BRIDGE DECK FINISHERS

BDF4836B

SAFETY & OPERATIONS MANUAL

Manual Part #: 050362 | Revision: C
Language: English | Original Instructions

ALLEN
CONCRETE PAVERS

NOTICE

This manual, or a copy of it, must be kept with the machine at all times.
There is a manual storage container located on the machine for your convenience.

4836B Bridge Deck Finisher

SAFETY & OPERATIONS MANUAL

This manual covers the products listed below:

Part No.	Description
067210	Bridge Deck Finisher, Basic, 19’
050690	Bridge Deck Finisher, Basic, 24’
067419	Bridge Deck Finisher, Basic, 24’, T4 Diesel Engine
066700	Bridge Deck Finisher, Basic, 24’, Diesel Engine with Vibrator Tubes
068091	Bridge Deck Finisher, Basic, 30’
050695	Bridge Deck Finisher, Basic, 36’
------	Bridge Deck Finisher, Basic, 36’, T4 Diesel Engine

Table of Contents

Table of Contents, continued

Limited Warranty

Allen Engineering Corporation ("Allen") warrants its products to be free of defects in material or workmanship for:

TWO YEARS FROM END USER'S DATE OF PURCHASE

Warranty period begins on the date of purchase by the End User of the product. All warranty is based on the following limited warranty terms and conditions, including the disclaimer of implied warranties and consequential damages.

1. Allen's obligation and liability under this warranty is limited to repairing or replacing parts if, after Allen's inspection, there is determined to be a defect in material or workmanship. Allen reserves the choice to repair or replace.
2. If Allen chooses to replace the part, it will be at no cost to the customer and will be made available to the Allen Distributor, Dealer, or Rental Center from whom the End User purchased the product.
3. Replacement or repair parts, installed in the product, are warranted only for the remainder of warranty period of the product as though they were the original parts.
4. Allen does not warranty engines or batteries. Engine warranty claims should be made directly to an authorized factory service center for the particular engine manufacturer. Batteries are not warranted due to unknown treatment during transport, etc, and any battery claims should be directed to the battery manufacturer.
5. Allen's warranty does not cover the normal maintenance of products or its components (such as engine tuneups and oil & filter changes). The warranty also does not cover normal wear and tear items (such as belts and consumables).
6. Allen's warranty will be void if it is determined that the defect resulted from operator abuse, failure to perform normal maintenance on the product, modification to product, alterations or repairs made to the product without the written approval of Allen. Allen specifically excludes from warranty any damage to any trowels resulting from an impact to the rotors.
7. Impact damage to gear boxes is not covered under the Allen warranty and is deemed customer abuse.
8. Allen will pay shop labor on warranty items at the Allen Shop Labor Rate in existence on the date of the warranty claim. An Allen labor chart will determine the time allowed to complete a repair and will govern the shop labor hours that will be allowed.
9. Allen will pay freight on warranty replacement parts at worldwide standard ground rates. No warranty replacement parts will be shipped air freight at the expense of Allen. Allen only pays outbound freight charges when sending warranty replacement parts to the customer via ground service. Allen does not pay any inbound freight. However, if Allen determines this to be a warranted item, only then will Allen reimburse the customer for inbound freight at standard ground rates.
10. ALLEN ENGINEERING CORPORATION'S WARRANTY POLICY WILL NOT COVER THE FOLLOWING: TAXES; SHOP SUPPLIES; ENVIRONMENTAL SURCHARGES; AIR FREIGHT; TRAVEL TIME; LOSS OF TIME; INCONVENIENCE; LOSS OF RENTAL REVENUE; RENTAL COSTS OF EQUIPMENT USED TO REPLACE THE PRODUCT BEING REPAIRED; LOSS OF USE OF THE PRODUCT; COMMERCIAL LOSS; OR ANY OTHER CHARGES WHATSOEVER OR ANY LIABILITIES FOR DIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGE OR DELAY.
11. ALLEN ENGINEERING CORPORATION MAKES NO OTHER WARRANTY, EXPRESSED OR IMPLIED. THIS LIMITED WARRANTY IS IN LIEU OF THE WARRANTY OF MERCHANTABILITY AND FITNESS. THERE ARE NO OTHER WARRANTIES THAT EXTEND BEYOND THE DESCRIPTION ON THIS DOCUMENT.
12. No Allen employee or representative is authorized to change this warranty in any way or grant any other warranty unless such change is made in writing and signed by an officer of Allen Engineering Corporation.

Product Specifications

STANDARD UNIT

- Steel construction
- Crown changes at all hinge points or carriage rail.
- Machine automatically moves forward (0 to 12 Inches) at the end of each carriage pass.
- Machine Width .....36 Ft - (10.97 M) Can be extended to 90 Ft (27.43 M)
- Leg Span..... Max 33.4 Ft (10.18M) Min 15.0 Ft (4.57 M)
- Roller Finishing Width..... Max 31.3 Ft (9.54 M) Min 12 Ft (3.66 M)
- Jacks ..... 4 Inch Standard, Heavy duty
- Bogie Assembly (2 Wheels per Bogie)..... 3 Ft Wheel Center to Wheel Center (0.914 M)
- Power Unit.....Kohler Gasoline 25 HP

PAVING CARRIAGE

- Pivot-able mounting to allow for decks that are skewed.
- Four foot long rollers.
- Individual roller rotation selection with automatic roller reversing or non-roller reversing.
- Automatic paving carriage travel reversal.
- Adjustable Drag Pan and Texturing Drag
- Roller Tamper Vibration System
- Power Unit.....Kohler Gasoline 25 HP

OPTIONAL ACCESSORIES

- Extension Inserts - 18 Ft (5.49 M), 15 Ft (4.57 M), 12 Ft (3.65 M), 6 Ft (1.83 M), and 3 Ft (0.91 M)
- Power Assist Crown Adjustment
- Four Wheel Transport Dolly
- Adjustable Towing Tongue
- Skew Bar Kit
- Swing Out Legs
- Roller Tamper Vibration System
- Auxiliary Internal Vibrator
- Carriage Lift
- 6-Wheel Bogie System
- Bogie Wheel Selection
- Automatic Grade Control

SERIAL NUMBER LOCATION

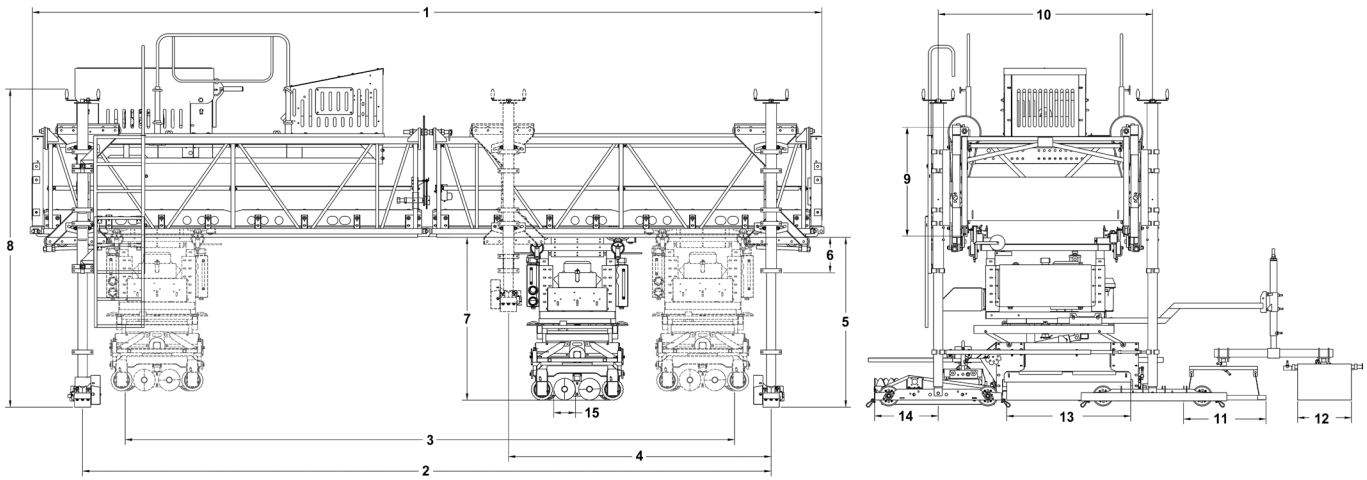
Always provide the Serial Number assigned to your machine when ordering parts or when requesting service or information. The Serial Number is stamped on Serial Plates and are located on the Power Unit and the Paving Carriage. We suggest that you write the serial number and other information below:

MODEL:_____

SERIAL NUMBER:_____

PRODUCTION YEAR:_____

Specifications, continued



KEY	DESCRIPTION	MEASUREMENT	
1	Overall Machine Length	36 Ft 6 In	11.12 M
2	Leg Span - Independently Adjustable Jack Mounts	33 Ft 3 In	10.15 M
3	Finishing Width	31 Ft 4 In	9.55 M
4	Maximum Leg Travel -Independently Adjustable Jack Mounts	15 Ft 3 In	4.66 M
5	Maximum Frame Clearance Above Screed Rail	47 In	119.38 Cm
6	Minimum Frame Clearance Above Screed Rail	15 In	38.10 Cm
7	Frame Clearance Above Finished Concrete	58 In	91.44 Cm
8	Height to Top of Leg	103 In	2.62 M
9	Height of framework	36 In	91.44 Cm
10	Leg Center Spacing	67 3/8 In	1.71 M
11	Drag Pan Length	33 In	83.82 Cm
12	Burlap Drag Length	19 In	48.26 Cm
13	Finishing Roller Length	46 In	116.84 Cm
14	Auger Length	32 In	81.28 Cm
15	Auger Diameter	8 In	20.3 Cm

Machine Weights

Example					
	Total Weight (LBS)	**# of Wheels**	**Idler (LBS per Wheel)**		**Power Unit End (LBS Per Wheel**
Standard Machine Weight	4376	/8	547		547
Extra Inserts	1016	/8	127		127
Accessories	480	/8	60		60
Machine Transfer Weight		-	175	+	175
Live Loads					
Basic Carriage Weight	2371	/4	593		593
Carriage Accessories	900	/4	225		225
Operator Weight	200	/4	50		50
Total Weight	9102		1367		1717

Your Machine					
	Total Weight (LBS)	**# of Wheels**	**Idler (LBS per Wheel)**		**Power Unit End (LBS Per Wheel**
Standard Machine Weight		/8			
Extra Inserts		/8			
Accessories		/8			
Machine Transfer Weight		-		+	
Live Loads					
Basic Carriage Weight		/4			
Carriage Accessories		/4			
Operator Weight		/4			
Total Weight					

Machine Weights, continued

MACHINE WEIGHTS - All Weights are approximate and may change.
Weight of standard unit assembled at factory (Does not include weight of carriage or accessories)

- Two (2) 12 Ft Insert Sections with leg rail ..... 4376 lbs (1985 Kg)
- Two (2) 12 Ft Insert Sections & Two (2) 6 Ft Insert Sections with leg rail ..... 5240 lbs (2377 Kg)
- Three (3) 12 Ft Insert Sections with leg rail ..... 5305 lbs (2406 Kg)
- Two (2) 15 Ft Insert Sections with leg rail ..... 4640 lbs (2105 Kg)
- Two (2) 15 Ft Insert Sections & One (1) 6 Ft Insert Section with leg rail ..... 5072 lbs (2301 Kg)
- Two (2) 18 Ft Insert Sections with leg rail ..... 4950 lbs (2245 Kg)

The standard weight of your machine is _____lbs, assembled from _____ sections at the factory. Write the basic weight of your machine into the *total weight* column on Page 9. Divide the total weight by 8 (the number of machine wheels) to get the weight per wheel on the idle end and the driver end of the machine.

Example: 4376 lbs TOTAL WEIGHT / 8 = 547 lbs. Write the weight per wheel of your machine in the idle end and power unit end columns on Page 9.

Weight of Machine Insert Sections (Includes braces, carriage travel chain and hydraulic hose)

- 3 Ft Section ..... With Leg Rail = 292 lbs (132 Kg)
- 3 Ft Section ..... Without Leg Rail = 278 lbs (126 Kg)
- 4 Ft Section ..... With Leg Rail = 363 lbs (164 Kg)
- 4 Ft Section ..... Without Leg Rail = 325 lbs (147 Kg)
- 6 Ft Section ..... With Leg Rail = 432 lbs (196 Kg)
- 6 Ft Section ..... Without Leg Rail = 384 lbs (174 Kg)
- 12 Ft Section ..... With Leg Rail = 736 lbs (334 Kg)
- 12 Ft Section ..... Without Leg Rail = 620 lbs (281 Kg)
- 15 Ft Section ..... With Leg Rail = 868 lbs (394 Kg)
- 15 Ft Section ..... Without Leg Rail = 732 lbs (332 Kg)
- 18 Ft Section ..... With Leg Rail = 1023 lbs (464 Kg)
- 18 Ft Section ..... Without Leg Rail = 889 lbs (403 Kg)

Determine the number of each length and type of insert section that are going to be added to the basic machine. Add the weights of those sections to get the total weight of extra sections. Example: (2) 3 Ft Insert with rail 292 lbs + (1) 6 Ft Insert with rail 432 lbs = 1016 lbs. Write this weight in the total weight column. Divide the total weight of the extra inserts by the number of wheels (8) to determine weight per wheel on the idle end and the driver end of the machine.

Example 1016 lbs / 8 = 127 lbs PER WHEEL. Weight of machine accessories (These weights take into consideration any standard machine parts that the accessory replaced). Unfortunately, not all accessory weights are currently available. If your accessory is not included in the list below, contact the Allen Engineering Corporation Service Department.

- 4 Inch Swing Legs (2 Ends - Set of 4) ..... 480 lbs (218 Kg)
- Power Crown Adjuster less 65 lbs Manual Crown ..... 410 lbs (186 Kg)
- Towing Tongue ..... 97 lbs (44 Kg)
- Power Widening (1 End) ..... 100 lbs (45 Kg)

* Six Wheel Bogie System ..... 840 lbs (381 Kg)

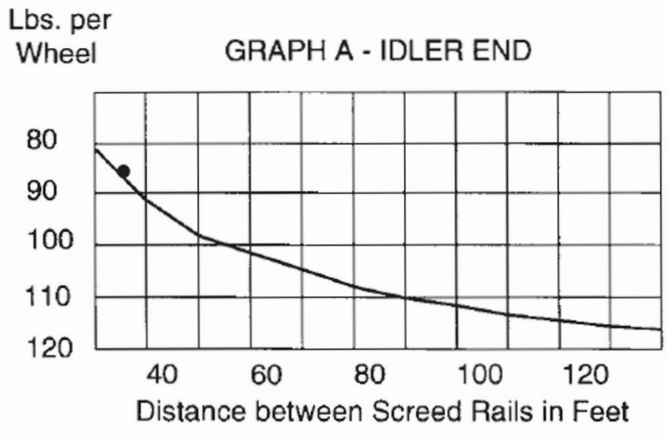
Determine the number of accessories being added to the standard machine. Add the additional weights of those accessories. Example: Swing Legs = 480 lbs. Write this weight in the total weight column. Divide the total weight of the extra inserts by the number of wheels (8) to determine weight per wheel on the idle end and the driver end of the machine. Example 480 lbs / 8 = 60 lbs PER WHEEL

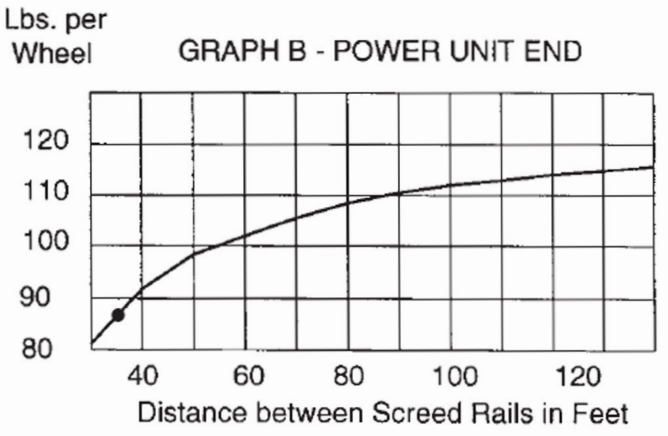
Machine Weights, continued

Weight Transfer of Power Units with Diesel and Gasoline Engines

The illustrations below show the additional weight that the power unit adds to the wheel load on the driver end of the machine. Graph A shows the weight to be deducted from the idler end of the machine and Graph B shows the weight to be added to the driver end of the machine. The total weight of the power unit is included in the standard machine weight. The longer the total length of the machine, the more the power unit weight is transferred to the driver end of the machine and away from the idler end of the machine. Consult the appropriate graph and determine the wheel loads for the idler end and the driver end of the machine. Write the wheel loads of your machine into the weight per wheel columns.

WEIGHT TRANSFER - GASOLINE ENGINES





Live Loads for 4836 Machines

The carriage, accessories and the operator are considered live loads because they move from one end of the machine to the other. It is necessary to figure that the entire weight of these live loads will be carried by only one end of the machine at a time. The standard weight of the carriage is listed below.

- **4836 Paving Carriage with Rollers (Gasoline Engine with full Fuel Tank) .....2371 lbs (844 Kg)**

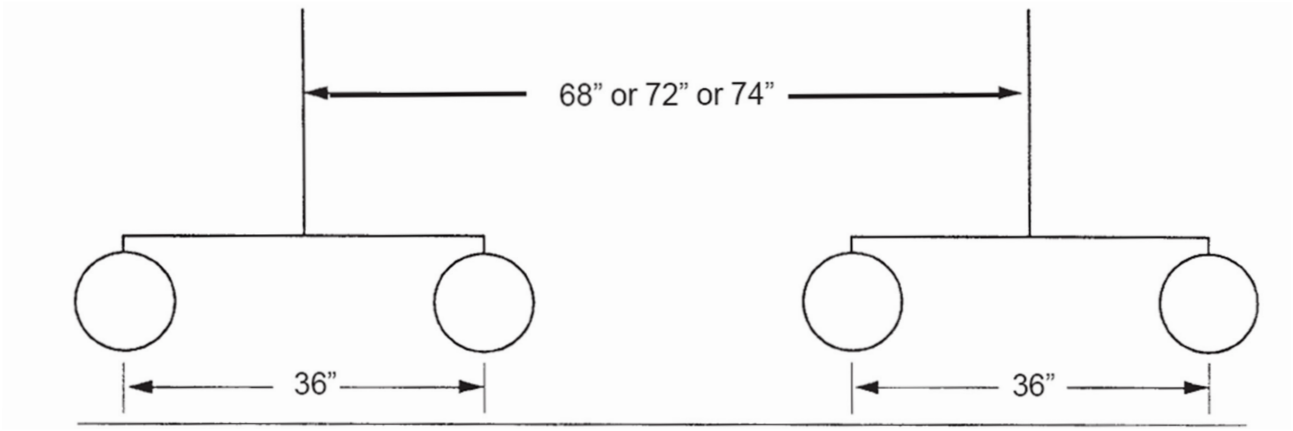
The weight per wheel is the standard weight assembled at the factory divided by the number of wheels at each end of the machine. Write the weight of the basic carriage into the total weight column. Divide the total weight by 4 to obtain the weight per wheel on the idler end and the driver end of the machine. Write the wheel loads of your machine into the weight per wheel columns. Example: 2130 lbs / 4 = 533 lbs PER WHEEL.

Weight of Carriage Accessories (These weights take into consideration any basic carriage parts that the accessory replaced). Unfortunately, not all accessory weights are currently available. If your accessory is not included in the list below, contact the Allen Engineering Service Department.

- Auxiliary Internal Vibrator..... 285 lbs (129 Kg)
- Carriage Spray System (Includes the weight of 50 Gallons of water) ..... 900 lbs (408 Kg)
- Skew Bar Kit ..... 237 lbs (107 Kg)

Machine Weights, continued

Determine the number of accessories being added to the basic carriage. Add the additional weights of those accessories to get the total additional weight of the accessories. Example: Carriage Spray System = 900 lbs. Write this weight into the total weight column. Divide the total weight by 4 to obtain the weight per wheel on the idler end and the driver end of the machine. Example: 900 lbs / 4 = 225 lbs. Write the wheel loads of your machine into the weight per wheel columns. The weight of 200 lbs has been used as an estimate for a typical operator. If your operator is heavier than 200 lbs, enter the appropriate weight. If other people, other than the operator, are required to be on the machine, their weights should be included. Divide the weight by the number of wheels. Write the wheel loads of your machine into the weight per wheel columns. Example: 200 lbs / 4 = 50 lbs PER WHEEL



THE 4836 IS SUPPORTED BY 8 WHEELS, WITH 4 WHEELS TO EACH SIDE AS SHOWN ABOVE

Example

	Total Weight (LBS)	# of Wheels	Idler (LBS per Wheel)		Power Unit End (LBS Per Wheel
Standard Machine Weight	4376	/8	547		547
Extra Inserts	1016	/8	127		127
Accessories	480	/8	60		60
Machine Transfer Weight		-	175	+	175
Live Loads					
Basic Carriage Weight	2130	/4	533		533
Carriage Accessories	900	/4	225		225
Operator Weight	200	/4	50		50
Total Weight	9102		1367		1717

Operator Information

This manual has been generated to assist the owner/operator with the setup, operation and maintenance needed for the safe and efficient use of the 4836 Bridge Deck Paver. In order to increase the performance and efficiency of the paver it is VERY IMPORTANT that the owner/operator and other personnel read this manual thoroughly before operating or servicing the machine. A basic knowledge about the handling of concrete products is required and operators should be trained and licensed per state requirements before operating this equipment. Keep this manual in a convenient place for instant reference and never attempt to make repairs or adjustments that you do not fully understand. If you require any additional information or service do not hesitate to call the Allen Paver Service Department. (Tel: 800-643-0095 - Fax: 800-643-0097)

OPERATOR PREREQUISITE

Operation is limited to personnel with the following minimum qualifications:

1. Designated persons.
2. Trainees under the direct supervision of a designated person.
3. Maintenance and test personnel (when it is necessary in the performance of their duties).

Operators shall be required by the employer to pass a practical operating examination. Qualifications shall be limited to the specific type of equipment for which examined. Operators and operator trainees shall meet the following physical qualifications:

1. Vision of at least 20/30 Snellen in one eye and 20/50 in the other, with or without corrective lenses.
2. Ability to distinguish colors, regardless of position, if color differentiation is required for operation.
3. Adequate hearing, with or without hearing aid, for the specific operation.

Evidence of physical defects or emotional instability which could render a hazard to the operator or others, or which in the opinion of the examiner could interfere with the operator's performance, may be sufficient cause for disqualification. In such cases, specialized clinical or medical judgements and tests may be required.

Evidence that an operator is subject to seizures or loss of physical control shall be sufficient reason for disqualification. Specialized medical tests may be required to determine these conditions. Operators and operator trainees should have normal depth perception, field of vision, reaction time, manual dexterity, coordination and no tendencies to dizziness or similar characteristics.

In addition to the above listed requirements, the operator shall:

1. Demonstrate the ability to understand and interpret all labels, operator manuals, safety codes and other information relevant to the operation of the paver.
2. Possess knowledge of emergency procedures and execution of the same.
3. Demonstrate to the employer the ability to operate the specific equipment.
4. Be familiar with related safety regulations.
5. Understand responsibility for maintenance requirements.
6. Understand the operating procedures as outlined by the manufacturer.

OPERATOR CONDUCT

1. The operator shall not engage in any exercise which will divert his/her attention while actually engaged in operating the machine.
2. Each operator shall be responsible for those operations under the operator's direct control. Whenever there is any doubt as to safety, the operator shall consult with the supervisor.
3. If there is a warning sign on a switch, engine control or paver component, the operator shall not close the switch, start the engine or use the component until the warning sign has been removed or acknowledged by the appointed person.
4. Before operating the paver, the operator shall see that all controls are in the "off" or neutral position and that all personnel are in the clear.
5. In accordance with OSHA regulations 1928.51 and 1928.52, operating instructions must be provided initially to operators/employees before allowing them to operate the paver and should be reviewed annually thereafter.

The most **IMPORTANT** safety device on this equipment is an accomplished and safe operator. It is his/her responsibility to read and understand all safety and operating instructions in this manual. A person who has not read and understood all operating and safety instructions is not qualified to operate the paver. An untrained operator exposes himself/herself and bystanders to possible injury or death. All accidents can be avoided!!! **DO NOT** modify the paver in any way without consulting the factory. Unauthorized modification may impair function and/or safety and affect the working life of the equipment.

ALLEN ENGINEERING CORPORATION assumes NO LIABILITY for accidents or injury incurred through the improper use of this equipment.

Notes

SECTION 1
SAFETY

Federal / State Warning Regulations

⚠ WARNING

RESPIRATORY HAZARDS

Grinding/cutting/drilling of masonry, concrete, metal and other materials can generate dust, mists and fumes containing chemicals known to cause serious or fatal injury or illness, such as respiratory disease, cancer, birth defects or other reproductive harm.

SILICOSIS WARNING

Grinding/cutting/drilling of masonry, concrete, metal and other materials with silica in their composition may give off dust or mists containing crystalline silica.

⚠ WARNING

Cancer and Reproductive Harm
www.P65Warnings.ca.gov

CALIFORNIA PROPOSITION 65 WARNING

Gasoline engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects and other reproductive harm.

Safety-Alert Signs

This manual contains Safety-Alert Signs, as defined below, which must be followed to reduce the possibility of improper service damage to the equipment or personal injury. Read and follow all Safety-Alert Signs included in this manual.

NOTE defines an operating procedure, condition, etc. which is essential to highlight that contains useful or important information.

EMERGENCY is used for the identification of safety equipment, first aid, or emergency egress locations.

NOTICE used to convey safety information on labels and signs.

CAUTION is indicative of a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

WARNING Indicative of a potentially hazardous situations that could result in death or serious injury

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

SECTION 1 SAFETY

1.1 - General Safety Precautions

SAFETY ALERT SYMBOL

The safety alert symbol recognizes important safety messages written on the paver decals, as well as, in this manual. When you see this symbol, be alert to possible danger that could result in serious injury or death.

Note the use of key signal words in association with the safety alert symbol:

DANGER - An immediate and specific hazard which will result in severe personal injury or death if the proper precautions are not taken.

WARNING - A specific hazard or unsafe practice which could result in severe personal injury or death if proper precautions are not taken.

CAUTION - Unsafe practices which could result in personal injury if proper precautions are not taken and as a reminder of good safety practices.

YOU are responsible for the safe operation and maintenance of your Allen Paver. You must ensure that you and anyone else who is going to operate, maintain or work around the machine be familiar with the operating and maintenance procedures and all related safety information contained in this manual.

GENERAL SAFETY PRECAUTIONS

1. Always read and fully understand the Operator's Manual and the safety decals on the machine before trying to operate or service this equipment.
2. It is wise to have a first aid kit available and to be familiar with its contents.
3. Keep a "charged" fire extinguisher within reach whenever you work in an area where fire may occur. Also, be sure you have the correct type of extinguisher for your situation:
    - Type A: Wood, paper, textile and rubbish.
    - Type B: Flammable liquids.
    - Type C: Electrical equipment.
4. Be sure to wear safe work clothing. It should be well fitted and in good repair. Do not wear rings, wrist watches or loose fitting clothing when working on machinery, they could catch on moving parts causing serious injury. Wear sturdy, rough soled work shoes, safety glasses and any other protective gear that is warranted by the work environment.
5. Keep work area organized and clean. Wipe up oil spills of any kind. Keep tools and parts off floor. Eliminate the possibility of a fall which could result in serious injury.
6. Be sure to reinstall safety devices, guards or shields after adjusting and/or servicing the machine.
7. After servicing, be sure that all tools, parts or servicing equipment are removed from the vehicle or engine.
8. **Do not get into a rush!** Use recommended hand holds and steps with at least three points of support when getting on and off the paver. Keep steps, floors, hand holds and controls clean and free of grease. Face the machine when climbing up and down and never jump off the paver or dismount while it is in motion.
9. Keep all personnel clear of augers, rollers and carriage frame when operating the paver.
10. Do not permit riders on the paver.

HYDRAULIC SYSTEMS PRECAUTIONS

1. Make sure that all components are in good working condition. Replace any worn, cut, abraded, flattened or crimped hoses and metal lines.
2. Do not attempt makeshift repairs using tape, clamps or cements. The hydraulic system operates under extremely high pressure and such repairs could cause serious injury.
3. Wear proper hand and eye protection when searching for a high pressure leak. Use a piece of wood or cardboard as a back stop instead of hands to isolate and identify leaks.

If injured by concentrated high pressure steam or hydraulic fluid, seek medical attention immediately! Serious infections or toxic reaction can develop from hydraulic fluid penetrating the skin.

REFUELING PRECAUTIONS

1. When refueling, keep the hose nozzle or the funnel and container in contact with the metal of the fuel tank to avoid the possibility of an electrical spark igniting the fuel.
2. Do not overfill the fuel tank - overflow creates a fire hazard.
3. DO NOT SMOKE when refueling and never refuel when engine is running.
4. Prevent fires by keeping the machine clean of debris, grease and spilled fuel.

BATTERY PRECAUTIONS

1. Keep all sparks and flames away from battery, as gas given off by electrolyte is explosive.
2. If you come in contact with battery electrolyte solution wash off immediately.
3. Always disconnect the battery ground cable before working on the electrical system.
4. Do not tip battery more than 45 degrees to avoid electrolyte loss.

TRANSPORT PRECAUTIONS

1. Consult the 4836 Operator's Manual before attempting to lift your paver. Use extreme caution when lifting the machine. Make sure that the lifting device has enough capacity to lift the weight of the machine. Check all lifting cables, chains, clevises, cable clamps and spreader beams for any damage. Use ropes tied to the ends of the machine to prevent the machine from spinning. Keep all personnel away from the machine while it is being lifted.
2. Always comply with local regulations regarding moving equipment on public roads and highways.
3. Make sure that all lights and reflectors comply with state and local regulations. Make sure that they are clean, in good working order and can be seen clearly by all overtaking and on-coming traffic.

STORAGE PRECAUTIONS

1. Store paver in an area away from human activity.
2. Do not permit children to play on or around the stored paver.
3. Make sure the unit is stored in an area that is firm, level and free of debris.
4. Store the paver inside a building or cover securely with a weatherproof tarpaulin.

SAFETY DECALS

1. Keep Safety Decals and signs clean and legible at all times.
2. Replace decals and signs that are missing or become impossible to read.
3. When replacing parts that previously displayed a safety decal, be sure to replace the decal as well.
4. Obtain Safety Decals or signs from the Allen Parts and Service Department.
5. Become familiar with the content and the position of each Safety Decal. Important information is written on the decals.

Laws Pertaining to Spark Arrestors

Some states require that in certain locations arrestors be used on internal combustion engines. A spark arrester is a device designed to prevent the discharge of spark or flames from the engine exhaust. It is often required when operating equipment on forested land to prevent the risk of fires. Consult the engine distributor or local authorities and make sure that you comply with regulations regarding spark arrestors.

1.2 - Engine Safety

⚠ WARNING

- **DO NOT** place hands or fingers inside engine compartment when engine is running.
- **NEVER** operate the engine with heat shields or guards removed.
- Keep fingers, hands hair and clothing away from all moving parts to prevent injury.

- **DO NOT** remove the radiator cap while the engine is hot. High pressure boiling water will gush out of the radiator and severely scald any persons in the general area of the trowel.
- **DO NOT** remove the engine oil drain plug while the engine is hot. Hot oil will gush out of the oil tank and severely scald any persons in the general area of the trowel.

⚠ CAUTION

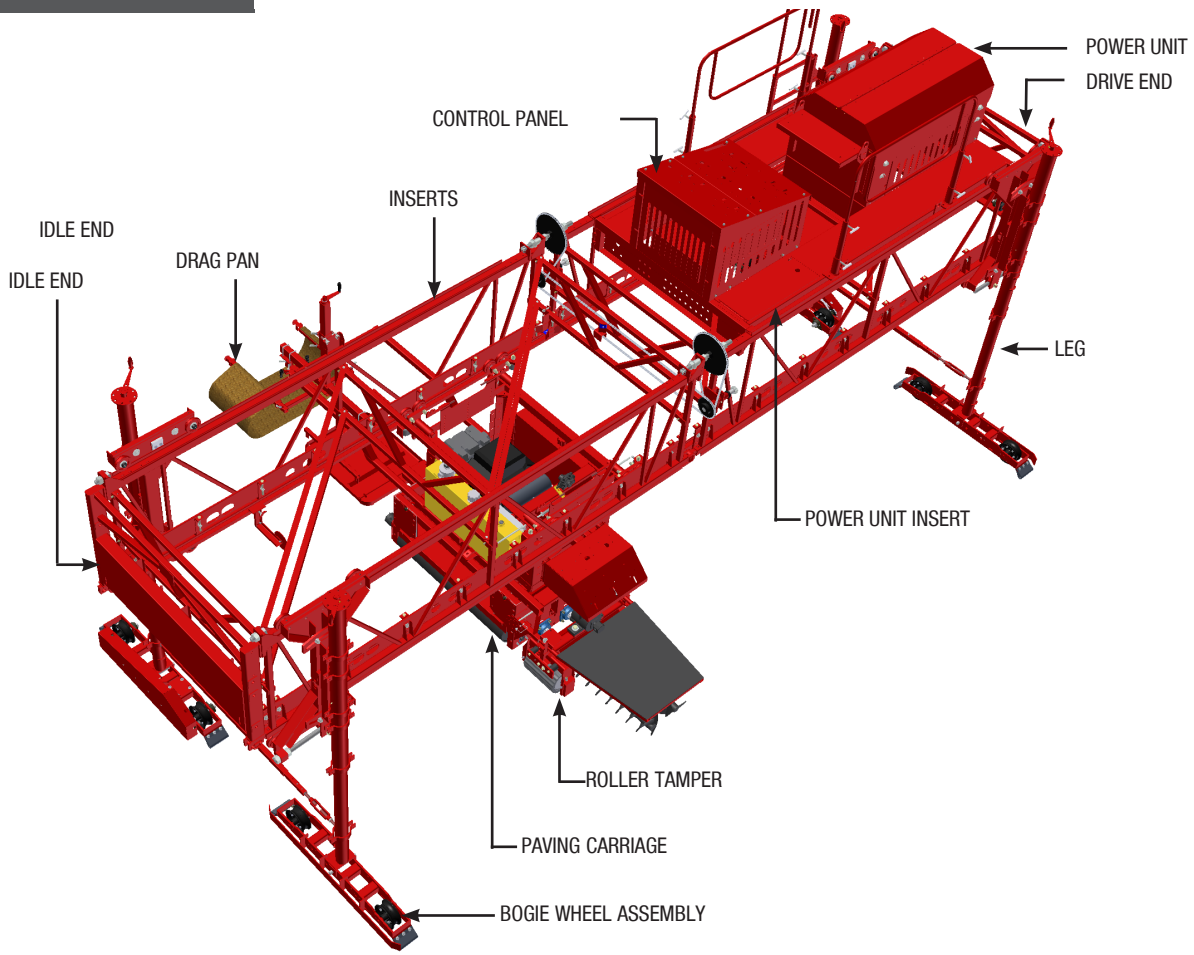
- **NEVER** touch the hot exhaust manifold, muffler or cylinder. Allow these parts to cool before servicing equipment.
- **NEVER** run engine without an air filter or with a dirty air filter. Severe engine damage may occur. Service air filter frequently to prevent engine malfunction.
- **NEVER** tamper with the factory settings of the engine or engine governor. Damage to the engine or equipment can result if operating in speed ranges above the maximum allowable.
- **ALWAYS** use extreme caution when working with flammable liquids.
- **DO NOT** start the engine near spilled fuel or combustible fluids. Fuel is extremely flammable and its vapors can cause an explosion if ignited.
- **ALWAYS** refuel in a well-ventilated area, away from sparks and open flames.
- **NEVER** use fuel as a cleaning agent.
- **DO NOT** smoke around or near the equipment. Fire or explosion could result from fuel vapors or if fuel is spilled on a hot engine.

PAGE LEFT BLANK INTENTIONALLY

Notes

SECTION 2
OPERATIONS

2.1 - Machine Component Overview



PAVER COMPONENTS

A. Machine Frame

The 4836B Paver Frame is constructed from welded steel for maximum strength and light weight. Standard frame insert sections are 3, 6, 12, 15, and 18 feet long. The machine can be extended to a maximum of 90 feet. Check with the factory when lengths are in excess of 90 feet. Special length insert sections are available and can be ordered from the factory. The machine is equipped with crown adusting bolts at each insert joint. The machine has 4" diameter, heavy duty legs and hydraulically driven, bogie travel assemblies. A variety of bogie wheel types and sizes are available from the factory. The machine direction is controlled by the dual chain controller located at the drive end of the machine. The machine automatically moves forward after each pass of the paving carriage.

B. Stationary Power Unit

Power is supplied by a 25 HP Kohler Gasoline Engine. The machine is equipped with a 12 volt electric starting system. All power functions are hydraulically driven. The stationary power unit drives the Bogie Travel Wheels and the Carriage Travel Speed and Direction.

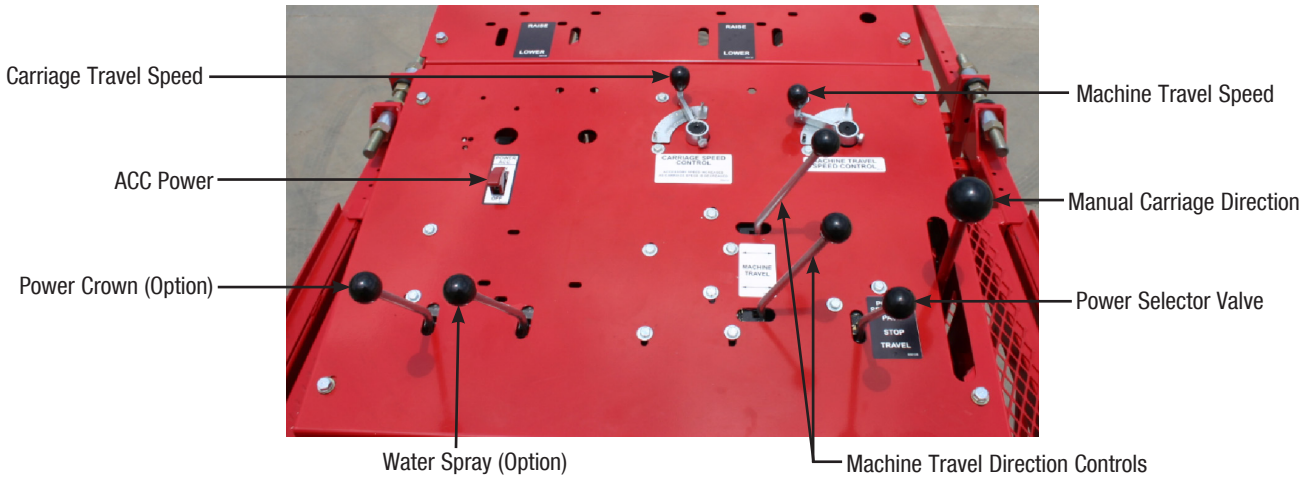
C. Paving Carriage

Power is supplied by a 25 HP Kohler Gasoline Engine and with a 12 Volt electric starting system. All power functions are hydraulically driven. The paving carriage is equipped with finishing rollers and dual augers suspended from a rigid, light weight frame. The finishing rollers are mounted on a skewable turntable and automatically reverse rotation after each pass. The dual augers plow excess concrete forward while moving in either direction. The augers and the finishing rollers can be adjusted up and down for optimum performance. The paving carriage includes a single drag pan with a burlap texturing cloth.

D. Paver Options

The 4836B Paver can be equipped with a variety of optional components. Contact the factory for additional information.

2.2 - Machine Control Detail



PAVER CONTROLS

BEFORE STARTING ENGINES READ THE ENGINE STARTING INSTRUCTIONS AND ALL WARNING DECALS LOCATED ON THE OPERATORS CONSOLE AND AT OTHER KEY POINTS ON THE MACHINE.

Both carriage travel and machine travel are controlled from the operator's control console as well as optional accessories.

A. Manual Carriage Directional Control

Can be used to change the direction of the carriage travel. When the carriage directional control is moved in either direction from the center position the carriage travel speed begins to slow down. To reverse the direction of the carriage travel move the control all the way in the direction of the desired travel. Move the control lever with a smooth, steady motion to avoid erratic carriage travel starts and stops. A different method to reverse travel is to stop the carriage travel using the Power Selector Control. Move the Power Selector Control to the "Stop" position. Reverse the carriage travel by moving the Carriage Directional Control in the desired travel direction and then return the Power Selector Control to the "Pave" position.

CAUTION: WHEN THE CARRIAGE DIRECTIONAL CONTROL IS MANUALLY HELD IN EITHER DIRECTION THE CARRIAGE WILL CONTINUE TO TRAVEL IF (A) THE POWER SELECTOR CONTROL IS IN THE "PAVE" POSITION, (B) THE MACHINE TRAVEL DIRECTION CONTROLS ARE ENGAGED AND (C) THE MACHINE TRAVEL SPEED CONTROL IS NOT SET AT ZERO.

B. Power Selection Control

The power selection valve has three functions, Pave, Stop and Travel. To avoid erratic carriage travel, slowly ease the control to each new position. In the "Pave" position the carriage will move back and forth through the machine truss. The "Pave" position provides power to the carriage travel drive and delivers power for the automatic machine travel drive. The machine travel drive will be triggered each time the carriage automatically reverses direction.

CAUTION: BEFORE ENGAGING CARRIAGE TRAVEL BE SURE THAT ALL PERSONNEL ARE CLEAR OF THE PAVING CARRIAGE. THE PAVING CARRIAGE WILL NOT AUTOMATICALLY REVERSE DIRECTION OF TRAVEL WHEN IT REACHES THE END OF THE MACHINE UNLESS THE CARRIAGE TRAVEL REVERSING LUGS ARE INSTALLED ON THE CARRIAGE TRAVEL CHAIN. FOR INSTRUCTIONS SETTING THE REVERSING LUGS SEE SECTION III - "SET-UP" INSTRUCTIONS.

The "Stop" position is used when starting the power unit engine and to automatically stop all functions. The "Travel" position is used for manually moving the machine in either the forward or the reverse direction.

2.2 - Machine Control Detail, continued

C. Carriage Speed Control

The carriage speed control establishes the speed of both the paving carriage and any accessories installed on the unit. This valve regulates the amount of hydraulic oil going to any one of the control valves on the operator's console. The zero (0) location being no oil flow to the valves and the ten (10) location being full flow to the valves. Keep the carriage speed control scale location at 10 (maximum) except when slowing the paving carriage or when operating an accessory. When the carriage speed is set at 10 the accessory speed will be set at 0. To operate the carriage and an accessory concurrently set the control at the midpoint of both scales (5). The paving carriage speed is variable from 0 to 120 Ft/Min.

D. Machine Travel Direction Control

The machine travel direction valves control the forward or reverse travel of the machine. The two control levers control the drive bogie on the drive end of the machine and the drive bogie on the idler end of the machine. With separate controls for each end, the machine is capable of steering around a radius.

E. Machine Travel Speed Control

The machine travel speed control can be used in either a manual mode or an automatic mode. The manual mode is utilized to move the machine without starting the paving carriage.

Manual Mode:

1. The carriage speed control setting should be at the 10 location on the scale.
2. BOTH machine direction controls need to be in either the forward or reverse location.
3. The power selector control should be in the "Travel" location.
4. When the machine travel speed control is eased off of the "0" location the machine will start to move.

Automatic Mode:

1. The carriage speed control should be off the "0" location. The higher the setting the faster the paving carriage will travel through the machine truss.
2. BOTH machine direction controls need to be in either the forward or reverse location.
3. The machine travel speed control should be set off "0". The higher the setting the longer the advance will be when the carriage stops and reverses direction.
4. Ease the power selector control to the "Pave" location. The paving carriage will travel across the truss and slow down and shift directions. At the same time the machine truss will advance forward. The length of advance depends on the machine travel speed control setting. The automatic machine advancement is variable from 0 to 15 inches with each carriage pass.

F. Carriage On/Off Valve

The hydraulic power needed to drive the rollers as well as the augers, is controlled by the carriage On/Off valve. The valve is located on the carriage control console. (See Figure 3).

G. Roller Direction Valves

The directional valves will permit the rollers to rotate forward, remain in neutral or rotate in reverse. The operator should choose the favored setting before the initial carriage pass and push the levers to the up, middle or down locations.

H. Automatic Roller Reversing Valve

The automatic roller reversing valve has two positions. When the handle is turned to the non-reversing position (left) the directional valves will continue to control the direction of the roller rotation. When the handle is turned to the reversing position (right) the rollers will reverse their rotation just before the carriage ends its pass and reverse its direction on the truss.

I. Carriage Lift Valve (Option)

Lifts and lowers carriage.

J. Roller Tamper Speed Control

Located on the roller tamper frame. Controls the vibration speed of the roller tamper. The vibration frequency ranges from 0 to 6000 VPMS.

2.3 - Lifting the Machine

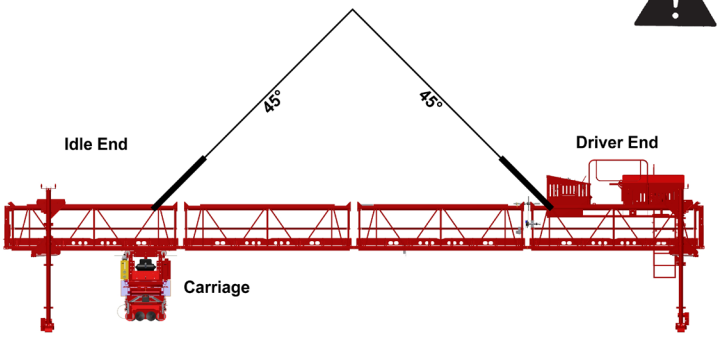
WARNING! Use extreme caution when lifting the Concrete paving machine. All lifting devices must meet or exceed the required capacity to lift the weight of the machine. Check all slings, chains, clevises, and cable clamps for strength and for structural damage. If any are damaged in anyway replace, before lifting machine

WARNING! Before lifting the machine make sure that the machine jacks are locked in place! To prevent the jacks from swing out and making the paver in balanced and causing personal injury.

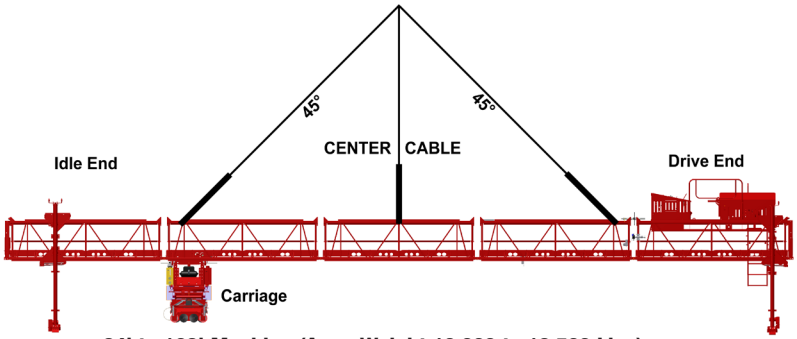
WARNING! Make Sure to keep all personnel back and away from the machine while it is being lifted.

1. Use the lifting straps provided with the paving machine. The straps are rated at 28,000 lbs. when used in the basket configuration.
2. Attach ropes to each end of the machine to help preventing the machine from swinging while being lifted.
3. The center cable length should be carefully adjusted.
4. Keep all strap or chain lift angles at 45° or greater from horizontal.
5. To balanced machine, position the paving carriage opposite the power unit end. Lift the machine 10 to 12 inches off of the ground Move the paving carriage until the machine is balanced. If the carriage travel chain. Lock the carriage down to prevent the carriage from moving while lifting preventing a unleveled load.

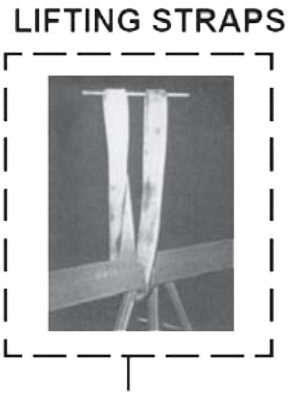
CAUTION! Do not allow the weight of the machine to rest on the carriage or the paving rollers. Damage to the carriage or the paving rollers could result.

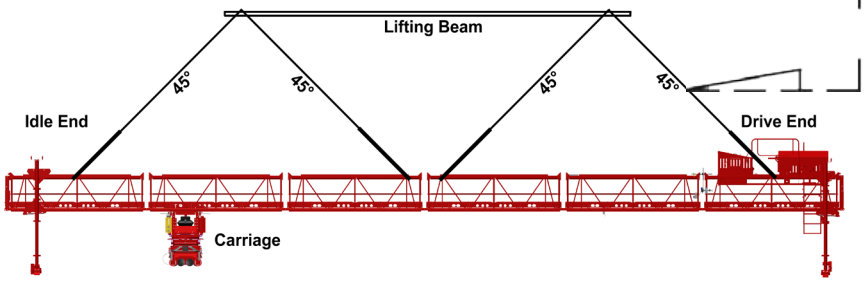


36' to 48' Machine (Appx Weight 6,500 to 10,500 Lbs.)



84' to 108' Machine (Appx Weight 10,000 to 13,500 Lbs.)





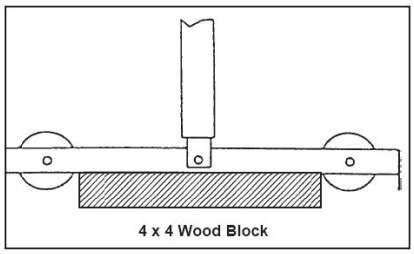
2.3 - Lifting the Machine, continued

LOADING THE MACHINE

Before loading the machine. Check the height of the flat bed trailer to make sure that the machine not be too tall for transport. The carriage may have to be removed for transport. Because of height restriction for transport.

1. **Loading Without Bogie Wheels** - If Bogie drive are removed place 4" x 4" timber long enough to reach both jack legs. Set jack legs over timber and center machine on trailer. Add two pieces Of 2" x4" to the inside of each jack leg prevent the machine from moving or sliding during transport. This same procedure will be repeated for other end of machine.

2. **Loading With Bogie Wheels** - Cut a 4 x 4 wood block to fit between the bogie wheels and up against the bogie frame. The block should be nailed to the truck bed to stop the machine from shifting



3. **Loading With Carriage** - If the machine is to be loaded with the carriage still in the machine, you will need to block the carriage so that the machine or carriage weight does not set on the paving rollers. Cut two 4 x 4 wood blocks approximately 3 feet long. Place the blocks under the end panels of the carriage and nail them to the deck of the truck bed. With the carriage frame now setting on the blocks, readjust the hold down rollers, located on the carriage hanger frame at the top of the carriage, to the down position. Using the leg cranks lower the machine just enough so that the carriage rollers are not tight on the carriage rail but not so low that the hold down rollers are touching the carriage rail. This allows the machine truss to move when transporting and will not cause damage to the carriage rail. If the carriage is loaded by itself, use the same blocking procedure and secure the carriage to the truck.

4. **Securing Machine to Truck** - Tighten the leg clamps and secure the leg crank pins on all four legs. Never place a chain or strap over the truss frame in the center of the machine. Use the 6036 travel straps, if available, or a chain over the top of the machine's leg castings. Tighten the chains by pulling towards the center of the machine.

2.4 - Pipe Rail Setup

CAUTION! Do not allow the weight of the machine to rest on the carriage or the paving rollers. Damage to the carriage or the paving rollers could result.

TOWING THE MACHINE

A Towing Hitch and a Transportation Dolly are accessories that are available from the factory.

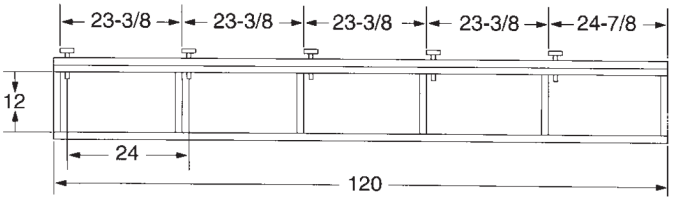
WARNING! The recommended maximum towing length is 36 feet. The recommended towing speed, on a smooth surface, is 40 MPH.

The transport system will be placed under the drive end of the machine. Move the carriage toward the drive end to obtain a good center of gravity of the machine. Now clamp transport system to machine with clamps. Remove carriage when traveling long distances. If moving the machine on the job site the carriage can be left on the frame track. Make sure that the carriage is secured and can't move during transport. Do not allow the carriage roller to rest on the carriage rail while transporting. This will prevent the carriage rail from being damaged.

SCREED RAIL AND PAVING FORMS

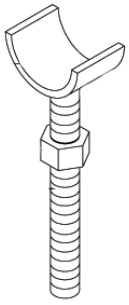
The screed rail and paving form setup is as important to a successful operation as the machine itself. The setup of these two items is what determines the longitudinal profile of your bridge deck or slab. There are two screed rail setups for bridges. Normally, the specifications in your area will dictate if the paving machine will ride on the forms or on the bridge girders themselves.

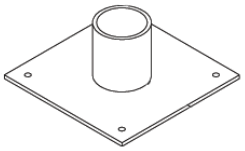
When the machine is riding on forms the first area to look at is the type and spacing of the overhang brackets. Consult with the factory about your machine load weight. After the machine loads have been determined refer to the manufacturer's specifications of the overhang brackets for spacing of the brackets. Screed rail must be accurate and conform to the grade required. ACP recommends 2 inch schedule 80 black pipe with an insert at one end to connect two sections. The adjustable screed chairs should be spaced 24 inches apart (maximum 30 inches). The screed chairs should not interfere with support studs. The rails and chairs should be double checked after the positioning of the machine.



When the machine is riding on bridge girders you will need to fabricate a screed chair stand that will normally be epoxied or welded to a bridge deck beam. It is also recommended that you tie the vertical tube to the rebar mats. The top of the vertical tube should be below finished grade. The screed rail needs to be adjusted to conform to the longitudinal profile. This can be accomplished many different ways. You can use an instrument to measure from quarter points on the deck to the top of the screed rail using a level and rule; then pulling a stringline between the two points or measuring from the grade line on the form to the top of the screed rail.

Screed Chair





Chair Stand

Remember this is just an initial setup. After the machine has been set on the deck it will need to run up and down the screed rail to take out any timber crunch or settling of the form work. Then another check of the form must be performed.

2.5 - Machine Setup

Paving forms must have a good solid sub base to sit on to keep the paving forms from sinking. ACP recommends metal forms made especially to carry the weight of the paver. The 6036 Paver will be equipped with flat flange bogie wheels that are 3 inches in width to ride on top of the paving form. For special applications contact the ACP Service Department. (1-800-643-0095)

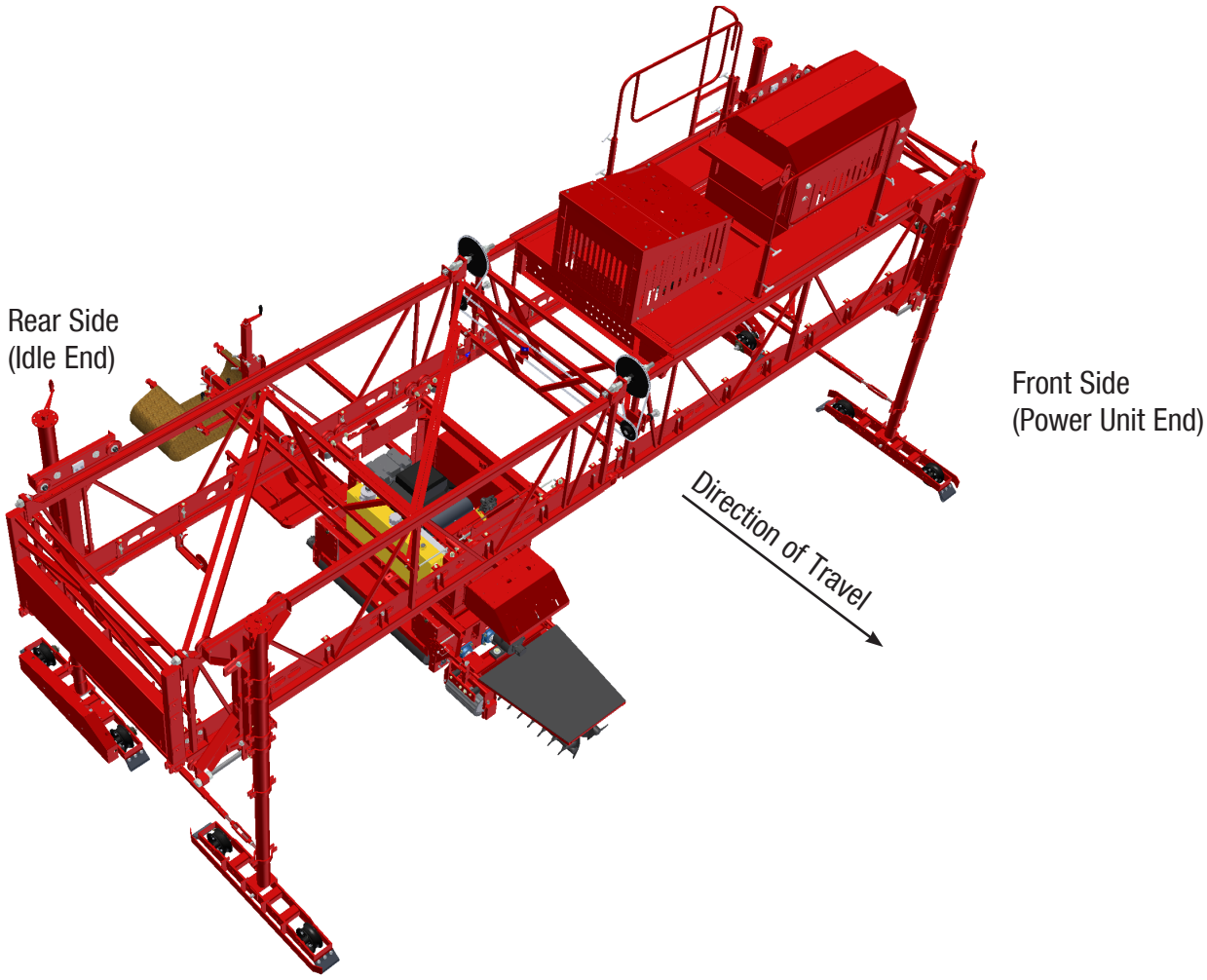
MACHINE SETUP

Assembly of the 4836B Paving Machine can normally be accomplished by two to three men with a set of hand tools and a strong lifting device. Plan ahead! Know where your crown is positioned and how many inserts need to be assembled. An open and level working area is necessary for the assembly of the paver.

1. **INSERT ASSEMBLY** - If your machine is longer than the standard 36 feet you will have to assemble additional inserts separately. Add or remove machine inserts between the drive end (Power Unit) and the idler end of the machine. For long machine lengths (over 60 feet) machine frame stress can be minimized by installing the shortest inserts, 3 feet and 6 feet, near the two end sections of the machine. If the paving carriage is already installed, move the carriage to a position under the operator's platform.

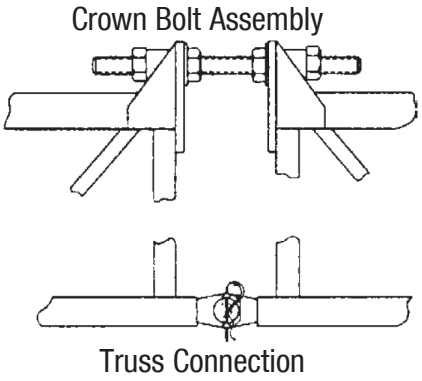
WARNING! Before removing the carriage travel chain, the carriage needs to be secured to the carriage rail with wire or blocked on both sides with vise grips. This will stop the carriage from rolling when the chain is removed.

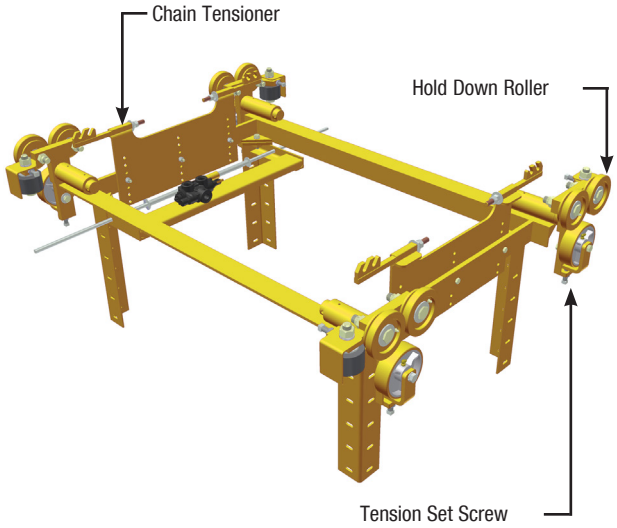
Disconnect the carriage travel chain at the carriage by loosening the chain tightener or by removing the chain master link. Pull the chain over the top of the idler sprocket, roll up the chain and store it by the paving carriage. Next roll up the hydraulic hoses that stretch across the top of the machine frame to the travel bogies on the idler end of the machine and store them by the power unit insert. Remove the carriage reversing paddles from the carriage rail for re-installation after the carriage travel limits have been determined. Truss frame inserts are added to the machine by splitting the machine at the hinge point of the power unit insert section. Support the power unit insert at the hinge point with barrels or scaffolding so that when



2.5 - Machine Setup, continued

the machine is split the power unit section is self supporting and stable. Hook up the idler end of the machine to a lifting device. Remove the crown bolts at the top of the truss frame and the hinge pins on the lower end of the truss frame.





The idler insert section will now be free to lift and placed to the side. Add or remove the required frame inserts on the power unit insert and reconnect the idler end section of the machine. Keep the frame as straight as possible. When attaching the inserts together it is suggested that you lubricate the crown bolts. If the deck or slab has a crown, assemble the machine so that an insert hinge will be directly above the crown. The manual crown adjuster will have to be removed and relocated to the correct place on the machine for crowning the truss frame. When the sections have been assembled reconnect the carriage travel chain, release the paving carriage and add the additional bogie hose for the machine bogie wheels on the idler end of the machine.

2. **INSTALLING PAVING CARRIAGE** - If it is necessary to install the paving carriage use the following procedure:
   A) With the paving carriage setting on blocks, remove the carriage hanger frame and install the frame into truss. Move the machine over the top of the paving carriage so that the paving carriage is centered under the machine truss. Using the leg cranks, lower the machine down until the carriage hanger frame can be bolted back on to the carriage. Position the carriage in the middle of the machine and connect the travel chain. Adjust the hold down roller tension so that the rollers can be just turned by hand. The carriage travel chain will keep the carriage from moving when the machine is lifted onto the deck.

3. **BOGIE INSTALLATION** - Prepare the machine for lifting (See Lifting Instructions) and lift the machine high enough to install the machine leg bogies on to the machine legs. Install the drive bogies on the rear side and the idler bogies on the front side of the machine. The drive chain shield can be on the outside or the inside of the leg, depending on clearance requirements. If necessary, add the additional hose provided with new frame inserts.

CAUTION! Make sure that the hydraulic hoses are connected so that the direction of machine travel is the same as indicated on the control console. If necessary, reverse the hose connections at the quick disconnect fittings to correct travel direction.

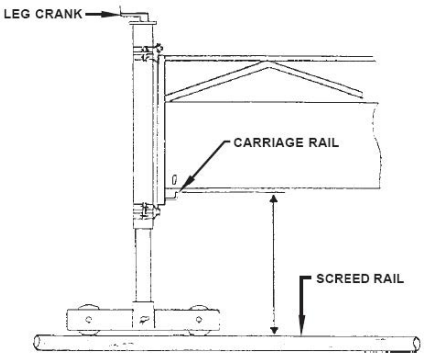
4. **MACHINE LEG ADJUSTMENT** - You can now lift the machine onto the prepared deck. Adjust the machine legs so that the leg span distance is the same as the center to center distance between the machine screed rails. Adjust the length of the machine legs so that the carriage will clear the deck or slab when the machine is placed on the rails. Position the carriage toward the idler end of the machine so that the machine will be balanced when it is lifted. Position the bogie wheels for clearance of the reinforcing steel.

WARNING! Use extreme caution when lifting the paving machine. Make sure the lifting device has enough capacity to lift the weight of the machine. Check all chains, slings, lifting cables, clevises and cable clamps for strength and for any structural damage.

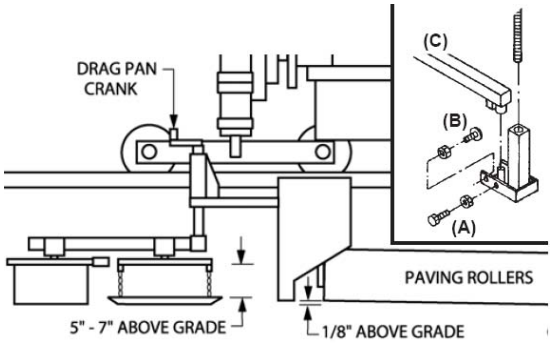
WARNING! Keep all personnel away from the machine while it is being lifted.

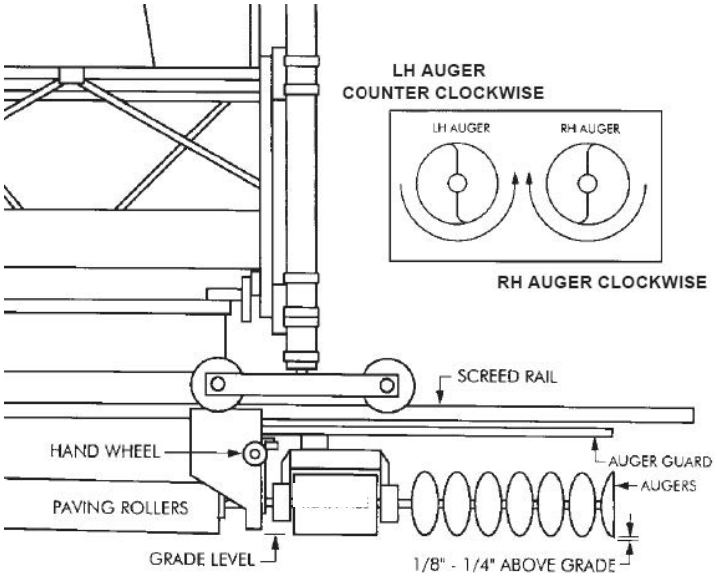
WARNING! Before lifting the machine, check to make sure that the Machine Legs are LOCKED! If the legs are not locked they could roll causing an unbalanced lift and personal injury.

5. SQUARING TRUSS - After the machine has been placed on the deck, center the paving carriage in the truss. All four corners 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 carriage rail and the top of the screed rail or paving form. Adjust the distance using the machine leg cranks until all four corners are equal.



6. DRAG PAN INSTALLATION - Attach the drag pan hanger frame to the upper carriage of the paving carriage and assemble the drag pan. Adjust the pitch of the mounting tube so that it hangs straight. Use the drag pan crank and adjust the "H" Frame of the drag pan so that it is 5" to 7" above the bottom of the paving rollers. Hook the loose end of the drag pan chain into the fifth link. Screws (A) are used ONLY when the carriage is positioned for a skewed deck. Tighten these screws when it is necessary to lock the drag pan tube (C) when the carriage does not pivot. Carriage bolts (B) serve as stops for the drag-pan tube during normal operation. Pivot the carriage and hold the tube parallel to the centerline of the deck. 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. Tighten jam nuts to hold bolts.

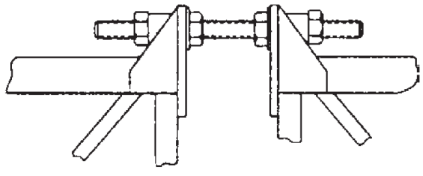




7. AUGER INSTALLATION - Slide the augers onto the lower carriage auger shafts. Facing the lower carriage, slide the clockwise auger onto the right hand shaft and the counter clockwise auger onto the left hand shaft. Tighten auger hardware and mount the auger guard assembly. Turn the auger adjusting crank and set the augers 1/8" to 1/4" above the bottom of the paving rollers. NOTE: Grease the auger shafts.

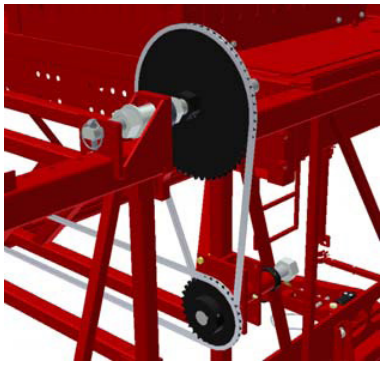
8. STRAIGHTEN THE MACHINE - After all attachments have been installed on the paving carriage it is time to align and straighten the machine frame. Maximize machine weight by filling the gas and hydraulic tanks. Be sure that the paving carriage has been moved to the center of the machine. There are many ways of straightening the truss. You can pull a string line under the truss or simply use line of sight. Raise or lower the machine truss by adjusting the crown bolts at all of the hinge points until the truss appears straight to the naked eye. If your machine is equipped with a manual crown adjuster, both sides of the truss can be adjusted on either side by turning the nut on the lower side of the truss frame.

Crown Bolt Assembly



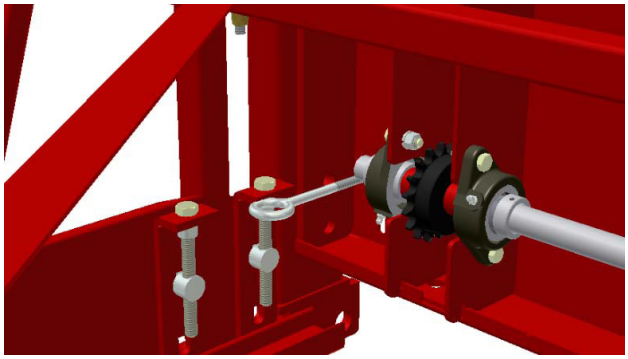
9. STRAIGHTEN CARRIAGE RAIL - Next, you should string line the carriage rail. Use 120# masonry line and tie a string line to the eye bolt on the idler frame end of the machine.

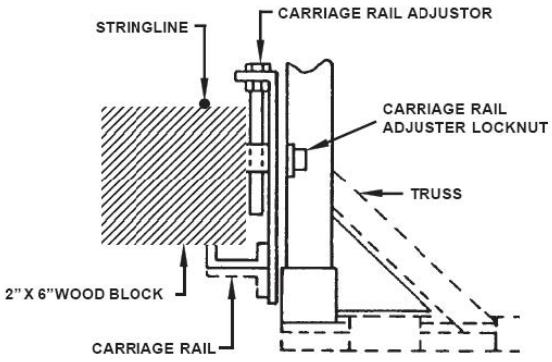
2.5 - Machine Setup, continued



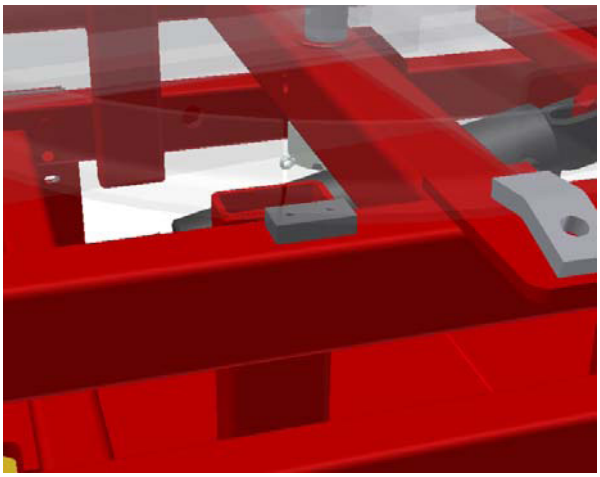
WARNING! Do Not Use Piano Wire. It could result in serious injury

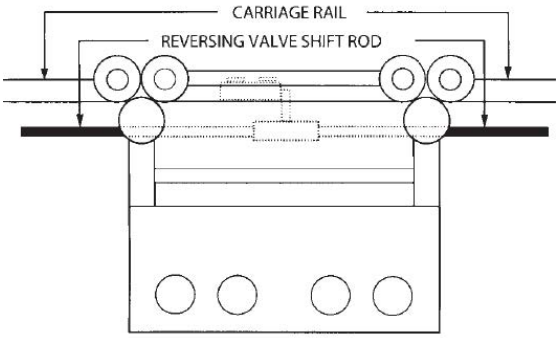
Run the string line along the carriage rail to the eye bolt on the drive frame end of the machine. Pull and tighten the string line by hand until it is taut with no sag. If necessary turn the eye bolts for additional tension. Loosen the carriage rail adjuster locknut on the outside of the truss no more than 1/2 turn. Cut three identical 2" x 6" wood blocks. Place one at each end of the carriage rail to push the string line up so that it will clear the top of the carriage rail (See Figure 17). Set the third wood block on the carriage rail at each carriage rail adjuster. Turn the carriage rail adjuster up or down so that the string line just touches the top of the wood block. After the carriage rail has been adjusted and is straight, re-tighten all of the carriage rail locknut. Repeat the procedure on the opposite side of the machine.



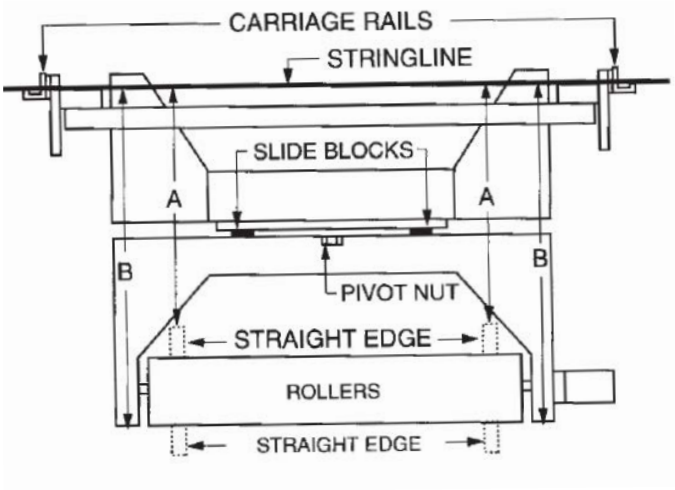


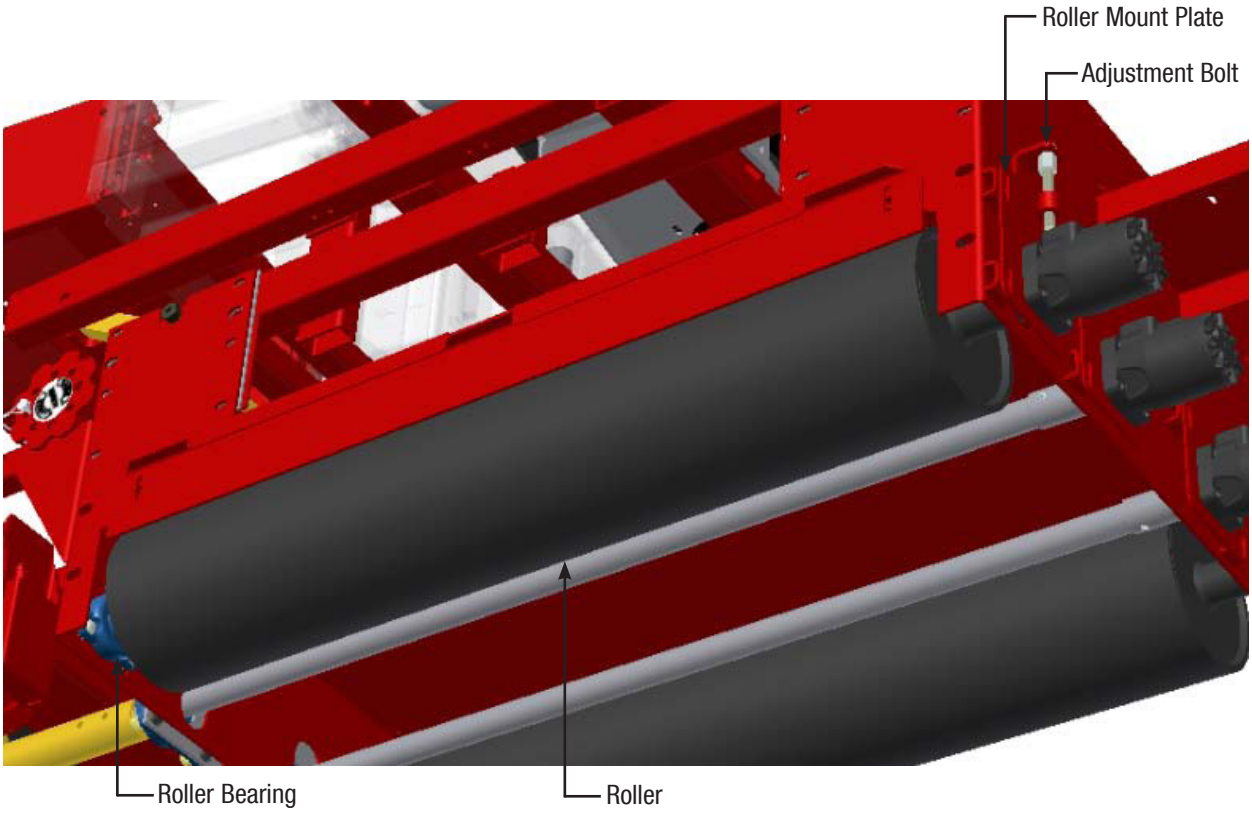
10. SQUARE CARRIAGE - Before squaring the paving carriage, make sure that the lower carriage slide blocks make contact with the upper carriage skew ring. **If your machine is equipped with a carriage lift option, make sure that it is in the down position.** If contact is not made, turn the pivot nut located on the underside of the lower carriage. If contact is uneven, check for wear on the slide blocks. It may be necessary to replace the blocks or block shims. Start the paving carriage engine and engage the on/off lever. To pivot the lower carriage, manually push or pull the reversing valve shift rod to engage the pivot cylinder. Adjust the turntable pivot nut until lower carriage pivots freely. When you are satisfied that it does, shut off the engine and replace the cotter pin in the pivot nut.



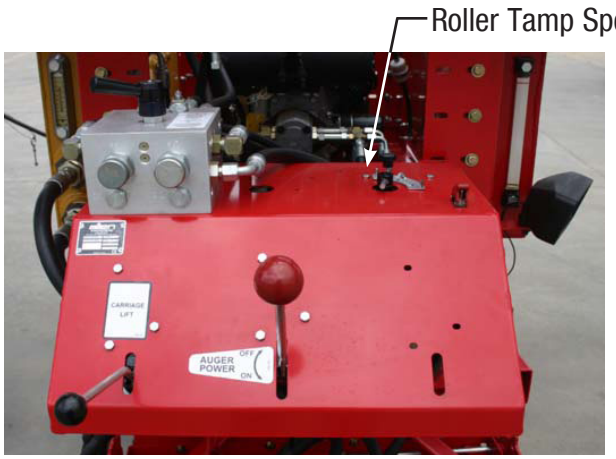


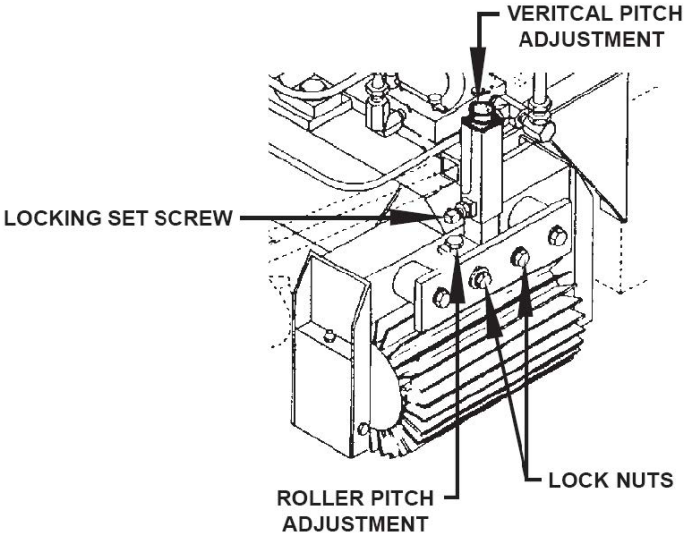
Physically align the paving rollers so that they are parallel with the upper carriage. Stretch a string line across the top of each side of the upper carriage. Make sure that the string line contacts the inner flange of the carriage rail. If your machine is equipped with a carriage lift option, make sure that it is in the down position. Place a 4 foot long straight edge across the top or the bottom of both ends of the paving rollers. Loosen the bolts holding the roller bearings on the front of the lower carriage and the bolts that support the roller motor mount plates on the back of the lower carriage. Do not remove the bolts. Using a tape or carpenters rule, measure down from the string line to the top of the straight edge. At this point the distance is arbitrary but must be the same at all four corners. Adjust the distance of each roller end by turning its adjuster bolt clockwise to raise the roller and counter clockwise to lower the roller. When all four corners are of equal distance from the string line the paving rollers will be parallel with the carriage rail. Replace all shields and tighten all loose mounting bolts. Using the auger adjusting crank, reset the augers to 1/8" to 1/4" above the bottom of the paving rollers.

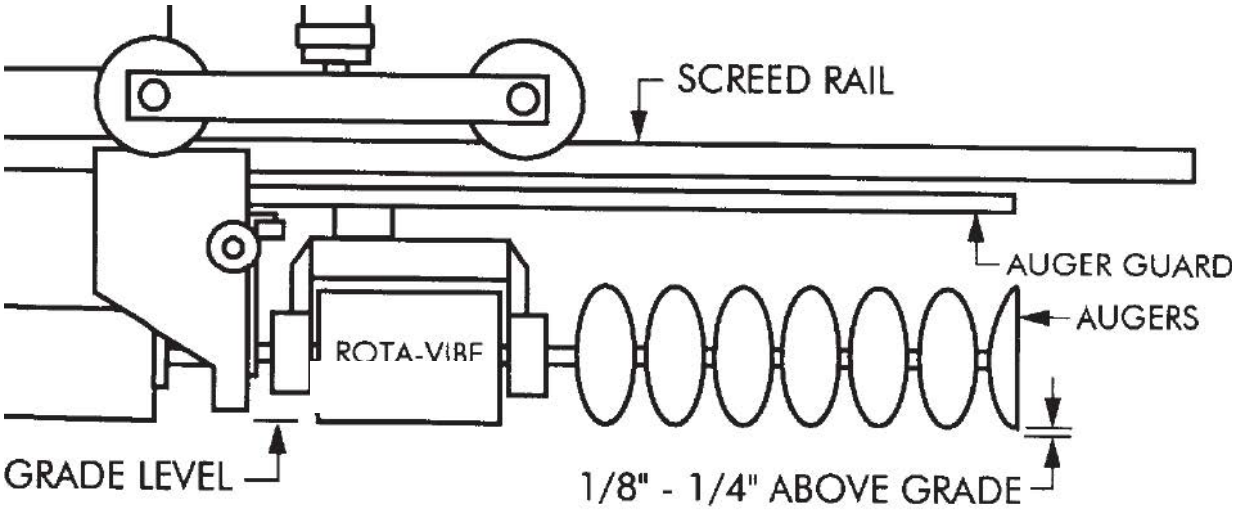




2.5 - Machine Setup, continued







11. ROLLER TAMPER - The ACP Roller Tamper is an option that provides a means of achieving a more uniform concrete surface with the desired density. It seals difficult to finish concrete, due to harsh mix design, low slump specifications and wind exposure, causing abnormal surface drying and unforeseen delays.

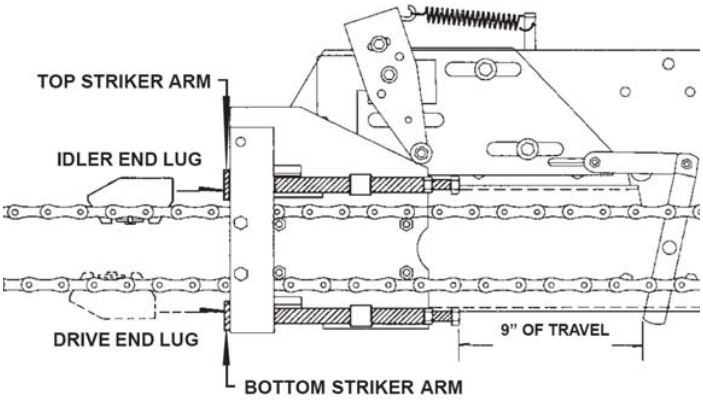
Place a four foot level under the paving rollers and under the Roller Tamper's finned rollers. Loosen the locking set screws and the lock nuts for the roller pitch adjustment on both sides of the Roller Tamper. Normally the front and back of the finned rollers are set to grade.

The Roller Tamper finned rollers are vertically adjustable from 1/2 inch above concrete grade to 3/4 inch below concrete grade. The depth of penetration can vary according to job requirements. Pitching the front end of the rollers allows the Roller Tamper to remain parallel to the concrete grade when the rear of the machine is raised with the leg cranks. Maximum recommended depth is 3/16 inch.

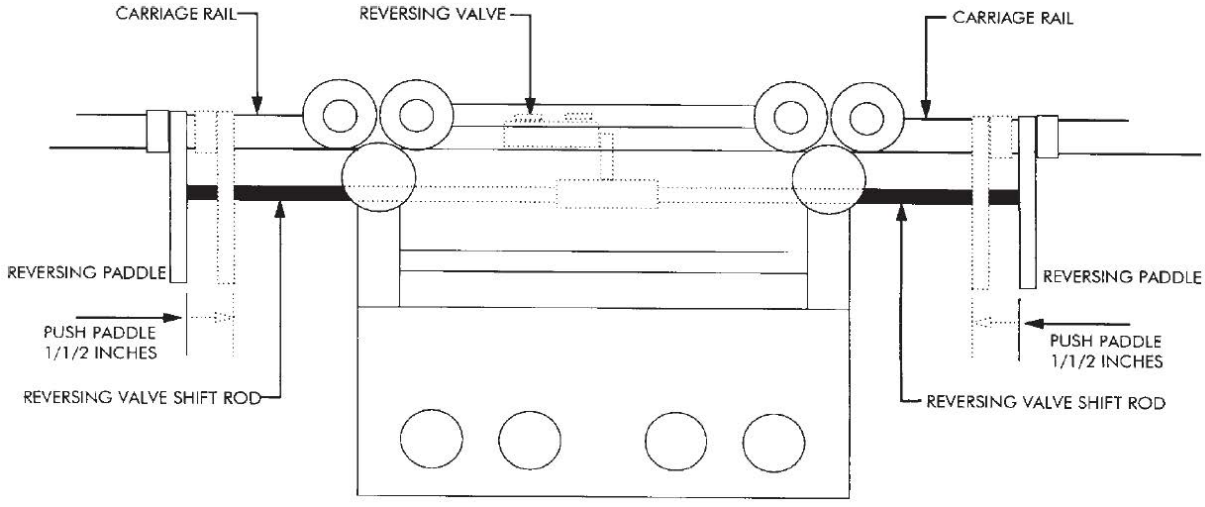
To check vibration levels use the Vibra-Tak provided and follow instructions. Run the vibrator at the speed that does the best job of keeping the fins of the rollers clean. Normally 3500 to 5000 VPMs is a good operating speed. **Do not exceed 5000 VPMs**.

12. CARRIAGE TRAVEL - The carriage travel distance can be adjusted to suit the job requirements by strategically positioning the reversing lugs on the upper and lower travel chain. Move the carriage to the desired travel distance at the idler end of the machine and stop the carriage. Use your hand and push the top striker arm of the controller until the reversing valve shifts. Holding back the striker arm, attach the reversing lug next to the striker arm on the top of the travel chain. Move the carriage to the desired travel distance at the drive end of the machine and stop the carriage. Use your hand and push the bottom striker arm of the controller until the reversing valve shifts. Holding back the striker arm attach the reversing lug next to the striker arm on the bottom of the travel chain.

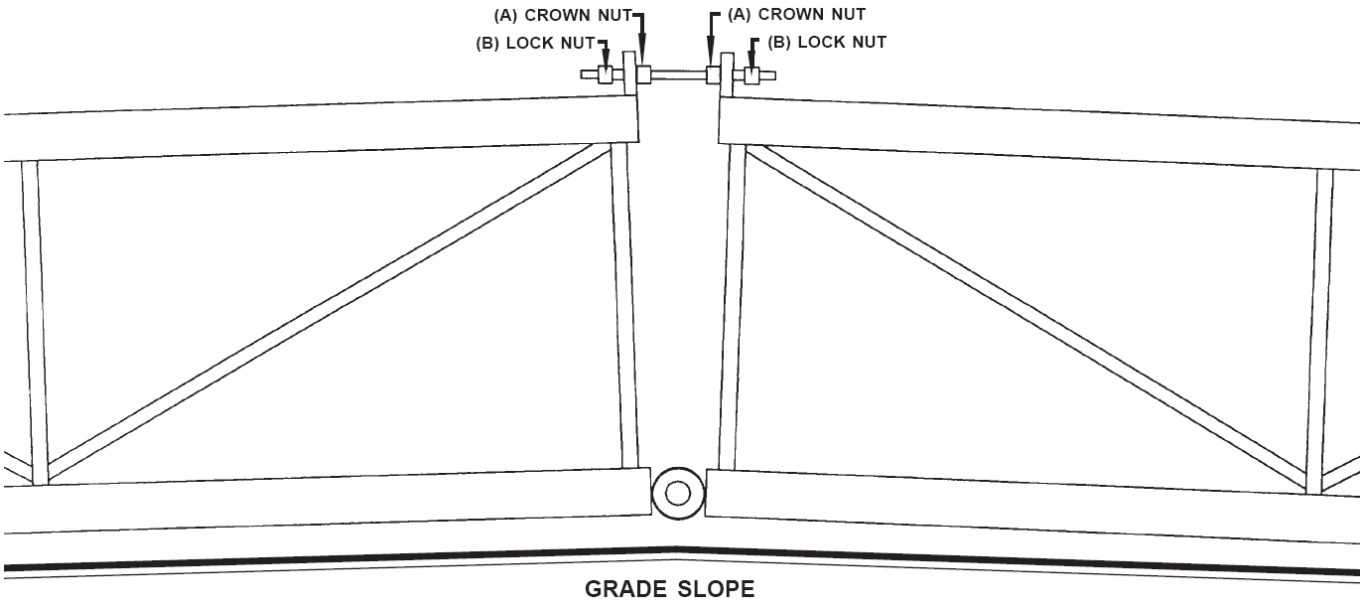
After the reversing lugs have been installed, move the carriage to one of the points of direction reversal and stop the carriage. To set the paving roller pivot device, slide a reversing paddle onto the carriage rail. When it makes contact with the paving roller reversing valve shift rod, push the paddle approximately 1-1/2 inches or until the rod spring shifts the reversing valve. Lock the reversing paddle in place by tightening the set screw. Move the carriage to the opposite direction reversal point and repeat the procedure on the other side of the carriage. Adjust the hold down rollers on the hanger frame by loosening the holder yoke set screws. Loosen the set screws so that the rollers exert slight pressure on the carriage rail but still allow you to turn them by hand.

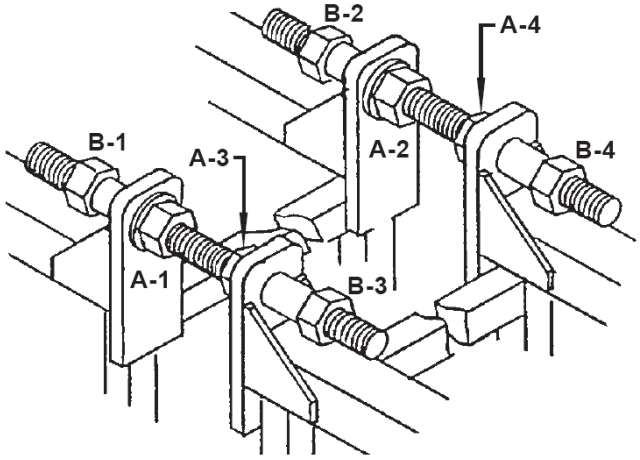


13. CROWN ADJUSTMENT - When adjusting the crown, the frame should be assembled and positioned so that a hinge joint is directly above the crown center. The paving carriage should be moved to the crown point to allow for the natural deflection of the truss frame. Measure up from a grade point to the top of the carriage rail on both sides of the machine (Note the measurement). Adjust the bolts until the machine frame slope matches



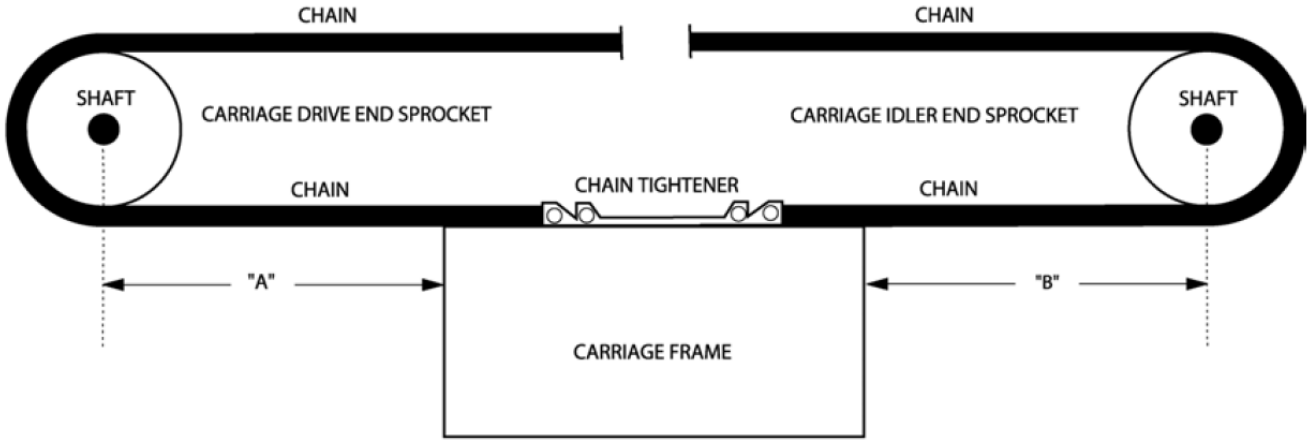
2.5 - Machine Setup, continued

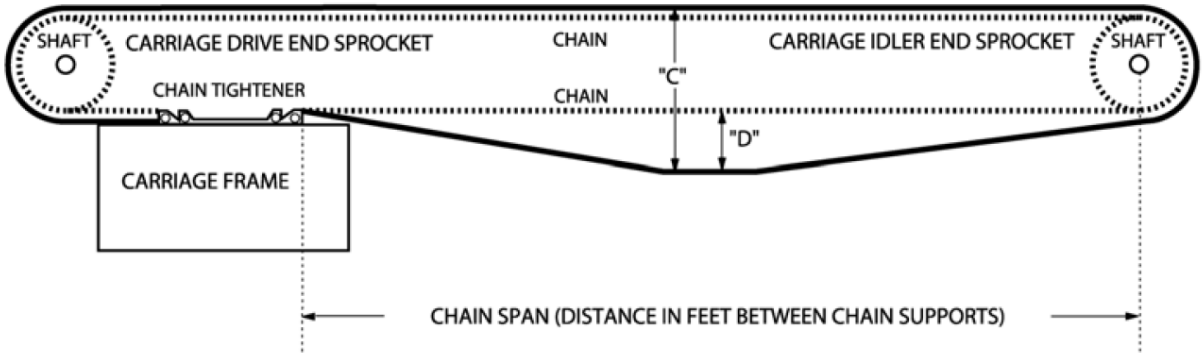




the desired grade slope. It is recommended that the crown bolts be adjusted 1/2 inch at a time and alternated sequentially. This permits the crown bolt nuts to shift slightly to compensate for the angle change and requires less adjustment effort. Lock nuts "B" must be backed off at the same time that you adjust the crown nuts "A".

14. CHAIN TENSION - Use the chain tightener on the paving carriage to equalize the tension of each carriage travel chain (See Figure 28). Be careful to verify that the carriage is "square" with the carriage rails. For dual chain machines, run the carriage to the drive end of the machine and verify that the distance between the carriage frame and the carriage travel shaft (Dimension "A" & "B") is the same at each chain. Adjust the side thrust rollers to keep the carriage square.





To determine the amount of chain sag needed, move the carriage to one end of the machine and measure the distance between the top and the bottom of the chain in the center of the machine. It is recommended that the chain sag should not be less than the distances for dimensions "C" and/or "D" shown in the representative tables below. If the chain tension is too great, excessive chain wear may result. If the chain tension is too slack, excessive sprocket wear and/or improper carriage reversal may result. NOTE: These dimensions are for a straight machine. Readjust for machines with a crown.

TABLE - DIMENSION "C"

CHAIN SPAN	MINIMUM CHAIN SAG
40 Feet	7 Inches
60 Feet	9 Inches
80 Feet	11 Inches

TABLE - DIMENSION "D"

CHAIN SPAN	MINIMUM CHAIN SAG
40 Feet	3 Inches
60 Feet	5 Inches
80 Feet	7 Inches
100 Feet	11 Inches
120 Feet	16 Inches
130 Feet	19 Inches

15. MACHINE GRADE - To set the machine to grade, move the carriage to a place where the front end of the paving rollers are over the top of a bulkhead, expansion joint or end dam that is on grade. Using the leg cranks lower the paving rollers so that they are just touching or are slightly above the bulkhead joint or end dam. Move the carriage along the graded area from one side to the other. When satisfied that the grade of the paving rollers is correct, measure each leg, front and rear, from the screed pipe to the carriage rail. The measurement should be the same, front and rear, on each end of the machine. Use the leg cranks to correct any discrepancies.

16. DRY RUN - The machine is now ready for a "Dry Run" of the entire deck or slab. The checking of bulkheads, end dams, expansion joints and depth checks can be done by inspecting personnel. This time allows the operator to become familiar with the controls and the operation of the machine. If any corrections or adjustments need to be made it is usually done by adjustments in the screed pipe.

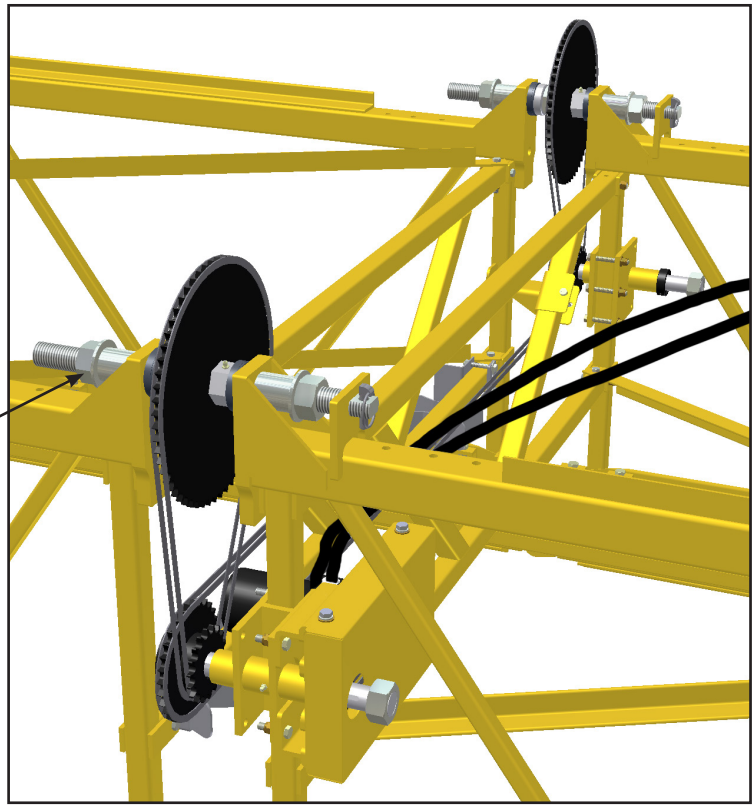
17. PRE-POUR INSPECTION - Thoroughly inspect the machine before pouring concrete. For best performance, lubricate all moving parts. Be sure to coat any part that might be exposed to wet concrete with oil. Make sure that all engines have been serviced properly. Avoid getting any dirt or other contaminates into the hydraulic system. Use clean containers to add hydraulic fluid to the hydraulic tanks. Thoroughly clean all hydraulic components before loosening or disassembling. Wipe clean all hydraulic hose disconnects before reassembling.

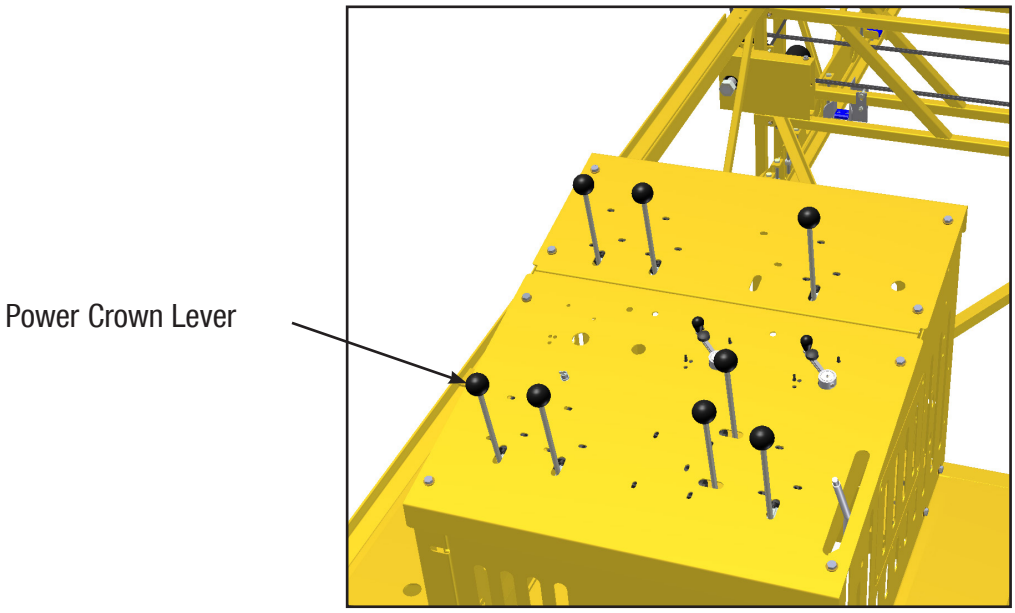
PAVING PROCEDURE

1. ADJUST ROLLERS AND DRAG PAN - After the pour has started and the machine has moved out from the end bulkhead or has passed over the bulkhead the full length of the paving roller, raise the back of the machine 1/8 of an inch by turning the leg cranks 1/2 turn counter clockwise. This will keep the rear of the paving rollers from digging in and leaving a small ridge of concrete. It may be necessary to readjust the augers, up or down, to obtain or reduce the roll of concrete. Optimum is golf ball size in diameter at the front of the paving roller. As the machine progresses into the pour and clears the bulkhead or end dam, attach the burlap or astrograss drag to the drag pan.

NOTE: The burlap drag should be wet. If new burlap is being used the burlap should soak in water for at least 24 hours. This will remove all oils in the burlap and make it more absorbent.

2.6 - Power Crown Option





2.6 - Power Crown Option, continued

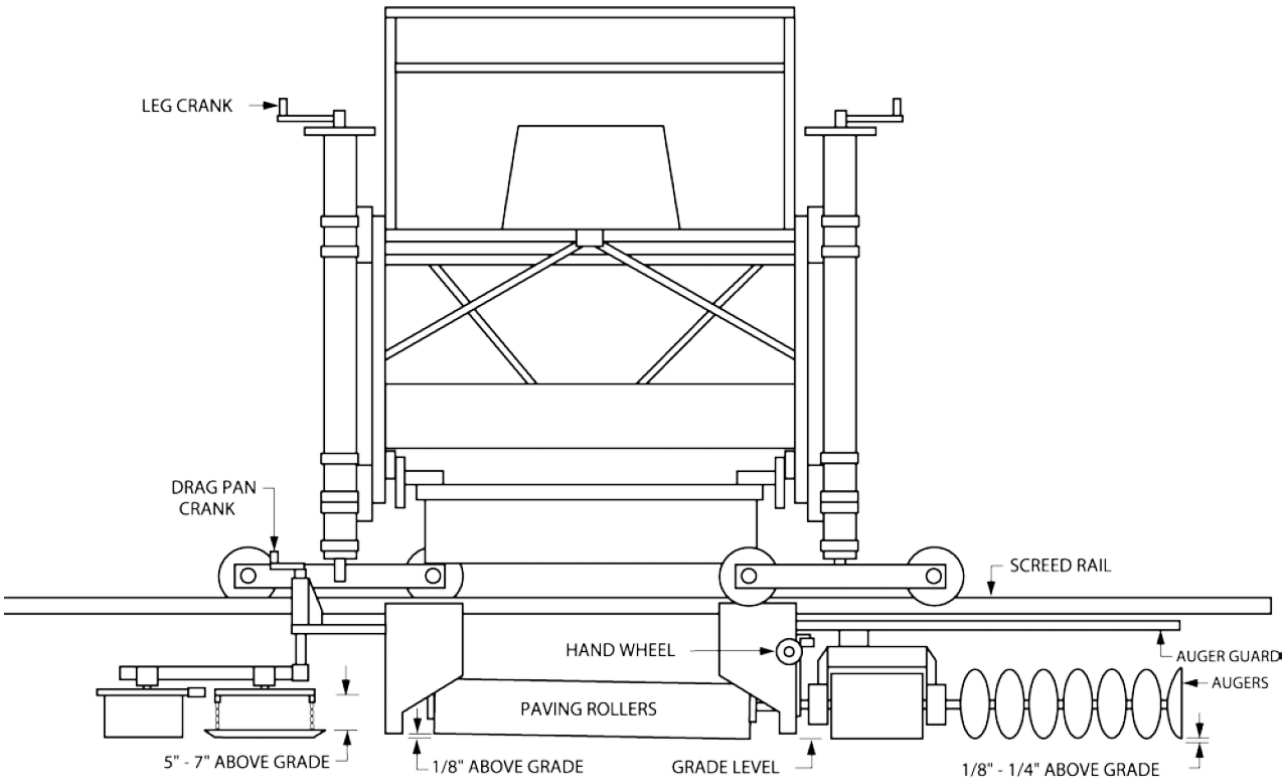
The Power Crown (Optional) is an assisted system to help in the crowning of the bridge deck finisher. To operate the the power crowner follow the instructions below.

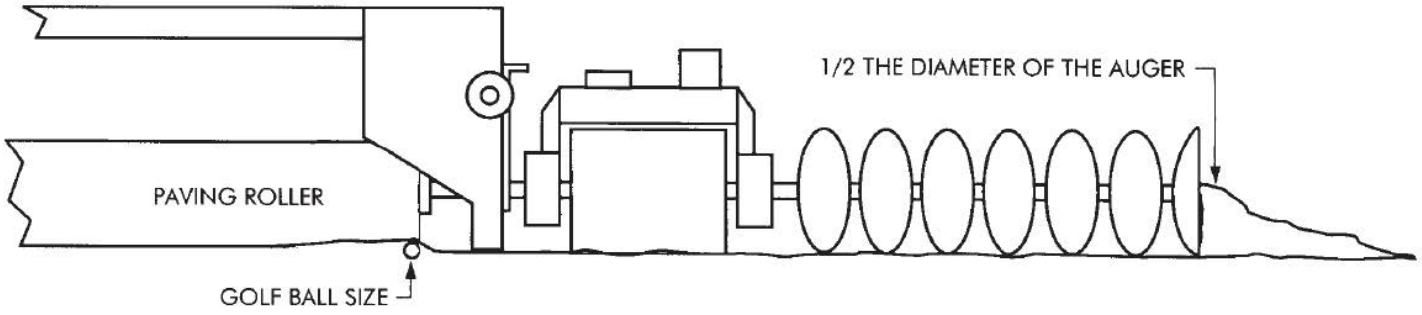
STEP 1) Loosen nut (A) off to allow the crowning shaft to turn freely.

STEP 2) Crown the machine using the power crown lever on the control panel. Push the lever up to crown the machine and pull the lever down to lower the machine.

STEP 3) After desired crown is achieved tighten nut (A) to ensure that the crown will stay and the possibility of the crown slipping does not occur.

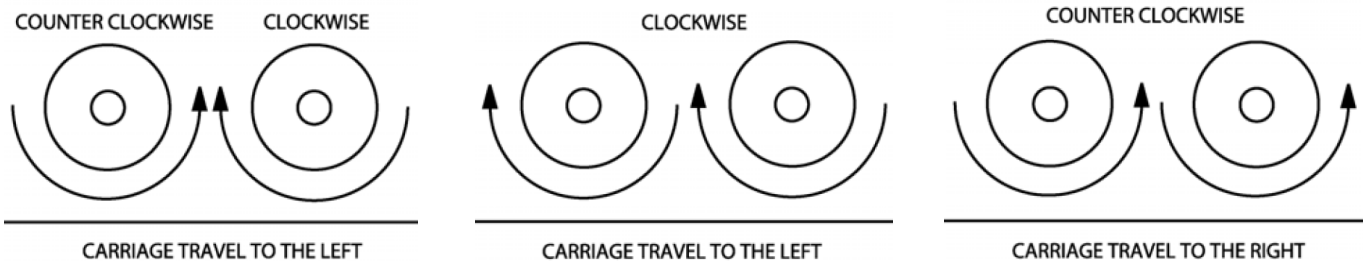
2.7 - Paving Operations



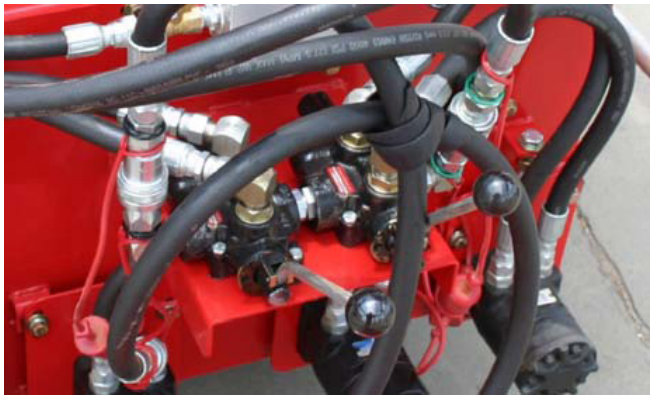


The texture given by the burlap can be easily adjusted. If the burlap is dragging to hard, remove one of the retaining tubes and roll up the burlap so that the drag is not so heavy. If the burlap does not seem to drag enough, increase the length of the burlap so that it hangs down more.

NOTE: If the drag pan H-Frame is too high or the chains are hooked too tight, the pan will have a tendency to hop as it is being dragged across the deck.

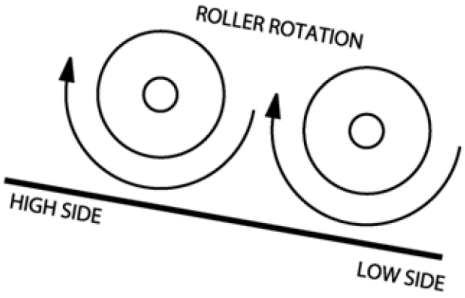


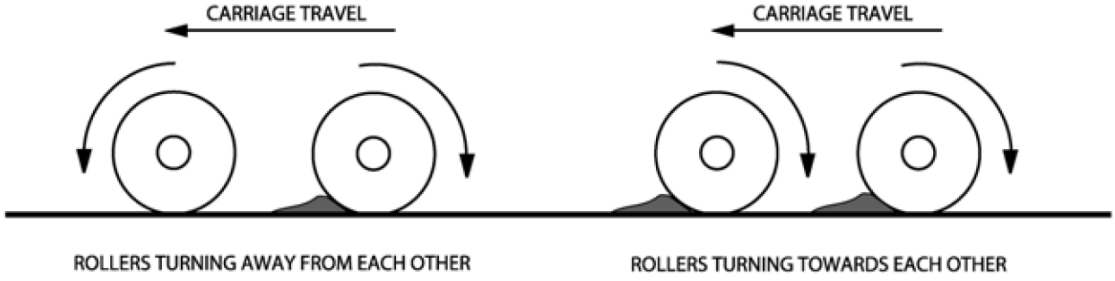
2. ROLLER ROTATION - The two paving rollers can rotate in the same direction (either clockwise or counter clockwise) or they can rotate in opposite directions. At the beginning of a pour it is recommended that you rotate the rollers in the same direction for the first couple of passes. Using the roller directional valves, position the two valve levers in the same direction. Facing the augers, both rollers turn clockwise when the carriage travels to



the left and counter clockwise when the carriage travels to the right. Put the automatic roller reversing valve in the "Reversing" position. The "Reversing" position will change the roller direction with each pass of the carriage. After a couple passes, change the direction of one roller. Which one will depend on the direction of the carriage travel. Put the automatic roller reversing valve in the "Non-Reversing" position. The "Non-Reversing" position does not change the roller direction with each pass of the carriage. Facing the augers, the right roller turns clockwise and the left roller turns counter clockwise. This allows the leading roller to consolidate the concrete and the trailing roller to pave the surface. Normally, when pouring a flat bridge deck or slab, this roller rotation will provide the best overall production and sealed finish. However, due to "mix", slump and other concrete variables, one roller rotation option may work better than another. The paver's automatic pivot device will keep the excess material that the paving rollers carry moving out the front of the paving rollers instead of trailing off to the rear of the paving rollers. The pivot device can be adjusted for quickness by turning the set screws on the automatic roller reversing valve.

3. SUPER ELEVATIONS - When paving super elevated slabs, bridge decks or skewed decks both rollers must be turning in the same direction and the automatic roller reversing valve should be set in the "Non-Reversing" position. The concrete should be pushed from the low side to the high side of the elevation and roll over the concrete going down the super elevation. The roller direction will depend on the direction of the pour and what side is the high side.

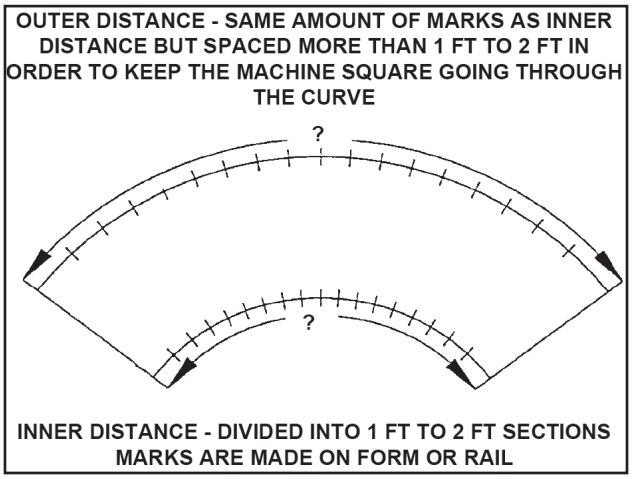




2.7 - Paving Operations, continued

4. **PAVING UP & DOWN GRADES** - When paving up a grade, the rear of the paving rollers may need to be raised higher (approximately 1/8" to 1/4"). Raise the back of the machine 1/8 of an inch by turning the leg crank 1/2 turn counter clockwise. The augers may need to be adjusted lower. Adjust the augers with the auger adjusting crank. These adjustments will counteract the tendency of excess concrete from moving downhill toward the paving rollers. When paving down a grade, 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 be sure that there is close to total contact with the deck or slab. When paving down hill, you want maximum surface contact with the concrete but not allow any ridge or line of concrete to come off the rear of the paving rollers.

5. **PAVING CURVES** - Given the known length or distance of the inside and outside curve, mark an equal number of spaces on the inner curve (1 to 2 feet in length). 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. To negotiate the inner curve, 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. Keep the front wheels of both the inner and outer ends aligned with the marks placed on the rail or curb.



6. **MACHINE ADVANCEMENT** - The advancement of the machine at the end of each pass is based on the rate of concrete being poured. The operator should pace the machine advancement so that the physical placement of the concrete is no more than 6 to 8 feet in front of the machine. Normal advancement of the machine will vary from 3 to 6 inches (up to 12 inches) for each carriage pass. This will insure that fresh concrete will move into the paving rollers before dehydration of the concrete occurs. This is particularly true in hot, windy weather. The decking and subbase material should also be kept wet in hot, windy weather to aid in the slowing down of the drying process.

7. **CARRIAGE TRAVEL SPEED** - At times it may be advantageous to slow down the carriage travel speed. Slower carriage travel will allow the paving rollers to have longer contact with the surface. Slowing the carriage travel speed may be beneficial when paving super plasticized concrete or latex modified concrete. The carriage speed can be reduced by slowing down the engine or by using the carriage speed control located on the operator's console. The operating speed of the engine should run 3300-3500 RPM. At these speeds the carriage will travel approximately 85 to 90 feet per minute transversely across the machine.

8. **BEFORE PAVING SKEWED DECKS** - Before paving skewed decks it is essential that you determine all of the job specifications and special details prior to setup of your 4836 Paver. Ask yourself the following four questions: 1) What is the skew angle measured perpendicular to centerline (90 degrees to centerline)? 2) What is the distance between the screed rails, measured perpendicular to centerline of the deck? 3) Is the deck super elevated? 4) Is the deck crowned?

   To determine the length of the machine set at the required skew angle, use the following equation: "A" = the required skew angle. "B" = the conversion factor (Ex: 1.04). "L"= the rail to rail length as measured perpendicular to the roadway centerline in feet. "C" = the extra machine length that is required due to skew. The total machine length required = "B" x "L" + "C".

"A" - Skew Angle in Degrees	"B" x "L" Rail to Rail Length	"C" - Extra Length
15	1.04 x Length	4-1/2 Ft
20	1.06 x Length	5 Ft
25	1.10 x Length	6 Ft
30	1.15 x Length	6-1/2 Ft
35	1.22 x Length	7-1/2 Ft
40	1.31 x Length	8 Ft
45	1.41 x Length	9 Ft
50	1.56 x Length	10-1/2 Ft
55	1.74 x Length	12 Ft
60	2.00 x Length	13-1/2 Ft

9. PAVING SKEWED DECKS - BASIC MACHINE

Follow the standard machine setup instructions, initial roller and drag pan adjustments and roller rotation. Make sure that the truss and carriage rail have been straightened per standard machine setup. Mechanically disconnect the hydraulic skew cylinder and tie it back out of the way. Manually rotate the lower carriage until the paving rollers are parallel to the centerline and lock in position using the skew ring clamps provided with the machine.

The drag pan and burlap/astrograss "H" frames will need to be turned so that they are parallel to the carriage rail. This allows the pan and the texturing cloth to follow the skew angle as the carriage travels across the deck or slab.

At this point the paving rollers need to be stringlined to the carriage rail so that the rollers are parallel to the carriage rail. Follow the standard setup instructions for stringlining the paving rollers. Be sure to run the stringline across the top of the carriage rail adjacent or parallel to the paving rollers.

10. PAVING SKEWED FLAT DECKS AND SUPER ELEVATIONS WITH NO CROWN - Paving skewed flat decks and super elevations do not require any special equipment. When specifications allow, the machine can be positioned at an angle approximately equal to the skew angle. Position the lower carriage so that the paving rollers are parallel to the centerline of the deck. The deck should be finished from the leading end of the machine to the trailing end of the machine. The paving rollers should be rotating in the same direction and the automatic roller reversing valve should be set in the "Non-Reversing" position.

The concrete should be pushed from the low side to the high side of the elevation and roll over the concrete going down the super elevation. The machine should pave from the leading end (must be the low side of the deck) to the trailing end (must be high side of the deck).

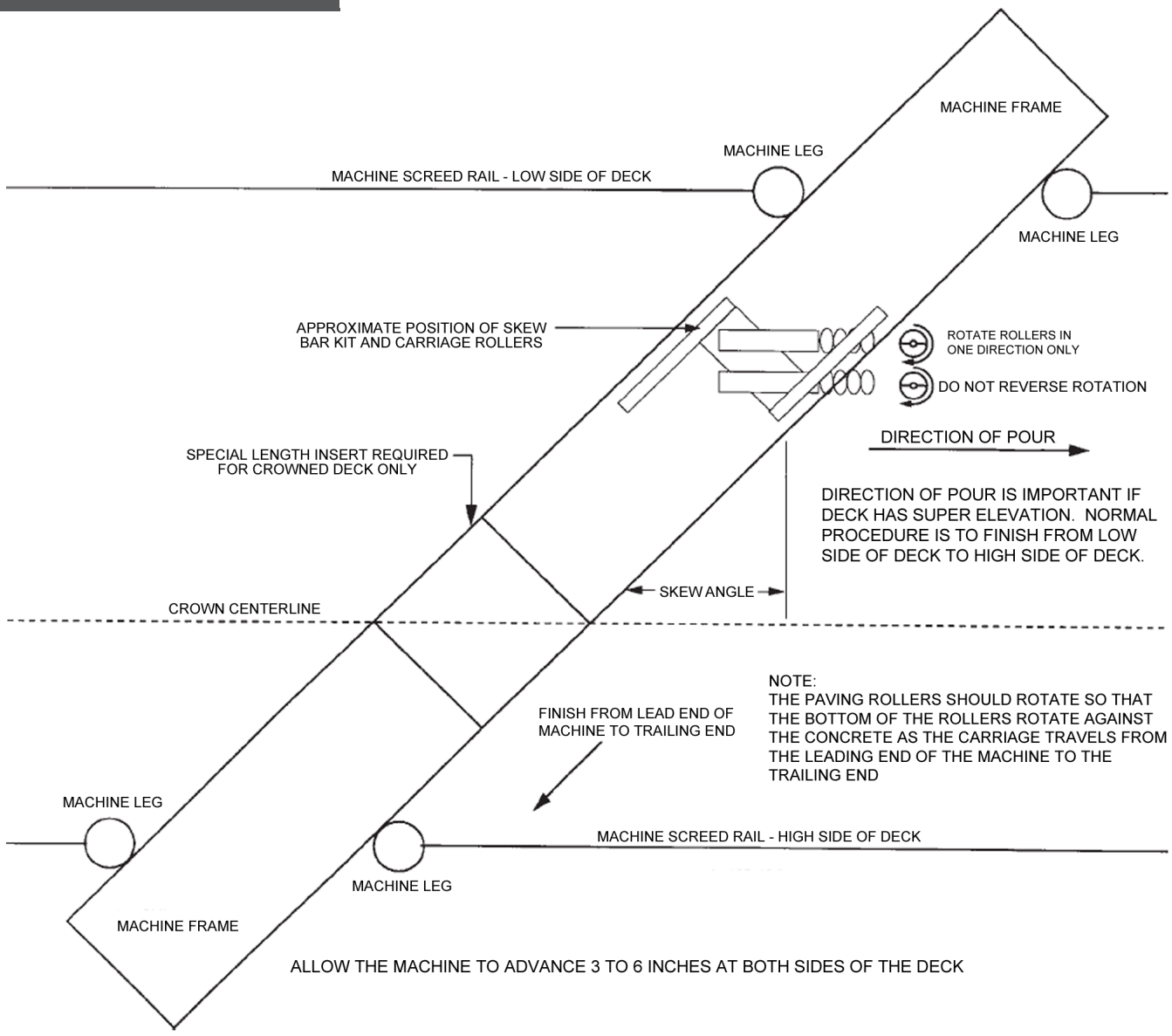
11. PAVING SKEWED DECKS WITH CROWN - Review the project specifications and requirements. When determining machine lengths for skewed decks with a crown, remember all lengths start with the crown line. Contact the ACP Service Department if the crowned deck requires a special length insert. The machine frame and the carriage rail should be crowned on opposite corners of the inserts. **NOTE: WHEN PLACING A CROWN INTO THE MACHINE THE DIAGONAL ANGLE BRACES IN THE SECTION BEING CROWNED.**

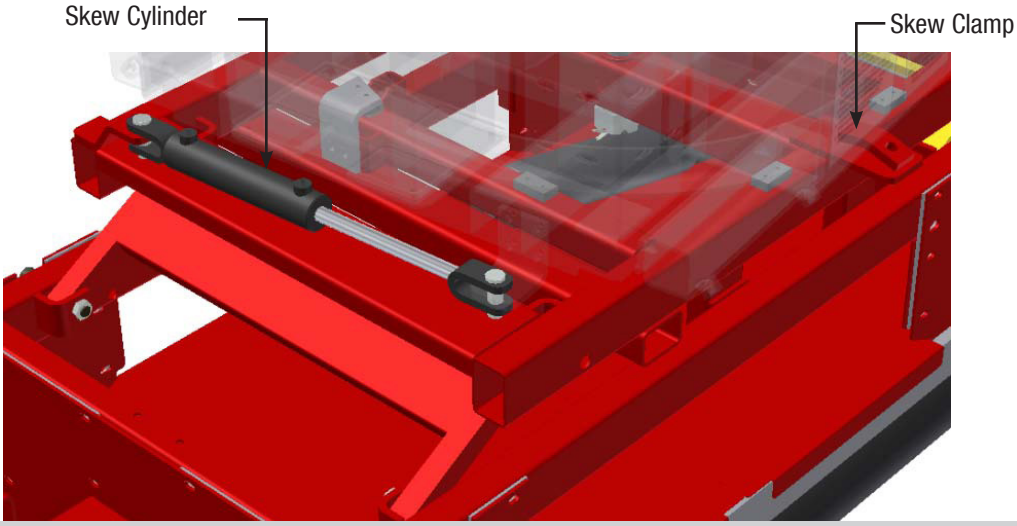
When the 4836 Paver is skewed to pave skewed decks with a crown, each carriage travel rail must be crowned exactly above the crown line on the deck. The lower carriage must be skewed so that the paving rollers are parallel to the centerline of the deck. The carriage wheels on the upper carriage must be repositioned so that they are centered over the crown line. Reposition the carriage wheels by means of the Optional Carriage Skew Bar Kit. The skew bar kit offsets the carriage wheels so that when the carriage passes through the crown the paving rollers pass over the crown parallel to the crown line. The skew bar kit comes drilled for skew angles of 22 degrees through 45 degrees. If the skew bar kit is installed in the field, it may be advantageous to remove the carriage and install the kit while the machine is split for the installation of additional inserts. It is important that you know and have available the following information before ordering the optional skew bar kit: 1) What is the skew angle? 2) Is the skew angle measure from a line "parallel to" or "perpendicular to" the centerline of the bridge deck? Note: For consistency, ACP measures from perpendicular. 3) Is the skew clockwise or counter clockwise from a line perpendicular to the centerline of the bridge deck? 4) Is the deck crowned? 5) What is the cross slope (%) for each side of the crown? 6) What is the distance, measured perpendicular to the centerline of the deck, between the screed rails? 7) Know the Model and Serial Number of your machine.

- **Skew Bar Kit Installation:**

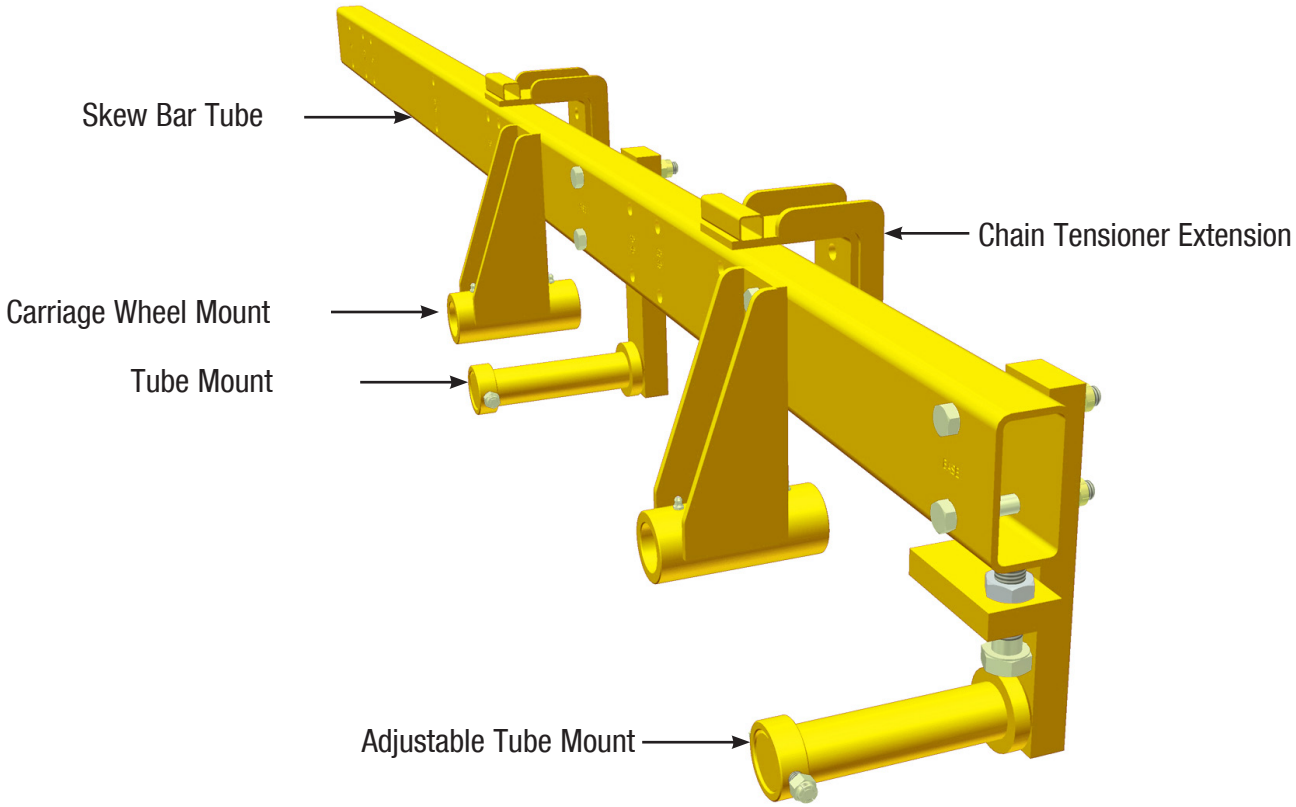
1. Remove the carriage assembly from the machine and block up the carriage so that the carriage weight does not rest on the paving rollers.
2. Remove or deactivate the carriage skew cylinder.
3. Remove the carriage wheel assemblies from the carriage hanger frame and put aside for re-installation.
4. Add extension chain tightener plates onto the existing chain tightener plates.
5. Install the tube mount brackets into the upper carriage frame and mount the skew bar tubes at the locations marked "Base".
6. Install the carriage wheel mounts onto the skew bar tubes at the bolt holes that match the angle determined by your job specifications. Install the carriage wheel assemblies that were removed from the carriage hanger frame into the carriage wheel mounts on the skew bar.
7. Install the complete carriage assembly with skew bar it into the machine frame.

2.7 - Paving Operations, continued





2.7 - Paving Operations, continued



The carriage rail must be crowned exactly above the crown centerline. This can be accomplished with a special length insert from the factory. Position the machine so that the crown centerline occurs at the ends of the special insert. The paving rollers must always turn in only one direction when paving skewed decks. The rotation of the rollers should be set so that they finish the concrete only when the carriage travels from the leading end of the machine to the trailing end of the machine. The paving rollers should rotate so that the bottom of the rollers rotate against the concrete as the carriage travels from the leading end to the trailing end of the machine. The paving rollers are mounted on the lower carriage turntable and can be turned to any angle for finishing skewed decks.

To skew the paving rollers follow the steps below:

1. Manually disconnect the skew cylinder, if it is installed on the machine, and tie it back or remove it from the carriage.
2. Loosen the skew stop clamps and rotate the paving rollers to the desired skew angle.
3. Use the roller directional valves and position the two valve levers in the same direction. Facing the augers, both rollers turn clockwise when the carriage travels to the left and counter clockwise when the carriage travels to the right. Put the automatic roller reversing valve in the “Non-Reversing” position. The “Non-Reversing” position does not change the roller direction with each pass of the carriage.

When a skewed deck is super elevated, the leading end of the machine must be at the low side of the deck. This permits the carriage to finish as it travels up the slope.

2.7 - Paving Operations, continued

12. PAVING THIN BONDED CONCRETE OVERLAYS

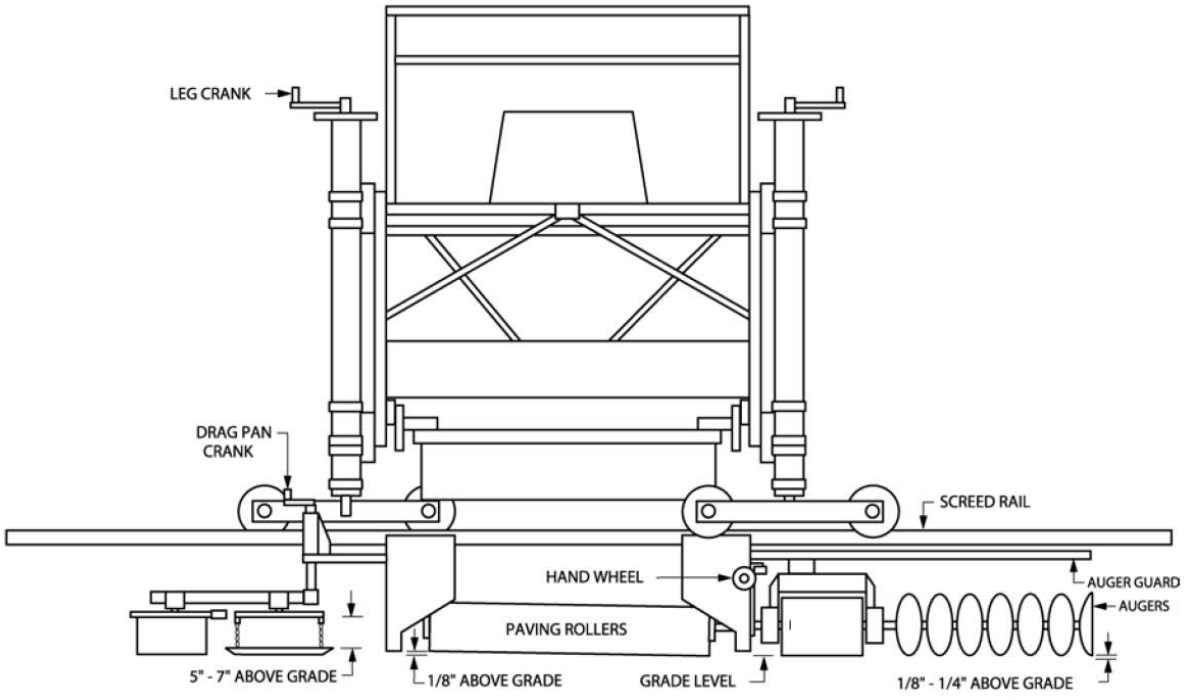
It is very important that the machine has a straight and solid set of screed rails. It is our experience that round pipe is superior to square tubing or beam rails. We recommend 2" schedule 80 black iron pipe used with low profile overlay adjustable screed chairs spaced 24" on center. The pipe is easier to align, set into screed chairs and confirm to radius turns. If the overlay is made in several passes a nail strip is commonly used to help maintain a straight edge and to keep the outer edge from slumping. It is also a way to minimize the waste of material. **Do not place material over 5 feet in front of the machine.**

All vibration attachments are easily controlled on the front of the carriage. This permits changing vibration speed to match the requirements of the job and the depth of the mix. With the vibration properly adjusted, the attachments will make the material more uniform, removing air pockets and voids. If your machine is equipped with a Roller Tamper, set the finned rollers 1/2" to 3/4" below finished grade and run between 4000 to 5500 vibrations per minute. For maximum production every effort should be made to control the quality and consistency of the concrete mix. Deep holes or partial depth pockets should be filled and vibrated with hand vibrators.

The setup time, the time it takes for the film or latex skin to form on the surface, is 10 to 15 minutes with a normal slump of 4-1/2 to 7 inches. It is important that the finishing process be completed within ten minutes. This will give adequate time for hand finishing along curb edges and for the surface texturing required before the surface film or skin forms.

Because latex modified concrete drys quickly, weather conditions are an important paving variable. It is not recommended that latex modified concrete be poured if the temperature exceeds 85° F or if there is a high and constant wind. Heat and high winds will speed up the setup time and cause serious finishing problems. Actually, the best time to pour latex modified concrete is between 2 AM and 7 AM when temperatures are low and wind velocity is reduced.

Follow the standard machine setup instructions, initial roller and drag pan adjustments and roller rotation. It is important that the burlap drag be soaked with water and continuously sprayed during the pour. The deck surface should also be wet down before the pour and not have a chance to dry out. Ahead of the machine, spread and broom the material onto the deck, removing most of the large aggregate. Brush the slurry onto the curbs or adjoining slabs a minimum of 3 inches to insure a strong bond. **Do not place material over 5 feet in front of the machine.**



PAGE LEFT BLANK INTENTIONALLY

Notes

SECTION 3
SERVICE

SECTION 3 SERVICE

3.1 - General Maintenance

MAINTENANCE

For maximum performance we recommend that you service and maintain your 4836 Paver on a regular basis. Do not hesitate to call the ACP Service Department if, at any time, you have a question about the service and maintenance of your machine.

LUBRICATION CHART		
DAILY		
PAVING CARRIAGE	**Check**	
Carriage Wheels (4)	Lubricate	NLGI-2 Lithium Base Grease - Lubricate slowly until excess lubricant is observed.
Carriage Hold Down Rollers (4)	Lubricate	NLGI-2 Lithium Base Grease - Lubricate slowly until excess lubricant is observed.
Auger Bearings (2)	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 (4)	Lubricate	NLGI-2 Lithium Base Grease - Lubricate slowly until excess lubricant is observed. Grease bearings immediately- after pour to flush concrete from bearing seal.
Reversing Valve Slide Bracket	Lubricate	NLGI-2 Lithium Base Grease - Lubricate slowly until excess lubricant is observed.
Hydraulic Oil Reservoir (1)	Inspect	68 Hydraulic Oil - Add hydraulic oil if necessary. replace oil filter with a 10 micron filter element after the first 50 hours and every 250 hours thereafter.
Engine Crankcase (1)	Inspect	Engine Oil SAE 30, MS SD or SE - Add oil if necessary.
POWER UNIT	**Check**	
Hydraulic Oil Reservoir (1)	Inspect	68 Hydraulic Oil - Add hydraulic oil if necessary.
Engine Crankcase (1)	Inspect	See “Engines” - Add oil if necessary.
LEGS AND TRAVEL BOGIES	Check	
Power Leg Screws (4)	Lubricate	NLGI-2 Lithium Base Grease - Extend Inner Leg 5 Inches. Apply 5 to 10 pumps of grease. Retract leg to its original position.
Bogie Wheels (8)	Lubricate	NLGI-2 Lithium Base Grease - Lubricate slowly until excess lubricant is observed.
SHIFTING MECHANISM	**Check**	
Shifter Cam Rollers (4)	Lubricate	Engine Oil SAE 30, MS SD or SE
Shifter Sliding Parts	Lubricate	“Never Seez” or graphite filled grease. - Brush “Never Seez” or graphite filled grease around slots and on shifting mechanism rail and striker arms. Apply to finish-ing roller reversing rod.
Idler Sprocket Bearings (2)	Lubricate	NLGI-2 Lithium Base Grease - Lubricate slowly until excess lubricant is observed.
EVERY 25 HOURS		
PAVING CARRIAGE	**Check**	
Engine Crankcase (1)	Replace	See “Engines” - Add oil if necessary.
POWER UNIT	**Check**	
Engine Crankcase (1)	Replace	Engine Oil SAE 30, MS SD or SE - Add oil if necessary.

LUBRICATION CHART (cont'd)		
EVERY 100 HOURS		
LEGS AND TRAVEL BOGIES	**Check**	
Drive Bogie Axle Bearings (4)	Lubricate	NLGI-2 Lithium Base Grease - Lubricate slowly until excess lubricant is observed.
Bogie Drive Chains (2)	Lubricate	
CONTROLLER	**Check**	
Carriage Travel Chains (2)	Lubricate	Chain Lube
SEASONAL OR AS REQUIRED		
PAVING CARRIAGE	**Check**	
Hydraulic Oil Reservoir (1)	Replace	68 Hydraulic Oil - Remove and clean suction screen.
POWER UNIT	**Check**	
Hydraulic Oil Reservoir (1)	Replace	68 Hydraulic Oil - Remove and clean suction screen. Replace oil filter element with a 10 micron element.
LEGS AND TRAVEL BOGIES	**Check**	
Manual Leg Screws (4)	Lubricate	NLGI-2 Lithium Base Grease - Disassemble leg and brush grease onto leg screw and fill leg thrust bearing with grease.
Leg Rollers (16)	Lubricate	NLGI-2 Lithium Base Grease - Remove leg rollers and work grease into bearings.

DAILY ROUTINE SERVICE

1. Check the engine oil level on both power units.
2. Check the battery water level on both power units.
3. Inspect all hydraulic hoses for damage or leaks.
4. IMPORTANT - After each pour, clean the machine as soon as possible. Coat the paving rollers with light oil.
5. Inspect engine hydraulic pump drive coupling for alignment and wear.

MACHINE ENGINES

The 4836 Paver uses gasoline engines.

- **Kohler** Gasoline 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 Engine 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 5 Hours of operation and every 25 Hours thereafter.

- **Kohler** - API Service Classifications SF, SG, SH

Kohler specifies clean, fresh, unleaded gasoline with a pump sticker octane rating of 87 or higher. In countries using the Research method, it should be 90 octane minimum. Unleaded gasoline is recommended, as it leaves fewer combustion chamber deposits. Leaded gasoline may be used in areas where unleaded is not available and exhaust emissions are not required. Beware, however, that the cylinder head will require more frequent service. Gasoline (up to 10% ethyl alcohol, 90% unleaded gasoline by volume) is approved as a fuel by Kohler engines. Other gasoline/ alcohol blends are not approved. Methyl Tertiary Butyl Ether (MTBE) and unleaded gasoline blends (up to a maximum of 15% MTBE by volume) are approved as a fuel for Kohler engines. Other gasoline/ether blends are not approved. **IMPORTANT:** Lubricate pump mounting splines every 500 hours with Dow Corning G-N Metal Assembly Paste or Dow Corning #77 Assembly Paste.

The engine used on your 4836 Concrete Paver is warranted by the engine manufacturer. Contact your authorized engine dealer for warranty repair and replacement parts. If there is not an authorized dealer available, call the ACP Service Department.

3.1 - General Maintenance, continued

HYDRAULIC OIL AND OIL FILTERS

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 Dexron automatic transmission 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 250 hours thereafter. Replace hydraulic filters each time the hydraulic oil is replaced.

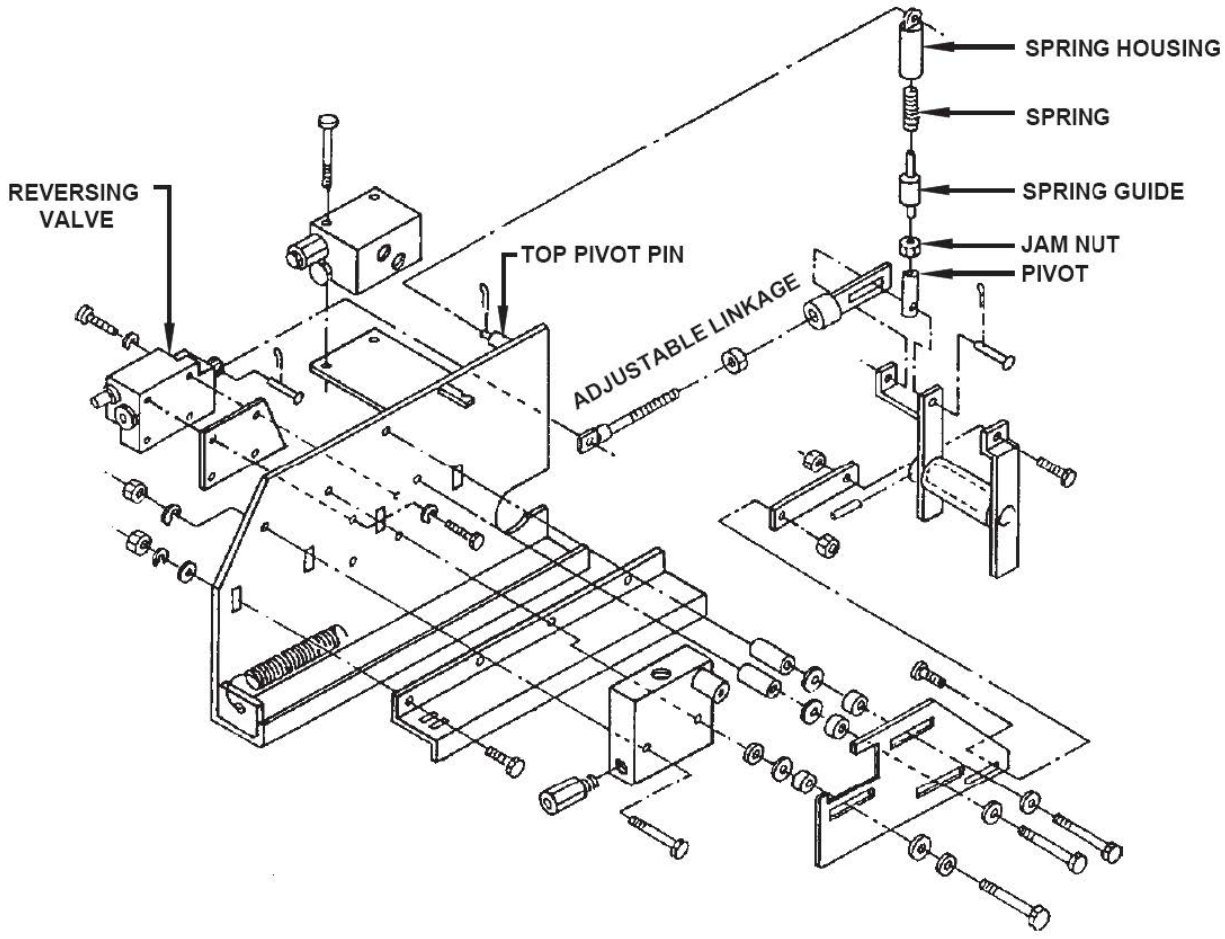
Before paving or transporting the machine, secure all hoses
to keep them away from sharp edges and moving parts. Before connecting hoses clean the quick disconnects and fittings.

SHIFTING MECHANISM ADJUSTMENT

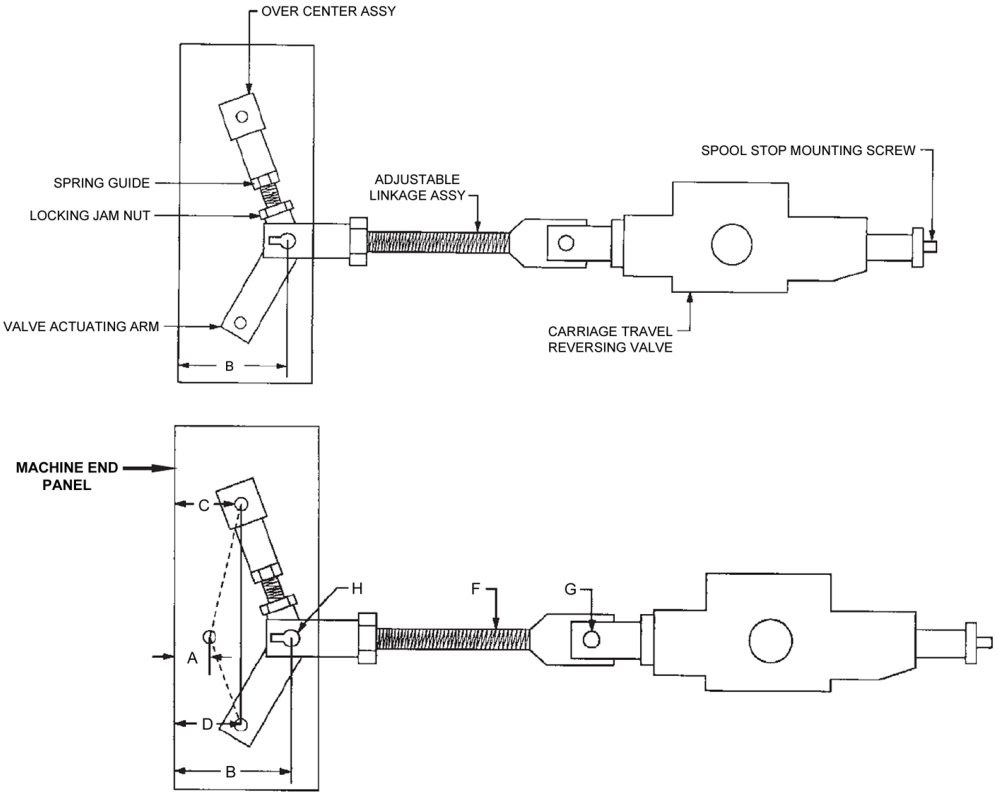
The shifting mechanism automatically decelerates, reverses and accelerates the carriage each time the carriage makes a pass and allows the operator to manually start or reverse carriage travel. In addition, the shifting mechanism can automatically advance the machine a manually selected distance. The over center assembly provides the spring force to shift the hydraulic valve that reverses the carriage motor. To replace the over center assembly or to adjust spring tension:

1. Remove the cotter pin from the top pivot pin.
2. Use a bar or hammer handle to compress the spring slightly.
3. Remove the assembly from the pivot pin, noting the position of the components.
4. If more spring force is required, adjust the pivot and jam nut closer to the screw. You do not have to disassemble.
5. Reassemble in reverse in order.

After assembly check the operation of the machine to insure
that the over center assembly shifts the valve spool a full 1/2 inch with sufficient force.



3.2 - Shifting Mechanism Adjustment



ADJUSTABLE LINKAGE ADJUSTMENT CHECK

1. Using a tape measure, measure and record the dimensions A, B, C, and D. You will have to shift the valve once to measure both A and B.
2. Calculate (A÷B) and (C÷D)

When the length of "F" is correct (A÷B) = (C÷D).

3. If (A÷B) is greater than (C÷D), length "F" linkage.
4. If (A÷B) is less than (C÷D), shorten "F" linkage.

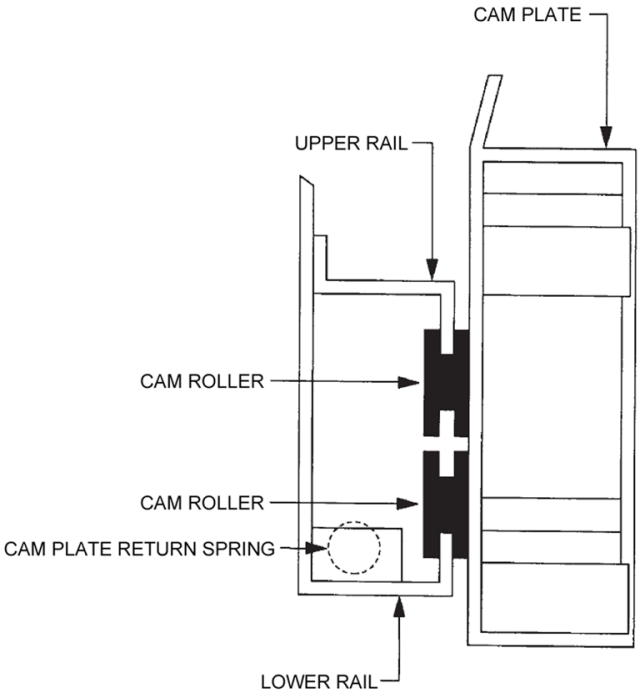
TROUBLE SHOOTING		
SYMPTOM	**CAUSE**	**REMEDY**
While in the pave position, the carriage doesn't reverse direction and the machine will continue to travel.	The reversing valve on the shifting mechanism is not completely shifted.	Check the adjustment of the adjustable linkage assembly. Use the formula provided.

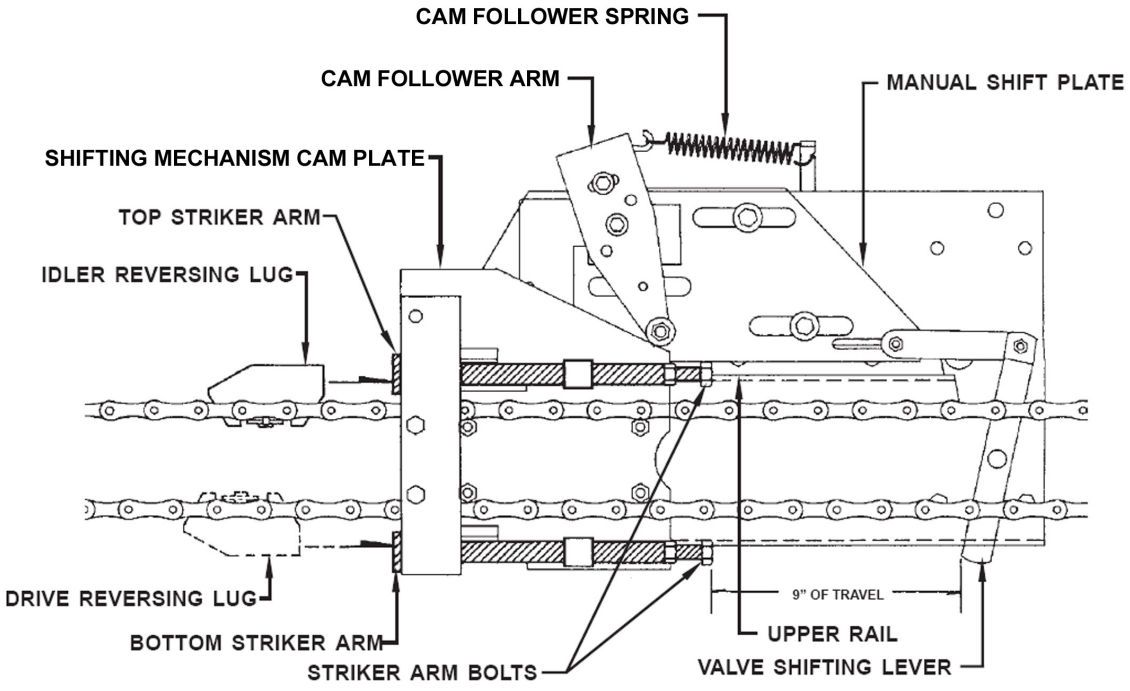
3.2 - Shifting Mechanism Adjustment, continued

Periodically, check the fit of the controller cam rollers between the upper and lower rails. Occasionally the upper rail needs to be adjusted downward to compensate for the wear of the cam rollers and rail edges. If the machine automatically advances noticeably farther when the carriage is at one end, the roller fit may be loose and the upper rail should be adjusted downward to remove the excess clearance. Then move the cam to both ends of the rail and verify that the cam moves freely. Periodically lubricate the cam rollers and wearing edges of the rails with grease to prevent undue wear. Check the cam rollers for flat spots and replace if necessary.

When the controller is properly adjusted, the carriage decelerates to slow motion, the machine moves forward and the carriage travel reverses and accelerates smoothly. If the carriage does not slow, but goes in and out too fast during travel reversal, the cam arm needs to be adjusted. The cam arm is provided with a slot to fine tune the carriage travel shift speed. Adjust the cam arm clockwise, relative to the valve shift, to reduce the travel speed and counter clockwise to increase the travel speed.

For maximum automatic machine travel and to avoid carriage jerking it is important that the carriage does not move
in and out of travel reversal to fast. If the cam arm is adjusted to far, however, the carriage travel will be stopped and only machine travel will result. In this case, the cam arm should be “backed up” to obtain a slower carriage movement during shift and also allow maximum automatic machine travel.





3.3 - Trouble Shooting

Problem	Cause	Solution
Finishing		
Open or pitted surface left by the rollers (the rollers are plowing concrete)	Paving rollers are carrying to much concrete (the roll of concrete on the side of the rollers is to large)	Adjust the augers lower to leave a golf ball size roll at the front edge of the leading roller
	Concrete may be placed to far ahead of the machine allowing it to dry.	Limit concrete placement to within a maximum of 10 fee ahead of the paving machine (5 feet is recommended)
Open or pitted surface left by the rollers (no concrete on side of the leading roller).	Augers are set too low and are removing to much concrete (paving rollers carrying no concrete roll).	Raise augers to leave golf ball size of concrete at the front end of the leading roller.
Roll of concrete coming off the rear of paving rollers (the rollers are leaving a ridge in the slab).	This condition may exist if the rear of the paving rollers is too low.	Raise the rear of the paving rollers by raising the rear of the machine using the machine leg cranks until the excess roll or ridge disappears. Normally, the rear of the paving rollers will be 1/8 to 3/16 inch higher than the front of the leading edge of the paving rollers. Note: The augers may need to be readjusted at this time.
Drag Pan is leaving an indentation in the surface, at the curb line or slab edge.	There may be too much additional weight on the drag pan.	Remove some or all of the added weight (usually concrete) from the pan.
	The pan is not being pulled straight.	Adjust and hook the chains to the pan so that all the chains are hooked the same number of links from the pan.
	The pan is being pulled at a point to high by the pan hanger frame.	Adjust the height of the hanger frame distance to the top of the pan to approximately 6 inches.
The total finished surface is not sealed behind the drag pan.	The concrete may be abnormally dry (the surface may be drying from hot winds).	The use of pre-wetted burlap drag is suggested. Keep burlap wet.
Finish coming from rollers seems to be washboard looking (possible vibration on lower paving carriage).	Auger shaft may be bent or augers are out of balance. One or more slide blockson lower carriage frame may not be contacting skew ring on upper carriage.	Remove augers and inspect shafts for straightness. Attach the augers and check for visual imbalance by looking at the very end of the augers for abnormal oval rotation. Tighten center pivot bolt so slide blocks contact skew ring; still allowing skewing if skew cylinder is used.
Machine Operation		
Engine does not start after “Shutdown”.	Engine ran out of fuel or water in fuel.	Replace water contaminated fuel. For best performance use unleaded gasoline and avoid alcohol blended fuels. Use only straight weight SAE 30 oil in engine crankcase.
No hydraulic power or loss in speed and/or power.	Low hydraulic oil level in tank.	Add hydraulic oil to within two inches of the top of tank.
Carriage does not move when power is applied. Engine is under strain.	Improper hose hookup to carriage shifting mechanism.	Hookup hoses properly.

3.3 - Trouble Shooting, continued

Problem	Cause	Solution
Carriage does not move when power is applied. Engine is under strain.	Carriage Shifting Mechanism cam arm follower is not in “pave” position.	Check cam arm follower tension and verify that cam arm movement is not obstructed.
Carriage decelerates, stops and then will not accelerate.	Carriage Shifting Mechanism cam arm follower is not adjusted properly.	Adjust upper rail or adjust cam arm. See Maintenance - Shifting Mechanism.
	Carriage Shifting Mechanism reversing valve spool does not shift.	Check for cause and correct. See Maintenance - Shifting Mechanism.
	If valve mount bolts have recently been tightened, the reversing valve body may be distorted causing the spool to “bind”.	Loosen valve body mount bolts and tighten bolts evenly a little at a time.
Automatic machine travel is more when carriage is near drive end.	Upper rail on shifting mechanism requires adjustment.	Adjust upper rail down. See Maintenance - Shifting Mechanism.
Carriage travel does not slow down enough before automatic reversing. The result is excessive jerking.	Cam arm requires adjustment.	Adjust cam arm. See Maintenance - Shifting Mechanism.
Automatic machine advance is not functioning. Manual bogie advance is functioning.	Check valve is stuck.	Lightly tap check valve. Replace valve if malfunction recurs. Valve is located beneath Power Unit. See Parts Book
Speed and power loss for carriage travel drive motor when carriage return direction is normal.	Clevis end or rear spool stop is unscrewing from reversing valve spool.	Clean oil from clevis end threads. Assemble and loctite.
	Carriage travel reversing valve is worn or faulty.	Replace valve.
	Hydraulic motor worn or damaged.	Replace motor.
Paving roller stops under load while augers operate normally.	On reversing valve, relief valve pressure setting is too low or foreign material is unseating relief valve	Adjust relief pressure setting * or disassemble relief valve and remove material or replace with a valve with correct relief setting. * 1200 PSI relief valve pressure should be verified for replacement valves before installation.
Paving roller does not operate or stops under load. Relief valve is okay. Augers operate normally.	Roller motor is damaged or worn. Reversing valve may have developed internal damage.	Replace motor. Replace reversing valve.
Paving roller slows or stops under load. Excessive bearing noise when roller spins or bearing excessively hot.	Paving roller shaft bearings damaged.	Replace bearings.
Paving roller operates when carriage travels in one direction but does not operate properly and/or reverse when carriage travel direction is reversed.	Hydraulic hose quick disconnect is malfunctioning.	Replace quick disconnect.

Problem	Cause	Solution
Augers slow or stop but roller functions normally under load.	Auger is overloaded with concrete.	Reduce concrete in front of augers.
	Auger motor is damaged or worn.	Replace auger motor.
	Hydraulic hose quick disconnect is malfunctioning.	Replace quick disconnect.
Auger and roller stop under load.	On/Off Valve relief valve pressure is set too low.	Adjust relief valve setting to 1800 * or replace with valve with the correct relief pressure setting. * 1800 PSI relief valve pressure should be verified for replacement valves before installation.
Paving roller does not skew in proper direction but roller is spinning in proper direction.	Improper hookup of hydraulic lines to hydraulic skew cylinder.	Reverse hoses leading to hydraulic skew cylinder.
Paving roller does not automatically skew full travel in one or both directions.	Foreign object blocking full travel.	Remove obstruction.
	Nut on carriage center pivot shaft is too tight.	Adjust nut tension.
	Carriage center pivot shaft is binding.	Disassemble, clean and re-lubricate before reassembling.
Speed and power loss for paving roller and auger.	Worn hydraulic pump.	Replace hydraulic pump.
AUTOMATIC REVERSING VALVE		
Carriage rollers only work in Non-Reversing Mode and will not go into Auto-Reversing Mode after shifting the selector handle to Auto-Reversing Mode.	Both the MV1 and MV2 Cartridge Valves are stuck and not shifting.	Replace both Cartridges.
Carriage rollers only work in Auto-Reversing Mode and will not go into Non-Reversing Mode after shifting the selector handle to Non-Reversing Mode.		
Carriage blows relief in one direction in the Auto-Reversing Mode.	If the carriage works in all modes except for one direction in the Auto-Reversing Mode, either the MV1 or MV2 Cartridge Valve is stuck in the shifted mode.	Remove the 9/16 Hex Vent Cap on both the MV1 and MV2 Cartridge Valves. Insert a small screwdriver or allen wrench into the vent cap holes. The cartridge with the shallowest hole is the cartridge that is stuck. In order to run the carriage until a replacement cartridge can be obtained, use the small screw driver or allen wrench to manually push the cartridge spool in. If the depth of the vent hole is the same on each cartridge, you have successfully shifted the stuck cartridge. The carriage will run in the Auto-Reversing Mode until the selector handle is moved.

Cleaning Procedure

Machine Cleaning Procedure

When cleaning the machine, please adhere to the following information to ensure proper cleaning and to keep the machine in the best condition possible.

Power Washing Procedure:

NOTICE

- Ensure that the water pressure is below 2000 PSI (14 MPa)
- Always keep the water temperature below 180°F (80°C)
- Use a spray nozzle with at minimum 40° wide spray angle
- Keep the nozzle at least 1 foot (300mm) away from the machine
- Keep a perpendicular angle (90°) when cleaning over a decal.
  - Holding nozzle of a pressure washer at an angle different from 90° may lift the decal from the machine.
- Recommended using a safe cement dissolver, **BACK-SET** or similar**,** to remove hardened concrete.
- It is **NOT** recommended to use chemicals such as:
  - Muriatic Acid
  - Hydrochloric Acid
  - Hydrofluoric Acid
  - Sulfuric Acid
  - Phosphoric Acid
- To prevent build-up of concrete on the machine, use **BODY GUARD** or similar protection wax.

Filter Cleaning Procedure:

- Remove air filters and blow out with compressed air, **NOT** to exceed 80 PSI.

NOTICE

Parts Manual

In order to provide a premier experience to our customers, we have moved the “Parts” section out of this manual and placed it in a separate “Parts & Decals Manual”. This will allow us to provide any changes or other important information quicker to you, the customer. See below for ways to access the “Parts & Decals Manual”.

Mobile Device:

Scan this QR code with a compatible device (cellular phone, tablet, etc.)

Computer:

Click the link, or go to the following website

https://alleneng.com/concrete-equipment-service/concrete-equipment-manuals

Mail:

A physical copy of the parts manual can also be mailed to you upon request. Please contact Allen Engineering service department and one can be sent to you.

Allen Engineering
P.O. Box 819
Paragould, Ar.
72451, USA

Phone: 1.800.643.0095 (USA Only) / 1.870.236.7751
Fax: 1.800.643.0097 (USA Only) / 1.870.236.3934

Revision Detail

MANUAL REVISION DETAIL			
REVISION #	**REVISION DATE**	**REVISION REFERENCE #**	**REVISION BY**
-	06/2009	Initial Release	AW
A	07/2009	-	AW
B	07/2018	MN 18-047, 18-064	MW
C	01/2022	Updated Covers	MK

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
Canadian Patents: 2,039,893.

Printed in U.S.A.

allen® ENGINEERING CORPORATION

AEC FACTORY & HEADQUARTERS

819 S. 5TH STREET
PARAGOULD, ARKANSAS 72450
870.236.7751
800.643.0095 (TOLL FREE (USA ONLY)

MAILING

PO BOX 819
PARAGOULD, ARKANSAS 72451

ALLENENG.COM

CONNECT WITH US ON SOCIAL