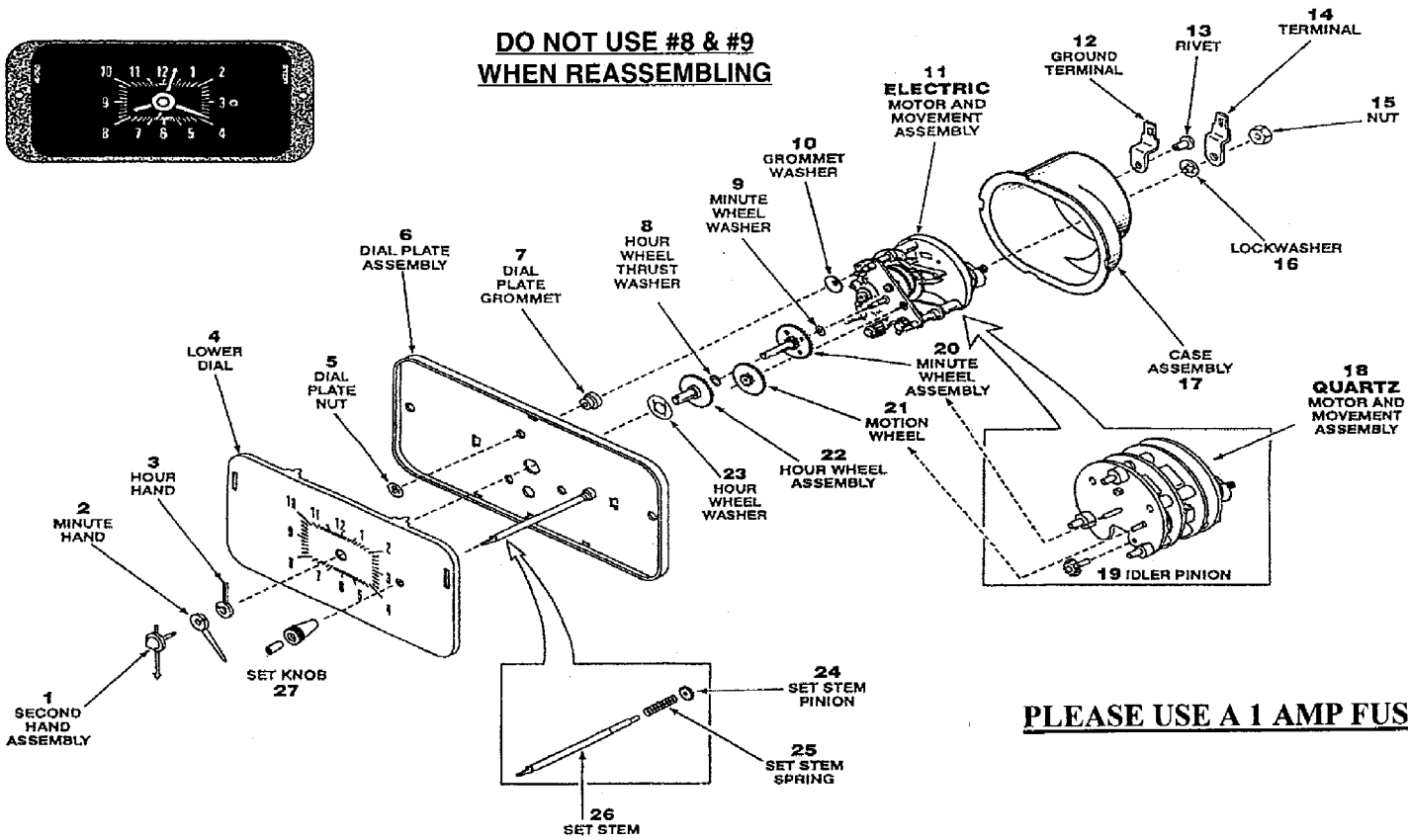


**DO NOT USE #8 & #9
WHEN REASSEMBLING**



PLEASE USE A 1 AMP FUSE.

OPEN FACE CLOCK (NO LENS)

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TROUBLE SHOOTING

1. **PROBLEM: Clock Does Not Operate When Hooked Up to the Battery, or the Second Hand Hesitates**
 - A. Check for blown fuse in the vehicle. Replace if blown.
 - B. Check power at the terminals to ensure that you are getting 12 volts. If not, correct the power source.
 - C. Bad ground. Scrape off paint on the inside of the Case to get a good ground connection.
 - D. Possibility of dirt or small chips in the gears. Open up the Case and blow out the Movement with compressed air.
2. **PROBLEM: Cannot Set the Time**
Check the Minute Wheel Assembly, consisting of four parts: At the top is the shaft, then the pinion gear at the base of the shaft, the large wheel with teeth and then the slip clutch. Test to see if the large wheel is rotating easily by holding the shaft in one hand and rotating the large wheel. If not, spray WD-40 between the pinion gear and large wheel and also between the large wheel and the slip clutch. Work it in by rotating the wheel back and forth. Wipe off any excess. If it is still hard to turn, loosen the pressure of the slip clutch on the large wheel by placing the tip of a small screw driver in between the large wheel and the slip clutch and slowly rotating the assembly as you hold the screw driver between the two components, relieving the pressure.
3. **PROBLEM: Minute and Hour Hands Will Not Turn**
 - A. Usually this occurs because the hands are touching each other. Review the instructions for installing the hands.
 - B. If the hands are not touching, you have relieved too much pressure on the Minute Wheel Assembly. To correct, place the tip of the screw driver against the back of the slip clutch and press down gently at each of the equally spaced spokes to reapply more tension on the large wheel.
4. **PROBLEM: Set Stem Ratchets or Skips When Setting the Time**
The movement probably isn't snugged up enough to the Dial Plate Assembly. Reapply pressure on the Dial Plate Nuts with the nut driver or socket and close the gap. Make sure that the small post that the Motion Wheel is installed on just touches or barely touches the underside of the Dial Plate.

CLOCK KIT INSTRUCTION SHEET

GETTING READY

Before you start, read through the instructions, including the "Trouble Shooting" section. If you received a dvd with the kit, watch the entire dvd.

If you have a kit with the first letter of the part number beginning with an "M," "R," or "N," review the appropriate supplemental instructions at the end.

Save all parts, even those you won't be replacing, so you don't accidentally throw out something you will need.

Refer to the diagram for identification and numbering of parts.

Check the contents of the parts bag: (3) each of Dial Plate Grommets, Grommet Washers and Dial Plate Nuts and (2) pairs - red and black - of the Idler Pinion (#19) and Motion Wheel (#21). Use just one pair, either red or black. The red components are for cars built before 1970; black for after 1970. To verify using the right parts, count the number of teeth on the Set Stem Pinion (#24) - either 10 or 12. If **12** teeth, use the **red** parts. If **10** teeth, use the **black** parts.

(If restoring with an Original Electric Movement, the Idler Pinion and Motion Wheel are not included in the parts bag because the Idler Pinion is built right into the new Electric Movement from the kit and you will re-use the original Motion Wheel. To make sure you have the right Electric Movement, count the teeth of the Idler Pinion on the old and new Movement and make sure they match up at 10 or 12.)

TOOLS REQUIRED

(2) Regular Pliers; (2) Screw Drivers; (1) Side Cutter; (1) 3/16" Nut Driver or Socket; Soldering iron for "N" Kits.

TAKING THE CLOCK APART

Remove the Set Knob (#27) from the Set Stem (#26). (You will have either a one-piece Set Knob or a two-piece, as shown in the diagram.) If two-piece, just unscrew the Center Lock Nut. If one-piece, the Set Knob is threaded on and is removed by using one set of pliers to hold the Set Stem while grasping the Set Knob with the other pliers and turning counter-clockwise.

Remove the Terminal (#14). Loosen the Nut (#15) and pull off the Terminal and the Lockwasher (#16).

Use the side cutter to straighten out crimps that hold the Case Assembly (#17) to the Bezel and Lens Assembly. Remove the Dial Plate Assembly (#6) to which the Movement (#11) is attached.

Remove the hands, starting with the Second Hand (#1), which is pressed on tightly. With your index finger and thumb, grasp the hand at the hub and using a back and forth rocking motion, pull it off. Follow the same procedure for the Minute Hand (#2) and Hour Hand (#3).

(Note: For an open face clock without a lens and bezel, start disassembly by removing the Set Knob, then the Terminal at the back and then the hands.)



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Use the screw driver to remove the Lower Dial (#4) or Face secured to the Dial Plate Assembly by straightening the tabs crimped over at a right angle.

Remove the Electric Movement from the Dial Plate Assembly. Use the pliers to pull off the 3 Dial Plate Nuts (#5). Separate the Movement from the Dial Plate Assembly, keeping the Movement upright.

Remove the Hour Wheel Washer (#23) and the Hour Wheel Assembly (#22). Take off the Hour Wheel Thrust Washer (#8). Not all clocks have this component, so if not there, disregard this step. Take off the Motion Wheel (#21) and the Minute Wheel Assembly (#20). Next remove the Minute Wheel Washer (#9). If not there, disregard this step.

Do not use #8 & #9 when reassembling.

Remove the 3 Grommet Washers (#10) and 3 Dial Plate Grommets (#7). Use the screw driver to scrape any residue of the Grommets from the backside of the Dial Plate.

Check out the gearing on the Dial Plate Assembly that is engaged when pulling out the Set Stem. Make sure the gears rotate freely, and if not, place a little rubbing alcohol on a Q-tip and apply to the gears while rotating them back and forth. Check the gear studs to ensure firmly in place. Rock the studs with the screw driver. If loose or broken, send to the factory for repair.

PUTTING THE CLOCK BACK TOGETHER

Install the 3 Grommets on the Dial Plate, pushing in the slightly smaller diameter side to be opposite the Movement.

(NOTE: Pay close attention to the Minute Wheel Assembly. Refer to the "Trouble Shooting" section and follow the instructions under "Problem: Can't Set The Time" prior to installing the minute wheel.)

Install the Minute Wheel Assembly (#20) on the center shaft of the Movement, engaging the large wheel of the Assembly with the small drivewheel protruding from the Movement.

Install the Motion Wheel on the short post extending from the top of the Movement. The small gear on the Motion Wheel should be up or towards the Dial Plate. The large gear of the Motion Wheel engages with the small pinion of the Minute Wheel Assembly.

Slide the Hour Wheel Assembly onto the shaft of the Minute Wheel Assembly, making sure that the Hour Wheel engages with the top or small gear of the Motion Wheel. Put the Hour Wheel Washer (#23) over the shaft of the Hour Wheel Assembly, placing it dish or concave side up. Drop the Idler Pinion, gear side up, into the small hole in the top of the Movement.

Place the 3 Grommet Washers, dish side up, on the three posts on the Movement. Install the Movement on the Dial Plate Assembly and walk it through so that the Idler Pinion engages with the gearing on the Dial Plate Assembly. Then press on the Dial Plate Nuts, cup side down facing the Grommets. Use the nut driver or socket to push the Dial Plate Nuts on so that the Movement is snugged up against the Dial Plate. Use a piece of wood, with a hole

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Use the screw driver for terminal clearance to support the Movement. Make sure the small post on the Motion Wheel is installed on just touches the underside of the Dial Plate Assembly. Push harder on the Dial Plate Nuts to achieve the right clearance.

Clean the Face or Lower Dial before replacing, using a soft cloth, clean paint brush, or by blowing on it. Avoid rubbing too hard on the numbers or other markings. Clean the hands with a moist cloth. If repainting, take them to the store and match up the colors with cans of spray paint. Clean the lens with a soft cloth, using plastic cleaner if desired.

Attach the Lower Dial or Face. Install the hands: Place the Hour Hand at the 12 o'clock position. Make sure it is not rubbing against the Face. Place the Minute Hand at the 12 o'clock position, ensuring that it doesn't get hung up on the Hour Wheel tubing. Press the Minute Hand all the way down until it bottoms out on the Hour Wheel tubing, and back it off. Replace the Second Hand at any position.

Put the Dial Plate with the Movement attached back into the Bezel and Lens Assembly. Clean out the inside of the Case and install it back onto the rest of the clock. Use the side cutter to retrim the Case and Bezel. Replace the Terminal, sliding on the Lockwasher first, then the Terminal and Nut. Attach the Set Knob.

TEST BEFORE REINSTALLING: Do it for a few hours or overnight. Set the right time. Attach the Terminal to the positive terminal of a 12 volt battery and the negative lead to the Case or Ground Terminal. If it doesn't keep accurate time, review the "Trouble Shooting" Check List.

SUPPLEMENTAL INSTRUCTIONS FOR "M" "R" OR "N" KITS

"M" KITS

The parts bag includes a 3/4" Threaded Terminal Adapter to be screwed on over the Movement's threaded terminal and red gears only.

"R" KITS

Use with clocks with the Face or Lower Dial riveted to the Dial Plate. The parts bag includes 3 or 4 aluminum rivets. When taking the clock apart, use a file, grinder or drill to remove the peened over rivet on the back side of the Dial Plate Assembly. When putting the clock together, support the head of the rivet after inserting it through the Face and Dial Plate. Use a small hammer to peen over the rivet on the back side of the Dial Plate Assembly.

"N" KITS

The parts bag includes a 3" black wire to be solder connected between the copper strip on the Dial Plate and the Negative pad on the back of the Movement circuit board. The Negative pad is easily located. It is marked GND on the crescent shaped edged of the circuit board. Just before installing the Movement on the Dial Plate Assembly, solder one end of the wire to the copper strip on the Dial Plate Assembly. After securing the Movement to the Dial Plate, wrap the black wire over the Movement circuit board and solder the other end to the negative pad.

Solder the original red wire to the "12/24" V pad on the movement.

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IMPORTANT INFORMATION

Thank you for purchasing the DO-IT-YOURSELF KIT for your **BORG** manufactured automobile clock.

Before you start taking your clock apart, check for the name **Borg** or the letter **B** on the back of the clock case; also check that the power terminal on the new movement is the same as the power terminal on the old clock movement.

Do-it-yourself kits are available **ONLY** for most **BORG** manufactured clocks originally built for 1963-1987 American vehicles. You **CAN'T** do a conversion yourself if the clock is a Westclock or "W", General Time or "GT", or any other make, or if the vehicle was built before 1963.

If your clock is **NOT** a Borg manufactured clock, or if it is from a pre-1963 car, or if the power terminal on the old and new movements are not the same, STOP and call for assistance.

We can restore **MOST** auto clock makes and models from 1936 on, and we will be happy to have our expert technicians restore your clock.

If you purchased the kit from someone else, return it to that company for the credit and send us the clock for service. If you bought it from us, we will give you credit for the kit purchase and deduct it from the cost of the in-shop service.

For a free estimate of the exact cost to service your clock, please call us toll free at 1-800-558-2674.

We also offer complete restoration of speedometers, tachometers, gauges, clusters on **MOST** makes and models from the early 1905 - 1985 and Corvettes from 1953-1982. We also offer complete restoration on glove box doors from 1964 - 1967 Corvettes. Please call for information.

Warranty: The quartz movement in the kit is warranted for one year from the date of purchase. Warranty is void if the quartz kit has been damaged during the installation, or the installation was done incorrectly, or if the movement fails because of dirt, hair, chips, etc., jamming the gear train, or if the movement fails due to other defective old clock parts. There is no warranty on the **kits** with original electric movements.

Caution: The balance wheel of the electric movement is extremely fragile. Handle with extreme care to prevent irreparable damage. Keep the mechanism free from foreign particles such as hair, clothes, fibers, plastic, metal, or paint chips.

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