



FORCE America Inc.

# ULTRAKOOL Operator's Manual

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



# ULTRA KOOL



The High Performance, Compact Cooling System

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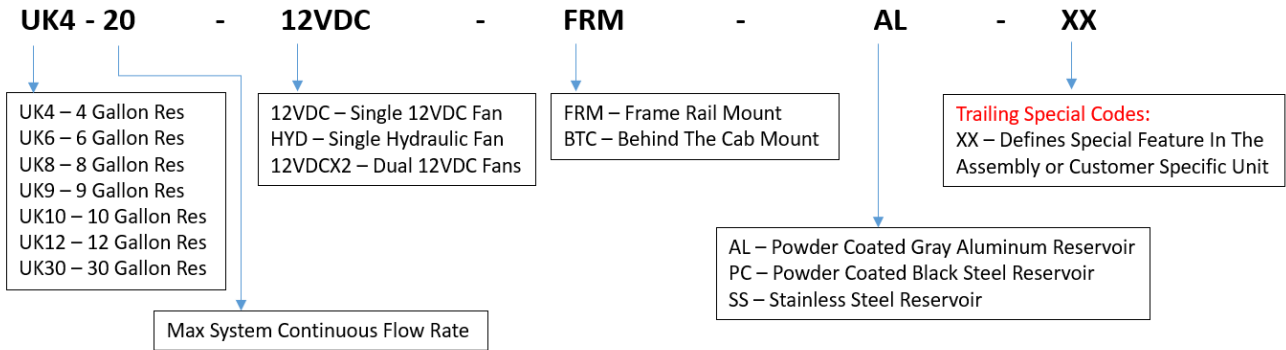
## Warranty Disclaimer

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.

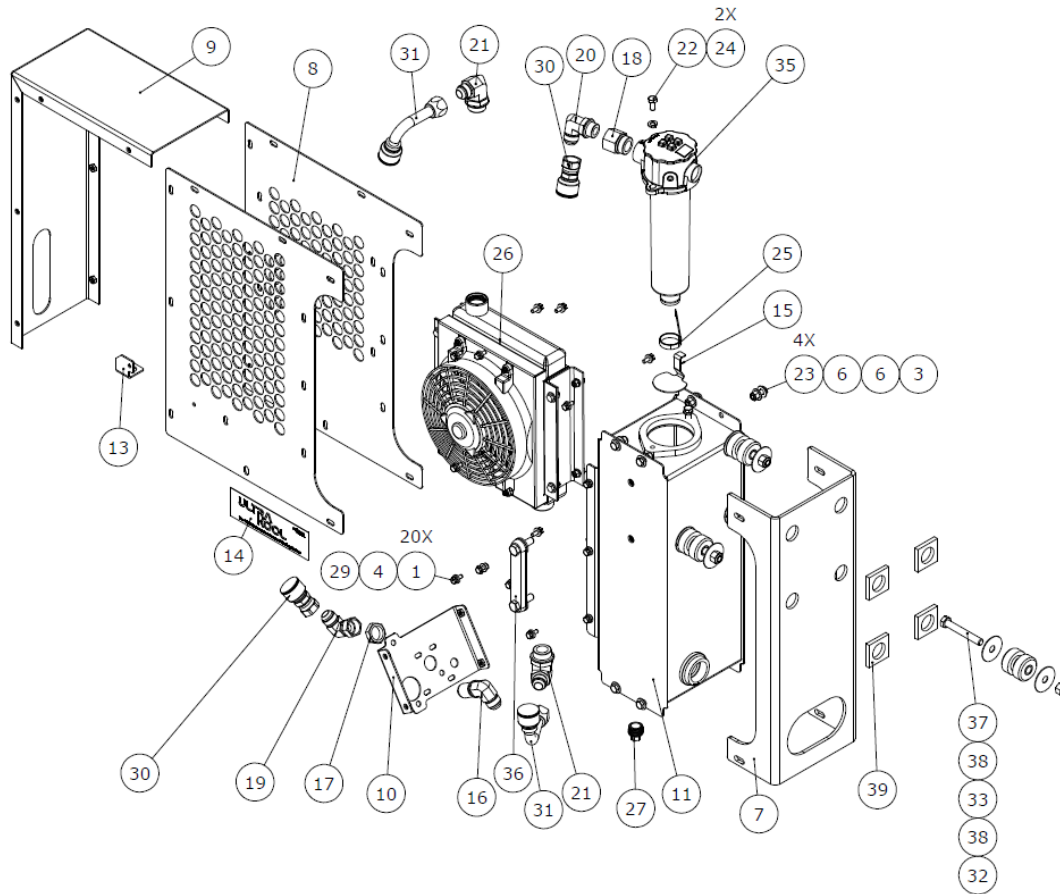
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## UK4-20-12VDC-SS – Model Code Breakdown



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



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

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	1010557	1/4"-20 X 3/4" HHCS, 18-8 STAINLESS	25
2	1010559	1/4-20 NYLOCK HEX NUT, GRD 5, ZINC	5
3	1010560	3/8"-16 NYLON-INSERT HEX LOCK NUT, 18-8 STAINLESS	8
4	1010561	1/4" SCREW SIZE SPLIT LOCK WASHER, 0.49" OD, 18-8 STAINLESS	20
5	1010773	HARNESS, MAIN, COOLER, WP VERSION, 144"	1
6	1010799	3/8" FLAT WASHER, GENERAL PURPOSE, 18-8 STAINLESS	16
7	1010828	BRACKET, FRAME/TANK MOUNT	1
8	1010831	PANEL, PERFORATED, COOLER SIDE	1
9	1010833	WELDMENT, COVER PANEL	1
10	1010834	WELDMENT, BRACKET, VALVE MOUNT	1
11	1010988	WELDMENT, RESERVOIR, UK-4	1
12	1011277	PANEL, PERFORATED, FAN SIDE	1
13	1011375	BRACKET, AIR LINE BULKHEAD	1
14	1011613	ULTRAKOOL LOGO DECAL	1
15	1011763	DIFFUSER, CLAMP-ON	1
16	1013442	ADAPTER 90 DEG BULKHEAD MALE JIC X MALE JIC STEEL	1
17	1013513	ADAPTER LOCK NUT 1-1/16 X 12 FOR USE WITH TUBE OD 3/4"	1
18	1014145	ADP STR -16 MALE ORB X -12 FEMALE ORB	1
19	1014178	ADAPTER 90 DEG ELBOW MALE JIC X FEMALE JIC SWIVEL STEEL	1
20	1014323	ELBOW 1-1/16 X 12 MALE JIC X 1-1/16 X 12 MALE ORB STEEL	1
21	1014325	ELBOW 1-1/16 X 12 MALE JIC X 1-5/16 X 12 MALE ORB STEEL	2
22	1015084	3/8"-16 X 3/4" HHCS, 18-8 STAINLESS	2
23	1015085	3/8"-16 X 1" HHCS, 18-8 STAINLESS	8
24	1015103	3/8" SCREW SIZE SPLIT LOCK WASHER, 0.68" OD, 18-8 STAINLESS	2
25	1030034	1 3/8" X 3/8" STAINLESS STEEL PREFORMED CLAMP	1
26	1200178	MA-12 COOLER, DEUTSCH CONNECTOR, 12VDC FAN, NO BYPASS	1
27	1067982	PLUG, MAGNETIC SQUARE HEAD, 3/4"-14 NPTF, STL	1
28	1068870	1/4" FLAT WASHER, GENERAL PURPOSE, 18-8 STAINLESS	10
29	1076040	1/4" EXTRA THICK, FLAT WASHER, 18-8 STAINLESS	20

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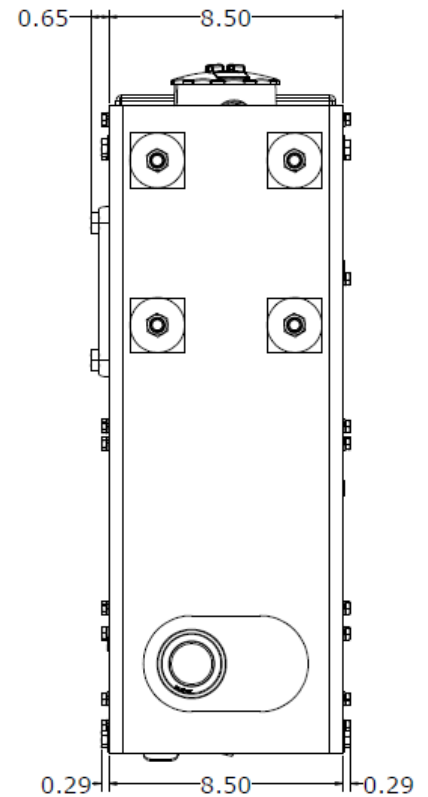
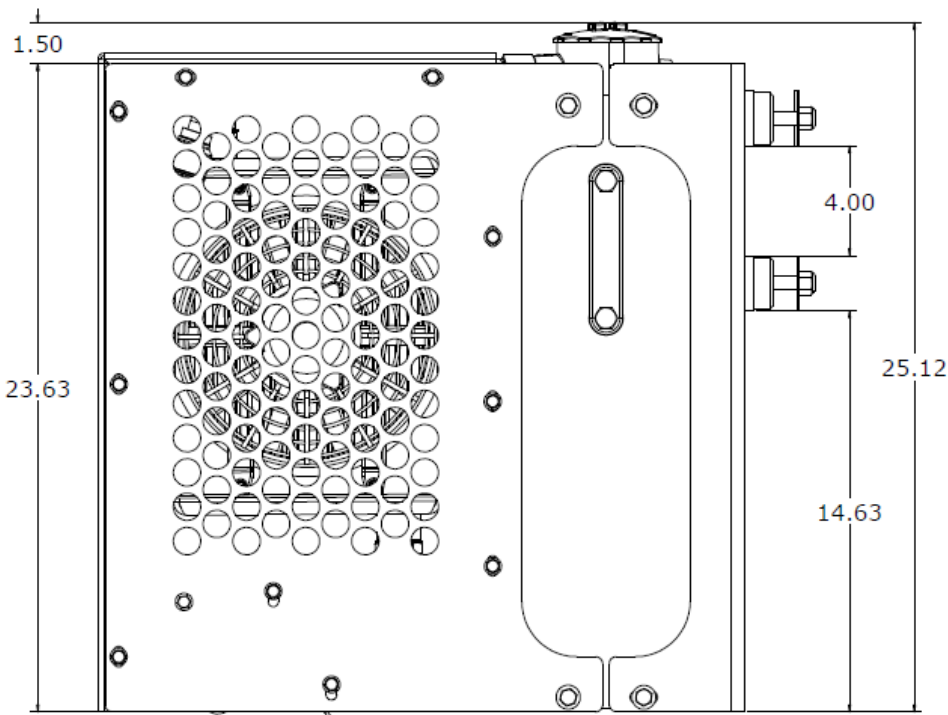
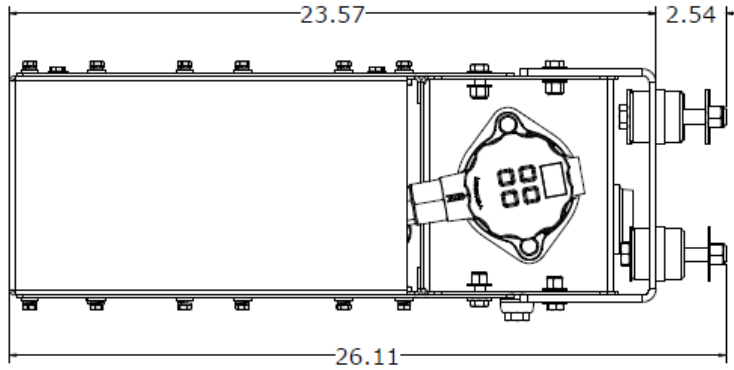
30	1089265	12 FEMALE JIC SWIVEL STRAIGHT FOR 3/4" HOSE	2
31	1089268	12 FEMALE JIC LONG DROP 90 ELBOW FOR 3/4" HOSE	2
32	1096210	1/2"-13 NYLON-INSERT HEX LOCK NUT, GR8, ZINC	4
33	1097650	ISOLATOR, BONDED BUSHING & SNUBBER	4
34	1098961	3/4" SUCTION HOSE	1
35	1099829	TANK TOP FILTER	1
36	1102641	5" SIGHT GAUGE	1
37	1112688	1/2"-13 X 3-1/2" HHCS, GR8, ZINC	4
38	1121158	1/2" FLAT WASHER, FENDER WASHER 2" OD, 1/16" THICK ZINC	8
39	1122300	PP, PLATE, SPACER, STL	4

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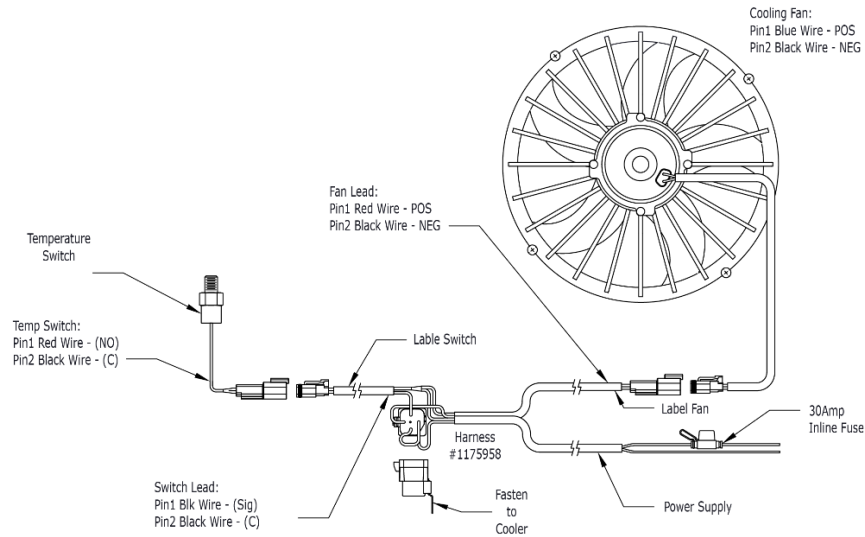
## UK4-20-12VDC-SS – Dimensions



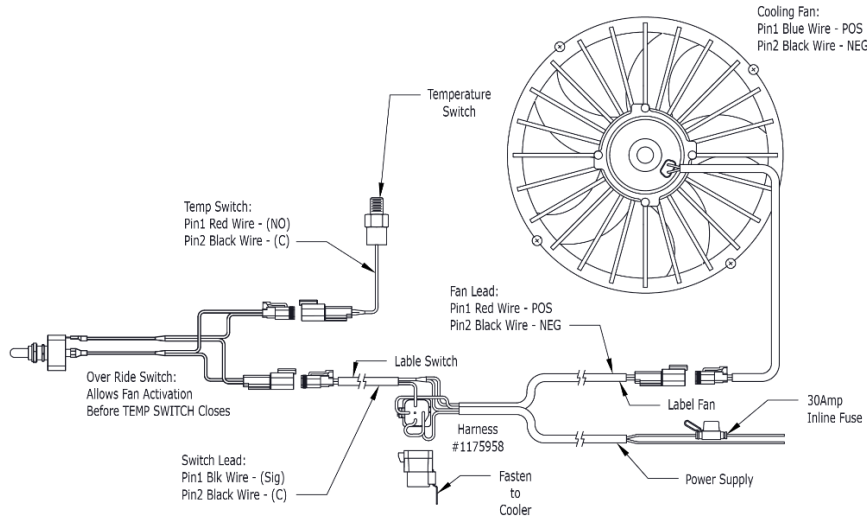
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## UK4-20-12VDC-SS – Electrical Start Options



Temperature Switch Fan Activation



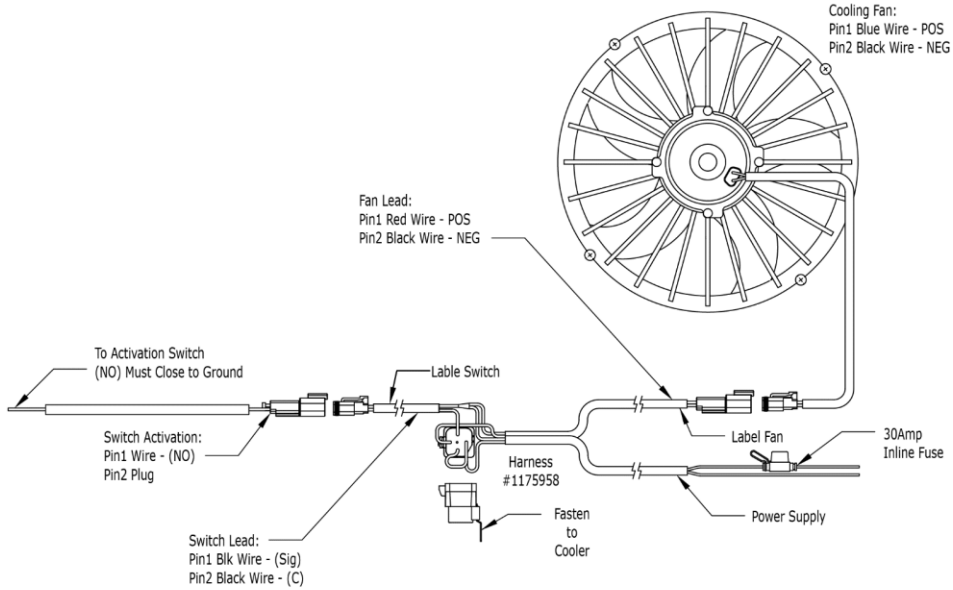
Temperature Switch Fan Activation W/Override



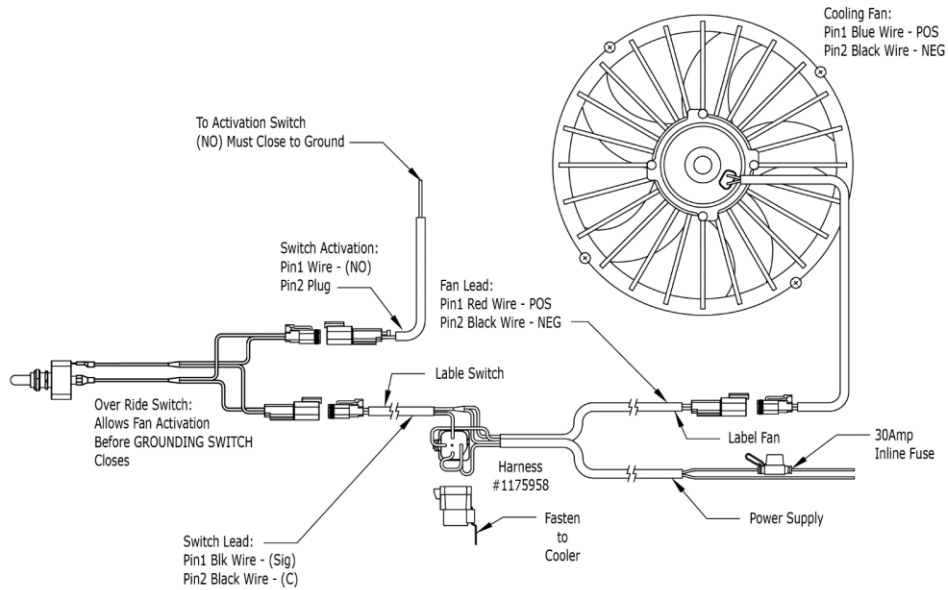


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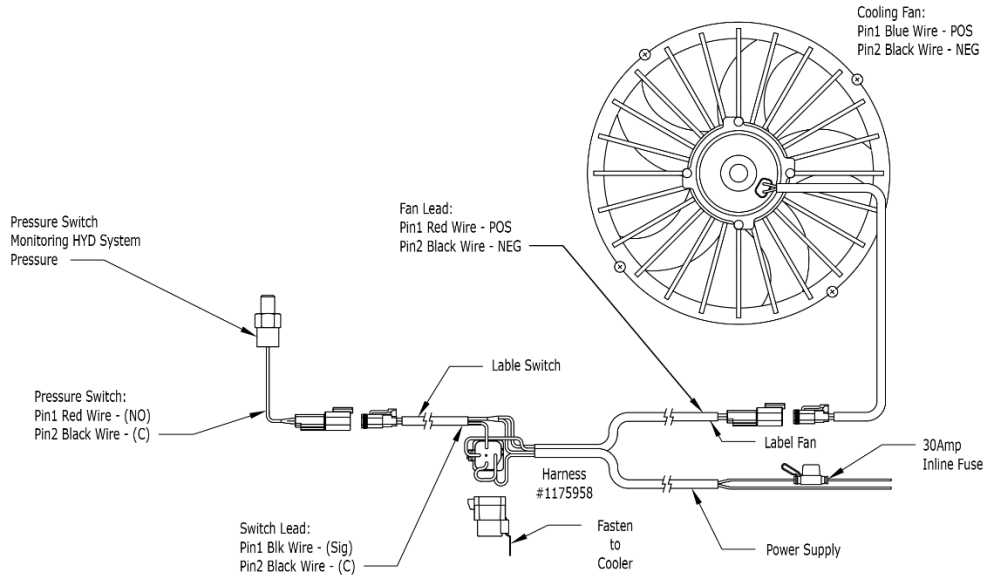
### Grounding Switch Fan Activation



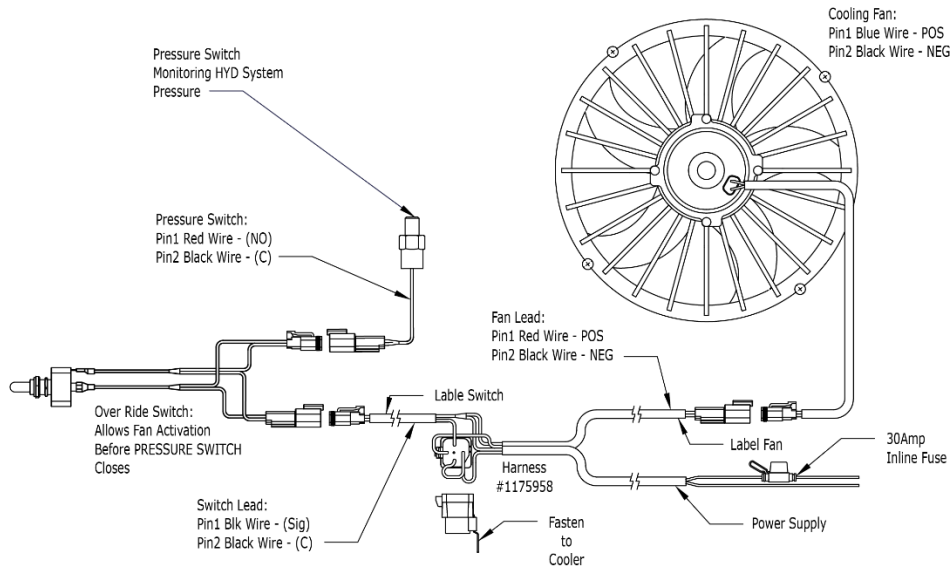
### Grounding Switch Fan Activation W/Override

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### Pressure Switch Fan Activation

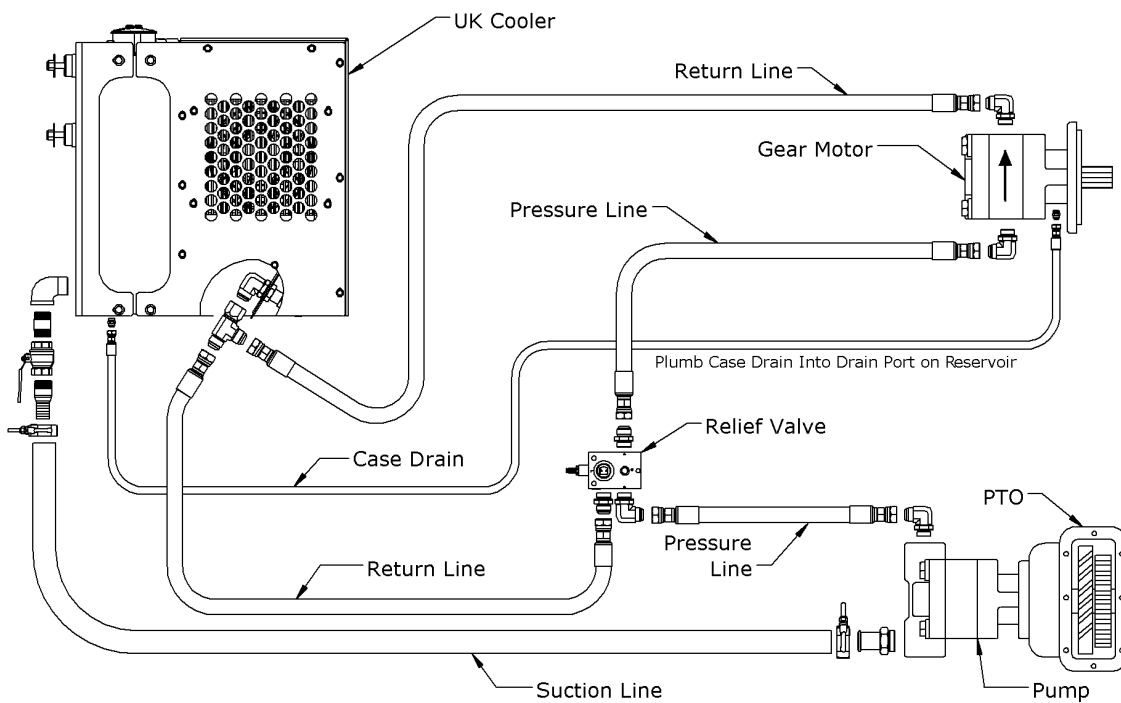


### Pressure Switch Fan Activation W/Override

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



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## UK4-20-12VDC-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.

## UK4-20-12VDC-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.

## UK4-20-12VDC-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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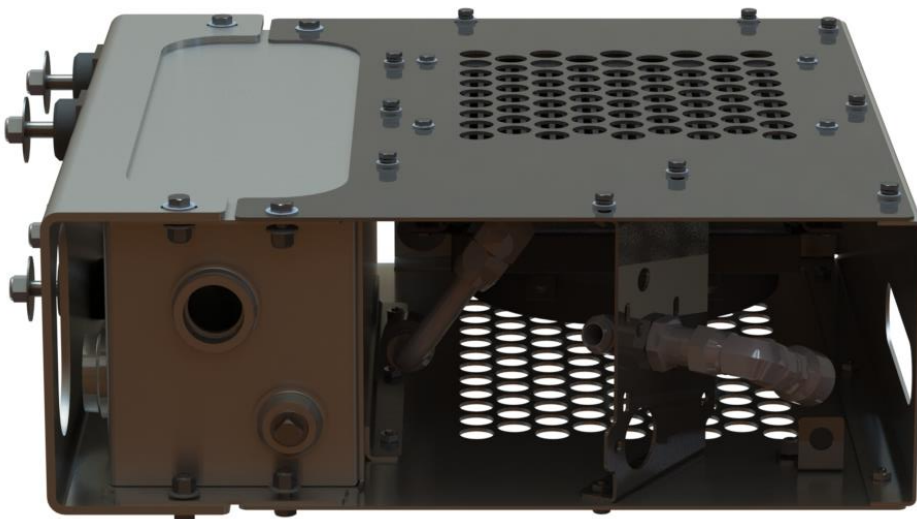


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## UK4-20-12VDC-SS – Product Information

### Technical Specifications:

Height ..... 25.12 inches  
Depth ..... 23.57 inches  
Width ..... 9.44 inches  
Oil capacity ..... 4 gallons  
Fan speed ..... 3600 rpm

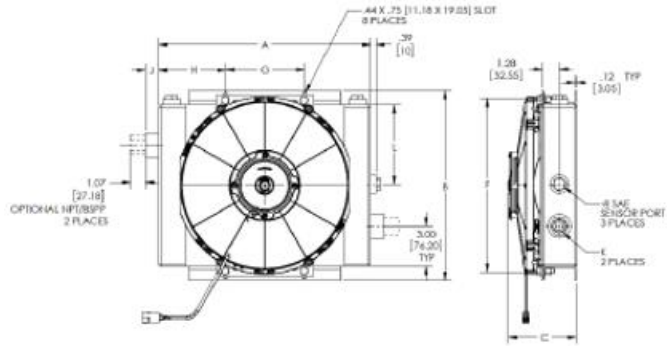


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## MA-12 – Hydraulic Cooler Specifications

MA-12, MA-18, MA-32

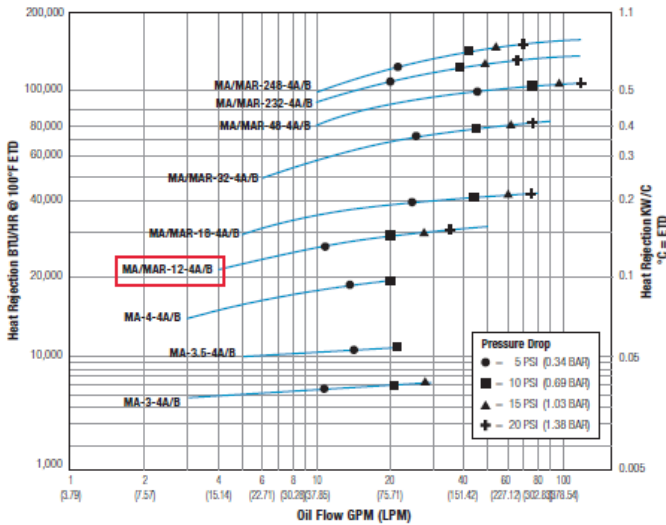


Brushless fan option has different dimensions. Consult factory.

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)

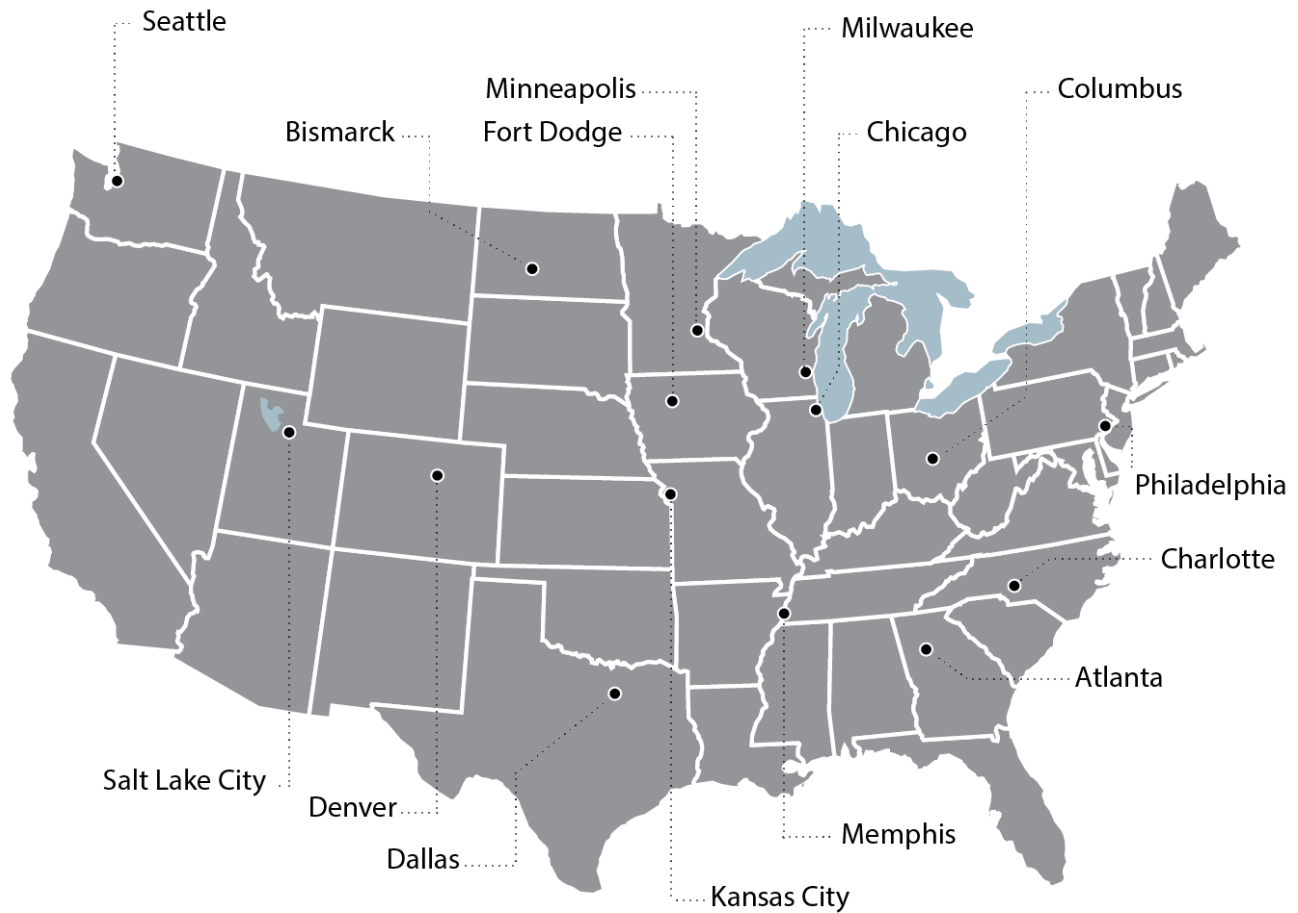
\*AMP draw listed as per FAN.

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## Contact Us



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		