

Form No.

## 913257

Manual

Operator's

# 1648

# **Asphalt Paver**

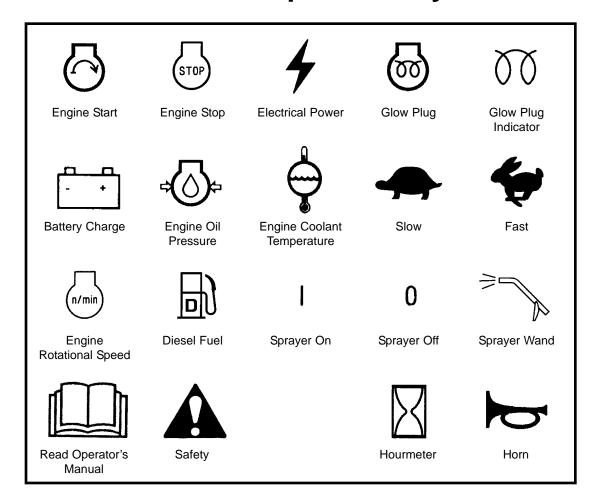
**Beginning with Serial Number 12337** 







# **Indicator and Operation Symbols**

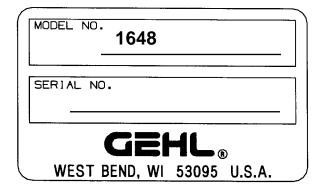


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#### **IDENTIFICATION INFORMATION**

Write the Gehl Power Box® Paver model and serial number in the space provided below. Refer to these numbers when inquiring about parts or service from your Gehl dealer.



The model and serial numbers for this machine are on a decal located on the back wall.

# Chapter 1 INTRODUCTION

The information in this Operator's Manual was written to give the owner/operator assistance in preparing, adjusting, maintaining and servicing of the Paver. More important, this manual provides an operating plan for safe and proper use of the machine. Major points of safe operation are detailed in the **SAFETY** chapter of this manual.

GEHL Company asks that you read and understand the contents of this manual COMPLETELY and become familiar with the machine, before operating it.

The use of this Paver is subject to certain hazards that cannot be eliminated by mechanical means, but only by the exercise of intelligence, care and common sense. It is therefore essential to have competent and careful operators, who are not physically or mentally impaired, and who are thoroughly trained in the safe operation of the equipment.

Throughout this manual information is provided that is set in *italic* type and introduced by the word **IMPORTANT** or **NOTE.** Be sure to read carefully and comply with the message or directive given. Following this information will improve operating and maintenance efficiency, help to avoid breakdowns and damage, and extend the machine's life. A chart of standard hardware torques is located in the back of this manual.

A storage area is provided on the unit for storing the Operator's Manual. After using the manual, please return it to the storage area and keep it with the unit at all times! If this machine is resold, GEHL Company recommends that this manual be given to the new owner.

If this machine was purchased "used," or if the owner's address has changed, please provide your GEHL dealer or GEHL Company Service Department with the owner's name and current address, along with the machine model and serial number. This will allow the registered owner information to be updated, so that the owner can be notified directly in case of an important product issue, such as a safety update program.

"Right" and "left" are determined from a position standing on the screed and facing forward.

The wide GEHL dealership network stands ready to provide any assistance that may be required, including genuine GEHL service parts. All parts should be obtained from or ordered through your GEHL dealer. Give complete information about the part and include the model and serial number of the machine. Record the serial number in the space provided on the previous page, as a handy record for quick reference.

GEHL Company reserves the right to make changes or improvements in the design or construction of any part without incurring the obligation to install such changes on any unit previously delivered.

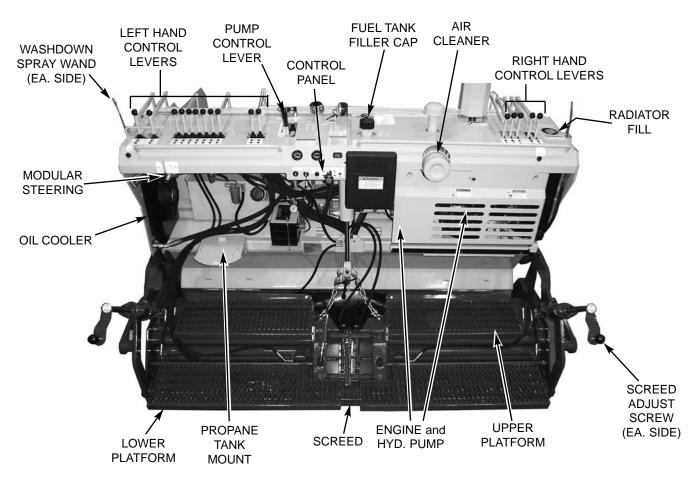
GEHL Company, in cooperation with the Society of Automotive Engineers, has adopted this

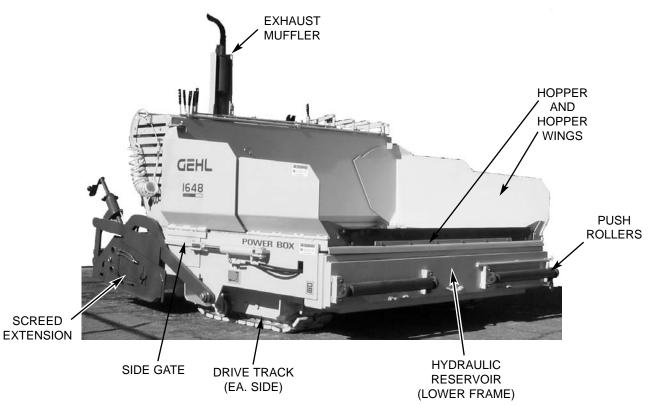
# Safety Alert Symbol

to identify potential safety hazards, which, if not properly avoided, could result in injury. When you see this symbol in this manual or on the machine itself, you are reminded to BE ALERT! Your personal safety is involved!



# **Paver Identification**





# Chapter 2 SPECIFICATIONS

Gehl Power Box Paver Model 1648	Augers on Screed	Augers on Gates
General Dimensions:		
Length	9 ft. 7 in. (2921 mm)	9 ft. 2 in. (2794 mm)
Minimum Width (transport)	8 ft. 6 in. (2590 mm)	8 ft. 6 in. (2590 mm)
Maximum Width (operating)	13 ft. 6 in. (4115 mm)	13 ft. 6 in. (4115 mm)
Overall Height (top of exhaust pipe)	7 ft. 6 in. (2286 mm)	7 ft. 6 in. (2286 mm)
Weight (approximate)	9,350 lbs. (4241 kg)	9,350 lbs. (4241 kg)
Truck Clearance (height from ground to asphalt hopper floor)	23 in. (585 mm)	23 in. (585 mm)
Screed:		
Maximum Variable Crown/Invert	3 in. / 2 in. (76 mm / 51 mm)	3 in. / 2 in. (76 mm / 51 mm)
Main Width	13 in. (330 mm)	13 in. (330 mm)
Extension Width	6 in. (152 mm)	6 in. (152 mm)
Hydraulic Vibrator	50 Hz	50 Hz
Heat Medium	Propane	Propane
Variable Hydraulic Screed Extension - Max. Extension Length	30 in. (762 mm)	30 in. (762 mm)
Dual Span Operator Platform Type	Isolated	Isolated
Top Operator Platform Type	Stationary	Stationary
Service Capacities:		
Engine Cooling System (Isuzu - 4LC1)	6.8 qts. (6.4 L)	6.8 qts. (6.4 L)
Engine Oil w/Filter (Isuzu - 4LC1)	6.9 qts. (6.5 L)	6.9 qts. (6.5 L)
Hydraulic Reservoir	20 gal. (75.7 L)	20 gal. (75.7 L)
Fuel Tank	12 gal. (45.4 L)	12 gal. (45.4 L)
Washdown Tank w/Electric Pump	5.5 gal. (20.8 L)	5.5 gal. (20.8 L)
Engine:	Isuzu - 4LC1, 41 hp (30.6 with 12-Volt Electric Star 575-CCA Battery	kW) Water-Cooled Diesel ter, 35-Amp Alternator,
Drive System:	Hydrostatic, Steel Track, Positive/Self-Adjusting, Counter-Rotating, Fine-Tune Steering Valve	

# **SPECIFICATIONS (Continued)**

Gehl PowerBox Paver Model 1648	Augers on Screed	Augers on Gates
Hydraulic System:		
Variable Hydrostatic Drive Pump - Maximum Flow	37 gpm (140 L/min)	37 gpm (140 L/min)
Variable Hydrostatic Drive Pump - Maximum Relief Pressure	3500 psi (24.5 bar)	3500 psi (24.5 bar)
Hydraulic Auger Drive Pump - Maximum Flow	11 gpm (41.6 L/min)	11 gpm (41.6 L/min)
Hydraulic Auger Drive Pump - Maximum Relief Pressure	2000 psi (14 bar)	2000 psi (14 bar)
Hydraulic Cylinder Pump - Maximum Flow	11 gpm (41.6 L/min)	11 gpm (41.6 L/min)
Hydraulic Cylinder Pump - Maximum Relief Pressure	1800 psi (126 bar)	1800 psi (126 bar)
Return Filter	5 Micron	5 Micron
Suction Strainer	100 Micron	100 Micron
Auxiliary Oil Cooler Capacity	12 gpm (45.4 L/min)	12 gpm (45.4 L/min)
Drive Loop Oil Cooler Capacity	20 gpm (75.7 L/min)	20 gpm (75.7 L/min)
Paving Performance:		
Minimum Variable Paving Width	8 ft. (2438 mm)	8 ft. (2438 mm)
Maximum Variable Paving Width	13 ft. (3962 mm)	13 ft. (3962 mm)
Minimum Variable Paving Depth	0-1/2 in. (0-13 mm)	0-1/2 in. (0-13 mm)
Maximum Variable Paving Depth	6 in. (152 mm)	6 in. (152 mm)
Gravity Feed Hopper Capacity	6 Tons (5443 kg)	6 Tons (5443 kg)
Hydraulic Feed Augers	2	2
Hydraulic Material Flow Gates	2	2
Operating Speed	0-130 fpm (0-40 m/min)	0-130 fpm (0-40 m/min)
Left and Right Side Operator Controls	Standard	Standard

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# Chapter 3 CHECKLISTS

#### **PRE-DELIVERY**

The following Checklist is an important reminder of valuable information and inspections that MUST be made before delivering the Paver to the customer. Check off each item after prescribed action is taken.

arte	i preserioed action is taken.
/	Check that:
	No parts of Paver have been damaged in shipment. Check for such things as dents and loose or missing parts; correct or replace components as required.
	Battery is securely mounted and not cracked. Cable connections are tight. Electrolyte at proper level.
	Cylinders, hoses and fittings are not damaged, leaking or loosely secured.
	Oil, fuel and air filters are not damaged leaking or loosely secured.
	All grease fittings have been properly lubricated and no fittings are missing; see LUBRICATION chapter of this manual.
	Hydraulic system reservoir, engine crankcase, and engine coolant are filled to the proper operating levels.
	All adjustments have been made to comply with the settings given in this manual and in the separate engine manual.
	All guards, shields and decals are in place and securely attached.
	Model and serial number for this unit are recorded in space provided on this page and page 1.
in	art the Paver and test-run the unit while check- g that proper operation is exhibited by all con- ols.
/	Check that:
	All indicators (lamps, meters, etc.) function properly.
	Proper operation of all hopper and screed controls.
	Dynamic braking in effect with drive motors in neutral.
	No hydraulic system leaks when under pressure.
	Listen for abnormal noises or vibrations; if detected, determine their cause and repair as necessary.

I acknowledge that pre-delivery procedures were performed on this unit as outlined above. Dealership's Name Dealer Representative's Name Date Checklist Filled Out Machine Model # Machine Serial # Engine Serial # **DELIVERY** The following Checklist is an important reminder of valuable information that MUST be passed on to the customer at the time the unit is delivered. Check off each item as you explain it to the customer. ✓ Check that: Review with the customer the contents of this manual; especially: The INDEX at the back, for quickly locating topics; ☐ The SAFETY, INDICATORS AND CONTROLS, and OPERATION AND ADJUSTMENTS chapters for information regarding safe use of the machine. ☐ The LUBRICATION, SERVICE AND STORAGE and TROUBLESHOOTING chapters, for information regarding proper maintenance of the machine. Explain that regular lubrication and maintenance are required for continued safe operation and long life. Give this Operator's Manual to the customer and instruct them to be sure to read and completely understand its contents before operating the unit. Explain that the customer must consult the engine manual (provided) for related specifications, operating adjustments and maintenance instructions. Completely fill out the Owner's Registration, including customer's signature, and return it to the Company. Customer's Signature

Date Delivered

(Dealer's File Copy - Remove at Perforation)

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Date Delivered

(Pages 7 and 8 have been removed at perforation)



# Chapter 4 SAFETY



The above Safety Alert Symbol means **ATTENTION! ALWAYS BE ALERT! YOUR SAFETY IS INVOLVED!** It stresses an attitude of "Heads Up for Safety" and can be found throughout this Operator's Manual and the machine itself.

Before operating this equipment, read and study the following safety information. In addition, be sure that everyone who operates or works with this equipment, whether family member or employee, is familiar with these safety precautions.

The Gehl Company always takes the operator's safety into consideration when designing its machinery and guards exposed moving parts for his/her protection. However, some areas cannot be guarded or shielded in order to assure proper operation. Further, this Operator's Manual and decals on the machine warn of additional hazards and should be read and observed closely.



### **DANGER**

"DANGER" indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.



#### **WARNING**

"WARNING" indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



### CAUTION

"CAUTION" indicates a potentially hazardous situation which, if not avoided, may result in minor injury or property damage. It also alerts users to unsafe practices.

It is the owner's responsibility for communicating information on the safe use and proper maintenance of this machine! This includes providing understandable interpretation of these instructions for operators who are not fluent in reading English.

It is the responsibility of the operator to read and understand the Operator's Manual and other information provided and use correct operating procedures. Machines should be operated only by qualified operators.

# MANDATORY SAFETY SHUTDOWN PROCEDURE

BEFORE cleaning, adjusting, lubricating or servicing the unit:

- Bring machine to full parking stop on level surface (NEVER park on a slope or hillside).
- 2. Lower the hopper and screed assembly to the "full down" position.
- 3. Place all controls in neutral.
- 4. Move the throttle to low idle.
- 5. Shut off the engine and remove the key.

ONLY when you have taken these precautions can you be sure it is safe to proceed. Failure to follow the above procedure could lead to death or serious injury.

#### **Additional Safety Reminders**

- User/operator safety practices, as established by industry standards, are included in this Operator's Manual and intended to promote safe operation of the Paver. These guidelines do not preclude the use of good judgment, care and common sense, as may be indicated by the particular jobsite work conditions.
- It is essential that operators be physically and mentally free of mind altering drugs and chemicals and



(Continued)



thoroughly trained in the safe operation of the Paver. Such training should be presented completely to all new operators and not condensed for those claiming previous experience. Information on operator training is available from several sources, including the manufacturer.

 Some illustrations used in this manual may show doors, guards and shields open or removed for illustration purposes only. Be sure that all doors, guards and shields are in their proper operating positions before starting the engine to operate the Paver.

#### **Before Operation Safety Reminders**

- Always wear appropriate personal protective equipment called for by the job or working conditions. Hard hats, safety glasses, protective shoes, gloves, reflective vests, respirators and ear protection are examples of types of equipment that may be required. Do not wear loose fitting clothing, long hair, jewelry or loose personal items while operating or servicing the machine.
- ALWAYS check the job site for obstructions and bystanders!

#### **Operation Safety Reminders**

- Do not attempt to move hot asphalt mix with your hands or feet. Contact can cause serious skin burns.
- Do not allow minors or any unqualified personnel to operate or be near the Paver unless properly supervised.
- Do not operate the Paver in an enclosed area without adequate ventilation! Internal combustion engines deplete the oxygen supply within enclosed spaces and may create a serious hazard unless the oxygen is replaced.
- Do not leave the Paver unattended with the engine running. ALWAYS lower the hopper to "full down" position, shut off the engine and place all controls in neutral before leaving the machine.

#### **Operation Safety Reminders**

- NEVER use your hands to search for hydraulic fluid leaks. Use a piece of paper or cardboard. Escaping fluid under pressure can be invisible and can penetrate the skin causing serious injury. If any fluid is injected into your skin, see a doctor at once. Injected fluid MUST be surgically removed by a doctor familiar with this type of injury or gangrene may result!
- ALWAYS position the safety props up when leaving the hopper raised for inspection, cleaning or service!
- Do not refill the fuel reservoir when the engine is hot. Allow engine to cool down before refilling to prevent hot engine from igniting the fuel if it should spill or splash.
- Do not smoke while filling the fuel tank, while working on the fuel or hydraulic systems, or while working around the battery.
- Do not attempt to loosen or disconnect any hydraulic lines, hoses or fittings without first relieving hydraulic circuit pressure. Also, be careful not to touch any hydraulic components that have been in recent operation, because they can be extremely hot and can burn you.
- Always disconnect the battery connection to prevent unintentional starting while working on this machine.
- Do not attempt to remove the radiator cap after the engine has reached operating temperature or if it is overheated. At operating temperatures, the engine coolant will be extremely hot and under pressure. Always wait for the engine to cool down before attempting to relieve pressure and remove the radiator cap. Failure to heed this warning could result in severe burns.



(Continued)



# Screed Propane Heater Safety Reminders

# **A** WARNING

Do not smoke in the area around a Paver equipped with propane burners.

ALWAYS be sure a suitable fire extinguisher is readily available.

ALWAYS light ignitor with a striker. NEVER use a match.

Ignitor flame may be invisible in sunlight. Do not place ignitor near your skin or clothing. Servere burns will result.

- This equipment is designed to be used only with propane gas.
- Wrench tighten all fittings.
- NEVER use oil or grease for lubrication.
- Do not use oxygen with this equipment.
- Keep cylinder upright at all times.
- Keep equipment free from dirt and oil.
- Use a regulator valve on supply cylinder.
- Check equipment carefully each time before lighting.
- Do NOT operate in an enclosed area or near flammable material.
- Close all valves when not in use.
- Comply with all federal, state and local regulations when operating this equipment.

# Modifications, Nameplates, Markings and Capacities

 Modifications and additions that affect capacity or safe operation must not be performed without the manufacturer's prior written approval. Where such authorization is granted, tags or decals must be changed accordingly.

# Protective Guards and Warning Devices

 The Paver is fitted with protective covers over the engine area in accordance with industry standards.
 They are intended to offer protection to the operator from physical injury. A horn is provided, which can be activated from either side of the Paver.

#### **Replacement Parts**

To ensure continued safe operation, replace damaged or worn-out parts with genuine GEHL service parts, before operating this equipment.



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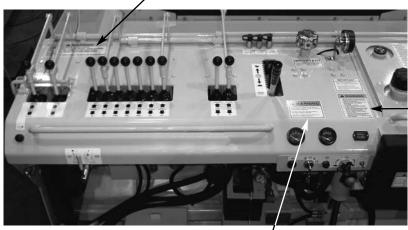


#### **WARNING**

LOADING AND UNLOADING TIP OVER HAZARD PARTIALLY ENGAGE (1/3) BOTH CONTROL LEVERS ALLOWING PAVER TO MOVE VERY SLOWLY UP AND DOWN RAMPS. DO NOT LOAD OR UNLOAD PAVER FROM RAMPS WHEN TRACKS ARE WET.

FAILURE TO HEED COULD RESULT IN DEATH OR SERIOUS INJURY

#### P204113



## **A** WARNING

- 1. BEFORE OPERATING THIS MACHINE READ AND FULLY UNDERSTAND THE OPERATOR'S MANUAL.
- 2. ALWAYS START AND OPERATE THIS MACHINE FROM THE SCREED PLATFORM.
- 3. NO RIDERS ALLOWED.
- 4. DO NOT PIVOT OR SPIN MACHINE AT HIGH SPEEDS.
- 5. NEVER LEAVE SCREED PLATFORM WITH THE ENGINE RUNNING AND DRIVE TRACKS ENGAGED.
- 6. DO NOT RAISE FLOOR AGAINST
- TRUCK FRAME.

  7. FAILURE TO OBSERVE WARNINGS COULD RESULT IN DEATH OR SERIOUS INJURY TO OPERATOR OR BYSTANDERS.

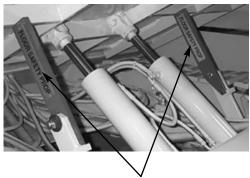
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#### **A WARNING**

PIVOTING AND SPINNING MACHINE AT HIGH SPEEDS COULD CAUSE AN UNSAFE OPERATING CONDITION.

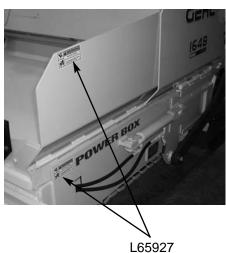
FAILURE TO HEED COULD RESULT IN DEATH OR SERIOUS INJURY.

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·FLOOR SAFETY PROP ·



**A WARNING** PINCH POINT HAZARD

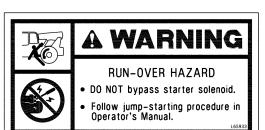
Keep clear when engine is running.

Follow Mandatory Safety Shutdown Procedure before servicing.

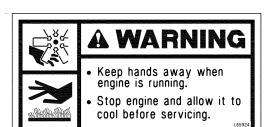


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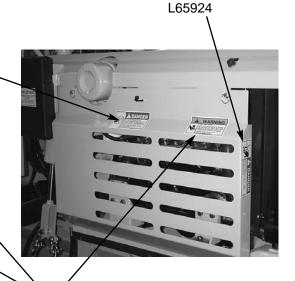




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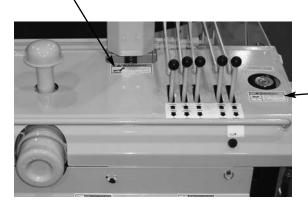




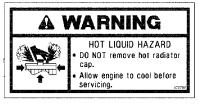


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#### **NOTES**


# Chapter 5

### INDICATORS AND CONTROLS



## CAUTION

Become familiar with and know how to use all safety devices and controls on the Paver before operating it. Know how to stop the machine operation before operating it. This Paver is designed and intended to be used ONLY with GEHL Company accessories or **GEHL Company approved accessories. GEHL** Company cannot be responsible for operator safety if the Paver is used with unapproved accessories or attachments.

#### **GUARDS AND SHIELDS**

Whenever possible and without affecting Paver operation, guards and shields are used to protect potentially hazardous areas. In many places, decals are also provided to warn of potential dangers and to display special operating procedures.



### WARNING

Read and thoroughly understand all safety decals on the Paver before operating it. Do not operate the machine unless all factoryinstalled guards and shields are properly secured in place.

#### CONTROL INDICATORS AND **SWITCHES (Figures 1 - 4)**

The control panel on the backwall console area contains the following indicators and switches:

#### **Ignition Keyswitch**

**OFF Position:** When the key is vertical in the key switch, power from the battery is disconnected to the

control and instrument panel electrical circuits. Also, this is the only position in which the ignition key can be inserted or removed from the key switch.

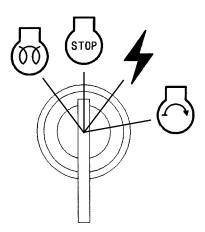


Figure 1

RUN Position: When the key is turned one position clockwise from the vertical (OFF) position, power from the battery is supplied to all control and instrument panel electrical circuits.

START Position: Turn the key clockwise two positions from the vertical (OFF) position to activate the engine starter. The key will return to the RUN position automatically as soon as the engine starts.

**NOTE:** The key must always be returned to the OFF position between starting attempts. The battery charge and engine oil pressure indicators should activate when the key is turned to the RUN position.

**Pre-Heat Glow Plug Indicator:** As an engine starting aid, pre-heating is required in a cold engine starting condition. This pre-heating uses a pre-heater coil that is activated by rotating the key counterclockwise to the pre-heat position.

**Engine Throttle:** This controls the engine speed. Idle position is with the cable fully in. Operating position is with the cable 1 to 1-1/2 inches out. Release the lock ring, depress the red button on the knob and pull the

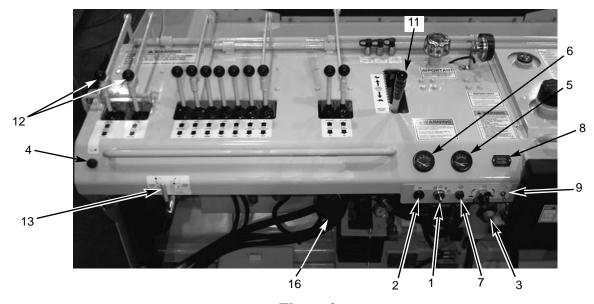


Figure 2

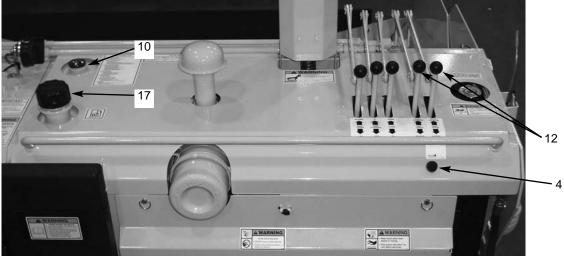


Figure 3

- 1. Ignition Keyswitch
- 2. Pre-heat Glow Plug Indicator
- 3. Engine Throttle Control
- 4. Horn Button
- 5. Battery Charge Gauge
- 6. Engine Coolant Temperature Gauge
- 7. Engine Oil Pressure Indicator
- 8. Hourmeter
- 9. Washdown Sprayer Switch
- 10. Fuel Level Gauge
- 11. Hydraulic Pump Variable-Speed Lever
- 12. Track Travel Levers
- 13. Modular Steering Control
- 14. Hydraulic Fluid Reservoir
- 15. Paving Alignment Guide
- 16. Releasing Agent Filler Cap
- 17. Engine Fuel Filler Cap

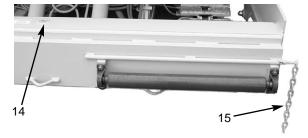


Figure 4

knob out to set speed. Rotate the knob left or right to fine adjust the speed during operation.

**Horn Buttons:** The horn may be activated from push-buttons on the left and right sides of the console.

**Fuel Level Gauge:** Indicates the amount of fuel remaining in the fuel tank.

**Battery Charge Gauge:** Indicates the condition of the charging system. During normal operation, this indicator should register a charge of 13 - 15 volts.

**Coolant Temperature Gauge:** Indicates engine coolant temperature. Under normal operating conditions, this gauge should indicate approximately 185°F - 190°F (85°C - 88°C).

**Engine Oil Pressure:** This lamp indicates whether sufficient engine lubricating oil pressure is present. During normal operation, with the engine running, this lamp should be OFF. During starting and when the engine is not running, this lamp will be ON.

**IMPORTANT:** If this lamp comes ON during normal operation with the engine running, STOP the engine immediately. After allowing the oil to drain down for a few minutes, check the engine oil level. Maintain oil level at the FULL mark on the dipstick.

**Hourmeter:** Indicates the operating time of the machine and should be used for keeping up the maintenance log chapter of this manual.

**Washdown Sprayer System:** Sprayer is used periodically each day to wash down parts of the Paver with an asphalt releasing agent.



Do not spray releasing agent on a hot engine.

Do not spray releasing agent while the screed propane heaters are in use.

**Hydraulic Fluid Reservoir:** The access/fill plug on top may be removed to check fluid level.

**NOTE:** Before removing the access/fill plug, allow the fluid to cool for 10-15 minutes. Take a wrench and slowly loosen the hydraulic breather cap on the backwall top console to release system pressure.

**Paving Alignment Guide:** This is adjustable so the chain will align with a curb or the edge of a previously laid mat of asphalt.

#### TRAVEL CONTROLS (Figures 6 - 7)

These controls are used to maneuver the Paver around on the jobsite or for road travel. Decals on the backwall top console area provide graphic representation of the various control actions.

**Hydraulic Pump Variable Speed:** This lever increases or decreases oil flow to the drive motors. Push the lever forward to increase speed; pull rearward to decrease speed. Place the lever in neutral when not operating to prevent creating excess heat in the hydraulic system.

**NOTE**: Lever must be in neutral position to start the engine.

**Track Travel:** These two levers control the track drive motors for forward and rearward movement and also turning of the Paver. Both levers are mechanically linked to levers on the right side of the Paver for control from either side.

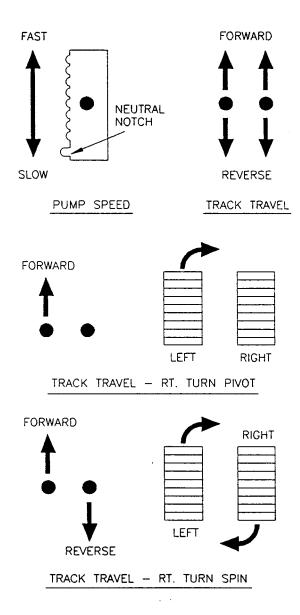
**NOTE:** "Right" and "left" are determined from a position standing behind the unit and facing the direction of forward travel. Pivot the machine at slow speeds only.

Movement of the travel levers and the expected results are as follows (see Figure 5.):

Move both levers forward to go forward. Move both levers rearward to go backward. Move the left track lever forward to pivot-turn right. Move the left track lever rearward to pivot-turn left.

Move the right track lever forward to pivot-turn left. Move the right track lever rearward to pivot-turn right.

Move both levers in opposite directions to spin the machine about its center position. Returning both levers to "neutral" position stops the drive tracks.



**Figure 5 - Track Travel Action** 

**Modular Steering Control:** This control is used for making small steering adjustments. It will be necessary to adjust this valve as paving conditions vary (see Figure 2).

With the track travel levers both either forward or rearward, set the pump speed lever to the desired position. Turn the modular steering control counter-clockwise to turn left and clockwise to turn right. Place the control in the center position to move straight ahead.

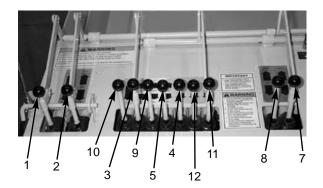


Figure 6

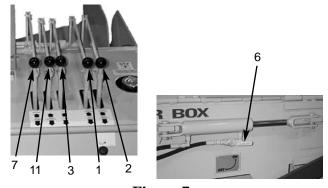


Figure 7

- 1. Left Track Travel
- 2. Right Track Travel
- 3. Hopper Floor
- 4. Right Flow Gate
- 5. Left Flow Gate
- 6. Side Gate Valve (1 on each side of machine)
- 7. Right Feed Auger
- 8. Left Feed Auger
- 9. Screed Lift
- 10. Screed Vibrator
- 11. Right Screed Extension
- 12. Left Screed Extension

#### **HOPPER CONTROLS (Figures 6 - 7)**

**Hopper Floor:** Move lever rearward to raise hopper. Move lever forward to lower hopper. This lever is mechanically linked to a dual control lever on the right side.

**Right and Left Flow Gates:** These control flow of asphalt out of the hopper. One lever controls each gate. Move lever rearward to open gate. Move lever forward to close gate.

**Side Gates:** When paving only eight feet wide, the side gates should be closed. This is achieved by closing the shut off gates with the side gate valve ON, then turning the side gate valve to the OFF position before re-opening the shut-off gate.

**Right and Left Feed Augers:** These are used intermittently only with screed extensions "out." One lever controls each auger. Move lever rearward to turn on auger. Return lever to "neutral" to turn off auger. The right auger lever is mechanically linked to a dual control lever on the right side.

# SCREED PLATFORM CONTROLS (Figures 6 - 9)

**Up and Down Position:** Move the lever rearward to lower screed so that it floats over asphalt feed, forming the finished mat surface. Move the lever forward to raise screed off mat.

**Vibrator:** This is used to assist in compacting the mat of asphalt passing under the screed. Move the lever rearward to turn the vibrator on. Allow the lever to return to "neutral" to turn off the vibrator.

**Left and Right Extensions:** These allow adjusting the paving width beyond eight feet. One lever controls each extension. Move the lever forward to shift the extension inward. Move the lever rearward to shift the extension outward. The right extension lever is mechanically linked to dual control levers on both sides of the machine.

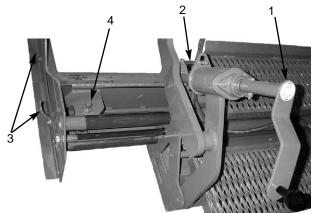


Figure 8

- 1. Screed Depth Adjustment
- 2. Depth Indicator
- 3. Side Shoe Adjusting Nuts
- 4. Screed Extension Adjustment

**Screed Depth Adjustment:** The screed has manually operated adjustment screws on each end of the screed that are used to set the thickness of the asphalt mat. Turn the screws clockwise to increase the depth; turn the screws counter-clockwise to decrease the depth. A indicator on each adjustment screw can be used as a reference for the desired mat thickness. Actual mat

thickness must be measured with a depth gauge.

**Side Shoe Plate:** Loosen wing nuts for adjustment and re-tighten.

**Screed Extension Adjustment:** Use this adjustment to apply the same amount of compaction on the rear edge of the extension as the main screed, for a smooth mat transition from the extension to the main screed. Turning the adjustment screw counter-clockwise will move the rear edge of the extension down.

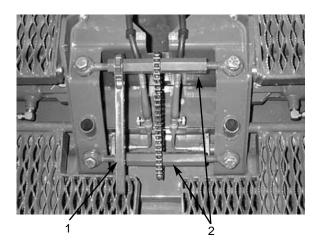


Figure 9

- 1. Turnbuckle Ratchet Handle
- 2. Turnbuckles

**Crown Adjustment:** This is made by adjusting the turnbuckles at the center of the screed. The turnbuckles are connected together by means of a chain between them. Use the attached rachet type handle to turn the turnbuckle ends outward, to increase the mat crown. Turning the turnbuckles the opposite way will turn the turnbuckle ends inward to decrease the mat crown, or invert the screed to pave a valley.

**Propane Heated Screed:** The 1648 Paver is equipped with a dual-burner propane-fueled screed heater. Two burners are located in the center of the screed for even heating across the bottom of the screed and the extensions.

#### **Pre-Lighting Instructions** (see figure 10):

- 1. Check that all fittings are tight and hoses are in good condition.
- 2. Check for leaks by closing valves 1, 3 and 4.
- 3. Open valve 1 on the propane tank.

4. If you smell propane, there is a leak. Check for leaks by spraying a mixture of water and liquid soap on the fitting joints and hoses. When the leak is located, close the tank valve and repair the leak.



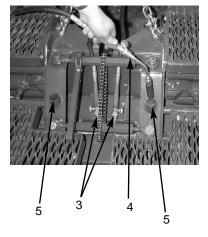


Figure 10

- 1. Main Valve
- 2. Pressure Regulator Valve with Gauge
- 3. Burner with Valve
- 4. Ignitor with Valve
- 5. Burner Ignition Hole

#### Lighting Instructions (see figures 10 and 11):

- 1. Check that the extensions are either fully extended or fully retracted. The extensions will heat better if they are fully extended.
- 2. Open valve (4) on ignitor.
- 3. Open main valve (1) on the tank.
- 4. Adjust pressure regulator valve (2) to 5 psi.
- 5. Light the ignitor using a striker or similar lighter.
- 6. With lighted ignitor in the burner ignition hole, open the burner valve to light the burner. Repeat this procedure for the other burner.
- 7. After both burners are lit, adjust the pressure regulator valve (2) until it reads 15-20 psi.
- 8. The screed should be sufficiently heated after 10-15 minutes. Overheating the screed can cause the screed to warp.

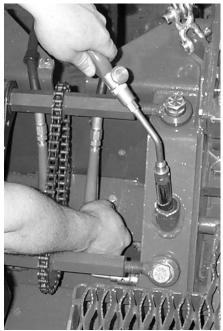


Figure 11

#### **Shutting Off the Burners:**

- 1. Close the main valve (1) on the tank.
- 2. Close the pressure regulator valve (2).
- 3. Close the burner valves (3)

# Chapter 6

### **OPERATION AND ADJUSTMENTS**

#### GENERAL INFORMATION



## **CAUTION**

BEFORE starting the engine and operating the Paver, review and comply with all safety recommendations in the SAFETY chapter of this manual. Know how to stop the Paver before starting it.

#### **ENGINE BREAK-IN**

The engine does not require extensive "break-in." However, for the first 100 hours of operation: Allow the engine to idle for a few minutes after every cold start. Do not idle the engine for long periods of time. Do not operate the engine at maximum power for long periods of time. Check the oil level frequently and replenish as necessary.

A special "break-in" oil is not used. The oil in the engine crankcase is the same specified for regular oil changes. Change the oil and replace the oil filter at the intervals specified in the SERVICE AND STORAGE chapter. Do not add special additives or special "breakin" components to the crankcase.

#### **BEFORE STARTING ENGINE**

Before starting the engine and running the Paver, refer to the INDICATORS AND CONTROLS chapter and familiarize yourself with the various operating controls, indicators and safety features.

#### STARTING THE ENGINE

BEFORE mounting the screed platform, walk completely around the machine to make sure no one is, on, or close to it. Let others near the area know you are going to start up and wait until everyone is clear of the machine.

Place all hydraulic function controls and the hydraulic pump speed control lever in "neutral" position.

The following procedure is recommended for starting the engine:

- 1. Set the throttle control to 1/3 open.
- 2. Turn the key to the START position. When the engine starts, release the keyswitch and it will automatically return to the RUN position.
- 3. In cold weather starting, first turn the key counterclockwise to activate glow plug. When the indicator lamp comes on, proceed as in Step 2.

**IMPORTANT:** Crank the starter until the engine is started. If the engine fails to start within 15 seconds, return the key to the "OFF" position, wait 2 minutes, and try to restart the engine. Cranking the engine for longer than 15 seconds will result in premature failure of the starter.

After the above steps proceed as follows:

- 1. Allow a sufficient engine warm-up time before attempting to operate the controls.
- 2. Check that indicators are in normal condition.
- 3. Check the color of the exhaust gas. It should be light blue or colorless.
- 4. Check that there are no fuel, oil or engine coolant leaks, and no abnormal noises or vibrations.

If the battery becomes discharged and fails to have sufficient power to start the engine, jumper cables can be used to obtain starting assistance. Refer to the jump starting instructions in the SERVICE AND STORAGE chapter of this manual for safe jump-starting procedure.



## CAUTION

Be sure the area being used for test-running is clear of spectators and obstructions. For the first time, operate the Paver with an empty hopper.

#### FIRST TIME OPERATION

Be sure the engine is warm and then go through the following procedures:

Familiarize yourself with various control levers. Raise the screed. Control the Paver travel forward and backward, then make left and right turns using the track control levers and modular steering control. While stopped, lower the screed and activate the vibrator. Position the side gates and extensions in and out. Raise and lower the hopper and turn the auger motors on and off.

#### STOPPING THE PAVER

The following procedure is the recommended sequence for stopping the machine:

- 1. Place pump variable speed lever in "neutral".
- 2. Place both track control levers in "neutral."
- 3. Lower the hopper and screed to full "down" positions.
- 4. Place all function control levers in "neutral."
- 5. Move the throttle to "idle" position.
- 6. Turn the keyswitch to "off" position. Always remove the key and take it with you for security reasons.

#### **GENERAL PAVER OPERATION**

#### Walk-around Inspection

- 1. Inspect suction hose. Should be firm, not soft.
- 2. Check for hydraulic leaks.
- 3. Check hopper sides and floor clearance.
- 4. Inspect the screed.
- 5. Check that safety guards and covers are in proper place.

#### Hands-On Check

- 1. Check the fuel gauge. Fill the tank before paving and as necessary.
- 2. Check the engine oil level and replenish as necessary.

**IMPORTANT:** Follow the manufacturer's recommendations regarding the use of proper fuel, lubricants and oil.



To prevent a fire or explosion, allow the engine to cool down before refilling the fuel tank. A hot engine could ignite spilled fuel and burn you. Also, do not smoke while refilling the fuel tank.

- 3. Check the cooling air intake on the radiator.
- 4. Check the air cleaner for cleanliness and make sure that components are tight to prevent intake of unfiltered air.
- 5. Check the hourmeter against fuel filter change schedule in the maintenace log of this manual.
- 6. Check the pump speed control lever for full travel movement.



Clean external surface of tracks with asphalt releasing agent, using the washdown sprayer. Do not spray releasing agent into tracks immediately before loading or unloading. Wet tracks can slip and lose traction.

- 7. Clean external area of both tracks (clean three to four times during working day).
- 8. Check for and remove as necessary, any asphalt buildup in the screed platform propane burner area and the exhaust ports located on each end of the screed.
- 9. Check for, and remove as necessary, any asphalt buildup inside the tracks.
- 10. Make a general inspection of the machine for loose bolts and components.
- 11. Be sure safety guards and covers are in place.



NEVER operate the Paver with safety guards or covers removed.

If the Paver is found to be in need of repair or in any way unsafe, or contributes to an unsafe condition, the matter MUST be reported immediately to the user's designated authority. The machine MUST NOT be operated until it has been restored to a safe operating condition.

#### PAVING AT THE JOBSITE

The following areas should be "sprayed down" with asphalt releasing agent (use the washdown hose) before paving and four times or more during the work day. These areas should also be cleaned throughly after each use of the machine:

Hopper, augers and underside of the screed.

Push rollers.

Hydraulic fluid reservoir.

External track and sprockets.

Any part of the machine that contacts asphalt.



### WARNING

Do NOT spray tracks before loading or unloading Paver on a truck or trailer, because this could cause loss of traction.

With the engine warmed up, proceed as follows:

#### **Positioning the Paver**

- Using the propane burners, heat the screed by following the procedure in the INDICATORS AND CONTROLS chapter.
- 2. Maneuver the Paver into position for laying asphalt with the track control levers.
- 3. With Paver in position, move the screed control lever to "down" and hold until the screed lift cylinder is fully extended. This permits the screed to float free. Screed should be lowered onto a starting pad of asphalt or blocks of the desired paving thickness.
- 4. Manually adjust the screed depth control screws up or down, as required, to a neutral or free position. Slowly turn the screws toward the "up" position until a slight amount of tension is felt. The screed is now set to lay asphalt to the approximate thickness of the starting pad or blocks onto which the screed has been lowered.

5. Move the right and left flow gate control levers to the "closed" position and hold until both gates are fully closed. Set the alignment guide on the left side of the lower front frame.

#### Filling the Hopper

- 6. Have the dump truck back up to the front of the Paver until the truck tires are one to two inches from the push rollers. Then move the Paver forward until the push rollers contact the rear tires of the truck. DO NOT raise the screed.
- 7. Move the hopper control lever to the "up" position and hold until the hopper almost touches the frame or dump body of the truck.
- 8. Signal the truck driver to slowly raise the dump body, allowing asphalt to flow from the truck into the hopper. Be prepared to lower the hopper to prevent the truck dump body from striking and damaging the hopper as the truck dump body is raised. Fill the hopper with asphalt.
- Move the flow gate control levers to the "open" position and hold until flow gates are completely open. Asphalt will then gravity feed down to and form a head of asphalt at the leading edge of the screed.
- 10. If the area to be paved is level and pushing the truck is desired, place the track control levers forward. The engine throttle should be set at full power. Signal the driver to leave the truck in neutral with thedump body raised a sufficient height to allow asphalt to flow slowly but continuously into the hopper.

#### **Laying the Asphalt**

- 11. Use the extension control levers to adjust the desired paving width if it is to be more than eight feet.
- 12. Move the hydraulic pump speed control lever forward to the desired travel speed. Continue forward, laying asphalt and pushing the truck approximately 36 to 48 inches. If vibration is desired on the screed, move the vibrator control lever to "on" position at approximately the same time the hydraulic pump speed control lever is moved to the "forward" position.
- 13. Move the hydraulic pump speed control lever to "neutral" position, to stop the Paver. ALWAYS move the vibrator control lever to "off" position

when stopping forward motion of the Paver. It may be necessary to signal the truck driver to stop, if the truck is moving.

**NOTE:** The truck should not be in gear and the truck driver should not "ride" the brakes. Always advise the truck driver of the procedure for pushing the truck with the Paver.

14. Check thickness/depth of asphalt in the 36 to 48 inch mat and make necessary adjustment using the manual depth adjustment screws. Make adjustments up or down gradually to avoid porpoising effect or ripples in the mat as a result of adjusting too much in either direction. If the base on which the asphalt is being laid is on grade and level, only infrequent adjustments will be required after initial asphalt thickness/depth setting is made.

**NOTE:** Refer to the TROUBLESHOOTING chapter in this manual for Paver-related, or material delivery and compaction-related paving mat application problems.

15. Move the hydraulic pump speed control lever to "forward" and continue to pave until the truck is empty and the hopper is approximately 50% full.

**NOTE:** Leave a small head of asphalt at the leading edge of the screed while waiting for the next load of asphalt. If the wait is longer than 10 to 15 minutes, pave 12 to 18 inches further and again leave a small head of asphalt. Repeat in 10 to 15 minute intervals using asphalt remaining in the hopper until next load arrives.

If the Paver is to be used by itself, without a dump truck, disregard procedures involving pushing the dump truck for continuous feed while paving (discussed in Steps 10-13) and refer to the following:

- 16. After the hopper is fully loaded, signal the truck driver to lower the dump body, stopping the flow of asphalt to the Paver. Simultaneously, the Paver operator should move the hopper control lever to the "up" position raising the hopper to avoid asphalt spills from the front of the hopper.
- 17. The Paver operator should then signal the truck driver to move forward to the next place to reload the Paver. This next reloading place may be directly in front of the Paver at a point where the Paver operator expects the hopper to be emptied, or another location on the jobsite.

#### PRECAUTIONS WHILE PAVING

The right side control levers for auger, extension, track and hopper modes allow a two-person operation to avoid making "blind" joints and to reduce cycle time when paving in two directions.

The screed vibrator should be operated ONLY when the Paver is moving to avoid undue compaction in the mat when the Paver is stopped.

DO NOT raise the hopper against the truck frame or the dump body of the truck.

When pushing a truck on level ground, the truck should not be in gear and the truck brakes should not be held. The Paver will not push a truck with the brakes on

The two independently-operated augers need only be used when the extensions are out and then only occasionally. The augers are used ONLY for keeping the extended area fully charged with asphalt.

**NOTE:** DO NOT leave the augers operating continuously unless required!

If the hopper is loaded and the operator wishes to close the flow gates to transport material to an area inaccessible to the truck, or reposition the Paver for the next pass, etc., the following procedure should be employed. ALWAYS lower the hopper as low as possible without spilling asphalt. Close one flow gate and then the other. Lowering the hopper substantially decreases the weight being lifted by each flow gate. Make sure screed extensions are also closed.

DO NOT pull Paver with another vehicle except in an emergency situation (loss of hydraulic power or engine failure). The track control levers MUST be locked in the "float" position. Remove the lock lever and place control levers all the way forward. Replace the lock lever. DO NOT pull the Paver backwards! DO NOT pull the Paver at high speeds!

When paving uphill, lower the hopper as needed, placing more weight directly over the tracks to increase traction.

#### **Handling Asphalt Spills**

**IMPORTANT:** ALWAYS remove asphalt spill (large or small) from the path of the Paver tracks to prevent loose asphalt from getting in the tracks, or building up on the sprockets.

# **WARNING**

Do not attempt to move hot asphalt mix with your hands or feet. Contact can cause serious skin burns!

The following procedure should be used if the asphalt truck moves away from the Paver when loading or being pushed, resulting in a large asphalt spill in front of the Paver:

- 1. Stop the Paver.
- 2. Lower the hopper as low as possible without spilling more asphalt.
- 3. Close one flow gate and then the other.
- 4. Windrow spilled asphalt material to the center and in front of the Paver, making sure the asphalt is removed from the path of the Paver tracks.
- 5. Move the hydraulic pump speed control lever to "forward," continuing to pave with asphalt previously gravity fed from the hopper. As the asphalt head from the hopper begins to run thin, the windrow asphalt should be at the leading edge of the screed. If this is the case, continue to pave using the windrow asphalt, opening both flow gates as the windrow of asphalt begins to run thin.

If this is not the case, open both flow gates approximately 1/3, maintaining a full head of asphalt at the leading edge of the screed until the leading edge strikes the windrow asphalt. Continue to pave.

**IMPORTANT:** Failure to follow this procedure, in the event of asphalt spills, will result in asphalt buildup and eventual damage to the flow gate cylinders and the tracks.

#### **HIGHWAY TRAVEL**

For short distance highway travel, attach a Slow-Moving Vehicle (SMV) emblem, purchased locally, to the back of the Paver

**NOTE:** Always follow all state and local regulations regarding the operation of equipment on or across public highways! Also, whenever any appreciable distance exists between jobsites or if

operation on public highway is prohibited, be sure to transport the Paver using a vehicle of appropriate size and weight.

# TRANSPORTING BETWEEN JOBSITES (Figures 12 - 14)

When transporting the Paver, know the overall height to allow clearance of obstructions. Remove or tape over the Slow-Moving Vehicle (SMV) emblem if it will be visible to traffic.



Always follow the recommended procedures and guidelines when using ramps to load the Paver onto (or unload it from) a truck or trailer. Failure to heed can result in damage to equipment and serious personal injury or death!

Tie-down points are provided on the front of the hydraulic reservoir portion of the frame and the lower rear sides of the backwall. Chains can be inserted through these brackets and slots to secure the Paver while transporting.

#### **NOTE:** A matched pair of ramps is required.

1. The ramps must be of sufficient strength to support the machine. Whenever possible, the use of strong wood-covered steel ramps is recommended, as well as center supporting blocks. (*Figure 12*)

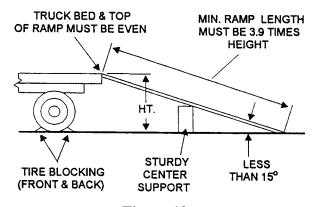


Figure 12

2. The ramps must be firmly attached to the truck or trailer bed with no step between the bed and the ramps.

- 3. Incline of ramps must be less than 15 degrees (ramp length must be at least 3.9 times height).
- 4. Ramp width must be at least 1-1/2 times the track width.
- 5. Block the front and rear of the tires on the truck or trailer (if so equipped, engage the parking brake).

# **A** WARNING

NEVER attempt to adjust travel direction (even slightly) while traveling on the ramps. Instead, back off of the ramps, and re-align the Paver with the ramps.

Do not walk beside, behind or in front of the Paver during loading and unloading procedures.

ALWAYS place the pump speed control lever in "slow" position when operating the Paver on the truck or trailer bed. ALWAYS load the Paver in "reverse" and unload in "forward" direction.

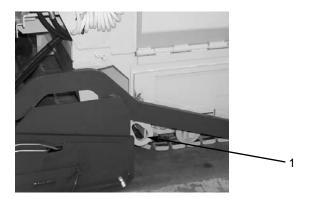
Check for and remove oil, grease, fuel or other substance on the ramps that may cause the tracks to lose traction or slip.

Do not wash down the Paver with asphalt releasing agent just before loading or unloading on the vehicle. The Paver tracks may become wet and may slip on the ramps.

#### **Loading with Ramps**

- 1. Move the Paver to a position that aligns with the ramps so the Paver will be in position to load in reverse. Stop the Paver.
- 2. Place the throttle control at full open position.
- 3. Raise the screed to the "full up" position with the screed control lever.
- 4. To avoid bumping the rear edge of the screed on the ramps, turn the depth adjustment screws counterclockwise (seven or eight turns).(*Figure 14*)
- 5. Move the track control levers rearward.
- 6. Move the pump speed control lever forward, allowing the Paver to move slowly up the ramps. The operator should ride on the Paver with a hand on both track control levers at all times to stop the

- Paver if travel is not straight.
- 7. Immediately after the Paver is on the vehicle bed, stop the Paver.
- 8. Move the pump speed control lever to "slow" position and reduce the throttle to "idle" position.
- 9. Using the track control levers, maneuver the Paver on the trailer or truck for best transporting and balanced position.
- 10. Rear Loading: After the Paver is on the vehicle bed, place one track lever in "forward" and one in "reverse". The machine will rotate to legal width for transport.
- 11. Return the screed to flat position by turning the depth adjustment screws in a clockwise direction (seven or eight turns).
- 12. Lower the screed and place chains in the two tiedown points at the rear of the Paver. Drive the Paver forward allowing chains to tighten slightly (*Figure 13*).
- 13. Place a tie-down chain in the tie-down point(s) on the front of the Paver and bind down to the vehicle bed (*Figure 13*).



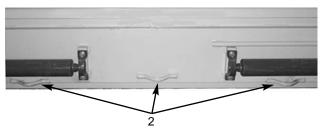


Figure 13

- 1. Rear Tie-down Points (Each Side)
- 2. Front Tie-down Points
- 14. Turn the keyswitch to "off" position and remove the key.

# **A** WARNING

ALWAYS place the pump speed control lever in "slow" position when operating the Paver on the truck bed. ALWAYS unload the Paver in "forward."

Do not walk beside, behind or in front of the Paver during unloading procedures.

- 1. Remove chain binder from tie-down points on the front of the Paver. (*Figure 13*)
- 2. Start the engine according to starting procedure in this manual.
- 3. With track control levers in "reverse" position and throttle open about 1/4, place the pump speed control lever in "slow." The Paver will move rearward, releasing tension from the two tie-down chains on the rear of the Paver. Stop the Paver.
- 4. Remove the chains from both tie-down points on the rear of the Paver. (*Figure 13*)
- 5. Move the screed control lever to "up" position and hold until screed is raised completely.
- 6. To avoid bumping the rear edge of the screed on the bottom of the ramps, turn the depth adjustment screws seven or eight turns counterclockwise. This raises the rear edge of the screed approximately 1 inch. (Figure 14)

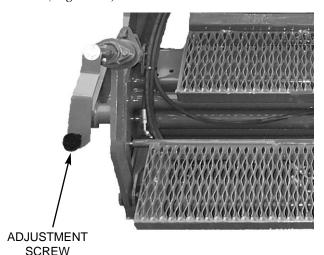


Figure 14

- 7. Using the track control levers, align the Paver tracks with the ramps. When unloading from the rear, rotate and align the Paver tracks. To rotate place one track control lever in "forward" and the other lever in "reverse."
- 8. Move the Paver forward to the ramps and stop the Paver by placing both track control levers in "neutral" position.
- 9. Move the pump speed control lever to "slow" position. This will prevent the machine from "freewheeling" down the ramps.
- 10. The throttle should be set at 1/2 minimum to full open.
- 11. Clear the area at the bottom of the ramps of all personnel and obstructions.
- 12. Place both track control levers in "forward" position, and move the pump speed control lever forward allowing the Paver to travel to the ground.

**NOTE:** The operator should ride on the Paver with one hand on both track control levers at all times, to maintain positive control of the Paver. Emergency stops are accomplished by placing both track control levers in "neutral" position.

#### In Transit

If in transit for a few days: 1.) disconnect the battery, and. 2.) clean all bright surfaces and coat with heavy, very high flash-point grease to prevent rusting.

#### THEFT DETERRENTS

Gehl Company has records of component numbers and serial numbers. Users should take as many of the following actions as possible to discourage theft, to aid in the recovery in the event that the machine is stolen, and to reduce vandalism:

- 1. Remove keys from unattended machines.
- 2. Attach, secure, and lock all anti-vandalism and anti-theft devices on the machine.

- 3. Inspect the gates and fences of the vehicle storage yard. If possible, keep machines in well-lighted areas. Ask the local law enforcement agency to make frequent checks around the storage or work sites, especially at night, during weekends, and on holidays.
- 4. Report any theft to your dealer and insurance company. Provide the model and all serial numbers. Request that your dealer forward this same information to Gehl Company.

# Chapter 7 LUBRICATION

#### **GENERAL INFORMATION**



## **WARNING**

NEVER lubricate or service this unit when any part of the machine is in motion. ALWAYS exercise the MANDATORY SAFETY SHUTDOWN PROCEDURE (page 10) before lubricating or servicing this equipment.

**NOTE:** The MAINTENANCE chapter in this manual has provisions for recording the dates and hourmeter readings after lubrication or other service has been performed; use those spaces to keep a log for maintaining a current service interval record. Proper routine lubrication is an important factor in preventing excessive part wear and early failure.

#### **LUBRICANTS**

The following chart lists the locations, temperature ranges and types of recommended lubricants to be used when servicing this machine. Also refer to the separate engine manual (provided) for additional information regarding recommended engine lubricants, quantities required and grades.

**NOTE:** Refer to "Operator Services" topic in SERVICE AND STORAGE chapter of this manual for detailed information regarding periodic checking and replenishing of lubricants.

#### **GREASING AND LUBRICATION**

Refer to the following pages for locations and greasing frequencies. Wipe dirt from the grease fittings before greasing them to prevent contamination. Replace any missing or damaged fittings. To minimize dirt build-up, avoid excessive greasing.

#### **Hydraulic System Reservoir**



Use SUNVIS 846, or equivalent which contains anti-rust, anti-foam and anti-oxidation additives and conforms to ISO VG46.

Capacity:

20 Gallons (75.7 Liters)

#### All Grease Fittings



Use No. 2 Lithium-based Grease

#### **Engine Crankcase Oil**



 Ambient Temperature
 Grade\*

 Below 32°F (0°C)
 SAE 10 or 10W-30

 32-77°F (0-25°C)
 SAE 30 or 10W-30

 Above 77°F (25°C)
 SAE 40 or 20W-40

\*Service Classification: API - CC or CD

Capacity:

6.9 Quarts (6.5 Liters) - Diesel Engine

#### **Torque Hubs Gear Oil**



Use API-GL-5 80W-90 Capacity (each hub): 17 ounces (500 cc)

**IMPORTANT:** Always dispose of waste lubricating oils, anti-freeze and hydraulic fluids according to local regulations or take them to a recycling center for disposal. DO NOT pour them onto the ground or into a drain.

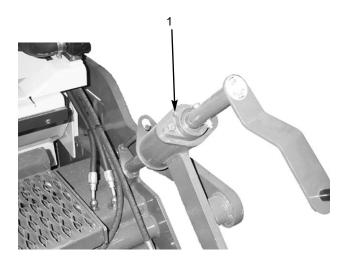
#### **GREASE FITTING LOCATIONS**

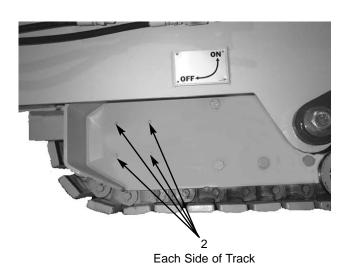
**NOTE:** See the the SERVICE AND STORAGE chapter of this manual for further details.

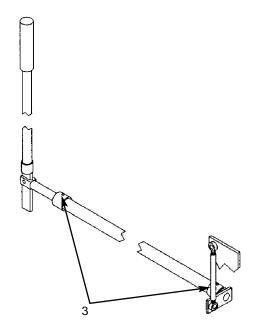
#### **Every 50 Hours (or weekly):**

- 1. Grease Depth Adjustment Screws (1 per Screw)
- 2. Grease Track Adjuster Yoke (8 per Track)
- 3. Grease Pump Speed Control Linkage

Replacement Filters Chart			
Engine			
Oil Filter Element	Gehl P/N P700122		
Fuel Filter Element	Gehl P/N 123828		
Hydraulic System Filters			
Screw-On Filter Element	Gehl P/N 074830		
Reservoir Sump Strainer	Gehl P/N 128299		
Air Cleaner			
Dry Element	Gehl P/N 055017		







# Chapter 8 SERVICE AND STORAGE

#### **GENERAL INFORMATION**



## WARNING

BEFORE performing any service on the Paver, unless expressly instructed to the contrary, exercise the MANDATORY SAFETY SHUTDOWN PROCEDURE (SAFETY chapter). After service has been performed, BE SURE to restore all guards, shields and covers to their original positions BEFORE resuming Paver operation.

**NOTE:** All service routines, with the exception of those described under the "Dealer Services" topic are owner-operator responsibilities. All operator services described under the subtopics are also referred to on a decal which is located on the engine cover. Refer to the LUBRICATION chapter of this manual for lubrication information.

**NOTE:** This SERVICE AND STORAGE chapter details procedures to follow for making routine maintenance checks, adjustments and replacements. Most of the procedures are also referred to in both the TROUBLESHOOTING and MAINTENANCE chapters of this manual. For engine-related adjustments and servicing procedures, refer to the engine manual provided.

#### **PRECAUTIONS**

Do not perform any maintenance or repair without the owner's prior authorization. Allow only trained personnel to service the Paver.

Warranty repairs can only be done by a Gehl dealer. They know what components of the Paver are covered under the terms of the Gehl Warranty and what components are covered by other vendor warranties.

**IMPORTANT:** Always dispose of waste lubricating oils, anti-freeze and hydraulic fluids according to local regulations or take them to a recycling center for disposal. DO NOT pour them onto the ground or into a drain.

#### **DEALER SERVICES**

The following areas of internal components service replacement and operating adjustments should only be attempted by (or under the direction of) an authorized GEHL Paver dealer.

#### **ENGINE COMPONENTS**

All service routines, related to the internal components are precise and critical to proper engine operation. Special know-how and tools are required for servicing.

**NOTE:** If the engine is suspected of faulty operation, contact your Gehl dealer for further assistance.

#### HYDRAULIC SYSTEM COMPONENTS

Valves, pumps, motors and cylinders are also sophisticated assemblies which require special know-how and tools for servicing. All cylinders are approprietly designed with particular strokes, diameters, checks and hose connection provisions unique to the Paver application requirements. A schematic (located at the end of this chapter) can be used as a guide for troubleshooting and service reference, as required.

Internal service on any of these components should only be performed by (or under the direction of) an authorized Gehl Paver dealer.

#### **ELECTRICAL COMPONENTS**

An electrical system diagram is provided which includes instrumentation, electrical components and switch connections. The schematic (located at the end of this chapter) can be used as a guide for troubleshooting and service reference, as required.

#### OPERATOR SERVICES

Some of the operator related services will require access to components located inside the superstructure under shields, hoods and covers.

Choose a clean, level work area. Make sure you have sufficient room, clearances, and adequate ventilation. Clean the walking and working surfaces. Remove oil, grease and water to eliminate slippery areas. Utilize sand or oil-absorbing compound, as necessary, while servicing the Paver.

Before starting inspection and repair, move the Paver onto a level surface, shut down engine, and release all hydraulic pressure. Always lower the hopper to "full down" position. If the area under the hopper requires service, raise the hopper to "full up" and swing up the two safety props. Place all controls in "neutral."

Disconnect the battery and remove the ignition key. Remove only guards or covers that provide needed access. Wipe away excess grease and oil.

Excessively worn or damaged parts can fail and cause injury or death. Replace any cracked or damaged part. Care should be taken to assure that all replacement parts are interchangeable with original parts and of equal quality.

Use care not to damage machined and polished surfaces. Clean or replace all damaged or painted over plates and decals that can not be read.

**NOTE:** Never leave guards or access covers off when the Paver is unattended. Keep bystanders away if access covers are removed.

After servicing, check the work performed, no parts left over, etc. Install all guards, covers and reconnect the battery.



Do not smoke or allow any open flames in the area while checking or servicing hydraulic, battery or fuel systems; all contain highly flammable liquids or explosive gases, which can cause an explosion or fire if ignited.

Wear a face shield when you disassemble spring-loaded components or work with battery acid. Wear a helmet or goggles with special lenses when you weld or cut with a torch.

When working beneath a raised machine, always use blocks, jack-stands or other rigid and stable supports. Wear appropriate protective clothing, gloves, shoes. Keep feet, clothing, hands and hair away from moving parts.

Always wear safety glasses or goggles for eye protection from electric arcs from shorts, fluids under pressure, and flying debris or loose material when the engine is running or tools are used for grinding or pounding.

NEVER weld on hopper, screed or frame without the consent of the manufacturer. Special metals may be used, which require special welding techniques or have a design that should not have weld repairs. NEVER cut or weld on fuel lines or tanks.

If repair welding is ever required, be sure to attach the ground (-) cable from the welder as close as possible to the area to be repaired. Also, remove battery positive (+) terminal connection before proceeding to weld.

#### Service Every 10 Hours or Daily

# SPRAY DOWN ASPHALT CONTACT AREAS

The following areas should be sprayed with asphalt releasing agent before paving, at least four times during operation, and after each use of the Paver.

- 1. Hopper and Augers
- 2. Screed (bottom)
- 3. Push Roller Assembly
- 4. Hydraulic Fluid Reservoir
- 5. Drive tracks

6. Any other part of the machine which contacts asphalt



Do not spray releasing agent into tracks before loading or unloading the Paver on a truck or trailer, because this could cause loss of traction.

Do not spray releasing agent on a HOT engine.

Do not spray releasing agent while the screed propane heaters are in use.

#### CHECK FUEL TANK LEVEL

After operation each day, the fuel tank should be filled to prevent water from condensing in the tank. To fill, remove the filler cap and add fuel.

A drain plug is provided in the bottom of the tank for removing condensation and other foreign materials periodically. Open the plug and allow water and fuel to drain into a container until only clear fuel is flowing from the tank.

**IMPORTANT:** DO NOT discharge fuel onto ground. Catch and dispose of per local waste disposal regulations.

#### **CHECK ENGINE OIL LEVEL**

With the Paver on level ground, and the engine stopped for ten minutes or more, remove the engine dipstick. Wipe it clean, re-insert it and remove to obtain a reading. If the oil level is down, or below the ADD mark, fill with the required amount of oil to bring the level to the FULL mark. See the LUBRICATION chapter for the type of oil to use.

#### **CHECK RADIATOR COOLANT LEVEL**



DO NOT remove the radiator cap when the engine is running hot or overheated. Coolant is extremely hot and under pressure and it can burn your skin. Allow sufficient time for the radiator to cool before relieving the pressure and removing the radiator cap.

With the Paver on level ground, remove the radiator cap. Add clean engine coolant mixture of 50/50 water and anti-freeze if the coolant level is below the filler neck. Replace the radiator cap securely.

**NOTE:** If the engine is operated with a loose or damaged radiator cap, the pressure bypass will not work and the engine will run hot.

#### **CHECK INSTRUMENTS OPERATION**

Allow the engine to warm up for about five minutes before beginning operation. Indicator lamps should not be lit and gauges should register normal readings.

# CHECK GENERAL MACHINE OPERATION AND CONDITION

Are any decals missing or damaged? Are all guards, shields and covers in place? Do all controls function smoothly and properly? Are there any abnormal vibrations or noises? Are any hoses or fitting connections leaking? Is the engine exhaust color normal (light blue or colorless)?

#### **Every 50 Hours or Weekly**

The following service checks should be done at the beginning of each working week and in full conjunction with Daily Service.

#### **CHECK FAN BELT**

If the belt shows wear or cuts, it should be replaced. Order replacement belt from your engine dealer. Refer to the engine manual relative to proper belt replacement and tension adjustment procedures.

#### **CHECK FUEL FILTER**

**NOTE:** The fuel filter will require occasional replacement to maintain a clean and adequate fuel flow for maximum engine horsepower. The frequency of filter replacement will be determined by the cleanliness of available fuel, the care used in storing fuel supplies and the operating conditions in which the Paver is used.

Small amounts of water can be drained from the engine fuel filter. The drain petcock should be loosened weekly to drain off water accumulation until clear fuel is flowing from the outlet.

**IMPORTANT:** DO NOT discharge fuel onto ground. Catch and dispose of per local waste disposal regulations.

## **CHECK HYDRAULIC OIL LEVEL**

The fluid must be cool when checking the reservoir level, or changing the filter. By doing this, you will reduce the possiblity of overfilling the hydraulic system, and also reduce potential injury due to hot fluid.



## WARNING

ALWAYS protect face and eyes whenever a pressure plug or cap is removed. NEVER assume that no pressure exists in a pressure vessel or system.

Before removing the fill plug, release pressure in the hydraulic system by allowing pressure to bleed-off when loosening the fill plug. This can also be done by loosening the breather cap on top of the backwall console.

**NOTE:** Be careful when removing the reservoir filler cap so that no dirt or other foreign matter enters the hydraulic system while the cap is removed. DO NOT OVERFILL.

See the LUBRICATION chapter of this manual for recommended hydraulic oils.

#### **CHECK BATTERY FLUID AND CABLES**

Check cables for corrosion or loose connection. Check to see if fluid level is full in each cell.

**NOTE:** The battery on the Paver is warranted by the supplier. See the punch tag on the top of the battery for warranty information.

## **Handling Battery Safely**

The top of the battery must always be kept clean. Clean the battery with a brush dipped in an alkaline solution (ammonia or baking soda and water). After the foaming has stopped, flush the top of the battery with clean water. If the terminals and cable connection clamps are corroded or have a buildup, disconnect the cables and clean the terminals and clamps with the same alkaline solution.



Explosive gas is produced while a battery is in use or being charged. Keep flames or sparks away from the battery area. Be sure battery is charged in a well-ventilated area.

NEVER lay a metal object on top of a battery as a short circuit can result.

Battery acid is harmful on contact with skin or fabrics. If acid spills, follow these first aid tips:

- 1. IMMEDIATELY remove any clothing on which acid spills.
- 2. If acid contacts the skin, rinse the affected area with running water for 10 to 15 minutes.
- 3. If acid comes in contact with the eyes, flood the eyes with running water for 10 to 15 minutes. See a doctor at once. NEVER use any medication or eye drops unless prescribed by the doctor.
- 4. To neutralize acid spilled on the floor, use one of the following mixtures:
  - a. 1 pound (0.5 kg) of baking soda in 1 U.S. gallon (4 liters) of water.
  - b. 1 pint (0.5 liters) of household ammonia in 1 U.S. gallon (4 liters) of water.

Whenever battery is removed from the unit, BE SURE to disconnect the negative (-) battery terminal connection cable first.

#### Jump-starting

If the Paver battery becomes discharged or does not have enough power to start the engine, use jumper cables and the following procedure to jump-start the Paver engine.

**IMPORTANT:** BE SURE that the jumper battery is also a 12-volt D. C. battery and the vehicle used for jump starting has a negative-ground electrical system.

## **A** WARNING

The ONLY safe method for jump-starting a discharged battery is for TWO PEOPLE to perform the following procedure. The second person is needed for removing the jumper cables so that the operator does not have to leave the operator's position while the engine is running. NEVER make the jumper cable connections directly to the starter solenoid of either engine. DO NOT start the engine from any position other than the operator's position, and then ONLY after being sure all controls are in "neutral."

Closely follow the jump-start procedures, in the order listed, to avoid personal injury. In addition, wear safety glasses to protect your eyes and avoid leaning over the batteries while jump-starting.

DO NOT attempt to jump-start the Paver if the battery is frozen, because this may cause it to rupture or explode.

- 1. Turn the keyswitches on both vehicles to "OFF". Be sure that both vehicles are in "neutral" and not touching.
- 2. Connect one end of the positive (+) jumper cable to the positive (+) battery terminal on the disabled vehicle first. Do NOT allow the jumper's positive (+) cable clamps to touch any metal other than the positive (+) battery terminals. Connect the other end of the positive jumper cable to the jumper battery positive (+) terminal.
- 3. Connect one end of the negative (-) jumper cable to the jumper battery negative (-) terminal.
- 4. Make the final negative (-) jumper cable connection to the disabled Paver's engine block or frame (ground) NOT to the disabled battery negative post. If making the connection to the engine, keep the jumper clamp away from the battery, fuel lines, and moving parts.

**NOTE:** Twist the jumper cable clamps on the battery terminals to ensure a good electrical connection.

- 5. Proceed to start the Paver. If it does not start immediately, start the jumper vehicle engine to avoid excessive drain on the booster battery.
- 6. After the Paver is started and running smoothly, have the second person remove the jumper cables (negative (-) jumper cable, first) from the jumper vehicle battery, and then from the disabled Paver, while ensuring not to short the two cables together.

Allow sufficient time for the Paver alternator to buildup a charge in the battery before operating the machine or shutting off the engine.

**NOTE:** If the battery frequently becomes discharged, have the battery checked for possible dead cell(s) or troubleshoot the entire electrical system for possible short circuits or damaged wire insulation.

# CHECK/CHANGE AIR CLEANER ELEMENT (Figure 15)

Completely wipe the outside of the air cleaner body with a rag or cloth. Blow off excess dirt and dust with compressed air. Dissassemble as follows:

- 1. Loosen the clamp ring and remove the end cap. Remove the baffle. Wipe the end cap and baffle completely clean. Reassemble the end cap.
- 2. Remove the element wing nut and the element. Wipe the entire inside of the main body and inlet cap screen.
- 3. Inspect the element for clogging or holes. If the element is clogged or damaged it should be replaced.

**IMPORTANT:** NEVER use an element that is damaged. Severe engine wear and eventual failure can result if dirt gets through a hole in the element.

Make sure the clean element has no holes or ruptures. Placing a bright light inside the element and inspecting the outside will show up any holes or tears. Discard the element if holes or tears are evident.

Install the element and reassemble the air cleaner.

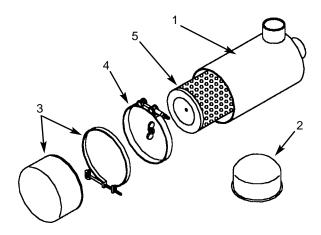


Figure 15 - Air Cleaner Components

- 1. Body
- 2. Inlet Cap
- 3. Dust Cup and Clamp Ring
- 4. Mounting Band
- 5. Element

#### **LUBRICATE GREASE POINTS**

Refer to the LUBRICATION chapter of this manual for fitting locations and other related details.

## 50 Hours (New Machine Only)

The following initial oil and filter changes should be made at this time on a new machine. Thereafter these changes should be made at the regular maintenance schedule listed. Refer to those schedules for procedures necessary.

Engine Oil and Filter (250/500 Hours) Hydraulic Filter Elements (250 Hours)

## **Service Every 250 Hours**

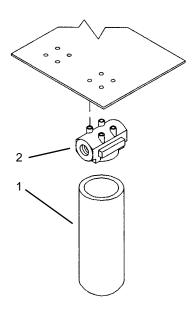
Perform all other service requirements up to this point as well as the following:

## CHANGE HYDRAULIC FILTERS (Figure 16)

Remove both elements and discard. Wipe the sealingsurface on the mount head with a clean cloth. Apply a thin coat of clean oil to the new oil filter gasket. Spin tighten.



Hydraulic fluid is hot during operation. Allow to cool before relieving system pressure by loosening breather cap on top of the backwall.



**Figure 16 - Hydraulic Filter Components** 

- 1. Filter Element
- 2. Mounting Head (Bottom Side of Top Console)

#### CHECK SCREED BOTTOM PLATE

The bottom plate of the screed should be inspected for possible wear.

#### **CHANGE ENGINE OIL**

Change the engine oil and filter using the following procedure:

 With the engine warm, remove the crankcase drain plug. Some plugs are equipped with a magnet to gather metal particles. Completely clean and flush away all metallic filings from the plug and reinstall it.

**IMPORTANT:** DO NOT discharge oil onto ground. Catch and dispose of per local waste disposal regulations.

2. After new oil has been added, run the engine at idle speed until the oil pressure lamp is OFF. Check for leaks at the drain plug. Re-tighten only as much as necessary to eliminate leakage.

# TRACK HYDRAULIC PRESSURE ADJUSTMENT (Figure 17)

Track chain tensioning is accomplished by hydraulic cylinder force being applied to the front track idler hub.

Proper tension is achieved by applying 250 psi (17 bar) to 300 psi (20 bar) to the hydraulic cylinder. An adjustable relief valve located on the backwall just behind the screed lift cylinder is used to set this pressure.

If the tracks are not adjusting correctly, it may be necessary to check this pressure. Install a 0-500 PSI (0-35 bar) gauge onto the test port located on the top of the backwall. This relief valve connects hydraulically on the return side of the 7-stack main valve. Increase the pressure as follows:



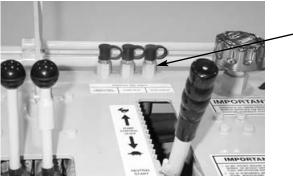


Figure 17

#### 1. Relief Valve

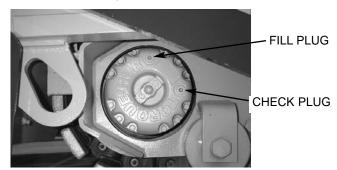
2. Test Port

- 1. Remove the cap from the relief valve and loosen the jam nut.
- 2. Increase the pressure by turning the Allen screw clockwise.

- 3. The engine must be running and at minimum 1/2 throttle.
- 4. When pressure is corrected, tighten jam nut, replace cap and remove gauge from test port.

**NOTE:** Track tension will not adjust if engine is not running.

#### CHECK TORQUE HUBS OIL LEVEL



Position the track so that one plug is in the 3- or 9-o'clock position and the other plug is in the 12-o'clock position. Remove the check plug. If oil appears, replace the plug as the level is sufficient. If oil does not appear, remove the fill plug and add oil until it flows from the check plug. Replace both plugs. Repeat for the other track.

## **Service Every 500 Hours**

Perform all other service requirements up to this point as well as the following:

## **CHANGE ENGINE OIL FILTER (Figure 18)**

The engine oil filter should be changed at every other oil change interval. Remove and discard the throw away filter canister. Wipe the gasket and sealing area of the block with a clean cloth.

**NOTE:** Use only genuine OEM engine replacement filters.

Apply a thin coat of clean oil to the new oil filter gasket. Turn new filter on until its gasket contacts the engine sealing surface, then using a filter wrench, tighten the filter another 3/4 turn. Refill the crankcase with new oil. Follow specifications in the LUBRICA-TION chapter for type and viscosity of new oil.

## **CHANGE FUEL FILTER (Figure 18)**

The cleanliness of available fuel, the care used in storing fuel supplies and the operating conditions in which the Paver is used may require the fuel filter to be changed prior to scheduled intervals. The engine has a "screw-on" canister filter and a remote fuel pump mounted on the engine. Unscrew the canister element and replace with a new one. Lightly oil the rubber gasket on the top of the filter before installing. Turn the replacement filter until it contacts the sealing surface, then turn 2/3 turn with a filter wrench.

**NOTE:** Fuel will flow from the filter head when the element is removed. To minimize fuel loss, have the replacement element ready for replacement or pinch the fuel hose leading to the filter head prior to removing the filter element. Catch and dispose of spilled fuel per local waste disposal regulations.

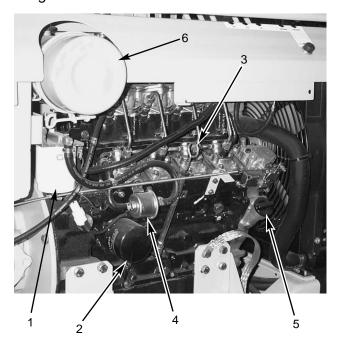


Figure 18

- 1. Fuel Filter
- 2. Engine Oil Filter
- 3. Engine Oil Dipstick
- 4. Fuel Pump
- 5. Engine Oil Filler
- 6. Air Filter



## WARNING

NEVER service the fuel system while smoking, while near an open flame, or when the engine is hot.

## **Fuel Bleeding Procedures**

When the fuel filter is removed and replaced, air must be bled from the filter. Loosen the bleeder screw on the top of the filter head. When fuel flows from the screw, tighten the screw. Turn the keyswitch to the "on" position for 15 seconds before starting the engine.

Start the engine and check the fuel system for fuel leaks.

If the engine will not start, consult your authorized engine dealer.



## WARNING

Escaping diesel fuel under pressure can have sufficient force to penetrate the skin. Before applying pressure to the fuel system, be sure all connections are tight and lines and hoses are not damaged. Use a piece of wood or cardboard to search for suspected leaks. If injured by escaping fuel, see a doctor familiar with this type of injury immediately or gangrene may result.

## 1000 Hours or Every Season

Perform all other service requirements up to this point as well as the following:

#### CHANGE RADIATOR COOLANT

Drain, flush and refill the cooling system as follows:

1. Loosen the radiator cap to its stop. This will release any system pressure. Remove the cap when all pressure is bled off.



## **WARNING**

Remove the radiator cap only when the engine is cool, or painful burns could result.

Open the radiator drain cock. Remove the water jacket drain plug from the engine block. When all coolant is drained, flush the system with clean fresh water. Allow the water to drain completely.

**IMPORTANT:** DO NOT discharge onto ground. Catch and dispose of per local waste disposal regulations. 3. Replace all drain plugs and tighten the radiator drain cock. Clean out the cooling fins in the radiator with water pressure or steam.

**IMPORTANT:** When cold weather is expected, fill the cooling system with a 50-50% mixture of water and ethylene glycol anti-freeze.

4. Inspect the radiator cap seal before installing it. Replace it if it appears defective. The pressure cap and engine thermostat work in conjunction with each other to maintain proper engine cooling.

**NOTE:** Check the coolant temperature gauge, every minute or two after coolant has been changed. Air pockets can form. It may be necessary to refill the cooling system after a short period of use, as the air bleeds out of the system.

## REPLACE HYDRAULIC OIL AND STRAINER

Clean all dirt and debris off the area where the hydraulic system suction (large) hose connects to the inside wall of the hydraulic reservoir.

1. Remove the drain plug from the bottom of the reservoir. Allow all the oil to drain out.

**IMPORTANT:** DO NOT discharge onto ground. Catch and dispose of per local waste disposal regulations.

- 2. Disconnect the suction hose and remove the sump strainer from inside the reservoir. Inspect the strainer. If it shows any damage, holes, etc. it should be replaced. Otherwise wash it clean with an industrial solvent, dry with a rag and coat with fresh hydraulic oil.
- 3. Flush out the bottom of the reservoir with clean hydraulic oil. Re-install the strainer, drain plug and reconnect the suction hose.
- 4. Fill the reservoir with fresh hydraulic oil. Follow specifications found in the LUBRICATION chapater of this manual.

**IMPORTANT:** Hydraulic fluid and filters should be replaced any time contamination is detected before the normally scheduled change.

#### CHECK EXHAUST SYSTEM

Check the muffler and pipes for holes or loose clamps. Tighten loose clamps and replace the pipes or muffler if they are leaking or have holes.

## **STORAGE**

If the Paver will not be operated for a long period of time, prepare and store it using the procedures as follows.

#### **BEFORE STORAGE**

Perform the following prior to placing the Paver in storage:

- 1. Wash off the entire machine.
- 2. Lubricate all grease points as described in the LUBRICATION chapter of this manual.
- 3. Change engine oil as outlined in the SERVICE AND STORAGE chapter of this manual.
- 4. Apply grease to all exposed hydraulic cylinder rod
- 5. Add stabilizer to fuel per fuel supplier's recommendation.
- 6. Disconnect the battery cable clamps and cover the battery or remove the battery from the Paver and store it separately.
- 7. If the ambient temperature (at any time during the storage period) is expected to drop below freezing, make sure the engine coolant is either completely drained from the radiator and engine block or that the amount of anti-freeze in it is adequate to keep the coolant from freezing. Refer to the separate engine manual provided for anti-freeze recommendations and quantities.

#### **DURING STORAGE**

- 1. About once each month, connect the battery, and check all fluid levels to make sure they are at the proper level before starting the engine.
- Start the engine and allow it to run until it warms up and then move the machine a short distance to help re-lubricate the internal parts. Run the engine until the battery has a chance to recharge and then shut it off.

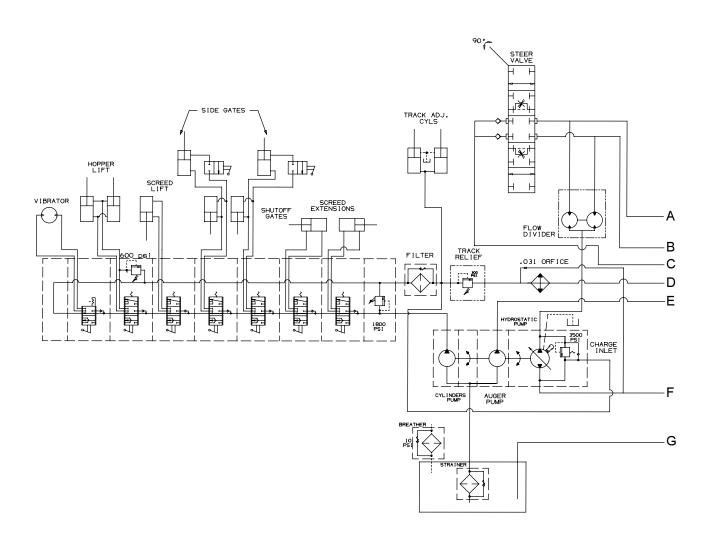
**NOTE:** If it is desired to operate the hydraulic cylinders at this time, be sure to wipe the protective grease (and any adhering dirt) from the cylinder rods prior to starting the engine. After operating, be sure to re-coat the cylinder rods with grease if the Paver is going to be returned to storage.

#### **AFTER STORAGE**

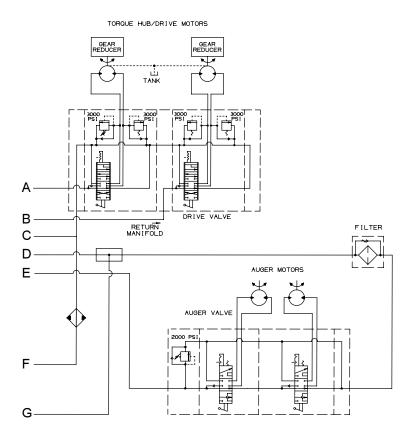
After removing the Paver from storage and before operating it, perform the following:

- 1. Change engine oil and filter to remove condensation and any other residual contamination.
- 2. Wipe off grease from cylinder rods.
- 3. Lubricate all grease fittings.
- 4. Review and refamiliarize yourself with all safety precautions as outlined in the SAFETY chapter of this manual.
- 5. Follow the starting and warm-up procedures as outlined in the OPERATION AND ADJUST-MENTS chapter of this manual.

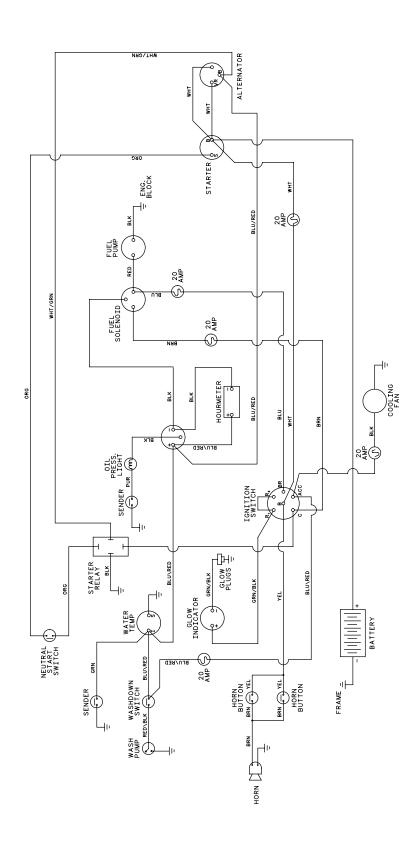
## **Hydraulic Schematic**



# **Hydraulic Schematic**



## **Electrical Schematic**



## **NOTES**

# Chapter 9 MAINTENANCE

This Maintenance Interval Chart was developed to match the SERVICE AND STORAGE chapter of this manual. Detailed information on each Service Procedure may be found in the SERVICE AND STORAGE chapter. A Maintenance Log follows the Maintenance Interval Chart for recording the service procedures performed. NOTE: Recording the 10-Hour (or Daily) service intervals would be impractical and therefore is not recommended.

**IMPORTANT:** Under extreme operating conditions, more frequent service than the recommended intervals may be required. You must decide if your operation requires more frequent service based on your use.

## MAINTENANCE INTERVAL CHART

SERVICE PROCEDURE	Every 10 Hours (or Daily	Every 50 Hours (or Weekly)	First 50 Hours
Check Fuel Tank Level	•		
Check Engine Oil	•		
Check Radiator Coolant Level	•		
Check Instruments Operation	•		
Clean Areas Contacting Asphalt	•		
Check General Machine Operation and Condition	•		
Change Engine Oil and Filter			•
Change Hydraulic Filter Elements			•
Check Air Filter Element		•	
Check Fuel Filter		•	
Check Fan Belt Tension		•	
Check Battery and Connections		•	
Check Hydraulic Oil Level		•	
Lubricate Grease Points		•	

## **MAINTENANCE INTERVAL CHART (CONT.)**

SERVICE PROCEDURE	Every 250 Hours	Every 500 Hours	Every 1000 Hours
Change Hydraulic Filter Elements	•		
Change Engine Oil	•		
Check Torque Hubs Oil Level	•		
Check Track Adjustment	•		
Check Screed Bottom Plate Wear	•		
Change Engine Oil Filter		•	
Change Fuel Filter		•	
Check Radiator Coolant			•
Change Hydraulic Reservoir Oil and Strainer			•
Check Exhaust System			•

## **MAINTENANCE LOG**

Date	Hours	Service Procedure

## **MAINTENANCE LOG**

Date	Hours	Service Procedure
	1	

## **MAINTENANCE LOG**

Date	Hours	Service Procedure
	<u> </u>	1

# Chapter 10

## **TROUBLESHOOTING**

The following troubleshooting guide lists potential problems, as well as possible causes and remedies, for the Paver.

If a problem occurs, don't overlook simple causes. A malfunction could be caused by something as simple as an empty fuel tank. After a mechanical failure has

been corrected, be sure to locate the cause of the problem.

**IMPORTANT:** DO NOT attempt to service or repair major components unless authorized to do so by your GEHL dealer. Any unauthorized repair's will void the Warranty.

#### GENERAL PAVER PROBLEMS DURING OPERATION

PROBLEM	POSSIBLE CAUSE	REMEDY
Engine operation erratic		Refer to engine troubleshooting.
Paver difficult to steer	One forward/reverse lever not fully engaged.	Engage lever.
(NOTE: Normal lead off to one side may be as much as 1 to 2 ft. in 100 ft. of travel under low or no load con-	Linkage for dual controls binding.  Tracks not properly aligned.	Free up linkage.  Correct alignment.
ditions.)	Tracks not property anglied.	Correct anginnent.
Soft or uneven terrain may cause lead off, which may be interpreted as steering problems. (Actual operating conditions will cause the lead off to change.)	Internal leakage in modular steer valve.	Replace seals.
Paver slowing down or excessive power loss	Engine not running at rated speed.	Disassemble drive valve and clean load checks.
		Check fuel filter.
(NOTE: Travel speed is 0-130 FPM.)	Failure of hydraulic system component. (filter, motor, pump, etc.)	Refer to hydraulic component(s) troubleshooting.
Hydraulic controls stall too freely or won't operate	Hydraulic system leaks.	Locate leaks and correct.
under a load		Repair faulty component.
		Refer to hydraulic components troubleshooting.
	Ports at end of screed plugged.	Clear ports.
Screed not hot enough	Outside air too cold/or windy.	Use propane heater on low while paving.

## PAVER-RELATED MAT PROBLEMS

Wavy surface (ripples)       1. Fluctuating head of materials.       Maintain full head of material.         2. Finisher speed too fast.       Reduce speed with the fast-slow lever.         3. Excessive play in screed mechanical connection.       Replace attaching bolts.         4. Screed riding on lift cylinder.       Lower cylinder completely.         Wavy surface (long waves)       See Causes 1, 3, 4.         5. Overcorrecting thickness control screws (long waves)       Make more moderate corrections as infrequently as possible.         6. Running hopper empty between loads.       Stop Paver before head of material reaches screed area.         7. Sitting long period between loads.       Stop Paver before head of material reaches screed area.         8. Screed plates worn or warped.       Empty hopper completely if waiting period lets asphalt cool.         9. Cold screed.       Replace wear plate.         Check ports in screed.       Replace wear plate.         (center streak)       See Causes 8. 9.         (lo. Too little crown in screed.       Increase lead crown.         Tearing of mat (outside streak)       See Causes 8. 9.         11. Too much lead crown in screed.       Decrease lead crown.         12. Screed extensions adjusted incorrectly.       Raise extension leading edge.         Mat texture not uniform       See Causes 3.         Screed marks       See Causes 2. <th>PROBLEM</th> <th>POSSIBLE CAUSE</th> <th>REMEDY</th>	PROBLEM	POSSIBLE CAUSE	REMEDY
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Way surface (long waves)  See Causes 1, 3, 4.  5. Overcorrecting thickness control screws.  6. Running hopper empty between loads.  7. Sitting long period between loads.  8. Screed area.  Empty hopper completely if waiting period lets asphalt cool.  Replace wear plate.  9. Cold screed.  Check ports in screed.  Tearing of mat (center streak)  10. Too little crown in screed.  11. Too much lead crown in screed.  12. Screed extensions adjusted incorrectly.  Mat texture not uniform  See Causes 3.  Screed not responding to correction  See Causes 2.  13. Screed riding on lift cylinder.  Lower cylinder completely.  Limit overlap to 2" maximum.  Poor transverse joint  See Causes 3, 13.			Replace attaching bolts.
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Poor transverse joint See Causes 3, 13.		13. Screed riding on lift cylinder.	Lower cylinder completely.
	Poor longitudinal joint	14. Improper joint overlap.	Limit overlap to 2" maximum.
15. Incorrect nulling of screed.  Increase "pitch" of screed before starting.	Poor transverse joint	See Causes 3, 13.	
		15. Incorrect nulling of screed.	Increase "pitch" of screed before starting.

## MATERIAL-DELIVERY, COMPACTION-RELATED MAT PROBLEMS

PROBLEM	POSSIBLE CAUSE	REMEDY
Wavy surface	1. Improper base preparation.	Review base installation.
(short waves - ripples)	2. Improper rolling operation.	Decrease speed.
	3. Improper mix design (aggregate).	See Asphalt Paving Manual.
	4. Improper mix design (asphalt).	See Asphalt Paving Manual.
	5. Mix segregation.	Asphalt plant mixing too long.
	6. Variation of mix temperature.	Asphalt plant burners not heating consistantly.
Wavy surface	See Causes 1, 5, 6.	
(long waves)	7. Trucks bumping finisher.	Stop truck short of Paver and drive Paver to truck.
	8. Truck holding brakes.	Driver must apply brakes only enough so that truck stays "in Paver."
	9. Reversing or turning too fast of rollers.	Cycle must be slow but deliberate.
	10. Parking roller on hot mat.	Move to cooler surface before parking. Park at 45° angle.
Tearing of mat (full width)	See Causes 3-7.	
(tun witti)	11. Improper mat thickness.	Mat thickness must be twice size of the largest aggregate.
	12. Cold mix temperature.	Check with asphalt plant for hotter asphalt mix.
Mat texture (center or outside streaks)	See Causes 12.	
Mat texture (non uniform)	See Causes 1, 3-6, 11, 12.	
Screed marks	See Causes 7, 8.	
Screed not responding to correction	See Causes 6, 11, 12.	
Auger shadows	See Causes 3, 4, 5.	
Poor pre-compaction	See Causes 1, 11, 12.	
Poor longitudinal or transverse joint	See Causes 2, 12.	
Transvers cracking (checking)	See Causes 1-4, 6	

## MATERIAL-DELIVERY, COMPACTION-RELATED MAT PROBLEMS (Continued)

PROBLEM	POSSIBLE CAUSE	REMEDY
Mat shoving under roller	See Causes 1-4, 6, 9, 13.	
Bleeding or fat spots in mat	See Cause 3, 4, 6, 13.	
Roller marks	See Causes 1, 2, 6, 9, 10.	
Poor mix compaction	See Causes 1-4, 6, 9, 10, 12, 13.	

## DRIVE AND MAIN CONTROL VALVES

DD OPY ELY	POGGIPLE GAVIGE	DELEGEN
PROBLEM	POSSIBLE CAUSE	REMEDY
Incapable of maintaining the load	Internal oil leak at the spool.	Replace entire valve housing and spool.
VAC 1544	Oil leaking at relief valve port.	Disassemble and clean or replace relief valve.
	Load check poppet or seat damaged. (located inside sections).	Replace poppet and seat assembly.
Spool sticking or does not move	Hydraulic oil contaminated.	Drain and replace with fresh oil. Also replace filters.
	Valve clogged with dirt.	Remove dirt and clean assembly.
	Inside of plunger cap filled with oil.	Replace seal on end of cap.
	Foreign matter at spool internal stop.	Remove foreign matter or replace entire valve section and spool assembly.
	Pressure too high.	Using pressure gauge, readjust pressure.
	Lever or link bent.	Remove and replace lever or link.
	Spool bent.	Replace entire valve assembly.
	Return spring failing.	Replace spring.
	Return spring or cap misaligned.	Loosen, realign and retighten spring or cap.
	System oil temperature distribution NOT uniform.	Allow sufficient warm-up for entire system.
Oil leaking at seals	Paint sticking at seal.	Remove and clean the seal.
	Back-pressure in valve.	Replace hydraulic oil filter.
	Dirt in seal.	Remove and clean the seal.
	Seal plate has loosened.	Replace valve housing as assembly.
	Seal broken or damaged.	Remove and replace seal.

## **DRIVE AND MAIN CONTROL VALVES (Continued)**

PROBLEM	POSSIBLE CAUSE	REMEDY
Controls feel heavy	Foreign matter in control valve spool.	Clean control valve.
	Valve spool sticking.	Replace entire valve housing.
	Control linkage lacking lubrication.	Properly lubricate linkage.

## HYDRAULIC PUMP AND MOTORS SYSTEM

PROBLEM	POSSIBLE CAUSE	REMEDY		
System will not operate in either direction	1. Oil supply low.	Check oil level and fill.		
cities uncction	2. Oil Filters clogged.	Replace filter element.		
	3. Oil too heavy.	Use proper viscosity oil.		
	4. Control linkage misadjusted.	Check to see if control linkage is binding or unfastened		
	5. Low charge pressure.  See remedy for Causes 6-9. Pressure should be 300-350 psi (			
	6. Relief valve stuck open.	Remove, clean or replace.		
	7. Damaged check valve.	Dissassemble and check if valve is faulty or damaged.		
System noisy	8. Air in system.	Low oil level in reservoir.		
	9. Loose suction line.	Tighten fittings and/or hose.		
	10. Clogged suction filter.	Replace Element.		
	11. Internal pump or motor damage.	Dissassemble, inspect, repair or replace.		
Sluggish response to acceleration or deccelera-	See Cause 8.	Also see remedy for Causes 1-3, 9.		
tion	See Cause 11.			
	12. Low charge pressure.	See remedy for Causes 6, 7, 9.		
	13. Relief valve dirty or damaged.	Remove, clean or replace.		
Oil leaking from pump or motor.	14. Defective seal.	Replace seal and/or complete assembly.		

## **HYDRAULIC CYLINDERS**

PROBLEM	POSSIBLE CAUSE	REMEDY		
Insufficient hydraulic cylinder power	Relief valve pressure setting decreased.	Readjust valve pressure setting.		
	Cylinder internal oil leakage.	Replace seals.		
	Cylinder piston or seals defective.	Replace piston or seals.		
	Control valve internal oil leakage.	Replace entire valve housing.		
Hydraulic cylinder exter- nal oil leakage	Cylinder seals defective.	Replace seals.		
nai on leakage	Cylinder rod damaged.	Replace rod.		
Piston does not move smoothly	Oil temperature is abnormally high.	Lower the oil temperature.		
Smoothy	Air being taken into system.	Replenish oil and retighten suction connections.		
	Seals defective.	Replace seals.		

## **ELECTRICAL SYSTEM**

PROBLEM	POSSIBLE CAUSE	REMEDY		
Starter will not turn	Keyswitch is in OFF or RUN position.	Turn keyswitch to START position.		
	Speed control not in OFF position.	Move speed control to OFF position.		
	Faulty wiring and/or terminations, or fuse open.	Troubleshoot circuit and repair.		
	Faulty starter switch.	Replace switch.		
	Battery not adequately charged.	Recharge switch.		
Battery discharges and/or will not recharge	Terminal or cables are loose or corroded, battery is defective, and/or alternator defective.	Clean terminals and cables and retighten or replace battery; have dealer check alternator.		
	Battery electrolyte level low.	Replenish with distilled water.		
	Alternator defective.	Replace or repair.		
Operating horn, etc. does not function	Fuse blown.	Check cause; correct and/or replace fuse.		
Charge indicator does not	Faulty alternator.	Replace alternator.		
activate before engine starts	Battery is not sufficiently charged.	Recharge battery.		

## **ENGINE**

PROBLEM	POSSIBLE CAUSE	REMEDY	
Engine will not turn over	Starter motor defective or faulty wiring connections.	Replace motor and/or repair wiring connections.	
Starter motor has insufficient power to turn engine over	Battery is run down, starter is defective and/or wiring connections are broken or loose.	Charge battery, repair/replace starter, and/or tighten connections.	
Engine cranks over but will not start	Fuel tank is empty.	Replenish fuel supply.	
will not start	Engine crankcase oil is too heavy.	Drain and replace crankcase oil with proper viscosity oil.	
	Engine is cold.	See Engine Manual.	
Engine cuts out abruptly	Out of fuel.	Replenish fuel.	
	Fuel filter is clogged and/or air is trapped in the fuel system.	Clean or replace fuel filter and/or de-aerate fuel system.	
Engine runs rough	Fuel filter is clogged and/or air is trapped in the fuel system.	Replace fuel filter and/or de-aerate fuel sys tem.	
	Air cleaner is clogged.	Clean or replace element.	
Engine overheats	Low radiator coolant	Replenish coolant	
	Radiator clogged.	Clean debris from radiator.	
	Crankcase oil level too low.	Add oil as required.	
	Exhaust is restricted.	When engine cools, remove restriction.	

## **NOTES**

# Chapter 11 DECAL LOCATIONS

## **GENERAL INFORMATION**



## CAUTION

ALWAYS read and abide by the safety precautions and information shown on decals. If any decals become damaged, unreadable or if the unit is repainted, the decals must be replaced. If repainting, be sure that all decals that apply to the machine are affixed in their proper locations.

Decal locations information is provided to assist in the proper selection and application of new decals, in the event the original decals become damaged or the machine is repainted.

For correct replacement of decals, compare the location illustrations to the machine before starting to refinish the unit. Check off each required decal using the illustration reference number to find the part number, description and quantity in the list. Refer to the appropriate illustration for replacement location.

**NOTE:** Refer to the SAFETY chapter of this manual for the specific information provided on the various safety decals.

## **NEW DECAL APPLICATION**

Before applying the new decals, surfaces must be free from dirt, dust, grease and other foreign material. To apply a solid-formed decal, remove the smaller portion of the decal backing paper and apply this part of the exposed adhesive backing to the clean surface while maintaining proper position and alignment. Slowly peel off the other portion of the backing paper while applying hand pressure to smooth out decal surface. To apply a die-cut decal, first remove the backing paper. Then, properly orient and position the decal onto the clean mounting surface. After the decal is firmly applied and smoothly pressed down, remove the front covering paper.

#### **PAINT FINISH**

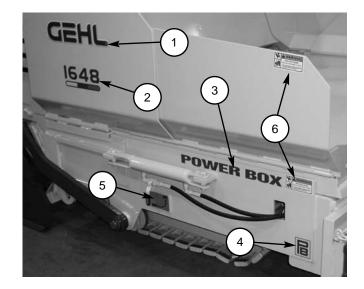
## Use this list to order paint for refinishing:

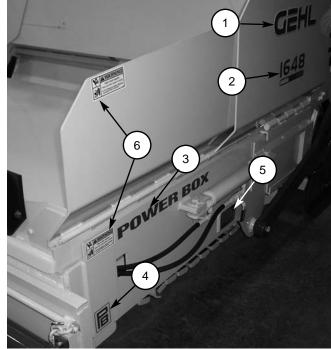
ans) Yellow
al Gray
ns) Charcoal Gray
tal Gray
ns) Gunmetal Gray

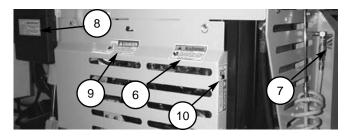
#### **COMPLETE DECAL KIT**

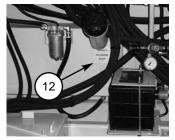
L500659 Decal Kit

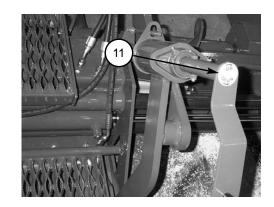
NOTE: Decals can also be ordered individually.





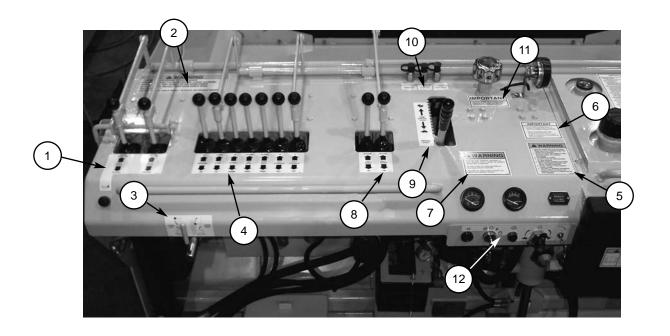


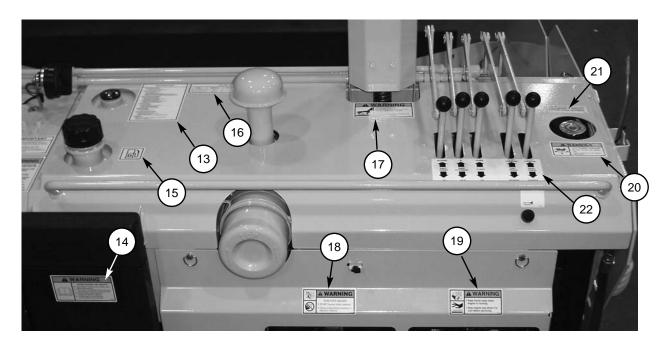


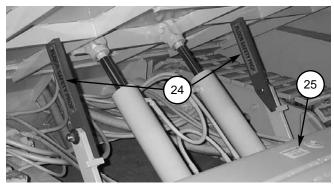


## **DECAL LIST - LOWER FRAME, HOPPER and SCREED AREAS**

REF. NO.	DESCRIPTION	1648
01	Gehl, 3-3/4"	183963
02	1648	101484
03	PowerBox	101481
04	PowerBox Logo	101482
05	On/Off Arrows	P207300
06	Pinch Point Warning	L65927
07	Made in USA 140516	
08	Important-Operator Manual L65922	
09	Jump-start Warning L65933	
10	Rotating Parts Warning L65924	
11	Depth Adjustment P480087	
12	Asphalt Releasing Agent	P471816







## **DECAL LIST - BACKWALL AREA**

REF. NO.	DESCRIPTION	1648
01	Drive Control w/Float	101115
02	Load/Unload Warning	P204113
03	Steer Valve	101986
04	LH 7-Stack Controls	101116
05	Operator Warnings	P204100
06	Operator Instructions	L277594
07	High Speed Warning	100983
08	Auger Control	101118
09	Pump Speed Control	101120
10	Pressure Setting	P473204
11	Hydraulic Oil Under Pressure	P471310
12	Switch Plate	101094
13	Maintenance Chart	101164
14	Operators Manual	137628
15	Diesel Fuel Only	137634
16	Filter Reference Chart	101502
17	Hot Surface Warning	L65942
18	Jump-start Warning	L65933
19	Pinch Point Warning	L65927
20	Coolant Under Pressure	072798
21	Anti-Freeze	056859
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K Schematic, Hydraulic
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## **Torque Specifications**

Use these torque values when tightening hardware (excluding: locknuts and self-tapping, thread-forming and metal screws) unless otherwise specified.

Unified National	Grade 2	$\bigcirc$	Grade 5	$\bigcirc$	Grade 8	
Thread	Dry	Lubed	Dry	Lubed	Dry	Lubed
8-32	19*	14*	30*	22*	41*	31*
8-36	20*	15*	31*	23*	43*	32*
10-24	27*	21*	43*	32*	60*	45*
10-32	31*	23*	49*	36*	68*	51*
1/4-20	66*	50*	9	75*	12	9
1/4-28	76*	56*	10	86*	14	10
5/16-18	11	9	17	13	25	18
5/16-24	12		19	14	25	20
3/8-16	20	15	30	23	45	35
3/8-24	23	17	35	25	50	35
7/16-14	32	24	50	35	70	55
7/16-20	36	27	55	40	80	60
1/2-13	35	35	75	55	110	80
1/2-20	40	40	90	65	120	90
9/16-12	55	55	110	80	150	110
9/16-18	60	60	120	90	170	130
5/8-11	75	75	150	110	220	170
5/8-18	85	85	180	130	240	180
3/4-10	130	130	260	200	380	280
3/4-16	150	150	300	220	420	320
7/8-9	125	125	430	320	600	460
7/8-14	140	140	470	360	660	500
1-8	190	190	640	480	900	680
1-14	210	210	710	530	1000	740

Metric Course	Grade 8.8	8.8	Grade 10.9 (10.9)		Grade 12.9 (12.9)	
Thread	Dry	Lubed	Dry	Lubed	Dry	Lubed
M6-1	8	6	11	7	13.5	10*
24M8-1.25	19	14	27	20	32.5	24*
M10-1.5	37.5	28	53	39	64	47
M12-1.75	65	48	91.5	67.5	111.5	82
M14-2	103.5	76.5	145.5	108	176.5	131
M16-2	158.5	117.5	223.5	165.5	271	200

<sup>\*</sup> All torque values are in lb-ft, except those marked with an \*, which are in lb-in. For metric torque values (Nm) multiply lb-ft value x 1.355, or lb-in value x 0.113.

## **GEHL**

# NEW CONSTRUCTION EQUIPMENT POWER BOX® PAVER

#### WARRANTY

**GEHL CONSTRUCTION DIVISION** of the **GEHL COMPANY**, hereinafter referred to as GEHL, warrants new GEHL Power Box Pavers, to the Original Retail Purchaser to be free from defects in material and workmanship for a period of twelve (12) months from the Warranty Start Date.

#### **GEHL WARRANTY SERVICE INCLUDES:**

Genuine GEHL parts and labor costs required to repair or replace equipment at the selling dealer's business location.

GEHL MAKES NO REPRESENTATIONS OR WARRANTIES OF ANY KIND, EXPRESS OR IMPLIED (INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR PARTICULAR PURPOSE), EXCEPT AS EXPRESSLY STATED IN THIS WARRANTY STATEMENT.

#### **GEHL WARRANTY DOES NOT INCLUDE:**

- 1. Transportation to selling dealer's business location or, at the option of the Original Retail Purchaser, the cost of a service call.
- 2. Used equipment.
- 3. Components covered by their own non-Gehl warranties, such as tires, trade accessories and engines.
- 4. Normal maintenance service and expendable, high-wear items.
- 5. Repairs or adjustments caused by: improper use; failure to follow recommended maintenance procedures; use of unauthorized attachments; accident or other casualty.
- 6. Liability for incidental or consequential damages of any type, including, but not limited to lost profits and expenses of acquiring replacement equipment.

No agent, employee or representative of GEHL has any authority to bind GEHL to any warranty except as specifically set forth herein. Any of these limitations excluded by local law shall be deemed deleted from this warranty; all other terms will continue to apply.



# THIS OPERATOR'S MANUAL IS PROVIDED FOR OPERATOR USE

# DO NOT REMOVE FROM THIS MACHINE

Do not start, operate or work on this machine until you have carefully read and thoroughly understand the contents of the operator's manual.

Failure to follow safety, operating and maintenance instructions could result in serious injury to the operator or bystanders, poor operation, and costly breakdowns.

If you have any questions on proper operation, adjustment or maintenance of this machine, contact your dealer or the service department of Gehl Company before starting or continuing operation.

## California Proposition 65 Warnings

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer and birth defects or other reproductive harm.

Battery posts, terminals and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. **Wash hands after handling battery.** 



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