Pelican NP T4F

Operator Manual

ELGIN
Subsidiary of Federal Signal Corporation

0701443-E
01/2025


ELGIN
Built for clean. Backed for life.

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Pelican NP T4F

OPERATOR MANUAL

Sweeper Serial Number _____

Elgin Sweeper Company
Subsidiary of Federal Signal Corporation
1300 West Bartlett Road, Elgin, Illinois 60120
Phone: 1.847.741.5370 Fax: 1.847.742.3035

PELICAN NP

This manual will assist in the proper operation and care of the Elgin Pelican NP sweeper. It contains specific information on features, specifications, controls, operation, and service.

Please read this manual carefully and completely before operating the sweeper; working with unfamiliar equipment can lead to accidents and/or safety hazards. Ensure all precautions and safety procedures are followed while operating the sweeper.

Elgin employees carefully inspect the sweeper before it leaves the factory, while your Elgin dealer inspects and ensures proper working order prior to delivery. To keep the sweeper in good working condition, follow all maintenance and service schedules under “Maintenance”. The maintenance schedule is also displayed on the sweeper for your convenience.

Please keep this manual in your sweeper cab for reference. If a problem occurs, contact your Elgin dealer for factory-trained service support, genuine Elgin parts, and the necessary tools/equipment to meet your specific needs.

To contact the factory, please call 1.847.741.5370 or visit our Web site at elginsweeper.com.

LIMITED WARRANTY

Subsidiary of Federal Signal Corporation

Limited Warranty. Each machine manufactured by ELGIN SWEEPER COMPANY (“ESCO” or the “Company”) is warranted against defects in material and workmanship for a period of 12 months, provided the machine is used in a normal and reasonable manner and in accordance with all operating instructions. If sold to an end user, the applicable warranty period commences from the date of delivery to the end user. If used for rental purposes, the applicable warranty period commences from the date the machine is first made available for rental by the Company or its representative. This limited warranty may be enforced by any subsequent transferee during the warranty period. This limited warranty is the sole and exclusive warranty given by the Company.

Exclusive Remedy. Should any warranted product fail during the warranty period, ESCO will cause to be repaired or replaced, as the Company may elect, any part or parts of such machine that the Company’s examination discloses to be defective in material or factory workmanship. Repairs or replacements are to be made at the selling Elgin distributor’s location or at other locations approved by ESCO. In lieu of repair or replacement, the Company may elect, at its sole discretion, to refund the purchase price of any product deemed defective. The foregoing remedies shall be the sole and exclusive remedies of any party making a valid warranty claim.

The ESCO Limited Warranty shall not apply to (and ESCO shall not be responsible for):

1. Major components or trade accessories that have a separate warranty from their original manufacturer, such as, but not limited to, trucks, engines, hydraulic pumps and motors, tires and batteries.
2. Normal adjustments and maintenance services.
3. Normal wear parts such as, but not limited to, brooms, oils, fluids, filters, broom wire, shoe runners, rubber deflectors, and suction hoses.

4. Failures resulting from the machine being operated in a manner or for a purpose not recommended by ESCO.
5. Repairs, modifications, or alterations without the express written consent of ESCO, which, in the Company's sole judgment, have adversely affected the machine's stability, operation or reliability as originally designed and manufactured.
6. Items subjected to misuse, negligence, accident or improper maintenance.

NOTE The use, in the product, of any part other than parts approved by ESCO may invalidate this warranty. ESCO reserves the right to determine, in its sole discretion, if the use of non-approved parts operates to invalidate the warranty. Nothing contained in this warranty shall make ESCO liable for loss, injury, or damage of any kind to any person or entity resulting from any defect or failure in the machine.

THIS WARRANTY SHALL BE IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION, ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ALL OF WHICH ARE DISCLAIMED.

This warranty is in lieu of all other obligations or liabilities, contractual and otherwise, on the part of ESCO. For the avoidance of doubt, ESCO shall not be liable for any indirect, special, incidental or consequential damages, including, but not limited to, loss of use or lost profits. ESCO makes no representation that the machine has the capacity to perform any functions other than as contained in the Company's written literature, catalogs, or specifications accompanying delivery of the machine. No person or affiliated company representative is authorized to alter the terms of this warranty, to give any other warranties or to assume any other liability on behalf of ESCO in connection with the sale, servicing, or repair of any machine manufactured by the Company. Any legal action based hereon must be commenced within 18 months of the event or facts giving rise to such action.

ESCO reserves the right to make design changes or improvements in its products without imposing any obligation upon itself to change or improve previously manufactured products.

Elgin Sweeper Company
1300 West Bartlett Road
Elgin, Illinois 60120

USER NOTES

REVISION HISTORY

The Elgin Sweeper Technical Publications Department releases this manual at Revision E to incorporate the changes in Table 1: Revision History:

Table 1: Revision History

Revision Level	Release Date	Change Description
C	11/2023	Update Towing the Sweeper on page 71
D	12/2024	Add IFM documentation: • Touchscreen Display Controls on page 47 • Touchscreen Display DPF Regeneration on page 100
E	01/2025	Add Interface Units of Measure on page 53

USER NOTES

SAFETY INFORMATION

Please refer to the Elgin Product Safety Manual for complete safety information.

Recognizing Safety Information

⚠ This is the safety alert symbol. When seeing this symbol on the unit or in this manual, please be alert to potential safety hazards and personal injury. Follow all precautions and safe operating practices.

Understanding Signal Words

DANGER is used to indicate the presence of a hazard which WILL cause severe physical injury or death if proper precautions are not taken.

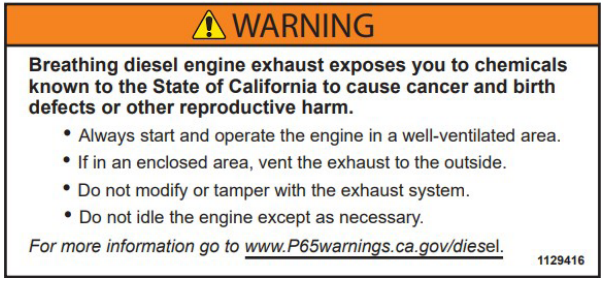
WARNING is used to indicate the presence of a hazard which MAY cause severe physical injury or death and can result in serious property damage if proper precautions are not taken.

CAUTION is used to indicate the presence of a hazard which MAY cause a lesser degree of physical injury or property damage if proper precautions are not taken.

NOTICE indicates installation, operation, or maintenance information which is important, but not hazardous.

California Proposition 65 Warning

CALIFORNIA
Proposition 65 Warning
Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.



Please note the above warning and remember to always start and operate the engine in a well-ventilated area. If in an enclosed area, vent the exhaust to the outside. Do not modify or tamper with the exhaust system.

Following Safety Instructions

Carefully read all safety messages in this manual and on your unit.

Keep safety signs in good condition. Replace missing or damaged signs. Ensure new equipment, components, and repair parts include the current safety signs. Contact your Elgin Sweeper dealer if replacements are required.

Learn how to operate the machine and how to use the controls properly. Do not let anyone operate the sweeper without instruction.

Keep your sweeper in proper working condition. Unauthorized modifications to the machine may impair function and/or safety and may affect machine life.

If you do not understand any part of this manual and need assistance, please contact your Elgin Sweeper dealer.

Practicing Safe Maintenance & Repairs

All maintenance and repairs should be performed by qualified and authorized personnel. All applicable industry standards, practices, and regulations must be followed.

The parking brake must be set before any work is done on the sweeper. The engine must be turned off and the sweeper must be parked on a solid, level surface before adjusting the centerboard.

To prevent injury, the operator must ensure that the brooms cannot rotate during tilt measurement or manual adjustments.

Never lubricate or service the sweeper while it is moving. Keep all parts in good condition and properly installed. Fix any damage to the sweeper immediately. Replace worn or broken parts. Use only service parts that meet Elgin Sweeper’s specifications.

Wearing Appropriate Clothing & Protection

Wear close fitting clothing and safety equipment appropriate to the job. Exercise caution with any items that may get caught in the machinery, such as jewelry or long hair. Always wear the appropriate protection to meet applicable industry standards and regulations.

Using Proper Tools

Use tools appropriate to the work. Do not use make-shift tools; they may cause safety hazards. Avoid bodily injury caused by slipping wrenches.

Use power tools only to loosen threaded parts and fasteners. For loosening and tightening hardware, use the correct size tools. Do NOT use U.S. measurement tools on metric fasteners or vice versa.

Operating the Sweeper Safely

Operating the sweeper safely requires the full attention of the operator. Do not wear radio or music headphones while operating the sweeper and use caution while operating a cellular phone.

Operate the sweeper only when all guards are fitted and in their correct position.

Before moving the sweeper, check the immediate vicinity for bystanders and use the horn as a warning.

The sweeper must be operated from the primary driving position (left-hand or right-hand) standard to the country in which you are driving. If a change in driving positions is required, the sweeper must be stopped with the propel pedal in neutral and the parking brake applied.

Parking the Sweeper Safely

Set the parking brake, turn off the engine, and remove the keys.

Ensure the hopper is down before leaving the sweeper.

Avoiding Machine Instability

Apply the parking brake before raising or tilting the hopper.

Raise or tilt the hopper only when the sweeper is parked on firm, level surfaces.

Lower the hopper to the transport position before moving the sweeper.

Avoiding Contact with Moving Parts

People must be clear of the sweeper before the engine and brooms are started.

Many moving parts, such as the side brooms, cannot be completely shielded due to their function. Stay clear of these moving elements during operation.

Contact with moving parts may cause severe injury. Do not attempt to repair, adjust, or go under the sweeper while the engine is running.

Keep hands, feet, and clothing away from power-driven parts.

Avoiding Electrical Power Lines

Do not raise the hopper under power lines, trees, bridges, etc. Before raising, tilting, or dumping the hopper, check for adequate overhead clearance. Raise the hopper only in areas with minimum overhead clearance of 16 ft. (4.9 m).

Avoiding Overloads

Observe the maximum permissible axle loads and total weights.

Handling Fuel Safely & Avoiding Fires

Handle fuel with care—it is highly flammable. Do not refuel the machine while smoking or near open flames and/or sparks. Always stop the engine before refueling the machine. Fill the fuel tank outdoors and always clean up spills.

Prevent fires by keeping the sweeper clean of trash, grease, and debris.

Preventing Battery Explosions

Battery gas can explode. Keep sparks and flames away from batteries. If the battery electrolyte level must be checked, use an electric light.

Never check a battery charge by placing a metal object across the posts; use a voltmeter or hydrometer. Always remove the grounded (–) battery cable first and connect it last.

Do not charge a frozen battery; it may explode. Warm the battery to 60°F (16°C).

Avoiding High Pressure Fluids

Keep hands and body away from pin holes and nozzles, which may eject fluids under high pressure. Escaping fluid under pressure can penetrate the skin, causing serious injuries. Relieve pressure before disconnecting hydraulic and/or other high pressure lines.

Tighten all connections before applying pressure. Search for leaks with a piece of cardboard. Protect hands and body from high pressure fluids. If an accident occurs, seek medical attention immediately.

Observing Environmental Protection Regulations

Be mindful of the environment and ecology. Before draining any fluids, find out the correct way to dispose of them.

Observe the relevant environmental protection regulations when disposing of oil, fuel, coolant, brake fluid, filters, and batteries.

Avoiding Electrical System Overloads

Before modifying, adding, or removing any electrical components, verify that the circuitry and components will not overload the electrical system.

Contact your Elgin Sweeper dealer if you have any questions or need assistance.

Repairing Tires & Rims

An inflated tire and rim can be very dangerous if improperly used, serviced, or maintained. To avoid serious injuries, never attempt to re-inflate a tire which is flat or seriously under inflated without first breaking down the tire and wheel assembly for inspection.

Never use a ring or other rim parts of different manufacturers or any different size or type than the original rims.

Do not attempt to add air to tires or replace tires or wheels without first taking the necessary precautions to protect people and property. For further details, see the regulations of the Occupational Safety and Health Administration (OSHA).

Verifying the Field of Vision

Ensure that the area in front and back of the machine is clear before and while moving forward and in reverse.

Properly adjust the front convex mirrors before operating.

Make sure the video monitor is showing the area behind the machine.

Monitor mirrors and video screen for people outside of your direct field of vision.

WARNING

Do not sweep if the backup alarm or video system does not function; the system must be repaired before sweeping.

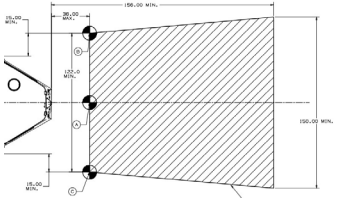


Fig. 1: Field of Vision—Top View

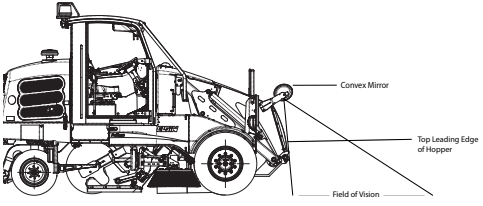


Fig. 2: Field of Vision—Side View

Safety Decal Locations

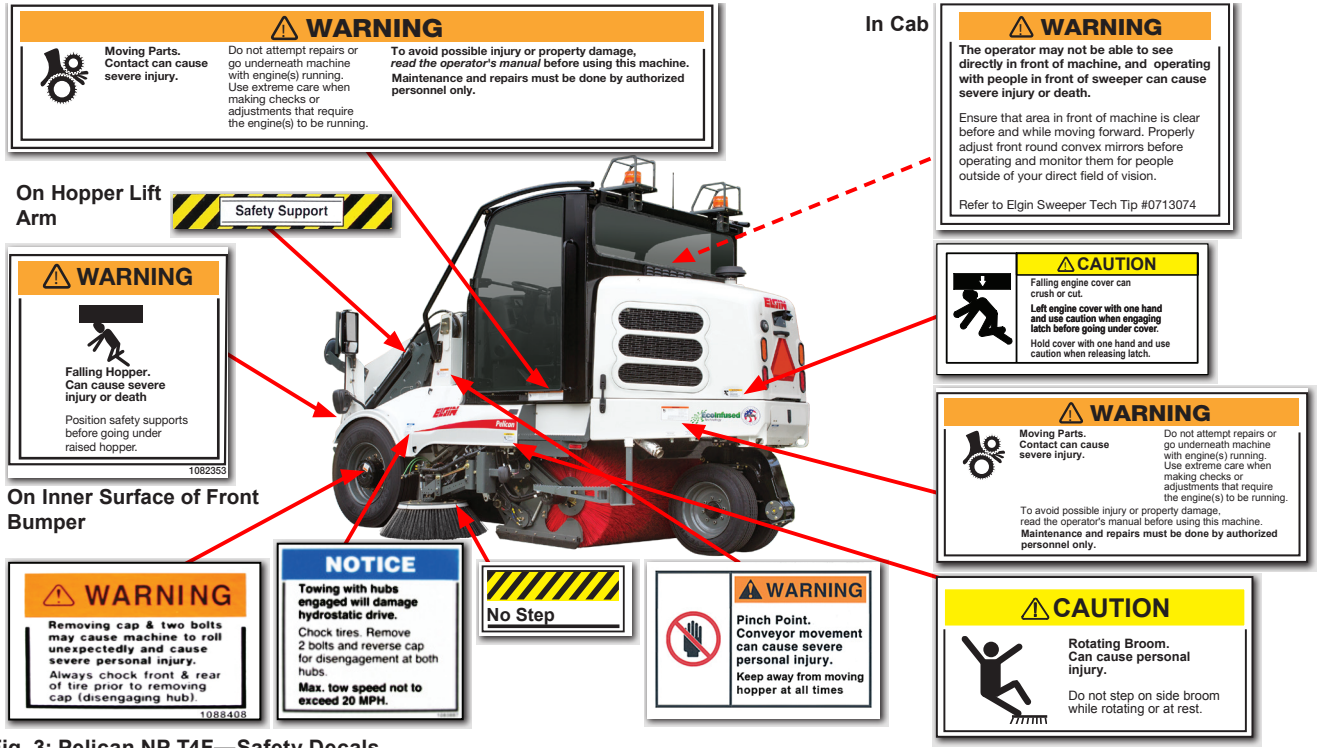


Fig. 3: Pelican NP T4F—Safety Decals

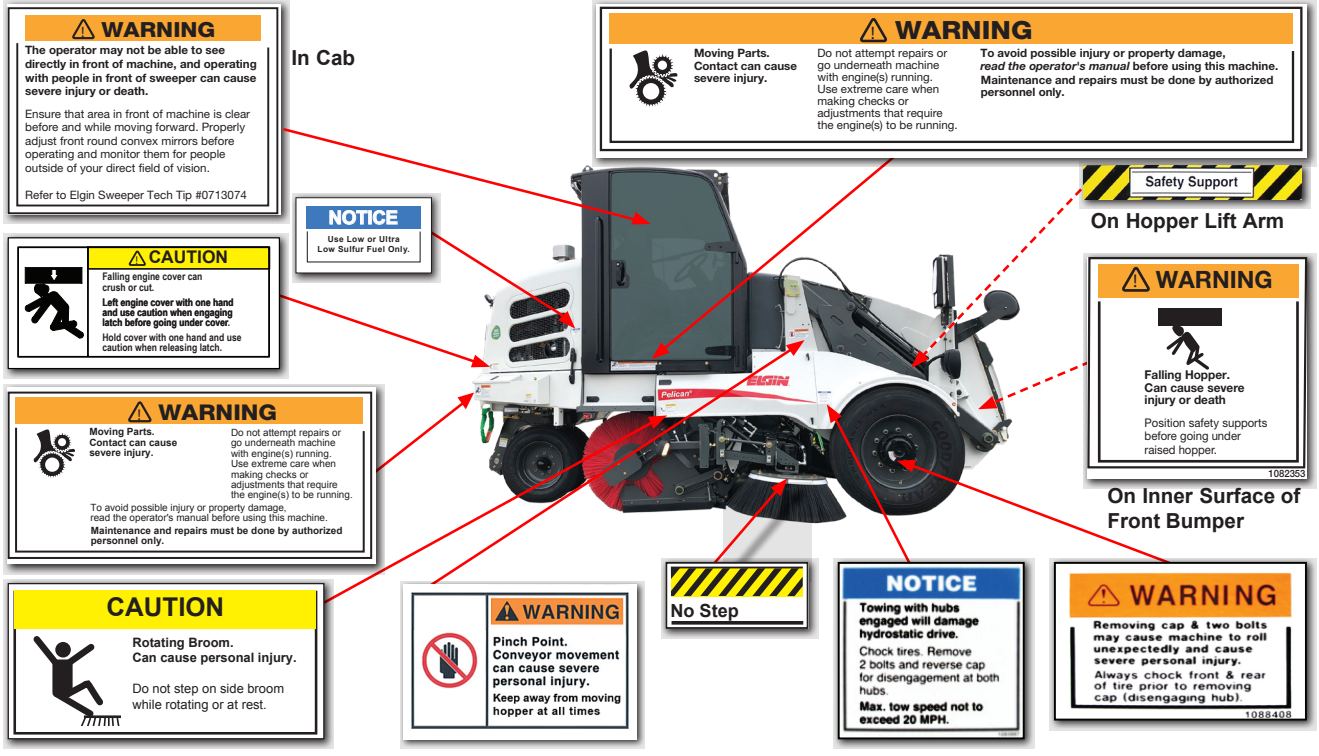


Fig. 4: Pelican NP T4F—Safety Decals

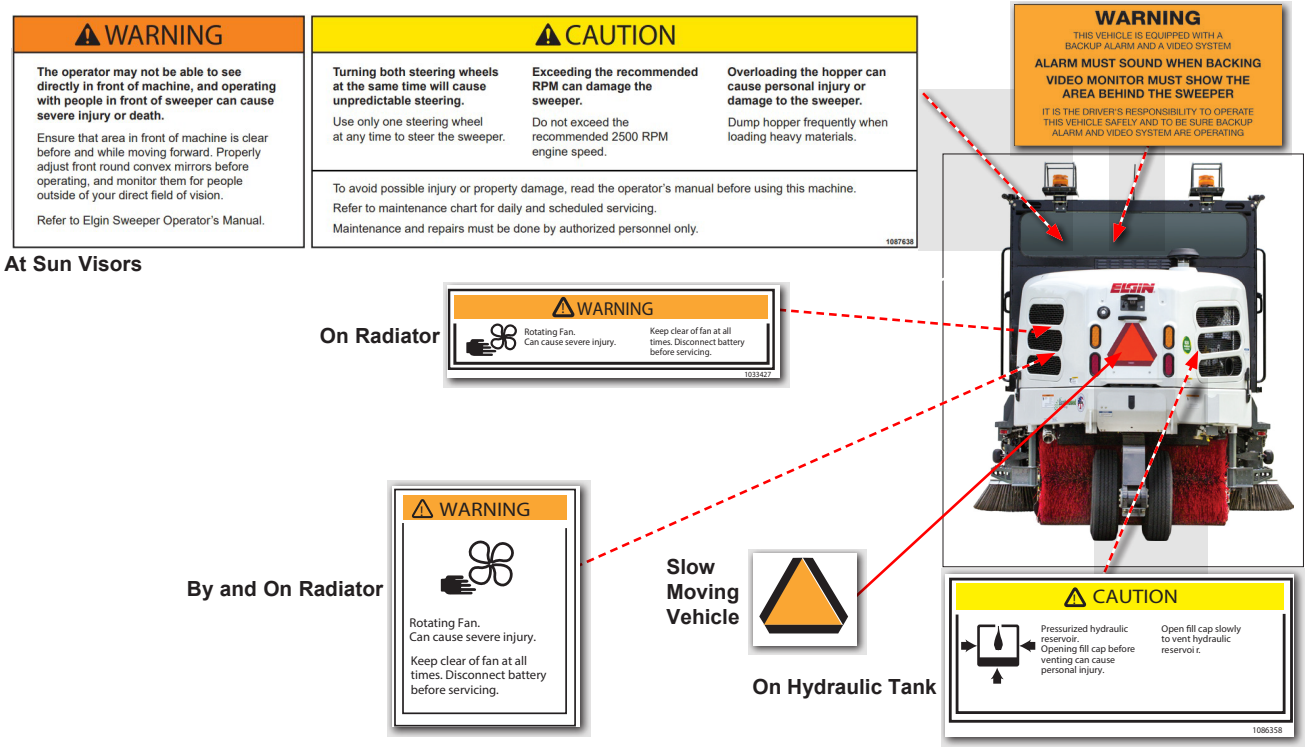


Fig. 5: Pelican NP T4F—Safety Decals

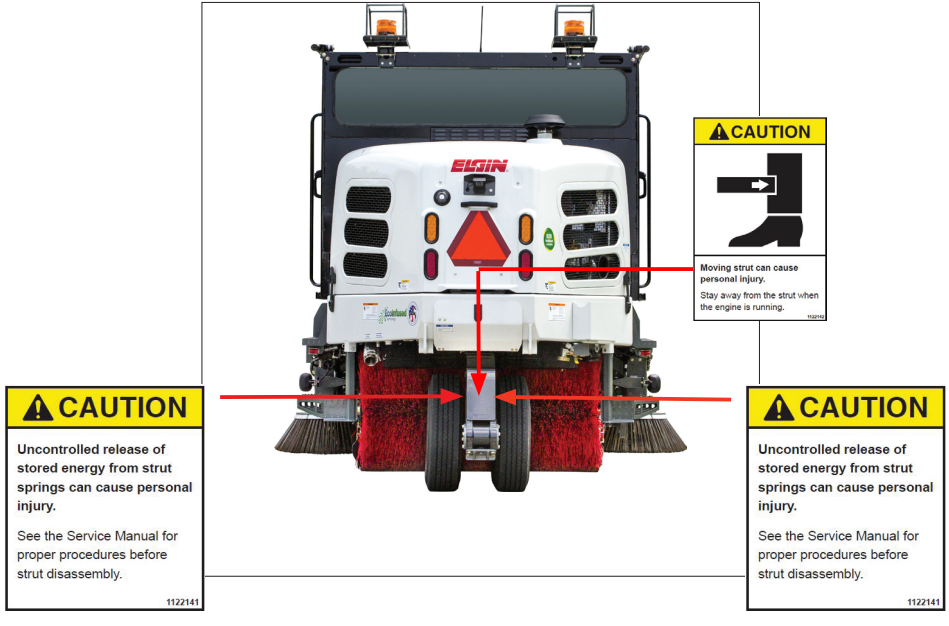


Fig. 6: Pelican NP T4F—Safety Decals

DESCRIPTION

PELICAN NP TIER 4 FINAL

The Elgin Pelican NP Tier 4 Final (T4F) combines maneuverability, economy, serviceability, and single-lane dumping with a sweep system that easily handles heavy, compacted dirt and bulky debris, as well as smaller particles found in the street. The Pelican NP T4F is an all-around sweeper with incredible digging power— a perfect solution for your sweeping needs.

Product Description

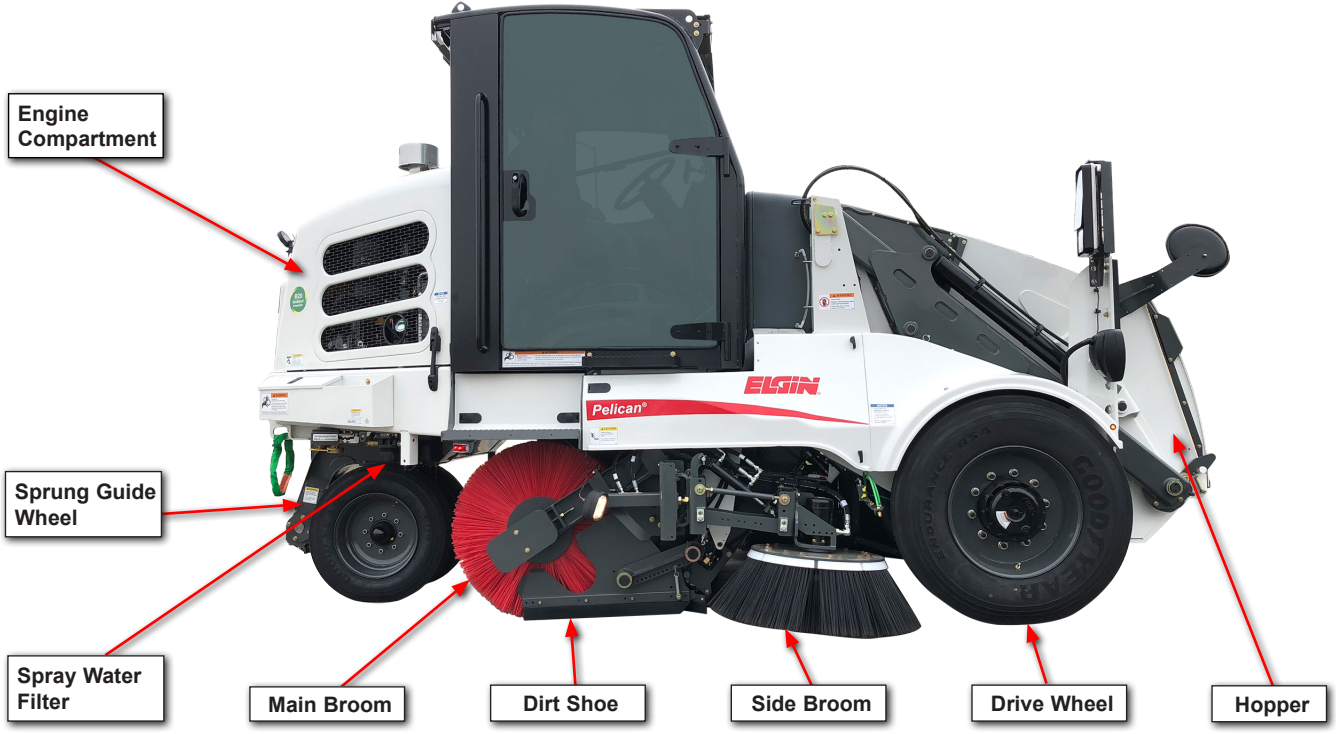


Fig. 7: Pelican NP T4F—Side View

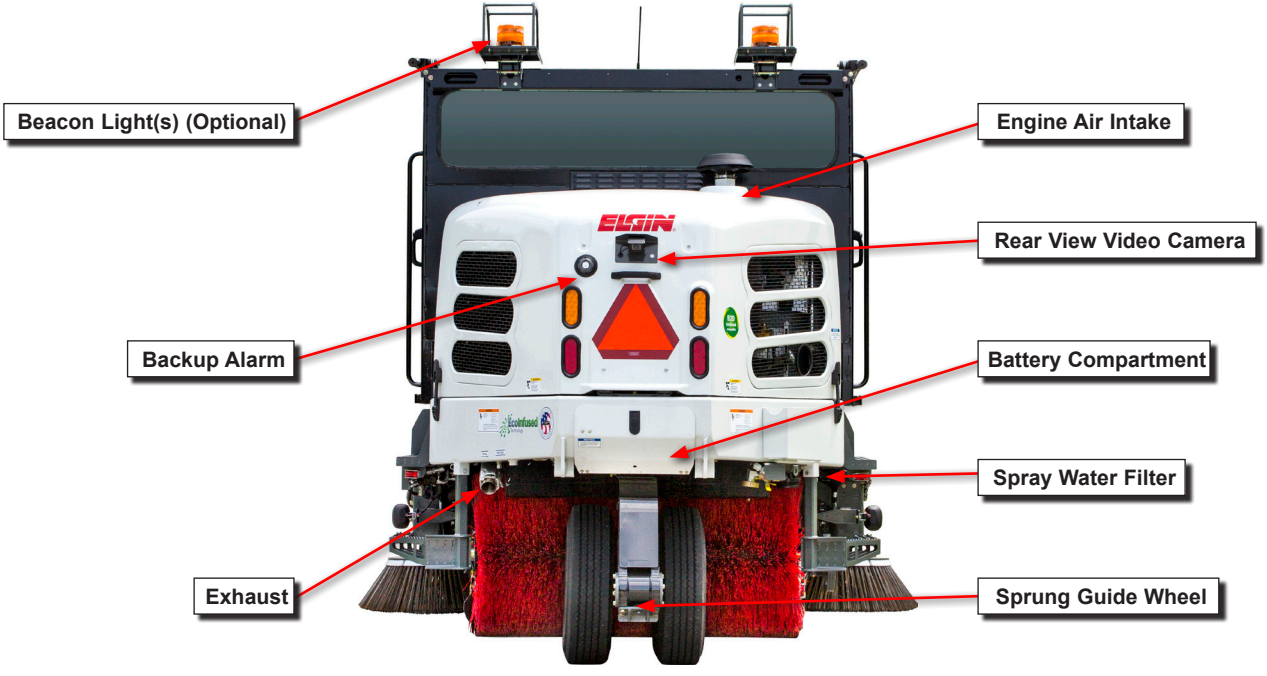


Fig. 8: Pelican NP T4F—Rear View

Specifications

Table 1: Pelican NP T4F Specifications	
DIMENSIONS & WEIGHT	
Overall Length	16 ft. (4877 mm)
Height (with cab included)	9 ft. 10 in. (3010 mm)
Width (from outside tires)	8 ft. 6 in. (2591 mm)
Wheel Base	127.4 (3236 mm)
Turning Radius (sweeping)	15 ft. (4572 mm) curb-to-curb
Weight with One Side Broom	14,490 lb. (6572 kg)
Weight with Two Side Brooms	14,990 lb. (6799 kg)
SWEEPING PATH	
One Side Broom	8 ft. (2438 mm)
Two Side Brooms	10 ft. (3048 mm)
BROOMS	
Side Broom Diameter	36 in. (914 mm)
Main Broom Diameter	35 in. (889 mm)
Main Broom Length	66 in. (1676 mm)
FUEL TANK CAPACITY	
Standard	35 gal (132.5 L)

ENGINE	
Model	John Deere 4045TFC03
Type	4 cylinder, diesel
Displacement	275 in^3 (4.5 L)
Horsepower	74 hp (55 kW) @ 2400 rpm
Torque	224 lb.-ft. (304 Nm) @1600 rpm
Compression Ratio	19:1
Bore	4.17 in. (106 mm)
Stroke	5.00 in. (127 mm)
Emission Type	T4F compliant
HOPPER	
Volumetric Capacity	3.5 yd^3 (2.7 m^3)
Material Volume	3.0 yd^3 (2.3 m^3)
Maximum Dump Height	Up to 9 ft. 6 in. (2895 mm)
Dumping Clearance Height	16 ft. (4877 mm)
Design Lift Capacity	9,000 lb. (4080 kg)
CONVEYOR	
Type	Single-ply reinforced rubber belt with chevron cleats
Speed	Variable with engine rpm

HYDRAULIC SYSTEM	
Pump	Positive displacement
Motor	Positive displacement
Filter -Return/Suction	10 micron absolute Full flow with bypass
Reservoir Capacity	33 gal (125 L)
SPRAY WATER SYSTEM	
Water Tank Capacity	220 gal. (832 L)
Fill Hose	16 ft. 8 in. (5080 mm) with hydrant coupling
Pump Type	Diaphragm
Filter	Non-corroding housing with 100 mesh screen
Spray Nozzles	Atomizing, adjacent to each broom
Washdown	Integral cascade hopper/conveyor wash
ELECTRICAL SYSTEM	
Battery Rating	12 V, Group 31, 1000 CCA
Alternator	95 A standard
TIRES	
Front	11R22.5 14 ply-rated
Rear	215/75R 17.5 16 ply-rated

Table 2: Screw Torques				
SCREW SIZE DIAMETER (in.)	TORQUE (lb.-ft.)		TORQUE (Nm)	
	GRADE 5	GRADE 8	GRADE 5	GRADE 8
1/4	9	12	12.2	16.3
5/16	18	25	24.4	33.9
3/8	30	45	40.7	61
7/16	50	70	68	95
1/2	75	110	101	149
9/16	110	155	150	210
5/8	155	215	210	290
3/4	270	390	365	520
7/8	440	620	590	840
1	660	930	900	1260

SCREW SIZE METRIC	TORQUE (lb.-ft.)			TORQUE (Nm)		
	GRADE 8.8	GRADE 10.9	GRADE 12.9	GRADE 8.8	GRADE 10.9	GRADE 12.9
M3	0.4	1.3	1.5	0.5	1.8	2.0
M4	2.2	3.3	3.7	3.0	4.5	5.0
M5	4.5	6.5	7.5	6.0	9.0	10.0
M6	7.5	11.0	13.0	10.0	15.0	18.0
M8	18.0	30.0	33.0	25.0	35.0	45.0

SCREW SIZE METRIC	TORQUE (lb.-ft.)			TORQUE (Nm)		
	GRADE 8.8	GRADE 10.9	GRADE 12.9	GRADE 8.8	GRADE 10.9	GRADE 12.9
M10	35.0	50.0	63.0	50.0	70.0	85.0
M12	65.0	95.0	110.0	90.0	125.0	150.0
M14	105.0	150.0	175.0	140.0	200.0	240.0
M16	160.0	235.0	280.0	220.0	310.0	380.0
M20	320.0	460.0	540.0	440.0	610.0	740.0
M24	550.0	790.0	940.0	750.0	1050.0	1270.0

PELICAN T4F CONTROLS

Instruments & Controls

Fig. 9: Control Panel

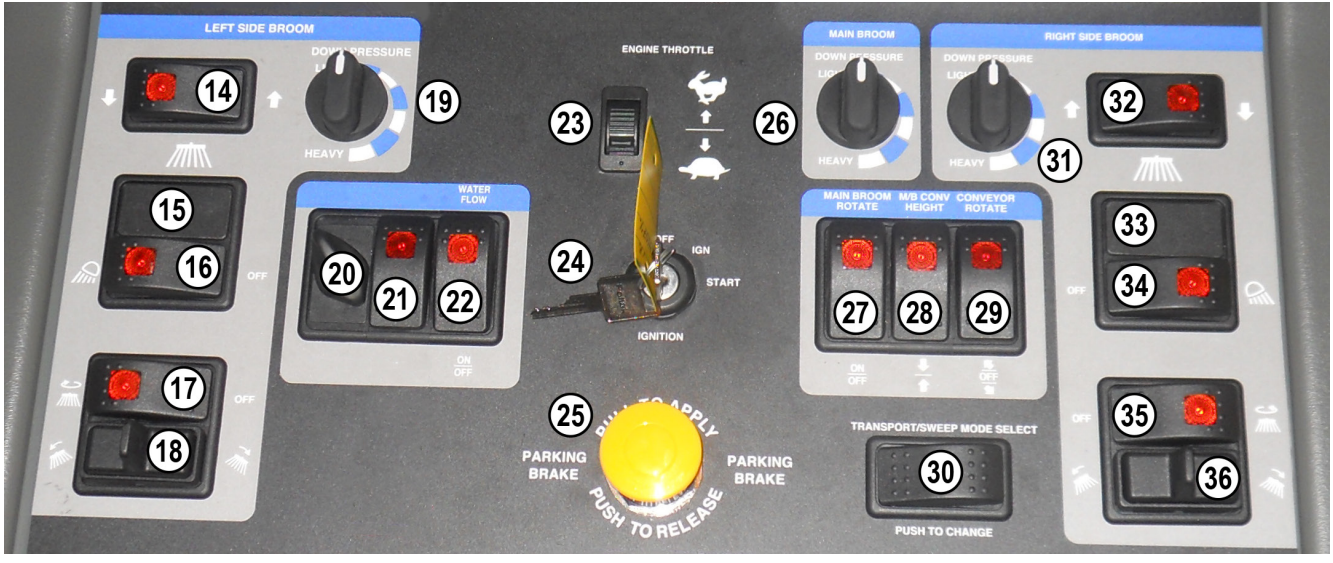


Fig. 10: Control Panel

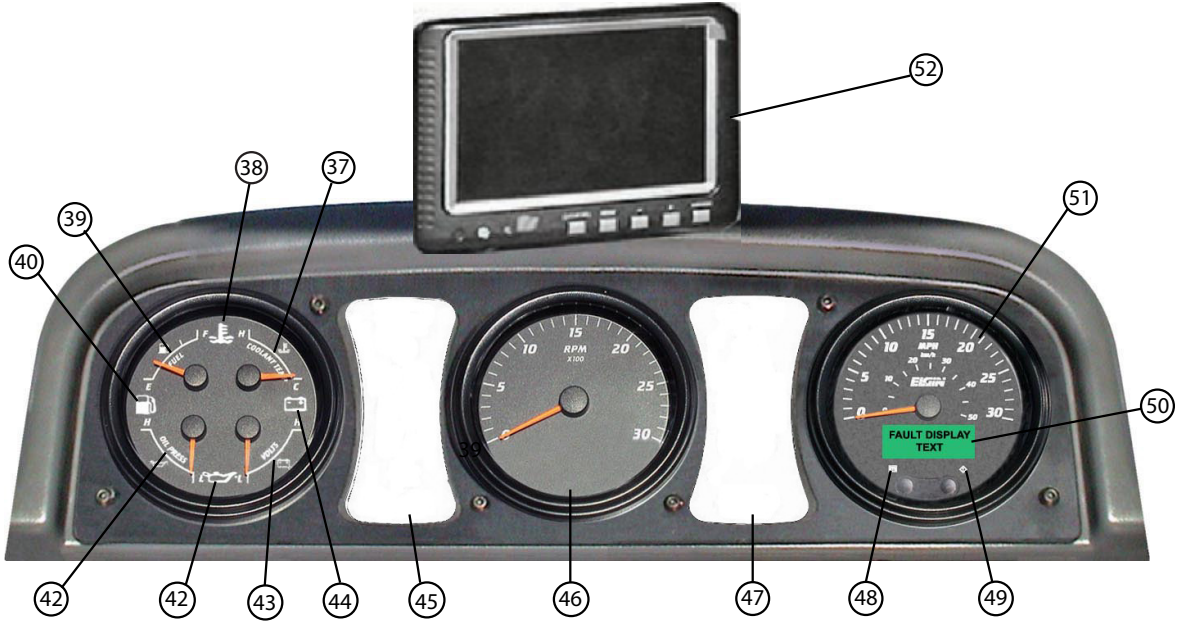


Fig. 11: Gauge Panels

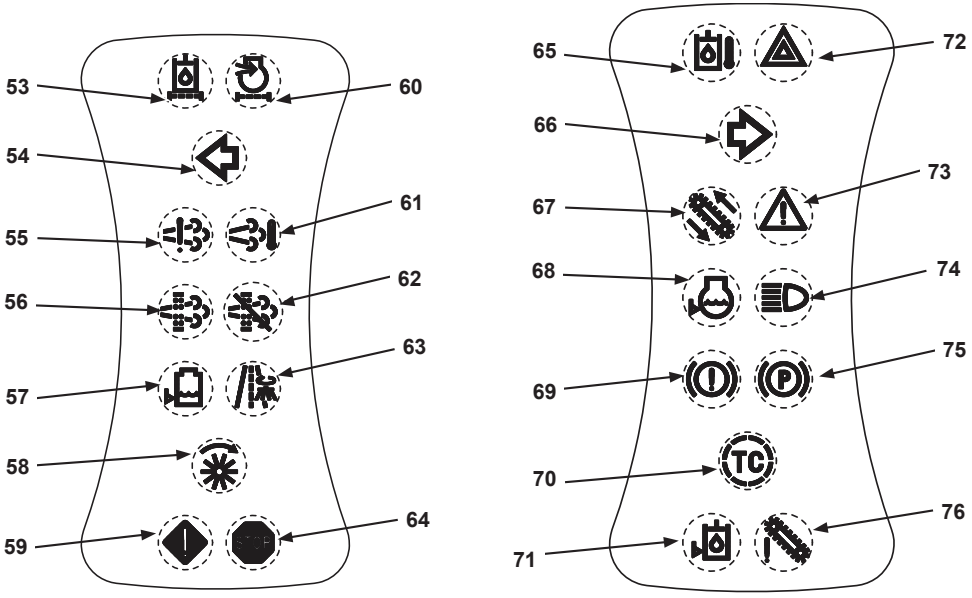


Fig. 12: Indicator Panels

Fig. 13: Windshield Wiper Control

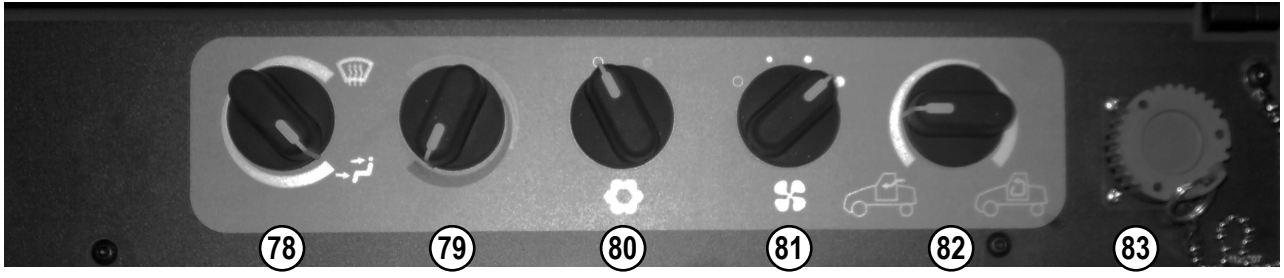


Fig. 14: Cab Ventilation Controls

Fig. 15: Steering Column

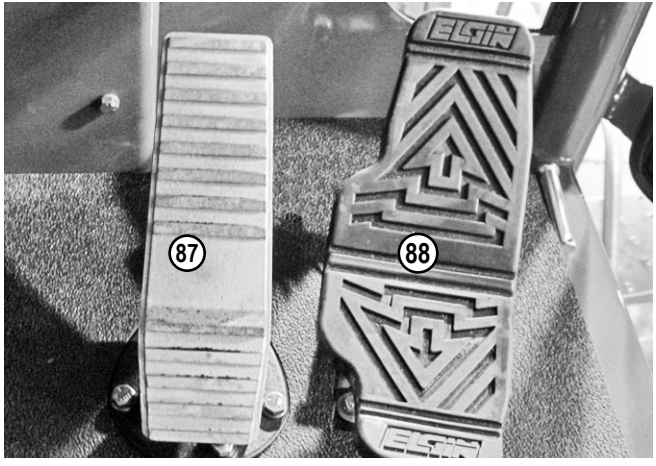


Fig. 16: Foot Pedals

Controls

Instruments and Controls

The following list describes the instruments on the control panel:

1. **Panel for Optional Gauges and Switches**
2. **Operator Position Switch** (while the parking brake is set) switches steering column controls and propel pedal control between left side and right side driving.
3. **Hopper Dump Lever** controls raising, lowering, and dumping the hopper.
4. **Optional Cold Start Switch** activates the cold weather starting aid. Depressing this switch while holding the Ignition Switch in the START position will release ether to aid in starting the sweeper. A full ether bottle must be installed before using this feature.
5. **Optional Traction Control Switch** turns the traction control feature on or off.
6. **Optional**
7. **Optional**
8. **Optional**
9. **Lights—Head Lamp/Parking/OFF Switch** turns the headlights and parking lights on or off.
10. **Lights—Sweep Flashers Switch** turns the roof-mounted warning lights on or off.
11. **Lights—Optional Beacon Switch** turns the beacon on or off.
12. **Lights—Optional Floodlight Switch** turns the rear floodlight(s) on or off.

13. **Lights—Aux Switch** controls the optional lights.
14. **Left Side Broom Height Switch** lowers or raises the left side broom.
15. **Left Side Broom Water Switch** turns the spray water on or off at the left side and main broom.
16. **Left Side Broom Light Switch** turns the light on or off at the left side broom.
17. **Left Side Broom Rotate Switch** engages the left side broom.
18. **Left Side Broom Tilt Switch** controls the tilt of the left side broom.
19. **Left Side Broom—Down Pressure Knob** controls the down pressure exerted by the left side broom.
20. **Optional**
21. **Optional**
22. **Water Flow Switch** adjust the water flow to low or high.
23. **Engine Throttle Thumbwheel** controls the speed of the engine.
24. **Ignition Key Switch** turns the electrical system or the starter on or off.
25. **Parking Brake Button** engages the parking brake. Pull to apply; push to release.
26. **Main Broom—Down Pressure Knob** controls the down pressure exerted by the main broom.
27. **Main Broom Rotate Switch** engages the main broom.
28. **MB/CONV Height Switch** raises or lowers the main broom and conveyor together.
29. **Conveyor Rotate Switch** starts or stops the conveyor, and controls the direction of conveyor belt motion, forward or reverse.

30. **Transport/Sweep Mode Select Switch** puts the sweeper into sweep or transport mode.
31. **Right Side Broom—Down Pressure Knob** controls the down pressure exerted by the right side broom.
32. **Right Side Broom Height Switch** lowers or raises the right side broom.
33. **Right Side Broom Water Switch** turns the spray water on or off at the right side and main broom.
34. **Right Side Broom Light Switch** turns the light on or off at the right side broom.
35. **Right Side Broom Rotate Switch** engages the right side broom.
36. **Right Side Broom Tilt Switch** controls the tilt of the right side broom.
37. **Coolant Temperature Gauge** indicates the temperature of the coolant in the engine.
38. **Coolant Temperature Indicator** illuminates when the temperature of the engine coolant is high. Automatic shutdown will occur when the temperature is too high.
39. **Fuel Gauge** indicates the amount of fuel in the fuel tank.
40. **Fuel Indicator** illuminates when the fuel level is low.
41. **Oil Pressure Gauge** indicates oil pressure at the engine.
42. **Oil Pressure Indicator** illuminates when the engine oil pressure is low. Automatic shutdown will occur when the pressure is too low.
43. **Voltage Gauge** indicates battery voltage.
44. **Voltage Indicator** illuminates when the battery voltage is low.
45. **Left-hand Indicator Panel** contains indicators which notify the operator that a certain component is operating

or alerts to a component or condition that may affect sweeper operation.

46. **RPM Tachometer** indicates speed of the engine.
47. **Right-hand Indicator Panel** contains indicators which notify the operator that a certain component is operating or alerts to a component or condition that may affect sweeper operation.
48. **“M” Button** allows the operator to scroll through the options (trip odometer, engine hours, left side broom hours, main broom hours, right side broom hours, and hydraulic oil temperature) in the display window.
49. **“T” Button** (when used with the Scroll Button) resets the trip odometer or one of the hour meters displayed at the display window.
50. **Display Window** displays sweeper/engine information and fault codes.
51. **Speedometer** indicates the sweeper speed in miles per hour and in kilometers per hour.
52. **Rear Vision Video Monitor** turns on when the propel pedal is put in reverse. The system also has a continuous ON switch.
53. **Hydraulic Filter Restriction Indicator** illuminates when the hydraulic fluid return filter is clogged.
54. **Left Turn Signal Indicator** illuminates when the left turn signal is used.
55. **Emission System Fault Indicator** illuminates when there is a fault with the emission system.
56. **Exhaust Filter Indicator** illuminates when the exhaust filter needs cleaning. If conditions are safe, the operator should enable the auto exhaust filter clean setting or perform a forced regeneration.
57. **Low Spray Water Indicator** illuminates when the spray water tank is empty.
58. **Broom Rotate Indicator** illuminates when the Main Broom Rotate Switch is in the ON position.

59. **Engine Caution Indicator** illuminates when there is an engine fault. It may also illuminate in combination with the Exhaust Filter Indicator when exhaust filter soot levels are very high. High soot levels will cause the engine performance to be reduced by the ECU.

60. **Air Filter Restriction Indicator** illuminates when the engine air filter is clogged.

61. **Exhaust Filter Cleaning Indicator** illuminates when the exhaust gas temperature is at an optimal filter cleaning temperature, elevated idle or active, or when a filter cleaning is in process. The sweeper can be operated normally unless the operator determines the machine is not in a safe location for high exhaust temperatures and chooses to disable auto cleaning (INHIBIT).

⚠CAUTION

When the Exhaust Filter Cleaning Indicator is illuminated, it should be assumed that the exhaust will be hotter than normal; take the appropriate precautions.

62. **Auto Cleaning Disabled Indicator** illuminates when the operator has chosen to disable the auto cleaning function from the diagnostic gauge. It also illuminates when a regen is in progress, but has been temporarily interrupted. This icon remains illuminated until the interruption has been removed, the operator re-engages the auto exhaust filter cleaning from the diagnostic gauge, or the operator uses the engine key to power off and then on the engine. Do not disable (INHIBIT) the auto exhaust filter cleaning (auto regen) mode unless there is a safety-related concern or the fuel tank lacks the required fuel to complete the cleaning process.

63. **Sweep Mode Indicator** illuminates when the sweeper is in sweep mode and off when the sweeper is in transport mode.

64. **Engine Warning Indicator** illuminates when there is an engine fault that requires immediate attention. It may also illuminate in combination with the Exhaust Filter Indicator when the soot level of the exhaust filter is extremely high. The engine performance will be further reduced by the ECU. See your authorized John Deere

dealer for service.

65. **Optional High Hydraulic Oil Temperature Indicator** illuminates when the oil is above the recommended operating temperature. With this option, an automatic shutdown will result if the temperature gets too high.
66. **Right Turn Signal Indicator** illuminates when the right turn signal is used.
67. **Conveyor Rotate Indicator** illuminates when the Conveyor Rotate Switch is in the ON position.
68. **Low Coolant Level Indicator** illuminates when the engine coolant level is too low for safe operation.
69. **Low Brake Pressure Indicator** illuminates when the hydraulic pressure in the brake circuit drops too low.
70. **Optional Traction Control Indicator** illuminates when the optional traction control is on.
71. **Low Hydraulic Oil Indicator** illuminates when the level of hydraulic fluid is too low and requires service.
72. **Hazard Lights Indicator** illuminates when the hazard lights flash.
73. **Fault Warning Indicator** illuminates when a problem with the electronic control module (ECM) is detected.
74. **High Beam Indicator** illuminates when the high beam headlights are switched on.
75. **Parking Brake Indicator** illuminates when the parking brake is set.
76. **Optional Stalled Conveyor Indicator** illuminates if the conveyor is not turning while the conveyor motor is switched on.
77. **Windshield Wiper Knob** allows the operator to turn the wipers off, set the wiper speed, and to operate the windshield washer fluid.
78. **Ventilation Knob** adjusts the air flow in the cab between full flow to the defrosters and full flow to operator heating or cooling. Adjust between the two settings to defrost/defog the side windows.

79. **Temperature Knob** adjusts the air temperature in the cab.
80. **Air Conditioning Switch** turns the air conditioner on or off.
81. **Blower Switch** turns the cab ventilation blower off or to one of three speeds.
82. **Outside Air Knob** adjusts the cab ventilation between outside air or recirculating inside air. The air is filtered in either position.
83. **Service Tool Connector** connects the Elgin service tool.
84. **Turn Signal Stalk Switch** allows the operator to select the right and left turn signals, to switch between high and low beam, and to flash the high beam lights.
85. **Steering Column Control** shortens or lengthens the steering column (by pushing the lever) and tilting of the column (by pulling the lever).
86. **Hazard Light Switch** turns the hazard lights on or off.
87. **Brake Pedal** operates the service brakes.
88. **Propel Pedal** controls the direction and speed of the hydrostatic drive operation.

Display Window

Readings and codes are supplied to the operator through the display window. Press the “M” button to access the information below; continued use of the “M” button will repeat the sequence. Press the “T” and “M” buttons at the same time (while the reading is displayed) to reset the meter to zero.

- Trip odometer
- Engine hours
- Left side broom hours
- Main broom hours
- Right side broom hours
- Hydraulic oil temperature

Fault Display

When the sweeper’s control system detects an electrical fault, it causes an audible alarm to beep and the fault warning indicator to illuminate. These signals alert the operator to investigate fault codes displayed in the display window and to take the appropriate action.

TOUCHSCREEN DISPLAY CONTROLS

NOTICE

The parking brake must be applied in order to access diagnostics on the touchscreen graphic display module. In the event the parking brake has failed, chock the wheels, and the diagnostics screens can then be accessed by pressing the service brake pedal and touching the parking brake icon.

Instruments & Controls

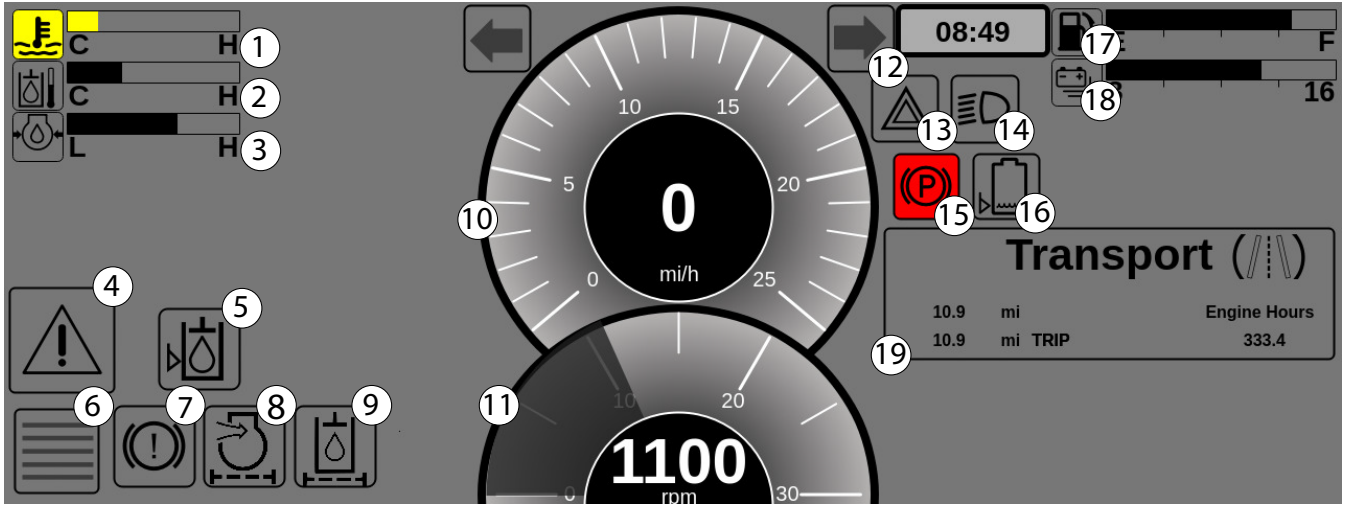


Fig. 17: Home Screen

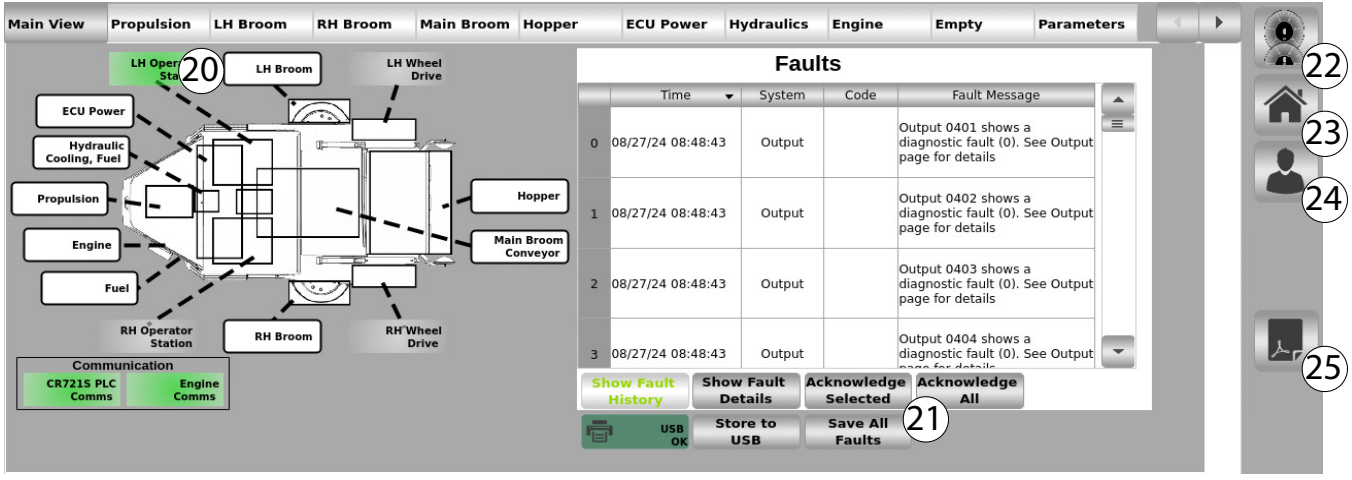


Fig. 18: Main View Faults

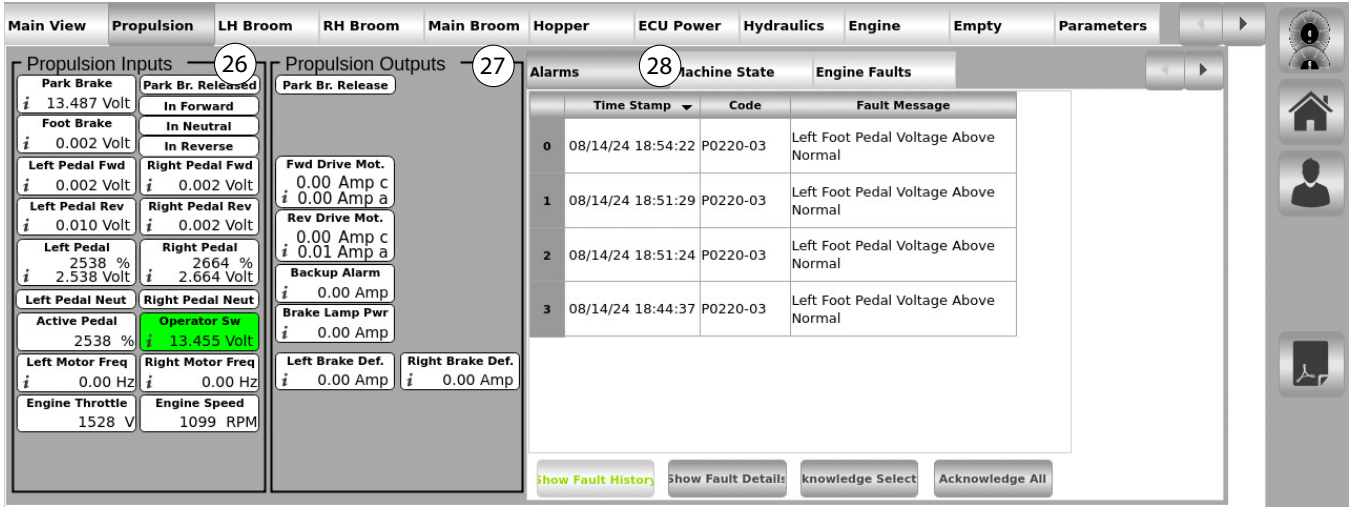


Fig. 19: Propulsion Inputs and Outputs With Alarms

Controls

Instruments & Controls

The following list describes the instruments on the control panel:

1. **Coolant Temperature Indicator Light/Coolant Temperature Gauge** indicates the temperature of the coolant in the engine.
2. **Optional High Hydraulic Oil Temperature Indicator Light/Hydraulic Oil Temperature Gauge** illuminates when the oil is above the recommended operating temperature; yellow when the value is getting high, red when it passes the temperature threshold. With this option, an automatic shutdown will result if the temperature gets too high.
3. **Engine Oil Pressure Indicator Light/Engine Oil Pressure Gauge** indicates the engine oil pressure is low.
4. **Fault Warning Indicator** illuminates when a problem with the electronic control module (ECM) is detected.
5. **Low Hydraulic Oil Indicator** illuminates when the level of hydraulic fluid is too low and requires service.
6. **Diagnostic** pages: long-press this to view the diagnostic pages.
7. **Service Brake Accumulator Light** illuminates when the hydraulic pressure in the service brake accumulator drops too low.
8. **Low Coolant Level Indicator** illuminates when the engine coolant level is too low for safe operation.
9. **Hydraulic Filter Restriction Indicator** illuminates when the hydraulic fluid return filter is clogged.

10. **Speedometer** indicates the sweeper speed in miles per hour.
11. **Engine Tachometer** indicates speed of the engine.
12. **Right Turn Signal Indicator** illuminates when the right turn signal is used.
13. **Hazard Lights Indicator** illuminates when the hazard lights flash.
14. **High Beam Indicator** illuminates when the high beam headlights are switched on.
15. **Parking Brake Indicator** illuminates when the parking brake is set.
16. **Low Spray Water Indicator** illuminates when the spray water tank is empty.
17. **Low Fuel Indicator Light/Fuel Gauge** indicates the amount of fuel in the fuel tank**.**
18. **Low Voltage Indicator Light/Voltage Gauge** indicates battery voltage**.**
19. **Vehicle status**
20. **Green** box indicates “selected” or “OK”.
21. Fault actions.
22. **Return to Operator Screen.**
23. **Return to Diagnostic Main View.**
24. User **log-on.**

25. **Diagnostics Manual**
26. **Input pane**
27. **Output pane**
28. **Alarms (Faults)**

Interface Units of Measure

The operator can change between Metric and U.S. units of measure using the touchscreen controls (Note: this must be done while logged on as the Service user). The text on the button will be lit green (Fig. 20: Metric Units Button) when Metric Units have been enabled.

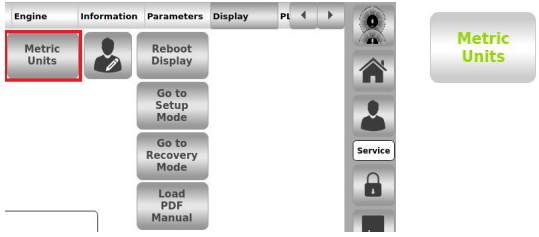


Fig. 20: Metric Units Button

In the diagnostic screens, go to the Display tab. On the main screen, tap the Metric Units button to switch to or from Metric. Metric measurements include: kg, deg C, km, km/h, cm, kPa. The speedometer and center broom down pressure are shown in Fig. 21: Metric Units.

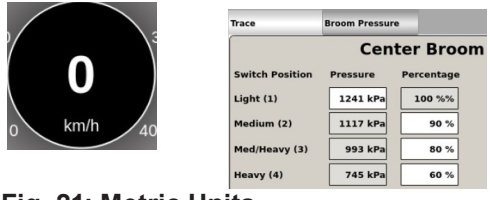


Fig. 21: Metric Units

USER NOTES

OPERATION

Proper operating procedures and daily maintenance checks help to ensure successful operation of the sweeper. Please follow all instructions under “Operation” and “Maintenance”.

CAUTION

Start and operate the engine in a well-ventilated area. In enclosed areas, vent the exhaust to the outside. Do NOT modify or tamper with the exhaust system.

CAUTION

Always use the grab handles for support when getting in and out of the sweeper cab.

WARNING

Chock the vehicle’s tires if the parking brake has failed. Failure to do so can result in severe injury or death.

NOTICE

Avoid long periods of idling, which may harm the engine.

NOTICE

If the sweeper must be operated at temperatures below freezing, see “Cold Weather Starting”.

NOTICE

When operating the sweeper in temperatures below 32°F (0°C), prevent the freezing of water anywhere on or in the sweeping system. Water in the spray water system can freeze, even when the system is operating.

NOTICE

Follow all operator and service instructions in the engine manual.

Starting the Engine

⚠ CAUTION

Start and operate the engine in a well-ventilated area. In enclosed areas, vent the exhaust to the outside. Do NOT modify or tamper with the exhaust system.

Normal Starting

To start the engine under normal conditions, perform the following steps:

1. Make sure the parking brake (Fig. 22: Parking Brake) is applied and the propel pedal is in the NEUTRAL position.

NOTICE

Never operate the starter for more than 10 seconds; longer operation will lead to discharge of the batteries or failure of the starter. Wait at least 30 seconds between attempts to start the engine.

2. Turn the Ignition Key Switch (Fig. 23: Engine Throttle Thumbwheel & Ignition Key Switch) to the START position. Hold the switch in that position until the engine begins to run, but no longer than 10 seconds. If the engine fails to start within 10 seconds, wait at least 30 seconds before trying again.

Fig. 22: Parking Brake

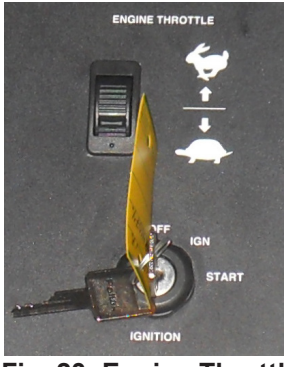


Fig. 23: Engine Throttle Thumbwheel & Ignition Key Switch

NOTICE

For vehicles that have the touchscreen display system, allow the touchscreen display to boot fully upon starting the vehicle to allow for systems check for any faults or errors.

3. Allow the engine to warm up at idle speed (1000 rpm). Use the Engine Throttle Thumbwheel to reach the desired rpm.

Cold Weather Starting

Starting the engine in temperatures below freezing may require the use of an optional cold weather starting kit. Please refer to and follow all instructions in the engine manual.

Coolant Heater

The preferred cold start aid is a coolant heater, which keeps the engine coolant warm enough to start the engine normally.

Air Intake Grid Heater

Some engines may be equipped with an optional air intake grid heater. Refer to the engine manual for details of operation.

Operating Checklist

Engine

- Check the engine oil level.
- Check the radiator coolant level.
- Check the battery fluid level (if applicable).
- Check the engine drive belt for wear and proper tension.
- Check the fuel tank; fill if necessary. Use only ultra low sulfur diesel fuel.
- Drain the water separator on the fuel filter.

Video Monitor & Backup Alarm

CAUTION

The sweeper must move in reverse to verify that the backup alarm and rear view video system are working. The operator and an observer (outside the sweeper) are required to ensure that the testing area is free of people and obstacles.

- Check the area around the sweeper. Ensure the area is free of people and obstacles.
- Check the video monitor's continuous ON switch for proper operation. Turn the switch OFF to check automatic operation when sweeper is reversed.
- Check the video monitor and backup alarm for automatic operation. Ensure the rear view image is seen on the video monitor and that the backup alarm sounds when the sweeper starts to move in reverse.

Lights, Mirrors & Tires

- Check the directional and safety lights.
- Check the tires for the correct pressure per the tire manufacturer.
- Check the mirrors for proper adjustment and cleanliness. Ensure that the convex mirrors at the front of sweeper provide a full field of vision. See "Transport" for further details.
- Check the windshield wiper operation and washer fluid level.

Sweeping Components

- Check the dirt shoes for wear and alignment.
- Check the dirt deflectors for wear and alignment.
- Check the main and side brooms for wear.

- Check the sweeping patterns of main and side brooms.
- Check the conveyor belt for wear and alignment.
- Cycle and check all other sweeping functions.

Hopper

- Confirm that the hopper is empty.

Spray Water

- Check the spray water filter.
- Check the water tank; fill if necessary.
- Operate the water spray system and check for correct spray patterns at the main and side broom nozzles.

Hydraulic Fluids

- With the hopper down, check level of cold oil in the hydraulic reservoir.
- Check the hydraulic system for leaks.

Gauges & Indicators

- Check the gauges and indicators. Take the appropriate actions and contact service personnel when needed. See Pelican T4F Controls on page 33 or Touchscreen Display Controls on page 47 for detailed descriptions.

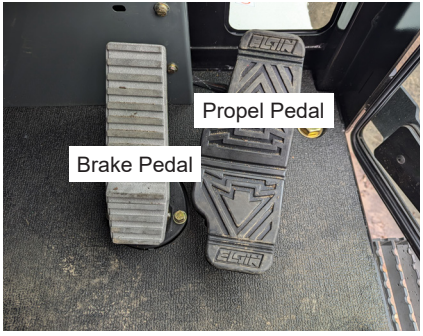


Fig. 24: Propel & Brake Pedals

Fig. 25: Transport/Sweep Mode Select Switch

Transporting

WARNING

The operator may not be able to see directly in front of the sweeper. Operating with people in front of the sweeper can cause severe injury or death.

WARNING

Ensure that area in front and in back of the sweeper is clear before and while moving forward or in reverse. Properly adjust the front convex mirrors before operating. Make sure the video monitor is showing the area behind the sweeper. Monitor the mirrors and video screen for people outside of your direct field of vision. When backing up use the mirrors and video screen to ensure that the area behind the sweeper is clear of people and obstacles.

WARNING

Dual Steering: Turning both steering wheels at the same time will cause unpredictable steering. To prevent serious injury or death, use only one steering wheel at a time to steer the sweeper.

CAUTION

Dual Steering: If the driver needs to change driving positions, the sweeper must be stopped with the propel pedal in neutral and the park brake applied.

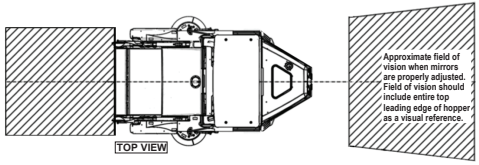


Fig. 26: Field of Vision—Top View

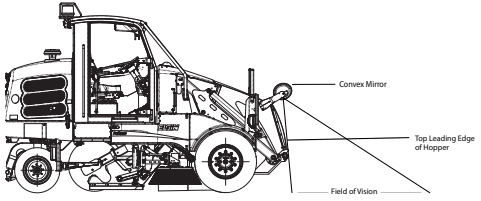


Fig. 27: Field of Vision—Side View

⚠ CAUTION

Operators who have not operated a vehicle with rear-wheel steering must practice driving the Pelican in a non-congested, open area until they are completely familiar with the steering.

NOTICE

Applying the parking brake while the sweeper is in motion can cause rapid brake wear.

Transporting the Sweeper

To transport the sweeper, perform the following steps:

1. Start and warm up the engine. See Starting the Engine on page 57.
2. Turn on the appropriate warning devices and lights as required by law enforcement and user policy.
3. Release the parking brake.
4. If fault code 9021 and/or 9043 appears in the code window, put the propel pedal in the neutral position then set and release the parking brake to clear the code(s).

NOTICE

Do not rest your foot on the propel pedal when stationary; a propel pedal code may be displayed.

5. Set the Transport/Sweep Mode Select Switch to the TRANSPORT position to raise the brooms and conveyor.

6. If the hopper is at or near the fully loaded weight, and the sweeper will be driven farther than 2 miles (3 km) at a speed greater than 5 mph (8 km/hr), empty the hopper to avoid overheating the tires. See Dumping the Hopper on page 71 for details.

7. Properly adjust the front convex mirrors. Make sure the video monitor is showing the area behind the sweeper.

8. Use the Engine Throttle Thumbwheel to set the engine rpm for transport.

9. Ensure that the area in front and in back of the sweeper is clear before moving in forward or in reverse.

10. To move the sweeper forward, press the upper end of the propel pedal. To move the sweeper backward, press the lower end of the propel pedal. **NOTE:** *Releasing the propel pedal will result in dynamic braking, which will slow the sweeper. For additional braking, use the service brake pedal.*

Fig. 28: Transport/Sweep Mode Select Switch

11. During operation/transport of the sweeper, monitor the mirrors and video screen for people outside of your direct field of vision. When backing up, use the mirrors and video screen to ensure that the area behind the machine is clear of people and obstacles.

12. During transport, check the gauges and indicators often and take the appropriate actions when needed. Always stop the sweeper safely before performing service.

Sweeping

WARNING

The operator may not be able to see directly in front of the sweeper. Operating with people in front of the sweeper can cause severe injury or death.

WARNING

Ensure that area in front and in back of the sweeper is clear before and while moving forward and in reverse. Properly adjust the front convex mirrors before operating. Make sure the video monitor is showing the area behind the sweeper. Monitor the mirrors and video screen for people outside of your direct field of vision. When backing up use the mirrors and video screen to ensure that the area behind the sweeper is clear of people and obstacles.

WARNING

Dual Steering: Turning both steering wheels at the same time will cause unpredictable steering. To prevent serious injury or death, use only one steering wheel at a time to steer the sweeper.

CAUTION

Dual Steering: If the driver needs to change driving positions, the sweeper must be stopped with the propel pedal in neutral and the parking brake applied.

CAUTION

Operators who have not operated a vehicle with rear-wheel steering must practice driving the Pelican in a non-congested, open area until totally familiar with the steering.

NOTICE

Applying the parking brake while the sweeper is in motion can cause rapid brake wear.

For sweeping operation, perform the following steps:

1. If the sweeper is shut down:
   - Start and warm up the engine. See Starting the Engine on page 57.
   - Release the parking brake. If fault code 9021 and/or 9043 appears in the code display window, put the propel pedal in the neutral position, then set and release the parking brake to clear the code(s).

2. If the sweeper is operating:
   - Perform a complete stop before engaging the sweeping components. Idle the engine at 1000 rpm.
3. Turn on the appropriate warning devices and lights as required by law enforcement and user policy.
4. Properly adjust the front convex mirrors. Make sure the video monitor is showing the area behind the sweeper.
5. Set the Transport/Sweep Mode Select Switch to the SWEEP position; a green indicator light will illuminate.
6. Use the MB/CONV Height Switch to lower the main broom and conveyor. The main broom will lower to the SWEEP position, based on the down pressure setting. Use the Main Broom—Down Pressure Knob to adjust the down pressure if needed.
7. Use the Side Broom Height Switches to lower the side brooms. The side brooms will lower to the SWEEP position, based on the down pressure setting. Use the Side Brooms—Down Pressure Knobs to adjust the down pressure if needed.
8. Adjust the side mirrors so that the side broom location and operation is within view.
9. Use the Conveyor Rotation Switch to start the conveyor rotation.

NOTICE

Do NOT rotate the main broom while in the fully raised position. Rotation of the main broom in the transport position can cause premature wear or failure of adjacent components. Make sure the main broom is lowered to its sweeping position before rotating the brooms.

10. Use the Side Broom and Main Broom Rotate Switches to start the rotation of brooms.

11. Use the Side Broom Water Switches to activate the spray water. Use the Water Flow Switch to control the water volume.

12. Use the Engine Throttle Thumbwheel to set the recommended engine speed according to sweeping conditions. See Table 3.

Table 3: General Speed Guidelines		
SWEEPINGCONDITIONS	**AUXILIARYENGINERPM**	**MPH**
LIGHT	1300 rpm	5–7 mph (8–11 km/h)
MEDIUM	1500 rpm	3–5 mph (5–8 km/h)
HEAVY	1700 rpm	2–4 mph (3–6 km/h)

13. Ensure that the area in front and in back of the sweeper is clear before moving forward or in reverse.

14. During operation of the sweeper, monitor the mirrors and video screen for people outside of your direct field of vision. When backing up, use the Mirrors and Video Screen to ensure that the area behind the machine is clear of people and obstacles.

15. To move the sweeper forward, press the upper end of the propel pedal. To move the sweeper backward, press the lower end of the

Fig. 29: Hopper Dump Lever

propel pedal. **NOTE:** *Releasing the propel pedal will result in dynamic braking, which will slow the sweeper. For additional braking, use the service brake pedal.*

CAUTION

Do not lean out of an open window while sweeping; doing so may result in injury. Keep hands and arms inside the sweeper while moving.

16. While sweeping, keep the sweeper evenly aligned with the curb. Choose a focal point on the front of the sweeper, such as the edge of the mirror or a place on the hopper, and line it up with the edge of the curb (ahead of the sweeper). This will decrease the tendency to over-steer the sweeper.

17. Frequently check the level of water in the spray tank. Sweeping without water results in poor dust suppression. The water gauge is visible through the right-hand lower cab window.

18. Frequently check the amount of debris in the hopper and dump before it becomes overloaded. See Dumping the Hopper on page 71 for details.

19. If the conveyor stalls or slows from a jammed object, follow the directions under Reversing the Conveyor on page 73.

20. During sweeping, check the gauges and indicators often and take the appropriate actions when needed. Always stop the sweeper safely before performing service.

Using the Water System

Spray water is used during sweeping to suppress dust and to moisten the debris for better settling in the hopper.

Before filling the water tank, always let the hydrant run to flush out any sediment or debris in the hydrant. The fill hose is stored at the right rear side of the sweeper.

Fill the tank to overflowing. It can be filled by either the standard hydrant-fill system or by the optional garden hose fill connection.

Dumping the Hopper

DANGER

Do not raise the hopper under power lines, trees, bridges, etc. Before raising, tilting, or dumping the hopper, check for adequate overhead and forward clearance. Raise the hopper only in areas with a minimum overhead clearance of 16 ft. (5 m) and forward clearance of 3 ft. (1 m).

CAUTION

Overloading the hopper can cause personal injury or damage to the sweeper. Dump the hopper frequently when loading heavy materials.

NOTICE

With the hopper at or near its fully loaded weight, driving the sweeper farther than 2 miles (3 km) at a speed greater than 5 MPH (8 km/hr) can overheat the tires.

To dump the hopper, perform the following steps:

1. Perform a complete stop on a level surface.
2. Set the engine speed to 1800 rpm.
3. Set the Transport/Sweep Mode Select Switch to the TRANSPORT position to raise the brooms and conveyor.

4. Use the Hopper Dump Lever to control hopper raising and rollout.
   - To raise the hopper, move the lever back.
   - To lower the hopper, move the lever forward.
   - To roll out the hopper, move the lever to the right.
   - To roll back the hopper, move the lever to the left.

NOTICE

The hopper requires alternate operation of the raise and rollout functions. Be careful not to roll out the hopper too far, until the sweeper is in position for dumping.

5. Keep the hopper level until it is in position for dumping.
6. If dumping into truck:
   - Raise the hopper to full height by moving the lever back.
   - Slowly approach the truck.
   - When properly positioned behind the truck, roll out the hopper by moving the lever to the right.
   - Retract the hopper all the way back by moving the lever to the left.
   - Back the sweeper away from the truck.
7. Lower the hopper by moving the lever forward.

Reversing the Conveyor

The conveyor may be reversed (if necessary) during washdown or when an object is jammed in the conveyor.

NOTICE

Do not operate the conveyor in reverse for more than 15 seconds. Doing so may cause misalignment of the conveyor belt and subsequent damage.

To reverse the conveyor, perform the following steps:

1. Slow the engine.
2. Press the 3-position Conveyor Rotate Switch to OFF until the conveyor stops.
3. Momentarily press REVERSE on the Conveyor Rotate Switch to remove the jammed object.

Shutting Down the Sweeper

To shut down the sweeper, perform the following steps:

1. Park the sweeper. Set the parking brake.
2. Use the Engine Throttle Thumbwheel to set the engine speed to 1000 rpm (idle speed).
3. Stop the rotation of the brooms and conveyor. Set the Transport/Sweep Mode Select Switch to the TRANSPORT position to raise the brooms and conveyor.

NOTICE

Before shutdown, the engine must run at idle speed (1000 rpm) for at least 2 minutes to cool the hot engine parts. Failure to let the engine cool down can result in severe damage. The length of time needed to cool the hot engine parts depends on the air temperature and the temperature of the engine.

4. After the engine has cooled down, use the Ignition Key Switch to turn the sweeper off.

NOTICE

The sweeper returns to Transport mode whenever the engine is turned off. Sweep mode must be selected each time the engine is cycled on/off.

Performing End-of-Shift Procedures

To maintain sweeping efficiency, the operator should include the following actions during shutdown:

- Fill the fuel tank. Filling the fuel tank will force air out, minimizing water condensation as the tank cools.
- Wash the sweeper. See Daily Washdown on page 61 for details.
- Perform maintenance as directed under Maintenance Chart on page 55.

Maintenance Chart

The top view of the Pelican can be seen in Fig. 30: Maintenance Chart Drawing—Top View.

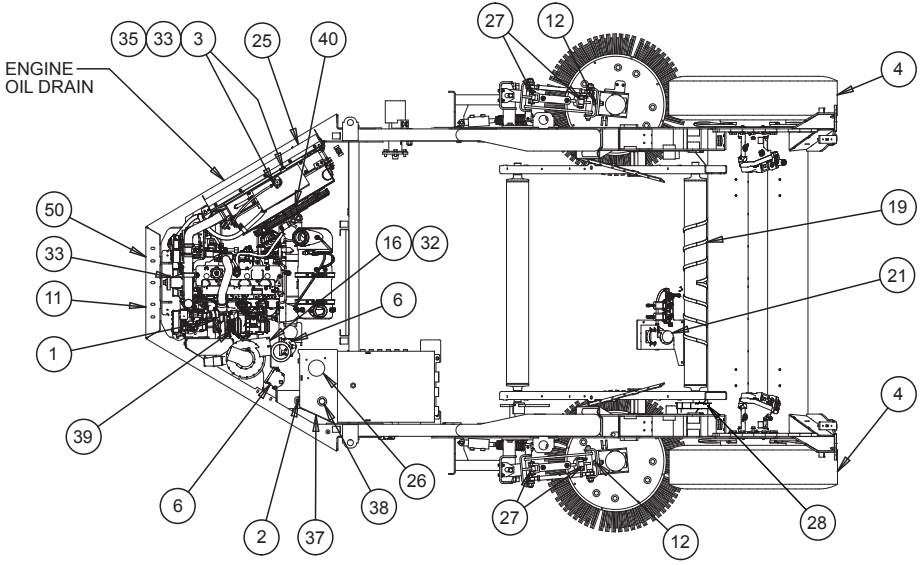


Fig. 30: Maintenance Chart Drawing—Top View

The side view of the Pelican can be seen in Fig. 31: Maintenance Chart Drawing—Side View.

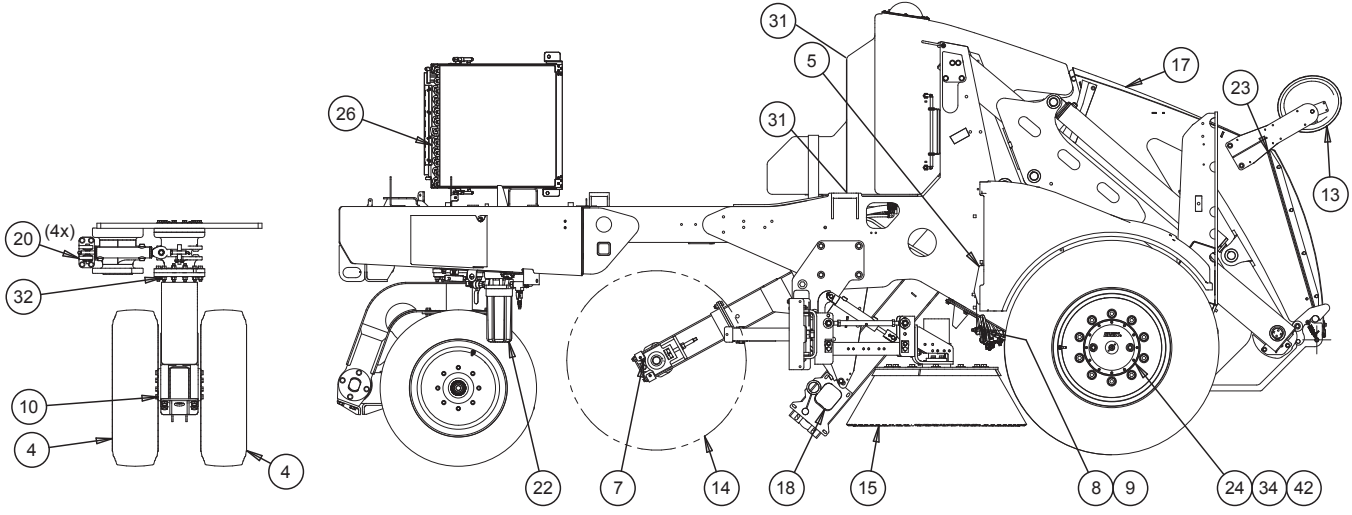


Fig. 31: Maintenance Chart Drawing—Side View

Please follow all safety precautions during maintenance and service. Refer to the engine manual for engine components, specifications, service, and repairs.

Every Shift or 10 Hours

1. Check the engine oil level/pressure.
2. Check the hydraulic oil level sight tube.
3. Check the engine coolant level.
4. Check the tire inflation pressure. Front should be 120 psi (830 kPa); rear 125 psi (862 kPa).
5. Check the windshield washer fluid.
6. Drain the engine fuel water separator.
7. Grease the main broom bearing; right side only.
8. Grease the lower right and left conveyor roller bearings.
9. Grease the upper right and left conveyor roller bearings.
10. Grease the guide wheel arm pivot.
11. Check the backup alarm for proper operation.
12. Grease the side broom tilt pivot.
13. Check the front cross-view mirrors for proper adjustment.
14. Check the main broom wear/pattern.
15. Check the side broom wear/pattern.

16. Check for air filter restriction.
17. Wash down the entire sweeper.
18. Wash/flush out the lower conveyor roller.
19. Check the conveyor belt tension and tracking.
20. Grease the guide wheel cylinder rod end bearings.

Every 50 Hours

21. Inspect the spray water pump.
22. Inspect the spray water filter.
23. Lubricate the hopper door hinge.
24. Replace the drive wheel hub oil (after first 50 hours).
25. Inspect and clean the engine radiator cooling fins (50 hours or as the environment requires).
26. Inspect and clean the AC condenser cooling fins (50 hours or as the environment requires).
27. Grease the gutter broom links (if applicable).
28. Lubricate the conveyor chain drive.

Every 100 Hours or 1 Month

29. Inspect and repack grease in guide wheel hubs.

Every 150 Hours

30. Inspect the engine air intake system.

31. Inspect the engine drive belt.

32. Grease the cab door hinges.

33. Grease the guide wheel housing pivot bearings.

Every 500 Hours or 6 Months

34. Check the engine coolant temperature range and SCA.

35. Check the drive wheel hub oil level.

36. Service the coolant and radiator per the engine manual.

Every 1000 Hours or 1 Year

37. Replace the hydraulic oil filter element.

38. Drain, visually inspect, and refill the hydraulic reservoir.

39. Replace the hydraulic oil reservoir breather.

40. Inspect the turbocharger.

41. Inspect the engine radiator fan and hub.

42. Inspect and clean the battery.

43. Replace the drive wheel hub oil.

Recommendations

- For grease points, use an NLGI Grade 2 lithium complex grease. **NOTE:** *When a component is greased by hand, it should be checked thoroughly to ensure proper grease delivery.*
- For hydraulic oil, use Castrol Dual Range HV68 or equivalent.
- For wheel hub oil, use Mobil SHC 629 or equivalent synthetic lubricant.
- For engine oil weight, temperature range, and break-in requirement, see the engine manual.
- Refer to the engine manufacturer's severe duty servicing requirements for engine oil change intervals and maintenance requirements.
- After 50 hours, torque the guide wheel to 115 lb.-ft. and the drive wheel to 290 lb.-ft.

Daily Washdown

Washdown after every shift is an essential part of sweeper maintenance. When shift operations are complete, perform the following steps:

1. Empty the hopper if necessary. See Dumping the Hopper on page 70.

DANGER

Do not raise the hopper under power lines, trees, bridges, etc. Before raising, tilting, or dumping the hopper, check for adequate overhead and forward clearance. Raise the hopper only in areas with minimum overhead clearance of 16 ft. (5 m) and forward clearance of 3 ft. (1 m).

2. Park the sweeper on a solid, level surface away from power lines, trees, and other possible hazards. Set the parking brake.

WARNING

A falling hopper can cause severe injury or death. Secure both hopper safety supports before going under a raised hopper.

3. Use the Fig. 32: Hopper Dump Control to raise the hopper.
4. Swing both hopper safety supports into place (Fig. 33: Hopper Safety Supports; secure with the pins.
5. Lower the main broom, conveyor, and side brooms to the SWEEP position. Start the rotation of the main broom and conveyor.

Fig. 32: Hopper Dump Control

Fig. 33: Hopper Safety Supports

6. Fill the water tank to overflowing. Allow the water to flush the conveyor belt for 1 to 2 minutes. Reverse the conveyor several times during flushing.

NOTICE

Avoid directly hitting the electrical components with a hard stream of water.

7. With the conveyor still running forward, use high pressure water to flush the conveyor and belt backing plate.
8. Wash out the hopper and all undercarriage parts, including the dirt deflectors, dirt shoes, and side brooms.
9. Reverse the conveyor for no more than 30 seconds and use high pressure water to dislodge material between the lower roller and the edge of the scraper bar. Use the optional flush valve (if equipped) to help clean the scraper area.
10. Run the conveyor for several minutes, allowing the belt to dry. This will help prevent the belt from sticking during storage.
11. Raise the main broom, conveyor, and side brooms to the TRANSPORT position. Stop the rotation of the main broom and conveyor.
12. Remove the pins at each safety support. Swing each safety support into the STORAGE position and secure with the pins.
13. Lower the hopper and wash down the outside of the sweeper.

NOTICE

Never steam clean or wash an engine while it is hot. Cold water can cause a hot manifold to crack. Take precautions to prevent a hard stream of water from bending the cooling fins on the engine radiator, oil cooler, and air conditioning condenser.

14. After the engine has cooled, wash down the engine components, including the engine radiator, oil cooler, and air conditioning condenser.

SERVICE

Towing the Sweeper

Elgin Sweeper Company recommends that all towing be performed by a dealership or professional towing service. If the sweeper must be towed by someone other than a dealership or towing service, use the following procedure. In all cases, use the proper equipment and obey all laws applying to vehicles in tow.

⚠ WARNING

When the drive hubs are disengaged (tow pins at the inner position), the parking brake is disabled. Block the drive wheels in both directions before preparing the sweeper for towing.

⚠ CAUTION

Never tow the sweeper faster than 20 mph (32 km/h).

NOTICE

Towing with the drive hubs engaged will damage the hydrostatic drive.

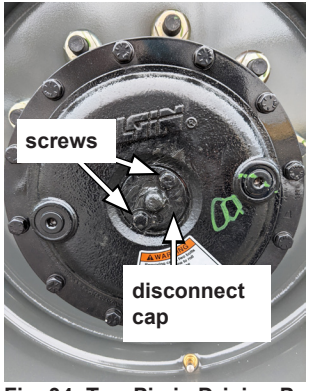


Fig. 34: Tow Pin in Driving Position

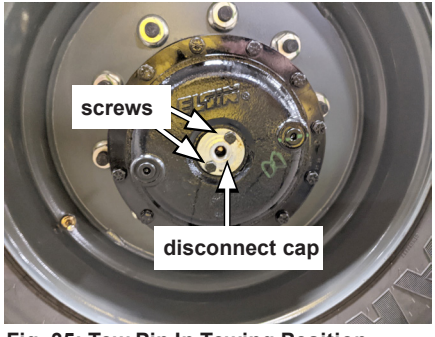


Fig. 35: Tow Pin In Towing Position

NOTICE

After disengaging the drive hubs on both sides, the sweeper can be towed from the rear with the drive wheels on the ground.

Tow Pins

The drive wheels can be rotated by reversing the disconnect cap, which disengages the torque hub tow pins.

NOTICE

Towing with hubs engaged will damage hydrostatic drive.

With hubs engaged (tow pins at outer position), the parking brake is enabled and the sweeper can be driven normally. See Fig. 34: Tow Pin in Driving Position.

WARNING

With hubs disengaged (tow pins at inner position), the parking brake is disabled. See Fig. 35: Tow Pin In Towing Position. The drive wheels must be blocked.

WARNING

Never operate the hydrostatic drive system with either tow pin disengaged. Damage to shaft and splines may result.

Disengage The Wheel

Block the drive wheels so the sweeper cannot roll forward or backward. Take the following steps at each drive wheel:

CAUTION

The disconnect cover should be removed carefully to prevent injury by spring-loaded pin or loss of pin. The pin may press out on cover continuously or may catch and then spring out suddenly.

1. Carefully remove the two screws and remove the cover from the hub (Fig. 35: Tow Pin In Towing Position on page 84).

WARNING

Make sure the sweeper will not roll by blocking the drive wheels before disengaging the tow pins.

2. Reverse the disconnect cover and install on wheel assembly. The cover pushes the tow pin in and disengages the hub. The pin must be pushed in to the inner position to prevent damage.
3. Secure the cover with screws.
4. Repeat steps 1 through 3 for other drive wheel.

Engage The Wheel

WARNING

Do not remove drive wheel blocks until the tow pins are completely engaged.

WARNING

Never operate the hydrostatic drive system with either tow pin disengaged. Damage to shaft and splines may result.

CAUTION

Carefully remove the disconnect cover to prevent injury by spring-loaded pin or loss of pin. The pin may press out on cover continuously or may catch and then spring out suddenly.

Perform the following steps at each drive wheel:

1. Carefully remove the two screws and remove the disconnect cap (Fig. 34: Tow Pin in Driving Position on page 84) to let tow pin move out and engage hub. Make sure the pin pops out.

NOTICE

If a tow pin does not pop out, rock the sweeper back and forward or jack up the front of the sweeper and turn the drive wheel.

2. Reverse the disconnect cover so that it will hold the tow pin in the outer position.
3. Secure the cover with screws.
4. Repeat steps 1 through 3 for the other drive wheel.

WARNING

Make sure sweeper will not roll out of control before removing wheels blocks.

5. Verify that the parking brake is set before removing the wheel blocks.
6. Remove the wheel blocks.

Brooms

Broom Patterns

Broom patterns (Fig. 36: Broom Patterns) are a guideline of sweeping performance and should be checked daily.

Checking the Broom Patterns

Broom patterns may be wrong due to incorrect broom down pressure, incorrect broom angle, or excessive broom wear. To check the broom patterns, perform the following steps:

1. Park the sweeper on a level, paved surface; dark pavement preferred.
2. Start the engine.
3. Set the Mode Select Switch to the SWEEP position.
4. Press the MB/CONV Height Switch and the Side Broom Height Switches to lower the main and side brooms. Each broom will lower to the sweeping position based on the down-pressure setting.
5. Use the Broom Rotate Switches to start the rotation of the brooms.
6. Use the Engine Throttle Knob to set the engine speed to 1500 to 1800 rpm.
7. Let the brooms turn in place for 15 to 30 seconds.

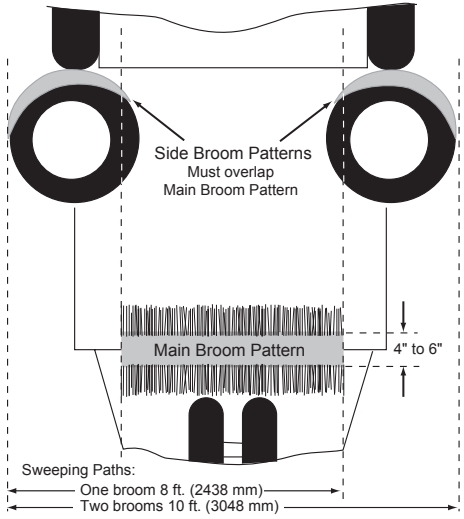


Fig. 36: Broom Patterns

8. Set the Mode Select Switch to the TRANSPORT position to stop the broom rotation and raise the brooms.
9. Slow the auxiliary engine to 1000 rpm (idle speed).
10. Move the sweeper forward to expose the broom patterns on the pavement.
11. Examine the broom patterns:
    - The side broom patterns should be crescent-shaped and 3 to 4 inches wide (at the widest part). The patterns must overlap the path of the main broom to prevent trailing of dirt. A wider pattern indicates too much down pressure, causing the brooms to wear too fast. A smaller pattern indicates too little down pressure, resulting in poor sweeping performance. See Adjusting the Side Broom Down Pressure for corrections.
    - A side broom pattern that has the wrong shape or wrong location indicates that a side broom is not tilted properly. See Adjusting the Side Broom Tilt for corrections.
    - Check that the main broom pattern is an even width along its whole length (does not taper). The pattern should be 4 to 6 inches (10 to 15 cm) wide. If the main broom is not kept parallel to the sweep surface, the broom will wear into a coned (tapered) shape, resulting in poor sweeping performance. See Correcting the Main Broom Pattern for corrections.
    - If the side or main broom bristles have worn to 1/2 of their original length, a small pattern will be present, resulting in poor sweeping performance. See Replacing the Side Brooms or Replacing the Main Broom for details.
    - Check the dirt shoes on each side of the main broom. The dirt shoe housings should be flush with the main broom; the dirt shoes should be level with the ground.

Side Brooms

Adjusting the Side Broom Tilt

If the side broom is set too flat, debris will be scattered, instead of directed into the path of the conveyor. If a side broom is tilted too much, debris will trail or be scattered and the broom will wear too fast. The shape of the side broom pattern is used as an indication of the degree of tilt.

Under most sweeping conditions, a side broom should be tilted 5 degrees forward and 5 degrees outward. When sweeping in areas with severely angled or unusual gutters, a different degree of tilt may be required.

To adjust the side broom tilt for normal sweeping conditions, perform the following steps:

1. Park the sweeper on a level, paved surface.
2. Shut down the engine.

CAUTION

To prevent injury, the operator must ensure that the brooms cannot rotate during tilt measurement or manual adjustment.

3. Set the Mode Select Switch to the SWEEP position.
4. Press the Side Broom Height Switches to lower the side brooms. Make sure the side brooms are down and extended.

5. Check the forward (front-to-back) angle of the side brooms by placing a protractor on the side broom disc and parallel to the side of the sweeper. For typical sweeping conditions, the angle should be 5 degrees.
6. If the angle is not correct, loosen the turnbuckle jam nut located on the upper broom suspension (Fig. 37: Side Broom Turnbuckle). Rotate the turnbuckle to adjust the broom to the desired angle. Tighten the turnbuckle jam nut.
7. For Sweepers *without* Power Tilt:
   - Check the outward (side-to-side) angle of the side brooms by placing a protractor on the side broom disc and at a right angle to the side of the sweeper. For typical sweeping conditions, the angle should be 5 degrees.

     If the angle is not correct, loosen the two bolts that attach the motor bracket to the side broom bracket (Fig. 38: Side Broom Bracket). Tilt the bracket assembly to the proper angle and tighten the bolts.
8. For Sweepers *with* Power Tilt:
   - Use the Side Broom Tilt Switch at the control console to adjust the angle.
9. Recheck the side broom patterns for accuracy.

Fig. 37: Side Broom Turnbuckle

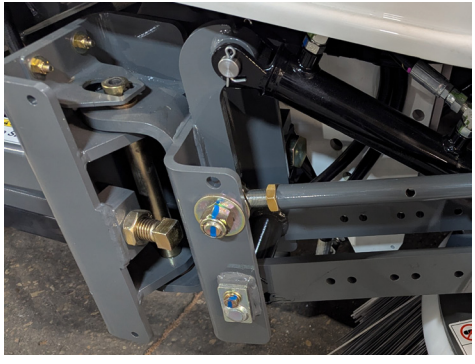


Fig. 38: Side Broom Bracket

Adjusting the Side Broom Extension

If the side broom extension is too wide, the path swept by the side broom will not overlap the path swept by the main broom, leaving a dirt trail between the broom paths. To adjust the side broom extension, perform the following steps:

1. Loosen the jam nut at the extension adjustment screw (Fig. 39: Extension Adjustment Screw).
2. Turn the extension adjustment screw outward to decrease the width of side broom swing.
3. Confirm that the paths of the side broom and main broom overlap.
4. Tighten the jam nut.

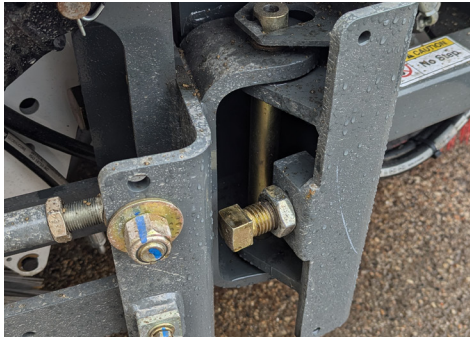


Fig. 39: Extension Adjustment Screw

Adjusting the Side Broom Down Pressure

Side broom down pressure is adjusted by the Side Broom Down Pressure Knobs (Fig. 40: Side Broom Down Pressure Knob) at the control console. Use the knobs to select the proper broom down pressure. After the adjustment, check the sweeping pattern again.

Fig. 40: Side Broom Down Pressure Knob

Replacing the Side Brooms

Each side broom contains five segments of wires. The segments should be replaced when 1/2 (or less) of the original wire length remains. To replace the side broom segments, remove the two bolts holding each segment in place. Install the new segments and secure with the bolts.

NOTE: *The side brooms must have even weight distribution. All five segments should be replaced at the same time.*

Main Broom

Correcting the Main Broom Pattern

The main broom pattern should be about 4 to 6 inches (10 to 15 cm) wide and should not taper from side-to-side. If the main broom pattern is not correct, check the bearings and shaft for debris (Fig. 41: Main Broom Arm). Debris can hamper movement and/or cause uneven weight from side-to-side. Clean and grease as necessary.

Adjusting the Main Broom Down Pressure

Main broom down pressure is adjusted by the Main Broom Down Pressure Knob at the control console. Use the knob to select the proper broom down pressure. After the adjustment, check the sweeping pattern again.

Additional adjustments may be performed using the Elgin Electronic Service Tool. Please contact your Elgin dealer for further details.

Replacing the Main Broom

The main broom should be replaced when the bristles are worn down to 1/2 (or less) of the original length or when the fibers/wires do not bend when the broom is rotating at the correct pressure and applied to the pavement. Use of a worn-out or damaged broom will cause inefficient sweeping and must be replaced. To replace the

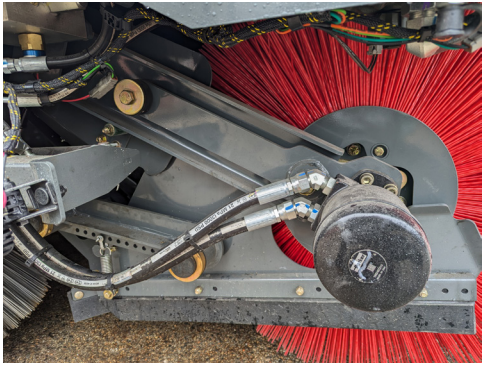


Fig. 41: Main Broom Arm

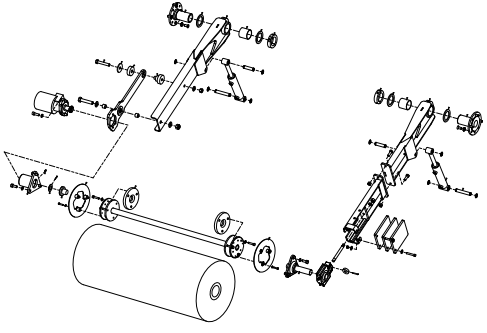


Fig. 42: Main Broom Assembly

main broom, perform the following steps:

For an exploded view of the main broom assembly, see Fig. 42: Main Broom Assembly

1. Lower the conveyor and main broom until the broom just touches the floor or pavement.
2. Turn the sprung guide wheel to the full right-hand position.

WARNING

Contact with a rotating main broom can cause personal injury or property damage. Turn off all brooms and the engine before inspecting and/or servicing.

3. Turn off the engine.
4. Disconnect the removable step (on the right side of the sweeper)and set it aside.
5. Remove the three screws and lock washers that hold the drive hub to the main broom core assembly.
6. At the right-hand broom arm, remove the two bolts securing the lower arm to the upper arm, so that the lower arm can pivot around the idler shaft.
7. Pull the broom (with the lower arm attached) out from under the right side of the sweeper.
8. Remove the three screws and lock washers that hold the idler shaft to the core assembly. Remove idler shaft and lower arm from the broom.
9. At each end of the broom, remove the three screws and lock washers that hold the end plate to the core assembly.
10. At each end of the broom, loosen the three screws that keep the compression rubber expanded.

11. Remove the broom core assembly from the used broom.
12. Place the broom core assembly in the new broom.
13. At each end of the broom, tighten the three screws to expand the compression rubber.
14. At each end of the broom, secure the end plate to the core assembly with the three lock washers and screws.
15. Secure the idler shaft and lower arm assembly to the core assembly with the three lock washers and screws.
16. Move the broom under the sweeper and slide it onto the drive hub. Raise the broom arm to align the core with the hub.
17. Assemble the lower broom arm to the upper arm with the two bolts.
18. Fasten the drive hub to the core assembly with the three lock washers and screws.
19. Reinstall the step.
20. Check the sweeping pattern produced by the new broom. If necessary, adjust the down pressure to correct the pattern.

Dirt Shoes

Adjusting the Dirt Shoes

Dirt shoes (Fig. 43: Dirt Shoe) act as a guide, keeping debris between the main broom and the conveyor. Both dirt shoes should be aligned so that the runners ride level with the surface of the road. If they are not positioned correctly, make the necessary adjustments immediately. To adjust the dirt shoes, perform the following steps:

1. Lower the main broom and start the main broom rotation.
2. Drive the sweeper forward, allowing the brooms to attain the proper sweeping position. Visually inspect the rotation of the main broom between the dirt shoes.
3. Raise the brooms and drive forward, allowing the components to attain the TRANSPORT position. The dirt shoes should be parallel to, but not touching, the ground. If the dirt shoes are not level in the raised transport position, use the dirt shoe tow bar spring (Fig. 44: Dirt Shoe Spring) to adjust.
   - To raise the front of the dirt shoes, move the spring attachment forward (only one hole at a time) to reduce tension in the spring.
   - To lower the front of the dirt shoes, move the spring attachment rearward (only one hole at a time) to increase tension in the spring.

Fig. 43: Dirt Shoe

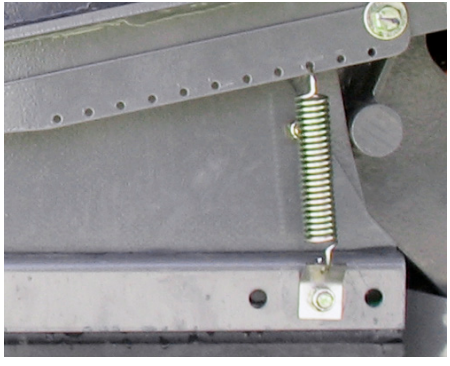


Fig. 44: Dirt Shoe Spring

4. After leveling the dirt shoes, monitor the shoe wear with continued use. If the shoes wear much faster on one end (over the other), make further adjustments.

Dirt Deflectors

Dirt deflectors are located throughout the sweeper and keep debris moving toward the hopper. They are also installed between the conveyor and the chassis to prevent debris from spilling over the sides of the conveyor.

The two rubber deflectors spanning the width of the sweeper (between the drive wheels) can be removed if necessary during leaf removal season.

Pelican sweepers with a single side broom have a dirt deflector on the left-hand side, just ahead of the dirt shoe. A rubber runner maintains contact with the street to prevent debris from being thrown to the side, beyond the reach of the main broom.

All dirt deflectors should be inspected regularly. Replace if damaged or worn beyond adjustment.

Centerboard

Pelican sweepers with dual side brooms have a centerboard mounted beneath the middle of the sweeper. The centerboard keeps the side brooms from throwing debris beyond the path of the main broom; inspect when necessary.

Water System

Cleaning the Filter

Spray water is used during sweeping to suppress dust and moisten debris for better settling in the hopper.

Prior to entering the water pump, water for the system passes through a 100-mesh, stainless steel strainer filter. The filter should only be changed if damaged, but does require daily cleaning. To clean the filter, perform the following steps:

1. Turn off the shut-off valve.
2. Unscrew the filter housing from the filter head and remove the strainer.
3. Turn on the shut-off valve and flush the strainer with clean water from the water tank.
4. Turn off the shut-off valve.
5. Inspect the strainer for wear and damage; replace if necessary.
6. Check the O-ring in the filter housing for wear/damage; replace if necessary.
7. Install the strainer and filter housing on the filter head.
8. Turn on the shut-off valve.

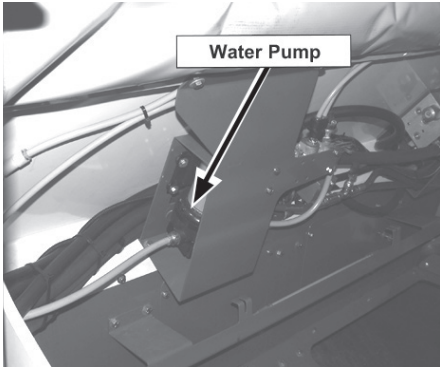


Fig. 45: Water Pump

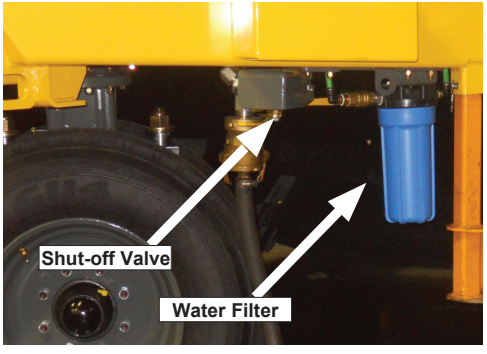


Fig. 46: Shut-off Valve & Filter

Engine

CAUTION

Make sure the parking brake is set before performing any work on the sweeper.

The engine should be maintained in accordance with the manufacturer's recommendations as found in the engine manual. Please refer to the engine manual for all maintenance/service requirements and procedures.

To gain access to the engine, release the engine cover latches. Use the handle at the rear of the cover to open.

Servicing the Air Cleaner

NOTICE

Do not open the air cleaner unless the indicator and/or weak engine performance suggests a lack of air supply.

The sweeper is equipped with a dual-element, dry-type air cleaner with an automatic rubber unloader (dump) valve (Fig. 47: Air Cleaner Assembly). A sensor in the air cleaner triggers when the air flow is restricted. The Air Filter Restriction Indicator (Fig. 48: Air Filter Restriction Indicator) on the control console will illuminate, alerting the operator to service the air cleaner. To service the air cleaner, perform the following steps:

Fig. 47: Air Cleaner Assembly

Fig. 48: Air Filter Restriction Indicator

1. With the engine shut down, open the air cleaner.
2. Remove the cover from the filter canister.
3. Remove and discard the outer filter element.

NOTICE

A dirty filter element should always be discarded. Do not clean for further use. Cleaning a filter element makes it less effective and will void the warranty.

4. Inspect the inner filter element for dirt and debris. Remove and discard if dirty and/or damaged.
5. Visually check the rubber unloader valve and pinch the lips of the valve to remove any accumulation of debris. If the unloader valve is damaged, install a new one.
6. Clean the inside of the filter canister with a damp, lint-free cloth.
7. Install a new inner (if applicable) and outer filter element, making sure they are seated correctly.

NOTICE

To prevent damage, the filter elements must be completely seated before the canister cover is installed. A damaged outer filter element or one with a loose, damaged, or missing seal, will allow dust to clog the inner filter element.

8. Securely fasten the cover on the filter canister with the unloader valve at the bottom. Make sure all clamps are correctly fastened.
9. With the engine operating, check the Air Filter Restriction Indicator. If the indicator stays off, the service is complete.
10. Check the whole air intake system for leaks.

Exhaust Emission System

The exhaust filter consists of a diesel oxidation catalyst (DOC) and diesel particulate filter (DPF). The DOC reduces carbon monoxide, hydrocarbons, and some particulate matter. The downstream DPF traps and holds particulates remaining in the exhaust stream. Trapped particles are eventually oxidized within the DPF through a process known as regeneration or exhaust filter cleaning.

Under normal circumstances, the exhaust filter cleaning process will not have an impact on sweeper operation and will not be noticeable to the operator. The emission system will allow the engine to perform a DPF regeneration without operator input. The regeneration may be disabled by the operator (INHIBIT) if operating conditions are not safe.

In addition to soot, ash deposits will also slowly buildup in the DPF and cannot be removed through the engine regeneration process. To clean the ash deposits from the DPF, see Exhaust Filter Service Required (Service Regen).

CAUTION

Do not power wash the exhaust filter assembly when external skin temperature of assembly exceeds 50°C (120°F).

To avoid unnecessary buildup of diesel particulates or soot in the exhaust filter system:

Fig. 49: Exhaust Filter Indicator

Fig. 50: Exhaust Filter Cleaning Indicator

- Utilize the Auto Exhaust Filter Cleaning mode.
- Use only low ash oil as specified in the engine manual.
- Use only ultra low sulfur diesel fuel.
- Operate in high load condition when possible (1800 rpm or greater).
- Avoid unnecessary idling.

CAUTION

Whenever Auto or Forced cleaning is enabled, the exhaust gases and exhaust filter components can reach temperatures hot enough to burn people, ignite, or melt common materials. Disable Auto Exhaust Filter Cleaning in conditions where it may be unsafe for elevated exhaust temperatures.

Diagnostic Gauge Keys & Indicators

Exhaust Filter Indicator

The Exhaust Filter Indicator (Fig. 49: Exhaust Filter Indicator on page 102) illuminates when the soot level is high enough to allow a forced regeneration. The indicator flashes yellow when the engine requires a forced regeneration. If conditions are safe, the operator should enable the auto exhaust filter clean setting or perform a forced regeneration.

Exhaust Filter Cleaning Indicator

The Exhaust Filter Cleaning Indicator (Fig. 50: Exhaust Filter Cleaning Indicator on page 102) illuminates when exhaust gas temperature is at optimal filter cleaning temperature, elevated idle is active, or filter

cleaning is in process.

When the Exhaust Filter Cleaning Indicator is illuminated, the sweeper can be operated as normal, except when the operator determines that the location is not safe for high exhaust temperatures and chooses to disable auto cleaning (INHIBIT) or when a forced (parked) regen is in progress.

NOTICE

After a regen the Exhaust Filter Cleaning Indicator remains illuminated until the temperature of the exhaust gas cools.

NOTICE

As long as the Exhaust Filter Cleaning Indicator is illuminated, assume that exhaust will be hotter than normal and take appropriate precautions.

Auto Cleaning Disabled Indicator

The Auto Cleaning Disabled Indicator (Fig. 51: Auto Cleaning Disabled Indicator) illuminates when the operator has chosen to disable the auto cleaning function. It will also appear when a cleaning in progress has been interrupted temporarily. This icon will remain illuminated until the interruption has been removed, the operator reengages Automatic Exhaust Filter Cleaning from the speedometer controls, or the operator uses the engine key to power off and then on the engine.

Do not disable (INHIBIT) Auto Exhaust Filter Cleaning (Auto Regen) mode unless there is a safety-related concern or the fuel tank lacks the required fuel to complete the cleaning process.

Fig. 51: Auto Cleaning Disabled Indicator

Engine Caution Indicator

If the Engine Caution Indicator (Fig. 52: Engine Caution Indicator on page 105) is combined with the flashing Exhaust Filter Indicator, the engine performance will be reduced by the ECU because the soot level of the exhaust filter is very high. If conditions are safe, the operator should park and perform a forced regen. If conditions are not safe, the operator should move the machine to a safe location, park, and perform a forced regen.

Fig. 52: Engine Caution Indicator

Engine Warning Indicator

If the Engine Warning Indicator (Fig. 53: Engine Warning Indicator on page 105) is combined with the flashing Exhaust Filter Indicator and a fault message indicating the soot level is “Most Severe”, a service regeneration is required. Forced regens are not allowed and the engine speed derates. Contact your authorized John Deere dealer for service.

Fig. 53: Engine Warning Indicator

Soot Levels

Table 4: Soot Levels		
SOOT LEVEL	**DESCRIPTION**	**INDICATORS**
Low	The DPF is functioning normally.	Exhaust Filter Indicator.
Moderate	The engine begins to request auto regens. Forced regens are not allowed.	Solid Exhaust Filter Cleaning Indicator when auto regen is requested or running.
High	The engine continues to request auto regens. Forced regens are allowed.	Solid Exhaust Filter Indicator. Solid Exhaust Filter Cleaning Indicator when auto regen is requested or running.
Very High	The engine no longer requests auto regens. Forced regens are required.	If a forced regeneration is performed, the following indicators display: -Flashing Exhaust Filter Indicator; -Solid Engine Caution Indicator; -Solid Exhaust Filter Cleaning Indicator when auto regen is requested or running.
Extremely High	If the sweeper reaches extremely high soot levels, forced regen is not allowed. Contact your authorized John Deere dealer for service.	Flashing Exhaust Filter Indicator. Solid Engine Caution Indicator. Solid Engine Warning Indicator. Fault message indicating soot level is “Most Severe”.

Exhaust Filter Cleaning

⚠ CAUTION

Allowing Auto or Forced Regen may result in very high exhaust temperatures. Keep flammables and people away from the exhaust.

There are four methods of Exhaust Filter Cleaning (also referred to as Regeneration or Regen):

1. Passive Exhaust Filter Cleaning (Passive Regen)
2. Auto Exhaust Filter Cleaning (Auto Regen)
3. Forced Exhaust Filter Cleaning (Forced Regen)
4. Exhaust Filter Service Required (Service Regen)

The exhaust filter regeneration options are accessed through the speedometer menu buttons and display. To navigate the menus on the LED screen, use the “M” and “T” buttons (Fig. 54: Speedometer Menu Buttons & Display).

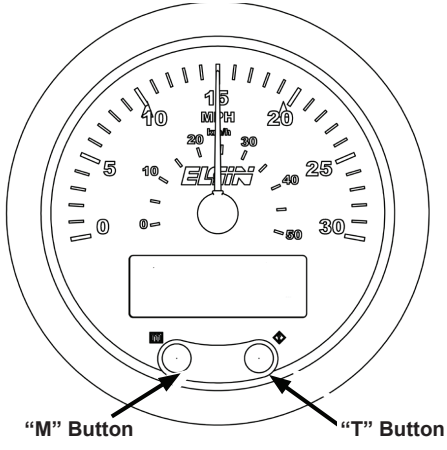


Fig. 54: Speedometer Menu Buttons & Display

Passive Exhaust Filter Cleaning (Passive Regen)

Periodically, the exhaust filter will experience higher heat levels simply through the engine operating at higher loads. During these times, the higher exhaust heat will naturally clean a small amount of soot built up in the exhaust filter. Conversely, unnecessary idling can cause additional exhaust filter soot to accumulate.

For the best possible engine operation, the engine should be worked

at higher load conditions whenever possible (1800 rpm and higher) and idling should be kept to a minimum.

The Passive Exhaust Filter Cleaning (Passive Regen) process does not require park brake, Transport mode, or initiation by the operator.

NOTICE

No indicator lights illuminate during passive exhaust filter cleaning.

Auto Exhaust Filter Cleaning (Auto Regen)

Auto Exhaust Filter Cleaning takes place automatically during sweep operation. If conditions are not safe for elevated exhaust temperatures, the operator can disable (INHIBIT) Auto Exhaust Filter Cleaning. The regeneration may be enabled at a later time when it is safe to do so. If the operator does not want to run the Auto Regen for any reason, it can be disabled. See Disabling Auto Exhaust Filter Cleaning (Inhibit Regen).

Operating the engine in Auto mode allows the ECU to perform intelligent Auto Regen as required. The Auto Exhaust Filter Cleaning (Auto Regen) Indicator will illuminate when the system is actively performing an Auto Regen. During this process, small amounts of fuel are injected into the exhaust stream to assist in cleaning the exhaust filter. When the Auto Regen process has completed its cycle, the Auto Exhaust Filter Cleaning (Auto Regen) Indicator will automatically turn off.

During an Auto Regen, if the engine speed is greater than 1200 rpm, the ECU will not allow the engine speed to drop below 1200 rpm for the remainder of the Auto Regen.

Auto Regen during operation does not require use of the park brake or putting the sweeper into Transport mode.

⚠ CAUTION

Servicing the sweeper and/or its attachments during Auto Exhaust Filter Cleaning (Auto Regen) can result in serious personal injury. Avoid exposure and skin contact with hot exhaust gases and components.

⚠ CAUTION

During Auto or Forced Cleaning, the engine will run at elevated idle and create hot temperatures for approximately 30 minutes. Exhaust gases and exhaust filter components reach temperatures hot enough to burn people, ignite, or melt common materials. Check the area around the sweeper and exhaust to make sure there are no combustible materials in the vicinity.

⚠ CAUTION

If the sweeper is not in a safe location for elevated exhaust temperatures, the operator should temporarily disable Auto Exhaust Filter Cleaning (see Disabling Auto Exhaust Filter Cleaning (Inhibit Regen)). If the sweeper is located in a safe location, the auto regen should be allowed.

NOTICE

If an Auto Regen is interrupted, the regen resumes as soon as the interruption is removed. If the exhaust temperature drops and the Auto Exhaust Filter Cleaning (Auto Regen) Indicator light turns off, the Auto Regen will not automatically resume. The system will resume the regen the next time soot levels reach the activation point.

When regeneration is required and the engine is keyed on (and has warmed up sufficiently), the system will beep for 15 seconds and a message prompting an Auto Regen will display on the LED screen:

INHIBIT REGEN?
M = NO T = YES

- If the “T” button is pressed within 15 seconds, the menu closes, Auto Regen is inhibited.
- If the “M” button is pressed, the menu closes, Auto Regen begins, and the screen displays: “CAUTION: High Temperature Exhaust Gas.”
- If no button is pressed, the menu closes, Auto Regen begins, and the screen displays: “CAUTION: High Temperature Exhaust Gas.”

CAUTION:
HIGH TEMPERATURE
EXHAUST GAS

- Auto Regen will continue until the DPF is clean or until the operator interrupts the process.
- If INHIBIT is required, press the “T” button to select YES.

Disabling Auto Exhaust Filter Cleaning (Inhibit Regen)

CAUTION

Whenever Auto or Forced cleaning is enabled, the exhaust gases and exhaust filter components reach temperatures hot enough to burn people, ignite, or melt common materials. Disable Auto Exhaust Filter Cleaning in conditions where it may be unsafe for elevated exhaust temperatures.

To disable the Auto Regen mode during operation, the operator may Inhibit Regen if sweeping conditions will not permit regeneration. Cycling the engine key OFF/ON cancels the Inhibit command.

- Press the “M” button for approximately 5 seconds to display the Settings and Diagnostics menu on the LED screen. Continue to press the “M” or “T” buttons to scroll until “Inhibit Regen” is displayed and highlighted. To select, press the “M” and “T” buttons simultaneously.

INHIBIT REGEN? **YES** **PRESS T TO TOGGLE** **PRESS M TO EXIT**	**INHIBIT REGEN?** **NO** **PRESS T TO TOGGLE** **PRESS M TO EXIT**

- Toggle the “T” button to select YES or NO.
- Select YES and press the “M” button to INHIBIT.

CONFIRM ALLOW REGEN? NO PRESS T TO TOGGLE PRESS M TO EXIT	CONFIRM ALLOW REGEN? YES PRESS T TO TOGGLE PRESS M TO EXIT

- If NO was selected, the Confirm Regen screen will appear. Toggle the “T” button to select YES or NO. Select YES and press the “M” button to Allow Regen.

Re-Enabling Auto Exhaust Filter Cleaning

If the regen system has been inhibited but a regen is desired, turn the engine key off and then on to reset or access the Inhibit Menu previously described.

- Press the “M” button for approximately 3 seconds to display the Settings and Diagnostics menu on the LED screen.
- Continue to press the “M” or “T” buttons to scroll until Inhibit Regen is displayed and highlighted. To select, press the “M” and “T” buttons simultaneously.

INHIBIT REGEN? YES PRESS T TO TOGGLE PRESS M TO EXIT	INHIBIT REGEN? NO PRESS T TO TOGGLE PRESS M TO EXIT

- Toggle the “T” button to select YES or NO.
- Select YES and press the “M” button to INHIBIT. Select NO and press the “M” button to Allow Regen.

- If YES to INHIBIT is selected, the LED screen will display:

CONFIRM ALLOW REGEN? **NO** **PRESS T TO TOGGLE** **PRESS M TO EXIT**	**CONFIRM ALLOW REGEN?** **YES** **PRESS T TO TOGGLE** **PRESS M TO EXIT**

- Toggle the “T” button to select YES or NO.
- Select YES and press the “M” button to Allow/Enable Regen. The system will now be enabled for Automatic Exhaust Filter Cleaning when the engine operating conditions are suitable.
- Select NO and press the “M” button to INHIBIT Regen.

CAUTION

Whenever Auto or Forced cleaning is enabled, the exhaust gases and exhaust filter components reach temperatures hot enough to burn people, ignite, or melt common materials. Disable Auto Exhaust Filter Cleaning in conditions where it may be unsafe for elevated exhaust temperatures.

Forced Exhaust Filter Cleaning (Forced Regen)

CAUTION

Servicing the sweeper or attachments during regen can result in serious personal injury. Avoid exposure and skin contact with hot exhaust gases and components. During Auto or Forced Regenerations, the engine will run at elevated idle and hot temperatures for approximately 30 minutes. Exhaust gases and exhaust filter components reach temperatures hot enough to burn people, ignite, or melt common materials. Check the area around the vehicle and area around exhaust to make sure there are no combustible materials in the vicinity.

CAUTION

Always park in a safe location and check for adequate fuel levels before starting the exhaust filter cleaning process.

IMPORTANT NOTICE

Failure to perform a timely DPF regeneration will require a John Deere technician to perform a "Service Regeneration", which may take 3 hours or more. Service Regeneration is initiated by a Service Advisor Tool.

Forced Exhaust Filter Cleaning requires:

- The operator to initiate from the sweeper console
- The park brake is set
- Transport mode is selected

- Foot pedal is in neutral
- Engine throttle is at idle
- Sufficient fuel is available to complete the regeneration
- No Active John Deere Trouble Codes (DTC) are present

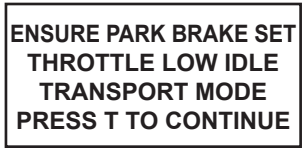
NOTICE

This process allows the system to clean the exhaust filter. During the process, the engine speed will be controlled by the ECU and will automatically increase to 1800 rpm. The sweeper must remain parked to complete the procedure. Complete cleaning times will vary on several criteria including fuel type, oil type, duty cycle, and the number of previously disabled Auto Regen requests. Average time for a standard cleaning can range from 30-45 minutes or longer.

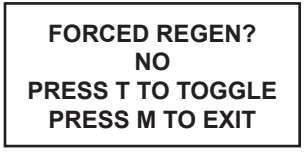
Requesting a Forced Exhaust Filter Cleaning (Forced Regen)

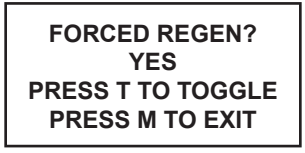
To request a Forced Exhaust Filter Cleaning (Forced Regen), perform the following steps:

1. Park the sweeper and apply the park brake.
2. Select the Transport mode.
3. Place the hydro pedals in the NEUTRAL position.
4. Run the engine at idle speed.
5. Press the “M” button for approximately 3 seconds to display the Settings and Diagnostics menu on the LED screen. Continue to press the “M” or “T” buttons to scroll until Force Regen is displayed and highlighted. Select Force Regen by pressing the “M” and “T” buttons simultaneously. The LED screen will display:

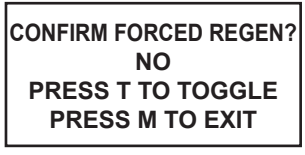


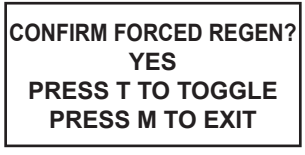
- Once the “T” button has been pressed, one of these menus will display:





- Toggle the “T” button to select YES or NO.
- Select YES and press the “M” button to Force Regen. The LED screen will display:





- Select YES and press the “M” button to Force Regen. NO will cancel the Regen request.
- The screen will exit the Settings and Diagnostic menu.

- A Forced Regen can be interrupted by releasing the park brake and/or switching from Transport mode to Sweep mode. If the Forced Regen is interrupted, the sweeper may switch into an Auto Regen.

NOTE: *Avoid disabling the cleaning procedure unless absolutely necessary. Repeated disabling or ignoring prompts to perform a manual/parked cleaning procedure will cause engine power degrades and can eventually lead to dealer required service. Utilize the Auto Exhaust Filter Cleaning mode to avoid additional service.*

6. The Exhaust Filter Indicator will turn off when the filter cleaning is complete. If the sweeper will not return to service immediately after the procedure, allow time for the engine and the exhaust filter to return to normal operating temperature before stopping the engine. At any time during the parked procedure, the process can be canceled by turning the engine key off.

Ending an Auto or Forced Regen

- A regen will end approximately 30 minutes after it has been initiated, when the ECU recognizes that the DPF is clean.
- Operators can end a regen in progress by using the Settings and Diagnostic menu. See Disabling Auto Exhaust Filter Cleaning (Inhibit Regen) on page 111 for more information.
- An Auto or Forced Regen can be cancelled by turning the engine off (when necessary), but we normally recommend that the exhaust returns to a normal operating temperature (after a regen) before turning the engine off.

To end an Auto or Forced Regen in progress, perform the following steps:

1. Turn the engine off. Allow the exhaust to cool for several minutes before turning the engine back on.
2. Before restarting the engine, turn the key to IGN and check the amber Exhaust Filter Cleaning Indicator. If the amber Exhaust Filter Cleaning Indicator is illuminated, the exhaust is still at regen temperature.

If you restart the engine while the amber Exhaust Filter Cleaning Indicator is on, a regen will resume immediately. Ensure that the amber Exhaust Filter Cleaning Indicator is off before restarting the engine.

3. Restart the engine.

Exhaust Filter Service Required (Service Regen)

When the soot level has reached a very high level, the Exhaust Filter Indicator and the Exhaust Filter Stop Indicator will be illuminated. The engine may be in a “derate” condition. In “derate”, the engine RPM and power will be significantly reduced.

A John Deere service technician must initiate the Exhaust Filter Service Regeneration. This service may take 1 to 4 hours depending on the severity of the soot level.

IMPORTANT: Service Regeneration by John Deere is not a warrantable failure. A John Deere Service Advisor can read faults and “uncompleted regeneration” occurrences. Operators must allow automatic regeneration or perform parked regenerations when notified by the indicator lights.

Diesel Particulate Filter (DPF) Maintenance & Service

NOTICE

Refer to the engine manual for additional engine safety and operating information.

The Exhaust Filter includes the Diesel Oxidation Catalyst (DOC) and Diesel Particulate Filter (DPF). The DPF is designed to remove soot, but retain residual ash, which is the non-combustible result of additives used in crankcase lubrication oils and the fuel. The DPF provides many hours of maintenance-free operation, but at some point will require professional services to remove the accumulated ash. The exact number of hours of operation before service is required will vary depending upon the engine’s power category, duty cycle and operating conditions, engine oil ash

content, and fuel quality. Adhering to John Deere's recommended oil and fuel specifications will maximize the hours of operation before professional DPF service is required.

As the engine owner, you are responsible for performing the required maintenance as described in your John Deere Operator's manual. The ash removal service interval for engines below 175 hp/130 kW will be at least 3,000 hours.

NOTICE

Failure to follow the approved ash removal methods may violate US federal, state, and local hazardous waste laws, along with damage to the DPF resulting in potential denial of the Diesel Exhaust Filter emissions warranty. It is strongly recommended you take the DPF to an authorized John Deere service location or other qualified service provider for servicing.

Touchscreen Display DPF Regeneration

There are 5 levels of DPF sooting:

- Low 1 and Moderate 2; low to moderate soot (Passive regen)
- High 3; high soot (Passive or Stationary regen)
- Severe 4; very high soot (Stationary regen)
- Service 5 Recovery; service DPF (Disabled)

The Engine Regen screen will indicate the filter status (Fig. 55: Diesel Particulate Filter Status).

CAUTION

During a regeneration, the exhaust gases and exhaust filter components reach temperatures hot enough to burn people, and ignite, or melt common materials. Inhibit regeneration in conditions where it may be unsafe for elevated exhaust temperatures.

Fig. 55: Diesel Particulate Filter Status

Low 1 and Moderate 2 (Passive Regen)

For a successful passive regen to take place, the following must occur:

- Engine coolant temperature roughly 140–150°F. Accordingly, the system warns CAUTION: High Temperature Exhaust Gas (Fig. 56: High Temperature Exhaust Gas). When the coolant has reached the required temperature, the High Temperature Icon shows on the dash (Fig. 57: High Temperature Icon), signifying that the regen has begun.

Once a regen starts, if the throttle is raised above 1200 RPM and then lowered to low idle, it will not go back below 1200 until the regen is complete or the regen is inhibited.

When a passive regen occurs, there are 3 paths:

- Yes, inhibit
- No, regenerate
- Do nothing, in which case, after a 30 second delay, the system will continue with the regen

NOTICE

During a passive regen, the sweeper may continue its activities. The regeneration will occur in the background.

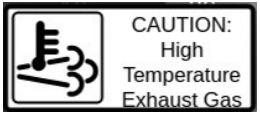


Fig. 56: High Temperature Exhaust Gas

Fig. 57: High Temperature Icon

NOTICE

For the first two levels, forced regens are not available.

1. The system will initiate a regeneration, as indicated by the High Temperature Icon (Fig. 57: High Temperature Icon on page 121) and the appearance of the Push to Inhibit Regen button (Fig. 58: Push to Inhibit Button).
2. Press the Push to Inhibit Regen button.
3. If you wish to inhibit the regen, press the green checkmark to confirm (Fig. 59: Confirm Inhibit Regen). Alternately, if you wish to continue with the regeneration process, press the red X button.
4. If at any point you wish to inhibit an active regen, go into the diagnostic screen, and then go to Engine Regen on the Engine tab (Fig. 60: Inhibit Regen Button). Press the Inhibit Regen button.
5. Once again, press the green checkmark to confirm the inhibit request.

NOTICE

An active regeneration process can be terminated through the software. For levels 1-3, the Push to Inhibit Regen (Fig. 58: Push to Inhibit Button) button will appear at the start of the regen only; during stationary regens, the button will remain on the screen.

Fig. 58: Push to Inhibit Button

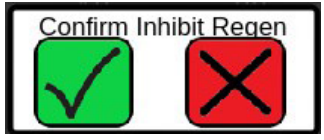


Fig. 59: Confirm Inhibit Regen

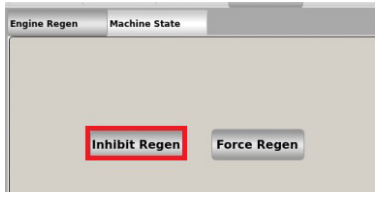


Fig. 60: Inhibit Regen Button

Once a regen has been inhibited, it will show the Regen Inhibited icon (Fig. 61: Regen Inhibited) and show a green Regen Inhibit Request button on the Engine Regen tab under Engine on the diagnostic screen. If you wish to resume a regeneration, this can be done by going to the Engine Regen view on the Engine tab (Fig. 62: Regen Request). Press the Inhibit Regen button once again to resume.

High 3 (Passive or Stationary Regen)

High 3 passive or stationary regen needs the following conditions to be met:

- Engine coolant temperature roughly 140–150°F
- Once a regen starts, the throttle is locked at 1800 RPM until the regen is complete or the regen is inhibited.

If the operator wants to stop a regen they can use the Inhibit regen function and set it to inhibit regen (Fig. 60: Inhibit Regen Button).

NOTICE

These elevated-level regens take more time to complete, sometimes hours depending on the severity of the DPF soot loading condition. Please have enough fuel in the unit prior to initiating a regen.

Fig. 61: Regen Inhibited

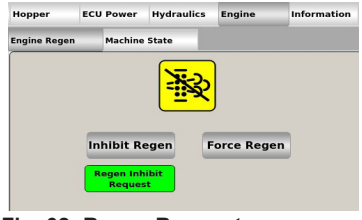


Fig. 62: Regen Request

Severe 4 (Stationary Regen with a Derate)

This process is similar to Stage High 3 above, but the unit will have a derate present during operation. The Check Engine Light (Fig. 63: Check Engine Light) will be lit solid and the Plugged DPF Icon (Fig. 64: DPF Restricted) will be showing.

Force a regen by going into the diagnostic screen to the Engine Regen view on the Engine tab. Press the Force Regen (Fig. 65: Force Regen) button. Confirm the forced regen by selecting the green checkmark (Fig. 66: Confirm Force Regen).

Service 5 Recovery

At this level, the sweeper requires service by a qualified John Deere technician.

The Check Engine Light (Fig. 63: Check Engine Light) will blink in this status. The vehicle will only run for about thirty seconds.Towing to the service location is required.

Fig. 63: Check Engine Light

Fig. 64: DPF Restricted

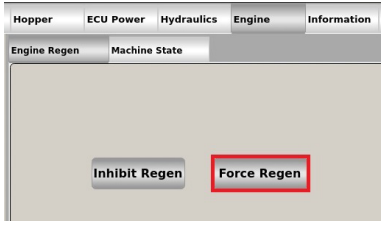


Fig. 65: Force Regen

Fig. 66: Confirm Force Regen

Hydraulic System

Checking & Adding Hydraulic Oil

Elgin Sweeper Company recommends Castrol Dual-Range HV68 hydraulic oil or equivalent. Check with local oil suppliers for suitable equivalents. Using a non-equivalent oil can shorten service life, cause premature failure, and lead to rejection of warranty claims. Never mix different kinds of hydraulic oil. Use of any fluid not approved by Elgin Sweeper Company can void all hydraulic component warranties.

To check and add hydraulic oil, perform the following steps:

1. Use the sight gauge (located on the side of the reservoir) to check the oil level. The hopper must be down when the oil level is checked.
2. If oil is required, ensure the hopper is down and the hydraulic system is warmed up to operating temperature.

⚠ CAUTION

The hydraulic reservoir is pressurized. Opening the fill cap before venting can cause personal injury. Open the fill cap slowly to vent the hydraulic reservoir.

3. Slowly turn the fill cap to let the pressure escape. Remove the fill cap (Fig. 67: Hydraulic Tank Fill Cap). **NOTE:** *The fill cap contains the breather.*
4. Add clean, unused hydraulic oil of an approved type.
5. Immediately close the fill cap.

Fig. 67: Hydraulic Tank Fill Cap

Wheels & Tires

To gain access to the wheels and tires, use a jack and place it under the jack pad (Fig. 68: Jack Pad—Front, Fig. 69: Jack Pad—Rear.) Be sure to follow all safety precautions.

Tires & Rims

CAUTION

Do not attempt to add air to tires or replace tires or wheels without first taking the necessary precautions to protect people and property. For further details, see the regulations of the Occupational Safety and Health Administration (OSHA).

Servicing the Tires & Rims

An inflated tire and rim can be very dangerous if improperly used, serviced, or maintained. To avoid serious injuries, never attempt to re-inflate a tire which is flat or seriously under inflated without first breaking down the tire and wheel assembly for inspection.

The front tire pressure should be 120 psi (830 kPa); rear tire pressure 125 psi (862 kPa).

Never use a ring or other rim parts of different manufacturers or any different size or type than the original rims.

Fig. 68: Jack Pad—Front

Fig. 69: Jack Pad—Rear

Always use matching tires on the guide wheel. Use of non-matching tires may result in uneven wear and/or cause one tire to carry the entire load.

Drive Hub

The drive hub motor uses Mobil SHC 629 or equivalent synthetic lubricant. The oil temperature is continuous at 160°F (70°C) and intermittent at 200°F (95°C). On applications where the oil must meet special requirements, please contact Elgin Sweeper Company.

Checking the Oil Level

Check the oil level in each hub after every 500 hours of operation. To check the oil level, turn the hub until the plugs are even with the disconnect cover. The oil level should be half full.

Changing the Oil

On new units, drain and fill after the first 50 hours of operation. Repeat after each 1000 hours or one year, whichever comes first.

To change the oil, perform the following steps:

1. Turn the hub so that both plugs are directly across from each other and perpendicular to the ground (Fig. 70: Drive Hub—Drain Position). Remove both plugs.
2. Drain and dispose of the oil in an appropriate manner.
3. Turn the hub so that both plugs are directly across from each other and parallel to the ground (Fig. 71: Drive Hub—Fill Position). Ensure

Fig. 70: Drive Hub—Drain Position

Fig. 71: Drive Hub—Fill Position

that the holes are level with center of the disconnect cover.

4. Add the appropriate type and amount of oil.
5. Reinstall the plugs.

Wheel Lug Nuts

Tightening the Lug Nuts

Inspect the drive wheel and guide wheel lug nuts periodically.

When needed, tighten the drive wheel lug nuts to a torque of 290 lb.-ft. (393 Nm) and the guide wheel lug nuts to a torque of 115 lb.-ft. (156 Nm).

Optional Automatic Lubrication System

If the sweeper is equipped with an optional automatic lubrication system, the system should be inspected periodically as instructed by the manufacturer. Additionally, the grease points should be inspected daily to ensure the system is working and delivering grease. Perform maintenance as directed in the manufacturer's instruction manual.

Cab Ventilation

Cab Air Filter

Air for the heater, air conditioner, and cab pressurizer is drawn through a filter in the cab. The filter can be reached by removing the tray at the rear of the control console. The filter should be checked and replaced on a regular basis; the exact frequency will depend on operating conditions.

Instruments & Controls

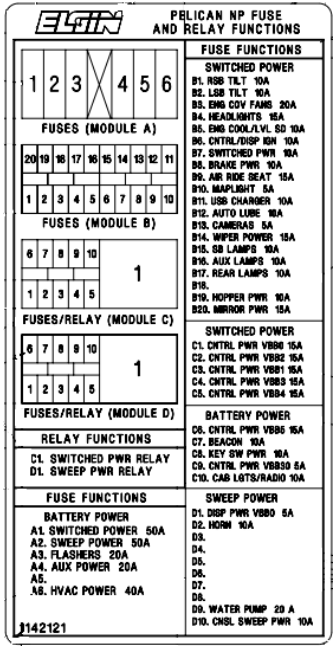
Rear View Video System

The video monitor system should be serviced and maintained in accordance with manufacturer's instruction manual. A copy of the manual is supplied with every Pelican.

Indicator Lights & Icons

The indicator lights notify the operator that a certain component is operating or alerts to a component or condition that may affect sweeper operation. See "Controls" for further details.

Fuse & Relay Functions



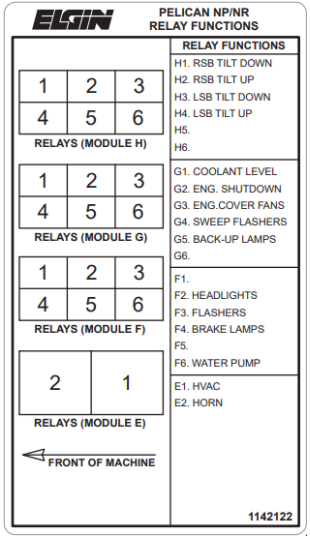


Fig. 72: Fuse and Relay Functions

TROUBLESHOOTING

Please contact your Elgin Sweeper dealer for factory-trained service support and genuine Elgin parts. To contact the factory, call 1.847.741.5370 or visit our Web site at elginsweeper.com.

Table 5: Troubleshooting

PROBLEM	SOLUTION
Engine stalls	Engine overheating Low engine oil pressure
Conveyor jammed	Reverse the conveyor for no more than 15 seconds at a time to dislodge large objects
Sweeper is running too hot	Radiator or oil cooler may require cleaning
Steering issues	Guide wheel may be loose Tires may be uneven Possible hydraulic leak
Debris is thrown back into the gutter	Broom angle is set too flat; adjust the angle
Broom is wearing too quickly	Broom angle is set too high; decrease the down pressure
Broom rotates too slowly	Increase the engine speed
Hydraulic main or side broom(s) will not raise, lower, and/or rotate	Spool in the solenoid valve may be stuck Open electrical circuit Debris in the oil line (hydraulic filter restriction indicator on)

STORAGE

Preparing for Winter or Long-Term Storage

To prepare the sweeper for seasonal or other long-term storage, perform the following steps:

1. Empty the hopper and thoroughly wash down the sweeper.
2. Fill the fuel tank to minimize condensation of moisture.

CAUTION

Battery gas can explode. Keep sparks and flames away from batteries. If the battery electrolyte level must be checked, use an electric light. Never check battery charge by placing a metal object across the posts; use a voltmeter or hydrometer. Always remove the grounded (-) battery cable first and connect it last.

3. Remove and clean the battery. Store in a cool, dry place and keep fully charged.
4. Clean the exterior of the equipment and touch up any scratched or chipped painted surfaces.
5. Coat all exposed metal surfaces with grease or corrosion inhibitor.

NOTICE

Sweeper water components will be damaged if water is allowed to freeze inside them.

6. Drain all water systems. See Draining the Water System on page 133 for details.

Draining the Water System

Sweeper water components will be damaged if water is allowed to freeze inside them. Drain all water systems if freezing conditions are expected. To drain the water system, perform the following steps:

1. Remove the filter housing and open the water tank drain; allow the tank to empty.
2. Close the water system shut-off valve and install the filter housing securely.
3. Connect the shop air compressor to the air purge valve connection (if equipped) (Fig. 73: Shut-off Valve & Air Purge Connection). The pressure from the shop air compressor should not exceed 100 psi.
4. Open the air purge valve (if equipped) to apply air to the system.
5. Start the water pump (Fig. 74: Typical PM-10 Pump) and allow the pump to run for several minutes or until water no longer sprays from the nozzles.
6. Disconnect the shop air compressor (if applicable) and turn off the water pump and valves.

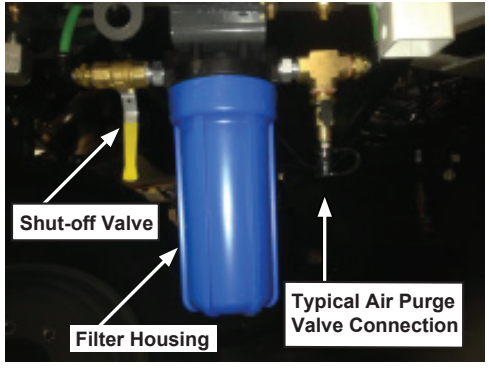


Fig. 73: Shut-off Valve & Air Purge Connection

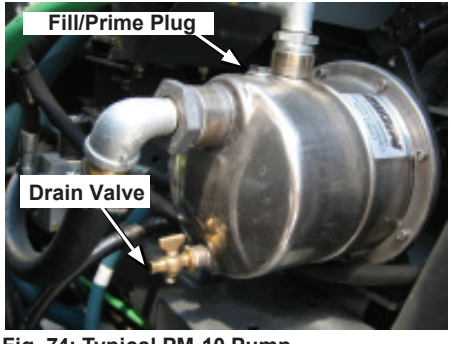


Fig. 74: Typical PM-10 Pump

7. Remove the filter housing and allow the system to drain any additional water that may have accumulated.
8. Store the filter housing in the cab for future reinstallation.
9. If equipped, open the PM-10 water pump drain and empty water from the case.
10. Leave all drains open for storage.
11. Drain any accumulated water out of the water separator fuel filter (Fig. 75: Fuel Water Separator Drain) as instructed in the engine manual.
12. Empty the windshield washer (Fig. 76: Windshield Washer Bottle) bottle if water was used.
13. Follow all recommendations from the engine manufacturer for cold weather storage.
14. When storing the engine for several months or more, perform the following steps to minimize corrosion and deterioration:
    - Change the engine oil and replace the oil filter. Used oil will not provide adequate protection.
    - If the engine will be stored for a year or more, drain and flush the cooling system.
    - Loosen the engine drive belt to relieve tension. If desired, remove the belt.

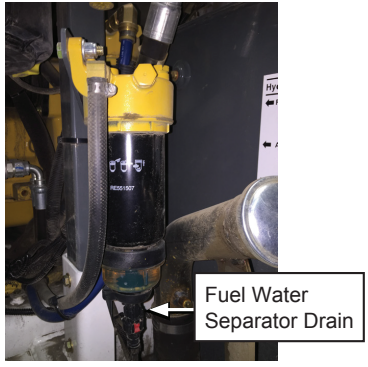


Fig. 75: Fuel Water Separator Drain

Fig. 76: Windshield Washer Bottle

- Seal all openings on the engine with plastic bags and tape.

Start Up After Storage

For start up after extended or cold weather storage, perform the following steps:

1. Follow all recommendations from the engine manufacturer for start up after extended or cold weather storage.
2. Remove all protective coverings, including those on the engine and electrical systems.
3. Inspect all belts. Replace if cracks, stretching, or fraying is present. Install any removed belts and adjust to the proper tension.
4. Fill the engine cooling system (if necessary).
5. Fill the windshield washer bottle.
6. Close all drains. Close all valves.
7. Install the filter housing.

⚠ CAUTION

Battery gas can explode. Keep sparks and flames away from batteries. If the battery electrolyte level must be checked, use an electric light. Never check battery charge by placing a metal object across the posts; use a voltmeter or hydrometer. Always remove the grounded (-) battery cable first and connect it last.

8. Install a fully-charged battery and connect the cables.

USER NOTES


ELGIN
Built for clean. Backed for life.

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