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DC Charging Systems 2007 Product Guide



**Alternators
Regulators
Centerfielder
Digital Duo Charge**

Want to improve your vessel's charging system?

Balmar continues to make it easier and more convenient for you to upgrade your charging system. New this year are several packages which pair alternators and regulators based on engine manufacturer and model. Packages include Balmar 6-Series Smart Ready™ alternator, new ARS-5-H regulator with wiring harness, MC-TS-A alternator temperature sensor, and MC-TS-B battery temperature sensor. Yanmar-specific, 60-YP-Series packages also include required mounting hardware. For additional information on charging system packages, see page 10 of the Product Guide.

Smart Ready™ 6-Series Alternators

Equipped with an internal regulator that can be used as a built-in spare, or on its own, the 6-Series alternator is at home on a performance gasoline engine or on an offshore cruising sailboat. The ability of the 6-Series alternator to be used as a stand alone (no external regulator required) charging system has rocketed its popularity among recreational powerboat users. Currently, the 6-Series alternator is offered as standard or optional upgrade on Pleasurecraft, Crusader, Marine Power, and other popular gasoline engines. As an upgrade replacement for traditional marine diesel engines, the 6-Series provides a substantial increase in “across the board” charging performance with the additional value of its Smart Ready™ internal regulator, isolated ground, efficient rotor/stator design, and ruggedly-constructed frame.



ARS-5 Voltage Regulator

The latest in the line of Balmar's ARS series regulators, the ARS-5 has taken a quantum leap toward greater precision and user friendliness over earlier models. The introduction of a three-digit “letters and numbers” LED display and a simplified programming interface make it easier than ever to get up and running. The addition of battery temperature sensing capability, when used with optional MC-TS-B battery temperature sensor, makes the ARS-5 the most capable ARS regulator yet for use with AGM, Gel, Optima and maintenance-free flooded batteries which benefit from dynamic temperature compensation. The ARS-5 is also able to monitor and respond to alternator over-temperature conditions when equipped with optional MC-TS-A alternator temperature sensor.

Digital Duo Charge

The heart of your vessel's engine is the starting battery, so it's essential that your charging system is well equipped to keep it topped off. Our Digital Duo Charge does just that, providing the starting battery with a dependable supply of power that's tailored to meet its specific charging needs. The Duo Charge is connected directly between the house battery bank and the starting battery, and it automatically provides a controlled source of charging current to the starting battery whenever charging current is available at the house bank -- eliminating the need for switches or isolators. Duo Charge features preset programs for common battery types, so it's even possible to use a different battery technology at each bank. Optional solenoid drive allows the Duo Charge to handle demands greater than 30 amps. See Page 12 for more information.



DC Charging Basics - Why Invest In A High Output Alternator?

Most standard factory-installed alternators are engineered to meet the demands of an engine starting battery and associated electrical loads. In an automobile, the standard alternator is typically sufficient to the vehicle's electrical demands. However, in most boating applications, the demands of house loads, inverter loads, lighting, refrigeration and heating/cooling can quickly overwhelm the limited capacity of the factory-installed alternator -- resulting in dead batteries and a ruined cruise.

Balmar high-output alternators and smart, multi-stage voltage regulators are specifically designed to provide sufficient charging power to meet the needs of modern recreational and commercial vessels.

Large Loads Need Big Batteries. How Many Batteries Will I Need?

For most marine DC applications, battery capacity should range from two to three times the vessel's daily energy requirements. This guideline is based on the expectation that your batteries will be recharged on a daily basis. Following this guideline provides sufficient reserve to ensure maximized battery life and lessened frequency of battery cycling. If you plan to go for longer periods between charging, battery capacity would be increased proportionally.

In other words, if your daily usage is 100 amps and you anticipate charging each day, the optimal battery capacity for your house battery bank should be 200 to 300 amps. The chart at right provides an idea of what typical demands may be. To determine your daily usage, tally the number of individual loads on your vessel, their hourly draw, estimated use in a 24-hour period and a sum of the combined loads.

If you anticipate laying at anchor for three days between charging cycles, your battery capacity for a vessel with a 100-amp daily demand should be 600 to 900 amp hours. If inverter, thruster or windlass loads are added to the daily demands, the battery banks should be sized proportionately.

Which Battery Type Should I Use?

Battery preference is typically as varied as the number of boaters you talk to, as each battery technology has its advantages and disadvantages. From the perspective of charging, three main battery types are common to most marine applications:

Flooded Batteries - Use a liquid medium to carry electrolyte between the battery's plates. Flooded thick plate (deep cycle) batteries are capable of accepting approximately 25% of their available capacity.

Gel Batteries - Rely on a gelatinous silica slurry to suspend the electrolyte conductor, which surrounds the battery's plates. Gel batteries can accept up to 40% of their available capacity during charging.

AGM Batteries - Use a matting of densely packed fiberglass material to hold electrolyte in suspension between the battery plates. AGM acceptance rates are typically between 35 and 40% of the battery's available capacity.

So, A 100-Amp Alternator Won't Always Supply 100 Amps?

That's right. The battery's acceptance rate dictates the amount of amperage it will take from the alternator -- and that acceptance rate is based on a sliding scale. While the high output alternator and smart, multi-stage regulator are very effective at maximizing charging efficiency, they can only put back the amount of power that the battery is willing to accept. As the battery becomes more fully charged and the available capacity increases, the alternator output will decrease accordingly.

Typical Loads

(Shown In Amps/Hour)

Typical DC Load	1Hr Draw
VHF RECEIVE	1.50
VHF TRANSMIT.....	5.00
CB RECEIVE	1.00
CB TRANSMIT	5.00
SSB RECEIVE	1.50
SSB TRANSMIT	25.00
DEPTH FINDER.....	1.00
GPS	0.50
RADAR	4.00
VIDEO SOUNDER.....	4.00
WEATHER FAX	2.50
COMPUTER.....	6.00
AUTO PILOT	4.00
KNOT METER	0.10
WIND SPEED	0.10
ANCHOR LIGHT	1.00
STEAMING LIGHT.....	1.00
RUNNING LIGHTS	3.00
STROBE.....	0.75
TRICOLOR.....	2.00
BILGE	5.00
HEAD	50.00
WASH DOWN	10.00
REFRIGERATOR	5.00-10.00
HAND SPOTLIGHT	10.00
SPREADER LIGHTS	8.00
TV SMALL	8.00
TV LARGE COLOR	24.00
DVD/TAPE PLAYER	8.00
SATELLITE RECEIVER	12.00

Note: Values shown are basic examples of house loads, and may not reflect actual equipment in your vessel. See your equipment manuals for actual electrical requirements.

How Do I Choose The Proper Alternator For My Vessel?

Once battery capacity and battery type have been determined, the size of the alternator can be calculated. If the batteries used are standard or deep cycle flooded, the alternator output should be sized at 25 percent of the combined capacity of all house batteries. If your house battery capacity is 400 amp hours, for example, the alternator's rated output should be 100 amps. If AGM or gel technology is used, the alternator output may need to be increased to 35% of the combined battery capacity, as those battery technologies will demand greater output.

Will A High Output Alternator Work With My Engine?

Depending on your application, the size of the engine and drive belt may limit ability to support a high-output alternator. In most cases, an engine with a 3/8" wide drive belt will support an alternator rated at 70 to 80 amps. A greater load may result in belt dusting and premature belt failure. A single 1/2" belt will typically support a 100-amp to 110-amp alternator. It may be necessary to consider converting to a dual pulley system if a 120-amp or larger alternator is used. Some engine applications use serpentine (flat) belts to drive the alternator and side loads. In most cases, a 5-groove or 6-groove serpentine belt will be compatible with alternators rated to 150 amps.

What About Mountings?

Nearly all engine manufacturers rely on one of four specific alternator mounting styles:

1" Single Foot (Motorola style) - Mounting arm at engine pivot point measures 1" from front to back. (See Image 1 at left.)

2" Single Foot (Delco style) - Mounting arm at engine pivot point measures 2" from front to back. (See Image 2 at left.)

3.15" I.D. Dual Foot (Hitachi style) - Mounting arm at engine pivot point features two mounting feet, one in front, one in rear. Distance between mounting feet is 3.15". (See Image 3 at left.)

4" I.D. Dual Foot (J-180 style) - Mounting arm at engine pivot point features two mounting feet, one in front, one in rear. Distance between mounting feet is 4". (See Image 4 at left.)

The chart at right provides a general guideline for various engine applications, matching engine manufacturer and model to the corresponding alternator series and model. Unfortunately, actual mounting styles can vary based on model year, marinizer, and other factors.

We strongly recommend comparing your existing alternator to the different mounting configurations shown at left to ensure a proper fit and an easier installation.

Engine Type	Balmar Alternator Model
Bukh	621, 71-Series *
Caterpillar	Off Engine Only, Most Iso. Ground *
Chrysler	60, 70, 621, 71-Series *
Crusader	621, 71-Series * **
Cummins	Mounts vary by engine model.
Detroit Dsl.	621, 712, 94 & 95-Series *
Flagship	621, 71-Series *
GMC	621, 71-Series *
Greymarine	621, 71-Series *
Hawk Marine	621, 71-Series *
Hino	621, 71-Series *
Indmar	621, 71-Series *
Isuzu	621, 71-Series, some 60, 70-Series *
John Deere	621, 71-Series, 604, 95, 97-Series *
Lehman (Ford)	60, 621, 71-Series * ***
Lehman (Sabre)	60-Series, requires tension arm mod.*
Lugger	Varies by model * ****
MAN	No standard *
Mercedes	60, 70-Series (With Spacers) *
Mercruiser	Varies by model 60, 621, 712-Series *
Mitsubishi	60, 70-Series (With Spacers) *
MTU	No standard *
Nanni	60, 70-Series *
OMC	621, 71-Series *
Pathfinder	621, 712-Series * *****
Perkins 4107, 4108	621, 712-Series *
Perkins (other)	621, 71-Series * *****
Perkins-Volvo M	60-Series (Isolated Ground)
Pleasurecraft	621, 71-Series
Universal (Atomic)	621, 712-Series *
Universal 30, 50	621, 71-Series *
Vetus Denouden	60, 70-Series *
Volvo 2001, 2003	621, 712-Series *
Volvo Penta (gas)	622-Series*
Westerbeke	Varies 60, 70, 621, 71, 712-Series
Yanmar	60, 70-Series, 621-Series (Some 6cyl.)

* Mounting configuration may vary by model and year. Follow directions for determining proper replacement alternator by visual inspection described on following page. Cat 3208 may use 8-Series alternator.

** Some Crusader models may require alternator with an offset tensioning arm.

*** Dual belt models will require special Lehman pulley with 3/8" spacing between belts.

**** May require Lugger mounting Kit.

***** Use original alternator pulley.

*****Use 9mm x 4" pulley if belt is driven directly off of flywheel



How Does My Alternator Size Up?

Making sure your new alternator fits into the same location as your old alternator can make all the difference in avoiding installation irritations. Our alternators are broken down into three categories: small case, large case, and extra-large case. Small case 6, 7, and 8-Series alternators are usually appropriate to replace standard alternators on most marine gasoline and/or diesel engines.

Some larger engines may support large or extra-large case 94, 95, 97 or 98-Series alternators in the factory position, or may be mounted on a custom bracket. Keep in mind, each alternator series is unique in its dimensions. It is always wise to compare the dimensions of your existing alternator to the replacement alternator to ensure a proper fit.

Do I Need A Multi-Stage Regulator?

Balmar's multi-stage Max Charge and ARS-5 voltage regulators provide smart, selectable charging programs designed to provide the fastest and safest charge possible for today's marine batteries. Starting with an aggressive bulk charging mode, the Max Charge and ARS-5 can drive lots of power into the batteries when they need it most. Once the batteries have taken their fill, charging stairsteps to safe float voltage.

Both multi-stage regulator models have the ability to monitor and respond to changes in ambient temperature at the batteries, so they'll be as well protected in Alaska as they are in the Caribbean. Alternator temperature sensing enables the voltage regulator to protect the alternator by reducing load if the alternator exceeds safe temperature levels. Alternator and battery temperature sensing functions require optional temperature sensor cables (MC-TS-A and MC-TS-B).

What's So Smart About A Smart Ready™ Alternator?

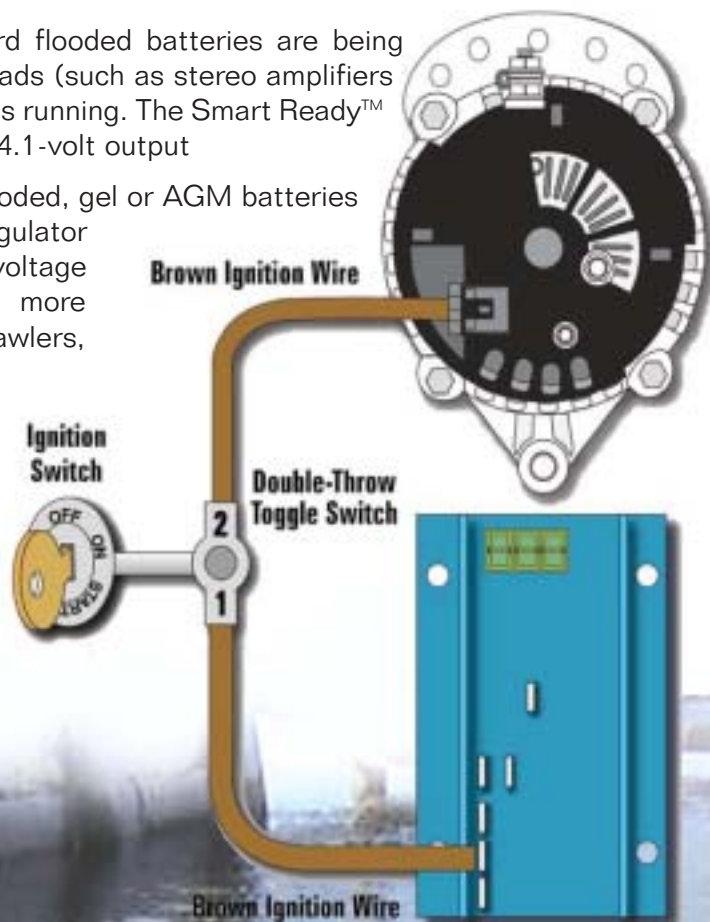
Alternators equipped with the Smart Ready™ internal regulator system are unique in the fact that they can be used with or without an external voltage regulator. If a boater needs greater charging power on a smaller boat, such as a trailerable ski boat or wakeboard boat, the Smart Ready™ alternator can be used on its own.

This is a terrific solution if standard flooded batteries are being charged, and most of the battery loads (such as stereo amplifiers and lighting) occur while the engine is running. The Smart Ready™ internal regulator provides a fixed 14.1-volt output

In applications where deep cycle flooded, gel or AGM batteries are being used, the multi-stage regulator provides safer and more efficient voltage regulation. These applications are more common to cruising sailboats, trawlers, and sportfishers.

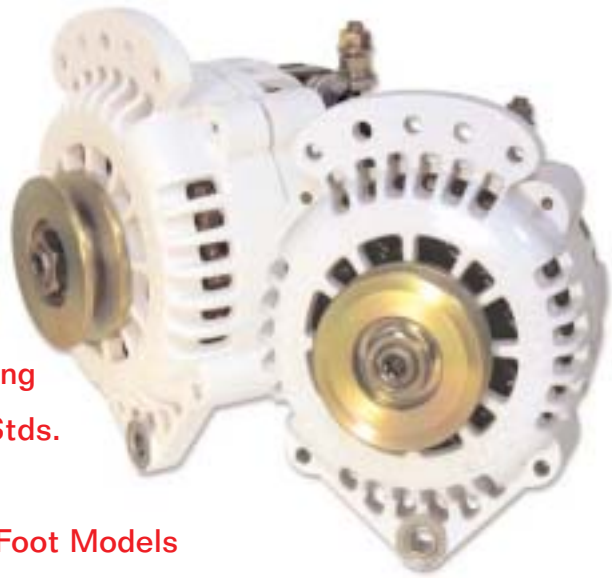
Under those conditions, the Smart Ready™ internal regulator provides an instant source of backup control in the event of a failure at the external regulator.

We recommend the use of a double throw toggle switch, as shown, to direct excitation to the desired voltage regulator.



6-Series Alternators

- 70, 100, 120 and 150-Amp Models At 12 Volts
- 70-Amp Models For 24-Volt Applications
- High Performance Rated To 10,000+ RPM
- Dual Internal Fans Improve Cooling Efficiency
- Great As A Stand Alone Unit For Trailer Boats
- Isolated Ground Terminal Ensures Proper Grounding
- Meets USCG, ISO, SAE, CE Ignition Protection Stds.
- Safe For Use On Gasoline Or Diesel Engines
- Models for 3.15" & 4" Saddle and 1" & 2" Single Foot Models



This alternator carries a spare! Built within the 6-Series alternator is a patented Smart Ready™ internal regulator that's always ready as a primary regulator or as a backup to take over in the unlikely event that your external regulator fails.

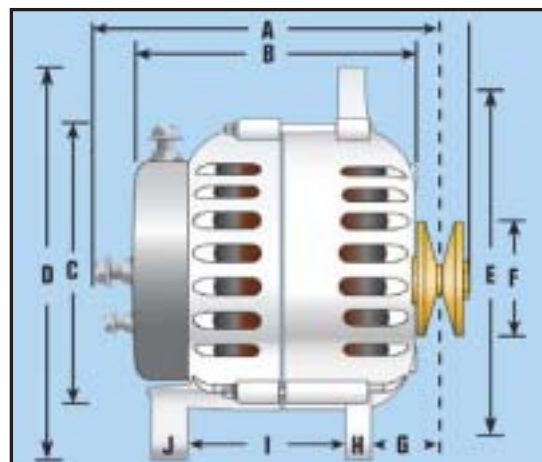
The Smart Ready™ internal regulator can be left disconnected, or can be connected to the charging system with a simple, double throw toggle switch for rapid deployment.

Absolutely useful as an emergency backup, the Smart Ready™ internal regulator also makes it possible for wakeboard and multi-sport trailer boats to enjoy the added charging power of a high output alternator without the need for external regulation. One year limited warranty.

Model	Rated Amps	Mounting Style	Min. Volts	Min. Belt Width
60-70-SR-IG	70	Dual Ft. (3.15")	12	3/8"
60-100-SR-IG	100	Dual Ft. (3.15")	12	1/2"
60-120-SR-IG	120	Dual Ft. (3.15")	12	1/2"(2)
60-150-SR-IG	150	Dual Ft. (3.15")	12	1/2"(2)
60-24-70-SR-IG	70	Dual Ft. (3.15")	24	1/2"(2)
621-70-SR-IG	70	Sgl. Ft. 1" or 2"	12	3/8"
621-100-SR-IG	100	Sgl. Ft. 1" or 2"	12	1/2"
621-120-SR-IG	120	Sgl. Ft. 1" or 2"	12	1/2"(2)
621-150-SR-IG	150	Sgl. Ft. 1" or 2"	12	1/2"(2)
621-24-70-SR-IG	70	Sgl. Ft. 1" or 2"	24	1/2"(2)
604-120-SR-IG	120	Dual Ft. (4")	12	1/2"(2)
604-150-SR-IG	150	Dual Ft. (4")	12	1/2"(2)
604-24-70-SR-IG	70	Dual Ft. (4")	24	1/2"(2)
622-110	110	Pad Mount	12	K-6
622-160	160	Pad Mount	12	K-6
622-110-IG	110	Pad Mount	12	K-6
622-160-IG	160	Pad Mount	12	K-6

622-Series Alternators

Pad mount 622-Series isolated or non-isolated ground high-output alternators are constructed to replace standard alternators on Volvo-Penta 8.1 gas engines and other models with a 5.5" bolt-to-bolt measurement. Not Smart Ready™. K-6 serpentine pulley is standard. 110-amp and 160-amp rated outputs. (See website for power curves and dimensions.) White corrosion-resistant powdercoating. One year limited warranty.



	60 Series	621-Series	604-Series
A	6.25"	6.25"	6.25"
B	5.00"	5.00"	5.00"
C	5.75"	5.75"	5.75"
D	7.25"	7.25"	7.25"
E	6.50"	6.50"	6.50"
F	2.70"	2.70"	2.70"
G	1.10"	1.10"	1.10"
H	0.55"	1.00"	2.00"
I	3.15"	N/A	4.00"
J	.75" (w/ bushing)	N/A	.75" (w/ bushing)

Alternator Series/Output	Cold/Hot Output (Amps/Alternator RPM)									
	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000
60, 621, 604 70A, 12V	24	69	73	74	74	75	76	76	77	78
	14	57	61	61	62	62	62	63	63	64
60, 621, 604 100A, 12V	41	84	105	108	108	110	110	110	109	109
	16	71	80	82	83	84	85	87	86	84
60, 621, 604 120A, 12V	37	91	108	115	117	120	121	123	123	122
	21	72	85	90	101	105	106	108	110	112
60, 621, 604 150A, 12V	20	80	121	140	151	155	157	158	157	155
	18	61	100	120	129	130	136	142	144	143
60, 621, 604 70A, 24V	6	39	52	57	61	65	68	70	71	71
	5	28	43	50	49	47	48	50	50	52

7-Series Alternators

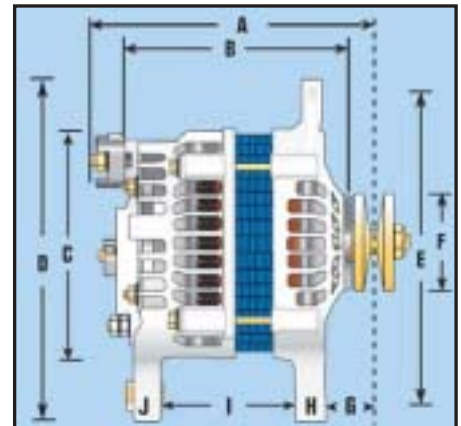


- Safe For Use On Gasoline Or Diesel Marine Engines
- Meets USCG, ISO, SAE Ignition Protection Standards
- Efficient Dual Internal Fans Keep Alternator Running Cooler
- Durable Powdercoat Finish Increases Corrosion Resistance
- Three Popular Mounting Styles

Dual internally fanned 7-Series 12-volt alternators are an excellent choice in applications where high output and extra cooling are needed.

With the ability to run at a continuous 12,000 to 15,000 rpm, our rugged 7-Series alternators deliver impressive charging performance on high revving "muscle" engines. USCG, ISO and SAE compliant ignition protection ensures safe use on gasoline or diesel engines. Limited one year warranty.

Model	Rated Amps	Mount Style	Min. Belt Width
70-80	80	Dual Ft. (3.15")	3/8"
70-110	110	Dual Ft. (3.15")	1/2"
71-80	80	Sgl. Ft. 1"	3/8"
71-110	110	Sgl. Ft. 1"	1/2"
712-80	80	Sgl. Ft. 2"	3/8"
712-110	110	Sgl. Ft. 2"	1/2"



	70 Series	71-Series	712-Series
A	6.25"	6.25"	6.25"
B	5.00"	5.00"	5.00"
C	5.25"	5.25"	5.25"
D	7.35"	7.35"	7.35"
E	6.65"	6.65"	6.65"
F	2.70"	2.70"	2.70"
G	1.00"	1.00"	1.00"
H	0.55"	1.00"	2.00"
I	3.15"	N/A	N/A
J	0.68"	N/A	N/A

Alternator Series/Output	Cold/Hot Output (Amps/Alternator RPM)									
	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000
70, 71, 712 80A, 12V	31	72	75	77	78	81	84	89	90	91
	26	68	70	70	70	71	70	71	70	69
70, 71, 712 110A, 12V	30	84	88	95	99	103	109	116	117	118
	26	73	80	85	88	94	95	96	98	98

8-Series Alternators

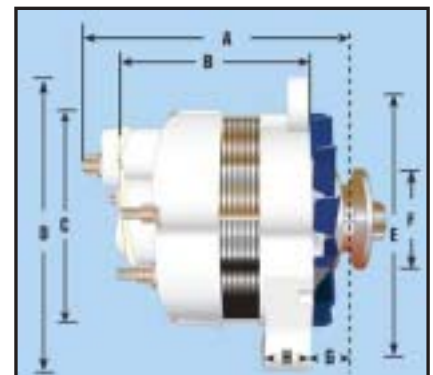


- Safe For Use With Gasoline Or Diesel Marine Engines
- Meets USCG, ISO, SAE Ignition Protection Standards
- Priced To Meet OEM Replacement Needs
- Powdercoat Finish Resists Rusting And Corrosion
- Isolated Grounding Terminal

Back by popular demand, 8-Series alternators offer impressive performance at a great price. Compact alternator construction ensures virtually trouble-free installation, even on tight engine applications.

Model 81-100 alternator provides a nearly identical profile to the Cat 3208's standard alternator, Isolated ground terminal. One year limited warranty.

Model	Rated Amps	Mount Style	Min. Belt Width
81-50	50	Sgl. Ft. 1"	3/8"
81-65	65	Sgl. Ft. 1"	3/8"
81-100	100	Sgl. Ft. 1"	1/2"
812-50	50	Sgl. Ft. 2"	3/8"
812-65	65	Sgl. Ft. 2"	3/8"
812-100	100	Sgl. Ft. 2"	1/2"



	81 Series	812-Series
A	6.75"	6.75"
B	4.50"	4.50"
C	5.00"	5.00"
D	7.25"	7.25"
E	6.35"	6.35"
F	2.50"	2.50"
G	0.90"	0.90"
H	1.00"	2.00"
I	N/A	N/A
J	N/A	N/A

Alternator Series/Output	Cold/Hot Output (Amps/Alternator RPM)									
	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000
81, 812 50A, 12V	10	48	50	52	53	54	54	55	56	56
	10	40	43	44	44	45	45	46	47	47
81, 812 65A, 12V	16	53	61	63	65	66	66	67	67	68
	16	46	51	53	54	55	57	58	59	60
81, 812 100A, 12V	18	60	81	89	94	101	102	104	105	106
	17	51	74	82	84	89	91	93	95	98

94-Series Alternators



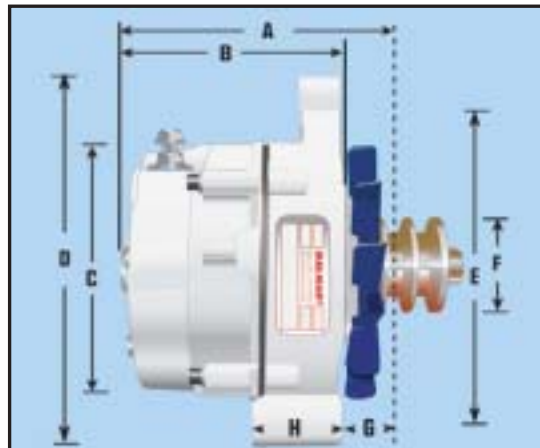
Alternators feature oversized components for better cooling and longer life. Rugged cast aluminum cases. Extra-heavy custom windings deliver excellent output response. A proven workhorse in systems supplying

larger battery banks and house electrical loads. Limited one year warranty.

Model	Min. Volts	Rated Amps	Mount Style	Min. Belt Width
94-24-140-IG	24	140	Sgl. Ft. 2"	1/2"(2)
94-165-IG	12	165	Sgl. Ft. 2"	1/2"(2)
94-210-IG	12	210	Sgl. Ft. 2"	1/2"(2)

Alternator Series/Output	Cold/Hot Output (Amps/Alternator RPM)									
	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000
94-Series 165A, 12V	18	74	101	119	124	130	135	139	145	150
	17	54	79	91	102	108	114	120	121	122
94-Series 210A, 12V	19	43	89	124	143	159	168	175	181	185
	15	37	78	115	120	135	140	151	154	156
94-Series 140A, 24V	5	12	37	54	66	85	101	114	121	132
	5	11	35	49	60	78	93	100	105	111

larger battery banks and house electrical loads. Limited one year warranty.



	94 Series, 12V	94-Series, 24V
A	6.00"	6.00"
B	5.00"	5.00"
C	6.25"	6.25"
D	7.25"	7.25"
E	8.25"	8.25"
F	2.70"	2.70"
G	1.18"	1.18"
H	2.00"	2.00"
I	N/A	N/A
J	N/A	N/A

95-Series Alternators



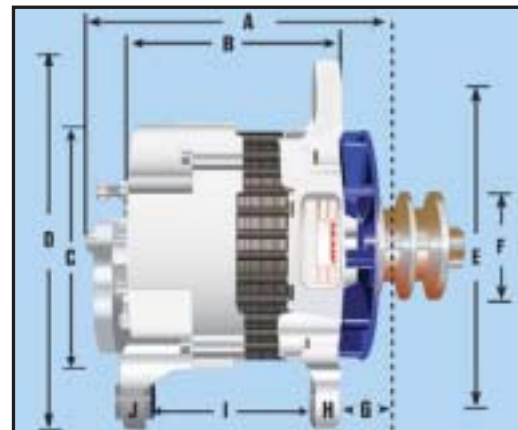
Originally designed for punishing military use, the 95-Series has proven itself in the field and on the water. Heavy windings, high-amperage diodes

and sealed, extra-large bearings. Bi-directional fan for clockwise or counter-clockwise engine rotations. Limited one year warranty.

Model	Rated Volts	Rated Amps	Mount Style	Min. Belt Width
9504-24-80-IG	24	80	J-180	1/2"(2)
9504-24-140-IG	24	140	J-180	1/2"(2)
9504-150-IG	12	150	J-180	1/2"(2)
9504-165-IG	12	165	J-180	1/2"(2)
9504-210-IG	12	210	J-180	1/2"(2)

Alternator Series/Output	Cold/Hot Output (Amps/Alternator RPM)									
	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000
95-Series 150A, 12V	24	70	98	106	125	133	135	142	144	145
	22	55	79	98	110	115	118	118	122	123
95-Series 165A, 12V	18	71	100	118	122	130	133	140	144	151
	19	53	79	92	101	110	116	118	120	124
95-Series 210A, 12V	18	42	94	125	142	160	168	175	180	187
	16	37	80	116	121	135	142	150	155	165
95-Series 80A, 24V	12	31	50	62	71	76	78	80	82	84
	10	25	38	55	63	69	70	72	73	74
95-Series 140A, 24V	N/A	10	36	54	67	88	103	111	118	126
	N/A	10	36	51	63	79	93	104	109	115

- Compact Case Makes Installation Easier In Tight Quarters
- Isolated Terminal Ensures Optimal System Grounding
- Heavy Duty J-180 Saddle-Style Mounting Foot
- Custom Wound High Low-RPM Output Stator
- Meets USCG Title 33 Standards



	95 Series, 12V	95-Series, 24V
A	7.00"	7.00"
B	5.00"	5.00"
C	6.00"	6.00"
D	8.75"	8.75"
E	7.75"	7.75"
F	2.90"	2.90"
G	1.18"	1.18"
H	0.55"	0.55"
I	4.00"	4.00"
J	.75" (inc. bushing)	.75" (inc. bushing)



97-Series Alternators

Extra-large 97-Series alternators ensure unexcelled output under the toughest marine conditions.

This robust series of continuous duty alternators features oversized bearings for smoother, quieter rotation, high amperage diodes, bi-directional cooling, and isolated ground. Brushless models meet

USCG Title 33, and international CE, SAE 8846 and ISO J-1171 ignition protection requirements. See back cover for new higher output units available for 2007. One year limited warranty.

- Safe, Rugged Brushless Construction
- Excellent For Larger System Demands
- Heavy-Duty J-180 Style Mounting

Model	Volts	Rated Amps	Mount Style	Minimum Belt Width	Isolated Ground	Brushless Design
97-24-110-IG	24	110	J-180	1/2"(2)	Yes	No
97-24-140-BL-IG	24	140	J-180	1/2"(2)	Yes	Yes
97-12-140-BL-IG	12	140	J-180	1/2"(2)	Yes	Yes
97-12-160-BL-IG	12	160	J-180	1/2"(2)	Yes	Yes

Alternator Series/Output	Cold/Hot Output (Amps/Alternator RPM)									
	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000
97-Series 140A, 12V	30	105	110	112	113	115	118	123	128	135
	21	92	99	102	103	105	106	108	111	112
97-Series 160A, 12V	37	125	142	152	157	161	163	165	166	168
	28	111	128	136	140	142	145	146	147	149
97-Series 110A, 24V	12	49	76	81	85	88	91	95	102	108
	12	39	62	70	71	73	78	81	86	92
97-Series 140A, 24V	31	60	90	97	105	123	128	135	138	146
	25	47	77	84	98	110	116	122	125	129



	97-110	97-140, 160
A	7.50"	8.75"
B	6.25"	7.50"
C	6.75"	6.75"
D	9.75"	9.75"
E	8.50"	8.50"
F	2.90"	2.90"
G	1.10"	1.10"
H	0.55"	0.55"
I	4.00"	4.00"
J	.75" (inc. bushing)	.75" (inc. bushing)



98-Series Alternators

Built to provide performance in league with auxiliary gensets, extra-large-frame 98-Series 12-

volt and 24-volt extended-duty alternators deliver up to 5kW. Amperages range from 310 amps at 12 volts to 220 amps at 24 volts. Dual fan

design improves cooling. Brushless construction eliminates

key wear points, increases ignition protection and delivers greater field efficiency. Brawny J-180 mount. Precision cast aluminum case, powdercoated for added protection. Alternators meet USCG Title 33, and international CE, SAE 8846 and ISO J-1171 ignition protection safety requirements. One year limited warranty.

- Charging Output To 5kW At 24 Volts
- Safe, Rugged Brushless Construction
- Excellent For Larger System Demands
- Heavy Duty J-180 Style Mounting

Model	Volts	Rated Amps	Mounting Style	Min. Belt Width	Isolated Ground	Brushless
98-12-310-BL-IG	12	310	J-180	1/2"(2)	Yes	Yes
98-24-220-BL-IG	24	220	J-180	1/2"(2)	Yes	Yes

Alternator Series/Output	Cold/Hot Output (Amps/Alternator RPM)									
	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000
98-Series 310A, 12V	36	150	234	261	278	288	296	308	315	322
	34	142	189	216	230	244	251	254	262	268
98-Series 220A, 24V	33	100	148	167	180	185	193	204	218	221
	30	91	138	152	164	170	178	183	185	185



	98-12-310-BL-IG	98-24-220-BL-IG
A	9.65"	9.65"
B	7.50"	7.50"
C	7.00"	7.00"
D	9.85"	9.85"
E	8.35"	8.35"
F	2.90"	2.90"
G	1.10"	1.10"
H	0.55"	0.55"
I	4.00"	4.00"
J	.75" (inc. bushing)	.75" (inc. bushing)

DC Charging Packages

Selecting a Balmar System package makes it easier than ever to ensure a proper match to deliver better performance and more trouble-free installation.

Charging packages pair high-output alternator with smart regulator, and temperature sensors, taking the guesswork out creating the system that's best for each engine application.

See compatibility chart on Page 4 for listings of most common marine engine manufacturers. Keep in mind, actual mounting can vary based on manufacturer, engine model, and model year, so it's smart to compare the listings in the compatibility chart with your existing alternator. If the actual mounting style is different from that indicated in the chart, compare your alternator to the mounting styles shown in the side views of the alternators shown on Page 4 to determine the best fit.



6-Series Alternator/Regulator Packages

Balmar's Smart Ready™ internally regulated 6-Series alternator and newly updated ARS-5 voltage regulator deliver the smartest charge possible, with the added assurance of built-in redundancy. YP packages are compatible with most Yanmar, Mercruiser, Mitsubishi applications, as well as other marine gas and diesel engines using a 3.15" I.D. saddle mount. VUP systems can be used on Volvo, Nanni, Westerbeke and other engines using single 1" or 2" mounting feet. Packages also include MC-TS-A and MC-TS-B alternator and battery temperature sensors. 60-YP packages include Yanmar installation hardware kits. One year limited warranty.

Model	Rated Amps	Mount Style	Min. Belt Width	Voltage Regulator	Temperature Sensors	Hardware Kit	Typical Installations <small>(May vary, compare with existing alt)</small>
60-YP-70-SR-KIT	70	Dual Foot 3.15"ID	3/8"	Internal/ARS-5	Alt./Battery	Yes	Yanmar, Westerbeke, Mercruiser
60-YP-100-SR-KIT	100	Dual Foot 3.15"ID	1/2"	Internal/ARS-5	Alt./Battery	Yes	Yanmar, Westerbeke, Mercruiser
60-YP-120-SR-KIT	120	Dual Foot 3.15"ID	1/2"(2)	Internal/ARS-5	Alt./Battery	Yes	Yanmar, Westerbeke, Mercruiser
621-VUP-70-SR-KIT	70	Sgl. Ft. 1" or 2"	3/8"	Internal/ARS-5	Alt./Battery	No	Volvo, Universal, Nanni, Atomic
621-VUP-100-SR-KIT	100	Sgl. Ft. 1" or 2"	1/2"	Internal/ARS-5	Alt./Battery	No	Volvo, Universal, Nanni, Atomic
621-VUP-120-SR-KIT	120	Sgl. Ft. 1" or 2"	1/2"(2)	Internal/ARS-5	Alt./Battery	No	Volvo, Universal, Nanni, Atomic

7-Series Alternator/Regulator Packages

The proven 70-Series alternator and multi-stage ARS-5 voltage regulator are just the ticket for Yanmar and other diesel or gasoline engines utilizing a saddle-style 3.15" I.D. mount. Included alternator and battery temperature sensors (MC-TS-A and MC-TS-B) ensure added safety and charging performance for AGM, Gel, or flooded lead acid battery technologies. One year limited warranty.



Model	Rated Amps	Mount Style	Min. Belt Width	Voltage Regulator	Temperature Sensors	Hardware Kit	Typical Installations <small>(May vary, compare with existing alt)</small>
70-YP-80	80	Dual Foot 3.15"ID	3/8"	Internal/ARS-5	Alt./Battery	Yes	Yanmar, Mercruiser
70-YP-110	110	Dual Foot 3.15"ID	1/2"	Internal/ARS-5	Alt./Battery	Yes	Yanmar, Mercruiser

Multi-Stage Voltage Regulators

Meeting the charging demands of deep-cycle flooded and sealed marine batteries takes a lot more than just a powerful alternator. To get the most out of your vessel's batteries, you need the ability to provide charging current in the most intelligent way possible. Balmar Max Charge and ARS-5 voltage regulators utilize cutting edge microprocessor technology to ensure that batteries receive optimal charging from start to finish.

Max Charge Voltage Regulators

Balmar's Max Charge regulators feature custom selectable preset programs for five battery technologies -- standard flooded, deep-cycle flooded, gel, AGM, spiral wound -- plus a default factory safe program and a separate program for vessels with voltage sensitive halogen systems. Advanced programming mode adds even greater user control.

Dash and auxiliary lamp functions. Stator/tach terminals. Magnetic programming tool included. MC-612-H and MC-624-H include 54" wiring harness. For use on P-type alternators. One year limited warranty.



- Amp Manager Helps Reduce Belt Wear
- Can Be Used To Drive Dual Alternators*
- Advanced Programming Mode For Unparalleled User Control
- Alternator and Battery Temperature Sensing with Optional Temperature Sensors

*When alternators are mounted on a single engine. See Centerfielder for twin engine applications.

Regulator Model	Features/Functions										
	System Voltage	3-Digit LED Display	Battery Temp Sense	Alternator Temp Sense	Wiring Harness	Long Display	Battery Equalization	Dual Alts.	Preset Programs	Belt Protection	Fusing
MC-612	12-Volt	Yes	2-Banks	Yes	No	Yes	Yes	Yes	Seven	Amp Manager	10A/1A
MC-612-H	12-Volt	Yes	2-Banks	Yes	Yes	Yes	Yes	Yes	Seven	Amp Manager	10A/1A
MC-624	24-Volt	Yes	2-Banks	Yes	No	Yes	Yes	Yes	Seven	Amp Manager	10A/1A
MC-624-H	24-Volt	Yes	2-Banks	Yes	Yes	Yes	Yes	Yes	Seven	Amp Manager	10A/1A

ARS-5 Voltage Regulator

Simplified programming and a bright, easy-to-read three-digit LED display make the ARS-5 the easiest multi-stage regulator to install and use. Selectable preset programs ensure optimal charging based on battery type. Belt Load Manager controls maximum field potential to minimize belt dusting and breakage. ARS-5-H includes 54" wiring harness. Single alternator control only. One year limited warranty.



- Programs for Gel, AGM, Deep-Cycle Flooded, Spiral Wound and Standard Flooded Batteries
- Alternator and Battery Temperature Sensing with Optional Temperature Sensors
- Belt Load Manager matches alternator load to belt capacity

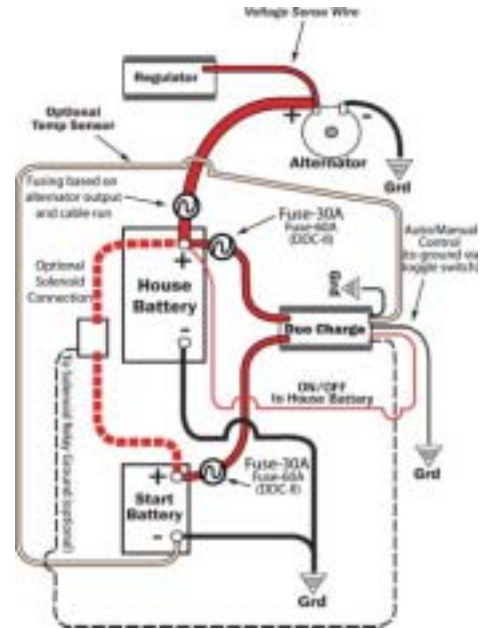
Regulator Model	Features/Functions										
	System Voltage	3-Digit LED Display	Battery Temp Sense	Alternator Temp Sense	Wiring Harness	Long Display	Battery Equalization	Dual Alts.	Preset Programs	Belt Protection	Fusing
ARS-5	12-Volt	Yes	1-Bank	Yes	No	Yes	No	No	Five	Belt Load Mgr.	10A
ARS-5-H	12-Volt	Yes	1-Bank	Yes	Yes	Yes	No	No	Five	Belt Load Mgr.	10A

Digital Duo Charge - DDC-12/24

The Digital Duo Charge eliminates the need for switches, combiners and isolators by delivering a controlled supply of charging current from the house battery to the starting battery. The Duo Charge remains in a sleep mode whenever voltage at the house battery is lower than 13 volts. When a charge source is present and voltage at the house battery rises beyond 13 volts, the Duo Charge creates a pathway for up to 30 amps of charging current. Adjusts for 12-volt or 24-volt output ranges. Limited one year warranty.



- Eliminates Need For Switches, Isolators, Combiners
- Selectable Programs For Gel, AGM, Standard & Deep-Cycle Flooded Batteries Allow Mixed Battery Types
- Solenoid Drive Allows Greater Amperage Output When Used With High Capacity Solenoid (Solenoid Not Included)
- Battery Temperature Sensing (Requires Optional Sensor)



Model	System Voltage	Display	Battery Temp Sense	Fusing	Wiring Included	Auto / Manual	Solenoid Drive	Max. Output	Preset Programs
DDC-12/24	12-Volt 24-volt	6 Color coded LED	Yes	30A ATC	Fused Input/Output	Yes	Yes	30A	AGM, Gel, Standard Flooded, Deep Cycle Flooded

Centerfielder - CF-12/24

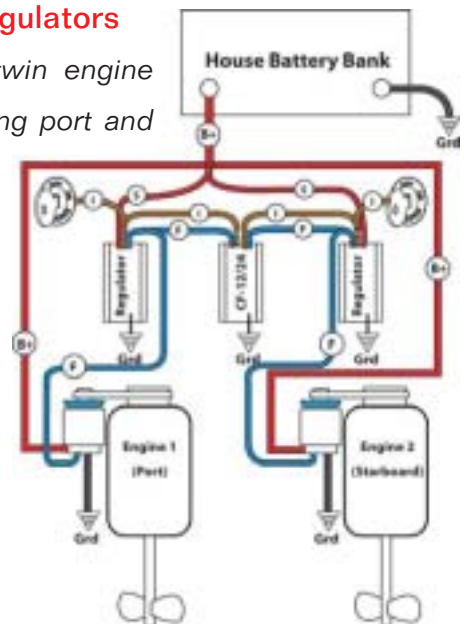
- Maximizes Charging Output In Twin Engine Applications
- Combines Output From Both Alternators When Both Engines Are Running
- For Use On 12-Volt Or 24-Volt Charging Systems
- Includes 15-Amp Fused Power Wires For Regulators

The Centerfielder makes it possible to balance twin engine charging systems by monitoring port and starboard regulators.



When both alternators and regulators are working, the Centerfielder splits field current from the dominant regulator to control both alternators, providing the batteries with the combined charging output.

For use with Max Charge MC-612 or MC-624 multi-stage regulators only. Includes fused power wires and installation instructions. One year limited warranty.



Model	System Voltage	Display	Wiring Included	Terminal Connections	Heat Sink
CF-12/24	12-Volt 24-Volt	3 Color coded LED	15A Fused Input/Output	Port Ignition, Port Field, Starboard Ignition, Starboard Field, Ground	Anodized Aluminum

Parts And Accessories



BRS-2 Voltage Regulators

Single-Stage 12-volt and 24-volt regulators are adjustable to meet battery voltage requirements. Voltage adjustment pot. One year limited warranty.

Model	Volts	Harness
BRS-2	12	No
BRS-2-H	12	Yes
BRS-2-24	24	No
BRS-2-24-H	24	Yes



ERS Voltage Regulators

Simple, non-adjustable voltage regulator provides fixed 14.1 volt control. One year limited warranty.

Model	Volts	Wiring Connectors
ERS-P	12	Ring Terminal
ERS-B	12	Male 1/4" Quick Connect



Alternator & Battery Temperature Sensors

For use with Max Charge and ARS-5 voltage regulators, Digital Duo Charge (MC-TS-B only).

Model	For	Length
MC-TS-A	Alternator	54"
MC-TS-B	Battery	240"



TSP Transient Spike Protectors

Creates a pathway to ground in the event of an uncontrolled electrical spike. 12- and 24-volt models.

Model	Volts	Wiring Connectors
TSP-12	12	Ring Terminal (+/-)
TSP-24	24	Ring Terminal (+/-)



Circuit Breakers

Trip-free, resettable breakers conform to J1171 standards. Water/vapor proof. 3000A interrupt.

Model	Amps	Style
1512	125	Surface Mount
1515	150	Surface Mount



UAA Universal Adjusting Arm

Banana-shaped tensioning arm can be used whole, or can be cut to shape. Powdercoated steel.

Model	Length	Width	Thickness
UAA	11"	1"	1/4"



5276 Off Engine Mounting Bracket

Cast aluminum bracket can be used with J-180 or 2" single foot alternator mounts. White powdercoat.

Model	Length	Width	Height
5276	9.1"	5.5"	5.1"



Mounting Hardware Kits

Designed to support installation of high output 6- and 7-Series alternators on Yanmar applications. Parts vary by hardware kit.

Model	Fits
6-0020	Yanmar (Except CX and LP)
6-0030	Yanmar 6CX Engines
6-0040	Yanmar 6LP Engines



Alternator Repair Kits

Kits provide required parts for most repair / overhaul needs. Most kits provide positive and negative diodes, front and rear bearings, brushholder and brushes. Additional parts may vary by kit. See pricing for complete listings..



Multi-Lite™ Utility Lighting Fixture

Use with 12, 24, or 32VDC or 115-230VAC (your wiring and bulb choice). Uses std. medium base bulb. Measures 7"L x 4.5W x 4"H. Not vapor proof. Includes fresnel lens and guard.

Model	Style
458	Non-Switched
458-S	Switched



Regulator Wiring Harnesses

54" sheathed wiring harnesses vary based on system voltage and alternator plug style. See pricing for model descriptions.



Alternator Pulleys

A wide range of pulleys are available for Balmar small, large and extra-large alternators. Anodized steel. See pricing for a complete list of pulley sizes and styles.

2007 Balmar List Pricing (Valid Jan. 1, 2007-Dec. 31, 2007)

Dealer discounts are based on Balmar list pricing. Additional shipping and handling charges apply. See additional information at end of pricelist. Dealer drop shipments may be subject to a \$15 surcharge. All prices shown are in U.S. Dollars. All information included in the Balmar Product Guide is believed to be true and correct at time of publication. Balmar is not liable for errors or omissions.

Alternators

6-Series	Page	ShWt	List
60-70-SR-IG	6	14	699.95
60-100-SR-IG	6	14	799.95
60-120-SR-IG	6	14	899.95
60-150-SR-IG	6	14	1,049.95
60-24-70-SR-IG	6	14	1,049.95
604-120-SR-IG	6	14	899.95
604-150-SR-IG	6	14	1,049.95
604-24-70-SR-IG	6	14	1,049.95
621-70-SR-IG	6	14	699.95
621-100-SR-IG	6	14	799.95
621-120-SR-IG	6	14	899.95
621-150-SR-IG	6	14	1,049.95
621-24-70-SR-IG	6	14	1,049.95
622-110	6	14	729.95
622-160	6	14	959.95
622-110-IG	6	14	849.95
622-160-IG	6	14	1,059.95
7-Series			
70-80	7	14	589.95
70-110	7	14	689.95
71-80	7	14	589.95
71-110	7	14	689.95
712-80	7	14	589.95
712-110	7	14	689.95
8-Series			
81-50	7	13	399.95
81-65	7	13	429.95
81-100	7	13	599.95
812-50	7	13	399.95
812-65	7	13	429.95
812-100	7	13	599.95
94-Series			
94-165-12-IG	8	20	1399.95
94-210-12-IG	8	20	1499.95
94-140-24-IG	8	20	1499.95
9504-Series			
9504-150-12-IG	8	20	1349.95
9504-165-12-IG	8	20	1399.95
9504-210-12-IG	8	20	1499.95
9504-80-24-IG	8	20	1349.95
9504-140-24-IG	8	20	1499.95
9704-Series			
9704-140-12-IG-BL	9	36	1499.95
9704-160-12-IG-BL	9	36	1599.95
9704-110-24-IG	9	36	1499.95
9704-140-24-IG-BL	9	36	1599.95
97EHD-Series			
97EHD-185-12-IG	16	42	1799.95
97EHD-265-12-IG	16	42	2299.95
97EHD-190-24-IG	16	42	2299.95
98-Series			
98-310-12-IG-BL	9	45	2,799.95
98-220-24-IG-BL	9	45	2,799.95

Alternator/Regulator Packages

6-Series	Page	ShWt	List
60-YP-70-SR-KIT	10	18	1,019.95
60-YP-100-SR-KIT	10	18	1,129.95
60-YP-120-SR-KIT	10	18	1,209.95
621-VUP-70-SR-KIT	10	18	999.95
621-VUP-100-SR-KIT	10	18	1,099.95
621-VUP-120-SR-KIT	10	18	1,199.95
7-Series			
70-YP-80-KIT	10	17	914.95
70-YP-110-KIT	10	17	1,014.95

Alternator Hardware Kits (Yanmar)

Model	ShWt	List
6-0020 (For GM, JH, LY models)	1.5	22.95
6-0030 (For CX models)	3	115.95
6-0040 (For LP models)	3	115.95

Alternator Pulleys

Model	Description	List
1300	Single, 2.2" x 7/16" DV 17mm	89.95
1302	Dual, 2.2" x 1/2" DV 17 mm	109.95
1303	Single, 2.2" x 1/2" DV 17 mm	89.95
1305	Dual, 2.2" x 7/16" DV 17 mm	109.95
1309	K-8 x 2.4" (Serp), Tall 17 mm	109.95
1310	K-8 x 2.4" (Serp), Short (STD) 17 mm	109.95
1311	K-8 x 2.4" (Serp), Cummins 17 mm	109.95
1316	K-6 x 2.4" (Serp.) 17 mm	109.95
1318	K-6 x 1.9" (Serp.) 17 mm	109.95
1326	Single, 2.7" x 1/2" DV 17 mm	89.95
1327	Dual 2.7" x 1/2" DV 17mm	89.95
1328	Single 2.5" x 1/2" DV 17mm	89.95
1330	Dual 2.9" x 1/2" DV 17 mm	109.95
2479-B	K-6 x 2.7" (Serp.) 17 mm	109.95
2758	Dual 2.7" x 1/2" DV 17 mm	109.95
2759	Dual 2.7" x 7/16" DV 17 mm	109.95
2762	Single 2.7" x 7/16" DV 17 mm	89.95
2763	Dual 2.7" x 5/8" DV 17 mm	109.95
2766	Single 2.7" x 1/2" DV 17 mm	89.95
4031	Single 4" x 1/2" DV 17mm (Volvo)	109.95
4038-CAM	Dual 2.7" x 1/2" 17 mm 3/8" sp (Lehman)	109.95
5530	Dual 2.4" x 1/2" DV .875"	89.95
5535-B	Dual 2.7" x 1/2" DV .875"	89.95
5537-B	K-8 x 2.7" (Serp) Cummins .875"	89.95
5539	K-8 x 2.5" (Serp) Powerstroke .875"	89.95
5540	Dual 2.7" x 5/8" DV .875"	109.95
5550	Triple 2.9" x 1/2" DV .875"	109.95
5552	K-6 x 2.7" (Serp) .875"	89.95
5560	Single 4-1/8" x 5/8" DV .875"	109.95
5570	Dual 3.25" x 5/8" DV .875"	109.95
5580	Dual 2.9" x 5/8" DV (Cat 3196) .875"	109.95
59473	Dual 2.9 x 1/2" .875" on all PE Alt.	116.95
61-0010	Single 2.7" x 1/2" DV 17mm	89.95
61-0020	Dual 2.7" x 1/2" DV 17mm	109.95
61-0060	Dual 2.7" x 1/2" DV 17mm (For 6CX)	109.95
63008	Single 2.3" x 1/2" DV (Crusader) 17mm	89.95
81-0002	Single 2.3 x 1/2" DV (Crusader) 17mm	89.95

Alternator Pulleys (Continued)

Model	Description	List
81-0010	Single 2.7" x 1/2" DV 17 mm	89.95
81-0020	Dual 2.7" x 1/2" DV 17 mm	109.95
81-0040	K-6 x 2.5" (Serp) 17 mm	109.95
81-0050	K-6 x 1.9" (Serp) 17mm	109.95

Alternator Repair Kits

Model	Description	List
7060	Repair Kit (6-Series)	219.95
7070-80	Repair Kit (7-Series)	219.95
7070 -110	Repair Kit (7-Series)	219.95
7090	Repair Kit (9-Series)	219.95
7094	Repair Kit (94-Series)	259.95
7095	Repair Kit (95-Series)	339.95
7097	Repair Kit (97-Series)	459.95
7098	Repair Kit (98-Series)	459.95

Alternator Bracket/Adjustment Arm

Model	Description	List
UAA	Universal Adjustment Arm	41.95
5276	Off Engine Bracket	379.95

Circuit Breakers

Model	Description	List
1512	125A Surface Mount	74.95
1515	150A Surface Mount	114.95

Transient Spike Protectors

Model	Description	List
TSP-12	12-Volt	24.95
TSP-24	12-Volt	34.95

Alternator/Regulator Wiring Harnesses

Model	Description	List
1010	Wiring Harness - 6, 9-Series 12V	56.95
1011	Wiring Harness - 94-Series 12V	56.95
1012	Wiring Harness - 6, 9-Series (24v)	56.95
1013	Wiring Harness - 94-Series (24v)	56.95
1014	Wiring Harness - 7, 97, 98-Series 12V	56.95
1016	Wiring Harness - 96, 97, 98 Series (24v)	56.95

DC To DC Converter

Model	Description	List
BVR20	20-Amp, 24V-to-12V Converter	289.95

Max Charge Voltage Regulators

Model	Description	List
MC-612	12-Volt, No Harness	369.95
MC-612-H	12-Volt, With Harness	389.95
MC-624	24-Volt, No Harness	429.95
MC-624-H	24-Volt, With Harness	449.95

ARS-5 Voltage Regulators

Model	Description	List
ARS-5	12-Volt, No Harness	329.95
ARS-5-H	12-Volt, With Harness	349.95

Single Stage Voltage Regulators

Model	Description	List
BRS-2	12-Volt, No Harness	199.95
BRS-2-H	12-Volt, With Harness	219.95
BRS-2-24	24-Volt, No Harness	239.95
BRS-2-24-H	24- , With Harness	259.95
ERS-P	For 8-Series Alternators	79.95
ERS-B	Plugs Into Balmar Harness	79.95

Temperature Sensors

Model	Description	List
MC-TS-A	Alternator Temperature Sensor	44.95
MC-TS-B	Battery Temperature Sensor	54.95

Centerfielder

Model	Description	List
CF-12/24	Twin Engine Parallel Controller	249.95

Digital Duo Charge

Model	Description	List
DDC-12/24	Charge Controller	274.95

Multi-Lite Utility Lighting Fixture

Model	Description	List
458	Non-Switched	54.95
458-S	Switched	59.95

Warranty and post-warranty service and repair for 6-Series, 8-Series, 9-Series, 94-Series and 95-Series alternators is handled through Balmar's Customer Service department. To arrange for an alternator repair or rebuild, call Balmar at 360-435-6100.

Owners of Series 70, 71, 712, 96, 97, and 98 alternators may contact Balmar Customer Service at (360) 435-6100. or e-mail balmar@balmar.net for information regarding repair and rebuilding services for those models.

TERMS: Cash, COD, Visa, Mastercard, Wire Transfer, L.C. (letter of credit). COD payment options: Cash, Certified Bank Funds, or Cashiers Check. Customer pays all bank fees, brokerage, or special packaging costs. A \$50 charge will apply on returned checks. Late charge of 3% levied on all past due open accounts. Prices quoted are in U.S. Dollars.

Custom equipment orders greater than \$2000 require a 50% deposit. No returns or refunds on custom equipment orders. Packaging and handling charges will not exceed 2% of order with a \$7.50 minimum charge, except for special crating.

Returns must occur within 30 days of purchase delivery and must include Return Authorization (RA#) issued by our Customer Service department. Minimum restocking charge is 15%. All shipments FOB our plant.

All products covered by 1-year, limited warranty from date of purchase unless otherwise noted. Copies of specific coverage available upon request.

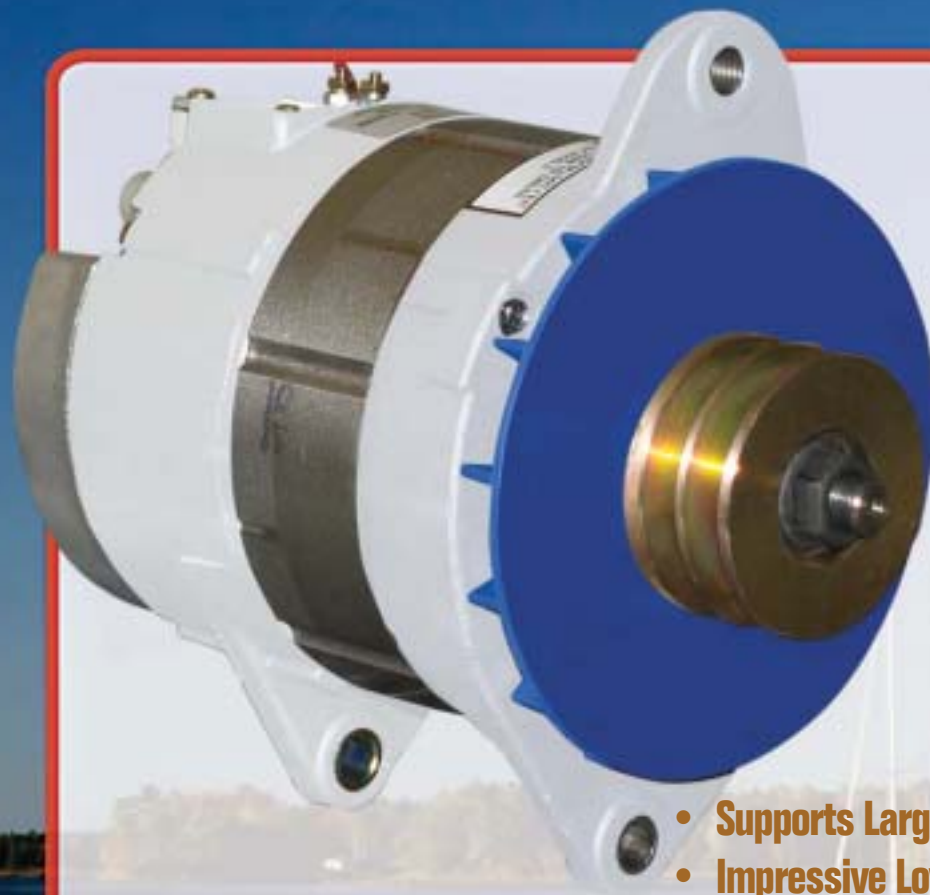
BALMAR® products and accessories are sold through distributors, dealers and builders only. Discounts are based on minimum order amounts and annual sales performance. Contact Balmar Customer Service for information regarding establishment of dealer accounts.

Prices and specifications subject to change without notice.

Customer Service/Technical Support Hours

Monday-Thursday	6:00am - 5:30pm PST
Friday	6:00am - 1:00pm PST

**New For
2007**



- Supports Large Battery And Inverter Loads
- Impressive Low-End Output
- 185-Amp And 265-Amp, 12-Volt Models
- 190-Amp, 24-Volt Model
- Dedicated Ground Terminal
- Increased Case Mass Maximizes Cooling

97-EHD-Series Alternators

Need added brawn to corral that BIG house battery bank? New 97-EHD Series alternators are ready to take the challenge. Available 12-volt, 185-amp and 265-amp, and 24-volt, 190-amp alternators are built on extra-large 6.5" diameter frames to ensure maximum cooling over sustained operation. Specially wound rotor/stator combinations deliver outstanding low-end output and impressive top-end performance. Extra-large bearings, high-amperage diode rectifiers, rugged cast aluminum case. Isolated ground terminal. Single output. Dual 1/2" vee belts minimum. J-180 style saddle mount. Limited one-year warranty.

CALL OR VISIT US ON THE WEB FOR DIMENSIONS AND OTHER DETAILS!

Alternator Series/Output	Cold/Hot Output (Amps/Alternator RPM)									
	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000
97-EHD-185-12-IG	100	141	159	165	174	179	183	186	185	184
	83	132	144	150	163	166	170	170	169	169
97-EHD-265-12-IG	50	150	210	228	245	252	255	260	266	270
	30	120	182	186	194	204	212	218	221	221
97-EHD-190-24-IG	40	100	148	168	180	188	193	198	199	198
	22	92	125	145	157	166	170	171	178	178

FOR BALMAR SALES AND CUSTOMER SERVICE SUPPORT

18930 59th Avenue NE, Arlington, WA 98223 PH: 360-435-6100 FAX: 360-435-3210

WEB: www.balmar.net E-MAIL: balmar@balmar.net