

SCORPION

OPERATOR'S MANUAL

1975 WHIP



DESIGNED & MANUFACTURED BY

SCORPION INC.

CROSBY, MINNESOTA 56441



CONGRATULATIONS

Welcome to Scorpion: THE SHAPE OF THINGS TO GO.

You've chosen the finest machine to be seen on the snows this year, the 1975 Scorpion Whip.

To help you enjoy your machine to the fullest, this manual has been prepared by its designers and engineers.

Read it thoroughly and carefully before operating your Whip.

Keep the manual with the machine at all times for quick reference.

It spells out in easily-understood terms the normal maintenance procedures that will help keep your machine safe and dependable.

Read it through . . . start your engine . . . and happy snowmobiling.

TABLE OF CONTENTS

IDENTIFICATION	2
PRE-OPERATING TIPS	4
CONTROLS/INSTRUMENTS	7
MIXING FUEL	10
BREAK-IN PROCEDURE	11
STARTING PROCEDURES	12
MAINTENANCE TIPS	14
SERVICE INTERVAL CHART	15
SPARK PLUG REPLACEMENT	16
HEADLIGHT ADJUSTMENT	18
BRAKE ADJUSTMENT	20
SKI ALIGNMENT	21
CARBURETOR ADJUSTMENT	23
THROTTLE CABLE ADJUSTMENT	24
BELT REPLACEMENT	25
TRACK ADJUSTMENT	28
SUSPENSION ADJUSTMENT	30
BULB REPLACEMENT	31
TROUBLE SHOOTING	33
SUMMER STORAGE	37
PREPARATION FOR WINTER	38

IDENTIFICATION

The model and serial numbers on your machine are very important and the identification plate should not be removed. It is suggested that you record them in the space provided below. The serial number is also embossed in the frame of the machine. It is the same serial number as appears on the identification plate.

Machine Serial Number

Model Number

Engine Serial Number

IMPORTANT: BE SURE YOUR SCORPION DEALER HAS REGISTERED YOUR MACHINE BY SENDING THE WARRANTY CARD TO THE FACTORY.

WHIP SPECIFICATIONS

	340	400	440
	091136	09113	091137
Bore	2.362	2.559	2.657
Stroke	2.362	2.362	2.362
Displacement	338cc	399cc	428cc
Point Gap	.015	.015	.015
Timing - Full Advance	.110	.110	.110
Spark Plug	CONSULT YOUR SCORPION DEALER		
Fuel Capacity - Gallons	6	6	6
Headlight Bulb No.	A5989	A5989	A5989
Taillight Bulb No.	1035	1035	1035
Stoplight Bulb No.	1035	1035	1035
Speedo/Tach Bulb No.	GE53	GE53	GE53
Overall Length - In.	102	102	102
Overall Width - In.	36 1/4	36 1/4	36 1/4
Overall Height* - In. * W/O Windshield	34	34	34
Track Width - In.	16	16	16

PRE-OPERATING TIPS

Know the Federal, State and Local laws pertaining to snowmobiling.

Register or license and insure your snowmobile.

Read your Operator's (Owner's) Manual before riding.

Learn your controls. Know how to stop in an emergency. Check all lights. Operate the throttle and brake controls several times before you start the engine to insure that they are not frozen.

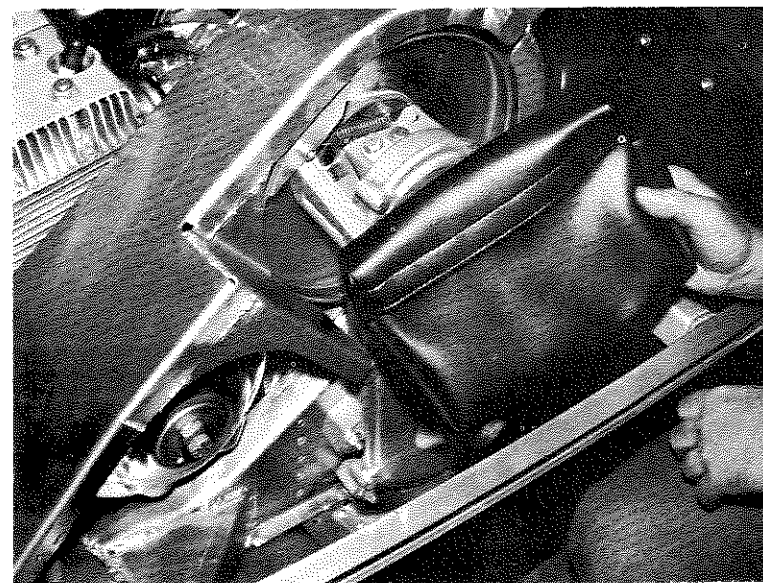
Provide inexperienced operators with proper instructions before allowing them to use your snowmobile.

Clean your windshield with a clean cloth. Solvents or abrasive cleaners will damage it.

When fueling, leave some expansion space in the tank. As you run, heat from the engine will cause the gasoline to expand and it may overflow the tank.

Load your snowmobile within safe limits. Use a tow sled to carry extra provisions.

PRE-OPERATING TIPS



TOOL POUCH

Recommended tools and spare parts to carry in your machine are:

TOOLS

Screwdriver
Vise Grips
1/2 and 9/16 Open End Wrenches
Rockwell Tool Kit
(Supplied With Snowmobile)

SPARE PARTS

Drive Belt
Spark Plugs
Headlight Bulbs
Taillight Bulbs

This list is minimal and should be augmented as additional or special needs become apparent.

SAFE DRIVING TIPS

Observe all Federal, State and Local laws.

Take special precautions when loading your snowmobile on to a trailer. Secure the machine firmly to the trailer when it is in position. Be sure that the trailer lights operate.

Use both hands for steering.

Observe your fuel supply regularly.

Keep your lights operable and free of snow when driving at night.

Keep all protective guards, hoods and shields in place while riding.

Maintain a safe distance between your machine and the one ahead of you.

Keep your speed suitable for the operating conditions. Remember that ice requires a greater stopping distance.

Observe all posted snowmobile signs. Not all private landowners allow snowmobiling on their property.

Stop and help a distressed snowmobiler. You may be in a similar situation sometime.

When crossing roads or highways, always stop, look both directions, then cross at a 90 degree angle. Post guards when crossing in groups.

Keep your feet on the running boards while the machine is in motion. Be especially careful when freeing your machine from deep snow.

Mentally practice what to do in an emergency, so that if a situation should arise, proper reactions will be automatic.

When clearing the track of snow and ice, tilt the machine toward the left running board. Keep hands and feet clear of the track. Keep all persons clear of the area.

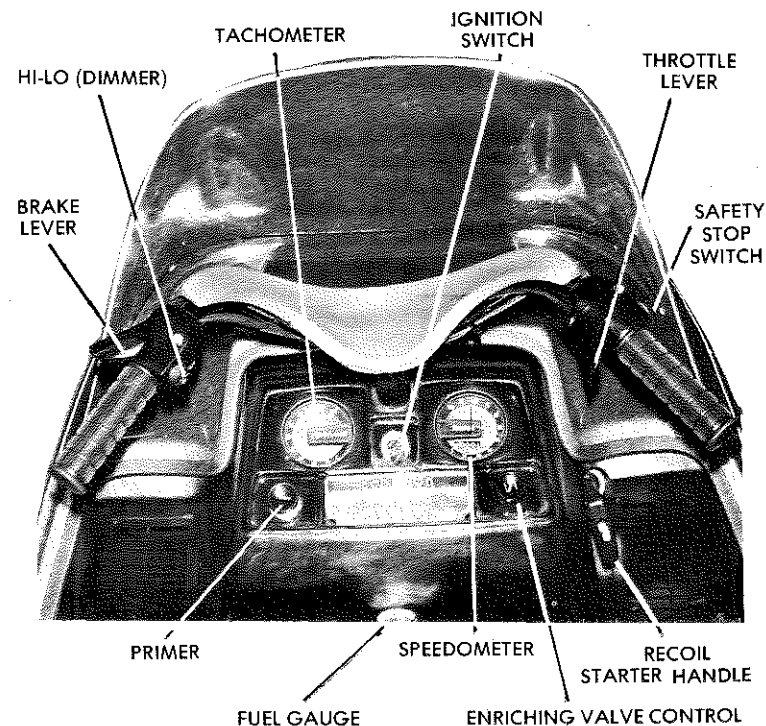
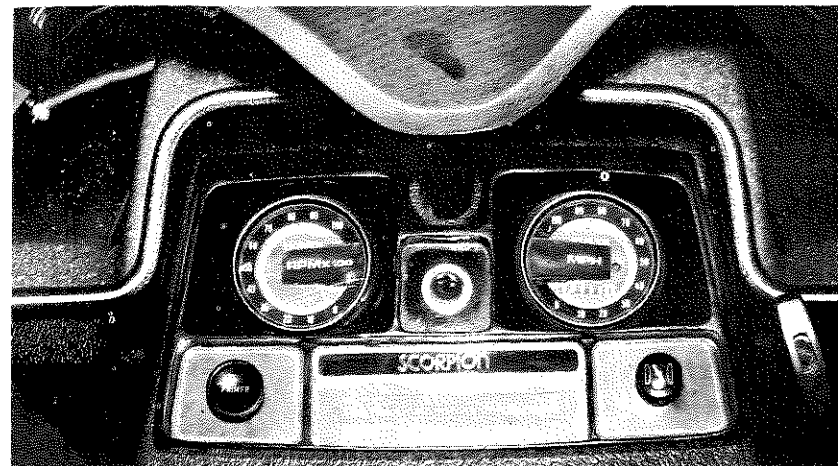
Never open new trails at night. Follow established routes.

Avoid avalanche areas, railroad tracks, thin ice, ski slopes and any other unsafe terrain.

Chasing or molesting wild animals while riding a snowmobile is poor sportsmanship AND is illegal.

CONTROLS AND INSTRUMENTS

DESCRIPTION/FUNCTION



CONTROLS/INSTRUMENTS DESCRIPTION AND FUNCTION

1. BRAKE LEVER — The brake lever is located for convenient gripping action with the fingers of the operator's left hand. When the lever is "compressed" toward the handle bar, braking action will slow or stop the machine's forward action, depending on lever force. The brake will release when pressure is removed from lever. Note: (See MAINTENANCE Section for description of brake adjustment)

2. HI-LOW BEAM SWITCH — This is a two position switch located in the brake lever bracket, adjacent to the driver's left thumb. Push the switch to the "IN" position for low beam headlight. Push again and allow the switch to return to the "OUT" position for high beam.

3. BRAKE LIGHT SWITCH — The switch is located in the brake lever bracket, also. It is actuated whenever you apply the brake. It automatically signals other following snowmobiles, of your intention to slow down or stop by turning on a "stop light" at the rear of the machine. No adjustment is needed for this switch.

4. THROTTLE LEVER — The throttle lever is used to control the speed of the engine. It is located on the handlebar convenient to the operator's right hand and is actuated by thumb pressure. Engine speed is directly proportional to the amount of lever movement. When pressure is removed from the lever, it automatically returns to the idle position. Correct throttle cable adjustment is explained in the MAINTENANCE Section.

5. SAFETY STOP SWITCH — All current model Scorpions have been equipped with a Red Emergency Stop Switch located in the throttle lever bracket for right-hand operation. When depressed, this switch immediately stops the engine.

To restart the engine, the switch must be again depressed in order to return to the released or run position.

NOTE: Check safety stop switch periodically to be certain that it functions properly.

6. TACHOMETER - The engine RPMs are indicated in the range from 0 to 10,000. The tachometer dial is back lighted for easy viewing during night driving. Caution orange highlights the dial between 4,000 and 7,000 RPM. This range is slightly above the normal RPM of the engine (6,750). Under some operating conditions, the needle may read here and is to be expected. The dial is red-lined starting at 7,000 RPM and above. Operation in this region is hazardous to both the operator and the machine.

7. SPEEDOMETER — The speedometer dial indicates the velocity of the machine in miles per hour and total distance traveled in miles and tenths of miles.

The dial face is "orange-lined" for caution from 40 MPH to 60 MPH and "red-lined" at 60 MPH and above.

At night, with LIGHTS on, the dial numbers are back lighted for easy viewing. The numerals from 30 MPH and up are lighted red as a reminder to slow down for safer night driving. REMEMBER! Overdriving your headlight is dangerous.

8. PRIMER - The primer, located on the left side of the console just below the tachometer is a piston type pump. Pumping the primer puts fuel directly into the engine to aid the engine when cold-starting. (SEE STARTING PROCEDURE SECTION).

9. ENRICHING VALVE CONTROL - The Enriching Valve Control is located on the right side of the console just below the speedometer.

The Enriching Valve increases the fuel-to-air ratio on the float carburetor when the control is in the "UP" position. It will not function as intended if the throttle lever is depressed. During engine warm up, the control may be in the "UP" position. The engine will not flood out. (See STARTING PROCEDURE).

10. RECOIL STARTER - The Recoil Starter handle is located on the right side of the console. Pull outward to start the engine. (See STARTING PROCEDURE SECTION). Never allow the handle to "snap" back.

11. IGNITION SWITCH - The ignition switch is key operated for security. Turn the switch to "ON" for manual start and normal daylight running. Turn to "LIGHTS" for night driving. The "START" position is used for starting engines with electric start only. The switch is spring loaded so it will automatically return to "ON" when released from the "START" position.

A lock-out feature is provided on "electric-start" sleds. This prevents accidental re-engagement of the starter pinion into the ring gear of a running engine. In event of a false start, the ignition switch must be returned to "OFF" before you can again engage the starter motor (turn key to "start" position).

Turn the ignition switch "OFF" to stop the engine and remove the key when leaving the machine unattended.

MIXING FUEL

The two cycle engine that powers your WHIP requires that oil be mixed with the gasoline for engine lubrication. Use clean, fresh, regular (leaded) gasoline, 90 octane or higher for 340s. Use premium gasoline in 400s and 440s.

NOTE: It is imperative to maintain the correct ratio. Too much oil will cause spark plug fouling and excessive smoke. Too little oil will cause engine damage from inadequate lubrication.

Scorpion Snowmobile oil is carefully formulated and packed in special containers so that the addition of one container of oil to five (5) gallons of gasoline will result in the correct gasoline/oil mixture.

Perform the following steps in mixing the fuel:

1. Put 2½ gallons of gasoline in a clean container.
2. Add one can of Scorpion Snowmobile oil.
3. Shake the container vigorously.
4. Add the remainder (2½ gallons) of gasoline.
5. Agitate the container thoroughly again.
6. Use a clean funnel with a fine metal screen to pour the fuel mixture into the gas tank.

WARNING!!! GASOLINE IS DANGEROUS. DO NOT REFUEL WHEN SMOKING, NEAR OPEN FIRES, OR WHEN YOUR ENGINE IS RUNNING.

Always keep your fuel container and fuel system clean. Dirty fuel can cause engine failure which might leave you stranded.

Do not attempt to mix gasoline and oil in your gas tank. Improper mixing of the fuel/oil will result. Engine damage could occur.

40:1 fuel ratio

BREAK-IN PROCEDURES & SUGGESTIONS

1. Operate the engine at varying part throttle and light load for the first ten (10) hours of operation.
2. When "cold" starting, allow your engine to warm up approximately one minute before accelerating into motion.
3. The carburetor has been preset at the Factory for adequate fuel supply. If for any reason you feel some adjustment is necessary, consult your dealer.
4. Stop occasionally and look over your sled. Inspect the track, skis, steering system, drive belt, exhaust system. Check the fuel supply. Become familiar with your Whip.

STARTING PROCEDURE

COLD START:

1. Turn key to the "ON" position.
2. Check Safety Stop switch. (Must be in run position)
3. Pull "Enriching Valve Control" out.
4. Pump the primer two (2) times (if machine is so equipped).
5. Grasp recoil starter handle, pull slowly to engage mechanism, then pull sharply!
6. Allow engine to run briefly, then push the Enriching Valve Control in.

WARNING!! DO NOT PULL THE STARTER ROPE TO ITS FULL EXTENDED POSITION OR ALLOW IT TO "SNAP" BACK INTO THE HOUSING. DAMAGE CAN RESULT!

HOT START:

1. Turn key to the "ON" position.
2. Check Safety Stop Switch.
3. Grasp recoil starter handle, pull slowly to engage mechanism, then pull sharply!

FLOODED START:

1. Be sure the key is "ON".
2. Check Safety Stop switch.
3. Depress the throttle lever all the way down!
4. Grasp recoil handle, pull slowly to engage mechanism, then pull sharply!

NOTE: Do not pull Enriching Valve knob up or pump primer on a flooded engine!

WARNING!! HOLDING THE THROTTLE LEVER DEPRESSED MAY CAUSE THE ENGINE TO "REV" UP AND ENGAGE THE CLUTCH! THIS WILL CAUSE THE MACHINE TO START INTO MOTION. BE PREPARED TO RELEASE THE THROTTLE LEVER WHEN ENGINE STARTS. CONTROL YOUR MACHINE!

EMERGENCY STARTING

If it is necessary to start your snowmobile when normal starting systems are inoperative, use the following procedure:

1. Open the belt guard.
2. Remove the nylon starting rope from your tool kit. **NOTE:** The rope is supplied with the machine. Always keep it in your tool box.
3. Slip the knotted end of the rope in the slot and wrap the rope around the drum (counterclockwise).
4. Pull the rope to start the engine.
5. Reposition the belt guard as soon as the engine is running.

NOTE: Practice this procedure at least once so that you will be familiar with it if you ever are required to use it in an emergency situation.

TIPS

MAINTENANCE

1. Check over your snowmobile regularly. This will prevent many problems from developing.
2. Always turn off your engine before attempting to make repairs.
3. Check skis and other steering components regularly to insure that all bolts are tight and in good condition. Worn, damaged or loose steering components are unsafe.
4. Frequently inspect the drive belt and replace it as necessary. A belt that has been worn unevenly or "burned" because of slippage may fail without warning. Always carry a spare to prevent an emergency situation.
5. Keep fingers from between sheaves of driven clutch when removing belt. Movable sheave is spring loaded and could injure your fingers.
6. Exercise care in filling the fuel tank while engine is hot. Fuel could drip or splash on hot engine or muffler and ignite. Always stop engine before refueling.
7. Be sure that all protective devices (hood, belt guard, etc.) are in place before operating your machine.
8. If your safety stop switch has been used in an emergency situation, the source of the malfunction should be determined and corrected before re-starting the engine.
9. Before checking track adjustment, be sure that the track is free of all particles that could be thrown out while track is rotating. Keep hands, feet and clothing clear of the track.
10. Once a year, the driven and drive clutches on your snowmobile should be disassembled, cleaned and checked for worn parts. This service will keep your machine in top operating condition.

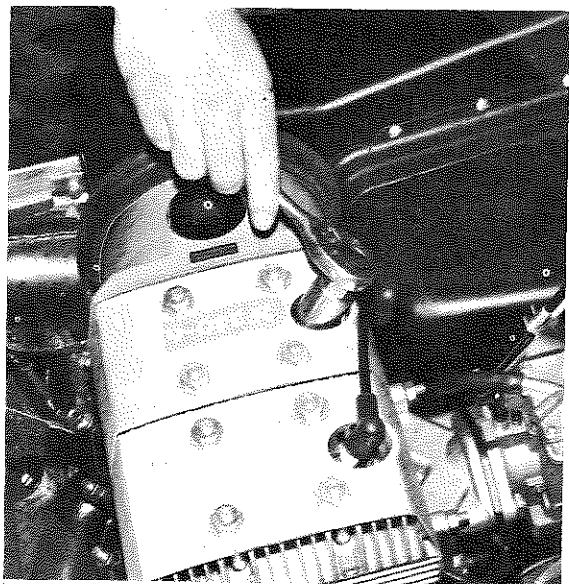
NOTE: Special tools and training are required for such maintenance; see your Scorpion Dealer.

11. Check fuel tank filter regularly; a dirty or plugged filter will cause engine damage. Remove filter, clean off any foreign matter and blow filter out with air.
12. Do not run your engine at high RPM with the drive belt removed or with the track raised off the ground. Either practice may be detrimental to the engine and hazardous to the operator.
13. In the event of replacement of the gas tank, tighten hold-down strap only until it is snug against the tank. Over-tightening will stress the tank.

SERVICE MAINTENANCE INTERVAL CHART

ITEM	INSPECT— EACH TIME OF USE	MONTHLY	START OF SEASON	DEALER ONLY
Brake	X		X	
Carburetor			X	X
Chain Case Oil		X	X	
Chain — Sprockets			X	X
Covers—Guards	X		X	
Drive Belt	X		X	
Drive Clutch			X	X
Driven Clutch			X	X
Electric Start		X	X	X
Electric Wires	X		X	
Engine		X	X	X
Fan Belt (Engine)		X	X	
Fuel System	X		X	
Lights	X		X	
Muffler			X	X
Nuts and Bolts — Tighten		X	X	
Para-Rail Adjustment		X	X	X
Spare Parts	X		X	
Speedometer Cable			X	X
Steering	X		X	
Suspension System	X		X	
Throttle	X		X	
Tools	X		X	
Track	X		X	
Track Adjustment		X	X	
Windshield—Clean	X		X	
Skis—Wear Rods	X		X	

SPARK PLUG USE/REPLACEMENT



Spark plugs will require your attention. The primary purpose of the spark plug is to ignite the compressed gas/air mixture in the cylinder, converting it into thermal energy. The condition of the plug will determine to a great extent, how efficiently the engine will operate.

A spark plug must operate under a variety of engine conditions; heat, pressure, vibration and foreign deposits. A single plug has not been developed for all conditions.

The plugs installed in your Scorpion at the Factory are the normal heat range, i.e., best suited for all around normal service.

If prolonged low speed, light duty is expected, it is recommended that a "hotter" plug be used to prevent plug fouling. (Consult your dealer).

If prolonged high speed or other heavy duty usage is anticipated switch to a "cold" plug to prevent pre-ignition and piston failure.

The appearance of the spark plug is an extremely important guide to engine performance and proper spark plug application.

- a. A spark plug that is the correct heat range will show a light tan color on the insulator nose. The plug is retaining the correct amount of heat to burn off unwanted deposits, but not enough to cause damage.
- b. A plug that is too cold will not retain sufficient heat to cause cleaning of the insulator and electrode tip. There will be a layer of unburned residue of gummy oil deposits or black fluffy carbon or both. The color of the insulator will vary from very dark brown to black.
- c. If the plug is too "hot", all the deposits will be burned off and very possibly the insulator and electrode will begin to melt from the heat. The insulator will be white, perhaps shiny, with small gray, white, blue, green or purple dimples or bumps near the tip. The very tip will probably be distorted since it is the hottest point. The electrode will be burned. An increased electrode gap in a very short time is an indication of excessive heat.

IMPORTANT!! Always start your machine with Factory installed plugs. Use hot plugs only if fouling is encountered and proper carburetor adjustments do not correct the condition. Switch to cold plugs if burned plugs are experienced and the condition cannot be corrected by other trouble shooting means. See Trouble Shooting section.

The spark plugs should be checked for appearance and gap each 250 miles during the riding season.

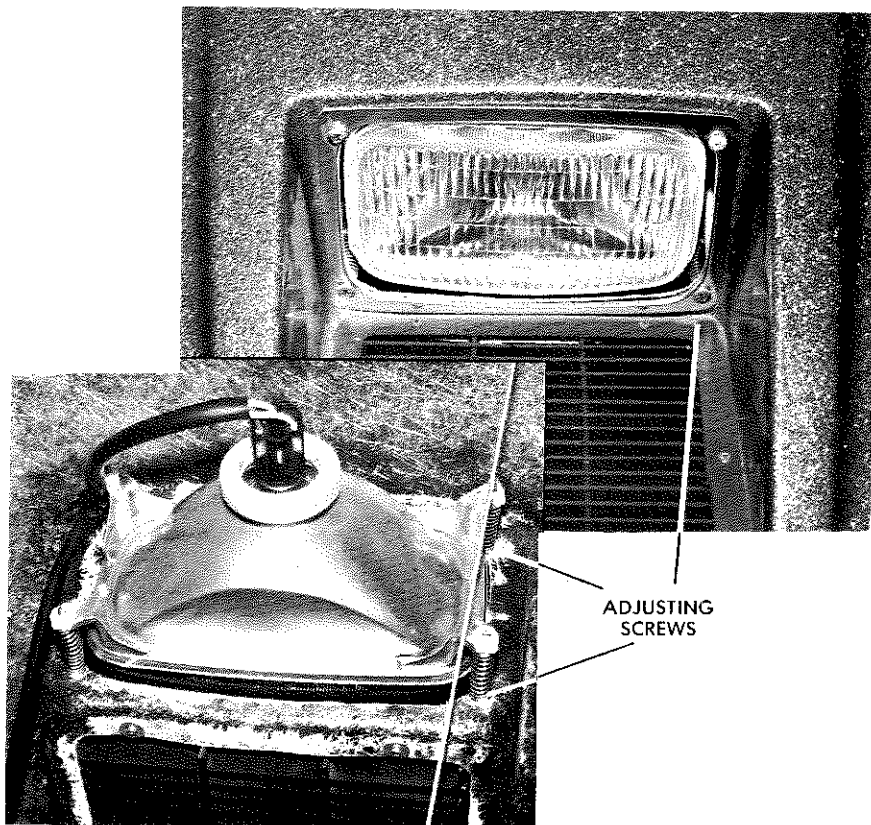
It is recommended that new plugs be installed at the beginning of every snowmobile season.

HEADLIGHT ADJUSTMENT

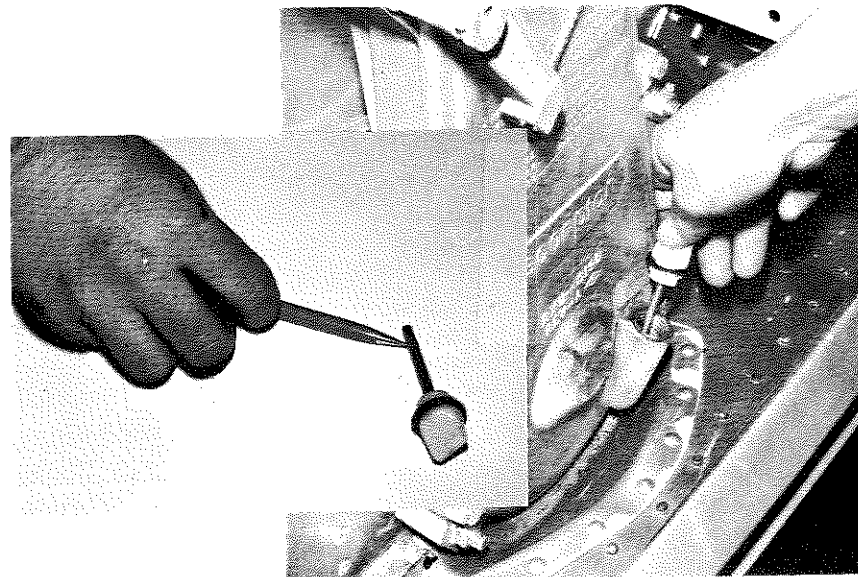
To properly adjust the headlight on your machine, do the following:

1. Place the machine on a level, flat area.
2. Check to make sure that the hood fits down properly against the stops and that the hood latches are securely in place.
3. Start the engine and idle, turn on headlight.
4. Sit on the machine in the normal operating position.
5. Place the high/low switch in the "high" position.
6. The headlight should now be adjusted so that the center beam pattern will illuminate an object at ground level approximately 300 ft. directly ahead of the machine.

NOTE: All four (4) screws may have to be adjusted to achieve the proper headlight adjustment.



CHAIN CASE LUBRICATION



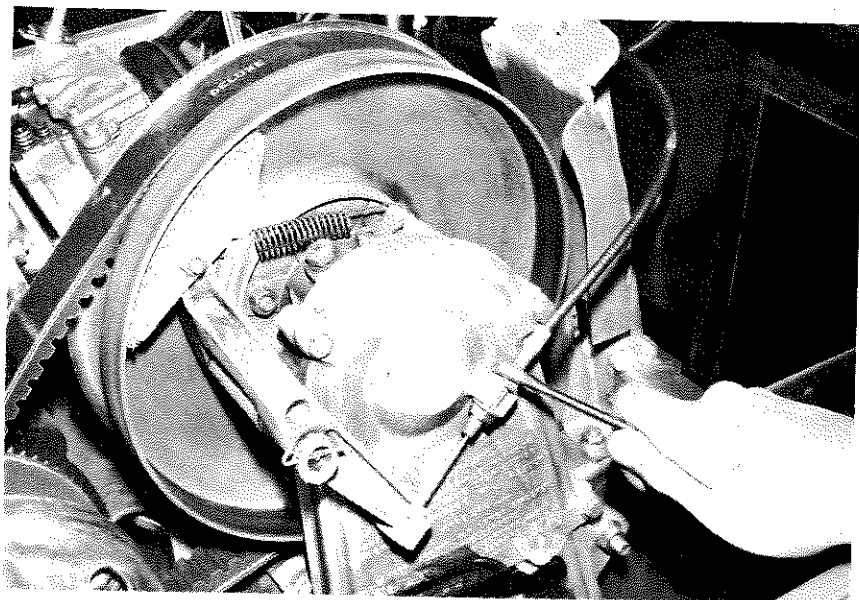
The drive chain adjustment is obtained automatically through the use of tension springs and pads. No adjustment is necessary on this model. The only maintenance that these tension springs and pads need is that proper lubrication be had at all times in the chaincase itself. Be sure you check the chaincase oil level periodically (at least every 30 days).

The proper way to check the lubricant level is as follows:

1. Remove inspection dip stick located on lower portion of chain-case cover.
2. Lubricant should register in the knurled section of the dip stick with the dip stick screwed all the way in (machine sitting on level surface).
3. If oil level is low, add a medium weight oil (suggested SAE 10W30) to proper level through dip stick opening.
4. Replace the dip stick and tighten securely.

BRAKE ADJUSTMENT

To tighten the brake, back off the lower nut on the brake cable bracket (located behind chaincase on support bar) and tighten the top nut down until the desired engagement is achieved. Rotate the driven clutch assembly to make sure that the clutch turns freely and that the brake does not "drag". Always allow at least $\frac{1}{4}$ " free travel on the brake lever handle. Check the brake lining. Be sure that it is not worn out or covered with grease. Check the chaincase air vent (bolt holding upper shaft and bearing assembly) to be sure it is open.

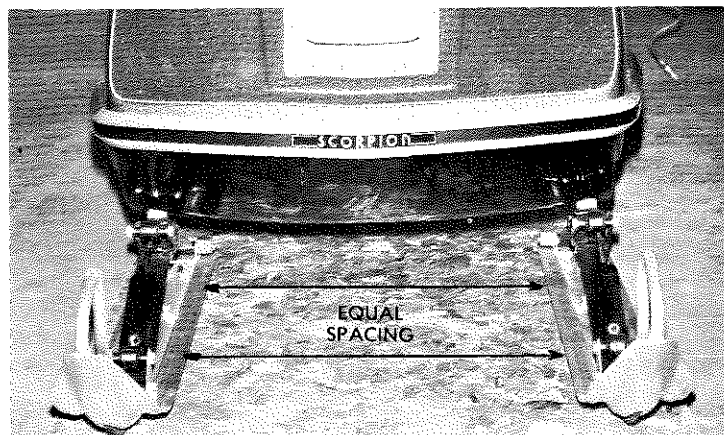


SKI ALIGNMENT

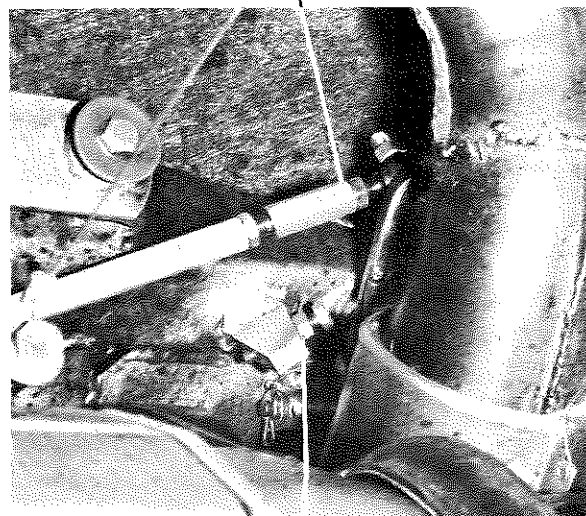
Whip snowmobiles have a degree of play in the steering system, caused by working clearances in the ball joints, spindle to ski attaching bolts and spring to ski attachments. If this play is not properly accounted for when aligning the skis, a "toe in" or "toe out" condition could exist, which results in poor handling. Ski alignment should be checked periodically, or whenever the above conditions are suspected. (See illustrations).

1. A thorough inspection of the entire steering system should be performed before realignment of the skis. Check for loose bolts, tie rods, steering arms, spindle to ski attaching bolts, bent members, etc.
2. With the machine resting on the floor or ground, grasp both ski handles and pull skis together to remove the system "play".
3. Measure the distance between the inside edges of the skis, both front and back (in area where springs attach to skis).
4. This measurement should be equal.
5. To adjust, loosen the lock nuts on the tie rods and rotate the tie rods to correct the misalignment. Both tie rods should be adjusted equally to assure that the handlebar will properly align with the skis in the straight ahead position. This is very important.
6. Re-tighten lock nuts on tie rods.

SKI ALIGNMENT/ADJUSTMENT



TIE ROD ADJUSTMENT



STEERING STOP

CARBURETOR ADJUSTMENT

IDLE SETTING

Idle adjustment is accomplished by setting the idle mixture screw first and then the idle speed screw when the engine is warm.

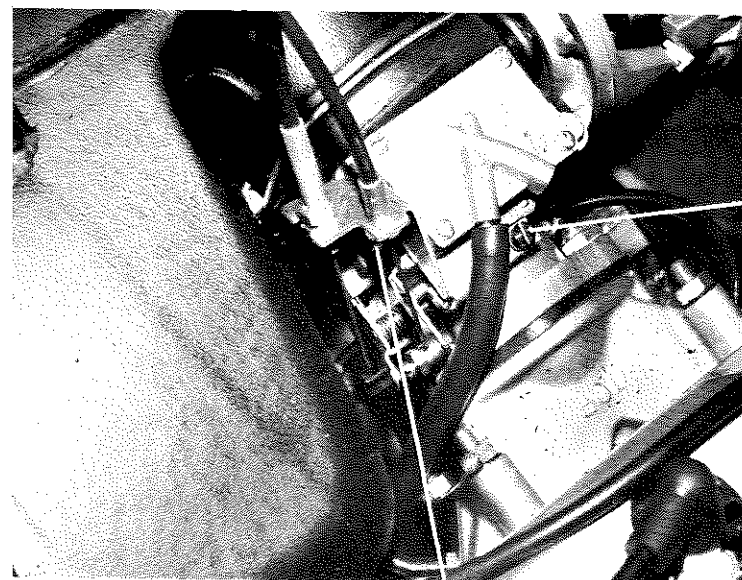
As the idle mixture screw is turned in progressively, the engine RPM will increase to some maximum value, then decrease. The idle mixture screw should be positioned at the point of highest RPM.

The idle speed screw should be turned in or out as required so that the engine RPM reads between 2,200 RPM and 2,500 RPM on the tachometer.

HIGH SPEED SETTING

The high speed setting is established by a fixed jet so that no adjustment is necessary.

NOTE: If you live in an area above 5,000 feet elevation, see your Scorpion Dealer for a high altitude jet.

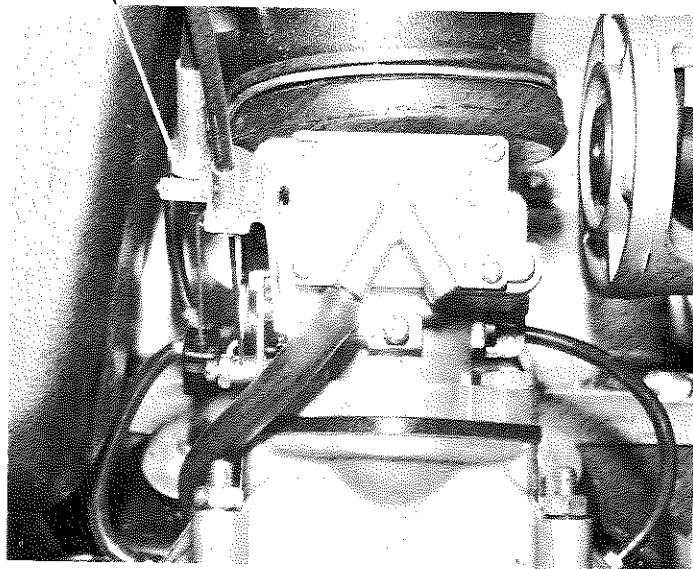


IDLE
MIXTURE
SCREW

IDLE SPEED SCREW

THROTTLE CABLE ADJUSTMENT

THROTTLE
ADJUSTING
NUT



If adjustment is necessary to obtain proper throttle lever operation, an adjusting nut is provided at the lower end of the throttle cable housing.

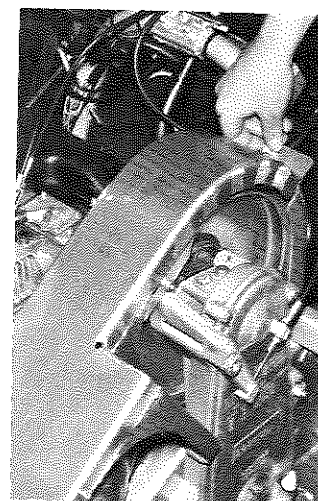
Proper operation of the throttle lever requires that the carburetor throttle arm just makes contact with the idle speed screw when the throttle arm is in the "relaxed" position. Be sure lock nut is tightened after adjustment is made.

BELT REPLACEMENT

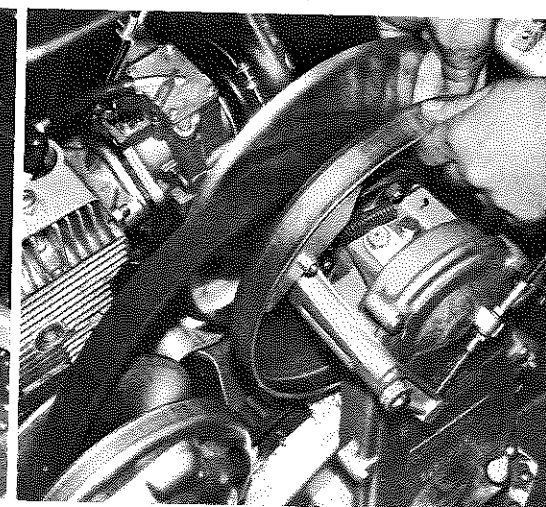
The drive belt is a "wear" item. Periodically it will have to be replaced because of slippage, wear or damage. To replace the belt, perform the following steps:

1. Open the belt guard.
2. Standing on the left side of machine, grasp the moveable sheave of the driven clutch (portion nearest steering), rotate it clockwise and push sheave toward steering column.
3. Push the belt downward to hold the driven clutch open.
4. Roll the OLD belt over the edge of the moveable sheave and remove from the driven clutch assembly.
5. Now remove the belt from the engine clutch.
6. Loop the new belt around the engine (drive) clutch.
7. Rotate the driven clutch moveable sheave clockwise again, and push it open.
8. Roll the belt on to the driven clutch over moveable sheave.
9. Push the new belt, width wise, between the sheaves to hold them open. Now roll the clutch sheaves (2) counterclockwise until the belt is in place.
10. Reposition and secure the belt guard.

STEP 1

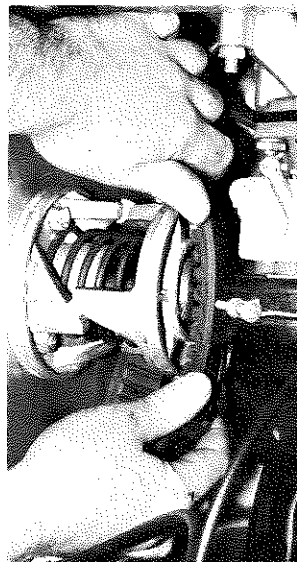
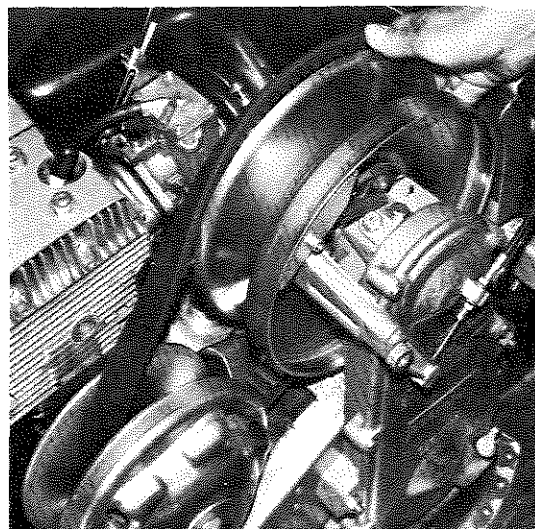


STEPS 2, 3

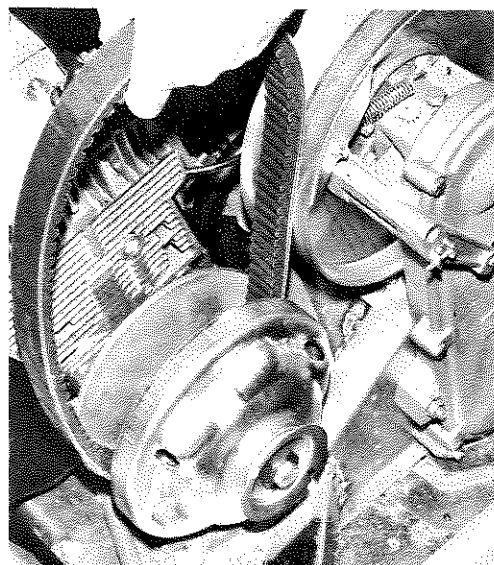


BELT REPLACEMENT

STEP 4

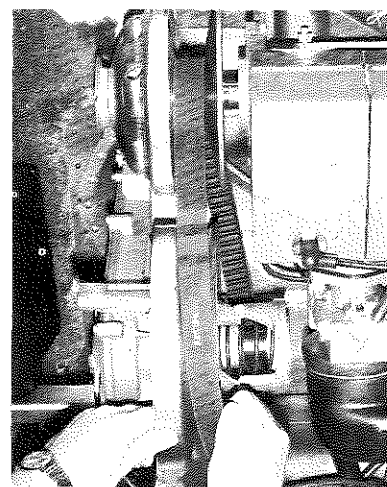


STEP 5

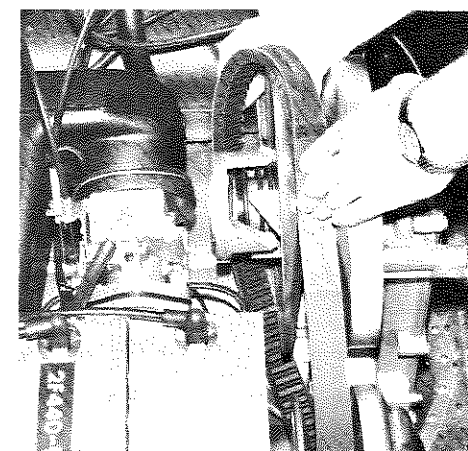


STEP 6

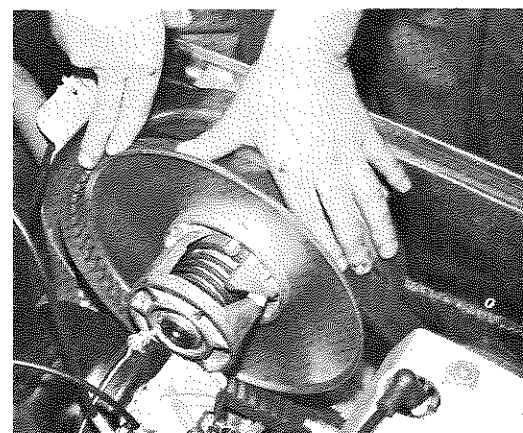
BELT REPLACEMENT



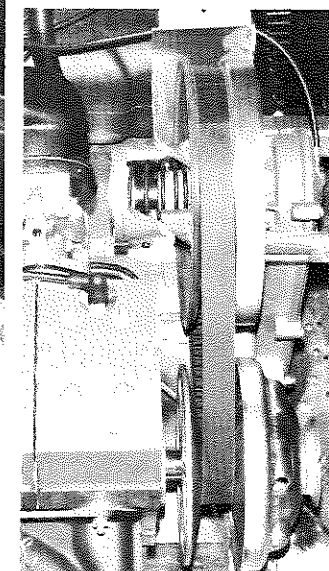
STEP 7



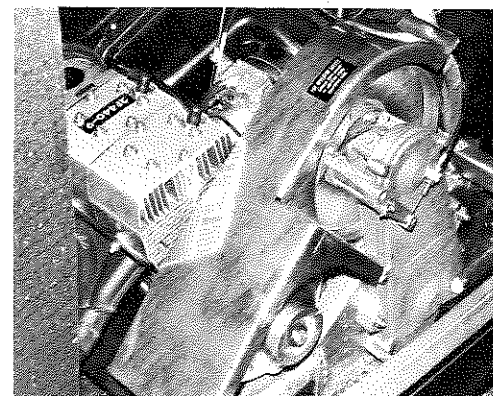
STEP 8



STEP 9



STEP 9A



STEP 10

TRACK ADJUSTMENT

Proper track tension is extremely important to assure long life of all associated components and efficiency of the track drive system.

The track tension should be checked at the following intervals:

1. When the machine is new (dealer preparation).
2. After the first 10 hours.
3. Every 30 days, or 200 miles of operation.
4. At the start of each snow season.

The following procedure applies for adjusting track tension:

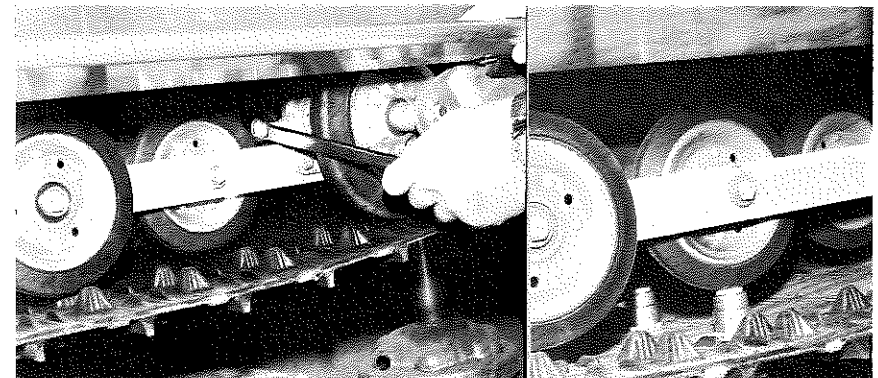
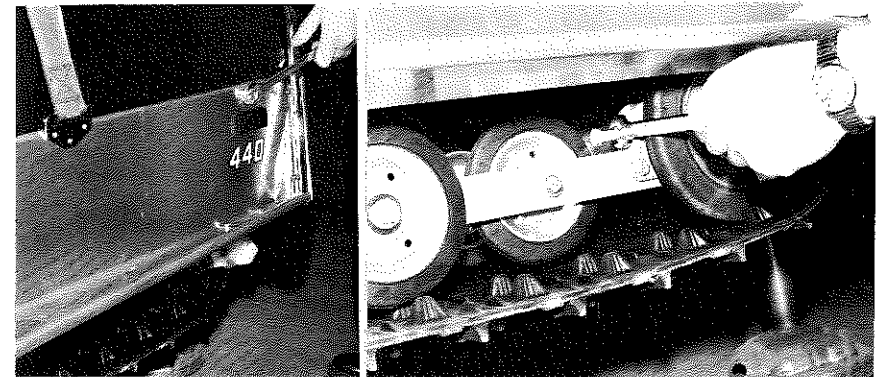
1. The track should be at room temperature or should have been recently run to remove any stiffness, caused by cold weather.
2. Elevate the rear of the machine.
3. Adjust each "Track Jack" to one and one quarter inch ($1\frac{1}{4}$).
4. Insert both "Track Jacks" between the track and both bogey wheels, located on the third bogey axle, ahead of the rear idler wheels. (Picture)
5. If the track is properly tensioned, the green ring should be just visible or aligned with the lip of the cylinder. Adjustment is required if the green ring is not visible, or is above the lip of the cylinder.
6. To make adjustment, loosen the lock nuts on the track adjustment bolts, as well as the rear suspension mounting screws (rear of tunnel just below seat), and either tighten or loosen the adjustment bolts until proper adjustment is measured on both "Track Jacks" (green ring aligned with lip on cylinder).
7. Retighten the lock nuts on the track adjustment bolts, as well as the rear suspension mounting screws.

NOTE: "Track Jack" is available at your Scorpion Dealer. It is an accessory item.

TRACK ADJUSTMENT

IN THE EVENT "Track Jacks" are not available the following procedure may be employed to achieve track tension:

1. The track should be at room temperature or should have been recently run to remove any stiffness, caused by cold weather.
2. Elevate the rear of the machine.
3. Apply ten (10) lbs. of force or weight evenly distributed across the track under both bogey wheels, located on the third bogey axle, ahead of the rear idler wheels.
4. To make adjustment, loosen the lock nuts on the track adjustment bolts, as well as the rear suspension mounting screws (rear of tunnel just below seat), and either tighten or loosen the adjustment bolts to achieve the $1\frac{1}{4}$ inch clearance between track and bogey wheels.
5. Remove ten (10) lbs. force or weight and retighten the lock nuts on the track adjustment bolts, as well as the rear suspension mounting screws.



SUSPENSION ADJUSTMENT

The rear spring adjustment governs preload and should be correlated with the weight of the rider or riders normally using the machine.

Too much spring tension will result in a harsh ride and increases the weight carried on the skis, thus increasing steering effort.

Too little spring tension will result in the bottoming out of the suspension, a harsh ride and shortened life to the suspension components will occur.

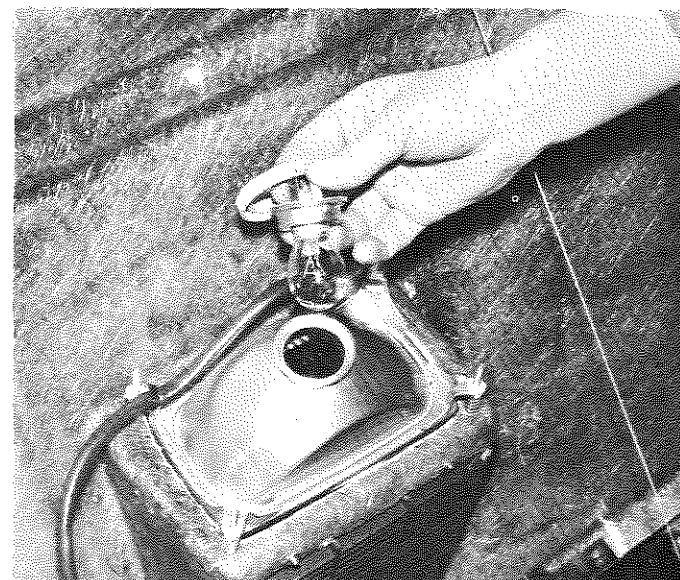
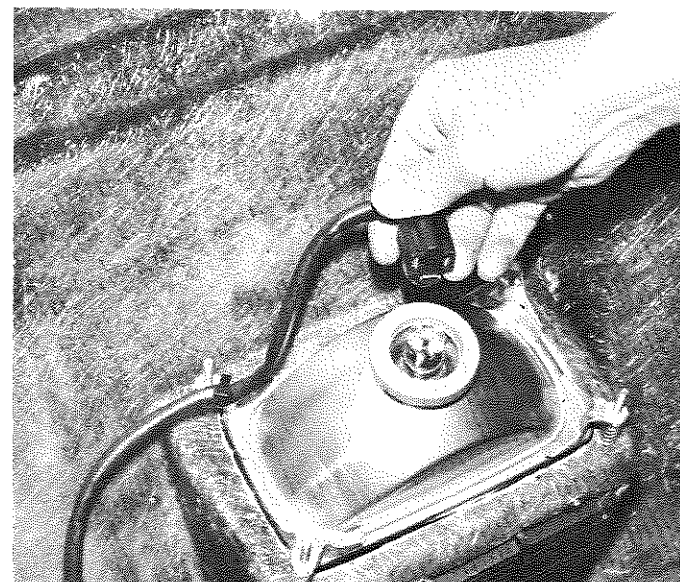
1. The proper spring tension may be obtained by having the rider(s) sit on the machine, in the normal sitting position and measure the distance between the floor and the bottom of the running board at the rear of the machine (either side). This measurement should be $4\frac{1}{2}$ " to 6".
2. To adjust, loosen the nuts on the eye bolts and adjust accordingly, making certain that each spring is tightened or loosened the same amount.
3. Repeat Step 1, and tighten the nuts on the eye bolts securely when the $4\frac{1}{2}$ " to 6" measurement is attained.

NOTE: When 300 lbs. (combined passenger weight) is normally carried on machine, a "heavy duty" spring kit should be installed on machine. This kit is available at your Scorpion dealer. It is an accessory item.

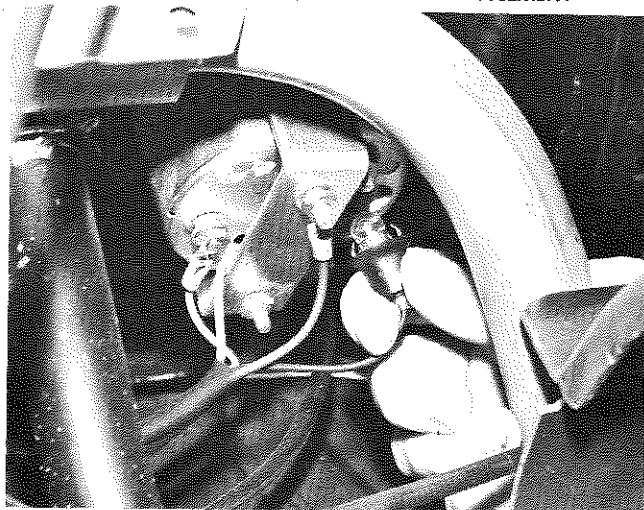


ELECTRICAL

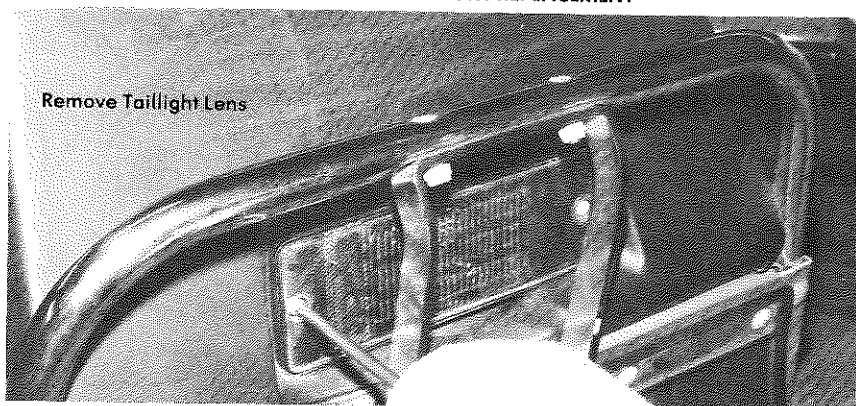
HEADLIGHT BULB REPLACEMENT



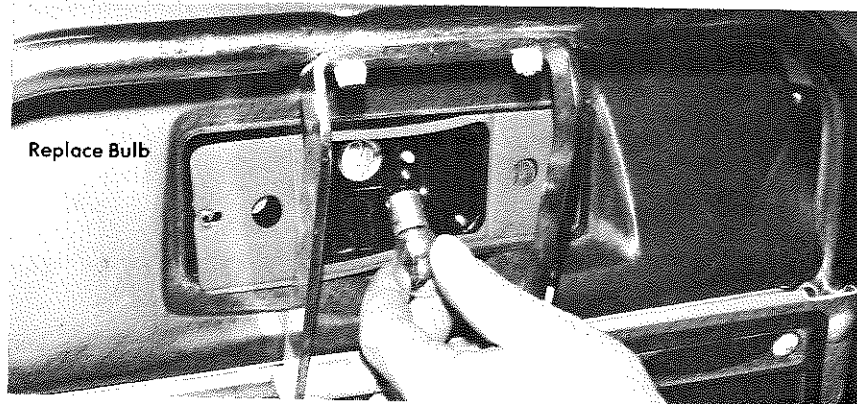
TACHOMETER/SPEEDOMETER BULB REPLACEMENT



TAILLIGHT/BRAKE LIGHT REPLACEMENT



Remove Taillight Lens



Replace Bulb

TROUBLE SHOOTING

1. ENGINE WILL NOT START OR STARTS WITH DIFFICULTY

POSSIBLE CAUSE	REMEDY
a. No fuel in tank	Fill tank with clean, fresh fuel/oil mixture.
b. Obstructed fuel line or filter	Clean fuel line and/or replace filter.
c. Fuel tank cap vent hole obstructed	Clear small hole in gas gauge crystal.
d. Water in fuel	Drain tank, clean tank, carburetor and fuel lines. Dry spark plug electrode. Fill tank with clean, fresh fuel/oil mixture.
e. Engine flooded	See Starting Procedures.
f. Improper carburetor adjustment	Adjust carburetor.
g. Loose or defective wiring	See your Scorpion Dealer.
h. Fouled or faulty spark plug	Replace spark plug.
i. Poor compression	See your Scorpion Dealer.

2. ENGINE KNOCKS
A number of possible problems may exhibit this symptom; carburetor adjustment too lean, carbon in combustion chamber, loose or worn connecting rod or bearing, pistons, or incorrect magneto timing. In any event, if this condition occurs, SEE YOUR SCORPION DEALER.

3. ENGINE MISSES UNDER LOAD

POSSIBLE CAUSE	REMEDY
a. Spark plug fouled or improperly gapped	Clean and regap or replace spark plug.
b. Spark plug porcelain cracked	Replace spark plug.
c. Improper carburetor adjustment	Adjust carburetor.

4. ENGINE LACKS POWER

POSSIBLE CAUSE	REMEDY
a. Improperly timed	Consult your Scorpion Dealer.
b. Loss of compression	Consult your Scorpion Dealer.
c. Carburetor dirty or damaged	Consult your Scorpion Dealer.

5. ENGINE OVERHEATS
POSSIBLE CAUSE

REMEDY

- a. Engine improperly timed. . . . See your Scorpion Dealer.
- b. Improper gasoline/oil mixture Use correct gasoline/oil mixture (see "mixing fuel" section).
- c. Cooling fan clogged Clean cooling fins.
- d. Excessive load on engine . Check operation - reduce load.
- e. Carbon in combustion chamber See your Scorpion Dealer.
- f. Fan belt tension. See your Scorpion Dealer.

6. ENGINE FAILS TO START—WEAK OR NO SPARK

POSSIBLE CAUSE

REMEDY

- a. Safety stop switch depressed Push switch to release position.
- b. Ignition switch off Turn switch to "on".
- c. Incorrect spark plug gap Regap plugs correctly.
- d. Faulty wiring Check wiring for short, loose connections, etc. Repair as required.
- e. Faulty ignition coil. See Your Scorpion Dealer.

7. ENGINE RUNS AFTER KEY IS SHUT OFF

POSSIBLE CAUSE

REMEDY

- a. Wiring unplugged from ignition system Install switch plug.
- b. Engine too hot Let engine cool down.
- c. Wrong spark plug Install colder plug.

8. CARBURETOR FLOODS

POSSIBLE CAUSE

REMEDY

- a. Fuel tank pressure buildup Open tank vent.
- b. Dirty or damaged carburetor. See your Scorpion Dealer.

9. CARBURETOR RUNS LEAN IN ALL SPEED RANGES

POSSIBLE CAUSE

REMEDY

- a. Inlet filter plugged or dirty Replace filter.
- b. Carburetor loose on mounting or gasket leaking Tighten mounting screws or replace gasket.
- c. Air leak in fuel lines Check lines and fitting. Correct as required.
- d. Fuel line plugged Clean fuel lines.
- e. Air leak in engine seals or gasket See your Scorpion Dealer.

10. LIGHT OR LIGHTS FAIL TO OPERATE

POSSIBLE CAUSE

REMEDY

- a. Bulb burned out. Replace with correct bulb. See bulb replacement.
- b. Faulty wiring. a. All bulbs fail to light. Check for shorts, cut insulation, bare wire.
b. One (1) bulb fails to light. Check for unplugged or loose connectors, wires that are cut or loose ground connections.
(Note: Taillight is grounded through bracket to sled frame.)
- c. Defective switch Bulbs controlled by that switch fail to light. See your Scorpion Dealer.
- d. Defective Voltage Regulator All bulbs will fail to light, or they will all be burned out. See your Scorpion Dealer.
- e. Defective lighting coil No bulbs will light. See your Scorpion Dealer.

10A. ELECTRIC START MODELS

- a. Low battery charge Recharge battery to specific gravity of 1.260 at 80 degree F. electrolyte temperature. If battery continues to run down, see your Scorpion Dealer to determine why.
(Note: Exclusive night time operation of snowmobile may require supplementary battery charging.)
- b. Battery not being charged. See your Scorpion Dealer for system check of circuit breaker, lighting coils, battery regulator and wiring.

SUMMER STORAGE

Your machine must have the following performed or damage can occur to certain components making your snowmobile non-functional for the winter season.

1. Thoroughly clean the snowmobile. Use soap and water and flush dirt, grass, rocks and any other debris from the track area with high pressure nozzle and hose. Carefully clean under the hood and engine cover.
2. Inspect all parts for wear or damage. Tighten bolts, nuts and screws that are found loose.
3. Disconnect fuel lines from the carburetor. Start engine, run the engine out of fuel at idle speed. Remove the fuel from the gas tank and drain fuel lines. Reconnect fuel lines.
4. Remove spark plugs. Put one teaspoon of Scorpion Snowmobile oil in each cylinder. Pull the starter handle, slowly, several times to make sure that the cylinder walls and pistons are lubricated. Reinstall old plugs.
5. Pull the enriching valve control to out position. Cover the carburetor air intake with a plastic bag.
6. Clean and polish the hood and tunnel with automobile spray type wax. Touch up scratches on the metal surfaces with a good enamel spray.
7. Remove the drive belt.
8. Elevate the back of the snowmobile so that the track is off the ground. Loosen the track adjusting screws to take tension off the track.
9. On electric start models, remove the battery. Fill, clean and charge the battery and store in a cool, dry place. (Do not place battery on bare ground or cement floor.)
10. Spray chrome parts, aluminum parts, and rubber parts with silicone spray.
NOTE: Clutch assemblies and drive belt should not be treated with silicone spray.
11. Place a cover over your snowmobile and store inside, if possible.

GETTING READY FOR WINTER

Your snowmobile has been in storage all summer. Therefore, there are vital areas that need to be checked and made ready for winter operation. The following should be done, either by yourself or your Scorpion Dealer.

1. Check the machine for loose bolts, nuts and screws you may have missed when placing the machine in summer storage.
2. Install the drive belt. (Replace belt if abnormally worn.)
3. Install new spark plugs properly gapped.
4. Fill tank with fresh, properly mixed fuel.
5. Remove plastic bag from carburetor.
6. Check battery for proper electrolyte level, charge it fully and install it in the snowmobile. (Electric start only.)
7. Check throttle and brake controls for correct setting and freedom of movement.
8. Start engine. Check operation of all lights, and safety stop switch.
9. Adjust track to proper tension.
10. Take a trial run to verify that the machine is properly operating.

NOTE: Refer to the "Maintenance Interval Chart". The chart has all the items listed that must be checked for safe operation of your machine.

INDEX

BELT REPLACEMENT	25
BRAKE ADJUSTMENT	20
BRAKE LEVER	7
BRAKELIGHT SWITCH	7
BREAK-IN PROCEDURE	11
CARBURETOR ADJUSTMENT	23
CARBURETOR TROUBLE SHOOTING	35
CHAINCASE LUBRICATION	19
COLD START	12
CONTROLS & INSTRUMENTS	7
ELECTRICAL TROUBLE SHOOTING	33
EMERGENCY START	13
ENGINE TROUBLE SHOOTING	33
ENRICHING VALVE CONTROL	7
FLOODED START	12
HEADLIGHT ADJUSTMENT	18
HEADLIGHT BULB REPLACEMENT	31
HIGH SPEED SETTING	23
HI-LO BEAM SWITCH	7
HOT START	12
IDLE SETTING	23
IGNITION SWITCH	7
MAINTENANCE TIPS	14
MIXING FUEL	10
PREOPERATING TIPS	4
PRIMER	7
RECOIL STARTER	7
SAFE DRIVING TIPS	6
SAFETY STOP SWITCH	7
SERVICE INTERVAL CHART	15
SKI ALIGNMENT	21
SPARK PLUG REPLACEMENT	16
SPEEDOMETER	7
STARTING PROCEDURE	12
SUMMER STORAGE	37
SUSPENSION ADJUSTMENT	30
TACHOMETER	7
TAILLIGHT BULB REPLACEMENT	32
THROTTLE CABLE ADJUSTMENT	24
THROTTLE LEVER	7-24
TOOL & SPARE PARTS LIST	5
TOOL POUCH	5
TRACK ADJUSTMENT	28
TRACK JACKS	28
TROUBLE SHOOTING	33
WINTER PREPARATION	38

SCORPION, INC. CERTIFICATE OF WARRANTY

SCORPION, INC. (Scorpion) hereby warrants each product sold to the retail purchaser to be free from defects in material and workmanship under normal use, maintenance and service during the period of time and upon the conditions hereinafter set forth.

1975 SUPER STINGER: All models will be warranted for a period of one (1) year from the date of the original retail purchase.

BRUT, WHIP, LIL WHIP, ALL CARRY-OVERS: Any machine sold prior to February 15, 1975 will be warranted for ninety (90) days from the date of the original retail purchase or until February 15, 1975, whichever is later. Any machine which has an original retail purchase date after February 15, 1975 will be warranted until January 15, 1976.

The polyurethane track will be warranted for a period of one (1) year from the date of the original retail purchase.

This warranty includes all parts except light bulbs, windshields, drive belts, spark plugs, brake pads, breaker points, condensers, wear rods, throttle and brake cables.

THIS WARRANTY IS INVALID IF THE SLED HAS BEEN OPERATED ON INSUFFICIENT SNOW COVER OR HAS BEEN USED FOR RACING PURPOSES.

The snowmobile must be sold and repairs made by an authorized SCORPION dealer using genuine SCORPION parts. The machine must not have been altered, misused, neglected, improperly maintained, or used by any previous owner; nor as a commercial and/or rental unit. SCORPION'S obligation under the terms of this warranty is to repair or replace any part which it determines to be defective and to warranty labor per its current flat rate schedule.

In the event of a dispute as to whether or not a failure in the product is due to defective materials or workmanship, SCORPION shall have the right, as a condition precedent to its liability, to require the part or parts to be returned to its factory, transportation charges prepaid, for inspection and verification of the cause of such failure.

SCORPION reserves the right to incorporate changes or improvements in the design of our products at any time without incurring any obligations to those manufactured previously.

SCORPION makes no warranty with respect to damages or defects in any product caused by misuse, misapplication, neglect or accident, nor does SCORPION make any warranty as to any product which has been repaired or altered in any way which, in the sole judgment of SCORPION, affects the performance, stability or purpose for which the product was manufactured. Such alterations include use of unauthorized accessories and/or attachments not manufactured by SCORPION.

The foregoing warranty shall be the sole and exclusive remedy of the purchaser whether in contract, tort or otherwise, and SCORPION shall not be liable for injuries to persons or property.

In no event shall SCORPION be liable for incidental or consequential damages or commercial losses nor for any other loss or damage except as above set forth.

Neither the distributor, the selling dealer nor any other person has authorization to make any affirmation or other representation in regards to this warranty policy. Any deviation shall not be enforceable against SCORPION, INC.

This warranty is applicable only if the selling dealer returns the Factory Copy of the warranty card to SCORPION for proper registration of the machine.

DISCLAIMER

THIS WARRANTY IS EXPRESSLY IN LIEU OF ANY OTHER WARRANTY, EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, OR ANY OTHER OBLIGATION OR LIABILITY ON THE PART OF SCORPION, INC.