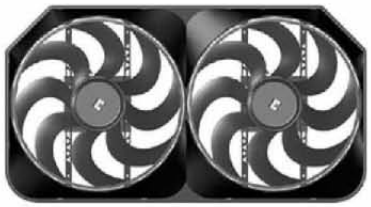
Monster Fan 284

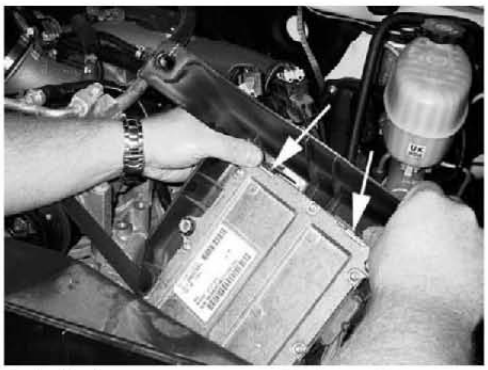
Fits 2001-2005 GM
Full-Size Trucks With 6.6L Duramax Diesel



INSTALLATION INSTRUCTIONS

REMOVE EXISTING FAN & SHROUD ASSEMBLY:

1. Disconnect battery negative cable
2. Remove the transmission TCM (transmission control module) cover attached to the factory shroud. Detach the TCM by un-clipping it from the cover. ***Do not unplug the TCM!*** ***(see Detail 1)***
3. Remove the bolts and plastic rivets securing the top half of the factory fan shroud, then remove the top half of the shroud.
4. Remove the factory fan/clutch assembly. It may be possible to remove this clutch by fitting a large wrench to the nut. Put a rag over the fan to keep from being cut. Hold the fan in place and pull the wrench in the direction of rotation. It may help to give the end of the wrench a sharp blow with a rubber mallet to break the nut free without the pulley slipping.
5. Remove plastic belly pan (4 bolts) to gain access to the bottom half of the factory fan shroud.



Detail 1- **Detach transmission TCM from the cover by un-clipping it. Do not unplug the TCM!**

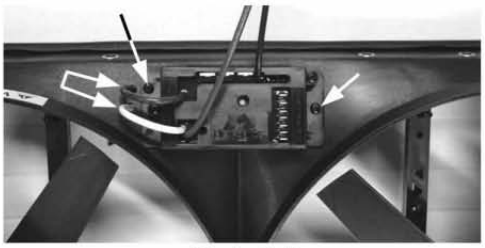
6. Before removing the bottom half of the factory shroud, remove 1 wire harness clip and 1 hose/wire combo clip from the shroud. Remove the lower shroud. It may be necessary to pry the locating tabs out with a long screwdriver.

NOTE: Before proceeding with mounting of shroud on vehicle, VSC wiring to fan motors will need to be done first.

Wiring the Variable Speed Control

FOLLOW THESE INSTRUCTIONS CAREFULLY TO AVOID DAMAGING THE CONTROL UNIT, FAN MOTORS, AND YOUR VEHICLE! WHEN CRIMPING WIRES, *ALWAYS* USE A QUALITY CRIMPING TOOL (DO NOT USE PLIERS OR OTHER DEVICES).

7. Mount the Variable Speed Control (VSC) unit in a convenient location, centered at top between blades will work for this application. Using the VSC as a template, drill two 5/32" holes. Use the screws provided with the temp. sensor.
8. Drill two 1/4" holes to the left of the VSC to pass the yellow and purple wires through to the back side of the shroud ***(see Detail 2)***. Drill one 1/4" hole in the support rib on the back side of the shroud to pass the motor wires through ***(see Detail 3)***.
9. Place both red motor wires side by side and smoothly twist together. Completely insert pair of wires into one end of a yellow insulated butt connector. Crimp connector to secure. Repeat with black motor wires to another yellow insulated butt connector.
   Red motor wire is (+) positive and the black is (-) negative.
   Feed the thick purple and yellow wires from the control unit through the holes you drilled in step 2.
10. ***Insert yellow wire into the open end of butt connector containing the two red motor wires and crimp connector securely. Insert purple wire into the open end of butt connector containing the two black motor wires and crimp connector securely. (see Detail 3)***
11. Wrap the connections with electrical tape to seal them from moisture and dirt.



Detail 2

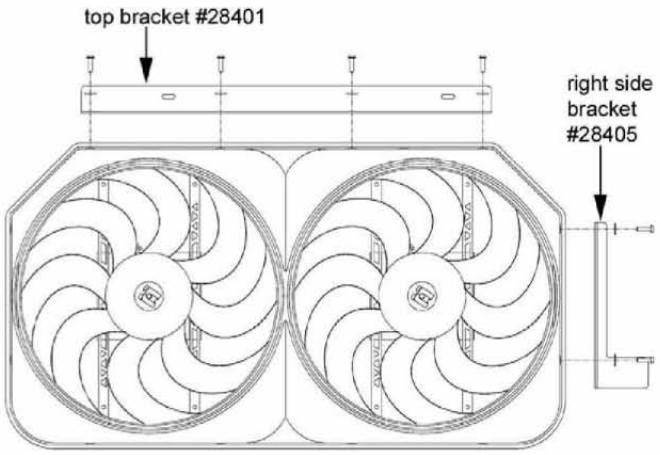
Detail 3

CONTINUE TO BACK SIDE TO CONTINUE THE INSTALLATION

INSTALLATION AND WIRING:

NOTE: Before proceeding with these instructions, lower the fan assembly in over the radiator core and verify that you have the correct fan to fit your application! The fan should cover about 95% of the radiator core.

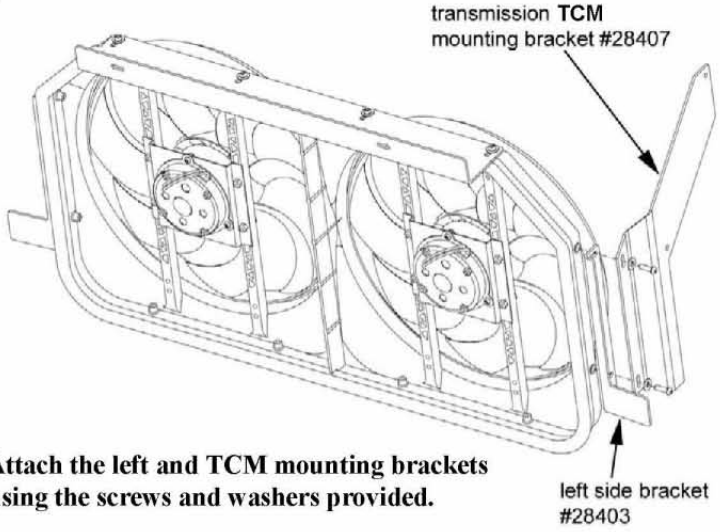
12. Begin by attaching the brackets to the shroud assembly. Use the allen screws and washers provided to attach the top bracket (#28401) to the top of the fan shroud and bracket #28405 to the right side as shown in ***Detail 4***.
Do not tighten screws completely, you will need to adjust the brackets before tightening the screws.



Detail 4 - **Attach the top and right side brackets as shown using the screws and washers provided.**

13. Attach the left side fan bracket (#28403) and the transmission ECM mounting bracket (#28407) to the left side of the shroud simultaneously, as shown in ***Detail 5***. Bracket 28403 will be sandwiched underneath bracket 28407. Again, do not completely tighten the screws yet.

14. Install the fan assembly onto the vehicle. First, lower the assembly into the engine compartment down over the radiator core, being careful not to damage the radiator fins. Tuck the left and right bracket "ears" into the tabs on the radiator tanks (***see Detail 6***).



Detail 5 - **Attach the left and TCM mounting brackets as shown using the screws and washers provided.**

Detail 6 - **Lower the fan assembly into place over the radiator core and tuck the bracket "ears" into the pockets on the tanks as shown.**

15. Center the fan horizontally over the radiator core. Find the two bolts from the OEM shroud and thread them through the top bracket into the existing threaded holes in the core support, then tighten them. Gently push the fan evenly against the radiator so that the bulb seal is compressed about 50%. Tighten the four screws on the top bracket.

16. Repeat the above procedure for the side brackets, then tighten. ***NOTE: Check to verify no hoses or wires are near the fan blades! On '04 and '05 models, the lower radiator hose may be near the fan blade. If so, loosen the hose clamp and twist the hose slightly to angle it away from the blade, or use zip ties to hold the hose at least 1½" away from the blade.***

17. Attach the transmission control module you set off to the side earlier. Use the long bolts, washers, and lock nuts supplied in the hardware kit.

TCM bracket installed

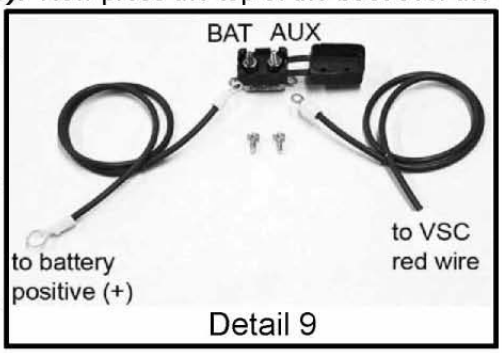
Wiring the VSC - continued

18. Find the thick red and black wire in the kit. Use the large yellow butt connectors to crimp the red wire to the short red wire on the VSC, and the black wire to the short black wire on the VSC ***(see wiring diagram on page 3)***.

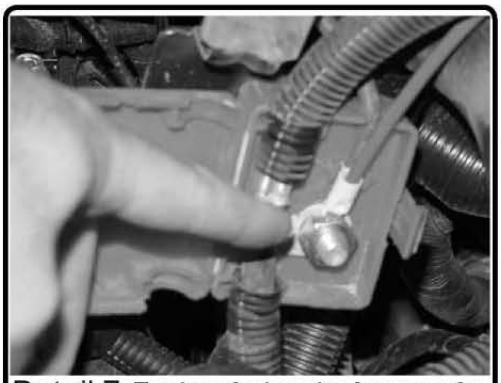
19. Determine the length needed to connect the red and black power leads to the battery terminals and trim appropriately. Crimp a large yellow ring connector to the end of the black wire and connect to the negative (-) battery terminal, but ***do not*** connect the red wire yet.

CONTINUE TO NEXT PAGE TO CONTINUE THE INSTALLATION

20. Find a convenient place to mount the circuit breaker between the VSC and the junction box near the battery (***see - Details 7 and 8***) and use the two screws provided to mount it. Cut the red wire at the point where you mounted the breaker. Find the red boot and lay it on the breaker as shown in ***Detail 9***. Connect small ring connectors to the ends of the wires and attach them to the circuit breaker. ***NOTE: BE SURE TO CONNECT THE END COMING FROM THE JUNCTION BOX (+) TO THE "BAT" TERMINAL ON THE BREAKER (COPPER COLORED).*** Now press the top of the boot over the breaker terminals to protect from arcing. Connect a large ring connector to the junction box end and connect it to the terminal as shown.



Detail 9


Detail 7- **Tap into the junction box near the battery to provide direct battery + power to the VSC.**

21. Locate fuse box. Find a circuit that is "hot " when the key is in the "ON" position. ***NOTE: DO NOT use the DRL or brake/taillight fuse!*** Attach the included fuse tap to fuse. Attach a female connector to the thin red wire included and connect to the fuse tap. Trim the wire so that it will reach the VSC. Attach pink female connector to end of wire and connect to **terminal #9** on VSC.

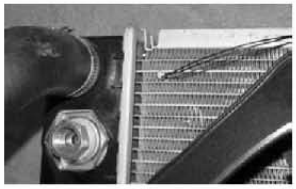
22. Locate the wires coming from the A/C compressor. Determine which wire is ground and which is positive. Connect the positive wire to the supplied thin green wire by use of a piggyback connector. Determine length needed to reach VSC and trim to length. Attach a pink female connector and connect this wire to **terminal #8**. Terminal #7 on VSC will be left open for this application.

Detail 8- **The junction box after installing a power lead for the VSC**

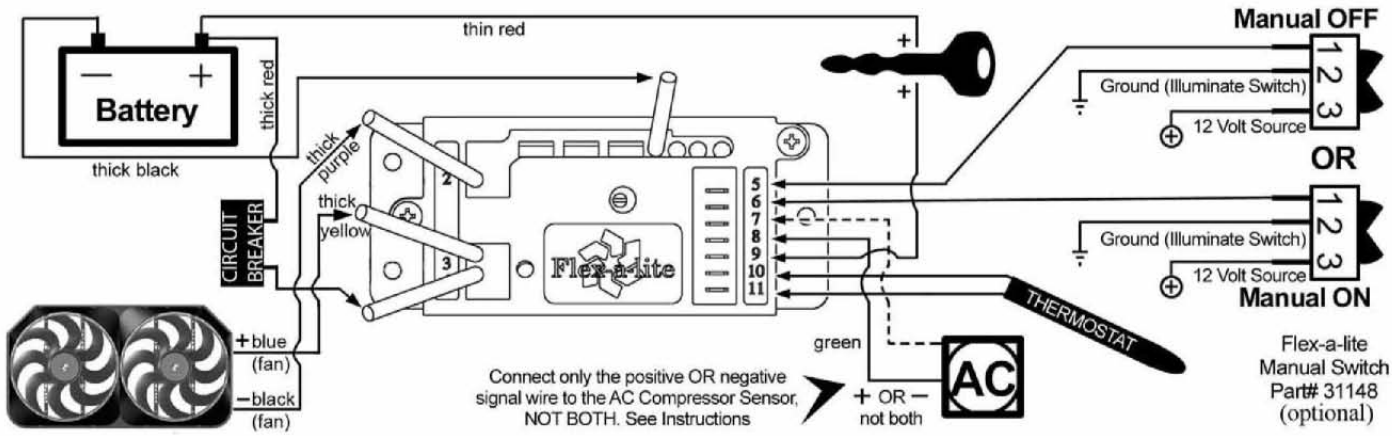
23. Locate the temperature probe. Gently push probe through fins in radiator as close to the upper radiator hose as possible, leaving about ¼" of the probe protruding out of the core. The rubber cap will not be used in this application. Determine length of wire needed to reach VSC. **IMPORTANT:** Strip the insulation back about 1" and fold the wire onto itself to effectively double the thickness of the wire before connecting the pink female connectors. Then attach these wires to terminals #10 & 11. Both wires need to be connected but it doesn't matter which wire goes to each terminal.

24. If manual switches (Flex-a-lite #31148) have been purchased, attach them as follows: To override engine temperature to turn fans off, connect the switch to **terminal #5** on VSC to send a negative (-) signal. To override engine temperature to turn fans on, connect the switch to **terminal #6** on the VSC so that a negative (-) signal is sent.


When crimping the temp. probe wires, strip back the insulation, then fold wire back on itself to double thickness


Install the temp. probe near the inlet hose, leaving ¼" of the probe protruding from the core.

WIRING DIAGRAM

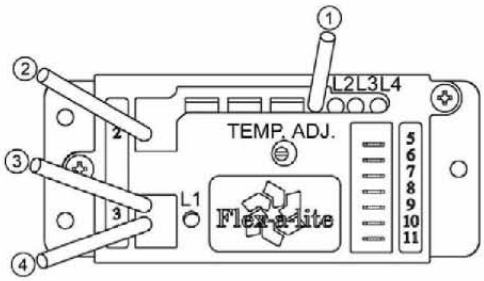


CONTINUE TO NEXT PAGE TO COMPLETE THE INSTALLATION

WIRING CONNECTIONS

#1 Battery Negative*
#2 Negative to Fan*
#3 Positive to Fan*
#4 Battery Positive*
#5 Negative Override Signal OFF
#6 Negative Override Signal ON
#7 A/C Compressor Negative Signal
#8 A/C Compressor Positive Signal
#9 Ignition Positive Signal*
#10 Temp Sensor Wire*
#11 Temp Sensor Wire*
L1 Fan Output Indicator
L2 Override Condition Indicator
L3 A/C Signal Indicator
L4 Ignition Signal Indicator

*** mandatory connections**



Initial Start-up and Adjustment Procedure

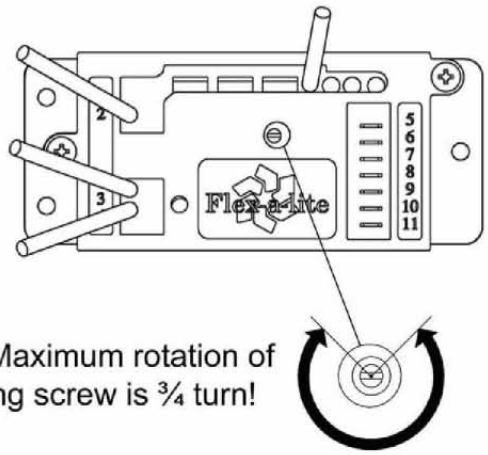
1. Turn ignition on. After 6 seconds, LED #L4 should light up. If not, check to make sure that there is 12 Volts at terminal #9 on VSC. The delay is to allow starter to start the vehicle without the fans drawing any power.

2. With your engine running, engage the A/C. The fans should come on and cycle with the A/C clutch. LED's #L1, L3 and L4 should be lit when fans are running. If they do not turn on, verify that the A/C clutch is engaged and make sure you have a positive signal when the clutch is engaged at terminal #8 on the VSC. Shut off A/C and let engine continue to idle, or drive the vehicle a short distance to bring the engine to operating temperature (monitor the vehicle's temperature guage).

3. Verify that operating temperature has been reached by feeling the upper radiator hose. Hot water should be flowing through hose into the radiator. If the fans have not cycled on yet, slowly adjust the screw on the VSC until the fans cycle on. Turning the screw further in this direction will keep the engine at a lower temperature, and turning in the opposite direction will keep the engine at a higher temperature. ***NOTE: THE TOTAL MOVEMENT OF THE ADJUSTMENT SCREW IS ABOUT ¾ OF A TURN. TURNING THE SCREW BEYOND THE LIMITS WILL DAMAGE THE UNIT!*** Once desired temperature is set, let the engine continue to idle and make sure the fans will cycle to maintain desired temperature. When fans are running, LED's #L1 and L4 should be lit.

The Variable Speed Control has new features.

At the set temperature, the fans will come on at 60%; this reduces the load on your charging system. If the temperature rises, the fan speed will increase. If your set temperature is 195°F, then between 195° and 205° the fan speed will increase from 60% to 100%. So after a 10-degree rise from the set point, the fans will be running at 100%.



NOTE: Maximum rotation of adjusting screw is ¾ turn!