



FORCE America Inc.

# ULTRAKOOL Operator's Manual

FORCE America UK4-20-12VDC-AL Operator's Manual



# ULTRA KOOL



The High Performance, Compact Cooling System

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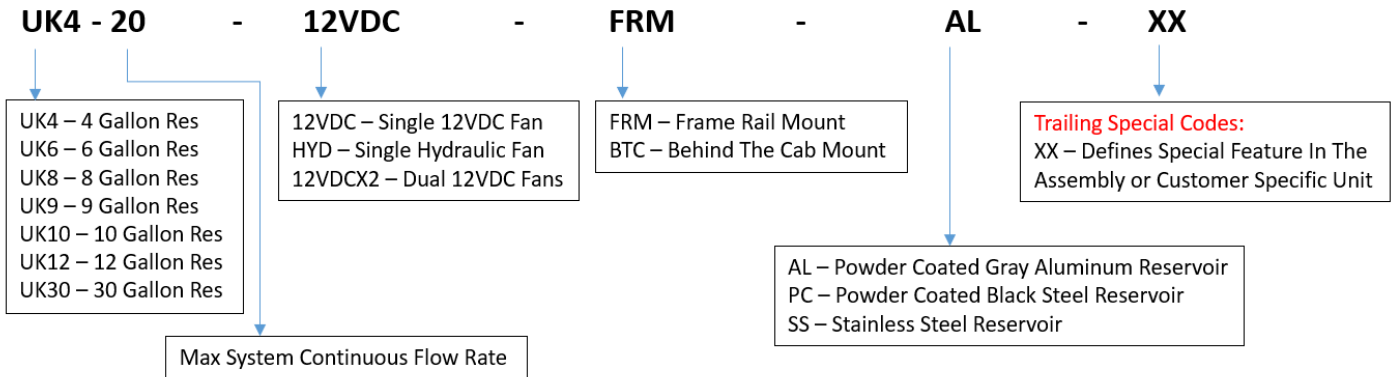
## Warranty Disclaimer

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.

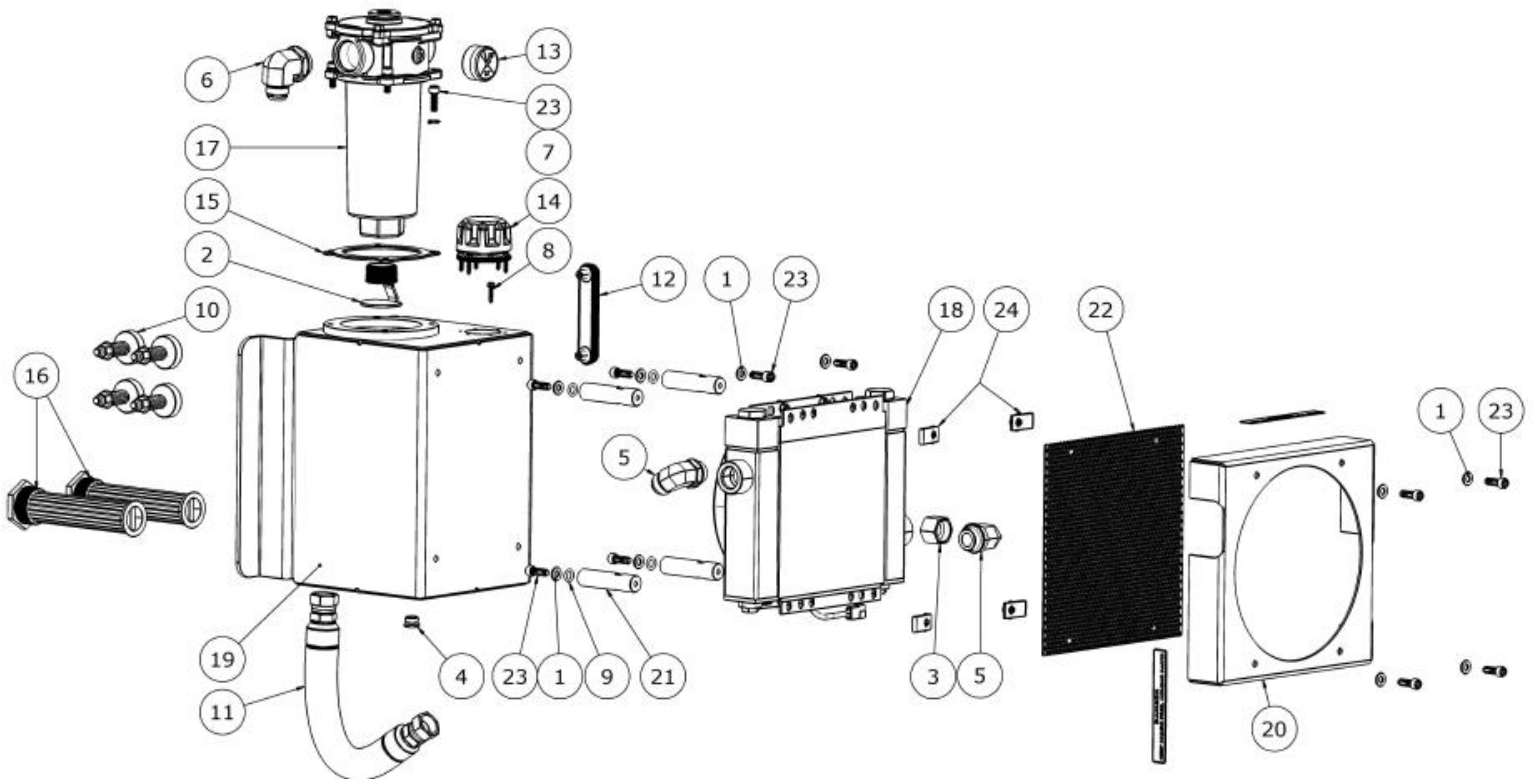
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## UK4-20-12VDC-AL – Model Code Breakdown



## UK4-20-12VDC-AL – Exploded Parts View



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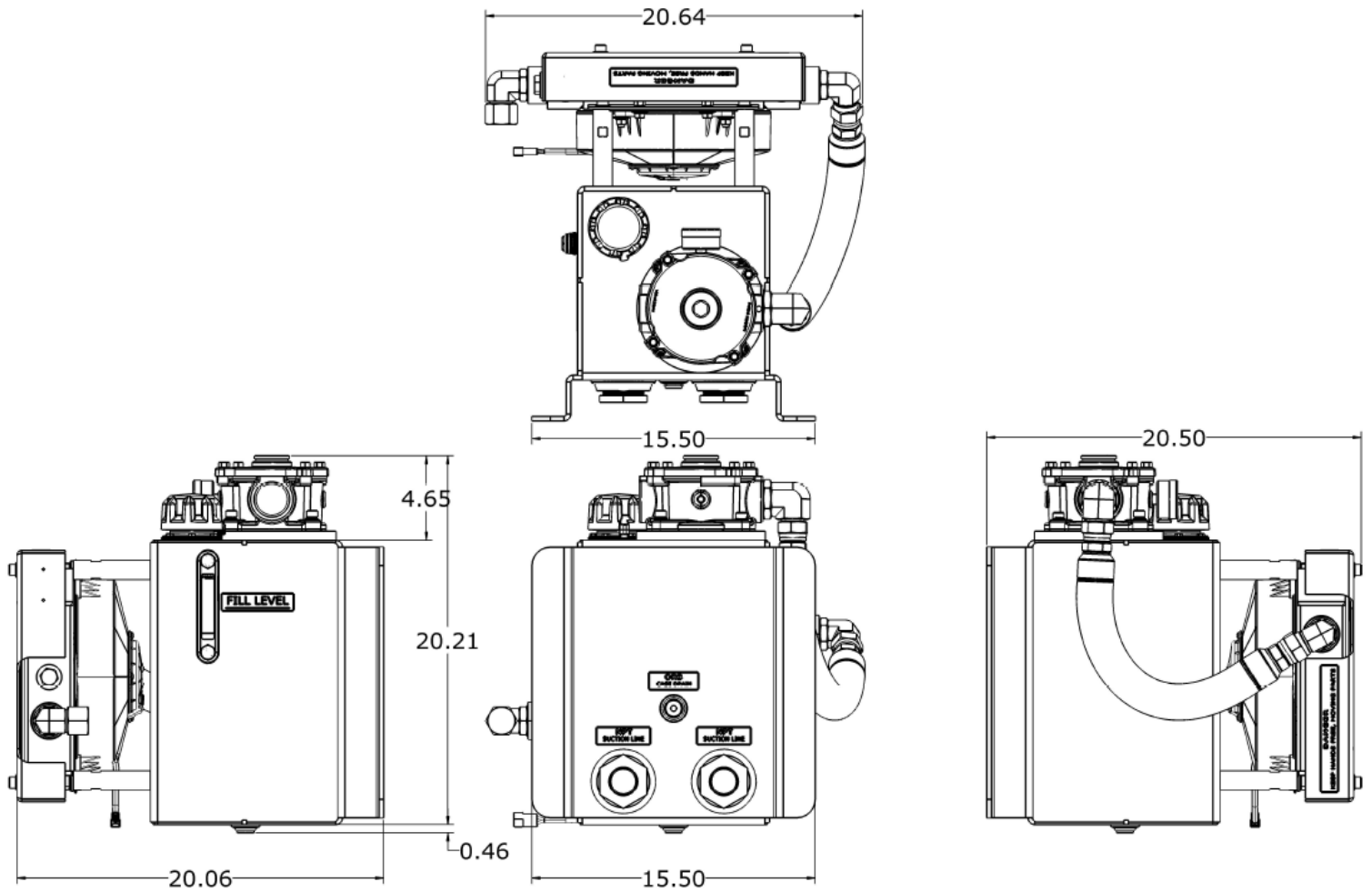
## UK4-20-12VDC-AL – Bill of Materials

ITEM	PART	ITEM DESCRIPTION	QTY
1	1010799	3/8" STAINLESS STEEL WASHER	12
2	1011760	WELDMENT, DIFFUSER, 1-1/2 NPT THREAD	1
3	1013504	ADAPTER CAP NUT 1-5/16 X 12 JIC FOR TUBE OD 1"	1
4	1014114	PLUG, SAE-08 HOLLOW HEX	2
5	1014330	ELBOW 1-5/16 X 12 MALE JIC X 1-5/16 X 12 MALE ORB STEEL	2
6	1014331	ELBOW 1-5/16 X 12 MALE JIC X 1-5/8 X 12 MALE ORB STEEL	1
7	1015103	3/8" SCREW SIZE SPLIT LOCK WASHER, 0.68" OD, 18-8 STAINLESS	4
8	1015115	#12-14 X 1" SELF DRILLING SCREW, HEX WASHER HEAD, ZINC	6
9	1023935	ORING	4
10	1031121	MOUNTING KIT FOR 50 GALLON UPRIGHT RESERVOIR	1
11	1056189	H036316-16Z-616-616-17.5" CUT UK420 UK840 ULTRA-KOOL HOSE	1
12	1067943	5" SIGHT GAUGE/BLUE THERMOMETER - M-12 MOUNTING BOLTS	1
13	1087964	GAUGE, FILTER INDICATOR, 0-60 PSI	1
14	1090203	10MIC FB W/O BASKET-3PSI RELIEF-NYLON CAP-NO DIPSTICK	1
15	1090319	GASKET, TR/TS FILTER, REPLACES O-RING	1
16	1090428	2" X 1-1/4" NPT - 100 MESH - 3 PSI BYPASS - SUCTION STRAINER	2
17	1090448	SUCTION / RETURN LINE TANK TOP FILTER	1
18	1200178	MA-12, DT CONNECTOR, 12VDC, NO BYPASS	1
19	1205984	WLDMT, UK4 RESERVOIR, PC	1
20	1205987	WLDMT, UK FAN COVER, ALUM, PC	1
21	1205988	FFP, UK 12VDC STANDOFF, AL	4
22	1206079	PERFORATED SHEET, PC BLUE	1
23	1206534	3/8-16X1-1/8 SOCKET HEAD CAP SCREW, SS	16
24	1206918	NO-SLIP CLIP-ON BARREL NUT 3/8 X 16	4
25	1207215	UK DECAL SHEET - DANGER DECAL	2
26	1207215	UK DECAL SHEET - CASE DRAIN DECAL	1
27	1207215	UK DECAL SHEET - NPT SUCTION DECAL	2
28	1207215	UK DECAL SHEET - FILL LEVEL DECAL	1

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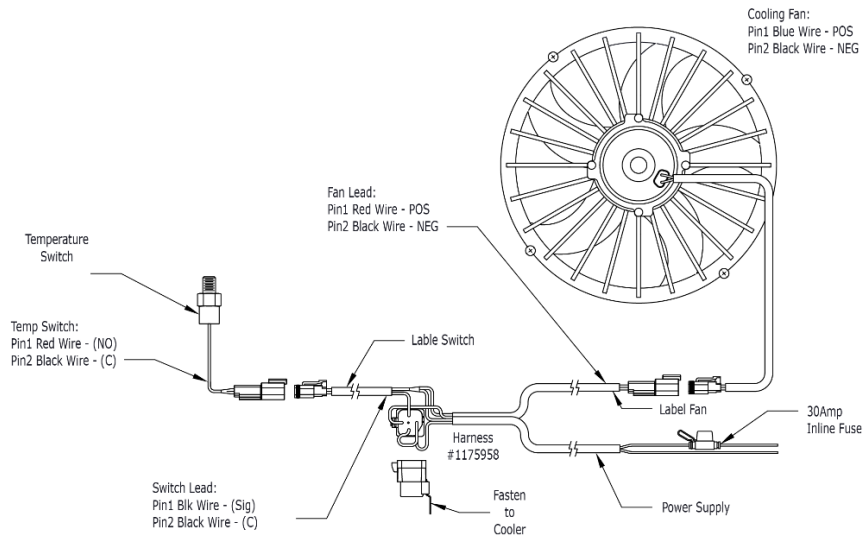
## UK4-20-12VDC-AL – Dimensions



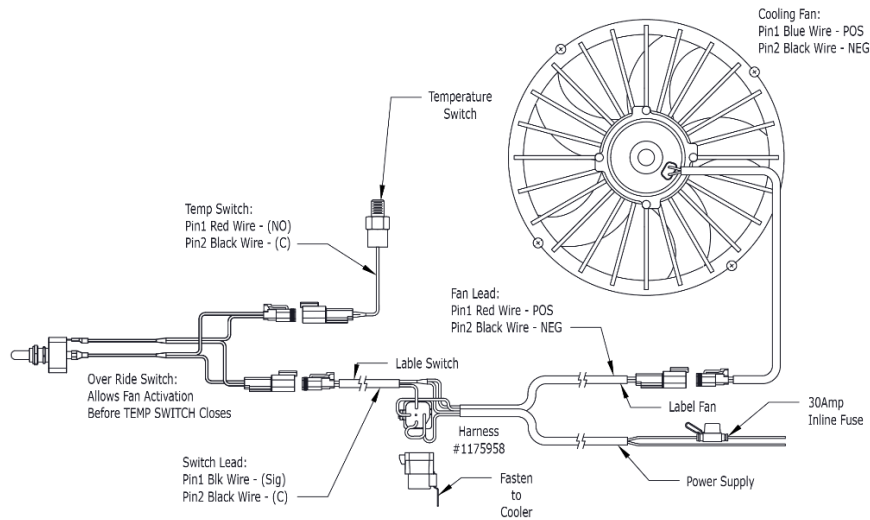
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## UK4-20-12VDC-AL – Electrical Start Options



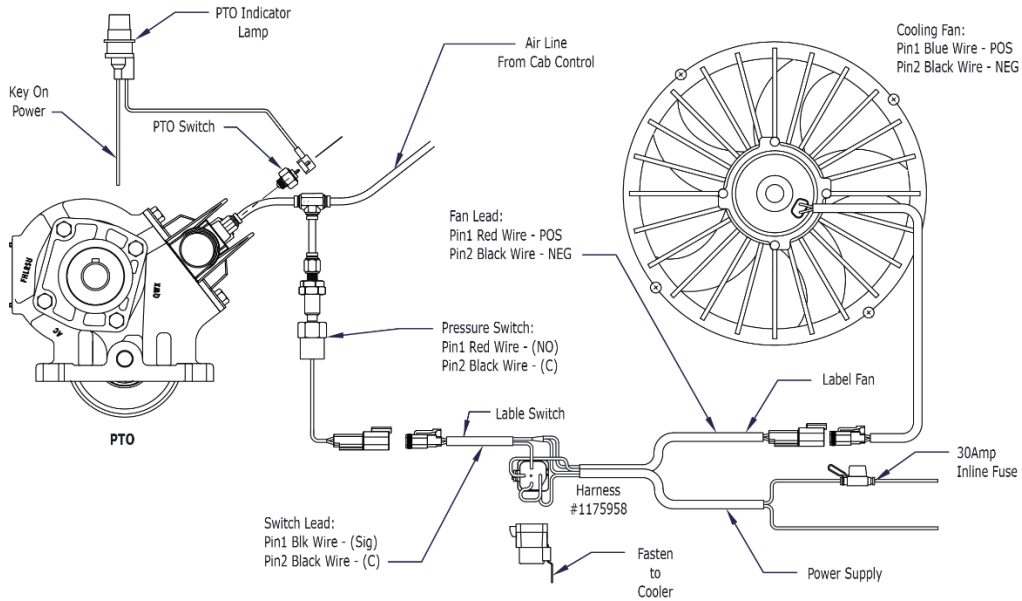
**Temperature Switch Fan Activation**



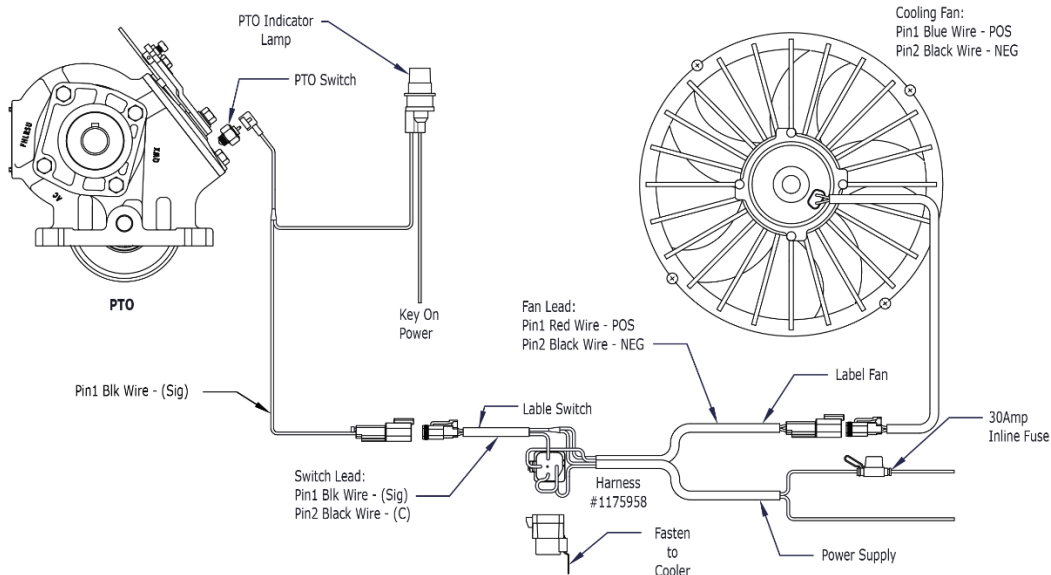
**Temperature Switch Fan Activation W/Override**

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**Air Shift PTO Fan Activation**

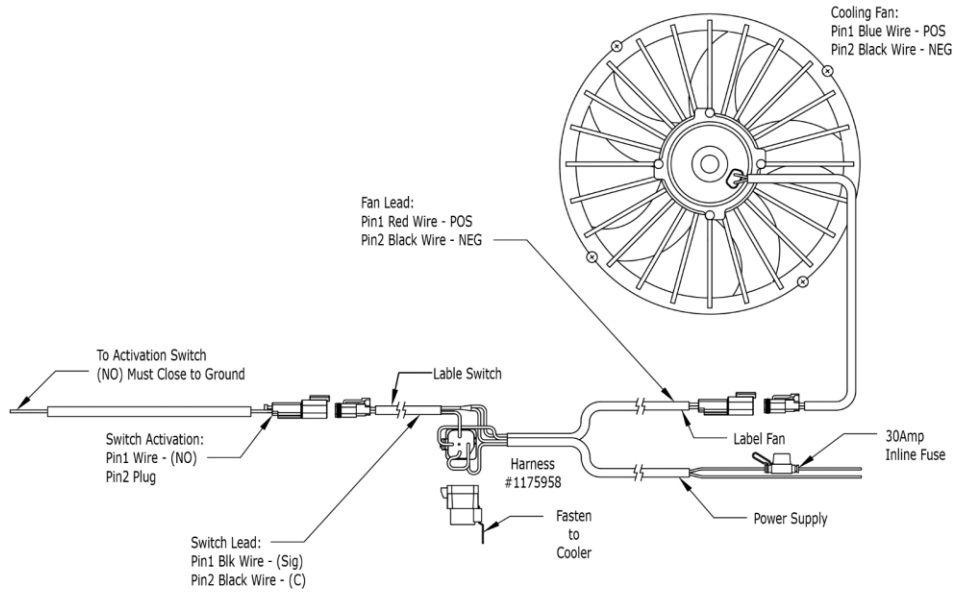


**Cable Shift PTO Fan Activation**

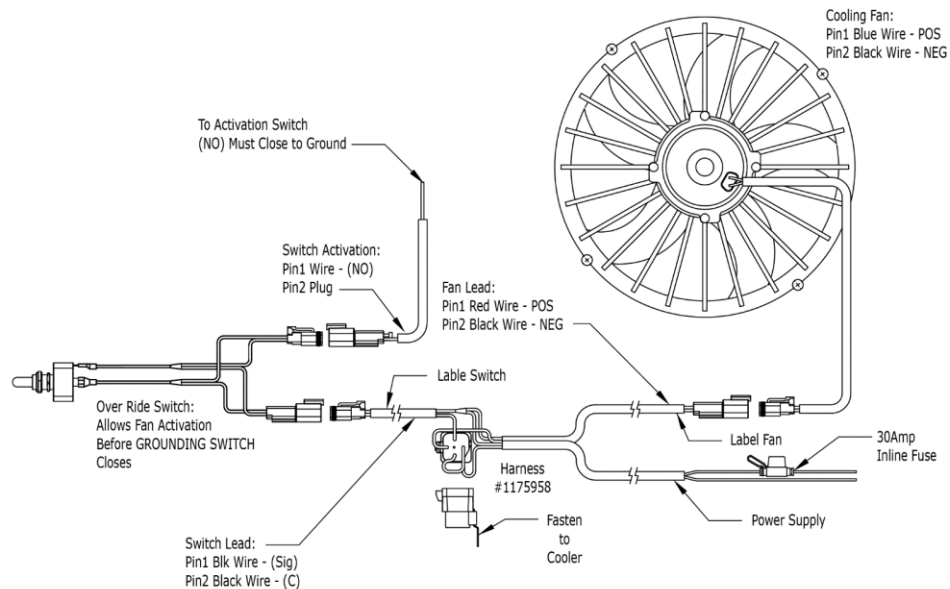


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### Grounding Switch Fan Activation

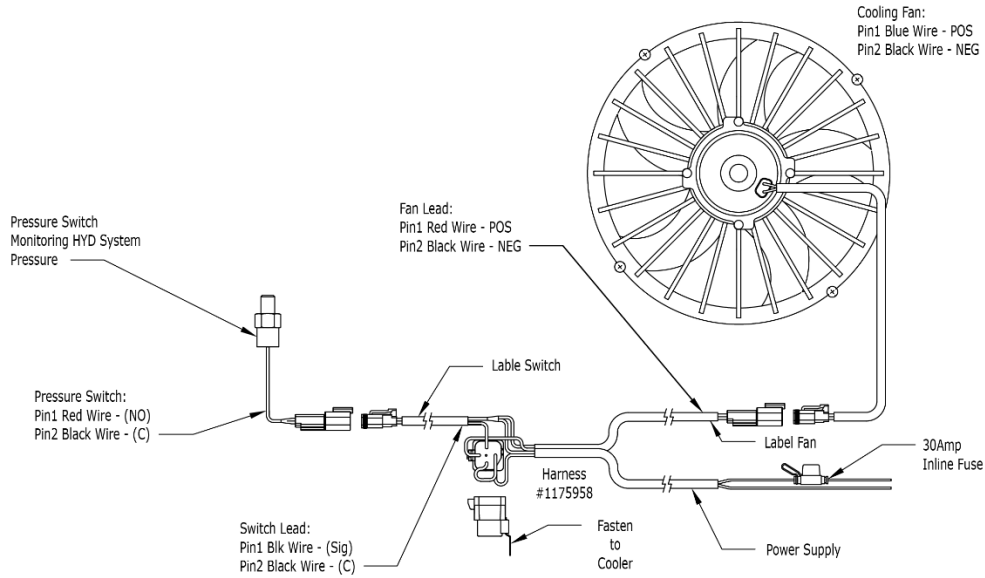


### Grounding Switch Fan Activation W/Override

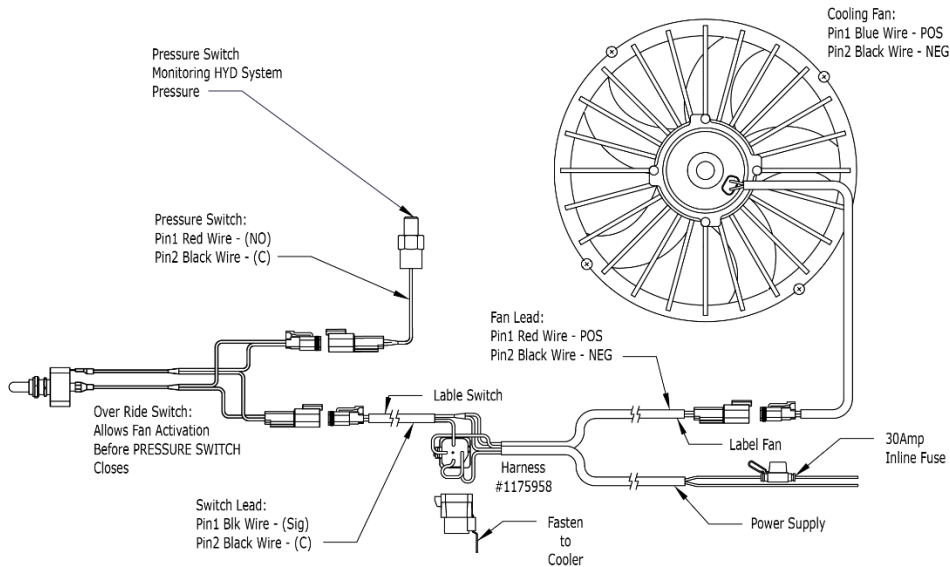


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### Pressure Switch Fan Activation

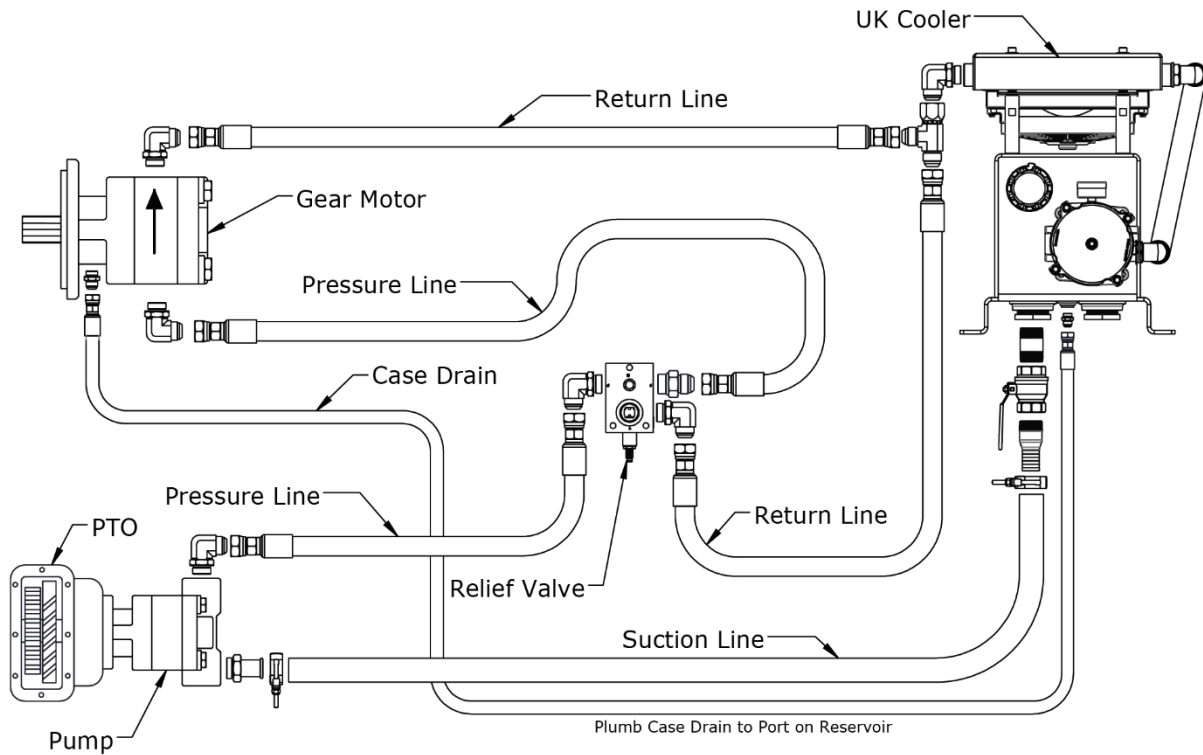


### Pressure Switch Fan Activation W/Override

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## UK4-20-12VDC-AL – Typical Plumbing Layout



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## UK4-20-12VDC-AL – Startup Procedure Steps

1. Mount unit to truck chassis.
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.

## UK4-20-12VDC-AL – 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.

**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.

## UK4-20-12VDC-AL – 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

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## UK4-20-12VDC-AL – Product Information

### Technical Specifications:

- Dry Weight ..... 65 lbs.
- Height ..... 20.21 inches
- Depth ..... 20.5 inches
- Width ..... 20.60 inches
- Oil capacity ..... 4 gallons
- Fan speed ..... 3600 rpm

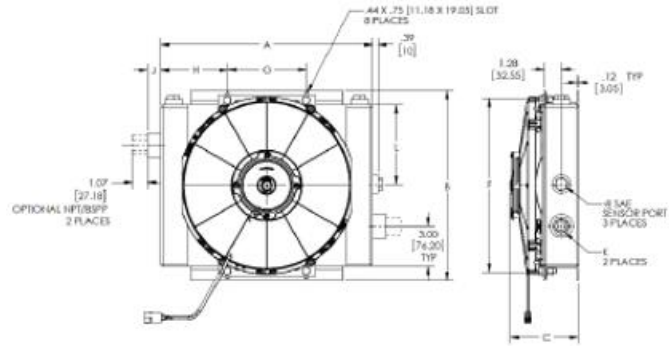


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## MA-12 – Hydraulic Cooler Specifications

MA-12, MA-18, MA-32

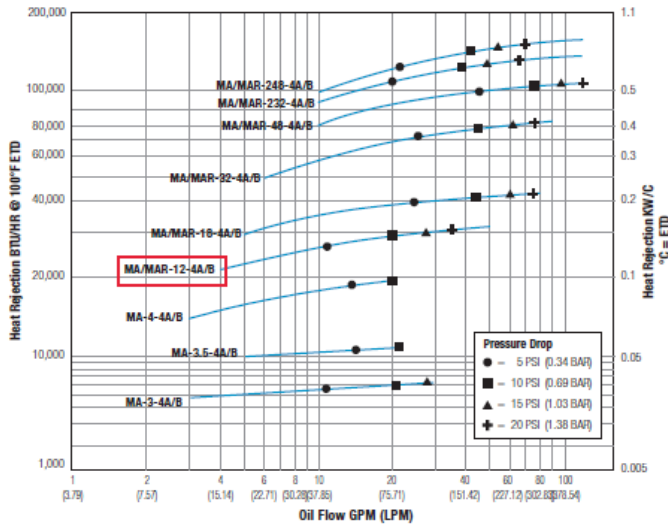


Brushless fan option has different dimensions. Consult factory.

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)	#16 SAE	3/4"	4.88 (124)
MA-18	15.84 (402)	14.14 (358)	5.12 (130)	6.2 (157)	12.06 (309)	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 (206)

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)

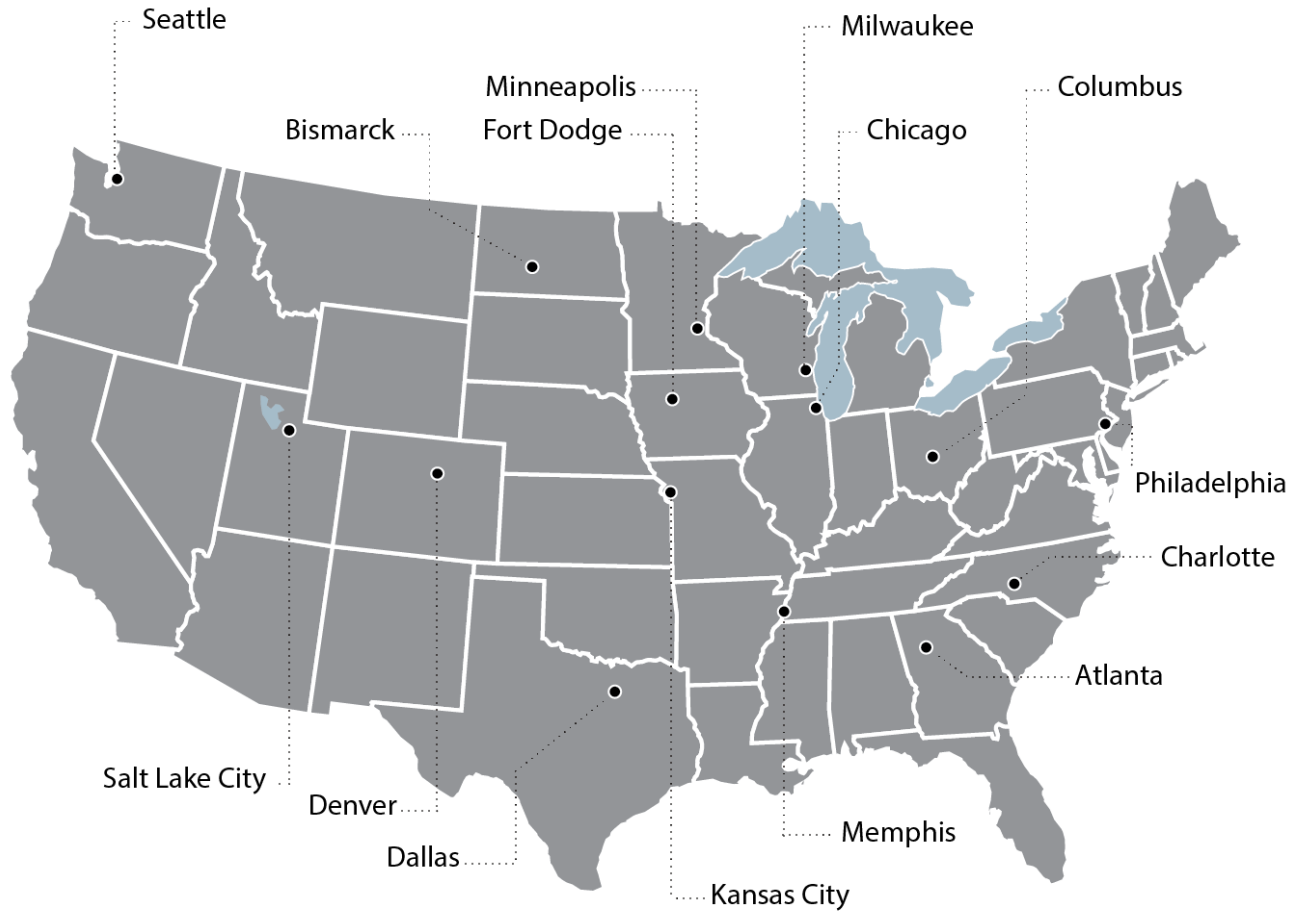
\*AMP draw listed as per FAN.

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## Contact Us



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