FASTACH II

Screed

Operation & Maintenance Manual

Cedarapids
A Terex Company

(P/N 499992523203) 22415 (6/03)

To the Owner & Operator

We have tried to provide information which will give you a clear understanding of equipment construction, function, capabilities and requirements. This information is based on the knowledge and experience of highly qualified people at our company and in our field organization. Proper use of this information will promote high efficiency, maximum service life and low maintenance costs.

We strongly recommend that all persons directly involved with this equipment be familiar with this manual.

The information contained in this manual should not be considered all-inclusive for every application. Questions about specific uses of this equipment should be directed to Cedarapids Inc. Anyone who uses this equipment for any purposes other than its intended use assumes the risk of any danger in doing so.

Respectfully,

Cedarapids Inc.

Warning - The operators of this equipment must read, understand, and follow all OSHA, federal, state and local regulations regarding the operation of this equipment. This equipment must be used in accordance with all operation and maintenance instructions.

(1) Read all decals and instruction signs. Know what guards and protective devices are included and see that each is installed and in operational condition. Additional guards and protective devices may be required and must be installed before operating.

(2) Never maintain, lubricate or adjust equipment while in operation. Turn off key switch and remove the key before doing any maintenance, lubricating, or adjusting. In some cases it may be necessary to disconnect the battery terminals to prevent accidental starting of the equipment.

(3) Wear a protective mask whenever harmful air pollution exists.

(4) Use ear plugs whenever noise level is above established limits.

The following warning applies to Cedarapids equipment supplied with lead-acid batteries:

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.

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Cedarapids Paver Manuals

Cedarapids Paver Manuals

The following list represents the complete set of manuals available to the owner, operator, and mechanic of a Grayhound paver. All of these manuals are included with each new paver when it ships from the factory. If your manuals are not included with your new paver or if you require additional copies of any of these manuals contact your local Cedarapids dealer.

Operation and Maintenance Manual

The Operation and Maintenance manual is intended to be used by both the operator and mechanic.

The operation portion of this manual gives detailed operating and safety instructions for both new and experienced operators. It is intended to give more detailed information than the Pocket Paver Guide.

The maintenance portion of this manual gives detailed information on component locations, test procedures, safety, and routine maintenance. This information expands on the information in Technical manual and Wear Check Guide.

Technical Manual

The Technical manual is designed primarily for use by maintenance personnel. It provides detailed troubleshooting procedures and schematics for diagnosing paver breakdowns. Once a problem has been diagnosed, refer to the Operation and Maintenance manual for information on making the repair.

Quality Paving Guide

The Quality Paving Guide should be used primarily by paver operators. This manual gives detailed information on setting up the paver to produce the mat surface needed.

Wear Check Guide

The Wear Check Guide should be used primarily by maintenance personnel. It contains detailed information for determining when parts require replacement.

About the Pocket Paver Guide

The Pocket Paver Guide is a small reference manual designed for use by experienced operators. It contains information needed by the operator for day-to-day operation, adjustment and maintenance of the paver and screed.

CIMA Safety Manual

The CIMA Safety Manual is a general manual designed to be used by everyone on a paving job site. This would include operators, laborers, mechanics, truck drivers, etc.

Hazard Levels

The signal words **Danger**, **Warning** and **Caution** are used to identify hazard levels of in this manual. They may also be found on decals located on the equipment. (Figure 1)

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Hazard Levels

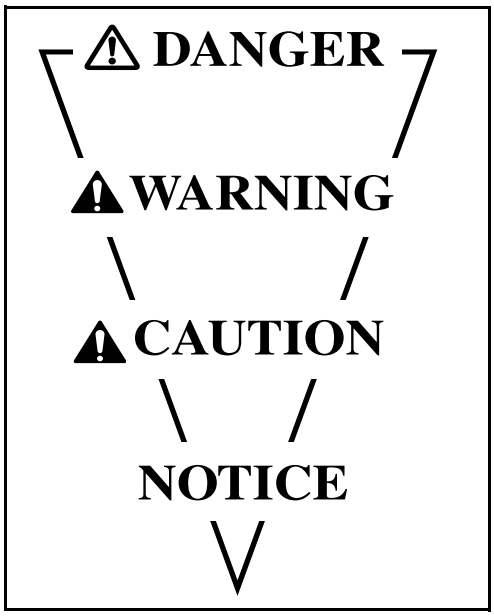

Figure 1 Hazard Level Hierarchy

Definitions for identifying hazard levels and their signal words are provided below:

Danger - Immediate hazards which **WILL** result in death, system loss, severe personal injury, severe occupational illness or severe or major system or environmental damage.

Warning - Hazards or unsafe practices which **COULD** result in death, system loss, severe personal injury, severe occupational illness or severe or major system or environmental damage.

Caution - Hazards or unsafe practices which **COULD** result in minor personal injury, minor occupational illness, or minor system or environmental damage.

The signal word **Notice** is used to identify installation, operation, or maintenance information which is important but not hazard related.

Identification Number Location

Tractor

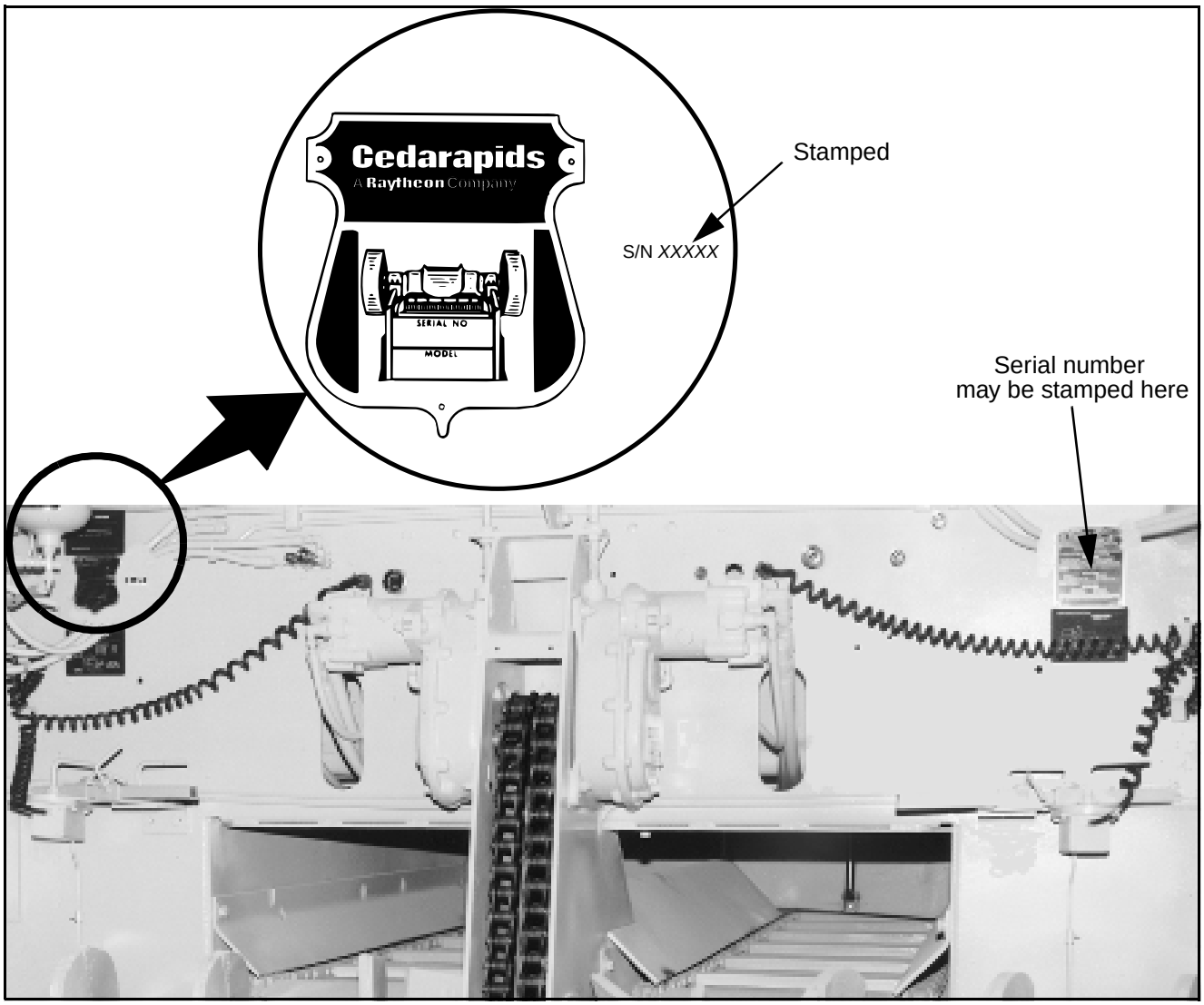

Figure 2 Tractor ID Number Locations

The serial number plate for current model tractors can be found on the left rear frame bulkhead. In addition, the serial number will be stamped into the bulkhead to the right of the serial number plate. On early model tractors, the serial number may be stamped into the bulkhead and covered with the serial number plate. (Figure 2)

The serial number will also appear on the lubrication decal found on the right rear frame bulkhead.

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Identification Number Location

Screed

The Fastach II screed carries both a serial number and a module number to simplify identification when ordering parts.

The identification plate bearing both numbers is located on the right-hand screed pull arm. In addition, the screed module number is stamped on the right-hand pull arm above the identification plate. (Figure 3)

If a Fastach II screed is shipped as a single item (to be mounted on a paver in the field) the serial plate will be mounted below the screed identification plate on the right-hand pull arm.

Refer to the following illustration for location of the stamped module numbers and identification.

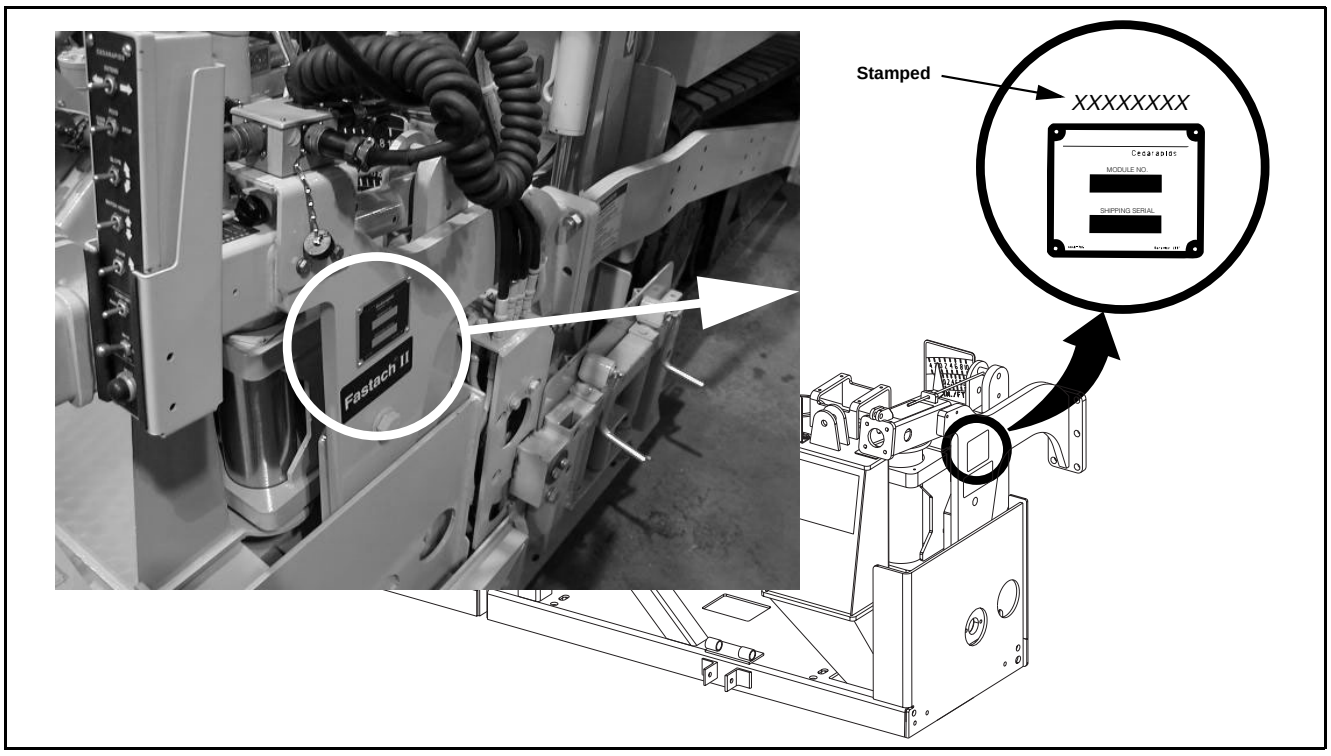

Figure 3 Fastach II Identification Number Location

Lockout Tagout

Warning - Failure to follow good lockout and tagout procedures could result in serious injury or death.

What is the purpose of lockout /tagout?

- Prevent the unexpected or accidental start-up of equipment and to notify other workers when a piece of equipment is unsafe to operate.
- Prevent injury to personnel from energy that is stored in devices such as springs, accumulators, hydraulic systems, batteries, etc.

How do I lockout and tagout equipment?

- Turn the master key to the OFF position and remove the key.
- Disconnect the batteries.
- Regardless of which lockout method is used, place one or more tags on machine controls or access doors to let other workers know that maintenance is being performed on the machine and/or the machine is unsafe to operate.

Who is responsible for establishing and administering a lockout /tagout program?

- The employer must establish a lockout /tagout system of procedures, training and periodic inspection before any employee operates, services, or maintains a piece of equipment.
- All employees are responsible for seeing that equipment is locked out and tagged out according to the employers policies.

When is lockout and tagout necessary?

- Any time repairs or maintenance on a machine are to be performed.
- When cleaning or lubricating the machine.
- While clearing blocked or jammed mechanisms.
- Any time that the equipment will be left unattended.

Who should apply a lock or tag?

- Any maintenance person who will be working on the equipment.
- The foreman or team leader responsible for the job.
- Anyone who will be working on the equipment.
- If several people will be working on a piece of equipment, each person must apply their own tag.

When can a lock or tag be removed?

- After all safety guards are back in place.
- After work is complete and tools are put away.
- After workers are positioned safely for start-up.
- After controls are positioned correctly for start-up and machine is operation ready.

Who can remove a lock or tag?

- Only the person who applied a lock or tag can remove it.

General safety

This manual contains important information regarding the operation of the screed with your paver. Carefully read the entire manual before attempting to operate the paver.

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General safety

Danger

- Install all auger guards and vibrator covers before operating the paver.
- Never attempt to install or remove any part or assembly when the paver is running.
- Do not allow personnel to stand or walk between the front of the paver and the back of the truck while the paver is operating.
- Attach screed safety cables or lower the screed before performing any inspections, repairs or adjustments to the screed.
- All guards and protective devices must be in place when the paver is being operated or moved.
- Keep all personnel clear of augers when the paver is operating.
- Do not refuel the paver with the engine or screed heater system running. All sparks and open flames must be kept a minimum of 50 feet away from the paver when refueling.
- Do not wash or spray down the screed or tractor with the screed heater system operating.

Warning

- Do not operate this equipment until you have been trained in its operation or maintenance. This equipment may only be operated or maintained by trained personnel, who have demonstrated their ability to do so safely.
- Keep this manual for future reference.
- Read, understand and follow all current OSHA, federal, state and local regulations that are applicable to your job and equipment.
- This equipment must be used in accordance with all operation and maintenance instructions.
- All persons involved with this equipment must be familiar with this manual.
- Read, understand, and follow all Danger, Warning, Caution and instruction decals in this book and on the paver.
- When changing the paver configuration or adding equipment to the paver, all additional guards associated with the added equipment must be installed before operating or moving the paver.
- Any changes made to the original design of the paver or paver must be approved by qualified personnel to ensure that the changes include appropriate guarding and provide a safe working environment for all personnel.
- Wear clothing that fits snug to prevent getting caught in moving parts. Loose-fitting clothing should never be worn.
- Mount and dismount the paver from the rear using only the steps, handrails and walkways provided.
- Do not mount the paver when it is moving.
- Allow only the operator on the operator's platform when the paver is in operation.
- Before starting the paver, make sure the brakes are ON, all other systems are OFF and all personnel are clear.
- Before leaving operator's seat, always place the brake switch ON, and all other controls or switches in OFF or NEUTRAL position.
- Reduce travel speed when going down step grades to prevent over-speeding.

- Do not allow personnel near the hopper area when the paver is running.

Caution

- Wear protective mask when harmful air pollution exists.
- Wear safety goggles, gloves and long-sleeve shirts when working near hot asphalt materials.
- Wear ear plugs while paver is running.
- Keep operator's platform, steps and screed walkways clear of all obstructions, tools and other items to prevent tripping or falling.
- To prevent fire hazards, keep the screed and engine basket area free of oil, asphalt and trash buildup.

Receiving New Equipment

Before accepting and unloading a new paver and/or screed, the consignee must inspect the equipment for evidence of damage or missing parts. This inspection process should be thorough, because once the freight receipt is signed, it is assumed that all of the equipment listed on the receipt was received in good condition.

Make a thorough inventory of all loose components packaged in boxes. A check list is provided in each box listing the components in the box. While performing the inventory, inspect all loose components for damage which may have occurred during transit. Any damage that happens to the equipment in transit is the responsibility of the carrier **not** Cedarapids. Claims for damage must be submitted to the carrier for settlement.

When evidence of damage or loss is discovered, have the driver make a notation on both the carrier's and consignees' copies of the freight bill. Prior to signing the freight bill, take pictures of the damage and identify the truck if possible. The consignee can then sign the bill to acknowledge delivery. The consignee should then have the carrier's terminal manager or his authorized representative make an official inspection of the damage or loss.

Equipment should not be moved from the original receiving point until this official inspection has been made. Good clear photos will verify and explain damage in any claim action which may follow. When the inspection is done, the consignee should file a written damage claim with the carrier's office and should report this action to the area distributor for Cedarapids Inc.

If hidden damage is found after the carrier's representative has gone, do not continue to unpack or move the equipment. Contact the carrier's local office and have the terminal manger or authorized representative make an immediate personal inspection of the damage. Obtain a written description of the damage, and photos if possible, signed by the representative as proof of a valid claim.

A packet of equipment warranty/start-up information will be sent to the distributor before the equipment leaves the factory. All warranty/ start-up forms must be filled out and returned to Cedarapids within **24 hours** after the equipment is received.

Principle Of Operation

The Fastach II applies one or more layers of hot mix asphalt to create a smooth well-drained road surface. The screed is towed by the tractor that has adjustable pull points. The combination of the pull point height positioning and mat thickness hand crank adjustments provide for changes to be introduced to the screed attack angle. The slight positive angle of attack allows the screed to ride up and float on the hot mix.

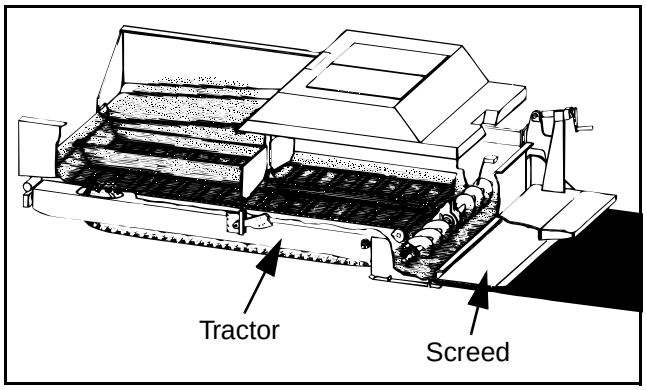

Figure 4 Asphalt Flow

Vertical movement of pull points will cause the attack angle of the screed bottom to change. This, in turn, causes the screed to establish a new level. This self leveling action of the screed keeps the mat surface at a uniform grade.

The screed also has electrically operated heating units to warm the screed bottom prior to paving. Preheating the screed bottom allows the hot asphalt to pass under the screed without sticking to the cold screed bottom.

The electric heating units are supplied electricity from a hydraulically driven generator mounted on the screed. The tractor must be equipped with a circuit to supply the hydraulic drive motor.

The screed bottom flexes at its midpoint into a slight V-shape (negative crown) or into a slight inverted V-shape (positive crown). Such adjustment produces a negative or positive crown on the mat for specified water drainage requirements.

Equipment Description

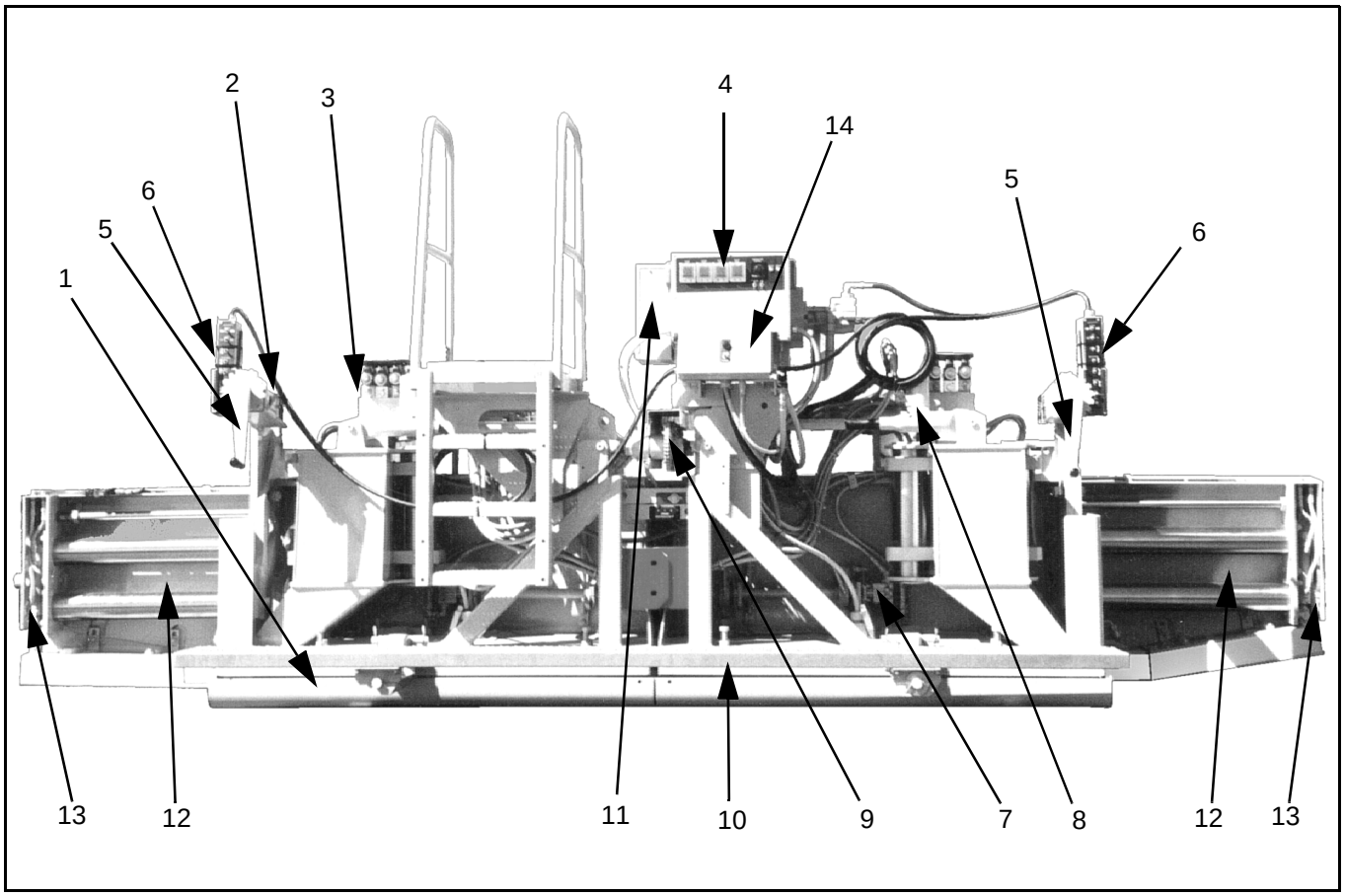

Figure 5 Fastach II Screed

1) Main Screed Section
2) Pull Arm Mount
3) Slope Indicator
4) Heater Control Panel
5) Depth Crank
6) Remote Screed Control
7) Vibrator
8) Match Height
9) Crown
10) Walkway
11) Generator
12) Left/Right Extending Screed Sections
13) End Gates
14) Main DC Electrical Box

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Equipment Description

1) **Main Screed Section**

2) **Pull Arm Mount** - The screed is connected to the tractor at the pull arm mount.

3) **Slope Indicator** - The extending screed sections can be tilted independantly as needed to produce a sloping mat surface.

4) **Heater Control Panel** - Contains heater circuit breakers, 120/240V circuit breakers, generator on/off switch, heater on/off switch, and temperature control knob for preheating the screed bottoms.

5) **Dual Rotation Depth Crank** - Adjusts the angle of attack of the main screed bottom to increase or decrease the thickness of the mat.

6) **Remote Screed Control** - Portable control panel used to adjust match height, crown, slope, mat thickness, extention width, feed control, and berm control.

7) **Vibrator** - Vibrators increase the compaction produced by the screed. Vibrator frequency and amplitude can be adusted for mat and mix specifications.

8) **Match Height** - Extending screed sections can be raised or lowered as needed to match the height of the main screed bottom.

9) **Crown** - The main screed bottom can be deflected at the center to produce a positive or negative crown in the mat.

10) **Walkway** - Allows screed operator to move along the length of the main screed while the screed is in motion without walking on the newly placed mat.

11) **Generator** - Hydraulically powered generator provides the electricity necessary for the heating units to prevent asphalt from sticking to the screed bottom.

12) **Extending Screed Sections** - Extending screed sections can be adjusted hydraulically to any width from zero to three and one half feet (0-3 1/2')on each side of the screed.

13) **End Gates** - Mounted on the end of the extending screed sections. The end gates prevent material from spilling out past the end of the extending screed section and produce a square or bevelled edge on the mat.

14) **Main DC Electrical Box** - Junction box for screed control cable electrical connections.

Operation

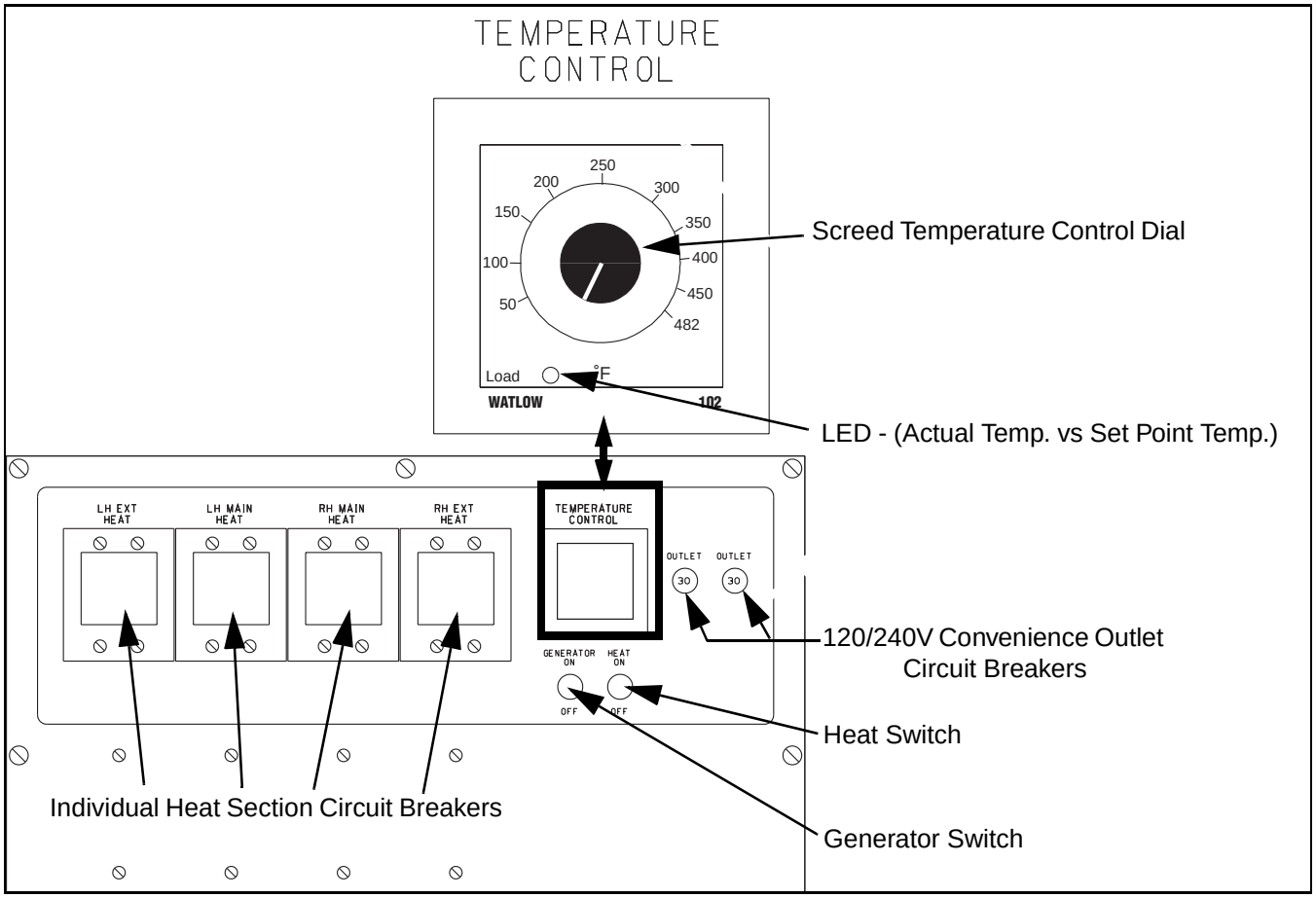

Figure 6 Heater Control Panel

Screed Heater Control Panel

The tractor main key switch must be ON before any of the following controls will function.

Screed Temperature Control Dial - This dial sets the temperature of all the heating units on the screed by controlling a relay for each individual heat section.

LED - This red LED comes on when the actual temperature of the heaters is less than the temperature set on the control dial.

120/240V Convenience Outlet Circuit Breakers - Protect the 120 volt and 240 volt convenience outlets.

Heat Switch - Turns power on and off to temperature control dial. This switch is interlocked to generator main switch...the generator must be on before this switch is active.

Generator Switch - Turns power on and off to operate generator and supplies power to heat switch.

Heat Section Circuit Breakers - Protect individual heater section.

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Operation

Remote Controls

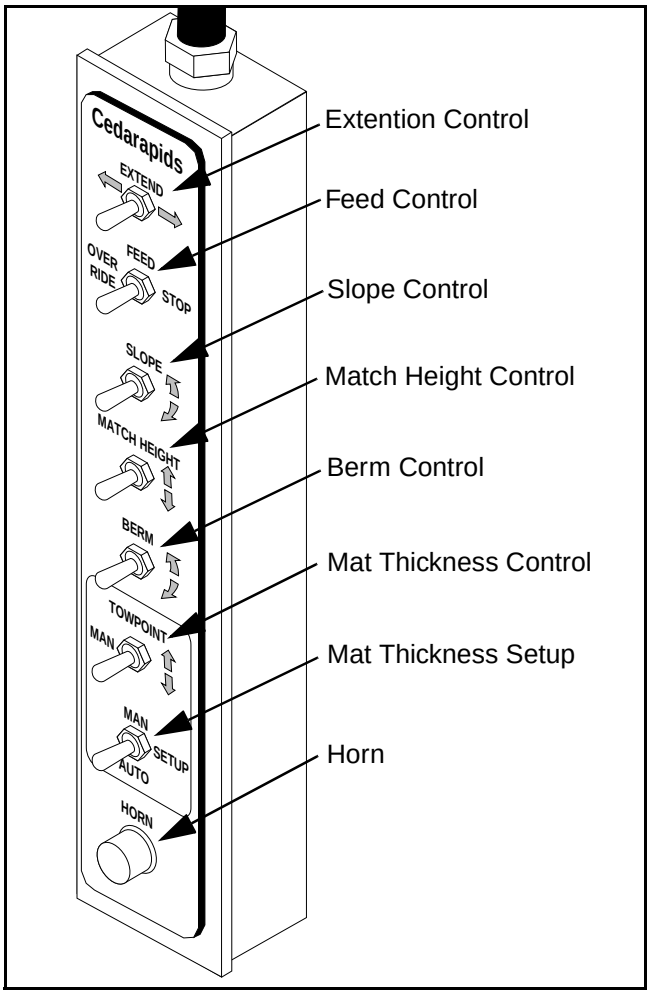

Figure 7 Remote Control Panel

Raising and Lowering Screed

Warning - Always make sure everyone is clear of the screed before raising or lowering the screed.

Raising and lowering the screed is accomplished by two double-acting hydraulic cylinders mounted on the rear of the pull arms. The cylinders are controlled by electric solenoid valves mounted on the tractors rear bulkhead. The screed is raised using the Screed Lift switch on the tractor operator console.

When engine is at FULL throttle and screed lift switch is held in the RAISE position, the screed will rise until it reaches maximum height or the switch is released. When the switch is released it will automatically return to the neutral position where the screed is hydraulically locked at the existing height. While paving the screed lift switch must be in the LOWER/FLOAT position. This position allows the screed to float over mix at the preset mat thickness.

Supporting an elevated screed

Warning - Always make sure screed is locked in the up position or supported using blocks before working under or around an elevated screed and while traveling with the screed elevated.

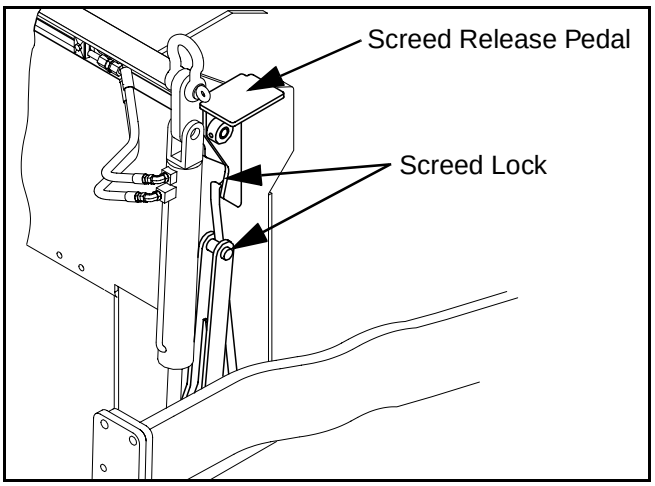

Figure 8 Screed Lock

To lock screed in up position, raise screed to the upper limit until lock engages. To lower, step on screed release pedal and lower screed.

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Operation

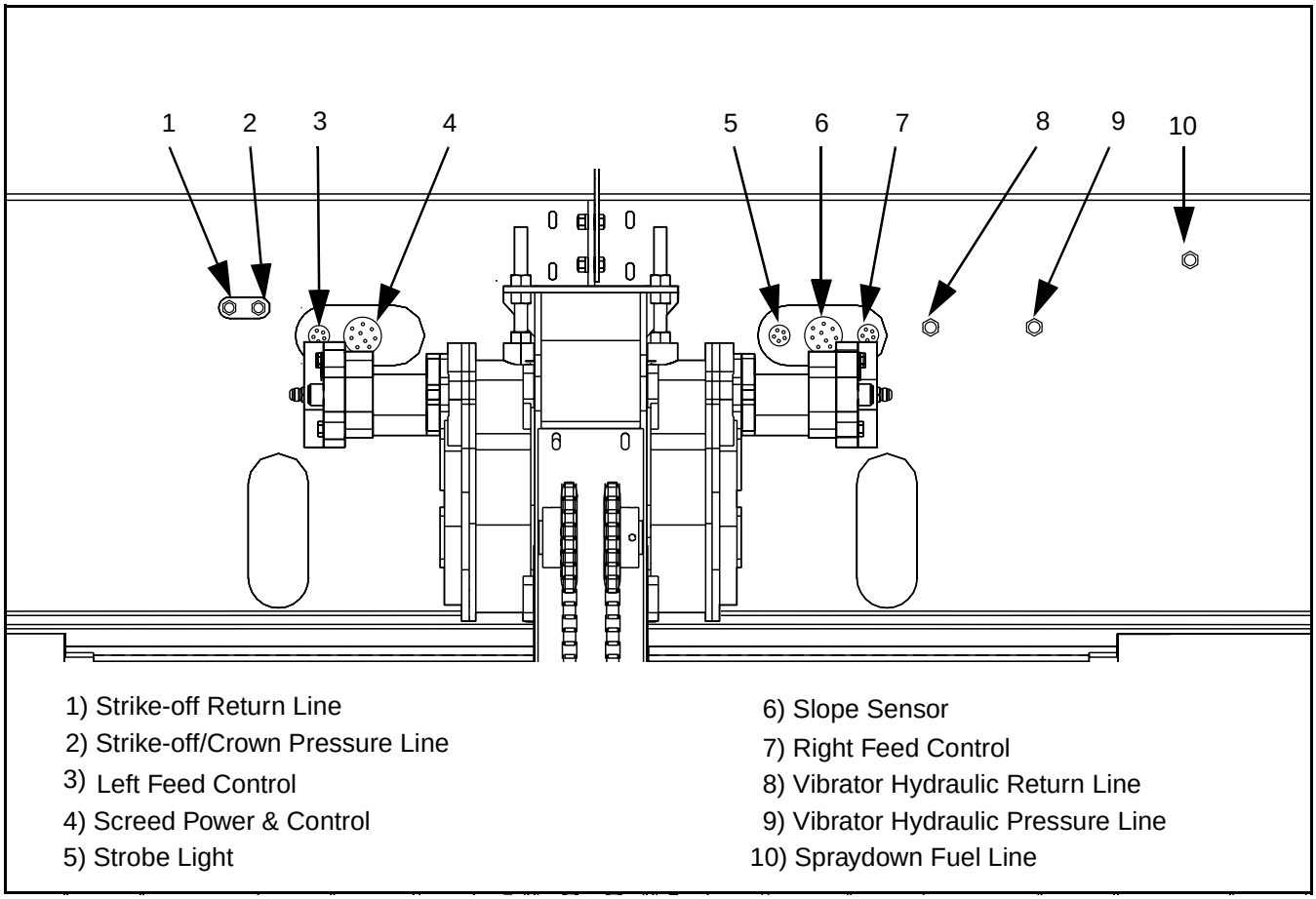

Figure 9 Hydraulic and Electrical Disconnects

Detaching & Attaching Screed

The screed may need to be detached from the tractor because:

- Maintenance and repair work on screed and/on rear of tractor can be more easily performed with screed removed.
- A screed with extensions can be detached and hauled lengthwise on a truck bed.
- Smaller trucks can be used to transport separated tractor and screed.
- The tractor can be driven on a steeper ramp with the screed removed than with the screed installed.

Notice - Screed detachment must be performed correctly to prevent damage to the screed or tractor.

1) Lower the screed to the ground.

2) Unplug all hydraulic hoses and electrical cables from tractor. Plug or cover the open connectors on both the tractor and on the ends of the hoses or wires using protective covers.

3) Remove the four bolts on each pull arm coupler and move tractor forward.

4) To attach screed, reverse above procedure.

Operating the Screed

Mat Thickness Control

The screed angle of attack (Figure 10) must be adjusted based on desired mat thickness and mix design. Refer to the Quality Paving Guide for detailed instructions on how to determine the correct angle of attack setting.

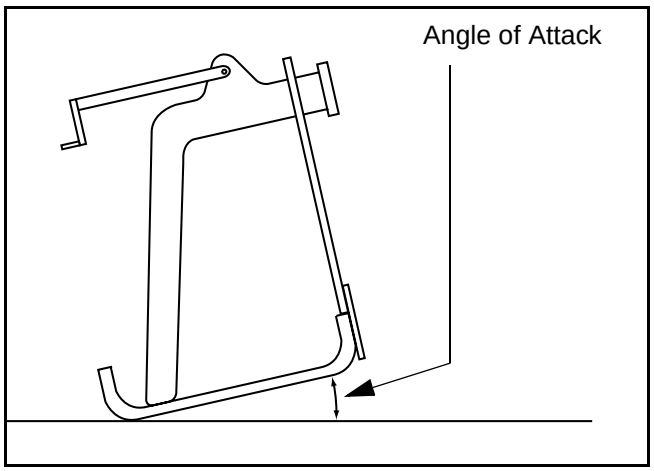

Figure 10 Screed Angle of Attack

Thickness of material deposited is determined by the height of screed pull arm tow points on the tractor and the screed angle of attack in relation to the tow points.

Screed bottom attack angle adjustment is made by vertical movement of tow points (Figure 11). Use the mat thickness switch (INCREASE or DECREASE), on remote control box, to alter pull point height. This method of attack angle adjustment should be the primary means of obtaining the desired mat thickness in the MANUAL mode.

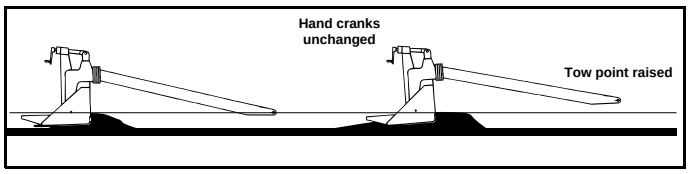

Figure 11 Angle Change Moving Tow Point

Manual attack angle adjustment (mat thickness) can be made by turning hand crank at each end of screed (Figure 12). When hand cranks are turned clockwise, they increase the screed attack angle producing a thicker mat. When the hand cranks are turned counterclockwise, they decrease the screed attack angle producing a thinner mat. Dual rotation cranks make it possible to change the direction of operation of the cranks. If the screed was purchased with opposite rotation, the rotation directions will be reversed.

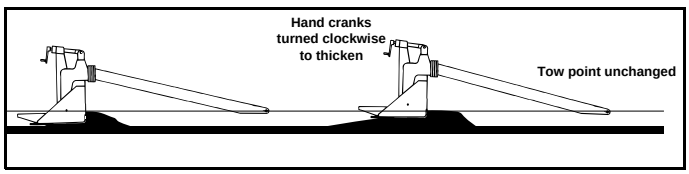

Figure 12 Angle Change Moving Hand Crank

Mat thickness, at each end of screed, is controlled independently so that a tapered mat can be laid in order to level or to superelevate a roadway.

A change of material may cause screed to react differently, requiring different settings. To obtain a smooth mat, screed adjustments should be made gradually and screed should travel a few feet before an additional adjustment is made. This allows screed to seek new level of operation.

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Operating the Screed

If a paver is equipped with automatic screed control, the operator will normally set up the screed using manual adjustments before switching on the automatic system. Both tow points should be adjusted to the same height at start-up.

Screed Pull Arms

Screed pull arms are attached to the paver at a single point (tow point) on each side of the tractor (Figure 13). As the tractor follows the contour of the existing road surface, the pull arms are allowed to move independently to maintain a consistent line of pull. This system allows the screed to cover over irregularities found in grade and base material and produce a new smooth ride surface.

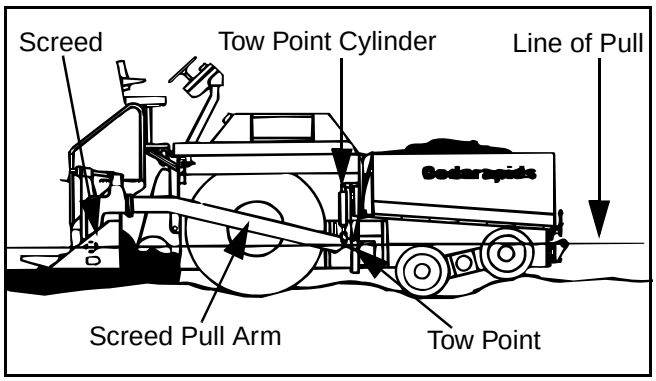

Figure 13 Pull Arms

Tow Point Cylinder Speed Test

Speed adjustment (flow control) valves are included in the hydraulic system for each tow point cylinder so the speed of mat thickness correction can be regulated. These valves make very fine control of flow possible.

The flow control valve is factory set and should not require a change. If one or both tow points react too slow or too fast to changes in grade line, the following test should be performed.

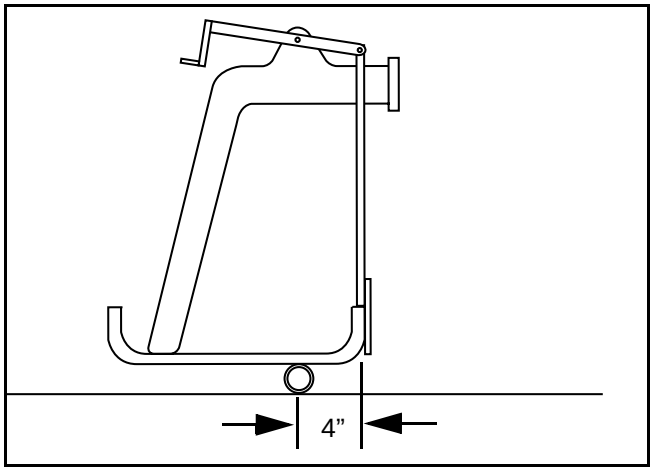

Figure 14 tow point speed test

1) Place the paver on a flat hard surface. Place a 2" (O.D.) or larger pipe under each end of the main screed to serve as a pivot (Figure 14). Lay pipe parallel to leading edge of the main screed and exactly 4" from leading edge.

2) With engine running at FULL throttle, hydraulic oil at operating temperature, set mat thickness switch, on remote control box, to MANUAL.

3) Use the mat thickness switch (INCREASE/ DECREASE) and stroke the cylinder from one end of stroke to the other. Total time required should be between 18 to 20 seconds in each direction.

4) If not, adjust the tow point flow control valve on the tractor as needed to get the stroke time within the 18 to 20 second range.

5) Perform this procedure on both the left and right tow points to ensure both move at the same speed.

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Operating the Screed

Tow Point Position

Screed tow points are raised or lowered by tow point cylinders controlled by the mat thickness switch on remote control box. For normal types of material and mat thickness, the tow point cylinders should be set at midstroke. A decal mounted on the tow point cylinders indicates the current position of each tow point (Figure 15).

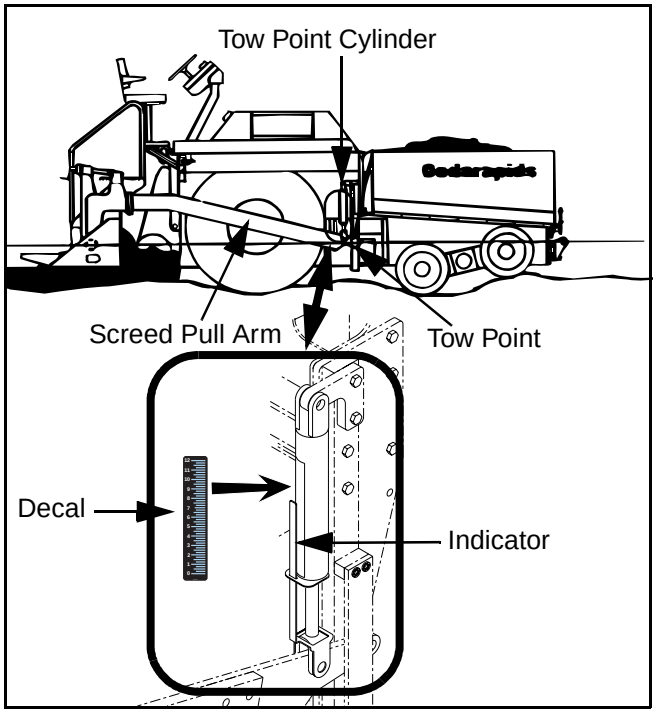

Figure 15 Tow Point Indicator

Notice - The tow points should be reset to the midpoint, depending on depth for line of pull, and the screed nulled at the start of each day. When adjusting tow points to the desired setting, make sure both are adjusted the same. If tow points and hand cranks are excessively out of balance, it causes the screed to twist resulting in poor mat surface.

The tow point most critical settings are with low stability sandy mixes. If screed tends to sink and ride on trailing edge due to unstable mix or a thick mat requirement, tow points can be raised to improve mat. If the paver is required to lay a very thin mat, tow points can be lowered to give screed better flotation and greater initial density to mat.

Correct tow point settings become a matter of experience. Locating mid-stroke of tow points as noted has proven satisfactory for most paving jobs. The softer and more unstable the material, the more important it becomes to have screed bottom flat with mat.

Notice - Unstable mixes can be caused by too much asphalt in mix, poor gradation, poor quality asphalt, excessive temperature, moisture in material, and/or insufficient dust.

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Operating the Screed

Effects of Tow Points Positioned Too High

When pull points are too high and the screed is adjusted to compensate for this, the screed bottom will wear more on the leading edge. See Figure 16. This could cause some of the following problems:

1) Premature failure of leading edge of screed bottom and possible damage to strikeoffs.

2) Bumpy, wavy mat caused by screed riding on its leading edge.

3) Tendency for screed to dip each time paver starts moving.

4) Torn mat caused by "digging in" action of leading edge.

5) Loss of compaction caused by trailing edge of screed not being in contact with mat being laid. Vibrators connected to screed bottom support will not be operating efficiently as full screed width is not being utilized. Mat appearance and texture will change with only slight movement of mat thickness hand cranks.

Effects of Pull Points Positioned Too Low

When pull points are too low and the screed is adjusted to compensate for this, the screed bottom will wear more at the trailing edge. See Figure 16. This could cause some of the following problems:

1) Premature failure of trailing edge of screed bottom.

2) Tendency for screed to climb each time paver starts moving. Poor control of mat thickness will exist and good transverse joints will be difficult to make.

3) Possible tearing of mat caused by excessive ironing effect of screed.

Correct Tow Point Position

Correct tow point positioning will result in more uniform wear of the screed bottom as well as better mat texture. See Figure 16.

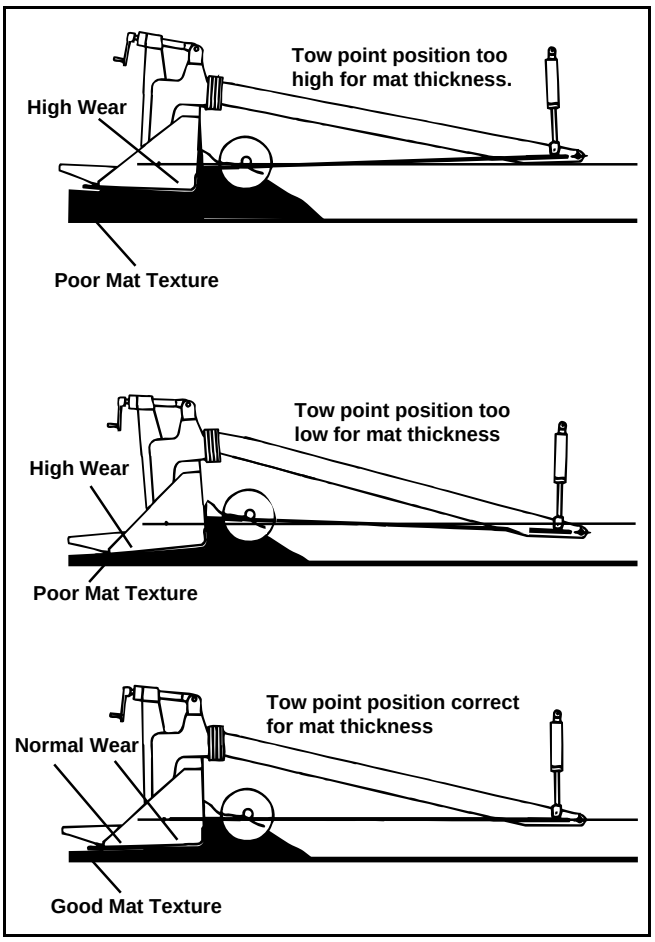

Figure 16 Effects of Tow Point Position

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Screed Adjustments

General

All screed adjustments in the following sections should be made only after setting the tow point cylinders to the same position, nulling screed, and zeroing the lead and trailing crown.

Position Tow Points

Use the Manual Jog switch to reposition both tow points to the midpoint on the tow point gauge.

Nulling the Screed

Measure the distance from the screed frame to the left tow arm plate. (Figure 17)

Measure the distance from the screed frame to the right tow arm plate.

Rotate the right side hand crank as needed until the measurement is equal to that of the left side.

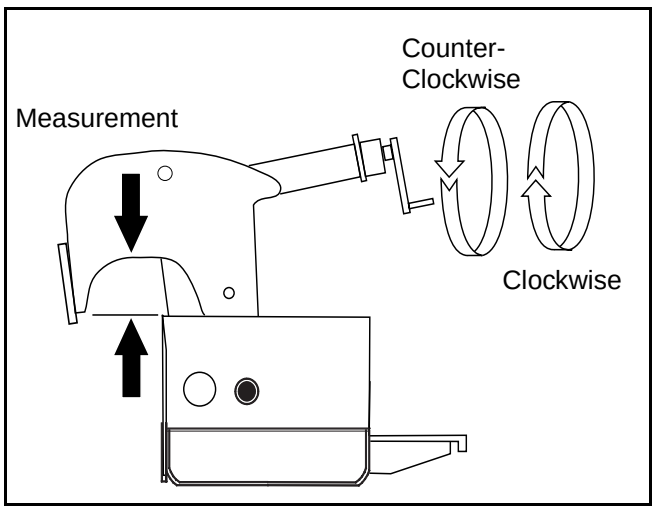

Figure 17 Nulling Screed

Mat Crown Control

The flat screed bottom can be flexed at its center to produce a finished mat having a positive or negative crown for water drainage. For 10’ wide paving, maximum positive crown is 3" and maximum negative crown is 1", see Figure 18. The crown gauges provide a crown reference.

Crown adjustment is accomplished by means of two hydraulically driven adjusters (Lead & Trail). The crown adjustment is controlled at the main screed control panel.

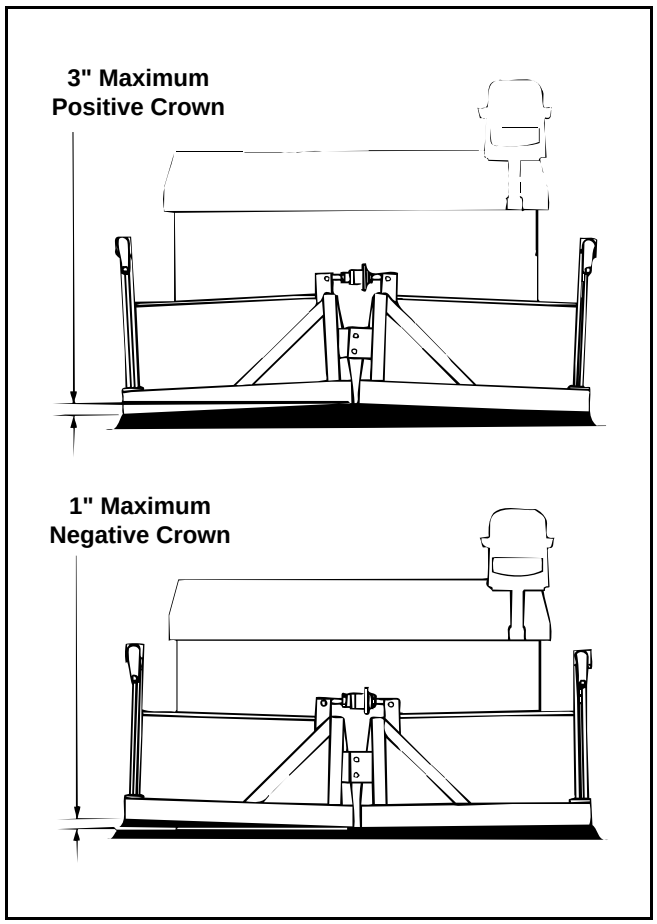

Figure 18 Controlling Mat Crown

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Screed Adjustments

Lead/Trail Crown

The main screed crown has two adjusters, the lead & trail. The lead and trail crown can be adjusted simultaneously to add a crown to the final mat. The lead crown can be set independent of the trail, to allow a little extra material to pass into the center area of the main screed. This is necessary to compensate for the void area created by the auger-conveyor drive case. Typically the lead crown is 1/16" to 1/8" above that of the trail. This range is sufficient for most mixes.

The most common way to check the lead and trail crown is to use a strong string line, two equal thickness spacers (new 1/2" NC nuts) and a tape measure.

The first check to be performed is checking and adjusting the trail crown.

1) Place two spacers near the outer edge of the screed bottom and just foreword of the trailing edge.

   Important - A screed that has been used in a joint matching application may have a few inches on the outer edge of the screed bottom that is worn more than the rest of the screed bottom. In such a situation the spacers will have to be placed inboard of the worn areas to get a proper measurement.

2) Stretch a strong string line across the center of the spacers and pull tight.

3) Measure the distance from the string line to the screed bottom next to each spacer and in the center of the screed.

4) For initial setup purposes we adjust the lead and trail crown to 0" (flat). If the measurement in the center of the screed is less than or more than the measurement near the spacers, the trail crown must be adjusted.

5) To adjust, press the crown switch located on the main screed control panel to Increase or Decrease. Adjust until measurement at center area of screed is equal to the measurement near the spacers.

6) Once the trail crown is set to 0" (flat), move the spacers and string line forward to the leading edge of the screed bottom.

7) Measure the amount of lead crown.

8) To adjust the lead crown independent of the trail crown, remove the two clevis pins in the rear crowning sprocket. Press the crown switch to the increase or decrease position.

9) Adjust until measurement at center area of screed is equal to measurement at spacers.

10) Reinstall the two crown clevis pins in the rear sprocket.

11) Once the lead and trail crowns are set at 0" (flat), loosen and reset the crown indicator gauges to 0.

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Screed Adjustments

Final Crown Adjustment

Final crown adjustment is made after paving has started and actual mat crown can be accurately checked by taut string line. Final crown adjustment is always made after checking; a) Behind the screed before roller compaction; and b) After roller compaction. Do this after enough mix has been laid to be certain the screed has stabilized. This allows you to check the screed as well as what effect the roller compaction has on the mat shape.

1) Place spacers (2 X 4s) near the edges of the newly rolled mat. The spacers must be of equal thickness and be thick enough to hold a stretched string line above the crown of the mat.

2) Stretch a string line across the spacers and pull the string line tight.

3) Measure the distance from the string line to the mat at the peak of the crown and at each side of the mat near the spacers.

4) Adjust the crown as needed recheck the crown of the rolled mat until it matches the specified profile.

Screed Bottom Flatness

The trailing edge flatness must be checked from time to time to ensure the mat produced will be flat across the entire width of the screed.

1) Starting from the center line of the screed bottom, place a 5 foot straight edge from the center to the outside edge. The straight edge should be placed along the trailing edge of the screed bottom.

2) Check the screed bottom along the length of the straight edge for flatness. If the screed bottom is not flat, loosen the retaining bolt adjacent to the shim bolt and tighten the shim bolt as needed to flatten the trailing edge. Retighten the retaining bolt. (Figure 19)

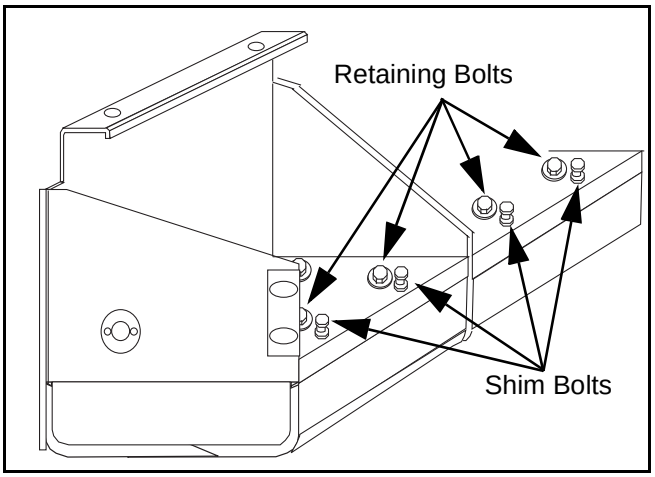

Figure 19 Screed Bottom Flatness

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Screed Adjustments

Match Height Adjustment

This adjustment is performed to make sure the extending screeds are positioned at the same height as main screed. Procedures described below are done for both extending screeds.

1) With the extending screeds fully retracted, check the match height across bottom of rear extending screed and main screed at outer edge. If the main and extending screed bottoms do not match, use the match height switch on the remote control to raise or lower the extending screed as needed.

2) When the outside edges of the screed bottoms are at the same height, check the height at inner edge. If the inner edges do not match, use the slope switch on the remote control to align the inner edges of the screed bottoms.

3) When both the inner and outer edges are matched, check match height scale pointer. If pointer is not at zero, loosen cap screws, align with zero, and re-tighten screws.

4) Extend the extending screed. Lay a straightedge across the main and extending screed bottoms. Both surfaces should be level if the preceding steps have been performed correctly.

Independent Angle of Attack

The extending screeds run with a slight increased angle of attack relative to the main screed to provide a uniform texture across the width of the mat. This is called the independent angle of attack.

Important - The Match Height Adjustment above must be performed before adjusting the independent angle of attack.

To check and adjust the independent angle of attack:

1) Fully retract both extending screeds.

2) Place a straight edge on the outer edge of the main screed that extends under the extending screed.

3) With straight edge flat against the main screed bottom, the straight edge should contact the extending screed bottom at the trailing edge. There should be 1/8" gap between the leading edge of the extending screed bottom and the straightedge. (Figure 20)

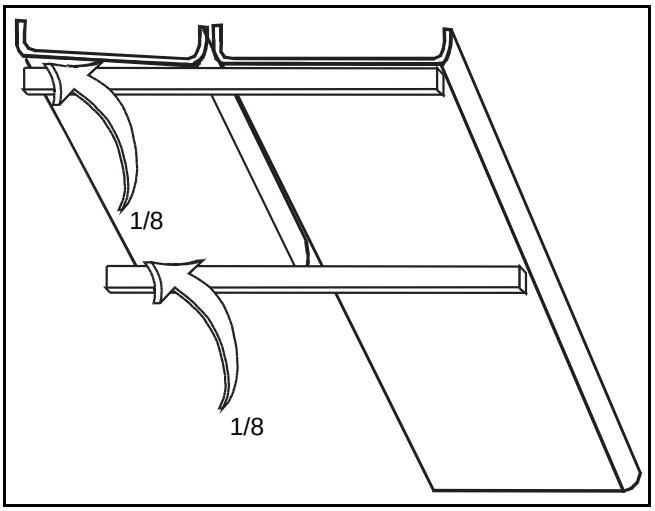

Figure 20 Independent Angle of Attack

Independent Angle of Attack Adjustment Original Version

1) To adjust the independent attack angle, first loosen rear retaining bolts on the extending screed, loosen jam nuts on shim bolts, then

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Screed Adjustments

increase the attack angle by turning shim bolts clockwise or decrease the attack angle by turning shim bolts counterclockwise.

2) Once the desired angle is obtained, re-tighten jam nuts and retaining bolts. (Figure 21)

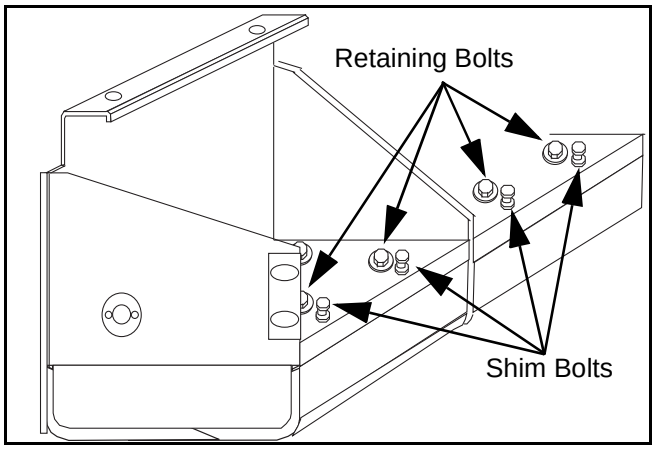

Figure 21 Adjusting Angle of Attack - Original Version

Independent Angle of Attack Adjustment Later Version

1) To adjust this version of the independent attack angle, first loosen rear adjusment rod retaining bolts. (Figure 22)

2) Loosen jam nuts on adjustment rod.

3) Move adjustment rod downward to increase angle of attack or upward to decrease angle of attack. This will move the tipping frame and thus change the angle of attack of the extending screed bottom.

4) Once the desired angle is obtained, re-tighten jam nuts and retaining bolts. (Figure 22)

5) Repeat steps 4 through 7 above for each side of the screed.

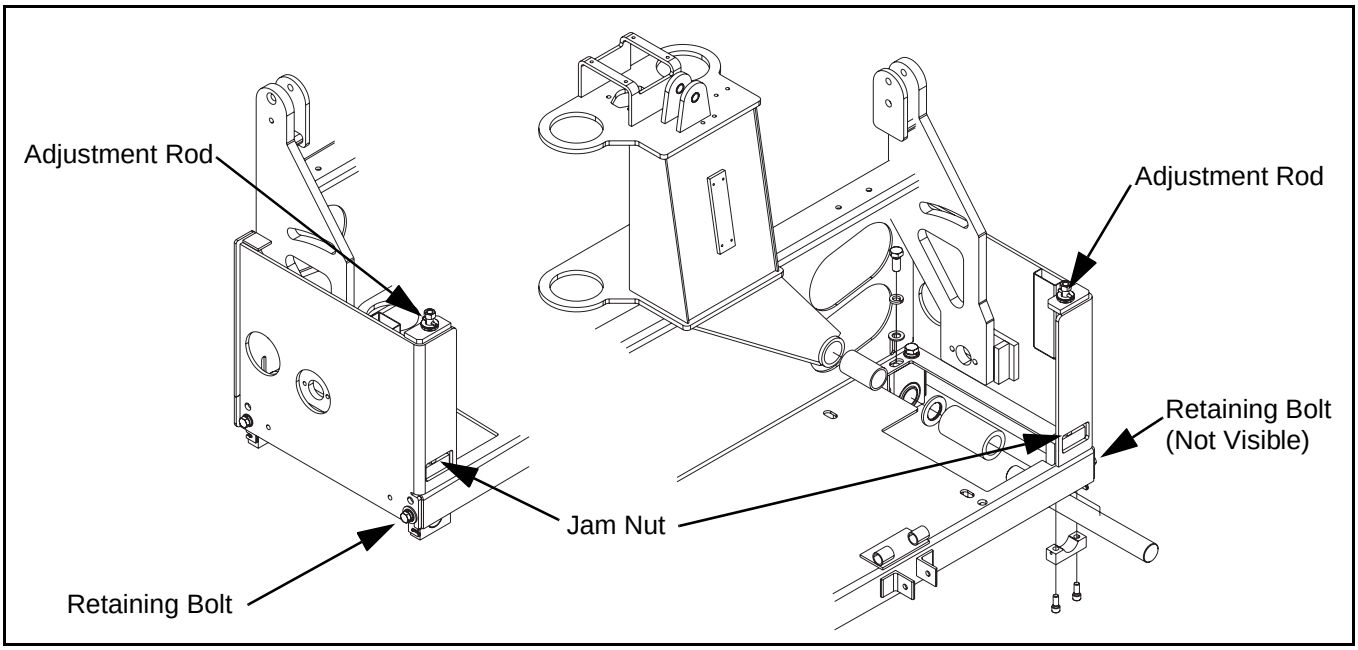

Figure 22 Adjusting Angle of Attack

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Screed Adjustments

Extending Screed Alignment

An extending screed that is not parallel with the main screed can still function properly. The most obvious indicator that the extending screed is not parallel to the main screed will be that the extender tubes will be out-of-line. When retracting the screed, tubes may rub or hit part of the structure normally cleared or be noticeably misaligned with tubes of the opposite extending screed. (Figure 23)

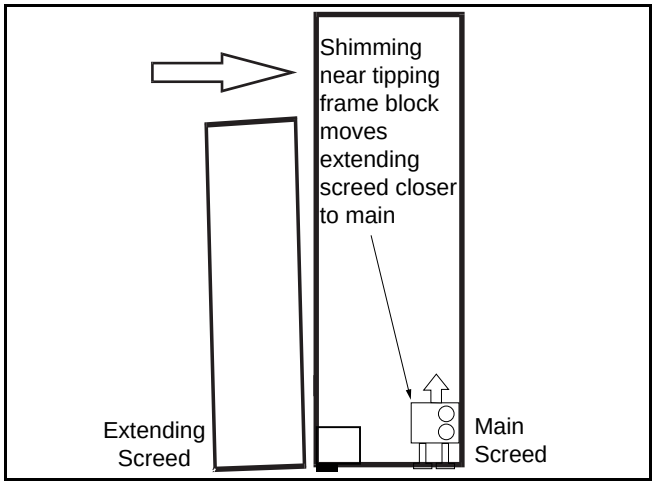

Figure 23 Extending Screed Alignment

To realign the extending screeds:

1) Retract both extending screeds.

2) Loosen inner and outer keeper bolts.

3) Install a press bolt in threaded hole next to the outer keeper bolts and tighten. This causes the tipping frame block and extending screed to move.

4) Once the extending screed is aligned with the main screed, add shims between the tipping frame block and main screed frame.

5) Tighten the keeper bolts and remove press bolt. (Figure 24)

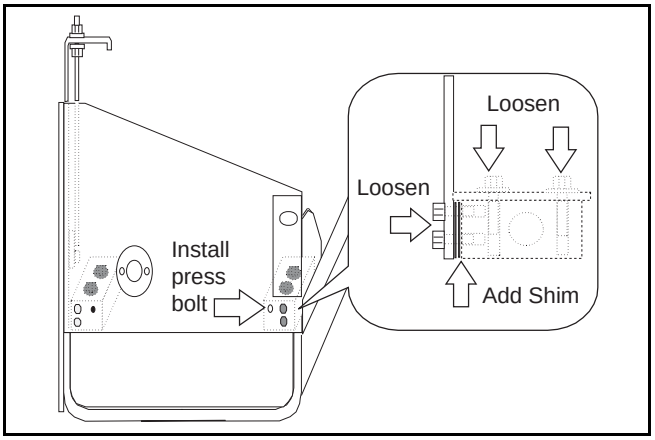

Figure 24 Shim Tipping Frame

Screed Accessories

Heaters

The purpose of the heaters is to raise the temperature of the screed bottom to allow material to flow under the screed bottom without sticking and produce a more uniform mat surface texture. The hot mix will usually maintain proper screed temperature. Since the heaters are thermosatically controlled, they will only come on when needed.

If material delivered to hopper has cooled too much, mat texture may be improved by running heaters. When hauling long distances, it may be necessary to raise the temperature of the mix at the mixing plant to restore efficient production of a high quality mat.

Usually the screed bottom will be heated sufficiently by running heaters for 15 to 20 minutes before operation.

Notice - Excessive heat can cause screed bottom to warp.

Screed Vibrators

Hydraulic vibrators on screed, which help with initial compaction and uniform smoothing of a high density mat, are activated by toggle switch on operator's console. Vibrators will only operate when travel lever(s) is FORWARD. This prevents extra compaction in one place on mat when paver is temporarily stopped.

Operating intensity of vibrators can be varied to produce more or less vibration. The vibrator speed knob (flow control valve) is located adjacent to heater control panel. A recommended start-up setting is 3/4 of range between zero and the highest dial marking.

Operating Screed Vibrator

1) With engine running, set paver speed dial to zero (MIN.).

2) Turn vibrator switch to ON, set brake switch to RELEASE, and move travel switch/lever forward.

3) To turn vibrators off, set vibrator switch to OFF, return travel lever(s) to neutral, and ENGAGE brake switch.

Warning - Do not work on vibrators with engine running.

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Screed Accessories

Vibrator Weight Installation and Alignment

Each vibrator weight consists of two plates mounted 120° apart and clamped to the vibrator shaft (Figure 25). There are four pairs of weights, two on each side of the screed, and two motors, one at the outer end of each shaft. Each extending screed has a vibrator and a motor.

Weights are mounted at 120° to each other to produce adequate compaction for most mixes. If more or less compaction force is needed, the relationship of weights in each pair can be changed.

Aligning the weights closer together will produce more compaction force. When both weights are exactly aligned, maximum force is obtained. Aligning the weights opposite each other counter balances the force and provides no vibratory compaction force.

To reposition a weight, loosen with an Allen wrench and rotate the weight to the desired position. Only one weight will need to be moved.

> **Important -** All pairs of weights must be aligned along the length of the shaft to produce a synchronized vibrating force. This is very important to remember when installing screed extensions equipped with vibrators. Misalignment will reduce vibrating force across the screed affecting the quality of mat compaction.

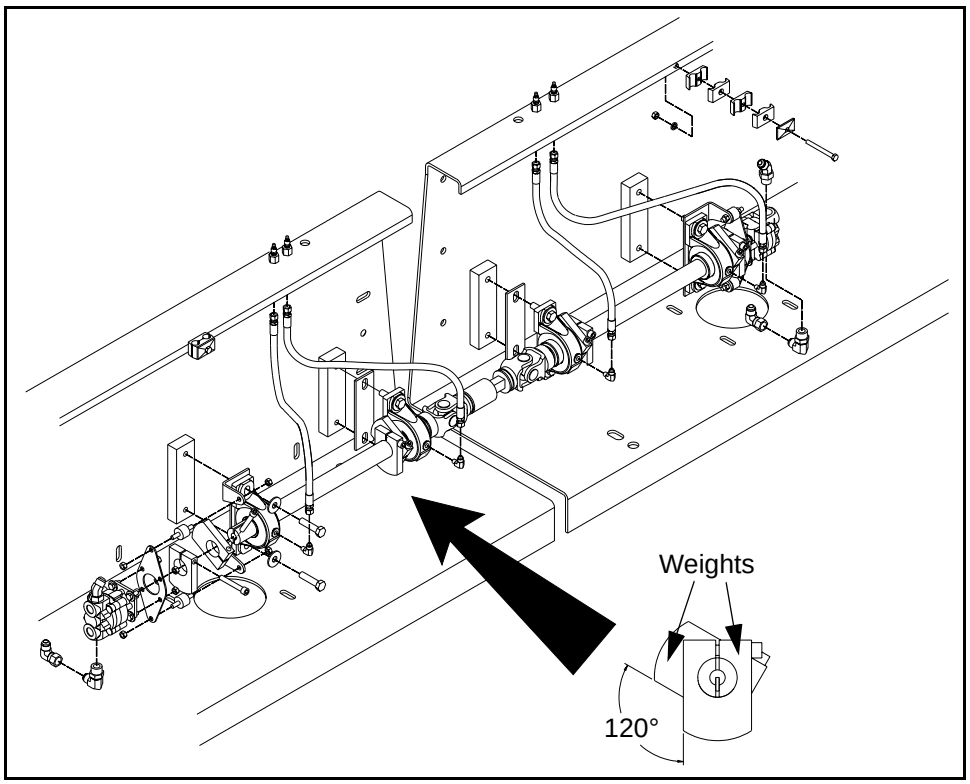

Figure 25 Vibrator Weight Installation & Alignment

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Screed Accessories

Strike-Offs

Strike-offs bolted to front of main and extending screed bottoms meter material to screeds. They also absorb wear which would otherwise take place on leading edge of screed bottoms. If these strike-offs are not properly adjusted and maintained they can cause operational difficulties.

> **Important -** A silicone additive is often added to asphalt to improve mix laying characteristics of hot sand or fine mixes. Use of this additive may require adjustment of the strike-offs.

Adjusting Strike-off

The fixed strike-offs act as a material metering device to control the amount of material allowed to pass under the screed, thereby controlling or affecting the angle of attack required to produce a given depth. They also absorb wear that would have been introduced to the nose area of the screed bottom. The normal strike-off setting is 1/2 inch above the screed bottom and will work fine with most material designs. (Figure 26) There are some material designs that will require changing the setting to allow the screed to run with the desired 1/8 inch to 1/4 inch nose-up attitude or angle of attack.

To check and adjust the strike-off:

1) Place a straight edge against the bottom of the screed and measure from the straight edge to the bottom of the strike-off. (Figure 26)

2) Adjust the strike-off by loosing the bottom jam nut on the strike-off adjusters and tightening the top nut to raise the strike-off. Loosen the top jam nut and tighten the bottom jam nut to lower the strike-off.

3) Check the strike-off setting at both the inside and outside edges of the screed.

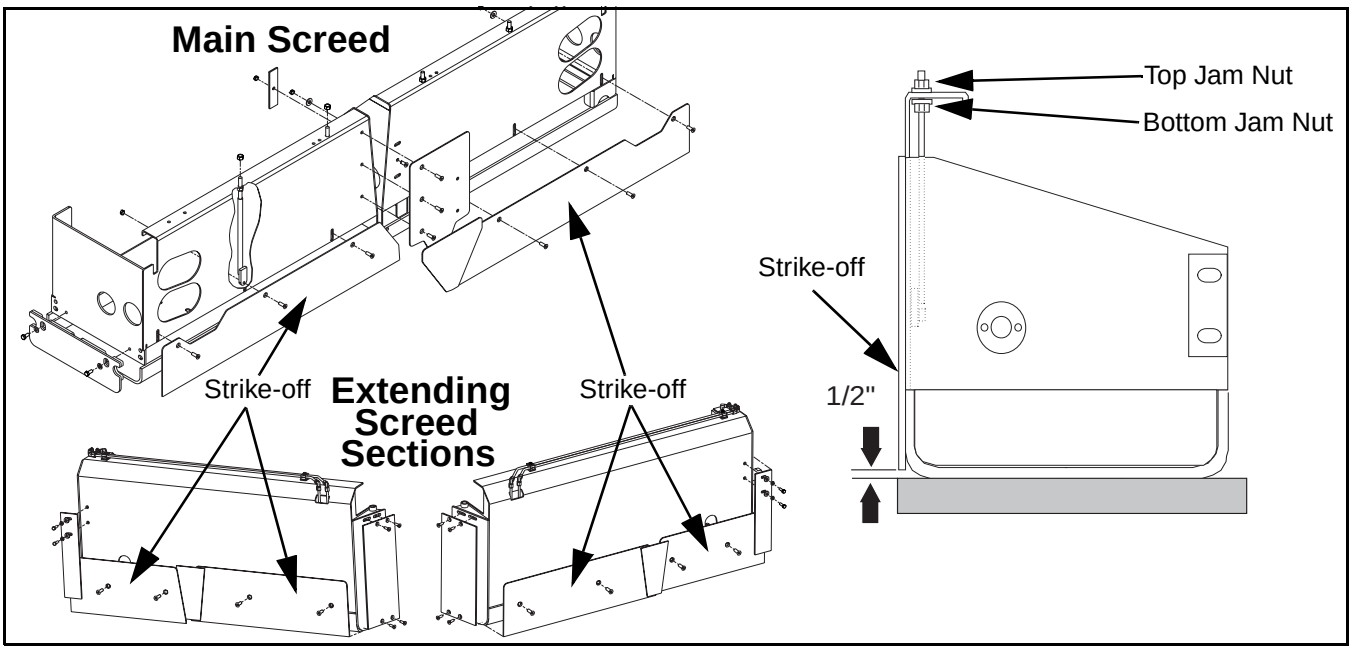

Figure 26 Strike-Off Adjustment

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Screed Accessories

Changing Screed Bottom

The screed bottoms will need to be removed from time-to-time for replacement. If the trailing edge of the main screed is worn significantly more than the leading edge, the screed bottom can be removed and turned end-for-end and reinstalled to increase the screed bottom's useful life.

Screed Bottom Removal

1) Adjust lead and tail crown to 0" (flat).

2) Install two 5/8" x 2" cap screws into the red aligning plates in the center of the screed and tighten securely.

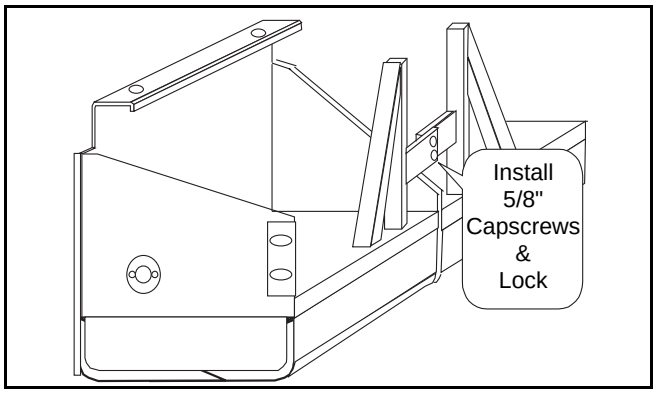

Figure 27

3) Loosen nut on cover plate of left inside upper screed frame and rotate plate 90° as shown in Figure 28.

4) Install two 1/2" x 2" cap screws in two holes and tighten, locking front of the upper screed frames together.

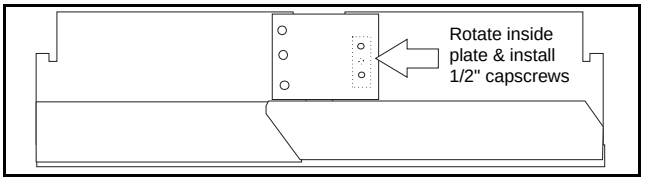

Figure 28

5) Set the screed down on a flat level area.

6) Remove the 3/4" retaining cap screws from rear and front of upper screed frames (8 main screed, 4 per extending screed).

NOTICE - Do not loosen or attempt to adjust the shim bolts located on the main screed. They are set at the factory so the screed bottom when installed is parallel with the upper frames.

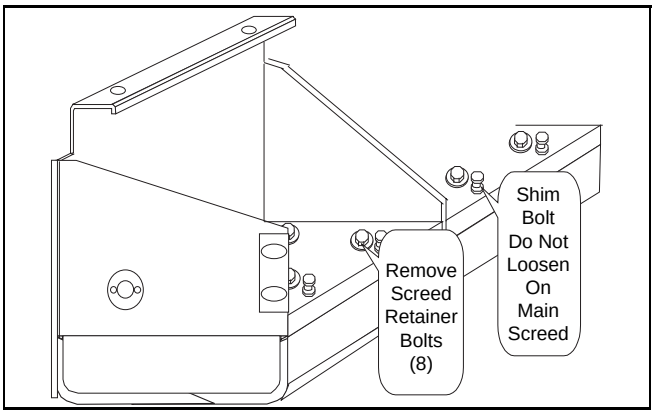

Figure 29

7) Raise the screed frames up away from the screed plate. Drive the paver forward a short distance.

8) Inspect and clean the back side of the fixed strike-offs of all built-up asphalt materials.

9) Inspect and clean the screed heaters.

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Screed Accessories

10) Measure distance from screed bottom lip to screed sub-frame at both ends of each sub-frame. These measurements will be used to install sub-frames on a new screed bottom.

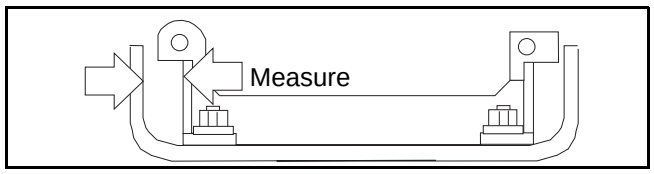

Figure 30

11) Remove the 5/8” nuts on the rear and front of both screed sub-frames. Remove flat washers and lift sub-frames off old screed bottom.

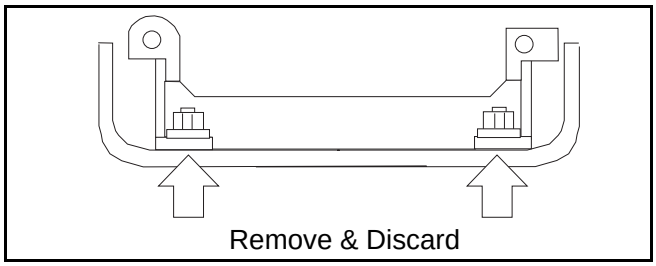

Figure 31

Screed Bottom Installation

1) Place NEW screed bottom on a flat level surface.

2) Place the screed sub-frames over the studs on the new screed bottom.

3) Place one flat washer on each stud and start NEW 5/8” lock nuts.

4) Measure the distance from the screed bottom lip to the sub-frame and adjust to the dimensions previously taken when removing screed bottom.

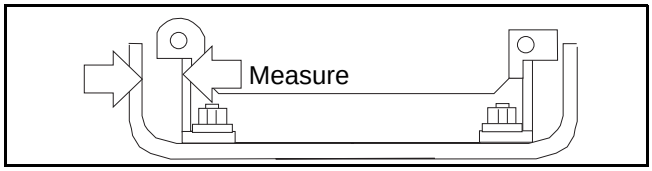

Figure 32

5) Tighten 5/8” lock nuts to 85 foot pounds torque.

6) Position paver over screed bottom and align.

7) Lower upper screed frame onto screed bottom and sub-frame.

8) Install the eight 3/4” retaining cap screws and torque to 266 foot pounds torque.

NOTICE - Do not loosen or attempt to adjust the shim bolts located on the main screed. They are set at the factory so the screed bottom when installed is parallel with the upper frames.

Cleaning Screed

It is extremely important that screed and paver be thoroughly cleaned at end of each day's operation! A spray nozzle with 30' hose is attached using a quick-disconnect to the pressure side of fuel pump. This permits operator to reach all areas of paver that require cleaning and lubricating.

Warning - Do not operate spray down system when screed heaters are on or generator is operating.

1) Turn main key switch ON. If extensive cleaning is required, run engine at IDLE speed.

2) Remove hose assembly from tool box and connect to the quick-disconnect.

3) Turn fuel pump ON.

4) Fully extend extending screeds. Spray and clean the screed bottoms, strike-offs, and seal plate area. Periodically check for accumulation of asphalt that has spilled over extension moldboard.

5) Clean all parts of paver that come in contact with asphalt. Front, bogie assemblies, hopper, slat conveyors, augers, screed, etc. require cleaning at end of each day. This holds true even if paver was used only a short time. Many troubles can be traced to improper cleaning! Fuel oil on slat conveyors provide needed lubrication that prevents rapid wear. Slat conveyors should be operated during spraying to be sure chain and all slats are reached.

Notice - Keep oil spray away from all electrical boxes. Avoid spraying rubber hoses and cables with fuel oil as this may cause some deterioration over a period of time.

Warning - Keep open flame, sparks, welding arcs, etc. away from screed where there are flammable materials present such as fuel oil

Lubrication

General

Proper lubrication and daily cleaning are the most important factors in bearing life. Follow the recommended lubrication intervals. Be sure to clean all grease zerks and grease gun tip before greasing. During your daily cleaning and lubrication procedures, inspect the seal area for signs of a blown seal. Over-greasing or greasing when the bearings are cold is the biggest reason for blown seals.

Depth Cranks

The screed depth crank assemblies have two lubrication points on each, one on the threaded link and the other on the screed depth crank bearing housing. These should be lubricated every 40 hours of operation. One to two pumps from a hand grease gun is all that is necessary.

Vibrator Bearings

The main screed vibrator assemblies have four lubrication points, one on each vibrator bearing. The extending screed vibrator assembles have two lubrication points, one on each bearing. All should be lubricated every 8 hours of operation. One to two pumps from a hand grease gun is all that is necessary.

Match Height

The match height assembles have two lubrication points on each, one on the threaded link and the other on the match height bearing housing. These should be lubricated every 40 hours of operation. One to two pumps from a hand grease gun is all that is necessary.

Extending Screed Slope

The extending screed slope assembles have two lubrication points on each, one on the threaded link and the other on the slope shaft bearing housing. These should be lubricated every 40 hours of operation. One to two pumps from a hand grease gun is all that is necessary.

Crown

The crown has two lubrication points, one on each turnbuckle assembly. They should be lubricated every 40 hours of operation. One to two pumps from a hand grease gun is all that is necessary.

Screed Generator Pump

To properly operate the Fastach II screed electric heating units, it is necessary to set up the screed generator pump circuit. This set-up will typically only be necessary for the first-time installation of the screed on a tractor with a generator pump.

This hydraulic pump circuit has three (3) valves which require adjustment, the needle valve (located on the drive motor manifold), and the pump standby and max pressure valves (both located on the pump) (Figure 33).

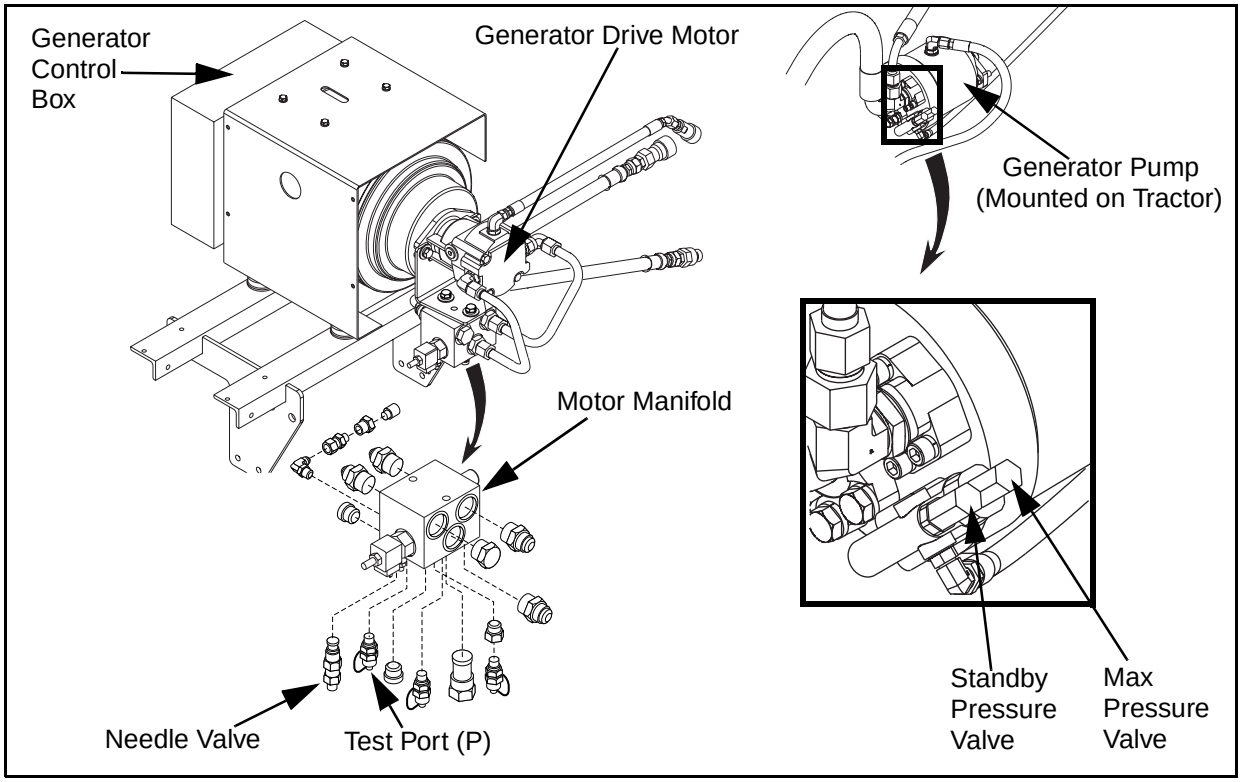

Figure 33 Screed Generator Hydraulic Pump Adjustments

Start-up After Initial Installation of Pump

1) Fill pump housing with clean oil. Do this through the case drain port on the pump housing.

2) Loosen needle valve jam nut on screed generator drive motor manifold.

3) Turn screw clockwise until it bottoms to fully close valve.

4) Start engine and run at idle.

5) Turn generator switch on and let run with engine at idle approximately one (1) minute to prime pump and purge air from lines. Generator should turn at a low speed.

   Notice - Do not apply electrical load to generator.

6) Turn generator switch off.

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Screed Generator Pump

7) Shut off engine.

Set Pump Max Pressure

1) Start engine and run at 1400 rpm.

   Notice - Make sure generator switch is turned OFF.

2) Install 6000 psi gauge on test port (P) of generator drive motor manifold. (Figure 33)

3) Remove cap from standby pressure adjustment screw and loosen jam nut.

4) Turn standby pressure adjustment screw clockwise until it bottoms to fully seat valve.

5) Note gauge pressure: Pressure will be approximately 500 - 2500 psi.

6) Remove cap from max pressure adjustment screw and loosen jam nut.

7) Turn max pressure adjustment screw clockwise until gauge reads 4000 psi.

8) Tighten jam nut on max pressure adjustment screw and reinstall cap.

Set Pump Standby Pressure

1) With engine still running at 1400 rpm as described above, turn standby pressure adjustment screw counter-clockwise until gauge reads approximately 400 psi.

   Notice - Make sure generator switch is turned OFF.

2) Shut off engine.

3) Remove 6000 psi gauge and install 1000 psi gauge.

4) Re-start engine and run at 1400 rpm.

5) Re-check pressure to make sure standby pressure reads 400 psi. Adjust if necessary.

6) Tighten jam nut on standby pressure adjustment screw and reinstall cap.

7) Shut off engine.

Set Generator Motor Speed (Frequency)

1) Install a frequency (Hz) test meter into the 120 volt outlet on the generator control box. (Figure 34)

2) Start engine and run at 1400 rpm.

3) Turn generator switch on.

4) Turn needle valve screw counter-clockwise until test meter reads 62 Hz.

5) Tighten jam nut on needle valve.

6) Shut off engine.

Figure 34 Setting Generator Frequency

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Screed Generator Pump

Screed generator pump and hydraulics are now ready to be put into operation.