

**POLISHING RIDERS**

# **RP245**

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## **SAFETY & OPERATIONS MANUAL**

Manual Part #: 071156 | Revision: A  
Language: English | Original Instructions



# POLISHING RIDER

## SAFETY & OPERATIONS MANUAL

This manual covers the Trowel Parts listed below

<u>Part No.</u>	<u>Description</u>
070450	RP245 - Polishing Trowel, Hydraulic Steering, Kohler 25HP, Propane, 6ft

### NOTICE

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

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10,100,537; 9,068,301; 9,068,300; 8,360,680; 7,690,864; 7,114,876B1; 6,857,815B2; 6,582,153  
With other Patents Pending.

Printed in U.S.A.

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

### **TWO YEARS FROM END USER'S DATE OF PURCHASE**

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



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

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This manual provides information and procedures to safely operate and maintain the Allen Machine.

For your own safety and protection from personal injury, carefully read, understand, and observe the safety instructions described in this manual. Keep this manual or a copy of it with the machine at all times.

Always operate this machine in accordance with the instructions described in this manual. A well maintained piece of equipment will provide many years of trouble free operation.

This manual is divided into the following sections:

**SECTION 1  
SAFETY**

**SECTION 2  
ASSEMBLY**

**SECTION 3  
SERVICE**

**SECTION 4  
ACCESSORIES**

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Complete any warranty requirements as specified by the engine manufacturer in their instructions found inside the manual box located on the back of the riding trowel operator's seat.

Your engine and clutch is not manufactured by Allen Engineering Corporation, Inc, and therefore is not covered under Allen Engineering Corporation, Inc warranty.

Your engine manufacturer should be contacted if you wish to purchase a parts manual or a repair manual for your engine.

Refer to enclosed owners engine manual for complete OEM instructions. See your battery manufacturer for battery warranty.



## Sound Pressure Level Information:

Sound pressure is “A” weighted . Measured at the operators ear position while the ride-on trowel is operating at full throttle on concrete in a manner most often experienced in “normal ” circumstances. Sound pressure may vary depending upon the condition of the concrete. Hearing protection is always recommended.



## Vibration Level Information:

The vibration level indicated is the maximum RMS (Root Mean Square) velocity value obtained at the handle grip while operating the ride-on trowel on curing concrete in a manner most often experienced in “normal ” circumstances. Values were obtained from all three axes of motion. The values shown represent the maximum RMS value from these measurements.

Summary Data Of Sound And Vibration Testing			
Operator Ear SPL	Seat Vibration Average	Left Hand Vibration Average	Right Hand Vibration Average
- dB (A)	- m/sec <sup>2</sup>	- m/sec <sup>2</sup>	- m/sec <sup>2</sup>
This information was acquired from sound and vibration analysis tests conducted at Allen Engineering Corporation test facilities.			

**PENDING INFORMATION**

## Dealer Information / Ordering Parts

## GENERAL INFORMATION

Your Dealer has Allen Engineering Corporation trained mechanics and original Allen replacement parts. Always contact the Allen Dealer who sold you this machine for Allen Certified repairs and replacement parts.

Place Allen Dealer information below for future reference.

Dealer Name: _____  Dealer Phone #: (____) - ____ - ____  Address: _____  City / State / Zip: _____	Salesman: _____  Salesman Phone #: _____  Additional Comments: _____ _____ _____
---	---

The "PARTS & DECALS MANUAL" contain illustrated parts lists for help in ordering replacement parts for your machine. Follow the instructions below when ordering parts to ensure prompt and accurate delivery:

1. All orders for service parts - include the serial number for the machine. Shipment will be delayed if this information is not available.
2. Include correct description and part number from the "PARTS & DECALS MANUAL"
3. Specify exact shipping instructions, including the preferred routing and complete destination address.
4. **DO NOT** return parts to AEC without receiving written authorization from AEC. All authorized returns must be shipped pre-paid.
5. When placing an order, please contact the AEC dealer nearest you.



### NOTE

ALL INFORMATION, SPECIFICATIONS, AND ILLUSTRATIONS IN THIS MANUAL ARE SUBJECT TO CHANGE WITHOUT NOTICE AND ARE BASED ON THE LATEST INFORMATION AT THE TIME OF PUBLICATION.

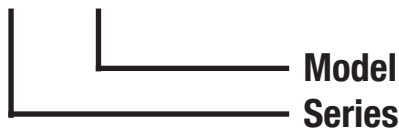
## Model Number / Serial Number Unit Identification

### Manufacturer's Codes:

When ordering parts or requesting service information, you will always be asked to specify the model and serial numbers of the machine. The legends below specifically defines each significant character or group of characters of the Model Number and Serial Number codes.

### Model Number

RP 245



### Serial Number:

The serial number found on the identification plate is a ten digit format. The model number identifies your machine and will ensure that you receive the correct replacement parts.

### Serial Number Example

245P 01 20 01



### Unit Identification Plate Location:

An identification plate listing the model number and the serial number is attached to each unit and is located **under the operator seat**. This plate should not be removed at any time.

Please record the information found on this plate below so it will be available should the identification plate become lost or damaged. When ordering parts or requesting service information, you will always be asked to specify the model and serial numbers of the machine.

Model Number: \_\_\_\_\_  
 Serial Number: \_\_\_\_\_  
 Date Purchased: \_\_\_\_\_  
 Purchased From: \_\_\_\_\_

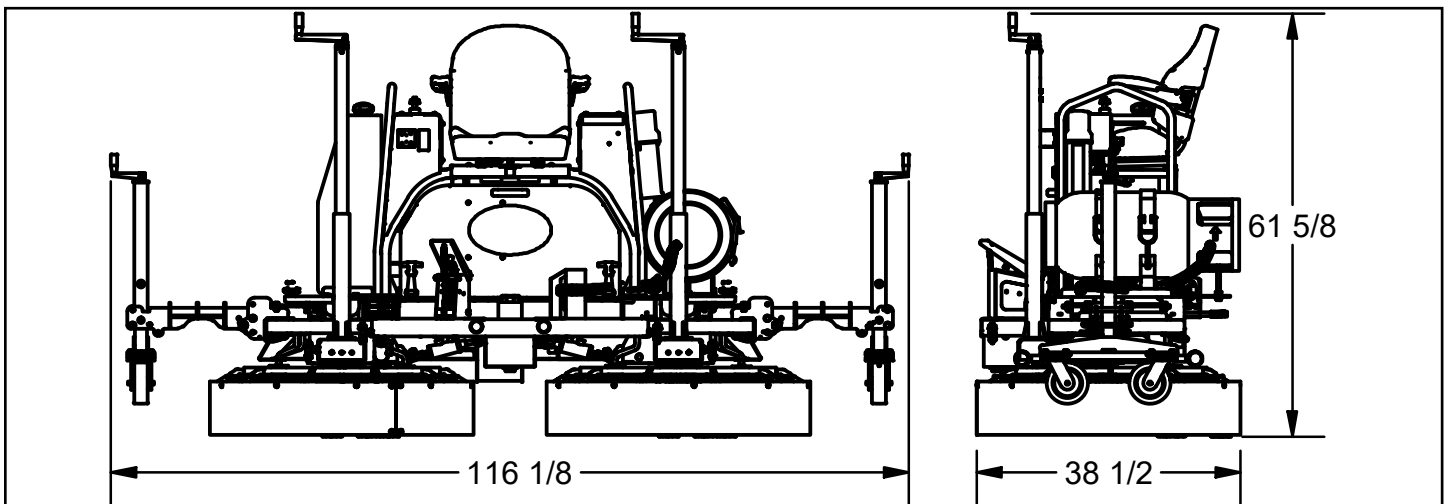
MODEL	 P.O. BOX 819   PARAGOULD, AR. 72450, USA 800.643.0095 (USA ONLY) 870.236.7751 800.643.0097 (USA ONLY) 870.236.3934 WWW.ALLENENG.COM
PART NUMBER	
POWER	
WEIGHT	
SERIAL NO.	
PRODUCTION DATE (MM.DD.YYYY)	



### Machine Specifications

- Horse Power: ..... 25 HP
- Fuel Capacity:.....40 Pound Tank (Vapor Withdrawal ONLY)
- Retardant Capacity: ..... 9 Gal
- Steering System: ..... Hydraulic
- Number of Operating Lights:..... 4
- Height:..... 55-5/8"
- Length: ..... 86-5/8"
- Width: ..... 37-3/4"
- Dry Weight: ..... 1096 lbs
- Panning Width:..... 84-1/4"
- Rotor Center Distance:..... 13-3/4"
- Rotor Diameter: .....36"
- Rotor Speed: ..... 10-180 RPM
- Lifting:..... 2-point, Top-Mounted

Dimension with Accessories



## Kohler Engine Information

Model:	PCH740
Fuel Type:	Propane (Vapor Draw Tank ONLY)
Horsepower [KW]:	25 [18.6]
Engine Idle RPM:	
Engine Full RPM:	
Engine Type:	Air
Number of Cylinders:	2
Bore x Stroke, in. [mm]:	3.3 x 2.7 [83 x 69]
Displacement (in <sup>3</sup> ):	45.6
Injection System:	EFI
Injection Pressure [PSI]:	26 [+/- 3]
Compression Ratio:	9.1:1
Cooling System:	Fan
Direction of Rotation Rev.:	CCW
Engine Oil Capacity in quarts:	2
Dry Weight, lbs:	108
Dimensions:	
• Length, in.:	14.8
• Width, in.:	18.9
• Height, in.:	24.5



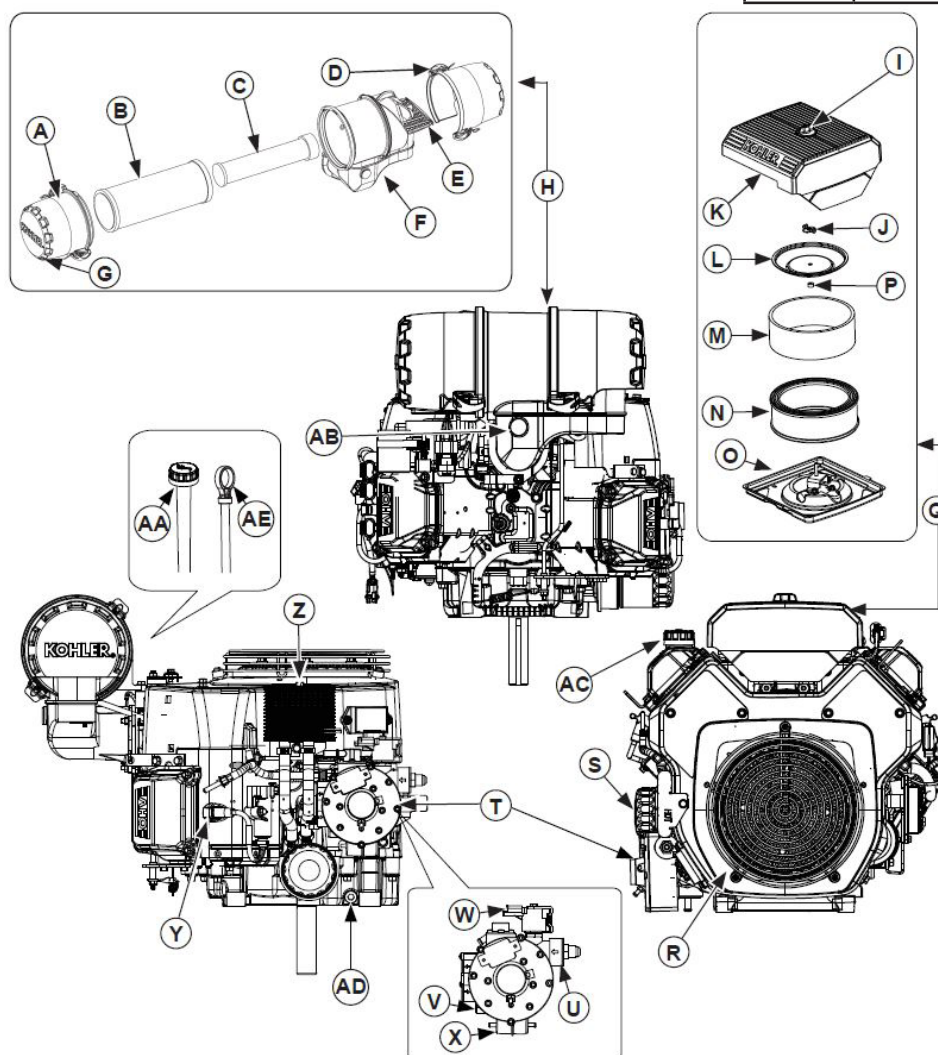
# Engine Parts

## GENERAL INFORMATION

REF.	PART NAME
A	End Cap
B	Element
C	Inner Element
D	Retaining Clip
E	Inlet Screen
F	Air Cleaner Housing
G	Ejector Area
H	Heavy-Duty Air Cleaner
I	Air Cleaner Knob
J	Wing Nut

REF.	PART NAME
K	Air Cleaner Cover
L	Element Cover
M	Precleaner
N	Paper Element
O	Air Cleaner Base
P	Rubber Seal
Q	Low-Profile Air Cleaner
R	Debris Screen
S	Oil Filter
T	Vaporizer / Regulator

REF.	PART NAME
U	Vaporizer / Regulator Inlet Filter
V	Vaporizer / Regulator Drain Plug
W	Lock-Off
X	Unique EFI Fuel Filter
Y	Spark Plug
Z	Oil Cooler
AA	Oil Fill / Dipstick
AB	Filter Minder
AC	Oil Fill
AD	Oil Drain Plug
AE	Dipstick



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# **SECTION 1 SAFETY**

**⚠ WARNING**

**RESPIRATORY HAZARDS**

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



**SILICOSIS WARNING**

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

**⚠ WARNING**

Cancer and Reproductive Harm  
[www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

**CALIFORNIA PROPOSITION 65 WARNING**

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

### Safety-Alert Signs

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



**NOTE** defines an operating procedure, condition, etc. which is essential to high-light that contains useful or important information.



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



**NOTICE** used to convey safety information on labels and signs.



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




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



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

# Spark Arrestor Notice / Hazard Symbols







**⚠ WARNING      ⚠ ADVERTENCIA**



Operation of this equipment may create sparks that can start fires around dry vegetation. A spark arrestor may be required. The operator should contact local fire agencies for laws or regulations relating to fire prevention requirements.

El funcionamiento de este equipo puede producir chispas que pueden iniciar incendios en vegetación seca. Un supresor de chispas puede ser necesario. El operador debe comunicarse con las agencias locales de bomberos para las leyes o reglamentos relativos a los requisitos de prevención de incendios.

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

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

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 notes.





Familiarity and proper training are required for the safe operation of this equipment! Equipment operated improperly or by untrained personnel can be dangerous! Read the operating instructions contained in both this manual and the engine manual and familiarize yourself with the location and proper use of all controls.

- **NEVER** operate this machine in applications for which it is not intended.
- **NEVER** operate this machine while under the influence of drugs or alcohol.
- **NEVER** allow anyone to operate this equipment without proper training. People operating this equipment must be familiar with the risks and hazards associated with it.
- **NEVER** touch the engine or muffler while the engine is on or immediately after it has been turned off. These areas get hot and may cause burns.
- **NEVER** use accessories or attachments that are not recommended by AEC. Damage to equipment and injury to the user may result.
- **NEVER** operate the machine with the belt guard missing. Exposed drive belt and pulleys create potentially dangerous hazards that can cause serious injuries.
- **NEVER** leave machine running unattended.
- **DO NOT** run the machine indoors or in an enclosed area such as a deep trench unless adequate ventilation, through such items as exhaust fans or hoses, is provided. Exhaust gas from the engine contains poisonous carbon monoxide gas; exposure to carbon monoxide can cause loss of consciousness and may lead to death.
- **ALWAYS** remain aware of moving parts and keep hands, feet, and loose clothing away from the moving parts of the equipment.
- **ALWAYS** keep hands, feet, and loose clothing away from moving parts of the machine.
- **ALWAYS** read, understand, and follow procedures in the Operator's Manual before attempting to operate the equipment.
- **ALWAYS** be sure operator is familiar with proper safety precautions and operation techniques before using machine.
- **ALWAYS** close fuel valve on engines equipped with one when machine is not being operated.
- **ALWAYS** store the equipment properly when it is not being used. Equipment should be stored in a clean, dry location out of the reach of children.
- **ALWAYS** operate the machine with all safety devices and guards in place and in working order.



Internal combustion engines present special hazards during operation and fueling. Read and follow the warning instructions in the engine owner's manual and the safety guidelines below. Failure to follow the warnings and safety guidelines could result in severe injury or death.

- **DO NOT** run the machine indoors or in an enclosed area such as a deep trench unless adequate ventilation, through such items as exhaust fans or hoses, is provided. Exhaust gas from the engine contains poisonous carbon monoxide gas; exposure to carbon monoxide can cause loss of consciousness and may lead to death.
- **DO NOT** smoke while operating the machine.
- **DO NOT** smoke when refueling the engine.
- **DO NOT** use fuel that is more than 90 days old. Use of unmixed, improperly mixed, or fuel older than 90 days, (stale fuel), may cause hard starting, poor performance, or severe engine damage and void the product warranty.
- **DO NOT** refuel a hot or running engine.
- **DO NOT** refuel the engine near an open flame.
- **DO NOT** spill fuel when refueling the engine.
- **DO NOT** run the engine near open flames.
- **ALWAYS** refill the fuel tank in a well-ventilated area.
- **ALWAYS** replace the fuel tank cap after refueling.
- **ALWAYS** keep the area around the muffler free of debris such as leaves, paper, cartons, etc. A hot muffler could ignite the debris and start a fire.



Poorly maintained equipment can become a safety hazard! In order for the equipment to operate safely and properly over a long period of time, periodic maintenance and occasional repairs are necessary.

- **ALWAYS** disconnect the battery before servicing the equipment.
- **DO NOT** attempt to clean or service the machine while it is running. Rotating parts can cause severe injury.
- **DO NOT** crank a flooded engine with the spark plug removed on gasoline-powered engines. Fuel trapped in the cylinder will squirt out the spark plug opening.
- **DO NOT** test for spark on gasoline-powered engines if the engine is flooded or the smell of gasoline is present. A stray spark could ignite the fumes.
- **DO NOT** use gasoline or other types of fuels or flammable solvents to clean parts, especially in enclosed areas. Fumes from fuels and solvents can become explosive.
- **ALWAYS** turn engine off and remove key from machine before performing maintenance or making repairs.
- **ALWAYS** keep the area around the muffler free of debris such as leaves, paper, cartons, etc. A hot muffler could ignite the debris and start a fire.
- **ALWAYS** replace worn or damaged components with spare parts designed and recommended by AEC Corporation.
- **ALWAYS** disconnect the spark plug on machines equipped with gasoline engines, before servicing, to avoid accidental start-up.
- **ALWAYS** switch off the power supply at the battery disconnect before adjusting or maintaining the electrical equipment.
- **ALWAYS** keep the machine clean and labels legible. Replace all missing and hard-to read labels. Labels provide important operating instructions and warn of dangers and hazards.

**ALWAYS ENSURE THAT THE WORK AREA IS WELL VENTILATED. PROPANE ENGINES ARE NOT SAFE TO RUN IN ENCLOSED AREAS!**

## **WARNING**

### **Facts About LP Gas - Propane**

As a fuel, Propane gas is unmatched for both safety and dependability. It has been used as a domestic household fuel for over half a century, and for over thirty years as an internal combustion engine fuel. Propane is a highly flammable fuel that is contained under pressure as a liquid. Vaporized gas has a similar explosive force to gasoline and mixtures as low as 2% LP Gas to air may be ignited in a closed environment. Care should be exercised to avoid escaping vapor as it can freeze skin and cause frost bite. Vaporized fuel is heavier than air and will collect in the lowest confined space available.

### **Facts About Propane Tanks**

Propane tanks are constructed according to ASME or Federal DOT #4ET20 pressure safety codes. Including the tank, all valves and fittings are UL Listed. Propane gas is noncorrosive and will not rust the inside of a tank. Should the tank exterior become damaged or rusted, discontinue use. DO NOT tamper with tank gauges or safety relief valves. NEVER use a tank not intended for use with a propane buffer. DO NOT substitute tanks that are used with a barbecue grill, etc. AEC recommends having propane tanks tested once a year by an authorized National LP Gas Association propane dealer. The fuel tank is supplied directly from the manufacturer and is void of fuel. This tank must be purged 'at the time of the first fill. Local fuel vendors should be familiar with this operation and will provide this service.

### **Recommended Purge Procedures**

How to purge new LP-Gas Buffer cylinders equipped with the Overfill Prevention Device:

New containers may contain vapor, air, or other contaminants. It is essential that these be removed before filling the container and placing it into service. Air in the container will cause abnormally high pressure, with the result that the pressure relief valve may open. Air in the system is also likely to cause lean mixture, making ignition difficult. If a cylinder is suspected of being de-pressurized or open to the atmosphere for a period of time, it must be re-purged as if it were a new container.

Purging of containers should be performed in an approved area (see NFPA 05 8) using NPGA #13 3.89(a) procedure. To purge a container, the following steps should be taken.

1. Determine if the container pressure is zero. Should the cylinder contain only pressurized air, the air may be vented directly to the atmosphere through the service valve using an adapter and the outage valve.
2. Pressurize the container to approximately 15 psig with LP-gas vapor. Never purge with liquid LP-gas! To do so will cause the moisture vapor to chill and remain in the cylinder. LP gas liquid also expands 270 times to vapor making the purge process ineffective. Use LP-gas vapor only!
3. Make the connection to the quick coupler (A purge manifold system is most effective). Fully open the cylinder service valve as well as the outage valve. Vent to a safe atmosphere. A vent stack is recommended.
4. On Overfill Prevention Device cylinders, the purge time is increased as a result of the new valve design. Opening the outage valve will help improve the speed of the purge.
5. Repeat #3 and #4 for a total of FIVE purges.
6. Re-pressurize the container with odorized LP-gas vapor to 15 psig.
7. The container is now ready to be filled with LP-gas.
8. Once filled, check all fittings and tank openings for leaks using an approved leak detector solution.
9. The container is now ready to be placed in service. Add DOT and OSHA labels.

### **Symptoms of a non-purge cylinder:**

- Relief valve opens due to over pressurized cylinder creating hazardous situation.

- Moisture in the cylinder.
- Buffer operates initially but shuts down when fuel mixture becomes too lean.

### Refilling & Storing Propane Tanks

The NFPA Technical Committee prohibits the storage of such containers in buildings. There are few exceptions to this rule. In other words, propane tanks should NOT be stored in buildings used by the public or frequented by anyone passing through or who is working in the building. Full or empty, never leave tanks in small enclosed areas. The tank(s) must be in a secure, tamper-proof storage enclosure that provides safety from accident or vandalism. **PROPANE TANKS SHOULD ALWAYS BE TRANSPORTED IN AN UPRIGHT POSITION. OVERFILLING PROPANE TANKS IS HAZARDOUS.** The tank should NEVER be completely filled with liquid propane. 75% of the total tank volume is to be considered at **ALL** times as full. **EXPANSION MUST BE ALLOWED FOR.** Propane Buffer tanks are equipped with a fixed liquid level gauge which contacts the liquid level at 75% of container capacity, allowing 25% for expansion. The top part of this device must be unscrewed counterclockwise so that vapor can escape through the small hole in its side, as the tank is refilled. When the escaping vapor starts to give way to liquid, the device must be quickly closed and the propane nozzle turned off.

**“IMPORTANT”** The engine and the fuel system on your trowel are designed to run on fuel vapor, not fuel liquid. Overfilling the propane tank will result in damaging the lock off and/or regulator. This will **VOID** the **WARRANTY** on these components.

**“IMPORTANT”** This engine is certified to operate on commercial propane (per GPA STD2140). If you have any questions, contact your propane supplier. LP mixtures containing higher than 5% propylene should **NOT** be used.

### **NOTE**

Propane is extremely flammable and is heavier than air and tends to settle in low areas where a spark or flame could ignite gas. Do not start or operate this engine in a poorly ventilated area where leaking gas could accumulate and endanger safety of persons in area. To ensure personal safety, installation and repair of propane fuel supply systems must be performed only by qualified propane system technicians. Improperly installed and maintained propane equipment could cause fuel supply system or other components to malfunction, causing gas leaks. Observe federal, state and local laws governing propane fuel, storage, and systems. This engine is certified to operate on commercial propane (per GPA STD 2140). If you have any questions, contact your propane supplier.

## SECTION 1 SAFETY

# Propane Safety

**WARNING: THIS PROPANE EFI ENGINE CAN ONLY OPERATE ON PROPANE VAPOR WITHDRAWAL. INTRODUCING LIQUID PROPANE TO THE FUEL SYSTEM CAN LEAD TO FUEL RAIL AND INJECTOR DAMAGE.** If you believe your engine has been exposed to liquid propane, shut it down immediately, purge the fuel lines of liquid, and connect the engine to a suitable propane vapor source. If your engine continues to operate erratically after being purged, dried, and supplied with a known good vapor source, fuel rail and injector replacement is required.

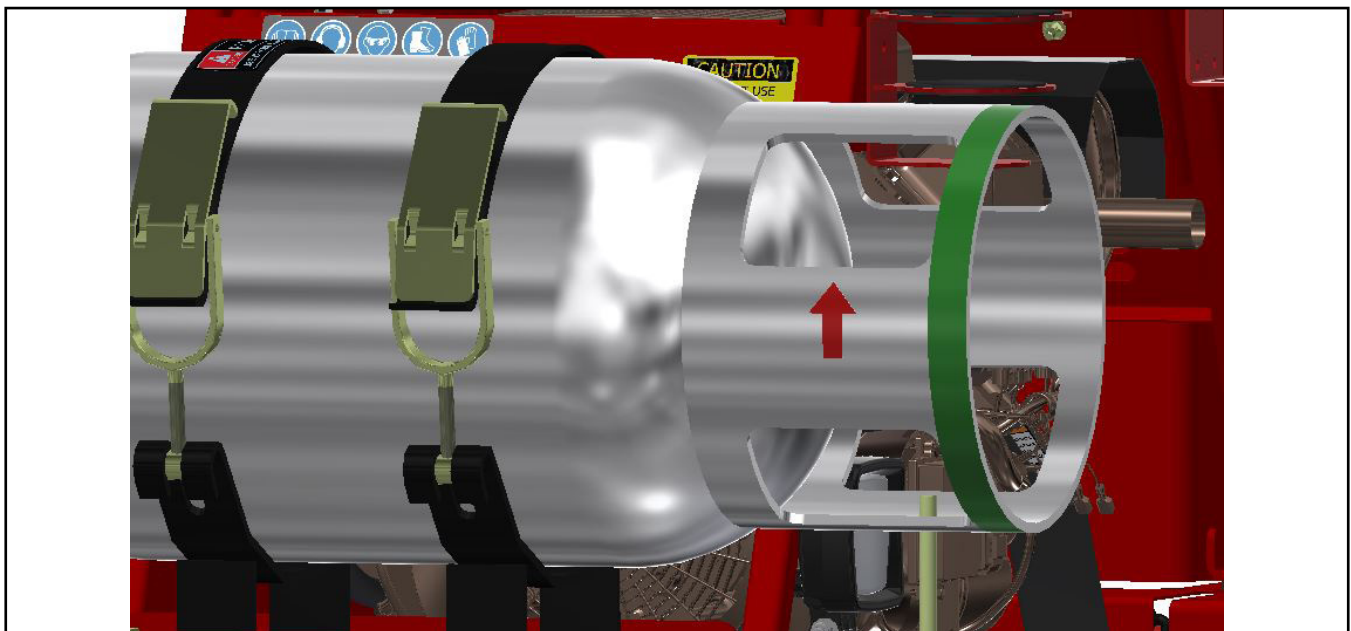
To avoid fuel rail contamination by liquid propane:

- Ensure all propane tanks are capable of vapor withdrawal
- Ensure all propane tanks are rated for mobile equipment (green stripe)
- Ensure all propane fittings are left hand thread to avoid accidental connection to liquid withdrawal ports
- Ensure propane tanks are not overfilled
- Ensure propane tanks are installed in the correct orientation

## **WARNING**

Proper installation of the propane tank is crucial to prevent liquid propane from being sucked into the engine. A tube located inside the tank must be positioned "above" the liquid to only draw vapor. A RED ARROW (as seen in the picture below) is located on the tank. This arrow **MUST** point in the UP direction and **MUST** be located 180° from the locator hole in the collar. Failure to do this will cause **CATASTROPHIC** damage to the engine and will require fuel rail and injector replacement.

**FAILURE TO FOLLOW THESE INSTRUCTIONS WILL VOID THE ALLEN 2-YEAR WARRANTY!**



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**ALWAYS DO A THOROUGH INSPECTION OF THE SLINGS, CHAINS, AND HOOKS BEFORE ATTEMPTING TO LIFT THE MACHINE!**

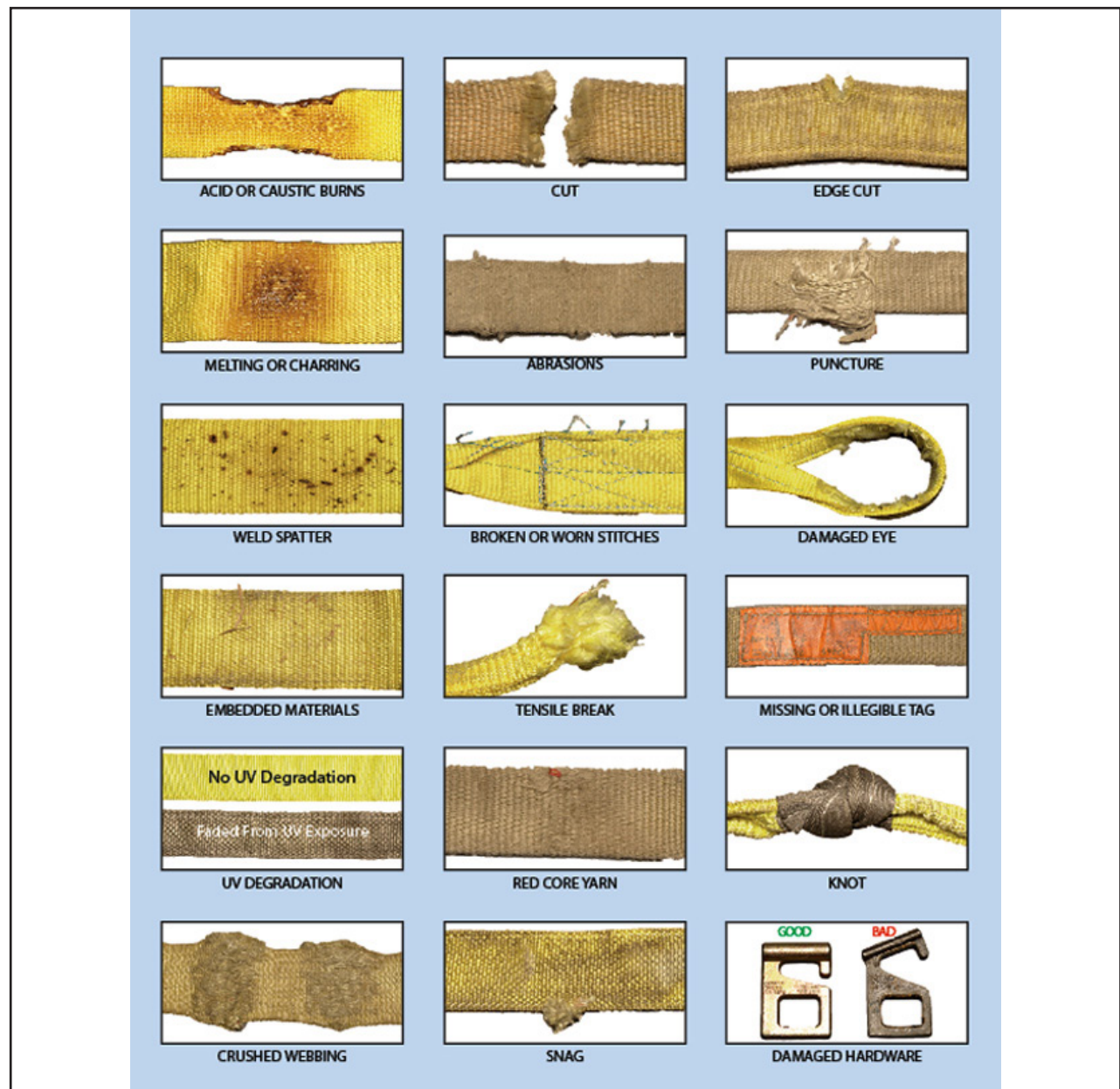
OSHA has set forth guidelines which detail the use of Rigging Equipment for Material handling. This guideline is found under

**OSHA Standard Number: 1926.251**

Please read and follow all guidelines found in this standard.

Removal from service. (OSHA 1926.251(e)(8))

**Synthetic web slings shall be immediately removed from service if any of the following conditions are present:**

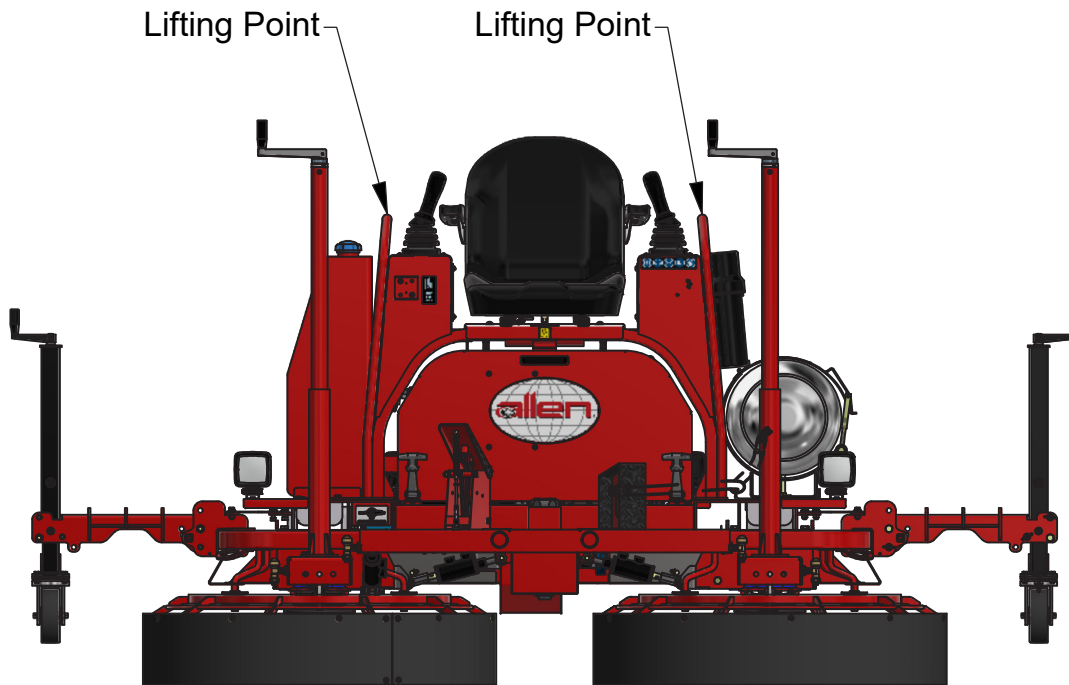




- When lifting the machine, all personnel must be clear of the machine.
- **DO NOT** stand near or under the machine while it is being lifted.

### Lifting instructions using a hoist:

- An optional lifting harness is available for purchase. Part Number 067568
- Place slings, chains or hooks through each lifting point on the machine. Use a sling or chains connected to a central lifting device. Ensure that all lifting devices have sufficient weight-bearing capacity.
- **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.
- Use tie downs to ensure machine does not move during transportation.

# Pan Installation Safety - Lifting Bridle

## SECTION 1 SAFETY

This section details the proper technique to utilize the lifting bridle system in a safe manner to install concrete finishing pans.

(NOTE: Images are for illustration purposes only)



**Use a lifting sling (bridle) with a capacity of at least 2:1 weight ratio for the equipment being hoisted.**

1. Attach the lifting bridle to the machine shown in section "Lifting Safety"
2. Slowly lift the machine in a safe manner to a height that is required to safely install the pans. This is typically 6"-8" above floor level.
3. Carefully slide the pans under the machine making sure that you are aware of the corners on the blades as they are sharp.
4. Align the pans so that the clips will not be crushed when the machine is lowered back down.
5. Slowly lower the machine down onto the pans. Make sure the blades are going into the proper gaps. (Typically the pans can only be installed one way)
6. Once the machine is on securely on the ground with the pans underneath, remove the lifting bridle from the machine.
7. Start the machine and slowly increase the throttle until the blades begin turning and engaging the pans. The machine is now ready to finish the concrete utilizing the pans.



**NOTE:** Utilizing the lifting sling (bridle) and the dolly jacks are intended only for site transportation and the installation of pans and blades. DO NOT use them for regular maintenance without the additional use of jack stands to insure stability of the machine.



# **SECTION 2 OPERATION**

**NOTE**

This machine is built with user safety in mind. However, it can present hazards if improperly operated and serviced. Follow operating instructions carefully. If you have any questions about operating or servicing this equipment, please contact your Allen Engineering Dealer or AEC Customer Service at 800-643-0095 or 870-236-7751.

**Before Starting Procedures**

Before operation each day check for the following:

1. All guards, side screens and panels are in place
2. All safety and information signs are in place and legible
3. Engine, Gearbox, and Hydraulic Oil levels are correct.
4. Fuel level in fuel tank.
5. Check the battery level
6. Condition of air filter on engine.
7. Condition of polishing trowel arms and polishing discs.
8. Verify that daily maintenance of grease points have been performed.
9. Check operating controls for proper operation and adjustment
10. Check speed control operation before and after starting engine for proper operation
11. Check the steering left and right, for proper operation
12. Check for any hydraulic leaks (if applicable)
13. Remove any loose objects that could interfere with the operation of the trowel

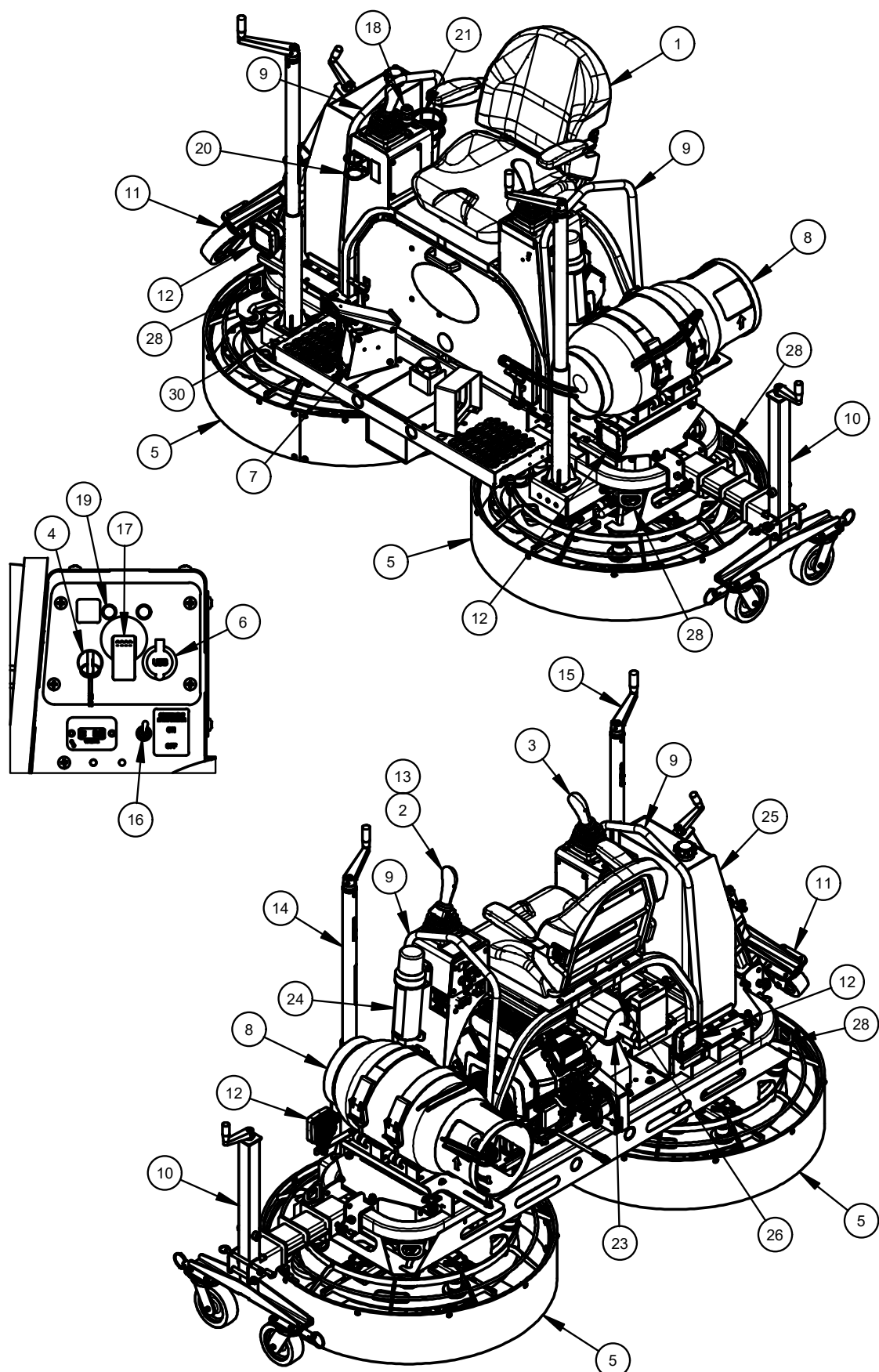
**Note:** If there is any indication that faulty equipment exists, shutdown safely, inform the proper authority and **DO NOT** operate the polishing trowel until the problem has been fixed.

**Starting Procedures**

Turn ignition switch key to the start-position, immediately release key when engine starts. Allow engine to warm up for 5 minutes before operating polishing trowel.

Operating the starter for more than 5 seconds can damage the starter or engine. If engine fails to start release the switch and wait 15 seconds before operating starter again.

**CAUTION**

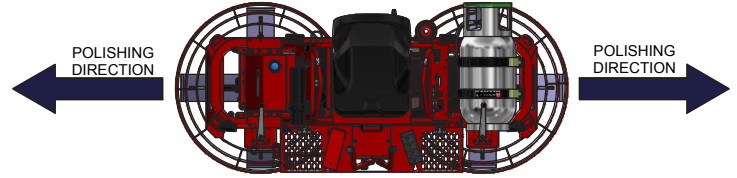


1. Operator Seat - Rotors will not spin unless operator is seated. Seat is adjustable.
2. Left Joystick - Used to move the rider forward and backward
3. Right Joystick - Used to move the rider forward, backward, left & right.
4. Key Switch - Used to start that machine.
5. Skirt - Used to provide protection
6. USB - Dual USB plugs. 2.1A @ 5VDC MAX
7. Foot Control - Used to control rotor speed.
8. Propane Tank - Fuel source. **(USE VAPOR DRAW TANK ONLY)**
9. Lifting Point - Used to raise and lower the machine
10. Dolly Jack - Used to lift and move the machine on the ground, locking wheels
11. Dolly Jack - Used to lift and move the machine on the ground, non-locking wheels
12. Machine Lights - Used to illuminate the surrounding work area
13. Water Spray Button - (located on the left joystick) used to spray water on the work surface
14. Left Blade Pitch - switch used to change the pitch of the left blades
15. Right Blade Pitch - switch used to change the pitch of the right blades
16. Water Spray Switch - Switch from continuous to manual spray
17. Light Switch - Turns the machine LED lights on or off
18. Cruise Control Switch - Turns the machine cruise control on/off
19. High Oil Pressure - When lit, change oil filter
20. Tool Holder - Store hand tools here
21. Cup Holder - Holds your favorite beverage
22. Polishing Disk Assembly - Used to polish the concrete
23. Muffler - Used to control exhaust sound and direction
24. Manual Tube - Holds the machine safety and operations manual. (for Parts Manual see page \*\*)
25. Retardant Reservoir - Holds the retardant fluid
26. Battery - 12VDC, 700 Cold Crank Amperes (CCA)
27. Screed Blade - Used to smooth and finish concrete (If installed)
28. Tie Down - Use these to secure the machine during transport.
29. Spray Nozzle - Used to spray retardant on concrete
30. Spray Nozzle Selector - Switches between Rear, Front, or Off spray directions



## Operating The Riding Trowel

To utilize your Allen Engineering **RP245** polisher to its fullest capacity the machine should be driven sideways (to the left or right). This will allow both polishing rotors to pass over the area during one pass. When the machine reaches the end of the slab make a 180 degree turn and repeat the sideways direction to the other end of the slab.



To familiarize a new operator with the riding trowel the following steps should be taken:

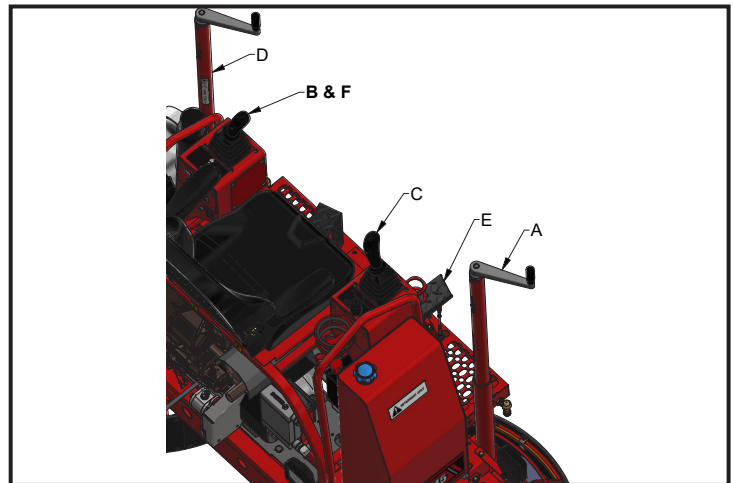


### NOTE

All items in this manual are described from the operator  
“ Sitting On Machine” or SOM for short

#### 1. Location of all Operating Controls

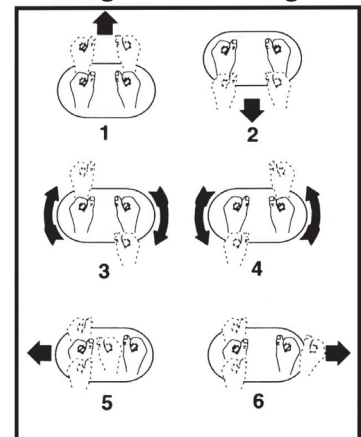
- A. Right Pitch Control
- B. Joystick (Forward & Reverse)
- C. Joystick (Left & Right, Forward & Reverse)
- D. Left Pitch Control
- E. Right Foot Pedal
- F. Retardant Spray Pushbutton



#### 2. Steering the Riding Trowel

A slight “feathering motion” forward and backward with the left hand joystick is required to move the machine in a straight path to the left. The same motion is required of the right joystick to move to the right.

#### Steering Control Diagram



Position .....	Action
1 .....	Forward
2 .....	Reverse
3 .....	Rotate Clockwise
4 .....	Rotate Counter-clockwise
5 .....	Sideways - Left
6 .....	Sideways - Right



### 3. Stopping the Trowel

To stop the trowel's movement, let go of the joysticks [B] and [C]. They will return to their neutral position. Also release pressure on the right foot pedal [E].

#### CAUTION

*This machine is equipped with a seat kill switch mechanism. If in need of an emergency stop, simply turning the key off or raising off the seat even while holding the right foot pedal down, will stop the engine from running.*

### 4. With the operator in the seat, show him the functions of the joysticks [B] and [C] and how to start the machine.

A hard level concrete slab with water on the surface is an ideal place for an operator to practice with the machine. Start by making the machine hover in one spot and then practice driving the machine in a straight line and making 180 degree turns. Best control is achieved at full engine RPM.

#### CAUTION

**DO NOT** use excessive pressure on the joysticks. Excessive pressure does not increase the reaction time of the machine and can damage steering controls.

### 5. Cruise Control

This machine comes standard with a cruise control function. The cruise will allow the operator to remove their foot off the foot pedal and still maintain rotor function.

To use the cruise control, enable the foot switch so that the rotors engage, then pull up on the cruise control button. To release the cruise control, press down on the center button on the cruise control then pull up slightly to disengage.



## 6. Pitch Adjustment

Different pitch angles are needed as you work the different stages of the concrete. When changing or setting pitch (angle of trowel blades), slow the machine down, set the desired degree of pitch on the left side of the machine and then adjust the right side to match.

**USE "FLAT" PITCH (NO PITCH, 0°) WHILE POLISHING!**

To change the pitch, the operator will use the rocker switch located at the top of either joystick. By pressing the rocker switch towards the inside, the pitch will decrease, pressing the switch toward the outside of the joystick will increase the pitch level. (see Figure 2.5).

**Pitch Adjustment**

	Working Conditions of Concrete	Suggested Working Pitch
	Stage 1: Wet surface working stage	0°
	Stage 2: Wet plastic working stage	5°
	Stage 3: Plastic working stage	10°
	Stage 4: Semi-hard working stage	15°
	Stage 5: Hard finishing stage (Burnishing)	20°

## 7. Enable Machine Blades

The machine trowel blades are enabled by the foot pedal (E). Hold down the pedal to enable the rotors to begin turning, release pressure off the pedal to stop the rotors.

## 8. Do NOT Use Dry!!

This machine is designed to use as a **WET** polishing machine. **DO NOT** use this polisher without wetting the concrete surface first. Dry polishing will void the warranty of the machine. The machine should also be kept clean from the “slurry” that is produced by the polishing operation.

# **SECTION 3 SERVICE**

## SECTION 3 SERVICE

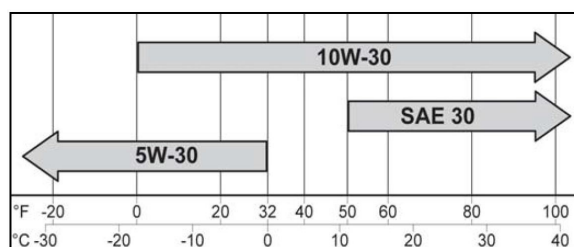
# Maintenance Schedule

### Periodic Maintenance Schedule

The table below list basic trowel and engine maintenance. Refer to OEM engine manufacturer's Operation Manual for additional information on engine maintenance. A copy of the engine operator's manual was supplied with the machine when it was shipped.

Maintenance Schedule						
Description	Daily	20 Hrs	200 Hrs	500 Hrs	1K Hrs	4K Hrs
<b>INSPECT</b>						
Inspect Engine Oil Level	X					
Inspect Air Filters	X					
Inspect Radiator Fins	X					
Inspect Radiator Coolant	X					
Inspect for Leaks	X					
Check poly V-belt				X		
Inspect all Hardware		X				
Inspect Belts					X	
Inspect Wiring					X	
Inspect Battery					X	
Inspect Exhaust					X	
Inspect Coolant Hoses					X	
Inspect Catalyst					X	
<b>ACTION</b>						
Control Linkage Lubrications		X				
Change Engine Oil & Filter				X		
Change Hydraulic Oil			X			
Change Fuel Filters				X		
Change Oil Separator Element				X		
Change Air Filters				X		
Drain Water Separator				X		
Replace Fan Belt				X		
Clean Entire EGR System						X
Change Coolant						X

- Synthetic oil is recommended for use in propane fueled engines. Non-synthetic oil must be low ash (Low ash is defined as less than 1% sulfated ash) rated oil. Oils (including synthetic) must meet API (American Petroleum Institute) service class SG, SH, SJ, or SL. Select viscosity based on air temperature at time of operation as shown in table below.
- Change the type of engine oil according to the ambient temperature.
- When using oil of different brands from the previous one, be sure to drain all the previous oil before adding the new engine oil.



# Replacement Parts

## SECTION 3 SERVICE



1



2



3



4



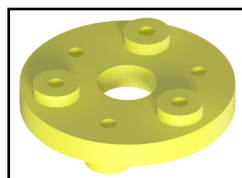
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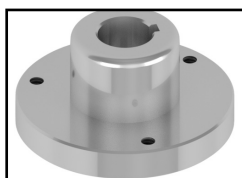
6

### RP Rider, Replacement Parts

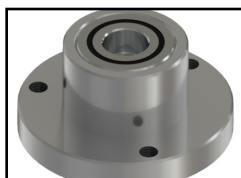
Item #	Part #	Description	QTY
1	057994	Filter, Oil, for Kohler PCH740	1
2	071612	Filter, Air, for Kohler PCH740	1
3	071613	Plug, Spark, for Kohler PCH740	2
4	051332	Belt, Main Drive, for Kohler PCH740	1
5	070592	Bearing, 3/4" ID x 3/4" Long, Plastic, Flange	8
6	040209	Filter, Water, for Retardant Spray System	1



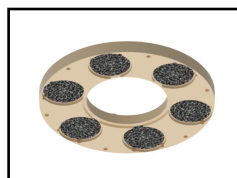
1



2



3



4



5

### Polishing Assembly, Replacement Parts

Item #	Part #	Description	QTY
1	070188	Coupling, Flex	6
2	070201	Hub, with Shaft	3
3	070198	Hub, with Bearing	3
4	070510	Disc, Diamond Mounting	3
5	070200	Clip, Retaining	3

## **Battery Jump Start Procedure**

Occasionally it may be necessary to jump start a weak battery. If jump starting is necessary the following procedure is recommended to prevent starter damage, battery damage, and personal injury.



Jump starting a battery incorrectly can cause the battery to explode resulting in severe personal injury or death. Do not smoke or allow any ignition sources near the battery and do not start a frozen battery.



Electrical arcing can cause severe personal injury.  
Do not allow positive and negative cable ends to touch.

1. Use a battery of the same voltage (12V) as is used with your engine.
2. Attach one end of the positive booster cable (red) to the positive (+) terminal of the booster battery. Attach the other end to the terminal of your engine battery.
3. Attach one end of the negative booster cable (black) to the negative (-) terminal on the booster. Attach the other end of the negative cable to your engine battery.
4. Jump starting in any other manner may result in damage to the battery or the electrical system.



Over cranking the engine can cause starter damage.  
Allow 5 minutes for starter to cool if engaged for more than 15 seconds.



When using lights or high amperage draw accessories,  
idle the engine for a period of 20 minutes to bring the battery to charge state.

### Lift Lever Adjustment Procedure

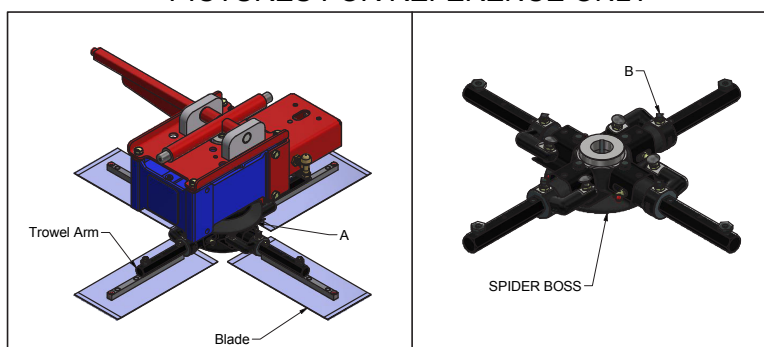
- Damage to and/or replacement of a trowel arm can change the adjustment of the lift lever. This can unbalance the trowel arms and cause the riding trowel to wobble during operation. To operate smoothly the lift lever on all trowel arms must be adjusted the same to ensure that the riding trowel is balanced correctly.
- Adjusting the trowel arms is accomplished by using the optional trowel arm alignment jig AEC PN 016863. The service manual that is included with the alignment jig describes in detail the steps to perform this procedure and to check the flatness and straightness of the trowel arms.

*Make sure that there is no pitch in the blades before attempting to remove a trowel arm.*

### ! NOTE

- The steps below describe the general procedure to remove the trowel arms to be aligned.
  1. Block up pressure plate **[A]** using a wooden block.
  2. Remove stabilizer ring from spider assembly (only on available models).
  3. Remove blades from trowel arms.
  4. Loosen hex head cap screw **[B]** and remove it and the external star washer from the spider boss.
  5. Remove trowel arms from spider boss with lift levers in place.
  6. Clean flats on trowel arm before placing it in the trowel arm jig (PN 016863).
  7. Perform the alignment procedures as outlined in the alignment jig service manual (PN 047427).
  8. Re-attach trowel arm to spider boss and blades to trowel arms.
  9. Tighten down hex head cap screw to secure trowel arm in place.
  10. Reattach stabilizer ring (only on available models).

### PICTURES FOR REFERENCE ONLY



### **Machine Cleaning Procedure**

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

### **Power Washing Procedure:**

#### **NOTICE**

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

### **Filter Cleaning Procedure:**

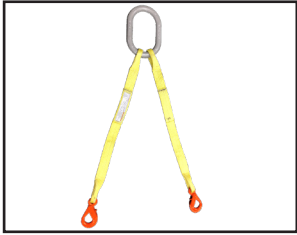
- Remove air filters and blow out with compressed air, **NOT** to exceed 80 PSI.



# **SECTION 4 ACCESSORIES**

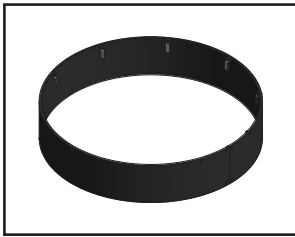
## SECTION 4 ACCESSORIES

## Accessories



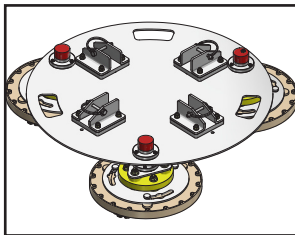
Lifting Bridle, 2,500 Pound Max, 2-Point x 3 Foot

Part Number: 067568



Assembly, Skirt, for Polishing Kit

Part Number: 070360



Assembly, Kit, Polishing Disk, 36"

Part Number: 070195

### Kits Including Universal Blade Holders (25,000ft²)

Part #	Description	QTY
072615	36" Walkbehind (4-Blade)	1
072616	48" Walkbehind (4-Blade)	1
072617	RP235 / 245, MP215 / 245 / 315 (4-Blade)	1
072618	MSP445 / 455 / 465 / 475, HDX600X / 605 (5-Blade)	1

### Kits NOT Including Universal Blade Holders (25,000ft²)

Part #	Description	QTY
072619	36" Walkbehind (4-Blade)	1
072620	48" Walkbehind (4-Blade)	1
072621	RP235 / 245, MP215 / 245 / 315 (4-Blade)	1
072622	MSP445 / 455 / 465 / 475, HDX600X / 605 (5-Blade)	1
072623	Planetary 13" Disc for RP235, RP245	1

### 3D HS Densifier (Strengthen) (25,000ft²)

Part #	Description	QTY
072624	1 Gallon - RTU (Covers approx. 600ft²)	1
072625	5 Gallon - RTU (Covers approx. 3,000ft²)	1
072626	30 Gallon - RTU (Covers approx. 18,000ft²)	1
072627	55 Gallon - RTU (Covers approx. 33,000ft²)	1
072628	250 Gallon - RTU (Covers approx. 150,000ft²)	1

### SR2 (Seal / Protect)

Part #	Description	QTY
072629	1 Gallon - RTU (Covers approx. 4,000ft²)	1
072630	5 Gallon - RTU (Covers approx. 20,000ft²)	1
072631	30 Gallon - RTU (Covers approx. 120,000ft²)	1
072632	55 Gallon - RTU (Covers approx. 220,000ft²)	1
072633	250 Gallon - RTU (Covers approx. 1,000,000ft²)	1

## NOTICE

### Parts Manual

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

### Mobile Device:

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



### Computer:

Click the link, or go to the following website

[RP245 - Parts and Decals Manual](#)

### Mail:

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

Allen Engineering  
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Paragould, Ar.  
72451, USA

Phone: 1.800.643.0095 (USA Only) / 1.870.236.7751

Fax: 1.800.643.0097 (USA Only) / 1.870.263.3934

MANUAL REVISION DETAIL			
REVISION #	REVISION DATE	REVISION REFERENCE #	REVISION BY
-	05/20	Initial Release	MW
A	01/22	Updated Covers	MK



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