

SECTION 8 - DRIVE TRAIN AND BRAKE SYSTEMS

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Drive Belt

The belt dimensions and construction are two factors that influence the performance of the drive system. The two belt dimensions that are important to the performance of the snowmobile are the outside circumference and the width. Both of these dimensions will influence shifting characteristics.

If the drive belt is longer than specified, the drive clutch and driven pulley will not have the full shift ratio. Also, a too-long drive belt will cause poor acceleration and a decrease in top speed.

If the drive belt is shorter than specified, the drive clutch and driven pulley will have a different shift pattern because they are in different ratios from those for which they were originally matched. A too-short drive belt will cause a loss in performance and a bog on engagement.

■ **NOTE:** A drive belt that is worn thin may produce the same effect as one that is too long.

Drive belt construction has an influence on the way the drive clutch and driven pulley will shift and on the amount of power that will be transmitted through the system. **ONLY ARCTIC CAT DRIVE BELTS SHOULD BE USED.** Different brands of belts may not have the same construction causing either more friction or more slippage when the belt is wedged between the sheaves and, thus, a loss of efficiency.

■ **NOTE:** A stiff belt causes a HP loss to the track. As a belt warms up, it gets more flexible and transmits power with less HP loss.

Drive Clutch

CHANGING CAM ARMS

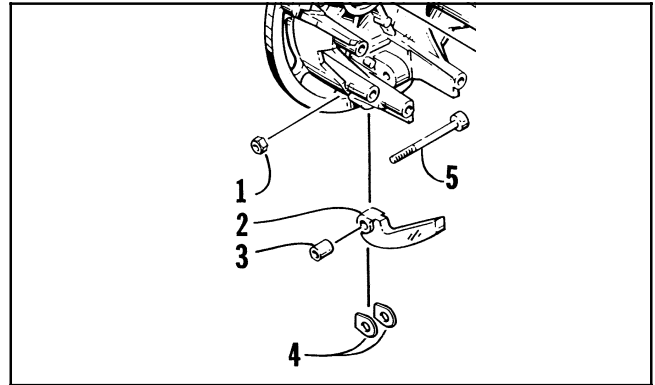
The cam arms on the drive clutch can be changed without disassembling the clutch. To change the cam arms, use the following procedure.

1. Check to make sure the ignition switch is in the OFF position.
2. Remove the drive belt.
3. Compress the movable sheave approximately 2.5 cm (1 in.) and while holding it in this position, insert a flat bar firmly between the bottom side of the spider and the inner surface of the movable sheave. Slowly release the movable sheave.

4. Remove the lock nuts from the three cam arm pins.
5. Remove the cam arm pins one at a time; then remove the cam arm with bushing and account for the washers.

■ **NOTE:** When installing cam arms, always use new lock nuts. Make sure the head of each cam arm pin is positioned towards the direction of drive clutch rotation. Tighten nuts until they contact the shoulder of the cam arm pin; then tighten an additional 1/8 turn.

Fig. 8-1



733-452B

6. Change the cam arms and secure with new lock nuts and existing pins making sure the head of each pin is positioned toward the direction of drive clutch rotation.

■ **NOTE:** The drive clutch rotates counterclockwise.

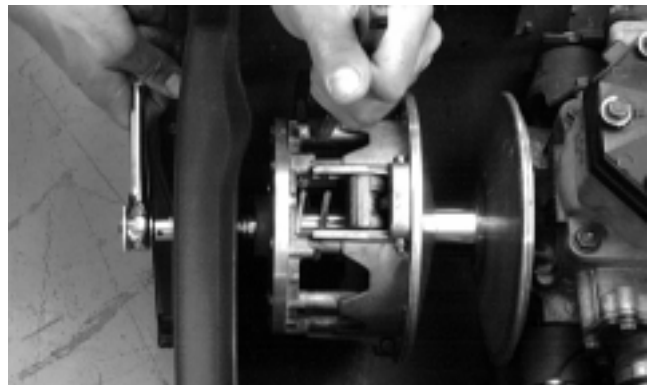
WARNING

Do not run the engine with the drive belt removed or the bar in the clutch.

REMOVING

1. Open the belt guard; then remove the drive belt and the plug from the belly pan.
2. Remove the bolt and lock washer securing the drive clutch to the crankshaft.

Fig. 8-2

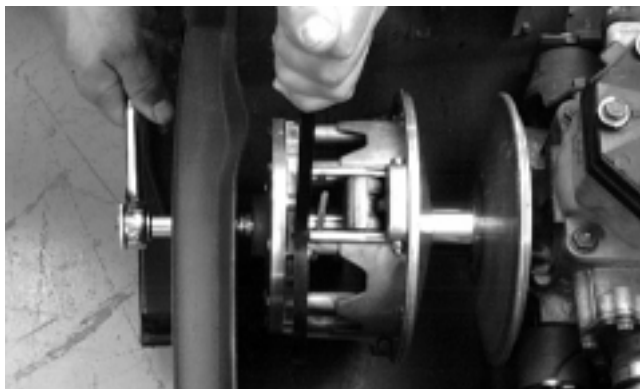


AN380D

■ **NOTE:** Before installing the clutch puller, apply oil to the threads of the puller and a small amount of grease to the tip of the puller.

3. Using the Clutch Puller (p/n 0644-207) and an impact wrench or a breaker bar and the Drive Clutch Spanner Wrench (p/n 0644-136), tighten the puller. If the drive clutch will not release, sharply strike the head of the puller. Repeat this step until the clutch releases.

Fig. 8-3



AN381D

4. Remove the drive clutch from the engine compartment. Account for any spacers.

DISASSEMBLING

■ **NOTE:** Note the timing marks on the cover, spider, and movable sheave. These must be aligned when assembling the drive clutch for balance purposes.

1. Loosen the nine cap screws securing the cover plate. Remove every other cap screw and lock washer from the cover plate; then while firmly holding the cover plate, remove the four remaining cap screws and lock washers equally.

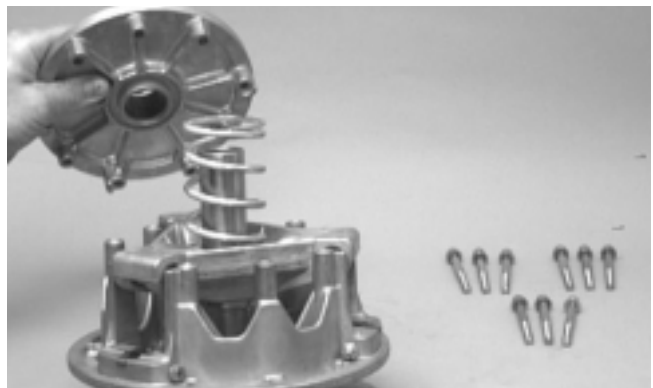
Fig. 8-4



AM059D

2. Remove the cover and spring.

Fig. 8-5

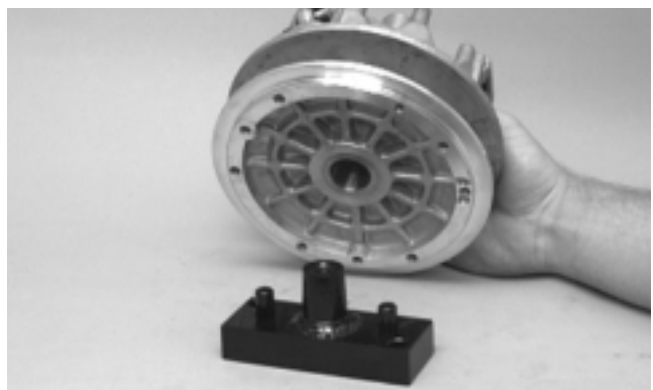


AM061D

3. Position the drive clutch over the Clutch Holder (p/n 0644-058).

■ **NOTE:** The holder should either be secured in a vise or bolted to a sturdy work bench.

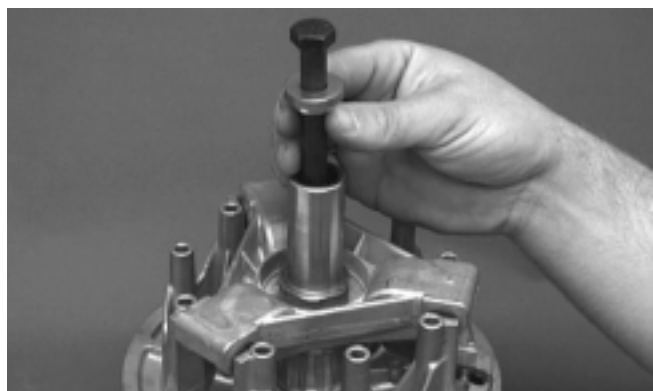
Fig. 8-6



AM063D

4. Secure the drive clutch to the holder using the clutch bolt and lock washer.

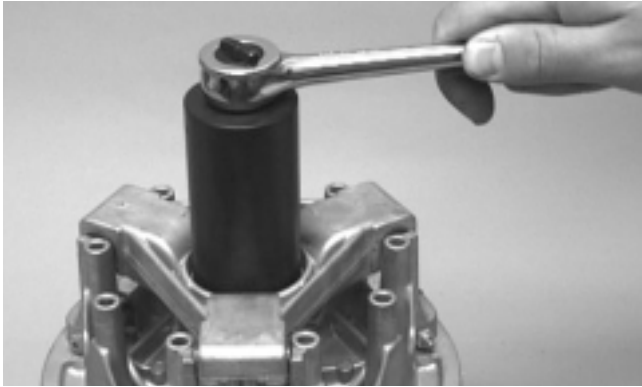
Fig. 8-7



AM064D

5. Using the Thin Wall Deep Socket (p/n 0644-138), remove the spider retainer nut.

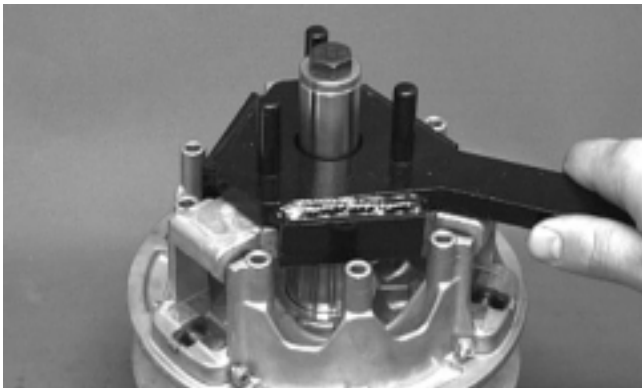
Fig. 8-8



AM065D

6. Using a small torch, heat the threaded area of the spider. Place the Spider Removal Tool (p/n 0644-085) over the heated spider and break spider loose by turning it counterclockwise.

Fig. 8-9



AM067D

■ **NOTE:** Applying heat to the spider threaded area will aid in clutch disassembly. The heat will loosen the Loctite used during assembly.

7. Remove the drive clutch from the clutch holder using the clutch puller and the same procedure as pulling the drive clutch from the crankshaft.
8. Remove the spider, spacer washers, and movable sheave.
9. Using a pair of pliers, remove the six spider buttons.

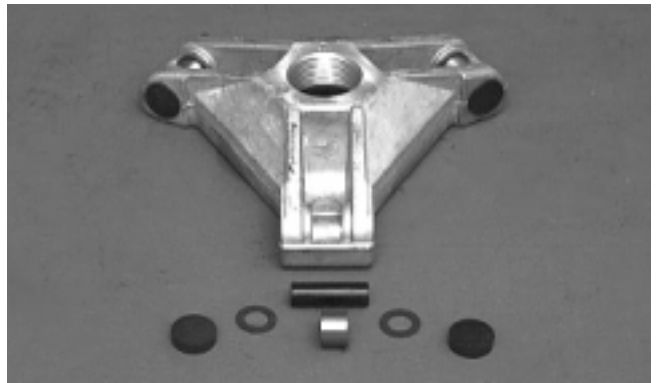
Fig. 8-10



AM070D

10. Using a punch, push each pin from the roller. Account for the roller washers (one on each side of each roller).

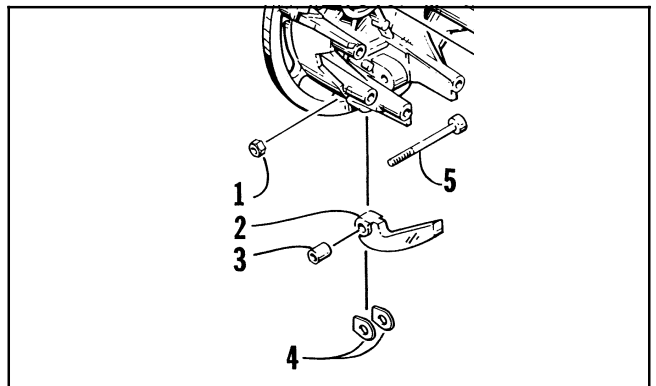
Fig. 8-11



AM071D

11. Remove the three cam arm pins and lock nuts securing the cam arms to the movable sheave; then remove each cam arm and account for the bushing and the washers.

Fig. 8-12



733-452B

CLEANING AND INSPECTING

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

1. Using parts-cleaning solvent, wash grease, dirt, and foreign matter off all components; dry with compressed air.
2. Remove any drive belt dust accumulation from the stationary sheave, movable sheave, and bushings using parts-cleaning solvent only.

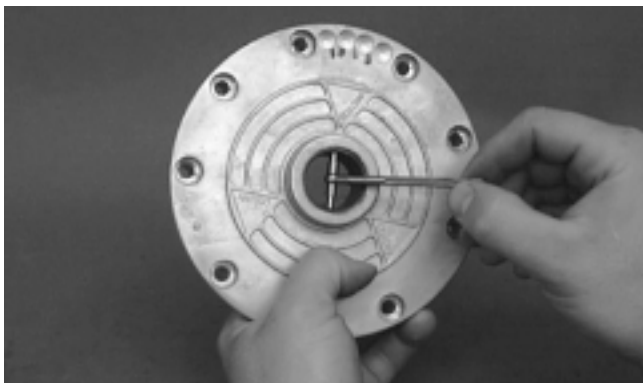


CAUTION

Do not use steel wool or a wire brush to clean components having a bushing; damage to the bushing will result.

3. Inspect stationary sheave, movable sheave, spider, and cover for cracks or imperfections in the casting.
4. Inspect the cam arm pins for wear or bends.
5. Inspect the bushing in the cover for wear, damage, or cracks. Measure the inside diameter of the bushing and the outside diameter of the stationary sheave hub. The difference (clearance) must be less than 0.20 mm (0.008 in.). If cover bushing is not within specifications, replace the cover.

Fig. 8-13



AM078D

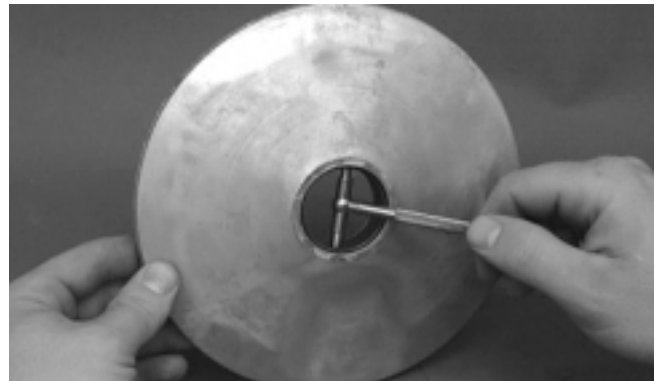
Fig. 8-14



AM077D

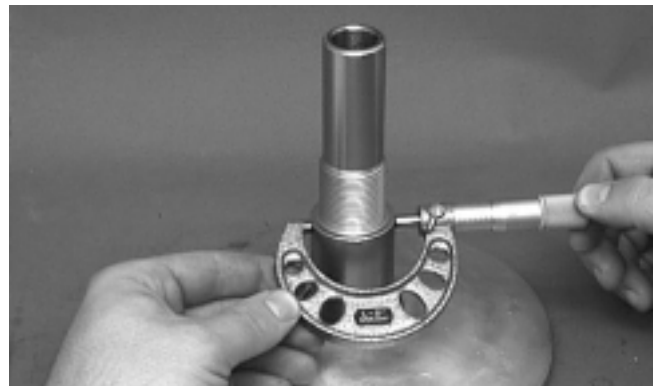
6. Inspect the bushing in the movable sheave for wear, damage, or cracks. Measure the inside diameter of the bushing and the outside diameter of the stationary sheave hub. The difference (clearance) must be less than 0.20 mm (0.008 in.). If movable sheave bushing is not within specifications, replace the movable sheave.

Fig. 8-15



AM023D

Fig. 8-16



AM079D

7. Inspect the spring for proper compression rate qualities.

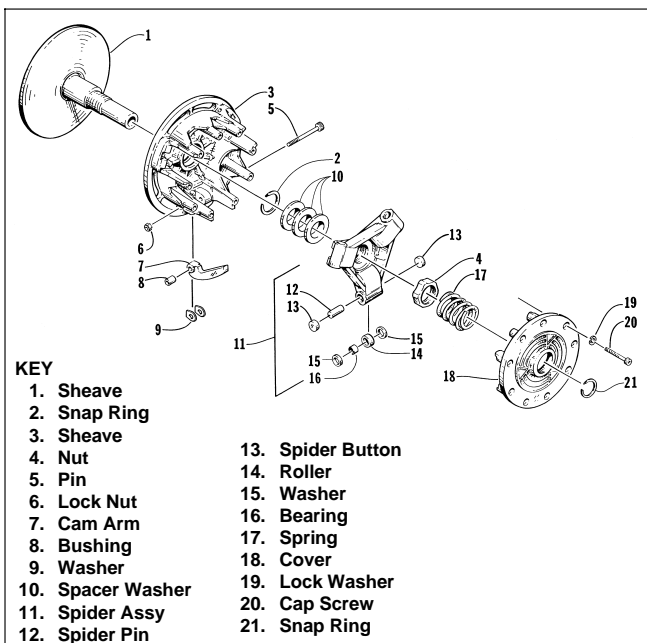
P/N	Color	Rate @ 2 9/16 in.	Rate @ 1 5/16 in.
0646-148	Red/Blue	53 lb	224 lb
0646-150	Silver	72 lb	188 lb
0646-149	Red	74 lb	228 lb
0646-147	Yellow/Green	114 lb	267 lb
0646-155	Purple	121 lb	240 lb
0646-229	Yellow/White	122 lb	285 lb
0646-248	Orange/White	143 lb	290 lb

8. Inspect the cam arms for any uneven wear pattern or damage to the bushings.
9. Inspect all threaded areas for any cracked or stripped threads.
10. Inspect rollers for damage or wear.
11. Inspect the roller bushings for damage or fraying.

12. Inspect the stationary sheave and shaft for damage or wear.

ASSEMBLING

Fig. 8-17



0734-069

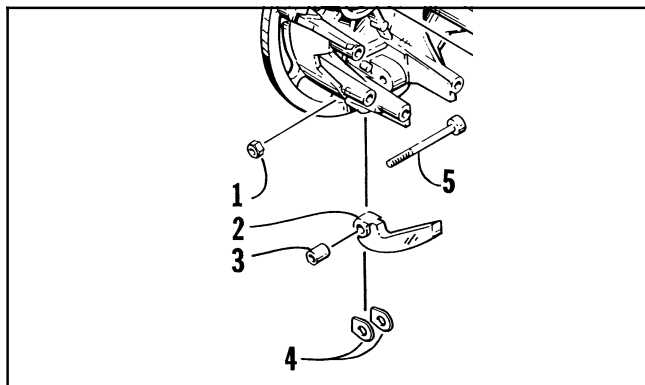
WARNING

Never reuse the lock nuts on the cam arm pins.

1. Place a cam arm with bushing and washers into position on the movable sheave; then secure with the cam arm pin and lock nut. Carefully tighten the lock nut until it contacts the cam arm pin shoulder; then tighten an additional 1/8 turn. Repeat procedure on the other two cam arms making sure the head of each pin is positioned toward the direction of drive clutch rotation.

■ **NOTE:** The drive clutch rotates counterclockwise.

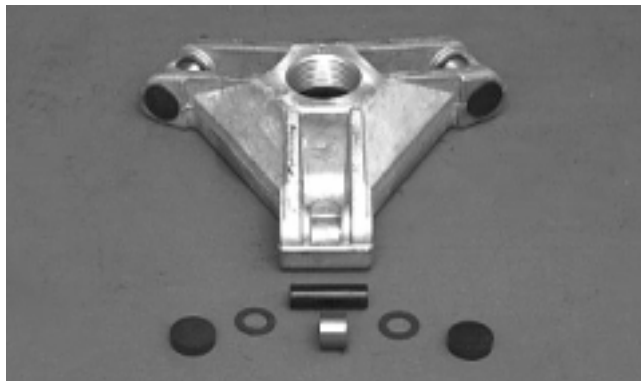
Fig. 8-18



733-452B

2. Place a roller and washers (one on each side of the roller) into position on the spider; then install the pin. Repeat procedure on the other two rollers.

Fig. 8-19



AM071D

3. Place the spider buttons into position; then tap into place until firmly seated.

■ **NOTE:** If a spider button does not fit tightly, it must be replaced.

4. Align the spider and movable sheave timing marks.

CAUTION

Failure to align the spider and movable sheave timing marks will cause drive clutch to be out of balance resulting in clutch and crankshaft damage.

5. Place the movable sheave, spacer rings, and spider into position on the stationary sheave hub. Make sure all threads are clean and free of oily residue. Apply green Loctite #620 to the entire threaded area of the shaft and thread the spider onto the shaft. Tighten the spider using the spider removal tool to 34.5 kg-m (250 ft-lb).

■ **NOTE:** Allow the Loctite to cure at room temperature for 24 hours.

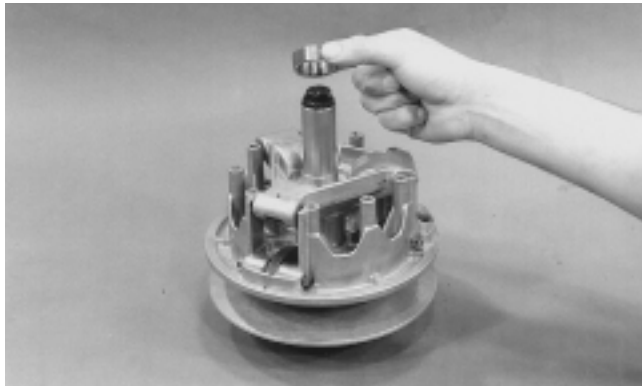
Fig. 8-20



AM072A

6. Apply green Loctite #620 to the threads of the stationary shaft above the spider. Install the large jam nut and tighten to 11.8 kg-m (85 ft-lb).

Fig. 8-21

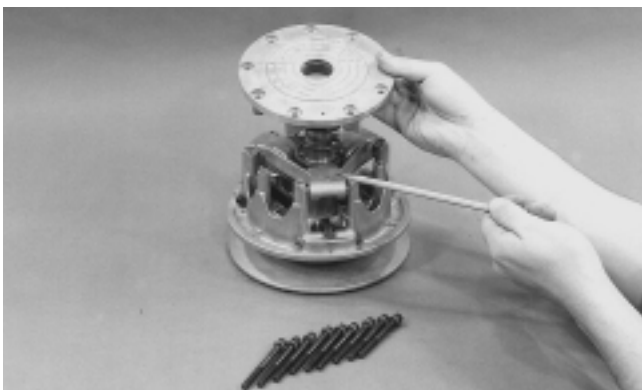


AM066

■ **NOTE:** Grasp the movable sheave and lift it upward; then release it. It must move freely and not bind at any point.

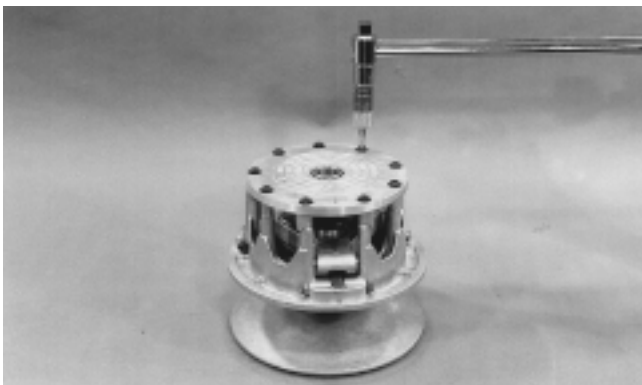
7. Place the spring and cover into position making sure the timing mark on the cover is properly aligned; then compress the spring and install the nine cap screws coated with blue Loctite #242 and lock washers. Tighten evenly to 1.4 kg-m (10 ft-lb).

Fig. 8-22



AM075

Fig. 8-23



AM076

⚠ CAUTION

Care must be taken when installing the cover not to damage the bushing.

INSTALLING

1. Install any spacers as accounted for in removing; then insert the clutch bolt with lock washer.

■ **NOTE:** Be sure to wipe the clutch taper and crankshaft taper clean of any oil film or dirt before installing the drive clutch.

2. Place the clutch into position on the crankshaft.
3. Using a 12-point 1/2-in. socket and the drive clutch spanner wrench, tighten the clutch bolt to 6.9-7.6 kg-m (50-55 ft-lb).

⚠ CAUTION

When installing the drive clutch, do not tighten the clutch bolt with any kind of impact tool. Tighten clutch bolt using a hand torque wrench only. Failure to do so could result in stationary sheave damage.

Fig. 8-24



AF477D

4. Check alignment between the drive clutch and driven pulley (see Drive Clutch/Driven Pulley in this section).

Fig. 8-25



AF468D

5. Install the drive belt. Check drive belt deflection (see Drive Clutch/Driven Pulley in this section). Secure the belt guard and install the plug in the belly pan.

WARNING

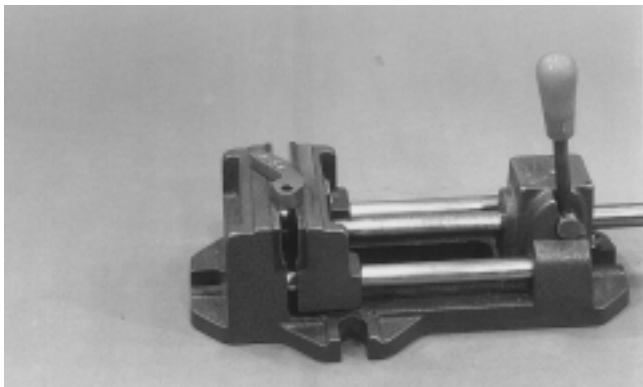
Never operate the engine without the belt guard secured.

6. Either test drive the snowmobile or run the engine for five minutes; then tighten the drive clutch bolt to 6.9-7.6 kg-m (50-55 ft-lb).

REPLACING CAM ARM BUSHINGS

1. Using a vise, spread the jaws just enough to allow room for the bushing to pass between.
2. Position the cam arm over the spread jaws.

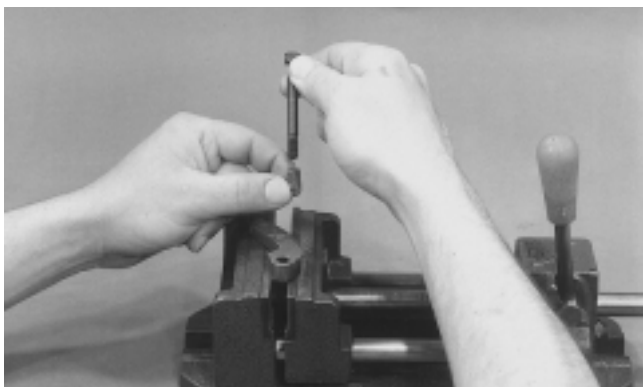
Fig. 8-26



AM094

3. Slide a new bushing onto one of the cam arm pins; then position the pin through the cam arm bushing.

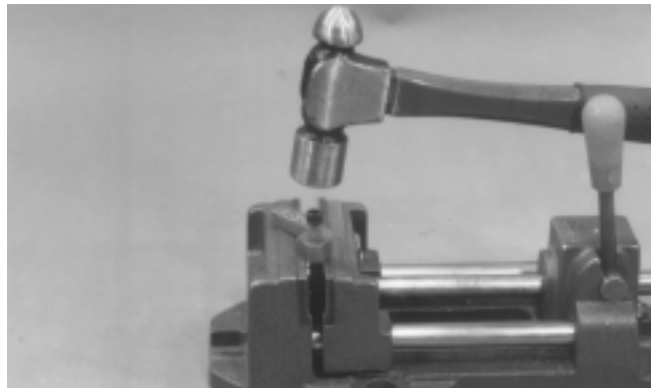
Fig. 8-27



AM095

4. Using the new bushing as a tool, drive the worn bushing from the cam arm. When the head of the cam arm pin contacts the cam arm, the new bushing will be properly seated.

Fig. 8-28



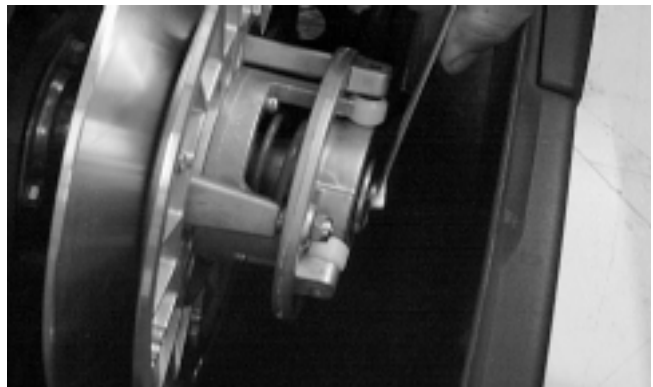
AM096

Driven Pulley

REMOVING

1. Open the hood; then open the belt guard.
2. Remove the drive belt.
3. Remove the cap screw and washer securing the driven pulley; then account for and note the position of any alignment washers.

Fig. 8-29



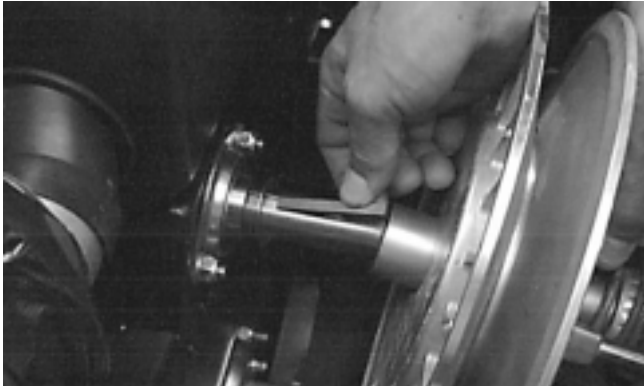
SC013D

4. Slide the driven pulley off the driven shaft; then remove pulley from the engine compartment.

■ **NOTE:** If the driven pulley is tight on the shaft, pull the driven pulley off using the Driven Pulley Puller (p/n 0744-023).

5. Remove the key, alignment washers, and stub shaft from the driven shaft.

Fig. 8-30



AF120D

DISASSEMBLING

1. Scribe a line across all driven pulley components to ensure correct assembly and pulley balance.

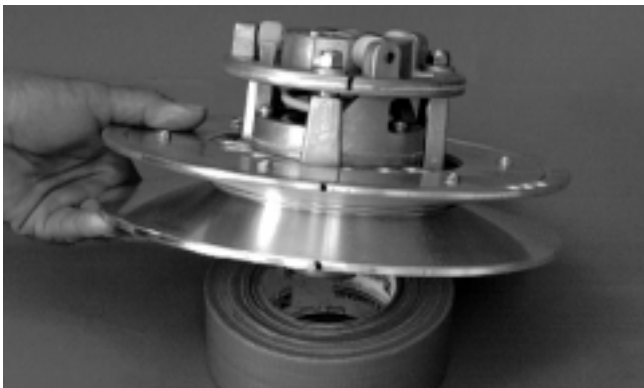
Fig. 8-31



SC001D

2. Place the driven pulley on a work fixture so the roller plate is directed upward.

Fig. 8-32



SC002D

■ **NOTE:** To aid in driven pulley servicing, use a roll of duct tape as a work fixture. The work fixture will increase the stability of the pulley during the repair procedure.

3. Remove the three lock nuts securing the roller plate; then carefully slide the plate off the stationary shaft allowing the spring to release tension.

⚠ WARNING

The roller plate is under spring pressure. Care must be taken when removing the lock nuts to prevent the plate from ejecting prematurely.

Fig. 8-33



SC003D

4. Remove the spring.

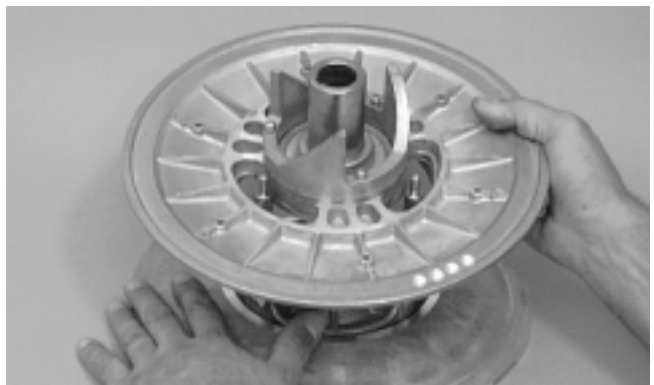
Fig. 8-34



B458D

5. Slide the movable sheave off the stationary shaft; then remove any washers located between the sheaves noting the position of washers for assembling purposes.

Fig. 8-35



B459D

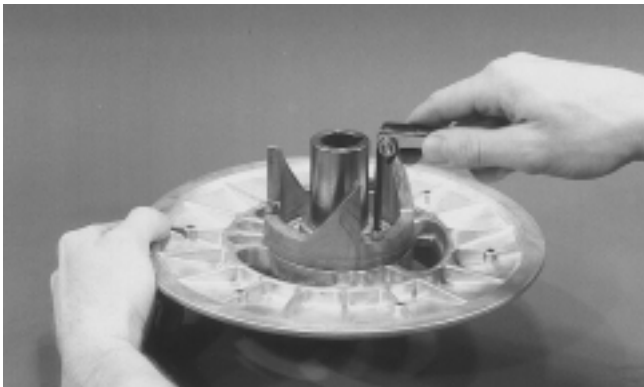
Fig. 8-36



B460

6. Remove the three socket-head cap screws and lock washers securing the torque bracket (cam) to the stationary sheave; then remove torque bracket.

Fig. 8-37



AI062

7. Place the roller plate on a work fixture (roll of duct tape, etc.).

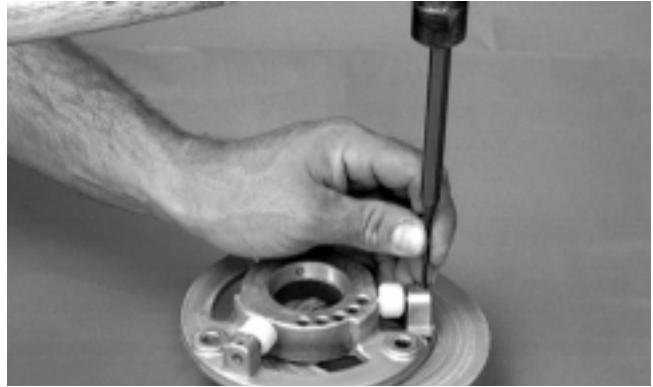
Fig. 8-38



SC004D

8. Using a 1/8-in. punch, remove the roll pin securing the roller, pin, and thrust washer to the plate.

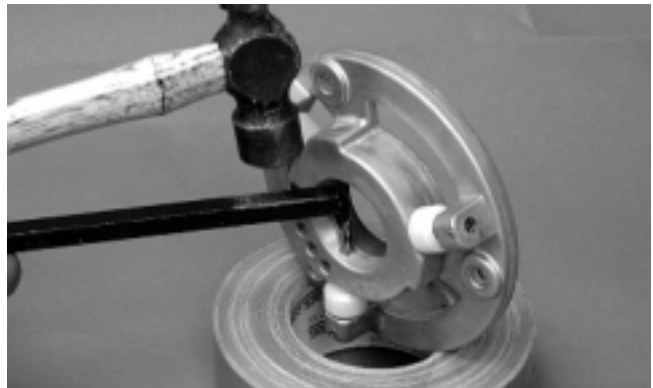
Fig. 8-39



SC005D

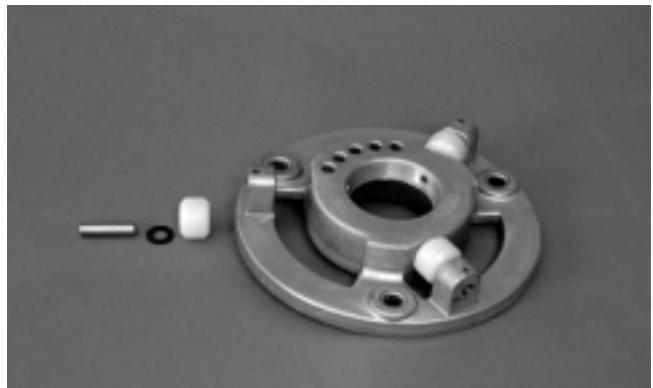
9. Using the Roller Pin Removal Tool (p/n 0644-276) from inside the plate, drive the roller pin out of the plate. Account for the pin, thrust washers, and roller.

Fig. 8-40



SC006D

Fig. 8-41



SC007D

CLEANING AND INSPECTING

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

1. Using parts-cleaning solvent, wash grease, drive belt dust, and foreign matter off all components.

⚠ CAUTION

Do not use steel wool or a wire brush to clean driven pulley components. A wire brush or steel wool will cause the sheaves to be gouged (thus, the drive belt may not slide properly between sheaves). Decreased performance and possible accelerated drive belt wear will result.

2. Inspect the rollers for damage, cracks, or wear.
3. Inspect the sheaves for any gouges, cracks, or other damage. Also, inspect threaded areas of sheaves for damaged or stripped threads.
4. Inspect the torque bracket (cam) for cracks or damage. The ramp portions of the bracket and caps must be free of gouges and damage. Minor scratches may be repaired using #320 grit wet-or-dry sandpaper.

Fig. 8-42



B465

5. Inspect spring for distortion, crystallization, or breaks.
6. Inspect the roller plate, rollers, pins, and spring mounting holes for cracks, damage, or wear.
7. Inspect the roller plate and movable sheave bearings for wear. For each respective bearing, measure the outside diameter of the shaft and the inside diameter of the bearing. Compare the readings. Clearance between the shaft and the respective bearing must not exceed 0.5 mm (0.020 in.). If the clearance exceeds the specification, the bearing must be replaced.

Fig. 8-43



B466D

Fig. 8-44



B467

REMOVING BEARINGS

To remove driven pulley bearings, use the Bearing Removal and Installation Tool (p/n 0644-167) and the following procedure.

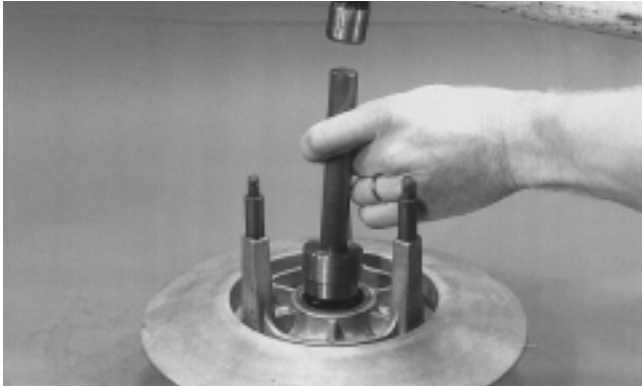
⚠ WARNING

Always wear safety glasses when using the bearing driver.

■ **NOTE:** To remove the movable sheave bearing, heat must be applied around the bearing.

1. Place the movable sheave (or roller plate) flat on a press.
2. Using the bearing tool, press the bearing out.

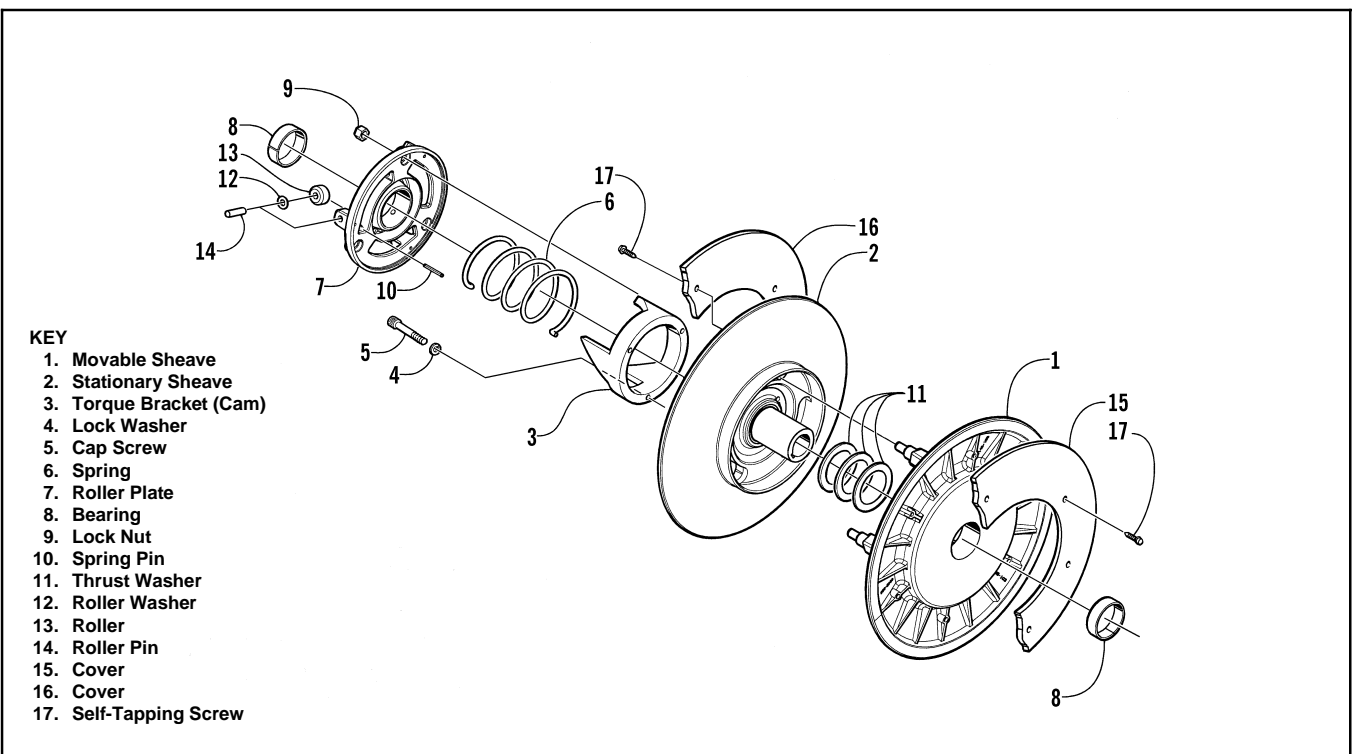
Fig. 8-45



AF154

ASSEMBLING

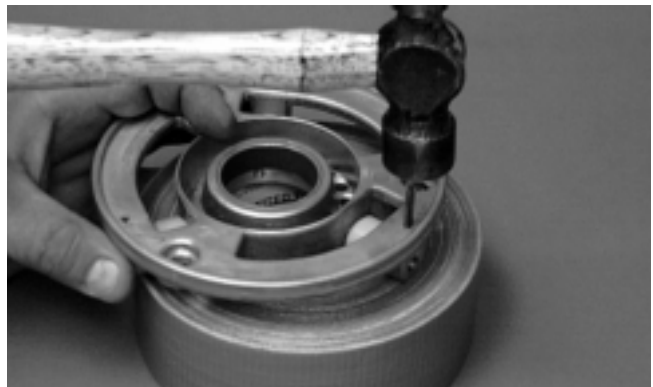
Fig. 8-46



0733-501

1. Place the roller and thrust washer (toward the outside of the roller plate) and secure with the roller pin.
2. Secure the roller, thrust washer, and pin into position with the roll pin. Drive the roll pin in until it is flush with the plate.

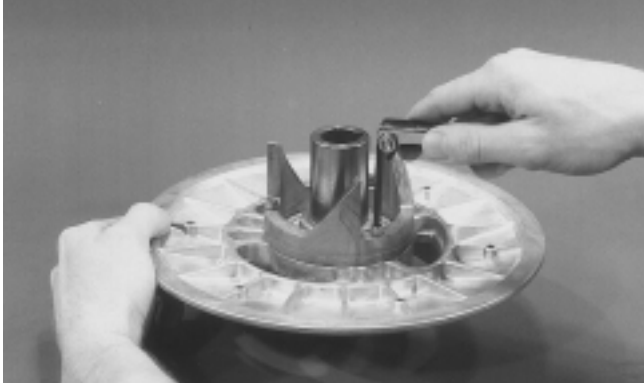
Fig. 8-47



SC012D

3. Place the torque bracket (cam) into position on the stationary sheave making sure the degree number on the bracket aligns with the part number on the stationary sheave. Install the three socket-head cap screws and lock washers. DO NOT tighten at this time.

Fig. 8-48



AI062

4. Place any washers (as noted during disassembly) on the stationary sheave shaft.

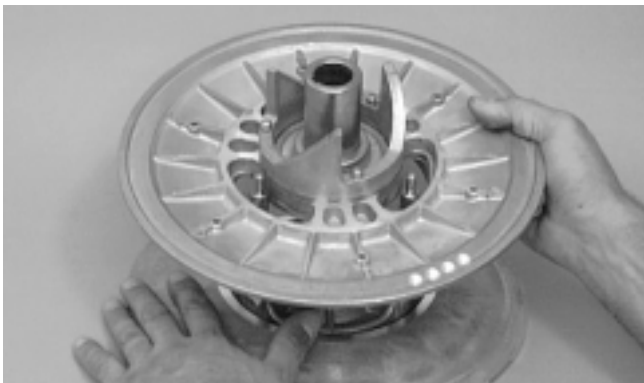
Fig. 8-49



B460

5. Align the scribed line made during disassembly; then slide the movable sheave onto the stationary sheave shaft.

Fig. 8-50



B459D

6. Place the sheaves on a work fixture (roll of duct tape, etc.).

7. Place the spring over the stationary sheave hub and hook the turned down end of the spring into the hole in the casting of the stationary sheave.

Fig. 8-51



B458D

8. Place the roller plate over the spring and hook the turned-up end of the spring in the 3rd hole (standard spring tension) of the plate.
9. While holding the sheaves to prevent them from rotating, grasp the plate and rotate it approximately 120° clockwise until the mounting holes align; then push the plate into position and install the three lock nuts. Tighten the lock nuts to 1.5-1.8 kg-m (11-13 ft-lb).

■ **NOTE:** The line scribed during disassembly should be aligned.

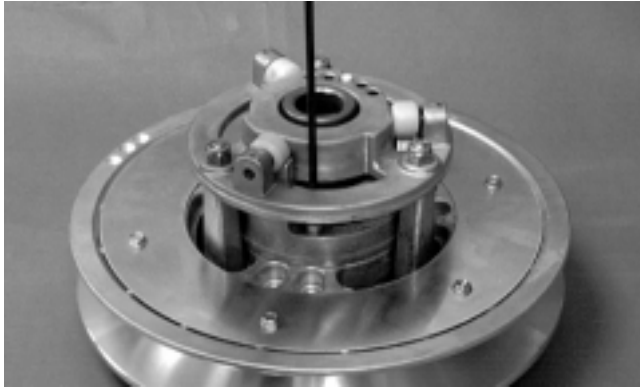
Fig. 8-52



SC003D

10. Rotate the movable sheave to ensure free movement without binding.
11. Rotate the torque bracket (cam) until it is tight; then using a long hex wrench, tighten the three socket-head cap screws securing the bracket.

Fig. 8-53



SC011D

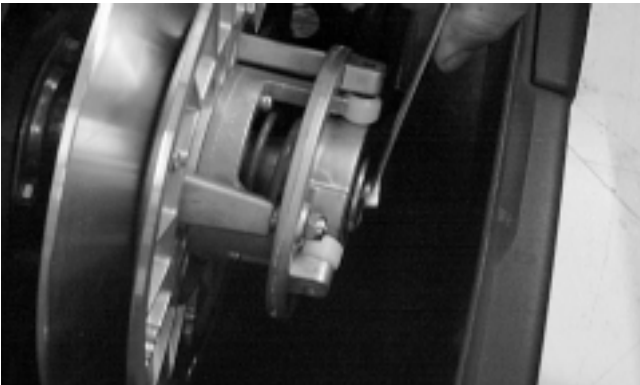
INSTALLING

1. Slide the alignment washers onto the end of the driven shaft.
2. Install the key in the driven shaft keyway; then place the stub shaft into the driven pulley. Place the driven pulley on the shaft. Align its keyway with the driven shaft keyway.

■ **NOTE:** A small amount of Loctite Anti-Seize Thread Compound (p/n 0678-146) applied to the driven shaft will aid in future driven pulley removal.

3. Secure the driven pulley by installing any alignment washers, the washer, and cap screw. Tighten the cap screw to 2.6-3.3 kg-m (19-24 ft-lb).

Fig. 8-54



SC013D

4. Check drive clutch/driven pulley alignment (see Drive Clutch/Driven Pulley in this section); adjust as necessary.
5. Install the drive belt and check drive belt deflection (see Drive Clutch/Driven Pulley in this section). Secure the belt guard.

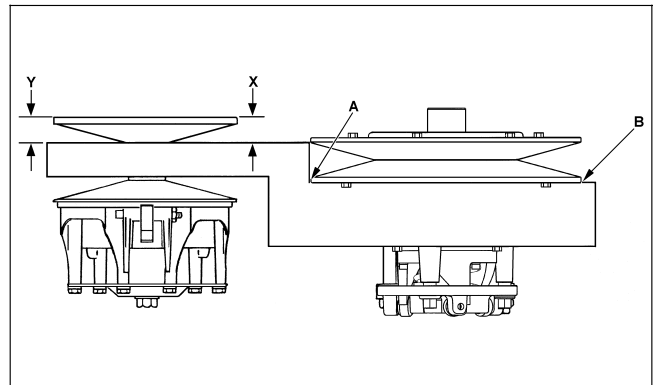
Drive Clutch/ Driven Pulley

CHECKING OFFSET

If premature drive belt wear is experienced or if the drive belt turns over, parallelism/offset must be checked. Also, parallelism/offset must be checked whenever either the drive clutch or driven pulley is serviced. To check the parallelism/offset, use the Clutch Alignment Bar (p/n 0644-003) and the following procedure.

1. Open the belt guard and remove the drive belt.
2. Install the clutch alignment bar between the drive clutch sheaves and against the outside edge of the driven pulley stationary sheave.
3. Allow the alignment bar to rest on the drive clutch shaft.

Fig. 8-55



0733-912

■ **NOTE:** The alignment bar must extend beyond the front edge of the drive clutch.

4. With the bar against the outside edge of the driven pulley stationary sheave at points A and B, the bar should just clear the inside edge of the stationary sheave of the drive clutch and rest on the stationary shaft. If the bar does not clear the inside edge or is more than 1.5 mm (0.060 in.) from the inside edge, the offset must be corrected.

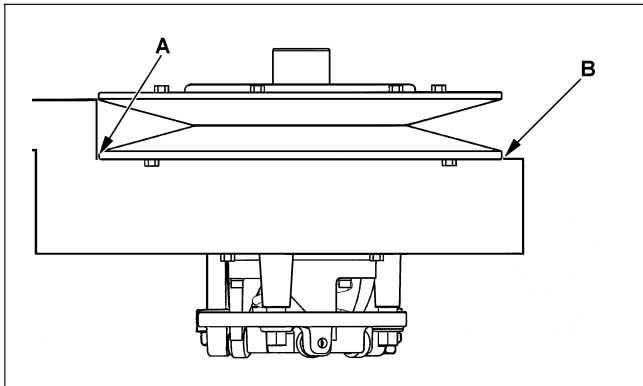
■ **NOTE:** On models with a wide ratio driven pulley with the bar against the outside edge of the driven pulley stationary sheave at points A and B, the bar should have between 2.5-4 mm (0.100-0.160 in.) clearance to the inside edge of the stationary sheave of the drive clutch while resting on the stationary shaft. If the clearance is not within specifications, the offset must be corrected.

Fig. 8-56



AF465D

Fig. 8-57



733-912B

CORRECTING OFFSET

1. To correct offset, the driven pulley must be moved laterally on the driven shaft. Remove the cap screw and washers securing the driven pulley; then remove the driven pulley.

■ **NOTE:** If the driven pulley is tight on the driven shaft, pull the driven pulley off using the Driven Pulley Puller (p/n 0744-023).

2. To move the driven pulley inward on the shaft, remove washer(s) as required from behind the pulley.
3. To move the driven pulley outward on the shaft, add alignment washer(s) as required behind the driven pulley.

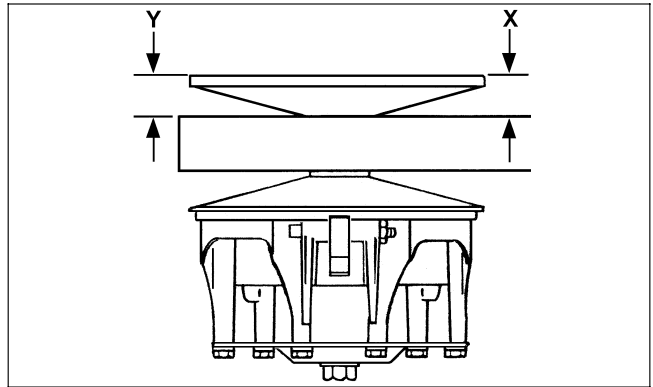
■ **NOTE:** Make sure the keyways match when installing the driven pulley. Arrange washers to allow the least amount of "float" on the driven shaft. A maximum of 1.5 mm (0.060 in.) of float is acceptable.

4. Install the driven pulley and secure with a cap screw and washers. Tighten the cap screw to 2.6-3.3 kg-m (19-24 ft-lb).

CHECKING PARALLELISM

1. Check parallelism of the drive clutch/driven pulley using the alignment bar and reference points X and Y with the alignment bar against the driven pulley at points A and B. Using a calipers or a machinist's scale, measure X and Y from the back side of the alignment bar. Measurements X and Y must be equal or measurement Y must be more than measurement X, but Y must not exceed measurement X by more than 1.6 mm (0.062 in.).

Fig. 8-58



733-912A

Fig. 8-59



AF041

■ **NOTE:** The offset must be correct before checking parallelism.

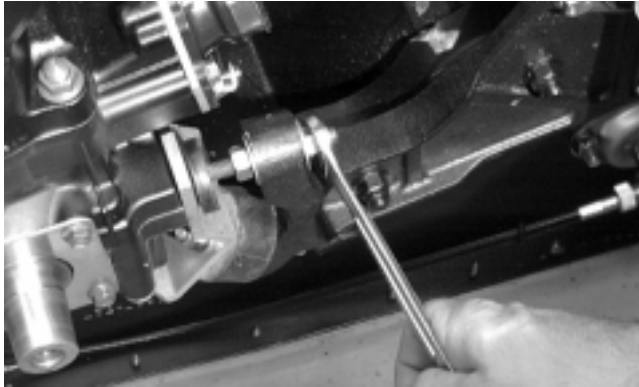
2. If parallelism is not within specifications, the parallelism must be corrected.

CORRECTING PARALLELISM (Torque Bumper w/Bearing Support Bracket)

1. To correct parallelism, minor adjustments can be made by adjusting the torque bumper on the left-rear engine mount.
 - A. Loosen the cap screws and nuts securing the engine mounting brackets to the front end.

- B. Using the jam nuts on the torque bumper, adjust parallelism and periodically check the parallelism. When the parallelism is correct, tighten the cap screws and nuts securing the engine mounting brackets to the front end; then tighten the torque bumper jam nuts allowing 1.5 mm (0.060 in.) clearance between the torque bumper and the engine.

Fig. 8-60



AN610D

2. Recheck both offset and parallelism to ensure accuracy and make further adjustments as necessary.

■ **NOTE: After parallelism and offset have been corrected, check for proper drive belt deflection. This is critical for optimum performance.**

CORRECTING PARALLELISM (Torque Bumper w/Shims)

1. To correct parallelism, minor adjustments can be made by removing shims from or installing shims on the left-rear engine mount.
 - A. Loosen the cap screws securing the engine mounting brackets to the front end.
 - B. Add or remove shims as needed to attain correct parallelism.
 - C. When parallelism is correct, secure the engine mounting brackets to the front end.
2. Recheck both offset and parallelism to ensure accuracy and make further adjustments as necessary.

■ **NOTE: After parallelism and offset have been corrected, check for proper drive belt deflection. This is critical for optimum performance.**

CORRECTING PARALLELISM (Engine Snubber w/Engine Plate)

1. To correct parallelism, minor adjustments can be made by adjusting the engine snubber on the left-rear engine mount.

- A. Loosen the cap screws securing the engine plate to the engine mounts.
- B. Either lengthen or shorten the snubber and periodically check the parallelism measurement. When the parallelism measurement is correct, loosen the snubber to allow 1.5 mm (0.060 in.) clearance between the snubber and the engine; then lock the jam nuts on the snubber and tighten the cap screws securing the engine plate.

2. Recheck both offset and parallelism to ensure accuracy and make further adjustments as necessary.

■ **NOTE: After parallelism and offset have been corrected, check for proper drive belt deflection. This is critical for optimum performance.**

DRIVE BELT DEFLECTION

Drive belt length, condition, and deflection are all important for peak performance. To check and adjust drive belt deflection, use the following procedure.

1. Turn the engine off; then open the belt guard.
2. Make sure the drive belt is sitting at the top of the driven pulley sheaves.
3. Place a straightedge on top of the drive belt. The straightedge should reach from the drive clutch to the top of the driven pulley.
4. Using a stiff ruler centered between the drive clutch and driven pulley, push down on the drive belt just enough to remove all slack. Note the amount of deflection on the ruler at the bottom of the straightedge. The deflection should be within the range of 25-31 mm (1-1 1/4 in.).

■ **NOTE: Push down on the belt with the ruler only until the bottom of the belt flexes upward; then read the amount of deflection.**

5. To correct drive belt deflection, washers can be removed or added between the stationary and movable sheaves of the driven pulley.

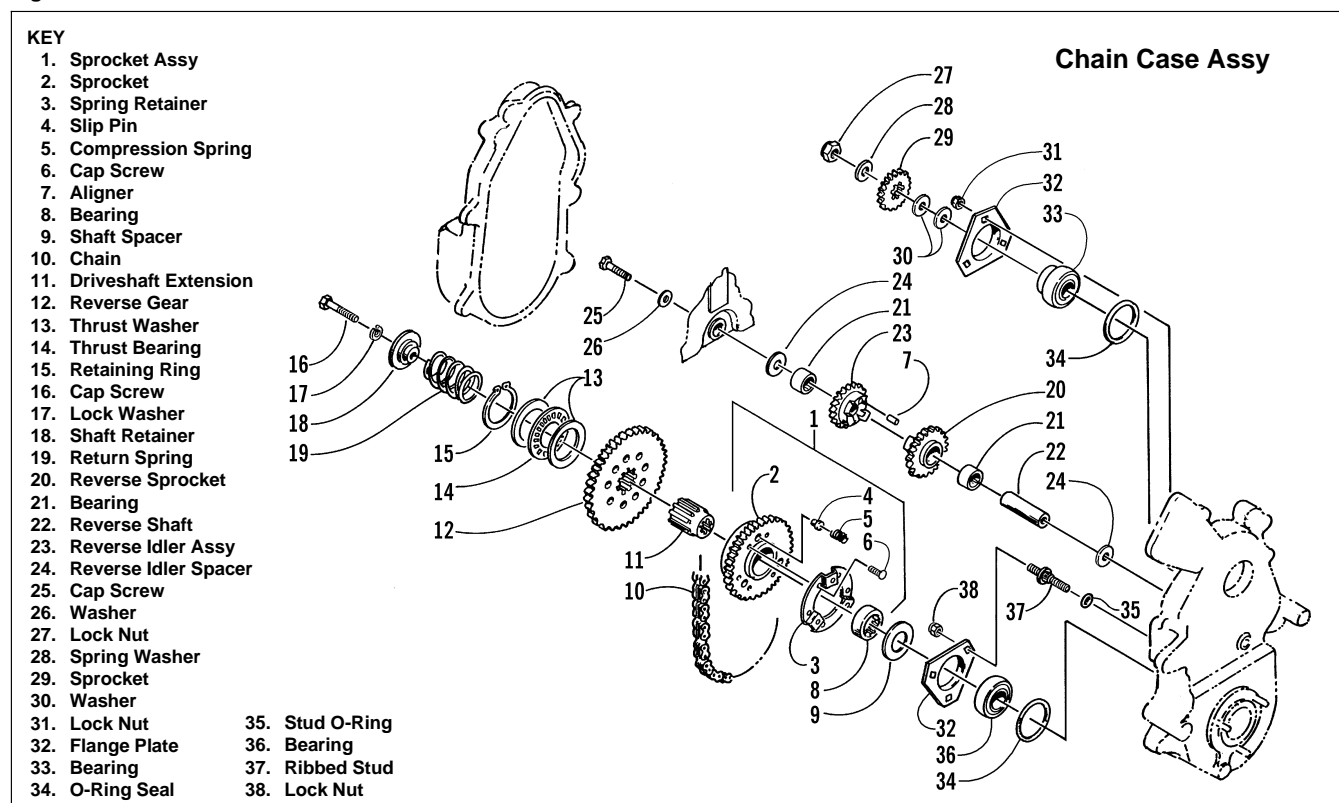
■ **NOTE: If the drive belt deflection is above specifications, the snowmobile will bog and lack power at clutch engagement. For good performance, proper belt deflection is critical.**

6. Secure the belt guard.

Drive Train Schematics (W/Reverse)

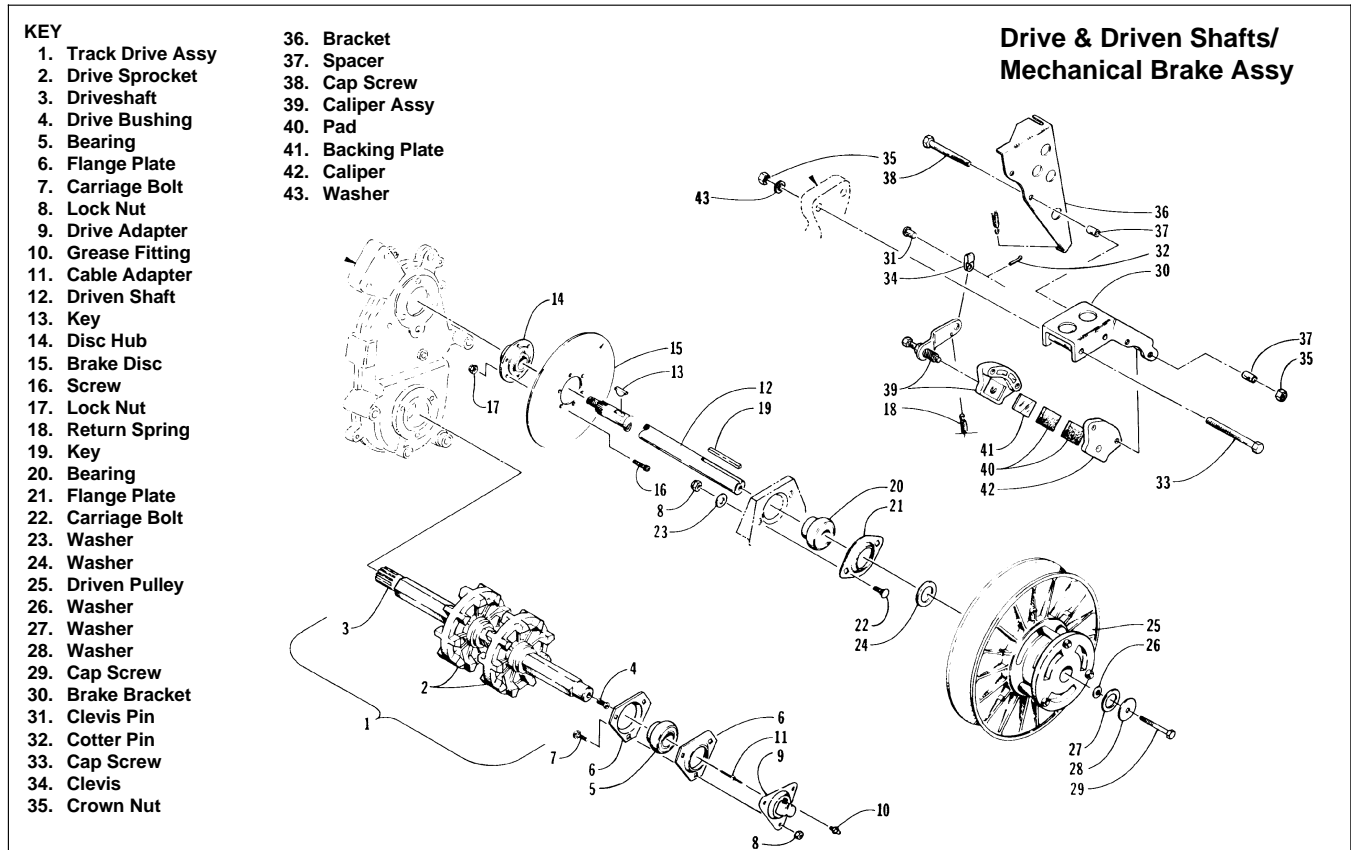
■ **NOTE:** Determine which type of drive train is being serviced and refer to the appropriate illustration for component details; then disassemble and assemble accordingly.

Fig. 8-61



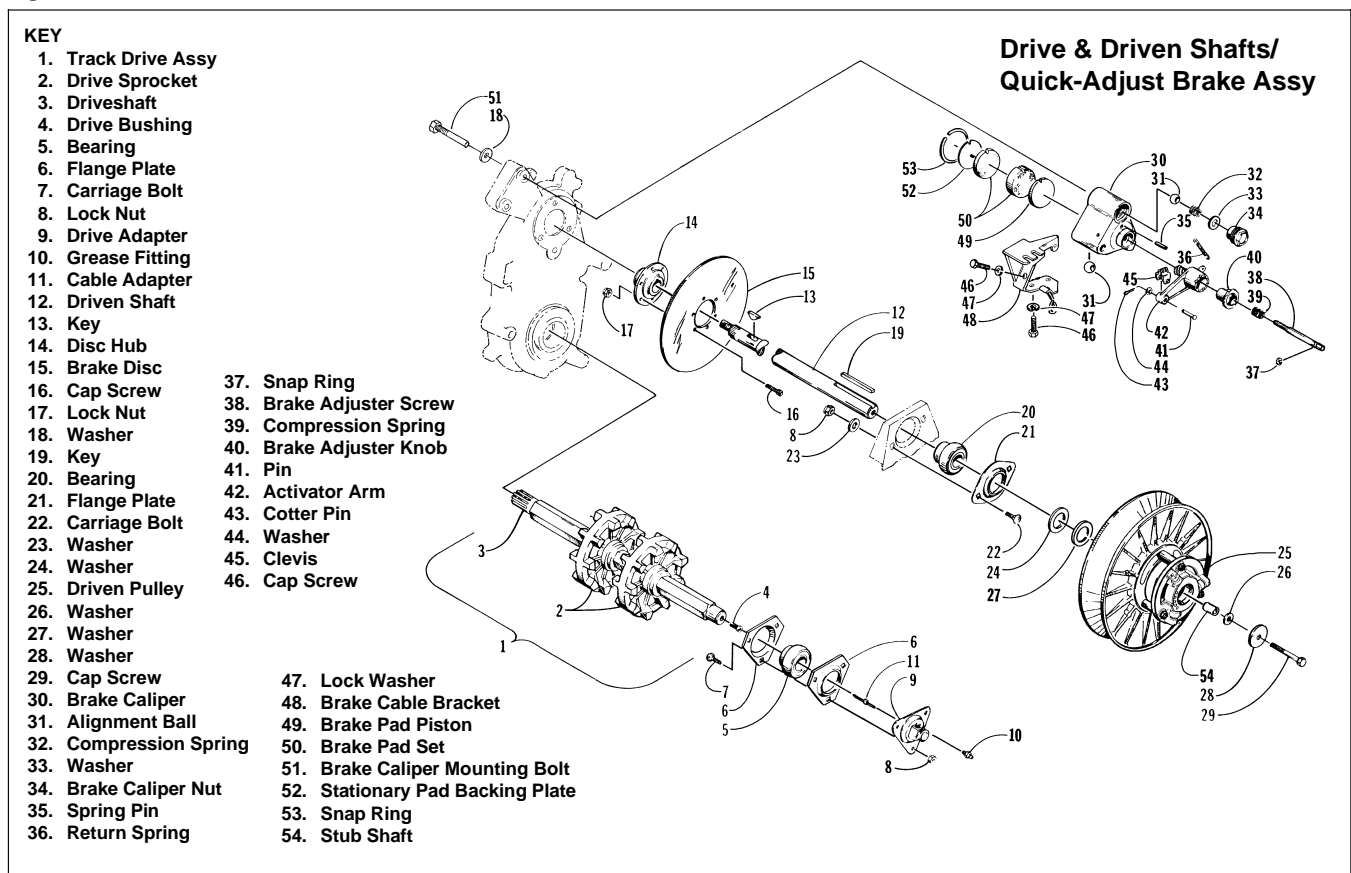
0734-587

Fig. 8-62



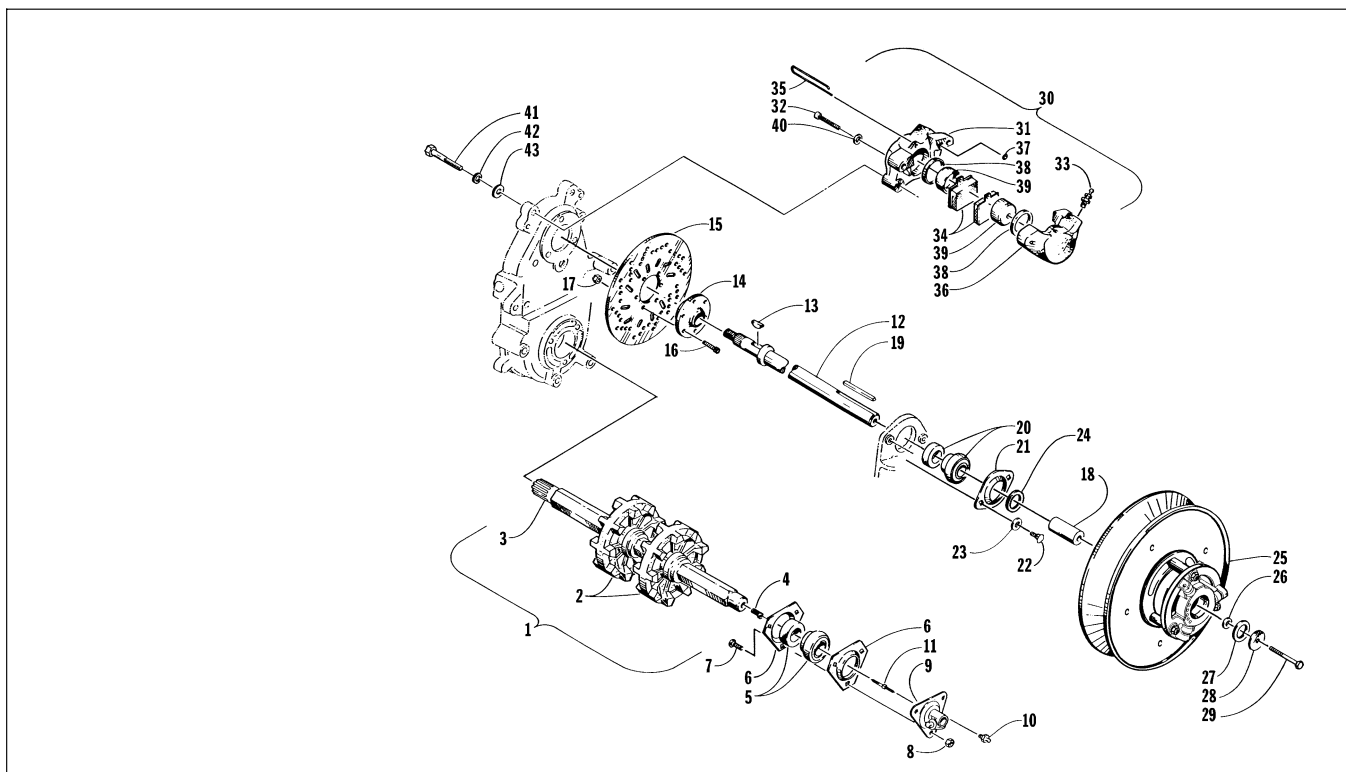
0731-806

Fig. 8-63



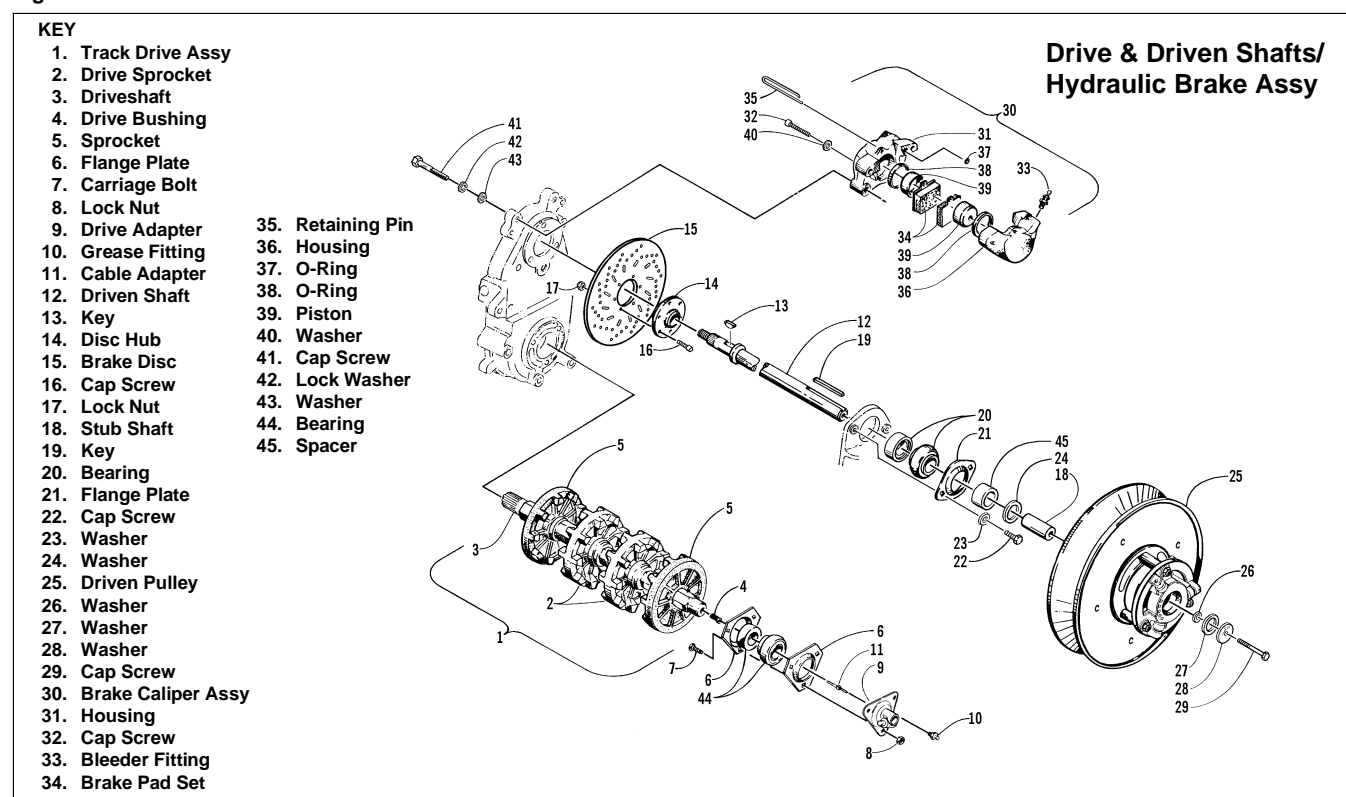
0733-379

Fig. 8-64



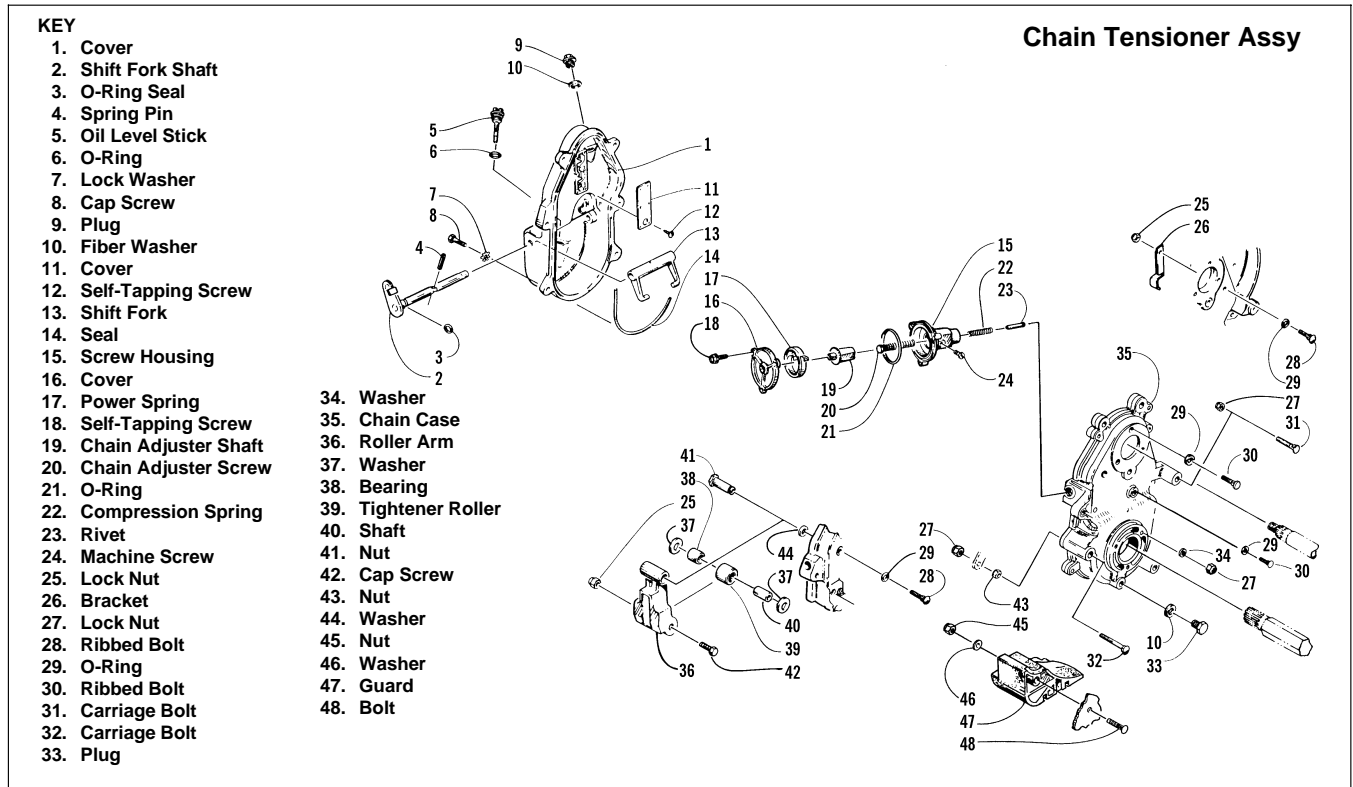
0734-203

Fig. 8-65



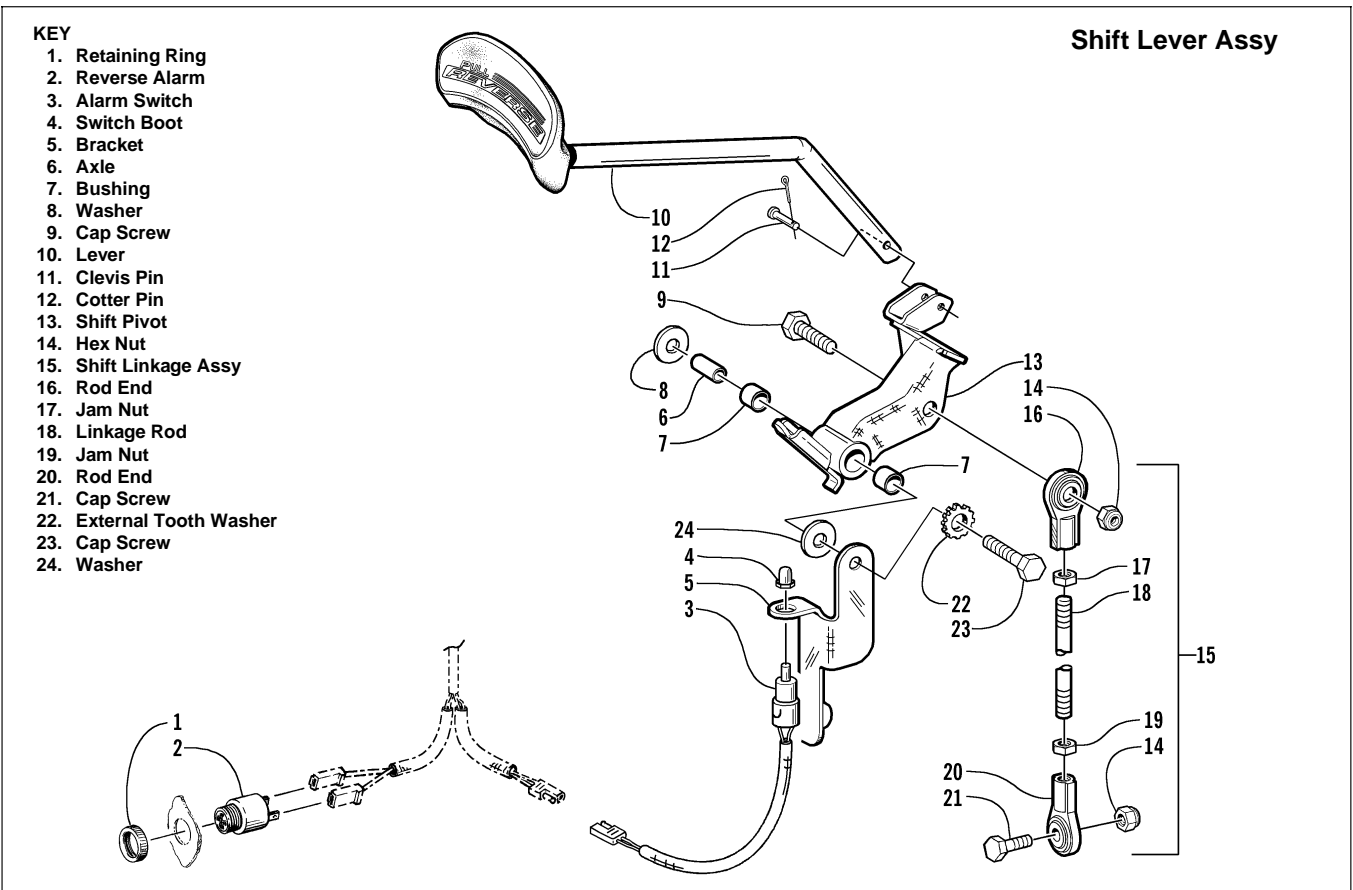
0734-393

Fig. 8-66



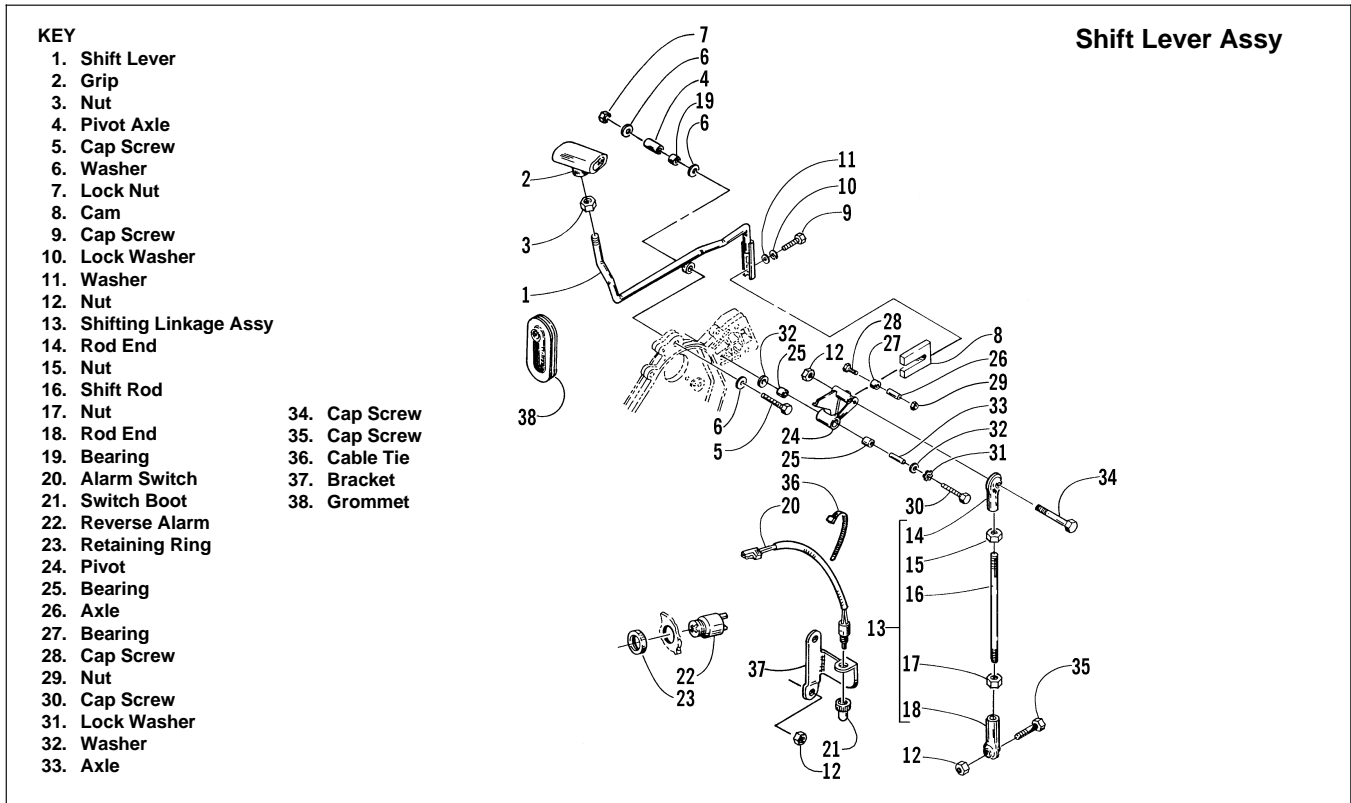
0734-449

Fig. 8-67



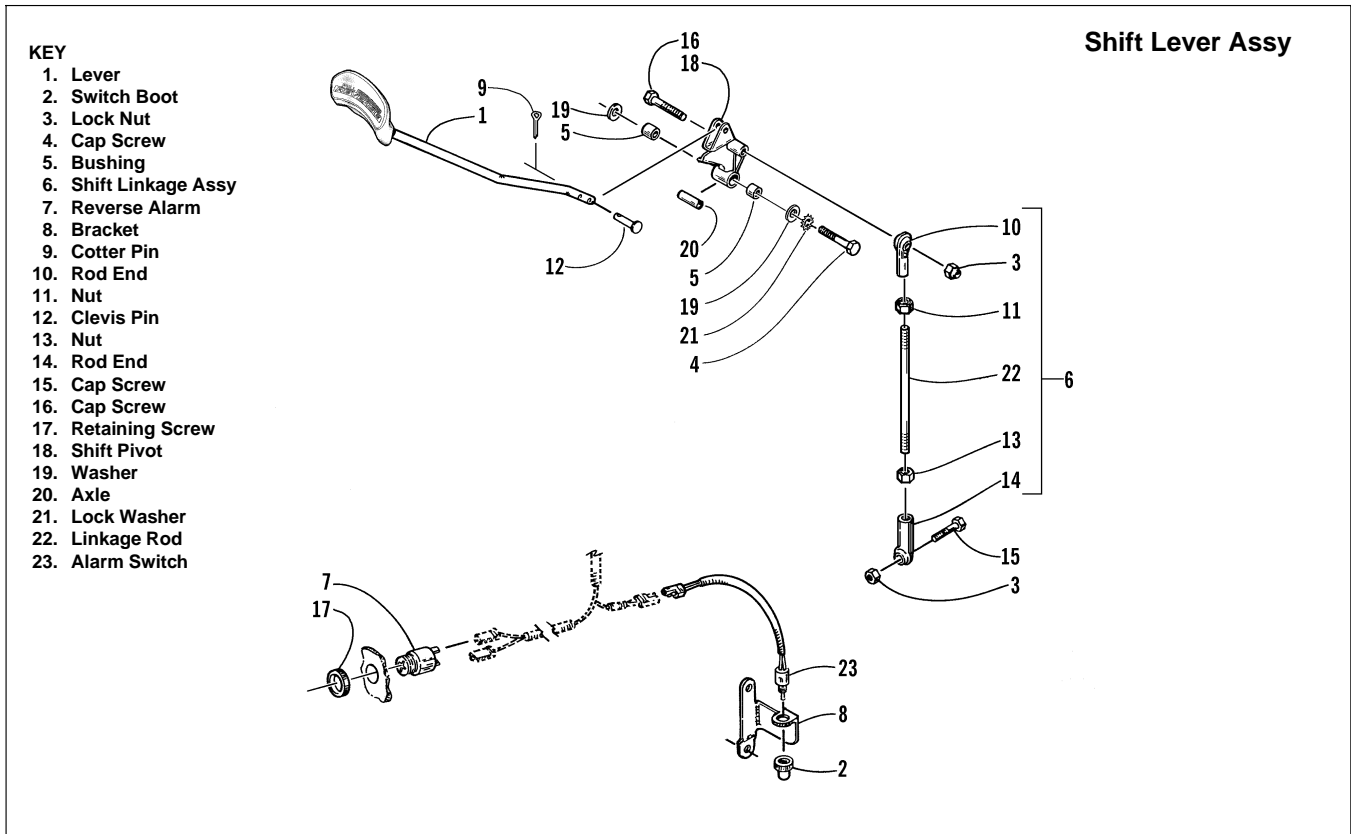
0734-253

Fig. 8-68



0734-637

Fig. 8-69

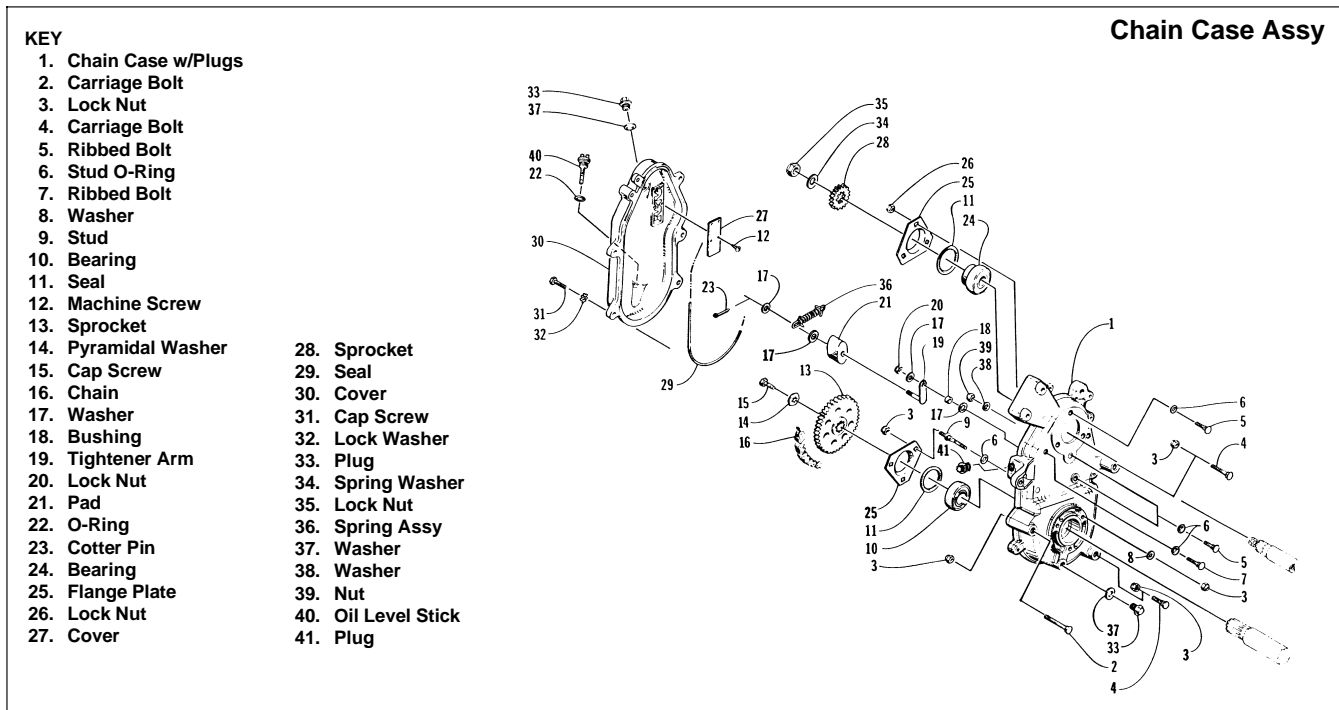


0734-450

Drive Train Schematics (W/O Reverse)

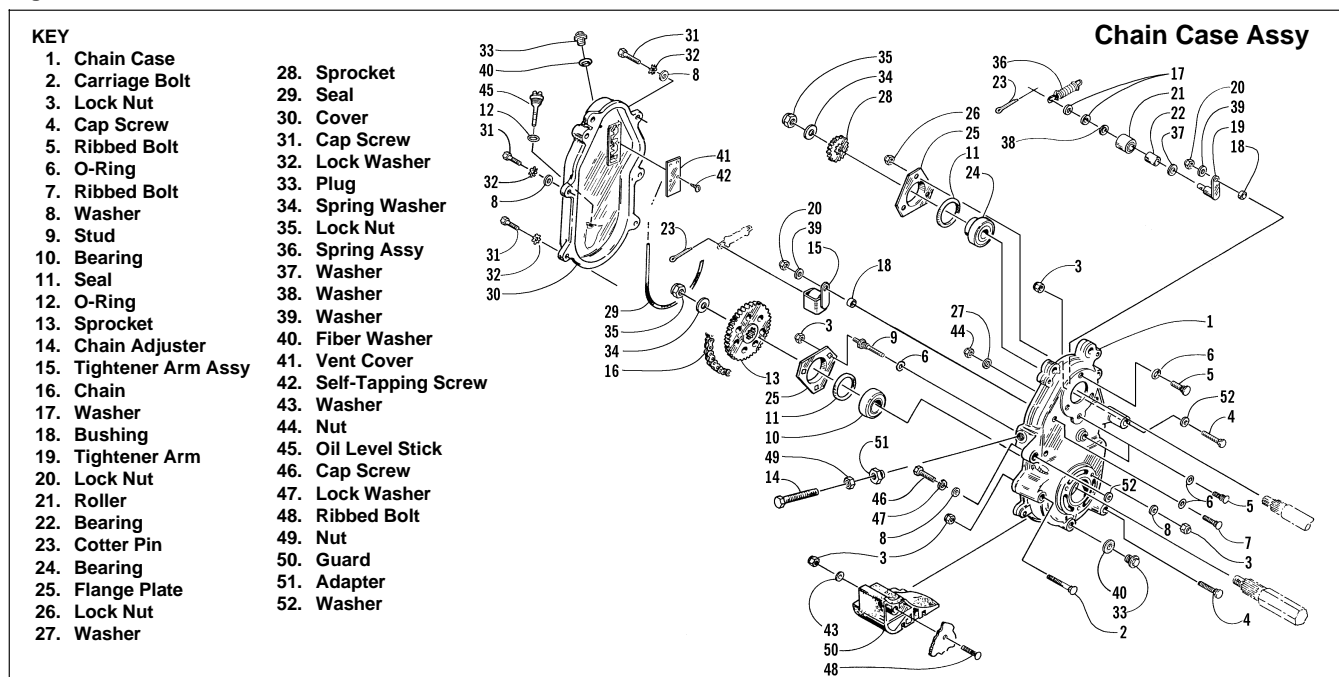
■NOTE: Determine which type of drive train is being serviced and refer to the appropriate illustration for component details; then disassemble and assemble accordingly.

Fig. 8-70



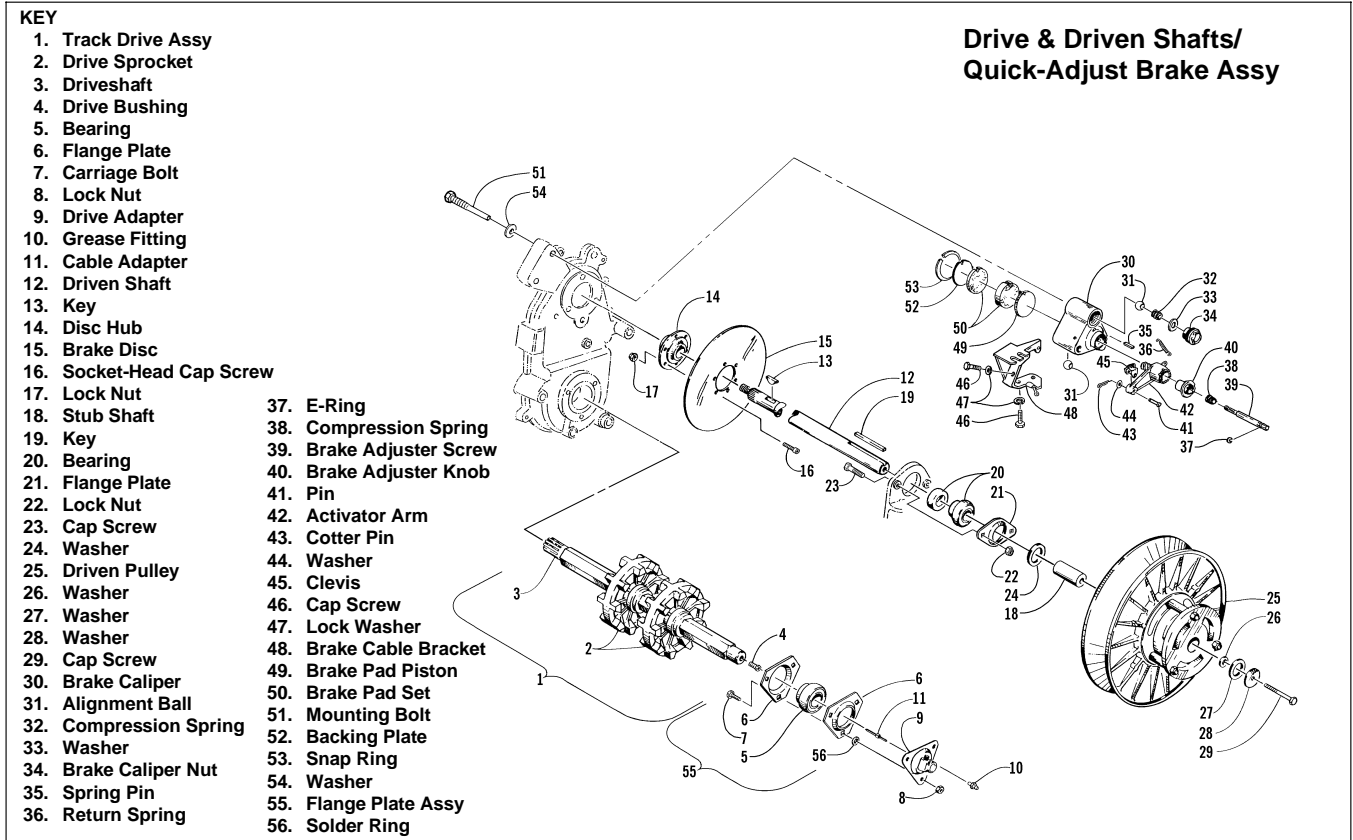
0733-211

Fig. 8-71



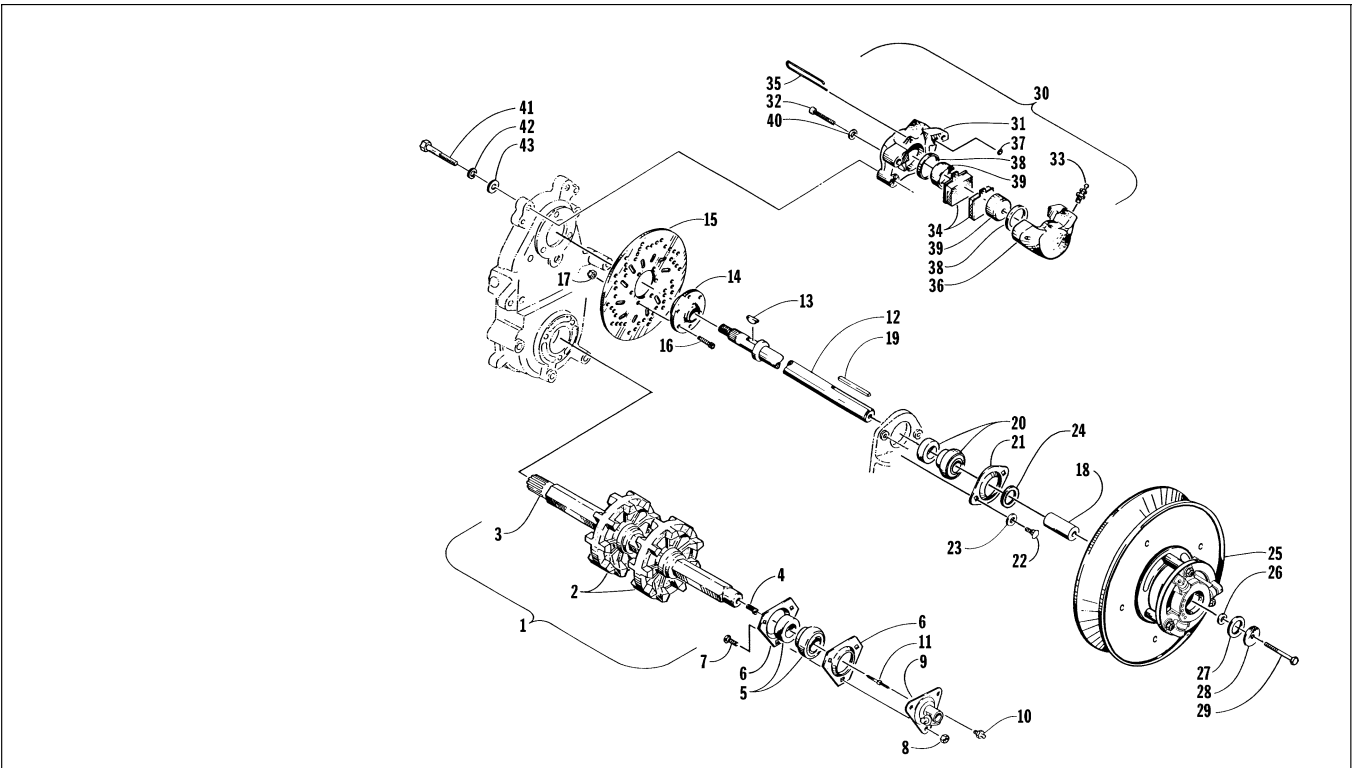
0734-139

Fig. 8-72



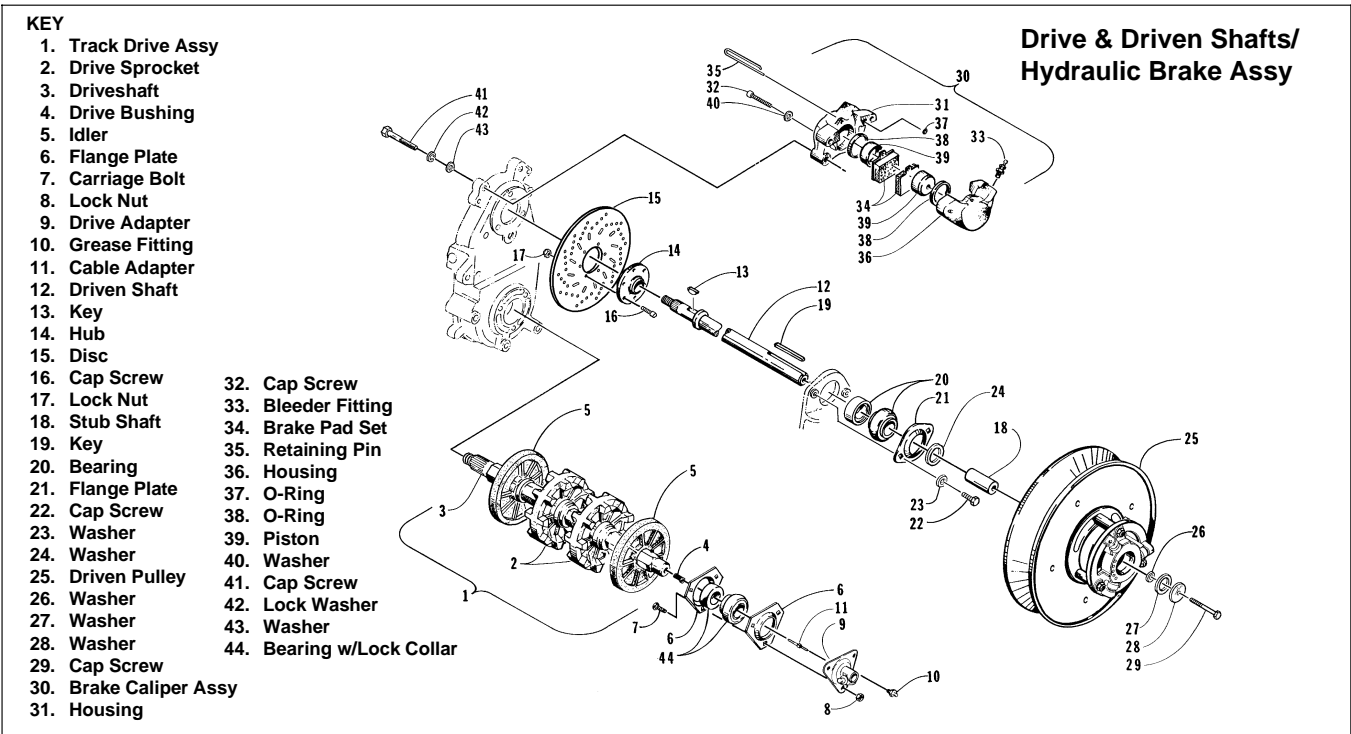
0734-999

Fig. 8-73



0734-203

Fig. 8-74



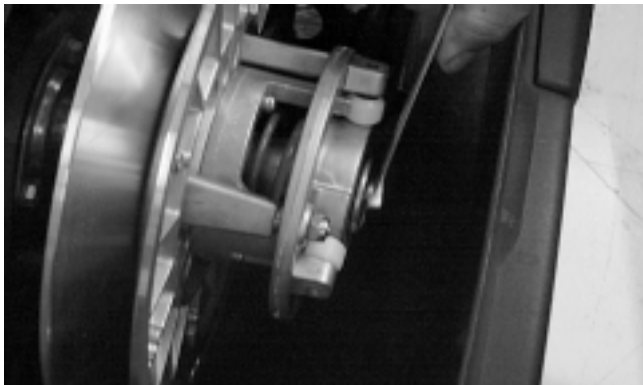
0733-639

Drive Train/Brake Disc (w/Reverse)

DISASSEMBLING

1. Remove the chain-case drain plug located on the lower back side of the chain case inside the tunnel and drain the chain case lubricant.
2. Disconnect the battery cables. Remove the battery and battery tray.
3. Open the belt guard and remove the drive belt.
4. Remove the cap screw and washer securing the driven pulley; then account for and note the position of any alignment washers.

Fig. 8-75



SC013D

5. Slide the driven pulley off the driven shaft; then remove the driven pulley from the engine compartment. Account for the key, stub shaft, and alignment washers.

■ **NOTE:** If the driven pulley is tight on the driven shaft, pull the driven pulley off using the Driven Pulley Puller (p/n 0744-023).

Fig. 8-76



AF120D

■ **NOTE:** Tip the snowmobile on its left side positioning the chain case side of the snowmobile up. Place a piece of cardboard under the side of the snowmobile to prevent scratching of bumper and belly pan.

⚠ CAUTION

Before tipping the snowmobile on its side, pull the mirrors close to the hood or damage may occur.

6. Disconnect the shift linkage from the arm on chain case.
7. Remove the cap screw from the center of the chain case.

Fig. 8-77



AI025

8. Remove the cap screws securing the chain case cover; then remove the cover by pulling outward and lifting up so the shift fork clears the large inner washer.

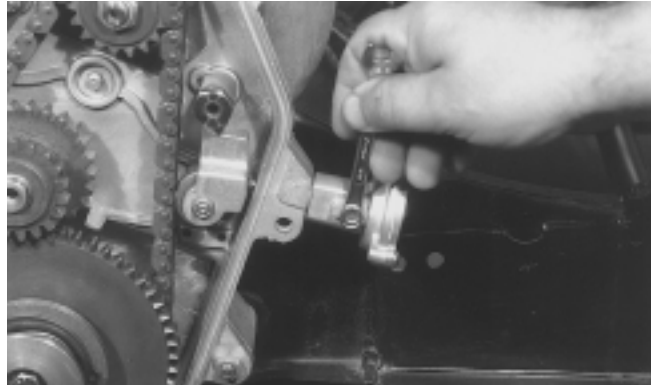
Fig. 8-78



AI010

9. Remove the screw from the chain adjuster housing and install an 8-32 set screw to lock the chain adjuster in position.

Fig. 8-79



AF426

10. Remove the shim washer from the idler sprocket.

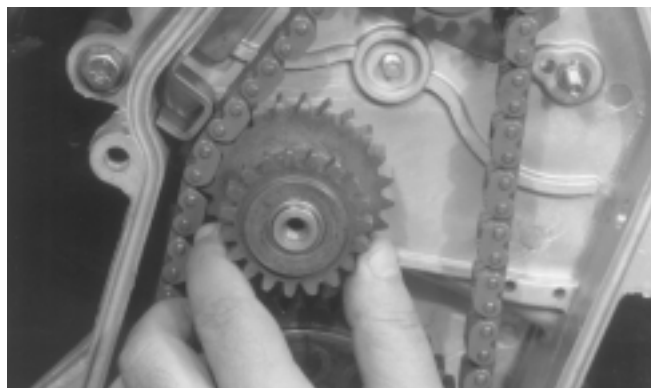
Fig. 8-80



AF436

11. Remove the outer idler sprocket from the shaft.

Fig. 8-81



AF437

12. Slide the small rubber alignment pin from the face of the inner idler sprocket and place in safe location until assembly.

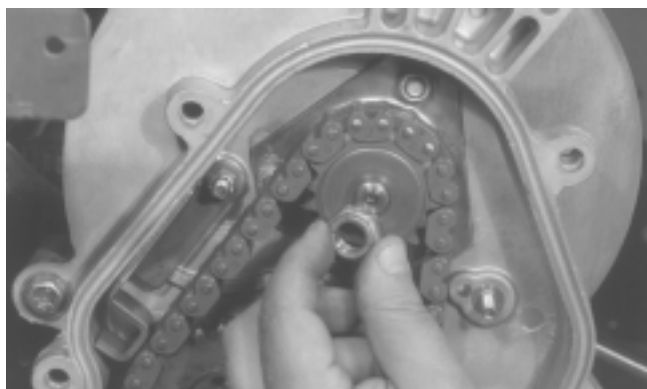
Fig. 8-82



AF439

13. Remove the lock nut securing the top sprocket.

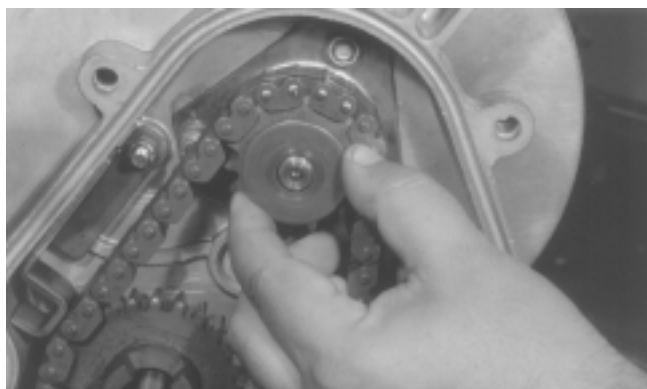
Fig. 8-83



AF432

14. Remove the spring washer in front of the top sprocket.

Fig. 8-84



AF444

15. Set the brake lever lock. Remove the cap screw and large washer securing the bottom sprocket.

■ **NOTE:** The bottom sprocket cap screw and washer are spring loaded.

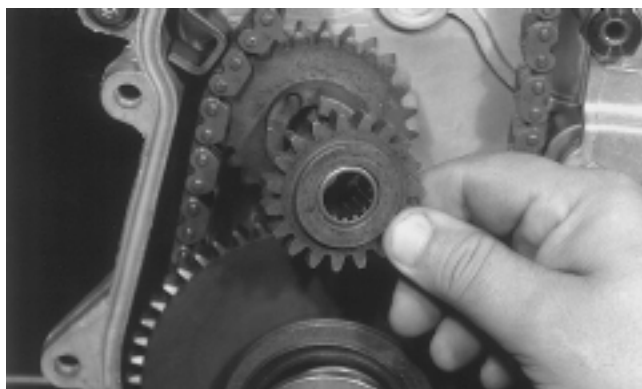
Fig. 8-85



AF428

16. Remove the reverse gear.

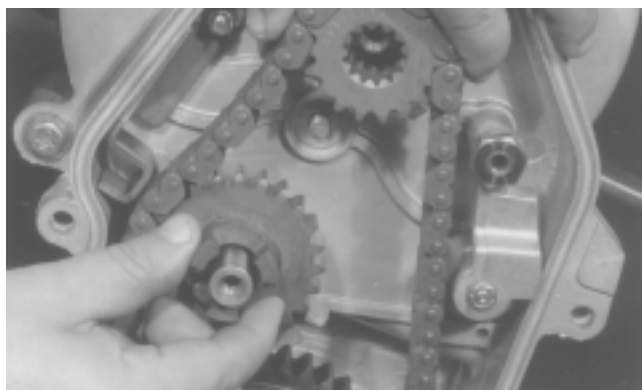
Fig. 8-86



AF442

17. Remove the top sprocket, chain, and idler gear. Account for one shim washer located behind the idler gear.

Fig. 8-87



AF433

■ **NOTE:** If the chain is too tight and won't allow the top sprocket to be removed, remove the PTO-side driven shaft bearing. This will allow the driven shaft to be lifted at the PTO-side and will loosen the chain.

18. Remove the driveshaft extension, bottom sprocket, and spacer washer.

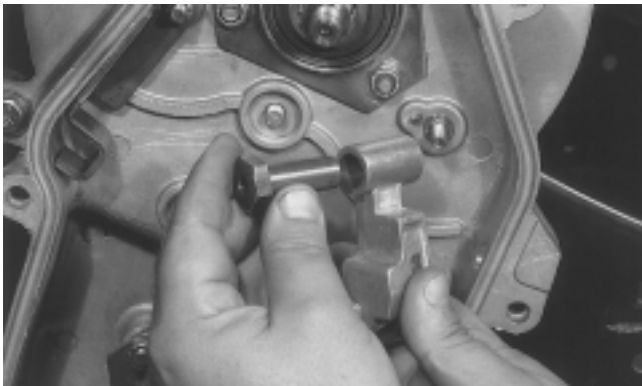
Fig. 8-88



AF427

19. Check the idler gear shaft. If the shaft surface is rough, remove the shaft using a pair of vise-grip pliers. Rotate the shaft counterclockwise.
20. Remove the shoulder nut securing the chain tightener arm; then remove the arm from the chain case.

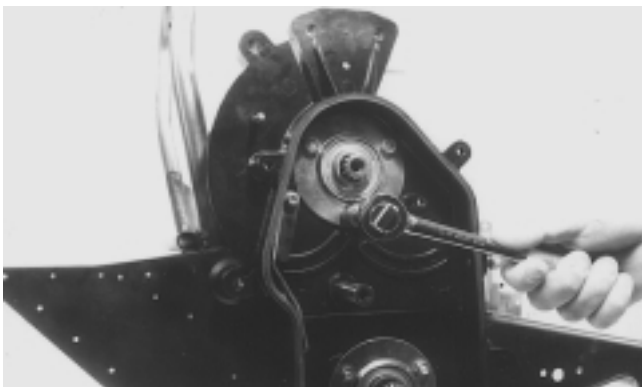
Fig. 8-89



AF447

21. Remove the three lock nuts securing the top bearing flange plate. Remove the flange plate, seal, and bearing.

Fig. 8-90



AI018

22. Remove the three lock nuts securing the bottom bearing flange plate. Remove the flange plate, seal, and bearing.

23. Remove the screw securing the air-intake silencer to the steering support; then pull the silencer forward and place it on the carburetor/throttle body assembly.

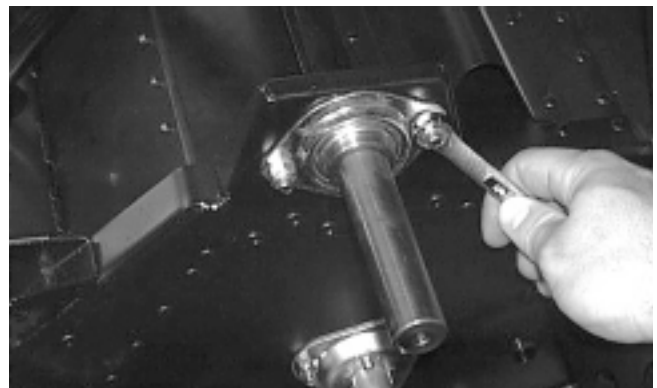
■ **NOTE:** Using a hold-down strap, secure the air-intake silencer to the engine.

24. Loosen the set screw on the PTO-side driven shaft collar. Drive the collar clockwise (opposite shaft rotation) until it is free.

■ **NOTE:** A fine file should be used to remove any burrs left by the collar set screw.

25. Remove the lock nuts and carriage bolts securing the PTO-side driven shaft flange plates.

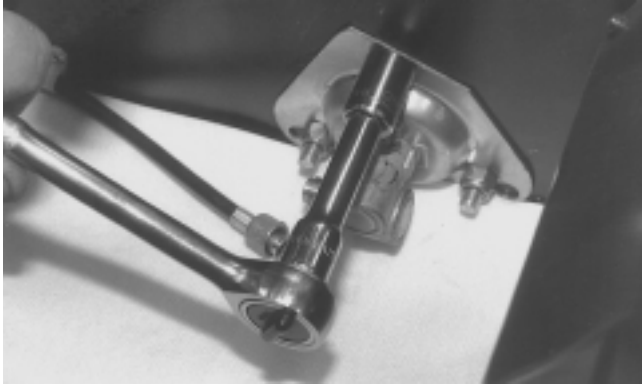
Fig. 8-91



AF002D

26. Force the driven shaft toward the PTO-side (rotating the shaft to prevent the brake disc from binding on the shaft) until brake disc is free. Account for the key.
27. Continue to slide the driven shaft until it is out of the PTO-side. Account for a bearing, two flange plates, and the PTO-side driven shaft collar.
28. Remove the skid frame from the tunnel (see Section 9).
29. Remove the three PTO-side lock nuts securing the driveshaft flange bearing assembly and cable adapter. Remove the adapter and speedometer cable.

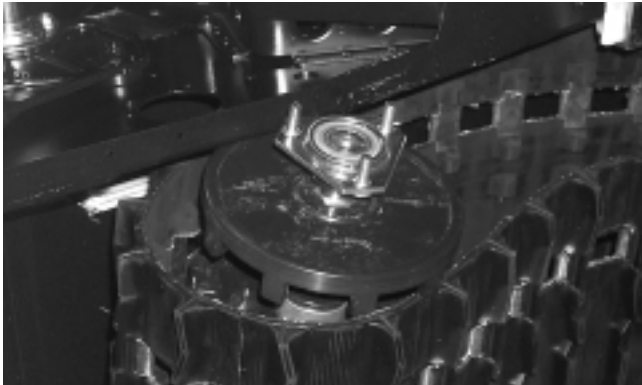
Fig. 8-92



AF053

30. Tap the driveshaft toward the chain case to unseat the MAG-side bearing. Remove the bearing.
31. Slide the driveshaft toward the MAG-side until the PTO-side of the driveshaft is out of its mounting hole. Tilt the end of the driveshaft away from the tunnel and slide the driveshaft free of the tunnel. Remove the track.

Fig. 8-93



AF055

32. Scribe a line on the driveshaft along the edge of each sprocket to aid in assembly. Loosen the set screw on the collar and drive the collar clockwise until free; then remove the bearing and flange plates from the driveshaft.
33. Press the sprockets off the driveshaft.
34. Remove the six socket-head cap screws and lock nuts securing the brake disc to the hub; then separate disc and hub.

Fig. 8-94



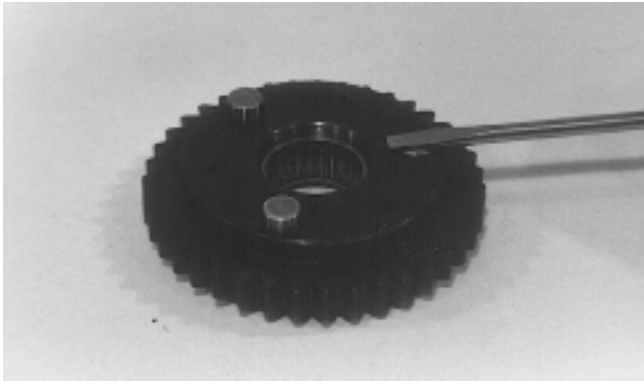
AF446

CLEANING AND INSPECTING

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

1. Thoroughly wash all metallic components in parts-cleaning solvent. Dry using compressed air.
2. Wash all non-metallic components with soap and water.
3. Inspect the driveshaft and driven shaft for damaged splines or stripped threads.
4. Inspect the bearings for any roughness or damage.
5. Inspect the seals for any breaks or damage.
6. Inspect the track for cuts, gouges, or wear.
7. Inspect the keyways in the driven shaft and the brake hub for wear or damage.
8. Inspect the brake disc for wear or cracks.
9. Inspect the track drive sprockets for wear or damage.
10. Inspect the top sprocket for any chipped or worn teeth.
11. Inspect the bottom sprocket teeth for wear. Turn the inner sprocket bearing by hand and inspect for any signs of being rough.
12. Inspect the three bottom sprocket drive pins. Check the pin edges for chipping and wear.
13. Inspect the drive pin springs for tension by pushing each pin into the sprocket and releasing it. It must snap back out without any signs of binding. If any of these items (pins, bearing, sprocket, teeth) appear worn, replace the sprocket as an assembly.

Fig. 8-95



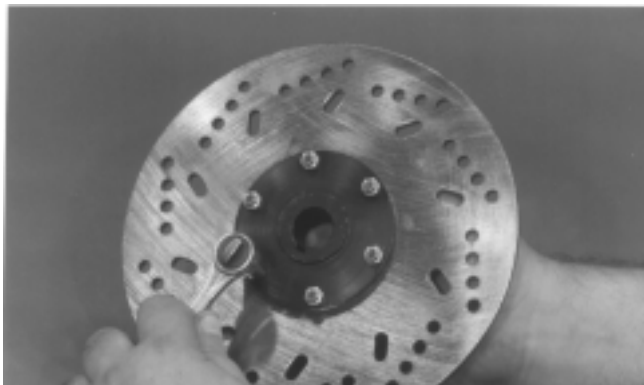
AI019

14. Inspect the idler gear sprocket teeth and bearings. Rotate the inner bearings by hand. Check each sprocket tooth for any signs of chipping and wear.
15. Closely inspect the drive chain for broken links.
16. Inspect the reverse gear. Inspect the teeth for wear and chipping. Inspect the edges of drive pin holes for any signs of chipping and wear.
17. Remove the snap ring from the reverse gear. Remove the outer thrust washer, thrust bearing, and inner thrust washer. Inspect the thrust bearing by placing it between the two thrust washers and rotating the thrust washer. Rotation must feel smooth. If any roughness is noted, replace the thrust washers and bearing as a set.
18. Inspect the chain tightener bearing. Rotate the tightener roller and check for smooth rotation. If rotation feels rough, replace roller and bearing assembly.

ASSEMBLING

1. Secure the hub to the brake disc with six socket-head cap screws (coated with red Loctite #271) and lock nuts. Tighten lock nuts to 0.4 kg-m (36 in.-lb).

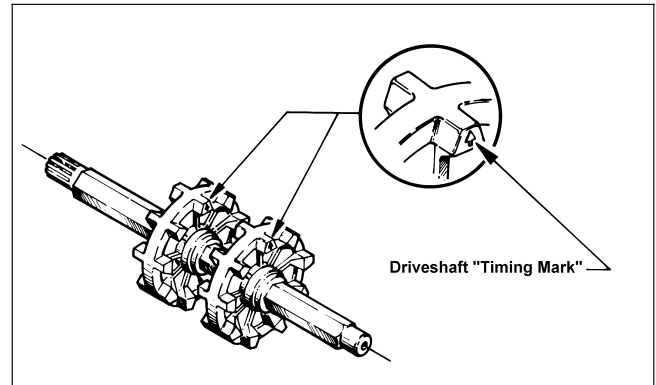
Fig. 8-96



AF445

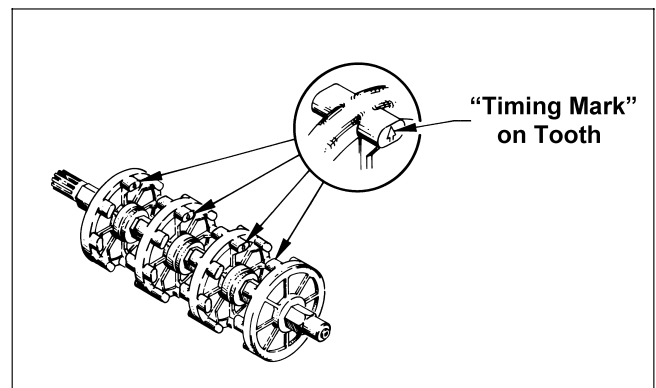
2. Press the sprockets on the driveshaft noting the scribed marks on the shaft and the timing mark found on one tooth of each sprocket. The timing mark is the letter T molded into the outer surface of one drive tooth. All the T markings must be in alignment.

Fig. 8-97



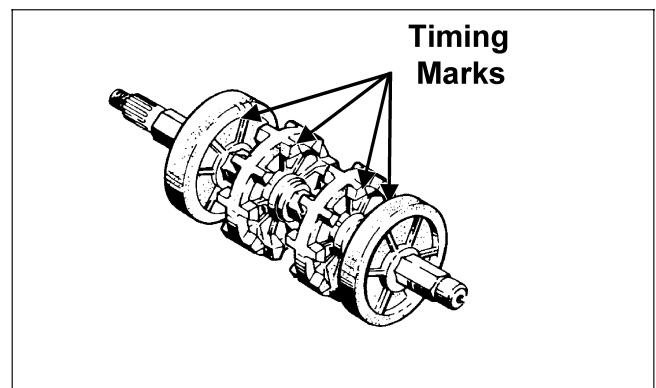
0728-351

Fig. 8-98



0727-829

Fig. 8-99

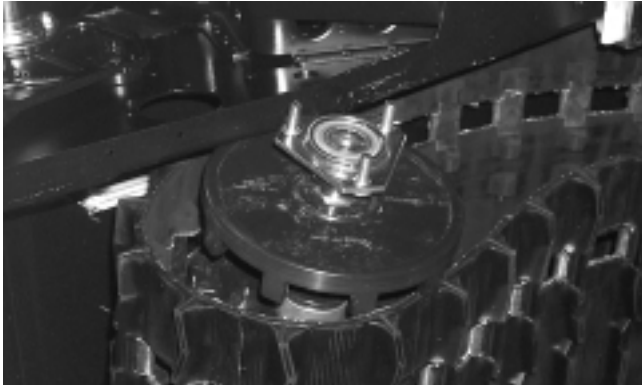


727-829A

NOTE: Make sure all sprockets are installed correctly to ensure correct timing of the sprockets. The bearing is positioned between the flange plates.

3. Assemble the driveshaft components on the PTO-side of the driveshaft. Install the bearing lock collar; then install the flange bearing assembly with the bolts facing towards the tunnel.

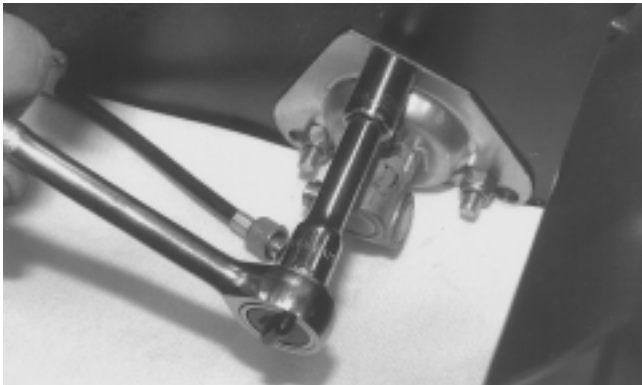
Fig. 8-100



AF055

4. Position the front of the track up into the tunnel. Install the driveshaft with the splined end through its mounting hole in the chain case.
5. Place the PTO-side of the driveshaft into position by sliding the bolts of the flange bearing assembly through the holes in the tunnel.
6. Place the cable adapter into position on the flange bearing assembly bolts. Secure with three lock nuts. Tighten to 2.2-2.5 kg-m (16-18 ft-lb).

Fig. 8-101



AF053

7. Slide the MAG-side bearing onto the driveshaft (inner race flange must be positioned toward drive chain); then install the seal and flange plate. Secure with three carriage bolts and lock nuts. Tighten to 2.2-2.5 kg-m (16-18 ft-lb).
8. Install the brake hub key into the driven shaft keyway; then slide the brake disc into position on the splined end of the driven shaft.
9. Install the PTO-side bearing with collar and flange plates on the driven shaft; do not tighten the collar at this time. Place the driven shaft into position making sure the brake disc and flange plates are properly positioned. Secure the PTO-side bearing and flange plates with two carriage bolts and lock nuts. Tighten to 2.2-2.5 kg-m (16-18 ft-lb).

10. On the MAG-side driven shaft, apply Scotchbond Adhesive 4174 to the bearing seating area adjacent to the shaft splines. Install the bearing, seal, and flange plate. Secure with three lock nuts. Tighten to 2.2-2.5 kg-m (16-18 ft-lb).

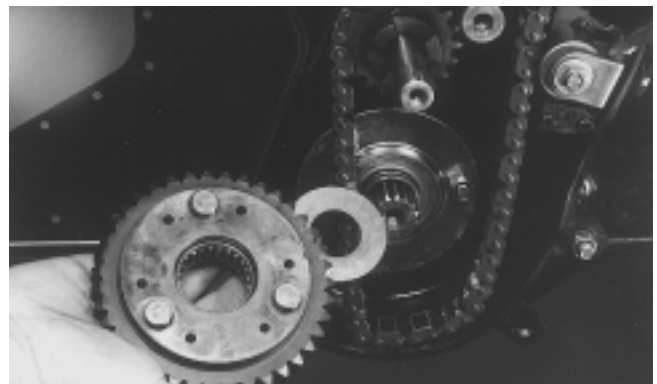
CAUTION

Tighten the flange plate nuts evenly or the O-ring seal may be damaged.

■ **NOTE:** If washers were removed from behind the upper sprocket, install them at this time.

11. Install the spacer washer on the driveshaft.

Fig. 8-102



AF090

12. Install the bottom sprocket and driveshaft extension.

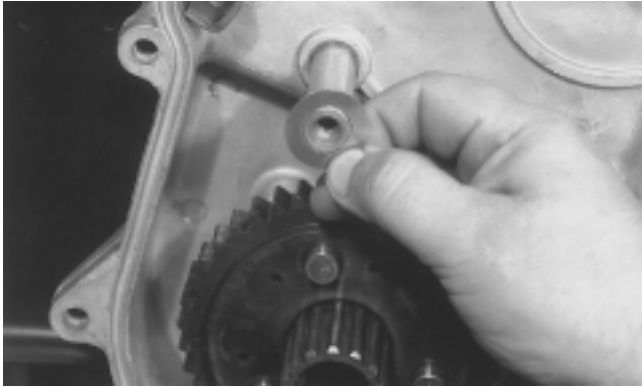
Fig. 8-103



AF427

13. Position one shim washer on the idler gear shaft.

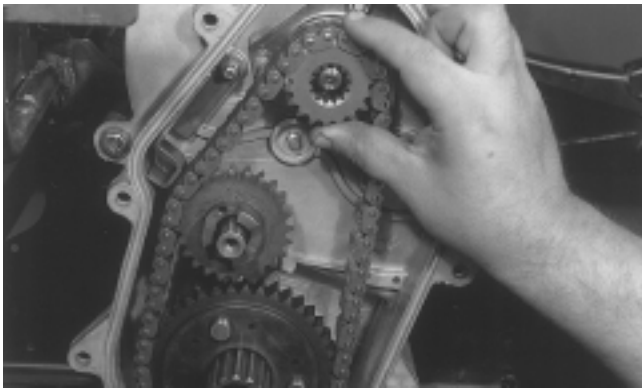
Fig. 8-104



AF430

14. Position the chain around the lower reverse sprocket; then place the idler sprocket and top sprocket into the chain. Slide sprockets into position on the idler shaft and driven shaft.

Fig. 8-105

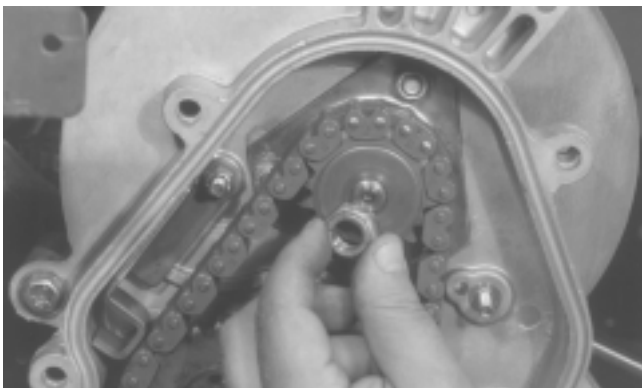


AF441

■ **NOTE:** If the chain tension is too tight to allow installation of the top sprocket, remove the PTO-side driven shaft bearing. This will allow the driven shaft to be lifted at the PTO-side and will allow the sprocket to slide onto the splined end of the driven shaft.

15. Secure the top sprocket with a spring washer (with the high side directed away from the sprocket) and lock nut (coated with red Loctite #271). Tighten the lock nut to 4.8-5.5 kg-m (35-40 ft-lb).

Fig. 8-106



AF432

■ **NOTE:** If the PTO-side driven shaft bearing was removed to make the sprocket installation easier, install the bearing and flange plate. Lock the bearing collar by driving it in the direction of rotation to lock the collar to the bearing and shaft. Tighten the collar set screw.

16. Place the rubber alignment pin into position in the idler sprocket; then slide the outer idler gear on the shaft. Install shim washer on the shaft.

Fig. 8-107



AF436

17. If the lower reverse sprocket was disassembled, assemble the thrust washer, bearing, and thrust washer. Secure with the snap ring. Apply transmission lube to the bearing and rotate by hand.

Fig. 8-108



AI021

18. Slide the reverse gear onto the driveshaft extension; then position the spring into the reverse gear and secure with heavy washer and cap screw. Tighten to 2.6-3.3 kg-m (19-24 ft-lb).

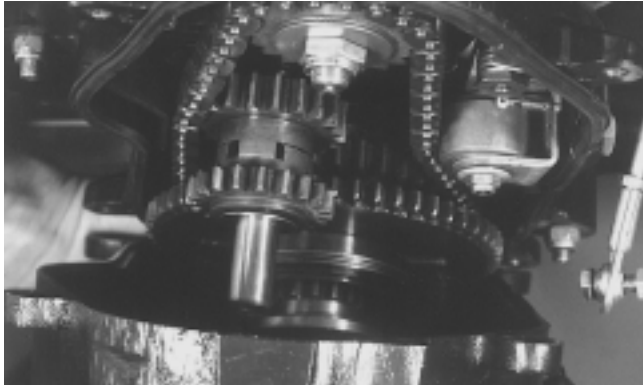
Fig. 8-109



AF428

19. Install the chain tensioner arm, apply blue Loctite #242 to the stud threads, and tighten the shoulder nut to 0.6-0.7 kg-m (4-5 ft-lb).
20. Remove the set screw from the chain adjuster housing and install the adjuster plug.
21. Check that the chain-case O-ring seal is positioned correctly on the housing.
22. Position the shift fork behind the large thrust washer and bearing on the reverse gear; then position the cover on the housing.

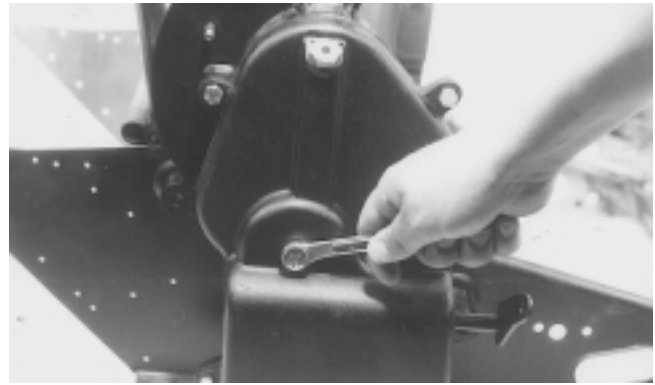
Fig. 8-110



AF075

23. Apply blue Loctite #242 to the threads of the cap screw; then install the cap screw through the center of the cover and into the idler shaft. Tighten the cap screw enough to draw the idler shaft into the cover.

Fig. 8-111



AI025

24. Place the shift pivot and reverse switch bracket into position on the cover; then secure the chain- case cover with cap screws and lock washers. Tighten the cap screws to 1.7-2.1 kg-m (12-15 ft-lb).
25. Place the shift linkage into position on the back side of the arm and secure with a cap screw and lock nut. Tighten to 1.7-2.1 kg-m (12-15 ft-lb).
26. Place the reverse lever into position on the shift pivot and secure with a clevis pin and cotter pin.
27. Secure the chain-case cover with cap screws and lock washers. Tighten the cap screws to 1.7-2.1 kg-m (12-15 ft-lb).
28. On the PTO-side of the track driveshaft, slide the lock collar against the bearing, drive the collar in the direction of rotation until tight, and tighten the collar set screw.

Fig. 8-112



AF054

29. Install the skid frame (see Section 9).
30. Remove the hold-down strap securing the air-intake silencer; then place the silencer into position making sure the boot is properly positioned on the carburetor/throttle body assembly. Secure the silencer to the steering support with the two screws.

31. Apply a light coat of grease or Loctite Anti-Seize Thread Compound (p/n 0678-146) to the driven shaft; then install the driven shaft alignment washers (as required) and key. Install the stub shaft and the driven pulley, alignment washers (as required), washer, and cap screw. Tighten to 2.6-3.3 kg-m (19-24 ft-lb).

■ **NOTE:** Make sure the keyways match when installing the driven pulley. Arrange washers to allow the least amount of “float” on the driven shaft. A maximum of 1.5 mm (0.060 in.) “float” is allowable.

Fig. 8-113



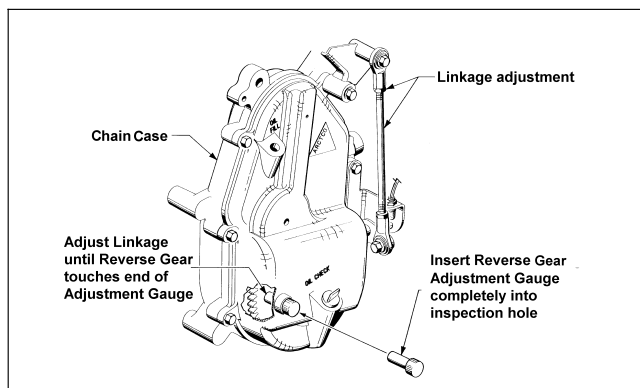
SC013D

32. Check the alignment of the drive clutch/driven pulley (see Drive Clutch/Driven Pulley in this section).
33. Assure that the chain case drain plug is tightened to 4.8 kg-m (35 ft-lb); then pour 354 ml (12 fl oz) of Arctic Cat Transmission Lube (p/n 0636-817) into the chain case.
34. Install the drive belt and check belt deflection. Secure the belt guard.
35. Install and secure the battery tray and battery; then connect the battery cables making sure to connect the positive cable first.

ADJUSTING REVERSE LINKAGE

1. Start the engine; then test the shifting characteristics of the reverse transmission.
2. If adjustment of the reverse gear is necessary, stop the engine and remove the chain case inspection plug located behind the oil level stick; then insert the Reverse Gear Adjustment Gauge (p/n 0644-244) completely into the inspection hole.

Fig. 8-114



0731-734

3. Pull the shift lever into the reverse position while holding the adjustment gauge firmly against the chain case cover. Slight outward pressure should be felt on the gauge as the lever locks into reverse.
4. If no contact is noted, loosen the jam nuts securing the lower shift linkage and adjust the linkage rod until the gauge is pushed out of the chain case 0.254-0.381 mm (0.010-0.015 in.). Lock the adjustment by tightening the jam nuts securely against the tie rod ends.

■ **NOTE:** To adjust the linkage rod, the shift lever must be moved to the forward position.

5. Install the inspection plug.
6. Start the engine; then test the shifting characteristics of the reverse transmission. Adjust as necessary.

⚠ CAUTION

The linkage must be properly adjusted. If the linkage is too short, damage to the shift fork may occur. If the linkage is adjusted too long, the gears will not shift totally into reverse.

Drive Train/Brake Disc (W/O Reverse)

DISASSEMBLING

1. Remove the chain-case drain plug (located on the lower back side of the chain case inside the tunnel) and drain the chain case lubricant.
2. Open the belt guard and remove the drive belt.
3. Remove the cap screw and washer securing the driven pulley; then account for and note the position of any alignment washers.

Fig. 8-115



SC013D

- Slide the driven pulley off the driven shaft; then remove the driven pulley from the engine compartment. Account for the stub shaft, key, and alignment washers.

■ **NOTE:** If the driven pulley is tight on the driven shaft, pull the driven pulley off using the Driven Pulley Puller (p/n 0744-023).

Fig. 8-116



AF120D

- Remove the cap screws and lock washers securing the chain-case cover; then remove the cover.

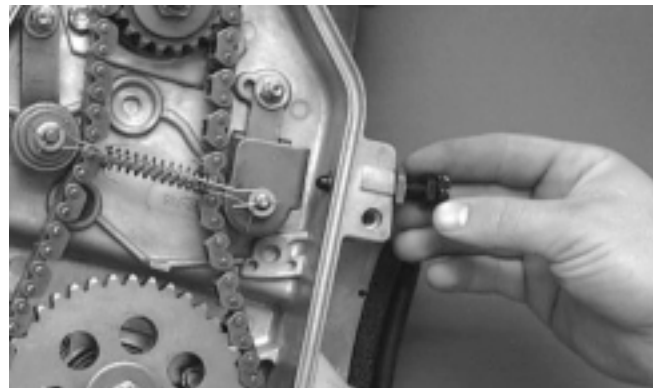
Fig. 8-117



AF111D

- Loosen the mechanical chain tensioner bolt; then remove the cotter pins and washers securing the tensioner spring to the link pins. Remove the spring, rollers, and washers.

Fig. 8-118



AF347D

- Remove the flex nut securing the front roller cage and roller. Remove the cage and roller.
- Set the brake lever lock; then remove the lock nut and spring washer securing the bottom sprocket and the lock nut and spring washer securing the top sprocket.

Fig. 8-119



AF345D

Fig. 8-120



AF344D

- Slide both sprockets with chain off the shafts. Account for washer(s) behind the top sprocket. Release the brake lever lock.

■ **NOTE:** If a sprocket will not slide off the shaft, thread the nut onto the shaft; then use a puller to loosen the sprocket. The nut will prevent damage to the threads.

10. Remove the six lock nuts securing the top and bottom chain case flange plates. Remove the flange plates, seals, and bearings.

Fig. 8-121



AF116D

11. Remove the screws securing the air-intake silencer to the steering support; then pull the silencer forward and place it on the carburetors/throttle body.

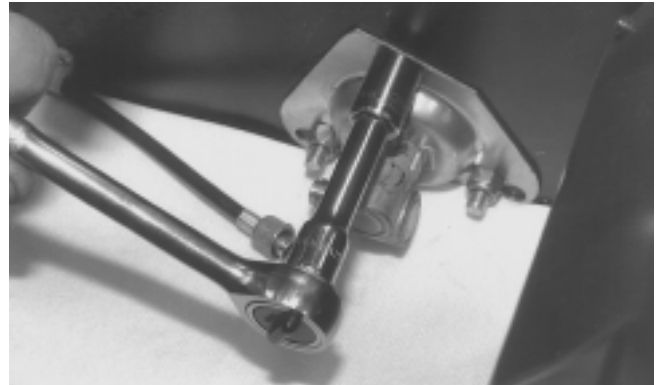
■ **NOTE:** Using a hold-down strap, secure the air-intake silencer to the engine.

12. Loosen the set screw on the PTO-side driven shaft collar. Drive the collar clockwise (opposite shaft rotation) until it is free.

■ **NOTE:** A fine file should be used to remove any burrs left by the collar set screw.

13. Remove the two lock nuts and carriage bolts securing the PTO-side driven shaft flange plate.
14. Force the driven shaft toward the PTO-side (rotating the shaft to prevent the brake disc from binding on the shaft) until the brake disc is free. Account for the key.
15. Continue to slide the driven shaft until it is out of the PTO-side. Account for a bearing, flange plate, and the PTO-side driven shaft collar.
16. Remove the skid frame from the tunnel (see Section 9).
17. Remove the three PTO-side lock nuts securing the driveshaft flange bearing assembly and the speedometer cable adapter. Remove the cable adapter and speedometer cable.

Fig. 8-122



AF053

18. Tap the driveshaft toward the chain case to unseat the MAG-side bearing. Remove the bearing.
19. Slide the driveshaft toward the MAG-side until the PTO-end of the driveshaft is out of its mounting hole. Tilt the end of the driveshaft away from the tunnel and slide the driveshaft free of the tunnel. Remove the track.

Fig. 8-123



AF055

20. Scribe a line on the driveshaft along the edge of each sprocket to aid in assembly. Loosen the set screw on the collar and drive the collar clockwise until free; then remove the bearing and flange plates from the driveshaft.
21. Press the sprockets off the driveshaft.
22. Remove the six socket-head cap screws and lock nuts securing the brake disc to the hub; then separate disc and hub.

Fig. 8-124



AF446

CLEANING AND INSPECTING

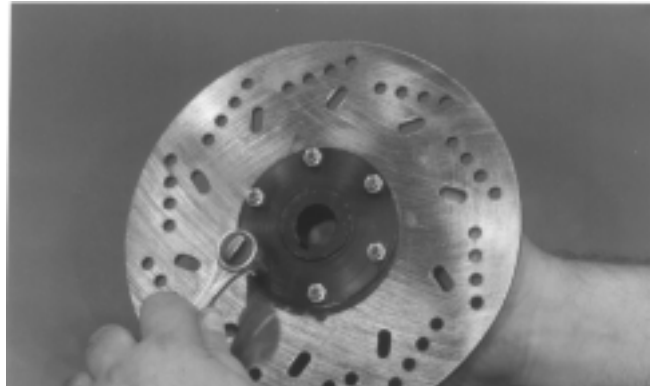
■ **NOTE:** Whenever a part is worn excessively, cracked, or damaged in any way, replacement is necessary.

1. Thoroughly wash all metallic components in parts-cleaning solvent. Dry using compressed air.
2. Wash all non-metallic components with soap and water.
3. Inspect the driveshaft and driven shaft for damaged splines or stripped threads.
4. Inspect the bearings for any roughness or damage.
5. Inspect the seals for any breaks or damage.
6. Inspect the track for cuts, gouges, or wear.
7. Inspect the keyways in the driven shaft and the brake hub for wear or damage.
8. Inspect the brake disc for wear or cracks.
9. Inspect the chain, sprockets, and chain tensioner components for wear or damage.
10. Inspect the track drive sprockets for wear or damage.

ASSEMBLING

1. Secure the hub to the brake disc with the six socket-head cap screws and lock nuts. Tighten the lock nuts to 0.4 kg-m (36 in.-lb).

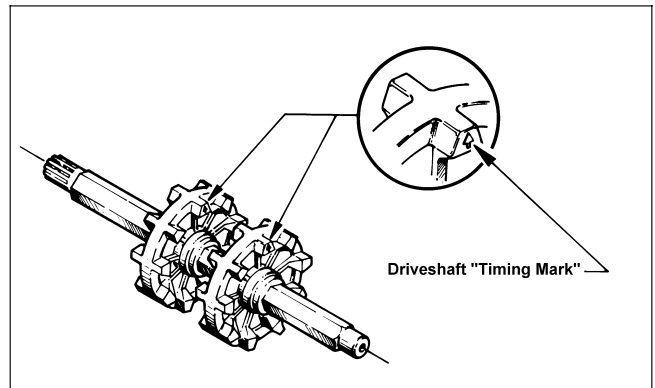
Fig. 8-125



AF445

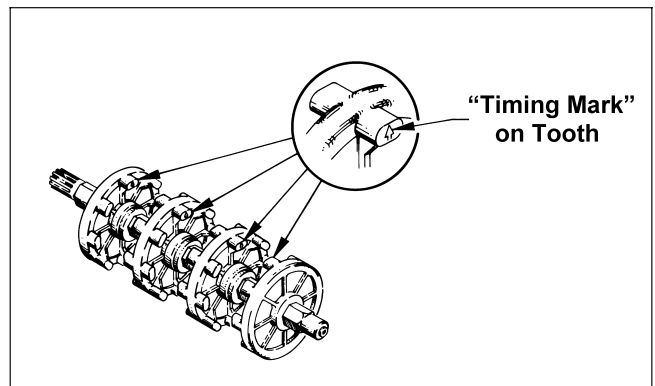
2. Press the sprockets on the driveshaft noting the scribed marks on the shaft and the timing mark found on one tooth of each sprocket. The timing mark is the letter T molded into the outer surface of one drive tooth of the inside sprockets and on the inside surface of the outside sprockets. All the T markings must be in alignment.

Fig. 8-126



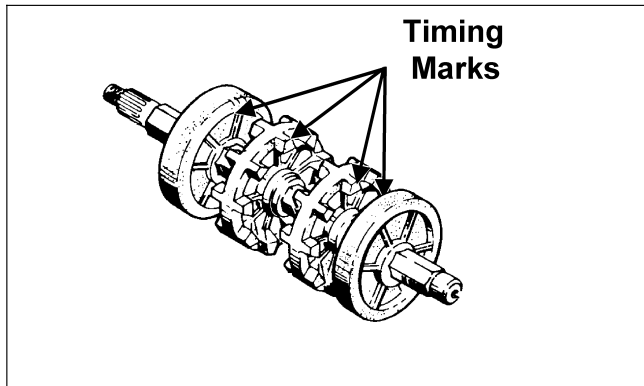
0728-351

Fig. 8-127



0727-829

Fig. 8-128



727-829A

■ **NOTE:** Make sure the sprockets are installed correctly and the bearing is positioned between the flange plates ensuring correct timing of the sprockets.

3. Assemble the driveshaft components on the PTO-end of the driveshaft. Install the bearing lock collar; then install the flange bearing assembly with the bolts facing towards the tunnel.
4. Position the front of the track into the tunnel. Install the driveshaft with the splined end through its mounting hole in the chain case.

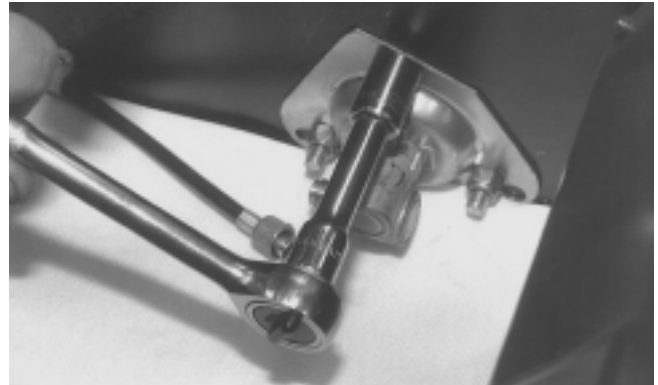
Fig. 8-129



AF055

5. Place the PTO-end of the driveshaft into position by sliding the bolts of the flange bearing assembly through the holes in the tunnel.
6. Place the cable adapter into position on the flange bearing assembly bolts. Secure with three lock nuts. Tighten to 2.2-2.5 kg-m (16-18 ft-lb).

Fig. 8-130



AF053

7. Slide the MAG-side bearing onto the driveshaft (inner race flange must be positioned toward drive chain); then install the O-ring seal and flange plate. Insert the cap screws from the inside of the tunnel through the chain case, seal, and flange. Secure with three lock nuts. Tighten to 2.2-2.5 kg-m (16-18 ft-lb).
8. Place the bottom sprocket onto the splines. Finger-tighten a lock nut (threads coated with blue Loctite #242) and spring washer. **DO NOT TIGHTEN AT THIS TIME.**
9. Install the brake hub key into the driven shaft keyway.
10. Install the PTO-side bearing with collar and flange plate on the driven shaft; do not tighten the collar at this time. Place the driven shaft into position making sure the brake disc and flange plate are properly positioned. Secure the PTO-side bearing and flange plate with two carriage bolts and lock nuts. Tighten to 2.2-2.5 kg-m (16-18 ft-lb).
11. On the MAG-side of the driven shaft, apply Scotch Bond Adhesive #4174 to the bearing seating area adjacent to the shaft splines. Install the bearing, seal, and flange plate. Secure with three lock nuts. Tighten to 2.2-2.5 kg-m (16-18 ft-lb).

■ **NOTE:** If washers were removed from behind the top sprocket; install them at this time.

12. Loop the chain around the bottom sprocket and slide the top sprocket with chain onto the driven shaft. Secure the top sprocket with a lock nut (threads coated with blue Loctite #242) and spring washer. Tighten to 4.8-5.5 kg-m (35-40 ft-lb). Tighten the bottom sprocket lock nut to 4.8-5.5 kg-m (35-40 ft-lb).

Fig. 8-131



AF344D

Fig. 8-132

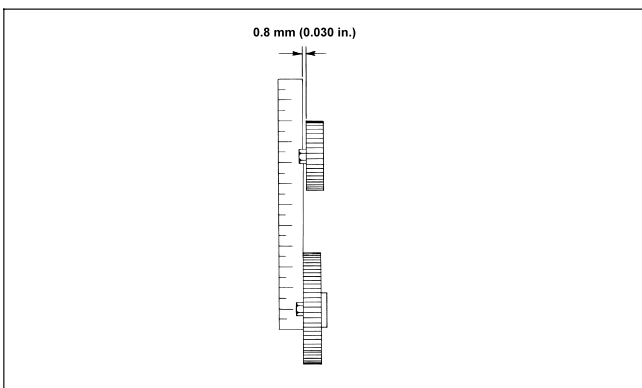


AF345D

13. Check the alignment of the sprockets using the following procedure.

- Place a straightedge against the faces of the sprockets.
- Using a feeler gauge, check for clearance along the faces of both sprockets. If clearance exceeds 0.8 mm (0.030 in.), shimming is necessary.

Fig. 8-133



0725-171

■ **NOTE:** Sprockets can only be shimmed out.

- On the PTO-side of the track driveshaft, slide the lock collar against the bearing, drive the collar in the direction of rotation until tight, and tighten the collar set screw to 0.4 kg-m (36 in.-lb).

Fig. 8-134

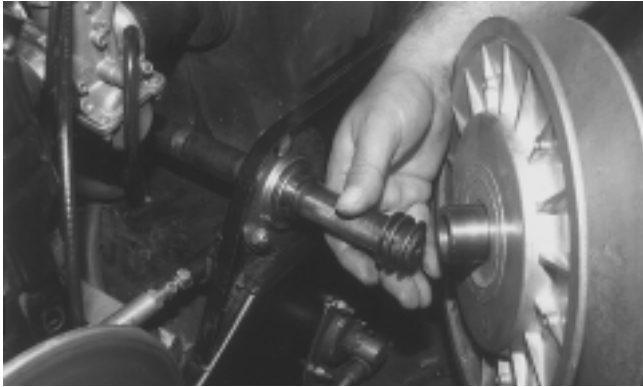


AF058

- Install the skid frame (see Section 9).
- Remove the hold-down strap securing the air-intake silencer; then place the silencer into position making sure the boot is properly positioned on the carburetors/throttle body.
- Secure the silencer to the steering support with the two screws.
- Apply a light coat of grease or Loctite Anti-Seize Thread Compound (p/n 0678-146) to the driven shaft; then install the driven shaft alignment washers (as required) and key. Install the driven pulley, stub shaft, alignment washers (as required), washer, and cap screw. Tighten the cap screw to 2.6-3.3 kg-m (19-24 ft-lb).

■ **NOTE:** Make sure keyways match when installing the driven pulley. Arrange washers to allow the least amount of "float" on the driven shaft. A maximum of 1.5 mm (0.060 in.) "float" is allowable.

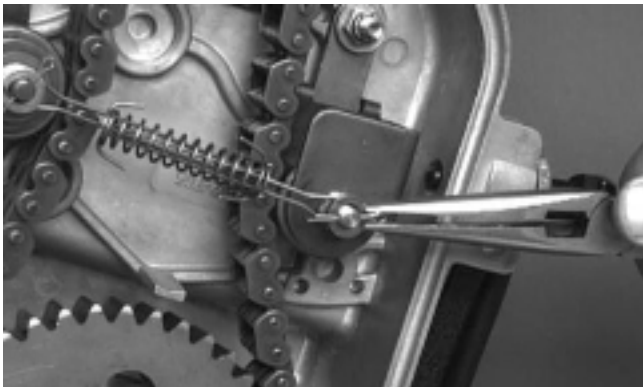
Fig. 8-135



AF057

19. Check the alignment of the drive clutch/driven pulley (see Drive Clutch/Driven Pulley in this section).
20. Tip the snowmobile onto the PTO-side using cardboard to prevent scratching the belly pan; then install the washers, rollers, and spring. Secure with two washers and cotter pins.

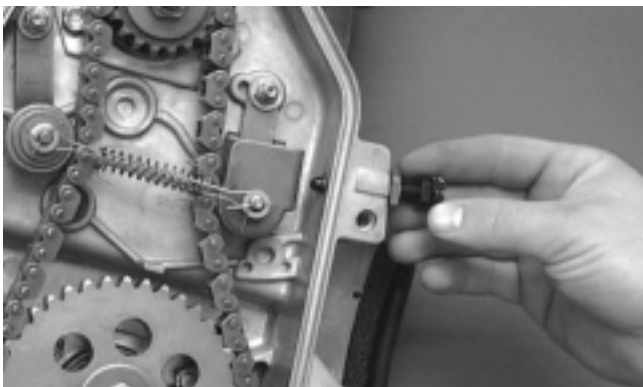
Fig. 8-136



AF113D

21. Tighten the mechanical chain tensioner finger-tight; then lock the jam nut against the chain case.

Fig. 8-137



AF347D

22. Place the front roller cage and roller into position and secure with the flex lock nut.

23. Install the drain plug and tighten to 4.8 kg-m (35 ft-lb); then pour 236 ml (8 fl oz) of Arctic Cat Transmission Lube (p/n 0636-817) into the chain case.
24. Check the position of the chain-case cover O-ring seal; then place the chain-case cover into position and secure with six cap screws and lock washers. Tighten to 1.7-2.1 kg-m (12-15 ft-lb).

Fig. 8-138



AF111D

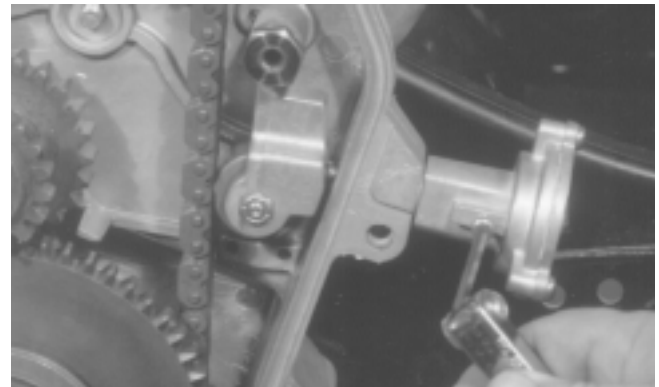
25. Install the drive belt and check drive belt deflection (see Drive Clutch/Driven Pulley in this section). Secure the belt guard.

Chain Adjuster

REMOVING AND DISASSEMBLING

1. Remove the small plug from the adjuster housing and install an 8-32 set screw into the threaded hole of the adjuster housing.

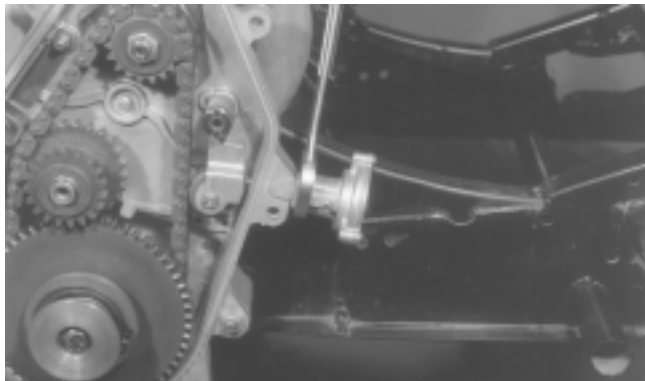
Fig. 8-139



AF416

2. Using a 3/4-in. wrench, remove the chain adjuster from the chain case.

Fig. 8-140



AF417

3. Remove the adjuster stem from the end of the adjuster screw.

Fig. 8-141



AF418

4. Using a small piece of wire, remove the small spring from the end of the adjuster screw.

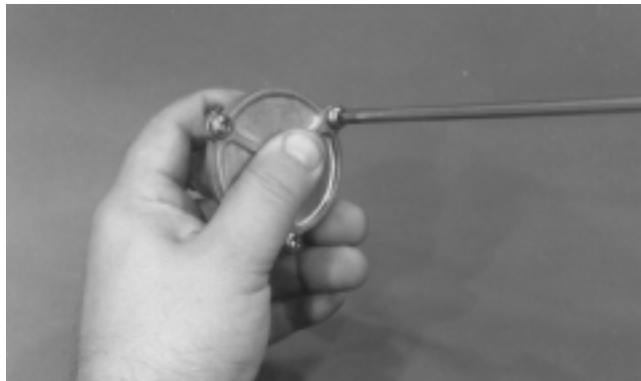
Fig. 8-142



AF401

5. While holding the end cap in position, remove the three cap screws securing the end cap to the adjuster housing.

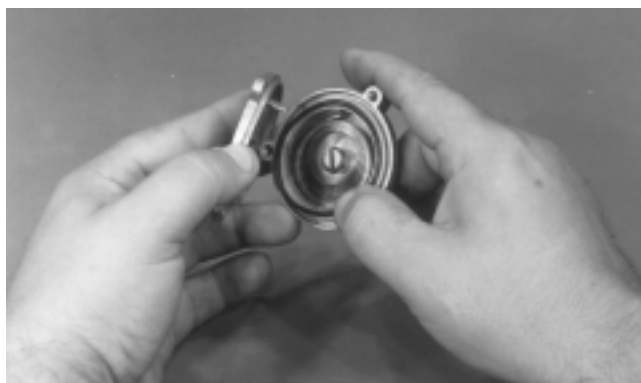
Fig. 8-143



AF419

6. Slowly and carefully lift the end cap from the adjuster housing until it is free of the hooked end of the spring.

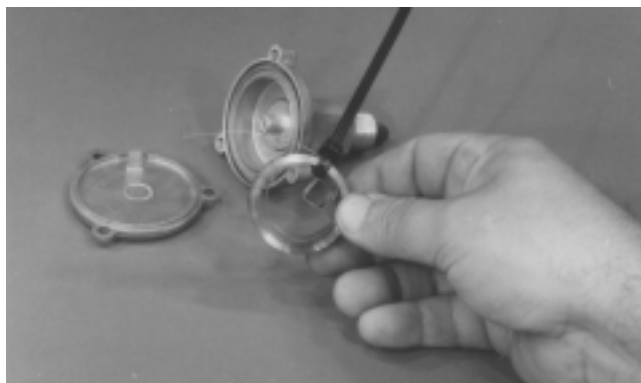
Fig. 8-144



AF420

7. Remove the O-ring seal from the adjuster housing.
8. Carefully lift the spring from the housing and secure the spring using a cable tie.

Fig. 8-145



AF421

9. Remove the set screw from the adjuster housing; then remove the adjuster socket from the housing by pulling it free of the adjuster bolt.

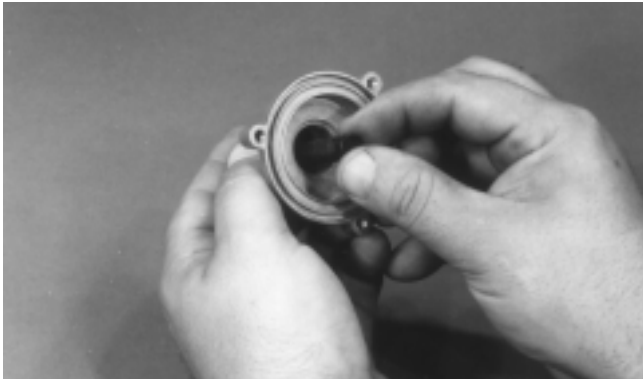
Fig. 8-146



AF422

10. Rotate the adjuster bolt counterclockwise until it is free of the housing; then remove the adjuster bolt.

Fig. 8-147



AF423

11. Wash all components in parts-cleaning solvent and inspect all components for any signs of wear.

ASSEMBLING AND INSTALLING

1. Apply a light coat of oil to the threads of the adjuster bolt; then turn the adjuster bolt clockwise into the housing a few turns.

Fig. 8-148



AF423

2. Slide the adjuster socket over the end of the adjuster bolt and push the socket down firmly into position. Rotate the adjuster socket clockwise until its flange seats against the housing inner surface.

Fig. 8-149



AF424

3. With the flat surface of the adjuster socket located under the threaded hole in the housing, install an 8-32 set screw.

Fig. 8-150



AF403

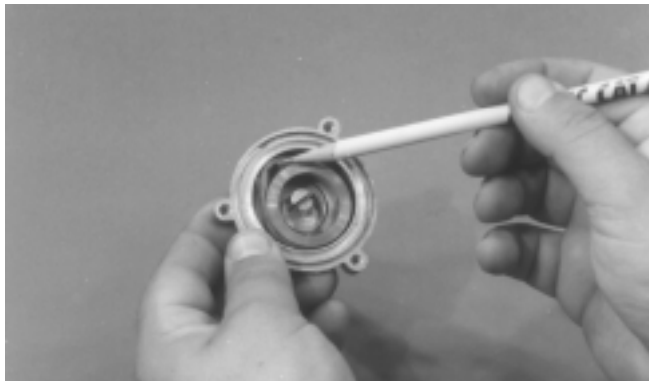
Fig. 8-151



AF425

4. Install the bent tab of the spring into the slot of the adjuster socket with the outer hooked end of the spring positioned in the clockwise direction.

Fig. 8-152



AF406

5. With the spring in position, remove the cable tie used to prevent it from unwrapping.
6. Place the O-ring seal into position; then set the end cap into position. Make sure its tab is hooked into the end of the spring.

Fig. 8-153



AF405

7. While holding the end cap down into position, rotate the end cap 20 turns clockwise to tension the spring.

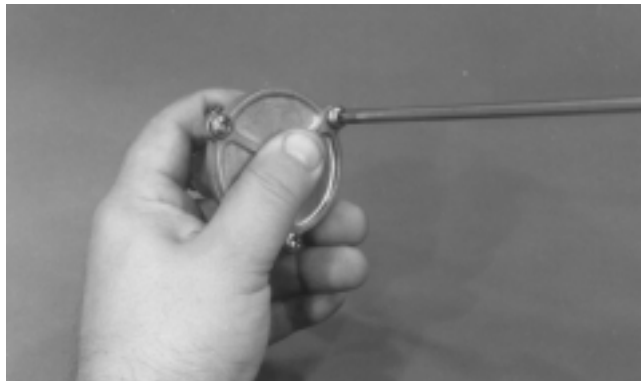
Fig. 8-154



AF400

8. Install the three cap screws (coated with blue Loctite #242) and tighten to 1 kg-m (7 ft-lb).

Fig. 8-155



AF419

9. Apply a thin coat of grease to the spring and place the spring into position in the end of the adjuster bolt.

Fig. 8-156



AF401

10. Use a thin coat of grease on the stem shaft to hold it in position; then place the stem into the end of the adjuster bolt.

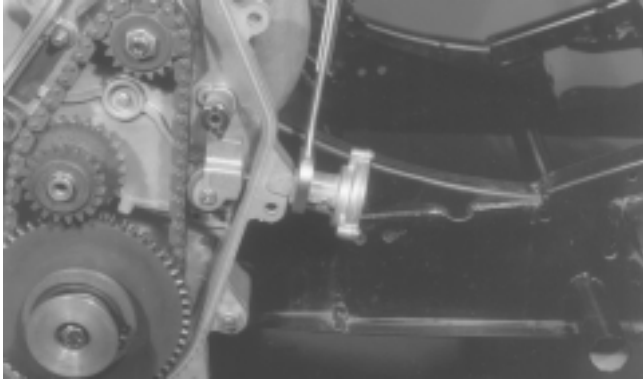
Fig. 8-157



AF418

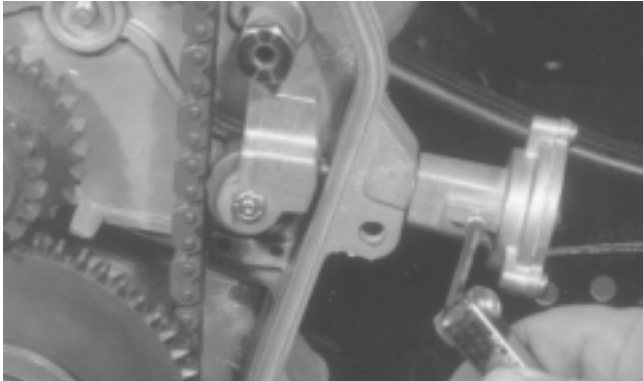
11. Securely tighten the adjuster assembly to the chain case.

Fig. 8-158



12. Remove the set screw from the adjuster housing and install the cap screw.

Fig. 8-159



Brake System (Hydraulic)

WARNING

Use only Arctic Cat approved Hi-Temp Brake Fluid (p/n 0638-315). Never substitute or mix different types or grades of brake fluid. Brake loss may occur. Brake loss can result in severe injury or even death.

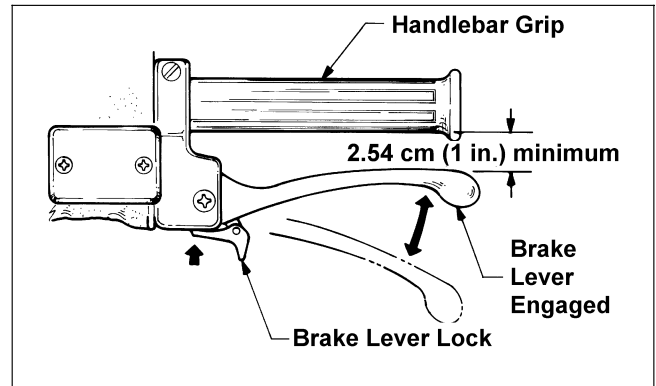
CHECKING BRAKE LEVER TRAVEL

1. Compress the brake lever fully.

■ **NOTE:** Do not “pump” the brake lever as it will produce an inaccurate reading.

2. Measure the distance between the brake lever and the handlebar. The distance must be greater than 2.54 cm (1 in.).

Fig. 8-160



3. If the distance is less than specified, check the brake fluid level (see Checking and Adding Brake Fluid in this sub-section), inspect for leakage, and check the brake pads (see Checking and Replacing Brake Pads in this sub-section).

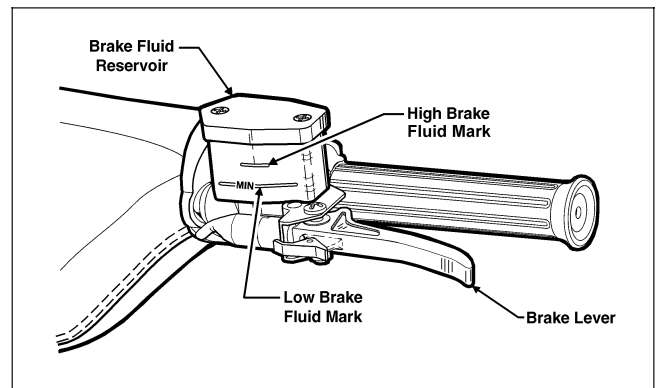
WARNING

Do not operate the snowmobile if the distance between the compressed brake lever and handlebar is less than 2.54 cm (1 in.). Brake loss may occur. Brake loss can result in severe personal injury.

CHECKING AND ADDING BRAKE FLUID

1. With the master cylinder in a level position, check fluid level in the reservoir. The brake fluid level must be just below the high mark.

Fig. 8-161



2. If the brake fluid level is below the low mark, remove the reservoir cover and add approved brake fluid until the fluid level is just below the high mark. Install and secure the reservoir cover. DO NOT allow moisture to contaminate the brake system.

⚠ CAUTION

Brake fluid is highly corrosive. Do not spill brake fluid on any surface of the snowmobile.

⚠ WARNING

Do not overfill the master cylinder reservoir. Overfilling the reservoir may cause the brake system to hydraulically lock. Use only approved brake fluid. Never substitute or mix different types or grades of brake fluid. Brake loss may occur. Brake loss can result in severe injury or even death.

CHANGING BRAKE FLUID

The brake fluid must be changed on a regular basis and/or whenever the brake fluid has been overheated or contaminated. The brake fluid should be changed every 1000 miles or at the end of the snowmobiling season, whichever occurs first.

Arctic Cat recommends the removal and disassembly of the brake caliper assembly when changing the brake fluid (see Removing/Installing Caliper in this sub-section).

⚠ CAUTION

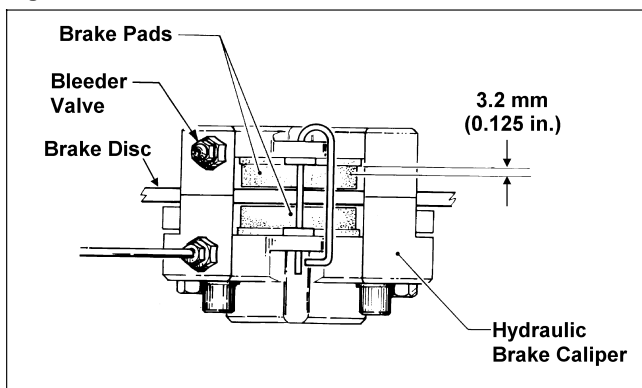
Brake fluid is highly corrosive. Do not spill brake fluid on any surface of the snowmobile.

⚠ WARNING

Use only Arctic Cat approved brake fluid. Any substitute may result in a loss of brakes.

1. Slide a piece of flexible tubing over the ball of the bleeder valve and direct the other end into a container.

Fig. 8-162



0730-434

2. Slowly compress the brake lever and hold. Open the bleeder valve to release the fluid; then compress the brake lever repeatedly until all brake fluid is expelled. Close the bleeder valve.

3. Add new approved brake fluid to the reservoir; then compress the brake lever and hold. Open the bleeder valve. Repeat the compression until brake fluid flows free of air bubbles and appears clean.

■ **NOTE:** It may be necessary to refill the reservoir a number of times to eliminate all air bubbles in the system.

4. When the brake fluid is free of all air and the brake lever feels firm when compressed, fill the reservoir to a level just below the high mark; then install and secure the cover. Remove the tube from the bleeder valve.
5. Proceed to bleed the brake system (see Bleeding Brake System in this sub-section).

BLEEDING BRAKE SYSTEM

If the brake lever feels “spongy” when applied, the brake system may need to be bled. To bleed the brake system, use the following procedure.

1. Remove the master cylinder reservoir cover and fill the reservoir to the high mark with approved brake fluid.

⚠ CAUTION

Brake fluid is highly corrosive. Do not spill brake fluid on any surface of the snowmobile.

⚠ WARNING

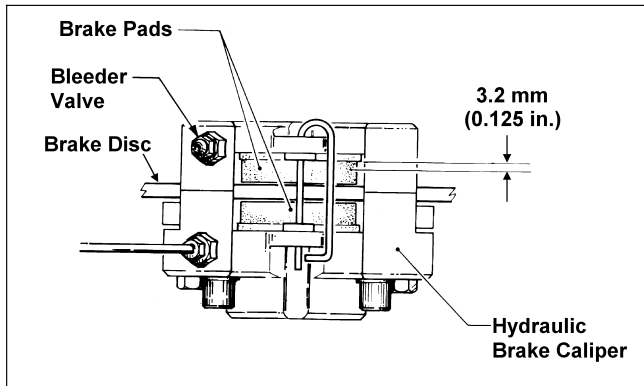
Use only approved brake fluid. Any substitute may result in a loss of brakes.

⚠ WARNING

Do not use brake fluid from a container that has been opened for a long period of time. Unsealed brake fluid containers will absorb moisture and can contaminate the fluid inside.

2. Slide a piece of flexible tubing over the ball of the bleeder valve and direct the other end into a container.

Fig. 8-163



0730-434

3. Slowly compress the brake lever and hold. Open the bleeder valve to release the fluid and air. When the fluid stops flowing, close the bleeder valve; then release the brake lever.

4. Repeat step 3 until the brake fluid flows free of air bubbles.

■ **NOTE:** It may be necessary to refill the reservoir during the bleeding process.

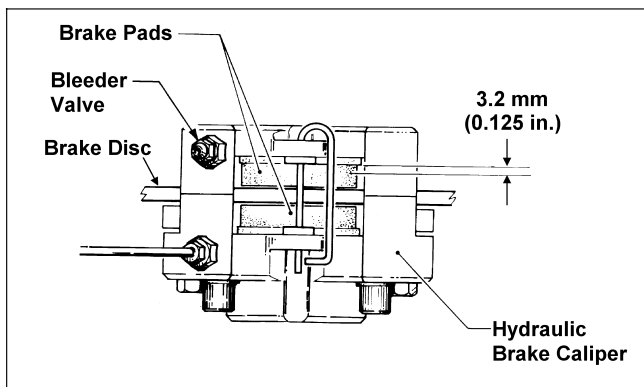
5. When the brake fluid is free of all air and the brake lever feels firm when compressed, fill the reservoir to a level just below the high mark; then install and secure the cover. Remove the tube from the bleeder valve.

CHECKING AND REPLACING BRAKE PADS

To check and replace the brake pads, use the following procedure.

1. Measure the thickness of both brake pads. The brake pad thickness must be greater than 3.2 mm (0.125 in.). If the brake pad thickness is less than specified, replacement of both pads is necessary.

Fig. 8-164



0730-434

2. Remove the retaining pin securing the brake pads to the caliper assembly.
3. Pull both brake pads out of the caliper assembly.

Fig. 8-165



AF255D

4. Using a large screwdriver, slowly push both brake pistons into the caliper.

CAUTION

Care must be taken not to pry against the brake disc when pushing on the pistons or severe damage may occur.

5. Position the new brake pads into the caliper and secure with the retaining pin.

■ **NOTE:** When installing new brake pads, always install them as a set. Never install just one pad or use brake pads which have been used in another machine.

Fig. 8-166



AF255D

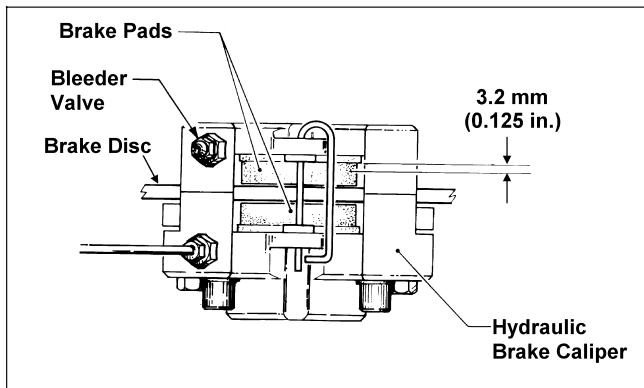
6. Compress the brake lever repeatedly to ensure correct positioning of the brake pads; then release.

■ **NOTE:** When new brake pads are installed, a "burnishing" process is required. Drive the snowmobile slowly and compress the brake lever repeatedly until the pads just start to heat up; then allow them to cool down. This process stabilizes the pad material and extends the life of the pads.

REMOVING CALIPER

1. Slide a piece of flexible tubing over the ball of the bleeder valve and direct the other end into a container.

Fig. 8-167



2. Open the bleeder valve and compress the brake lever several times to drain the reservoir of fluid.
3. Remove the brake hose from the caliper. Use an absorbent towel to collect any remaining brake fluid.

Fig. 8-168



CAUTION

Brake fluid is highly corrosive. Do not spill brake fluid on any surface of the snowmobile.

4. Remove the retaining pin securing the brake pads to the caliper assembly; then remove the brake pads.

Fig. 8-169



5. Loosen the upper socket-head cap screws securing the caliper halves; then remove the two cap screws and lock washers securing the brake caliper to the chain case. Account for two spacer washers.

Fig. 8-170



6. Remove the caliper assembly from the engine compartment.

DISASSEMBLING

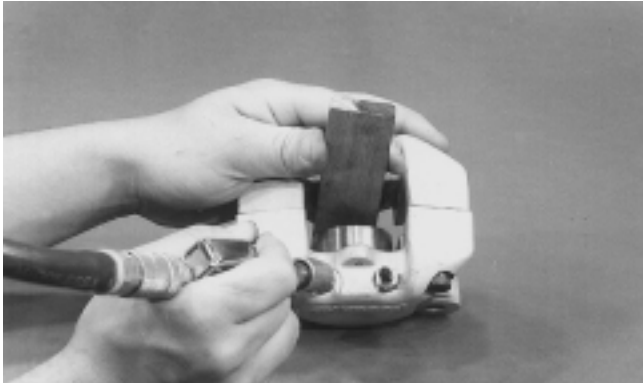
1. Position a piece of wood between the pistons. Using low-pressure compressed air, blow into the caliper brake hose fitting to remove the brake pistons.



WARNING

Always wear safety glasses when using compressed air.

Fig. 8-171



AF248

2. Remove the two cap screws securing the caliper halves. Account for the small O-ring.
3. Remove the piston O-rings and discard.

Fig. 8-172



AF264

CLEANING AND INSPECTING

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

1. Inspect the brake pistons for gouges, cracks, pitting, scuffing, or corrosion. If any of these conditions exist, replace the piston.
2. Clean the piston outer surface by using a Scotch-Brite pad and clean brake fluid as a cleaner.



CAUTION

Do not use any sharp cleaning tool on the piston surface as it may cause damage. Parts-cleaning solvent must not be used as it can damage the piston O-ring.

Fig. 8-173



AF230

3. Inspect the brake caliper for gouges, cracks, pitting, scuffing, or corrosion. If any of these conditions exist, replace the caliper.
4. Clean the caliper inner wall surface using a soft Scotch-Brite pad and clean brake fluid. Wipe caliper wall clean with a clean rag and brake fluid.

Fig. 8-174

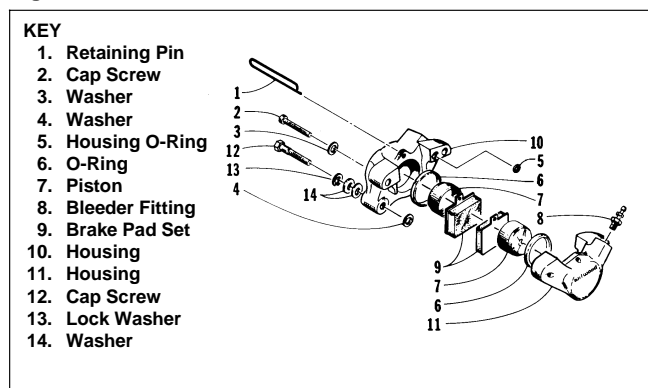


AF267

5. Inspect the condition of the brake pads. Replace if damaged or worn. The brake pad thickness must be greater than 3.2 mm (0.125 in.). If the brake pad thickness is less than specified, replacement of both pads is necessary.
6. Inspect the brake hose for cracks and deterioration and check the condition of the threaded connectors.

ASSEMBLING

Fig. 8-175



730-369A

1. Apply approved brake fluid to the new O-ring; then install the O-ring into the groove of each caliper half.

Fig. 8-176



AF251

NOTE: Always use a new O-ring when assembling the brake caliper.

2. In each caliper half, apply approved brake fluid to the brake piston; then while twisting, install the piston with the open side facing out.

Fig. 8-177



AF266

Fig. 8-178



AF269

3. Place the small O-ring into position; then assemble the two caliper halves. Secure with the two socket-head cap screws. Do not tighten at this time.

Fig. 8-179



AF264

INSTALLING CALIPER

1. Secure the caliper assembly on the chain case using two cap screws, lock washers, and spacer washers. Tighten the cap screws to 4.2 kg-m (30 ft-lb). Tighten the upper socket-head cap screws to 5 kg-m (36 ft-lb).

Fig. 8-180



AF261D

2. Install the brake hose on the caliper and tighten securely.

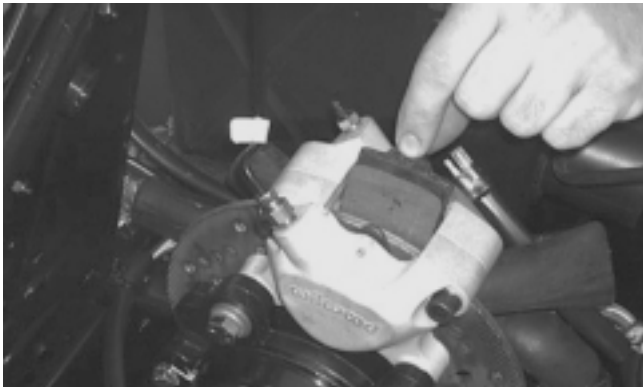
Fig. 8-181



AF262D

3. Install the brake pads. Secure with the retaining pin.

Fig. 8-182



AF255D

Fig. 8-183



AF237D

4. Bleed the brake system (see Bleeding Brake System in this sub-section).

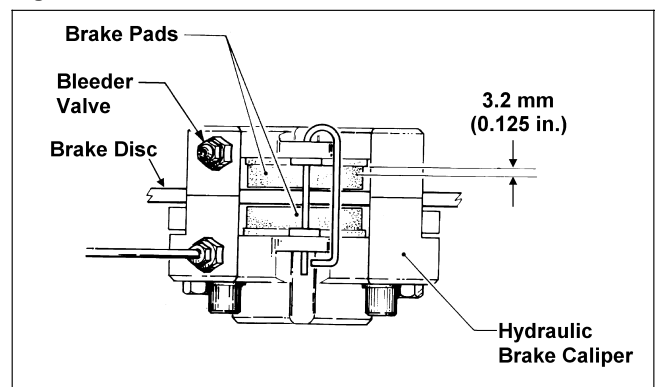
■ **NOTE:** If new brake pads were installed, a “burnishing” process is required. Drive the snowmobile slowly and compress the brake lever repeatedly until the pads just start to heat up; then allow them to cool down. This process stabilizes the pad material and extends the life of the pads.

Brake Lever/Master Cylinder Assembly (Hydraulic System)

REMOVING

1. Slide a piece of flexible tubing over the ball of the bleeder valve and direct the other end into a container. Remove the reservoir cover; then open the bleeder valve. Allow the brake fluid to drain completely.

Fig. 8-184



0730-434

2. Using a small screwdriver, push in on the self-locking tab; then slide the brakelight switch free of the brake control.

Fig. 8-185



AF201D

3. Place an absorbent towel around the connection to absorb brake fluid. Remove the brake fluid hose from the master cylinder.



CAUTION

Brake fluid is highly corrosive. Do not spill brake fluid on any surface of the snowmobile.

4. Remove the two torx-head screws and clamp securing the brake assembly to the handlebar; then remove the assembly from the handlebar.

DISASSEMBLING

1. Remove the screw and lock nut securing the brake lever.

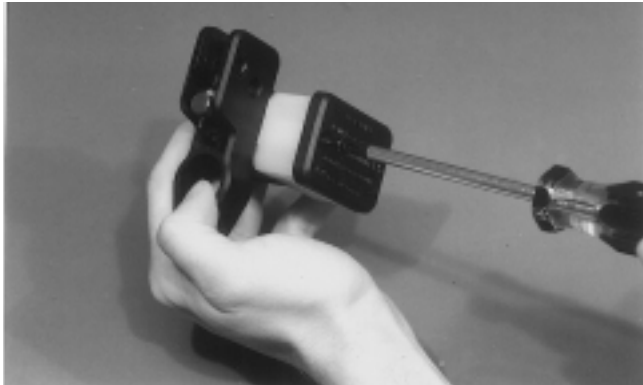
Fig. 8-186



AF202

2. Remove the two screws securing the reservoir cover; then remove the cover.

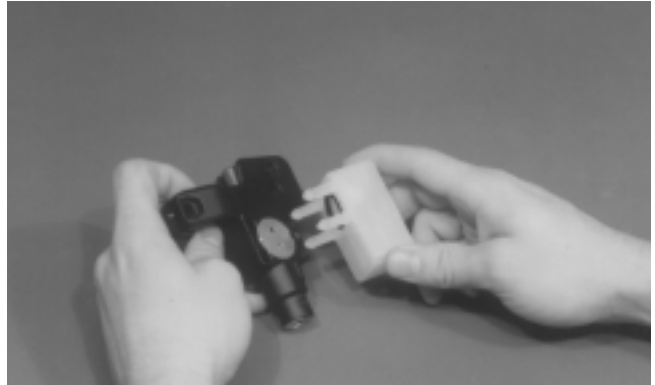
Fig. 8-187



AF204

3. Remove the two screws securing the reservoir to the master cylinder.
4. Compress the locking tabs of the reservoir and remove the reservoir from the master cylinder. Account for an O-ring seal.

Fig. 8-188



AF205

INSPECTING

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

1. Inspect the screw securing the brake lever for wear and for cracked, stretched, or damaged threads.
2. Inspect the O-ring for deterioration and distortion.

Fig. 8-189

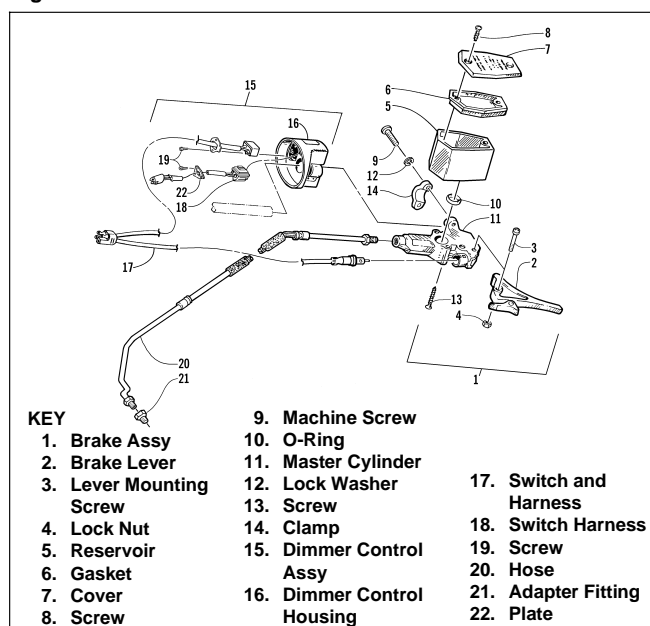


AF206

3. Inspect the reservoir for cracks and leakage.
4. Inspect the brake fluid hose for cracks, deterioration, and the condition of the fittings (threaded and compression).

ASSEMBLING

Fig. 8-190



0733-786

Fig. 8-191



AF207

1. Apply approved high temperature brake fluid to the O-ring seal; then install the seal on the reservoir.
2. Install the reservoir on the master cylinder. Secure with two screws.

Fig. 8-192



AF205

3. Install the brake lever. Secure with a screw and a new lock nut. Tighten the lock nut just to the point of ensuring free brake lever movement.

WARNING

Do not over-tighten the lock nut. Over-tightening the lock nut will cause the brake lever to bind. The lever must work freely and fully return to its stop after installation.

Fig. 8-193



AF202

WARNING

A new lock nut must be used to secure the brake lever.

INSTALLING

1. Position the brake assembly on the handlebar. Secure with two torx-head machine screws and clamp; tighten securely.
2. Install the hose on the master cylinder. Tighten securely.

Fig. 8-194



AF911D

3. Slide the brakelight switch into the brake control until the self-locking tab snaps into position. Lightly pull on the switch to make sure it is properly secured.
4. Bleed the brake system.

Brake System (Mechanical)

REMOVING

1. Loosen the upper flange nut securing the brake cable to the brake cable bracket; then slide the cable free of the bracket.

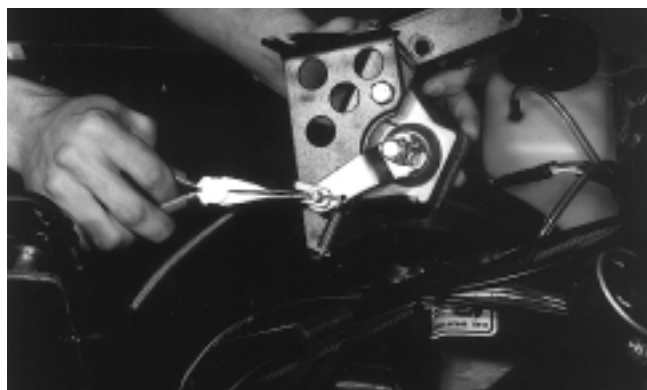
Fig. 8-195



AF145

2. Remove the two cap screws securing the brake bracket to the chain case; then remove the brake caliper assembly. Account for four spacers.
3. Remove the cotter pin and clevis pin securing the clevis to the actuator lever; then remove the spring.

Fig. 8-196



AF148

DISASSEMBLING

1. Remove the two cap screws and lock nuts securing the brake caliper assembly to the brake bracket; then remove the brake caliper assembly.

Fig. 8-197



AF146

2. Remove the cable bracket, caliper assembly, and carrier caliper with stationary brake pad.
3. Remove the movable pad and plate from the caliper assembly.

Fig. 8-198



B485

4. Remove the spiral with actuator lever from the caliper assembly.

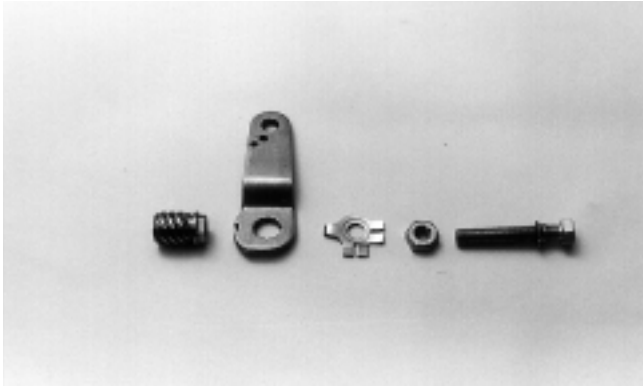
Fig. 8-199



B486

5. Bend the locking tab away from the adjusting bolt jam nut.
6. Remove the adjusting bolt with jam nut from the spiral. Remove the jam nut and locking tab.

Fig. 8-200



B487

7. Using a punch, remove the stationary brake pad from the carrier caliper. The carrier caliper has an access hole to aid in pad removal.

■ **NOTE:** Do not remove the stationary brake pad unless replacement is necessary.

Fig. 8-201



B488

CLEANING AND INSPECTING

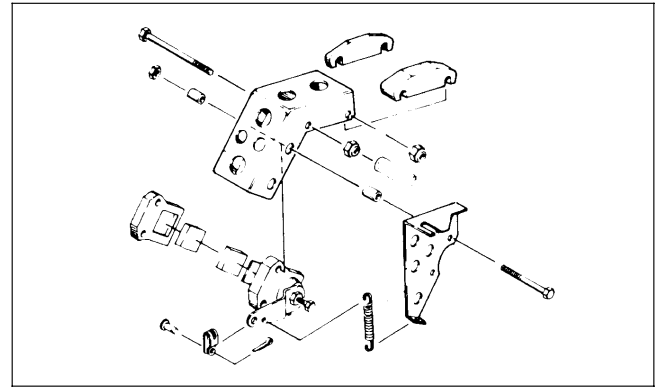
■ **NOTE:** Whenever a part is worn excessively, cracked, or damaged in any way, replacement is necessary.

1. Wash all brake components with parts-cleaning solvent and dry thoroughly.
2. Inspect all brake components for signs of wear, fatigue, cracks, or stripped threads.
3. Inspect the spring for cracks, stretching, or unusual bends.
4. Inspect the brake pads for wear. Pads must be at least 6.2 mm (0.245 in.) thick.

■ **NOTE:** When replacing brake pads, replace both pads as a set.

ASSEMBLING

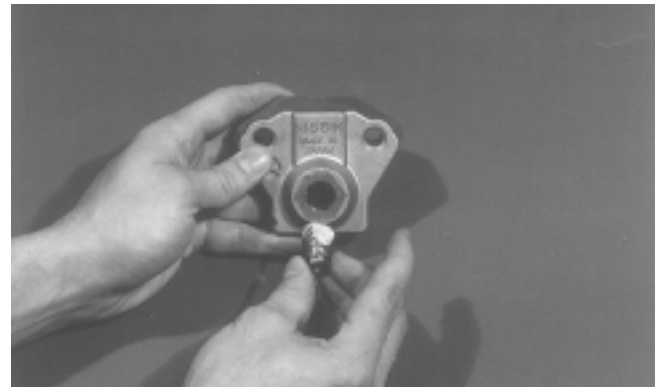
Fig. 8-202



728-328B

1. Apply a low-temperature grease to the actuator shaft; then install the shaft into the actuator.

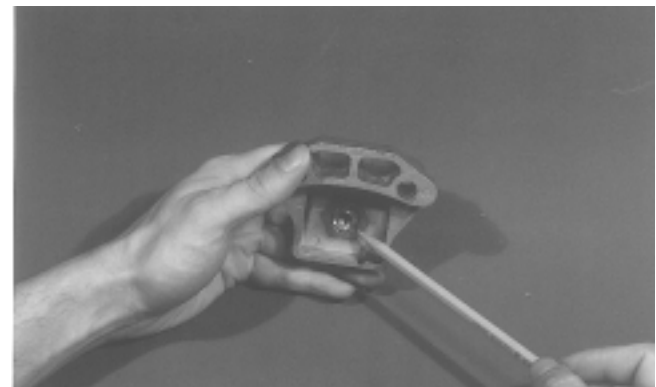
Fig. 8-203



AF149

2. Turn the actuator shaft clockwise until it is flush with the inside of the brake actuator.

Fig. 8-204



AF150

3. Install the actuator lever on the actuator shaft in the 10 o'clock position.

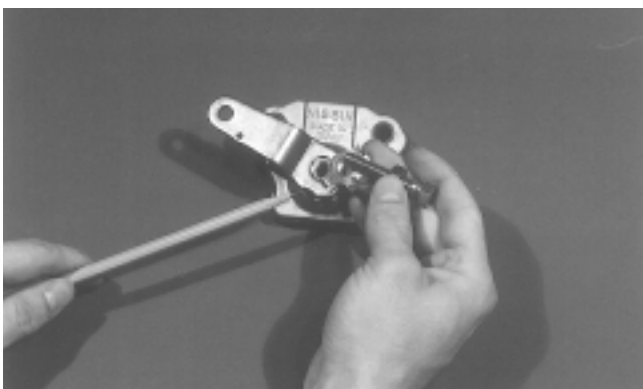
Fig. 8-205



AF151

4. Install the adjusting bolt, jam nut, and locking tab.

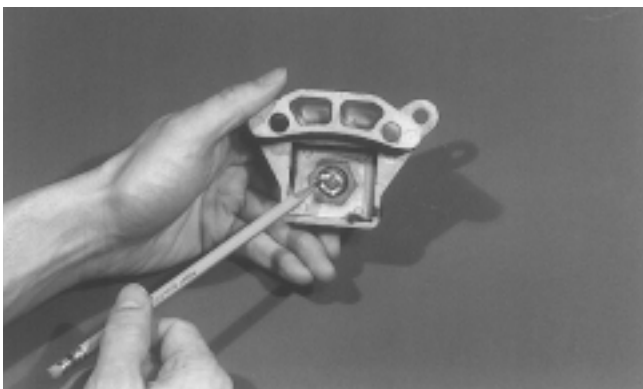
Fig. 8-206



AF152

■ **NOTE:** The end of the adjusting bolt must be flush with the actuator shaft.

Fig. 8-207



AF153

5. Secure the caliper assembly and four spacers to the caliper bracket and cable bracket with two cap screws and nuts. Tighten to 3.2 kg-m (23 ft-lb).

Fig. 8-208



B483

6. Install the plate and brake pad into the actuator side of the caliper; then apply an adhesive to one side of the stationary pad and install (adhesive side first) into the stationary side of the caliper assembly.

INSTALLING

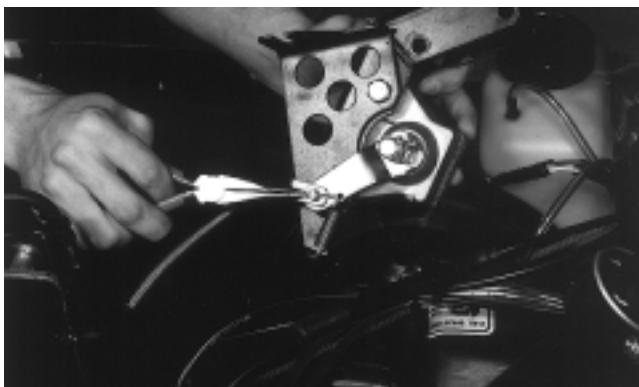
1. Place the clevis onto the end of the brake cable; then place the clevis into position on the actuator lever and secure with the clevis pin and cotter pin. Attach the spring.



CAUTION

Make sure the clevis has free movement.

Fig. 8-209



AF148

2. Place the brake assembly into position on the chain case; then secure with two cap screws and lock nuts. Tighten to 4.2 kg-m (30 ft-lb).

Fig. 8-210



AF146

- Place the brake cable onto the brake cable bracket and secure with the upper flange nut.

■ **NOTE:** The flange nuts should be centered on the brake cable end.

Fig. 8-211



AF145

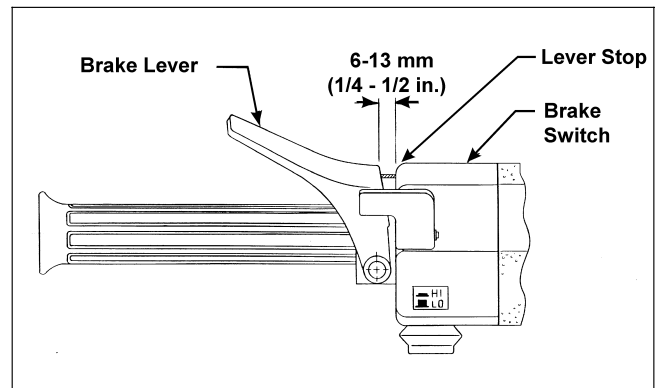
ADJUSTING BRAKE LEVER TRAVEL

⚠ **WARNING**

Make all brake lever travel adjustments with the adjusting bolt only!

- Rotate the brake disc alternately forward and backward while slowly compressing the brake lever.
- At the point where the disc is locked, check the distance between the brake lever and the lever stop. The distance must be within a range of 6-13 mm (1/4-1/2 in.).

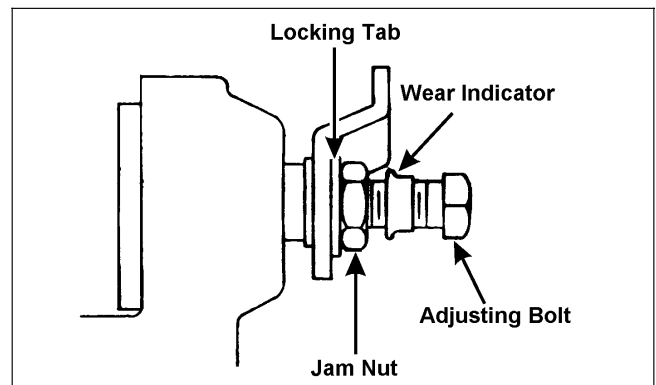
Fig. 8-212



0727-451

- To decrease brake lever travel (set up the brake), bend the locking tab back and loosen the adjusting bolt jam nut. Tighten the adjusting bolt and check brake lever travel distance periodically until correct travel distance is attained.

Fig. 8-213



0726-753

Fig. 8-214



B494

⚠ **CAUTION**

Do not attempt to adjust the brake with the flange nuts on the brake cable bracket. Incorrect brake adjustment may occur causing possible brake failure.

4. To increase brake lever travel (loosen the brake), bend the locking tab back and loosen the adjusting bolt jam nut. Loosen the adjusting bolt and check brake lever travel distance periodically until correct travel distance is attained.
5. Tighten the jam nut and secure with the locking tab after adjustment is completed.

WARNING

When the brake pads are new, there will be 6 mm (0.240 in.) clearance between the wear indicator and the adjusting bolt jam nut. When the wear indicator bottoms on the jam nut with the jam nut tight against the actuator lever, both brake pads **MUST BE REPLACED**.

Brake System (Mechanical/Quick-Adjust)

08

REMOVING

1. Remove the cotter pin, washer, pin, and clevis from the brake actuator arm.

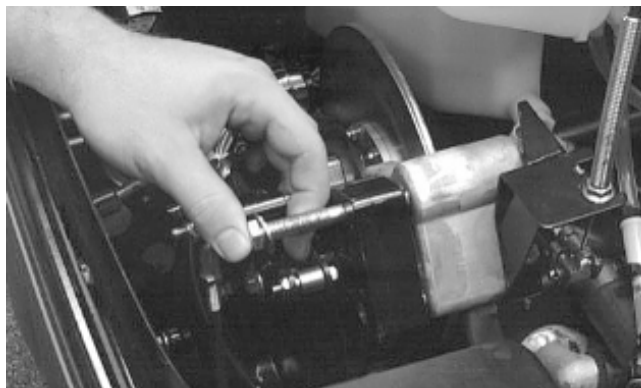
Fig. 8-215



AF297D

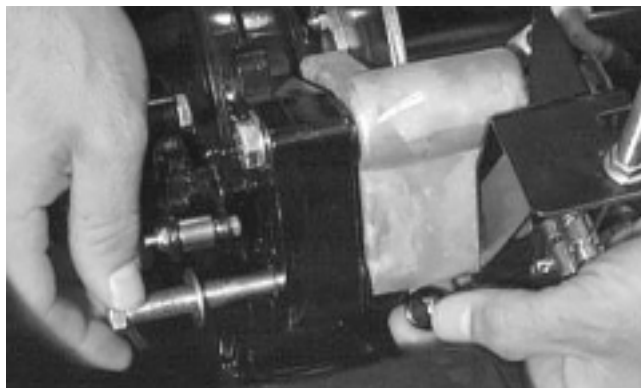
2. Remove the recoil starter rope from the brake cable bracket.
3. Loosen the jam nut on the brake cable and remove the cable from the bracket.
4. Loosen and remove the two mounting cap screws (account for the front alignment ball) and remove the brake caliper.

Fig. 8-216



AF460D

Fig. 8-217

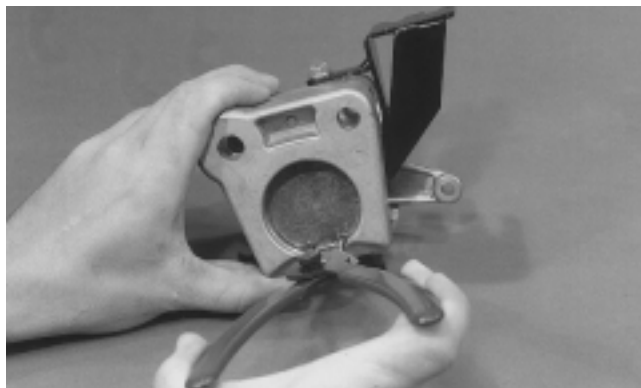


AF293D

DISASSEMBLING

1. Remove the snap ring on the stationary side of the caliper.

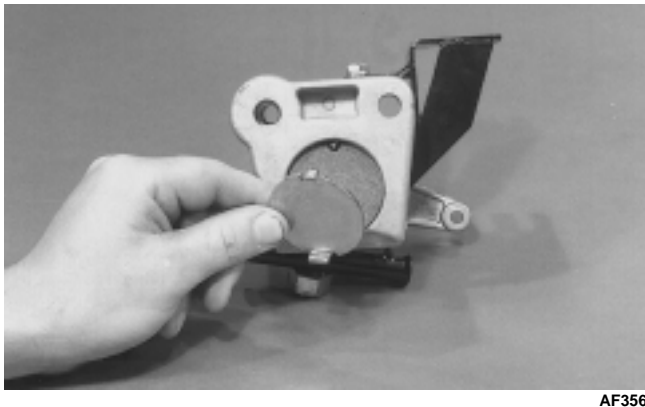
Fig. 8-218



AF318A

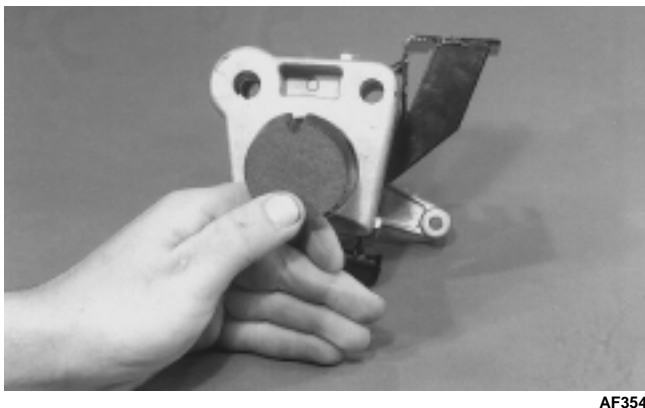
2. Remove the brake pad support plate.

Fig. 8-219



3. Remove the stationary brake pad.

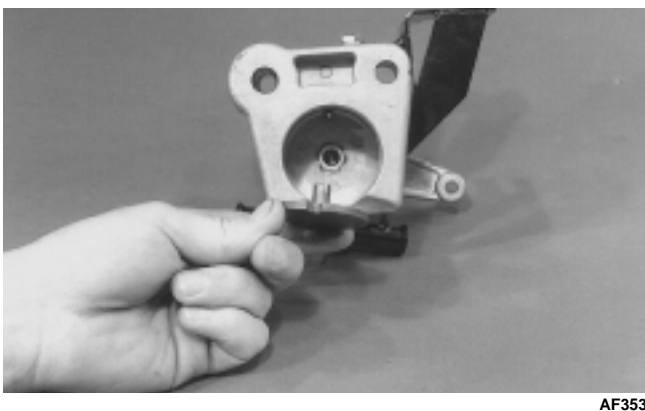
Fig. 8-220



4. Remove the movable brake pad.

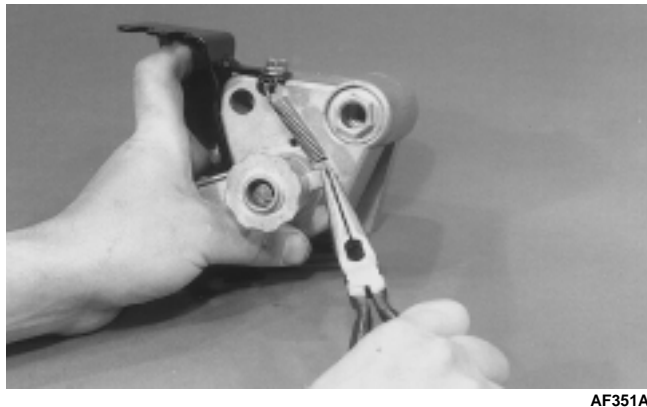
5. Remove the brake piston.

Fig. 8-221



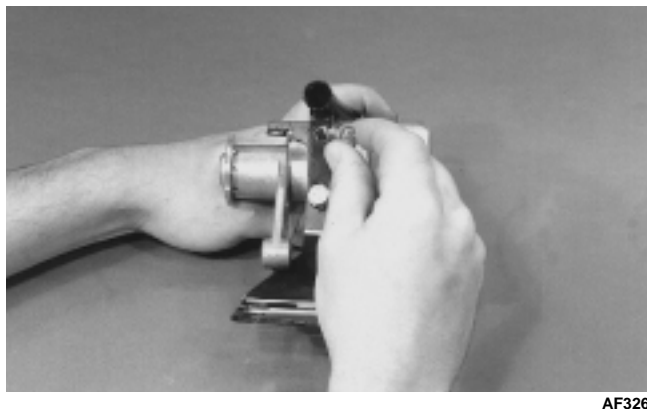
6. Remove the brake actuator arm return spring.

Fig. 8-222



7. Loosen and remove the three cap screws securing the brake cable bracket and remove the bracket.

Fig. 8-223



8. Remove the brake actuator arm assembly from the caliper.

Fig. 8-224



9. Pull out on the quick-adjust knob and turn counterclockwise to remove.

Fig. 8-225



AF328

10. Remove the adjustment bolt and spring from the quick-adjust knob.

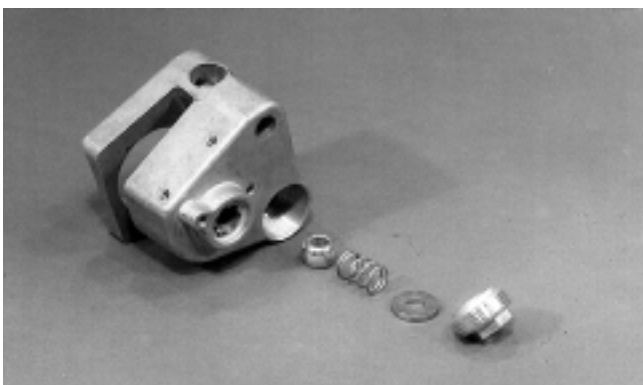
Fig. 8-226



AF333

11. On the rear of the caliper, loosen and remove the jam nut, washer, spring, and ball assembly.

Fig. 8-227



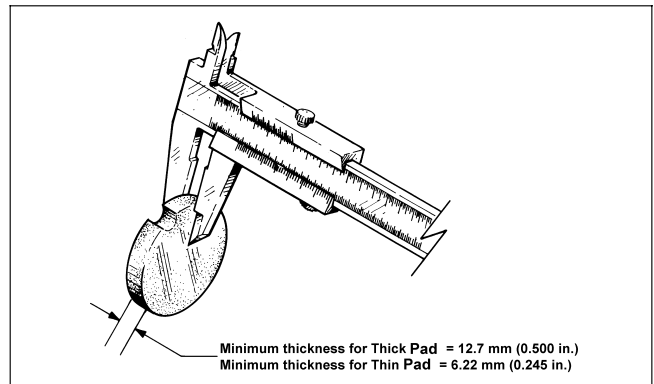
AF331

CLEANING AND INSPECTING

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

1. Using a calipers, measure the stationary and movable brake pads. The movable brake pad thickness must exceed 12.7 mm (0.500 in.). The stationary brake pad thickness must exceed 6.22 mm (0.245 in.).

Fig. 8-228



0730-504

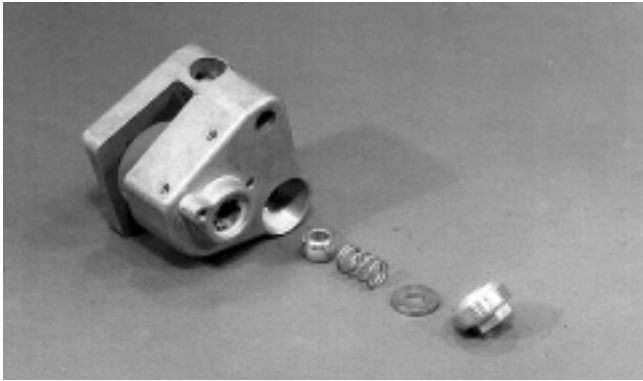
■ **NOTE:** When replacing brake pads, always replace both pads as a set.

2. Wash all brake components with parts-cleaning solvent and dry thoroughly.
3. Inspect all brake components for signs of wear, fatigue, cracks, or stripped threads.
4. Inspect the spring for cracks, stretching, or unusual bends.
5. Inspect the brake cable for any signs of fraying or broken strands. Replace as needed.

ASSEMBLING

1. In the rear mounting hole of the caliper, temporarily install the mounting cap screw. In sequence, install the alignment ball (apply a small amount of grease to the ball), spring, washer, and jam nut. Turn the jam nut in until slight spring pressure is felt; then remove the mounting cap screw.

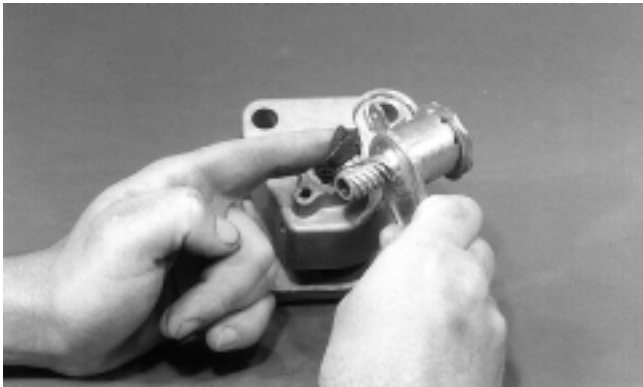
Fig. 8-229



AF331

2. Apply Arctic Cat Hi-Temp Wheel Bearing Grease (p/n 0436-094) to the actuator shaft.

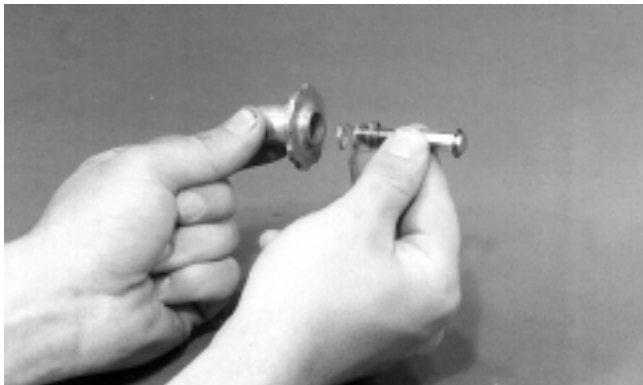
Fig. 8-230



AF327

3. Insert the adjustment bolt with spring and quick-adjust knob into the actuator assembly and turn in 2 or 3 turns.

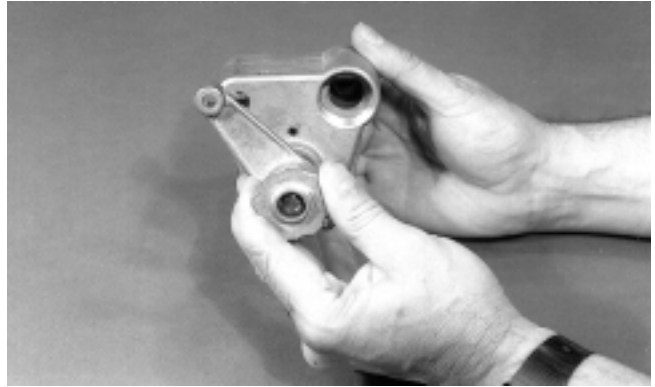
Fig. 8-231



AF329

4. With the actuator shaft arm in the 11 o'clock position (located over the front mounting hole), install the actuator shaft into the brake caliper assembly.

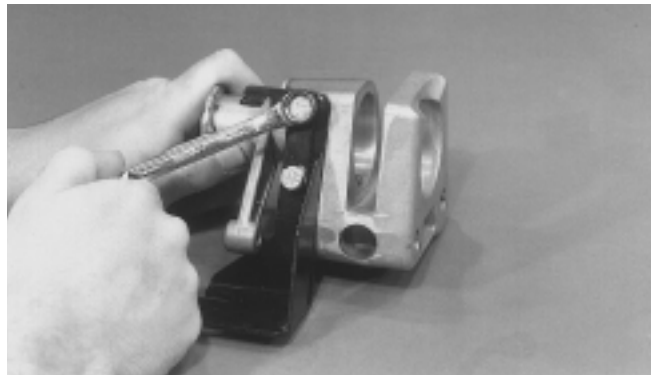
Fig. 8-232



AF338

5. Place the brake cable bracket and rope guide into position and secure with the three cap screws and lock washers.

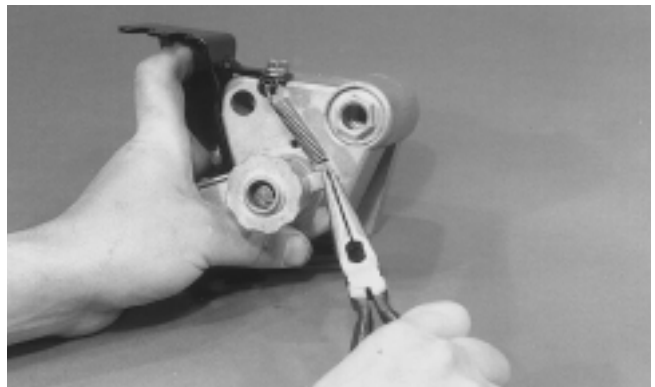
Fig. 8-233



AF352A

6. Install the brake arm actuator return spring.

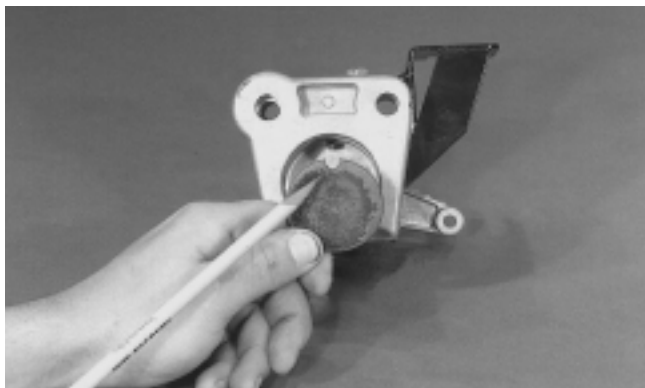
Fig. 8-234



AF351A

7. Install the brake piston making sure that the slot in the piston aligns with the roll pin in the caliper.

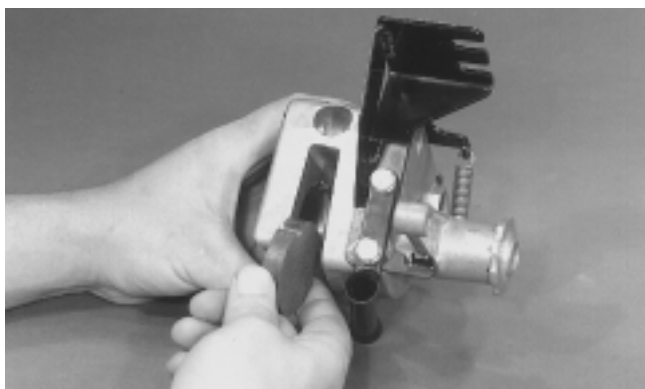
Fig. 8-235



AF325A

8. Install the movable (thick) brake pad into the caliper making sure that the slot in the pad aligns with the roll pin in the caliper.

Fig. 8-236



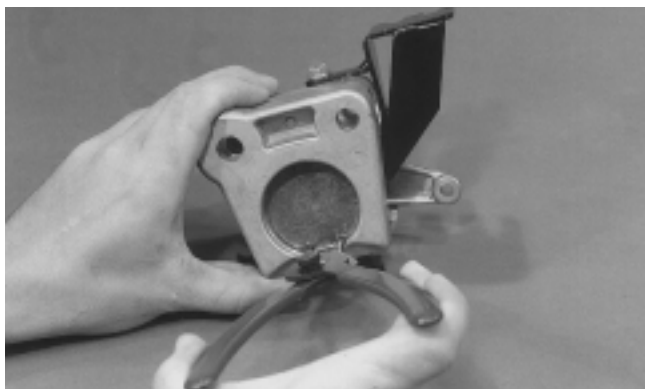
AF320

9. Install the snap ring into the caliper making sure that the sharp edge of the snap ring faces out and the opening faces down.

⚠ WARNING

Be sure the snap ring is fully seated. Personal injury may result if the snap ring isn't seated properly within the slot of the caliper.

Fig. 8-237



AF318A

10. Install the brake pad support plate with the large tab located in the opening of the snap ring.

Fig. 8-238



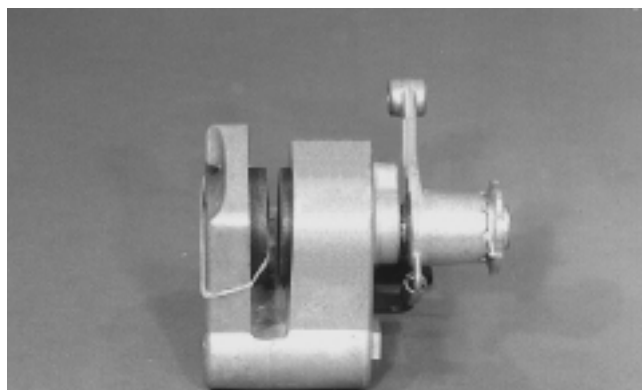
AF322

11. Install the stationary (thin) brake pad into the caliper making sure the slot in the pad aligns with the small tab on the support plate. Use a rubber band to hold the pad and plate in position.

INSTALLING

1. With the rubber band holding the stationary pad and support plate in position, install the caliper assembly over the brake disc. Remove the rubber band.

Fig. 8-239



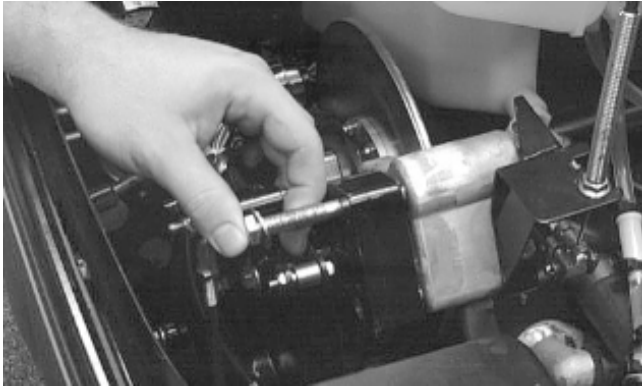
AF321A

⚠ CAUTION

Make sure that the brake pads are properly positioned in the caliper or damage to the brake system will result.

2. Apply green Loctite #609 to the rear mounting cap screw with washer and install. DO NOT TIGHTEN AT THIS TIME.

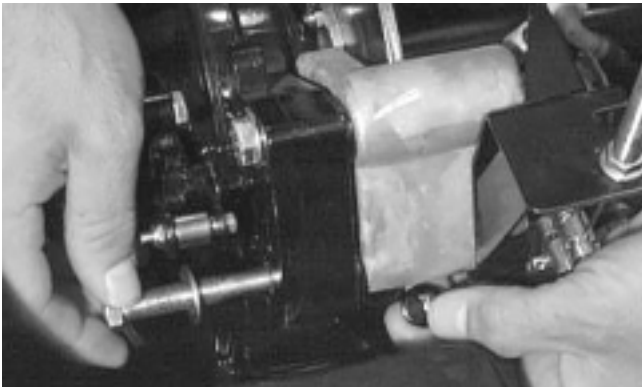
Fig. 8-240



AF460D

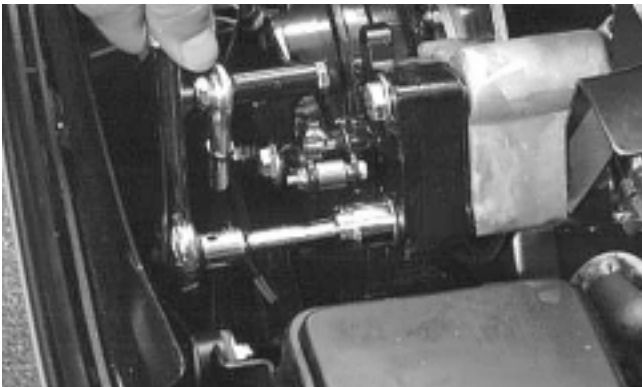
3. Apply a small amount of grease to the alignment ball and install into the front of the caliper. Apply green Loctite #609 to the front cap screw with washer; then install and tighten both cap screws to 4.2 kg-m (30 ft-lb).

Fig. 8-241



AF293D

Fig. 8-242



AF458D

4. Place the brake cable into the rear slot of the brake cable bracket and tighten securely.

Fig. 8-243



AF462D

5. Insert the cable end into the rear slot of the clevis. Install the pin through the clevis and actuator arm; then install the washer. Install a new cotter pin into the clevis pin and spread the cotter pin.

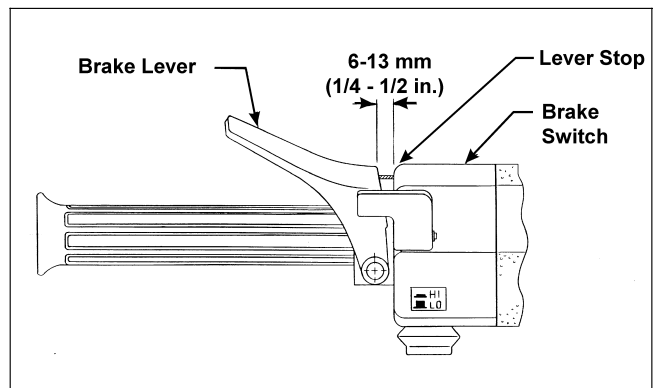
Fig. 8-244



AF340

6. Pull out on the quick-adjust knob and turn clockwise until there is 6-13 mm (1/4-1/2 in.) free-play at the brake lever.

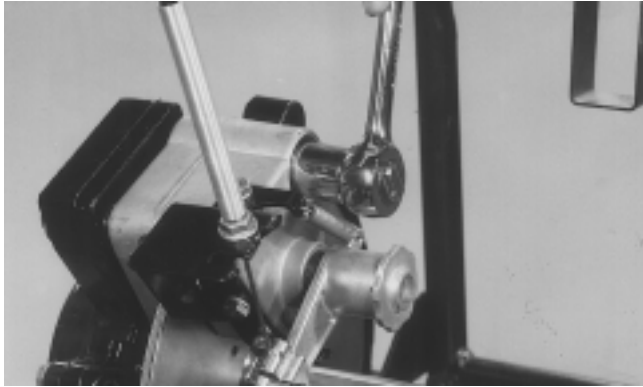
Fig. 8-245



0727-451

7. Set the parking brake; then securely tighten the jam nut on the upper mounting cap screw.

Fig. 8-246

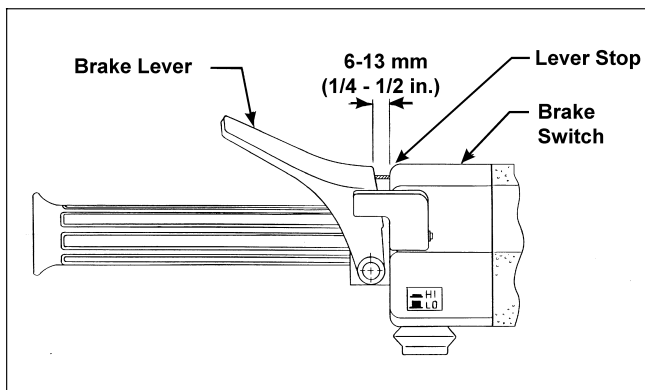


8. Release the parking brake and recheck the brake lever free-play (adjust as needed); then place the recoil starter rope into the guide portion of the brake cable bracket.

ADJUSTING 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 is locked, check the distance between the brake lever and lever stop. The distance must be within a range of 6-13 mm (1/4-1/2 in.).

Fig. 8-247



WARNING

Before making any adjustment, make certain the brake quick-adjust knob isn't hot. If the snowmobile has just been used, allow some time for the knob to cool or burns may result.

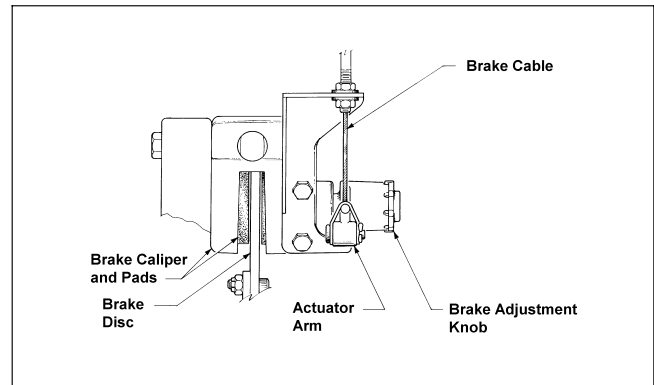
3. To decrease brake lever travel (set up brake), pull out on the spring-loaded quick-adjust knob and rotate the knob clockwise periodically checking the brake lever travel distance until the correct travel distance is attained. Once the correct brake lever travel has been obtained, release the knob into a secured position.

■ **NOTE:** If the quick-adjust knob has reached its maximum adjustment (cannot be rotated any further clockwise), both brake pads must be replaced.

WARNING

DO NOT attempt to adjust the brake with the flange nuts on the brake cable bracket. Incorrect brake adjustment may occur causing possible brake failure.

Fig. 8-248



4. To increase brake lever travel (loosen the brake), pull out on the quick-adjust knob and rotate the knob counterclockwise periodically checking the brake lever travel. Once the desired brake lever travel is obtained, release the knob into a secured position.

REPLACING BRAKE PADS

CAUTION

The brake pads must be replaced as a set. Do not under any circumstances ever replace only one of the brake pads.

1. Using a 1/2-in. socket, remove the front brake assembly guide pin. Slowly pull the pin from the assembly and catch the alignment ball as it drops from the hole in the front of the caliper assembly.
2. Remove the rear guide pin; then slide the brake caliper assembly forward free of the brake disc.
3. Remove the stationary brake pad from the caliper assembly.
4. Tip the caliper on its side and allow the movable brake pad to drop free of the caliper assembly.
5. Place the new movable brake pad into position; then temporarily secure with a rubber band to hold it in place.

6. With the backing plate in position (wide tab positioned between the snap ring ears), install the stationary brake pad making sure the notch in the pad is aligned with small tab of the backing plate. Using a rubber band, temporarily secure the pad.
7. Place the brake assembly back into position over the brake disc. Apply green Loctite #609 to the rear guide pin; then install the rear guide pin.
8. Insert the alignment ball into the hole at the front of the caliper, apply green Loctite #609 to the front guide pin, and install the front guide pin. Tighten the two alignment pins to 4.2 kg-m (30 ft-lb). Cut and remove the two rubber bands.

■ **NOTE:** When new brake pads have been installed, a “burnishing” process is required. Drive the snowmobile slowly and compress the brake lever repeatedly until the pads just start to heat up; then allow them to cool down. This process stabilizes the pad material and extends the life of the pads.

Brake Control (Mechanical System)

03

REMOVING AND DISASSEMBLING

1. Remove the Phillips-head screws securing the handlebar pad to the handlebar.

Fig. 8-249



AL136D

2. Remove the retaining ring, washer, and pin securing the brake lever.

Fig. 8-250



AL137D

Fig. 8-251



AL138D

3. Loosen the jam nut securing the brake cable to the brake cable bracket.

Fig. 8-252



AF462D

4. Disconnect the brake cable from the seat in the brake lever and remove the lever; then slide the brake cable free of the brake control.

Fig. 8-253



AL140D

5. Remove the brake lever from the brake control housing.
6. Remove the four screws securing the console; then raise the console to gain access to the main wiring harness.
7. Disconnect the brake control wiring harness from the main wiring harness.

Fig. 8-254



AL141D

8. Cut the cable ties holding the wiring harnesses and cables to the steering post noting their locations for installing purposes.
9. Using a sharp knife, cut the grip off the handlebar; then using a solvent, clean adhesive from the handlebar.
10. Remove the machine screw securing the brake control to the handlebar; then slide the brake control off the handlebar.

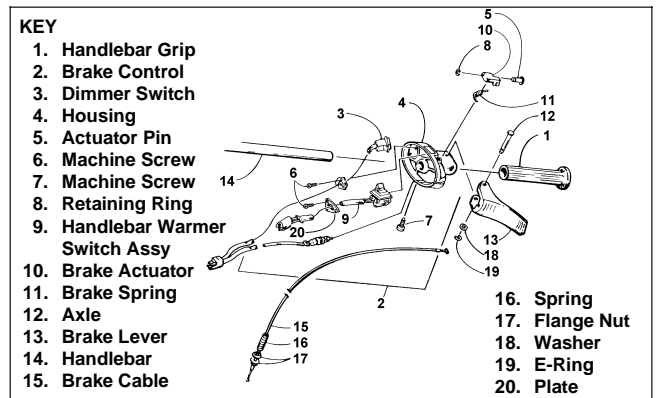
Fig. 8-255



AL143D

ASSEMBLING AND INSTALLING

Fig. 8-256



733-666B

1. Slide the brake control onto the handlebar and secure with the machine screw.

Fig. 8-257



AL143D

2. Connect the wiring harness at the console.
3. Connect the brake control wiring harness to the main wiring harness; then secure the harnesses with cable ties.

Fig. 8-258



AL141D

4. Place the console into position and secure with four screws making sure all wiring harnesses are positioned under the console.

■ **NOTE:** Secure wiring harnesses and cables to the steering post with cable ties as noted in removing.

5. Connect the end of the brake cable to the seat of the brake lever.

Fig. 8-259



AL140D

6. Secure the brake cable to the bracket by tightening the jam nut.

Fig. 8-260



AF462D

7. Secure the brake lever with the pin, washer, and retaining ring.

Fig. 8-261



AL138D

Fig. 8-262



AL137D

8. Secure the handlebar pad to the handlebar with the Phillips-head screws.
9. Apply Handlebar Grip Adhesive (p/n 0636-071) to the bore of the handlebar grip; then using a rubber hammer, drive the grip into position.

WARNING

The handlebar adhesive is extremely flammable. The product contains acetone and the vapors, when released, can be easily ignited. Keep away from heat, sparks, and open flame. Use only in a well-ventilated area. Avoid prolonged breathing of vapor. Avoid eye and skin contact. Keep container closed when not in use.

2000 DRIVE SYSTEM SPECIFICATIONS

MODEL	ALTITUDE	DRIVE CLUTCH		DRIVE SPRING		CAM ARM		DRIVEN PULLEY	DRIVEN SPRING	
		TYPE	P/N	P/N	COLOR	P/N	GRAMS	P/N	P/N	COLOR
Panther 340	LOW 5-9000 9-OVER	Arctic	0725-293	0646-147	Yellow/Green	0746-502 0746-526	44.5 42.0	0726-098 (Roller Cam)	0148-227	Yellow
Panther 440	LOW 5-9000 9-OVER	Arctic	0725-301	0646-149	Red	0746-527 0746-531 0746-526	50.5 44.5 42.0	0726-101 (Roller Cam)	0148-227	Yellow
Panther 550	LOW 5-9000 9-OVER	Arctic	0725-301	0646-149 0646-147	Red Yellow/Green	0746-527 0746-538 0746-523	50.5 49.5 47.0	0726-088 (Roller Cam)	0148-227	Yellow
Z 440	LOW 5-9000 9-OVER	Arctic	0725-264	0646-149	Red	0746-501 0746-525 0746-526	48.5 44.0 42.0	0726-090 (Roller Cam)	0648-012 0148-227	Blue Yellow
Z 370	LOW 5-9000 9-OVER	Arctic	0725-265	0646-147	Yellow/Green	0746-502 0746-602	44.5 42.5	0726-090 (Roller Cam)	0648-012 0148-227	Blue Yellow
Bearcat 340	LOW 5-9000 9-OVER	Arctic	0725-254	0646-149	Red	0746-540 0746-525 0746-503	46.5 44.0 41.0	0726-037 (Roller Cam)	0648-012	Blue
Bearcat 440 I	LOW 5-9000 9-OVER	Arctic	0725-285	0646-149	Red	0746-501 0746-593 0746-525	48.5 45.5 44.0	0726-037 (Roller Cam)	0648-012	Blue
Bearcat 440 II	LOW 5-9000 9-OVER	Arctic	0725-295	0646-149	Red	0746-539 0746-538 0746-523	53.0 49.5 47.0	0726-083 (Roller Cam)	0148-227	Yellow
Bearcat Wide Track	LOW 5-9000 9-OVER	Arctic	0725-296	0646-149	Red	0746-527 0746-524 0746-523	50.5 48.5 47.0	0726-102 (Roller Cam)	0648-012	Blue
Pantera 1000	LOW 5-9000 9-OVER	Arctic	0725-304	0646-150 0646-149	Silver Red	0746-588 0746-527 0746-524	54.5 50.5 48.5	0726-092 (Roller Cam)	0148-227	Yellow
Pantera 580 EFI	LOW 5-9000 9-OVER	Arctic	0725-301	0646-149 0646-147	Red Yellow/Green	0746-527 0746-524 0746-591	50.5 48.5 44.0	0726-085 (Roller Cam)	0148-227	Yellow
ZL 440	LOW 5-9000 9-OVER	Arctic	0725-302	0646-147	Yellow/Green	0746-579 0746-594 0746-562	46.5 44.5 42.0	0726-088 (Roller Cam)	0148-227	Yellow
ZL 500	LOW 5-9000 9-OVER	Arctic	0725-290	0646-229	Yellow/White	0746-579 0746-598 0746-604	46.5 44.0 41.5	0726-094 (Roller Cam)	0148-227	Yellow
ZL 500 EFI	LOW 5-9000 9-OVER	Arctic	0725-290	0646-229	Yellow/White	0746-579 0746-598 0746-604	46.5 44.0 41.5	0726-106 (Roller Cam)	0148-227	Yellow
ZRT 600	LOW 5-9000 9-OVER	Arctic	0725-303	0646-147 0646-229	Yellow/Green Yellow/White	0746-582 0746-596	48.5 44.5	0726-097 (Roller Cam)	0148-227	Yellow
ZRT 800	LOW 5-9000 9-OVER	Arctic	0725-310	0646-149 0646-147	Red Yellow/Green	0746-500 0746-527 0746-524	54.0 50.5 48.5	0726-072 (Roller Cam)	0148-227	Yellow
ZR 600	LOW 5-9000 9-OVER	Arctic	0725-289	0646-229	Yellow/White	0746-609 0746-524 0746-549	52.0 48.5 46.0	0726-100 (Roller Cam)	0148-227	Yellow
Triple Touring 600	LOW 5-9000 9-OVER	Arctic	0725-303	0646-147 0646-229	Yellow/Green Yellow/White	0746-582 0746-596	48.5 44.5	0726-097 (Roller Cam)	0148-227	Yellow
ZR 500	LOW 5-9000 9-OVER	Arctic	0725-290	0646-229	Yellow/White	0746-579 0746-598 0746-604	46.5 44.0 41.5	0726-106 (Roller Cam)	0148-227	Yellow

2000 DRIVE SYSTEM SPECIFICATIONS

MODEL	ALTITUDE	TORQUE BRACKET		GEAR RATIO	CHAIN		DRIVE BELT	ENGAGEMENT RPM	PEAK RPM
		P/N	DEGREE		PITCH	P/N	P/N		
Panther 340	LOW 5-9000 9-OVER	0648-002 0648-014 0148-180	53° 49° 45°	18/44	72	0107-372	0627-012	3800-4000	7000
Panther 440	LOW 5-9000 9-OVER	0148-222	51°	19/39	70	1602-041	0627-012	3500	7000
Panther 550	LOW 5-9000 9-OVER	0648-014 0648-025	49° 47°	19/39	70	1602-041	0627-021	3500	7800 8000
Z 440	LOW 5-9000 9-OVER	0648-002	53°	20/39 19/40	70	0107-216	0627-021	3500	7000
Z 370	LOW 5-9000 9-OVER	0648-002 0648-014	53° 49°	18/44	72	0107-372	0627-021	3800	7200
Bearcat 340	LOW 5-9000 9-OVER	0648-014 0648-026	49° 42°	18/44	72	1602-042	0627-013	3500	7000
Bearcat 440 I	LOW 5-9000 9-OVER	0648-014 0148-180 0648-026	49° 45° 42°	18/40	70	1602-041	0627-014	3500	7000
Bearcat 440 II	LOW 5-9000 9-OVER	0148-180 0648-026	45° 42°	18/40	70	1602-041	0627-014	3500	7000
Bearcat Wide Track	LOW 5-9000 9-OVER	0648-025 0148-180	47° 45°	18/40	70	0602-968	0627-014	3500	7800
Pantera 1000	LOW 5-9000 9-OVER	0648-016 0148-222 0648-014	57°/50° 51° 49°	24/39 19/39	72 70	1602-042 1602-041	0627-020	3500 3800	8400-8500
Pantera 580 EFI	LOW 5-9000 9-OVER	0648-014	49°	19/39	70	1602-041	0627-020	3500 4000	8000
ZL 440	LOW 5-9000 9-OVER	0648-014	49°	20/39 19/40	70	1602-041	0627-021	4500	7800-8000
ZL 500	LOW 5-9000 9-OVER	0148-222 0648-014	51° 49°	20/39 19/40	70	1602-041	0627-020	4800 5000	8500-8700
ZL 500 EFI	LOW 5-9000 9-OVER	0648-126 0648-014	53°/51° 49°	20/39 19/40	70	1602-041	0627-020	4800 5000	8500-8700
ZRT 600	LOW 5-9000 9-OVER	0648-005 0148-222 0648-014	55° 51° 49°	23/40 20/39	72 70	1602-042 1602-041	0627-020	4500 4800	8500
ZRT 800	LOW 5-9000 9-OVER	0648-016 0648-024 0148-222	57°/50° 55°/53° 51°	24/39 20/39	72 70	1602-042 1602-041	0627-020	3500 4200	8500
ZR 600	LOW 5-9000 9-OVER	0648-024 0148-222 0648-014	55°/53° 51° 49°	20/39 19/40	70	1602-041	0627-020	4500 4800 5000	8100-8300 8100-8400
Triple Touring 600	LOW 5-9000 9-OVER	0648-005 0148-222 0648-014	55° 51° 49°	23/40 19/39	72 70	1602-042 1602-041	0627-020	4800 5000	8500-8700
ZR 500	LOW 5-9000 9-OVER	0648-126 0648-014	53°/51° 49°	20/39 19/40	70	1602-041	0627-020	4800	8500-8700

2000 DRIVE SYSTEM SPECIFICATIONS

MODEL	ALTITUDE	DRIVE CLUTCH		DRIVE SPRING		CAM ARM		DRIVEN PULLEY	DRIVEN SPRING	
		TYPE	P/N	P/N	COLOR	P/N	GRAMS	P/N	P/N	COLOR
Powder Special 500 EFI/ 500 EFI LE	LOW 3-5000 5-9000 9-OVER	Arctic	0725-297	0646-229	Yellow/White	0746-579 0746-584 0746-602 0746-590	46.5 45.0 42.5 40.5	0726-099 (Roller Cam)	0148-227	Yellow
Powder Special 600/600 LE	LOW 3-5000 5-9000 9-OVER	Arctic	0725-297	0646-229	Yellow/White	0746-609 0746-610 0746-611	52.0 50.0 47.0	0726-099 (Roller Cam)	0148-227	Yellow
Powder Special 600 EFI/600 EFI LE	LOW 3-5000 5-9000 9-OVER	Arctic	0725-298	0646-229	Yellow/White	0746-587 0746-524 0746-607 0746-602	50.0 48.5 46.0 42.5	0726-104 (Roller Cam)	0148-227	Yellow
Powder Special 700/ 700 LE	LOW 3-5000 5-9000 9-OVER	Arctic	0725-300	0646-149 0646-147 0646-229	Red Yellow/Green Yellow/White	0746-539 0746-592 0746-527 0746-585	53.0 52.0 50.5 49.0	0726-104 (Roller Cam)	0148-227	Yellow
ZL 600	LOW 5-9000 9-OVER	Arctic	0725-289	0646-229	Yellow/White	0746-609 0746-524 0746-549	52.0 48.5 46.0	0726-100 (Roller Cam)	0148-227	Yellow
ZL 600 EFI	LOW 5-9000 9-OVER	Arctic	0725-291	0646-229	Yellow/White	0746-582 0746-607 0746-597	48.5 46.0 43.5	0726-100 (Roller Cam)	0148-227	Yellow
Thundercat	LOW 5-9000 9-OVER	Arctic	0725-308	0646-150 0646-149	Silver Red	0746-539 0746-527 0746-524	53.0 50.5 48.5	0726-072 (Roller Cam)	0148-227	Yellow
Thundercat M/C	LOW 5-9000 9-OVER	Arctic	0725-309	0646-150 0646-149	Silver Red	0746-588 0746-600 0746-608	54.5 50.0 47.5	0726-072 (Roller Cam)	0148-227	Yellow
ZR 500 EFI	LOW 5-9000 9-OVER	Arctic	0725-290	0646-229	Yellow/White	0746-579 0746-598 0746-604	46.5 44.0 41.5	0726-106 (Roller Cam)	0148-227	Yellow
ZR 600 EFI/ 600 EFI LE (Clicker/Reverse)	LOW 5-9000 9-OVER	Arctic	0725-291	0646-229	Yellow/White	0746-582 0746-607 0746-597	48.5 46.0 43.5	0726-100 (Roller Cam)	0148-227	Yellow
ZR 700/700 LE (Clicker/Reverse)	LOW 5-9000 9-OVER	Arctic	0725-292	0646-149 0646-147	Red Yellow/Green	0746-539 0746-527 0746-585	53.0 50.5 49.0	0726-089 (Roller Cam)	0148-227	Yellow
ZL 550	LOW 5-9000 9-OVER	Arctic	0725-301	0646-149 0646-147	Red Yellow/Green	0746-527 0746-524 0746-523	50.5 48.5 47.0	0726-085 (Roller Cam)	0148-227	Yellow
ZL 580 EFI	LOW 5-9000 9-OVER	Arctic	0725-301	0646-149 0646-147	Red Yellow/Green	0746-527 0746-524 0746-523	50.5 48.5 47.0	0726-085 (Roller Cam)	0148-227	Yellow
ZL 700	LOW 5-9000 9-OVER	Arctic	0725-292	0646-149 0646-147	Red Yellow/Green	0746-539 0746-527 0746-585	53.0 50.5 49.0	0726-089 (Roller Cam)	0148-227	Yellow

2000 DRIVE SYSTEM SPECIFICATIONS

MODEL	ALTITUDE	TORQUE BRACKET		GEAR RATIO	CHAIN		DRIVE BELT	ENGAGEMENT	PEAK RPM
		P/N	DEGREE		PITCH	P/N	P/N	RPM	
Powder Special 500 EFI/ 500 EFI LE	LOW 3-5000 5-9000 9-OVER	0648-014	49°	19/40	70	1602-041	0627-020	4800 5000	8500-8700
Powder Special 600/600 LE	LOW 3-5000 5-9000 9-OVER	0648-016 0648-002 0648-014	57°/50° 53° 49°	19/40 18/40	70	1602-041	0627-020	4800	8100-8400
Powder Special 600 EFI/600 EFI LE	LOW 3-5000 5-9000 9-OVER	0148-222 0648-014	51° 49°	19/40	70	1602-041	0627-020	4800	8400-8600
Powder Special 700/ 700 LE	LOW 3-5000 5-9000 9-OVER	0148-222	51°	20/39 19/40	70	1602-041	0627-020	3500 4000	7800-8000
ZL 600	LOW 5-9000 9-OVER	0648-024 0148-222 0648-014	55°/53° 51° 49°	20/39 19/40	70	1602-041	0627-020	4700 4800 5000	8100-8400
ZL 600 EFI	LOW 5-9000 9-OVER	0648-024 0648-014	55°/53° 49°	20/39 19/40	70	1602-041	0627-020	4800	8400-8600
Thundercat	LOW 5-9000 9-OVER	0648-016 0648-014	57°/50° 49°	24/39 20/39	72 70	1602-042 1602-041	0627-020	3500 3800 3500	8500
Thundercat M/C	LOW 5-9000 9-OVER	0648-016 0148-222	57°/50° 51°	20/39	70	1602-041	0627-020	3500 3800	8500
ZR 500 EFI	LOW 5-9000 9-OVER	0648-126 0648-014	53°/51° 49°	20/39 19/40	70	1602-041	0627-020	4800 5000	8500-8700
ZR 600 EFI/ 600 EFI LE (Clicker/Reverse)	LOW 5-9000 9-OVER	0648-024 0648-014	53° 49°	20/39 (19/39-R) 19/40 (19/39-R)	70	1602-041	0627-020	4800	8400-8600
ZR 700/700 LE (Clicker/Reverse)	LOW 5-9000 9-OVER	0648-002 0648-024	53° 55°/53°	23/40 19/40 (19/39-R)	72 70	1602-042 1602-041	0627-020	3500 4000	7900-8100
ZL 550	LOW 5-9000 9-OVER	0648-014 0648-025	49° 47°	19/39	70	1602-041	0627-021	3500 4200	7800-8000
ZL 580 EFI	LOW 5-9000 9-OVER	0648-014	49°	19/39	70	1602-041	0627-020	3500 4200	8000
ZL 700	LOW 5-9000 9-OVER	0648-002 0648-024	53° 55°/53°	23/40 19/40	72 70	1602-042 1602-041	0627-020	3500 4000	7900-8100

CHAIN CASE PERFORMANCE SPECIFICATIONS WITH TENSION PAD TIGHTENER SYSTEM

CHAIN CASE PERFORMANCE SPECIFICATIONS*					MPH/RPM (Engine)				
SPROCKETS	RATIO	CHAIN PITCH	TENSION SPRING CLIPS**	TENSION PADS***	6000	7000	8000	9000	10,000
24/35	.686	70	2L	2TK	79.0	92.2	105.4	118.5	131.7
22/33	.667	68	2L	2TK	76.8	89.6	102.5	115.3	128.1
21/33	.636	68	2S	2TK	73.3	85.5	97.7	109.9	122.1
24/39	.615	72	2L	2TK	70.8	82.7	94.5	106.3	118.1
22/37	.595	70	2L	2TN	68.5	80.0	91.4	102.8	114.2
20/35	.571	68	2L	2TK	65.8	76.7	87.7	98.7	109.6
21/37	.568	70	2L	2TK	65.4	76.3	87.2	98.2	109.1
19/35	.543	68	2S	2TN	62.6	73.0	83.4	93.8	104.3
20/39	.513	70	2L	2TK	59.1	68.9	78.8	88.6	98.5
21/41	.512	72	2S	2TN	59.0	68.8	78.6	88.4	98.3
20/41	.488	72	2S	2TN	56.2	65.6	75.0	84.3	93.7
18/37	.486	68	2L	2TN	56.0	65.3	74.6	84.0	93.3
16/33	.484	66	2L	2TK	55.8	65.0	74.3	83.6	92.9
19/41	.463	72	2L	2TK	53.3	62.2	71.1	80.0	88.9
18/39	.461	70	2S	2TN	53.2	62.1	71.0	79.8	88.7
17/37	.459	68	2L	2TK	52.9	61.7	70.5	79.3	88.1

* **USE AS A GUIDE ONLY**

(MPH = 0.0192 x RPM x Ratio)

** SPRING CLIPS: L-p/n 0107-236, S-p/n 0107-235

*** TENSION PADS: Thick-p/n 0107-411, Thin-p/n 0107-228

■ **NOTE: MPH must be multiplied by 1.12 to compensate for Arctic Cat overdrive clutch.**

Example: 20/39 at 8000 RPM = 78.8 x 1.12 = 88.3.

CHAIN CASE PERFORMANCE SPECIFICATIONS WITH ROLLER TIGHTENER SYSTEM

CHAIN CASE PERFORMANCE SPECIFICATIONS*					MPH/RPM (Engine)				
SPROCKETS	RATIO	CHAIN PITCH	TENSION SPRING P/N	ROLLER	6000	7000	8000	9000	10,000
18/44	.409	72	0707-026	Roller	47.1	53.7	61.4	69.2	76.8
18/40	.450	70	0707-026	Roller	51.8	60.4	69.1	77.8	86.4
19/40	.475	70	0702-130	Roller	54.0	63.0	72.0	81.2	90.0
23/40	.575	72	0702-130	Roller	65.6	76.6	87.5	98.4	109.0
24/39	.615	72	0702-130	Roller	70.8	82.6	94.5	106.3	118.0
20/39	.513	70	0702-130	Roller	59.1	68.9	78.8	88.6	98.5
19/39	.487	70	0707-026	Roller	56.1	65.5	74.8	84.2	93.5

* **USE AS A GUIDE ONLY**

DRIVE SYSTEM COMPONENTS

Below is a list of Comet Drive Clutch, Arctic Drive Clutch, and Driven Pulley components that are available through the Arctic Cat Parts Department. Hopefully, this information will be useful when doing any fine-tuning on the drive system. Now there is virtually a cam arm weight for all needs.

SPRINGS - ARCTIC DRIVEN

p/n	Color	Rate @ 1 7/16"
0748-025	Green	157 lbs.
0648-114	Red/White	113 lbs.
0148-227	Yellow	92 lbs.
0648-012	Blue	79 lbs.
0648-010	White	58 lbs.
0148-176	Black	42 lbs.

SPRINGS - COMET DRIVE

p/n	Color	Rate @ 2 3/8"	Rate @ 1 3/8"
0646-154	Purple	136	254
0146-526	Yellow/Green	134	264
0646-083	Red	92	222
0646-097	Blue/Red	68	197
0646-084	White	78	178
0646-096	Silver	85	169
0646-192	Orange	120	270

ARCTIC CAT DRIVE CLUTCH SPRING CHART

	p/n	Rate @ 2 9/16 in.	Rate @ 1 5/16 in.	Color
LIGHT ↑	0646-148	53 lb	224 lb	Red/Blue
	0646-150	72 lb	188 lb	Silver
	0646-149	74 lb	228 lb	Red
	0646-147	114 lb	267 lb	Yellow/Green
	0646-155	121 lb	240 lb	Purple
	0646-229	122 lb	285 lb	Yellow/White
↓ HEAVY	0646-248	143 lb	290 lb	Orange/White

■ **NOTE:** The Arctic Cat drive clutch spring has a smaller O.D. than the Comet and cannot be interchanged.

COMET CAM ARMS

p/n	Grams	p/n	Grams	p/n	Grams
0646-085	40.0	0646-156	45.0	0646-164	49.5
0646-030	41.0	0646-078	45.0	0646-105	50.5
0646-019	42.0	0646-009	46.5	0646-102	50.5
0646-015	43.5	0646-021	46.5	0646-100	52.5
0646-018	43.5	0646-199	46.5	0646-165	51.5
0646-079	44.0	0646-115	47.0	0646-117	53.0
0146-525	44.0	0646-157	47.5	0646-099	54.0
0646-002	44.0	0146-514	48.0	0646-163	54.0
0646-162	44.0	0646-031	48.5	0646-098	56.5
0646-027	44.5	0646-080	48.5	0646-249	50.0
0146-530	44.5	0646-124	49.5	0646-250	44.5

ARCTIC CAT DRIVE CLUTCH CAM ARMS

p/n	Grams	p/n	Grams
0746-500	54.0	0746-565	43.5
0746-501	48.5	0746-566	48.0
0746-502	44.5	0746-568	50.0
0746-503	41.0	0746-570	47.0
0746-523	47.0	0746-579	46.5
0746-524	48.5	0746-581	52.5
0746-525	44.0	0746-582	48.5
0746-526	42.0	0746-583	46.5
0746-527	50.5	0746-584	45.0
0746-528	46.5*	0746-585	49.0
0746-529	49.5*	0746-586	45.0*
0746-530	53.5*	0746-587	50.0
0746-531	44.5	0746-588	54.5
0746-532	44.0*	0746-589	45.0
0746-533	47.5*	0746-590	40.5*
0746-534	51.5*	0746-591	44.0
0746-535	52.5	0746-592	52.0
0746-536	45.0*	0746-593	45.5
0746-537	39.5*	0746-594	44.5
0746-538	49.5	0746-595	41.5
0746-539	53.0	0746-596	44.5
0746-540	46.5	0746-597	43.5
0746-546	48.0	0746-598	44.0
0746-549	46.0	0746-600	50.0
0746-559	55.5	0746-602	42.5
0746-560	55.0	0746-604	41.5
0746-561	50.0	0746-605	52.0
0746-562	42.0	0746-606	48.4
		0746-607	46.0
		0746-608	47.5
		0746-609	52.0
		0746-610	50.0
		0746-611	47.0

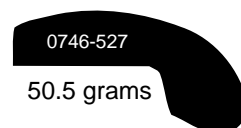
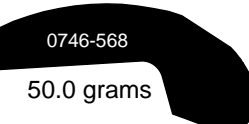
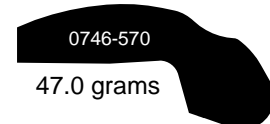
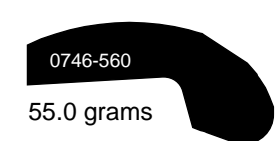
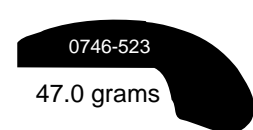
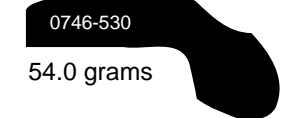
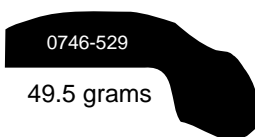
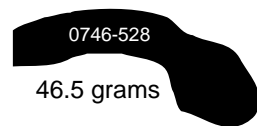
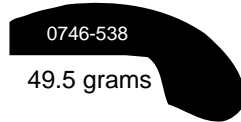
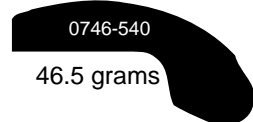
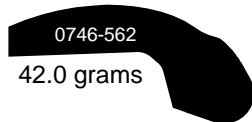
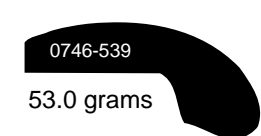
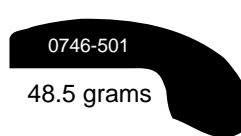
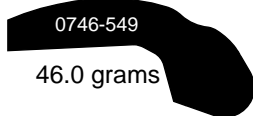
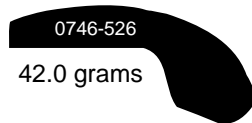
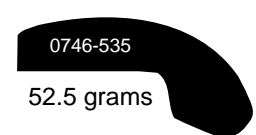
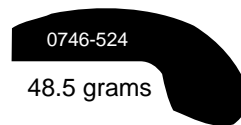
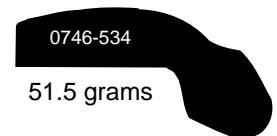
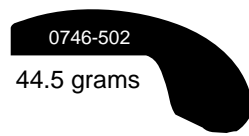
* Notched Cam Arm

DRIVEN CAMS

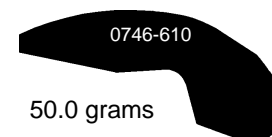
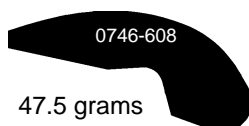
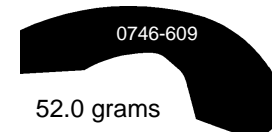
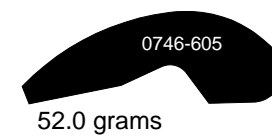
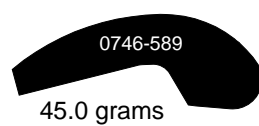
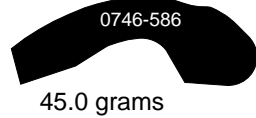
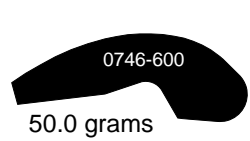
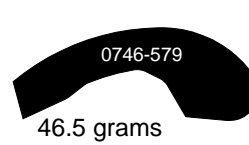
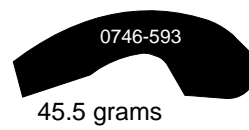
p/n	Degree
0148-222	51
0648-001	52/44
0648-002	53
0648-005	55
0648-006	57
0148-180	45
0648-011	48/44
0648-014	49
0648-016	57/50
0648-026	42
0648-025	47
0648-024	55/53
0648-107*	57/50
0648-125	51/49
0648-126	53/51

* Base is 0.100 thicker than that of p/n 0648-016. Used on 1999 800 cc.

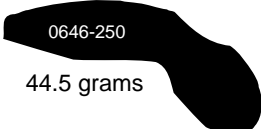
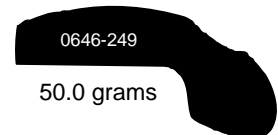
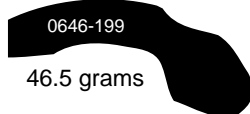
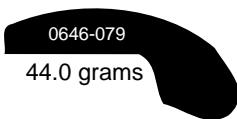
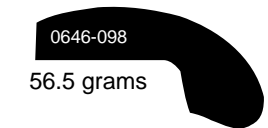
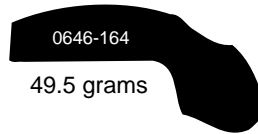
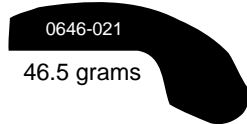
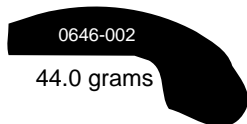
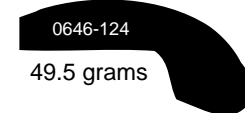
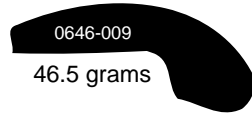
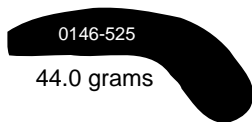
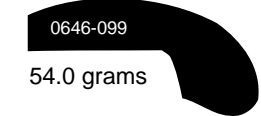
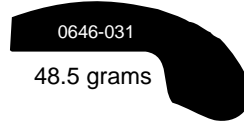
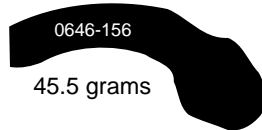
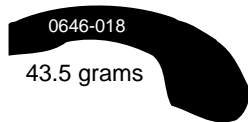
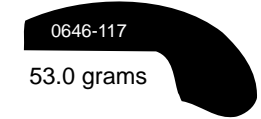
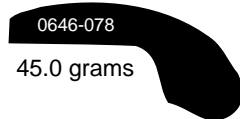
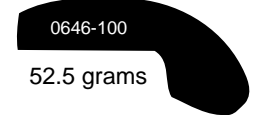
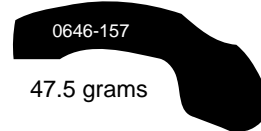
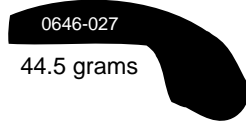
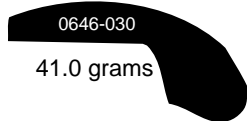
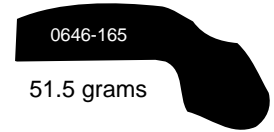
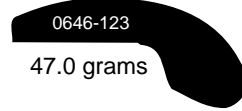
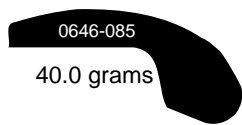
ARCTIC CAT CAM ARMS



ARCTIC CAT CAM ARMS



COMET CAM ARMS



COMET-TO-ARCTIC CAT CAM ARM CONVERSION CHART

COMET P/N	ARCTIC CAT P/N
0646-085	N/A
0646-030	0746-503
0646-019	0746-526
0646-018	N/A
0146-525	N/A
0646-002	N/A
0646-079	0746-525
0646-250	N/A

COMET P/N	ARCTIC CAT P/N
0146-530	0746-531
0646-027	0746-502
0646-078	N/A
0646-156	0746-536
0646-009	N/A
0646-021	0746-540
0646-199	0746-528

COMET P/N	ARCTIC CAT P/N
0646-123	N/A
0646-157	0746-533
0646-080	0746-524
0646-031	0746-501
0646-124	0746-538
0646-164	0746-529
0646-102	0746-527

COMET P/N	ARCTIC CAT P/N
0646-165	0746-534
0646-100	0746-535
0646-117	0746-539
0646-099	0746-500
0646-163	0746-530
0646-098	N/A
0646-249	N/A

CHAINS & SPROCKETS 1984 - 2000

For reference, all sprockets and chains available from Arctic Cat are listed below.

■ **NOTE:** Added to the list are wide 15 link chains with corresponding wide sprockets. These chains and sprockets are 3 mm (1/8 in.) wider than the 13 link chains and corresponding sprockets and approximately 25% stronger.

UPPER SPROCKETS	
NUMBER OF TEETH	P/N
15	0107-217
16	0107-340
17	0107-218
18	0107-341
19	0107-219
20	0107-409
21	0107-408
22	0107-301
23	0602-363
24	0107-508
LOWER SPROCKETS	
NUMBER OF TEETH	P/N
33	0107-513
35	0107-325
37	0107-407
39	0107-220
40	0107-903
41	0107-369
STANDARD CHAINS	
PITCH	P/N
64	0107-322
66	0107-358
68	0107-215
70	0107-216
70*	0602-371
72	0107-372

* Reverse and 2-Speed Chain

WIDE CHAIN (13 Link)	
PITCH	P/N
68	0602-495
70	1602-041
72	1602-042
WIDE CHAIN (15 Link)	
68	1602-036
70	0602-968
72	0602-972
74	1602-037
WIDE SPROCKET (w/13 Link Chain) (UPPER)	
NUMBER OF TEETH	P/N
18	0602-445
19	0602-444
20	0602-456
21	0602-494
22	0602-455
23	0602-452
24	0602-446
19*	0602-470
WIDE SPROCKET (w/15 Link Chain) (UPPER)	
20	0602-967
18	0602-995
19	0602-973
24	0602-974
WIDE SPROCKET (w/13 Link Chain) (LOWER)	
NUMBER OF TEETH	P/N
35	0602-457
39	0602-451
40	0602-453
39*	0702-170
40*	0702-187
42	0602-909
44	0602-812
44*	0602-813
WIDE SPROCKET (w/15 Link Chain) (LOWER)	
35*	0602-142
39*	0702-370
40*	0702-354

* Reverse and 2-Speed Sprocket

ARCTIC CAT DRIVE BELT DIMENSION CHART

BELT P/N	LENGTH	WIDTH
0100-022	41 3/8 ± 3/64 inch	1 3/16 inch
0100-032	43 1/2 ± 3/64 inch	1 3/16 inch
0100-042	46 3/4 ± 3/64 inch	1 3/16 inch
0100-043	46 9/16 ± 3/64 inch	1 3/16 inch
0100-066	45 7/16 ± 3/64 inch	1 3/16 inch
0100-080	44 1/8 ± 3/8 inch	1 3/16 inch
0100-088	43 1/8 ± 3/16 inch	1 3/16 inch
0100-092	43 13/16 ± 3/16 inch	1 1/4 inch
0227-002	47 1/2 ± 3/16 inch	1 1/4 inch
0227-007	43 1/4 ± 3/16 inch	1 1/4 inch
0227-010	49 ± 3/16 inch	1 1/4 inch
0227-011	44 ± 3/16 inch	1 1/4 inch
0227-014	45 1/2 ± 3/16 inch	1 1/4 inch
0227-016	45 1/16 ± 3/16 inch	1 1/4 inch
0227-017	42 13/16 ± 3/16 inch	1 1/4 inch
0227-019	43 1/4 ± 3/16 inch	1 1/4 inch
0227-020	46 11/16 ± 3/16 inch	1 1/4 inch
0227-022	45 1/2 ± 3/16 inch	1 1/4 inch
0227-023	45 7/16 ± 1/8 inch	1 1/4 inch
0227-026	43 1/4 ± 3/16 inch	1 1/4 inch
0227-027	43 1/4 ± 3/16 inch	1 1/4 inch
0227-030	43 1/2 ± 3/16 inch	1 3/8 inch
0227-032	43 5/8 ± 3/16 inch	1 3/8 inch
0227-100	45 1/2 ± 3/16 inch	1 3/8 inch
0227-101	43 5/16 ± 3/16 inch	1 3/8 inch
0227-103	43 5/8 ± 3/16 inch	1 3/8 inch
*0627-001	43 5/8 ± 3/16 inch	1 3/8 inch
*0627-002	43 3/8 ± 3/16 inch	1 3/8 inch
*0627-004	43 5/16 ± 3/16 inch	1 3/8 inch
*0627-006	43 5/8 ± 3/16 inch	1 3/8 inch
*0627-008	45 3/4 ± 3/16 inch	1 3/8 inch
**0627-009	47 3/4 ± 3/16 inch	1 3/8 inch
***0627-010	47 3/4 ± 3/16 inch	1 3/8 inch
**0627-011	45 3/4 ± 3/16 inch	1 3/8 inch
**0627-012	47 3/4 ± 3/16 inch	1 3/8 inch
0627-013	49 ± 3/16 inch	1 7/16 inch
0627-014	49 ± 3/16 inch	1 7/16 inch
***0627-020	47 3/4 ± 3/16 inch	1 13/32 inch
**0627-021	47 3/4 ± 3/16 inch	1 13/32 inch

* High Performance Belt

** Double-Cog High Performance Belt

*** Double-Cog High Performance Belt w/Hard Compound

ARCTIC CAT DRIVE BELT REPLACEMENT CHART

1967	
Panther P8, P12, P15	0100-022

1968	
Cougar	0100-022
Panther P-20 w/o Kohler Eng.	0100-032
w/Kohler Eng.	0100-022

1969	
Panther Models, P35H	0100-042
P17J, P19J, K or S, P22J or H	0100-043
P12K, P19H, P20W, P23K	0100-066
P17H	0100-080
P27H	0100-088

1970	
Panther P246, P292, P295,	
P340 Eng.	0100-080
P303, P299 Eng.	0100-088
P440 Eng.	0100-092
P634, P760, P793 Eng.	0100-042

1971	
Panther & Puma	
P303 (303cc), P340,	
PM340 (340cc)	0100-088
P399, PM399 (398cc), P440,	
PM440 (436cc)	0100-092
P650, PM650 (634cc)	0100-042
Lynx L295 (292cc), L303 (303cc),	
L340 (340cc)	0100-080
Ext E295 (292cc)	0100-088
E340 (339cc), E399 (398cc),	
E440 (436cc)	0100-092

1972	
Lynx 292AL, Panther 292AP	
Kawasaki KT 150B)	0100-080
Puma 340APU, Cheetah 340AC,	
Panther 340AP (Kawasaki TIA 340S1),	
Panther 303WP	
(Wankel KM 914)	0100-088
Puma 399APU, Cheetah 399AC,	
Panther 399AP (Kawasaki TIA 400S1),	
Cheetah 440AC, Panther 440AP	
(Kawasaki TIA 440S1)	0100-092
Ext (All Engines)	0227-002

1973	
Lynx 292	0100-080
Puma 440	0100-092
Cheetah 340	0227-007 *
Cheetah 400, 440	0227-007 *
Panther 340	0227-007 *
Panther 400, 440	0227-007 *
Panther Wankel	0100-088
El Tigre 250, 340	0227-011
El Tigre 400, 440	0227-011
Ext 290, 340	0227-020
Ext 440, 650	0227-020

1974	
Lynx I 292	0227-011
Lynx I 295	0227-007 *
Lynx II 340, 440	0227-007 *
Cheetah 340, 440	0227-007 *
Panther 295W, 340, 440	0227-007 *
El Tigre 295, 340, 400, 440	0227-014

1975	
El Tigre Z, 340, 440	0227-020
Pantera	0227-007 *
Lynx 250	0227-017
Cheetah 295	0227-016
Cheetah 340, 440	0227-007
Panther 340, 440	0227-007
Jag 340	0227-014

1976	
El Tigre 4000, 5000	0227-020
Pantera 5000	0227-020
Panther 4000	0227-007 *
Cheetah 4000	0227-007 *
Panther 5000	0227-019
Cheetah 5000	0227-019
Jag 2000, 3000	0227-014
Lynx 250	0227-017
Arctic Z	0227-022
Cross Country Cat	0227-020

1977	
El Tigre 4000, 5000	0227-020
Pantera 5000F/A, 5000F/C	0227-020
Panther 4000	0227-007 *
Panther 5000	0227-019
Cheetah 4000	0227-019
Jag 3000	0227-014
Lynx 2000T, 2000S	0227-007 *

1978	
Lynx 2000S, 2000T	0227-007 *
Jag 2000, 3000	0227-014
Panther 4000	0227-007 *
Panther 5000	0227-019
Cheetah 5000	0227-019
El Tigre 5000F/A, 6000L/C	0227-019
Pantera 5000F/A, 5000F/C	0227-020

1979	
Lynx 2000S, 2000T	0227-007 *
Jag 2000, 3000, FC/OI	0227-014
Panther 5000F/C	0227-019
El Tigre 5000F/A, 6000L/C	0227-019
Pantera 5000F/C	0227-020
Trail Cat	0227-019
El Tigre 340 & 440	
Special Edition	0227-026

1980	
Lynx 2000S, 2000T	0227-007 *
Jag 2000, 3000, 3000F/C	0227-014
Trail Cat 3000, 4000	0227-019
Panther, Pantera,	
El Tigre 5000, 6000	0227-019

1981	
Jag	0227-014
Trail Cat	0227-019
Panther, Pantera	0227-019
El Tigre 5000	0227-030
El Tigre 6000	0227-032

1984	
Panther	0227-030
El Tigre 6000	0227-032

1985	
Jag	0227-100
Panther, Pantera	0227-030
Cougar	0227-030
El Tigre 6000	0227-032

1986	
Jag	0227-100
Panther, Pantera	0227-030
Cougar, Cheetah F/C	0227-030
El Tigre, Cheetah L/C	0227-032

1987	
Jag 340, 440	0227-100
Super Jag	0227-030
Panther, Pantera	0227-030
Cougar, Cheetah F/C	0227-030
El Tigre 5000, 6000	0227-032
Cheetah L/C	0227-032

1988	
Jag 340, 440, Jag Deluxe	0227-100
Super Jag, Panther	0227-030
Cougar, Pantera	0227-101
El Tigre 5000, 6000	0227-101
Cheetah Touring, L/C	0227-101
Wildcat 650	0627-004

1989	
Jag 340, Jag Deluxe	0227-100
Super Jag, Jag AFS	0227-032
Panther, Cougar	0227-032
Pantera, Cheetah Touring	0227-032
El Tigre 6000, EXT	0227-032
Wildcat 650	0627-001

1990	
Jag 340	0227-100
Jag Mountain Cat	0227-100
Panther, Jag AFS	0227-103
Cougar, Cheetah Touring	0227-103
Pantera, El Tigre EXT	0227-103
Wildcat 650	0627-006
Prowler	0227-103

1991	
Lynx	0227-030
Jag AFS, Panther	0227-103
Jag Long Track	0227-103
Super Jag	0227-103
Jag 340 Mountain Cat	0227-100
Cougar, Cheetah Touring	0227-103
Pantera, Prowler	0227-103
El Tigre EXT	0227-103
Prowler Special	0227-103
EXT Special	0227-103
Wildcat 700	0627-006

1992	
Jag, Jag Special	0227-103
Super Jag	0227-103
Jag AFS L/T	0227-103
Cheetah	0227-103
Cougar	0227-103
Lynx, Lynx Deluxe	0227-030
Lynx Mountain Cat	0227-103
Pantera	0227-103
Prowler, Prowler Special	0227-103
EXT, EXT Special	0227-103
Panther	0227-103
Wildcat (AWS)	0627-008
Wildcat EFI (AFS)	0627-006

1993	
Jag, Jag 440 Z	0227-103
Jag AFS L/T	0227-103
Cheetah	0227-103
Cougar	0227-103
Lynx, Lynx Deluxe	0227-030
Lynx Mountain Cat	0227-103
Pantera	0227-103
Prowler, Prowler 440Z	0227-103
EXT, EXT 580 Z	0227-103
Panther	0227-103
Wildcat	0627-011
Thundercat	0627-010
ZR Models	0627-012

1994	
Puma, Puma Deluxe, Puma 2-Up	0227-103
Jag, Jag 440Z	0227-103
Cheetah Models	0227-103
Cougar	0227-103
Pantera	0227-103
Prowler EFI	0227-103
EXT 580 Models	0627-012
Panther Deluxe	0227-103
Wildcat EFI	0627-011
ZR Models	0627-012
Thundercat	0627-010

1995	
Puma, Puma Deluxe, Puma 2-Up	0227-103
Jag, Jag Deluxe	0227-103
Panther	0227-103
Bearcat 340	0627-013
Bearcat 440 & 550	0627-014
Cougar	0627-012
Prowler	0627-012
Pantera	0627-012
EXT	0627-012
EXT Powder Special	0627-010
Wildcat, Wildcat Touring	0627-010
Thundercat	0627-010
Z440	0627-012
ZR440, ZR580	0627-012
ZR700	0627-010
ZRT800	0627-010

Extended life drive belts for high altitude operation are available under the following part numbers:

Standard Belt		Extended Life Belt
0227-030	=	0627-002
0227-032	=	0627-001
0227-100	=	0627-003
0227-101	=	0627-004
0227-103	=	0627-006
0627-008	=	0627-011

* Also Available in Kevlar (Fiber B) Material — part 0227-019

ARCTIC CAT DRIVE BELT REPLACEMENT CHART

(Continued)

1996

Puma, Puma Deluxe, Puma 2-Up	0227-103
Jag, Jag Deluxe, Jag L/C	0227-103
Z440, Panther Deluxe, Panther L/C	0627-012
Bearcat 340	0627-013
Bearcat 440 & 550	0627-014
Cougar, Cougar 2-Up, Cougar M/C	0627-012
Pantera	0627-012
EXT EFI Models	0627-012
EXT 580	0627-012
EXT 580 Powder Special	0627-010
Wildcat Models	0627-010
Thundercat, ZRT 800, ZRT 600	0627-010
ZR 580 Models, ZR440	0627-012

1997

Puma, Puma Deluxe, Puma 2-Up	0627-012
Jag, Jag Deluxe	0627-012
Panther, Panther L/C	0627-012
Z440, ZL440	0627-012
Bearcat 340	0627-013
Bearcat 440 & 550	0627-014
Cougar, Cougar M/C	0627-012
Pantera	0627-012
EXT EFI Models	0627-012
Powder Special EFI	0627-012
Thundercat, ZRT 800, ZRT 600	0627-010
ZR 580, ZR440	0627-010
EXT 600, Powder Extreme	0627-010
Powder 580 Carb	0627-010

1998

Jag 340, Panther 340	0627-012
Jag 440, Jag 440 DLX	0627-012
Z 440, Panther 440	0627-012
Panther 550	0627-021
Bearcat 340	0627-013
Bearcat 440, Bearcat Wide Track	0627-014
Cougar, Cougar DLX, Cougar M/C	0627-021
Pantera 580	0627-021
Pantera 800	0627-020
EXT EFI	0627-020
EXT EFI DLX	0627-021
EXT 600, EXT 600 Touring	0627-020
Powder Special, Powder Special EFI	0627-020
Powder Extreme	0627-020
Thundercat, Thundercat M/C	0627-020
ZRT 600, ZRT 800	0627-020
ZR 600, ZR 600 EFI	0627-020
ZL 440	0627-021
ZL 500, ZR 500	0627-020
ZR 440	0627-020

1999

Jag 340 DLX, Panther 340	0627-012
Jag 440, Jag 440 DLX	0627-012
Panther 440	0627-012
Panther 550	0627-021
Bearcat 340, Bearcat 440 I	0627-013
Bearcat 440 II, Bearcat Wide Track	0627-014
Pantera 580 EFI	0627-021
Pantera 800	0627-020
Triple Touring 600	0627-020
Powder Special 500 EFI	0627-020
Powder Special 600 Models	0627-020
Powder Special 700	0627-020
Thundercat, Thundercat M/C	0627-020
Z 370	0627-021
Z 440	0627-021
ZL 440	0627-021
ZL 500 Models, ZL 600 Models	0627-020
ZR 500 Models	0627-020
ZR 600 Models	0627-020
ZR 700	0627-020
ZRT 600, ZRT 800	0627-020

2000

Bearcat 340	0627-013
Bearcat 440 I/440 II/Wide Track	0627-014
Pantera Models	0627-020
Panther 340/440	0627-012
Panther 550	0627-021
Powder Special Models	0627-020
Thundercat Models	0627-020
Triple Touring 600	0627-020
Z Models	0627-021
ZL 440/550	0627-021
ZL 500/580/600/700	0627-020
ZR Models	0627-020
ZRT Models	0627-020

CENTER-TO-CENTER/OFFSET SPECIFICATIONS

YEAR	MODELS	CENTER-TO-CENTER		OFFSET	
		cm	in.	mm	in.
1972	Lynx 292, Panther 292	28.9	11.375	4.52	0.178
	Puma 340, Cheetah 340, Panther 303W, Panther 340	27.6	10.875	4.52	0.178
	Puma 399, 440, Cheetah 399, 440, Panther 399, 440	27.6	10.875	4.52	0.178
1973	Lynx 292	28.9	11.375	4.52	0.178
	All El Tigre	28.9	11.375	8.13	0.320
	All others	27.6	10.875	8.13	0.320
1974	Lynx I 292	28.9	11.375	8.13	0.320
	Panther 295W, Lynx I 292W, Lynx II 340, Lynx II 440	27.6	10.875	8.13	0.320
	Panther 340, 440, Cheetah 340, 440	25.9	10.200	9.65	0.300
1975	All El Tigre	28.9	11.375	9.65	0.380
	Lynx 250	27.3	10.750	10.49	0.413
	Jag 340	28.9	11.375	11.53	0.454
1976	Panther 340, 440, Cheetah 340, 440, Panthera 340, 440	25.9	10.200	11.53	0.454
	All El Tigre	30.5	12.000	11.53	0.454
	Jag 275, 340	28.9	11.375	11.53	0.454
1977	Panther 4000, 5000, Cheetah 4000, 5000	25.9	10.200	11.53	0.454
	Pantera, All El Tigre	30.5	12.000	11.53	0.454
	Lynx 2000S, 2000T, Panther 4000, 5000, Cheetah 5000	25.9	10.200	11.53	0.454
1978	Jag 3000	28.9	11.375	11.53	0.454
	El Tigre 4000, 5000, Panthera F/C, F/A	30.5	12.000	11.53	0.454
	Lynx 2000S, 2000T, Panther 4000, 5000, Cheetah 5000, El Tigre 5000, 6000	25.9	10.200	11.53	0.454
1979	Jag 2000, 3000	28.9	11.375	11.53	0.454
	Pantera F/C, F/A	30.5	12.000	11.53	0.454
	Lynx 2000S, 2000T, Panther, El Tigre 5000, 6000, Trail Cat	25.9	10.200	11.53	0.454
1980	All Jag	28.9	11.375	11.53	0.454
	Pantera	30.5	12.000	11.53	0.454
	Lynx 2000S, 2000T, Trail Cat 3000, 4000, Panther, Panthera, El Tigre 5000	25.9	10.200	11.53	0.454
1981	El Tigre 6000	25.9	10.200	10.54	0.415
	All Jag	28.9	11.375	11.53	0.454
	Jag	28.9	11.375	11.53	0.454
1982	Trail Cat, Panther, Panthera	25.9	10.200	11.53	0.454
	El Tigre 5000, 6000	25.9	10.200	34.67	1.365
	Panther, El Tigre	25.9	10.200	34.67	1.365
1983	Jag	28.9	11.375	34.67	1.365
	Panther, Panthera, Cougar, El Tigre	25.9	10.200	34.67	1.365
	Jag	28.9	11.375	34.67	1.365
1984	Panther, Cougar, Panthera, El Tigre, Cheetah F/C, L/C	25.9	10.200	34.67	1.365
	Jag	28.9	11.375	34.67	1.365
	Super Jag, Panther, Cougar, Panthera, El Tigre 5000, 6000, Cheetah F/C, L/C	25.9	10.200	34.67	1.365
1985	Jag 340, 440	28.7	11.300	34.67	1.365
	Super Jag, Panther, Cougar, Panthera, El Tigre 5000, 6000, Cheetah Touring, L/C, Wildcat 650	25.9	10.200	34.67	1.365

YEAR	MODELS	CENTER-TO-CENTER		OFFSET	
		cm	in.	mm	in.
1989	Jag 340, Jag Deluxe	28.7	11.300	34.67	1.365
	Super Jag, Jag AFS, Panther, Cougar, Panthera, El Tigre 6000 & EXT, Cheetah Touring, Wildcat 650	25.9	10.200	34.67	1.365
	Jag 340	28.7	11.300	34.67	1.365
1990	Super Jag, Jag AFS, Panther, Cougar, Panthera, El Tigre EXT, Cheetah Touring, Wildcat 650, Prowler	25.9	10.200	34.67	1.365
	Jag 340 Mountain Cat	28.7	11.300	34.67	1.365
	Lynx, Jag AFS, Super Jag, Panther, Cougar, Panthera, El Tigre EXT, Prowler, Cheetah Touring, Prowler Special, EXT Special, Wildcat 700	25.9	10.200	34.67	1.365
1991	Lynx, Jag, Panther, Cougar, Panthera, Prowler, Cheetah Touring, Super Jag, EXT, Wildcat EFI	25.9	10.200	34.67	1.365
	Wildcat AWS	28.9	11.375	34.67	1.365
	Lynx, Jag, Panther, Cougar, Panthera, Prowler, Cheetah Touring, EXT Models	25.9	10.200	34.67	1.365
1992	Wildcat AWS Models	28.9	11.375	34.67	1.365
	Thundercat	30.9	12.200	34.67	1.365
	Jag, Puma, Panther, Cougar, Panthera, Prowler, Cheetah Models	25.9	10.200	34.67	1.365
1993	Wildcat EFI Models (AWS)	28.9	11.375	34.67	1.365
	EXT Models, ZR Models, Thundercat Models	30.9	12.200	34.67	1.365
	Puma Models, Jag Models, Panther	25.5	10.200	34.67	1.365
1994	Cougar, Prowler 2-Up, Panthera, All EXT Models, Z440, ZR580, ZR440, Thundercat, ZR700, Wildcat, ZRT 800	30.9	12.200	34.67	1.365
	Bearcat Models	30.9	12.200	34.67	1.367
	Puma Models, Jag Models	25.5	10.200	34.67	1.365
1995	Panther, Cougar, Panthera, All EXT Models, 440, ZR580, ZR440, Thundercat, ZRT600, Wildcat, ZRT800	30.9	12.200	34.67	1.365
	Bearcat Models	30.9	12.200	34.72	1.367
	Puma Models, Jag Models, Panther Models, Z440	30.9	12.200	34.67	1.365
1996	Cougar, Panthera, All EXT Models, ZR440, Thundercat, ZRT600, ZRT800, ZL440	30.9	12.200	34.67	1.365
	Bearcat Models	30.9	12.200	34.72	1.367
	Powder Special, Powder Extreme, Powder EFI	30.9	12.200	34.67	1.365
1997	ZR580EFI	30.9	12.200	11.53	0.454
	Jag Models, Panther Models, Z 440, Cougar Models, Panthera Models, EXT Models, Powder Special Models, Powder Extreme, Thundercat Models, ZRT600, ZRT800, ZR600, ZL440, ZL500, ZR500, ZR440	30.9	12.200	34.67	1.365
	Bearcat Models	30.9	12.200	34.72	1.367
1998	Jag Models, Panther Models, Z Models, Panthera Models, Triple Touring 600, Powder Special Models, Thundercat Models, ZL Models, ZR Models, ZRT Models	30.9	12.200	34.67	1.365
	Bearcat Models	30.9	12.200	34.72	1.367
	Bearcat Models	30.9	12.200	34.72	1.367
1999	All Remaining Models	30.9	12.200	34.67	1.365
		30.9	12.200	34.72	1.367
		30.9	12.200	34.67	1.365

Torque Specifications

DRIVE		TORQUE
Drive Clutch	ft-lb	50-55
	kg-m	6.9-7.6
Spider	ft-lb	250
	kg-m	34.5
Stationary Shaft Jam Nut	ft-lb	85
	kg-m	11.8
Drive Clutch Cover	ft-lb	10
	kg-m	1.4
Driven Pulley Retainer Bracket	ft-lb	14-16
	kg-m	1.9-2.2
Driven Pulley	ft-lb	19-24
	kg-m	2.6-3.3
Chain Case Top Sprocket	ft-lb	35-40
	kg-m	4.8-5.5
Chain Case Bottom Sprocket	ft-lb	31-33
	kg-m	4.3-4.6
Hub/Brake Disc	in.-lb	36
	kg-m	0.4
Flange Plates	ft-lb	16-18
	kg-m	2.2-2.5
Brake Caliper/Chain Case	ft-lb	30
	kg-m	4.2
Chain Case Cover	ft-lb	12-15
	kg-m	1.7-2.1
Chain Case Drain Plug	ft-lb	35
	kg-m	4.8

Troubleshooting Drive Clutch/ Driven Pulley

Problem: Midrange Shift-Up (Too Quickly - Lowers RPM)	
Condition	Remedy
1. Drive clutch spring weak	1. Replace drive clutch spring
2. Driven pulley spring weak	2. Replace driven pulley spring
3. Driven pulley spring preload tension inadequate	3. Increase spring preload tension
4. Center-to-center distance too close	4. Adjust center-to-center distance
5. Driven pulley bearing worn—damaged	5. Replace bearing—movable sheave
Problem: Midrange Shift-Up (Too Slowly - Raises RPM)	
Condition	Remedy
1. Drive clutch components dirty	1. Clean drive clutch components
2. Driven pulley components dirty	2. Clean driven pulley components
3. Driven pulley spring preload tension excessive	3. Decrease spring preload tension
4. Driven pulley bearing worn—dirty	4. Clean—replace bearing—movable sheave
Problem: Excessive Belt Deposits	
Condition	Remedy
1. Offset adjusted incorrectly	1. Adjust offset
2. Drive clutch/driven pulley sheaves rough—damaged—dirty	2. Repair—replace—clean drive clutch/driven pulley sheaves
3. Driven pulley movable sheave travel impaired	3. Service driven pulley
4. Driven pulley bearing worn—dirty	4. Clean—replace bearing—movable sheave
Problem: Excessive Belt Drag—Impaired Drive Clutch Disengagement	
Condition	Remedy
1. Drive clutch components dirty—damaged	1. Clean—replace drive clutch components
2. Drive belt does not meet measurement specifications	2. Replace drive belt
Problem: Engine RPM Suddenly Increases—Drive Clutch Vibrates	
Condition	Remedy
1. Cam arm pin bent—damaged	1. Replace pin
2. Cam arm damaged—broken	2. Replace cam arm
3. Drive clutch out of balance	3. Align—replace components—drive clutch
Problem: Driven Pulley Vibrates	
Condition	Remedy
1. Sheave rivets loose—broken	1. Replace sheave
2. Driven pulley out of balance	2. Service—replace driven pulley

Problem: Drive Clutch Engagement (Before Specified RPM)	
Condition	Remedy
1. Drive clutch spring weak—bent	1. Replace spring
2. Cam arms incorrect—worn	2. Replace cam arms
Problem: Drive Clutch Engagement (After Specified RPM)	
Condition	Remedy
1. Drive clutch spring incorrect	1. Replace spring
2. Spider buttons worn	2. Replace buttons
Problem: Drive Clutch Sticks	
Condition	Remedy
1. Drive clutch components dirty	1. Clean drive clutch components
2. Movable sheave bent—binding	2. Clean—replace movable sheave
3. Spider buttons worn	3. Replace buttons
Problem: Drive Clutch Jerks—Shifts Erratically	
Condition	Remedy
1. Drive clutch dirty	1. Clean—drive clutch components
2. Rollers worn	2. Replace rollers
3. Cam arms rough	3. Polish—replace cam arms
4. Spider buttons worn	4. Replace buttons
5. Sheaves dirty	5. Clean sheaves

Troubleshooting Drive Belt

Problem: Drive Belt Glazed	
Condition	Remedy
1. Drive belt does not meet measurement specifications	1. Replace drive belt
2. Drive clutch spring tension inadequate	2. Replace drive clutch spring
3. Drive clutch components dirty—damaged	3. Clean—replace drive clutch
4. Offset—parallelism—center-to-center distance adjusted incorrectly	4. Adjust offset—parallelism—center-to-center distance
Problem: Drive Belt Lugs Torn Off—Frayed—Worn in One Spot	
Condition	Remedy
1. Drive belt does not meet measurement specifications	1. Replace drive belt
2. Offset—parallelism—center-to-center distance adjusted incorrectly	2. Adjust offset—parallelism—center-to-center distance
3. Drive clutch engagement—idle RPM too high	3. Service drive clutch—reduce idle RPM
4. Drive clutch components dirty—damaged	4. Clean—replace drive clutch components
5. Driven pulley/shaft rotation impaired	5. Service driven pulley/shaft—chain-case components

Troubleshooting Hydraulic Brake System

Problem: Caliper Leaks	
Condition	Remedy
1. Caliper O-ring deteriorated — severed	1. Replace O-ring
2. Piston — O-ring damaged	2. Repair piston — replace piston — O-ring
Problem: Lever Spongy — Bottoms Out	
Condition	Remedy
1. Brake system air bubbles present	1. Bleed brake system
2. Master cylinder damaged — faulty	2. Replace master cylinder
Problem: Oscillation Feedback in Lever	
Condition	Remedy
1. Brake pad residue present on brake disc	1. Replace pads — clean disc
2. Caliper loose	2. Tighten mounting bolts
3. Brake disc warped — cracked — damaged — misaligned	3. Replace disc — driven shaft bearing
Problem: Loss of Brake	
Condition	Remedy
1. Brake fluid overheated — contaminated	1. Replace fluid
2. Master cylinder damaged — faulty	2. Replace master cylinder
3. Caliper — brake hose leaking	3. Replace caliper O-ring — repair piston — replace piston — O-ring — brake hose
4. Air ducts obstructed — missing	4. Remove obstruction — replace air ducts
5. Brake lever linkage damaged	5. Repair — replace lever — mounting bolt
Problem: Brakes Drag	
Condition	Remedy
1. Master cylinder damaged — faulty	1. Replace master cylinder
2. Brake disc warped — damaged — misaligned	2. Replace disc — driven shaft bearing
3. Brake pads worn — tapered	3. Replace pads
Problem: Snowmobile Won't Stop — Have to Pull Too Hard on Lever	
Condition	Remedy
1. Pads/brake disc glazed	1. Replace pads — clean disc
2. Brake lever binding	2. Loosen pivot bolt — replace master cylinder
3. Caliper pistons binding	3. Service caliper assembly