

REDI-LINE™
ELECTRIC GENERATORS
USER'S GUIDE

Rugged, Reliable,
DC to AC Power Conversion

KARAM A.L.
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**PACIFIC
SCIENTIFIC**
HIGH PERFORMANCE MOTORS & DRIVES

ISO
9001

REDI-LINE ELECTRIC GENERATOR

MODEL _____

INPUT ACTUAL _____

OUTPUT ACTUAL _____

OUTPUT WATTS _____

SERIAL NO. _____

PACIFIC SCIENTIFIC MOTOR PRODUCTS DIVISION ROCKFORD, IL 61109

Fill in Data for your permanent records.

The model and electrical data will be found on the body nameplate. Due to certain mounting applications, this data may become obstructed. You should record information and keep in a safe place for future reference.

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USER'S GUIDE

REDI-LINE® Electric Generator

CAUTION The REDI-LINE Generator is a quality product, designed to be rugged, reliable and safe when installed properly. Improper installation can cause damage to the unit and/or result in serious personal injury.

Read this entire manual before starting installation. If you have questions on installation or operation of the generator, contact your REDI-LINE distributor for assistance.

1. Function

The REDI-LINE Generator is an electromechanical device that converts DC to AC. The DC supply is one or more deep cycle batteries that are typically added to the electrical system of your vehicle.

Convenient, remote operation of most tools, appliances and lighting is assured as long as their power consumption is within the nameplate rating of the generator. Your REDI-LINE generator is designed to supply true sine-wave electrical power for years of trouble free service.

2. Features

- Built rugged and reliable with sturdy steel housing. Two year warranty.
- Patented Demand Start Circuitry extends battery life.
- Easily delivers peak output currents up to 1.5 times the continuous output rating for extra starting power.
- Conveniently mounts in any position in a minimum of space.
- True sine-wave output.
- Optional GFI outlet.
- Operates in ambient temperatures from -30°F to 130°F.

3. Specifications

Models	DA12L-1600A					
	DA12A-500A	DA12L-1600A-GFI	DA24A-800A	DA24L-1600A	DA36A-900A	DA36L-1600A
Input Voltage (DC)	12	12	24	24	36	36
Nominal Input Voltage (DC)	12.6	12.6	25.2	25.2	37.8	37.8
Continuous Output Watts	500	1600	800	1600	900	1600
Surge Output Watts	750	2400	1200	2400	1350	2400
Output Voltage* (AC)	120	120	120	120	120	120
Output Frequency (Hz)	65	65	60	60	60	60
Continuous Output Current	4.5	14.5	7.3	12.8	8.2	14.5
Surge Output Current (Amps)	7	22	11	20	12	22
Wave Shape	Sine	Sine	Sine	Sine	Sine	Sine
Length (inches)	16.25	16.75	16.25	15.13	16.25	15.13
Height (inches)	5.5	9.13	5.5	9.13	5.5	9.13
Diameter (inches)	5.18	7.38	5.18	7.38	5.18	7.38
Weight (lbs.)	26	53	26	48	26	48

Ambient Temperature Range, all models: -30° to +130° F (-34° to +54° C)

Models	DA12L-1600A			
	DA3179	DA3252	DA3272	DA3444
Input Voltage (DC)	12	12	24	24
Nominal Input Voltage (DC)	12.6	12.6	25.2	25.2
Continuous Output Watts	500	1600	800	1600
Surge Output Watts	750	2200	1200	2400
Output Voltage* (AC)	230	230	230	230
Output Frequency (Hz)	50	50	50	50
Continuous Output Current	2.3	7.3	3.6	7.3
Surge Output Current (Amps)	3.5	11	5.4	11
Wave Shape	Sine	Sine	Sine	Sine
Length (cm)	41.3	42.5	41.3	38.5
Height (cm)	19.4	23.2	19.4	23.2
Diameter (cm)	13.2	18.1	13.2	18.1
Weight (kg)	11.8	23.8	11.8	21.7

Ambient Temperature Range, all models: -30° to +130° F (-34° to +54° C)

* Variance from output voltage and frequency is dependent on load size and the DC input voltage. Typical voltage tolerance is ±15%. Typical frequency tolerance is ±5%. Carefully monitor any equipment that is sensitive to fluctuations in either voltage or frequency.

4. Unpacking and Inspection

Open the top of the box and lift the Generator and the

CAUTION insert out.

This generator is a heavy piece of equipment. Removing it from the box may require more than one person to avoid dropping the generator and prevent personal injury.

Inspect the unit for any damage that may have been sustained during shipment. If you find damage, contact the shipper immediately to file a claim.

5. Installation Requirements

Most REDI-LINE service requests result from improperly installed units. Improper installation will affect generator performance and may damage the unit. *Generator damage caused by improper installation is not covered under warranty.*

Battery Selection

Standard automotive batteries are designed to supply 300 to 500 amps of current over a relatively short period, therefore, they are not the best power source for generator operation. Deep cycle or marine batteries are designed to deliver lower current levels for a longer time and are capable of taking deep discharges without battery damage. For this reason, a deep cycle battery is recommended for REDI-LINE operation.

Batteries are rated in cold cranking amps (CCA). In general, the higher the CCA the longer the battery will operate a generator load. Length of run time depends on the battery capacity, the size of the load (tool or appliance connected to the generator), and how frequent the load is operated.

Use the following formula to estimate how long a fully charged deep cycle battery will keep the REDI-LINE operating continuously before the battery needs recharging:

$$\text{Hours} = \frac{\text{Cold Cranking Amps (CCA)}}{180 \times \text{AC Load Amps}}$$

Cold Cranking Amps are equal to the total of all batteries. AC Load Amps is the AC current rating listed on the nameplate of the tool or appliance.

For Example: Two batteries with a CCA rating of 675 are used to operate a Generator. An AC load of 4 amps is required by the tool being operated. Continuous run time is:

$$\text{Hours} = \frac{675 + 675}{180 \times 4} = 1.87 \text{ Hours}$$

To further extend the operating time of the generator, the generator's battery system should be connected to the vehicle charging system. With the vehicle running, the alternator charges the generator battery bank which provides a longer run time. If you plan to use the generator continuously, you may need to install a larger alternator in your vehicle.

Consult your REDI-LINE distributor for more

information.

NOTE: Installation and wiring must conform to all applicable codes, including the National Electric Code, state and local, or other codes in effect at the time of installation.

CAUTION

Automotive and marine type batteries produce dangerous current levels. Protect yourself when working around these batteries and electrical systems. This includes the use of safety goggles.

Mounting Guidelines

After reviewing your generator usage and selecting the battery size and number of batteries, determine the best location to mount your generator and its power supply. When choosing a location, observe these guidelines:

- Keep the generator as close to the battery as possible to reduce the length of the power cables. Long power cables will reduce the amount of voltage to the generator and decrease performance.

- Allow at least 2 inches of free air space around the generator. Do not obstruct the ventilation as it can cause **CAUTION** overheat.

- Do not install the generator in areas with direct exposure to water, or compartments containing **CAUTION** osive fumes.

- Do not install in unventilated areas where ignitable fumes can collect.

Mounting the Generator

The generator is not position sensitive and may be mounted in whatever orientation best suits your application.

- Place the unit in the desired position or use the templates on pages 12-13 to mark the location of the mounting holes.

- Remove the generator or template. At the marked location, drill 1/4" holes and fasten the generator using four 1/4" flat washers, lock washers, bolts, and nuts through the holes in the base flange.

Installation Wiring

Install additional batteries, fuses, and, if required, a battery isolator. See Installation Illustrations (pages 5-11) for specific instructions. Cable, connectors, fuses and isolators may be available from your authorized REDI-LINE distributor. Many also provide complete installation services.

Pacific Scientific recommends that the REDI-LINE Generator always be installed using proper fuses or circuit breakers. See the Installation Illustrations for suggested fuse sizes and location. Place fuses no farther than 18" from the battery.

WARNING

It is important that the polarity (+ & -) be correctly connected to the generator. Note polarity indications on Installation Diagrams shown in this guide.

The connection between the supply battery and the REDI-LINE Generator is one of the most critical installation steps. Choose the correct supply cable size from the following table. Using the wrong supply cable size will damage the generator.

Do not ground the negative (-) REDI-LINE supply terminal to the vehicle chassis. The negative REDI-LINE terminal must be connected directly to the supply battery using the proper size supply cable.

Recommended Supply Cable Size

Generator	For Cable Length in Feet			
	up to 3'	3' to 8'	8' to 10'	10' & over
DA3179 DA12A-500A	#6	#4	#4	#4
DA24A-800A DA3272 DA36A-900A	#6	#6	#6	#4
DA12L-1600A* & DA32526	#2*	#2*	#2*	#0*
DA24L-1600A DA3444 & DA36-1600A	#6	#6	#6	#4

Between Battery and REDI-LINE Generator

Less than 10 ft. #0 AWG Cable. More than 10 ft. #00 AWG Cable.

*Recommended minimum wire gauge for DA12L-1600A & DA3252 with one battery.

NOTE: Damage caused by incorrectly installing your REDI-LINE generator is not covered by warranty.

Carefully plan the power supply cable route. Do not allow the cables to rub against sharp surfaces which could cut the cable insulation and cause a short against the vehicle frame. **NOTE:** When attaching the power cables to the generator, a spark at the connection may occur. This is normal and does not mean the generator is defective.

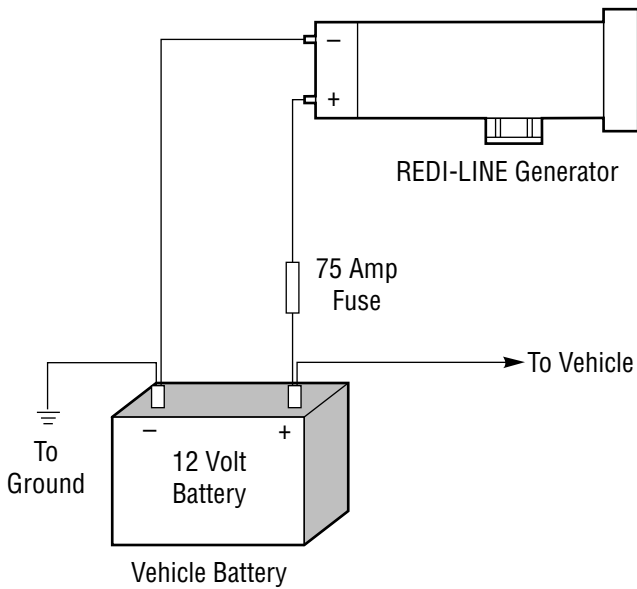
The REDI-LINE generator will not run until the demand start circuit senses a load. To turn on the generator plug a load into the generator receptacle and turn on the device switch. The generator should start. After the AC load is removed the generator will stop in 2 to 10 seconds.

If the generator does not start, or cycles on and off, the AC load may be too small or the AC device may not be turned on. Verify the device is turned on or try adding more load to the generator.

RECOMMENDED WIRING INSTALLATION

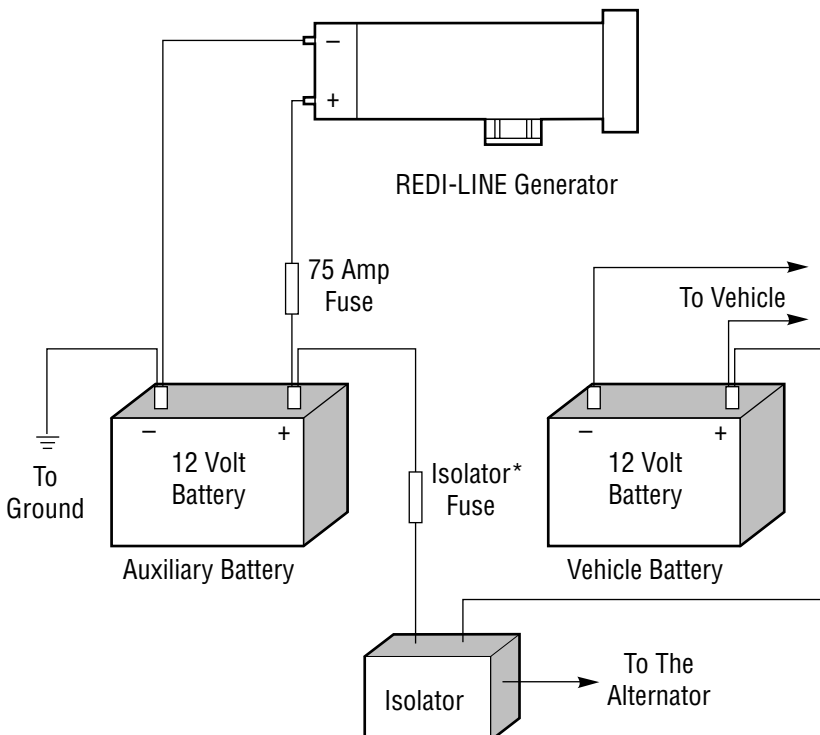
DA12A-500A and DA3179

Infrequent Use with Varying Loads



If the load requirement is not heavy (intermittent hand tool use or light loads for a long period of time) the vehicle battery and charging system should handle both vehicle and additional generator demand.

Frequent Use with Varying Loads



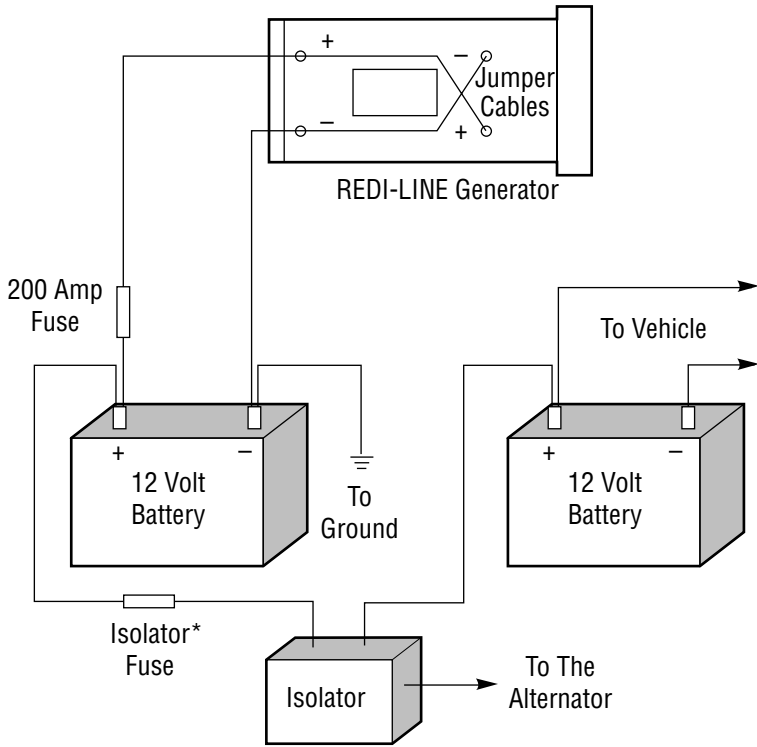
If the load requirements are heavy (constant use of hand tools or large loads) install one or more auxiliary deep cycle batteries. The auxiliary battery should be isolated from the vehicle battery using a battery isolator. The battery isolator is a one way path so both batteries are charged by the vehicle but one battery cannot discharge the other. This will ensure the vehicle battery is always charged and you will be able to start your vehicle.

*Use fuse size recommended by isolator manufacturer

RECOMMENDED WIRING INSTALLATION

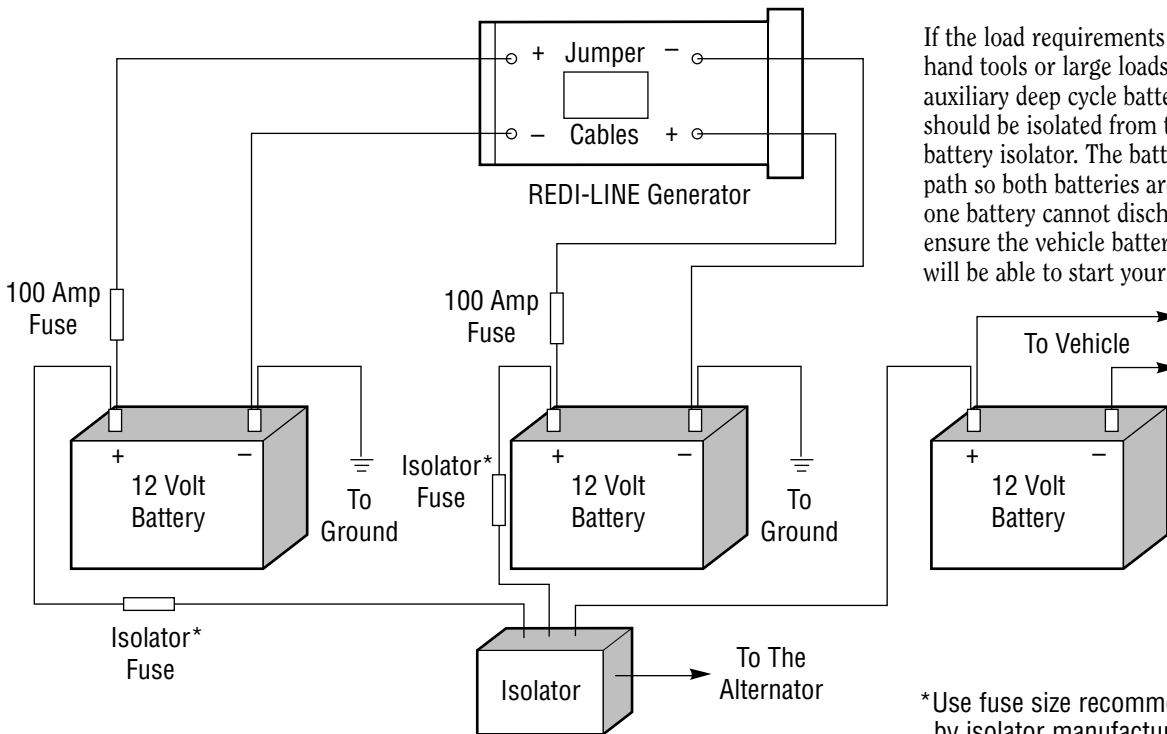
DA12L-1600A and DA 3252

Infrequent Use with Varying Loads



If the load requirement is not heavy (intermittent hand tool use or light loads for a long period of time) install one or more auxiliary deep cycle batteries. The auxiliary battery should be isolated from the vehicle battery using a battery isolator. The battery isolator is a one way path so both batteries are charged by the vehicle but one battery cannot discharge the other. This will ensure the vehicle battery is always charged and you will be able to start your vehicle.

Frequent Use with Varying Loads



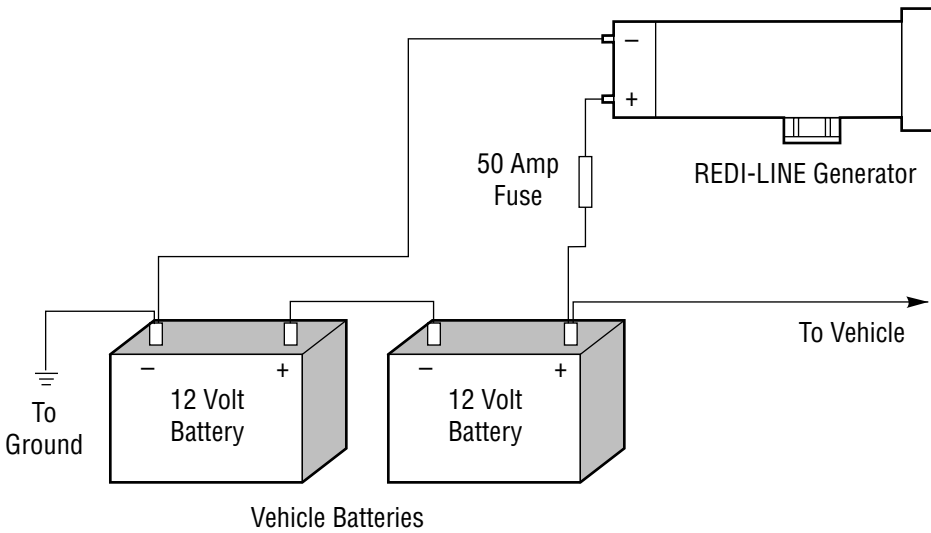
If the load requirements are heavy (constant use of hand tools or large loads) install two or more auxiliary deep cycle batteries. The auxiliary batteries should be isolated from the vehicle battery using a battery isolator. The battery isolator is a one way path so both batteries are charged by the vehicle but one battery cannot discharge the other. This will ensure the vehicle battery is always charged and you will be able to start your vehicle.

*Use fuse size recommended by isolator manufacturer

RECOMMENDED WIRING INSTALLATION

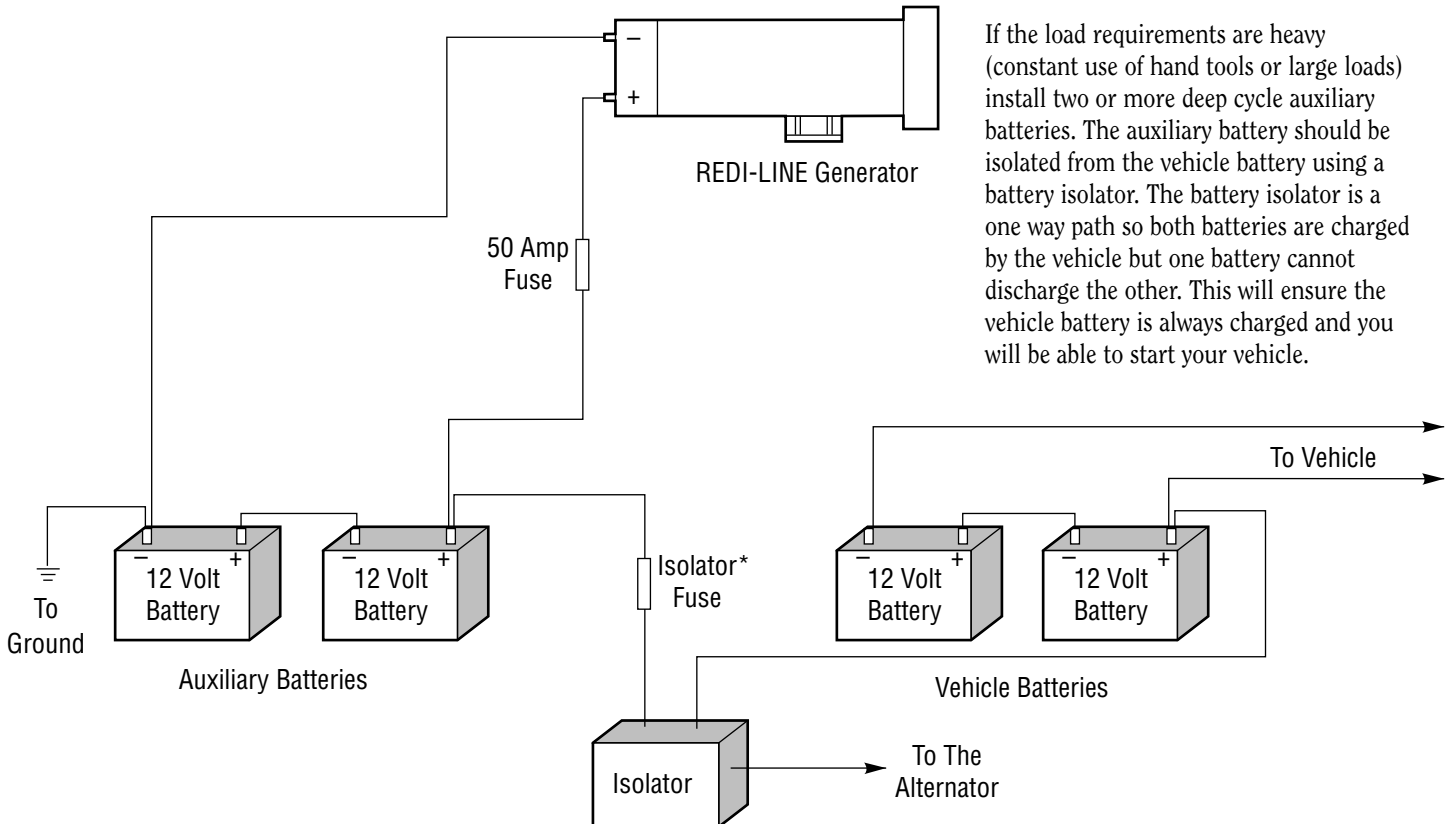
DA24A-800A and DA3272

Infrequent Use with Varying Loads



If the load requirement is not heavy (intermittent hand tool use or light loads for a long period of time) the vehicle battery and charging system should handle both the vehicle and additional generator demand.

Frequent Use with Varying Loads



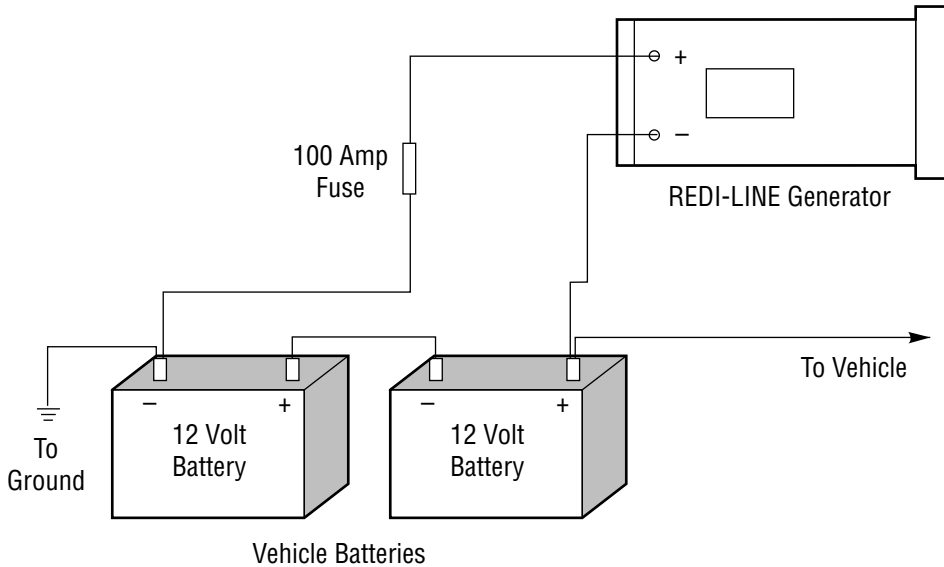
If the load requirements are heavy (constant use of hand tools or large loads) install two or more deep cycle auxiliary batteries. The auxiliary battery should be isolated from the vehicle battery using a battery isolator. The battery isolator is a one way path so both batteries are charged by the vehicle but one battery cannot discharge the other. This will ensure the vehicle battery is always charged and you will be able to start your vehicle.

*Use fuse size recommended by isolator manufacturer

RECOMMENDED WIRING INSTALLATION

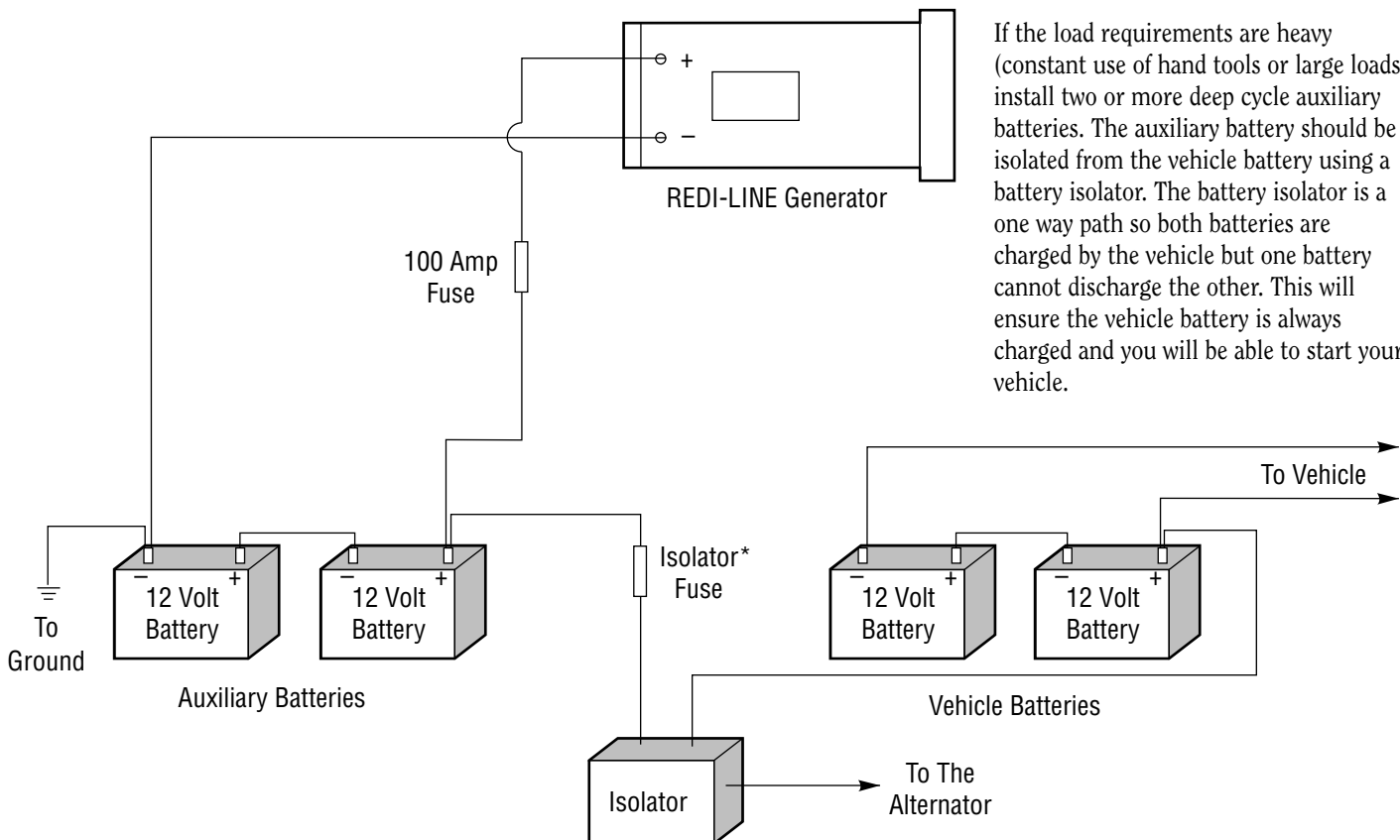
DA24L-1600A and DA3444

Infrequent Use with Varying Loads



If the load requirement is not heavy (intermittent hand tool use or light loads for a long period of time) the vehicle battery and charging system should handle both the vehicle and additional generator demand.

Frequent Use with Varying Loads



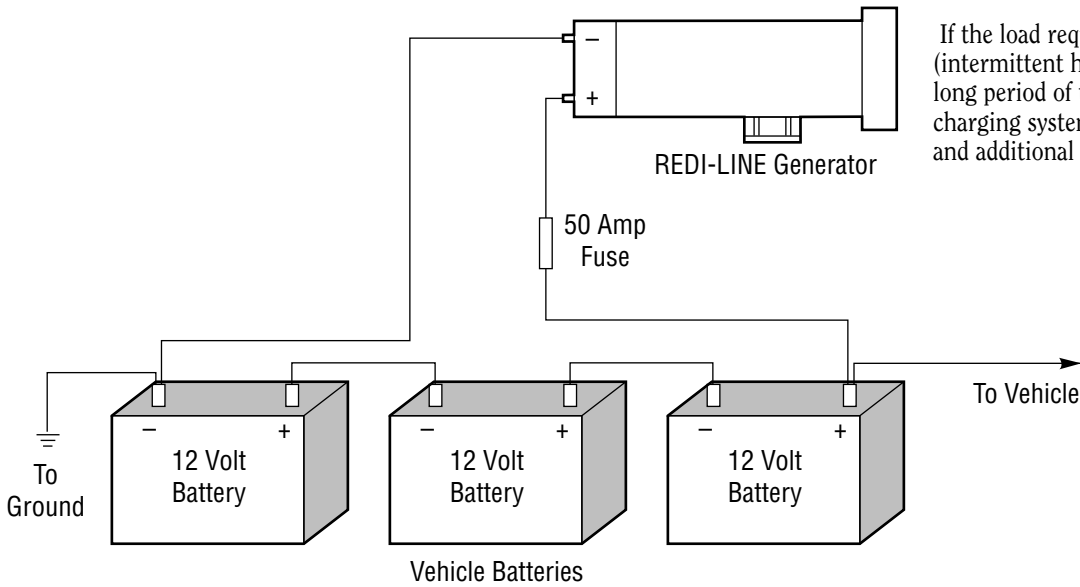
If the load requirements are heavy (constant use of hand tools or large loads) install two or more deep cycle auxiliary batteries. The auxiliary battery should be isolated from the vehicle battery using a battery isolator. The battery isolator is a one way path so both batteries are charged by the vehicle but one battery cannot discharge the other. This will ensure the vehicle battery is always charged and you will be able to start your vehicle.

*Use fuse size recommended by isolator manufacturer

RECOMMENDED WIRING INSTALLATION

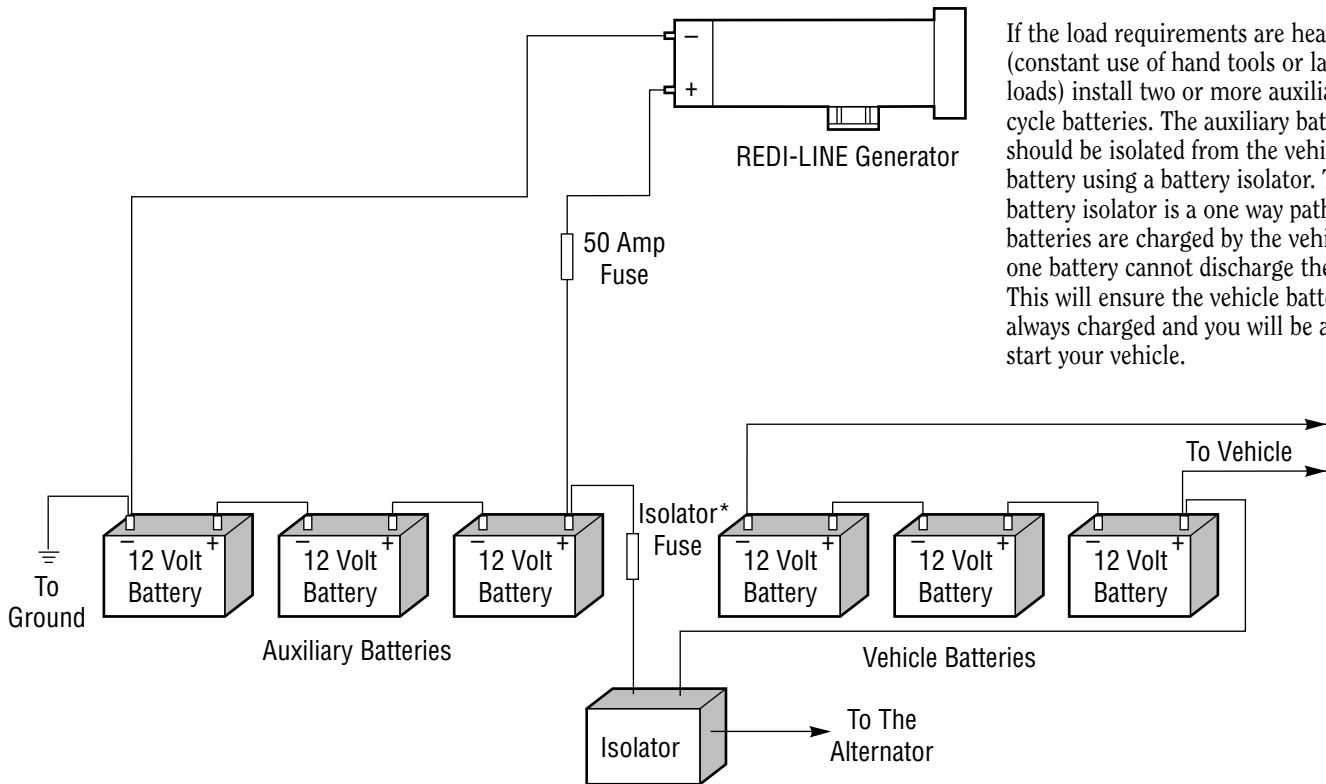
DA36-900A

Infrequent Use with Varying Loads



If the load requirement is not heavy (intermittent hand tool use or light loads for a long period of time) the vehicle battery and charging system should handle both the vehicle and additional generator demand.

Frequent Use with Varying Loads



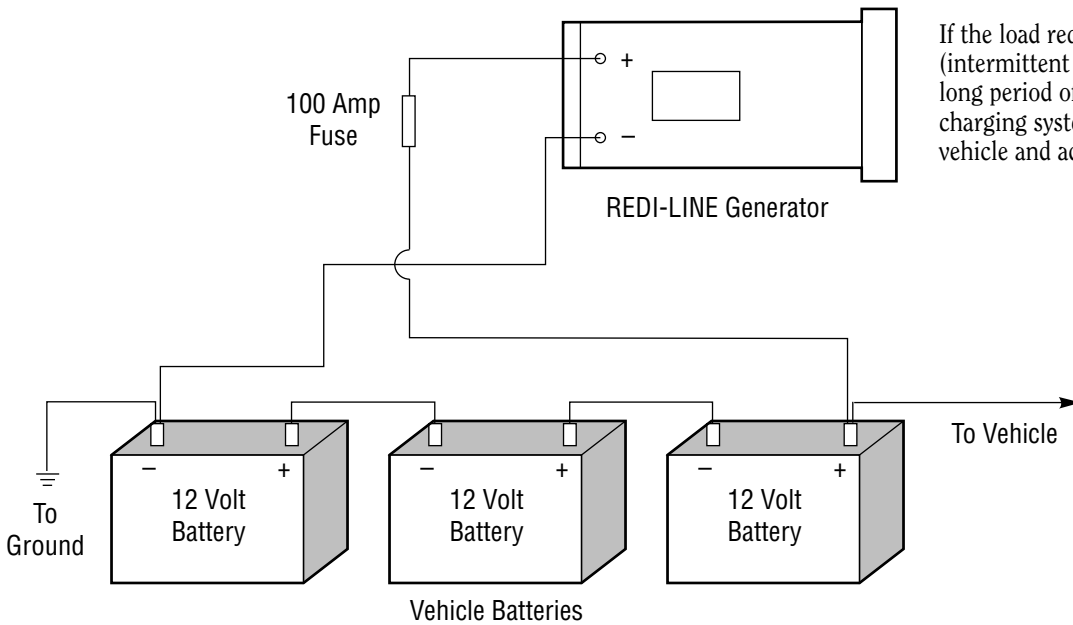
If the load requirements are heavy (constant use of hand tools or large loads) install two or more auxiliary deep cycle batteries. The auxiliary batteries should be isolated from the vehicle battery using a battery isolator. The battery isolator is a one way path so both batteries are charged by the vehicle but one battery cannot discharge the other. This will ensure the vehicle battery is always charged and you will be able to start your vehicle.

*Use fuse size recommended by isolator manufacturer

RECOMMENDED WIRING INSTALLATION

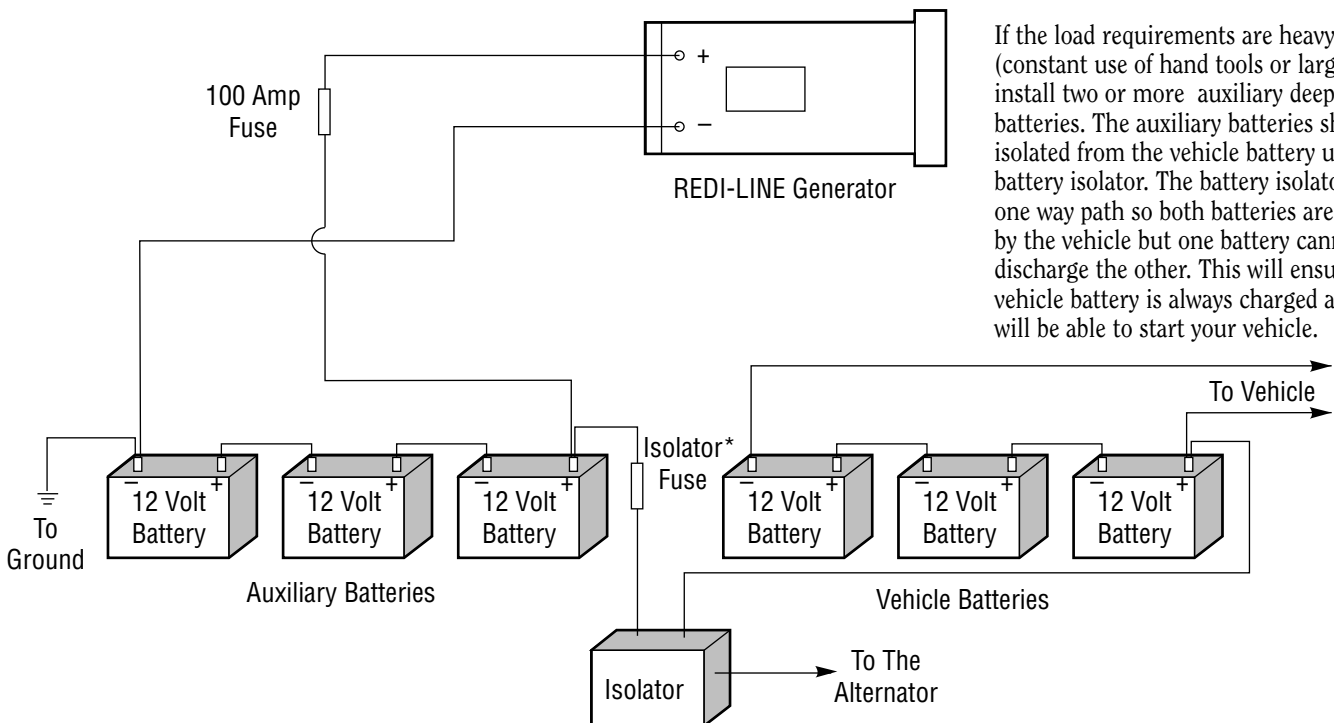
DA36L-1600A

Infrequent Use with Varying Loads



If the load requirement is not heavy (intermittent hand tool use or light loads for a long period of time) the vehicle battery and charging system should handle both the vehicle and additional generator demand.

Frequent Use with Varying Loads



If the load requirements are heavy (constant use of hand tools or large loads) install two or more auxiliary deep cycle batteries. The auxiliary batteries should be isolated from the vehicle battery using a battery isolator. The battery isolator is a one way path so both batteries are charged by the vehicle but one battery cannot discharge the other. This will ensure the vehicle battery is always charged and you will be able to start your vehicle.

*Use fuse size recommended by isolator manufacturer

6. Maintenance

Because the REDI-LINE generator contains long life bearings and brushes, it is virtually maintenance free. A periodic wipe down of the unit and inspection of all mounting hardware for tightness is all that is needed. Cable and battery connections should also be inspected regularly.

7. Service

If your REDI-LINE Generator should need service, contact your nearest authorized REDI-LINE distributor.

8. Warranty

Pacific Scientific warrants its REDI-LINE Generator "Product(s)" to the original purchaser the "Customer", and in the case of original equipment manufacturers or distributors to their original consumer the "Customer" to be free from defects in material and workmanship and to be made in accordance with Customer's specifications which have been accepted in writing by Pacific Scientific. In no event, however, shall Pacific Scientific be liable or have any responsibility under such warranty if the Products have been improperly stored, installed, used or maintained, or if Customer has permitted any unauthorized modifications, adjustments and/or repairs to such Products. Pacific Scientific's obligation is limited solely to repairing or replacing (at its option), at its approved repair facility, any Products, or parts which prove to Pacific Scientific's satisfaction to be defective as a result of defective materials or workmanship, in accordance with Pacific Scientific's stated warranty, provided, however, that written notice of claimed defects shall have been given to Pacific Scientific within two (2) years after the date of the product date code that is affixed to the Product, and within thirty (30) days from the date any such defect is first discovered. The Products or parts claimed to be defective must be returned to Pacific Scientific, or an Authorized Redi-Line distributor, transportation prepaid by customer, with written specifications of the claimed defect. Evidence acceptable to Pacific Scientific must be furnished that the claimed defects were not caused by misuse, abuse, or neglect by anyone other than Pacific Scientific.

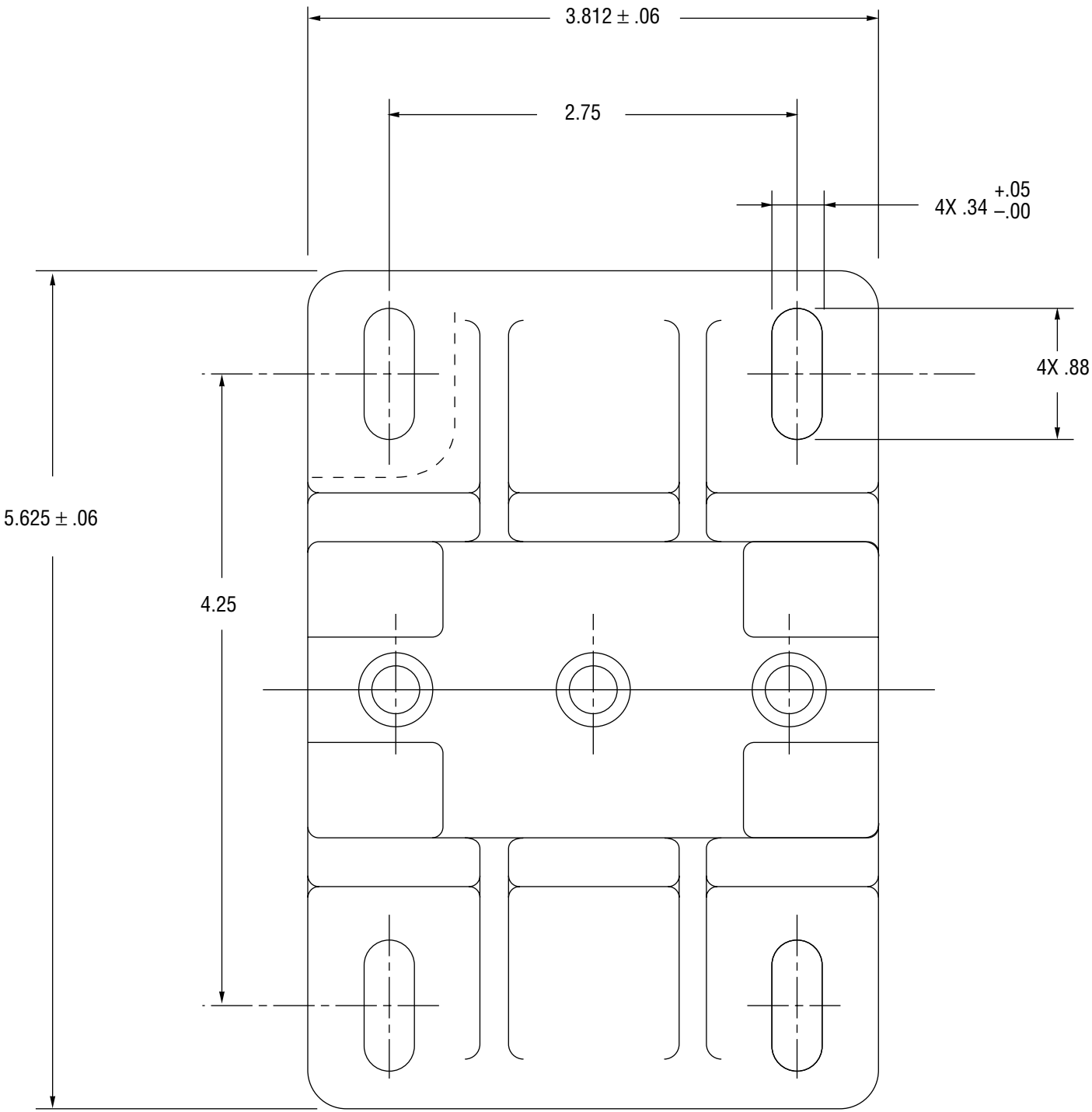
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The forgoing shall also apply to Products, or parts for the same which have been repaired or replaced pursuant to such warranty.

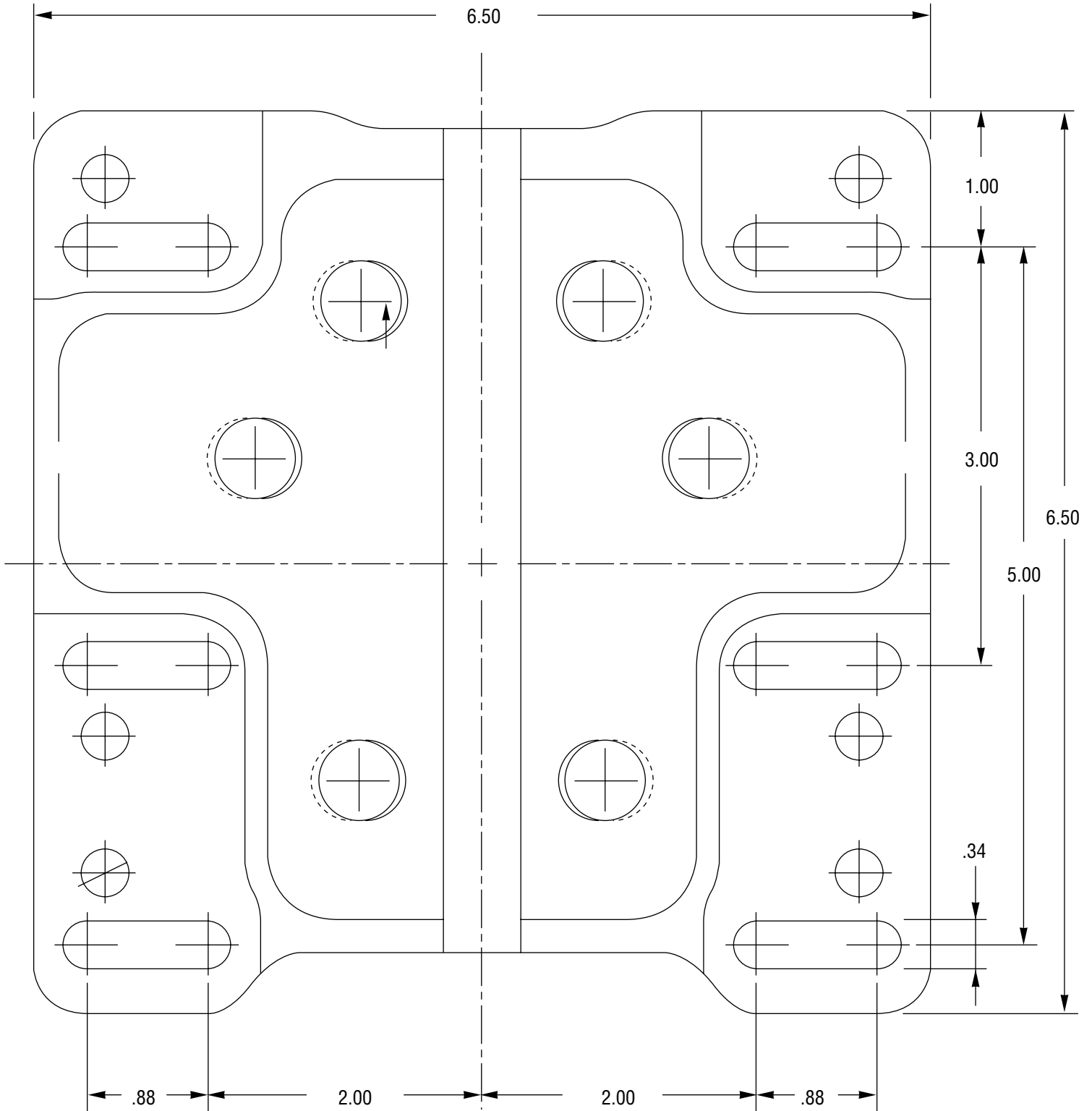
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DA12A, DA24A, DA36A, DA3179 AND DA3272 MOUNTING



All measurements in inches.

DA12L, DA24L, DA36L, DA3252 AND DA3444 MOUNTING



All measurements in inches.

