



Electronic Service Manuals

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MPV-60

Power Sweeper



Operator's Manual

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.

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

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SPECIFICATIONS

TRAVEL SPEED 0 - 8 MPH (0 - 12.875 kph)

TURNING RADIUS

Left 67" (170 cm)
Right 91.5" (232 cm)

DIMENSIONS

Length 98" (249 cm)
Width 62" (157 cm)
Height 50.75" (129 cm)
Height W/Overhead Guard 78" (198 cm)
Wheel Base 43" (109 cm)
Track 55" (138 cm)

WEIGHT

Standard Machine 2800 lb. (1271 kg) (Empty Machine)

TIRES

Type Pneumatic
Front Two (2) 18" (45.7 cm) x 5.80 x 8" on 7 gauge rim assembly
Rear One (1) 18" (45.7 cm) x 5.80 x 8" on 2-piece rim assembly
Note: Inflation 80 PSI for front & back

RAMP CLIMBING

Sweeping 12°
Transporting 12°

ENGINE DATA

Ford TSG416 EFI Engine

Bore and Stroke 3.23" x 2.97" (82.1 mm x 75.5 mm)
Oil Capacity 4.4 quarts (4.2 liters)
Displacement 4 cylinders, 1.6 liters (97.5 CID)
Fuel 87 A.K.I. (Standard unleaded)
ASI grade HD-5 for LP versions

Mitsubishi S4L2 Diesel

Bore and Stroke 3.07" x 3.62" (78 x 92 mm)
Oil Capacity 5.6 quarts (5.4 liters) - w/standard oil pan
Displacement 4 cylinders, 1.8 liters (107.3 cu. in.)
Fuel ASTM No. 2-D

High temperature/low pressure sensors with engine shutdown are standard on both the Ford 416 and Mitsubishi S4L2.

SWEEPING PATH 60" (152 cm) w/single side broom

MAIN BROOM

One-piece plastic core disposable type. Broom position can be set to "restricted down" or "free floating."

Length 45" (114 cm)
Diameter 14" (35.6 cm)
Bristle Length 3.25" (8.26 cm) long
Optional Bristle Types Nylon (Herringbone), High Density Nylon, Proex & Wire, Poly & Wire, Natural Fiber & Wire

SIDE BROOM

Rotary disposable type protected by rotary guard. Floats over uneven surfaces and is adjustable for wear.

| | |
|------------------------|---|
| Diameter | 23" (58 cm) |
| Optional Bristle Types | Wire Nylon (standard) Polypropylene |

STEERING

Full power steering with single rear wheel steering.

| | |
|---------------------------|-------------|
| Operator's Wheel Diameter | 15" (38 cm) |
|---------------------------|-------------|

HOPPER

| | |
|---------------------|---------------------|
| Sweep Opening | 43" (109 cm) |
| Volumetric Capacity | 14 cubic feet |
| Weight Capacity | 1200 lb. (447.6 kg) |
| Floor Length | 34.25" (87 cm) |
| Ground Clearance | 5.5" (14 cm) |

FILTRATION SYSTEM

Air passes through water resistant panel filter that controls dust to one (1) micron in size

| | |
|----------------|---------------------------------------|
| Filtering Area | 88 square feet (8.18 m ²) |
|----------------|---------------------------------------|

HYDRAULIC SYSTEM

Main Broom, Side Broom, and Vacuum Fan are hydraulically driven. Oil Cooler keeps fluid cool.

Propelling-Variable Displacement Pump

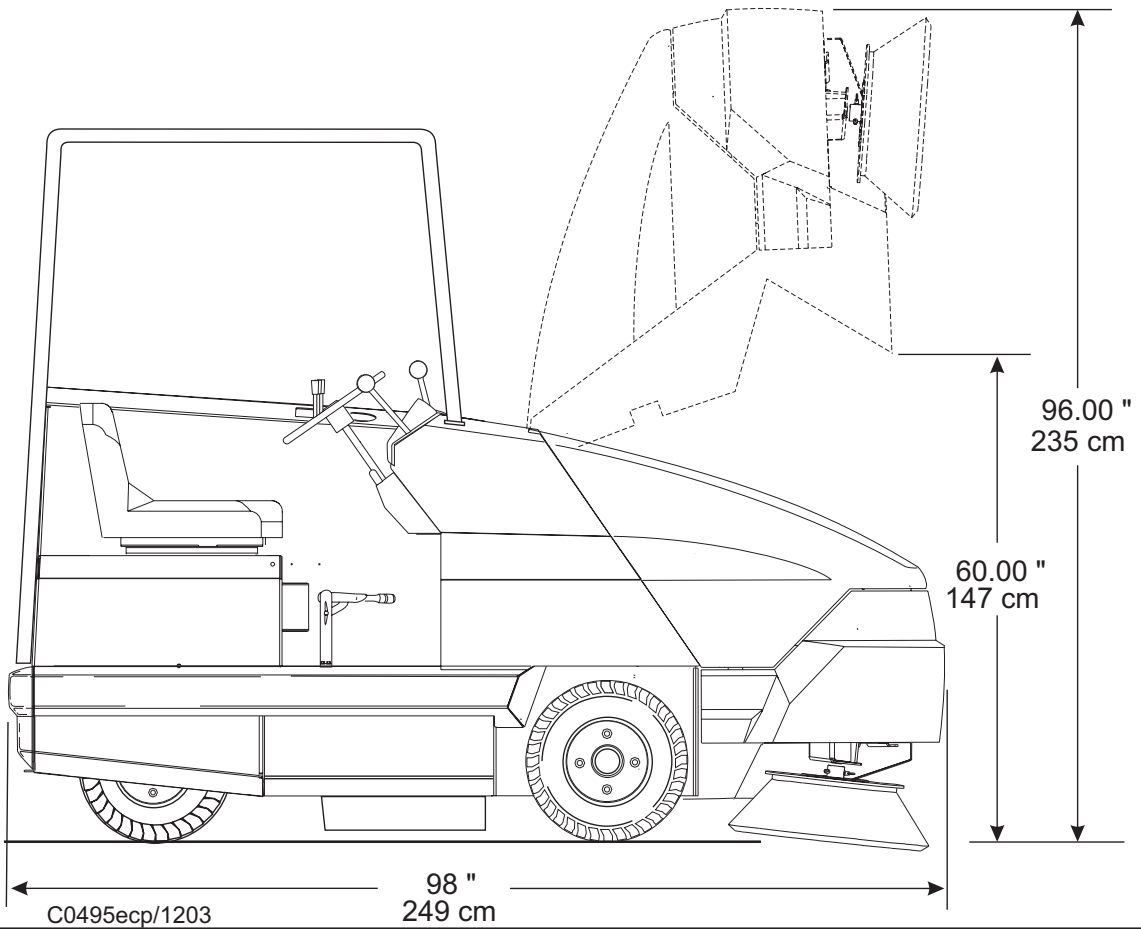
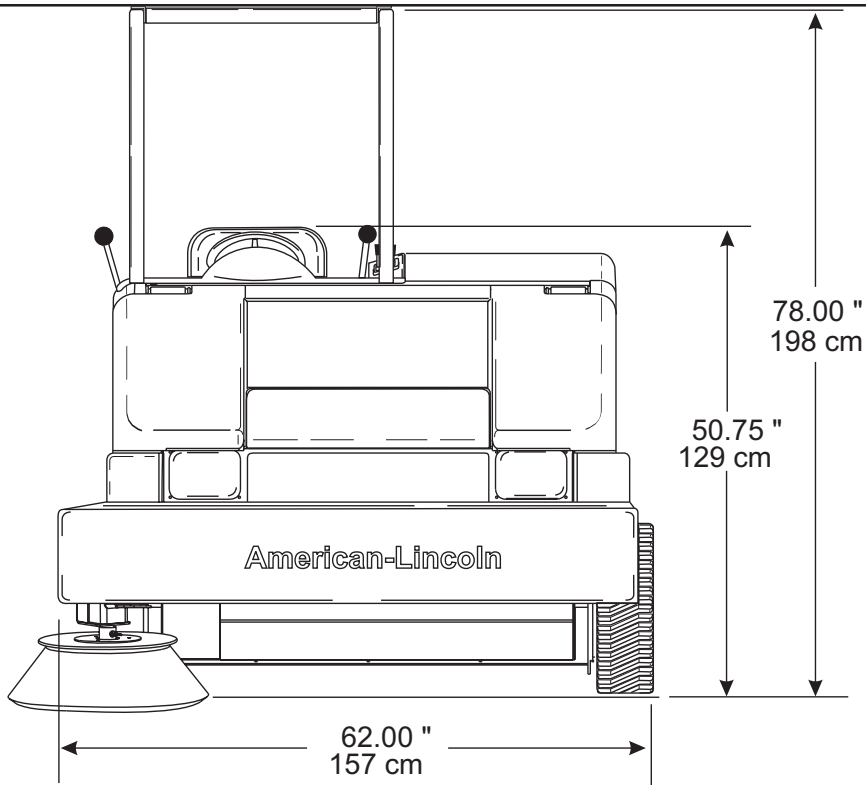
CONTROLS AND INSTRUMENTS

| | |
|------------------------------------|---|
| Mechanical Foot Brake | Hand-Operated Parking Brake |
| Key Start Switch | Oil Pressure Light |
| Water Temperature Light | 3-position Engine Speed Switch |
| Dust Control Switch | Main Broom & Side Broom controls |
| Hopper Raise/Lower Control | Clogged Filter Indicator |
| Electric Fuel Gauge | Hour Meter |
| Electronically-Timed Filter Shaker | Head & Tail Lights |
| No-Tool Dust Filter Inspection | Side Broom Guard |
| Fluid Level Sight Gauge | Push-Button Horn |
| Side Broom Lift Control Handle | Main Broom Lift Control Handle |
| Low Oil Shutdown | Charging System Light |
| 2-speed Sweeping | Single-Pedal Control for travel speed, forward/reverse motion |

OPTIONAL EQUIPMENT

| | |
|--|------------------------------|
| Back-Up Alarm | Overhead Guard |
| Side Broom Spotlight | Brake Lights |
| Rear Work Light | Vac Wand |
| Turn Signals | Tie-Down Kit |
| Blower Wand | 4" Vac Wand |
| Vac Side Broom | In-Hopper Temperature Sensor |
| Spark Arrestor | Dome Light |
| Protectoseal Gas Cap | Suspension Seat |
| Red or Amber Strobe Light without Overhead Guard | Solid Cushion Tires |
| Red or Amber Strobe Light with Overhead Guard | |

MACHINE DIMENSIONS





C-1432

FIGURE 1

YOUR MPV-60 SWEEPER HAS BEEN SHIPPED COMPLETE, BUT DO NOT ATTEMPT TO OPERATE WITHOUT READING AND FOLLOWING THESE INSTRUCTIONS.

PREPARATION

1. Uncrate the sweeper and carefully remove packing material.
2. Inspect the battery connections.
3. Fill fuel tank with appropriate fuel.



WARNING

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

4. Check engine crankcase oil level before starting engine.
5. Check radiator coolant level. Permanent type antifreeze is added at the factory to provide protection to approximately -35° F (-37° C). To retain this level of protection always add 1 part water to 1 part antifreeze.
6. Check oil level in hydraulic reservoir which is located in the engine compartment. The hydraulic reservoir is full when oil can be seen in the sight glass on the side of the reservoir. To get an accurate reading the hopper must be in the "DOWN" position. If oil is required add HYDRAULIC FLUID ONLY. Use Ford Automatic Transmission Fluid Type "F".

SAFETY PRECAUTIONS

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.

THE FOLLOWING INFORMATION PROVIDES A SIGNAL INDICATING POTENTIALLY DANGEROUS CONDITIONS FOR THE OPERATOR AND/OR EQUIPMENT. READ THIS MANUAL CAREFULLY TO UNDERSTAND WHEN THESE CONDITIONS CAN EXIST, THEN TAKE THE NECESSARY STEPS TO TRAIN PERSONNEL WHO WILL BE OPERATING THIS MACHINE.

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 flammable items such as: gasoline, grain dust, solvents and thinners.



WARNING

Heavy machinery. Improper use 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 battery first to prevent possible injury.



WARNING

When working on the machine, empty hopper, disconnect battery, clear area of people and obstructions.
Use additional people and proper procedures when lifting the machine.



WARNING

Always empty the Hopper and Disconnect 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

Be careful when operating the machine on a ramp or incline. Always move slowly on a ramp.
Do not turn this machine on a ramp. Do not stop and leave this machine on a ramp.



WARNING

Stop and leave this machine on a level surface.
When stopping the machine, put the power switch in the "OFF" position and Engage the parking brake.



WARNING

To prevent personal injury and/or damage to the machine,
do not lift the machine or move it to the 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 area 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 top of the battery its terminals.



WARNING

Maintenance and repairs must be done by authorized personnel only. Tighten all fasteners. Keep adjustments according to the specifications given in the machine's service manual. Keep machine's electrical parts dry.
Store the machine in a building.



WARNING

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



WARNING

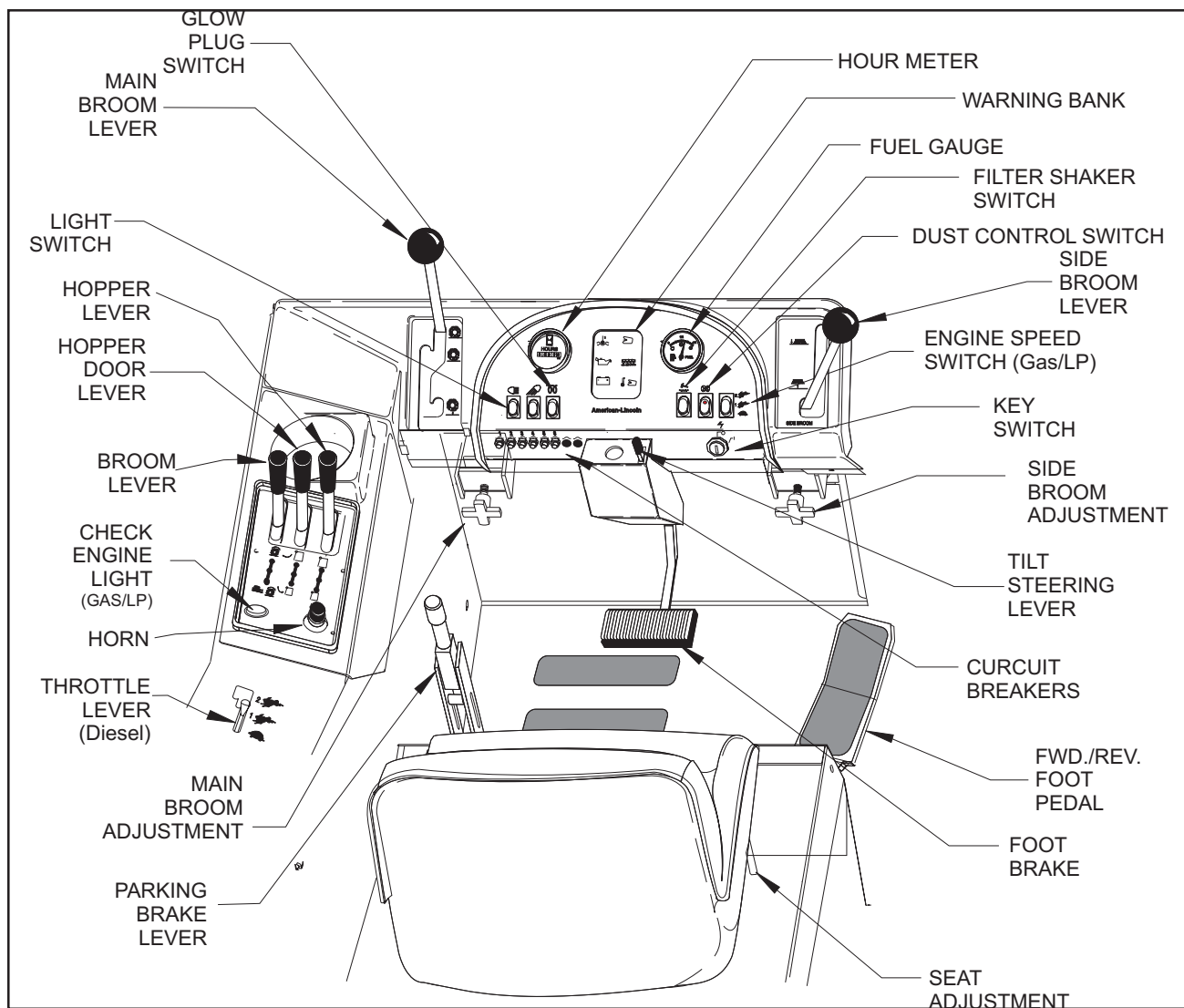
To maintain stability of this sweeper in normal operation, the counterweights, overhead guard, rear bumper guard or any similar components installed by the manufacturer as original equipment should never be removed.
If it becomes necessary to remove component(s) for repair or maintenance,
REINSTALL before the sweeper is put back in operation.



WARNING

The hopper could lower unexpectedly and cause personal injury.
Engage the hopper safety arm before working on or under the hopper.

SWEEPER CONTROLS/INSTRUMENTS



C1416ecp

FIGURE 2

HORN BUTTON

The horn button is located on the left side console. Push the button to sound the horn. The horn button is always active.

LIGHT SWITCH

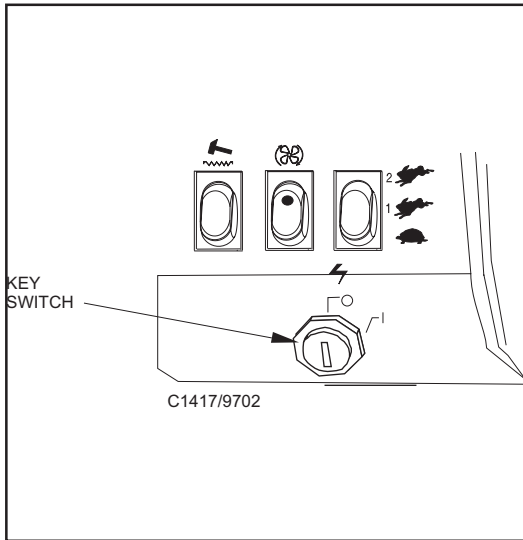
The light switch is located on the instrument panel and controls the headlights, taillights and instrument panel lights. To turn on the lights press the upper portion of the switch. The upper portion of the switch will illuminate to indicate the lights are "ON". The light switch is always active.

GLOW PLUG SWITCH (Diesel Only)

The glow plug switch is a momentary type rocker switch that is located on the instrument panel and is used to start the diesel engine. It should be noted that under no circumstances should Ether or other starting aids be used in conjunction with the glow plugs. To prevent damage to the glow plug switch, do not use for more than 60 seconds. The key switch must be placed in the "ON" position before using the glow plug switch.

CHECK ENGINE LIGHT (Gas/LP Only)

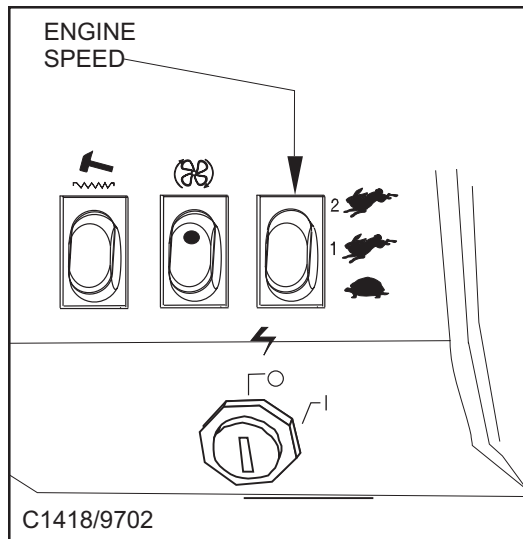
The check engine light is located on the left side console. If the light comes on, it indicates a problem with the engine. Flip the switch located on/near the air cleaner bracket in the engine compartment and count the number of times the panel light flashes, then go to "Check Engine Light Codes" at the end of this chapter to determine the problem.



C-1417 **FIGURE 3**

KEY SWITCH (figure 3)

The keyed ignition switch is located on the instrument panel to the right of the steering column. The key switch is a four position switch that controls power to the sweeper systems and accessories. The “OFF” position (0 position) will shut off the engine. The IGN./ON position (1 position) provides power to all sweeper systems and accessories. The “START” position (one position clockwise of 1 position) is momentary and provides power to the starter motor. The “ACC” (one position counterclockwise of 0 position) position is the same as the IGN./ON position and provides power to all electrical systems and accessories.



C-1418 **FIGURE 4**

ENGINE SPEED SWITCH (Gas/LP) (figure 4)

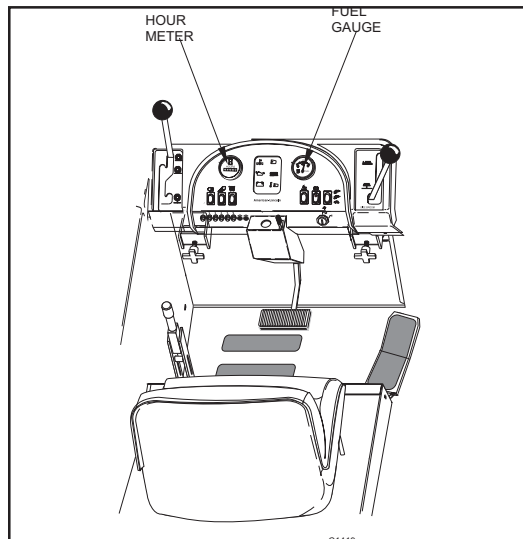
The engine is controlled by a three-position switch which is located on the instrument panel above the key switch. The switch position determines the operating speed of the engine. Place the speed switch in the “IDLE” position to start the sweeper. Place the switch in the “1” position for transport and when normal sweeping action is desired. Place the switch in the “2” position for transport and sweeping lightweight debris.

THROTTLE LEVER (Diesel) (figure 2)

The throttle lever is located on the left side console. There are 3 throttle speed positions - IDLE, 1, and 2. To operate, grasp the lever and push up and left to desired locking notch. To reduce to idle, grasp the lever and push it up and to the right (away from both locking notches). Let the lever lower until it rests at the bottom of the slot.

“Load” (brooms and/or brushes and/or dust control operating) and “No Load” (brooms, brushes & dust control off) RPMs are the same for gas and LP equipment; There will be a slight drop between “Load” and “No Load” RPMs with diesels. Always return the throttle switch/lever to the idle position before turning off the key to stop the engine.

| MACHINE | | RPMs | |
|---|--------|------|-----------|
| | | IDLE | “NO LOAD” |
| SWEEPER/ SCRUBBER (1 speed level) | Gas/LP | 950 | 2050 |
| | Diesel | 950 | 2150 |
| SWEEPER (2 speed levels) | Gas/LP | 1st | 950 |
| | | 2nd | 950 |
| | Diesel | 1st | 950 |
| | | 2nd | 950 |



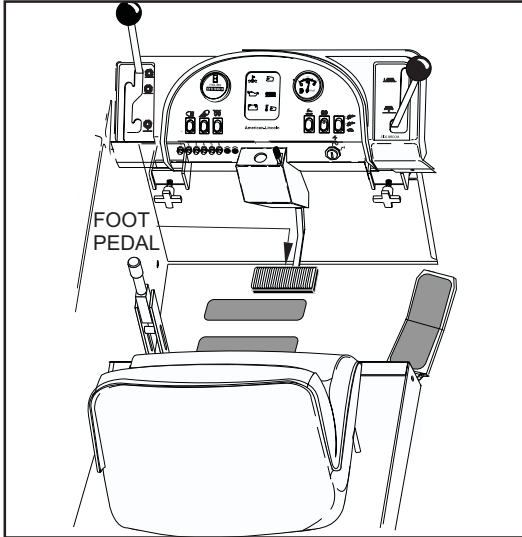
C-1419 **FIGURE 5**

HOUR METER (figure 5)

The hour meter is located on the instrument panel. The meter is activated when the engine begins running. The meter indicates actual “run” time of the sweeper. The meter can be used to determine when maintenance should be done on the sweeper

FUEL GAUGE (figure 5)

The fuel gauge is located on the instrument panel and indicates the level of fuel in the tank. The fuel gauge is powered by the key switch. 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.



C-1421A FIGURE 6

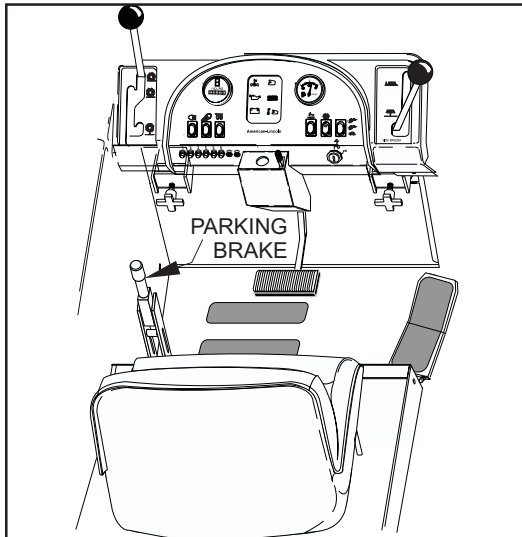
FOOT BRAKE (figure 6)

The foot brake pedal is located on the floor of the operator's compartment to the left of the foot pedal. To stop, use the sweepers front wheel brakes, by putting pressure on the brake pedal.

PARKING BRAKE (figure 7)

The parking brake lever is located on the operator's compartment left side panel near the floor. When engaged the parking brake "locks" the foot pedal in the down position.

- To engage the parking brake, place the lever in the upright position.
- To disengage the parking brake, move the lever forward.
- To Adjust The Parking brake "Grab" Turn the knob on the top of the lever.
- To increase "Grab" Turn the knob in a clockwise direction.
- To decrease "Grab" Turn the knob in a counterclockwise direction.

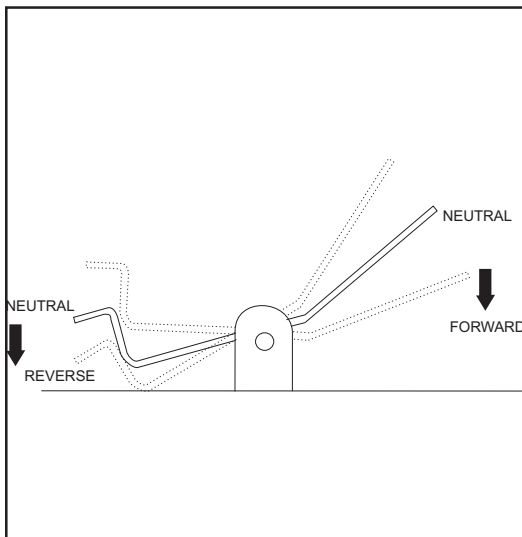


C-1421B FIGURE 7

FOOT PEDAL (figure 8)

The Foot Pedal is located on the floor of operator's compartment to the right of the brake pedal. The foot pedal provides control of direction/speed and has an automatic safety feature that limits foot pedal travel while the hopper is raised. The pedal height is adjustable to provide for operator comfort.

- TO GO FORWARD:** Place pressure on the upper portion of the pedal. Speed increases when additional pressure is placed on the pedal.
- TO GO BACKWARD:** Put pressure on the lower portion of the pedal. Speed increases when additional pressure is placed on the pedal.
- TO STOP:** allow the pedal to return to the centered position.



P-4066 FIGURE 8

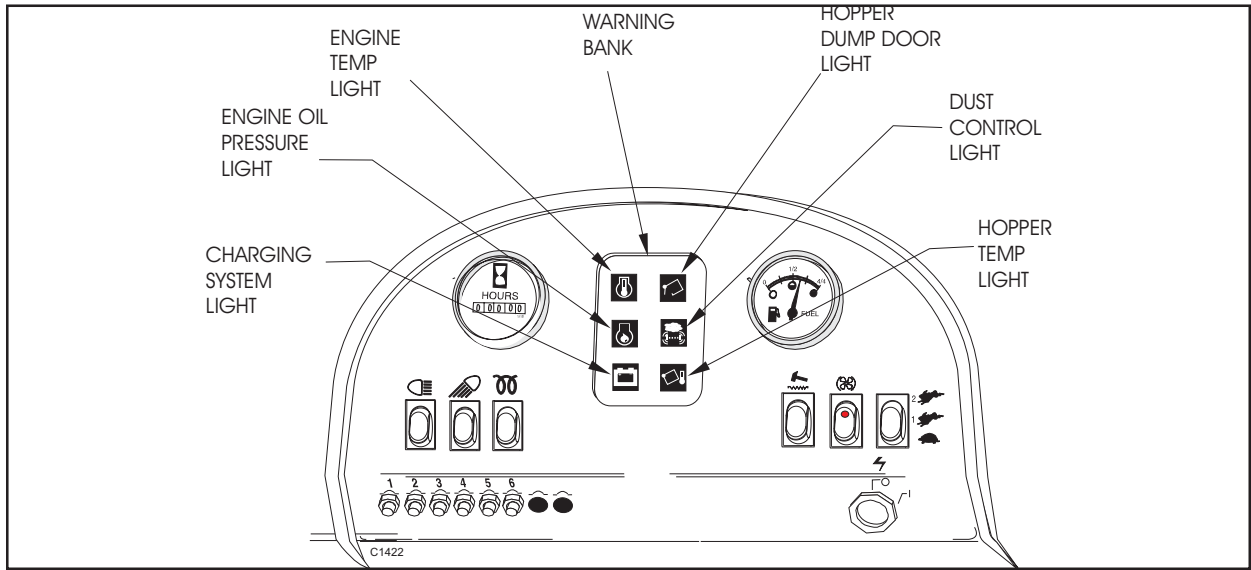
To Increase braking action while sweeper is moving forward, gently put pressure on the lower portion of the pedal.

To Increase braking action while traveling in reverse, gently put pressure on the upper portion of the pedal.

To adjust the foot pedal height for operator comfort

1. Remove the hairpin cotter from the adjustment pin.
2. Remove the adjustment pin from the foot pedal assembly.
3. Align the holes in the lower bracket with one of the four adjustment holes on the foot pedal to set the foot pedal height.
4. With the holes aligned at the desired height, insert the adjustment pin
5. Reinstall the hairpin cotter.

SWEEPER CONTROLS/INSTRUMENTS



C-1422-1

FIGURE 9

WARNING BANK

The Warning Bank is located on the instrument panel and provides the operator with six fault/status indicators for engine and sweeper systems. The Operator should monitor the indicators while sweeping. It is very important that 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 turn off the sweeper immediately and have the cooling system serviced by a qualified service 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 engine oil pressure. When this occurs have the sweeper serviced by a qualified service technician.



CHARGING SYSTEM LIGHT

The charging system light illuminates to indicate a charging system fault. When this occurs the sweeper charging system is not working properly and must be serviced by a qualified service technician.



DUST CONTROL LIGHT

The Dust Control Light Illuminates to indicate that the dust control filter is clogged. When this occurs, stop sweeping and use the filter shaker to clear dirt and debris from the filter. After using the filter shaker continue sweeping.



HOPPER TEMPERATURE LIGHT (OPTION)

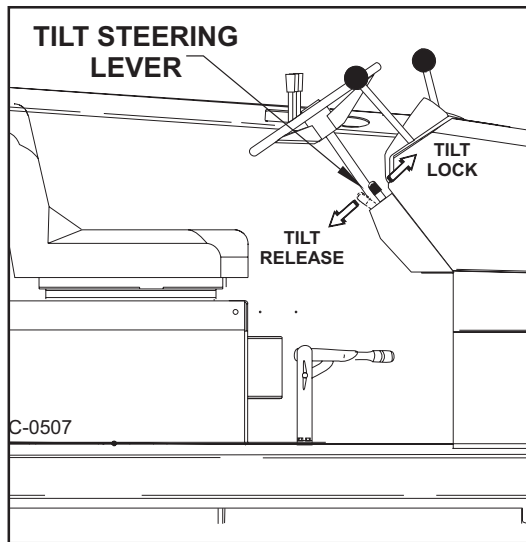
When the temperature of the air moving through the dust control system in the hopper exceeds 140° F, an automatic protection feature shuts down the dust control fan and illuminates the hopper temperature light. When this occurs shut down the sweeper and carefully investigate for a possible fire in the hopper. The temperature switch must be manually reset.



DUMP DOOR LIGHT

The dump door light will illuminate when the dump door is not fully open. The light warns the operator to open the hopper dump door completely before sweeping. Do not sweep when the light is illuminated.

SWEeper CONTROLS/INSTRUMENTS

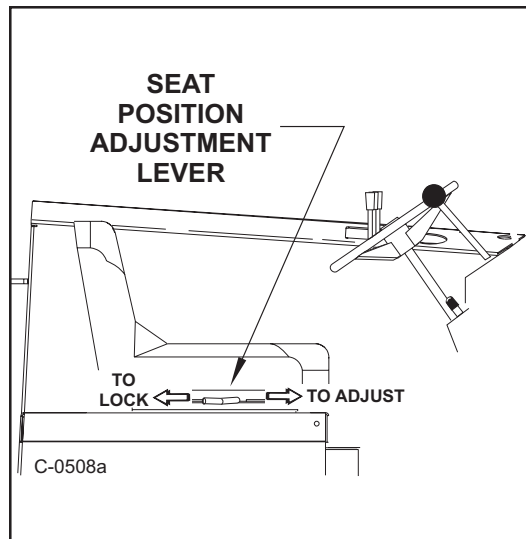


C-0507 FIGURE 10

TILT STEERING LEVER (figure 10)

The tilt steering lever is located near the base of the steering column and is spring loaded to the locked position.

To adjust the steering column tilt angle, Grasp the lever and pull back. While holding the lever, position the steering wheel to the desired angle, and release the lever to lock the column in place.

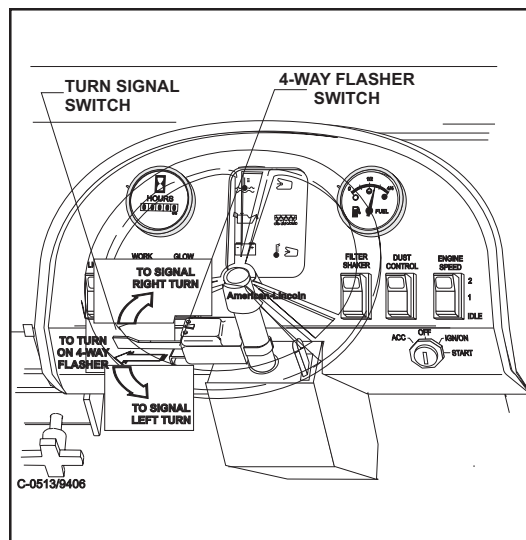


C-0508a FIGURE 11

SEAT POSITION ADJUSTMENT (figure 11)

The seat adjustment lever is located on the right side of the seat base. The lever is spring loaded to the "LOCK" position.

To adjust the seat, push "FORWARD" on the lever and move seat to desired position then release the lever to "LOCK" the seat in place.



C-0513 FIGURE 12

4-WAY TURN SIGNALS (OPTION) (figure 12)

The turn signal switch is located on the steering column and functions the same as a typical automotive turn signal. The operator must return the lever to the centered position after the turn has been completed.

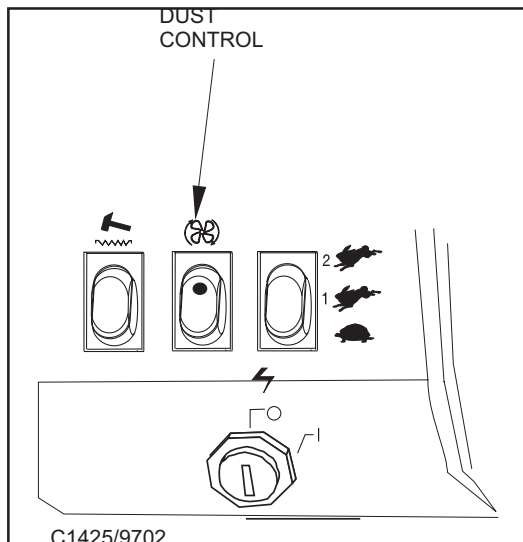
To signal a right hand turn move the lever to the "FORWARD" position.

To signal a left hand turn position the lever to the "BACKWARD" position.

To use the 4-way Flashers pull out on the turn signal lever.

BACK UP ALARM (OPTION)

The backup alarm is activated by a switch in the foot pedal and automatically emits a loud audible noise when the machine is driven in reverse.



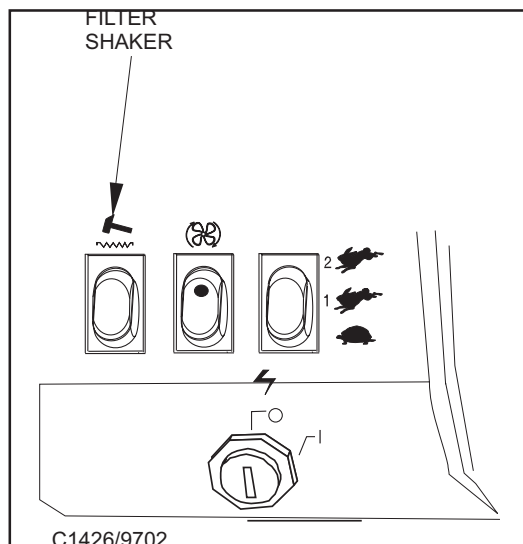
C-1425 FIGURE 13

DUST CONTROL SWITCH (figure 13)

The dust control is a two position switch that is located on the instrument panel next to the engine speed switch. The switch controls the vacuum fan in the dust control system.

To turn on the dust control system for “NORMAL” Sweeping, press on the top portion of the switch.

To Turn off the dust control system for sweeping in wet conditions, press on the lower portion of the switch. This will prevent the filter from being damaged by water pickup while sweeping.



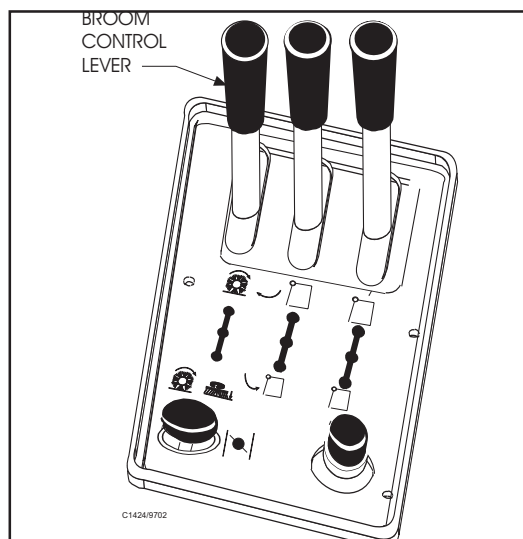
C-1426 FIGURE 14

FILTER SHAKER SWITCH (figure 14)

The filter shaker switch is located on the instrument panel below the fuel gauge. This is a momentary switch that will activate the filter shaker motors for 20 to 30 seconds to clear the dust control filter. 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.

Use the filter shaker to clear the filter when the dust control light on the warning bank illuminates and just before dumping the hopper.

To activate the filter shaker press the upper portion of the filter shaker switch momentarily and release. The filter shaker will operate for 20 to 30 seconds.



C-1424A FIGURE 15

BROOMS CONTROL LEVER (figure 15)

The brooms control lever is located on the operator’s compartment center console. The lever is a three position hydraulic valve that controls hydraulic power to the main broom and side broom.



WARNING

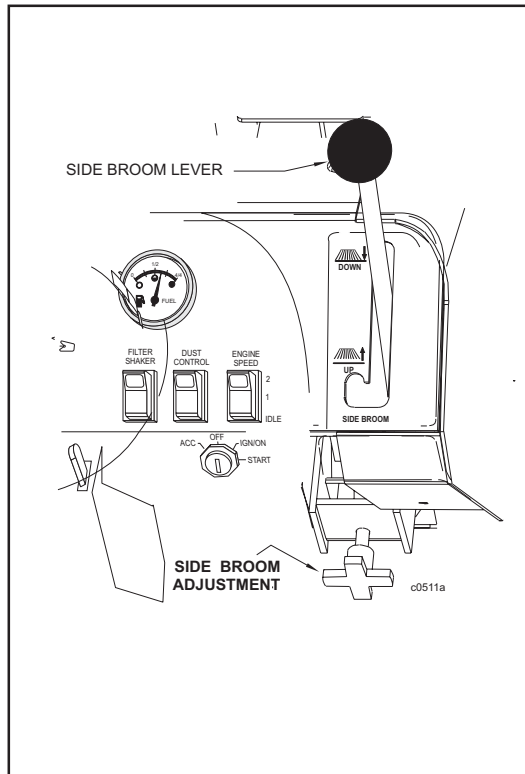
To prevent injury, Do not turn on the brooms with the hopper raised.

To turn on the main broom only, move the LEFT HAND lever to the forward position.

To turn on the main broom and the side broom, move the LEFT HAND lever fully backwards.

To turn off the brooms and provide hydraulic power to the hopper lift system place the lever in the center position.

SWEEPER CONTROLS/INSTRUMENTS



C-0511A FIGURE 15

SIDE BROOM LEVER (figure 16)

The side broom lever is located on the right side of the instrument panel. The side broom lever raises and lowers the side broom. Use the brooms lever on the operator's center console to turn on the side broom.

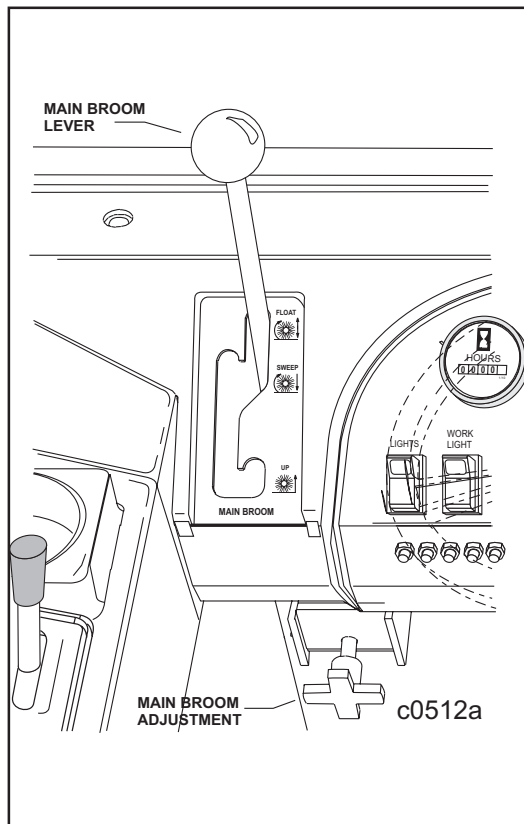
To raise the side broom, pull the lever back into the "UP" position.

To lower the side broom, move the lever out of the "UP" position and move it forward to the "DOWN" position.

SIDE BROOM ADJUSTMENT (figure 16)

The side broom lever has an adjustment for changing the sweep height to compensate for broom wear. The side broom adjustment is located under the right side of the instrument panel.

To Adjust the side broom height turn the threaded knob. (See page 30 for adjustment instructions)



C-0512 FIGURE 16

MAIN BROOM LEVER (figure 17)

The main broom lever is located on the left side of the instrument panel. The main broom lever has three positions and controls the main broom sweep height. Use the brooms lever on the operator's center console to turn on the main broom.

To lower the main broom, grasp the lever and move it to the left out of the "UP" position and place in the "SWEEP" or "FLOAT" position.

The "SWEEP" position is used for normal sweeping and should be used under most sweeping conditions.

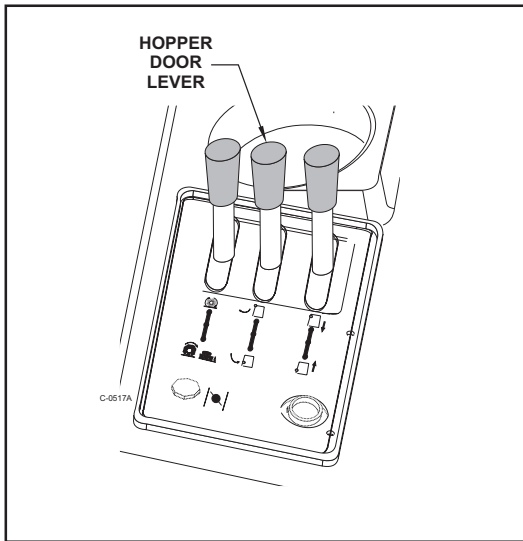
The "FLOAT" position is used for sweeping very uneven surfaces only. Using the Float position will cause premature wear on the main broom if used under normal operating conditions for extended periods of time.

MAIN BROOM ADJUSTMENT (figure 17)

The main broom lever has an adjustment for changing the sweep height to compensate for broom wear. The main broom adjustment is located under the left side of the instrument panel.

To Adjust the main broom height turn the threaded knob. (See page 29 for adjustment instructions)

SWEeper CONTROLS/INSTRUMENTS



C-0517B FIGURE 18

HOPPER DOOR LEVER (figure 18)

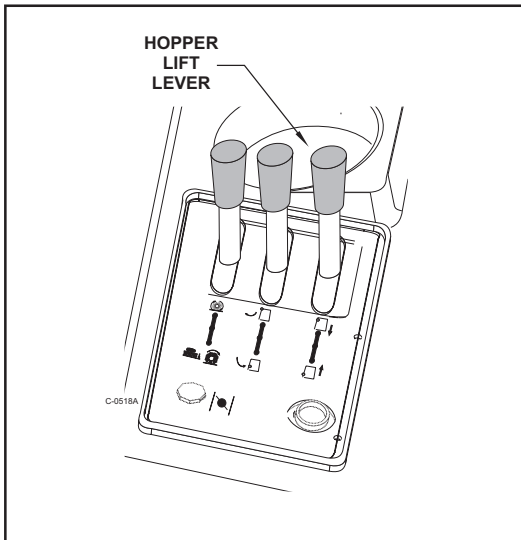
The hopper door lever is located on the operator's compartment center console and is used to close and open the hopper dump door. The lever is a three position hydraulic valve that is spring loaded to the center position which "HOLDS" the hopper door in position.

NOTE

To provide hydraulic power to the hopper controls, the broom control lever must be in the center "Neutral" Position

To ensure the door is fully open while sweeping, monitor the Hopper Dump Door light on the Warning Bank. The light will illuminate when the door is not fully open.

To open the hopper dump door for sweeping or dumping, push the CENTER lever forward in the "OPEN" direction until the hopper dump door light goes out.



C-0518A FIGURE 19

To close the hopper dump door for dumping or transporting, pull the CENTER lever fully back in the "CLOSE" direction and hold for 3 seconds or until you hear the door close.

HOPPER LIFT LEVER (figure 19)

The hopper lift lever is located on the operator's compartment center console. The lever is a three position hydraulic valve that controls the operation of the hopper lift system. The lever is spring loaded to the center position which stops hopper movement and "HOLDS" the hopper at the present position.

NOTE

To provide hydraulic power to the hopper controls, the broom control lever must be in the center "Neutral" Position

To raise the hopper for dumping, move the RIGHT HAND lever back to the "RAISE" position and hold until the hopper reaches the desired height, then release.



WARNING

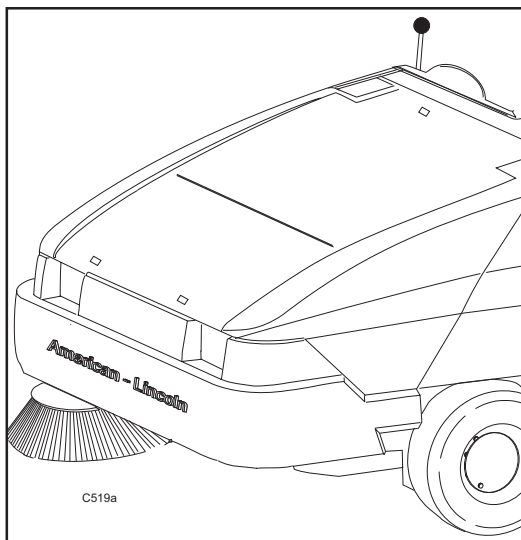
To prevent injury, Do not turn on the brooms with the hopper raised.

To lower the hopper after dumping, move the RIGHT HAND lever forward to the "LOWER" position until the hopper is fully lowered and seated in the sweeper, then release.

HOPPER LID (figure 20)

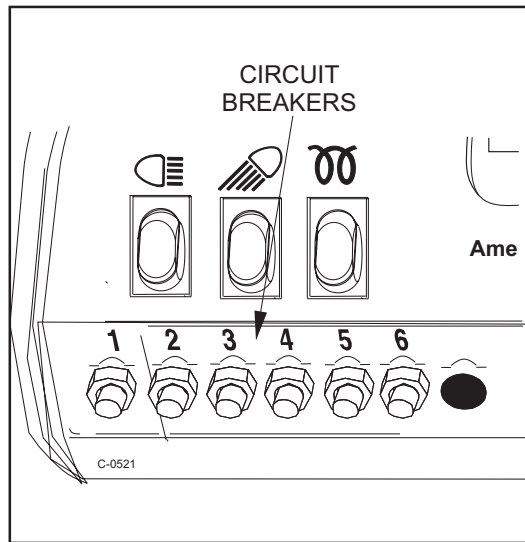
The hopper lid provides the operator with easy access to the hopper debris compartment for refuse disposal or visual inspection. The dust control must be turned off before opening the hopper lid.

To open the hopper lid turn the dust control switch to the "OFF" position then unlatch and lift the front hinged lid. The Hopper lid must be closed while sweeping. Failure to close the door completely will cause poor dust control while sweeping.



C-0519A FIGURE 20

SWEEPER CONTROLS/INSTRUMENTS



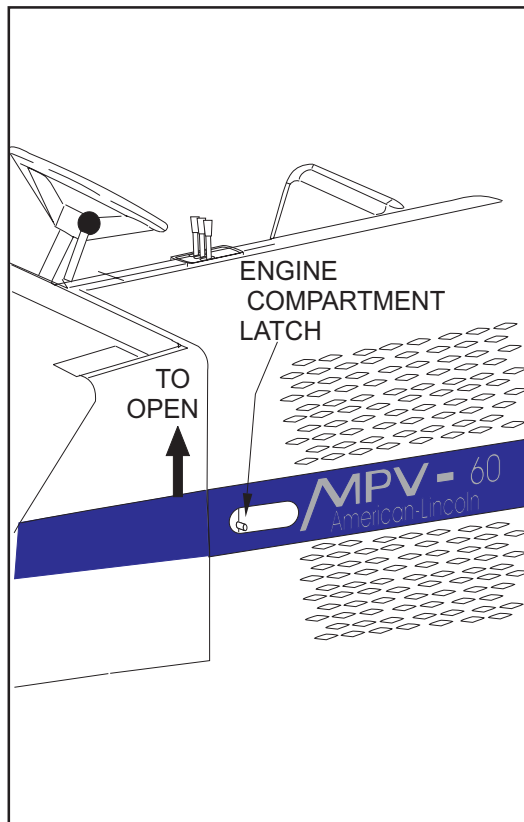
C-0521 FIGURE 22

CIRCUIT BREAKERS (figure 22)

The circuit breakers are located to the left of the steering wheel. When a circuit breaker “pops” out, this is an indication of an electrical problem that must be corrected before the breaker can be reset.

There can be up to eight circuit breakers in the row. They control the following circuits, beginning with number 1 on the left:

- CB-1 = Filter shaker motors
- CB-2 = Horn
- CB-3 = Starter relay
- CB-4 = Ignition
- CB-5 = Accessory
- CB-6 = Lighting
- CB-7 = Options
- CB-8 = Cab Options



C-1436 FIGURE 23

ENGINE COMPARTMENT LATCH (figure 23)

The engine cover encloses the entire engine, radiator and hydraulic reservoir assembly. The cover can be swung open to allow easy access to the engine and hydraulics for service or inspection.

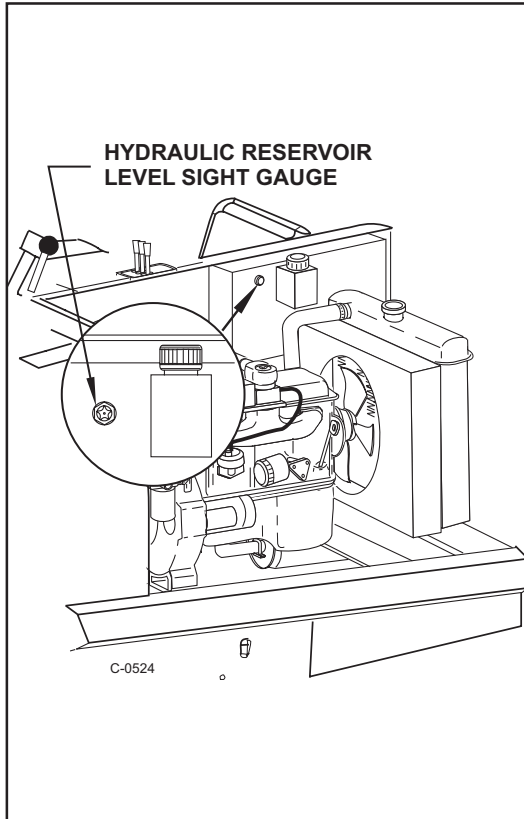


WARNING

Operate Only When Lids, Doors, And Access Panels Are Securely Closed.

To open the cover, lift the cover latch lever up. Swing the cover open.

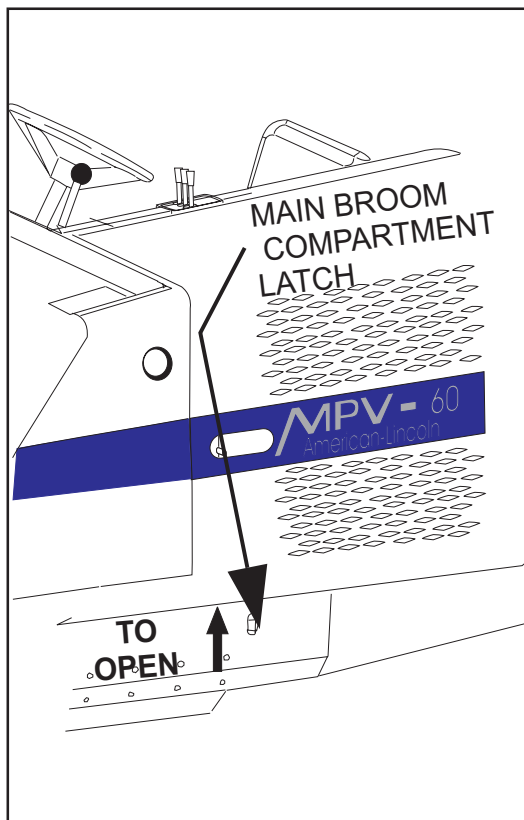
The cover will latch automatically when the cover is closed. After closing the engine cover, check to be certain the latch has fully engaged.



C-0524 **FIGURE 24**

HYDRAULIC RESERVOIR LEVEL SIGHT GAUGE (figure 24)

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



C-1435 **FIGURE 25**

MAIN BROOM COMPARTMENT DOORS (figure 25)

The main broom compartment doors are located behind the front tires on both sides of the sweeper. The doors provide access to the main broom for service or inspection.



WARNING

Operate Only When Lids, Doors, And Access Panels Are Securely Closed.

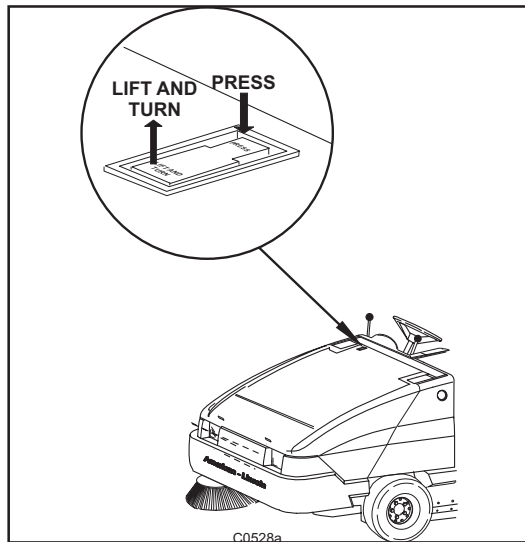
Open the right side door to remove or replace the main broom. The right side door is an integral part of the main broom drive system and must be closed for operation.

Open the left side broom door for inspection. Check the drive hub for banding and shrink wrap which have a tendency to get tangled in the broom driver.

To open the main broom door, reach inside the hole in the door and lift up on the latch handle.

The door latch will automatically engage when the door is closed.

SWEeper CONTROLS/INSTRUMENTS



C-0528A FIGURE 26

HOPPER COVER LATCH (figure 26)

The hopper has two hinged covers for easy access to the hopper components may be needed for inspection or service.

To access the upper hopper cover (single latch at top)

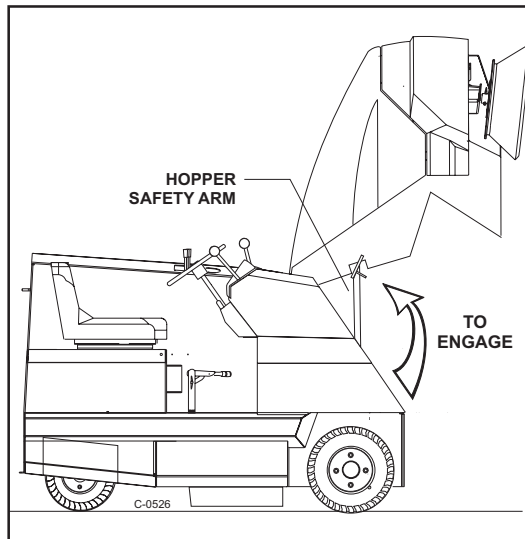
1. Press on the rear portion of the latch
2. Lift and turn the latch 90°

To access the lower hopper cover (two latches at bottom)

1. Press on the rear portion of each latch (one at a time)
2. Lift and rotate each latch 180°

To close hopper covers:

1. Lower covers carefully
2. Turn latches (in the opposite direction than when opening)
3. Press the latches down into the recess to lock



C-0526 FIGURE 27

HOPPER SAFETY ARM (figure 27)

The hopper safety arm is located near the right front wheel well. The safety arm will prevent the hopper from unexpectedly dropping during



WARNING

The Hopper Could Drop Unexpectedly And Cause injury. Engage The Safety Arm Before Working Under Hopper.

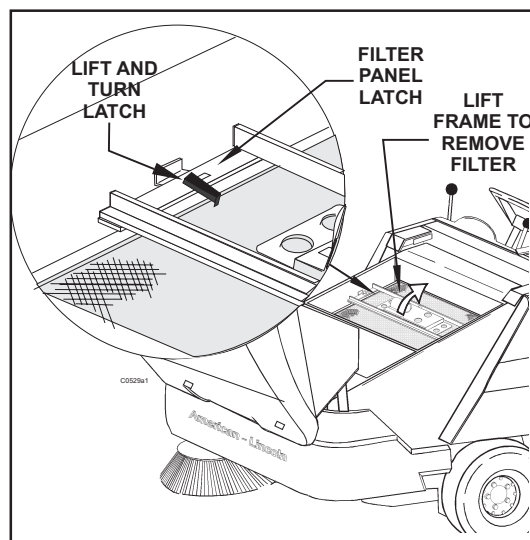


WARNING

For Safety Always Empty Hopper Before Servicing.

TO ENGAGE THE SAFETY ARM:

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



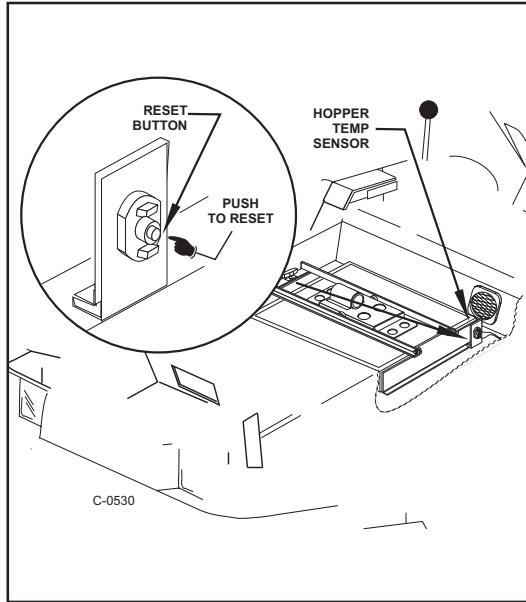
C-0529A-1 FIGURE 28

FILTER PANEL LATCH (figure 28)

The filter panel is located in the hopper filter compartment and will need to be removed periodically for cleaning or replacement. Removal of the filter panel requires no tools. The hopper cover must be opened to gain access to the filter compartment. The panel filter is held in place by a hinged frame and latch.

To remove the panel filter, lift and turn the handle and lift the hinged frame.

The panel filter can now be lifted out and cleaned or replaced (See Filter Cleaning instructions in this Manual). To install the replacement panel filter, lower the frame, turn, and lower the handle clockwise to lock the filter in place.



C-0530A FIGURE 29

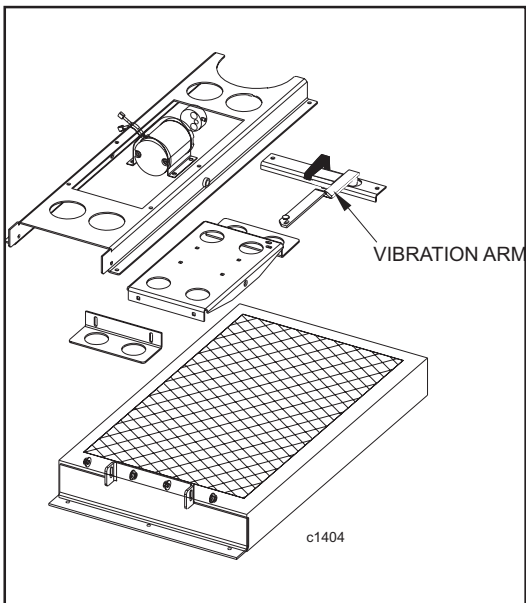
HOPPER TEMP SENSOR (OPTION) (figure 29)

The hopper temp sensor thermal switch can be reset, which is located in the hopper filter compartment near the vacuum fan intake.

The temp sensor switch monitors the hopper air temperature near the vac fan. When the temperature of the air moving through the hopper exceeds 140°F the temp switch trips which turns off the dust control fan and illuminates the hopper temp light on the warning bank.

When this occurs carefully investigate for a possible fire in the hopper.

To reset the temp sensor, press the reset button. The sensor will not manually reset until the temperature in the hopper has dropped below 133°F.



C-1404A FIGURE 30

VIBRATION ARM FOR LOWER FILTER (figure 30)

The vibrating arm is located on the clean side of the filter, attached to the shaker pivot assembly. The purpose of the vibrating arm is to move all dust that is shaken from the filter into the dumping area by vibrating a plate located directly below the filter. This is done by transmitting the vibration of the shaker frame through a gland nut with a bolt that is hammered by the vibrating arm.

For best results, the arm should be set up so that there is a bout 1/32" to 1/16" clearance between the bolt and the arm. This can be adjusted in many ways, by the positioning of the paddle on the shaker motor plate, adjustment of the lift and turn latch, or if these are all set properly and adjustment is still needed, you can bend the arm to get the proper adjustment.

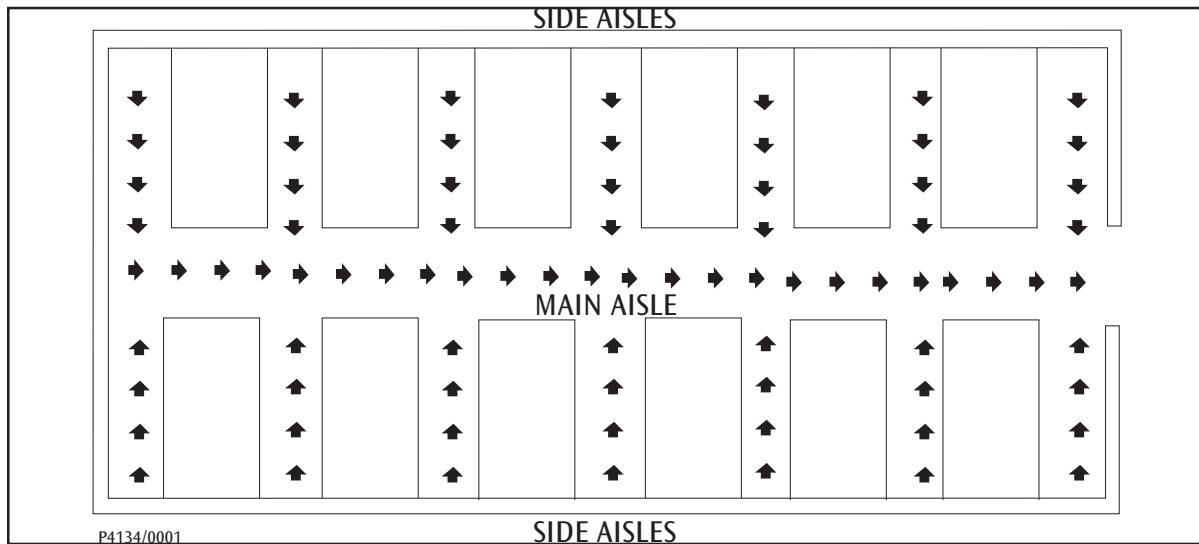
The arm and the gland nut are factory set, they should only need inspection and/or adjustment when the arm does not vibrate or hammer the bolt. When changing the filter, inspect or adjust the arm at that time.

LOW OIL SHUTDOWN

The machine is equipped with a protection circuit to shutdown the engine when the oil pressure drops approximately below 5 psi. The Engine Oil Pressure light on the warning bank will illuminate as an indicator to the operator.

Use the dipstick to check the oil level and add oil to the engine as needed until the oil is brought up to the correct level.

HELPFUL HINTS FOR SWEEPING



P-4134

FIGURE 31



WARNING

Do Not Turn The Steering Wheel Sharply When The Machine Is In Motion. The Sweeper Is Very Responsive To Movement Of The Steering Wheel. Do Not Make Sudden Turns.

- Pick up large debris before sweeping with machine.
- Use the machine to sweep debris from narrow aisles into main aisle.
- After the machine has made a sweeping run. Push the filter shaker control button for 20 to 30 seconds, the filter shakers will unload accumulated dust from the filter media. The main broom and fan will turn off automatically during the shake cycle. The filter shakers will only work when the hopper is in the sweep position.
- Sweep debris from main aisle.
- Overlap of broom paths when sweeping. This will eliminate leaving dirty patches.
- Empty hopper when the sweeper leaves debris, while sweeping
- Sweep in straight paths. Do not bump posts. Do not scrape the sides of the machine.

NOTE

**Replace Main Broom When Bristles Are Worn To 1.25 -inch Length.
Replace Side Broom When Bristles Are Reduced To 3 -inch Length.**

BEFORE STARTING

1. Set Parking Brake.
2. Make sure all controls are in the "Off" position.
3. Be sure accelerator and directional control pedal is in neutral.

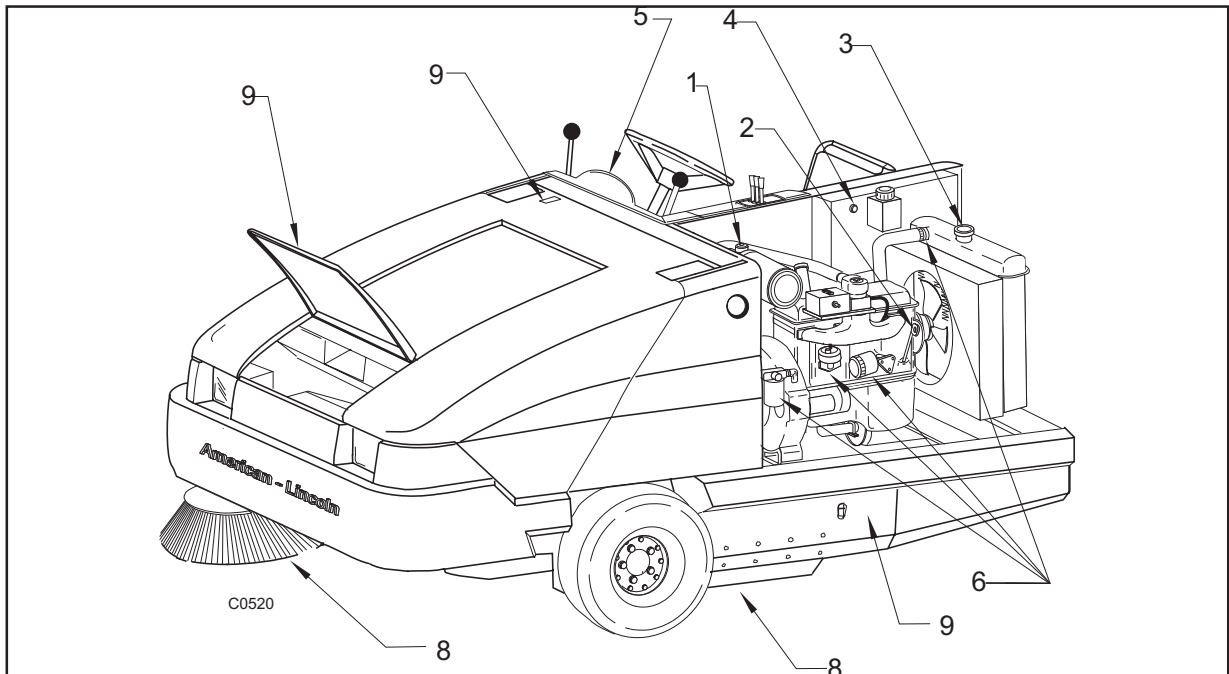
PRE-START CHECK LIST

Before starting the engine, perform these pre-start checks.

1. Check engine air filter element indicator.
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 brooms for debris which could affect rotation and overall performance.

NOTE: ALWAYS WEAR EYE AND HAND PROTECTION WHEN CLEARING DEBRIS FROM BROOMS.

9. Check to ensure that all covers, panels and access doors are securely closed.



C-0520

FIGURE 32

NOTE

When Machine Has Been Stored In Below Freezing Temperatures, Run Engine At The "1" (low) Speed Setting With Machine Standing Still For 5 To 10 Minutes To Warm Engine And Hydraulic Oil.

TO START GAS ENGINE

1. Set the engine speed switch to the "1" (low) Speed setting.
2. Turn key to "START" position until engine starts, then release. (The key switch will return to the "ON" position.)

TO START PROPANE ENGINE

Perform these checks in addition to the Pre-Start check list.

1. Check connections for leaks
2. Open the LP storage tank valve.
3. Set the engine speed switch to the "IDLE" (low) Speed setting.
4. Turn key to "START" position until engine starts, then release. (The key switch will return to the "ON" position.)

TO START DIESEL ENGINE

When starting the diesel engine, it should be noted that under no circumstances should Ether or any other starting fluids be used in conjunction with the glow plugs. Do not use the glow plugs for more than 60 seconds at a time or damage to the plugs may result. The key switch must be placed in the "ON" position before using the glow plug switch. (CONTINUED ON NEXT PAGE)

OPERATING INSTRUCTIONS

TO START DIESEL ENGINE (con't)

1. Perform the Pre-Start checks found previously in this manual.
2. Turn the ignition switch to the "ON" position and place the engine speed switch to the high speed (2) position.
3. Push and hold the glow plug switch for approximately 30 seconds. Under cold starting conditions, the glow plug switch may be held longer but do not hold the switch for more than 60 seconds to prevent damage to the glow plugs.
4. Turn the key switch to the start position and hold until engine starts. If the engine does not start immediately, release the key switch after 15 seconds to prevent damage to the starter.
5. Release the glow plug switch when the engine starts.



WARNING

Do Not Turn The Steering Wheel Sharply When The Machine Is In Motion. The Sweeper Is Very Responsive To Movement Of The Steering Wheel. Do Not Make Sudden Turns.

TO DRIVE SWEEPER FOR TRANSPORT

1. Ensure the main broom lever and the side broom lever are in "UP" position with all other sweeping controls in the "OFF" position.
2. Release the parking brake.
3. Place the engine speed switch in the "1" or "2" position.
4. Push forward on the foot pedal to start the sweeper moving.
5. Vary your foot pressure on the pedal to obtain the desired speed.
6. To stop, allow the foot pedal to return to the centered position. (Pedal will return to neutral when pressure is released)



WARNING

Machines Can Ignite Flammable Materials And Vapors. Do Not Use With Or Near Flammable Items Such As: Gasoline, Grain Dust, Solvents And Thinners.

TO SWEEP WITH THE MACHINE

1. Move the broom control lever to the "ON" position.
2. Lower the side and main broom to the floor. (The main broom control may be placed in either the "FLOAT" or "SWEEP" position).
3. Press the Dust Control Switch to the "ON" position.
4. Push forward on directional control pedal to place machine in motion.
5. Vary foot pressure on the directional control pedal to obtain desired travel speed.
6. Read the "Helpful Hints for Sweeping" in this manual for tips on maximizing sweeping performance.



WARNING

Stop And Leave This Machine On A Level Surface. When You Stop The Machine, Put The Key Switch In The "OFF" Position And Engage The Parking Brake.

TO STOP SWEEPING

1. Allow directional control pedal to return to neutral (centered) position. (Pedal will automatically return to neutral when foot pressure is released.)
2. Depress the foot brake.
3. Press the Dust Control Switch to the "OFF" position..
4. Place the broom controls (Side and Main) in the "UP" position.
5. Move the Broom Control lever to the center "OFF" position.
6. Push engine speed switch to the "IDLE" position.
7. Set parking brake.

NOTE

To provide hydraulic power to the hopper controls, the broom control lever must be in the center "Neutral" Position

TO EMPTY DEBRIS HOPPER

1. Press the engine speed switch to the "1" (Normal) or "2" (High) position.
2. Engage parking brake.
3. Move the Hopper Dump door lever to the "CLOSE" Position until door is closed.
4. Move the hopper lift lever to the "RAISE" position until the hopper reaches the desired height.
5. Disengage Parking Brake.
6. Drive forward slowly with the hopper raised to clear refuse container before opening the hopper dump door.
7. Engage Parking Brake.
8. Push the hopper dump door lever forward to the "OPEN" position. This will allow debris in the hopper to fall out into the refuse container.
9. Move the hopper dump door lever to the "CLOSE" Position until door is closed.
10. Disengage Parking Brake.
11. Drive in reverse slowly to clear the refuse container.
12. Engage Parking Brake.
13. Move the hopper lift lever forward to the "LOWER" position and hold until hopper is seated in place.
14. Move the hopper dump door lever to the "OPEN" position until the dump door opens.



WARNING

Do Not turn off the engine with the hopper in the lifted position.

NOTE

After Stopping the engine, perform these post-operation checks.

POST OPERATION CHECK LIST

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




WARNING

**THE GASOLINE TANK FILL CAP IS LOCATED BEHIND THE DRIVER'S SEAT.
Do Not Mistake the hydraulic reservoir for the gasoline tank.**

ORDERING PARTS

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

| | |
|--|-------------|
| Model: MPV-60 | Serial No.: |
| Part No.: | Code: B06 |
| Fuel: | |
| Weight: 1293kg | |
| 56100775 | |
|  | |
| <small>American-Lincoln® Plymouth, MN, USA www.americanlincoln.com</small> | |

1. Use the model number, catalog number, and serial number when ordering.
2. Give the part number, description, and quantity 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:

| | |
|---|---|
| Nilfisk-Advance, Inc. American-Lincoln Div. | American-Lincoln authorized distributor |
| 14600 - 21 st Ave. No. Plymouth, MN 55447 1-800-214-7700 | |

MACHINE CATALOG NUMBERS

| | |
|---------|-----------------------|
| 578-618 | Gas Variable Dump |
| 578-619 | LP Variable Dump |
| 578-620 | Diesel Variable Dump |
| 578-621 | Gas VD Total Steel |
| 578-622 | LP VD Total Steel |
| 578-623 | Diesel VD Total Steel |

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