INSTALLATION INSTRUCTIONS

Transmission/Differential Oil Cooler Pump
OP111ERL

Temperature Range: 14 to 160°F (-10 to 71°C) Continuous; 265°F (130°C) MAX Intermittent ***Voltage:*** 12 VDC ***Weight:*** 5.5lb (2.5kg)

Current: 10 AMPS ***Flow***: 2.1 GPM (7.9 LPM) ***Pressure***: 72.5 PSI (5 BAR) MAX ***Max Viscosity***: 90W @ 104°F

PRODUCT DESCRIPTION

The Earl's Transmission/Differential Oil Cooler Pump is designed for the circulation of transmission/differential fluid through an external oil cooler. The pump is **self-priming up to 4-ft of vertical height**. A 12-volt DC, 10-amp power supply is required for proper functionality. It is designed for continuous duty and can be mounted in any orientation. Internal seals are made of FKM rubber, which has excellent chemical resistance properties.

INSTALLATION

Figure 1 shows the optimal routing path. The hose, fittings, oil cooler, adapters, hose ends, & filter are sold separately and can be found under the part number **PK0024ERL.** The pump should be placed after the cooler. This extends the pump life cycle drastically by exposing the pump to cooler fluid temperatures. ***Note:*** *The routing path shown can be tailored to suit your need. However, the sequence of components should be kept the same.*

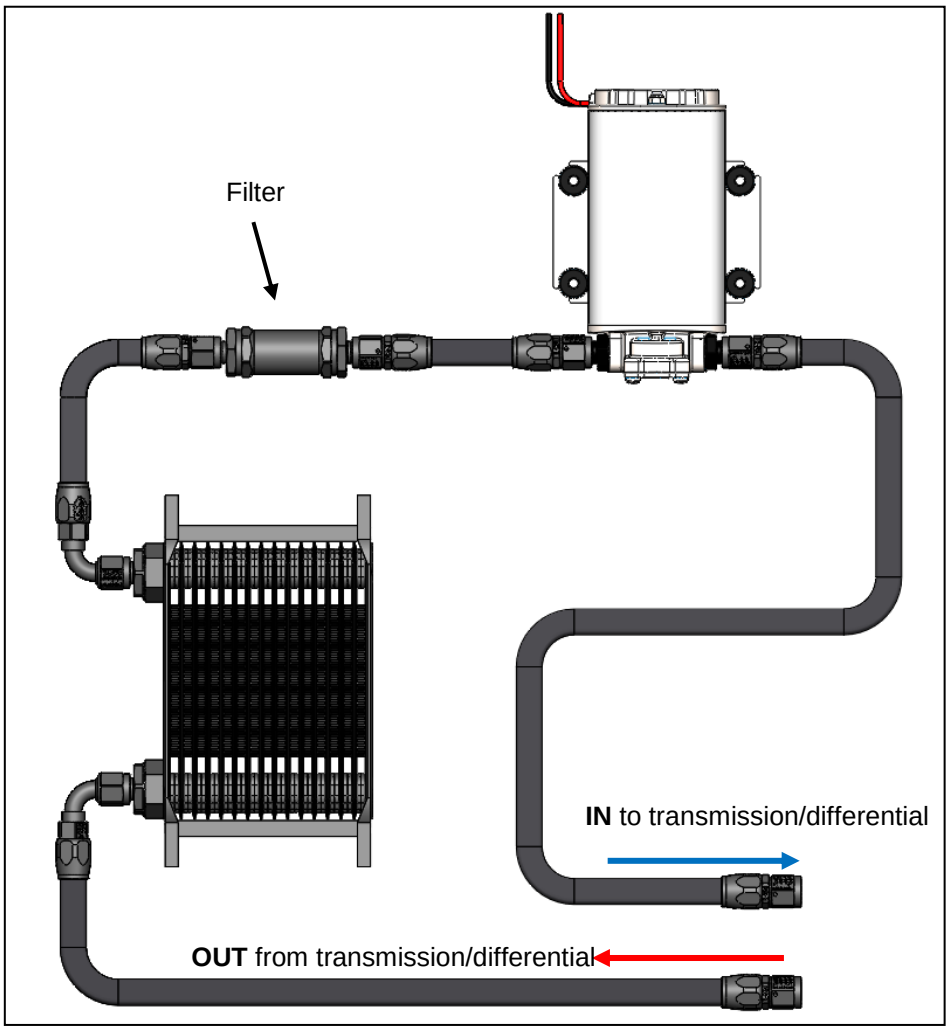

Figure 1 – Plumbing Diagram

The filter supplied with the PK0024ERL kit includes a 40-mesh (400 micron) filter, this prevents large debris from entering the pump gears and causing damage. Heavy weight gear oils should be brought up to operating temperature (104°F or 40°C) before activating the pump, therefore installing a switch is recommended. Depending on the placement of components, a check valve is sometimes required to eliminate drain-back. If using a check valve, it must have an opening pressure of no more than 2 psi. Earl's recommends the Ultrapro Check Valve (P/N: 253006ERL).

ELECTRICAL SYSTEM

Figure 2 shows two variations of wiring. One uses a breaker, which is favored in motorsports. The other utilizes a switched relay. A minimum wire gauge of 16AWG is recommended for all power connections. ***Note:*** *Due to the EMI filter, the pump is not suitable for switching applications (PWM Driver).*

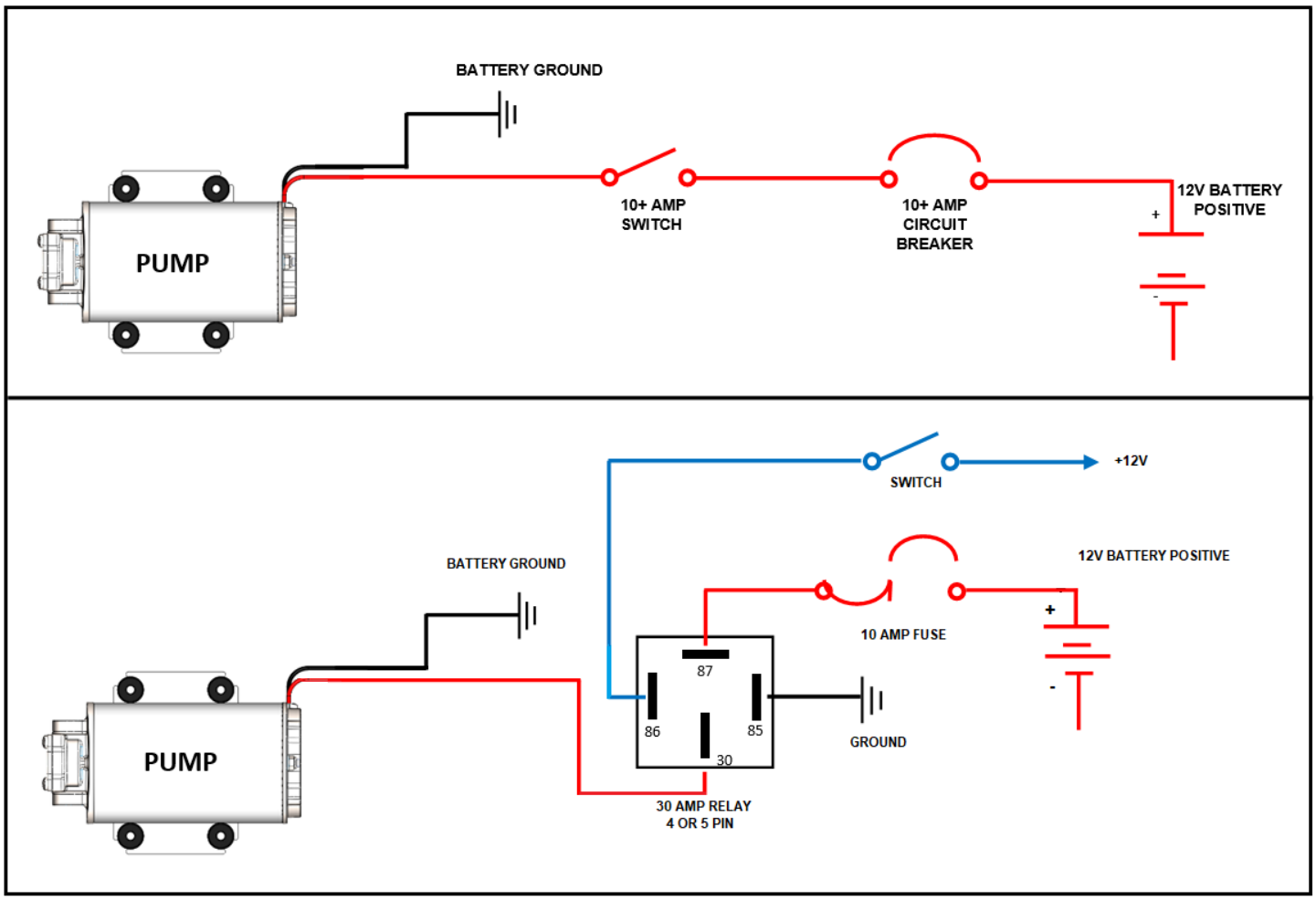

Figure 2 – Wiring Diagram

WARRANTY EXPIRES IF NO FUSE/BREAKER IS UTILZIED

Always mount the anti-vibration rubber fittings supplied with the pump kit. Their usage ensures a consistent reduction in noise and vibration levels. Electrical wiring size should depend on the distance between pump and battery/power supply. The use of undersized wiring can cause overheating of the electrical wiring and subsequent fire hazard. There will also be a voltage drop at the motor terminals with a consequent reduction in efficiency. The flow rate value indicated on the motor label is obtained with internal wire diameter attached to the pump. Wires with inferior diameters will cause an increase in current with potential risk of motor overheating.

OPERATING CYCLE

The pump can operate on a continuous cycle with the following conditions:

- Viscosity not exceeding 350 cSt, free flow rate.
- Temperature of the motor below 60/70°C - 140/158°F

It is possible to operate at higher viscosity/ampere draw if On/Off cycles are used. This will allow the motor to cool down to the indicated temperatures. Long hoses and/or reduced diameters, and restrictions affect the operating pressure (which is not automatically limited): in this case, check that the temperature and the electrical draw do not exceed the values of the attached diagrams.

TROUBLESHOOTING

CHECK POINTS IF THE PUMP HAS STOPPED OR WILL NOT START

- Check the effectiveness of the battery power supply (voltage activity).
- Check if the fuse has blown.
- Check for any foreign matter present in the pump body. To do this, disconnect the power supply and unscrew the four mounting screws. Remove the front cover plate and inspect the chamber. Replace the cover plate in the same initial position after inspection.
- Avoid running the pump dry for more than a few minutes. Pumps found defective that have run dry in the absence of fluid are not covered by warranty.
- The average life span of the motor commutator brushes is approximately 2500 hours under normal operating conditions. Stoppages are possible due to brush wear and tear after such a time period.

WHY WON'T THE PUMP PRIME ITSELF?

- The pump is fitted at an excessive height above the fluid level.
- The pump has run dry for too long a period.
- Long periods of inactivity – In this case, it is advisable to add liquid directly into the chamber before start-up.
- Air leak at the suction hose due to the following reasons: possible cuts in the hose, inadequate hose clamps, malfunctioning of the filter due to defective/worn seals, or filter clogged.
- Air leak at the front plate cover due to the following reasons: loose fixing screws or poor effectiveness of the seal.
- Faulty electrical cable connections
- Presence of obstructions or restrictions in the suction or delivery hoses.

NORMAL MAINTENANCE

- Check frequently and keep the inlet filter clean.
- Check every month the chamber and keep clean from any foreign matter.
- Check every month that electrical wiring is in good condition.

INDICATORS THAT THE PUMP IS FUNCTIONING CORRECTLY

- Temperature of body and motor frame is within 60°C and 70°C (140 °F - 158 °F)
- Regular flow and constant noise levels
- Amp-draw within the limits indicated in the diagrams

ENVIRONMENTAL DISPOSAL

It is the responsibility of the owner to dispose of this product by means of the specific refuse collection structures indicated by the government or the local governing authorities.

PACKAGING ENVIRONMENTAL DISPOSAL

The user is invited to effect a proper waste separation, in order to facilitate the recycling of the materials of which the packing is composed.

DIMENSIONS

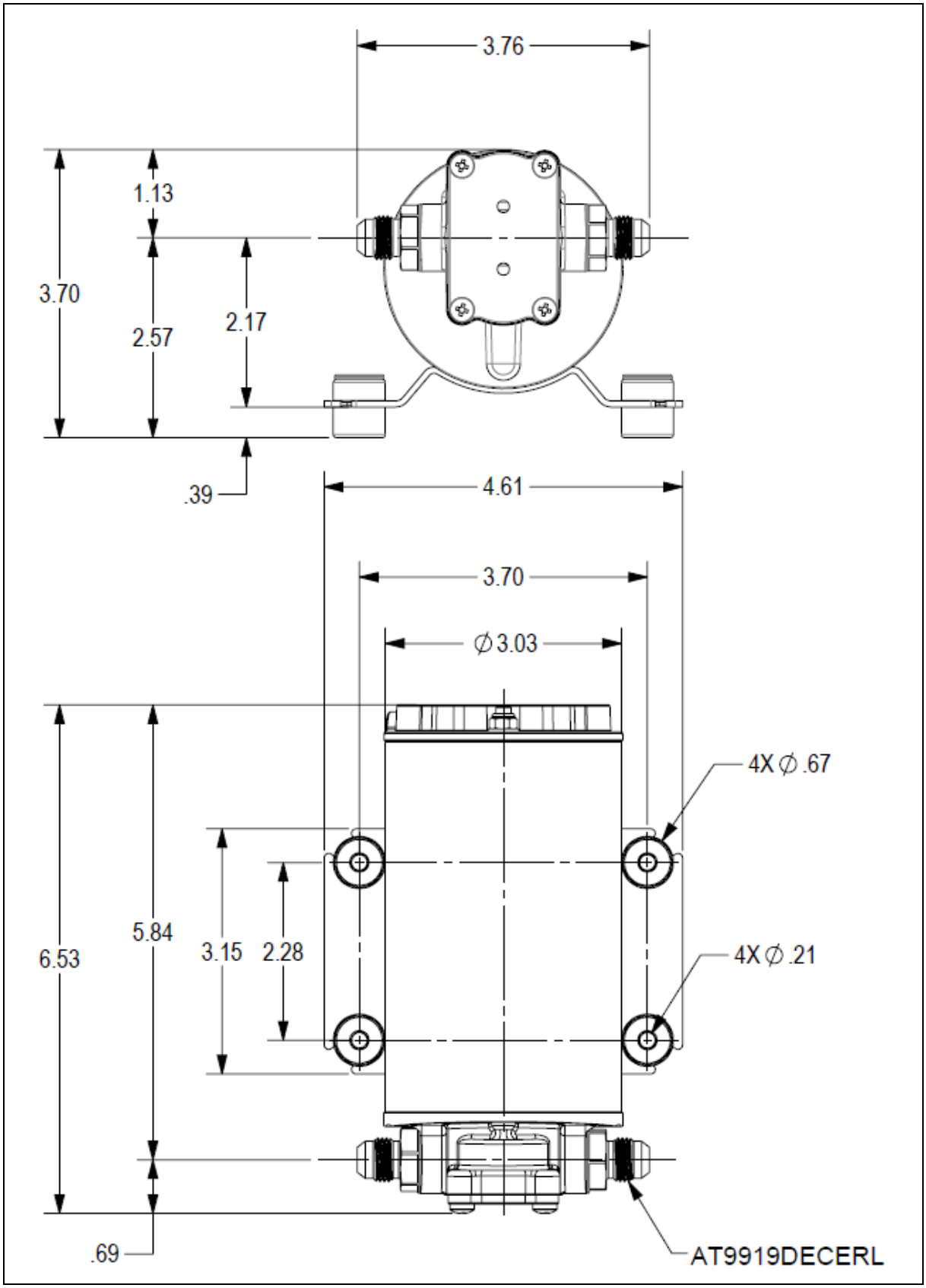

Figure 3 – Pump Dimensions