

POWERLINE

HEAVY DUTY ISOLATORS

CONGRATULATIONS!

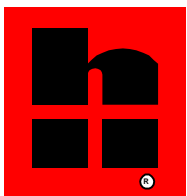
...for choosing this high quality ***POWERLINE*** PRODUCT. The latest state of the art engineering plus years of experience have gone into each ***POWERLINE*** product.

The attached instructions are provided to assist you with step-by-step installation. Test procedures are also provided to be kept with your equipment should future reference be desired.

Every effort has been made to use the finest materials and workmanship. In the event that service is ever needed or you have questions regarding the product, installation or performance please give us a call.

Your Friends at the factory

AN ISO 9001 COMPANY



HEHR

POWER SYSTEMS

A DIVISION OF HEHR INTERNATIONAL INC.

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The POWERLINE solid State Multi-Battery Isolator is a product of extensive heat-chamber engineering and testing. **POWERLINE** isolators are designed to handle the total current rating through either leg.

All **POWERLINE** isolators are negative ground (some positive ground models are available), multi-battery systems. . Please contact the factory if you need positive ground product or if your system requires a special model.

CAUTION: Isolator rating must be equal or greater than alternator amperage rating.

Prior to starting isolator installation, start engine and run at fast idle. Measure voltage at the battery terminal, it should be about 14 volts. After installation, re-check above to confirm the same voltage.

VARIOUS POPULAR AND SOME SPECIAL ALTERNATORS REQUIRE SPECIFIC ISOLATOR MODELS FOR PROPER OPERATION, e.g.: Delco CS series alternators require an 22-15 or 22-18 isolator. Some Motorola, Bosch and other similar alternators require an isolator with a regulator sensing terminal. To insure proper battery charging, some internally regulated alternators and all one wire alternators may require a wiring change to provide external voltage sensing for the voltage regulator.

LIMITED WARRANTY

HEHR POWER SYSTEMS warrants each new product against factory defects in material and workmanship for a period of time as outlined in the Warranty Period schedule (Form W 1000A-4/95). Exclusions from this warranty for damage or failure due to accident, misuse, negligence or improper installation.

Material required for repair or replacement of defective part is to be supplied at no charge on delivery of the defective part to **HEHR POWER SYSTEMS**, 4616 Fairlane Avenue, Fort Worth, Texas, 76119 or an authorized service center. The customer is responsible for all freight on returned parts.

There are no warranties, expressed or implied (including any implied warranties merchantability or fitness), which extend beyond this warranty period. The loss of use of the product, loss of time, inconvenience, commercial loss or consequential damages are not covered.

HEHR POWER SYSTEMS reserves the right to change the design or any product without assuming any obligation to modify any product previously manufactured.

This warranty gives you specific legal rights. You may also have other rights that vary from state to state. Some states do not allow limitations on how long an implied warranty lasts. Some states do not allow the exclusion or limitations of incidental or consequential damages. Therefore, the above limitation(s) or exclusion(s) may not apply to you.

INSTALLATION INSTRUCTIONS

CAUTION: Isolator rating must be equal or greater than alternator amperage rating.

Prior to starting isolator installation, start engine and run at fast idle. Measure voltage at the battery terminal. It should be about 14 volts. After installation, recheck above to confirm the same voltage.

1. Disconnect ground/negative cable from battery.
2. Mount isolator in location away from maximum engine heat and in a location that will let the isolator receive maximum air flow.
3. Remove all wires connected to original alternator output post. Move these wires to the #1 battery post on the isolator, if original factory alternator is used. If you are upgrading to a higher output alternator, tape off original output wire from original alternator. Consult wire size chart and install a new larger output wire from the system battery to the #1 post of isolator.
4. Install new wire from alternator output post to the "Alt" post of isolator. Make up a new #8 gauge minimum or refer to wire size chart for proper wire size based on alternator rating.
5. Attach auxiliary battery to the #2 auxiliary battery post of isolator. Again, refer to wire size chart for proper wire size.
6. If circuit breaker is going to be used, it would be installed next to auxiliary battery.

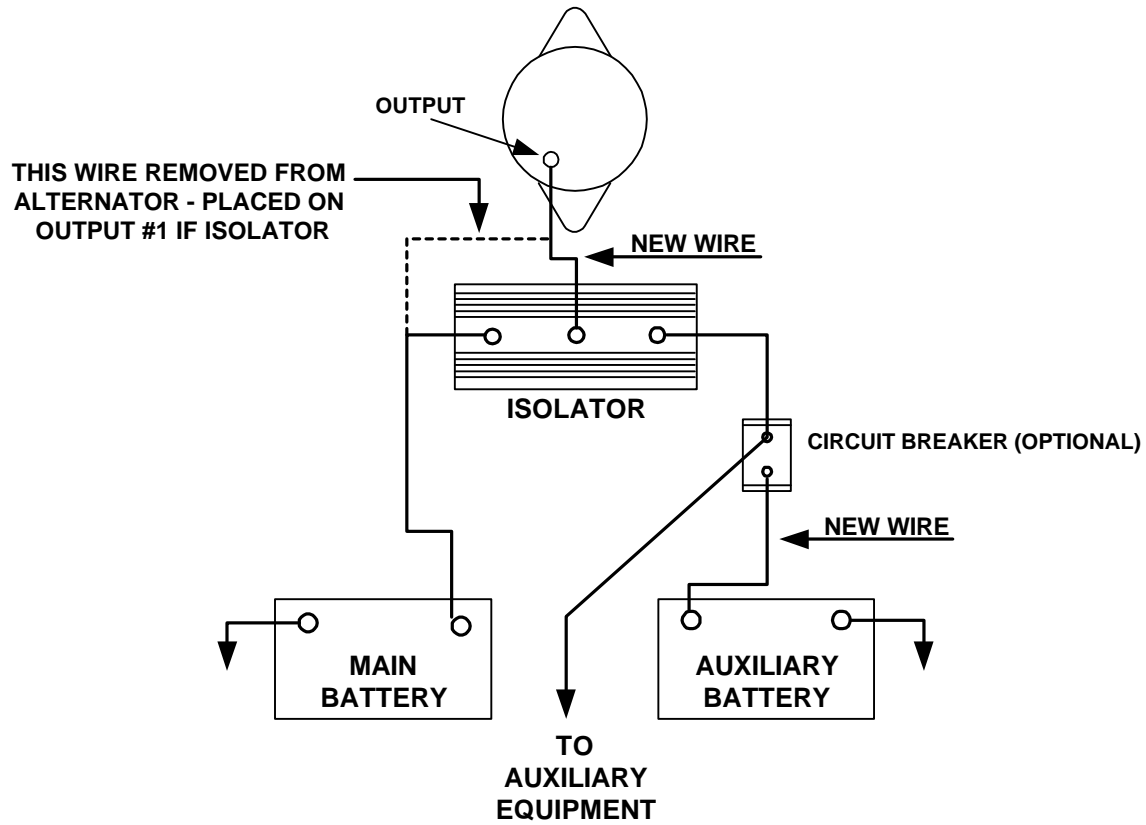
NO circuit breaker is to be installed from alternator to isolator or from isolator to main system battery.

7. Connect all auxiliary loads to the auxiliary battery. For best results all auxiliary batteries need to be of the same type construction.
8. Reconnect the ground/negative cable to the original battery.

In many cases a larger amperage alternator is required to handle the increased electrical loads and keep your batteries charged.

TYPICAL WIRING DIAGRAM

DIAGRAM FOR ISOLATOR INSTALLATION WITH ORIGINAL EQUIPMENT ALTERNATOR



ALTERNATOR RATED OUTPUT IN AMPS	WIRE SIZE CHART				
	MINIMUM CHARGING WIRE SIZE FOR WIRE LENGTH IN FEET				
	Up to 10'	11' to 15'	15' to 20'	20' to 25'	25' to 30'
Up to 70 amp	10	8	8	6	6
70 to 90 amp	8	8	6	6	4
95 to 130 amp	6	6	4	2	1
120 to 170 amp	4	4	2	2	0

TEST INSTRUCTIONS FOR **POWERLINE** ISOLATOR WITH OHMMETER

- 1 Remove all wires from the isolator.
- 2 Using a needle movement ohmmeter Rx-I scale or a digital ohmmeter diode scale, hold the Red prod on terminal "A" and with the Black prod touch terminal #1 and #2. A good isolator will show a current flow from "A" to #1, #2.
- 3 Next hold the Black prod on terminal "A" and with the Red prod touch terminal #1 and #2. A good isolator will allow no current flow from "A" to #1, #2.
- 4 Hold one prod on the aluminum heat sink, being sure there is contact. Then touch with the other prod terminals "A", #1, #2. A good isolator will show no current flow.

*On some import Ohmmeters, the Red and Black prods are reversed for these tests.

TEST INFORMATION FOR ELECTRICIAN

All test to be taken with fully charged batteries.

1. Engine not running: #1 terminal of isolator should read system battery voltage. #2 terminal should read auxiliary battery voltage. The "A" terminal should read 0 volts.
2. Engine running and alternator charging: #1, #2 should read approximately the same voltage, which will be the voltage regulator setting or less. The "A" terminal should read .8 to 1 volt higher than the reading of #1, and #2 terminals.
3. For 12 volt systems, the "A" post should read approximately 15 volts. The #1 and #2 post should read 13.8 to 14.2 volts. If the "A" post reads 13.8 to 14.2 volts, the regulator is sensing the alternator output rather than the main battery. This situation needs to be corrected for proper charging.

POWERLINE alternators are labeled SAE, or cold.

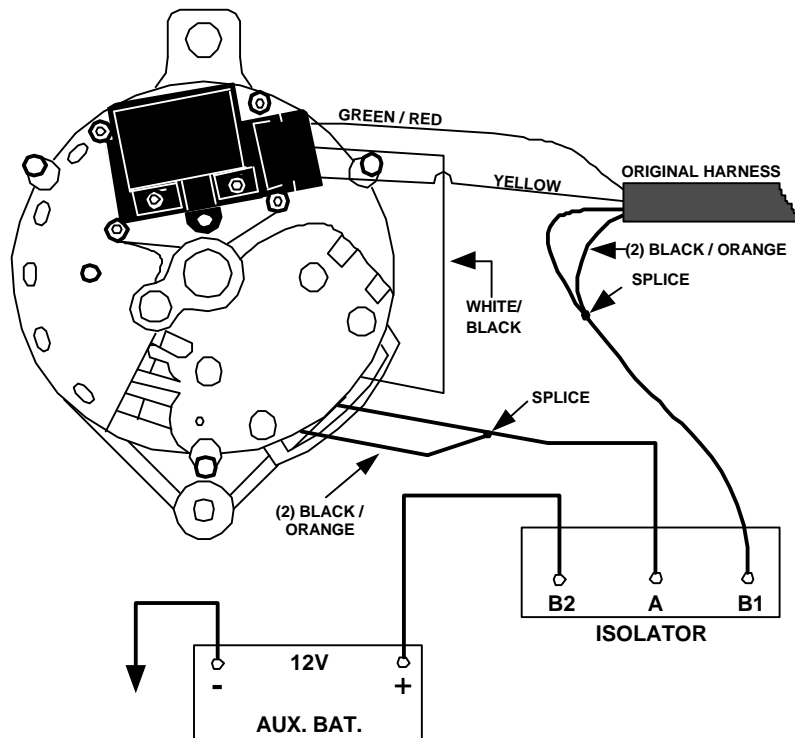
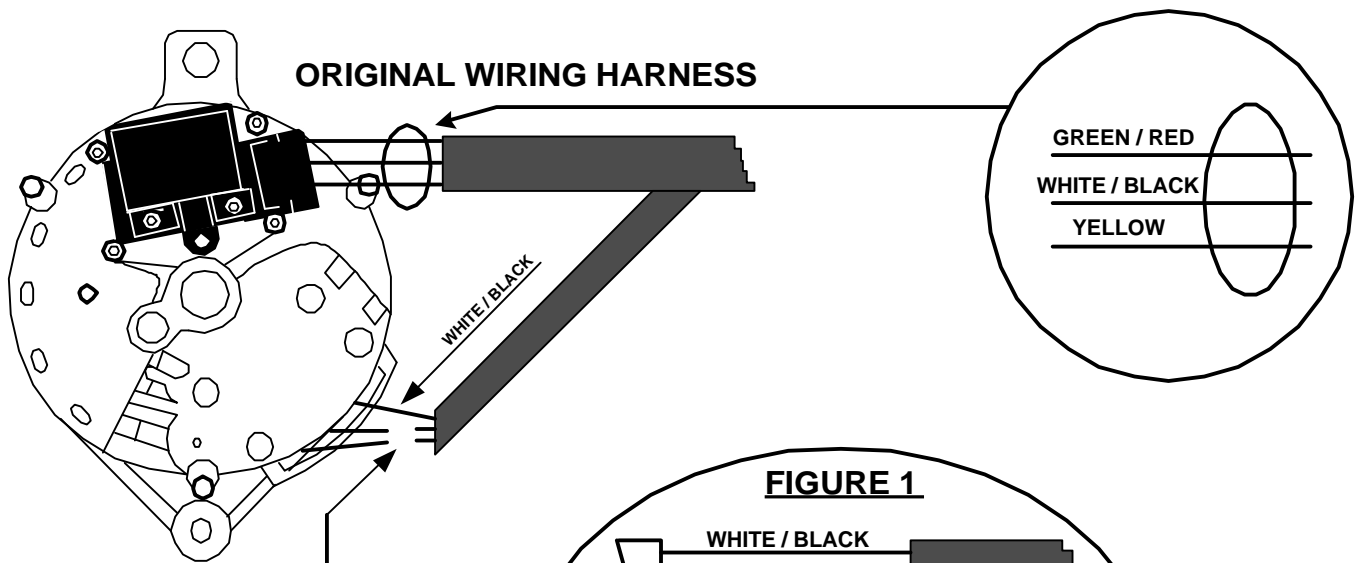
In selecting an alternator for your special application, always select an alternator with 15% to 20% more hot amperage capabilities than the vehicle load. Hot output specs can be seen on HPS website under OUTPUT PERFORMANCE.

Larger output wire is necessary when installing a higher output alternator on any vehicle. Refer to the wiring chart.

The factory amp meter will be by-passed when installing the larger output wire. A volt meter should be installed and relied on to monitor the charging system.

Please contact our engineering or service department if assistance is desired.

1985 THRU 1989 IAR ALTERNATOR - FORD ISOLATOR WIRING INSTALLATION INSTRUCTIONS



Isolator installation instructions

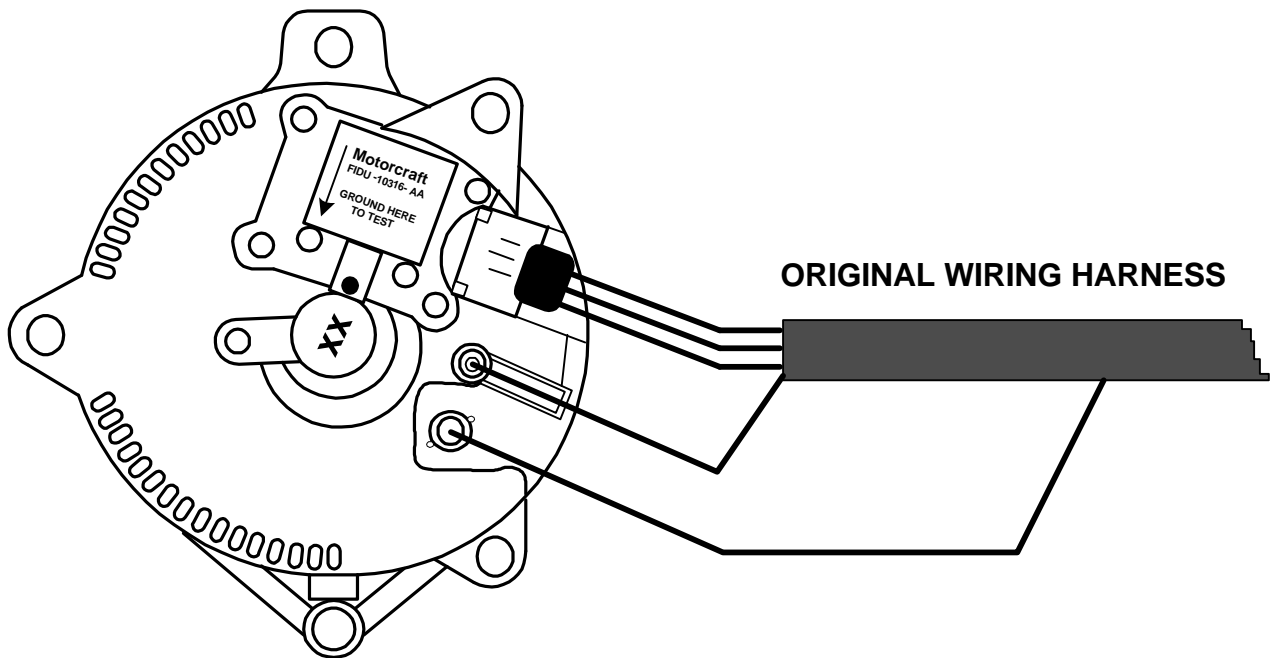
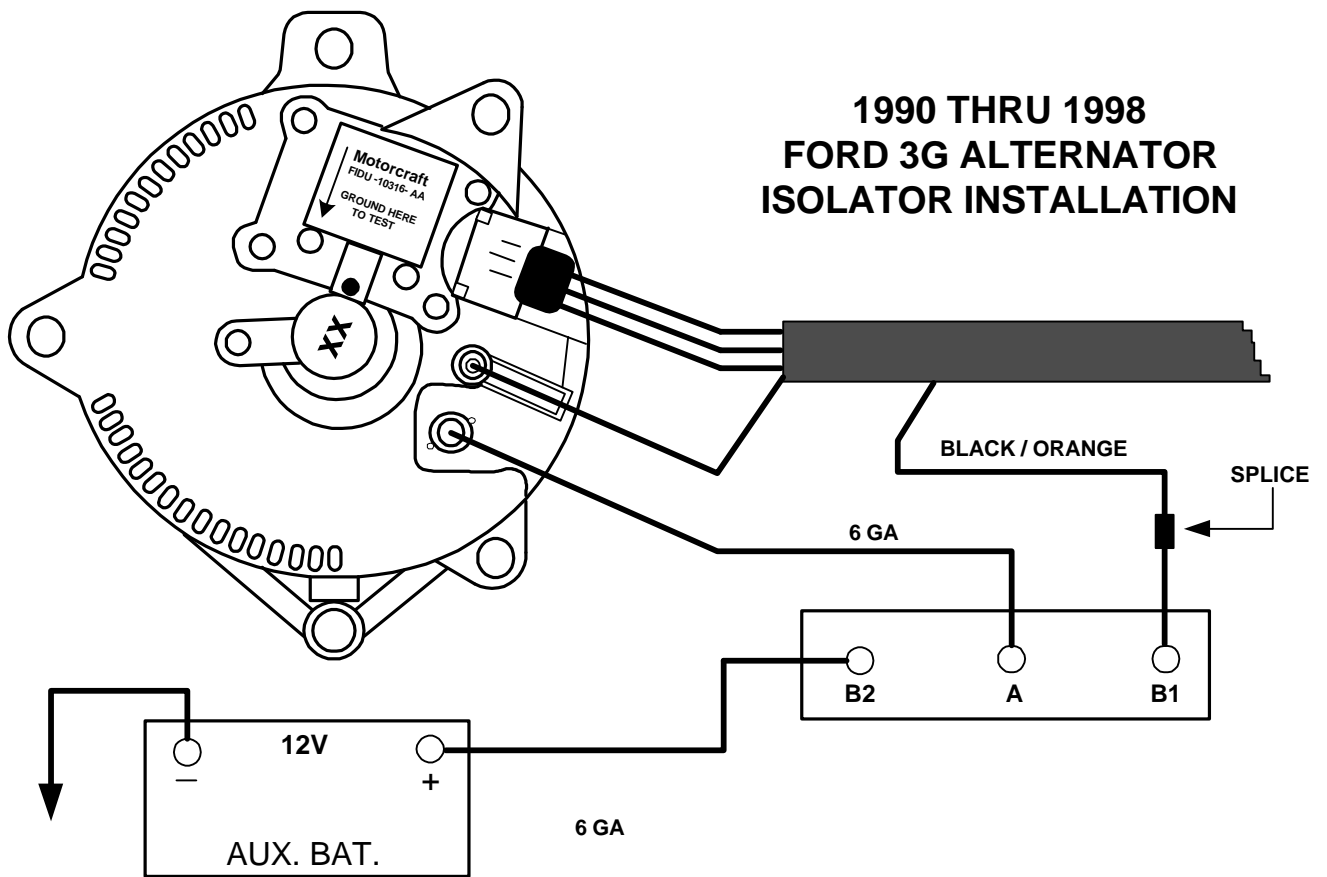
1985 thru 1989 Ford products using a "plug-in" connection alternator.

Prior to starting isolator installation, start engine and run at fast idle. Measure voltage at battery terminal. It should be about 14 volts. After installation, re-check above to confirm the same voltage reading.

1. CAUTION: Disconnect negative cable from battery.
2. Mount isolator in location away from maximum engine heat and in a location that will let the isolator receive maximum air flow.
3. Go to alternator and locate the connector on the side that has one white wire (or white with black trace) and two heavy black wires with orange trace.
4. Cut both black / orange wires close to the alternator. Allow sufficient length to attach a butt splice (approx. 2" / 3").
5. Damage to vehicle could occur if wires are cut beyond the cable junction.
6. Splice a #6 gauge extension wire to both wires from alternator and from harness. Connect to "B1" and "A" terminals of isolator. (See figure 1) Auxiliary battery is connected to "B2" on isolator.
7. If circuit breaker is going to be used, it must be installed next to aux. battery.
NO CIRCUIT BREAKER IS TO BE INSTALLED FROM ALTERNATOR TO ISOLATOR OR FROM ISOLATOR TO MAIN BATTERY.
9. Connect all auxiliary loads to the auxiliary battery. For best results, use a "Deep Cycle" battery.
10. Re-connect the negative cable to the original battery.

In many cases, a larger amperage alternator is required to handle the increased electrical loads and keep your batteries charged. Please call or write for information on **POWERLINE** alternators.

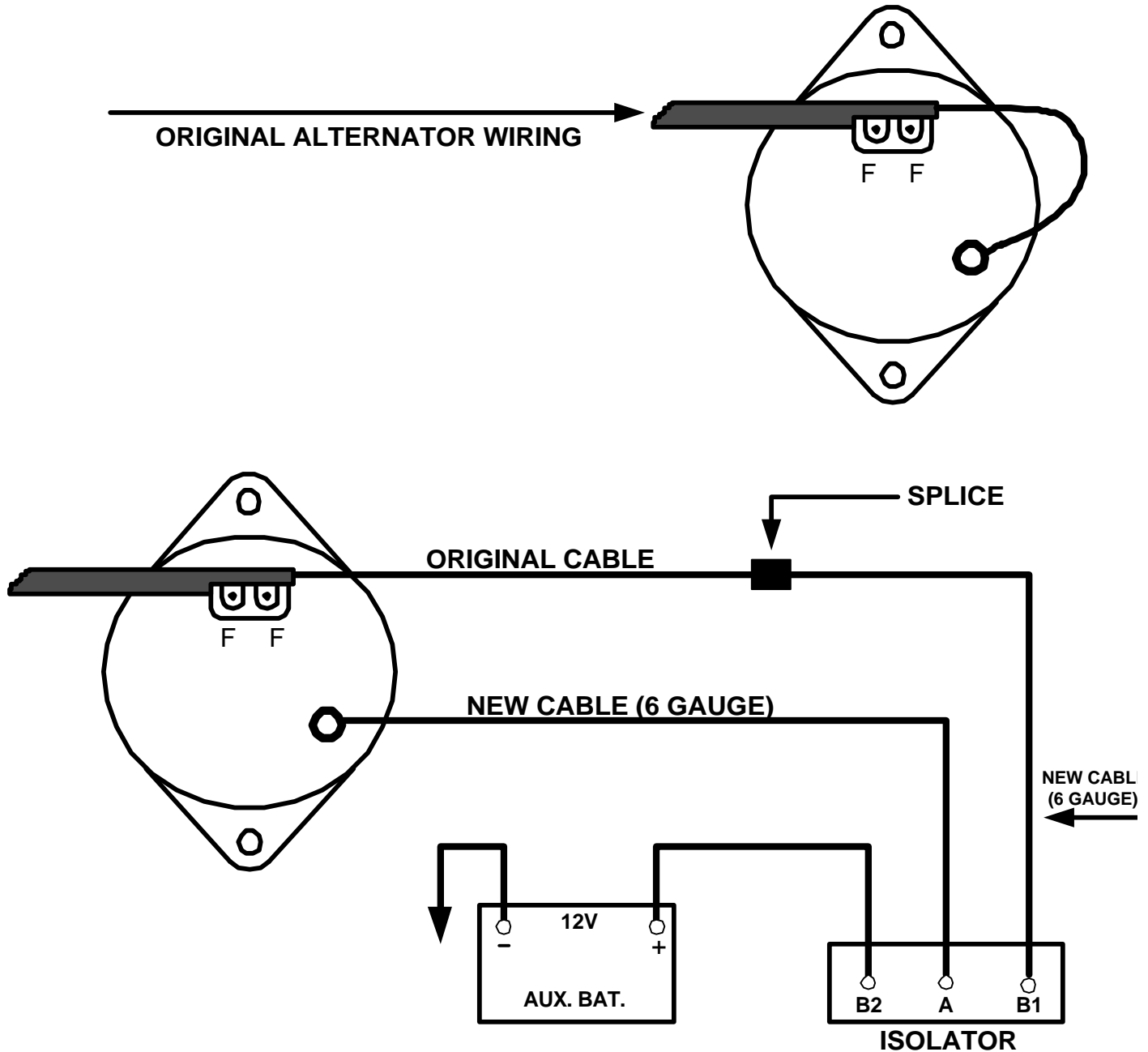
1990 THRU 1998 FORD 3G ALTERNATOR ISOLATOR INSTALLATION



INSTRUCTIONS

1. Disconnect Battery
2. Remove BLACK / ORANGE lead from alt. output stud.
3. Splice a wire on to the BLACK / ORANGE lead. connect the other end to the B1 (Main Battery) stud of the isolator.
4. Make up a new wire lead. Connect one end to the alternator output stud where BLACK / ORANGE was removed from. Connect the other end of the lead to the A (Center) stud of the isolator.
5. Connect a lead from B2 (Aux) stud of the isolator to the positive post of the Aux battery.
6. Reconnect battery and test charging system.

ISOLATOR INSTALLATION CHRYSLER DODGE WITH NIPPON-DENSO ALTERNATOR



INSTRUCTIONS

1. Remove original cable from alternator battery post.
2. Splice new cable to original cable and connect to terminal B1 on the isolator.
3. Make up a new cable. Connect one end to the battery post on alternator where original cable was removed. Connect the other end to the isolator alternator terminal (center).
4. Make up a cable and connect one end to the aux. terminal on the isolator. Connect the other end to the positive post on the battery.
5. Make up a cable and connect it to the negative post of the battery. Connect other end to a good ground.

NOTE: The auxillary battery cable must be sized as to not allow any voltage drop to the battery. The ground cable from body or frame to engine will require a large gauge cable if the auxillary battery is grounded to body or frame.