



**- TRONICS, INC.**

*SETTING THE STANDARD FOR SERVICE*

1795 N YELLOWSTONE HWY.

IDAHO FALLS, IDAHO 83401

PHONE 208-528-8875 FAX 208-528-8877

[www.aquatronics.com](http://www.aquatronics.com) [aquatron@aquatronics.com](mailto:aquatron@aquatronics.com)

## RESTORE-A-PHASE INSTALLED WHEN THE CUSTOMER HAS HAS AN OPEN NEUTRAL

It would be ideal to have a neutral conductor between the metered load and the transformer, but this is not always possible. The Restore-A-Phase Master Unit can be used without a neutral conductor being available if both of the hot legs are good. In that situation, the R.A.P. only has to supply the current to balance the two hot legs.

With an open neutral, the customer can have an unbalanced voltage at the meter, depending on the load being placed on each hot leg. With the meter removed from the socket, make sure the meter neutral is connected to a ground rod near the meter riser. In some new construction, this ground rod may not be visible or available for use because of where it is installed.

**IF POSSIBLE, SWITCH THE MASTER BREAKER IN THE CUSTOMER  
BREAKER PANEL TO OFF. THIS WILL PREVENT ANY CHANCE  
OF A HIGH VOLTAGE SPIKE ENTERING THE CUSTOMER'S  
HOUSE IF AN ARC SHOULD HAPPEN WHEN THE METER  
ADAPTER AND METER ARE INSTALLED.**

The case of the Master Unit has a 3/8-16 ground bolt just to the right of the cable that feeds the load. This ground bolt should be connected to the ground rod at the base of the customer's meter. If the existing ground rod at the meter base is not available, you must provide a driven ground rod that can be used to ground the case of the Master Unit for safe operation.

When the Restore-A-Phase Master Unit case has been grounded, the neutral pigtail from the meter adapter should be connected to the meter socket neutral. The Master Unit meter adapter ( buddy base ) can now be installed into the customer's meter socket. The Master Unit buddy base can be used with ring or ring-less meter sockets by adjusting the three small brass screws at the bottom area of the

## WHEN THE CUSTOMER HAS AN OPEN NEUTRAL

buddy base. The meter can now be installed and the customer's master circuit breaker can be turned on.

When the Master Unit is installed, the center tapped transformer will force the two unbalanced hot legs back to equal voltage. The current being supplied from the pad mount transformer on the two hot legs needs to find its way back to the pad mount and will flow in the earth between the ground rod at the house and the ground rod at the pad mount. As per ohm's law, current will seek the path of lowest resistance and will sometimes find a water pipe, telephone or CATV cable as a path.

A small momentary shift in voltage may take place between the two hot legs when sudden load changes are made on one of the hot legs, but this shift is small and only momentary. The small shift in voltage will take place because of the resistance between the two ground rods that could be some distance apart. The Master Unit will immediately force the two hot legs back to an equal voltage.

The Restore-A-Phase is a center tapped Auto-Transformer rated at 7.5 KVA with a dual 40 amp circuit breaker. One for each hot leg. Most residential loads can be maintained with just the Master Unit. If the load requirement is higher than 7.5 KVA, the circuit breakers will not hold. The higher load requirements can be handled by adding one or two 7.5 KVA Booster Units. This will increase the Restore-A-Phase to 15 KVA or 22.5 KVA respectively.

**When you have an open neutral, the two good legs are supplying all of the load current requirements. The only current the RESTORE-A-PHASE is seeing is that current necessary to balance the load. As a result, the Master Unit can be used on loads greater than 7.5 KVA when you have an open neutral.**