

# NEF 150

N67 MNA M15

## FOR MARINE APPLICATIONS

6 CYLINDER IN-LINE - DIESEL CYCLE

110 kW (148 hp) @ 2800 rpm (A1)

99.5 kW (133 hp) @ 2800 rpm (B)

92 kW (123 hp) @ 2800 rpm (C)

92 kW (123 hp) @ 2800 rpm (D)



T E C H N O L O G I C A L E X C E L L E N C E

**IVECO  
MOTORS**

 **FPT**  
POWERTRAIN TECHNOLOGIES

## N67 MNA M15 FOR MARINE APPLICATIONS

|                                                    |                                       |                         |
|----------------------------------------------------|---------------------------------------|-------------------------|
| Thermodynamic cycle                                |                                       | Diesel 4 stroke - D.I.  |
| Aspiration                                         |                                       | NA                      |
| Configuration                                      |                                       | 6L                      |
| Bore x Stroke                                      | mm (in.)                              | 104 X 132 (4.10 X 5.20) |
| Total displacement                                 | liters (cu. in.)                      | 6.7 (409)               |
| Valves per cylinder                                |                                       | 2                       |
| Cooling                                            |                                       | liquid                  |
| Direction of rotation (viewed facing flywheel)     |                                       | CCW                     |
| Compression ratio                                  |                                       | 17.5 : 1                |
| Rotation mass moment of inertia (without flywheel) | kgm <sup>2</sup> (lbft <sup>2</sup> ) | 0.30 (7.12)             |
| Standard flywheel inertia                          | kgm <sup>2</sup> (lbft <sup>2</sup> ) | 0.71 (16.85)            |

### Air induction

|                                                                               |                            |               |
|-------------------------------------------------------------------------------|----------------------------|---------------|
| Max suggested intake restriction with clean air filter                        | kPa (in. H <sub>2</sub> O) | 3.5 (14)      |
| Max allowable restriction with dirty air filter                               | kPa (in. H <sub>2</sub> O) | 6.5 (26)      |
| Air requirement for combustion at 100% load/rated speed (comb. + ventilation) | kg/h (lb/h)                | 4000 (8818.4) |
| Turbocharging pressure at full load/rated speed                               | kPa (psi)                  | -             |
| Turbocharging air max temperature (engine inlet)                              | °C (°F)                    | -             |

### Exhaust system

|                                                  |              |              |
|--------------------------------------------------|--------------|--------------|
| Max allowable backpressure                       | kPa (in. Hg) | 7 (2.06)     |
| Max exhaust temperature at full load/rated speed | °C (°F)      | 720 (1328)   |
| Exhaust flow at max output                       | kg/h (lb/h)  | 590 (1300.7) |

### Lubrication system

|                                                                            |                 |             |
|----------------------------------------------------------------------------|-----------------|-------------|
| Minimum oil pressure at idle at 100°C (212°F)                              | kPa (psi)       | 70 (10.15)  |
| Max oil temperature at full load/rated speed                               | °C (°F)         | 120 (248)   |
| Engine angularity limits continuous operation: max front up and front down | degrees         | 20°         |
| max left hand and right hand                                               | degrees         | 22° 30'     |
| Total system capacity including pipes, filters etc.                        | liters (quarts) | 16.5 (17.4) |

### Sea water cooling system (open circuit)

|                                    |                             |             |
|------------------------------------|-----------------------------|-------------|
| Max intake restriction             | kPa (in. Hg)                | 20 (5.9)    |
| Sea water pump flow                | m <sup>3</sup> /h (gal/min) | 8.6 (37.8)  |
| Heat rejected (total) at max power | kW (BTU/min)                | 85 (4838.2) |
| Sacrificial zinc anodes            | n°                          | 1           |

### Cooling system(closed circuit)

|                                                              |                             |                           |
|--------------------------------------------------------------|-----------------------------|---------------------------|
| Coolant capacity (engine only)                               | liters (quarts)             | 22.5 (23.8)               |
| Water pump flow at rated speed                               | m <sup>3</sup> /h (gal/min) | 12 (52.8)                 |
| Thermostat (operating range)                                 | °C (°F)                     | 78 to 87 (172.4 to 188.6) |
| Cooling liquid max temperature                               | °C (°F)                     | 106 (222.8)               |
| Min/Max pressure in the cooling circuit (for keel cooling)   | kPa (psi)                   | 30/100 (4.35/14.5)        |
| External cooling system max pressure drop (for keel cooling) | kPa (psi)                   | 35 (5.0)                  |

### Fuel system

|                               |                            |                      |
|-------------------------------|----------------------------|----------------------|
| Injection system              |                            | mechanical pump      |
| Fuel inlet max restriction    | kPa (in. H <sub>2</sub> O) | 10 (40.1)            |
| Fuel inlet max temperature    | °C (°F)                    | 60 (140) @ 77°F amb. |
| Max fuel backpressure to tank | kPa (in. H <sub>2</sub> O) | 10 (40.1)            |

### Electrical system

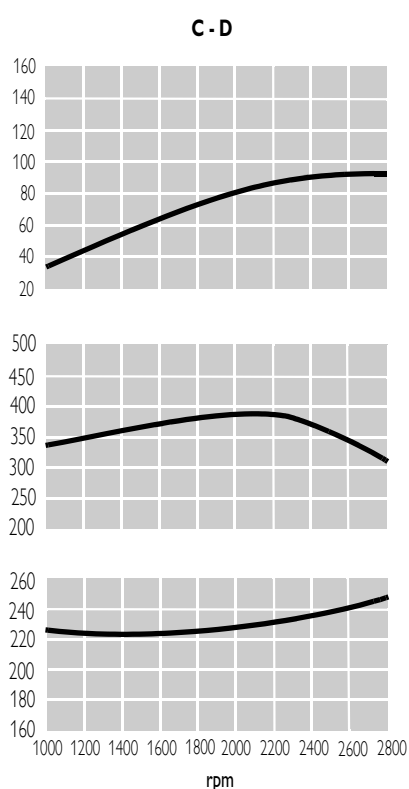
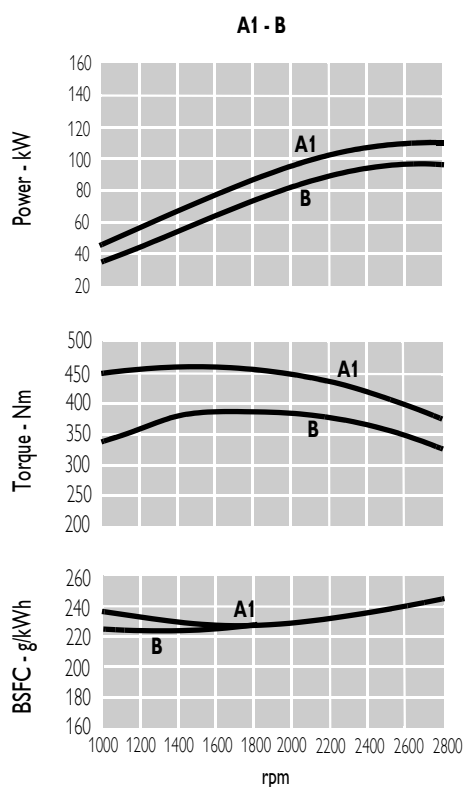
|         |   |    |
|---------|---|----|
| Voltage | V | 12 |
|---------|---|----|

## N67 MNA M15 FOR MARINE APPLICATIONS

| Rating type                                             |                          | A1                 | B           | C           | D           |
|---------------------------------------------------------|--------------------------|--------------------|-------------|-------------|-------------|
| Maximum power *                                         | kW(hp)                   | 110 (148)          | 99.5 (133)  | 92 (123)    | 92 (123)    |
| At speed                                                | rpm                      | 2800               | 2800        | 2800        | 2800        |
| Maximum no load governed speed                          | rpm                      | 3100               | 3100        | 3100        | 3100        |
| Minimum idle speed                                      | rpm                      | 650                | 650         | 650         | 650         |
| Mean piston speed at rated rpm                          | m/s (ft/s)               | 12.3 (40.3)        | 12.3 (40.3) | 12.3 (40.3) | 12.3 (40.3) |
| BMEP at max torque                                      | kg/cm <sup>2</sup> (psi) | 8.6 (122.3)        | 7.3 (103.8) | 7.3 (103.8) | 7.3 (103.8) |
| BSFC                                                    | g/kWh (lb/hp h) @ rpm    | 230 (0.378) @ 1800 |             |             |             |
| Oil consumption at max rating                           | (% of fuel consumption)  | 0.1                |             |             |             |
| Minimum starting temperature without aids               | °C (°F)                  | -10 (+14)          |             |             |             |
| Oil and oil filter maintenance interval for replacement | hours                    | 600                |             |             |             |
| Dry weight (without marine gear)                        | kg (lb)                  | 530 (1168)         |             |             |             |

\* **Net Power** at flywheel according to ISO 3046/1, after 50 hours running, fuel Diesel EN 590. Power tolerance 5%.

**Test conditions** : ISO 3046/1, 25 °C air temperature, 100 kPa atmospheric pressure, 30 % relative humidity.



**A1** = High performance crafts.

**B** = Light duty.

Full throttle operation restricted within 10% of total use period.

Cruising speed at engine rpm < 90% of rated speed setting - Maximum usage :

- 300 hours per year (A1 service)
- 1500 hours per year (B service).

**C** = Medium duty.

Full throttle operation < 25% of use period.

Cruising speed at engine rpm < 90% of rated speed setting - Maximum usage 3000 hours per year.

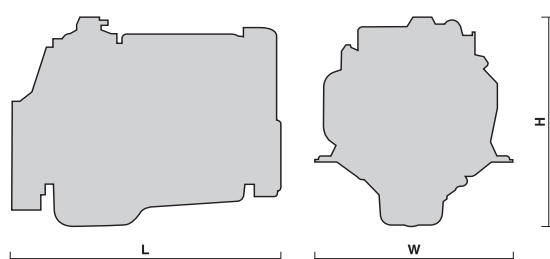
**D** = Heavy duty.

Maximum rating utilisation up to 100% of use period, for unlimited hours per year.

**L** = 1071 mm (42.2 in.)

**W** = 780 mm (30.7 in.)

**H** = 869 mm (34.2 in.)



## N67 MNA M15 FOR MARINE APPLICATIONS

### Standard configuration

|                            |       |                            |
|----------------------------|-------|----------------------------|
| Flywheel housing           | SAE   | 3                          |
| Flywheel diameter          | in.   | 11 ½                       |
| Air filter                 |       | left side                  |
| Turbocharger               |       | -                          |
| Heat exchanger             |       | tube type                  |
| Exhaust cooled elbow       |       | -                          |
| Water charge tank          |       | included                   |
| Fuel filter                |       | 1                          |
| Fuel prefilter             |       | included (loose)           |
| Fuel pump                  |       | included                   |
| Oil filter                 |       | 1                          |
| Oil sump                   |       | sheet steel                |
| Oil vapors blow-by circuit |       | on valve cover             |
| Oil heat exchanger         |       | built in the crankcase     |
| Oil filler                 |       | on valve cover             |
| Starter motor              |       | 12 V - 3 kW                |
| Alternator                 |       | 12 V - 90 A with W contact |
| Engine shut-off            |       | electrical excitation      |
| Wiring harness             |       | engine wiring              |
| Painting                   | color | white "ICE"                |

### Not included in the standard configuration

|                                                      |         |
|------------------------------------------------------|---------|
| Battery - minimum capacity recommended               | 180 Ah  |
| Battery - minimum cold cranking capacity recommended | 800 CCA |

**IVECO MOTORS OFFERS THE WIDEST AVAILABILITY OF ENGINE BUILD OPTIONS TO CUSTOMER SPECIFIC REQUIREMENTS WITHIN THE ENGINE SUPPLY.  
TO FIND OUT MORE ABOUT THE CONFIGURATIONS AND ACCESSORIES WHICH ARE AVAILABLE, CONTACT THE IVECO MOTORS SALES NETWORK.**

#### Iveco Motors

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#### Iveco Motors

Viale dell'Industria, 15/17 - 20010 Pregnana Milanese - Milano  
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Local Distributor

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NEF 6CYL 2V NA

N67 MNA M15

**NEF 6CYL 2V NA**

**N67 MNA M15**

**ENGINE LAYOUT FIGURINO MOTORE**

**SECTION A-A**

**EXPANSION TANK**

**REAR FACE FLYWHEEL HOUSING**

**ENGINE**

**CRANKSHAFT**

**COMPONENTS:**

- 1 FUEL FILTER
- 2 AIR FILTER
- 3 FUEL INLET
- 4 INJECTOR RETURN
- 5 ENGINE STARTING AND STOPPING DEVICE (12V)
- 6 OIL DIPSTICK
- 7 THROTTLE LEVER
- 22 OIL DRAIN PUMP
- 8 FUEL EXCESS SOLENOID (12V)
- 9 SEA WATER INLET
- 11 REAR ENGINE LIFTING
- 12 OIL FILTER
- 13 FRONT ENGINE LIFTING
- 14 ALTERNATOR (12V)
- 15 STARTER MOTOR (12V)
- 16 SEA WATER DRAIN PLUG
- 17 HEATING CIRCUIT INLET PLUG (M16x15)
- 18 OIL/WATER HEAT EXCHANGER WITH FILTERING ELEMENT
- 19 OIL INLET PLUG
- 20 PLUG FOR WATER TEMPERATURE SENDER (M16x21)
- 21 RIGID MOUNTING
- 22 WATER FILLER CAP

**DIMENSIONS (mm):**

- 705 (W) [27.76]
- 909.5 (H) [35.81]
- 542 [21.33]
- 335.5 [13.21]
- 105.4 [4.15]
- 272.5 [10.73]
- 63.5
- 114.2 (L) [4.5]
- 52.5 [2.07]
- 236 [9.29]
- 215 [8.46]
- 361.5 [14.23]
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- 78.5 [3.08]
- 391 [15.4]
- 20°
- 127 M7 [5.013]
- 333.5 [13.13]
- 314 [12.36]
- 451 [17.75]
- 409.6 [16.13]

**NOTES:**

- N°8 holes equally spaced on a  $\phi 131.4$  M16x1.5 P 28  $\phi 11(\phi 25 \times 90^\circ)$
- N°12 holes M16x1.5 P 30 Mm  $\phi 11(\phi 5 \times 90^\circ \pm 5^\circ)$  equally spaced on M128.62

**EXTENDED INFORMATION:**

Model: N67MNA M15

Power: 29/100/1500

Speed: 1500

Stroke: 100

Displacement: 6.0

Weight: 115

Manufacturer: IVECO

Document: 8038055 DA 54-9756

Version: 1.0

Scale: 1:1

Sheet: 1/2

NEF 6CYL 2V NA

N67 MNA M15

**NEF 6CYL 2V NA**

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**NOTES:**

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- N°12 holes MIN (15°  $\phi 30$  MIN  $\phi 11$   $\phi 5 \times 90^\circ \pm 5^\circ$  equally spaced MIN (28.62))

**EXTENDED INFORMATION:**

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Speed: 1500

Stroke: 100

Displacement: 6.7

Weight: 115

Manufacturer: IVECO

Part Number: 8038055

Revision: DA 54-9756

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N67 MNA M15

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**ENGINE LAYOUT FIGURINO MOTORE**

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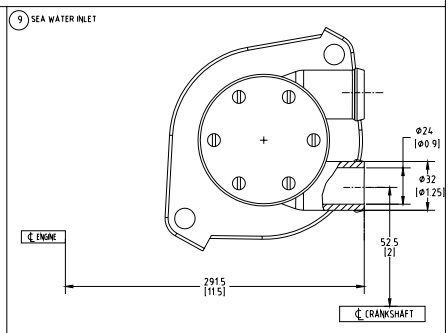
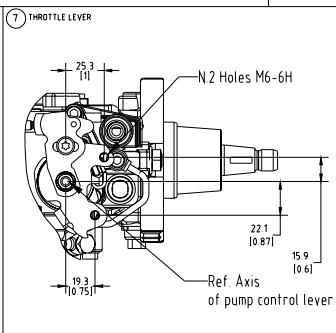
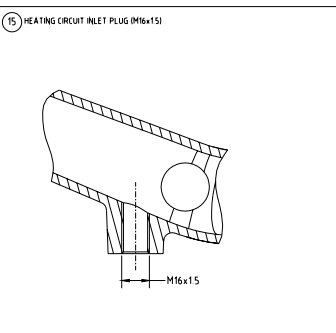
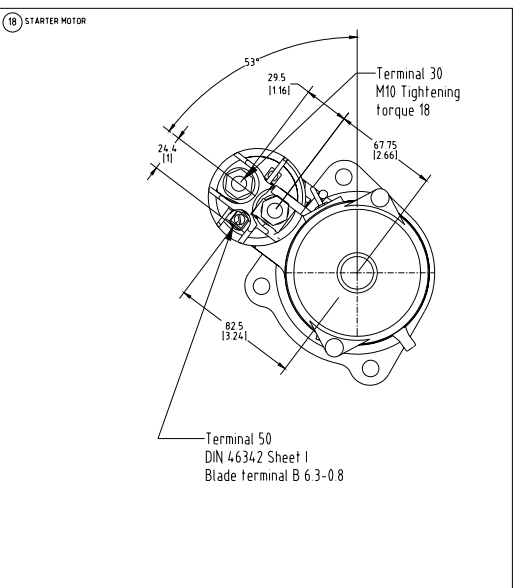
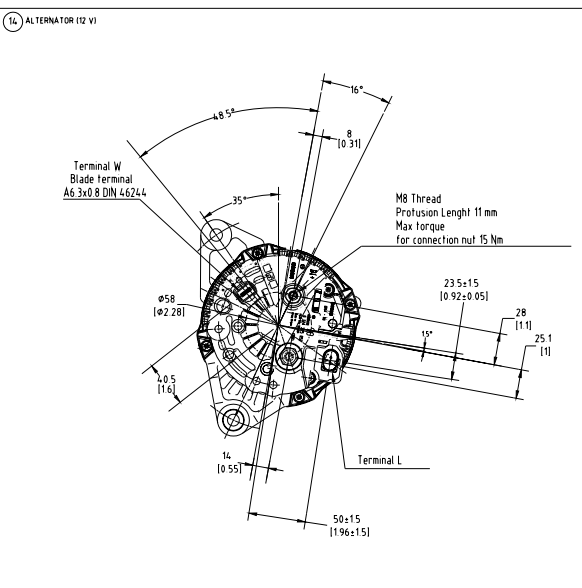
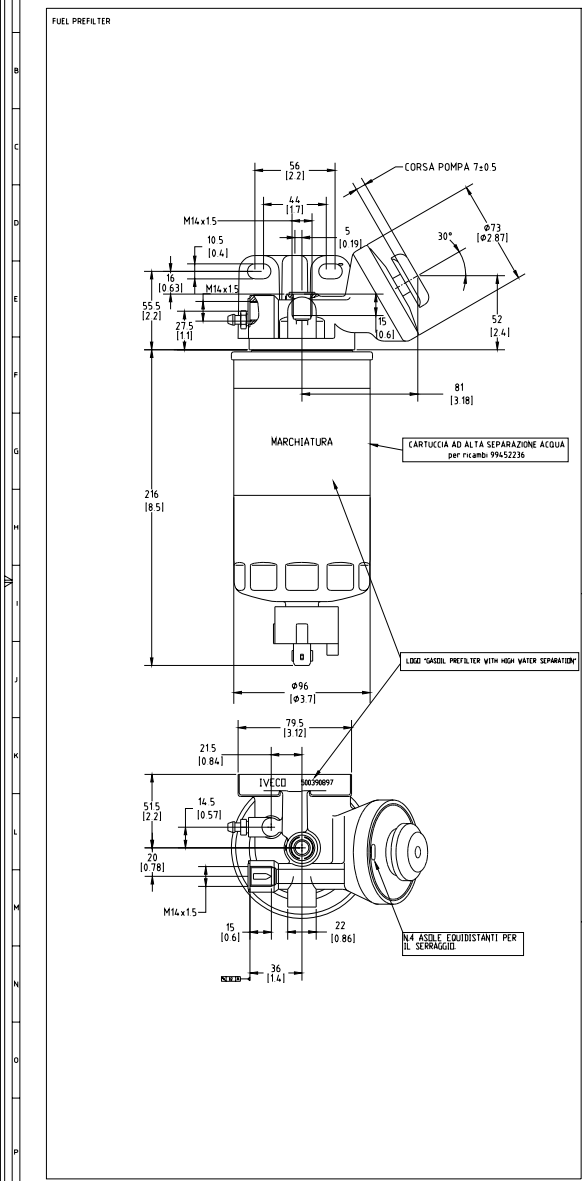
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- 70 [2.76]
- 828.5 [32.62]
- 60 [2.36]
- 163.5
- 355 [13.98]
- 710 [27.95]
- 355 [13.9

NEF 6CYL 2V NA

**N67 MNA M15**



RFH : REAR FACE FLYWHEEL HOUSING

## CAD DRAWING HANDLING ON CAD SYSTEM C

| STANDARD minimum<br>requirements                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |                                        |  |                               |  |                 |  |                 |  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------|--|-------------------------------|--|-----------------|--|-----------------|--|
| <p>Project title: <b>DA 54-9756</b></p> <p>DA Form 101-2 (Rev. 10-6-65)</p> <p>1. This form is to be filled out by the contractor or subcontractor who is responsible for the design and construction of the project. It is to be submitted to the contracting agency for review and approval.</p> <p>2. The information on this form is to be used for the purpose of identifying the project and for the purpose of determining the scope of the project.</p> <p>3. The information on this form is to be used for the purpose of determining the scope of the project.</p> <p>4. The information on this form is to be used for the purpose of determining the scope of the project.</p> <p>5. The information on this form is to be used for the purpose of determining the scope of the project.</p> <p>6. The information on this form is to be used for the purpose of determining the scope of the project.</p> <p>7. The information on this form is to be used for the purpose of determining the scope of the project.</p> <p>8. The information on this form is to be used for the purpose of determining the scope of the project.</p> <p>9. The information on this form is to be used for the purpose of determining the scope of the project.</p> <p>10. The information on this form is to be used for the purpose of determining the scope of the project.</p> |  |                                        |  |                               |  |                 |  |                 |  |
| <p>Scale: <b>1" = 10'</b></p> <p>North arrow: </p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  | <p>65 x 118<br/>4 x 10<br/>R 2 x 6</p> |  | <p>Maximum project number</p> |  | <p>Transmit</p> |  | <p>Case No.</p> |  |
| <p>Scale: <b>1" = 10'</b></p> <p>North arrow: </p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  | <p>65 x 118<br/>4 x 10<br/>R 2 x 6</p> |  | <p>Maximum project number</p> |  | <p>Transmit</p> |  | <p>Case No.</p> |  |
| <p>Scale: <b>1" = 10'</b></p> <p>North arrow: </p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  | <p>65 x 118<br/>4 x 10<br/>R 2 x 6</p> |  | <p>Maximum project number</p> |  | <p>Transmit</p> |  | <p>Case No.</p> |  |
| <p>Scale: <b>1" = 10'</b></p> <p>North arrow: </p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  | <p>65 x 118<br/>4 x 10<br/>R 2 x 6</p> |  | <p>Maximum project number</p> |  | <p>Transmit</p> |  | <p>Case No.</p> |  |
| <p>Scale: <b>1" = 10'</b></p> <p>North arrow: </p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  | <p>65 x 118<br/>4 x 10<br/>R 2 x 6</p> |  | <p>Maximum project number</p> |  | <p>Transmit</p> |  | <p>Case No.</p> |  |
| <p>Scale: <b>1" = 10'</b></p> <p>North arrow: </p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  | <p>65 x 118<br/>4 x 10<br/>R 2 x 6</p> |  | <p>Maximum project number</p> |  | <p>Transmit</p> |  | <p>Case No.</p> |  |
| <p>Scale: <b>1" = 10'</b></p> <p>North arrow: </p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  | <p>65 x 118<br/>4 x 10<br/>R 2 x 6</p> |  | <p>Maximum project number</p> |  | <p>Transmit</p> |  | <p>Case No.</p> |  |
| <p>Scale: <b>1" = 10'</b></p> <p>North arrow: </p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  | <p>65 x 118<br/>4 x 10<br/>R 2 x 6</p> |  | <p>Maximum project number</p> |  | <p>Transmit</p> |  | <p>Case No.</p> |  |
| <p>Scale: <b>1" = 10'</b></p> <p>North arrow: </p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  | <p>65 x 118<br/>4 x 10<br/>R 2 x 6</p> |  | <p>Maximum project number</p> |  | <p>Transmit</p> |  | <p>Case No.</p> |  |
| <p>Scale: <b>1" = 10'</b></p> <p>North arrow: </p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  | <p>65 x 118<br/>4 x 10<br/>R 2 x 6</p> |  | <p>Maximum project number</p> |  | <p>Transmit</p> |  | <p>Case No.</p> |  |
| <p>Scale: <b>1" = 10'</b></p> <p>North arrow: </p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  | <p>65 x 118<br/>4 x 10<br/>R 2 x 6</p> |  | <p>Maximum project number</p> |  | <p>Transmit</p> |  | <p>Case No.</p> |  |
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## NEF MARINE RANGE STD CONFIGURATION

**NEF 150 ( N67MNAM15.01 )**

6 Cyl - 6,7 L - NA - 2V - M -12 V

| ENGINE                           | STD CONFIGURATION                                                                            | ISSUE :<br>SEPT 06 |
|----------------------------------|----------------------------------------------------------------------------------------------|--------------------|
| Main Components                  | Description                                                                                  |                    |
| Engine std setting               | ISO 8665 : 110 kw @ 2800 rpm                                                                 |                    |
| Base Engine                      | P/n 504097212 (F4GE0606A*E600)                                                               |                    |
| Rigid mounting                   | 4 rigid mountings                                                                            |                    |
| Flywheel Housing                 | Rear, cast iron , SAE 3                                                                      |                    |
| Flywheel                         | 11,5", Inertia 0,71 kgm <sup>2</sup>                                                         |                    |
| Timing Gear Train - P.t.o.       | Flywheel side gear train - No power take off                                                 |                    |
| Std. pulley- Belt-Avail. Grooves | 8 ribs poly-V belt - No available groove                                                     |                    |
| Fuel injection system            | Mechanical system : mech. lift pump - rotary injection pump - fuel pipes - injectors         |                    |
| Fuel filter                      | Single cartridge fuel filter                                                                 |                    |
| Fuel pre-filter                  | Loose prefilter with sedimenter, water presence el. sender and priming manual pump           |                    |
| Engine electric system           | 12 V system - Standard wiring harness                                                        |                    |
| Engine Starter                   | 3 kW, 12 V                                                                                   |                    |
| Alternator                       | 90 A, 12 V with W rpm - counter connection                                                   |                    |
| Cold starting device             | None                                                                                         |                    |
| Engine shut off                  | 12 V energize to stop fuel shut off ( build in the injection pump )                          |                    |
| Air cleaner                      | Dry air-cleaner with clogging sender                                                         |                    |
| Intake Manifold                  | Dry intake manifold                                                                          |                    |
| Exhaust manifold                 | Soft water cooled exhaust manifold                                                           |                    |
| Cooling system heat exchanger    | Soft water / raw water heat exchanger ( excluded NEF 150 KC )                                |                    |
| Thermostat                       | Temperature operating range : 65°C - 75°C                                                    |                    |
| Soft water pump                  | Poly-V belt driven soft water centrifugal pump ( anticavitation profile fibre impeller )     |                    |
| Raw water pump                   | Gear driven raw water pump (1"centrifugal pump with neoprene impeller) (excluded NEF 150 KC) |                    |
| Load water tank                  | Build in load soft water tank                                                                |                    |
| Expansion tank                   | Loose expansion tank                                                                         |                    |
| Oil - pump                       | Cylinder block integrated gear-type oil pump ( crankshaft driven )                           |                    |
| Oil - coolant heat exchanger     | Cylinder block embodied plate-type oil cooler                                                |                    |
| Oil filter                       | Single cartridge oil filter                                                                  |                    |
| Oil sump                         | Alum. casting,marine sump-Max.contin.operat. limits:longitud. 16° - transver. 22°30'         |                    |
| Blow-by device                   | Oil vapours recirculation by Mann&Hummel valve.                                              |                    |
| Oil dipstick                     | Vertical pull dipstick                                                                       |                    |
| Oil drain pump                   | Manual oil drain pump                                                                        |                    |
| Oil Fill                         | Cylinder head cover                                                                          |                    |
| Engine testing                   | Standard test bench                                                                          |                    |
| Engine std. painting             | White ice painting                                                                           |                    |



## SUMMARY ENGINE SPECIFICATIONS APPLICATIONS BILL OF MATERIAL:

**N67 MNA M15**

**SHEET:** 1/1

DATE: /05/

**CHECK:** Pagnoncelli M.

VIEW: *Burgazzi*[illegible]