



FORCE America Inc.

# ULTRAKOOL Operator's Manual

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



# ULTRA KOOL



The High Performance, Compact Cooling System

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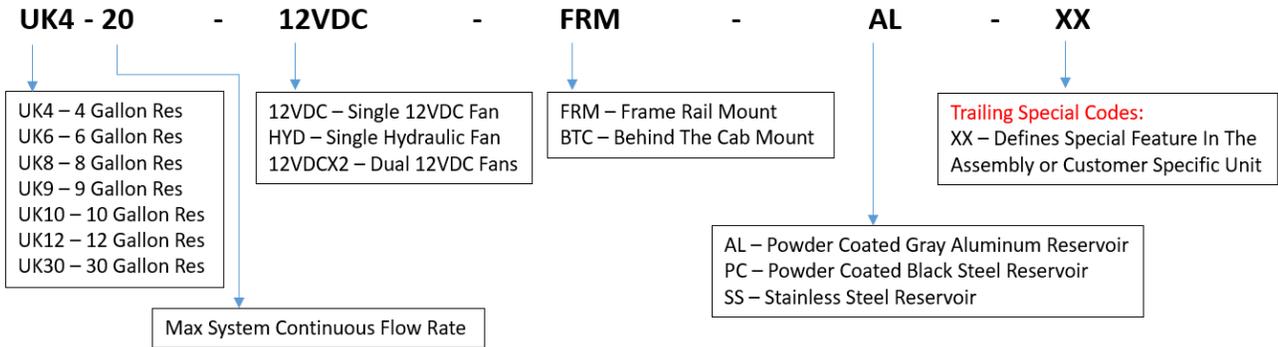
## Warranty Disclaimer

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.

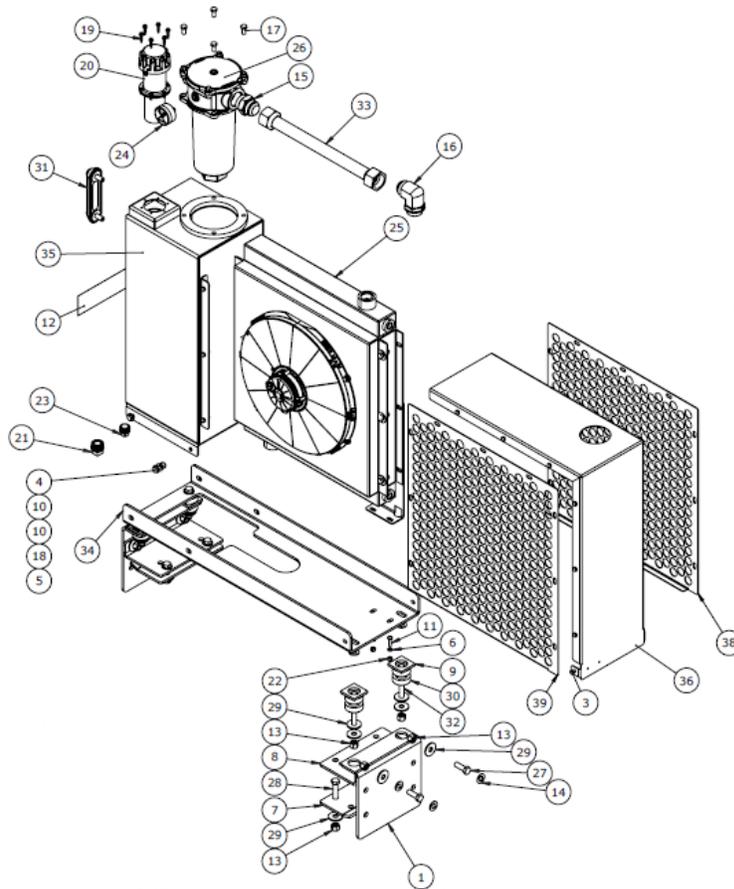
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## UK12-70-12VDC-BTC-SS – Model Code Breakdown



## UK12-70-12VDC-BTC-SS – Exploded Parts View



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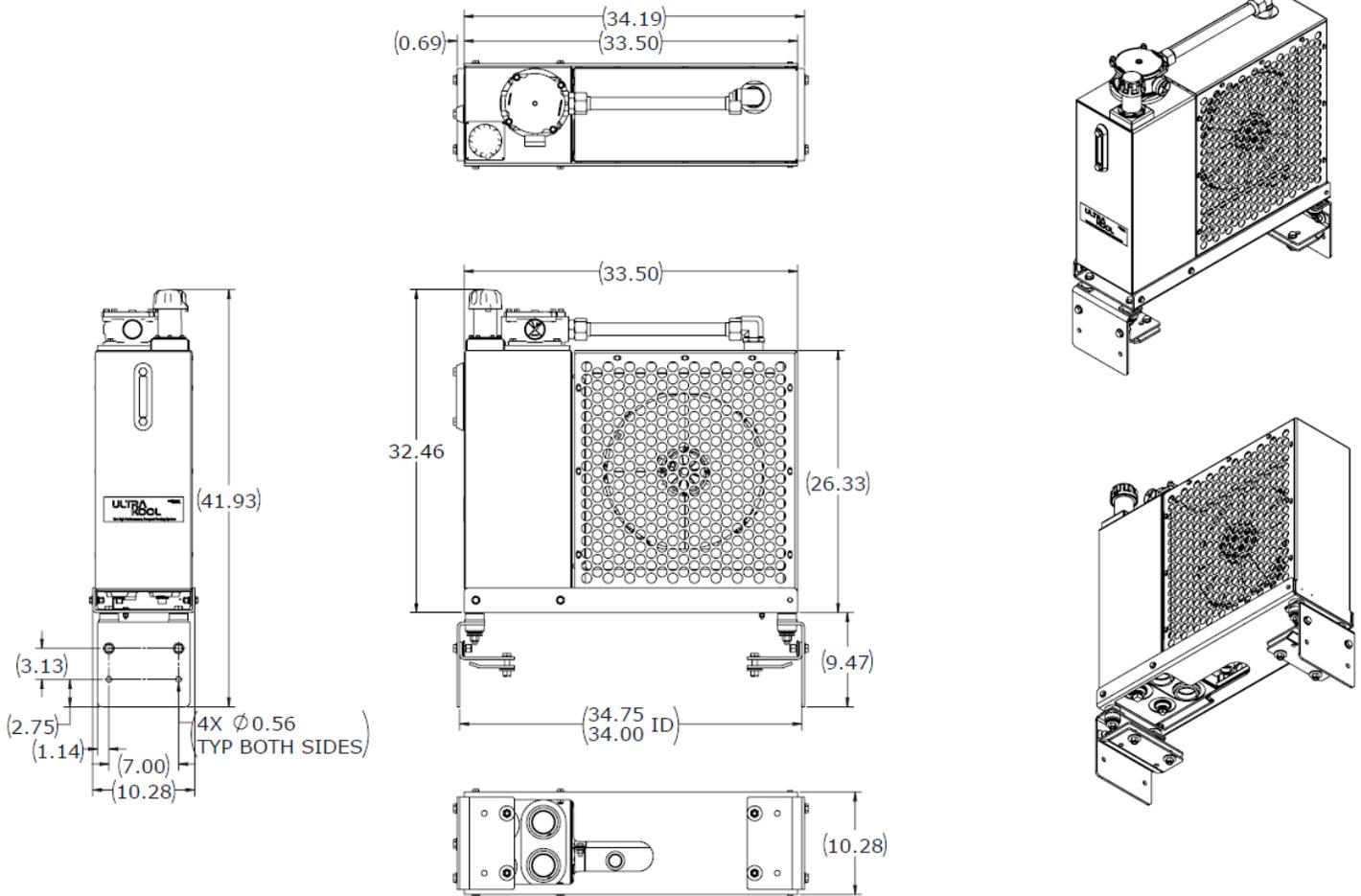
## UK12-70-12VDC-BTC-SS – Bill of Material

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	1010293	BRACKET, FRAME MOUNTING	2
2	1010306	1/4"-20 HEX NUT, 18-8 STAINLESS	2
3	1010557	1/4"-20 X 3/4" HHCS, 18-8 STAINLESS	20
4	1010558	3/8"-16 X 1-1/4" HHCS, 18-8 STAINLESS	4
5	1010560	3/8"-16 NYLON-INSERT HEX LOCK NUT, 18-8 STAINLESS	4
6	1010561	1/4" SCREW SIZE SPLIT LOCK WASHER, 0.49" OD, 18-8 STAINLESS	2
7	1010689	BRACKET, FRAME CLAMP	2
8	1010690	ANGLE, FRAME CLAMP	2
9	1010707	SPACER, ISOLATOR MOUNT	4
10	1010799	3/8" STAINLESS STEEL WASHER	8
11	1010801	1/4"-20 X 1" HHCS, 18-8 STAINLESS	2
12	1011613	ULTRAKOOL LOGO DECAL	1
13	1011751	1/2"-13 NYLON-INSERT HEX LOCK NUT, GR8, ZINC	12
14	1011765	1/2" SCREW SIZE FLAT WASHER, STEEL	18
15	1013967	FITTING STRAIGHT -20 MJIC / -20 MORB	1
16	1014335	FITTING 90 DEG -20 MJIC / -20 MORB	1
17	1015084	3/8"-16 X 3/4" HHCS, 18-8 STAINLESS	4
18	1015103	3/8" SCREW SIZE SPLIT LOCK WASHER, 0.68" OD, 18-8 STAINLESS	4
19	1015115	#12-14 X 1" SELF DRILLING SCREW, UNSLOTTED HEX WASHER HEAD, ZINC	6
20	1028135	RAISED FILLER BREATHER (ZINGA)	1
21	1030846	1 NPT SQUARE HEAD PLUG	1
22	1066875	1/4"-20 NYLON INSERT HEX LOCK NUT, SS	2
23	1067982	PLUG, MAGNETIC SQUARE HEAD, 3/4"-14 NPTF, STL	1
24	1086823	0-60 PSI BYPASS GAUGE - 1/8 NPT	1
25	1087061	MA-48-2-4A	1
26	1090446	TANK MOUNTED FILTER W/ELEMENT ENDURAGUARD (ZINGA)	1
27	1096207	1/2"-13 X 1-1/2" HHCS, GR8, ZINC	4
28	1096208	1/2"-13 X 2" HHCS, GR8, ZINC	4
29	1096389	1/2" SCREW SIZE FENDER WASHER, 1.50" OD, 0.125" THICK, ZINC	16
30	1097650	ISOLATOR, BONDED BUSHING & SNUBBER, 250LBS/IN SPRING RATE (H.A. KING)	4
31	1102641	5" SIGHT/TEMP GAUGE, M12X1.75, PLASTIC GUARD, ZINGA	1
32	1112688	1/2"-13 X 3-1/2" HHCS, GR8, ZINC	4
33	1191535	ASSEMBLY, TUBE, ULTRAKOOL SS	1
34	1191538	CRADLE,ULTRAKOOL, SS	1
35	1191539	WELDMENT, RES-12 HYDRAULIC TANK, SS	1
36	1191546	WELDMENT, COOLER GUARD, ULTRAKOOL, SS	1
37	1191550	COOLER MOUNT, ULTRAKOOL SS	1
38	1191548	FFP, PANEL, RIGHT, SS	1
39	1191547	FFP, PANEL, LEFT, SS	1

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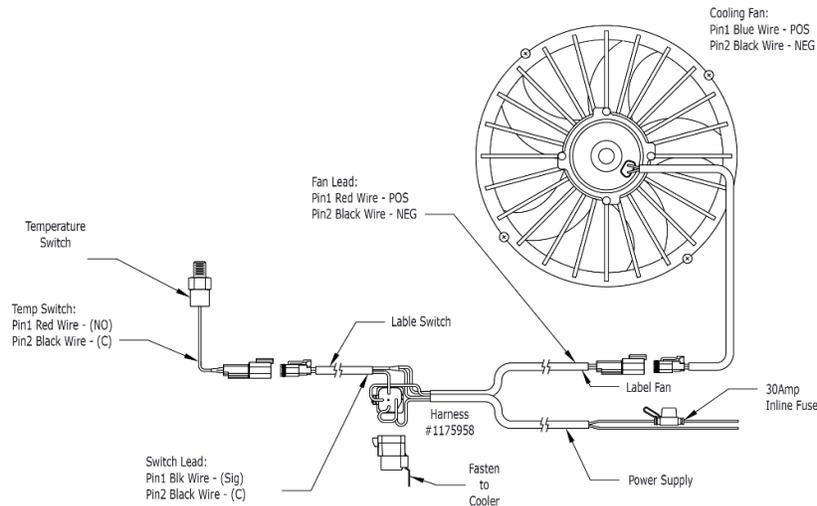
## UK12-70-12VDC-BTC-SS – Dimensions



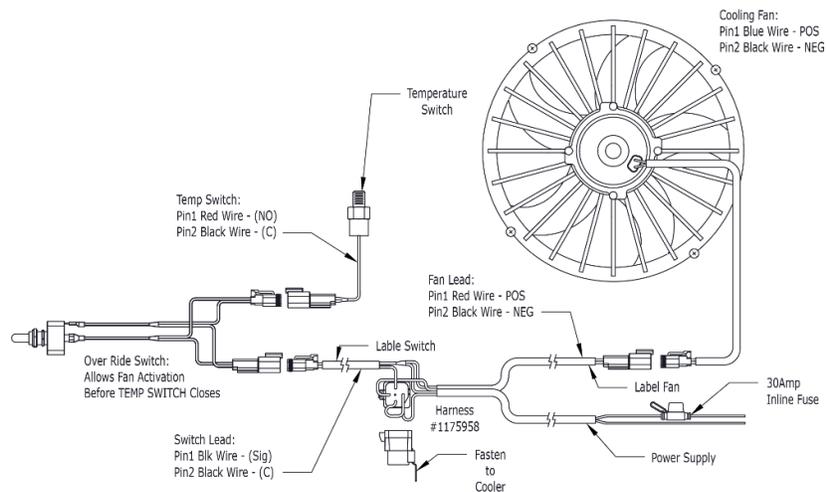
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## UK12-70-12VDC-BTC-SS – Electrical Start Options



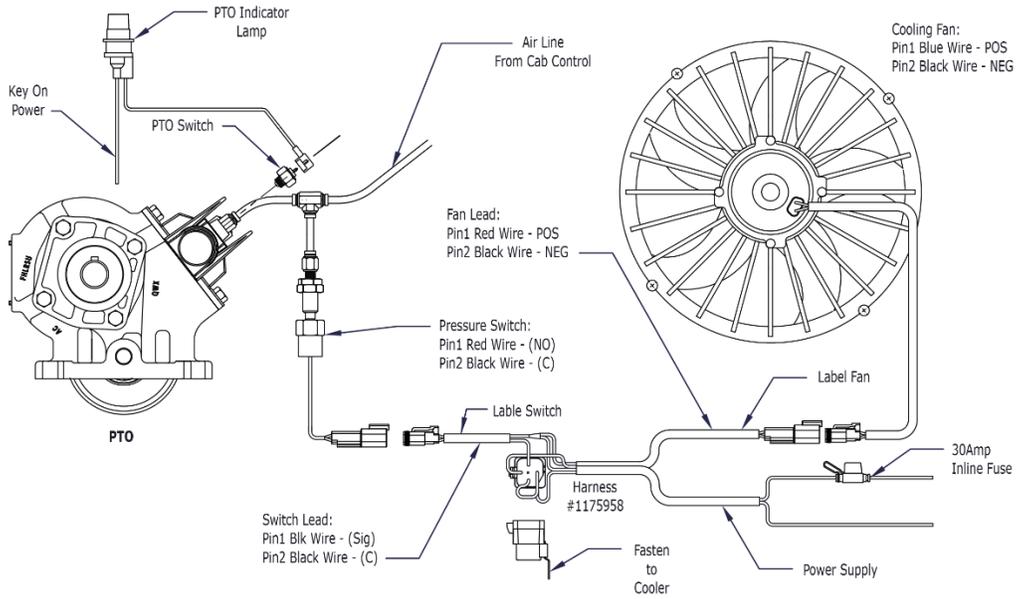
Temperature Switch Fan Activation



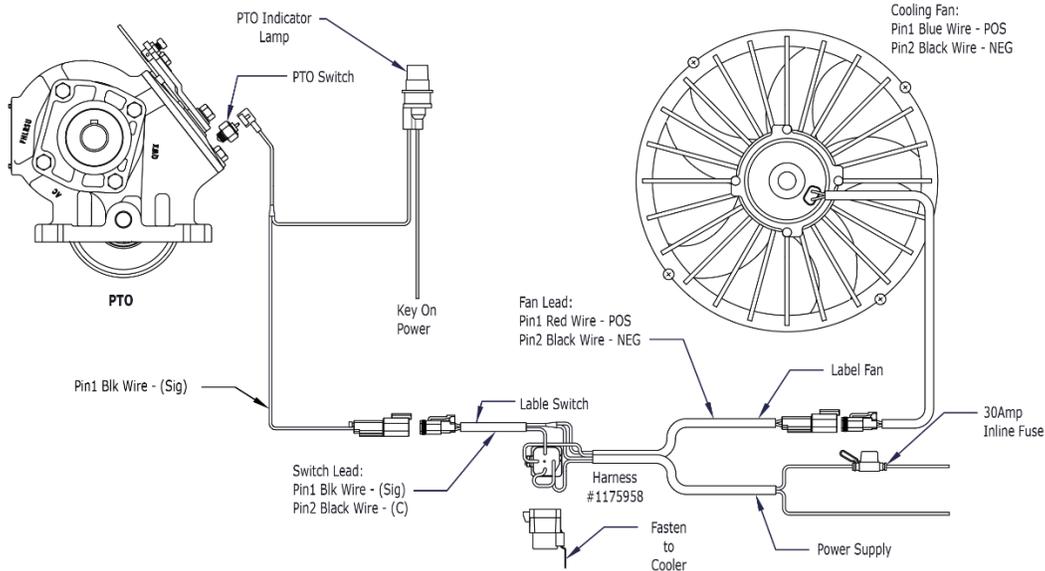
Temperature Switch Fan Activation W/Override

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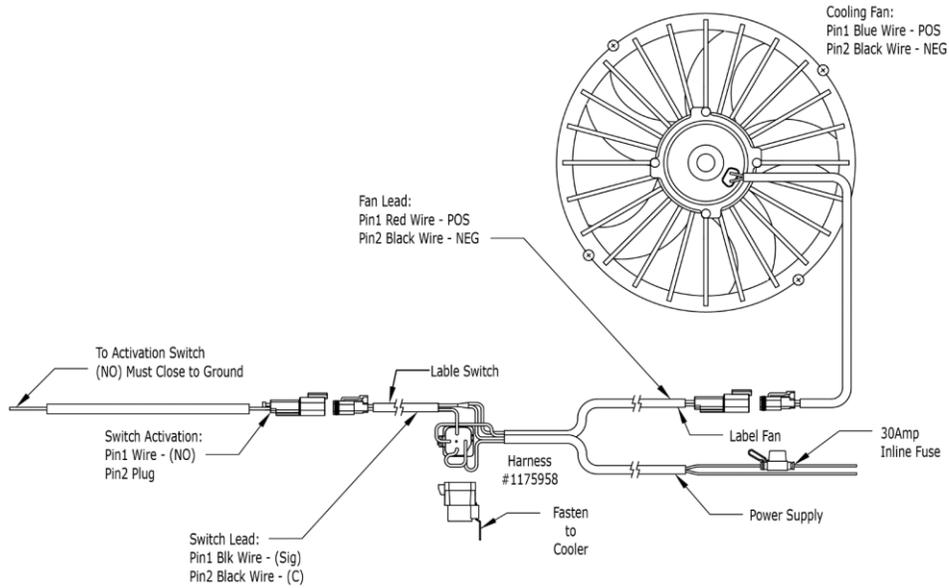
**Air Shift PTO Fan Activation**



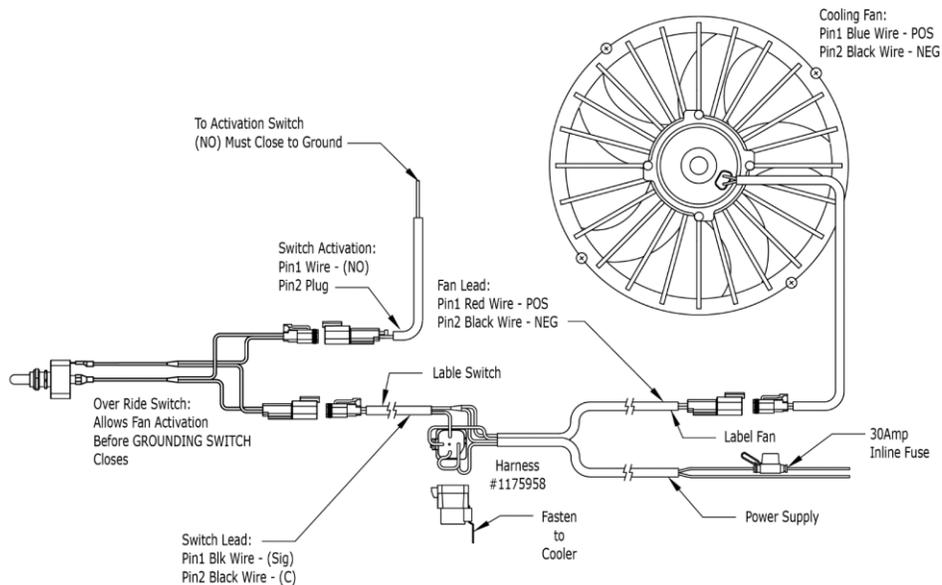
**Cable Shift PTO Fan Activation**

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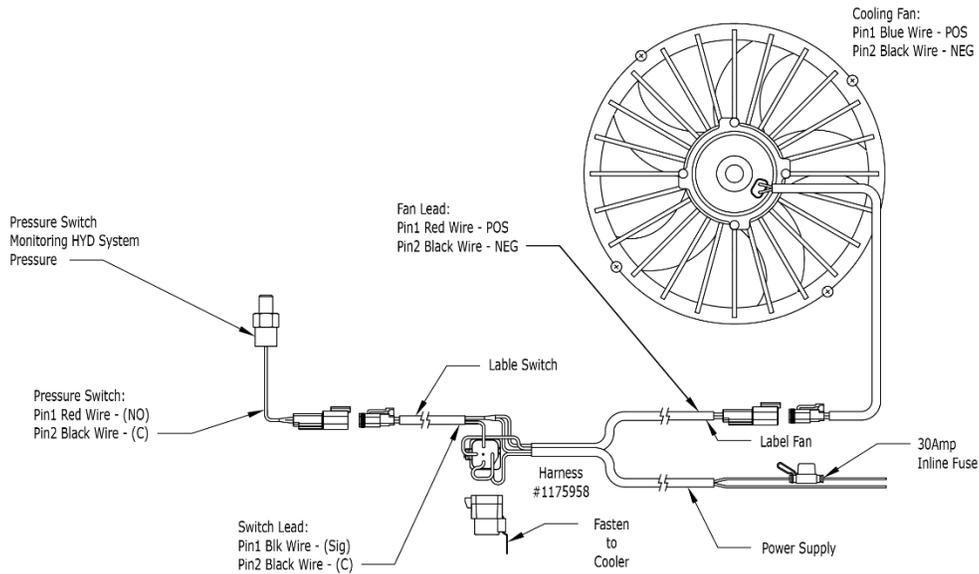
### Grounding Switch Fan Activation



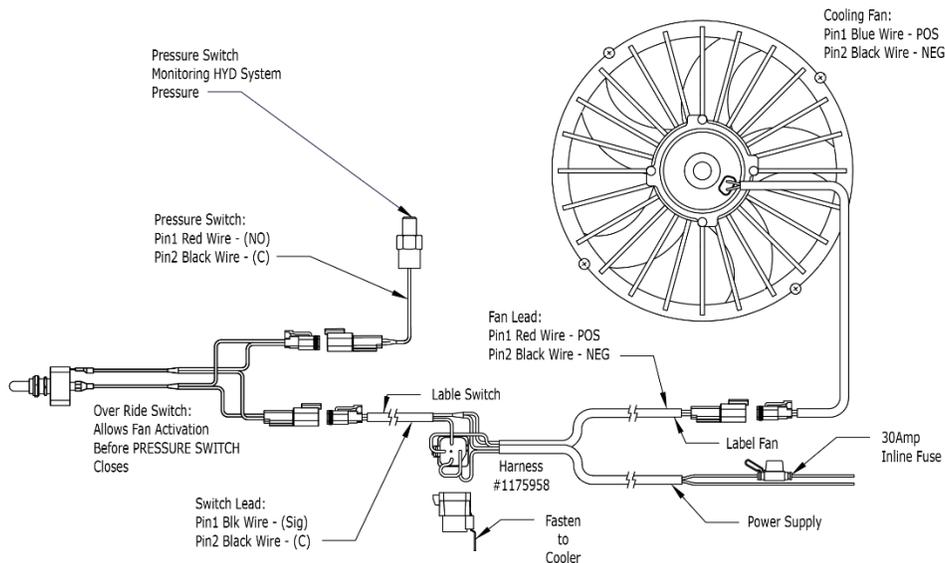
### Grounding Switch Fan Activation W/Override

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### Pressure Switch Fan Activation



### Pressure Switch Fan Activation W/Override

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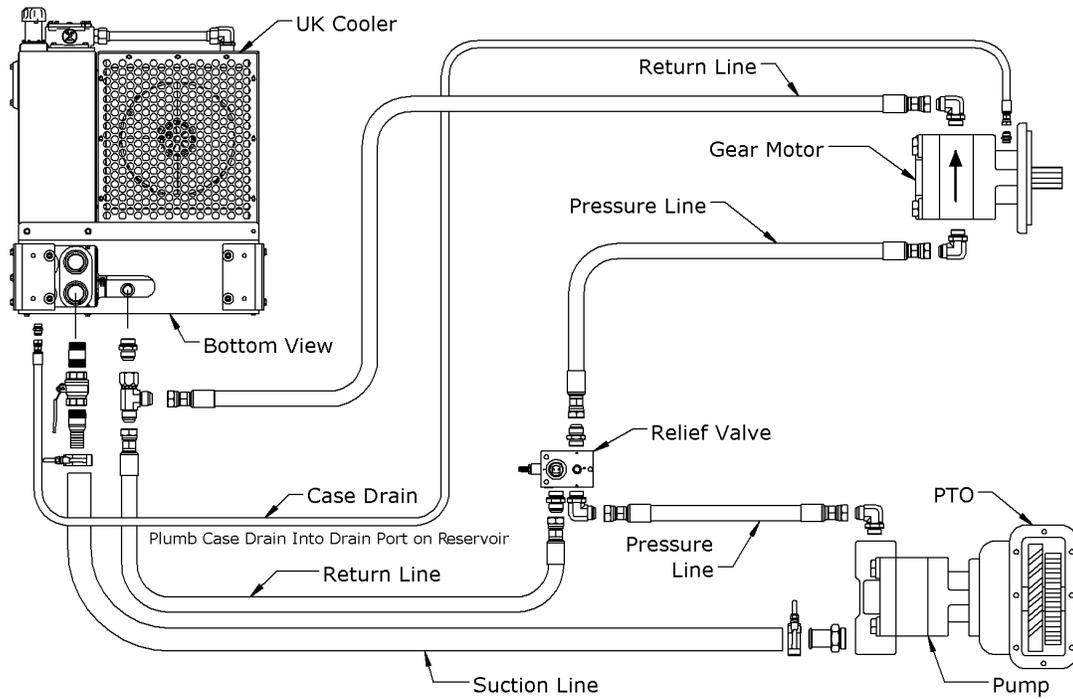
## ELECTRICAL KIT COMPONENTS

ITEM	DESCRIPTION	QTY
<b>MAIN HARNESS</b>		
1175958	Harness, Main, Cooler, Deutsch, w/ Relay, 144" (Used with MAR-12-225715)	1.00
<b>PRESSURE SWITCH</b>		
1069985	Pressure Switch, Set 25 PSI, Female Deutsch DT04-2P Connection	1.00
<b>TEMPERATURE SWITCH</b>		
1128418	-8 ORB 120°F Temp Switch, 5/8" Long Probe, N.O., 18" Flying Lead	1.00
<b>PLUG CONNECTOR KIT (DT06-2S)</b>		
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
<b>RECEPTICAL CONNECTOR KIT (DT04-2P)</b>		
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
<b>SAMPLE KIT FOR TEMPURATURE ACTIVATION</b>		
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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## UK12-70-12VDC-BTC-SS – Typical Plumbing Layout



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## UK12-70-12VDC-BTC-SS – 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.

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## UK12-70-12VDC-BTC-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.

**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-BTC-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

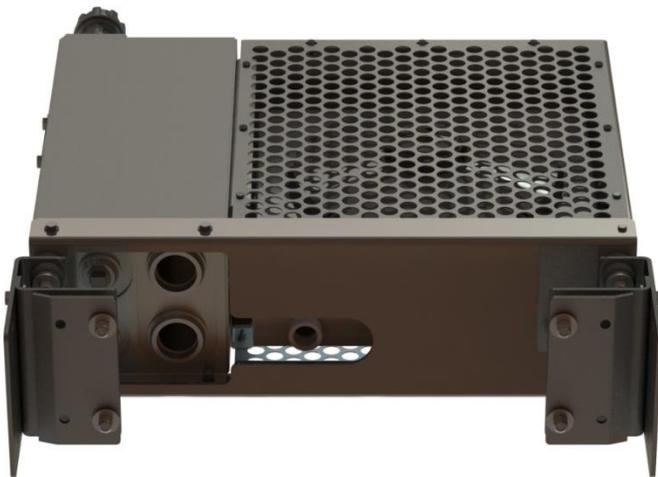
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## UK12-70-12VDC-BTC-SS – Product Information

### Technical Specifications:

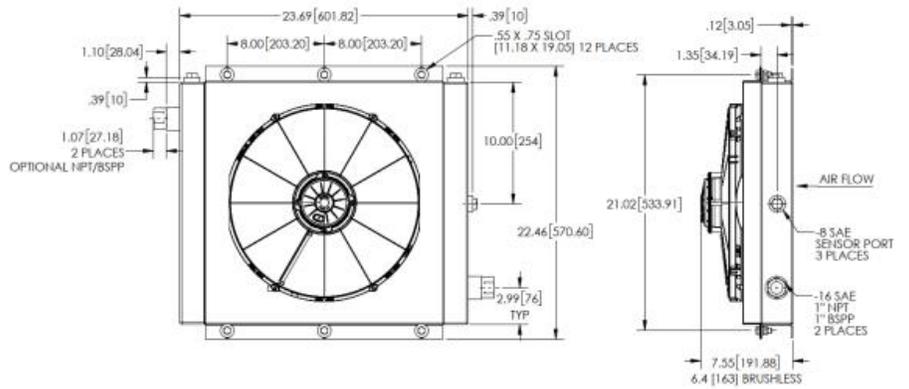
Height .....	32.46 inches
Depth .....	10.28 inches
Width .....	34.88 inches
Oil capacity .....	12 gallons
Fan speed .....	3600 rpm
Suction port.....	2 – 2" NPT
.....	1 – 1" NPT
Drain port.....	1 – ¾" NPT



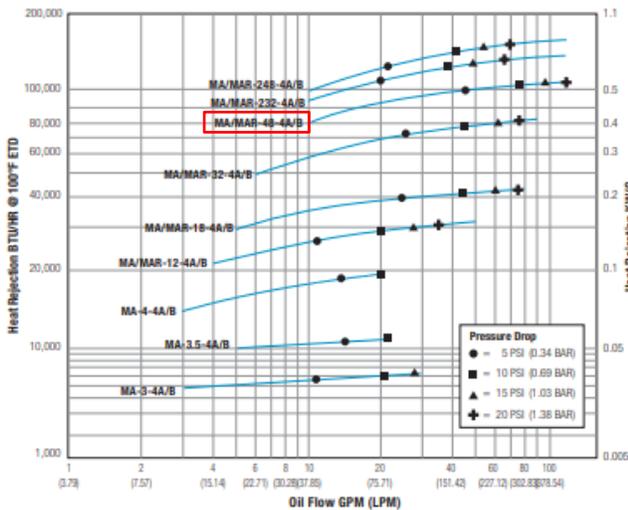
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## MA-48 - Hydraulic Cooler Specifications



### 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)

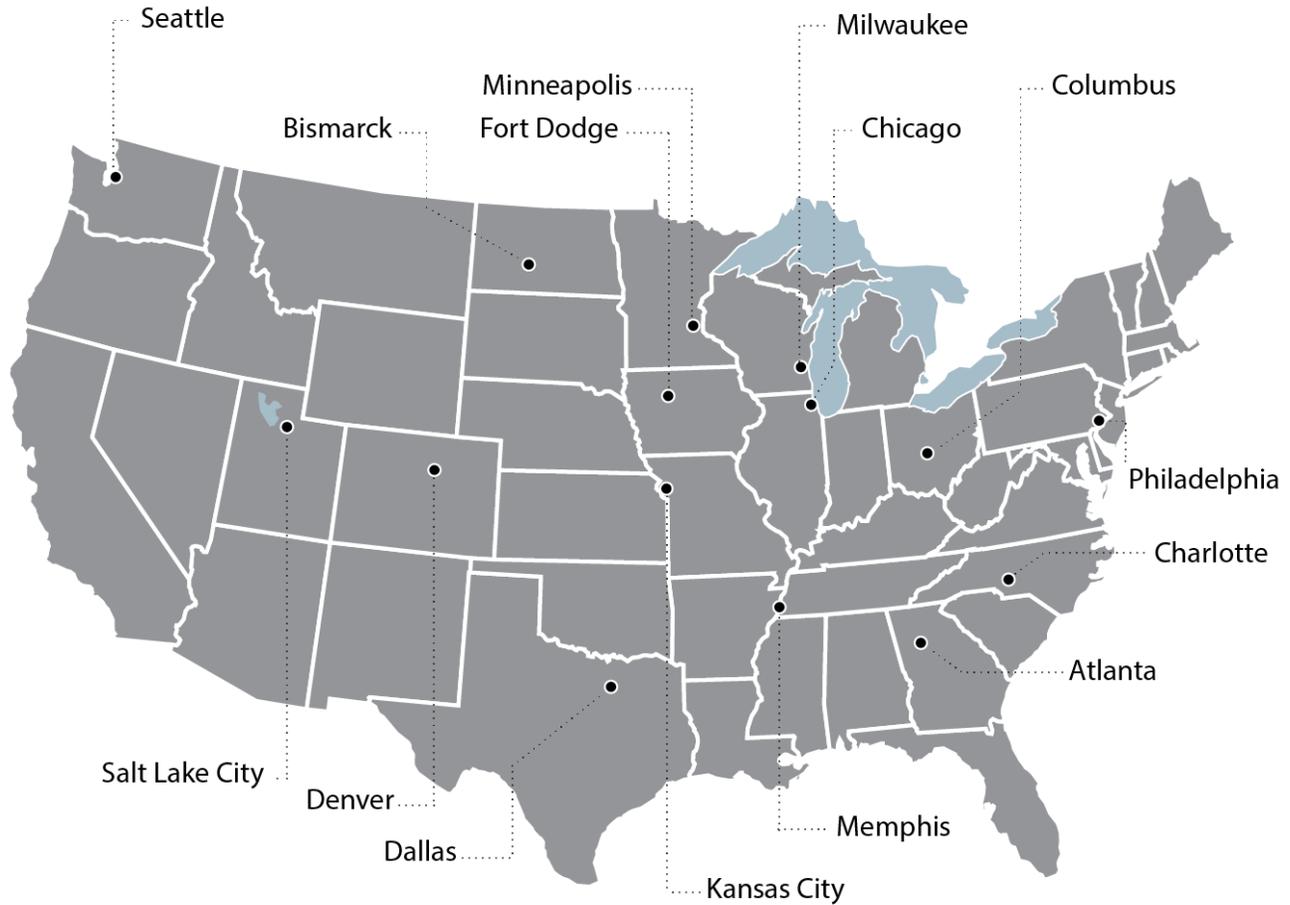
\*AMP draw listed as per FAN.

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## Contact Us



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Bismarck, North Dakota 800-624-7568  
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Dallas, Texas 800-893-7225  
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Seattle, Washington 800-354-9028