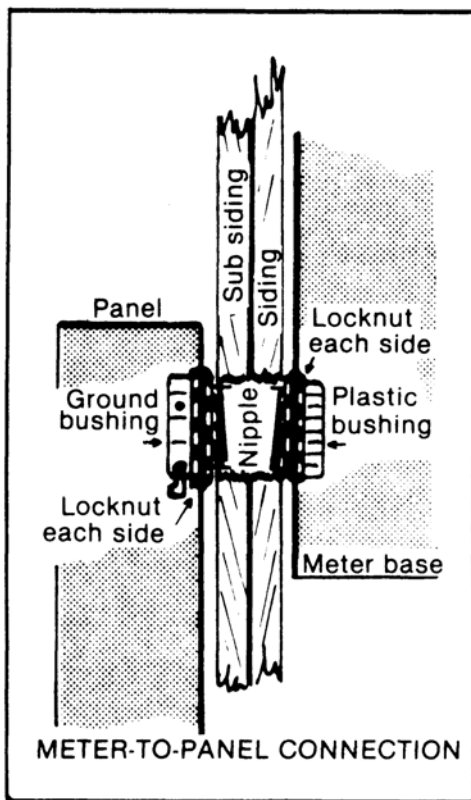




## HOW TO INSTALL A 200 AMP ELECTRICAL SERVICE

This will describe the most common type of electrical service installation, the back-to-back where the service panel is located on the inside wall directly behind the meter base and is serviced by overhead lines. The connection between the meter base and the panel is made through a pipe nipple and is shown below. It may be necessary, where the house has a tall foundation, to make the entry at the bottom of the panel, but this requires no different wiring procedure. You will need to have the main service wires long enough to reach from the bottom of the panel to the top.



Mount the panel so that the highest breaker lever does not exceed NEC requirements from the floor and the

center of the meter base falls within the serving utility companies required height range from finished grade. Refer to our other "How-To-Do-It" sheets that show these mounting heights and detail other requirements for the masthead and service drop (overhead) or conduit feed (underground).

All equipment parts of your electrical service must be bonded to the grounded (Neutral) buss bar. In addition, each metal pipe system, such as the water piping system, must be bonded to the grounded (Neutral) buss bar. Provide grounding electrode system per NEC 250.50. This system consists of these components: metal underground water pipe; metal frame of building (if available metal framing exists); a concrete encased electrode; two 8' long 5/8" iron or steel rod-electrodes. The bonding connection (copper wire) size shall be a minimum of #4 AWG from each electrode to the panel's neutral bus. The concrete encased electrode (Ufer) shall be at least 20' of #4 (minimum) bare copper conductor or at least 20' of electrically conductive steel reinforcing bars encased by at least 2" of concrete located within and near the bottom of the concrete foundation. The rod electrodes shall be spaced a minimum of 6' apart and shall be driven their full lengths into the ground.

We recommend the use of #4 bare wire for all the bonding and grounding of 200 amp service equipment. These bonding and grounding conductors must be continuous (no splices) from the point of origin to the point of termination. They must be connected at these points in a clear, accessible, secure manner and with an approved device. For additional information on bonding and grounding see Article 250 of the National Electrical Code.

(Over)



1. Select an approved location for the meter base and drill the holes for meter to panel nipple. Also drill the holes through the eave and roof where the mast will go through (if overhead).
2. Knock out the appropriate hole in the panel and secure the nipple to the panel with a locknut on each side and the grounding bushing.
3. Position the panel and anchor it in place.
4. Fasten the meter base to the other end of the nipple with a locknut on each side and then the plastic bushing. Screw the meter base to the wall.
5. Screw the conduit mast tightly into the hub of the meter base.
6. Install u-bolts or conduit straps (per serving utilities requirements) around the mast and, if it is possible, through the stud plate.
7. Push the service wires up the conduit mast and leave 24" out of the top end.
8. Cut the two main conductor wires and connect them to the top terminals of the meter socket.
12. Cut the remaining main conductor wire to reach from the bottom lugs of the meter base socket into the main lugs at the panel. Push all three wires through the nipple into the panel. Connect the main conductor wires to the bottom lugs of the meter socket.
13. If the panel you are installing uses a main breaker that has not yet been installed, do it now. Connect the main conductor wires to the lugs on the breaker or to the main lugs of the panel. Hook the neutral wire to one of the larger lugs on the grounded (neutral) buss bar.
14. Install a #4 bonding wire from the ground bushing to the ground bar.
15. Connect the bonding strap or screw to the ground bar. Different manufacturers employ different methods to accomplish this grounding of the panel.
16. Install a #4 ground wire from the ground buss of the panel to all locations previously discussed.
17. Install the branch circuit breakers.

**NOTE:** Apply a liberal coating of corrosion inhibitor to all aluminum wire once the insulation has been removed. Also use on the lugs and their threads as the lubrication that it provides allows the connection to be made up more tightly.

9. Bare the neutral (white or smallest of the 3 wires) at the meter base and connect it under the center lug of the meter socket (see illustration). If all the wire are black use white marking tape at each end to identify the neutral conductor.
10. Place the roof flashing over top end of mast, properly fit upper edge under roofing materials, fasten in place and caulk as necessary.
11. Remove the top from the weather head. Install the head onto the conduit. Bend the wires over and reinstall the top.

**18. Check and tighten all connections once again!!**

