



BRIDGE DECK FINISHER SET-UP GUIDE

BDF4836 - BDF6036 - BDF6048

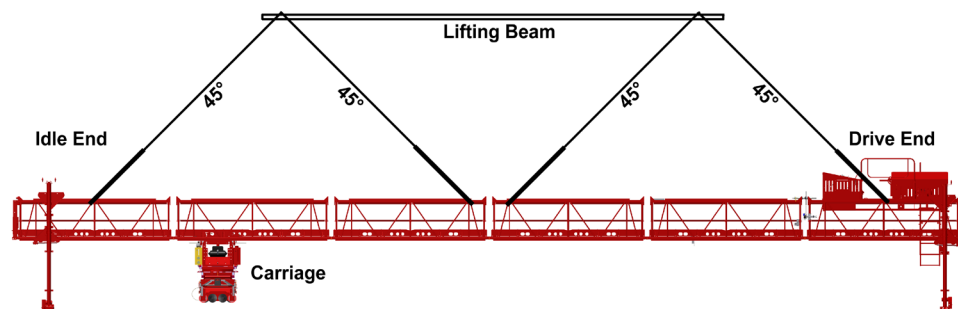
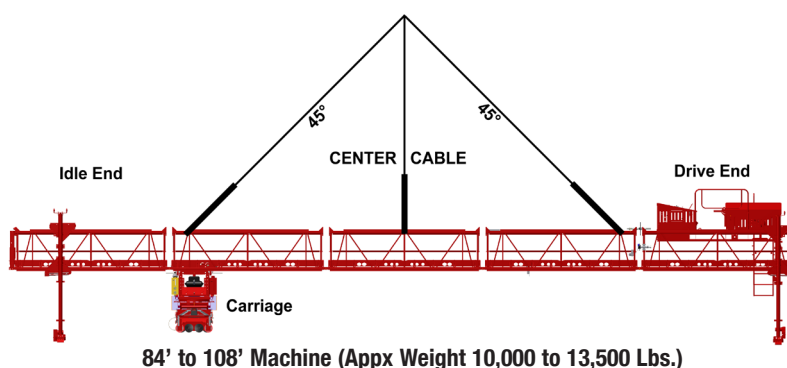
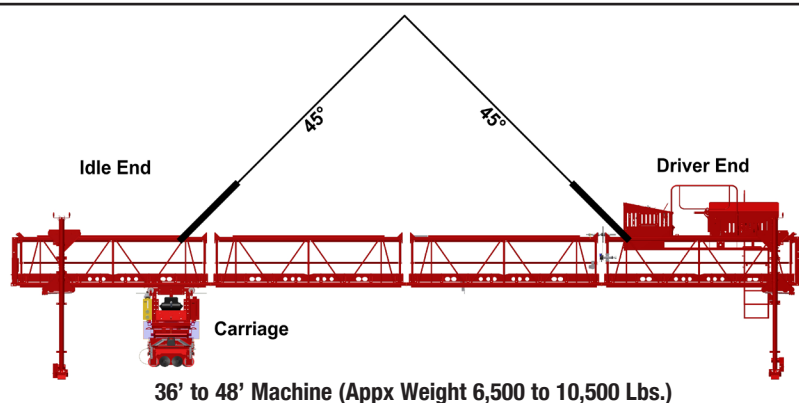
Manual Part #: 069596 | Revision: A

When Lifting Your Machine

WARNING

- Please use extreme caution when lifting the BDF. Make sure crane or lifting equipment has enough capacity to lift the weight of the machine. Please make sure all lifting apparatus, straps & cables are free from structural damage and are rated for the proper lifting capacity.
- Please make sure all ground personnel are clear of danger while the machine is being lifted.
- **LOCK** all (4) legs prior to lifting the machine as they could roll causing an unbalanced load and personal injury.
- **ALLOWING** the weight of the machine to rest on the carriage paving rollers **WILL** cause damage to the carriage or the paving rollers, **ALWAYS** place blocks under end-frame
- **ALWAYS** attach **LONG** safety ropes or tag lines to the ends of the machine prior to lifting.
- Position the paving carriage opposite the power unit end to provide a balance lift for the machine.
- Lifting straps are provided. Please be aware of the lifting capacity for all straps.
- Lifting angles should not be less than 45° from horizontal. **SEE PICTURE 1 BELOW**
- If using a center cable, **CAUTION** should be taken when adjusting the length.

PICTURE 1



When Loading & Transporting Your Machine

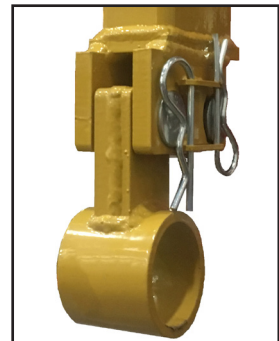
- CHECK all height restrictions prior to loading the machine as all Drop-Deck trailers and flat-bed trailers have different dimensions. Paving Carriage may need to be removed for legal transport. Tighten the leg clamps on the four legs (SEE PICTURE 2).
- DO NOT secure the BDF to the trailer over the truss frame in the center of the machine. Use the tie-down loops on the end frames (SEE PICTURE 3) of the machine using chains.
- Tighten the chains by pulling towards the center of the machine.
- When loading **with** Bogie Wheel Frames attached to the legs – **IT IS IMPORTANT** to keep the frame & bogies elevated above the trailer bed. Multiple 2 x 4's or a 4 x 4 block needs to be placed in between the bogie wheels and under the bogie frame (SEE PICTURE 4). Screw or nail the wood to secure it to the truck bed.
- When loading **without** Bogie Wheel Frames - Place multiple 2 x 4's or a 4 x 4 the width of the trailer under the leg yokes on both ends of the machine (SEE PICTURE 5). Secure the wood by screwing or nailing it to the truck bed.
- When loading the machine with the Paving Carriage attached - block the carriage so that the machine or carriage weight does not rest on the paving rollers. Place the blocks under the end frames of the carriage and nail them to the deck. (SEE PICTURE 6). With the carriage frame now setting on the blocks, adjust the hold down rollers, located on the carriage hanger frame at the top of the carriage, to the lowest position. Using the leg cranks or power leg option, lower the machine just enough so that the carriage rollers are not tight against the carriage rail. This allows movement of the machine truss while transporting and will not cause damage to the carriage rail. If the paving carriage is loaded separately, block the carriage in the same manner under the end frame and secure the carriage to the truck.

PLEASE NOTE: Whether transporting with or without carriage, the carriage rollers cannot rest on the trailer bed and need to be blocked under the end frames.

Picture 2



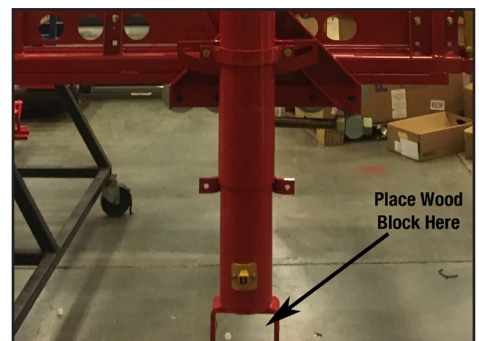
Picture 3



Picture 4



Picture 5



Picture 6



Placing Screed Rail & Paving Forms

The screed, pipe rail, and concrete paving forms provide the longitudinal profile of the paving surface and the proper set-up is as equally important as the machine operation.

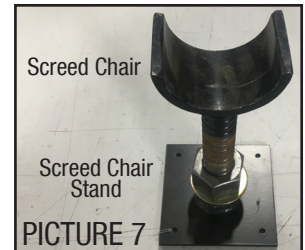
- The set-up is what determines the longitudinal profile of your roadway paving or bridge deck surface.
- There are two screed rail setups for bridges. The engineer or DOT specifications will determine if the BDF will ride on the pipe located on the edge forms or on the pipe located on the bridge girders.

FIRST TYPE OF BRIDGE DECK SET-UP:

- Look at the type and spacing of the overhang brackets if the machine is riding on forms and refer to the manufacturer's specifications for size of overhang brackets and spacing. **Consult with the factory about your machine weight and wheel loads.**
- Once the BDF loads have been determined, THIS will dictate placement of the Screed Rail.
- The Rail position must be accurate and conform to the grade required. Allen Engineering recommends 2-inch schedule 80 pipe with a sleeve at one end to connect two sections of pipe together.
- 24 inches on center is the recommended spacing for the screed chairs. (Special situations may have a maximum 30 inches).
- The rails and chairs should be double checked after placing the machine on the deck.
- After the BDF has been set on the deck, it will need to run up and down to take out any timber crunch or settling of the form work.
- Double check the form-work again.

SECOND TYPE OF BRIDGE DECK SET-UP:

- When the machine is riding on bridge girders you will need to fabricate a screed chair stand that will be epoxied or welded to the beam or a girder plate (SEE PICTURE 7)
- We recommend you tie the vertical tube to the rebar mats for stability.
- The top of the vertical tube will be below the finished surface grade.
- The screed rail needs to be adjusted to conform to the longitudinal profile which can be accomplished in various ways.
- A folding ruler or tape measure with the use of a level can be used to determine the quarter points on the deck to the top of the screed rail.
- Pulling a string-line between the 2 points or measuring from the grade-line on the form to the top of the screed pipe to set the grade of the pipe.
- Remember this is just an initial setup at this time and the rails and chairs should be double checked after placing the machine on the deck.
- Double check the form-work again.



PAVING FORM SET UP:

- A strong solid sub-base is required for all concrete paving forms to sit on to prevent the paving forms from sinking into the sub-grade causing an improper grade profile.
- Allen recommends our Steel Forms or forms designed and engineered to carry the weight and load of the paver. The BDF will be outfitted with flat flange poly-bogie wheels with a 3-inch width to ride on the top of the paving form.

BDF Assembly & Set-up

Your BDF assembly process can be performed by a 2-3 person crew with the help of an Allen Field Technician. Typically: one operator and two ground people. A crane or capable lifting device will be required, along with an impact tool, crescent wrenches, socket set and various hand tools for the nuts & bolts assembly. Depending on the complexity of the project, this can/may take 1-3 days.

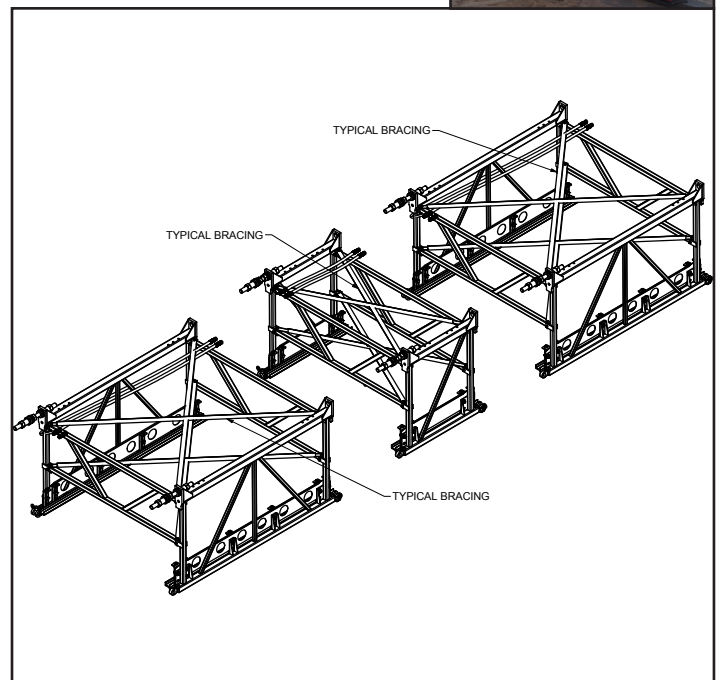
INSERT ASSEMBLY

- A level working area is required and necessary for the proper assembly of your BDF in a safe working environment.
- Know where your crown is located and what insert sizes will be needed for the proper assembly.
- It may be required to assemble additional inserts separately.
- Always move the carriage to the power unit side when adding additional inserts.
- To reduce machine frame stress, when extending to lengths greater than 55'-60', install the smaller size inserts (3', 4' 5' 6' 7', 8' 9' etc...) on the two end sections of the machine.
- Loosen the chain tightener to disconnect the carriage travel chain and also remove the chain master link, then pull the chain over the top of the idler sprocket, roll up the chain to keep from tangling and place it near the paving carriage.
- Roll up the hydraulic hoses that stretch across the top of the machine for the travel bogies & power legs on the idler end of the machine and place near the power unit end
- Additional frame inserts are added to the machine after splitting the machine at the hinge point of the power unit section.
- The power unit end needs to be supported at the hinge point some type of support which could be constructed with scaffolding, barrels, I-beams etc.
- **PLEASE MAKE SURE the power unit end is secure and stable and the support is strong enough!**
- Attached lifting straps to the idler end of the machine and remove the crown bolts at the top of

the truss frame and the hinge pins on the bottom of the truss frame and can be placed out of the way for additional assembly.

- Add the required insert sections for proper length & deck layout on the power unit insert and connect the idler end section of the machine.
- Lubricate the crown bolt when attaching the inserts together.

CAUTION - Prior to removing the paving carriage chain PLEASE secure the carriage by attaching vise grips on each side of the carriage rail rollers. This will prevent the carriage from moving when the chain is removed when adding additional inserts.



BDF Assembly & Set-up

INSTALLING/REMOVING THE PAVING CARRIAGE – At times it is necessary for transport, different paving direction or winter storage to remove the carriage from the machine frame.

- With the paving carriage frame resting on wood blocks remove the carriage hanger frame bolts and move the machine clear of lower paving carriage.
- Move the BDF over the top of the lower paving carriage so that the hanger frame is centered over the (4) carriage hanger frame bolt holes.
- Using the leg cranks or power legs, lower the machine down until the bolts are seated in the nuts
- Adjust the bottom thrust or hold down rollers that the rollers can turn easily by hand.
- The carriage chain will prevent the carriage from moving when the BDF is lifted onto the pipe rails.
- Once the carriage travel limits have been determined install the reversing paddles.

IF BOGIES WERE REMOVED FOR TRANSPORT:

- Raise the machine high enough to install the bogie frames onto the yokes at the base of the machine legs.
- Install the drive bogies on the rear side and the idler bogies on the front side of the machine
- The power bogie drive chain protection shield should be on the outside, but can be placed on the inside, depending on clearance.
- **PLEASE MAKE SURE all hoses are connected so**

that the direction of machine travel is as indicated on the control console.

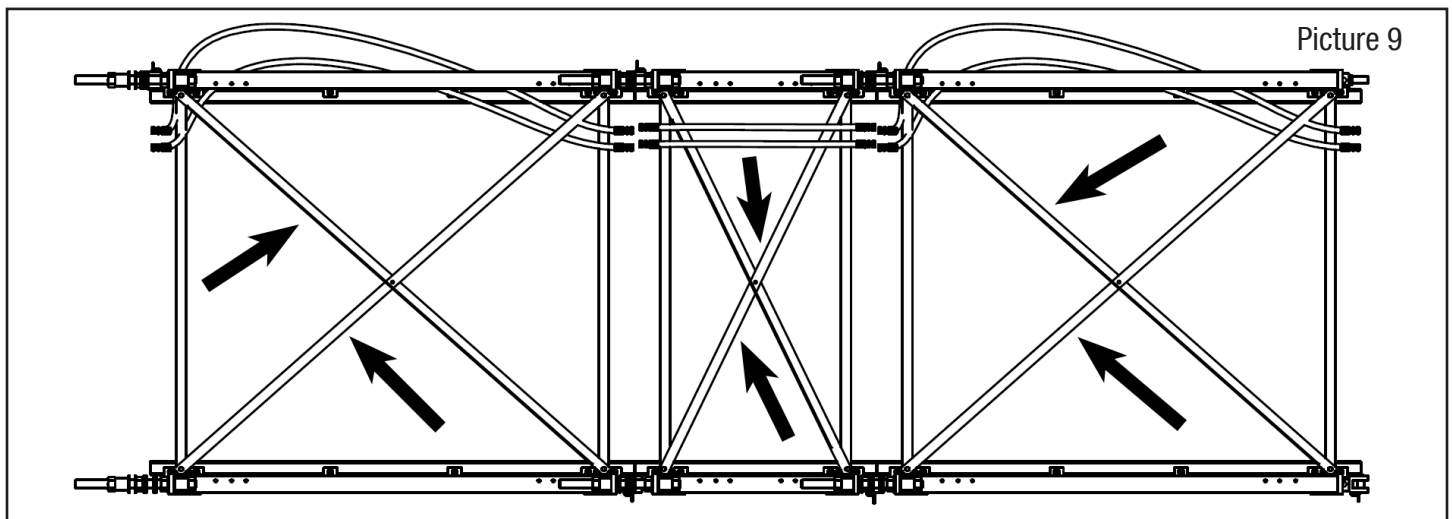
- It may be necessary to reverse the hose connections to correct the direction of travel.

MACHINE LEG ADJUSTMENT

- Adjust the machine leg distance to match the center to center distance between the pipe rails.
- Check and adjust the height of the legs so that the paving carriage will clear the deck rebar when the machine is placed on the rails.
- Check and adjust the height of the legs so that the BDF frame will clear the barrier rebar when the machine is placed on the rails.
- Position the bogie wheels for clearance of any reinforcing steel.

SQUARING TRUSS

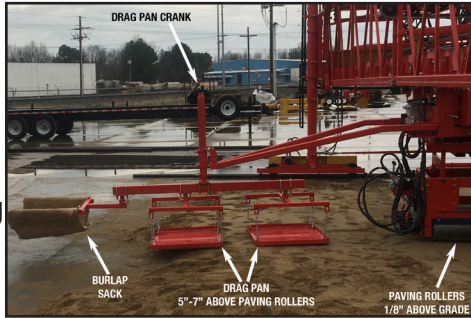
- After the machine has been placed on the pipe rails move the carriage to the center of the machine truss.
- All four legs of the machine must be set to the same height to assure that the truss does not have a twist.
- Measure the distance between the bottom or top of the carriage rail and the top of the screed rail or paving form.
- Adjust the height using the machine leg cranks or power up/down until all four corners are equal. SEE PICTURE 9



BDF Assembly & Set-up

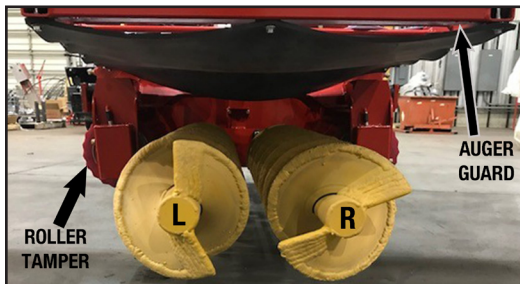
DRAG PAN INSTALLATION

- Attach the drag pan hanger bracket to the upper carriage mount on the top of the paving carriage
- Assemble the drag pan & burlap drag.
- Adjust the angle of the rectangular mounting tube so that it is straight.
- Using the crank handle, adjust the “H” Frame of the drag pan so that it is 5” to 7” above the bottom of the paving rollers.
- Attach the drag pan chain links even into the bracket on the fifth link (SEE PICTURE).
- Pivot the carriage so the tube is parallel to the centerline of the deck and adjust the bolt so that it holds the tube parallel as it travels across the deck.
- Repeat procedure with the carriage pivoted in the opposite direction and tighten the jam nuts to hold bolts in place.



AUGER INSTALLATION

- GREASE the auger shafts and slide the augers onto the shafts.
- Looking at the front of the carriage, slide the clockwise auger onto the right-hand shaft and the counter clockwise auger onto the left-hand shaft.
- Tighten auger hardware and mount the safety auger guard assembly (SEE PICTURE).
- Turn the auger adjusting crank and set the augers 1/8” to 1/4” above the bottom of the paving rollers as a starting point.



- **NOTE: Grease the auger shafts.**

STRAIGHTENING THE MACHINE

- When the attachments have been installed on the paving carriage, maximize machine weight by filling the gas and hydraulic tanks.
- Be sure that the paving carriage has been moved to the center of the machine to align and straighten the machine frame.
- Adjust the gap in between the frame sections by raising or lowering the machine truss by adjusting the crown bolts so that the distance matches top and bottom, also use line of sight or a string-line to make sure frame is straight. (SEE PICTURE)
- With the manual crown adjuster, both sides of the truss can be adjusted on either side by turning the nut (SEE PICTURE).



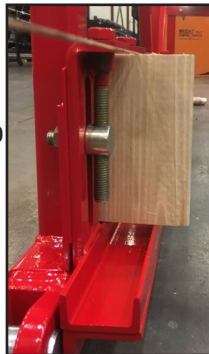
BDF Assembly & Set-up

STRAIGHTENING CARRIAGE RAIL

- For string-lining the carriage rail, use nylon masonry line.

DANGER: USE ONLY STRING-LINE PROVIDED WITH BDF

- Attached the string-line from eye bolt to eye bolt on each end of the BDF. These are located at the base of each end panel. DO this step for both sides of the frame.
- Tighten the string-line by pulling it taut with no sag. It may be necessary turn the eye-bolts to gain additional tension on the string (NO SAG)
- The carriage rail adjuster lock nuts need to be loosened to allow movement of the carriage rail. CAREFUL not to make them too loose.
- You will need (4) - 2" x 6" wood blocks, use the factory edge for the string-line to rest on & the other factory edge resting on the carriage rail (SEE PICTURE).
- Any number of items can be used to check the carriage rail height to the string-line – Wood block, chamfer strip, grade stake.
- Adjust the carriage rail holder bolt up or down so that the carriage rail matches the same height across the frame.
- When the carriage rail adjustment has been completed and looks straight, tighten all of the carriage rail locknuts. SAME ON BOTH SIDES.



- Align the paving rollers so that they are parallel with the upper carriage.
- Use a level, metal bar or string-line across the top of each side of the upper carriage from carriage rail to carriage rail.
- Place a 4'-6' long straight edge or level across the top or the bottom of both ends of the paving rollers.
- Measure the distance from the top of the carriage rail to the bottom of the paving roller, which is top of concrete grade and make sure this is the same on all 4 roller corners.

ADJUSTING THE PAVING ROLLERS

- To adjust the elevation of the paving rollers, ONLY loosen the bolts on the front of the carriage holding the roller bearing.
- Also, ONLY loosen the bolts that support the motor mount plates on the back of the lower carriage.
- Using a tape measure or wooden ruler, measure down from the string-line to the top of the straight edge or level.
- The distance must be the same at all four corners.
- Adjust the elevation of each roller end by turning its adjuster bolt clockwise to raise and counter clockwise to lower.
- When all four corners are equal, the paving rollers will be parallel with the carriage rail.
- Tighten all loose mounting bolts.
- Use the auger adjusting crank and reset the augers to 1/8" to 1/4" above the bottom of the paving rollers.

SQUARING THE PAVING CARRIAGE

- Make sure that the lower carriage slide blocks make contact with the upper carriage skew ring and there are no gaps. MAY NEED SHIMS.
- Make sure that the lower carriage is in the down position and look at the blocks against the ring.
- If there are gaps, remove the cotter pin and turn the castle nut located under side of the upper - lower carriage. Also check for wear on the slide blocks, may need replacing.
- After starting the engine, engage the on/off lever to shift the lower carriage by manually pushing or pulling the reversing valve rod.
- Adjust the turntable pivot nut until lower carriage pivots freely and there are no gaps, shut off the engine and replace the cotter pin in the castle nut.

ROLLERTAMPERS

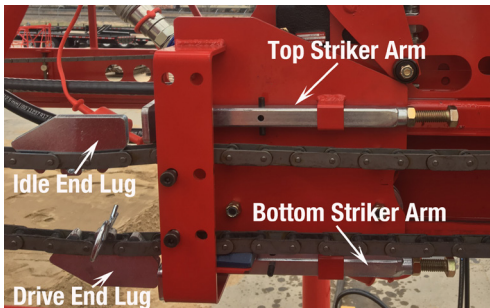
- The roller tamper drums are used to consolidate the top surface of the concrete with the desired density.
- It helps to seal hard to finish concrete with harsh mix designs and low slumps.
- It may also help to seal when dealing with wind exposure, causing abnormal surface drying and unforeseen delays in the concrete delivery.
- Place a 4'-6' level under the paving rollers and under the roller tamper drum to check the elevation.
- Loosen the locking set screws and the lock nuts for the drum adjustment on both sides of the roller tamper with the front and back set to grade.
- The drums can be adjustable from 1/2 inch above concrete grade to 3/4 inch below concrete grade.

BDF Assembly & Set-up

- The depth and penetration required will vary according to job specifications.
- Pitching the front end of the drum higher allows the roller tamper to remain parallel to the concrete surface when the rear of the machine is raised at the beginning of the pour, with the max recommended depth is 3/16 inch.

CARRIAGE TRAVEL DISTANCE

- Adjust the carriage travel distance by positioning the chain lugs on the upper and lower travel chains (SEE PICTURE).
- Manually push with your hand, the top striker plate of the shifter until the reversing valve shifts. Manually push with your hand, the bottom striker plate of the shifter until the reversing valve shifts. Do this for both directions of carriage travel.
- Place the paving carriage at the desired travel distance at the idler end of the machine and stop the carriage. Hold back the striker plate and attach the chain lug next to the striker plate on the top of the travel chain.
- Place the paving carriage at the desired travel distance at the power unit end of the machine and stop the carriage. Hold back the striker plate and attach the chain lug next to the striker plate on the bottom of the travel chain.
- Once the chain lugs have been installed, to set the paving carriage pivot shift movement on the idle end, slide a striker target or shifter paddle onto the carriage rail at the desired point the carriage needs to shift.
- After the shifting rod makes contact with target, the paving roller reversing valve will not engage at this time, TO ENGAGE the shift in the reversing valve, move the paddle approximately 1" - 2",

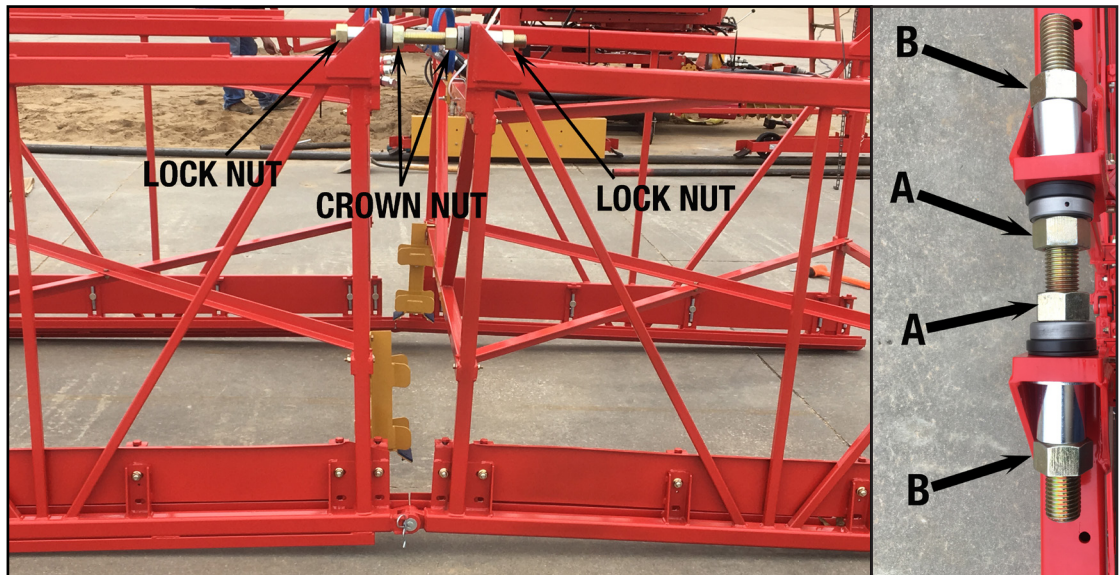


until the rod spring shifts the reversing valve and the lower carriage shifts.

- Tighten the T-Bolt to lock the Striker target or shifter paddle in place.
- **REPEAT the previous 3 steps for the power unit side of the machine.**
- The bottom thrust rollers on the hanger frame, positioned under the carriage rail can be tightened so that the rollers have a slight pressure on the carriage rail, allowing you to turn them by hand.

MANUAL / POWER / CROWN BOLT ADJUSTMENT

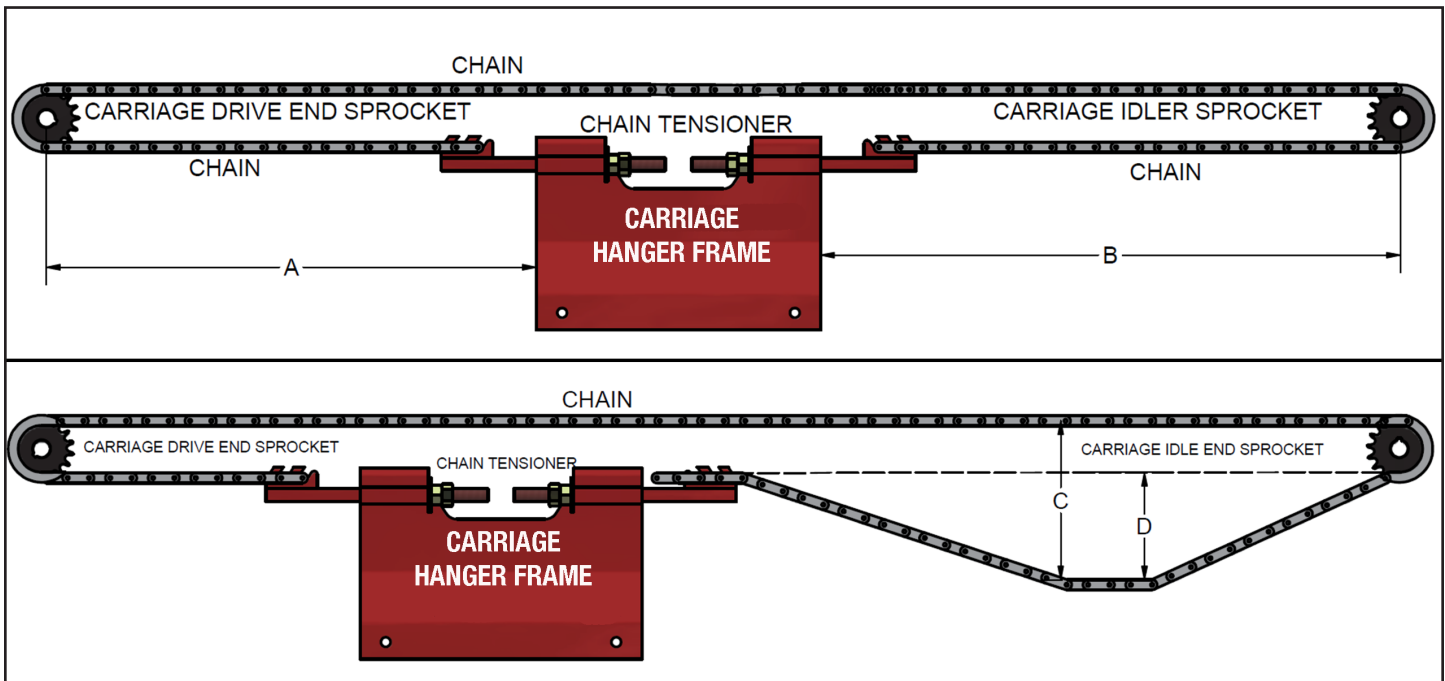
- The insert frame section hinge point or truss connection should be positioned on the machine to coincide directly above the crown center.
- The paving carriage should be moved to the crown position, allowing for deflection of the truss frame with the full weight of the carriage.
- Note the measurement from a grade point on the deck to the top of the carriage rail on both sides of the machine.
- The manual/power/crown bolts can be adjusted for the machine frame slope to the specified deck crown or center grade slope (1.5%, 2%, 2.5%...).
- For the crown bolts, adjust them ½" at a time and alternate sides (SEE PICTURE) which allows a slight shift with the angle change.
- Loosening lock nuts "B" on both sides, allows you to adjust the crown nuts "A" and vice versa..



BDF Assembly & Set-up

CHAIN TENSIONING

- The chain tightener on the paving carriage is used to equalize the tension of each the 2 carriage travel chains (SEE PICTURE).
- Make sure paving carriage is “square” with the carriage rails.
- With dual chain machines, run the carriage to the power end of the machine and verify that the distance between the carriage frame and the carriage travel shaft & sprocket teeth (Dimension “Y” & “Z”) is the same at each chain.
- To keep the carriage square, adjust the side thrust rollers.
- When determining the amount of chain sag, position the carriage to one end of the machine and measure the space between the bottom and top chain in the center of the machine on both sides (SEE PICTURE).
- Our recommendation is the chain sag should not be less than the distance for dimensions “1” and/or “2” shown below.
- Too tight and excessive chain wear may result. Too slack and excessive sprocket wear and/or improper carriage reversal may result. NOTE: dimensions are for a FLAT machine.
- Adjust for machines with a crown.



4836B DIMENSION “1”		6048B DIMENSION “2”	
Chain Span	Minimum Chain Sag	Chain Span	Minimum Chain Sag
40 Feet	7 Inches	40 Feet	3 Inches
60 Feet	9 Inches	60 Feet	5 Inches
80 Feet	11 Inches	80 Feet	7 Inches
-	-	100 Feet	11 Inches
-	-	120 Feet	16 Inches

Note: For lengths over 120' Please consult AEC Product Support

BDF Assembly & Set-up

SETTING THE MACHINE GRADE

- Position the machine so the carriage paving rollers are over the top of an armor joint, bulkhead, expansion joint or end dam for the reference point to set the machine to grade.
- By adjusting the machine legs, raise/lower the machine so that the rollers are just touching or slightly above the reference points.
- Move the carriage from one side to the other along the reference point area from one side to the other to check for consistency & clearance.
- If the grade of the paving rollers is correct, measure each of the (4) legs from the top of screed pipe to the carriage rail, these should be the same, but adjust the legs to correct any differences use the leg cranks or power up/down to correct any discrepancies.

PERFORMING THE DRY RUN

- The operator can become familiar with the controls and the operation of the machine while performing the "Dry-Run".
- The machine can travel up and down the deck and the carriage will move transversely to check armor joints, bulkheads, end dams, expansion joints. Depth checks and clearance over rebar by the inspecting personnel.
- Adjustments can be made, and typically it is in the screed pipe.

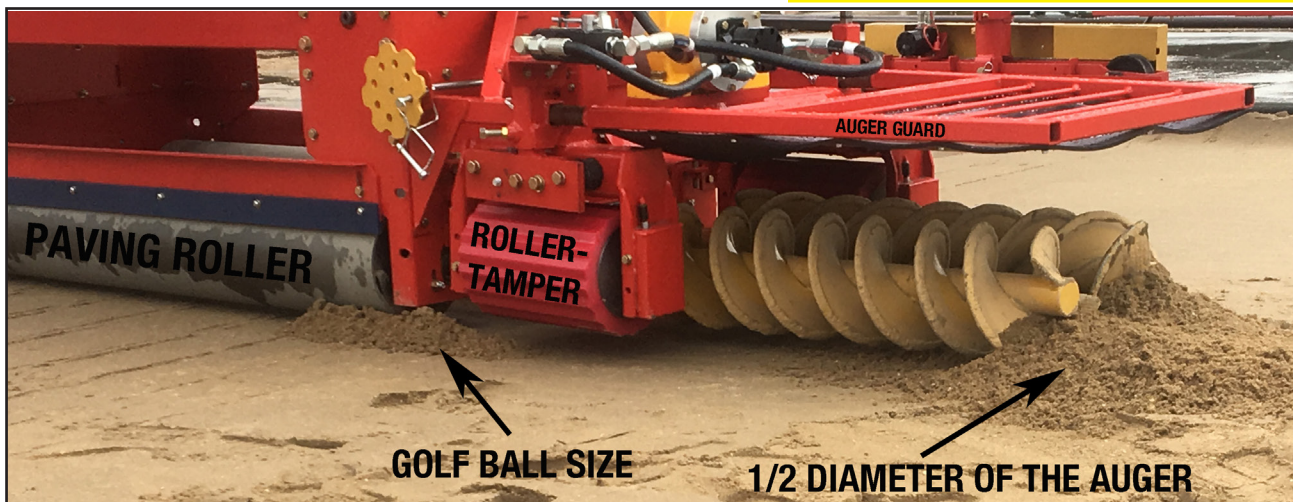
MACHINE PRE-POUR PROCEDURES

- Inspect, lubricate and grease all grease fittings and moving parts before placing any concrete.
- Coat the legs, paving carriage and frame with a protective coating on any part that will come in contact with wet concrete (**DO NOT USE FORM OIL OR DIESEL**)

- Use clean designated containers to add hydraulic fluid to the hydraulic tanks and keep any dirt or contaminants from getting into the hydraulic system, also, take care and clean all hydraulic fittings, quick dis-connects & components before any work performed.
- Follow MFG guidelines for engine services or maintenance.

SETTING THE ROLLERS AND DRAG PAN ASSEMBLY

- Once the pour has begun and the machine has moved passed over the bulkhead the full length of the paving rollers, raise the back side of the machine 1/8 of an inch 1/2 turn counter clockwise (SEE PICTURE).
- This will prevent any digging in on the concrete surface with the trailing edge of the roller, leaving a small ridge or lines.
- When the machine is raised in the back, the augers will "dip" in the front and they may need to be readjusted.
- A tennis ball to golf ball size wind roll is expected in front of the paving roller.
- Attach the burlap drag to the drag pan assembly.
- **NOTE:** With new burlap being used it is important to soak it in water for 24 hours prior to concrete placement. This will remove any residue in the burlap and allow it to be more absorbent (**KEEP WET DURING POUR**).
- If the pressure from the burlap is dragging to hard, readjust the excess around the end frame with the spikes.
- If the pressure from the burlap is too light, increase the length of the burlap by letting some excess material off the end frame.
- **If the drag pan is hopping or being dragged across the deck**

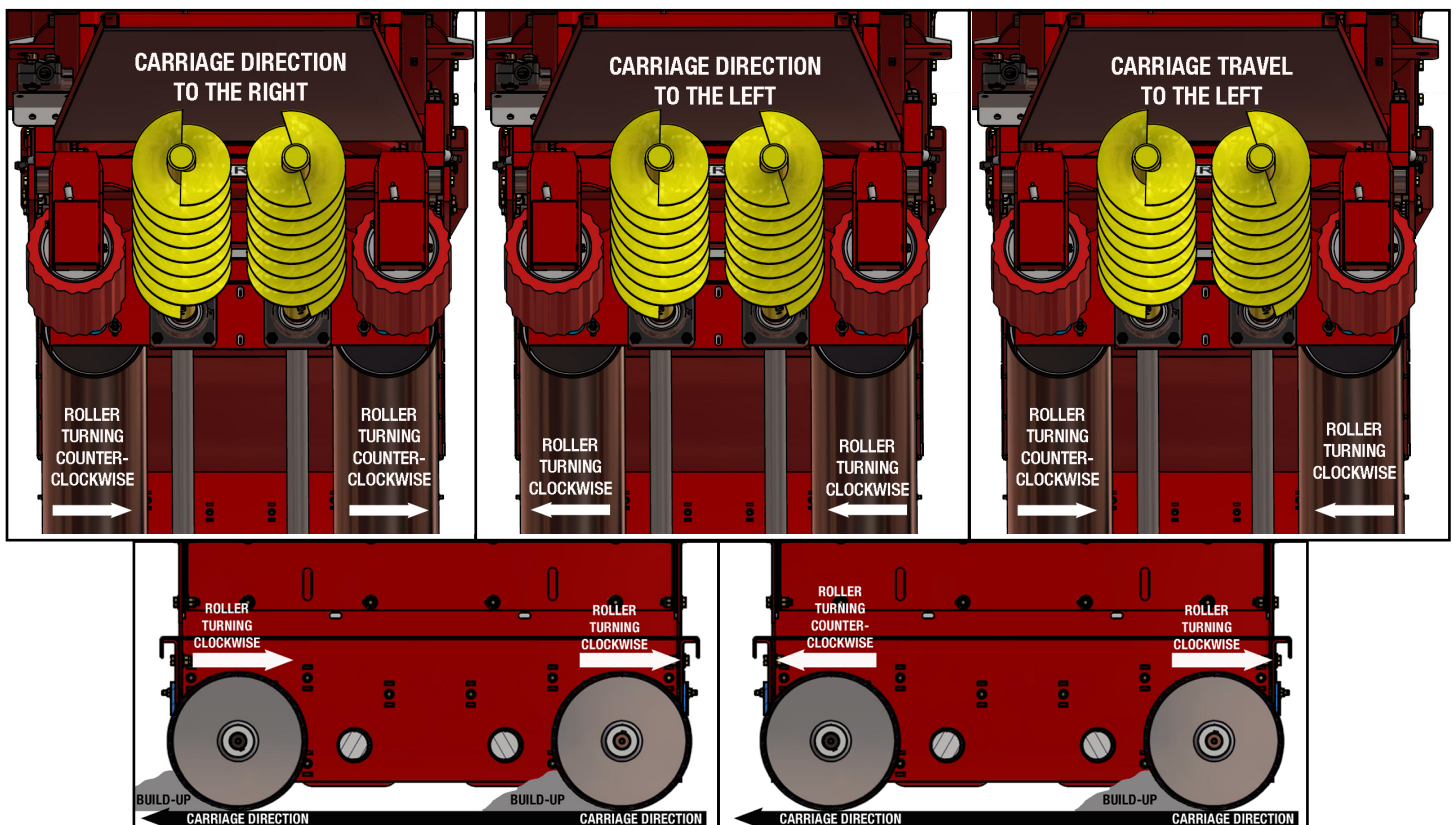


during each pass the frame assembly may be too high or the chains may be too tight.

Paving Operation

ROLLER ROTATION

- Paving roller rotation can turn either clockwise or counter clockwise or they can rotate in opposite directions.
- Rotate the rollers in the same direction for the first few passes at the beginning of the pour by using the roller directional valves, and place the two valve levers in the same direction .
- Facing the front of the carriage, the rollers will turn counter clockwise when the carriage travels to the right and clockwise when the carriage travels to the left (**SEE BELOW**).
- Have the automatic roller reversing valve in the “Reversing” position, to allow the roller direction to change with each pass of the carriage.
- When you have a few passes across the deck, change the direction of one rollers’ by putting the lever opposite of the other (**BOTH WERE IN THE SAME DIRECTION - SEE ABOVE**)
- Depending on the direction of the carriage travel, for which lever will be adjusted.
- When putting the automatic roller reversing valve in the “Non- Reversing” position causes no change to the roller direction with each pass of the carriage.
- Facing the front of the carriage, the left roller turns counter clockwise and the right roller turns clockwise.
- The leading roller will consolidate the concrete, allowing, the trailing roller to pave the surface.
- This roller rotation will allow for the highest production and sealed surface finish, when pouring a flat bridge deck or slab.
- Roller rotation direction will depend on which works better or produces the most satisfactory result due to varying slumps, mix designs, weather or other production or delivery variables.
- The carriage automatic pivot will keep the material to the front of the paving rollers during each carriage pass, preventing from trailing off to the rear of the rollers.
- A smooth transition of the pivot device can be achieved by turning the hex-key set screws clockwise or counter clockwise to allow greater flow or restrict flow on the automatic roller reversing valve



Paving Operation

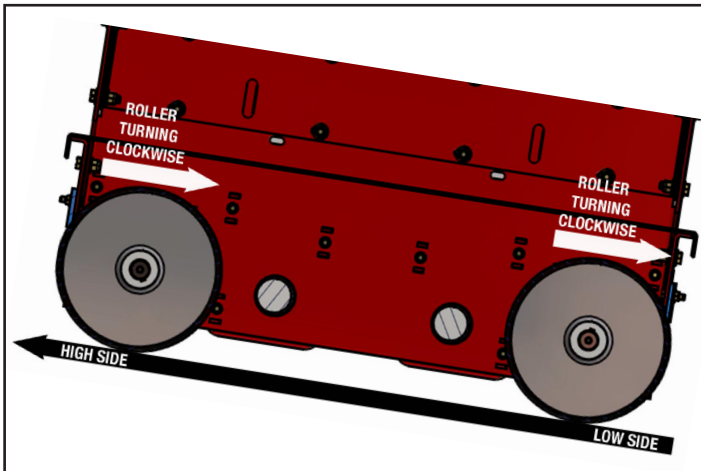
SUPER ELEVATIONS

- For super elevated bridge decks, skewed decks or slabs, the roller rotation must be turning in the same direction with the valve lever set in the “Non-Reversing” position.
- Paving carriage travel from the low side to the high side of the elevation pushes the concrete to the top and screed the material to grad (**ONLY PAVING TO THE HIGH SIDE**)
- The paving carriage rolls over the surface going down the super elevation and does not screed the surface to grade.
- Roller direction will depend on the direction of the pour and which is the high side. (SEE PICTURE)

PAVING UP & DOWN GRADES

- The rear of the paving rollers may need to be raised higher (approximately 1/8” to 1/4”) when paving up a grade or slope.

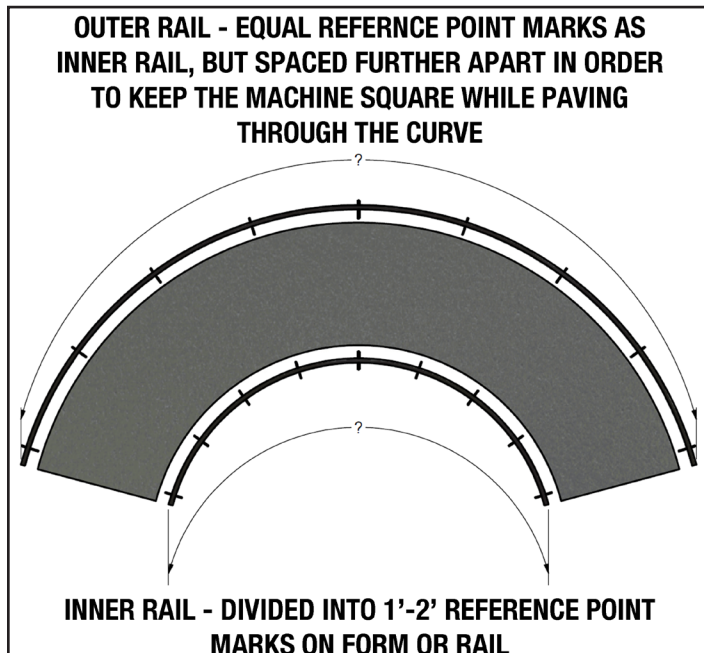
- Turn the leg crank 1/2 turn counter clockwise to raise the back of the machine 1/8 of an inch.
- With the back of the machine raised, the augers may need to be adjusted lower, watch the amount of concrete the rollers are carrying. (Use the hand crank on the sides of the carriage to adjust the auger elevation) These adjustments will counteract the tendency of excess concrete from moving downhill toward the paving rollers.
- The concrete may tend to “run-away” from the machine when paving down a grade and the augers may need to be raised higher to provide the proper amount of concrete to the paving rollers.
- The rear of the paving rollers may not need to be raised but make sure there is as much total contact with the deck or slab surface, because when paving downhill, you want maximum surface contact with the concrete but careful not to allow any ridge, excess concrete or lines to come off the rear of the paving rollers.



Paving Operation

PAVING CURVES

- Mark an equal number of spaces on the inner curve (1 to 2 feet spacing), know the length or distance of the inside.
- Count the number of spaces on the inner curve and mark the same number of spaces on the outer curve. The length of these spaces will vary with the length of the outer curve section (SEE PICTURE).
- To keep the machine square throughout the pour, the operator will at times place the machine direction control lever in the neutral position allowing a longer amount of travel for the outer curve end of the machine
- The front edge of the machine wheels of both the inner and outer ends needs to stay aligned with the marks spaced on the inner & outer rail.



MACHINE ADVANCEMENT

- The operator will pace the machine travel advancement to coincide with the placement of the concrete,
- Place concrete no more than 5 to 8 feet in front of the machine.
- Average advancement of the machine can vary from 3 to 8 inches for each carriage pass.
- In hot, windy weather, this will insure fresh concrete will move into the paving rollers before any drying occurs.
- Always keep the deck wet.

CARRIAGE TRAVEL SPEED

- Slower carriage travel will allow the paving rollers to have longer contact with the surface thus allowing the concrete to seal better and provide a more uniform surface finish result.
- When paving with high slumps or mix designs with super plasticizer, slowing the carriage travel speed will be beneficial.
- To slow the carriage travel, use the carriage speed control valve located on the operator's console.
- The engine should be running at full throttle for full RPM's. (2900 to 3300).
- This rate will allow the carriage to travel on average, approximately 80 to 90 feet per minute transversely across the machine.

Maintenance

Please contact AEC Product Support department if you have any questions regarding any service or maintenance of your Bridge Deck Paving Machine.

Daily Service:

- AFTER EACH POUR, clean the machine as soon as possible. Lightly coat the paving rollers with oil.
- Inspect engine hydraulic pump drive coupling for alignment and water.
- Check the engine oil level on both power units.
- Inspect all hydraulic hoses for damage or leaks
- Check the battery water level on both power units.

Engine Service:

Allen Bridge Deck Finishers use two engines. One engine is mounted on the stationary power unit to power machine travel and paving carriage travel. The other is mounted on the paving carriage to power the paving rollers, augers and various optional carriage accessories. Consult your Owner's Manual for recommended service procedures.

To insure the best engine performance and life, a strict schedule of routine service and maintenance is recommended. Change the engine oil after the first 50 Hours of operation and every 250 Hours thereafter.

Check the level of hydraulic oil in the oil reservoir on a daily basis. Check the oil before starting the engine. Run

the engine for a few minutes to purge any air from the lines and then check the oil again. Maintain the oil level within 2 inches of full but leave at least 1 inch of air space for expansion. The reservoir level should be checked after hose length has been added and after the machine is lengthened. Approximately one gallon of hydraulic oil is required to fill 100 feet of 1/2" hose. Use AW-68 hydraulic fluid or Hydraulic Transmission Fluid Type C-2. Do not use engine oil. Use clean containers when adding hydraulic oil to the reservoir. Take every precaution, to avoid contaminating the oil in the system. Thoroughly clean all hydraulic components before loosening or removing for repairs.

The hydraulic oil filter element(s) should be replaced with a 10 micron filter element after the first 50 hours of operation and every 300 hours thereafter. Replace hydraulic filters each time the hydraulic oil is replaced.

Before paving or transporting the machine, secure all hoses to keep them away from sharp edges and moving parts. Before connecting hoses clean the quick disconnects and fittings.

LUBRICATION SCHEDULE

DAILY

POWER UNIT

Hydraulic Oil Reservoir	Inspect	Engine Oil SAE 30, MS SD or SE - Add oil if necessary.
Engine Crankcase	Inspect	See engine manufacture recommendation - Add hydraulic oil if necessary.

PAVING CARRIAGE

Carriage Wheels	Lubricate	NLG1-2 Lithium Base Grease - Lubricate slowly until excess lubricant is observed.
Carriage Hold Down Rollers	Lubricate	NLG1-2 Lithium Base Grease - Lubricate slowly until excess lubricant is observed.
Auger Bearings	Lubricate	NLGI-2 Lithium Base Grease - Lubricate slowly until excess lubricant is observed. Grease bearings immediately after pour to flush concrete from bearing seal.
Paving Roller Bearings	Lubricate	NLGI-2 Lithium Base Grease - Lubricate slowly until excess lubricant is observed. Grease bearings immediately after pour to flush concrete from bearing seal.

Lubrication Maintenance

LUBRICATION SCHEDULE		
Reversing Valve Slide Bracket	Lubricate	NLGI-2 Lithium Base Grease - Lubricate slowly until excess lubricant is observed, approximately 5-6 pumps.
Hydraulic Oil Reservoir	Inspect	68 Hydraulic Oil - Add hydraulic oil if necessary. Replace oil filter with a 10µm filter element after the first 50 hours and every 250 hours thereafter.
Engine Crankcase	Inspect	Replace oil filter with a 10 micron filter element after the first 50 hours and every 250 hours thereafter.
LEGS & TRAVEL BOGIES		
Power Leg Screws	Lubricate	NLGI-2 Lithium Base Grease - Lubricate slowly until excess lubricant is observed, approximately 5-6 pumps.
Bogie Wheels	Lubricate	NLGI-2 Lithium Base Grease - Extend Inner Leg 5 Inches. Apply 5 to 10 pumps of grease. Retract leg to its original position.
CONTROLLER		
Controller Cam Rollers	Lubricate	Engine Oil SAE 30, MS SD or SE
Controller Sliding Parts	Lubricate	L88023 "Anti-seez" or graphite filled grease. - Brush L88023 "Anti-seez" around slots and on main controller rail and striker arms. Apply to finishing roller reversing rod.
Idler Sprocket Bearings	Lubricate	NLGI-2 Lithium Base Grease - Lubricate slowly until excess lubricant is observed.
EVERY 25 HOURS		
POWER UNIT		
Engine Crankcase	Replace	Engine Oil SAE 30, MS SD or SE - Add oil if necessary.
PAVING CARRIAGE		
Engine Crankcase	Replace	Engine Oil SAE 30, MS SD or SE - Add oil if necessary.
LEGS & TRAVEL BOGIES		
Drive Bogie Axle Bearings	Lubricate	NLGI-2 Lithium Base Grease - Lubricate slowly until excess lubricant is observed.
Bogie Drive Chains	Lubricate	Chain Lube
CONTROLLER		
Carriage Travel Chains	Lubricate	Chain Lube
AS REQUIRED (AT LEAST ONCE A YEAR)		
POWER UNIT		
Hydraulic Oil Reservoir	Replace	68 Hydraulic Oil - Remove and clean suction screen. Replace oil filter element with a 10 micron element every 300 hours.
PAVING CARRIAGE		
Hydraulic Oil Reservoir	Replace	68 Hydraulic Oil -Remove and clean suction screen. Replace oil filter element with a 10 micron element every 300 hours.
LEGS & TRAVEL BOGIES		
Manual Leg Screws	Lubricate	NLGI-2 Lithium Base Grease - Disassemble leg and brush grease onto leg screw and fill leg thrust bearing with grease.
Leg Rollers	Lubricate	NLGI-2 Lithium Base Grease - Remove leg rollers and work grease into bearings.

Troubleshooting

SYMPTOM	CAUSE	REMEDY
FINISHING		
Concrete is pitting behind roller tubes (Tubes plowing concrete)	Too much concrete in front of tubes	Lower Augers
	Concrete is drying out	Slow the concrete delivery in front of machine to allow machine to keep up.
Concrete is pitting behind roller tubes (no concrete is in front of the leading tube)	Augers are too low, starving the roller tubes	Raise the augers to allow more concrete to tubes
Roller tubes are leaving a line	Rear of tubes are too low	Raise rear of machine 1/8" - 1/4" using leg cranks
Finish behind drag pan is not sealing up	The concrete is too dry due to wind or temp.	Burlap must remain wet at all times. Pre-wet the burlap 24 hours before use.
Drag pan leaves an indentation near edge on the return shift	Too much additional weight in pan	Remove some or all weight from the drag pan
	Drag pan not being pulled straight	Verify that all chains are set to same length
	Pan bracket set too high above concrete	Set bracket height to approximately 6" above surface
Finish is wavy behind tubes	Carriage bouncing caused by too much space between carriage pivot blocks and ring	Tighten pivot nut or shim wear blocks until contact is made with ring
MACHINE OPERATION		
With machine in "Pave" mode, the engine loads up and carriage does not move	Hoses on shifter mechanism are not connected correctly	Connect hoses correctly on shifter
	Cam arm follower on shifter is not in "Pave" position	Check for any obstructions and check tension on cam arm follower
Loss of hydraulic power or speed	Low hydraulic fluid in reservoir	Fill hydraulic reservoir to within 2" of top
After shutting engine down it will not restart	Engine has water in fuel or has run out of fuel	Drain fuel and replace with unleaded non-ethanol fuel. Change fuel filter if needed
Carriage travels more on drive end in automatic	Upper rail on shifter requires adjustment	Adjust upper rail on shifter down
Carriage doesn't slow enough before reversing and slams into shifter	Adjustment in cam arm is required	Adjust cam arm
Loss of speed or power in carriage drive motors	Clevis on reversing valve	Clean threads of debris and adjust if needed
	Screw on end of spool is backing out	Add Locktite, reinstall and tighten
	Reversing valve is worn or faulty	Replace valve
	Carriage drive motor	Replace drive motor

Troubleshooting

SYMPTOM	CAUSE	REMEDY
Carriage slows and stops but will not regain speed	Cam arm on shifter is not adjusted correctly	Adjust cam arm or upper rail
	Reversing valve not shifting correctly	Check reversing valve for proper function and correct if needed
	Distortion in valve body could restrict spool if bolts are too tight	Loosen bolts one at a time
Machine will advance manually but not in "Pave" mode	Check valve could be stuck	Tap check valve and replace if recurs
	Cam arm is set in wrong position	Cam arm is too far one way and needs to be adjusted
Augers are functioning normally, but tubes are stopping under load	Reversing valve could be contaminated affecting relief or relief is set too low	Disassemble relief and clean. Set pressure to 1200psi. (Verify pressure before performing this)
	Reversing valve may be damaged or tube motor is damaged or worn	Replace reversing valve or motor
In one direction tubes function correctly but after shift and direction change, tubes stop	Quick disconnect fitting is malfunctioning	Change quick disconnect
Tubes are operating under load but augers are not	Augers are seeing too much concrete	Lessen amount of concrete in front of augers
	Motor for auger is damaged	Change auger motor
	Quick disconnect is faulty on auger hose	Change quick disconnect fitting
There is noise coming from tube bearings and bearings are extremely hot. Tubes may be stopping under load	Tube bearings are damaged and need replaced	Replace bearings
Tubes do not automatically reverse or carriage does not fully skew on shift	There is an obstruction blocking full travel	Remove obstruction
	Center pivot nut is too tight	Loosen pivot nut
	Center pivot shaft is binding	Take apart and clean shaft
Roller tubes and augers stop under load	Relief valve is set too low	Check relief pressure for 1800psi. If faulty, replace and reset.
Roller tubes and augers have low rpm's or low power	Pump is faulty or worn	Replace drive pump
Roller tubes spin in correct direction but carriage doesn't skew accordingly	Skew cylinder hoses are backwards	Swap hoses around on skew cylinder
Roller tubes on carriage will not auto reverse after lever is switched on reversing valve	Cartridges are stuck in the MV1 and MV2 locations on reversing valve	Replace both cartridges

Customer Notes

SYMPTOM	CAUSE	REMEDY
Roller tubes on carriage will not work in non-reversing mode once the lever is shifted on reversing valve	Cartridges are stuck in the MV1 and MV2 locations on reversing valve	Replace both cartridges
Carriage blower over relief when in auto reverse after the shift	if the carriage only works in one direction in auto reverse move, the MV1 or MV2 cartridge is stuck	Remove the 9/16 Vent Cap on both the MV1 and MV2 Cartridges. Insert a small screwdriver or allen wrench into the vent cap holes. The cartridge with the shallowest hole is the cartridge that is stuck. To get by until part is available, use small screw driver or allen wrench to manually push the cartridge spool in. If the depth is the same on both cartridges then you have successfully shifted the cartridge. The carriage will work in auto until the lever is switched.

Revision Detail

MANUAL REVISION DETAIL

REVISION #	REVISION DATE	REVISION REFERENCE #	REVISION BY
-	-	Initial Release	-
A	02/2019	-	MW

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Allen Products are covered under one or more of the following patent numbers:

U.S. Design Patents: 344,736; 400,542; 400,544; 402,998; 402,999; 403,332; 404,041; 404,042; 410,931; 413,127; 416,564; 465,897; 466,909; 474,203.

U.S. Utility Patents: 5,108,220; 5,238,323; 5,328,295; 5,352,063; 5,405,216; 5,476,342; 5,480,257; 5,480,258; 5,533,831; 5,562,361; 5,567,075; 5,613,801; 5,658,089; 5,685,667; 5,803,658; 5,816,739; 5,816,740; 5,890,833; 5,934,823; 5,967,696; 5,988,938; 5,988,939; 6,019,433; 6,019,545; 6,048,130; 6,053,660; 6,089,786; 6,106,193; 6,857,815; 5,288,166; 6,582,153 B1, 7,108,449; 7,114,876; 7,316,523; 7,690,864 B2

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