



# THERMOCOUPLE INSTALLATION INSTRUCTIONS FOR V50 / V300 / V500 DATA RECORDERS

## THERMOCOUPLE JUNCTION BOXES

The thermocouple junction boxes used with V50, V300, or V500 data recorder are different from those used on the older Pro series data recorders. Whereas the older junction boxes were merely a mechanical junction block, the newer junction boxes contain electrical components. It is recommended that you mount these junction boxes in a location where the temperature of the box will not exceed 185 degree. It is also suggested that you try to mount the box with the thermocouples exiting downward. This will prevent any build up of moisture inside the box.

Note that the junction boxes have been engraved with numbers directly under each thermocouple wire. If you are installing the boxes for the first time use these numbers as the reference to the cylinder for which each thermocouple is to be connected. Racepak makes four different junction boxes for the various cylinder bank arrangements. Be sure the box you are installing matches the cylinder arrangement for your type of engine.

## INSTALLING THE THERMOCOUPLE WIRES INTO THE JUNCTION BOX

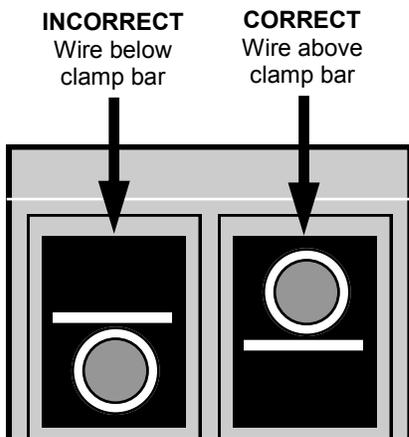
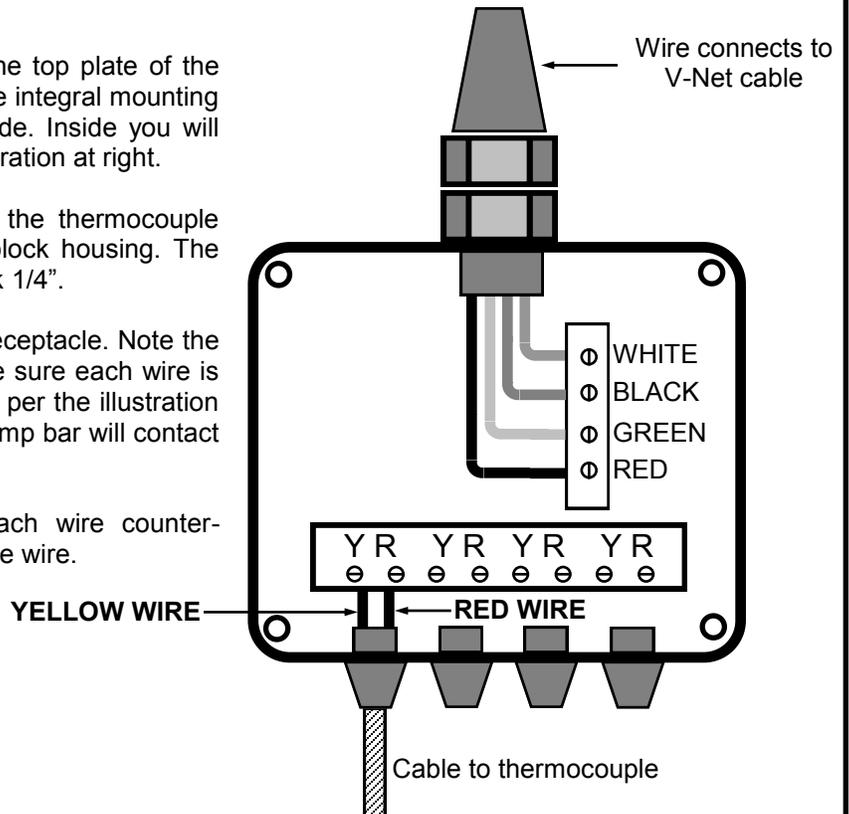
Whether installing the thermocouple wires for the first time, or just replacing a single thermocouple, follow the instructions below.

Remove the four screws and lift off the top plate of the junction block. Do not remove the plate with the integral mounting flanges. Remove the plate on the opposite side. Inside you will see an arrangement like that shown in the illustration at right.

Slide the red and yellow wires from the thermocouple through the rubber grommet in the junction block housing. The insulation on each wire should be stripped back 1/4".

Insert the two wires into their proper receptacle. Note the color-coded sequence on the illustration. Make sure each wire is inserted on the upper side of the clamp bar as per the illustration below. Do not insert the wire so far that the clamp bar will contact the insulation.

Tighten the screw directly above each wire counter-clockwise to raise the clamp bar and capture the wire.

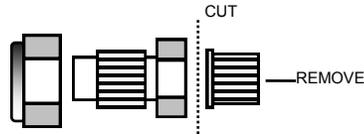


**IMPORTANT:** When installing the red and yellow wires from the thermocouple into the junction block make sure the stripped portion of the wire is inserted **above** the clamp bar, and not below, before tightening the retaining screw.

Turning the screw above the wire clockwise will draw the clamp bar upward to capture the wire

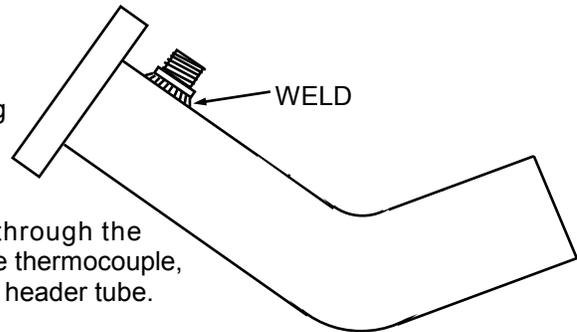
## THERMOCOUPLE WELDMENT PLACEMENT AND INSTALLATION

Header weldments are available to fit thermocouples of either .187" diameter or .250" diameter. The .250" thermocouples are generally used for automotive applications. The .250" weldments are ready to be welded to the exhaust header. The .187" weldments must first be cut as shown below.



In order to get accurate temperature readings the placement of the weldments should be as close to the header flange as practical. In some cases it may be necessary to move your weldments further away from the cylinder head for service work (valve adjustment, tightening head bolts) or to gain access to blower restraints. This will need to be considered prior to attaching the weldments onto the headers. To insure that temperature readings are comparative it is very important that all weldments are the same distance from each flange. Once the weldments have been welded to the header tubes you will need drill the access hole by following the appropriate instruction below.

**3/16" Thermocouples:** Run a .187" diameter drill through the weldment enlarging them to the proper size to accept the thermocouple, and at the same time drilling the access hole through the header tube.



**1/4" Thermocouples:** Run a .257" diameter ('F') drill through the weldment enlarging them to the proper size to accept the thermocouple, and at the same time drilling an access hole through the header tube.

## INSTALLATION OF THERMOCOUPLE PROBES

It is important in the installation of the thermocouples to insure that all thermocouple probes are inserted the same distance into the header pipe. The ideal depth for all installations, other than supercharged nitromethane applications, is to have the tip of the probe located in the center of the pipe. Having probes at different depths, or unequal distances from the exhaust port, can lead to a variance in the exhaust gas temperature readings.

