



# INSTALLATION INSTRUCTIONS DIRECT FIT ELECTRIC FAN KIT PART # 20161

Please read these instructions completely before beginning installation

KIT CONTENTS		TOOLS NEEDED	APPLICATIONS
<b>QTY. DESCRIPTION</b>	<b>QTY. DESCRIPTION</b>	7/16" Socket & Ratchet	<b>1987-1996 Jeep Wrangler YJ</b>
1 Electric Fan Assembly	2 1/4-20 x 3/4" Hex Bolts	7/16" Box End Wrench	
4 Angled Mounting Brackets	21 1/4" Flat Washers	5/16" Nut Driver	
1 Rubber Seal	11 1/4-20 Lock Nuts	Flat head Screw Driver	<b>1997-2006 Jeep Wrangler TJ</b>
1 Bracket-Radiator Overflow Reservoir	5 #10 Sheet Metal Screws	1/2" Open End Wrench	
1 Bracket-Power Steering Reservoir	2 Blue Female Connectors	5/8" Open End Wrench	
1 Clamping Bracket-Power Steering Reservoir	4 Blue Butt Connectors	11/16" Open End Wrench	<b>ALL 4 &amp; 6 Cylinder Engines</b>
1 3/8" NPT Aluminum Adapter Thermostat Switch Assembly	2 Yellow Butt Connector	13/16" Open End Wrench	
1 50 Amp Circuit Breaker	2 Blue Wire Tap Connectors	Drill	
1 Relay Wire Harness	2 Yellow #10 Ring Terminal	5/32" Drill Bit	
1 6' Red 12 gauge wire	1 Blue 5/16" Ring Terminal	Wire Stripper	
1 6' Convoluted Tubing	1 Blue #10 Ring Terminal	Wire Crimping Tool	
8 1/4-20 x 1/2" Hex Bolts	1 Red #10 Ring Terminal	Dyke Pliers	
	2 6" Zip Ties	Thread Sealant Tape	
	12 4" Zip Ties		

## IMPORTANT

These instructions refer to components that are application specific and may not apply to your specific vehicle. Refer to application details below for Radiator Overflow and Power Steering Reservoir relocating information. All brackets are included.

## PRE-INSTALLATION

- Using a table or workbench, lay the Electric Fan Assembly on a flat surface, Electric Fan assembly facing down.
- Identify the four Angled Mounting Brackets, 1/4-20 x 1/2" Hex Bolts, 1/4" Flat Washers & 1/4-20 Lock Nuts. Attach the Mounting Brackets to the Shroud using two bolts per bracket. (See Diagram #1)
- Using a 7/16" Open End Wrench and 7/16" Socket/Ratchet, tighten the Angled Mounting Brackets in place.
- Take the supplied Rubber Seal and install it onto the bottom edge of the Fan Shroud Assembly. (See Diagram #1)
- Cut off excess Rubber Seal.

## VEHICLE PREPARATION

- Park vehicle on a solid, level surface and allow vehicle to completely cool before beginning installation.
- Engage the parking brake.
- Disconnect the Negative (-) terminal on the vehicles battery.

## REMOVAL OF FACTORY COMPONENTS

These instructions refer to components that are application specific and may not apply to your specific vehicle. Refer to application details below for Radiator Overflow and Power Steering Reservoir relocating information.

### 1987-1996 JEEP WRANGLER YJ

4 & 6 Cylinder – No relocating of reservoirs will be necessary.

### 1997-2006 JEEP WRANGLER TJ

4 Cylinder – Both Radiator Overflow and Power Steering Reservoirs will be relocated.

6 Cylinder – Radiator Overflow Reservoir will be relocated.

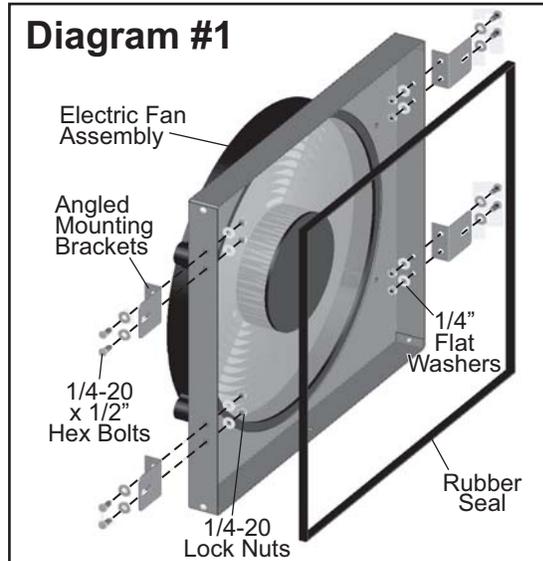
- Remove the Radiator Overflow Reservoir (1997-2006 Models only).
- Without disconnecting the oil lines, remove the Power Steering Reservoir and temporarily zip tie it out of the way.
- Remove the four factory shroud mounting bolts on both sides of the fan shroud.

**Warning:** Do not disregard the factory shroud mounting bolts; these will be used to install your new Electric Fan Assembly. In Most cases you will not be able to remove the fan shroud until the fan clutch and fan assembly are removed.

- On Automatic Transmissions, remove the transmission cooler hose attached to the bottom of the factory fan shroud.
- Remove the four factory nuts holding the fan clutch and fan to the water pump flange/pulley.
- Remove the fan clutch, fan and fan shroud from the engine compartment. Do not remove the water pump pulley.
- Reinstall four nuts onto the water pump flange/pulley and tighten.

(Page 1)

Diagram #1



## ELECTRIC FAN ASSEMBLY INSTALLATION

With the four Mounting Brackets & Rubber Seal previously installed, take the Electric Fan Assembly & carefully lower the unit into the engine compartment.

**Note:** Make sure the orientation of the Electric Fan Assembly directs the fan wires toward the Passenger side of the vehicle.

### 1987-1996 JEEP WRANGLER YJ

4 & 6 Cylinder – Power Steering Reservoir mounts in factory location.

1. Using the five factory mounting bolts, attach the Electric Fan Assembly and Power Steering Reservoir to the radiator in the factory hole locations. (See Diagram # 2)
2. Using a 7/16" Socket and Ratchet, tighten bolts accordingly making sure fan shroud is seated correctly in position.

### 1997-2006 JEEP WRANGLER TJ

6 Cylinder – Reference Diagram #3

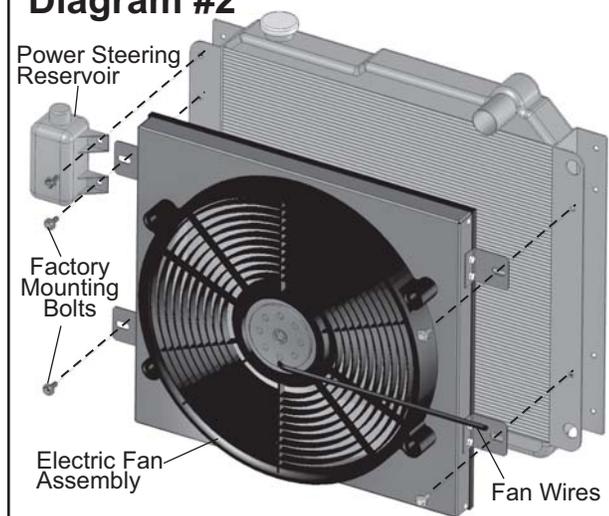
1. Identify the Radiator Overflow Reservoir Bracket.
2. Take the Radiator Overflow Reservoir Bracket and four factory shroud mounting bolts and attach the Electric Fan Assembly to the radiator in the factory hole locations. The brackets have slots and some adjustment may be necessary.
3. Using a 7/16" Socket and Ratchet, tighten bolts accordingly making sure fan shroud is seated correctly in position.
4. Reattach the Radiator Overflow Reservoir by carefully sliding it down in the slots until fully seated.
5. Reconnect Overflow Hose to the radiator filler cap tube.
6. Vehicles with automatic transmissions; Using the supplied 6" Zip Tie, attach the rubber transmission line routed across the bottom of the Electric Fan Assembly to the provided two holes in the bottom of the shroud.

4 Cylinder – Reference Diagram #4

1. Identify the Radiator Overflow Reservoir Bracket.
2. Identify the Power Steering Reservoir Bracket Set, two 1/4-20 x 3/4" Hex Bolts, four 1/4" Flat Washers, & two 1/4-20 Lock Nuts.
3. Using the 1/4-20 x 3/4" Hex Bolts, 1/4" Flat Washers, and 1/4-20 Lock Nuts, attach the Power Steering Reservoir Bracket to the Radiator Overflow Bracket.
4. Take the Radiator Overflow Reservoir Bracket (Assembly) and four factory shroud mounting bolts, attach the Electric Fan Assembly to the radiator in the factory hole locations.
5. Using a 7/16" Socket and Ratchet, tighten bolts accordingly making sure fan shroud is seated correctly in position.
6. Reattach the Radiator Overflow Reservoir by carefully sliding it down in the slots until fully seated.
7. Reconnect Overflow Hose to the radiator filler cap tube.
8. Remove the rubber cap on the stud of the Power Steering Reservoir Bracket.
9. Remove the Lock Nut, Washer and Clamp Bracket on the Power Steering Reservoir Bracket.
10. Take the Power Steering Reservoir and slide it onto the Power Steering Reservoir Bracket.
11. Using the Clamp Bracket, Lock Nut and Washer, previously removed, reinstall onto the stud and tighten pinching the Power Steering Reservoir until plastic is slightly depressed.
12. Check to make sure power steering hoses are safely routed and not conflicting with any Hot or moving parts.
13. Vehicles with automatic transmissions; Using the supplied 6" Zip Tie, attach the rubber transmission line routed across the bottom of the Electric Fan Assembly to the provided two holes in the bottom of the shroud.

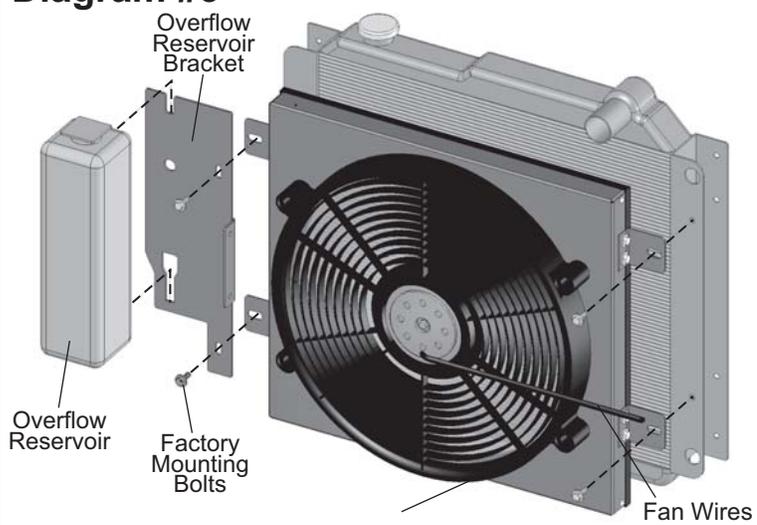
## 1987-1996 YJ - 4 & 6 CYLINDER

### Diagram #2



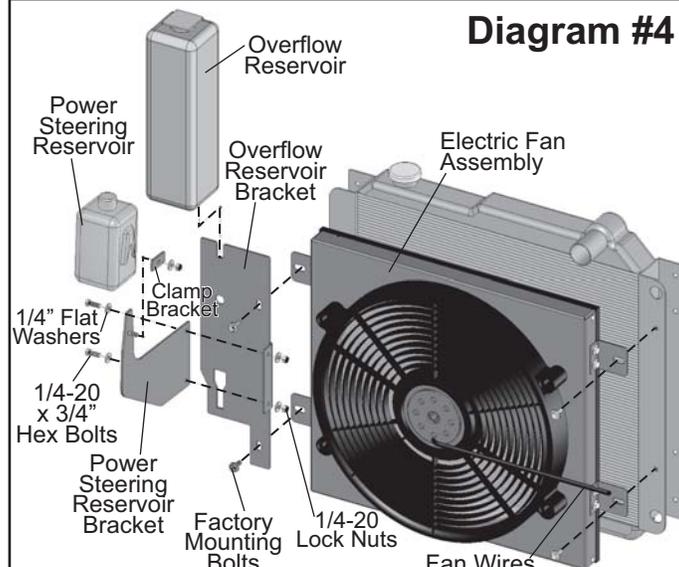
## 1997-2006 TJ - 6 CYLINDER

### Diagram #3



## 1997-2006 TJ - 4 CYLINDER

### Diagram #4



(Page 2)

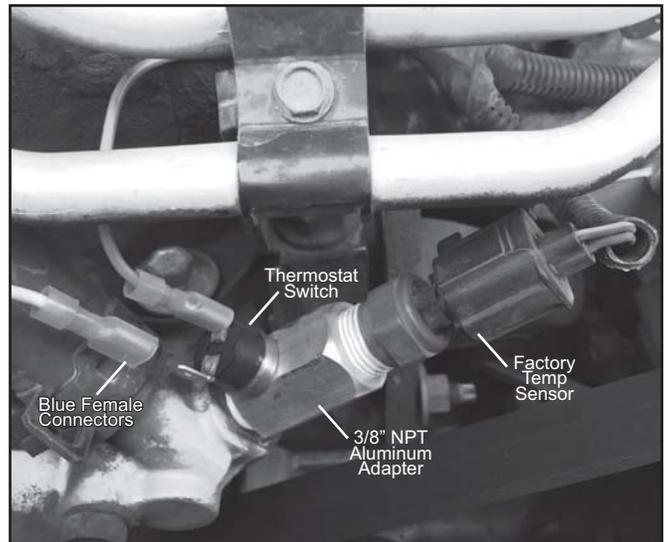
## THERMOSTAT PROBE INSTALLATION

1. Locate the factory engine temperature sensor right next to the upper radiator hose on the front of the engine. (See Diagram #5)
2. Carefully disconnect the factory temperature sensor wire plug.
3. Temporarily remove the factory temperature sensor turning it counter clockwise.
4. Clean old thread sealant on factory temperature sensor.
5. Locate the supplied 3/8" NPT Aluminum Adapter. Using thread sealant tape, install the MALE end of the 3/8" NPT Adapter into the vehicles 3/8" port. (See Diagram # 5)
6. Take the factory temperature sensor. Using Thread Sealant Tape, install the factory temperature sensor into the the 3/8" NPT Aluminum Adapter.

**Warning:** The supplied Thermostat Switch and 3/8" NPT Aluminum Adapter unit are preassembled at factory using thread locker.

Do not attempt to adjust, tighten or loosen the Thermostat Switch. Tampering with this assembly will void factory warranty.

## Diagram #5



**For illustrative purposes only.  
Actual engine may vary!**

## RELAY HARNESS MOUNTING

1. Taking into consideration wire routing preference, choose a location near the vehicles Battery or under hood fuse panel. Avoid mounting near HOT engine components.
2. Using the Relay as a template, mark and drill a 5/32" hole in the desired location.
3. Using the #10 Sheet Metal Screw provided, install the Relay/Wire Harness. (See Diagram #6)

## CIRCUIT BREAKER MOUNTING

1. Choose a convenient location for the Circuit Breaker that is between the relay harness and the Battery.
2. Using the breaker as a template, mark and drill two 5/32" holes in the proper locations.
3. Using the remaining two #10 sheet metal screws supplied, secure the Circuit Breaker in place.

## WIRING

Using the Convuluted Tubing, 4" Zip Ties, extra Wire and Electrical Connectors supplied, follow the instructions below. (See Diagram #6)

**Warning:** When extending wires, always use the identical gauge wire as provided.

### ELECTRIC FAN

**BLACK Wire:** Using a Blue #10 Ring Terminal and #10 Sheet Metal Screw supplied, attach the Black wire to a good Chassis Ground (-).

**RED Wire:** Using a Yellow Butt Connector supplied, attach the Red wire to the Orange wire on the Relay Wire Harness.

### THERMOSTAT SWITCH

**Note:** Wires running to the Thermostat Switch can be routed through the plastic factory wire runner on the top of the engine.

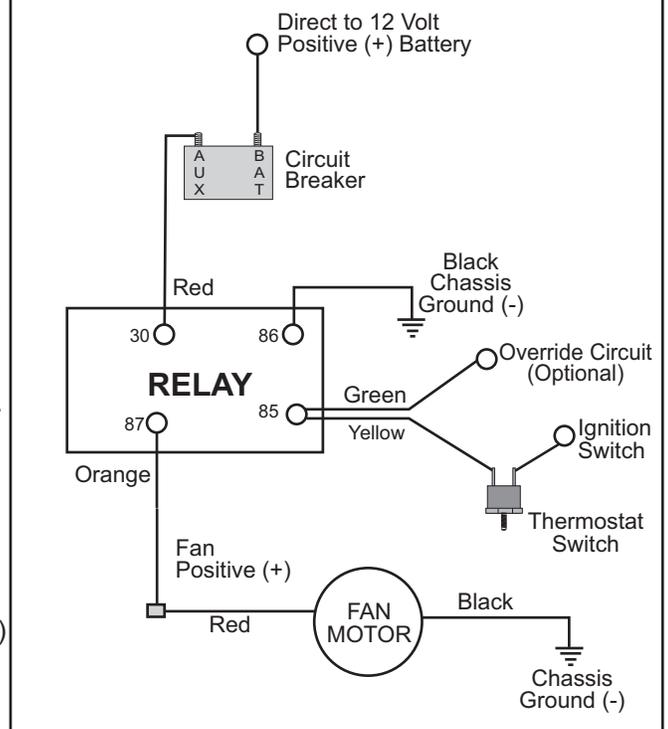
**To open:** There are several plastic clips on each side of the wire runner. Using a small screw driver, carefully release each clip. Be careful not to break clips!

1. Using a Blue Female Connector supplied, attach EITHER terminal on the Thermostat Switch to the Yellow wire coming from the Relay Wire Harness.
2. Using a Blue Female Connector and Blue Wire Tap Connector supplied, attach the remaining terminal on the Thermostat Switch to a Positive (+) switched ignition source.

**Warning:** If this wire is connected to a constant power source (battery) the electric fan will run after the vehicle has been shut off and could ultimately affect battery performance.

(Page 3)

## Diagram #6



(Wiring Continued)

### **CIRCUIT BREAKER WIRING**

1. Using the Yellow 5/16" Ring Terminal & 12AWG the loose Red Wire supplied, connect one end of the red wire to the vehicles Positive (+) terminal on the battery.
2. Route the 12AWG Red Wire now connected to the battery to the Circuit Breaker previously installed and cut the wire to the appropriate length.
3. Using a Yellow #10 Ring Terminal, connect the 12AWG Red Wire to the "BAT" Terminal on the Circuit Breaker.
4. Using a Yellow #10 Ring Terminal, connect the auxiliary side "AUX" of the circuit breaker to the Red Wire on the relay harness.

### **RELAY WIRE HARNESS**

**RED Wire:** Using a Yellow Butt Connector, connect Red Wire on the relay harness to the "Aux" terminal on the Circuit Breaker.

**BLACK Wire:** Using a Red #10 Ring Terminal and #10 Sheet Metal Screw, attach the Black wire to a good Chassis Ground (-).

**YELLOW Wire:** Using a Blue Butt Connector, Blue Female Connector & extra wire, attach the Yellow wire to EITHER terminal on the Thermostat Switch.

### **GREEN Wire-Override Circuit (Optional):**

The Green wire is designed to work in two different configurations. When used, this will allow the fan to be turned on regardless of the temperature of the Thermostat Switch as it simply overrides all other functions. If you choose not to use this option, cut any exposed copper and tape or shrink tube the end of the wire.

**ORANGE Wire:** Using a Yellow Butt Connector, attach the Orange wire to the Red wire on the Electric Fan Assembly.

**A/C Override** – Using a Blue Wire Tap, attach the Green wire to the Positive (+) lead on the vehicles air conditioning compressor.

**Manual Switch Override** – Attach the Green wire to the proper terminal on the Manual Switch (Not provided). For Manual Switch installation, refer to manufacturer's instruction manual.

### **VEHICLE TESTING**

1. Before starting the vehicle, make sure all wires are safely zip tied and away from HOT or moving components.
2. Start the vehicle.
3. If the Override function is being used, either turn on the vehicles air conditioning or flip the manual switch to the ON position. The electric fan should start immediately.
4. Turn off the Override function and allow the engine to warm up to operating temperature.
5. Allow fan to turn on and cycle off before test driving the vehicle.

### **TROUBLESHOOTING Q&A**

Q: Why doesn't the electric fan turn on when I use the Override function?

A: To quickly test the Override function, disconnect the Green wire and run a jumper wire directly to the Positive (+) terminal on the battery. The electric fan should start immediately. If fan started, reattach the Green wire to the proper (+) wire on the A/C Compressor or Manual Switch.

Q: Why doesn't the fan turn on automatically?

A: The Thermostat Switch is 100% tested from the factory.

1. Check all electrical connections.
2. Check the Chassis Ground connections to make sure all paint is sanded off and you are getting a good metal to metal contact.

Q: Why does the electric fan run after the vehicle has been turned off?

A: Check the wire going from the Thermostat Switch to the Ignition Switch. This wire is most likely connected to a constant Power source. Disconnect the wire and attach it to a Switched 12V Ignition source.

(Page 4)

**Warning:** Installation of accessories should only be undertaken by those with mechanical knowledge and are familiar with working on vehicles. Always use eye protection (goggles, safety glasses or shield). Park the vehicle in a well lit area, on level ground and apply the parking brake. Only work on a cold vehicle that has been sitting overnight, failure to do so will result in severe burns and injury. Before starting the vehicle, make sure no tools or any other items are left under hood that could interfere with or be drawn into moving parts of the engine. Failure to follow instructions can lead to severe damage and personal injury.