

## MODEL IDENTIFICATION



**LTD440**  
**SS440-B2A**  
**SS440-B3A**



# FOREWORD

This LTD SS440-B2A, SS440-B3A Shop Manual Supplement is designed to be used in conjunction with the LTD SS440-B2, SS440-B3 Shop Manual (P/N 99963-3516). The maintenance and repair procedures described in this Supplement are only those that are unique to the SS440-B2A and SS440-B3A models. Most service operations for these models remain identical to those described in the base Shop Manual. Complete and proper servicing of the SS440-B2A and SS440-B3A models therefore requires both this Supplement and the base Shop Manual.

The base Shop Manual and this Supplement are designed primarily for use by snowmobile mechanics in a properly equipped shop. However, they contain enough detail and basic information to make them useful to the snowmobile owner who desires to perform his own basic maintenance and repair work. A basic knowledge of mechanics, the proper use of tools, and workshop procedures must be understood in order to carry out maintenance and repair satisfactorily. Whenever the owner has insufficient experience or doubts his ability to do the work, the adjustment, maintenance, and repair should be carried out only by qualified mechanics.

In order to perform the work efficiently and to avoid costly mistakes, the mechanic should read the text, thoroughly familiarize himself with the procedures before starting work, and then do the work carefully in a clean area. Whenever special tools and equipment are specified, makeshift tools or equipment should not be used. Precision measurements can only be made if the proper instruments are used, and the use of substitute tools may adversely affect safe operation of the snowmobile.

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

## 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.*

**NOTE:** Indicates points of particular interest for more efficient and convenient operation.

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Illustrations in this publication are intended for reference use only and may not depict actual model component parts.

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# QUICK REFERENCE GUIDE

SECTION	PAGE NUMBER
<b>1</b>	<b>1-1</b>
<b>2</b>	REFER TO BASE MANUAL
<b>3</b>	REFER TO BASE MANUAL
<b>4</b>	<b>4-1</b>
<b>5</b>	<b>5-1</b>
<b>6</b>	REFER TO BASE MANUAL
<b>7</b>	<b>7-1</b>
<b>8</b>	REFER TO BASE MANUAL
<b>9</b>	REFER TO BASE MANUAL
<b>10</b>	REFER TO BASE MANUAL
<b>11</b>	<b>11-1</b>
<b>12</b>	<b>12-1</b>
<b>13</b>	REFER TO BASE MANUAL
<b>14</b>	REFER TO BASE MANUAL
<b>15</b>	REFER TO BASE MANUAL
<b>16</b>	REFER TO BASE MANUAL
<b>17</b>	<b>17-1</b>
<b>18</b>	REFER TO BASE MANUAL
<b>19</b>	REFER TO BASE MANUAL
<b>20</b>	REFER TO BASE MANUAL
<b>21</b>	REFER TO BASE MANUAL
<b>22</b>	REFER TO BASE MANUAL
<b>23</b>	REFER TO BASE MANUAL
<b>24</b>	REFER TO BASE MANUAL

This quick reference guide will assist you in locating a desired topic or procedure.

- Bend the pages back to match the black tab of the desired section number with the black tab on the edge of the first page in each chapter.

SPECIFICATIONS

MAINTENANCE

BRAKE SYSTEM

CABLES

CARBURETOR

CHAINCASE/JACKSHAFT

CHASSIS

COOLING SYSTEM

DRIVESHAFT

ELECTRICAL SYSTEM

ENGINE

FUEL SYSTEM

IGNITION SYSTEM

INSTRUMENTS

MUFFLER

OIL INJECTION

SILENCER

STARTER, RECOIL

STORAGE

SUSPENSION

STEERING SYSTEM

TORQUE CONVERTER SYSTEM

TRACK

APPENDIX



# GENERAL SPECIFICATIONS

Refer to the specifications found under GENERAL SPECIFICATIONS in the LTD Shop Manual, except for:

1

## DRIVE CONVERTER (Standard Calibration)

Engagement (Approximate RPM)	5200
Drive Converter RPM (Maximum)	8200
Spring Part Number and Color	92081-3004, Pink
Weight Part Numbers (Each Ramp)	110G062 — Bolt, Steel, 6.0 grams 92019-008 — Nut, 2.3 grams
Ramp Part Number	39152-3010 — Marked "J," 46.5 grams
Total Gram Weight (Each Ramp)	54.6 grams

## DRIVE CONVERTER COMPONENT WEIGHT CHART

Part Number	Component	Gram Weight
13042-3001	Weight, 0.031 in. (0.8 mm) thick	0.5
13042-3002	Weight, 0.062 in. (1.6 mm) thick	1.0
92019-008	Nut, special, 6 mm	2.3
92001-3009	Bolt, aluminum, 6 x 15 mm	1.8
92001-3003	Bolt, aluminum, 6 x 20 mm	2.1
92001-3015	Bolt, steel, 6 x 16 mm	5.3
110G0620	Bolt, steel, 6 x 20 mm	6.0
110G0628	Bolt, steel, 6 x 28 mm	7.3
39152-3005	Ramp Weight Assembly "E"	47.5
39152-3007	Ramp Weight Assembly "F"	46.5
39152-3008	Ramp Weight Assembly "G"	47.5
39152-3010	Ramp Weight Assembly "J"	46.5

## DRIVE CONVERTER SPRINGS

	PINK P/N 92081-3004	RED P/N 92081-3005	YELLOW P/N 92081-3001	BLUE P/N 92081-3006	BLACK P/N 92081-3002	WHITE P/N 92081-3011
FREE LENGTH (new, with no load)	3.54 ± 0.25 in. (89.9 ± 6.3 mm)	3.74 ± 0.25 in. (94.9 ± 6.3 mm)	3.96 ± 0.25 in. (100.5 ± 6.3 mm)	4.14 ± 0.25 in. (105.2 ± 6.3 mm)	4.33 ± 0.25 in. (110.1 ± 6.3 mm)	4.74 ± 0.25 in. (120.4 ± 6.3 mm)
NUMBER OF SPRING COILS	6	5	6	6	6	6
WIRE DIAMETER	0.197 ± 0.01 in. (5.0 ± 0.2 mm)	0.197 ± 0.01 in. (5.0 ± 0.2 mm)	0.197 ± 0.01 in. (5.0 ± 0.2 mm)	0.197 ± 0.01 in. (5.0 ± 0.2 mm)	0.197 ± 0.01 in. (5.0 ± 0.2 mm)	0.197 ± 0.01 in. (5.0 ± 0.2 mm)
RATE	56 ± 2.8 lb/in. (1.0 ± 0.05 kg/mm)	56 ± 2.8 lb/in. (1.0 ± 0.05 kg/mm)	56 ± 2.8 lb/in. (1.0 ± 0.05 kg/mm)	56 ± 2.8 lb/in. (1.0 ± 0.05 kg/mm)	56 ± 2.8 lb/in. (1.0 ± 0.05 kg/mm)	56 ± 2.8 lb/in. (1.0 ± 0.05 kg/mm)
COMPRESSION	55.1 lb @ 2.54 in., ± 5.5 lb (25.4 kg @ 64.5 mm ± 2.5 kg)	66.1 lb @ 2.54 in., ± 5.5 lb (30.4 kg @ 64.5 mm ± 2.5 kg)	77.2 lb @ 2.54 in., ± 5.5 lb (35.6 kg @ 64.5 mm ± 2.5 kg)	88.2 lb @ 2.54 in., ± 5.5 lb (40.7 kg @ 64.5 mm ± 2.5 kg)	99.2 lb @ 2.54 in., ± 5.5 lb (45.6 kg @ 64.5 mm ± 2.5 kg)	123.2 lb @ 2.54 in., ± 5.5 lb (55.9 kg @ 64.5 mm ± 2.5 kg)
OUTSIDE DIAMETER	2.28 ± 0.025 in. (57.9 ± 0.63 mm)	2.28 ± 0.025 in. (57.9 ± 0.63 mm)	2.28 ± 0.025 in. (57.9 ± 0.63 mm)	2.28 ± 0.025 in. (57.9 ± 0.63 mm)	2.28 ± 0.025 in. (57.9 ± 0.63 mm)	2.28 ± 0.025 in. (57.9 ± 0.63 mm)
<p>WEAKEST SPRING ← → STRONGEST SPRING</p> <p><b>NOTE:</b> A fast shift rate is desired in order to obtain top speed as quickly as possible. Determine maximum shift rate by continuing to add weight (washers) onto ramp until engine RPM begins to fall below specified full throttle operating RPM range at maximum vehicle speed. Then, remove approximately 1 gram of weight from each ramp to return RPM to specified range.</p>						

# SERVICE SPECIFICATIONS

## ENGINE

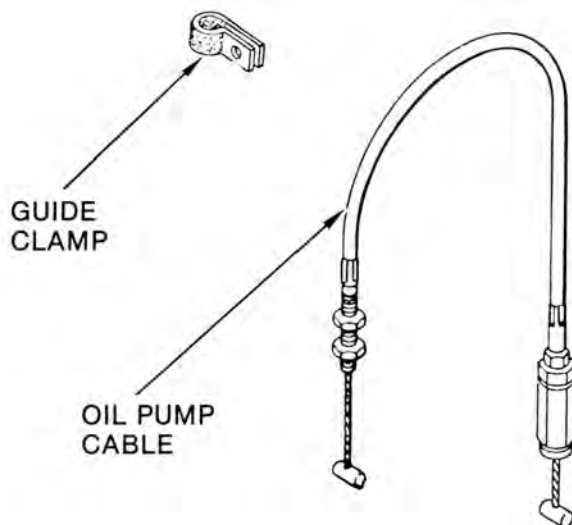
Piston Pin Bore.....	0.7086-0.7089 in. (17.999-18.006 mm)
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**NOTE:** This correction applies to 1981 LTD models (SS440-B2 and SS440-B3) as well as the 1982 LTD models (SS440-B2A and SS440-B3A). Mark this correction in your LTD Shop Manual.



# CABLES

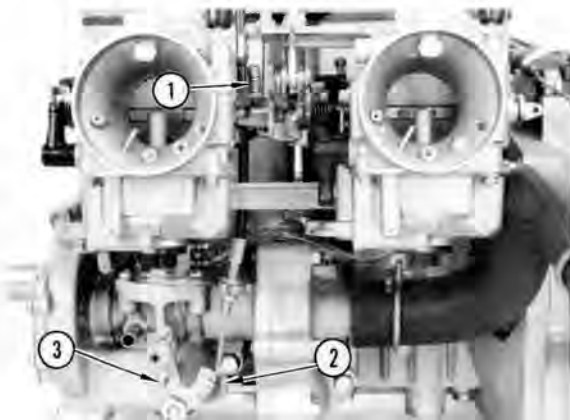
Cable service is as described in Chapter Four of the LTD Shop Manual, except for Oil Pump Cable Service.



## OIL PUMP CABLE

### Oil Pump Cable Adjustment

1. Remove silencer.
  - Refer to Silencer Removal procedure.
2. Adjust LH carburetor to fully closed position.
  - Turn idle speed screw on LH carburetor counterclockwise until LH butterfly completely closes carburetor bore.
  - If LH butterfly will not close completely, refer to Throttle Cable Adjustment procedure.

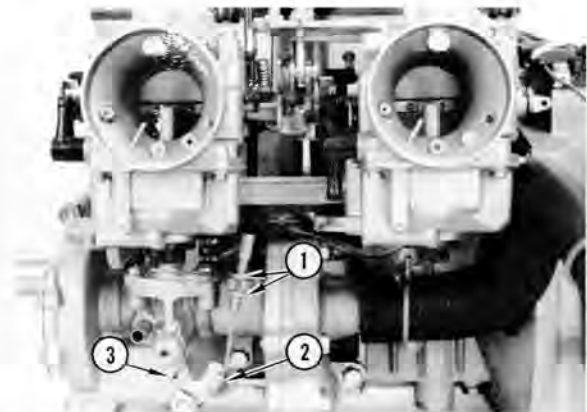


1. Idle Speed Screw.
2. Oil Pump Lever.
3. Stop Pin.

3. Position oil pump lever in "full off" position.
  - Push pump lever until it contacts stop pin.
  - It may be necessary to loosen cable adjustment to allow lever to contact pin.
4. Adjust oil pump cable.
  - Loosen lock nuts on pump cable.
  - Hold pump lever against stop pin and adjust lock nuts to remove all slack from inner cable.
  - Torque lock nuts to 20 in. lb (0.2 kg-m).
  - Check adjustment. Adjustment is correct when oil pump lever and throttle butterfly in LH carburetor move simultaneously as throttle lever is activated.

4

**NOTE:** The oil pump cable can also be adjusted with the adjuster in the cable mounting block on the carburetor bracket.



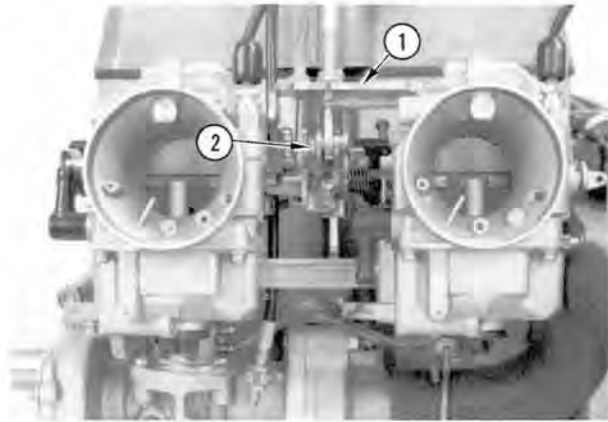
1. Lock Nuts.
2. Oil Pump Lever
3. Stop Pin.

5. Reinstall silencer.
  - Refer to Silencer Installation procedure.
6. Adjust idle speed.
  - Refer to Carburetor Adjustment procedure.

### Oil Pump Cable Removal

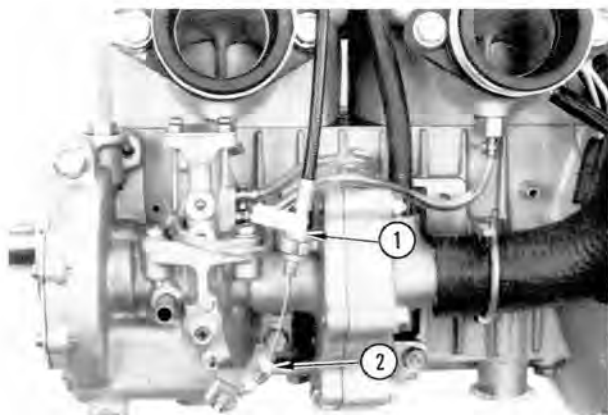
1. Remove air silencer from carburetors.
  - Refer to Silencer Removal procedure.
2. Disconnect oil pump cable from carburetor linkage.
  - Pull hair pin from pump cable pin.
  - Remove cable pin from carburetor linkage.

## 4-2 CABLES



1. Top Bracket.
2. Cable Pin.

3. Unfasten cable adjuster from top carburetor bracket.
  - Loosen lock nut.
  - Unscrew adjuster.
4. Unhook cable end from oil pump control lever.



1. Upper Jam Nut.
2. Control Lever.

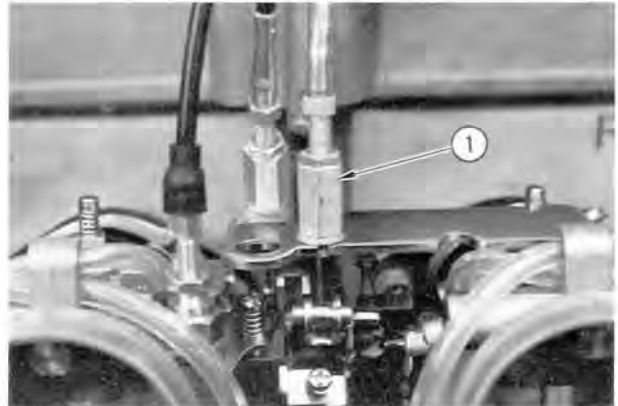
5. Remove cable adjuster from housing boss.
  - Mark location of upper cable adjusting nut with tape, as shown.
  - Loosen lower adjusting nut and remove cable from housing boss.

### Oil Pump Cable Inspection

1. Check cable operation.
  - Cable should move freely within casing. If not, replace cable.
2. Inspect cable ends.
  - If there are any signs of fraying or kinking, replace cable.
3. Examine cable casing.
  - If protective coating is damaged or casing is kinked, replace cable.

### Oil Pump Cable Installation

1. Mount adjuster onto housing boss.
  - Position upper adjusting nut as closely as possible to original position.
  - Finger tighten lower adjusting nut.
2. Hook cable end onto pump control lever.
3. Route cable through guide clamp on RH carburetor holder.
4. Fasten cable mounting block to top carburetor bracket.
  - Screw mounting block into carburetor bracket and tighten securely.

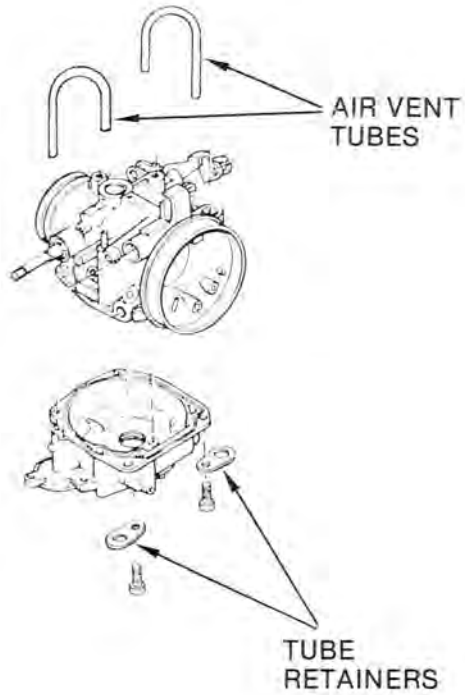


1. Mounting Block

5. Connect oil pump cable to carburetor linkage.
  - Install cable pin in carburetor linkage.
  - Secure cable with tie bands as needed to prevent chafing of outer casing, which may lead to malfunction.
6. Synchronize oil pump with carburetors.
  - Refer to Oil Pump Cable Adjustment.

# CARBURETOR

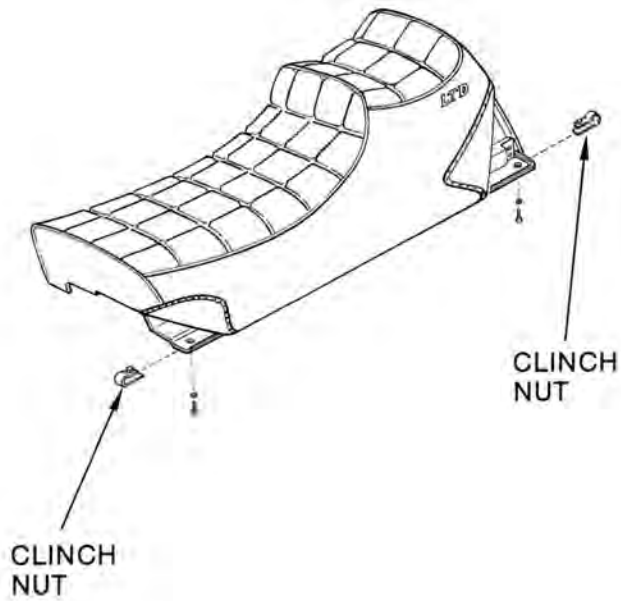
Carburetor service is as described in Chapter Five of the LTD Shop Manual. The air vent tubes have been lengthened, and are routed through tube retainers.





# CHASSIS

Chassis service is as described in Chapter Seven of the LTD Shop Manual, except for the "blind nuts" used for seat mounting. If these nuts become stripped, replacements are available (clinch nut, P/N 92015-3543).





# ENGINE

Engine service is as described in Chapter Eleven of the LTD Shop Manual, except for Piston Pin Bore Diameter tolerances.

PISTON PIN BORE DIAMETER TOLERANCES	
STANDARD (NEW)	SERVICE LIMIT (USED)
17.999-18.006 mm (0.7086-0.7089 in.)	18.030 mm (0.7098 in.)

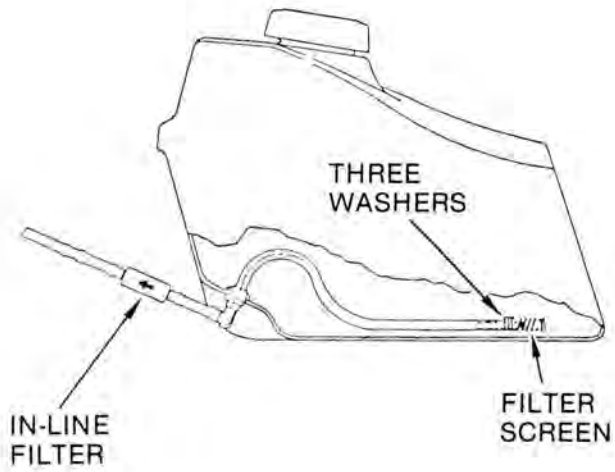
**NOTE:** This correction applies to the 1981 LTD models (SS440-B2 and SS440-B3) as well as the 1982 LTD models (SS440-B2A and SS440-B3A). Mark this correction in your LTD Shop Manual.





# FUEL SYSTEM

Fuel system service is as described in Chapter Twelve of the LTD Shop Manual. Three washers are added to the fuel tube to keep the tube submerged.





# SILENCER

Silencer service is as described in Chapter Seventeen of the LTD Shop Manual, except for the addition of adapter rings to the silencer seals. The adapter rings slide onto the carburetors in front of the silencer seals.

