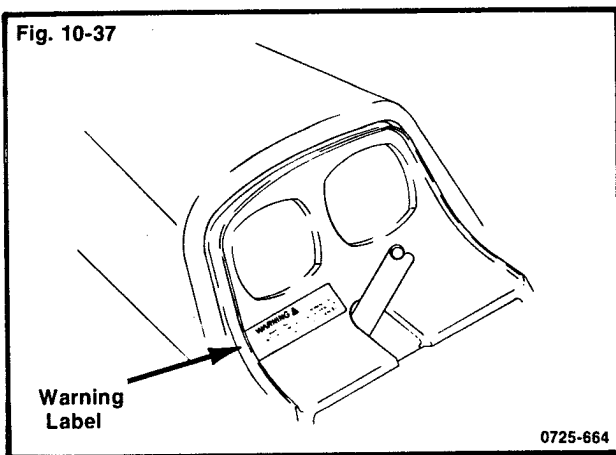


7. Plastic cable ties are provided in the kit to secure any loose wires or cables. Make sure wires and cables do not contact any rotating, moving or hot engine parts.
8. Test start engine. If the starter does not operate correctly, see the troubleshooting procedure below.
9. Place the reflectorized tape over the present bumper strip.

⚠ **WARNING** ⚠

This snowmobile is equipped with electric start. Before turning sled on its side for inspection, maintenance or repair, the battery must be removed to prevent battery acid spillage.

Fig. 10-37



### TROUBLESHOOTING PROCEDURE

Problem	Probable Cause	Remedy
Hot or smoking wires	System wired incorrectly	Check wiring against wiring diagram
Starter does not turn over	Discharged battery	Check
	Loose connection	Check tightness of all connections
	Improper grounding	Check ground connections

# WIRING DIAGRAM OF 1978 JAG ALL ACCESSORIES

Fig. 10-38

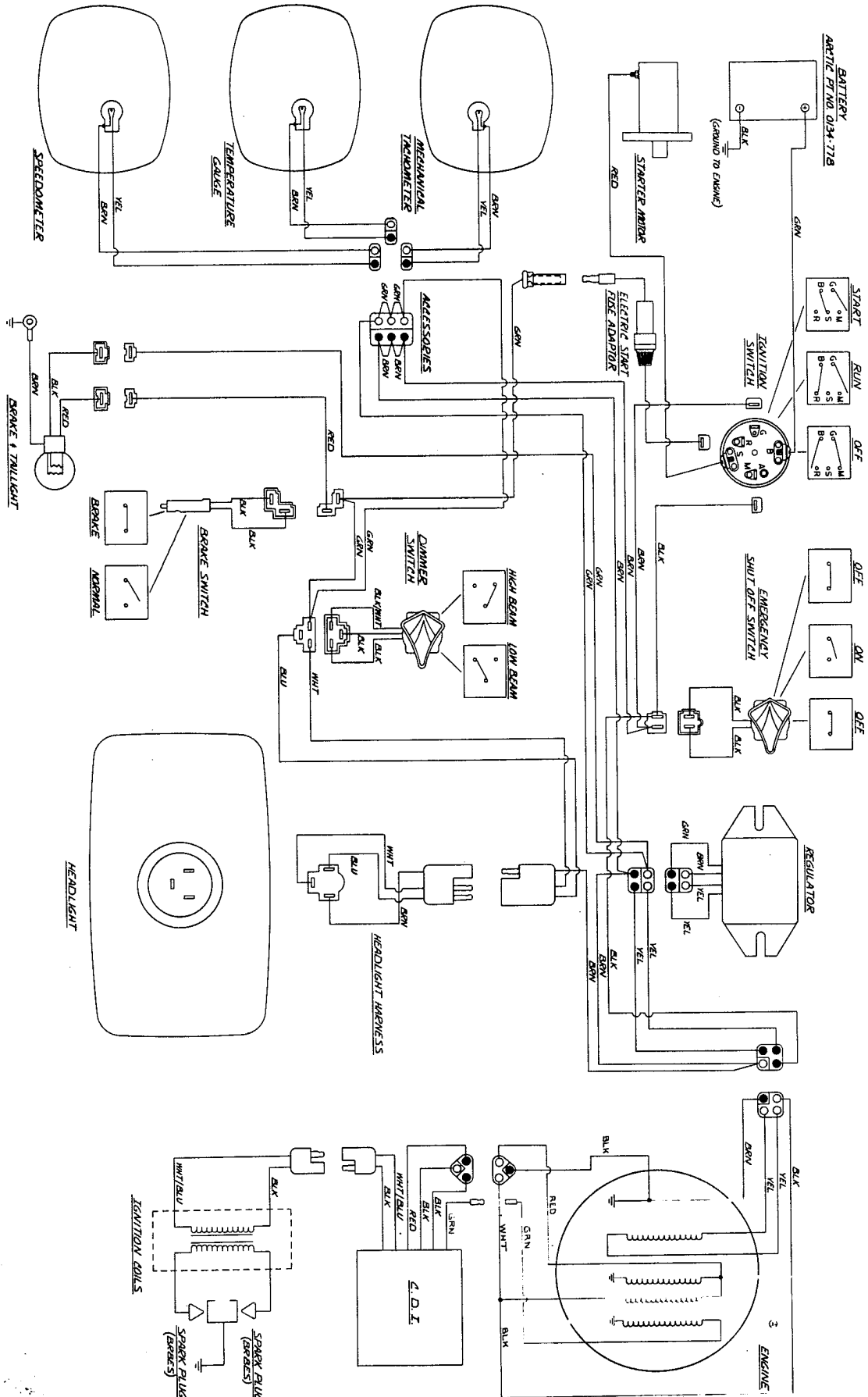
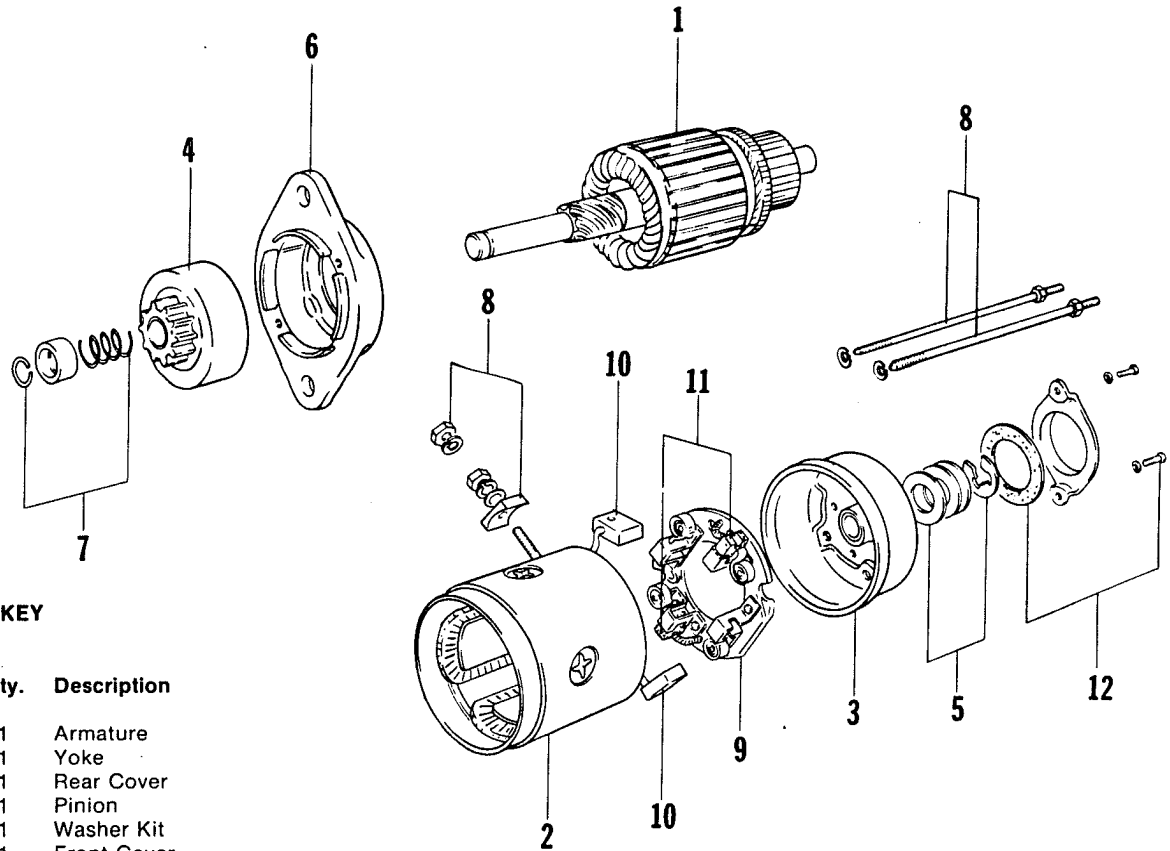


Fig. 10-39



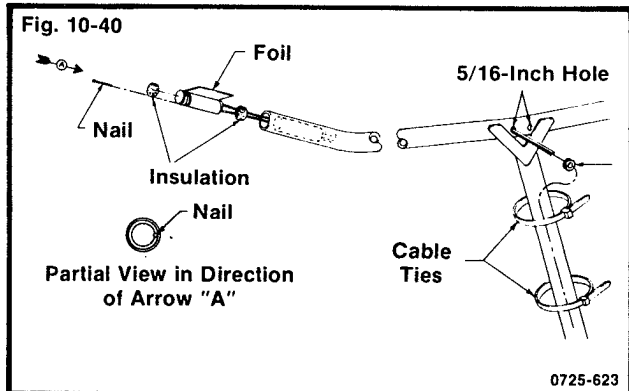
KEY

Ref. No.	Qty.	Description
1	1	Armature
2	1	Yoke
3	1	Rear Cover
4	1	Pinion
5	1	Washer Kit
6	1	Front Cover
7	1	Pinion Stopper
8	1	Bolt Kit
9	1	Brush Holder
10	1	Brush Set (+)
11	1	Brush Set (-)
12	1	Dust Cover

STARTER MOTOR PARTS

0725-686

## Electric Handlebar Warmer Kit



0725-623

Pantera, Panther, Cheetah, Jag, Lynx 0136-082

To install the handlebar warmer components, use the following procedure:

1. Remove the existing handle grips. On most models, remove the three screws securing the handle grip to the cap; then remove the spring pin securing grip to the handlebar.

2. Drill two 5/16-inch holes one (1) inch apart on the front portion of the handlebar.
3. Using a piece of mechanics wire, thread the wire through one of the holes until the wire protrudes through the end of the handlebar.
4. Use the wire to pull the heating element leads into the handlebar.
5. Begin pulling the element into the handlebar. Place a small piece of insulation in the end of the handlebar in front of the element.
6. Wrap the element with foil to provide a snug fit.
7. Carefully pull the element into the handlebar. Be careful not to pull the leads loose. Use a blunt dowel to guide the element about 12 mm or 1/2-inch into the handlebar.
8. Drive a small finishing nail or bobby pin between the element and handlebar to act as a retaining pin.
9. Insert a small piece of insulation in the end of the handlebar; then install a grip.

**NOTE:** If handlebar grips are secured with spring pins, take care when installing pins to ensure that the pin does not gouge the lead wires during installation.

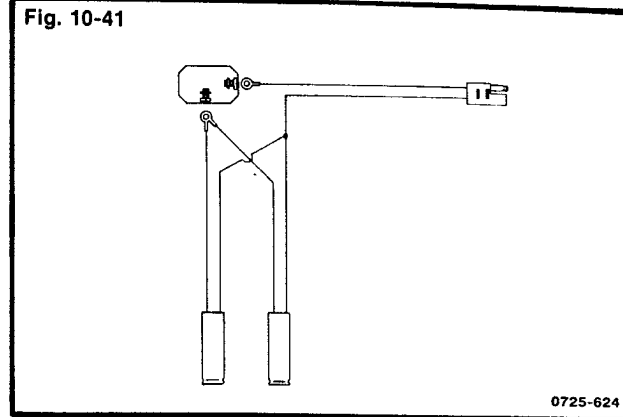
10. Slide a small grommet over the two leads and move into position in the hole of the handlebar.
11. Repeat steps 3-10 on the remaining end of handlebar.

To install the wiring, use the following procedure:

1. Drill a 1/2-inch hole in a convenient location in the dash console; then mount the switch in the dash.
2. Thread the element leads along the steering post and through the console.
3. Connect one lead from each element to one of the terminals on the switch.
4. Connect the remaining leads to the female wire terminal of the accessory connector or a good chassis ground.

Connect the lead from the accessory connector to the remaining terminal on the switch; then secure connector to the accessory connector of the main wiring harness.

Fig. 10-41



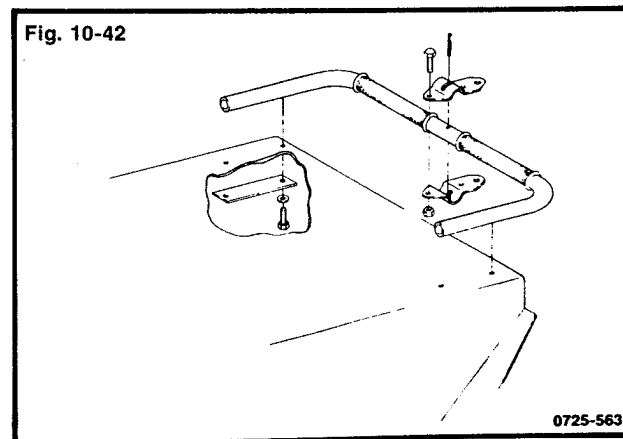
6. Use cable ties to secure the wires to the handlebar. Make sure all wires are routed away from any hot or rotating components.
7. Install the handlebar pad.

The handlebar warmers may be used as required. The handlebar warmers need approximately 15 minutes to reach their maximum temperature.

## Hitch Kit

### Pantera 0136-034

Fig. 10-42



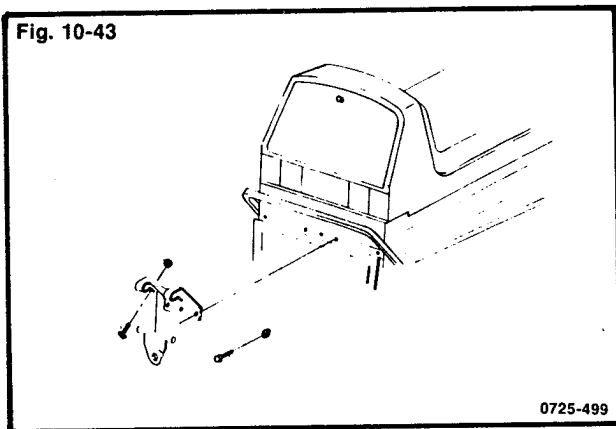
**Equipment Necessary:** 1/4-inch drill, 5/32-inch bit, center punch, hammer, screwdriver, 7/16-inch open end wrench

To install the hitch kit on the Pantera, use the following procedure:

1. From the inside of the tunnel, remove the four (4) cap screws securing the rear bumper to the tunnel.
2. Place the two support plates over the bumper mounting holes; then replace the bumper mounting cap screws and tighten to 0.8 kg-m or 6 ft-lb.
3. Slide the rubber bumper grips apart to allow sufficient clearance to install the hitch bracket.
4. Using a drill with a 5/32-inch bit, drill a vertical hole in the center of the bumper.
5. Tap the spring pin into the hole.
6. Place the brackets over the spring pin; then secure plates with two cap screws and lock nuts.

#### Panther, Cheetah 0136-037

**Equipment Necessary:** 1/4-inch drill, 9/32-inch bit, screwdriver, center punch, hammer

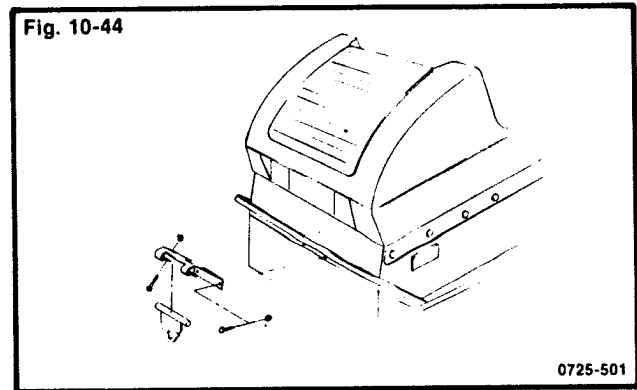


To install the hitch kit on the Panther or Cheetah, use the following procedure:

1. Center hitch bracket on the bumper.
2. After centering hitch on bumper, tap on a center punch through the existing holes in the bracket to mark the drilling area.
3. Drill three (3) 9/32-inch holes through the bumper; drill corresponding holes through appropriate places on the tunnel.
4. Mount the bracket and hitch assembly and tighten.

#### Jag 0136-031 Lynx 0136-088

**Equipment Necessary:** 1/4-inch drill, 9/32-inch bit, center punch, hammer



To install the hitch kit on the Jag or Lynx, use the following procedure:

1. Center hitch bracket on the bumper.
2. After centering hitch on the bumper, tap on a center punch through the existing holes in the bracket to mark the drilling area.
3. Drill two (2) 9/32-inch holes through the bumper.
4. Mount the bracket and hitch assembly and tighten.

## Wheel Kit

#### Pantera FC 0136-116

**Equipment Necessary:** 1/2-inch open end wrench (2)

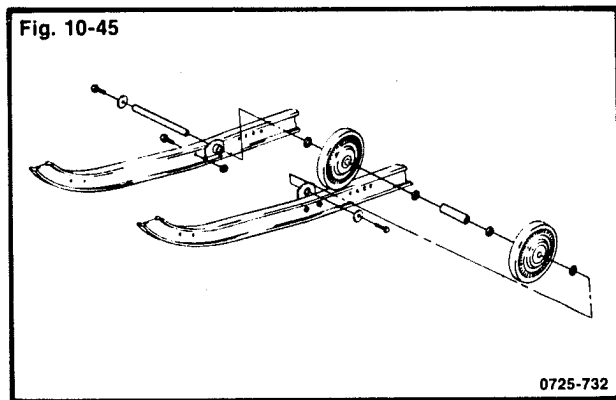
To install front auxiliary wheels, use the following procedure:

1. Check track for proper alignment (see owner's manual).
2. Secure the two (2) auxiliary wheel supports to pre-drilled holes in skid frame rails using four (4) 5/16-18 x 1 bolts and lock nuts.

3. Guide short axle through one support bracket.
4. Continue to insert shaft. In order, place one (1) washer, wheel, washer, spacer, washer, wheel, and washer.

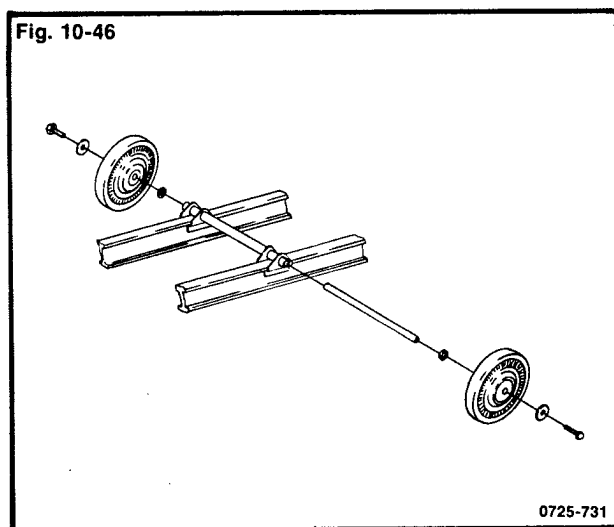
**NOTE:** Position the wheel so that the small diameter insert (on wheel) is positioned toward center of skid frame.

5. Insert shaft until ends are flush with support bracket.
6. Secure each end of axle with cap screws and flat washers. Tighten to 1.4 kg-m or 10 ft-lb.



To install the wheels on the shock mounting bracket, use the following procedure:

1. Slide long axle through shock mounting bracket.
2. On each end of axle, place one (1) 5/8-inch washer and wheel.



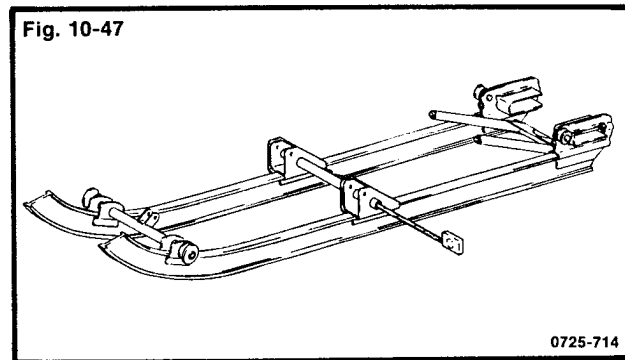
3. Place one (1) cap screw and flat washer on each end of axle. Tighten to 1.4 kg-m or 10 ft-lb.

## Lynx 0136-090

**Equipment Necessary:** 7/16 open end wrench, 9/16 open end wrench, hacksaw, narrow tape measure.

To install the wheel kit on the Lynx, the length of the front arm bracket tube must not exceed 25.9 cm or 10.18 inches. If the bracket is longer than 25.9 cm or 10.18 inches and the kit is installed, the wheels will not perform as designed. Use the following procedure to determine proper front arm bracket tube length:

1. Using a narrow tape measure, determine the inside length of the front arm bracket tube.
2. If measurement exceeds 25.9 cm or 10.18 inches, it will be necessary to remove the skid frame and reduce the length of the front arm bracket tube.
3. If measurement is 25.9 cm or 10.18 inches, proceed to install wheel kit.



## Remove Skid Frame

If the front arm bracket tube exceeds 10.18 inches, the skid frame must be removed. To remove the skid frame, use the following procedure:

1. Remove the lock nuts from the rear suspension eyebolts; then remove the eyebolts.
2. Remove the four cap screws securing the skid frame to the tunnel.
3. Lift rear of snowmobile approximately 60 cm or two feet off floor using jack or hoist.
4. Pull the skid frame from within track.

## Front Arm Bracket Removal

To shorten the front arm bracket, use the following procedure:

1. Determine the amount that must be removed from the front arm tube. Divide that amount by two. The new total must be removed from both ends of the front arm tube.

### CAUTION

An equal amount must be removed from both ends of the front arm tube or proper wheel alignment with the track will not be obtained.

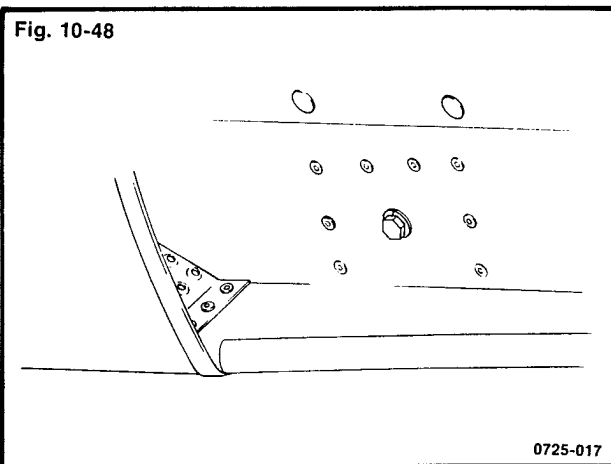
2. Using a hacksaw, remove the proper amount from both ends of the tube.

## Install Skid Frame

To install the skid frame, use the following procedure:

1. Spread a light coat of low temperature grease on the skid frame inner axles.
2. Tip snowmobile on its side. Use cardboard to protect against scratching.
3. Pull track away from body tunnel and install the skid frame in the track and tunnel.
4. Move front of skid frame into position with front mounting hole in the tunnel. Slide lock washer onto cap screw; then secure front arm to the tunnel. Thread in only halfway. DO NOT TIGHTEN.

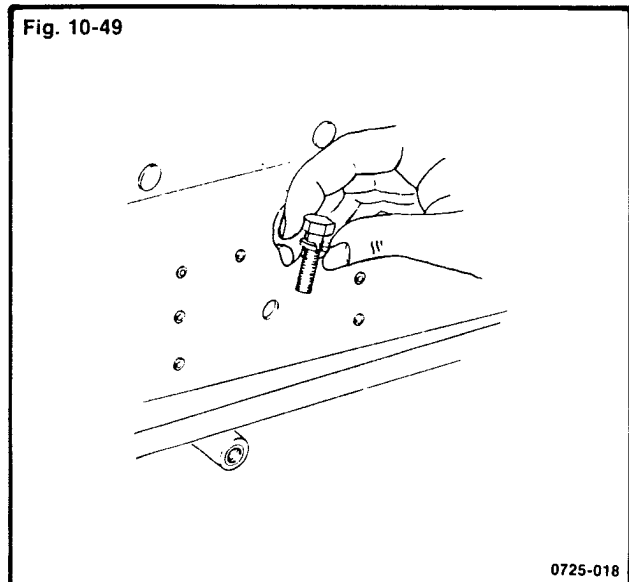
Fig. 10-48



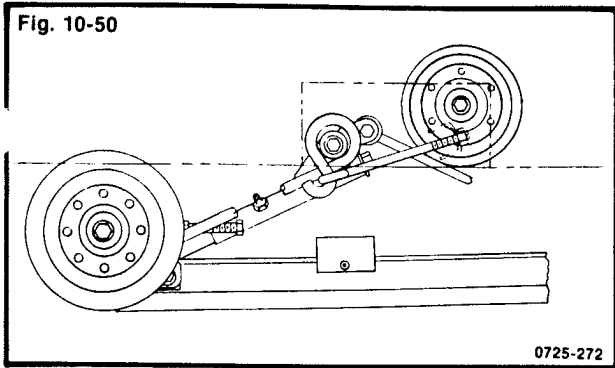
**NOTE:** To aid in the centering of the front arm with the holes in the tunnel, position skid frame and track at an angle to the bottom of the tunnel.

5. Push skid frame and track into the tunnel. Tip snowmobile onto opposite side.
6. Secure front arm to tunnel following instructions in step 4.
7. Move rear arm of skid frame into position with rear mounting holes in tunnel. Make sure suspension springs are in position on the rear arm.

Fig. 10-49



8. Slide lock washers onto cap screws; then secure rear arm to tunnel. Thread in only halfway. DO NOT TIGHTEN.
- NOTE:** Rear arm of skid frame may not line up with mounting holes in tunnel. To obtain proper alignment of rear arm, drive rear arm in proper direction until alignment is obtained.
9. Tip snowmobile onto opposite side, use cardboard to protect against scratching.
  10. Fasten rear arm to tunnel using directions in step 8.
  11. Tighten front and rear mounting cap screws to 2.9 - 3.6 kg-m or 21 - 26 ft-lb.
  12. Install the suspension spring eyebolts onto the rear spring loops. Move the eyebolts into position in the tunnel brackets.
  13. Install lock nuts on the threaded portion of the eyebolts; then tighten the eyebolts to obtain the desired tension setting.
  14. With the machine on a safety stand or hoist, start the engine and allow the track to rotate several times. Check to ensure that the skid frame rails are positioned in the center of the track cleat cutouts.



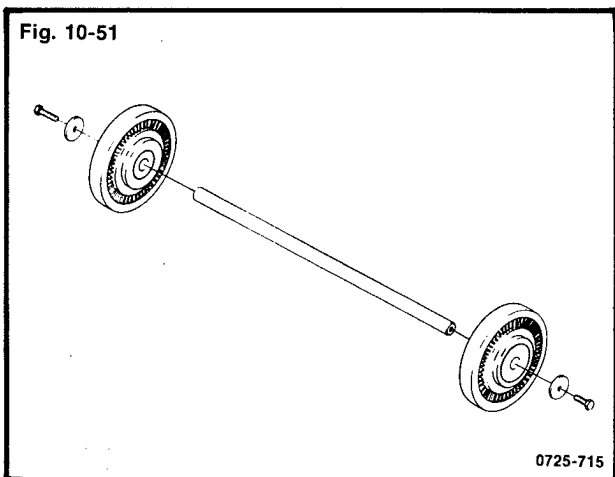
15. If the track does not run in the center of the track cleat cutouts, an adjustment is necessary. If the track runs to the left, tighten the left track tension bolt. Conversely, if the track runs to the right side, tighten the right track tension bolt. After the track is centered, tighten the adjusting bolt jam nuts.

**NOTE:** Make sure that correct track alignment is maintained whenever the track alignment is adjusted.

#### Install Wheel Kit

To install the wheel kit, use the following procedure:

1. With the snowmobile in an upright position, slide the wheel kit axle through the front arm bracket axle housing. Equalize the amount of axle exposed on both sides of the axle housing.
2. Place a 21/32 x 1-1/8 washer on wheel axle.
3. Place SMALL insert side of wheel on axle.



4. Place larger washer on axle and secure with nut. Tighten to 1.4 kg-m or 10 ft-lb.
5. Repeat process for opposite side.

6. Check alignment of wheels. If alignment is not correct, add washer to the outside of wheel until alignment is achieved. Never remove more washers than is provided in kit.

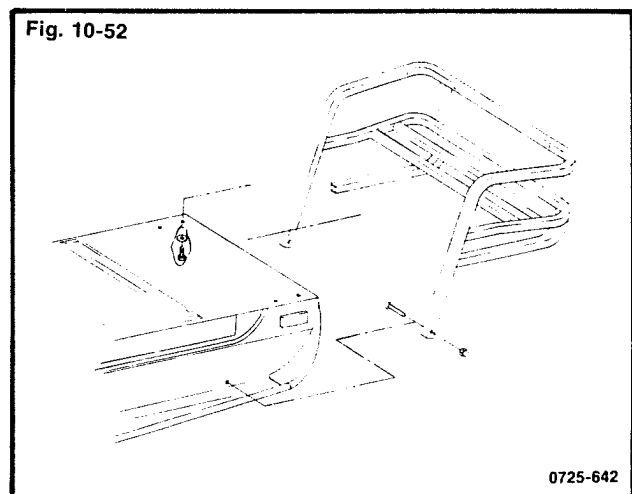
#### CAUTION

Wheel axle must not rotate. Only bearing within wheel should rotate. If bearing fails to rotate, it is defective and must be replaced as an assembly.

## Safari Rak Kit

Pantera 0136-086

Safari Tote Bag 0136-087



**Equipment Necessary:** Electric drill, 1/4-inch bit, standard screwdriver, 7/16-inch open end wrench

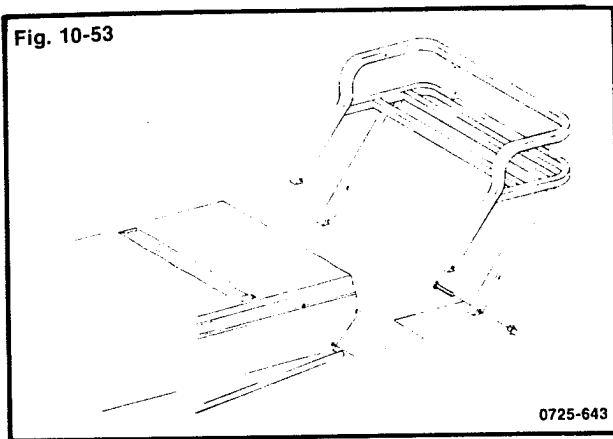
To install the Safari Rack for the '76-'78 Pantera, use the following procedure:

1. Remove bumper.

2. Align Safari Rak with pre-drilled holes vacated from bumper removal. Secure with four (4) screws and washers to existing rivet nuts.
3. Drill two 1/4-inch holes for the top bar through the tunnel. Secure with two (2) screws and nuts.

■ **NOTE:** If Safari Rak does not align with existing holes in tunnel, use an electric drill and bit to rout hole until alignment is achieved.

**Panther, Cheetah 0136-085**  
**Safari Tote Bag 0136-087**



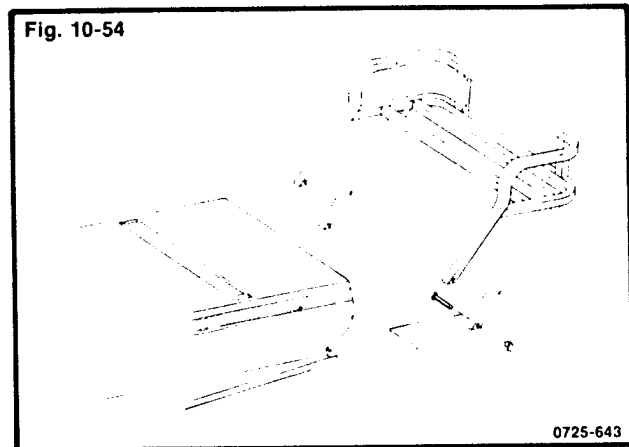
**Equipment Necessary:** Electric drill, 1/4-inch bit, standard screwdriver, 7/16-inch open end wrench

To install the Safari Rak for the '73-'78 Panther or Cheetah, use the following procedure:

1. Remove bumper.
2. Align Safari Rak with pre-drilled holes vacated from bumper removal. Secure with four (4) screws and nuts.
3. Drill two 1/4-inch holes for top, bar through tunnel. Secure with two (2) screws and nuts.

■ **NOTE:** If Safari Rak does not align with existing holes in tunnel, use an electric drill and bit to rout new hole until alignment is achieved.

**Jag 0136-084**  
**Safari Tote Bag 0136-087**



**Equipment Necessary:** Electric drill, 1/4-inch bit, standard screwdriver, 7/16-inch open end wrench

To install the Safari Rak on the '75-'78 Jag, use the following procedure:

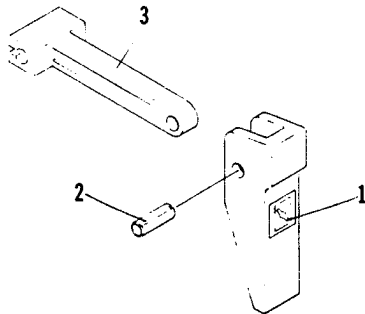
1. Remove bumper.
2. Align Safari Rak with the pre-drilled holes vacated from bumper removal. Secure with four (4) screws and nuts.
3. Drill two 1/4-inch holes for the top bar through tunnel. Secure with two (2) screws and nuts.

■ **NOTE:** If Safari Rak does not align with existing holes in tunnel, use electric drill and bit to rout hole until alignment is achieved.

## Choke Lever Repair Kit

Pantera, Panther, Cheetah, Jag, Lynx 0136-104

Fig. 10-55



0115-149

**Equipment Necessary:** Regular screwdriver, hammer, punch

To install the choke lever repair kit, use the following procedure:

1. Remove knurled nut securing choke lever to console.
2. Slide choke lever through console.
3. Remove choke cable from carburetor.
4. Using a punch and hammer, gently tap out the pin securing the choke lever.
5. Separate halves of the choke control box.
6. Slide choke cable from the existing tee and remove spring.
7. Install spring on tee from kit and connect choke cable.
8. Place assembly in position in the control box. Be sure choke cable is secured to tee.
9. Place pin from the kit in the choke lever and align with the hole in the tee. Using a hammer and punch, gently tap pin until pin is flush with lever.
10. Place cover in the control box and secure.
11. Connect choke cable assembly to carburetor.

12. Place choke lever in console and secure with knurled nut.
13. Check operation of choke lever.

## High Altitude Kit

To locate the high altitude kit for each model of Arctic Cat snowmobile, refer to the accessory chart on page 181.

### Pantera FC 0136-115

Kit consists of:

Part No.	Qty.	Description
0146-108	6	Weight
6505-320	1	Jet Kit (280 & 290 Main Jet)

**NOTE:** E-ring on jet needle in carburetor must be changed from fourth step to third step.

### Pantera FA 0136-044

Kit consists of:

Part No.	Qty.	Description
0146-106	6	Weight
6505-266	1	Jet Kit

### Panther 5000, Cheetah 5000 0136-106

Kit consists of:

Part No.	Qty.	Description
0146-105	6	Weight
6505-314	1	Jet Kit (260 & 270 Main Jet)
6505-215	1	Jet Needle (6DH7-2)

**Panther 4000 0136-107**

Kit consists of:

Part No.	Qty.	Description
16-068	1	Spring
.46-105	6	Weight
0146-294	3	Ramp
0146-355	3	Roller/Bearing Assy.
6505-313	1	Jet Kit (240 & 250 Main Jet)

**Jag 3000 0136-112**

Kit consists of:

Part No.	Qty.	Description
0146-068	1	Spring, Compression 64 lb.
0146-106	6	Weight
6505-316	1	Jet Kit (180 & 190 Main Jet)

■ **NOTE: E-ring on jet needle in carburetor must be changed from third to second step.**

**Jag 2000 0136-113**

Kit consists of:

Part No.	Qty.	Description
0146-175	6	Weight
6505-315	1	Jet Kit (160 & 170 Main Jet)

■ **NOTE: E-ring on jet needle in carburetor must be changed from the third step to the second step.**

**Lynx T 0136-108**

Kit consists of:

Part No.	Qty.	Description
0146-175	6	Weight
6505-269	1	Jet Kit (130 & 140 Main Jet)

■ **NOTE: E-ring on jet needle in carburetor must be changed from the third step to the second step.**

**Lynx S 0136-109**

Kit consists of:

Part No.	Qty.	Description
0146-068	1	Spring
0146-175	6	Weight
6505-312	1	Jet Kit (120 & 130 Main Jet)

# SECTION 11 — TROUBLESHOOTING

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Engine . . . . .	213-216
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# Engine

Problem	Condition	Remedy
<p>Engine will not start because there is no spark</p>	<ol style="list-style-type: none"> <li>1. Ignition switch not ON or malfunctioning.</li> <li>2. Short in wiring harness.</li> <li>3. Emergency shut-off switch in OFF position or malfunctioning.</li> <li>4. Throttle safety switch adjusted incorrectly.</li> <li>5. Spark plug fouled, oiled or damaged.</li> <li>6. RFI suppressor cap damaged, leaking or shorted.</li> <li>7. High tension wire loose, grounded or shorted.</li> <li>8. Defective CDI box.</li> <li>9. Defective exciting coil.</li> <li>10. Defective pulser coil.</li> <li>11. Defective ignition coil.</li> <li>12. Faulty condenser (2000S)</li> <li>13. Weak flywheel magnets.</li> </ol>	<ol style="list-style-type: none"> <li>1. Turn switch ON or replace ignition switch.</li> <li>2. Repair or replace.</li> <li>3. Move switch to ON or replace the emergency shut-off switch.</li> <li>4. Adjust throttle safety switch (cable tension).</li> <li>5. Replace the spark plug.</li> <li>6. Replace RFI suppressor cap.</li> <li>7. Service high tension wire/coils.</li> <li>8. Replace CDI box.</li> <li>9. Replace exciting coil.</li> <li>10. Replace pulser coil.</li> <li>11. Replace ignition coil.</li> <li>12. Replace condenser.</li> <li>13. Replace the flywheel.</li> </ol>
<p>Engine will not start because it does not get fuel</p>	<ol style="list-style-type: none"> <li>1. Fuel tank empty.</li> <li>2. Cracked, broken or pinched fuel line.</li> <li>3. Obstructed or damaged in-line filter.</li> <li>4. Fuel pump malfunctioning.</li> <li>5. Impulse line is cracked, broken or pinched.</li> <li>6. Carburetor adjusted incorrectly.</li> <li>7. Inlet needle stuck.</li> <li>8. Float adjustment incorrect.</li> <li>9. Air leak between cylinder and carburetor.</li> </ol>	<ol style="list-style-type: none"> <li>1. Fill fuel tank with fuel.</li> <li>2. Replace the fuel line.</li> <li>3. Clean or replace in-line filter.</li> <li>4. Service the fuel pump.</li> <li>5. Replace the impulse line.</li> <li>6. Adjust the carburetor.</li> <li>7. Repair or replace inlet needle and seat or clean carburetor.</li> <li>8. Adjust float arm height.</li> <li>9. Examine insulator block and carburetor flange for correct sealing.</li> </ol>

Problem	Condition	Remedy
Engine will not start because fuel will not ignite	<ol style="list-style-type: none"> <li>1. Air leak between carburetor, insulator block or intake manifold.</li> <li>2. Carburetor fuel and/or air screws adjusted incorrectly.</li> <li>3. Water in the carburetor.</li> <li>4. Engine is flooded.</li> <li>5. No compression (caused by worn or broken rings, scored piston, hole in piston or damaged cylinder).</li> <li>6. Blown head gasket.</li> </ol>	<ol style="list-style-type: none"> <li>1. Tighten mounting bolt and nuts, or service the insulator block (sealing surfaces must be flat).</li> <li>2. Adjust the carburetor.</li> <li>3. Disassemble and clean carburetor.</li> <li>4. Turn ignition switch OFF, remove spark plug and dry it. Crank engine over 5 - 10 times. Finally, install spark plug and start engine. If engine continues to flood, service the carburetor.</li> <li>5. Check compression and replace worn or damaged parts.</li> <li>6. Replace head gasket.</li> </ol>
Engine will not idle or idle rpm fluctuates	<ol style="list-style-type: none"> <li>1. Idle air screw adjusted incorrectly.</li> <li>2. Throttle stop screw adjusted incorrectly.</li> <li>3. Defective fuel pump (check valve).</li> <li>4. Tip of air screw broken off and embedded in the main carburetor body casting.</li> <li>5. Impulse line cracked, kinked or broken.</li> </ol>	<ol style="list-style-type: none"> <li>1. Adjust idle air screw and throttle stop screw.</li> <li>2. Adjust the throttle stop screw and idle air screw.</li> <li>3. Service the fuel pump (check valve).</li> <li>4. Replace the air screw and the main carburetor body casting.</li> <li>5. Replace or service the impulse line.</li> </ol>
Engine develops power loss or runs on one cylinder	<ol style="list-style-type: none"> <li>1. Vent hole in fuel tank gauge cap obstructed.</li> <li>2. Fouled or defective spark plug(s).</li> <li>3. Obstruction inside of muffler.</li> <li>4. Defective CDI box.</li> <li>5. In-line filter obstructed.</li> <li>6. Carbon buildup in exhaust port.</li> <li>7. Defective pulsing coil.</li> <li>8. Rings worn excessively.</li> <li>9. Crankcase pressure is low.</li> <li>10. Hole in top of piston.</li> <li>11. Blown head gasket.</li> </ol>	<ol style="list-style-type: none"> <li>1. Remove obstruction from vent hole by washing in gasoline; then use compressed air to blow out any remaining dirt.</li> <li>2. Replace the spark plug(s).</li> <li>3. Remove obstruction or replace the muffler.</li> <li>4. Replace CDI box.</li> <li>5. Clean filter or replace filter if it is defective.</li> <li>6. Clean exhaust port.</li> <li>7. Replace pulsing coil.</li> <li>8. Replace the rings.</li> <li>9. Check for crankcase leaks (end seal, cylinder base gasket or between crankcase halves); then replace seal or gasket, or reseal the crankcase halves.</li> <li>10. Replace the piston and any affected component(s). Also, clean crankcase and crankshaft.</li> <li>11. Replace head gasket.</li> </ol>

Problem	Condition	Remedy
	12. Broken (shorted) high tension wire. 13. Defective RFI suppressor cap.	12. Replace complete ignition coil. 13. Replace RFI suppressor cap.
Engine overheats	1. Excessive carbon deposits in combustion chamber, exhaust port or muffler. 2. Stiff rings caused by excessive carbon buildup. 3. Cooling fins obstructed. 4. Spark plug heat range too hot. 5. Carburetor adjusted incorrectly. 6. Air leak between carburetor, intake manifold or cylinders. 7. Drive system (drive clutch, driven pulley, drive belt and track) adjusted, worn or working improperly. 8. Incorrect fuel/oil mixture ratio (too lean).	1. Clean affected components. 2. Clean or replace rings. 3. Clean cooling fins. 4. Install spark plug having lower heat range. 5. Adjust carburetor. 6. Seal affected component(s). 7. Troubleshoot the drive system. 8. Make sure correct fuel/oil mixture is being used.
Engine backfires or has irregular running condition  Note: Engine may eventually overheat	1. Throttle safety switch adjusted incorrectly. 2. High tension wire sporadically shorting out. 3. Fouled or incorrect spark plug (heat range too hot). 4. Air leak between carburetor and cylinder.	1. Adjust throttle safety switch (tension throttle wire). 2. Replace complete ignition coil. 3. Replace spark plug or install spark plug having colder heat range. 4. Service the carburetor insulator block to make sure it is not warped.
Engine four-cycles	1. Carburetor adjusted incorrectly. 2. Dirt between needle valve and valve seat.	1. Adjust the carburetor. 2. Service the carburetor.
Engine stops (suddenly) after it has been running	1. Defective ignition coil. 2. Obstructed in-line fuel filter. 3. Fuel line obstructed or pinched. 4. Defective CDI box. 5. Spark plug bridged. 6. Seized piston(s). 7. Seized crankshaft. 8. Defective exciter coil. 9. Defective pulsing coil.	1. Replace ignition coil. 2. Clean or replace filter. 3. Remove obstruction or kinked area out of fuel line. 4. Replace CDI box. 5. Replace spark plug. 6. Replace piston and any affected components. 7. Replace crankshaft and any affected components. 8. Replace exciter coil. 9. Replace pulsing coil.

Problem	Condition	Remedy
Engine stops (gradually) after it has been running	<ol style="list-style-type: none"><li>1. Obstructed fuel tank or in-line fuel filter.</li><li>2. Fuel line obstructed or pinched.</li><li>3. Head gasket gradually burning away.</li><li>4. Cylinder head gradually loosening.</li><li>5. Spark plug(s) gradually loosening.</li></ol>	<ol style="list-style-type: none"><li>1. Clean or replace filters.</li><li>2. Remove obstruction or get pinched area out of fuel line.</li><li>3. Replace head gasket.</li><li>4. Tighten cylinder head nuts to correct torque value.</li><li>5. Tighten spark plugs to correct torque value.</li></ol>

# Fuel System

0 - 1/4 Throttle Opening		
Problem	Condition	Remedy
Too rich	<ol style="list-style-type: none"> <li>1. Too large pilot jet.</li> <li>2. Clogged pilot air intake, pilot jet air passage, or air bleed opening.</li> <li>3. Pilot jet mounting loose.</li> <li>4. Starter plunger not seated.</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace with smaller pilot jet.</li> <li>2. Thoroughly disassemble and clean carburetor.</li> <li>3. Tighten pilot jet.</li> <li>4. Readjust starter cable linkage.</li> </ol>
Too lean	<ol style="list-style-type: none"> <li>1. Pilot jet or jet outlet obstructed.</li> <li>2. Throttle valve has worn and developed play.</li> <li>3. Carburetor mounting loose, causing an air leak.</li> </ol>	<ol style="list-style-type: none"> <li>1. Thoroughly disassemble and clean carburetor.</li> <li>2. Replace throttle valve.</li> <li>3. Check mounting for tightness and correct sealing.</li> </ol>
1/4 - 3/4 Throttle Opening		
Problem	Condition	Remedy
Too rich	<ol style="list-style-type: none"> <li>1. Problem in low-speed circuit.</li> <li>2. Blocked air passage, air jet, or the air bleed opening of the needle jet.</li> <li>3. Larger needle jet/jet needle clearance due to needle jet wear.</li> </ol>	<ol style="list-style-type: none"> <li>1. See above.</li> <li>2. Thoroughly disassemble and clean carburetor.</li> <li>3. Replace needle jet.</li> </ol>
Too lean	<ol style="list-style-type: none"> <li>1. Problem in low-speed circuit.</li> <li>2. Dirt collecting in the main jet or needle jet.</li> </ol>	<ol style="list-style-type: none"> <li>1. See above.</li> <li>2. Thoroughly disassemble and clean carburetor.</li> </ol>
3/4 - Full Throttle Opening		
Problem	Condition	Remedy
Too rich	<ol style="list-style-type: none"> <li>1. Too large main jet.</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace with a smaller main jet.</li> </ol>
Too lean	<ol style="list-style-type: none"> <li>1. Too small main jet.</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace with a larger main jet.</li> </ol>

General		
Problem	Condition	Remedy
Engine cuts out at high rpm	<ol style="list-style-type: none"> <li>1. Fuel pump does not supply adequate fuel.</li> <li>2. Float level too low.</li> <li>3. Fuel line filters clogged.</li> <li>4. Moisture in fuel lines.</li> </ol>	<ol style="list-style-type: none"> <li>1. Repair or replace.</li> <li>2. Readjust float level setting.</li> <li>3. Clean or replace.</li> <li>4. Add gas line de-icer and clean carburetors.</li> </ol>
Engine runs leaner on one side	<ol style="list-style-type: none"> <li>1. Carburetor flange leaking.</li> <li>2. Air silencer has loose internal baffle.</li> <li>3. Crankcase leaking.</li> </ol>	<ol style="list-style-type: none"> <li>1. Reseal or replace.</li> <li>2. Replace air silencer.</li> <li>3. Disassemble and reseal.</li> </ol>

# Drive Clutch

Problem	Condition	Remedy
Drive clutch engages before specified rpm	<ol style="list-style-type: none"> <li>1. Wrong spring.</li> <li>2. Weak spring.</li> <li>3. Wrong weights.</li> <li>4. Wrong ramps.</li> <li>5. Set screws holding spider to hex shaft loose.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check specifications for correct spring.</li> <li>2. Check spring pressure.</li> <li>3. Check specification for correct weights.</li> <li>4. Check specifications for correct ramps.</li> <li>5. Check hex shaft for damage. Tighten spider set screws.</li> </ol>
Drive clutch engages after specified rpm	<ol style="list-style-type: none"> <li>1. Wrong spring.</li> <li>2. Wrong weights.</li> <li>3. Wrong ramps.</li> <li>4. Dirty clutch.</li> <li>5. Worn (flat spots) rollers and ramps.</li> <li>6. Bushing in cover housing and moveable sheave worn excessively on inside diameter.</li> <li>7. Worn drive belt.</li> <li>8. Set screws holding spider to hex shaft loose.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check specifications for correct spring.</li> <li>2. Check specifications for correct weights.</li> <li>3. Check specifications for correct ramps.</li> <li>4. Clean clutch.</li> <li>5. Replace rollers and ramps.</li> <li>6. Replace appropriate parts. See parts manual.</li> <li>7. Replace if top width less than 1-1/16".</li> <li>8. Check hex shaft for damage - tighten spider set screws.</li> </ol>
Maximum drive clutch rpm too high	<ol style="list-style-type: none"> <li>1. Weights too light.</li> <li>2. Wrong ramps (ramp angle too steep at top).</li> <li>3. Wrong spring (too heavy).</li> <li>4. Dirty clutch.</li> <li>5. Set screws holding spider to hex shaft loose.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check specifications for correct weights.</li> <li>2. Check specifications for correct ramps.</li> <li>3. Check specifications for correct spring.</li> <li>4. Clean clutch.</li> <li>5. Check hex shaft for damage. Tighten spider set screws.</li> </ol>
Maximum drive clutch rpm too low	<ol style="list-style-type: none"> <li>1. Weights too heavy.</li> <li>2. Wrong ramp (ramp angle too flat at top).</li> <li>3. Wrong spring (too light).</li> </ol>	<ol style="list-style-type: none"> <li>1. Check specifications for correct weights.</li> <li>2. Check specifications for correct ramps.</li> <li>3. Check specifications for correct spring.</li> </ol>
Shift up through midrange takes place too quickly (pulls rpm down)	<ol style="list-style-type: none"> <li>1. Weights too heavy.</li> <li>2. Wrong ramps (ramp angle too flat).</li> <li>3. Drive clutch spring too weak.</li> <li>4. Wrong spring (too weak).</li> </ol>	<ol style="list-style-type: none"> <li>1. Check specifications for correct weights.</li> <li>2. Check for specifications for correct ramps.</li> <li>3. Check spring pressure.</li> <li>4. Check specifications for correct spring.</li> </ol>

Problem	Condition	Remedy
	<ol style="list-style-type: none"> <li>5. Driven pulley spring preload too loose.</li> <li>6. Driven pulley spring too weak.</li> <li>7. Clutches center-to-center distance too close.</li> </ol>	<ol style="list-style-type: none"> <li>5. Increase driven pulley spring preload.</li> <li>6. Replace driven pulley spring.</li> <li>7. Check specifications for correct center-to-center distance.</li> </ol>
Shift up through midrange takes place too slowly (rpm too high)	<ol style="list-style-type: none"> <li>1. Weights too light.</li> <li>2. Wrong ramps (ramp angle too steep).</li> <li>3. Dirty drive clutch.</li> <li>4. Dirty driven clutch.</li> <li>5. Wrong spring (too strong).</li> <li>6. Driven clutch spring preload too tight.</li> <li>7. Wrong driven clutch spring.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check specifications for correct weights.</li> <li>2. Check specifications for correct ramps.</li> <li>3. Clean drive clutch.</li> <li>4. Clean driven clutch.</li> <li>5. Check specifications for correct spring.</li> <li>6. Decrease driven clutch spring preload.</li> <li>7. Check specifications for correct spring.</li> </ol>
Belt deposits on drive clutch face or hex shaft	<ol style="list-style-type: none"> <li>1. Wrong "offset".</li> <li>2. Belt worn because of high hourly usage.</li> <li>3. Wrong drive belt.</li> <li>4. Lubricant on clutch sheaves.</li> </ol>	<ol style="list-style-type: none"> <li>1. Remove belt deposits and establish correct "offset" see specifications.</li> <li>2. Install new belt and check center-to-center distance and offset - see specifications.</li> <li>3. Check specifications for correct drive belt.</li> <li>4. Clean clutch sheaves.</li> </ol>
Drive clutch does not disengage at idle - engine starts hard and has tendency to stall because of belt drag	<ol style="list-style-type: none"> <li>1. Moveable sheave Duralon bearing set screw backed out.</li> <li>2. Drive belt outside circumference below specifications.</li> <li>3. Thickness of belt on inside diameter exceeds specifications.</li> <li>4. Center-to-center distance of the clutches too long.</li> <li>5. Drive clutch dirty and will not disengage.</li> </ol>	<ol style="list-style-type: none"> <li>1. Stake moveable sheave Duralon bearing set screws.</li> <li>2. Check drive belt specifications (outside circumference).</li> <li>3. Check drive belt specifications (belt thickness on inside diameter).</li> <li>4. Check center-to-center specifications.</li> <li>5. Clean drive clutch.</li> </ol>
Engine rpm have increased suddenly	<ol style="list-style-type: none"> <li>1. Pins holding spider arms are bent or broken.</li> <li>2. Broken spider arm.</li> <li>3. Bolt retaining clutch weights broken.</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace spider.</li> <li>2. Replace spider.</li> <li>3. Replace bolt and check for correct weight specifications.</li> </ol>
Drive clutch shift pattern has slowly changed after much usage	<ol style="list-style-type: none"> <li>1. Spider arm roller bearings worn.</li> <li>2. Ramp surface worn uneven.</li> <li>3. Duralon hex bearing worn.</li> </ol>	<ol style="list-style-type: none"> <li>1. Normal wear - replace roller bearings.</li> <li>2. Replace ramps - see specifications.</li> <li>3. Inspect and measure bearings for wear.</li> </ol>
Drive clutch out of balance	<ol style="list-style-type: none"> <li>1. Drive clutch components are not assembled correctly.</li> </ol>	<ol style="list-style-type: none"> <li>1. Reassemble - check alignment marks for proper installation.</li> </ol>

# Driven Clutch

Problem	Condition	Remedy
Engine rpm low and belt shifted completely through driven clutch	<ol style="list-style-type: none"> <li>1. Weak spring.</li> <li>2. Broken spring.</li> <li>3. Spring unhooked from torque bracket.</li> </ol>	<ol style="list-style-type: none"> <li>1. Increase driven clutch spring tension.</li> <li>2. Install new spring.</li> <li>3. Install spring - see specifications for proper spring preload.</li> </ol>
Engine rpm high and belt takes too long to shift through driven clutch	<ol style="list-style-type: none"> <li>1. Wrong spring - too heavy.</li> <li>2. Driven clutch spring preload too tight.</li> <li>3. Sliding shoes worn excessively.</li> <li>4. Dirty driven clutch hub.</li> <li>5. Worn driven clutch bearing.</li> </ol>	<ol style="list-style-type: none"> <li>1. Install correct spring.</li> <li>2. Decrease spring tension.</li> <li>3. Install new sliding shoes.</li> <li>4. Clean driven pulley.</li> <li>5. Install new bearing.</li> </ol>
Driven clutch does not "downshift" - rpm pull down below engine power band	<ol style="list-style-type: none"> <li>1. Worn driven clutch bearing.</li> <li>2. Weak spring.</li> <li>3. Broken spring.</li> </ol>	<ol style="list-style-type: none"> <li>1. Install new bearing.</li> <li>2. Increase driven clutch spring tension.</li> <li>3. Install new spring.</li> </ol>
Belt deposits on driven clutch sheaves	<ol style="list-style-type: none"> <li>1. Driven clutch moveable sheave travel less than specifications.</li> <li>2. Worn driven clutch bearing.</li> <li>3. Driven clutch bearing dirty.</li> <li>4. Lubricant on clutch sheaves.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check specifications for moveable sheave travel.</li> <li>2. Install new bearing.</li> <li>3. Clean clutch bearing.</li> <li>4. Clean clutch sheaves.</li> </ol>
Driven clutch out of balance	<ol style="list-style-type: none"> <li>1. Rivets holding sheaves to castings missing.</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace sheaves.</li> </ol>

# Drive Belt

Problem	Condition	Remedy
Normal belt side wear	1. Normal and minimal side pressure applied to belt.	1. Install new belt - wear is normal.
Belt will not shift to top of drive clutch (1:1 ratio)	1. Belt worn across top surface (less than 1-1/16") after many hours of use.	1. Install new belt - wear is normal.
Cracks between belt lugs when flexed	1. Occurs after many hours of use.	1. Install new belt - wear is normal.
Belt will shift to the top of the drive clutch but poor top speed	1. Belt outside circumference too long. 2. Wrong belt - excessive slippage.	1. Check belt specifications. 2. Install correct belt - See Parts Manual.
Snowmobile has poor acceleration (bogs on engagement)	1. Belt outside circumference too long. 2. Belt worn across top surface (less than 1-1/16").	1. Check belt specifications. 2. Install new belt.
Belt is glazed or baked on its side - not normal and is caused by heat buildup	1. Wrong belt - excessive slippage. 2. Driver applied too much throttle under heavy load - excessive slippage. 3. Weak drive clutch spring. 4. Drive clutch engagement rpm too low. 5. Belt too long - excessive slippage on engagement. 6. Improper drive clutch operation (sticking, etc.). 7. Drive and driven clutch "offset/parallelism" is not correct. 8. Grease on drive clutch or driven clutch sheaves. 9. Wrong drive clutch ramps - excessive slippage.	1. Install correct belt - See Parts Manual. 2. Tell driver to decrease throttle under heavy load conditions; install new belt. 3. Perform spring pressure tests; install new spring if spring is weak. 4. Adjust engagement rpm - See specifications. 5. Install new drive belt. 6. Remove and service drive clutch; install new belt if one is needed. 7. Check and adjust "offset/parallelism", install new belt if one is needed. 8. Clean sheaves; install new belt if one is needed. 9. Check specifications for correct ramps.

Problem	Condition	Remedy
Lugs torn off inside of belt	<ol style="list-style-type: none"> <li>1. Drive clutch engages suddenly (engagement speed too high).</li> <li>2. Drive belt outside circumference too short.</li> <li>3. Clutch center-to-center distance too close.</li> </ol>	<ol style="list-style-type: none"> <li>1. Remove and service drive clutch; install new belt, if one is needed.</li> <li>2. Check drive belt specifications.</li> <li>3. Check center-to-center specifications.</li> </ol>
Belt worn in one spot	<ol style="list-style-type: none"> <li>1. Track frozen to skid frame or front drive.</li> <li>2. Track tension too tight.</li> <li>3. Idle speed too high - engaging belt.</li> <li>4. Improper operation of drive clutch.</li> <li>5. Driven clutch does not turn freely - check bearings.</li> </ol>	<ol style="list-style-type: none"> <li>1. Free the track and install new belt.</li> <li>2. Adjust track tension and install new belt.</li> <li>3. Reduce idle rpm and install new belt.</li> <li>4. Repair or replace drive clutch and install new belt.</li> <li>5. Check all components in drop case for failure.</li> </ol>
Cracks at base of belt lug	<ol style="list-style-type: none"> <li>1. Continuous over revving when snowmobile is operated.</li> </ol>	<ol style="list-style-type: none"> <li>1. Decrease rpm and install new belt.</li> </ol>
<p>Belt disintegrates</p> <p>Frayed or broken cord on side of belt</p> <p>Belt turns over at high speeds</p> <p>Belt side wear usually occurs after belt is glazed or baked because of slippage</p>	<ol style="list-style-type: none"> <li>1. Drive clutch and driven clutch "offset/parallelism" is incorrect.</li> </ol> <p>Drive clutch and driven clutch "offset/parallelism" is incorrect.</p> <p>Drive clutch and driven clutch "offset/parallelism" is incorrect.</p> <p>Drive clutch and driven clutch "offset/parallelism" is incorrect.</p>	<ol style="list-style-type: none"> <li>1. Check and adjust "offset/parallelism"; install new belt after correct adjustments are made.</li> </ol> <p>Check and adjust "offset/parallelism"; install new belt after correct adjustments are made.</p> <p>Check and adjust "offset/parallelism"; install new belt after correct adjustments are made.</p> <p>Check and adjust "offset/parallelism"; install new belt after correct adjustments are made.</p>

# Chain/Sprocket

Problem	Condition	Remedy
Chain rattles in chain case	<ol style="list-style-type: none"> <li>1. Chain tension too loose.</li> <li>2. Chain stretched beyond adjustable limit.</li> <li>3. Wear pad in chain case worn badly.</li> <li>4. Tightener broken.</li> </ol>	<ol style="list-style-type: none"> <li>1. Adjust chain tension.</li> <li>2. Install new chain and check sprockets for damage.</li> <li>3. Replace wear pad - see Parts Manual.</li> <li>4. Replace tightener - see Parts Manual.</li> </ol>
Chain ratchets	<ol style="list-style-type: none"> <li>1. Chain tension too loose.</li> <li>2. Wear pad in chain case worn badly.</li> <li>3. Tightener broken.</li> <li>4. Chain stretched beyond adjustable limit.</li> <li>5. Sprocket teeth worn.</li> </ol>	<ol style="list-style-type: none"> <li>1. Adjust chain tension.</li> <li>2. Replace wear pad - see Parts Manual.</li> <li>3. Replace tightener - see Parts Manual.</li> <li>4. Install new chain and check sprockets for damage.</li> <li>5. Install new sprockets and check chain for damage.</li> </ol>
Chain slips off sprockets	<ol style="list-style-type: none"> <li>1. Chain tension too loose.</li> <li>2. Wear pad in chain case worn badly.</li> <li>3. Tightener broken.</li> <li>4. Sprocket teeth worn.</li> <li>5. Sprockets misaligned.</li> </ol>	<ol style="list-style-type: none"> <li>1. Adjust chain tension.</li> <li>2. Replace wear pad - see Parts Manual.</li> <li>3. Replace tightener.</li> <li>4. Install new sprocket and check chain for damage.</li> <li>5. Align top sprocket with bottom sprocket.</li> </ol>
No chain case lubricant	<ol style="list-style-type: none"> <li>1. Cover seal damaged.</li> <li>2. Drop case plug missing.</li> <li>3. O-ring seals on chain case bearings damaged.</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace seal - fill with "Arctic Chain Lube".</li> <li>2. Install new drop case plug - fill with "Arctic Chain Lube".</li> <li>3. Replace O-ring seals and fill with "Arctic Chain Lube".</li> </ol>

# Track

Problem	Condition	Remedy
Edge of track is frayed	<ol style="list-style-type: none"> <li>1. Track is misaligned.</li> <li>2. Outer belts worn out because of hourly usage.</li> </ol>	<ol style="list-style-type: none"> <li>1. Set track tension and alignment.</li> <li>2. Install new outer belt(s).</li> </ol>
Track is grooved (worn) or burnt on inside surface of outer belt(s).	<ol style="list-style-type: none"> <li>1. Track tension is too tight.</li> <li>2. Rear idler wheels do not turn or are otherwise damaged.</li> </ol>	<ol style="list-style-type: none"> <li>1. Set track tension and alignment.</li> <li>2. Install new rear idler wheels and set track tension and alignment.</li> </ol>
Track is grooved or gouged on center belt	<ol style="list-style-type: none"> <li>1. Center brace(s) of skid frame hanging down and contacting inside surface of center belt.</li> </ol>	<ol style="list-style-type: none"> <li>1. Repair skid frame center brace and install new center belt if it is damaged.</li> </ol>
Internal drive lugs worn on inside surface	<ol style="list-style-type: none"> <li>1. Track is misaligned.</li> </ol>	<ol style="list-style-type: none"> <li>1. Set track tension and alignment. If lugs are worn excessively, install new outer belt(s).</li> </ol>
Track ratchets or hits on body tunnel (top)	<ol style="list-style-type: none"> <li>1. Track tension is too loose.</li> <li>2. Track drive sprockets not timed in relation to the drive lugs.</li> <li>3. Track drive sprockets turn on shaft.</li> <li>4. Internal drive lugs worn because of hourly usage.</li> </ol>	<ol style="list-style-type: none"> <li>1. Set track tension and alignment.</li> <li>2. Install new track drive and replace outer belt(s) if drive lugs are worn excessively.</li> <li>3. Install new track drive and replace outer belt(s) if drive lugs are worn excessively.</li> <li>4. Install new outer belt(s).</li> </ol>
Accelerated hi-fax wear	<ol style="list-style-type: none"> <li>1. Slide rail(s) is bent.</li> <li>2. Worn cleat on surface that contacts hi-fax.</li> <li>3. Track is misaligned.</li> </ol>	<ol style="list-style-type: none"> <li>1. Straighten slide rail(s) or install new skid frame.</li> <li>2. Install new hi-fax or cleats.</li> <li>3. Set track tension and alignment.</li> </ol>

# Light System

Problem	Condition	Remedy
No taillight	<ol style="list-style-type: none"> <li>1. Bad bulb.</li> <li>2. Poor ground.</li> <li>3. Broken wire.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check bulb with ohmmeter for resistance. Ohmmeter should register a low resistance.</li> <li>2. Check socket or ground wire to socket with ohmmeter. Meter should read closed.</li> <li>3. Remove seat, disconnect taillight wires from wiring harness. Check between hot wire in socket and connector with ohmmeter. Meter must read closed.</li> </ol>
No headlight	<ol style="list-style-type: none"> <li>1. Bad bulb.</li> <li>2. Poor ground.</li> <li>3. Broken wire.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check bulb with ohmmeter for resistance. Meter should register low resistance.</li> <li>2. Check ground wire (brown) with ohmmeter. Check between headlight connector and chassis. Meter should read closed.</li> <li>3. Check for broken wire between connector at headlight and switch. Meter should read CLOSED. If meter reads OPEN wire is broken.</li> </ol>
Bulbs continue to burn out when replaced	<ol style="list-style-type: none"> <li>1. Voltage regulator is not regulating voltage; caused by either a poor grounding or a defective regulator.</li> </ol>	<ol style="list-style-type: none"> <li>1. Using an AC voltmeter, regulator output must not exceed 15 volts at 3000 RPM.</li> <li>2. To make this check, connect one lead of voltmeter to hot wire at headlight connector, and ground the other lead of meter to the chassis.</li> <li>3. If current is found to be above 15 volts, remove the voltage regulator and check regulator ground. If grounding point is corroded, clean with sandpaper and re-install regulator. Recheck output. If still above 15 volts, replace regulator.</li> </ol>
No lights; complete failure of both the headlight and taillight.	<ol style="list-style-type: none"> <li>1. Bulbs burned out.</li> <li>2. Poor ground.</li> <li>3. Malfunctioned switch.</li> <li>4. Malfunctioned light coil.</li> </ol>	<ol style="list-style-type: none"> <li>1. Remove taillight and check with ohmmeter for resistance. Meter should read a low resistance. If the bulb is found to be defective, check the remaining bulb. If all are found to be bad, proceed to item three in Problem column.</li> <li>2. Check for continuity between light bulb socket and chassis with ohmmeter. Should have a closed reading.</li> <li>3. Disconnect switch and check operation of switch with ohmmeter. Meter should read open with switch in OFF position and closed in the ON position. Replace switch if necessary.</li> <li>4. Check between yellow wires from engine with voltmeter. Put rear of machine on a stand and run it for this test. Check service manual for correct output.</li> </ol>

Problem	Condition	Remedy
Brakelight fails to work when brakes are applied	<ol style="list-style-type: none"> <li>1. Bad bulb.</li> <li>2. Bad ground.</li> <li>3. Defective switch.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check bulb with ohmmeter for resistance. Meter should register a low resistance if bulb is good.</li> <li>2. Check brakelight socket for ground with ohmmeter. Connect one lead of meter to the socket and ground the other lead to the chassis. Meter must read closed.</li> <li>3. Disconnect brakelight switch from wiring harness. Connect one lead of ohmmeter to one of the terminals in connector that goes to brake switch. Connect the other lead of ohmmeter to remaining terminal in connector. Meter must read OPEN. Squeeze the brake lever. Meter must now read CLOSED.</li> </ol>

# SECTION 12 — AIDS FOR MAINTENANCE

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# Torque Conversions

<u>ft-lb</u>	<u>kg-m</u>	<u>ft-lb</u>	<u>kg-m</u>	<u>ft-lb</u>	<u>kg-m</u>	<u>ft-lb</u>	<u>kg-m</u>
1	.1	28	3.9	55	7.6	82	11.3
2	.3	29	4.0	56	7.7	83	11.5
3	.4	30	4.2	57	7.9	84	11.6
4	.6	31	4.3	58	8.0	85	11.8
5	.7	32	4.4	59	8.2	86	11.9
6	.8	33	4.6	60	8.3	87	12.0
7	1.0	34	4.7	61	8.4	88	12.2
8	1.1	35	4.8	62	8.6	89	12.3
9	1.2	36	5.0	63	8.7	90	12.5
10	1.4	37	5.1	64	8.9	91	12.6
11	1.5	38	5.3	65	9.0	92	12.8
12	1.7	39	5.4	66	9.1	93	12.9
13	1.8	40	5.5	67	9.3	94	13.0
14	1.9	41	5.7	68	9.4	95	13.1
15	2.1	42	5.8	69	9.5	96	13.3
16	2.2	43	5.9	70	9.7	97	13.4
17	2.4	44	6.1	71	9.8	98	13.6
18	2.5	45	6.2	72	10.0	99	13.7
19	2.6	46	6.4	73	10.1	100	13.8
20	2.8	47	6.5	74	10.2		
21	2.9	48	6.6	75	10.4		
22	3.0	49	6.8	76	10.5		
23	3.2	50	6.9	77	10.7		
24	3.3	51	7.1	78	10.8		
25	3.5	52	7.2	79	10.9		
26	3.6	53	7.3	80	11.1		
27	3.7	54	7.5	81	11.2		
							kg-m x 7.235 = ft-lb
							ft-lb x .1383 = kg-m

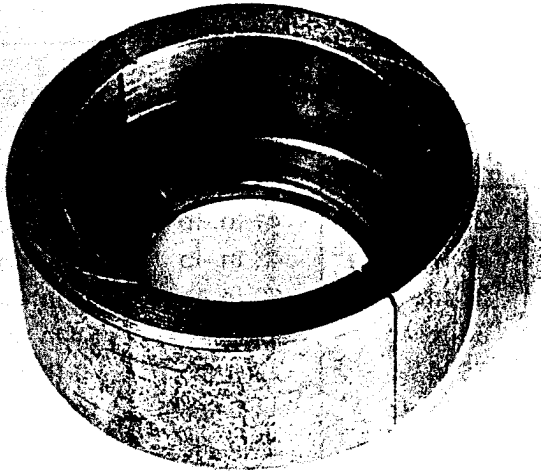
# Bolt Torque Specifications

SIZE	SAE GRADE 2 ASSEMBLY TORQUE		SAE GRADE 5 ASSEMBLY TORQUE		SAE GRADE 8 ASSEMBLY TORQUE	
	DRY	LUB.	DRY	LUB. ■	DRY	LUB.
8-32	19 in.-lb	14 in.-lb	30 in.-lb	22 in.-lb	41 in.-lb	31 in.-lb
8-36	20 in.-lb	15 in.-lb	31 in.-lb	23 in.-lb	43 in.-lb	32 in.-lb
10-24	27 in.-lb	21 in.-lb	43 in.-lb	32 in.-lb	60 in.-lb	45 in.-lb
10-32	31 in.-lb	23 in.-lb	49 in.-lb	36 in.-lb	68 in.-lb	51 in.-lb
1/4-20	66 in.-lb	50 in.-lb	8 ft-lb	75 in.-lb	12 ft-lb	9 ft-lb
1/4-28	76 in.-lb	56 in.-lb	10 ft-lb	86 in.-lb	14 ft-lb	10 ft-lb
5/16-18	11 ft-lb	8 ft-lb	17 ft-lb	13 ft-lb	25 ft-lb	18 ft-lb
5/16-24	12 ft-lb	9 ft-lb	19 ft-lb	14 ft-lb	28 ft-lb	20 ft-lb
3/8-16	20 ft-lb	15 ft-lb	30 ft-lb	23 ft-lb	45 ft-lb	33 ft-lb
3/8-24	23 ft-lb	17 ft-lb	35 ft-lb	25 ft-lb	50 ft-lb	35 ft-lb
7/16-14	32 ft-lb	24 ft-lb	50 ft-lb	35 ft-lb	70 ft-lb	55 ft-lb
7/16-20	36 ft-lb	27 ft-lb	55 ft-lb	40 ft-lb	80 ft-lb	60 ft-lb
1/2-13	50 ft-lb	35 ft-lb	75 ft-lb	55 ft-lb	110 ft-lb	80 ft-lb
1/2-20	55 ft-lb	40 ft-lb	90 ft-lb	65 ft-lb	120 ft-lb	90 ft-lb

■ NOTE: Lub. includes lubricants, lubricity and plating on fasteners.

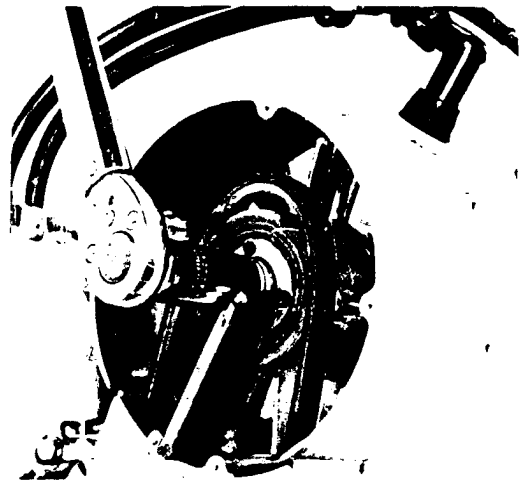
# Tools

## Arctic Spirit Engines



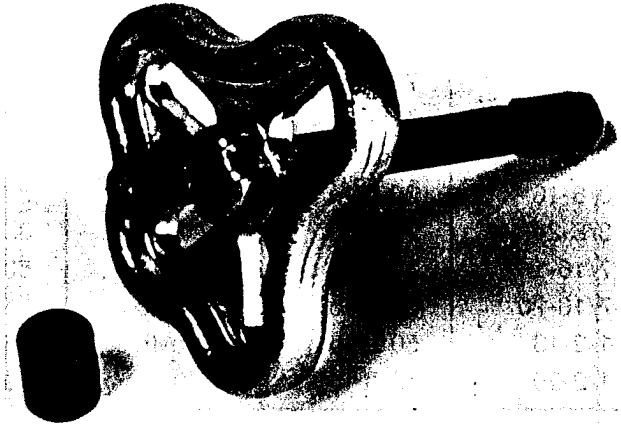
A363

**0144-115**  
**Bearing Puller Shells**  
For 4000 & 5000 Series Spirit engines.



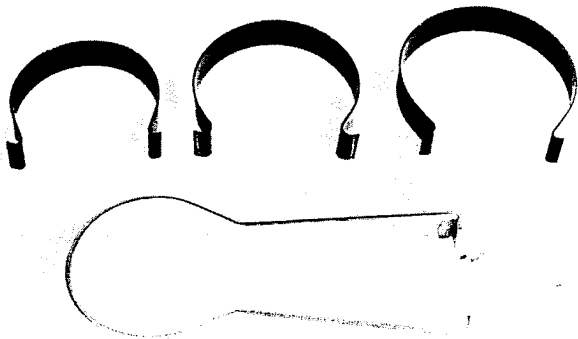
A354

**0144-113**  
**Fan Holder - Spirit Engine**  
Use to hold axial fan pulley on all axial fan Spirit engines.



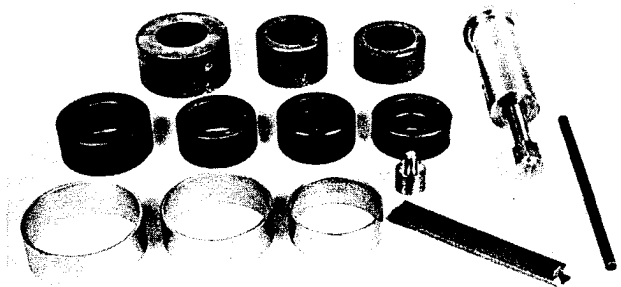
A356

**0144-112**  
**Flywheel Puller with Bolts**  
For all Arctic Cat engines.



A358

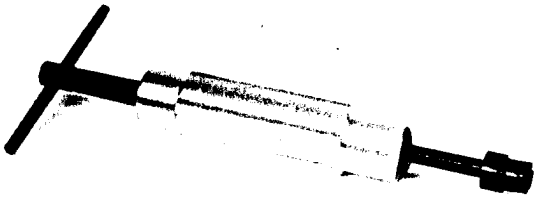
**0114-001**  
**Piston Ring Clamp with Compression Bands**  
For all Arctic Cat engines.



A361

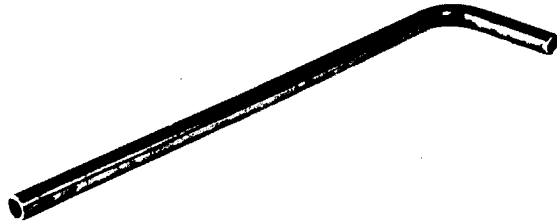
**0144-080**  
**Bearing Puller Kit**  
For all Arctic Cat engines.

**Drive System**



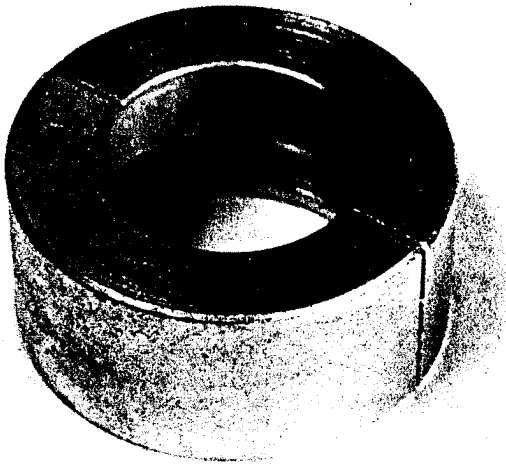
A359

**0144-003  
Piston Pin Extractor**  
For all Arctic engines.



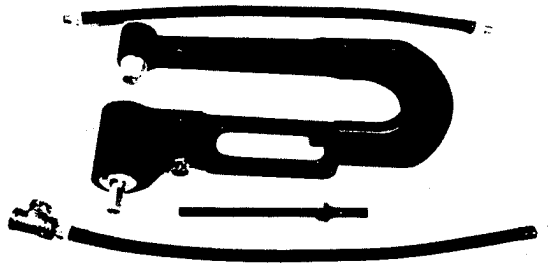
A483

**0144-124  
Suspension Spring Mounting Bar**  
For 1978 Pantera and El Tigre models.



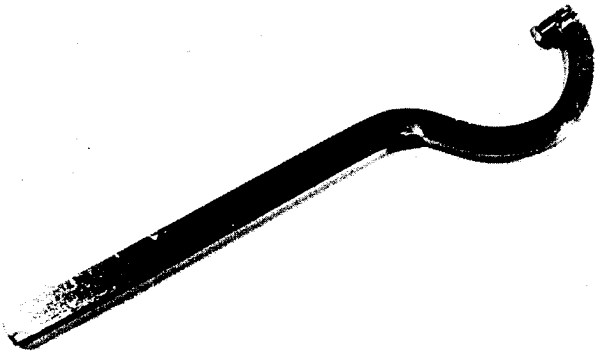
A362

**0114-114  
Bearing Puller Shells**  
For 2000 & 3000 Series Spirit engines.



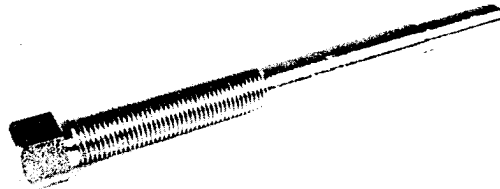
A386

**0114-094  
Solid Rivet Tool - Air Operated**  
For all Arctic Cat snowmobiles.



A352

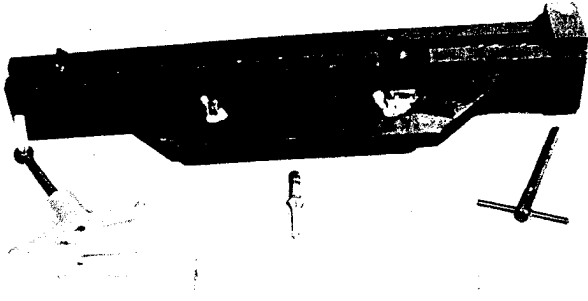
**0144-007  
Flywheel Spanner Wrench**  
Use to hold flywheel on all Arctic Cat engines.



A377

**0144-110  
Arctic Drive Clutch Puller**  
For all 1976 through 1978 Arctic Cat snowmobiles.

## Electrical

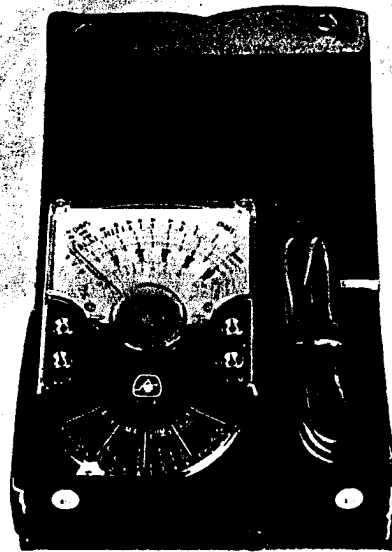


A384

**0144-067**

### **Solid Rivet Track Tool**

For tracks with solid rivets and internal drive lugs.

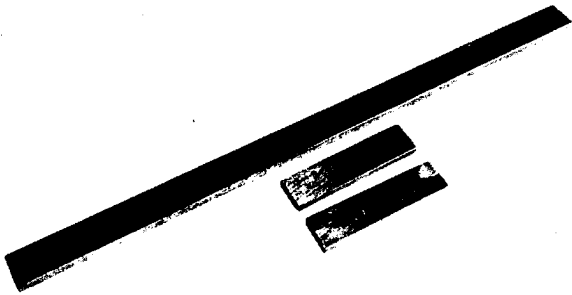


A373

**0144-053**

### **Multitester**

Use to read AC, DC volts and ohms on all Arctic Cat Electrical Systems.



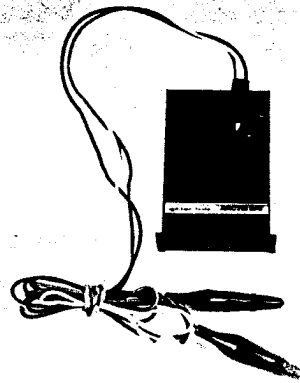
A388

**0144-097 Spacer .305"**

**0144-098 Spacer .365"**

**0144-099 Bar, Clutch Alignment**

Use on all Arctic Cat snowmobiles to check parallelism and offset between drive and driven clutches.



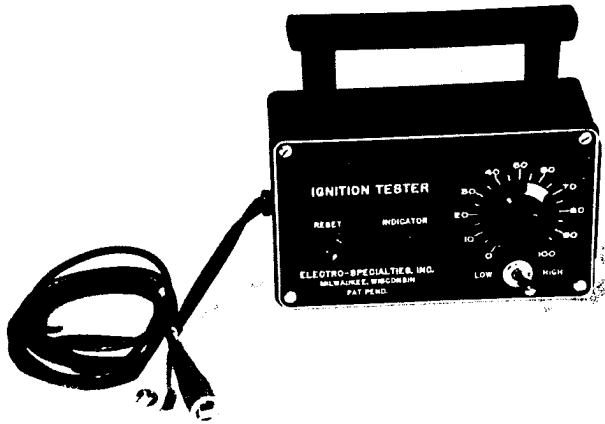
A374

**0144-010**

### **Timing Buzzer**

For all Arctic Cat engines except those with CD Ignition.

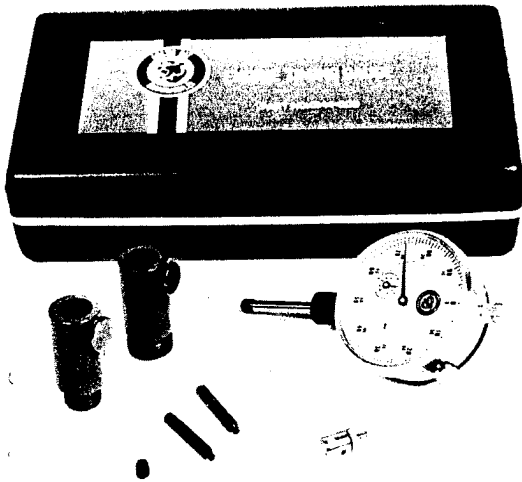
# High Altitude Kit



A369

## \*CD Ignition Tester Model 1L

For all Arctic Cat engines with CD ignition, including the Spirit engines.



A375

## 0144-009

### Engine Timing Gauge

For all Arctic Cat engines except those with CD ignition.

\*To order the electric tester, first contact the Service Manager at your distributor. If your distributor does not carry the tester, then order direct from:

Electro-Specialties, Inc.  
11225 W. Bluemound Rd.  
Wauwatosa, Wisconsin 53226

Ph. (414) 475-7550

Exact instructions for the use of electrical testers on the Arctic Cat snowmobiles are given in the Service Manual.

## High Altitude Kit

For maximum horsepower in elevations over 5000 feet, the high altitude kit should be installed. Each kit has been field tested to provide the best performance from each snowmobile.

### Pantera FC 0136-115

Kit consists of:

Part No.	Qty.	Description
0146-108	6	Weights
6505-320	1	Jet Kit, 280 & 290

■ **NOTE:** E-ring on Jet Needle in carburetor must be changed from fourth step to third step.

### Pantera FA 0136-044

Kit consists of:

Part No.	Qty.	Description
0146-106	6	Weights, 5.95 grams
6505-266	1	Jet Kit

### Panther and Cheetah 5000 0136-106

Kit consists of:

Part No.	Qty.	Description
0146-105	6	Weights
6505-314	1	Jet Kit (260 & 270 Main Jets)
6505-215	1	Jet Needle (6DH7-2)

### Panther 4000 0136-107

Kit consists of:

Part No.	Qty.	Description
0146-068	1	Spring
0146-105	6	Weights
0146-294	3	Ramp
0146-355	3	Roller/Brg. Assy.
6505-313	1	Jet Kit (240 & 250 Main Jets)

**Jag 3000 0136-112**

Kit consists of:

Part No.	Qty.	Description
0146-068	1	Spring, Compression 64 lb.
0146-106	6	Weights, 5.958 gm x .530 - Red
6505-316	1	Jet Kit Main - (180 & 190 Main Jets)

■ **NOTE: E-ring on jet needle in carburetor must be changed from third step to second step.**

**Jag 2000 0136-113**

Kit consists of:

Part No.	Qty.	Description
0146-175	6	Weights, 3.725 gm x .437 - Red
6505-315	1	Jet Kit Main - (160 & 170 Main Jets)

■ **NOTE: E-ring on jet needle in carburetor must be changed from third step to second step.**

**Lynx T 0136-108**

Kit consists of:

Part No.	Qty.	Description
0146-175	6	Weights
6505-269	1	Jet Kit (130 & 140 Main Jets)

■ **NOTE: E-ring on jet needle in carburetor must be changed from third step to second step.**

**Lynx S 0136-109**

Kit consists of:

Part No.	Qty.	Description
0146-068	1	Spring
0146-175	6	Weights
6505-312	1	Jet Kit (120 & 130 Main Jets)

■ **NOTE: E-ring on jet needle in carburetor must be changed from third step to second step.**



**ARCTIC ENTERPRISES, INC.**  
THIEF RIVER FALLS, MINNESOTA 56701