



FORCE America Inc.

ULTRAKOOL Operator's Manual

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



ULTRA KOOL



The High Performance, Compact Cooling System

Table of Contents

TABLE OF CONTENTS.....	2
UK4-20-12VDC-SS – MODEL CODE BREAKDOWN.....	3
UK4-20-12VDC-SS – EXPLODED PARTS VIEW	4
UK4-20-12VDC-SS – BILL OF MATERIALS.....	5
UK4-20-12VDC-SS – DIMENSIONS	7
UK4-20-12VDC-SS – ELECTRICAL START OPTIONS.....	8
ELECTRICAL KIT COMPONENTS.....	12
UK4-20-12VDC-SS – TYPICAL PLUMBING LAYOUT	13
UK4-20-12VDC-SS – STARTUP PROCEDURE STEPS	14
UK4-20-12VDC-SS – MAINTENANCE RECOMMENDATIONS	15
UK4-20-12VDC-SS – TROUBLESHOOTING	15
UK4-20-12VDC-SS – PRODUCT INFORMATION	16
MA-12 – HYDRAULIC COOLER SPECIFICATIONS	18
CONTACT US	19

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

ULTRA KOOL



The High Performance, Compact Cooling System

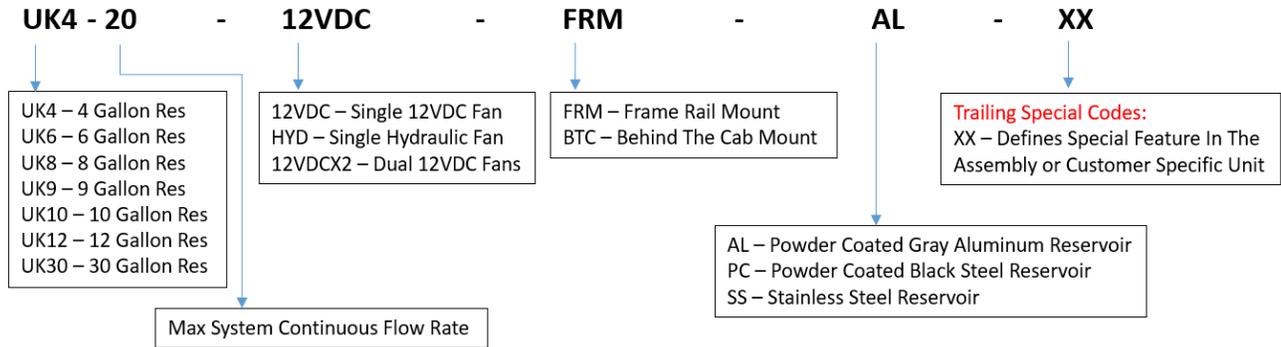
IMPLIED WARRANTIES, INCLUDING, WITHOUT LIMITATION, ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

ULTRA KOOL



The High Performance, Compact Cooling System

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



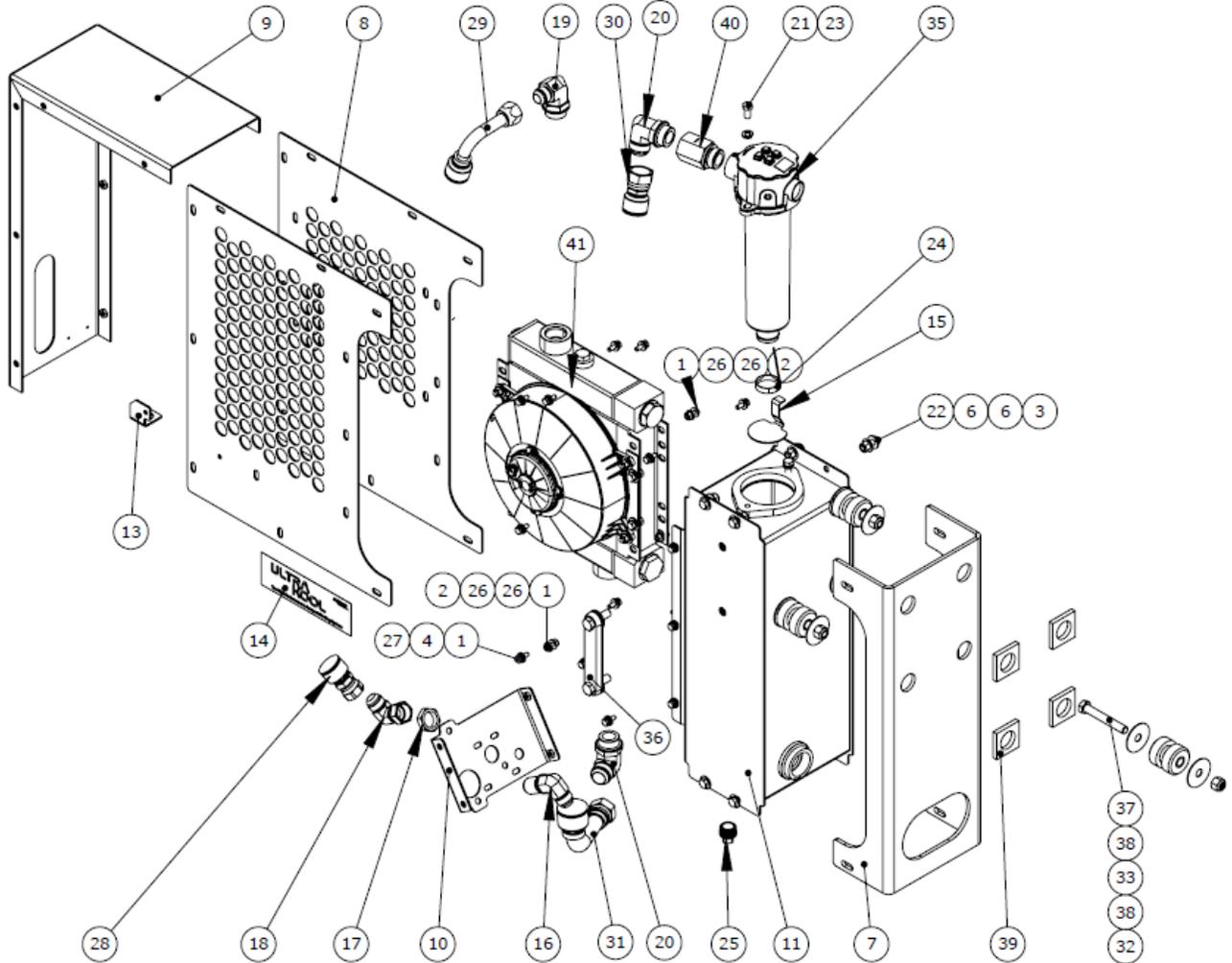
ULTRA KOOL

FORCE
America

4

The High Performance, Compact Cooling System

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



ULTRA KOOL



The High Performance, Compact Cooling System

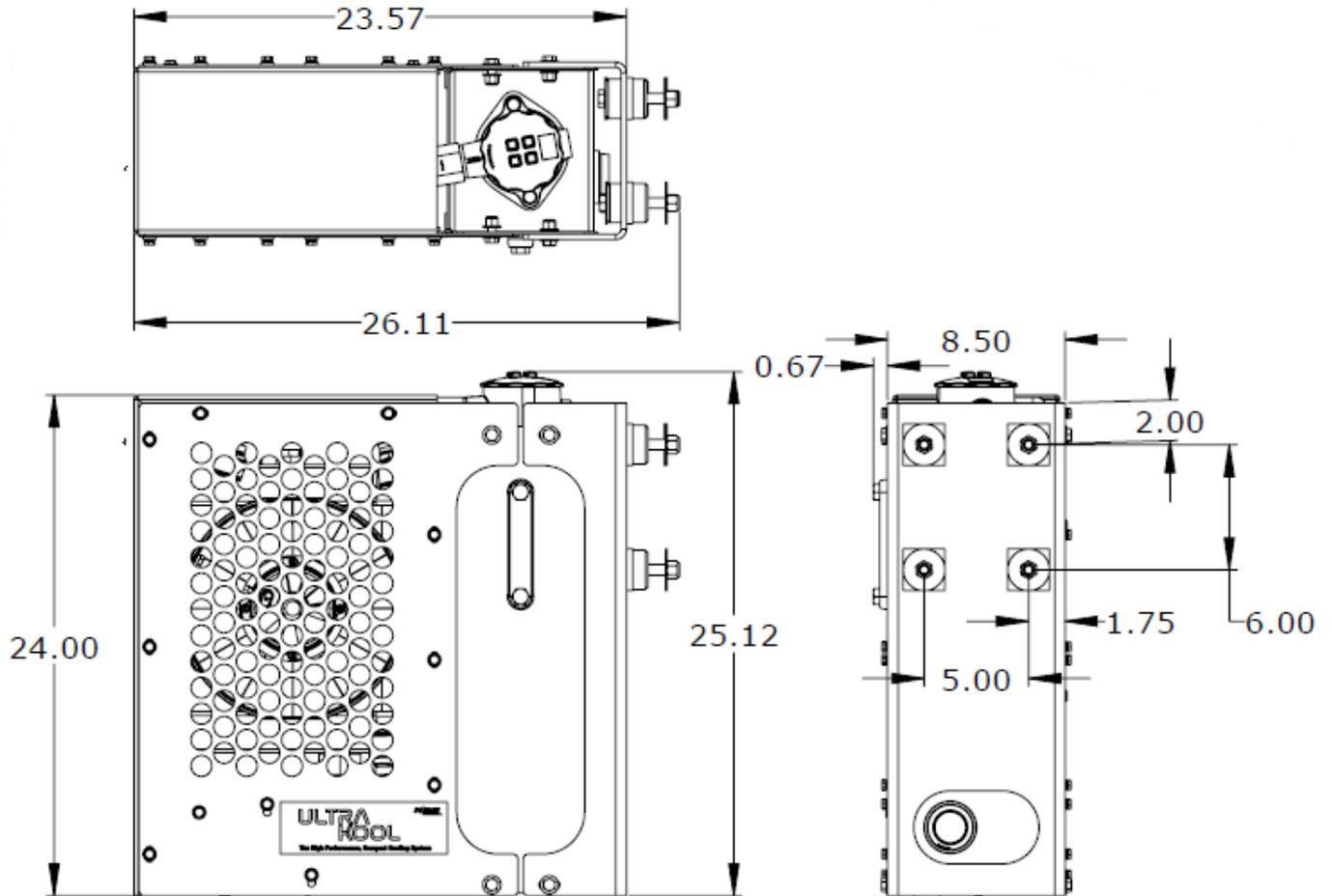
UK4-20-12VDC-SS – Bill of Materials

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 1-1/16 X 12 MALE JIC X 1-1/16 X 12 MALE JIC (USES 304-12 NUT) STEEL	1
17	1013513	ADAPTER LOCK NUT 1-1/16 X 12 FOR USE WITH TUBE OD 3/4"	1
18	1014178	ADAPTER 90 DEG ELBOW 1-1/16 X 12 MALE JIC X 1-1/16 X 12 FEMALE JIC SWIVEL STEEL	1
19	1014325	ELBOW 1-1/16 X 12 MALE JIC X 1-5/16 X 12 MALE ORB STEEL	1
20	1014330	ELBOW 1-5/16 X 12 MALE JIC X 1-5/16 X 12 MALE ORB STEEL	2
21	1015084	3/8"-16 X 3/4" HHCS, 18-8 STAINLESS	2
22	1015085	3/8"-16 X 1" HHCS, 18-8 STAINLESS	8
23	1015103	3/8" SCREW SIZE SPLIT LOCK WASHER, 0.68" OD, 18-8 STAINLESS	2
24	1030034	1 3/8" X 3/8" STAINLESS STEEL PREFORMED CLAMP	1
25	1067982	PLUG, MAGNETIC SQUARE HEAD, 3/4"-14 NPTF, STL	1
26	1068870	1/4" FLAT WASHER, GENERAL PURPOSE, 18-8 STAINLESS	10
27	1076040	1/4" EXTRA THICK, FLAT WASHER, GENERAL PURPOSE, 18-8 STAINLESS	20
28	1089265	12 FEMALE JIC SWIVEL STRAIGHT FOR 3/4" HOSE	1
29	1089268	12 FEMALE JIC LONG DROP 90 ELBOW FOR 3/4" HOSE	1
30	1089349	16 FEMALE JIC SWIVEL STRAIGHT FOR 1" HOSE	1
31	1089350	16 FEMALE JIC LONG DROP 90 ELBOW FOR 1" HOSE	1
32	1096210	1/2"-13 NYLON-INSERT HEX LOCK NUT, GR8, ZINC	4
33	1097650	ISOLATOR, BONDED BUSHING & SNUBBER (H.A. KING)	4
34	1098961	3/4" SUCTION HOSE EATON PUMA	1
35	1099829	TANK TOP FILTER, SLF2-16S-0/SLE210	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
40	1197362	#16 MALE ORB X #16 FEMALE ORB	1
41	1200178	MA-12 COOLER, DEUTSCH CONNECTOR, 12VDC FAN, NO BYPASS, AND NO TEMP SENSOR PORT	1

ULTRA KOOL

The High Performance, Compact Cooling System

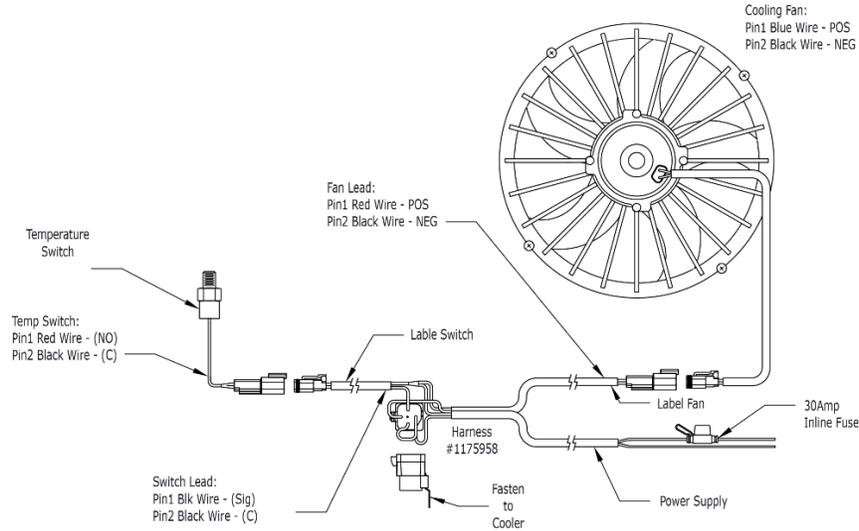
UK4-20-12VDC-SS – Dimensions



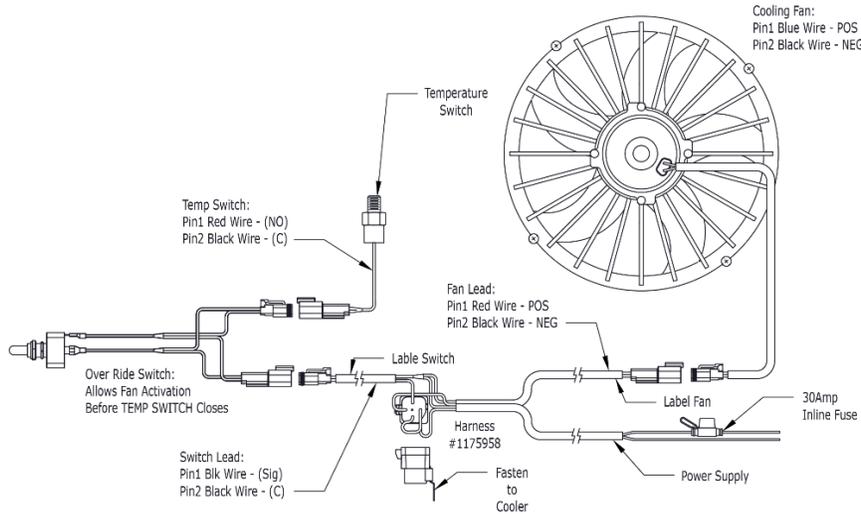
ULTRA KOOL

The High Performance, Compact Cooling System

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



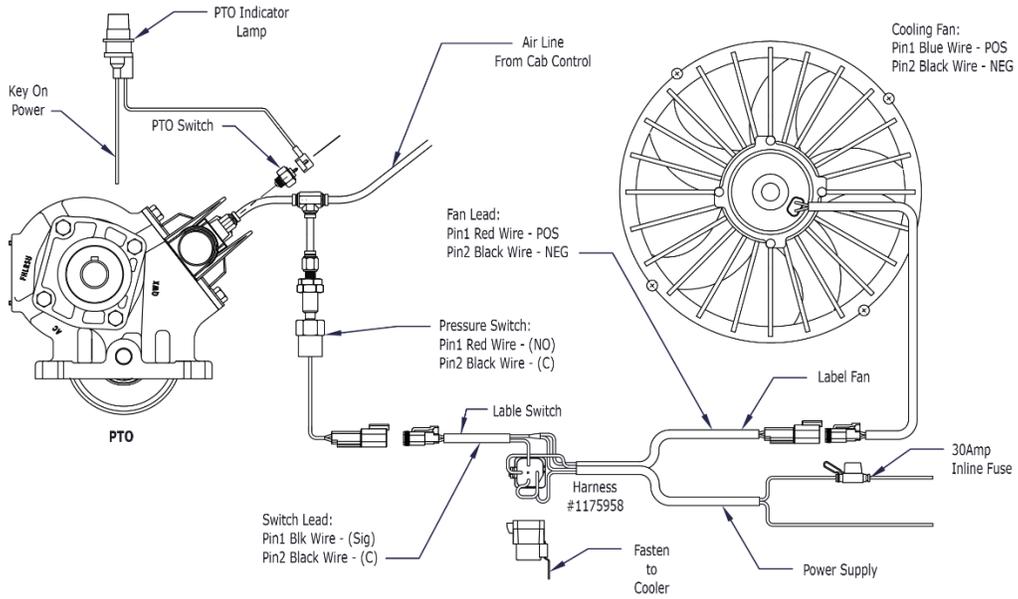
Temperature Switch Fan Activation



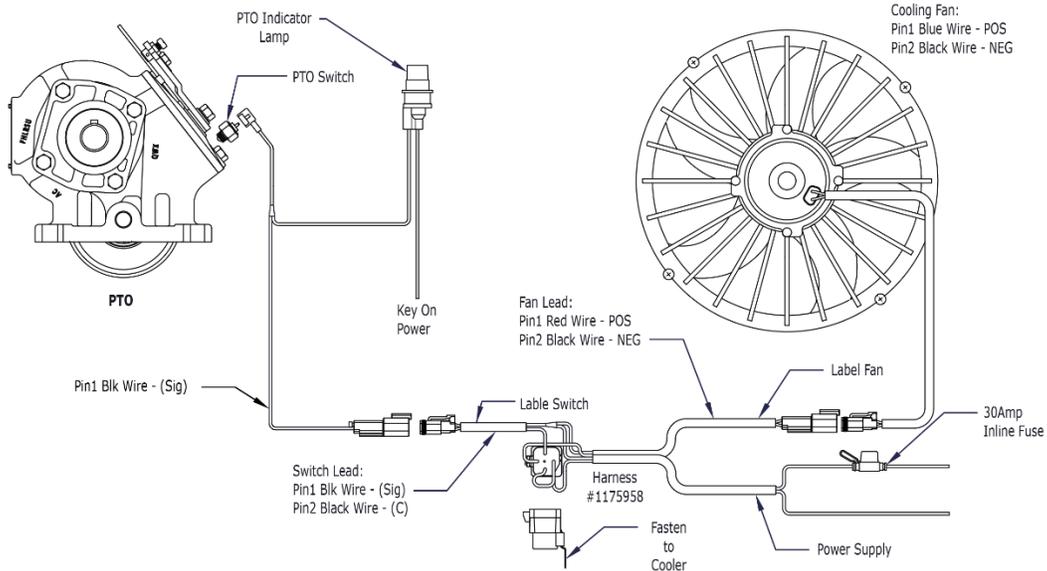
Temperature Switch Fan Activation W/Override

ULTRA KOOL

The High Performance, Compact Cooling System



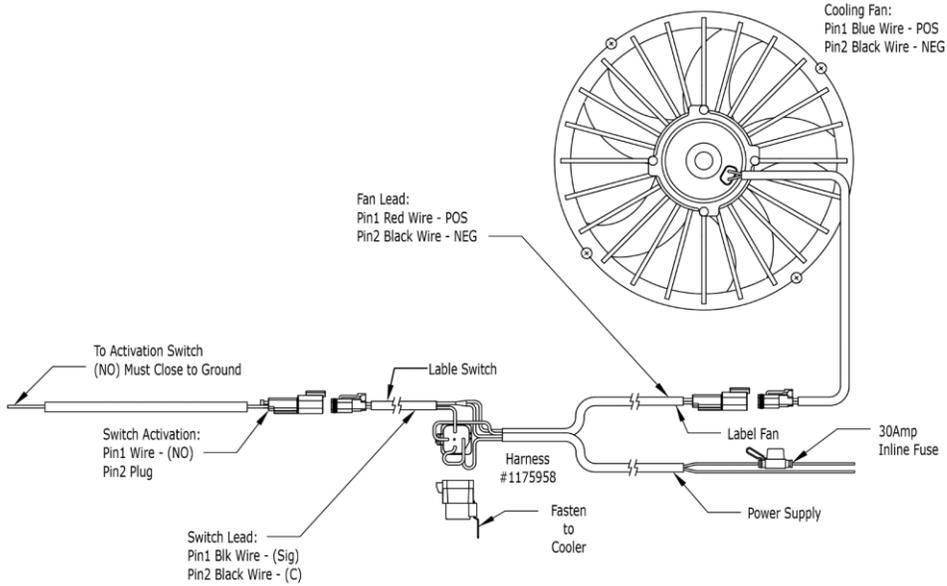
Air Shift PTO Fan Activation



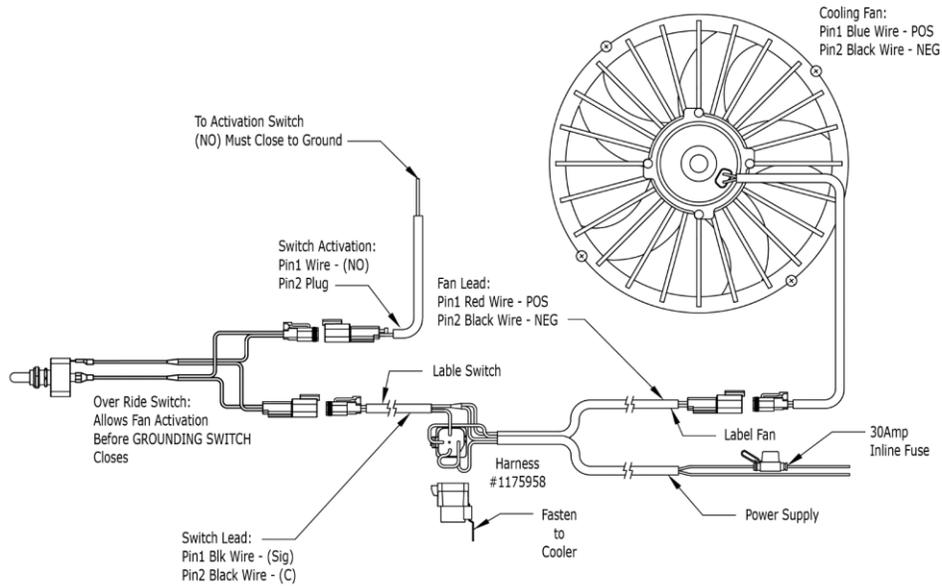
Cable Shift PTO Fan Activation

ULTRA KOOL

The High Performance, Compact Cooling System



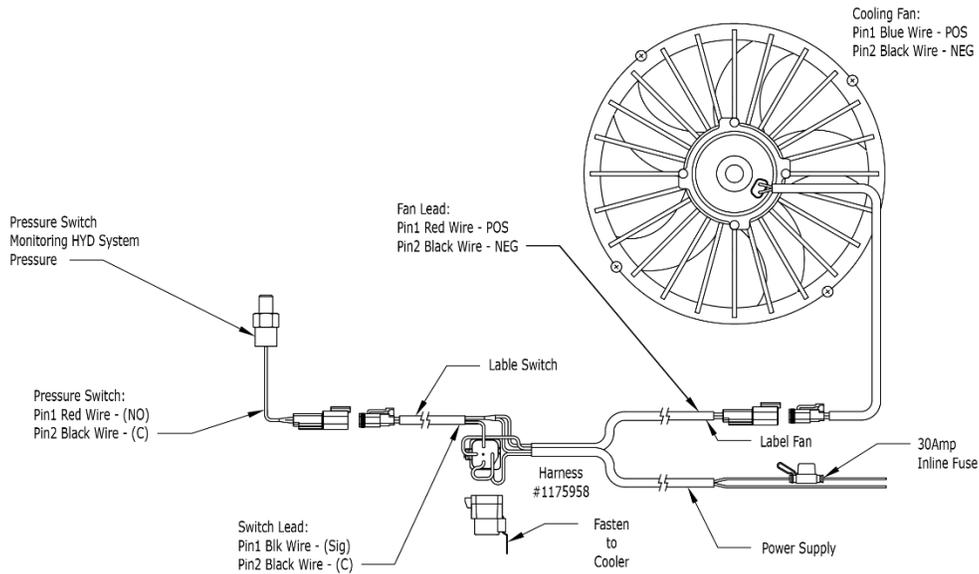
Grounding Switch Fan Activation



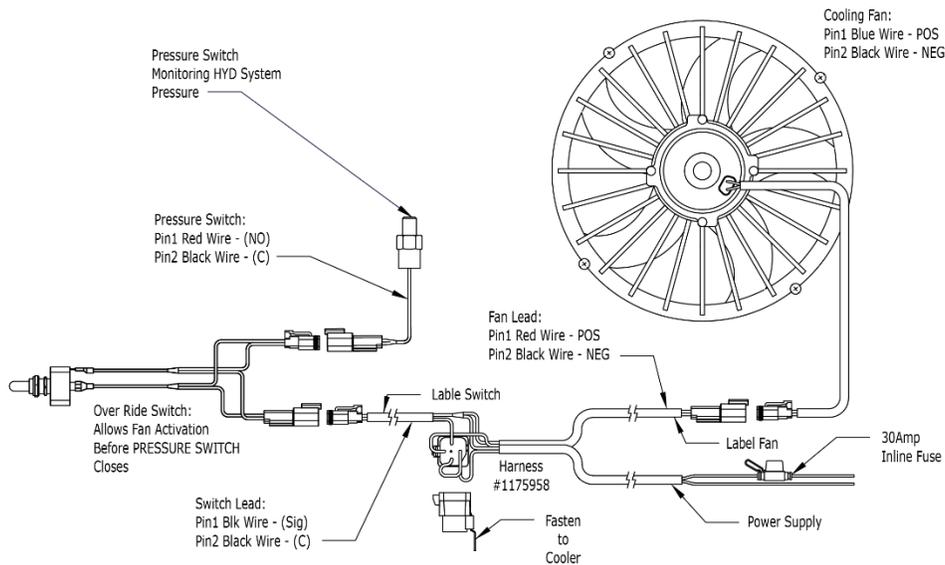
Grounding Switch Fan Activation W/Override

ULTRA KOOL

The High Performance, Compact Cooling System



Pressure Switch Fan Activation



Pressure Switch Fan Activation W/Override

ULTRA KOOL



The High Performance, Compact Cooling System

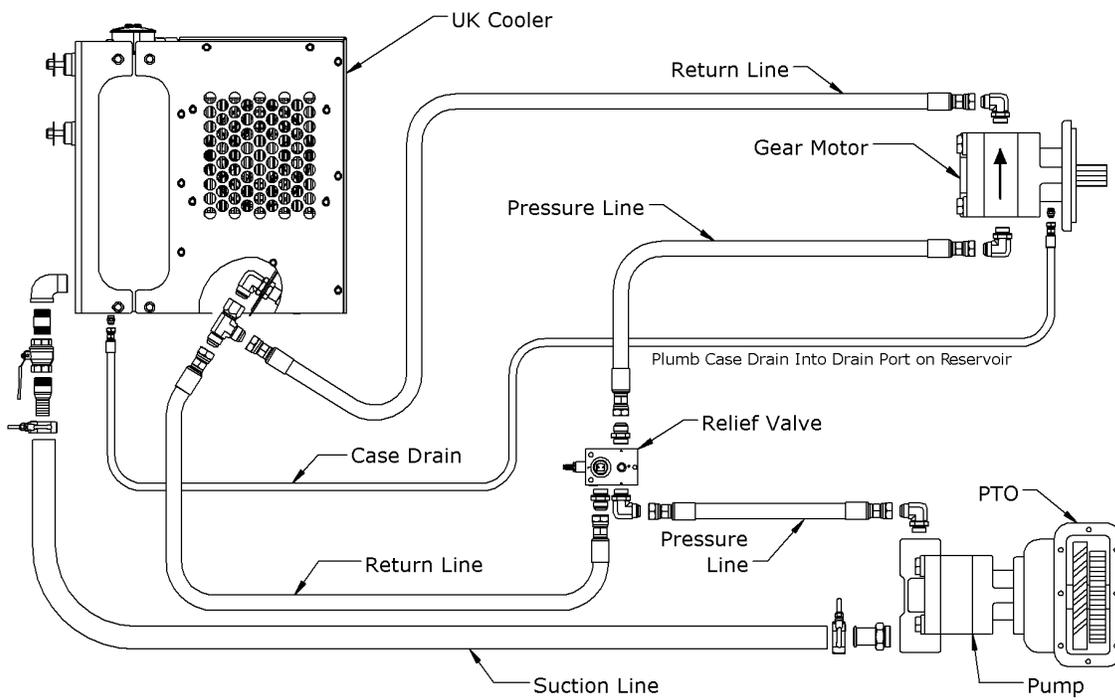
ELECTRICAL KIT COMPONENTS

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

ULTRA KOOL

The High Performance, Compact Cooling System

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



ULTRA KOOL



The High Performance, Compact Cooling System

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

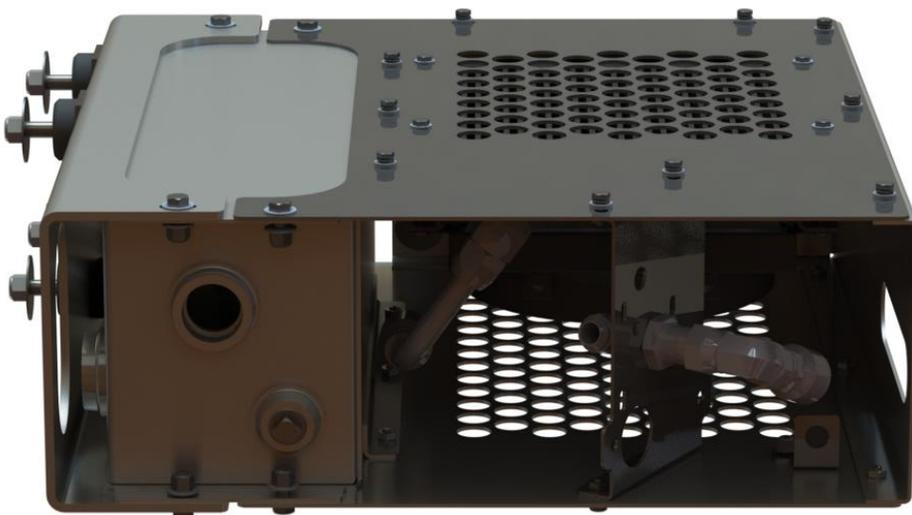
ULTRA KOOL

The High Performance, Compact Cooling System

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
Suction Port.....2 – 1 1/4" NPT
Drain Port.....1 – 3/4" NPT



ULTRA KOOL



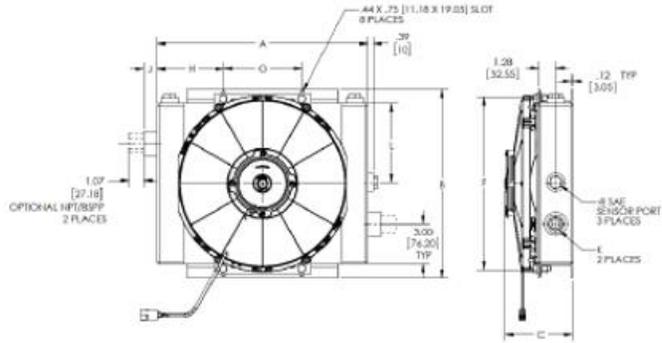
The High Performance, Compact Cooling System

ULTRA KOOL

The High Performance, Compact Cooling System

MA-12 – Hydraulic Cooler Specifications

MA-12, MA-18, MA-32

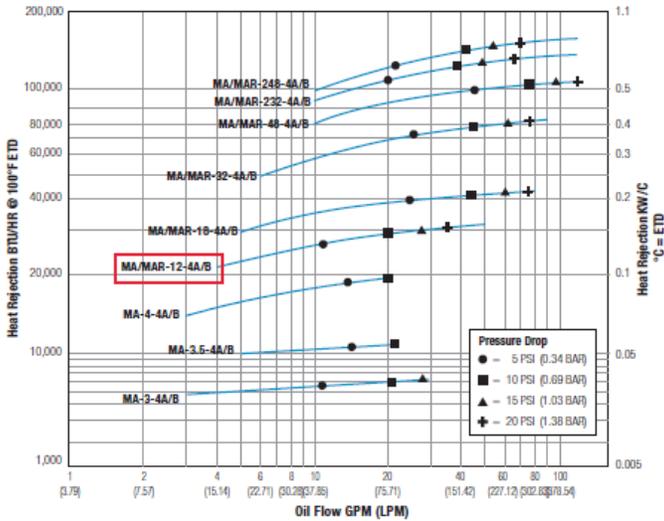


Brushless fan option has different dimensions. Consult factory.

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)

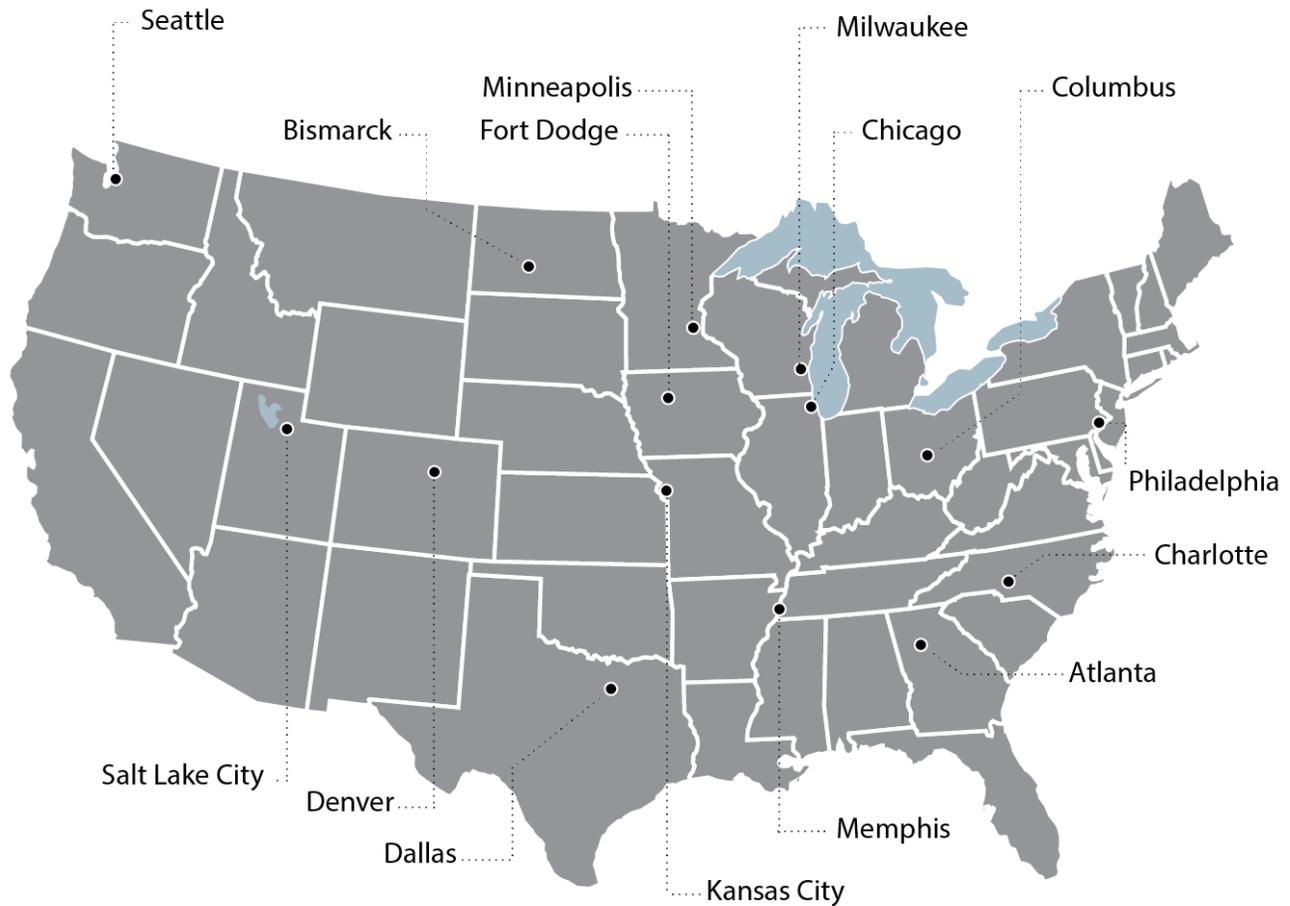
*AMP draw listed as per FAN.

ULTRA KOOL



The High Performance, Compact Cooling System

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		