

# OPERATION AND PARTS MANUAL



## MODEL MQ62TK SERIES TRASH PUMP (KOHLER KDW1404-5010 DIESEL ENGINE)

Revision #0 (01/30/18)



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 **WARNING** 

**CALIFORNIA — Proposition 65 Warning**

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects and other reproductive harm.

## REPORTING SAFETY DEFECTS

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If you believe that your vehicle has a defect that could cause a crash or could cause injury or death, you should immediately inform the National Highway Traffic Safety Administration (NHTSA) in addition to notifying Multiquip Inc. at 1-800-421-1244.

If NHTSA receives similar complaints, it may open an investigation, and if it finds that a safety defect exists in a group of vehicles, it may order a recall and remedy campaign. However, NHTSA cannot become involved in individual problems between you, your dealer, or Multiquip Inc.

To contact NHTSA, you may either call the Vehicle Safety Hotline toll-free at 1-888-327-4236 (TTY: 1-800-424-9153), go to <http://www.safercar.gov>, or write to:

Administrator  
NHTSA  
1200 New Jersey Avenue, SE  
Washington, DC 20590

You can also obtain information about motor vehicle safety from <http://www.safercar.gov>.

# TABLE OF CONTENTS

## MQ62TK Series Trash Pump

Proposition 65 Warning .....	2
Reporting Safety Defects.....	3
Table Of Contents.....	4
Parts Ordering Procedures.....	5
Training Checklist .....	6
Daily Pre-Operation Checklist .....	7
Safety Information .....	9–13
Specifications .....	14–15
Dimensions .....	16–17
General Information.....	18
Pump Components.....	2–21
Engine Components.....	22
Control Panel Components .....	23
Inspection .....	24–26
Setup .....	27
Operation.....	28–29
Engine Maintenance.....	31–34
Pump Maintenance.....	35–38
Engine Troubleshooting .....	39–40
Pump Troubleshooting .....	41
Wiring Diagram.....	42–43
Wiring Diagram Component Locator .....	44
Explanation Of Code In Remarks Column.....	46
Suggested Spare Parts .....	47

## Component Drawings

Nameplate And Decals Assembly .....	48–49
Trash Pump Assembly.....	50–53
Pump Trailer Mount Assembly .....	54–55
Pump Skid Mount Assembly.....	56–57
Engine Trailer Mount Assembly .....	58–59
Engine Skid Mount Assembly.....	60–61
Throttle/Relay Assembly .....	62–63
Controller Assembly .....	64–65
Trailer TRLRMPXF Assembly .....	66–67
Axle Assembly .....	68–69
Fuel Assembly (TRLRMPXF) .....	70–71
Fuel Assembly (Skid).....	72–73
Battery Assembly.....	74–75
Wire Harness Assembly .....	76–77
Engine Service Parts.....	78–79
Terms And Conditions Of Sale — Parts .....	80

### NOTICE

Specifications and part numbers are subject to change without notice.

## TRAINING CHECKLIST

Training Checklist			
No.	Description	OK?	Date
1	Read operation manual completely.		
2	Machine layout, location of components, engine check.		
3	Fuel system, refueling procedure.		
4	Pump priming procedure.		
5	Emergency stop procedure.		
6	Engine startup procedure.		
7	Lifting of machine (lifting bail).		
8	Pump applications (lift, uses, etc.)		
9	Suction strainer placement.		
10	Hose connections.		
11	Pump placement.		
12	Vacuum test procedure.		
13	Machine transport and storage.		
14	Pump cavity clean-out procedure.		

## DAILY PRE-OPERATION CHECKLIST

Daily Pre-Operation Checklist		✓	✓	✓	✓	✓	✓
1	Check engine oil level.						
2	Fuel level and clean fuel check.						
3	Check cooling fins and air flow.						
4	Check engine battery and cable connections.						
5	Hardware and damage check.						
6	Check vacuum pump seal oil.						
7	Check bearing housing oil level.						
8	Check pump seal.						

# SAFETY INFORMATION




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









## SAFETY MESSAGES

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

## SAFETY SYMBOLS

 <b>DANGER</b>
<p>Indicates a hazardous situation which, if not avoided, <b>WILL</b> result in <b>DEATH</b> or <b>SERIOUS INJURY</b>.</p>
 <b>WARNING</b>
<p>Indicates a hazardous situation which, if not avoided, <b>COULD</b> result in <b>DEATH</b> or <b>SERIOUS INJURY</b>.</p>
 <b>CAUTION</b>
<p>Indicates a hazardous situation which, if not avoided, <b>COULD</b> result in <b>MINOR</b> or <b>MODERATE INJURY</b>.</p>
<b>NOTICE</b>
<p>Addresses practices not related to personal injury.</p>

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

Symbol	Safety Hazard
	Lethal exhaust gas hazards
	Explosive fuel hazards
	Burn hazards
	Respiratory hazards
	Accidental starting hazards
	Eye and hearing hazards




# SAFETY INFORMATION

## GENERAL SAFETY

### ⚠ CAUTION



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

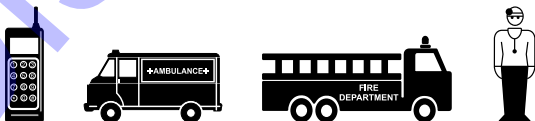


- **NEVER** operate this equipment when not feeling well due to fatigue, illness or when under medication. 
- **NEVER** operate this equipment under the influence of drugs or alcohol.



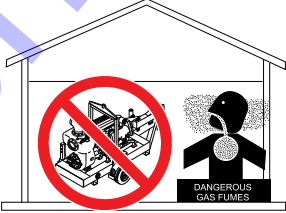
### NOTICE


- This equipment should only be operated by trained and qualified personnel 18 years of age and older.
- Whenever necessary, replace nameplate, operation and safety decals when they become difficult read.
- Manufacturer does not assume responsibility for any accident due to equipment modifications. Unauthorized equipment modification will void all warranties.
- **NEVER** use accessories or attachments that are not recommended by Multiquip for this equipment. Damage to the equipment and/or injury to user may result.
- **ALWAYS** know the location of the nearest fire extinguisher. 
- **ALWAYS** know the location of the nearest first aid kit. 
- **ALWAYS** know the location of the nearest phone or **keep a phone on the job site**. Also, know the phone numbers of the nearest ambulance, doctor and fire department. This information will be invaluable in the case of an emergency.




## PUMP SAFETY

### ⚠ DANGER

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

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

### ⚠ WARNING

- **NEVER** pump corrosive chemicals or water containing toxic substances. These fluids could create serious health and environmental hazards. Contact local authorities for assistance.
- **NEVER** open the priming plug when pump is hot. Hot water inside could be pressurized much like the radiator of an automobile. Allow pump to cool to the touch before loosening plug. The possibility exists of scalding, resulting in severe bodily harm. 
- **NEVER** operate the pump with closed discharge hose. The liquid could reach boiling temperatures, build pressure, and cause the casing to rupture or explode.
- **NEVER** disconnect any **emergency or safety devices**. These devices are intended for operator safety. Disconnection of these devices can cause severe injury, bodily harm or even death. Disconnection of any of these devices will void all warranties.

# SAFETY INFORMATION

## CAUTION

- **NEVER** lubricate components or attempt service on a running machine.
- **NEVER** block or restrict flow from discharge hose. Remove kinks from discharge line before starting pump. Operation with a blocked discharge line can cause water inside pump to overheat.

## NOTICE

- **ALWAYS** fill the pump casing with water before starting the engine. Failure to maintain water inside the pump housing will cause severe damage to the pump and mechanical seal.
- In winter drain water from pump housing to prevent freezing.
- **NEVER** start the pump with the clean-out cover removed. The rotating impeller inside the pump can cut or sever objects caught in it. Before starting the pump, check that the clean-out cover is securely fastened.
- **ALWAYS** keep the machine in proper running condition.
- **ALWAYS** ensure pump is on level ground before use.
- Fix damage to machine and replace any broken parts immediately.
- **ALWAYS** store equipment properly when it is not being used. Equipment should be stored in a clean, dry location out of the reach of children and unauthorized personnel.

## ENGINE SAFETY

### WARNING

- **DO NOT** place hands or fingers inside engine compartment when engine is running.
- **NEVER** operate the engine with heat shields or guards removed.
- **DO NOT** remove the engine oil drain plug while the engine is hot. Hot oil will gush out of the oil tank and severely scald any persons in the general area of the pump.



## CAUTION

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



## NOTICE

- **NEVER** run engine without an air filter or with a dirty air filter. Severe engine damage may occur. Service air filter frequently to prevent engine malfunction.
- **NEVER** tamper with the factory settings of the engine or engine governor. Damage to the engine or equipment can result if operating in speed ranges above the maximum allowable.



## FUEL SAFETY

### DANGER

- **DO NOT** start the engine near spilled fuel or combustible fluids. Fuel is extremely flammable and its vapors can cause an explosion if ignited.
- **ALWAYS** refuel in a well-ventilated area, away from sparks and open flames.
- **ALWAYS** use extreme caution when working with flammable liquids.
- **DO NOT** fill the fuel tank while the engine is running or hot.
- **DO NOT** overfill tank, since spilled fuel could ignite if it comes into contact with hot engine parts or sparks from the ignition system.
- Store fuel in appropriate containers, in well-ventilated areas and away from sparks and flames.
- **NEVER** use fuel as a cleaning agent.
- **DO NOT** smoke around or near the equipment. Fire or explosion could result from fuel vapors or if fuel is spilled on a hot engine.



# SAFETY INFORMATION

## BATTERY SAFETY (ELECTRIC START ONLY)

### DANGER

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



### WARNING

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



### CAUTION

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

## TRANSPORTING SAFETY

### CAUTION

- **NEVER** allow any person or animal to stand underneath the equipment while lifting.

### NOTICE

- Before lifting, make sure that the equipment parts are not damaged and screws are not loose or missing.
- For safe lifting and placement of the pump, utilize the lifting bail.
- **ALWAYS** shutdown engine before transporting.
- **NEVER** lift the equipment while the engine is running.
- Tighten fuel tank cap securely and close fuel cock to prevent fuel from spilling.
- Use one point suspension hook and lift straight upwards.
- **DO NOT** lift machine to unnecessary heights.
- **ALWAYS** tie down equipment during transport by securing the equipment with rope.
- Never allow any person or animal to stand underneath the equipment while lifting.

# SAFETY INFORMATION

## TOWING SAFETY


### ⚠ CAUTION

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

- Avoid sudden stops and starts. This can cause skidding, or jack-knifing. Smooth, gradual starts and stops will improve towing.
- Avoid sharp turns to prevent rolling.
- Trailer should be adjusted to a level position at all times when towing.
- Raise and lock trailer wheel stand in up position when towing.
- Place **chock blocks** underneath wheel to prevent **rolling** while parked.
- Place **support blocks** underneath the trailer's bumper to prevent **tipping** while parked.
- Use the trailer's swivel jack to adjust the trailer height to a level position while parked.

## ENVIRONMENTAL SAFETY

### NOTICE

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

# SPECIFICATIONS

<b>Table 1. Pump Specifications</b>	
Maximum Pumping Capacity	1,190 gpm (4,505 lpm)
Maximum Suction Lift *	25 ft. (7.6 m)
Maximum Total Head	111 ft. (33.8 m)
Maximum Pressure	48 psi (331 kPa)
Maximum Solids	3 in. (76 mm)
Suction and Discharge Diameter	6 in. (152 mm)
Dry Net Weight **	1,700 lb. (771.1 kg)

\* Based on pump operation at sea level. Maximum suction lift will be reduced at higher altitudes.

\*\* Trailer-mounted.

<b>Table 2. Engine Specifications</b>	
Engine Make	Kohler
Engine Model	KDW1404-5010
Engine Type	Liquid-cooled, diesel engine
Number of Cylinders	4
Displacement	83.72 in. <sup>3</sup> (1,372 cm <sup>3</sup> )
Bore x Stroke	2.95 in. x 3.10 in. (75 mm x 78 mm)
Max. Output	35.2 hp (26 kW) @ 2700 rpm
Max. Torque	8.57 kg/84 N·m (62 ft-lb.) @ 2000 rpm
Oil Type	SAE 15W-40 API service CD, CH, CI-4/SL
Oil Capacity	3.2 quarts (3.0 liters)
Lubricating System	Full pressure with full-flow filter
Fuel Type	ASTM D-975 1D or 2D, EN590, or equivalent diesel fuel
Fuel Capacity (Skid)	16 gal. (60.6 liters)
Fuel Capacity (Trailer)	28 gal. (106 liters)
Starting Method	12 VDC Electric start
Dimensions (L x W x H)	23.4 in. x 17.3 in. x 20.3 in. (593 mm x 439 mm x 516 mm)
Dry Net Weight	216 lb. (98 kg)

# SPECIFICATIONS

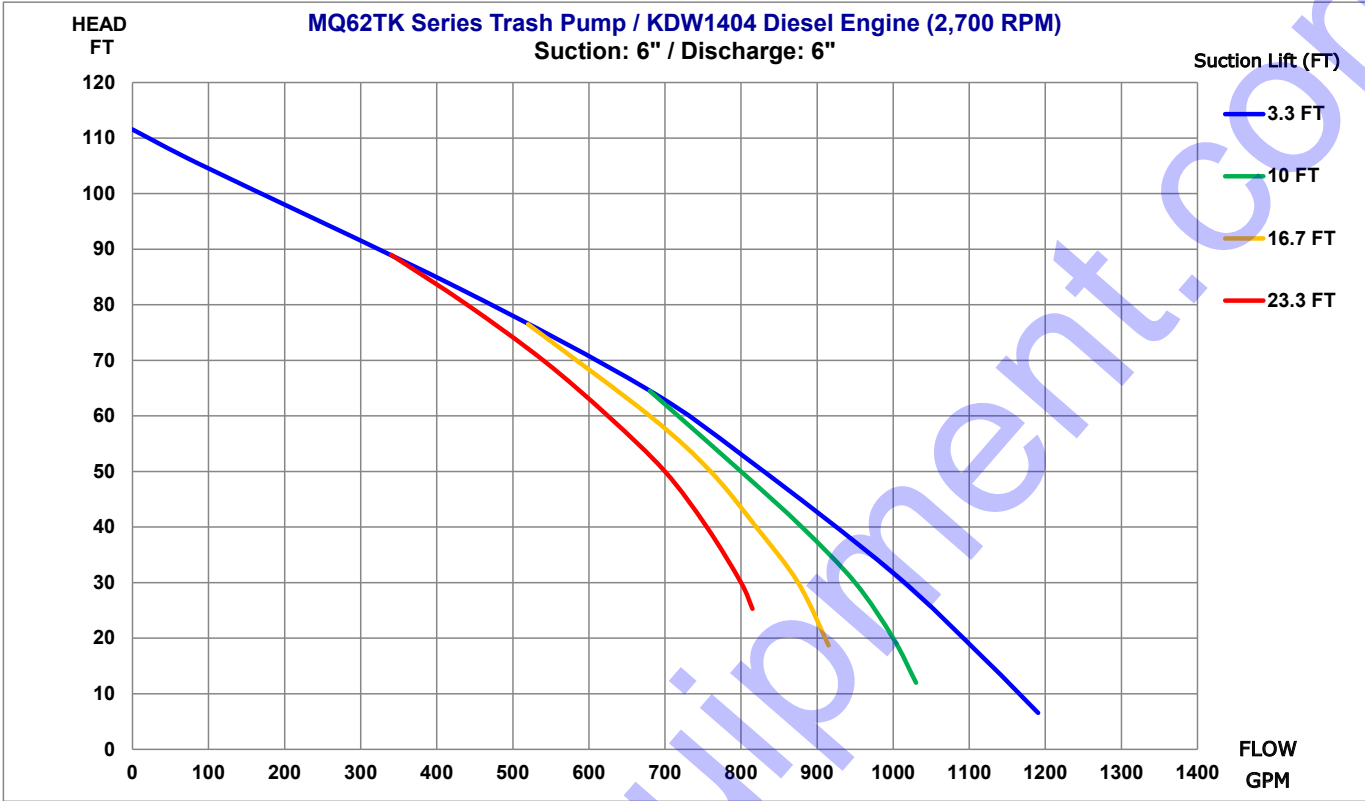


Figure 1. MQ62TK Series Performance Curve

## DIMENSIONS

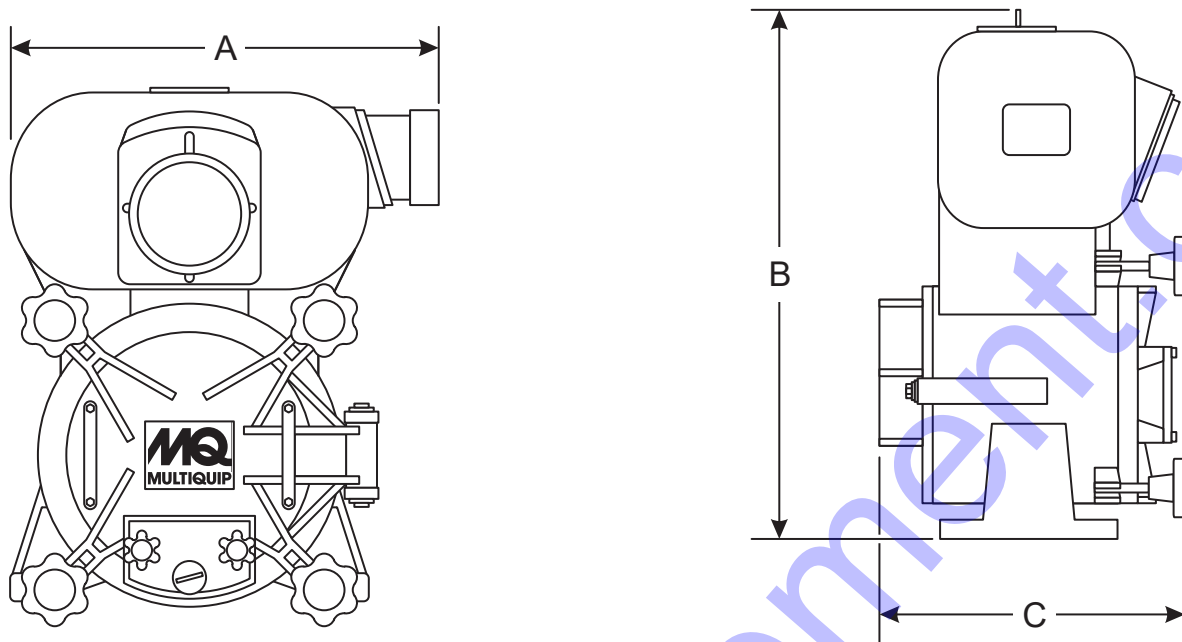


Figure 2. Pump Dimensions

Table 3. Dimensions	
Reference Letter	Dimension in. (mm)
A	29.5 (749)
B	34.5 (876)
C	19.8 (502)
D	67.5 (1,715)
E	55.3 (1,403)
F	54.5 (1,384)
G	21.5 (546)
H	100.5 (2,553)
I	50 (1,270)
J	22.5 (572)
K	7 (178)
L	43.5 (1,105)
M	58.8 (1,492)
N	30 (762)

# DIMENSIONS

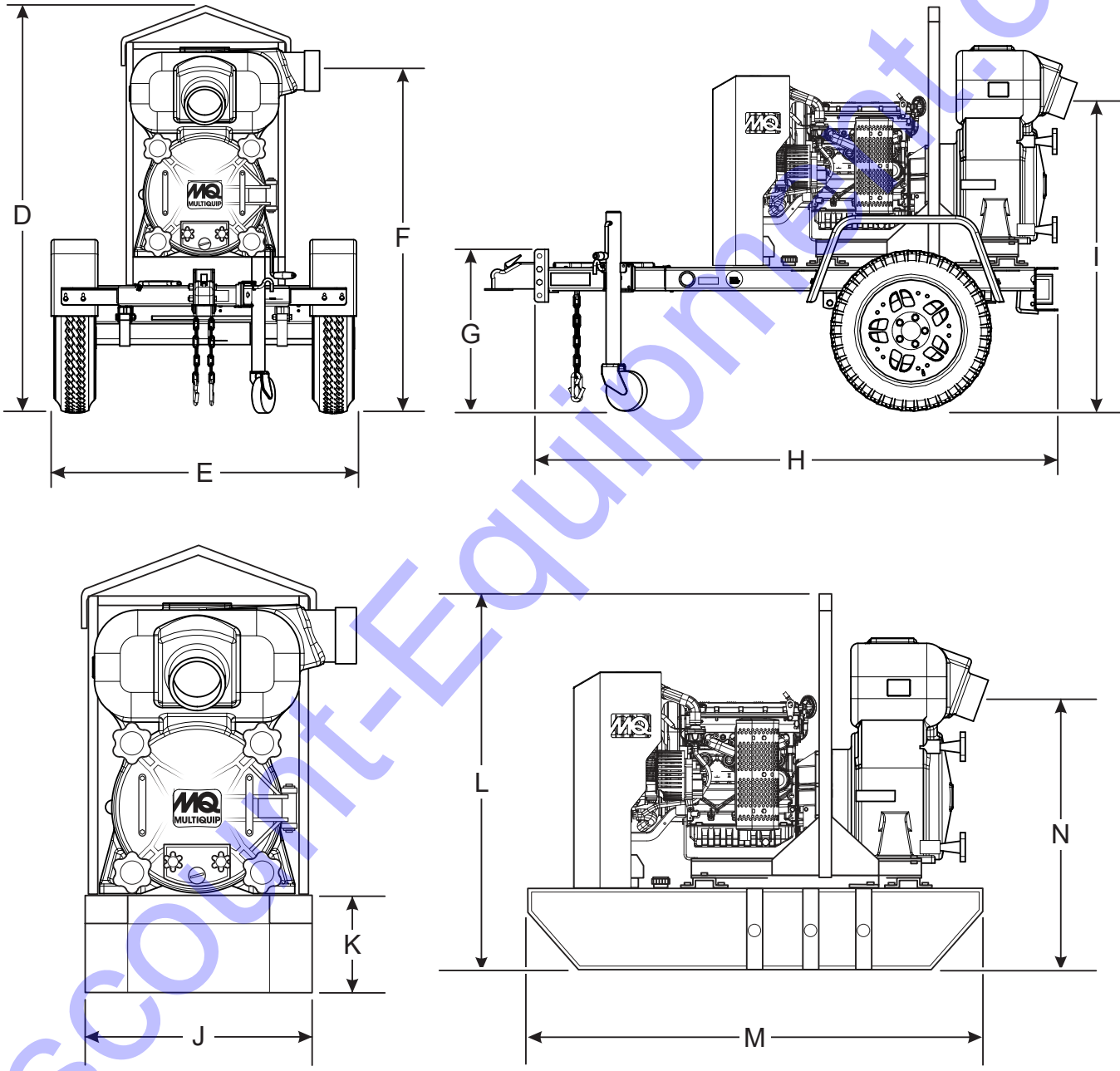


Figure 3. Trailer and Skid Mount Dimensions



## GENERAL INFORMATION

The MQ62TK series trash pump is a self-priming pump powered by a 35-horsepower, liquid-cooled, Kohler diesel engine. The pump's suction and discharge ports are six inches in diameter, enabling a discharge rate of approximately 1,190 gpm (4,505 lpm).

### TRASH PUMPS

Trash pumps derive their name from their ability to handle a greater amount of solid debris than standard centrifugal pumps. Trash pumps are unlikely to clog, as they can handle water containing 25% solids by weight, and can accommodate solids up to one-half the size of the discharge opening. If the pump does become clogged, it can be disassembled quickly without the use of tools to allow for debris removal.

### APPROVED TYPES OF FLUID TO PUMP

The MQ62TK series is approved to dewater/water fresh water fluids that may contain certain levels of debris. **The pump is not intended to pump salt water, strong alkalines, or low PH level fluids** that can cause premature failure to internal components.

### PUMP PRIMING

This wet-primed pump requires that the pump casing is first filled with water to assist with initial self-priming operations. Once a partial vacuum is created within the unit, the reduced atmospheric pressure allows water to flow through the suction line, and the centrifugal force of the impeller/volute assembly permits water to be expelled from the discharge ports.

**NEVER** attempt to operate the pump without first filling the main pump casing with clean water.

### PUMP PLACEMENT

**ALWAYS** place the pump in a level position on solid, stationary ground. Place blocks under the trailer's bumper to prevent the trailer from tipping, and place chock blocks behind each wheel to prevent the trailer from rolling.

**NEVER** place the pump on **soft soil**. The suction hose or pipe connection should always be checked for tightness and leaks. A small leak in the suction hose or fittings may prevent the pump from priming.

### SUCTION LIFT

The MQ62TK series trash pump has a maximum suction lift of 25 feet (7.6 meters) at sea level. To obtain the optimum suction lift, **ALWAYS** place the pump as close to the water as possible and use the shortest possible suction line.

### ELEVATION

The elevation at which the pump is operated impacts its performance. Due to decreased atmospheric pressure at higher altitudes, the pump's priming ability is reduced as elevation increases.

Pumps generally lose one foot of priming ability for every 1,000 feet (305 meters) of elevation above sea level.

For example, in Flagstaff, Arizona, where the elevation is approximately 7,000 feet (2,134 meters) above sea level, a pump with a suction lift of 25 feet (7.6 meters) at sea level will have a suction lift of only 18 feet (5.5 meters).

### MECHANICAL SEAL LUBRICATION

An oil-lubricated mechanical seal prevents water from seeping into the engine. The oil in the seal chamber lubricates the seal and prevents it from overheating. **NEVER** operate the pump without water in the casing as this may cause the seal to fail. See the **Maintenance** section of this manual for more information.

### PUMP MOUNTING OPTIONS

The MQ62TKT is mounted on a multipurpose trailer with a 28-gallon fuel tank.

The MQ62TKS is mounted on a reinforced steel skid assembly with a 16-gallon fuel tank (Figure 4).

### ACCESSORIES

Multiquip offers a complete line of fittings, hoses, and couplers for various pump applications. Refer to the parts list section of this manual for a complete list of accessories.

# PUMP COMPONENTS

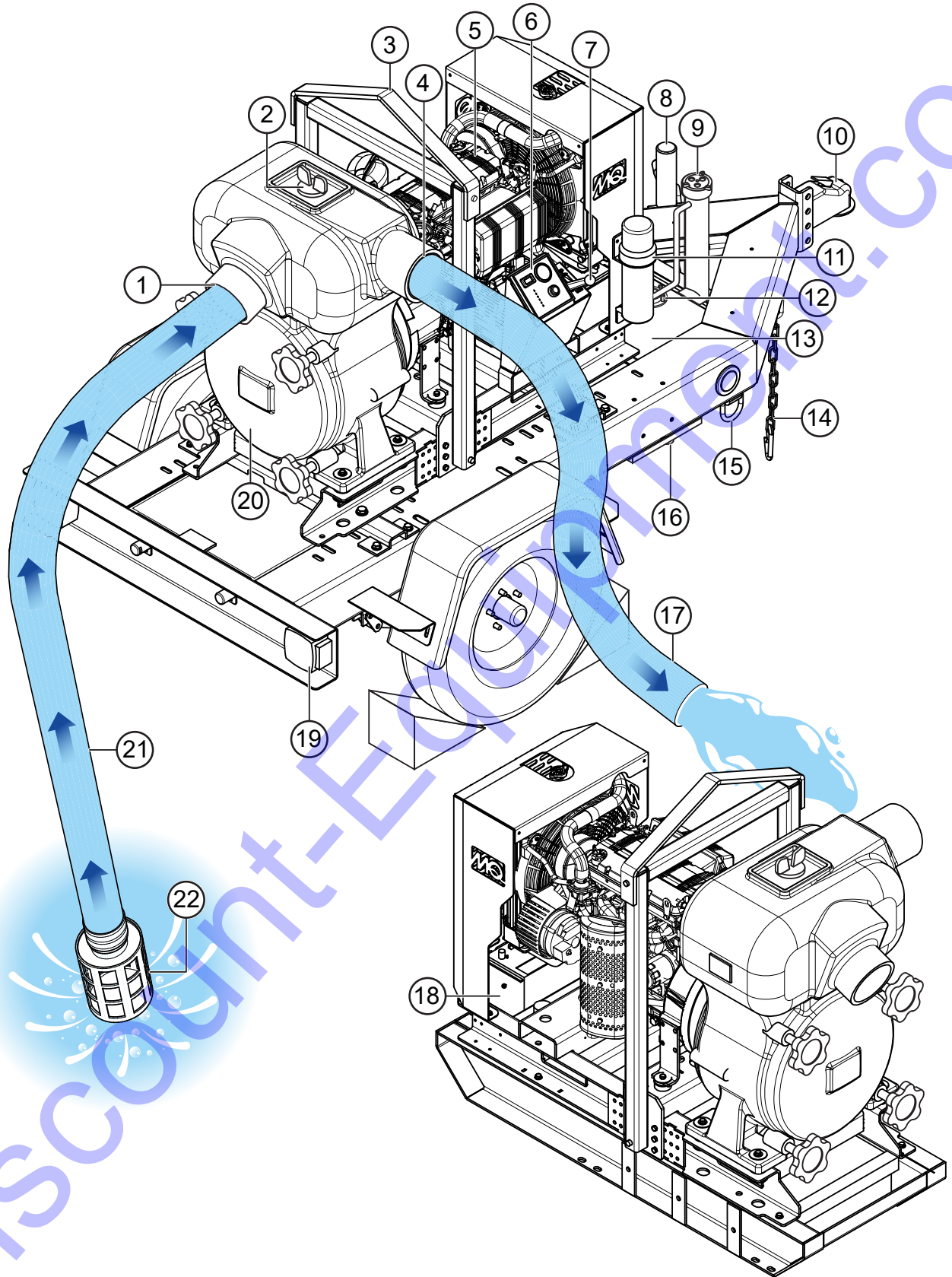


Figure 4. MQ62TK Series Pump Components

## PUMP COMPONENTS

Figure 4 shows a typical MQ62TK series trash pump application. The main pump components are listed below.

1. **Suction Port** — Water enters the pump through this 6-inch, male, NPT-threaded suction port. Connect a suitable suction hose or pipe here.
2. **Fill Cap** — **The pump casing must be filled with water prior to operation!** Remove the fill cap to add water to the pump.

### WARNING

**NEVER** remove the fill cap while the pump is **hot**. Pressurized water inside can cause **serious injury**.

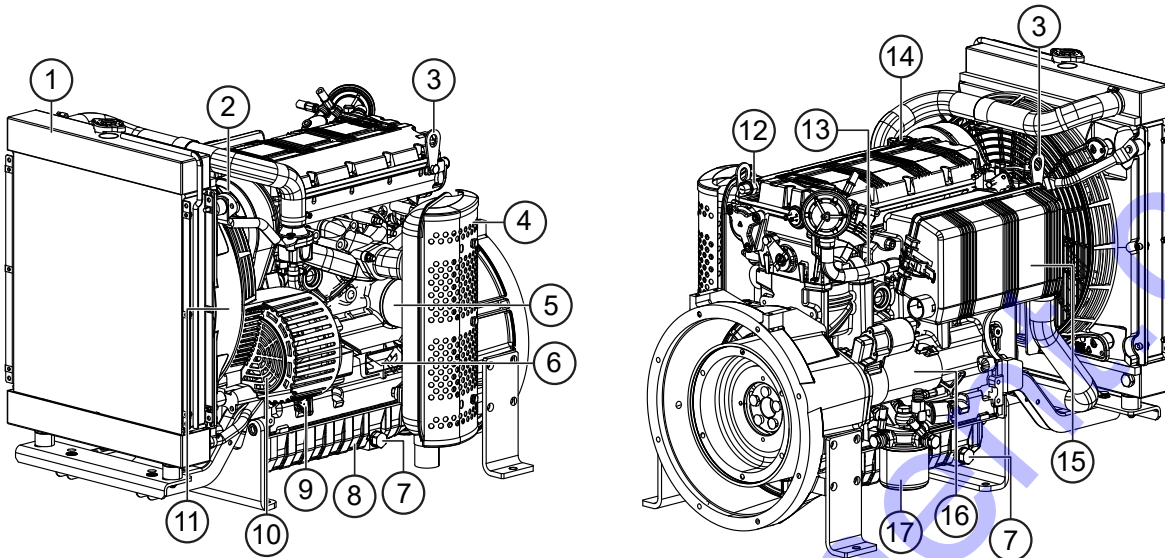
3. **Lifting Bail** — Use the lifting bail to lift the pump with a crane.

### NOTICE

The lifting bail is located at the center of gravity for a fully configured pump assembly. Removal of any pump or trailer components will unbalance the load.

4. **Discharge Port** — Water and debris exit the pump through this 6-inch, male, NPT-threaded discharge port. Connect a suitable discharge hose or pipe here.
5. **Diesel Engine** — A liquid-cooled, 4-cylinder, Kohler diesel engine. Refer to the **Engine Components** section of this manual for more information.
6. **Control Panel** — The engine ignition switch and various indicators are located here. Refer to the **Control Panel Components** section of this manual for more information.
7. **Engine Throttle Lever** — Regulates engine speed (RPM). Move the lever toward the rabbit (full speed) to increase engine speed, and toward the turtle (idle) to decrease engine speed. **ALWAYS** run the engine at full speed (rabbit) when operating the pump.
8. **Jack Stand with Caster Wheel** — Use the jack to raise or lower the pump when connecting to or disconnecting from a tow hitch. Use the jack stand and caster wheel to position and level the pump prior to operation.
9. **Fuel Cap** — Remove the fuel cap and fill the fuel tank through this port. See Table 2 for recommended fuel type. **DO NOT** top off fuel. **ALWAYS** wipe up any spilled fuel **immediately**.
10. **Tow Hitch Coupler** — The trailer-mounted pump comes standard with a 2-inch ball hitch. To order optional ball or loop hitches, contact the MQ sales department.
11. **Manual Holder** — Store pump, engine, and trailer documentation here.
12. **Fuel Gauge** — Displays the engine fuel level. If the fuel level is low, replenish with diesel fuel. See Table 2 for recommended fuel type.
13. **Fuel Tank** — Trailer fuel tank capacity is 28 gallons. Skid fuel tank capacity is 16 gallons.
14. **Safety Chains (2)** — When towing the pump, **ALWAYS** attach the safety chains to the towing vehicle. **NEVER** tow the pump with the safety chains unattached.
15. **Tie-Downs (4)** — When loading the pump assembly onto a flatbed truck for transport, secure the trailer to the flatbed at these tie-down points.
16. **Fuel Tank Drain Plug** — Remove this plug to drain the fuel tank.
17. **Discharge Hose (Accessory)** — Discharge hoses are usually thin-walled, collapsible hoses. However, if a thin-walled discharge hose is not available, a rigid suction hose may be substituted. **MAKE SURE** the discharge hose lays flat and remains unkinked.
18. **Battery** — +12 VDC battery starts the engine when the ignition key is turned.
19. **Trailer Lights (2)** — **ALWAYS** verify that **both** trailer lights are functioning properly before towing the pump. **DO NOT** tow the pump if these lights are not working.
20. **Clean-Out Cover** — Opens to allow removal of debris from inside the pump. To open the cover, loosen the four locking knobs, grip the cover handles, and turn the cover counterclockwise. Once the cover is clear of the four knob fasteners, pull it outward to open.
21. **Suction Hose (Accessory)** — Suction hoses are commonly reinforced with rigid PVC helix and are specifically designed to prevent collapse during operation. Use recommended suction hoses **only**. **MAKE SURE** the suction hose remains unkinked.
22. **Strainer** — **ALWAYS** attach the strainer to the bottom end of the suction hose to prevent large objects and debris from entering the pump. Position the strainer so that it remains completely underwater.

# ENGINE COMPONENTS



**Figure 5. Kohler Engine Components**

The engine (Figure 5) must be checked for proper lubrication and filled with fuel prior to operation. Refer to the manufacturer's engine manual for operation and maintenance information.

1. **Radiator** — Coolant capacity is 1.25 gallons (4.75 liters). Use recommended coolant only.
2. **V-Belt** — **ALWAYS** make sure the V-belt is properly tensioned. A loose or defective V-belt can adversely affect engine performance.
3. **Lift Loops (2)** — When lifting of the engine is required, attach a strap or chain of adequate lifting capacity to these lifting points.
4. **Muffler** — Reduces noise and emissions.
5. **Oil Filter** — Spin-on type, filters oil contaminants.
6. **Engine Nameplate** — Provides engine model identification and information.
7. **Oil Drain Bolts (2)** — Remove to drain oil from the crankcase. **ALWAYS** dispose of used oil and oil filters in an environmentally safe manner. **DO NOT** allow used oil to drain onto the ground or into a water runoff drain.
8. **Oil Pan** — Holds a maximum of 3.2 quarts (3.0 liters) of motor oil.
9. **Oil Dipstick** — Remove to determine engine oil level.
10. **Alternator** — Provides power to the engine 12-volt electrical system. Replace with manufacturer's recommended type alternator only.
11. **Fan Guard** — Protects personnel from rotating fan blades.
12. **Oil Pressure Sensor** — Monitors engine oil pressure. The engine will shut down when oil pressure is low.
13. **Glow Plugs (4)** — Glow plugs help start the engine in cold weather conditions. Allow the glow plugs to preheat before starting the engine in cold weather.
14. **Oil Filler Cap** — Remove to add engine oil as recommended in Table 2.
15. **Air Cleaner** — Prevents dirt and debris from entering the fuel system. Open the air cleaner cover to access the filter element.
16. **Starter** — Starts the engine when the ignition key is turned to the **START** position.
17. **Fuel Filter** — Filters fuel contaminants.

## **WARNING**



Engine components generate extreme heat. To prevent burns, **DO NOT** touch these areas while the engine is running or immediately after operating. **NEVER** operate the engine with the muffler removed.

## CONTROL PANEL COMPONENTS

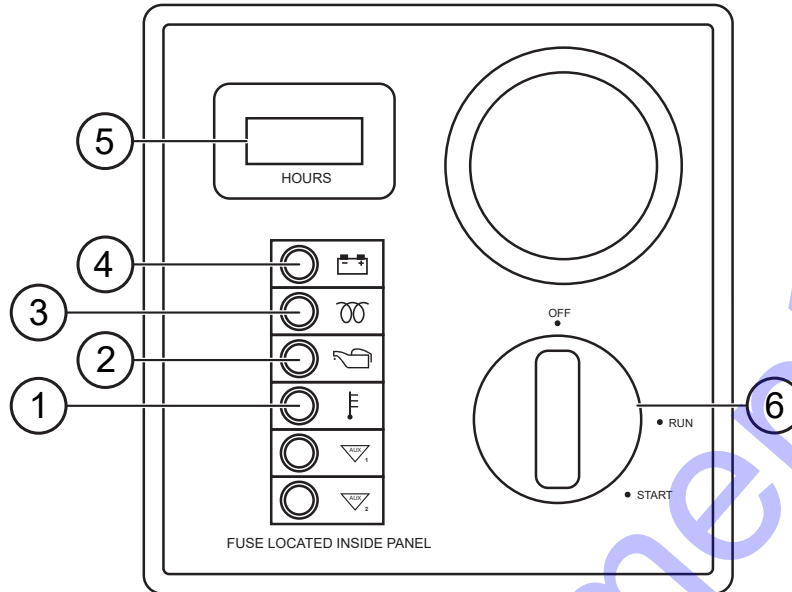


Figure 6. LOFA EL240 G1H Control Panel

Figure 6 shows the control panel components. The function of each component is described below:

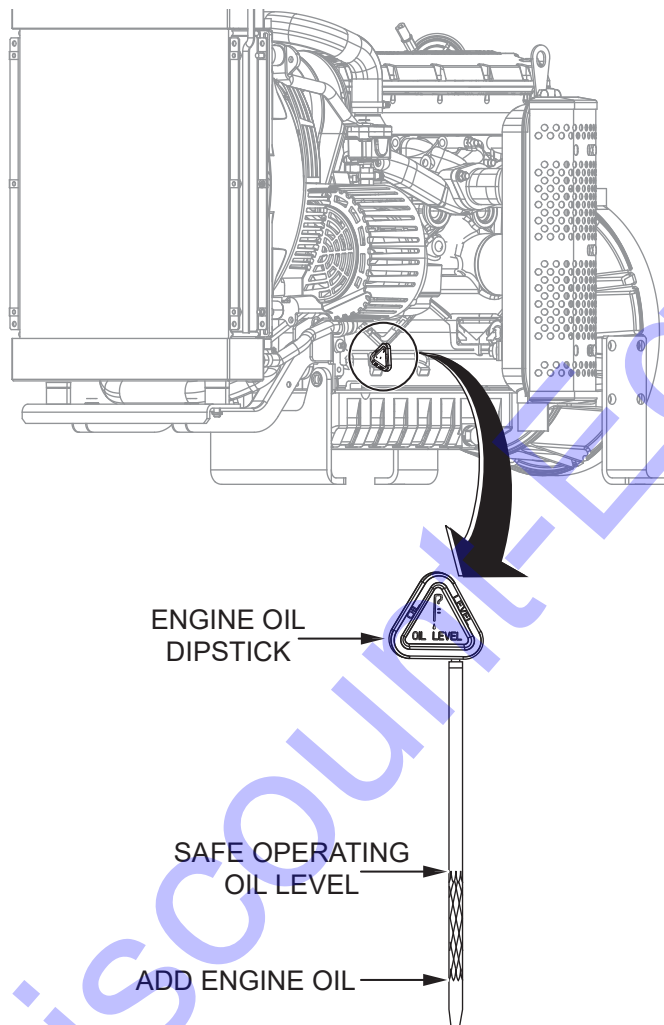
1. **Coolant Temperature Status Indicator** — Indicates coolant temperature has exceeded its limit. This condition will cause the engine to shut down.
2. **Oil Pressure Status Indicator** — Indicates oil pressure is not within specified limits. This condition will cause the engine to shut down.
3. **Preheat Status Indicator** — Indicates glow plug preheating status. When this LED turns **OFF**, preheating is complete and the engine may be started.
4. **Charge Indicator** — Indicates the charging system is not working properly. This condition will cause the engine to shut down.
5. **Hour Meter** — Displays the number of hours the machine has been in use.
6. **Ignition Switch** — To start the engine, insert the ignition key here and turn **counterclockwise** to the **START** position. To shut down the engine, turn the key **counterclockwise** to the **OFF** position.

## PRE-INSPECTION

1. Clean the unit, removing dirt and dust—particularly the engine cooling air inlet.
2. Inspect the air cleaner for dirt and dust. If the air cleaner is dirty, replace it with a new one. See the **Maintenance** section of this manual for more information.
3. Check fastening nuts and bolts for tightness.

## ENGINE OIL

1. Place the unit on secure, level ground with the engine turned **OFF**.
2. Remove the engine oil dipstick (Figure 7) from the engine oil filler hole and wipe it clean.



**Figure 7. Engine Oil Inspection**

3. Reinsert the dipstick into the filler hole, then remove it again.

4. Check the oil level on the dipstick (Figure 7). If the oil level is low, fill to the edge of the oil filler hole with the recommended oil type (Table 4). Maximum oil capacity is 3.2 quarts (3.0 liters). **DO NOT** overfill.

Table 4. Recommended Oil Types	
SAE 10W	SAE 10W-30
SAE 20W	SAE 10W-40
SAE 30	SAE 10W-60
SAE 40	SAE 15W-40
	SAE 15W-40
	SAE 20W-60
	SAE 10W-30
	SAE 5W-30
°F -20	0 20 32 40 60 80 100
°C -30	-20 -10 0 10 20 30 40
TEMPERATURE RANGE EXPECTED BEFORE NEXT OIL CHANGE	

## COOLANT (ANTIFREEZE/SUMMER COOLANT/WATER)

Kohler recommends antifreeze/summer coolant for use in their engines, which can be purchased in concentrate (and mixed with 50% demineralized water) or pre-diluted. See the **Kohler Engine Owner's Manual** for further details.

### WARNING



If adding coolant/antifreeze mix to the radiator, **DO NOT** remove the radiator cap until the unit has completely cooled. The possibility of **hot!** coolant exists which can cause severe burns.

When adding coolant to the radiator, **DO NOT** remove the radiator cap until the unit has completely cooled. See Table 5 for engine and radiator coolant capacities.

Table 5. Coolant Capacity	
Engine	.462 gal. (1.75 liters)
Radiator	.859 gal. (3.25 liters)

## Operation in Freezing Weather

When operating in freezing weather, be certain that the proper amount of antifreeze (Table 6) has been added.

Table 6. Anti-Freeze Operating Temperatures		
Vol % Antifreeze	Freezing Point	
	°C	°F
50	-37	-34

### NOTICE

When the antifreeze is mixed with water, the antifreeze mixing ratio **must be** less than 50%.

## CLEANING THE RADIATOR

The engine may overheat if the radiator fins become overloaded with dust or debris. Periodically clean the radiator fins with compressed air. Cleaning inside the machine is dangerous, so clean only with the engine turned off and the **negative** battery terminal disconnected.

## AIR CLEANER

Periodic cleaning/replacement of the engine air cleaner is necessary. Inspect the air cleaner as referenced in the **Maintenance** section of this manual.

## FAN BELT TENSION

A slack fan belt may contribute to overheating or to insufficient charging of the battery. Inspect the fan belt for damage or wear and adjust it in accordance with the **Kohler Engine Owner's Manual**.

The fan belt tension is proper if the fan belt bends 0.4–0.6 inches (10–15 mm) when depressed with the thumb as shown in Figure 8.

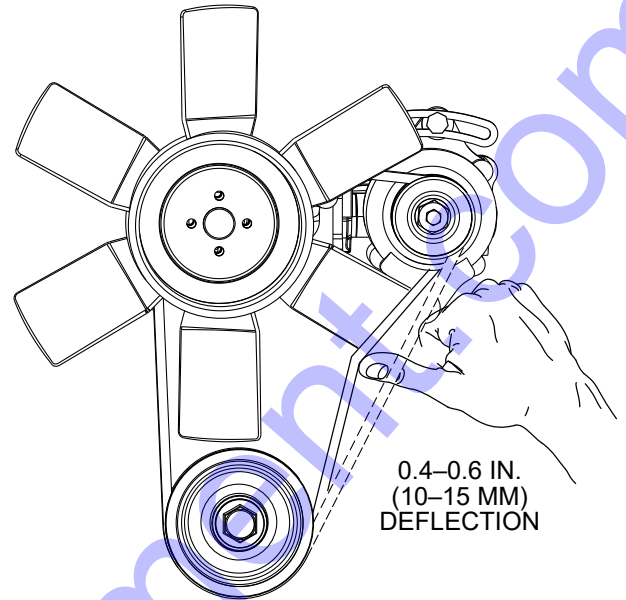


Figure 8. Fan Belt Tension

**CAUTION**

**NEVER** place hands near the belts or fan while the equipment is running.

## BATTERY

**WARNING**

**ALWAYS** wear appropriate personal protective equipment and clothing, including a face shield and rubber gloves, while handling the battery. Failure to do so can result in **serious injury**.

The 12-volt DC battery (Figure 9) is shipped wet and ready to use.

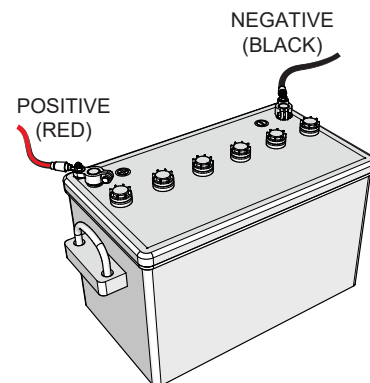


Figure 9. Battery Inspection

# INSPECTION

1. Make sure the battery is well seated in the battery box.
2. **MAKE SURE** the positive battery cable (**RED**) is connected to the positive (+) terminal on the battery, and the negative battery cable (**BLACK**) is connected to the negative (-) terminal on the battery. See Figure 9. **NEVER** connect the battery in reverse.

## WARNING



While connecting the positive battery cable, **DO NOT** allow a wrench or any other metallic object to make contact with the battery's negative terminal post. This can result in an **electrical short circuit or an explosion**.

3. Check the battery cable connections. Poor contact can result in malfunctions or poor starting. **ALWAYS** keep the battery terminals firmly tightened.
4. The battery is sufficiently charged if the specific gravity of the battery fluid is 1.28 at 68°F. A specific gravity of 1.245 or lower indicates the battery is dead and must be recharged or replaced. **ALWAYS** disconnect the battery cables before charging the battery with an external electrical source.

## WARNING



Electrolyte is an acid and must be handled with caution. **ALWAYS** follow servicing instructions from the electrolyte manufacturer to ensure safety. **Serious injury can result** from careless handling or noncompliance with safety handling instructions.

## FUEL

### DANGER

**ALWAYS** handle fuel **safely**. Motor fuels are **highly flammable** and can be dangerous if mishandled. **NEVER** smoke while refueling. **NEVER** attempt to refuel while the engine is hot or running. **ALWAYS** wipe up any spilled fuel **immediately**.

### CAUTION

**ALWAYS** fill the fuel tank with clean, fresh, diesel fuel. **NEVER** fill the fuel tank beyond its capacity. **DO NOT TOP OFF**.

1. Read the fuel gauge located at the front of the trailer or skid (Figure 10) to determine the engine fuel level. If the fuel level is low, remove the fuel cap and fill with the recommended diesel fuel shown in Table 2. **DO NOT** overfill.

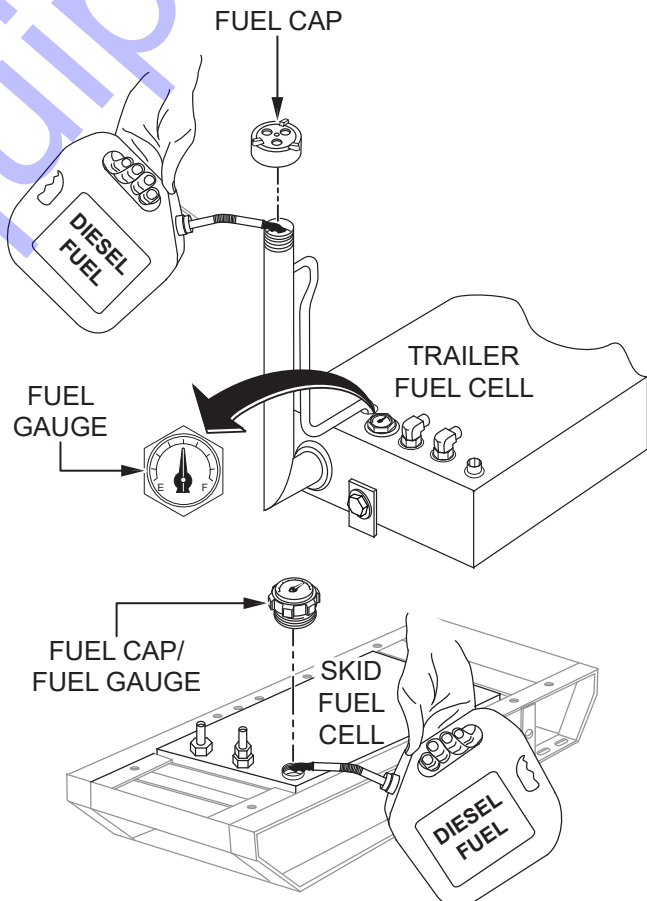


Figure 10. Fuel Inspection



## SETUP

The MQ62TK series trash pump is intended for the removal of clean water or water containing some debris and solids. Maximum size of solids should not exceed 3 inches (76 mm) in diameter. Figure 11 below shows a typical trash pump application.

1. It is advantageous to place the pump as close as possible to the water source on a solid, level operating surface. The most critical factor for successful pump operation is to not exceed 25 feet (7.62 meters) total suction lift (at sea level).
2. Ensure that the pump has the proper level of engine oil.
3. Initially prime the pump by removing the fill cap and filling the casing with water. If the pump casing is not filled with water prior to operation, it will not be able to start the pumping process and you risk overheating the mechanical seal assembly.
4. Attach the proper suction and discharge hoses to the pump ports. Ensure that all hose O-rings are in place, and that the hoses do not show any cracks, gouges, or holes. The hoses should not be kinked, and must be secured tightly to their respective ports.
5. A proper suction hose is commonly reinforced with rigid PVC helix and is specifically designed to safeguard against collapsing during pumping operations. It is essential that the pump utilize a suction hose with the same diameter as the suction port.

6. Ensure that the strainer is placed on the end of the suction hose, and that the hose is placed in the water source in such a manner as to not bury the strainer in the sand or silt.

### CAUTION

The strainer should be positioned so it will remain completely **underwater**. Running the pump with the strainer above water for long periods can damage the pump.

7. The discharge side may utilize proper discharge hoses, PVC pipe, or concrete pipe.
8. Check that the discharge hose lays flat and as straight as possible. Remove any sharp bends or kinks from the hose so the water flow cannot be blocked.
9. Once the engine is started, and depending on the application setup, the priming process will take a few moments before water begins to flow.
10. The performance of the pump (flow, head, water velocity, and pressure) is dependent on the many factors that surround the application. These factors include, but are not limited to: operating altitude, suction lift, discharge and suction hose diameter and length, overall friction loss coefficients, the specific gravity of the fluid to be pumped, the fluid temperature, and the total discharge head.

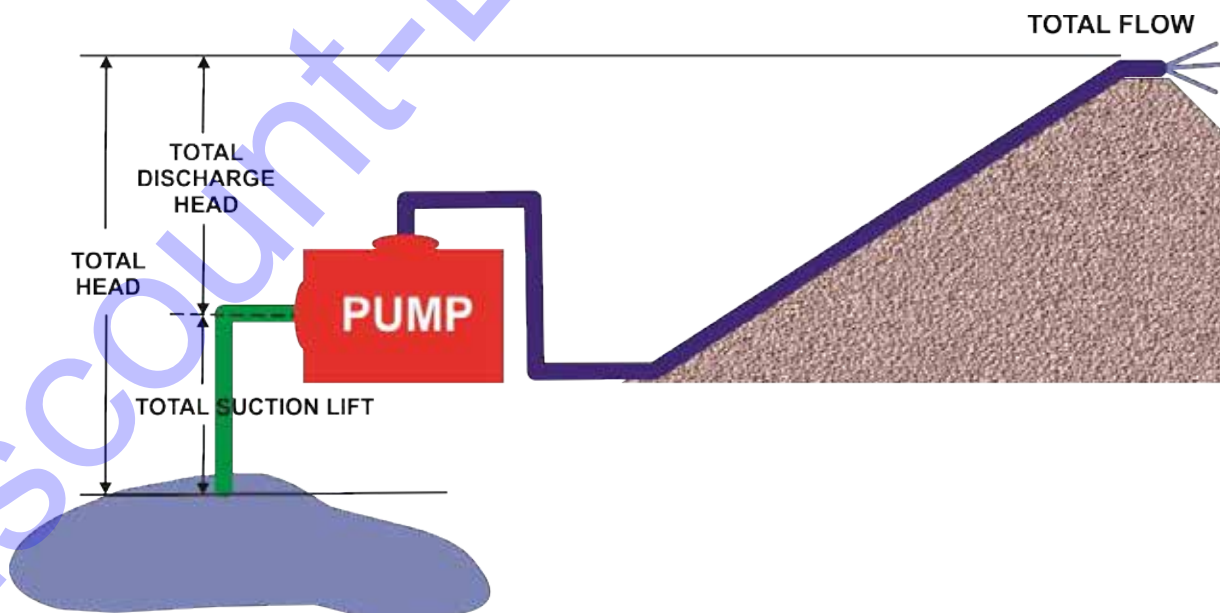


Figure 11. Pump Placement

## **DANGER**



**NEVER** operate the pump in a confined area or enclosed structure that does not provide an ample free flow of air.

## **WARNING**

**NEVER** pump flammable fluids, corrosive chemicals, or fluids containing toxic substances. These fluids can create potentially dangerous health and environmental hazards. Contact local authorities for assistance.

## **CAUTION**



**DO NOT** attempt to operate the pump until the **Safety Information**, **General Information**, and **Inspection** sections of this manual have been read and thoroughly understood.

## **CAUTION**



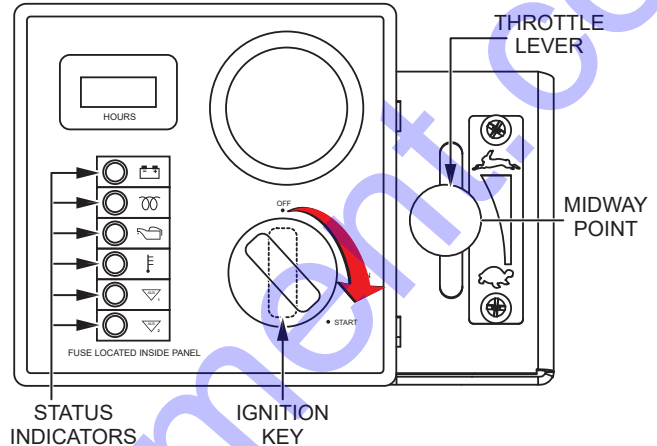
**ALWAYS** wear approved eye and hearing protection while operating the pump.

## **NOTICE**

**NEVER** attempt to start the engine unless the pump has first been primed with water. **Severe damage can occur** to the pump's mechanical seal if the pump has not been primed.

## STARTING THE ENGINE

1. Move the engine throttle lever to the midway point between the **FULL SPEED** (rabbit) and **IDLE** (turtle) positions. See Figure 12.



**Figure 12. Starting the Engine**

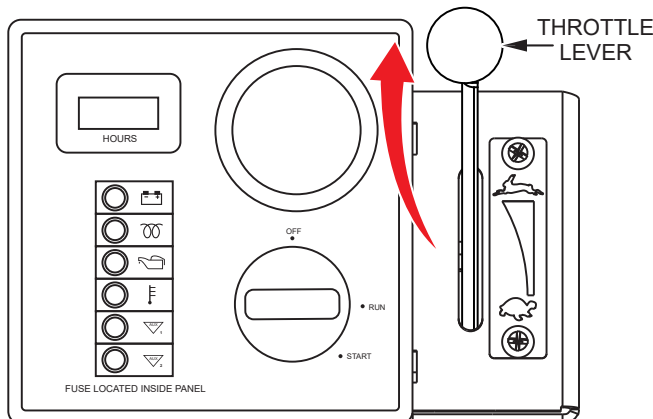
2. Insert the ignition key into the ignition switch and turn it **clockwise** to the **START** position (Figure 12). Once the engine has started, release the ignition key. The key will automatically return to the **RUN** position.
3. Make sure the status indicator LEDs on the control panel are **OFF** (Figure 12). If the charge indicator LED remains lit after the engine has started, increase engine speed until the LED turns **OFF**.

## OPERATION

1. With the engine running, move the engine throttle lever to the **FULL SPEED** (rabbit) position. See Figure 13.

### NOTICE

**ALWAYS** run the engine at **full speed** while pumping.



**Figure 13. Engine Throttle Lever (Full Speed)**

2. The pump should begin pumping water within a few minutes. The amount of time will vary depending on the suction lift and length of the suction hose.

## STOPPING THE ENGINE

### Normal Shutdown

1. Move the engine throttle lever to the **IDLE** position and run the engine for three minutes with no load.
2. Turn the ignition key **counterclockwise** to the **OFF** position.

### Emergency Shutdown

To stop the engine **immediately**, quickly turn the ignition key to the **OFF** position.

# ENGINE MAINTENANCE

Table 7. Inspection/Maintenance		10 Hrs DAILY	250 Hrs	500 Hrs or Every 12 Months	3000 Hrs or Every 36 Months	OTHER
<b>Engine</b>	Check Engine Oil and Coolant Levels	X				
	Check Fuel Filter/Water Separator Bowl	X				
	Check Air Cleaner/Element	X				
	Exhaust System* <sup>5</sup>		X			
	Check for Leaks/Hoses/Clamps* <sup>4</sup>	X				
	Check for Loosening of Parts	X				
	Change Engine Oil and Oil Filter * <sup>1</sup>		X			
	Clean Unit, Inside and Outside		X			
	Replace Fuel Filter Elements			X		
	Check Engine Mounts			X		
	Service Battery			X		
	Check Air Intake Hoses			X		
	Check Fan Belt Condition			X		
	Check Automatic Belt Tensioner			X		
	Check Electrical Ground Connection			X		
	Clean Radiator, Check Cooling System			X		
	Coolant Solution Analysis, Add SCA's As Required			X		
	Pressure Test Cooling System			X		
	Check Engine Speed			X		
	Test Thermostats				X	
	Check and Adjust Engine Valve Clearance				X	
	Test Glow Plugs				X	
	Flush and Refill Cooling System* <sup>2</sup>					2 yrs. or 2000 hrs.
Clean Inside of Fuel Tank					1000 hrs.	
Check Crankcase Ventilation Filter					1500 hrs.	
Replace Air Cleaner Elements * <sup>3</sup>					As Required	

\*<sup>1</sup> During initial operation of a new engine, change oil and filter between a minimum of 100 hrs. and a maximum of 250 hrs. Service interval depends on type of oil.

\*<sup>2</sup> Add "Supplemental Coolant Additives (SCA'S)" to recharge the engine coolant.

\*<sup>3</sup> Replace primary air filter element when restriction indicator shows a vacuum of 625 mm (25 in. H<sub>2</sub>O).

\*<sup>4</sup> If blowby hose needs to be replaced, ensure that the slope of the blowby hose is at least a 1/2 inch per foot, with no sags or dips that could collect moisture and/or oil.

\*<sup>5</sup> Accumulation of carbon (soot, unburned fuel) in the exhaust pipe line and muffler could cause not only system derates but also could lead to fire incident. To destroy the soot and unburned fuel, run the unit at rated power for some period of time until the exhaust gas become mostly colorless every 250 hours operation time. The carbon will be easier to be generated when the unit operates at less than 30% of rated power. In this case, perform the above procedures at shorter interval time.

# ENGINE MAINTENANCE

## DAILY

### DANGER



To prevent a possible fire or explosion, **NEVER** use fuel as a cleaning solvent.

### CAUTION



You must frequently check the engine oil level. There is no low oil shutoff feature for protection and operating the pump with low oil levels will cause **severe damage to the engine**.

- Thoroughly clean dirt and debris from the pump and engine.
- Check the engine oil level and add oil as recommended in Table 4 if needed.
- Inspect the air cleaner element and replace it if necessary.
- Check all fasteners and retighten as necessary.

## ENGINE OIL

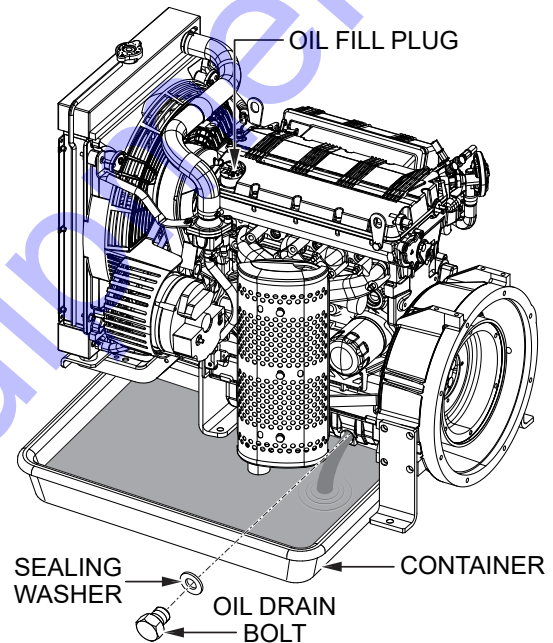
### NOTICE

**NEVER** pour waste oil directly onto the ground, down a drain, or into any water source.

### NOTICE

**ALWAYS** drain the engine oil while the oil is **warm**.

1. Remove the engine oil drain bolt and sealing washer, and allow the oil to drain into a suitable container (Figure 14).



**Figure 14. Engine Oil Replacement**

2. Reinstall the oil drain bolt and sealing washer, and tighten them securely.
3. Remove the oil fill plug (Figure 14) and refill the engine oil as recommended in Table 4. **DO NOT** overfill. See Table 2 for engine oil capacity.

# ENGINE MAINTENANCE

## OIL FILTER

Replace the engine oil filter (Figure 15) every 200 hours of operation. Be sure to coat the seal of the new filter with clean engine oil.

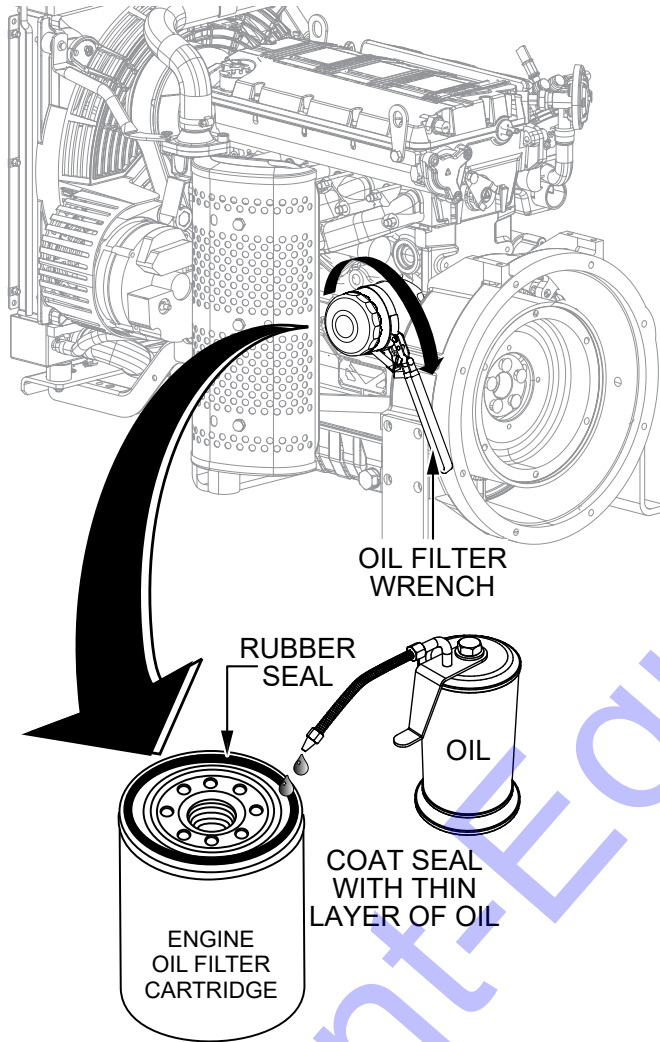


Figure 15. Engine Oil Filter

## AIR CLEANER

1. Release the locking latch and remove the air cleaner paper element (Figure 16).

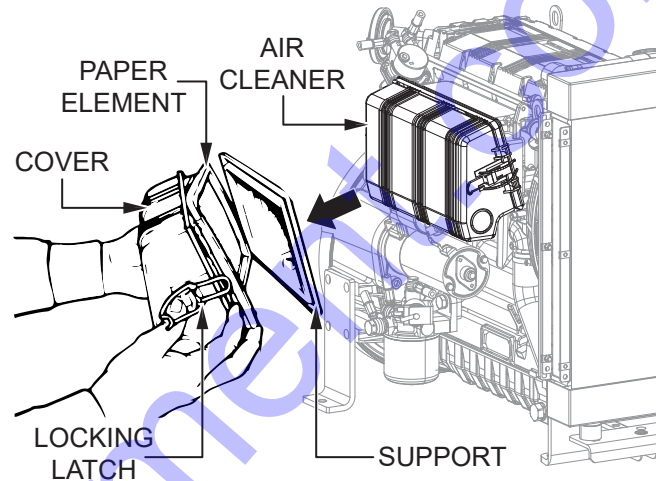


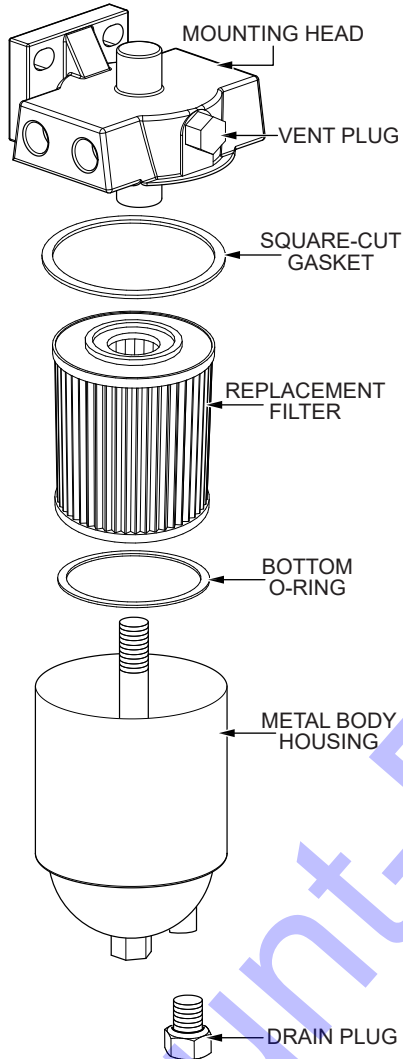
Figure 16. Air Cleaner Maintenance

2. Clean inside the air cleaner cover (Figure 16) using a damp cloth.
3. Tap the paper filter element gently to dislodge dirt. **DO NOT** wash the paper filter element or use pressurized air to clean it, as this will damage the element.
4. Inspect the paper filter element, and replace it if necessary.
5. Inspect the air cleaner cover for damage or warping, and replace it if necessary.
6. Reinstall the paper element and air cleaner support (Figure 16). Reattach the air cleaner cover and secure it with the locking latch.

# ENGINE MAINTENANCE

## FUEL FILTER/WATER SEPARATOR

The MQ62TK series pump incorporates a Racor® model 110A fuel filter/water separator (Figure 17), which utilizes a 2-micron filter element. Filter replacement frequency is determined by the contamination levels in the fuel used.



**Figure 17. Fuel Filter/Water Separator**

Fuel flow to the engine becomes restricted as the filter gradually clogs up with contaminants, resulting in noticeable power loss and/or difficulty starting. Adhere to the following servicing guidelines:

1. Inspect the fuel filter/water separator every 40 hours of operation.
2. Open the drain plug (Figure 17) to remove sediment and/or water that may have accumulated in the housing reservoir.

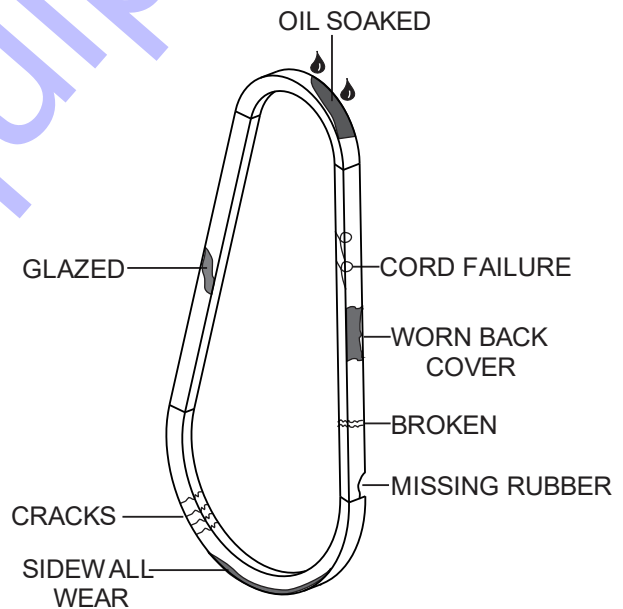
3. After inspection, make sure the drain plug is securely refastened.
4. As a guideline, change the filter every 500 hours, every other engine oil change, or at the first indication of power loss or difficulty starting the engine. Filter replacement frequency is determined by the contamination levels in the fuel and may vary depending on the integrity of the fuel used.

## V-BELT

Visually examine the V-belt (Figure 18) and determine if it is full of tiny cracks, frayed, has pieces of rubber missing, is peeling, or is otherwise damaged.

Also, examine the belt and determine if it is **oil soaked** or **glazed** (hard shiny appearance on the sides of the belt). Either of these conditions can cause the belt to run hot, which can weaken it and increase the danger of it breaking.

If the V-belt exhibits any of the above wear conditions, replace the V-belt immediately.



**Figure 18. V-Belt Inspection**

# PUMP MAINTENANCE

This section is intended for the experienced, qualified technician as a guideline for pump-end servicing.

All safety precautions must be observed to avoid injury. Before servicing this equipment, read and understand the **Safety Information** and **Operation** sections of this manual. Prepare the equipment for servicing as follows:


1. Make sure the engine is turned **OFF** and allow the pump and engine to cool.
2. Drain all water from the pump.
3. Use appropriate lifting devices as required.

## DAILY

- Inspect the pump for signs of wear or damage. Replace any worn or damaged components as needed.
- Open the pump clean-out cover and remove any debris that has accumulated.
- Inspect all hoses, fittings, and clamps. Replace any defective components immediately.


## BATTERY

**WARNING**




**ALWAYS** wear appropriate personal protective equipment and clothing, including a face shield and rubber gloves, while handling the battery. Failure to do so can result in **serious injury**.

**WARNING**



While connecting the positive battery cable, **DO NOT** allow a wrench or any other metallic object to make contact with the battery's negative terminal post. This can result in **an electrical short circuit or an explosion**.

**WARNING**



Electrolyte is an acid and must be handled with caution. **ALWAYS** follow servicing instructions from the electrolyte manufacturer to ensure safety. **Serious injury can result** from careless handling or noncompliance with safety handling instructions.

## NOTICE

Use only **distilled water** in the battery. Tap water can reduce the operating life of the battery.

## NOTICE

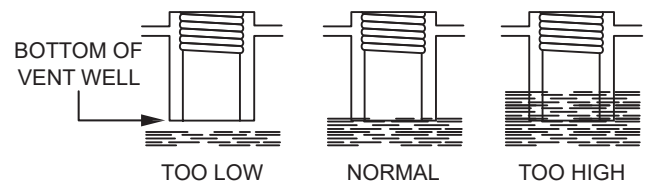
Overfilling the battery can cause the electrolyte (battery acid) to overflow, resulting in **corrosion** to nearby components. Immediately wash off any spilled electrolyte.

## NOTICE

Incorrectly connected battery cables can cause **serious electrical damage** to the equipment. Pay close attention to the **polarity** of the battery when connecting the battery cables.

Perform the following maintenance tasks regularly to extend the life of the battery and reduce overall maintenance costs:

1. Inspect the battery terminals for corrosion or other damage. If necessary, use a wire brush or sandpaper to clean the terminals.
2. Place a small amount of battery terminal treatment compound around both battery terminals. This will ensure a good connection and help prevent corrosion around the terminals.
3. Inspect the battery for cracks or other damage. If there is a white coating inside the battery, or paste has accumulated at the bottom, replace the battery immediately.
4. Check the battery electrolyte level (Figure 19). Make sure the electrolyte level is to the bottom of the vent well. Add **distilled water only** as needed.



**Figure 19. Battery Electrolyte Level**



# PUMP MAINTENANCE

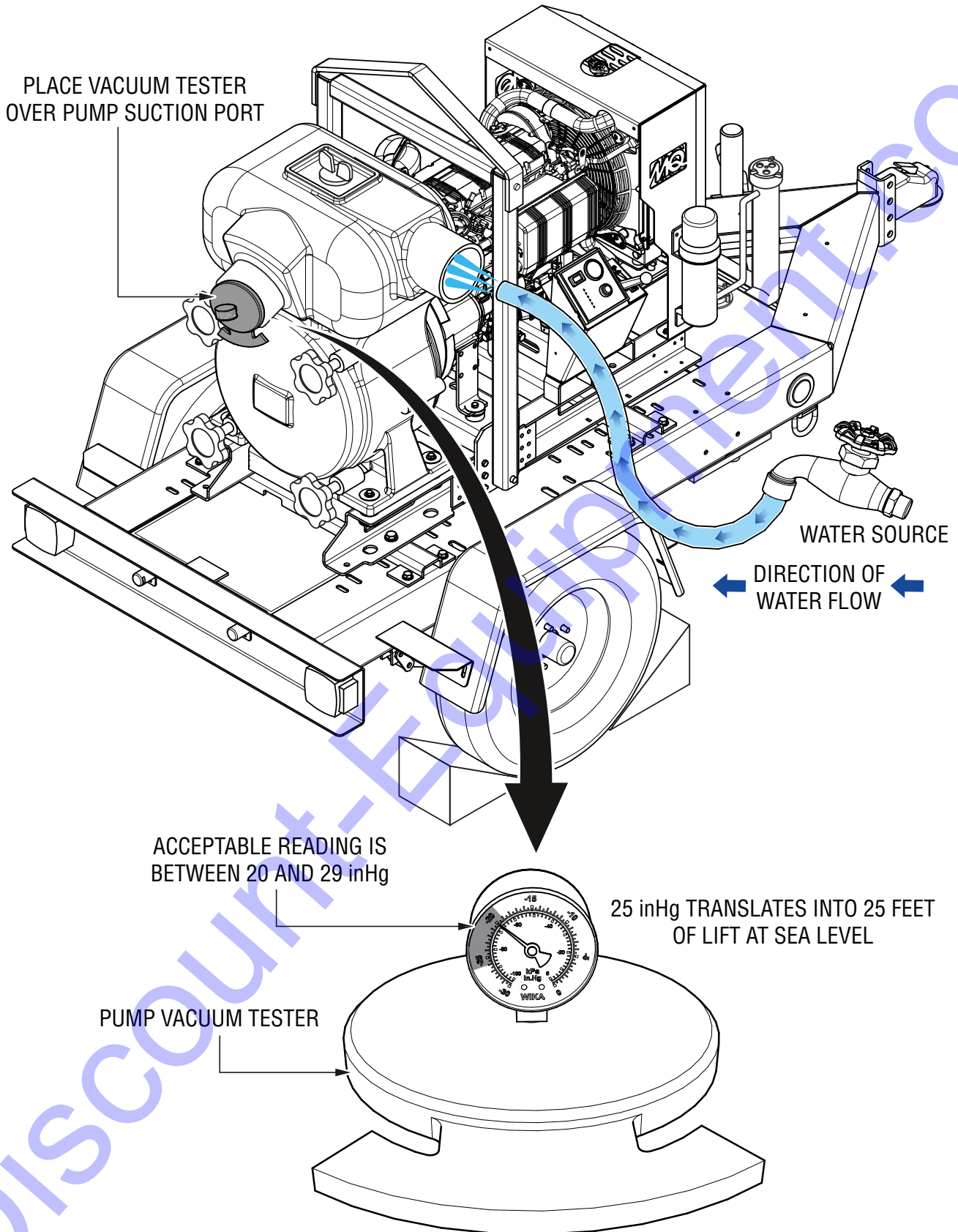


Figure 20. Pump Vacuum Test

# PUMP MAINTENANCE

## PUMP VACUUM TEST

Perform the following procedure to test the pump vacuum. Refer to Figure 20.

1. Remove the pump fill cap and fill the pump casing with water.

### **WARNING**

**NEVER** remove the fill cap while the pump is **hot**. Water inside may be **under pressure**.

2. Start the engine as described in the **Operation** section, and wait for the pump to begin pumping.
3. Place a water hose inside the discharge port, and turn on the water. The flow of water into the discharge port will prevent the pump from running dry.
4. Place the pump vacuum tester (P/N 7000030) over the suction port with the vacuum gauge facing **upward**. It may be necessary to apply a small amount of water around the rubber seal of the vacuum tester to create a proper seal.
5. Make sure there are no air leaks between the vacuum tester and the suction port. If air leaks are present, reset the vacuum tester.
6. Run the pump for a few minutes while monitoring the vacuum gauge. A gauge reading of 20–29 inHg (inches of mercury) indicates that the pump is working properly. A gauge reading below 20 inHg indicates that the pump is not working properly.

### **NOTICE**

25 inHg (inches of mercury) translates into 25 feet of suction lift at sea level.

7. To test the flapper valve, shut down the engine. The vacuum tester should remain attached to the suction port by vacuum, indicating that the flapper valve is seating properly and holding water in the suction hose when the engine is stopped. This prevents backflow and allows for faster priming when the engine is restarted.

## IMPELLER ADJUSTMENT

To ensure optimum pump priming and performance standards, the proper clearance between the impeller and the volute must be maintained. Every six months, or after prolonged dewatering operations, check the clearance between the impeller vanes and the outer volute surfaces. The impeller should be as close as possible to the volute without touching it.

For optimal performance, the recommended clearance between the impeller and the volute is 0.10 to 0.20 inches. The clearance can be inspected by utilizing a feeler gauge and accessing the area via the discharge or fill port.

Adjust the clearance between the impeller and the volute by adding/removing shims (P/N 0852836439) behind the impeller.

### **NOTICE**

Removing too many shims will create excessive clearance between the impeller and the volute, resulting in reduced pump performance.

As the impeller wears down over time, additional shims may be required to maintain minimal clearance between the impeller and the volute.

## PUMP CLEANING

After pumping water with a large quantity of dirt and debris, perform the following procedure to clean the pump:

1. Remove the drain plug from the pump housing to drain any water remaining in the pump.
2. Loosen the four locking knobs by turning them counterclockwise. Grip the clean-out cover handles, twist counterclockwise, and pull outward to open the clean-out cover.
3. Clean inside the pump casing and remove all dirt and debris. Inspect the impeller and volute for wear. Replace any damaged or worn parts.

### **CAUTION**

The impeller can develop sharp edges. **BE CAREFUL** when cleaning around the impeller to prevent injury.

# PUMP MAINTENANCE

## MECHANICAL SEAL LUBRICATION

The MQ62TK series pumps utilize an oil-bathed mechanical seal system. The oil in the seal chamber lubricates the mechanical seal and suppresses overheating. **NEVER** operate the pump without water in the casing as this may cause the seal to fail. **NEVER** pump salt water or chemicals that will lead to premature component failure.

The mechanical seal chamber comes fully serviced. It holds 1¾ cups of 30 SAE non-detergent oil. Frequently check the level of mechanical seal oil by removing the mechanical seal bolt (Figure 21) and visually inspecting the level. **DO NOT** overlubricate. Under normal conditions, drain and refill the mechanical seal chamber once a year.

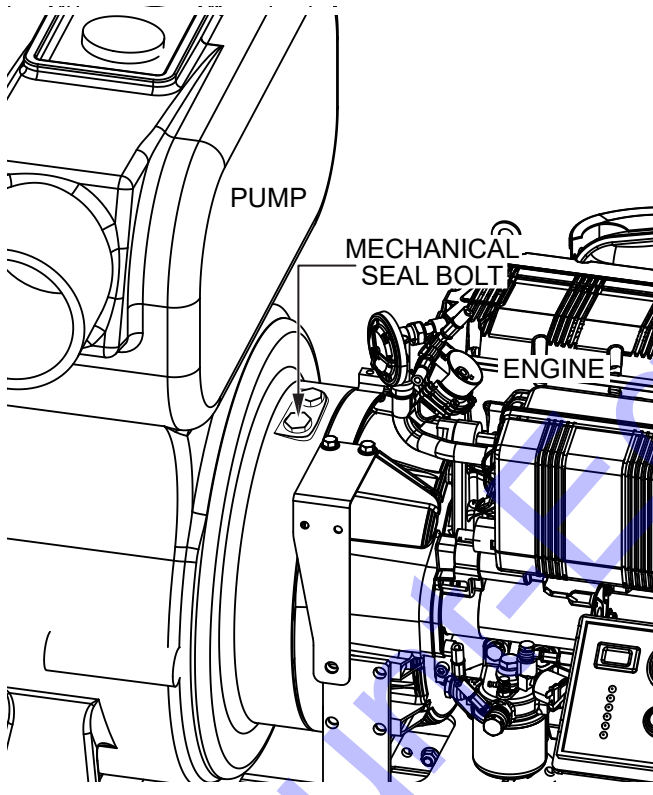


Figure 21. Mechanical Seal Bolt

## LONG-TERM STORAGE

Prepare the pump for long-term storage (more than 30 days) as follows.

- Run the engine for about three minutes, then stop the engine.
- While the engine is off but still warm, drain the engine oil. Fill the engine crankcase with fresh oil.
- Drain the fuel tank completely.
- Wipe off any oil or dirt that has accumulated on the engine.
- Remove the drain plug from the pump and completely drain any water left in the pump housing.
- Open the pump cover and clean the interior of the pump casing. Coat the interior of the pump casing with a light film of oil to reduce corrosion. A spray can of oil works well for this application.
- To protect the water-cooled seals, pour a half-pint of lubricating oil through the discharge opening on the pump and crank the engine several times. This will keep the mechanical seal lubricated and prevent excessive corrosion.
- Cover the suction and discharge ports with duct tape to prevent any foreign matter from entering the pump.
- Disconnect the battery cables.
- Cover the pump and engine with a plastic sheet and store them out of direct sunlight, in a location that is free of moisture and dust.
- Check the battery charge level each month to maintain the performance of the battery.

# ENGINE TROUBLESHOOTING

Troubleshooting (Engine)		
Symptom	Possible Problem	Solution
Engine will not start or start is delayed, although engine can be turned over.	No Fuel reaching injection pump?	Add fuel. Check entire fuel system.
	Defective fuel pump?	Replace fuel pump.
	Fuel filter clogged?	Replace fuel filter and clean tank.
	Faulty fuel supply line?	Replace or repair fuel line.
	Compression too low?	Check piston, cylinder and valves. Adjust or repair per engine repair manual.
	Fuel pump not working correctly?	Repair or replace fuel pump.
	Oil pressure too low?	Check engine oil pressure.
	Low starting temperature limit exceeded?	Comply with cold starting instructions and proper oil viscosity.
	Defective battery?	Charge or replace battery.
	Air or water mixed in fuel system?	Check carefully for loosened fuel line coupling, loose cap nut, etc.
At low temperatures engine will not start.	Engine oil too thick?	Refill engine crankcase with correct type of oil for winter environment.
	Defective battery?	Replace battery.
Engine fires but stops soon as starter is switched off.	Fuel filter blocked?	Replace fuel filter.
	Fuel supply blocked?	Check the entire fuel system.
	Defective fuel pump?	Replace fuel pump.
Engine stops by itself during normal operation.	Fuel tank empty?	Add fuel.
	Fuel filter blocked?	Replace fuel filter.
	Defective fuel pump?	Replace fuel pump.
	Mechanical oil pressure shutdown sensor stops the engine due to low oil?	Add oil. Replace low oil shutdown sensor if necessary.
Low engine power, output and speed.	Fuel tank empty?	Replace fuel filter.
	Fuel filter clogged?	Replace fuel filter.
	Fuel tank venting is inadequate?	Ensure that tank is adequately vented.
	Leaks at pipe unions?	Check threaded pipe unions tape and tighten unions as required.
	Speed control lever does not remain in selected position?	See engine manual for corrective action.
	Engine oil level too full?	Correct engine oil level.
	Injection pump wear?	Use No. 2-D diesel fuel only. Check the fuel injection pump element and delivery valve assembly and replace as necessary.

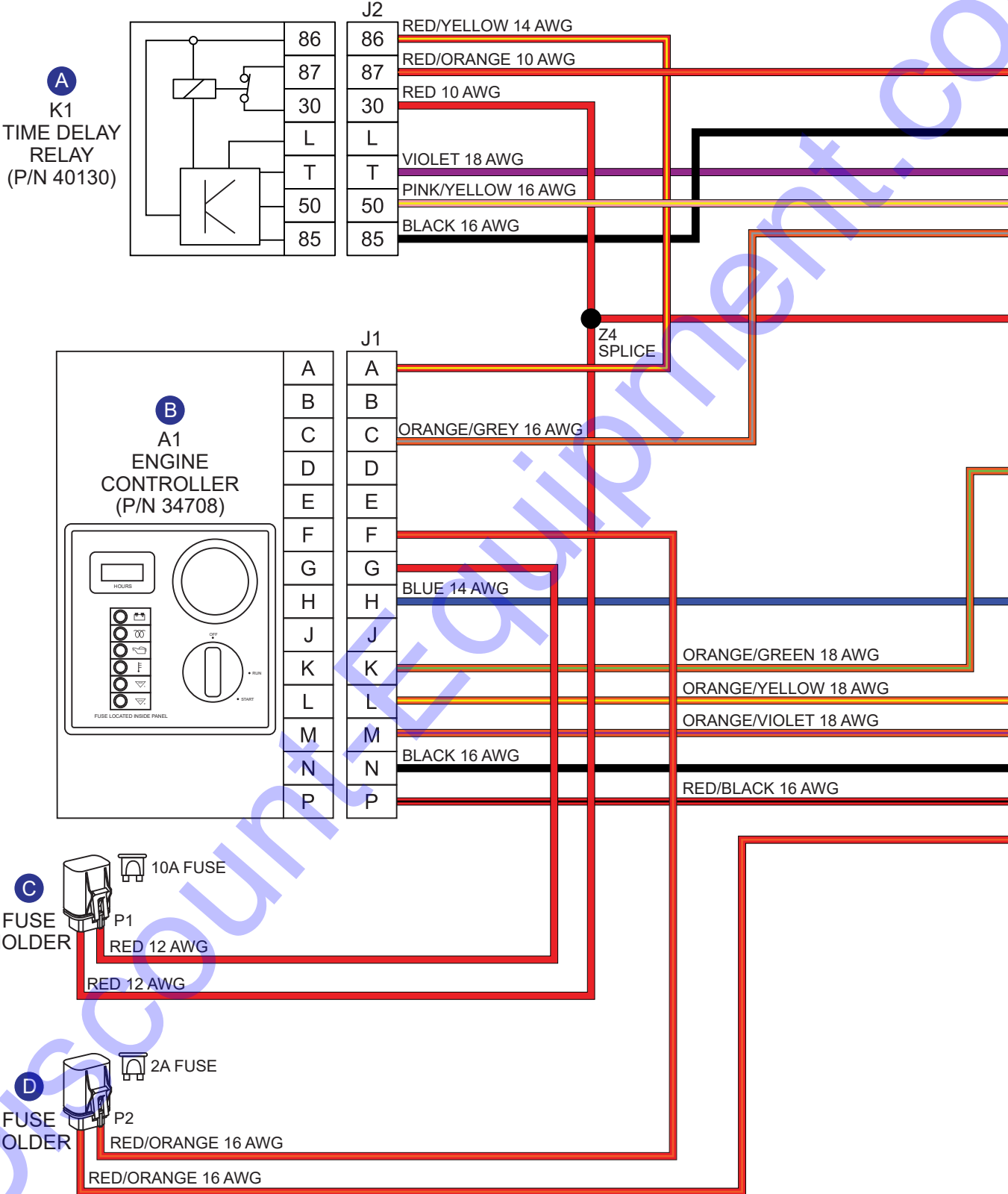
## ENGINE TROUBLESHOOTING

Troubleshooting (Engine) - continued		
Symptom	Possible Problem	Solution
Low engine power output and low speed, black exhaust smoke.	Air filter blocked?	Clean or replace air filter.
	Incorrect valve clearances?	Adjust valves per engine specification.
	Malfunction at injector?	See engine manual.
Engine overheats.	Too much oil in engine crankcase?	Drain off engine oil down to uppermark on dipstick.
	Entire cooling air system contaminated/ blocked?	Clean cooling air system and cooling fin areas.
	Fan belt broken or elongated?	Change belt or adjust belt tension.
	Coolant insufficient?	Replenish coolant.
	Radiator net or radiator fin clogged with dust?	Clean net or fin carefully.
	Fan, radiator, or radiator cap defective?	Replace defective part.
	Thermostat defective?	Check thermostat and replace if necessary.
Head gasket defective or water leakage?	Replace parts.	

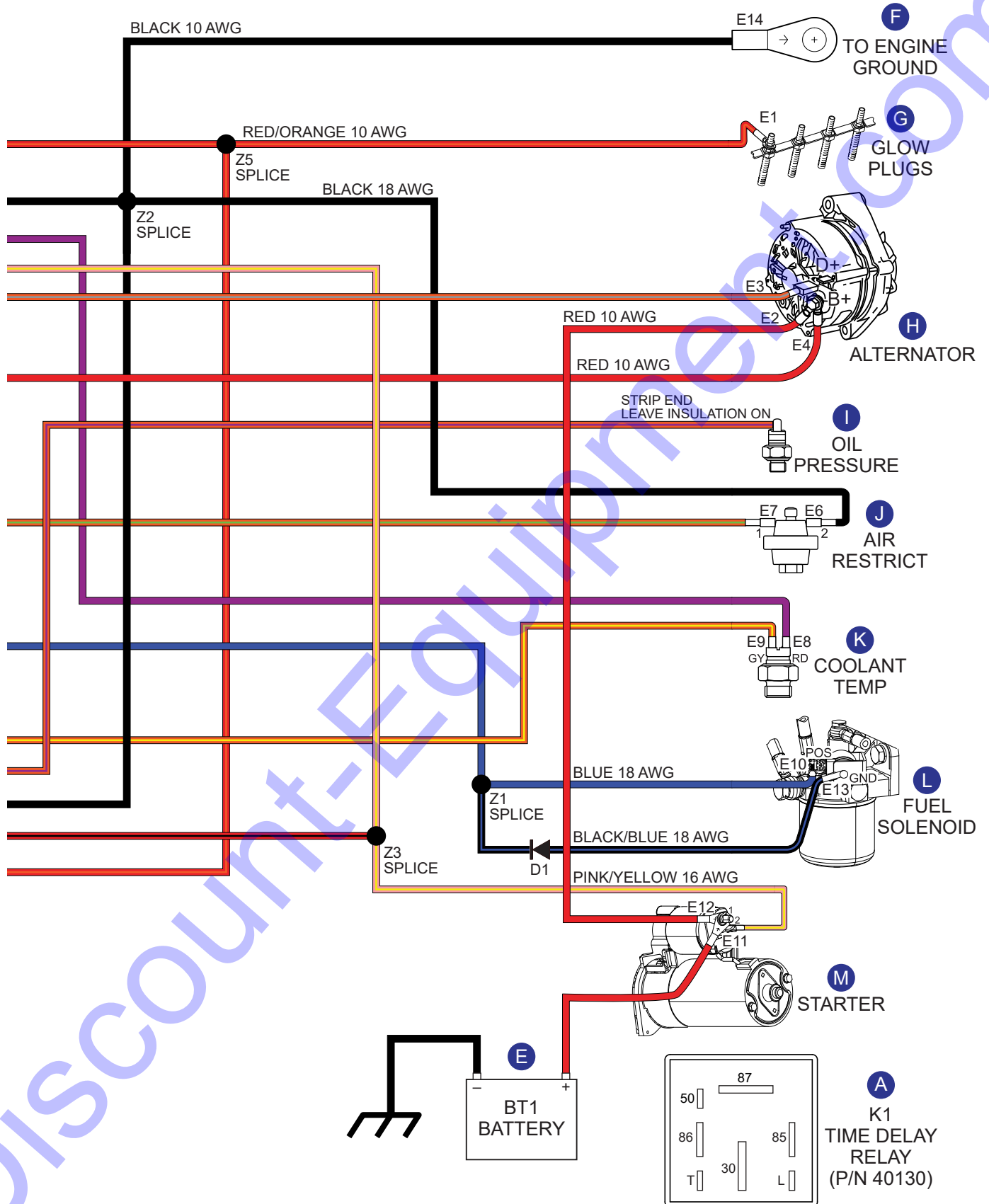
# PUMP TROUBLESHOOTING

<b>Troubleshooting (Trash Pump)</b>		
<b>Symptom</b>	<b>Possible Problem</b>	<b>Solution</b>
Pump does not prime.	Not enough water in the housing?	Add water.
	Engine speed too low?	Increase engine RPM to full speed.
	Strainer plugged?	Clean strainer.
	Suction hose damaged?	Replace or repair hose and clamps.
	Air leak at suction port?	Check that fittings are tight and properly sealed.
	Pump located too high above water line?	Move pump closer to water.
	Debris collecting in pump housing?	Clean pump housing.
	Too much distance between impeller and volute?	Replace impeller or adjust clearance by adding shims. 0.01 – 0.02 inch (0.25 – 0.51 mm)
	Water leaking out of sight glass?	Check condition of mechanical seal.
Pump takes in water, little or no discharge.	Engine speed too low?	Increase engine RPM to full speed.
	Suction strainer partially plugged?	Clean strainer.
	Worn impeller or volute?	Adjust clearance or replace impeller/volute.
Suction hose leaks at inlet.	Fittings/clamps are not sealed properly?	Tighten, replace or add clamp. (Keep extra seals on pump).
	Hose diameter too large?	Use correct diameter hose.
Discharge does not stay on coupling.	Pressure too high?	Check pressure, add additional clamp.
	Hose kinked or end blocked?	Check hose.
Engine is locked or slow to start.	Impeller jammed or blocked?	Open pump cover and clean dirt and debris from inside housing.
	Impeller and wear plate binding?	Inspect for clearance 0.01 – 0.02 inch (0.25 – 0.51 mm). Add or remove shims.
	Defective engine?	See engine owner's manual.
	Impeller binding to rear adaptor plate?	Adjust clearance by adding or removing shims 0.025 – 0.040 inch (0.64 – 1.02 mm)

# WIRING DIAGRAM

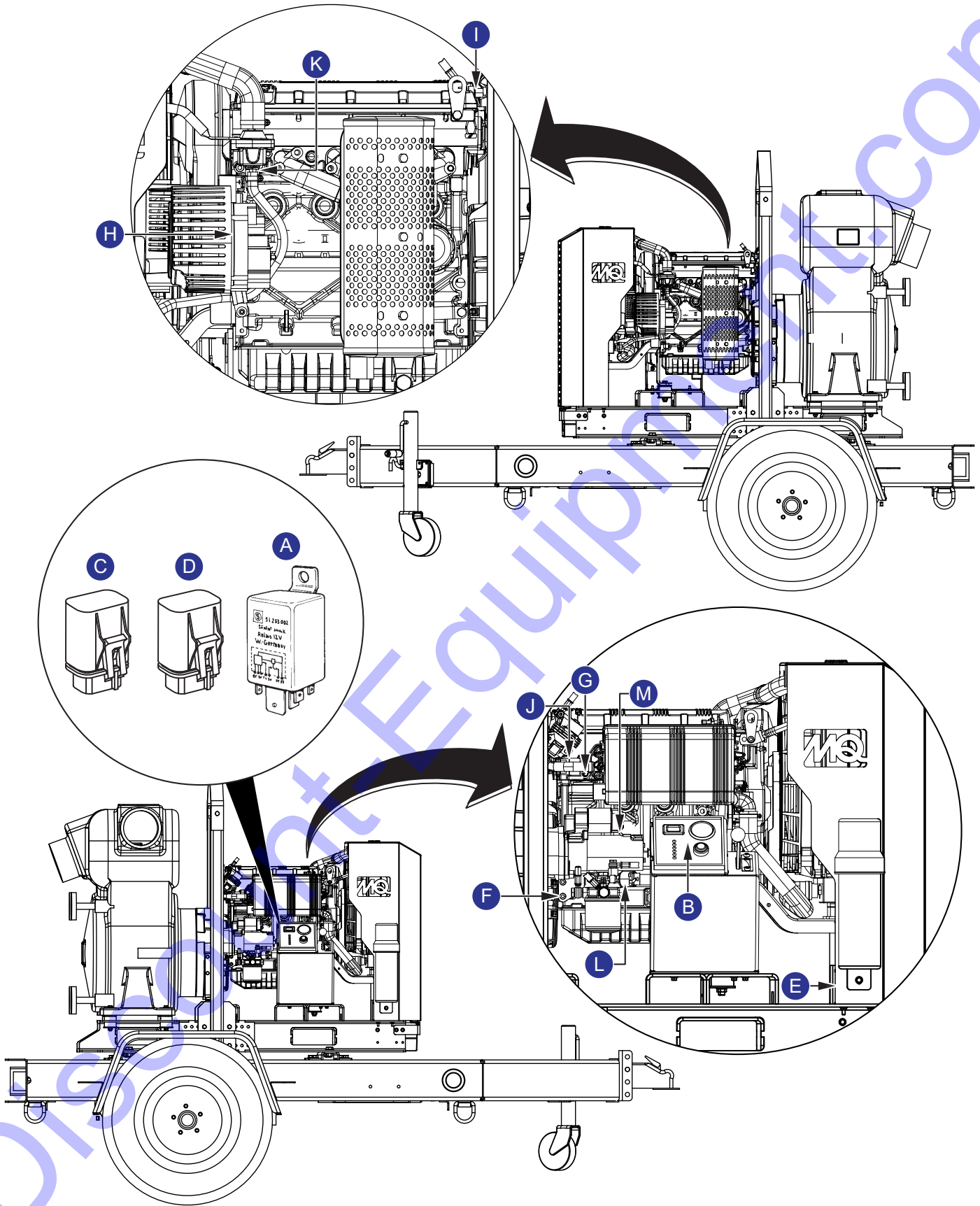


# WIRING DIAGRAM





# WIRING DIAGRAM COMPONENT LOCATOR



# EXPLANATION OF CODE IN REMARKS COLUMN

The following section explains the different symbols and remarks used in the Parts section of this manual. Use the help numbers found on the back page of the manual if there are any questions.

## NOTICE

The contents and part numbers listed in the parts section are subject to change **without notice**. Multiquip does not guarantee the availability of the parts listed.

## SAMPLE PARTS LIST

NO.	PART NO.	PART NAME	QTY.	REMARKS
1	12345	BOLT .....	1	INCLUDES ITEMS W/%
2%		WASHER, 1/4 IN. ....		NOT SOLD SEPARATELY
2%	12347	WASHER, 3/8 IN. ...	1	MQ-45T ONLY
3	12348	HOSE .....	A/R	MAKE LOCALLY
4	12349	BEARING .....	1	S/N 2345B AND ABOVE

## NO. Column

**Unique Symbols** — All items with same unique symbol (@, #, +, %, or >) in the number column belong to the same assembly or kit, which is indicated by a note in the “Remarks” column.

**Duplicate Item Numbers** — Duplicate numbers indicate multiple part numbers, which are in effect for the same general item, such as different size saw blade guards in use or a part that has been updated on newer versions of the same machine.

## NOTICE

When ordering a part that has more than one item number listed, check the remarks column for help in determining the proper part to order.

## PART NO. Column

**Numbers Used** — Part numbers can be indicated by a number, a blank entry, or TBD.

TBD (To Be Determined) is generally used to show a part that has not been assigned a formal part number at the time of publication.

◆ A blank entry generally indicates that the item is not sold separately or is not sold by Multiquip. Other entries will be clarified in the “Remarks” Column.

## QTY. Column

**Numbers Used** — Item quantity can be indicated by a number, a blank entry, or A/R.

A/R (As Required) is generally used for hoses or other parts that are sold in bulk and cut to length.

A blank entry generally indicates that the item is not sold separately. Other entries will be clarified in the “Remarks” Column.

## REMARKS Column

Some of the most common notes found in the “Remarks” Column are listed below. Other additional notes needed to describe the item can also be shown.

**Assembly/Kit** — All items on the parts list with the same unique symbol will be included when this item is purchased.

Indicated by:

“INCLUDES ITEMS W/(unique symbol)”

**Serial Number Break** — Used to list an effective serial number range where a particular part is used.

Indicated by:

“S/N XXXXX AND BELOW”

“S/N XXXX AND ABOVE”

“S/N XXXX TO S/N XXX”

**Specific Model Number Use** — Indicates that the part is used only with the specific model number or model number variant listed. It can also be used to show a part is NOT used on a specific model or model number variant.

Indicated by:

“XXXXX ONLY”

“NOT USED ON XXXX”

**“Make/Obtain Locally”** — Indicates that the part can be purchased at any hardware shop or made out of available items. Examples include battery cables, shims, and certain washers and nuts.

**“Not Sold Separately”** — Indicates that an item cannot be purchased as a separate item and is either part of an assembly/kit that can be purchased, or is not available for sale through Multiquip.

## SUGGESTED SPARE PARTS

### MQ62TKS/MQ62TKT TRASH PUMP

1 to 3 units

Qty.	P/N	Description
3	.....0801334545	.....MECHANICAL SEAL
3	.....0811384576	.....MECHANICAL SEAL SLEEVE
3	.....0483604300	.....O-RING, FRONT COVER
1	.....2602000032	.....IMPELLER
1	.....4607000700	.....WEAR PLATE
1	.....1601350350	.....CHECK VALVE
1	.....0862456209	.....OIL SEAL
1	.....0670026209	.....BEARING
1	.....4607221012	.....SHAFT
1	.....0480350380	.....O-RING, MECHANICAL SEAL SLEEVE
1	.....KITMQ62	.....KIT, SEAL AND O-RINGS

### KOHLER KDW1404-5010 DIESEL ENGINE

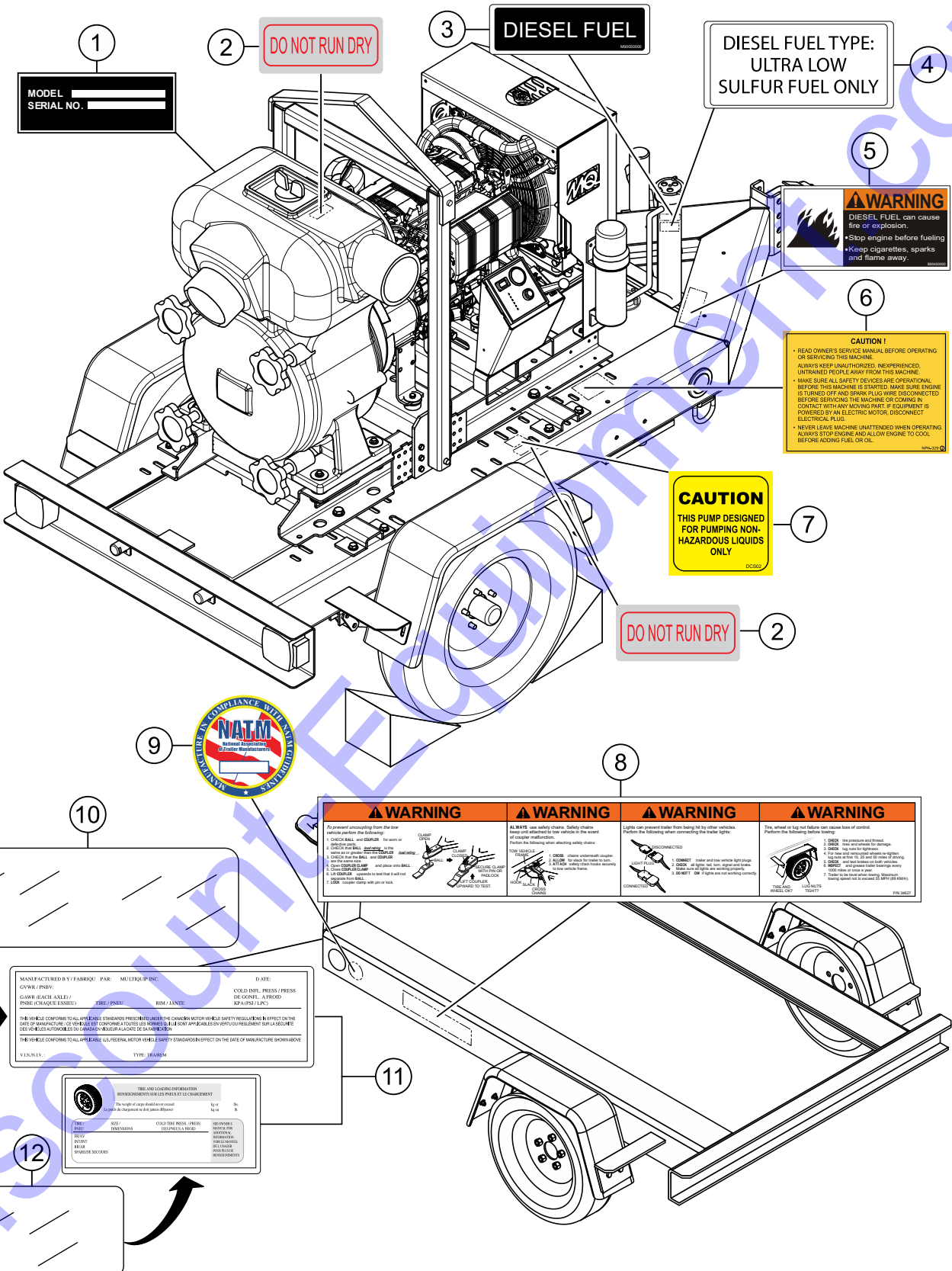
1 to 3 units

Qty.	P/N	Description
1	.....ED0021752880-S	.....FILTER, FUEL
1	.....34505E	.....ELEMENT, FILTER FUEL/WATER SEPARATOR
1	.....2175164	.....FILTER, AIR
1	.....ED0024403160-S	.....BELT, FAN
1	.....ED0021752850-S	.....FILTER, OIL

#### NOTICE

Part numbers on this Suggested Spare Parts list may supersede/replace the part numbers shown in the following parts lists.

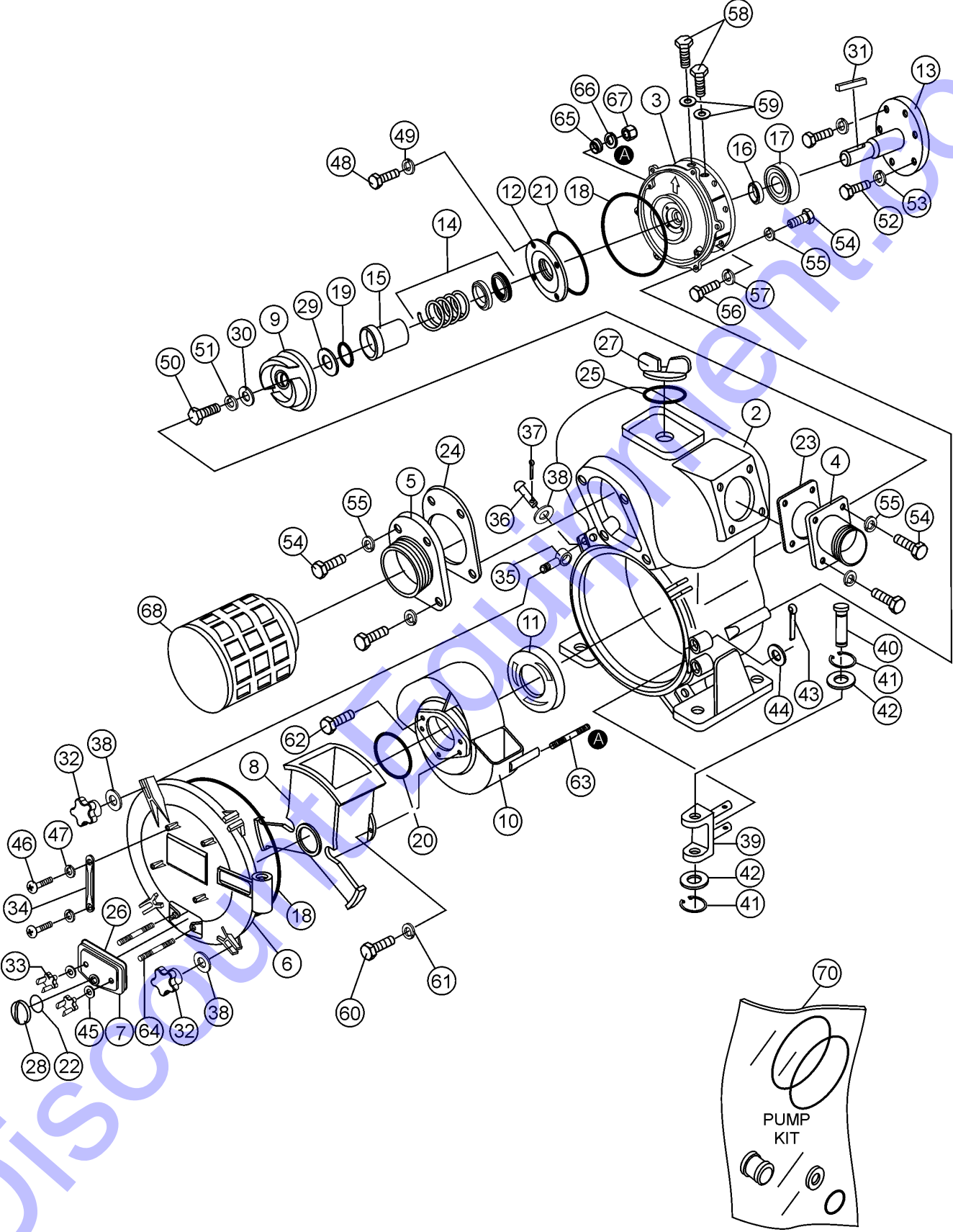
# NAMEPLATE AND DECALS ASSY.



## NAMEPLATE AND DECALS ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1		NAMEPLATE .....	1.....	CONTACT MQ PARTS DEPT.
2	7005000	DECAL, DO NOT RUN PUMP DRY	2	
3	M9500500004	DECAL, DIESEL FUEL	1	
4	TBD	DECAL, DIESEL FUEL, ULTRA LOW SULFUR	1	
5	B9504500004	DECAL, WARNING, DIESEL FUEL	1	
6	920203290	DECAL, CAUTION .....	1.....	NPA-329J
7	DCS02	DECAL, PUMP SAFETY	1	
8	34627	DECAL, TRLR HITCH/WHEEL WARNING	1	
9	29729	DECAL, NATM MFR. COMPLIANCE	1	
10	EE56313	OVERLAY	1	
11		DECAL, VIN AND TIRE TAG .....	1.....	CONTACT MQ PARTS DEPT.
12	EE56314	OVERLAY	1	

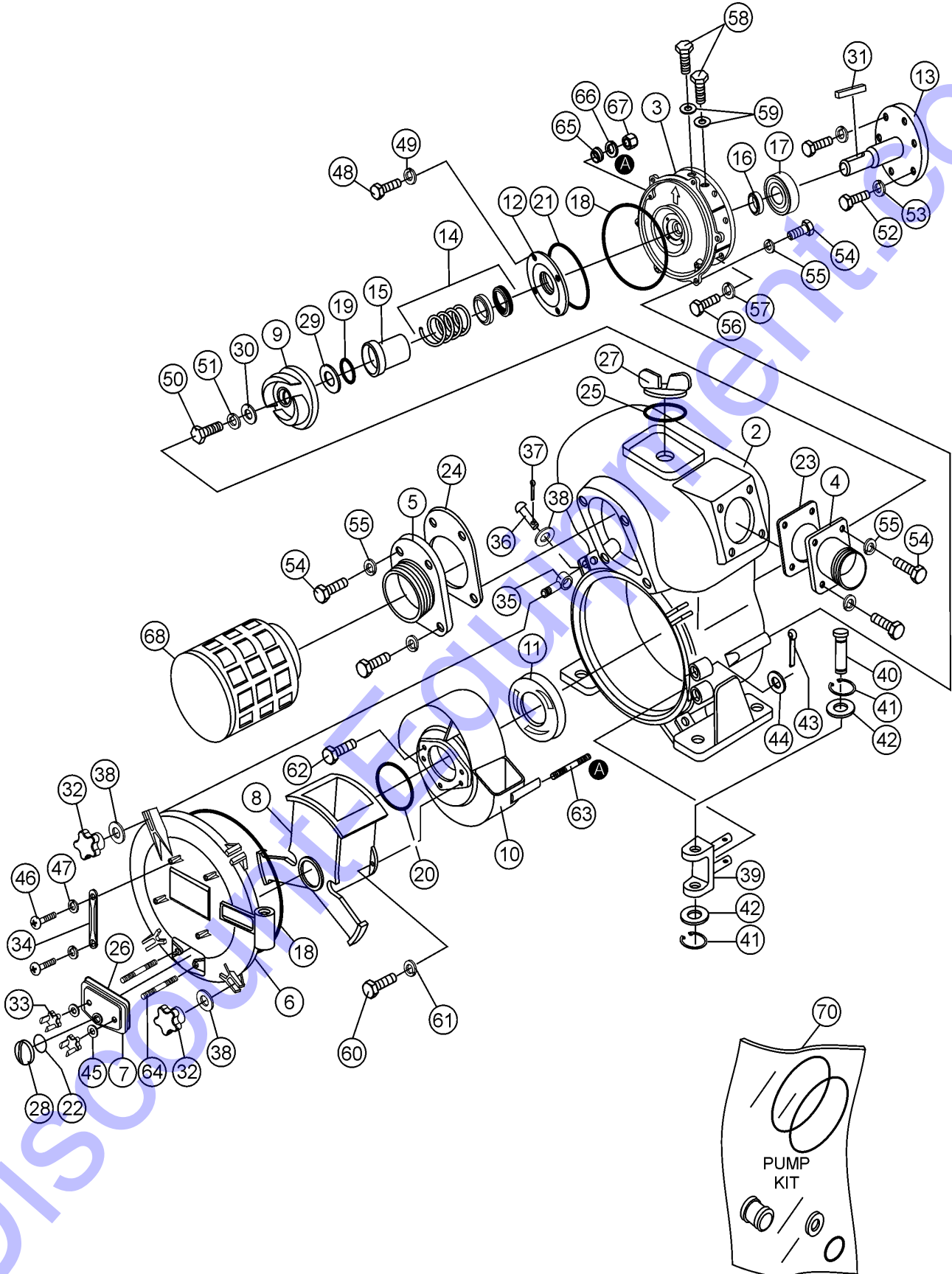
# TRASH PUMP ASSY.



## TRASH PUMP ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
2	2601000010	CASING	1	
3	26200000240002	CASING COVER.....	1	REPLACES 2620000022
4	46070000900002	DISCHARGE FLANGE .....	1	REPLACES 4607000090
5	1603000090	SUCTION FLANGE	1	
6	2601000170	CLEANOUT COVER	1	
7	4609000170	DRAIN COVER	1	
8	2601000800	SUCTION CASE	1	
9	2602000032	IMPELLER	1	
10	2620000130	VOLUTE CASING	1	
11	4607000700	WEAR PLATE	1	
12	4607000750	MECHANICAL SEAL HOUSING	1	
13	4607221012	SHAFT, D-F2L511W	1	
14%	0801334545	MECHANICAL SEAL	1	
15%	0811384576	MECHANICAL SEAL SLEEVE	1	
16%	0862456209	OIL SEAL	1	
17	0670026209	BALL BEARING	1	
18%	0483604300	O-RING (CASING DRAIN COVER)	2	
19%	0480350380	O-RING (MECHANICAL SEAL SLEEVE)	1	
20%	0480571400	O-RING (VOLUTE CASING)	1	
21%	0482201000	O-RING (MECHANICAL SEAL HOUSING)	1	
22	0480350300	O-RING (DRAIN CAP)	1	
23	1601330360	DISCHARGE FLANGE PACKING	1	
24	1601350350	CHECK VALVE	1	
25	0741320503	FILL CAP PACKING	1	
26	1601330380	DRAIN COVER B PACKING	1	
27	06312112020014	FILL CAP .....	1	REPLACES 0631211202
28	0631211100ASSY	DRAIN CAP .....	1	REPLACES 0631211100
29	0852856439	ADJUST LINER, SHIM	5	
30	46072012400011	IMPELLER WASHER.....	1	REPLACES 4607201240
31	0511081054	KEY	1	
32	26010001900002	CLEANOUT COVER SET .....	4	REPLACES 2601000190
33	26010002200002	HANDLE DRAIN KNOB.....	2	REPLACES 2601000220
34	12471002500002	CLEANOUT COVER HANDLE .....	2	REPLACES 1247100250
35	2601200270	HINGE BOLT	4	
36	2601200280	HINGE PIN	4	
37	0641400430	SPLIT PIN.....	4	REPLACES 0642300425
38	0401450160	WASHER	8	
39	2601200260	DRAIN COVER SET HINGE	1	
40	2601200300	HINGE SET PIN	1	
41	0462721915	E-RING, SNAP	2	
42	0401450200	WASHER	2	
43	0642300528	SPLIT PIN	2	
44	0401450160	WASHER	2	
45	031112230	WASHER	2	
46	0141090825	SCREW (DRAIN COVER HANDLE)	4	
47	030208200	WASHER, LOCK	4	

# TRASH PUMP ASSY. (CONT'D.)

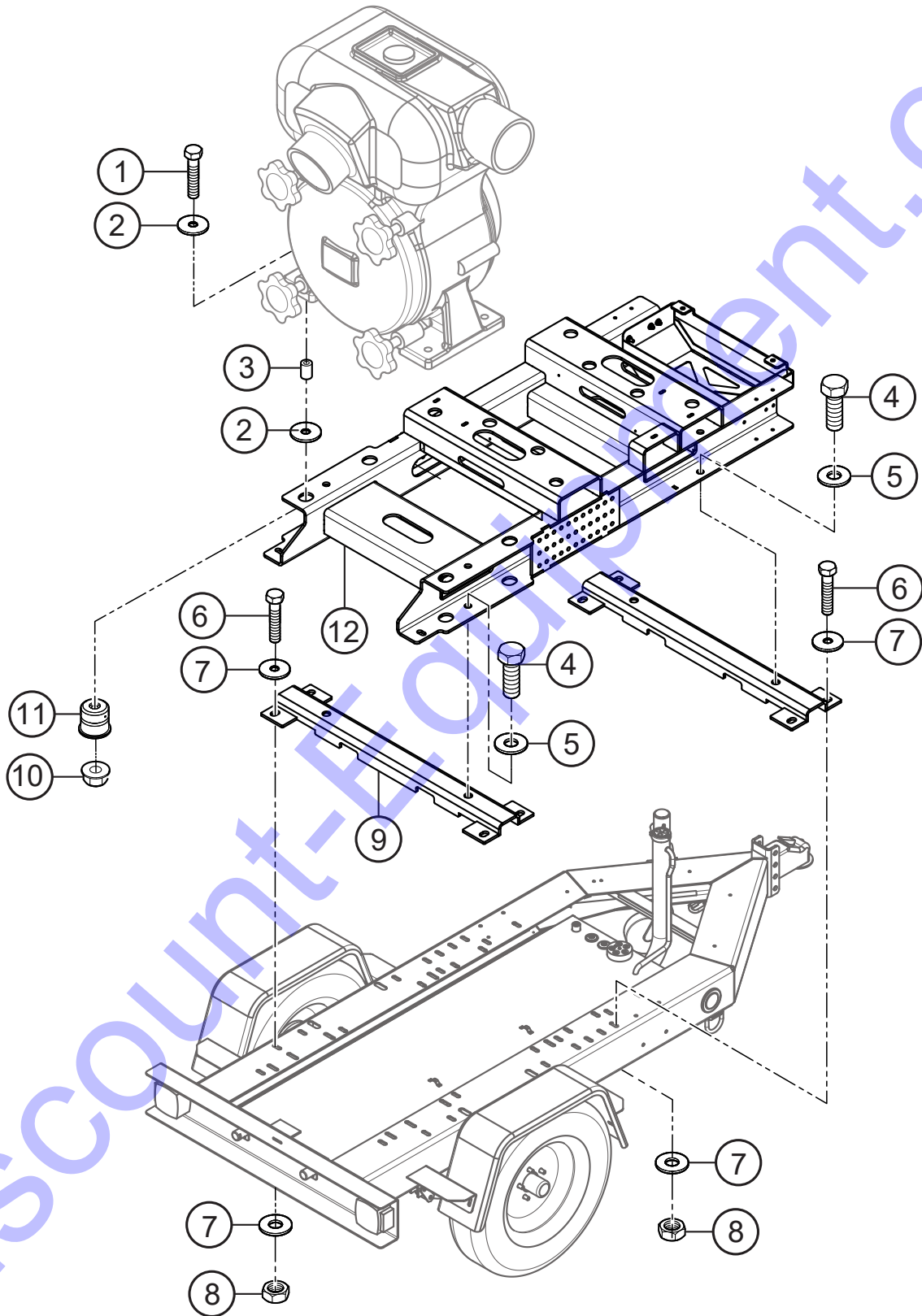




## TRASH PUMP ASSY. (CONT'D.)

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
48	0105090815	BOLT (MECHANICAL SEAL HOUSING)	4	
49	0451290080	WASHER, LOCK	4	
50	0105091225	BOLT, IMPELLER	1	
51	0451250120	WASHER, LOCK	1	
52	011008040	BOLT, SHAFT	6	
53	030208200	WASHER, LOCK	1	
54	0105051645	BOLT, CASING	14	
55	030216400	WASHER, LOCK	14	
56	012010030	BOLT, CASING COVER	6	
57	030210250	WASHER, LOCK	6	
58	0105052030	BOLT (OIL CAP)	3	
59	4607287110	OIL CAP WASHER	3	
60	012010030	BOLT(SUCTION CASE)	2	
61	030212300	WASHER, LOCK	2	
62	014210020	CAP SCREW (WEAR PLATE).....	3	REPLACES 0131191020
63	0151161035	STUDIO BOLT (VOLUTE CASING)	2	
64	0151151240	STUD BOLT (DRAIN COVER B)	2	
65	0458220100	SEAL WASHER	2	
66	030210250	WASHER, LOCK	2	
67	0204450100	NUT VOLUTE CASING	2	
68	0742062150	STRAINER	1	
70	KITMQ62	KIT, SEAL AND O-RINGS.....	1	INCLUDES ITEMS W/%

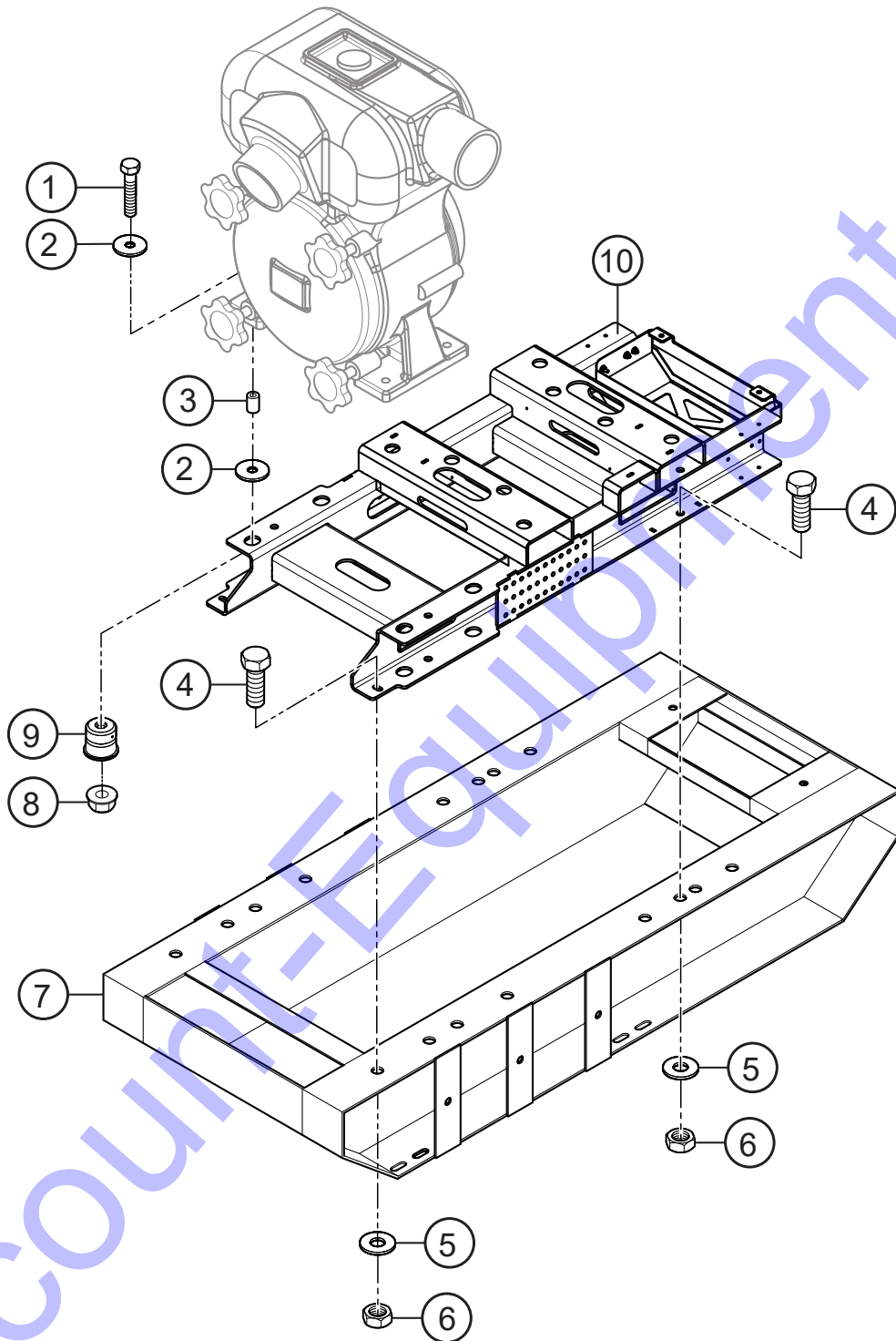
# PUMP TRAILER MOUNT ASSY.



## PUMP TRAILER MOUNT ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1	58690	SCREW, HHC, 3/8"-16 X 3.75	4	
2	25406	WASHER, FENDER 3/8 X 2"	8	
3	58687	SPACER, PUMP MOUNT	4	
4	06505-010	SCREW, HHC 5/8-11 X 1.25	4	
5	933246	WASHER, FLAT SAE 5/8"	4	
6	16526	SCREW, HHC 1/2-13 X 1-3/4"	8	
7	58693	WASHER, FENDER, 1/2 ID X 1-3/8" OD	16	
8	58694	NUT, HEX FINISH 1/2"-13	8	
9	58653	BEAM W/A, TRAILER MOUNT	2	
10	21781	NUT, HFS, 3/8"-16	8	
11	42709	MOUNT, VIBRATION, .433 X 1.88 X 1.68	8	
12	58652	CRADLE W/A	1	

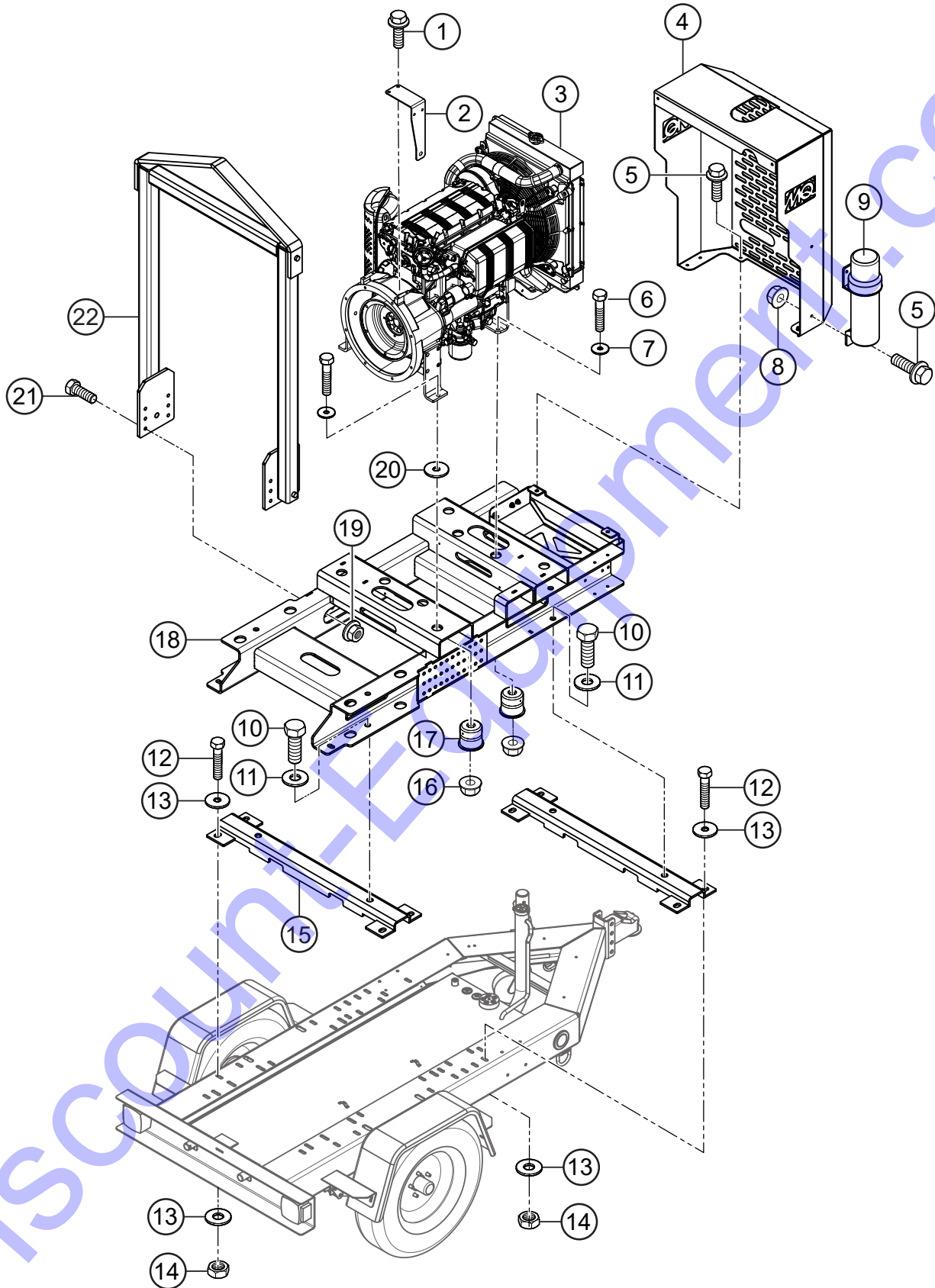
# PUMP SKID MOUNT ASSY.



## PUMP SKID MOUNT ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1	58690	SCREW, HHC, 3/8"-16 X 3.75	4	
2	25406	WASHER, FENDER 3/8 X 2"	8	
3	58687	SPACER, PUMP MOUNT	4	
4	16524	SCREW, HHC 1/2-13 X 1-1/4"	4	
5	13211	WASHER, FLAT 1/2"	4	
6	58689	NUT, HFS, 1/2"-13	4	
7	19091	SKID ASSY.	1	
8	21781	NUT, HFS, 3/8"-16	8	
9	42709	MOUNT, VIBRATION, .433 X 1.88 X 1.68	8	
10	58652	CRADLE W/A	1	

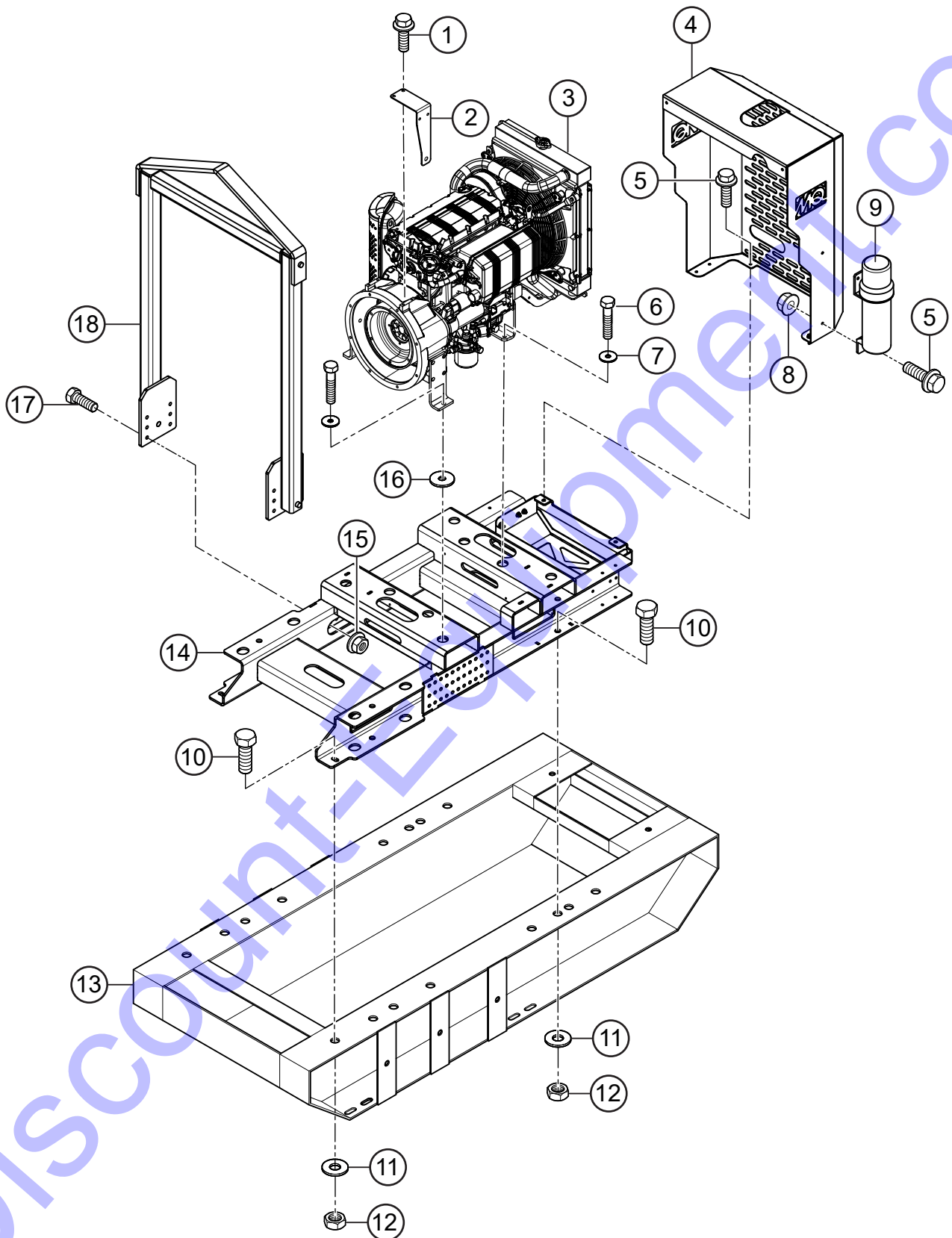
# ENGINE TRAILER MOUNT ASSY.



## ENGINE TRAILER MOUNT ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1	42342	SCREW, HFS, ZP, M8-1.25 X 16	2	
2	58691	WATER SEPARATOR BRACKET	1	
3	58678	ENGINE, KOHLER, KDW1404-5010	1	
4	58675	SHROUD, RADIATOR	1	
5	46031	SCREW, HHFS 1/4-20 X 1"	8	
6	915115	SCREW, HHC 3/8-16 X 3"	4	
7	933242	WASHER, FLAT SAE 3/8"	4	
8	49070	NUT, HFS, 1/4"-20	8	
9	23297	MANUAL HOLDER	1	
10	06505-010	SCREW, HHC 5/8-11 X 1.25	4	
11	933246	WASHER, FLAT SAE 5/8"	4	
12	16526	SCREW, HHC 1/2-13 X 1-3/4"	8	
13	58693	WASHER, FENDER, 1/2 ID X 1-3/8" OD	16	
14	58694	NUT, HEX FINISH 1/2"-13	8	
15	58653	BEAM W/A, TRAILER MOUNT	2	
16	21781	NUT, HFS, 3/8"-16	8	
17	42709	MOUNT, VIBRATION, .433 X 1.88 X 1.68	8	
18	58652	CRADLE W/A	1	
19	58700	NUT, HFS, 3/8"-16	12	
20	25406	WASHER, FENDER 3/8 X 2"	12	
21	915107	SCREW, HHC 3/8-16 X 1-1/4"	12	
22	58656	BAIL W/A, LIFT	1	

# ENGINE SKID MOUNT ASSY.

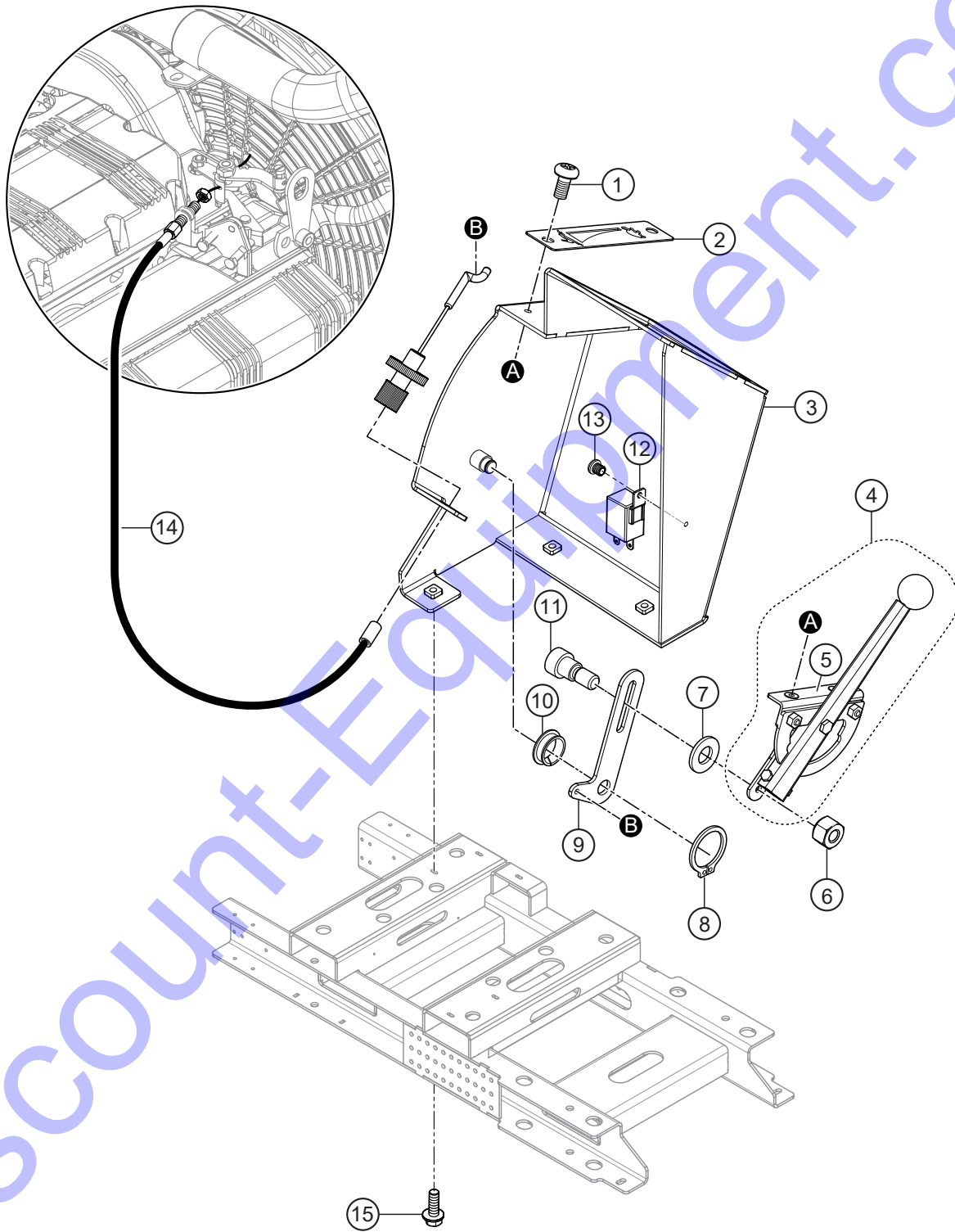




## ENGINE SKID MOUNT ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1	42342	SCREW, HFS, ZP, M8-1.25 X 16	2	
2	58691	WATER SEPARATOR BRACKET	1	
3	58678	ENGINE, KOHLER, KDW1404-5010	1	
4	58675	SHROUD, RADIATOR	1	
5	46031	SCREW, HHFS 1/4-20 X 1"	8	
6	915115	SCREW, HHC 3/8-16 X 3"	4	
7	933242	WASHER, FLAT SAE 3/8"	4	
8	49070	NUT, HFS, 1/4"-20	8	
9	23297	MANUAL HOLDER	1	
10	16524	SCREW, HHC 1/2-13 X 1-1/4	4	
11	13211	WASHER, FLAT 1/2 USS	4	
12	58689	NUT, HFS, 1/2-13	4	
13	19091	SKID ASSY.	1	
14	58652	CRADLE W/A	1	
15	58700	NUT, HFS, 3/8"-16	12	
16	25406	WASHER, FENDER 3/8 X 2"	12	
17	915107	SCREW, HHC 3/8-16 X 1-1/4"	12	
18	58656	BAIL W/A, LIFT	1	

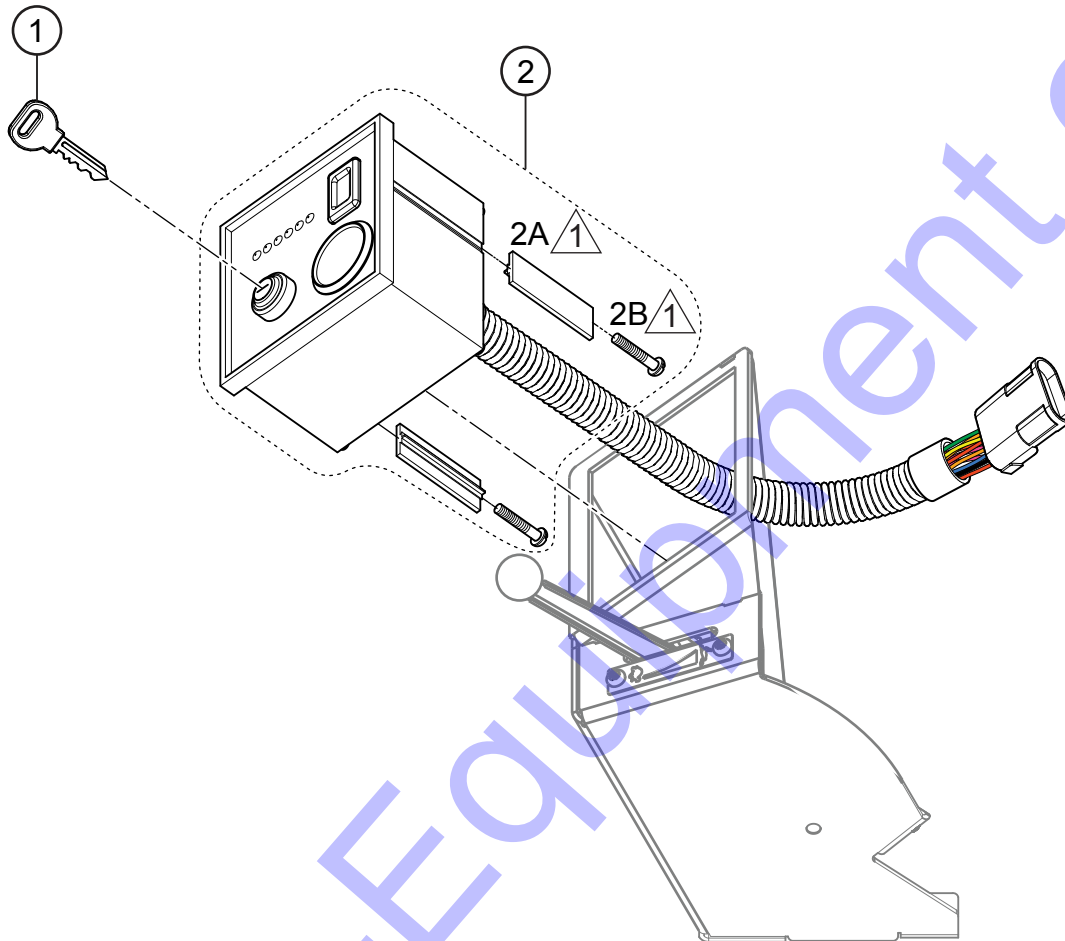
# THROTTLE/RELAY ASSY.



## THROTTLE/RELAY ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1	5031 A	SCREW, PHP 1/4-20 X 1/2	2	
2	58665	PLATE, INDICATOR, THROTTLE	1	
3	58655	PANEL W/A, CONTROL	1	
4	11379	QUADRANT, THROTTLE	1	
5	58686	BRACKET ASSY., THROTTLE QUADRANT	1	
6	10024	NUT, NYLOC 1/4-20	1	
7	0300 B	WASHER, FLAT SAE 5/16	1	
8	1737	RING, SNAP	1	
9	58664	PLATE, LINKAGE, THROTTLE	1	
10	38368	BUSHING, SPLIT FLANGED, .5 ID	1	
11	58679	SCREW, SHLD 5/16D X 1/4L, 1/4-20, SS	1	
12	40130	RELAY .....	1	INCLUDED W/ ENGINE
13	20842	SCREW, PHP 8-32 X 1/4	1	
14	23518	CABLE, THROTTLE	1	
15	46031	SCREW, HHFS 1/4-20 X 1"	3	

## CONTROLLER ASSY.



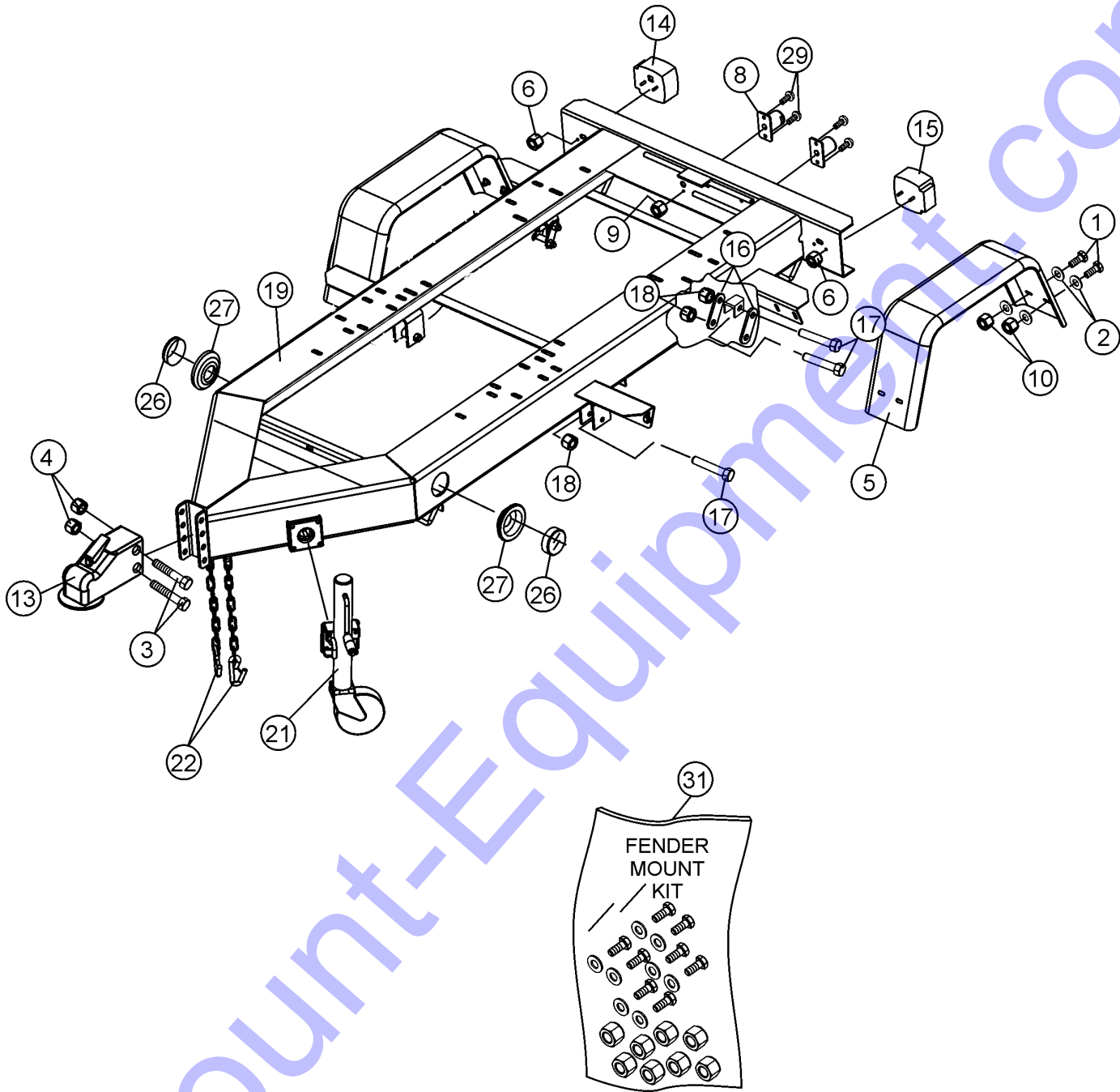
### NOTES:

- △<sup>1</sup> ITEM 2A, SHIM AND ITEM 2B, SCREW ARE INCLUDED WITH ITEM 2.

## CONTROLLER ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1	01182529	KEY, IGNITION	2	
2	58654	PANEL ASSY., CONTROL.....	1.....	INCLUDES ITEMS W/\$
2A\$		SHIM	2	
2B\$		SCREW	2	

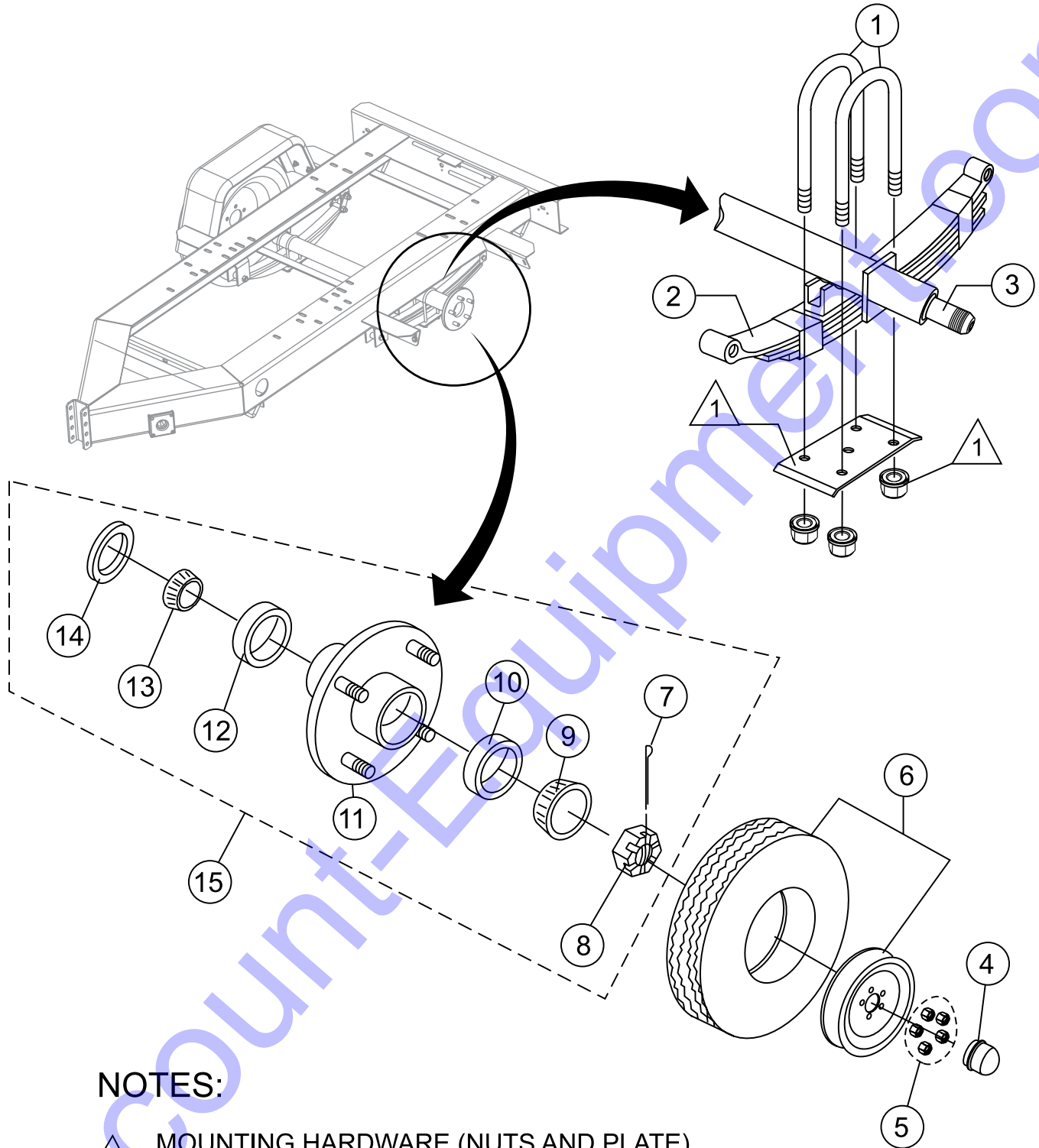
# TRAILER TRLRMPXF ASSY.



## TRAILER TRLRMPXF ASSY.

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1	0205	SCREW, HHC 3/8-16 X 1	8	
2	4001	WASHER, FLAT USS 3/8 PLD	16	
3	9502	SCREW, HHC 5/8-11 X 4-1/2 GRD 8	2	
4	9503	NUT, NYLOC 5/8-11	2	
5	9505	FENDER, 8 X 30 X 13	2	
6\$%		NUT .....	4	NOT SOLD SEPARATELY
8	9514	LIGHT ASSY., LICENSE PLATE	2	
9	10019	NUT, NYLOC 10-32	4	
10	10133	NUT, NYLOC 3/8-16	8	
13	29228	COUPLER, 2" BALL 600# GVWR	1	
14	29242	LIGHT, TAIL RT (CURB) SIDE M440.....	1	INCLUDES ITEM W/\$
15	29243	LIGHT, TAIL LT (ROAD) SIDE M440L .....	1	INCLUDES ITEM W/%
16	29247	SHACKLE, AXLE MOUNTING	4	
17	29248	SCREW, HHC 9/16-18	6	
18	29249	NUT, 9/16-18 AXLE MOUNTING, N-2	6	
19	29370	FRAME, W/A TRLRMP	1	
21	29496	JACK, SIDEWIND 10", BOLT-ON 1/2 PIN	1	
22	29572	CHAIN ASSY., SAFETY 7600 LB	2	
26	29898	LIGHT, 2-1/2 SIDE MARKER, AMBER, 143A	2	
27	29900	GROMMET W/ WIRE KIT, 2-1/2", 14248K	2	
29	5065 B	SCREW, PHP 10-32 X 1/2	4	
31	29754	FENDER MOUNT KIT	1	

# AXLE ASSY.



## NOTES:



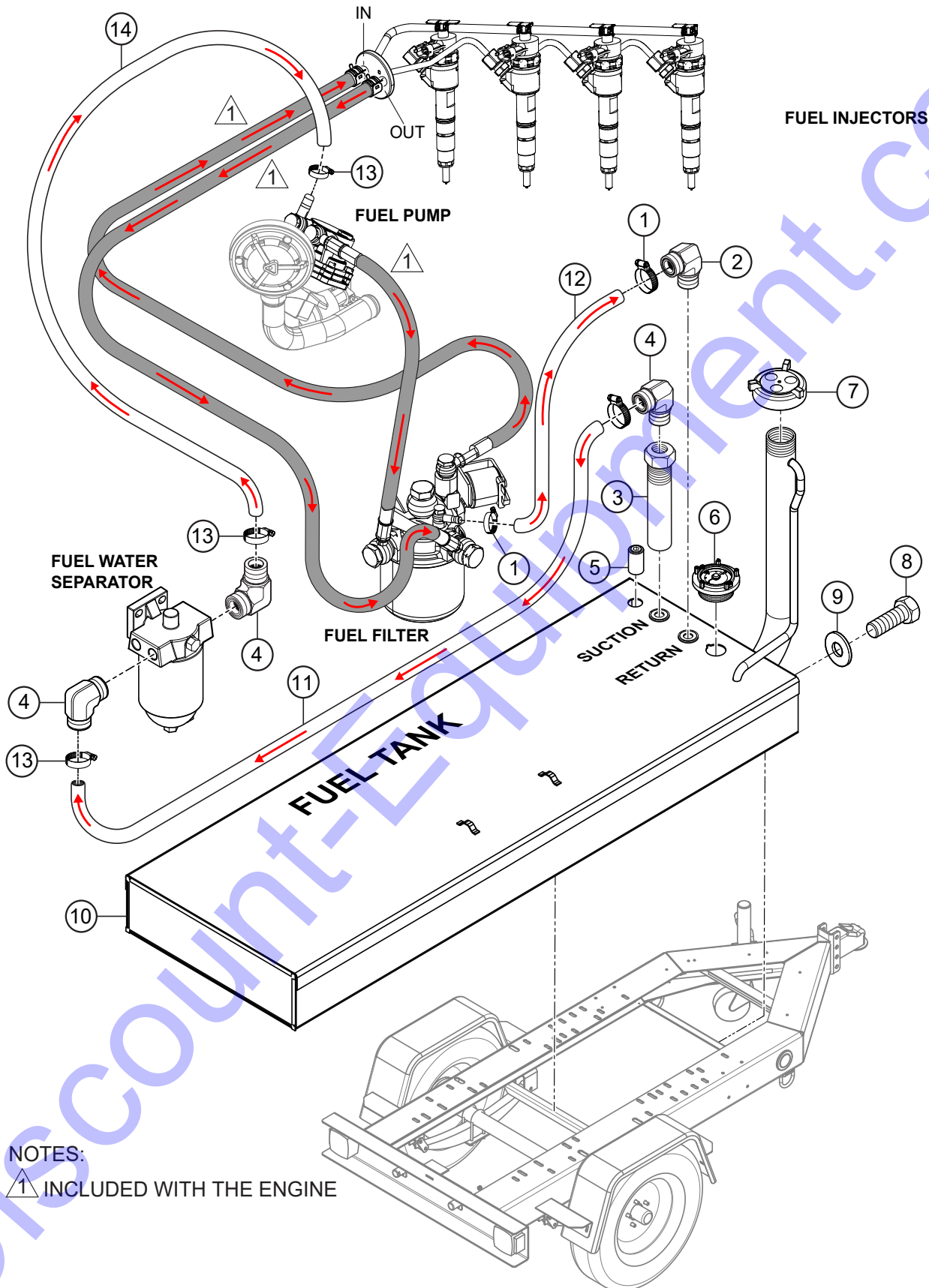
MOUNTING HARDWARE (NUTS AND PLATE)  
INCLUDED WITH U-BOLTS (ITEM 1).



**AXLE ASSY.**

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1	29381U	KIT, U-BOLT	4	
2	29381S	SPRING, 4 LEAF 25.25	2	
3	29381B	AXLE BEAM	1	
4	46749	DUST CAP .....	2.....	HENDERSON
5	29755	LUG NUT KIT	1	
6	19045	TIRE/RIM	2	
7%	491688	COTTER PIN	1	
8%	114	SPINDLE NUT.....	1.....	HENDERSON
9%	L44649	OUTER BEARING CONE .....	1.....	HENDERSON
10%	L44610	OUTER BEARING CUP .....	1.....	HENDERSON
11%	10-215S	IDLER HUB, 5 X 4.5".....	1.....	HENDERSON
12%	L68111	INNER BEARING CUP .....	1.....	HENDERSON
13%	L68149	INNER BEARING CONE.....	1.....	HENDERSON
14%	58846	GREASE SEAL .....	1.....	HENDERSON
15	29381H	HUB KIT .....	1.....	INCLUDES ITEMS W/%

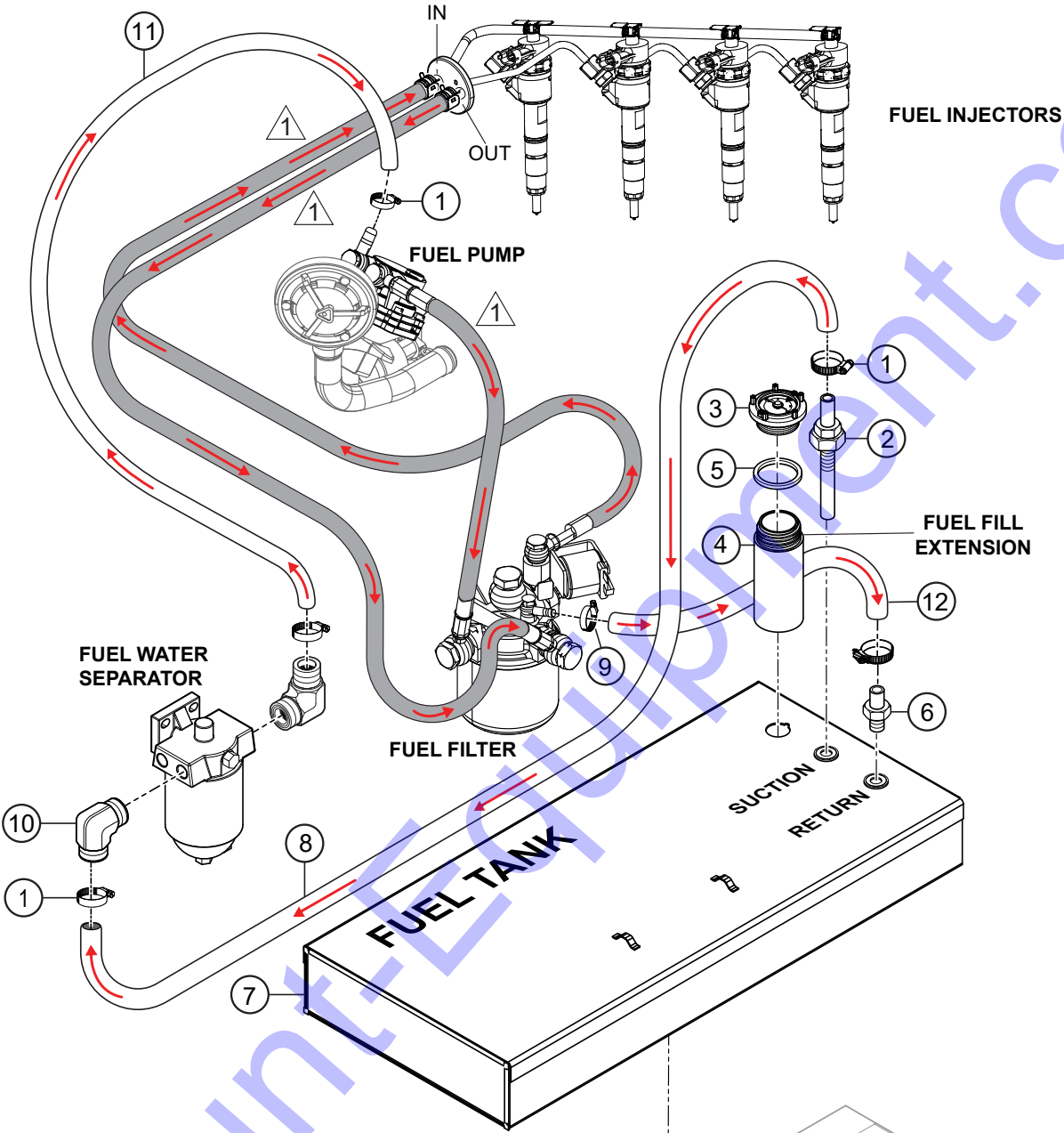
# FUEL ASSY. (TRLRMPXF)



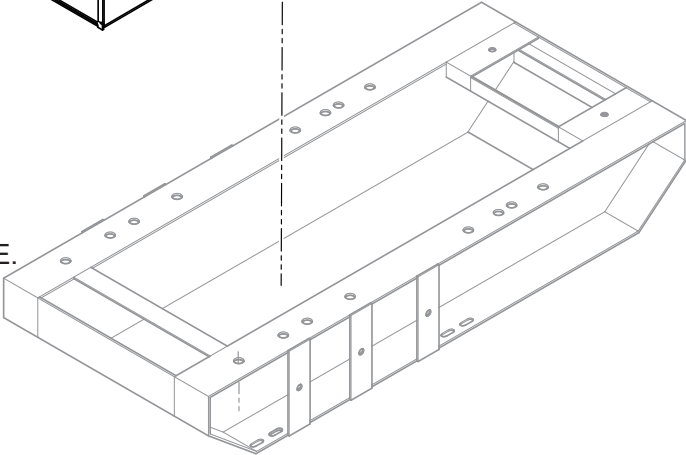
**FUEL ASSY. (TRLRMPXF)**

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1		CLAMP, 3/16"	2	
2		ELBOW, 3/16" X 3/8" HOSE BARB 90°	1	
3	EE53541	TUBE, FUEL DOWN 5-1/2"	1	
4		ELBOW, 5/16" X 1/4", HOSE BARB 90°	3	
5		PLUG	1	
6	EE58784	GAUGE, 5.20" MECHANICAL FUEL	1	
7	7V3177002	CAP, 2" VENTED	1	
8	6109210	BOLT 1/2"-13 X 1-1/2" HEX HEAD	1	
9	6109208	WASHER, FLAT L516 1/2" SAE	1	
10	EE55144	FUEL TANK, 28 GAL.	1	
11		HOSE, 5/16" (84 INCHES) .....	7	1PC=1FT
12		HOSE, 3/16" (84 INCHES) .....	7	1PC=1FT
13		CLAMP, 5/16"	4	
14		HOSE, 5/16" (12 INCHES) .....	1	1PC=1FT

# FUEL ASSY. (SKID)



NOTES:  
 ▲ INCLUDED WITH THE ENGINE.



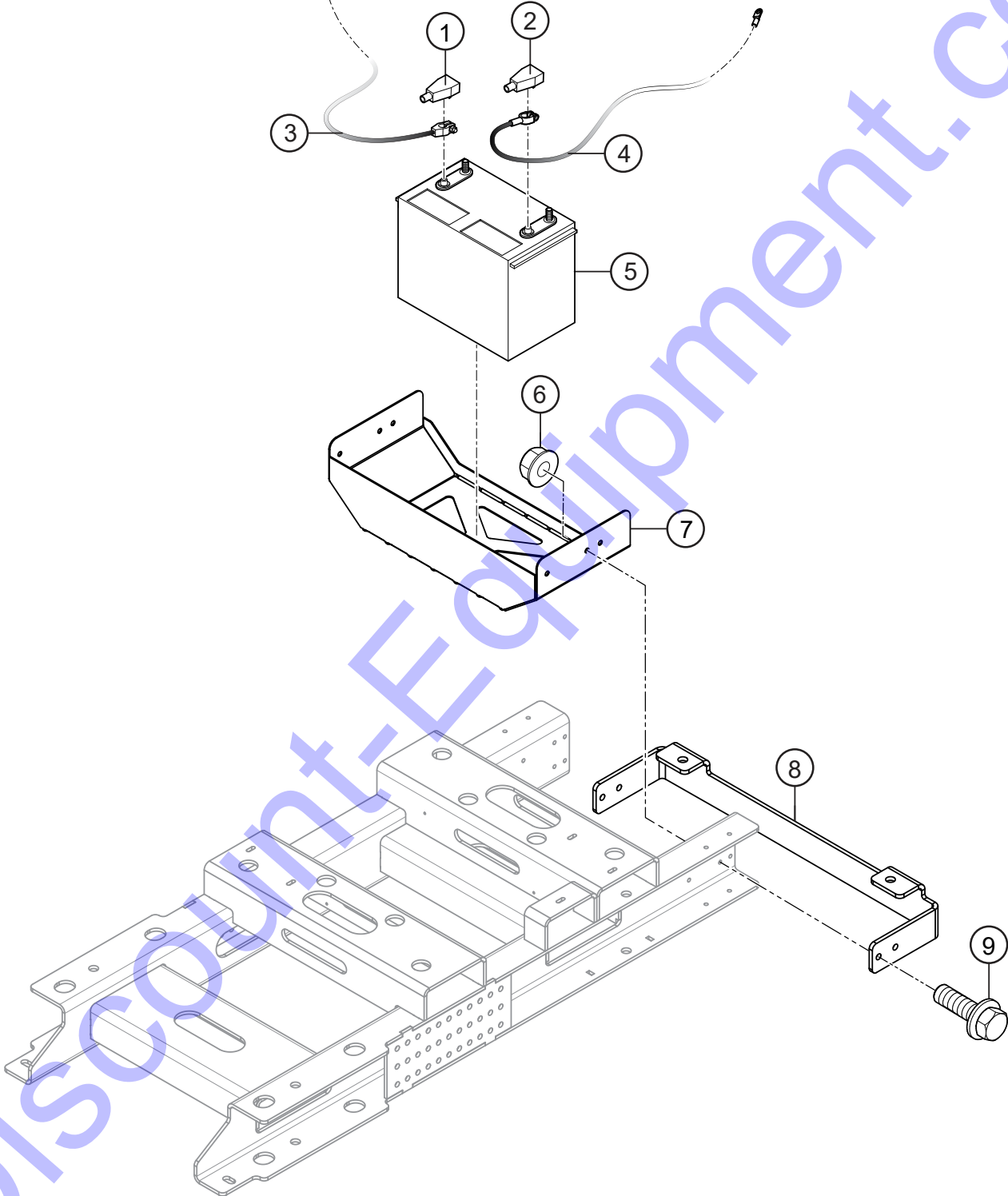
## FUEL ASSY. (SKID)

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1		CLAMP, 5/16"	4	
2		FITTING, 5/16"	1	
3	EE58784	GAUGE, 5.20" MECHANICAL FUEL	1	
4	58692	FUEL FILL EXTENSION	1	
5	58688	O-RING, 2.25 OD X 1.86 ID X .19, FLAT	1	
6		FITTING, 3/16"	1	
7	19029	FUEL TANK, 16 GAL.	1	
8		HOSE, 5/16" (60 INCHES) .....	5.....	1PC=1FT
9		CLAMP, 3/16"	2	
10		ELBOW, 5/16" X 1/4", HOSE BARB 90°	2	
11		HOSE, HOSE, 5/16" (12 INCHES)	1	
12		HOSE, 3/16" (60 INCHES) .....	5.....	1PC=1FT

# BATTERY ASSY.

NEGATIVE (BLACK)  
CABLE CONNECT  
TO CHASSIS GND.

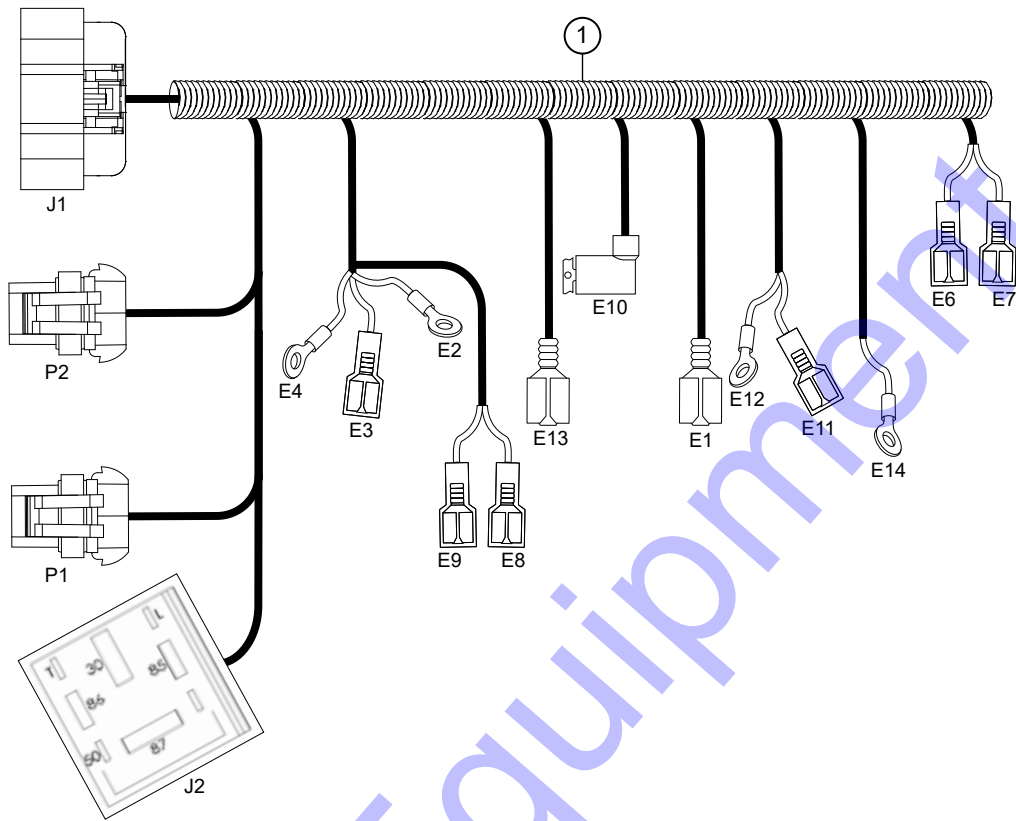
CONNECT  
POSITIVE  
BATTERY  
CABLE (RED)  
TO STARTER  
SOLENOID



**BATTERY ASSY.**

<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1	46195	BOOT, BATTERY POS.	1	
2	46196	BOOT, BATTERY NEG.	1	
3	34596	CABLE, BATTERY BLACK (NEG) 39.5"	1	
4	34597	CABLE, BATTERY RED (POS) 33.5"	1	
5	10315	BATTERY, GROUP 24	1	
6	49070	NUT, HFS, 1/4"-20	6	
7	58671	TRAY, BATTERY	1	
8	58676	BRACKET W/A, FRONT MOUNT, SHROUD	1	
9	46031	SCREW, HHFS 1/4-20 X 1"	6	

# WIRE HARNESS ASSY.



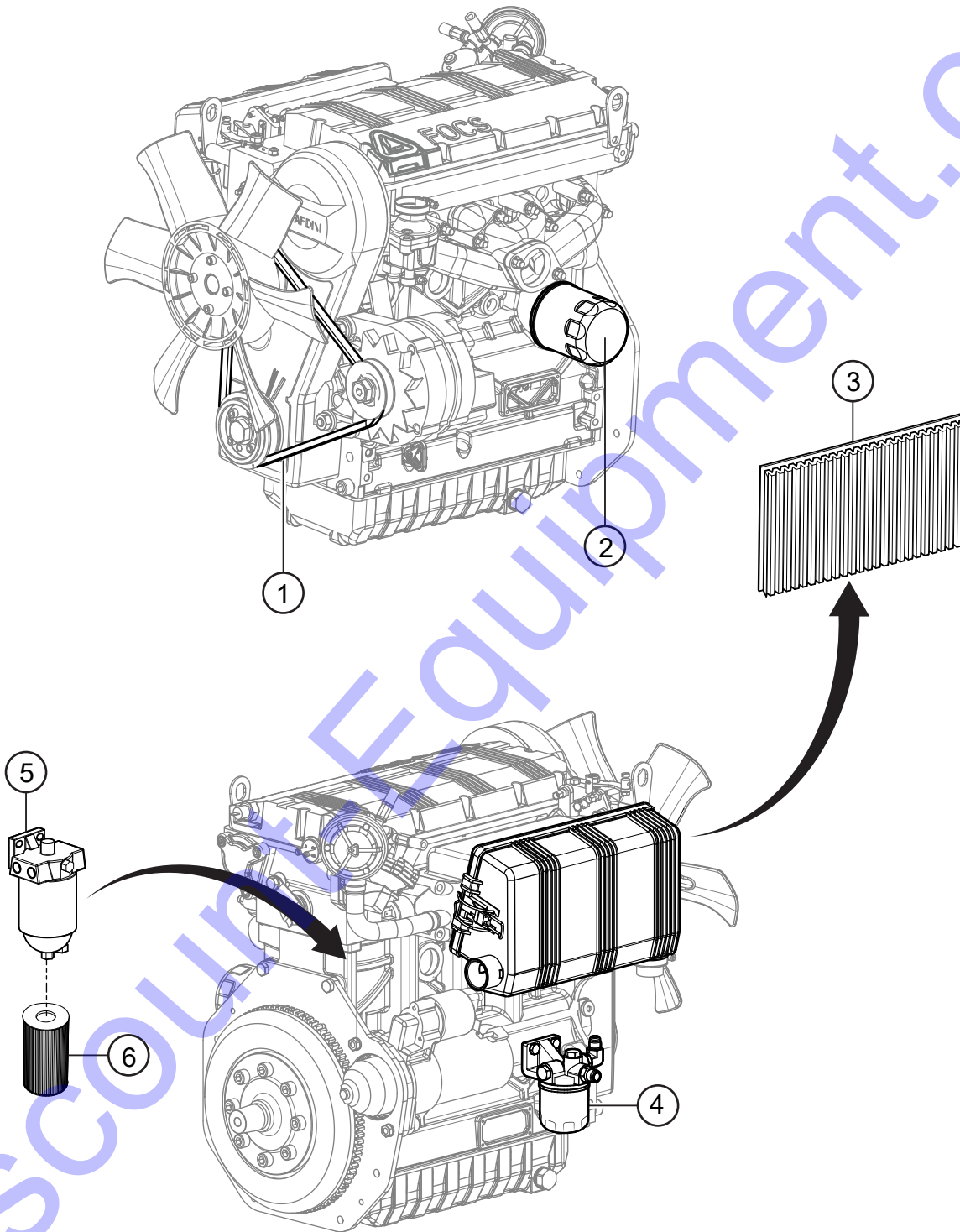


## WIRE HARNESS ASSY.

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<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1	58681	WIRE HARNESS, MQ62 PUMP	1	

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## ENGINE SERVICE PARTS

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<u>NO.</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY.</u>	<u>REMARKS</u>
1	ED0024403160-S	BELT, FAN	1	
2	ED0021752850-S	FILTER, OIL	1	
3	2175164	FILTER, AIR	1	
4	ED0021752880-S	FILTER, FUEL	1	
5	34505	FILTER, FUEL/WATER SEPARATOR	1	
6	34505E	ELEMENT, FILTER	1	

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