



FORCE America Inc.

ULTRAKOOL Operator's Manual

FORCE America UK10-70-12VDCX2-FRM-AL Operator's Manual



ULTRA KOOL



The High Performance, Compact Cooling System

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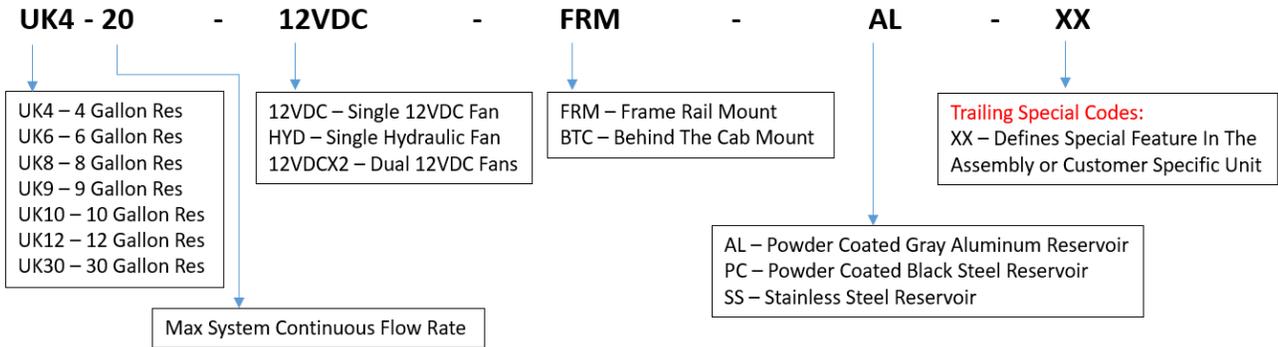
Warranty Disclaimer

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.

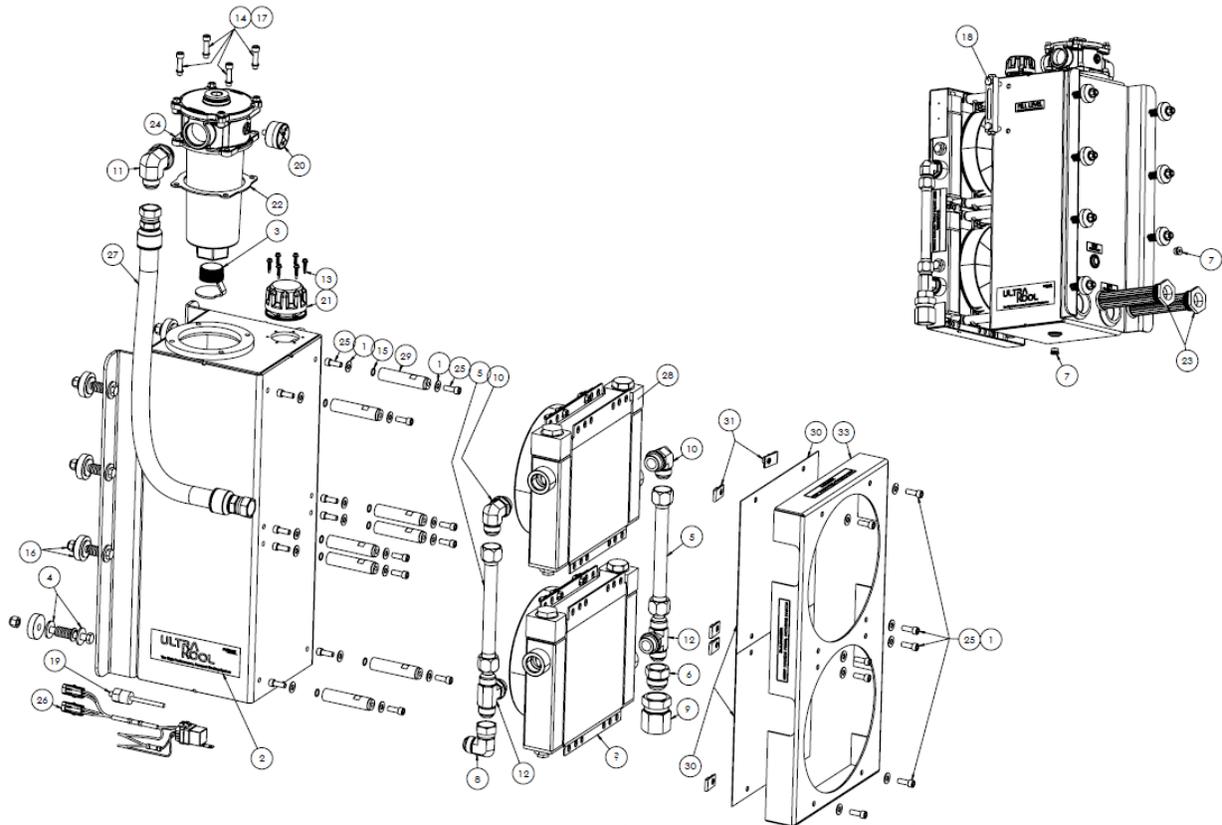
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UK10-70-12VDCX2-FRM-AL – Model Code Breakdown



UK10-70-12VDCX2-FRM-AL – Exploded Parts View



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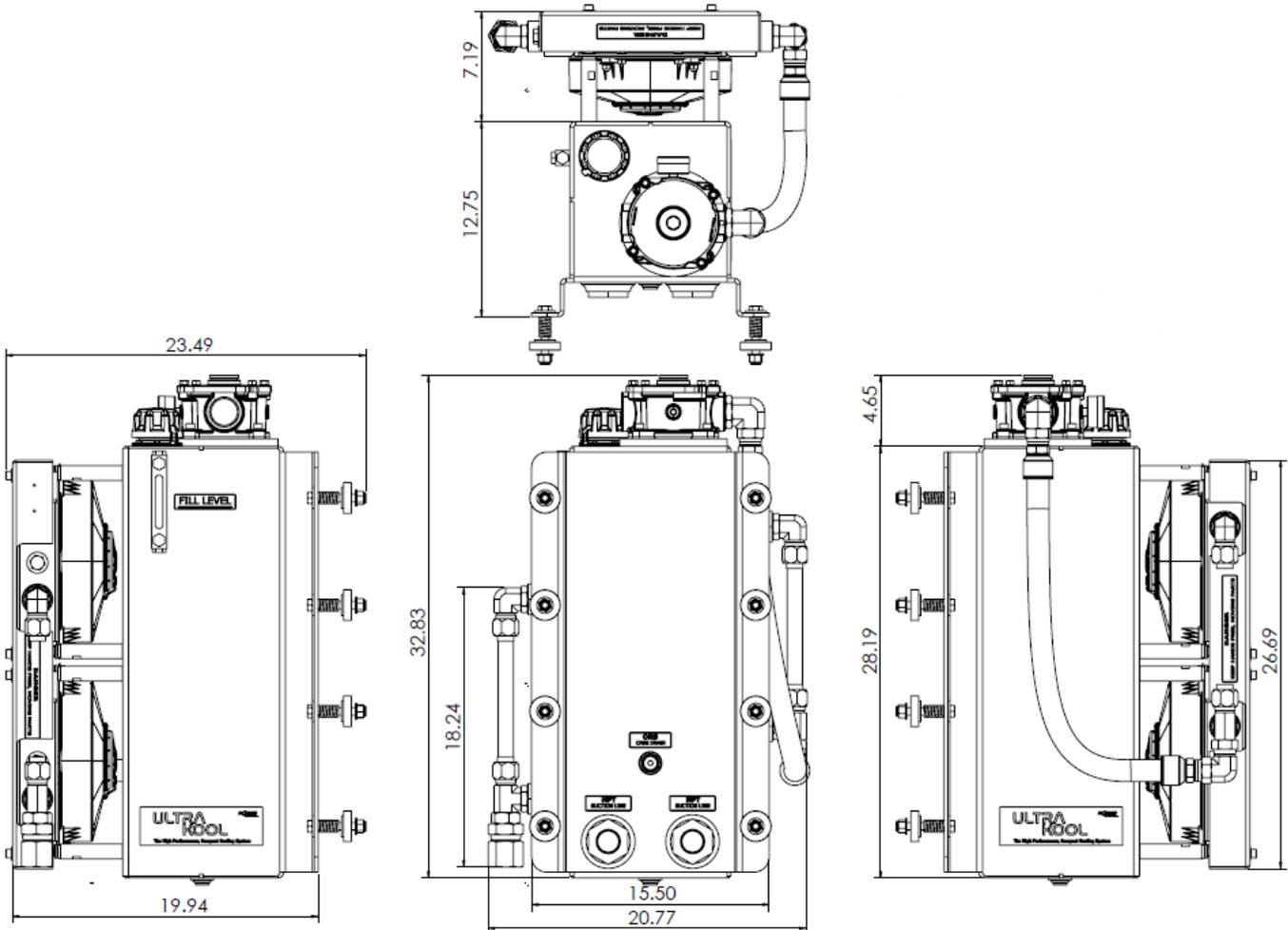
UK10-70-12VDCX2-FRM-AL – Bill of Material

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	1010799	3/8" FLAT WASHER, GENERAL PURPOSE, 18-8 STAINLESS	24
2	1011613	ULTRAKOOL LOGO DECAL	2
3	1011760	WELDMENT, DIFFUSER, 1-1/2 NPT THREAD	1
4	1011765	1/2" FLAT WASHER, USS, ZINC	16
5	1011795	ASSEMBLY, TUBE, HK10-80	2
6	1013260	-16 FEMALE JIC X -20 MALE JIC	1
7	1014114	SOCKET HEAD PLUG 3/4 X 16 MALE ORB STEEL	2
8	1014182	ADAPTER 90 DEG ELBOW 1-5/16 X 12 MALE JIC X 1-5/16 X 12 FEMALE JIC SWIVEL STEEL	1
9	1014253	ADAPTER STRAIGHT 1-5/8 X 12 FEMALE JIC SWIVEL X 1-1/4" FEMALE NPT STEEL	1
10	1014330	ELBOW 1-5/16 X 12 MALE JIC X 1-5/16 X 12 MALE ORB STEEL	2
11	1014331	ELBOW 1-5/16 X 12 MALE JIC X 1-5/8 X 12 MALE ORB STEEL	1
12	1014397	ADAPTER BRANCH TEE 1-5/16 X 12 MALE JIC X 1-5/16 X 12 MALE JIC X 1-5/16 X 12 MALE ORB STEEL	2
13	1015115	#12-14 X 1" SELF DRILLING SCREW, UNSLOTTED HEX WASHER HEAD, ZINC	6
14	1015229	3/8"-16 X 1-1/2" SHCS 18-8 STAINLESS	4
15	1023935	O-RING 70 DURO	8
16	1031121	MOUNTING KIT FOR 50 GALLON UR50S UPRIGHT RESERVOIR	2
17	1035571	WASHER, COPPER	4
18	1068254	SIGHT GAUGE/TEMP 5" METRIC THREAD BLACK ANODIZED	1
19	1069986	PRESSURE SWITCH 25 PSI WITH DEUTSCH CONNECTION	1
20	1087964	GAUGE, FILTER INDICATOR, 0-60 PSI	1
21	1090203	FB-10-00-0 03-0-0	1
22	1090319	RG11, GASKET, TR/TS FILTER, REPLACES O-RING (ZINGA)	1
23	1090428	2"MX1-1/4"F NPT-23GPM-100MESH-3PSI-STEEL BUSH SUC STRAINER	2
24	1090448	71GPM RETURN-24 GPM SUCTION-100PSI MAX-13.28"LENGTH	1
25	1096203	3/8"-16 X 1" SHCS STAINLESS	24
26	1105858	HARNESS, ULTRA-KOOL, DUAL UK10-80	1
27	1161803	WH00416-16Z-616-616-25 CUT	1
28	1200178	MA-12 COOLER, DEUTSCH CONNECTOR, 12VDC FAN, NO BYPASS, AND NO TEMP SENSOR PORT	2
29	1205988	FFP, UK 12VDC STANDOFF, AL	8
30	1206079	PERFORATED SHEET, .06" THICK, HOLE SIZE .25" SPACING .313", PC BLUE	2
31	1206918	NO-SLIP CLIP-ON BARREL NUT 3/8 X 16	8
32	1207001	WELDMENT, UK10-80-12VDCX2, AL, PC	1
33	1207006	PP, FRMD SHT, UK10-80-12VDC,FAN COVER, AL	1
34	1207215	UK DECAL SHEET - CASE DRAIN DECAL	1
35	1207215	UK DECAL SHEET - DANGER DECAL	3
37	1207215	UK DECAL SHEET - NPT SUCTION DECAL	2

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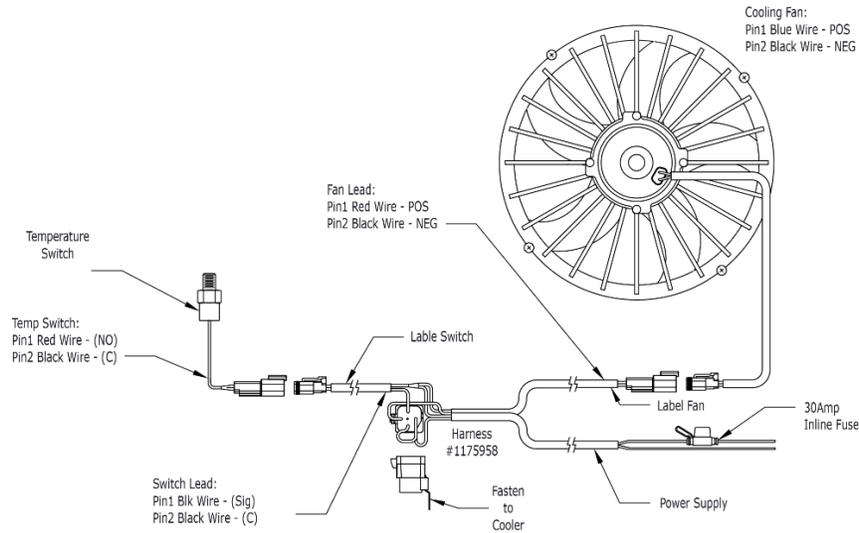
UK10-70-12VDCX2-FRM-AL – Dimensions



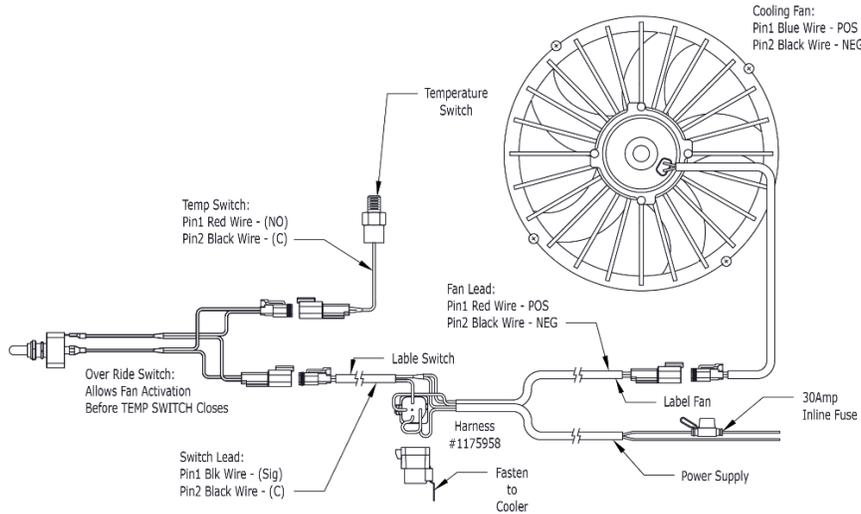
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UK10-70-12VDCX2-FRM-AL – Electrical Start Options



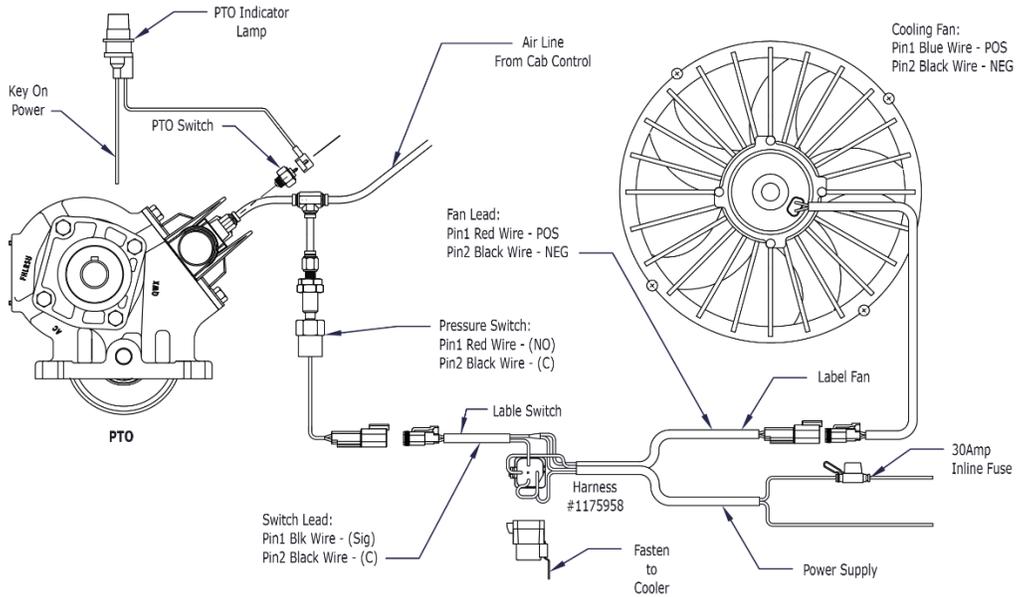
Temperature Switch Fan Activation



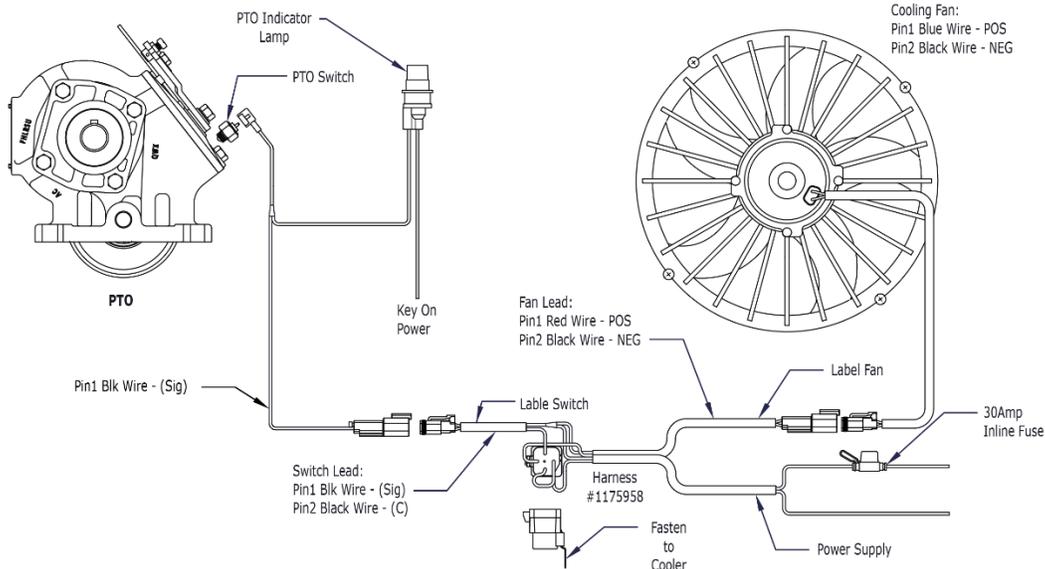
Temperature Switch Fan Activation W/Override

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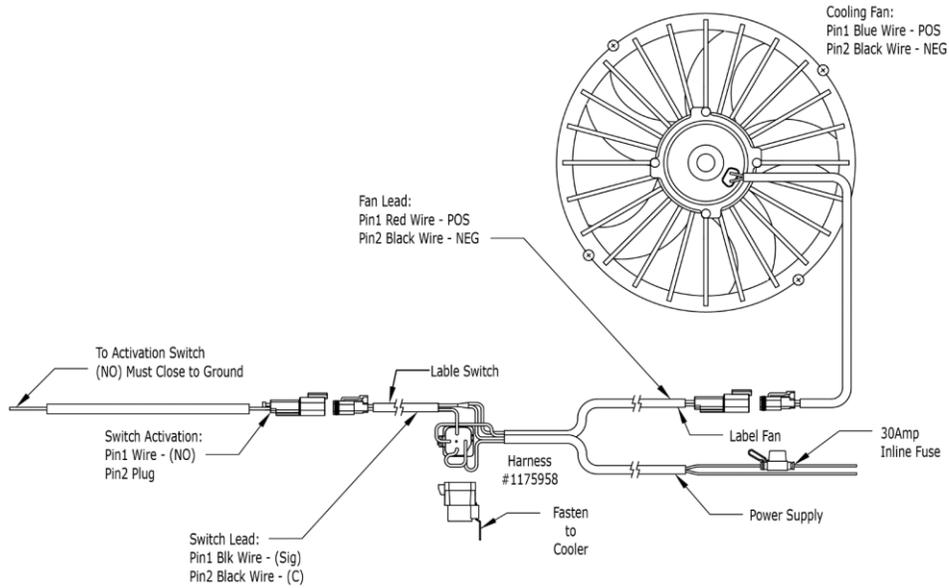
Air Shift PTO Fan Activation



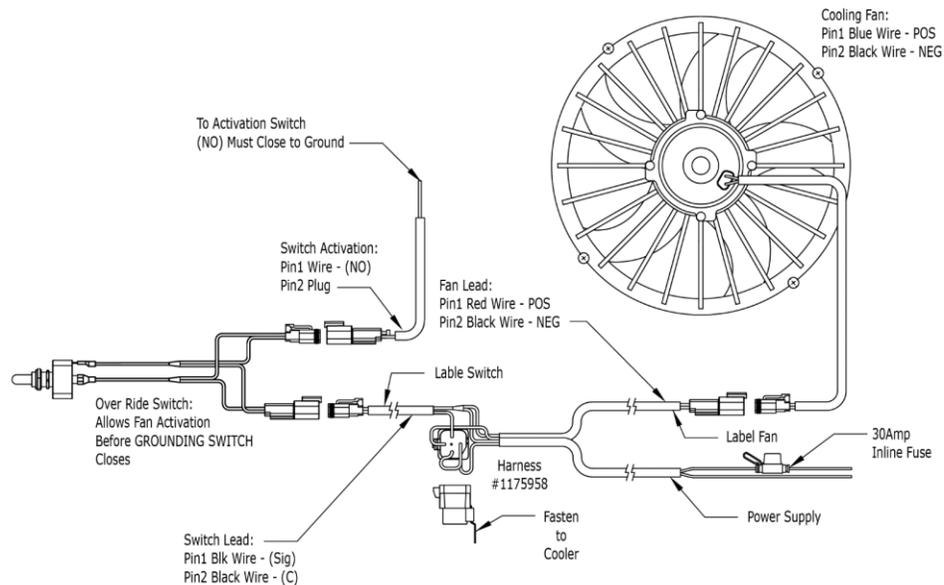
Cable Shift PTO Fan Activation

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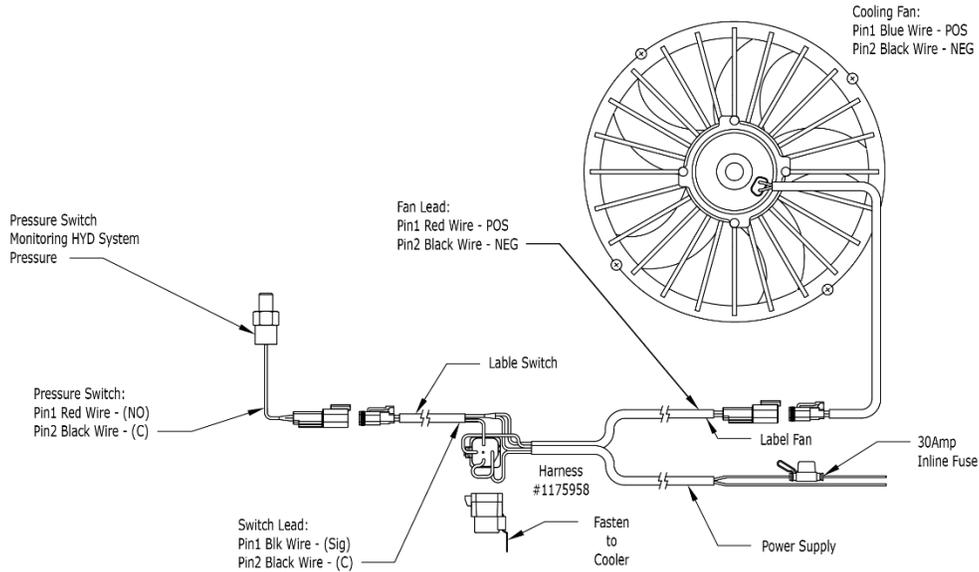
Grounding Switch Fan Activation



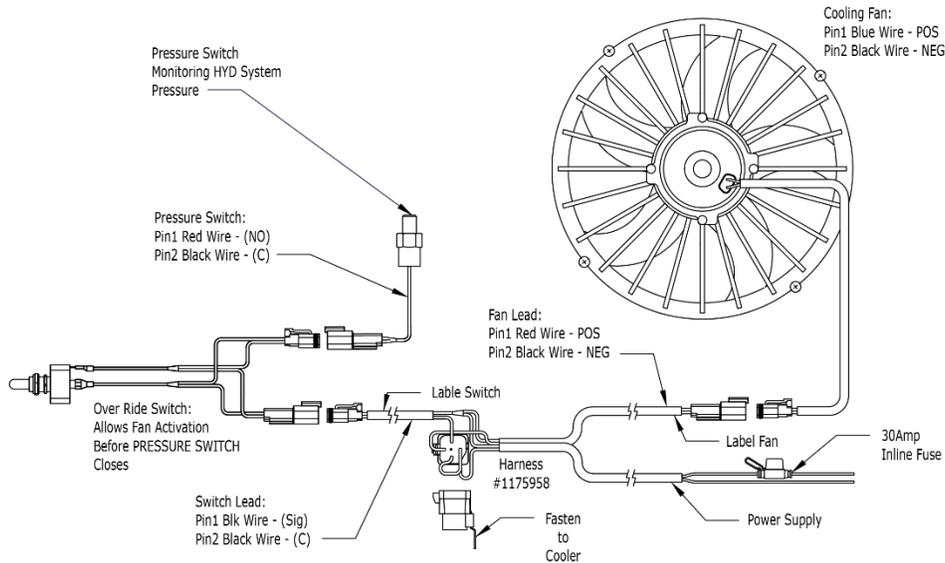
Grounding Switch Fan Activation W/Override

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Pressure Switch Fan Activation



Pressure Switch Fan Activation W/Override

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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 Wedgelock 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	Wedgelock, 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	Wedgelock, Receptacle, DT, 2 Way, Size 16, W2P	1.00
1018110	Deutsch male pin, 1060-16-0122	2.00

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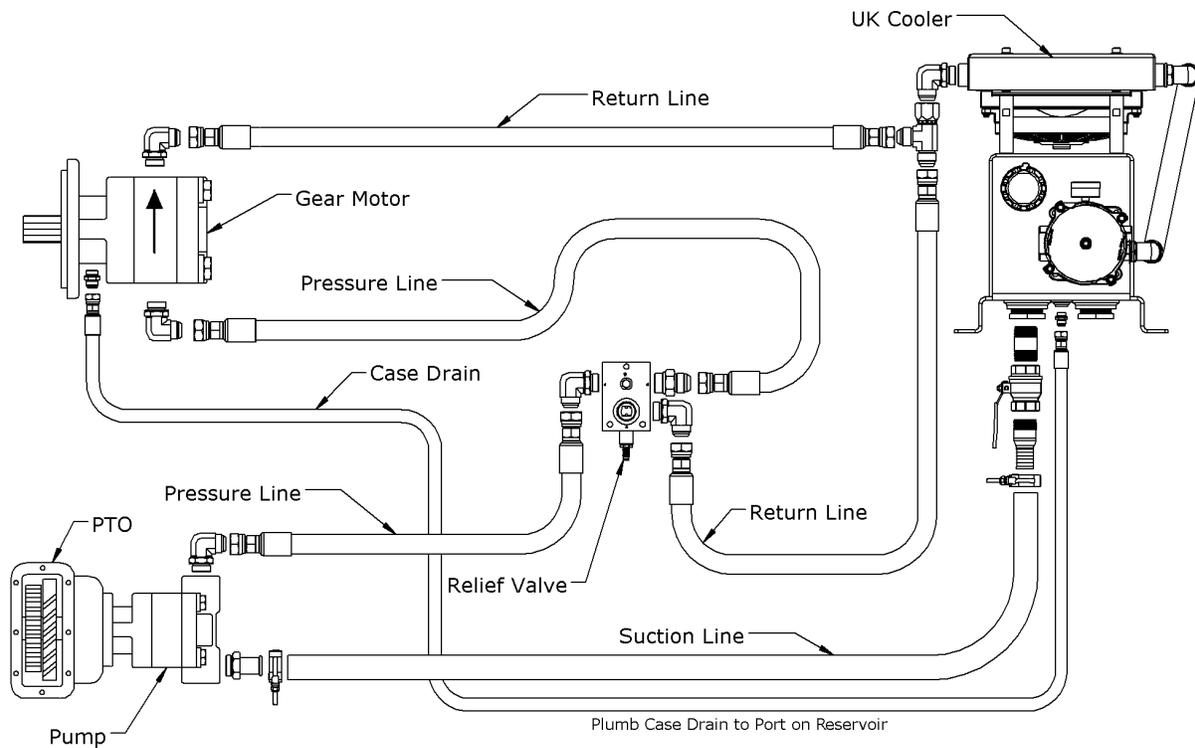


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UK10-70-12VDCX2-FRM-AL – Typical Plumbing Layout



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UK10-70-12VDCX2-FRM-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.

UK10-70-12VDCX2-FRM-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.

UK10-70-12VDCX2-FRM-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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UK10-70-12VDCX2-FRM-AL – Product Information

Technical Specifications:

- Height 32.83 inches
- Depth 19.94 inches
- Width 20.77 inches
- Oil capacity 10 gallons
- Fan speed 3600 rpm
- Suction port.....2 – 2” NPT
- Drain port.....1 – 8 ORB
- Case drain.....1 – 8 ORB



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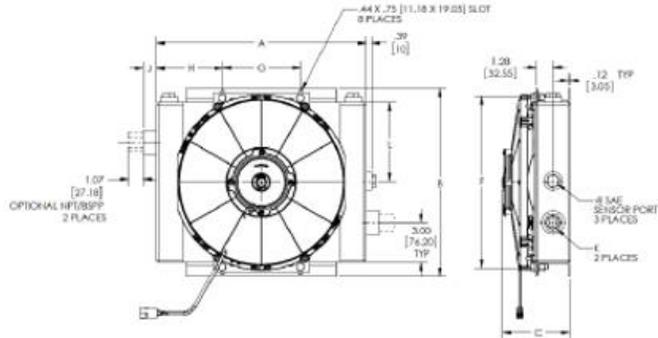
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MA-12 - Hydraulic Cooler Specifications

MA-12, MA-18, MA-32

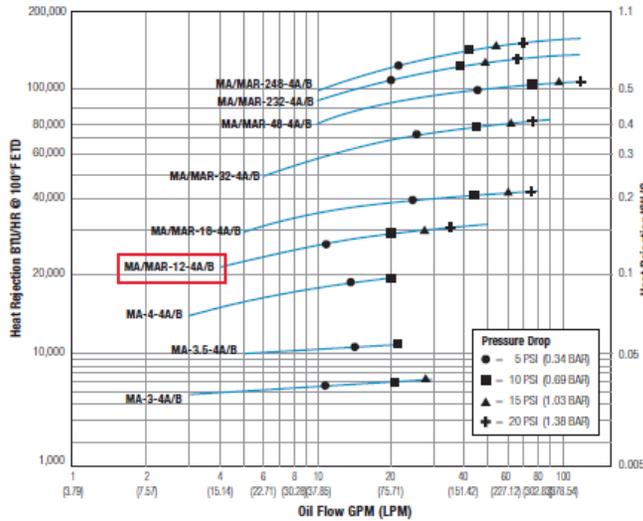


Brushless fan option has different dimensions. Consult factory.

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 (359)	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)

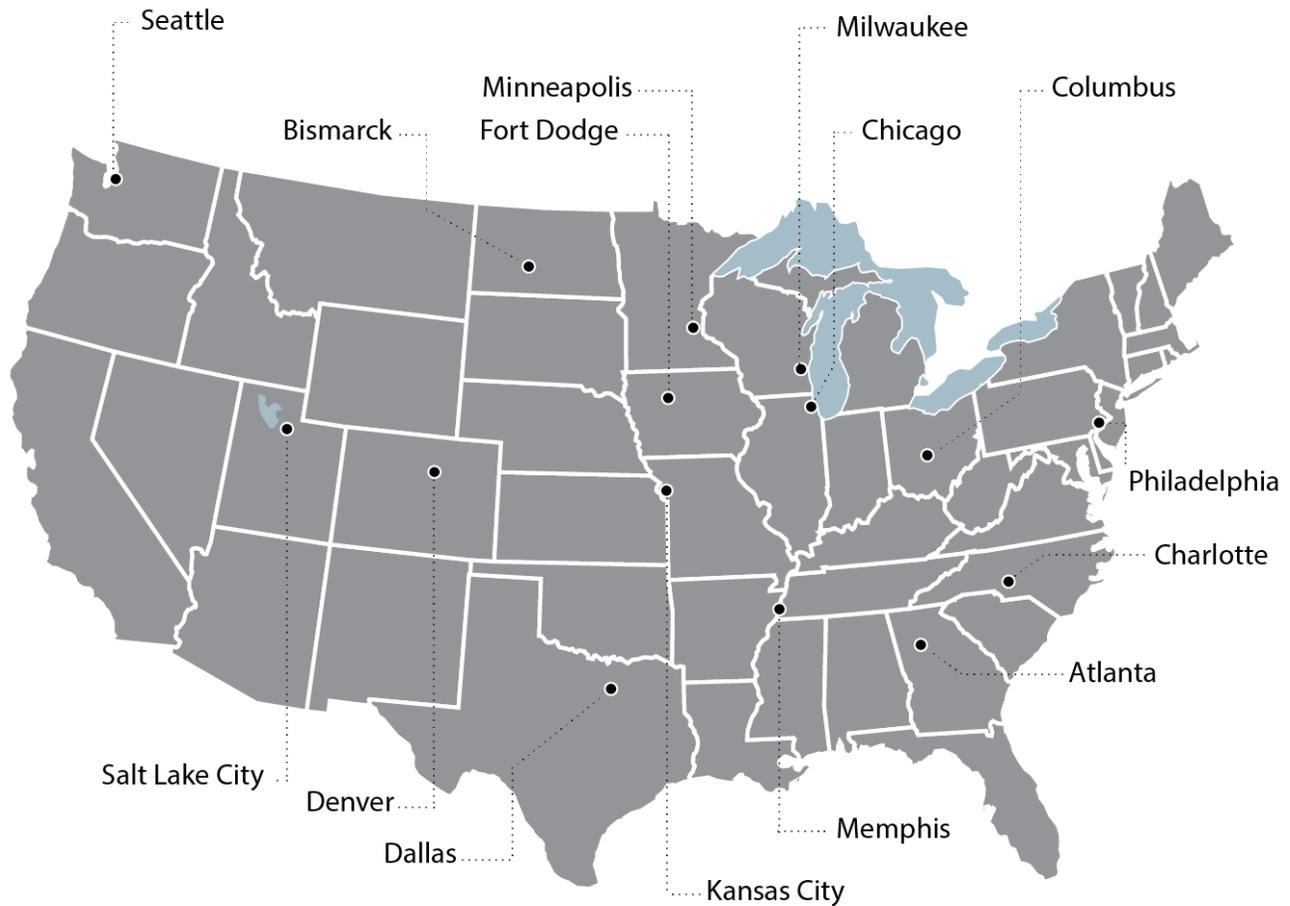
*AMP draw listed as per FAN.

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Contact Us



Atlanta, Georgia	888-293-2325	Kansas City, Missouri	800-383-4724
Bismarck, North Dakota	800-624-7568	Memphis, Tennessee	888-845-5876
Charlotte, North Carolina	800-788-8598	Milwaukee, Wisconsin	800-722-5844
Chicago, Illinois	800-433-5765	Minneapolis, Minnesota	800-328-2732
Columbus, Ohio	888-449-0356	Philadelphia, Pennsylvania	800-492-6621
Dallas, Texas	800-893-7225	Salt Lake City, Utah	877-230-0505
Denver, Colorado	888-833-7711	Seattle, Washington	800-354-9028
Fort Dodge, Iowa	800-362-2994		