

# OPERATION MANUAL



## **MODEL WRS5200 RIDE-ON ROLLER SCREED (VANGUARD DM950 DIESEL ENGINE) ORIGINAL COPY**

Revision #1 (10/22/10)

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**THIS MANUAL MUST ACCOMPANY THE EQUIPMENT AT ALL TIMES.**

**PN: 36847**




### **CALIFORNIA — Proposition 65 Warning**


Engine exhaust and some of its constituents, and some dust created by power sanding, sawing, grinding, drilling and other construction activities contains chemicals known to the State of California to cause cancer, birth defects and other reproductive harm. Some examples of these chemicals are:

- Lead from lead-based paints.
- Crystalline silica from bricks.
- Cement and other masonry products.
- Arsenic and chromium from chemically treated lumber.

Your risk from these exposures varies, depending on how often you do this type of work. To reduce your exposure to these chemicals: **ALWAYS** work in a well ventilated area, and work with approved safety equipment, such as dust masks that are specially designed to filter out microscopic particles.


## SILICOSIS/RESPIRATORY WARNINGS

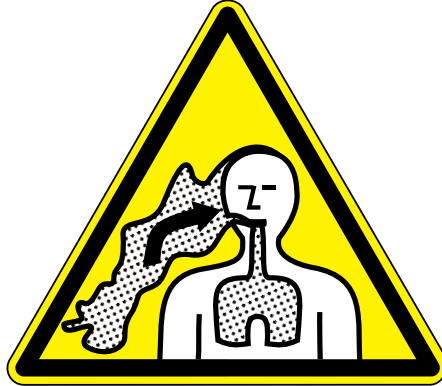
 **WARNING**



**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. Silica is a basic component of sand, quartz, brick clay, granite and numerous other minerals and rocks. Repeated and/or substantial inhalation of airborne crystalline silica can cause serious or fatal respiratory diseases, including silicosis. In addition, California and some other authorities have listed respirable crystalline silica as a substance known to cause cancer. When cutting such materials, always follow the respiratory precautions mentioned above.

 **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. If you are unfamiliar with the risks associated with the particular process and/or material being cut or the composition of the tool being used, review the material safety data sheet and/or consult your employer, the material manufacturer/supplier, governmental agencies such as OSHA and NIOSH and other sources on hazardous materials. California and some other authorities, for instance, have published lists of substances known to cause cancer, reproductive toxicity, or other harmful effects.

Control dust, mist and fumes at the source where possible. In this regard use good work practices and follow the recommendations of the manufacturers or suppliers, OSHA/NIOSH, and occupational and trade associations. Water should be used for dust suppression when wet cutting is feasible. When the hazards from inhalation of dust, mists and fumes cannot be eliminated, the operator and any bystanders should always wear a respirator approved by NIOSH/MSHA for the materials being used.

## **WRS5200 Ride-On Roller Screed**

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### **NOTICE**

Specifications and part numbers are subject to change without notice.

[illegible]

## TRAINING CHECKLIST

TRAINING CHECKLIST			
NO.	DESCRIPTION	OK?	DATE
1	Read Operator's Manual completely.		
2	Machine layout, location of components, checking of engine and hydraulic oil levels.		
3	Fuel system, refueling procedure.		
4	Operation of lights (if equipped).		
5	Operation of controls (machine not running).		
6	Safety controls.		
7	Emergency stop procedures.		
8	Startup of machine, engine choke throttle.		
9	Maneuvering with drive tubes.		
10	Strike tube operation.		
11	Adjustment of crown and camber turnbuckles.		
12	Shutdown procedure.		
13	Lifting of machine (lift loops).		
14	Machine transport and storage.		
15	Operation of pressure washer.		
16	Cleanup procedure.		

Operator \_\_\_\_\_

Trainee \_\_\_\_\_

COMMENTS

## DAILY PRE-OPERATION CHECKLIST

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Daily Pre-Operation Checklist		✓	✓	✓	✓	✓	✓
1	Engine oil level						
2	Hydraulic oil level						
3	Radiator coolant level						
4	Drive tube operation						
5	Strike tube operation						
6	Safety stop switch operation						
7	Steering control operation						

Operator \_\_\_\_\_

Trainee \_\_\_\_\_

COMMENTS

## SAFETY INFORMATION

Do not operate or service the equipment before reading the entire manual. Safety precautions should be followed at all times when operating this equipment. Failure to read and understand the safety messages and operating instructions could result in injury to yourself and others.



### SAFETY MESSAGES

The four safety messages shown below will inform you about potential hazards that could injure you or others. The safety messages specifically address the level of exposure to the operator and are preceded by one of four words: **DANGER**, **WARNING**, **CAUTION** or **NOTICE**.

### SAFETY SYMBOLS



#### **DANGER**

Indicates a hazardous situation which, if not avoided, **WILL** result in **DEATH** or **SERIOUS INJURY**.



#### **WARNING**

Indicates a hazardous situation which, if not avoided, **COULD** result in **DEATH** or **SERIOUS INJURY**.



#### **CAUTION**

Indicates a hazardous situation which, if not avoided, **COULD** result in **MINOR** or **MODERATE INJURY**.

#### **NOTICE**

Addresses practices not related to personal injury.

Potential hazards associated with the operation of this equipment will be referenced with hazard symbols which may appear throughout this manual in conjunction with safety messages.

Symbol	Safety Hazard
	Lethal exhaust gas hazards
	Explosive fuel hazards
	Burn hazards
	Rotating parts/crush hazards
	Pressurized fluid hazards
	Hydraulic fluid hazards



# SAFETY INFORMATION

## GENERAL SAFETY

### ⚠ CAUTION

- **NEVER** operate this equipment without proper protective clothing, shatterproof glasses, respiratory protection, hearing protection, steel-toed boots and other protective devices required by the job or city and state regulations.



- Avoid wearing jewelry or loose fitting clothes that may snag on the controls or moving parts as this can cause serious injury.

- **NEVER** operate this equipment when not feeling well due to fatigue, illness or when under medication.



- **NEVER** operate this equipment under the influence of drugs or alcohol.



- **ALWAYS** clear the work area of any debris, tools, etc. that would constitute a hazard while the equipment is in operation.

- No one other than the operator is to be in the working area when the equipment is in operation.

- **DO NOT** use the equipment for any purpose other than its intended purposes or applications.

## NOTICE

- This equipment should only be operated by trained and qualified personnel 18 years of age and older.

- Whenever necessary, replace nameplate, operation and safety decals when they become difficult read.

- Manufacturer does not assume responsibility for any accident due to equipment modifications. Unauthorized equipment modification will void all warranties.

- **NEVER** use accessories or attachments that are not recommended by Multiquip for this equipment. Damage to the equipment and/or injury to user may result.

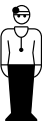
- **ALWAYS** know the location of the nearest fire extinguisher.



- **ALWAYS** know the location of the nearest first aid kit.



- **ALWAYS** know the location of the nearest phone or **keep a phone on the job site**. Also, know the phone numbers of the nearest **ambulance**, **doctor** and **fire department**. This information will be invaluable in the case of an emergency.

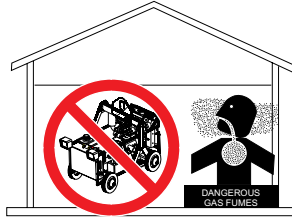


# SAFETY INFORMATION

## SCREED SAFETY

### DANGER

- Engine fuel exhaust gases contain poisonous carbon monoxide. This gas is colorless and odorless, and can cause death if inhaled.
- The engine of this equipment requires an adequate free flow of cooling air. **NEVER** operate this equipment in any enclosed or narrow area where free flow of the air is restricted. If the air flow is restricted it will cause injury to people and property and serious damage to the equipment or engine.



- **NEVER** operate the equipment in an explosive atmosphere or near combustible materials. An explosion or fire could result causing severe **bodily harm or even death.**



### WARNING

- If applicable, **NEVER** use your hand to find hydraulic leaks. Use a piece of wood or cardboard. Hydraulic fluid injected into the skin must be treated by a knowledgeable physician immediately or severe injury or death can occur.
- **ALWAYS** keep clear of rotating or moving parts while operating the screed.
- **NEVER** disconnect any **emergency or safety devices.** These devices are intended for operator safety. Disconnection of these devices can cause severe injury, bodily harm or even death. Disconnection of any of these devices will void all warranties.



### CAUTION

- **NEVER** allow passengers or riders on the screed during operation.
- **NEVER** lubricate components or attempt service on a running machine.
- **NEVER** place your feet or hands between the rollers while starting or operating this equipment.

## NOTICE

- **ALWAYS** keep the machine in proper running condition.
- Fix damage to machine and replace any broken parts immediately.
- **ALWAYS** store equipment properly when it is not being used. Equipment should be stored in a clean, dry location out of the reach of children and unauthorized personnel.

## 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 screed.
- **DO NOT** remove the coolant drain plug while the engine is hot. Hot coolant will gush out of the coolant tank and severely scald any persons in the general area of the screed.
- **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 screed.



### CAUTION

- **NEVER** touch the hot exhaust manifold, muffler or cylinder. Allow these parts to cool before servicing equipment.



# SAFETY INFORMATION

## NOTICE

- **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.



## FUEL SAFETY

### DANGER

- **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.
- **ALWAYS** use extreme caution when working with **flammable** liquids.
- **DO NOT** fill the fuel tank while the engine is running or hot.
- **DO NOT** overfill tank, since spilled fuel could ignite if it comes into contact with hot engine parts or sparks from the ignition system.
- Store fuel in appropriate containers, in well-ventilated areas and away from sparks and 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.



## BATTERY SAFETY

### DANGER

- **DO NOT** drop the battery. There is a possibility that the battery will explode.
- **DO NOT** expose the battery to open flames, sparks, cigarettes, etc. The battery contains combustible gases and liquids. If these gases and liquids come into contact with a flame or spark, an explosion could occur.



### WARNING

- **ALWAYS** wear safety glasses when handling the battery to avoid eye irritation. The battery contains acids that can cause injury to the eyes and skin.
- Use well-insulated gloves when picking up the battery.
- **ALWAYS** keep the battery charged. If the battery is not charged, combustible gas will build up.
- **DO NOT** charge battery if frozen. Battery can explode. When frozen, warm the battery to at least 61°F (16°C).
- **ALWAYS** recharge the battery in a well-ventilated environment to avoid the risk of a dangerous concentration of combustible gases.
- If the battery liquid (dilute sulfuric acid) comes into contact with **clothing or skin**, rinse skin or clothing immediately with plenty of water.
- If the battery liquid (dilute sulfuric acid) comes into contact with **eyes**, rinse eyes immediately with plenty of water and contact the nearest doctor or hospital to seek medical attention.



### CAUTION

- **ALWAYS** disconnect the **NEGATIVE** battery terminal before performing service on the equipment.
- **ALWAYS** keep battery cables in good working condition. Repair or replace all worn cables.

# SAFETY INFORMATION

## TRANSPORTING SAFETY

### ⚠ CAUTION

- **NEVER** allow any person or animal to stand underneath the equipment while lifting.
- **NEVER** lift or transport screed with power unit attached.
- Ride-on screeds are very heavy and awkward to move around. Use proper heavy lifting procedures.



### NOTICE

- Machine can be transported on flatbed truck of proper weight capacity.
- The easiest way to lift the screed is to utilize the lift loops that are welded to the frame. These lift loops are located to the left and right sides of the operator's seat.

A strap or chain can be attached to these lift loops, allowing a forklift or crane to lift the screed up onto and off of a slab of concrete. The strap or chain should have a minimum of 2,000 pounds (1,000 kg) lifting capacity and the lifting gear must be capable of lifting at least this amount.
- Before lifting, make sure that the lift loops are not damaged.
- Always make sure crane or lifting device has been properly secured to the lift loops of the equipment.
- **ALWAYS** shutdown engine before transporting.
- **NEVER** lift the equipment while the engine is running.
- Tighten fuel tank cap securely and close fuel cock to prevent fuel from spilling.
- Use adequate lifting cable (wire or rope) of sufficient strength.
- **DO NOT** lift machine to unnecessary heights.
- **ALWAYS** tie down equipment during transport by securing the equipment with rope.

## TOWING SAFETY

### ⚠ CAUTION


- Check with your local county or state safety towing regulations, in addition to meeting **Department of Transportation (DOT) Safety Towing Regulations**, before towing your screed.
- In order to reduce the possibility of an accident while transporting the screed on public roads, **ALWAYS** make sure the trailer that supports the screed and the towing vehicle are mechanically sound and in good operating condition.
- **ALWAYS** shutdown engine before transporting
- Make sure the hitch and coupling of the towing vehicle are rated equal to, or greater than the trailer "gross vehicle weight rating."
- **ALWAYS** inspect the hitch and coupling for wear. **NEVER** tow a trailer with defective hitches, couplings, chains, etc.
- Check the tire air pressure on both towing vehicle and trailer. **Trailer tires should be inflated to 50 psi cold.** Also check the tire tread wear on both vehicles.
- **ALWAYS** make sure the trailer is equipped with a **safety chain**.
- **ALWAYS** properly attach trailer's safety chains to towing vehicle.
- **ALWAYS** make sure the vehicle and trailer directional, backup, brake and trailer lights are connected and working properly.
- DOT Requirements include the following:
  - Connect and test electric brake operation.
  - Secure portable power cables in cable tray with tie wraps.
- The maximum speed for highway towing is 55 MPH unless posted otherwise. Recommended off-road towing is not to exceed 15 MPH or less depending on type of terrain.
- Avoid sudden stops and starts. This can cause skidding, or jack-knifing. Smooth, gradual starts and stops will improve towing.
- Avoid sharp turns to prevent rolling.



- Trailer should be adjusted to a level position at all times when towing.
- Raise and lock trailer wheel stand in up position when towing.
- Place **chock blocks** underneath wheel to prevent rolling while parked.
- Place support blocks underneath the trailer's bumper to prevent tipping while parked.
- Use the trailer's swivel jack to adjust the trailer height to a level position while parked.

### ENVIRONMENTAL SAFETY

#### NOTICE

- Dispose of hazardous waste properly. Examples of potentially hazardous waste are used motor oil, fuel and fuel filters. 
- **DO NOT** use food or plastic containers to dispose of hazardous waste.
- **DO NOT** pour waste, oil or fuel directly onto the ground, down a drain or into any water source.

# TRANSPORTING AND LIFTING PROCEDURES

## LIFTING THE SCREED

The following procedure and Figure 1 describe how to lift the screed.

### **WARNING**

**NEVER** lift the screed with the power unit attached.  
**ALWAYS** remove the power unit from the screed before lifting or transporting.

1. Utilize a spreader bar of proper length and lifting capacity. Secure lifting straps from both ends of the spreader bar to each of the four (4) lift loops on the

screed. There are two (2) lift loops on the operator end and two (2) lift loops on the engine end of the screed.

2. Connect five (5) lifting cables from the spreader bar to the lifting hook of a crane or forklift. Ensure that the lifting hook and chain are of appropriate lifting capacity.
3. Use crane or forklift to hoist screed onto a flatbed truck for transporting.

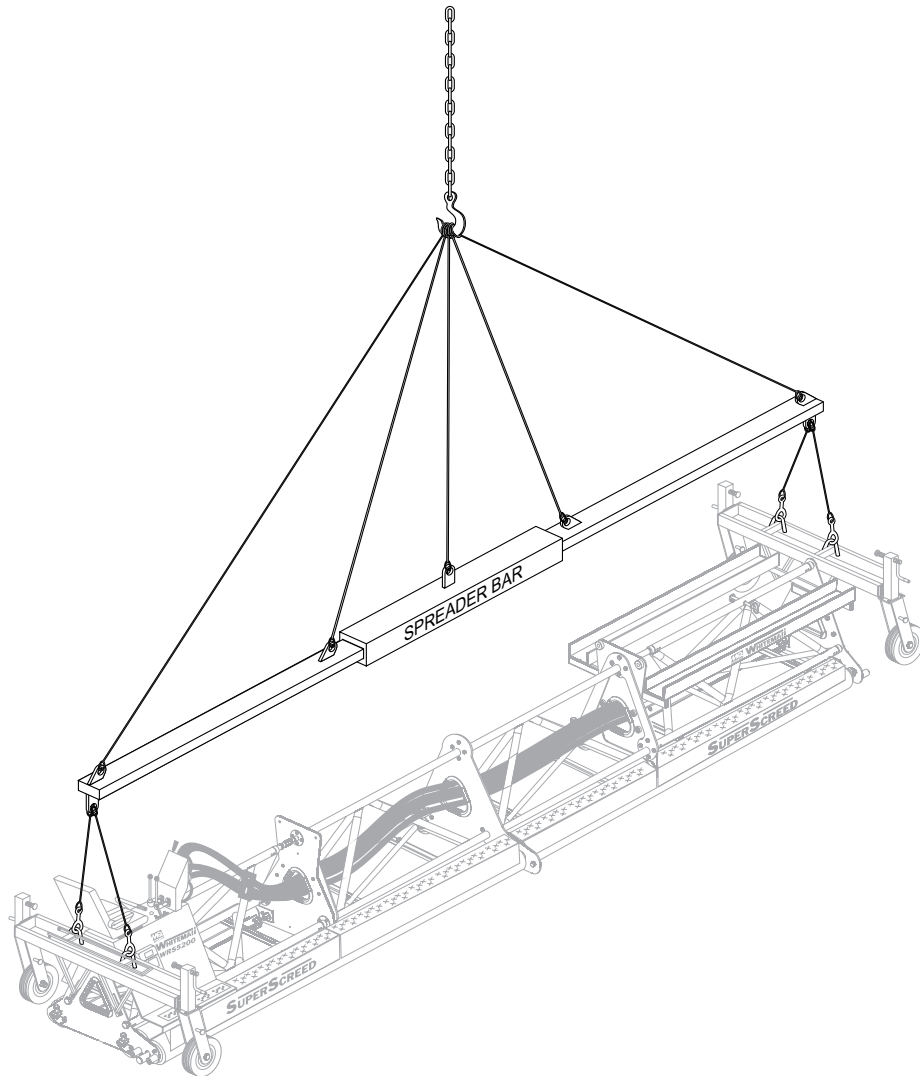


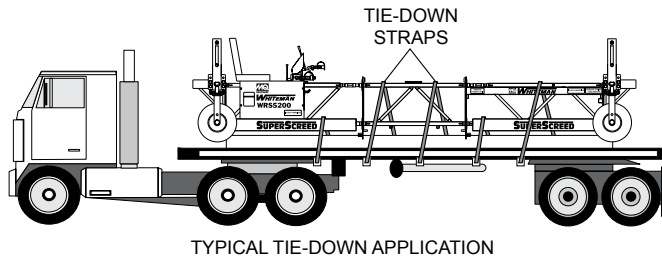
Figure 1. Lifting the Screed



# TRANSPORTING AND LIFTING PROCEDURES

## TRANSPORTING THE SCREED

Place the screed on a flatbed truck during transportation. Elevate tires to ensure that screed rests on rollers. Attach suitable tie-down straps to the screed to secure it to the truck. Route tie-down straps over strike tubes and drive tubes as well as over trusses. See Figure 2



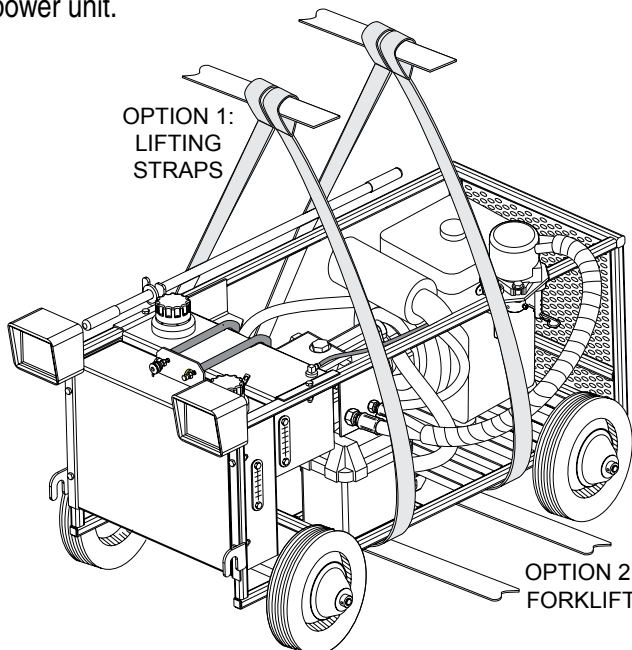
**Figure 2. Screed Tie-Down Points**

## LIFTING THE POWER UNIT (OLD STYLE)

There are two options for lifting an old style power unit. See Figure 3.

Option 1: Secure two lifting straps to the power unit frame. Insert forklift forks through loops at the end of lifting strap. Ensure forklift has adequate lifting capacity for lifting the power unit.

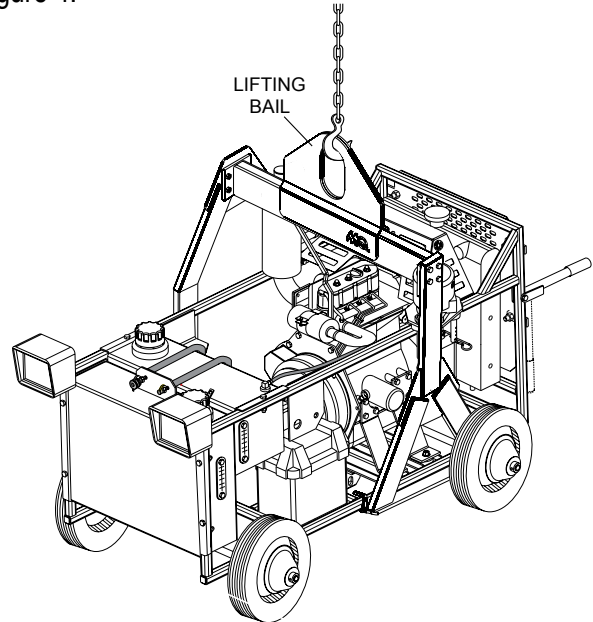
Option 2: Place forklift forks beneath power unit frame. Ensure forklift has adequate lifting capacity for lifting the power unit.



**Figure 3. Lifting Power Unit (Old Style)**

## LIFTING THE POWER UNIT (NEW STYLE)

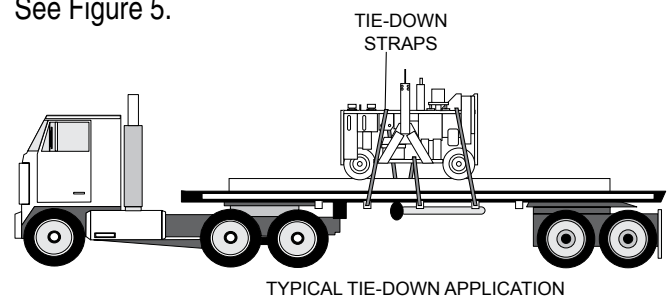
Attach a chain, rope or strap to the lifting bail whenever lifting of the power unit is required. Make sure lifting device has adequate lifting capacity for lifting the power unit. See Figure 4.



**Figure 4. Lifting Power Unit (New Style)**

## TRANSPORTING THE POWER UNIT

Place the power unit on a flatbed truck during transportation. Attach tie-down straps to power unit to prevent movement. Route straps through and over power unit frame. See Figure 5.



**Figure 5. Transporting Power Unit**

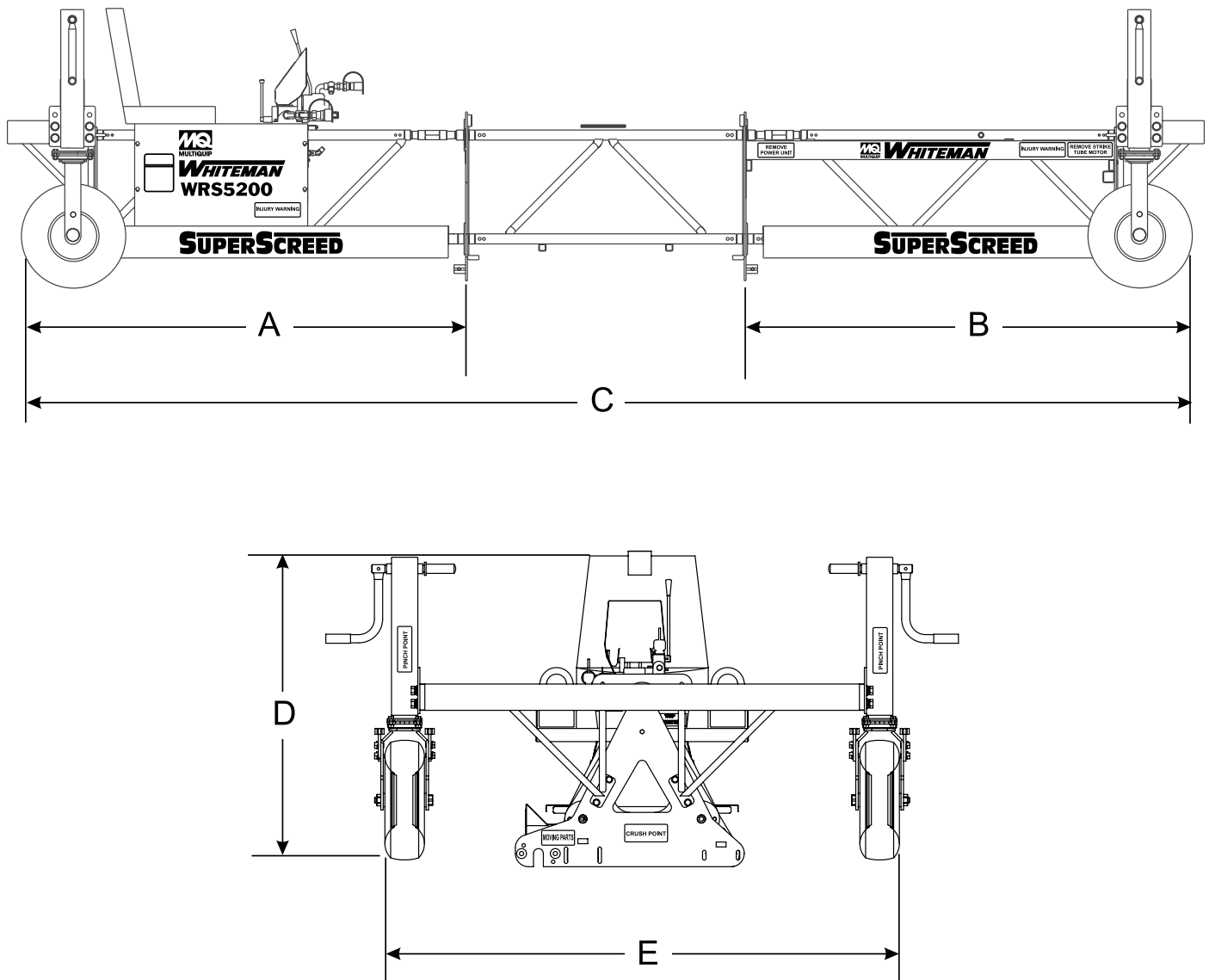
# SPECIFICATIONS

**Table 1. Roller Screed Specifications**

Available Lengths ft. (m)	14 (4.25), 18 (5.4), 22 (6.7), 26 (7.9), 28 (8.5), 32 (9.7), 36 (10.9), 40 (12.1) and 52 (15.8)
Working widths ft. (m)	1.2 (3.6) to 50 (15.2)
Strike Tube Speed	450 RPM Maximum
Drive Tube Speed	150 RPM Maximum
Weight (Max Length)	1,500 lbs. (680 kg)
Sound Level at 23 ft./7 meters	103 dB(A)
<b>Power Unit Specifications</b>	
Hydraulic Operating Pressure	2,000 psi (6.90 kPa)
Hydrostatic Flow rate	17 gpm (64 lpm)
Hydraulic Oil Type	AW MV ISO 46
Hydraulic Oil Tank Capacity	5 gals. (19 liters)
Hydraulic Pump Type	Hydrostatic — Eaton
Hydraulic Pressure Washer lbs. — Option	55 lbs. (25 kg)
Hydraulic Pressure Washer Flow Rate — Option	6 gpm (23 lpm) @ 2000 psi (41.37 kPa)
Fuel Tank Capacity	5 gals. (19 liters)
Tires (4)	Semi-Pneumatic 3X12
Lighting (2)	50 Watt Halogen
Battery	12V Group U1 Wet Cell
Weight	677 lbs. (307 kg)
<b>Engine Specifications</b>	
Engine	Briggs-Stratton, Vanguard Liquid Cooled Model DM950
Number of Cylinders	3
Bore X Stroke	2.68 (68 mm) X 3.07 (78 mm)
Displacement	58.1 cu. in (953 cc)
Horsepower	26.5 HP @3600 rpm
Oil Type	5W-30, CF, and CF-4
Oil Capacity Without Filter	3.25 qts. (3.1 liters)
Oil Capacity With Filter	3.50 qts. (3.3 liter)
Fuel Type	Diesel Fuel
Starting Method	Electric



## DIMENSIONS (ROLLER SCREED)



**Figure 6. Roller Screed Dimensions**

Table 2. Roller Screed Dimensions	
Reference Letter	Dimension ft. (meters)
A	5 (1.5)
B	5 (1.5)
C	14 (4.3), 16 (4.9), 18 (5.5), 22 (6.7), 26 (7.9), 28 (8.5), 30 (9.1), 32 (9.8), 36 (11), 40 (12.2), 44 (13.4), 48 (14.6) and 52 (15.8)
D	TBD
E	TBD

## GENERAL INFORMATION

The MQ WRS5200 Ride-On Roller Screed is a self-propelled SuperScreed that is hydraulically driven and requires only one operator, two laborers and two concrete placers. The screed is expandable from 14 ft. (4.26 m) to 52 ft. (15.84 m).

Before packaging and shipment, this MQ Ride-On Roller Screed was run and tested at the factory. If there are any problems with the screed, please contact the nearest MQ service center.

### NOTICE

Read all instructions carefully before operating screed. Improper setup, use or maintenance of the equipment could result in personnel injury or damage to the equipment.

The purpose of the roller screed is to strike off the surface of the concrete at a predetermined grade. The rollers on the screed ride on steel tube rails, allowing the strike tube to work the concrete to the desired grade.

The strike tube rotation should always push the concrete forward into areas that have not yet received the concrete. Depending on the slump of the concrete, several passes might be required for the right strike off grade.

Some applications the screed can be used for are suspended slabs, slabs on grade, tilt-up panels, roads, post-tension slabs, bridges, elevated decks, runways, highway rehabilitation and white topping.

### Strike Tube

A highly efficient strike tube precisely levels the concrete surface to grade. Multiquip's advanced strike tube design leaves aggregate at the surface for harder, longer wearing slabs and can strike off concrete with slumps as low as 1-inch (2.54 cm.).

Strike tubes are available in various lengths. For available strike tube lengths, reference Table 9. Strike tubes are a critical component of the roller screed. If the strike tubes are damaged, it is possible they will not turn true (rotate correctly).

### NOTICE

Care should be taken to store reserved (not used) strike tubes on a fully supported level surface. **NEVER** lift the screed from the strike tubes.

### Truss Sections

The SuperScreed is composed of truss sections which vary in length from 3 ft. (1 m) to 9 ft. (2.75 m). These truss sections support the strike tube which runs along the front of the screed.

Some truss sections come with different end plates, the same type of end plate should never be bolted together. See Table 9 for the various truss and strike tube combinations to achieve the desired screed length.

### Drive Tubes

The screed is equipped with two sets of independently controlled rubber-coated drive tubes. These drive tubes are located at each end of the screed (operator end/powerunit end) and are controlled by two separate control levers.

Since the drive tube levers are independent of each other, one set of drive tubes can travel forward, while the other set of drive tubes travels backwards. Using the levers in this way lets the operator steer the screed.

### Caster Wheels

Two sets of pneumatic wheels provide easy maneuvering when placement of the screed onto rails or forms is required.

### Jack System

The SuperScreed is height adjustable by means of four separate jack assemblies. These jack assemblies have a crank handle that allows the operator to raise and lower the screed.

### Power Unit

The power unit is powered by a 26.5 HP Briggs and Stratton (Vanguard) diesel engine. Coupled to the diesel engine is a hydraulic drive pump which provides the hydraulic pressure necessary to rotate the drive and strike tubes.

### Engine Control Box

Provides vital engine status information via LED's. Ignition switch, light switch, emergency stop switch and hour meter are contained within the control box.

## Form Specifications

Inadequate substrate and form support can lead to form failure causing unnecessary job delays and expenses while contributing to poor floor flatness and floor levelness ratings.

The intent of the form specifications is to establish minimum guidelines to help the contractor choose the most economical and effective formwork/support system for the job application.

### NOTICE

It is recommended that at least the day prior to the concrete pour, a dry run be accomplished to test the load capacity of the forms and substrate. Proper job planning is essential to a successful application.

The WRS5200 Super Screed weighs approximately 4000 lbs. (1,814 kg.) at a maximum length of 52 ft. (16 meters). This works out to be 2000 lbs. (907 kg.) per side.

Any screed support (forms, rails supports and substrate) must withstand a 2000 lbs. (907 kg.) point load at a 2:1 safety factor.

## Subgrade/Deck Forms

Subgrade must be sound enough to support slab edge forms and bracing as well as the load imposed by the screed and its support. Potential deflections, as in the case with metal and plywood decks, should be considered when determining brace and support spacing.

Soil substrates must be well compacted and must be able to support bearing pressures greater than or equal to those imposed by the screed supports and the slab forming.

For proper bearing support, shims should be used to adequately distribute loads where grade is not level or is soft. Use standard ACI concrete form pressures when calculating lateral loads on slab edge forms.

## Wood Forms

Wood forms are not a preferred method of screed support. Because of the concentrated bearing loads by the screed, **wood is not a good support material**. Nominal 2 X 1-1/2 No. 2 Douglas Fir is calculated to support a maximum of 1000 lbs. (453 kg.). The grain could crush and splinter causing level variations and potential failure. 4 X 3-1/2 lumber for edge form should be acceptable.

### NOTICE

Check with city and state civil engineering regulations regarding the type and size of lumber used for edge forms.

## Screed Rails

Screed rails and supports, independent of slab edge forming is the preferred method. Due to strength, deflection and traction considerations, 2.5" X 2.5" X .1875 (3/16-inch) wall structural steel tubing with adjustable supports spaced as shown in Figure (8).

Standard deflection with 3/16-inch wall tubing thickness for the above reference configuration is 1/16-inch for every 3 ft. (1.2 meters). Refer to standard material charts for other configurations.

## Steel Forms

Paving forms with 90° lip-edge at bottom with stake pockets is preferred. If soft or unlevelled subgrade is encountered, a 2X bearing pad and/or shims should be used under the steel forms for additional bearing support. Depending on slab thickness and subgrade, forms may require diagonal bracing.

### NOTICE

These recommended form and rail specifications are provided to illustrate the application and are not intended to supersede or replace any city or state civil engineering procedures and or specifications. Multiquip will not be responsible for the improper application of the WRS5200 Ride-On Roller Screed.

## GENERAL INFORMATION

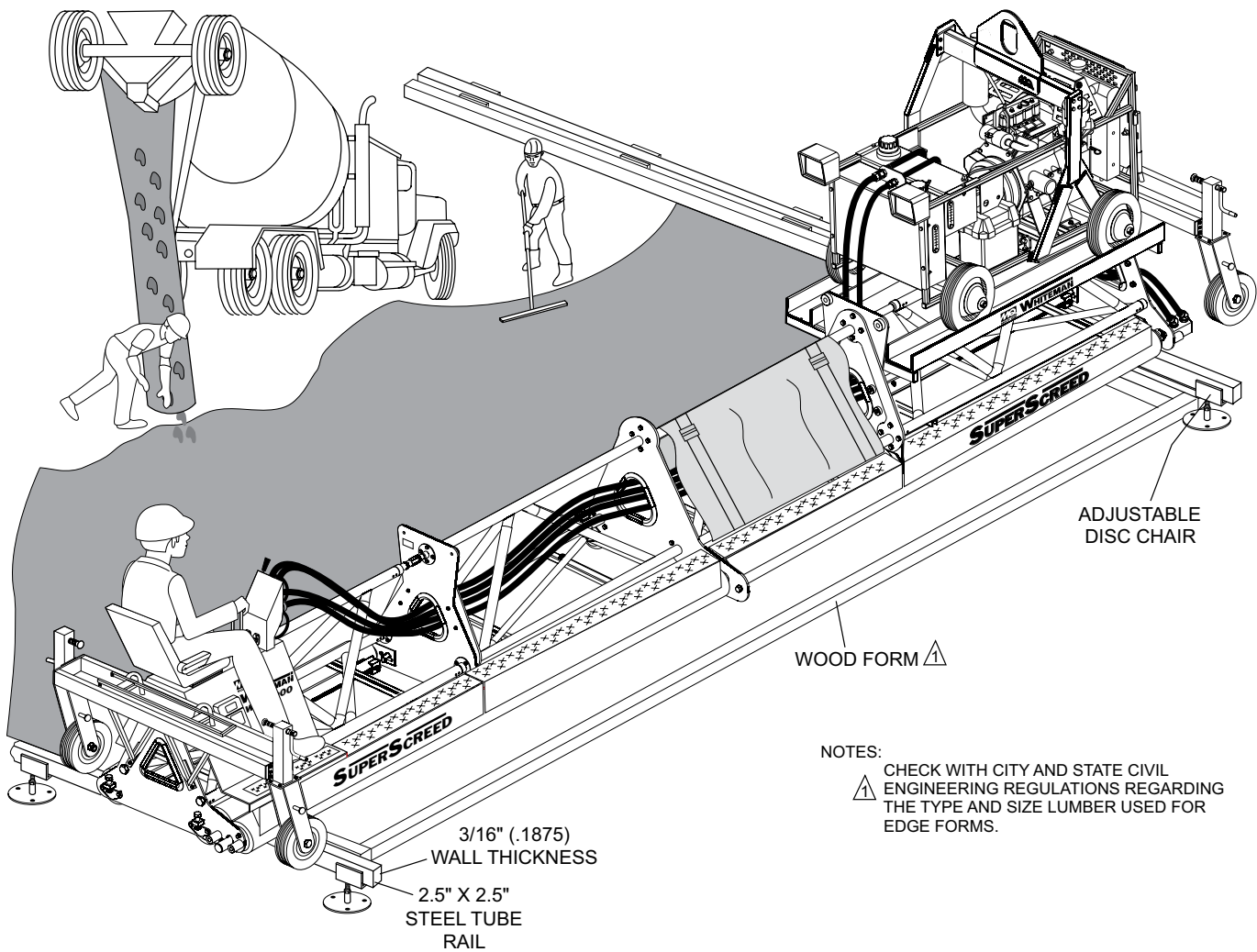


Figure 7. SuperScreed Application

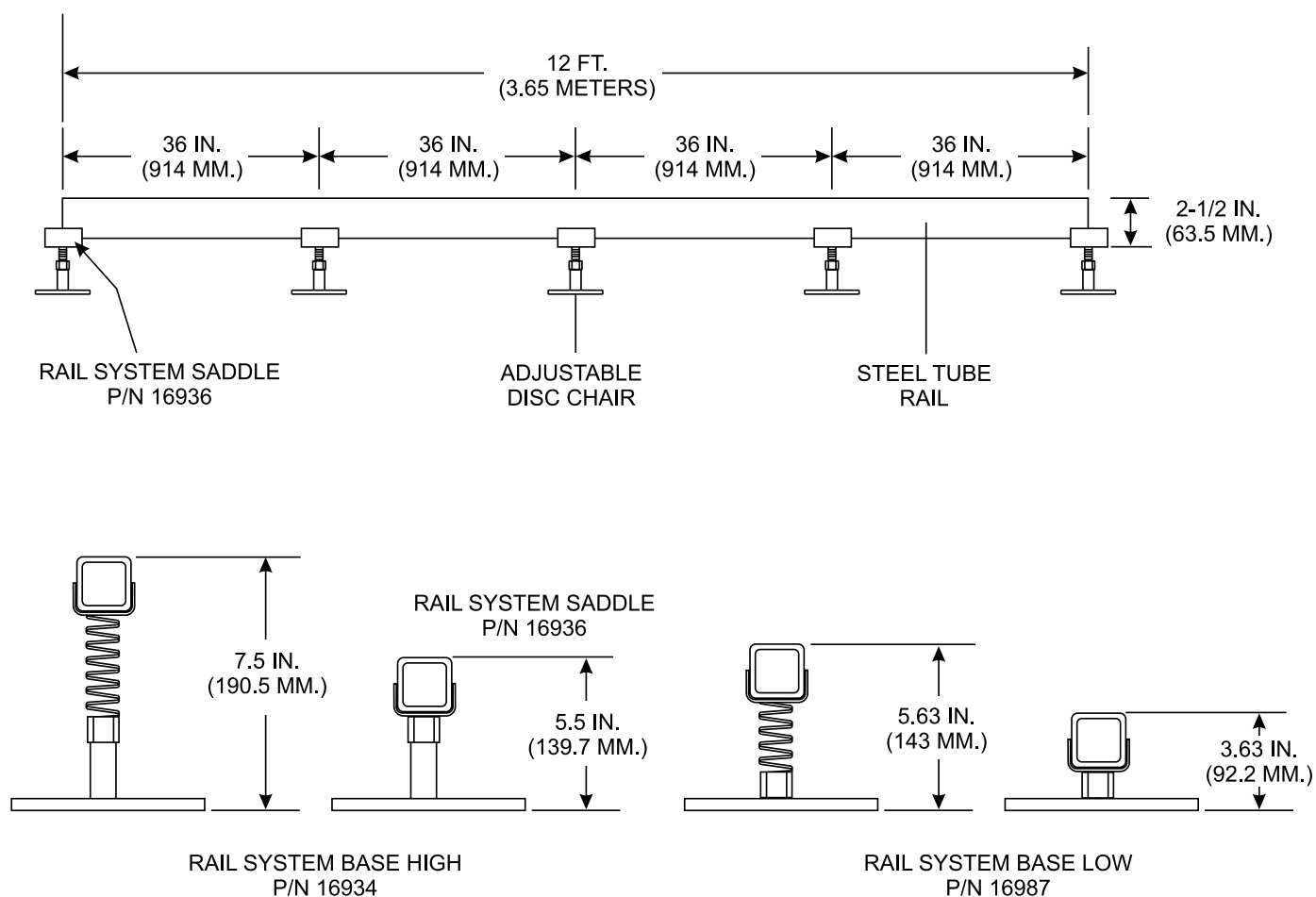
## GENERAL INFORMATION

Figure 8 shows the recommended steel rail tube and adjustable disc chair configuration.

Spacing of adjustable disc chairs should be spaced at 3 foot intervals. This will allow for 1/16-inch deflection in steel rail tube.

### NOTICE

Figure 8 illustrates Multiquip's recommended way of rail and disc chair placement. **ALWAYS** check with city and state civil engineering regulations before installing steel tube rails and disc chairs..



**Figure 8. Rail and Disc Chair Configuration**

## GENERAL INFORMATION

This equipment was designed with user safety in mind; however it can present hazards if improperly operated or misused.

The application of this roller screed is to strike off the surface of the concrete at a predetermined grade.

***This equipment is to be used only for its intended application and for no other purpose.*** Any misuse of this equipment will void any and all warranties.

Misuse is defined as the following but not limited to:

- Modifications or repairs made to the equipment without written approval from Multiquip.
- Improper storage
- Poor maintenance
- Dirty machine
- Improper lifting that may cause frame to bend
- Screeding surfaces other than concrete
- Scarring of strike tube surface
- Removal of guards
- Operating with defective or worn parts
- Inadequate forms (cannot support weight of screed)

### Gradability (Slopes)

This roller screed shall not be used on grades (up or down) that exceed 7% (4°). Reference Figure 9.



#### CAUTION

Operating the screed on slopes greater than 7% (4°) may cause the operator to lose control. This condition may cause severe damage to the equipment and bodily harm to the operator.

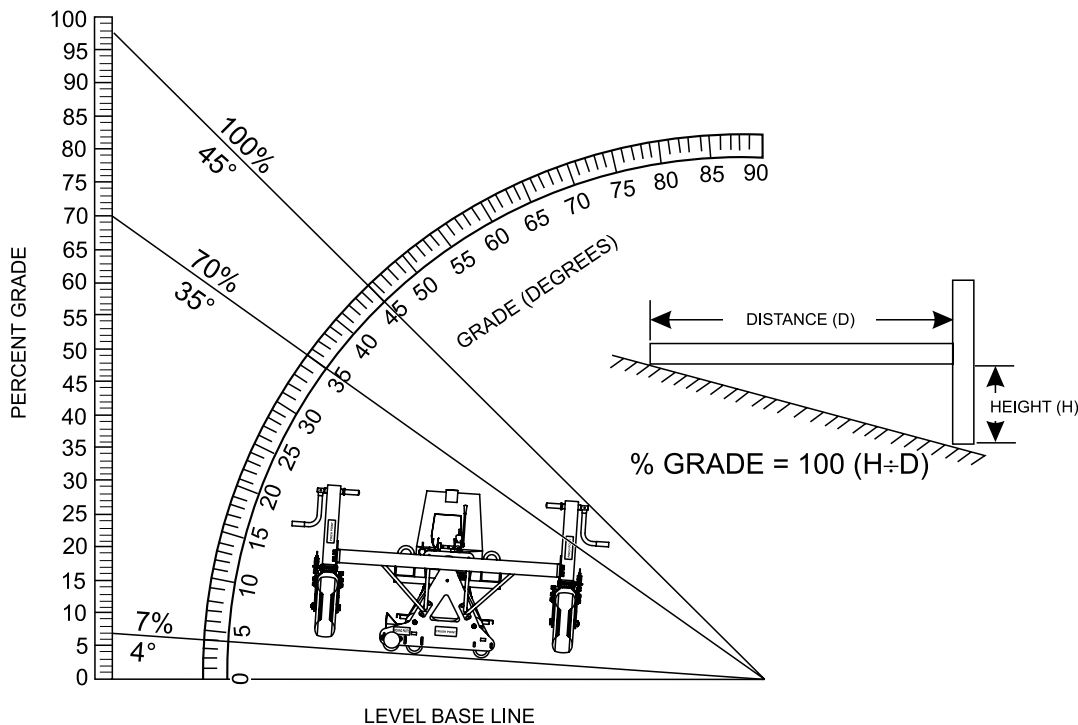


Figure 9. Grade Percentages

## DIMENSIONS (POWER UNIT)

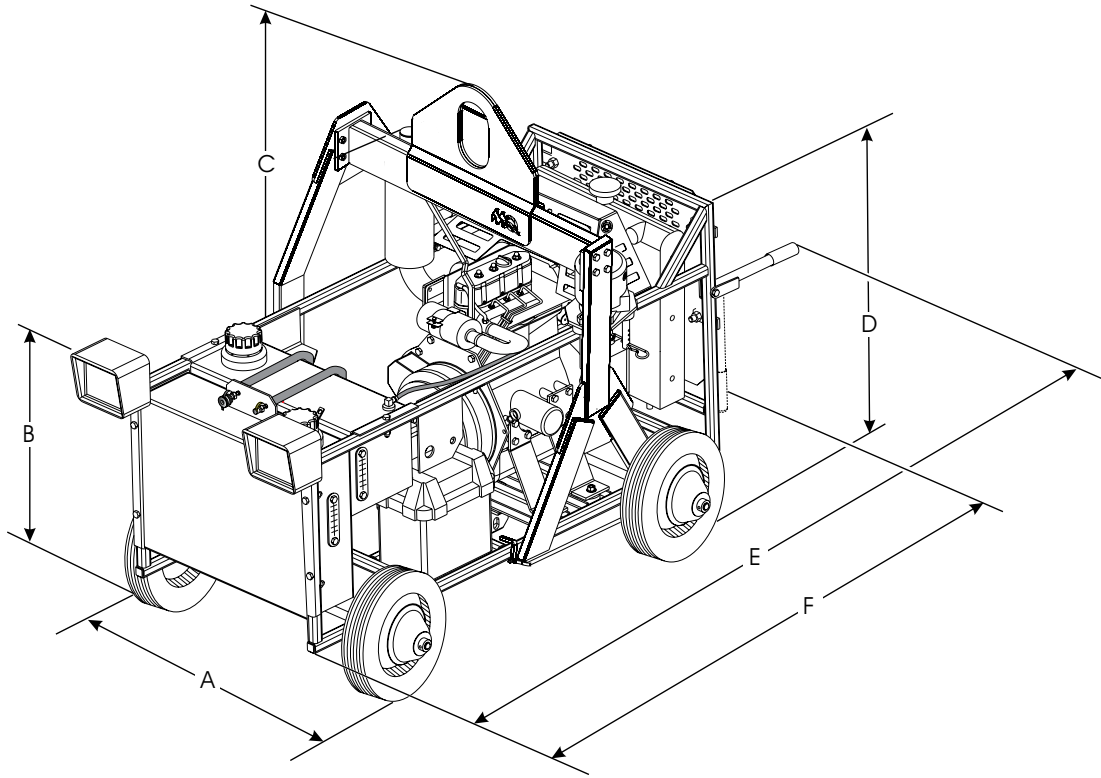
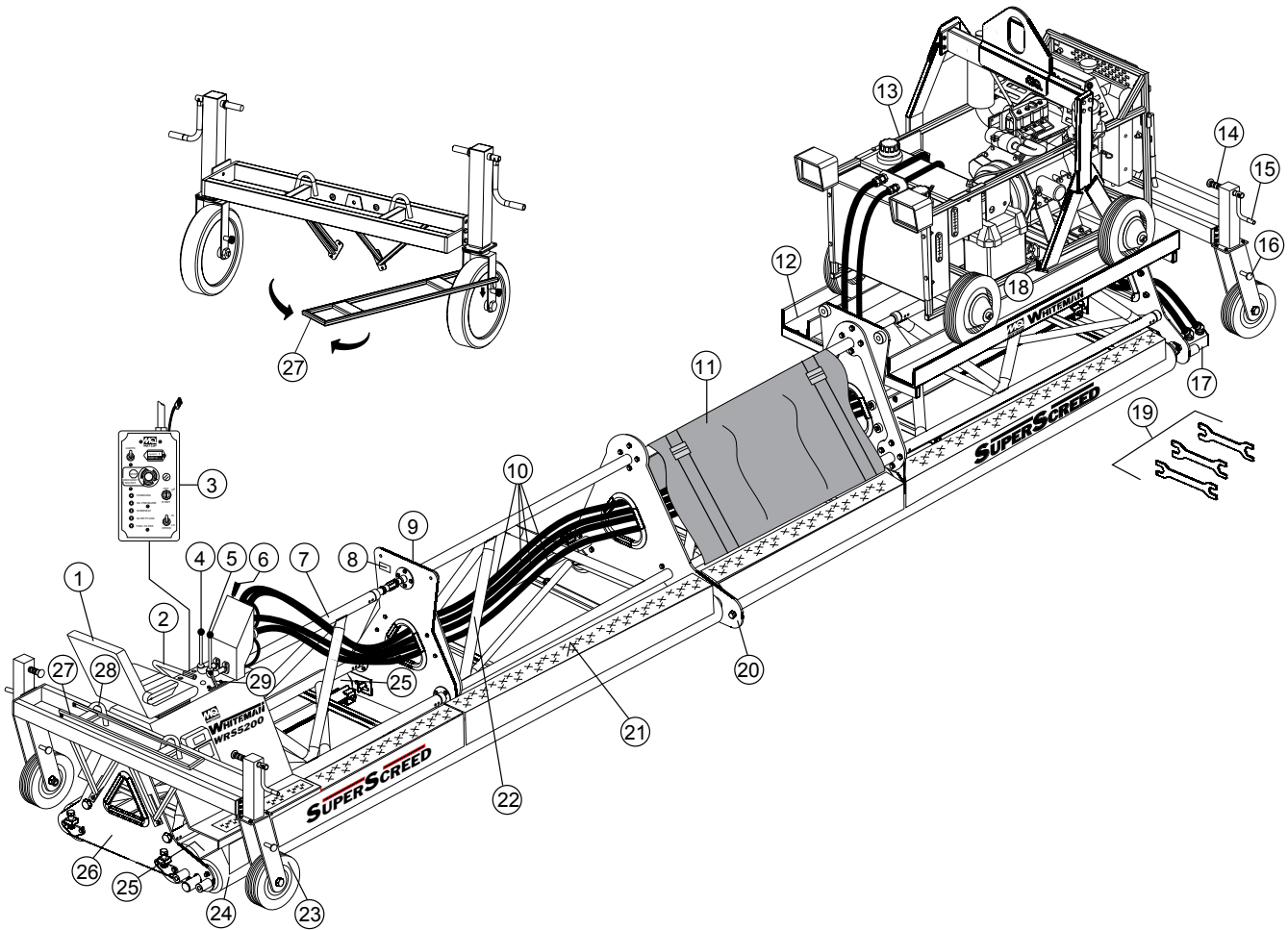


Figure 10. Power Unit Dimensions (WRSPDU)

Table 3. Power Unit Dimensions (New Style)	
Reference Letter	Dimension in. (mm.)
A	30.25 (768.35)
B	28.25 (717.55)
C	42 (1066.8)
D	31.13 (790.7)
E	61.5 (1562.1)
F	52.5 (1333.5)



# RIDE-ON ROLLER SCREED COMPONENTS



**Figure 11. Power Unit Components**

The definitions below describe the controls and functions of the Ride-On Power Screed (Figure 11).

- 1. Operators Seat** — Provides an unobstructed view of the work area. Seat is adjustable.
- 2. Safety Bar** — When pushed forward, rotation of both sets of drive tubes will stop.
- 3. Control Box** — Provides vital engine status information via LED's. Also contains emergency stop switch, ignition switch halogen light switch and engine speed switch and hour meter. One xx amp fuse required. Replace with only recommended type fuse.
- 4. DriveTube Lever (Engine Side)** — When activated this 3 position lever will cause the *engine side* drive tube to to rotate in a clockwise (forward) or counterclockwise (reverse) direction. The center position is neutral, no rotation. This drive tube is independent of the operator side drive tube.
- 5. DriveTube Lever (Operator Side)** — When activated this 3 position lever will cause the *operator side* drive tube to rotate in a clockwise (forward) or counterclockwise (reverse) direction. The center position is neutral, no rotation. This drive tube is independent of the engine side drive tube.
- 6. Drive Tube Speed Control Lever** — Controls the variable speed of the drive tubes. 150 rpm max. This lever should be in the *straight up* position when starting the engine.



## RIDE-ON ROLLER SCREED COMPONENTS

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7. **Frame (Operator End)** — 5 foot (1.5 meters) section that consists of 2 rubber coated drive tubes and associated hardware. This frame section is located just below the operators seat.
8. **Serial Number Plate** — When ordering parts, use information on this plate to identify model and type of unit.
9. **Inner Plate (Operator End)** — Included with operators frame end. Required for the inter-connection of truss section assemblies. There is also an inner plate at the power unit end of the screed.
10. **Hydraulic Hose Lines** — Always keep hose lines clean. **DO NOT** allow foreign debris, dirt to enter into the quick disconnect fittings. Dirt or foreign matter can contaminate the hydraulic fluid system. Insert Dust cap into quick disconnect fitting if hose is removed.
11. **Protective Cover** — Attach protective cover to the various truss sections to prevent the build up of concrete from accumulating on the frame and hoses. Utilizing the protective cover greatly reduces cleanup time.
12. **Power Unit Platform** — Place power unit on this platform during operation.
13. **Power Unit** — Provides the necessary hydraulics and electronics to operate the ride-on roller screed. **NEVER** tow the ride-on roller screed on the highway or public roads with the power unit attached to the screed platform.
14. **Jack Hand Grip** — When maneuvering of the screed is required, grip this handle to position the screed.
15. **Jack Raise/Lower Handle** — Turn handle clockwise to raise screed, turn counterclockwise to lower.
16. **Wheel Pins** — There are 2 wheel pins on each side of the wheel support. When transporting of the screed is required, insert pull handle into locking pins.
17. **Strike Tube Hydraulic Motor** — Rotates hydraulic strike tube.
18. **Locking Pin** — To prevent movement of the power unit and the possibility of the power unit falling from the platform during operation, insert screed locking pin into power unit frame.
19. **Wrenches** — These wrenches are to be used for the assembly and disassembly of the truss sections, drive tubes and strike tubes.
20. **Middle Bracket** — Required when adding truss sections that will accommodate strike tube.
21. **Scraper** — Helps prevent excessive amounts of concrete from accumulating on the screed frame.
22. **Pneumatic Tires** — Allows for easy maneuvering of the screed around jobsite.
23. **Truss Section** — Available in various lengths. See Table 9.
24. **Strike Tubes** — Levels concrete surface to grade. Available in various lengths. Max speed is 450 rpm.
25. **Drive Tubes** — There are 2 sets of rubber coated drive tubes that operate independently of each other. Max speed is 150 rpm.
26. **Outer Plate (Operator Side)** — Included with operators frame end. Required for the connection of strike tube. There is also an outer plate at the power unit end of the screed.
27. **Pull Handle** — When maneuvering of the screed is required for small distances, insert the hooks on the pull handle into the caster wheel pins, then pull on handle to move screed to desired location.
28. **Lift Loops** — When lifting of the screed is required, attach lifting straps of adequate lifting capacity to these lifting loops. Lifting loops are located at each end of the screed (caster bracket assembly).
29. **Strike Tube Speed and Direction Control Lever** — This lever controls the speed and rotation of the strike tube. Push forward for clockwise rotation, pull backwards for counter-clockwise rotation. The further you push/pull the lever, the faster the strike tube rotates. Strike tube speed is variable, full forward or reverse is rated at 450 rpm.

## POWER UNIT COMPONENTS

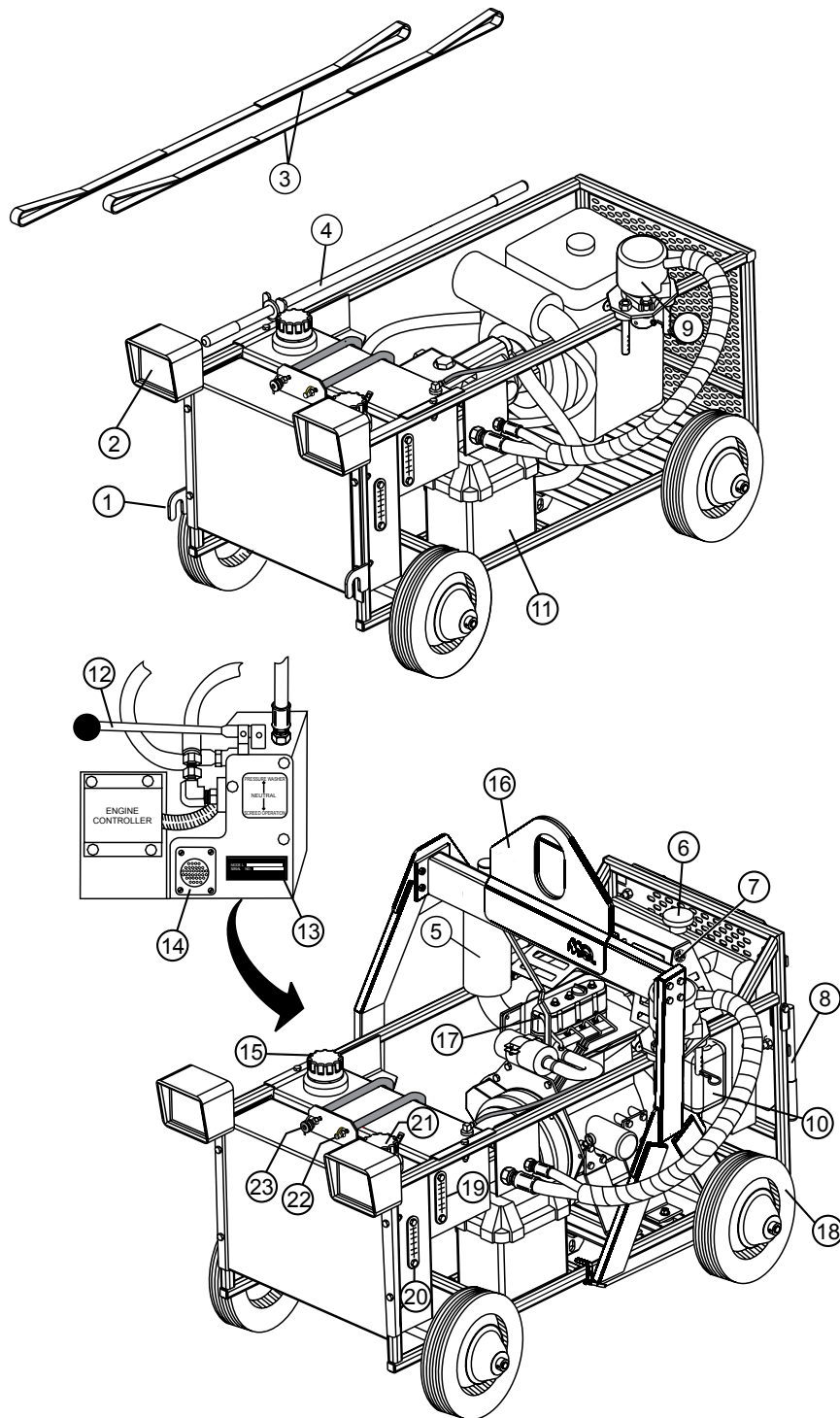


Figure 12. Power Unit Components

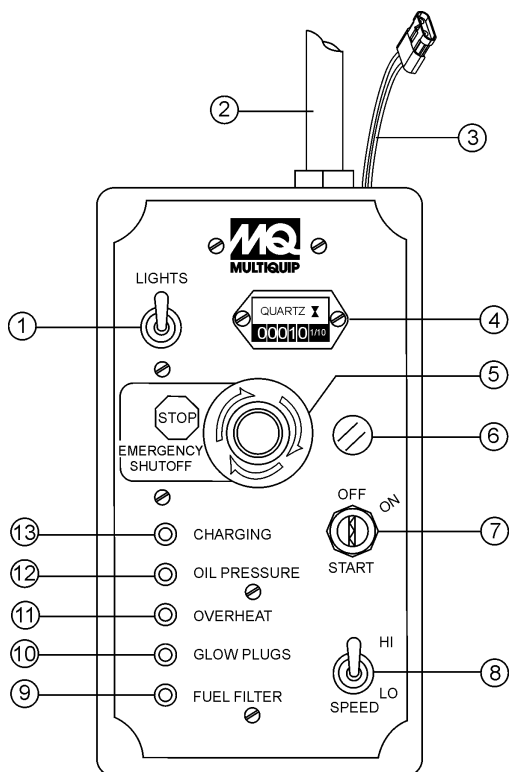
## POWER UNIT COMPONENTS

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The definitions below describe the controls and functions of the Power Unit (Figure 12).

1. **Lifting Support Hook** — Insert lifting rod (item 4) into support hook when lifting of the power unit is required. This feature is on older units only.
2. **Halogen Lights** — Power unit is equipped with two 50 watt halogen lights. Lights can be used when working in dark areas or at night.
3. **Lifting Straps** — When lifting of the power unit is required, secure these straps to the power unit frame. Straps are used on older units only. Make sure lifting device has adequate lifting capacity for lifting the power unit.
4. **Lifting Rod** — Insert this rod into the lifting hook (bottom of frame item 1) when lifting of the power unit is required.
5. **Muffler** — Required to reduce noise and emissions. NEVER touch muffler while it is hot.
6. **Radiator/Cap** — Fill with recommended coolant. NEVER remove radiator cap while engine is hot. Allow a sufficient amount of time for radiator to cool before removing cap.
7. **Emergency Stop Button** — In the event of an emergency press this button. **DO NOT** use this button as a method of shutting down the unit. Pull button outward when re-starting.
8. **Sterring Handles** — Use these handles (2) to steer and position the power unit.
9. **Hydraulic Motor Support Bracket** — Place strike tube hydraulic motor into this bracket whenever the drive tube requires maintenance or dis-assembly. Insert cotter-pin to keep motor from falling.
10. **Overflow Bottle** — Fill with recommended type coolant. Always maintain proper coolant level.
11. **Battery** — Provides +12VDC for power unit electronics. Replace with recommended type battery only.
12. **Control Lever** — 3-position lever, pressure washer, neutral and screed operation
13. **Serial Number Plate** — When ordering parts, use information on this plate to identify model and type of unit.
14. **Control Box Receptacle** — Insert the control box power cable into this receptacle
15. **Fuel Tank** — Fill with clean fresh diesel fuel. Fuel tank capacity is 5 gallons (19 liters) of diesel fuel.
16. **Lifting Bail** — Attach a chain, rope or strap to this lifting bail whenever lifting of the power unit is required. This bail is installed only on newer units. Make sure lifting device has adequate lifting capacity for lifting the power unit.
17. **Engine** — The unit uses a 26.5 HP Vanguard diesel engine. Reference engine owners manual or maintenance section in this manual for engine care and service.
18. **Tires** — This unit employs semi-pneumatic tires. The power unit should **NEVER** be towed on a highway. Always replace tires with original size type tire. Tires are designed to be puncture proof
19. **Fuel Gauge** — Displays the amount of diesel fuel in the fuel tank.
20. **Hydraulic Fluid Gauge** — Displays the amount of hydraulic fluid in the hydraulic tank. Also the gauge will display the temperature of the hydraulic fluid.
21. **Hydraulic Reservoir Tank/Cap** — This Remove this cap to add hydraulic fluid. Fill with AW MV ISO 46 type hydraulic fluid. Reservoir capacity is 5 gallons (19 liters) of diesel fuel.
22. **Quick-Disconnect Coupling (Output)** — Connect hydraulic motor drive line to this output port. Make sure to cover coupling with dust cap to prevent dirt and debris from contaminating hydraulic fluid system.
23. **Quick-Disconnect Coupling (Return)** — Connect hydraulic motor return line to this input port. Make sure to cover coupling with dust cap to prevent dirt and debris from contaminating hydraulic fluid system.

## CONTROL BOX COMPONENTS



**Figure 13. Control Box**

The definitions below describe the controls and functions of the Control Box (Figure 13).

1. **Light Switch** — Activates halogen lights. Lighting to be used at night or in dark areas.
2. **Data Cable** — Provides electrical control signals between control box and Power Unit.
3. **Solenoid Bypass Valve Connector** — Provides an electronic signal to solenoid valve to stop the hydraulic pressure flow to the drive tubes in the event the operator leaves the operators seat during operation.
4. **Hour Meter** — Displays the number of hours the machine has been in use.
5. **Emergency Stop Button** — In the event of an emergency press this switch. **DO NOT** use this button as a method of shutting down the unit. Pull button outward when re-starting.
6. **Fuse Holder** — 15 amp fuse. Always replace with recommended type and size fuse.
7. **Ignition Switch** — When starting in cold weather conditions, place ignition switch in the start position and allow glow plugs to warm.
8. **Engine Speed Switch** — Controls engine speed. For normal operation place this switch in the HI position.
9. **Fuel Filter LED** — Illuminates when water has collected in the fuel filter. Drain fuel filter if light stays on.
10. **Glow Plugs LED** — Indicates glow plugs are being heated. When LED is extinguished (OFF) engine can be started.
11. **Overheat LED** — Illuminates when engine has overheated. Check coolant level. When this condition occurs, shutdown engine immediately and correct the problem.
12. **Oil Pressure** — Illuminates when engine oil pressure is low. Shutdown engine immediately and correct the problem.
13. **Charging** — Illuminates when charging system is not working correctly. Shutdown engine immediately and correct the problem.

# PRESSURE WASHER COMPONENTS/SPECIFICATIONS

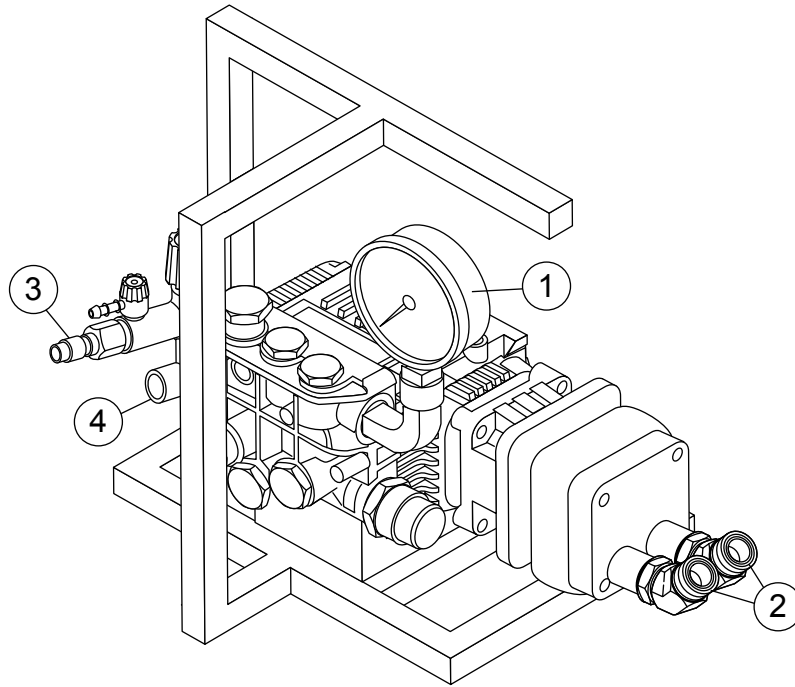


Figure 14. Pressure Washer

The definitions below describe the components of the pressure washer (Figure 14).

## NOTICE

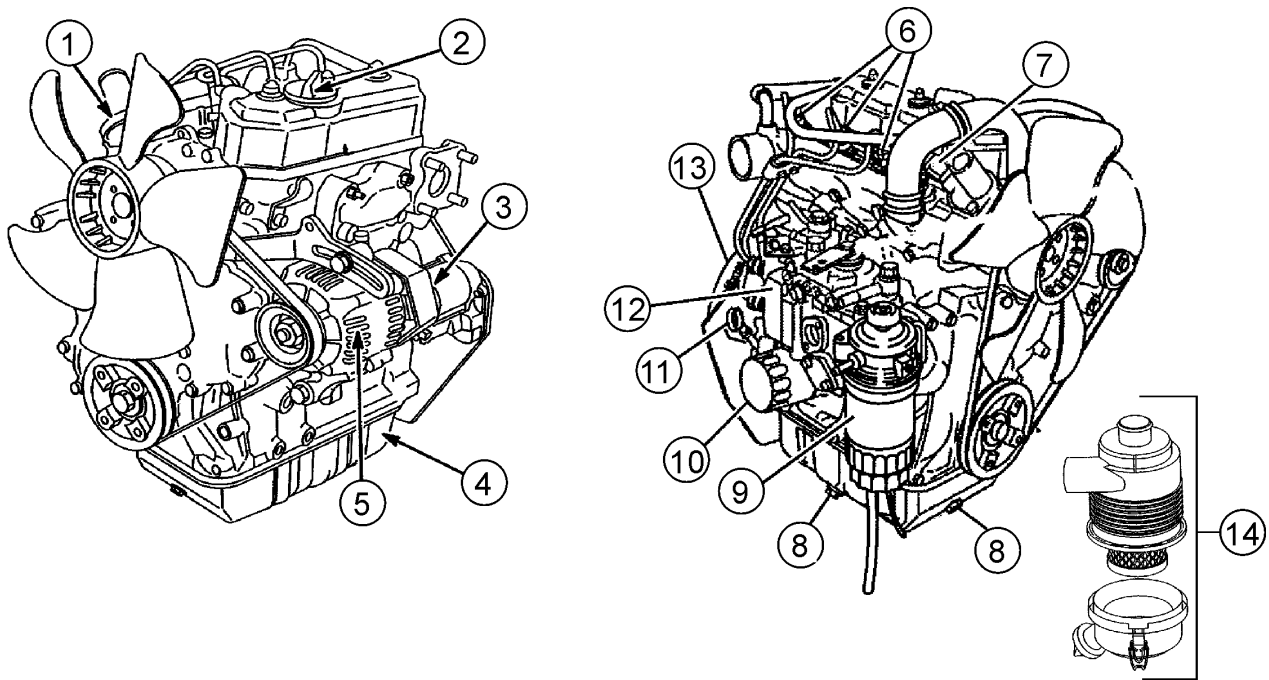
Pressure washer is an optional accessory that is not included with the screed. Contact MQ unit sales.

1. **Pressure Gauge** — 5,000 PSI
2. **Motor Inlet/Outlet** — Hydraulic fittings, 1/2" NPT (F), connect to pressure washer interface port on power unit.
3. **Water Outlet** — Connect to spray hose.
4. **Water Inlet** — 3/4" garden hose.

Table 4. Pressure Washer Specifications

Triplex Plunger Pump Flow	3.0 gpm @ 1500 psi
Unloader Maximum Pressure	1500 psi
Water Inlet	3/4" Garden Hose
Water Outlet:	3/8" Quick Disconnect
Hydraulic Motor Displacement	0.5 cu. in.
Hydraulic Motor Flow	8 gpm @ 1800 psi
Motor inlet and Outlet	1/2" NPT (F)
Pressure Washer Hose	3/8" I.D., 50' Length 3000 psi Rating

# ENGINE COMPONENTS



**Figure 15. Engine**

The engine (Figure 15) must be checked for proper lubrication and filled with fuel prior to operation. Refer to the manufacturer's engine manual for instructions and details of operation and servicing.

The definitions below describe the basic components of the engine.

1. **Thermostat** — Regulates the temperature of the engine coolant.
2. **Oil filler Cap** — Remove to add engine oil.
3. **Starter** — Starts engine when ignition key is rotated to the "START" position.
4. **Oil Pan** — Holds a maximum of 3.5 quarts (3.3 liters) of motor oil.
5. **Alternator** — Provides charge for battery and voltage for the +12 VDC electrical system.
6. **Injection Nozzles** — Injects diesel fuel into the cylinders.
7. **Glow Plugs** — Heating element used for starting the engine in cold weather conditions.
8. **Oil Drain Plugs** — Remove to drain crankcase oil. Fill with recommended type oil as listed in Table 5.
9. **Fuel Filter** — Prevents dirt and other debris from entering the fuel injection system. Replace or clean as recommended in maintenance section of this manual.
10. **Oil Filter** — Spin-on type, filters oil contaminants.
11. **Oil Dipstick** — Remove to check amount and condition of oil in crankcase. Refill or replace with recommended type oil as listed in Table 5.
12. **Injector Pump** — Provides fuel under pressure to the injector nozzles.
13. **Flywheel** — Connect to engine coupler.
14. **Air filter** — Prevents dirt and other debris from entering the fuel system. Unsnap air filter cover to gain access to filter element.

# ROLLER SCREED ASSEMBLY

## Roller Screed Assembly

The following will be required for the assembly of the screed:

- Wrenches/Allen Wrenches
- String
- Rubber Mallet

When assembling the screed it is very important to keep truss sections on the appropriate side of the screed. The screed has an operators end (right-side) and a power unit end (left-side).

To help with the assembly of the screed each truss is stamped with a **letter** and a **number** which can be found on the top pipe of each section of truss.

The following assembly instructions will illustrate how to assemble a 44 ft. (13.41 meters) roller screed. Reference Table 9, Screed Length Parts Matrix. This table will call-out the required parts for the desired screed (length).

Lay the parts as shown in Figure 16 in a clean assembly area that is free of dirt and debris. Assemble the truss sections to match the strike tube lengths. For this example, the strike tube lengths are 14 ft. (4.25 m) operator's end, 16 ft. (4.87 m) middle section and 14 ft. (4.25 m) power unit end.

## Task 1: Operator's End Truss Sections (Reference Figure 16)

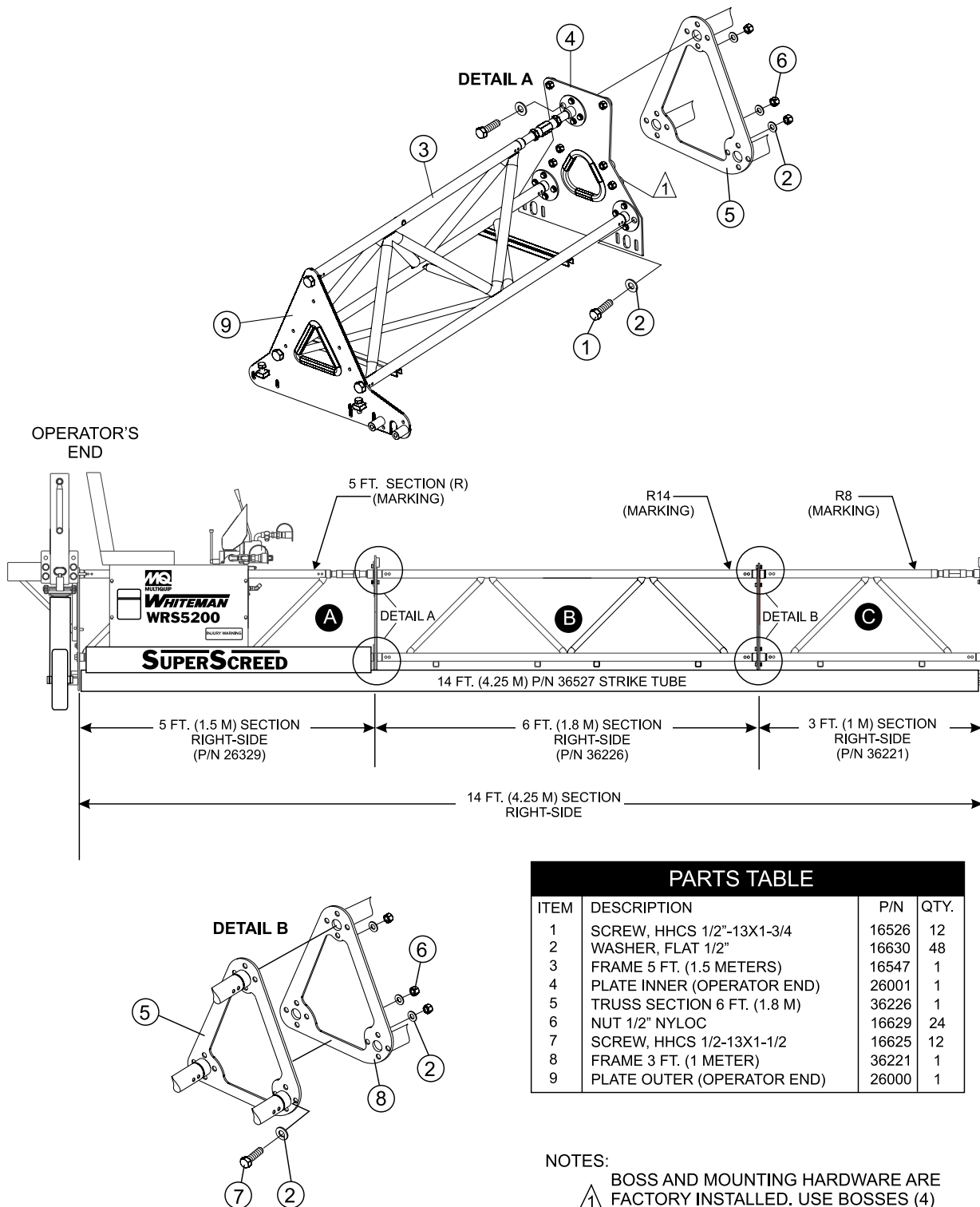
1. Locate the 6 ft. (1.8 m) right-side section of truss **B**. This truss section can be identified by the R14 marking on the top pipe.
2. Next locate the 3 ft. (1 m) right-side section of truss **C**. This truss section can be identified by the R8 marking on the top pipe.
3. Reference detail B, and join truss sections **B** and **C** together. Use the 1/2-13X1-1/2 HHCS screws (12) when joining these **two** truss sections along with 1/2-inch flat washers (24) and 1/2-inch nyloc nut (12).
4. Reference detail A and join the 5 ft. (1.5 m) operator's end truss section **A** to previously assembled truss sections **B** and **C**.
5. Use the 1/2-13X1-3/4 HHCS screws (12) when joining these **three** truss sections along with 1/2-inch flat washers (24) and 1/2-inch nyloc nut (12).

### NOTICE

When joining truss sections **B** and **C** to truss section **A**, let **B** and **C** truss sections rest on bosses (4) of inner plate for support and alignment. Torque 1/2-inch nyloc nut to 75 ft-lbs. ( 102 N·m)

Bosses and mounting hardware are factory installed.

# ROLLER SCREED ASSEMBLY



**Figure 16. Operator's Right-Side Truss Sections (14 FT./4.26M)**



## Task 2: Middle Truss Sections (Reference Figure 17)

1. Locate the 8 ft. (2.4 m) right-side section of truss **D**. This truss section can be identified by the RM8 marking on the top pipe.
2. Next locate the other 8 ft. (2.4 m) left-side section of truss **E**. This truss section can be identified by the LM8 marking on the top pipe.
3. Reference detail B, and join truss sections **D** and **E** together. Use the 1/2-13X1-1/2 HHCS screws (12) when assembling these **two** truss sections along with 1/2-inch flat washers (24) and 1/2-inch nyloc nut (12).

## Task 3: Middle Bracket)

Locate middle bracket P/N 16653. Place middle bracket between 3 ft. truss section (**C**) and the 8 ft. truss section (**D**) as outlined in Figure 17.

4. Use the 1/2-13X1-3/4 HHCS screws (12) when joining truss sections **C**, **D** and **E** (with middle bracket) along with 1/2-inch flat washers (24) and 1/2-inch nyloc nut (12).

## Task 4: Bearing Installation

If the strike tube bearing has not been installed onto the middle bracket perform the following:

1. Mount strike tube bearing onto middle bracket.
2. Secure strike tube bearing with 7/16-14x2 HHSC screws (2) and 7/16 nyloc nuts (2). Torque bearing support nuts to 75 ft.-lbs. (102 N·m).
3. Insert splined shaft into middle mounting bracket as shown in Figure 17.
4. Tighten bearing set screws to secure splined shaft.

# ROLLER SCREED ASSEMBLY

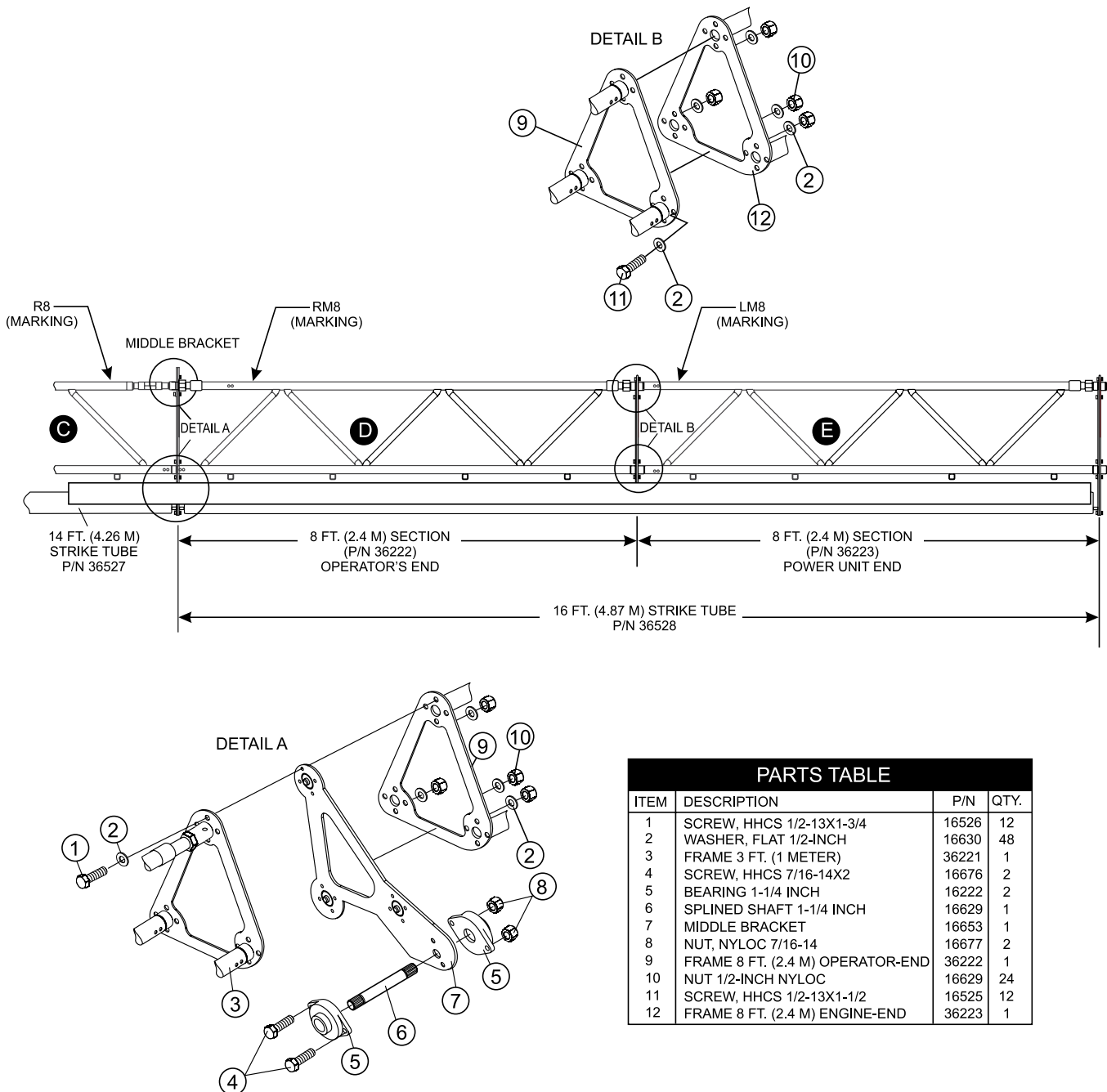


Figure 17. Middle Truss Sections (16 FT./4.87 Meters)

## ROLLER SCREED ASSEMBLY

### Task 5: Engine End Truss Sections (Reference Figure 18)

1. Locate the 9 ft. (2.75 m) left-side section of truss **F**. This truss section can be identified by the L14 marking on the top pipe.
2. Next, locate the 5 ft. ( 1.5 m) left-side section of truss **G**. This truss section can be identified by the **L** marking on the top pipe. This section of truss is the 5FT.(1.5M) engine end.
3. Reference detail B, and join truss sections **F** and **G** together. Use the 1/2-13X1-1/2 HHCS screws (12) when joining these *two* truss sections along with 1/2-inch flat washers (24) and 1/2-inch nyloc nut (12).
4. Reference detail A and join the 14 ft. (4.26 m) engine end truss sections **F and G** to previously assembled truss sections **D** and **E**.
5. Use the 1/2-13X1-3/4 HHCS screws (12) when joining these truss sections along with 1/2-inch flat washers (24) and 1/2-inch nyloc nut (12).

#### NOTICE

When joining truss section **F** to truss section **G**, let truss section **F** rest on bosses (4) of inner plate for support and alignment.

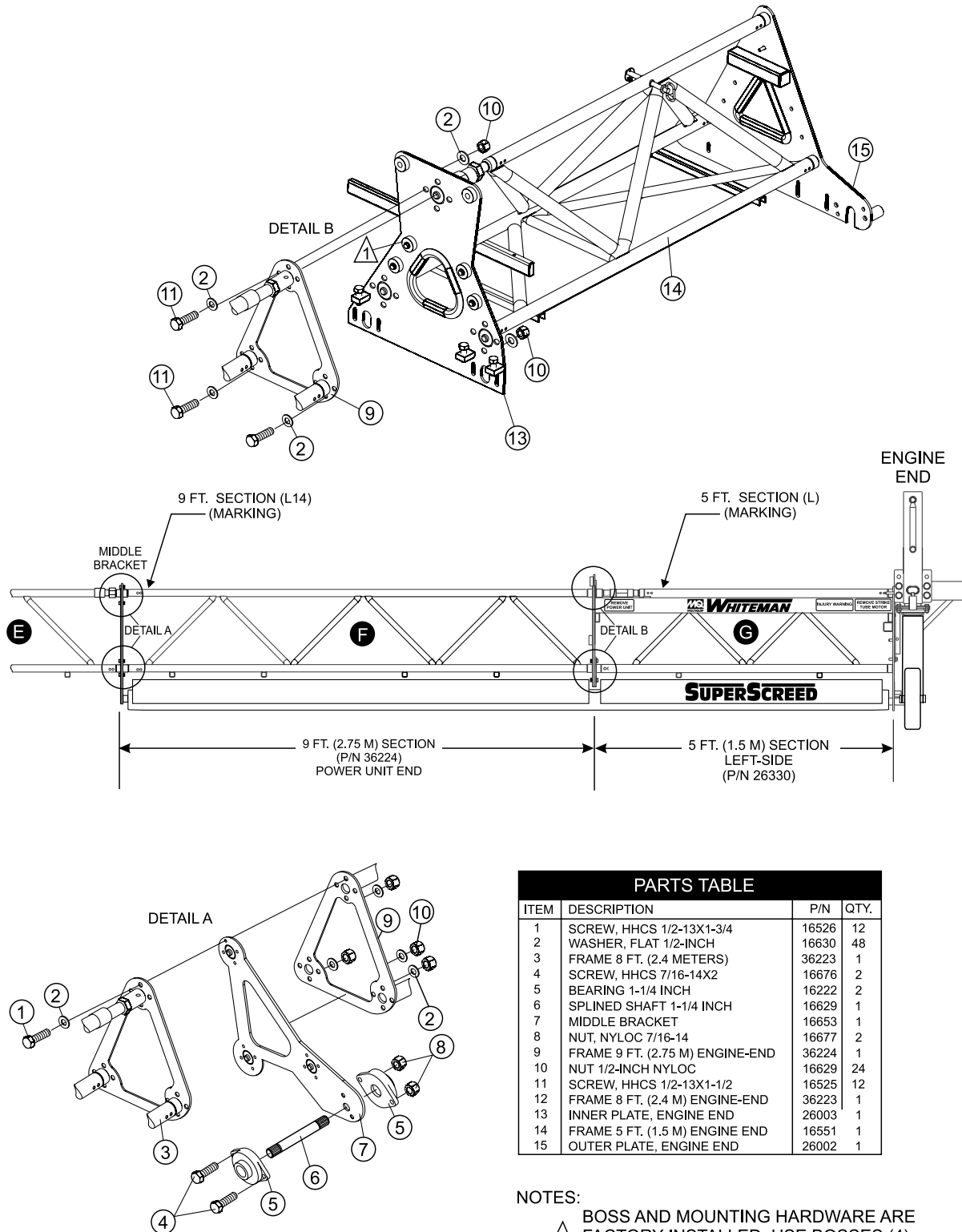
Bosses and mounting hardware are factory installed.

### Task 6: Bearing Installation

If the strike tube bearing has not been installed onto the middle bracket perform the following:

1. Insert splined shaft into middle mounting bracket as shown in Figure 18.
2. Place strike tube support bearing onto splined shaft.
3. Secure strike tube support bearing with 7/16-14x2 HHSC screws (2) and 7/16 nyloc nuts (2). Torque bearing support nuts to 75 FT-LBS ( 102 N·m).

# ROLLER SCREED ASSEMBLY



**Figure 18. Engine End Left Truss Sections (14 ft./4.25 meters)**

# ROLLER SCREED ASSEMBLY

## Task 7: Strike Tube Assembly

The roller screed used in this example will require different lengths of strike tubes. Two separate 14 ft. (4.25 meters) sections and one 16 ft. (4.87 meters) section will be required, yielding a combined length of 44 ft. (13.41 meters).

This following instructions will illustrate the installation of the strike tubes onto the screed. The installation will begin on the operator's side of the screed and will finish on the engine side of the screed.

### Strike Tube Installation (Operator's End)

1. Verify that bearing and strike tube guard (Figure 20) have been mounted on the outer plate at operator's end of screed. If either item is not installed please install.
2. Also, if installed remove the four 3/8-16X2 HHC screws that secure the scraper bar assembly to the five foot section of frame. Set scraper bar assembly aside.
3. Insert one end of the 14 ft. (4.25 meters) strike tube shaft into the 1-3/8" bearing. Using the supplied wrenches turn the 1-5/8" nut and jam nut until they butt up against the strike tube hub. Tighten securely.

### Strike Tube Installation (Middle Bracket)

1. Locate middle bracket, P/N 16653 (Figure 20) plate on operator's end of screed. Make sure bearings (2) and splined shaft has been mounted. If bearings and shaft have not been installed, install as referenced in Figure 11 (see task 4).
2. Insert other end of the 14 ft. (4.25 meters) strike tube shaft into the splined shaft as shown in Figure 14.

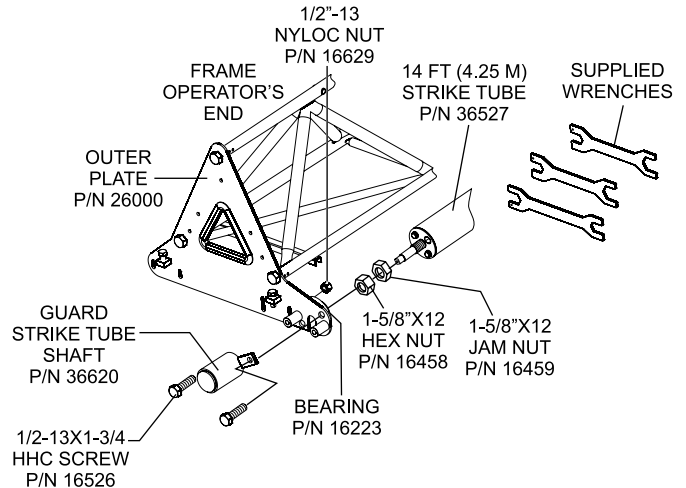
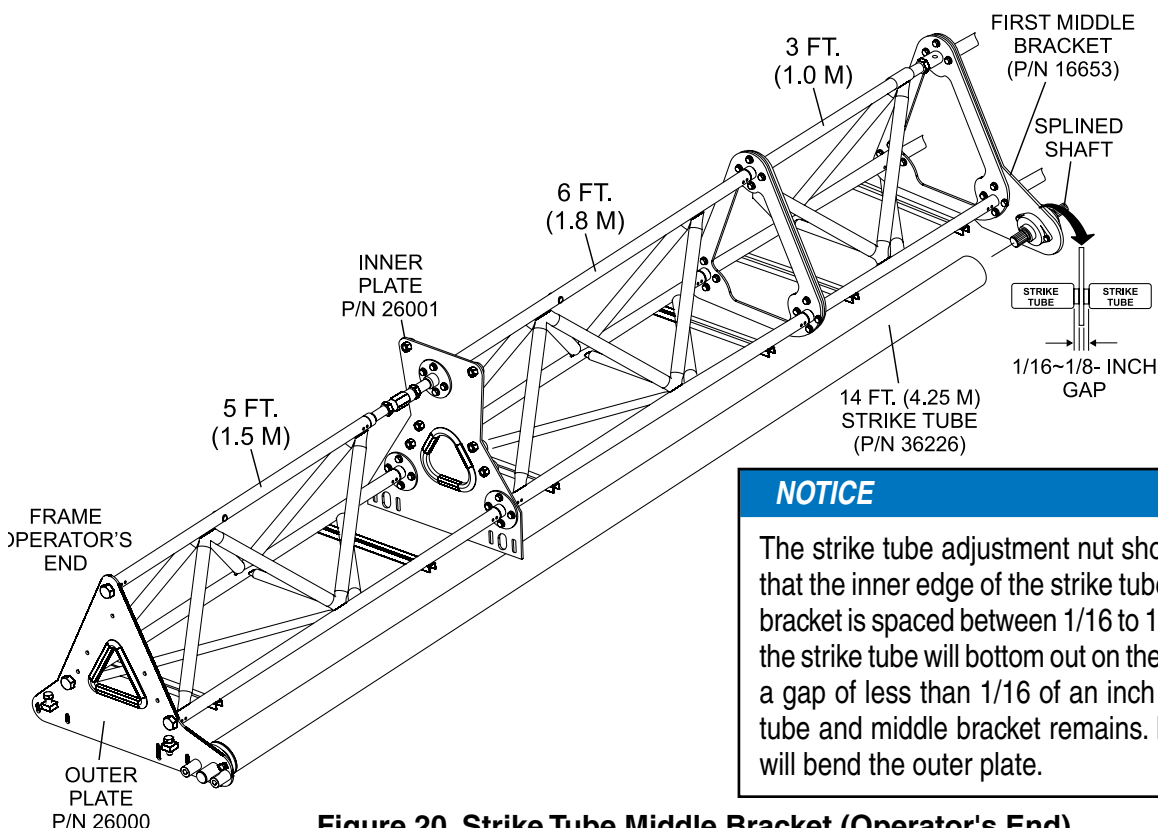


Figure 19. Strike Tube (Operator's End)



### NOTICE

The strike tube adjustment nut should be adjusted so that the inner edge of the strike tube next to the middle bracket is spaced between 1/16 to 1/8 inch. Please note the strike tube will bottom out on the splined shaft when a gap of less than 1/16 of an inch between the strike tube and middle bracket remains. Further adjustment will bend the outer plate.

Figure 20. Strike Tube Middle Bracket (Operator's End)

# ROLLER SCREED ASSEMBLY

## Strike Tube Installation (Middle Section)

The 14 ft. (4.25 meters) strike tube section should now be attached to the matching section of truss (Figure 21). The following section will illustrate inserting the middle section strike tube.

1. The first middle bracket should now be installed with the splined shaft supporting one end of the 14 ft. (4.24 meters) strike tube. The other end of the splined shaft should be exposed.
2. Insert one end of the 16 ft. (4.87 meters) strike tube onto the exposed-end of the splined shaft located on the **first middle bracket** (Figure 21).
3. Next, insert the other end of the strike tube onto the splined shaft of the **second middle bracket** (Figure 21).

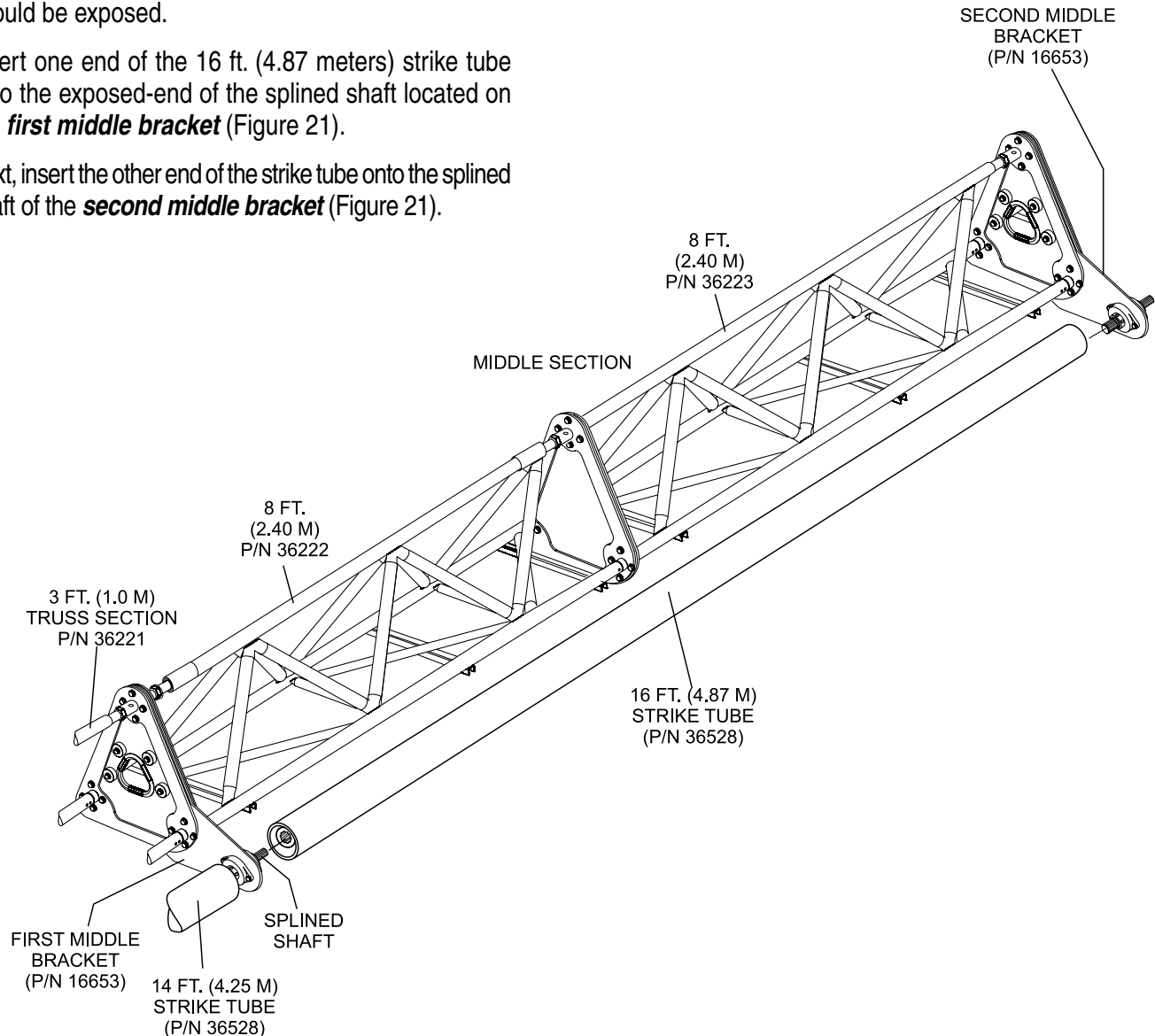


Figure 21. Strike Tube Middle Section (16 ft./4.87 meters)

# ROLLER SCREED ASSEMBLY

## Strike Tube Installation (Engine End)

The 16 ft. (4.87 meters) strike tube section should now be attached to the matching middle section of truss. The following section will illustrate joining the engine section of strike tube.

1. The second middle bracket should now be installed with the splined shaft supporting one end of the 16 ft. (4.87 meters) strike tube. The other end of the splined shaft should be exposed.
2. Insert one end of the 14 ft. (4.25 meters) strike tube onto the exposed-end of the splined shaft located on the **second middle bracket** (Figures 22).
3. Verify that the strike tube bearing has been (Figure 22) mounted on outer plate at engine end of the screed. If bearing has not been installed, please see next step. Otherwise proceed to step 5.
4. Secure strike tube bearing to outer plate (engine end) with 7/16-14x2 HHSC screws (2) and 7/16 nyloc nuts (2). Torque bearing support nuts to 75 ft.-lbs ( 102 N·m)
5. Next, insert the other end of the strike tube into the strike tube bearing located on the outer plate (engine end).

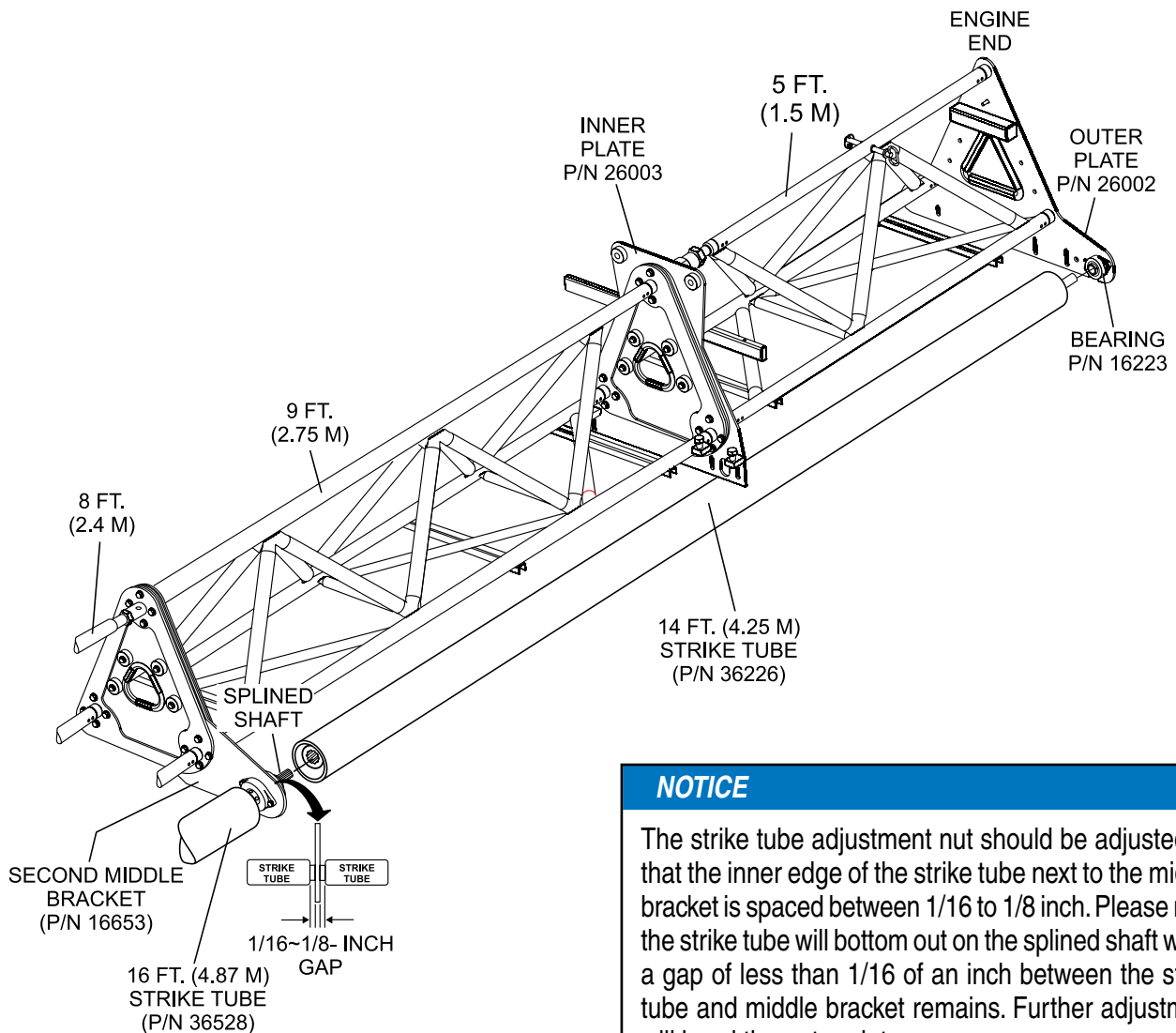


Figure 22. Strike Tube Engine End (14 ft./4.25 m)

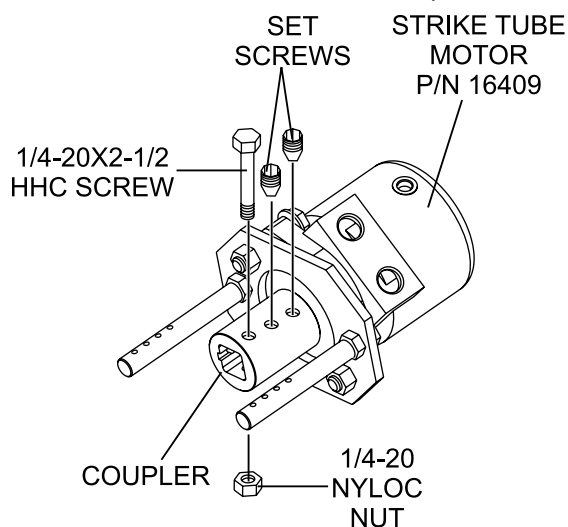
# ROLLER SCREED ASSEMBLY

## Task 8: Strike Tube Motor Mounting

For initial setup the strike tube motor can be located on the power unit (Figure 12, item 9). It is held in place by two circular support bosses which are welded to the frame of the power unit.

Remove the pin hitch clip that secures the motor to the power unit frame and perform the following:

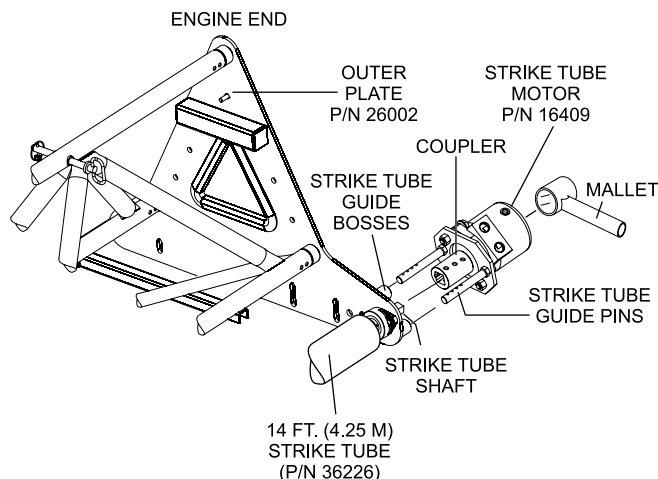
1. Make sure the two set screws (Figure 23) on the coupler have been retracted enough to allow the coupler to slide easily onto the strike tube shaft.
2. Second make sure that the shaft retaining screw and nut have been removed from the coupler.



**Figure 23. Strike Tube Motor**

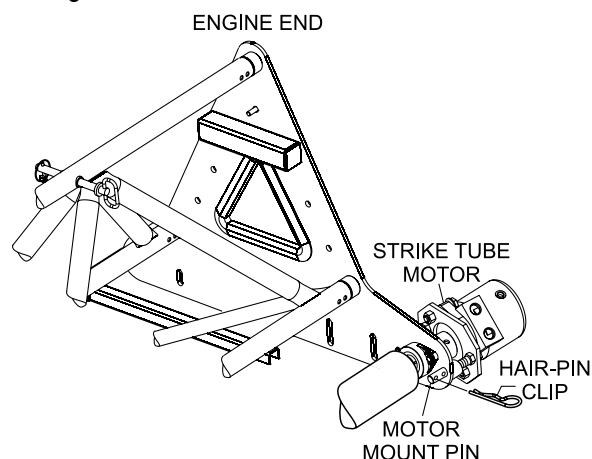
3. Insert strike tube motor coupler (Figure 23) onto shaft of strike tube. Additionally insert strike tube guide pins into guide bosses located on outer plate.
4. Once coupler and guide pins have been properly aligned onto strike tube shaft, tap back-end of strike tube motor with a mallet until first hole on coupler is aligned with strike tube shaft hole.

5. Using an allen-wrench. Insert both set screws into coupler. Tighten each set screw securely.
6. To prevent the strike tube from dislodging, insert the 1/4-20X2-1/2 HHC screw into first hole on the coupler and thru the strike tube shaft. Tap the screw slightly if necessary.
7. Use a 1/4-20 nyloc nut to secure the screw in place. Tighten securely.



**Figure 24. Securing Strike Tube Motor**

8. To prevent the strike tube motor from dislodging, insert hair-pin clip into strike tube motor mount pin as shown in Figure 25.



**Figure 25. Installing Hair-Pin Clip**

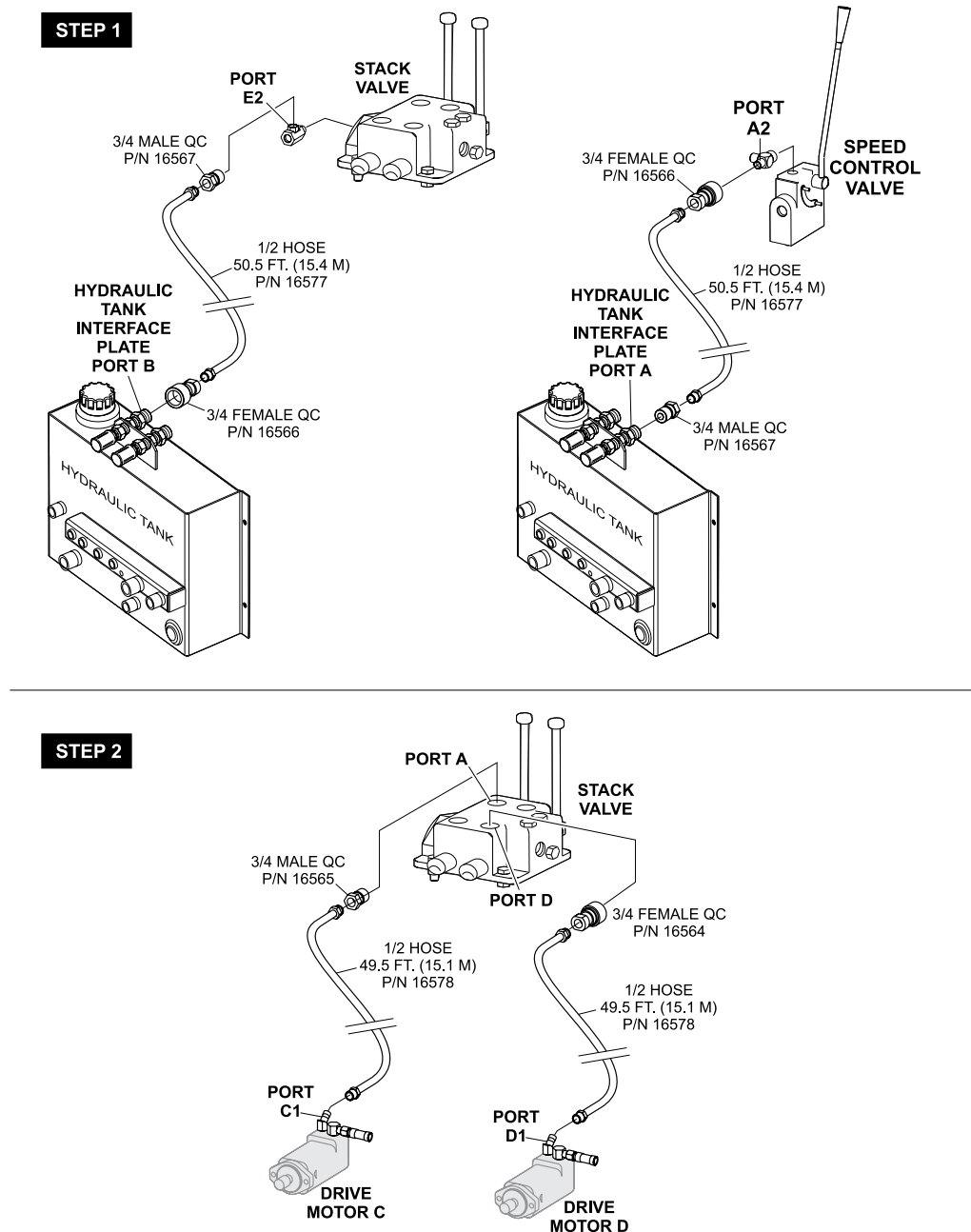


# ROLLER SCREED ASSEMBLY

## Task 9: Hydraulic Hoses

There are four hydraulic hoses that need to be routed from the stack and speed control valves at the operator's end of the screed to the drive tube motors (power unit end) and power unit.

Route the hydraulic hoses as shown in Figure 47.

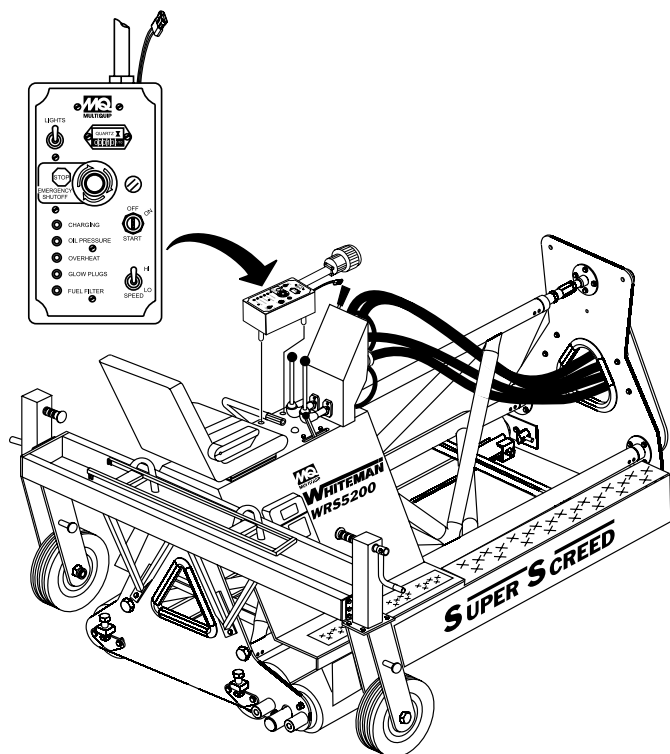


# ROLLER SCREED ASSEMBLY

## Task 10: Control Box Connections

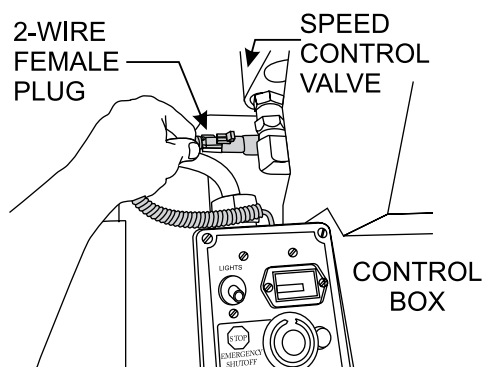
The following instructions illustrate the placement of the control box onto the operator's platform and the connection of the associated cables.

1. Align the two pins at the bottom of the control box with the holes on the operator's platform (Figure 26). Set control box down on operator's platform.



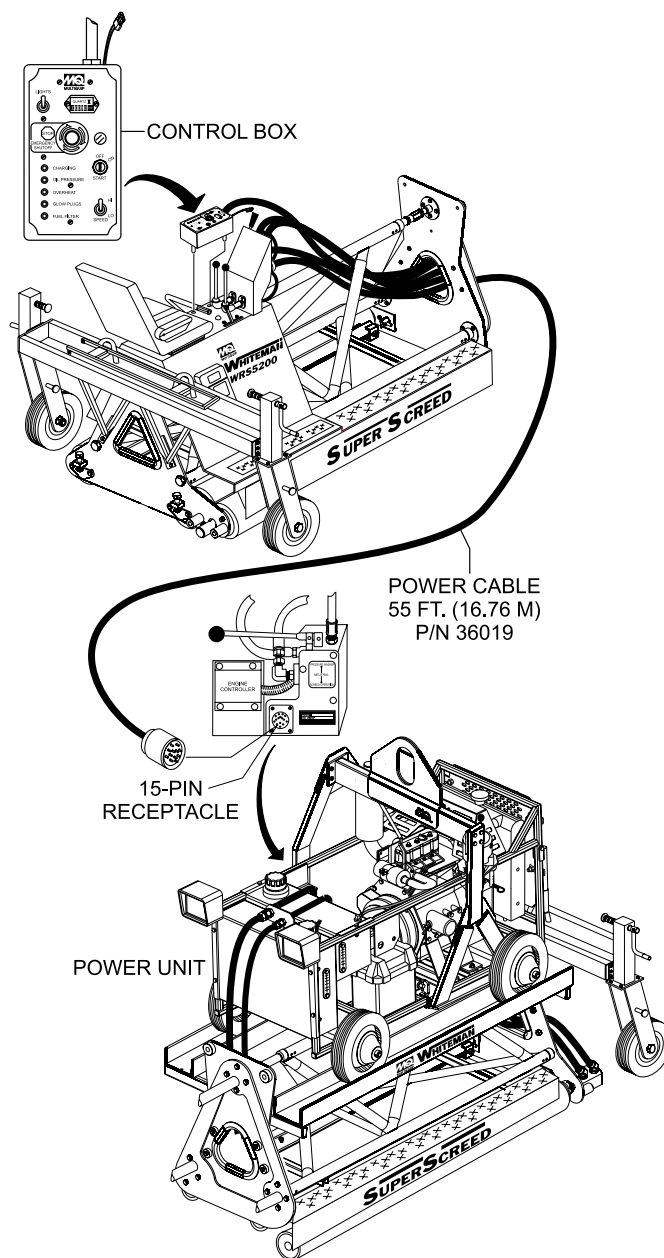
**Figure 27. Control Box Mounting**

2. Locate the 2-wire female connector plug (Figure 28) at the control box. Insert the this plug into the 2-pin male receptacle located just underneath the speed control valve.



**Figure 28. Solenoid Valve Plug Connection**

3. Locate the 55 ft. (16.76 meters) power cable P/N 36019. Route this cable (Figure 29) from the control box thru the trusses to the 15-pin receptacle located on the power unit.



**Figure 29. Power Cable Connection**

### NOTICE

The 2-wire female connector plug provides an electronic signal to the solenoid valve to stop the hydraulic pressure flow to the drive tubes in the event the operator leaves the operators seat during operation.

## ROLLER SCREED ASSEMBLY

### Task 11: Strike Tube Control Cable

The following instructions illustrate the installation of the strike tube control cable. Depending on the length of the screed there are two lengths of cables to choose from. A 16 ft. (4.87 meters) and a 50 ft. (15.24 meters).

The control cable (Figure 30) should already be connected to the strike tube speed and direction control lever which can be located at the operator's platform.

The other end of the control cable should be laying inside the trusses waiting to be connected to the hydraulic pump lever located at the power unit end of the screed.

1. Locate cable mount bracket as referenced in Figure 30.
2. Insert the bracket onto threaded stud which is welded to power unit. Secure bracket with washer and wing-nut. Tighten securely.
3. Take free end of control cable and insert ball socket onto pump lever ball stud.

4. If installing a control cable of a different length, remove the ball socket end of the control cable from the ball stud.
5. Next, loosen the two 10-32 nuts that secure the control cable to the frame at the operator's platform.
6. Remove the 10-32 HHC screw and nyloc nut that secures the rod end to the control lever.
7. Install new control cable in reverse order.

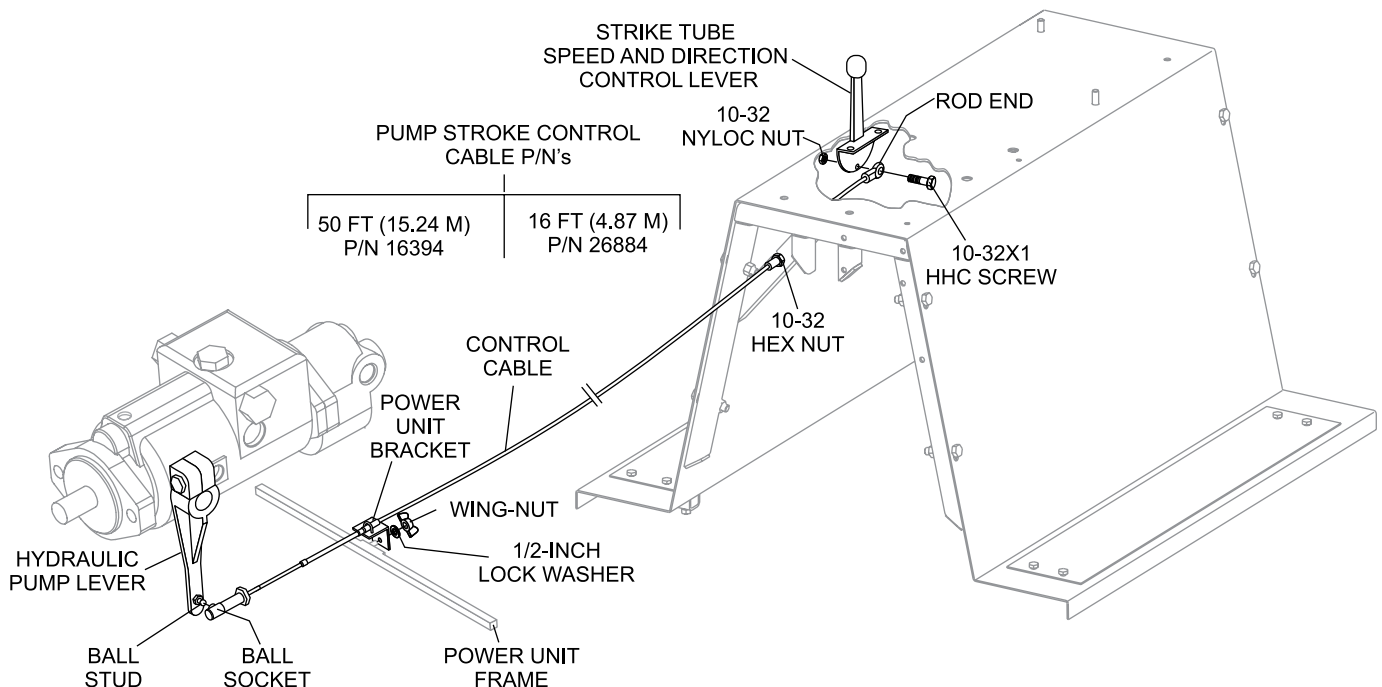


Figure 30. Strike Tube Control Cable Installation

# ROLLER SCREED ASSEMBLY

## Task 12: Tarp Installation

Figure 31 illustrates the installation of the tarps (protective covers) onto the various truss sections.

Place the tarps on the appropriate sections. All tarps were made to full length per each section of truss. Make sure tarps are securely fasten to the truss frame so that they will not come loose during operation.

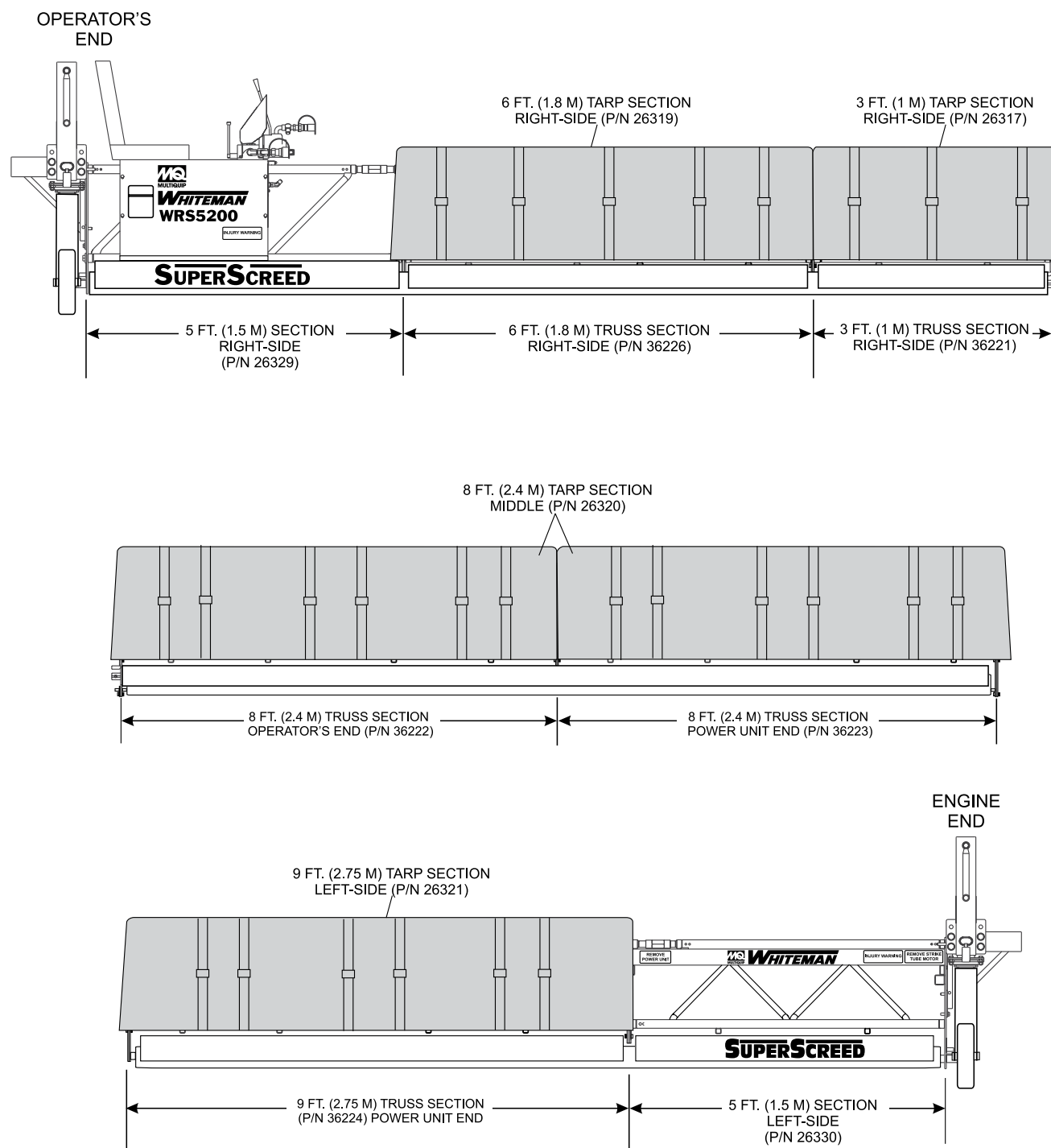


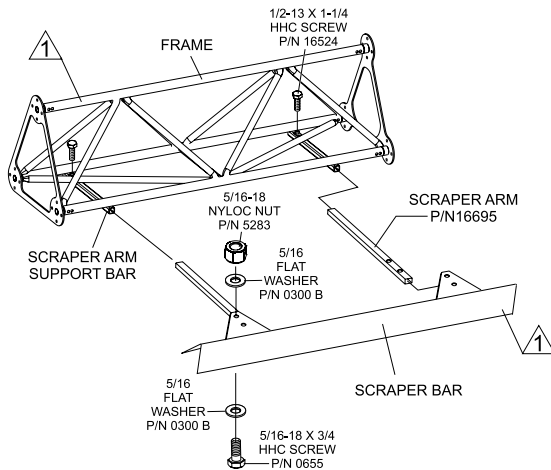
Figure 31. Tarp Installation

# ROLLER SCREED ASSEMBLY

## Task 13: Scraper Bars

The following instructions illustrate the installation of the scraper bars onto the **truss sections**.

1. Locate scraper bar that matches corresponding section of truss frame. See Table 9.
2. Next, attach scraper arm (Figure 32) to scraper bar using 5/16-18 X 3/4 screws, 5/16 flat washers and 5/16-18 nyloc nut. Tighten securely.
3. Fully insert free end of scraper arm into scraper arm support bar that is welded to frame.
4. To hold scraper and scraper arm in place, insert 1/2-13 X 1-1/4 screws into bolt hole opening. Tighten securely.
5. The scraper bar should be adjusted to 1/8-inch clearance from the strike tube.



NOTE:  
FRAME AND SCRAPER BAR LENGTHS  
VARY. ALWAYS USE MATCHING LENGTHS  
OF FRAME AND SCRAPER WHEN ASSEMBLING.

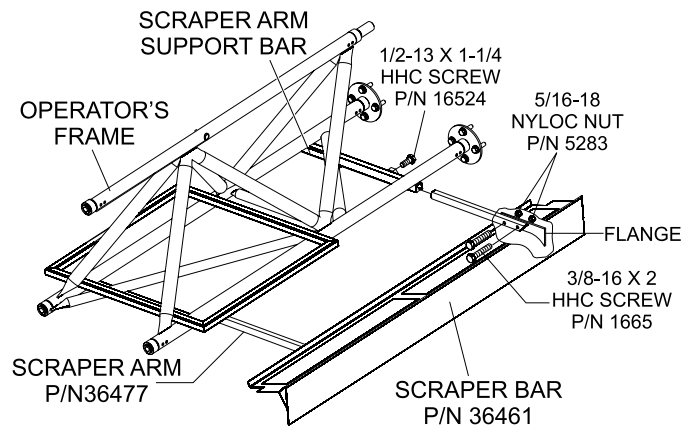
**Figure 32. Scraper Bar Installation  
(Truss Sections)**

### NOTICE

Truss frame and scraper bar lengths vary. When attaching scraper bar to truss frame, **ALWAYS** make sure truss frame and scraper bar are of the same length. Refer to Table 9.

The following instructions illustrate the installation of the scraper bars onto the **operator and power unit frame sections**.

1. Locate scraper bar that corresponds to the operators end of frame. See Table 9.
2. Attach scraper arm (side with 2 holes) to scraper flange as shown in Figure 33, using 3/8-16 X 2 HHC screws and 5/16-18 nyloc nuts. Tighten securely.
3. Fully insert free end of scraper arm into scraper arm support bar that is welded to frame.
4. To hold scraper and scraper arm in place, insert 1/2-13 X 1-1/4 screws into bolt hole opening. Tighten securely.
5. The scraper bar should be adjusted to 1/8-inch clearance from the strike tube.



**Figure 33. Scraper Bar Installation  
Operator's End**

6. Attach scraper bar to power unit frame section in same manner except use scraper bar P/N 36462.

### NOTICE

**NEVER** let anything rub grooves into the strike tube (i.e. wiper bars, concrete forms, bolts, etc) because those grooves will be transferred into the concrete.

The following instructions are intended as a basic guide for machine start-up and operation. Following these instructions will help preserve and maintain the life of this equipment.

## BEFORE STARTING

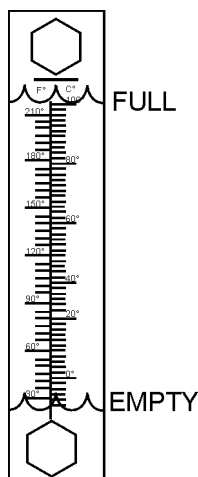
### Fuel Check

**DO NOT** smoke while refueling, diesel fuel is highly flammable and can be dangerous if mishandled.

**DANGER**

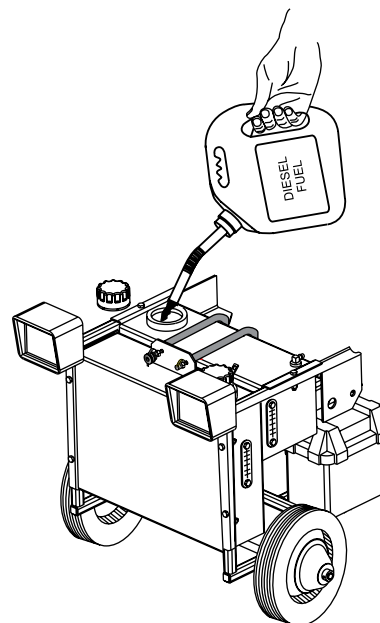
Fuel spillage on a **hot** engine can cause a **fire** or **explosion**. If fuel spillage occurs, wipe up the spilled fuel completely to prevent fire hazards. **NEVER** smoke around or near the generator.

1. To check the engine fuel level, place the power unit on a secure flat surface with the engine stopped.
2. Read the fuel gauge (Figure 34) located on the side of the fuel tank.



**Figure 34. Fuel Sight Gauge**

3. If fuel level is low, remove fuel filler cap (Figure 35) and fill with #2 clean fresh diesel fuel. Wipe up any spilled fuel immediately.

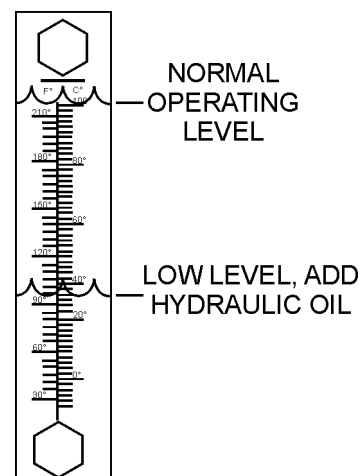


**Figure 35. Adding Fuel**

4. After replenishing fuel, make sure cap is securely tighten to fuel tank.

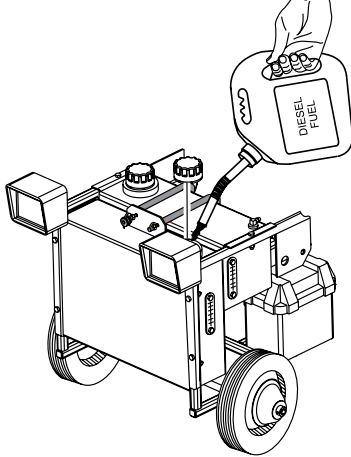
### Hydraulic Oil Check

1. To check the hydraulic oil level, place the power unit on a secure flat surface with the engine stopped.
2. Visually inspect the hydraulic oil sight gauge (Figure 36) located on the side of the hydraulic oil tank. For normal operation the fluid level should be visible at the top of the sight glass.



**Figure 36. Hydraulic Sight Gauge**

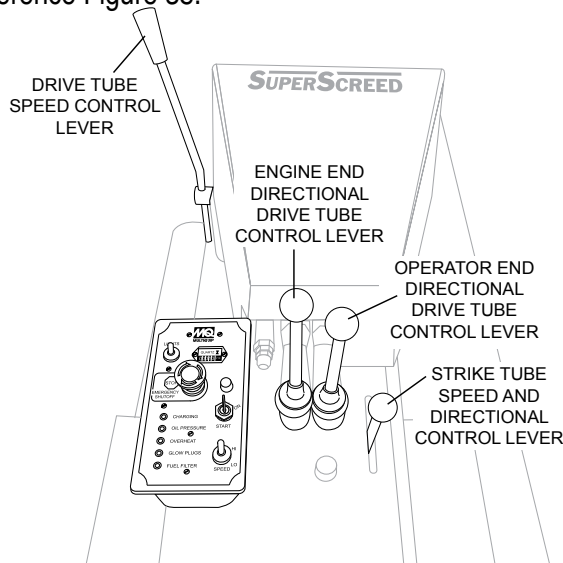
3. If the hydraulic oil level is low, remove the hydraulic oil cap (Figure 37) and fill with type ISO 46 anti-wear type hydraulic oil to the recommended operating level.



**Figure 37. Adding Hydraulic Oil**

## STARTING

Reference Figure 38.



**Figure 38. Lever Operation**

1. On the power unit place the operation valve lever in the **screed** position (See Figure 12, item 12).
2. Sit down in operator's seat and pull safety bar inward towards your body.
3. Place the two drive tube directional control levers in the **middle** position.
4. Place the drive tube speed control lever in the **straight up** position.

5. Place the strike tube speed and directional control lever in the **neutral** (center) position.
6. Pull upwards on the emergency stop switch.
7. Place engine speed switch in the **LO** position.
8. Insert ignition key into ignition switch. Next, turn ignition key to the **on** position. This position allows warming of the glow plugs.
9. When glow plug status LED goes off, turn ignition key to start position.
10. Let engine idle for 2 to 3 minutes. Listen for any abnormal sounds.
11. Verify that all engine status LED's on the control box are **OFF**. If any status LED's are on, shutdown the engine and correct the problem.
12. Place engine speed switch in the **HI** position.

## OPERATION

1. Fully engage the **operator end directional** drive tube control lever in the forward direction.
2. Move the drive tube speed control lever slightly forward (a few rpm's) and verify that both drive tubes rotate.
3. Fully engage the **operator end directional** drive tube control lever in the reverse (pull back) direction.
4. While drive tube is rotating, push safety bar forward and verify that drive tube rotation stops.
5. Return operator end directional drive tube control lever to center position.
6. Move the **power unit end** directional drive tube control lever fully forward and verify that both drive tubes rotate.
7. Next, fully engage the **power unit end** drive tube control lever in the reverse (pull back) direction and verify that both drive tubes rotate.
8. Return power unit end directional drive tube control lever to center position.
9. Place the drive tube speed control lever in the **straight up** position (off).
10. Move the strike tube speed and direction control lever slightly forward. Verify strike tube rotates in a clockwise rotation. Move lever slightly backwards and verify that strike tube rotates in a counter-clockwise direction.
11. Screed is now ready for use.



When performing maintenance on the screed or engine, follow all safety messages and rules for safe operation stated at the beginning of this manual.

See the engine manual supplied with your machine for appropriate engine maintenance schedule and troubleshooting guide for problems

### **WARNING**



Accidental starts can cause severe injury or death.



**ALWAYS** place the ignition switch in the OFF position before performing any maintenance.



Disconnect negative battery cable from battery before servicing.



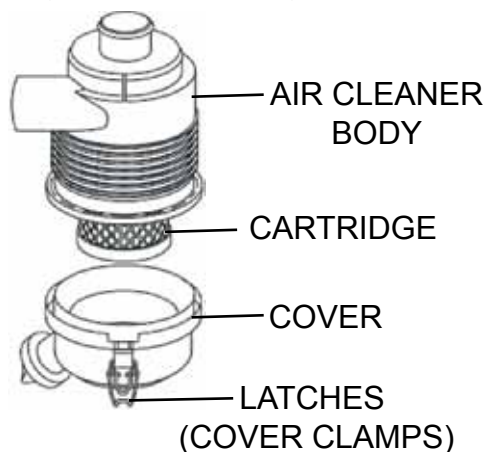
**ALWAYS** allow the engine to cool before servicing. **NEVER** attempt any maintenance work on a hot (muffler, radiator, etc.) power unit.

### **WARNING**

Certain maintenance operations or machine adjustments require specialized knowledge and skill. Attempting to perform maintenance operations or adjustments without the proper knowledge, skills or training could result in equipment damage or injury to personnel. If in doubt, consult your dealer.

## AIR CLEANER (DAILY)

The Vanguard 26.5 hp diesel engine is equipped with a replaceable, high-density paper air cleaner element. Check the air cleaner (Figure 39) daily or before starting the engine. Check for and correct heavy buildup of dirt and debris along with loose or damaged components..



**Figure 39. Air Cleaner Components**

1. Unlock the cover clamps and remove cover.
2. Remove cartridge from air cleaner body.
3. Clean cartridge by gently tapping the end with the handle of a screwdriver. Replace cartridge if very dirty or damaged.
4. Carefully clean out the air cleaner cover.
5. Install cartridge in body.
6. Install cover and lock cover clamps.

### **NOTICE**

Operating the engine with loose or damaged air cleaner components could allow unfiltered air into the engine causing premature wear and failure.

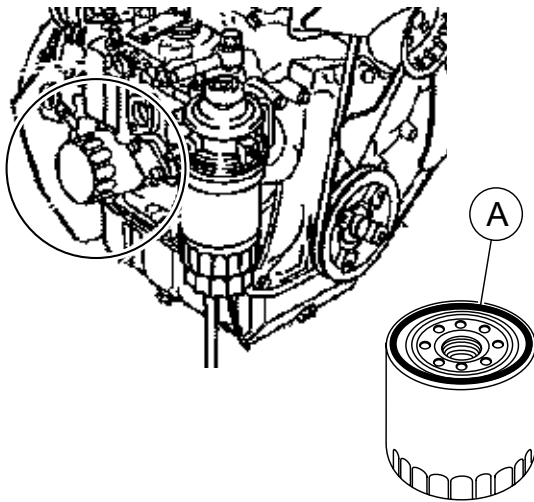


## CHANGING ENGINE OIL AND FILTER

1. Change the engine oil and filter after the first 5 hours of use, then change oil every 6 months or 150 hours.
2. Remove the oil filler cap and fill engine crankcase with recommended type oil as listed in Table 5. Fill to the upper limit of dipstick.
3. Crankcase oil capacity with oil filter replacement is 3.50 qts. (3.3 liters).

### Oil Filter (300 Hours)

1. Replace the engine oil filter (Figure 40) every other oil change or 300 hours. Refer to your engine manual for specific details to perform this operation.



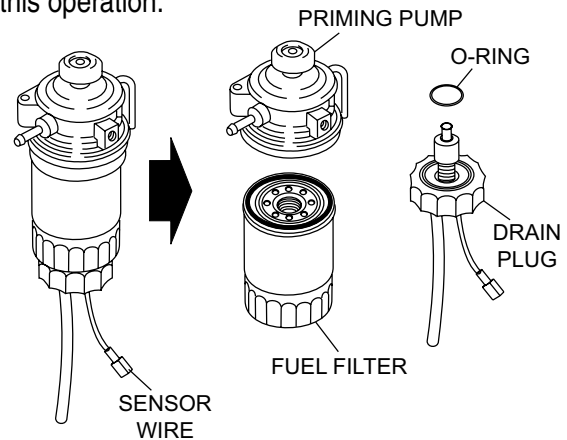
**Figure 40. Oil Filter**

2. Be sure to coat the seal (Item A) of the new oil filter with clean engine oil.

Table 5. Recommended Viscosity Grades									
°F	-20	0	20	32	40	60	80	100	
°C	-30	-20	-10	0	10	20	30	40	
TEMPERATURE RANGE EXPECTED BEFORE NEXT OIL CHANGE									

## FUEL FILTER

Replace the engine fuel filter (Figure 41) every 800 hours. Refer to your engine manual for specific details to perform this operation.



**Figure 41. Fuel Filter**

## OIL/WATER SEPARATOR

Drain water from the bottom of the fuel filter by loosening the drain plug and allowing the water to drain out. Refer to your engine manual for specific details to perform this operation.

## Oil and Fuel Lines

- Check the oil and fuel lines and connections regularly for leaks or damage. Repair or replace as necessary.
- Replace the oil and fuel lines every two years to maintain the line's performance and flexibility.

## RADIATOR/COOLING SYSTEM

### WARNING



Allow engine to cool when flushing out radiator. Flushing the radiator while hot could cause serious burns from water or steam.

1. Check and clean radiator fins.
2. Check cooling water.
3. Check radiator hoses for fatigue or cracking.
4. Check radiator cap seal.

Refer to your engine manual for additional information.

## Flushing out Radiator and Replacing Coolant

- Open both cocks located at the crankcase side and at the lower part of the radiator and drain coolant. Open the radiator cap while draining. Remove the overflow tank and drain.
- Check hoses for softening and kinks. Check clamps for signs of leakage.
- Tighten both cocks and replace the overflow tank.
- Replace with coolant as recommended by the engine manufacturer.
- Close radiator cap tightly.
- Flush the radiator by running clean tap water through radiator until signs of rust and dirt are removed. **DO NOT** clean radiator core with any objects, such as a screwdriver.

## Radiator Cleaning

The radiator (Figure 42) should be sprayed (cleaned) with a high pressure washer when excessive amounts of dirt and debris have accumulated on the cooling fins or tube. When using a high pressure washer, stand at least 5 feet (1.5 meters) away from the radiator to prevent damage to the fins and tube.

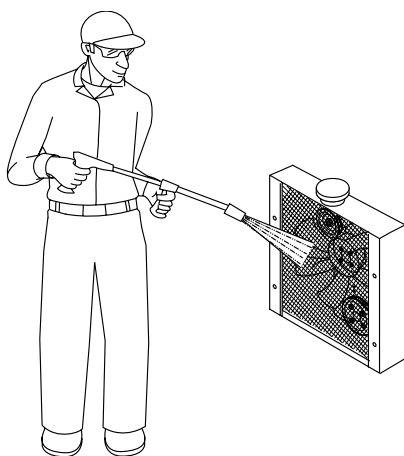


Figure 42. Radiator Cleaning

## BATTERY/CHARGING SYSTEM



### WARNING



Flammable, explosive gas (produces hydrogen gas while charging or during operation). Keep area around battery well ventilated and keep from any fire source.



Battery electrolyte contains corrosive, toxic chemical (dilute sulfuric acid). Avoid contact with eyes and skin. **ALWAYS** wear eye protection and rubber gloves. If your clothing or skin comes into contact with battery acid, immediately wash off with running water and get medical attention.



Shock or fire due to electric short-circuit. Disconnect battery cables before inspecting electrical system and never "spark" battery terminals to test for charge.

Mishandling of the battery shortens its service life and adds to maintenance cost.

1. Check and clean battery terminals for corrosion.
2. Check the battery regulatory and make sure that each electrolyte level is to the bottom of the vent well (Figure 43). If necessary, add only distilled water in a well-ventilated area. Never operate or recharge without sufficient fluid in the battery.

### BATTERY ELECTROLYTE LEVEL

VENT WELL



TOO LOW



NORMAL



TOO HIGH

Figure 43. Battery Fluid Levels

3. Never attempt to charge a battery that is frozen. The battery can explode unless first allowed to thaw.

4. **ALWAYS** be sure that the battery cables are properly connected to the battery terminals as shown below. Generally the **RED** cable will be connected to the positive terminal of the battery, and the **BLACK** cable will be connected to the negative terminal of the battery. See Figure 44.

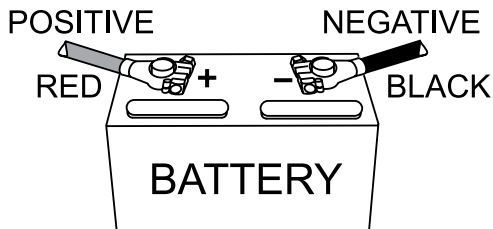


Figure 44. Battery

## WARNING

If the battery cables are connected incorrectly, electrical damage will occur causing damage to the roller's electrical circuits. Pay close attention to the polarity of the battery when connecting the battery.

5. Disconnect the negative terminal ( - ) of the battery during storage. If unit will be stored where ambient temperature will drop to -15° C or less, remove and store battery in a warm, dry place.

## BEARING LUBRICATION

Strike tube and drive tube bearings (Figure 45) require lubrication daily. Lubricate all bearing zerk grease fittings with EP3 grease or equivalent.

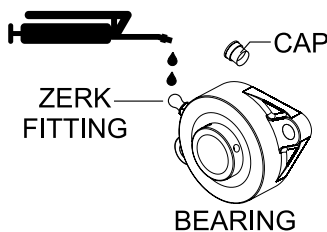


Figure 45. Zerk Fittings

## NOTICE

**Failure** to lubricate bearing grease fittings daily will cause rotation of drive and strike tubes to stiffen. To prevent contamination of the bearing, always insert cap onto zerk fitting.

## HYDRAULIC OIL SYSTEM

The hydraulic system consists of a hydraulic pump directly coupled to the engine.

Hydraulic oil is filtered by a screen filter located in the tank filler neck, a 10 micron inlet filter that connects to the hydraulic tank and pump, and a 10 micron outlet filter that connects from the cooler to the hydraulic tank. See Figure 46.

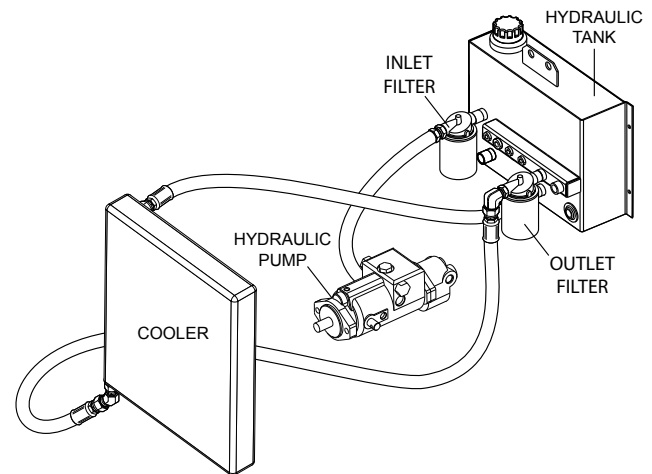


Figure 46. Hydraulic Filter Locations

It is recommended that ISO 46 type hydraulic oil or equivalent be used when adding or replacing the hydraulic oil.

**DO NOT USE MULTI-VISCOSITY OIL.** Cleanliness is a very important part of proper hydraulic system operation. Hydraulic oil is not only used to transfer power; it also lubricates and cools the system components. Keeping the hydraulic system clean can help reduce costly repairs.

The hydraulic oil level sight glass is located on the side of the hydraulic tank. This level should be checked daily. Oil must be below the top and above the bottom of the sight glass. **DO NOT OVERFILL!** Care should be taken to clean the filler cap before adding oil to the system. If hydraulic oil has to be added, the machine should be inspected for leaks.

## CAUTION



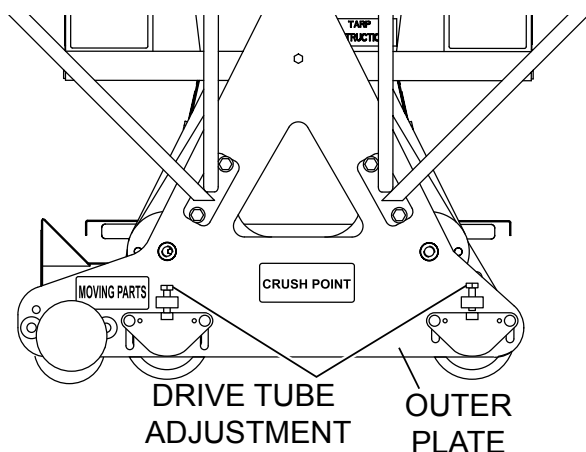
**DO NOT** open hydraulic lines or loosen hydraulic fittings while engine is running! Hydraulic fluid under pressure can penetrate the skin, blind, cause burns or create other potentially dangerous hazards follow all safety instructions as described throughout this manual.

## Changing Hydraulic Oil and Filters

1. Place the power unit on a clean flat work area and set the parking brake.
2. Remove the hydraulic oil drain plug and drain the hydraulic oil. Dispose of the used oil in an environmentally friendly manner. Replace the drain plug and tighten.
3. Remove the return filter and install a new filter. Dispose of the used filter in an environmentally friendly manner.
4. Disconnect the suction hose and remove the fitting from the tank. Replace the suction filter. Dispose of the used filter in an environmentally friendly manner. Replace the fitting and reconnect the suction hose.

## ADJUSTING STRIKE TUBE HEIGHT

Strike tube height is adjusted by raising or lowering the height of the drive tubes. Figure 47 illustrates this. Loosen the two bolts which hold each drive tube bearing and adjust the 3/4" bolt to desired height. Tighten the bearing bolts



**Figure 47. Strike Tube Adjustment**

## ENGINE TUNE-UP

### NOTICE

See the engine manual supplied with your machine for appropriate engine maintenance schedule and troubleshooting guide for problems.



### CAUTION

**ALWAYS** disconnect battery cables before attempting any service or maintenance on screed.

## ALTERNATOR/REGULATOR

The screed is equipped with a 40 amp charging system. This system uses three charge coils connected in parallel. The windings of each coil are wound with heavy-duty insulated wire and are further protected by insulating material for long life. A voltage regulator is provided to control the amount of charge voltage being delivered to the 12 volt electrical system. For servicing this charging system, contact your engine dealer.

## SCREED CLEANUP

Never allow any concrete to harden on the roller screed.

Immediately after use, wash any concrete off the screed. Be careful not to spray water on the engine while it is still hot.

To operate the pressure washer (Figure 48), attach a garden hose to the pump and turn on the water. Next plug in the quick connect hoses from the pressure washer to the power unit, adjust the three way valve on the power unit as indicated by the decal to the “Pressure Washer” position.

“Clean out” plates for the ends of the center strike tubes (8’ and 16’ tubes) should be removed and the ends cleaned after each use.

Back off the 1-5/8 nut and jam nut on the outside strike tubes next to the outer plate. Slide the strike tube away from the middle bracket and clean the ends.

The solid scraper bars that prevent build-up on the drive tubes should be removed and cleaned as well as the strike tube wipers mounted in front of the 5 foot sections.

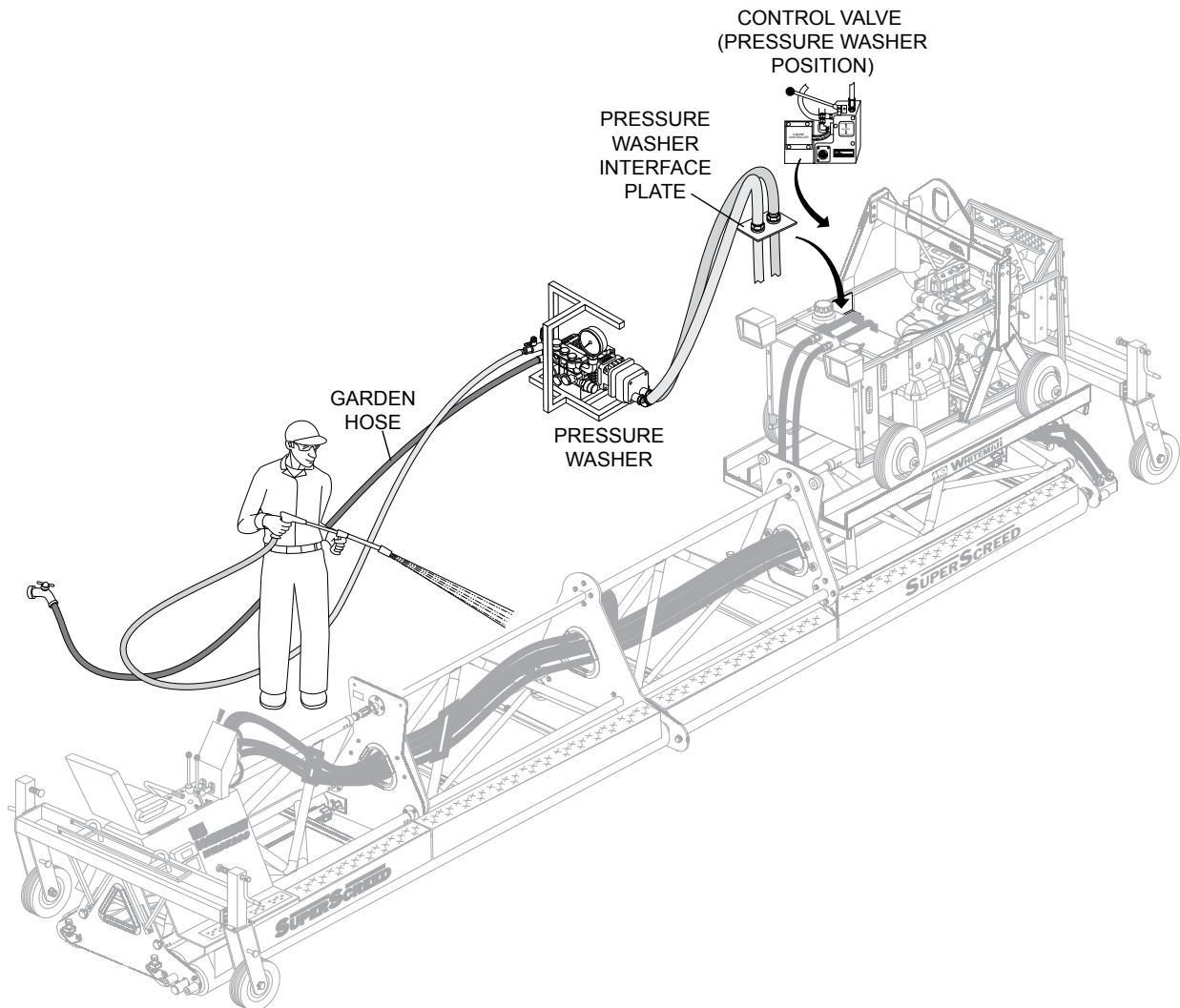


Figure 48. Pressure Washer Application

## LONG TERM STORAGE

For storage of the screed for over 30 days, the following is recommended:

- Drain fuel tank completely, or add STA-BIL to the fuel.
- Run the engine until fuel in the injection system is completely consumed.
- Completely drain used oil from the engine crankcase and fill with fresh clean oil, then follow the procedures as described in the engine manual for engine storage.
- Clean the entire screed and power unit
- Remove the battery and store in cool, dry place.
- Store unit covered with plastic sheet in moisture and dust-free location out of direct sunlight.
- Remove ignition key and store in a safe place.
- All disposals must be in accordance with federal, state and local regulations.



## TROUBLESHOOTING (SCREED)

**Table 6. Screed Troubleshooting**

Symptom	Possible Problem	Solution
Engine running rough or not at all	Kill switch malfunction	Make sure that the kill switch is functioning properly. Replace switch if necessary.
	Fuel	Look at the fuel system. Make sure there is fuel being supplied to the engine. Check to ensure the fuel filter is not clogged.
	Other problems	Consult engine manufacturer's manual.
Safety kill switch not functioning	Loose wire connections	Check wiring. Replace as necessary.
	Bad contacts	Replace switch.
Lights not working	Wiring	Check all electrical connections, including the master on/off switch, and check to see if the wiring is in good condition with no shorts. Replace as necessary.
	Lights	Check to see if light bulbs are still good. Replace if broken.
Strike tubes are not turning	Strike tube motor has come out of the motor mount	Check to see if the pin which holds the strike tube motor on the end of the strike tube has broken or come out..
	Loose strike tube motor coupling	The strike tube motor coupling may have lost the keystone.
	Low hydraulic oil	Check the sight gauge on the side of the hydraulic tank for fluid level. Fill as necessary..
Drive tubes are not turning	Valve not engaged	On the power unit, the three position valve should be in the "screed operation" position.
	Low hydraulic oil	Check the sight gauge on the side of the hydraulic tank for fluid level. Fill as necessary.
One side of drive tubes will not turn	Broken drive chain	Unbolt chain guard and check drive chain. Replace as necessary.
When turning the ignition switch, nothing happens	Low battery	Charge battery
	Kill switch is down	The kill switch should be in the "up" position for key switch to function properly.
	Loose wire connections	Check wiring. Replace as necessary.

# TROUBLESHOOTING (ENGINE)

**Table 7. Engine Troubleshooting**

Symptom	Possible Problem	Solution
Engine will not start or start is delayed, although engine can be turned over.	No Fuel reaching injection pump?	Add fuel. Check entire fuel system.
	Defective fuel pump?	Replace fuel pump.
	Fuel filter clogged?	Replace fuel filter and clean tank.
	Faulty fuel supply line?	Replace or repair fuel line.
	Compression too low?	Check piston, cylinder and valves. Adjust or repair per engine repair manual.
	Fuel pump not working correctly?	Repair or replace fuel pump.
	Oil pressure too low?	Check engine oil pressure.
	Low starting temperature limit exceeded	Comply with cold starting instructions and proper oil viscosity.
	Defective battery?	Charge or replace battery.
At low temperatures engine will not start.	Engine oil too thick?	Refill engine crankcase with correct type of oil for winter environment.
	Defective battery?	Replace battery.
Engine fires but stops soon as starter is switched off.	Fuel filter blocked?	Replace fuel filter.
	Fuel supply blocked?	Check the entire fuel system.
	Defective fuel pump?	Replace fuel pump.
Engine stops by itself during normal operation.	Fuel tank empty?	Add fuel.
	Fuel filter blocked?	Replace fuel filter.
	Defective fuel pump?	Replace fuel pump.
	Mechanical oil pressure shutdown sensor stops the engine due to low oil?	Add oil. Replace low oil shutdown sensor if necessary.
Low engine power, output and speed.	Fuel tank empty?	Replace fuel filter.
	Fuel filter clogged?	Replace fuel filter.
	Fuel tank venting is inadequate?	Ensure that tank is adequately vented.
	Leaks at pipe unions?	Check threaded pipe unions tape and tighten unions as required.
	Speed control lever does not remain in selected position?	See engine manual for corrective action.
	Engine oil level too full?	Correct engine oil level?
Low engine power output and low speed, black exhaust smoke.	Air filter blocked?	Clean or replace air filter.
	Incorrect valve clearances?	Adjust valves per engine specification.
	Malfunction at injector?	See engine manual.
Air-cooled diesel engine runs very "HOT." Cylinder head overheats.	Too much oil in engine crankcase?	Drain off engine oil down to uppermark on dipstick.
	Entire cooling air system contaminated blocked?	Clean cooling air system, and cooling fin areas.



## TROUBLESHOOTING (PRESSURE WASHER)

**Table 8. Pressure Washer Troubleshooting**

Symptom	Possible Problem	Solution
Low discharge.	The pump is not primed.	Prime the pump.
	Air leaks in the suction line.	Check for air leaks and reseal the inlet fittings.
	Blocked or clogged line strainer.	Inspect the strainer and remove any debris from the strainer screen.
	Undersize or collapsed suction line.	The suction line should be the same diameter or larger than the inlet port of the pump.
	Bypass adjustment screw in the hydraulic motor is not properly set.	Turn the bypass adjustment screw (located on the side of the hydraulic motor) clockwise until the desired output is attained.
Hydraulic system overheating.	Bypass adjustment screw is set to bypass too much oil.	Turn the bypass adjustment screw (located on the side of the hydraulic motor) clockwise until the desired output is attained.
	Improper metering orifice has been installed on the pressure port.	Install the proper size metering orifice.
	Hydraulic hose size is too small.	Hydraulic hose must be at least 1/2 inch diameter. For large open center systems, it must be at least 3/4 inch diameter.

# SCREED LENGTH PARTS MATRIX

Table 9 lists the necessary parts that make up each screed. This table can be utilized for changing the size of an existing screed. The different screed models are indicated in the table by their lengths in feet (ft).

To determine the model number of a screed, add "WRS" in front of and "00LP" behind the length in feet provided. For example, the model number of a 28 ft. screed is "WRS2800LP."

Table 9. Screed Length Parts Matrix													
Part #	Description	Screed Length											
		14'	16'	18'	22'	26'	28'	32'	36'	40'	44'	48'	52'
36221	3' Frame Section		2		1	1	1	1	1	1	1	1	1
36225	4' Frame Section					1		1		1		1	2
26028	4' Frame Section – Special	1											
26329	5' Frame Section Operator End	1	1	1	1	1	1	1	1	1	1	1	1
26330	5' Frame Section Engine End	1	1	1	1	1	1	1	1	1	1	1	1
36226	6' Frame Section						1	1	1	1	1	1	1
36222	8' Frame Section Operator End			1					1	1	1	1	1
36223	8' Frame Section Engine End										1	1	1
36224	9' Frame Section					1	1	1	1	1	1	1	1
26209	3' Scraper		1		1	1	1	1	1	1	1	1	1
36149	3' Scraper Left		1										
26212	4' Scraper	1						1		1		1	2
36461	5' Scraper Operator End	1	1	1	1	1	1	1	1	1	1	1	1
36462	5' Scraper Engine End	1	1	1	1	1	1	1	1	1	1	1	1
26225	6' Scraper						1	1	1	1	1	1	1
26217	8' Scraper			1					1	1	2	2	2
26221	9' Scraper Left				1	1	1	1	1	1	1	1	1
26222	9' Scraper Right				1	1	1	1	1	1	1	1	1
26317	3' Tarp		1		1	1	1	1	1	1	1	1	1
36150	3' Tarp Left		1										
26318	4' Tarp	1				1		1		1		1	2
26319	6' Tarp						1	1	1	1	1	1	1
26320	8' Tarp			1					1	1	1	2	2
26321	9' Tarp				1	1	1	1	1	1	1	1	1
36227	Middle Bracket		1		1	1	1	1	2	2	2	2	2

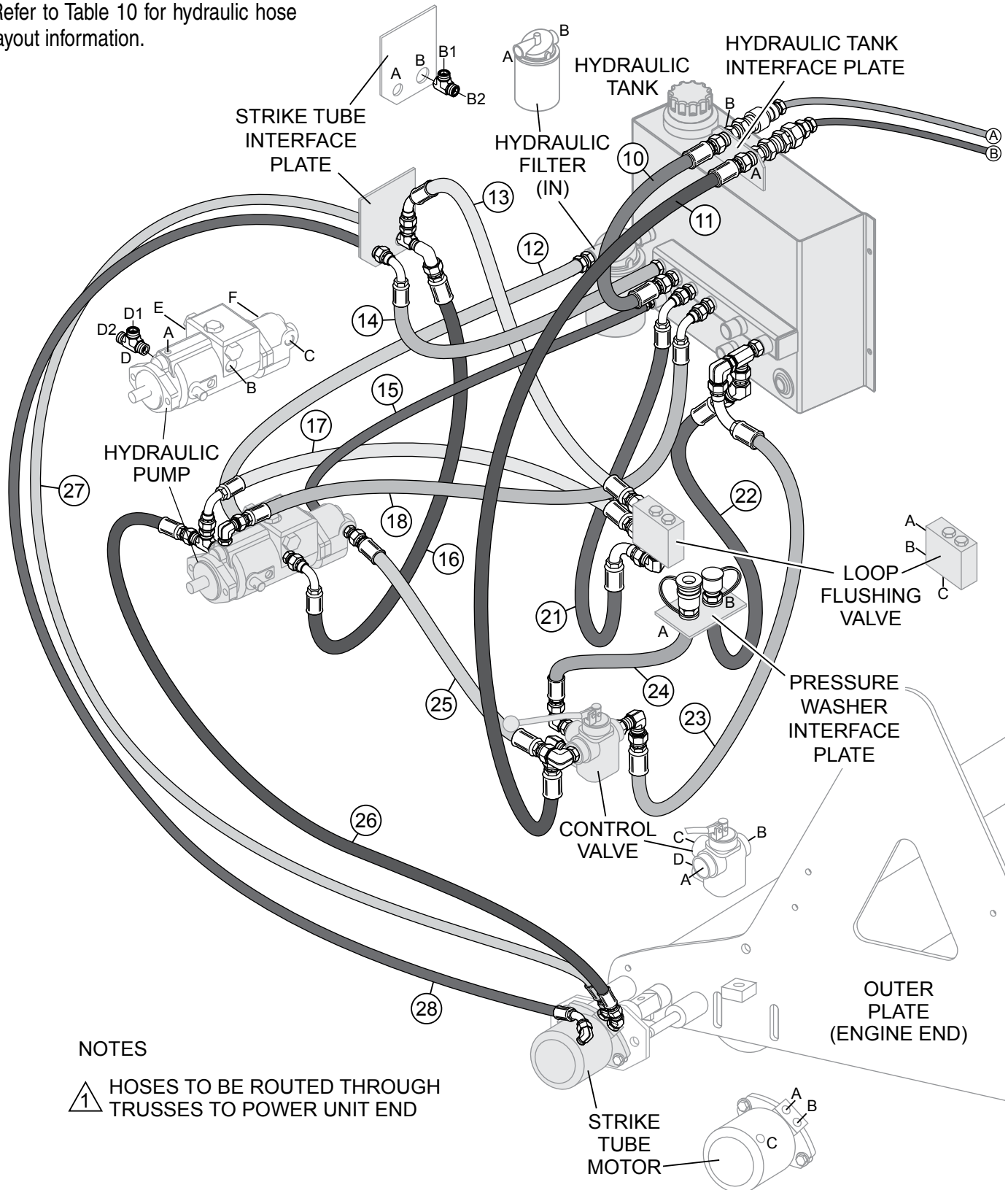
# SCREED LENGTH PARTS MATRIX

Table 9. Screed Length Parts Matrix (Continued)

Part #	Description	Screed Length											
		14'	16'	18'	22'	26'	28'	32'	36'	40'	44'	48'	52'
36526	8' Strike Tube .25 Wall		2		1	1			1	1			1
36527	14' Strike Tube .25 Wall	1			1		2	1	2	1	2	1	2
36528	16' Strike Tube .25 Wall										1	1	1
36529	18' Strike Tube .25 Wall			1		1		1		1		1	2
36163	Auxiliary Hub .25 Wall	1	2	1	1	1		1	1				2
16695	Scraper Arm	2	4	2	6	6	8	10	10	12	12	14	16
36477	Scraper Arm 5' Section	4	4	4	4	4	4	4	4	4	4	4	4
0655	Screw 5/16 x 3/4	12	16	12	20	20	24	28	28	32	32	36	40
0300 B	Washer, Flat 5/16	24	32	24	40	40	48	36	36	64	64	72	80
5283	Nut, Nyloc 5/16	12	16	12	20	20	24	28	28	32	32	36	40
16577	Hose, 606" 1/2"			1	1	1	1	1	1	1	1	1	1
16578	Hose, 594" 1/2"			1	1	1	1	1	1	1	1	1	1
26882	Hose, 192" 1/2"	1	1										
26883	Hose, 192" 1/2"	1	1										
16394	Strike Tube Control Cable 600"			1	1	1	1	1	1	1	1	1	1
26884	Strike Tube Control Cable 192"	1	1										
16564	1/2" Female QC	1	1	1	1	1	1	1	1	1	1	1	1
16565	1/2" Male QC	1	1	1	1	1	1	1	1	1	1	1	1
16566	3/4" Female QC	2	2	2	2	2	2	2	2	2	2	2	2
16567	3/4" Male QC	2	2	2	2	2	2	2	2	2	2	2	2
16458	Nut, 1-5/8"	2	2	2	2	2	2	2	2	2	2	2	8
16459	Nut, Jam 1-5/8"	2	2	2	2	2	2	2	2	2	2	2	8
16525	Bolt, 1/2 x 1-1/2"					12	12	24	12	24	24	36	48
16526	Bolt 1/2 x 1-3/4"		12		12	12	12	12	24	24	24	24	24
16629	Nut 1/2 Nyloc		12		12	24	24	36	36	48	48	60	72
16630	Washer, Flat 1/2"		24		24	48	48	72	72	96	96	120	144
36166	Crown Dogbone		1				1						

# HYDRAULIC HOSES

Refer to Table 10 for hydraulic hose layout information.



## NOTES

1. HOSES TO BE ROUTED THROUGH TRUSSES TO POWER UNIT END

Figure 49. Hydraulic Hose Layout

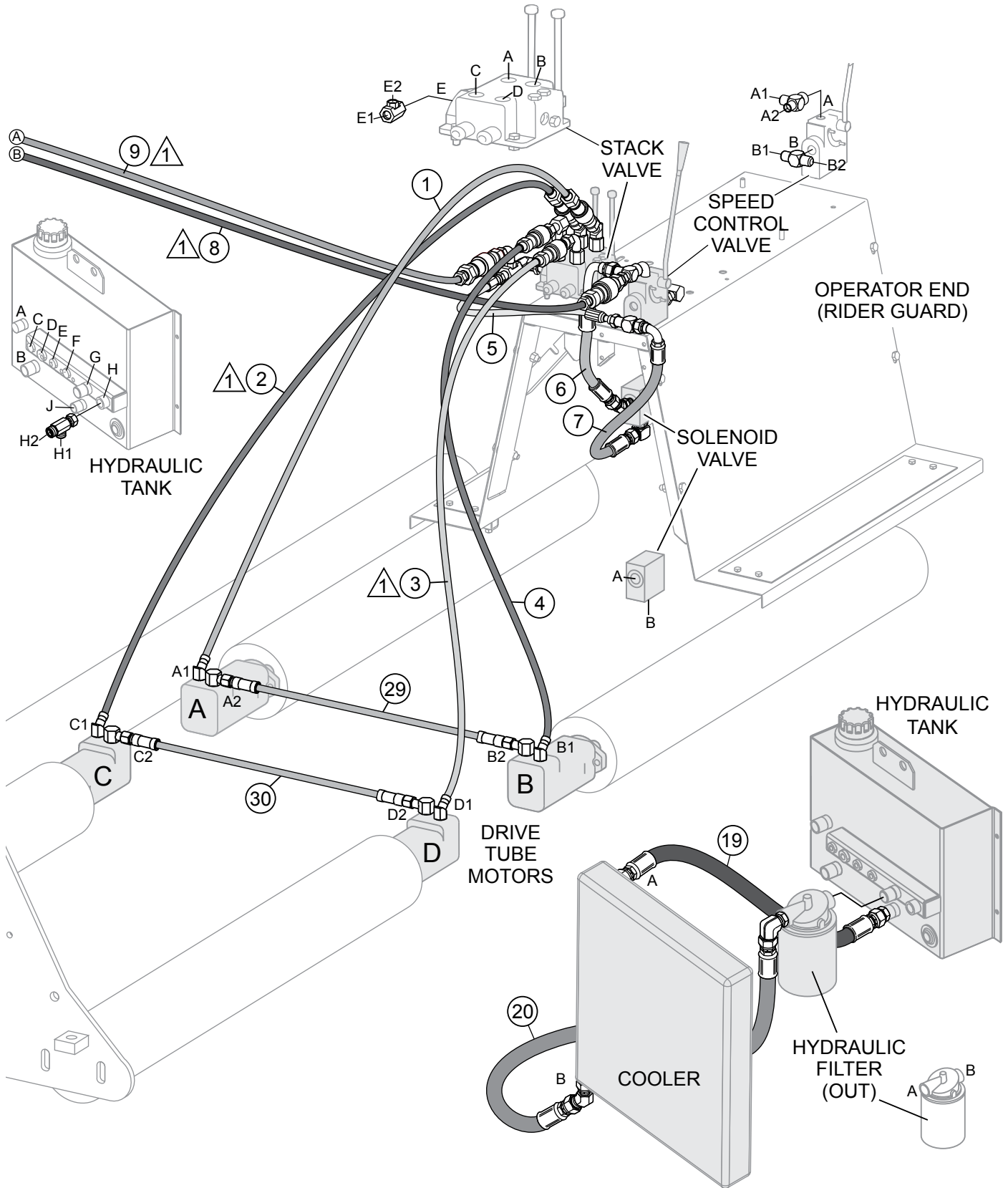


Figure 49. Hydraulic Hose Layout

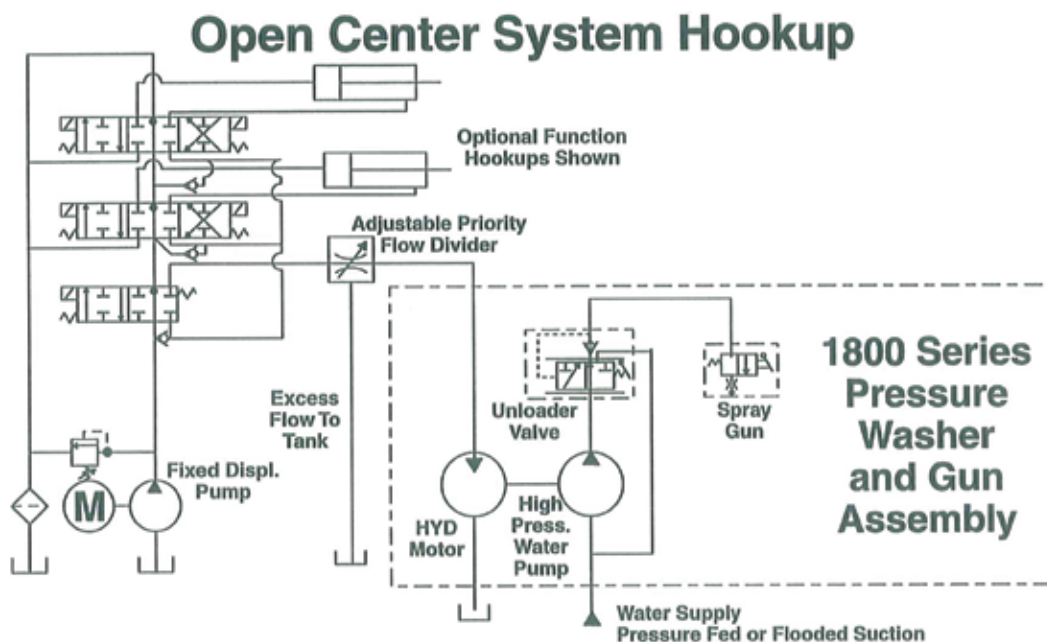
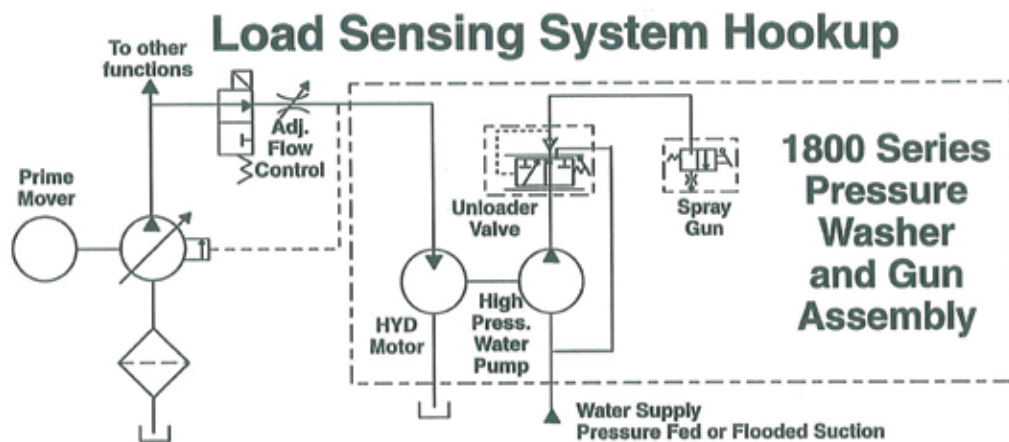
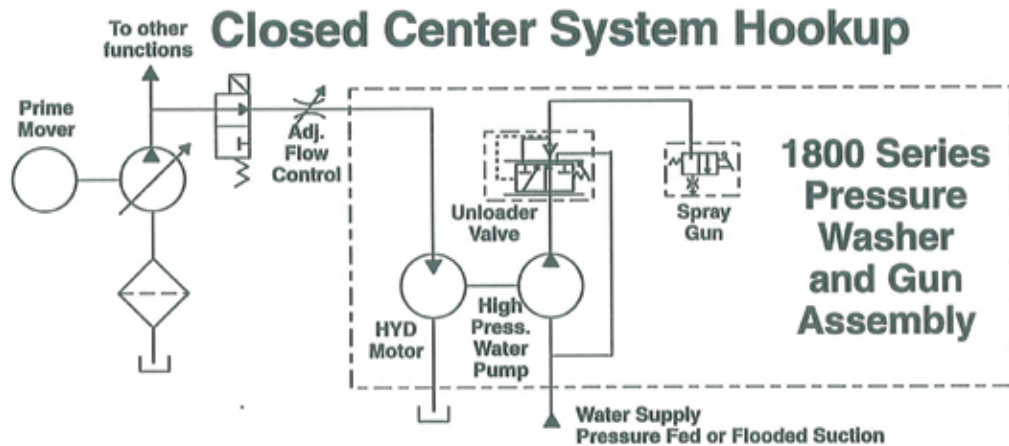
# HYDRAULIC HOSES

Refer to Figure 49 for hydraulic hose layout.

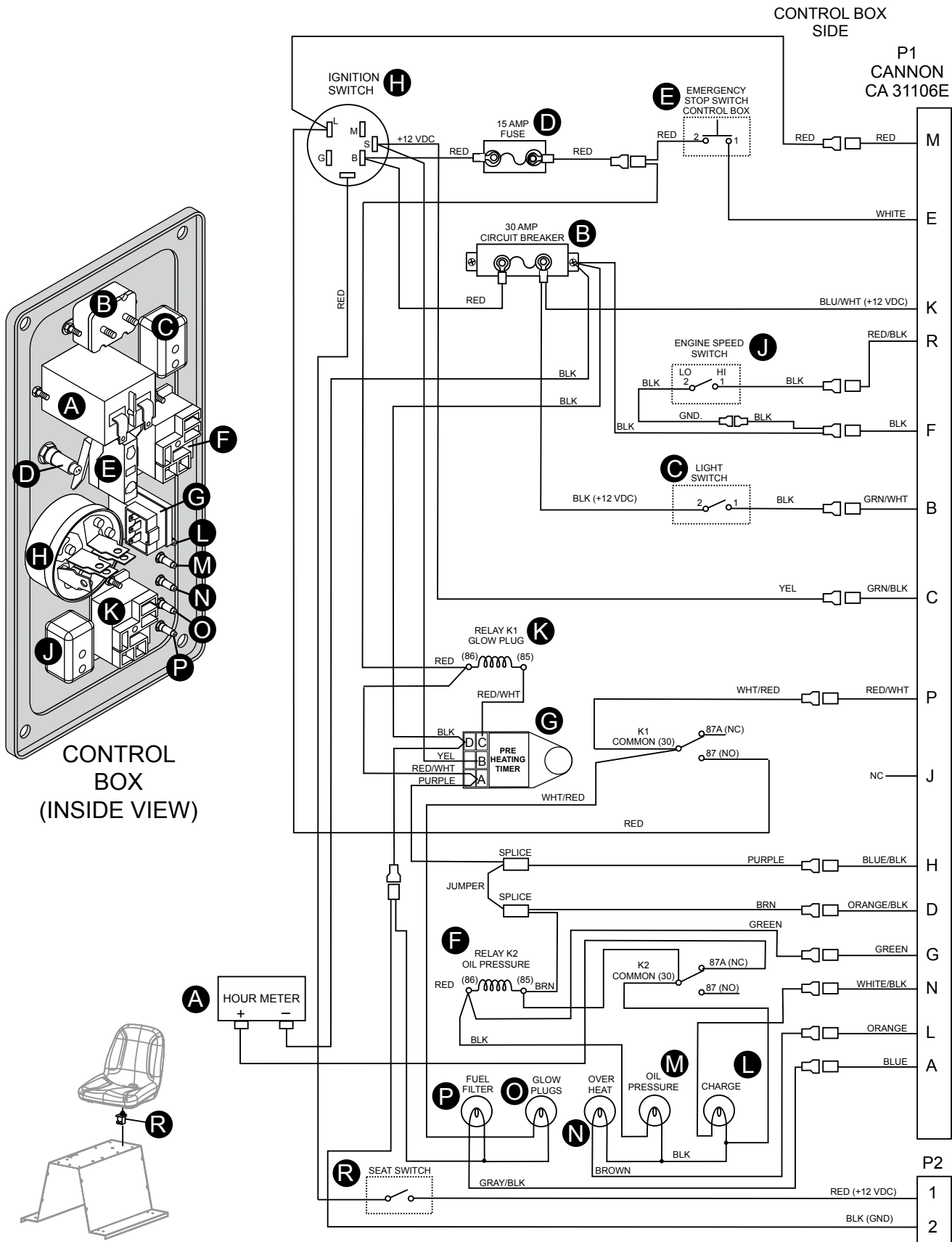
**Table 10. Hydraulic Hoses**

Item Number	Part Number	Destination	
		From	To
1	16579	Stack Valve Port B	Drive Tube Motor A, Port A1
2	26883 (16 ft / 4.87 m)	Stack Valve Port A	Drive Tube Motor C, Port C1
2	16578 (49.5 ft / 15.1 m)	Stack Valve Port A	Drive Tube Motor C, Port C1
3	26883	Stack Valve Port D	Drive Tube Motor D, Port D1
3	16578 (49.5 ft / 15.1 m)	Stack Valve Port D	Drive Tube Motor D, Port D1
4	16579	Stack Valve Port C	Drive Tube Motor B, Port B1
5	36688	Stack Valve Port E1	Speed Control Valve Port B1
6	36112	Speed Control Valve Port A1	Solenoid Valve Port A
7	36112	Speed Control Valve Port B2	Solenoid Valve Port B
8	26882 (16 ft / 4.87 m)	Speed Control Valve Port A2	Hydraulic Tank Interface Plate Port A
8	16577 (50.5 ft / 15.4 m)	Speed Control Valve Port A2	Hydraulic Tank Interface Plate Port A
9	26882 (16 ft / 4.87 m)	Stack Valve Port E2	Hydraulic Tank Interface Plate Port B
9	16577 (50.5 ft / 15.4 m)	Stack Valve Port E2	Hydraulic Tank Interface Plate Port B
10	36710	Hydraulic Tank Interface Plate Port B	Hydraulic Tank Port D
11	36709	Hydraulic Tank Interface Plate Port A	Control Valve Port D
12	3462	Hydraulic Filter (In) Port A	Hydraulic Pump Port E
13	16613	Loop Flushing Valve Port A	Strike Tube Interface Plate Port B1
14	16611	Hydraulic Tank Port C	Strike Tube Interface Plate Port A
15	3462	Hydraulic Tank Port B	Hydraulic Pump Port F
16	16614	Hydraulic Pump Port B	Strike Tube Interface Plate Port B2
17	16612	Hydraulic Pump Port D1	Loop Flushing Valve Port B
18	36567	Hydraulic Pump Port A	Hydraulic Tank Port F
19	26992	Hydraulic Tank Port J	Cooler Port A
20	26993	Cooler Port B	Hydraulic Filter (Out) Port A
21	16611	Hydraulic Tank Port E	Loop Flushing Valve Port C
22	36712	Hydraulic Tank Port H1	Pressure Washer Interface Plate Port B
23	36713	Hydraulic Tank Port H2	Control Valve Port B
24	36711	Control Valve Port C	Pressure Washer Interface Plate Port A
25	16615	Control Valve Port A	Hydraulic Pump Port C
26	16574	Hydraulic Pump Port D2	Strike Tube Motor Port B
27	16575	Strike Tube Interface Plate Port B	Strike Tube Motor Port A
28	16576	Strike Tube Interface Plate Port A	Strike Tube Motor Port C
29	26011	Drive Tube Motor A, Port A2	Drive Tube Motor B, Port B2
30	26011	Drive Tube Motor C, Port C2	Drive Tube Motor D, Port D2

# PRESSURE WASHER HYDRAULIC DIAGRAM



# WIRING DIAGRAM

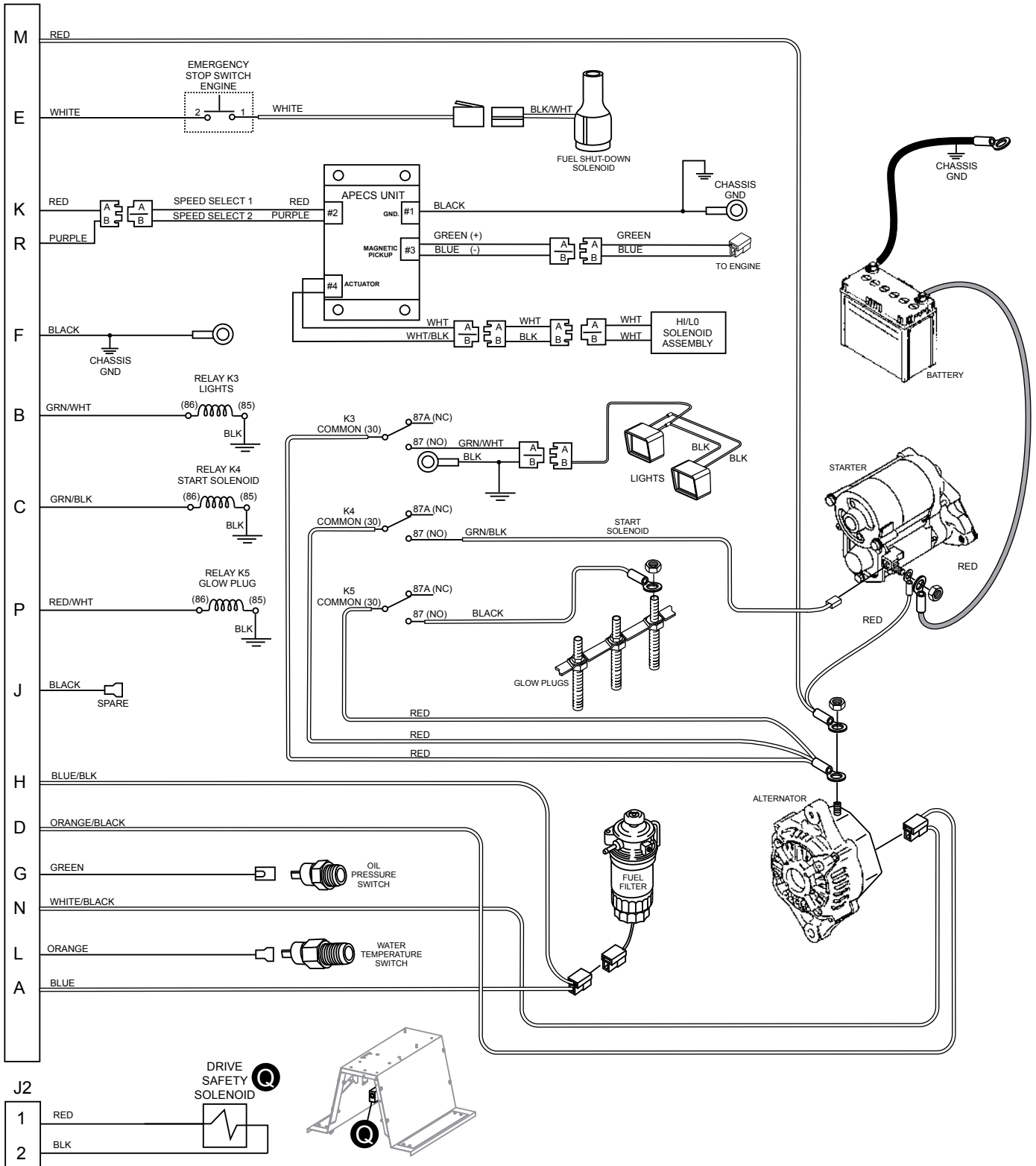




# WIRING DIAGRAM

ENGINE  
SIDE

J1  
CANNON



# OPERATION MANUAL

## HERE'S HOW TO GET HELP

PLEASE HAVE THE MODEL AND SERIAL  
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