



FORCE America Inc.

ULTRAKOOL Operator's Manual

FORCE America UK12-70-12VDC-FRM-SS Operator's Manual



ULTRA KOOL



The High Performance, Compact Cooling System

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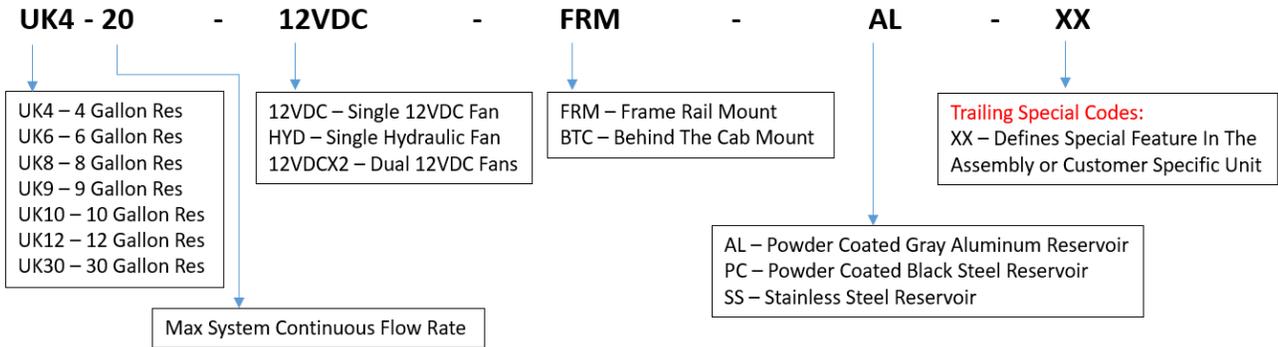
Warranty Disclaimer

Seller warrants that any goods sold by Seller to Buyer shall be free from defects in material and workmanship for a period of one (1) year from the date of delivery. THIS WARRANTY SHALL BE THE SOLE AND EXCLUSIVE WARRANTY MADE BY SELLER TO BUYER. SELLER HEREBY DISCLAIMS ANY IMPLIED WARRANTIES, INCLUDING, WITHOUT LIMITATION, ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

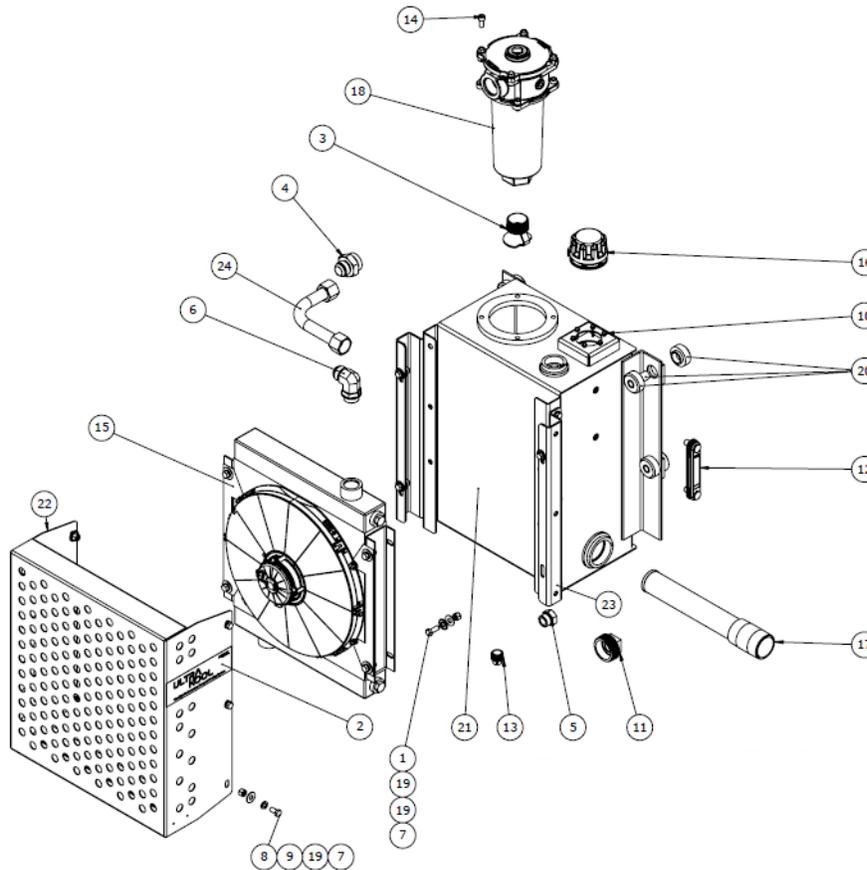
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UK12-70-12VDC-FRM-SS – Model Code Breakdown



UK12-70-12VDC-FRM-SS – Exploded Parts View



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UK12-70-12VDC-FRM-SS – Bill of Material

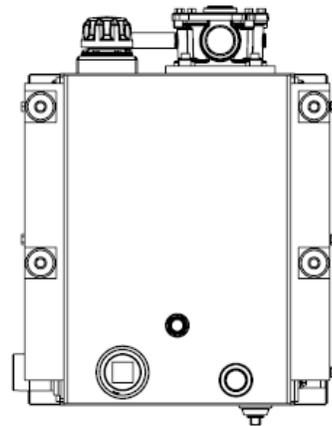
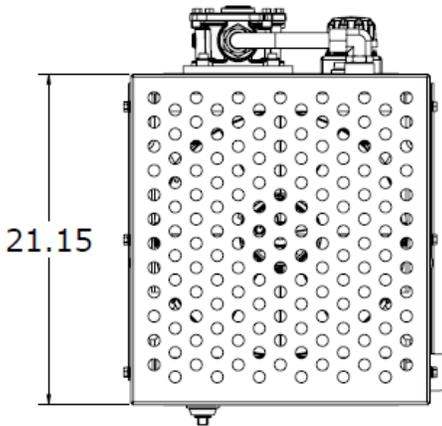
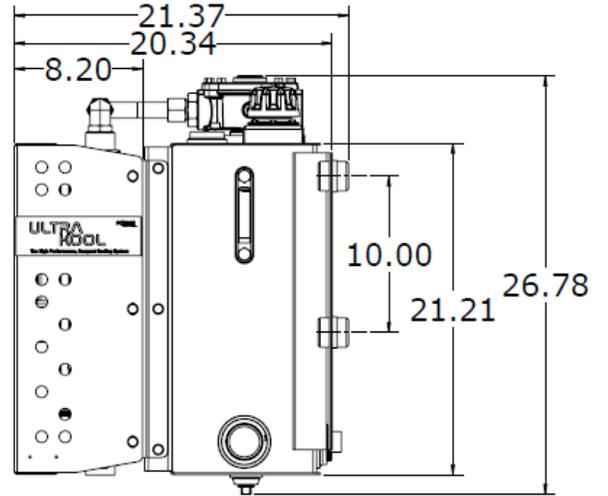
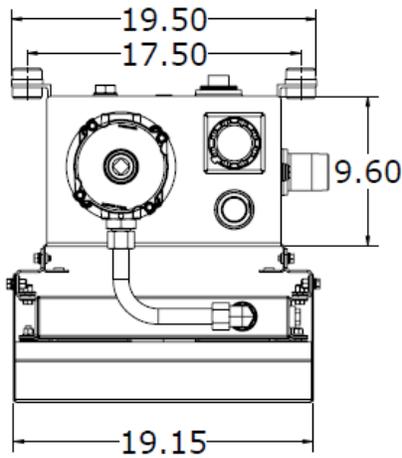
| ITEM NO. | PART NUMBER | DESCRIPTION | QTY. |
|----------|-------------|--|------|
| 1 | 1011466 | 3/8"-16 X 1" HHCS, GR5, ZINC | 4 |
| 2 | 1011613 | ULTRAKOOL LOGO DECAL | 2 |
| 3 | 1011760 | WELDMENT, DIFFUSER, 1-1/2 NPT THREAD | 1 |
| 4 | 1013963 | -16 MALE JIC X #20 MALE ORB | 1 |
| 5 | 1014103 | HEX PLUG, -12 MORB | 1 |
| 6 | 1014330 | ELBOW 1-5/16 X 12 MALE JIC X 1-5/16 X 12 MALE ORB STEEL | 1 |
| 7 | 1014986 | 3/8"-16 NYLON-INSERT HEX LOCK NUT, GR5, ZINC | 10 |
| 8 | 1015084 | 3/8"-16 X 3/4" HHCS, 18-8 STAINLESS | 12 |
| 9 | 1015103 | 3/8" SCREW SIZE SPLIT LOCK WASHER, 0.68" OD, 18-8 STAINLESS | 12 |
| 10 | 1015115 | #12-14 X 1" SELF DRILLING SCREW, UNSLOTTED HEX WASHER HEAD, ZINC | 6 |
| 11 | 1030867 | 2 NPT SQUARE-HEAD PLUG | 1 |
| 12 | 1067943 | 5" LEVEL/BLUE TEMP GAUGE, M12 BOLTS | 1 |
| 13 | 1067982 | PLUG, MAGNETIC SQUARE HEAD, 3/4"-14 NPTF, STL | 1 |
| 14 | 1068876 | 3/8"-16 X 3/4" SHCS 18-8 STAINLESS | 4 |
| 15 | 1087059 | THERMAL TRANSFER COOLER 203184 | 1 |
| 16 | 1090203 | FB-10-00-0 03-0-0 | 1 |
| 17 | 1090430 | STRAINER, 2" NPTF MALE THREAD, 2" NPTF OUTLET PORT (ZINGA) | 1 |
| 18 | 1090443 | SUCTION / RETURN LINE TANK TOP FILTER (ZINGA) | 1 |
| 19 | 1091091 | 3/8" ZINC PLATED USS FLAT WASHER | 14 |
| 20 | 1097650 | ISOLATOR, BONDED BUSHING & SNUBBER (H.A. KING) | 4 |
| 21 | 1190027 | WELDMENT, UK12-70-12VDC, SS | 1 |
| 22 | 1190040 | WELDMENT, UK12 SHROUD, MA-32 COOLER, SS | 1 |
| 23 | 1190042 | PP, UK12 COOLER BRACKET, MA-32, SS | 2 |
| 24 | 1208022 | FFP, TUBE, UK12 MA-32 TUBE ASSEMBLY, SS | 1 |

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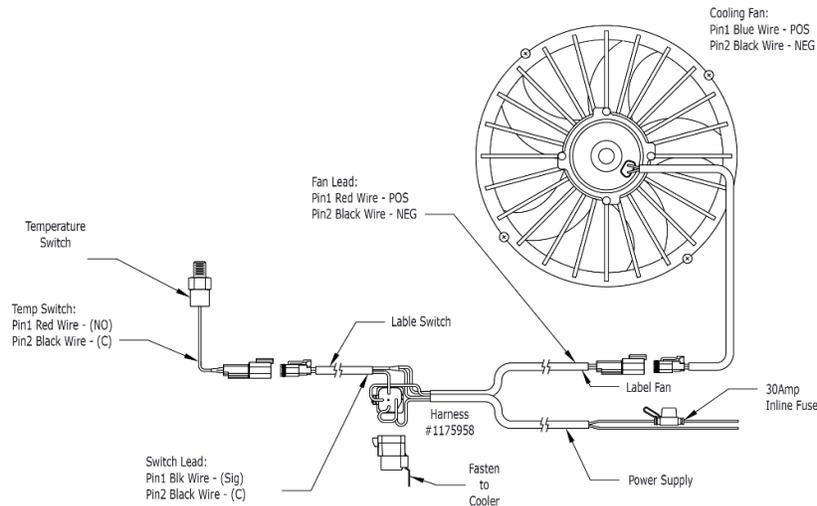
UK12-70-12VDC-FRM-SS – Dimensions



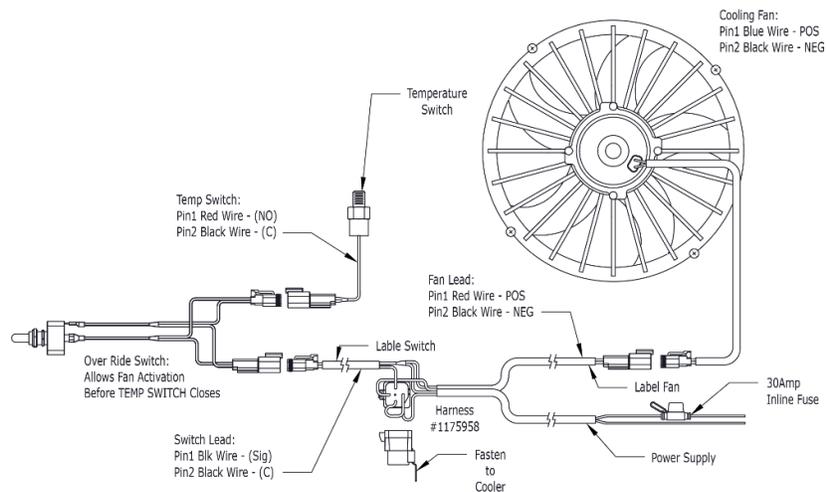
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UK12-70-12VDC-FRM-SS – Electrical Start Options



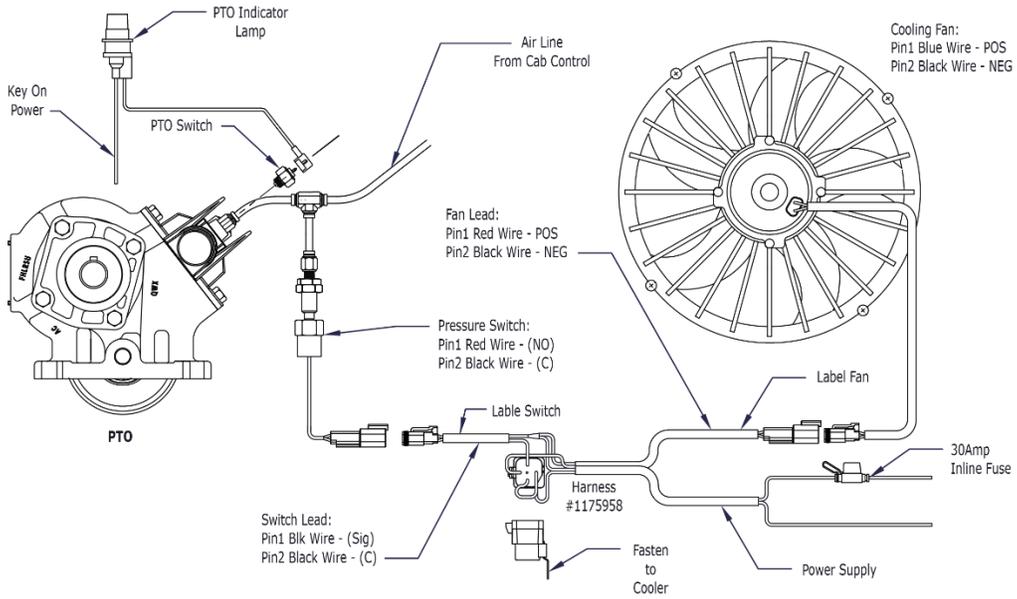
Temperature Switch Fan Activation



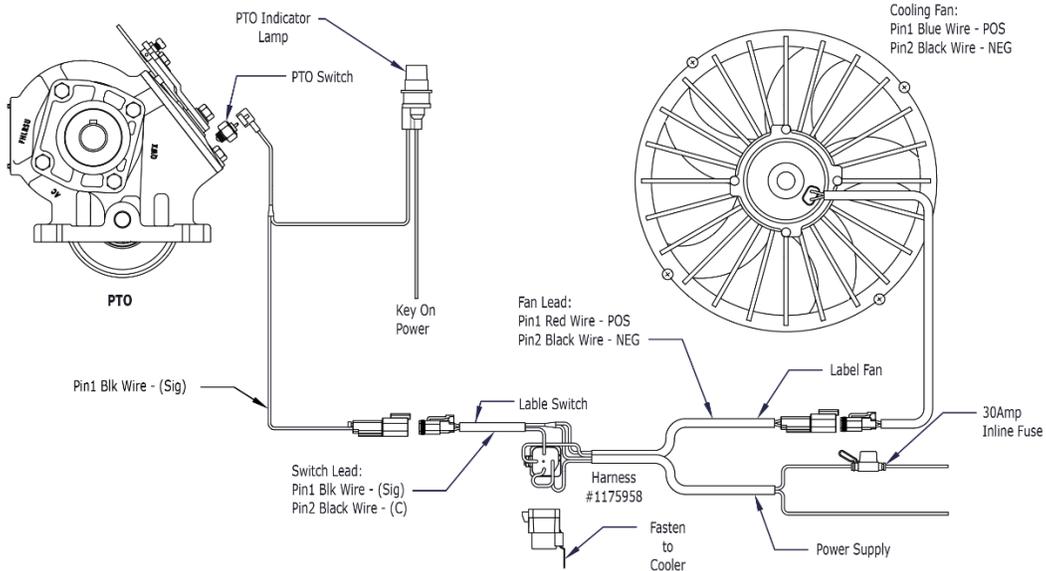
Temperature Switch Fan Activation W/Override

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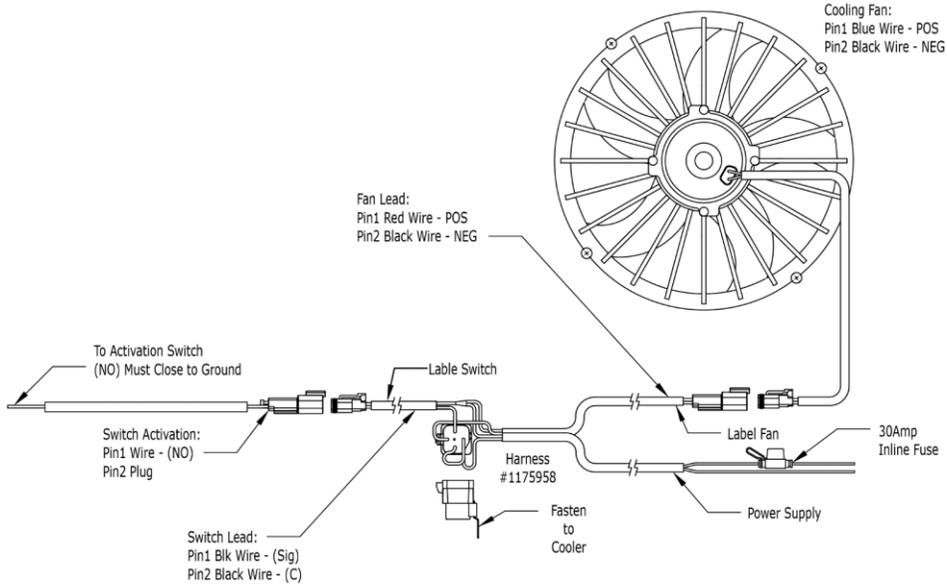
Air Shift PTO Fan Activation



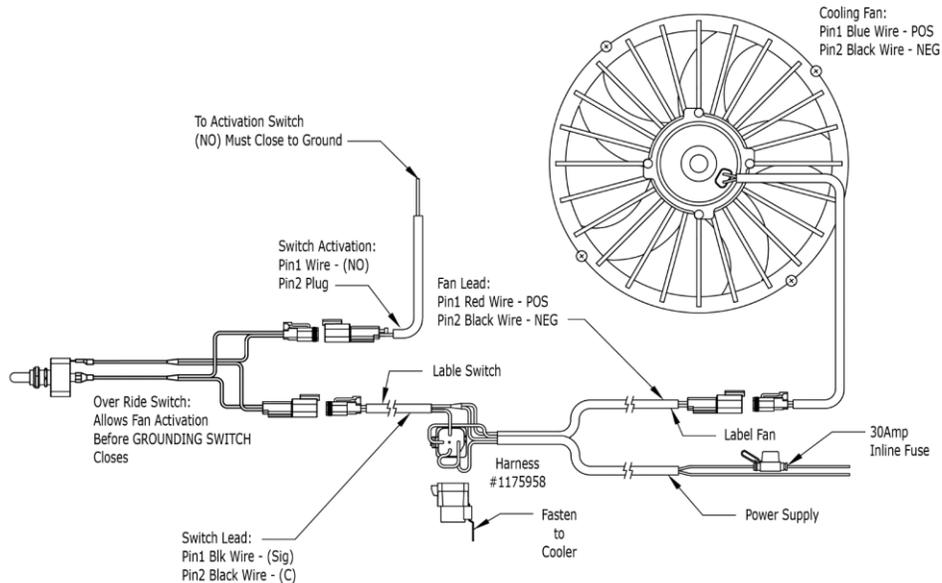
Cable Shift PTO Fan Activation

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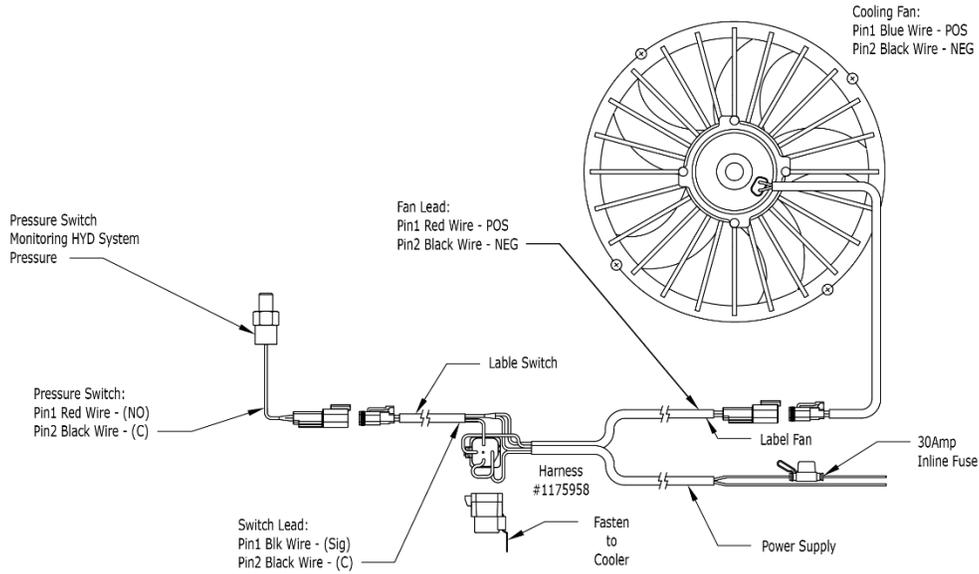
Grounding Switch Fan Activation



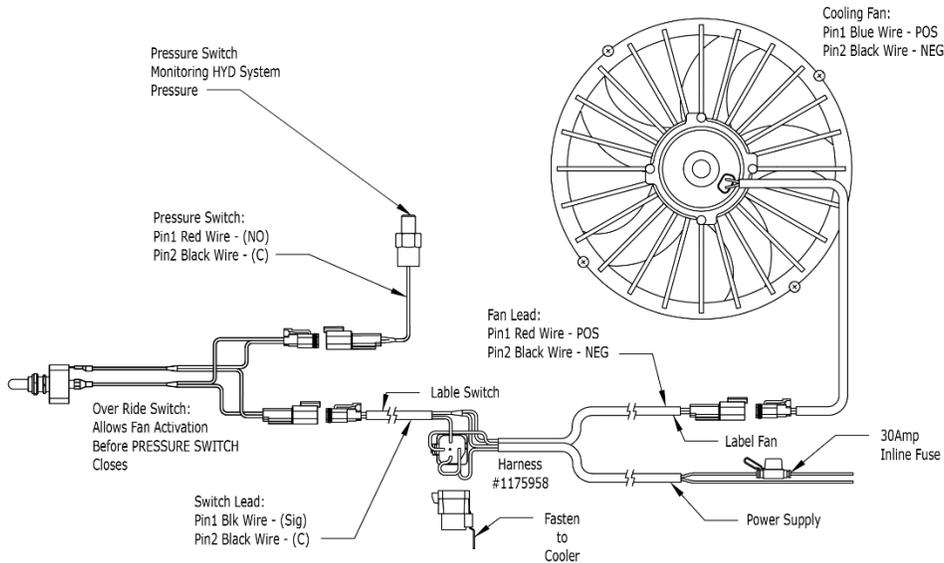
Grounding Switch Fan Activation W/Override

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Pressure Switch Fan Activation



Pressure Switch Fan Activation W/Override

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ELECTRICAL KIT COMPONENTS

| ITEM | DESCRIPTION | QTY |
|--|--|------|
| MAIN HARNESS | | |
| 1175958 | Harness, Main, Cooler, Deutsch, w/ Relay, 144" (Used with MAR-12-225715) | 1.00 |
| PRESSURE SWITCH | | |
| 1069985 | Pressure Switch, Set 25 PSI, Female Deutsch DT04-2P Connection | 1.00 |
| TEMPERATURE SWITCH | | |
| 1128418 | -8 ORB 120°F Temp Switch, 5/8" Long Probe, N.O., 18" Flying Lead | 1.00 |
| PLUG CONNECTOR KIT (DT06-2S) | | |
| 1017929 | Connector, DT, Plug, 2 Way, Size 16, DT06-2S | 1.00 |
| 1040708 | Deutsch Wedglock for DT06-2S | 1.00 |
| 1100400 | Deutsch Female Socket, 1062-16-0122 | 2.00 |
| RECEPTICAL CONNECTOR KIT (DT04-2P) | | |
| 1017930 | Connector, DT, Receptacle, 2 Way, Size 16, DT04-2P | 1.00 |
| 1017933 | Wedglock, Receptacle, DT, 2 Way, Size 16, W2P | 1.00 |
| 1018110 | Deutsch male pin, 1060-16-0122 | 2.00 |
| SAMPLE KIT FOR TEMPURATURE ACTIVATION | | |
| 1175958 | Harness, Main, Cooler, Deutsch, w/ Relay, 144" (Used with MAR-12-225715) | 1.00 |
| 1128418 | -8 ORB 120°F Temp Switch, 5/8" Long Probe, N.O., 18" Flying Lead | 1.00 |
| 1017930 | Connector, DT, Receptacle, 2 Way, Size 16, DT04-2P | 1.00 |
| 1017933 | Wedglock, Receptacle, DT, 2 Way, Size 16, W2P | 1.00 |
| 1018110 | Deutsch male pin, 1060-16-0122 | 2.00 |

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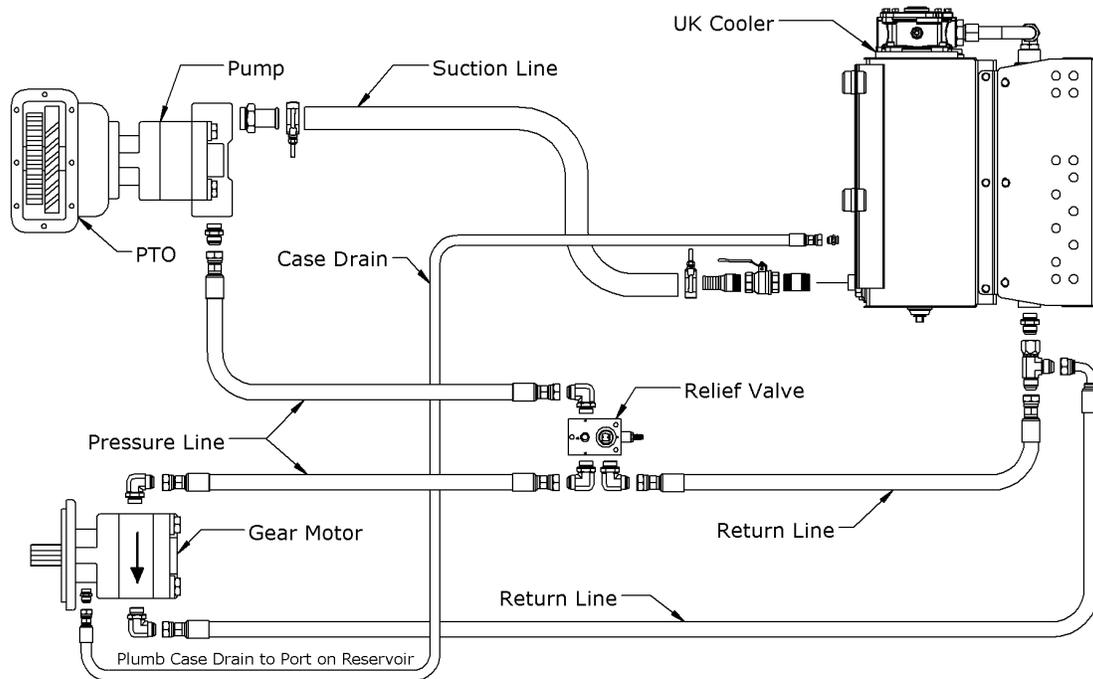


The High Performance, Compact Cooling System

UK12-70-12VDC-FRM-SS – Typical Plumbing Layout

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UK12-70-12VDC-FRM-SS – Startup Procedure Steps

1. Mount unit to truck chassis.

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2. Plumb all hydraulic lines per plumbing diagrams and application diagrams.
3. Fill Reservoir to the high end of the sight gauge.
4. Engage PTO at low RPM levels.
5. Continually add oil to make sure oil level stays visible within the sight gauge.
6. After oil level stays steady check for leaks and repair before continuing.
7. Verify fan operation for either hydraulic or electric fans.
8. Slowly increase PTO speed to get desired pump RPMs.
9. Run system until oil gets to temp (electric) and verify oil is being cooled (both fan types).

Should take roughly 5-10 minutes to verify.

10. Operate all functions of the system to verify the system is properly bled of air.
11. Disengage PTO.
12. System is functional and ready for full operation.

UK12-70-12VDC-FRM-SS – Maintenance Recommendations

General — Look over your Ultra-Kool system before each use to make sure there are no leaks, and all components are good working order.

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Oil — Replace every 12 months or sooner depending on operational conditions. Only oil based hydraulic fluids should be used in this system. Please contact FORCE America if you have any questions related to the fluid you'd like to use in your system.

Filters — Replace as indicated by the gauge on the return filter housing. Replacement filter part number can be obtained from the parts breakdown diagram.

Hoses — Replace hoses due to any leaks or a visual inspection revealing abrasions or cracking.

Cooler — Rinse every 3-6 months with low pressure water (under 200 PSI). When used in dirty environments, it is recommended to rinse the cooler more frequently for optimal performance.

UK12-70-12VDC-FRM-SS – Troubleshooting

Cooling – If system is not cooling properly check the following items.

- Clean or rinse the cooler to remove debris
- Check to make sure the fan is engaging and functioning properly
- Check for additional heat coming from relief valves not functioning properly
- Check to make sure you don't have pump cavitation in your system

Noise – If the system is making excessive noise check the following items.

- Fan is engaging and functioning correctly
- Check oil level is in the center of your sight gauge
- Make sure all bolts are securely fastened on the unit

UK12-70-12VDC-FRM-SS – Product Information

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Technical Specifications:

- Height 26.78 inches
- Depth 21.37 inches
- Width 19.50 inches
- Oil capacity 12 gallons
- Fan speed 3600 rpm

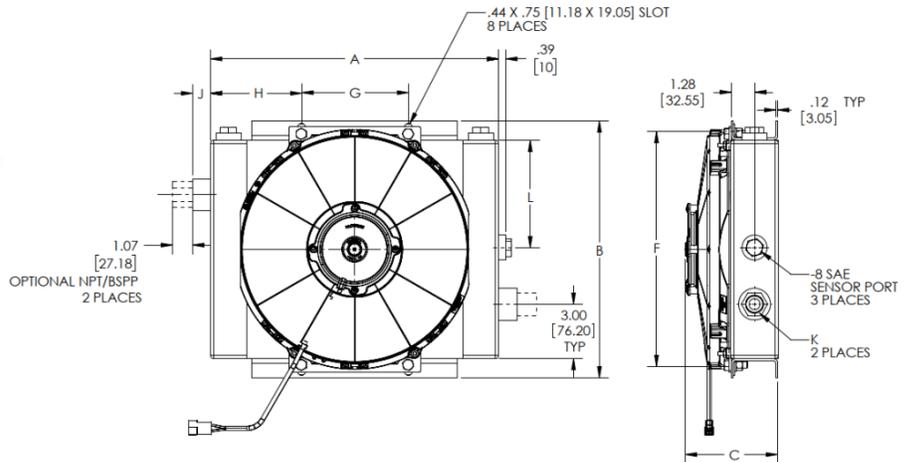


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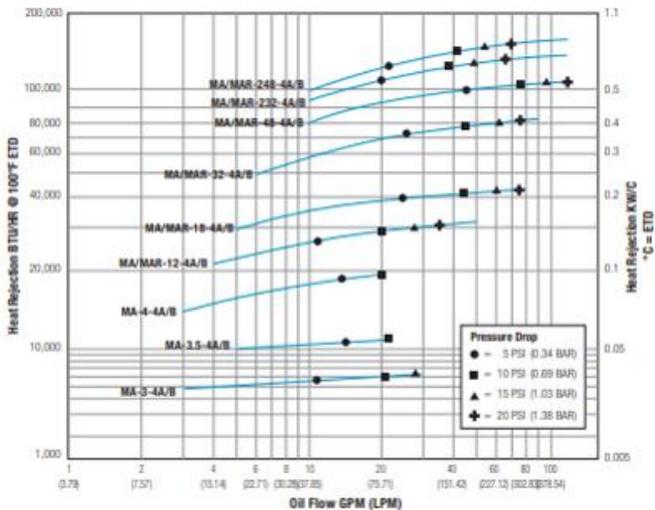
MA-32-2-4A - Hydraulic Cooler Specifications



| Model | A | B | C | | F | | G | H | J | K | | |
|-------|-------------|-------------|------------|------------|----------------------|-------------------|-------------|------------|-----------|---------|------------|------------|
| | | | Standard | Brushless | Without Bypass Valve | With Bypass Valve | | | | SAE | NPT & BSPP | L |
| MA-12 | 13.82 (351) | 11.97 (304) | 6.36 (162) | 6.06 (154) | 10.98 (279) | 11.86 (301) | 5.71 (145) | 4.06 (103) | 1.00 (25) | #12 SAE | 3/4" | 4.88 (124) |
| MA-18 | 15.84 (402) | 14.14 (359) | 5.12 (130) | 6.2 (157) | 12.96 (329) | 13.4 (341) | 5.87 (149) | 4.99 (127) | 1.00 (25) | #12 SAE | 3/4" | 5.91 (150) |
| MA-32 | 19.69 (500) | 18.46 (469) | 6.15 (156) | 6.28 (160) | 17.30 (439) | 17.9 (454) | 12.00 (305) | 3.84 (98) | 1.10 (28) | #16 SAE | 1" | 8.07 (205) |

Note: We reserve the right to make reasonable design changes without notice. All dimensions are in inches (millimeters) unless noted otherwise.

MA Models - DC Fan Assemblies



| Model | DC Amp Draw | | Approx. Shipping Weight LBS (KG) |
|--------|-------------|------|----------------------------------|
| | 12V | 24V | |
| MA-3 | 5.7 | 3.6 | 6 (2.72) |
| MA-3.5 | 12.5 | 6.3 | 9 (4.08) |
| MA-4 | 12.5 | 6.3 | 16 (7.26) |
| MA-12 | 12.5 | 6.3 | 19 (8.62) |
| MA-18 | 10.6 | 5.3 | 23 (10.43) |
| MA-32 | 22.2 | 11.1 | 28 (12.70) |
| MA-48 | 22.2 | 11.1 | 45 (20.40) |
| MA-232 | 19.3* | 9.7* | 65 (29.48) |
| MA-248 | 19.3* | 9.7* | 90 (40.80) |

*AMP draw listed as per FAN.

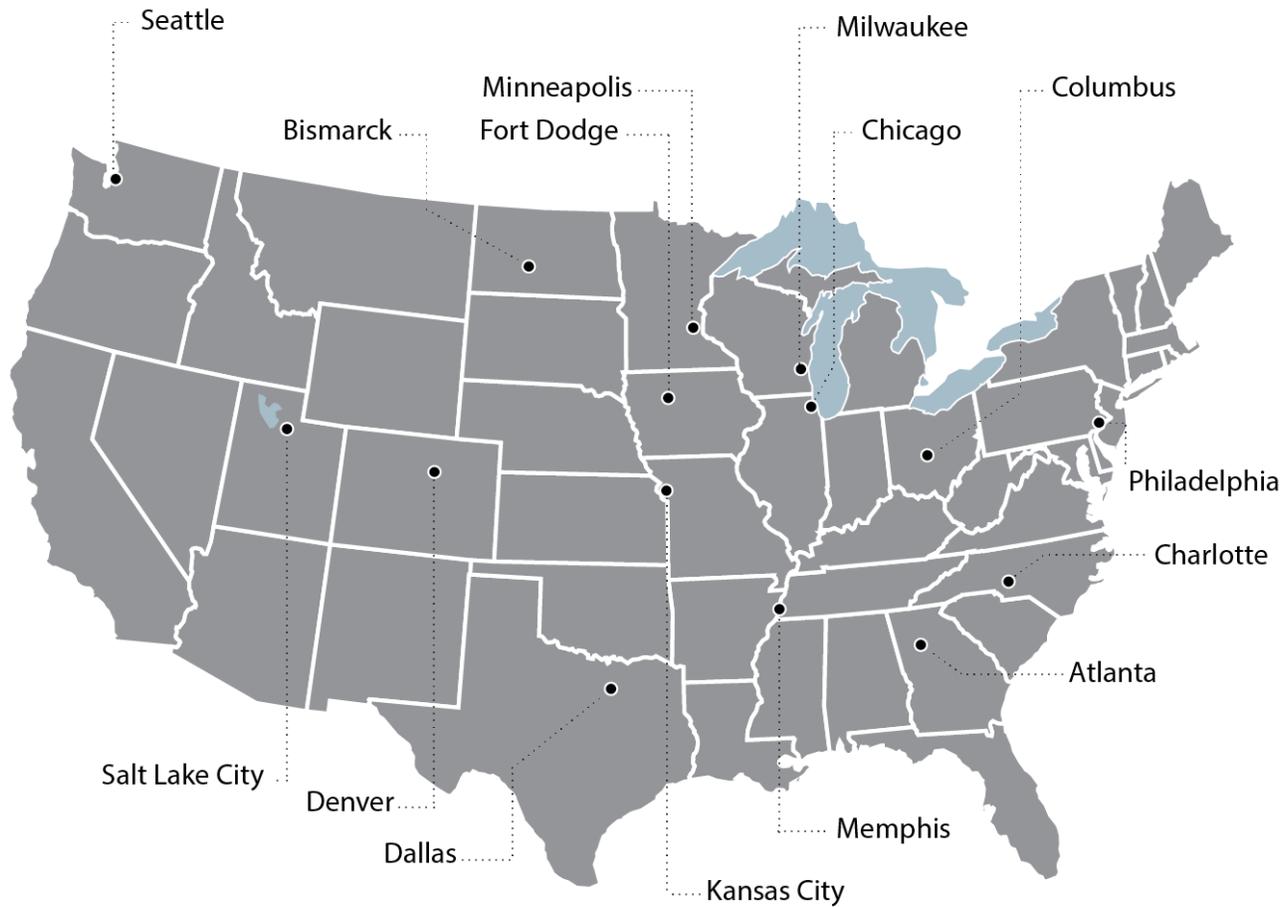
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