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## ***BD Dual Transmission Cooler***

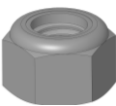
**Dodge (68RFE, 518, 47RH, 47RE & 48RE)  
Ford (5R110) & Chevy (Allison 1000)  
Transmissions**

|             |                       |
|-------------|-----------------------|
| <b>P/N#</b> | <b>1030606-DS-1/2</b> |
| <b>P/N#</b> | <b>1030606-DS-5/8</b> |

**PLEASE READ ALL INSTRUCTIONS BEFORE INSTALLATION**

## **K I T   C O N T E N T S :**

Please check to make sure that you have all the parts listed in this kit **before** you start the disassembly of your truck.

| Transmission Cooler Base Kit – 1030605-DS                                           |                                                                                     |                                                                                     |                                                                                      |                                                                                       |                                                                                       |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| 1300601-DS                                                                          |                                                                                     | 1300602                                                                             |                                                                                      | 1300603-B                                                                             |                                                                                       |
|    |                                                                                     |   |                                                                                      |    |                                                                                       |
| <i>Cooler</i>                                                                       |                                                                                     | <i>L Brackets</i>                                                                   |                                                                                      | <i>Wiring Harness</i>                                                                 |                                                                                       |
| <b>Qty: 1</b>                                                                       |                                                                                     | <b>Qty: 6</b>                                                                       |                                                                                      | <b>Qty: 1</b>                                                                         |                                                                                       |
| 1100110                                                                             | 1100111                                                                             | 1230116                                                                             | 1604104                                                                              | 1110031                                                                               | 1130227                                                                               |
|  |  |  |   |  |  |
| <i>1/4 x 3/4" Bolts</i>                                                             | <i>1/4 Washers</i>                                                                  | <i>1/4 Nyloc Nuts</i>                                                               | <i>5/16" x 1" Long Bolts</i>                                                         | <i>5/16 Flat Washers</i>                                                              | <i>5/16 Nyloc Nuts</i>                                                                |
| <b>Qty: 4</b>                                                                       | <b>Qty: 8</b>                                                                       | <b>Qty: 4</b>                                                                       | <b>Qty: 6</b>                                                                        | <b>Qty: 12</b>                                                                        | <b>Qty: 6</b>                                                                         |
| 1300130                                                                             | 1300131                                                                             | 1300132                                                                             | 1400113                                                                              | 1452821                                                                               | 1300604                                                                               |
|  |  |  |  |  |  |
| <i>Tie Wrap (Long)</i>                                                              | <i>Tie Wrap (Medium)</i>                                                            | <i>Tie Wrap (Small)</i>                                                             | <i>Insulated Clamp</i>                                                               | <i>Gear Clamp</i>                                                                     | <i>Self-Threading Bolt</i>                                                            |
| <b>Qty: 5</b>                                                                       | <b>Qty: 5</b>                                                                       | <b>Qty: 5</b>                                                                       | <b>Qty: 1</b>                                                                        | <b>Qty: 4</b>                                                                         | <b>Qty: 4</b>                                                                         |

BD Engine Brake Inc.

Plant Address: 33541 MacLure Rd. Abbotsford, BC, Canada V2S 7W2

U.S. Shipping Address: 88-446 Harrison St, Sumas, WA 98295    U.S. Mailing Address: P.O. Box 231, Sumas, WA 98295

Phone: 604-853-6096 | Fax: 604-853-8749 | Internet: [www.bd-power.com](http://www.bd-power.com)

| 1400134                                                                           | 1300620                                                                           | 1400142                                                                            | 1400135                                                                             |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|  |  |  |  |
| -10/-10 JIC Sweep Bend Fitting                                                    | Temp Sensor 180/160F (BLK)                                                        | -10/1/2" Barb Sensor Adapter                                                       | -10 JIC/ 1/2" Hose 90° Fitting                                                      |
| <b>Qty: 1</b>                                                                     | <b>Qty: 1</b>                                                                     | <b>Qty: 1</b>                                                                      | <b>Qty: 1</b>                                                                       |

**1/2" Fitting Kit – 1030606-1/2**

| 1400132                                                                           | 1400138                                                                           | 1400136                                                                            | 1604054                                                                             |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|  |  |  |  |
| 1/2" Comp / 1/2" Barb                                                             | 1/2" Sleeve                                                                       | 1/2" Nut                                                                           | 1/2" ID Hose                                                                        |
| <b>Qty: 2</b>                                                                     | <b>Qty: 2</b>                                                                     | <b>Qty: 2</b>                                                                      | <b>Qty: 183"</b>                                                                    |

**5/8" Fitting Kit – 1030606-5/8**

| 1400131                                                                             | 1400139                                                                             | 1400137                                                                              | 1604054                                                                               |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|  |  |  |  |
| 5/8" Comp / 1/2" Barb                                                               | 5/8" Sleeve                                                                         | 5/8" Nut                                                                             | 1/2" ID Hose                                                                          |
| <b>Qty: 2</b>                                                                       | <b>Qty: 2</b>                                                                       | <b>Qty: 2</b>                                                                        | <b>Qty: 183"</b>                                                                      |

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| <b>Vehicle Applications</b> |             |                             |                          |
|-----------------------------|-------------|-----------------------------|--------------------------|
| <b>Year</b>                 | <b>Make</b> | <b>Application</b>          | <b>Fitting Tube size</b> |
| 1993-2012                   | Dodge (All) | 518,47RH, 47RE, 48RE, 68RFE | 1/2" Tube                |
| 2003-2010                   | Ford        | 5R110                       | 1/2" Tube                |
| 2011-2014                   | Ford        | 6R140                       | 1/2" Tube                |
| 2001-2010                   | GM/Duramax  | Allison 1000                | 5/8" Tube                |

## ***Before you install your BD Transmission Cooler***

- ◆ ***If using the BD transmission cooler in extreme cold temperatures a bypass valve is recommended.***
- ◆ ***Cooler fan is rated for 66% duty cycle Maximum. Exceeding the duty cycle may result in voiding the warranty.***
- ◆ ***The temperature sensor is designed to turn on at 180°F / off at 160°F.***

***\*Important\**** ***Cooler fan is rated for 66% duty cycle Maximum. Exceeding the duty cycle may result in voiding the warranty.***

## ***Optional Temperature Sensors***

| 180 ON / 160 OFF<br>(comes in kit)                                                  | 200 ON / 185 OFF<br>(available separately)                                           |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
|  |  |
| 1300620 (black wire leads)                                                          | 1300621 (orange wire leads)                                                          |

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## Installation

**Note: The temperature sensor is designed to turn on at 180°F / off at 165°F.**

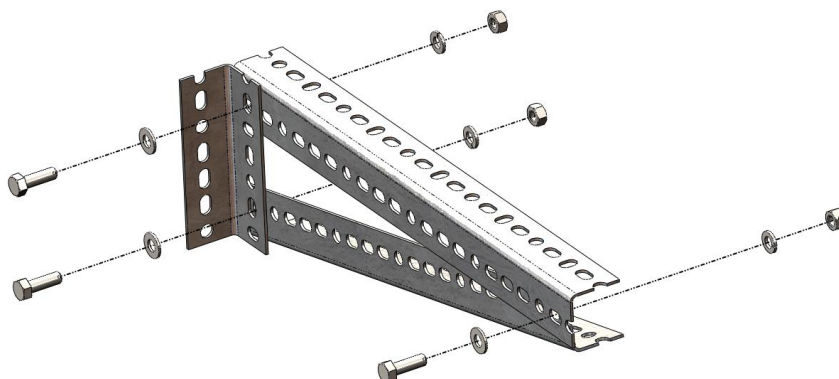
1) Block wheels of vehicle for safety and disconnect negative battery terminals (record radio settings before disconnecting the batteries).

2) Using a hoist lift vehicle to access transmission area.

3) Locate suitable location to mount transmission cooler. Choose a location where there will be adequate airflow through the cooler. If the cooler is mounted against a surface ensure there is at least 1" of clearance behind the cooler and that it is away from heat sources, rotating parts and debris. (fig.2)

4) Assemble L brackets and 5/16" hardware to mount the transmission cooler to the frame rail. Trim bracket pieces where necessary, deburr sharp edges and paint areas that are exposed to prevent corrosion.

**Note:** This is a universal cooler that can be mounted in a variety of locations



|   |                             |
|---|-----------------------------|
| 1 | 1300602 – L Bracket         |
| 2 | 1604104 – 5/16" X 1" Bolt   |
| 3 | 1110031 – 5/16" Flat washer |
| 4 | 1110032 – 5/16" Lock washer |
| 5 | 1130227 – 5/16" Nyloc nut   |

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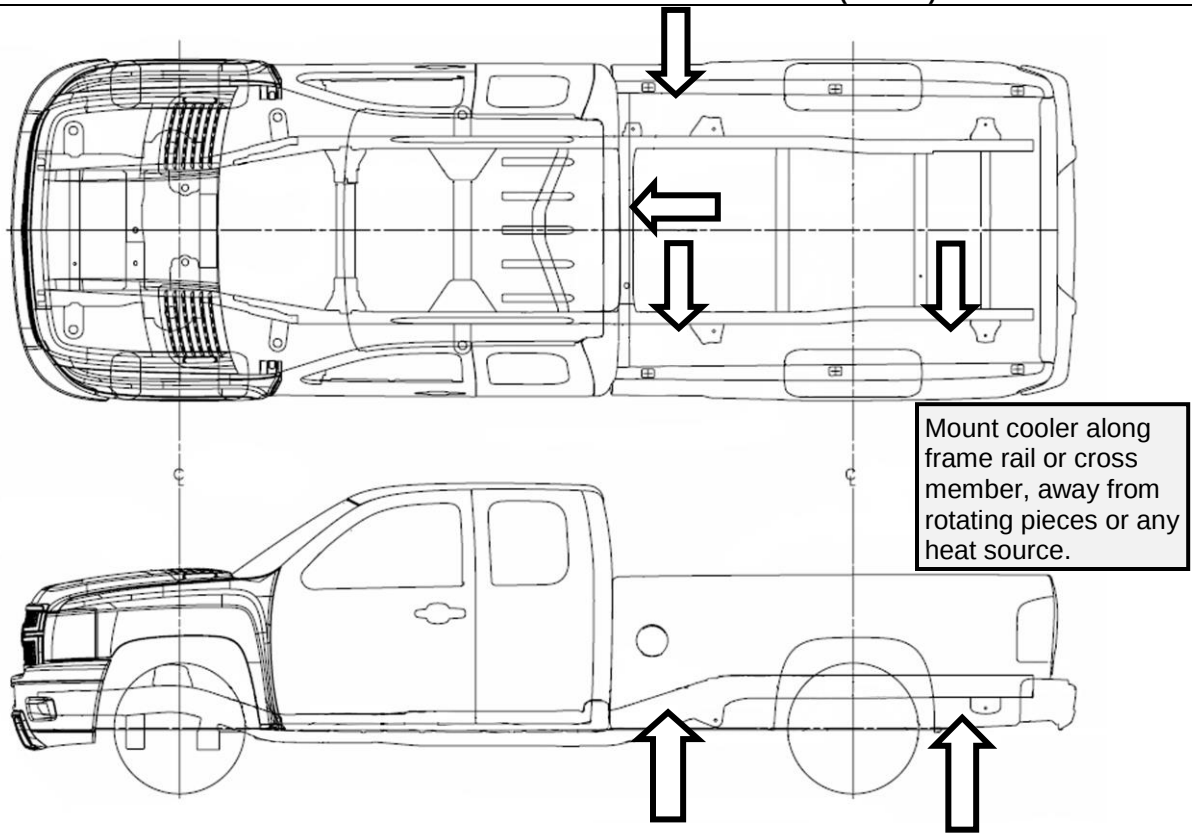
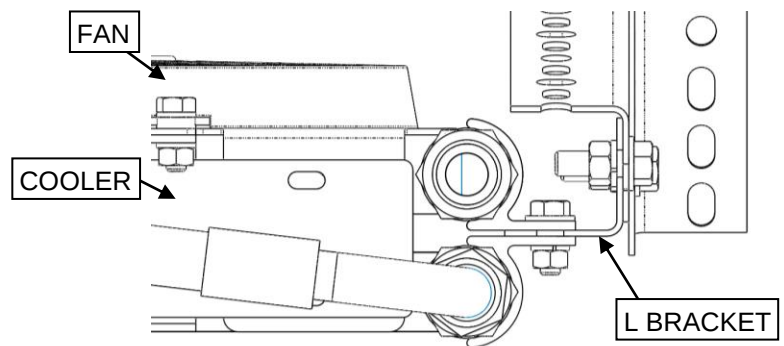
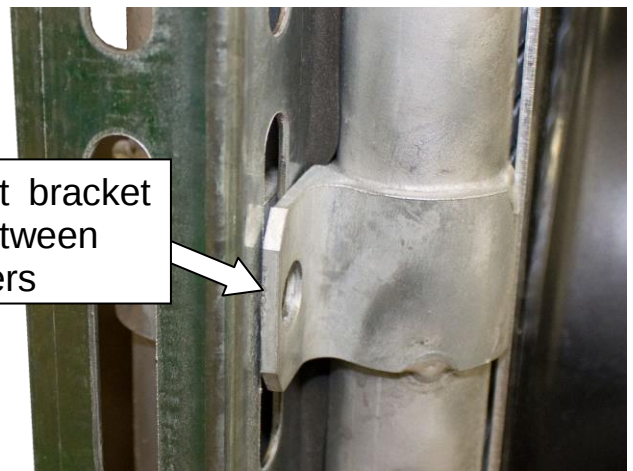


Fig.2

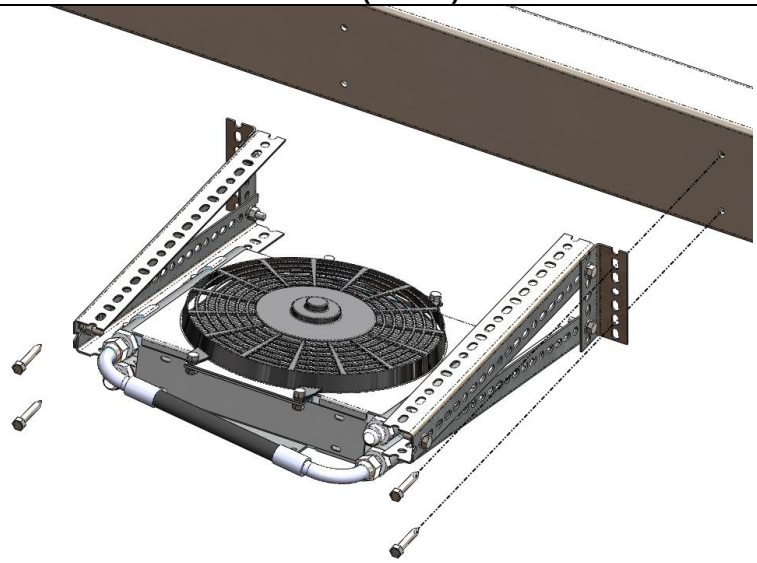
5) Mount transmission coolers onto brackets (fan side up) with 1/4" supplied hardware.



Insert bracket in-between coolers



- 6) Mark and drill four 19/64" holes into frame for self-threading bolts to mount cooler assembly.
- 7) Mount cooler assembly to frame rail using supplied self-threading bolts and secure with supplied nuts and washers.
- 8) Apply small amount of pipe sealant to temp switch thread and thread into JIC adaptor until snug.
- 9) Thread JIC 90deg fittings onto cooler hand tight. Large sweep tube fitting connects to outlet.
- 10) Thread JIC temp switch adaptor onto cooler large sweep connector.
- 11) Ensure all cooler connections including braided line connections are secure.



12) Locate transmission inlet line (fig 1.1).

Mark and cut transmission line where the line is completely straight with no bends or damage for about 3" to mount compression fittings. NOTE: Tube attached to transmission can be rotated for easy routing of hose.

13) Cut transmission line with pipe cutter. Deburr inner and outer pipe edges on both sides.

14) Insert barb-compression fitting onto cut cooler line ensuring fitting bottoms out and tighten hand tight. Then using two wrenches tighten to crush ferrule 1 1/4 turns.

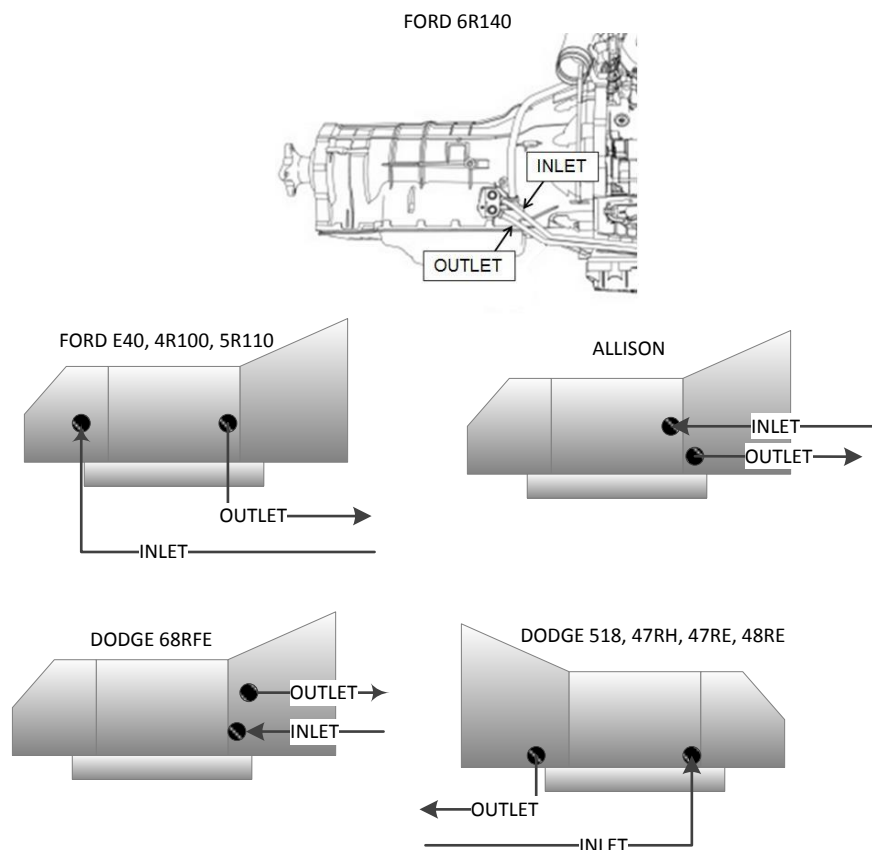
15) Measure/cut supplied 1/2" hose to length ensuring hose reaches cooler from transmission without being stressed.

16) Install hoses onto barbed fittings using provided gear clamps and tighten. (Refer to general hose routing diagram for general layout.)

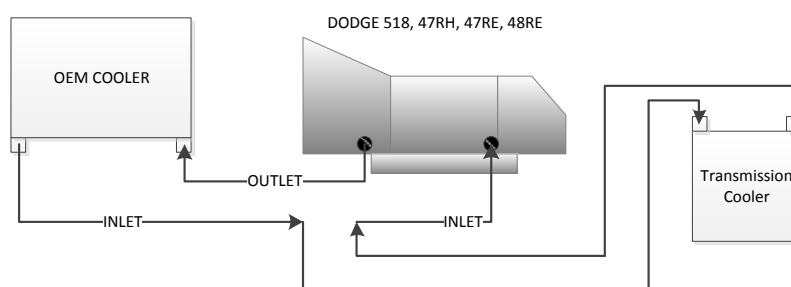
17) Tighten all fittings ensuring a positive connection.

18) Secure hoses with provided tie straps and insulated clamp.

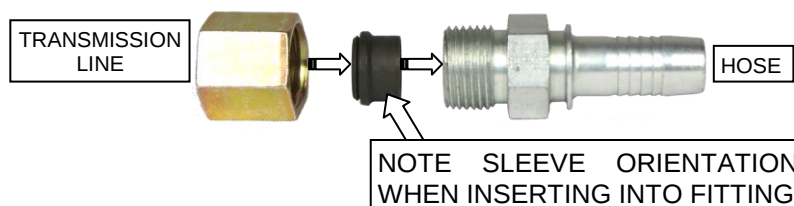
## Line Position Reference (fig 1.1)



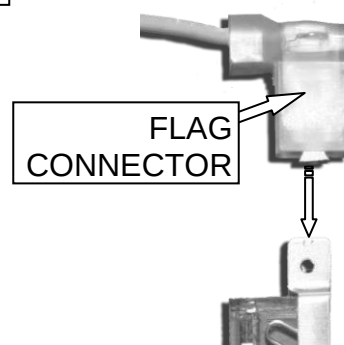
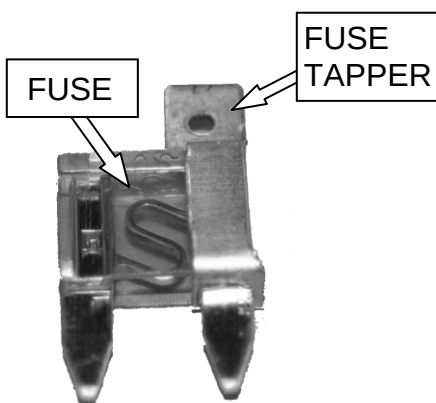
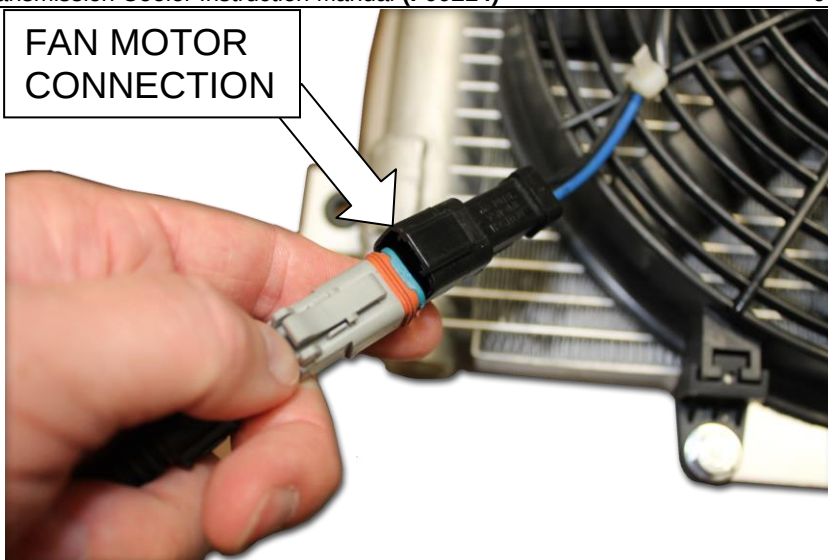
## General hose routing (Dodge 518, 47RH, 47RE, 48RE)



## Using the Compression Fitting



- 19) Route wiring harness from transmission cooler along frame into engine compartment.
- 20) Under vehicle insert two pin connector on harness into fan motor connector, then connect harness to temperature switch with blade connectors once appropriate wire is cut and trimmed to length.
- 21) Mount relay in a suitable location in the engine compartment using supplied self-taping screw.
- 22) Next trim the wires to length and crimp the ring terminals to the BLACK and RED wires. Connect positive terminal only. (Driver side battery)
- 23) Lastly open the fuse box and locate the 12V ignition switched fuse by using a digital volt meter or 12V test light. Remove fuse and install fuse taper onto fused side and reinstall. (5 amp fuse is minimum requirement)
- 24) Cut yellow wire on wiring harness to appropriate length, strip end and crimp on supplied flag connector. Install flag connector onto fuse taper. Close fuse box carefully not to damage wire. (trim fuse box if necessary)
- 25) Secure wiring harness to vehicle using supplied tie straps.

FAN MOTOR  
CONNECTION

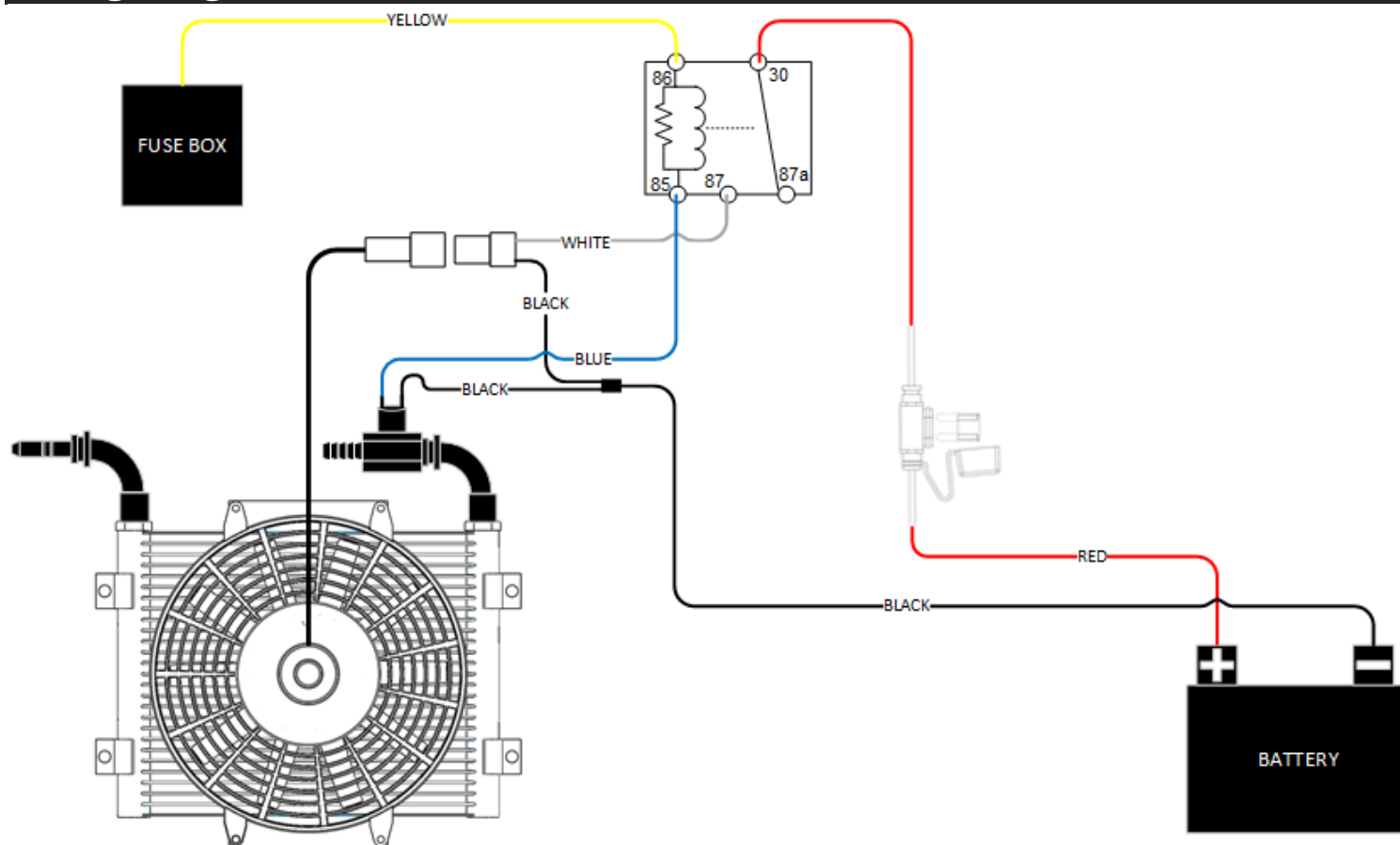
26) Reconnect negative battery terminal with black ring terminal from harness.

27) Start engine, shift through gears manually and check fluid level. Top up fluid with appropriate fluid type. (Refer to table below)

| Application                          | Oil Type              |
|--------------------------------------|-----------------------|
| Ford E40D & 4r100                    | Mercon V              |
| Ford Torqshift 5r110                 | Mercon SP             |
| All Dodge's (518, 47xx, 48re, 68rfe) | Mopar ATF +4          |
| GM Allison                           | Dexron VI or Transynd |

28) Remove wheel blocks and road test vehicle. Recheck fluid level once vehicle reaches operating temperature.

## Wiring Diagram



**If you have any technical difficulties, concerns, comments, or complaints, please phone our Technical Support hotline at (800) 887-5030 between 8:30am-5:00pm PST (Pacific Standard Time) Monday to Friday.**

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