



## Electronic Service Manuals

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You may contact Michco through the following methods:

Phone (517) 484-9312 or (800) 331-3339

2011 N. High St. -- Lansing, Michigan -- 48906

Fax: (517) 484-9836

Email: [CustServe@Michco.com](mailto:CustServe@Michco.com)

Web site: [www.Michco.Com](http://www.Michco.Com)

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# American-Lincoln®

**Operator's  
Manual &  
Parts List**



**SC7740  
Sweeper/  
Scrubber**

Before Serial Number 691147

## **READ THIS BOOK**

This book has important information for the use and safe operation of this machine. Failure to read this book prior to operating or attempting any service or maintenance procedure to your machine could result in injury to you or to other personnel; damage to the machine or to other property could occur as well. You must have training in the operation of this machine before using it. If you or your operator(s) cannot read English, have this manual explained fully before attempting to operate this machine.

Si Ud. o sus operadores no pueden leer el Inglés, se hacen explicar este manual completamente antes de tratar el manejo o servicio de esta máquina.

All directions given in this book are as seen from the operator's position at the rear of the machine.

For new books, write to: American-Lincoln, Inc., 1100 Haskins Road, Bowling Green, Ohio 43402

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## SPECIFICATIONS

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### DIMENSIONS

Length	-	89 in. (223 cm)
Width	-	47 in. (119.3 cm)
Height	-	59 in. (152 cm)
Height w/Overhead Guard	-	81.2 in. (206.2 cm)
Wheel Base	-	38.6 in. (98.0 cm)

### CLEANING PATH

Scrubbing	-	40 in. (101 cm)
-	-	46 in. (117 cm)
Sweeping	-	46 in. (117 cm)
Edge Cleaning	-	6 in. (15 cm) Right Side 46 in. (117 cm) only

### TRANSPORT SPEED

-	0-4 MPH (0-6.4 kph)
---	---------------------

### STEERING

-	Rack & Pinion 90°-90° with Hydraulic Assist
---	---

### TURNING RADIUS

Left -	-	59 in. (150 cm)
Right	-	59 in. (150 cm)
Aisle "U" Turn	-	87 in. (221 cm)

### WEIGHT

Standard Machine (Battery)	-	2550lbs. (1157kg.) without battery
	-	3580lbs. (1623.9kg.) Operating

### TIRES

Front Solid Urethane	-	Two (2) 16 in (41cm) x 3.75 in (8.26 cm)
Rear Solid Rubber	-	One (1) 16 in (41 cm) x 4.00 in (10.16cm)

### RAMP CLIMBING

-	Transporting 12°
-	Operating 6°

### INSTRUMENTS AND CONTROLS

Main/Side Broom Switch	Key Switch
Low LP Indicator Light	Hour Meter
Squeegee Switch	Fuel Gauge
Recovery Tank Full Light	Choke
Scrub Deck Switch	Dust Control Switch(with certain models)
Horn Button	Low Solution Light
Solution Control Knob	Filter Shaker Switch
Hopper Switch	Engine Speed Switch
Parking Brake	Directional Control Pedal

### SCRUBBING SYSTEM

Brush Size-46" (116.84 cm)	-	Three (3) 16" (40.6cm) Diameter
Brush Size-40" (101.4 cm)	-	Two (2) 20" (51cm) Diameter
Scrub Deck Down Force	-	300lbs.( 136.0kg.)
Brush Removal	-	No Tool

### BRUSH OPTIONS

Nylon	Amerifil (.025)
Proex	Amerifil (.040)

**SOLUTION CONTROL SYSTEM**

- Solution Tank - 60 Gallons (227 liter) Polyethylene
- Solution Control - Variable to 3.0 GPM (11.4 lpm)
- Type - Gravity Feed

**OPTIONAL EQUIPMENT**

- Back-Up Alarm Headlight/Taillights
- Seat Belt Strobe Light (Red or Amber)
- ESP System Overhead Guard
- Pad Drivers Squeegee Wand
- Spray and Vac Wand Option Fire Extinguisher
- Linatex Squeegee

**DRIVES**

- Propulsion - Variable Displacement Pump-Hydraulic Motor
- Sweeping - Hydraulic
- Scrubbing - Hydraulic
- Vacuum-Solution Pick-Up Hydraulic
- Sweeping - Hydraulic
- Dust Control - Hydraulic

**HYDRAULIC SYSTEM**

- Main Pump - Load Pressure Compensated Variable Displacement
- Reservoir - 9.5 Gal (35.9 liter)
- Control Valves - Electro Hydraulic with 10 Solenoids
- Fluid - Mobil Multipurpose ATF or Equivalent
- Dexron III Fluid

**SOLUTION RECOVERY SYSTEM**

- Vacuum Fan - Impellor, Hydraulic Drive

**RECOVERY TANK**

- 78 Gallons (295 liter) Polyethylene

**SQUEEGEE**

- Rear - Accu-Trac™ 40 in (101.6 cm) Swing, break away, Accu-Trac™ 46 in (116.8 cm) Swing, Break Away
- Side - 26 in (66 cm) Floating
- Squeegee Material - Gum Rubber

**SWEEPING SYSTEM**

- Type - Direct Throw

**HOPPER**

- Capacity - 2.5 cu.ft.(71liter)
- Weight Capacity - 160 lbs (72 kg)

**DUMP AND LIFT**

- Dump Height - 14 in (35.6 cm.)

**MAIN BROOM**

- One piece plastic core disposable type. Can be used for wet sweeping, free-float broom position.
- Length - 36 in (91.4 cm)
- Diameter - 10 inches (25.4 cm)
- Optional Bristle Type - Nylon (High density)
- Proex
- Nylon

## SPECIFICATIONS

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### SIDE BROOM

- Side Broom Size - 16 inches (40.6 cm) Diameter

### BRAKING SYSTEM

- Dynamic - Hydraulic, Reverse of Drive Motor
- Parking - Dual Disc Brakes, Mechanically Activated

### ENGINE SYSTEM

#### Kubota WG1005

- Type - Vertical, Water Cooled Four (4) Cylinder Gasoline Engine
- Bore and Stroke - 2.68in x 2.68in (68mm x 68mm)
- HP - 24.5 @ 3600 RPM
- Oil Capacity Displacement - 45.2 cu in (740 cc)
- Fuel - Standard Automotive Gasoline
- Coolant - 50/50 Ethylen Glycol and Water

#### Kubota DF1005

- Type - Vertical, Water Cooled Four (4) Cylinder LP Engine
- Bore and Stroke - 2.68in x 2.68in (68mm x 68mm)
- HP - 24.5 @ 3600 RPM
- Oil Capacity Displacement - 45.2 cu in (740 cc)
- Fuel - Standard Automotive Gasoline
- Coolant - 50/50 Ethylen Glycol and Water

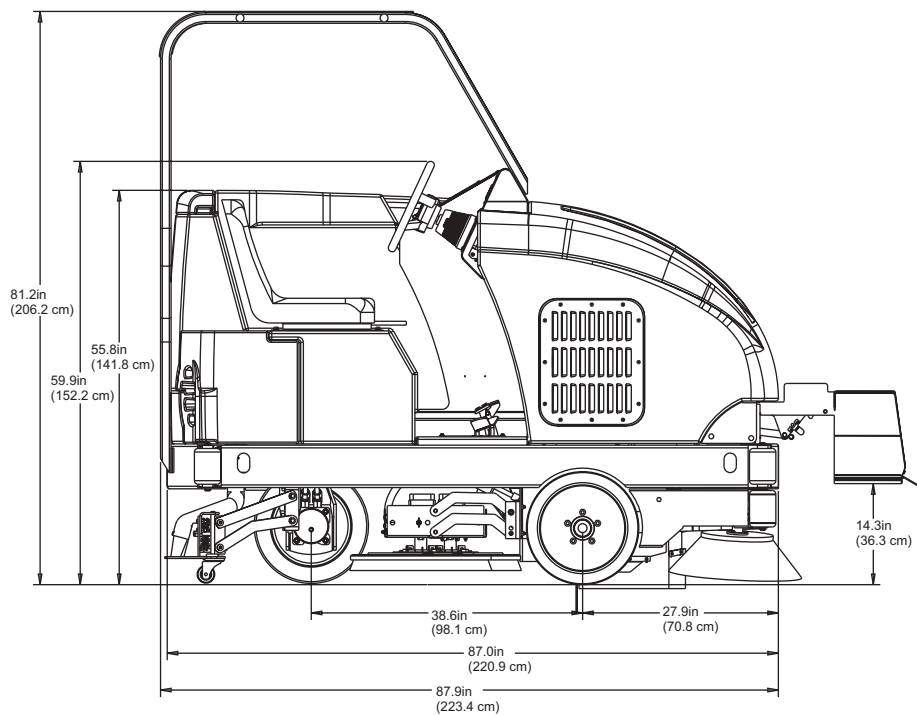
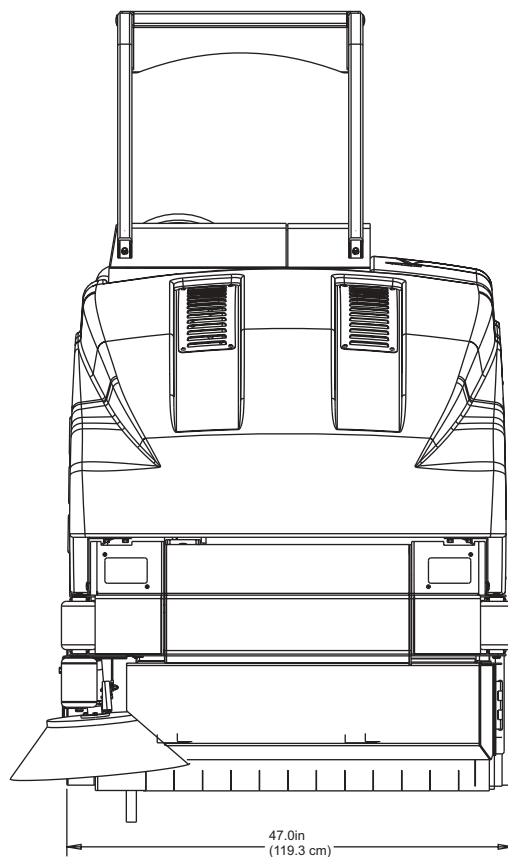
### FUEL SYSTEM

- Gas Tank - 20 gal (75.7 liter)
- LPG Tank - 33 lbs (13.61kg)

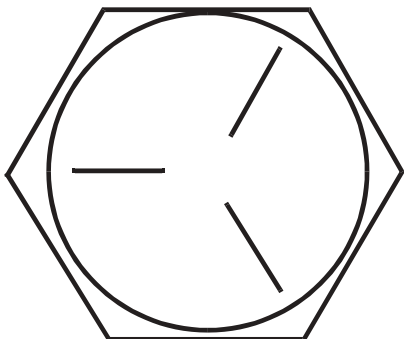
### PROPULSION SYSTEM

- Type - Hydro-Mechanical
- Control - Foot Activated Pedal

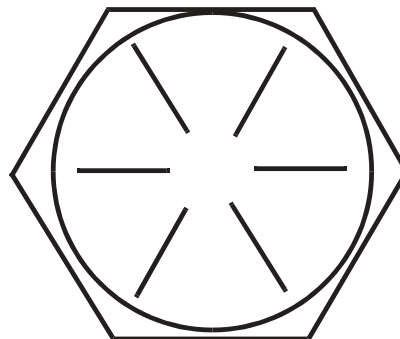
# MACHINE DIMENSIONS



## BOLT IDENTIFICATION



SAE - Grade 5



SAE - Grade 8

Screw Size	Grade 5 Plated		Grade 8 Plated		410H Stainless		Brass	Type F & T & BT		Type B, AB
	C	F	C	F	C	F		C	F	
*6	14	15	-	-	18	20	5	20	23	21
*8	27	28	-	-	33	35	9	37	41	34
*10	39	43	-	-	47	54	13	49	64	49
*1/4	86	108	130	151	114	132	32	120	156	120
5/16	15	17	22	24	19	22	6	-	-	-
3/8	28	31	40	44	34	39	10	-	-	-
7/16	44	49	63	70	55	62	16	-	-	-
1/2	68	76	95	108	85	95	-	-	-	-
9/16	98	110	138	155	-	-	-	-	-	-
5/8	135	153	191	216	-	-	-	-	-	-
3/4	239	267	338	378	-	-	-	-	-	-
7/8	387	-	545	-	-	-	-	-	-	-
1	579	-	818	-	-	-	-	-	-	-

C = Coarse Thread

F = Fine Thread

\* = Torque values for #6 through 1/4 are lb./in. All others are lb./ft.

**NOTE**

Decrease the torque by 20% when using thread lubricant  
The torque tolerance is ± on torque values.

+

C2000/9905

## HYDRAULIC TORQUE REQUIREMENTS

### HYDRAULIC TORQUE REQUIREMENTS

Refer to the following chart for torque values on all hydraulic hoses and fittings.

Nominal SAE Dash Size	O-Ring Face Seal End		SAE O-Ring Boss End	
	Thread Size Inch	Swivel Nut Torque	Thread Size Inch	Str. Fitting or Locknut Torque
		LB-FT		LB-FT
-3	*	*	3/8-24	8-10
-4	9/16-18	10-12	7-16-20	14-16
-5	*	*	1/2-20	18-20
-6	11/16-16	18-20	9/16-18	24-25
-8	13/16-16	32-35	3/4-16	50-60
-10	1-14	46-50	7/8-14	72-80
-12	1 3/16-12	65-70	1 1/16-12	125-135
-14	1 3/16-12	65-70	1 3/16-12	160-180
-16	1 7/16-12	92-100	1 5/16-12	200-220
-20	1 11/16-12	125-140	1 5/8-12	210-280
-24	2-12	150-165	1 7/8-12	270-360

\* O-Ring face seal type end not defined for this tube size.

**NOTE**

**Parts must be lightly oiled with hydraulic fluid.**

C-2002

# DECIMAL - METRIC CONVERSION TABLE

FRACTION	DECIMAL	MILLIMETER	FRACTION	DECIMAL	MILLIMETER
$\frac{1}{64}$	0.015625	0.3969	$\frac{33}{64}$	0.515625	13.0969
$\frac{1}{32}$	0.03125	0.7938	$\frac{17}{32}$	0.53125	13.4938
$\frac{3}{64}$	0.046875	1.1906	$\frac{35}{64}$	0.546875	13.8906
$\frac{1}{16}$	0.0625	1.5875	$\frac{9}{16}$	0.5625	14.2875
$\frac{5}{64}$	0.078125	1.9844	$\frac{37}{64}$	0.578125	14.6844
$\frac{3}{32}$	0.09375	2.3813	$\frac{19}{32}$	0.59375	15.0813
$\frac{7}{64}$	0.109375	2.7781	$\frac{39}{64}$	0.609375	15.4781
$\frac{1}{8}$	0.125	3.1750	$\frac{5}{8}$	0.625	15.8750
$\frac{9}{64}$	0.140625	3.5719	$\frac{41}{64}$	0.640625	16.2719
$\frac{5}{32}$	0.15625	3.9688	$\frac{21}{32}$	0.65625	16.6688
$\frac{11}{64}$	0.171875	4.3656	$\frac{43}{64}$	0.671875	17.0656
$\frac{3}{16}$	0.1875	4.7625	$\frac{11}{16}$	0.6875	17.4625
$\frac{13}{64}$	0.203125	5.1594	$\frac{45}{64}$	0.703125	17.8594
$\frac{7}{32}$	0.21875	5.5563	$\frac{23}{32}$	0.71875	18.2563
$\frac{15}{64}$	0.234375	5.9531	$\frac{47}{64}$	0.734375	18.6531
$\frac{1}{4}$	0.25	6.3500	$\frac{3}{4}$	0.75	19.0500
$\frac{17}{64}$	0.265625	6.7469	$\frac{49}{64}$	0.765625	19.4469
$\frac{9}{32}$	0.28125	7.1438	$\frac{25}{32}$	0.78125	19.8438
$\frac{19}{64}$	0.296875	7.5406	$\frac{51}{64}$	0.796875	20.2406
$\frac{5}{16}$	0.3125	7.9375	$\frac{13}{16}$	0.8125	20.6375
$\frac{21}{64}$	0.328125	8.3344	$\frac{53}{64}$	0.828125	21.0344
$\frac{11}{32}$	0.34375	8.7313	$\frac{27}{32}$	0.84375	21.4313
$\frac{23}{64}$	0.359375	9.1281	$\frac{55}{64}$	0.859375	21.8281
$\frac{3}{8}$	0.375	9.5250	$\frac{7}{8}$	0.875	22.2250
$\frac{25}{64}$	0.390625	9.9219	$\frac{57}{64}$	0.890625	22.6219
$\frac{13}{32}$	0.40625	10.3188	$\frac{29}{32}$	0.90625	23.0188
$\frac{27}{64}$	0.421875	10.7156	$\frac{59}{64}$	0.921875	23.4156
$\frac{7}{16}$	0.4375	11.1125	$\frac{15}{16}$	0.9375	23.8125
$\frac{29}{64}$	0.453125	11.5094	$\frac{61}{64}$	0.953125	24.2094
$\frac{15}{32}$	0.46875	11.9063	$\frac{31}{32}$	0.96875	24.6063
$\frac{31}{64}$	0.484375	12.3031	$\frac{63}{64}$	0.984375	25.0031
$\frac{1}{2}$	.05	12.7000	1	1.00	25.4000

C2001-a/9905



Figure 1

YOUR SC7740 MACHINE HAS BEEN SHIPPED COMPLETE, BUT DO NOT ATTEMPT TO OPERATE WITHOUT FOLLOWING THESE INSTRUCTIONS.

### PREPARING THE MACHINE FOR OPERATION

1. Connect and tighten battery cables.
2. Fill the fuel tank with REGULAR GRADE gasoline (Gasoline Model) and Commercial Petroleum Gas (LP Model).



### WARNING

**Never fill the tank while the engine is running. Always be sure the gasoline container and sweeper are electrically connected before pouring gasoline. This can easily be done by providing an insulated wire (permanently attached to container) with a battery clip on the other end.**

3. Check engine crankcase oil level. Although properly lubricated at the factory, check before starting the engine. No special break in oil is used; and recommended number of operating hours before the initial oil change is the same as normal. After the first 50 operating hours, service must be performed on your engine to ensure future high performance and trouble free operation. See Maintenance.
4. Check radiator coolant level. Permanent type antifreeze is added at the factory to provide protection to approximately -35°F (37°C). To retain this protection level, always add ½ part water to ½ part antifreeze.
5. Check fluid level in hydraulic reservoir which is located in the engine compartment. The hydraulic reservoir is full when fluid can be seen 1/3 of the way up in the sight glass on the front of the reservoir. To get an accurate reading the hopper must be in the "DOWN" position. If fluid is required add Mobil Multi Purpose ATS or equivalent Dexron III fluid only. Do not fill the reservoir more than 1/3 of the way up the sight glass. See Maintenance.

## **SAFETY INSTRUCTIONS**

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**THE FOLLOWING STATEMENTS ARE USED THROUGHOUT THIS MANUAL AS INDICATED IN THEIR DESCRIPTIONS:**

### **DANGER**

To warn of immediate hazards which will result in severe personal injury or death.



### **WARNING**

To warn of hazards or unsafe practices which could result in severe personal injury or death.



### **CAUTION**

To warn of hazards or unsafe practices which could result in minor personal injury.

### **ATTENTION**

To warn of unsafe practices which could result in extensive equipment damage.

### **NOTE**

To give important information or to warn of unsafe practices which could result in equipment damage.



### **WARNING**

**THE FOLLOWING INFORMATION SIGNALS POTENTIALLY DANGEROUS CONDITIONS TO THE OPERATOR OR EQUIPMENT. READ THIS MANUAL CAREFULLY. KNOW WHEN THESE CONDITIONS CAN EXIST. THEN, TAKE NECESSARY STEPS TO TRAIN MACHINE OPERATING PERSONNEL. FOR THE SAFE OPERATION OF THIS MACHINE, READ AND UNDERSTAND ALL WARNINGS, CAUTIONS AND NOTES.**



### **WARNING**

Machines can ignite flammable materials and vapors. Do not use with or near flammables such as gasoline, grain dust, solvents, and thinners.



### **WARNING**

Improper use of heavy machinery can cause personal injury.



### **WARNING**

Operate only when lids, doors, and access panels are securely closed.



### **WARNING**

Use care when reversing machine in confined area.



### **WARNING**

When servicing the machine, disconnect the batteries first to prevent possible injury.



### **WARNING**

When working on the machine, empty hopper, remove batteries, clear area of people and obstructions, use additional people and proper procedures when lifting the machine.



### **WARNING**

Always empty the hopper and disconnect the battery before doing maintenance.



### **WARNING**

You must have training in the operation of this machine before using it. **READ THE INSTRUCTION BOOK.**



### **WARNING**

Do not operate this machine unless it is completely assembled.



### **WARNING**

Do not use this machine as a step or furniture.



### **WARNING**

Stop and leave this machine on a level surface. When you stop the machine, put the power switch in the "OFF" position and engage the Wheel Lock.

 **WARNING**

To prevent injury and damage to the machine, do not lift the machine or move it to an edge of a stair or loading dock.

 **WARNING**

Lead acid batteries generate gases which can cause an explosion. Keep sparks and flames away from batteries. **NO SMOKING.** Charge batteries only in areas with good ventilation.

 **WARNING**

Always wear eye protection and protective clothing when working near batteries. Remove all jewelry. Do not put tools or other metal objects across the battery terminals or across the tops of batteries.

 **WARNING**

Maintenance and repairs must be done by authorized personnel only. Tighten all fasteners. Maintain adjustments according to the specifications given in the service manual for the machine. Keep the electrical parts of the machine dry. For storage, keep the machine in a building.

 **WARNING**

Make sure all labels, decals, warnings, cautions and instructions are fastened to the machine. Purchase new labels and decals from American-Lincoln.

 **WARNING**

The operator must exhibit extreme caution when negotiating, turning, and traveling across grades or ramps. Start, stop, change direction, travel and brake smoothly. Slow down when turning.

 **WARNING**

Avoid uneven surfaces and loose materials. Watch for obstructions, especially overhead.

 **WARNING**

Operate only from the designated operator's position. Stay inside the body of the machine. Keep hands and feet on the designated controls. Always operate in well lighted areas.

 **WARNING**

Do not carry passengers on the machine. Set the Wheel Lock when leaving the machine. Chock (block) the wheels if the machine is parked on a grade (ramp), or is being prepared for Maintenance.

 **WARNING**

Never leave the operator's compartment when the is engine running.

 **WARNING**

Report damage or faulty operation immediately. Do not operate the machine until repairs have been completed. Maintenance and repairs must be done by authorized personnel only.

 **WARNING**

To maintain the stability of this machine in normal operation, the overhead guard, counterweights, roller bumper guards, or any similar equipment installed by the manufacturer as original equipment should never be removed. If it becomes necessary to remove such equipment for repair or maintenance, this equipment must be reinstalled before the machine is placed back into operation.

 **WARNING**

Electrical hazard. Shocks can cause serious personal injury. Unplug the battery before cleaning or servicing. To avoid possible injury or property damage, read the Operator's Manual before servicing the machine. Maintenance and repair must be done by authorized personnel.

 **WARNING**

Disconnecting the battery connector with the key switch in the "I" position will cause sparks that could ignite explosive hydrogen gas generated by the batteries. To prevent serious injury or possible property damage, turn Key Switch to "O" position before disconnecting the battery cable from the machine for charging or service.

## **SAFETY INSTRUCTIONS**

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**FOR SAFETY, OBSERVE THE FOLLOWING WARNINGS. FAILURE TO COMPLY MAY CREATE A SERIOUS RISK OF INJURY TO YOU AND OTHERS. THIS MACHINE SHOULD NOT BE USED IN HAZARDOUS LOCATIONS INCLUDING AREAS OF VOLATILE DUST OR VAPOR CONCENTRATIONS.**

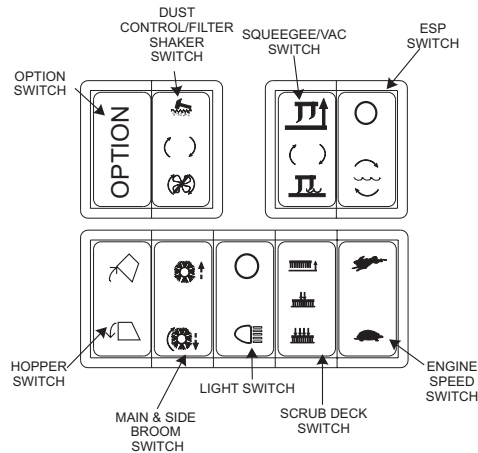
**Operators must be trained and qualified to operate this machine. They must also understand the operator's manual before starting.**

**Use caution when mounting or dismounting the machine particularly on wet slippery surfaces.**

Do not dump the hopper over an open pit or dock. Do not dump the hopper when positioned on a grade (ramp). The machine must be level (horizontal).

## LEFT SIDE CONSOLE

The left side console contains a set of nine (9) switches, a top bank of four (4) and a bottom bank of five (5). The console is completely fuse-driven.



### LIGHT SWITCH (OPTIONAL)

If installed the two-way light switch is located on the lefthand console in the bottom bank. By pressing on the lower part of the switch, various light options available for this machine are controlled. Pressing the upper portion of the switch turns off all light options.

### DUST CONTROL/FILTER SHAKER SWITCH

The dust control/filter shaker switch is located on the left side console in the top bank. By pressing the top of the switch, the filter shaker motor is activated for approximately 20 seconds. The impeller fan will stop when the filter shaker has been activated. The filter shaker will only operate with the hopper in the "DOWN" position. If the switch is in the middle position, the dust control system automatically engages when the main broom is lowered and disengages when the broom is raised. Pressing the bottom of the switch turns the dust control system off completely, using a manual override. The dust control system should **NOT** be used if sweeping in wet conditions in order to avoid dust filter damage.

### NOTE

The filter shaker will automatically run each time the broom is turned off and the DustControl is in Auto mode (switch is in middle position).

### MAIN BROOM & SIDE BROOM SWITCH

The main & side broom switch is located on the left side console in the bottom bank. By pressing in the upper portion of the switch, the side and main broom are raised and turned off. To lower and turn on both brooms for normal (flat surface) sweeping, press the lower portion of the switch. If a "FLOAT" (uneven surface) position is desired, the brooms must be adjusted manually. (See Main & Side Broom Adjustment in this chapter.)

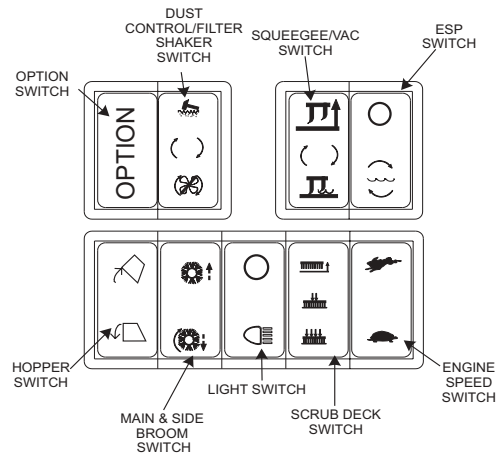
### SCRUB DECK SWITCH

The three-way scrub deck switch is located on the left side console in the bottom bank. In the middle position, the scrub brush deck is lowered and the three brushes activated for normal scrubbing. To activate heavy-pressure scrubbing, press the lower portion of the switch. Pressing the upper portion of the switch stops brush rotation and raises the scrub deck.

### NOTE

Lowering the scrub deck will not start the brushes rotating. The foot pedal must be moved to engage the scrub brushes. If the machine stops moving for 2 seconds or more, the brushes will automatically stop rotating until the machine starts moving again.

## OPERATION OF CONTROLS AND GAUGES - Cont.



### ENGINE SPEED SWITCH

This two-position switch, located on the left side console in the bottom bank, controls the engine. The switch position determines the governed operating speed of the engine. Place the speed switch in the "IDLE" position to start the machine. Place the speed switch in the "FAST" position for transport and during normal operation,

#### NOTE

**The engine will NOT start unless the switch is in the "IDLE" position.**

### SQUEEGEE/VAC SWITCH

The squeegee switch is located on left side console in the bottom bank. Pressing the upper portion of the switch raises the squeegee and turns off the squeegee vacuum system.

In the middle position, the squeegee and its vacuum system will operate automatically when the machine's scrub deck is lowered. When the scrub deck is raised, the squeegee and vacuum system automatically shuts down. The vacuum functions on a 15-second delay, collecting the water remaining in the recovery hose. If the scrub deck is down and the machine is put in reverse (activated by the FWD/REV pedal), the squeegee will automatically raise, again with the vacuum on a 15-second delay. When the machine is once again placed in the forward position, the squeegee will lower and the vacuum automatically turns on.

In pressing the lower portion of the switch a manual override is engaged, allowing the squeegee and vacuum system to operate independent of the scrub deck. Again, if the machine is placed in reverse, the squeegee automatically raises and the vacuum system shuts off following a 15-second delay, resuming operation once the machine returns to its forward motion.

### HOPPER SWITCH

The hopper switch is located on the left side console. The switch controls operation of the hopper. To dump debris from the hopper, press the upper portion of the switch and continue to hold until the hopper is fully open. To lower the hopper, press the lower portion of the switch and continue to hold until the hopper returns to the closed position.

### ESP SWITCH (OPTIONAL)

If installed the ESP switch is located in the left side console on the far right of the top bank. This switch is an open switch unless a machine option, such as a water recycling system, is ordered installed on the machine.

## OPERATION OF CONTROLS AND GAUGES - Cont.



### KEY SWITCH

The keyed ignition switch is located in the lower righthand corner of the instrument panel. The “OFF” position (O position) will shut off the engine. The “IGN/ON” position (I position) provides power to all machine systems and accessories. The “START” position (one position clockwise of I position) is momentary and provides power to the starter motor.

### NOTE

To reengage, the key must be returned to the “OFF” position.



### HOUR METER

The hour meter is located on the righthand side of the instrument panel next to the fuel gauge. The meter is activated when the key switch is placed in the ignition position. The meter indicates the actual “run” time of the machine. The meter can also be used to determine when maintenance should be done on the machine.



### FUEL GAUGE/LP INDICATOR LIGHT

The fuel gauge or LP indicator light is located on the instrument panel to the left of the hour meter and indicates the level of fuel in the tank or low LP indicator light. The key switch powers the fuel gauge. The key switch must be in the “ON” position for the fuel gauge to work. The fuel gauge is not included on machines that use Liquid Propane fuel.

### BACK-UP ALARM SWITCH (Option)

The back-up alarm is operated by a switch located under the lower section of the accelerator and directional control pedal. The alarm makes a loud audible noise when the machine is being driven in reverse.



### SOLUTION CONTROL KNOB

The solution control knob is located to the left hand side of the steering wheel below the indicator lights. Turning the knob clockwise will increase the flow of solution. Turning the knob counterclockwise will decrease the flow of the solution. To turn the solution off turn the knob all the way counterclockwise.

### NOTE

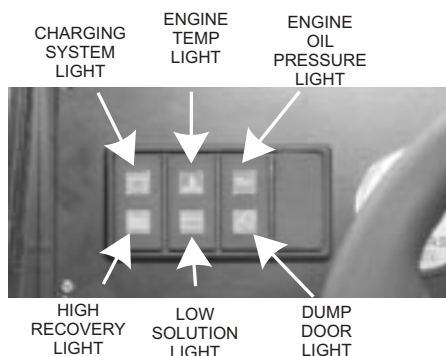
For best results, discontinue application of solution 10 feet before stopping or making a 90° or 180° turn.

## OPERATION OF CONTROLS AND GAUGES - Cont.

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### WARNING BANK

The Warning Bank is located on the lefthand side of the instrument panel and provides the operator with eight fault/status indicators for engine, sweeping, and scrubbing systems. The operator should monitor the indicators whenever operating the SC7740. It is very important the operator be familiar with the meaning of each indicator.



### ENGINE TEMP LIGHT

The engine temperature light illuminates to indicate an engine cooling system fault. When this occurs, the operator must turnoff the SC7740 immediately and have the cooling system serviced by a qualified technician.

### ENGINE OIL PRESSURE LIGHT

When the oil pressure drops below approximately 5 psi, an automatic protection circuit shuts down the engine and illuminates the light to indicate low oil pressure. When this occurs, have the SC7740 serviced by a qualified technician.

### CHARGING SYSTEM LIGHT

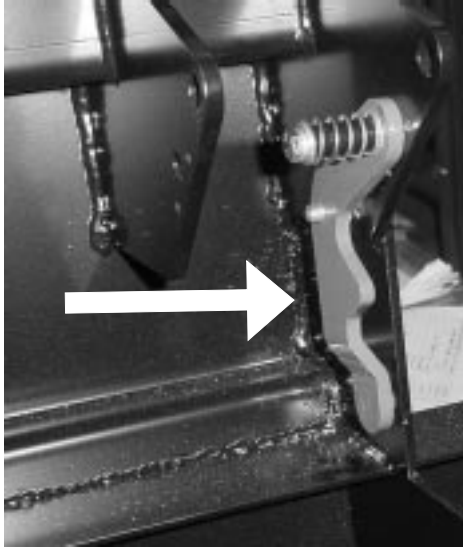
The charging system (battery) light illuminates to indicate a charging system fault. When this occurs, the SC7740 charging system is not working properly and must be serviced by a qualified technician.

### HIGH RECOVERY LIGHT

The recovery high warning light, located on the lefthand side of the instrument panel, will illuminate approximately 5 minutes before the recovery tank is full, giving ample time to complete the scrubbing cycle, before the mechanical float shuts off the vacuum to the recovery tank.

### LOW SOLUTION LIGHT

The low solution warning light, located to the left of the high recovery light, will illuminate when the solution tank is empty and marks the end of the scrubbing cycle.



### HOPPER SAFETY ARM

The hopper safety arm is located near the right front wheel well. The safety arm prevents the hopper from dropping unexpectedly during service/maintenance.

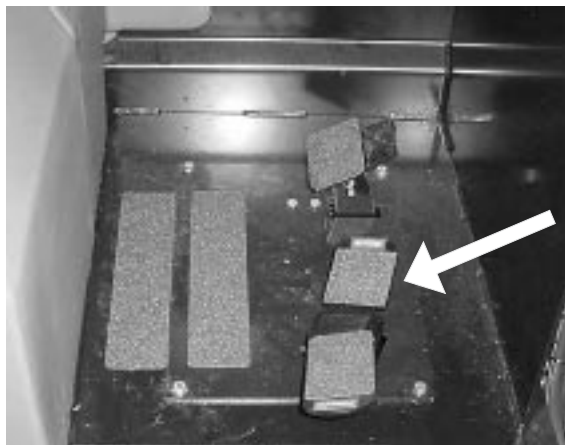
### TO ENGAGE SAFETY ARM:

1. Raise hopper.
2. Set parking brake.
3. Lift safety arm to engage the slot on the hopper frame.
4. When work has been completed, replace the safety arm to the stowed position.



### SEAT POSITION ADJUSTMENT

The seat position adjustment lever is located on the front of the seat to the left. The lever is spring-loaded to the "LOCK" position. To adjust the seat, push the lever to the "RIGHT" and move the seat to the desired position. Then release the lever to "LOCK" the seat into place.



### DIRECTIONAL CONTROL PEDAL

The Directional Control Pedal is located on the floor of the operator's area. This pedal controls the machine direction.

1. Apply foot pressure on the right side of the pedal to move the machine forward.
2. Increase foot pressure on the right side of the pedal to increase the forward speed.
3. Apply foot pressure on the left side of the pedal to move the machine in reverse.
4. Increase the pressure on the left side of the pedal to increase the reverse speed.

The Directional Control Pedal also controls the dynamic braking of the machine.

1. To stop the machine, allow the directional control pedal to return to the neutral (center) position. The pedal will automatically return to the neutral position when the foot pedal is released, or when light foot pressure is applied on the opposite side of the pedal. If the machine is moving forward, put light foot pressure on the left side of the pedal. If the machine is moving in reverse, put light foot pressure on the right side of the pedal.

## OPERATION OF CONTROLS AND GAUGES - Cont.

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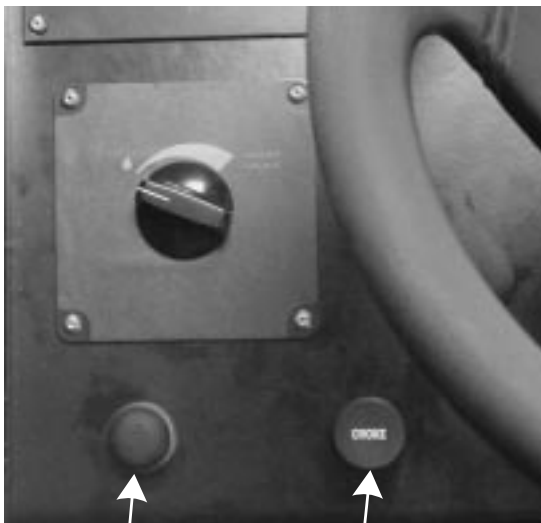


### HYDRAULIC RESERVOIR LEVEL SIGHT GAUGE

The sight gauge is located on the front of the secondary hydraulic reservoir. The sight gauge is used to indicate the level of fluid in the reservoir. The fluid level must be visible in the sight gauge when the hopper is in the down position.

### NOTE

Do not fill the remote reservoir so that the hydraulic fluid is more than 1/3 of the way up the sight gauge.



### HORN BUTTON

The horn button is located on the instrument panel in the lower lefthand corner. The horn button is always active.

### CHOKE

The choke control is located on the instrument panel to the right of the horn button and is used to aid in starting the engine. The choke governs the mixture of air and fuel during the combustion cycle of engine operation. The choke should be pulled while starting the engine and then gradually pushed in after the engine warms up.

- To turn on the choke for "COLD" starting, pull out the knob marked choke.
- To turn off choke once the engine running, gradually push in the control knob.

HORN

CHOKE

## BEFORE STARTING THE ENGINE

1. Set parking brake.
2. Make sure all controls are in the "OFF" position.
3. Be sure the directional control pedal is in neutral.

### NOTE

Before starting the engine, perform the pre-start checklist.

## PRE-START CHECKLIST

1. Clean engine air filter element.
2. Check engine oil level.
3. Check radiator coolant level.
4. Check hydraulic fluid level.
5. Check fuel level.
6. Check all systems for leaks.
7. Check brakes and controls for proper operation.
8. Check broom patterns.
9. Check to ensure all covers, panels, and access doors are securely closed.

### NOTE

To prevent possible fire, never fill fuel tank while the engine is running. Always be sure gasoline container and machine are grounded before dispensing gas. This can be done by permanently attaching an insulated wire with a battery clip on the end to the gasoline container.



### WARNING

When the machine has been stored in below-freezing temperatures, run the engine at no more than  $\frac{1}{2}$  throttle with the machine standing still for 5-10 minutes to warm the engine and hydraulic oil.

## STARTING GAS ENGINES

Use the choke in extremely cold temperatures, (under 32°F or 0°C).

1. Pull choke if needed.
2. Set the engine speed control to idle setting.
3. Turn key to "START" position until engine starts, then release. (The key switch will return to the "I" position).
4. Push in the choke after engine starts running (if used).

## STARTING LP ENGINES

Perform these checks in addition to the pre-start checklist:

1. Check connections for leaks.
2. Open the LP storage tank valve.
3. Check the regulator. Momentarily press the fuel primer on the regulator cover to bleed air out of the system.
4. Set the engine speed control to the "IDLE" (low) speed setting.
5. Turn key to "START" until engine starts, then release (key switch will return to the "I" position).

## POST-OPERATION CHECKLIST

1. Clean the debris hopper.
2. Check sweeping brooms for wear or damage.
3. Check all squeegees and flaps for wear, damage, and any needed adjustment.
4. Fill the fuel tank.
5. Check all systems for leaks.
6. Close the LP storage tank valve (LP powered machines only).

## SERVICE CHART

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### SERVICE CHART

Check items for proper operation. If service is required, please contact an authorized American-Lincoln distributor. For best performance, replace worn parts with genuine American-Lincoln parts.

### BREAK-IN

During the initial break-in period of the engine, the crankcase oil and filter should be changed after 10 hours.

### EVERY 8 HOURS or DAILY operation check and clean/adjust if necessary:

1. Inspect panel filters for damage and clean them.
2. Check engine oil level.
3. Check hydraulic fluid level.
4. Check radiator core for blockage.
5. Check all flaps for wear or damage.
6. Check brooms for wear or damage, adjust as required.
7. Check panel filters (clean side) for leakage.
8. Check brake pedal and parking brake.
9. Check for LPG odor at connections. LP
10. Check water separator.
11. Check engine air cleaner.
12. Check hydraulic oil filter.
13. Check coolant level.
14. Check battery electrolyte level.
15. Check Drive belt tension.
16. Check all fluid system components for leaks.

### 50 HOUR (WEEKLY) MAINTENANCE CHECKLIST

17. Check solution tank (recycling or ESP system).
  18. Check solution filter screen (recycling or ESP system).
  19. Check recovery tank.
  20. Check recovery tank screens and filters.
  21. Inspect scrub brushes for wear or damage.
  22. Inspect rear and side squeegees for wear or damage.
  23. Check tension on all belts.
  24. Check battery electrolyte level (unless maintenance free battery).
  25. Check all hydraulic hoses for wear or cuts.
  26. Rotate main brush (end over end).
  27. Clean or replace panel filters.
  28. Lubricate dump system and drive wheel pivot points.
- Perform recommended engine maintenance (see engine manual if applicable).

### 100 HOUR MAINTENANCE CHECKLIST

29. Change crankcase oil.
  30. Change engine oil filter.
  31. Lubricate drive wheel, swivel wheel bearings, and steering rack guide (engine side above rear wheel).
  32. Lubricate front wheel bearings.
  33. Lubricate all moving joints.
  34. Check brake shoes for wear and adjust accordingly.
  35. Lubricate all 3 DANHOUSER bushings with NAPA #765-1363 or equivalent anti-seize lubricant. The bushings are located on the steering, scrub deck lift, squeegee lift, variable dump hopper door.
  36. Check fuel hose for leaks or deterioration.
  37. Check radiator hoses and clamps.
  38. Clean or replace engine air filter element as necessary.
- Perform recommended engine maintenance (see engine manual if applicable).

### 250 HOUR MAINTENANCE CHECKLIST

39. Lubricate squeegee casters.
  40. Clean solution tank and filter screen.
  41. Replace engine air filter element.
  42. Flush radiator coolant system.
  43. Remove spark plugs - clean or replace.
  44. Check distributor and points - service or replace.
  45. Clean and lubricate governor & choke linkage
  46. Replace fuel filter.
  47. Replace hydraulic filter element.
- Perform recommended engine maintenance (see engine manual if applicable).

### 400 HOUR MAINTENANCE CHECKLIST

48. Clean hydraulic reservoir.
49. Clean hydraulic intake strainer.
50. Change hydraulic fluid.

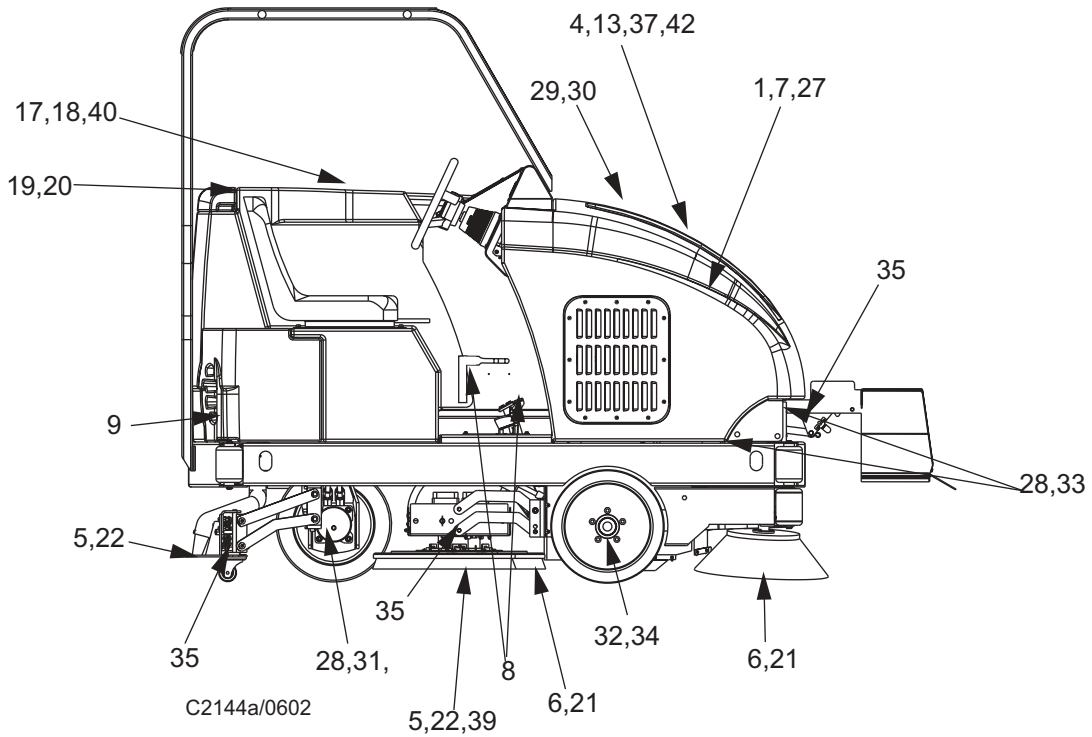
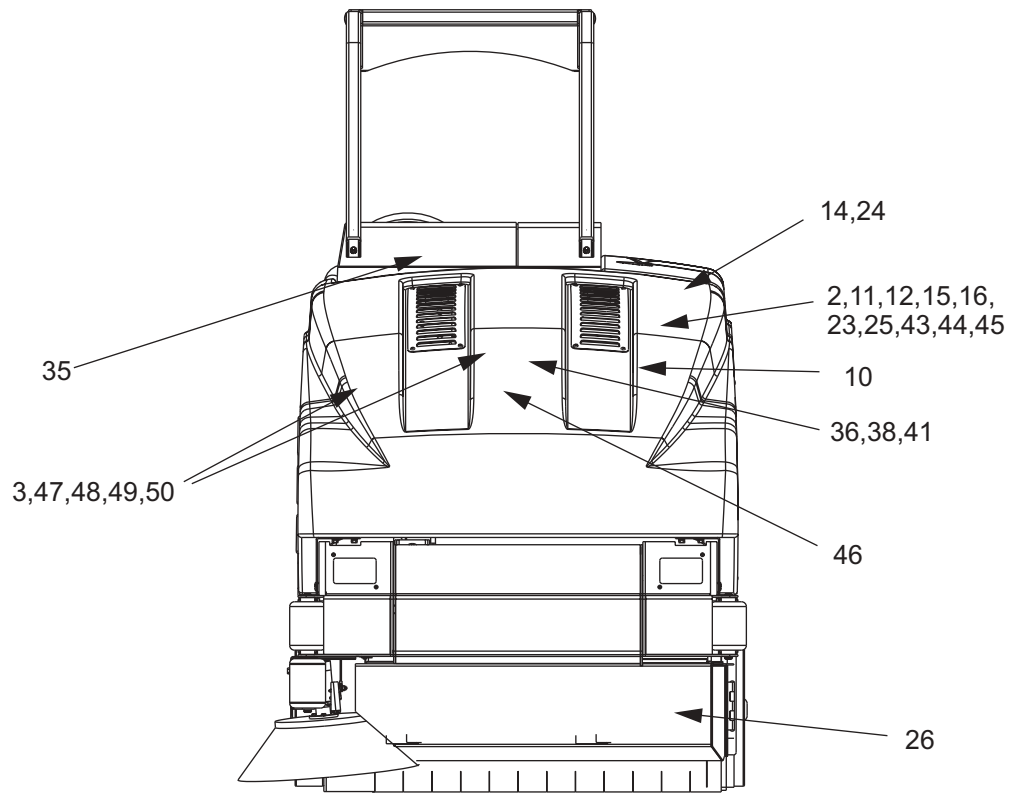
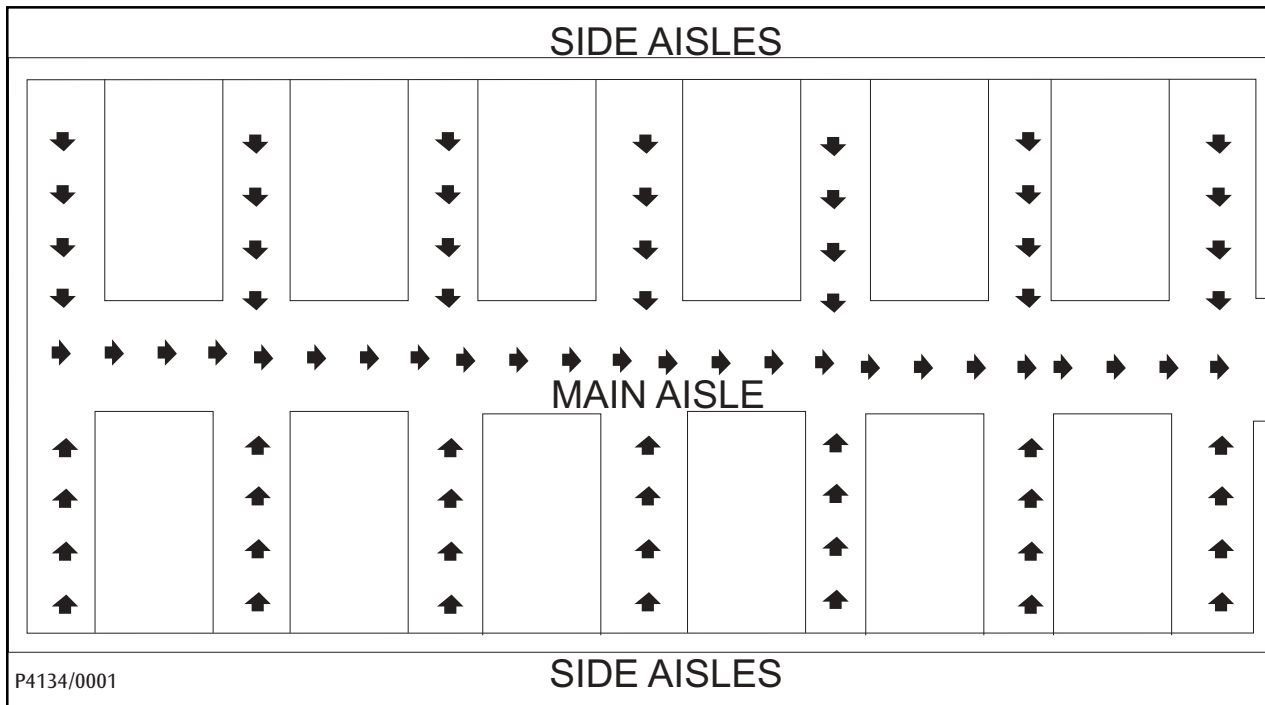


Figure 23

## HELPFUL HINTS FOR CLEANING OPERATION



### WARNING

Do not turn the steering wheel sharply when the machine is in motion. The machine is very responsive to movement of the steering wheel. Do not make sudden turns. Scrub in straight paths. Do not bump posts. Do not scrape the sides of the machine.

1. Plan your sweeping and scrubbing in advance. Try to arrange long runs with minimum stopping and starting. Sweep debris from narrow aisles out into main aisles ahead of time. Do an entire floor or section at one time.
2. Pick up oversize debris before sweeping.
3. Allow a few inches of overlap of sweep and scrub paths. This will eliminate leaving dirty patches.
4. Do not turn steering wheel too sharply when the machine is in motion. The machine is very responsive to movement of the steering wheel, so avoid sudden turns.
5. Try to follow as straight a path as possible. Avoid bumping into posts or scraping the sides of the machine.
6. Always allow the machine to warm up before operating in cold temperatures.
7. Periodically turn the sweeping broom end-over-end to prevent the bristles from "setting" in one direction.

### NOTE

Replace the sweeping broom when the bristles are worn to 3 inch (8 cm) length. Replace disc brushes when bristles are reduced to ½ inch (1.3 cm) in length. Replace squeegee rubbers when all usable edges have become rounded with wear, impairing the wiping action.

## SERVICE PRECAUTIONS

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For safety, read and follow the service precautions below. Know the hazards associated with the equipment you are working on to prevent personal injury or damage to equipment.

For service assistance, consult your nearest American Lincoln Dealer. For best performance replace worn parts with genuine American Lincoln parts.

Refer all Maintenance and Service requirements to Qualified Maintenance Personnel.

 **WARNING**

**DO NOT attempt to service this machine until you have read and understand all Safety Warnings associated with the equipment you are working on.**

 **WARNING**

**Electrical repairs must be done by authorized personnel only. Consult your American-Lincoln Authorized Service Person to do service procedures. Use only genuine American-Lincoln parts.**

 **WARNING**

**Unexpected movement could cause injury. Always park on a level surface, turn key off, and engage parking brake before working on the machine.**

 **WARNING**

**Maintenance and repairs must be done by authorized personnel only. Always empty the hopper and disconnect the batteries before doing any maintenance. Keep all fasteners tight. Keep adjustments according to the specifications as shown in the Service Manual for this machine.**

 **WARNING**

**Always wear eye protection and protective clothing when working near batteries. Do not put tools or other metal objects across the tops of the batteries. NO SMOKING.**

 **WARNING**

**The hopper could fall and cause serious injury. Always engage the hopper safety arm before working under the hopper.**

 **WARNING**

**Moving the fan and belt may cause injury. Stay clear of moving parts.**

 **WARNING**

**Pinch points may cause injury. Stay clear of moving parts.**

 **WARNING**

**To maintain the stability of this machine in normal operation, the overhead guard, or any similar equipment installed by the manufacturer as original equipment should not be removed. If it becomes necessary to remove such equipment for repair or maintenance, this equipment must be reinstalled before the machine is placed back in operation.**

 **WARNING**

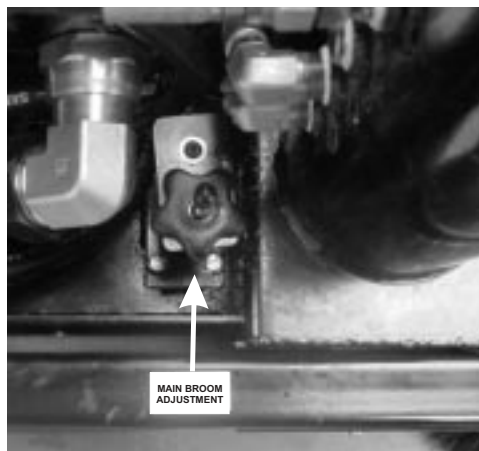
**To prevent injury or engine damage, do not remove the radiator cap under any conditions while the engine is running or when it is hot. To prevent burns from steam or scalding hot coolant being expelled from the radiator, use extreme care when removing the radiator cap. Wait until the engine has cooled.**

## SERVICE INSTRUCTIONS

### SWEEPING SYSTEM SERVICE

#### MAIN BROOM

To prevent the broom from “setting” in one direction and to provide the maximum life of the broom, it is recommended the broom be turned end-over-end periodically.



#### ADJUSTING THE MAIN BROOM HEIGHT

When changing the sweep height adjustment, it is recommended the knob be adjusted one turn at a time.

After adjustment, recheck the sweep pattern to determine if further adjustment is necessary.

Turn the adjustment knob counterclockwise to **INCREASE** the sweep pattern width.

Turn the adjustment knob clockwise to **DECREASE** the sweep pattern width.

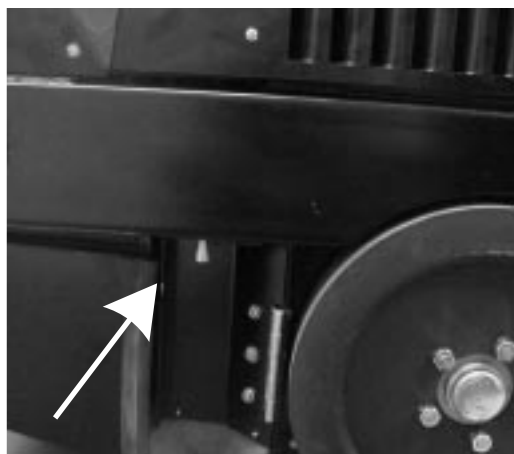
#### MAIN BROOM ACCESS DOOR

The main broom access door is located on the left side of the machine in front of the tire. The door provides access to the main broom for service (rotation, replacement) or inspection. The hopper must be raised before opening the access door. Open the access door by pulling downward on the knob. The door latch will automatically engage when the door is closed.



#### WARNING

Engage hopper safety arm while accessing the main broom.



#### REPLACING THE MAIN BROOM

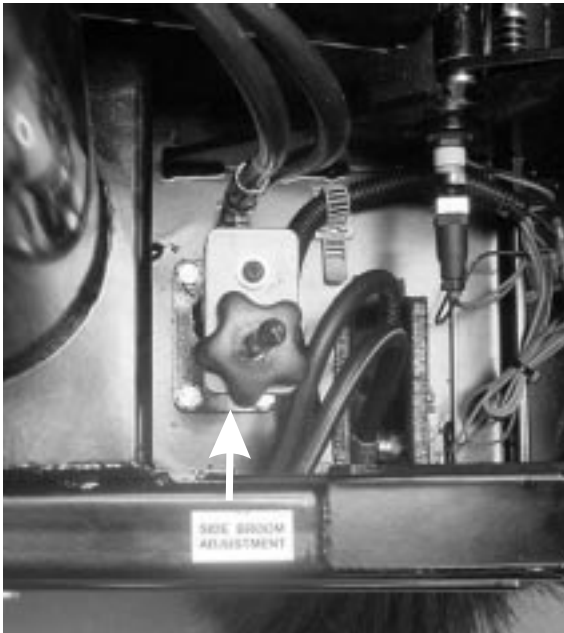
The Main Broom should be replaced when the bristles become worn to less than 3". The main broom is held in place by a removable broom idler arm. This feature provides for easy removal and installation of the main broom without the need for special tools or equipment. Follow the instructions below for main broom removal & replacement.

1. Park sweeper on a smooth level surface, engage parking brake, turn key switch to “O”, place the main/side broom switch in the “SWEEP” position.
2. Open the hopper cover, followed by the main broom door.
3. Loosen the knobs on the broom idler arm and then remove the arm
4. Remove the broom from the broom compartment.
5. Install the replacement broom. Pay special attention to the slots on the broom, it may be necessary to rotate the broom so the tabs on the drive hub align with the slots on the broom.
6. Engage the idler into the slots in the broom and reinstall the idler arm onto the broom. Close the broom door. Check the door latch for proper engagement when closed. Close the hopper cover.
7. Check the Main Broom sweep pattern and adjust as necessary.



### SIDE BROOM

The Side Broom sweeping angle is not adjustable. However, the height of the side broom can be adjusted to compensate as the broom becomes worn from use. Always check and adjust the sweep pattern after changing the side broom.

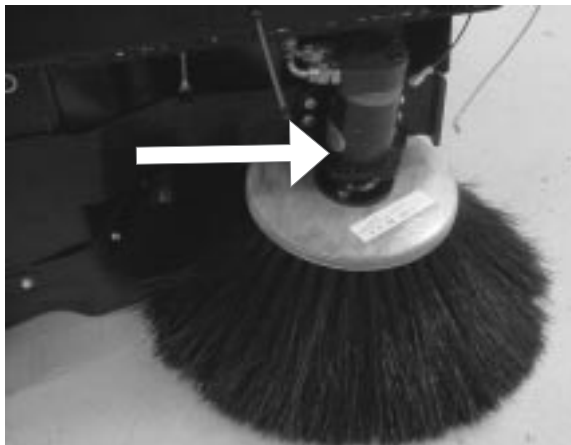


### ADJUSTING THE SIDE BROOM HEIGHT

Turn the side broom adjustment knob to change the side broom sweep height. Recheck for proper sweep pattern after adjustment.

Turn the adjustment knob counterclockwise to INCREASE the sweep pattern width.

Turn the adjustment knob clockwise to DECREASE the sweep pattern width.



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### REPLACING THE SIDE BROOM

Change the side brooms when the bristles become worn to less than 3".

1. Park the machine on a smooth level surface, turn key switch to "O" Position and engage parking brake.
2. Place broom switch in the "UP" position.
3. Remove the lock pin which holds the broom flange to the motor shaft.
4. Disassemble the flange from the broom by removing the screws which hold the flange to the broom.
5. Assemble the flange to the replacement broom and fasten using the hardware removed.
6. Install the replacement broom on the shaft and insert the lock pin.

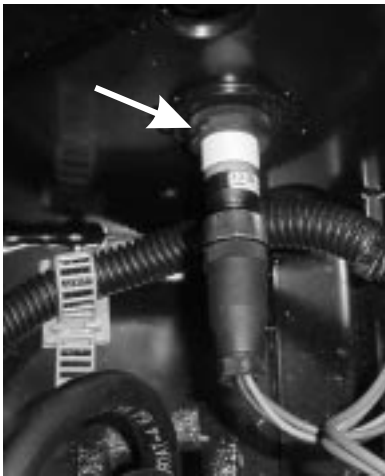


### HOPPER

The hopper houses the debris compartment, the dust control filter and the removable dust baffle. For maximum performance and service life, keep the hopper clean and inspect the seals and flaps daily. Clean the hopper prior to parking the sweeper at the end of the day. A clean hopper will make inspecting the flaps and seals much easier and will prevent premature deterioration of hopper components. Do not leave the hopper full of debris while in storage or when parked for extended periods of time.

### CLEANING THE HOPPER

Once the hopper has been emptied the insides of the hopper should be rinsed out with water.



### ADJUSTING THE HOPPER SWITCH

With the hopper fully closed and seated loosen the nut on the proximity switch and move it towards the hopper.

### DUST CONTROL FILTER

The dust control filter should be checked daily for damage and cleaned if necessary. A damaged filter must be replaced to prevent damage to other dust control system components. Inspect the filter for tears in the filter media or excessive dirt lodged in the pleats. A tear in the filter media will allow dirt to pass through the filter and can be easily seen as a dirty patch on the top side on the filter. Cleaning of the filter is necessary when the filter shaker fails to adequately clean the pleats.

### CHECKING THE DUST CONTROL FILTER

1. Park the machine on a smooth level surface, turn the key switch to the "O" position and engage the parking brake.
2. Raise the engine hood for access to the filter.
3. Pull out the locking knob on the side of the dust control filter release handle and then pull the handle to release the filter. Remove the filter.
4. Inspect the panel filter for tears and clean or replace if necessary.
5. Reinstall the filter, push the filter release handle unit and locking pin are engaged.
6. Close the hopper cover.

### CLEANING THE DUST CONTROL FILTER

Clean the dust control filter when the shaker fails to adequately clear the filter. The filter can be cleaned with compressed air not to exceed 100 PSI.

To clean the filter with compressed air, apply the compressed air to the top side of the panel to back flush the lodged dirt from the filter pleats. Be careful to not damage the filter media while cleaning. The filter can be cleaned with a solution of soap and water. If this cleaning method is used do not use the filter until it has completely dried.

### HOPPER SERVICE - Cont



#### REPLACING THE DUST CONTROL FILTER

Change the filter panel when damage is evident.

1. Park the machine on a smooth level surface, turn the key switch to the "O" position and engage the parking brake.
2. Raise the engine hood for access to the filter.
3. Pull out the locking knob on the side of the dust control filter release handle and then pull the handle to release the filter. Remove the filter.
4. Inspect the panel filter for tears and clean or replace if necessary.
5. Reinstall the filter, push the filter release handle unit and locking pin are engaged.
6. Close the hopper cover.

#### DUST FLAPS

The dust flaps are very important to sweeping and dust control and are susceptible to damage and should be inspected daily and maintained in good condition.

#### CHECKING THE DUST FLAPS

The dust flaps are used on the wheel well, broom chamber and broom door. Inspect the flaps daily and replace any flap that shows signs of wear or deterioration. All flaps should be replaced when worn or damaged to the point that they can no longer perform their normal function. The adjustable flaps have slotted mounting holes to facilitate adjustment.

#### ADJUSTING THE DUST FLAPS

Adjust the flaps so there is a 1/8" to 1/16" gap between the floor and the bottom edge of the flaps. The rear flap adjustment is 1/16" (16 cm) above the floor.

1. Park the machine on a smooth level surface and engage the parking brake.
2. Loosen the flap retaining screws and adjust the flap to clear the floor and leave a 1/16" to 1/8" gap.
3. Tighten flap retaining screws while holding flap in position.
4. Drive the machine on a smooth surface and recheck the flaps for proper floor clearance.



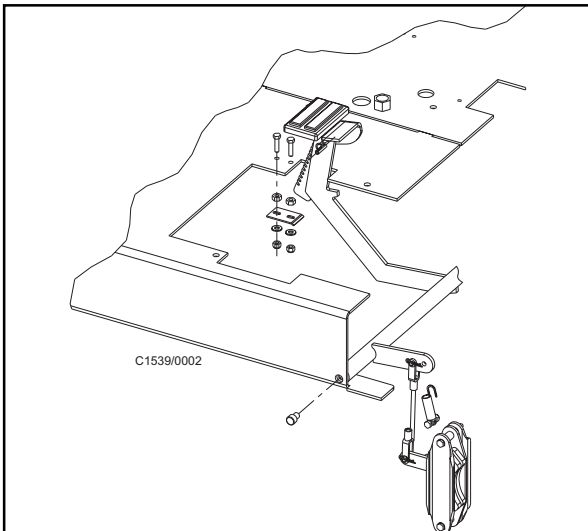


**NEUTRAL ADJUSTMENT**

**NOTE**

Orientation of the transmission arm assembly depends upon which engine is installed in the SC7740 Sweeper Scrubber. Adjustment directions given are as seen from the operator's position in the driver's seat.

1. Check engine no load RPM; SC7740, 2050 RPM. Check hydraulic reservoir oil level.
2. Raise the rear of the machine onto jack stands so the rear wheel is off the ground.
3. Loosen the jam nut away from the adjustment nut.
4. If the rear drive wheel is turning forward, turn the adjustment nut counterclockwise (this will lengthen the threaded shaft). If the rear drive wheel is turning in reverse, turn the adjustment nut clockwise (this will shorten the threaded shaft).
5. Tighten the jam nut against the threaded shaft.
6. Test for operation of neutral with the engine at full throttle. If the rear drive wheel turns, repeat adjustment steps 3, 4 and 5.



**PARKING BRAKES**

The parking brakes are located on the front wheels. They are operated by the brake pedal and the lock lever. Check the parking brakes daily for proper operation and inspect the brake pads for wear every 100 hours of operation.

**ADJUSTING THE PARKING BRAKE PEDAL**

Perform this adjustment to ensure proper pedal height and linkage operation. The brakes are properly adjusted when the brakes hold the SC7740 on a 6-degree ramp. The brakes need adjusted if the pedal travels closer than one inch to the floor of the operator's compartment when the brakes are fully engaged.



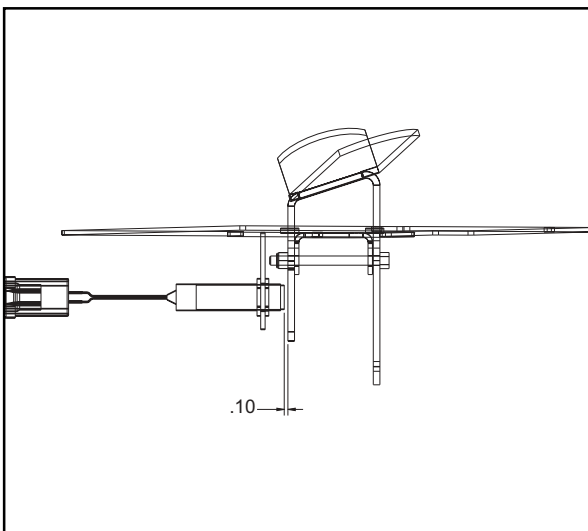
**WARNING**

The hopper could fall and cause serious injury. Always engage the hopper safety arm before working under the hopper.



**WARNING**

Always park on a level surface, chock tires and observe safety procedures when adjusting the brakes.



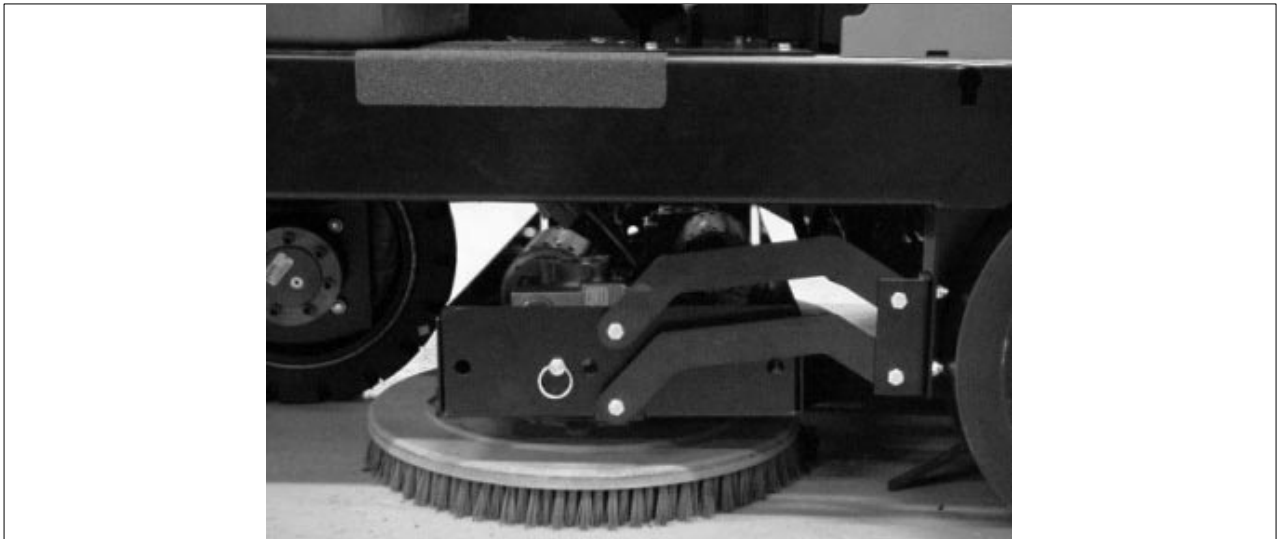
**ADJUSTING THE PARKING BRAKES**

When adjusting the brake clevis, follow these steps:

1. Open cover.
2. Remove pin from clevis (U-joint).
3. Adjust clevis clockwise to tighten brakes for maximum engagement.
4. With parking brake "off", rotate wheel with minimum drag. (Not completely free)

**ADJUSTING THE DIRECTIONAL CONTROL SWITCH**

With the forward/reverse pedal in the neutral position, adjust the switch so it is within .100" of face on the directional control pedal.



### **REPLACING THE SCRUB BRUSH**

1. Raise the scrub deck by pressing the top of the “Scrub Deck ” switch on the left side console.
2. Press in on the brush latches to release the scrub brush.
3. Remove the old scrub brush.
4. Snap the new brush into place.

### **COVERS AND LATCHES**

The covers have been designed to allow access, either by hinge or removal, to all areas of the machine. No maintenance is required.

### **LOW SOLUTION WARNING LIGHT**

The low solution warning will illuminate when the solution tank is low. This part of the level control system requires no maintenance. If the system fails to operate, consult the Electrical Troubleshooting Guide.

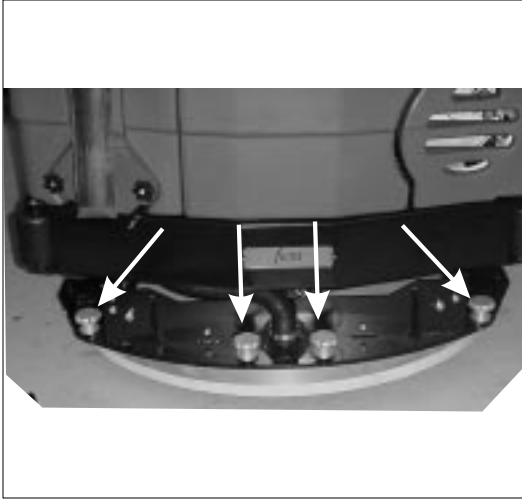
### **HIGH RECOVERY WARNING LIGHT**

The high recovery warning will illuminate approximately 5 minutes before loss of vacuum to the recovery tank. This part of the level control system requires no maintenance, except for daily cleaning of the tank level switch. If the system fails to operate, consult the Electrical Troubleshooting Guide.

### **SOLUTION CONTROL (Non-Recycling or Standard)**

The solution control knob controls the amount of solution applied to the scrubbing brushes. The solution control should shut off completely with the knob in the “off” position. If complete shut off does not occur, the control valve should be adjusted.

## GENERAL MACHINE MAINTENANCE - Cont.



### RECYCLING PUMP ESP SYSTEM

The recycling pump is located under the seat. The pump is electric and except for daily cleaning of the pump intake screens, it requires no regular maintenance.

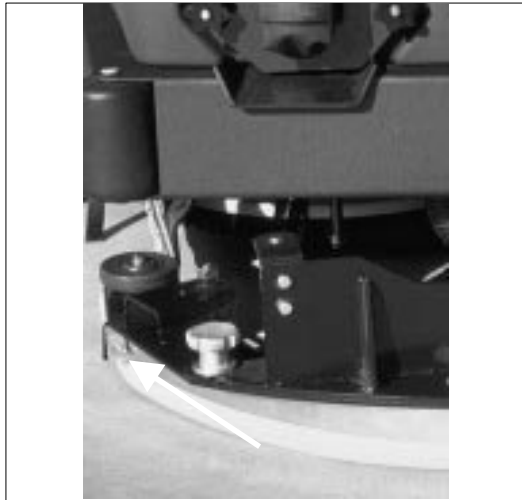
### RECYCLING PUMP STORAGE

Always drain pump for extended storage, especially when freezing temperatures may be encountered.

### REAR SQUEEGEE

The squeegee will require service when the inner edges of the blades become round with wear, impairing the wiping action or water pickup. To service the rear squeegee use the following steps:

1. Loosen the four aluminum knobs.
2. Remove the squeegee tool and turn upside down to service the blades or caster wheels. The squeegee blades are designed to flip over and use another unworn edge.



### To service the blades:

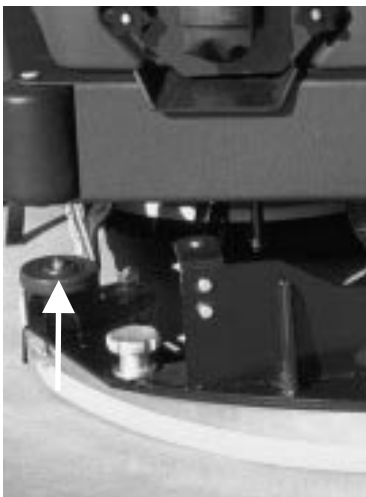
1. Loosen the clamp bolts which clamps squeegee tool together.
2. Loosen far enough to slip the end clamp brackets off the squeegee tool. This will allow flipping the blades or installing new blades.
3. Install blades so that the outer blade is 3/16" longer than the inner blades. This is achieved by assembling the top edge of the blade against the squeegee tool weldment.
4. Reinstall the squeegee clamp band and tighten the clamp bolt.

### SQUEEGEE CASTER WHEELS

There are two (2) grease fittings on each caster wheel. The casters should be greased each time the blades are serviced.

### ADJUSTING CASTERS

Lower the squeegee on a flat surface, making sure the rear squeegee blade is perpendicular to the surface. Adjust the caster 3/16" above the flat surface. Lock the jam nuts.





### EMPTYING THE RECOVERY TANK

Simply lower the drain hose, telescope out to a drain and let the recovery tank drain. The farther you telescope the hose the faster the water will drain.

When finished draining recovery tank loosen both knobs on the recovery clean out door. The door will pivot on the left knob, allowing room to let any debris to be sprayed out of the recovery tank with a water hose or pressure washer.

### MACHINE STORAGE

#### GASOLINE POWERED MACHINES

Machines to be stored over 30 days should be completely drained of fuel to prevent gum deposits from forming on essential carburetor parts, fuel filter, and tank.

The use of a fuel additive, such as STA-BIL, or an equivalent, will minimize the formation of fuel gum deposits during storage. Such an additive may be added to the gasoline in the fuel tank of the engine.

The following procedures should be used to prepare the machine for storage:

1. Remove all fuel from the tank. Run the engine until it stops from lack of fuel.
2. While the engine is still warm, drain oil from the crankcase. Refill with fresh oil.
3. Remove spark plug, pour approximately ½ ounce (15 grams) of engine oil into the cylinder and crank slowly to distribute oil. Replace spark plug.
4. Store in a clean and dry area.

## GENERAL MACHINE MAINTENANCE - Cont.

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### CHECKING ENGINE OIL LEVEL

1. Be sure the machine is parked on level ground.
2. To check the oil level, draw out the dipstick (1), wipe it clean, re-insert it, draw it out again. Check to see that the oil level lies between the two notches.
3. If the level is too low, add new oil of the same make and viscosity to the specified level.
4. If the oil intended to bring up the level is of a different make and/or viscosity, a complete oil change should be done. Never mix two different types of oil.

#### NOTE

Use the proper Engine Oil SAE according to the ambient temperatures.

### CHANGING ENGINE OIL

1. The oil should be changed after the initial 50 hours of operation and every 200 hours thereafter. After warming up, stop the engine.
2. Position a waste container appropriately, remove the oil plug and drain old oil completely.
3. Replace the plug securely.
4. Add new oil up to the upper limit of the oil level gauge.



#### WARNING

**The API classification of the engine oil should be SF class grade.**

Change the type of oil according to the ambient temperature of SAE viscosity grade.

Above 77° F (25° C)	32° F - 77° F (0° C - 25° C)	0° F - 32° F (-32° C - 0° C)
SAE 30 or SAE 10W30	SAE 20 or SAE 10W30SAE	10W or SAE 10W30

5. To change the engine oil filter cartridge, remove cartridge with a filter wrench; apply film of engine oil to the rubber gasket on the new cartridge and screw in by hand.



#### WARNING

**Overtightening may cause deformation of the rubber gasket. After the cartridge has been replaced, engine oil normally decreases a little. Check the oil level and add new oil to the specified level.**

#### NOTE

**After the cartridge has been replaced, the engine oil level normally decreases a little. Run the engine for a while and check for seal leaks before checking the engine oil level. Add oil if necessary.**

### FAN BELT TENSION

1. Measure the deflection (tension) by depressing the belt halfway between the fan drive pulley and the alternator pulley at 98 N (10 kgf, 22 lbs.) of force. Factory specification for fan belt tension is 0.28 to 0.35 inches (7 to 9 mm).
2. If the measurement is not correct, loosen the alternator mounting bolts and, using a lever places between the alternator and the engine block, pull the alternator out until the belt deflection falls within acceptable range. Tighten mounting bolts (under load of 10 kgf (22.1 lbs)).
3. Always replace a damaged belt.

### DRIVE BELT TENSION

1. Loosen the 4 bolts on the plate.
2. Loosen the jam nut on the bolt.
3. Torque the bolt to 120 in/lbs. (If you do not have an in/LB torque wrench use a ft/LB torque wrench and torque to 12 ft/lbs).
4. Tighten jam nut.
5. Tighten the 4 bolts to the plate finger tight.

### CHECKING THE SPARK PLUG GAP (at 400 hours)

1. Remove the carbon.
2. Measure the clearance with a feeler gauge.
3. If the clearance is outside the reference value, readjust it.
4. The factory specification for the spark plug gap is 0.039 to 0.043 in. (1.0 to 1.1 mm).

### CLEANING/CHANGING THE FUEL FILTER

1. Stop the fuel from tank.
2. Replace the fuel filter cartridge with a new one every 400 hours of operation.
3. The fuel filter should be checked at every 100 hours of operation and cleaned if necessary.

### CHECKING THE FUEL HOSES

1. Since the fuel hose (2) is made of rubber, it ages regardless of the period of service. Check fuel hoses every 100 hours of operation. Change the fuel hose together with the clamp every two years.
2. If the fuel hose and clamp are found to be damaged or deteriorate earlier than two years, then change.
3. After the fuel hose and the clamp have been changed, bleed the fuel system.
4. Check water hoses to see if they are properly fixed every 200 hours of operation or every six months, whichever comes first.
5. If the clamp is loose, apply oil to the threads and retighten it securely.
6. The water hose is made of rubber and tends to age. It must be changed every two years. Also change the clamp and tighten securely.



#### WARNING

**Stop the engine when attempting the check or change the fuel hose.**

### VALVE CLEARANCE (Check every 800 hours of use)

1. Loosen the lock nut and the adjusting screw on the rocker arm.
2. Turn the adjusting screw to adjust the valve clearance at the top dead center (T.D.C.) during the compression **stroke of the piston**. (To get the T.D.C., find piston's "TC" mark on the flywheel and align it to punchmark line on the rear end plate.)
3. Tighten the lock nuts and check the valve clearance again after several turns of the flywheel.
4. The factory specification for valve clearance is 0.0057 to 0.0072 inches (0.145 to 0.185 mm) with engine cold.

### AIR CLEANER

The air cleaner on this engine is a dry type. Never apply oil.

1. Open the evacuator valve once a week under ordinary circumstances (daily when used in dusty conditions). This will get rid of any large dust and dirt particles.
2. Wipe the inside of the air cleaner with a cloth if dirty or wet.
3. Avoid touching the element except when cleaning.
4. When dry dust adheres to the element, blow compressed air from the inside while turning the element. Pressure of compressed air must be under 686kPa (7kgf/cm<sup>2</sup>, 99 psi). Maintain a reasonable distance between the nozzle and filter.
5. When carbon or oil adheres to the element, soak in detergent for 15 minutes then wash several times in water, rinse with clean water, and dry naturally.
6. After element is fully dried, check inside it (with a strong light source) for damage. Reinstall (or replace if damaged), making sure the wing bolt is tightened.
7. Replace element every year or every 6 cleanings, whichever comes first.

## GENERAL MACHINE MAINTENANCE - Cont.

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### CHECKING WATER LEVEL

1. The coolant level should be checked on a daily basis. Following a cleaning operation, allow engine to remain in unloaded idle for 5 minutes, then turn engine off and allow to completely cool down (no less than 30 minutes). Using a rag, twist radiator cap to first position to make sure any excess pressure escapes. Remove the radiator cap (1) and check to see that the cooling water level is just below the port.
2. If low, add clean water or antifreeze/water mix.



#### WARNING

**Be sure to close the radiator cap securely.**

**If the cap is loose or improperly closed, water may leak out and the engine could overheat.**

### DRAINING AND CLEANING THE RADIATOR

1. **Prepare a bucket. To drain completely, open the drain cock (1) and radiator cap.** Use fresh, clean water to fill the radiator. (KUBOTA Scale Inhibitor No. 11 prevents scale formation in the cooling water. Scale buildup in either hard or soft water sharply reduces cooling efficiency. The scale inhibitor is effective for 3 months, so the water must be changed every 3 months.)
2. The water jacket (radiator interior) should be cleaned every 400 service hours; when adding antifreeze; or when changing from water containing antifreeze to pure water. When cleaning the system, KUBOTA Detergent No. 20 is recommended to effectively wash away the rust buildup.



#### WARNING

**Never remove the radiator cap under any conditions while engine is operating. Failure to follow these instructions could result in personal injury and/or damage to the cooling system. To avoid having scalding hot coolant or steam blow out of the radiator, use extreme care when removing the cap from a hot radiator. If possible, wait until the engine has cooled, then wrap a thick cloth around the radiator cap and turn it slowly to the first stop.**

#### STEP BACK

**while the pressure is released from the cooling system. When you are sure all the pressure has been released, press down on the cap with a cloth, turn and remove. Do not add coolant to an engine that has overheated until the engine cools. Adding coolant to an extremely hot engine can result in a cracked block or cylinder head.**

#### NOTE

**Do not use antifreeze during hot weather to maintain engine performance since the boiling point of coolant rises. Do not use scale inhibitor and antifreeze at the same time. When using antifreeze, it should be combined with water in the proportions recommended by the antifreeze manufacturer.**

**Check radiator clamps for tightness and hoses for leaks, swells, cracks or hardness at 200 operation hours or every six months. Replace every 2 years or sooner if damaged.**

### LP GAS SYSTEM

The propane powered Model SC7740 is identical to the "standard" gasoline powered SC7740, except its fuel system has been modified to operate on LP vapor.

The LP fuel system consists of several components not found on the gasoline system. The LP fuel system also contains the associated mounting hardware and plumbing for the LP components. The major LP components are as follows:

1. An LP carburetor
2. A combination water heated vaporizer and regulator
3. A combination LP fuel line filter and lock off valve
4. An LP fuel tank and fittings.

These components are factory set; attempts at adjusting these components should only be made by authorized service personnel.

### LP GAS VAPORIZER-REGULATOR QUICK CHECK

Turn on the key switch and open the radiator cap. Check the coolant for bubbles. If bubbles are present, the vaporizer may have a leaking gasket or may have developed a pinhole leak, allowing the LP fuel to enter the cooling system.

### LP GAS FUEL TANK

The LP tank is located under the driver's seat. Use only the proper size and type of LP tank. The SC7740 LP powered sweeper/scrubber uses a 33.5 lb. Liquid withdraw tank. The DOT designation of the tank is DOT 4BW-240.

### LP LIQUID WITHDRAWAL SYSTEM

The liquid LP fuel flows from the LP tank under its own pressure to the pressure relief valve. This valve is normally closed, which prevents LP fuel from escaping into the atmosphere. This LP gas is then piped to the LP fuel filter lock. The fuel filter lock removes unwanted tank scale and deposits from the LP gas. The vaporizer converts the liquid LP fuel into a gaseous LP fuel. This gaseous LP fuel is sent to the primary regulator. The primary regulator reduces the pressure of the LP tank and makes the flow more constant. The secondary regulator reduces LP gas pressure to the level required by the carburetor. From the secondary regulator, the LP fuel is piped to the carburetor where it is finally metered into the air flow which is sent to the combustion chamber.

## SAFETY WARNINGS FOR LP

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### WARNING

Keep cigarettes, sparks, and open flames away when working on LP equipment, when inspecting for gas leaks, or when LP tanks are present.



### WARNING

Check all components for proper operation. Replace LP components when needed. Never bypass defective safety components.



### WARNING

Check routing of all LP hoses. Keep them away from sharp edges, exhaust manifolds, or other hot surfaces. Check for signs of abrasion or deterioration.



### WARNING

Check for gas odor before and during starting operations. If gas odor is noticed, stop and check for leaks or component malfunction.



### WARNING

Make sure the LP tank is free of dents or gouges.



### WARNING

Keep the engine properly tuned.



### WARNING

Make sure the LP tank is securely mounted on the machine with the retainer bracket clamping the tank and with the locating pin in position.



### WARNING

Make sure service coupling is clean and free of damage. Make sure service coupling of tank matches machine servicing coupling.



### WARNING

Park the machine in a shaded, cool area when not in use.



### WARNING

Keep the LP tank service valve closed when the tank is not in use.



### WARNING

Never overfill the LP tank. Fill the LP tank to the recommended weight stamped on the tank.



### WARNING

Use care in handling LP tanks. Never drop or drag them.



### WARNING

Always store and transport LP fuel tanks with the safety relief valve in the "UP" position.



### WARNING

Avoid contact with the LP fuel to avoid frostbite.



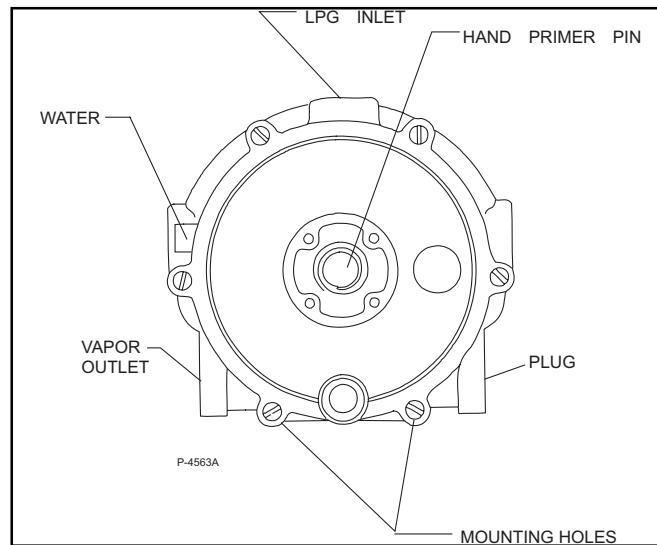
### WARNING

When the machine is to stand unused for a period of time (overnight), park it in a designated area. Shut off the service valve at the tank and operate engine until the remaining fuel is consumed. Turn off key.

### LP CHECKLIST

This checklist can be performed quickly and should be done before every use. Be sure to make all necessary checks as listed on the Maintenance Chart discussed earlier.

1. Check connections for leaks.
2. Open the LP storage tank valve.
3. Check the regulator. Momentarily press the fuel primer on the regulator cover to bleed air out of the system.
4. Start the machine's engine.



### LP FUEL TANKS

Standard D.O.T. LP fuel tank sizes have 14, 20, 33.5, and 43.5 pound capacities. The liquid volume permitted in these containers is less than the total volume of the cylinder. This provides for expansion of the LP fuel in the case of a temperature increase above the normal amount. Excessive heat may cause the fuel to expand too much, causing the safety relief valve to vent some LP fuel, relieving internal tank pressure.

Each tank is marked showing the type of construction (liquid or vapor), the manufacturer, the date of manufacture, the capacity, the weight, and the date of requalification. D.O.T. fuel tanks must be requalified (checked) periodically. This requalification must be recorded and maintained for the life of the container.

LP fuel tanks are equipped with the following approved valves and fittings:

- \* **Safety Relief Valve** - This is a spring-loaded valve that relieves excessive pressures which may develop in the tank due to unusual conditions.
- \* **Liquid Service Valve** - Liquid is withdrawn from the tank through this valve. The LP tank may be filled through this valve if the tank is not equipped with a filter valve.
- \* **Excessive Flow Valve** - This valve is part of the liquid service valve. It is mounted inside the tank and prevents LP fuel from leaving the LP tank in the event of accidental breakage of external fittings or hoses.
- \* **Filler Valve** - This valve is optional. If this valve is not present, the tank is filled through the service valve.
- \* **Liquid Level Gauge** - This gauge is optional.

## LP TANK CARE

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### USE AND CARE OF LP TANKS

If an LP tank is damaged or leaking, it should be immediately removed to a designated safe area and the proper personnel should be notified. Do not attempt to make repairs to the cylinder regardless of its condition. Repairs must be made by qualified personnel.

The care an LP tank receives has a direct bearing on how long the tank can be used safely. LP tanks must not be dropped, dragged, or slid across any surface. To move the LP tank, use a hand truck or roll the tank on its foot ring while it is being held in a position slightly off the vertical.

### CHANGING LP TANKS

Refueling machines with LP tanks is an important process. Refueling is accomplished by replacing the empty LP tank with a full tank.

The tank changing operation presents an opportunity for the machine operator to carefully inspect the tank, tank fittings, the fuel lines and fuel line fittings. If abnormal wear is detected, the operator should report these findings to the appropriate personnel for immediate action.

1. Park the machine in a designated safe area and set the parking brake.
2. Close the tank valve.
3. Remove the quick-disconnect coupling from the tank valve.
4. Inspect the machine's fuel lines and the quick-disconnect coupling for damage or abnormal wear.
5. Remove the empty tank from the holding device.
6. Inspect the tank and tank fittings for damage or abnormal wear. Handle the tank carefully. It must not be dropped or mishandled.
7. Store the LP tank in a designated safe area.
8. Select a full LP tank and observe for damage or leaks.
9. Carefully install the full tank in the machine so the tank-centering pin enters the aligning hole in the tank collar. This assures that the tank is positioned properly and allows for proper operation of the safety relief valve, liquid level gauge, and service valves.
10. Fasten the tank-retaining bracket so the tank is locked into position.
11. Reconnect the fuel line to the tank-servicing coupling.
12. Open the service valve slowly and check for leaks. If a leak is found, close the valve immediately and notify the appropriate personnel.
13. If no leaks are detected, the engine is ready to start. Do not start the engine unless the operator is in position with the directional control pedal in the neutral position.

### STORING LP FUEL TANKS

Whether the storage is inside or outside, the LP tanks should not be in the vicinity of combustible materials or high temperature sources such as ovens or furnaces. This may cause the heat to raise the pressure of the fuel to a point where the safety relief valves would begin operation. Care should be taken to ensure that the cylinders are stored in such a manner that if the safety relief valves are triggered, the vapor will be relieved rather than any liquid.

Valves on empty tanks must be closed during storage and transportation.

## THE SCRUBBING SYSTEM - HOW IT WORKS

There are two scrubbing systems available for the SC7740 machine, the non-recycling or standard scrubbing system and the recycling or ESP scrubbing system.

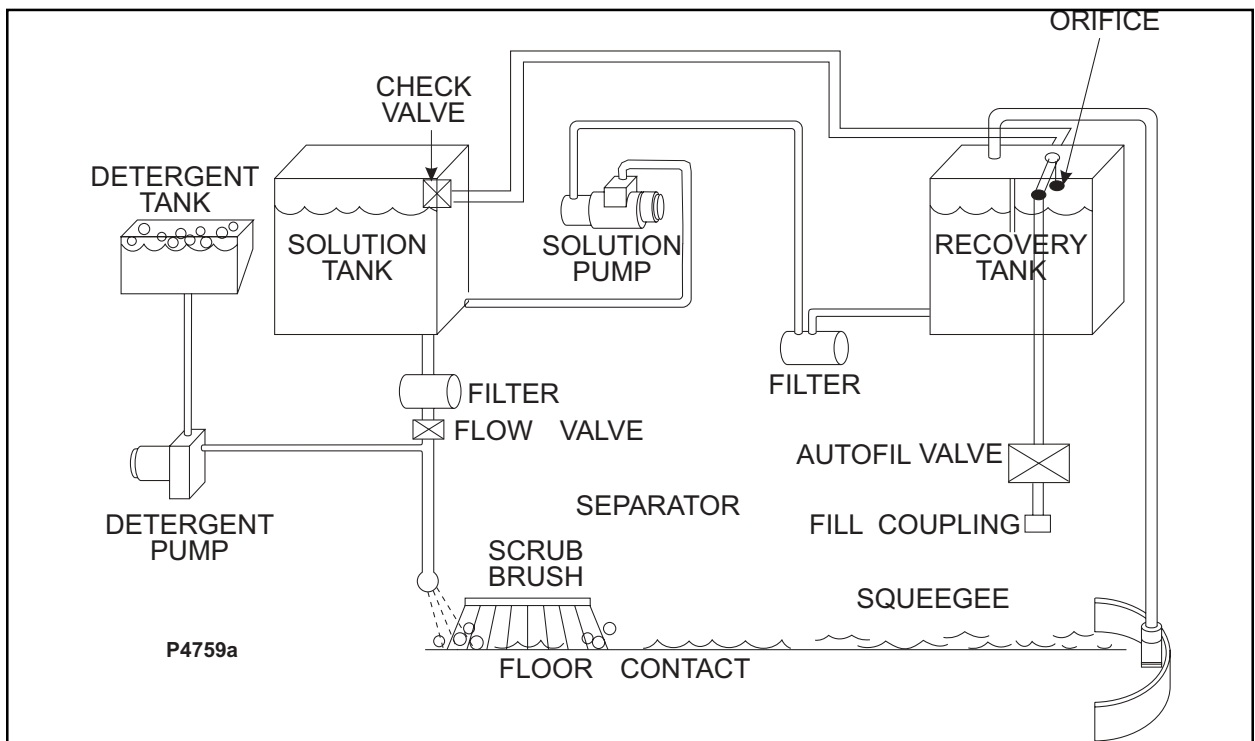
## THE NON-RECYCLING OR STANDARD SCRUBBING SYSTEM - HOW IT WORKS

During the scrubbing process, detergent solution water from the solution tank is fed to the solution line. There it is fed to the floor where two or three disc scrubbing brushes work to dislodge soil. After scrubbing, the dirty solution is vacuumed from the floor and discharged into the recovery tank.

Sensors in each tank will indicate, by lights on the control panel, when the water in the solution tank is too low or when the water in the recovery tank is too high.

## THE ESP RECYCLING SYSTEM ON/OFF SWITCH (Option)

This switch turns the ESP recycling system on and off.



## NOTE

The solution control lever must be on "FULL" for ESP operation.

## THE RECOVERY OR ESP SYSTEM - HOW IT WORKS

During the scrubbing process, filtered water from the solution tank is fed to the solution line, where it combines with detergent. This mixture is then fed to the floor where two or three disc scrubbing brushes work to dislodge soil. After scrubbing, the dirty solution is vacuumed from the floor and discharged into the recovery tank. At intervals, a float switch activates the recycling pump, which sends filtered solution from the recovery tank to the solution tank.

## GENERAL TROUBLESHOOTING

PROBLEM	PROBABLE CAUSE	REMEDY
Sweeping Does Not Function	<ol style="list-style-type: none"> <li>1. Hopper is raised</li> <li>2. Hopper switch is out of adjustment</li> </ol>	<ol style="list-style-type: none"> <li>1. Lower hopper</li> <li>2. Adjust hopper switch</li> </ol>
Poor Water Pick-Up at Squeegee	<ol style="list-style-type: none"> <li>1. Side or rear squeegees are worn or damaged</li> <li>2. Air leaks at recovery tank cover and/or manifold gaskets</li> <li>3. Clogged suction hose or pick-up tool</li> <li>4. Loose connections between suction hose &amp; squeegee or between hoses of manifold inlet</li> <li>5. Vacuum motor not operating</li> <li>6. Vacuum float cage clogged</li> <li>7. Vacuum float shut off</li> </ol>	<ol style="list-style-type: none"> <li>1. Examine rubber blades for cuts or worn spots. Replace if necessary.</li> <li>2. Check seal on recovery tank</li> <li>3. Disconnect hoses from squeegee, flush both thoroughly.</li> <li>4. Check all hose connections for looseness or damage</li> <li>5. Check hydraulic motor</li> <li>6. Clean perforated metal thoroughly</li> <li>7. Check for excessive solution/foam build-up in recovery tank. Change cleaning chemical mixture (use A-L approved materials).</li> </ol>
Water Spills from Squeegee	<ol style="list-style-type: none"> <li>1. Side squeegee blades-poor contact with floor</li> <li>2. Squeegee blades worn or damaged</li> <li>3. Too much solution being applied before making turns</li> </ol>	<ol style="list-style-type: none"> <li>1. Readjust blades for proper contact</li> <li>2. Replace, then adjust blades</li> <li>3. Shut off solution flow 5-10 feet before turn</li> </ol>

**GENERAL TROUBLESHOOTING - Cont.**

PROBLEM	PROBABLE CAUSE	REMEDY
Poor Scrubbing	<ol style="list-style-type: none"> <li>1. Worn Scrubbing brushes</li> <li>2. Incorrect method of operation</li> <li>3. Wrong cleaning agent or mixture</li> <li>4. Poor solution distribution</li> </ol>	<ol style="list-style-type: none"> <li>1. Inspect brushes. If they are worn to 1/2" (1.3cm) or less, replace all 3 brushes.</li> <li>2. Check scrubbing procedures, brush pressure, type of brush, solution flow &amp; cleaning chemical used. For extreme conditions double scrubbing may be necessary.</li> <li>3. Use A-L recommended materials</li> <li>4. Clean out distribution tube &amp; metering holes to brushes. Check feed hoses &amp; clean if necessary. Check valve &amp; cable control system.</li> </ol>
Engine Runs, But machine Will Not Move on Level Ground	<ol style="list-style-type: none"> <li>1. Directional Control Pedal and/or linkage jammed or not adjusted</li> <li>2. Front wheels jammed or brakes locked.</li> <li>3. Hydraulic pump trouble</li> <li>4. Rear wheel hydraulic motor, broken shaft key, broken shaft, etc.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check pedal linkage</li> <li>2. Check wheels and brakes.</li> <li>3. Check &amp; repair pump.</li> <li>4. Check &amp; repair.</li> </ol>
Machine Moves Slowly	<ol style="list-style-type: none"> <li>1. Low hydraulic fluid</li> <li>2. Brake dragging</li> <li>3. Hydraulic oil temperature too high</li> <li>4. Worn hydraulic pump or drive motor.</li> </ol>	<ol style="list-style-type: none"> <li>1. Add oil to the reservoir</li> <li>2. Check brakes.</li> <li>3. Check oil level, add hydraulic fluid if required.</li> <li>4. Check &amp; repair pump or motor.</li> </ol>
Hydraulic Pump Making Excessive Noise	<ol style="list-style-type: none"> <li>1. Clogged inlet strainer or suction line</li> <li>2. Air bubbles in hydraulic fluid</li> <li>3. Hydraulic pump is worn or damaged.</li> </ol>	<ol style="list-style-type: none"> <li>1. Clean inlet strainer, Drain &amp; flush reservoir if oil is dirty. Refil with clean Hydraulic fluid.</li> <li>2. Check low hydraulic fluid level, leaking fittings, or hoses.</li> <li>3. See Cessna pump information.</li> </ol>

## PARTS LIST LEGEND

### ABBREVIATIONS - SCREWS

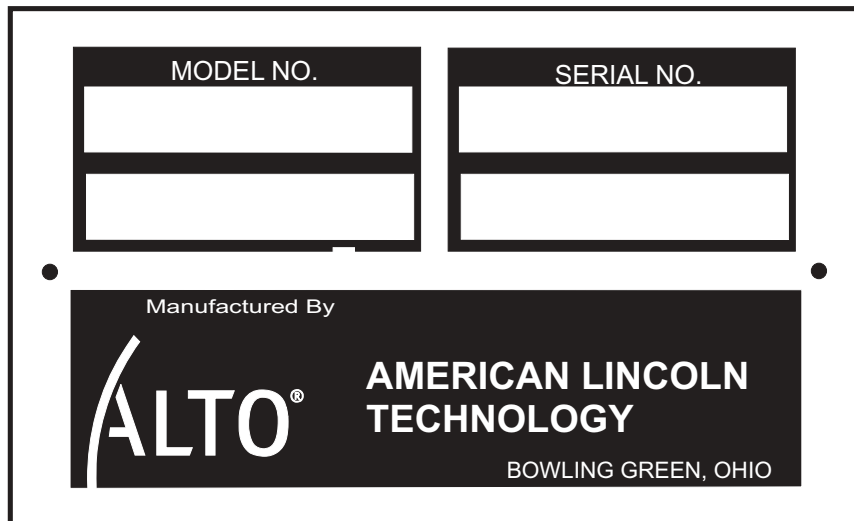
ADJ	= Adjusting Screw
ADJ.SP	= Adjusting Plunger Screw
BHM	= Binding Head Machine Screw
BHS	= Button Head Socket Screw
CAPT.SL	= Captivated Slotted Screw
CAPT.WG	= Captivated Wing Screw
FHM	= Flat Head Machine Screw
FIL.HM	= Filister Head Machine Screw
HHC	= Hexagon Head Cap Screw
HHM	= Hexagon Head Machine Screw
HIHD	= 1/2 High Head Screw
HSHC	= Hexagonal Socket Head Cap Screw
HSFHC	= Hexagonal Socket Flat Head Cap Screw
KNH	= Knurled Head Screw
MHHC	= Metric Hexagon Head Cap Screw
PHM	= Pan Head Machine Screw
RHD	= Round Head Drive Screw
RHM	= Round Head Machine Screw
RHW	= Round Head Wood Screw
SHC	= Shiny Crown Cap Screw
SHTB	= Shoulder Thumb Screw
SQ	= Square Head Screw
TB	= Thumb Screw
THM	= Truss Head Machine Screw
WELD	= Weld Stud
WG	= Wing Screw

### ABBREVIATIONS - SETSCREWS

HS	= Hexagonal Socket Setscrew
S	= Slotted Setscrew
SH	= Square Head Setscrew
-KCP	= Knurled Cup Point Setscrew
-CP	= Cup Point Setscrew
-OP	= Oval Point Setscrew
-FDP	= Full Dog Point Setscrew
-HDP	= Half Dog Point Setscrew
-FP	= Flat Point Setscrew
-COP	= Cone Point Setscrew

C-2004

Parts may be ordered from American-Lincoln authorized distributors. Record the information from the American-Lincoln serial number plate to avoid delays in filling your order.



1. Use the model number, catalog number, and serial number when ordering.
2. Give the part number, description, and quality of parts needed.
3. Give shipping instructions for either freight, UPS, or parcel post.

Parts and supplies listed in this manual can be ordered from the following address:

American-Lincoln	American Lincoln Distributor
1100 Haskins Road Bowling Green, Ohio 4302 1-800-331-7692	

### MACHINE CATALOG NUMBERS

- |         |                                 |
|---------|---------------------------------|
| 505-312 | SC7740 Gas Sweeper/Scrubber 40" |
| 505-313 | SC7740 LP Sweeper/Scrubber 40"  |
| 505-314 | SC7740 Gas Sweeper/Scrubber 46" |
| 505-315 | SC7740 LP Sweeper/Scrubber 46"  |

## NOTES

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