### Dealer Information

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### Customer Information

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### Machine Identification Numbers

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SECTION 1: SAFETY

SAFETY MESSAGES

General safety messages appear in this Safety Messages section. Specific safety messages are located in appropriate sections of the manual where a potential hazard may occur if the instructions or procedures are not followed.

Personal Safety

A signal word “DANGER”, “WARNING”, or “CAUTION” is used with the safety alert symbol.

Safety signs with signal word “DANGER”, “WARNING”, or “CAUTION” are located near specific hazards.

**DANGER** Indicates a hazardous situation that, if not avoided, will result in death or serious injury.

**WARNING** Indicates a hazardous situation that, if not avoided, could result in death or serious injury.

**CAUTION** Indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.

Machine Safety

Additional precautionary statement (“NOTICE”) is followed by specific instructions. This statement is intended to prevent machine damage.

**NOTICE:** The word “NOTICE” is used to inform the reader of something that needs to be known to prevent machine damage and/or property damage if a certain procedure is not followed.
SAFETY SYMBOL EXPLANATION

This is the safety alert symbol. This symbol is used in combination with an exclamation mark or other symbols to alert you to the potential for bodily injury or death.

**WARNING**

Read Operator's Manual and safety signs before operating machine.

**WARNING**

Check machine before operating. Machine must be in good operating condition and all safety equipment installed and functioning properly.

**WARNING**

Wear personal protective equipment. Dress properly. Wear close-fitting clothing and confine long hair. Avoid wearing jewelry such as rings, wrist watches, necklaces or bracelets. Always wear:

- a hard hat
- safety glasses
- work shoes
- reflective clothing
- hearing protection

**WARNING**

Keep spectators away.
Check Laws and Regulations

Know and obey all federal, state, and local laws and regulations to apply to your work situation.

Fire Extinguisher

Mount a fire extinguisher (not supplied with machine) on the screed attachment, readily accessible from the ground.
GENERAL SAFETY RULES

The following safety rules are some of the most important for safe operation of the machine. Remember that no amount of safety rules or safety equipment can make the operation of any machine safe, unless operator follows the rules and uses the safety equipment. An alert, properly trained and safety-conscious operator is key to the safe operation of any machine. Safety decals located on your machine contain important and useful information that will help you operate your equipment safely.

- Only responsible persons, delegated to do so, should operate any machine.
- Be sure safety shields and guards are in place and in good condition before starting the machine.
- Check to see that all personnel are clear of the machine before starting.
- Place all control levers and switches in NEUTRAL or OFF position when shutting the machine down. Be sure all control levers and switches are in NEUTRAL or OFF position before starting the engine.
- When parking the machine for the night, provide the appropriate lighting and marking if the machine is adjacent to a roadway or a construction area where work is in progress.
- The operator should not leave the operator’s platform when the engine is running.
- Stay clear of the tracks, conveyors, augers, and stay out of hopper when the engine is running.
- Keep the machine clean. The process of cleaning will reveal loose bolts, hydraulic lines, fittings and other trouble spots.
- Always keep the operator’s platform clean and free from asphalt, grease, oil, rags, and loose tools to help prevent slipping and falling.
- Before cleaning, adjusting or servicing the machine, shut engine down and place all controls and switches in neutral or off position. Lower all attachments, or securely support raised components. A variation of the above procedure may be used if instructed within this manual.
- Refuel the machine only with the engine OFF. Never smoke or have an open flame in area when refueling.
- Refill or check the radiator only when the engine is OFF and the radiator is not hot. Turn cap slowly to the first stop to relieve the pressure before removing the cap.
- Before starting or continuing operation, correct or report any mechanical deficiency that may cause further damage.
- Securely support with suitable blocking the mainframe, screed, or other components that are suspended or held aloft by slings, hoists, jacks or hydraulic cylinders before working under or between them.
- Make no modifications to your equipment unless specifically requested by Weiler.

![WARNING]

Failure to follow any of the preceding safety instructions or those that follow within this manual, could result in serious injury or death. This machine is to be used only for those purposes for which it was intended as explained in this manual.
SAFETY DECALS

- WARNING
- PINCH POINT AREA
  Keep clear while machine is in operation.

- WARNING
- Battery explosion can be violent. Acid can blind and burn.
  Read manual before servicing.

- WARNING
- Fuel and fumes can explode and burn.
  No smoking. No flame. Stop engine.

- WARNING
- Stand clear if engine is running.

- WARNING

- WARNING
- NO SMOKING within 50 feet during fueling or washdown.

- WARNING
- PINCH POINT AREA
  Keep clear while machine is in operation.
WARNING
DO NOT REMOVE GUARDS, CLEAN, OIL, OR REPAIR MACHINERY WHILE IN MOTION.

CAUTION
Clean fuel, lubricants and hydraulic oil from walkways.

WARNING
DO NOT STAND IN HOPPER WHEN ENGINE IS RUNNING.
1. **WARNING:** Read Instruction Manual and safety signs before operating or servicing machine.

2. **WARNING:** Pinch points can crush.

   Keep hands and feet away from moving parts.

3. **WARNING:** Battery fumes are flammable and can explode. Keep all burning materials away from battery. Battery explosion can blind. Acid can blind and burn. Tools and cable clamps can make sparks.

   DO NOT smoke. Shield eyes and face.

4. **WARNING:** Entanglement in rotating augers can kill or cut off hands and feet.

   Keep auger guards in place during operation. Shut off engine when servicing augers.

5. **WARNING:** Diesel wash-down and fumes can explode and burn.

   DO NOT spray near a hot or running engine. DO NOT spray near open flame. No smoking. Never spray when screed heaters are on.

6. **WARNING:** Contact with moving parts can result in serious injury or death.

   Shut off engine and wait for all motion to stop before working on machine. Keep all guards and shields in place during operation.
7. **CAUTION:** Slippery surfaces may cause you to fall resulting in serious injury.

Keep walkways and platforms free of fuel, oil, and lubricants.

8. **WARNING:** Never enter hopper when engine is running. Unexpected conveyor start-up may result in serious injury or death.

9. **WARNING:** Hot fluid under pressure can scald.

Allow engine to cool before opening radiator cap.

10. **WARNING:** Fuel and fumes can explode and burn.

Shut off engine before refueling. No flame. No smoking.
SECTION 2: GENERAL INFORMATION

INTENDED USE

A P385 Asphalt Paver typically uses bulk asphalt material for the placement of paved surfaces. Most commonly, hot mix asphalt is supplied by vehicle delivery to the paver’s front hopper.

Always use the machine in accordance with the instructions contained in this Operation and Maintenance Manual, safety signs on the machine, and other material provided by the Weiler company.

Proper maintenance and repair is essential for safety, and for efficient operation of the machine. Do not use the machine if it is not in suitable operating condition.

INTRODUCTION TO THIS MANUAL

This manual provides correct procedures for operating and maintaining your machine.

Read this manual carefully before operating the machine and keep it in the manual holder on the machine for future reference. If at any time a question arises concerning the equipment or procedures, contact an authorized Weiler dealer. Factory trained personnel, genuine replacement parts and the necessary equipment are available for all service requirements.

This machine has been designed and built to give outstanding performance and ease of operation under a variety of conditions. To maintain your machine and ensure trouble free operation, the routine maintenance as specified in this manual must be carried out at the recommended intervals. Prior to delivery, the machine was carefully inspected at the factory and by your dealer.

All information in this manual is based on the latest information available at time of publication. Dimensions and weight are approximate and the illustrations may not show the equipment in standard configuration. Your machine may have product improvements and features not yet contained in this manual.

Weiler reserves the right to make changes at any time without notice or obligation.
MACHINE DESCRIPTION

The Weiler P385 Paver is a heavy duty paver that can place paving surfaces for many applications including city streets, parking lots, sidewalks and driveways. The asphalt paver hopper accepts delivery of asphalt mix from a truck or transport vehicle at the front. Slat conveyors transport the mix from the hopper to the augers at the rear of the machine. The mix flows onto the ground ahead of the screed. The screed shapes and levels the mix to specified dimensions. The slope and the grade of the asphalt surface can be precisely controlled.

The P385 is equipped with a CAT 84 hp (62.6 kw) Tier IV, 4-cylinder diesel engine. Power is transmitted to the tracks by a variable speed hydrostatic pump, through two 2-speed hydrostatic motors. Shifting is accomplished by using the switches on the operator’s console for the 2-speed motors.

**NOTE:** The machine must be stopped with propel levers in NEUTRAL before changing propel speed range.

The paver control stations can set up in the following configurations:

- Left and/or right station(s) mounted for stand-up operation.
- Left and/or right station(s) low-mounted for seated operation.
- Left and/or right station(s) high-mounted for elevated seated operation.

Each conveyor and each auger is powered by hydraulic motors.

The screed, furnished as standard equipment with the machine, has an adjustable paving width of 8’ to 15’8” (2.4 to 4.8 meters).

Options available are work lights, grade/slope controllers, LED strobe, and truck hitch.

For quick reference, record the serial numbers in the front of this book on the customer information page.

The identification plate is located on the right hand side of the operator’s steering console.
General Information

The specifications provided in this section are applicable to the Model P385 Paver. Included in this section are machine weights, dimensions, performance and torque values for both metric and standard inch fasteners.

Engine Specifications

Engine

Model and Manufacturer...................................................... Caterpillar C3.4
Type...................................................................................... 4 Cycle diesel
Number of Cylinders............................................................ Four
Engine Oil Type .................................................................... 15W-40
Capacity .............................................................................. 10.6 Quarts (10.0 liters)

Engine Cooling System

Type...................................................................................... Liquid Cooled

Engine Fuel

Type Used ............................................................................ Diesel Fuel
Fuel Capacity ........................................................................ 22 Gallons (83.3 liters)

Electrical Specifications

Battery

Number Per Machine ........................................................... One maintenance free
Ampere Hour Rating............................................................ 1000 CCA
Voltage ................................................................................. 12 Volts

Alternator

Type and Voltage............................................................... Denso, 12 Volt, negative ground
Output Amperage............................................................... 50 Amps

Starter

Manufacturer................................................................. Denso
Voltage and Type............................................................. 12 Volt, negative ground
Dimension Specifications

**Dimensions**

- Overall Length “A” : 13’2” (w/ walkway up) (4.01 m)
- Overall Height : 5’11” (1.80 m)
- Overall Width (hopper wings in) : 8’6” (2.59 m)
- Overall Width (hopper wings out) : 10’ (3.04 m)
- Weight : 18,500 (8390 kg)
Performance Specifications

**Speed**

- Travel ................................................................................... 294 FPM (90 m/min)
- Paving .................................................................................. 156 FPM (48 m/min)

**Effective Coverage**

- Basic Screed Width .............................................................. 8 ft. (2.44 m)
- Maximum Screed Width ...................................................... 15 ft. 6 in. (4.72 m)

**Machine System Capacity Specifications**

**System Capacities**

- Fuel ................................................................. 22 gallons (83.3 liters)
- Engine Lubrication .................................................. 10.6 quarts (with lubrication oil filter) (10.0 liters)
- Hydraulic Oil Reservoir ....................................................... 20 gallons (75 liters)
- Planetary Oil ................................................................. 2.4 quarts (2.3 liters)

**Machine Hydraulic Pressures**

- Drive ................................................................. 5000 PSI (345 bar)
- Conveyors & Augers ................................................................. 2500 PSI (172 bar)
- Cylinders .............................................................................. 3000 PSI (207 bar)

**Types of Lubricants**

- Engine Oil ............................................................................ SAE 15W-40
- Hydraulic Oil ....................................................................... ISO 68
- Torque Hub Grease ................................................................. SAE 80w - 90 Gear Oil
- Grease .................................................................................. NLGI #2
- Chain Lube ............................................................................. NLGI #2
Operator Controls

Operator Station

(1) **Ignition Switch (Left Control Station)**
The switch controls starting, stopping and running of the engine.

(2) **Engine Speed Switch (Left and Right Control Stations)**

- Push up and hold to increase engine speed.
- Push down and hold to decrease engine speed.

The engine speed switch spring returns to the center position when switch is released.

(3) **Park Brake/Pause Switch (Left Control Station)**

- Push up to turn ON park brake.
- Center switch to turn on PAUSE mode.
- Push switch down to turn park brake and PAUSE mode OFF.

The PAUSE mode allows the propel levers to remain engaged at previous set paving speed when moving switch from PAUSE to OFF. The PAUSE mode disconnects the propel power and shuts off the conveyor and auger drives, shuts off the screed vibrator, and if equipped, sends a signal to suspend the auto grade and slope control.

**NOTE:** To start the engine, the park brake switch must be ON. The engine will start with propel lever out of NEUTRAL but machine will not move. To propel the machine, both propel levers must be returned to NEUTRAL and the park brake turned OFF.

**NOTE:** The park brake is not ON in PAUSE mode.
(4) Pause Control Switch (Right Control Station)
Push up to turn on PAUSE mode. Push down to turn off PAUSE mode.

**NOTE:** The park brake is not ON in PAUSE mode.

**NOTE:** The right control station PAUSE control only functions when the right side control station is enabled by the CONTROL CONSOLE SELECTOR switch.

(5) Horn

Press the horn button to sound the horn.

(6) Engine Stop Controls

To stop the engine and machine quickly, press the knob in.

In order to start the engine, pull the knob out.

**NOTE:** Each control station is equipped with an Engine Stop Control. Both stop switches must be pulled out to the OFF position to start the engine.

(7) Propel Speed Range Switch (Left and Right Control Station)

The switch is a three-position High, Medium, and Low propel speed range selector. Select High range to travel at higher speeds. Select Medium or Low for paving speeds.

**NOTE:** The machine travel must be stopped and the propel levers returned to NEUTRAL to change travel speed.

(8) Propel Levers

The propel levers control the direction and speed of the paver. To move the levers out of NEUTRAL, lift up on the lock ring under the knobs. Move the levers forward to move the paver forward. Move the levers rearward to move the paver in reverse. To steer the paver, move one lever further than the other lever. Move levers to the center NEUTRAL positions to stop machine travel.
(9) Steering Wheel - Optional
The steering wheel, together with the propel lever (A), controls the direction and speed of the paver. To steer, turn the steering wheel in the desired direction of travel. To propel the paver, lift up on the lock ring under the propel lever knob and move the propel lever in the direction of intended travel. The further the propel lever is moved away from NEUTRAL the faster the machine travels. Return the propel lever to the center NEUTRAL position to stop machine travel.

(10) Control Console Selector Switch (Left Control Station)
Push switch left to enable the Propel levers (8), the Propel Speed Range switch (7) and the Pause control on the left control panel. Push switch right to enable the propel levers, Speed Range switch and the Pause control on the right panel.

(11) Limp Home Controls
The paver is equipped with propel control switches to move the paver in the event of loss of control from the electronic control module. To propel the paver in limp home mode, refer to "Limp Home Instructions", page 4-25.

(12) Screed Heater Control
Refer to Electronic Display Navigator - Main Operating Screens for screed ON/OFF control.

The generator is on whenever the engine is running and supplies power to the screed heaters.

The generator is under load only when the screed heaters are on.

NOTE: To prevent low screed heater voltage and possible failure of the generator, turn on screed heaters only at full engine speed.
(13) **Head of Material (Left and Right control stations)**

Turn knobs to adjust the amount of paving material controlled by the screed sonic sensors.

The head of material on the left side of the screed is controlled by the knob on the left side control station, and the material on the right side is controlled at the right side control station.

**NOTE:** Both right and left conveyor control switches and both auger control switches must be in AUTO mode for the sonic sensors to function.

(14) **Grade/Slope Control Switch**

Supplies power to the automatic grade and slope control system if equipped with a grade/slope system.

(15) **Screed Lift Switch (Left and Right control stations)**

Push up to raise the screed for travel. Move the switch to the center position to lock the screed in position. Push down for the screed to float and follow the ground contour while paving.

**NOTE:** Both screed lift control switches must be in the center LOCK position to prevent the screed from lowering during machine travel.

(16) **Vibrator Switch (Left and Right control stations)**

Push up to turn on screed vibrator. Push down to turn off vibrator.

**NOTE:** The screed vibrator shuts off when pause control is ON.
(17) Tow Point Controls

The three-position switches are located on each control station and on each tethered pendant (optional).

Push up and hold to raise the tow point.

**NOTE:** Raising the tow point will increase the screed angle, resulting in a thicker mat.

Push down and hold to lower the tow point.

**NOTE:** Lowering the tow point will decrease the screed angle, resulting in a thinner mat. The tow points remain stationary when the switch is released.

(18) Hopper Switch

Push up and hold to raise the left and right hopper. Push down and hold to lower hoppers.

(19) Truck Hitch Switch (Left and Right control stations) (Optional)

Push up and hold to extend truck hitch guide rollers to release truck wheels. Push down and hold to retract truck hitch rollers to capture truck wheels. The guide rollers remain stationary when the switch is released.

(20) Cut-Off Door Switch (Left and Right control stations)

Push up to close left or right cut-off door. Push down to open right or left door.

**NOTE:** Cut-off doors automatically close to shut off material to the screed when either propel lever is moved to REVERSE.

(21) Screed Extension Switches (Left and Right control stations)

Right Screed Extension Switch - Move and hold switch to the right to extend the right screed extension. Move and hold switch to the left to retract the right screed extension. The screed extension remain stationary when the switch is released.

Left Screed Extension Switch - Move and hold switch to the left to extend the left screed extension. Move and hold switch to the right to retract the left screed extension. The screed extension remain stationary when the switch is released.
(22) Conveyor Switches (Left and Right control stations)
Push left switch up to place left conveyor in AUTO mode and right switch up to place right conveyor in AUTO mode.

**NOTE:** The left conveyor control switch on both the right and left control consoles must be in AUTO for the left conveyor to run and both right conveyor switches on both consoles must be in AUTO for the right conveyor to run.

**NOTE:** When in AUTO, conveyor will run when corresponding auger is running.

Move either switch to center position to shut off both conveyors

Push down and hold switch for manual control of the corresponding conveyor.

**NOTE:** Shutting off a conveyor does not shut off the corresponding auger.

(23) Auger Switches (Left and Right control stations)
Push left switch up to place left auger in AUTO mode and right switch up to place right auger in AUTO mode.

**NOTE:** When in AUTO mode, auger is controlled by the sonic sensors and by the head of material control.

Move switches to center position to shut off augers.

**NOTE:** Shutting off an auger will also shut off the corresponding conveyor if conveyor is in AUTO mode.

Push down left or right switch to turn on the corresponding auger.

**NOTE:** Moving an auger switch down to manual mode on either the left or right control station will override the AUTO or OFF position of the auger switch of the other control station.

(24) Work Lights Switch
Push switch up to turn on work lights.

(25) Beacon Switch
Push switch up to turn on beacon lights.
Pendant Controls (Optional)

NOTE: Each pendant controls the functions on the same side as the pendant is plugged into.

(1) Tow Points Switch
Push up and hold the switch up to raise the tow point. Push down and hold the switch to lower the tow point.

NOTE: The control of the tow points default to the controls on the left and right hand control stations when the pendant tow point switch is released.

(2) Screed Extension Switch
Push up and hold to extend screed extension. Push down and hold to retract screed extension.

NOTE: The control of the screed extensions default to the controls on the left and right hand control stations when pendant screed extension control is released.

(3) Auger Drive Switch
Push up and hold to turn on auger to move material to screed end gate. Release switch to return auger control to left and right control stations.

NOTE: Conveyor will only run if conveyor control switches on both the left and right operator stations are in AUTO mode.
Manual Screed Adjustments

(1) **Screed Crown**

Turn star wheel up to extend turnbuckle to increase main screed crown. Turn star wheel down to retract turnbuckle to decrease crown or to valley the main screed.

**NOTE:** Loosen screed tie-bars (A) and bolts (B) before adjusting screed. Tighten tie-bars and bolts to prevent turnbuckle damage after adjusting.

**NOTE:** Adjusting handle (C) to turn star wheel and to loosen/tighten tie-bars is stored by the star wheels.

(2) **Screed Extension Slope**

Loosen jam nuts (D) and adjust turnbuckles to slope the screed extensions.

(3) **Screed Extension Height**

Turn hand crank to raise or lower the screed extensions.

(4) **Screed Extension Slope Switch - Optional**

Push up to raise outer end of extension. Push down to lower outer end of extension.

(5) **Screed Extension Height Switch - Optional**

Push up to raise screed extension height. Push down to lower screed extension height.
(6) **Screed Extension Angle**

Turn shaft with adjusting handle or wrench to change angle.

**NOTE:** Adjusting handle is stored under platform.

(7) **Screed Extension Angle Lock**

Place lock over shaft to prevent shaft from turning.

**NOTE:** Left Extension Angle Lock

**NOTE:** Right Extension Angle Lock
(8) End Gate Height/Angle
Turn hand cranks to adjust the height and angle of the floating skid shoes of the end gate.

(9) Main Screed Height (Angle)
Turn hand crank to change main screed angle to increase or decrease mat thickness.
Miscellaneous Controls and Indicators

(1) Screed Lock

To prevent crushing injury or death from unexpected lowering of the screed, raise the screed and insert the lock pins under the tow arms. Lower the tow arms onto the lock pins.

There are two screed lock pins, one on each side of the machine. The lock pins hold the screed in the raised position for cleaning and service under the screed.

Step 1: Raise the screed high enough to extend the lock pins.
Step 2: Fully extend the lock pins under the tow arms.

**NOTE:** Insert both pins to prevent screed damage from twisting if lowered with only one lock pin extended.

Step 3: Lower the tow arms onto the lock pins.

Retract the screed lock pins into the storage position during paving operation.

(2) Hopper Lock

Insert hopper lock pins to prevent crushing injury or death from unexpected lowering of the hoppers.

There is a lock pin for each hopper. The lock pins hold the hoppers in the raised position for shipping and for cleaning and service under the hoppers.

Step 1: Fully raise the left and right hoppers.
Step 2: Extend both lock pins into the slotted receiving holes to lock the hoppers in the raised position.

(3) Screed Rear Platform

Fold rear platform up over-center in order to start paving closer to a rear structure.
(4) Screed Rear Platform Extensions (Optional)
Rotate handle (A) up to unlock and pull platform extension out.

Rotate handle up and push extension completely in.

Rotate handle rearward to lock extension in for travel.

**NOTE:** Handle shown is in locked position.

---

**WARNING** To prevent platform extensions from extending during shipping, push platform extensions completely in and rotate handles rearward.

(5) Screed Rear Platform Latch
Remove pin (A) to move latch.

Raise platform and hook latch over platform

Install pin (A) to secure latch and platform.

---

(6) Spray-down Fuel Pump Control
Push switch up to turn on pump.

Squeeze nozzle lever to spray.

Push switch down to shut off pump.

---

(7) Battery Ground Disconnect Switch
The battery ground disconnect switch is located under the shield on the left side of the paver. Shut off the electrical system and remove the battery disconnect key when servicing the electrical system or when leaving the machine untended overnight or for extended storage.

Turn the key clockwise to turn on the electrical system.

Turn the key counterclockwise to shut off the electrical system.
(8) Backup Alarm
The backup alarm, located under the right hand platform, sounds when a propel lever is in REVERSE to alert persons when the machine is backing up.

(9) Sonic Sensors
The sonic sensors use sound waves to detect the material level at the ends of the screed. The electronic control module uses the sensor information to control the conveyor and auger to maintain proper level of the material when the conveyor and auger control switches are in AUTO.

(10) Tow Point Indicators
Indicator rods provide visual input to the location of the tow point height relative to center of hydraulic cylinder stroke.

**NOTE:** Cylinder rod at center of stroke when second mark (A) on indicator rod is at edge of hole.

Raise tow point to increase mat thickness. Lower to decrease thickness.

(11) Screed Extension Width Indicators
Screed Extension Width Indicators provide visual input of the screed extension.

**NOTE:** Use edge of tow arm as reference pointer.
(12) Screed Extension Height Indicator
Screed Height Indicators provide visual input of the screed height.

(13) Screed Level Indicator
The Screed Level Indicator provides visual input of the screed level in degrees.

   **NOTE:** Indicator is adjustable.

(14) Screed Crown Indicator
The Screed Crown Indicator provides visual input to the angle of the crown in degrees.

   **NOTE:** Indicator is adjustable.
(15) Cut Off Shoes (Optional)
Cut-off shoes reduce the width of the mat between the end gates.

**NOTE:** To allow the cut-off doors to close, remove the cut-off shoes from the cut-off shoe mount before you close the doors for travel.

If not installed, bolt the cut-off shoe mount (A) to the paver.

Slide the cut-off shoes (15) onto the cut-off shoe mount and bolt at desired width.

Push the cut-off door switch up to close the cut-off doors (B).

**NOTE:** To prevent damage to the cut-off shoes, verify that the shoes do not extend beyond the end of the cut-off doors before retracting the screed extensions.
(16) Vandalism Covers

Store vandalism covers (16) on platform as shown.

Install and lock vandalism cover over each control station (A) as shown.

⚠️ WARNING
To prevent vandalism covers from falling off during highway transport and resulting in serious injury or death to pedestrians or motorists, securely latch or lock the covers in all locations.
ELECTRONIC DISPLAY NAVIGATION

Screen A
- Activates Screed Cycle
- Enters Menu Screen
- Stops Screed Cycle
- Adds 5 Min to Screed Cycle
- Read Only Diagnostic Screens

Screen B
- Uses Errors
- active Manual Control
- active Manual Control
- Display Mousetrap
- Display Mousetrap
- Display Mousetrap
- Display Mousetrap
- Display Mousetrap
- Display Mousetrap
The system incorporates gauges and diagnostics with a LCD (Liquid Crystal Display) of current readings through which the operator may scroll.

**Start-Up Screen**

This screen appears for 5 seconds after engine is started.

Control Keys (1) - To change function or screen, press key switch below function displayed. Key functions will be displayed with each screen.

**Main Operating Screens (A & B)**

1. Battery Voltage
2. Hour Meter
3. Engine Oil Pressure
4. Engine Coolant Temperature
5. Fuel Level
6. Press to turn on screed heaters and display screen B.
7. Press to increase heat time in 5 minute increments.
8. Press to shut off screed heaters and display screen A.
9. Press to enter menu mode.

**NOTE:** The following pop up alert messages appear in these screens:

- Active error (use menu screen to access details)
- Low oil pressure
- High coolant temperature
- Low fuel level
- Turn park brake on to start
- Center propel handle
- Park brake must be off to propel
- Return handles to neutral to change modes
- Engine must be at full RPM when screen heat is ON.
Menu Screens

1. Use up and down keys to move box over screen to enter.
2. Press to enter selected screen.
3. Press to exit to previous screen.

System Settings Screen

1. Navigate up or down systems settings list.
2. Press to select/deselect highlighted item in list.
3. Press to increase/decrease setting.
4. Press to exit to previous screen.

View Errors Screen

Active Error Count - Number of active errors displayed constantly.
Active Error Occurrences - Occurrences scrolled continuously.
Display Voltage High - Description scrolled continuously.

NOTE: Read only display. Press escape key to return to menu screen.
Conveyor/Auger Diagnostic Screen

**NOTE:** Read only display. Press escape key to return to menu screen.

Can Diagnostic Screen

**NOTE:** Read only display. Press escape key to return to menu screen.
## Drive Diagnostic Screen

**NOTE:** Read only display. Press escape key to return to menu screen.

```
VIEW DRIVE DIAGNOSTICS
LEFT PROPEL - LEFT HANDLES ACTIVE
VOLTAGE 0 (mV) VOLTAGE 0 (mV)
SIGNAL 0 (#) SIGNAL 0 (#)
TRACK DRIVE PUMPS - HIGH
FWD 0 (mA) FWD 0 (mA)
REV 0 (mA) REV 0 (mA)
PAUSE 0 (ON/OFF) PARK BRAKE 0 (ON/OFF)
BACK UP ALARM 0 (ON/OFF)
SWITCH - HIGH
```

## Engine Diagnostic Screen

**NOTE:** Read only display. Press escape key to return to menu screen.

```
VIEW ENGINE DIAGNOSTICS
OIL PRESSURE 0.0 (PSI)
COOLANT TEMPERATURE < 100°F
HOURS 0.0 HRS.
BATTERY 0.0 VDC
FUEL LEVEL 0%
```
## Electronic Display Error Description

<table>
<thead>
<tr>
<th>ERROR #</th>
<th>ERROR DESCRIPTION</th>
<th>ERROR STATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>DISPLAY VOLTAGE HIGH</td>
<td>DISPLAY VOLTAGE GREATER THAN 16 VOLTS FOR 2 SEC.</td>
</tr>
<tr>
<td>1</td>
<td>DISPLAY VOLTAGE LOW</td>
<td>DISPLAY VOLTAGE LOWER THAN 6 VOLTS FOR 2 SEC.</td>
</tr>
<tr>
<td>2</td>
<td>CONTROLLER VOLTAGE HIGH</td>
<td>CONTROLLER VOLTAGE GREATER THAN 16 VOLTS FOR 2 SEC.</td>
</tr>
<tr>
<td>3</td>
<td>CONTROLLER VOLTAGE LOW</td>
<td>CONTROLLER VOLTAGE LOWER THAN 6 VOLTS FOR 2 SEC.</td>
</tr>
<tr>
<td>4</td>
<td>CONTROLLER SENSOR VOLTAGE HIGH</td>
<td>CONTROLLER VOLTAGE GREATER THAN 6 VOLTS FOR 2 SEC.</td>
</tr>
<tr>
<td>5</td>
<td>CONTROLLER SENSOR VOLTAGE LOW</td>
<td>CONTROLLER VOLTAGE LOWER THAN 4 VOLTS FOR 2 SEC.</td>
</tr>
<tr>
<td>6</td>
<td>LEFT TRACK VOLTAGE HIGH</td>
<td>HANDLE VOLTAGE IS GREATER THAN 4.9 VOLTS FOR 2 SEC.</td>
</tr>
<tr>
<td>7</td>
<td>LEFT TRACK VOLTAGE LOW</td>
<td>HANDLE VOLTAGE IS LESS THAN 0.1 VOLTS FOR 2 SECONDS.</td>
</tr>
<tr>
<td>8</td>
<td>LEFT TRACK CALIBRATION HIGH</td>
<td>HANDLE VOLTAGE IS GREATER THAN LEFT TRACK CAL FOR 2 SEC.</td>
</tr>
<tr>
<td>9</td>
<td>LEFT TRACK CALIBRATION LOW</td>
<td>HANDLE VOLTAGE IS LESS THAN LEFT TRACK CAL FOR 2 SEC.</td>
</tr>
<tr>
<td>10</td>
<td>RIGHT TRACK VOLTAGE HIGH</td>
<td>HANDLE VOLTAGE IS GREATER THAN 4.9 VOLTS FOR 2 SEC.</td>
</tr>
<tr>
<td>11</td>
<td>RIGHT TRACK VOLTAGE LOW</td>
<td>HANDLE VOLTAGE IS LESS THAN 0.1 VOLTS FOR 2 SECONDS.</td>
</tr>
<tr>
<td>12</td>
<td>RIGHT TRACK CALIBRATION HIGH</td>
<td>HANDLE VOLTAGE IS GREATER THAN RIGHT TRACK CAL FOR 2 SEC.</td>
</tr>
<tr>
<td>13</td>
<td>RIGHT TRACK CALIBRATION LOW</td>
<td>HANDLE VOLTAGE IS LESS THAN RIGHT TRACK CAL FOR 2 SEC.</td>
</tr>
<tr>
<td>14</td>
<td>LEFT TRACK FORWARD OUT OF RANGE</td>
<td>OUTPUT CURRENT IS LESS THAN THE COMMAND CURRENT BY 15 MA, OR MORE, WHEN THE COMMAND CURRENT IS MORE THAN 300 MA FOR 2 SEC.</td>
</tr>
<tr>
<td>15</td>
<td>LEFT TRACK REVERSE OUT OF RANGE</td>
<td>OUTPUT CURRENT IS LESS THAN THE COMMAND CURRENT BY 15 MA, OR MORE, WHEN THE COMMAND CURRENT IS MORE THAN 300 MA FOR 2 SEC.</td>
</tr>
<tr>
<td>16</td>
<td>RIGHT TRACK FORWARD OUT OF RANGE</td>
<td>OUTPUT CURRENT IS LESS THAN THE COMMAND CURRENT BY 15 MA, OR MORE, WHEN THE COMMAND CURRENT IS MORE THAN 300 MA FOR 2 SEC.</td>
</tr>
<tr>
<td>17</td>
<td>RIGHT TRACK REVERSE OUT OF RANGE</td>
<td>OUTPUT CURRENT IS LESS THAN THE COMMAND CURRENT BY 15 MA, OR MORE, WHEN THE COMMAND CURRENT IS MORE THAN 300 MA FOR 2 SEC.</td>
</tr>
<tr>
<td>ERROR #</td>
<td>ERROR DESCRIPTION</td>
<td>ERROR STATE</td>
</tr>
<tr>
<td>--------</td>
<td>------------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>18</td>
<td>LEFT AUGER OUT OF RANGE</td>
<td>ACTUAL OUTPUT IS LESS THAN THE EXPECTED OUTPUT BY 15 MA, OR MORE, WHEN THE OUTPUT IS ON MORE THAN 2 SEC.</td>
</tr>
<tr>
<td>19</td>
<td>RIGHT AUGER OUT OF RANGE</td>
<td>ACTUAL OUTPUT IS LESS THAN THE EXPECTED OUTPUT BY 15 MA, OR MORE, WHEN THE OUTPUT IS ON MORE THAN 2 SEC.</td>
</tr>
<tr>
<td>20</td>
<td>SCREED OUTPUT OUT OF RANGE</td>
<td>ACTUAL OUTPUT IS LESS THAN THE EXPECTED OUTPUT OF 1.375A BY 15 MA, OR MORE, WHEN THE OUTPUT IS ON MORE THAN 2 SEC.</td>
</tr>
<tr>
<td>21</td>
<td>TWO SPEED VALVE OUT OF RANGE</td>
<td>ACTUAL OUTPUT IS LESS THAN THE EXPECTED OUTPUT OF 0.29A BY 15 MA, OR MORE, WHEN THE OUTPUT IS ON MORE THAN 2 SEC.</td>
</tr>
<tr>
<td>26</td>
<td>TEMPERATURE RESISTANCE HIGH</td>
<td>RESISTANCE LEVEL IS ABOVE 1000 OHMS</td>
</tr>
<tr>
<td>27</td>
<td>TEMPERATURE RESISTANCE LOW</td>
<td>RESISTANCE LEVEL IS BELOW 10 OHMS</td>
</tr>
<tr>
<td>28</td>
<td>FUEL VOLTAGE HIGH</td>
<td>VOLTAGE IS ABOVE 4.9 Vdc</td>
</tr>
<tr>
<td>29</td>
<td>FUEL VOLTAGE LOW</td>
<td>VOLTAGE IS BELOW 0.1 Vdc</td>
</tr>
<tr>
<td>30</td>
<td>PRESSURE RESISTANCE HIGH</td>
<td>RESISTANCE LEVEL IS ABOVE 1000 OHMS</td>
</tr>
<tr>
<td>31</td>
<td>PRESSURE RESISTANCE LOW</td>
<td>RESISTANCE LEVEL IS BELOW 10 OHMS</td>
</tr>
<tr>
<td>32</td>
<td>BACKUP ALARM OUT OF RANGE</td>
<td>ACTUAL OUTPUT IS LESS THAN THE EXPECTED OUTPUT BY 15 MA, OR MORE, WHEN THE OUTPUT IS ON MORE THAN 2 SECONDS.</td>
</tr>
<tr>
<td>38</td>
<td>LEFT SWITCH VOLTAGE OUT OF RANGE</td>
<td>SONAR VOLTAGE IS OUT OF THE ALLOWABLE RANGE FOR MORE THAN 2 SEC.</td>
</tr>
<tr>
<td>39</td>
<td>RIGHT SWITCH VOLTAGE OUT OF RANGE</td>
<td>SONAR VOLTAGE IS OUT OF THE ALLOWABLE RANGE FOR MORE THAN 2 SEC.</td>
</tr>
<tr>
<td>40</td>
<td>LEFT SONAR VOLTAGE OUT OF RANGE</td>
<td>SONAR VOLTAGE IS OUT OF THE ALLOWABLE RANGE FOR MORE THAN 2 SEC.</td>
</tr>
<tr>
<td>41</td>
<td>RIGHT SONAR VOLTAGE OUT OF RANGE</td>
<td>SONAR VOLTAGE IS OUT OF THE ALLOWABLE RANGE FOR MORE THAN 2 SEC.</td>
</tr>
</tbody>
</table>
SECTION 3: OPERATION PRINCIPLES

MACHINE FUNCTIONS

The primary functions of the machine are:

- Receiving the asphalt
- Delivering the asphalt
- Metering the asphalt
- Spreading the asphalt
- Towing the screed
- Constant forward speed
- Constant supply of material to the hopper
- Uniform distribution of material to the screed

The machine performs three major functions. Each function is critical to overall performance of the paver. The quality of the mat depends on the three functions that are listed below:

- **Material Handling** - Material that is deposited in the hopper is moved by the drag conveyor and the auger conveyor into position for the strike-off by the screed.
- **Mat Laydown** - The thickness of the mat and the smoothness of the mat are established during screed strike off. The screed also compacts the mix.
- **Forward Movement** - Because the screed does not operate without a machine, the machine controls the paving speed.

Screed Functions

The primary functions of the screed are listed below:

- Control the width of the mat.
- Control the depth of the mat.
- Provide the initial finish.
- Provide the initial compaction.
- Provide the profile of the mat.
Screed Performance

To achieve proper control of the screed, the operator must understand the forces which affect the floating action and the self-leveling action. The floating action and the self-leveling action are the mechanical basis of the control systems that have been developed. These control systems increase the quality of the pavement.

The paver tows the screed with the tow arms. A change in the angle of attack will cause a change in mat thickness. The material is pulled under the leading edge of the screed and compressed by the screed which produces a uniformly compacted mat.

If the base is level, the tow points will be level. The path of the screed will also be level. A level mat will be produced if no other forces affect the screed.

The machine typically travels over a wavy base. The screed follows the path of the tow points. The screed fills in the low spots and levels the high spots. The mat will become more level with each pass of the paver over the base.

The self-leveling effect of the screed depends on the length of the high spots and the length of the low spots. If the distance between the high spots and the low spots is short, the screed will flatten the profile. If the distance between the high spots and the low spots is long, the screed will reproduce the same pattern.

Forces Affecting the Screed

The float of the screed depends on the forces that are encountered during operation. The screed cannot be maintained in a stable condition if there is one or more of the forces that is uncontrolled.

The forces that affect the operation of the screed are:

- The weight of the screed
- The reaction of the material to the weight of the screed
- The towing force that is exerted through the paving speed
- The material that is ahead of the screed resists the forward movement of the screed. The material that is under the screed resists the forward movement of the screed. The resistance is dependent on the asphalt viscosity, gradation, and other flow characteristics of the mix.
- The rotation of the auger
- The compacting operation of the screed

When the forces that act on the screed change, the leveling process changes until the force system is in balance.

When all of these forces are in balance, the system is stable. The leveling process responds to vertical changes from the tow points and to changes in the thickness control screws.
Forces Affecting Mat Thickness

There are several forces that affect mat thickness:

- The forward speed
- The angle of attack
- The head of material
- The material temperature

Pavers use the self-adjusting principle in order to achieve a smooth surface. The screed fills in low spots and the screed levels high spots in order to level out rough roads. The float of the screed is independent of the machine. The tow point is also called the pivot point. The machine tows the screed and the machine feeds material to the screed.

There is a leveling arm (2) on each side of the machine. The leveling arms tow the screed behind the machine. The leveling arms are attached to the machine at the tow point (1). The screed is attached to the rear ends of the leveling arms (3). The screed pivots around the tow point. The screed operator can change the angle of attack by hydraulically raising and lowering the tow point, or by manually turning the thickness controls (4).

Forward Speed

Forward motion is required to force the material under the screed. When you change the forward motion without compensating for other forces, the mat thickness will change.

**NOTE:** A momentary change in speed can change the texture of the mat and the mat thickness.
Angle of Attack

The angle of attack is the angle of the screed bottom plate in relation to the line of pull. The mat thickness is controlled by changing the angle of attack. The angle of attack is controlled manually by the thickness control or the tow points. When you pave with the Auto Grade and Slope Controls, the angle of attack is controlled by the tow point controls. The angle of attack should return normally after the change in thickness is complete.

To obtain the smoothest surface, the thickness controls should not be changed once the correct mat depth is reached. If you adjust the angle of attack, the reaction speed will be approximately three lengths of the tow arm. If you adjust the angle of attack without allowing time for the paver to react, the mat will be irregular.

Head of Material

The head of material is the amount of the material that is placed ahead of the screed. The factors that control the head of material are the proper adjustment of the automatic feeder switches in conjunction with the depth, width, and paving speed.

The head of material should remain constant in order to obtain a smooth surface. If the head of material decreases, the pressure at the front of the screed decreases, the screed will drop. If the head of material increases, the pressure at the front of the screed will increase and the screed will rise.
Leveling

Asphalt pavers with screeds that float are self-adjusting. The paver has the ability to compensate for irregularities in the surface.

The length of the tow arms and the location of the tow points (1) determine the amount of self-adjusting. A longer wheel base (2) and longer tow arms increase the averaging of the high spots and the low spots. This will give a smoother road surface.

The self-adjusting of the screed depends on the distance instead of the mechanical ratio. When you adjust the screed, the reaction time is three lengths of the tow arm. The machine may roll over a bump before the screed will noticeably react. The screed will continue to leave a level surface.

Change the level gradually over a longer distance in order to prevent waves in the surface. The importance of this characteristic is seen as a smooth surface when the base is uneven.

When the paver encounters a depression, the reverse action takes place. As the machine travels downward, the screed is automatically tilted down. The screed will continue to travel downward until the screed is parallel to the horizontal plane of the machine.
Control of Screed

When you raise one corner of the screed with the thickness control, a slight warp is produced into the entire surface of the screed.

This side will gradually raise and the screed will level to the new setting. The mat will be thicker on one side.

Yield

When you lay a level surface over an irregular base the thickness must be an average. You must make multiple depth checks. If the minimum thickness is held on the high spots, you will exceed the minimum tonnage for the job.

The paver is designed to level automatically. Once the proper average thickness is set, a better surface will be produced.

Changes in Quantities of Material in the Auger Chamber

The head of material that is carried forward by the screed strike-off make up the major force that resists the forward motion of the screed. Control of the force is necessary for performance of the leveling process.

A variation in the head of material changes the pulling force. The variation in material changes the density of the material in the strike off zone. As the quantity of the material decreases, the density of the material decreases. As the quantity of the material increases, the density of the material increases.

A change in density will affect the internal stress that is developed in the mix. Internal stress affects the force that resists the weight of the screed. Internal stress affects the compacting action of the screed. If the material passes under the strike-off that is less compacted, the weight of the screed will cause the screed to sink. If the screed sinks, a thinner mat will be produced. If the material that passes under the strike-off is dense, the screed rises because less compaction is required under the screed to carry the weight of the screed.

The head of material affects the density in the strike-off zone. Variations in the quality of material will cause variations in the thickness of the mat.

Control the quantity of material in the auger chamber. This will allow the screed to level and compact properly.
Changes in Forward Speed of the Paver

The density of the material in the strike-off zone varies as the forward speed of the machine changes. The vibration that is delivered to an area depends on the speed of screed strike-off. The vibration that is delivered to an area depends on the speed as the screed passes over the mix.

When the paver slows down there is more compaction and the screed rises. When the paver speeds up there is less compaction and the screed lowers.

The paver must operate at different speeds in order to meet the different paving rates, the different paving widths, and the different pavement thicknesses. Uncontrolled speed variations must be avoided in order to obtain optimum performance of the floating screed.

The correct speed of the paver will be determined by the rate of supply of material to the paver. For optimum results, the paver should not stop moving.

Once the correct speed has been selected, the angle of attack for the screed will need to be adjusted in order to obtain the correct mat thickness. If the speed of the paver changes, the angle of attack for the screed will need to be adjusted in order to maintain the correct mat thickness. If the speed of the paver increases, the setting for the angle of attack will need to be increased. This will allow more material to pass under the strike-off zone in order to maintain the same mat thickness. If the speed of the paver decreases, the setting for the angle of attack will need to be decreased. This will restrict the amount of material under the strike-off zone in order to maintain the same mat thickness.

Changes in Auger Action

As the auger distributes the material from the center of the screed to the outer edges of the screed, the material exerts force on the screed plate. The force on the screed plate changes as the level of material in front of the screed changes.

Variations affect the mat density and the pressure that is applied against the screed. To ensure optimum stability and a smooth mat, the auger should be operated with as few interruptions as possible.

The level of material in the auger chamber should be adjusted so that the top half of the auger flights and the auger shaft can be seen at all times. For optimum results, the level of material in the auger chamber should be maintained. If the level of material in the auger chamber increases, the pressure in the strike-off zone will increase and the screed will raise. If the level of material in the auger chamber decreases, the pressure in the strike-off zone will increase and the screed will lower.
Screed Compacting Process

There are several forces that affect compaction:

- Paving speed
- Quantity of Material
- Weight of Screed
- Amount of compacting
- Type of compacting energy

**NOTE:** The material should be compacted uniformly in the direction of paving and uniformly across the mat.

There are two reasons that uniform compaction is important:

- Obtain the smoothest surface with the float of the screed.
- Make sure that subsequent rolling will not cause permanent distortion of the mat surface.

There are three factors that together produce a smooth pavement and a compact pavement:

- Uniform mix
- Control of paving speed
- Control of the distribution of material

Grade and Slope Control Systems

There are several options when you decide to use the grade and slope control systems on your machine and on your screed. The components within the different grade and control systems may be purchased as a set. The components in the systems can be sold individually.

Refer to Operation and Maintenance Manual for the grade and slope control system for your paver.

Feeder Control System

The sonic feeder system maintains a constant height of material by turning the conveyor and auger on or off.

The feeder system consists of the following components:

- Head of material
- Feeder auto/manual control
- Feeder sonic sensors

**Head of Material Control**

The control electrically adjusts the sensitivity of the feeder sonic sensor.
SETUP PROCEDURES AND INITIAL ADJUSTMENTS

Before Paving Setup

When you pave, you must first determine the width of the mat. The machine must be set up with the proper extensions, cut off shoes, and attachments that are required for the job.

If the paving width is less than the width of the machine, add cut off shoes.

If the paving width is more than the width of the main screed, extend the screed extensions.

The total width of the pavement must be known. Calculate the width of the strips equally. Use the appropriate attachments in order to obtain the paving width that is required.

Consider the following conditions when you begin to pave:

- Allow at least 104 mm (4 inch) of clearances between the outside of the screed and a straight curb for steering. This will prevent the paver from becoming locked against the curb. If the paver becomes locked with the curb, the machine must back up. This will cause marks in the mat surface.
- When multiple passes are required to achieve the desired mat thickness, stagger the overlaps approximately 50.8 mm (2 inch) at each joint that is matched.
- When multiple passes are required, the cut off strip would be laid prior to the final pass. Use the setup width for the final pass.
- The cut off shoes should be in the opposite side of the joint matching side.
- DO NOT overlap excessively at either end of the screed. Improper compaction, bridging, and tearing may result. Overlap should be held at a minimum at all times.
- When paving wide roads, a middle pass should be paved first. This will place the crown in the center of the road.

When paving roads with curbs and gutters, the screed can overhand the gutter on the top course. On the binder course, the gutter flange should be treated as a straight curb. Laying the full width of the pavement is better than laying narrow passes that equal the correct width. This is true even if some hand spreading is required at the curbs.

Auger Extension Installation (Optional)

When screed extensions are used, the material must travel farther. This may require the use of an auger extension.
SECTION 4: OPERATION

MOUNTING AND DISMOUNTING

Use steps and hand-holds whenever you mount or dismount the machine. Clean the steps and the hand-holds. Inspect the steps and hand-holds and make any necessary repairs.

Face the machine whenever you mount or dismount the machine. Maintain a three-point contact with the step and with the hand-holds.

DAILY PRE-STARTING INSPECTION

Check that all personnel are clear of the machine prior to starting and moving the machine. Keep the machine under control at all times in order to prevent injury.

For maximum service life of the machine, make a thorough walk-around inspection before starting the engine.

Look around and under the machine for loose bolts, asphalt build-up, oil or coolant leaks, and broken or worn parts.

Check the engine oil, coolant, and fuel levels. Check hydraulic oil level.

NOTE: Accumulated grease and oil on a machine is a fire hazard. Remove this debris with steam cleaning or high pressure water at least every 1000 service hours or each time any significant quantity of oil is spilled on the machine.
Check for leaks. If leaking is observed, find the source and correct the leak. Check the fluid levels more frequently than recommended if leaking is suspected or observed.

**WARNING**

Pressurized fluid can penetrate body tissue and result in serious injury or death. Leaks can be invisible. Keep away from any suspected leak. Relieve pressure in the hydraulic system before searching for leaks, disconnecting hoses, or performing any other work on the system. If you must pressurize the system to find a suspected leak, use an object such as a piece of wood or cardboard rather than your hands. When loosening a fitting where some residual pressure may exist, slowly loosen the fitting until oil begins to leak. Wait for leaking to stop before disconnecting the fitting. Fluid injected under the skin must be removed immediately by a surgeon familiar with this type of injury.

Inspect for and remove any trash build-up in the engine compartment.

Inspect the cooling system for leaks, faulty hoses, and trash build-up. Correct any leaks and remove any trash from the radiator.

Inspect the hydraulic system for leaks. Correct any leaks.

Inspect tracks for damage. Check sprocket teeth for excessive wear. Check track rollers for leakage.

Make sure the covers, shields, and guards are firmly in place. Inspect for damage.

Inspect the steps, walkways, and hand-holds for their condition and cleanliness.

Grease all of the fittings that need to be serviced on a daily basis.
MACHINE STARTING PROCEDURE

⚠️ WARNING ⚠️ Diesel engine exhaust contains products of combustion which may be harmful to your health. Always start and operate the engine in a well ventilated area and, if in an enclosed area, vent the exhaust to the outside.

⚠️ WARNING ⚠️ Start the engine from the operator's station. Never short across the terminals or across the batteries, as this could bypass the engine neutral-start system as well as damage the electrical system.

⚠️ WARNING ⚠️ Make sure no one is working on, underneath, or close to the machine before starting the engine or beginning to move the machine. Make sure the area is free of unauthorized personnel.

⚠️ WARNING ⚠️ DO NOT use aerosol types of starting aids, such as ether. Such use could result in an explosion and serious injury.

Step 1: Turn the battery disconnect switch (1) ON.
Step 2: Turn the park brake switch (2) ON (up).

Step 3: Move both ground drive propel levers (3) to NEUTRAL.

**NOTE:** Move the single ground drive propel lever (3A) to NEUTRAL when equipped with the optional steering wheel.

Step 4: Turn the conveyor drive switches (4) OFF (center).

Step 5: Turn the auger drive switches (5) OFF (center).

Step 6: START ENGINE: Turn the start switch (6) clockwise to start the engine. Release when engine starts.

**NOTE:** DO NOT crank the engine for more than 10 seconds. Allow the starter motor to cool for 30 seconds before cranking again.

Step 7: Watch the oil pressure on the display (7), pressure should rise immediately when engine is started.

Step 8: Allow the engine to idle until the engine oil and coolant have warmed up before increasing engine speed. DO NOT operate the machine under load until hydraulic oil is warm.

**COLD WEATHER STARTING**

Refer to Caterpillar’s Operation and Maintenance Engine Manual, “Cold Weather Operation,” for recommendations when operating in cold weather. Turn and hold start switch counter clockwise to heat the engine glow plugs to aid cold weather starting.
**MACHINE SHUTDOWN PROCEDURE**

Step 1: Place ground drive propel levers in NEUTRAL.

Step 2: Turn park brake ON.

Step 3: Place conveyor and auger drive control switches to ‘OFF’ (switches in “center” position).

Step 4: Lower screed onto ground or fully raise tow arms and insert travel lock pins (1). Lower tow arms onto lock pins.

Step 5: Completely lower hopper onto paver frame or onto travel lock pins (2).

Step 6: Allow engine to idle for 2-3 minutes after operating at full power.

Step 7: Shut off engine and remove engine start key.

Step 8: Turn battery disconnect switch to OFF.

For your safety and the safety of others, use shutdown procedure before working on the machine for any reason, including servicing, cleaning, unplugging, or inspecting.

A variation of the above procedure may be used if instructed within this manual or if an emergency requires it.
## Roading the Machine

<table>
<thead>
<tr>
<th>WARNING</th>
<th>Moving the machine before all personnel are clear of the machine could cause personal injury. Sound the horn and check that everyone is clear before moving the machine.</th>
</tr>
</thead>
</table>

Roading refers to propelling the paver or maneuvering the paver without laying asphalt.

<table>
<thead>
<tr>
<th>WARNING</th>
<th>Serious injury or death may result if a rider falls off machine while roading machine to or from paving locations. A paver crew member is allowed to ride on the screed platform only when paving. Only the machine driver is permitted on the paver when roading between paving locations.</th>
</tr>
</thead>
</table>

**NOTE:** DO NOT allow riders on the screed when the machine is being roaded.

Fully retract the screed extensions to prevent damage to the extensions.

<table>
<thead>
<tr>
<th>WARNING</th>
<th>To maintain proper machine control and effective hydrostatic braking on downhill slopes over 6%, this machine must be operated in Low Range (L). Failure to follow these instructions could result in an over-speed condition, loss of control and/or sudden stopping by the secondary (emergency) braking system which could result in serious injury or death.</th>
</tr>
</thead>
</table>

Install the required marking and lighting on the paver for the job site.

<table>
<thead>
<tr>
<th>WARNING</th>
<th>Rollover possible. Be alert and use extreme caution when driving the machine on hillsides, or near ditches, gullies, holes, or obstructions where rollover could occur. Serious injury or death can result if crushed under the machine. Never allow anyone to be on the downhill side of the machine.</th>
</tr>
</thead>
</table>

Drive the machine at a speed suitable for the terrain. Keep both feet on the machine when driving in reverse. Avoid sudden stopping, starting, or turning unless it is necessary.
Safe Operating Slope

**WARNING**

Sudden stopping or starting on a slope or ramp with the screed downhill may cause the paver to pitch. The unexpected motion may cause the operator to fall. The unexpected motion may result in screed and tow arm damage if screed strikes the ground.

When screed is raised off of ground the screed end of the paver must always be uphill when driving on a slope or loading onto a trailer.

Safe operating slope depends upon many factors, including:

- Machine weight distribution, including front loading or absence of load in hopper
- Height of screed
- Even or rough ground conditions
- Potential for ground giving way, causing either unplanned forward, reverse, or sideways tilt
- Nearness of ditches, ruts, stumps, or other obstructions and sudden changes in slope
- Speed
- Turning
- Braking performance
- Skill of operator.
**NOTE:** Refer to Operation and Maintenance Manual, “Operator Controls” for more information on the operator control panel.

Step 1: Position screed using screed lift control (1).

Step 2: Select speed range with propel speed range switch (2).

Step 3: Increase engine speed to full rpm with throttle control (3).

Step 4: Turn both park brake/pause switches (4) down to the OFF position to release the park brake.

Step 5: Select forward or reverse travel with propel lever(s) (5). Adjust the travel speed by moving the propel lever away from NEUTRAL until the desired travel speed is reached.

**NOTE:** The steering wheel is optional.

---

**WARNING** DO NOT operate in the “HI” (TRAVEL) speed range on slopes greater than 6%. Serious injury or death may occur if travel speed cannot be controlled.

Before starting down a grade, select the necessary propel range.

**NOTE:** When the grade is greater than 6 percent, select the LO or MED position. After you start down a hill, DO NOT change propel ranges.

DO NOT allow the engine to over speed during downhill travel.
PAVING OPERATION

Operator Control Station Setups

The left and right side control stations can each be set up in three configurations; stand-up only, standard height with seat, and elevated height with seat.

**NOTE:** The left and right control stations can not be switched from side-to-side.

**Stand-Up Configuration**

Remove seat pedestal and insert control console mount into floor receptacle.

**NOTE:** Route wire harness behind hook (1) to prevent harness damage.

**Low Mounted Seat Configuration**

Install seat pedestal into floor receptacle. Install seat and control console in seat pedestal receptacles. Tighten control panel to pedestal with set screw (2).

**NOTE:** Route wire harness at hook (3) to prevent harness damage.

**High Mounted Seat Configuration**

Remove keeper pin (4) and fold down foot platform (5). Install seat pedestal into foot platform receptacle. Install seat and control console in seat pedestal receptacle. Tighten control panel to pedestal with set screw (2).

**NOTE:** Route wire harness at hook (3) to prevent harness damage.
Screed Heat Control

The screed is equipped with an electric heating system to preheat the screed plates to produce a smooth tight mat surface by preventing asphalt from sticking to the cold screed plates.

Starting Heater for Screed

Step 1: Start the engine and allow the engine and the machine to warm up.

NOTICE: To prevent low screed heater voltage and possible failure of the generator, turn on screed heaters only at full engine speed.

Step 2: Increase engine speed to full rpm.

Step 3: With screen “A” displayed, press the SCREED ON switch to turn on the screed heater. Screen “B” will illuminate and display the heating time.

NOTE: The screed temperature is dependent on ambient temperature and may require additional heating duration to reach required screed temperature. The screed may need to be re-heated during the job if the machine is idle for long periods between loads.

Step 4: The heater on time can be increased in 5 minute increments by pressing the SCREED + switch when the main operating screen “B” is displayed.

Shutting Off Heater for Screed

Step 1: Press the SCREED OFF switch to turn off the heater. The main operating screen “A” will be displayed.
Adjusting Screed for Paving

If the screed plates require leveling adjustment, refer to Section 4, “Maintenance - As Required.”

Step 1: Before receiving the first load of asphalt, preheat the screed. Refer to “Starting the Screed Heaters.”

Step 2: Align the machine. Drive the paver into the starting position. Align the steering guide with the edge that is established for the mat.

Step 3: Extend the screed to the width of the mat.

Step 4: Center the tow-points to mid-stroke of the cylinders using tow-point switches (1) to allow equal travel of the screed in both directions.

**NOTE:** Tow-point indicator rods (2) provide visual input of the tow-point height relative to the center of the hydraulic cylinder stroke. Align center mark of indicator rod with edge of cover.

Step 5: Set the paving width using screed extensions or cutoff shoes.

Step 6: Set the main screed crown. Refer to “Screed Crown Control.”

Step 7: Set the desired slope of the extensions. Refer to “Screed Adjustments.”

Step 8: Set the height of the screed extensions. Ensure the height of the extensions match the height of the front of the main screed.

Step 9: Set the mat thickness. Place a wood block at each side of the screed. Place the wood blocks directly under the Screed Thickness Control cranks. The blocks should be approximately 4 ft (1200 mm) long. The blocks should be 25% thicker than the desired thickness of the compacted mat. The blocks should extend from the front of the screed extensions to the rear of the main screed.

Step 10: Lower the screed onto the blocks and place Screed Lift switch (3) in FLOAT. Place the Speed Range switch into LO or MED. Remove any slack in the control for the tow arm by slowly moving the paver forward.
NOTE: DO NOT drive screed or screed extensions off of blocks.

Step 11: Turn the thickness control cranks (4) until the cranks are in the unloaded, NULL, position. When the cranks are in the unloaded, NULL, position, the cranks can be turned with little or no resistance.

Step 12: Turn the thickness control cranks clockwise one full turn after you feel resistance. Turning the thickness control cranks for one full turn changes the screed attack angle approximately 3 mm (1/8”) to 6 mm (1/4”).

Step 13: Lower the screed extensions onto the 1200 mm (4 ft) blocks using the screed extension Height Adjustment cranks.

Step 14: Turn the cranks (5) for the screed end gate shoes to match the shoes to the grade.
Paver Controls Setup

Step 1: Place Ground Drive Range switch (1) in LOW or MED.

Step 2: Place both Park Brake/Pause switches (2) in OFF.

Step 3: Hold Engine Speed switch (3) up until engine is at full speed.

Step 4: Place both Conveyor Drive switches (4) in AUTO at both control stations.

Step 5: Place both Auger Drive switches (5) to OFF at both control stations.

Step 6: Place Screed Lift switches (6) in FLOAT at both control stations.

Step 7: Place Vibrator switch (7) to ON (if required).

Step 8: Turn on Grade/Slope switch (8) and adjust settings if paving with an automatic grade/slope control system.

**NOTE:** Grade/Slope switch must be OFF if a grade/slope system is not installed.
Beginning to Pave

Step 1: Lower the paver hopper wings (1).

Step 2: Move the truck toward the paver until the truck wheels contact the paver push rollers. If the paver is equipped with the optional truck hitch, close the hitch (2). With the truck correctly positioned, the spotter can instruct the driver to begin dumping the load into the paver hopper.

Step 3: Open both cut-off doors (3).

Step 4: With all four conveyor switches (4) in AUTO and the auger switches (5) in MANUAL, fill the front of the screed to desired material height.

Step 5: When the head of the material at the outer edges of the screed is at the mid-height of the augers, move the auger switches to AUTO to pave with the use of sonic sensors.

Step 6: Push the Propel Lever(s) (6) ahead slowly to move off of the starting blocks. When the paver moves forward, the screed will leave a mat that starts at the thickness of the starting blocks. The mat will gradually increase to the full thickness as the screed moves away from the blocks.

NOTE: The steering wheel is optional.

Step 7: Adjust the Propel Levers until the paver reaches the desired paving speed. When the correct paver speed is reached, use the PAUSE mode of the Park Brake/Pause switches to start and stop the paver travel, conveyors and augers.

Step 8: Check the head of material at the augers. Adjust the Head of Material control (7) to keep the level of the material in front of the screed at the correct height.

Step 9: Check the mat thickness at several locations across the mat. Make any adjustments to the controls that are needed. To adjust the mat thickness, use the Tow Point Control switches (8) or the Screed height Adjustment cranks (9).

NOTE: DO NOT adjust the tow arm controls too often. Allow the paver to travel at least three length of the tow arms for the adjustment to take affect before making another adjustment. DO NOT turn the cranks more than one revolution whenever you make an adjustment with the Screed Height Adjustment cranks.
Adjusting Screed While Paving

NOTE: Adjustments should be made while paving to maintain mat thickness and width, and to remove open mat texture and lines.

After starting to pave, allow the screed to travel a few lengths of the paver to allow all the forces that act on the screed to reach equilibrium before making adjustments. Adjusting too quickly may result in repeated adjustments and an uneven mat.

To adjust mat thickness use Screed height Adjustment cranks and/or the hydraulic Tow Point controls.

Lines in Mat

After establishing the proper depth of the mat, typically the first adjustments required are due to lines in the mat because the extenders are too high or low. Frequent changes in mat depth will require frequent changes in the height of the screed extenders.

Step 1: Main screed
Step 2: Left extender screed
Step 3: Line caused by the extender screed
Step 4: Line caused by the main screed

If the extender screed (2) is lower than the main screed (1), the edge of the extender will leave a line (3) in the mat. Raise the extender with the Extender height Adjustment crank until the line disappears. If the extender is higher than the main screed (1), the edge of the main screed will leave a line (4) in the mat.
Open Textured Mat

Open texture in mats can occur behind the main screed or the extenders.

If open texture (3) is seen behind the main screed (1), the angle of attack of the extenders (2) may need to be decreased. If the open mat is behind an extender, the extender angle may need to be decreased.

If the open textured mat (4) is seen behind an extender (2), increase the angle of attack of the extender.

Setting Paver Speed

After the paver has been set up and the paver has been adjusted, one of the most important fundamental concepts of smooth paving is maintaining a constant paving speed. In most cases, the machine can pave smoothly at any speed. The paving speed must match the delivery of mix to the job site. Maintaining a constant speed is crucial for a smooth mat.

If the paving speed is changed significantly, the screed’s height will change and the mat’s smoothness will suffer.

Also, if paving speed changes, the demands on the feeder system change. You must adjust the feeder system’s controls in order to match the new settings.

For quality results, always follow the basic concepts for setup and keep the operation consistent.
Ending a Mat

Several methods are used in order to obtain a good vertical edge at the end of a mat. The methods will allow a compactor to move on and off the mat.

One method of ending a mat uses a piece of paper (1) about 900 mm (3 ft) wide. The paper should be a little longer than the width of the mat.

The paver is run until all of the material in the hopper is used. The conveyors and the vibrators are stopped when the hopper is empty. The screed is lifted and the paver is moved away from the mat.

Rake the material evenly across the width of mat (2) in order to form an opening for the paper. The paper is laid across the width of the mat in the opening. Material (3) is raked onto the paper. The material is raked to the same depth as the mat that was laid.

Another method of ending a mat uses board (4) that is the same thickness as compacted mat (5). An opening for the board is raked across the end of the mat. The board is placed into the opening. The remaining material is raked against the board in order to form ramp (6) for the compactor. The ramp will hold the board in place.

Parallel Joints

To make a parallel joint, DO NOT allow the compactor to roll closer than 100 to 200 mm (4 to 8 inches) to the edge of first mat (1) where the joint (2) with the second mat (3) will be. Roll the parallel joint when second mat (3) is rolled.

To make the parallel joint, the edge of the screed should overlap the first mat 25 to 50 mm (1 to 2 inches). The bottom edge of the screed should be flush with the unrolled height of the first mat.

**NOTE:** Excessive screed overlap of the first mat may result in the sonic sensor incorrectly controlling the material.

If the first mat has been completely rolled to the edge, raise the screed in order to allow enough material in the second mat for level compaction with the first mat. Roll the parallel joint as soon as possible.

The parallel joint must be bonded to a cooled mat. When you lay the second mat, you must allow enough material to compact in order to match the rolled and cooled mat thickness. A compactor should roll the joint immediately after the paver.
Transverse Joints

The quality of a transverse joint depends on the preparation that was made for the joint surface at the end of the first mat. The edge of the first mat should be vertical so a good bond can be made between the joint surfaces.

**NOTE:** When forming a joint surface before the first mat has had time to cool, DO NOT compact the last 1.8 m (6 ft) of the first mat.

When you are ready to make the joint surface, raise the screed and move the paver backward. Stop the paver when the edge of the first mat is 75 to 100 mm (3 to 4 inches) in front of the screed. Lower the screed onto the slats that are thick enough for the compaction of the mat.

With the screed on the first mat, adjust the thickness controls if the thickness controls have been changed. Fill the auger conveyor with asphalt. Start paving.

When you set the thickness controls, you must allow enough material in order to compact the second mat. Adjust the thickness controls in order to achieve the desired mat thickness.

Paving Around Manholes

The procedure for laying asphalt around a manhole depends on the course that is paved.

The surface of the mat will usually be higher than the top of the manhole after you lay the top course.

When you are laying two layers of asphalt, and you are laying the bottom course, the screed will not pass over the manhole. The screed must be raised in order to allow the screed to pass over the manhole. Return the screed to the proper height after passing over the manhole.

To mark the position of the manhole, place a mark alongside the mat. The mark will help the operator judge the position of the manhole while the manhole is under the paver.

The paver should be stopped when the screed is almost in contact with the manhole. The screed should be raised at this point in order to allow the screed to pass over the manhole. Raise the screed. Move the paver forward until the screed is just past the manhole. When the screed is just past the manhole, the screed is lowered to the original position.

Rake the excess material that is left on the ground around the manhole.

If the position of the manhole will cause one of the tracks to pass over the manhole, use the thickness controls to keep the screed at the desired height as the track passes over the manhole.

To make the ramps, use material from the hopper of the machine.

Any asphalt on top of the manhole should be removed before the compactor passes over the manhole.
MACHINE CLEAN UP

WARNING

Diesel wash-down and fumes can explode and burn.

NO SMOKING within 50 feet during fueling or wash-down.

DO NOT spray near a hot or running engine. DO NOT spray near open flame. No smoking. Never spray when screed heaters are on.

At the end of the day’s operation, the machine should be washed down to remove build-up of material on the conveyor, pulleys, sprockets, rollers, belt seals, hopper flashing, and push rollers. At this time, the 10 hour lubrication points on the lube chart should also be serviced.

A separate spray-down tank enables the use of environmentally safe fluids. The package consists of a pump/motor, wiring harness, 2 spray-down hoses with spray nozzles.

In some areas, the use of fuel oil to clean the machine is environmentally not acceptable and alternate cleaning compounds must be used.

NOTICE: REGARDLESS OF WHAT CLEANING SOLUTIONS ARE USED, IT IS IMPORTANT THAT THE MACHINE BE CLEANED AND LUBRICATED AT THE END OF EACH WORKING DAY TO OBTAIN NORMAL LIFE OF WEAR COMPONENTS ON THE MACHINE.

NOTE: Check the local regulations for the use of solvents and cleaners.
To prevent crushing injury or death from unexpected lowering of the screed, raise the screed and insert the lock pins under the tow arms. Lower the tow arms onto the lock pins.

Step 1: Stop the machine on level ground in an area away from the mat and engage the park brake. If it is necessary to park the machine on a grade, block the tracks securely.

**NOTE:** When you use the fuel spray hose, DO NOT spray the liquid on the following components: hydraulic hoses, electrical connections, and electrical cables.

Step 2: The machine is equipped with a hose reel on the left side and a manually coiled hose on the right side. Open the access covers on the left and/or right side of the machine. Pull out the necessary amount of hose.

Step 3: Move fuel pump switch (1) up to turn the pump on.

Step 4: Pull the trigger in order to start spraying. Release the trigger in order to stop.

Step 5: Spray the entire auger and conveyor feed system in order to clean the auger, conveyor, and hoppers. Spray the entire auger surfaces in order to lubricate the auger and prevent material sticking to augers.

Step 6: Remove all material buildup in the hopper and on the front of the screed.

Step 7: Clean the front and bottom of the screed plates.

Step 8: Clean the push beam rollers

Step 9: Retract or coil the hoses when machine cleanup is complete and when trailering the machine. Close and secure the access cover.

**NOTE:** Receptacles (2) to hold the spray nozzles are provided on both sides of the machine to provide access to the use of the spray system during paving operation with the access panels closed.
MACHINE TRANSPORTING

Trailering Machine

Loading

Before transporting machine on a trailer, read the trailer manual for safety precautions and information. Be sure the trailer bed and ramps are clean and free of obstacles that will interfere with loading or unloading.

WARNING

Machine may slide down loading ramps or off trailer deck. Serious injury or death can result if struck or crushed by machine. DO NOT load onto slick trailer surface.

Ensure gross weight of the machine is within the gross weight limits of the trailer and the towing vehicle. Load machine on a level surface.

Step 1: Fully raise screed.

NOTICE: To prevent damage to the screed and tow arms, DO NOT let the screed strike the ground or ramps during loading and unloading. Longer ramps or blocking at the bottom of ramps may be required.

Step 2: Fold hopper wings in and insert hopper lock pins.

WARNING

Raised hopper wings may lower during highway trailing resulting in transport over-width. Death or serious injury may result if a vehicular collision occurs. Insert hopper lock pins into receiving holes in the frame.

Step 3: Close the cut-off doors.

Step 4: Align with centerline of the trailer to minimize steering while loading.
**WARNING**

DO NOT attempt to steer machine while its weight is balanced on the end of the trailer. Slight steering changes may cause machine to turn abruptly and fall off trailer or slide down ramps. Serious injury or death can occur if crushed by the machine.

**WARNING**

Sudden stopping or starting on a slope or ramp with the screed downhill may cause the paver to pitch. The unexpected motion may cause the operator to fall. The unexpected motion may result in screed and tow arm damage if screed strikes the ground.

When screed is raised off of ground the screed end of the paver must always be uphill when driving on a slope or loading onto a trailer.

**CAUTION**

Screed and tow arm damage may result if the screed strikes the ramp when loading or unloading. A longer ramp or blocks may be necessary to reduce the loading angle.

**CAUTION**

Paver must be loaded screed end first to prevent damage.

---

Step 5: **Slowly** drive machine squarely onto trailer.

Step 6: Position machine at the correct tie-down location as recommended by trailer manufacturer.

Step 7: Lower screed onto wood blocking to prevent damage to bottom of screed.

Step 8: Follow “Machine Shutdown Procedure”, *page 4-5*.

Step 9: Install and securely latch or lock vandalism covers to prevent covers from falling off during highway travel.

Step 10: Chain machine to trailer.
NOTE: Improper tie-downs can allow the load to shift and cause damage.

Attach the tie-down chains to the D-rings (1) located on each track frame and the D-rings on each end of the rear frame in order to prevent the machine from moving during shipment. Block the tracks.

NOTE: Follow appropriate regulations and procedures for tying down prior to transport.

Step 11: Cover exhaust to protect turbocharger.

---

**Unloading**

<table>
<thead>
<tr>
<th>CAUTION</th>
<th>Screed and tow arm damage may result if the screed strikes the ramp when loading or unloading. A longer ramp or blocks may be necessary to reduce the loading angle.</th>
</tr>
</thead>
</table>

Step 1: Place trailer on a level surface.
Step 2: Uncover exhaust
Step 3: Remove chains and load binders.
Step 5: Increase engine speed to full RPM.
Step 6: Fully raise screed and remove blocking from trailer deck.
Step 7: **Slowly** move machine off trailer.
Towing/Retrieving Machine

Never tow a disabled machine farther than is required to move the machine a short distance to locate the machine out of traffic and to where repairs can be performed safely.

**WARNING**

Serious injury or death could result when retrieving or towing a disabled machine incorrectly.

* Attach towing cables around push beam (1) on front of machine. Keep towing cables as close to center of push beam as possible.

**NOTICE:** Never attach tow cables to the screed attachment. Damage to the screed assembly will occur.

* If the brakes must be released, securely block the machine before releasing brakes to prevent unintended movement.

* If the planetary gears are removed, the machine no longer has park brakes.

* Use only wire rope cable with sufficient strength. Inspect cable for fraying and wear. DO NOT use if frayed or worn.

* Use a towing machine with sufficient power, weight and braking capacity to maintain control of the disabled machine. The towing machine should be at least as large as the disabled machine. If retrieving on a downhill grade use a second machine on the opposite end of the disabled machine to prevent the disabled machine from overrunning the towing machine.

* Provide barriers to prevent injury to machine operators if cable fails. Keep anyone on the ground at least two times the length of the cable away.

* Never try to jerk the disabled machine in order to get the machine to move. Sudden cable overload may cause cable to fail.

* The strength of the towing cable must be at least 150% of the towing machine weight.

Towing requires special tools and procedures. Contact your Weiler dealer for assistance in bypassing the ground drive pumps and releasing the brakes.

**NOTICE:** DO NOT tow machine more than 500 ft (150 m), and DO NOT exceed 1 mph (1.5 km/h).
Lifting Machine

The two D-rings (1) on the rear counterweight and the two lugs (2) on the rear of the frame serve as lift points. Use all four lift points when lifting machine. Weight of machine is 18,000 lbs (8,165 kg).

**NOTICE:** A spreader bar must be used between the two lift point lugs to prevent the frame from collapsing.

Limp Home Instructions

In order to move the machine using the limp-home switches:

1. Clear area around machine of all personnel.
2. Unplug the black electrical connector (1) from the electronic module in the left side control console.
3. Release the park brake.
4. Operate the two limp-home switches to move the machine (2). The left switch controls the left track and the right switch controls the right track.

**NOTE:** The limp-home system is intended for temporary ground drive control if the normal ground drive control becomes disabled.

**WARNING:** The machine could move unexpectedly when the park brake is released. Serious injury or death can result if someone on the ground is struck by the machine. Keep all persons away from machine.
This page intentionally left blank.
Read this Operation and Maintenance Manual and safety signs before performing maintenance on the machine.

Wear personal protective equipment. Wear close-fitting clothing and confine long hair. Always wear a hard hat, safety glasses, and safety shoes.

Keep spectators away.

Exhaust fumes can be fatal.
If operating in an enclosed area, remove exhaust fumes with an exhaust pipe extension to the outside.

Raised attachment can fall and crush you.
Never work under a raised attachment unless attachment is securely supported.
**WARNING**

Hot fluid under pressure can scald.

Allow engine to cool before opening radiator cap.

**WARNING**

Fuel and fumes can explode and burn.

Shut off engine before refueling. No flame. No smoking.

**WARNING**

Battery fumes are flammable and can explode. Keep all burning materials away from battery. Battery explosion can blind. Acid can blind and burn. Tools and cable clamps can make sparks.

DO NOT smoke. Shield eyes and face. Read instructions.
Pressurized fluid can penetrate body tissue and result in serious injury or death. Leaks can be invisible. Keep away from any suspected leak. Relieve pressure in the hydraulic system before searching for leaks, disconnecting hoses, or performing any other work on the system. If you must pressurize the system to find a suspected leak, use an object such as a piece of wood or cardboard rather than your hands. When loosening a fitting where some residual pressure may exist, slowly loosen the fitting until oil begins to leak. Wait for leaking to stop before disconnecting the fitting. Fluid injected under the skin must be removed immediately by a surgeon familiar with this type of injury.

Keep hands, feet, and clothing away from power-driven parts. Keep shields in place and properly secured.

Use Shutdown Procedure before servicing, cleaning, repairing or transporting machine. Refer to "Machine Shutdown Procedure", page 4-5 for instructions.

Make no modifications to this equipment unless specifically recommended by Weiler.

Be sure all safety devices, including shields, are installed and functioning properly after servicing machine.

Failure to follow any of the preceding safety instructions or those that follow within this manual, could result in serious injury or death. This machine is to be used only for those purposes for which it was intended as explained in the Operation section of this manual.
WEILER P385 PAVER

GENERAL INFORMATION

Welding on Machines with Electronic Controls

Proper welding procedures are necessary in order to avoid damage to the electronic controls and to the bearings. When possible, remove the component that must be welded from the machine or the engine and then weld the component. If you must weld near an electronic control on the machine or the engine, temporarily remove the electronic control in order to prevent heat related damage. The following steps should be followed in order to weld on a machine or an engine with electronic controls.

Step 1: Turn off the engine. Place the engine start switch in the OFF position.

Step 2: Turn the battery disconnect switch to the OFF position.

**NOTE:** DO NOT use electrical components (ECM or ECM sensors) or electronic component grounding points for grounding the welder.

Step 3: Clamp the ground cable from the welder to the component that will be welded. Place the clamp as close as possible to the weld. Make sure that the electrical path from the ground cable to the component does not go through any bearing. Use this procedure in order to reduce the possibility of damage to the following components:

- Bearings of the drive train
- Hydraulic components
- Electrical components
- Other components of the machine

Step 4: Protect any wiring harnesses and hydraulic hoses from the debris and weld splatter which is created from welding.
<table>
<thead>
<tr>
<th>Interval</th>
<th>Reference</th>
<th>Identification</th>
<th>No. of Points</th>
<th>Type of Lube</th>
<th>Quantity</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily</td>
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HTG - HIGH TEMP GREASE
## P385 LUBRICATION / FLUIDS CHART

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<th>Reference</th>
<th>Identification</th>
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<td>(1 year)</td>
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HTG - HIGH TEMP GREASE
MAINTENANCE SCHEDULE

Ensure that all safety information, warnings and instructions are read and understood before any operation or any maintenance procedures are performed.

The user is responsible for the performance of maintenance, including all adjustments, the use of proper lubricants, fluids, filters, and the replacement of components due to normal wear and aging. Failure to adhere to proper maintenance intervals and procedures may result in diminished performance of the product and/or accelerated wear of components.

Use fuel consumption, service hours, or calendar time, WHICH EVER OCCURS FIRST, in order to determine the maintenance intervals. Products that operate in severe operating conditions may require more frequent maintenance.

**NOTE:** Before each consecutive interval is performed, all maintenance from the previous interval must be performed.

Machine - Grease

**NOTE:** All daily grease lubricant should be applied at the end of each machine operation while the machine is still warm and the asphalt is still soft or not set up. Failure to do so may allow asphalt to harden around the seals and risk damaging a seal and lead to premature bearing failure.

Ensure all fittings and grease applicator nozzle are clean before applying grease. If any grease fittings are missing, replace them immediately.

Recommended Fluids

Refer to the Specifications section for fluid and lubricant requirements.
10 Hour or Daily

Machine Grease

_Screed Height Adjuster - Grease_

(1) Two shots, two fittings (each side of screed)

_Conveyor Idler/Drive Bearings - Grease_

(2) Eight shots, eight fittings (four each side of machine)

_Auger Bearings - Grease_

(3) Eight shots, four fittings (two on each auger)
Truck Hitch Guide Rollers

(4) Four shots, two fittings (one each side of truck hitch)

Engine Maintenance

- Check fluid levels.
- Check air cleaner indicator

Refer to the Engine Operation Manual supplied with the machine for engine maintenance information.

**Engine Oil Level - Check**

With engine level, fill to full mark on dipstick. DO NOT overfill.

**Step 1:** To check the oil level, stop the engine and allow engine oil to settle for 5 minutes.

**Step 2:** Check the oil level with dipstick (2).

**Step 3:** Maintain the oil level on the dipstick between the “FULL” mark and the “ADD” mark.

**Step 4:** Clean oil filler cap (1) and surrounding area before removing cap. If necessary, add oil.

**Step 5:** Install the oil filler cap (1).

**NOTE:** DO NOT overfill crankcase. The oil level must not be above the FULL RANGE on the dipstick.
Fuel Tank - Fill

**WARNING**
Fuel and fumes can explode and burn. Shut off engine before refueling. No flame. No smoking.

Fill fuel tank at the end of each day to reduce condensation. DO NOT fill to the very top; leave room for expansion.

**Fuel Capacity**

25 gal (95 L)

Refer to the Engine Operation Manual for fuel requirements.

1. Fill Cap
2. Fuel Level (shown on display)

**Fuel System Primary Filter/Water Separator - Drain**

**WARNING**
Fuel leaked or spilled onto hot surfaces or electrical components can cause a fire. To help prevent possible injury, turn the start switch off when changing fuel filters or water separator elements. Clean up fuel spills immediately.

**NOTE:** The water separator is not a filter. The water separator separates water from the fuel. The engine should never be allowed to run with the water separator more than half full of water. Engine damage may result.

1. Filter
2. Drain

**Step 1:** Open the drain valve (2) and allow the fluid to drain into a suitable container.

**Step 2:** Close the drain valve (2). Dispose of the drained fluid in accordance with local regulations and mandates.

**NOTE:** The water separator is under suction during normal engine operation. Ensure that the drain valve is tightened securely to help prevent air from entering the fuel system.
**Coolant Level - Check**

**WARNING**

Hot fluid under pressure can scald.

Allow engine to cool before opening radiator cap. Check the coolant level when the engine is stopped and cool.

Fill to within 1/2” (13 mm) of bottom of fill pipe with a low-silicate (ethylene glycol) antifreeze and clean water mixture.

**NOTE:** Fill pipe is located under engine compartment hood.

**NOTE:** Never add pure antifreeze to a cooling system. We recommend using a 50/50 mixture. Never use high-silicate antifreeze or antifreeze that is higher than a 60/40 mixture.

Step 1: Remove the cooling system filler cap (1) slowly in order to relieve pressure.

Step 2: Maintain the coolant level within 13 mm (0.5 inch) of the bottom of the fill pipe.

Step 3: Clean the cooling system filler cap and check the condition of the filler cap gaskets. Replace the cooling system filler cap if the filler cap gaskets are damaged. Reinstall the cooling system filler cap.

Step 4: Inspect the cooling system for leaks.

**Air Cleaner Restriction Indicator - Check**

When red indicator reaches the window on indicator (1), clean or replace air filter element. Push button (2) to reset indicator.

- **DO NOT** remove element until the indicator shows it needs to be cleaned or replaced.

**NOTICE:** The air restriction indicator will not function properly if:

- Element is damaged or not seated properly in housing.
- Air cleaner element body is damaged. If so, unfiltered air may enter engine.
- Air transfer duct between air cleaner and engine is damaged or its clamps are loose.
- Air duct between air cleaner and restriction indicator is damaged or pinched.
Hydraulic Fluid Level - Check

Clean hydraulic fluid is very important. DO NOT spill dirt or other contaminants into the tank. Filter all hydraulic fluid through a 5-micron filter before adding it to the tank.

Keep tank filled to sight gauge level. Machine must be level and in transport position.

Step 1: Remove fill cap (1).
Step 2: Fill to upper half of sight gauge level (2).
Step 3: Install fill cap.

Backup Alarm Test

Step 1: Start the engine, and run the engine at low idle.
Step 2: Make sure that the area behind the machine is clear of personnel and clear of obstacles. Place control console selector switch (1) to LH (left hand control console).
Step 3: Slightly move a propel lever (2) to the REVERSE position.

**NOTE:** The steering wheel is optional.

**NOTE:** The backup alarm should sound immediately. The backup alarm should continue to sound until both propel control levers are moved to the NEUTRAL position or to the FORWARD position.

Step 4: Repeat test for the other propel lever.
Step 5: Place control console selector switch to RH (right hand control console).
Step 6: Repeat test for each propel lever. Contact a Weiler dealer if backup alarm does not function correctly.
Operator Station Horn - Test

Step 1: Press button (1) to sound horn.
Machine Grease

As a general rule, grease machine after it is shut down for the day. This protects the metal under the seals from corrosion caused by condensation as the temperature drops.

Ensure all fittings and grease applicator nozzle are clean before applying grease. If any grease fittings are missing, replace them immediately.

Auger Drive Chains - Grease

1. Five shots, two fittings, one for each chain.

Conveyor Drive Chains - Grease

2. Five shots, two fittings, one for each chain.

Crown Adjuster - Grease

3. Two shots, four fittings, each end of both adjustment shafts.
**Slope Adjuster - Grease**

4. Two shots, four fittings, each end of both adjustment shafts.

---

**Extension Height Adjuster - Grease**

5. Two shots, two fittings, one on each gear box.
Fuel Tank Water and Sediment - Drain

Fuel quality is critical to the performance and to the service life of the engine. Water in the fuel can cause excessive wear to the fuel system. Condensation occurs during the heating and cooling of fuel and causes water to accumulate in fuel tanks. Draining the fuel tank regularly and obtaining fuel from reliable sources can help to eliminate water in the fuel.

Drain fuel tank water and sediment using one of the hoses from the bottom of the fuel tank to the fuel filter. Disconnect the hose at the fuel filter (1).

**NOTE:** Refer to Caterpillar’s Operation and Maintenance Engine Manual, “General Hazard Information” for information on containing fluid spillage.

Vibratory Shaft Bearing - Grease

Apply lubricant to the grease fittings (1) on the vibratory bearings for the main screed. There are two grease fittings on each side of the main screed. Remove covers (2) for access to grease fittings.

Track Idler and Rollers - Check

Check for oil leakage at track idler and rollers. Replace idler or roller if leakage is observed.
100 Hour

Cooling System - Check

- Inspect hose clamps and overflow tube.
- Check for dirt and debris in radiator fins. Clean fins with water or air pressure. Partially blocked fins will increase engine coolant and/or hydraulic oil operating temperature.
- Check fan for cracked, bent or loose blades. Check for loose fasteners.

Control Levers - Check

Check control and adjustment levers for freedom of movement.

Check that non-detented control switches spring return to NEUTRAL or OFF when lever is released.

Hydraulic System - Check

**WARNING**

Pressurized fluid can penetrate body tissue and result in serious injury or death. Leaks can be invisible. Keep away from any suspected leak. Relieve pressure in the hydraulic system before searching for leaks, disconnecting hoses, or performing any other work on the system. If you must pressurize the system to find a suspected leak, use an object such as a piece of wood or cardboard rather than your hands. When loosening a fitting where some residual pressure may exist, slowly loosen the fitting until oil begins to leak. Wait for leaking to stop before disconnecting the fitting. Fluid injected under the skin must be removed immediately by a surgeon familiar with this type of injury.

- Ensure all connections are tight and hoses are in good condition before applying hydraulic pressure to the system.
- Check for leaking hoses, kinked hoses, and for hoses that rub against each other or other parts of the machine. Replace all deteriorated or damaged hoses. When a hose with a protective sleeve is replaced, always install a new protective sleeve over the new hose.
- Check hydraulic cylinders for leaks and damage. Repair or replace as required.
Overall Machine - Check

Shields and Guards
Check that all shields and guards are installed and are fastened securely to machine. Replace and repair any shields or guards that are damaged or have missing parts.

Hardware
Check machine for loose, worn, or missing parts and hardware. Tighten any loose parts and replace any worn or missing parts. Refer to the Parts Manual for replacement parts.

Frame
Check machine frame and contact Weiler dealer immediately if you notice any bending or cracking.

Fire Prevention
Keep engine compartment, battery, hydraulic lines, fuel tank and operator’s station clean of accumulated trash, grease, and debris.

Electrical Harness
Check that electrical harness and all wires are properly supported and not rubbing on any sharp corners. Support any loose wires hanging under machine frame.

Engine Belts
Inspect for worn, cracked, or frayed belts. Replace if worn or damaged.

Safety Signs Maintenance
Safety signs located on your machine contain important and useful information that will help you operate your equipment safely and correctly. Refer to the Parts Manual for identification and location of safety signs.

To assure that all safety signs remain in place and in good condition, follow the instructions given below:

- Keep safety signs clean. Use soap and water - not mineral spirits, abrasive cleaners, or other similar cleaners that will damage the sign.
- Replace any damaged or missing safety signs. When attaching safety signs, the temperature of the mounting surface must be at least 40 F (5 C). The mounting surface must be clean and dry.
- When replacing a machine component with a safety sign attached, replace the safety sign also. Replacement safety signs can be purchased from your Weiler dealer.

Engine Stop Switch - Check

Step 1: Press red Engine Stop Button while engine is running. Engine must stop.

Step 2: With red Engine Stop Button depressed, try starting engine. Engine must not start.

Contact a Weiler dealer if an Engine Stop switch does not function correctly.
Neutral Start Interlock - Propel Handle Check

**WARNING**
Serious injury or death can result if machine moves and strikes a bystander. Keep every one away from the machine.

Step 1: Shut the engine OFF.
Step 2: Turn Park Brake ON.
Step 3: Place Control Console Selector switch to LH (left hand control console).
Step 4: Move one of the left hand control console Propel levers out of NEUTRAL.
Step 5: Start the engine. Display panel will instruct operator to turn Park Brake OFF and to return the Propel lever to NEUTRAL.
Step 6: Turn Park Brake OFF only. Leave Propel lever OUT OF NEUTRAL. Machine must not move.
Step 7: Return Propel lever to NEUTRAL.
Step 8: If equipped, repeat test for the other Propel lever on the left hand control console.
Step 9: Place Control Console Selector switch to RH (right hand controls console).
Step 10: Repeat test for each right hand Control Console Propel levers.

Contact a Weiler dealer if the propel handle neutral start interlocks do not function correctly.

Neutral Start Interlock - Conveyor Drive Check

Step 1: Shut engine OFF.
Step 2: Turn Park Brake ON.
Step 3: Move the left Conveyor Drive switches to AUTO on the left and right control consoles.
Step 4: Start the engine.
Step 5: Turn Park Brake OFF.
Step 6: Left side conveyor must not move.
Step 7: Move the left Auger Drive switches to AUTO on the left and right control consoles.
Step 8: Left conveyor and left auger must not move.
Step 9: Move either Propel lever out of NEUTRAL. The left conveyor and auger will start.

**NOTE:** Auger and conveyor can now be re-started with the Auger switch after the initial engagement of a Propel lever after starting the engine.

Step 10: Repeat the test for each left and right control console Conveyor Drive switch.

Contact a Weiler dealer if the conveyor drive interlocks do not function correctly.
Neutral Start Interlock - Auger Drive Check

Step 1: Shut engine OFF.
Step 2: Turn Park Brake ON.
Step 3: Move an Auger Drive switch to AUTO on the left control consoles.
Step 4: Start the engine.
Step 5: Turn Park Brake OFF.
Step 6: Left side auger must not move.
Step 7: Move either Propel lever out of NEUTRAL. The left auger will start.

NOTE: Auger can now be re-started with the Auger switch after the initial engagement of a Propel lever after starting the engine.

Step 8: Repeat the test for each left and right control console Conveyor Drive switch.

Contact a Weiler dealer if the conveyor drive interlocks do not function correctly.

Neutral Start Interlock - Park Brake Check

Step 1: Turn Park Brake switch OFF.
Step 2: Attempt to start the engine. Engine must not start.

Contact a Weiler dealer if the engine starts.

Hydrostatic Creep - Check

Step 1: With the machine on a level surface, place all propel control levers in NEUTRAL and all conveyor and auger switches to OFF.
Step 2: Start engine and increase engine speed to full RPM.
Step 3: Release park brakes.
Step 4: Ground drive, conveyors and augers must not move.

Contact a Weiler dealer if movement occurs.
250 HOUR OR MONTHLY

Drive Belts - Inspect/Replace

Inspect the belts for wear and for cracking. Belt slippage will decrease the belt life. Belt slippage will cause poor performance of the alternator, or any equipment that is driven by the belt.

*Alternator Belt Replacement*

1. Loosen the alternator mounting bolts (1).
2. Remove the belt (2).
3. Install a new belt.
4. Tighten the belt by rotating the top of the alternator away from the engine.
5. Tighten the mounting bolts.

*Generator Belt Replacement*

Replace the generator belt when the spring no longer applies tension to belt tensioner arm.

1. Disconnect the belt tensioner spring (1) in order to release the tension from the generator’s belt (2).
2. Remove the belt.
3. Install a new belt.
4. Connect the belt tensioner spring.
Auger Drive Chains - Adjust

**WARNING**
Serious injury or death can result from rotating and moving parts. Stay clear of all rotating and moving parts. Never attempt adjustments if the engine is running. The machine must be parked on a level surface and the engine must be stopped. Attach a “Do Not Operate” or similar warning tag to the start switch and controls before servicing, repairing, or making adjustments to the machine.

Follow the “Shutdown Procedure” before checking the tension of the auger drive chains. Grab the auger with both hands. Rotate the auger back and forth. If the auger rotates more than 19mm (0.75 inch), the drive chain needs to be adjusted.

- **Step 1:** Open access panel (1) and loosen two mounting bolts (2) for each motor.
- **Step 2:** Loosen jam nuts (3).
- **Step 3:** Turn adjusting nut (4) until the auger chain is deflected 3 mm (0.125 inch) when applying a force at the mid span of the chain.
- **Step 4:** Tighten mounting bolts (2) and jam nut (3).
- **Step 5:** Close access panel.
Conveyor Drive Chains - Adjust

**WARNING**
Serious injury or death can result from rotating and moving parts. Stay clear of all rotating and moving parts. Never attempt adjustments if the engine is running. The machine must be parked on a level surface and the engine must be stopped. Attach a “Do Not Operate” or similar warning tag to the start switch and controls before servicing, repairing, or making adjustments to the machine.

Follow the “Shutdown Procedure” before checking the tension of the conveyor drive chains.

Step 1: Open side covers. Loosen bolts (1).
Step 2: Loosen jam nuts (2).
Step 3: Turn adjusting nuts (3) until the conveyor chain is deflected 3 mm (0.125 inch) when applying a force at the mid span of the chain.
Step 4: Tighten jam nuts (2).
Step 5: Tighten bolts (1).
Step 6: Close side covers.
Conveyor Drive Chain Grease Brush - Adjust

**WARNING**
Serious injury or death can result from rotating and moving parts. Stay clear of all rotating and moving parts. Never attempt adjustments if the engine is running. The machine must be parked on a level surface and the engine must be stopped. Attach a “Do Not Operate” or similar warning tag to the start switch and controls before servicing, repairing, or making adjustments to the machine.

Follow the “Shutdown Procedure” before adjusting the conveyor drive chains grease brushes.

- **Step 1:** Loosen jam nut (1) on rear fire wall.

- **Step 2:** Open side covers. Loosen jam nut (2) on grease brush.

- **Step 3:** Adjust grease brush (3) to desired setting.

  **NOTE:** Clockwise lowers grease brush. Counterclockwise raises the grease brush.

- **Step 4:** Tighten jam nut (2).

- **Step 5:** Tighten jam nut (1).

- **Step 6:** Close side covers.
Conveyors - Adjust

In order to adjust the drag conveyor to the proper tension, the drag conveyor chain (1) should hang approximately 6 cm (0.25 inch) above the top of the cross bar (3). Perform the following steps in order to tighten or loosen the drag conveyor.

Step 1: Loosen appropriate nut (2) on each adjusting rod.
Step 2: Adjust opposing nuts to loosen or tighten conveyor.
Step 3: Tighten both nuts on each adjusting bolt.
Step 4: Repeat for other half of conveyor.

Engine Oil Sample - Obtain

⚠️ WARNING
Hot oil and hot components can cause personal injury. DO NOT allow hot oil or hot components to contact the skin.

Refer to Cat Operation and maintenance Engine manual supplied with each machine for instructions.
Engine Oil and Filter - Change

Step 1: Remove the guard over the right auger.

Step 2: Remove the cap (1) from the end of drain hose (1). Drain the oil into a suitable container.

Step 3: Install drain plug and auger guard.

Step 4: Remove filter (2). Discard the used filter element.

Step 5: Clean the filter housing base. All of the old filter seal must be removed from the filter housing base.

Step 6: Apply a thin coat of engine oil to the seal of the new filter element.

Step 7: Install the new filter by hand.

Instructions for the installation of the filter are printed on the side of each Caterpillar spin-on filter. For non-Caterpillar filters, refer to the installation instructions that are provided by the supplier of the filter.

Step 8: Remove oil filler cap (3). fill the crankcase with new oil. See Caterpillar’s Operation and Maintenance Engine Manual, “Capacities Refill)” for the correct refill capacity. Clean the oil filler cap and install the oil filler cap.
Step 9: Check the oil level on the dipstick (4). Maintain the oil level between the “FULL” mark and the “ADD” mark on the dipstick.

Step 10: Start the engine and run the engine for two minutes. Monitor the oil pressure gauge.

Step 11: Inspect the machine for oil leaks.

Step 12: Stop the engine.

Step 13: Wait for ten minutes in order to allow the oil to drain back into the crankcase. Check the oil level.
Track Final Drive Planetary Oil Level - Check

The final drive planetary is located at the rear of each track assembly.

Check the oil level of each drive.

**NOTE:** The final drives have two plugs in the end covers. Position the final drive with plug (1) at the top of the drive. Plug (2) at 3 or 9 o’clock is used to check the level of the oil in the drive.

Remove the oil level check plug (2). The oil level should be at the bottom of the opening for the oil level check plug.

Remove plug (1) in order to fill the drive. Clean and install the plugs.

Wash Down Fluid System Filter - Clean/Replace

**WARNING** Fluid leaked or spilled onto hot surfaces or electrical components can cause a fire. To help prevent possible injury, shut off engine when changing filter. Clean up spills immediately.

**NOTE:** DO NOT allow dirt to enter the system. Thoroughly clean the area around the filter before disconnecting.

Step 1: Place a container under the filter (1) before you remove the filter.

**NOTE:** Refer to Caterpillar’s Operation and Maintenance Engine Manual, “General Hazard Information” for information on containing fluid spillage.

Step 2: Remove the filter (1).

Step 3: Clean the filter of any debris.

Step 4: Reinstall the filter.
NOTE:  DO NOT allow dirt to enter the fuel system. Thoroughly clean the area around a fuel system component that will be disconnected. Fit a suitable cover over disconnected fuel system component.

Place a tray under the fuel filter in order to catch any fuel that might spill. Clean up any spilled fuel immediately.

(1) Electric fuel priming pump
(2) Fuel filter base
(3) Quick release collar
(4) Fuel filter
(5) Sediment bowl
(6) Drain valve for fuel filter

Step 1:  Clean the outside of the fuel filter assembly. Open drain valve (6) and allow the fluid to drain into a suitable container.

Step 2:  Remove sediment bowl (5).

NOTE:  DO NOT use a tool in order to remove the fuel filter. Attempting to remove the fuel filter with a filter wrench or a filter strap could damage the locking ring.

Step 3:  Hold fuel filter (4) and rotate quick release collar (3) counterclockwise. Remove quick release collar. Remove and discard the filter.

NOTE:  DO NOT fill fuel filters with fuel before installing them. Contaminated fuel will cause accelerated wear to fuel system parts.

Step 4:  Ensure that the fuel filter base is clean. Push a new fuel filter fully into the fuel filter base.

Step 5:  Hold the fuel filter in place. Install locking ring (3) into position. Rotate the locking ring clockwise in order to fasten the fuel filter to the fuel filter base.

Step 6:  Thoroughly clean sediment bowl (5). Inspect the O-ring seals. Install new O-ring seals, if necessary. Install the sediment bowl to the new element. Hand tighten the sediment bowl. Hand tightening is the only method that should be used.

NOTE:  The fuel system self-primes when ignition key is turned on.
Radiator/Hydraulic Cooler Core - Clean

Make sure that the engine is shut off. DO NOT clean the cores when the machine is running.

Inspect the cores for debris. If necessary, clean the radiator.

Compressed air is preferred, but high pressure water or steam can be used to remove dust and general debris from a core.

Cooling System Coolant Sample (Level 1) - Obtain

Refer to the Cat Operation and Maintenance Engine Manual supplied with each machine for instructions.

Tracks - Tension - Check

**WARNING**

The track tensioning system is under high pressure and may cause serious injury if pressure is not released when replacing or repairing the track.

**NOTE:** The tracks are under tension at all times, including when the engine is shut off. To release the track tension, unscrew the needle valve (1) on the track tension valve (2) located above the right track.

Contact your Weiler dealer for procedure to adjust the track tension.

Tracks - Inspect

Inspect the track pads for excessive wear and damage. If there are cuts or gouges to the pads that could affect the performance of the machine, replace the damaged track pads.

Inspect the front idler roller, the rollers and the drive sprocket for excessive wear. Inspect the track chain pins and bushings for wear or damage. Inspect the track frame assembly for loose bolts or nuts.

Inspect the rollers for oil leakage or indications the rollers are not turning. There are six lower rollers and one upper roller on each track.

Contact your Weiler dealer for track repair.
500 HOUR OR SEMI-ANNUAL

Conveyor System - Inspect

Chain Guards

Step 1: Verify that the chain guards (1) are not excessively worn in order to protect the chain.

Step 2: If top of the chain is exposed, the guards need to be replaced.

Conveyor Chain

There are several items to inspect to determine the condition of the conveyor chain.

Step 1: Feel for excessive motion between the bushing (1) and the pin. Excessive motion indicates internal wear between the bushing and pin.

Step 2: Inspect the amount of remaining adjustment in the chain adjustment by noting the amount of rod thread remaining (3) past the jam nut. Once most of the adjustment has been used, the chain and the sprockets need to be replaced.

Step 3: Measure ten pitches of chain on both strands. The nominal length of a new chain is 69.85 cm (27.5 inch). If the chain measures 71.95 cm (28.325 inch), convenient replacement should be planned. If the chain measures 72.6 cm (28.6 inch), the chain needs to be replaced as soon as possible.

NOTE: When you replace the chain, always replace both strands and install new sprockets.

NOTE: When you follow the above guidelines, also examine the chain for cracks in the links. Cracked links need to be replaced.
**Drag Bars**

Step 1: New drag bars (1) have a height of 0.75 inch. Once the bars have been worn to a height of 0.375 inch, replace the drag bars.

**Drag Pans**

Take the measurement at the center of the edge (3) of the drag pan (2). The center will be the thinnest part of the drag pan. Once the pans are worn to a thickness of 3 mm (0.125 inch), the drag pans need to be replaced.

**Drag Pan Hardware**

The drag pans should be replaced when an allen wrench can no longer be inserted into the bolt. At this point, the bolts are no longer countersunk and the bolt heads have begun to wear.

**Auger**

The corners of new augers are square. As the augers wear, the thickness and diameter become smaller. When the edge wears to a point, the auger should be replaced.
Track Final Drive Planetary Oil Level - Change

Perform this procedure for the final drive planetary on both sides of the machine.

**NOTE:** The final drive planetary has two plugs in the end covers. Position the final drive with plug (1) at the bottom of the drive.

Step 1: Remove plugs (1) and (2) and allow the oil to drain into a suitable container.

Step 2: Clean plug (1) and install the plug.

Step 3: Fill the final drive planetary through plug (2) to the bottom of the plug opening with the plug positioned at 3 or 9 o’clock. Allow the machine to sit for 45 minutes.

**NOTE:** The machine needs to sit for 45 minutes in order to fill the rear bearings of the final drive planetary. Failure to wait 45 minutes may result in bearing failure from low oil level.

Step 4: Fill the planetary with oil up to plug (2).

Step 5: Clean plug (2) and install the plug.

Cooling System Coolant Sample (Level 1 or 2) - Obtain

Refer to the Cat Operation and Maintenance Engine Manual supplied with each machine for instructions.
Braking System - Test

Check the area around the machine. Make sure that the machine is clear of personnel and clear of obstacles.

The following test is used in order to determine if the parking brake is functional on a specified slope. This test is not intended to measure the maximum brake holding effort. Read all of the steps before you perform the following procedure.

Position the machine on the slope, near the base of the slope. The slope should be 26 percent (15 degrees).

Step 1: Start the engine. Refer to the Operation and Maintenance Manual, “Engine Starting” for information on starting the engine.

Step 2: Move the machine into the test position.

Step 3: Place the throttle control into the LOW IDLE position.

Step 4: Engage the parking brake.

The machine should not move under the following conditions:

- The engine is at low idle.
- The parking brake is applied.
- The machine is positioned on the specified slope.

⚠️ WARNING ⚠️ Serious injury or death can result if the machine moves and strikes a bystander while testing. Keep everyone away from the downhill end of the machine.

Step 5: Park the machine on a level surface.

Step 6: Stop the engine.

⚠️ WARNING ⚠️ If the machine moves when testing the brakes, contact your Weiler dealer. Have the dealer inspect and repair the brakes before returning the machine to operation. Failure to have the brakes inspected and repaired can cause injury or death.
Cooling System Coolant Sample (Level 2) - Obtain

Refer to the Cat Operation and Maintenance Engine Manual supplied with each machine for instructions.

Hydraulic System Oil and Filters - Change

(1) Charge Filter
(2) Hydraulic Oil Level Sight Gauge
(3) Return Filter (inside tank)

Step 1: Remove the cap (6) in order to relieve pressure from the hydraulic tank.
Step 2: Remove the plug (5) from the bottom of the tank. Drain the hydraulic oil into a suitable container.
Step 3: Remove the charge filter (1).
Step 4: Remove the return filter cover. Remove the return filter (3).
Step 5: Install the drain plug (5).
Step 6: Install a new charge filter (1).
Step 7: Install a new return filter. Inspect the filter and filter cover o-rings. Install the return filter cover.
Step 8: Refill the hydraulic tank through the fill cap (6). Refer to the Operation and Maintenance Manual, “Capacities (Refill)” for the correct refill capacity.
Step 9: Replace the cap (6).
Step 10: Start the engine. Run the engine for a few minutes. Check the hydraulic filters for leaks.
Step 11: Stop the engine.
Step 12: Repair the leaks that were found.
Step 13: Maintain the oil between the “FULL” and “ADD” marks on the sight gauge.
3000 Hour

Cooling System Water Temperature Regulator - Replace

Refer to the Cat Operation and Maintenance Engine Manual supplied with each machine for instructions.
Jump-Starting

Battery Explosion - Avoid

**WARNING**

Battery fumes are flammable and can explode. Keep all burning materials away from battery. Battery explosion can blind. Acid can blind and burn. Tools and cable clamps can make sparks. DO NOT smoke. Shield eyes and face.

DO NOT jump-start or charge a battery that is frozen or low on electrolyte.

DO NOT allow vehicle used to jump-start to be in contact with the disabled machine. Vehicles in contact have a ground connection which allows a spark to occur at the battery when the positive jumper cable is connected or removed. If equipped with battery caps, they must be in place and tight to reduce risk of battery explosion.

**NOTICE:** Use only a 12-volt system for jump-starting.

Battery Burns - Avoid

Battery contains sulfuric acid which can cause severe burns. Avoid contact with eyes, skin, and clothing.

In case of acid contact:

- **External:** Flush with plenty of water. If eyes have been exposed, flush with water for 15 minutes and get prompt medical attention.
- **Internal:** Call a physician immediately.
Jump-Starting Procedure

**WARNING** Battery posts, terminals, and related accessories contain lead and lead compounds, chemicals known to the state of California to cause cancer and reproductive harm. Wash hands after handling.

Step 1: Turn ignition key OFF.

Step 2: Turn Battery Ground Disconnect Switch counterclockwise to disconnect battery ground.

Step 3: Connect jumper cables in the following order:
- Red to discharge battery POSITIVE (+) terminal (1).
- Red to boost battery POSITIVE (+) terminal (2).
- Black to boost battery NEGATIVE (-) terminal (3).
- Black to rear mount of engine with discharged battery (4).

Make connection away from battery, fuel lines, and moving parts. DO NOT attach to the negative terminal of the discharged battery.

**NOTE:** To avoid sparks near the battery, always disconnect black jumper cable from the engine mount before adjusting red jumper cable.

Step 4: Turn Battery Ground Disconnect Switch clockwise to ON to connect battery ground.

Step 5: Start engine.

Step 6: Remove cables in REVERSE order and install red cover over positive battery cable clamp.
Battery Electrolyte Level and Terminals - Check/Clean

**WARNING**

Battery fumes are flammable and can explode. Keep all burning materials away from battery. Battery explosion can blind. Acid can blind and burn. Tools and cable clamps can make sparks. DO NOT smoke. Shield eyes and face.

- Use a flashlight to check electrolyte level.
- Work in a well-ventilated area.
- Avoid breathing fumes from battery.
- Avoid contact with skin, eyes, or clothing.
- Keep flame and sparks away, and DO NOT smoke.
- Keep out of reach of children.
- DO NOT short across battery terminals or allow tools to short from battery terminals to frame.
- DO NOT jump-start or charge a battery with frozen electrolyte.

In case of acid contact:

**External:** Flush with plenty of water. If eyes have been exposed, flush with water for 15 minutes and get prompt medical attention.

**Internal:** Call a physician immediately.
Battery Terminals - Clean/Check Electrolyte Level

**WARNING**

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

Step 1: Open battery compartment door.

Step 2: Disconnect battery using battery disconnect switch (1)

Step 3: Remove negative (-) cable, then positive (+) cable.

Step 4: Clean terminals and clamps with a stiff wire brush. Apply a light coating of petroleum jelly around the base of each terminal.

Step 5: If equipped, remove cell caps. Fill each cell with distilled water (never add acid) so the top of the plates are covered.

**NOTICE:** If battery is under-filled, electrolyte will be too concentrated, causing plates to deteriorate more rapidly. DO NOT overfill. In freezing weather, run engine for a few minutes immediately after filling battery, to allow proper mixing of water and electrolyte. If battery uses too much water, check system for overcharging.

Step 6: Install cell caps.

Step 7: Spray terminals with a battery terminal sealer and install cables.

Step 8: Connect battery ground using battery disconnect switch.

Step 9: Close and latch battery compartment door.
Circuit Breakers - Reset

Circuit Breaker Reset - Push in the button in order to reset each circuit breaker. The button will remain depressed if the circuit is working properly. Check the appropriate electrical circuit if the button does not stay reset.

**NOTE:** If a circuit breaker requires frequent resetting, contact your dealer.

These circuit breakers are located on the left side of the machine behind the access door.

1. **Engine Glow Plug (30 A)**
2. **Main (self-resetting 120 A)**
3. **Key Switch (5 A)**

This diode box is located on the rear of the machine inside the engine compartment.

**DIODE IDENTIFICATION**

<table>
<thead>
<tr>
<th>RH CUT OFF DOOR OPEN</th>
<th>F11</th>
<th>F1</th>
<th>HOOPER UP</th>
</tr>
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<td>HOPPER DOWN</td>
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<td>SCREED LIFT</td>
<td>F13</td>
<td>F3</td>
<td>TRUCK HITCH OPEN</td>
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<tr>
<td></td>
<td>F14</td>
<td>F4</td>
<td>TRUCK HITCH CLOSE</td>
</tr>
<tr>
<td></td>
<td>F15</td>
<td>F5</td>
<td>LH TOW RAISE</td>
</tr>
<tr>
<td></td>
<td>F16</td>
<td>F6</td>
<td>LH TOW LOWER</td>
</tr>
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<td></td>
<td>F17</td>
<td>F7</td>
<td>RH TOW RAISE</td>
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<tr>
<td></td>
<td>F18</td>
<td>F8</td>
<td>RH TOW LOWER</td>
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<tr>
<td></td>
<td>F19</td>
<td>F9</td>
<td>LH CUT OFF DOOR OPEN</td>
</tr>
<tr>
<td></td>
<td>F20</td>
<td>F10</td>
<td>LH CUT OFF DOOR CLOSE</td>
</tr>
</tbody>
</table>
Fuses - Replace

Fuses (1) protect electrical circuits and are located under the panel on the right side of the machine. Replace fuses with the correct rating to prevent damaging electrical system.

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<th>AMPERAGE</th>
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</thead>
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</tr>
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<td>10A</td>
</tr>
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<td>5A</td>
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<td>10A</td>
</tr>
<tr>
<td>9</td>
<td>Spray Pump</td>
<td>10A</td>
</tr>
<tr>
<td>10</td>
<td>Propel</td>
<td>10A</td>
</tr>
<tr>
<td>11</td>
<td>Back Up Alarm</td>
<td>5A</td>
</tr>
<tr>
<td>12</td>
<td>Feeder System</td>
<td>20A</td>
</tr>
</tbody>
</table>

Relays - Replace

The relays are located in the vertical access panel between the operator seats.

(1) Engine Glow Plug (50A)
(2) Starter (50A)
(3) Right Hand Feeder (20A)
(4) Right Hand Neutral Start (20A)
(5) Left Hand Feeder (20A)
(6) Left Hand Neutral Start (20A)
(7) Back Up Alarm (20A)
(8) Man Power Relay (behind panel 200A)
Screed Heater Electrical Circuit

**WARNING**

Shock/Electronic Hazard - Service on the screed heater 240v electrical circuit must be done only with a qualified electrician. Failure to properly repair the 240v generator and electrical circuit could result in serious injury or death.

Ground Fault Circuit Breakers - Test

**9 kW Belt Driven Generator**

Step 1: Press the test button (1) that is located on the GFI circuit breaker. The reset lever (2), which is located under the test button should instantly pop out.

**NOTE:** The engine must be running at full RPM and the screed heaters turned ON to test the ground fault circuit breakers.

**NOTE:** If the reset lever does not change position, the circuit breaker needs to be replaced.

Step 2: Push the reset lever (2) up in order to reset the circuit breaker.

Step 3: Repeat the test for the other ground fault circuit breaker.

Main Screed Heater Circuit Relays

Step 1: Left screed

Step 2: Right screed
Main Screed Heater Circuit Breakers

Step 1: Left Screed
Step 2: Right Screed

Engine Air Filter Primary Element - Clean/Replace

**NOTE:** Refer to the Caterpillar Operation and Maintenance Manual, “Engine Air Cleaner Element (Dual Element) - Clean/Replace”.

**NOTE:** DO NOT clean the filter elements by bumping or tapping them. DO NOT use filter elements with damaged pleats, gaskets or seals. Engine damage can result.

**NOTE:** DO NOT wash the primary air cleaner element.

When you use pressurized air, the maximum air pressure is 205 kPa (30 psi). When you use pressure water, the maximum water pressure is 280 kPa (40 psi).

Step 1: When you clean the inside pleats and the outside pleats, direct the air along the pleats.

Step 2: Inspect the filter elements after you clean the filter elements. DO NOT use a filter if the pleats, the gaskets or the seals are damaged.

Step 3: Cover the clean filter elements. Store the elements in a clean, dry location.

Replace the primary element after the primary element has been cleaned six times. Also replace the primary element if the primary element has been in service for one year.
Engine Air Filter Secondary Element - Replace

NOTE: Always replace the secondary filter element. Never attempt to reuse it by cleaning. The secondary filter element should be replaced at the time the primary element is serviced for the third time.

NOTE: The secondary filter element should also be replaced if the yellow piston in the filter element indicator enters the red zone after installation of a clean primary element, or if the exhaust smoke is still black.

Step 1: Remove the air cleaner housing cover (1).
Step 2: Remove the primary filter element (2) from the air cleaner housing.
Step 3: Remove the secondary filter element (3).
Step 4: Cover the air inlet opening. Clean the inside of the air cleaner housing.
Step 5: Inspect the gasket between the air inlet pipe and the air cleaner housing. Replace the gasket if the gasket is damaged.
Step 6: Uncover the air inlet opening. Install a new secondary element.
Step 7: Install the primary element. Install the air cleaner housing cover with the rubber evacuator tube (4) at the bottom. Fasten the clips in order to secure the air cleaner housing cover.
Step 8: Reset the filter element indicator.

Fuel System - Prime

Refer to the Cat Operation and Maintenance Engine Manual supplied with each machine for instructions. The fuel system self-primes electrically when the ignition key is turned to RUN position.

Hopper Flashing - Inspect/Replace

Inspect the front hopper flashing for deterioration. Hot asphalt and trucks that are delivering the asphalt to the machine can damage the hopper flashing. If necessary, repair the hopper flashing. Hopper flashing that is not repaired or replaced can cause excess spillage of asphalt in front of the machine.
Tracks - Removal

Contact your Weiler dealer for assistance.

Screed Plate Leveling

Step 1: The screed must be in a null position before you level the screed plate.
Step 2: Place both tow point cylinders in the mid-stroke position.
Step 3: Remove any crown from the main screed. Remove any slope from the screed’s extenders. Remove any berm from the extenders. Adjust the height of the extenders so that the trailing edges are level with the main screed. Lower the screed onto a flat surface. Make sure that the surface is also level. Remove the load from the depth control cranks. Make sure that the depth control cranks are free to turn. Lock into position.
Step 4: Raise the screed to a position that is high enough to extend the lock pins. Extend the lock pins. Lower the screed onto the lock pins.
Step 5: Check the main plate for flatness with a string line or a straight edge.
Step 6: Use the screed plate leveling adjusters in order to level the rear edge of the screed plate. Turn the screed plate leveling adjusters clockwise for 1/6 of a turn in order to adjust the screed plate 0.35 mm (0.014 inch). In order to lower the plate, turn the screed plate leveling adjuster clockwise. In order to raise the plate, turn the screed plate leveling adjuster counterclockwise.
Step 7: Check the front edge of the extender plate’s alignment to the flat of the main screed. The front edge of the extender plate must be flat and parallel. Check the trailing edge of the extender plate and adjust using the trailing edge adjusters.
Step 8: Use the screed plate leveling adjusters in order to level the rear edge of the screed plate. Turn the screed plate leveling adjusters clockwise for 1/6 of a turn in order to adjust the screed plate 0.35 mm (0.014 inch). In order to lower the plate, turn the screed plate leveling adjuster clockwise. In order to raise the plate, turn the screed plate leveling adjuster counterclockwise.
Step 9: Repeat step 3.
Step 10: Use the extender’s angle adjustment after the screed is level. Adjust the extender so that the angle is 1/4 inch positive for each extender.

NOTE: This adjustment procedure may require changes after paving has begun.
STORAGE

Preparing for Storage

WARNING

Use Shutdown Procedure when preparing the machine for storage. Refer to "Machine Shutdown Procedure", page 4-5 for instructions.

- Store machine inside or under cover.
- Clean off foreign material and wash machine. Repaint bare metal to inhibit rust.

NOTICE: Machine controls and electrical/electronic devices are not rated to withstand high pressure water and high temperature power washers. Water intrusion will likely cause malfunction or damage to any devices hit directly by the water spray. Keep pressure washer stream away from machine controls and electrical/electronic devices. Compressed air can also push moisture through some connector and component seals. DO NOT point air nozzle directly at seal areas.

- Repair or replace worn or broken parts or damaged decals.
- Refer to the Engine Operation Manual for engine storage instructions.
- Disconnect battery cables or remove battery. Refer to “Battery Electrolyte Level and Terminals - Check/Clean,” maintenance “As Required.” Check fluid level and charge fully; recheck every 30 days and charge if necessary.

Removing from Storage

- Remove all protective coverings.
- Drain any water and sediment from fuel tank that may have built up during storage. Fill fuel tank.
- Check battery fluid level. Charge battery and install in machine if removed or reconnect cables.
- Refer to the Engine Operation Manual instructions for restoring engine to operation.

NOTE: Disable fuel system and crank engine to provide crankshaft lubrication.
SECTION 6: RECEIVING AND DELIVERY REPORT

DEALER PREP

Check and perform the following:

General

____ Check machine for shortage or damage in transit.
____ Check that all optional and loose items are included with the machine.
____ Check fuel level.
____ Check engine coolant level and freeze point.
____ Check engine oil level.
____ Check track planetary lube level.
____ Check hydraulic oil level.
____ Check all shields are installed and in good condition.
____ Check condition of safety signs and control decals.
____ Check for loose bolts and fittings.

Check Neutral Start System

____ Check park brake neutral start.
____ Check propel handle neutral start.
____ Check conveyor drive neutral start.
____ Check auger drive neutral start.

Check Ground Drive Operation

____ Check park brake.
____ Check back-up alarm sounds in reverse.
Check Engine Stop Control

___ Check both engine stop controls shut off engine.

Check Engine Systems:

___ Check display operation.

Check Operation of the Following:

___ Check horn (LH Operator Control Station).
___ Check horn (RH Operator Control Station).
___ Check screed lift and float (LH Operator Control Station).
___ Check screed lift and float (RH Operator Control Station).
___ Check extension in and out (LH Operator Control Station).
___ Check extension in and out (RH Operator Control Station).
___ Check tow point up and down (LH Operator Control Station).
___ Check tow point up and down (RH Operator Control Station).
___ Check slope cylinders (option) (LH Operator Control Station).
___ Check slope cylinders (option) (RH Operator Control Station).
___ Check beacon light (option).
___ Check truck hitch operation (option).
___ Check spray down pump.

Lubrication

___ Check/grease all grease points.
___ Check machine for fluid leaks.

Machine and Dealer Information

___ Fill out information on back of front cover.
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## Revision History

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<th>Date</th>
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<tr>
<td>P385 May 2014</td>
<td>05/2014</td>
<td>All</td>
<td>Reformatted safety messages. Added rear platform latch, extension indicators, height indicators, screed level indicator, crown indicator, extension angle lock, steering wheel option, and cut-off shoes.</td>
</tr>
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</table>
Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.

When operated in California, any off-road diesel vehicle may be subject to the California Air Resources Board In-Use Off-Road Diesel Vehicle Regulation. It therefore could be subject to retrofit or accelerated turnover requirements to reduce emissions of air pollutants. For more information, please visit the California Air Resources Board website at http://www.arb.ca.gov/msprog/ordiesel/ordiesel.htm.