## **Lucas Marine**

## **LUCAS MARINE A127MT MARINISED ALTERNATOR**

All machines in this range are of the machine sensed insulated return type. The end brackets are protected by a special treatment whilst the windings, rotor and rectifier feature additional protection.

The backplate (SRE bracket) retains the output, field and tachometer connections. The regulator is also mounted for easy access. Radio interference capacitors are connected across both the + Ve and - Ve terminals and the use of LM119/78 47020002 suppression unit will provide RI suppression beyond BSI597 levels.

A wide variety of pulleys and spacers is available to ensure accurate fit and alignment for most applications. A list of these is included.

The front bracket is available for LH and RH fixing with the exception of the Propshaft model (RH). All machines are clockwise rotation.

The range starts with a 12v 15A model designed with a low cut-in speed (L.C.I.S) for use as a sailing craft propshaft generator or with low speed engines.

The next machine in the range is the 12v 55A version designed to meet the higher output requirements of vessels with mid-sized engines.

At the top of the 12v range is the 70A machine with a higher output enabling good battery charging rates with capacity to spare for the ever increasing electrical loads found in today's vessels.

As well as the 12v units there is a 24v 40A model providing 24 volt power at low cost.

## DESPATCH REFERENCE AND DATA SUMMARY

| s. No    | Model     | Hand   | W/L<br>Required | Cut-in<br>Speed (rpm) | Output<br>@ 2000 rpm | Max Output<br>(13.5v)6000rpm |
|----------|-----------|--------|-----------------|-----------------------|----------------------|------------------------------|
| 47020056 | A127-55MT | LH     | 2.2W            | 1100                  | 34A                  | 55A                          |
| 47020057 | A127-55MT | RH     | 2.2W            | 1100                  | 34A                  | 55A                          |
| 47020067 | A127-70MT | RH     | 2.2W            | 1100                  | 45A                  | 70A                          |
| 47020069 | A127-70MT | LH     | 2.2W            | 1100                  | 45A                  | 70A                          |
| 47020070 | A127-15MT | RH     | 2.2W            | 800                   | 13A                  | 15A                          |
| 24V      |           | ****** |                 |                       |                      |                              |
| 47020060 | A127-40MT | LH     | 4W              | 1800                  | 12A                  | 40A                          |
| 47020061 | A127-40MT | RH     | 4W              | 1800                  | 12A                  | 40A                          |
|          |           |        |                 |                       |                      |                              |

All machines have a maximum speed of 15000 rpm. The A127-15A and A127-55A machines have an operating temperature range of -  $40^\circ$  cto  $100^\circ$  c air inlet temperature. This is reduced to  $80^\circ$  c maximum for the A127-70A and A127-40A models.





## **A127 INSTALLATION NOTES**

## DESCRIPTION

The A127 Alternator is a marine finish, machine sensed insulated return machine. An additional terminal (W) is incorporated to provide an AC signal which may be used to drive a tachometer or speed sensing device.

The Alternator is a swung mounted two lug fitting suitable for RH or LH mounting.

The drive is via a pulley fitted to the 17mm keyless shaft.

## SELECTION OF PULLEY AND SPACER

To enable the alternator to be driven at it's optimum speed (see performance curve), a pulley should be selected from the chart.

The overhang required to bring the alternator pulley in line with the drive pulley (dimension 'A' Fig 1) may be obtained by the use of a suitable spacer fitted between the pulley and the fan support washer. The attached list details the spacers available.

N.B. A spacer of minimum size (as specified in the pulley section) must always be fitted.

## SEAWATER INGRESS

All A127-MT series marine alternators are designed to operate in a saline environment. Care should be taken to avoid direct watersplash and on exposed installations, A127 splash cover; despatch reference 54206418 can be fitted to provide additional protection.

In the event of excessive water ingress or complete submersion, the machine must be removed as soon as possible, all excess water removed and taken to the nearest agent for an immediate overcheck. Failure to observe these basic precautions may lead to the loss of a good machine or invalidate your warranty.

## SPLIT CHARGING

Split charging with the A127-MT series requires the installation of a suitable continuously rated relay. Blocking diodes cannot be successfully used with this machine sensed design.

For both 12v and 24v applications we recommend the 33RA'M' relay available under the following despatch references:

12v - 47121004

24v - 47121005

These units are "Marine Finish" and highly competitively priced.

## EXTERNAL REGULATORS

The use of "SMART" external voltage regulators which bypass the alternator's integral regulator is not recommended and will invalidate your warranty.

The standard regulator fitted is the result of extensive design and development, providing a balance between machine durability, output and battery life.

# A127MT ALTERNATOR TYPES

# ABULATED OUTLINE DRAWING = 04720158 - ALL TYPES

|             |    | FIXING | LOLLET   | DESPATCH NO: | SPACER   | DESPATCH NO: WASHER | FAN SUPPORT | FAN SUPPORT WASHER |
|-------------|----|--------|----------|--------------|----------|---------------------|-------------|--------------------|
|             |    |        |          |              |          |                     |             |                    |
| 47020054 12 | 55 | 3      | 54206027 |              |          |                     |             |                    |
| 47020055 12 | 55 | R      | 54206027 |              |          |                     |             |                    |
| 47020056 12 |    | 3      |          |              |          |                     | 54206432    | 47020080           |
| 47020057 12 | 55 | R      |          |              |          |                     | 54206432    | 47020080           |
| 47020058 12 |    | 5      |          |              |          |                     | 54206432    | 47020080           |
| 47020059 12 | 52 | RH     |          |              |          |                     | 54206432    | 47020080           |
| 47020060 24 | 40 | 5      |          |              |          |                     | 54206432    | 47020080           |
| 47020061 24 |    | H      |          |              |          |                     | 54206432    | 47020080           |
| 47020062 12 |    | 크      | 54205643 | 47020076     | 54205634 | 47020079            | 54206432    | 47020080           |
| 47020063 12 | 55 | H      | 54205643 | 47020076     | 54205634 | 47020079            | 54206432    | 47020080           |
|             |    | RH     | 54205639 | 47020071     | 54205634 | 47020079            | 54206432    | 47020080           |
|             |    | RH     |          |              |          |                     | 54206432    | 47020080           |
|             |    | RH     | 54205646 | 47020082     | 54205634 | 47020079            | 54206432    | 47020080           |
| 47020069 12 | 20 | H      | -        |              |          |                     | 54206432    | 47020080           |
|             |    | RH     | 54205639 | 47020071     | 54205634 | 47020079            | 54206432    | 47020080           |
|             |    | RH     | 54205646 | 47020082     | 54205630 | 47020077            | 54206432    | 47020080           |
| 47020084 12 |    | RH     | 54205643 | 47020076     | 54205721 |                     | 54206432    | 47020080           |
| 47020086 12 | 22 | RH     | 54205641 | 47020073     | 54205634 | 47020079            |             |                    |
| 47020088 12 |    | RH     | 54205646 | 47020082     | 54205721 |                     | 54206432    | 47020080           |
| 47020089 12 |    | RH     | 54205640 | 47020072     | 54205634 | 47020079            | 54206432    | 47020080           |
| 47020090 24 | 30 | RH     | 54205643 | 47020076     | 54205721 |                     | 54206432    | 47020080           |

# NOTES:

- UNITS ARE INSULATED RETURN, CLOCKWISE ROTATION, AND FITTED WITH SUPPRESSION CAPACITORS
- UNITS HAVE AC TACHO PHASE TAP [ 0.250" LUCAR & M5 DIA STUD TERMINAL ]

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- UNITS HAVE MAINS TERMINALS (POSITIVE M6 DIA / NEGATIVE M5 DIA ] ALSO FITTED WITH TWIN POSITIVE 0.337″L LUCAR PLUG WITH 0.250″L LUCAR WARNING LIGHT TERMINALS TWIN 0.376″TERMINALS ARE BOTH POSITIVE IN ORDER TO LOAD SHARE ]
- 4 ALL UNITS HAVE 17 MM DIA SHAFT
- 5 RH FIXING = ADJUSTING LUG IS ON RIGHT HAND SIDE OF UNIT WHEN VIEWED FROM REAR [TERMINAL] END OF ALTERNATOR

## PULLEYS AND SPACERS

## **PULLEYS**

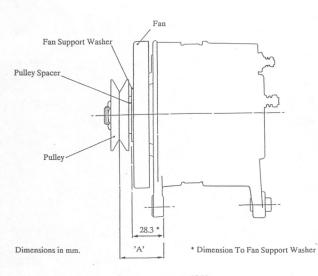
| Desp.No  | Belt Size     | Outside<br>Dia. (mm) | Approx<br>Effective<br>Dia.(mm) | Minimum<br>Spacer<br>Size | Min. 'A'<br>Dimension<br>(Overhang) |
|----------|---------------|----------------------|---------------------------------|---------------------------|-------------------------------------|
| 47020071 | 3/8"(9.7mm)   | 63                   | 60                              | 5.5mm                     | 35,0mm                              |
| 47020072 | 3/8"(9.7mm)   | 68                   | 65                              | 5.5mm                     | 35,0mm                              |
| 47020073 | 3/8"(9.7mm)   | 73                   | 70                              | 5.5mm                     | 35,0mm                              |
| 47020076 | 3/8"(9.7mm)   | 83                   | 80                              | 5.5mm                     | 35,0mm                              |
| 47020074 | 1/2"(12.7mm)  | 73                   | 70                              | 7.5mm                     | 37,0mm                              |
| 47020075 | 1/2"(12.7mm)  | 78                   | 75                              | 7.5mm                     | 37,0mm                              |
| 47020082 | ·1/2"(12.7mm) | 83                   | 80                              | 7.5mm                     | 37,0mm                              |
|          |               |                      |                                 |                           |                                     |

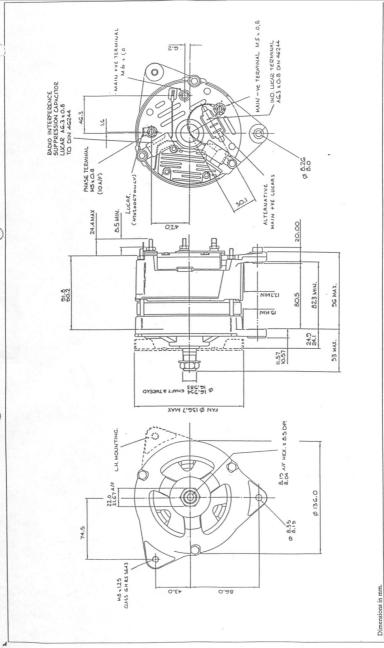
## **SPACERS**

Spacer

| Desp. no | Size   | (Overhang)                                 |
|----------|--------|--|
| 47020077 | 7.5mm  | 37,0mm                                     |
| 47020078 | 10.0mm | 39,5mm                                     |
| 47020079 | 5.5mm  | 35,0mm                                     |
| 47020080 | 2.0mm* | - * USE ONLY IN ADDITION TO LARGER SPACERS |

'A' Dim

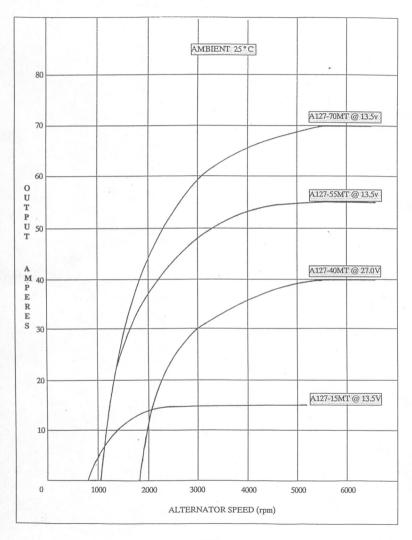




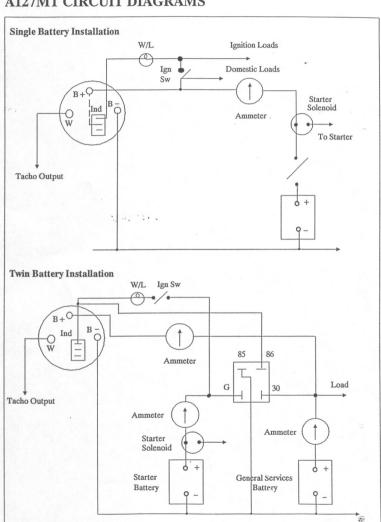
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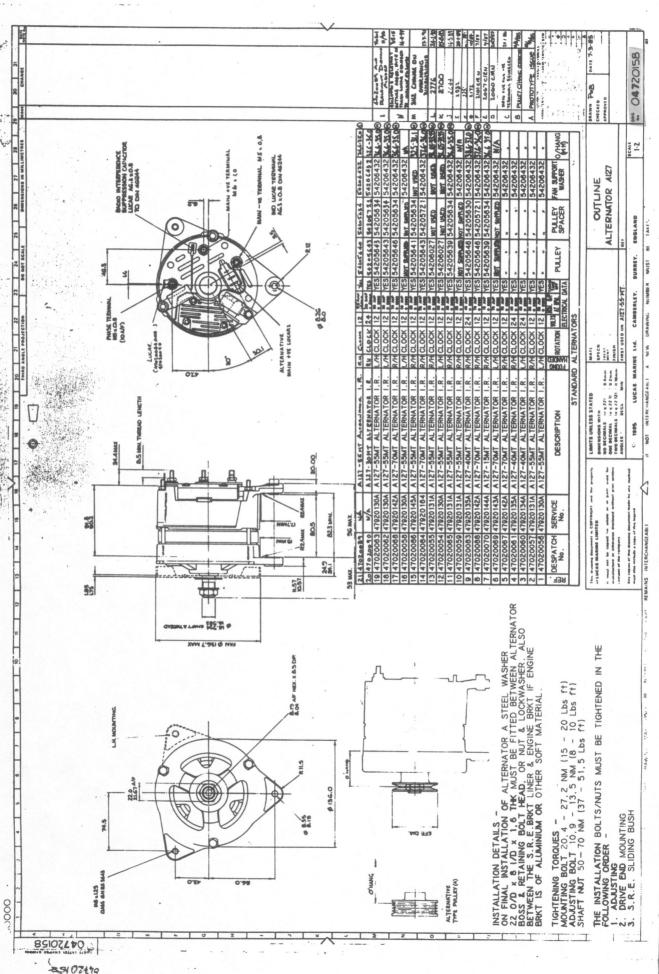
A127MT Marine Alternator

## A127-MT ALTERNATOR OUTPUT CURVE



## **A127MT CIRCUIT DIAGRAMS**





| 6-35,0                                   | -36,0                                   | ,-35.0                                   | -35.0                                    | -35.0                                    |                               | 32.5-31,1                      | 5-36.0                                   | 31, 65-33.55       | 34.65-33.55           | -35.0                                | N/A                           | 5-37.0  | 0-96-   | 350   | N/A                            |                    |                    |                    | "                  |            | AANG                                  | (M M)           |
|--|---|--|--|--|-------------------------------|--------------------------------|--|--------------------|-----------------------|--------------------------------------|-------------------------------|---|---|---|--------------------------------|--------------------|--------------------|--------------------|--------------------|------------|---------------------------------------|-----------------|
| . 36,                                    | 2 37,6                                  | 2 36.6                                   | 2 36.6                                   | 2 36.6                                   | 2 WA                          | 32.5                           | 2 37.6                                   |                    |                       | 2 36,6                               | 8                             | 2 38,   | 2 37,6  | 2 36.   |                                | 01                 | 01                 | 01                 |                    | 01         |                                       | E               |
| 54206432                                 | 5420643                                 | 5420643                                  | 5420643                                  | 5420643                                  | 54206432 WA                   | NOT USED                       | 5420643                                  | NOT USED           | NOT USED              | 5420643                              | 54206432                      | 5420643   | 54206433  | 5420643   | 54206432                       | 54206432           | 54206432           | 54206432           | 54206432           | 54206432   | FAN SUPPORT                           | WASHER          |
| 54205634                                 | 54205721                                | 54205634                                 | 54205634                                 | 54205634                                 | NOT SUPPLIED                  | 54205634                       | 54205721                                 | NOT USED           | NOT USED              | 54205634                             | NOT SUPPLIED                  | 54205630  | 54205721  | 54205634  | SUPPLIED NOT SUPPLIED 54206432 | 11 11              | 11 11              | n u                | " "                | 11 11      | PULLEY                                |                 |
| Yes 54205640 54205634 54206432 36,6-35,0 | YES 54205643 54105711 54206432 376-36,0 | YES 54205643 54205634 54206432 36.6-35.0 | YES 54205643 54205634 54206432 36.6-35.0 | YES 54205646 54205634 54206432 36.6-35.0 | YES NOT SUPPLIED NOT SUPPLIED | YES 54205641 54205634 NOT USED | YES 54205643 54205721 54206432 37.6-36.0 | YES 54206027       | YES 54206027 NOT USED | 54205639 54205634 54206432 36.6-35.0 | YES NOT SUPPLIED NOT SUPPLIED | 40 AMP   YES   54205646   54205630   54206432   38,6-37,0 | YES 54205646 54205721 54206432 <b>37,6-36,0</b> | . S ANN   YES   54205639   54205634   54206432   36,6 350 | MOT                            | 11 11              | 11 11              | 11 11              | п                  | 11 11      | PIIIIFY                               |                 |
| 1/25                                     |   |  | _  |  | YES                           | YES                            | YES                                      | YES                | YES                   | YES                                  | YES                           | YES   | YES   | YES   | YES                            | YES                | YES                | YES                | YES                | YES        | TACHO                                 | DATA            |
| SSAM.                                    | 30 Ang                                  | 55 AMP<br>• 6000                         | 55 AMP<br>• 6000                         | 70 AMP                                   | 55 AMP<br>• 6000              | 55 AMP<br>• 6000               | 70 AMP                                   | 55 AMP             | 55 AMP<br>• 6000      | 55 AMP<br>• 6000                     | 55 AMP<br>• 6000              | 40 AMP<br>• 6000  | 70 AMP  | 15 AMP<br>• 6000  | 70 AMP<br>• 6000               | 70 AMP<br>• 6000   | 40 AMP             | 40 AMP             | 55 AMP<br>• 6000   | 55 AMP     | VOLTS NOM. 0/P TAKE VOLTS AT RPM. OFF | ELECTRICAL DATA |
|  | 24                                      | 12                                       | 12                                       | 12                                       | 12                            | 12                             | 12                                       | 12                 | 12                    | 12                                   | 12                            |   | _   | 12  | 12                             | 12                 | 24                 | 24                 |                    | 12         | VOLTS                                 | ELECT           |
| CLOCK                                    | RH CLOCK 24                             | L/H CLOCK 12                             | L/H CLOCK                                | R/H CLOCK                                | L/H CLOCK                     | R/H CLOCK                      | R/H CLOCK                                | R/H CLOCK          | L/H CLOCK             | R/H CLOCK                            | R/H CLOCK                     | R/H CLOCK 24  | R/H CLOCK 12                                    | R/H CLOCK 12  | L/H CLOCK                      | R/H CLOCK          | R/H CLOCK 24       | L/H CLOCK 24       | R/H CLOCK 12       | CLOCK      | DED                                   |                 |
| T.                                       | RH                                      | L/H                                      | L/H                                      | R/H                                      | L/H                           | R/H                            | R/H                                      | R/H                | L/H                   | R/H                                  | R/H                           | R/H   | R/H   | R/H   | L/H                            | R/H                | R/H                | L/H                | R/H                | L/H        | FIXING<br>HANDED                      |                 |
| 1. R.                                    |   |  | R.                                       | <br>R.                                   |                               |                                |  | I.R.               | I.R. I                | R.                                   | <br>R.                        |   |   | . R.  | I.R. I                         | I.R. F             | I.R.               |                    |                    | I.R. 1     | ONIZ                                  | 717             |
| A127 - 55 MT ALTBRIDGE 1. R. H. CLOCK 12 | A 127-30MT ALTERNATOR I.R.              | ALTERNATOR I.R                           | ALTERNATOR                               | ALTERNATOR                               | ALTERNATOR I.R                | ALTERNATOR I.R                 | ALTERNATOR I.R                           | ALTERNATOR         | ALTERNATOR            | ALTERNATOR                           | ALTERNATOR                    | ALTERNATOR I.R  | ALTERNATOR I.R                                  | ALTERNATOR  | ALTERNATOR                     | ALTERNATOR         | ALTERNATOR         | ALTERNATOR I.R     | ALTERNATOR I.R     | ALTERNATOR | DESCRIPTION                           |                 |
| A127 - 55 MT                             | A 127-30MT                              | A127-55MT                                | A127-55MT                                | A127-70MT                                | A127-55MT                     | A127-55MT                      | A 127-70MT                               | A127-55MT          | A 127-55MT            | A127-55MT                            | A127-55MT                     | A 127-40MT  | A 127-70MT                                      | A127-15MT   | A127-70MT                      | A 127-70MT         | A127-40MT          | A 127-40MT         | A127-55MT          | A127-55MT  | NEO.                                  | 1               |
| N/A                                      | N/A                                     | 47920130A                                | 47020062 47920130A                       | 47020068 47920142A                       | 47020058 47920130A            | 47920145A                      | 47920164                                 | 47020055 47920131A | 47920130A             | 47020065 47920131A                   | 47920131A                     | 47020083 47920135A  | 47020088 47920142A                              | 47020070 47920144A  | 47020069 47920143A             | 47020067 47920142A | 47020061 47920135A | 47020060 47920134A | 47020057 47920131A | 47920130A  | SERVICE<br>No.                        |                 |
| 21 47020089                              | 20 47020090                             | 9 47020063 47920130A                     | 47020062                                 | 47020068                                 | 47020058                      | 47020086 47920145A             | 4 47020084 47920164                      | 47020055           | 12 47020054 47920130A | 47020065                             | 47020059 47920131A            | 47020083  | 47020088  | 47020070  | 47020069                       | 47020067           | 47020061           | 47020060           | 47020057           | 47020056   | DESPATCH                              | No .            |
| 12                                       | 20                                      | 19                                       | 100                                      | 17                                       | 16,                           | 15                             | 14                                       | 13                 | 12                    | -                                    | 10                            | 6   | ω   | 7   | 9                              | 2                  | 4                  | m                  | 2                  | -          | . Ч                                   | BE              |

STANDARD ALTERNATORS