Mopar 1970-1974 E-body Rallye clock installation instructions
Rev 28 January 2008

www.rt-eng.com

Introduction:

This manual will give you specific step-by-step instructions on how to install the clock kit you bought from Real Time Engineering into your 1970-1974 Mopar E-body clock.

Specific instructions:

1) You can either remove the Rallye gauge cluster from the dash of the car, or you can remove the clock without removing the gauges from the car.

2) If you have 1972-1974 gauges, then use a tiny flat blade screwdriver to remove the clock set knob from the front of the clock. Remove the tiny nut inside the set knob using a very small flat blade screwdriver. Make sure that you don't lose the nut or the set knob, as they are hard to replace. If you have 1970-1971 gauges, then unscrew the clock set cable from the back of the clock.

3) Remove the clock from the backside of the rallye gauges by using a ¼" socket or nut driver. The clock will come out of the back of the gauges. Note that this is a picture of a 1970-1971 clock, as it has the place on the back where the adjuster cable connects.

4) Here is a picture of the clock removed from the rallye housing. This is a good time to look at the back of the clock housing and make sure that the housing has the word "BORG" stamped on it. The clock kit will only work in a BORG clock. BORG made all E-body clocks that I have seen, so it is likely that BORG also made yours.

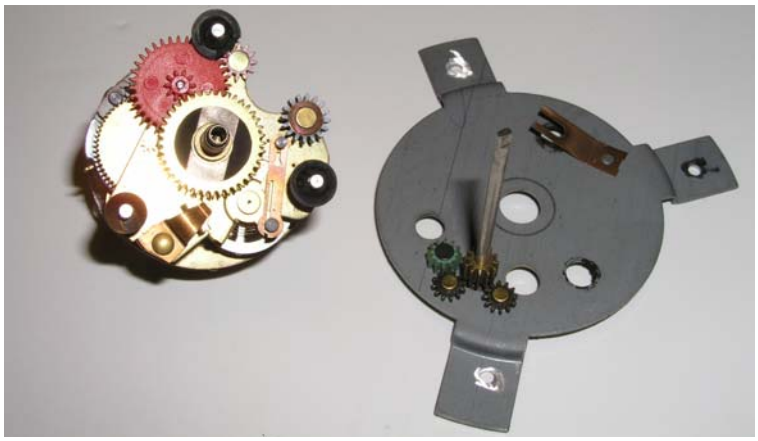
5) The next step is to gently remove the clock needles. Start with the second hand first. Gently rock the needle from side to side while pulling on it, and it will come off. If you can't rock the second hand off, you can use a medium size flat screwdriver to pry on the second hand right next to the center shaft to remove it. Then gently remove the minute and hours hands next.

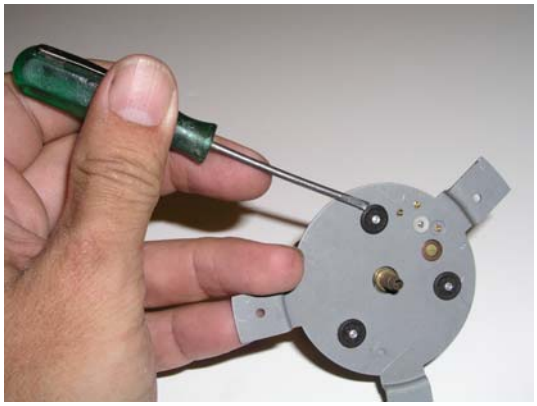
6) Now gently pry up the small tabs that hold the face of the clock onto the clock body. The clock face will pull off the clock body. Next, using a small screwdriver, straighten the bent tabs that hold the back of the clock housing onto the metal clock front. The back of the housing should separate from the front of the housing.

7) Now you must remove the rivets that hold the clock face to the clock movement. The rivets can either be drilled out from the backside, or you can use a dremel tool to grind the rivets off. In either case, be very careful to not overheat the front of the clock face, which will make the paint bubble. Also be careful if you use a drill not to drill too deep. I prefer to use a dremel tool, but I have also successfully used a drill. After you remove the backsides of the rivets, use a small screwdriver to gently pop the clock face off the movement.

8) Pop the rivets out of the clock face. You may need to grind them down a little more or drill them a little more to get them to come out.

9) Now take a small screwdriver and pry off the three lock nuts (they look like washers with three internal prongs). These lock nuts are holding the clock mechanism onto the clock face.

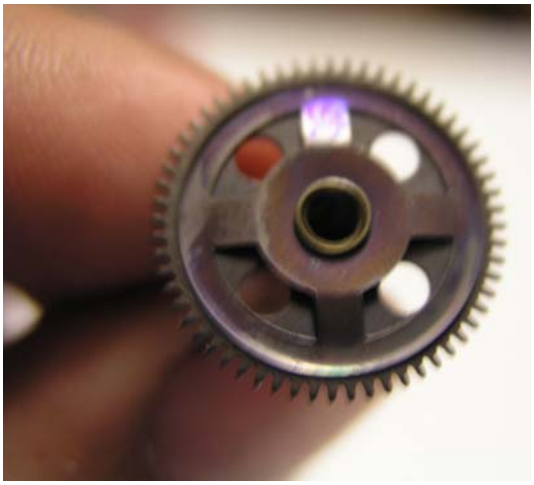




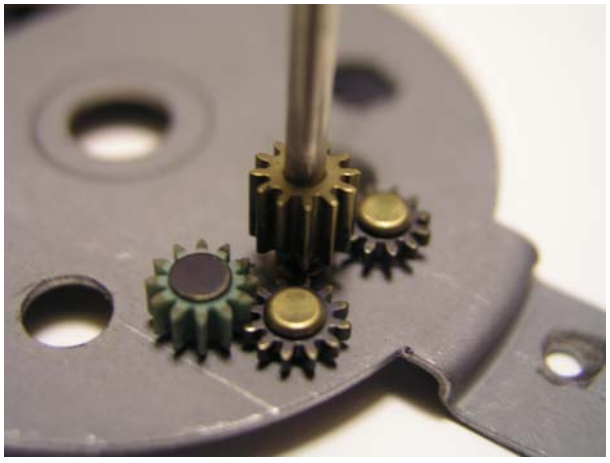
10) Now remove the hour wheel and minute wheel gear from the clock mechanism, making sure not to lose the small thrust washer that is on the front of the gears nearest to the clock face. If there are small washers between the gears, discard them. Do not discard the thrust washer (lower left in this picture). Discard the other gears so that you don't get this gear mixed up with the new gears in the clock kit. Using a small screwdriver, remove the rubber grommets from the three holes as shown. Discard the original clock mechanism. You will re-use the minute wheel, the hour wheel, and the thrust washer. On a 1972-1974 clock, this would be a good time to clean up the clock set stem and repaint it if it is rusty.

11) Check the slip clutch on the minute wheel assembly by holding the shaft in one hand and rotating the wheel with the other hand. If it seems sticky then put a little bit of light machine oil on the slip clutch to make sure it will slip. If this slip clutch is sticky then you won't be able to set the clock after everything is re-assembled. You can alternatively bend the slip clutch up with a tiny flat blade screwdriver to make it a little looser, but don't make it too loose or the clock won't keep proper time.

12)
Install the three new rubber grommets in the clock face. The smaller diameter side of the grommet is opposite to the clock movement.

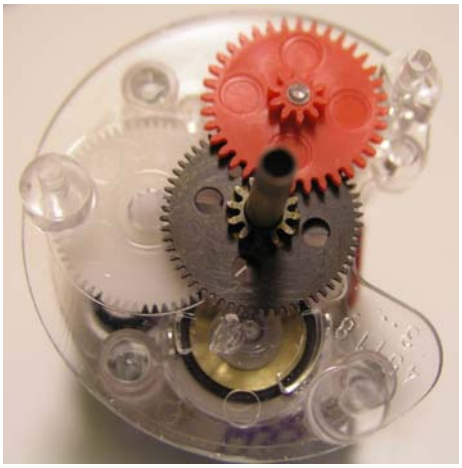
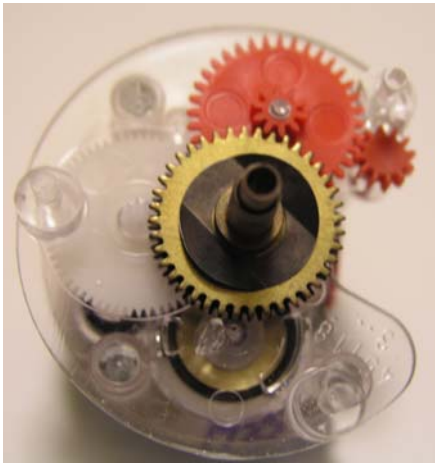


13) Check the set stem and all the little gears to make sure nothing is broken or loose. Now it is time to count the teeth on the set stem. If there are 10 teeth on the set stem, you are going to use the 2 black gears supplied in the kit. If there are 12 teeth on the set stem, then you will use the 2 red gears supplied in the kit. This particular clock has 12 teeth on the set stem gear, so we will use the red gears.



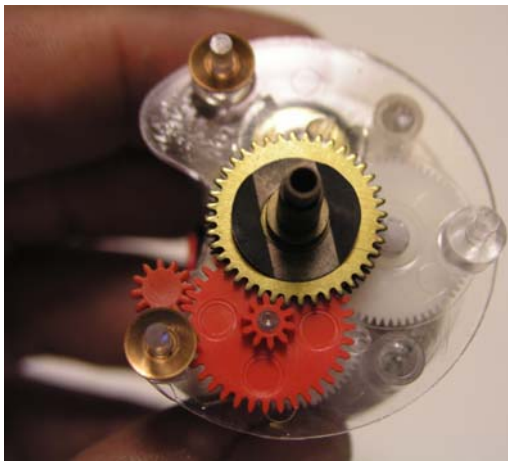
14) Taking the new clock assembly out of the box, begin by putting the minute wheel assembly onto the center shaft of the new movement, engaging the small drives gear that protrudes from the clock mechanism. Next install either the red or black motion wheel gear that came with the kit on the short post on the front of the clock movement. The big part of the motion wheel gear is next to the meter movement and the small part of the gear is up away from the movement. Slide the

hour wheel assembly onto the shaft of the minute wheel, making sure that the minute wheel engages with small gear on top of the motion wheel gear. Make sure that the hour and minute gears are not binding on each other. If there is any binding, then the clock won't keep proper time. The hour gear must spin loosely on the minute gear. Put the hour wheel thrust washer over the shaft of the hour wheel, with the concave face up as shown. Drop the idler pinion, gear side up, into the small hole in

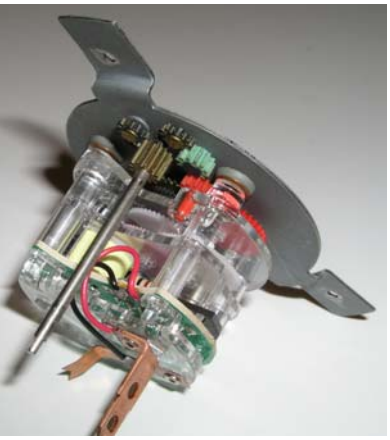
the top of the movement.

15) Put two of the copper grommet washers on the two posts on the top of the movement. Leave the bottom washer off because the clock front has a copper piece riveted to the clock face and the clock won't fit correctly with both the copper face and the washer.



16) Install the clock face onto the clock movement. At this point, I recommend that you see if it is possible to adjust the clock setting by moving the clock set shaft, using some needle nose pliers to hold the clock set shaft. If you can't adjust it, or you see that the gears are slipping, you may need to adjust the slip clutch to have a little less friction by bending the slip clutch spring, or by applying some light sewing machine oil to the slip clutch. You don't want to get the slip clutch too loose, as the clock won't keep proper time if you get it too loose.

17) Using a nut driver or small socket, press the dial plate nuts onto the three posts sticking up through the clock face. It is very important to make sure that the dial plate nuts are pressed on very well so that the clock mechanism is snug up to the clock face.



18) Now place the clock assembly back onto the clock face. Take one of the new rivets inside the kit and install it. I use a flat punch mounted in a vise with a cloth over it, and a pointed punch to flatten the rivet. Make sure you don't scratch the clock face or the rivet, as it is painted the correct black color.

19) Put the hour hand, minute hand, and second hand back on the clock. Make all three hands point to 12.

20) If you wish, you can connect the spade terminal on the back of the clock to a +12V source, and connect the brass spring that has the black wire soldered on it to the ground of the source. The clock should run and keep time at this point.

21) Now put the clock movement back into the clock housing. Using needle nose pliers, bend over the tabs that held the clock housing to the clock front.

22) Now mount the clock back into the rallye gauge housing. Allow the clock to run for 12 hours to make sure it keeps time.

23) If your tach is not working properly, now would be a good time to install one of Real Time Engineering's tach repair kits. See our tach repair kits at www.rt-eng.com.