Operation & Maintenance Manual

FASTACH 10' SCREEDS

TEREX Cedarapids

(P/N 499992523202) 18537 (03/88)

To the Owner & Operator:

We have tried to provide information that gives our customers a clear understanding of equipment construction, function, capabilities and requirements. This information is based on the knowledge and experience of qualified people at our company and in our field organization. Proper use of this information rewards users of our equipment with high efficiency, maximum service life and low maintenance costs. That is why we strongly recommend that anyone using our equipment be familiar with this manual.

Information presented here should not be considered authoritative in every situation. Users will as a matter of course encounter problems and circumstances that raise questions not anticipated here. Such questions should be directed to their distributor or the factory.

Anyone who uses this equipment for any purpose other than that for which it was intended assumes sole responsibility for dangers encountered and injuries sustained as a result of such misuse.

⚠ DANGER

Federal, state and local safety regulations aim to protect both people and property from accident, injury and harmful exposure. When complied with, such regulations are often effective. Hazards to personnel and property are further reduced when this equipment is used in accordance with all operation and maintenance instructions. Generally:

(1) Read and heed all danger, warning, caution, and notice decals. 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 by the user (owner) before operating.

(2) Never attempt to maintain, lubricate or adjust this equipment while it is running. Lock out and tag out all energy sources before doing maintenance, cleaning, adjusting or repairing this equipment. Make it impossible for anyone to start this machine while others are working on it or in it.

(3) Wear personal protective equipment such as hard hats, ear plugs, safety glasses and safety shoes when operating this equipment. Do not wear loose clothing or long hair.

(4) Think safety and act safely. Stay alert at all times. Eliminate or neutralize potential hazards as soon as you spot them. Never allow anyone to engage in horseplay when near this equipment.

⚠ DANGER

Failure to take these precautions will result in death or severe personal injury.

The following warning applies to 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.

The following warning applies to equipment supplied with diesel powered engines:

⚠WARNING

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

Cedarapids Warranty Policy

Cedarapids Inc, hereafter referred to as **Cedarapids**, warrants its new products manufactured and sold worldwide to be free of defects in material or workmanship for a period of one (1) year, or 2000 hours of use, whichever occurs first.

The warranty will commence on the day the equipment is put into operation by the customer for use, whether sold, rented or leased or one (1) year after shipment from the factory, whichever occurs first. **Delivery Inspection forms are required for warranty validation and processing.**

Cedarapids' obligation and liability under this warranty is expressly limited to, at Cedarapids' sole option, repairing or replacing with new or remanufactured parts or components, any part which appears to Cedarapids upon inspection to have been defective in material or workmanship. Such parts shall be provided at no cost to the user, FOB a Cedarapids parts facility.

Cedarapids shall pay, to the extent outlined in the Warranty Reimbursement section, the cost of labor to install any repaired or replaced part provided under this warranty.

This warranty may not apply to component parts or accessories not manufactured by Cedarapids and which carry the warranty of the manufacturer thereof. Furthermore, normal maintenance, adjustments, or maintenance/wear parts are not covered by this warranty.

Cedarapids makes no other warranty, express or implied, and makes no warranty of merchantability or fitness for any particular purpose.

No employee or representative is authorized to change this warranty unless such change is made in writing and signed by an authorized representative of Cedarapids.

Cedarapids' obligation under this warranty shall not include duty, taxes, or any other charges whatsoever, or any liability for direct, indirect, incidental, or consequential damage or delay.

If requested by Cedarapids, components or parts for which a warranty claim is made are to be returned to the location designated by Cedarapids.

Improper maintenance, improper use, improper storage, operation beyond rated capacity, operation after discovery of defective or worn parts, or alteration or repair of the equipment by persons not authorized by Cedarapids shall render this warranty null and void. This warranty shall be null and void if parts other than genuine Cedarapids are used in the equipment. Cedarapids reserves the right to inspect the installation of the product and review maintenance procedures to determine if the failure was due to improper maintenance, improper use, operation beyond rated capacity, operation after discovery of defective or worn parts, or alteration or repair by persons not authorized by Cedarapids.

Replacement Parts Warranty: Cedarapids warrants the replacement parts ordered from the Parts Department to be free of defect in material or workmanship for a period of 6 months or 1000 hours of operation, whichever occurs first.

Extended Warranty: Extended warranties are available for purchase at the time of sale. The terms and conditions of the Extended Warranty will be provided upon request.

TRANSFERABILITY OF WARRANTY: The balance, if any, of the original equipment warranty may be transfered to second and subsequent owners provided certain conditions are met. Please contact your local Cedarapids Dealer for additional details if needed.

Cedarapids Warranty Policy - Continued

The following items are NOT covered under the Cedarapids Warranty:

1) Items sold by any non-authorized Cedarapids Dealers.
2) Some components are not covered by Cedarapids warranty, but rather are covered only by the warranty that is provided by the manufacturer. Such components include, but are not limited to, the engines, electric motors, air compressors, air conditioners, batteries, tires etc.
3) **Replacement of Assemblies:** Cedarapids has the option to repair or replace any failed part or assembly. It is Cedarapids policy to refuse claims for the replacement of a complete assembly that is field repairable by the replacement or repair of defective part(s) within the assembly.
4) **Component Products:** Product that is not genuine Cedarapids parts.
5) **Normal Operational Maintenance Services and Wear Parts:** Maintenance services and wear parts are excluded from warranty claims. Maintenance services not covered include, but are not limited to, such items as: sheave adjustments and alignment, screen cloth installation and tensioning, wear liner and chute work, wear or adjustment of jaw and toggle plates, proper tightening of bolts, nuts and pipe fittings, adding or replacing of fluids, filter, breathers, belts, nozzles, screed plates, adjustments of pumps and motors, spark plugs, etc. Wear parts not covered include, but are not limited to, such items as: screen cloth, wear liners, wear of jaw and toggle plates, fluids, filters, breathers, belts, nozzles, screed plates, spark plugs, etc.
6) **Transportation Damage:** Any damage caused by carrier handling is a transportation claim and should be filed immediately with the respective carrier.
7) **Deterioration:** Repairs of parts exposed to age, storage, weathering, lack of use, demonstration use.
8) **Towing or Hauling:** Towing or hauling charges or damages.
9) **Lifting Devices:** Crane rentals or other lifting devices.
10) **Secondary Failures:** Should the owner or operator continue to operate a machine after it has been noted that a failure has occurred, Cedarapids will not be responsible under the warranty for resultant damage to other parts due to that continued operation.
11) **Parts Orders and Minimum Billing Charges:** Special handling and minimum charges for parts items will not be reimbursed.
12) **Field Installation:** Proper installation of options and kits is the responsibility of the company performing the work. Cedarapids accepts no warranty responsibility for improper or unauthorized installations.
13) **Field Modification:** Only approved modifications and Cedarapids directed retrofits may be made on equipment or attachments to equipment produced by Cedarapids. Approval must be obtained from Cedarapids Service Department prior to the modification being made. Modifications or retrofits that are made without Cedarapids approval will not be covered by warranty.
14) **Workmanship of Others:** Cedarapids does not accept responsibility for improper installation or the replacement parts labor costs.
15) **Stop and Go Warranty:** Cedarapids does not recognize "Stop and Go" warranties.
16) **Machine Improvements or Design Changes:** Cedarapids reserves the right to change any specifications or make design changes without notice. Cedarapids shall not be obligated to make such changes in goods or parts previously delivered or any equipment previously sold to an end user.
17) **Incidental or Consequential Damage:** Cedarapids shall not be liable for any Incidental or Consequential Damages of any kind including, but not limited to, lost profits, loss of production, increased overhead, loss of business opportunity, delays in production, costs of replacement components and increased costs of operation that may arise from the breach of this warranty. Customer's sole remedy shall be limited to repair or replacement of the defective part.
18) **General Exclusions:** Any product which has, in Cedarapids' judgment, been damaged due to misuse, negligence, loading beyond its normal capacity, alteration, accident, or lack of regular maintenance service. Our obligation under this warranty shall not include any:
    - Equipment operated at speeds other than factory recommendations.
    - Equipment adjusted to any settings other than factory recommendation.
    - Equipment installed by others without Cedarapids Service assistance will not be warranted for the following:
        - Workmanship pertaining to the installation of equipment.
        - Length of time to install the equipment.
        - Instructions given on operating the equipment.
        - Instructions given on maintaining the equipment.
        - Instructions given on troubleshooting the equipment.

[Taken from Cedarapids Warranty Policy Document F/N 22633 Dated (4/01)]

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SCREED SYSTEM

PRINCIPLE OF OPERATION

The screed (Figure 1) is a free floating unit which strikes off and smooths hot mix after it is carried by slat conveyors and spread by augers. The screed is towed by the tractor with pull points pivotally mounted to the tractor by a pin. The combination of the pull point positioning and the mat thickness handcrank provides for adjustments to be introduced to the screed.

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. The net result is the self-leveling action of the screed keeps the mat surface on a level plane rather than following the road contour.

The screed also has a burner to heat the screed to the temperature of mix prior to paving. When screed is preheated, asphalt does not stick to metal as initial strike-off and smoothing begins. As the mix passes under the heated screed bottom, it floats on the mix determining both mat thickness and texture and providing some degree of initial compaction. Hydraulic vibrators aid in the initial "ironing" of the mat.

The screed bottom can be flexed at its midpoint into a slight V-shape or into a slight inverted V-shape. Such adjustment produces a negative or positive crown on mat for specified water drainage requirement.

GENERAL INFORMATION

Raising and Lowering Screed: Raising and lowering the screed is accomplished by two double-acting hydraulic cylinders connected between the screed and tractor (Figure 2). Cylinder movement is controlled by the screed lift switch on console which operates a solenoid directional control valve.

When engine is at FULL throttle and screed lift switch is held in the RAISE position, the screed will raise 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 will be hydraulically locked at the existing height. Use LOWER/FLOAT while paving. This position allows the screed to float over mix at the preset mat thickness.

Supporting Screed for Maintenance Work: Whenever screed is to be worked on while it is elevated, use safety cables and blocking equipment to support its weight. Never rely upon hydraulic lock feature to keep screed elevated when personnel are working under or around the screed.

Supporting Screed for Roading: Safety cables are provided for long distance roading. It is recommended that for ALL roading, other than short on the job movement, safety cables be attached to support hooks.

To hook cables, raise screed to the upper limit and hook safety cables. Then lower screed until no slack can be observed in the cables.

Detaching Screed from Tractor: Quick disconnect coupling on each screed pull arm makes it easy to detach entire screed assembly from the tractor. Detachment may be advantageous when encountering the following situations.

* Maintenance and repair work on screed and on rear end of tractor can be more easily performed with screed removed.
* A screed with extensions, which make it longer than permissible highway width limit, can be detached and hauled lengthwise on a truck bed.
* Smaller trucks can be used to transport separated tractor and screed.

It is important that screed detachment be performed correctly so no damage is done to electrical wiring, moldboard, hydraulic hoses, augers or optional attachments.

(1) Unplug all hydraulic hoses and electrical cables from tractor (Figures 3 and 4). Use the quick disconnects to separate hydraulic hoses. Plug or cover the open connectors with a clean rag, paper towel, etc. to prevent entry of grit.
(2) Remove the four corner bolts on each pull arm coupler and move tractor forward.

MAT THICKNESS CONTROL

Thickness of material deposit left by the spreader is determined by two factors: Height of screed pull points on tractor and screed angle in relation to pull arm.

Pull point height adjustment is made prior to paving job start-up when normal mat thickness for that job has been established. It should be noted that a difference in materials may require adjustment of pull points and handcranks.

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

If desired, manual screed bottom attack angle adjustment (mat thickness) can be made by turning handcrank at each end of screed. When handcranks are turned clockwise, they increase the screed attack angle producing a thicker mat. When the handcranks are turned counterclockwise, they decrease the screed attack angle producing a thinner mat. (Refer to Figure 5 for Normal Screed Attitude.)

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. Each end of main screed can be adjusted so that mat thickness is different when measured at each edge.

Change of material specifications will usually cause a different screed behavior and different pull point setting, even through mat thickness is a common one. 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.

If a spreader is equipped with automatic screed control, the operator will normally make screed adjustment manually in preparation for switch over to automatic. Both pull points should be adjusted the same at start-up.

SCREED PULL ARMS

Screed pull arms are attached to the spreader, through a pivoted connection, at the pull point cylinder (Figure 1). The pull point, which uses the tractor as a wheelbase, is pivoting in response to the average grade being spanned by that wheelbase. This type of hookup provides maximum floating action allowing screed to minimize irregularities found in grade and base material.

Pull Point Cylinder Speed Test: With engine running at FULL throttle, set mat thickness switch, on remote control box to MANUAL. 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 15 and 18 seconds in each direction.

If it is not, adjust speed with the flow control screws on the valve bank mounted behind the solenoid valve for that cylinder (Figure 6). If necessary, adjust the speed in each direction. Perform this procedure on both sides.

Pull Point Positioning: Screed pull points are hydraulically adjusted using the mat thickness switch on the remote control box. If there is no position-indicating decal on the cylinders, measure each complete rod stroke and mark mid-point on each of the pull-point brackets at the top of the pull arm (Figure 7). Stroke is about 12".

With the 10' Fastach screed, paving a 2-3" mat, initial setting should be 4. For the Stretch 20 screed, initial setting for a 2-3" mat should be 8. Final adjustment can be made when paving is underway and screed has stabilized. Initial settings are 2" below and above mid-point respectively.

As the operator gains experience, he will know what setting will produce an acceptable mat for most common mixes.

CAUTION: When adjusting pull points, both must be the same distance from the ground. If pull arms are not, the imbalance causes the screed to twist, weakening it and resulting in poor mat surface.

For nearly all types of material, the straighter the pull on screed, the more satisfactorily it will operate. The 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, pull points can be raised to improve mat. If the spreader is required to lay a very thin mat, pull points can be lowered to give screed better flotation and more initial density to mat.

NOTE: Unstable mixes can be caused by too much asphalt in mix, poor gradation, poor quality asphalt, excessive temperature, moisture in material and insufficient dust.

Effects of Pull Points Positioned Too High: When pull points are too high and front of screed is tilted down in order to maintain correct mat thickness, the following wear and operational difficulties will be encountered (Figure 8).

(1) Premature wear on leading edge of screed and possible deformation of strikeoffs.

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

(3) Tendency for screed to dip each time spreader starts with normal handcrank setting.
(4) Tearing 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 plate width is not being utilized. Mat appearance and texture will change with only slight movement of screed adjusting handcranks.
(6) Loose or worn screed.

Effects of Pull Points Positioned Too Low: When pull points are too low and front of screed is tilted up in order to maintain correct mat thickness, the following wear and operational difficulties will be encountered (Figure 8).

(1) Premature wear on trailing edge of screed.
(2) Tendency for screed to climb each time spreader starts with normal handcrank setting. 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.
(4) Loose or worn screed.

MAT CROWN CONTROL

Flat screed bottom can be flexed at its center area to produce a finished mat having a positive or negative crown for water drainage (Figure 9). For 10' wide paving, maximum positive crown is 3" and maximum negative crown is 1". Front and rear crown gauges, on screed, provide a crown reference.

Crown adjustment is accomplished by means of two crowning arms (front and rear) on each half of screed (Figure 10). A turnbuckle adjustment joining each pair of crowning arms permits screed bottom flexing in either direction. A separate adjustment is made for leading and trailing edges, so that "lead" crown is slightly higher than trailing or "finish" crown. This differential between crowns increases density of surface and imparts a smooth texture as material moves under screed.

NOTE: Crown adjustment is one of the more important adjustments on spreader. Mat imperfections can often be corrected by changing adjustment of lead crown!

Zeroing Crown Gauge: The screed bottom must be perfectly flat before zeroing crown gauge. This check is done using either a straightedge or string line. A description of each method is listed below.

WARNING: Always hook safety cables (one on each pull arm) and position safety blocks whenever personnel are working under or around the screed. Be sure safety blocks are free of projections which could scratch or gouge screed bottom.

Straightedge Method:

(1) Lift screed, hook safety cables and position safety blocks.

NOTE: The pull point should be in the same position on each side of tractor.

(2) Lay straightedge along the screed bottom (Figure 11) and check for flatness on front (leading) and rear (trailing) edges. If not perfectly flat, INCREASE or DECREASE crown until entire screed bottom is flat (engine must be running). The front crown should always be adjusted first.

NOTE: Although not considered necessary, up to 1/8" lead crown can be set. This is done by removing the pins from rear crown sprocket (Figure 12) and INCREASING the crown. After the front crown is adjusted, re-install sprocket pins and re-check the rear crown to ensure front crown adjustment did not alter the flatness.

CAUTION: When adjusting lead crown: 1) NEVER invert lead crown in relation to rear crown and, 2) NEVER set more than 1/8" lead crown in relation to rear crown. Too much lead crown will bind up crown mechanism.

(3) Use a 3' level and check screed bottom for front-to-rear level.
(4) When main screed has been leveled lengthwise and across, check the optional slope meter (Figure 12). If bubble is not at zero, loosen mounting bolts and zero the indicator.
(5) Observe front and rear crown gauges (Figure 12). If not at zero, loosen mounting bolts and zero the gauge(s).

String Line Method:

(1) Lift screed, hook safety cables and position safety blocks.

NOTE: The pull point should be in the same position on each side of tractor.

(2) Stretch the string line along the screed bottom using equal spacers at each end (Figure 13), and tie at each end.
(3) Measure distance between stringline and screed bottom at center. It should be same as at each end. If it is not, INCREASE or DECREASE the crown until entire screed bottom is flat (engine must be running). Make a final check for variances along string line.

NOTE: Although not considered necessary, up to 1/8" lead crown can be set. This is done by removing the pins from rear crown sprocket (Figure 12) and INCREASING the crown. After the front crown is adjusted, re-install sprocket pins and re-check the rear crown to ensure front crown adjustment did not alter the flatness.

CAUTION: When adjusting lead crown: 1) NEVER invert lead crown in relation to rear crown and, 2) NEVER set more than 1/8" lead crown in relation to rear crown. Too much lead crown will bind up crown mechanism.

(4) Use a 3' level and check screed bottom for front-to-rear level.

(5) When main screed has been leveled lengthwise and across, check the optional slope meter (Figure 12). If bubble is not at zero, loosen mounting bolts and zero the indicator.
(6) Observe front and rear crown gauges (Figure 12). If not at zero, loosen mounting bolts and zero the gauge(s).

Final Crown Adjustment: Final crown adjustment is made when paving has started and actual mat crown can be accurately checked by taut stringline. Front crown can be varied slightly in order to obtain best mat surface. Front crown will always be higher than rear crown. Final adjustment is always made after checking actual asphalt mat when enough mix has been laid to be certain screed is stabilized. Front crown is normally 1/8" above rear crown.

Dual adjustment assembly which links turnbuckles by the chain and sprocket method permits separate or simultaneous adjustment of crown settings. If front crown needs adjustment, rear crown turnbuckle can be disengaged from sprocket by removing two pins so that front crown turnbuckle can be adjusted separately (Figure 12).

SCREED STRIKE-OFF

The strike-off, located ahead of screed plate, is a metering device that when properly positioned provides the exact amount of material to screed bottom (Figure 16). It also absorbs wear which would otherwise take place on leading edge of screed bottom. If the strike-off is not properly adjusted and maintained, it can cause operational difficulties.

Zeroing and Adjusting Strike-off:

(1) Lower strike-off until flush with screed bottom using top adjusting nut at each adjusting point (four locations - Figure 15). Use a straight edge to check position of strike-off in reference with screed bottom (Figure 14).
(2) Raise strike-off (Figure 15) above screed bottom according to following chart. Make final adjustment for mat texture while paving. Never set strike-off below screed bottom.
(3) When readjusting strike-offs it is best to lower both sides then, pull strike-offs up to the desired height which provides uniform movement.

Hgt of Strike-off	Characteristics of Asphalt
1/2 ±1/8"	Standard (normal mat conditions) Aggregate Size: Sand to 1" minus aggregate Mat Thickness: 1-1/4" to maximum thickness
3/16 ±1/16"	Alternate (fines materials with thin mats) Aggregate Size: Fines to 1/4" minus sand Mat Thickness: Minimum 1/2" to 1" mat
3/8 ±1/16"	** Alternate (course materials with thick mat) * Aggregate Size: 1" minus, 1-1/2" maximum Mat Thickness: 2" to maximum thickness

* Spreaders have laid top size material of 3" minus, however accelerated wear can be expected.
** Only if tearing due to flats in aggregate. With flat plate strike-off it is possible to raise to 1-1/2" - therefore no strike-off effect.

Hydraulic Strike-off Adjustments

(1) Remove the two 1/2" capscrews that hold strike-off blade [2], *Figure 1*, on the blade support [1]. Set it to the side.

(2) Loosen all four blade support capscrews [3]. Allow support to slide to the bottom of its slots.

CAUTION

Clean slots if necessary. Make sure support is at the bottom. Torque capscrews to 75 ft/lb.

(3) Check slope cylinders [1], *Figure 2*, to see if rods have fully extended. If not, push slope toggle switch on the screed remote control until cylinders are fully extended.

(4) Take level or straight edge and place in position [1], *Figure 2*, against bottom of main screed.

(5) Adjust match height adjustor [2], *Figure 2*, until screeding blade bottom is at correct adjustment. Setting can be varied according to material. A preliminary setting of 0" above main screed bottom provides good results in most materials.

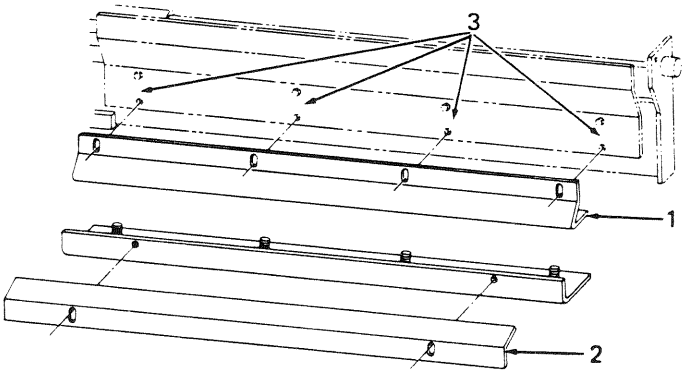


Figure 1

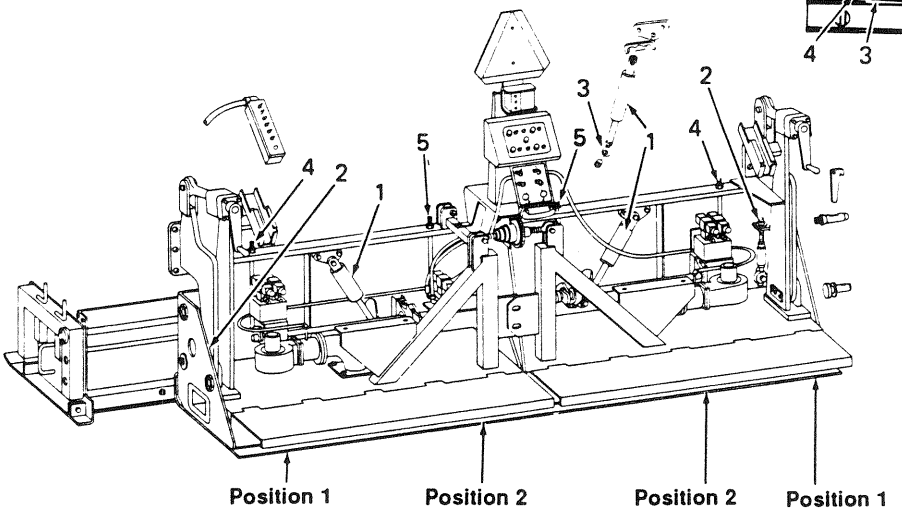


Figure 2

(6) Repeat steps 4 and 5 using position [2], *Figure 2*, and adjust hydraulic cylinder rod clevis [3], *Figure 2*, so same setting (0") is obtained as made in position [1], (Step 4).

(7) Check [3], *Figure 3*, to be sure screeding blade has a nose up altitude. This is important. If it is flush or nose down, a 9704-559-34 shim can be installed between the screeding blade bottom and the blade support.

(8) Recheck steps 5 and 6 to be sure adjustments are correct.

(9) Adjust main screed strike-offs [1], *Figure 3*, by using adjustor rods [4] [5], *Figure 2*. They should be 1/2" above main screed bottom.

(10) Get strike-off that was removed in Step 1. Check to see that bottom of the two slots are 2-1/2" from bottom edge. If not, cut slots longer.

(11) Reinstall strike-off. Put capscrews in snug enough to hold but still allow vertical adjustments.

(12) Adjust strike-off as shown in [4], *Figure 3*, and torque capscrews to 75 ft/lb.

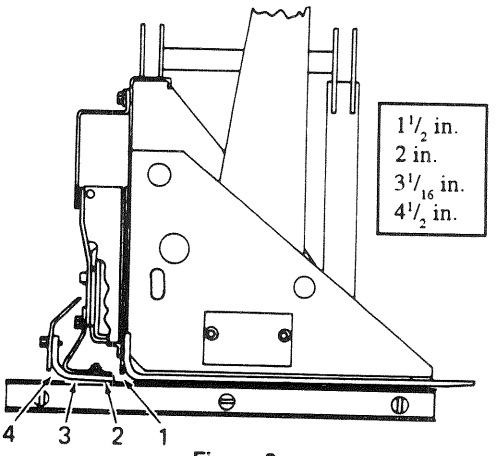


Figure 3

Results of Improper Strike-off Adjustment: The following paragraphs list excessive wear points and operational difficulties that occur when strike-offs are adjusted too low or too high. When the strike-offs are too low the following wear and operational difficulties will be encountered (Figure 17).

(1) Insufficient amount of material will be metered to screed. In order to maintain mat thickness, it is necessary to tip front of screed up. Continued operation of screed in this manner may cause wear on trailing edge of screed.
(2) Fines will collect at front edge of screed directly behind strike-off which will build up causing tears and voids in mat.

NOTE: Strike-offs will frequently catch and drag a large stone causing streaks in mat. When this occurs, stop paving, raise strike-off, and try again.

When strike-offs are too high the following wear and operational difficulties will be encountered (Figure 18).

(1) Too much material will be metered to screed. In order to maintain a relatively thin mat, it is necessary to tip front of screed down with pull point/handcrank adjustments. With screed in this position for any length of time, rapid wear on leading edge of screed will occur.
(2) Poor mat textures and low compaction of mat.
(3) Erratic control of screed will be noticeable when making minor adjustments.

QUICK-CHANGE SCREED BOTTOM

Asphalt finishing surface (screed bottom) of full floating screed should be kept in good condition. The quick-change feature makes replacement of this vital part relatively easy. If all paving is done with correct adjustment of pull points and strike-offs and without extensive bridging when mat overlap is required, screed bottom will wear uniformly. Always replace screed bottom before it wears completely through!

Periodically remove screed bottom and clean the inside of all asphalt, sand, and fine material which sifts in over a period of time. Failure to keep inside of screed bottom clean will cause uneven distribution of heat to a cold screed which leads to tearing of mat surface when paving begins.

Replacing Quick-change Screed Bottom:

(1) Position screed on a flat surface and adjust screed to ZERO crown.
(2) Install two 1/2" bolts, with nuts, to the crowning arm support plates (Figure 19).
(3) Remove ten screed bottom GRIPCO nuts along the width of screed near the backside of strike-offs (Figure 19).
(4) Fold up the walkway and remove ten screed bottom GRIPCO nuts along the width of screed (Figure 20).
(5) Raise the screed and slide the screed bottom out.
(6) Position new screed bottom under screed.

CAUTION: Make absolutely sure bolts on screed bottom are aligned with bolt holes on screed frame.

(7) Slowly lower the screed to bolts on screed bottom. Re-check bolt and bolt hole alignment and lower screed all the way.
(8) Install washers, lockwashers, and GRIPCO nuts to all twenty screed bottom bolts. Before tightening GRIPCO nuts, push screed bottom as far forward as possible. Then tighten GRIPCO nuts to 90 ft/lbs. torque.
(9) Remove bolts from crowning arm support plates (Figure 19).

INSTALLING SCREED ATTACHMENTS

Adding "Fastach" Screed Extensions (Figures 21 and 22): Optional "Fastach" extension kits are available (6", 1', 2', and 3' lengths) which include screed, auger, and vibrator shaft extensions, auger guards, and all mounting hardware necessary to extend the screed to specified widths. When extra wide paving is done, augers should be extended to match extension added to screed. Auger extensions should be 1' shorter than the screed width on each side. Refer to Material Feed System for installation procedures.

WARNING: Always hook safety cables (one on each pull arm) and position safety blocks whenever personnel are working under or around the screed. Be sure safety blocks are free of projections which could scratch or gouge screed bottom.

(1) Remove end plate from screed end. This plate will be attached to the extension end after installation of extension(s).
(2) Slide mounting pegs into mounting holes in the adjacent screed extension. Drive wedges thru the peg slot to secure the extension.

NOTE: The large opening of mounting peg must be up for proper entry and locking of the wedges.

(3) Ensure screed extension vibrator weights are positioned the same as vibrator weights on main screed. If not, loosen allen screws and rotate weights on extension vibrator shaft until alignment is achieved. This is important to ensure vibrator weights do not counterbalance each other.
(4) Use a straightedge and inspect the bottom plate of screed extension to make sure it is flat in reference to the bottom plate of main screed. Start at the main screed and work outward.

NOTE: The main screed bottom and all extensions must be perfectly aligned to produce a smooth surface without transition lines. Alignment of the front edge of the extension is controlled by the upper front eccentric mount (Figure 22). Alignment of the rear edge of the extension is controlled by the lower rear eccentric mount. The lower front extension mount is fixed.

(5) If necessary, loosen the peg and lock nuts, and rotate the eccentric adjusting nut until the screed plates are aligned. After aligning the screed bottom, tighten the peg and lock nuts and secure the wedges.
(6) Install end plate to the extension end.
(7) Install guard over vibrator shaft.

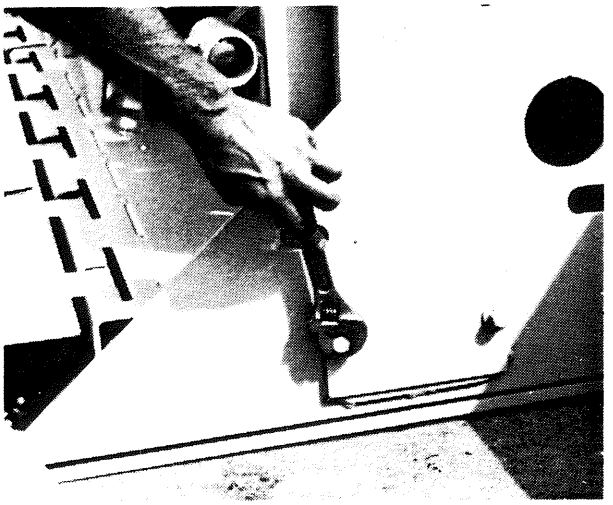
NOTE: When removing screed extensions, always remove lower wedges first and top wedge last to prevent binding or sudden loss of support when last wedge is removed. Use a block under extension or a chain attached to a lifting device to support extension.

(1) Remove heat duct cover on each end of screed.

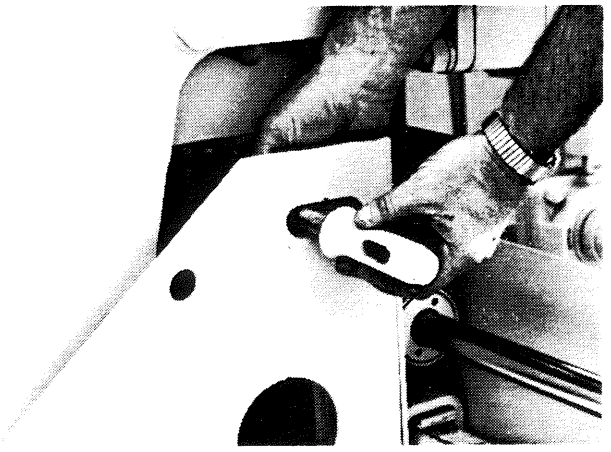
(2) Install mounting pegs on RH side of screed. The two tapered pegs go in the top and bottom rear holes. The straight peg goes in the bottom front hole. Leave nuts loose so pegs can slide back & forth in slots.

(3) Install alignment eccentrics in the LH side of screed extension and adjust projections as follows on both extension and main screed. Projections extend toward main screed. Top projection (thread end) 1/4" to 5/16"; Bottom rear 1/4" to 5/16".

NOTE: On opposite end of screed, eccentrics are installed on main screed and projections will be toward extension.



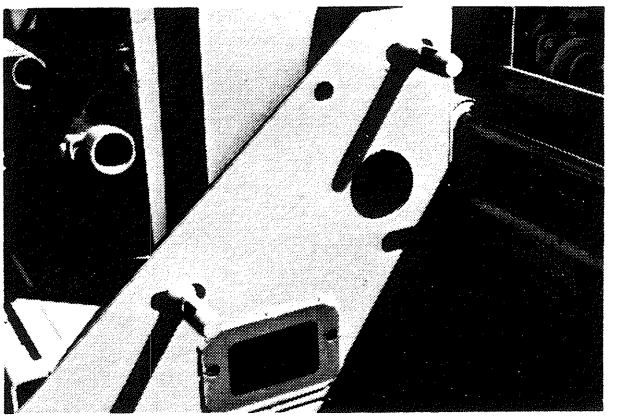
Step 1 Remove heat duct cover



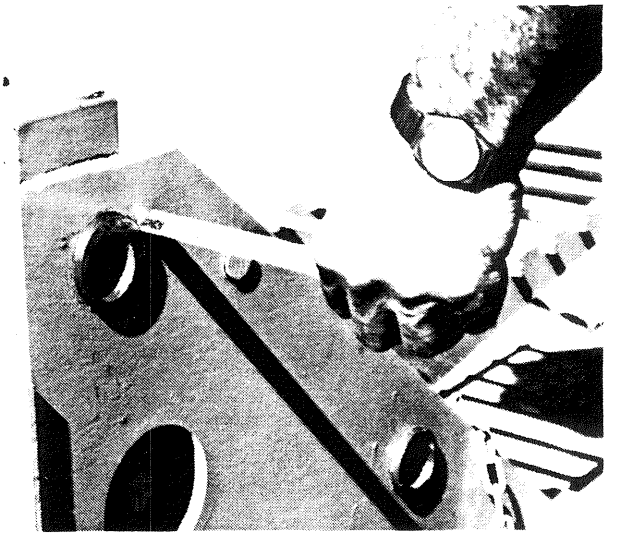
Step 2 Installing pegs

Installing Fastach® Screed Extensions

(4) Make sure all mating surfaces are clean of all asphalt, dirt, or anything that would prevent these surfaces from fitting snugly together. Pay special attention to screed bottom, strike-offs and heat duct tube area.



Step 2 Pegs installed



Step 3 Measuring projection

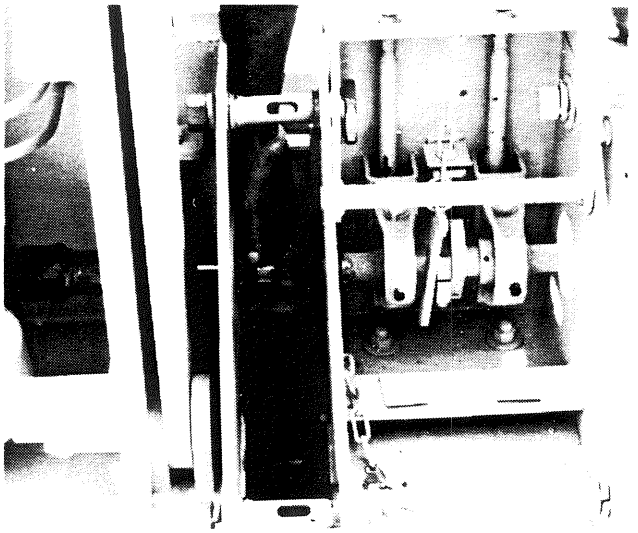
Step 4 Cleaning

> ***CAUTION***
> *Screed extensions are heavy. Care is to be taken to handle them safely when installing. Lift them only with some type of hoist.*

(5) If the screed extension has vibrators, they can be connected to the main vibrator shaft if desired. If not, proceed to Step 6. When putting extension on, you need to slip drive line on main screed vibrator shaft and also slip it on extension screed vibrator shaft. Be sure to align vibrator weights in the same position as all other weights.

(6) Slide extension on to pegs of right side of main screed. Allow pegs to move in their slots to align themselves with the eccentric. Put the wedges into the slots in each peg. Tap in lightly, just tight enough to hold extension in place.

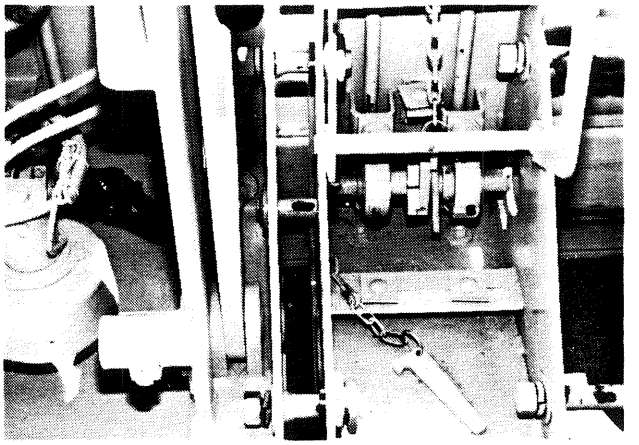
Step 5 Adding vibrator drive line



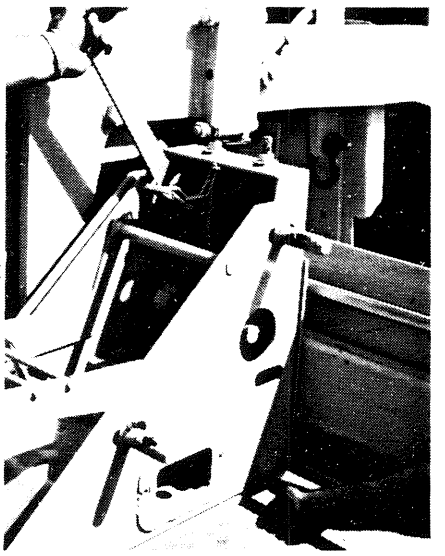
Step 5 Drive line connected

(7) Raise screed, secure with safety cables & block underneath.

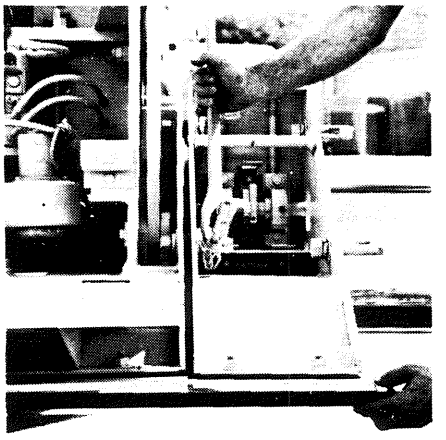
(8) Using a special wrench, turn the top alignment eccentric to raise or lower the front of the extension screed bottom so it matches the height of the main screed bottom. Use a straightedge to make sure bottoms are flush.



Step 6 Installing extension



Step 8 Aligning extension at front



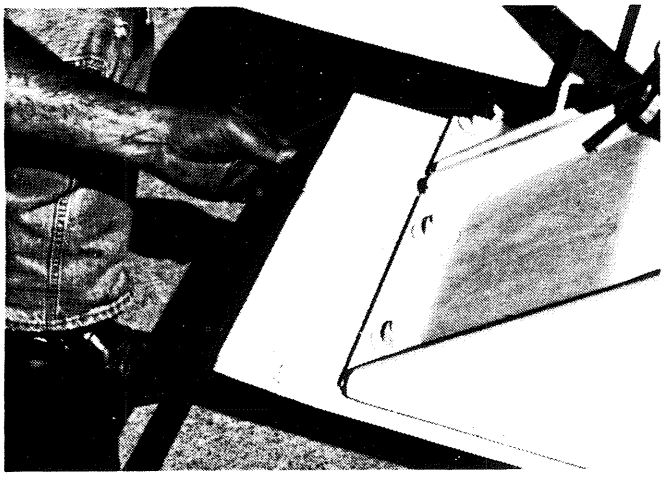
Step 9 Aligning extension at rear

(9) Repeat Step 8 at the rear bottom alignment eccentric until both front and rear edges of the screed extension match the main screed bottom.

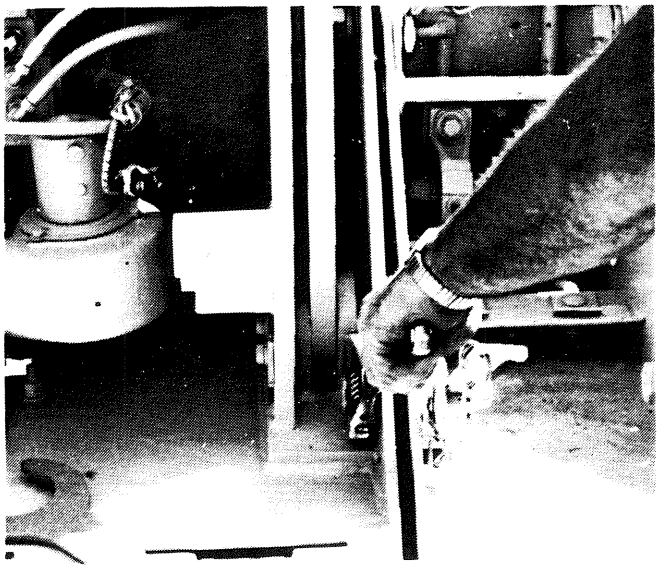
(10) Check the trailing edge of the screed extension. It should line-up with the main screed. If not, slide extension forward or backwards so trailing edge will line-up with the main screed.

(11) Tap wedges in so they are just tight. Then tighten the nuts on the top & bottom rear pegs. If the front bottom peg is loose and the wedge won't tighten it, remove it & add a 1" washer to the peg, then reinstall.

(12) Next take a straightedge & lay against the bottom of the main screed & extension screed to see if the extension screed has any positive or negative slope.



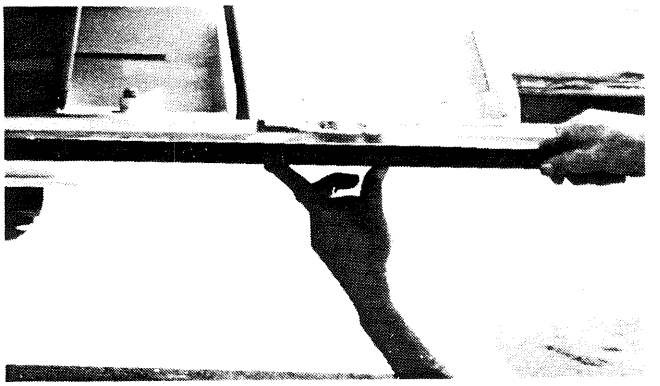
Step 10 Checking trailing edge



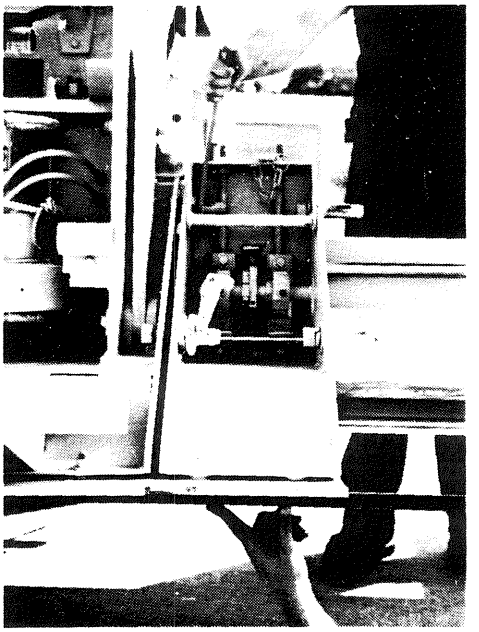
Step 11 Tightening eccentric nuts

(13) If it does, loosen the peg nut & wedges on top eccentric & turn eccentric one full turn. Turning it in will push outside edge of extension screed down. Turning it out will raise outside edge.

Step 11 Add washer if needed



Step 12 Checking screed/extension bottoms



Step 13 Matching screed/extension bottoms

(14) Snug wedge & tighten peg nut. Recheck with a straightedge.

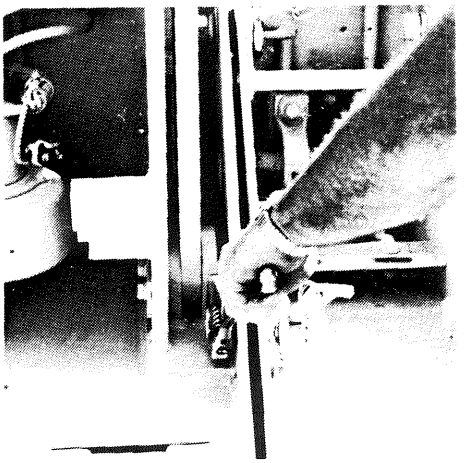
(15) Once the extension is aligned properly, bottoms match, trailing edges match & extension isn't sloped, check the strike-off plates. They should be 1/2" above screed bottom.

(16) If adjustment is needed, use the strike-off height gauge provided.

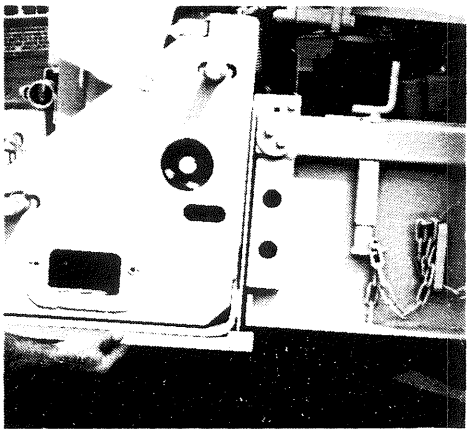
(17) There are two adjusting rods on each strike-off plate. By loosening top or bottom jam nut on each & turning the other, you can raise or lower strike-offs to proper height.

(18) Install heat duct cover on end of extension if no additional extension is to be added. Install guard over vibrators.

(19) Repeat procedures on all other extensions.

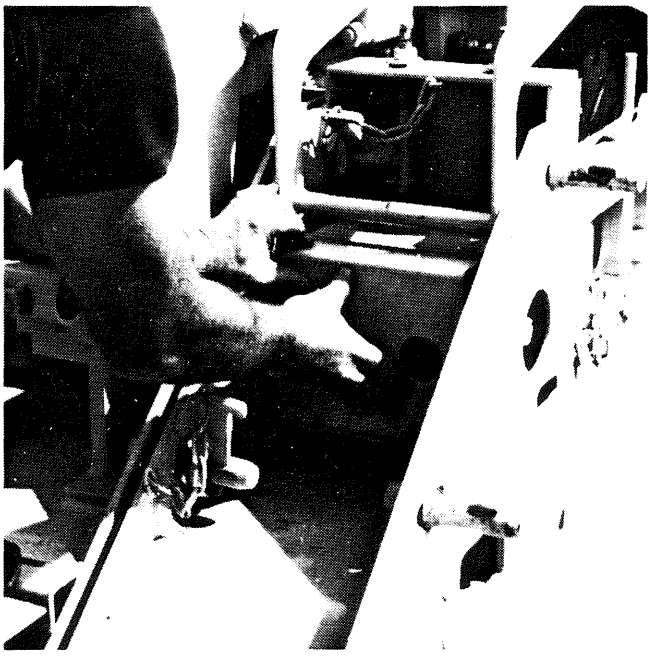


Step 14 Retightening eccentrics



Step 15/16 Checking strike-offs

Step 17 Adjusting strike-offs



Step 18 Installing guard

End Gates: An end gate assembly can be attached to each end of the screed to limit outward movement of material. These plates are bolted to either: 1) end gate mounting bracket (Figure 23) which, in turn, bolts to standard 10' Fastach screed end or, 2) optional power strike-off extension ram (Figure 24).

Movement of end gate is controlled by crank screws on support arm. The crank screws raise and lower the chain attached to the bottom of end gate. Refer to the following paragraphs for a description of each installation.

Adding Screed End Gates (without power strike-off):

(1) Align pegs on mounting bracket with holes on screed end (Figure 23).
(2) Insert retaining wedges in mounting peg slots.
(3) Mount end gate support arm to end gate mounting bracket guide peg as shown (Figure 23). Install two bolts to secure end gate.

NOTE: When bleeding material to outside, end gate is raised until support arm passes over center. Hook locking rod to screed end gate mounting bracket to hold end gate in elevated position (Figure 23). When screed is to be raised, crank screws should be adjusted to hold end gates in line with screed bottom.

Adding Screed End Gates (with power strike-off):

(1) Mount end gate support arm to strike-off extending frame reference (Figure 24). Install four bolts to secure end gate to strike-off extending frame.
(2) If desired, the locking rod may be removed. This component is only used for "Fastach" screeds without power strike-off.

NOTE: When bleeding material to outside, end gate is raised using crank screws. When screed is to be raised, crank screws should be adjusted to hold end gates in line with screed bottom.

Bevel Guide Plates: Bevel guide plates, which bolt to end gates, produce a 45° beveled edge on mat as material is deposited. Bevel depths available are 1-1/2" and 3".

Retaining Plates: Material retaining plates should be used ahead of extended augers when screed extension exceeds 2'. They prevent forward spillage of material so augers are handling a uniform depth all the way out to ends. When extension up to 4' is added to one end of screed a retaining plate support angle is attached to screed pull arm and when number of plates are added, an extra brace is added.

Cutoff Shoes: Standard cutoff shoes attach to screed end gate to reduce paving width in 1-1/2" increments.

(1) To install cutoff shoe, block up screed to shoe height.
(2) Raise side plate and slide cutoff shoe under screed to the desired mat width reduction.
(3) Bolt cutoff shoe to end gate. (Shoe fits either end of screed.)
(4) To prevent material from being fed onto top of cutoff shoe and spilling onto road base, fabricate pieces of wood to block off that area between screed moldboard and cutoff shoe.

SCREED ACCESSORIES

Burners: Main purpose of burners is to raise the temperature of a cold screed bottom to approximately 300°F before contact with hot mix. This assures a nonsticking flow of material along moldboard and screed bottom and imparts a more uniform mat surface texture. When paving begins the burners are usually shut off; the hot mix will normally maintain proper screed temperature.

If material delivered to hopper has cooled too much, mat texture may be improved by running burners. Excessive cooling of material may be caused by delays in hauling; if material was dumped into truck at too low a temperature, a correction must be made at the mixing plant to restore efficient production of a high quality mat.

Recommended temperature for material delivered to spreader is 250°F minimum when medium and high penetration asphalt is used. For low penetration asphalt a minimum of 300°F. Many mat defects are results of incorrect material temperature at the time of paving.

Usually the screed bottom will be heated sufficiently by running burners for 20 to 30 minutes prior to operation. When screed is hot enough, turn burner fuel valve(s) OFF but leave fan(s) ON for at least 5 minutes to dissipate excess heat. Excessive heat can cause screed bottom to warp; Never heat above 350°F!

Operating Screed Burners:

(1) Ensure all valves and fans are OFF.
(2) Turn fuel pump switch ON.
(3) Hold GLOW PLUG button in for approximately 10-20 seconds and then turn ON the appropriate burner fuel valve.

NOTE: Light only one burner at a time. If two burners are ignited at the same time, the 60 watt circuit breaker may trip.

(4) When ignition occurs, turn fan ON and release GLOW PLUG button.
(5) Visually inspect flame. Adjust air damper (Figure 25) to obtain the cleanest possible flame. Presence of smoke indicates the air damper requires adjustment.
(6) After screed burners are tested, turn off fuel valves and pump. Allow fans to run for five minutes to dissipate heat.

Operating Spray Down System:

(1) Turn main key switch ON (junction box).
(2) Open SPRAY DOWN valve.
(3) Set the fuel pump switch to ON.
(4) Depress spay nozzle valve lever.

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 is FORWARD. This prevents extra compaction in one place on mat when spreader 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 crown controls (Figure 26). 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 speed dial to zero (MIN).
(2) Turn vibrator switch to ON, set brake switch to RELEASE, and move travel levers forward.
(3) Adjust vibrator speed knob to ensure vibrator intensity is variable (Figure 26).
(4) After testing, turn vibrators OFF, return travel levers to neutral, and ENGAGE brake switch.

SCREED MAINTENANCE

It is important that screed be kept in good condition so wear, looseness, or breakage of parts do not produce poor paving results before a noticeable defect exists. Handcrank assemblies which adjust screed angle must be kept in good condition. There are numerous places where wear can be compensated by shimming and adjusting.

Screed Bolts: The bolts which attach the screed bottom to the frame and the frame to the pull arms must be kept tight at all times. When bolts become loose and the screed bottom is no longer rigidly held, waves may appear in the finished mat. Check screed bolts frequently for tightness.

In the event the hinge bolts become loose, (Figure 27) replace the bushings so no play develops at that critical point to produce a waviness in the mat.

Cleaning and Lubrication: The screed should be cleaned at the end of each paving day. Clean all areas which come in contact with mix. Avoid spraying control panels and electrical connections. Lubrication of the screed should be performed at the recommended interval as specified in Periodical Checks and Services (Cleaning and Lubrication).

Vibrator Motor Seal Replacement: If vibrator motor (Figure 28) is leaking oil from around the vibrator shafts, replace seals as follows:

(1) Prepare a clean work area and remove vibrator motor.
(2) Remove retaining ring, rubber washer, and seal by sliding over the shaft.

CAUTION: When de-burring the vibrator shaft in the following step, care should be taken to only work the area of the retaining ring keyway; any work done where the seal runs could cause "leak paths" on the shaft.

(3) De-burr shaft with emory cloth in the retaining ring keyway area. This will enable installing the teflon seal without cutting it.
(4) Install new rubber washer and new retaining ring (if necessary).
(5) Install vibrator motor on screed.

Power Crown Motor, Speed Adjustment: To adjust motor speed, rotate the needle valve on power crown valve bank (Figure 29) clockwise to decrease speed (flow) or counterclockwise to increase speed (flow). If needle valve is set too low, ineffiency of the motor will allow all flow to bypass to motor outlet port.

Power Strike-off (Optional) Cylinder Speed Adjustment: To adjust cylinder speed, rotate the needle valve on power strike-off valve bank (Figure 30) clockwise to decrease speed (flow) or counterclockwise to increase speed (flow).

TROUBLESHOOTING SCREED BURNERS:

No Fuel Spray or Ignition:

(1) Check main junction box key switch for ON and check burner circuit breaker; it may have tripped immediately by an overload.
(2) Check wiring to switches; there should be 12 VDC at the power terminal. (Refer to Electrical System Troubleshooting.)

Fuel Spray but No Ignition:

(1) Turn burner fuel valve and fuel pump switches OFF.
(2) Remove spring, release latches, and remove burner nozzle housing (Figure 31).
(3) With the glow plug button depressed, observe glow plug and check for heat (red glow). If no heat is observed, replace glow plug and try again.
(4) If still no ignition, check glow plug switch. (Refer to Electrical System Troubleshooting.)

Ignition but No Spray from Burner Nozzle:

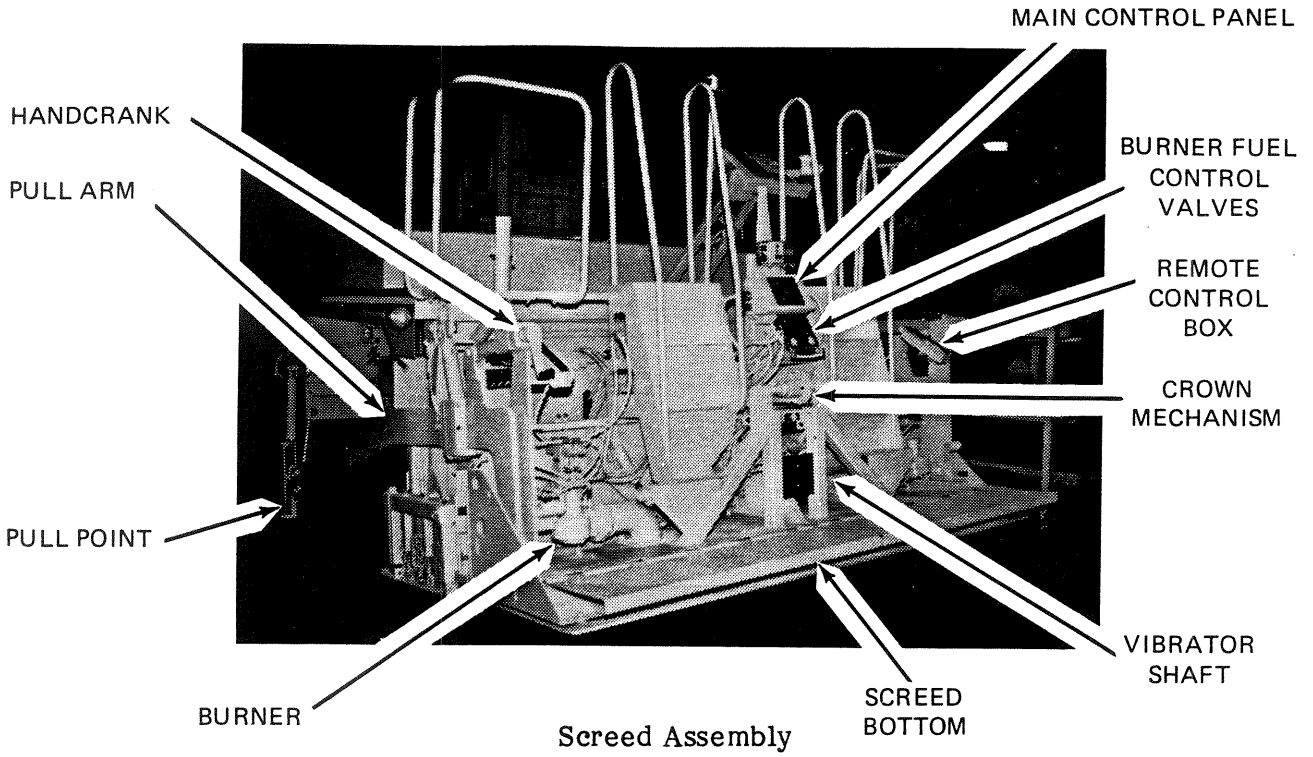
(1) Make sure burner fuel valve is open, fuel pump switch is ON, main junction box key switch is ON, and burner circuit breaker is set.
(2) Check fuel level in supply tank. Make sure sediment filter element is not plugged.
(3) Turn fuel pump switch ON and check for 12 VDC at fuel pump motor (Figure 32). If 12 VDC is present and pump does not operate, replace fuel pump.
(4) If 12 VDC is not present at fuel pump, check wiring and switches. (Refer to Electrical System Troubleshooting.)

(5) If fuel pump is operating, turn fuel pump and burner fuel valve OFF and remove fuel line at burner nozzle (Figure 31). Hold a container in such a way that a spurt of fuel can be caught. Turn fuel pump on and toggle the burner fuel valve once or twice. If no fuel spurts into container, the valve manifold is bad (Figure 33).

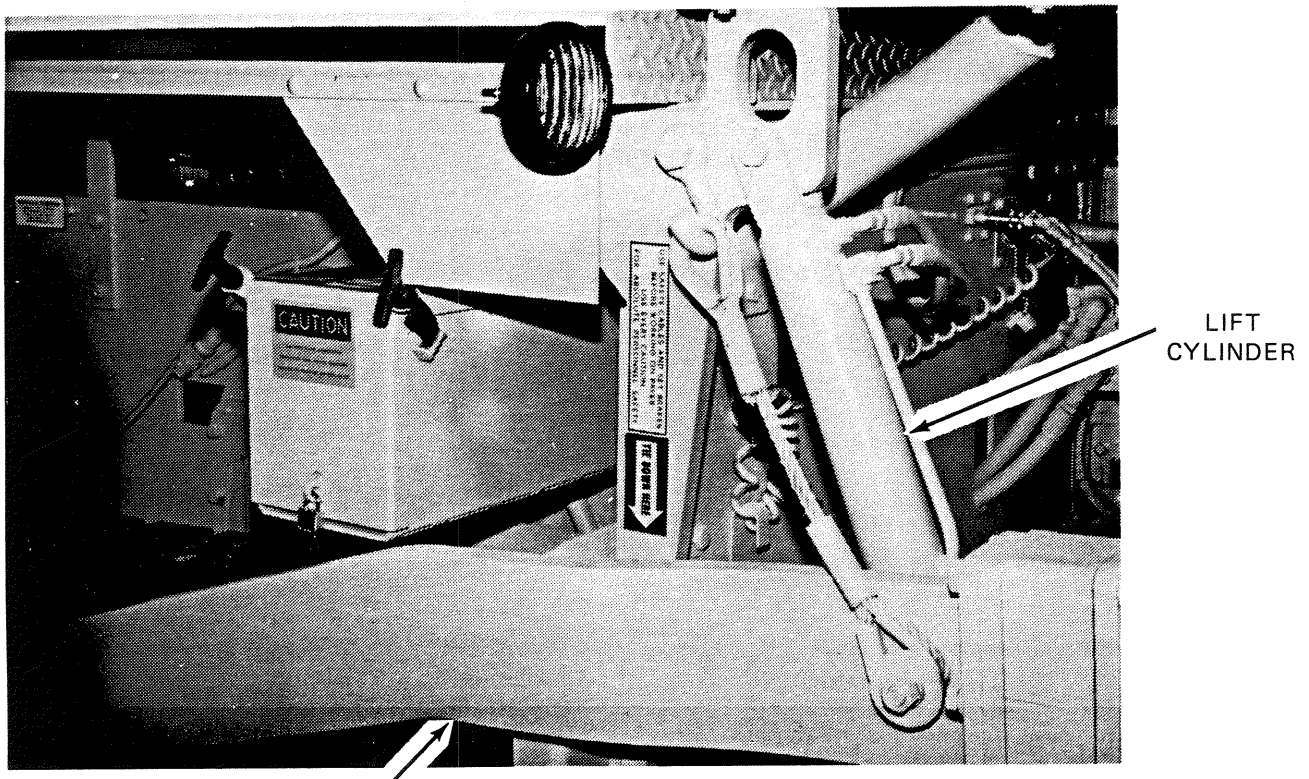
(6) If fuel does spurt into container, turn fuel pump and burner fuel valve OFF. Remove spring, release latches, and remove burner nozzle housing (Figure 31). Clean burner nozzle and flame cone.

NOTE: Pump must develop 100 PSI of pressure in feed line for proper operation. Replace pump if gauge installed in feed line does not show 100 PSI.

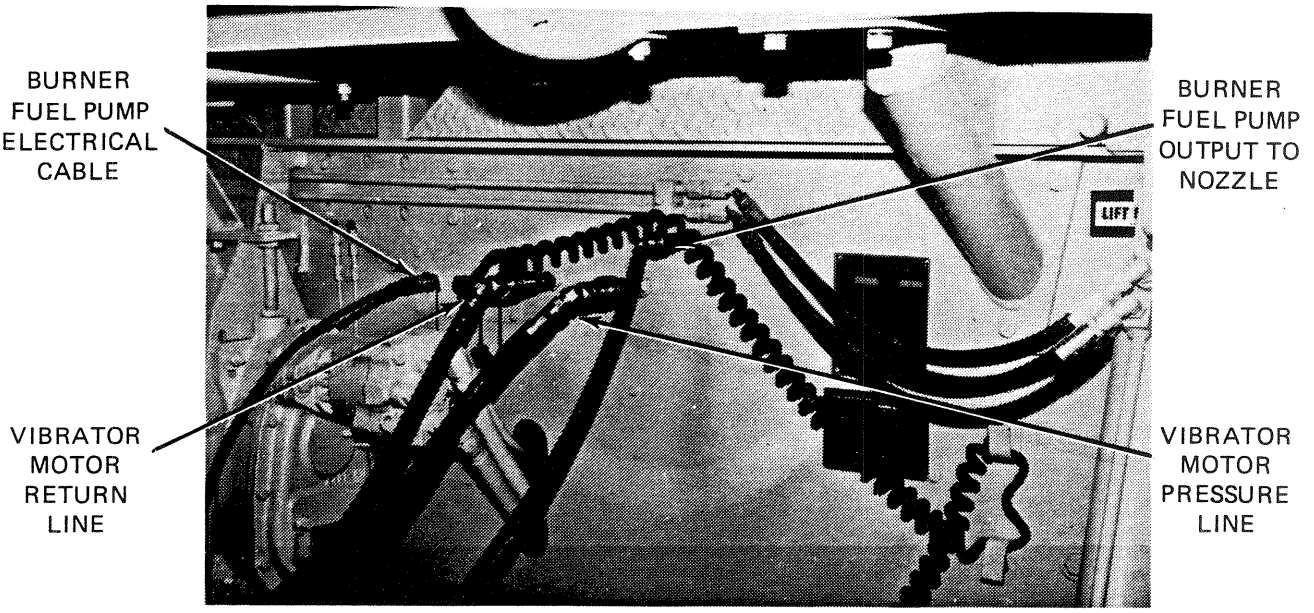
Cedarapids



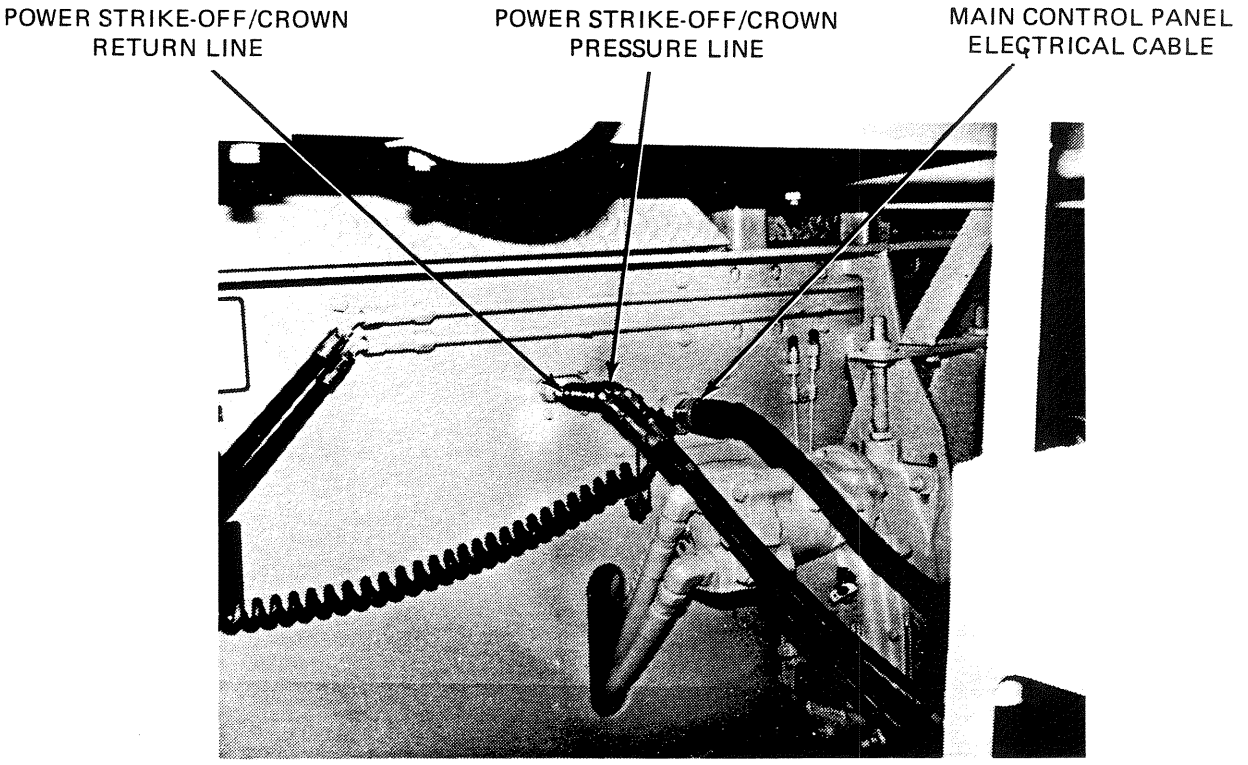
Screed Assembly
Figure 1



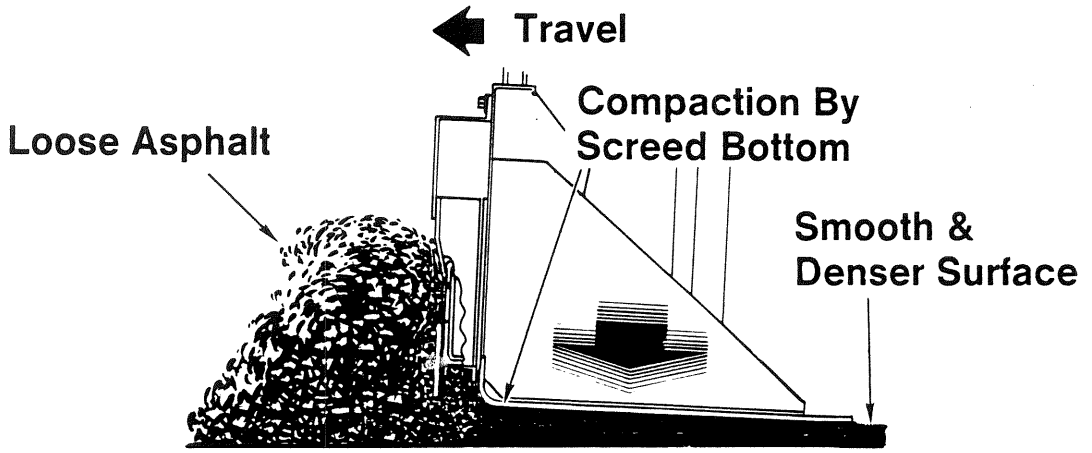
Screed Lift Cylinder
Figure 2



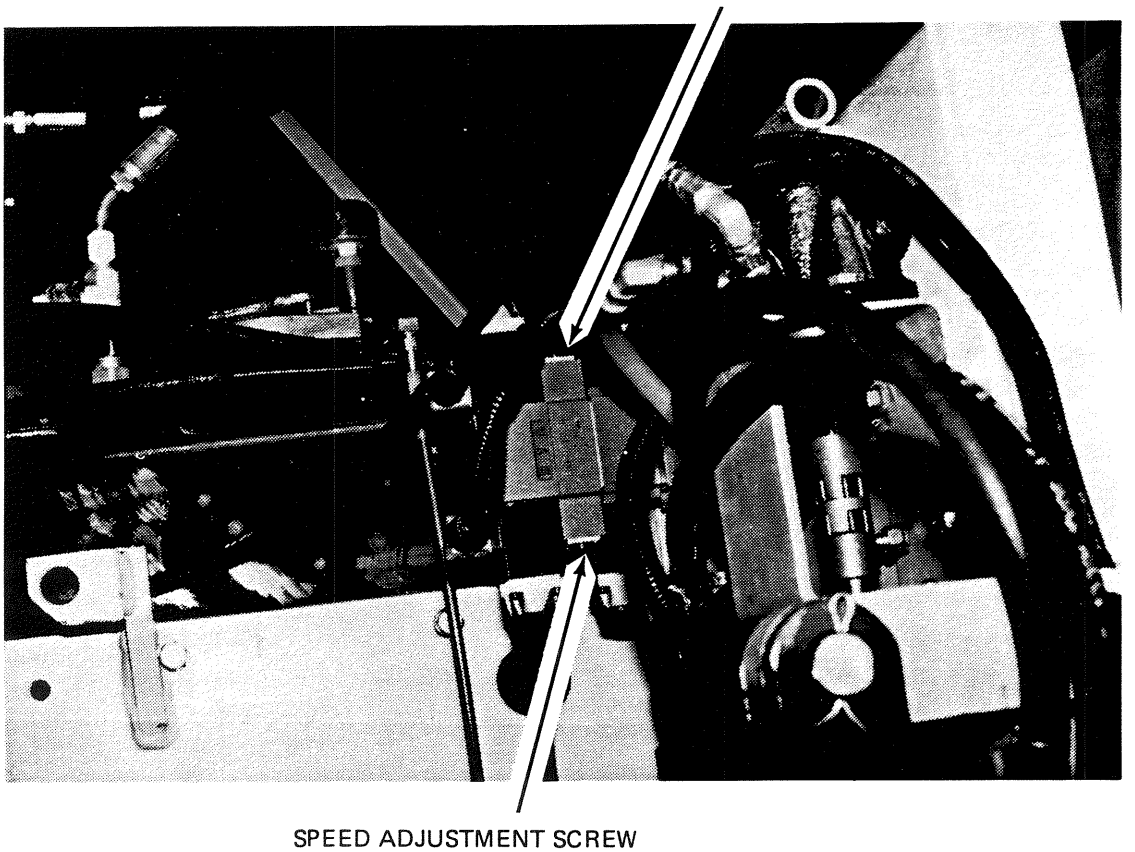
RH Screed Connections to Tractor
Figure 3



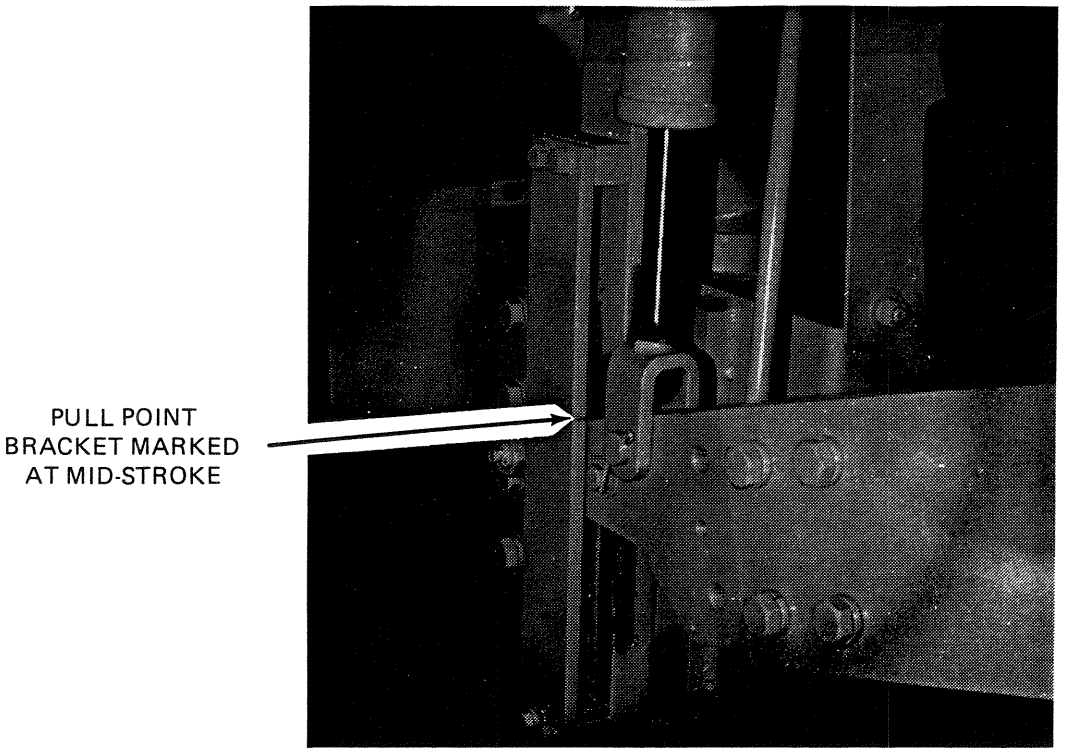
LH Screed Connections to Tractor
Figure 4



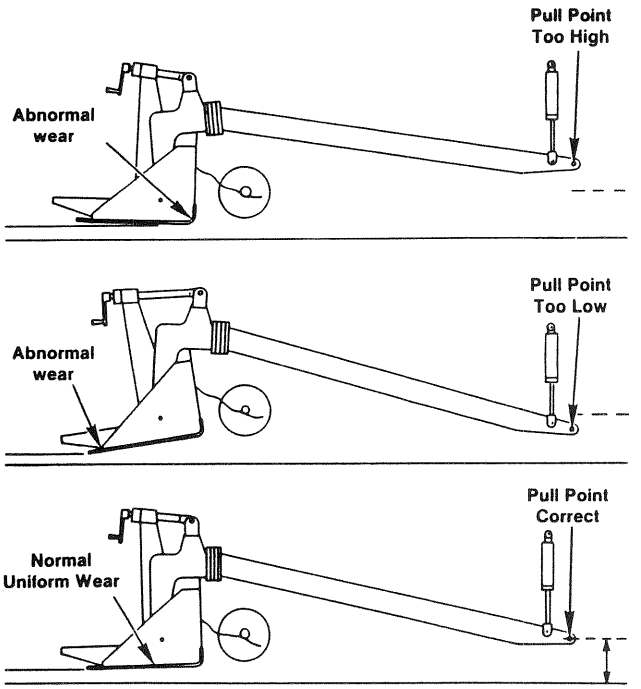
Normal Screed Attitude
Figure 5



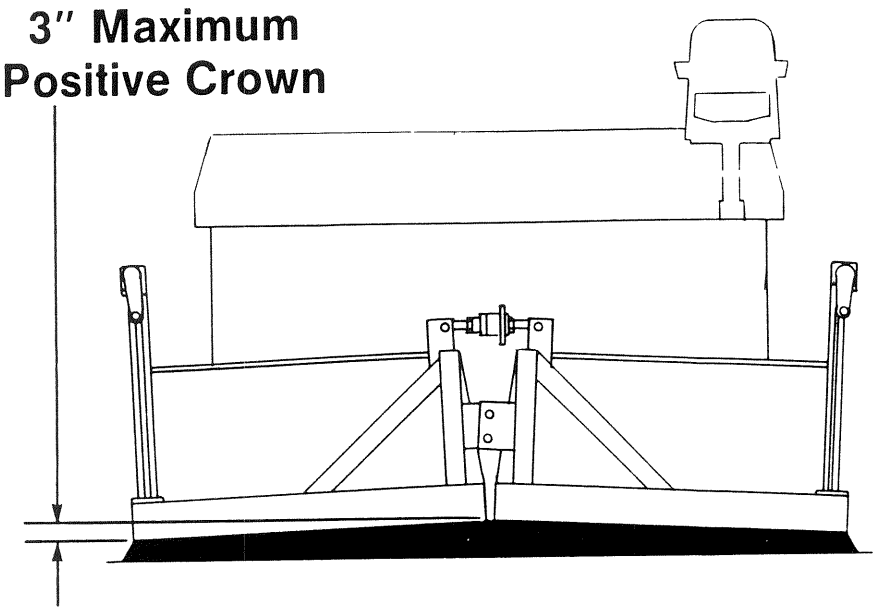
Pull Point Cylinder Speed Adjustment
Figure 6

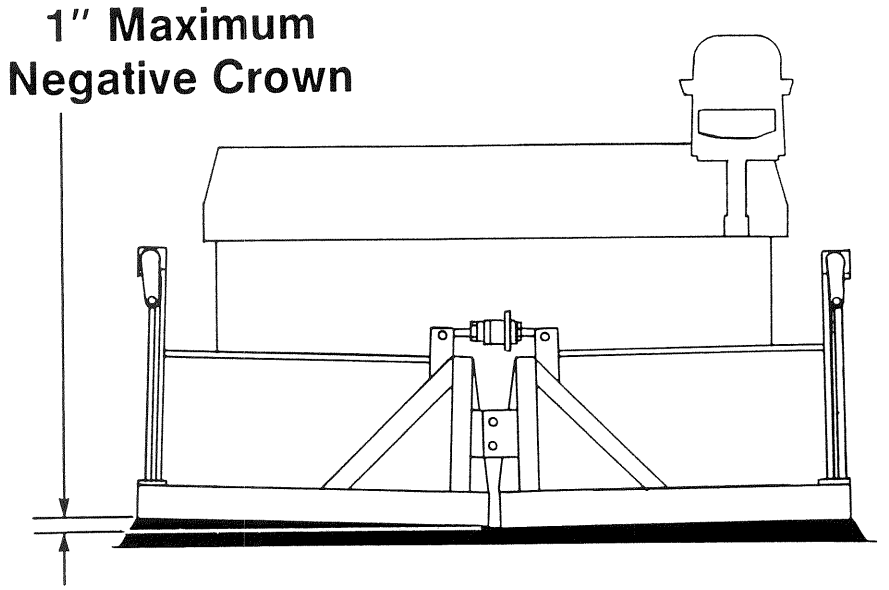


Pull Point Positioning
Figure 7

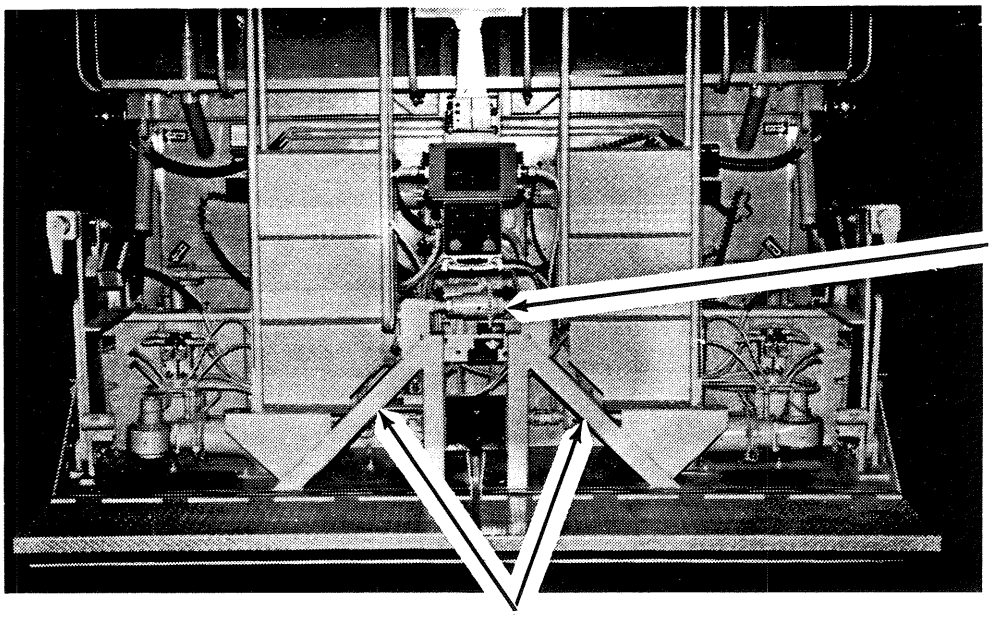


Effects of Pull Point Height on Screed Wear
Figure 8

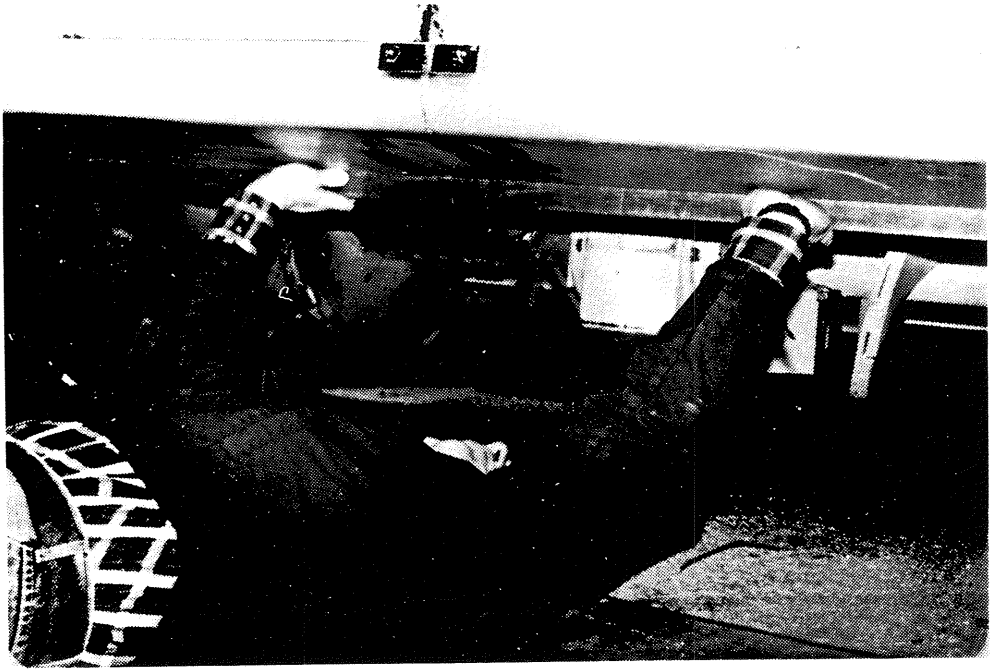




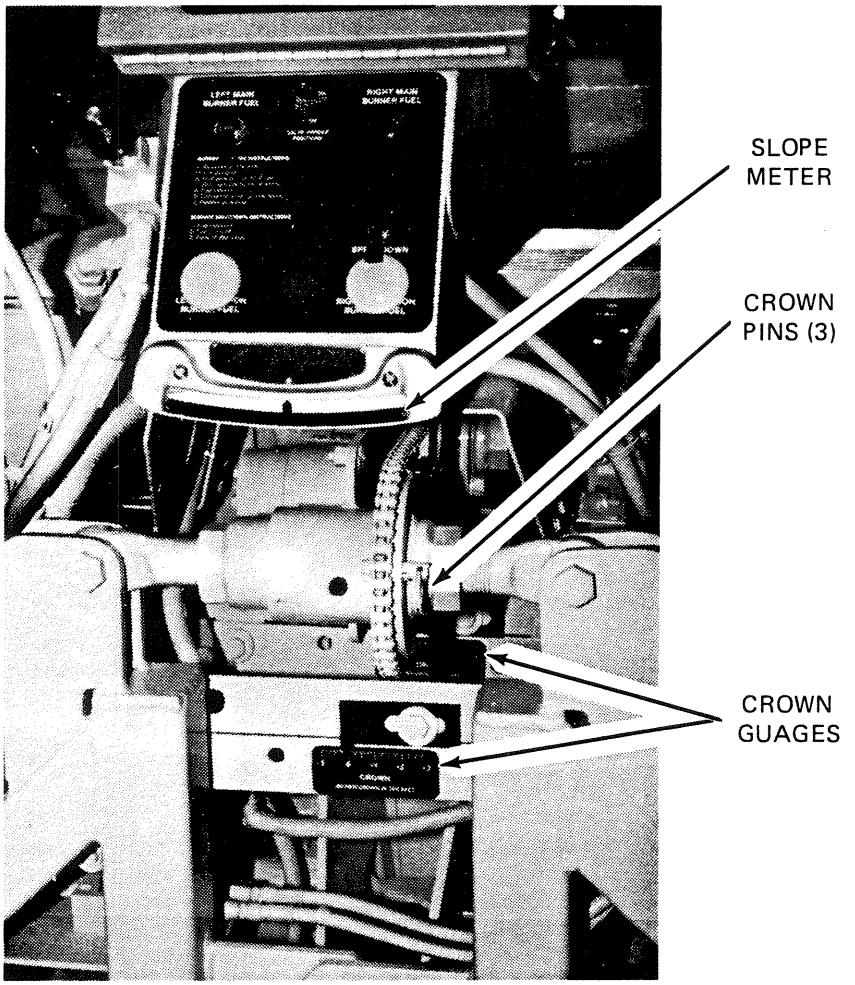
Range of Crown Adjustment
Figure 9



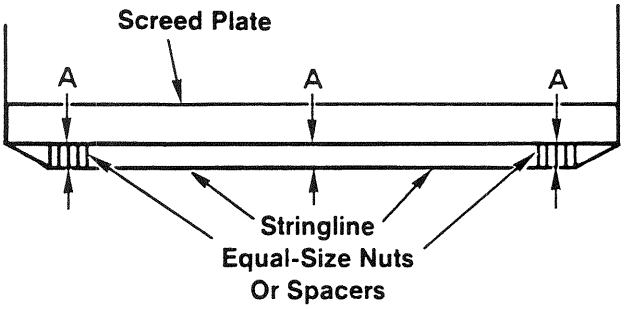
Crowning Arms
Figure 10



Screed Flatness Check - Straightedge Method
Figure 11

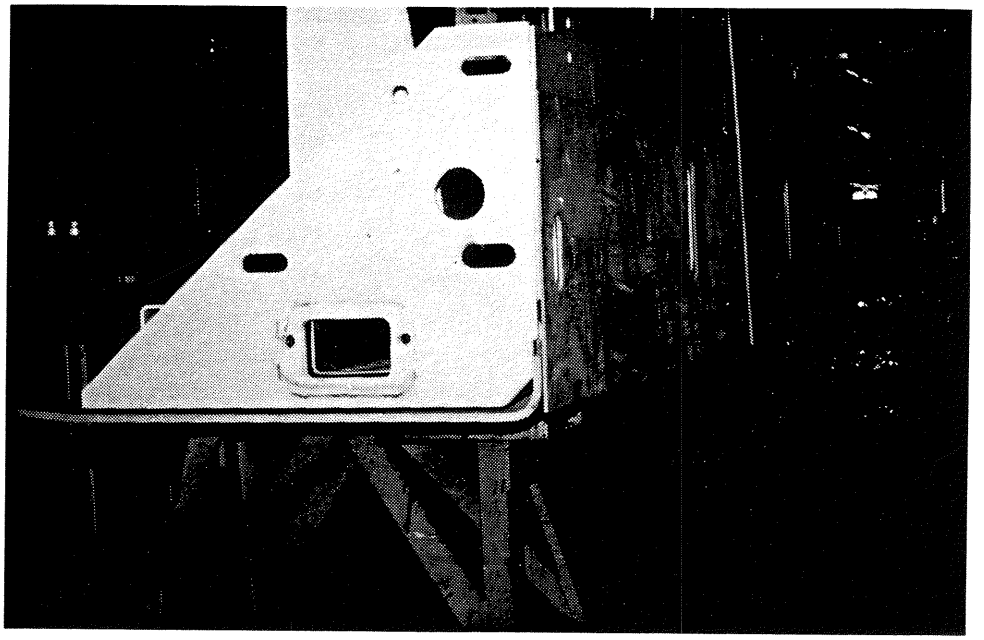


Zeroing Indicators
Figure 12

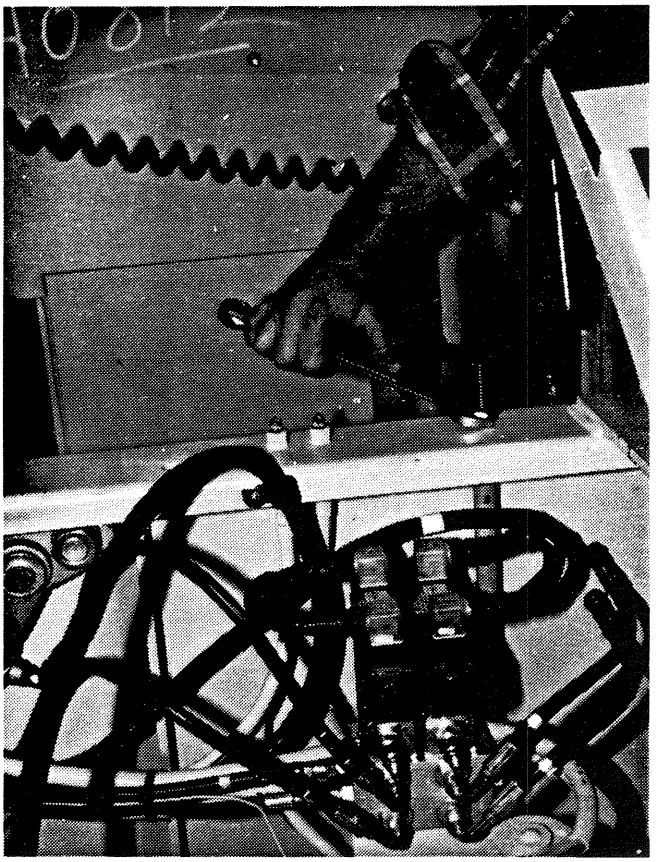


Distance "A" At Center Of Screed Should Be The Same As At Each End

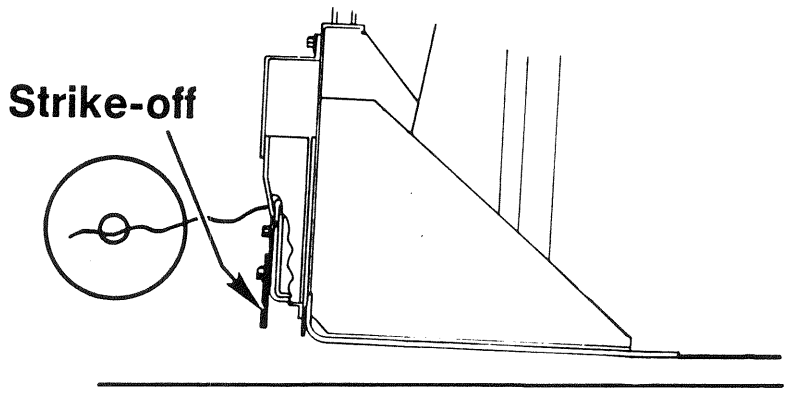
Screed Flatness Check - String Line Method
Figure 13



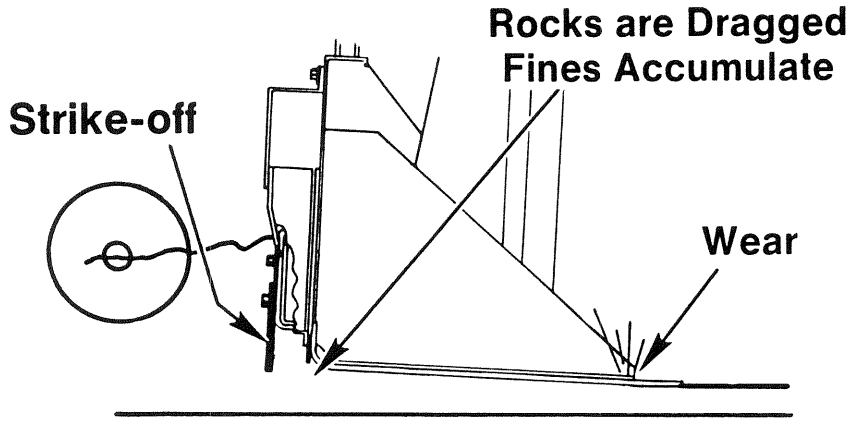
Strike-off Positioning
Figure 14



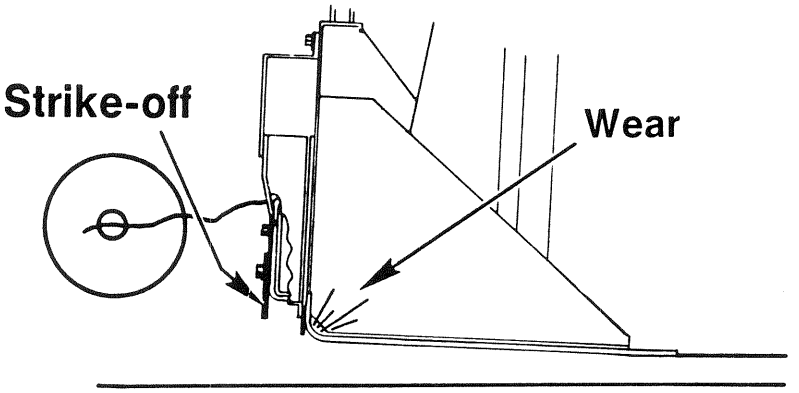
Strike-off Adjustment
Figure 15



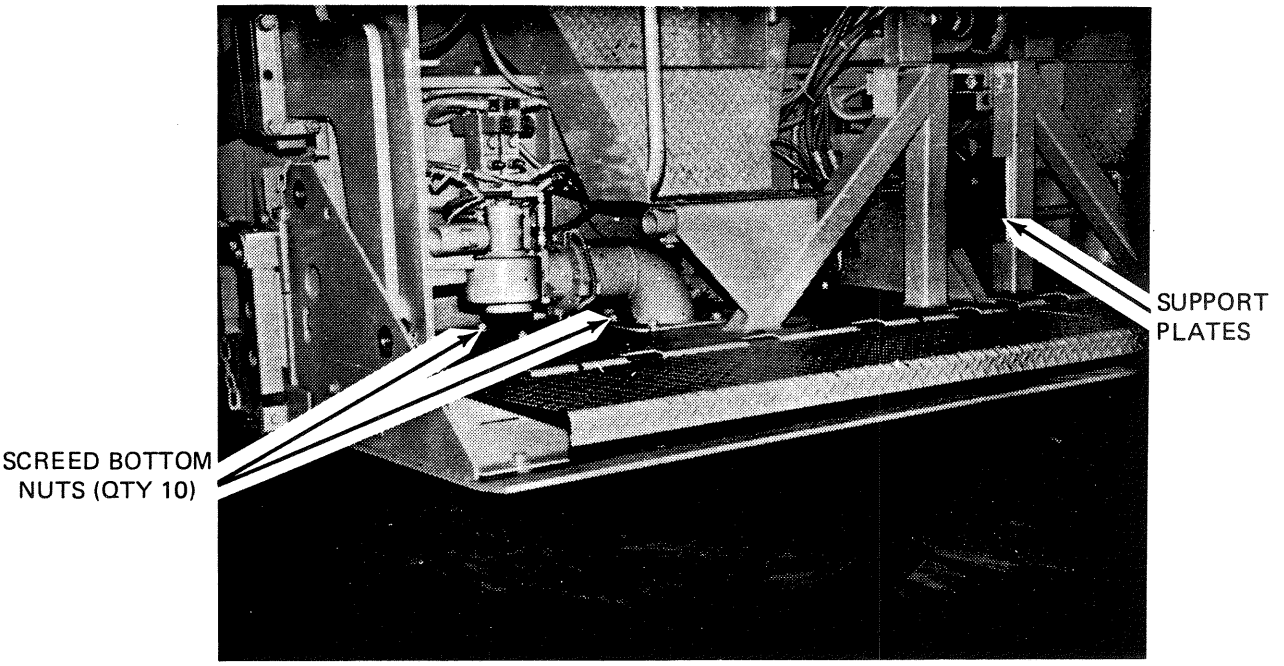
Strike-off Positioned Properly
Figure 16



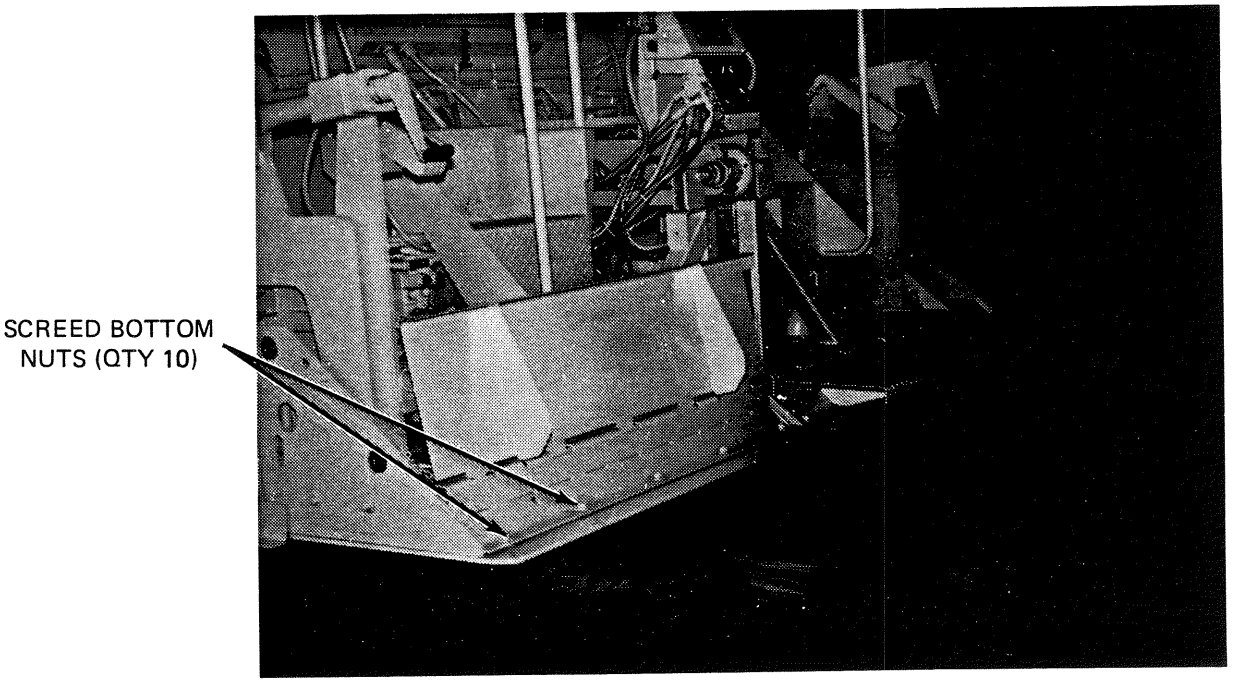
Strike-off Positioned Too Low
Figure 17



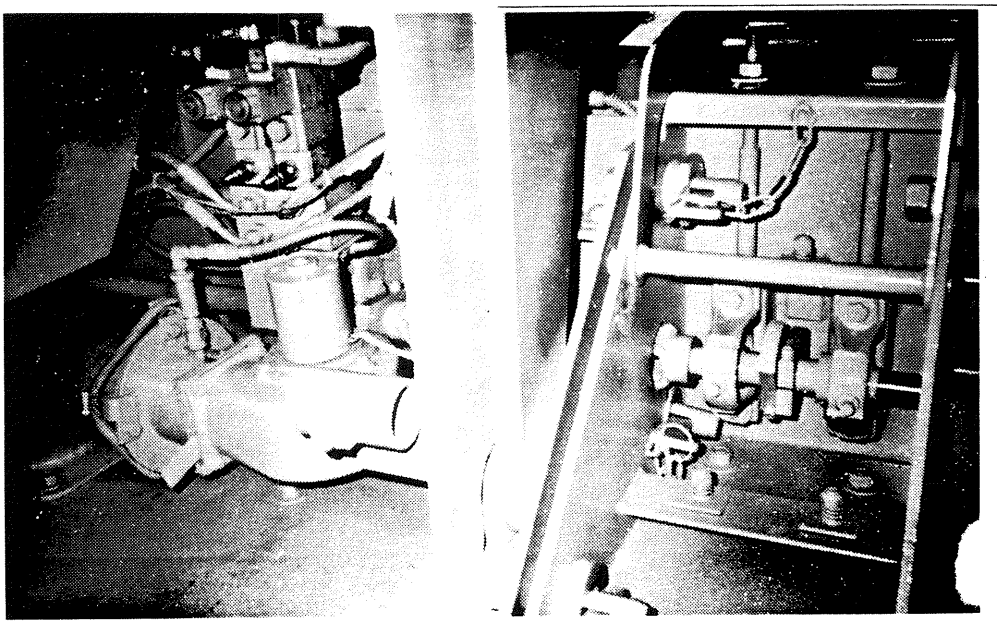
Strike-off Positioned Too High
Figure 18



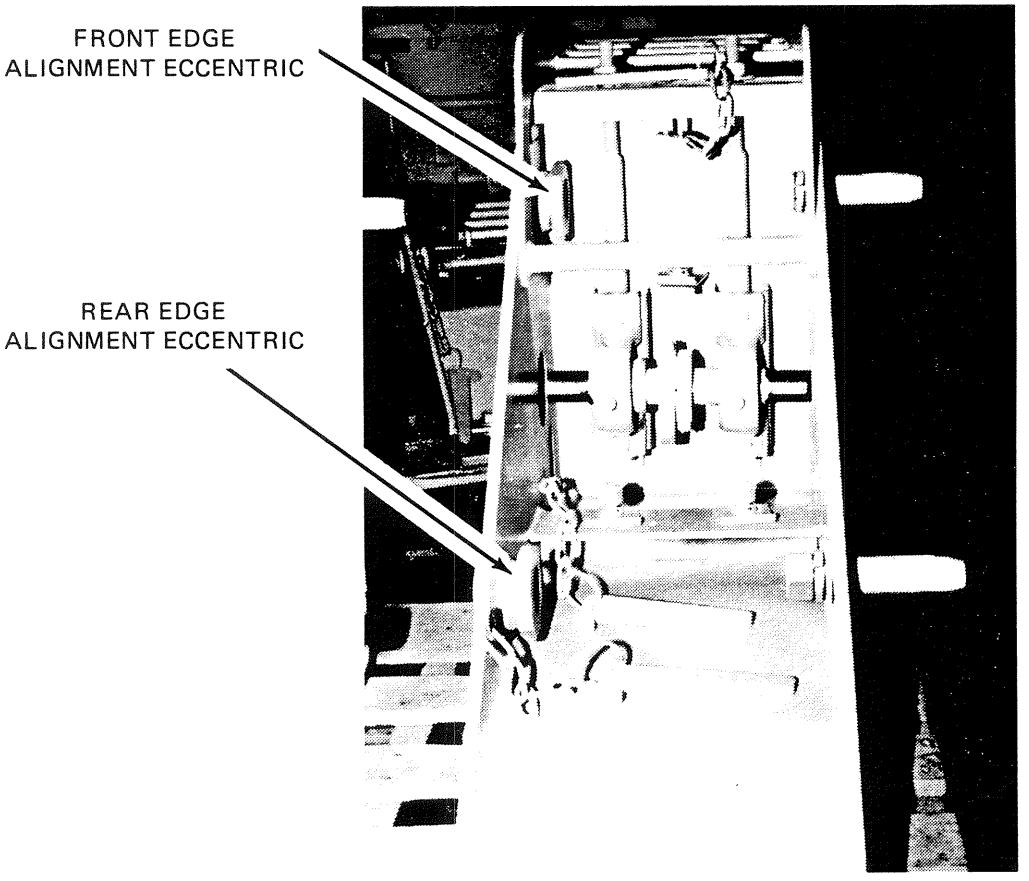
Replacing Quick-change Screed Bottom
Figure 19



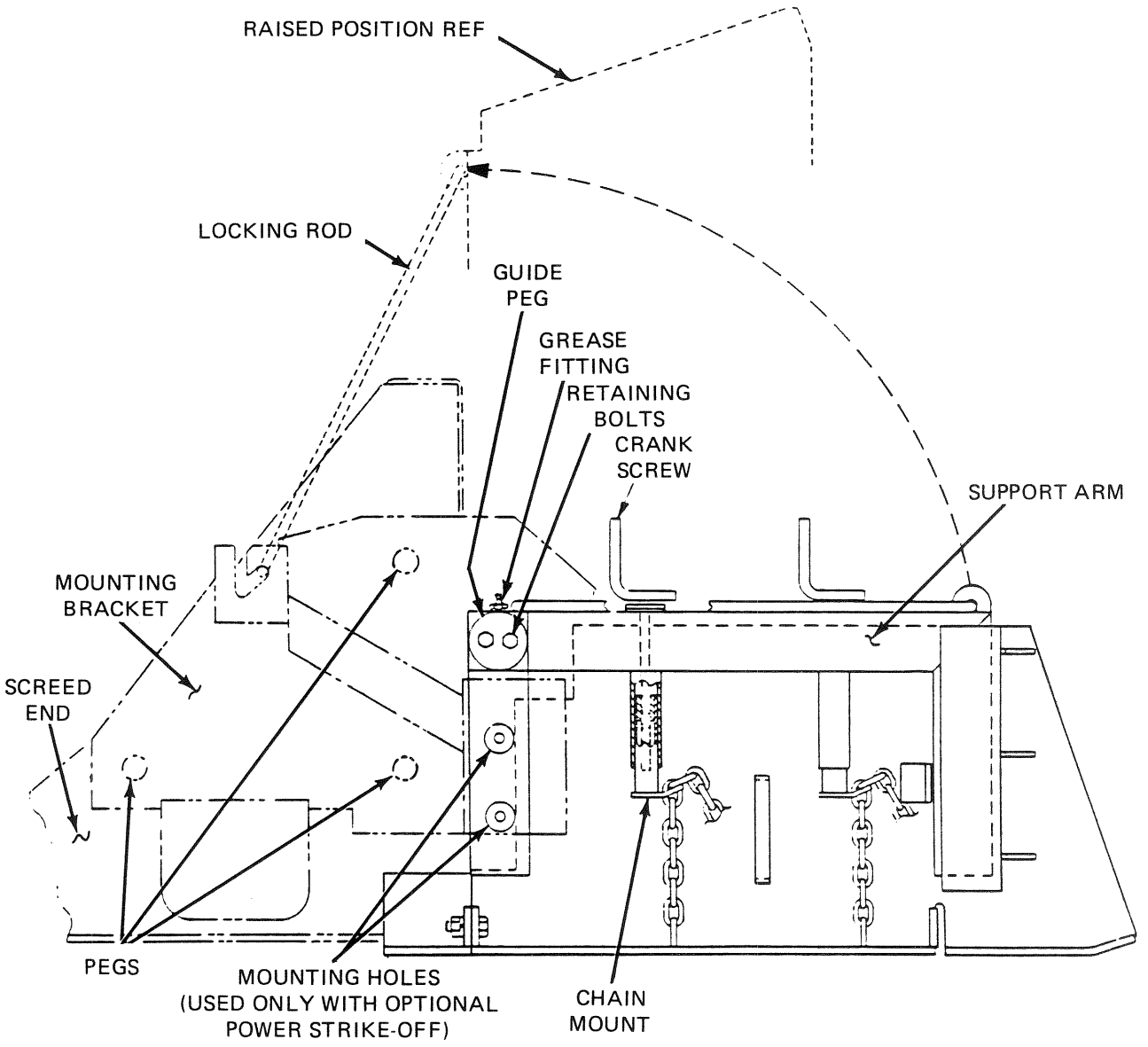
Replacing Quick-change Screed Bottom
Figure 20



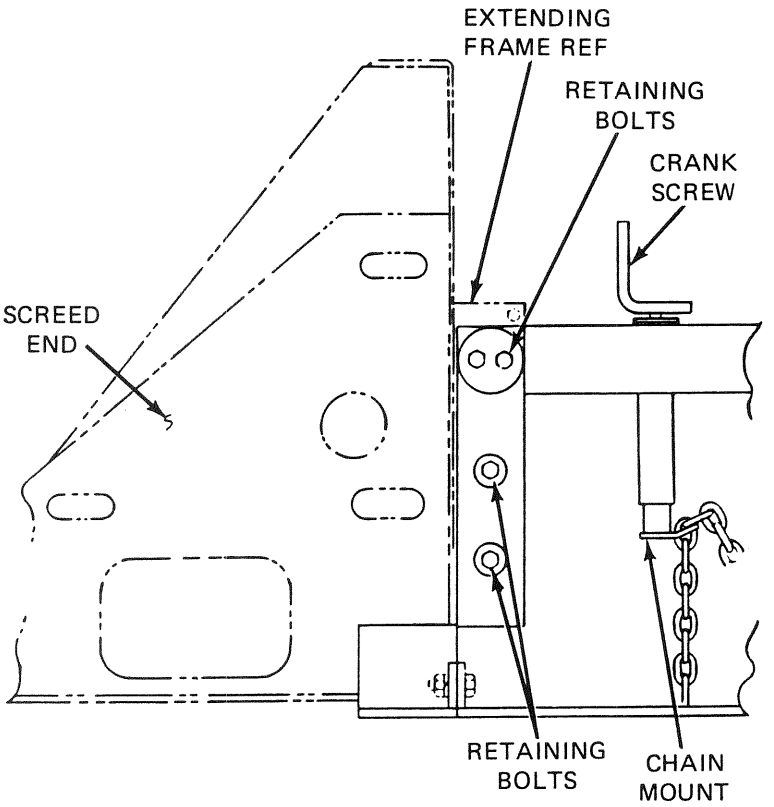
Adding Fastach Extensions
Figure 21



Alignment of Fastach Extensions
Figure 22

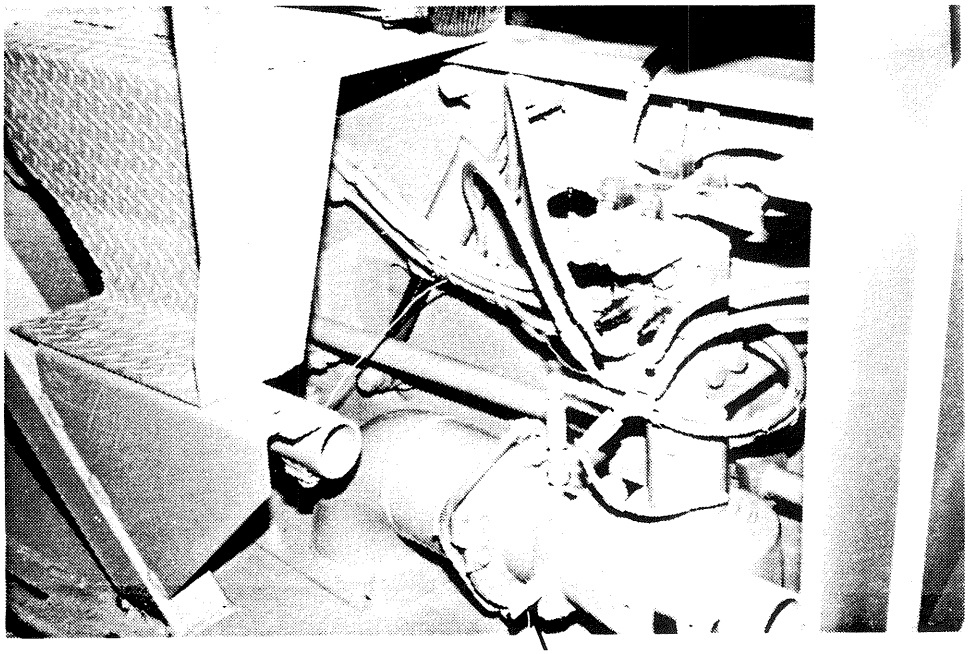


End Gate Mounted to End Gate Bracket (Standard Screed)
Figure 23

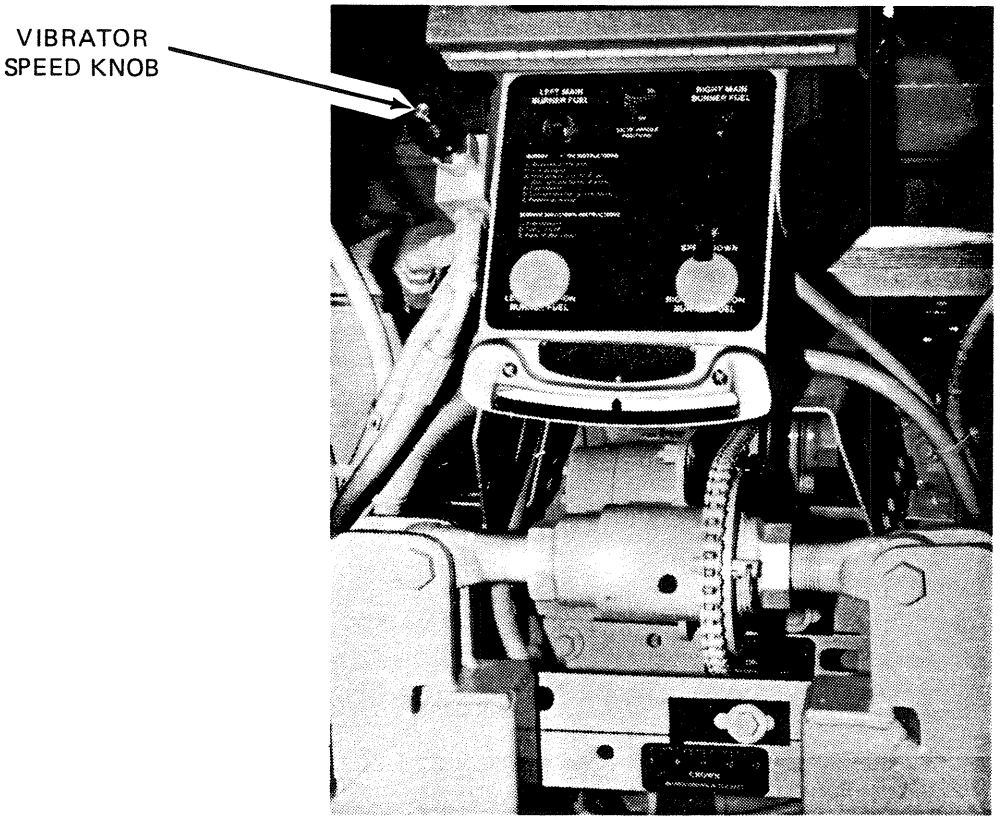


End Gate Mounted to Optional Power Strike-off
Figure 24

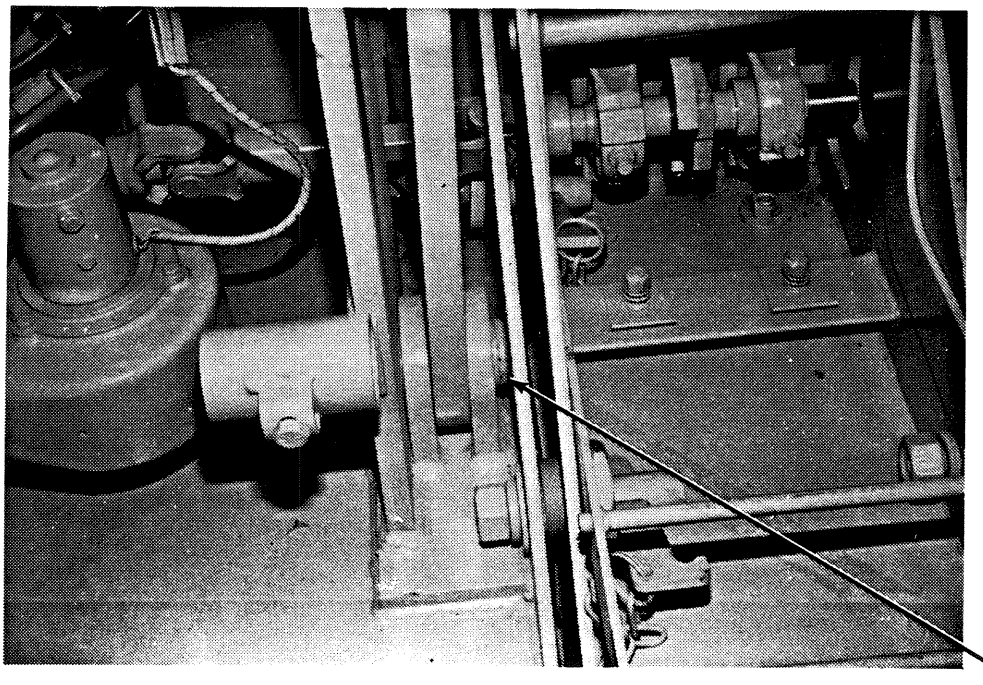
Cedarapids



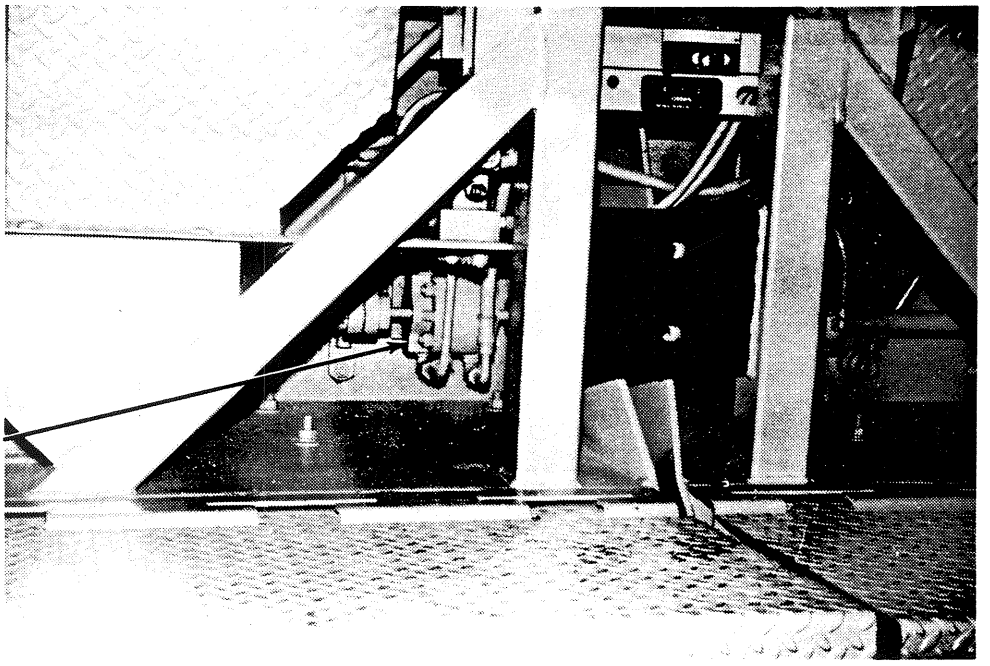
Burner Air Flow Control
Figure 25



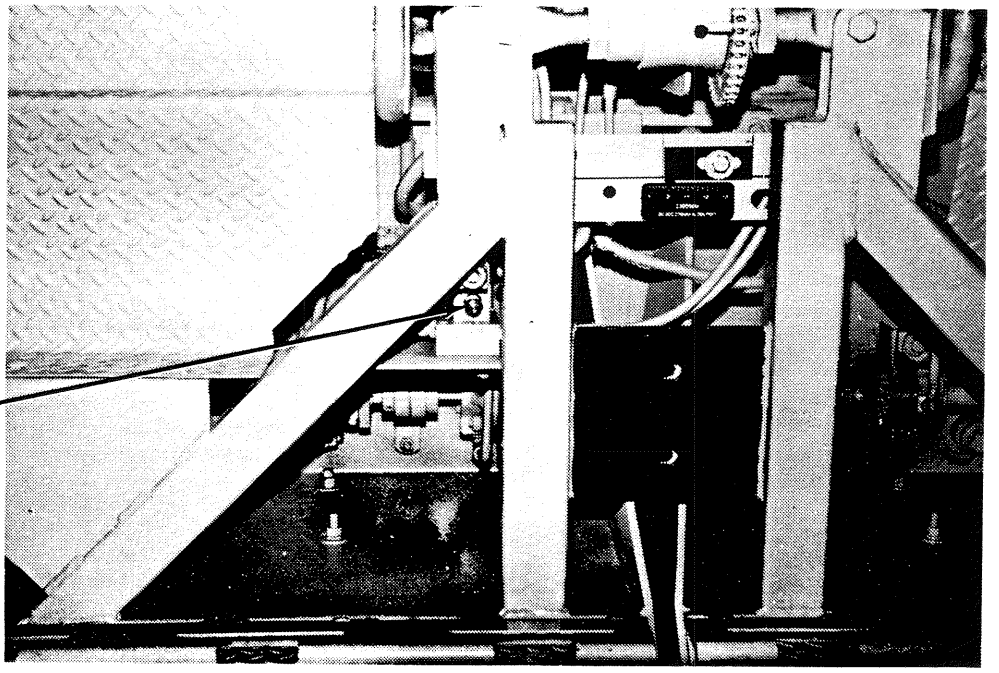
Vibrator Speed Knob
Figure 26



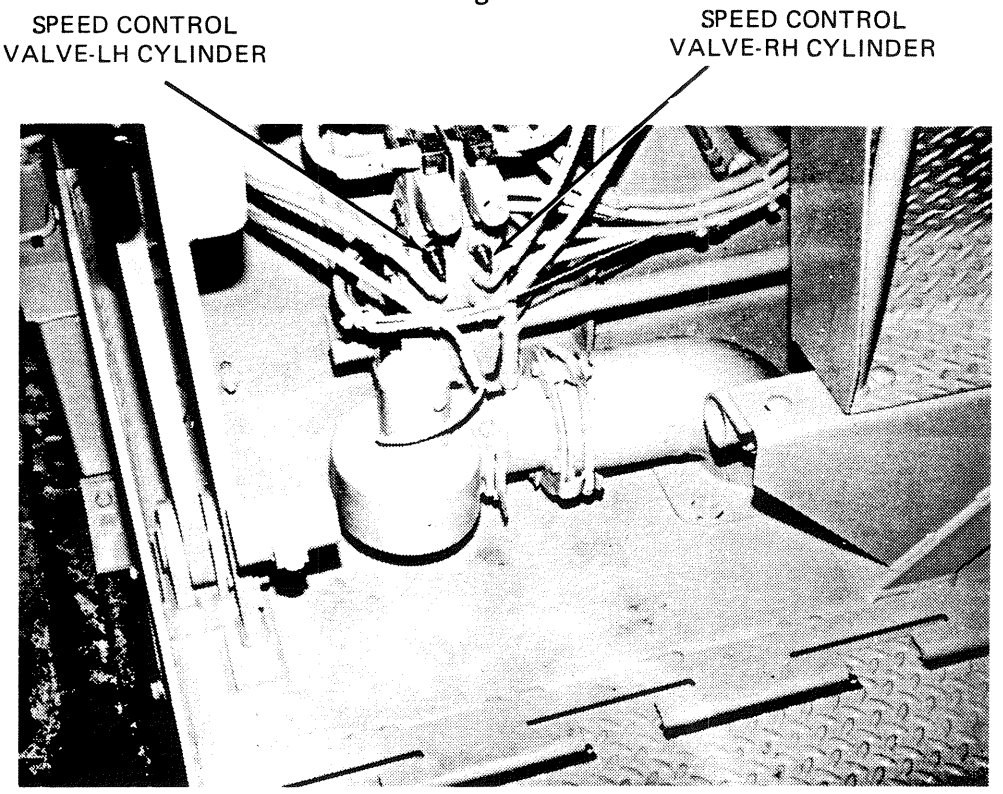
Screed Hinge Bolts
Figure 27



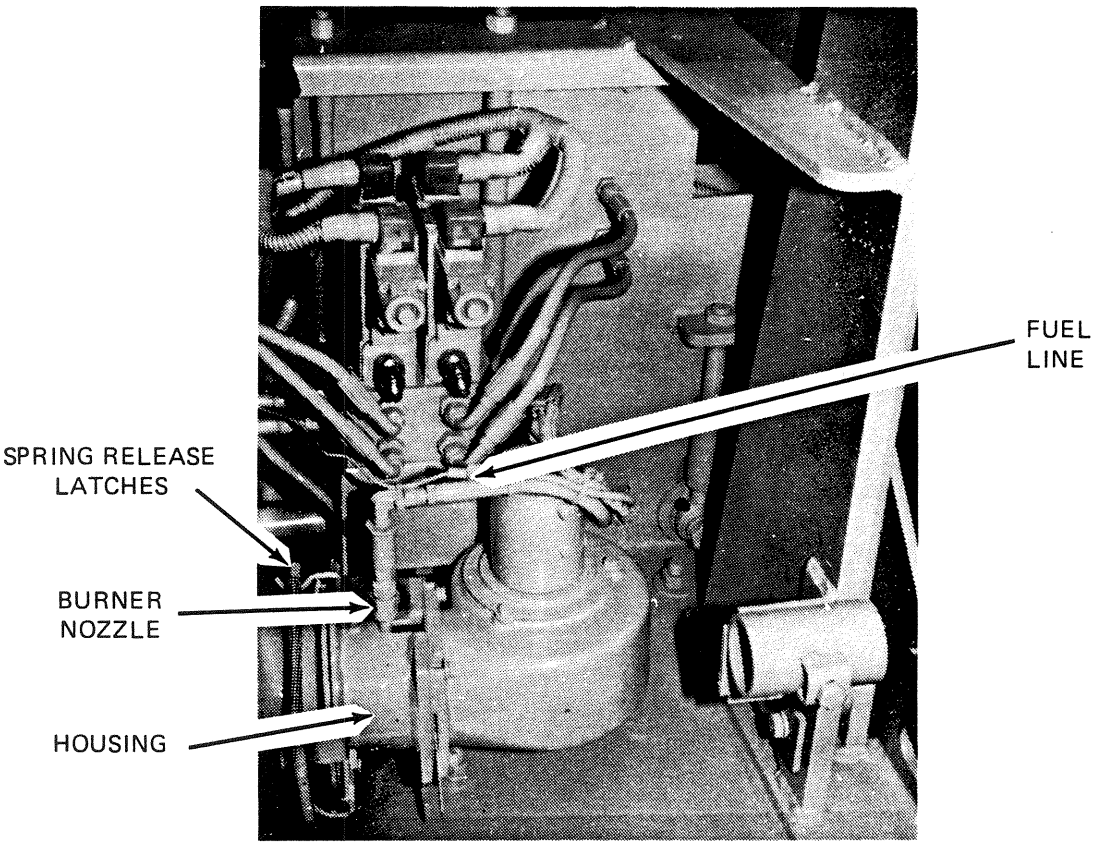
Screed Vibrator Motor
Figure 28



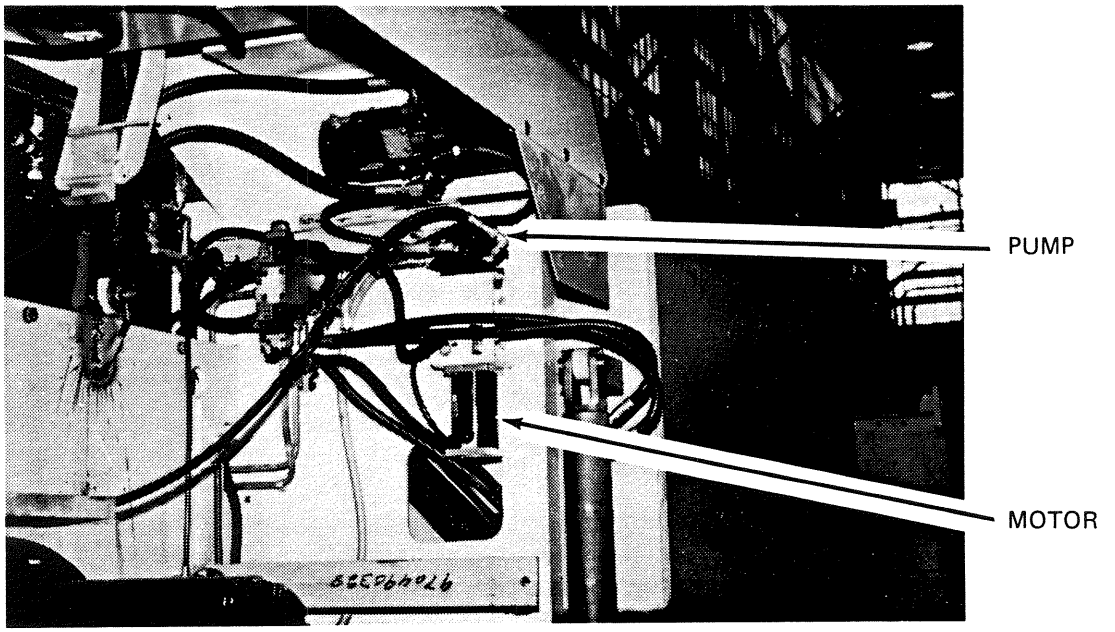
Power Crown Valve Bank
Figure 29



Power Strike-off Valve Bank (Optional)
Figure 30

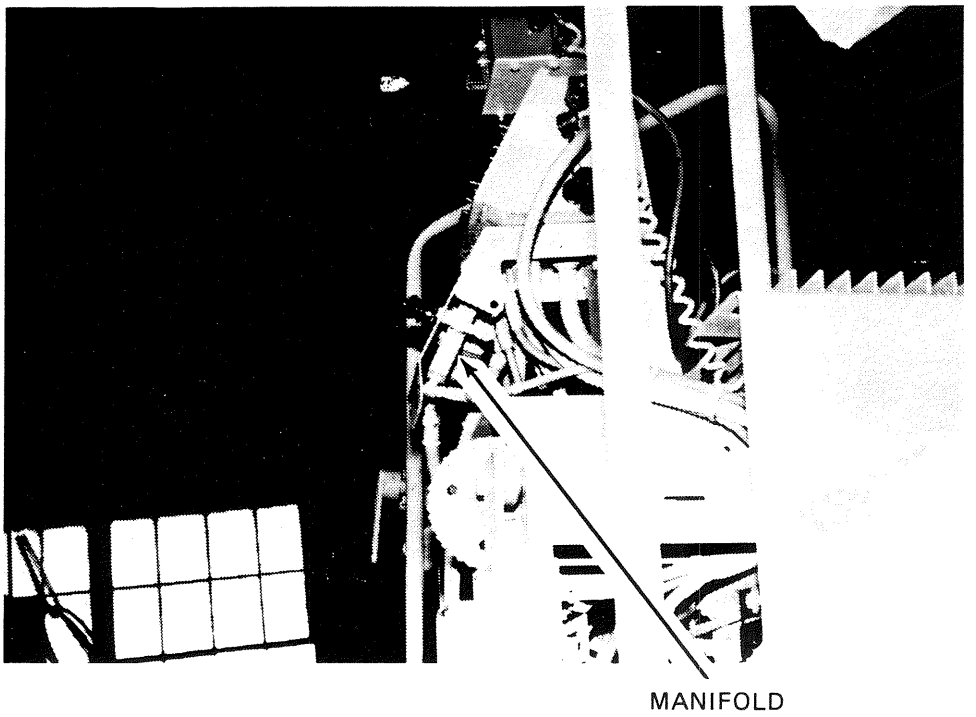


Burner Nozzle and Housing
Figure 31



Burner Fuel Pump and Motor
Figure 32

Cedarapids



Burner Valve Manifold
Figure 33