



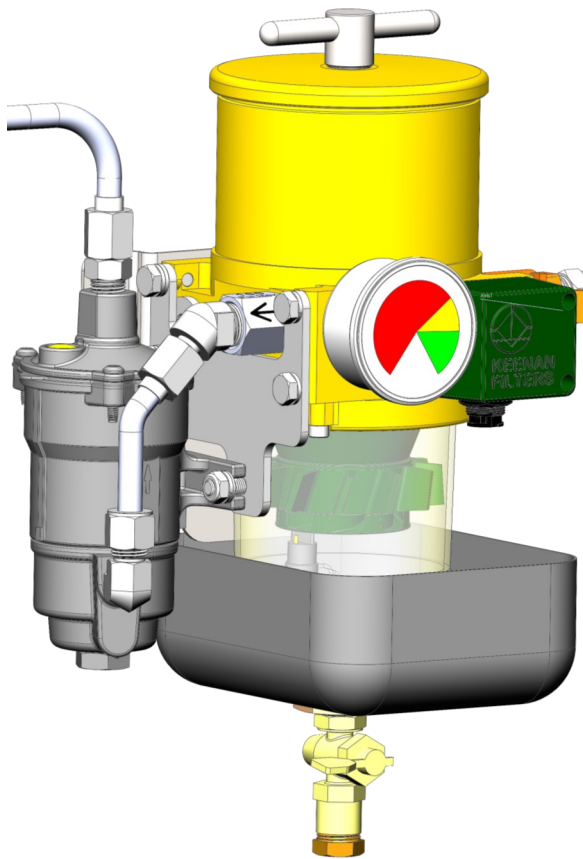
# KEENAN FILTERS®

By KTI Systems, Inc.

## MK60SP/K60SP SMART FILTER

“DIESEL ENGINES ONLY”

### INSTALLATION/USER GUIDE



**MK60SP SHOWN**  
(WITH HEAT SHIELD)


**THE INSTALLATION AND SETUP SHOULD BE PERFORMED BY A QUALIFIED TECHNICIAN**

US PATENTS AND PATENT PENDING, ALL RIGHTS RESERVED.

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MADE IN USA

# BENEFITS

- **GSM INTERFACE (optional)** - Allows the operator to monitor and control the engine fuel system, pumps, lights, ventilation, security etc.. from any location.
- **FUEL POLISHING** - Ensures clean fuel is supplied to the engine.
  - Reduces maintenance cost.
  - Allows the operator to polish the fuel quality during and after fueling and prior to starting the engine(s).
  - Gives the operator a solution to fuel contamination.
- **REMOTE WARNING PANEL** - Alerts the operator before fuel problems can affect engine operation.
  - Can be installed anywhere in a facility or vessel.
- **ADVANCE WARNING** - Allows the operator to use a lower micron pre filter for cleaner engine fuel delivery.
- **EARLY CLOGGING FILTER AND WATER DETECTION** - Water and contaminants are most often the reasons why diesel engines inadvertently shut down.
- **BACK-UP FUEL PRESSURE** - Backs up the engine lift pump if it starts to fail.
  - Allows for faster system bleeding.
- **SYSTEM TESTING** - Allows the operator to test the system for indication and integrity before a trip or after maintenance has been performed.
- Uses genuine Racor® elements 

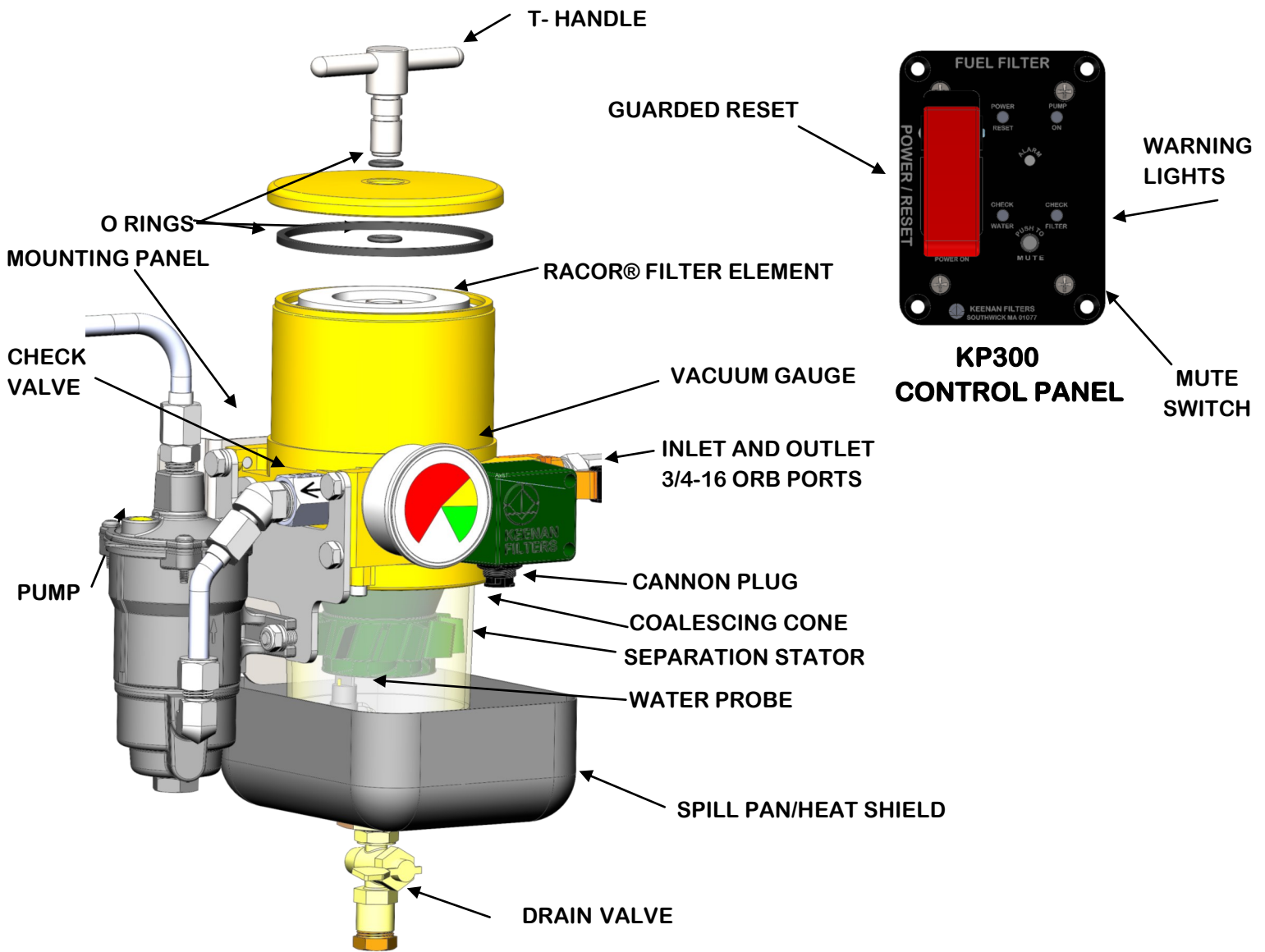
# STANDARD FEATURES

	Keenan Filters® MK60SP/K60SP	Other filters
GSM interface (optional)	✓	-
Fuel polishing	✓	-
Remote advance warning panel	✓	-
Clogging filter detection and warning	✓	?
Water detection and warning	✓	?
Back-up fuel pressure for engine lift pump	✓	-
Quick system bleeding	✓	-
System testing	✓	-
Water drain valve	✓	?
Spill pan/heat shield	✓	-
Inlet shut-off valve	✓	-
Top loading	✓	?
Vacuum gauge	✓	?
Multiple installation options	✓	?

# MK60SP/K60SP INSTALLATION/USER GUIDE

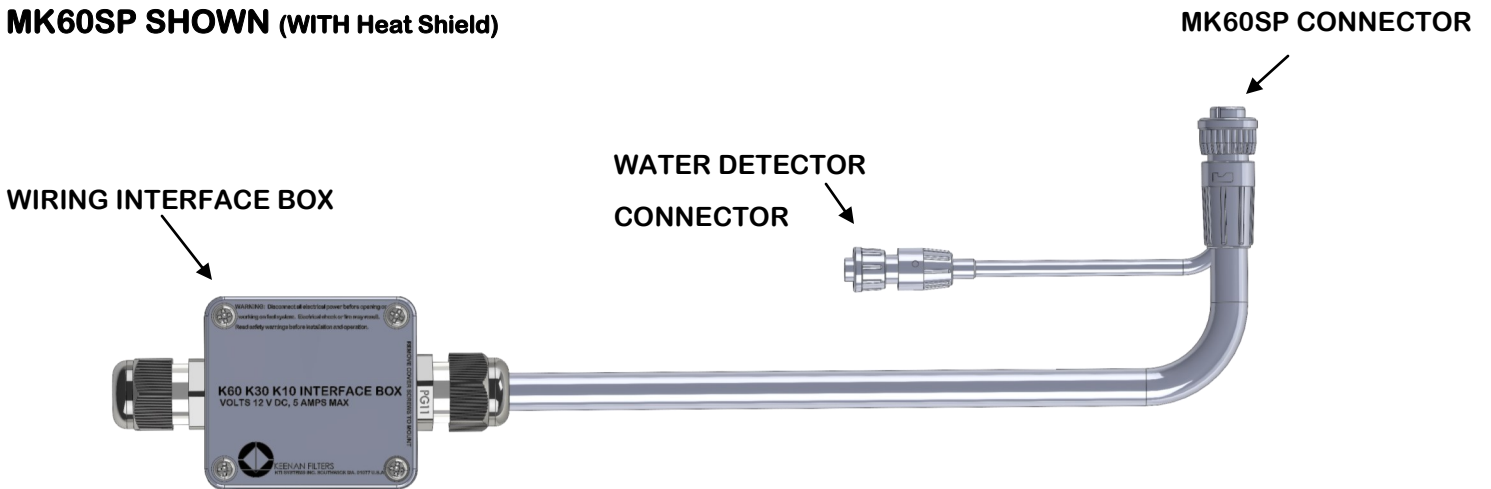
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# MK60SP/K60SP SMART FILTER

MK60SP SHOWN (WITH Heat Shield)



## KH1010 INTERFACE CABLE ASSEMBLY

## INSTALLATION TIPS

### PLEASE READ BEFORE INSTALLING

- Do not smoke or allow open flames.
- Turn off engine.
- Turn off power and disconnect battery ground cable connection.
- Before drilling holes or installing mounting hardware make sure the back side is clear of obstructions such as fuel lines, electrical harnesses, fuel and fluid tanks, ships hull, etc.
- Use proper fuel lines, connections and mounting hardware. Use proper wire, connectors and routing.

### SUGGESTED TOOLS AND SUPPLIES

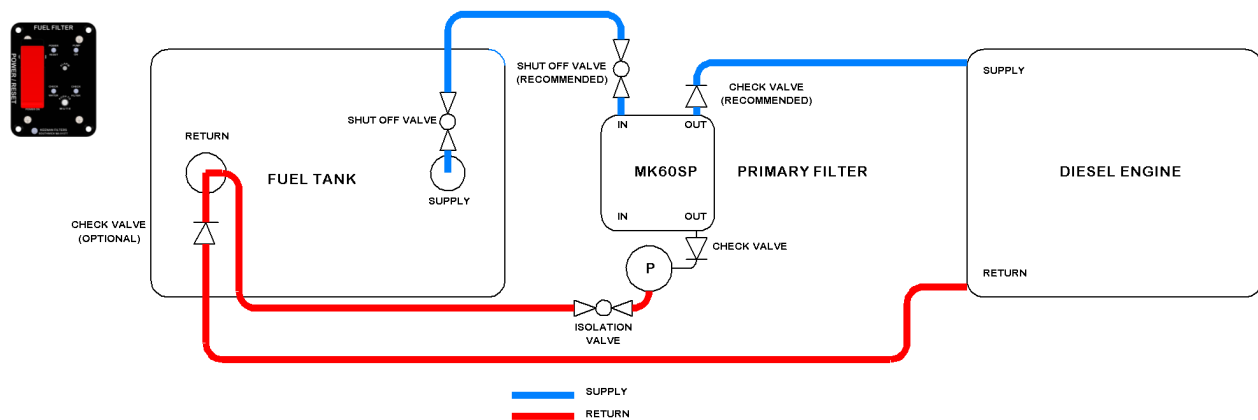
- Shop towels and a clean bucket.
- Clean diesel to prime the filter.
- Clean engine oil to lubricate seals.
- Proper thread sealant (do not use thread tape).
- Use adequate light, ventilation and eye and skin protection.
- Proper 16 AWG wire for harness or 10 conductor 16 AWG cable (KTI P/N KW1016 optional)
- Additional Shut Off Valve (before filter)
- Additional Check Valve (KTI P/N KA159CV optional)

## FUEL SYSTEM DESIGN AND LAYOUT

1. The MK60SP/K60SP filter pump system can be installed in several configurations. Listed below are some basic fuel system designs, but it is still the operator, designer and the installers responsibility to configure the system properly. THE DIAGRAMS ARE FOR REFERENCE ONLY

### SINGLE ENGINE RETURN SYSTEM

(Reference only)

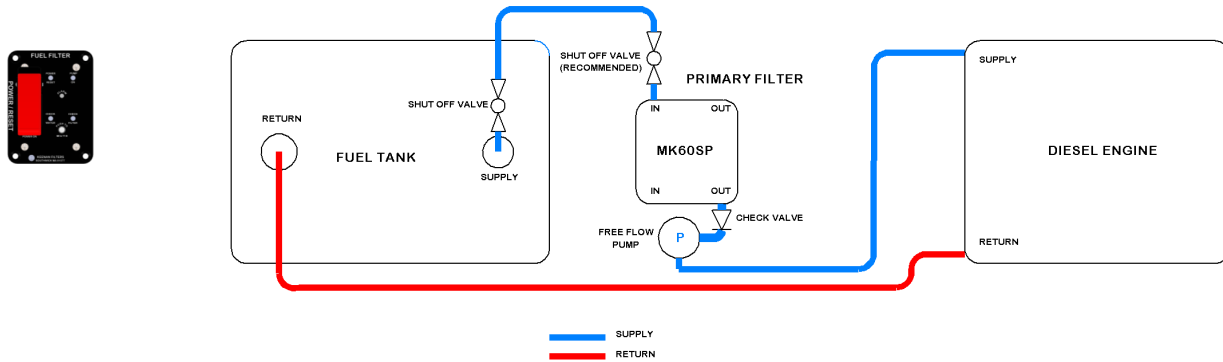


- This configuration allows one filter outlet to go directly to the engine pump and the second outlet to polish fuel back to the tank. The MK60SP comes stock with the outlet check valve to the pump. This protects the engine from drawing air from the tank return. We recommend to install a second check valve in the engine outlet.

**NOTE:** The pump should only be operated with the engine off.

## SINGLE ENGINE PRESSURE SYSTEM

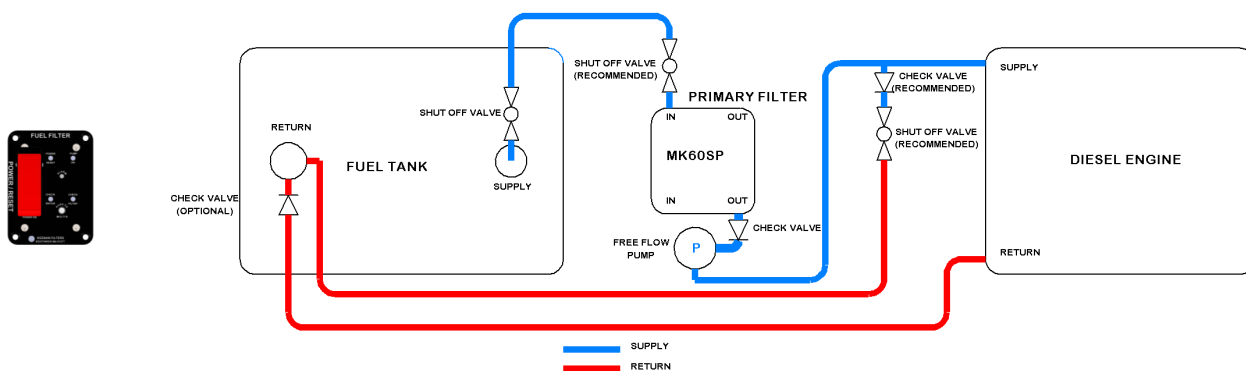
(Reference Only)



- This configuration can supply fuel pressure directly to the engine. We use a free flow pump that allows the engine to draw the fuel through the pump with very little restriction. This allows the engine to operate normally with the pump off, but can operate with the pump on if needed.

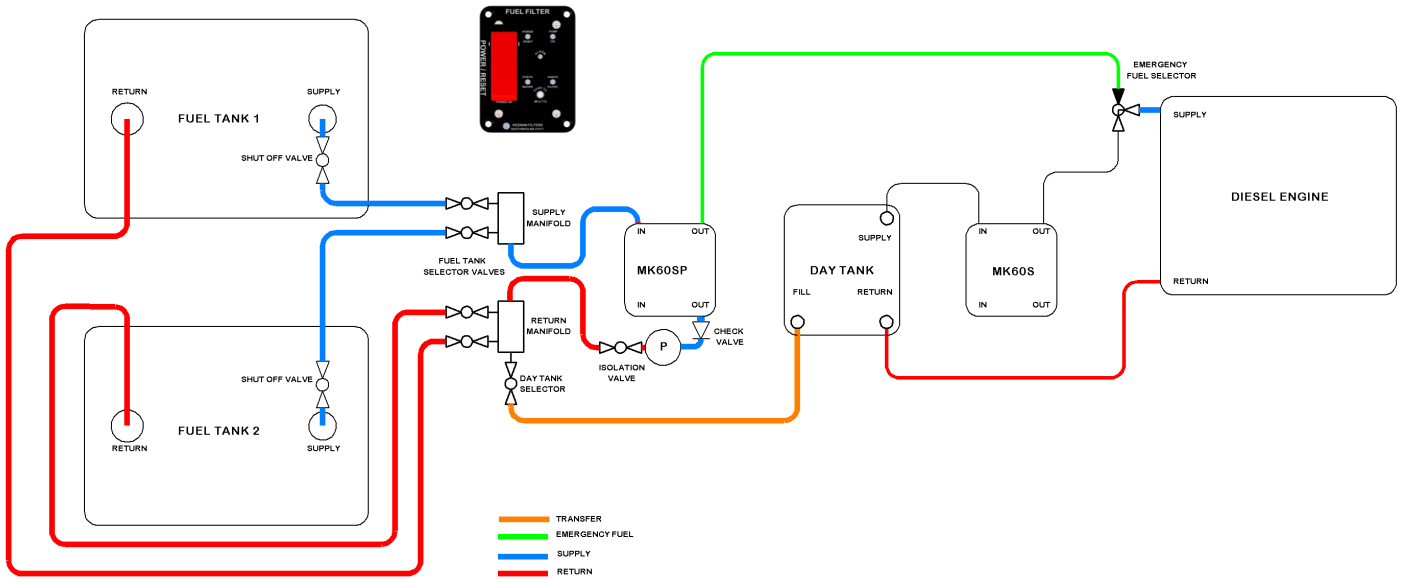
## SINGLE ENGINE PRESSURE/BYPASS SYSTEM

(Reference Only)



- This configuration allows the pump to supply fuel pressure to the engine and also bypass fuel back to the return port at the tank. The bypass requires a check valve and shut off valve to protect the engine from drawing air in from the return line. The bypass shut off valve is normally in the off position. This configuration allows both a pressure and return system.

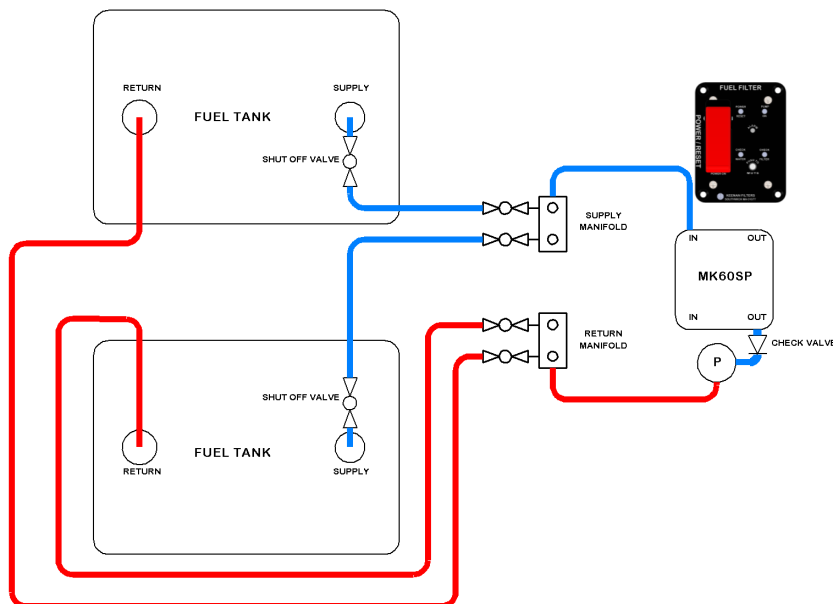
## MULTI TANK SINGLE ENGINE WITH DAY TANK (Reference only)



- This configuration allows the fuel to be polished to a day tank. Day tank systems use a smaller tank to provide the engine(s) with clean fuel. Fuel in the day tank is used and replenished at a higher rate, reducing the chance of storage contamination. In this system design we added an emergency fuel circuit so if the transfer pump fails or there is a loss of power, the engine lift pump can pull fuel directly from the storage tanks. This system design also allows the operator to clean the fuel storage tanks when it is not being used as a transfer system.

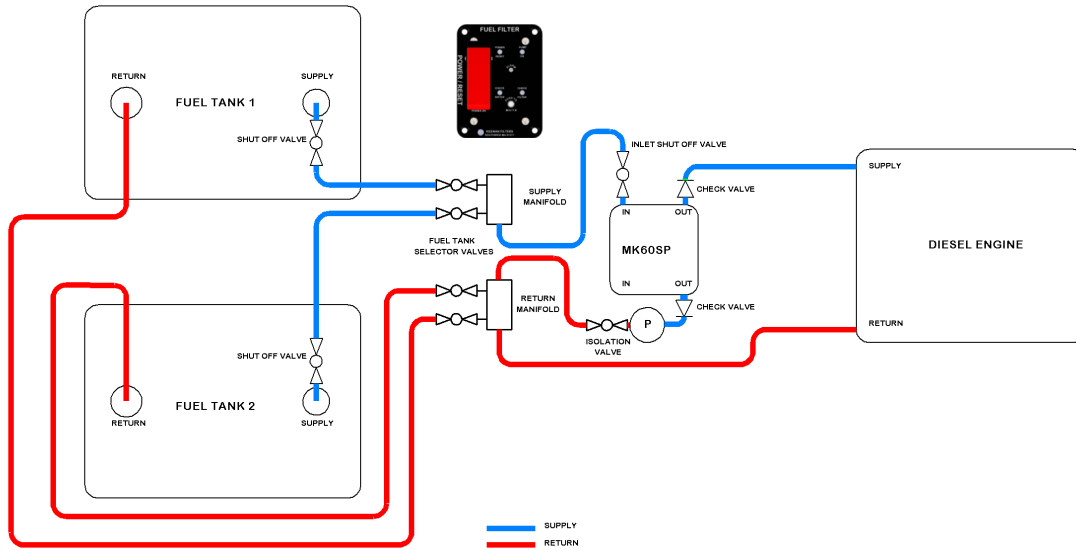
(An MK60S is shown installed to protect the engine)

## FUEL TRANSFER OR STAND ALONE POLISHING (Reference only)



## DUAL TANKS - SINGLE ENGINE RETURN SYSTEM

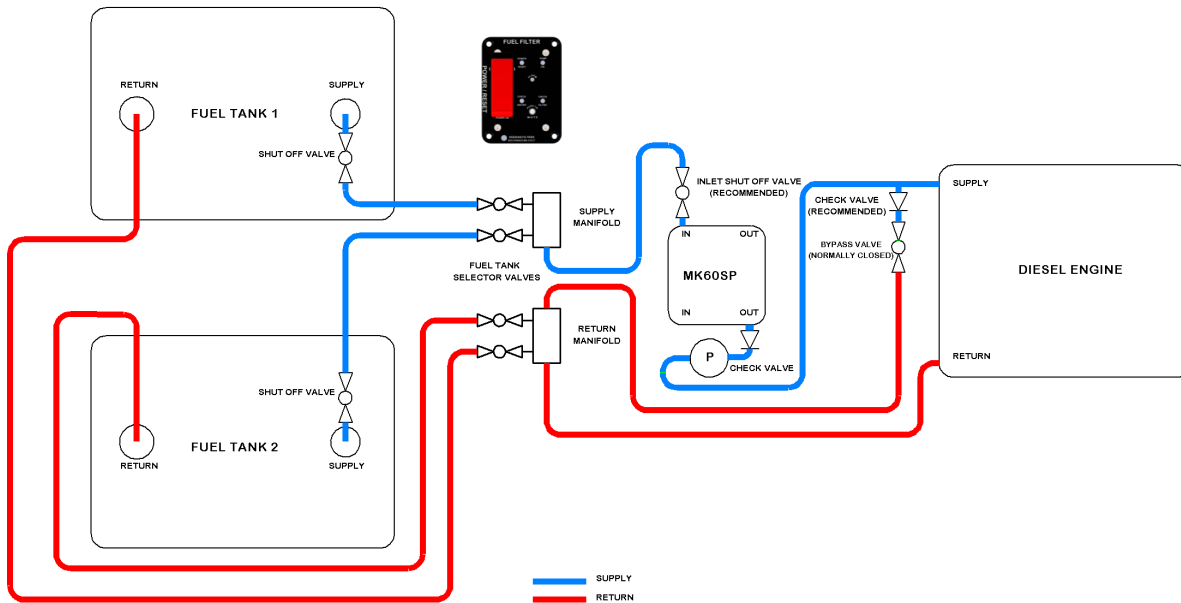
(Reference Only)



- This configuration allows one filter outlet to go directly to the engine pump and the second outlet to polish fuel back to the tank or transfer from tank to tank. The MK60SP/K60SP comes stock with the outlet check valve to the pump, which protects the engine from drawing air from the tank return. We recommend to install a second check valve in the engine outlet. **NOTE:** The pump can only be operated with the engine off.

## DUAL TANKS - SINGLE ENGINE PRESSURE/BYPASS SYSTEM

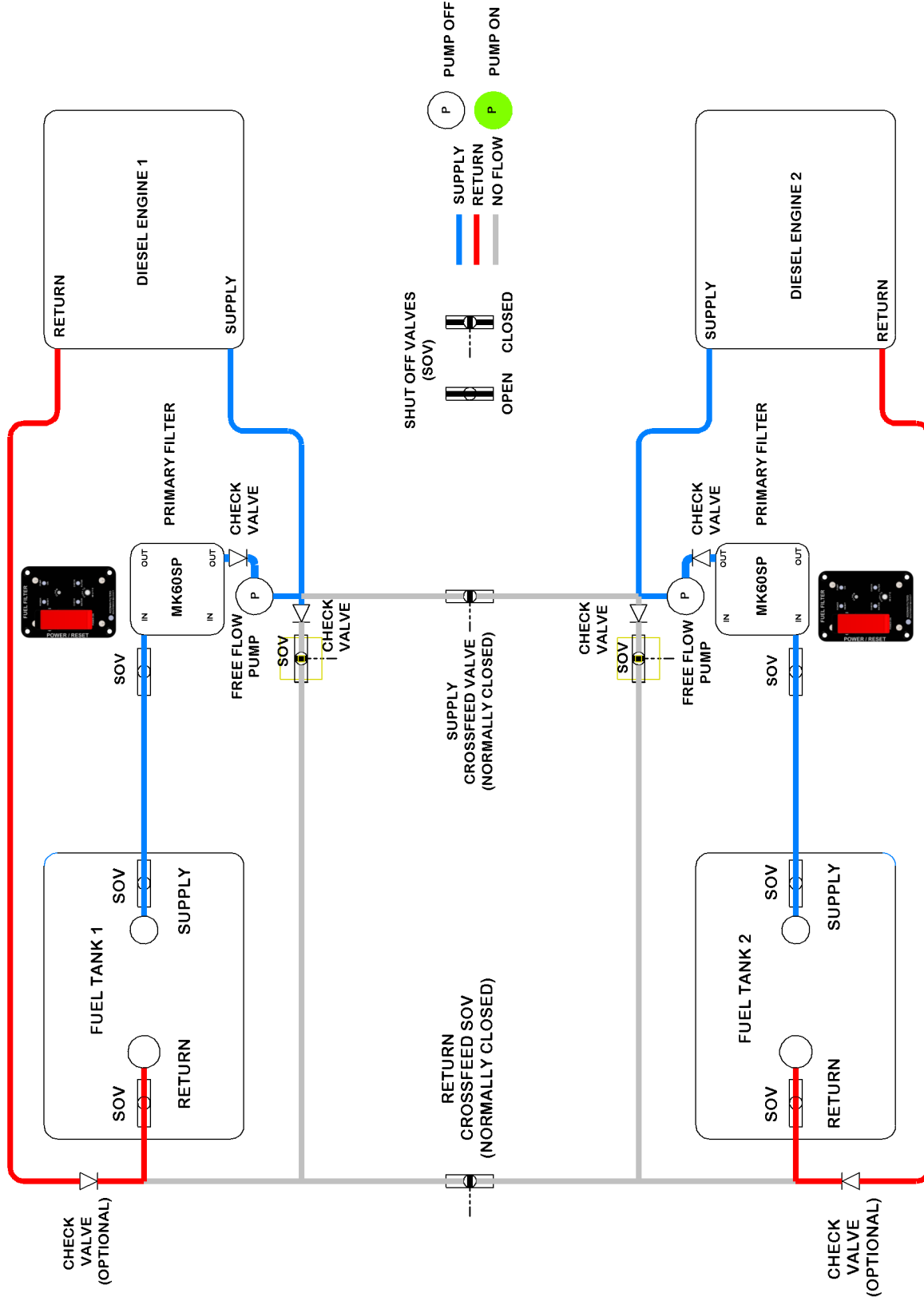
(Reference Only)



- This configuration allows the pump to supply fuel pressure to the engine and also polish back to the tank or transfer from tank to tank. A check and shut off valve is required to protect the engine from drawing air in from the return line. The bypass shut off valve is normally in the off position.



## DUAL ENGINES AND DUAL TANKS (CATAMARANS)

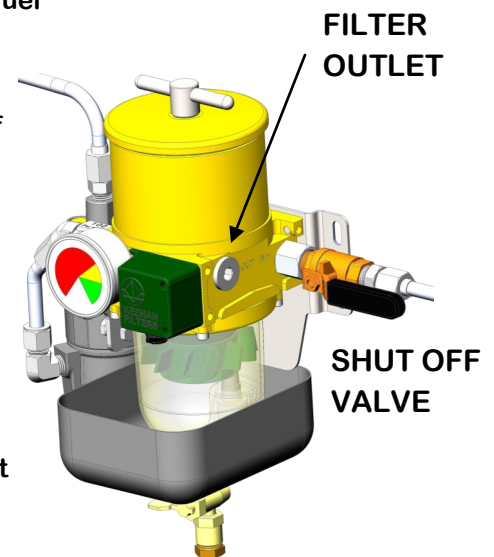
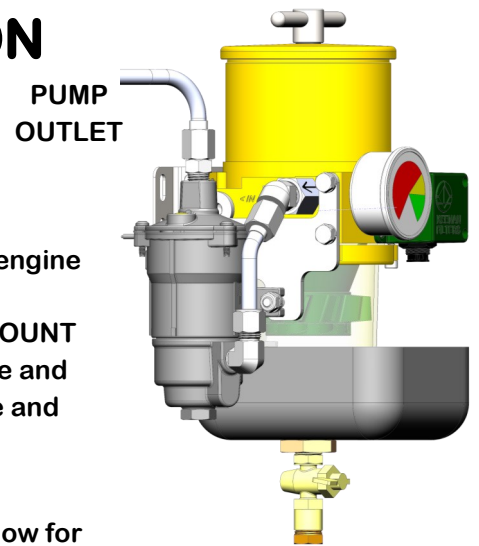


**"REFERENCE ONLY"**

- This dual engine configuration is using two separate pressure bypass systems with a supply and return cross feed fuel circuit. The design allows the operator to polish its own engine fuel tank and also polish and return fuel from the opposite engines fuel tank. It can also allow both engines to operate from one tank.

# MK60SP/K60SP MOUNTING LOCATION

1. The filter assembly should be installed between the fuel tank (fuel source) and the suction side of the engine lift or transfer pump. Pre-existing filters should be removed. If the engine manufacturer has permanently installed primary filters, service with new filter elements.  
**USE APPROPRIATE MOUNTING HARDWARE**
2. The filter assembly should be mounted between the horizontal plane of the engine lift or transfer pump inlet and the bottom of the fuel tank. The filter must be mounted in a vertical position on a structure that is also vertical (**DO NOT MOUNT ON ENGINE**) with the Tee-handle on top. Enough space should be left above and below the unit to service the filter. Allow about 5" above the filter to remove and replace the filter element and at least 2" below to drain the filter.
3. A shut off valve should be installed in the inlet side of the filter, which will allow for system testing. If the fuel tank (fuel source) is located close to the filter, the fuel tank supply shut off may be used.
4. If the fuel tank (fuel source) is mounted higher than the filter, a shut off valve must be installed into the inlet of the filter assembly. This will stop the flow of fuel when servicing the filter or fuel system.
5. Location of the filter should allow for easy access while servicing and away from anything that can injure the operator, such as hot and/or moving equipment.
6. Use appropriate fuel line with the least amount of restriction, such as 3/8" to 1/2" ID to supply the MK60SP/K60SP. Avoid sharp 90 degree bends. Route fuel lines away from sharp objects and heat.
7. Consider the pump switch location, circuit protected (circuit breaker) 12 volt power source and wire conduit locations.

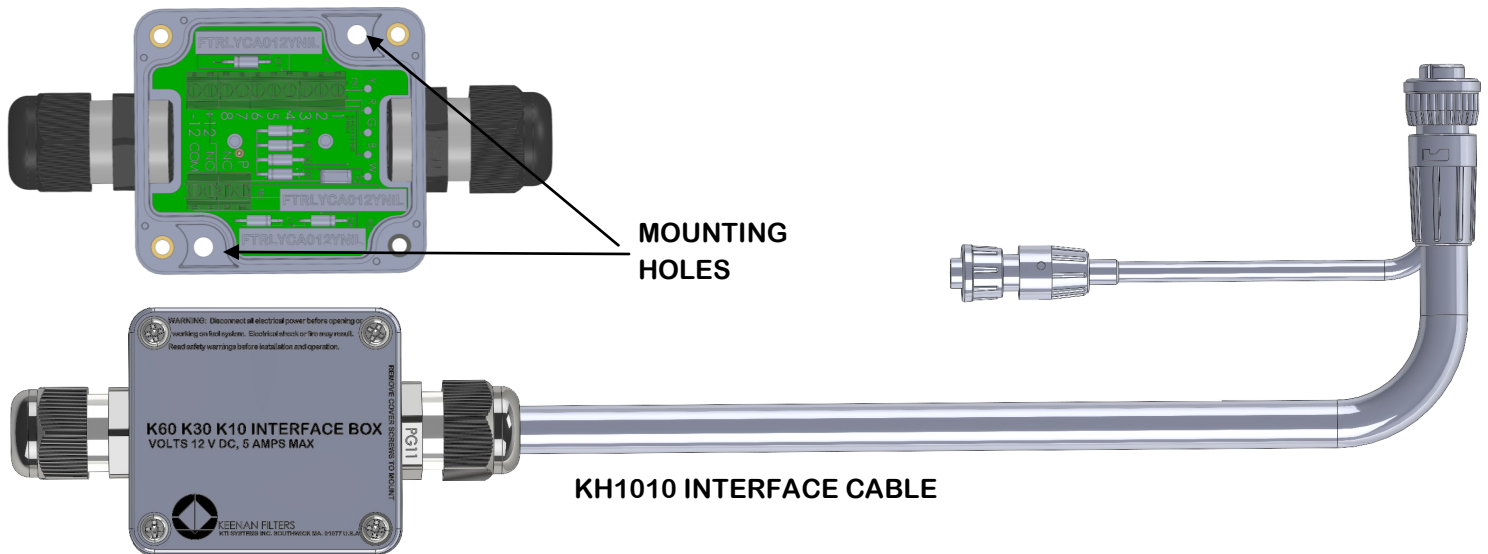


# MK60SP/K60SP INSTALLATION

1. The MK60SP/K60SP pump assembly is factory mounted on the left side of the unit and can be moved to the right side by a qualified technician. This can be accomplished by disconnecting the pump inlet and outlet fittings and removing the pump and mounting bracket. Remove both the right and left side 3/4-16 orb (O-ring boss) fittings and reinstall on the opposite side. Install the pump mounting bracket on the right side, install the pump onto the mounting bracket. Loosen and remove the 3/4" hex bolt and fuel filter bowl. Lubricate the bowl O-ring and re-install bowl assembly, but do not tighten 3/4" bolt. (this will allow the installer to rotate the pump bowl to align the inlet fitting). Reposition the fittings as needed to make proper alignment connections and tighten connections, next tighten 3/4" bowl hex bolt.
2. The MK60SP/K60SP filter pump system can be installed in several configurations, (see previous basic fuel system designs) but it is still the operator, designer and the installers responsibility to configure the system properly.

# MK60SP/K60SP CONNECTIONS

1. The filter port connections are 3/4-16 O-ring boss (ORB) or 1/2" NPT (using supplied ORB to NPT adapters), and the pump outlet is 1/4" NPT. Use the supplied KA158 plug in the unused ports.
2. Use approved 3/8" or 1/2" fuel line and connectors. To reduce restrictions, limit the amount of 90 degree connectors or sharp bends. Make sure fuel lines are supported and keep fuel lines away from sharp and hot objects.
3. The KH1010 cable assembly is factory connected and is positioned on the left side of the filter. If needed it can be disconnected from the cannon plugs and (rerouted) to the right side of the filter.
4. To mount the interface box remove the 4 cover screws and cover. Depending on the wire run, position the interface box either horizontally or vertically against the vertical surface. Mark the 2 mounting holes, drill holes for hardware and mount box.



# KP300 CONTROL PANEL INSTALLATION

1. The KP300 is the remote panel designed to give the operator indication of both water and high vacuum (filter clogging), with warning lights and an audible tone. The panel should not be exposed to outside elements and must be mounted inside. Make sure the surface is flat, easily accessible and not in an area that will be bumped, kicked or objects placed on it. Determine that when routing wire from the KP300 panel to the interface box it can be done easily with minimal obstructions.
2. The cutout template is only a guide. When printing out the KP300 template on page 9 make sure the printer settings are set to 100% scale and use the document margins. After printing, measure the template and confirm the template is to scale. The final drill and cut dimensions are the installers responsibility to check.
3. Temporarily install the KP300 panel and secure with #6 flat screws. Make sure the panel is flat and the screws fit flush, then remove panel for wiring.



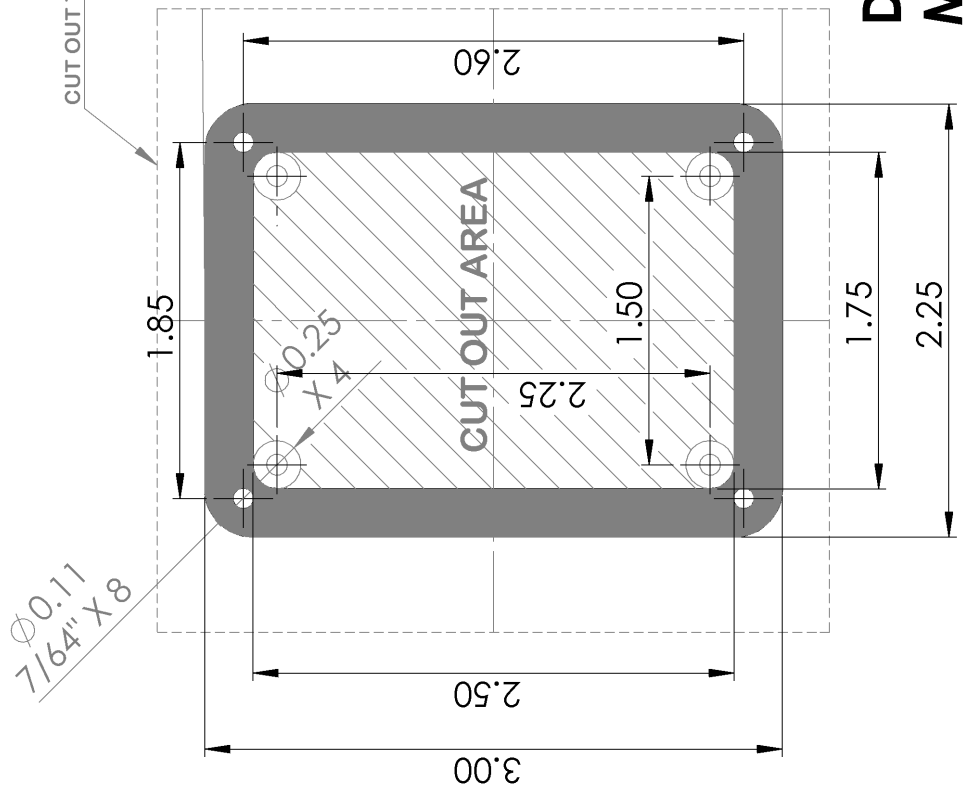
KP300 CONTROL PANEL

1

2

B

B



1. CUT OUT TEMPLATE ON DOTTED LINE.
2. ALIGN TEMPLATE ON A SURFACE TO WHICH THE KP300 PANEL WILL BE MOUNTED.
3. MAKE SURE THERE IS CLEARANCE BEHIND MOUNTING AREA.
4. SECURE TEMPLATE WITH TAPE.
5. CENTER PUNCH AND DRILL 8 X 7/64(.109)" HOLES.
6. DRILL OUT THE 4 INSIDE 1/4(.25)" HOLES.
7. CUT OUT CENTER SECTION (HATCHED AREA).
8. DEBUR AND CLEAN EDGES.
9. REMOVE TEMPLATE AND CHECK KP300 PANEL FIT.

**DO NOT SCALE WHEN PRINTING USE 1:1**  
**MEASURE TEMPLATE BEFORE USING**

A

A

<b>UNLESS OTHERWISE SPECIFIED</b> OBTAIN GEOMETRY FROM CAD MODEL CONSIDER ALL DIMENSIONALLY UNDEFINED FEATURES CAD AND PROCESS DRIVEN		<b>UNLESS OTHERWISE SPECIFIED:</b> DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ± 1/32 ANGULAR: ±0.5° TWO PLACE DECIMAL ±0.01 THREE PLACE DECIMAL ±.004	DRAWN CHECKED ENG APPR. MFG APPR. Q.A. COMMENTS:	NAME AK	DATE 5/17/17	<b>KTI SYSTEMS INC.</b> <small>southwick, ma.</small>	
NEXT ASSY USED ON		INTERPRET GEOMETRIC TOLERANCING PER: MATERIAL FINISH	TITLE: <b>KP300 CUT TEMPLATE</b>			SIZE <b>A</b>	DWG. NO. KP300CUTTMP
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 DRAWING IS THE SOLE PROPERTY OF  
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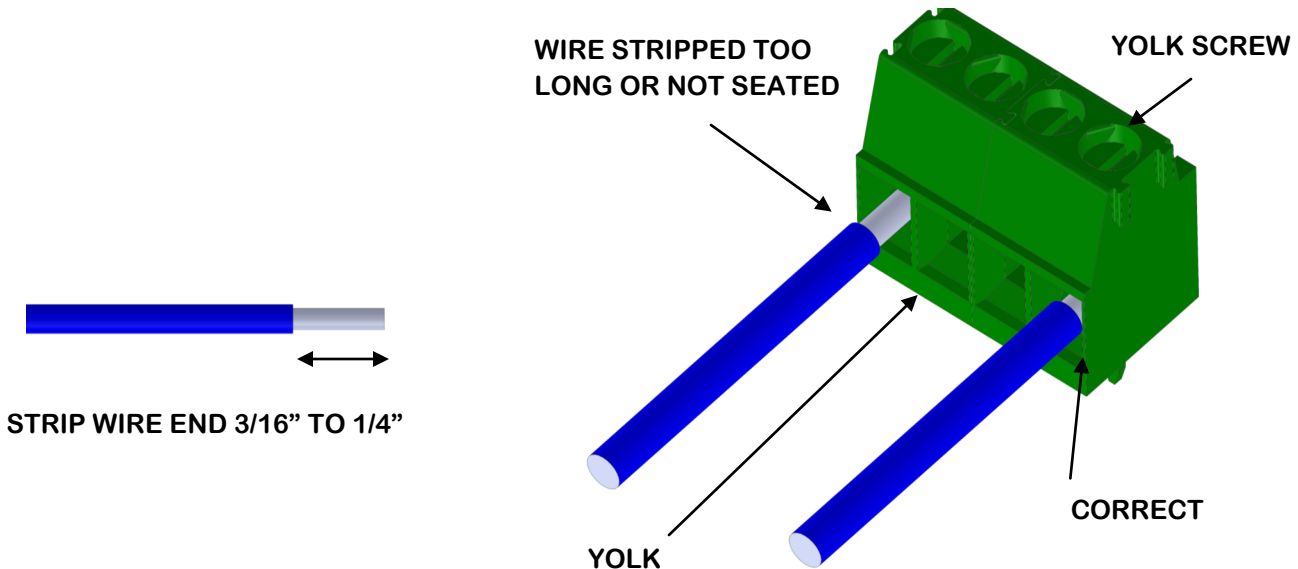
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# WIRING INSTALLATION TIPS

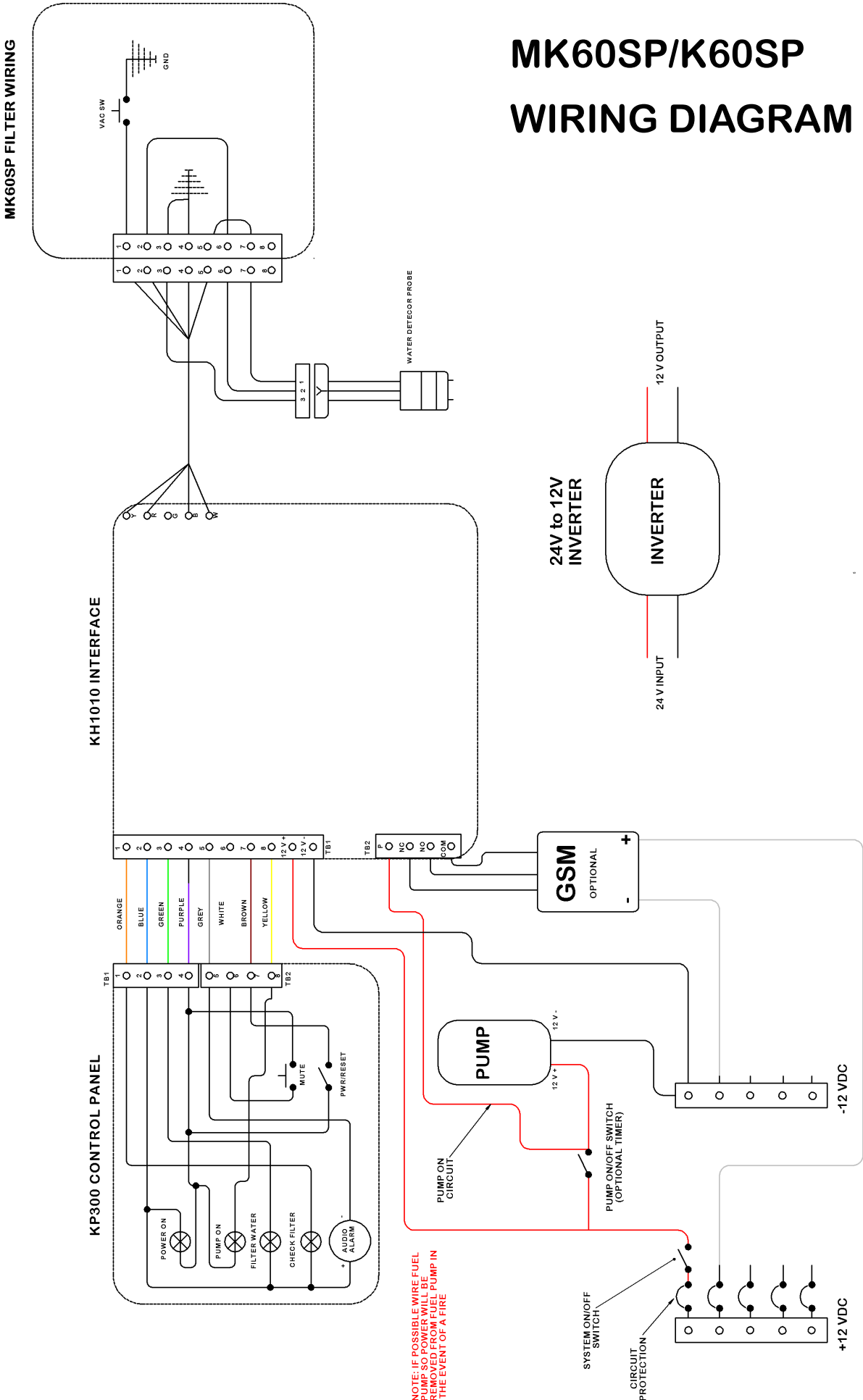
1. The MK60SP/K60SP system comes pre-wired and will only need the field connections completed. Field connections are made between the KH1010 interface box terminals and the KP300 remote control panel terminals. Both units have printed circuit boards (PCB) with installed Euro type\* terminal blocks. This makes the connections simple to make. The system voltage is 12 VDC. If it is being installed into a 24 volt system use a 24 to 12 volt DC inverter with at least a 5 amp load capacity.

*\*SERVICE NOTE: Euro type blocks are very common and user friendly, but simple mistakes can make you spend time trouble shooting. One of the most common mistakes is not stripping enough insulation off of the termination end. When this happens, the insulation gets clamped not the conductor. Another common mistake is loose strands shorting to the adjacent clamping yoke (wire socket).*

2. Use approved 16 AWG wire and strip 3/16" to 1/4" of insulation off on the termination end. Make sure the yolk screw is backed out and the yolk cavity is clear. Push the wire in until it bottoms and hold the wire in position when tightening the yolk screw. After tightening, pull on the connection to test, then retighten if needed. Visually inspect to make sure all the strands are clamped in the yolk clamp and the conductor is barely visible.



# MK60SP/K60SP WIRING DIAGRAM



# FIELD WIRING

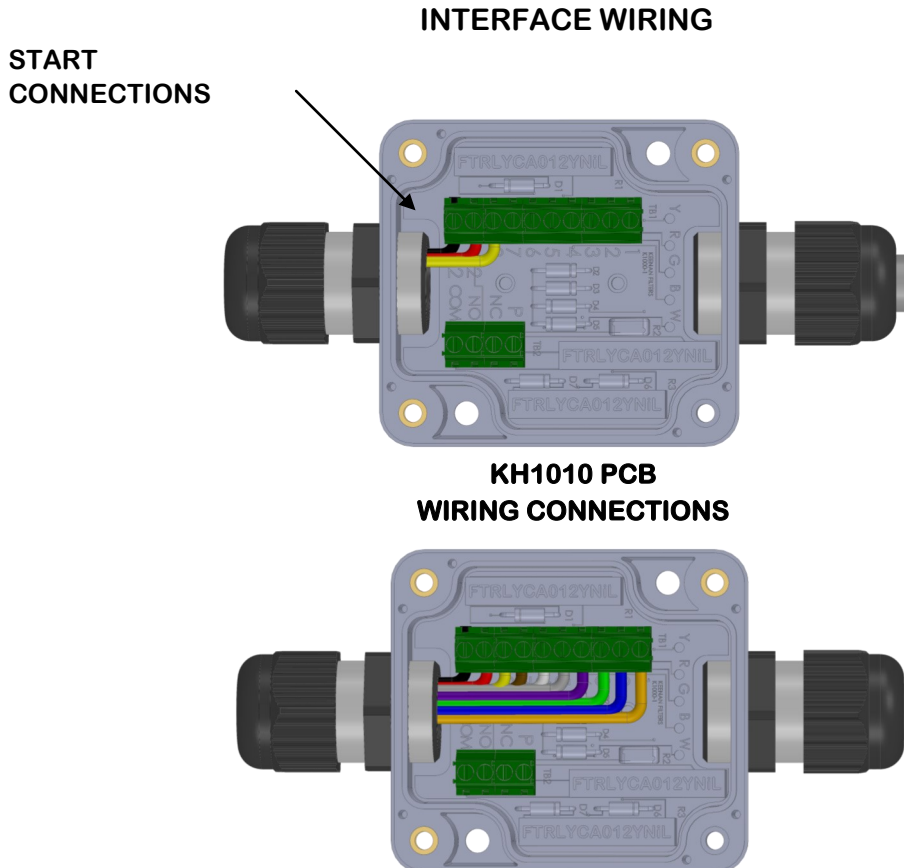
(Please read entirely before wiring)

The MK60SP/K60SP field wiring can be broken down to 3 systems

1. INTERFACE WIRING - KH1010 interface to the KP300 control panel
2. PUMP CONTROL - simple switch, timer and /or GSM control
3. GSM INTERFACE (optional) - warning and pump control

## INTERFACE WIRING

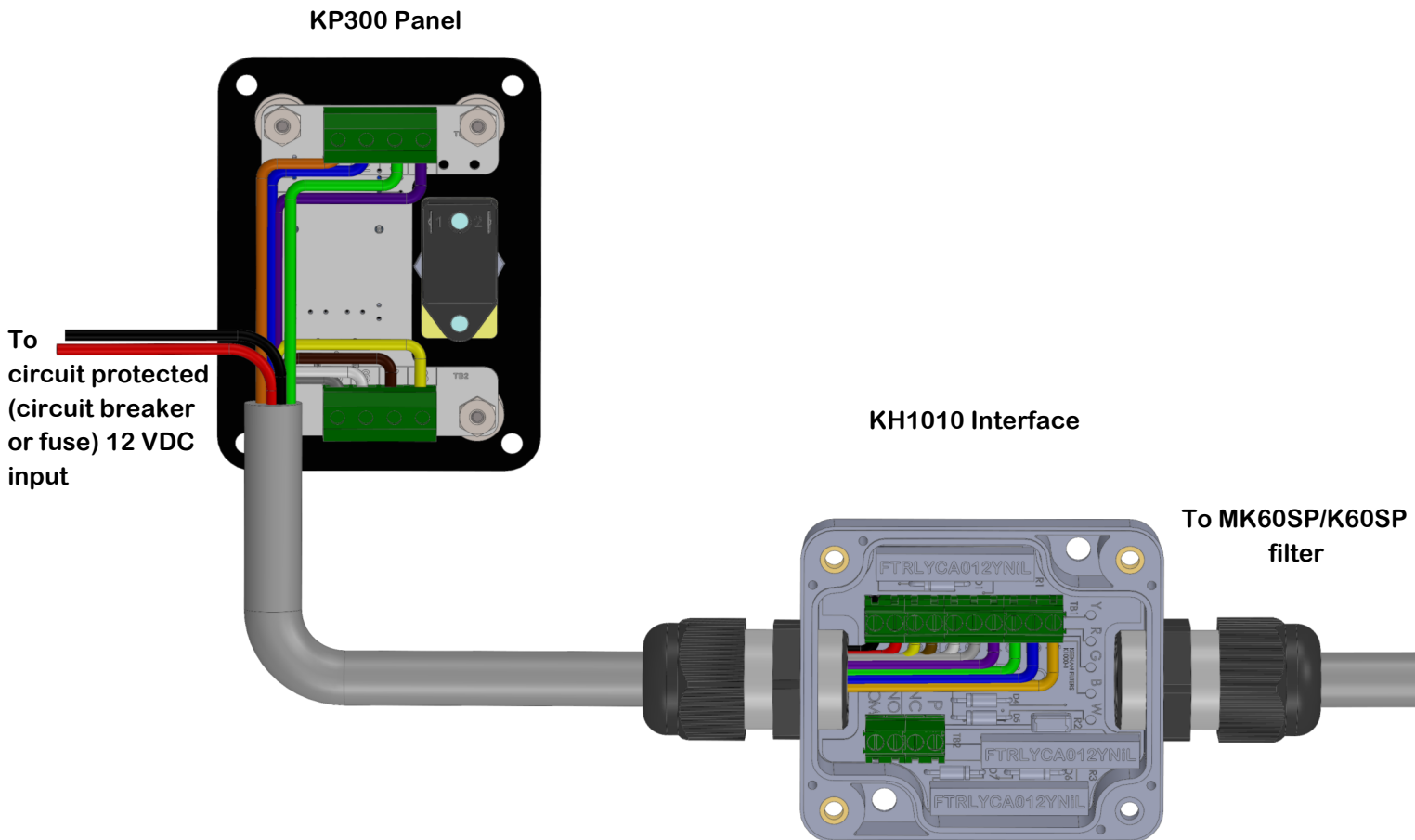
1. Referencing the MK60SP/K60SP wiring diagram, a small harness of 8 communication wires plus 2 circuit protected 12 vdc power and ground wires need to be routed between the KP300 panel and the KH1010 interface box. (Use an on/off switch to control system power or use the circuit breaker)
2. Fabricate a 10 wire harness using approved 16 awg wire or purchase our cable assembly P/N KW1016 by the foot.
3. After the harness is installed, start making the connections at the KH1010 interface. The interface box is small in size, so start your connections closest to the cable gland and out -12,+12, 8 -1 etc. Continue with wiring the KP300 panel.



# FIELD WIRING (continued)

## INTERFACE WIRING

4. Connect the KP300 control panel to the wiring harness and also the 12 VDC circuit protected power. Inspect and recheck all connections, check that wire harness and connections are supported and away from hot or moving equipment.



### WIRE COLORS CAN BE INSTALLERS CHOICE

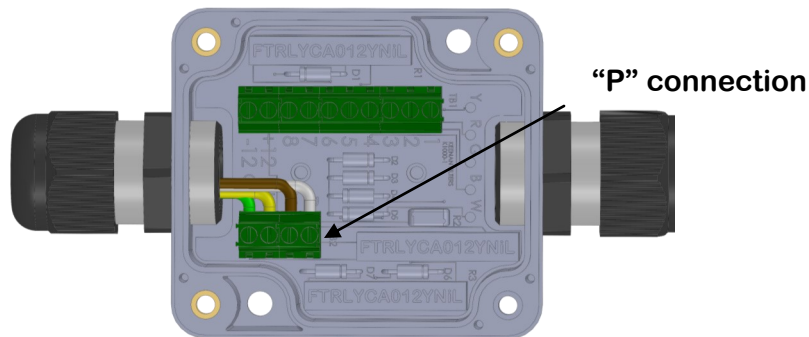
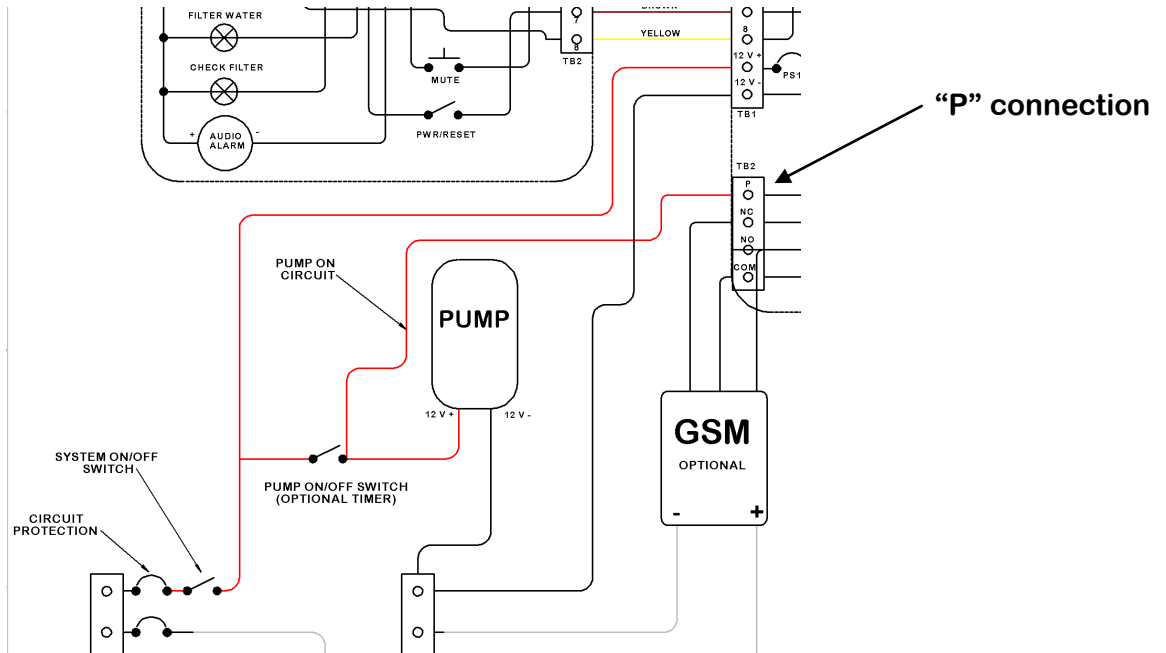
KP300 CONTROL PANEL CONNECTOR		KH1010 INTERFACE CONNECTION	CIRCUIT PROTECTED 12 VOLT SUPPLY		KH1010 INTERFACE CONNECTION
1 YELLOW	CONNECTS TO	1 YELLOW	+12 RED	CONNECTS TO	+12
2 BLUE	CONNECTS TO	2 BLUE	-12 BLACK	CONNECTS TO	-12
3 GREEN	CONNECTS TO	3 GREEN			
4 PURPLE	CONNECTS TO	4 PURPLE			
5 GREY	CONNECTS TO	5 GREY			
6 WHITE	CONNECTS TO	6 WHITE			
7 BROWN	CONNECTS TO	7 BROWN			
8 ORANGE	CONNECTS TO	8 YELLOW			



# FIELD WIRING (continued)

## PUMP WIRING


- The fuel pump will require a circuit protected (circuit breaker) 12 vdc power source and a “pump on” circuit to the “P” connection on the KH1010. An SPST switch with an amperage rating of at least 5 amps should be used to control the pump. For some installations the installer may use a timer to control the pump. From the output side of SPST switch or timer, connect a wire to the “P” connection on TB2 in the KH1010 interface. This will illuminate the pump on LED on the KP300 panel.

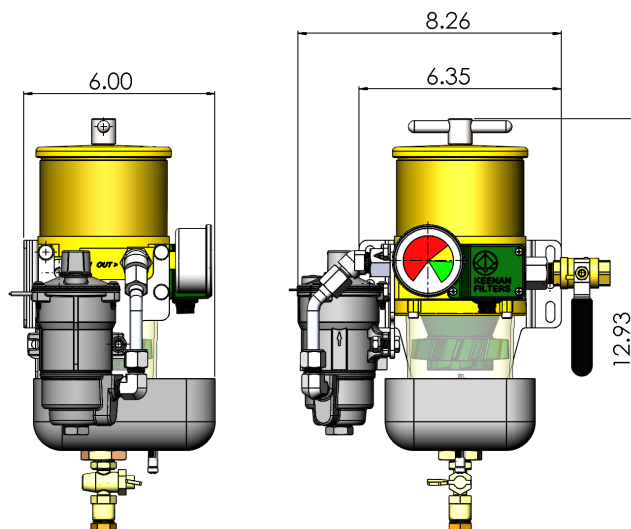


## GSM INTERFACE (optional)

- The auxiliary connections provide a normally open “NO” or normally closed “NC” contact, with a common connection “COM”. The connections are intended for the KTI GSM communicator. This system will warn the operator if the filter is clogging or water is present via a message sent on either a cell phone or by email. This system also allows the customer to turn on a device remotely from a mobile device or computer. Please refer to the GSM installation guide for the interface wiring.

# MK60SP/K60SP TECHNICAL SPECIFICATIONS

Height	12.93" (33 cm)
Width	8.26" (21 cm)
Depth	6" (15.24 cm)
Service Clearance	5" (12.7 cm) above 2" (5.1 cm) below
Weight	7.4 lbs (3.36 kg)
Inlet and out ports	3/4-16 #8 Orb or 1/2" NPT
Fuel	Diesel
Filter Max Fuel Flow	60 gph (227 lt/h)
Max Operating Pressure	30 psi (2.1 bar)
Normal Operating Vacuum	0-6 in Hg (20 kPa)
Vacuum Alarm	8" $\pm$ 2" in Hg (27 $\pm$ 7 kPa)
Bowl Water Alarm Capacity	5.5 oz. (163 ml)
Water Removal	99%
Voltage	12 VDC Use 24v to 12v inverter for 24v systems
Current Draw- Standby Warning Pump on	57 ma 145 ma Max +2.3 amps
Circuit Protection	5 amp
Pump Psi Flow Dry lift Duty Life Volts/amps Run Dry	Walbro FRB 13-2 6.0 to 8.0 psi (.41-.55 bar) 50 gph (227 lt/h) 48/120" (122-305 cm) 18000+ hrs 12/2.3 Four (4) Hours
<i>Recommended</i> Replacement elements -Racor® 	2 micron 2010SM-OR 10 micron 2010TM-OR 30 micron 2010PM-OR
<i>Recommended</i> 2 X 12MM BUNA O-RING (T-HANDLE)	KTI P/N KA0R2MM12

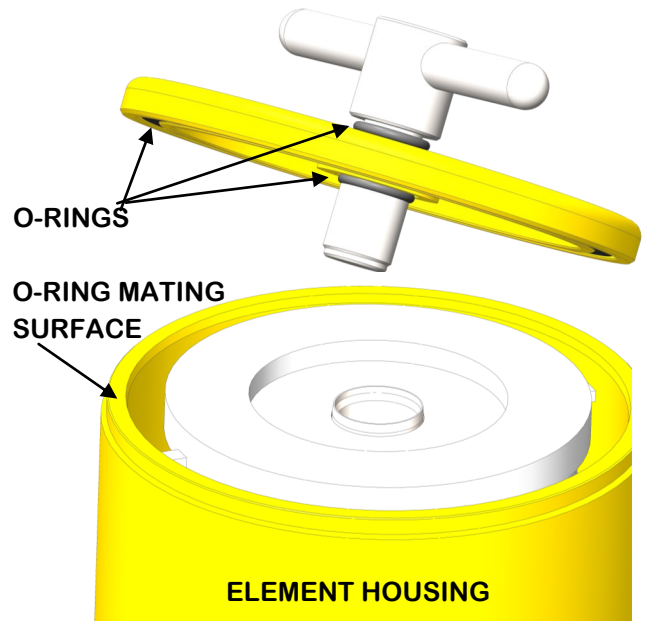


# POST INSTALLATION

**NOTE:** Before servicing the filter, re-check all connections for security. Check that fuel lines are supported and will not interfere with other equipment or be near sharp objects, moving or hot equipment.

## MK60SP/K60SP FILTER INITIAL SERVICING

1. Make sure filter drain valve is closed.
2. Remove filter lid T-handle and lid assembly.
3. Slowly pour clean diesel fuel into filter until full. Stop filling if leaks are noticed.
4. Clean T-Handle threads and lubricate T-handle threads, T-handle O-rings (2ea) and lid square O-ring with clean engine oil. Make sure lid O-ring is seated in its groove and not twisted. Make sure lid O-ring mating surface is clean on the element housing.
5. *Care should be taken not to damage the return tube inlet when installing the T-handle.* Carefully insert T-Handle and begin threading into the return tube. Tighten until the lid bottoms and a resistance is felt. Continue to tighten an additional 1/4 turn to seat O-ring.



## FUEL SYSTEM BLEEDING


1. Fuel system bleeding is removing the air out of the fuel system from the fuel tank pickup to the engine secondary filter. Follow the engine manufacturers operators manual for bleeding procedures.

## OPERATIONAL TEST

1. Turn on power to the K60SP/MA60SP filter. There will be a momentary 1-2 second pulse tone and the "CHECK WATER" LED will illuminate. Next perform a normal engine start and warm up for 5 minutes. Check for leaks.
2. With the engine at idle speed, close the fuel inlet shut off valve and monitor the vacuum gauge for a steady increase in vacuum. Normally around 6" in Hg or 8"  $\pm$  2" in Hg, the "CHECK FILTER" LED will illuminate and the audible pulse tone will sound. Press the mute switch on the KP300 panel to mute the tone.
3. Shut down the engine and monitor the vacuum gauge needle. It should remain at the setting it was showing when the engine was shut down. If there is an air leak between the shut off valve and the engine lift pump, the gauge needle will move toward zero. Recheck all connections if a leak is detected and re-test. (A large leak could show up within 5 minutes, slower leaks will take more time)
4. If satisfied with the operational test, open the fuel inlet shut off valve and operate the engine at idle for a few minutes. Next, check the system for leaks and operation under normal engine operation between idle and full power. A normal vacuum reading should read below 3" in Hg at all power settings with a clean filter and full tanks. When satisfied with the engine operation test, perform the normal engine shutdown.
5. The OPERATIONAL TEST is a great way to check your system for integrity and warning. You can perform the test after maintenance has been completed or during scheduled inspection checks.

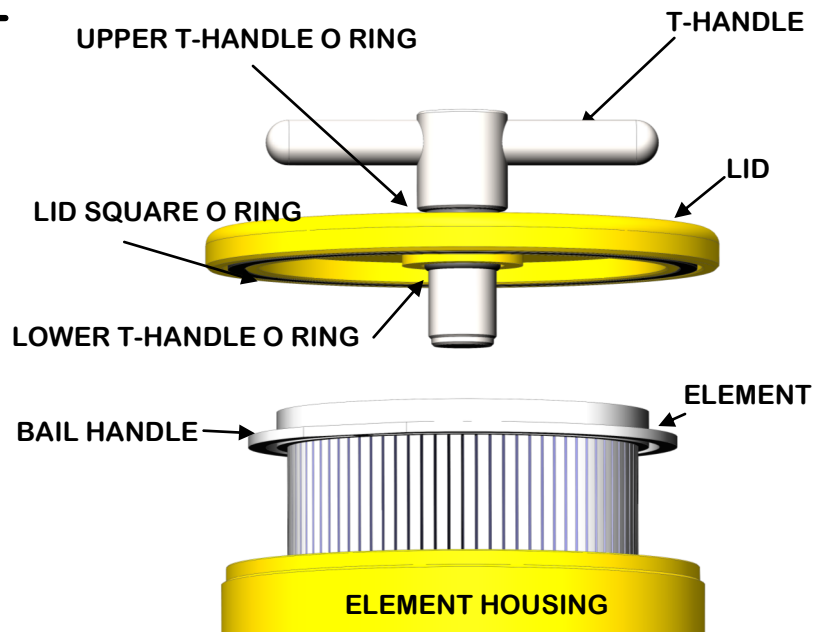
# FILTER ELEMENT REPLACEMENT

## SUGGESTED TOOLS AND SUPPLIES

- Replacement element 
- Clean diesel fuel
- Shop towels
- Suitable container for old filter element and to drain filter

## ELEMENT REMOVAL

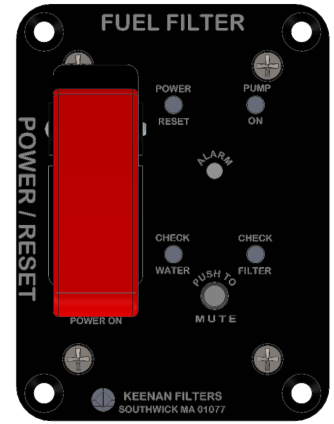
1. Engine must be off to service filter.
2. Close inlet shut-off valve or tank supply.
3. Remove lid assembly by rotating the T-handle in a counter clockwise rotation.
4. By holding the bail handles on either side of the element, slowly pull upward with a twisting motion. Place old element in bucket.
5. Inspect filter bowl for contaminants or water. If needed, position suitable container under bowl drain valve, remove drain plug and open drain valve to drain out the contaminants. Close valve and reinstall drain plug.
6. Remove new element from packaging. Bend bail handles upward (this will help when removing the element), slide element on to return tube until it bottoms. Fill filter with clean fuel. (NOTE: If the fuel tank is above the filter, the closed inlet shut-off valve can slowly be opened to allow fuel to fill the filter. Close valve when done.)
7. Inspect the three filter lid O-rings for nicks, cuts or deformity. If needed, replace the O-rings. (NOTE: the replacement element comes with the standard large square O-ring and a small red O-ring. Use the red O-ring in the upper position on the T-handle shaft and a new KAOR2MM12 (2 x 12 mm Buna) in the lower position. If a new lower O-ring is not available, use the better of the 2 remaining O-rings in the bottom position. When replacing the large square O-ring make sure it is not twisted in its groove.
8. Clean the T-handle threads and upper surface of the element housing where the square O-ring seats. Lubricate the O-rings and T-handle threads with clean engine oil.
9. Take care when threading the T-handle into the return tube. Tighten the T-handle finger tight until the lid bottoms and high resistance is felt. Continue to tighten an additional 1/4 turn to seat O-rings. **NO TOOLS**
10. Open fuel inlet shut-off valve and leak check. Clean fuel from the spill pan (if present) and surrounding area.
11. System bleeding will most likely not be needed since the only air to enter the system was in the filter housing. When filling the filter the air is displaced by fuel.
12. Perform the OPERATIONAL TEST to check system and leak check the filter (See page 16).



# KP300 CONTROL PANEL OPERATION

The control panel will give the operator indication and audible warning if the filter is starting to clog (high vacuum) or more than 5.5 ounces of water is present in the online fuel bowl. The operator can also MUTE the audible so it is not distracting.

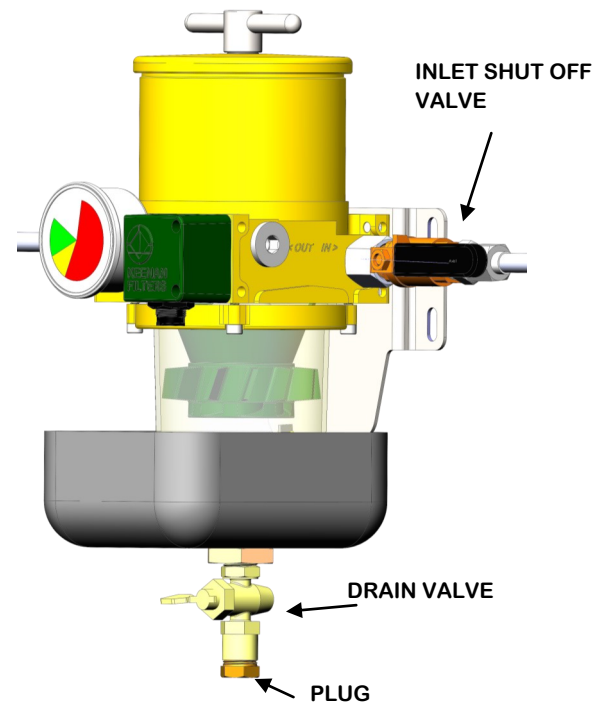
Normally a clogged filter or water warning will take many hours of operation to trip the alarm, so an engine shut down will not happen immediately. This gives the operator some time to prepare for shutting down the engine and servicing the filter. You may need to reset the system after draining water, this can be done from the panel using the power reset switch.



*Note: If the water alarm sounds after fueling or switching tanks the operator may need to shut down the engine quickly because of possible water contamination. Check the fuel bowl for a rising water level.*

## DRAINING WATER FROM BOWL

1. Engine must be off to service filter.
2. Close fuel inlet shut-off valve or tank supply.
3. Draining Procedure:
  - **GRAVITY METHOD**
  - ◇ Remove drain valve plug and remove lid assembly. Position a container to catch the water and fuel.
  - ◇ Slowly open the filter drain valve until water is drained. Close drain valve and re-install drain valve plug.
  - ◇ Fill filter with clean fuel. Reinstall lid assembly. Open fuel inlet shut-off valve.
4. Perform OPERATIONAL TEST.



## MAINTENANCE AND INSPECTION

- Routinely inspect the filter for leakage, damage and corrosion.
- Change the filter element minimally on an annual basis, or when vacuum starts to increase.
- Perform the OPERATIONAL TEST before operation or during routine inspections. The OPERATIONAL TEST checks the warning system for operation and also the integrity of the fuel system for air leaks.

## **LIMITED WARRANTY**

Thank you for purchasing a product from KTI Systems, Inc. of Southwick, Massachusetts.

All products manufactured by KTI are subject to the following Limited Warranty.

**Limited Warranty.** KTI warrants and guarantees only to the original purchaser that the product is free from defects of materials and workmanship in the manufacturing process for the period of one year from the date of purchase of a new KTI product.

This Warranty does not apply to special order items and this Warranty does not apply to renovated, retrofit or modified products, whether or not they originated with KTI and whether or not they were retrofit by the original owner.

This Warranty does not apply to products installed in watercraft for racing or competition.

This Warranty shall be inapplicable to any product not properly installed and not properly used by the purchaser or to any product damaged or impaired by external forces.

This Warranty does not cover any product for which applicable proof of purchase date, installation date and watercraft mileage at the time of installation is not presented.

This Warranty does not cover any issues that are considered normal maintenance and which are customarily replaced, cleaned or adjusted as normal owner maintenance, unless they are defective in material or factory workmanship.

**Process.** A product claimed to be defective must be returned to the place of purchase. KTI at its sole option shall replace the defective product with a comparable new product or repair the defective product in the event that it qualifies under this Warranty.

### **LIMITATION OF LIABILITY**

To the extent that this Warranty is available on this product, KTI shall have no liability whatsoever for incidental or consequential damages flowing from the use of any defect product or by reason of the failure of any product. KTI specifically disavows all express or implied warranties of fitness for a particular purpose, warranties of description, and warranties of merchantability.

**Product Warning.** This product and its use may be considered inherently dangerous. Failure of the product, improper selection of the product or improper use of the product or related products may cause death, personal injury and property damage. KTI disclaims any responsibility for any such injury or damage.

**Indemnity.** You agree to indemnify and hold KTI, its officers, directors, employees, agents, harmless from any and all claims, demands, lawsuits, liabilities and expenses arising out of or in connection with your use of the product and your breach or violation of any of the Terms of this Limited Warranty.

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