



FORCE America Inc.

ULTRAKOOL Operator's Manual

FORCE America UK8-50-12VDC-BTC-SS Operator's Manual



ULTRA KOOL



The High Performance, Compact Cooling System

Table of Contents

| | |
|---|----|
| TABLE OF CONTENTS | 2 |
| UK8-50-12VDC-BTC-SS – MODEL CODE BREAKDOWN | 3 |
| UK8-50-12VDC-BTC-SS – EXPLODED PARTS VIEW | 3 |
| UK8-50-12VDC-BTC-SS – BILL OF MATERIALS | 4 |
| UK8-50-12VDC-BTC-SS – DIMENSIONS | 5 |
| UK8-50-12VDC-BTC-SS – ELECTRICAL START OPTIONS..... | 6 |
| ELECTRICAL KIT COMPONENTS..... | 10 |
| UK8-50-12VDC-BTC-SS – TYPICAL PLUMBING LAYOUT | 12 |
| UK8-50-12VDC-BTC-SS – STARTUP PROCEDURE STEPS | 13 |
| UK8-50-12VDC-BTC-SS – MAINTENANCE RECOMMENDATIONS | 14 |
| UK8-50-12VDC-BTC-SS – TROUBLESHOOTING | 14 |
| UK8-50-12VDC-BTC-SS – PRODUCT INFORMATION | 15 |
| TDI-16277DC – HYDRAULIC COOLER SPECIFICATIONS | 16 |

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The High Performance, Compact Cooling System

TDI-16277DC



DIMENSIONS

APPEARANCE

SPECIFICATIONS

Flow Range (GPM).....10 – 50
 Heat Rejection Range (BTU/Hr):
 41,000 – 44,600
 Fitting Size.....#20 SAE ORB
Material
 Aluminum Bar/Plate
 Inner Fin:.....Al – 1100
 Outer Fin:.....Al – 1100
 Fitting:.....Aluminum
Cooler Weight (lbs.)
 Total Weight (dry):.....30 lbs.

PERFORMANCE

TDI-16277DC-12

| ITD (F) | 10 GPM | 20 GPM | 30 GPM | 40 GPM |
|---------|--------|--------|--------|--------|
| 50 | 14,000 | 18,000 | 22,000 | 26,000 |
| 100 | 28,000 | 36,000 | 44,000 | 52,000 |
| 150 | 42,000 | 54,000 | 66,000 | 78,000 |

TDI-16277DC-12

| Oil Flow (GPM) | 50 SSU | 100 SSU | 200 SSU | 500 SSU |
|----------------|--------|---------|---------|---------|
| 10 | 5 | 8 | 12 | 18 |
| 20 | 10 | 15 | 22 | 35 |
| 30 | 15 | 22 | 32 | 50 |
| 40 | 20 | 30 | 45 | 85 |

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36

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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

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 Savage, MN 55378
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October 2025

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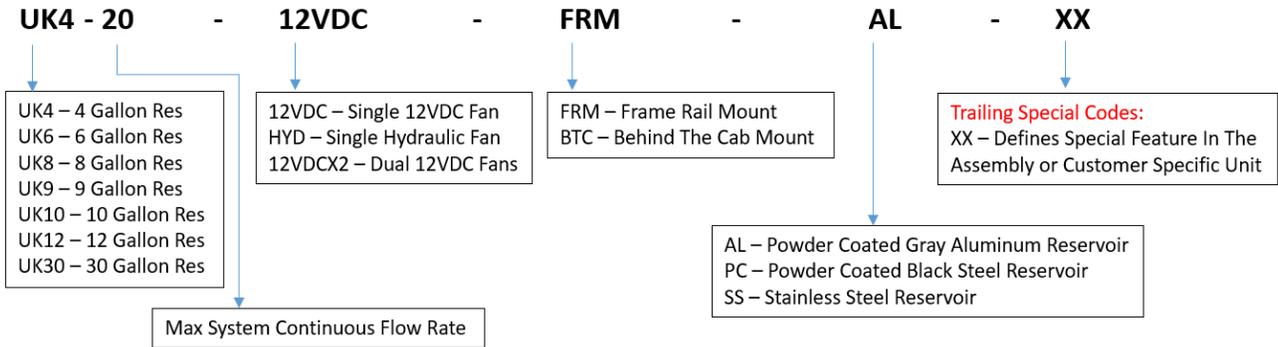
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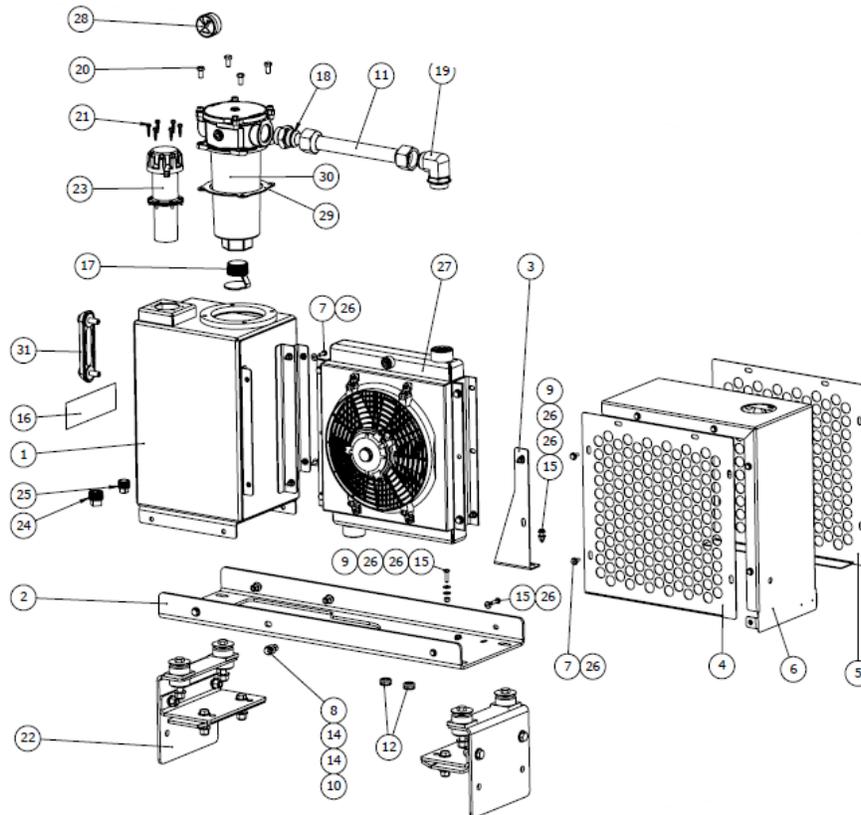
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UK8-50-12VDC-BTC-SS – Model Code Breakdown



UK8-50-12VDC-BTC-SS – Exploded Parts View



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UK8-50-12VDC-BTC-SS – Bill of Materials

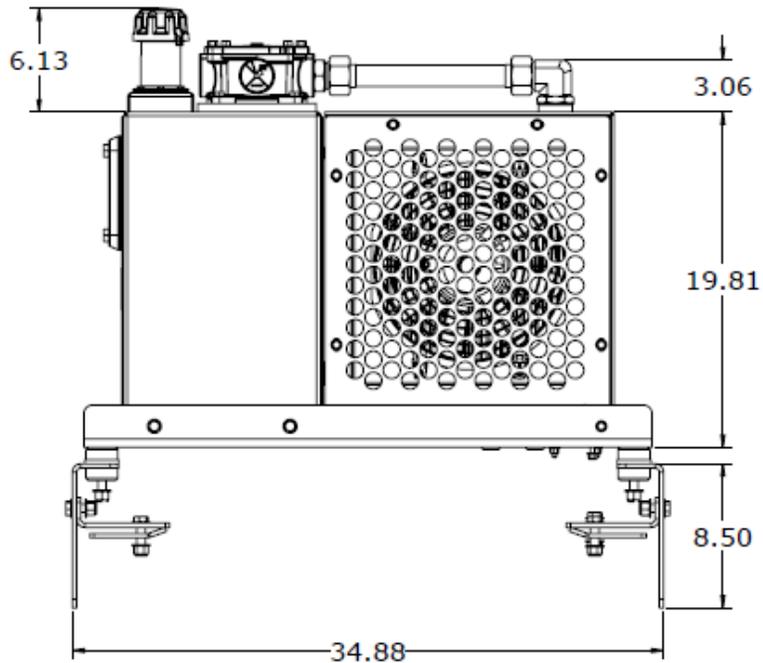
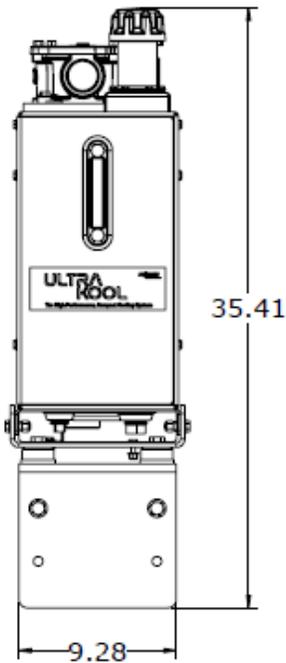
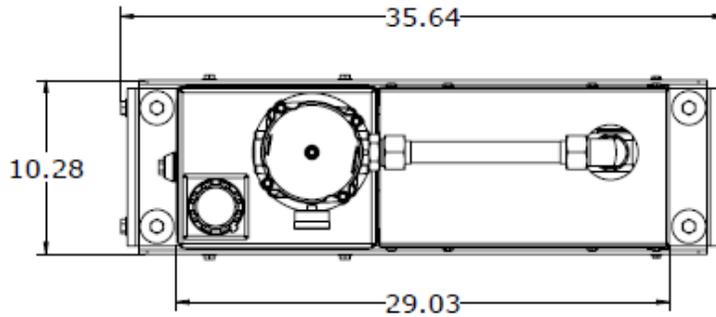
| ITEM NO. | PART NUMBER | DESCRIPTION | QTY. |
|----------|-------------|---|------|
| 1 | 1010279 | WELDMENT, RES-8, ULTRAKOOL SS | 1 |
| 2 | 1010286 | CRADLE, ULTRAKOOL SS | 1 |
| 3 | 1010287 | COOLER MOUNT, ULTRAKOOL SS | 1 |
| 4 | 1010290 | PANEL, PERFORATED LEFT | 1 |
| 5 | 1010291 | PANEL, PERFORATED RIGHT | 1 |
| 6 | 1010489 | WELDMENT, PANEL, TOP/END, SS | 1 |
| 7 | 1010557 | 1/4"-20 X 3/4" HHCS, 18-8 STAINLESS | 12 |
| 8 | 1010558 | 3/8"-16 X 1-1/4" HHCS, 18-8 STAINLESS | 4 |
| 9 | 1010559 | 1/4-20 NYLOCK HEX NUT, GRD 5, ZINC | 7 |
| 10 | 1010560 | 3/8"-16 NYLON-INSERT HEX LOCK NUT, 18-8 STAINLESS | 4 |
| 11 | 1010746 | ASSEMBLY, TUBE, ULTRAKOOL SS | 1 |
| 12 | 1010751 | PUSH-IN HIGH-TEMP GROMMET, 1/2" ID, 1-1/16" OD, 13/16" HOLE | 2 |
| 13 | 1010773 | HARNESS, MAIN, COOLER, WP VERSION, 144" | 1 |
| 14 | 1010799 | 3/8" STAINLESS STEEL WASHER | 8 |
| 15 | 1010801 | 1/4"-20 X 1" HHCS, 18-8 STAINLESS | 9 |
| 16 | 1011613 | ULTRAKOOL LOGO DECAL | 1 |
| 17 | 1011760 | WELDMENT, DIFFUSER, 1-1/2 NPT THREAD | 1 |
| 18 | 1013967 | FITTING STRAIGHT -20 MJIC / -20 MORB | 1 |
| 19 | 1014335 | FITTING 90 DEG -20 MJIC / -20 MORB | 1 |
| 20 | 1015084 | 3/8"-16 X 3/4" HHCS, 18-8 STAINLESS | 4 |
| 21 | 1015115 | #12-14 X 1" SELF DRILLING SCREW, UNSLOTTED HEX WASHER HEAD, ZINC | 6 |
| 22 | 1025172 | UK8-50-MOUNTING-KIT | 1 |
| 23 | 1028135 | RAISED FILLER BREATHER (ZINGA) | 1 |
| 24 | 1030846 | 1 NPT SQUARE HEAD PLUG | 1 |
| 25 | 1067982 | PLUG, MAGNETIC SQUARE HEAD, 3/4"-14 NPTF, STL | 1 |
| 26 | 1068870 | 1/4" FLAT WASHER, GENERAL PURPOSE, 18-8 STAINLESS | 28 |
| 27 | 1079063 | TDI-16277DC-12, COOLER, 10-50 GPM, #20 SAE ORB (THERMAL DYNAMICS) | 1 |
| 28 | 1086823 | 0-60 PSI BYPASS GAUGE - 1/8 NPT | 1 |
| 29 | 1090319 | RG11, GASKET, TR/TS FILTER, REPLACES O-RING (ZINGA) | 1 |
| 30 | 1090446 | TANK MOUNTED FILTER W/ELEMENT ENDURAGUARD (ZINGA) | 1 |
| 31 | 1102641 | 5" SIGHT/TEMP GAUGE, M12X1.75, PLASTIC GUARD, ZINGA | 1 |

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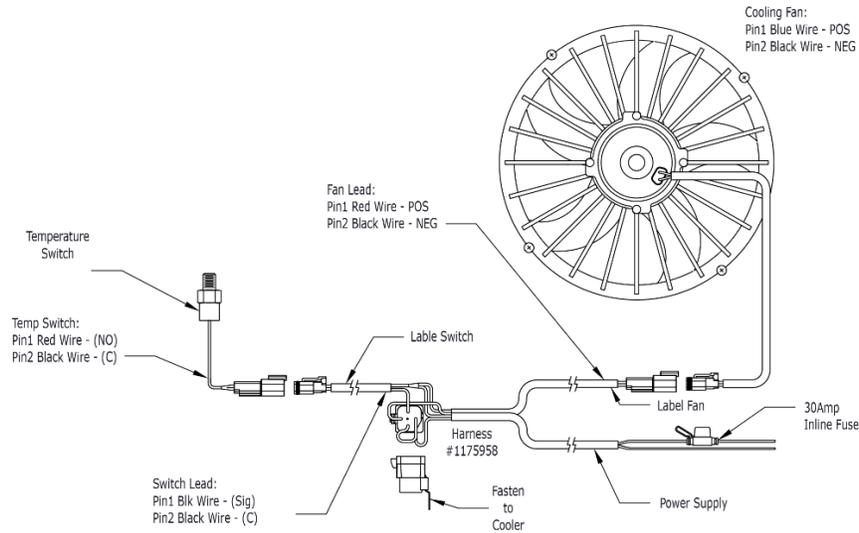
UK8-50-12VDC-BTC-SS – Dimensions



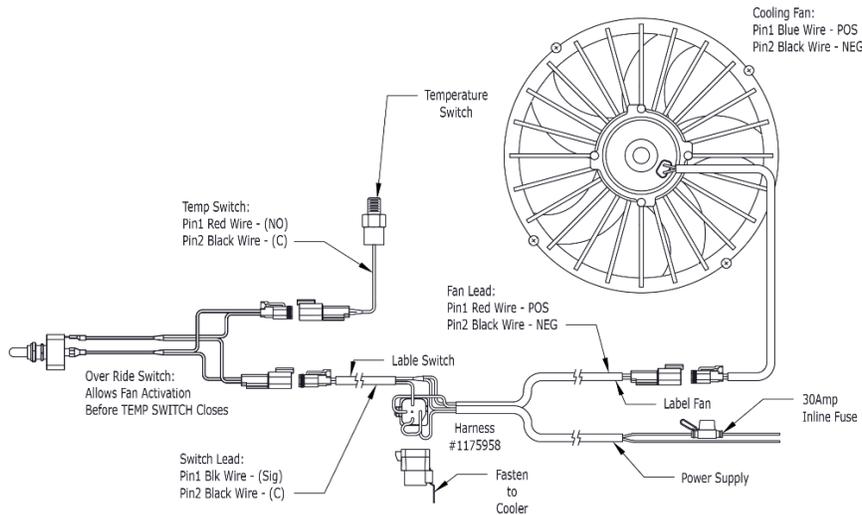
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UK8-50-12VDC-BTC-SS – Electrical Start Options



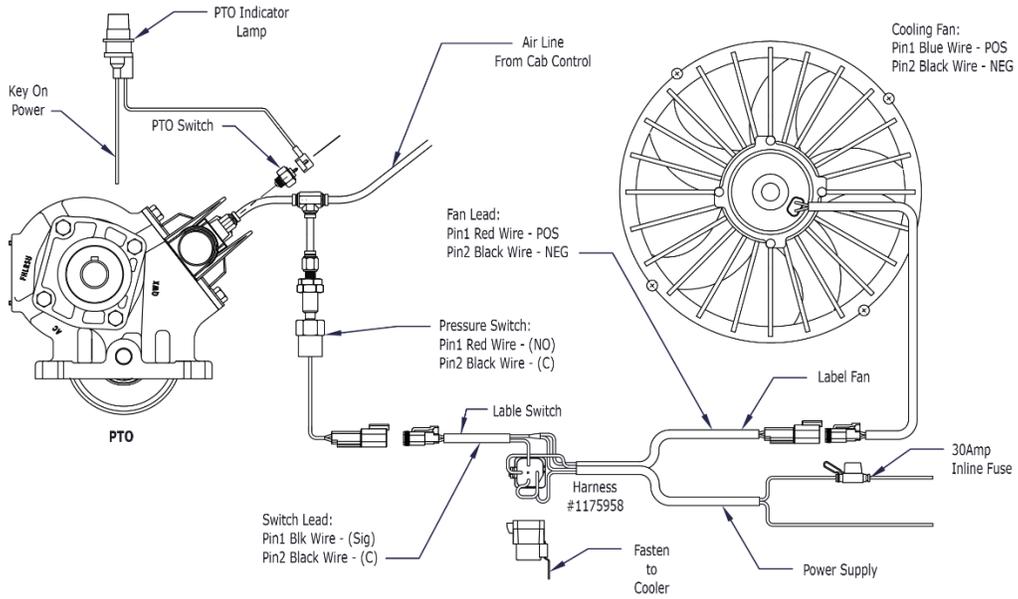
Temperature Switch Fan Activation



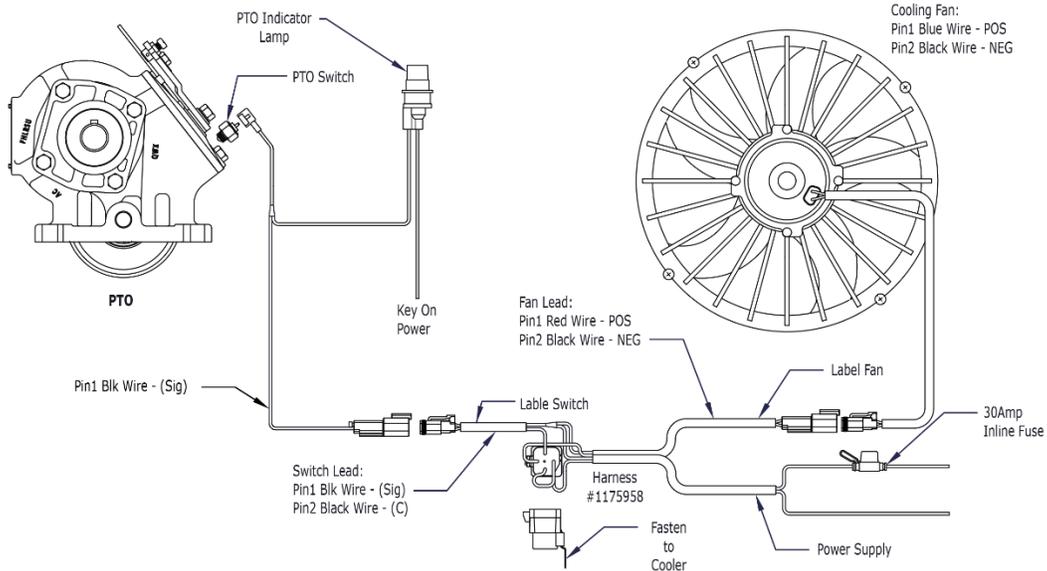
Temperature Switch Fan Activation W/Override

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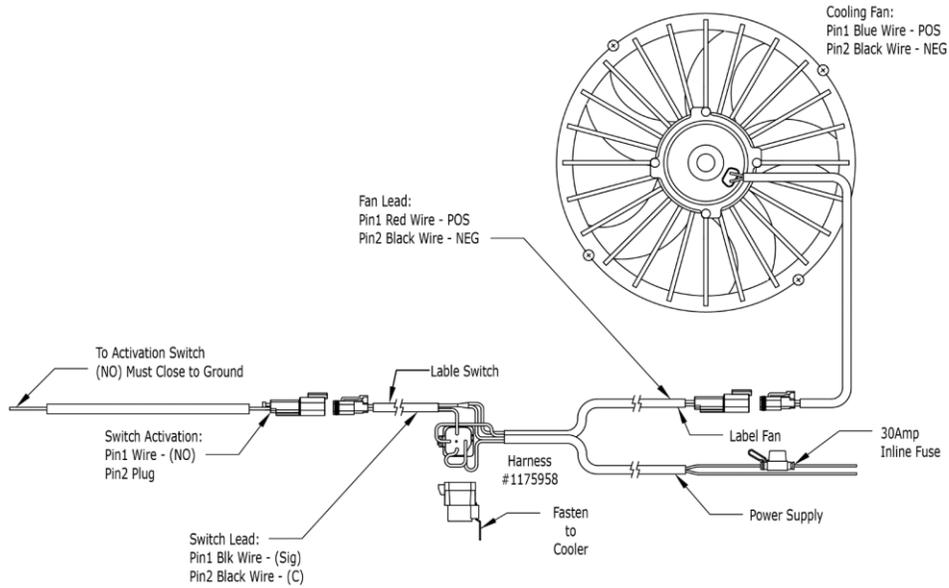
Air Shift PTO Fan Activation



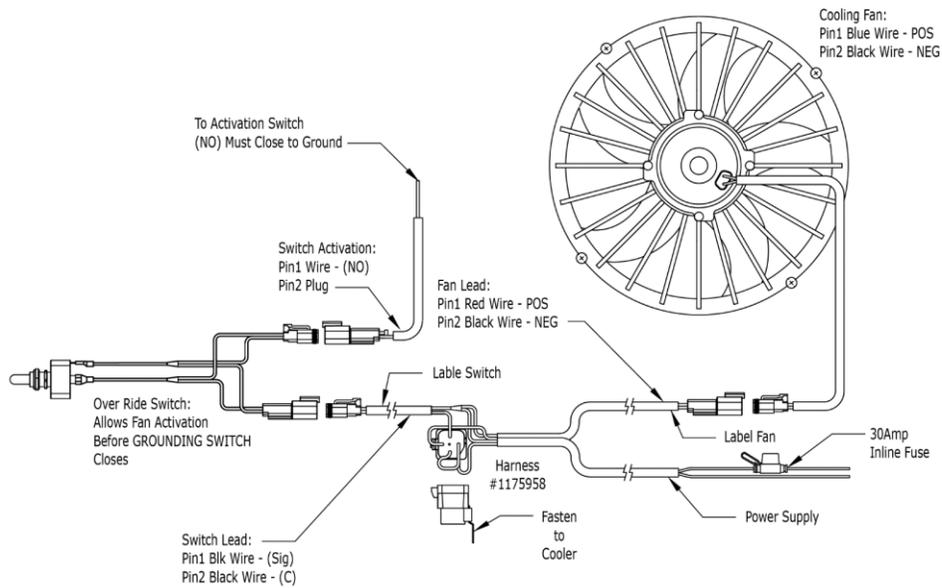
Cable Shift PTO Fan Activation

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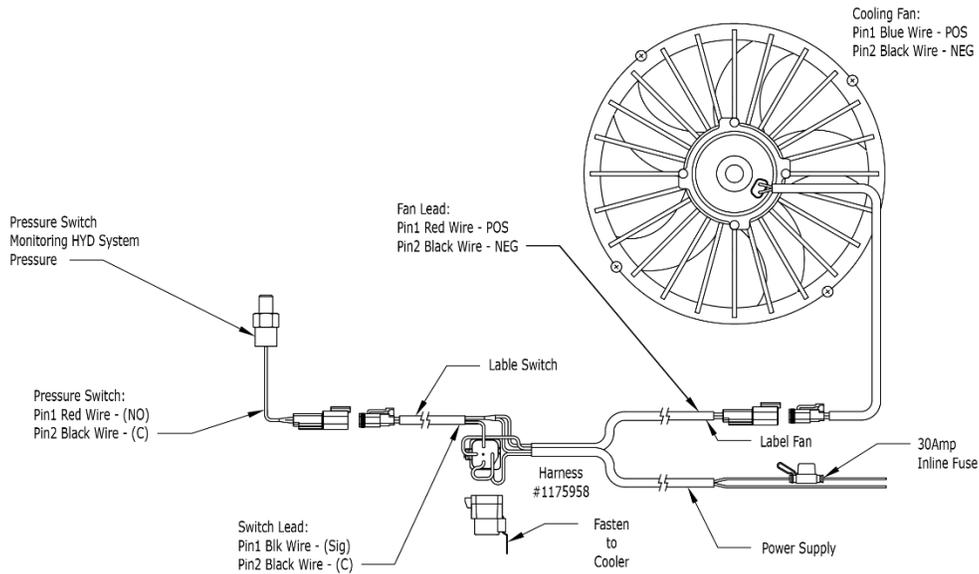
Grounding Switch Fan Activation



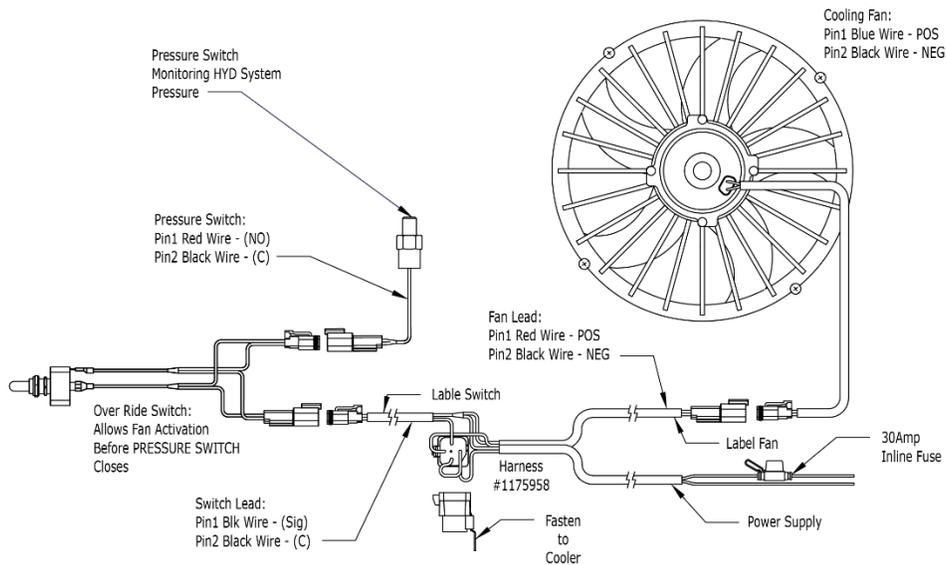
Grounding Switch Fan Activation W/Override

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Pressure Switch Fan Activation



Pressure Switch Fan Activation W/Override

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ELECTRICAL KIT COMPONENTS

| ITEM | DESCRIPTION | QTY |
|--|--|------|
| 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 |
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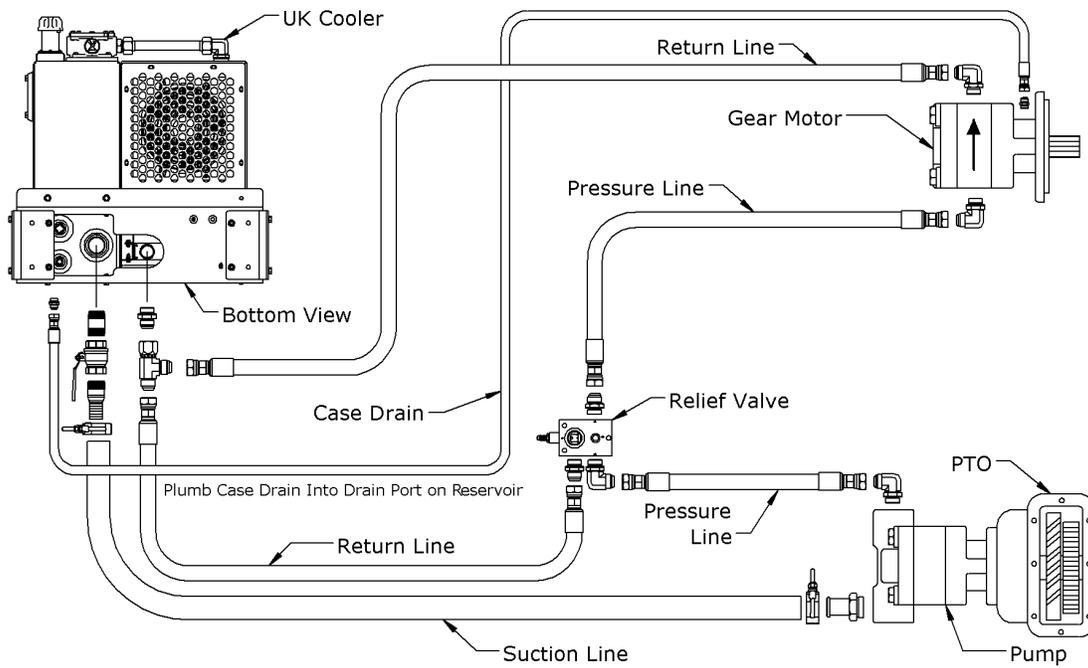


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UK8-50-12VDC-BTC-SS – Typical Plumbing Layout



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UK8-50-12VDC-BTC-SS – Startup Procedure Steps

1. Mount unit to truck chassis.
2. Plumb all hydraulic lines per plumbing diagram and application diagrams.
3. Fill the 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 the 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). It 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. The system is functional and ready for full operation.

UK8-50-12VDC-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.

UK8-50-12VDC-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

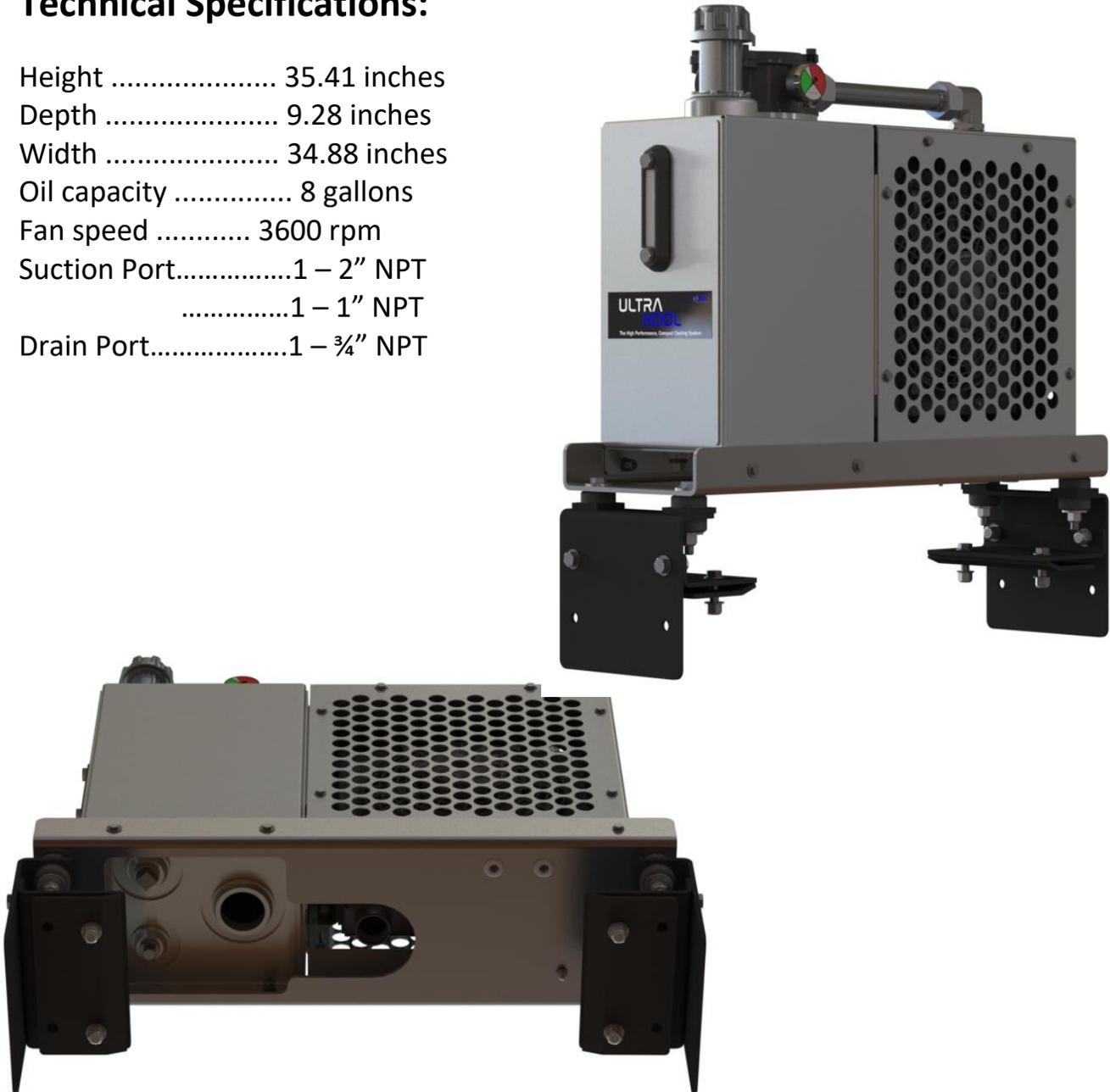
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UK8-50-12VDC-BTC-SS – Product Information

Technical Specifications:

| | |
|--------------------|--------------|
| Height | 35.41 inches |
| Depth | 9.28 inches |
| Width | 34.88 inches |
| Oil capacity | 8 gallons |
| Fan speed | 3600 rpm |
| Suction Port..... | 1 – 2" NPT |
| | 1 – 1" NPT |
| Drain Port..... | 1 – ¾" NPT |

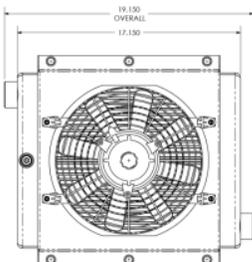


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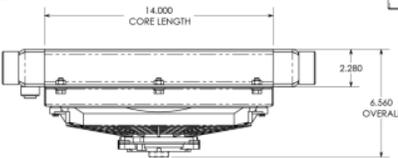
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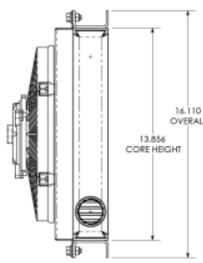
TDI-16277DC – Hydraulic Cooler Specifications

TDI-16277DC

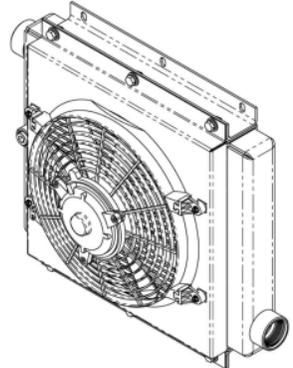


DIMENSIONS





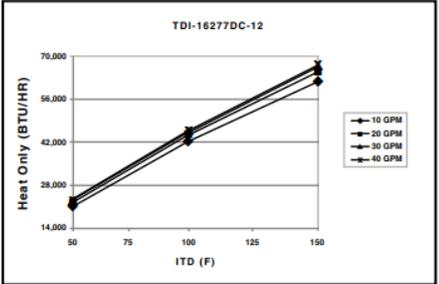
APPEARANCE



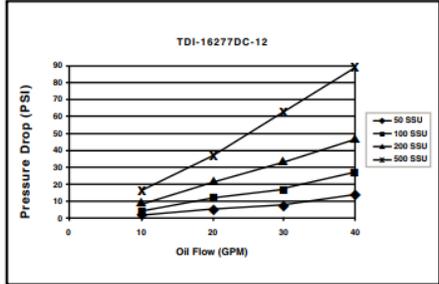
SPECIFICATIONS

Flow Range (GPM)..... 10 – 50
 Heat Rejection Range (BTU/Hr):
 41,000 – 44,600
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Material
 Aluminum Bar/Plate
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 Outer Fin:..... AI – 1100
 Fitting:..... Aluminum
Cooler Weight (lbs.)
 Total Weight (dry):..... 30 lbs.

PERFORMANCE



| ITD (F) | 10 GPM | 20 GPM | 30 GPM | 40 GPM |
|---------|--------|--------|--------|--------|
| 50 | 14,000 | 14,000 | 14,000 | 14,000 |
| 100 | 28,000 | 28,000 | 28,000 | 28,000 |
| 150 | 42,000 | 42,000 | 42,000 | 42,000 |



| Oil Flow (GPM) | 50 SSU | 100 SSU | 200 SSU | 500 SSU |
|----------------|--------|---------|---------|---------|
| 10 | 10 | 10 | 10 | 10 |
| 20 | 15 | 15 | 15 | 15 |
| 30 | 20 | 20 | 20 | 20 |
| 40 | 25 | 25 | 25 | 25 |

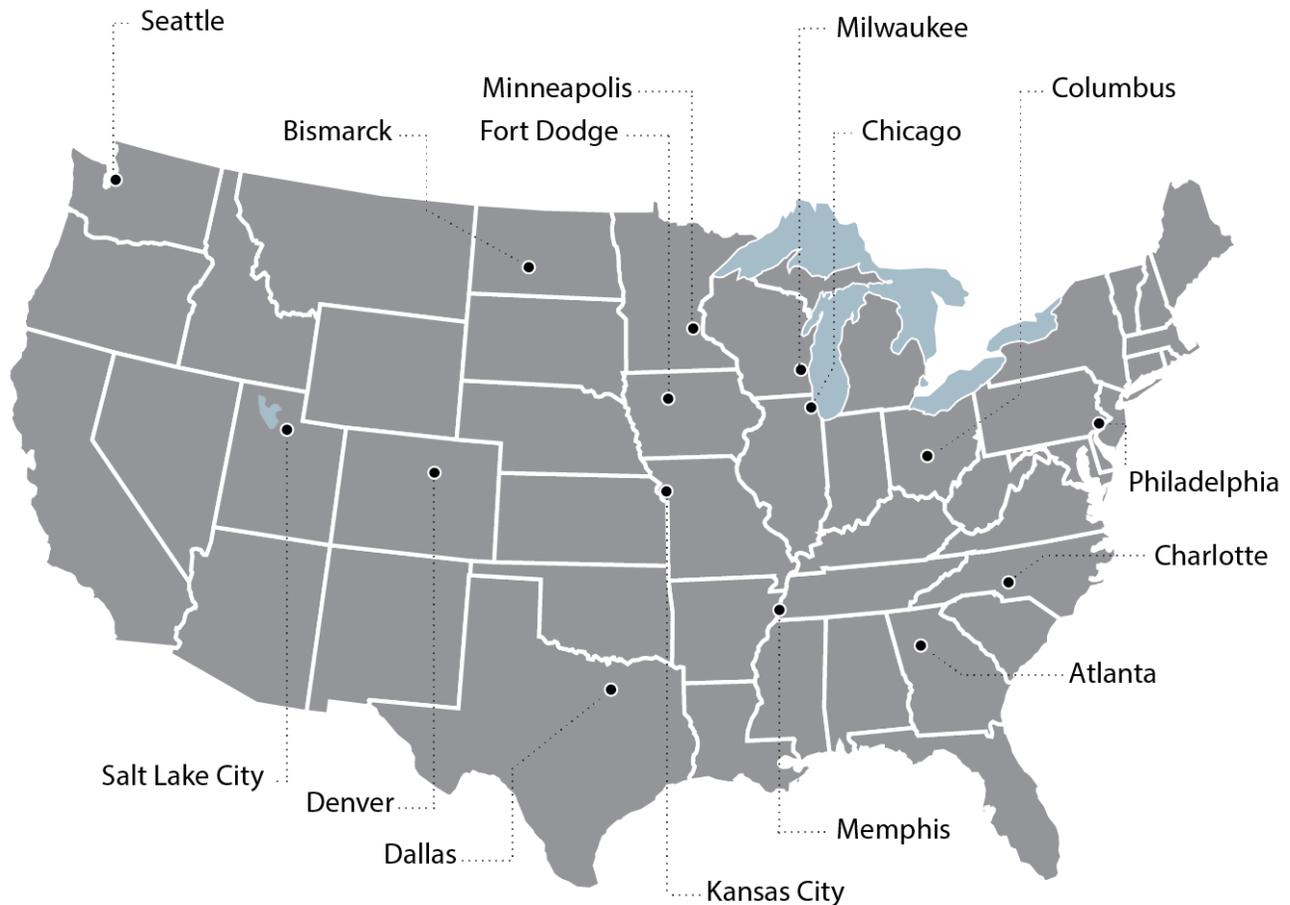
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