



SAMSON 2618P

WE-2618P OWNER'S MANUAL

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PERSONAL PROTECTION It's always recommended to wear the appropriate Personal Protective Equipment (PPE) for the task at hand and follow your employer's safety policy. Commonly known PPE such as safety glasses, gloves, earplugs, respirators, ect . . . are recommended as needed. For further information on OSHA requirements, visit <https://www.osha.gov/Publications/osha3151.pdf>

1. SPECIFICATIONS AND MODELS

The SAMSON WE-2618-P is available with different models and power options.

WE-2618: Dual Phase 220V 10HP/7.5KW Motor

WE-2618TD: Dual Phase 220V 10HP/7.5KW Motor with added Traction Drive

WE-2618P: Propane Powered FX751V 852cc KAWASAKI ENGINE with Safe Air Monitoring System.

1.1 MECHANICAL SPECIFICATIONS WE-2618-P


WORKING AREA	26.18"	HORSEPOWER	27 HP
MACHINE WEIGHT	1,080 #	HEAD PRESSURE	275-500 #
VOLTAGE	NA	INVERTER	NA
PHASE	NA	RPM/ROTATION	300-1,000

1.2 TOOLING

The WE-2618-P machine must be equipped with tools approved by Warrior Equipment before operation. See "Training Guide" for information about available tools. Warrior Equipment machines are designed to operate with specific tooling. Warrior Equipment has not tested and cannot warrant machine results and performance with non approved tooling.

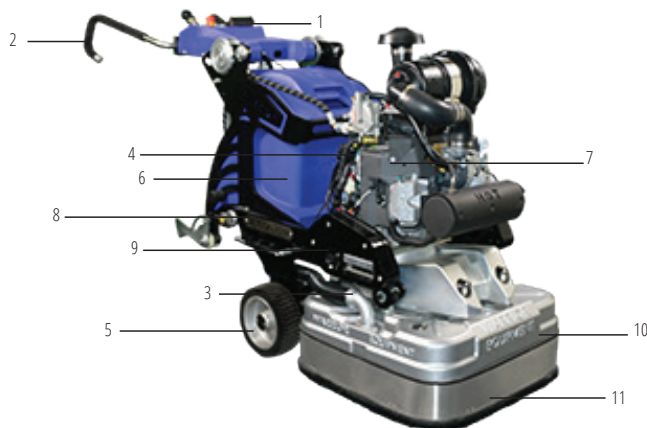
1.3 APPROVED APPLICATION/ USAGE

WE-2618-P is designed to operate with horizontal concrete surfaces for concrete surface preparation, coating removal, carpet and tile glue removal, concrete polishing, epoxy removal, terrazzo polishing, and flattening concrete undulations. WE-2618-P must not be used for other purposes than stated in this user guide. The manufacturer will not be liable for damage or injury resulting from incorrect usage of WE-2618-P. Failure to follow the directions in this guide will void the warranty.

1.4 INCLUDED PARTS

The following parts are included with the standard WE-2618-P grinding machine:

1. Starter Key
2. User Guide
3. Cam-Lock Vacuum Adapter
4. Cable Holder
5. Dry Shroud

1.5 OVERVIEW


NO	DESCRIPTION	REFERENCE
NO 1	CONTROL PANEL	
NO 2	HANDLE	
NO 3	DUST COLLECTOR CONNECTION	
NO 4	ELECTRICAL CABINET	
NO 5	WHEEL	
NO 6	FRAME	
NO 7	ENGINE	
NO 8	ADDITIONAL WEIGHT	
NO 9	BOLT	
NO 10	GRINDING PLATE	
NO 11	DUST COVER	

2. SAFETY PRECAUTIONS

- All Warrior Equipment machines, if not used according to the regulations, may be hazardous for operating, for bystanders, any property, and the operator.
- The operating authority is responsible for compliance with the safety regulations during operation, maintenance, and for the use of all safety devices supplied with the machine, as well as the provision of any additional safety devices.
- Eye and hearing protection must be worn at all times.
- Never operate the machine when it's not in its upright position.
- Make sure there is no debris in the work area. Check the work area for screws or other hard objects in the concrete.
- Don't use the machine if there are any foreign objects stuck to the surface. Such objects must be removed prior to operation of machine

2.1 PREVENTIVE SAFETY MEASURES

- Keep the user guide near the location where the machine is being operated and must be within reach at all times.
- General and legal regulations regarding accident prevention and environmental protection must be complied with as per local regulations. For example, the handling of hazardous substances, or to the provision and wearing of personal protection equipment, as well as compliance with traffic regulations.
- The user guide is not the only safety instructions that are to be followed. It must be supplemented by other instructions, including the duty to supervise and report incidents relating to particular working practices, work organization, work procedures, & personnel safety.
- Personnel entrusted with working with the machine must read the User Guide before starting work, in particular the "Safety Regulations" chapter. To read these instructions after work is started is too late. This applies to incidental activities such as setting up of the equipment, carrying out maintenance work, or training staff to work with the machine.
- From time to time the working practices of the operators are advised to be checked by a supervisor especially to the items regarding awareness of safety and hazards.
- Operators must tie back long hair, and not wear loose clothing or jewelry including rings. There is a risk of injury through items getting caught, or being drawn into moving machinery.
- Eye and hearing protection must be worn at all times.
- Use personnel protection equipment that is necessary or required by local regulations. Take notice of all safety and hazard notices of the machines.

2.2 PERSONNEL SELECTION AND QUALIFICATION

- Any work or modifications on the machine may only be undertaken by trained personnel.
- Specify clearly the responsibilities of personnel for operation, setting up, servicing and maintenance work.
- Only trained and authorized personnel may operate or work on the machine.
- Define responsibilities of the machine operator, with regard to traffic safety regulations, and inform him/her, not to take instructions from third parties who may not be complying with the local safety requirements.
- Personnel, who are being trained to operate equipment, may only use the machine under constant supervision of an experienced person authorized for training.
- Work on electrical equipment may only be undertaken by a skilled electrician or by trained persons under the supervision of a skilled electrician in accordance with the local electrical engineering regulations.

2.3 SAFETY: OPERATION OF MACHINE

- Never permit any method of working that impairs safety.
- Recognized official procedures must be used to ensure the machine is only operated in safe and best conditions.
- Only operate the machine when all safety devices and related safety equipment are present and operational.
- Check the machine visually for any damage and defects at least once a day and prior to each use.
- In the event of operational malfunctions, the machine must be shut down immediately and secured. Secure the work area around the machine in public areas providing a safe distance of at least 10'x10' area around the machine.
- Faults must be immediately rectified before continued operation of the machine.
- Carry out the switch on, and switch off operations in accordance with this user guide.
- Before switching on the machine, make sure that no-one can be endangered when the machine starts up.
- Never operate the machine when not in its upright position.
- Do not switch off or remove the exhaust and or the ventilation devices while the machine is running.
- All persons in the proximity of the machine must wear hearing and eye protection as well as safety shoes.
- Machine operators must wear close-fitting protective clothing.
- Make sure there is no debris in the work area. The machine could throw loose debris causing injury and property damage.
- Check the work area for screws or other hard objects in the concrete. Don't use the machine if there are any foreign objects stuck to the surface. Such objects must be removed prior to operation of machine

2.4 DEFINITION OF THE "SAFETY OFF POSITION"

The machine is in a safe condition where it cannot be a hazard.

How to set the machine in the Safety off position:

1. Switch off the machine
2. If a dust collector is used, switch it off
3. Wait for all drives to come to a complete stop
4. Disengage propane
5. Secure against unintended restart

Always disengage the propane at the machine end. This will prevent other persons from accidentally reconnecting the main power while working on the machine.

2.5 SAFETY REGARDING MAINTENANCE

- Set the machine into the Safety off position before beginning any work on the machine.
- Never work on the machine while propane is still engaged. Ensure all parts have come to a complete stop before performing any work.
- When the machine is positioned on its back, it may tilt up into the upward position. Take extra care to prevent this from happening to ensure that no injuries or damages occur.
- When the machine has been operated, tooling, plates, and other parts on the gear box may be hot. Take extra care to prevent burn injuries.
- Any adjustment, servicing, and inspection work specified in this User Guide or elsewhere, or any information on the replacement of parts and equipment must be undertaken and/or complied with.
- These activities may only be undertaken by qualified personnel.
- The propane must be disengaged before and during cleaning.

2.6 SAFETY REGARDING TRANSPORT

- Always remove the tools before transport. The tools may fall off or damage the surface in which the machine is being transported in.

2.6.1 MANUAL TRANSPORT

- When transporting the machine manually, be observant about ramps and/or edges. Follow local traffic regulations for the work site to prevent accidents.
- Failure to comply with these regulations may cause injuries or damages

2.6.2 LIFTING

- The machine must be secured according to local safety regulations before lifting.
- No person is ever to be allowed under a lifted machine.
- The machine must be lifted according to the instructions in "Lifting"
- Observe the machine's point of balance before lifting and determine if it is safe to proceed with lifting the machine.
- Failure to comply with these instructions may cause injuries or damages.
- Only use straps approved for no less than 25% more than the machine weight and height requirements.

2.6.3 INSIDE VEHICLES

- Secure the machine according to local transport safety regulations before transporting the machine inside a vehicle.
- Be sure to secure any other equipment or materials which are being transported in the same area as the machine to avoid damage to the machine and surrounding areas.

3. TRANSPORT

3.1 PRECAUTIONS

- Read the entire manual before attempting to transport the machine.

3.2 MANUAL TRANSPORT

- After detaching the tools according to the instructions, adjust the weights back into the locked position. Raise the handle and lock into place to create the needed leverage. Then push the handle downwards, while stepping on the pedal bracket to lift the gear box. Push the machine in the desired direction. Always have a second person help to avoid injuries when loading on a trailer ramp. The use of a properly installed winch is recommended.

3.3 LIFTING

- Before attempting to lift the machine, read “Lifting” instructions.
- Detach the tools according to the instructions.
- Fasten the straps used for lifting at two or more of the four lifting points on the frame.
- Ensure proper balance of the machine, be sure that the straps are securely fastened, and the area is all clear of any persons, before lifting of the machine.

4. OPERATION

4.1 PRECAUTIONS

- Any machine, if it is not used according to the recommendations of Warrior Equipment and all legal regulations, may be hazardous for operating and service personnel. The operating authority is responsible for compliance with the safety regulations during operation and maintenance, and for the use of safety devices supplied with the machine, as well as the provision of any needed additional safety devices.
- Never operate the machine when it’s not in its upright position. Never operate the machine without proper tools. Eye and ear protection must be worn at all times. Make sure there is no debris in the work area.
- Check the work area for screws or other hard objects in the concrete. Don’t use the machine if there are any foreign objects stuck to the surface. Such objects must be removed prior to the operation of the machine.
- Read “Safety Regulations” before operating the machine.

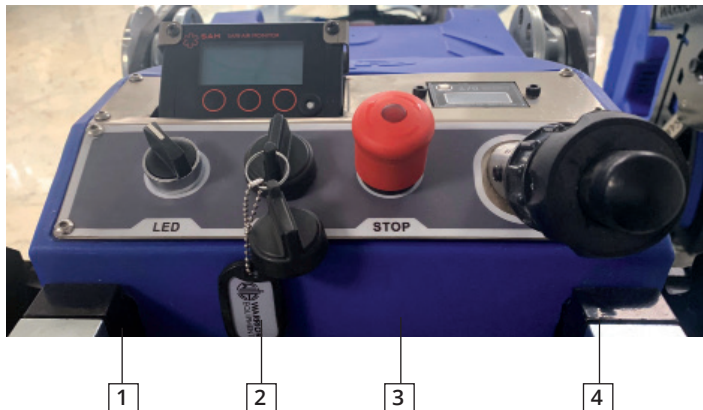
4.2 OPERATION OF MACHINE

- The gear box has four grinding heads. Two that rotate in the opposite direction of the other two. Each grinding head is equipped with a 3 pin tool holder secured with magnets.
- Use caution when installing tools to keep any part of the operator’s hands or body from being pinched or injured.
- Ensure each magnet is free of debris or anything that would hinder the tooling from sitting flush on the tool holding pins and magnets.

4.3 WATER CONNECTION

- Closed: No water will flow
- Open: Water will flow

4.4 CONTROL PANEL



- 1 LED LIGHT SWITCH
- 2 ON/OFF SWITCH
- 3 EMERGENCY STOP
- 4 SPEED SWITCH

4.5 STARTUP

- See “Precautions” and read the entire user guide before starting the machine.
- Make sure propane tank is securely attached to the machine and all fittings are tight ensuring no leakage
- Make sure that the power plug and hoses for dust collector and water (if used) are connected to the machine.
- Turn on the dust collector (if one is in use)
- Push the handle downwards to lift excess pressure and weight off of the tooling. The gear box and tooling should not be lifted up from touching the ground. The goal is to only reduce pressure and weight upon start up.
- Ensure that the “EMERGENCY STOP” button is in its upper position. If not, release it by turning it clockwise until it rises.
 - Press the “STOP” button in to reset.
 - Engage the clutch to start and adjust speed (When starting, weights must be in the “neutral” or “rearward” position)
 - Ensure that the SAM (Safe Air Monitor) is working

4.6 STOPPING THE MACHINE

- Press the “STOP” button for urgent stopping.
- Disengage the clutch
- Wait for the machine to come to a complete stop before letting go of the handles.
- Turn off the dust collector if used.

4.7 ADJUSTING GRINDING SPEED

- Speed can be adjusted by engaging the clutch

4.8 SAFETY OFF POSITION

- When working on the machine, either maintenance or tool change, the machine must be set to the “Safety off position”. See the definition of the “Safety off position” for further information.

4.9 GRINDING

- Refer to “training guide” for instructions and information about grinding processes.

4.10 CHANGING TOOLS

Before changing tools, read Safety instructions and recommendations regarding maintenance.

1. Insert the segment onto the pins, the 3 holes lining up with the 3 pins.
2. Watch your fingers to avoid injury.
3. The segment is now fit on the Samson 2618-P plates.
4. In reverse, use a screwdriver or small prying tool to loosen/pry the segments off for removal or tool change.

5. MAINTENANCE**5.1 PRECAUTIONS**

- Set the machine into the Safety off position before beginning any work on the machine.
- See Definition of the “Safety off position”.
- Never work on the machine while propane is still engaged! All parts must come to a complete stop before beginning any work.
- When the machine is lying down on its back, it might tilt to its upwards position. Take extra care to prevent this from happening to ensure that no injuries or damages occur.
- When the machine has been operating, the segments, plates and other parts on the gear box may be hot. Take extra care to prevent burn injuries.
- Adjustment, servicing and inspection work on the period of time limits, specified in this User Guide, as well as any information on the replacement of parts and equipment, must be undertaken and/or complied with.
- These activities may only be undertaken by qualified personnel.
- The propane must not be engaged while cleaning.

5.2 DAILY INSPECTION PRIOR TO OPERATION

Inspect the following items prior to operation:

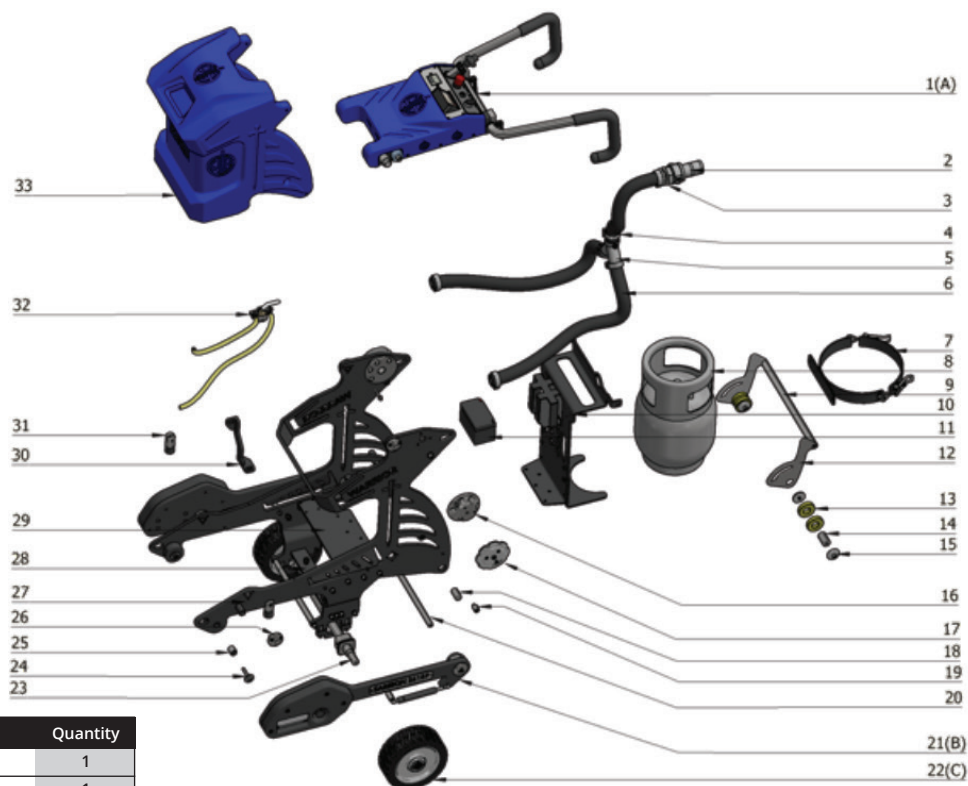
- Inspect the wheels for damage.
- Inspect the grinding heads. Dirt between the Warrior Equipment plate(s) and the grinding hub can impair the flexibility of the grinding head.
- Inspect the wiring and cables for damage or loose connections.
- If any screws appear loose, tighten them.
- Look over the machine for any other damage.

5.3 MAINTENANCE AND INSPECTION LIST

- Always clean the machine after every use.
- If wet grinding, remove all slurry from the machine to avoid premature wear of rubber parts.
- Every 600 hours, change the gearbox oil. Contact Warrior Equipment for more information and procedure instructions.

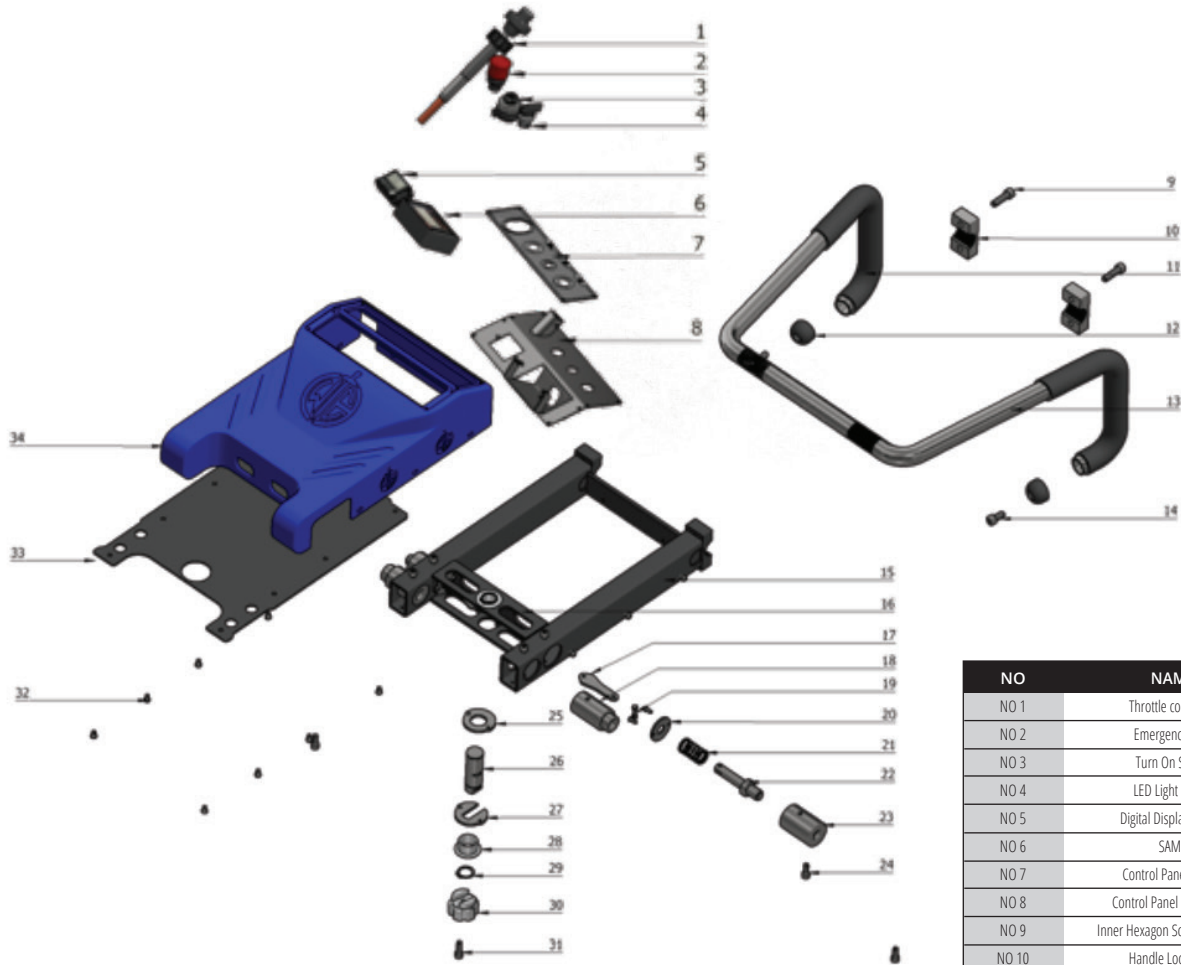
5.4 CLEANING THE MACHINE

- Before starting to clean the machine, make sure it is in its “Safety off position” . The propane tank must not be engaged while cleaning the machine.
- Do not use highly pressurized water to clean the machine. Low pressure and a brush with water and soap is recommended.

6. MACHINE EXPLOSION PARTS
WE-2618P FRAME EXPLOSION


NO	Name	Quantity
NO 1(A)	Operation handle	1
NO 2	Camlock	1
NO 3	Camlock Connector	1
NO 4	Stain Steel Clamp	6
NO 5	Dust Tube T-cock	1
NO 6	Dust Tube	
NO 7	Gas Tank Clamp	1
NO 8	Propane Gas Tank	1
NO 9	Pedal Support Shaft	1
NO 10	Gas Tank Fixed Baseboard	1
NO 11	Battery	1
NO 12	Pedal Fixed Baseboard	2
NO 13	Supporting Wheel	4
NO 14	Supporting Wheel Shaft	2
NO 15	Supporting Wheel Catch	4
NO 16	Hand Splint	2
NO 17	Hand Splint Fixing Plate	2
NO 18	Pedal Fixing Shaft	2
NO 19	Add'l Weight Limit Shaft	2
NO 20	Supporting Shaft	2
NO 21(B)	Add'l Weight Limit Shaft	2
NO 22(C)	Moving Wheel Assembly	2
NO 23	Wheel Shaft	1
NO 24	Inner Hexagon Screw	2
NO 25	Shock Pad	2
NO 26	Locating Pin Base	4
NO 27	Machine Frame	1
NO 28	Frame Support Device	2
NO 29	Frame Connection Plate	1
NO 30	Frame Stiffener	2
NO 31	Gear Box Top Pole	2
NO 32	Water Valve Components	1
NO 33	Water Tank	1

WE-2618P FRAME EXPLOSION 1(A) EXPLOSION



NO	NAME	QUANTITY
NO 1	Throttle controller	1
NO 2	Emergency Stop	1
NO 3	Turn On Switch	1
NO 4	LED Light Switch	1
NO 5	Digital Display Meters	1
NO 6	SAMS	1
NO 7	Control Panel Sticker	1
NO 8	Control Panel Baseboard	1
NO 9	Inner Hexagon Screws M10*35	2
NO 10	Handle Lock Block	2
NO 11	Handle Grip Cover	2
NO 12	Handle Plug	2
NO 13	Handle	1
NO 14	Inner Hexagon Screws	2
NO 15	Control Box Frame	2
NO 16	Control Box Frame Connect Plate	1
NO 17	Control Box Frame Connector	2
NO 18	Connector Shaft Sleeve	2
NO 19	Inner Hexagon Screws	2
NO 20	Fixed Pin Limit Shaft	2
NO 21	Pressure Spring	2
NO 22	Fixed Pin	2
NO 23	Fixed Pin Cover	2
NO 24	Inner Hexagon Screws	4
NO 25	Connector Fixed Catch-1	1
NO 26	Rotation Axis	1
NO 27	Connector Fixed Catch-2	1
NO 28	Rotation Axis Sleeve	2
NO 29	Axis Jump Ring	2
NO 30	Rotate Wrench	1
NO 31	Inner Hexagon Screws	1
NO 30	Inner Hexagon Screws	12
NO 33	Handle Cover Base Board	1
NO 34	Handle Cover	1

WE-2618P FRAME EXPLOSION 18(B) WEIGHT EXPLOSION



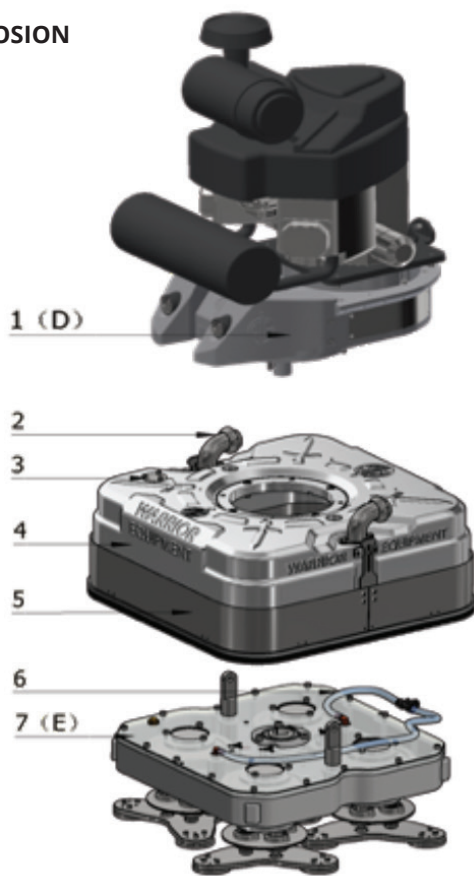
NO	NAME	QUANTITY
NO 1	Inner Hexagon Screw - M6*16	8
NO 2	Additional Weight Shaft	2
NO 3	Additional Weight Gasket	2
NO 4	Nylon Gasket	2
NO 5	Fixed Plate	2
NO 6	Additional Weight Plug	2
NO 7	Logo Plate	2
NO 8	Inner Hexagon Screw - M6*16	6
NO 9	Air Spring Fixed Shaft	2
NO 10	Air Spring	2
NO 11	Additional Weight Handle	2
NO 12	Inner Hexagon Screw - M10*55	2
NO 13	Index PinM20*2	2
NO 14	Additional Weight	2
NO 15	Inner Hexagon Screw - M8*25	4

WE-2618P FRAME EXPLOSION 19(C) MOVING WHEEL EXPLOSION



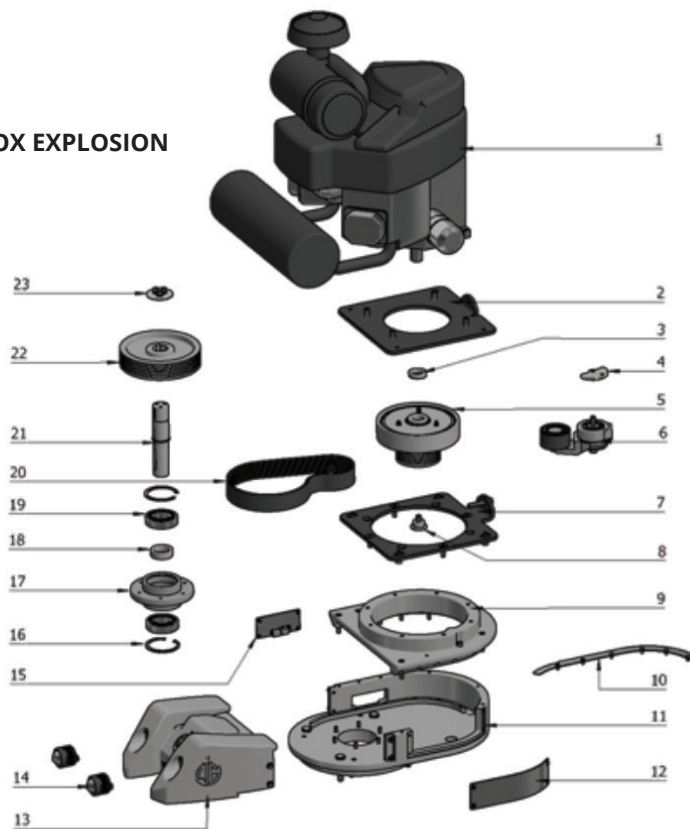
NO	NAME	QUANTITY
NO 1	32A MALE PLUG	1
NO 2	INVERTER	1
NO 3	ELECTRICAL ENCLOSURE	1
NO 4	ENCLOSURE COVER	1
NO 5	INDICATOR LIGHT	2
NO 6	INVERTER DISPLAY PANEL	1
NO 7	VENTILATION FILTER SCREEN	3
NO 8	AVIATION PLUG	1
NO 9	LED LIGHT PLUG	1

WE-2618P 18(C) GEAR BOX EXPLOSION



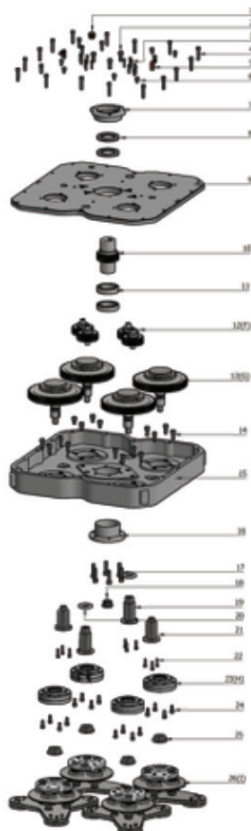
NO	NAME	QUANTITY
NO 1(D)	Transmission Box Assembly	1
NO 2	Dust Tube	2
NO 3	Hang Ear Base	2
NO 4	Gear Box Cover	1
NO 5	Exhausting Holes Limited Board	1
NO 6	Dust Cover	1
NO 7(E)	Gear Box Assem.	1

WE-2618P 1(D) GEAR BOX EXPLOSION



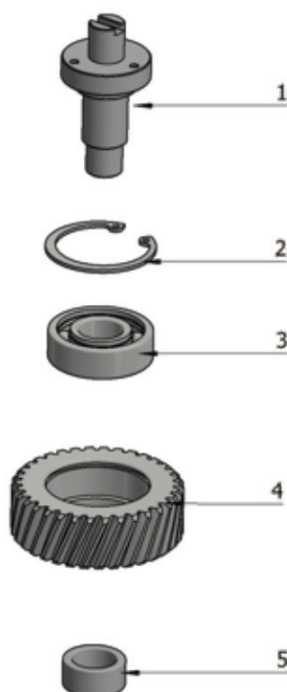
NO	NAME	QUANTITY
NO 1	Propane Engine	1
NO 2	Fixing Engine Baseboard-1	1
NO 3	Engine Gasket	1
NO 4	Belt Tensioner Gasket	1
NO 5	Clutch	1
NO 6	Belt Tensioner	1
NO 7	Fixing Engine Baseboard-2	1
NO 8	Engine Main Shaft Plug	1
NO 9	Transmission Box Cover-1	1
NO 10	Thread Tension Cover Plate	1
NO 11	Transmission Box Body	1
NO 12	Transmission Box Edge Cover-2	1
NO 13	Transmission Box Cover-2	1
NO 14	LED Light	2
NO 15	Transmission Box Edge Cover-1	1
NO 16	Jump Rings	2
NO 17	Bearing 6208 Basement	1
NO 18	Bearing 6208 Gasket	1
NO 19	Bearing 6208	2
NO 20	Poly V-Belt	1
NO 21	Poly V-belt Shaft	1
NO 22	Poly V-Belt Wheels	1
NO 23	Located Gasket	1

WE-2618P (7)E GEAR BOX EXPLOSION



NO	NAME	QUANTITY
NO 1	Vent Valve	1
NO 2	Inner Hexagon Screws M10*65	3
NO 3	Inner Hexagon Screws M5*25	12
NO 4	Inner Hexagon Screws M8*40	16
NO 5	Water Pipe Connector	2
NO 6	Inner Hexagon Screws M8*25	12
NO 7	Bearing 6011 Base	1
NO 8	Oil Seal55*80*8	2
NO 9	Gear Box Upper Cover	1
NO 10	Z34 Middle Gear	1
NO 11	Bear 6010	2
NO 12(F)	Transition Gear Assem	4
NO 13(G)	Second Driving Shaft Assem	4
NO 14	Inner Hexagon Screws M10*16	16
NO 15	Gear Box Body	1
NO 16	6010 Bearing Base	1
NO 17	Inner Hexagon Screws M10*40	4
NO 18	M30 Block Piece	1
NO 19	Hang Ear Shaft	2
NO 20	Shaft Basket	2
NO 21	Exhaust Water Shaft	2
NO 22	Inner Hexagon Screws M6*25	12
NO 23(H)	6207 Basement Assem	4
NO 24	Inner Hexagon Screws M8*20	16
NO 25	Seal Ring	4
NO 26(I)	Grinding Plate Assem	4

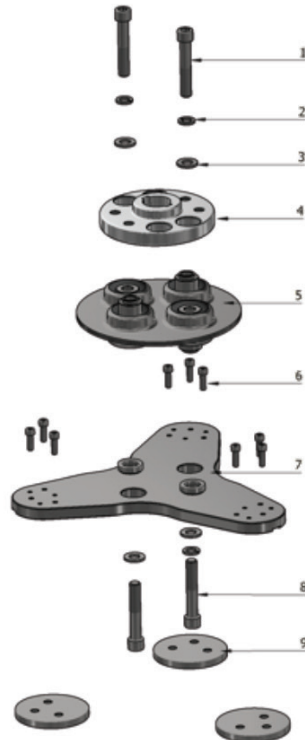
WE-2618P 12(F) TRANSITION SHAFT EXPLOSION



NO	NAME	QUANTITY
NO 1	Transition Shaft	4
NO 2	Jump Ring	4
NO 3	Bearing 6204	4
NO 4	Z34 Gear	4
NO 5	Transition Shaft Gasket	4

WE-2618P 13 (G) SECOND DRIVING SHAFT EXPLOSION


NO	NAME	QUANTITY
NO 1	6207 Upper Bearing Base	4
NO 2	6207 Bearing	4
NO 3	Z95 Gear	4
NO 4	Pin 10*8*25	12
NO 5	Second Driving Shaft	4
NO 6	O Ring	8
NO 7	6207 Down Bearing Base	4
NO 8	6207 Bearing	4
NO 9	Seal Ring 40*60*8	8
NO 10	6207 Basal Base Cover	4
NO 11	Inner Hexagon Screw M8*20	16
NO 12	Seal Ring	4
NO 13	Screw M18	4

WE-2618P 26 (I) GRINDING PLATE EXPLOSION


NO	NAME	QUANTITY
NO 1	Inner Hexagon Screw M12*70	8
NO 2	Spring Gasket M12	8
NO 3	Gasket M12	8
NO 4	Base Of Grinding Pawls	4
NO 5	Buffering Plate	4
NO 6	Inner Hexagon Screw M6*20	9
NO 7	Grinding Plate	1
NO 8	Inner Hexagon Screw M12*70	8
NO 9	Velcro Plate	12

7. WARRANTY

Warrior Equipment warrants, from the time of delivery and receipt by the original customer, new and unused equipment sold by Warrior Equipment or Warrior Equipment distributors. Goods shall be free from defect in workmanship and materials. Motor, Gearbox Gears, and VFD Inverter are covered for a period of 1 year or 300 hours, whichever comes first. If the product does not function satisfactorily during this period, Warrior Equipment will return the product to full working order for normal use which the product is intended for, with no charge for labor or spare parts, according to the following conditions:

1. The warranty only applies to persons that have legal right to the equipment during the warranty period.
2. The manufacturer's undertaking is limited to the repair of defective parts or the replacement of these according to the manufacturer's assessment. Costs and risks for transport as well as dismantling and reinstallation of the product / products and other direct or indirect costs, associated with the repair in question, are not covered by this warranty.
3. Periodic inspections, adjustments, maintenance work and changes are not covered by the warranty.
4. Warrior Equipment is not liable for any damages to grinding discs or other similar equipment.
5. The warranty only applies to material and design deficiencies and does not apply in the following cases:
 - Damage caused through accidents, carelessness, changes, use of spare parts or grinding tools that are not original components, or incorrect use and installation.
 - Damage caused by lightning, water, fire, vandalism, incorrect mains voltage, incorrect ventilation or other causes that lie outside of the manufacturer's control.
 - Unclaimed Damage caused during shipping. All shipments are insured by the shipper until the receiver signs freight company's release paper. Be sure to inspect before signing. If damaged mark clearly on paper and call us immediately.
6. Warrior Equipment reserves the right to modify the design or make improvements without obligation to change previously manufactured products.
7. All warranty repairs must be carried out by Warrior Equipment or by a Warrior Equipment accredited repair workshop. Costs for repairs, carried out by an unauthorized workshop, will not be reimbursed by Warrior Equipment. If such repairs damage this product these are not covered by the warranty agreement.
8. Warrior Equipment is not be liable for shipping / transportation cost for repairs.
9. See Warrior Care for extended warranty coverage.

8. INDOOR PROPANE ENGINE SUPPLEMENTAL MANUAL

INTRODUCTION

This Operator's Manual provides important information about safety, operation, transportation, storage maintenance, and warranty of your propane engine and propane cylinders.

SAFETY HAZARD INTENSITY LEVEL

The following terms and symbols are used to identify statements of potential hazards which affect safety of yourself and others. Read and observe all safety statements found on this Operator Manual and on your engine.

 **DANGER**

The signal word **DANGER** indicates a hazardous situation which, if not avoided according to the instruction found in this Operator Manual or on your engine, will result in death or serious bodily injury.

 **WARNING**

The signal word **WARNING** indicates a hazardous situation which, if not avoided according to the instruction found in this Operator Manual or on your engine, could result in death or serious bodily injury.

 **CAUTION**

The signal word **CAUTION** indicates a hazardous situation which, if not avoided according to the instruction found in this Operator Manual or on your engine, could result in minor or moderate injury or damage to your engine or property.

IMPORTANT SAFETY INSTRUCTIONS

DANGER:

- Propane is a highly flammable fuel. Cigarette lighters, pilot lights, and any other sources of ignition can create an explosion when in contact with propane. All sources of ignition should be extinguished or removed entirely from the work area. **DO NOT SMOKE** in the vicinity of a propane powered engine or propane cylinder. If you smell propane gas, shut off the engine. Determine the source of the leak before using it again. **NEVER** vent propane gas inside a building. It is **UNLAWFUL** to store a propane cylinder inside a building.
- Severe burn or injury could occur if you touch the hot muffler or exhaust pipe. **DO NOT TOUCH THE HOT MUFFLER OR EXHAUST PIPE.**
- The combustion of propane by this engine produces carbon monoxide, a deadly, colorless, odorless, poisonous gas. This engine is specifically calibrated to operate at a very "lean" air/fuel ratio which minimizes the production of carbon monoxide. Additionally, a catalyst muffler is provided with this engine which specifically targets and eliminates any remaining carbon monoxide, making it safe to operate indoors.
 - **DO NOT OPERATE THIS ENGINE WITHOUT THE CATALYST MUFFLER.**
 - **DO NOT TAMPER WITH REGULATOR OR OTHER SETTINGS WHICH WOULD ALTER AIR/FUEL RATIO.**
 - **INSURE ANY INDOOR SITE OF USE HAS ADEQUATE VENTILATION WHICH MEETS INDUSTRY STANDARDS.**

8. INDOOR PROPANE ENGINE SUPPLEMENTAL MANUAL

WARNING:

- Failure to read the Operator Manual prior to operating or attempting any service or maintenance procedure to your engine could result in injury to you or others, or damage to the engine or to other property. You must have training in the operation of this engine before using it. If you or your operator/operators cannot read English, have this manual explained fully before attempting to operate this engine.
- Any alterations or modifications of this engine could result in damage to the engine or injury to the operator or other bystanders. Alterations or modifications not authorized by the manufacturer voids any and all warranties and liabilities.
- To avoid injury or property damage, DO NOT leave the engine where it can be tampered with or started by persons untrained in its operation.
- DO NOT leave the engine running unattended.
- Operating an engine that has loose parts could result in injury or property damage. DO NOT operate this engine if there are loose parts. Inspect the engine for loose parts frequently. This will promote safe operation and a long engine life.
- Keep bystanders away from the engine while it is in operation.
- Injury to the eyes and/or body can occur if protective clothing and/or equipment is not worn while using this engine. Always wear safety goggles and safety clothing while using this engine.
- Long or continuous exposure to high noise levels may cause permanent hearing loss. Always wear hearing protection while using this engine.
- Injury to the operator or bystanders could occur if the engine is running. Never attempt to make engine adjustments while the engine is running.
- Dangerous carbon monoxide emissions from this engine will increase greatly due to a dirty air cleaner. Follow the engine manufacturer's air cleaner service instructions.

CAUTION:

- Overfilling propane cylinders is the number one cause of damage to the propane fuel system. This fuel system is designed to run off vapor propane, not liquid propane. When the cylinder is overfilled, liquid propane will enter the fuel system and can damage lock-off and regulator, in addition to causing the engine to run poorly or not at all. This voids the warranty on affected parts of the engine. To avoid problems, read and understand fully, the section "FILLING PROPANE CYLINDERS".
- OVERHEATING is a major cause of engine failure. Keep the engine clean and free of debris build up.
- Low oil levels and dirty oil account for most of the other failures. Follow the engine manual's recommended oil change schedule.

ABOUT PROPANE

- Propane is flammable and commonly used as a fuel.
- The molecular formula of propane is C_3H_8 , and it is in the family of liquefied petroleum gases (LP gases). The other LP gases include butane, propylene, butadiene, butylene, isobutylene and mixtures thereof.
- Propane is commonly available and has proven to be a dependable, safe, economical, and clean burning fuel. It can be used as a household fuel, industrial fuel, and fuel for internal combustion engines. Propane has been used as a fuel since 1910.
- At atmospheric pressure, propane boils at -44 degrees Fahrenheit, meaning it typically exists as a vapor. However, when contained under pressure, such as in a propane cylinder, it can exist as a liquid.
- Propane is naturally odorless, but includes an additive odorant, usually mercaptan, which gives it a distinct odor similar to rotten eggs or skunk.
- Vapor propane is heavier than air, meaning it will settle in low areas such as along the ground or in drains.

8. INDOOR PROPANE ENGINE SUPPLEMENTAL MANUAL**PROPANE CYLINDERS (TANKS)**

WARNING: NEVER use a cylinder not intended engine fuel applications. DO NOT substitute cylinders that are used with a barbecue grill, etc.

Propane cylinders are constructed according to ASME and Federal DOT #4ET20 pressure safety codes. All valves and fittings are UL Listed. Propane gas is noncorrosive and will not rust the inside of a cylinder. It is recommended to have propane cylinders inspected regularly during re-fill by an authorized National LP Gas Association propane dealer. The fuel cylinder is supplied directly from the manufacturer and is void of propane.

Propane Cylinder Configurations

Propane cylinders are constructed to function in specific configurations. The primary configuration options are:

- Propane Withdrawal: Vapor or Liquid
- Cylinder Orientation: Horizontal or Vertical

IMPORTANT: Different cylinder configurations are not interchangeable.

All LEHR engines use **Vapor cylinders**, and the orientation can be either Horizontal or Vertical.

CAUTION:

- Do not use propane cylinders that are liquid withdrawal cylinders, such as cylinders for fork lift trucks or other liquid withdrawal applications.
- Always install the propane cylinder in the proper orientation, which is identified by a label that say "THIS SIDE UP" or equivalent.
- Failure to use a proper cylinder or failure to install cylinder in proper orientation will result in liquid propane withdrawal and cause damage the regulator.

8. INDOOR PROPANE ENGINE SUPPLEMENTAL MANUAL**FILLING PROPANE CYLINDERS****WARNING:**

- Propane cylinders should only be filled by your propane provider or by individuals who have been properly trained and certified.
- Escaping propane can freeze skin and cause frostbite and damage eyesight. Always wear safety gloves and safety glasses when filling propane cylinders.
- DO NOT overfill cylinders.
- DO NOT tamper with cylinder gauges or safety relief valves.
- At time of fill, ensure tank is in operable condition and meets all certification requirements. Discontinue use of any cylinder that is damaged or rusted or does not comply with certification requirements. Your propane service company will assist with compliance.

The maximum fill volume of a propane cylinder is ALWAYS considered 80% of the total cylinder volume to allow for expansion and to ensure proper vapor withdrawal from the cylinder.

For example, if your propane cylinder is referred to as a "20 lb cylinder", this means that when the propane cylinder is 80% full, the weight of the propane is 20 lb.

Cylinders should be filled in the vertical position.

When filling a propane cylinder, the fixed liquid level gauge should be opened (unscrewed counterclockwise) so it can be used to determine when propane has reached 80% full. As propane is added during filling, vapor will escape the small hole in this gauge. When the cylinder reaches 80% full, the escaping propane will turn to liquid propane. When this happens, the filling should be immediately stopped and the gauge should be closed (turned clockwise).

CAUTION: Always use HD-5 grade propane to operate this engine.

CAUTION: Propane cylinders must be purged at the time of the first fill. Your propane suppliers should be familiar with this operation and will provide this service.

Symptoms of a non-purged cylinder:

- Relief valve opens due to over pressurized cylinder creating hazardous situation.
- Moisture in the cylinder.
- Powered engine operates initially but shuts down when propane mixture becomes too lean.

STORING & TRANSPORTING PROPANE CYLINDERS

The NFPA Technical Committee prohibits the storage of propane cylinders in buildings. Propane cylinders 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 cylinders in small enclosed areas. Cylinders must be stored in a secure, tamper-proof storage enclosure that provides safety from accident or vandalism.

Propane cylinders should always be transported either secured to the machine using cylinder straps, or secured in an upright position during transportation.

8. INDOOR PROPANE ENGINE SUPPLEMENTAL MANUAL

ENGINE OPERATION

This section details specific instructions for operating your engine with a propane fuel system. For general engine operation instructions and procedures, refer to the Engine Operator Manual and/or OEM Equipment Manual.

Preparing the Engine for Use

1. Check engine oil level according to Engine Operator Manual
2. Ensure propane cylinder has been properly filled according to section "Filling Propane Cylinders"
3. Ensure that propane fuel system has been correctly and completely installed according to Installation Instructions included with your propane fuel system.
4. Check for any sign of wear or damage such as cracks, corrosion, punctures, etc. to the fuel system including propane cylinder, fuel hoses, fittings, regulator, carburetor, and electrical components.
5. Ensure main service valve on propane cylinder is closed (turned clockwise).
6. Screw the REGO fitting of the high-pressure propane hose onto the cylinder service valve and hand tighten. This connection **MUST** be tight and secure and fully seated to function.

Starting the Engine (Hot or Cold)

1. Slowly open the main service valve on propane cylinder to the fully open position.
2. Set throttle to Idle position.
3. Engage starter for a maximum of 6 seconds or until the engine fires. **CAUTION:** Serious starter damage will result if starter is engaged for more than 6 seconds, and will void warranty.
4. Once engine has started, operate at half throttle for a warm-up period for 3-5 minutes before applying load to the engine.

NOTE: If the engine fails to start, see the Troubleshooting Guide.

Stopping the Engine

Follow these stopping procedures under normal use, including when the engine will be stored or transported:

1. Make sure engine is disengaged from blade or other load, if applicable.
2. Set throttle to Idle position.
3. Close the service valve on propane cylinder (turn clockwise fully).
4. Allow the remaining propane in the regulator and fuel hose to be consumed by engine, until engine stops.
5. Turn engine key switch to off.
6. Disconnect fuel line from propane cylinder.
7. If storing or transporting the machine, follow instructions in section "STORING & TRANSPORTING PROPANE CYLINDERS"

Immediately Stopping the Engine

WARNING: Follow these stopping procedures **ONLY** when an immediate stop is required for any reason.

1. Turn engine key switch to off.
2. Close the service valve on propane cylinder (turn clockwise fully).

8. INDOOR PROPANE ENGINE SUPPLEMENTAL MANUAL**ENGINE MAINTENANCE / ADJUSTMENTS**

WARNING: To ensure personal safety, adjustments should ONLY be made by a qualified LPG system technician or an authorized service center.

General Engine Maintenance

For general engine maintenance instructions and service intervals, refer to Engine Operator Manual.

Propane Fuel System Maintenance

The following service procedures should be conducted at every 300 hour interval:

- Inspect all fuel lines, fittings, and clamps

Spark Plug Gap

Using propane fuel typically requires the spark plug gap to be set to 0.025". This is less than engines running gasoline fuel, due to different voltage requirements.

8. INDOOR PROPANE ENGINE SUPPLEMENTAL MANUAL
TROUBLESHOOTING GUIDE

These troubleshooting steps are specific for propane fuel system issues. For other engine issues, refer to the Engine Operator Manual and/or OEM Equipment Manual.

When troubleshooting, always first check for simple causes which may at first seem too obvious. For example, an engine unable to start may be caused by an empty propane cylinder or an unopened service valve.

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
Engine does not turn over	Weak or dead battery	Recharge or replace battery.
	Ignition switch faulty	Check or replace switch.
	Safety interlock switch (operator presence control) not engaged	Engage safety interlock switch (operator presence control) prior to engaging starter.
	Faulty safety interlock switch (operator presence control)	Check or replace safety interlock switch (operator presence control).
	Numerous other causes	See engine manual or dealer.
Engine turns over, but does not start or run	Propane cylinder is empty	Refill cylinder or replace with full cylinder.
	Main fuel service valve on propane cylinder is closed	Manually open main fuel service valve on propane cylinder.
	REGO fitting (fuel hose to cylinder connector) is not fully seated	Manually close main fuel service valve. Disconnect REGO fitting. Reconnect and hand tighten to ensure secure connector is fully seated. Slowly open main fuel service valve.
	Propane cylinder OPD (overflow protection device) has been triggered.	Manually close main fuel service valve. Disconnect REGO fitting. Wait 5 seconds. Reconnect and hand tighten to ensure secure connector is fully seated. Slowly open main fuel service valve.
	Propane regulator out of adjustment or faulty	Have certified dealer inspect regulator and adjust or replace.
	Poor quality propane causes deposits of particles in regulator or valves	Have certified dealer inspect regulator and clean or replace. Service engine valves according to engine manual instructions. Contact propane supplier to provide clean HD5 propane.
	Spark plug not firing	Replace spark plug.
	Faulty vacuum switch	Check or replace vacuum switch.
	Faulty oil pressure switch	Check or replace oil pressure switch.
	Numerous other causes	See engine manual or dealer.
Propane regulator freezes and prevents flow of propane	Liquid propane is entering regulator	<ul style="list-style-type: none"> • Ensure cylinder is designed for VAPOR withdrawal and the correct orientation (horizontal or vertical). • Ensure cylinder is installed in correct orientation. Make sure locator pin is inserted into positioning slot on cylinder collar, and follow orientation arrow indications/labels on cylinder. • Ensure propane cylinder is not overfilled. • Ensure use of application does not allow operating angles to exceed equipment OEM instructions.
	Low ambient temperature	It is normal condition for propane regulator to operate at colder temperature than ambient, which may cause condensation or frost formation depending on ambient temperature and humidity levels.

8. INDOOR PROPANE ENGINE SUPPLEMENTAL MANUAL

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
Propane cylinder forms condensation or ice	Propane fuel is leaking	Close propane main fuel service valve. Check fuel lines, REGO fitting, and regulator for any leaks.
	Propane consumption is abnormally high	Refer to section "Inconsistent or short cylinder run time" below.
	Low ambient temperature	It is normal condition for propane cylinder to operate at colder temperature than ambient, which may cause condensation or ice formation depending on ambient temperature and humidity levels.
Inconsistent or short cylinder run time	Propane cylinders not filled consistently	Use cylinders that are properly and consistently filled to the 80% maximum level.
	Propane regulator out of adjustment or faulty	Have certified dealer inspect regulator and adjust.
	Dirty air filter	Service air filter.
	Excessive engine load	See engine manual or dealer.
	Excessive engine RPM	See engine manual or dealer.
Engine backfires, difficult to start, reduced power, over-heating, or other poor performance	Propane regulator out of adjustment or faulty	Have certified dealer inspect regulator and adjust.
	Propane flow restricted	Refer to section "Engine turns over, but does not start or run", above.
	Dirty air filter	Service air filter.
	Ignition system faulty	Check or replace ignition coils.
	Poor compression	See engine manual or dealer.
	Engine timing issue	See engine manual or dealer.
	Cooling Fins Clogged	See engine manual or dealer.
	Numerous causes	See engine manual or dealer.

ADDITIONAL SUPPORT

For additional questions or support, contact LEHR directly at:

LEHR, LLC
 7781 S. Little Egypt Rd., Stanley, NC 28164
 Telephone: 1-(704) 827-9895
support@golehr.com

8. INDOOR PROPANE ENGINE SUPPLEMENTAL MANUAL**EMISSION CONTROL SYSTEM**

To protect the environment the manufacturer has incorporated (1) crankcase emission and (2) exhaust emission control systems (EM) in compliance with applicable regulations of the United States Environmental Protection Agency and California Air Resources Board.

1. **Crankcase Emission Control System.** A sealed-type crankcase emission control system is used to eliminate blow-by gases. The blow-by gases are led to the breather chamber through the crankcase where it is led to the air cleaner. Oil is then separated from the gases while passing through the inside of the breather chamber from the crankcase, and then returned back to the bottom of crankcase.
2. **Exhaust Emission Control System.** The exhaust emission control system applied to this engine consists of a carburetor and an ignition system having optimum ignition timing characteristics. The carburetor has been calibrated to provide lean air/propane mixture characteristics and optimum propane economy with a suitable air cleaner and exhaust system.

TAMPERING WITH EMISSION CONTROL SYSTEM PROHIBITED

Federal law and California State law prohibits the following acts or the causing thereof: (1) the removal or rendering inoperative by any person other than for purposes of maintenance, repair, or replacement, of any device or element at design incorporated into any new engine for the purpose of emission control prior to its sale or delivery to the ultimate purchaser or while it is in use, or (2) the use of the engine after such device or element of design has been removed or rendered inoperative by any person.

Among acts presumed to constitute tampering involve the parts/systems listed below:

- Carburetor and internal parts
- Spark plugs
- Magneto or electronic ignition system
- Propane filter element
- Air cleaner elements
- Crankcase
- Cylinder heads
- Breather chamber and internal parts
- Intake pipe and tube

8. INDOOR PROPANE ENGINE SUPPLEMENTAL MANUAL**EMISSION CONTROL WARRANTY STATEMENT**

EPA & CALIFORNIA EMISSION CONTROL WARRANTY STATEMENT

Your Warranty Rights and Obligations

The California Air Resources Board (CARB), the U.S. Environmental Protection Agency (EPA), and LEHR, LLC (herein "LEHR") are pleased to explain the emissions control system warranty on your 2015 small off-road engine (SORE). In California, new SORE must be designed, built and equipped to meet the State's stringent anti-smog standards. LEHR must warrant the emission control system on your SORE for the period of time listed below provided there has been no abuse, neglect or improper maintenance of your SORE.

Your emission control system may include parts such as the carburetor, fuel-injection system, the ignition system, catalytic converter, fuel tanks, fuel lines, fuel caps, valves, canisters, filters, vapor hoses, clamps, connectors, and other associated emission-related components.

Where a warrantable condition exists, LEHR will repair your SORE at no cost to you including diagnosis, parts and labor.

Manufacturer's Warranty Coverage

The emission control system is warranted for 1000 hours (JLHRS.9992EM family) and 500 hours (JLHRS.6032EM family). If any emission-related part on your equipment is defective, the part will be repaired or replaced by LEHR.

Owner's Warranty Responsibilities

As the small off-road engine (SORE) owner, you are responsible for the performance of the required maintenance listed in your owner's manual. LEHR recommends that you retain all receipts covering maintenance of your SORE engine, but LEHR cannot deny warranty solely for the lack of receipts or for your failure to ensure the performance of all scheduled maintenance.

As the SORE owner you should however be aware that LEHR may deny your warranty if your SORE or its part has failed due to abuse, neglect, improper maintenance or unapproved modification.

You are responsible for presenting your utility equipment engine to a LEHR distribution center as soon as the problem exists. The warranty repairs should be completed within a reasonable amount of time, not to exceed 30 days. If you have any questions regarding your warranty rights and responsibilities, you should contact LEHR at 1-(704) 827-9895 or via e-mail at support@golehr.com.

LEHR, LLC
7781 South Little Egypt Road
Stanley, NC 28164
USA

General Emissions Warranty Coverage

LEHR warrants to the ultimate purchaser and each subsequent purchaser that the equipment is:

Designed, built and equipped so as to conform with all applicable regulations; and

Free from defects in materials and workmanship that cause the failure of a warranted part to be identical in all material respects to that part as described in the application for certification.

The warranty period begins on the date the equipment is delivered to an ultimate purchaser or first placed into service. The warranty period is 1000 hours (FNYXS.9992EM family) and 500 hours (FNYXS.6032EM family).

Subject to certain conditions and exclusions as stated below, the warranty on emission-related parts is as follows:

8. INDOOR PROPANE ENGINE SUPPLEMENTAL MANUAL

(1) Any warranted part that is not scheduled for replacement as required maintenance in the written instructions supplied, is warranted for the warranty period stated above. If the part fails during the period of warranty coverage, the part will be repaired or replaced by LEHR according to subsection (4) below. Any such part repaired or replaced under warranty will be warranted for the remainder of the period.

(2) Any warranted part that is scheduled only for regular inspection in the written instructions supplied is warranted for the warranty period stated above. Any such part repaired or replaced under warranty will be warranted for the remaining warranty period.

(3) Any warranted part that is scheduled for replacement as required maintenance in the written instructions supplied is warranted for the period of time before the first scheduled replacement date for that part. If the part fails before the first scheduled replacement, the part will be repaired or replaced by LEHR according to subsection (4) below. Any such part repaired or replaced under warranty will be warranted for the remainder of the period prior to the first scheduled replacement point for the part.

(4) Repair or replacement of any warranted part under the warranty provisions herein must be performed at a warranty station at no charge to the owner.

(5) Notwithstanding the provisions herein, warranty services or repairs will be provided at all of our distribution centers that are franchised to service the subject engines or equipment.

(6) The SORE owner will not be charged for diagnostic labor that is directly associated with diagnosis of a defective, emission-related warranted part, provided that such diagnostic work is performed at a warranty station.

(7) LEHR is liable for damages to other engine or equipment components proximately caused by a failure under warranty of any warranted part.

(8) Throughout the SORE warranty period stated above, LEHR will maintain a supply of warranted parts sufficient to meet the expected demand for such parts.

(9) Any replacement part may be used in the performance of any warranty maintenance or repairs and must be provided without charge to the owner. Such use will not reduce the warranty obligations of LEHR.

(10) Add-on or modified parts that are not exempted by the Air Resources Board may not be used. The use of any non-exempted add-on or modified parts by the ultimate purchaser will be grounds for disallowing a warranty claims. LEHR will not be liable to warrant failures of warranted parts caused by the use of a nonexempted add-on or modified part.

Warranted Parts

The repair or replacement of any warranted part otherwise eligible for warranty coverage may be excluded from such warranty coverage if LEHR demonstrates that the SORE has been abused, neglected, or improperly maintained, and that such abuse, neglect, or improper maintenance was the direct cause of the need for repair or replacement of the part. That notwithstanding, any adjustment of a component that has a factory installed, and properly operating, adjustment limiting device is still eligible for warranty coverage. The following emission warranty parts are covered:

- (1) Catalytic converter
- (2) Fuel system: Carburetor, pressure regulator and fuel lock off
- (3) Ignition system
- (4) Intake system including pre-filter
- (5) Exhaust manifold and muffler

9. CONTACT US

Warrior Equipment, a division of Incredible Products, LLC • 1101 Lincoln Ave., Wapakoneta, Ohio 45895 • Office: 1-877-743-9732