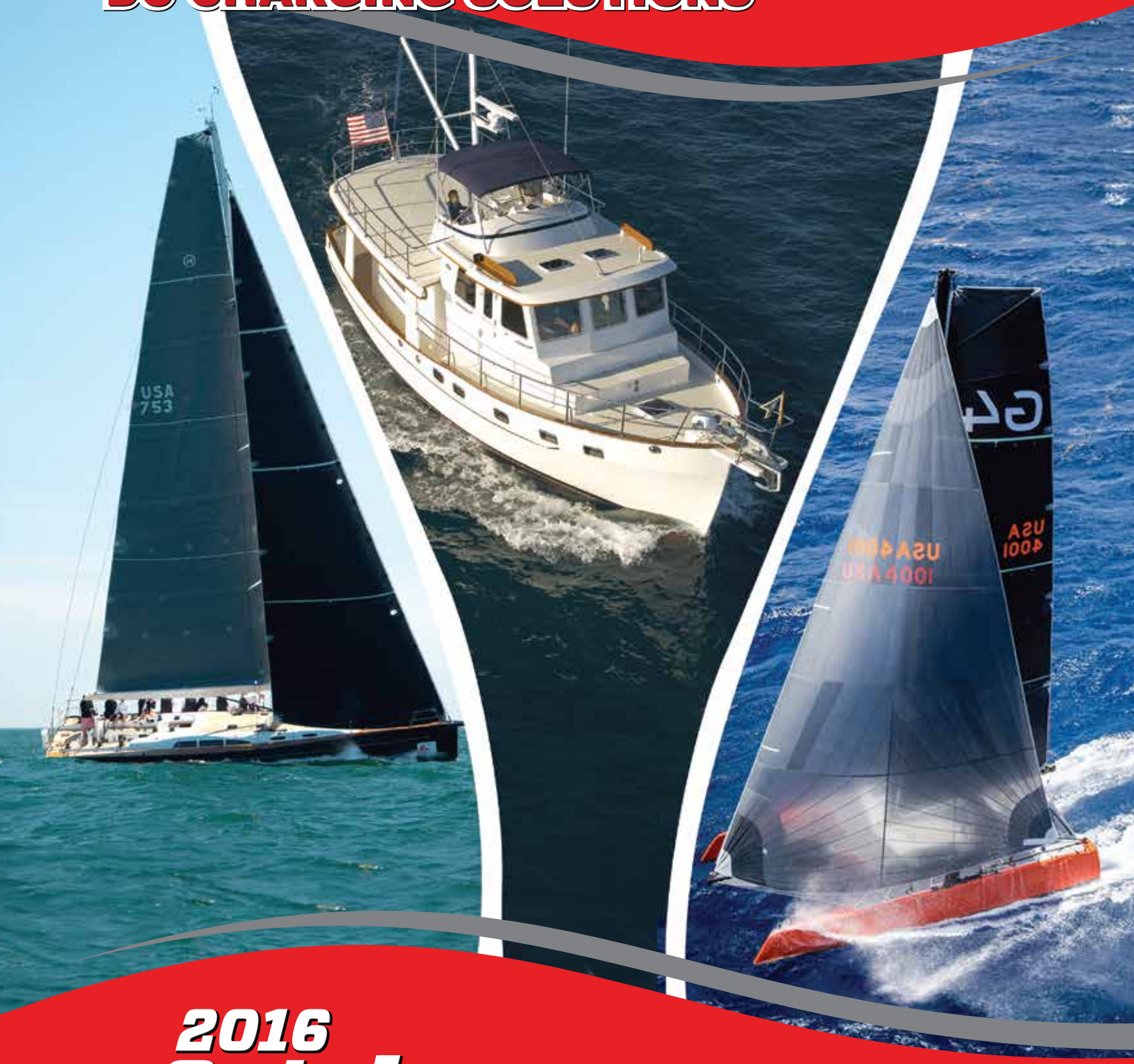
BALMAR®

WWW.BALMAR.NET

DC CHARGING SOLUTIONS



2016 Catalog

Balmar Knows How To Charge Your Batteries

Balmar has been serving the Recreational Marine Industry for over 30 years.

We supply DC Charging Products and Battery Monitors to help sailors and power boaters charge and monitor their batteries more efficiently.

Balmar is recognized throughout the industry for its innovative technology, expert technical service and product reliability.

We design and manufacture:

- The highest output and most reliable alternators available in the Marine Industry, including our patented Smart Ready®Alternator designs.
- External Multi-Stage Regulators which provide "smart charging" of your battery banks.
- Patented Atmount®Pulley Conversion Kits for serpentine belt/pulley conversions required to accommodate high power alternators.
- Smartgauge™ Battery Monitors for the most accurate battery monitoring available today.

We support these innovative products with our best-in-the-industry Technical Service Group. We stick with you throughout the process of (a) identifying the best charging system for your vessel, (b) properly installing, and (c) optimizing the operation of your charging system. Just ask anyone who is using Balmar!

Through our recent association with CDI Electronics, Balmar is also investing greater resources in quality systems and product development.

- Balmar products are now being assembled and tested in an ISO 9000-certified factory.
- Balmar has vastly increased our offering of the patented Altmount®Pulley Conversion Kits.
- Balmar is developing the Smartgauge™Battery Monitoring System for in-house manufacturing and further product development.
- Check out our new, interactive website at ***www.balmar.net***!

Utilize our configuration guide: **"How to Select a Balmar Charging System"** found on pages 4-7 in this product guide or visit ***www.balmar.net*** to configure a Balmar Charging System for your needs!

"I love your products. I have all your high-output alternators on every boat I use and restore. Balmar products should be on every boat!"

Serial Boat Restorer - Newport, Rhode Island

On the Cover:
The Hinkley 50, Kadey-Krogan 44 & Gunboat G4 all utilize Balmar Charging System upgrades.

The Balmar Difference

- More Charging Amps at Low RPM
- More Charging Amps at High RPM
- 30% Faster, More Complete Charging
- Longer Battery Bank Life
- Less Fuel Consumption
- More Reliable Charging Components
- More Accurate Battery Monitoring
- Worry-Free Operation

This is the essence of what Balmar Products provide.

The following pages describe how we do it and how to specify a Balmar Charging System for your needs.

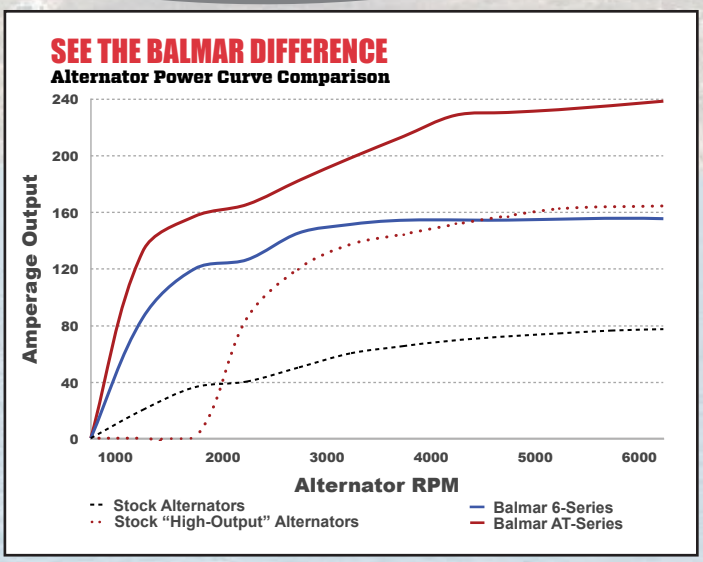


Table of Contents

How to Select a Balmar Charging System

There are numerous reasons to upgrade your charging system.
Here are some common complaints:

- I can't keep my battery charged!
- My current alternator does not keep up with my electrical requirements/load.
- I don't want to run my engine just to charge the batteries.
- I don't want to run my generator to charge the batteries when my engine is already running.
- I've added several batteries to my house bank, but I don't think they are being charged effectively.
- I operate predominantly at idle speed, but my battery bank doesn't charge at idle.
- I keep burning out alternators and/or batteries.
- I have two engines, but my alternators don't work together to charge the battery bank effectively.
- My alternator charges my house bank, but I want to charge the engine start battery too without remembering to flip a battery switch.

Balmar Charging Systems can solve all these problems and more...

Selecting a charging system upgrade for your vessel can be a confusing task, as there are many inter-related variables to consider. The following guide steps you through a logical progression of questions and choices which must be made to select the best charging system for your needs.

The selection process includes the following steps:

Step 1: Determine Your Vessel's Electrical Load
Step 2: Identify Your Existing Battery Bank Technology and Capacity
Step 3: Select Your Optimum Alternator Output
Step 4: Identify the Alternator Mounting Style Present on Your Engine
Step 5: Determine your Belt and Pulley Requirements
Step 6: Select Additional Charging System Options

These 6 important steps are fully described in the next 3 pages - Read on!

Our most popular charging system packages (shown below) combine Balmar's high amperage alternators and programmable multi-stage regulators – providing the best DC charging solution for your vessel. Keep reading to select the appropriate system for your needs.

See Page 7
to review the 6-Series, our best-selling alternator!

6-Series Charging Package
Includes Alternator, Regulator & Temp Sensors

See Page 8
to review the amazing technology behind our high power AT-Series

AT-Series Charging Package
Includes Alternator, Regulator & Temp Sensors

How to Select a Balmar Charging System

Step 1: Determine Your Vessel's Electrical Load

Skip this step if you are confident in your house bank's ability to service your existing vessel loads.

Accurate load calculations require precise measurement of your vessel's equipment. Refer to equipment manuals for actual load ratings or consult with a qualified marine electrician to determine your actual needs. The chart at the right provides typical DC marine loads and an example of load calculations. Use this example to configure and calculate your vessel's electrical load.

(Device Load x Duty Cycle) x (# of Devices) = Total Load

An interactive load calculator is available on our website homepage at ***www.balmar.net***.

House battery capacity is typically derived based on the ability to meet approximately 24 hours' worth of typical demand, but could be longer if you don't expect to be connected to shore power for extended periods.

For example, if your vessel's typical daily electrical load is 300 Ah, then your battery bank should be sized to provide 300Ah of power storage.

Since your batteries will be damaged if you discharge them beyond a 50% State of Charge (SoC%), then 600Ah of rated storage is required.

Add batteries to your bank if you need them!

Typical DC Electrical Loads

Device	Electrical Load in Amps/Hour	Duty Cycle Hours /24 Hours	Total Ah Load per 24 Hours
VHF Receive	1.5	16	24
VHF Transmit	5.0	1	5
Depth Finder	1.0	16	16
GPS	0.5	16	8
Radar	4.0	8	32
Weather Fax	2.5	2	5
Laptop Computer	6.0	3	18
Auto Pilot	4.0	8	32
Knot Meter	0.1	8	1
Wind Speed	0.1	8	1
Anchor Light	1.0	2	2
Steaming Light	1.0	8	8
Running Light	3.0	3	9
Bilge Pump	5.0	2	10
Head	50.0	1	50
Wash Down Pump	10.0	1	10
Refridgerator	7.5	5	38
Hand Spotlight	10.0	0.5	5
Large TV	25.0	1	25
DVD Player	8.0	1	8
Satellite Receiver	12.0	8	96
Add'l Devices …			0
Total Daily Ah Load			**402**

Step 2: Identify Your Existing Battery Bank Technology and Capacity

Battery bank capacity has a dramatic impact on the size and type of alternator required to keep the batteries healthy. Identify your battery bank technology and capacity, then calculate an acceptance requirement.

(A) Standard and Deep Cycle Flooded Batteries can accept a charge load up to 25% of their capacity.
(B) Gel Cell Batteries can accept a charge load up to 35% of their capacity.
(C) AGM Batteries can accept a charge load up to 40% of their capacity.
(D) Lithium Batteries can accept an almost unlimited charge load.

Contact your battery manufacturer to confirm their recommended charge loads and profile.

(Battery Storage Capacity) x (Battery Charge Acceptance Rate) = Maximum Alternator Output Current

For example, a bank of 3 AGM batteries, each with an individual capacity of 100Ah provide a total capacity of 300Ah. With an AGM acceptance rate of up to 40%, a 120A charging alternator could be utilized. If you have a really large bank or a battery technology that calls for an alternator output that exceeds available alternator technology, then it will just take longer to charge your bank.

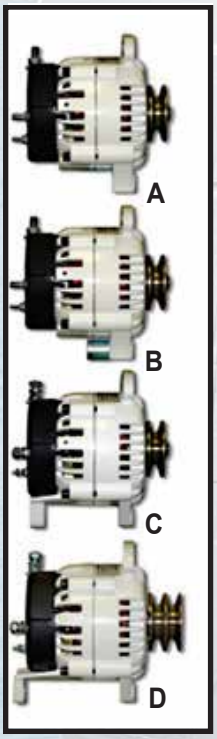
Simply choose the highest alternator power which meets your budget, pulley constraints, and acceptance rate.

How to Select a Balmar Charging System

Step 3: Select Your Alternator Output

Now that you know the battery bank technology and charging profile, you can choose an alternator output which will optimally charge your bank. The chart on the next page shows Balmar's most popular range of small-case, high-power alternator choices for your vessel, along with an appropriate multi-stage regulator and related temperature sensing cables. (Balmar provides a discount when you buy the package).

For 70A – 120A requirements, choose a 6-Series Alternator Package.
For 165A – 200A requirements, choose an AT-Series Alternator Package.



Step 4: Identify the Alternator Mounting Style Present on Your Engine

It is critically important to determine how your existing alternator is mounted to match with the alternator ouput you have chosen. Marine alternator mountings generally fall into one of four possibilities:

(A) 1" Single Foot "Spindle" (Motorola-style - Westerbeke, Lehman, Hino, Pathfinder)
(B) 2" Single Foot "Spindle" (Delco-style - Volvo, Deere, Perkins, Mercruiser, GM-based)
(C) 3.15" Dual Foot "Saddle" (Hitachi-style – Yanmar, Westerbeke, Lehman, Perkins)
(D) 4" Dual Foot "Saddle" (J180-style – John Deere, Cummins, Caterpillar)

Examples of these mounting styles are shown on the right.
Review your existing alternator mounting to determine the appropriate mounting for your upgrade.

Each Balmar alternator mounting style is identified by a unique part number.

Step 5: Determine your Belt and Pulley Requirements

Engine drive belt style and width is also a critical factor when selecting a Balmar replacement charging system. Higher output alternators require more drive power to be taken off the engine. All belts have specific limitations regarding the amount of power take-off ("PTO") loads they can support.

Belt Type	Belt Width	Maximum HP Load	Max Alternator Output	
			12 Volt	24 Volt
Single Vee	3/8"	3.5 HP	80 Amp	30 Amp
Single Vee	1/2"	4.5 HP	100 Amp	45 Amp
Dual Vee	1/2"	12 HP	310 Amp	220 Amp
Serpentine	6-Groove (K)	> 20 HP	210 Amp	100 Amp
Serpentine	10-Groove (J)	> 20 HP	310 Amp	220 Amp

Failure to specify an adequate belt/pulley system could result in premature belt wear, belt slippage and potential damage to the alternator and engine.

Balmar alternators only ship with pulleys which are appropriate for the alternator's output.

6-Series Alternators from 70A-100A can ship with either a Single Vee, Dual Vee or Serpentine Pulley.*
6-Series Alternators from 120A-150A can ship with either a Dual Vee or Serpentine Pulley.*
AT-Series Alternators can ship with either a Dual Vee or Serpentine Pulley.*.

* Note: Balmar's ½" Deep Vee Pulleys (Single and Dual) can accept a 3/8" and 7/16" belt.

Identify the pulley style/size present on your engine and water pump before upgrading the charging system.

How to Select a Balmar Charging System

U.S. Patent Nos. 8.939.855 and D654.778

Step 5: Determine your Belt and Pulley Requirements ... Continued

If the alternator output you have chosen exceeds the capability of your existing belt/pulley system, you can upgrade the pulley system using one of Balmar's patented Altmount®Pulley Conversion Kits. Refer to the chart on page 11 to find the applicable AltMount®Conversion Kit for your engine and alternator choice.

Here are some additional rules-of-thumb to guide your choices:

- Balmar 6-Series Alternators from 70A-100A can perform with a ½" Single Vee pulley. If you need to charge above 100A, then you will need a Dual Vee or Serpentine pulley system to be present on your engine to avoid a pulley upgrade. If a Dual Vee or Serpentine pulley is not present, then an AltMount®Conversion Kit is required.
- Many boaters choose to limit their charging system upgrade to a 100A 6-Series Alternator Package to avoid the additional purchase of a pulley conversion.
- Unless you own a recently produced engine which already contains a Dual Vee or Serpentine pulley system, the superior power afforded by the AT-Series Alternator Package will in most cases require an AltMount®Conversion Kit Upgrade.
- Choose wisely! Need more help? - call Balmar Technical Support at the number below!

With the completion of these 5 steps, you have reviewed all the critical variables required to choose the correct charging system upgrade for your vessel.

Small Case Alternator Kit Selection Chart - Common Configurations

Balmar Product Family	Output	Mounting	Power Take Off	Alternator Part Number(1)	Balmar External Regulator	Temp Sensors	Alternator Kit Number(1) (includes Alternator, Regulator & Temp Sensors)	Altmount® Pulley Kit Required?
6 Series(2)	70 A	1-2" Spindle	2.8 HP	621-70-XX	ARS-5-H(3)	MC-TS-A & MC-TS-B	621-VUP-70-XX	No
		3.15" Saddle		60-70-XX			60-YP-70-XX	
	100 A	1-2" Spindle	4.0 HP	621-100-XX			621-VUP-100-XX	
		3.15" Saddle		60-100-XX			60-YP-100-XX	
	120 A	1-2" Spindle	4.8 HP	621-120-XX			621-VUP-120-XX	Yes, If Dual Vee or Serpentine is Not Already Present *See Page 11*
		3.15" Saddle		60-120-XX			60-YP-120-XX	
	70 A, 24V	1-2" Spindle	5.6 HP	621-24-70-XX	MC-624-H		621-VUP-24-70-XX	
		3.15" Saddle		60-24-70-XX			60-YP-24-70-XX	
AT Series	165 A	1-2" Spindle	5.2 HP	AT-SF-165-XX	MC-614-H		AT-SF-165-XX-KIT	
		3.15" Saddle		AT-DF-165-XX			AT-DF-165-XX-KIT	
	200 A	1-2" Spindle	6.0 HP	AT-SF-200-XX			AT-SF-200-XX-KIT	
		3.15" Saddle		AT-DF-200-XX			AT-DF-200-XX-KIT	

(1) "XX" Pulley Designations: "SV" = 1/2" Single Vee, "DV" = 1/2" Dual Vee, "K6" = K6 Serpentine, "J10" = J10 Serpentine
(2) 6-Series Alternators are "Smart-Ready" and can be installed with or without an external Balmar Programmable Regulator.
(3) MC-614-H must be substituted when support for a second alternator or twin engines is required.

Step 6: Select Additional Charging System Options

Now that you have selected an appropriate Balmar Alternator Kit, complete your purchase by adding a Smartgauge™ Battery Monitor and a Belt Buddy Tensioning Kit! See pages 12 and 23, respectively for details.

6-Series Alternators

Designed for Recreational Applications

- **Balmar's Top Selling Alternator Line**
- **70A, 100A, 120A and 150A Versions**
- **Patented Smart Ready® Technology**
- **Dual Fan Cooling**
- **High Airflow Frame**
- **Maximum RPM: 12,000**
- **USCG Title 33, ISO, SAE and CE Compliant**
- **Ideal for Modest Charging Upgrades**

Smart Ready® 6-Series

Balmar 6-Series Alternators deliver high-output performance in a compact, small-case package and are available in all four common mounting configurations (see page 6).

While all Balmar's high-output alternators are designed and recommended for use with our multi-stage voltage regulators, the 6-Series Alternator utilizes Balmar's Smart Ready® Technology. If battery loads are relatively small and your engine is running frequently, the alternator's internal regulator may be sufficient to support your electrical needs without external regulation. If your vessel utilizes larger deep-cycle battery banks or the engine's duty cycle is less frequent (as is the case in most sailing applications), the 6-Series Alternator combines and works seamlessly with Balmar's ARS-5 Voltage Regulator or Max Charge Voltage Regulator.

Purchased either individually or as a charging kit, 6-Series Alternators can solve a multitude of charging problems at a reasonable price. All kits come with alternator, regulator and two temperature sensors.

Charging Kit

6-Series Output	Power Take Off	Mounting[3]	Individual Alternator Part Number[1]	Alternator Kit with ARS-5 Regulator[1]	Alternator Kit with Max Charge Regulator[1][2]	Altmount® Pulley Kit Required?
70 A	2.8 HP	1-2" Spindle	621-70-XX	621-VUP-70-XX	621-VUP-MC-70-XX	No
		3.15" Saddle	60-70-XX	60-YP-70-XX	60-YP-MC-70-XX	
100 A	4.0 HP	1-2" Spindle	621-100-XX	621-VUP-100-XX	621-VUP-MC-100-XX	
		3.15" Saddle	60-100-XX	60-YP-100-XX	60-YP-MC-100-XX	
120 A	4.8 HP	1-2" Spindle	621-120-XX	621-VUP-120-XX	621-VUP-MC-120-XX	Yes, If Dual Vee or Serp is Not Present See *Page 11*
		3.15" Saddle	60-120-XX	60-YP-120-XX	60-YP-MC-120-XX	
150 A	5.2 HP	1-2" Spindle	621-150-XX	621-VUP-150-XX	621-VUP-MC-150-XX	
		3.15" Saddle	60-150-XX	60-YP-150-XX	60-YP-MC-150-XX	
70 A, 24V	5.6 HP	1-2" Spindle	621-24-70-XX	-	621-VUP-24-70-XX	
		3.15" Saddle	60-24-70-XX		60-YP-24-70-XX	

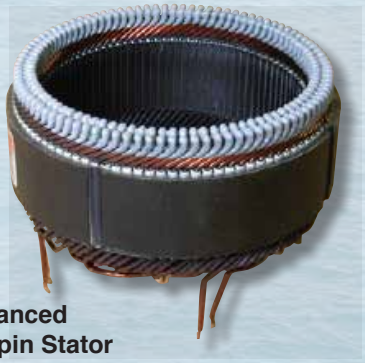
(1) "XX" Pulley Designations: "SV" = 1/2" Single Vee, "DV" = 1/2" Dual Vee, "K6" = K6 Serpentine, "J10" = J10 Serpentine.
(2) A Max Charge Regulator Kit is required for 24 volt, Dual-Alternator or Twin Engine Applications.
(3) Additional 6-Series mounting styles (J-180 and Vortec) are available and shown on Page 26.

AT-Series Alternators

Designed for Recreational Applications

- **165A or 200A in a Small Case Package**
- **Up to 125A at Idle Speeds**
- **Patented Smart Ready®Technology**
- **25% More Efficient**
- **Dual Fan Cooling, High Airflow Frame**
- **Ideal for Large Battery Banks**

AT ("Advanced Technology") Series Alternators from Balmar bring together the latest innovations in alternator design to deliver incredible charging power in a compact, Marine-friendly package.



Advanced Hairpin Stator

Traditional S-Wound Stator

AT-Series Alternators feature a unique hairpin-wound stator design which uses densely wound square copper wire to generate exceptional output in the smallest possible area. Hairpin-wound stators feature 96 slots - compared to 36 slots in a traditional S-wound stator – allowing the hairpin-wound stator to develop superior electromagnetic energy and efficiency superior to other traditional stator designs.

AT-Series Alternators also feature a dozen 50A capacity, externally mounted avalanche diodes, dual internal fans, and massive heat sinking designed to ensure essential cooling under high load demands. Scaled to fit in most original position installations, AT-Series Alternators are available in all four common mounting styles. See the chart on page 25 for complete alternator dimensions.

Beginning in 2016, AT-Series Alternators utilize Balmar's Smart Ready®Technology, which means they can be used as stand-alone alternators or paired with Max Charge Voltage Regulators. AT-Series Alternators should only be used in Dual Vee or Multi-Groove Serpentine belt configurations. Balmar's growing range of Altmount® Serpentine Pulley Conversion Kits shown on page 11 support all AT-Series Alternators.

AT-Series Output	Mounting	Power Take Off	Individual Alternator Part Number (1)(3)	Alternator Kit with Max Charge Regulator (2)	Altmount® Pulley Kit Required?
165 A	1-2" Spindle	5.2 HP	AT-SF-165-XX	AT-SF-165-XX-KIT	Yes, If DV or Serp is Not Present See *Page 11*
	3.15" Saddle		AT-DF-165-XX	AT-DF-165-XX-KIT	
200 A	1-2" Spindle	6.0 HP	AT-SF-200-XX	AT-SF-200-XX-KIT	
	3.15" Saddle		AT-DF-200-XX	AT-DF-200-XX-KIT	
	4" Saddle		AT-DF4-200-XX	AT-DF4-200-XX-KIT	

(1) "XX" Pulley Designations: "DV" = 1/2" Dual Vee, "K6" = K6 Serpentine, "J10" = J10 Serpentine.
(2) Kit Includes AT-Series Alternator, Max Charge Regulator (MC-614-H) and Temperature Sensors (MC-TS-A, MC-TS-B).
(3) The AT Alternator may require a Tachometer Signal Stabilizer (Part No. 15-TSS) if your current tachometer is not adjustable.

AltMount®Serpentine Pulley Conversion Kits

Balmar's Patented AltMount®Serpentine Pulley Kits Facilitate the use of Balmar High Power Alternators

- **Better Power Transfer**
- **Reduced Vibration and Belt Dust**
- **Quieter Motoring**

Single Vee pulleys can only support alternator power loads (PTO) of up to 100A for 12V applications (45A for 24V applications). See the chart on page 6. A serpentine pulley provides greater surface contact between the belt and pulley, and thus can accommodate much higher PTO requirements.

U.S. Patent Nos. 8,939,855 and D654,778

AltMount®Pulley Kits are designed uniquely for each engine listed on the adjacent page, including all the hardware required to complete the installation. The system is installed by placing and fastening each conversion pulley over the existing crank and water pump pulleys. Two serpentine belts are provided with each kit.

Volvo

Westerbeke

Yanmar

AltMount®Second Alternator Kits provide the ability to add a high-output second alternator for increased charging output from a single engine. These kits are an ideal upgrade for serious cruisers and others who depend on the propulsion engine for fault tolerance or substantial battery charging needs.

Second Alternator Kit (For use on Yanmar engines with 95-Series Alternators only.)

New Lower Pricing

YANMAR SERPENTINE PULLEY KITS	
Model	**Engine Models**
48-YSP-3GM-C	2GM20
48-YSP-3YM-A	2YM15
48-YSP-3GM-C	3GM
48-YSP-3GM-A	3GM30
48-YSP-3GM-B	3GM30-F
	3GM-F
48-YSP-3HM-A	3HM
	3HM35
48-YSP-3HM-B	3HM35-F
	3HM-F
48-YSP-3JH-C	3JH2-E
	3JH2-TE
48-YSP-3JH-E	3JH3
48-YSP-3JH-A	3JH4-E
	3JH5
48-YSP-3YM-A	3YM20
48-YSP-3YM-B	3YM30
48-YSP-4JH-F	4JHE,TE,HTE,DTE
	4JH
48-YSP-4JH-E	4JH2, TE, HTE DTE,UTE
48-YSP-4JH-D	4JH3, TE, HTE
48-YSP-4JH-B	4JH4-HTE, TE, DTE
48-YSP-3JH-A	4JH4-E
	4JH5
48-YSP-4LH-A	4LH-A
48-YSP-6LY-A	6LY, 6LYA-STP, 6LY2-STP

YANMAR 2ND ALTERNATOR KITS (For Use with 95-Series Alternators Only)	
Model	**Engine Models**
48-YDA-4JH-A	4JH3
48-YDA-4JH-B	4JH4-HTE,TE
48-YDA-4JH-C	4JH4-E
48-YDA-6LY-A	6LY, 6LY-2

New **AltMount Pulley Kits** are constantly under development. If you do not see a kit for your engine, check the Balmar website at ***www.balmar.net*** or call our Technical Support line for the latest list of available kits.

FORD LEHMAN SERPENTINE KITS	
Model	**Engine Models**
48-FSP-100	FL100

NANNI SERPENTINE PULLEY KITS	
Model	**Engine Models**
48-NSP-3.3	N3.30
	N4.38
48-NSP-100	N4.6
	N4.85
	N100

PERKINS SERPENTINE PULLEY KITS	
Model	**Engine Models**
48-PSP-410-A	4107
	4108
48-PSP-6354	6.354
48-PSP-PR-A	PRIMA

VETUS SERPENTINE PULLEY KITS	
Model	**Engine Models**
48-VSP-M4.17	M4.17

VOLVO SERPENTINE PULLEY KITS	
Model	**Engine Models**
48-VSP-2001	2001
	2002
	2003, 2003T
48-VSP-D2-A	D2-55A,B,C,D,E,F
48-VSP-MD-A	MD2030
48-VSP-MD-B	MD2040
48-VSP-PR-A	PRIMA
48-VSP-TD-A	TMD-22

WESTERBEKE SERPENTINE KITS	
Model	**Engine Models**
48-WSP-12C	12C
	12D
48-WSP-21	13A
48-WSP-18	18
48-WSP-12C	20B
48-WSP-21	21
48-WSP-18	21A
48-WSP-21	27
48-WSP-18	27A
48-WSP-12C	30B
48-WSP-33	30C
	33
48-WSP-18	35B
	38B
48-WSP-40	40
48-WSP-18	42B
48-WSP-44A	44A
	44B
48-WSP-46	46
48-WSP-55B	55B
	55C
	55D
	56
48-WSP-71	71
	82

UNIVERSAL SERPENTINE KITS	
Model	**Engine Models**
48-USP-M25	M25
	M25XP
48-USP-M35B	M25XPB
48-USP-M-B	M35
48-USP-M35B	M35B
	M40B
48-USP-M50	M50,M50A,M50B
	5444
48-USP-5432	5432

Smartgauge™ Battery Monitor

- **Advanced Battery Fuel Gauge**
- **Monitors State-of-Charge Percentage (SoC%) and Voltage of the Primary Battery**
- **Monitors Voltage of a Second Battery**
- **No Shunt Required**
- **Self-Calibrating**
- **Accurate within 5% after just a Few Cycles**
- **High/Low Voltage and SoC% Alarms**
- **Alarm Contacts for Auto Start/Stop**

Balmar's new Smartgauge™ Battery Monitor provides highly accurate monitoring at a similar cost of standard ampere hour counting monitors. The easy-to-understand display, dependable State-of-Charge Percent (SoC%) reading and its ease-of-use mean that even the most technically challenged crew member can understand just how much power is left in the battery. Smartgauge™ is changing how sailors and power boaters think about battery monitors.

Three Key Smartgauge™ Advantages:

Ease of Installation
Smartgauge™ connects with just three 14 gauge wires – no need to crimp heavy battery cables for the installation of a shunt.

Ease of Use
Just select your battery type at setup and Smartgauge™ does the rest! Smartgauge™ automatically adjusts for 12V or 24V operation.

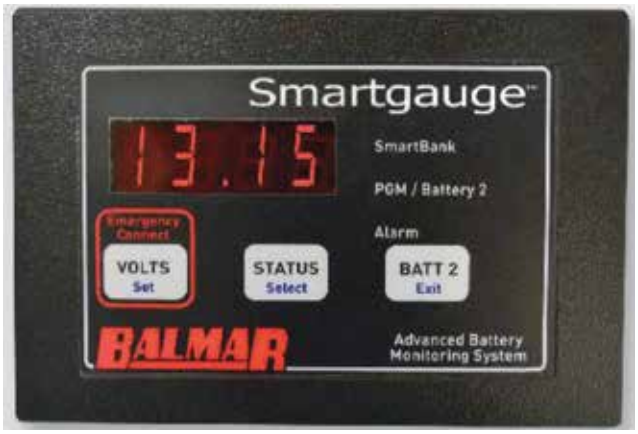
Accuracy
Smartgauge™ is proven in independent testing by Enersys®to be accurate within 3% after 6 months of use. Smartgauge™ automatically adjusts for temperature conditions and the battery's health.

SAIL 2014 PITTMAN INNOVATION AWARDS

Compass Marine Inc. located in Cumberland Foreside, Maine performed a four month independent test on the Smartgauge™. Here's what they had to say:

> "***If I had three thumbs this product would get all three! The sheer simplicity and accuracy of this product are outstanding and I really did doubt it, I was proven wrong... What matters most to your batteries is your depth of discharge or state of charge.***
>
> ***The Balmar Smartgauge™ does this accurately and simply! Hands down the Smart Gauge is the easiest SOC meter made!"***
>
> **Rodd Collins, Compass Marine Inc. April 2014**

Visit Rodd's Blog at ***www.marinehowto.com*** and click on his Smartgauge™ test results from 24-April-2014 for a complete description of the test conditions and results.



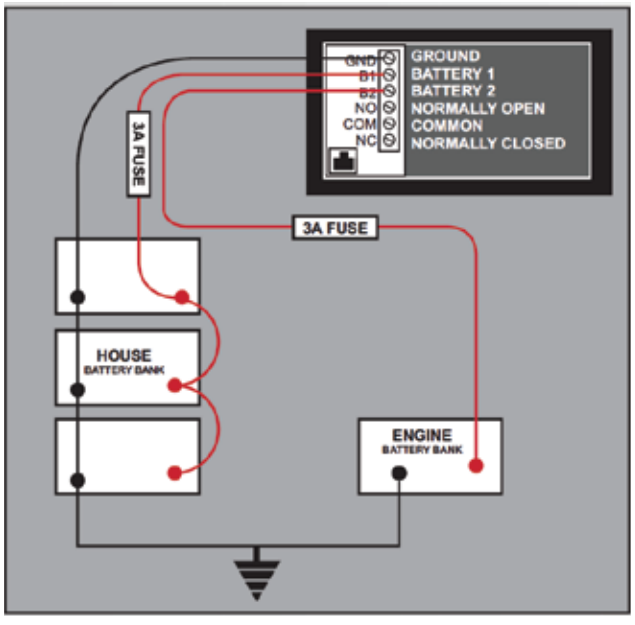
Displays battery voltage to within 0.05V (12 or 24V DC systems) for two battery banks.

Displays the capacity remaining in the primary battery as a percentage figure.

The Smartgauge™ Battery Monitor works with Standard Flooded, Deep Cycle Flooded, Sealed Maintenance Free, Gel Cell, AGM and Lead Acid Hybrid batteries. Smartgauge™ does not monitor Lithium Ion batteries.

Smartgauge™ is equipped with a brightness-adjustable LED display. Three membrane switches access program functions and facilitate switching between primary and secondary battery banks. Color-coded indicator lights identify the battery information being displayed and activate when programmable alarm conditions are met.

For more detailed setup information, download the Smartgauge™ Installation Manual at ***www.balmar.net***. Smartgauge™ is protected by a 2 Year limited warranty.



Smartgauge™ Specification		
Balmar Part Number		44-SG-12/24
Supply Voltage Range		8-40V DC
Supply Current	Sleep Mode	5mA
	Display On	<15mA
Operating Temperature Range		-25 TO +85C
Accuracy	State of Charge (Charge)	+/- 10%
	State of Charge (Discharge)	+/- 5%
	Voltage	+/- 0.5%
Dimensions	Front Panel	L 4.3" (110mm) x H 3.0" (76mm)
	Body	L 3.7" (95mm) x H 2.5" (64mm)
	Total Depth	1.1" (28mm)
	Weight	7oz. (0.2 Kg)
Protection Rating		IP20 (Front Panel IP651)
Standards Compliance		CE, ISO7637-2

Balmar Voltage Regulation Technology

High output alternators are an important part of your system for battery care, but they are definitely not the only part. Without proper voltage regulation, battery charging can be a slow process, or even worse, an ideal recipe for early battery failure.

All commercial alternators come with an internal rectifier/regulator circuit that:

(1) converts AC current generated by the alternator to DC current, and
(2) fixes the voltage output to a static level – typically 14.6 volts.

There are several deficiencies with internal regulators:

(1) Not all battery technologies want to receive 14.6 volts.
(2) All battery types have an optimal charging "profile", which means they want different voltages and currents at different stages of their charging cycle, as well as variations when battery temperatures change.
(3) Once fully charged, batteries can overheat if they are supplied with continuous current at a fixed charge voltage.

Balmar's patented Max Charge and ARS-5 Voltage Regulators provide a dynamic method for monitoring battery condition and apply the correct level of alternator control (voltage and current) to ensure that your batteries are charged quickly and safely.

During engine operation, Balmar regulators step through the following stages to ensure proper battery charging:

Stage 1: Start Delay – After engine startup, the regulator waits for several seconds before applying field current to the alternator. This allows the engine and belts an opportunity to warm up before the alternator load is applied.

Stage 2: Soft Ramp – The regulator slowly increases field excitation of the alternator to reduce belt stress.

Stage 3: Bulk Charging – The regulator increases field output to the maximum safe level, allowing the alternator to reach maximum amperage output based on the target limits of the battery type being charged. Target voltage ranges from 14.1V to 14.6V depending on the battery type selected (24V bulk charging voltages range from 28.2V to 29.2V). Bulk time is a factory set at 18 minutes, and is fully adjustable in advanced programming mode.

Stage 4: Calculated Bulk - At the end of the set bulk time period, the regulator calculates the state of charging based on the alternators ability to reach and maintain target voltage, and the percentage of field output required to maintain that voltage. This stage will maintain bulk charging until all criteria are met, at which point the regulator will ramp down to absorption voltage.

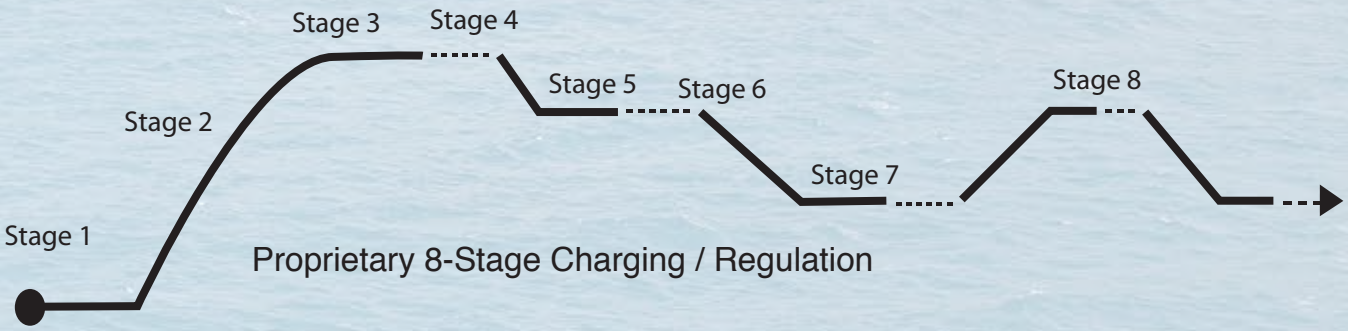
Stage 5: Absorption Voltage – Typically two tenths of a volt below bulk target voltage, absorption voltage allows the alternator to drive current into the almost fully charged batteries without overcharging. Absorption time is preset at 18 minutes, and is adjustable in the regulator's advanced programming mode.

Stage 6: Calculated Absorption – At the end of the set absorption time period, the regulator calculates the state of charging based on the alternator's ability to reach and maintain the target voltage and the percentage of field output required to maintain that voltage. This stage will maintain the absorption charging voltage until all criteria are met, at which point, the regulator will ramp down to float voltage.

Balmar Voltage Regulation Technology

Stage 7: Float Voltage – Typically one (1) volt below bulk target voltage, float voltage allows the alternator to drive current into fully charged batteries sufficient to replace any battery capacity used while under way. Float time is preset at 18 minutes, and is adjustable in the regulator's advanced programming mode.

Stage 8: Calculated Float – At the end of the set float time period, the regulator calculates the state of charging based on the alternator's ability to maintain the target float voltage and the percentage of field output required to maintain that voltage. If all of the calculation criteria are met, the regulator will continue to maintain float voltage. If the calculation indicates that the alternator is failing to maintain battery voltage, the regulator will return to absorption voltage.



Proprietary 8-Stage Charging / Regulation

Balmar Multi-Stage Regulator Additional Features

User-Selectable Preset Battery Programs
Balmar provides multiple charge profiles to ensure optimal charging. Simply select the battery program that matches your battery technology. The Max Charge regulator family contains 7 preset charge profiles. The ARS-5 contains 5 preset profiles. See the chart on page 16 for a listing of battery programs.

Advanced Programming Modes
Balmar multi-stage regulators feature a broad range of advanced regulator adjustments. By accessing the advanced programming function, the user can modify charging times and voltages in all stages of charge, adjust start delay times, temperature compensation limits, temperature compensation slopes, and modify set points for alternator over-temperature response.

Alternator and Battery Temperature Sensing and Control
Balmar multi-stage regulators have the ability to automatically correct charging output to ensure that batteries are properly charged regardless of ambient temperature. If battery temperatures exceed safe operating levels, Max Charge and ARS-5 Voltage Regulators will automatically reduce charging outputs to avoid dangerous thermal runaway conditions.

Belt Load Management
Balmar multi-stage regulators can protect the engine and belt by enabling the user to de-rate the alternator's output in small increments by adjusting the Belt Load Manager. Adjustable in 5% increments, the Belt Load Manager reduces the regulator's field pulse bandwidth, thereby reducing load on the drive belt. The Belt Load Manager can also be used to protect the alternator in applications where battery capacity exceed ideal charging ratios.

Balmar Max Charge and ARS-5 Voltage Regulators

Max Charge MC-614 Regulator
- 7 Selectable Programs for Marine Batteries
- 15 Amp Maximum Field Current
- Advanced Programming Modes (see page 15)
- Alternator & Battery Temperature Sensing & Control
- Exclusive Belt Load Manager Function
- Bright LED Display and Easy Programming Mode
- Can be Used in Twin-Engine Applications with Centerfielder II

Max Charge MC-624 Voltage Regulator
- Designed for 24 Volt Applications
- 10 Amp Maximum Field Current
- Can be Used in Twin-Engine Applications
- All the Same Functions as the MC-614

Max Charge MC-612-Dual Voltage Regulator
- Designed to Control 2 Alternators on a Single Engine
- Dual Alternator & Battery Temperature Sensing
- Twin 54” Wiring Harnesses Provided
- All the Same Programming Functions as the MC-614

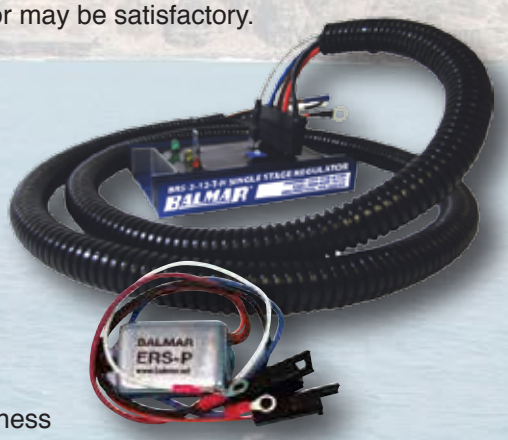
ARS-5 Voltage Regulator
- 5 Selectable Programs for Marine Batteries
- 9 Amp Maximum Field Current
- Appropriate for 6-Series Alternators (120A and below)
- Single Engine, Single Alternator Applications Only
- All the Same Programming Functions as the MC-614

Preset, Multi-Stage Battery Programs	Balmar Regulators				Digital	Dual Engine
	12 Volt			24 Volt	Duo Charge	Centerfielder
Part Number:	ARS-5	MC-614	MC-612-DUAL	MC-624	DDC-12/24	CFII-12/24
Universal Factory Program, Deep Cycle Flooded, Gel Cell, Absorbed Glass Mat (AGM) and Spiral Wound Flooded (Optima)	Yes	Yes	Yes	Yes	Yes	Yes
Standard Flooded, Voltage Sensitive Halogen Systems	-	Yes	Yes	Yes	Yes	Yes
Balmar Alternator Models						
6-Series Alternators (70A-120A)	Yes	Yes	Yes	Yes	Yes	Yes
AT-Series Alternator (165A-200A)	-	Yes	Yes	-	Yes	Yes
9-Series Large Case Alternators (140A-310A)	-	Yes	Yes	Yes	Yes	Yes
Multiple Alternator/Engine Configurations						
Dual Engine, One Alternator Each	-	Yes (2 Req'd)	-	Yes (2 Req'd)	Yes	Yes
Single Engine, Two Alternators	-	-	Yes	Yes (2 Req'd)	Yes	Yes

Complete part number listings and dimensional specifications are found on pages 26-32.

Single-Stage Regulators

For vessels with nominal battery loads and/or applications where charging times are too short to benefit from the intelligence of multi-stage regulators, a single-stage regulator may be satisfactory.



BRS-2T Single-Stage Voltage Regulator

- Available in 12 Volt and 24 Volt Models
- Adjustable Target Voltage to Address Battery Types
  - **BRS-2T-12-H** - Adjustable from 13.5V - 14.5V
  - **BRS-2T-24-H** - Adjustable from 27.5V - 28.5V

ERS-KIT Single Stage Regulator

- 14.1 Volts, Non-Adjustable
- Ideal Backup Regulator
- Kit includes Terminals to Connect to a Balmar 12V Regulator Harness

Regulator Accessories

Temperature Sensor Cables

- Provided with All Alternator/Regulator System Packages
- Interchangeable for 12 Volt and 24 Volt Systems
- For use with either Max Charge or ARS-5 Voltage Regulators
- Battery Sensor can be used with the Digital Duo Charge
  - **MC-TS-A** - Alternator Cable, 54” Length
  - **MC-TS-B** - Battery Cable, 240” Length

Spike Protectors

- Transient Spike Protectors Add System Safety
- Fused Diodes Will Fail Prior to Alternator Diode Damage
- Install Between the Alternator “P” and “N” Terminals
  - **TSP-12** - 12 Volt, 10A Fuse
  - **TSP-24** - 24 Volt, 10A Fuse

Replacement 54” Regulator Wiring Harnesses

All Balmar Regulators can be purchased with or without a wiring harness.

Replacement wiring harnesses can also be purchased separately.

Alternator Families	Volts	Harness Number
6-Series 9-Series	12V	1010
	24V	1012
94-Series	12V	1011
	24V	1013
7-Series 97-Series, 98-Series	12V	1014
	24V	1016

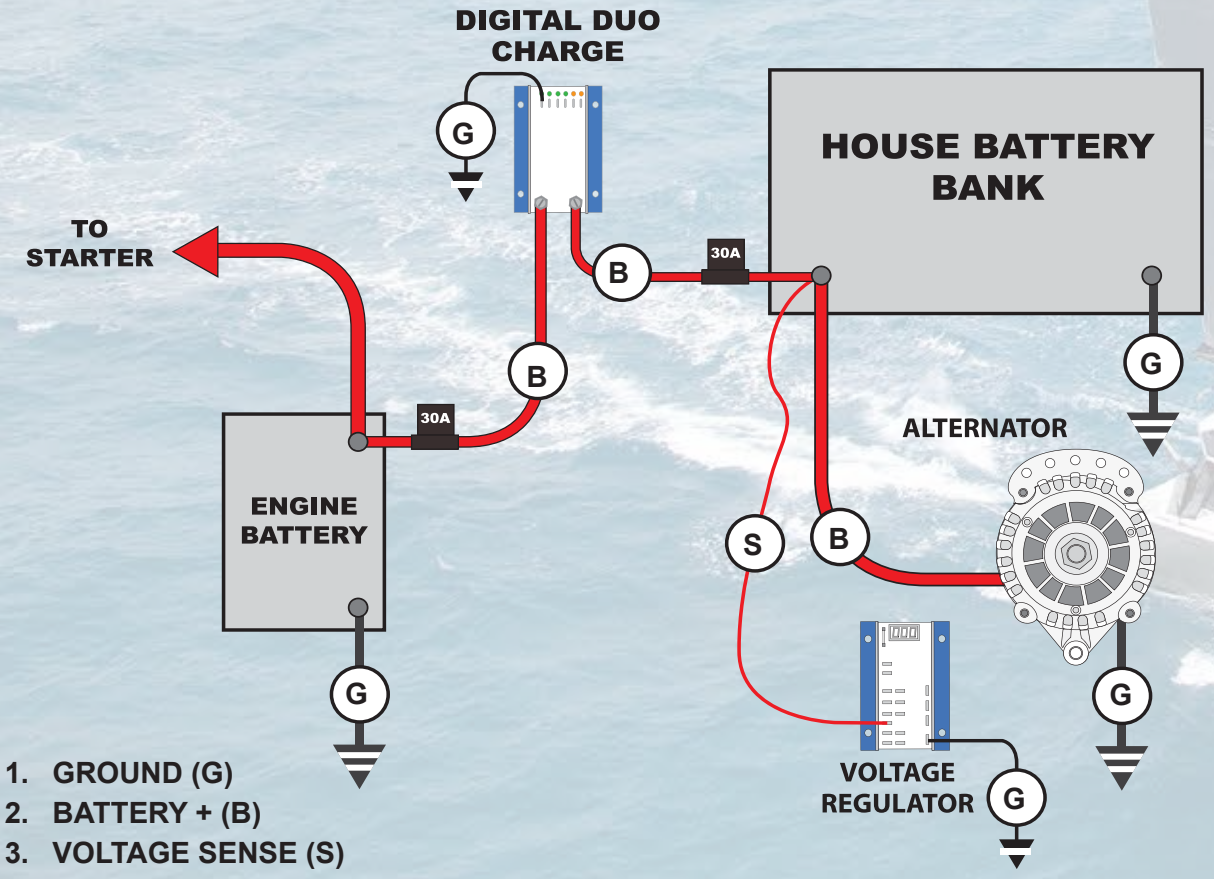
Digital Duo Charge: DDC-12/24

For Multi Bank Charging

- **The DDC is a Solid State Battery Combiner**
- **Control Voltage and Current between House and Start Batteries**
- **Eliminates the Need for an Isolator, Relay or a Manually Operated Battery Switch**
- **Used in Concert with Max Charge or ARS-5 Regulators**
- **Can also be Employed without a Balmar Regulator**
- **Works in Both 12V and 24V Applications**
- **House and Start Batteries can be different technologies**
- **Start Battery Temperature Sensing Available with the MC-TS-B Sensor Cable**
- **4 Battery Programs Supported for the Start Battery: Standard Flooded, Deep Cycle Flooded, AGM and Gel Cell**

The **Digital Duo Charge** ("DDC") provides a "hands off" solution for charging two battery banks without the use of problematic isolators or manual battery switches.

During charging the DDC-12/24 monitors voltage at the house battery. When voltage exceeds the set minimum (typically 13.2V in a 12V system and 26.4V in a 24V system) the DDC automatically engages, providing up to 30A charge current to the starting battery. When no charge source is present, the DDC separates the batteries so the starting battery won't be accidentally discharged into the house battery. An optional solenoid control enables higher start battery charging output when required.



1. GROUND (G)
2. BATTERY + (B)
3. VOLTAGE SENSE (S)

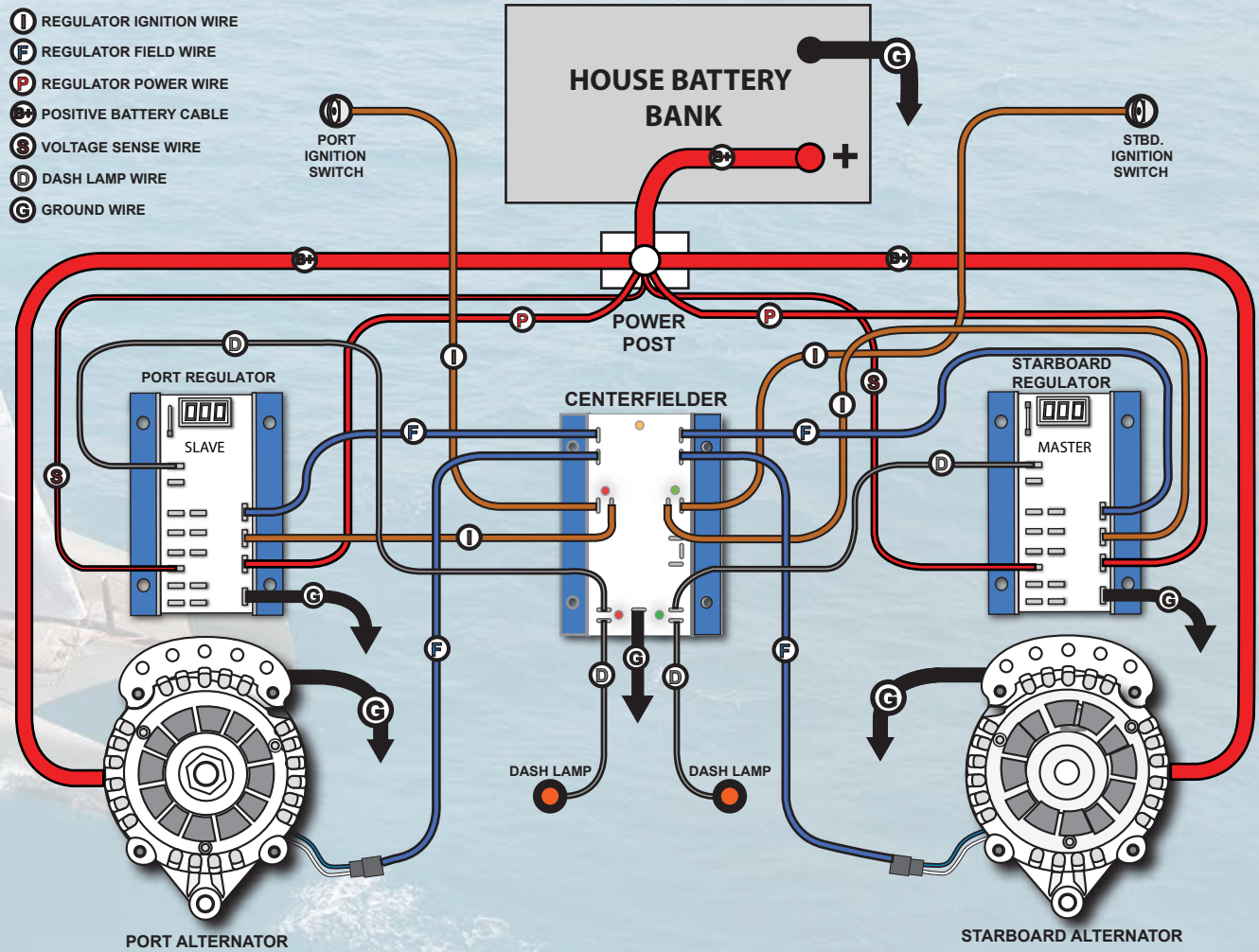
Centerfielder II: CFII-12/24

For Balanced Twin Engine Charging

- **Balances Charging in Twin Engine Applications**
- **Eliminates Alternator Chatter by Unifying Field Current**
- **For Use with Max Charge Regulators Only**
- **Works in Both 12V and 24V Applications**
- **Includes Upgraded Regulator Power Wires and Fusing**
- **Isolates Alternators and Regulators when only One Engine is Running**
- **Can be Used with the Digital Duo Charge to charge a Second Battery**

The **Centerfielder II,** when used with Max Charge Regulators, balances twin engine charging systems by monitoring the port and starboard voltage regulators. When both alternators and regulators are working, the Centerfielder II automatically designates the starboard regulator as dominant for both alternators – making it possible to charge a single house battery bank with the combined output of both alternators.

The **Centerfielder II** eliminates the "yo-yo effect" of two regulators repeatedly turning on and off as the battery approaches target voltage because the two systems are not working in concert.



Large Case Alternators

Mid Duty-Cycle, Large Frame Alternators

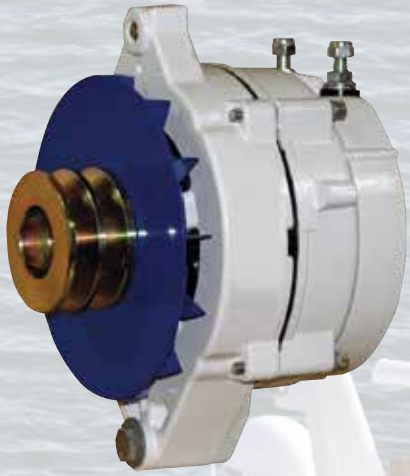
94-Series
94LY-Series
95-Series

- **Extra Heavy Duty Windings, Diodes & Brushes**
- **Isolated Ground Termination**
- **Corrosion Resistant Powder Coated Finish**
- **Bi-Directional Cooling Fans on 94-Series & 95-Series**
- **Maximum RPM: 6,000**
- **USCG Title 33 Ignition Protection Compliant**

From world class ocean racers to commercial fishers and military patrol vessels, these large-frame alternators have a proven record for supporting large house battery banks and challenging electrical loads under some of the toughest marine conditions imaginable.

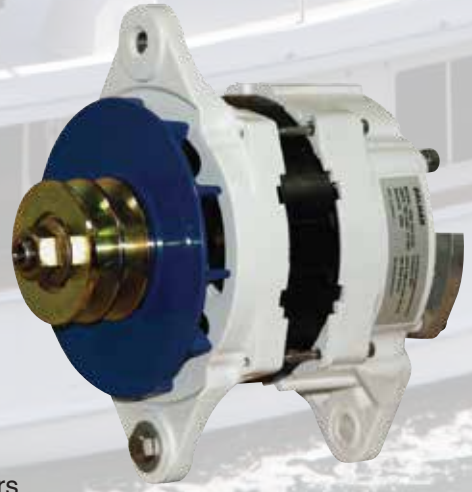
94-Series, 94LY-Series and **95-Series Alternators** feature extra-large gauge custom wound stators and high amperage diode packs to ensure optimal charging performance. Built to meet USCG Title 33 ignition protection standards, 94-Series alternators deliver excellent low RPM output and terrific response throughout the power band.

All Balmar large case alternators are designed to be used with Balmar's external, Multi-Stage Regulators.



94-Series

94LY-Series



95-Series

Part Number	Output		Mounting Style	Minimum Pulley
	Volts	Amps		
94-12-165-IG	12	165	Single Foot 2" (Delco-style)	1/2" Dual Vee (1)
94-12-210-IG		210		
94-24-140-IG	24	140		
94LY-12-165-IG	12	165	Dual Foot 3.15" (Hitachi-style)	1/2" Dual Vee (1)
94LY-12-210-IG		210		
94LY-24-140-IG	24	140		
9504-12-165-IG	12	165	Dual Foot 4" (J180-style)	1/2" Dual Vee (1)
9504-12-210-IG		210		
9504-24-140-IG	24	140		
94LY-0050	Tensioner & Hardware Kit			

(1) All 9-Series Alternators can be outfitted with K6 or K8 Serpentine Pulleys.
(2) 9-Series Alternators are designed to be used with Balmar Multi-Stage Regulators.

Offshore Repair Kits are available for most Balmar Alternators. See page 23 for details.

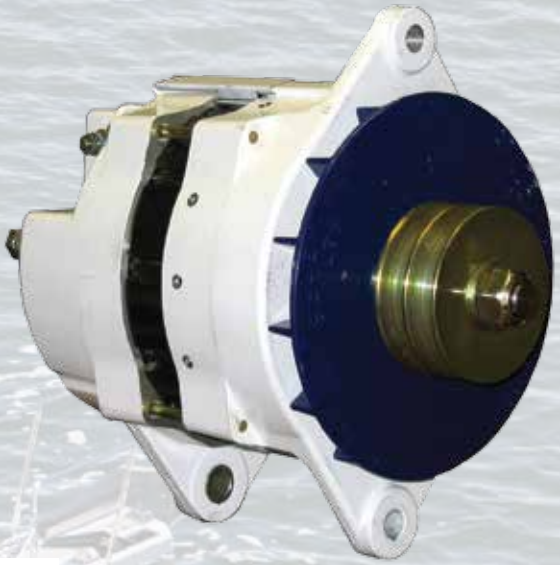
Extra Large Case Alternators

Heavy Duty-Cycle, Extra-Large Frame

97-Series

- **Highly Efficient *Brushless Design***
- **Isolated Ground Termination**
- **Bi-Directional Cooling Fan**
- **Maximum RPM: 7,000**
- **External Regulation Required**
- **USCG Title 33, CE, ISO J1171and SAE 8849 Compliant**

Built expressly for the added demands of large multi-battery banks, inverter loads and other substantial electrical demands, Extra-Large Case 97-Series Brushless Alternators provide the size, cooling and output across the range of engine RPM required to perform in a league with a small genset.



97-Series

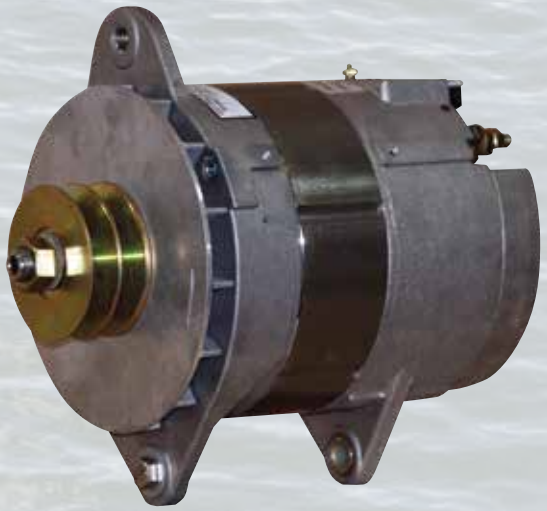
Part Number	Output		Mounting Style	Minimum Pulley
	Volts	Amps		
9704-12-160-BL-IG	12	160	Dual Foot 4" (J180-style)	1/2" Dual Vee (1)
9704-24-140-BL-IG	24	140		

(1) All 9-Series Alternators can be outfitted with K6 or K8 Serpentine Pulleys.
(2) 97 Series Alternators are designed to be used with Balmar Multi-Stage Regulators.

97EHD-Series

- **Designed for Extended Duty Operation**
- **Case Ground or Isolated Ground Terminations Available**
- **Bi-Directional Cooling Fan**
- **Maximum RPM: 7,000**
- **External Regulation Required**
- **USCG Title 33 Compliant**

Extra-Large Case 97EHD-Series Alternators are appropriate for large diesel applications such as Catepillar, Cummins, MTU and John Deere to service extensive house battery loads.



97EHD-Series

Part Number	Output		Mounting Style	Minimum Pulley
	Volts	Amps		
97EHD-185-12	12	185	Dual Foot 4" (J180-style)	1/2" Dual Vee (1)
97EHD-265-12		265		
97EHD-85-24	24	85		
97EHD-110-24		110		
97EHD-190-24		190		

(1) All 9-Series Alternators can be outfitted with K6 or K8 Serpentine Pulleys.
(2) 97EHD Alternators are designed to be used with Balmar Multi-Stage Regulators.

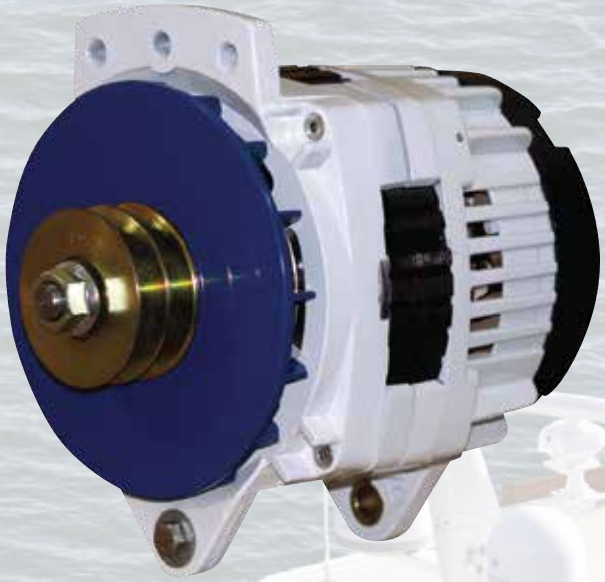
Extra Large Case Alternators

Maximum Duty-Cycle, Extra-Large Frame

98-Series

- **Highly Efficient Brushless Design**
- **Isolated Ground Termination**
- **Dual Cooling Fans, Oversized Bearings, High Amperage Diodes**
- **Maximum RPM: 7,000**
- **Requires External Voltage Regulation**
- **USCG Title 33, CE, ISO J1171 and SAE 8846 Compliant**

The **Extra-Large Case 98-Series Alternator** offers the capacity to produce nearly 5kW of DC output – on par with many small gensets. The 98-Series Alternator is currently used on USCG 43' Lifeboats.



98-Series

Part Number	Output		Mounting Style	Minimum Pulley
	Volts	Amps		
98-12-310-IG-BL	12	310	Dual Foot 4" (J180-style)	1/2" Dual Vee(1)
98-24-220-IG-BL	24	220		

(1) All 9-Series Alternators can be outfitted with K6 or K8 Serpentine Pulleys.
(2) 98 Series Alternators are designed to be used with Balmar Multi-Stage Regulators

Alternator Installation Hints

Battery Cable Sizing
Battery cable size must meet the increased output capacity of your alternator. The easiest method for determining the best cable size for your system is to compare your alternator's rated amperage output and the ROUND TRIP length of the cable running from the alternator to the battery being charged, and back to the alternator via ground to the chart at right.

12 Volt Battery Cable Size Chart

Run Length (ft)	5'	10'	15'	20'	25'	30'	40'	50'	75'
Alternator Output	Battery Cable Gauge								
75 A	8	6	4	2	2	1	1/0	2/0	4/0
100 A	8	4	2	2	1	3/0	3/0	4/0	
125 A	6	4	2	1	1/0	3/0	4/0		
150 A	6	2	1	1/0	2/0	3/0	4/0		
175 A	6	2	1	1/0	2/0	3/0	4/0		
200 A	4	2	1/0	2/0	3/0	4/0			
225 A	4	1	1/0	2/0	3/0	4/0			
250 A	2	1	2/0	3/0	4/0				
275 A	2	1	2/0	3/0	4/0				
300 A	2	1/0	3/0	4/0					

Belt Tensioning
Under- or over-tensioned belts can result in belt slippage, premature belt wear, alternator overheating and belt failure. Belt deflection should typically be set between 1/4" and 3/8" when you push your thumb down on the back of the belt at mid-span between the crank and alternator pulleys. For more precise tensioning adjustments, use a commonly available tensioning gauge. The use of a belt tensioner, such as Balmar's Belt Buddy Universal Tensioning System (shown on the next page) makes it easier to adjust the belt tension by using a rotating and locking adjustment mechanism to push the crank pulley and the alternator pulley apart.

Alternator Accessories

Belt Buddy Universal Adjustment Arm

Reduce your installation time! Many installers rely on the Belt Buddy Universal Adjustment Arm for alternator installations and belt tensioning. Precision cut and power coated for protection from corrosion, the Belt Buddy can be purchased as a kit or by individual component.

Part Number	Description
UBB	Universal Adjustment Arm & Belt Buddy Combination
UAA	Universal Adjustment Arm Only
BB	Belt Buddy for the UAA
BBU	Belt Buddy for Any Adjustment Arm

UBB

UAA BB BBU

Yanmar Installation Hardware Kits

Pre-matched hardware Kits for various Yanmar engines can save time and frustration. 6CX and 6LP kits include the required pulleys.

Part Number	Yamar Engine Model
6-0020	GM, JH
6-0030	6CX
6-0040	6LP

Offshore Repair Kits

Recommended for cruisers, Balmar's Offshore Repair Kits ensure that you will be ready if your alternator needs repair.

Kits vary by alternator model, but all provide the most commonly needed components, such as bearings, brushes, and complete regulator/rectifier assemblies.

Part Number	Alternator Series
7060	6-Series (12V)
7060-24	6-Series (24V)
7094	94-Series (12/24V)
7095	95-Series (12/24V)
7097	97-Series (12V)
7097-24	97-Series (24V)
70-AT-165	AT-Series (165A)
70-AT-200	AT-Series (200A)

Alternator Pulleys, Belts & Mounting Spacers

Balmar offers an extensive selection of pulleys, belts & mounting spacers for its Small, Large and Extra-Large Frame Alternators. Pulley models vary by bore (17mm and .875"), outside diameter, belt width and type, and rear shoulder width. Balmar pulleys are anodized steel, unless otherwise noted.

See our complete spare parts listing on page 34.

Alternator Output Curves

Alternator output is dependent on a number of factors: battery condition and capacity, wire size, engine horsepower and engine RPM, battery temperature and alternator temperature. Of these factors, alternator speed and temperature are the most important.

The following chart describes alternator output based on two temperature levels (ambient (26° C) and hot (90° C)). Engine-to-alternator drive ratios vary by engine, but a conversion factor of 2 is shown here for simplicity.

Engine RPM		500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000
Typical Drive Ratio		2	2	2	2	2	2	2	2	2	2	2
Alternator RPM		1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000
Alternator Model	**Temp**	**Alternator Power Curves by Balmar Model**										
6-Series, 12V	Cold	0	20	68	73	77	78	77	77	76	77	77
70 Amp Models	Hot	0	15	56	63	65	66	65	65	66	66	65
6-Series, 12V	Cold	0	21	83	100	106	110	104	106	108	109	108
100 Amp Models	Hot	0	20	70	80	93	93	93	93	94	93	93
6-Series, 12V	Cold	0	21	80	116	121	122	125	125	124	124	125
120 Amp Models	Hot	0	20	60	98	105	108	109	110	110	108	109
6-Series, 12V	Cold	0	24	80	117	132	141	149	155	158	159	159
150 Amp Models	Hot	0	9	65	95	111	120	122	123	125	128	129
6-Series, 24V	Cold	0	6	36	55	68	71	73	76	76	75	76
70 Amp Models	Hot	0	3	25	40	50	53	53	56	54	56	55
AT-Series, 12V	Cold	0	60	119	140	145	156	164	167	169	170	172
165 Amp Models	Hot	0	59	103	120	130	140	142	149	150	151	153
AT-Series, 12V	Cold	0	132	158	198	190	222	228	230	232	235	238
200 Amp Models	Hot	0	73	147	168	173	174	179	182	188	193	194
94/94LY-Series, 12V	Cold	0	20	60	89	112	128	140	151	158	163	168
165 Amp Models	Hot	0	10	50	72	89	104	109	122	139	142	148
94/94LY-Series, 12V	Cold	0	21	78	103	128	147	162	178	191	208	210
210 Amp Models	Hot	0	15	68	82	103	120	131	142	161	170	175
94/94LY-Series, 24V	Cold	0	8	15	38	50	70	77	96	124	131	135
140 Amp Models	Hot	0	0	10	30	40	58	65	75	92	105	110
95-Series, 12V	Cold	0	18	76	103	122	130	135	138	142	150	158
165 Amp Model	Hot	0	9	58	80	90	105	115	118	121	122	127
95-Series, 12V	Cold	0	40	45	100	125	143	155	170	183	190	195
210 Amp Model	Hot	0	35	40	80	115	120	135	142	150	158	161
95-Series, 24V	Cold	0	7	14	38	55	65	85	100	113	120	133
140 Amp Model	Hot	0	5	12	35	50	60	78	95	100	105	110
97-Series, 12V	Cold	0	22	80	120	140	153	160	162	163	162	160
160 Amp Model	Hot	0	18	115	100	120	140	145	148	145	148	148
97-Series, 24V	Cold	0	22	80	120	135	136	138	140	142	142	145
140 Amp Model	Hot	0	18	62	100	115	123	123	123	128	131	138
97EHD-Series, 12V	Cold	0	100	141	159	165	174	179	183	186	186	184
185 Amp Model	Hot	0	83	132	144	150	163	166	170	172	170	171
97EHD-Series, 12V	Cold	0	50	150	210	225	245	252	255	260	268	270
265 Amp Model	Hot	0	30	120	182	186	194	204	212	218	221	221
97EHD-Series, 24V	Cold	0	40	100	148	168	180	188	193	198	199	198
190 Amp Model	Hot	0	22	92	125	145	157	166	170	171	178	178
98-Series, 12V	Cold	0	36	150	235	262	278	290	295	315	322	320
310 Amp Model	Hot	0	30	140	190	215	228	245	250	250	251	252
98-Series, 24V	Cold	0	36	100	145	167	180	190	195	205	210	220
220 Amp Model	Hot	0	34	92	138	156	166	172	178	186	190	192

Alternator Dimensions

Alternator Model	Case Diameter	Bolt-to-Bolt Tension to Mounting Foot	Overall Height	Case Length Front-to-Back	Overall Length (Standard Pulley)	Dual Foot Saddle Width (Inside)	Rear Foot Width (including Bushing)	Front Foot Width	Front Foot to Center of Inside Sheave	Standard Pulley Diameter	Mounting Foot Bore	Arm Bolt Dia. / Thread Count	Stator Poles
60 Series	5.35" 136 mm	6.6" 167 mm	7.5" 190 mm	5.08" 129 mm	SV: 6.63" 168 mm	3.28" 83 mm	0.94" 24 mm	0.61" 16 mm	0.5" 13 mm	SV: 2.7" 69 mm	0.39" 10 mm	M8 x 1.25	12
621 Series	5.35" 136 mm	6.6" 167 mm	7.5" 190 mm	5.08" 129 mm	SV: 6.63" 168 mm	N/A	N/A	1.0 / 2.0" 25 / 51 mm	0.5" 13 mm	SV: 2.7" 69 mm	.39" / 0.5" 10 / 13 mm	M8 x 1.25	12
604 Series	5.35" 136 mm	6.6" 167 mm	7.5" 190 mm	5.08" 129 mm	SV: 6.63" 168 mm	4.15" 105 mm	0.94" 24 mm	0.61" 16 mm	0.5" 13 mm	SV: 2.7" 69 mm	0.39" 10 mm	M8 x 1.25	12
AT-165 Series	5.1" 129 mm	6.5" 165 mm	8.2" 209 mm	3.54" 90 mm	DV: 6.77" 172 mm	3.3" 84 mm	.75" 19 mm	0.55" 14 mm	0.62" 16 mm	DV: 2.7" 69 mm	.39" / 0.5" 10 / 13 mm	N/A	16
AT-200 Series	5.68" 145 mm	8.15" 207 mm	9.67" 246 mm	5.10" 90 mm	DV: 7.93" 201 mm	3.3" 84 mm	.75" 19 mm	0.55" 14 mm	0.62" 16 mm	DV: 2.7" 69 mm	.39" / 0.5" 10 / 13 mm	3/8" x 16NC	16
AT-DF4-200 Series	5.68" 145 mm	8.15" 207 mm	9.67" 246 mm	5.10" 90 mm	DV: 7.93" 201 mm	4.02" 102 mm	.75" 19 mm	0.55" 14 mm	0.62" 16 mm	DV: 2.7" 69 mm	0.39" 10 mm	3/8" x 16NC	16
94 Series	6.0" 152 mm	8.0" 203 mm	9.0" 229 mm	5.0" 127 mm	DV: 7.0" 178 mm	N/A	N/A	2.0" 51 mm	1.0" 25 mm	DV: 2.9" 74 mm	0.5" 13 mm	3/8" x 16NC	12
94LY Series	6.0" 152 mm	8.0" 203 mm	9.0" 229 mm	5.0" 127 mm	DV: 7.0" 178 mm	3.28" 83 mm	0.55" 14 mm	0.88" 23 mm	1.0" 25 mm	DV: 2.9" 74 mm	0.5" 13 mm	3/8" x 16NC	12
95 Series	6.0" 152 mm	7.7" 196 mm	9.0" 229 mm	6.5" 165 mm	DV: 8.7" 221 mm	4.1" 104 mm	.75" 19 mm	0.56" 14 mm	1.1" 28 mm	DV: 2.9" 74 mm	0.5" 13 mm	3/8" x 16NC	12
97 Series	6.75" 171 mm	8.4" 213 mm	9.75" 248 mm	7.0" 178 mm	DV: 10.9" 277 mm	4.1" 104 mm	.75" 19 mm	0.56" 14 mm	1.0" 25 mm	DV: 2.9" 74 mm	0.5" 13 mm	1/2" x 13NC	16
97EHD Series	6.5" 165 mm	8.4" 213 mm	9.75" 248 mm	8.125" 207 mm	DV: 10.9" 277 mm	4.1" 104 mm	.75" 19 mm	0.65" 17 mm	1.2" 30 mm	DV: 2.9" 74 mm	0.5" 13 mm	1/2" x 13NC	12
98 Series	8.25" 210 mm	8.25" 210 mm	9.6" 244 mm	8.0" 204 mm	DV: 11.0" 279 mm	4.1" 104 mm	0.75" 19 mm	0.58" 15 mm	1.1" 28 mm	DV: 2.9" 74 mm	0.5" 13 mm	1/2" x 13NC	14

Notes:
In order to ensure quality, Balmar reserves the right to make changes which may affect alternator dimensions or specification. Visit ***www.balmar.net*** for any product updates. Balmar is not liable for any damages or injuries resulting from faulty product installation. See the Balmar Warranty and ordering instructions on page 35 of this catalog for more information.

Small case 60-Series Alternators are equipped standard with 10mm bore spacers and bushings. 8mm bore spacers and bushings are available for those units. Call Balmar Customer Service at 360-435-6100.

621-Series alternators are equipped with a removable bushed 1" spacer for use in 2" installations. 1" mounts feature a .50" bore. 2" mounts feature a .38" bore. Always compare existing alternator & replacement alternator dimensions. Balmar cannot guarantee direct OEM replacement.

Multi-Lite™ Utility Lighting Fixture

Balmar's Multi-Lite™ Fixture can be used in 12VDC, 24VDC, 110VAC or 220VAC applications without the need for difficult rewiring. Housed in a protective UV-resistant cage, the Multi-Lite™ uses a glass fresnel lens for optimal light dispersion. See page 29 for ordering details.

Part Number Listings: 6-Series Alternators

Part Number	Description	Volts	Amps	Superseded
60-70-SV	Alternator, 60 Series, 70a, 12v, SaddleMT, 3.15in, SingPul, IsoGrd	12	70	60-70-SR-IG
60-70-DV	Alternator, 60 Series, 70a, 12v, SaddleMT, 3015in, DualPul, IsoGrd			-
60-70-K6	Alternator, 60 Series, 70a, 12v, SaddleMT, 3.15in, K6Pul, IsoGrd			-
60-100-SV	Alternator, 60 Series, 100a, 12v, SaddleMT, 3.15in, SingPul, IsoGrd	12	100	60-100-SR-IG
60-100-DV	Alternator, 60 Series, 100a, 12v, SaddleMT, 3015in, DualPul, IsoGrd			-
60-100-K6	Alternator, 60 Series, 100a, 12v, SaddleMT, 3.15in, K6Pul, IsoGrd			-
60-120-DV	Alternator, 60 Series, 120a, 12v, SaddleMT, 3.15in, DualPul, IsoGrd	12	120	60-120-SR-IG
60-120-K6	Alternator, 60 Series, 120a, 12v, SaddleMT, 3.15in, K6Pul, IsoGrd			-
60-120-J10	Alternator, 60 Series, 120a, 12v, SaddleMT, 3.15in, J10Pul, IsoGrd			-
60-150-DV	Alternator, 60 Series, 150a, 12v, SaddleMT, 3.15in, DualPul, IsoGrd	12	150	60-150-SR-IG
60-150-K6	Alternator, 60 Series, 150a, 12v, SaddleMT, 3.15in, K6Pul, IsoGrd			-
60-150-J10	Alternator, 60 Series, 150a, 12v, SaddleMT, 3.15in, J10Pul, IsoGrd			-
60-24-70-DV	Alternator, 60 Series, 70a, 24v, SaddleMT, 3.15in, DualPul, IsoGrd	24	70	60-24-70-SR-IG
60-24-70-K6	Alternator, 60 Series, 70a, 24v, SaddleMT, 3.15in, K6Pul, IsoGrd			-
60-24-70-J10	Alternator, 60 Series, 70a, 24v, SaddleMT, 3.15in, J10Pul, IsoGrd			-
621-70-SV	Alternator, 621 Series, 70a, 12v, SingleFT, 1-2in, SingPul, IsoGrd	12	70	621-70-SR-IG
621-70-DV	Alternator, 621 Series, 70a, 12v, SingleFT, 1-2in, DualPul, IsoGrd			-
621-70-K6	Alternator, 621 Series, 70a, 12v, SingleFT, 1-2in, K6Pul, IsoGrd			-
621-100-SV	Alternator, 621 Series, 100a, 12v, SingleFT, 1-2in, SingPul, IsoGrd	12	100	621-100-SR-IG
621-100-DV	Alternator, 621 Series, 100a, 12v, SingleFT, 1-2in, DualPul, IsoGrd			-
621-100-K6	Alternator, 621 Series, 100a, 12v, SingleFT, 1-2in, K6Pul, IsoGrd			-
621-120-DV	Alternator, 621 Series, 120a, 12v, SingleFT, 1-2in, DualPul, IsoGrd	12	120	621-120-SR-IG
621-120-K6	Alternator, 621 Series, 120a, 12v, SingleFT, 1-2in, K6Pul, IsoGrd			-
621-120-J10	Alternator, 621 Series, 120a, 12v, SingleFT, 1-2in, J10Pul, IsoGrd			-
621-150-DV	Alternator, 621 Series, 150a, 12v, SingleFT, 1-2in, DualPul, IsoGrd	12	150	621-150-SR-IG
621-150-K6	Alternator, 621 Series, 150a, 12v, SingleFT, 1-2in, K6Pul, IsoGrd			-
621-150-J10	Alternator, 621 Series, 150a, 12v, SingleFT, 1-2in, J10Pul, IsoGrd			-
621-24-70-DV	Alternator, 621 Series, 70a, 24v, SingleFT, 1-2in, DualPul, IsoGrd	24	70	621-24-70-SR-IG
621-24-70-K6	Alternator, 621 Series, 70a, 24v, SingleFT, 1-2in, K6Pul, IsoGrd			-
621-24-70-J10	Alternator, 621 Series, 70a, 24v, SingleFT, 1-2in, J10Pul, IsoGrd			-
604-120-DV	Alternator, 604 Series, 120a, 12v, SaddleMT, 4in, DualPul, IsoGrd	12	120	604-120-SR-IG
604-120-K6	Alternator, 604 Series, 120a, 12v, SaddleMT, 4in, K6Pul, IsoGrd			-
604-150-DV	Alternator, 604 Series, 150a, 12v, SaddleMT, 4in, DualPul, IsoGrd	12	150	604-150-SR-IG
604-150-K6	Alternator, 604 Series, 150a, 12v, SaddleMT, 4in, K6Pul, IsoGrd			-
604-24-70-DV	Alternator, 604 Series, 70a, 24v, SaddleMT, 4in, DualPul, IsoGrd	24	70	604-24-70-SR-IG
604-24-70-K6	Alternator, 604 Series, 70a, 24v, SaddleMT, 4in, K6Pul, IsoGrd			-
622-110	Alternator, 622 Series, 110a, 12v, VortecMT, K6 Serp, CaseGrd	12	110	-
622-110-IG	Alternator, 622 Series, 110a, 12v, VortecMT, K6 Serp, IsoGrd			-
622-160	Alternator, 622 Series, 160a, 12v, VortecMT, K6 Serp, CaseGrd	12	160	-
622-160-IG	Alternator, 622 Series, 160a, 12v, VortecMT, K6 Serp, IsoGrd			-

Ordering Information

Balmar DC Charging Solutions are available worldwide through our distribution and dealer network. Through its association with CDI Electronics, Balmar has also recently expanded its distribution partner network. To find a dealer or wholesale distributor in your area, visit our website or contact Customer Service at the number below.

AT-Series Alternators

Part Number	Description	Volts	Amps	Superseded
AT-SF-165-DV	Alternator, AT Series, 165a, 12v, SingleFT, 1-2in, DualPul, IsoGrd	12	165	AT-SF-165-12-IG
AT-SF-165-K6	Alternator, AT Series, 165a, 12v, SingleFT, 1-2in, K6Pul, IsoGrd			-
AT-SF-165-J10	Alternator, AT Series, 165a, 12v, SingleFT, 1-2in, J10Pul, IsoGrd			-
AT-SF-200-DV	Alternator, AT Series, 200a, 12v, SingleFT, 1-2in, DualPul, IsoGrd	12	200	AT-SF-200-12-IG
AT-SF-200-K6	Alternator, AT Series, 200a, 12v, SingleFT, 1-2in, K6Pul, IsoGrd			-
AT-SF-200-J10	Alternator, AT Series, 200a, 12v, SingleFT, 1-2in, J10Pul, IsoGrd			-
AT-DF-165-DV	Alternator, AT Series, 165a, 12v, DualFT, 3.15in, DualPul, IsoGrd	12	165	AT-DF-165-12-IG
AT-DF-165-K6	Alternator, AT Series, 165a, 12v, DualFT, 3.15in, K6Pul, IsoGrd			-
AT-DF-165-J10	Alternator, AT Series, 165a, 12v, DualFT, 3.15in, J10Pul, IsoGrd			-
AT-DF-200-DV	Alternator, AT Series, 200a, 12v, DualFT, 3.15in, DualPul, IsoGrd	12	200	AT-DF-200-12-IG
AT-DF-200-K6	Alternator, AT Series, 200a, 12v, DualFT, 3.15in, K6Pul, IsoGrd			-
AT-DF-200-J10	Alternator, AT Series, 200a, 12v, DualFT, 3.15in, J10Pul, IsoGrd			-
AT-DF4-200-DV	Alternator, AT Series, 200a, 12v, DualFT, 4in, DualPul, IsoGrd	12	200	AT-DF4-200-12-IG
AT-DF4-200-K6	Alternator, AT Series, 200a, 12v, DualFT, 4in, K6Pul, IsoGrd			-

Large Case Alternators

Part Number	Description	Volts	Amps	Dimensions
94-12-165-IG	Alternator, 94 Series, 165a, 12v, SingleFT, 2in, DualPul, IsoGrd	12	165	7.0" x 9.0" x 6.0"
94-12-210-IG	Alternator, 94 Series, 210a, 12v, SingleFT, 2in, DualPul, IsoGrd	12	210	7.0" x 9.0" x 6.0"
94-24-140-IG	Alternator, 94 Series, 140a, 24v, SingleFT, 2in, DualPul, IsoGrd	24	140	7.0" x 9.0" x 6.0"
94LY-12-165-IG	Alternator, 94 Series, 160a, 12v, Yanmar6LY MT w/Hardware, IsoGrd	12	165	7.0" x 9.0" x 6.0"
94LY-12-210-IG	Alternator, 94 Series, 210a, 12v, Yanmar6LY MT w/Hardware, IsoGrd	12	210	7.0" x 9.0" x 6.0"
94LY-24-140-IG	Alternator, 94 Series, 140a, 40v, Yanmar6LY MT w/Hardware, IsoGrd	24	140	7.0" x 9.0" x 6.0"
94LY-0050	KIT, 94 Series Tensioning Arm Hardware, YanmarLY (arm not included)	-	-	-
9504-12-165-IG	Alternator, 95 Series, 165a, 12v, SaddleMT, 4in, DualPul, IsoGrd	12	165	9.0" x 9.0" x 6.3"
9504-12-210-IG	Alternator, 95 Series, 210a, 12v, SaddleMT, 4in, DualPul, IsoGrd	12	210	9.0" x 9.0" x 6.3"
9504-24-140-IG	Alternator, 95 Series, 140a, 24v, SaddleMT, 4in, DualPul, IsoGrd	24	140	9.0" x 9.0" x 6.3"
9704-12-160-BL-IG	Alternator, 97 Series, 160a, 12v, SaddleMT, 4in, DualPul, IsoGrd, Brushless	12	160	10.6" x 9.5" x 6.5"
9704-24-140-BL-IG	Alternator, 97 Series, 140a, 24v, SaddleMT, 4in, DualPul, IsoGrd, Brushless	24	140	10.6" x 9.5" x 6.5"
97EHD-185-12	Alternator, 97EHD Series, 185a, 12v, SaddleMT, 4in, DualPul, CaseGrd	12	185	11.0" x 9.5" x 6.5"
97EHD-265-12	Alternator, 97EHD Series, 265a, 12v, SaddleMT, 4in, DualPul, CaseGrd	12	265	11.0" x 9.5" x 6.5"
97EHD-265-12-IG	Alternator, 97EHD Series, 265a, 12v, SaddleMT, 4in, DualPul, IsoGrd	12	265	11.0" x 9.5" x 6.5"
97EHD-85-24-IG	Alternator, 97EHD Series, 85a, 24v, SaddleMT, 4in, DualPul, IsoGrd	24	85	11.0" x 9.5" x 6.5"
97EHD-110-24-IG	Alternator, 97EHD Series, 110a, 24v, SaddleMT, 4in, DualPul, IsoGrd	24	110	11.0" x 9.5" x 6.5"
97EHD-190-24	Alternator, 97EHD Series, 110a, 24v, SaddleMT, 4in, DualPul, CaseGrd	24	110	11.0" x 9.5" x 6.5"
97EHD-190-24-IG	Alternator, 97EHD Series, 110a, 24v, SaddleMT, 4in, DualPul, IsoGrd	24	110	11.0" x 9.5" x 6.5"
98-12-310-IG-BL	Alternator, 98 Series, 310a, 12v, SaddleMT, 4in, DualPul, IsoGrd, Brushless	12	310	11.0" x 9.6" x 8.3"
98-24-220-IG-BL	Alternator, 98 Series, 220a, 24v, SaddleMT, 4in, DualPul, IsoGrd, Brushless	24	220	11.0" x 9.6" x 8.3"

Charging Kits - 6-Series

Part Number	Description	Volts	Amps	Superseded
60-YP-70-SV	KIT, 60 Series 70a SaddleMT Alternator, ARS Regulator, TSensors, SingPul	12	70	60-YP-70-SR-KIT
60-YP-70-DV	KIT, 60 Series 70a SaddleMT Alternator, ARS Regulator, TSensors, DualPul			-
60-YP-70-K6	KIT, 60 Series 70a SaddleMT Alternator, ARS Regulator, TSensors, K6Pul			-
60-YP-100-SV	KIT, 60 Series 100a SaddleMT Alternator, ARS Regulator, TSensors, SingPul	12	100	60-YP-100-SR-KIT
60-YP-100-DV	KIT, 60 Series 100a SaddleMT Alternator, ARS Regulator, TSensors, DualPul			-
60-YP-100-K6	KIT, 60 Series 100a SaddleMT Alternator, ARS Regulator, TSensors, K6Pul			-
60-YP-120-DV	KIT, 60 Series 120a SaddleMT Alternator, ARS Regulator, TSensors, DualPul	12	120	60-YP-120-SR-KIT
60-YP-120-K6	KIT, 60 Series 120a SaddleMT Alternator, ARS Regulator, TSensors, K6Pul			-
60-YP-120-J10	KIT, 60 Series 120a SaddleMT Alternator, ARS Regulator, TSensors, J10Pul			-
60-YP-150-DV	KIT, 60 Series 150a SaddleMT Alternator, ARS Regulator, TSensors, DualPul	12	150	60-YP-150-SR-KIT
60-YP-150-K6	KIT, 60 Series 150a SaddleMT Alternator, ARS Regulator, TSensors, K6Pul			-
60-YP-150-J10	KIT, 60 Series 150a SaddleMT Alternator, ARS Regulator, TSensors, J10Pul			-
60-YP-MC-70-SV	KIT, 60 Series 70a SaddleMT Alternator, MC Regulator, TSensors, SingPul	12	70	60-YP-MC-70-SR-KIT
60-YP-MC-70-DV	KIT, 60 Series 70a SaddleMT Alternator, MC Regulator, TSensors, DualPul			-
60-YP-MC-70-K6	KIT, 60 Series 70a SaddleMT Alternator, MC Regulator, TSensors, K6Pul			-
60-YP-MC-100-SV	KIT, 60 Series 100a SaddleMT Alternator, MC Regulator, TSensors, SingPul	12	100	60-YP-MC-100-SR-KIT
60-YP-MC-100-DV	KIT, 60 Series 100a SaddleMT Alternator, MC Regulator, TSensors, DualPul			-
60-YP-MC-100-K6	KIT, 60 Series 100a SaddleMT Alternator, MC Regulator, TSensors, K6Pul			-
60-YP-MC-120-DV	KIT, 60 Series 120a SaddleMT Alternator, MC Regulator, TSensors, DualPul	12	120	60-YP-MC-120-SR-KIT
60-YP-MC-120-K6	KIT, 60 Series 120a SaddleMT Alternator, MC Regulator, TSensors, K6Pul			-
60-YP-MC-120-J10	KIT, 60 Series 120a SaddleMT Alternator, MC Regulator, TSensors, J10Pul			-
60-YP-MC-150-DV	KIT, 60 Series 150a SaddleMT Alternator, MC Regulator, TSensors, DualPul	12	150	60-YP-MC-150-SR-KIT
60-YP-MC-150-K6	KIT, 60 Series 150a SaddleMT Alternator, MC Regulator, TSensors, K6Pul			-
60-YP-MC-150-J10	KIT, 60 Series 150a SaddleMT Alternator, MC Regulator, TSensors, J10Pul			-
60-YP-24-70-DV	KIT, 60 Series 70a 24v SaddleMT Alternator, MC Regltr, TSensors, DualPul	24	70	60-YP-24-70-SR-KIT
60-YP-24-70-K6	KIT, 60 Series 70a 24v SaddleMT Alternator, MC Regltr, TSensors, K6Pul			-
60-YP-24-70-J10	KIT, 60 Series 70a 24v SaddleMT Alternator, MC Regltr, TSensors, J10Pul			-
621-VUP-70-SV	KIT, 621 Series 70a SingleFT Alternator, ARS Regulator, TSensors, SingPul	12	70	621-VUP-70-SR-KIT
621-VUP-70-DV	KIT, 621 Series 70a SingleFT Alternator, ARS Regulator, TSensors, DualPul			-
621-VUP-70-K6	KIT, 621 Series 70a SingleFT Alternator, ARS Regulator, TSensors, K6Pul			-
621-VUP-100-SV	KIT, 621 Series 100a SingleFT Alternator, ARS Regulator, TSensors, SingPul	12	100	621-VUP-100-SR-KIT
621-VUP-100-DV	KIT, 621 Series 100a SingleFT Alternator, ARS Regulator, TSensors, DualPul			-
621-VUP-100-K6	KIT, 621 Series 100a SingleFT Alternator, ARS Regulator, TSensors, K6Pul			-
621-VUP-120-DV	KIT, 621 Series 120a SingleFT Alternator, ARS Regulator, TSensors, DualPul	12	120	621-VUP-120-SR-KIT
621-VUP-120-K6	KIT, 621 Series 120a SingleFT Alternator, ARS Regulator, TSensors, K6Pul			-
621-VUP-120-J10	KIT, 621 Series 120a SingleFT Alternator, ARS Regulator, TSensors, J10Pul			-
621-VUP-150-DV	KIT, 621 Series 150a SingleFT Alternator, ARS Regulator, TSensors, DualPul	12	150	621-VUP-150-SR-KIT
621-VUP-150-K6	KIT, 621 Series 150a SingleFT Alternator, ARS Regulator, TSensors, K6Pul			-
621-VUP-120-J10	KIT, 621 Series 120a SingleFT Alternator, ARS Regulator, TSensors, J10Pul			-

Ordering Information

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Charging Kits - 6-Series

Part Number	Description	Volts	Amps	Superseded
621-VUP-MC-70-SV	KIT, 621 Series 70a SingleFT Alternator, MC Regulator, TSensors, SingPul	12	70	621-VUP-MC-70-SR-KIT
621-VUP-MC-70-DV	KIT, 621 Series 70a SingleFT Alternator, MC Regulator, TSensors, DualPul			-
621-VUP-MC-70-K6	KIT, 621 Series 70a SingleFT Alternator, MC Regulator, TSensors, K6Pul			-
621-VUP-MC-100-SV	KIT, 621 Series 100a SingleFT Alternator, MC Regulator, TSensors, SingPul	12	100	621-VUP-MC-100-SR-KIT
621-VUP-MC-100-DV	KIT, 621 Series 100a SingleFT Alternator, MC Regulator, TSensors, DualPul			-
621-VUP-MC-100-K6	KIT, 621 Series 100a SingleFT Alternator, MC Regulator, TSensors, K6Pul			-
621-VUP-MC-120-DV	KIT, 621 Series 120a SingleFT Alternator, MC Regulator, TSensors, DualPul	12	120	621-VUP-MC-120-SR-KIT
621-VUP-MC-120-K6	KIT, 621 Series 120a SingleFT Alternator, MC Regulator, TSensors, K6Pul			-
621-VUP-MC-120-J10	KIT, 621Series 120a SingleFT Alternator, MC Regulator, TSensors, J10Pul			
621-VUP-MC-150-DV	KIT, 621 Series 150a SingleFT Alternator, MC Regulator, TSensors, DualPul	12	150	621-VUP-MC-150-SR-KIT
621-VUP-MC-150-K6	KIT, 621 Series 150a SingleFT Alternator, MC Regulator, TSensors, K6Pul			-
621-VUP-MC-150-J10	KIT, 621 Series 150a SingleFT Alternator, MC Regulator, TSensors, J10Pul			
621-VUP-24-70-DV	KIT, 621 Series 70a 24v SingleFT Alternator, MC Regltr, TSensors, DualPul	24	70	621-VUP-24-70-SR-KIT
621-VUP-24-70-K6	KIT, 621 Series 70a 24v SingleFT Alternator, MC Regltr, TSensors, K6Pul			-
621-VUP-24-70-J10	KIT, 621 Series 70a 24v SingleFT Alternator, MC Regltr, TSensors, J10Pul			

Charging Kits - AT-Series

Part Number	Description	Volts	Amps	Superseded
AT-SF-165-DV-KIT	KIT, AT 165a SingleFT Alternator, MC Regulator, TSensors, DualPul	12	165	AT-SF-MC-165-KIT
AT-SF-165-K6-KIT	KIT, AT 165a SingleFT Alternator, MC Regulator, TSensors, K6Pul			-
AT-SF-165-J10-KIT	KIT, AT 165a SingleFT Alternator, MC Regulator, TSensors, J10Pul			
AT-SF-200-DV-KIT	KIT, AT 200a SingleFT Alternator, MC Regulator, TSensors, DualPul	12	200	AT-SF-MC-200-KIT
AT-SF-200-K6-KIT	KIT, AT 200a SingleFT Alternator, MC Regulator, TSensors, K6Pul			-
AT-SF-200-J10-KIT	KIT, AT 200a SingleFT Alternator, MC Regulator, TSensors, J10Pul			
AT-DF-165-DV-KIT	KIT, AT 165a DualFT Alternator ,MC Regulator, TSensors, DualPul	12	165	AT-DF-MC-165-KIT
AT-DF-165-K6-KIT	KIT, AT 165a DualFT Alternator ,MC Regulator, TSensors, K6Pul			-
AT-DF-165-J10-KIT	KIT, AT 165a DualFT Alternator ,MC Regulator, TSensors, J10Pul			
AT-DF-200-DV-KIT	KIT, AT 200a DualFT Alternator, MC Regulator, TSensors, DualPul	12	200	AT-DF-MC-200-KIT
AT-DF-200-K6-KIT	KIT, AT 200a DualFT Alternator, MC Regulator, TSensors, K6Pul			-
AT-DF-200-J10-KIT	KIT, AT 200a DualFT Alternator, MC Regulator, TSensors, J10Pul			
AT-DF4-200-DV-KIT	KIT, AT 200a DualFT4in Alternator, MC Regulator, TSensors, DualPul	12	200	AT-DF4-MC-200-KIT
AT-DF4-200-K6-KIT	KIT, AT 200a DualFT4in Alternator, MC Regulator, TSensors, K6Pul			-

Smartgauge™ and Multi-Lite™

Part Number	Description	Volts	Amps	Dimensions
44-SG-12/24	Smartgauge Battery Monitor, 12/24v	12/24	-	4.3" x 3.0" x 1.1"
458	Multi-Lite , No Switch, DC & AC Applications (Bulb Not Included)	12/24	-	6.5" x 4.0" x 4.5"
458-S	Multi-Lite , Switched, DC & AC Applications (Bulb Not Included)	12/24	-	6.5" x 4.0" x 4.5"

Balmar Regulators

Part Number	Description	Volts	Amps	Dimensions
MC-612-DUAL	Regulator, Dual MC612 Multi-Stage, 12v, w/o Harnesses	12	-	4.8" x 3.2" x 1.5"
MC-612-DUAL-H	Regulator, Dual MC612 Multi-Stage, 12v, w/Harnesses	12	-	4.8" x 3.2" x 1.5"
MC-614	Regulator, MC614 Multi-Stage, 12v, w/o Harness	12	-	4.8" x 3.2" x 1.5"
MC-614-H	Regulator, MC614 Multi-Stage, 12v, w/Harness	12	-	4.8" x 3.2" x 1.5"
MC-614-HC	Regulator, MC614 Multi-Stage, 12v, w/Harness (Clamshell)	12	-	4.8" x 3.2" x 1.5"
MC-624	Regulator, MC624 Multi-Stage, 24v, w/o Harness	24	-	4.8" x 3.2" x 1.5"
MC-624-H	Regulator, MC624 Multi-Stage, 24v, w/Harness	24	-	4.8" x 3.2" x 1.5"
MC-624-HC	Regulator, MC624 Multi-Stage, 24v, w/Harness (Clamshell)	24	-	4.8" x 3.2" x 1.5"
ARS-5	Regulator, ARS Multi-Stage, 12v, w/o Harness	12	-	4.1" x 3.2" x 1.5"
ARS-5-H	Regulator, ARS Multi-Stage, 12v, w/Harness	12	-	4.1" x 3.2" x 1.5"
ARS-5-HC	Regulator, ARS Multi-Stage, 12v, w/Harness (Clamshell)	12	-	4.1" x 3.2" x 1.5"
BRS-2T-12	Regulator, BRS Single-Stage, 12v, w/o Harness	12	-	4.8" x 3.2" x 1.5"
BRS-2T-12-H	Regulator, BRS Single-Stage, 12v, w/Harness	12	-	4.6" x 3.2" x 1.5"
BRS-2T-24	Regulator, BRS Single-Stage, 24v, w/o Harness	24	-	4.6" x 3.2" x 1.5"
BRS-2T-24-H	Regulator, BRS Single-Stage, 24v, w/Harness	24	-	4.6" x 3.2" x 1.5"
ERS-KIT	Regulator, Single-Stage, 12v, w/Wiring Kit	12/24	-	2.3" x 1.3" x 0.7"
DDC-12/24	Digital Duo Charge, 12/24v, w/Wires	12/24	-	4.8" x 3.2" x 1.5"
DDC-12/24-C	Digital Duo Charge, 12/24v, w/Wires (Clamshell)	12/24	-	4.8" x 3.2" x 1.5"
CFII-12/24	Centerfielder II, 12/24v, w/Wires	12/24	-	4.8" x 3.2" x 1.5"
CFII-12/24-C	Centerfielder II, 12/24v, w/Wires (Clamshell)	12/24	-	4.8" x 3.2" x 1.5"

Regulator Accessories

Part Number	Description	Volts	Amps	Dimensions
MC-TS-A	Temperature Sensor, Alternator 54 inch Length	12/24	-	54" length
MC-TS-B	Temperature Sensor, Battery 20 ft Length	12/24	-	240" length
TSP-12	Spike Ground Protector, 12v Only	12	10	10" length
TSP-24	Spike Ground Protector, 24v Only	24	10	10" length
1010	Wiring Harness, 6 & AT-Series, 12v, Gray Field/Stator Plug	12	-	54" length
1011	Wiring Harness, 94 Series, 12v, Black Tee-Style Field/Stator Plug	12	-	54" length
1012	Wiring Harness, 6-Series, 24v, Gray Field/Stator Plug	24	-	54" length
1012-I	Wiring Harness, 95 Series, 24v, White Field/Stator Plug	24	-	54" length
1013	Wiring Harness, 94 Series, 24v, Black Tee-Style Field/Stator Plug	24	-	54" length
1014	Wiring Harness, 70,97,98 Series, 12v, Ring Terminals on Field/Stator Plug	12	-	54" length
1016	Wiring Harness, 96,97,98 Series, 24v, Ring Terminals on Field/Stator Plug	24	-	54" length

Ordering Information

Balmar DC Charging Solutions are available worldwide through our distribution and dealer network. Through its association with CDI Electronics, Balmar has also recently expanded its distribution partner network. To find a dealer or wholesale distributor in your area, visit our website or contact Customer Service at the number below.

Alternator Accessories

Part Number	Description	Volts	Amps	Dimensions
BB	Belt Buddy, only for UAA Adjustment Arm	-	-	11.0" x 1.0" x 1.0"
BBU	Belt Buddy, Universal, w/o Adjustment Arm	-	-	3.0" x 1.0" x 1.0"
UAA	Universal Adjustment Arm	-	-	11.0" x 1.0" x 0.3"
UBB	Belt Buddy, w/UAA Universal Adjustment Arm	-	-	3.0" x 1.0" x 1.0"
15-TSS	Signal Stabilizer, Tachometer	12	-	2.5" X 2.5" X 1"
1512	Circuit Breaker, Surface Mount, 125a, Manual Reset	12	125	2.75" X 2" X 2.75"
1515	Circuit Breaker, Surface Mount, 150a, Manual Reset	12	150	2.75" X 2" X 2.75"
6-0020	KIT, Hardware, Yanmar (ex. CX/LP)	-	-	-
6-0030	KIT, Hardware, Yanmar 6CX	-	-	-
6-0040	KIT, Hardware, Yanmar LP, 6LP	-	-	-
7060	Offshore Repair Kit, 60 Series, 12v, (incl brngs, brushes, regltr/rectfr)	12	-	-
7060-24	Offshore Repair Kit, 60 Series, 24v, (incl brngs, brushes, regltr/rectfr)	24	-	-
7090	Offshore Repair Kit, 90 Series, 12/24v, (incl brngs, brushes, ps/ng diodes)	12/24	-	-
7094	Offshore Repair Kit, 94 Series, 12/24v, (incl brngs, brushes, ps/ng diodes)	12/24	-	-
7095	Offshore Repair Kit, 95 Series, 12/24v, (incl brngs, brushes, ps/ng diodes)	12/24	-	-
7097	Offshore Repair Kit, 70 Series, 12v, (incl brngs, brushes, regltr/rectfr)	12	-	-
7097-24	Offshore Repair Kit, 70 Series, 24v, (incl brngs, brushes, regltr/rectfr)	24	-	-
70-AT-165	Offshore Repair Kit, AT Series, 165a, 12v, (incl brngs, brushes, rectfr)	12	-	-
70-AT-200	Offshore Repair Kit, AT Series, 200a, 12v, (incl brngs, brushes, rectfr)	12	-	-
10-4048	Spacer, 1/4in, for 60, 90 Series Alternators	-	-	0.25" x 1.0" dia.
10-4000	Spacer, 1/2in, for 60, 90 Series Alternators	-	-	0.5" x 1.0" dia.
10-4047	Spacer, 1in, for 60, 90 Series Alternators	-	-	1.0" x 1.0" dia.
17-A-201-1	Rectifier Kit, 6 Series, 12V, Smart Ready, IsoGrd	12	-	-
17-A-202-1	Rectifier Kit, 6 Series, 24V, Smart Ready, IsoGrd	24	-	-
12-98-AIR	Air Intake, 98 Series	-	-	1.5" x 6.75" dia.
ULR	Lamp Relay, Universal	12	30	1" x 0.75" x 0.75"

AltMount Pulley Kits

Part Number	Description	Type	Pulley	Dia.	Belt
Ford / Lehman					
48-FSP-100	Pulley Kit, Ford/Lehman 100	10 Groove Serp.	J10	2.4"	55.0" Circ.
Nanni					
48-NSP-3.3	Pulley Kit, Nanni NE3.30, 4.38	6 Groove Serp.	K6	2.3"	40.0" Circ.
48-NSP-100	Pulley Kit, Nanni N4.6, N4.85, N100	6 Groove Serp.	K6	2.3"	44.5" Circ.
Perkins/Sabre					
48-PSP-410-A	Pulley Kit, Perkins 4107, 4108	6 Groove Serp.	K6	2.3"	40.0" Circ.
48-PSP-6354	Pulley Kit, Perkins 6.354	10 Groove Serp.	J10	2.4"	55.0" Circ.
48-PSP-PR-A	Pulley Kit, Perkins Prima	10 Groove Serp.	J10	2.4"	40.0" Circ.
Vetus					
48-VSP-M4.17	Pulley Kit, Vetus M4.17	10 Groove Serp.	J10	2.4"	39.0" Circ.

AltMount® Pulley Kits (continued)

Part Number	Description	Type	Pulley	Dia.	Belt
Yanmar					
48-YSP-3GM-A	Pulley Kit, Yanmar 3GM30	10 Groove Serp.	J10	2.4"	39.0" Circ.
48-YSP-3GM-B	Pulley Kit, Yanmar 3GM30-F, 3GM-F	10 Groove Serp.	J10	2.4"	40.0" Circ.
48-YSP-3GM-C	Pulley Kit, Yanmar 3GM, 2GM-20	10 Groove Serp.	J10	2.4"	32.0" Circ.
48-YSP-3HM-A	Pulley Kit, Yanmar 3HM35, 3HM	10 Groove Serp.	J10	2.4"	33.0" Circ.
48-YSP-3HM-B	Pulley Kit, Yanmar 3HM35-F, 3HM-F	10 Groove Serp.	J10	2.4"	40.0" Circ.
48-YSP-3JH-A	Pulley Kit, Yanmar 3JH5, 3JH4-E, 4JH4-E, 4JH5	10 Groove Serp.	J10	2.4"	44.5" Circ.
48-YSP-3JH-C	Pulley Kit, Yanmar 3JH2-TE, 3JH2-E	10 Groove Serp.	J10	2.4"	45.0" Circ.
48-YSP-3JH-E	Pulley Kit, Yanmar 3JH3	10 Groove Serp.	J10	2.4"	46.0" Circ.
48-YSP-3YM-A	Pulley Kit, Yanmar 3YM20, 2YM-15	10 Groove Serp.	J10	2.4"	40.0" Circ.
48-YSP-3YM-B	Pulley Kit, Yanmar 3YM30	10 Groove Serp.	J10	2.4"	39.0" Circ.
48-YSP-4JH-B	Pulley Kit, Yanmar 4JH4-HTE -TE -DTE	10 Groove Serp.	J10	2.4"	46.0" Circ.
48-YSP-4JH-D	Pulley Kit, Yanmar 4JH3, -TE, -HTE	10 Groove Serp.	J10	2.4"	48.0" Circ.
48-YSP-4JH-E	Pulley Kit, Yanmar 4JH2-TE -HTE -DTE -UTE	10 Groove Serp.	J10	2.4"	47.0" Circ.
48-YSP-4JH-F	Pulley Kit, Yanmar 4JH, 4JHE -TE -HTE -DTE	10 Groove Serp.	J10	2.4"	47.0" Circ.
48-YSP-4LH-A	Pulley Kit, Yanmar 4LH-A	10 Groove Serp.	J10	2.4"	47.0" Circ.
48-YSP-6LY-A	Pulley Kit, Yanmar 6LY, 6LYA-STP, 6LY2-STP	10 Groove Serp.	J10	2.4"	55.0" Circ.
Second Alternator Kits for Yanmar					
48-YDA-4JH-A	Pulley Kit, Yanmar 4JH3, Second Alternator Kit	10 Groove Serp.	J10	2.4"	30" Circ.
48-YDA-4JH-B	Pulley Kit, Yanmar 4JH4-HTE, TE, Second Alternator Kit	10 Groove Serp.	J10	2.4"	30" Circ.
48-YDA-4JH-C	Pulley Kit, Yanmar 4JH4-E, Second Alternator Kit	10 Groove Serp.	J10	2.4"	30" Circ.
48-YDA-6LY-A	Pulley Kit, Yanmar 6LY, LY-2, Second Alternator Kit	10 Groove Serp.	J10	2.4"	32" Circ.
Universal					
48-USP-5432	Pulley Kit, Universal 5432	6 Groove Serp.	K6	2.3"	40.0" Circ.
48-USP-M25	Pulley Kit, Universal M25, M-A	10 Groove Serp.	J10	2.4"	42.0" Circ.
48-USP-M35B	Pulley Kit, Universal M35B, M25XPB, M40B	10 Groove Serp.	J10	2.4"	40.0" Circ.
48-USP-M50	Pulley Kit, Universal M50, M-50, M50A, M50B, 5444	6 Groove Serp.	K6	2.3"	40.0" Circ.
48-USP-M-B	Pulley Kit, Universal M-35	10 Groove Serp.	J10	2.4"	43.0" Circ.
Volvo					
48-VSP-2001	Pulley Kit, Volvo 2001, 2002, 2003, 2003T	6 Groove Serp.	K6	2.3"	34.5" Circ.
48-VSP-D2-A	Pulley Kit, Volvo D2-55A, B, C, D, E, F	10 Groove Serp.	J10	2.4"	44.0" Circ.
48-VSP-MD-A	Pulley Kit, Volvo MD2030	10 Groove Serp.	J10	2.4"	33.0" Circ.
48-VSP-MD-B	Pulley Kit, Volvo MD2040	10 Groove Serp.	J10	2.4"	42.0" Circ.
48-VSP-PR-A	Pulley Kit, Volvo Prima	10 Groove Serp.	J10	2.4"	40.0" Circ.
48-VSP-TD-A	Pulley Kit, Volvo TDM-22	10 Groove Serp.	J10	2.4"	40.0" Circ.
Westerbeke					
48-WSP-12C	Pulley Kit, Westerbeke 12C, 12D, 20B, 30B	10 Groove Serp.	J10	2.4"	38.0" Circ.
48-WSP-18	Pulley Kit, Westerbeke 18, 21A, 27A, 35B, 38B, 42B	10 Groove Serp.	J10	2.4"	40.0" Circ.
48-WSP-21	Pulley Kit, Westerbeke 21, 13A, 27	10 Groove Serp.	J10	2.4"	40.0" Circ.
48-WSP-33	Pulley Kit, Westerbeke 30C, 33	10 Groove Serp.	J10	2.4"	40.0" Circ.
48-WSP-40	Pulley Kit, Westerbeke 40	6 Groove Serp.	K6	2.45"	41.5" Circ.
48-WSP-44A	Pulley Kit, Westerbeke 44A, 44B	10 Groove Serp.	J10	2.4"	40.0" Circ.
48-WSP-46	Pulley Kit, Westerbeke 46	6 Groove Serp.	K6	2.3"	40.0" Circ.
48-WSP-55B	Pulley Kit, Westerbeke 55B, 55C, 55D, 56	6 Groove Serp.	J6	2.4"	36.0" Circ.
48-WSP-71	Pulley Kit, Westerbeke 71, 82	10 Groove Serp.	J10	2.4"	47.0" Circ.

AltMount® Accessories

Part Number	Description	Type	Pulley	Dia.	Belt/Bore
AltMount® Belt Accessories					
48-B-26	Belt, 26in Circumference	10 Groove Serp.	J10	-	26" Circ.
48-B-28	Belt, 28in Circumference	10 Groove Serp.	J10	-	28" Circ.
48-B-30	Belt , Yanmar 3JH4, 4JH4E, 4JH4-HTE, 4JH3, 2nd Alt. Belt 30in Circ.	10 Groove Serp.	J10	-	30" Circ.
48-B-31	Belt, Yanmar, 31in Circumference	10 Groove Serp.	J10	-	31" Circ.
48-B-32	Belt, Yanmar, 32in Circumference, 6LY Second Alternator	10 Groove Serp.	J10	-	32" Circ.
48-B-33	Belt, Yanmar, 33in Circumference	10 Groove Serp.	J10	-	33" Circ.
48-B-34	Belt, Yanmar, 34in Circumference	10 Groove Serp.	J10	-	34" Circ.
48-B-35	Belt, Yanmar, 35in Circumference	10 Groove Serp.	J10	-	35" Circ
48-B-36	Belt, Yanmar, 36in Circumference	10 Groove Serp.	J10	-	36" Circ.
48-B-37	Belt, Yanmar, 37in Circumference	10 Groove Serp.	J10	-	37" Circ.
48-B-38	Belt, Yanmar, 38in Circumference	10 Groove Serp.	J10	-	38" Circ.
48-B-39	Belt, Yanmar 3GM30, 39in Circumference	10 Groove Serp.	J10	-	39" Circ.
48-B-40	Belt, Yanmar 3YM30, 40in Circumference	10 Groove Serp.	J10	-	40" Circ.
48-B-41	Belt, Yanmar, 41in Circumference	10 Groove Serp.	J10	-	41" Circ..
48-B-42	Belt, Yanmar, 42in Circumference	10 Groove Serp.	J10	-	42" Circ.
48-B-43	Belt, Yanmar, 43in Circumference	10 Groove Serp.	J10	-	43" Circ.
48-B-44	Belt, Yanmar, 44in Circumference	10 Groove Serp.	J10	-	44" Circ.
48-B-445	Belt, Yanmar 3JH4, 4JH4-E, 4JH5-E, 3JH5 3 Pulley Kit, 44.5in Circ.	10 Groove Serp.	J10	-	44.5" Circ.
48-B-45	Belt, Yanmar, 45in Circumference	10 Groove Serp.	J10	-	45" Circ.
48-B-46	Belt, Yanmar 4JH4-TE, 4JH4-HTE turbo 3 Pulley Kit, 60in Circ.	10 Groove Serp.	J10	-	60" Circ.
48-B-47	Belt, Yanmar, 47in Circumference	10 Groove Serp.	J10	-	47" Circ.
48-B-48	Belt, Yanmar 4JH3 3 Pulley Kit, 48in Circumference	10 Groove Serp.	J10	-	48" Circ.
48-B-49	Belt, Yanmar, 49in Circumference	10 Groove Serp.	J10	-	49" Circ.
48-B-50	Belt, Yanmar, 50in Circumference	10 Groove Serp.	J10	-	50" Circ.
48-B-51	Belt, Yanmar, 51in Circumference	10 Groove Serp.	J10	-	51" Circ.
48-B-52	Belt, Yanmar, 52in Circumference	10 Groove Serp.	J10	-	52" Circ.
48-B-53	Belt, Yanmar, 53in Circumference	10 Groove Serp.	J10	-	53" Circ.
48-B-54	Belt, Yanmar, 54in Circumference	10 Groove Serp.	J10	-	54" Circ.
48-B-55	Belt, Yanmar 6LY 3 Pulley Kit, 55in Circumference	10 Groove Serp.	J10	-	55" Circ.
48-B-56	Belt, Yanmar, 56in Circumference	10 Groove Serp.	J10	-	56" Circ.
AltMount®Pulley Accessories					
48-AM-38	Pulley, AltMount, 6 Series Alternator	10 Groove Serp.	J10	2.4"	17mm Bore
48-AM-39	Pulley, AltMount, 95 Series Alternator	10 Groove Serp.	J10	2.4"	17mm Bore
48-AM-97	Pulley, AltMount, Hitachi Alternator	10 Groove Serp.	J10	2.4"	17mm Bore
48-AM-102	Pulley, AltMount, 7 Series Alternator	10 Groove Serp.	J10	2.4"	17mm Bore
48-AM-106	Pulley, AltMount, AT Series Alternator	10 Groove Serp.	J10	2.4"	17mm Bore
48-AM-107	Spacer, AltMount, AT Series Alternator, for AM-106	-	-	2.4"	17mm Bore
48-YBT-4JH-A	Tensioner, Yanmar, 4JH	10 Groove Serp.	J10	2.4"	17mm Bore
48-YP-FT	Pulley, Yanmar, Fixed Tach Alt Pulley	10 Groove Serp.	J10	2.4"	17mm Bore
48-YP-IDL	Pulley, Yanmar, JH Idler Pulley	10 Groove Serp.	J10	2.4"	17mm Bore

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Pulley Accessories

Part Number	Description	Type	Pulley	Dia.	Bore
6-Series and 94-Series Pulley Accessories					
1303	Pulley, Single 2.2" x 1/2" V, 17mm Bore	Single Vee	1/2"	2.2"	17mm Bore
2762	Pulley, Single 2.7" x 7/16" V, 17mm Bore	Single Vee	7/16"	2.7"	17mm Bore
61-0010	Pulley, Single, 2.7" x 1/2" DeepV, 17mm Bore (Std SV on 6-Series)	Single Vee	1/2" DV	2.7"	17mm Bore
1315	Pulley, Single 3.0" x 5/8" V, 17mm Bore	Single Vee	5/8"	2.7"	17mm Bore
24-2100	Pulley, Single 3.4" x 1/2" V, 17mm Bore	Single Vee	1/2"	3.5"	17mm Bore
12-4031	Pulley, Single 4" x 1/2" DeepV, 17mm Bore, (Volvo)	Single Vee	1/2" DV	4.0"	17mm Bore
1305	Pulley, Dual 2.2" x 1/2" V, 17mm Bore	Dual Vee	1/2"	2.2"	17mm Bore
4038-CAM	Pulley, Dual 2.7" x 1/2" V, w/3/8" Spacing	Dual Vee	1/2"	2.7"	17mm Bore
61-0020	Pulley, Dual 2.7" x 1/2" DeepV, 17mm Bore (Std DV on 6-Series)	Dual Vee	1/2" DV	2.7"	17mm Bore
61-0060	Pulley, Dual 2.7" x 1/2" V, 17mm Bore, (For Yanmar 6CX)	Dual Vee	1/2"	2.7"	17mm Bore
2763	Pulley, Dual 2.7" x 5/8" V, 17mm Bore	Dual Vee	5/8"	2.7"	17mm Bore
5908MPV	Pulley, Dual 2.9" x 1/2" V, 17mm Bore	Dual Vee	1/2"	2.9"	17mm Bore
1330	Pulley, Dual 2.9" x 1/2" DeepV, 17mm Bore	Dual Vee	1/2" DV	2.9"	17mm Bore
1318	Pulley, K-6 1.9" (Serp), 17mm Bore	6 Groove Serp.	K6	1.9"	17mm Bore
1273	Pulley, K-6 2.3" (Serp), 17mm Bore	6 Groove Serp.	K6	2.3"	17mm Bore
1316	Pulley, K-6 2.4" (Serp), 17mm Bore	6 Groove Serp.	K6	2.4"	17mm Bore
61-0070	Pulley, K-6 2.45" (Serp), 17mm Bore (Std K6 on 6-Series)	6 Groove Serp.	K6	2.45	17mm Bore
2749B	Pulley, K-6 2.7" (Serp), 17mm Bore	6 Groove Serp.	K6	2.7"	17mm Bore
1310	Pulley, K-8 2.4" (Serp), 17mm Bore, Short (STD)	8 Groove Serp.	K8	2.4"	17mm Bore
1311	Pulley, K-8 2.4" (Serp), 17mm Bore, (Cummins)	8 Groove Serp.	K8	2.4"	17mm Bore
AT-Series Pulley Accessories					
17-AT-0020	Pulley, Dual 3.2" x 1/2" V, 17mm Bore, Short Shaft (Std DV on AT)	Dual Vee	1/2"	3.2"	17mm Bore
17-AT-K-6	Pulley, K-6 2.5" (Serp), 17mm Bore, Short Shaft (Std K6 on AT)	6 Groove Serp.	K6	2.5"	17mm Bore
17-AT-K-7	Pulley, K-7 2.2" (Serp), 17mm Bore, Short Shaft	7 Groove Serp.	K7	2.2"	17mm Bore
17-AT-K-8	Pulley, K-8 2.7" (Serp), 17mm Bore, Short Shaft	8 Groove Serp.	K8	2.7"	17mm Bore
95-Series, 97-Series, 97EHD-Series and 98-Series Pulley Accessories					
5535-B	Pulley, Dual 2.7" x 1/2" V, .875" Bore	Dual Vee	1/2"	2.7"	0.875" Bore
5540	Pulley, Dual 2.7" x 5/8" V, .875" Bore	Dual Vee	5/8"	2.5"	0.875" Bore
5570	Pulley, Dual 3.6" x 5/8" V, .875" Bore	Dual Vee	5/8"	3.6"	0.875" Bore
59473	Pulley, Dual 2.9 x 1/2" V, .875" Bore	Dual Vee	1/2"	2.9"	0.875" Bore
5550	Pulley, Triple 2.9" 1/2" V, .875" Bore	Triple Vee	1/2"	2.9"	0.875" Bore
5552	Pulley, K-6 2.7" (Serp), .875" Bore	6 Groove Serp.	K6	2.7"	0.875" Bore
5539	Pulley, K-8 2.5" (Serp), .875" Bore	8 Groove Serp.	K8	2.5"	0.875" Bore
5537-B	Pulley, K-8 2.7" (Serp), .875" Bore, (Cummins)	8 Groove Serp.	K8	2.7"	0.875" Bore

Ordering Information

Balmar DC Charging Solutions are available worldwide through our distribution and dealer network. Through its association with CDI Electronics, Balmar has also recently expanded its distribution partner network. To find a dealer or wholesale distributor in your area, visit our website or contact Customer Service at the number below.

Balmar Warranty

Balmar Limited Warranty
Balmar's Limited Warranty covers defects in material or workmanship on new Balmar products generally for a period of one (1) year from the purchase date. Only consumers or dealers purchasing Balmar products from authorized Balmar retailers or resellers and installed by a qualified installer may obtain coverage under Balmar's Limited Warranty. Components with a manufacturing date greater than ten (10) years old are not covered under the Balmar Warranty, even if the purchase date has been within the past two (2) years. Purchases from unauthorized resellers, which may include some online entities, may not guarantee the purchaser will receive a newly manufactured component, and therefore does not guarantee Warranty coverage.

Warranty Resolution
If Balmar authorizes a product to be returned to Balmar or an authorized service provider, Balmar will repair the product or replace it without charge with a functionally equivalent replacement product. Balmar may replace the product with a product that was previously in service or repaired, but re-tested to meet Balmar specifications. Balmar will pay to ship the replacement product to the purchaser. By sending the product for replacement, ownership of the original product will be transferred to Balmar. Labor charges at the consumer's site are not covered under this Warranty. Balmar warrants that repaired or replaced products shall be covered under the Balmar Warranty for the remainder of the original product warranty, or 90 days, whichever is greater.

Not Covered Under Warranty
Balmar's Warranty does not cover any problem that is caused by (a) an accident, abuse, neglect, exposure to shock, electrostatic discharge, heat or humidity beyond the product's specifications, improper installation, inappropriate operation/misapplication, maintenance or modification, or (b) any misuse contrary to the instructions provided with the product, or (c) loss, or (d) malfunctions caused by other equipment, or (e) acts of God. Examples of conditions not warranted: cracked or broken cases, parts damaged by fire, water, freezing, lightning, collision, theft, explosion, rust, corrosion, or items damaged in route to Balmar for repair. Balmar's Warranty is void if a product is returned with removed, damaged or tampered labels or any other alterations (including removal of any component or external cover) to the product. Balmar's Warranty does not cover labor charges or any direct, consequential, or incidental damages. Costs related to recovery, removal or installation are not recoverable under the Balmar Limited Warranty.

Applicable Laws
Balmar's Warranty is governed by the laws of the State of Alabama, USA. The Balmar Warranty provides the purchaser specific legal rights, and you may also have other rights that vary from state to state. Balmar's Warranty does not affect any additional rights consumers have under laws in their jurisdictions governing the sale of consumer goods, including, without limitation, national laws implementing EC Directive 44/99/EC. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the limitations or exclusions of Balmar's Warranty may not apply in certain jurisdictions.

Warranty Return Material Process
1. Contact Balmar Technical Support at +1 (360) 435-6100. Tech Support will review the troubleshooting steps with you to help determine if Balmar's product is defective.
2. Go to ***www.balmar.net*** and download the RMA Request.
3. Once complete, you will receive an RMA number, at which point you should complete the forms and send them with the product and the original receipt showing the date of purchase to Balmar at the address listed below. Please include the RMA number on the **outside** of the package.
4. Please send the product postage prepaid via a carrier that can track the package.

Balmar LLC
353 James Record Road SW
Huntsville, AL 35824
Attention: Warranty Returns RMA# _____

Once Balmar receives the product, we will test the product to determine if the problem is due to a defect in the product. If, at the sole discretion of Balmar, the problem is determined to be a manufacturer defect, Balmar will repair the product or send a new product to replace the defective product.

Balmar will not provide Warranty coverage unless Warranty claims are made in compliance with all the terms listed here, and the specified return procedures are followed.

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CDI Electronics designs and manufactures ignition components for outboard motors and diagnostic software for most Marine Engines. CDI enjoys relationships with 70 distribution partners around the world. To find a CDI distribution partner, visit ***www.cdielectronics.com.***

Both Balmar and CDI Products are manufactured in our ISO 9000-Certified Factory in Huntsville, Alabama.

ASSEMBLED IN USA

Please read carefully. All policies, procedures and instructions are subject to change. This guide was prepared to provide information and does not constitute a contract. Balmar reserves the right, without prior notice, to change, delete, supplement, or otherwise amend at any time the information and policies contained in this guide.

For the most recent information about Balmar's products, policies and instructions please visit ***www.balmar.net***.

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