
Clarke®



**Beginning with
Serial No. 620001**

READ THIS BOOK

This book has important information for the use and safe operation of this machine. Read and understand this book before starting the machine. Keep this book and tell all operators to read the book. If you do not follow the instructions, you can cause an injury, or damage equipment, furniture or buildings.

All directions given in this book are as seen from the operator's position in the operator's seat.

For new books, write to: Clarke, 2100 Highway 265,
Springdale, Arkansas 72764

Operator's Manual

Instruction Book and Parts List Model SPS4800 Powered Sweeper

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SPECIFICATIONS

Machine Specifications - Gas / LP / Diesel

Sweeping Path	The sweeping path is 48.00 inches (121.9 cm).
Travel Speed	The travel speed range is up to 5 miles per hour (8.0 km/hr).
Turning Radius Right Left	The right turning radius is 81.23 Inches (206.3 cm). The left turning radius is 58.58 inches (148.8 cm).
Minimum Aisle Width	The vehicle clearance is 84 inches (213.4 cm). (Left Turn)
Weight - Variable Dump	The gas powered machine weight is 1490 pounds (675 kg). The LP powered machine weight is 1510 pounds (685 kg). The diesel powered machine weight is 1520 pounds (690 kg).
Weight - Low Dump	The gas powered machine weight is 1270 pounds (575 kg). The LP powered machine weight is 1290 pounds (585 kg). The diesel powered machine weight is 1300 pounds (590 kg).
Standard Equipment	<ol style="list-style-type: none">1. Electric Filter Shaker2. Horn3. Ammeter4. Hour Meter5. Hydraulic control for the main broom, side broom, blower and hopper dump.6. Choke7. Throttle8. 12 volt maintenance free battery
Power Source - Gas	<ol style="list-style-type: none">1. 16 hp (11.9 kw.) BRIGGS AND STRATTON at 3600 rpm two cylinder, L-head, air cooled, cast iron cylinder liner 40.0 (656.0 cc) cubic inch displacement.2. Accepts leaded or unleaded fuels with a minimum octane level of 90.
Power Source - LP	<ol style="list-style-type: none">1. Vapor withdrawal2. Safety shut off3. 20 lb. (9.1 kg.) tank horizontal vapor withdrawal
Power Source - Diesel	<ol style="list-style-type: none">1. LISTER-PETTER Diesel single cylinder engine, air-cooled, cylinder capacity of 22.4 cubic inches.2. Accepts light distillate diesel fuel, gas oil or DERV to BS 2869 Class A1 or A2.
Parking Brakes	There are drum brakes on the two front wheels. The brakes are foot operated and for use as a parking brake and limited emergency use. Braking is accomplished through a foot operated directional/speed control valve.
Steering	Steering is accomplished through a single rear wheel with a mechanical cam and lever gear column using a 15 inch (38.1 cm) diameter steering wheel.
Controls	<ol style="list-style-type: none">1. A hydraulic control lever for the hopper lift and shut off for the brooms and blower.2. A hydraulic control lever for hopper door for variable dump.3. A push button filter shaker.

	<ol style="list-style-type: none"> 4. A push button horn. 5. A control handle for main broom lift 6. A control handle for side broom lift 7. A key start ignition switch (Universal Key) 8. A single pedal control for forward /reverse motion and the rate of travel. 9. Choke (Gas Only) 10. Throttle control 11. Stop control (Diesel Only)
Lubrication	: Grease fittings are located on the rear wheel yoke and steering gear. The fittings are located at these points to simplify proper lubrication.
Tires	: 3 inches (7.6 cm) wide x 12 inches (30.5 cm) in diameter
Drive System	: The drive system is all hydraulic. A duplex hydraulic pump is directly mounted to the 16 HP (11.9 kw) engine, which provides oil to the hydraulic motors that power the wheel drive, main broom, side broom and blower.
Sweeping	: The total sweeping width is 48.00 inches (121.9 cm).
A) Main Broom	: The main broom is 36 inches (91.4 cm) long and 10.25 inches (26.0 cm) in diameter. The broom bristles are 2.50 inches (6.4 cm) long. The broom composition is a poly-core helical pattern with proex bristle mix tufted in six double rows.
- Main Broom Option	: The option brooms available are nylon low density, nylon high density, or proex and wire mix.
B) Side Broom	: The side broom is 19 inches (48.3 cm) in diameter. It is shock mounted with black polypropylene bristles mounted in a 1 inch (2.5 cm) thick marine grade varnished plywood plate.
Debris Hopper	: The hopper volumetric capacity is 10 cubic feet (283 cubic liters).
Filtration	: The panel filter has an efficiency rating of 99.6% for one micron. Filtering area is equal to 92 square feet (8.55 square meters).
Vacuum Fan	: The fan is 9 inches (22.9 cm.) in diameter with a hydraulically driven impeller to provide dust control.
Optional Equipment	<ol style="list-style-type: none"> 1. Electric Fuel Gauge 2. Headlights and Tail lights 3. Turn signals front and rear with integral 4-way flashers 4. A back-up alarm 5. A rotating or strobe light 6. Over Head Guard 7. Warning light 8. Fuel gauge 9. Low oil warning light and shutdown (Gas Only)
Fluid Capacities	: Fuel Tank - 5 gallon (18.9 liters) Engine Oil - 3 pints (1.4 liters) - (Gasoline Only) Engine Oil - 4.2 pints (2.4 liters) - (Diesel Only) LP Tank - 20 lb. (9.1 kg.) Vapor Horizontal Withdrawal
Hydraulic Reservoir	: 2.50 gallons (9.5 liters).
Hydraulic System	: 3 gallons (11.4 liters).

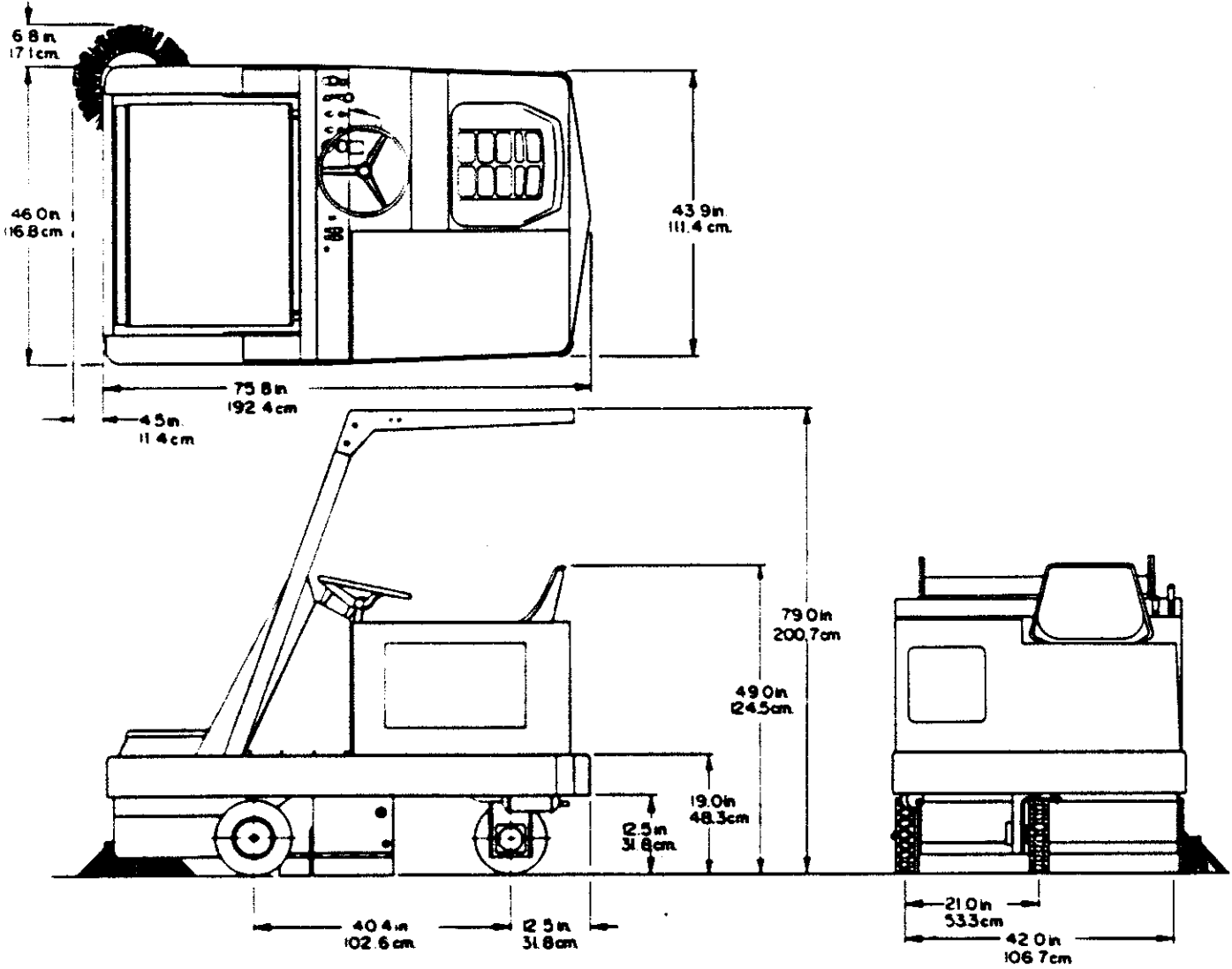
SPECIFICATIONS

Machine Specification - Battery

Sweeping Path	The sweeping path is 48.00 inches (121.9 cm).
Travel Speed	The travel speed range is up to 3.5 miles per hour (5.95 km/hr).
Turning Radius	
Right	The right turning radius is 81.23 inches (206.3 cm).
Left	The left turning radius is 58.58 inches (146.8 cm).
Vehicle Clearance	The vehicle clearance is 84 inches (213.4 cm). (Left Turn)
Weight - Variable Dump	The machine weight <u>with</u> batteries is 1980 pounds (900 kg). The machine weight <u>without</u> batteries is 1290 pounds (585 kg).
Weight - Low Dump	The machine weight <u>with</u> batteries is 1740 pounds (790 kg). The machine weight <u>without</u> batteries is 1070 pounds (485 kg).
Standard Equipment	<ol style="list-style-type: none">1. Electric Filter Shaker2. Horn3. Hour Meter4. Battery Condition Meter5. Hydraulic control for the main broom, side broom, blower and hopper dump.
Power Source	The electric motor is a 4 HP (3 kw), 36 volt direct current continuous duty, 2500 rpm motor using six batteries.
Batteries	There are six batteries each with a six volt capacity. The batteries are 36 volts in series, with 396 amp hours at a 20 hour discharge rate.
Parking Brakes	There are drum brakes on the two front wheels. The brakes are foot operated and for use as a parking brake and limited emergency use. Braking is accomplished through a foot operated forward/reverse control valve.
Steering	Steering is accomplished through a single rear wheel with a mechanical cam and lever gear column using a 15 inch (38.1 cm) diameter wheel.
Controls	<ol style="list-style-type: none">1. A hydraulic control lever for the hopper lift and shut off for the brooms and blower.2. A hydraulic control lever for the hopper door for the variable dump.3. A push button filter shaker.4. A push button horn.5. A control handle for main broom lift6. A control handle for side broom lift7. A key start ignition switch8. A single pedal control for forward /reverse motion and the rate of travel.
Lubrication	Grease fittings are located on the rear wheel yoke and steering gear. The fittings are located at these points to simplify proper lubrication.
Tires	3 inches (7.6 cm) wide x 12 inches (30.5 cm) in diameter

Drive System	The drive system is all hydraulic. A duplex hydraulic pump is directly mounted to the 36 volt direct current electric motor, which provides oil to the hydraulic motors that power the wheel drive, main broom, curb broom and blower.
Sweeping	The total sweeping width is 48.00 inches (121.9 cm).
A) Main Broom	The main broom is 36 inches (91.4 cm) long and 10.25 inches (26 cm) in diameter. The broom bristles are 2.50 inches (6.4 cm) long. The broom composition is a polycore helical pattern with proex bristle mix tufted in six double rows.
- Main Broom Options	The option brooms available are nylon low density, nylon high density, or proex and wire.
B) Side Broom	The side broom is 19 inches (48.3 cm) in diameter. It is shock mounted with black polypropylene bristles mounted in a 1 inch (2.5 cm) thick marine grade varnished plywood plate.
Debris Hopper	The hopper volumetric capacity is 10 cubic feet (283 cubic liters).
Filtration	The panel filter has an efficiency rating of 99.6% for one micron. Filtering area is equal to 92 square feet (8.55 square meters).
Vacuum Fan	The fan is 9 inches (22.9 cm) in diameter with a hydraulically driven impeller to provide dust control.
Optional Equipment	<ol style="list-style-type: none"> 1. Headlights and Taillights 2. Turn signals front and rear with integral 4-way flashers 3. A back-up alarm 4. A rotating or strobe light 5. Over Head Guard
Hydraulic Reservoir	2.50 gallons (9.5 liters)
Hydraulic System	3 gallons (11.4 liters)

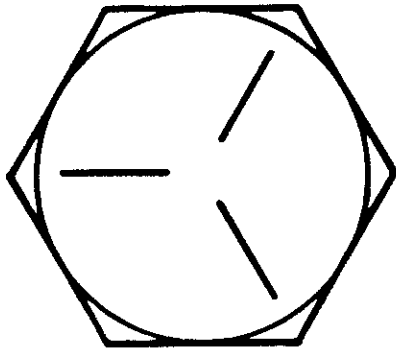
MACHINE DIMENSIONS



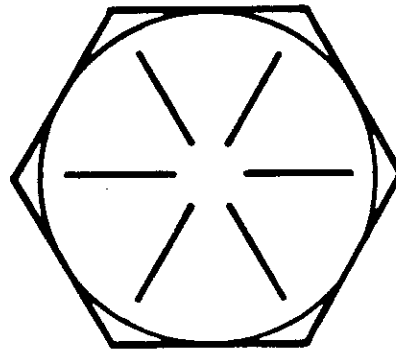
STANDARD HARDWARE & TORQUE VALUES

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	84	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 $\pm 10\%$ on torque values.

DECIMAL - METRIC CONVERSION TABLE

Fraction	Decimal	Millimeter	Fraction	Decimal	Millimeter
$\frac{1}{64}$	.015625	.3969	$\frac{33}{64}$	.515625	13.0969
$\frac{1}{32}$	.03125	.7938	$\frac{17}{32}$	.53125	13.4938
$\frac{3}{64}$	.046875	1.1906	$\frac{35}{64}$	.546875	13.8906
$\frac{1}{16}$	.0625	1.5875	$\frac{9}{16}$	.5625	14.2875
$\frac{5}{64}$	.078125	1.9844	$\frac{37}{64}$	.578125	14.6844
$\frac{3}{32}$	.09375	2.3813	$\frac{19}{32}$	.59375	15.0813
$\frac{7}{64}$	.109375	2.7781	$\frac{39}{64}$	.609375	15.4781
$\frac{1}{8}$	.125	3.1750	$\frac{5}{8}$	.625	15.8750
$\frac{9}{64}$	.140625	3.5719	$\frac{41}{64}$	.640625	16.2719
$\frac{5}{32}$	.15625	3.9688	$\frac{21}{32}$	.65625	16.6688
$\frac{11}{64}$	.171875	4.3656	$\frac{43}{64}$	.671875	17.0656
$\frac{3}{16}$	.1875	4.7625	$\frac{11}{16}$	.6875	17.4625
$\frac{13}{64}$	.203125	5.1594	$\frac{45}{64}$	.703125	17.8594
$\frac{7}{32}$	.21875	5.5563	$\frac{23}{32}$	.71875	18.2563
$\frac{15}{64}$	.234375	5.9531	$\frac{47}{64}$	.734375	18.6531
$\frac{1}{4}$	.25	6.3500	$\frac{3}{4}$	.75	19.0500
$\frac{17}{64}$	.265625	6.7469	$\frac{49}{64}$	.765625	19.4469
$\frac{9}{16}$	.28125	7.1438	$\frac{25}{16}$	.78125	19.8438
$\frac{19}{64}$	.296875	7.5406	$\frac{51}{64}$	.796875	20.2406
$\frac{5}{16}$	.3125	7.9375	$\frac{13}{16}$	.8125	20.6375
$\frac{21}{64}$	.328125	8.3344	$\frac{53}{64}$	.828125	21.0344
$\frac{11}{32}$	.34375	8.7313	$\frac{27}{32}$	.84375	21.4313
$\frac{23}{64}$	.359375	9.1281	$\frac{55}{64}$	.859375	21.8281
$\frac{3}{8}$	.375	9.5250	$\frac{7}{8}$	.875	22.2250
$\frac{25}{64}$	.390625	9.921	$\frac{57}{64}$	.890625	22.6219
$\frac{13}{32}$	.40625	10.3188	$\frac{29}{32}$	.90625	23.0188
$\frac{27}{64}$	.421875	10.7156	$\frac{59}{64}$	.921875	23.4156
$\frac{7}{16}$	.4375	11.1125	$\frac{15}{16}$	.9375	23.8125
$\frac{29}{64}$	.453125	11.5094	$\frac{61}{64}$	.953125	24.2094
$\frac{15}{32}$	.46875	11.9063	$\frac{31}{32}$	.96875	24.6063
$\frac{31}{64}$	.484375	12.3031	$\frac{63}{64}$	.984375	25.0031
$\frac{1}{2}$	.50	12.7000	1	1.0	25.4001

OPERATOR SAFETY INSTRUCTIONS



WARNING





AVERTISSEMENT















ADVERTENCIA

For the safe operation of this machine, read and understand all warnings and cautions. Look for these symbols:



-  **WARNING** means: If you do not follow the instructions in a **WARNING**, injury can occur to you or to other personnel.
-  **CAUTION** means: If you do not follow the instructions in a **CAUTION**, damage can occur to the machine.

-  **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. Do not use this machine as a step or furniture.
-  **WARNING:** Operate this machine only from the driver's seat. Do not ride on this machine or install attachments for riding behind the machine.
-  **WARNING:** Be careful when operating the machine on a ramp or incline. Always move slowly on a ramp. Do not turn this machine on ramp. Do not stop and leave this machine on ramp. Read the "Machine Operation" section of this manual.
-  **WARNING:** Stop and leave this machine only on a level surface. When you stop the machine, turn the machine off by turning the key switch to the off position.
-  **WARNING:** To prevent injury, and damage to the machine, do not move it to an edge of a stair or loading dock.
-  **WARNING:** Machines can cause an explosion when operated near inflammable materials and vapors. Do not use this machine with or near fuels, grain dust, solvents, thinners or other inflammable materials.
-  **WARNING:** Lead acid batteries generate gases which can cause an explosion. Make sure the switch on the charger is in the "OFF" position before connecting or disconnecting the charger. Keep sparks and flames away from batteries. **NO SMOKING.** Charge the batteries only in an 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 battery terminals, or the tops of the batteries.
-  **WARNING:** Maintenance and repairs must be done by authorized personnel only. Make all fasteners tight.
-  **WARNING:** Keep the electrical parts of the machine dry. For storage, keep 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 Clarke.

INTRODUCTION

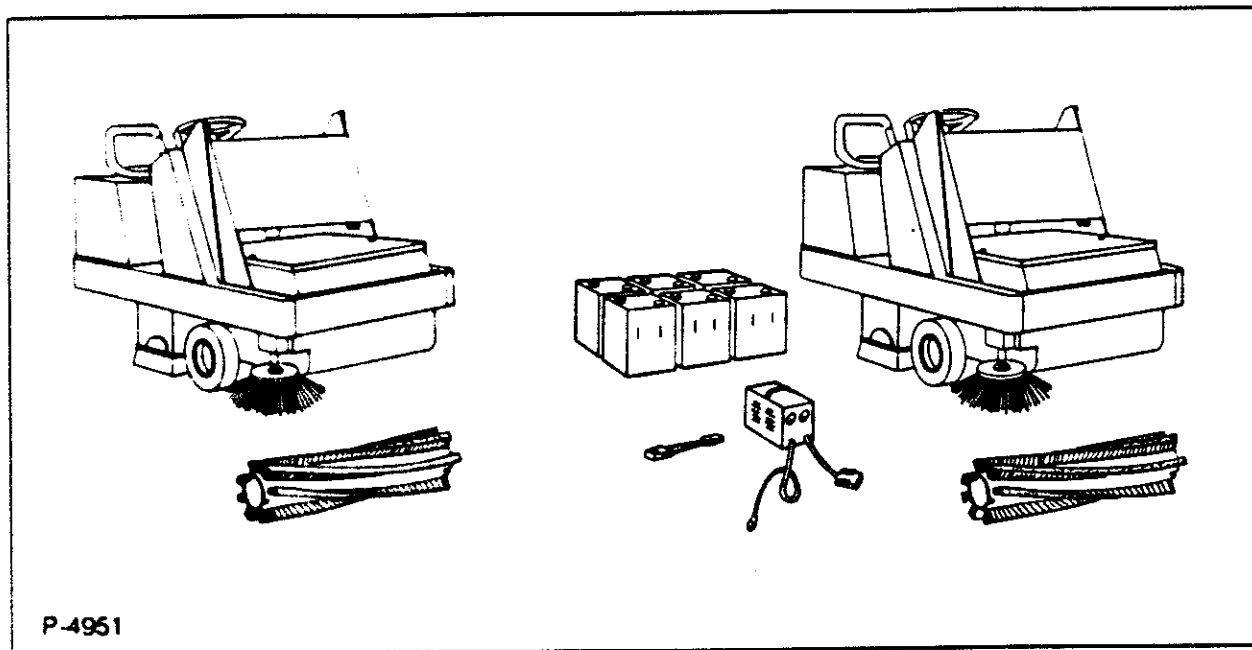


Figure 1

The SPS4800 Sweeper is a machine for dust controlled sweeping. The machine uses a cylindrical main broom and side broom to sweep debris in a path 48.00 inches (121.9 cm) wide.

The following equipment is given with the Gas Powered SPS4800 Sweeper, model numbers 576-428 and 576-433:

1. One Proex-fiber cylindrical broom.
2. One Polypropylene circular side broom.
3. A book of instructions

The following equipment is included with the Liquid Propane Powered SPS4800 Sweeper, model numbers 576-429 and 576-434:

1. One Proex-fiber cylindrical broom.
2. One Polypropylene circular broom
3. One 20lb. horizontal LP tank, vapor withdrawal.
4. A book of instructions.

The following equipment is included with the Diesel Powered SPS4800 Sweeper, model numbers 576-430 and 576-435:

1. One Proex-fiber cylindrical broom.
2. One Polypropylene circular side broom.
3. A book of instructions

The following equipment is included with the Battery Powered SPS4800 Sweeper, model number 576-431 and 576-436:

1. Six 6-volt batteries.
2. One battery charger.
3. One adapter cable for the battery charger.
4. One Proex-fiber cylindrical broom.
5. One Polypropylene circular broom
6. A book of instructions
7. (5) Battery jumper cables.

The following equipment is included with the Battery Powered (Export) SPS4800 Sweeper, model number 576-432 and 576-437:

1. One adapter cable for the battery charger.
2. One Proex-fiber cylindrical broom.
3. One Polypropylene circular broom.
4. A book of instructions
5. (5) Battery jumper cables.

HOW THE MACHINE WORKS

The Gas / LP Powered SPS4800 Sweeper uses an air cooled 16 HP (11.9 kw) engine. The power for the Gas/LP Sweeper to operate the hydraulic system is directly coupled to the Engine.

The Diesel Powered SPS4800 Sweeper uses a diesel engine. The power for the Diesel Sweeper to operate the hydraulic system is directly coupled to the Engine.

The Battery Powered SPS4800 Sweeper uses six 6-volt batteries. The electric power to operate the hydraulic system, comes from the storage batteries.

The control to raise and lower the main broom is actuated by a lever on the control console.

The control to raise and lower the side broom is actuated by a lever on the control console.

The hydraulic pump that operates the hydraulic motors is controlled by a lever on the control panel.

The hydraulic rear wheel drive motor is controlled by a single pedal for direction and rate of travel.

PREPARING THE MACHINE FOR OPERATION

HYDRAULICS SYSTEM

 **WARNING**

Use only FORD type "F" automatic transmission fluid in the hydraulic reservoir.

 **WARNING**

Do not use gasoline, combustible or inflammable material in the hydraulic reservoir tank.

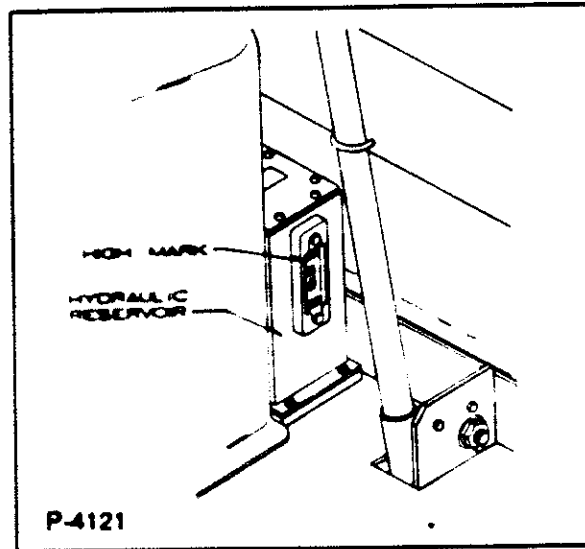


Figure 2

- 1 Make sure the hydraulic oil level in the sight level gauge is at the "HIGH" mark on the sight level gauge. See Figure 2. Add hydraulic fluid to the reservoir if the level of hydraulic fluid is low.

GASOLINE POWERED MACHINES

- 1 Locate and tighten the battery cables.

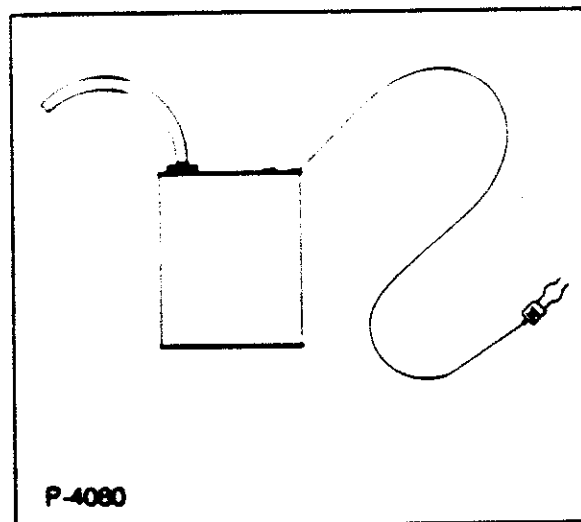


Figure 3

2. Fill fuel tank with **REGULAR** grade gasoline, leaded or unleaded with a minimum pump sticker octane level of 87. In Canada and other countries using the "Research Method" a minimum octane level of 90 is required.

⚠ WARNING

Never fill fuel tank while engine is running. Always be sure fuel container and sweeper are electrically connected before pouring fuel.

The machine and fuel container can be connected with an insulated wire permanently attached to the fuel container and the other end clipped to the machine.

3. Check engine crankcase oil level.

LP POWERED MACHINE

1. Locate and tighten battery cables.
2. Fill LP tank with fuel manufactured to Natural Gas Processors Association Specification "HD-5."

⚠ WARNING

The LP powered SPS4800 sweeper uses a 20 lb. vapor withdrawal, horizontal LT 20 - CODE 40 tank.

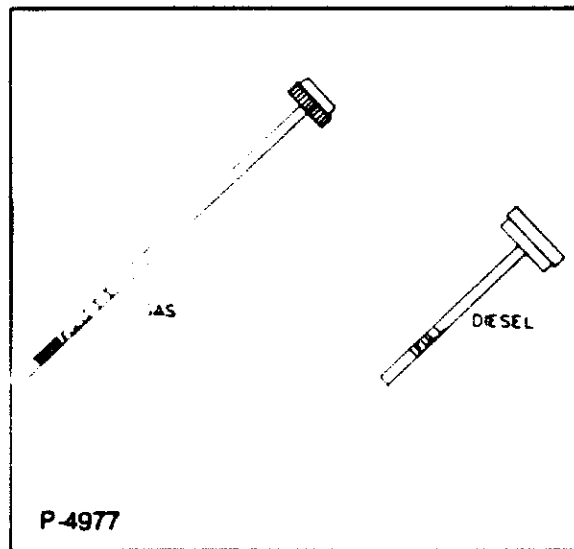


Figure 4

3. Check engine crankcase oil level.

DIESEL POWERED MACHINES

1. Locate and tighten the battery cables.
2. Fill fuel tank with light distillate diesel fuel, gas oil or DERV to BS 2869 Class A1 or A2.

⚠ WARNING

Never fill fuel tank while engine is running. Always be sure fuel container and sweeper are electrically connected before pouring fuel.

The machine and fuel container can be connected with an insulated wire permanently attached to the fuel container and the other end clipped to the machine.

3. Check engine crankcase oil level.

BATTERY POWERED MACHINE

WARNING

Always wear eye protection and protective clothing when working near batteries. Remove all jewelry. NO SMOKING.

1. Make sure all battery terminal connections are tight. If batteries have not come with the machine, see the battery maintenance section on page 29 for battery installation instructions.
2. Make sure the battery cable connectors are plugged together. See Figure 5 and 6. The battery condition meter will show the battery charge. If the batteries are not fully charged, follow the procedures listed below.

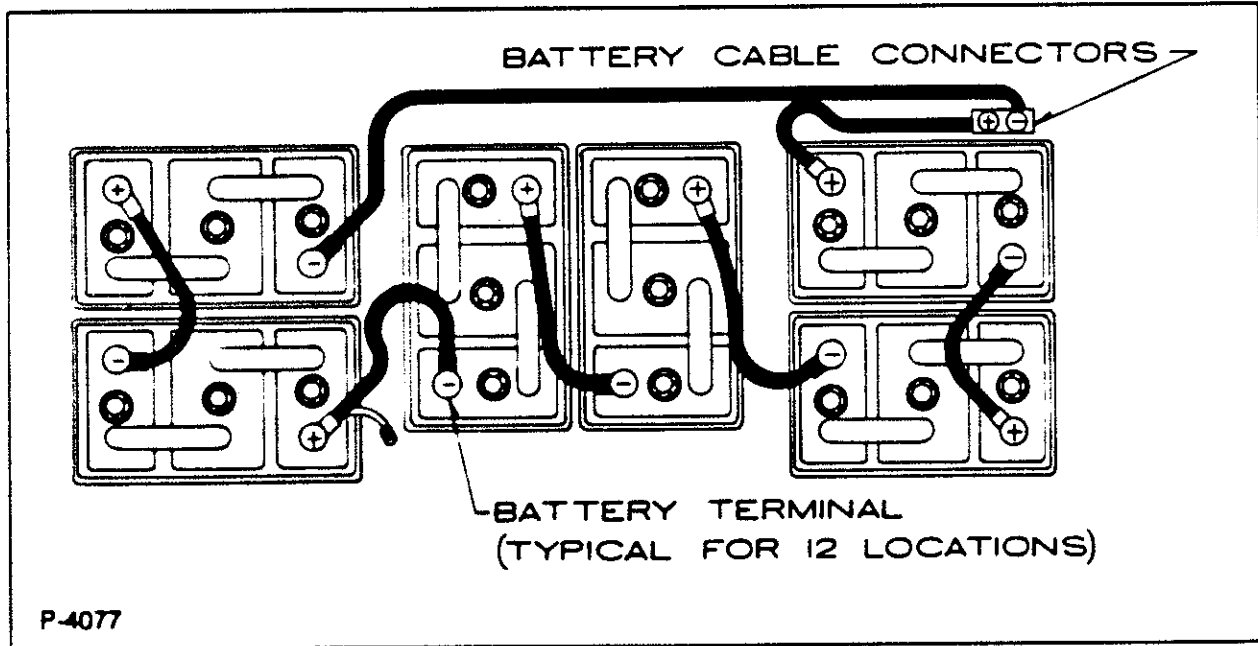


Figure 5

HOW TO CHARGE THE BATTERIES

The batteries must be recharged when the battery condition meter is in the red zone. See Figure 12 on page 22. Follow these procedures when the batteries need recharging:

WARNING

Lead/acid batteries generate gases when charging which can cause an explosion. To prevent an explosion, make sure the AC plug is disconnected from the receptacle before you connect the DC plug on the charger to the connector under the battery cover. Keep sparks and flames away from batteries. NO SMOKING.

WARNING

To prevent an explosion, charge the batteries only in an area with good ventilation.

NOTE

The charger shuts off when the batteries are fully charged.

1. Set the brake.
2. Put the charger on a flat surface. Make sure the side vents on the charger are at least two inches away from the walls and other objects. Make sure there are no objects near the bottom vents of the charger.

⚠ WARNING

Do not allow the electrolyte level to fall below the tops of the plates because the exposed portion of the plates will become permanently inactive because of sulfation.

3. Make sure the electrolyte level is above the top of the battery plates BEFORE starting the charger. Add only enough water to cover them.
4. Make sure the AC charger's plug is disconnected from the receptacle.
5. Tilt back the battery cover.
6. Connect the adapter cable to the battery connector. See Figure 6.
7. Turn the charger dial to the "OFF" position.
8. Connect DC connector on the charger to the adapter cable. See Figure 6.

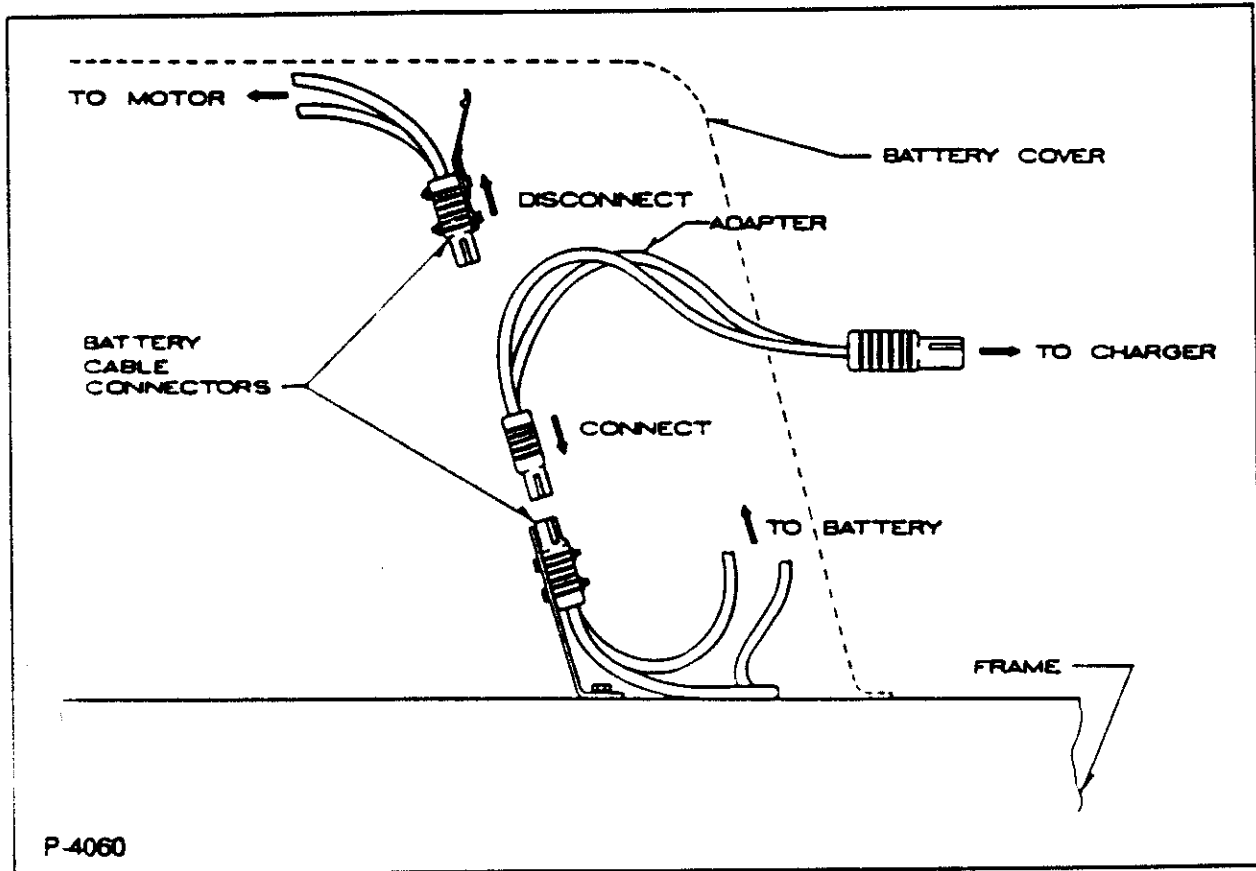


Figure 6

9. Plug charger cord (A.C.) into grounded outlet. (Check name plate on charger for proper voltage.)
10. Set time indicator knob to "ON" position.
11. The time indicator knob will stop when the batteries are fully charged. The knob will indicate the number of hours the charger operated.

⚠ WARNING

Do not overfill a battery cell above the level indicator or it will pump acid when it is placed on a charge. This reduces the capacity of the battery corrodes metal parts near it.

12. If the electrolyte level is low, add water near the end of the charge or after taking the battery off charge.
13. Unplug the battery charger from the receptacle.
14. Unplug the adapter cable and connect the battery cable ANDERSON connector. See the charger instruction book for more detailed instructions on how to use the battery charger.

OPERATION OF CONTROLS AND GAUGES

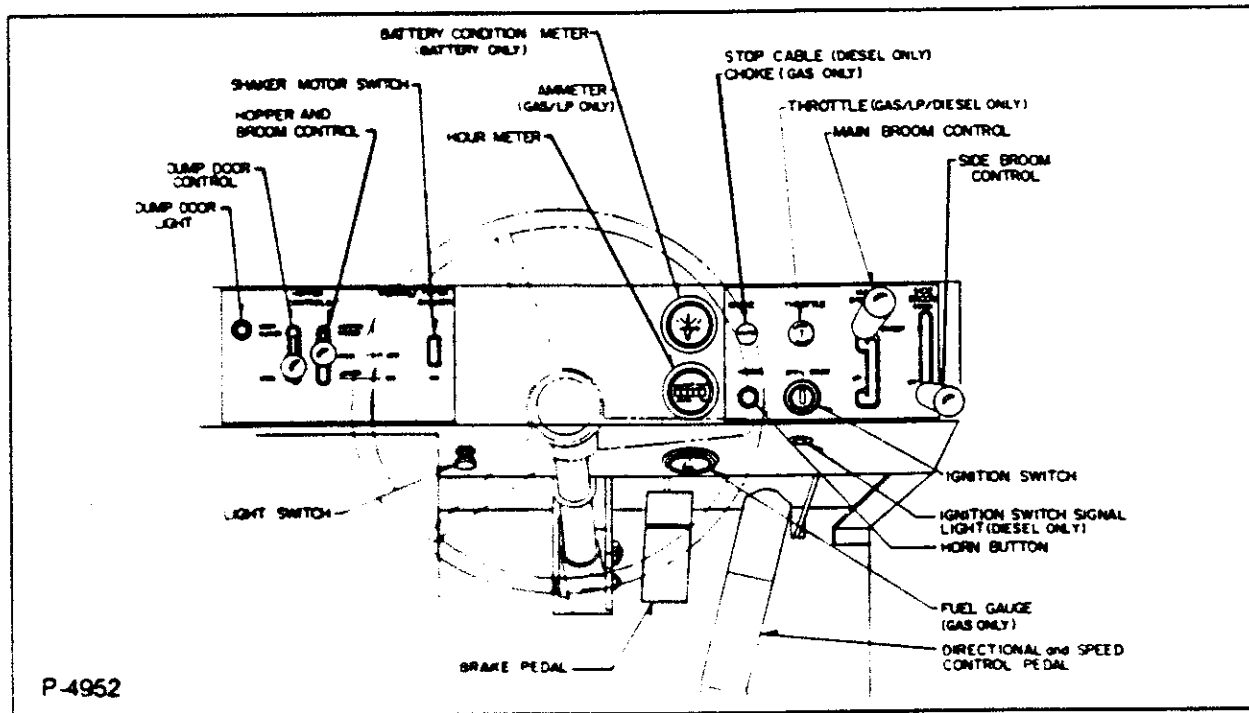


Figure 7

HORN BUTTON

The horn button is located to the right of the steering column. See Figure 7. The horn button is always active. Push the horn button to energize the horn.

HOUR METER

This meter is located below the Fuel Gauge or Battery Condition Meter on the instrument console. See Figure 7. This meter is activated when the ignition switch is in the ACCESSORY or IGN/ON position. The meter shows actual "run" time of the machine. The meter is used to suggest when maintenance should be done to the machine.

IGNITION SWITCH

The keyed ignition switch is located to the right of the steering column on the instrument panel. It has four positions.

1. The key turned to the center "OFF" position will shut off the engine. The horn, filter shaker motor and light options can be energized in the "OFF" position.
2. The key turned to the left "ACCESSORY" position will allow the additional items to be energized: turn signals and instrument gauges.
3. The key turned to the right "IGN/ON" position will allow all the items listed above to be energized. This position will not start the engine.
4. (GAS/LP/Diesel Only) The key turned to the far right "START" position will start the engine. This position is a momentary position. The key will revert to the "IGN/ON" position when it is released.

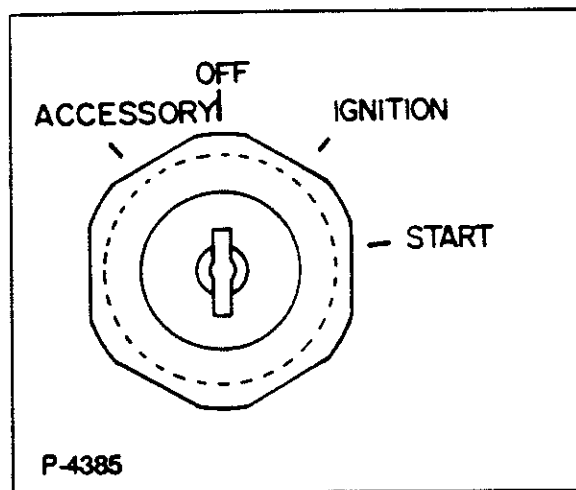


Figure 8

KEY SWITCH SIGNAL LIGHT (Diesel Only)

This indicator light, located below the ignition switch, alerts the operator that the ignition switch is on.

PARKING BRAKES:



The parking brake must be put in the locked position before the operator leaves the machine and always locked when the machine is not running.

The parking brake is located to the right of the steering column on the floor underneath the instrument console. See figures 7 and 9. Use the following procedures to operate the parking brake pedal:

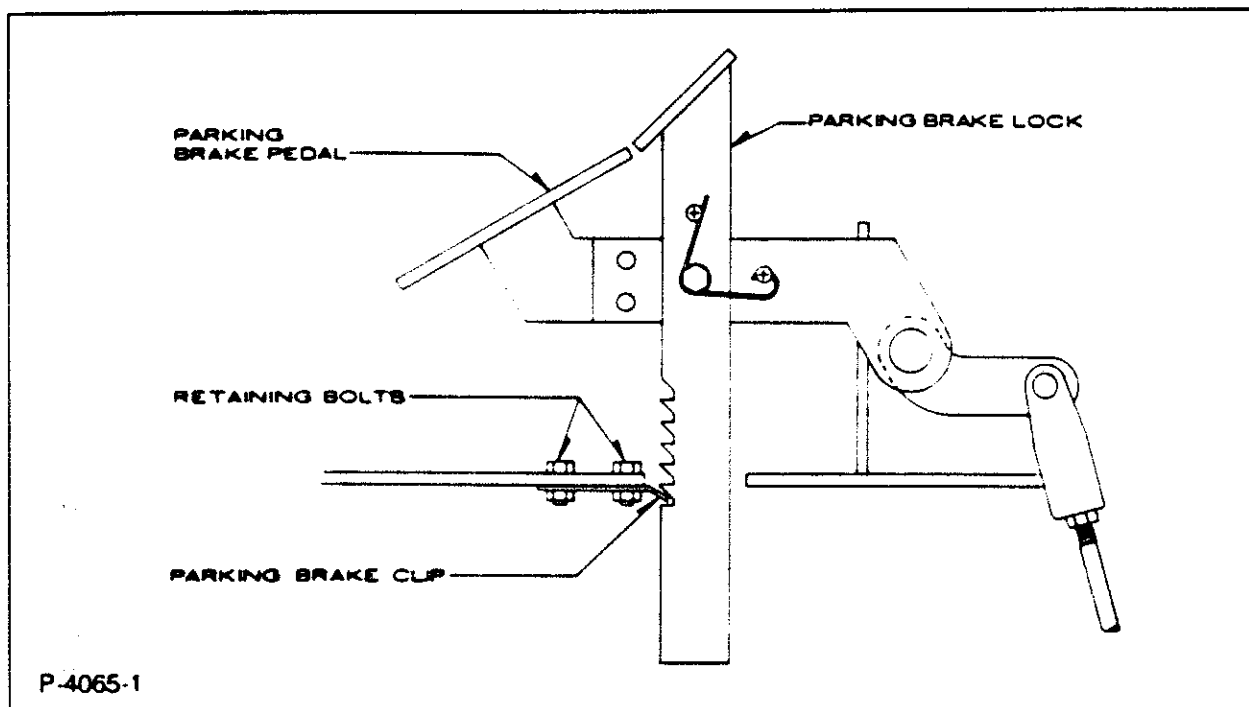


Figure 9

1. Put foot pressure on the parking brake plate to set the brakes. See Figure 9.
2. Put foot pressure on the parking brake lock arm plate to lock the brakes. See Figure 9.
3. Put foot pressure on the parking brake plate to unlock the brakes. See Figure 9.

FILTER SHAKER CONTROL BUTTON

The filter shaker control button is located to the left of the steering column. See Figure 7. The button is always active. The filter shaker control button is used during the sweeping cycle and the hopper unloading cycle. Use the filter shaker control button to remove dust from the filter. Use the following procedures to operate the filter shaker control button.

Sweeping Cycle

1. After the machine has made a long sweeping run, Push the hopper and broom control lever to the "OFF" position.
2. Push the filter shaker control button for 20 to 30 seconds to allow the filter to unload.
3. Pull the hopper and broom broom control lever to the "ON" position. Repeat this procedure after each long sweeping run.

Hopper Unloading Cycle

1. Unload the hopper debris.
2. With the hopper down, push the filter shaker control for 20 to 30 seconds to unload the filter debris for continued dust free performance.

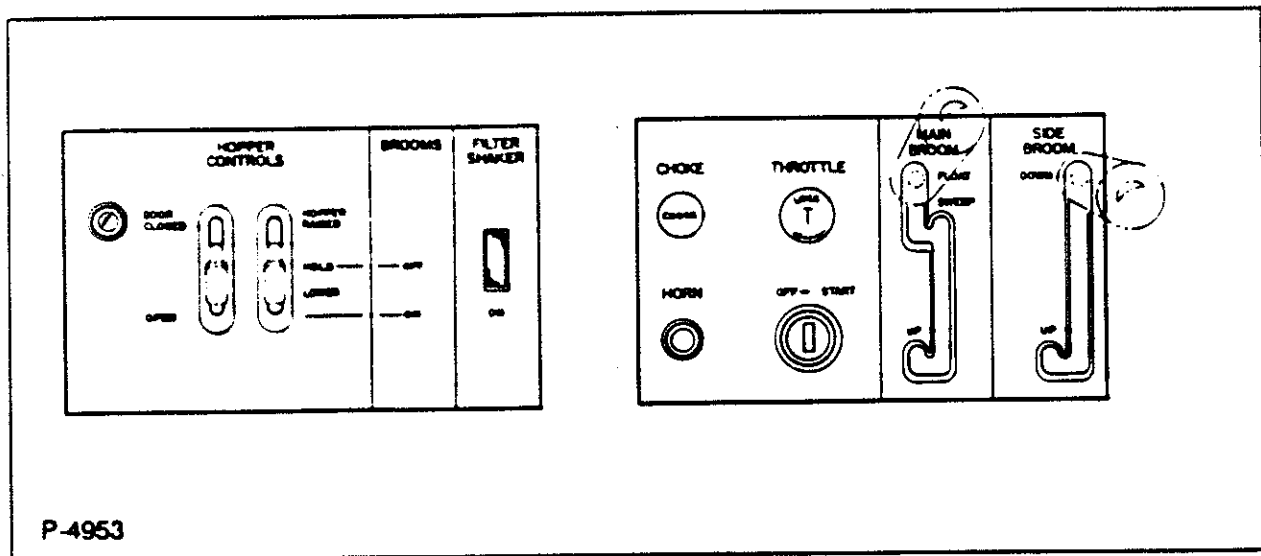


Figure 10

MAIN AND SIDE BROOM CONTROL LEVERS

The main and side broom control levers are located to the right of the ignition switch. See Figure 7 and 10. These control levers raise and lower the brooms.

NOTE

The brooms will start only when the hopper lift control lever is in its lowest position.

SIDE BROOM LIFT CONTROL

The right side broom lift control is located on the right side of the instrument panel. To raise the side broom, grasp the lever and pull the lever to the locking notch, marked "UP". To lower the side broom, grasp the lever, pull it down and to the right, away from the locking notch. Let the lever raise until it rests by the "DOWN" mark. The broom will start when the hopper lift control is in its lowest position.

MAIN BROOM LIFT

The main broom lift control is located to the left of the drivers seat. To lower the main broom, grasp the lever and pull it down and to the right to clear the locking notch. Move the lever up to the first or second notch in the elongated slot. The first notch, "SWEEP", is for normal sweeping (2 to 3 inch [5 to 8 cm] broom pattern). The second notch, "FLOAT", is for heavy sweeping (4 to 5 inch [10 to 13 cm] broom pattern). To raise the main broom, pull the lever down and slide into the locking notch in the "UP" position. You may operate the main broom in either the "SWEEP" or "FLOAT" position. However, the "SWEEP" position should be used for normal sweeping and will result in increased broom life. The "FLOAT" position should be used only when sweeping very uneven areas. The broom will start when the hopper lift control is in its lowest position.

DIRECTIONAL / SPEED CONTROL PEDAL

The directional / speed control pedal is located on the floor of the operator's area, to the right of the parking brake pedal. The directional / speed pedal controls the machine direction and travel speed.

WARNING

The machine will not stop in neutral. The machine will coast when the pedal is returned to the neutral position.

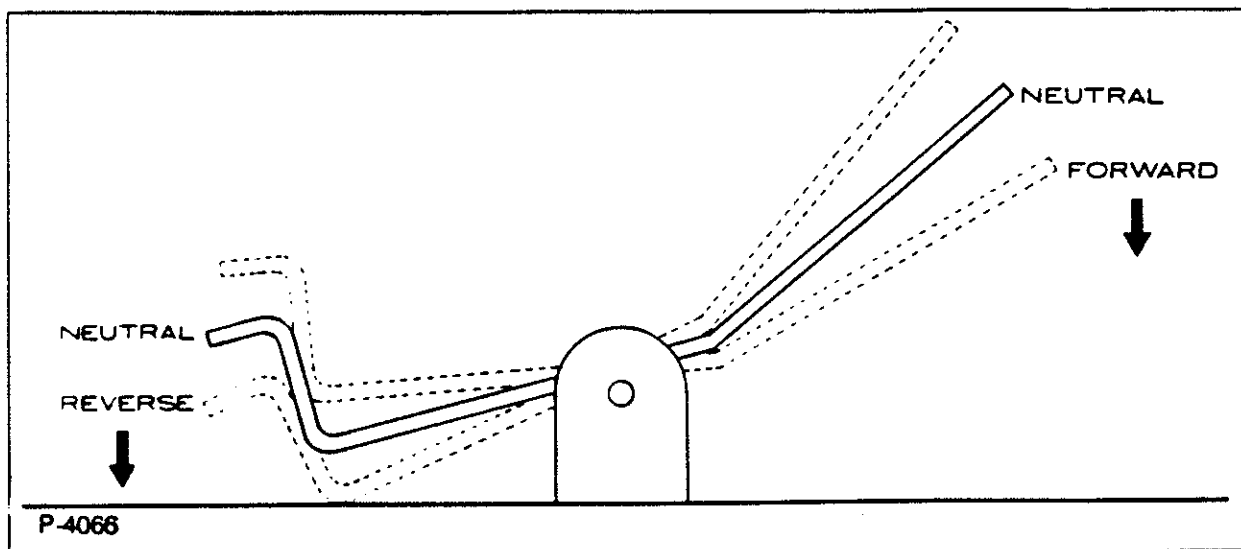


Figure 11

1. Put foot pressure on the upper portion of the pedal. The machine will move forward. See Figure 11.
2. Increase the foot pressure on the "FORWARD" portion of the pedal to increase the forward speed.
3. Put foot pressure on the lower portion of the pedal. The machine will move in reverse.
4. Increase the foot pressure on the "REVERSE" portion of the pedal to increase the reverse speed.
5. To stop the machine, put light foot pressure on the opposite end of the directional/speed control pedal. If the machine is moving forward, put light foot pressure on the "REVERSE" portion of the pedal. If the machine is moving in reverse, put light foot pressure on the "FORWARD" portion of the pedal.
6. The directional/speed control pedal will return to neutral when not in use. The machine will coast in neutral. It will not stop.

HOPPER AND BROOM CONTROL

The hopper control lever is located to the left of the steering column and controls the hopper position and broom rotation. To start the side and main brooms turning, pull the lever back to the "LOWER - ON" position. To stop the side and main broom turning, push the lever forward to the "HOLD - OFF" position. To raise the hopper, push the lever forward to the "HOPPER RAISED" position. To hold the hopper in any raised position, pull the lever back to the "HOLD - OFF" position. To lower the hopper, pull the lever down to the "LOWER" position. **NOTE: Side Broom will sometimes rotate slowly in this position.**

DUMP DOOR LIGHT

The hopper dump door light is located to the left of the Dump Door Control Lever and is activated by the dump door position. The dump door light will light when the dump door control lever is in the "DOOR CLOSED" position. The light will light immediately, but it takes three seconds for the door to close, do not move the hopper before the time is up. The Dump Door Light will not light when the door is open and the dump door control lever is in the "OPEN" position. The hopper door should always be open except when high dumping the hopper.

HOPPER DUMP DOOR CONTROL LEVER

The hopper control lever is located to the left of the Hopper and Broom Control Lever and controls the hopper hopper door. To open the hopper dump door, pull the hopper door lever to the "OPEN" position, the Dump Door Light will go out. To close the Hopper Dump Door, push the hopper door lever to the "DOOR CLOSED" position. The Dump Door Light will light when the door is closed. It takes three seconds for the door to close, do not move the hopper before the time is up. The hopper door should always be open except when high dumping the hopper.

FUEL GAUGE (OPTION)

The fuel gauge is located below the hour meter on the machine console and shows the level of fuel contained in the fuel tank. See Figure 7 on page 18.

AMMETER (Gas/LP Only)

The ammeter is located on the control panel to the right of the steering column. See Figure 7 on page 18. The gauge shows the charging or discharging of the battery.

BATTERY CONDITION METER: (Battery Only)

The meter shows the condition of batteries. Batteries are charged when indicator is in the green zone. When indicator enters the red zone, batteries must be charged.

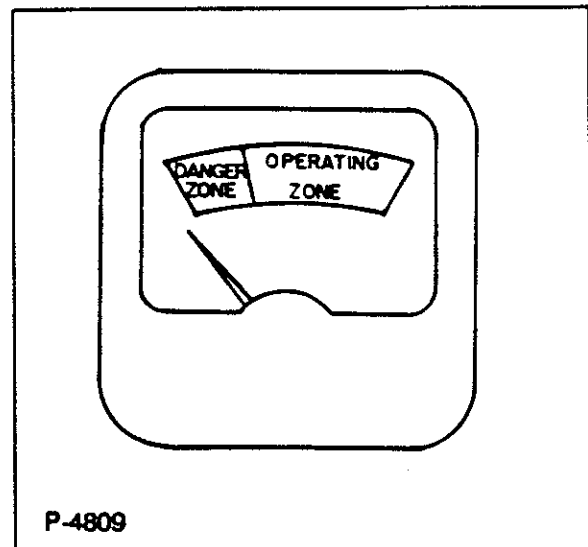


Figure 12

SAFETY LOCK ARM

1. Set the parking brake.



WARNING

Never reach under or work under the hopper in the raised position without engaging the safety lock arm. See figure 13.

2. Raise the hopper.
3. Engage the safety lock arm.
4. Slowly lower the hopper until the safety arm is secure.

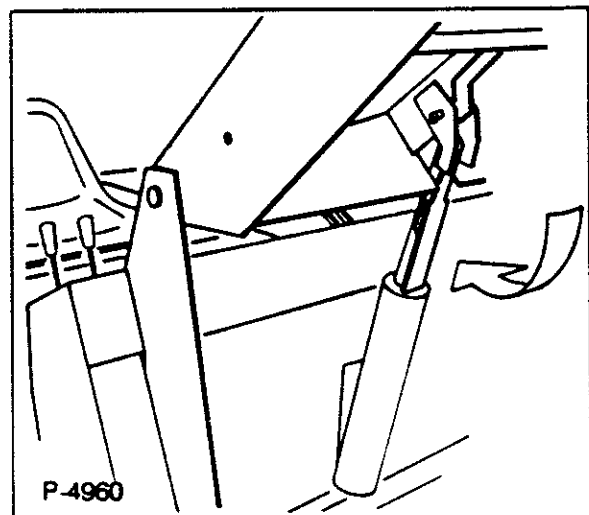


Figure 13

CHOKE (Gas Only)

The choke is located to the right of the steering column and the ammeter on the machine console. See figure 7 on page 18. The choke governs the mixture of air during the combustion cycle of the engine operation. The choke should be pulled out during the start of the engine and then gradually pushed back in.

STOP CONTROL (Diesel Only)

The stop control is located to the right of the steering column and the ammeter on the machine console. See figure 7 on page 18. Push in to stop the diesel engine. Pull out before restarting engine.

THROTTLE (Gas/LP Only)

The throttle control is located to the right of the choke on the console. See Figure 7 on page 18. Pull the knob out and twist to lock for full governed speed. Engine must be operating at full governed speed of 2750 "no load" RPM (brooms and blower switch off and sitting still), to maintain the best machine travel speed, hopper loading and dust control. To stop engine twist knob to unlock, push in and turn key off.

HOW TO OPERATE THE MACHINE

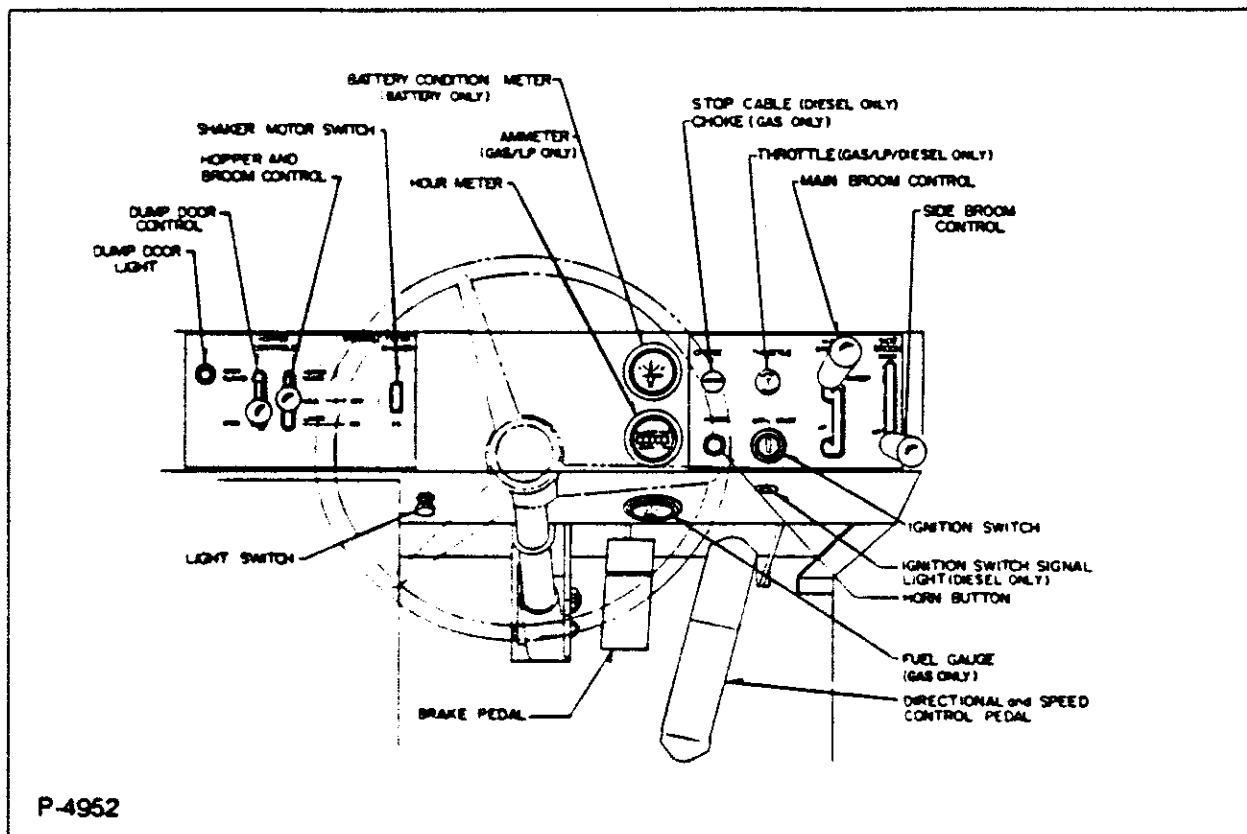


Figure 14

HOW TO START THE MACHINE

1. Release the parking brake.
2. (GASOLINE ONLY) If the engine is cold, pull the choke lever out the entire way. (If the engine is warm, the choke may need only partial engagement, or none at all).
3. (GASOLINE/LP ONLY) Pull throttle control knob out and twist counterclockwise to lock for full governed speed. Engine must be operating at full governed speed of 2750 "no load" RPM (brooms and blower switch off and machine sitting still), to maintain the best machine travel speed, hopper loading and dust control. To stop engine twist knob to unlock, push in and turn key off.
4. Turn the ignition switch to the "START" position and release the key.
5. (GASOLINE ONLY) After the engine has run for a few minutes, or when the engine starts running rough, push the choke in.

WARNING

Do not crank the engine continuously for more than 10 seconds at a time. Also, allow the engine a minute or so to cool down between cranking attempts if the engine won't start. Failure to follow these two rules may damage the starter motor.

6. Move the hopper level control lever to the lowest position marked "BROOMS ON."
7. Set the main broom control handle to the "SWEEP" or "FLOAT" position and set the side broom control handle to the "DOWN" position.
8. Release the parking brake.
9. Put foot pressure on the directional/speed control pedal on the "FORWARD" portion of the pedal.
10. To stop the machine, put light foot pressure on the directional/speed control pedal on the "REVERSE" portion of the pedal.

HOW TO STOP THE MACHINE

1. Put light foot pressure on the directional/speed control pedal in the opposite direction of machine travel.
2. Put foot pressure on the parking brake lock plate to lock the brakes.
3. Put the hopper lever control handle to the "OFF" position.
4. Put the "MAIN BROOM" control lever to the "UP" position.
5. Put the "SIDE BROOM" control lever to the "UP" position.
6. Turn the ignition key to the "OFF" position.

HOW TO SWEEP

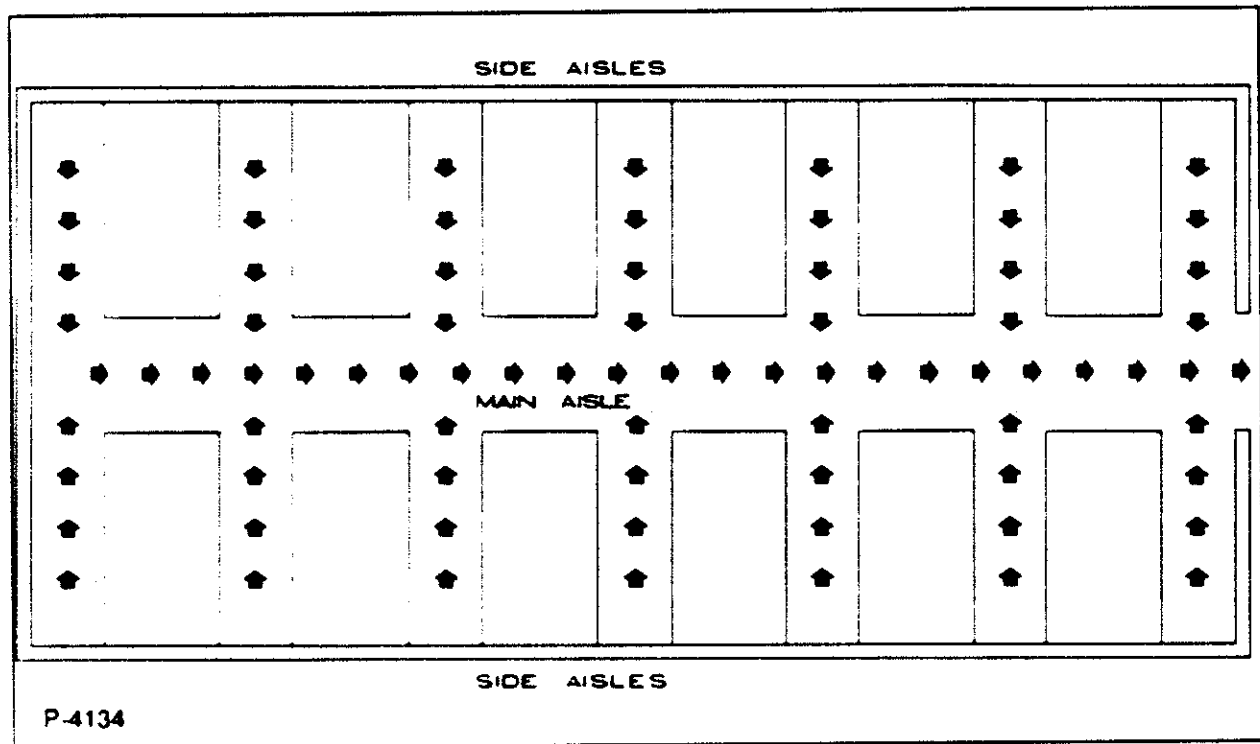


Figure 15

WARNING

Sweep in straight paths. Do not bump posts. Do not scrape the sides of the machine.

1. Pick up large debris before sweeping with machine. Flatten and remove bulky cartons from aisle before sweeping large debris.
2. Use the machine to sweep debris from narrow aisles into main aisle. See Figure 15.
3. After the machine has made a sweeping run, move the hopper control lever to the "BROOMS OFF" position.
4. Push the filter shaker control button for 5 to 15 seconds to allow the filter to unload.
5. Set the hopper level control to the "BROOMS ON" position. Repeat this procedure after each sweeping run.
6. Sweep debris from main aisle. See Figure 15.
7. Overlap of broom paths when sweeping. This will eliminate leaving dirty patches.
8. The machine will leave debris, while sweeping, when the hopper is full. Follow the hopper unloading cycle outlined on page 25.

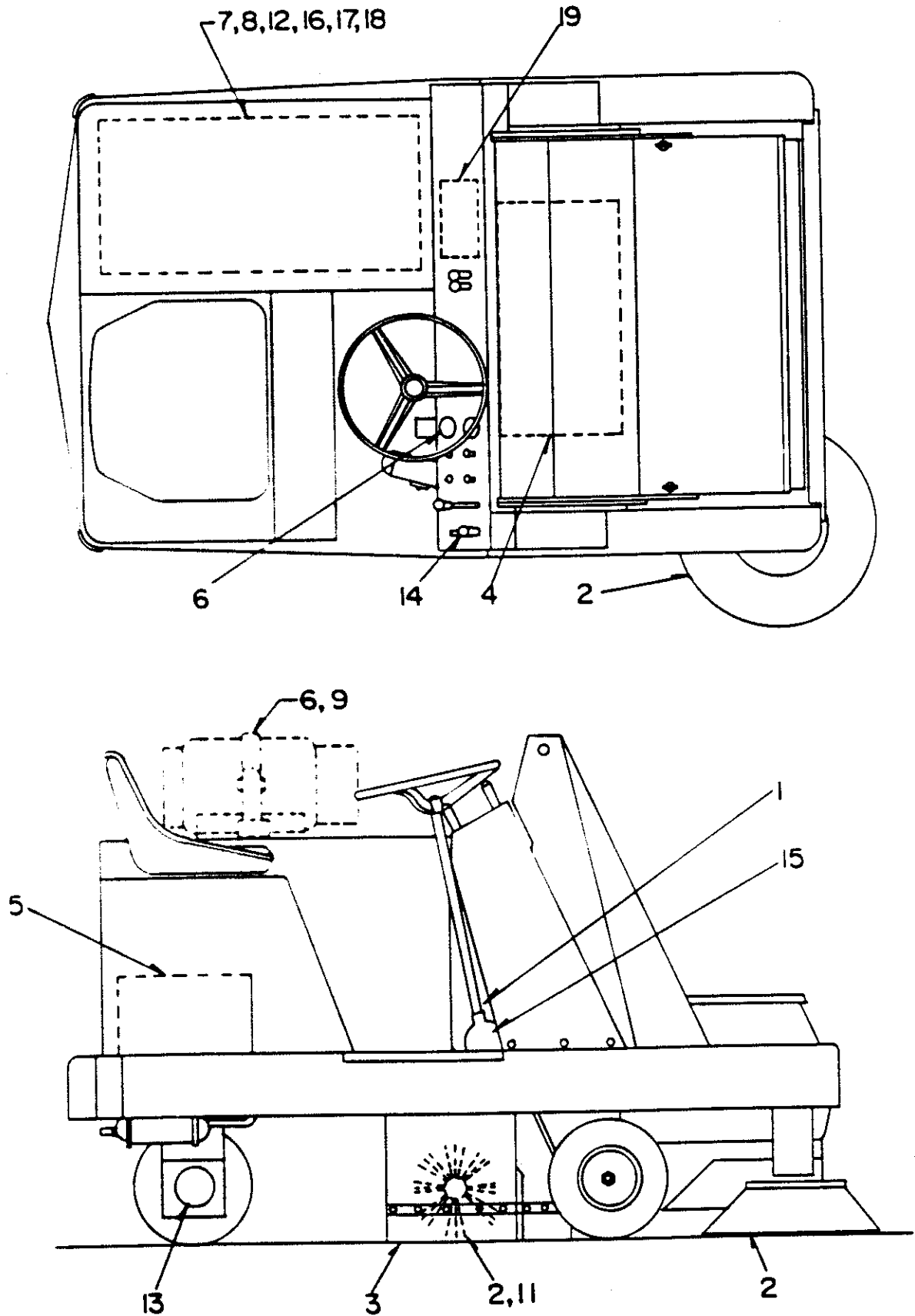
HOW TO UNLOAD THE HOPPER - LOW DUMP

1. When hopper is full of debris, the machine will begin to leave debris on the surface.
2. Put the hopper control lever to the "BROOMS OFF" position.
3. Put the "MAIN BROOM" control lever to the "UP" position.
4. Put the "SIDE BROOM" control lever to the "UP" position.
5. Drive the machine to the dumping area.
6. Stop the machine.
7. Push the hopper control lever forward to the "HOPPER RAISED" position until the debris hopper is at the desired height.
8. Pull the lever to the "HOLD" position.
9. Press the "FILTER SHAKER" switch for 10 to 15 seconds to clear dust from the panel filter.
10. Back the machine away from the debris pile.
11. Put the hopper control lever in the "LOWER" position.
12. Resume sweeping operation.

HOW TO UNLOAD THE HOPPER - VARIABLE DUMP

1. When hopper is full of debris, the machine will begin to leave debris on the surface.
2. Put the hopper control lever to the "BROOMS OFF" position.
3. Put the "MAIN BROOM" control lever to the "UP" position.
4. Put the "SIDE BROOM" control lever to the "UP" position.
5. Drive the machine to the dumping area.
6. Stop the machine.
7. Push the hopper door lever to the "CLOSED" position. The Dump Door Light will light. Wait three seconds for the door to close.
8. Push the hopper lever control forward to the "HOPPER RAISED" position until the debris hopper is at the desired height.
9. Pull the lever to the "HOLD" position.
10. Move the machine forward until the hopper is positioned over the container.
11. Pull the hopper door lever to the "OPEN" position. The Dump Door Light will go out. Wait three seconds for the door to open.
12. Push the hopper door lever to the "CLOSED" position. The Dump Door Light will light. Wait three seconds for the door to close.
13. Back the machine away from the debris container.
14. Put the hopper control lever in the "LOWER" position.
15. Pull the hopper door lever to the "OPEN" position. The Dump Door Light will go out. Wait three seconds for the door to open.
16. Press the "FILTER SHAKER" switch for 10 to 15 seconds to clear dust from the panel filter.
17. Resume sweeping operation.

MAINTENANCE SCHEDULE



P-4975

For service assistance, consult the yellow pages under power sweepers and scrubbers. For best performance, replace worn parts with genuine Clarke parts.

The following steps are to be done by qualified maintenance personnel only. Use the hour meter to plan a maintenance schedule.

EVERY 8 HOURS OF USE OR DAILY **PAGE**

	1.	Check for hydraulic leakage and reservoir level.	47
	2.	Check brooms for wear and damage, adjust as required.	31
	3.	Check all flaps for wear and damage.	46
	4.	Check panel dust filter for leakage.	35
B	5.	Check electrolyte level & charge batteries.	28
G,LP,D	6.	Check fuel level.	44
G,LP,D	7.	Check engine oil level.	44
G,LP,D	8.	Check engine air filter.	43
LP	9.	Check for LP odor at connections.	49

EVERY 50 HOURS OF USE

	10.	Lubricate dump system.	51
G,LP,D	11.	Rotate main broom (end for end).	32
G,LP,D	12.	Change engine oil and oil filter.	44

G,LP,D Perform recommended engine maintenance (See engine manual)

EVERY 100 HOURS OF USE

	13.	Lubricate rear wheel yoke bearings.	51
	14.	Lubricate all moving parts and joints.	51
	15.	Check steering gear box lube level.	51

G,LP,D Perform recommended engine maintenance (See engine manual)

EVERY 250 HOURS OF USE

G,LP	16.	Remove the spark plug, clean or replace.	46
G,LP,D	17.	Replace engine air filter element.	43
G,D	18.	Replace the fuel filter.	45

G,LP,D Perform recommended engine maintenance (See engine manual)

EVERY 500 HOURS OF USE

	19.	Replace hydraulic filter element.	47
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Perform recommended engine maintenance (See engine manual)

KEY: G = GAS LP = LPG B = BATTERY D = DIESEL

BATTERY MAINTENANCE

WARNING

Always wear eye protection and protective clothing when working near batteries. Remove all jewelry. NO SMOKING.

1. Keep the electrolyte at the correct level. The correct level is within .25 inch (0.6 cm) of the bottom of the tube in each cell. Check the level of the electrolyte every time you charge the batteries. See figure 16. If electrolyte is required, add distilled water.

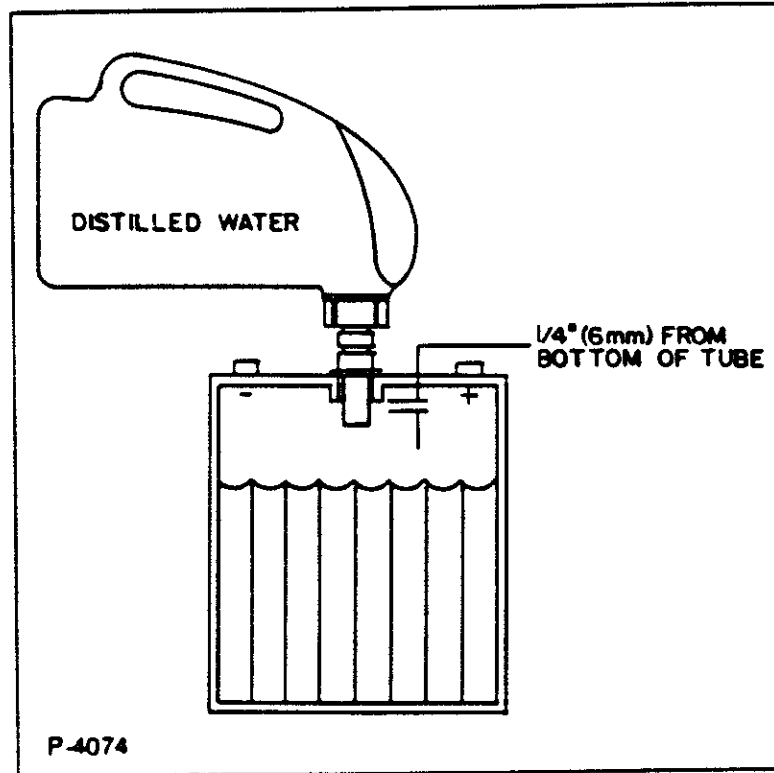


Figure 16

WARNING

To prevent damage to the machine, and discharge across the top of batteries, do not fill the batteries above the bottom of the tube in each cell. Wipe any acid from the machine or the tops of the batteries. Do not add acid to a battery after installation.

2. Keep the top of the batteries clean and dry. Keep the terminals and connectors clean. To clean the tops of the batteries, use a damp cloth with a weak solution of ammonia or bicarbonate of soda solution. To clean the terminals and connectors, use a terminal and connector cleaning tool.

WARNING

NEVER allow the soda solution to enter the cells. This will permanently discharge the battery.

Damage can occur if the battery hold downs are not secure. Damage to the batteries will result if the hold downs are too tight. If they are too loose, the battery will vibrate and fall.

3. Make sure that the battery strap is secure.

4. Store the batteries in a warm area, or keep them charged in a cold area. Batteries will freeze and crack in cold weather.

HOW TO REMOVE & INSTALL BATTERIES BATTERY POWERED SWEEPER

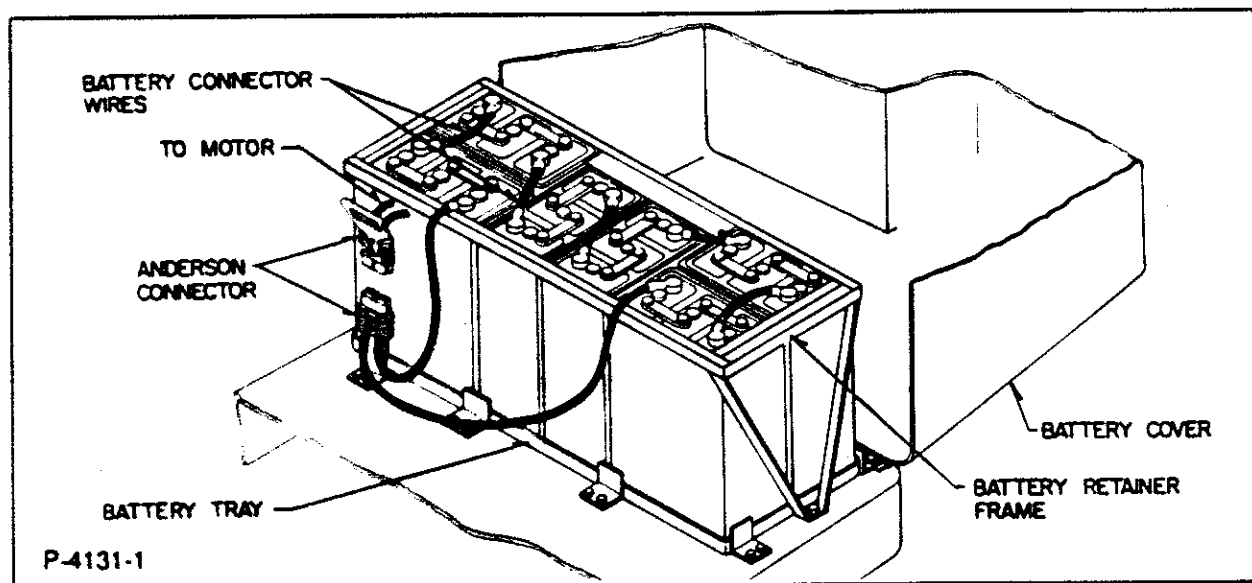


Figure 17

When it becomes necessary to change batteries, use the following procedures.

1. Turn the key to the off position.
2. Set the parking brake.
3. Tilt back the battery cover.
4. Pull the battery connector from the Anderson connector.
5. Disconnect the battery connector wires. There are six wires to remove.
6. Remove the nuts and bolts securing the battery retainer frame.
7. Lift the battery retainer frame off the batteries.

WARNING

The batteries weigh 125 lbs. (58 kg.) each. Use two people to move each battery.

8. Lift each battery out of the machine battery trays.
9. Put the new batteries in the machine battery trays. See Figure 17 for the battery positions.

WARNING

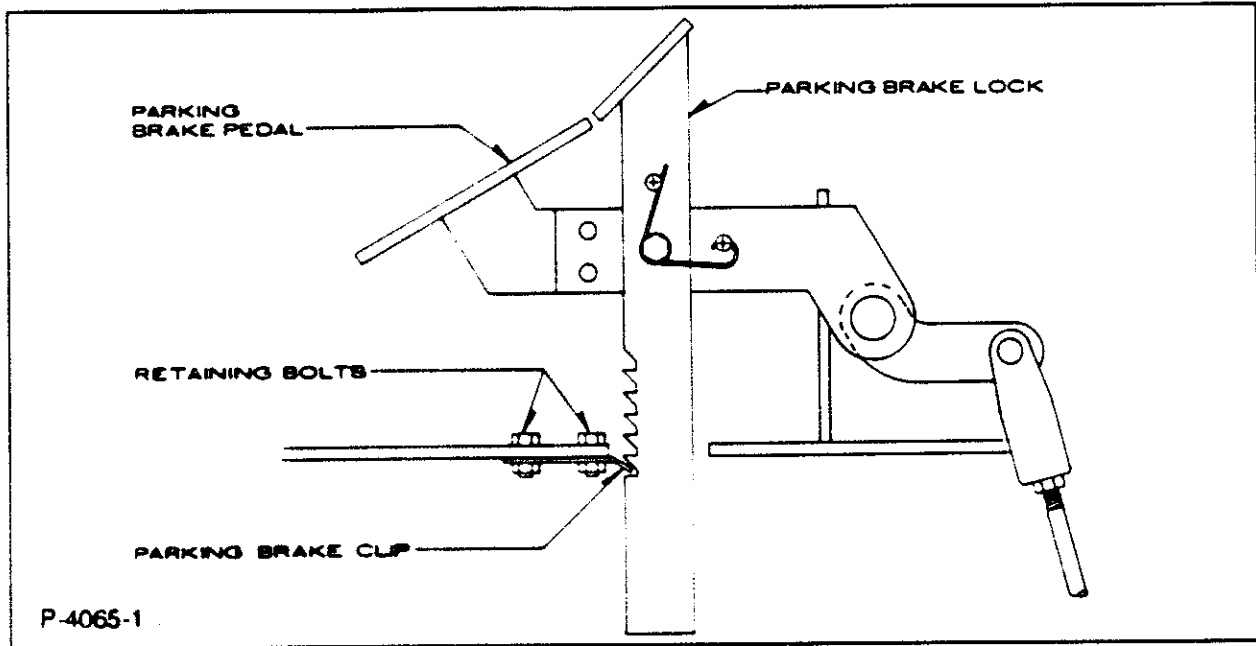
Make sure that all battery connections are tight. See page 8 for torque instructions. Loose battery connections can cause sparks and electrical arcs.

10. Put the battery connectors on the new batteries. See figure 5 on page 16 for the battery connector positions.
11. Position the battery retainer frame over the batteries and put the nuts and bolts in place. Tighten the bolts.
12. Connect the battery connector to the Anderson connector.
13. Close the battery cover.
14. If the battery condition meter does not light, check all battery connections for proper installation.

BRAKE MAINTENANCE

HOW TO ADJUST THE PARKING BRAKE

There are two adjustments that must be made to the parking brakes for proper braking alignment. They are the parking brake clip and the brake rod adjustments.



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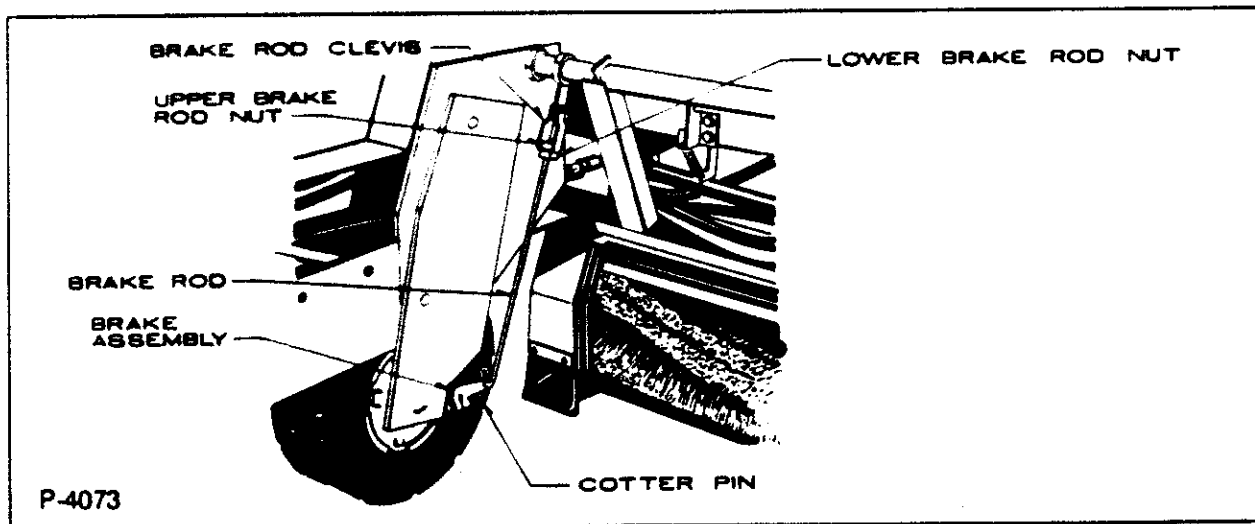
Figure 18

HOW TO ADJUST THE PARKING BRAKE CLIP

The parking brake clip is located at the base of the brake pedal. The parking brake clip holds the parking brake lock in the lock position. The clip must be adjusted, if it becomes loose or moved out of position.

1. Loosen the two retaining bolts that hold the clip in place.
2. Slide the parking brake clip forward to lock the brakes tighter or backwards to loosen the brake lock.
3. Tighten the two retaining bolts.
4. Put the parking brake in the lock position.
5. Put the brake in the unlock position. If the parking brake is difficult to release or the parking brake clip did not hold the parking brake lock, repeat steps 1 through 5.

HOW TO ADJUST THE BRAKE ROD



P-4073

Figure 19

1. Position the variable dump hopper in the up position. Remove the low dump hopper.

NOTE

There is a brake rod and brake assembly on both front wheels. They must be adjusted together.

2. Remove the cotter pin holding the brake rod to the brake assembly.
3. Remove the lower end of the brake rod from the brake assembly.
4. Turn the lower brake rod nut, located below the brake rod clevis, to the left to loosen it.
5. Hold the upper brake rod nut on the brake rod with one hand. Turn the brake rod with the other hand. Turn the brake rod to the right to tighten the brakes. Turn the brake rod to the left to loosen the brakes.
6. Put the lower end of the brake rod in position on the brake assembly.
7. Repeat steps 1 through 6 for the brake assembly on the opposite front wheel.
8. Step on the brake pedal. If the brake assemblies do not hold, turn the rods to the right. If the brake assemblies hold and do not release when the brake pedal releases, turn the brake rods to the left.
9. Turn the lower brake rod nut to the left on both brake rods, until they are tight against the brake rod clevis.
10. Put a new cotter pin on lower end of the brake rods.

WARNING

Never reach under or work under the hopper in the raised position without engaging the safety lock arm. See figure 13 on page 22.

BROOM MAINTENANCE

HOW TO ADJUST THE MAIN BROOM

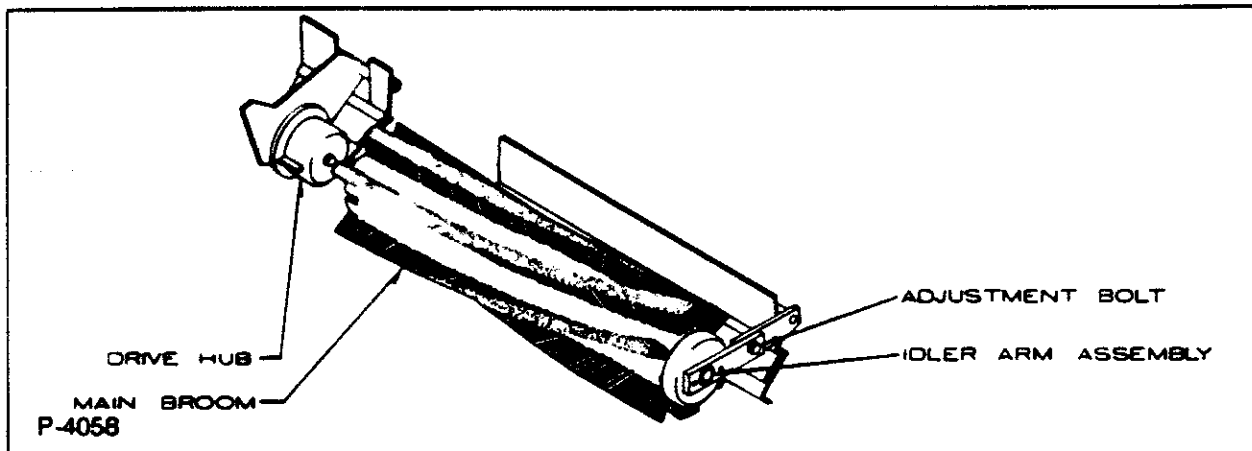


Figure 20

There are two adjustments that must be made to keep the main broom in proper alignment. They are for an even sweep pattern and broom height.

HOW TO ADJUST FOR AN EVEN SWEEP PATTERN

1. Open the left broom door chamber.
2. Loosen the adjustment bolt that is located to the right of the broom center. Do not remove the adjustment bolt.
3. Move the idler arm by hand up or down, until the area of broom bristle contact with the floor appears even. The width of contact will be between one and two inches.
4. Tighten the adjusting bolt.
5. Close the broom chamber door.
6. Turn the ignition key to the right.
7. Put the hopper level lever to "BROOMS - ON" position.
8. Put the "MAIN BROOM" control lever to the "SWEEP" position.

9. Let the main broom run for 2 minutes.
10. Put the "MAIN BROOM" control lever to the "UP" position.
11. Put the hopper level lever to the "BROOMS - OFF" position.
12. Drive the machine forward, until the area swept by the main broom is behind the machine.
13. Turn ignition switch to the "OFF" position and set parking brake.
14. Inspect the area swept by the main broom for an even pattern.

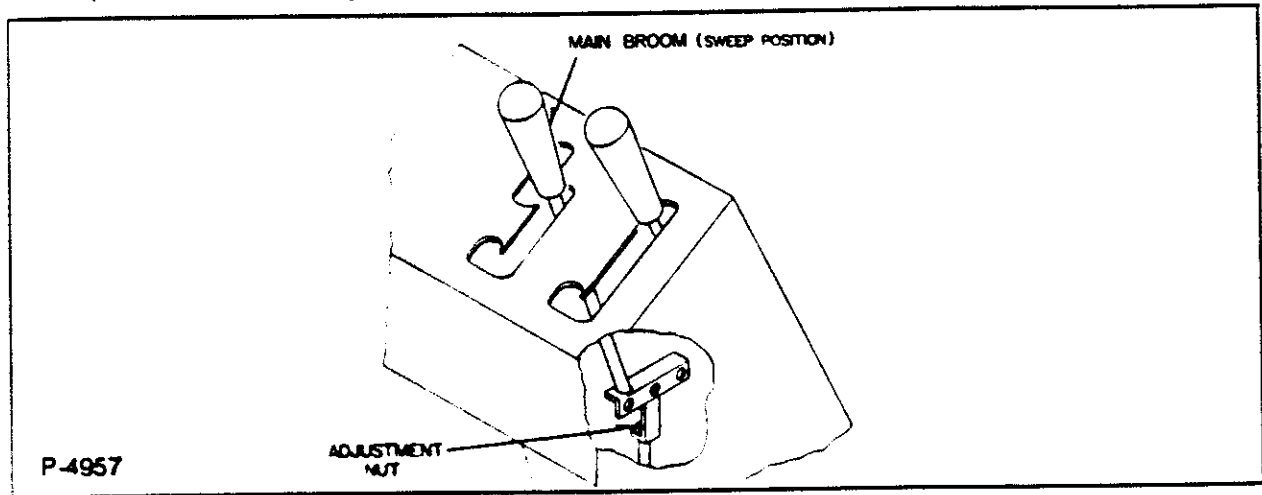


Figure 21

HOW TO ADJUST THE MAIN BROOM HEIGHT

As the main broom bristles wear, it is necessary to lower the broom so that the bristles will contact the floor.

1. Put the "MAIN BROOM" control lever to the "SWEEP" position.
2. Adjust the stop nut on the Main Broom Rod #20 and #28 located under the console on pages 72-73. Adjust the nuts up or down as needed.
3. Turn the ignition key to the "Start" position.
4. Put the hopper level control lever to the "BROOMS - ON" position.
5. Put the "MAIN BROOM" control lever to the "SWEEP" position.
6. Let the main broom run for 2 minutes.
7. Put the "MAIN BROOM" control lever to the "UP" position.
8. Put the hopper level control lever to the "BROOMS - OFF" position.
9. Drive the machine forward, until the area swept by the main broom is behind the machine.
10. Turn ignition switch to the "OFF" position and set parking brake.
11. Inspect the area swept by the main broom for an even pattern.

HOW TO REPLACE THE MAIN BROOM

Replace the main broom when the bristles are worn to 1 inch (2.5 cm) in length.

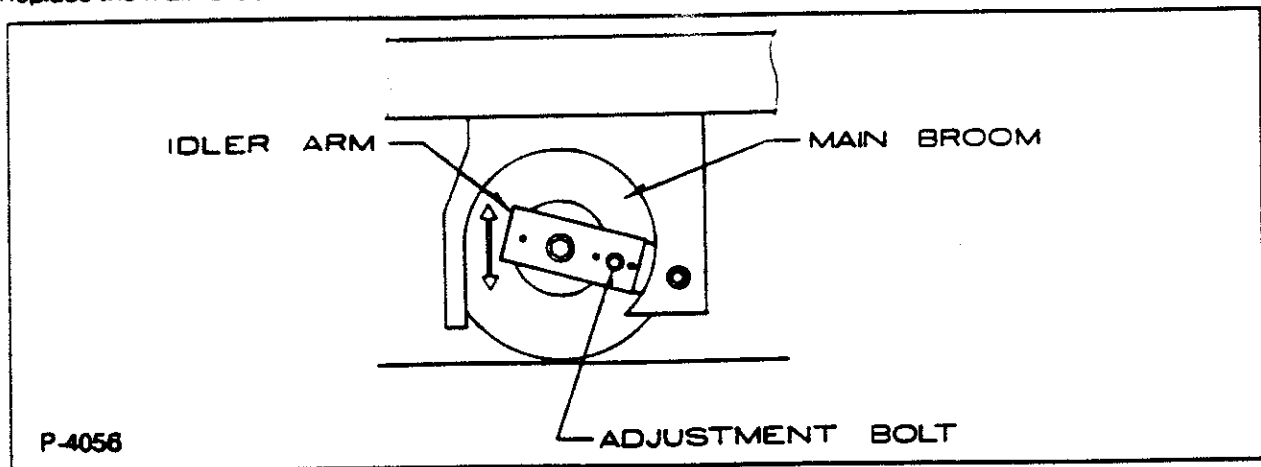


Figure 22

1. Open the left broom chamber door.
2. Remove the 3/8 inch adjustment bolt.
3. Remove the idler arm assembly.
4. Remove the main broom and discard.
5. Put a new main broom in the broom chamber.
6. Rotate the new broom to the right on the drive hub until it engages the drive hub broom tabs.
7. Put the idler arm assembly in place.
8. Put the 3/8 inch adjustment bolt in place and tighten.
9. Close the broom chamber door.
10. Turn the ignition key to the "ON" position.
11. Put the hopper level control lever to the "BROOMS - ON" position.
12. Put the "MAIN BROOM" control lever to the "SWEEP" position.
13. Let the broom sweep in place for two minutes.
14. Put the "MAIN BROOM" control lever to the "UP" position.
15. Put the hopper level control lever to the "BROOMS - OFF" position.
16. Back the machine off the test spot.
17. Inspect the area where the broom swept, for broom bristle contact with the floor. The area of broom bristle contact with the floor should be 1 to 2 inches wide.
18. Follow the steps outlined in the sections on "HOW TO ADJUST FOR AN EVEN SWEEP PATTERN" and "HOW TO ADJUST THE BROOM HEIGHT."

HOW TO ADJUST THE SIDE BROOM

The angle of sweeping for the side broom is factory set and does not need to be reset. The height of the side broom has to be reset as the bristles wear.

HOW TO ADJUST THE SIDE BROOM SHAFT

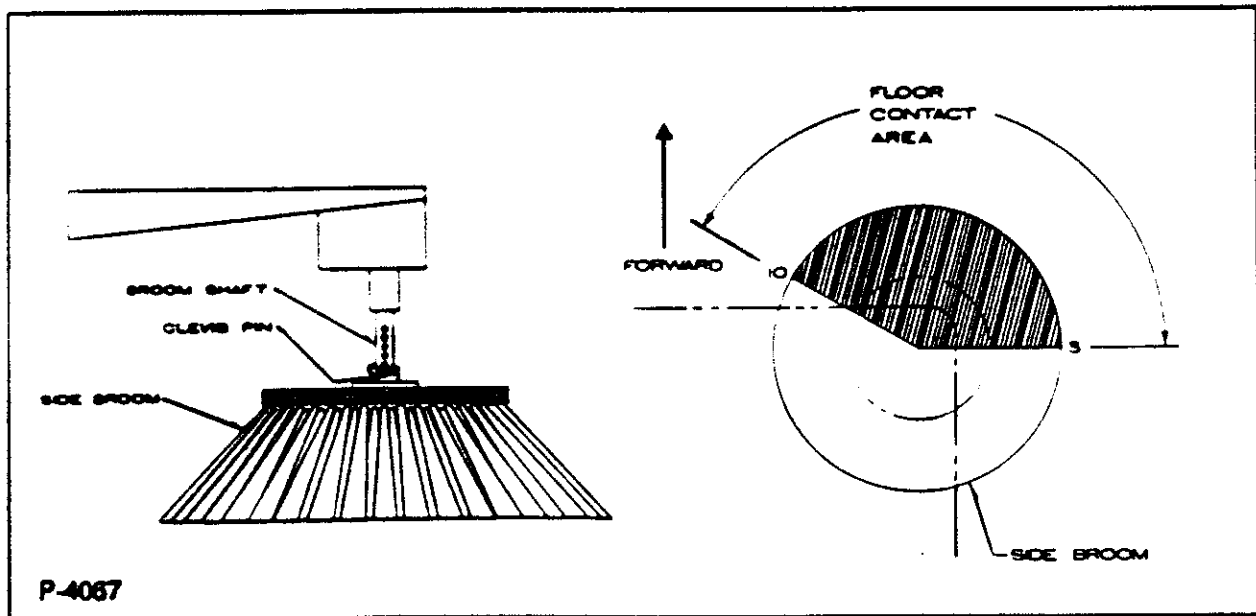


Figure 23

1. Put the "SIDE BROOM" control lever in the "DOWN" position.
2. Manually lower the side broom, until the broom bristles contacts the floor.
3. Put the clevis pin in the nearest hole on the side broom side shaft.
4. Turn the ignition key to the right, in the "ON" position.
5. Put the hopper level control lever to the "BROOMS - ON" position.
6. Allow the side broom to sweep in place for 2 minutes.
7. Put the "SIDE BROOM" control lever in the "UP" position.
8. Put the hopper level control lever to the "BROOMS - OFF" position.
9. Back the machine off the test spot.

10. Inspect the area where the broom swept for area of broom bristle contact. The area of broom bristle contact with the floor will be from 10 to 3 on a clock face as viewed from above and behind on the side broom.
11. Repeat steps 1 through 11 for the side broom height as needed.

HOW TO REPLACE THE SIDE BROOM

Replace the side broom when the bristles are reduced to a 3 inch (8 cm) length.

1. Put the "SIDE BROOM" control lever to the "UP" position.
2. Remove the clevis pin from the side broom shaft.
3. Remove the old side broom and discard.
4. Put the new side broom under the side broom shaft.
5. Put the "SIDE BROOM" control lever to the "DOWN" position.
6. Manually raise the new side broom onto the side broom shaft.
7. Place the clevis pin in the nearest hole on the side broom shaft.
8. Run the broom in place and then raise the broom.
9. Turn the ignition key to the "ON" position.
10. Put the hopper level control lever to the "BROOMS - ON" position.
11. Allow the side broom to sweep in place for 2 minutes.
12. Put the "SIDE BROOM" control lever in the "UP" position.
13. Put the hopper level control lever to the "BROOMS - OFF" position.
14. Back the machine off the test spot.
15. Inspect the area where the broom swept for area of broom bristle contact. The area of broom bristle contact with the floor will be from 10 to 3 on a clock face as viewed from above and behind on the side broom.
16. Repeat steps 1 through 15 to adjust the side broom height as needed.

DIRECTIONAL/SPEED CONTROL PEDAL MAINTENANCE

HOW TO ADJUST THE DIRECTIONAL / SPEED CONTROL PEDAL

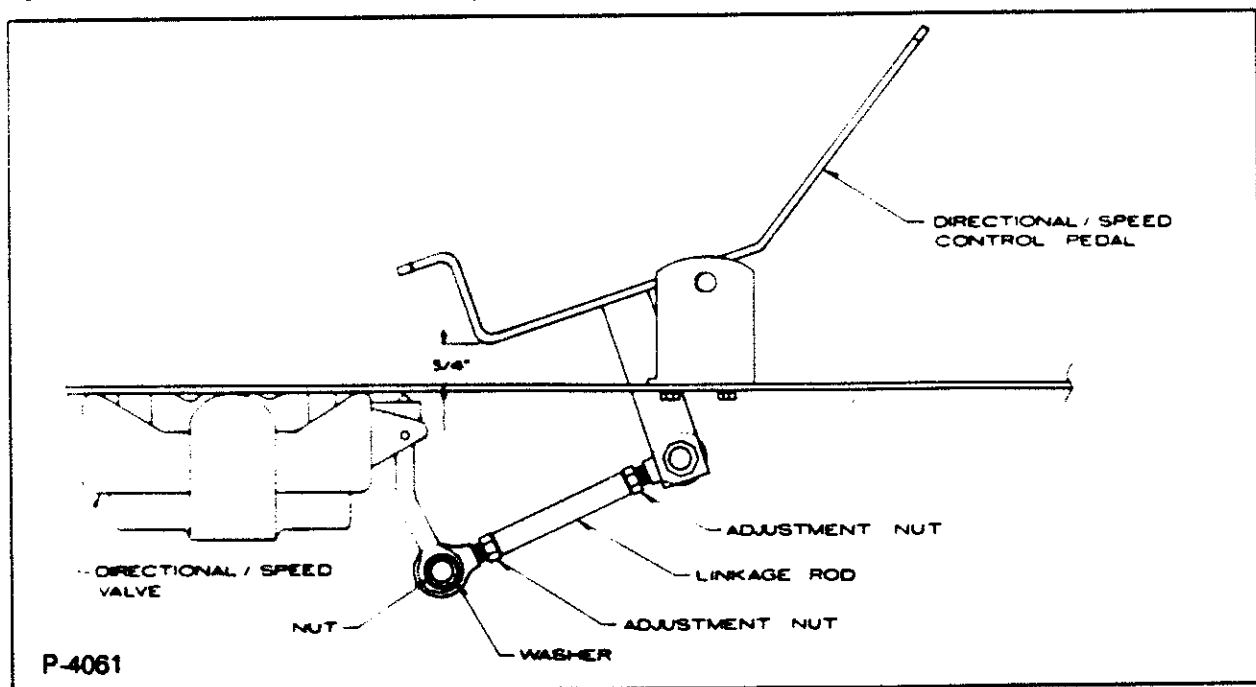


Figure 24

1. Stop machine on level ground.
2. Set parking brake.
3. Remove the nut and washer from the lower end of the linkage rod.
4. Pull the linkage rod from the directional/speed valve connection.
5. Adjust linkage rod length by turning the two adjustment nuts on linkage rod.
6. Install the linkage rod to the directional/speed valve. The bottom heel of the directional / speed control pedal should be .75 inch (2 cm.) off the driver compartment floor.
7. Install the washer and nut.
8. Release the parking brake.
9. Start the engine.
10. Carefully test the directional/speed pedal in both the forward and reverse positions.
11. Adjust as necessary.

DUST FILTER MAINTENANCE

HOW TO CLEAN & REPLACE THE DUST FILTER

The following procedures are for the cleaning & replacement of the dust filter, located in the machine hopper.

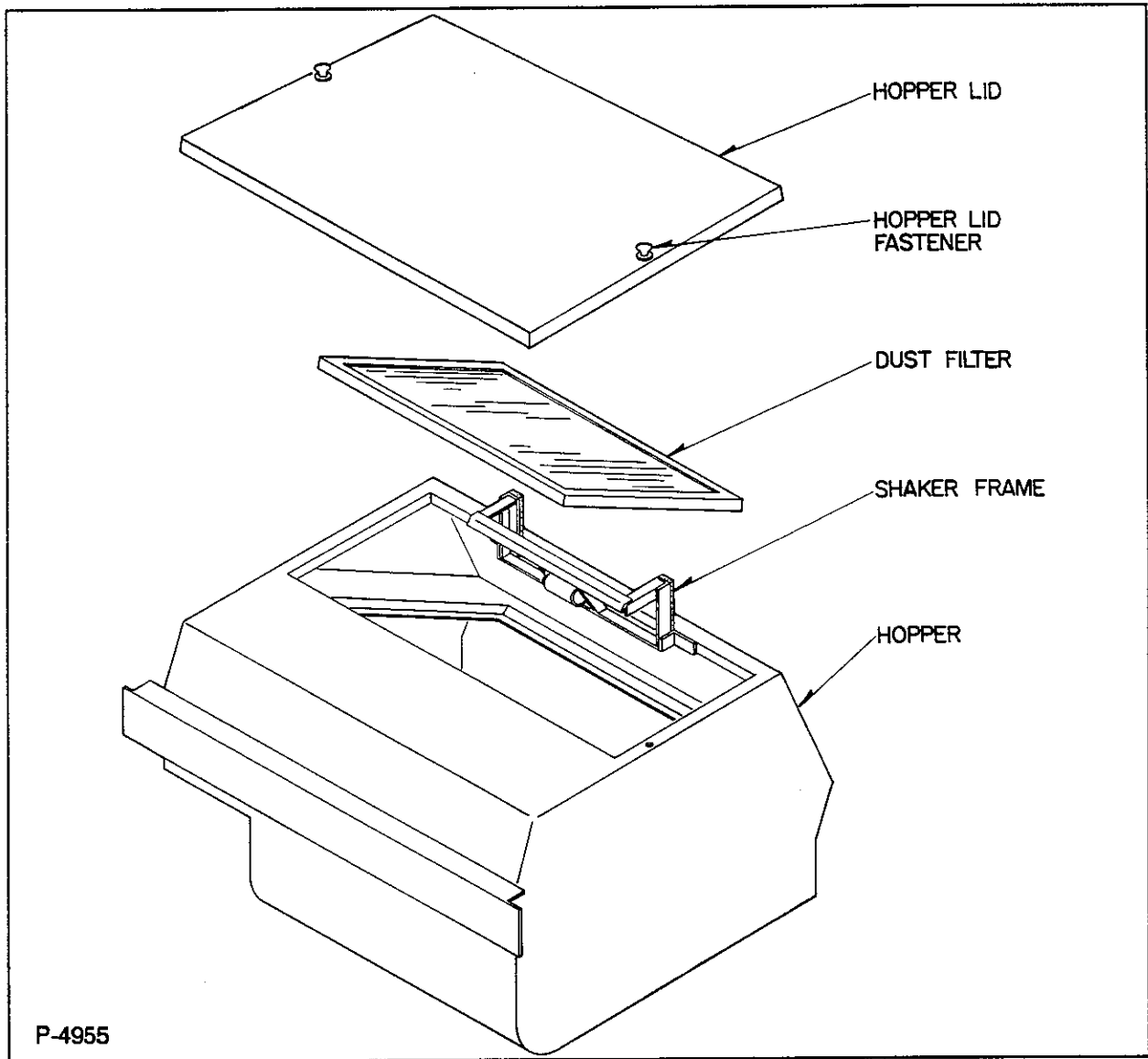


Figure 25

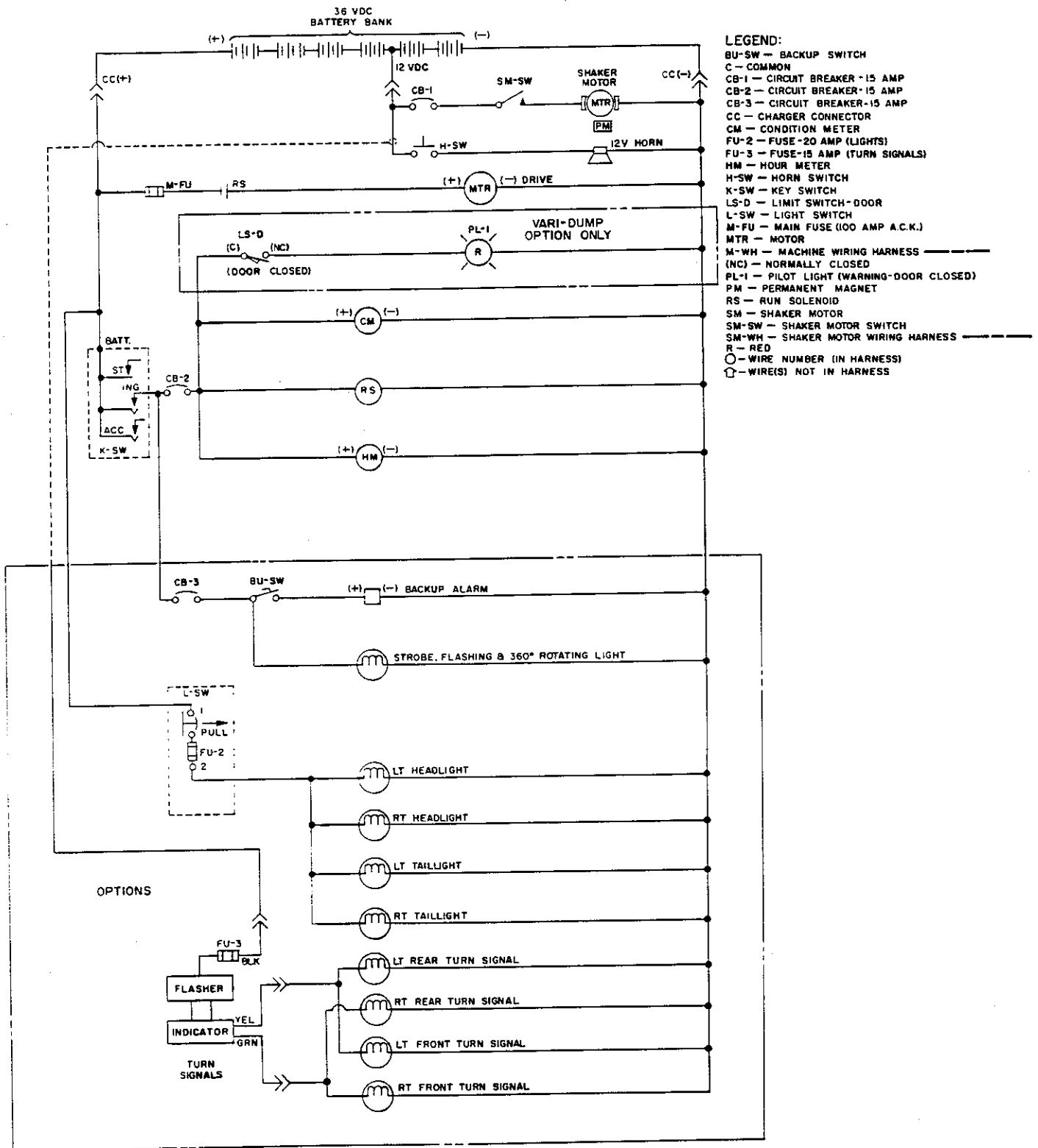
HOW TO CLEAN THE DUST FILTER

1. Open the hopper lid screws.
2. Lift the hopper lid off the hopper.
3. Swing the shaker frame up off the dust filter.
4. Remove the dust filter from the hopper frame.
5. Blow the dust filter off with compressed air, not to exceed 100 PSI.
6. If compressed air is unavailable, clean with soap and water. DO NOT use the dust filter until it has dried completely.
7. Put the cleaned dust filter in the hopper frame.
8. Swing the shaker frame down until it rests on the dust filter.
9. Put the hopper lid on the hopper.
10. Secure the hopper lid screws.

HOW TO REPLACE THE DUST FILTER

1. Undo the hopper lid screws.
2. Lift the hopper lid off the hopper.
3. Swing the shaker frame up off the dust filter.
4. Remove and discard dust filter.
5. Put new dust filter in position.
6. Swing the shaker frame down until it rests on the dust filter.
7. Put the hopper lid on the hopper.
8. Secure the hopper lid screws.

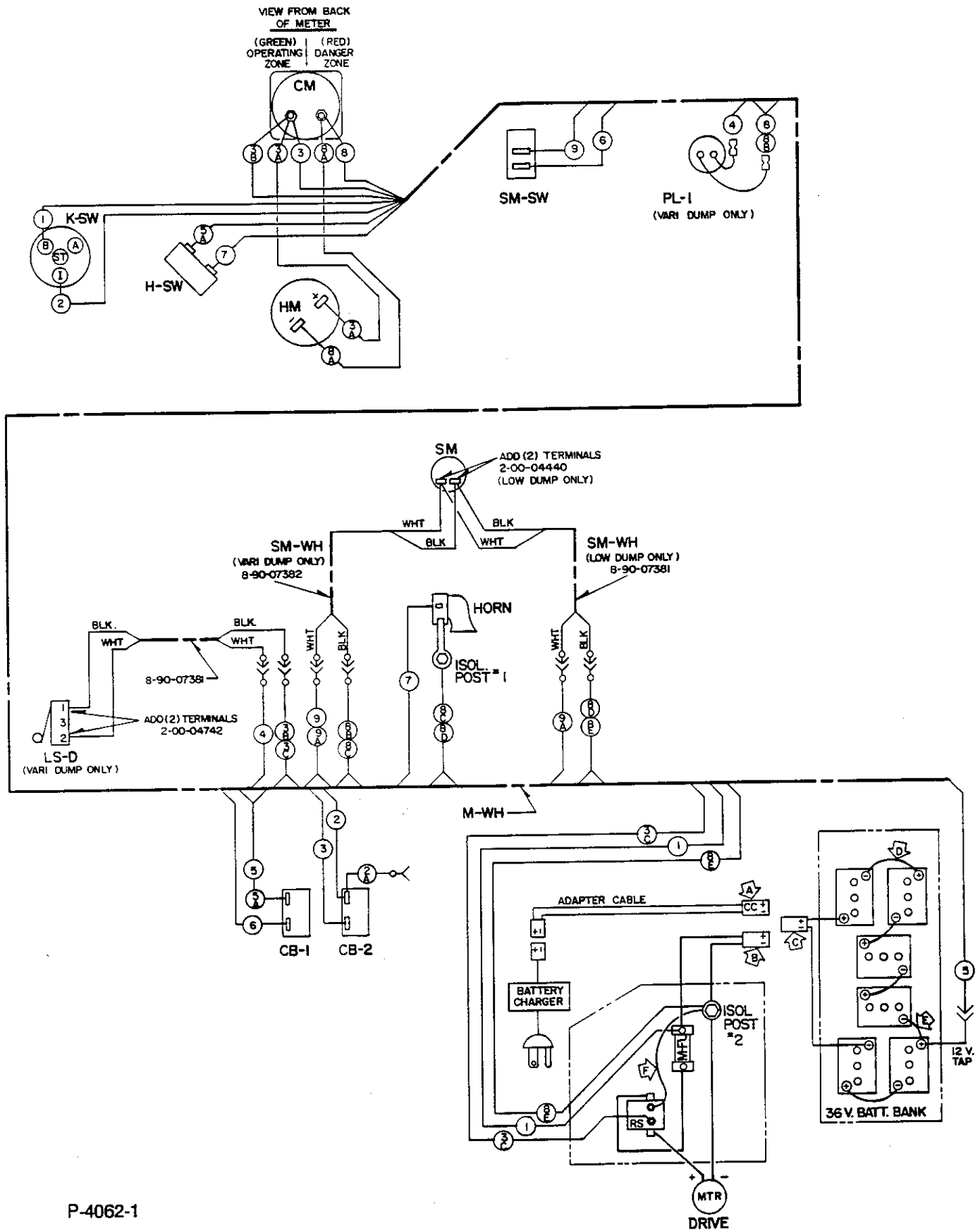
ELECTRICAL SCHEMATIC DIAGRAM - BATTERY



P-4063-1

P-4064-1

ELECTRICAL CONNECTION DIAGRAM - BATTERY



P-4062-1

HYDRAULIC SYSTEM MAINTENANCE

HOW TO FILL THE HYDRAULIC SYSTEM

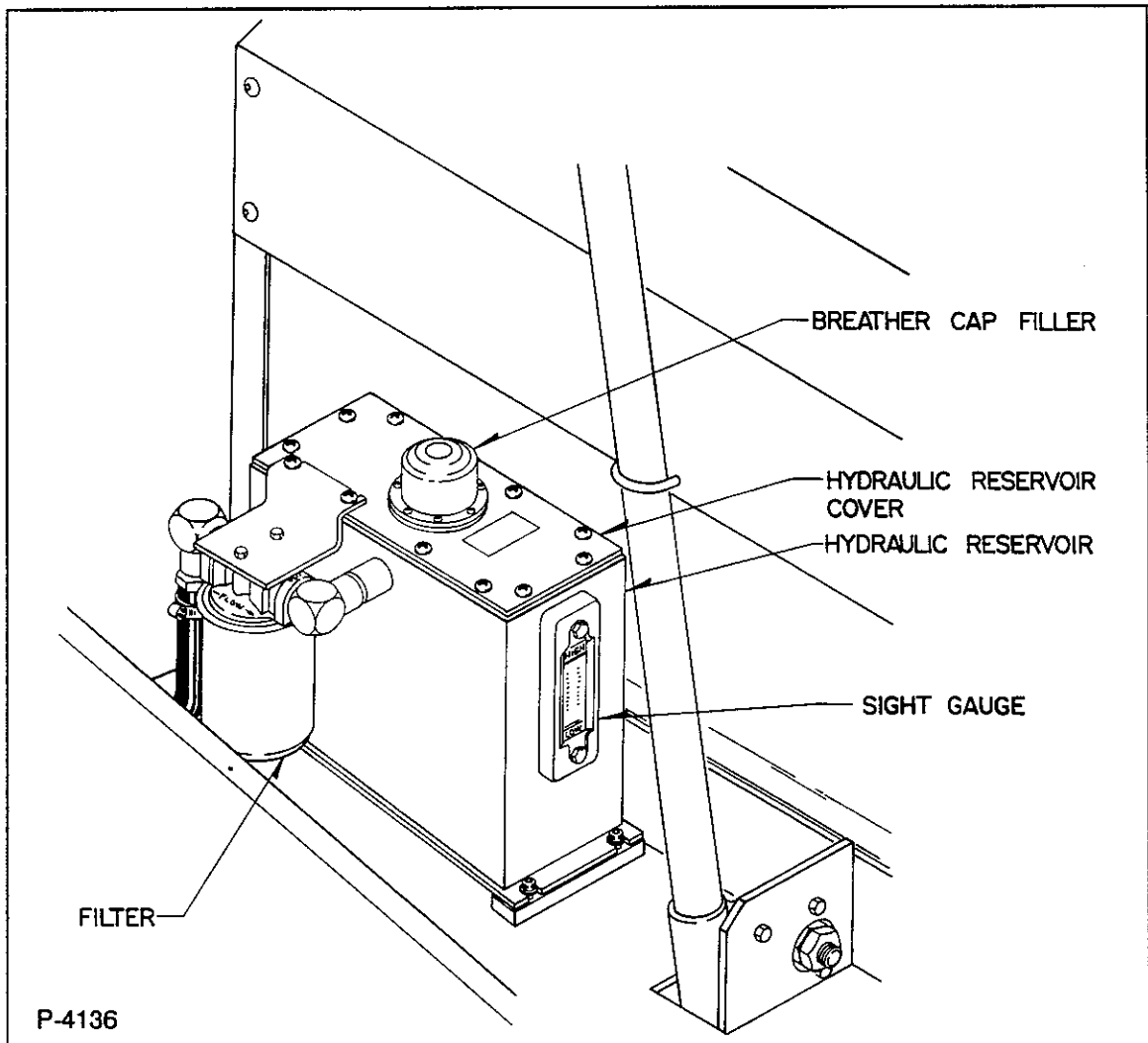


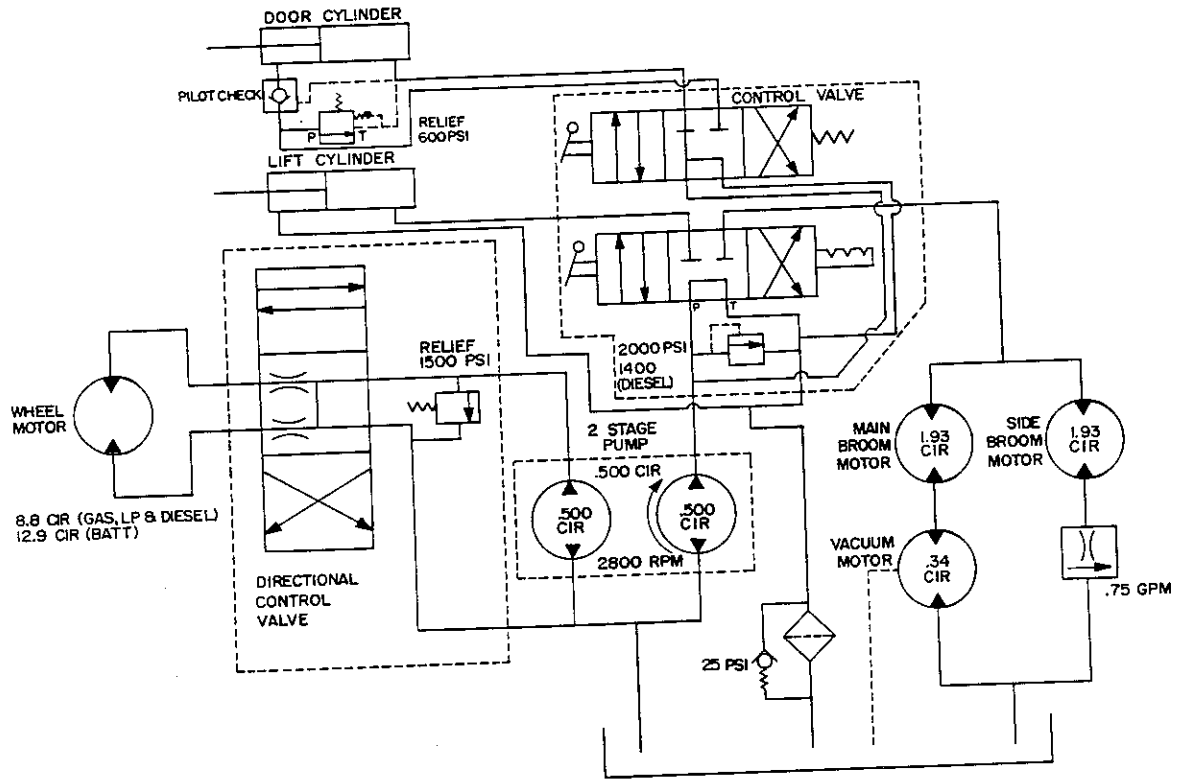
Figure 31

1. Tilt back the engine cover.
2. Open the hydraulic reservoir breather cap filler.
3. Remove any debris that is in the breather cap filler screen.
4. Fill the reservoir to the "FULL" mark with FORD type "F" Automotive Transmission Fluid.
5. Close the hydraulic reservoir breather cap filler.
6. Close the engine cover.

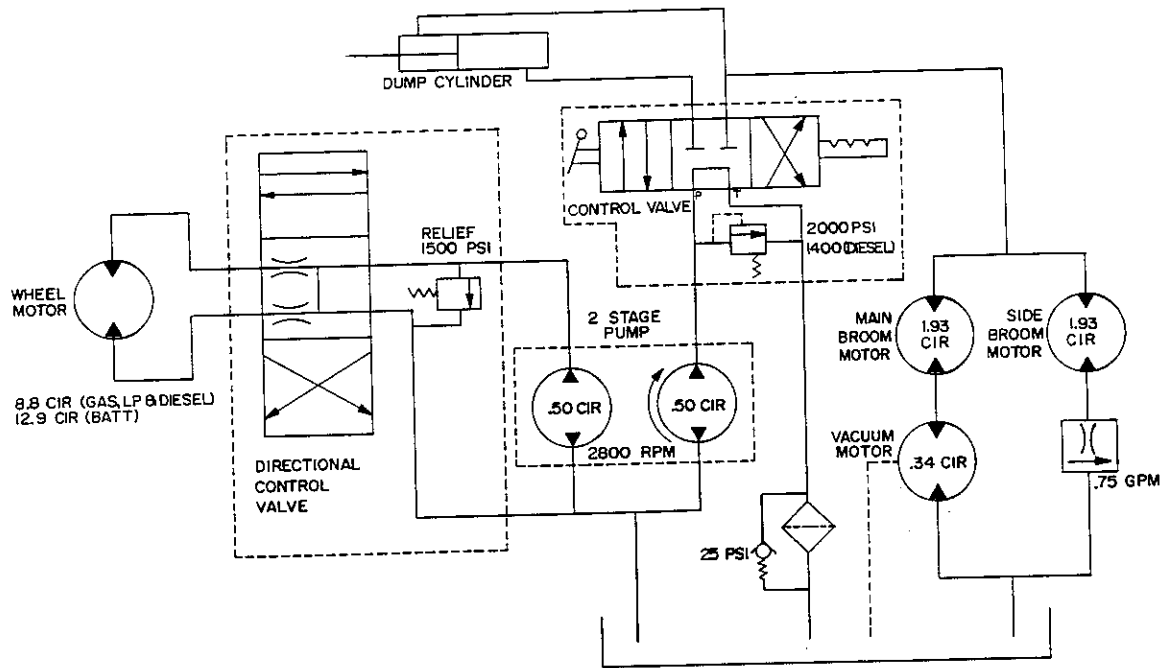
HOW TO REPLACE THE RESERVOIR FILTER ELEMENT

1. Unscrew the filter element from the filter assembly and discard.
2. Moisten the filter gasket of a new filter element (Service Part #7-24-00414) with transmission fluid.
3. Put the filter element on pipe nipple of the filter element. Turn the filter clockwise, until it is hand tight.
4. Wipe clean any hydraulic reservoir fluid spills. The fluid can damage painted surfaces of the machine.

HYDRAULIC SCHEMATICS



VARIABLE DUMP



LOW DUMP

P-4148-1/P-4148-2

LUBRICATION MAINTENANCE

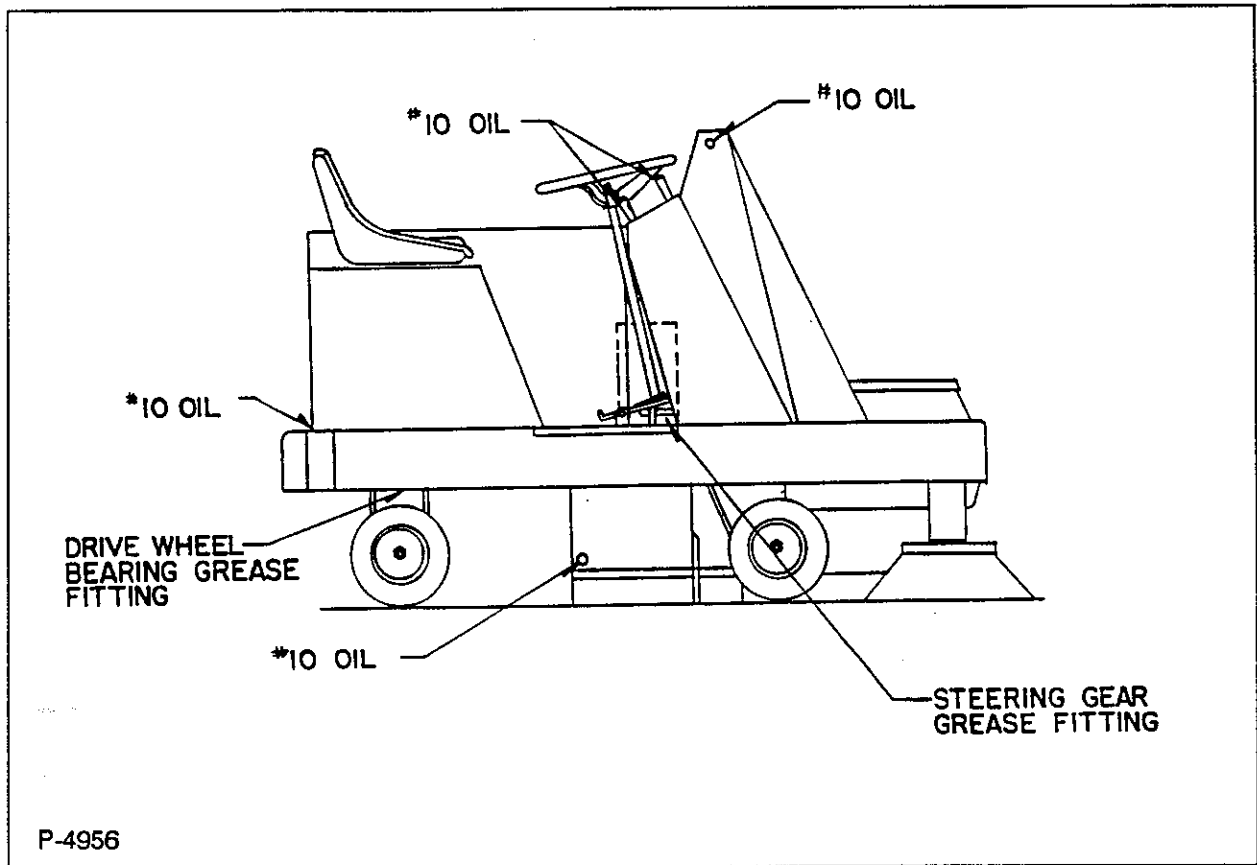


Figure 33

Do the following lubrication procedures after every 100 hours of machine use.

1. The drive wheel bearing has a grease fitting, located on the right rear section of the rear wheel yoke. Use multipurpose grease to lubricate the drive wheel bearing through the grease fitting. Sufficient grease has been pumped into the bearing when grease appears around the edge of the bearing.
2. The steering gear assembly has a grease fitting, located on the front section of the steering gear housing. Use E.P. Lithium grease to lubricate the steering gear through the grease fitting.
3. Lubricate all moving joints of the machine with #10 oil.

HOW TO TOW THE MACHINE

No special precautions need to be made with the SPS4800 Sweeper to prepare it for towing. It is a very light machine and can be pushed easily. If it is towed be sure to attach the tow line securely to the frame. There is no tow ring on the machine.

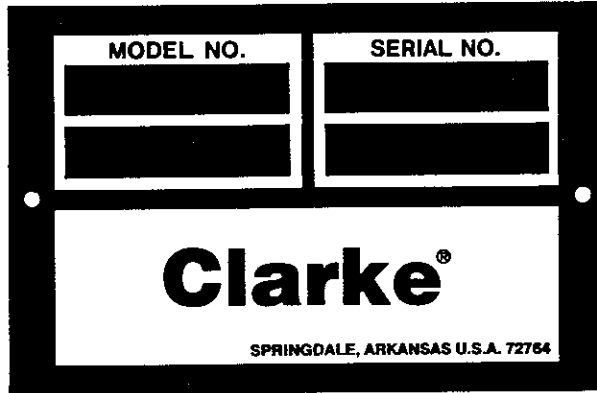
TROUBLE SHOOTING - GENERAL

PROBLEM	PROBABLE CAUSE	REMEDY
<p>Poor sweeping action</p>	<ol style="list-style-type: none"> 1. Worn main broom 2. Worn or damaged flaps 3. Sweeping broom not adjusted 4. Hydraulic drive motor worn or damaged 5. Broom drive hub worn 6. Main broom jammed by bulky debris 	<ol style="list-style-type: none"> 1. Inspect for damage. Replace if broom bristles are 2" in length. 2. Inspect for damage. Replace and or adjust. Refer to Maintenance Section "Flaps". 3. Refer to Main or Side broom Adjustment. 4. Replace the motor seals with seal kit 0880-292. 5. Replace with new hub (8-33-09062). 6. Dump hopper and clean.
<p>Engine is sluggish Exhaust smoke is black and sooty</p>	<ol style="list-style-type: none"> 1. Mixture is too rich 	<ol style="list-style-type: none"> 1. Air cleaner element is clogged. 2. Main fuel needle.
<p>Engine is backfiring and missing at high speed or running very hot.</p>	<ol style="list-style-type: none"> 1. Mixture is too lean. 	<ol style="list-style-type: none"> 1. Air cleaner is gone, improper, or is damaged. 2. Main fuel needle.
<p>Motor runs, but machine will not move on level ground.</p>	<ol style="list-style-type: none"> 1. Foot pedal and/or linkage jammed or not adjusted. 2. Front wheels jammed or brakes locked. 3. Hydraulic pump trouble 4. Rear wheel hydraulic motor, broken shaft key, broken shaft, etc. 	<ol style="list-style-type: none"> 1. Adjust linkage as per instructions on directional/speed control pedal adjustments. 2. Adjust brake linkages per instructions on parking brake adjustments. 3. Replace the motor seals with seal kit 0880-292. 4. Replace the motor seals with seal kit 0880-291.
<p>Machine moves slowly</p>	<ol style="list-style-type: none"> 1. Improper foot pedal adjustment 2. Low hydraulic oil level 3. Brake dragging jammed. 4. Worn hydraulic pump or rear drive wheel motor 	<ol style="list-style-type: none"> 1. Adjust linkage as per instructions on directional/speed control pedal adjustments. 2. Add FORD type "F" ATF as required. 3. Adjust brake linkage per maintenance instructions. 4. Replace the motor seals with the seal kit 0880-292 for the main motor and kit 0880-291 for the rear drive pump.

PROBLEM	PROBABLE CAUSE	REMEDY
Hydraulic pump makes excessive noise	<ol style="list-style-type: none"> 1. Clogged inlet strainer or suction line. 2. Air bubbles in hydraulic fluid. 3. Hydraulic pump is worn or damaged 	<ol style="list-style-type: none"> 1. Clean inlet strainer. Check inlet line. Drain and flush reservoir if oil is dirty. Refill with clean FORD type "F" ATF. 2. Check for low hydraulic fluid level, leaking fittings and or hoses. 3. Replace the motor seals with seal kit 0880-292 for the main motor, kit 0880-291 for rear drive pump and kit 0880-293 for broom motors.
Poor dust control at main broom	<ol style="list-style-type: none"> 1. Broom chamber and hopper flaps worn 2. Filter panel clogged 3. Impeller fan failure, shaft key broken or hydraulic motor worn 	<ol style="list-style-type: none"> 1. Check condition of flaps. Replace torn or badly worn flaps. Side flaps can be adjusted if not damaged. 2. Clean or replace filter panel. 3. Replace impeller fan, shaft key, or replace the motor seals with seal kit 0880-293 for broom motors.
Excessive dust in motor compartment	<ol style="list-style-type: none"> 1. Panel filter not sealed 2. Filter panel ripped. 3. Hopper cover seal leakage 	<ol style="list-style-type: none"> 1. Check panel filter gaskets. 2. Replace or repair. 3. Replace or repair.
Hopper dumps slowly or will not dump	<ol style="list-style-type: none"> 1. Defective cylinder 2. Defective control valve relief setting 	<ol style="list-style-type: none"> 1. Replace the cylinder 2. Check settings and readjust or replace as necessary
Variable dump door not closing	<ol style="list-style-type: none"> 1. Defective cylinder 2. Defective control valve or relief valve 	<ol style="list-style-type: none"> 1. Replace cylinder 2. Check relief valve setting. Readjust or replace relief valve, or replace control valve.

ORDERING PARTS

Parts can be ordered from Clarke authorized distributors. Inspect the Clarke serial plate to stop delays in filling your orders:



P-4588

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:

Clarke	Clarke Distributor
<p>2100 Highway 265 Springdale, Arkansas 72764 (501) 750-1000</p>	

MACHINE CATALOG NUMBER

576-428	Gasoline Powered Low Dump Sweeper
576-429	LP Powered Low Dump Sweeper
576-430	Diesel Powered Low Dump Sweeper
576-431	Battery Powered Low Dump Sweeper
576-432	Battery Powered Low Dump Sweeper (Export)
576-433	Gasoline Powered Variable Dump Sweeper
576-434	LP Powered Variable Dump Sweeper
576-435	Diesel Powered Variable Dump Sweeper
576-436	Battery Powered Variable Dump Sweeper
576-437	Battery Powered Variable Dump Sweeper (Export)

PARTS LIST LEGEND - 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
FHW	=	Flat Head Wood Screw
FIL.HM	=	Fillister 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
OHM	=	Oval Head Machine Screw
PHM	=	Pan Head Machine Screw
RHD	=	Round Head Drive Screw
RHM	=	Round Head Machine Screw
RHW	=	Round Head Wood Screw
SH	=	Shoulder Screw
SHC	=	Shiny Crown Cap Screw
SHTB	=	Shoulder Thumb Screw
SQ	=	Square Head Screw
SWHM	=	Slotted Washer Head Machine Screw
SEMSM	=	SEMS Machine Screw
SEMS T	=	SEMS Self Tapping Screw
TB	=	Thumb Screw
T/C FH	=	Thread Cutting Flat Head Screw
T/C FIL.H	=	Thread Cutting Fillister Head Screw
T/C HH	=	Thread Cutting Hexagon Head Screw
T/C OH	=	Thread Cutting Oval Head Screw
T/C PH	=	Thread Cutting Pan Head Screw
T/C RH	=	Thread Cutting Round Head Screw
T/F FH	=	Thread Forming Flat Head Screw
T/F FIL.H	=	Thread Forming Fillister Head Screw
T/F HH	=	Thread Forming Hexagon Head Screw
T/F OH	=	Thread Forming Oval Head Screw
T/F PH	=	Thread Forming Pan Head Screw
T/F RH	=	Thread Forming Round Head Screw
THM	=	Truss Head Machine Screw
WELD	=	Weld Stud
WFHMM	=	Washer Head Hexagon Head Machine Screw
WG	=	Wing Screw

LEGEND - 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