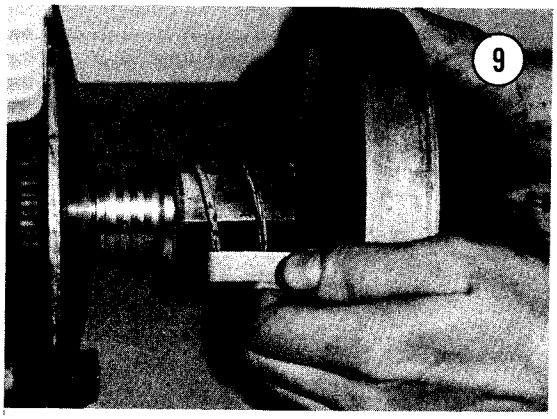


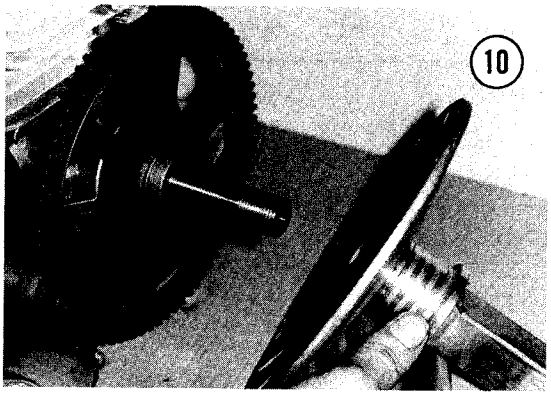


6. On models equipped with high performance pulley, it is necessary to use a special puller to remove pulley assembly. Perform the following:
   a. Insert puller through pulley hub.
   b. Gradually tighten puller.
   c. Tap puller head to release pulley from crankshaft.
7. On models equipped with roller shaft pulleys, gently remove clamp(s) holding pulley halves together, and remove sliding half of pulley (**Figure 9**).
8. Loosen fixed half of pulley with a 1⅛ in. open end wrench or large adjustable (Crescent) wrench, and remove pulley half (**Figure 10**).

CAUTION

Keep wrench as close to hub as possible and ensure that wrench does not slip, or damage to pulley shaft may result.





9. Refer all necessary inspection and repair to an authorized dealer.

10. Installation is the reverse of these steps. Keep the following points in mind:

a. Lightly oil retaining bolt threads.

b. On models equipped with high performance pulley, clean crankshaft with fine steel wool and acetone. Dry shaft with clean, dry cloth.

c. Always use a *new* locking tab washer.

CAUTION

*On pulleys equipped with "Duralon" bushings (**Table 2**), install sliding half of pulley very carefully or "Duralon" bushing may be scratched by square edge of shaft.*

When installing governor cup ensure that shaft end is positioned in governor cup seat or a bent crankshaft may result.

d. Torque retaining bolt as specified in **Table 2.**

e. Perform *Pulley Alignment.*

DRIVEN PULLEY

CAUTION

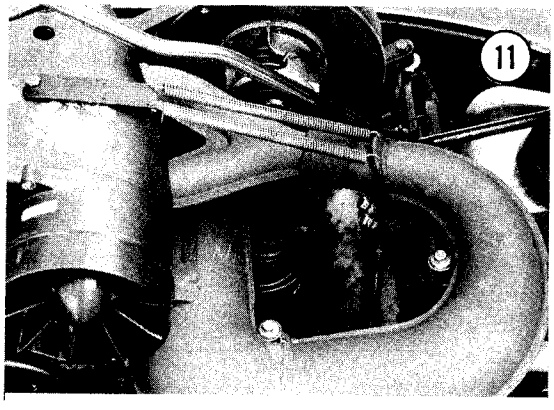
Driven pulleys are matched to drive pulleys and engine. Do not use pulleys not designed for your particular machine or improper operation may result.

Removal/Installation

1. Remove drive belt.

NOTE: *On T'NT F/A models with self-adjusting pulley (**Table 3**), remove bolt and washer securing driven pulley and remove pulley.*

2. On mid-engine models, remove muffler **(Figure 11)**. On models with tuned muffler, remove muffler grommet.



3. Loosen steering column upper bracket **(Figure 12)**.

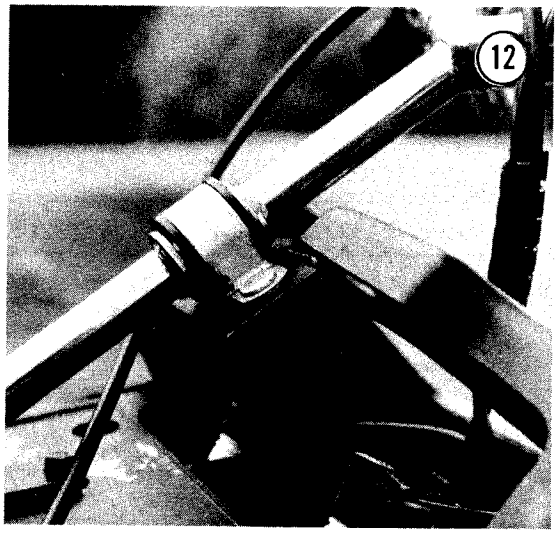
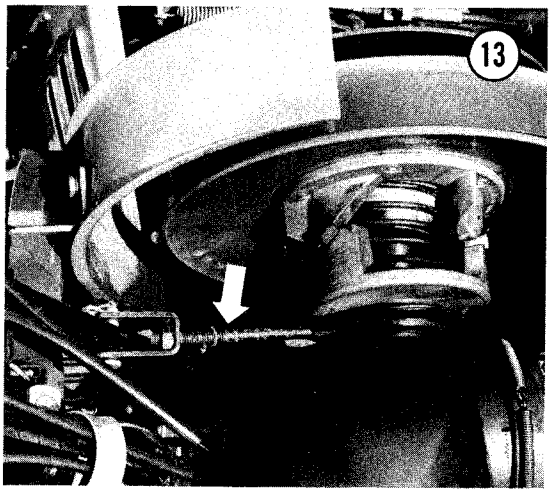


Table 3 PULLEY ALIGNMENT SPECIFICATIONS

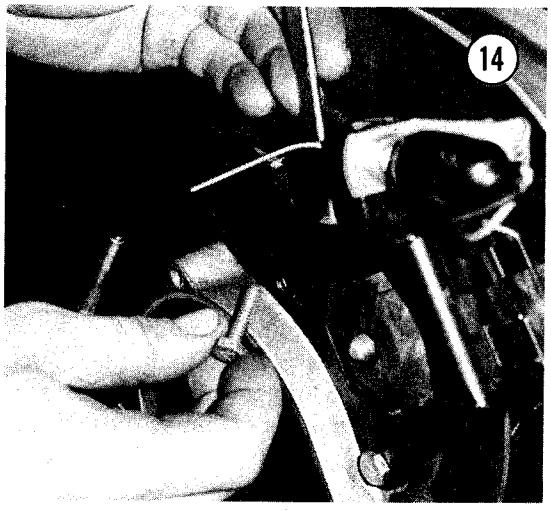
Model	Pulley Offset	Distance Between Pulleys
All 1970 models except T'NT 340	1/2 in. (12.7mm)[1]	1 7/8 in. (47.6mm)[2]
All 1971 models	1/2 in. (12.7mm)[1]	1 7/8 in. (47.6mm)[2]
All 1972-1973 except T'NT 340, 440, and T'NT F/A	1/2 in. (12.7mm)[1]	1 7/8 in. (47.6mm)[2]
1970 T'NT 340	3/8 in. (9.5mm)	1 7/8 in. (47.6mm)[2]
1972-1973 T'NT 294, 340, 440	7/16 in. (11.1mm)[3]	1 5/8 in. (41.3mm)[2]
1973 T'NT F/A 340, 400	1/2 in. (12.7mm)[4]	10 1/2 in. (26.7cm)[5]
1974 Elan and Olympique except Elan 294SS[7]	9/16 in. (14.3mm)[3]	1 7/8 in. (47.6mm)[4]
1974-1975 Elan 294SS and 300SS[7]	9/16 in. (14.3mm)[3]	1 7/8 in. (47.6mm)[4]
1974-1975 Elan 294SS and 300SS[7]	1/2 in. (12.7mm)[3]	1 1/2 in. (38.1mm)[4]
1974-1975 T'NT, Everest, T'NT F/A, 245 R/V, and 1975 Olympique[7]	1/2 in. (12.7mm)[3]	1 3/8 in. (34.9mm)[4]
1974-1975 T'NT F/A except 245 R/V	Self-adjusting	1 1/4 in. (31.7mm)[6]
1976 Elan	1 1/2 in. (38.1mm)[3]	1 3/4 in. (44.4mm)[2]
1978-1979 Elan	1 11/32 in. (34mm)[3]	1 3/4 in. (44mm)[2]
1976 Olympique 300 single	1 1/2 in. (38.1mm)[3]	1 7/8 in. (47.6mm)[2]
1976 Olympique 440	1 1/2 in. (38.1mm)[3]	1 3/8 in. (34.9mm)[2]
1976 Olympique 300, 340, T'NT, Everest, and T'NT R/V	1 5/16-1 3/8 in. (33.3-34.9mm)	1 3/8 in. (34.9mm)[2]
1978 Blizzard 6500 Plus	1 11/32 in. (34mm)[3]	1 5/16 in. (33mm)[2]
1979 Blizzard 5500	1 11/32 in. (34mm)[3]	1 3/8 in. (35mm)[2]
All other 1978-1979 models	1 11/32 in. (34mm)[3]	1 7/16 in. (36mm)[2]

1. 1971 models tolerance ± 1/32 in. (± 0.8mm)
2. 1971 models tolerance ± 1/32 in. (± 0.8mm), all other models tolerance + 0 − 1/16 in. (+ 0 − 1.6mm)
3. Tolerance ± 1/32 in. (± 0.8mm)
4. Tolerance ± 1/16 in. (± 1.6mm)
5. Measure between pulley centers. Tolerance + 0 − 1/8 in. (3.2mm). Pulley not adjustable, if out of tolerance check for mechanical wear or damage.
6. Not adjustable.
7. 1974-1975 models pulley offset achieved by using a simulator rod of specified diameter between halves of driven pulley.

4. On models so equipped, disconnect driven pulley support from upper column bracket **(Figure 13)**.



5. On models equipped with disc brakes, remove 2 bolts securing brake assembly and remove brake assembly **(Figure 14)**.

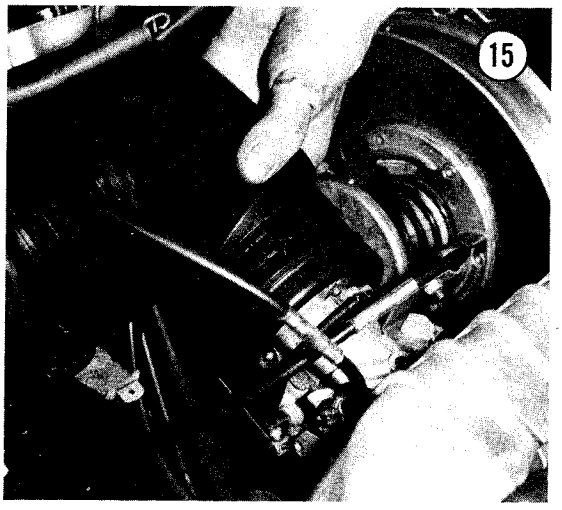


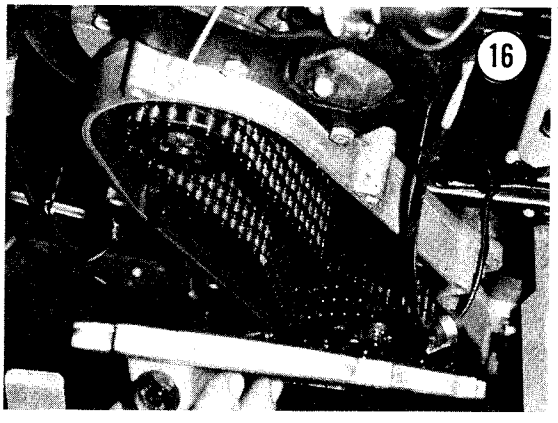
6. Remove air silencer **(Figure 15)**.

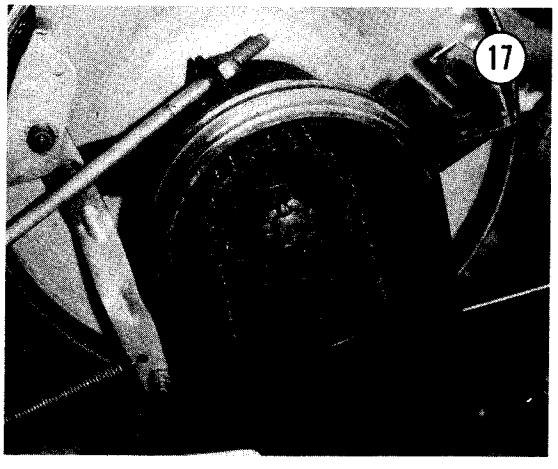
NOTE: *On some models it may be necessary to remove carburetor to gain access to driven pulley.*

7. On models equipped with aluminum chaincase, drain oil and remove chaincase cover **(Figure 16)**.

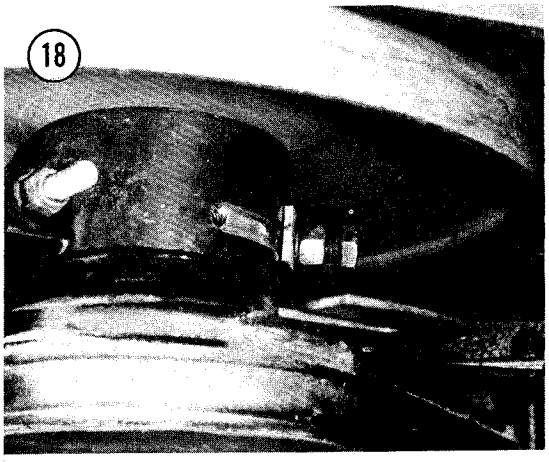
8. On models with pressed steel chaincase, pry out inspection cover **(Figure 17)**.







9. Loosen chain tension as follows:
   a. On 1970 model chaincases, loosen locknut and adjuster bolt and rotate adjuster **(Figure 18)**.



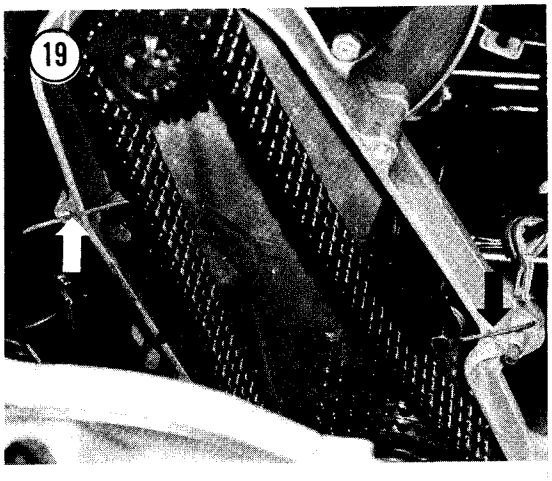
b. On aluminum chaincase models without external adjuster, release springs securing tensioner blocks (**Figure 19**).

c. On models with aluminum chaincase and external adjuster, loosen adjuster bolt.

10. Remove cotter pin and remove nut and washer from upper sprocket shaft (**Figure 20**).

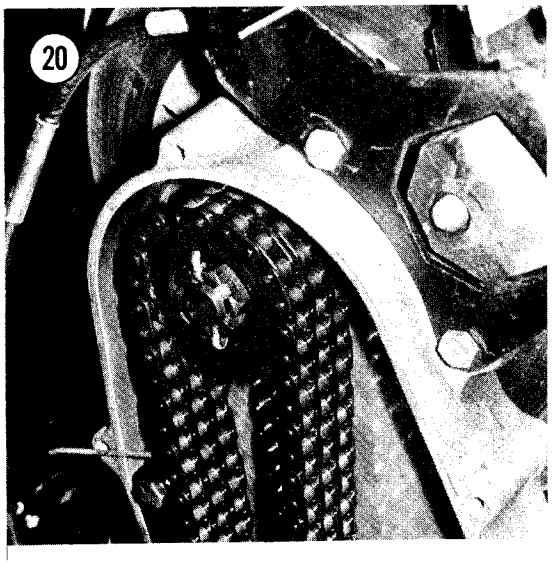
11. Hold upper sprocket and chain and remove driven pulley (**Figure 21**).

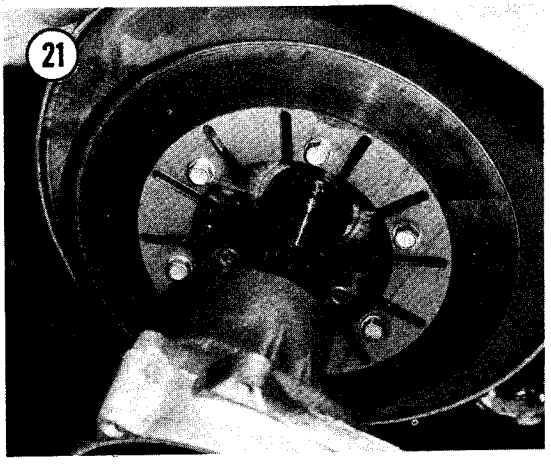
NOTE: *On models equipped with pressed steel chaincase, wire sprocket to top of chaincase to prevent chain and sprocket from falling to the bottom of the chaincase.*



12. Refer all necessary inspection and repair to an authorized dealer.

13. Installation is the reverse of these steps. Keep the following points in mind:





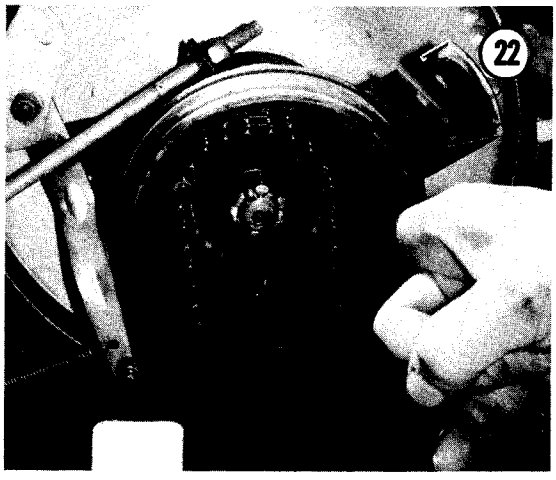
a. On models *not* equipped with self-adjusting drive pulley (**Table 3**), tighten nut securing driven pulley and upper sprocket then back off nut ⅙ turn. Install cotter pin (**Figure 20**).

CAUTION

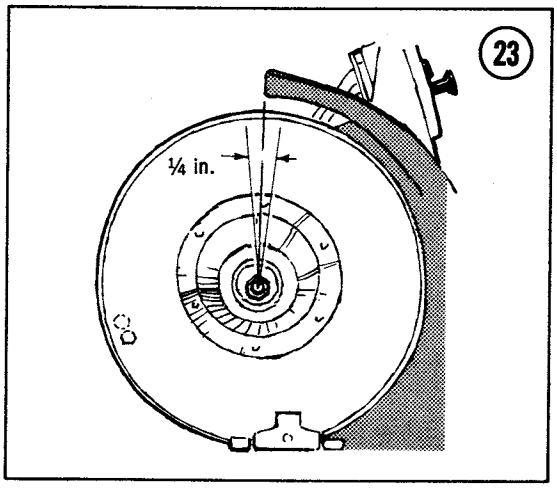
Failure to back off castellated nut ⅙ turn may result in damaged bearing on drive pulley shaft.

b. On T'NT F/A models with self-adjusting pulley (**Table 3**), torque pulley retaining bolt to 25 ft.-lb. (3.5 mkg).

c. On 1970 models, adjust external tensioner bolt for ¼ in. (6.4mm) chain deflection. Measure deflection on chain through upper inspection hole in chaincase (**Figure 22**).



d. On later models, chaincases with external tensioner bolt, tighten adjuster bolt for ¼ in. (6.4mm) slack measured at driven pulley (**Figure 23**).



e. Use new O-ring on aluminum chaincase cover. Tighten cover bolts gradually and evenly. Torque to 5 ft.-lb. (0.7 mkg).

f. Add approved oil until level is flush with indicator level or plug, see Chapter Two.

g. Perform *Pulley Alignment.*

PULLEY ALIGNMENT

CAUTION

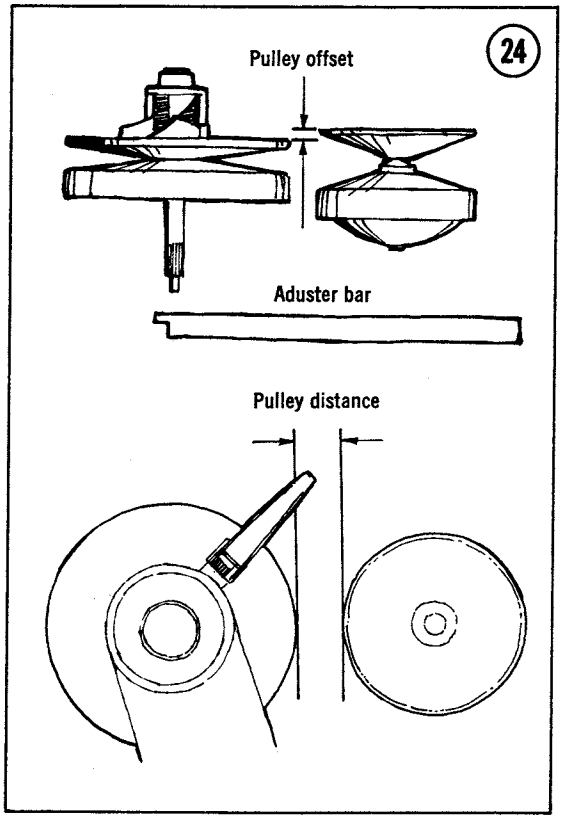
Proper pulley/drive belt alignment is very important. A misaligned drive belt can be destroyed in a few hours of operation.

NOTE: *If proper pulley alignment cannot be achieved through adjustment and the use of the proper number of shims, inspect drive components as well as frame for possible damage.*

Check alignment whenever engine is installed or rapid belt wear is experienced.

Alignment (1970—1973 Models)

1. Remove drive belt.
2. Check that engine mount nuts are torqued to 33-35 ft.-lb. (4.6-4.8 mkg).
3. Using appropriate adjuster bar, check pulley offset as specified in **Table 3**. See **Figure 24**.



4. Check the distance between pulley rims (**Figure 24**). See **Table 3** for specifications.
5. If offset is greater than specified value, remove drive pulley and add shims to crankshaft.

CAUTION

Do not use more than 5 shims on crankshaft.

6. If offset is less than specified, install shims between chaincase and frame.

NOTE: *On steel chaincases, shim can be cut in half to correct for a bent chaincase.*

CAUTION

On aluminum chaincases, always use full length shims.

7. If pulley distance is out of tolerance, loosen chaincase. Loosen driven pulley support, if necessary, and tighten or loosen hinge rod to move driven pulley to specified distance.

8. Tighten chaincase. Recheck alignment and distance.

9. Check brake operation and adjust if necessary.

10. Install drive belt.

Alignment (1974-1975 models)

1. Remove drive belt.

2. Check that the engine mount nuts are torqued to 22-30 ft.-lb. (2.9-4.1 mkg).

3. Place a piece of specified size simulator rod between driven pulley halves (**Figure 25**). See **Table 3** for simulator rod size.

4. Use a straight end or stretched rope and check that inner halves of drive and driven pulleys are aligned (**Figure 25**).

5. If drive pulley is too far in, remove pulley and add shims on crankshaft.

CAUTION

Do not use more than 5 shims on crankshaft.

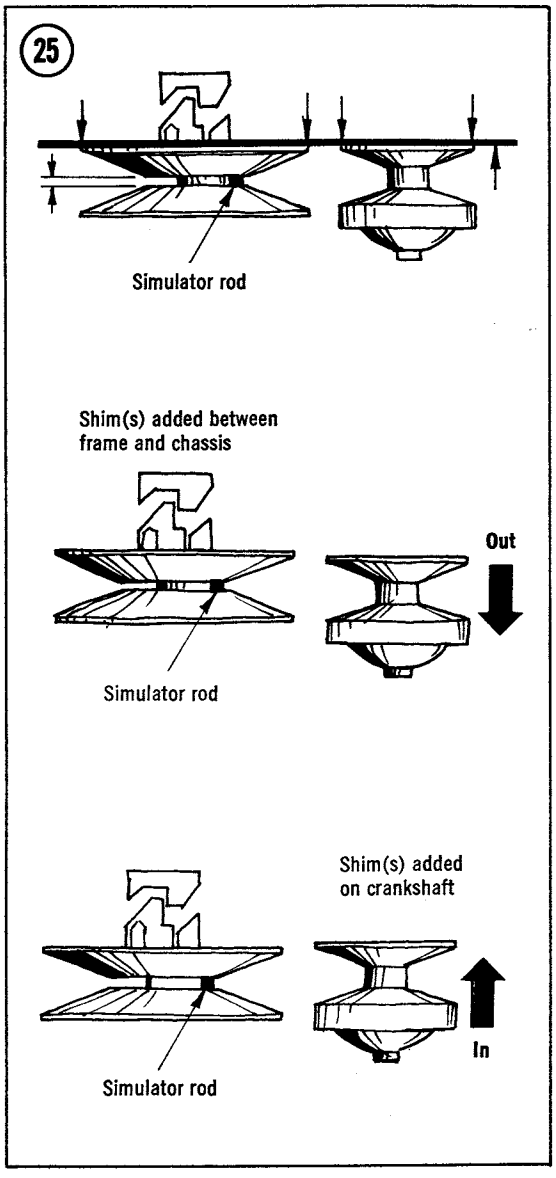
6. If drive pulley is too far out, loosen chaincase and install necessary shims between frame and chaincase.

NOTE: *On steel chaincases, shims can be cut in half to correct for a bent chaincase.*

CAUTION

On aluminum chaincases always use full length shims.

7. On T'NT F/A models with self-adjusting driven pulley, alignment takes place automatically during operation. Apply anti-seize lubricant to pulley shaft to ensure its free movement. Check that pulley retaining bolt is torqued to 25 ft.-lb. (3.5 mkg).



8. Check distance between pulley rims. See **Table 3** for specifications.

9. If pulley distance is not as specified, loosen and adjust chaincase as necessary.

10. Check brake operation and adjust if necessary.

11. Install drive belt.

Alignment (1976 and Later Models)

1. Remove drive belt.

2. Check that engine mount nuts are torqued to 22-30 ft.-lb. (2.9-4.1 mkg).

3. Lay a 19 in. (48 cm) length of ⅜ in. square bar between pulley halves (**Figure 26**).
4. Check pulley offset and distance as specified in **Table 3**.
5. On front mounted engines if pulley offset is out of tolerance, loosen engine support and adjust in required direction to obtain specified offset.
6. On center mounted engines, remove drive pulley and add shims to crankshaft.

CAUTION

Do not use more than 5 shims on crankshaft.

If drive pulley is too far out, loosen chaincase and install necessary shims between frame and chaincase.

7. If pulley distance is not as specified, loosen and adjust chaincase as necessary.
8. Check brake operation and adjust if necessary.
9. Install drive belt.

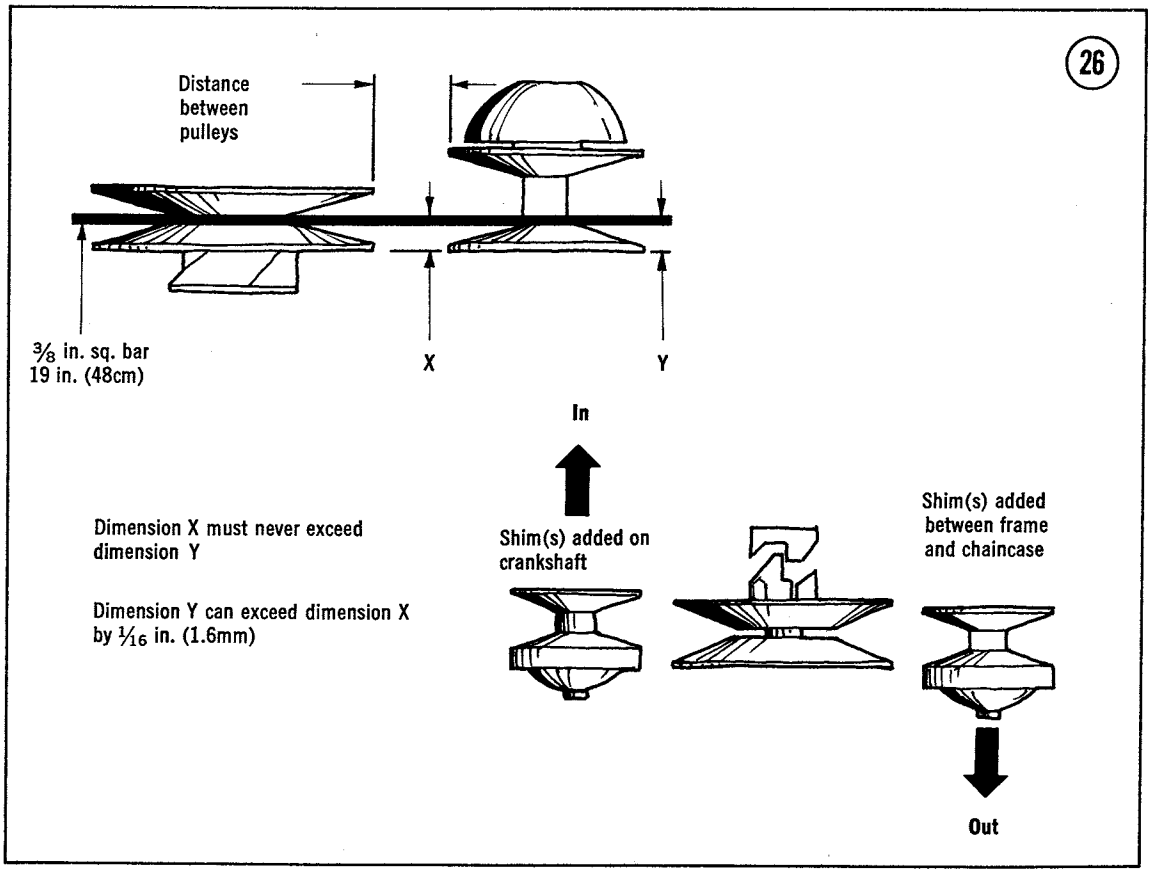
CHAINCASE, DRIVE CHAIN, AND SPROCKETS

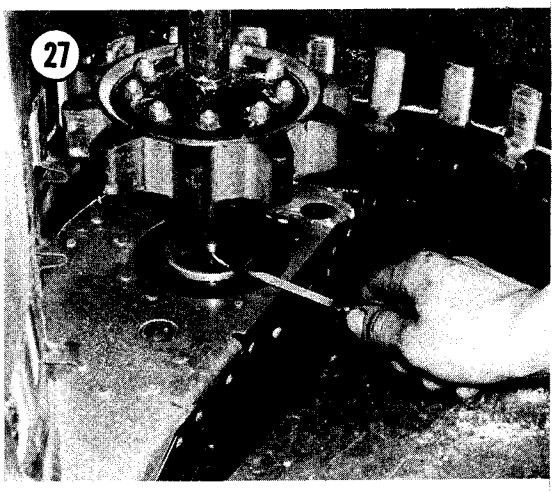
Pressed Steel Chaincase Assembly Removal/Installation

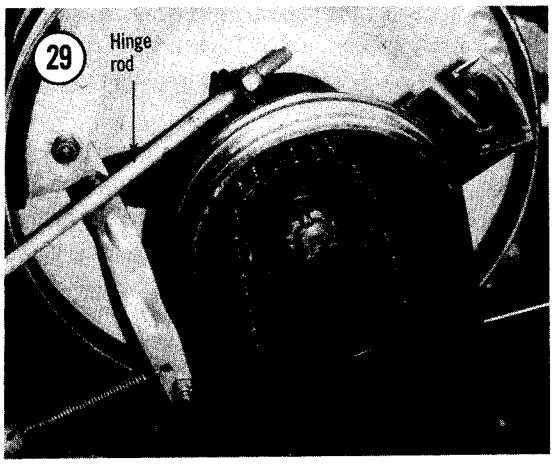
1. Remove driven pulley.
2. Release track tension (Chapter Two).
3. Place a drain pan beneath chaincase and pry out drive axle oil seal from chaincase with a small screwdriver (**Figure 27**).
4. Disconnect brake cable.

NOTE: *On 1970 models with 18 in. track, remove foot rest secured to frame and chaincase (**Figure 28**).*

5. Remove lower access plug (**Figure 28**) from chaincase and remove cotter pin and spacer securing lower sprocket.
6. Remove nut securing hinge rod to chaincase bracket (**Figure 29**).
7. Remove nut securing lower chaincase bracket and remove bracket (**Figure 28**).



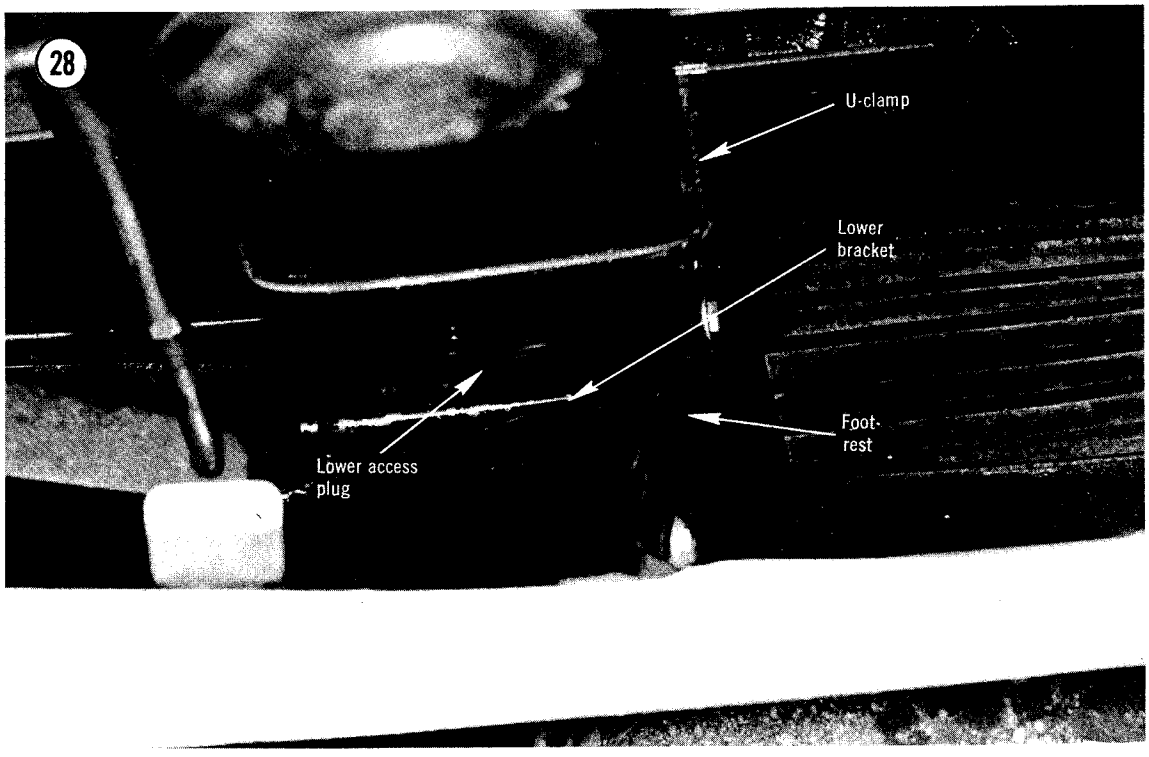




8. Remove nuts and washers from "U" clamp securing chaincase to frame **(Figure 28)**.
9. Note number of shims, if any, between chaincase and frame and remove shims.
10. Shift chaincase and disengage hinge rod.
11. Remove drive axle.
12. Using 2 large screwdrivers between chaincase and frame, pry chaincase assembly from machine.
13. Perform *Inspection and Repair.*
14. Installation is the reverse of these steps. Keep the following points in mind:
    a. Ensure that spacer is on drive axle before installing axle.

       NOTE: *Spacer is not installed on Elan models.*

    b. When installing oil seal on drive axle, ensure that approximately 1/16 in. (1.5mm)

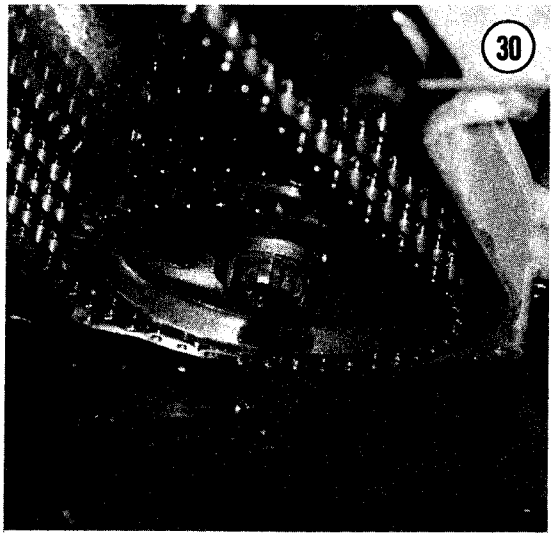


gap is present between end of chaincase flange and oil seal.

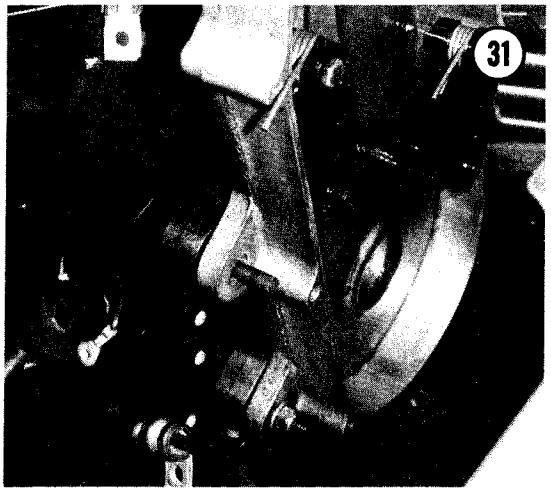
c. On 1970 models, adjust tensioner for ¼ in. (6.4mm) chain deflection measured through chaincase inspection hole (**Figure 22**).
d. Perform *Pulley Alignment.*
e. Perform *Brake Adjustment* and *Track Tension Adjustment* as outlined in Chapter Two.
f. Add approved chaincase oil until level is flush with chaincase plug. See Chapter Two.

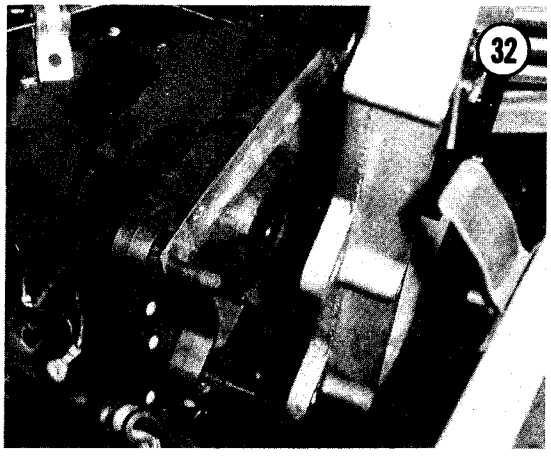
Aluminum Chaincase (With Automatic Chain Tensioner) Removal/Installation

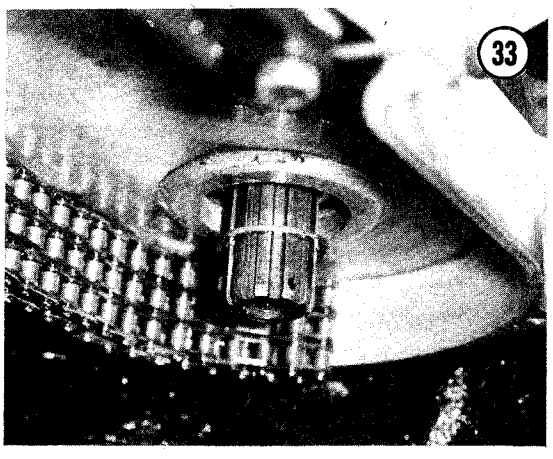
1. Remove driven pulley.
2. Release track tension (Chapter Two).
3. Pry out drive axle oil seal from chaincase with a small screwdriver (**Figure 27**).
4. Remove cotter pin and spacer securing lower sprocket (**Figure 30**). Remove lower sprocket and chain.



5. Remove bolts securing chaincase to frame (**Figure 31**). Note number of shims, if any, between chaincase and frame and remove shims. Remove chaincase (**Figure 32**).
6. Perform *Inspection and Repair.*
7. Installation is the reverse of these steps. Keep the following points in mind:
   a. Ensure that the spacer is on the drive axle (**Figure 33**).







   b. When installing oil seal on drive axle, ensure that approximately 1/16 in. (1.5mm) gap is present between end of chaincase flange and oil seal.

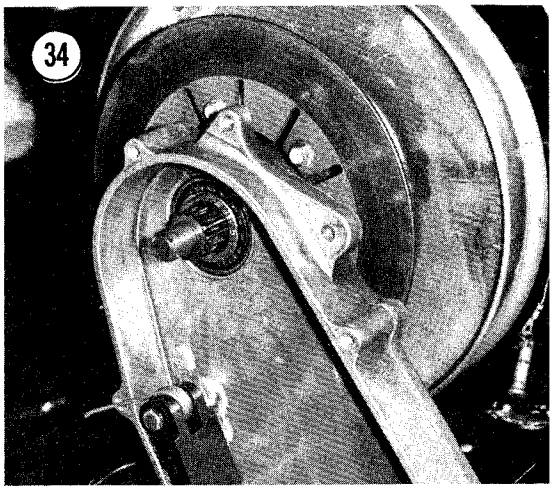
c. Perform *Pulley Alignment.*
d. Perform *Brake Adjustment* and *Track Tension Adjustment* as outlined in Chapter Two.
e. Use new O-ring on chaincase cover. Tighten cover bolts gradually and evenly. Torque bolts to 5 ft.-lb. (0.7 mkg).
f. Add approved chaincase oil until level is flush with indicator level or plug, see Chapter Two.

Aluminum Chaincase (With External Chain Tension Adjuster)
Removal/Installation

1. Remove driven pulley.
2. Pry out drive axle oil seal from chaincase with a small screwdriver **(Figure 27)**.
3. Release track tension (Chapter Two).
4. Remove bolt and washer securing lower sprocket and remove sprocket.
5. Remove bolt securing chaincase to frame and remove chaincase.
6. Perform *Inspection and Repair.*
7. Installation is the reverse of these steps. Keep the following points in mind:
   a. Tighten tension adjuster bolt for ¼ in. (6.4mm) slack measured at driven pulley level **(Figure 23)**.
   b. Perform *Pulley Alignment.*
   c. Perform *Track Tension Adjustment* as outlined in Chapter Two.
   d. Use new O-ring on chaincase cover. Tighten bolts gradually and evenly. Torque bolts to 5 ft.-lb. (0.7 mkg).
   e. Add approved chaincase oil as outlined in Chapter Two.

Inspection and Repair

1. Inspect chain for damaged or broken rollers.
2. Inspect sprocket teeth for wear. If a new drive chain is installed, replace both sprockets. A new chain will not match worn sprockets.
3. Examine chain tensioners and replace if contact surfaces are deeply worn.
4. To replace chain, sprockets, or tensioners, perform the following:
   a. Remove cotter pin and castellated nut securing drive pulley to upper sprocket and remove drive pulley.
   b. Remove bolt securing chain tensioner to chaincase and remove tensioner **(Figure 34)**.



   c. Inspect bearings on upper sprocket shaft and replace if damaged or worn.
   d. If replacing upper sprocket oil seal ensure that oil seal sits flush with chaincase hub.
   e. When installing lower sprocket ensure that longer flange on sprocket is toward track side of chaincase.
   f. On models not equipped with self-adjusting drive pulley **(Table 3)**, tighten nut securing driven pulley and upper sprocket then back off ⅛ turn. Install cotter pin **(Figure 20)**.

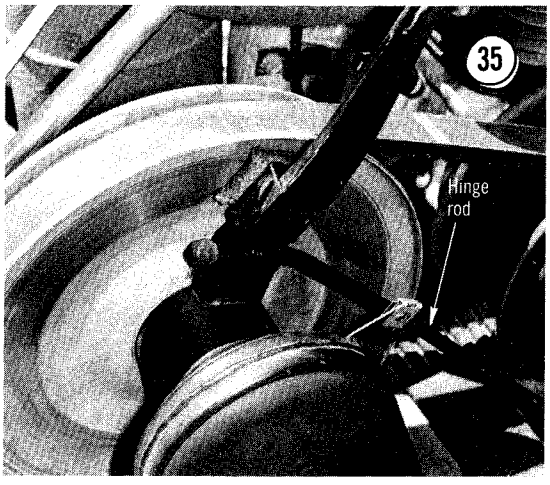
CAUTION

Failure to back off castellated nut ⅛ turn may result in damaged bearing on drive pulley shaft.

BRAKES

Pivot Brake Assembly
Removal/Installation

1. Remove drive belt.
2. Disconnect brake cable from handle plate.
3. Remove nut securing hinge rod to cross frame support **(Figure 35)**.
4. Remove U-clamp and shims securing chaincase **(Figure 28)**. Loosen lower bracket securing chaincase to frame.



5. Move chaincase and disengage hinge rod from cross support.

6. Remove nut securing hinge rod to chaincase and remove brake assembly with hinge rod and spring (**Figure 35**).

7. Examine brake lining and replace if oil-soaked or worn to level of rivets.

8. Installation is the reverse of these steps. Keep the following points in mind:

a. Perform *Pulley Alignment.*

b. Adjust brake cable so brake is fully applied when brake lever is ¼ in. (6.4mm) from handlebar grip.

Drum Brake Removal/Installation

Refer to **Figure 36** for this procedure.

1. Remove drive belt.

2. Disconnect brake lever spring.

3. Remove bolt and cable lock bracket securing brake cable to brake lever.

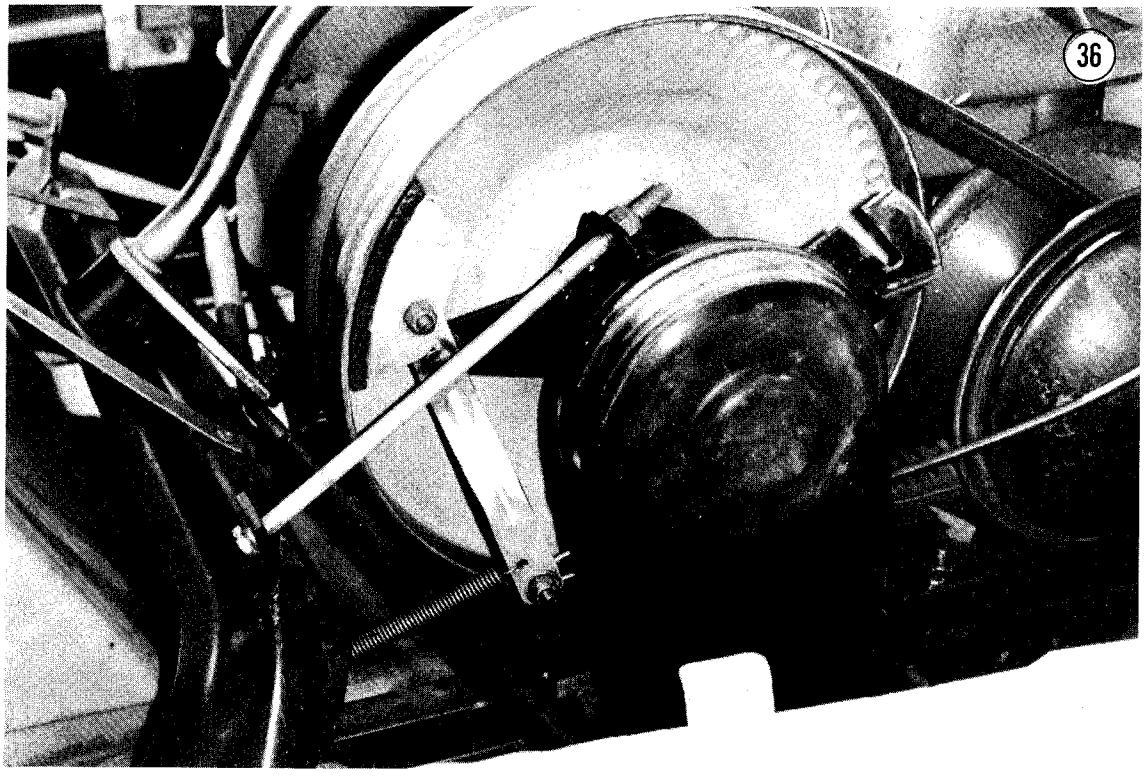
4. Remove brake lever and brake assembly from machine.

5. Replace brake lining if oil-soaked or worn to level of rivets.

6. Installation is the reverse of these steps. Keep the following points in mind:

a. Lightly lubricate all moving parts with light oil. Do not get oil on brake shoe of drum.

b. Adjust brake cable so brake is fully applied when brake lever is 1 in. (25mm) from handlebar grip.



c. Check brake light operation and loosen and adjust brake light switch locknuts if necessary.

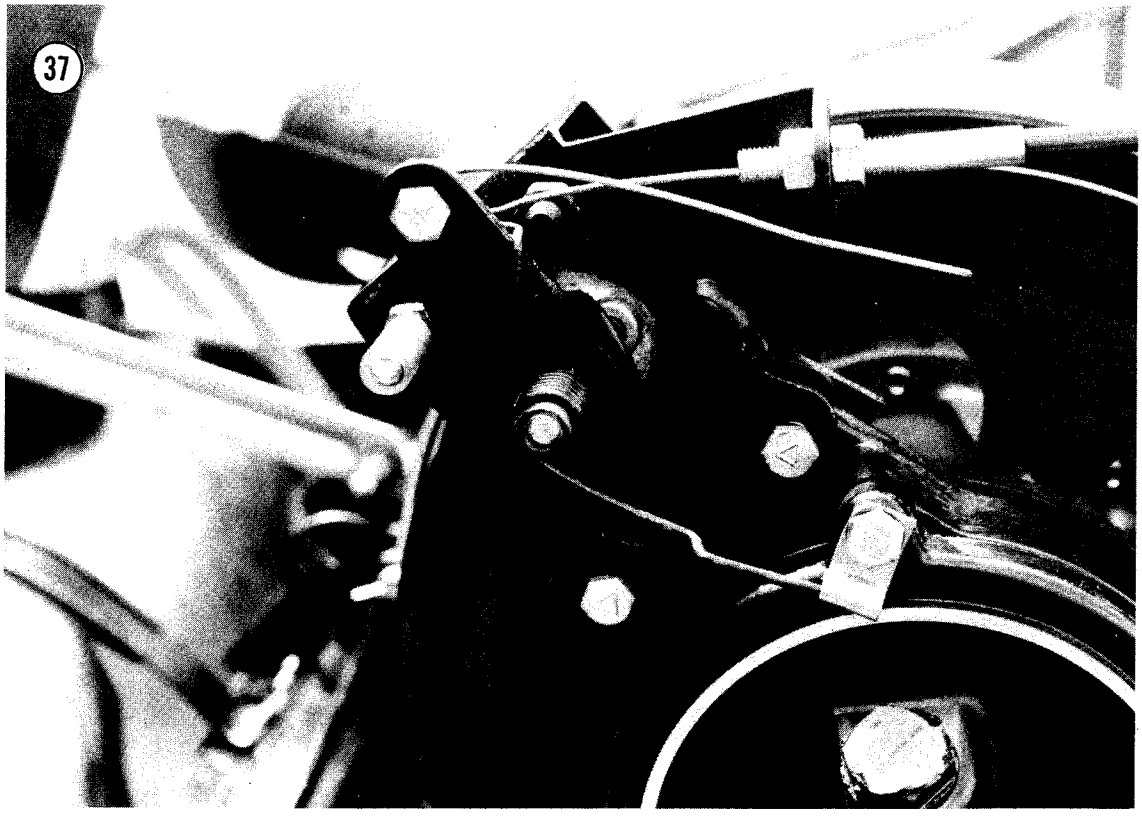
Regular Type Disc Brake Removal/Installation

Refer to **Figure 37** for this procedure.

1. Disconnect wires from brake light switch on models so equipped.
2. Remove bolt and nut securing cable to brake lever.
3. Remove locknut from cable housing and withdraw cable.
4. Remove bolts securing brake assembly to chaincase and remove brake assembly with return spring.
5. Check brake pad thickness and replace if less than 3/16 in. (4.8mm) thick.
6. Installation is the reverse of these steps. Keep the following points in mind:
   a. Torque nuts securing brake assembly to brake support to 25 ft.-lb. (3.5 mkg).
   b. Adjust brake cable so brake is fully applied when brake lever is 1 in. (25mm) from handlebar grip.
   c. Check brake light operation and loosen and adjust brake light switch locknuts if necessary.

Heavy Duty Disc Brake Removal/Installation

1. Disconnect brake cable from brake lever. Disconnect brake light switch spring.
2. Remove bolts securing brake assembly to brake support bracket and remove brake assembly.
3. Inspect brake pads and replace if worn level with rivets.
4. Installation is the reverse of these steps. Keep the following points in mind:
   a. Tighten castellated adjuster nut until disc/pad friction is just felt. Screw in small adjusting screw until pads are parallel and apply equal pressure on disc. Lock small adjusting screw with jam nut.

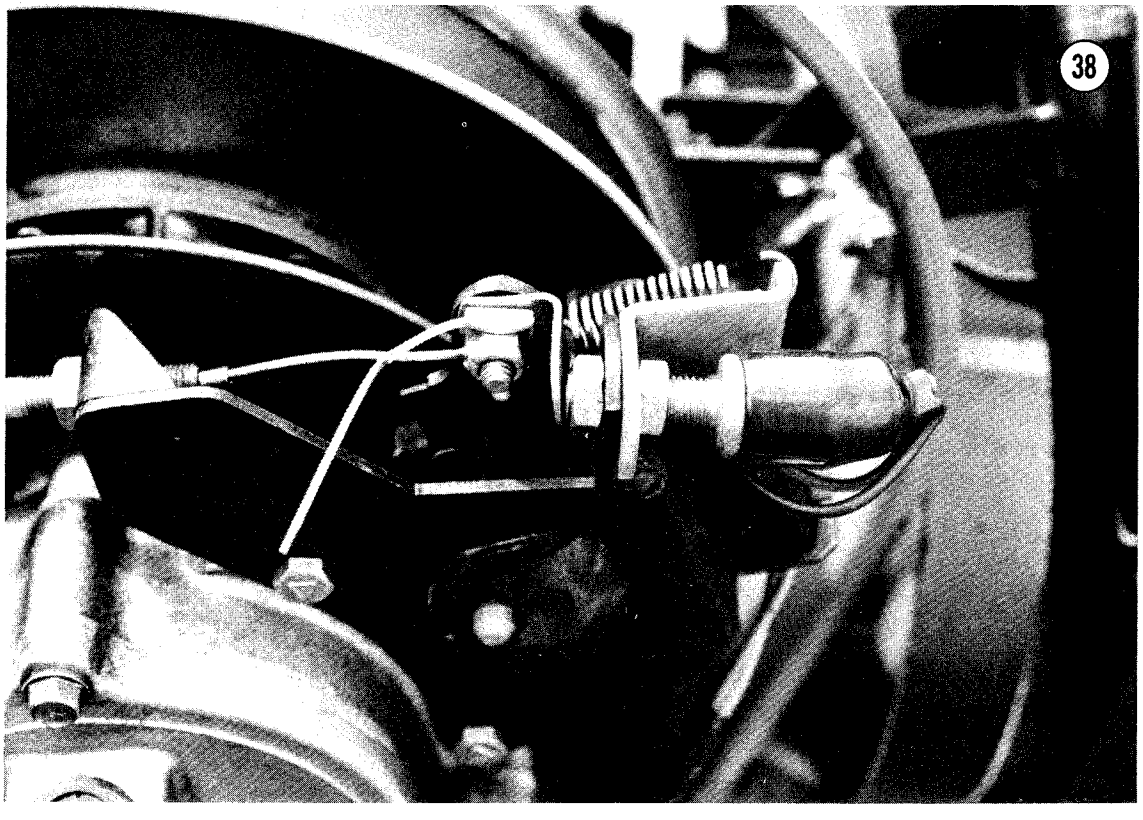


b. Back off castellated nut slightly and secure with hair pin keeper.
c. Tighten small cone nut then back off one turn.
d. Adjust brake cable for 1 in. (25mm) gap between brake lever and handlebar grip when brake is fully applied.
e. Check operation of brake light and loosen and adjust light switch locknuts if necessary.

Self-Adjusting Disc Brake (Non-Bombardier Type) Removal/Installation

Refer to **Figure 38** for this procedure.

1. Disconnect brake cable.
2. Disconnect brake light switch electrical junction block.
3. Remove locknut securing cable housing and pull out housing.
4. Remove bolts securing brake assembly and remove complete assembly.
5. Inspect brake pads and replace if less than ⅛ in. (3.2mm) thick.
6. If necessary to replace pads perform the following:
   a. Remove cotter pin securing retaining pin and remove retaining pin.
   b. Slip strips of thin, stiff cardboard between pawls and ratchet wheels. Screw ratchet wheel up against stop nut.
   c. Disengage pawls from brake pads and brake lever and remove pads.
   d. Lightly lubricate adjusting screw threads with graphite base lubricant.
   e. Lightly grease mating surfaces of pawls with low temperature grease.
   f. Install pawls and position brake lever on adjusting screw stud so brake lever tab engages slot of adjusting pawl.
   g. Apply low-temperature grease on cam recess of brake lever and install sliding pad assembly over adjusting screw stud so sliding pad tab engages slot of backstop pawl.



h. Install retaining pin and secure with new cotter pin.

7. Installation is the reverse of these steps. Keep the following points in mind:

a. With brake spring disconnected and switch tab rotated away from brake light switch, press brake lever lightly until free play is taken up. Measure and record distance between brake lever and brake light switch bracket. This is neutral position.

b. Secure brake cable housing to bracket, making sure adjusting nuts are halfway on housing threads.

c. Connect brake cable to brake lever in neutral position.

d. Connect brake lever spring and check neutral position. Readjust if necessary with adjusting nuts on cable housing.

e. Apply brake repeatedly until no more clicks are heard. Brakes must apply fully before brake lever is ½ in. (13mm) from handlebar grip.

f. Check operation of brake light and loosen and adjust light switch locknuts if necessary.

Self-Adjusting Disc Brake (Bombardier Type) Removal/Installation

Refer to **Figure 39** for this procedure.

1. Disconnect brake cable and brake light switch.

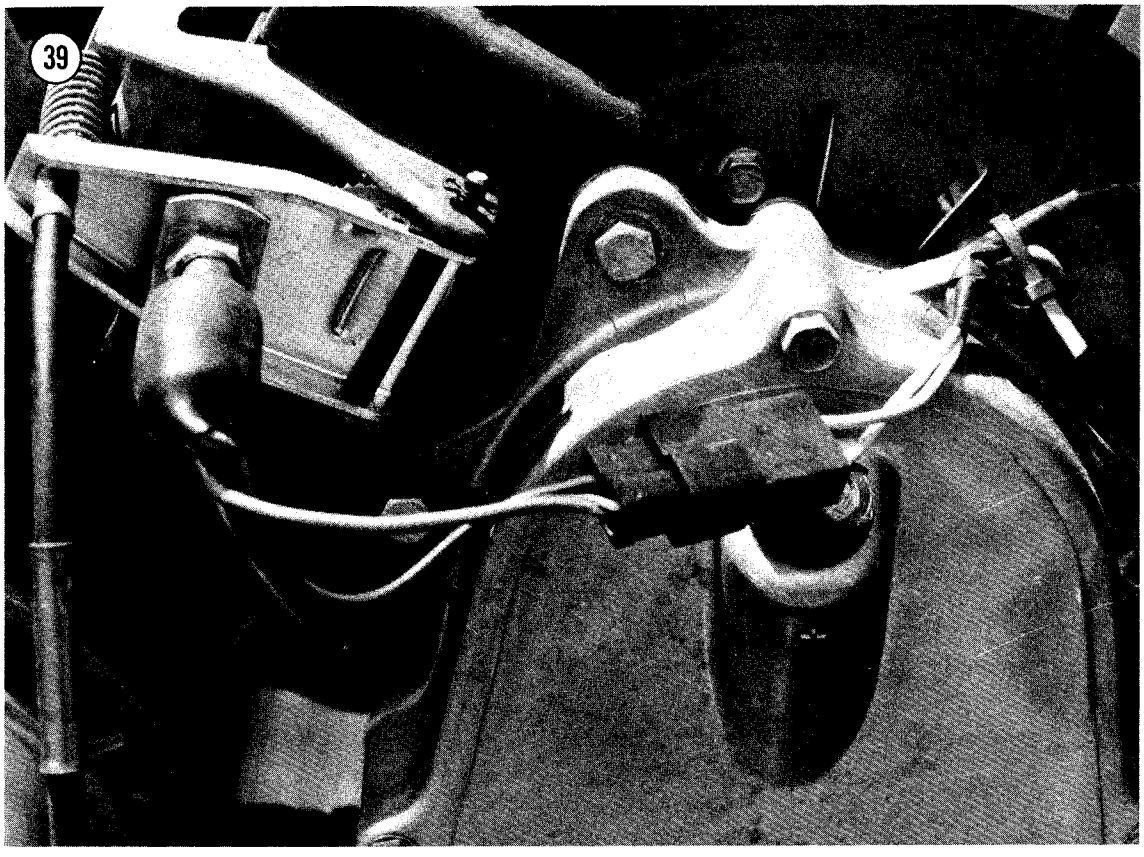
2. On models with floating caliper type brake, remove bolts securing brake support to chaincase and slide caliper assembly from brake support.

3. On models with floating disc type brake, remove bolts securing brake bracket to chaincase and remove caliper assembly.

4. Inspect brake pads and replace if oil-soaked or less than ⅛ in. (3.20mm) thick.

5. Installation is the reverse of these steps. Keep the following points in mind:

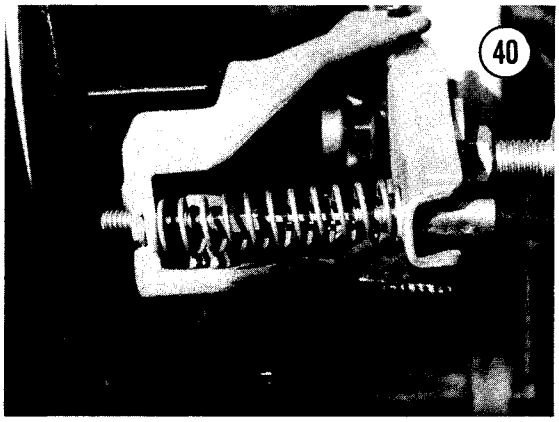
a. Apply brake repeatedly until no more clicks are heard.



b. Rotate cable adjusting nut until no free play exists between brake lever and brake housing.

c. Measure gap between brake lever and caliper. Gap should be 2 ± ⅛ in. (50 ± 3mm) on floating caliper type and 1½ ± ⅛ in. (38 ± 3mm) on floating disc type **(Figure 40)**.

NOTE: *On floating caliper type it may be necessary to move brake light switch support to achieve recommended gap between lever and caliper housing.*



d. On floating caliper models, torque nut securing caliper assembly to 14-17 ft.-lb. (1.9-2.4 mkg).

e. Check operation of brake light and loosen and adjust light switch locknuts if necessary.