



INVITER
SA340-A2



SNOWMOBILE ASSEMBLY & PREPARATION MANUAL

Notice to Dealers

This manual is provided to ensure that the snowmobile is assembled correctly and given proper presale preparation. Your customer expects and deserves a safe, reliable snowmobile, and performance of the steps listed here is essential to that end.

The selling dealer assumes sole responsibility for any unauthorized modifications prior to sale. Refer to your Snow Products Binder for any Service Bulletins specifying Factory Directed Modifications (Special Claims) which must be performed before the snowmobile is ready for sale.

SAFETY AWARENESS

WARNING

THIS WARNING SYMBOL IDENTIFIES SPECIAL INSTRUCTIONS OR PROCEDURES WHICH, IF NOT CORRECTLY FOLLOWED, COULD RESULT IN PERSONAL INJURY, OR LOSS OF LIFE.

CAUTION

THIS CAUTION SYMBOL IDENTIFIES SPECIAL INSTRUCTIONS OR PROCEDURES WHICH, IF NOT STRICTLY OBSERVED, COULD RESULT IN DAMAGE TO, OR DESTRUCTION OF EQUIPMENT.

Whenever you see the symbols shown above, heed their instructions! Always follow safe operating and maintenance practices.

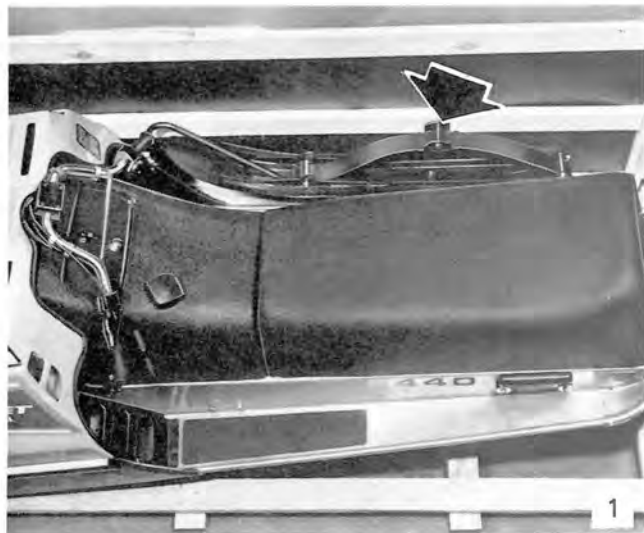
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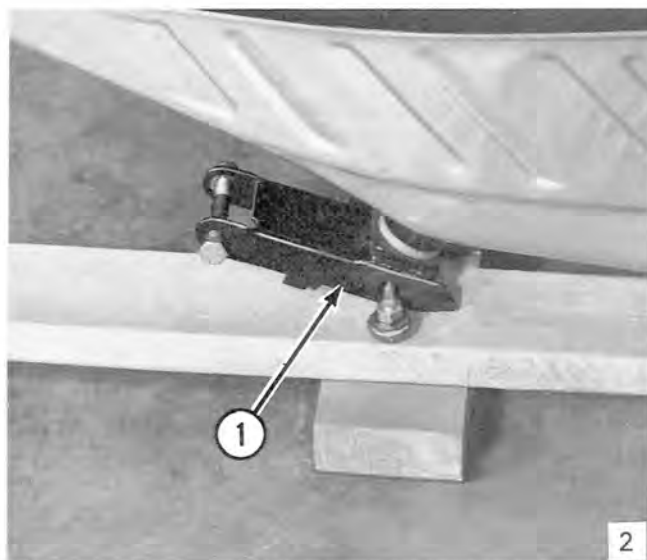
Assembly

Uncrate

Remove the top and end panels from the carton. Unbolt the skis, then remove the side panels. See Figure 1.



Unscrew the nuts securing the ski spindles to the skid. See Figure 2.



1. Ski Spindle

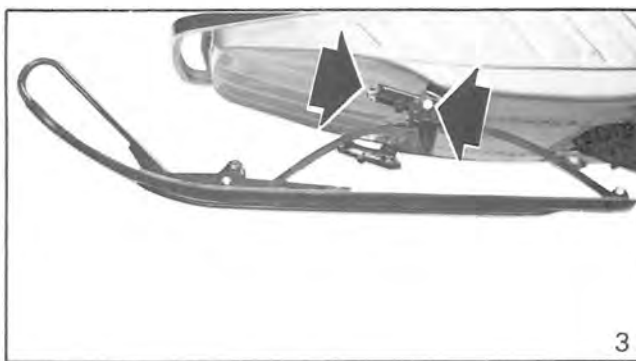
WARNING

To prevent personal injury, use lifting equipment with approved safety hooks when raising the snowmobile.

With assistance, or the use of a hoist, carefully lift the snowmobile from the skid. Thoroughly inspect the snowmobile for shipping damage and missing parts.

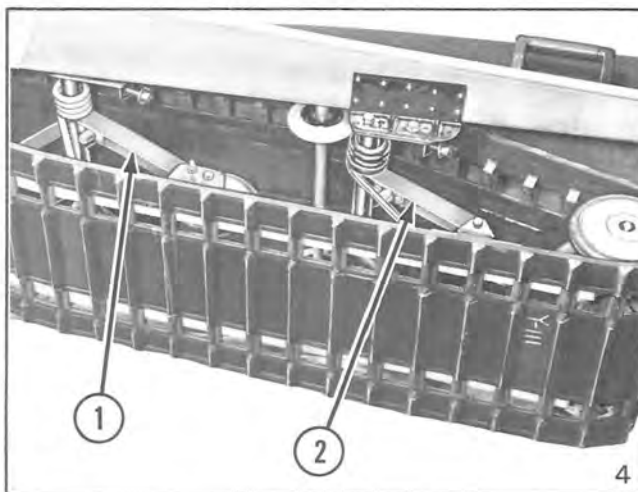
Skis

With the snowmobile positioned on its side, install the skis with the bolt provided. Install upper shock bolt included. Torque the nuts 28 to 32 foot pounds (3.9 to 4.5 kg-m). Install the other ski as above and return the snowmobile to its upright position. See Figure 3.



Suspension

The snowmobile is shipped with the front suspension springs disconnected from the front suspension arms. See Figure 4.

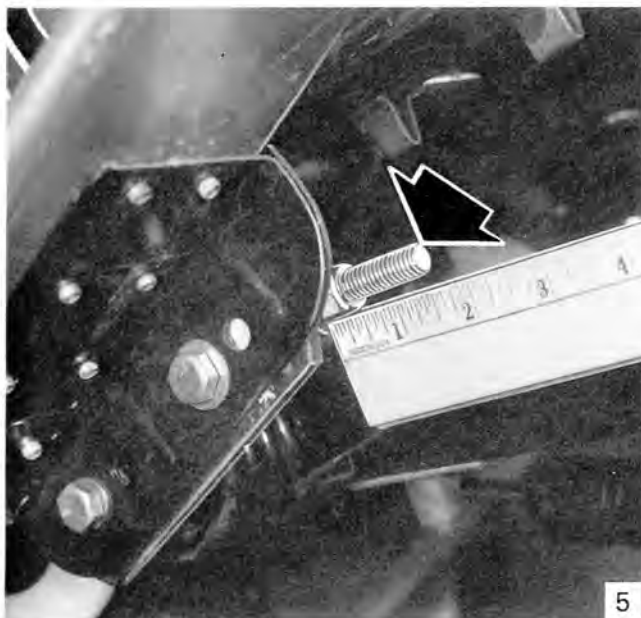


- 1. Front Suspension Arm
- 2. Rear Suspension Arm

1. Position the snowmobile on its side on a protective surface and place the front suspension springs over the suspension arm. Tighten the adjusting nuts to 1 inch (25.4 mm) when measured from the washer face to the end of the adjusting bolt.

CAUTION

Always adjust the preload (tension) of the springs on each side of the suspension arm equally. Unequal tension can cause spring breakage or excessive wear to one side of the slider wear strips. See Figure 5.

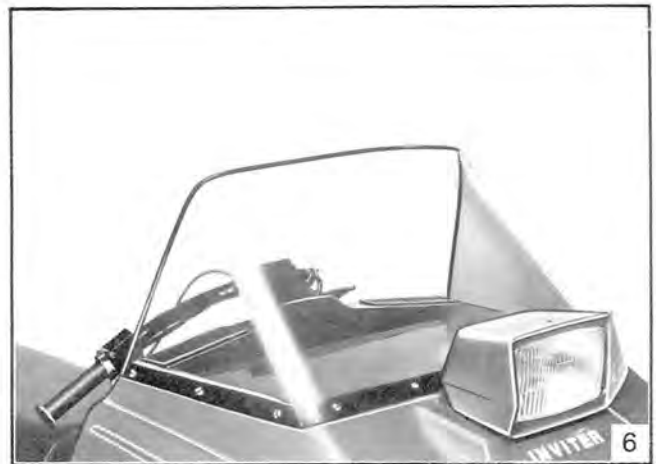


2. Tighten the rear suspension spring adjusting nut on both sides to 1 inch (25.4 mm).

The suspension spring preload dimensions given are for average driver weight. The operator may change the suspension adjustment, to satisfy rider comfort, by following the procedure outlined in the Owner Manual.

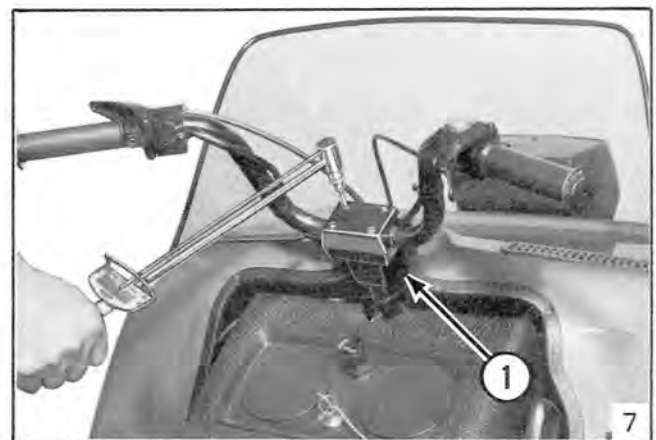
Windshield

Remove the protective film and install the windshield with the fasteners provided. See Figure 6.



Handlebar

Adjust the handlebar for a comfortable driving position and evenly torque the four Allen screws 7 to 9 foot pounds (1.0 to 1.2 kg-m). See Figure 7.



1. Cutaway Section of Console

Check the routing of the cables and wire harnesses for proper positioning. They should pass through the cutaway section in the hood to provide adequate free movement when the hood is closed. See Figure 7.

Tool Kit/Owner Manual

Check the storage bag to be sure it contains the Tool Kit and Owner Manual.

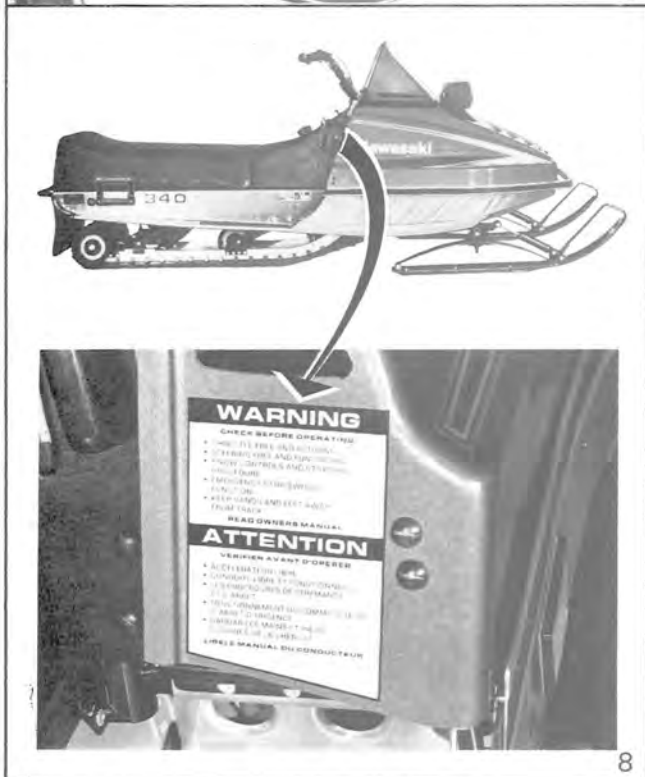
Safety Labels

WARNING

Insure that all safety decals are properly located and secure. See Figure 8.



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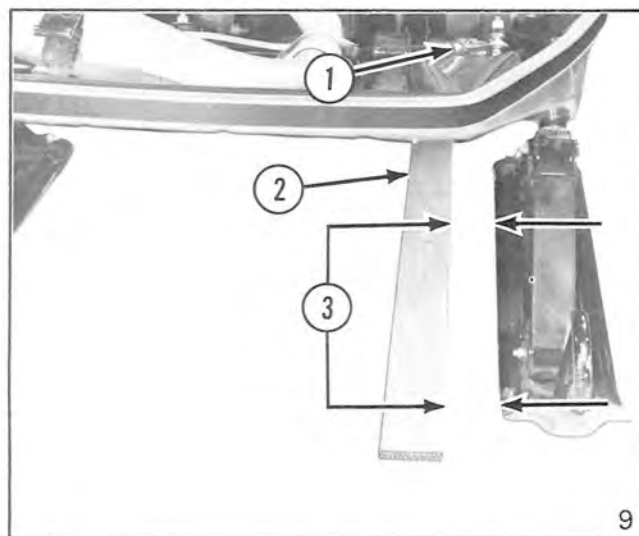
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Preparation

STEERING ALIGNMENT

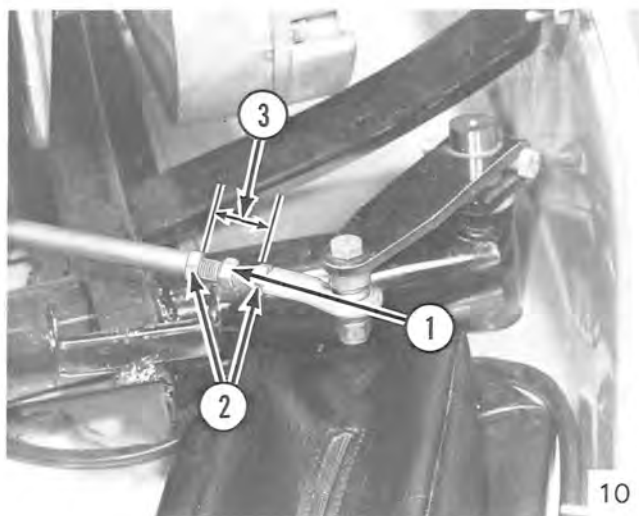
Check the ski alignment and handlebar centering.

1. Place a long board (or suitable straight edge) against the edge of the track and measure the clearance between the board and ski. Position the ski so that the clearance measured is the same at the front and rear of the ski. See Figure 9.



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1. Tie Rod Length Adjusting Stud
2. Straight Edge Against Track
3. Measure Clearance Here



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1. Tie Rods Length Adjusting Stud
2. Locknuts
3. 1-1/4 Inch (32 mm) Maximum

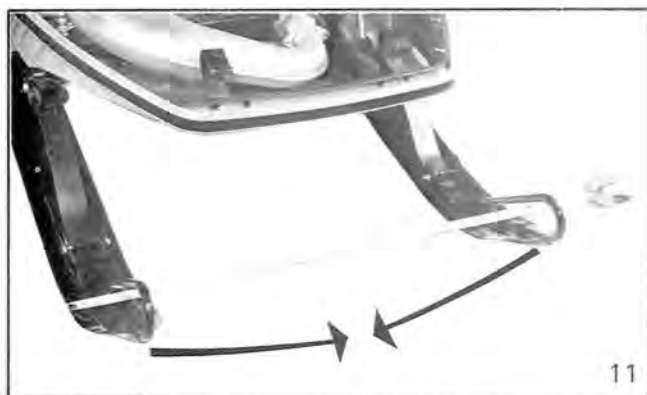
NOTE: Be sure the ski remains parallel to the straight edge while turning the tie rod length adjusting stud.

2. Check the handlebar for centering. If centering is required, loosen the lock nuts and turn the tie rod length adjusting stud to center the handlebar. See Figure 9.

WARNING

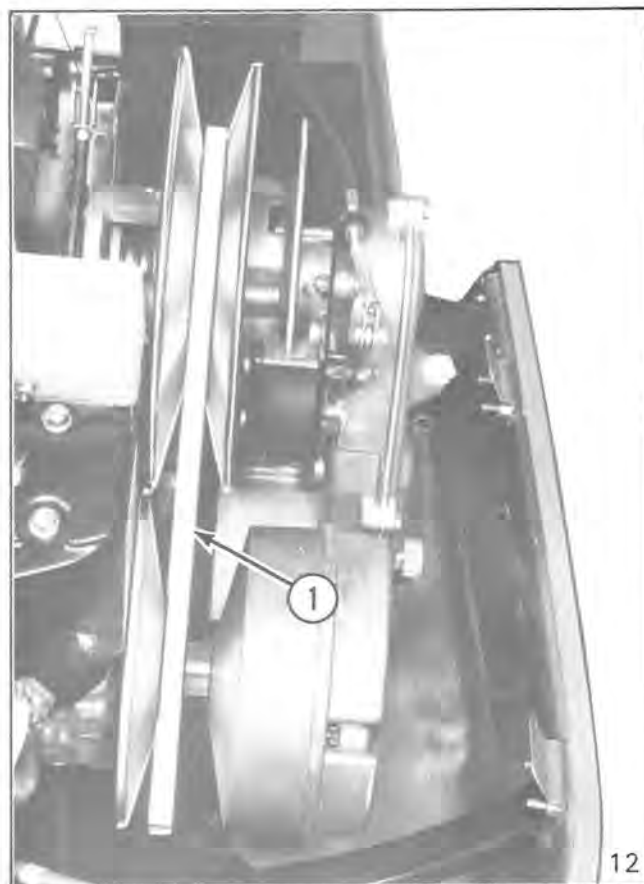
If the dimension shown exceeds 1-1/4 inch (32 mm), reposition the steering arm on the ski spindle as necessary to reduce the dimension and prevent possible steering linkage failure. See Figure 10.

3. To align the other ski, move both ski tips towards the center of the snowmobile to remove the steering linkage play. Turn the tie rod length adjusting stud (located below the muffler) to obtain equal distance from ski to ski when measured at the front and rear of the skis. See Figure 11.
4. Torque all the hardware (nuts, bolts, etc.) in the steering system. Refer to the torque chart for the recommended values.



Drive Converter and Driven Converter Alignment Using Special Alignment Gauge P/N 205207

Correct converter center-to-center distance of 10.3 inches (262 mm), and converter offset distance 0.454 inches (11.5 mm) is obtained when alignment gauge P/N 205207 is correctly installed between drive and driven converter sheaves. Figure 12.



1. Alignment Tool P/N 205207

Center-To-Center Distance

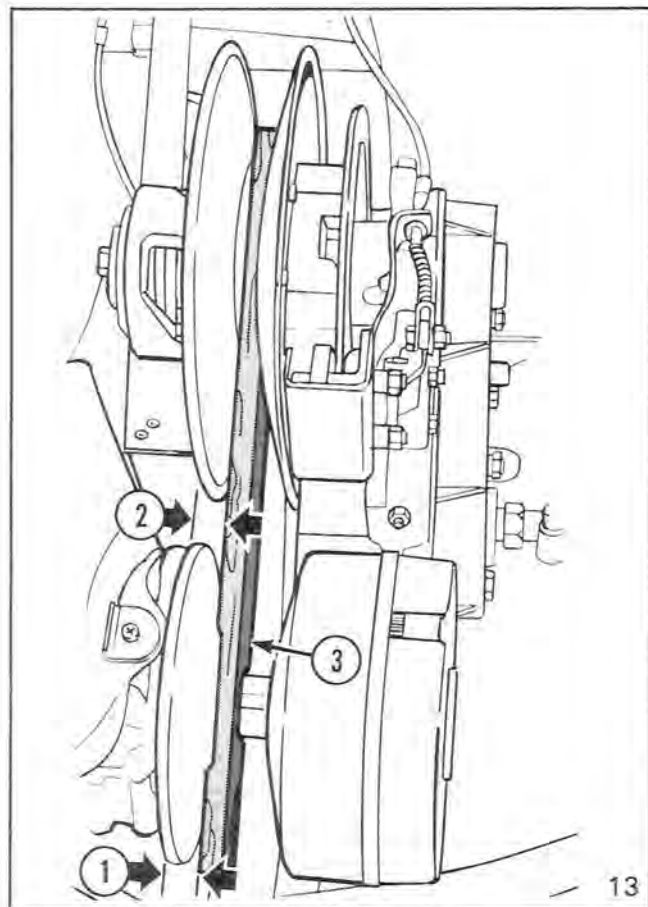
1. Remove belt guard and remove drive belt.
2. Rotate driven converter moveable sheave assembly clockwise, and insert alignment gauge between sheaves. Carefully release moveable sheave assembly allowing spring tension to retain gauge in position between stationary and moveable sheave assemblies.
3. Rotate drive converter assembly until hex shaft is correctly positioned in the alignment gauge.
4. If adjustment of the converter center distance is required, loosen the four chain case mounting nuts and adjusting setscrew. The driven converter support bearing arm must be disconnected from the chassis by removing the clevis pin from the yoke. Position the chain case fore or aft as required. Tighten the chain case mounting nuts securely. Tighten setscrew and secure with jam nut. Adjust support bearing arm bolt to proper length, lock the jam nut, and connect to chassis with the clevis pin assembly.

Offset Distance

1. Correct off-set distance 0.454 inches (11.5 mm) is obtained when drive converter stationary sheave fits into recess of alignment gauge when gauge is positioned on hex shaft.
2. If adjustment is necessary, loosen four engine mounting bolts and two muffler mounting bolts. Slide engine back and forth until stationary sheave fits into recess in alignment gauge. Tighten all mounting bolts securely.

Parallelism

1. When checking the center-to-center and offset distances, parallelism must be checked by measuring dimensions A and B as shown in Figure 13. Compare dimensions A and B against Notes I, II, and III.



1. Distance "A"
2. Distance "B"
3. Alignment Gauge P/N 205207

NOTE I: Dimension A must be more than dimension B.

NOTE II: Dimension A must never exceed dimension B by more than 1/16 inch (1.6 mm).

NOTE III: If dimension A is more than dimension B, correct offset as described in Offset Distance.

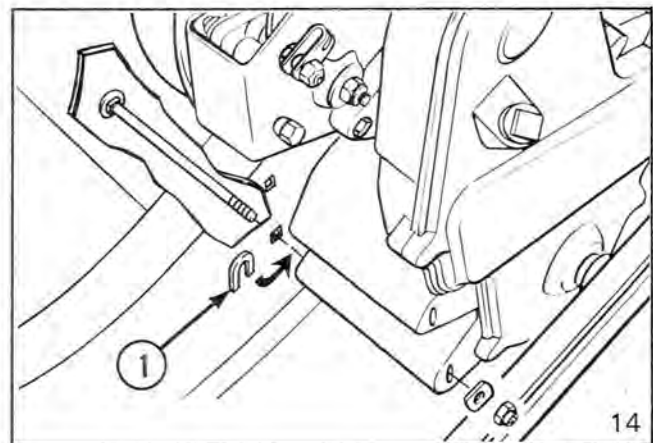
2. If dimension A is less than dimension B, parallelism between engine crankshaft and driven pulley is not correct. Parallelism must be adjusted as follows:

a. Loosen engine and muffler mounting bolts and rotate the engine into the correct position.

Or

b. Loosen chain case mounting bolts. Install alignment "U" washers as required between the chassis and chain case spacer to obtain correct position. See Figure 14.

NOTE: Never use more than 2 alignment "U" washers per bolt.

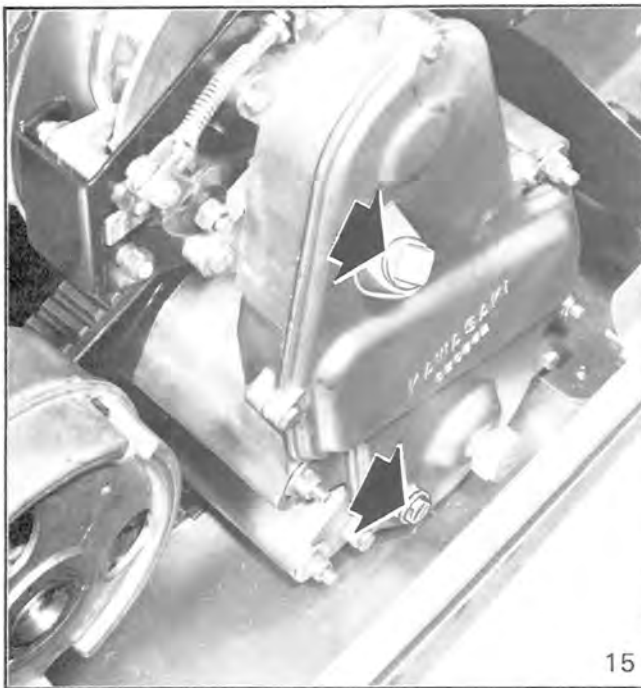


1. Spacer

Chaincase

NOTE: Use the KAWASAKI Chain Lubricant provided when filling the chaincase.

Remove the upper and lower plug in the chaincase cover and pour lubricant into the chaincase until level with lower hole. This provides the proper lubricant level for the chain and bearings. See Figure 15.



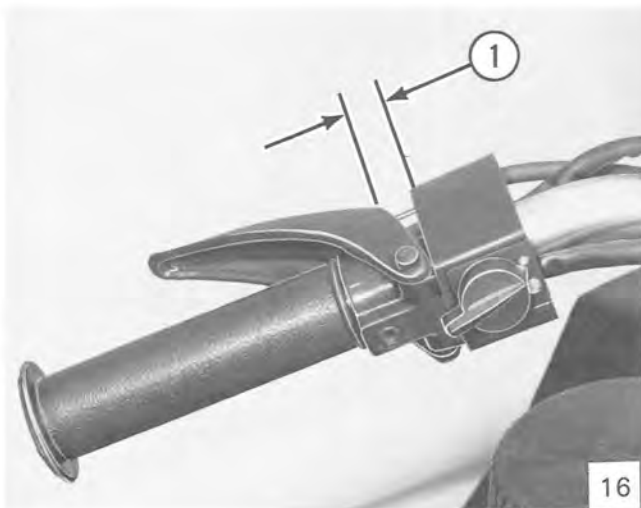
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Brake

Check the brake adjustment to be sure the driven converter can be moved back and forth with just a very slight brake drag on the brake disc and that the brake lever movement is less than 3/4 inch (19 mm) when applying the brake. See Figure 16.

WARNING

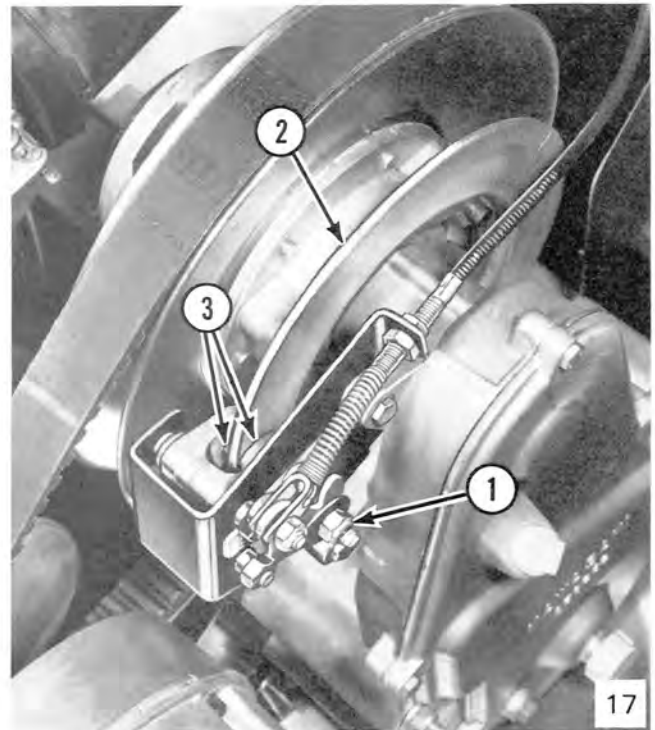
DO NOT OVERTIGHTEN the brake because damage to components, or personal injury could result



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If brake adjustment is required, turn the adjusting nut while simultaneously moving the driven

converter back and forth until the brake pads just begin to move with the disc. See Figure 17.

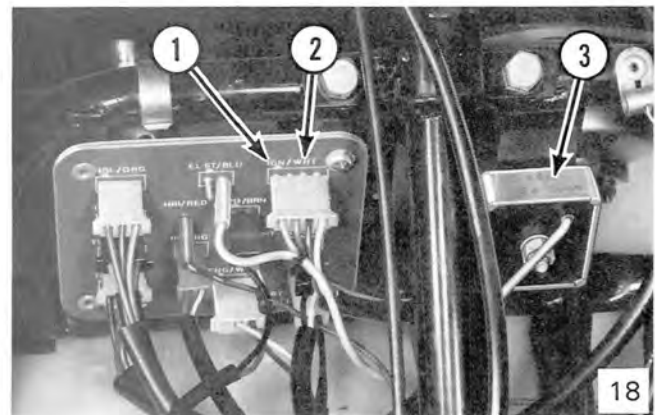


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1. Brake Adjusting Nut
2. Brake Disc
3. Brake Pads

Circuit Board

Check the connectors on the wiring panel circuit board to be sure they are properly located and secure. The circuit board identifies the wire harness and connector color that should be attached to the terminals. See Figure 18.



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1. Wire Harness
2. Connector Color
3. Lighting System Regulator

Throttle Cable

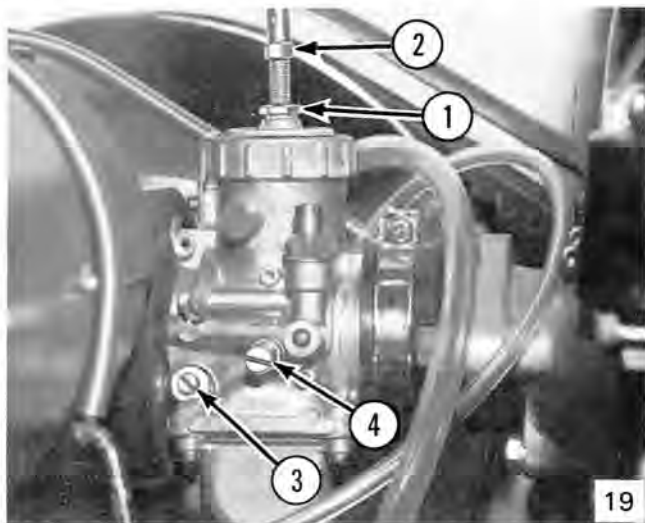
CAUTION

If a gap between the throttle lever and handlebar grip is present when the lever is at full throttle, excessive stress may be placed on the throttle cable ends which could cause cable failure.

With the air silencer removed from the carburetor, hold the throttle lever at the full throttle position and check that:

1. The throttle slide inside the carburetor bore opens fully.
2. The throttle lever is tight against the handlebar grip.

If adjustment of the throttle is required, loosen the locknut, and turn the adjusting screw on the throttle cable as required, and tighten the locknut. See Figure 19.



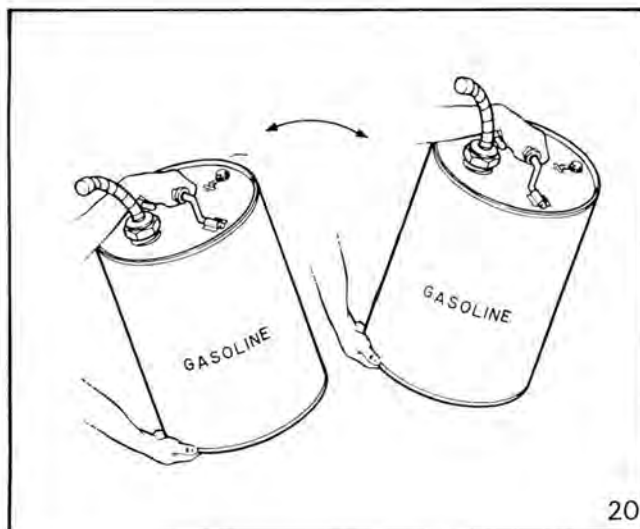
1. Locknut
2. Adjusting Screw
3. Air Screw
4. Idle Screw

Fuel Mix

CAUTION

Fuel and oil MUST be PROPERLY MIXED or damage to the engine will result.

The recommended fuel mix ratio is 40 to 1. Add one pint (0.4732 liters) of KAWASAKI SNOWMOBILE OIL to 5.0 gallons (18.9 liters) of leaded gasoline, with a minimum pump posted octane number of 89, and thoroughly mix the fuel and oil by shaking the can from side to side. See Figure 20.



Carburetor Adjustments

Air Screw

The carburetor air screw is properly adjusted when opened 1.5 turns off its seat. Refer to the specifications page and see Figure 19.

Idle Screw

The idle speed screw initial adjustment is 3 turns open from coil bound, (screw turned in tight), refer to the specifications page.

Make sure the fuel pump pulse line and all the fuel lines are secure and free of kinks or sharp bends.

Start the engine and run it at low speed for 3 to 5 minutes to provide proper engine warm-up.

WARNING

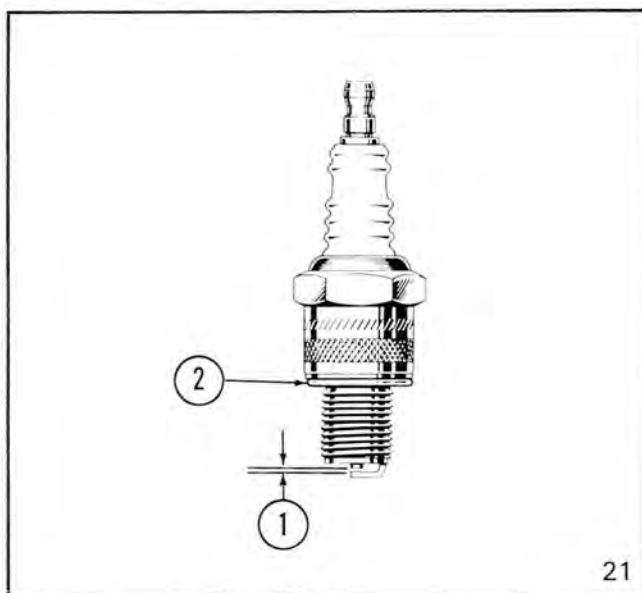
Engine idle speed is 2,000 R.P.M. If the idle speed is adjusted too fast, the drive converter may not disengage when the throttle lever is released, or the converter may automatically engage. Either condition could result in personal injury.

Adjust the engine idle speed to 2,000 R.P.M. by turning the idle speed screw on the carburetor.

Spark Plugs

Adjust the spark plug gap to 0.024 inch (0.6 mm). See Figure 21.

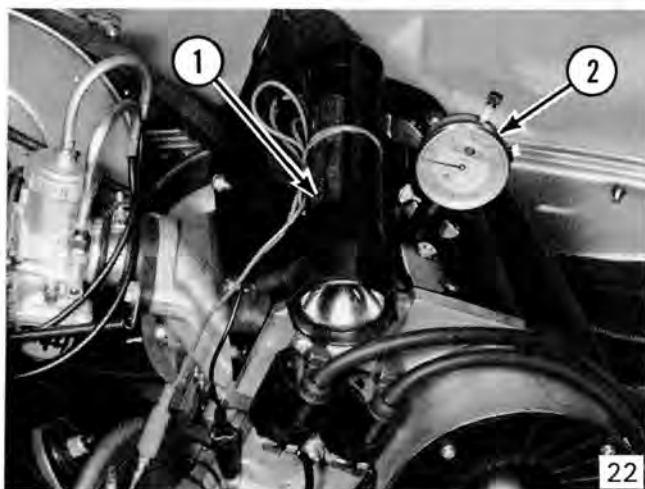
Before installing the spark plugs, be sure the washer is installed and the seat on the cylinder head is clean. Install the spark plug and torque it 18 to 20 foot pounds (2.5 to 2.8 kg-m).



1. Gap
2. Washer

Ignition Timing Check

1. Remove both spark plugs and install a dial indicator in the spark plug hole on the right hand side of the engine. Manually turn the converter to rotate the engine to Top Dead Center (T.D.C.) and adjust the dial indicator to zero.
2. Disconnect the red and white wires going to the ignition coil primary windings.
3. Connect one test lead of a timing buzzer or continuity tester to the magneto end of the red wire connector. Connect the other tester lead to a clean engine ground. See Figure 22.



1. Continuity Light
2. Dial Indicator

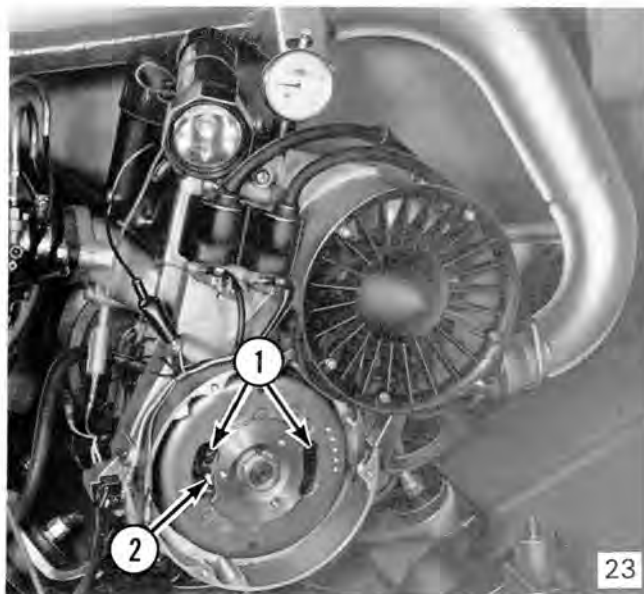
4. Very slowly, rotate the engine in its normal direction of rotation and observe the tester. As soon as the buzzer changes tone or the light dims slightly, stop rotating the engine and check the reading on the dial indicator. If the timing is correct, the indicator will be at 0.006 inch (0.145 mm) before T.D.C. See Figure 22.
5. Repeat the timing procedure for the left hand cylinder by installing the dial indicator in the spark plug hole on the left side, and connecting the timing buzzer or continuity light to the magneto end of the white wire connector.

Ignition Timing Adjustment

1. If the ignition timing requires adjustment, remove the muffler mounting nuts, and swing the muffler up to rest on top of the engine. Remove the manual starter and fan pulley.

NOTE: The cutout on the left side of the flywheel allows the adjustment of the points for the left hand cylinder. The points for the right hand cylinder can be adjusted through the cutout on the right side of the flywheel. If the points are out of tolerance, a weak spark may result. The advance mechanism levers are accessible through either cutout in the flywheel. See Figure 23.

2. Adjust one set of points to 0.014 inch (0.35 mm). When properly adjusted, loosen the magneto base mounting screws. See Figure 24.



1. Cutout in Flywheel
2. Advance Lever

- Turn the engine in the normal direction of rotation until the dial indicator is at 0.138 inch (3.5 mm) B.T.D.C. Move the advance levers to full advance, (levers against the stop pins when rotated towards the outside diameter of the flywheel), and hold the flywheel and levers in this position to adjust the magneto base assembly.
- Rotate the magneto base assembly until the points break (buzzer changes tone or the light dims slightly), and tighten the magneto base mounting screws. See Figure 24.



- Magneto Base Mounting Screws
- Breaker Point Mounting Screw

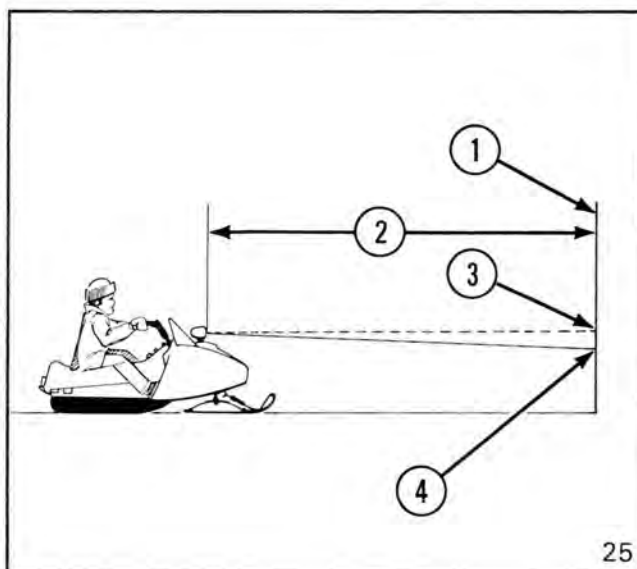
- Re-check the timing to be sure it did not change after tightening the screws.
- Install the dial indicator into the opposite spark plug hole and connect the timing buzzer or continuity light to the opposite ignition coil wire. Adjust the points to break when the dial indicator reads 0.138 inch (3.5 mm) B.T.D.C. and the advance levers are at full advance.

Headlight Adjustment

- Position the snowmobile on a level floor so the headlight points at a wall 25 feet (7,620 mm) away.
- Measure the distance from the floor to the center of the headlight and mark the wall at the dimension measured (reference mark). See Figure 25.

WARNING

If adjusting the headlight indoors, provide proper ventilation to prevent possible carbon monoxide poisoning.

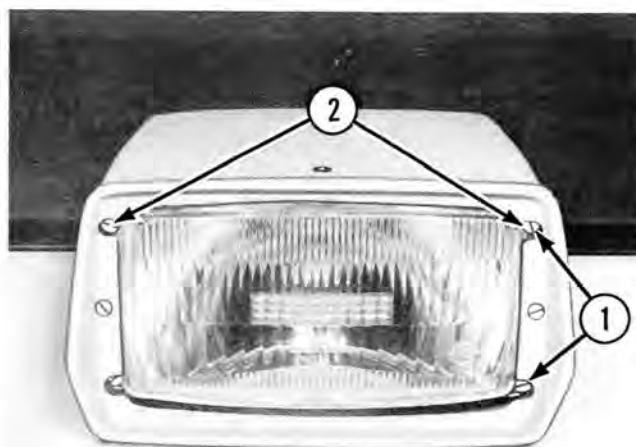


- Wall
- 25 Feet (7,620 mm)
- Reference Mark (center of headlight to floor)
- 2 Inches (51 mm) Below Reference Mark

NOTE: Be sure an operator is seated on the snowmobile while the engine is running to prevent the vehicle from creeping ahead, and to assure proper aiming.

- Turn on the headlight high beam. The headlight is properly aimed when the high beam is centered and aimed 2 inches (51 mm) below the reference mark on the wall. See Figure 25.
- If headlight adjustment is required, turn the adjusting screws as required. See Figure 26.

Check the operation of the headlight low beam.



- Horizontal Adjusting Screws
- Vertical Adjusting Screws

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Tail/Brake Light

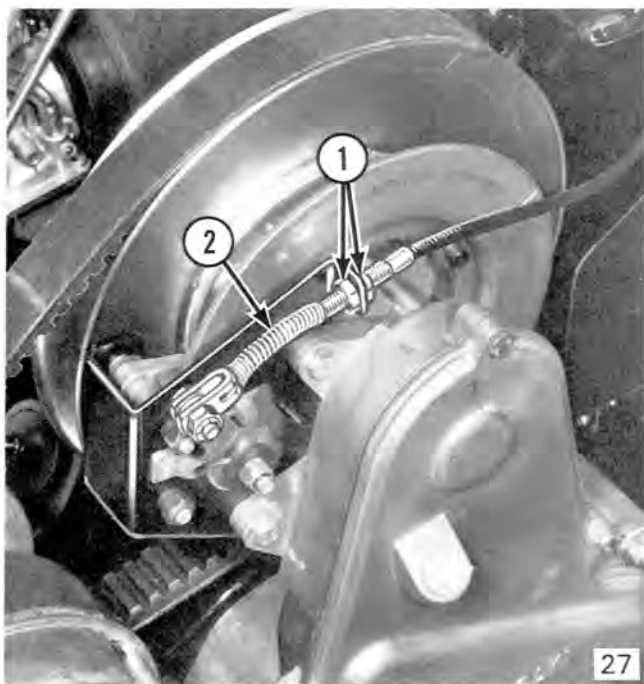
The taillight will operate only when the key switch is in the "Run/Lights" position.

The brake light is activated by a switch mounted in the brake lever housing on the handlebar. Brake light operation is independent of the other lights and the key switch.

WARNING

Whenever the outer casing of the brake cable is repositioned readjustment of the brake is required. Failure to readjust the brake could result in component damage or personal injury.

If the brake lever does not return to the full off position, the brake switch will remain on, causing the brake light to glow constantly. To allow full return of the brake lever, loosen the lock nuts on the brake cable outer casing and move the outer casing towards the return spring on the brake assembly. Recheck the brake lever for full return to off and tighten the lock nuts on the outer casing. See Figure 27.



- 1. Locknuts
- 2. Return Spring

Track Adjustments

WARNING

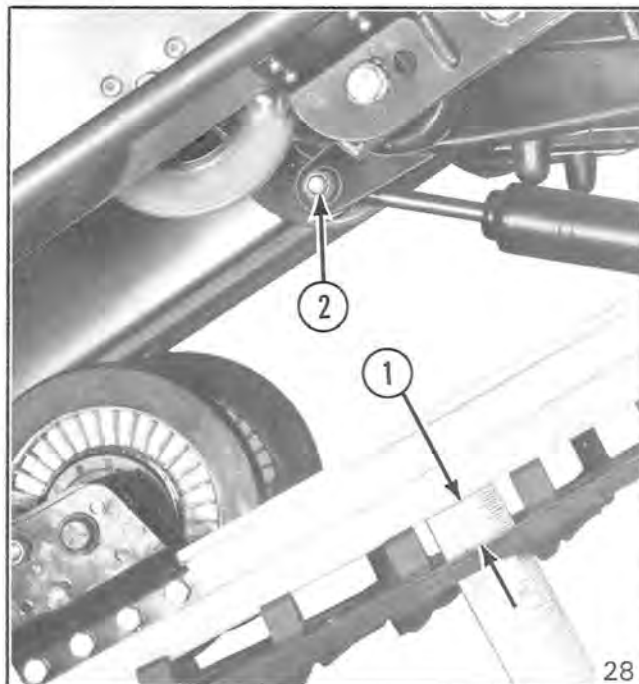
While raising the snowmobile off the ground, place the skis against a stationary object, and be sure the vehicle is properly secured, to prevent personal injury.

Track Tension

WARNING

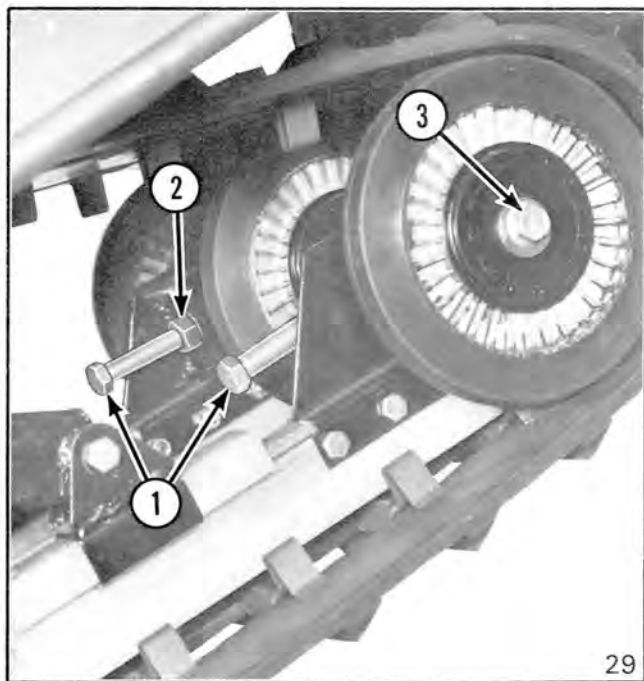
To prevent personal injury, never adjust track tension with the engine running.

1. With the track off the ground for its entire length, brace the snowmobile so it cannot fall, then hang a 5 to 8 pound (2.2 to 3.6 kg) weight from the mid point of the track.
2. The clearance from the bottom of the wear strip to the top of the track should be 3/4 inch (19 mm) when measured directly below the shock absorber upper mount bolt. See Figure 28.
3. If adjustment is necessary, loosen rear axle locking bolts, turn the rear axle adjusting bolts as required to obtain the specified wear strip-to-track clearance. See Figure 29. Be sure end or nose of adjusting bolt is in recess of shaft when making this adjustment.



- 1. 3/4 Inch (19 mm)
- 2. Shock Absorber Upper Mount Bolt

4. When the proper tension is attained, be sure both adjusting bolts are the same length when measured from the bolt end to the rear axle bracket. See Figure 29. This is a good starting point for track alignment.



1. Rear Axle Adjusting Bolts
2. Lock (Jam) Nut
3. Rear Axle Locking Bolt

Track Alignment

WARNING

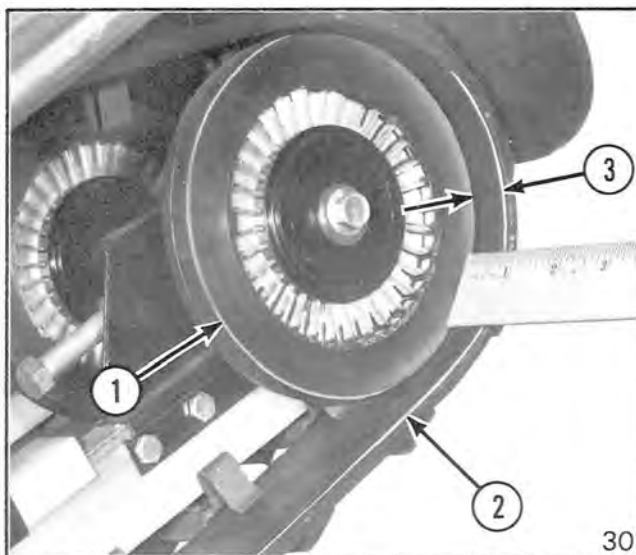
To prevent injury, never adjust or measure track alignment while the engine is running.

Remove the weight from the track, start the engine and push the throttle only enough to turn the track slowly a few revolutions, then stop the engine and check the alignment.

The track is aligned when the distance between the rear idler wheel and edge of the track is equal on both sides. See Figure 30.

If the track runs to one side, tighten the rear axle adjusting bolt on the same side, approximately 1/2 turn, then restart the engine and recheck the alignment.

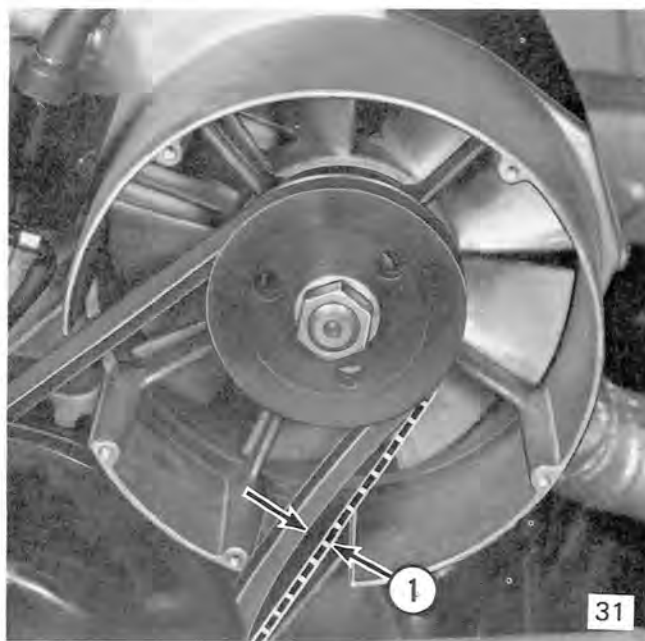
When track alignment is correct, tighten the lock nut on both rear axle adjusting bolts and the rear axle locking bolts.



1. Idler Wheel
2. Edge of Track
3. Dimension Equal On Both Sides

Fan Belt Tension

Remove the fan guard to test fan belt tension. With a 10 pound (5 kg) force applied to the belt, the belt deflection should be 5/32 inch (3.5 to 4.5 mm). See Figure 31.



1. 5/32 Inch
(3.5 to 4.5 mm) Deflection

If adjustment of the fan belt tension is required, remove the outer pulley from the fan shaft and remove a spacer from between the pulley halves to reduce the belt deflection, or add a spacer to increase the belt deflection. Re-install the fan guard.

Test Ride (Operational Checks)

Test ride the snowmobile and check for the following:

- **CONTROL CABLES**

The throttle and brake controls must operate without binding and return freely in any steering position.

- **STEERING**

Steering should be smooth and free from lock-to-lock with no excessive looseness in the steering linkage.

- **ENGINE**

Recoil starter works properly and the engine starts promptly. Test for good throttle response and return.

- **SUSPENSION**

Adjusted for average driver weight and operates smoothly.

- **EMERGENCY STOP SWITCH**

Check operation in all switch positions.

- **CONVERTERS**

Test for smooth operation and correct engine R.P.M. (6,500) at full throttle.

- **BRAKES**

When activated, the brakes should result in adequate smooth stopping of the track; when released, there should be no brake drag.

- **INSTRUMENTS**

Check for proper indications.

During the test ride, listen for any unusual noises (rattles, squeaks, etc.) that may warrant inspection and correction.

When the test ride is completed, open the hood and thoroughly inspect the engine compartment for fuel or oil leaks.

SPECIFICATIONS

ENGINE

Type	TA340A
Displacement	20.7 C.I. (339.3 cc)
Bore X Stroke	2.362 x 2.362 inches (60 x 60 mm)
Number of Cylinders	2
Ignition System	Magneto
Ignition Timing	0.006 inch B.T.D.C. (0.145 mm) static
Spark Plug	NGK BR-8 - ESA
Spark Plug Gap	0.024 inch (0.6 mm)
Carburetor Make and Model	Mikuni VM34
Engine R.P.M. at Full Throttle	6,500 R.P.M.

CARBURETOR SETTINGS

Air Screw	1.5 turns off seat
Idle Screw	3 turns open from coil bound initial (2,000 R.P.M. final)

FUEL

Gasoline Leaded (minimum pump posted octane number 89)
Oil Kawasaki Snowmobile Oil or B.I.A. certified TC-W oil
Gasoline/Oil Ratio (40 to 1) 1 pint (.473 liters) of oil
to 5 gallons (18.9 liters) of gasoline

DRIVE SYSTEM

Drive Belt Width	1-1/4 inches (31.7 mm)
Drive Belt Outside Circumference	43-1/2 inches (1,105 mm)
Converter Offset	0.454 inches (11.5 mm)
Converter Center Distance	10.3 inches (262 mm)

ELECTRICAL SYSTEM

Type	12 Volts - 120 Watts
Headlight	Stanley A5988
Tail/Brake Light	G.E. No. 1157
Instrument Lights	G.E. No. 57

TORQUE CHART

TOOL SIZE	BOLT DIAMETER	RECOMMENDED TORQUE
10 mm	6 mm	5 TO 6 ft lbs (0.7 TO 0.8 kg-m)
7/16 inch	1/4	7 TO 9 ft lbs (1.0 TO 1.2 kg-m)
1/2 inch	5/16	14 TO 18 ft lbs (2.0 TO 2.5 kg-m)
9/16 inch	3/8	28 TO 32 ft lbs (3.9 TO 4.5 kg-m)
5/8 & 11/16 inch	7/16	47 TO 52 ft lbs (6.5 TO 7.2 kg-m)

