



## ENGINE PERFORMANCE CURVE

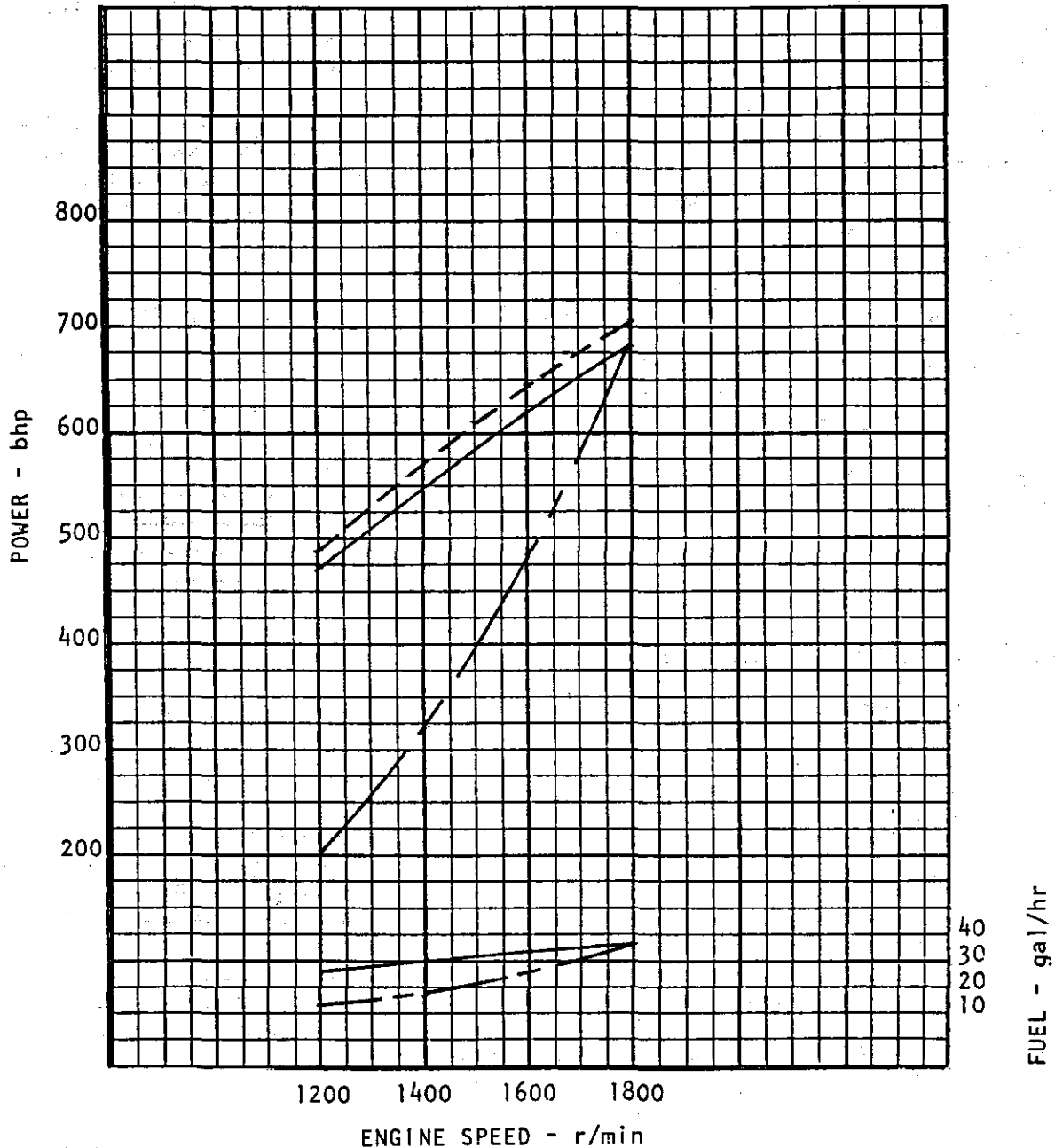
RATING: NET POWER

APPLICATION: MARINE - CONTINUOUS

MODEL: 8V-149TI

705 bhp @ 1800 r/min

680 shp @ 1800 r/min



ACCESSORIES: MARINE GEAR - 3% LOSS  
AIR INTAKE RESTRICTION - in. H<sub>2</sub>O (kPa) . . . 10 (2.5)  
EXHAUST BACK PRESSURE - in. H<sub>2</sub>O (kPa) . . . 15 (3.7)

- POWER OUTPUT GUARANTEED WITHIN 5% AT SAE J1349 CONDITIONS:  
77°F (25°C) AIR INLET TEMPERATURE; 29.31 in. Hg (99kPa) DRY BAROMETER;  
100°F (39°C) FUEL INLET TEMPERATURE (.853 SPECIFIC GRAVITY AT 60°F).
- CONVERSION FACTORS: POWER: kW = bhp x 0.746  
FUEL: kg/kW-hr = lb/bhp-hr x 0.608  
TORQUE: N-m = lb-ft x 1.356
- VALUES DERIVED ARE FROM CURRENTLY AVAILABLE DATA AND SUBJECT TO CHANGE WITHOUT NOTICE.

CERTIFIED BY:

JH 10/3/85

STAFF ENGINEER

CURVE NO.

E4-9082-32-6

DATE: 9-24-85

REV./DATE: 1/10-9-85

SHT. 1 OF 3

## ENGINE SPECIFICATION

### General Engine Description:

Model  
Number of cylinders  
Bore and stroke - in (mm)  
Displacement - in<sup>3</sup> (litre)  
Compression ratio  
Firing order  
Clockwise rotation (RH)  
Counter clockwise rotation (LH)  
Marine gear type  
Marine gear reduction ratios  
Marine gear lube oil capacity approx.  
(Does not include heat exchanger &  
connections used externally) - pts (litre)  
(Marine gear must use straight viscosity oil)  
Electrical system  
Recommended battery capacity (CCA @ 0°F (-18°C))  
24 Volt system above 32°F (0°C)  
Dimensions & weight  
Length - in (mm)  
Width - in (mm)  
Height - in (mm)  
Weight, dry - lbs (kg)  
Maximum installation angle

NEW AIR INDUCTION WITH  
BLOWER PRESSURE RELIEF VALVE  
9082-7301  
8  
5.75 X 5.75 (146 X 146)  
1195 (19.6)  
16:1  
1L-3R-3L-4R-4L-2R-2L-1R  
1L-1R-2L-2R-4L-4R-3L-3R  
NOT DETERMINED  
NOT DETERMINED  
NOT DETERMINED  
24 VOLTS  
950  
64 (1625)  
64 (1625)  
68 (1727)  
6000 (2727)  
10°

### Technical Engine Specification

Injector (timing)  
Turbocharger  
Engine speed - r/min  
Brake horsepower - bhp (kW)  
77°F, 29.31 in Hg (Dry) Bar., J-1349  
Shaft horsepower - shp (kW)  
BMEP - lb/in<sup>2</sup> (kPa)  
Peak torque - lb ft (N m) @ r/min  
Fuel consumption - lb/hr (kg/hr)  
Fuel consumption - gal/hr (litre/hr)  
Specific fuel cons. - lb/bhp hr (g/kW hr)  
Air consumption - ft<sup>3</sup>/min (m<sup>3</sup>/min)  
Suggested minimum engine room vent area - in<sup>2</sup> (cm<sup>2</sup>)  
Maximum engine room depression 0.2 in. H<sub>2</sub>O  
Maximum allowable temperature rise  
(Outside air to engine inlet) - °F (°C)

145 (2,205)  
TV8401 (1.23 A/R)  
1800  
705 (526)  
680 (507)  
130 (894)  
2135 (2895) @ 1400  
261.0 (118.4)  
37.3 (141.2)  
.369 (224)  
2100 (59) \*  
202 (1303)  
30 (17)

\* Must use outside air supply.

Curve No. E4-9082-32-6  
Date: 9-24-85  
Rev./Date: 1/10-9-85  
Sht. 2 of 3

## ENGINE SPECIFICATION

### Cooling System - Heat Exchanger or Keel Cooler

|                                                              |               |
|--------------------------------------------------------------|---------------|
| Fresh water capacity - gal (litre)                           | 22.8 (86.1)   |
| Heat rejection to coolant - Btu/min (kW)                     | 25000 (439) * |
| Fresh water flow - gal/min (litre/min)                       | 278 (1052)    |
| Raw water flow - gal/min (litre/min)                         | 172 (651)     |
| Maximum inlet restriction at raw water pump -<br>In Hg (kPa) | 5 (16.9)      |
| Maximum raw water pump pressure - lb/in <sup>2</sup> (kPa)   | 10 (69.0)     |
| Suggested raw water pipe size - in (mm)                      | 2.5 (63.5)    |
| Suggested sea strainer size - simplex - in (mm)              | 3 (76)        |
| - duplex - in (mm)                                           | 4 (102)       |
| Max. press. drop thru keel cooler - lb/in <sup>2</sup> (kPa) | 6 (41)        |
| Maximum water out temperature - °F (°C)                      | 200 (93)      |

### Fuel System

|                                                                    |               |
|--------------------------------------------------------------------|---------------|
| Fuel pump flow - gal/hr (litre/hr)                                 | 320 (1211)    |
| Maximum inlet restriction at pump - In Hg (kPa)<br>(clean filters) | 6 (20.3)      |
| Supply line dia. - in (mm)                                         | 1 (25.4) min. |

### Exhaust System

|                                                                                   |              |
|-----------------------------------------------------------------------------------|--------------|
| Gas flow - lb/min (kg/min)                                                        | 156.0 (70.7) |
| Exhaust temperature - °F (°C)                                                     | 740 (393)    |
| Maximum exhaust back pressure at turbocharger<br>outlet (full load) - In Hg (kPa) | 2.5 (8.5)    |

### Lubrication System

|                                                           |                   |
|-----------------------------------------------------------|-------------------|
| Engine lube oil capacity - qts (litre)                    | 124 (117.3) *     |
| Lubrication oil press., normal - lb/in <sup>2</sup> (kPa) | 40-70 (276-483) * |
| Lubrication oil temp., in-pan - °F (°C)                   | 230 (110) max.    |

\* Tube and Shell Oil Cooler

Curve No. E4-9082-32-6  
Date: 9-24-85  
Rev./Date: 1/10-9-85  
Sht. 3 of 3



# ENGINE PERFORMANCE CURVE

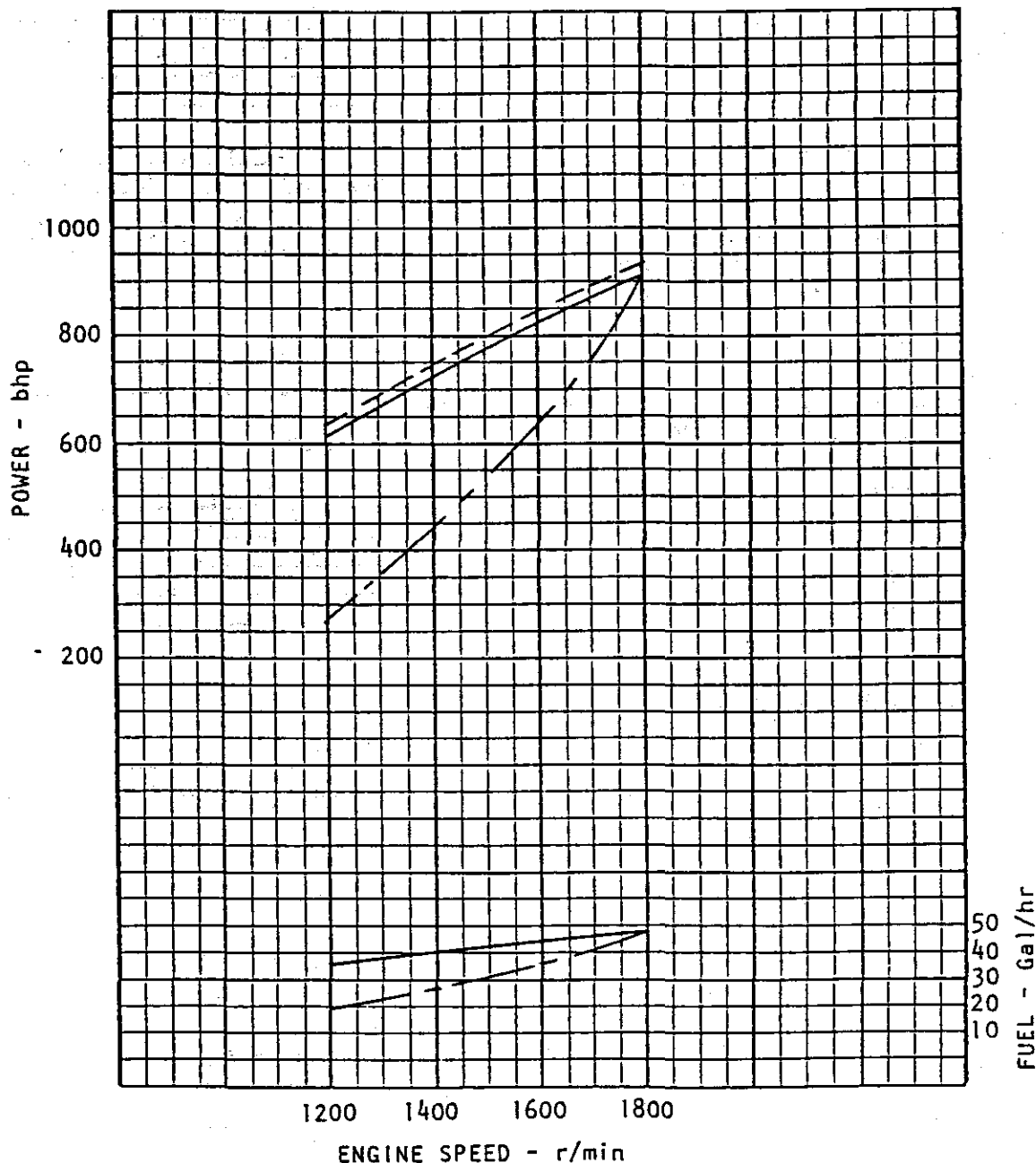
RATING: NET POWER

APPLICATION: MARINE - CONTINUOUS

MODEL: 12V-149TI

940 bhp @ 1800 r/min

912 shp @ 1800 r/min



--- BRAKE HORSEPOWER  
— SHAFT HORSEPOWER  
--- PROPELLER LOAD

AIR INTAKE RESTRICTION - in. H<sub>2</sub>O (mmH<sub>2</sub>O) : : : 10 (250)  
EXHAUST RESTRICTION - in. H<sub>2</sub>O (mmH<sub>2</sub>O) : : : 15 (380)  
ACCESSORIES: MARINE GEAR - 3% LOSS

- POWER OUTPUT GUARANTEED WITHIN 5% AT SAE J1349 CONDITIONS:  
77°F (25°C) AIR INLET TEMPERATURE; 29.31 in. Hg (99kPa) DRY BAROMETER;  
100°F (39°C) FUEL INLET TEMPERATURE (.85) SPECIFIC GRAVITY AT 60°F).
- CONVERSION FACTORS: POWER: kW = bhp x 0.746  
FUEL: kg/kW-hr = lb/bhp-hr x 0.608  
TORQUE: N-m = lb-ft x 1.356
- VALUES DERIVED ARE FROM CURRENTLY AVAILABLE DATA AND SUBJECT TO CHANGE WITHOUT NOTICE.

CERTIFIED BY:

*D.L. Graham*

11-27-83

STAFF ENGINEER

CURVE NO.

E4-9122-32-14

DATE: 10-24-83

REV./DATE: 1/9-10-85

SHT. 1 OF 3

## ENGINE SPECIFICATION

### General Engine Description:

#### Model

Number of cylinders

Bore and stroke - in (mm)

Displacement - in<sup>3</sup> (litre)

Compression ratio

Firing order

Clockwise rotation (RH)

Counter clockwise rotation (LH)

Marine gear type

Marine gear reduction ratios

Marine gear lube oil capacity approx.

(Does not include heat exchanger & connections used externally) - pts (litre)

(Marine gear must use straight viscosity oil)

Electrical system

Recommended battery capacity (CCA @ 0°F (-18°C))

24 Volt system above 32°F (0°C)

Dimensions & weight

Length - in (mm)

Width - in (mm)

Height - in (mm)

Weight, dry - lbs (kg)

Maximum installation angle

NEW AIR INDUCTION WITH  
BLOWER PRESSURE RELIEF VALVE

9122-7301

12

5.75 X 5.75 (146 X 146)

1792 (29.39)

16:1

1L-5L-3R-4R-3L-4L-2R-6R-2L-6L-1R-5R

1L-5R-1R-6L-2L-6R-2R-4L-3L-4R-3R-5L

TWIN DISC MG-540

7:1, 6.18:1, 5.17:1, 4.6:1

138 (65.3)

24 VOLTS

950

93 (2362)

62 (1575)

70 (1778)

13950 (6330) W/GEAR

15°

### Technical Engine Specification

Injector (timing)

Turbocharger

Engine speed - r/min

Brake horsepower - bhp (kW)

77°F, 29.31 in Hg (Dry) Bar., J-1349

Shaft horsepower - shp (kW)

BMEP - lb/in<sup>2</sup> (kPa)

Peak torque - lb ft (N m) @ r/min

Fuel consumption - lb/hr (kg/hr)

Fuel consumption - gal/hr (litre/hr)

Specific fuel cons. - lb/bhp<sub>3</sub> hr (g/kW hr)

Air consumption - ft<sup>3</sup>/min (m<sup>3</sup>/min)

Suggested minimum engine room vent area - in<sup>2</sup> (cm<sup>2</sup>)

Maximum engine room depression 0.2 in. H<sub>2</sub>O

Maximum allowable temperature rise

(Outside air to engine inlet) - °F (°C)

140 (2,205)

TV7111 (1.08 A/R)

1800

940 (701)

912 (680)

115 (792)

2851 (3866) @ 1400

335.6 (151.6)

48.0 (181.7)

.357 (217)

2750 (79) \*

264 (1704)

30 (17)

\* Must use outside air supply.

Curve No. E4-9122-32-14

Date: 10-24-83

Rev./Date: 1/9-10-85

Sht. 2 of 3

## ENGINE SPECIFICATION

### Cooling System - Heat Exchanger or Keel Cooler

|                                                              |               |
|--------------------------------------------------------------|---------------|
| Fresh water capacity - gal (litre)                           | 37 (140.1)    |
| Heat rejection to coolant - Btu/min (kW)                     | 28400 (499) * |
| Fresh water flow - gal/min (litre/min)                       | 360 (1363)    |
| Raw water flow - gal/min (litre/min)                         | 172 (651)     |
| Maximum inlet restriction at raw water pump -<br>In Hg (kPa) | 5 (16.93)     |
| Maximum raw water pump pressure - lb/in <sup>2</sup> (kPa)   | 10 (68.95)    |
| Suggested raw water pipe size - in (mm)                      | 2.5 (63.5)    |
| Suggested sea strainer size - simplex - in (mm)              | 3 (76)        |
| - duplex - in (mm)                                           | 4 (102)       |
| Max. press. drop thru keel cooler - lb/in <sup>2</sup> (kPa) | 6 (41)        |
| Maximum water out temperature - °F (°C)                      | 200 (93)      |

### Fuel System

|                                                                    |               |
|--------------------------------------------------------------------|---------------|
| Fuel pump flow - gal/hr (litre/hr)                                 | 370 (1400)    |
| Maximum inlet restriction at pump - In Hg (kPa)<br>(clean filters) | 6 (20.32)     |
| Supply line dia. - in (mm)                                         | 1 (25.4) min. |

### Exhaust System

|                                                                                   |              |
|-----------------------------------------------------------------------------------|--------------|
| Gas flow - lb/min (kg/min)                                                        | 204.1 (92.6) |
| Exhaust temperature - °F (°C)                                                     | 735 (391)    |
| Maximum exhaust back pressure at turbocharger<br>outlet (full load) - In Hg (kPa) | 2.5 (8.47)   |

### Lubrication System

|                                                           |                   |
|-----------------------------------------------------------|-------------------|
| Engine lube oil capacity - qts (litre)                    | 136 (128.7) *     |
| Lubrication oil press., normal - lb/in <sup>2</sup> (kPa) | 48-70 (331-483) * |
| Lubrication oil temp., in-pan - °F (°C)                   | 230 (110) max.    |

\* With 30 plate oil cooler.

Curve No. E4-9122-32-14  
Date: 10-24-83  
Rev./Date: 1/9-10-85  
Sht. 3 of 3



# ENGINE PERFORMANCE CURVE

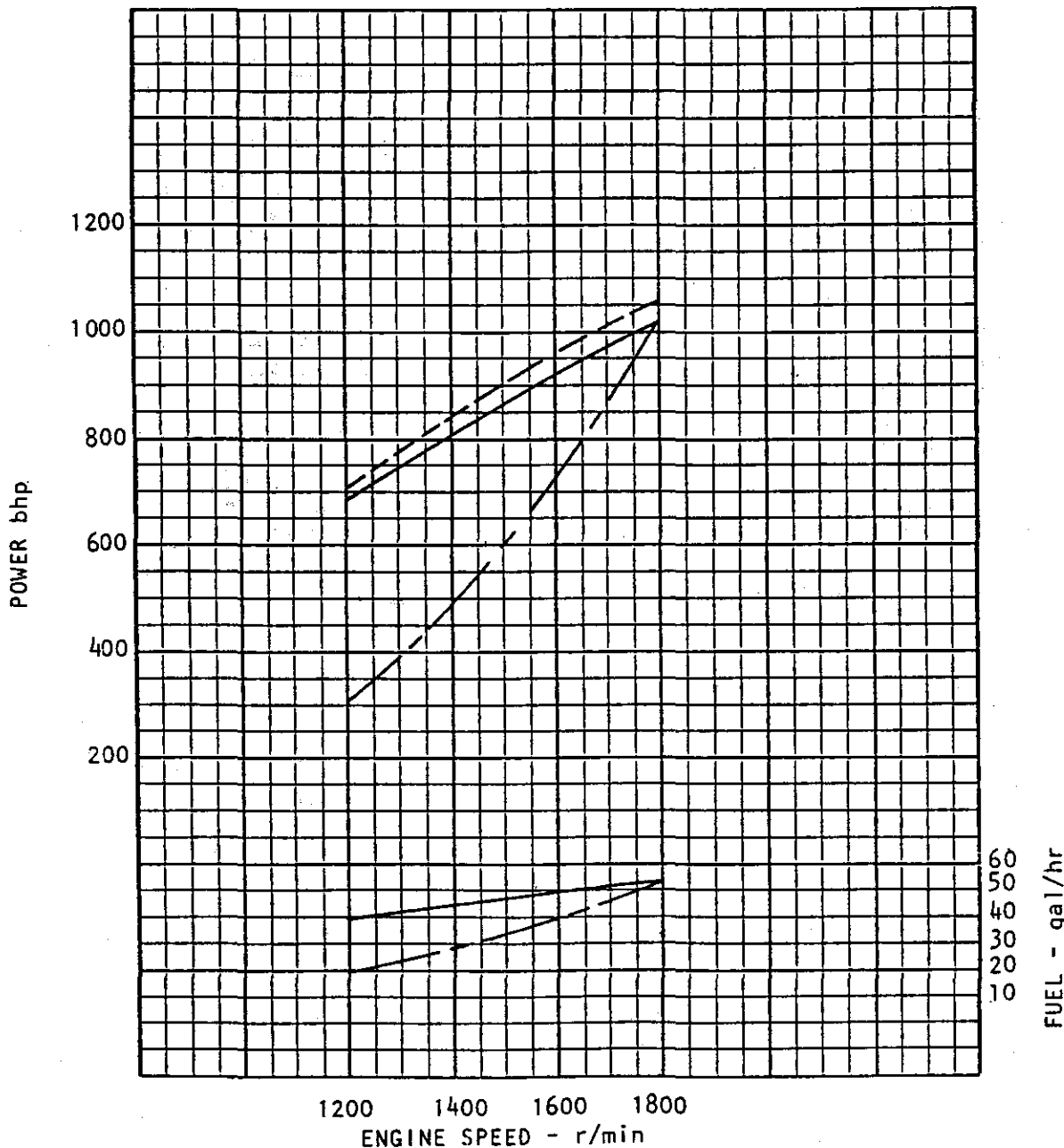
RATING: NET POWER

APPLICATION: MARINE-CONTINUOUS

MODEL: 12V-149TI

1055 bhp @ 1800 r/min

1025 shp @ 1800 r/min



BRAKE HORSEPOWER  
SHAFT HORSEPOWER  
PROPELLER LOAD

ACCESSORIES: MARINE GEAR - 3% LOSS  
AIR INTAKE RESTRICTION - in. H<sub>2</sub>O (kPa) . . . . 10 (2.5)  
EXHAUST BACK PRESSURE - in. H<sub>2</sub>O (kPa) . . . . 15 (3.7)

- POWER OUTPUT GUARANTEED WITHIN 5% AT SAE J1349 CONDITIONS:  
77°F (25°C) AIR INLET TEMPERATURE; 29.31 in. Hg (99kPa) DRY BAROMETER;  
100°F (39°C) FUEL INLET TEMPERATURE (.853 SPECIFIC GRAVITY AT 60°F).
- CONVERSION FACTORS: POWER: kW = bhp x 0.746  
FUEL: kg/kW-hr = lb/bhp-hr x 0.608  
TORQUE: N-m = lb-ft x 1.356
- VALUES DERIVED ARE FROM CURRENTLY AVAILABLE DATA AND SUBJECT TO CHANGE WITHOUT NOTICE.

CERTIFIED BY:

9/23/85

STAFF ENGINEER

CURVE NO.

E4-9122-32-21

DATE: 8-29-85

REV./DATE:

SHT. 1 OF 3

## ENGINE SPECIFICATION

### General Engine Description:

#### Model

Number of cylinders  
Bore and stroke - in (mm)  
Displacement - in<sup>3</sup> (litre)  
Compression ratio  
Firing order  
Clockwise rotation (RH)  
Counter clockwise rotation (LH)  
Marine gear type  
Marine gear reduction ratios  
Marine gear lube oil capacity approx.  
(Does not include heat exchanger &  
connections used externally) - pts (litre)  
(Marine gear must use straight viscosity oil)  
Electrical system  
Recommended battery capacity (CCA @ 0°F (-18°C))  
24 Volt system above 32°F (0°C)  
Dimensions & weight  
Length - in (mm)  
Width - in (mm)  
Height - in (mm)  
Weight, dry - lbs (kg)  
Maximum installation angle

|                                                        |  |
|--------------------------------------------------------|--|
| NEW AIR INDUCTION WITH<br>BLOWER PRESSURE RELIEF VALVE |  |
| 9122-7301                                              |  |
| 12                                                     |  |
| 5.75 X 5.75 (146 X 146)                                |  |
| 1792 (29.39)                                           |  |
| 16:1                                                   |  |
| 1L-5L-3R-4R-3L-4L-2R-6R-2L-6L-1R-5R                    |  |
| 1L-5R-1R-6L-2L-6R-2R-4L-3L-4R-3R-5L                    |  |
| TWIN DISC MG-540                                       |  |
| 7:1.6.18:1.5.17:1.4.6:1                                |  |
| 138 (65.3)                                             |  |
| 24 VOLTS                                               |  |
| 950                                                    |  |
| 93 (2362)                                              |  |
| 62 (1575)                                              |  |
| 70 (1778)                                              |  |
| 13950 (6330) W/GEAR                                    |  |
| 15°                                                    |  |

### Technical Engine Specification

Injector (timing)  
Turbocharger  
Engine speed - r/min  
Brake horsepower - bhp (kW)  
77°F, 29.31 in Hg (Dry) Bar., J-1349  
Shaft horsepower - shp (kW)  
BMEP - lb/in<sup>2</sup> (kPa)  
Peak torque - lb ft (N m) @ r/min  
Fuel consumption - lb/hr (kg/hr)  
Fuel consumption - gal/hr (litre/hr)  
Specific fuel cons. - lb/bhp hr (g/kW hr)  
Air consumption - ft<sup>3</sup>/min (m<sup>3</sup>/min)  
Suggested minimum engine room vent area - in<sup>2</sup> (cm<sup>2</sup>)  
Maximum engine room depression 0.2 in. H<sub>2</sub>O  
Maximum allowable temperature rise  
(Outside air to engine inlet) - °F (°C)

|                    |
|--------------------|
| 145 (2,205)        |
| TV7111 (1.08 A/R)  |
| 1800               |
| 1055 (787)         |
| 1025 (765)         |
| 129 (889)          |
| 3170 (4299) @ 1400 |
| 377.7 (171)        |
| 54.0 (204)         |
| .358 (218)         |
| 3100 (89)*         |
| 298 (1924)         |
| 30 (17)            |

\* Must use outside air.

Curve No. E4-9122-32-21  
Date: 8-29-85  
Rev./Date:  
Sht. 2 of 3

## ENGINE SPECIFICATION

### Cooling System - Heat Exchanger or Keel Cooler

|                                                              |             |
|--------------------------------------------------------------|-------------|
| Fresh water capacity - gal (litre)                           | 37 (140.1)  |
| Heat rejection to coolant - Btu/min (kW)                     | 32200 (566) |
| Fresh water flow - gal/min (litre/min)                       | 380 (1438)  |
| Raw water flow - gal/min (litre/min)                         | 172 (651)   |
| Maximum inlet restriction at raw water pump -<br>In Hg (kPa) | 5 (16.93)   |
| Maximum raw water pump pressure - lb/in <sup>2</sup> (kPa)   | 10 (68.95)  |
| Suggested raw water pipe size - in (mm)                      | 2.5 (63.5)  |
| Suggested sea strainer size - simplex - in (mm)              | 3 (76)      |
| - duplex - in (mm)                                           | 4 (102)     |
| Max. press. drop thru keel cooler - lb/in <sup>2</sup> (kPa) | 6 (41)      |
| Maximum water out temperature - °F (°C)                      | 200 (93)    |

### Fuel System

|                                                                    |               |
|--------------------------------------------------------------------|---------------|
| Fuel pump flow - gal/hr (litre/hr)                                 | 370 (1400)    |
| Maximum inlet restriction at pump - In Hg (kPa)<br>(clean filters) | 6 (20.32)     |
| Supply line dia. - in (mm)                                         | 1 (25.4) min. |

### Exhaust System

|                                                                                   |               |
|-----------------------------------------------------------------------------------|---------------|
| Gas flow - lb/min (kg/min)                                                        | 230.1 (104.4) |
| Exhaust temperature - °F (°C)                                                     | 715 (379)     |
| Maximum exhaust back pressure at turbocharger<br>outlet (full load) - In Hg (kPa) | 2.5 (8.47)    |

### Lubrication System

|                                                           |                 |
|-----------------------------------------------------------|-----------------|
| Engine lube oil capacity - qts (litre)                    | 136 (128.7)     |
| Lubrication oil press., normal - lb/in <sup>2</sup> (kPa) | 48-70 (331-483) |
| Lubrication oil temp., in-pan - °F (°C)                   | 230 (110) max.  |

Curve No. E4-9122-32-21  
Date: 8-29-85  
Rev./Date:  
Sht. 3 of 3

## ENGINE SPECIFICATION

### Cooling System - Heat Exchanger or Keel Cooler

|                                                              |               |
|--------------------------------------------------------------|---------------|
| Fresh water capacity - gal (litre)                           | 45.5 (172.2)  |
| Heat rejection to coolant - Btu/min (kW)                     | 37600 (661) * |
| Fresh water flow - gal/min (litre/min)                       | 530 (2006)    |
| Raw water flow - gal/min (litre/min)                         | 172 (651)     |
| Maximum inlet restriction at raw water pump -<br>In Hg (kPa) | 5 (16.93)     |
| Maximum raw water pump pressure - lb/in <sup>2</sup> (kPa)   | 10 (68.95)    |
| Suggested raw water pipe size - in (mm)                      | 2.5 (63.5)    |
| Suggested sea strainer size - simplex - in (mm)              | 3 (76)        |
| - duplex - in (mm)                                           | 4 (102)       |
| Max. press. drop thru keel cooler - lb/in <sup>2</sup> (kPa) | 6 (41)        |
| Maximum water out temperature - °F (°C)                      | 200 (93)      |

### Fuel System

|                                                                    |               |
|--------------------------------------------------------------------|---------------|
| Fuel pump flow - gal/hr (litre/hr)                                 | 370 (1400)    |
| Maximum inlet restriction at pump - in Hg (kPa)<br>(clean filters) | 6 (20.32)     |
| Supply line dia. - in (mm)                                         | 1 (25.4) min. |

### Exhaust System

|                                                                                   |               |
|-----------------------------------------------------------------------------------|---------------|
| Gas flow - lb/min (kg/min)                                                        | 274.5 (124.5) |
| Exhaust temperature - °F (°C)                                                     | 670 (354)     |
| Maximum exhaust back pressure at turbocharger<br>outlet (full load) - in Hg (kPa) | 2.5 (8.47)    |

### Lubrication System

|                                                           |                   |
|-----------------------------------------------------------|-------------------|
| Engine lube oil capacity - qts (litre)                    | 176 (166.6) *     |
| Lubrication oil press., normal - lb/in <sup>2</sup> (kPa) | 48-70 (331-483) * |
| Lubrication oil temp., in-pan - °F (°C)                   | 230 (110) max.    |

\* With Tube and Shell Oil Cooler, use data below.

Heat Rejection - 39600 (696) Btu/min (kW)  
Oil Capacity - 200 (189.3) qts (Litre)  
Oil Pressure - 40-70 (276-483) lb/in<sup>2</sup> (kPa)

Curve No. E4-9162-32-27  
Date: 1-25-85  
Rev./Date: 1/9-20-85  
Sht. 3 of 3



## ENGINE PERFORMANCE CURVE

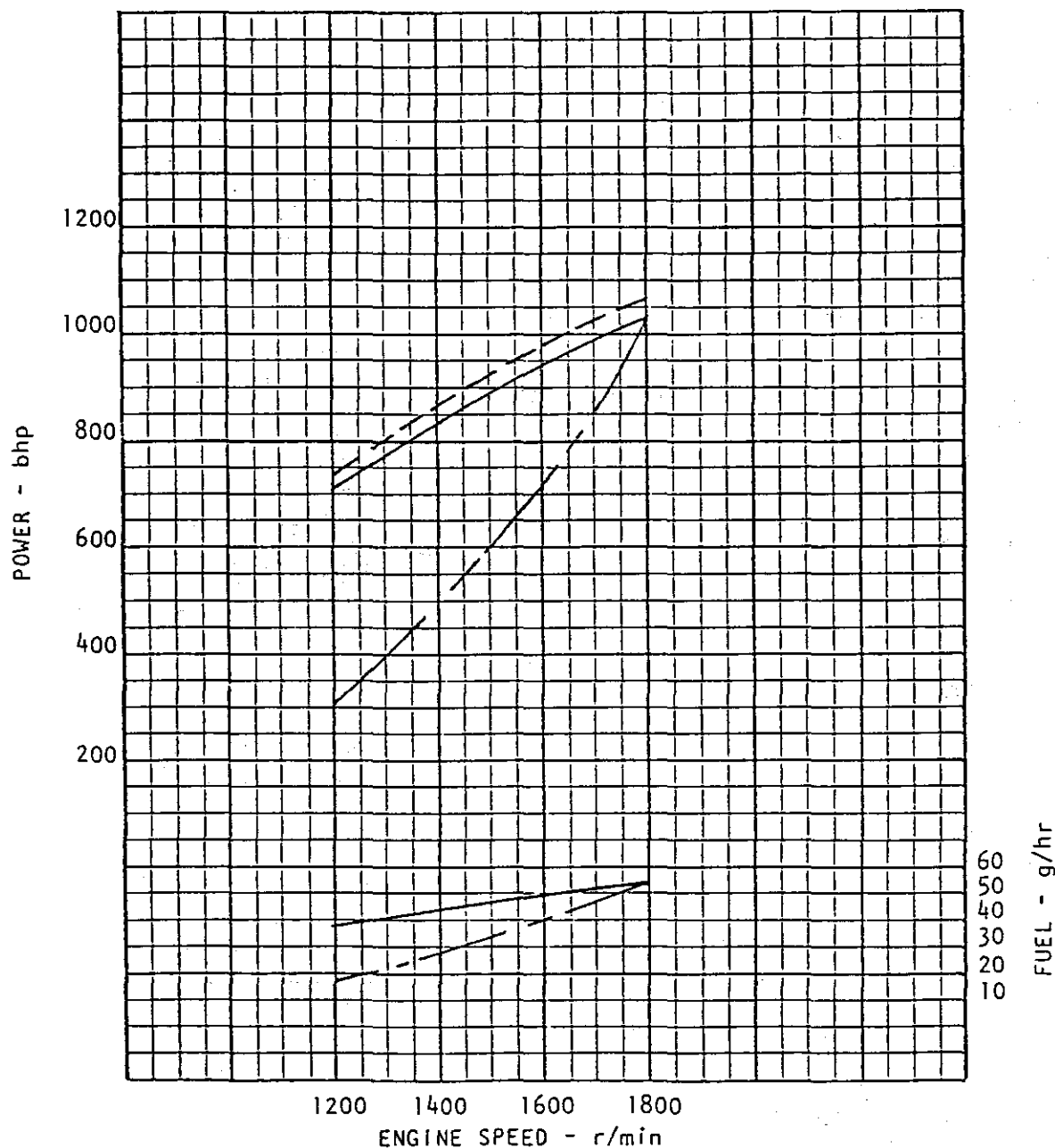
RATING: NET POWER

APPLICATION: MARINE - CONTINUOUS

MODEL: 16V-149TI

1070 bhp @ 1800 r/min

1035 shp @ 1800 r/min



--- BRAKE HORSEPOWER  
--- SHAFT HORSEPOWER  
--- PROPELLER LOAD

ACCESSORIES - MARINE GEAR - 3% LOSS  
AIR INTAKE RESTRICTION - in. H<sub>2</sub>O (kPa) . . . 10 (2.5)  
EXHAUST BACK PRESSURE - in. H<sub>2</sub>O (kPa) . . . 15 (3.7)

- POWER OUTPUT GUARANTEED WITHIN 5% AT SAE J1349 CONDITIONS:  
77°F (25°C) AIR INLET TEMPERATURE; 29.31 in. Hg (99kPa) DRY BAROMETER;  
100°F (39°C) FUEL INLET TEMPERATURE (.853 SPECIFIC GRAVITY AT 60°F).
- CONVERSION FACTORS: POWER: kW = bhp x 0.746  
FUEL: kg/kW-hr = lb/bhp-hr x 0.608  
TORQUE: N-m = lb-ft x 1.356
- VALUES DERIVED ARE FROM CURRENTLY AVAILABLE DATA AND SUBJECT TO CHANGE WITHOUT NOTICE.

CERTIFIED BY:

*J. J. Vignola*  
3/23/83

STAFF ENGINEER

CURVE NO.

E4-9162-32-28

DATE: 3-19-85

REV./DATE: 1/9-20-85

SHT. 1 OF 3

## ENGINE SPECIFICATION

### General Engine Description:

|                                                                                                                                                                            |                                                 |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|
| Model                                                                                                                                                                      | NEW AIR INDUCTION WITH                          |
| Number of cylinders                                                                                                                                                        | BLOWER PRESSURE RELIEF VALVE                    |
| Bore and stroke - in (mm)                                                                                                                                                  | 9162-7301                                       |
| Displacement - in <sup>3</sup> (litre)                                                                                                                                     | 16                                              |
| Compression ratio                                                                                                                                                          | 5.75 X 5.75 (146 X 146)                         |
| Firing order                                                                                                                                                               | 2389 (39.18)                                    |
| Clockwise rotation (RH)                                                                                                                                                    | 16:1                                            |
| Counter clockwise rotation (LH)                                                                                                                                            | 1L-2R-8L-6R-2L-4R-6L-5R-4L-3R-5L-7R-3L-1R-7L-8R |
| Marine gear type                                                                                                                                                           | 1L-8R-7L-1R-3L-7R-5L-3R-4L-5R-6L-4R-2L-6R-8L-2R |
| Marine gear reduction ratios                                                                                                                                               | NOT DETERMINED                                  |
| Marine gear lube oil capacity approx.<br>(Does not include heat exchanger &<br>connections used externally) - pts (litre)<br>(Marine gear must use straight viscosity oil) | NOT DETERMINED                                  |
| Electrical system                                                                                                                                                          | NOT DETERMINED                                  |
| Recommended battery capacity (CCA @ 0°F (-18°C))<br>24 Volt system above 32°F (0°C)                                                                                        | 24 VOLTS                                        |
| Dimensions & weight                                                                                                                                                        | 950                                             |
| Length - in (mm)                                                                                                                                                           | 106 (2692)                                      |
| Width - in (mm)                                                                                                                                                            | 64 (1625)                                       |
| Height - in (mm)                                                                                                                                                           | 68 (1727)                                       |
| Weight, dry - lbs (kg)                                                                                                                                                     | 11950 (5431)                                    |
| Maximum installation angle                                                                                                                                                 | 15°                                             |

### Technical Engine Specification

|                                                                               |                    |
|-------------------------------------------------------------------------------|--------------------|
| Injector (timing)                                                             | 120 (2.205)        |
| Turbocharger                                                                  | TV8401 (1.23 A/R)  |
| Engine speed - r/min                                                          | 1800               |
| Brake horsepower - bhp (kW)<br>77°F, 29.31 in Hg (Dry) Bar., J-1349           | 1070 (798)         |
| Shaft horsepower - shp (kW)                                                   | 1035 (772)         |
| BMEP - lb/in <sup>2</sup> (kPa)                                               | 99 (682)           |
| Peak torque - lb ft (N m) @ r/min                                             | 3264 (4426) @ 1400 |
| Fuel consumption - lb/hr (kg/hr)                                              | 378 (171)          |
| Fuel consumption - gal/hr (litre/hr)                                          | 54.0 (204.4)       |
| Specific fuel cons. - lb/bhp hr (g/kW hr)                                     | .353 (215)         |
| Air consumption - ft <sup>3</sup> /min (m <sup>3</sup> /min)                  | 3500 (99) *        |
| Suggested minimum engine room vent area - in <sup>2</sup> (cm <sup>2</sup> )  |                    |
| Maximum engine room depression 0.2 in. H <sub>2</sub> O                       | 336 (2167)         |
| Maximum allowable temperature rise<br>(Outside air to engine inlet) - °F (°C) | 30 (17)            |

\* Must use outside air supply.

Curve No. E4-9162-32-28  
Date: 3-19-85  
Rev./Date: 1/9-20-85  
Sht. 2 of 3

## ENGINE SPECIFICATION

### Cooling System - Heat Exchanger or Keel Cooler

|                                                              |               |
|--------------------------------------------------------------|---------------|
| Fresh water capacity - gal (litre)                           | 45.5 (172.2)  |
| Heat rejection to coolant - Btu/min (kW)                     | 33500 (589) * |
| Fresh water flow - gal/min (litre/min)                       | 530 (2006)    |
| Raw water flow - gal/min (litre/min)                         | 172 (651)     |
| Maximum inlet restriction at raw water pump -<br>In Hg (kPa) | 5 (16.93)     |
| Maximum raw water pump pressure - lb/in <sup>2</sup> (kPa)   | 10 (68.95)    |
| Suggested raw water pipe size - in (mm)                      | 2.5 (63.5)    |
| Suggested sea strainer size - simplex - in (mm)              | 3 (76)        |
| - duplex - in (mm)                                           | 4 (102)       |
| Max. press. drop thru keel cooler - lb/in <sup>2</sup> (kPa) | 6 (41)        |
| Maximum water out temperature - °F (°C)                      | 200 (93)      |

### Fuel System

|                                                                    |               |
|--------------------------------------------------------------------|---------------|
| Fuel pump flow - gal/hr (litre/hr)                                 | 370 (1400)    |
| Maximum inlet restriction at pump - in Hg (kPa)<br>(clean filters) | 6 (20.32)     |
| Supply line dia. - in (mm)                                         | 1 (25.4) min. |

### Exhaust System

|                                                                                   |             |
|-----------------------------------------------------------------------------------|-------------|
| Gas flow - lb/min (kg/min)                                                        | 259 (117.5) |
| Exhaust temperature - °F (°C)                                                     | 660 (349)   |
| Maximum exhaust back pressure at turbocharger<br>outlet (full load) - in Hg (kPa) | 2.5 (8.47)  |

### Lubrication System

|                                                           |                   |
|-----------------------------------------------------------|-------------------|
| Engine lube oil capacity - qts (litre)                    | 176 (166.6) *     |
| Lubrication oil press., normal - lb/in <sup>2</sup> (kPa) | 48-70 (331-483) * |
| Lubrication oil temp., in-pan - °F (°C)                   | 230 (110) max.    |

\* With Tube and Shell Oil Cooler, use data below.

Heat Rejection - 35300 (621) Btu/min (kW)  
Oil Capacity - 200 (189.3) qts (Litres)  
Oil Pressure - 40-70 (276-483) lb/in<sup>2</sup> (kPa)

Curve No. E4-9162-32-28  
Date: 3-19-85  
Rev./Date: 1/9-20-85  
Sht. 3 of 3



# ENGINE PERFORMANCE CURVE

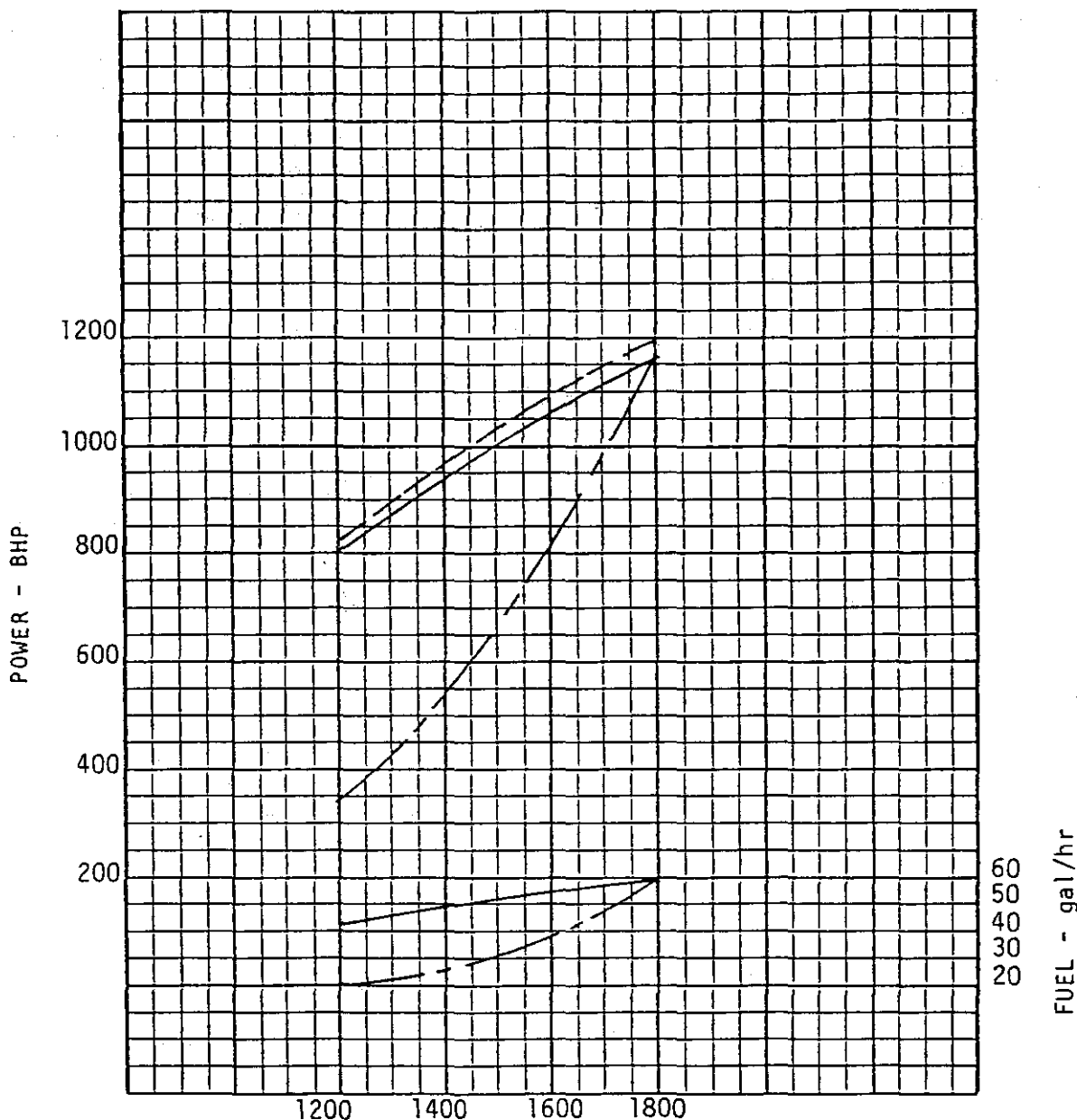
RATING: NET POWER

APPLICATION: MARINE - CONTINUOUS

MODEL: 16V-149TI

1200 bhp @ 1800 rpm

1161 shp @ 1800 rpm



----- BRAKE HORSEPOWER  
 \_\_\_\_\_ SHAFT HORSEPOWER  
 - - - - - PROPELLER LOAD

ACCESSORIES - MARINE GEAR - 3% LOSS

AIR INTAKE RESTRICTION - in. H<sub>2</sub>O (kPa) . . . . . 10 (2.5)

EXHAUST BACK PRESSURE - in. H<sub>2</sub>O (kPa) . . . . . 15 (3.7)

- POWER OUTPUT GUARANTEED WITHIN 5% AT SAE J1349 CONDITIONS:  
 77°F (25°C) AIR INLET TEMPERATURE; 29.31 in. Hg (99kPa) DRY BARMETER;  
 100°F (39°C) FUEL INLET TEMPERATURE (.853 SPECIFIC GRAVITY AT 60°F).
- CONVERSION FACTORS: POWER: kW = bhp x 0.746  
 FUEL: kg/kW-hr = lb/bhp-hr x 0.608  
 TORQUE: N-m = lb-ft x 1.356
- VALUES DERIVED ARE FROM CURRENTLY AVAILABLE DATA AND SUBJECT TO CHANGE WITHOUT NOTICE.

CERTIFIED BY:

*J. Scarz*  
 5/5/85

STAFF ENGINEER

CURVE NO.

E4-9162-32-27

DATE: 1-25-85

REV./DATE: 1/9-20-85

SHT. 1 OF 3

## ENGINE SPECIFICATION

### General Engine Description:

|                                                                                                                                                                            |                                                                     |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|
| Model                                                                                                                                                                      | NEW AIR INDUCTION WITH<br>BLOWER PRESSURE RELIEF VALVE<br>9162-7301 |
| Number of cylinders                                                                                                                                                        | 16                                                                  |
| Bore and stroke - in (mm)                                                                                                                                                  | 5.75 X 5.75 (146 X 146)                                             |
| Displacement - in <sup>3</sup> (litre)                                                                                                                                     | 2389 (39.18)                                                        |
| Compression ratio                                                                                                                                                          | 16:1                                                                |
| Firing order                                                                                                                                                               |                                                                     |
| Clockwise rotation (RH)                                                                                                                                                    | 1L-2R-8L-6R-2L-4R-6L-5R-4L-3R-5L-7R-3L-1R-7L-8R                     |
| Counter clockwise rotation (LH)                                                                                                                                            | 1L-8R-7L-1R-3L-7R-5L-3R-4L-5R-6L-4R-2L-6R-8L-2R                     |
| Marine gear type                                                                                                                                                           | NOT DETERMINED                                                      |
| Marine gear reduction ratios                                                                                                                                               | NOT DETERMINED                                                      |
| Marine gear lubè oil capacity approx.<br>(Does not include heat exchanger &<br>connections used externally) - pts (litre)<br>(Marine gear must use straight viscosity oil) | NOT DETERMINED                                                      |
| Electrical system                                                                                                                                                          | 24 VOLTS                                                            |
| Recommended battery capacity (CCA @ 0°F (-18°C))<br>24 Volt system above 32°F (0°C)                                                                                        | 950                                                                 |
| Dimensions & weight                                                                                                                                                        |                                                                     |
| Length - in (mm)                                                                                                                                                           | 106 (2692)                                                          |
| Width - in (mm)                                                                                                                                                            | 64 (1625)                                                           |
| Height - in (mm)                                                                                                                                                           | 68 (1727)                                                           |
| Weight, dry - lbs (kg)                                                                                                                                                     | 11950 (5431)                                                        |
| Maximum installation angle                                                                                                                                                 | 15°                                                                 |

### Technical Engine Specification

|                                                                               |                    |
|-------------------------------------------------------------------------------|--------------------|
| Injector (timing)                                                             | 130 (2,205)        |
| Turbocharger                                                                  | TV8401 (1.23 A/R)  |
| Engine speed - r/min                                                          | 1800               |
| Brake horsepower - bhp (kW)<br>77°F, 29.31 in Hg (Dry) Bar., J-1349           | 1200 (895)         |
| Shaft horsepower - shp (kW)                                                   | 1161 (886)         |
| BMEP - lb/in <sup>2</sup> (kPa)                                               | 111 (765)          |
| Peak torque - lb ft (N m) @ r/min                                             | 3639 (4934) @ 1400 |
| Fuel consumption - lb/hr (kg/hr)                                              | 421.4 (191)        |
| Fuel consumption - gal/hr (litre/hr)                                          | 60.2 (227.9)       |
| Specific fuel cons. - lb/bhp hr (g/kW hr)                                     | .351 (213)         |
| Air consumption - ft <sup>3</sup> /min (m <sup>3</sup> /min)                  | 3700 (105) *       |
| Suggested minimum engine room vent area - in <sup>2</sup> (cm <sup>2</sup> )  |                    |
| Maximum engine room depression 0.2 in. H <sub>2</sub> O                       | 355 (2290)         |
| Maximum allowable temperature rise<br>(Outside air to engine inlet) - °F (°C) | 30 (17)            |

\* Must use outside air supply.

Curve No. E4-9162-32-27  
Date: 1-25-85  
Rev./Date: 1/9-20-85  
Sht. 2 of 3



## ENGINE PERFORMANCE CURVE

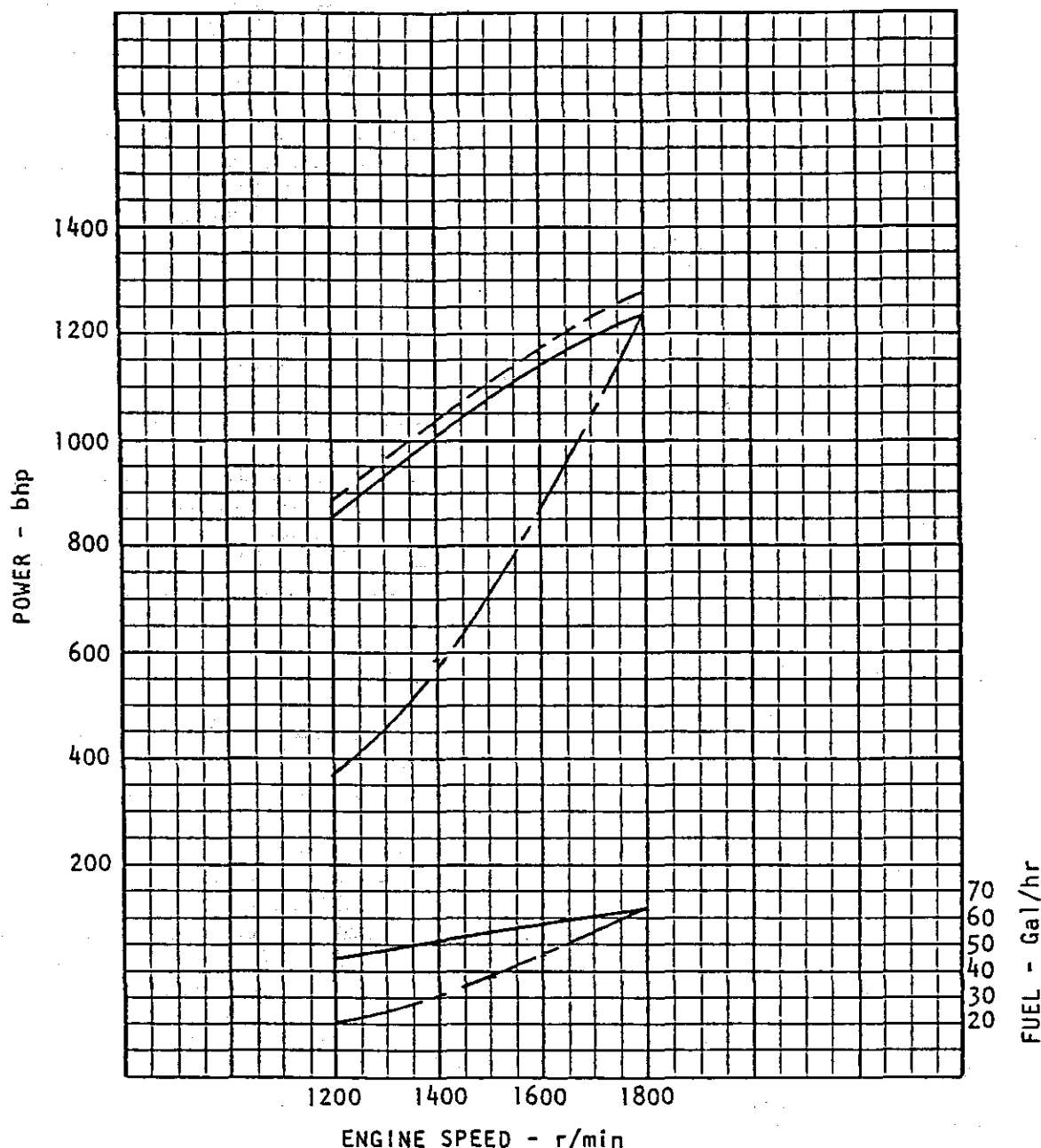
RATING: NET POWER

APPLICATION: MARINE CONTINUOUS

MODEL: 16V-149T1

1280 bhp @ 1800 r/min

1242 shp @ 1800 r/min



--- BRAKE HORSEPOWER  
— SHAFT HORSEPOWER  
--- PROPELLER LOAD

AIR INTAKE RESTRICTION - in. H<sub>2</sub>O (mmH<sub>2</sub>O) : : : 10 (250)  
EXHAUST RESTRICTION - in. H<sub>2</sub>O (mmH<sub>2</sub>O) : : : 15 (380)  
ACCESSORIES: MARINE GEAR 3% LOSS

- POWER OUTPUT GUARANTEED WITHIN 5% AT SAE J1349 CONDITIONS:  
77°F (25°C) AIR INLET TEMPERATURE; 29.31 in. Hg (99kPa) DRY BAROMETER;  
100°F (39°C) FUEL INLET TEMPERATURE (.85) SPECIFIC GRAVITY AT 60°F).
- CONVERSION FACTORS: POWER: kW = bhp x 0.746  
FUEL: kg/kW-hr = lb/bhp-hr x 0.608  
TORQUE: N-m = lb-ft x 1.356
- VALUES DERIVED ARE FROM CURRENTLY AVAILABLE DATA AND SUBJECT TO CHANGE WITHOUT NOTICE.

CERTIFIED BY:

*D. L. Graham*  
11-27-83

STAFF ENGINEER

CURVE NO.

E4-9162-32-19

DATE: 10-24-83

REV./DATE: 1/9-10-85

SHT. 1 OF 3

## ENGINE SPECIFICATION

### General Engine Description:

|                                                                                                                           |                                                        |
|---------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|
| Model                                                                                                                     | NEW AIR INDUCTION WITH<br>BLOWER PRESSURE RELIEF VALVE |
| Number of cylinders                                                                                                       | 9162-7301                                              |
| Bore and stroke - in (mm)                                                                                                 | 16                                                     |
| Displacement - in <sup>3</sup> (litre)                                                                                    | 5.75 X 5.75 (146 X 146)                                |
| Compression ratio                                                                                                         | 2389 (39.18)                                           |
| Firing order                                                                                                              | 16:1                                                   |
| Clockwise rotation (RH)                                                                                                   | 1L-2R-8L-6R-2L-4R-6L-5R-4L-3R-5L-7R-3L-1R-7L-8R        |
| Counter clockwise rotation (LH)                                                                                           | 1L-8R-7L-1R-3L-7R-5L-3R-4L-5R-6L-4R-2L-6R-8L-2R        |
| Marine gear type                                                                                                          | NOT DETERMINED                                         |
| Marine gear reduction ratios                                                                                              | NOT DETERMINED                                         |
| Marine gear lube oil capacity approx.<br>(Does not include heat exchanger &<br>connections used externally) - pts (litre) |                                                        |
| (Marine gear must use straight viscosity oil)                                                                             | NOT DETERMINED                                         |
| Electrical system                                                                                                         | 24 VOLTS                                               |
| Recommended battery capacity (CCA @ 0°F (-18°C))                                                                          |                                                        |
| 24 Volt system above 32°F (0°C)                                                                                           | 950                                                    |
| Dimensions & weight                                                                                                       |                                                        |
| Length - in (mm)                                                                                                          | 106 (2692)                                             |
| Width - in (mm)                                                                                                           | 64 (1625)                                              |
| Height - in (mm)                                                                                                          | 68 (1727)                                              |
| Weight, dry - lbs (kg)                                                                                                    | 11950 (5431)                                           |
| Maximum installation angle                                                                                                | 15°                                                    |

### Technical Engine Specification

|                                                                               |                    |
|-------------------------------------------------------------------------------|--------------------|
| Injector (timing)                                                             | 140 (2.205)        |
| Turbocharger                                                                  | TV8401 (1.23 A/R)  |
| Engine speed - r/min                                                          | 1800               |
| Brake horsepower - bhp (kW)                                                   |                    |
| 77°F, 29.31 in Hg (Dry) Bar., J-1349                                          | 1280 (955)         |
| Shaft horsepower - shp (kW)                                                   | 1242 (927)         |
| BMEP - lb/in <sup>2</sup> (kPa)                                               | 119 (822)          |
| Peak torque - lb ft (N m) @ r/min                                             | 3875 (5255) @ 1400 |
| Fuel consumption - lb/hr (kg/hr)                                              | 442 (200)          |
| Fuel consumption - gal/hr (litre/hr)                                          | 63.2 (239.1)       |
| Specific fuel cons. - lb/bhp hr (g/kW hr)                                     | 345 (210)          |
| Air consumption - ft <sup>3</sup> /min (m <sup>3</sup> /min)                  | 3900 (111) *       |
| Suggested minimum engine room vent area - in <sup>2</sup> (cm <sup>2</sup> )  |                    |
| Maximum engine room depression 0.2 in. H <sub>2</sub> O                       | 374 (2413)         |
| Maximum allowable temperature rise<br>(Outside air to engine inlet) - °F (°C) | 30 (17)            |

\* Must use outside air supply.

Curve No. E4-9162-32-19  
Date: 10-24-83  
Rev./Date: 1/9-10-85  
Sht. 2 of 3

## ENGINE SPECIFICATION

### Cooling System - Heat Exchanger or Keel Cooler

|                                                              |               |
|--------------------------------------------------------------|---------------|
| Fresh water capacity - gal (litre)                           | 45.5 (172.2)  |
| Heat rejection to coolant - Btu/min (kW)                     | 40000 (703) * |
| Fresh water flow - gal/min (litre/min)                       | 530 (2006)    |
| Raw water flow - gal/min (litre/min)                         | 172 (651)     |
| Maximum inlet restriction at raw water pump -<br>In Hg (kPa) | 5 (16.93)     |
| Maximum raw water pump pressure - lb/in <sup>2</sup> (kPa)   | 10 (68.95)    |
| Suggested raw water pipe size - in (mm)                      | 2.5 (63.5)    |
| Suggested sea strainer size - simplex - in (mm)              | 3 (76)        |
| - duplex - in (mm)                                           | 4 (102)       |
| Max. press. drop thru keel cooler - lb/in <sup>2</sup> (kPa) | 6 (41)        |
| Maximum water out temperature - °F (°C)                      | 200 (93)      |

### Fuel System

|                                                                    |               |
|--------------------------------------------------------------------|---------------|
| Fuel pump flow - gal/hr (litre/hr)                                 | 370 (1400)    |
| Maximum inlet restriction at pump - In Hg (kPa)<br>(clean filters) | 6 (20.32)     |
| Supply line dia. - in (mm)                                         | 1 (25.4) min. |

### Exhaust System

|                                                                                   |               |
|-----------------------------------------------------------------------------------|---------------|
| Gas flow - lb/min (kg/min)                                                        | 288.9 (131.0) |
| Exhaust temperature - °F (°C)                                                     | 685 (363)     |
| Maximum exhaust back pressure at turbocharger<br>outlet (full load) - In Hg (kPa) | 2.5 (8.47)    |

### Lubrication System

|                                                           |                   |
|-----------------------------------------------------------|-------------------|
| Engine lube oil capacity - qts (litre)                    | 176 (166.6) *     |
| Lubrication oil press., normal - lb/in <sup>2</sup> (kPa) | 48-70 (331-483) * |
| Lubrication oil temp., in-pan - °F (°C)                   | 230 (110) max.    |

\* With 30 plate oil cooler.

Curve No. E4-9162-32-19  
Date: 10-24-83  
Rev./Date: 1/9-10-85  
Sht. 3 of 3



## ENGINE PERFORMANCE CURVE

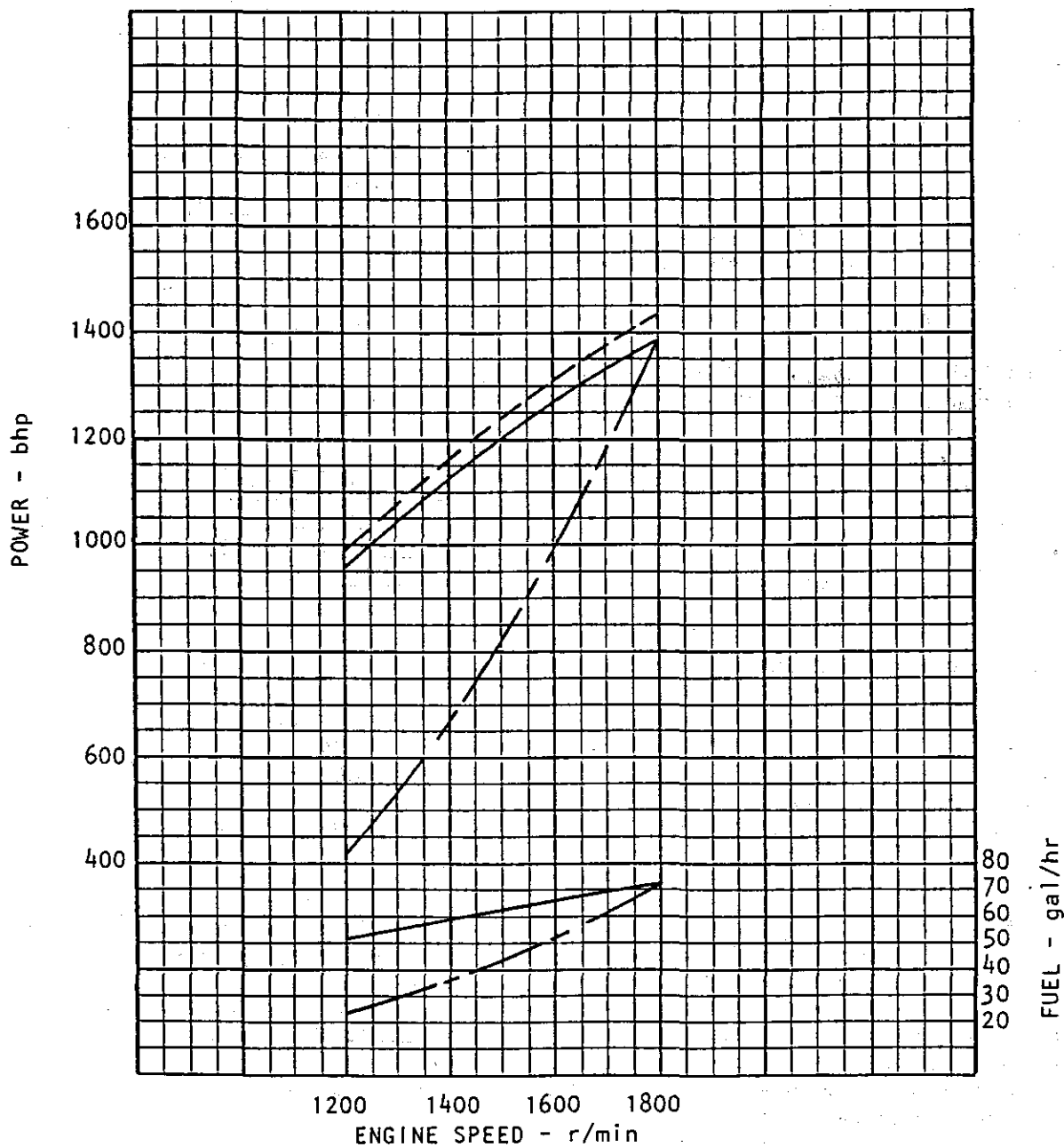
RATING: NET POWER

APPLICATION: MARINE-CONTINUOUS

MODEL: 16V-149T1

1440 bhp @ 1800 r/min

1395 shp @ 1800 r/min



BRAKE HORSEPOWER  
SHAFT HORSEPOWER  
PROPELLER LOAD

ACCESSORIES: MARINE GEAR - 3% LOSS  
AIR INTAKE RESTRICTION - in. H<sub>2</sub>O (kPa) . . . . . 10 (2.5)  
EXHAUST BACK PRESSURE - in. H<sub>2</sub>O (kPa) . . . . . 15 (3.7)

- POWER OUTPUT GUARANTEED WITHIN 5% AT SAE J1349 CONDITIONS:  
77°F (25°C) AIR INLET TEMPERATURE; 29.31 in. Hg (99kPa) DRY BAROMETER;  
100°F (39°C) FUEL INLET TEMPERATURE (.85) SPECIFIC GRAVITY AT 60°F).
- CONVERSION FACTORS: POWER: kW = bhp x 0.746  
FUEL: kg/kW-hr = lb/bhp-hr x 0.608  
TORQUE: N-m = lb-ft x 1.356
- VALUES DERIVED ARE FROM CURRENTLY AVAILABLE DATA AND SUBJECT TO CHANGE WITHOUT NOTICE.

CERTIFIED BY:

9/23/85

STAFF ENGINEER

CURVE NO.

E4-9162-32-29

DATE: 8-29-85

REV./DATE:

SHT. 1 OF 3

## ENGINE SPECIFICATION

### General Engine Description:

|                                                                                                                                                                            |                                                        |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|
| Model                                                                                                                                                                      | NEW AIR INDUCTION WITH<br>BLOWER PRESSURE RELIEF VALVE |
| Number of cylinders                                                                                                                                                        | 9162-7301                                              |
| Bore and stroke - in (mm)                                                                                                                                                  | 16                                                     |
| Displacement - in <sup>3</sup> (litre)                                                                                                                                     | 5.75 X 5.75 (146 X 146)                                |
| Compression ratio                                                                                                                                                          | 2389 (39.18)                                           |
| Firing order                                                                                                                                                               | 16:1                                                   |
| Clockwise rotation (RH)                                                                                                                                                    | 1L-2R-8L-6R-2L-4R-6L-5R-4L-3R-5L-7R-3L-1R-7L-8R        |
| Counter clockwise rotation (LH)                                                                                                                                            | 1L-8R-7L-1R-3L-7R-5L-3R-4L-5R-6L-4R-2L-6R-8L-2R        |
| Marine gear type                                                                                                                                                           | NOT DETERMINED                                         |
| Marine gear reduction ratios                                                                                                                                               | NOT DETERMINED                                         |
| Marine gear lube oil capacity approx.<br>(Does not include heat exchanger &<br>connections used externally) - pts (litre)<br>(Marine gear must use straight viscosity oil) | NOT DETERMINED                                         |
| Electrical system                                                                                                                                                          | 24 VOLTS                                               |
| Recommended battery capacity (CCA @ 0°F (-18°C))<br>24 Volt system above 32°F (0°C)                                                                                        | 950                                                    |
| Dimensions & weight                                                                                                                                                        |                                                        |
| Length - in (mm)                                                                                                                                                           | 106 (2692)                                             |
| Width - in (mm)                                                                                                                                                            | 64 (1625)                                              |
| Height - in (mm)                                                                                                                                                           | 68 (1727)                                              |
| Weight, dry - lbs (kg)                                                                                                                                                     | 11950 (5431)                                           |
| Maximum installation angle                                                                                                                                                 | 15°                                                    |

### Technical Engine Specification

|                                                                               |                    |
|-------------------------------------------------------------------------------|--------------------|
| Injector (timing)                                                             | 145 (2.205)        |
| Turbocharger                                                                  | TV8401 (1.23 A/R)  |
| Engine speed - r/min                                                          | 1800               |
| Brake horsepower - bhp (kW)<br>77°F, 29.31 in Hg (Dry) Bar., J-1349           | 1440 (1074)        |
| Shaft horsepower - shp (kW)                                                   | 1395 (1041)        |
| BMEP - lb/in <sup>2</sup> (kPa)                                               | 132 (910)          |
| Peak torque - lb ft (N m) @ r/min                                             | 4360 (5912) @ 1400 |
| Fuel consumption - lb/hr (kg/hr)                                              | 502.6 (228)        |
| Fuel consumption - gal/hr (litre/hr)                                          | 71.9 (272)         |
| Specific fuel cons. - lb/bhp <sub>hr</sub> (g/kW hr)                          | .349 (212)         |
| Air consumption - ft <sup>3</sup> /min (m <sup>3</sup> /min)                  | 4200 (119)*        |
| Suggested minimum engine room vent area - in <sup>2</sup> (cm <sup>2</sup> )  |                    |
| Maximum engine room depression 0.2 in. H <sub>2</sub> O                       | 403 (3000)         |
| Maximum allowable temperature rise<br>(Outside air to engine inlet) - °F (°C) | 30 (17)            |

\* Must use outside air.

Curve No. E4-9162-32-29

Date: 8-29-85

Rev./Date:

Sht. 2 of 3

## ENGINE SPECIFICATION

### Cooling System - Heat Exchanger or Keel Cooler

|                                                              |               |
|--------------------------------------------------------------|---------------|
| Fresh water capacity - gal (litre)                           | 45.5 (172.2)  |
| Heat rejection to coolant - Btu/min (kW)                     | 39600 (696) * |
| Fresh water flow - gal/min (litre/min)                       | 530 (2006)    |
| Raw water flow - gal/min (litre/min)                         | 172 (651)     |
| Maximum inlet restriction at raw water pump -<br>In Hg (kPa) | 5 (16.93)     |
| Maximum raw water pump pressure - lb/in <sup>2</sup> (kPa)   | 10 (68.95)    |
| Suggested raw water pipe size - in (mm)                      | 2.5 (63.5)    |
| Suggested sea strainer size - simplex - in (mm)              | 3 (76)        |
| - duplex - in (mm)                                           | 4 (102)       |
| Max. press. drop thru keel cooler - lb/in <sup>2</sup> (kPa) | 6 (41)        |
| Maximum water out temperature - °F (°C)                      | 200 (93)      |

### Fuel System

|                                                                    |               |
|--------------------------------------------------------------------|---------------|
| Fuel pump flow - gal/hr (litre/hr)                                 | 370 (1400)    |
| Maximum inlet restriction at pump - In Hg (kPa)<br>(clean filters) | 6 (20.32)     |
| Supply line dia. - in (mm)                                         | 1 (25.4) min. |

### Exhaust System

|                                                                                   |               |
|-----------------------------------------------------------------------------------|---------------|
| Gas flow - lb/min (kg/min)                                                        | 311.6 (141.3) |
| Exhaust temperature - °F (°C)                                                     | 720 (382)     |
| Maximum exhaust back pressure at turbocharger<br>outlet (full load) - In Hg (kPa) | 2.5 (8.47)    |

### Lubrication System

|                                                           |                 |
|-----------------------------------------------------------|-----------------|
| Engine lube oil capacity - qts (litre)                    | 176 (166.6)     |
| Lubrication oil press., normal - lb/in <sup>2</sup> (kPa) | 48-70 (331-483) |
| Lubrication oil temp., in-pan - °F (°C)                   | 230 (110) max.  |

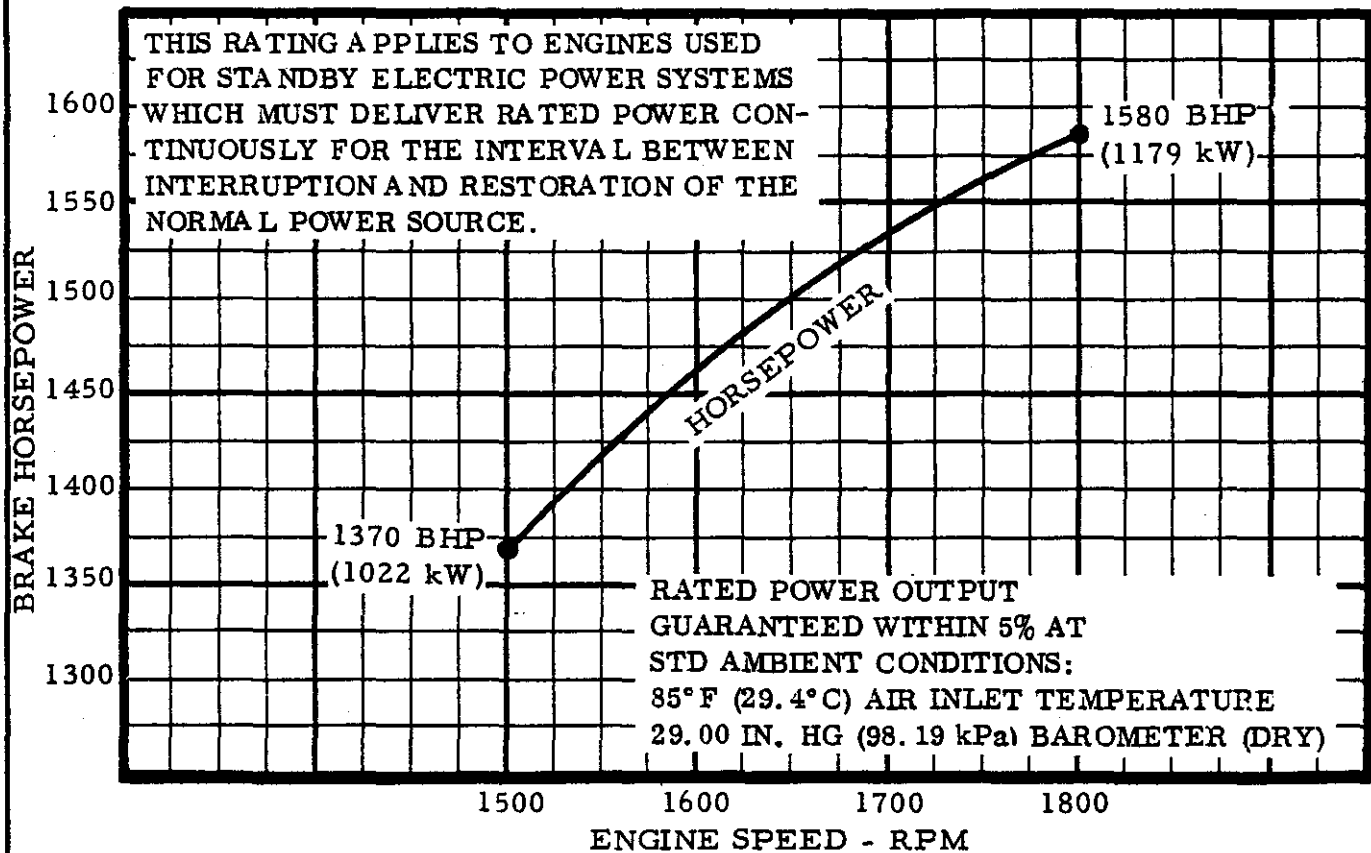
\* Must Use Tube and Shell Oil Cooler

Curve No. E4-9162-32-29  
Date: 8-29-85  
Rev./Date:  
Sht. 3 of 3

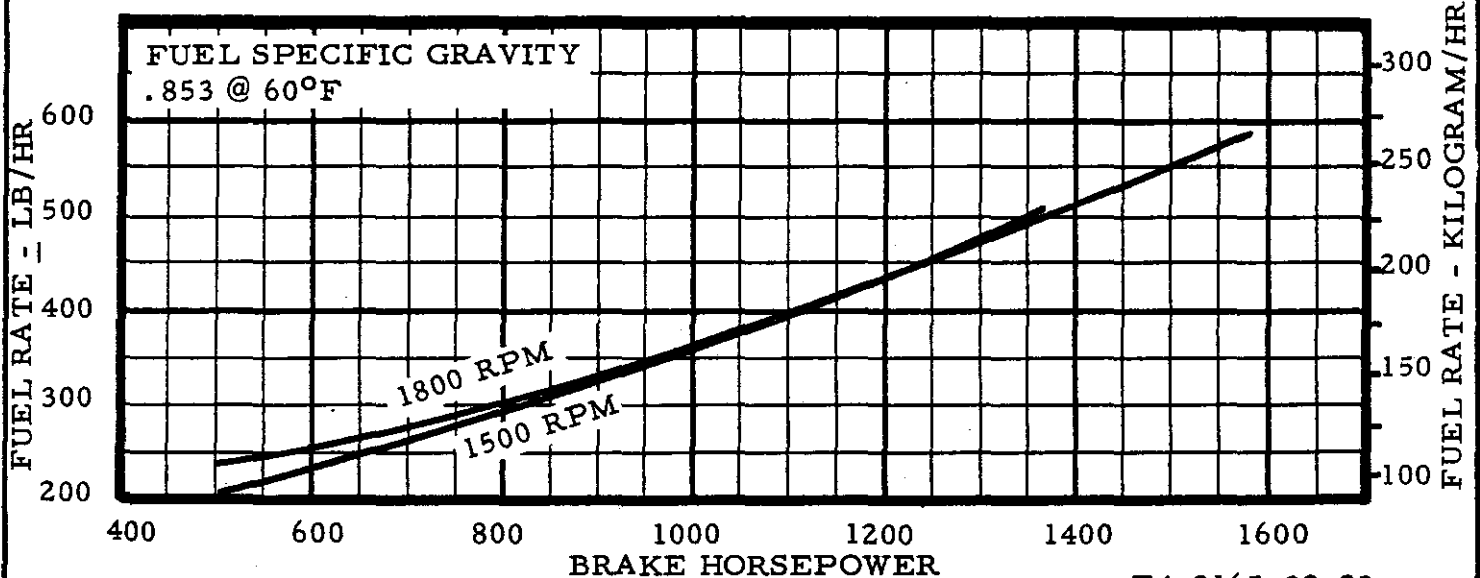


**Detroit Diesel Allison**  
Division of General Motors Corporation

MODEL: 16V-149TI  
APPLICATION: STANDBY POWER  
RATING: WITHOUT FAN  
INJECTORS: 170 (2.205 TIMING)  
TURBOCHARGER: TV8115 (1.60 A/R)  
JACKET WATER INTERCOOLED



#### AVERAGE FUEL CONSUMPTION



DE 4033

ENGINEERING-TECHNICAL DATA DEPT.

E4-9165-32-22  
5-9-80



# ENGINE PERFORMANCE CURVE

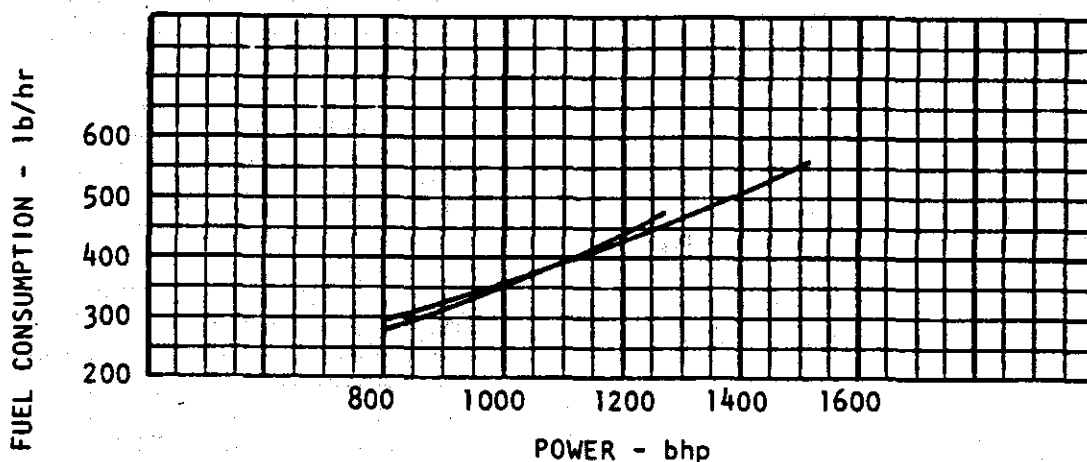
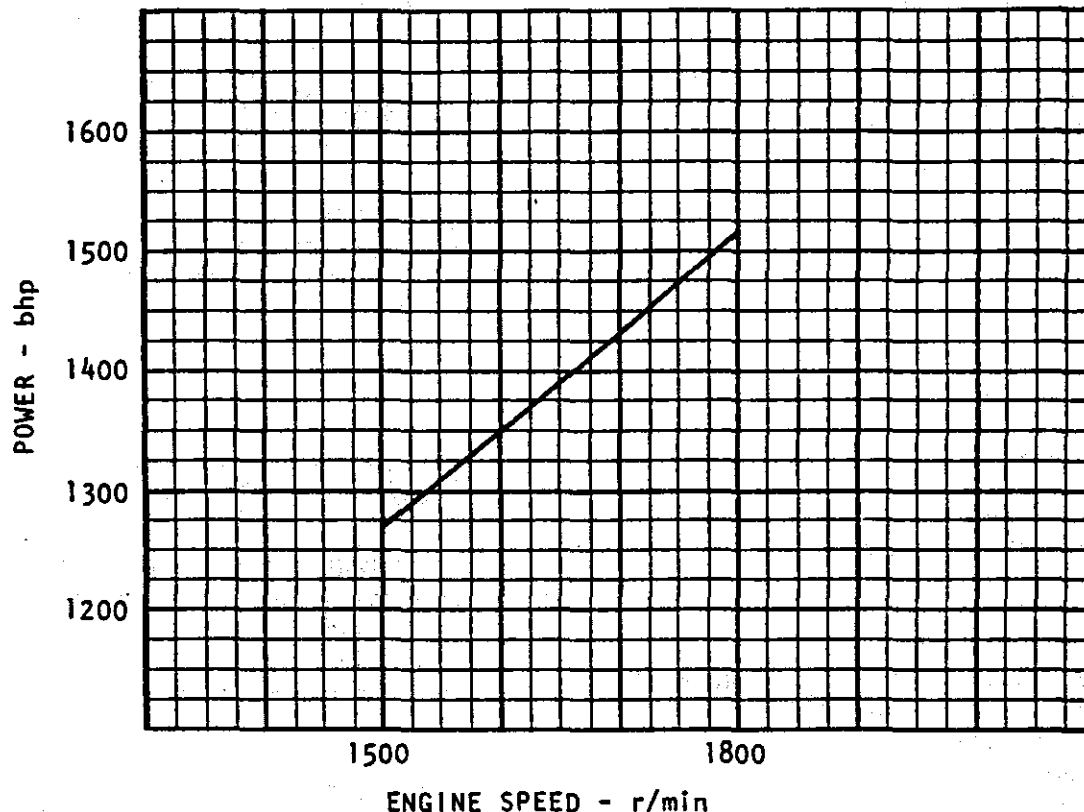
RATING: RATED POWER - BASIC ENGINE

MODEL: 12V-149T1

APPLICATION: GENERATOR  
STAND BY

1515 bhp @ 1800 r/min

1270 bhp @ 1500 r/min



AIR INTAKE RESTRICTION - in. H<sub>2</sub>O (mm H<sub>2</sub>O) . . . 10 (250)  
EXHAUST RESTRICTION - in. H<sub>2</sub>O (mm H<sub>2</sub>O) . . . 15 (380)

- POWER OUTPUT GUARANTEED WITHIN 5% AT SAE J1349 CONDITIONS:  
77°F (25°C) AIR INLET TEMPERATURE; 29.31 in. Hg (99kPa) DRY BAROMETER;  
100°F (39°C) FUEL INLET TEMPERATURE (.85) SPECIFIC GRAVITY AT 60°F).
- CONVERSION FACTORS: POWER: kW = bhp x 0.746  
FUEL: kg/kW-hr = lb/bhp-hr x 0.608  
TORQUE: N-m = lb-ft x 1.356
- VALUES DERIVED ARE FROM CURRENTLY AVAILABLE DATA AND SUBJECT TO  
CHANGE WITHOUT NOTICE.

CERTIFIED BY:  
*D L Graham*  
1-11-84  
STAFF ENGINEER

CURVE NO.  
E4-9125-32-35  
DATE: 12-8-83  
REV./DATE:  
SHT. 1 OF 2

## ENGINE SPECIFICATION

### General Engine Description:

Model  
 Number of cylinders  
 Bore and stroke - in (mm)  
 Displacement - in<sup>3</sup> (litre)  
 Compression ratio  
 Firing order  
     Clockwise rotation (RH)  
     Counter clockwise rotation (LH)  
 Dimensions & weight (approx.)  
     Length - in (mm)  
     Width - in (mm)  
     Height - in (mm)  
     Weight - lbs (kg)

### NEW AIR INDUCTION

#### WITH BLOWER PRESSURE RELIEF VALVE

9123-7316  
 12  
 5.75 x 5.75 (146 x 146)  
 1792 (29.39)  
 16:1

1L-5L-3R-4R-3L-4L-2R-6R-2L-6L-1R-5R  
 NOT APPLICABLE

93 (2362)  
 62 (1575)  
 70 (1778)  
 9030 (4096)

### Technical Engine Specifications:

Injector (timing)  
 Turbocharger  
 Engine speed - r/min  
 Brake horsepower - bhp (kW)  
 Bmep - lb/in<sup>2</sup> (kPa)  
 Peak torque - lb·ft (N·m) @ r/min  
 Fuel consumption - lb/hr (kg/hr)  
 Specific fuel cons. - lb/bhp·hr (g/kW·hr)  
 Fuel pump suction at pump inlet  
     Maximum - in Hg (kPa)  
         Clean system  
         Dirty system  
 Airflow - ft<sup>3</sup>/min (m<sup>3</sup>/min)  
 Airbox pressure, min. - in Hg (kPa)  
 Air intake restriction, max. - in H<sub>2</sub>O (kPa)  
     (Dry type air cleaner)  
         Full load - dirty  
                     - clean  
 Exhaust temp. - °F (°C)  
 Exhaust flow - ft<sup>3</sup>/min (m<sup>3</sup>/min)  
 Exhaust back press., max. - in Hg (kPa)  
     Full load  
 Coolant flow - gal/min (litre/min)  
 Coolant normal operating temp. - °F (°C)  
 Heat rejection - Btu/min (kW)  
 Coolant inlet restriction, max. - in Hg (kPa)  
 Lubricating oil press., normal - lb/in<sup>2</sup> (kPa)  
 Lubricating oil temp., in-pan - °F (°C)

270 (2.185)  
 TV7111 (1.08 A/R HSG)  
 1500 1800  
 1270 (947) 1515 (1130)  
 187 (1292) 186 (1285)  
 NOT APPLICABLE NOT APPLICABLE  
 474 (215) 554 (251)  
 .373 (227) .366 (222)

6.0 (20.3) 6.0 (20.3)  
 12.0 (40.6) 12.0 (40.6)  
 3600 (102) 4000 (113)  
 41.0 (138.6) 48.5 (163.8)

13.0 (3.2) 17.5 (4.4)  
 7.5 (1.9) 10.5 (2.6)  
 780 (416) 820 (438)  
 7970 (226) 9140 (259)

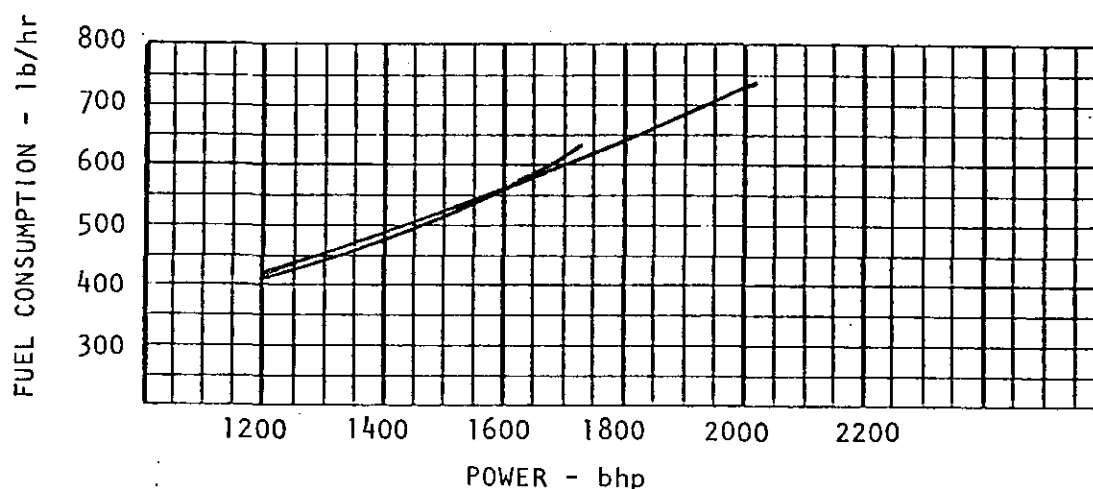
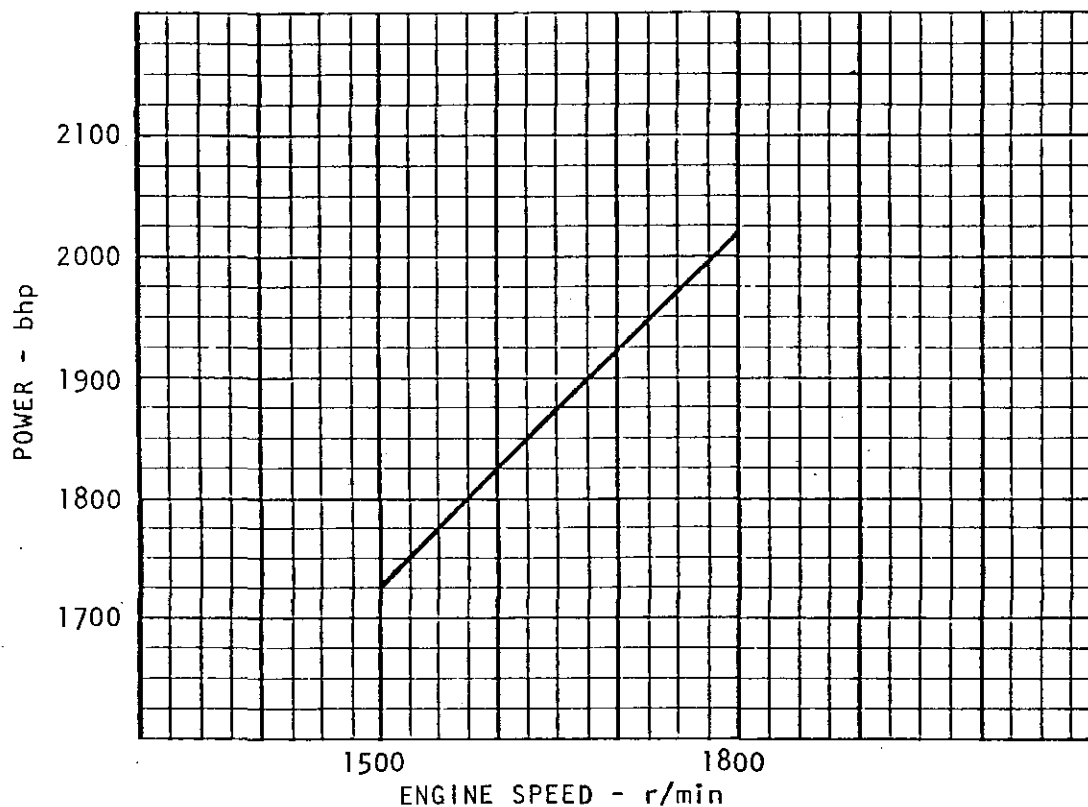
1.8 (6.1) 2.5 (8.5)  
 295 (1117) 360 (1363)  
 180 (82.2) 180 (82.2)  
 33020 (580) 40150 (706)  
 2.0 (6.7) 3.0 (10.2)  
 48-70 (331-483) 48-70 (331-483)  
 230 (110) max. 230 (110) max.



## ENGINE PERFORMANCE CURVE

RATING: RATED POWER - BASIC ENGINE

MODEL: 16V-149TI

APPLICATION: GENERATOR  
STAND BY2020 bhp @ 1800 r/min  
1730 bhp @ 1500 r/minAIR INTAKE RESTRICTION - in. H<sub>2</sub>O (kPa) . . . 10 (2.5)EXHAUST BACK PRESSURE - in. H<sub>2</sub>O (kPa) . . . 15 (3.7)

- POWER OUTPUT GUARANTEED WITHIN 5% AT SAE J1349 CONDITIONS:  
77°F (25°C) AIR INLET TEMPERATURE; 29.31 in. Hg (99kPa) DRY BAROMETER;  
100°F (39°C) FUEL INLET TEMPERATURE (.853 SPECIFIC GRAVITY AT 60°F).
- CONVERSION FACTORS: POWER: kW = bhp × 0.746  
FUEL: kg/kW-hr = lb/bhp-hr × 0.608  
TORQUE: N·m = lb-ft × 1.356
- VALUES DERIVED ARE FROM CURRENTLY AVAILABLE DATA AND SUBJECT TO  
CHANGE WITHOUT NOTICE.

CERTIFIED BY:

*D L Graham*

1-11-84

STAFF ENGINEER

CURVE NO. ---

E4-9165-32-33

DATE: 12-8-83

REV./DATE: 1/2-13-85

SHT. 1 OF 3

## ENGINE SPECIFICATION

### General Engine Description:

Model  
Number of cylinders  
Bore and stroke - in (mm)  
Displacement - in<sup>3</sup> (litre)  
Compression ratio  
Firing order - Clockwise rotation (RH)

### Dimensions & weight (approx.)

Length - in (mm)  
Width - in (mm)  
Height - in (mm)  
Weight - lbs (kg)

NEW AIR INDUCTION WITH  
BLOWER PRESSURE RELIEF VALVE  
9163-7316

16  
5.75 x 5.75 (146 x 146)  
2389 (39.18)  
16:1  
1L-2R-8L-6R-2L-4R-6L-5R  
4L-3R-5L-7R-3L-1R-7L-8R

106 (2692)  
64 (1626)  
68 (1727)  
10970 (4976)

### Technical Engine Specifications:

Injector (timing)  
Turbocharger  
Engine speed - r/min  
Brake horsepower - bhp (kW)  
Bmep - lb/in<sup>2</sup> (kPa)  
Fuel consumption - lb/hr (kg/hr)  
Specific fuel cons. - lb/bhp hr (g/kW hr)  
Fuel pump suction at pump inlet  
Maximum - in Hg (kPa)  
Clean system  
Dirty system  
Airflow - ft<sup>3</sup>/min (m<sup>3</sup>/min)  
Airbox pressure - in Hg (kPa)  
Air intake restriction, max. - in H<sub>2</sub>O (kPa)  
(Dry type air cleaner)  
Full load - dirty  
- clean  
Exhaust temp. - °F (°C)  
Exhaust flow - ft<sup>3</sup>/min (m<sup>3</sup>/min)  
Exhaust back press., max. - in Hg (kPa)  
Full load  
Coolant flow - gal/min (litre/min)  
Coolant normal operating temp. - °F (°C)  
Engine heat rejection - Btu/min (kW)  
Engine radiated heat - Btu/min (kW)  
Coolant inlet restriction, max. - in Hg (kPa)  
Lubricating oil press., normal - lb/in<sup>2</sup> (kPa)  
Lubricating oil temp., in-pan - °F (°C)

270 (2.185) STANDBY  
TV8401 (1.23 A/R HSG)  
1800  
2020 (1507)  
186 (1285)  
736 (334)  
.364 (221)

6.0 (20.3)  
12.0 (40.6)  
5400 (153)  
49.3 (166.5)

17.5 (4.4)  
10.5 (2.6)  
820 (438)  
12340 (350)

2.5 (8.5)  
530 (2006)  
180 (82.2)  
59600 (1048) \*  
8000 (141)  
3.0 (10.2)  
48-70 (331-483)  
230 (110) MAX.

\* WITH TUBE AND SHELL OIL  
COOLER.

All values at rated speed and power and with  
standard engine hardware unless otherwise noted.

Curve No. E4-9165-32-33  
Date: 12-8-83  
Rev./Date: 1/2-13-85  
Sht. 2 of 3

## ENGINE SPECIFICATION

### General Engine Description:

Model  
Number of cylinders  
Bore and stroke - in (mm)  
Displacement - in<sup>3</sup> (litre)  
Compression ratio  
Firing order - Clockwise rotation (RH)

### Dimensions & weight (approx.)

Length - in (mm)  
Width - in (mm)  
Height - in (mm)  
Weight - lbs (kg)

NEW AIR INDUCTION WITH  
BLOWER PRESSURE RELIEF VALVE  
9163-7316

16  
5.75 x 5.75 (146 x 146)  
2389 (39.18)  
16:1  
1L-2R-8L-6R-2L-4R-6L-5R  
4L-3R-5L-7R-3L-1R-7L-8R

106 (2692)  
64 (1626)  
68 (1727)  
10970 (4976)

### Technical Engine Specifications:

Injector (timing)  
Turbocharger  
Engine speed - r/min  
Brake horsepower - bhp (kW)  
Bmep - lb/in<sup>2</sup> (kPa)  
Fuel consumption - lb/hr (kg/hr)  
Specific fuel cons. - lb/bhp hr (g/kW hr)  
Fuel pump suction at pump inlet  
Maximum - in Hg (kPa)  
Clean system  
Dirty system  
Airflow - ft<sup>3</sup>/min (m<sup>3</sup>/min)  
Airbox pressure - in Hg (kPa)  
Air intake restriction, max. - in H<sub>2</sub>O (kPa)  
(Dry type air cleaner)  
Full load - dirty  
- clean  
Exhaust temp. - °F (°C)  
Exhaust flow - ft<sup>3</sup>/min (m<sup>3</sup>/min)  
Exhaust back press., max. - in Hg (kPa)  
Full load  
Coolant flow - gal/min (litre/min)  
Coolant normal operating temp. - °F (°C)  
Engine heat rejection - Btu/min (kW)  
Engine radiated heat - Btu/min (kW)  
Coolant inlet restriction, max. - in Hg (kPa)  
Lubricating oil press., normal - lb/in<sup>2</sup> (kPa)  
Lubricating oil temp., in-pan - °F (°C)

270 (2.185) STANDBY  
TV8401 (1.23 A/R HSG)  
1500  
1730 (1291)  
191 (1319)  
630 (286)  
.364 (221)

6.0 (20.3)  
12.0 (40.6)  
5000 (142)  
42.5 (143.5)

13.0 (3.2)  
7.5 (1.9)  
770 (410)  
10980 (311)

1.8 (6.1)  
440 (1666)  
180 (82.2)  
50200 (883) \*  
7810 (137)  
2.0 (6.7)  
48-70 (331-483)  
230 (110) MAX.

\* WITH TUBE AND SHELL OIL  
COOLER.

All values at rated speed and power and with  
standard engine hardware unless otherwise noted.

Curve No. E4-9165-32-33  
Date: 12-8-83  
Rev./Date: 1/2-13-85  
Sht. 3 of 3



# ENGINE PERFORMANCE CURVE

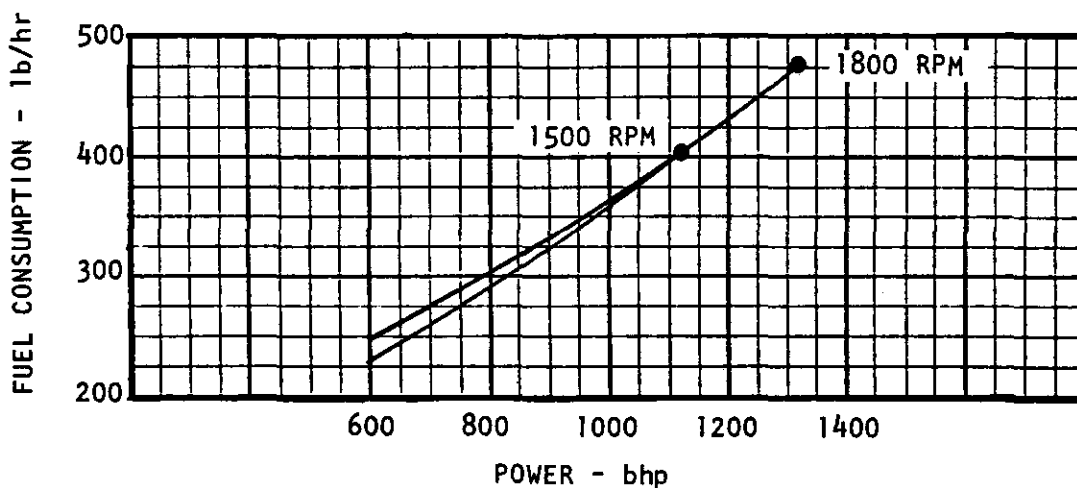
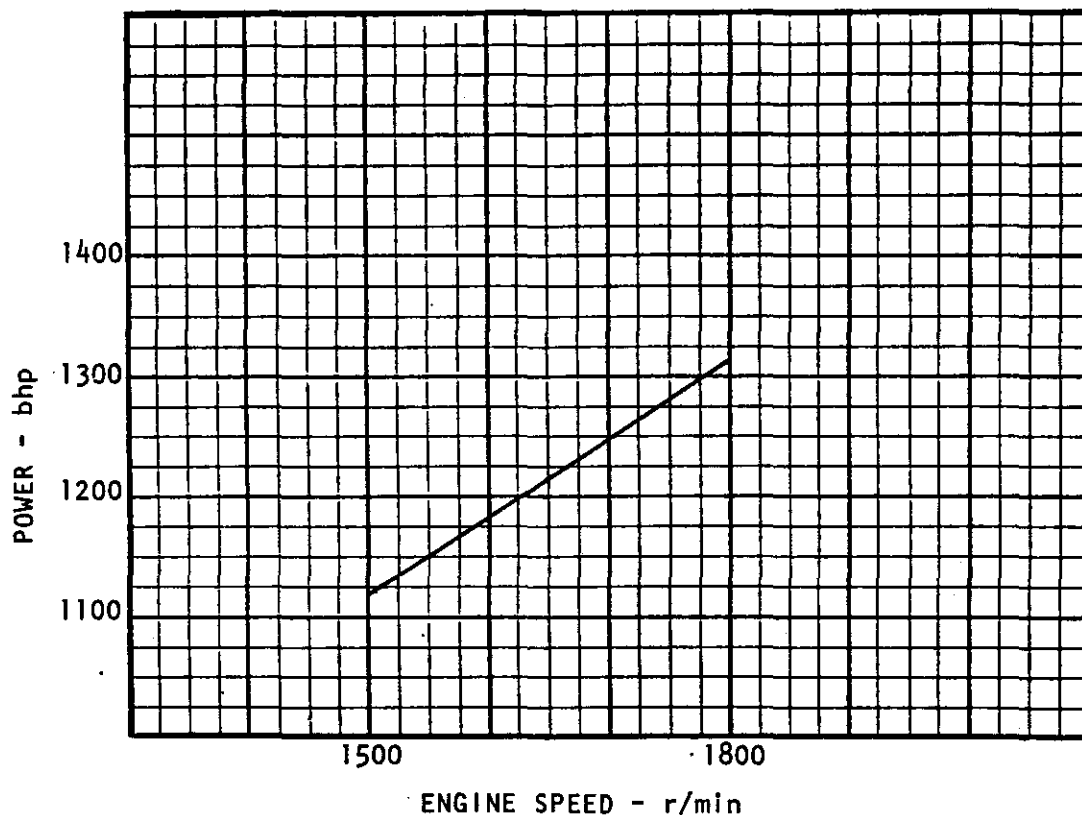
RATING: RATED BRAKE POWER

MODEL: 16V-149T

1315 bhp @ 1800 r/min

APPLICATION: GENERATOR  
PRIME POWER

1120 bhp @ 1500 r/min



AIR INTAKE RESTRICTION - in. H<sub>2</sub>O (kPa) . . . 10 (2.5)

EXHAUST BACK PRESSURE - in. H<sub>2</sub>O (kPa) . . . 15 (3.7)

- POWER OUTPUT GUARANTEED WITHIN 5% AT SAE J1349 CONDITIONS:  
77°F (25°C) AIR INLET TEMPERATURE; 29.31 in. Hg (99kPa) DRY BAROMETER;  
100°F (39°C) FUEL INLET TEMPERATURE (.853 SPECIFIC GRAVITY AT 60°F).
- CONVERSION FACTORS: POWER: kW = bhp x 0.746  
FUEL: kg/hr = lb/hr x 0.454
- VALUES DERIVED ARE FROM CURRENTLY AVAILABLE DATA AND SUBJECT TO CHANGE WITHOUT NOTICE.

CERTIFIED BY:

*D. L. Graham*

11-2-84

STAFF ENGINEER

CURVE NO.

E4-9165-32-39

DATE: 8-24-84

REV./DATE:

SHT. 1 OF 3

## ENGINE SPECIFICATION

### General Engine Description:

Model  
Number of cylinders  
Bore and stroke - in (mm)  
Displacement - in<sup>3</sup> (litre)  
Compression ratio  
Firing order - Clockwise rotation (RH)

#### Dimensions & weight (approx.)

Length - in (mm)  
Width - in (mm)  
Height - in (mm)  
Weight - lbs (kg)

NEW AIR INDUCTION WITH  
BLOWER PRESSURE RELIEF VALVE  
9163-7305

16  
5.75 x 5.75 (146 x 146)  
2389 (39.18)  
17:1  
1L-2R-8L-6R-2L-4R-6L-5R  
4L-3R-5L-7R-3L-1R-7L-8R

106 (2692)  
64 (1626)  
67 (1702)  
10450 (4738)

### Technical Engine Specifications:

Injector (timing)  
Turbocharger  
Engine speed - r/min  
Brake horsepower - bhp (kW)  
Bmep - lb/in<sup>2</sup> (kPa)  
Fuel consumption - lb/hr (kg/hr)  
Specific fuel cons. - lb/bhp hr (g/kW hr)  
Fuel pump suction at pump inlet  
Maximum - in Hg (kPa)  
Clean system  
Dirty system  
Airflow - ft<sup>3</sup>/min (m<sup>3</sup>/min)  
Airbox pressure - in Hg (kPa)  
Air intake restriction, max. - in H<sub>2</sub>O (kPa)  
(Dry type air cleaner)  
Full load - dirty  
- clean  
Exhaust temp. - °F (°C)  
Exhaust flow - ft<sup>3</sup>/min (m<sup>3</sup>/min)  
Exhaust back press., max. - in Hg (kPa)  
Full load  
Coolant flow - gal/min (litre/min)  
Coolant normal operating temp. - °F (°C)  
Engine heat rejection - Btu/min (kW)  
Engine radiated heat - Btu/min (kW)  
Coolant inlet restriction, max. - in Hg (kPa)  
Lubricating oil press., normal - lb/in<sup>2</sup> (kPa)  
Lubricating oil temp., in-pan - °F (°C)  
Emissions - gm/hr (at per cent load)

|                 | <u>0%</u> | <u>25%</u> | <u>50%</u> | <u>75%</u> | <u>100%</u> |
|-----------------|-----------|------------|------------|------------|-------------|
| NO <sub>x</sub> | 1480      | 5440       | 9960       | 14400      | 19685       |
| CO <sub>x</sub> | 460       | 600        | 300        | 1200       | 3050        |
| HC              | 1270      | 750        | 845        | 875        | 975         |

145 (2.175) PRIME  
TV8401 (1.23 A/R HSG)  
1800  
1315 (981)  
121 (834)  
477.0 (216.4)  
.363 (221)

6.0 (20.3)  
12.0 (40.6)  
4000 (113)  
34 (114.9)

17.5 (4.4)  
10.5 (2.6)  
770 (410)  
8790 (249)

2.5 (8.5)  
490 (1855)  
180 (82.2)  
36160 (636)  
5180 (91)  
3.0 (10.2)  
48-70 (331-483)  
230 (110) MAX.

All values at rated speed and power and with  
standard engine hardware unless otherwise noted.

Curve No. E4-9165-32-39  
Date: 8-24-84  
Rev./Date:  
Sht. 2 of 3

## ENGINE SPECIFICATION

### General Engine Description:

Model  
Number of cylinders  
Bore and stroke - in (mm)  
Displacement - in<sup>3</sup> (litre)  
Compression ratio  
Firing order - Clockwise rotation (RH)

### Dimensions & weight (approx.)

Length - in (mm)  
Width - in (mm)  
Height - in (mm)  
Weight - lbs (kg)

NEW AIR INDUCTION WITH  
BLOWER PRESSURE RELIEF VALVE  
9163-7305

16  
5.75 x 5.75 (146 x 146)  
2389 (39.18)  
17:1  
1L-2R-8L-6R-2L-4R-6L-5R  
4L-3R-5L-7R-3L-1R-7L-8R

106 (2692)  
64 (1626)  
67 (1702)  
10450 (4738)

### Technical Engine Specifications:

Injector (timing)  
Turbocharger  
Engine speed - r/min  
Brake horsepower - bhp (kW)  
Bmep - lb/in<sup>2</sup> (kPa)  
Fuel consumption - lb/hr (kg/hr)  
Specific fuel cons. - lb/bhp hr (g/kW hr)  
Fuel pump suction at pump inlet  
Maximum - in Hg (kPa)  
Clean system  
Dirty system  
Airflow - ft<sup>3</sup>/min (m<sup>3</sup>/min)  
Airbox pressure - in Hg (kPa)  
Air intake restriction, max. - in H<sub>2</sub>O (kPa)  
(Dry type air cleaner)  
Full load - dirty  
- clean  
Exhaust temp. - °F (°C)  
Exhaust flow - ft<sup>3</sup>/min (m<sup>3</sup>/min)  
Exhaust back press., max. - in Hg (kPa)  
Full load  
Coolant flow - gal/min (litre/min)  
Coolant normal operating temp. - °F (°C)  
Engine heat rejection - Btu/min (kW)  
Engine radiated heat - Btu/min (kW)  
Coolant inlet restriction, max. - in Hg (kPa)  
Lubricating oil press., normal - lb/in<sup>2</sup> (kPa)  
Lubricating oil temp., in-pan - °F (°C)  
Emissions - gm/hr (at per cent load)

|                 | <u>0%</u> | <u>25%</u> | <u>50%</u> | <u>75%</u> | <u>100%</u> |
|-----------------|-----------|------------|------------|------------|-------------|
| NO <sub>x</sub> | 1680      | 3675       | 9115       | 13175      | 17005       |
| CO <sup>x</sup> | 1350      | 750        | 150        | 800        | 3200        |
| HC              | 1075      | 540        | 625        | 665        | 770         |

145 (2.175) PRIME  
TV8401 (1.23 A/R HSG)  
1500  
1120 (836)  
124 (855)  
401.0 (181.9)  
.358 (218)

6.0 (20.3)  
12.0 (40.6)  
3600 (102)  
27.7 (93.6)

13.0 (3.2)  
7.5 (1.9)  
750 (399)  
7780 (220)

1.8 (6.1)  
413 (1563)  
180 (82.2)  
30240 (532)  
4970 (87)  
2.0 (6.7)  
48-70 (331-483)  
230 (110) MAX.

All values at rated speed and power and with  
standard engine hardware unless otherwise noted.

Curve No. E4-9165-32-39  
Date: 8-24-84  
Rev./Date:  
Sht. 3 of 3

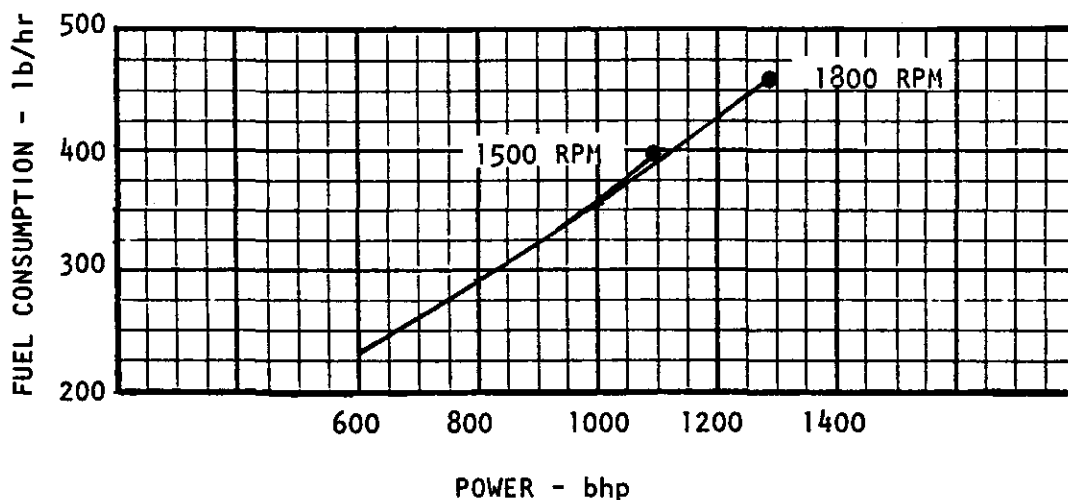
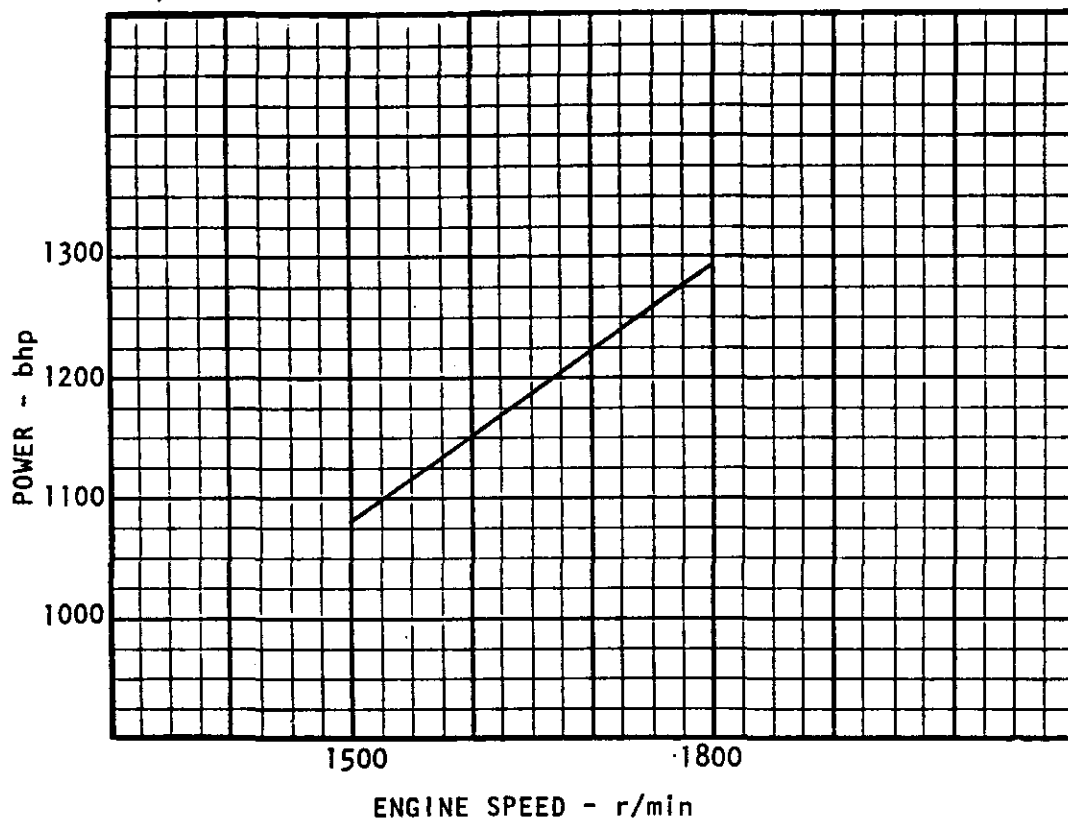


# ENGINE PERFORMANCE CURVE

RATING: RATED BRAKE POWER  
PRELIMINARY

APPLICATION: GENERATOR  
PRIME POWER

MODEL: 12V-149TI  
1290 bhp @ 1800 r/min  
1080 bhp @ 1500 r/min



AIR INTAKE RESTRICTION - in. H<sub>2</sub>O (kPa) . . . 10 (2.5)  
EXHAUST BACK PRESSURE - in. H<sub>2</sub>O (kPa) . . . 15 (3.7)

- POWER OUTPUT GUARANTEED WITHIN 5% AT SAE J1349 CONDITIONS:  
77°F (25°C) AIR INLET TEMPERATURE; 29.31 in. Hg (99kPa) DRY BAROMETER;  
100°F (39°C) FUEL INLET TEMPERATURE (.853 SPECIFIC GRAVITY AT 60°F).
- CONVERSION FACTORS: POWER: kW = bhp x 0.746  
FUEL: kg/hr = lb/hr x 0.454
- VALUES DERIVED ARE FROM CURRENTLY AVAILABLE DATA AND SUBJECT TO CHANGE WITHOUT NOTICE.

CERTIFIED BY:  
*W. L. Graham*  
11-2-84  
STAFF ENGINEER

CURVE NO.  
E4-9125-32-38  
DATE: 8-24-84  
REV./DATE:  
SHT. 1 OF 3

## ENGINE SPECIFICATION

### General Engine Description:

Model  
Number of cylinders  
Bore and stroke - in (mm)  
Displacement - in<sup>3</sup> (litre)  
Compression ratio  
Firing order - Clockwise rotation (RH)

#### Dimensions & weight (approx.)

Length - in (mm)  
Width - in (mm)  
Height - in (mm)  
Weight - lbs (kg)

### NEW AIR INDUCTION WITH BLOWER PRESSURE RELIEF VALVE

9123-7306  
12  
5.75 x 5.75 (146 x 146)  
1792 (29.39)  
15:1  
1L-5L-3R-4R-3L-4L  
2R-6R-2L-6L-1R-5R  
93 (2362)  
62 (1575)  
70 (1778)  
9030 (4096)

### Technical Engine Specifications:

Injector (timing)  
Turbocharger  
Engine speed - r/min  
Brake horsepower - bhp (kW)  
Bmep - lb/in<sup>2</sup> (kPa)  
Fuel consumption - lb/hr (kg/hr)  
Specific fuel cons. - lb/bhp hr (g/kW hr)  
Fuel pump suction at pump inlet  
Maximum - in Hg (kPa)  
Clean system  
Dirty system  
Airflow - ft<sup>3</sup>/min (m<sup>3</sup>/min)  
Airbox pressure - in Hg (kPa)  
Air intake restriction, max. - in H<sub>2</sub>O (kPa)  
(Dry type air cleaner)  
Full load - dirty  
- clean  
Exhaust temp. - °F (°C)  
Exhaust flow - ft<sup>3</sup>/min (m<sup>3</sup>/min)  
Exhaust back press., max. - in Hg (kPa)  
Full load  
Coolant flow - gal/min (litre/min)  
Coolant normal operating temp. - °F (°C)  
Engine heat rejection - Btu/min (kW)  
Engine radiated heat - Btu/min (kW)  
Coolant inlet restriction, max. - in Hg (kPa)  
Lubricating oil press., normal - lb/in<sup>2</sup> (kPa)  
Lubricating oil temp., in-pan - °F (°C)  
Emissions - gm/hr (at per cent load)

|                 | <u>0%</u> | <u>25%</u> | <u>50%</u> | <u>75%</u> | <u>100%</u> |
|-----------------|-----------|------------|------------|------------|-------------|
| NO <sub>x</sub> | 1225      | 2000       | 6250       | 9250       | 12200       |
| CO <sub>x</sub> | 660       | 600        | 500        | 2300       | 5650        |
| HC              | 760       | 920        | 970        | 880        | 600         |

190 (2.205) PRIME  
TV7111 (1.08 A/R HSG)  
1800  
1290 (962)  
158 (1089)  
462 (210)  
358 (218)  
6.0 (20.3)  
12.0 (40.6)  
3300 (94)  
38 (128.3)  
17.5 (4.4)  
10.5 (2.6)  
760 (404)  
7500 (213)  
2.2 (7.4)  
360 (1363)  
180 (82.2)  
34185 (601)  
5020 (88)  
3.0 (10.2)  
40-60 (276-414)  
230 (110) MAX.

All values at rated speed and power and with  
standard engine hardware unless otherwise noted.

Curve No. E4-9125-32-38  
Date: 8-24-84  
Rev./Date:  
Sht. 2 of 3

## ENGINE SPECIFICATION

### General Engine Description:

Model  
Number of cylinders  
Bore and stroke - in (mm)  
Displacement - in<sup>3</sup> (litre)  
Compression ratio  
Firing order - Clockwise rotation (RH)

#### Dimensions & weight (approx.)

Length - in (mm)  
Width - in (mm)  
Height - in (mm)  
Weight - lbs (kg)

NEW AIR INDUCTION WITH  
BLOWER PRESSURE RELIEF VALVE  
9123-7306

12  
5.75 x 5.75 (146 x 146)  
1792 (29.39)  
15:1  
1L-5L-3R-4R-3L-4L  
2R-6R-2L-6L-1R-5R

93 (2362)  
62 (1575)  
70 (1778)  
9030 (4096)

### Technical Engine Specifications:

Injector (timing)  
Turbocharger  
Engine speed - r/min  
Brake horsepower - bhp (kW)  
Bmep - lb/in<sup>2</sup> (kPa)  
Fuel consumption - lb/hr (kg/hr)  
Specific fuel cons. - lb/bhp hr (g/kW hr)  
Fuel pump suction at pump inlet  
Maximum - in Hg (kPa)  
Clean system  
Dirty system  
Airflow - ft<sup>3</sup>/min (m<sup>3</sup>/min)  
Airbox pressure - in Hg (kPa)  
Air intake restriction, max. - in H<sub>2</sub>O (kPa)  
(Dry type air cleaner)  
Full load - dirty  
- clean  
Exhaust temp. - °F (°C)  
Exhaust flow - ft<sup>3</sup>/min (m<sup>3</sup>/min)  
Exhaust back press., max. - in Hg (kPa)  
Full load  
Coolant flow - gal/min (litre/min)  
Coolant normal operating temp. - °F (°C)  
Engine heat rejection - Btu/min (kW)  
Engine radiated heat - Btu/min (kW)  
Coolant inlet restriction, max. - in Hg (kPa)  
Lubricating oil press., normal - lb/in<sup>2</sup> (kPa)  
Lubricating oil temp., in-pan - °F (°C)  
Emissions - gm/hr (at per cent load)

|                 | <u>0%</u> | <u>25%</u> | <u>50%</u> | <u>75%</u> | <u>100%</u> |
|-----------------|-----------|------------|------------|------------|-------------|
| NO <sub>x</sub> | 945       | 1400       | 6050       | 7650       | 9600        |
| CO <sub>x</sub> | 610       | 500        | 300        | 3300       | 6850        |
| HC              | 665       | 780        | 800        | 640        | 430         |

190 (2,205) PRIME  
TV7111 (1.08 A/R HSG)  
1500  
1080 (806)  
159 (1096)  
393 (178)  
.364 (221)

6.0 (20.3)  
12.0 (40.6)  
2950 (84)  
33 (111.4)

13.0 (3.2)  
7.5 (1.9)  
770 (410)  
6760 (191)

1.5 (5.1)  
290 (1098)  
180 (82.2)  
28080 (494)  
4870 (86)  
2.0 (6.7)  
40-60 (276-414)  
230 (110) MAX.

All values at rated speed and power and with  
standard engine hardware unless otherwise noted.

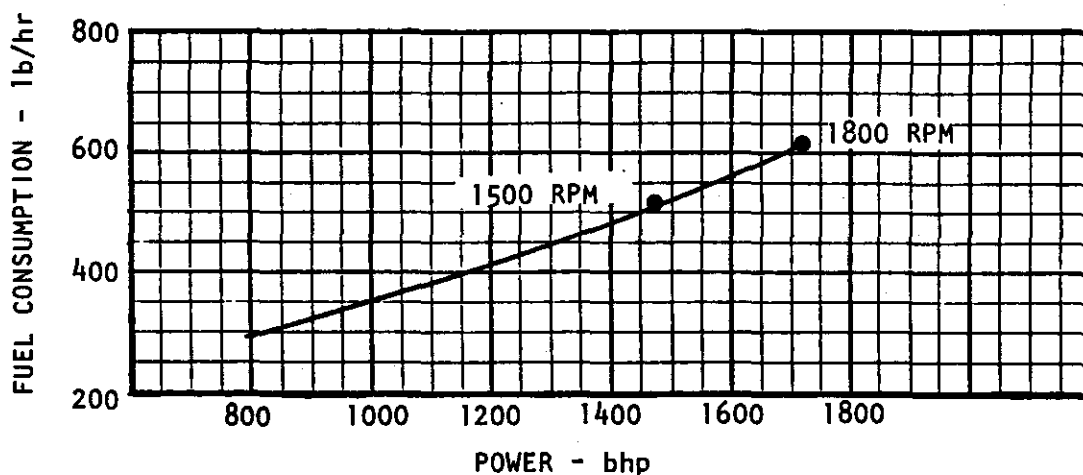
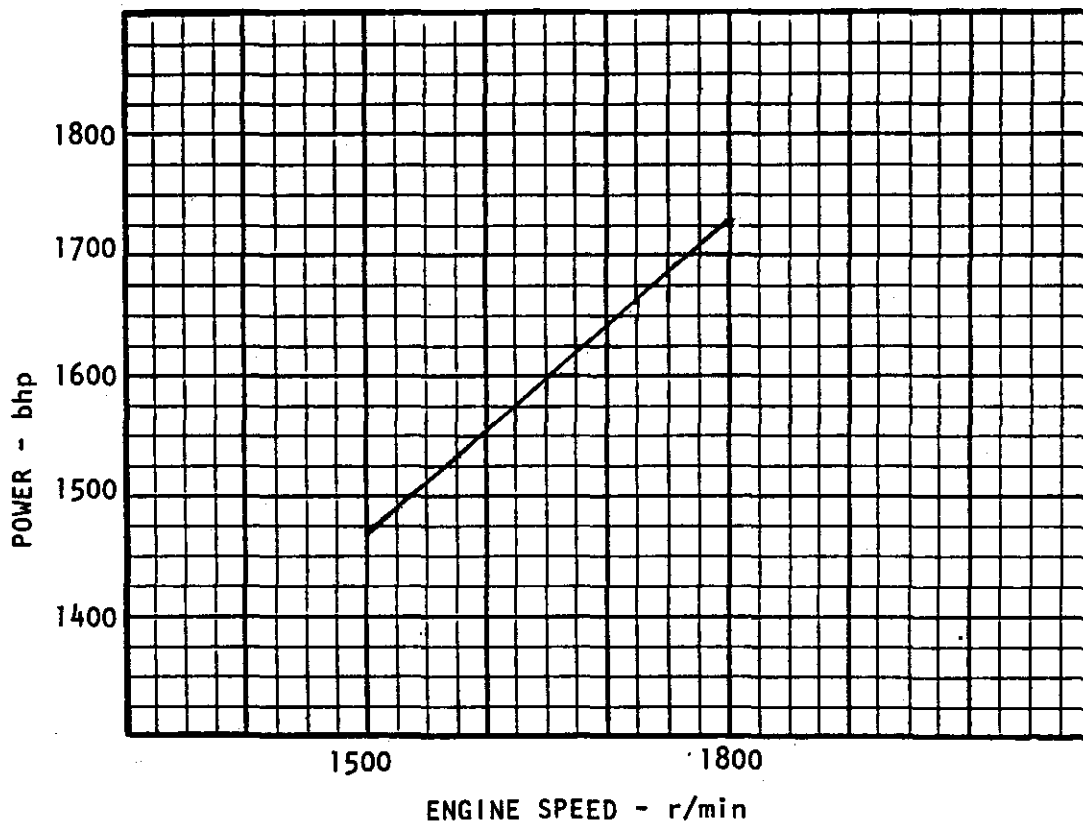
Curve No. E4-9125-32-38  
Date: 8-24-84  
Rev./Date:  
Sht. 3 of 3



# ENGINE PERFORMANCE CURVE

RATING: RATED BRAKE POWER  
PRELIMINARY  
APPLICATION: GENERATOR  
PRIME POWER

MODEL: 16V-149TI  
1730 bhp @ 1800 rpm  
1470 bhp @ 1500 r/min



AIR INTAKE RESTRICTION - in. H<sub>2</sub>O (kPa) . . . 10 (2.5)  
EXHAUST BACK PRESSURE - in. H<sub>2</sub>O (kPa) . . . 15 (3.7)

- POWER OUTPUT GUARANTEED WITHIN 5% AT SAE J1349 CONDITIONS:  
77°F (25°C) AIR INLET TEMPERATURE; 29.31 in. Hg (994Pa) DRY BAROMETER;  
100°F (39°C) FUEL INLET TEMPERATURE (.853 SPECIFIC GRAVITY AT 60°F).
- CONVERSION FACTORS: POWER: kW = bhp x 0.746  
FUEL: kg/hr = lb/hr x 0.454
- VALUES DERIVED ARE FROM CURRENTLY AVAILABLE DATA AND SUBJECT TO  
CHANGE WITHOUT NOTICE.

CERTIFIED BY:

*D L Graham*  
11-2-84  
STAFF ENGINEER

CURVE NO.

E4-9165-32-38  
DATE: 8-24-84  
REV./DATE: 1/11-13-84  
SHT. 1 OF 3

## ENGINE SPECIFICATION

### General Engine Description:

Model  
Number of cylinders  
Bore and stroke - in (mm)  
Displacement - in<sup>3</sup> (litre)  
Compression ratio  
Firing order - Clockwise rotation (RH)

#### Dimensions & weight (approx.)

Length - in (mm)  
Width - in (mm)  
Height - in (mm)  
Weight - lbs (kg)

### NEW AIR INDUCTION WITH BLOWER PRESSURE RELIEF VALVE

9163-7316  
16  
5.75 x 5.75 (146 x 146)  
2389 (39.18)  
15:1  
1L-2R-8L-6R-2L-4R-6L-5R  
4L-3R-5L-7R-3L-1R-7L-8R

106 (2692)  
64 (1626)  
68 (1727)  
10970 (4976)

### Technical Engine Specifications:

Injector (timing)  
Turbocharger  
Engine speed - r/min  
Brake horsepower - bhp (kW)  
Bmep - lb/in<sup>2</sup> (kPa)  
Fuel consumption - lb/hr (kg/hr)  
Specific fuel cons. - lb/bhp hr (g/kW hr)  
Fuel pump suction at pump inlet  
Maximum - in Hg (kPa)

Clean system

Dirty system

Airflow - ft<sup>3</sup>/min (m<sup>3</sup>/min)  
Airbox pressure - in Hg (kPa)  
Air intake restriction, max. - in H<sub>2</sub>O (kPa)  
(Dry type air cleaner)  
Full load - dirty  
- clean

Exhaust temp. - °F (°C)  
Exhaust flow - ft<sup>3</sup>/min (m<sup>3</sup>/min)  
Exhaust back press., max. - in Hg (kPa)  
Full load

Coolant flow - gal/min (litre/min)  
Coolant normal operating temp. - °F (°C)  
Engine heat rejection - Btu/min (kW)  
Engine radiated heat - Btu/min (kW)  
Coolant inlet restriction, max. - in Hg (kPa)  
Lubricating oil press., normal - lb/in<sup>2</sup> (kPa)  
Lubricating oil temp., in-pan - °F (°C)  
Emissions - gm/hr (at per cent load)

|                 | 0%   | 25%  | 50%  | 75%   | 100%  |
|-----------------|------|------|------|-------|-------|
| NO <sub>x</sub> | 1635 | 4400 | 8050 | 11300 | 15900 |
| CO <sub>x</sub> | 885  | 650  | 550  | 1300  | 4900  |
| HC              | 1015 | 810  | 844  | 940   | 950   |

190 (2.205) PRIME  
TV8401 (1.23 A/R HSG)  
1800  
1730 (1291)  
159 (1097)  
612.4 (277.8)  
354 (215)

6.0 (20.3)  
12.0 (40.6)  
4800 (135)  
40 (135.1)

17.5 (4.4)  
10.5 (2.6)  
780 (416)  
11080 (313)

2.2 (7.4)  
530 (2006)  
180 (82.2)  
51380 (903) \*  
6660 (117)  
3.0 (10.2)  
55-75 (379-517) \*  
230 (110) MAX.

\* WITH TUBE AND SHELL OIL  
COOLER.

All values at rated speed and power and with  
standard engine hardware unless otherwise noted.

Curve No. E4-9165-32-38  
Date: 8-24-84  
Rev./Date: 1/11-13-84  
Sht. 2 of 3

## ENGINE SPECIFICATION

### General Engine Description:

Model  
Number of cylinders  
Bore and stroke - in (mm)  
Displacement - in<sup>3</sup> (litre)  
Compression ratio  
Firing order - Clockwise rotation (RH)

### Dimensions & weight (approx.)

Length - in (mm)  
Width - in (mm)  
Height - in (mm)  
Weight - lbs (kg)

### NEW AIR INDUCTION WITH BLOWER PRESSURE RELIEF VALVE

9163-7316  
16  
5.75 x 5.75 (146 x 146)  
2389 (39.18)  
15:1  
1L-2R-8L-6R-2L-4R-6L-5R  
4L-3R-5L-7R-3L-1R-7L-8R  
106 (2692)  
64 (1626)  
68 (1727)  
10970 (4976)

### Technical Engine Specifications:

Injector (timing)  
Turbocharger  
Engine speed - r/min  
Brake horsepower - bhp (kW)  
Bmep - lb/in<sup>2</sup> (kPa)  
Fuel consumption - lb/hr (kg/hr)  
Specific fuel cons. - lb/bhp hr (g/kW hr)  
Fuel pump suction at pump inlet  
Maximum - in Hg (kPa)  
Clean system  
Dirty system  
Airflow - ft<sup>3</sup>/min (m<sup>3</sup>/min)  
Airbox pressure - in Hg (kPa)

Air intake restriction, max. - in H<sub>2</sub>O (kPa)

(Dry type air cleaner)

Full load - dirty  
- clean

Exhaust temp. - °F (°C)

Exhaust flow - ft<sup>3</sup>/min (m<sup>3</sup>/min)

Exhaust back press., max. - in Hg (kPa)

Full load

Coolant flow - gal/min (litre/min)

Coolant normal operating temp. - °F (°C)

Engine heat rejection - Btu/min (kW)

Engine radiated heat - Btu/min (kW)

Coolant inlet restriction, max. - in Hg (kPa)

Lubricating oil press., normal - lb/in<sup>2</sup> (kPa)

Lubricating oil temp., in-pan - °F (°C)

Emissions - gm/hr (at per cent load)

|                 | 0%   | 25%  | 50%  | 75%  | 100%  |
|-----------------|------|------|------|------|-------|
| NO <sub>x</sub> | 1260 | 3900 | 6850 | 9900 | 12480 |
| CO <sub>x</sub> | 810  | 500  | 550  | 2750 | 11200 |
| HC              | 885  | 600  | 610  | 690  | 730   |

190 (2,205) PRIME  
TV8401 (1.23 A/R HSG)  
1500  
1470 (1097)  
162 (1117)  
520.0 (235.9)  
354 (215)  
6.0 (20.3)  
12.0 (40.6)  
4500 (127)  
34.5 (116.5)

13.0 (3.2)  
7.5 (1.9)  
790 (421)  
10470 (297)  
1.5 (5.1)  
440 (1666)  
180 (82.2)  
42630 (750) \*  
6450 (113)  
2.0 (6.7)  
55-75 (379-517) \*  
230 (110) MAX.

\* WITH TUBE AND SHELL OIL  
COOLER.

All values at rated speed and power and with  
standard engine hardware unless otherwise noted.

Curve No. E4-9165-32-38  
Date: 8-24-84  
Rev./Date: 1/11-13-84  
Sht. 3 of 3

# DIESEL ELECTRIC STANDBY POWER

## INDEX

| <u>ENGINE</u> | <u>INJECTOR</u> | <u>HORSEPOWER (KW)</u> |                 | <u>CURVE NUMBER</u> | <u>DATE</u> | <u>SEE NOTE</u> |
|---------------|-----------------|------------------------|-----------------|---------------------|-------------|-----------------|
|               |                 | <u>1500 RPM</u>        | <u>1800 RPM</u> |                     |             |                 |
| 3-53N(4V)     | N50             | 58 (43)                | 70 (52)         | E4-5035-52-02       | 10-26-78    |                 |
| 4-53N(4V)     | N50             | 77 (57)                | 96 (72)         | E4-5045-52-02       | 10-26-78    |                 |
| 2-71N(2V)     | N70             | 55 (41)                | 65 (48)         | E4-1025-11-01       | 07-15-77    |                 |
| 3-71N         | N70             | 85 (63)                | 102 (76)        | E4-1035-52-01       | 07-15-77    |                 |
| 4-71N         | N70             | 119 (89)               | 143 (107)       | E4-1045-52-01       | 07-15-77    |                 |
| 6-71N         | N70             | 179 (134)              | 215 (160)       | E4-1065-52-02       | 07-15-77    |                 |
| 4-71T         | N80             | 153 (114)              | 175 (131)       | E4-1045-32-05       | 11-15-79    |                 |
| 4-71T         | N90             | 167 (125)              | 192 (143)       | E4-1045-32-01       | 11-15-79    |                 |
| 4-71T         | M95             | 180 (134)              | 210 (157)       | E4-1045-32-04       | 11-15-79    |                 |
| 6-71T         | N80             | 233 (174)              | 268 (200)       | E4-1065-32-05       | 11-15-79    |                 |
| 6-71T         | N90             | 249 (186)              | 288 (215)       | E4-1065-32-01       | 11-15-79    |                 |
| 6-71T         | M95             | 271 (202)              | 315 (235)       | E4-1065-32-06       | 11-15-79    |                 |
| 8V-71N        | N70             | 239 (178)              | 285 (213)       | E4-7085-52-02       | 07-15-77    |                 |
| 12V-71N       | N70             | 360 (269)              | 430 (321)       | E4-7125-52-01       | 07-15-77    |                 |
| 16V-71N       | N70             | 478 (357)              | 570 (425)       | E4-7165-52-01       | 07-15-77    |                 |
| 8V-71T        | N60             | 227 (169.3)            | 253 (188.7)     | E4-7085-32-06       | 10-07-80    |                 |
| 8V-71T        | N80             | 303 (226)              | 349 (260)       | E4-7085-32-05       | 11-15-79    |                 |
| 8V-71T        | N90             | 325 (242)              | 377 (281)       | E4-7085-32-01       | 11-15-79    |                 |
| 8V-71T        | M95             | 351 (262)              | 415 (309)       | E4-7085-32-04       | 11-15-79    |                 |
| 12V-71T       | N80             | 459 (332)              | 525 (392)       | E4-7125-32-04       | 11-15-79    |                 |
| 12V-71T       | N90             | 500 (373)              | 575 (429)       | E4-7125-32-01       | 11-15-79    |                 |
| 12V-71T       | M95             | 540 (403)              | 575 (470)       | E4-7125-32-05       | 11-15-79    |                 |
| 16V-71T       | N80             | 600 (448)              | 690 (515)       | E4-7165-32-06       | 11-15-79    |                 |
| 16V-71T       | N90             | 650 (485)              | 755 (563)       | E4-7165-32-01       | 11-15-79    |                 |
| 16V-71T       | M95             | 702 (524)              | 830 (619)       | E4-7165-32-04       | 11-15-79    |                 |
| 16V-92N       | 9285            | 586 (437)              | 692 (516)       | E4-8165-12-02       | 08-12-79    |                 |
| 8V-92T        | 9200            | 370 (276)              | 430 (321)       | E4-8085-32-01       | 07-15-77    |                 |
| 8V-92T        | 9215            | 415 (310)              | 480 (358)       | E4-8085-32-03       | 07-16-80    |                 |
| 12V-92T       | 9215            | 640 (477)              | 740 (552)       | E4-8125-32-01       | 09-25-80    |                 |
| 16V-92T       | 9200            | 740 (552)              | 860 (642)       | E4-8165-32-02       | 07-15-77    |                 |
| 16V-92T       | 9215            | 830 (619)              | 960 (716)       | E4-8165-32-04       | 07-16-80    |                 |
| 6V-92TA       | 9215            | 330 (246)              | 370 (276)       | E4-8065-32-04       | 08-14-80    |                 |

NOTE - (A) CURVE ADDED  
(R) REVISED

DIESEL ELECTRIC STANDBY POWER

INDEX

| <u>ENGINE</u> | <u>INJECTOR</u> | <u>HORSEPOWER (KW)</u> |                 | <u>CURVE NUMBER</u> | <u>DATE</u> | <u>SEE NOTE</u> |
|---------------|-----------------|------------------------|-----------------|---------------------|-------------|-----------------|
|               |                 | <u>1500 RPM</u>        | <u>1800 RPM</u> |                     |             |                 |
| 12V-149       | 130             | 660 (492)              | 770 (574)       | E4-9125-12-02       | 07-15-77    |                 |
| 16V-149       | 130             | 880 (656)              | 1025 (765)      | E4-9165-12-02       | 07-15-77    |                 |
| 12V-149T      | 165             | 910 (679)              | 1070 (798)      | E4-9125-32-09       | 07-15-77    |                 |
| 12V-149T      | 165             | 995 (742)              | 1155 (862)      | E4-9125-32-34       | 09-23-83    |                 |
| 12V-149T      | 170             | 950 (709)              | 1130 (843)      | E4-9125-32-24       | 03-13-81    |                 |
| 16V-149T      | 165             | 1210 (903)             | 1425 (1063)     | E4-9165-32-09       | 07-15-77    |                 |
| 16V-149T      | 165             | 1315 (981)             | 1545 (1153)     | E4-9165-32-34       | 01-09-84    |                 |
| 16V-149T      | 170             | 1310 (977)             | 1515 (1130)     | E4-9165-32-25       | 03-10-81    |                 |
| 8V-149TI      | 270             | 865 (645)              | 1010 (753)      | E4-9085-32-01       | 12-08-83    |                 |
| 12V-149TI     | 170             | 1015 (757)             | 1175 (877)      | E4-9125-32-25       | 05-09-80    |                 |
| 12V-149TI     | 270             | 1270 (947)             | 1515 (1130)     | E4-9125-32-35       | 12-08-83    |                 |
| 16V-149TI     | 170             | 1370 (1022)            | 1580 (1179)     | E4-9165-32-22       | 05-09-80    |                 |
| 16V-149TI     | 190             | 1500 (1119)            | 1740 (1298)     | E4-9165-32-40       | 11-29-84    | (A)             |
| 16V-149TI     | 270             | 1730 (1291)            | 2020 (1507)     | E4-9165-32-33       | 12-08-83    |                 |

NOTE - (A) CURVE ADDED  
(R) REVISED

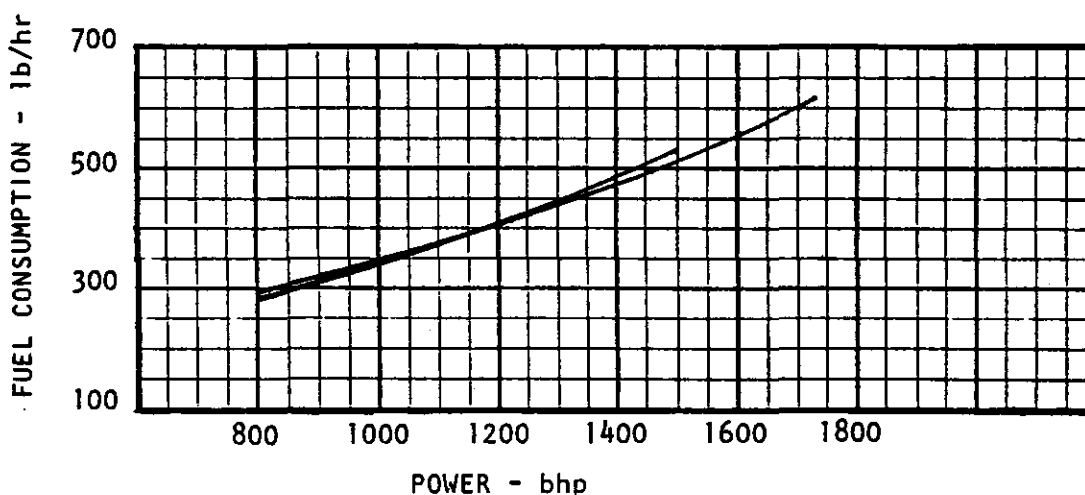
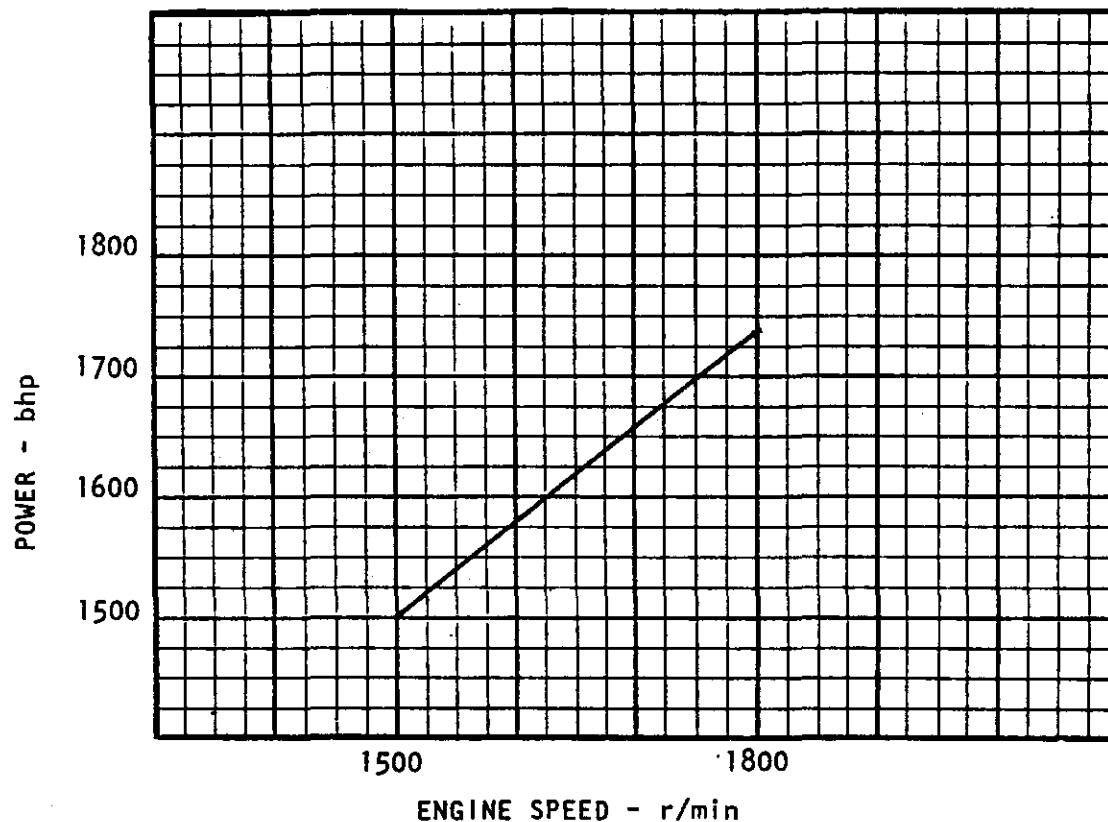
CURVE/S REMOVED

# ENGINE PERFORMANCE CURVE



RATING: RATED POWER - BASIC  
ENGINE  
APPLICATION: GENERATOR SET -  
STANDBY

MODEL: 16V-149TI  
1740 bhp @ 1800 r/min  
1500 bhp @ 1500 r/min



AIR INTAKE RESTRICTION - in. H<sub>2</sub>O (kPa) . . . 10 (2.5)  
EXHAUST BACK PRESSURE - in. H<sub>2</sub>O (kPa) . . . 15 (3.7)

- POWER OUTPUT GUARANTEED WITHIN 5% AT SAE J1349 CONDITIONS:  
77°F (25°C) AIR INLET TEMPERATURE; 29.31 in. Hg (99kPa) DRY BAROMETER;  
100°F (39°C) FUEL INLET TEMPERATURE (-.853 SPECIFIC GRAVITY AT 60°F).
- CONVERSION FACTORS: POWER: kW = bhp × 0.746  
FUEL: kg/hr = lb/hr × 0.454
- VALUES DERIVED ARE FROM CURRENTLY AVAILABLE DATA AND SUBJECT TO  
CHANGE WITHOUT NOTICE.

CERTIFIED BY:

*H. L. Graham*  
12-3-84  
STAFF ENGINEER

CURVE NO.

E4-9165-32-40  
DATE: 11-29-84  
REV./DATE:  
SHT. 1 OF 3

## ENGINE SPECIFICATION

### General Engine Description:

Model  
Number of cylinders  
Bore and stroke - in (mm)  
Displacement - in<sup>3</sup> (litre)  
Compression ratio  
Firing order - Clockwise rotation (RH)

#### Dimensions & weight (approx.)

Length - in (mm)  
Width - in (mm)  
Height - in (mm)  
Weight - lbs (kg)

### NEW AIR INDUCTION WITH BLOWER PRESSURE RELIEF VALVE 9163-7306

16  
5.75 x 5.75 (146 x 146)  
2389 (39.18)  
16:1  
1L-2R-8L-6R-2L-4R-6L-5R  
4L-3R-5L-7R-3L-1R-7L-8R

106 (2692)  
64 (1626)  
68 (1727)  
10970 (4976)

### Technical Engine Specifications:

Injector (timing)  
Turbocharger  
Engine speed - r/min  
Brake horsepower - bhp (kW)  
Bmep - lb/in<sup>2</sup> (kPa)  
Fuel consumption - lb/hr (kg/hr)  
Specific fuel cons. - lb/bhp hr (g/kW hr)  
Fuel pump suction at pump inlet  
Maximum - in Hg (kPa)  
Clean system  
Dirty system  
Airflow - ft<sup>3</sup>/min (m<sup>3</sup>/min)  
Airbox pressure - in Hg (kPa)  
Air intake restriction, max. - in H<sub>2</sub>O (kPa)  
(Dry type air cleaner)  
Full load - dirty  
- clean  
Exhaust temp. - °F (°C)  
Exhaust flow - ft<sup>3</sup>/min (m<sup>3</sup>/min)  
Exhaust back press., max. - in Hg (kPa)  
Full load  
Coolant flow - gal/min (litre/min)  
Coolant normal operating temp. - °F (°C)  
Engine heat rejection - Btu/min (kW)  
Engine radiated heat - Btu/min (kW)  
Coolant inlet restriction, max. - in Hg (kPa)  
Lubricating oil press., normal - lb/in<sup>2</sup> (kPa)  
Lubricating oil temp., in-pan - °F (°C)  
Emissions - gm/hr (at per cent load)

|                 | <u>0%</u> | <u>25%</u> | <u>50%</u> | <u>75%</u> | <u>100%</u> |
|-----------------|-----------|------------|------------|------------|-------------|
| NO <sub>x</sub> | 1635      | 3680       | 6820       | 12100      | 18100       |
| CO <sub>x</sub> | 885       | 510        | 570        | 1980       | 9090        |
| HC              | 1015      | 580        | 590        | 1300       | 460         |

190 (2.205) STANDBY  
TV8401 (1.23 A/R HSG)  
1800  
1740 (1298)  
160 (1103)  
617.7 (280.2)  
355 (215.8)

6.0 (20.3)  
12.0 (40.6)  
4900 (138.8)  
43.0 (145.3)

17.5 (4.4)  
10.5 (2.6)  
745 (396)  
11000 (311.5)

2.2 (7.4)  
530 (2006)  
180 (82.2)  
47850 (840)  
6710 (118)  
3.0 (10.2)  
48-70 (331-483)  
230 (110) MAX.

All values at rated speed and power and with  
standard engine hardware unless otherwise noted.

Curve No. E4-9165-32-40  
Date: 11-29-84  
Rev./Date:  
Sht. 2 of 3

## ENGINE SPECIFICATION

### General Engine Description:

Model  
Number of cylinders  
Bore and stroke - in (mm)  
Displacement - in<sup>3</sup> (litre)  
Compression ratio  
Firing order - Clockwise rotation (RH)

#### Dimensions & weight (approx.)

Length - in (mm)  
Width - in (mm)  
Height - in (mm)  
Weight - lbs (kg)

### NEW AIR INDUCTION WITH BLOWER PRESSURE RELIEF VALVE 9163-7306

16  
5.75 x 5.75 (146 x 146)  
2389 (39.18)  
16:1  
1L-2R-8L-6R-2L-4R-6L-5R  
4L-3R-5L-7R-3L-1R-7L-8R  
106 (2692)  
64 (1626)  
68 (1727)  
10970 (4976)

### Technical Engine Specifications:

Injector (timing)  
Turbocharger  
Engine speed - r/min  
Brake horsepower - bhp (kW)  
Bmep - lb/in<sup>2</sup> (kPa)  
Fuel consumption - lb/hr (kg/hr)  
Specific fuel cons. - lb/bhp hr (g/kW hr)  
Fuel pump suction at pump inlet  
Maximum - in Hg (kPa)  
Clean system  
Dirty system  
Airflow - ft<sup>3</sup>/min (m<sup>3</sup>/min)  
Airbox pressure - in Hg (kPa)  
Air intake restriction, max. - in H<sub>2</sub>O (kPa)  
(Dry type air cleaner)  
Full load - dirty  
- clean  
Exhaust temp. - °F (°C)  
Exhaust flow - ft<sup>3</sup>/min (m<sup>3</sup>/min)  
Exhaust back press., max. - in Hg (kPa)  
Full load  
Coolant flow - gal/min (litre/min)  
Coolant normal operating temp. - °F (°C)  
Engine heat rejection - Btu/min (kW)  
Engine radiated heat - Btu/min (kW)  
Coolant inlet restriction, max. - in Hg (kPa)  
Lubricating oil press., normal - lb/in<sup>2</sup> (kPa)  
Lubricating oil temp., in-pan - °F (°C)  
Emissions - gm/hr (at per cent load)

|                 | 0%   | 25%  | 50%  | 75%   | 100%  |
|-----------------|------|------|------|-------|-------|
| NO <sub>x</sub> | 1260 | 3290 | 6740 | 11100 | 14200 |
| CO <sub>x</sub> | 810  | 460  | 710  | 2210  | 5870  |
| HC              | 885  | 440  | 530  | 860   | 400   |

190 (2.205) STANDBY  
TV8401 (1.23 A/R HSG)  
1500  
1500 (1119)  
166 (1145)  
534.0 (242.2)  
.356 (216.4)  
6.0 (20.3)  
12.0 (40.6)  
4600 (130.3)  
41 (138.6)  
13.0 (3.2)  
7.5 (1.9)  
750 (399)  
10360 (293.4)  
1.5 (5.1)  
440 (1666)  
180 (82.2)  
40550 (711)  
6630 (117)  
2.0 (6.7)  
48-70 (331-483)  
230 (110) MAX.

All values at rated speed and power and with  
standard engine hardware unless otherwise noted.

Curve No. E4-9165-32-40  
Date: 11-29-84  
Rev./Date:  
Sht. 3 of 3

# MARINE MAXIMUM RATING PERFORMANCE CURVES

| <u>INDEX</u>  |                 |                       |                     |             |                 |
|---------------|-----------------|-----------------------|---------------------|-------------|-----------------|
| <u>ENGINE</u> | <u>INJECTOR</u> | <u>BHP/ SHP @ RPM</u> | <u>CURVE NUMBER</u> | <u>DATE</u> | <u>SEE NOTE</u> |
| 3-53N         | N50             | - / 92 @ 2800         | E4-5032-52-01       | 02-04-69    |                 |
| 4-53N         | N50             | - / 128 @ 2800        | E4-5042-52-01       | 01-31-69    |                 |
| 6V-53N        | N50             | - / 197 @ 2800        | E4-5062-52-01       | 01-27-69    |                 |
| 6V-53T        | N70             | 305/ 292 @ 2800       | E4-5062-32-02       | 11-25-81    |                 |
| 4-71N         | N70             | - / 160 @ 2300        | E4-1042-52-02       | 12-07-81    |                 |
| 6-71N         | N70             | - / 240 @ 2300        | E4-1062-52-03       | 01-04-82    |                 |
| 4-71M         | N80             | - / 170 @ 2300        | E4-1042-62-02       | 12-07-81    |                 |
| 6-71M         | N80             | - / 257 @ 2300        | E4-1062-62-01       | 01-04-82    |                 |
| 6-71TI        | N90             | - / 325 @ 2300        | E4-1062-32-04       | 01-04-82    |                 |
| 6V-71N        | N70             | - / 240 @ 2300        | E4-7062-52-03       | 01-04-82    |                 |
| 8V-71N        | N70             | - / 325 @ 2300        | E4-7082-52-03       | 01-04-82    |                 |
| 12V-71N       | N70             | - / 480 @ 2300        | E4-7122-52-03       | 01-05-82    |                 |
| 12V-71N       | N70             | - / 490 @ 2300        | E4-7122-52-3A       | 01-05-82    |                 |
| 16V-71N       | N70             | - / 640 @ 2300        | E4-7162-52-03       | 01-05-82    |                 |
| 6V-71TA       | 7N95            | 375/ 360 @ 2300       | E4-7062-32-03       | 01-13-81    |                 |
| 6V-71TA       | 7N95            | 375/ 365 @ 2300       | E4-7062-32-02       | 01-13-81    |                 |
| 6V-71TA       | 9215            | 435/ 425 @ 2300       | E4-7062-32-04       | 05-27-83    |                 |
| 8V-71TI       | N90             | 462/ 450 @ 2300       | E4-7082-32-04       | 01-05-82    |                 |
| 12V-71TI      | N90             | - / 650 @ 2300        | E4-7122-32-02       | 01-05-82    |                 |
| 12V-71TI      | 7N95            | 750/ 720 @ 2300       | E4-7122-32-04       | 04-25-84    |                 |
| 12V-71TI      | 9215            | 870/ 840 @ 2300       | E4-7122-32-03       | 08-11-83    |                 |
| 6V-92N        | 9285            | - / 280 @ 2300        | E4-8062-12-05       | 09-28-76    |                 |
| 8V-92N        | 9285            | - / 375 @ 2300        | E4-8082-12-05       | 09-28-76    |                 |
| 16V-92N       | 9285            | - / 725 @ 2100        | E4-8162-12-06       | 10-05-76    |                 |
| 6V-92TA       | 9215            | - / 425 @ 2300        | E4-8062-32-02       | 01-04-78    |                 |
| 6V-92TA       | 9225            | 475/ 465 @ 2300       | E4-8062-32-04       | 04-08-83    |                 |
| 8V-92TI       | 9200            | - / 500 @ 2300        | E4-8082-32-02       | 01-06-77    |                 |
| 8V-92TI       | 9215            | - / 550 @ 2300        | E4-8082-32-04       | 06-03-77    |                 |
| 8V-92TI       | 9215            | 600/ 585 @ 2300       | E4-8082-32-08       | 05-25-83    |                 |
| 8V-92TI       | 9225            | 650/ 625 @ 2300       | E4-8082-32-09       | 05-25-83    |                 |
| 12V-149T      | 150             | 1050/1019 @ 1900      | E4-9122-32-09       | 05-05-82    |                 |
| 12V-149T      | 145             | 1050/1015 @ 1900      | E4-9122-32-20       | 07-17-84    |                 |
| 16V-149T      | 150             | 1380/1340 @ 1900      | E4-9162-32-14       | 05-05-82    |                 |
| 16V-149T      | 145             | 1385/1340 @ 1900      | E4-9162-32-25       | 07-17-84    |                 |

E4M-0000-00-46  
Rev. 01-10-85  
Sheet 1 of 2

MARINE MAXIMUM RATING PERFORMANCE CURVES

INDEX

| <u>ENGINE</u> | <u>INJECTOR</u> | <u>BHP/ SHP @ RPM</u> | <u>CURVE NUMBER</u> | <u>DATE</u> | <u>SEE NOTE</u> |
|---------------|-----------------|-----------------------|---------------------|-------------|-----------------|
| 8V-149TI      | 190             | 900/ 870 @ 1900       | E4-9082-32-04       | 11-10-83    |                 |
| 12V-149TI     | 160             | 1200/1160 @ 1900      | E4-9122-32-16       | 11-10-83    |                 |
| 12V-149TI     | 165             | 1250/1210 @ 1900      | E4-9122-32-17       | 11-10-83    |                 |
| 16V-149TI     | 160             | 1600/1550 @ 1900      | E4-9162-32-21       | 11-10-83    |                 |
| 16V-149TI     | 190             | 1800/1745 @ 1900      | E4-9162-32-22       | 11-10-83    |                 |
| V8-8.2        | 4A53            | 170/ 162 @ 3000       | E4-4082-11-04       | 09-27-84    | (A)             |
| V8-8.2T       | 4A70            | 220/ 211 @ 3200       | E4-4082-31-04       | 01-11-84    |                 |

NOTE - (A) CURVE ADDED  
(R) REVISED

CURVE/S REMOVED -E4-9122-32-9, E4-9162-32-14



# ENGINE PERFORMANCE CURVE

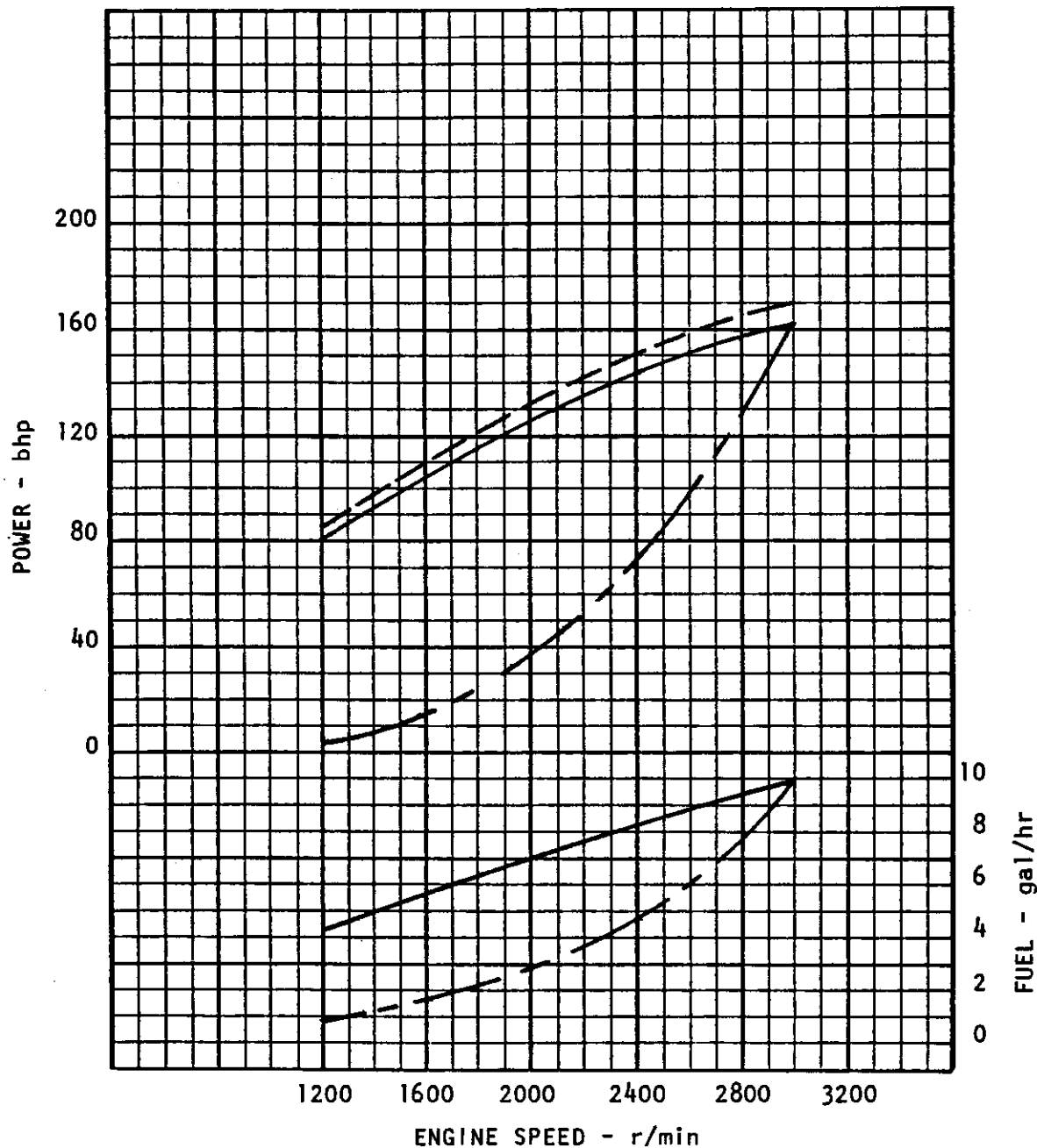
RATING: NET POWER - SEE BELOW

APPLICATION: MARINE - MAXIMUM

MODEL: V8-8.2

170 bhp @ 3000 r/min

162 shp @ 3000 r/min



----- BRAKE HORSEPOWER  
————— SHAFT HORSEPOWER  
----- PROPELLER LOAD

ACCESSORIES: TWIN DISC MG 502 MARINE GEAR  
BATTERY CHARGING ALTERNATOR 12V, 42AMP  
RAW WATER PUMP, EXHAUST BACK PRESSURE, 15 IN. H<sub>2</sub>O, INLET RESTRICTION, 10 IN. H<sub>2</sub>O

- POWER OUTPUT AT SAE J1349 CONDITIONS:  
77°F (25°C) AIR INLET TEMPERATURE; 29.31 in. Hg (99kPa) DRY BARMETER;  
100°F (39°C) FUEL INLET TEMPERATURE (.853 SPECIFIC GRAVITY AT 60°F).
- CONVERSION FACTORS: POWER: kW = bhp x 0.746  
FUEL: kg/kW-hr = lb/bhp-hr x 0.608  
TORQUE: N-m = lb-ft x 1.356
- VALUES DERIVED ARE FROM CURRENTLY AVAILABLE DATA AND SUBJECT TO CHANGE WITHOUT NOTICE.

CERTIFIED BY:

*S. L. Karabellian*

STAFF ENGINEER

CURVE NO.

E4-4082-11-4

DATE: 9-27-84

REV./DATE:

SHT. 1 OF 3

## ENGINE SPECIFICATION

### General Engine Description:

|                                                                                                                                                                            |                                 |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|
| Model                                                                                                                                                                      | 4082-8100                       |
| Number of cylinders                                                                                                                                                        | 8                               |
| Bore and stroke - in (mm)                                                                                                                                                  | 4.25 X 4.41 (108 X 112)         |
| Displacement - in <sup>3</sup> (litre)                                                                                                                                     | 500.9 (8.2)                     |
| Compression ratio                                                                                                                                                          | 18.7:1                          |
| Firing order                                                                                                                                                               |                                 |
| Clockwise rotation (RH)                                                                                                                                                    | 1-8-4-3-6-5-7-2                 |
| Counter clockwise rotation (LH)                                                                                                                                            | NOT APPLICABLE                  |
| Marine gear type                                                                                                                                                           | TWIN DISC MG-502                |
| Marine gear reduction ratios                                                                                                                                               | 1.54:1, 2.00:1                  |
| Marine gear lube oil capacity approx.<br>(Does not include heat exchanger &<br>connections used externally) - pts (litre)<br>(Marine gear must use straight viscosity oil) | 3.5 (1.66)                      |
| Electrical system                                                                                                                                                          | 12 VOLTS                        |
| Recommended battery capacity (CCA @ 0°F (-18°C))<br>12 Volt system above 32°F (0°C)                                                                                        | 900                             |
| Dimensions & weight                                                                                                                                                        |                                 |
| Length - in (mm)                                                                                                                                                           | 54.5 (1384)                     |
| Width - in (mm)                                                                                                                                                            | 31.0 (787)                      |
| Height - in (mm)                                                                                                                                                           | 30.4 (772)                      |
| Weight, dry - lbs (kg)                                                                                                                                                     | 1560 (708)                      |
| Maximum installation angle                                                                                                                                                 | 7° ENGINE - 17° PROPELLER SHAFT |

### Technical Engine Specification

|                                                                               |                  |
|-------------------------------------------------------------------------------|------------------|
| Injector (timing)                                                             | 4A53 (43.80mm)   |
| Turbocharger                                                                  | NOT APPLICABLE   |
| Engine speed - r/min                                                          | 3000             |
| Brake horsepower - bhp (kW)<br>77°F, 29.31 in Hg (Dry) Bar., J-1349           | 170 (127)        |
| Shaft horsepower - shp (kW)                                                   | 162 (121)        |
| BMEP - lb/in <sup>2</sup> (kPa)                                               | 90 (621)         |
| Peak torque - lb ft (N m) @ r/min                                             | 372 (504) @ 1200 |
| Fuel consumption - lb/hr (kg/hr)                                              | 70.0 (31.8)      |
| Fuel consumption - gal/hr (litre/hr)                                          | 10.0 (37.9)      |
| Specific fuel cons. = lb/bhp hr (g/kW hr)                                     | .412 (250)       |
| Air consumption - ft <sup>3</sup> /min (m <sup>3</sup> /min)                  | 350 (9.9)        |
| Suggested minimum engine room vent area - in <sup>2</sup> (cm <sup>2</sup> )  |                  |
| Maximum engine room depression 0.2 in. H <sub>2</sub> O                       | 33.6 (217)       |
| Maximum allowable temperature rise<br>(Outside air to engine inlet) - °F (°C) | 30 (16.7)        |

Curve No. E4-4082-11-4

Date: 9-27-84

Rev./Date:

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## ENGINE SPECIFICATION

### Cooling System - Heat Exchanger or Keel Cooler

|                                                              |                |
|--------------------------------------------------------------|----------------|
| Fresh water capacity - gal (litre)                           | 8 (30.3)       |
| Heat rejection to coolant - Btu/min (kW)                     | 4790 (84)      |
| Fresh water flow - gal/min (litre/min)                       | 73 (276)       |
| Raw water flow - gal/min (litre/min)                         | 30 (114)       |
| Maximum inlet restriction at raw water pump -<br>In Hg (kPa) | 5 (16.9)       |
| Maximum raw water pump pressure - lb/in <sup>2</sup> (kPa)   | 10 (69)        |
| Suggested raw water pipe size - in (mm)                      | 1.5 (38.1)     |
| Suggested sea strainer size - simplex - in (mm)              | 1.5 (38.1)     |
| - duplex - in (mm)                                           | NOT APPLICABLE |
| Max. press. drop thru keel cooler - lb/in <sup>2</sup> (kPa) | 200 (93)       |

### Fuel System

|                                                                    |            |
|--------------------------------------------------------------------|------------|
| Fuel pump flow - gal/hr (litre/hr)                                 | 81.0 (306) |
| Maximum inlet restriction at pump - in Hg (kPa)<br>(clean filters) | 6 (20)     |
| Supply line dia. - in (mm)                                         | 0.5 (12.7) |

### Exhaust System

|                                                                                   |                |
|-----------------------------------------------------------------------------------|----------------|
| Gas flow - lb/min (kg/min)                                                        | 26.4 (12.0)    |
| Exhaust temperature - °F (°C)                                                     | 1040 (560)     |
| Maximum exhaust back pressure at turbocharger<br>outlet (full load) - in Hg (kPa) | NOT APPLICABLE |

### Lubrication System

|                                                           |                  |
|-----------------------------------------------------------|------------------|
| Engine lube oil capacity - qts (litre)                    | 11 (10.4)        |
| Lubrication oil press., normal - lb/in <sup>2</sup> (kPa) | 35-55 (241-379)  |
| Lubrication oil temp., in-pan - °F (°C)                   | 200-250 (93-121) |

Curve No. E4-4082-11-4

Date: 9-27-84

Rev./Date:

Sht. 3 of 3

# MARINE CONTINUOUS RATING

## INDEX

| <u>ENGINE</u> | <u>INJECTOR</u> | <u>BHP/ SHP @ RPM</u> | <u>CURVE NUMBER</u> | <u>DATE</u> | <u>SEE NOTE</u> |
|---------------|-----------------|-----------------------|---------------------|-------------|-----------------|
| 3-53N         | N40             | - / 73 @ 2400         | E4-5032-52-02       | 02-04-69    |                 |
| 4-53N         | N40             | - / 100 @ 2400        | E4-5042-52-02       | 03-24-80    |                 |
| 6V-53N        | N40             | - / 148 @ 2400        | E4-5062-52-02       | 03-24-80    |                 |
| 4-71N (2V)    | N55             | - / 106 @ 1800        | E4-1042-51-01       | 02-27-80    |                 |
| 4-71N         | N55             | - / 115 @ 1800        | E4-1042-52-01       | 03-24-80    |                 |
| 6-71N (2V)    | N55             | - / 165 @ 1800        | E4-1062-51-01       | 02-25-80    |                 |
| 6-71N         | N55             | - / 174 @ 1800        | E4-1062-52-01       | 03-24-80    |                 |
| 6V-71N (2V)   | N55             | - / 165 @ 1800        | E4-7062-51-01       | 02-25-80    |                 |
| 6V-71N        | N55             | - / 174 @ 1800        | E4-7062-52-01       | 03-24-80    |                 |
| 8V-71N (2V)   | N55             | - / 215 @ 1800        | E4-7082-51-01       | 02-25-80    |                 |
| 8V-71N        | N55             | - / 230 @ 1800        | E4-7082-52-01       | 03-24-80    |                 |
| 12V-71N (2V)  | N55             | - / 325 @ 1800        | E4-7122-51-01       | 02-25-80    |                 |
| 12V-71N       | 71N5            | - / 317 @ 1800        | E4-7122-52-08       | 03-24-80    |                 |
| 12V-71N       | N55             | - / 340 @ 1800        | E4-7122-52-01       | 03-24-80    |                 |
| 16V-71N (2V)  | N55             | - / 422 @ 1800        | E4-7162-51-01       | 02-25-80    |                 |
| 16V-71N       | N55             | - / 455 @ 1800        | E4-7162-52-02       | 03-24-80    |                 |
| 6V-92N        | 9275            | - / 230 @ 1800        | E4-8062-12-01       | 03-24-80    |                 |
| 8V-92N        | 9275            | - / 300 @ 1800        | E4-8082-12-01       | 03-24-80    |                 |
| 16V-92N       | 9275            | - / 600 @ 1800        | E4-8162-12-01       | 03-24-80    |                 |
| 8V-92TA       | 9A80            | 370/ 355 @ 1800       | E4-8082-32-12       | 02-14-84    |                 |
| 12V-149       | 120             | - / 675 @ 1800        | E4-9122-12-01       | 02-08-80    |                 |
| 16V-149       | 120             | - / 900 @ 1800        | E4-9162-12-02       | 03-24-80    |                 |
| 12V-149T      | 140             | 894/ 867 @ 1800       | E4-9122-32-06       | 05-05-82    |                 |
| 12V-149T      | 140             | 915/ 885 @ 1800       | E4-9122-32-18       | 07-17-84    |                 |
| 16V-149T      | 115             | 930/ 902 @ 1800       | E4-9162-32-18       | 10-03-83    |                 |
| 16V-149T      | 140             | 1180/1145 @ 1800      | E4-9162-32-09       | 05-05-82    |                 |
| 16V-149T      | 140             | 1215/1175 @ 1800      | E4-9162-32-23       | 07-17-84    |                 |
| 8V-149TI      | 140             | 580/ 563 @ 1600       | E4-9082-32-05       | 06-11-84    | (A)             |
| 12V-149TI     | 140             | 940/ 912 @ 1800       | E4-9122-32-14       | 10-24-83    |                 |
| 16V-149TI     | 140             | 1280/1242 @ 1800      | E4-9162-32-19       | 10-24-83    |                 |

NOTE - (A) CURVE ADDED  
(R) REVISED

CURVE/S REMOVED -

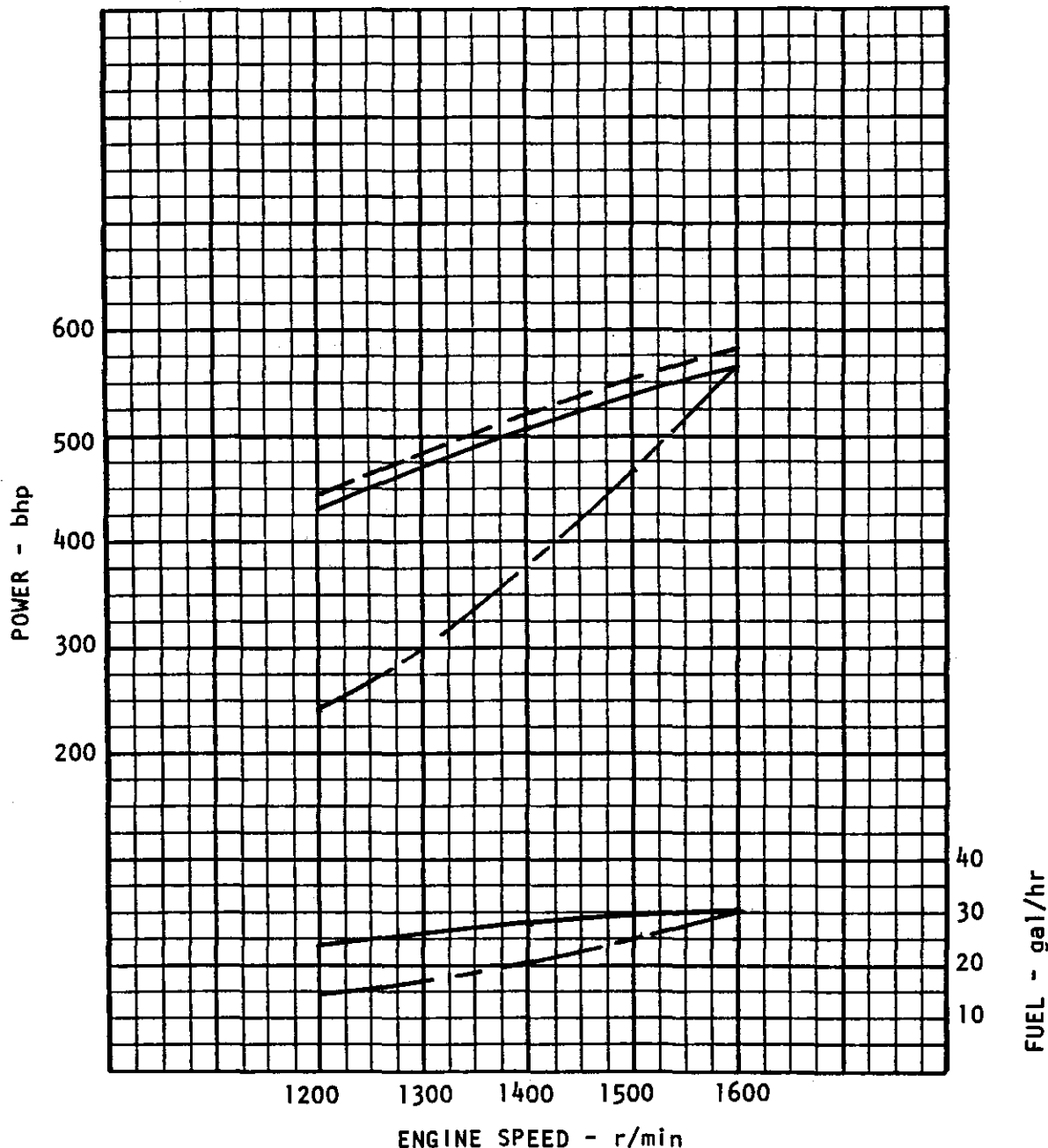
E4M-0000-00-31  
01-10-85



# ENGINE PERFORMANCE CURVE

RATING: NET POWER - SEE BELOW  
PRELIMINARY  
APPLICATION: MARINE - CONTINUOUS

MODEL: 8V-149TI  
580 bhp @ 1600 r/min  
563 shp @ 1600 r/min



----- Brake Horsepower  
————— Shaft Horsepower  
----- Propeller Load

ACCESSORIES: MARINE GEAR 3% LOSS  
AIR INTAKE RESTRICTION - in. H<sub>2</sub>O (kPa) . . . 10 (2.5)  
EXHAUST BACK PRESSURE - in. H<sub>2</sub>O (kPa) . . . 15 (3.7)

- POWER OUTPUT GUARANTEED WITHIN 5% AT SAE J1349 CONDITIONS:  
77°F (25°C) AIR INLET TEMPERATURE; 29.31 in. Hg (99kPa) DRY BAROMETER;  
100°F (39°C) FUEL INLET TEMPERATURE (.853 SPECIFIC GRAVITY AT 60°F).
- CONVERSION FACTORS: POWER: kW = bhp × 0.746  
FUEL: kg/kW-hr = lb/bhp-hr × 0.608  
TORQUE: N-m = lb-ft × 1.356
- VALUES DERIVED ARE FROM CURRENTLY AVAILABLE DATA AND SUBJECT TO CHANGE WITHOUT NOTICE.

CERTIFIED BY:

*Dr. Graham*  
11-2-84  
STAFF ENGINEER

CURVE NO.

E4-9082-32-5  
DATE: 6-11-84  
REV./DATE:  
SHT. 1 OF 3

## ENGINE SPECIFICATION

### General Engine Description:

#### Model

Number of cylinders  
Bore and stroke - in (mm)  
Displacement - in<sup>3</sup> (litre)  
Compression ratio  
Firing order  
Clockwise rotation (RH)  
Counter clockwise rotation (LH)  
Marine gear type  
Marine gear reduction ratios  
Marine gear lube oil capacity approx.  
(Does not include heat exchanger &  
connections used externally) - pts (litre)  
(Marine gear must use straight viscosity oil)  
Electrical system  
Recommended battery capacity (CCA @ 0°F (-18°C))  
24 Volt system above 32°F (0°C)  
Dimensions & weight  
Length - in (mm)  
Width - in (mm)  
Height - in (mm)  
Weight, dry - lbs (kg)  
Maximum installation angle

|                                                        |  |
|--------------------------------------------------------|--|
| NEW AIR INDUCTION WITH<br>BLOWER PRESSURE RELIEF VALVE |  |
| 9082-7301                                              |  |
| 8                                                      |  |
| 5.75 X 5.75 (146 X 146)                                |  |
| 1195 (19.6)                                            |  |
| 16:1                                                   |  |
| 1L-3R-3L-4R-4L-2R-2L-1R                                |  |
| 1L-1R-2L-2R-4L-4R-3L-3R                                |  |
| NOT DETERMINED                                         |  |
| NOT DETERMINED                                         |  |
| NOT DETERMINED                                         |  |
| 24 VOLTS                                               |  |
| 950                                                    |  |
| 64 (1625)                                              |  |
| 64 (1625)                                              |  |
| 68 (1727)                                              |  |
| 6000 (2727)                                            |  |
| 10°                                                    |  |

### Technical Engine Specification

Injector (timing)  
Turbocharger  
Engine speed - r/min  
Brake horsepower - bhp (kW)  
77°F, 29.31 in Hg (Dry) Bar., J-1349  
Shaft horsepower - shp (kW)  
BMEP - lb/in<sup>2</sup> (kPa)  
Peak torque - lb ft (N m) @ r/min  
Fuel consumption - lb/hr (kg/hr)  
Fuel consumption - gal/hr (litre/hr)  
Specific fuel cons. = lb/bhp hr (g/kW hr)  
Air consumption - ft<sup>3</sup>/min (m<sup>3</sup>/min)  
Suggested minimum engine room vent area - in<sup>2</sup> (cm<sup>2</sup>)  
Maximum engine room depression 0.2 in. H<sub>2</sub>O  
Maximum allowable temperature rise  
(Outside air to engine inlet) - °F (°C)

|                    |  |
|--------------------|--|
| 140 (2,205)        |  |
| TV7111 (1.08 A/R)  |  |
| 1600               |  |
| 580 (433)          |  |
| 563 (421)          |  |
| 120 (826)          |  |
| 1951 (2675) @ 1400 |  |
| 212.9 (96.6)       |  |
| 30.5 (115.5)       |  |
| .367 (223)         |  |
| 1850 (52)          |  |
| 178 (1149)         |  |
| 30 (17)            |  |

Curve No. E4-9082-32-5  
Date: 6-11-84  
Rev./Date:  
Sht. 2 of 3

## ENGINE SPECIFICATION

### Cooling System - Heat Exchanger or Keel Cooler

|                                                              |             |
|--------------------------------------------------------------|-------------|
| Fresh water capacity - gal (litre)                           | 22.8 (86.1) |
| Heat rejection to coolant - Btu/min (kW)                     | 17800 (314) |
| Fresh water flow - gal/min (litre/min)                       | 233 (882)   |
| Raw water flow - gal/min (litre/min)                         | 160 (606)   |
| Maximum inlet restriction at raw water pump -<br>In Hg (kPa) | 5 (16.93)   |
| Maximum raw water pump pressure - lb/in <sup>2</sup> (kPa)   | 10 (68.95)  |
| Suggested raw water pipe size - in (mm)                      | 2.5 (63.5)  |
| Suggested sea strainer size - simplex - in (mm)              | 3 (76)      |
| - duplex - in (mm)                                           | 4 (102)     |
| Max. press. drop thru keel cooler - lb/in <sup>2</sup> (kPa) | 6 (41)      |
| Maximum water out temperature - °F (°C)                      | 200 (93)    |

### Fuel System

|                                                                    |               |
|--------------------------------------------------------------------|---------------|
| Fuel pump flow - gal/hr (litre/hr)                                 | 300 (1135)    |
| Maximum inlet restriction at pump - In Hg (kPa)<br>(clean filters) | 6 (20.32)     |
| Supply line dia. - in (mm)                                         | 1 (25.4) min. |

### Exhaust System

|                                                                                   |              |
|-----------------------------------------------------------------------------------|--------------|
| Gas flow - lb/min (kg/min)                                                        | 137.1 (62.2) |
| Exhaust temperature - °F (°C)                                                     | 625 (329)    |
| Maximum exhaust back pressure at turbocharger<br>outlet (full load) - In Hg (kPa) | 2.5 (8.47)   |

### Lubrication System

|                                                           |                 |
|-----------------------------------------------------------|-----------------|
| Engine lube oil capacity - qts (litre)                    | 128 (121.1)     |
| Lubrication oil press., normal - lb/in <sup>2</sup> (kPa) | 65-85 (449-587) |
| Lubrication oil temp., in-pan - °F (°C)                   | 230 (110) max.  |

Curve No. E4-9082-32-5  
Date: 6-11-84  
Rev./Date:  
Sht. 3 of 3

MARINE INTERMITTENT RATING  
INDEX

| <u>ENGINE</u> | <u>INJECTOR</u> | <u>BHP/ SHP @ RPM</u> | <u>CURVE NUMBER</u> | <u>DATE</u> | <u>SEE NOTE</u> |
|---------------|-----------------|-----------------------|---------------------|-------------|-----------------|
| 4-53N         | N45             | - / 112/2500          | E4-5042-52-03       | 06-21-79    |                 |
| 6V-53N        | N45             | - / 173/2500          | E4-5062-52-03       | 06-11-73    |                 |
| 4-71N         | N60             | - / 135/2100          | E4-1042-52-03       | 12-07-81    |                 |
| 4-71N         | N65             | - / 146/2100          | E4-1042-52-04       | 12-07-81    |                 |
| 6-71N         | N60             | - / 203/2100          | E4-1062-52-02       | 01-04-82    |                 |
| 6-71N         | N65             | - / 221/2100          | E4-1062-52-04       | 01-04-82    |                 |
| 6-71TI        | N70             | - / 260/2100          | E4-1062-32-05       | 01-04-82    |                 |
| 16V-71N(2V)   | N60             | - / 502/2100          | E4-7162-51-02       | 04-08-81    |                 |
| 6V-71N        | N60             | - / 203/2100          | E4-7062-52-02       | 01-04-82    |                 |
| 6V-71N        | N65             | - / 221/2100          | E4-7062-52-04       | 01-04-82    |                 |
| 8V-71N        | N60             | - / 272/2100          | E4-7082-52-02       | 01-04-82    |                 |
| 8V-71N        | N65             | - / 296/2100          | E4-7082-52-05       | 01-05-82    |                 |
| 12V-71N       | N60             | - / 400/2100          | E4-7122-52-02       | 01-05-82    |                 |
| 12V-71N       | N65             | - / 437/2100          | E4-7122-52-06       | 01-05-82    |                 |
| 16V-71N       | N60             | - / 538/2100          | E4-7162-52-04       | 01-05-82    |                 |
| 16V-71N       | C65             | - / 583/2100          | E4-7162-52-05       | 01-05-82    |                 |
| 6V-71TA       | N70             | 260/ 246/2100         | E4-7062-32-05       | 09-20-83    |                 |
| 8V-71TI       | N70             | - / 340/2100          | E4-7082-32-02       | 01-05-82    |                 |
| 12V-71TI      | N70             | - / 510/2100          | E4-7122-32-01       | 01-05-82    |                 |
| 6V-92N        | 9280            | - / 260/2100          | E4-8062-12-04       | 09-28-76    |                 |
| 8V-92N        | 9280            | - / 350/2100          | E4-8082-12-04       | 09-28-76    |                 |
| 16V-92N       | 9280            | - / 690/2100          | E4-8162-12-05       | 10-05-76    |                 |
| 6V-92TA       | 9290            | - / 325/2100          | E4-8062-32-01       | 01-04-78    |                 |
| 6V-92TA       | 9290            | 334/ 325/2100         | E4-8062-32-05       | 08-10-83    |                 |
| 8V-92TI       | 9290            | - / 435/2100          | E4-8082-32-03       | 01-06-77    |                 |
| 8V-92TI       | 9290            | 471/ 450/2100         | E4-8082-32-11       | 08-10-83    |                 |
| 8V-92TI       | 9290            | 471/ 460/2100         | E4-8082-32-10       | 08-10-83    |                 |
| 12V-149N      | 130             | - / 770/1900          | E4-9122-12-02       | 02-08-80    |                 |
| 12V-149T      | 140             | 930/ 902/1900         | E4-9122-32-10       | 05-05-82    |                 |
| 12V-149T      | 140             | 950/ 920/1900         | E4-9122-32-19       | 07-17-84    |                 |
| 16V-149T      | 140             | - /1160/1900          | E4-9162-32-07       | 08-06-76    |                 |
| 16V-149T      | 140             | 1215/1180/1900        | E4-9162-32-15       | 05-05-82    |                 |
| 16V-149T      | 140             | 1260/1220/1900        | E4-9162-32-24       | 07-17-84    |                 |

E4M-0000-00-30

01-10-85

Sheet 1 of 2

MARINE INTERMITTENT RATING  
INDEX

| <u>ENGINE</u> | <u>INJECTOR</u> | <u>BHP/ SHP @ RPM</u> | <u>CURVE NUMBER</u> | <u>DATE</u> | <u>SEE NOTE</u> |
|---------------|-----------------|-----------------------|---------------------|-------------|-----------------|
| 8V149TI       | 150             | 760/ 734/1900         | E4-9082-32-03       | 12-14-83    |                 |
| 12V-149TI     | 145             | 1100/1064/1900        | E4-9122-32-15       | 10-24-83    |                 |
| 16V-149TI     | 150             | 1515/1466/1900        | E4-9162-32-20       | 10-24-83    |                 |
| 8V-8.2T       | 4C65            | 200/ 191/2800         | E4-4082-31-06       | 09-28-84    | (A)             |
| 8V-8.2T       | 4C65            | 205/ 195/3000         | E4-4082-31-05       | 09-28-84    | (A)             |

NOTE - (A) CURVE ADDED  
(R) REVISED

CURVE/S REMOVED -



# ENGINE PERFORMANCE CURVE

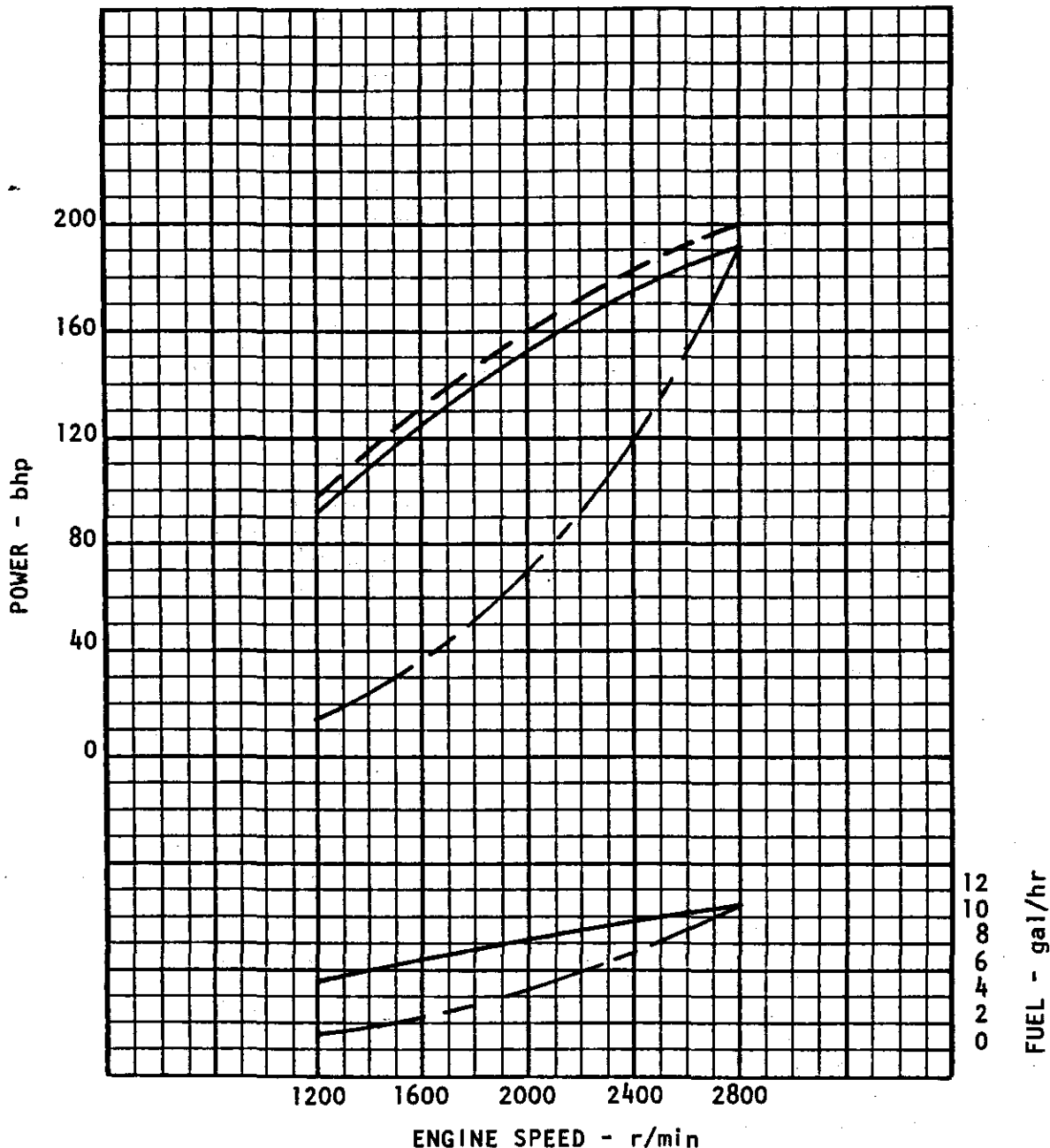
RATING: NET POWER - SEE BELOW

MODEL: V8-8.2T

200 bhp @ 2800 r/min

APPLICATION: MARINE - INTERMITTENT

191 shp @ 2800 r/min



----- BRAKE HORSEPOWER  
————— SHAFT HORSEPOWER  
..... PROPELLER LOAD

ACCESSORIES: TWIN DISC MG 502 MARINE GEAR  
BATTERY CHARGING ALTERNATOR 12V, 42AMP  
RAW WATER PUMP, EXHAUST BACK PRESSURE, 15 IN. H<sub>2</sub>O, INLET RESTRICTION, 10 IN. H<sub>2</sub>O

• POWER OUTPUT AT SAE J1349 CONDITIONS:  
77°F (25°C) AIR INLET TEMPERATURE; 29.31 in. Hg (99kPa) DRY BAROMETER;  
100°F (39°C) FUEL INLET TEMPERATURE (.853 SPECIFIC GRAVITY AT 60°F).

• CONVERSION FACTORS: POWER: kW = bhp x 0.746  
FUEL: kg/kW-hr = lb/bhp-hr x 0.608  
TORQUE: N-m = lb-ft x 1.356

• VALUES DERIVED ARE FROM CURRENTLY AVAILABLE DATA AND SUBJECT TO CHANGE WITHOUT NOTICE.

CERTIFIED BY:

*S. K. Kaul*

STAFF ENGINEER

CURVE NO.

E4-4082-31-6

DATE: 9-28-84

REV./DATE:

SHT. 1 OF 3

## ENGINE SPECIFICATION

### General Engine Description:

|                                                                                                                                                                            |                                 |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|
| Model                                                                                                                                                                      | 4082-8300/8301                  |
| Number of cylinders                                                                                                                                                        | 8                               |
| Bore and stroke - in (mm)                                                                                                                                                  | 4.25 X 4.41 (108 X 112)         |
| Displacement - in <sup>3</sup> (litre)                                                                                                                                     | 500.9 (8.2)                     |
| Compression ratio                                                                                                                                                          | 17.4:1                          |
| Firing order                                                                                                                                                               |                                 |
| Clockwise rotation (RH)                                                                                                                                                    | 1-8-4-3-6-5-7-2                 |
| Counter clockwise rotation (LH)                                                                                                                                            | NOT APPLICABLE                  |
| Marine gear type                                                                                                                                                           | TWIN DISC MG-502                |
| Marine gear reduction ratios                                                                                                                                               | 1.54:1, 2.00:1                  |
| Marine gear lube oil capacity approx.<br>(Does not include heat exchanger &<br>connections used externally) - pts (litre)<br>(Marine gear must use straight viscosity oil) | 3.5 (1.66)                      |
| Electrical system                                                                                                                                                          | 12 VOLTS                        |
| Recommended battery capacity (CCA @ 0°F (-18°C))<br>12 Volt system above 32°F (0°C)                                                                                        | 900                             |
| Dimensions & weight                                                                                                                                                        |                                 |
| Length - in (mm)                                                                                                                                                           | 54.5 (1384)                     |
| Width - in (mm)                                                                                                                                                            | 31.0 (787)                      |
| Height - in (mm)                                                                                                                                                           | 31.2 (794)                      |
| Weight, dry - lbs (kg)                                                                                                                                                     | 1560 (708)                      |
| Maximum installation angle                                                                                                                                                 | 7° ENGINE - 17° PROPELLER SHAFT |

### Technical Engine Specification

|                                                                               |                  |
|-------------------------------------------------------------------------------|------------------|
| Injector (timing)                                                             | 4C65 (44.25mm)   |
| Turbocharger                                                                  | TW 41            |
| Engine speed - r/min                                                          | 2800             |
| Brake horsepower - bhp (kW)<br>77°F, 29.31 in Hg (Dry) Bar., J-1349           | 200 (149)        |
| Shaft horsepower - shp (kW)                                                   | 191 (142)        |
| BMEP - lb/in <sup>2</sup> (kPa)                                               | 113 (779)        |
| Peak torque - lb ft (N m) @ r/min                                             | 430 (583) @ 1600 |
| Fuel consumption - lb/hr (kg/hr)                                              | 78.6 (35.7)      |
| Fuel consumption - gal/hr (litre/hr)                                          | 11.2 (42.4)      |
| Specific fuel cons. - lb/bhp hr (g/kW hr)                                     | .393 (239)       |
| Air consumption - ft <sup>3</sup> /min (m <sup>3</sup> /min)                  | 475 (13.5)       |
| Suggested minimum engine room vent area - in <sup>2</sup> (cm <sup>2</sup> )  |                  |
| Maximum engine room depression 0.2 in. H <sub>2</sub> O                       | 45.6 (294)       |
| Maximum allowable temperature rise<br>(Outside air to engine inlet) - °F (°C) | 30 (16.7)        |

Curve No. E4-4082-31-6

Date: 9-28-84

Rev./Date:

Sht. 2 of 3

## ENGINE SPECIFICATION

### Cooling System - Heat Exchanger or Keel Cooler

|                                                                       |                              |
|-----------------------------------------------------------------------|------------------------------|
| Fresh water capacity - gal (litre)                                    | 8 (30.3)                     |
| Heat rejection to coolant - Btu/min (kW)                              | 5600 (98)                    |
| Fresh water flow - gal/min (litre/min)                                | 68 (257)                     |
| Raw water flow - gal/min (litre/min)                                  | 29 (110)                     |
| Maximum inlet restriction at raw water pump -<br>In Hg (kPa)          | 5 (16.9)                     |
| Maximum raw water pump pressure - lb/in <sup>2</sup> (kPa)            | 10 (69)                      |
| Suggested raw water pipe size - in (mm)                               | 1.5 (38.1)                   |
| Suggested sea strainer size - simplex - in (mm)<br>- duplex - in (mm) | 1.5 (38.1)<br>NOT APPLICABLE |
| Max. press. drop thru keel cooler - lb/in <sup>2</sup> (kPa)          | 200 (93)                     |

### Fuel System

|                                                                    |            |
|--------------------------------------------------------------------|------------|
| Fuel pump flow - gal/hr (litre/hr)                                 | 79.4 (300) |
| Maximum inlet restriction at pump - In Hg (kPa)<br>(clean filters) | 6 (20)     |
| Supply line dia. - in (mm)                                         | 0.5 (12.7) |

### Exhaust System

|                                                                                   |             |
|-----------------------------------------------------------------------------------|-------------|
| Gas flow - lb/min (kg/min)                                                        | 35.6 (16.1) |
| Exhaust temperature - °F (°C)                                                     | 860 (460)   |
| Maximum exhaust back pressure at turbocharger<br>outlet (full load) - In Hg (kPa) | 3.0 (10)    |

### Lubrication System

|                                                           |                  |
|-----------------------------------------------------------|------------------|
| Engine lube oil capacity - qts (litre)                    | 11 (10.4)        |
| Lubrication oil press., normal - lb/in <sup>2</sup> (kPa) | 35-55 (241-379)  |
| Lubrication oil temp., in-pan - °F (°C)                   | 200-250 (93-121) |



# ENGINE PERFORMANCE CURVE

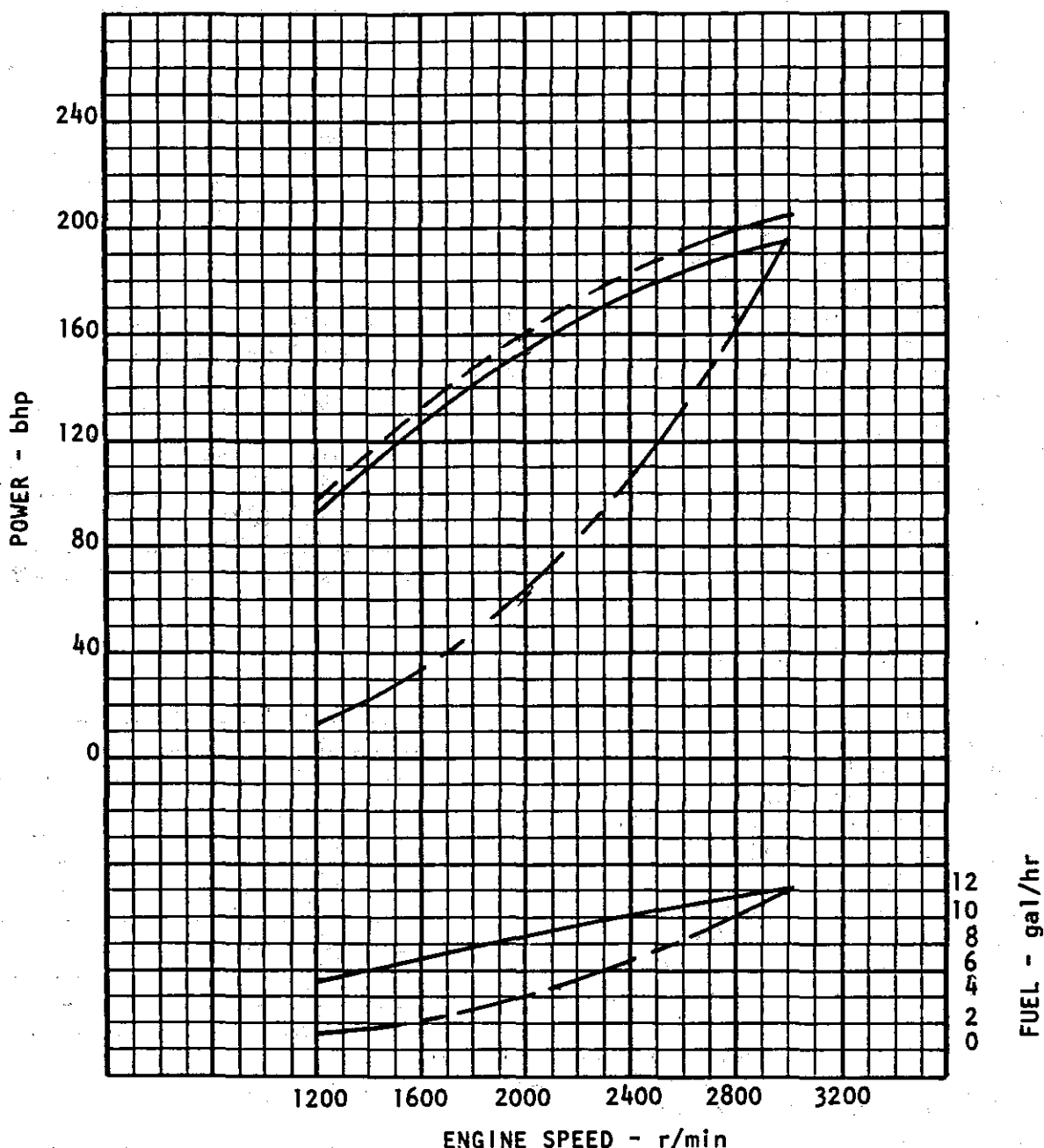
RATING: NET POWER - SEE BELOW

APPLICATION: MARINE - INTERMITTENT

MODEL: V8-8.2T

205 bhp @ 3000 r/min

195 shp @ 3000 r/min



----- BRAKE HORSEPOWER  
————— SHAFT HORSEPOWER  
- · - · - PROPELLER LOAD

ACCESSORIES: TWIN DISC MG 502 MARINE GEAR  
BATTERY CHARGING ALTERNATOR 12V, 42AMP  
RAW WATER PUMP, EXHAUST BACK PRESSURE, 15 IN. H<sub>2</sub>O, INLET RESTRICTION, 10 IN. H<sub>2</sub>O

- POWER OUTPUT AT SAE J1349 CONDITIONS:  
77°F (25°C) AIR INLET TEMPERATURE; 29.31 in. Hg (99kPa) DRY BAROMETER;  
100°F (39°C) FUEL INLET TEMPERATURE (.853 SPECIFIC GRAVITY AT 60°F).
- CONVERSION FACTORS: POWER: kW = bhp × 0.746  
FUEL: kg/kW-hr = lb/bhp-hr × 0.608  
TORQUE: N-m = lb-ft × 1.356
- VALUES DERIVED ARE FROM CURRENTLY AVAILABLE DATA AND SUBJECT TO CHANGE WITHOUT NOTICE.

CERTIFIED BY:

*S.R. Kumbhani*

STAFF ENGINEER

CURVE NO.

E4-4082-31-5

DATE: 9-28-84

REV./DATE:

SHT. 1 OF 3

## ENGINE SPECIFICATION

### General Engine Description:

|                                                                                                                                                                            |                                 |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|
| Model                                                                                                                                                                      | 4082-8300/8301                  |
| Number of cylinders                                                                                                                                                        | 8                               |
| Bore and stroke - in (mm)                                                                                                                                                  | 4.25 X 4.41 (108 X 112)         |
| Displacement - in <sup>3</sup> (litre)                                                                                                                                     | 500.9 (8.2)                     |
| Compression ratio                                                                                                                                                          | 17.4:1                          |
| Firing order                                                                                                                                                               |                                 |
| Clockwise rotation (RH)                                                                                                                                                    | 1-8-4-3-6-5-7-2                 |
| Counter clockwise rotation (LH)                                                                                                                                            | NOT APPLICABLE                  |
| Marine gear type                                                                                                                                                           | TWIN DISC MG-502                |
| Marine gear reduction ratios                                                                                                                                               | 1.54:1, 2.00:1                  |
| Marine gear lube oil capacity approx.<br>(Does not include heat exchanger &<br>connections used externally) - pts (litre)<br>(Marine gear must use straight viscosity oil) | 3.5 (1.66)                      |
| Electrical system                                                                                                                                                          | 12 VOLTS                        |
| Recommended battery capacity (CCA @ 0°F (-18°C))<br>12 Volt system above 32°F (0°C)                                                                                        | 900                             |
| Dimensions & weight                                                                                                                                                        |                                 |
| Length - in (mm)                                                                                                                                                           | 54.5 (1384)                     |
| Width - in (mm)                                                                                                                                                            | 31 (787)                        |
| Height - in (mm)                                                                                                                                                           | 31.2 (794)                      |
| Weight, dry - lbs (kg)                                                                                                                                                     | 1560 (708)                      |
| Maximum installation angle                                                                                                                                                 | 7° ENGINE - 17° PROPELLER SHAFT |

### Technical Engine Specification

|                                                                               |                  |
|-------------------------------------------------------------------------------|------------------|
| Injector (timing)                                                             | 4C65 (44.25mm)   |
| Turbocharger                                                                  | TW 41            |
| Engine speed - r/min                                                          | 3000             |
| Brake horsepower - bhp (kW)<br>77°F, 29.31 in Hg (Dry) Bar., J-1349           | 205 (153)        |
| Shaft horsepower - shp (kW)                                                   | 195 (145)        |
| BMEP - lb/in <sup>2</sup> (kPa)                                               | 108 (745)        |
| Peak torque - lb ft (N m) @ r/min                                             | 430 (583) @ 1600 |
| Fuel consumption - lb/hr (kg/hr)                                              | 84.7 (38.4)      |
| Fuel consumption - gal/hr (litre/hr)                                          | 12.0 (45.4)      |
| Specific fuel cons. = lb/bhp.hr (g/kW hr)                                     | .413 (251)       |
| Air consumption - ft <sup>3</sup> /min (m <sup>3</sup> /min)                  | 520 (14.7)       |
| Suggested minimum engine room vent area - in <sup>2</sup> (cm <sup>2</sup> )  |                  |
| Maximum engine room depression 0.2 in. H <sub>2</sub> O                       | 49.9 (322)       |
| Maximum allowable temperature rise<br>(Outside air to engine inlet) - °F (°C) | 30 (16.7)        |

Curve No. E4-4082-31-5

Date: 9-28-84

Rev./Date:

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## ENGINE SPECIFICATION

### Cooling System - Heat Exchanger or Keel Cooler

|                                                              |                |
|--------------------------------------------------------------|----------------|
| Fresh water capacity - gal (litre)                           | 8 (30.3)       |
| Heat rejection to coolant - Btu/min (kW)                     | 5800 (102)     |
| Fresh water flow - gal/min (litre/min)                       | 73 (276)       |
| Raw water flow - gal/min (litre/min)                         | 30 (114)       |
| Maximum inlet restriction at raw water pump -<br>In Hg (kPa) | 5 (16.9)       |
| Maximum raw water pump pressure - lb/in <sup>2</sup> (kPa)   | 10 (69)        |
| Suggested raw water pipe size - in (mm)                      | 1.5 (38.1)     |
| Suggested sea strainer size - simplex - in (mm)              | 1.5 (38.1)     |
| - duplex - in (mm)                                           | NOT APPLICABLE |
| Max. press. drop thru keel cooler - lb/in <sup>2</sup> (kPa) | 200 (93)       |

### Fuel System

|                                                                    |            |
|--------------------------------------------------------------------|------------|
| Fuel pump flow - gal/hr (litre/hr)                                 | 81.0 (306) |
| Maximum inlet restriction at pump - In Hg (kPa)<br>(clean filters) | 6 (20)     |
| Supply line dia. - in (mm)                                         | 0.5 (12.7) |

### Exhaust System

|                                                                                   |             |
|-----------------------------------------------------------------------------------|-------------|
| Gas flow - lb/min (kg/min)                                                        | 39.0 (17.7) |
| Exhaust temperature - °F (°C)                                                     | 850 (454)   |
| Maximum exhaust back pressure at turbocharger<br>outlet (full load) - In Hg (kPa) | 3.0 (10)    |

### Lubrication System

|                                                           |                  |
|-----------------------------------------------------------|------------------|
| Engine lube oil capacity - qts (litre)                    | 11 (10.4)        |
| Lubrication oil press., normal - lb/in <sup>2</sup> (kPa) | 35-55 (241-379)  |
| Lubrication oil temp., in-pan - °F (°C)                   | 200-250 (93-121) |

Curve No. E4-4082-31-5  
Date: 9-28-84  
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Sht. 3 of 3



# 8.2 LITER MAXIMUM ENGINE SPEED AND INJECTOR SIZE

| APPLICATION                         | CODE NO. | RATING | 8.2 LITER (NATURAL) | 8.2 LITER (TURBO) | REMARKS               |
|-------------------------------------|----------|--------|---------------------|-------------------|-----------------------|
| STOCK ENGINE                        | 000      | MAX    | 2800/4A53           | 2800/4A65         |                       |
| DITCHER & TRENCHER                  | 050      | MAX    | 2800/4A40           | 2800/4A53         |                       |
| EXCAVATOR & CRANE                   | 070      | MAX    | 2600/4A40           | 2600/4A53         |                       |
| HYD. & NON HYD GRADER               | 130      | MAX    | 2800/4A53           | 2800/4A65         |                       |
| COMPACTOR-VIBRATORY & NON VIBRATORY | 160      | MAX    | 2800/4A53           | 2800/4A65         |                       |
| LOADER-BACKHOE                      | 179      | MAX    | 2800/4A53           | 2800/4A65         |                       |
| LOADER-FORNT END                    | 180      | MAX    | 2600/4A40           | 2600/4A53         |                       |
| AIR COMPRESSOR                      | 210      | REC    | *2600/4A40          | 2600/4A53         | * MAX LOAD FACTOR 60% |
|                                     |          | MAX    | @2600/4A53          | 2600/4A65         | @ MAX LOAD FACTOR 50% |
| GROUND SUPPOR                       | 215      | MAX    | 2800/4A53           | 2800/4A65         |                       |
| WATER BLASTER                       | 223      | MAX    | 2600/4A40           | 2600/4A53         |                       |
| WOOD CHIPPER                        | 231      | MAX    | 2800/4A53           | 2800/4A65         |                       |
| PAVER-ASPHALT & CONC.               | 240      | MAX    | 2800/4A53           | 2800/4A65         |                       |
| EARTH BORER                         | 261      | MAX    | 2800/4A53           | -                 |                       |
| AIR COMPRESSOR                      | 280      | MAX    | 2800/4A53           | 2800/4A65         |                       |
| PORTABLE-AIRCRAFT JET STARTER ONLY  |          |        |                     |                   |                       |
| ROAD ROLLER                         | 290      | MAX    | 2800/4A53           | 2800/4A65         |                       |
| RAILWAY MAINTENANCE                 | 540      | MAX    | 2800/4A53           | 2800/4A65         |                       |
| TRACTOR-FARM (2 WHEEL DRIVE)        | 610      | MAX    | 2800/4A40           | 2800/4A53         |                       |
| FEED AND GRAIN MILL                 | 620      | MAX    | 2600/4A40           | 2600/4A53         |                       |
| SPRAYER                             | 630      | MAX    | 2600/4A40           | 2600/4A53         |                       |
| HARVESTER                           | 660      | MAX    | 2800/4A53           | 2800/4A65         |                       |
| SPREADER                            | 680      | MAX    | 2800/4A53           | 2800/4A65         |                       |
| IRRIGATION PUMP                     | 840      | MAX    | 2600/4A40           | 2600/4A53         |                       |
| LIFT TRUCK                          | 850      | MAX    | 2800/4A53           | 2800/4A65         |                       |
| STAND BY PUMP                       | 890      | MAX    | 2800/4A53           | 2800/4A65         |                       |
| STREET SWEEP                        | 900      | MAX    | 2800/4A53           | 2800/4A65         |                       |
| SAW MILL                            | 920      | MAX    | 2800/4A53           | 2800/4A65         |                       |
| WINCH OR YARDER                     | 930      | MAX    | 2800/4A53           | 2800/4A65         |                       |
| PLANING MILL                        | 960      | MAX    | 2600/4A40           | 2600/4A53         |                       |
| AIRCRAFT TOW TRACTOR                | 980      | MAX    | 2800/4A53           | 2800/4A65         |                       |
| AIR CARGO TRANSPORTER               | 981      | MAX    | 2800/4A53           | 2800/4A65         |                       |

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SERIES 8.2 TAB

# 8.2 LITER MAXIMUM ENGINE SPEED AND INJECTOR SIZE

## AUTOMTIVE

| APPLICATION                               | CODE<br>NO. | RATING | 8.2 LITER<br>(NATURAL) | 8.2 LITER<br>(TURBO) | REMARKS |
|-------------------------------------------|-------------|--------|------------------------|----------------------|---------|
| CRANE CARRIER-PROULSION UNIT              | 020         | MAX    | 3000/4A53              | 3000/4C65            |         |
| MOTORHOME                                 | 313         | MAX    | 3000/4A53              | 3000/4C65            |         |
| TRUCK ON/OFF ROAD CONSTRUCTION            | 318         | MAX    | 3000/4A53              | 3000/4C65            |         |
| SCHOOL BUS OR CHASSIS (TRUCK TYPE ENGINE) | 331         | MAX    | 3000/4A53              | 3000/4C65            |         |
| CRANE CARRIER PROPULSION CALIFORNIA       | 340         | MAX    | 3000/4A53              | 3000/4C65            |         |
| SCHOOL BUS CHASSIS CALIFORNIA             | 346         | MAX    | 3000/4A53              | 3000/4C65            |         |
| FIRE TRUCK CALIFORNIA                     | 347         | MAX    | 3000/4A53              | 3000/4C65            |         |
| DELIVERY TRUCK CALIFORNIA                 | 349         | MAX    | 3000/4A53              | 3000/4C65            |         |
| FIRE TRUCK                                | 350         | MAX    | 3000/4A53              | 3000/4C65            |         |
| MOTOR HOME CALIFORNIA                     | 351         | MAX    | 3000/4A53              | 3000/4C65            |         |
| DELIVERY TRUCK                            | 380         | MAX    | 3000/4A53              | 3000/4C65            |         |

## AUTOMOTIVE EXPORT

|                                       |     |     |           |           |  |
|---------------------------------------|-----|-----|-----------|-----------|--|
| CRANE CARRIER-EXPORT                  | 021 | MAX | 2800/4A53 | 2800/4C65 |  |
| TRUCK ON/OFF ROAD CONSTRUCTION-EXPORT | 336 | MAX | 2800/4A53 | 2800/4C65 |  |
| SCHOOL BUS-REPOWER-EXPORT             | 337 | MAX | 2800/4A53 | 2800/4C65 |  |
| FIRE TRUCK-EXPORT                     | 352 | MAX | 3000/4A53 | 3000/4C65 |  |
| FIRE TRUCK-REPOWER-EXPORT             | 353 | MAX | 3000/4A53 | 3000/4C65 |  |
| DELIVERY TRUCK-EXPORT                 | 381 | MAX | 2800/4A53 | 2800/4C65 |  |
| DELIVERY TRUCK-REPOWER-EXPORT         | 382 | MAX | 2800/4A53 | 2800/4C65 |  |

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## SPEED DROOP CHART - 3 &amp; 4-53 N SERIES

| INJECTOR                                | ENGINE SPEED<br>FULL LOAD | GOVERNOR DROOP * |        |            |
|-----------------------------------------|---------------------------|------------------|--------|------------|
|                                         |                           | VARIABLE         |        | LIMITING   |
|                                         |                           | OPEN             | CLOSED | (DBL. WT.) |
| ALL<br>**                               | 1400-1600                 | 145              | -      | -          |
|                                         | 1601-1800                 | 155              | -      | -          |
|                                         | 1801-2000                 | 165              | -      | -          |
|                                         | 2001-2200                 | 175              | -      | -          |
|                                         | 2201-2400                 | 185              | -      | -          |
|                                         | 2401-2600                 | 195              | -      | -          |
|                                         | 2601-2800                 | 205              | -      | -          |
| ***<br>35 N35                           | 1400-1600                 | -                | 165    | 200        |
|                                         | 1601-1800                 | -                | 150    | 195        |
|                                         | 1801-2000                 | -                | 140    | 190        |
|                                         | 2001-2200                 | -                | 130    | 185        |
|                                         | 2201-2400                 | -                | 120    | 180 (160)  |
|                                         | 2401-2600                 | -                | 115    | 195 (160)  |
|                                         | 2601-2800                 | -                | 110    | 215 (140)  |
| ***<br>C40, N40<br>L40, C45<br>N45, C50 | 1400-1600                 | -                | 190    | 235        |
|                                         | 1601-1800                 | -                | 180    | 230        |
|                                         | 1801-2000                 | -                | 170    | 225        |
|                                         | 2001-2200                 | -                | 160    | 220        |
|                                         | 2201-2400                 | -                | 150    | 215 (170)  |
|                                         | 2401-2600                 | -                | 145    | 230 (170)  |
|                                         | 2601-2800                 | -                | 140    | 250 (150)  |
| ***<br>N50, M55                         | 1800-2000                 | -                | 190    | 255        |
|                                         | 2001-2200                 | -                | 170    | 250        |
|                                         | 2201-2400                 | -                | 160    | 245        |
|                                         | 2401-2600                 | -                | 155    | 260 (190)  |
|                                         | 2601-2800                 | -                | 150    | 280 (170)  |

\* HYDRAULIC GOVERNOR DROOP IS 5% OF FULL LOAD SPEED

\*\* GOVERNOR GROUPS 6N4-1027, 1028, 1030, AND 1044

\*\*\* FOR GOVERNOR GROUPS 6N4-1862, 2218, 2220, 2221, 2223 & 2225 USE DROOP SHOWN IN PARENTHESES (SHORT SPRING PACK)

\*\*\* FOR GOVERNOR GROUP 6N4-2219 USE 165 DROOP (SHORT SPRING PACK) SGS

## SPEED DROOP CHART - 3 &amp; 4-53 T SERIES

| INJECTOR                            | ENGINE SPEED<br>FULL LOAD | GOVERNOR DROOP* |        |             |            |
|-------------------------------------|---------------------------|-----------------|--------|-------------|------------|
|                                     |                           | VARIABLE        |        | LIMITING    |            |
|                                     |                           | OPEN            | CLOSED | SPRING LONG | PACK SHORT |
| N50, 5A55, 5A60<br>N45 <sup>ⓐ</sup> | 2200-2200                 | 175             | 185    | 245         | -          |
|                                     | 2201-2400                 | 185             | 175    | 240         | 215        |
|                                     | 2401-2600                 | 195             | 170    | 255         | 195        |
|                                     | 2601-2800                 | 205             | 165    | 275         | 175        |
| N60, N65                            | 2200-2200                 | 175             | 195    | 275         | -          |
|                                     | 2201-2400                 | 185             | 185    | 270         | 235        |
|                                     | 2401-2600                 | 195             | 180    | 285         | 215        |
|                                     | 2601-2800                 | 205             | 175    | 305         | 195        |

\* HYDRAULIC GOVERNOR DROOP IS 5% OF FULL LOAD SPEED

<sup>ⓐ</sup> N45 INJECTORS WITH 6N4-2220 AND 2225

## SPEED DROOP CHART - 6V-53N SERIES

| INJECTOR                                       | ENGINE SPEED<br>FULL LOAD | GOVERNOR DROOP * |                        |
|------------------------------------------------|---------------------------|------------------|------------------------|
|                                                |                           | VARIABLE         | LIMITING<br>(DBL. WT.) |
| (D)<br>M40                                     | 1400-1600                 | 140              | 150                    |
|                                                | 1601-1800                 | 120              | 130                    |
|                                                | 1801-2000                 | 110              | 140                    |
|                                                | 2001-2200                 | 90               | 150                    |
|                                                | 2201-2400                 | 100              | 160                    |
|                                                | 2401-2600                 | 110              | 170                    |
|                                                | 2601-2800                 | 120              | 190                    |
| (A, B, C)<br>C40, N40,<br>C45, N45<br>C50, M50 | 1400-1600                 | 150              | 200                    |
|                                                | 1601-1800                 | 130              | 180                    |
|                                                | 1801-2000                 | 110              | 190                    |
|                                                | 2001-2200                 | 120              | 200                    |
|                                                | 2201-2400                 | 130              | 210 (140)              |
|                                                | 2401-2600                 | 140              | 220 (140)              |
|                                                | 2601-2800                 | 150              | 240 (125)              |
| (A, C, E)<br>N60, N50<br>N55, M55<br>N65       | 1800-2000                 | 130              | 210                    |
|                                                | 2001-2200                 | 140              | 220                    |
|                                                | 2201-2400                 | 150              | 230                    |
|                                                | 2401-2600                 | 160              | 240 (150)              |
|                                                | 2601-2800                 | 170              | 260 (140)              |

\* HYDRAULIC GOVERNOR DROOP IS 5% OF FULL LOAD SPEED

- (A) FOR GOVERNOR GROUPS 6N4-2115 & 9000,  
(LIMITING SPEED) USE DROOPS SHOWN IN PARENTHESES  
(SHORT SPRING PACK)
- (B) FOR GOVERNOR GROUPS 6N4-1805 & 2125 WITH C40, C45 & C50  
INJ. SPECIFY 175 RPM DROOP FOR 2600-2800 RPM RANGE ONLY (VLS)
- (C) FOR GOVERNOR GROUP 6N4-2112 (VARIABLE SPEED) SPECIFY 175 RPM  
DROOP (HEAVY DUTY MARINE)
- (D) FOR GOVERNOR GROUP 6N4-2117 (LIMITING SPEED) SPECIFY 165 RPM  
DROOP (SHORT SPRING PACK S.G.S. ONLY)
- (E) N50 INJECTOR WITH 6N4-2117 SPECIFY 165 RPM DROOP.

## SPEED DROOP CHART - 6V-53 T SERIES

| INJECTOR          | ENGINE SPEED<br>FULL LOAD | GOVERNOR DROOP*<br>VARIABLE<br>CLOSED | LIMITING<br>SPRING PACK |       |
|-------------------|---------------------------|---------------------------------------|-------------------------|-------|
|                   |                           |                                       | LONG                    | SHORT |
| 5A50, 5A55<br>M60 | 2000-2200                 | 180                                   | 180                     | -     |
|                   | 2201-2400                 | 170                                   | 190                     | -     |
|                   | 2401-2600                 | 170                                   | 200                     | 150** |
| M60, N65          | 2500-2600                 | -                                     | -                       | 185   |
|                   | 2601-2800                 | -                                     | -                       | 165   |
| 5A60<br>(N70***)  | 2000-2200                 | -                                     | 200                     | -     |
|                   | 2201-2400                 | -                                     | 210                     | -     |
|                   | 2401-2600                 | -                                     | 225                     | -     |
|                   | 2601-2800                 | -                                     | 225                     | 210   |
| 5N65              | 2200-2400                 | 175                                   | 215                     | -     |
|                   | 2401-2600                 | 185                                   | 225                     | -     |
|                   | 2601-2800                 | 195                                   | 245                     | -     |
| 5N65              | 2500-2600                 | -                                     | -                       | 175   |
|                   | 2601-2800                 | -                                     | -                       | 165   |

\* HYDRAULIC GOVERNOR DROOP IS 5% OF FULL LOAD SPEED

\*\* EXCEPT M60 INJECTORS

\*\*\* WITH 6N4-2126 AND N70 INJECTORS USED 165 DROOP AT 2800 RPM

## SPEED DROOP CHART - 71 SERIES

| ENGINE             | INJECTOR                           | VAR. & LIM. SPEED<br>GOV. DROOP # |
|--------------------|------------------------------------|-----------------------------------|
| 2-71               | N55, N60                           | 140 ***                           |
| 2-71               | N65, N70                           | 160 ***                           |
| 3, 4 & 6-71        | 71B5, B55                          | 125                               |
| 3, 4 & 6-71        | C55, N55, B60, C60, N60, 71C5      | 150                               |
|                    | 7E50, 7E55, 7E60, 7E65             | 150                               |
| 3, 4 & 6-71        | C65                                | 150                               |
| 3, 4 & 6-71        | C70, N65, N70, N80                 | 175                               |
| 6-71               | B65                                | 200                               |
| 4-71T              | N60                                | 175                               |
| 6-71T              | C65                                | 175                               |
| 4 & 6-71T          | N65, N70, N75, N80, N90, M95       | 200                               |
| 6-71TT, TTA        | N75, 7E75, 7G75                    | 150                               |
| 6-71T & TA         | 7G65, 7G70                         | ** 150                            |
| 6-71T & TA         | 7G75, 7C70, 7C75                   | ** 175                            |
| 6V-71              | 7B5E, B55E                         | 125                               |
| 6, 8 & 12V-71      | 71B5, B55, C55, B60, 71C5, 71N5    | 125                               |
|                    | 7E50, 7E55                         | 125                               |
| 6, 8 & 12V-71      | N55, C60, N60, B65, C65, C70       | 150                               |
|                    | 7E60, 7E65                         | 150                               |
| 6, 8 & 12V-71      | N65, N70                           | 175                               |
| 8V-71TI, TA        | 140                                | 150                               |
| 6, 8 & 12V-71T     | N60, C65                           | 175                               |
| 6, 8 & 12V-71T     | N65, N70, N75, N80, N90, M95, S80, | 200                               |
| 8, 12V-71TI        | N70                                | 200                               |
| 8V-71TA            | N65, N70, N75                      | 200                               |
| 8V-71TA, TAE       | 7A50, 7A65                         | 175                               |
| 8V-71TA, TAE       | 7A55, 7A60, 7C70, 7A70, 7A75, 7C75 | 200                               |
| 8V-71TT, TTA, TTAE | N75, 7A75, 7C75                    | 150                               |
| 12V-71TT           | N65, N70, N75                      | 150                               |
| 16V-71             | N60, N55, C65                      | 175                               |
| 16V-71             | N70                                | 200                               |
| 16V-71T            | N60                                | 200                               |
| 16V-71T            | N65, N70, N75, N80, N90,           | 225                               |
| 16V-71TI           | N70                                | 225                               |

\*\* SINGLE WEIGHT GOVERNOR AND 1:65 BLOWER DRIVE RATIO

# HYDRAULIC GOVERNOR DROOP IS 5% OF FULL LOAD SPEED

\*\*\* CONSTANT &amp; LIMITING SPEED GOVERNOR DROOP IS 100 RPM FOR ALL 2-71 ENG.

## SPEED DROOP CHART - 92 SERIES

| ENGINE          | INJECTOR                           | LIM & VAR. SPEED<br>GOV. DROOP # |        |
|-----------------|------------------------------------|----------------------------------|--------|
|                 |                                    | LIM.                             | VAR. * |
| 6 & 8V-92       | 9270                               | 125                              | 150    |
| 6 & 8V-92       | 9275, 9280                         | 150                              | 175    |
| 6 & 8V-92       | 9285, 9290                         | 175                              | 200    |
| 6 & 8V-92       | 9295                               | 200                              | 225    |
| 12, 16V-92      | 9270, 9B70                         | 125                              | 125    |
| 12, 16V-92      | 9275, 9B75, 9280                   | 150                              | 150    |
| 12, 16V-92      | 9285, 9290                         | 175                              | 175    |
| 12, 16V-92      | 9295                               | 200                              | 200    |
| 6V-92TA         | 9225                               | 150                              | 200    |
| 6V-92TA         | 7G65                               | 125                              | -      |
| 6V-92TA         | 7G70, 7G75, 9E65, 9E70             | 150                              | -      |
| 6V-92TA         | 9B70, 9B75                         | 125                              | -      |
| 8V-92TA         | 7G75, 9E70 (1800 RPM ONLY)         | 175                              | -      |
| 6V, 8V-92TA     | 9C70, 9C75, 9C80, 9C85, 9C90, 9F90 | 125                              | -      |
| 6, 8V-92TT, TTA | 9290, 9A90, 9B90, 9C90, 9F90       | 150                              | -      |
| 6, 8V-92T, TA   | 9275, 9280, 9A80, 9B80             | 125                              | 175    |
| 6, 8V-92T, TA   | 9285, 9A85, 9290, 9B85, 9A90, 9B90 | 125 <del>0</del>                 | 175    |
| 6, 8V-92T, TA   | 9295                               | 150                              | 200    |
| 6V-92T, TA      | 9215 ####                          | 150                              | 200    |
| 6V-92TA         | 9290 ####                          | 125                              | 175    |
| 8V-92TI         | 9290                               | 125                              | 175    |
| 8V-92TI         | 9295, 9200, 9215 ####              | 150                              | 200    |
| 6, 8V-92T       | 9200 @                             | 150                              | 200    |
| 12, 16V-92T     | 9280, 9B80                         | 150                              | 150    |
| 12, 16V-92T     | 9285, 9B85, 9290, 9B90             | 175                              | 175    |
| 12, 16V-92T     | 9295                               | 200                              | 200    |
| 12V-92T         | 9200                               | 200                              | 200    |
| 16V-92TA        | 9290                               | 175                              | 175    |
| 16V-92TA        | 9200                               | 200                              | 200    |

Ø USE 150 FOR 1800 RPM FULL LOAD

\* VARIABLE SPEED GOVERNOR NOT AVAILABLE ON V-92TA AUTOMOTIVE ENGINES

# HYDRAULIC GOVERNOR IS 5% OF FULL LOAD SPEED

#### WITH HIGH OUTPUT MARINE MODELS ONLY

@ WITH 6N4-2146 USE THE FOLLOWING:

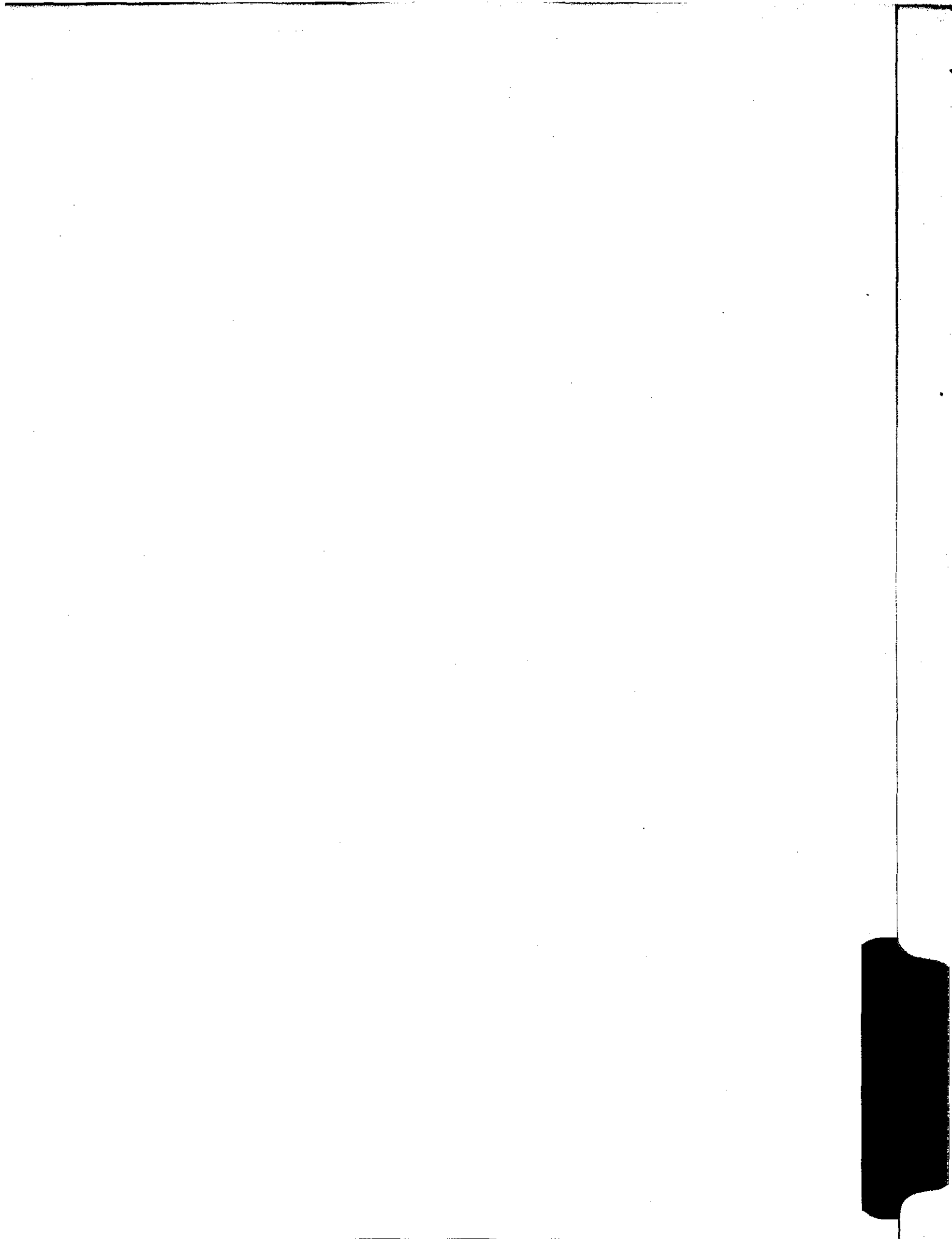
FULL LOAD SPEED 2000 - 2199 RPM USE 250 RPM DROOP

FULL LOAD SPEED 2200 - 2300 RPM USE 225 RPM DROOP

## SPEED DROOP CHART V149 SERIES

| ENGINE | INJECTORS          | ENGINE SPEED | VAR. & LIM. SPEED<br>GOV. DROOP # |
|--------|--------------------|--------------|-----------------------------------|
| V149   | 120, 130           | 1200 - 1900  | 150                               |
| V149T  | 140, 150, 165, 170 | 1200 - 1900  | 150                               |
| V149TI | 165, 170, 180, 195 | 1200 - 1900  | 150                               |

# HYDRAULIC GOVERNOR DROOP IS 5% OF FULL LOAD SPEED



DIESEL ELECTRIC BRITISH STANDARD B.S. 649: 1958 HORSEPOWER RATINGS  
INDEX

| Engine    | Injectors<br>Int. - Max.<br>& 10%<br>Overload |      | Intermit.- Max. |              | B.S. 649<br>10% Overload |              | B.S. 649<br>Continuous |              | Curve Number | Date     |
|-----------|-----------------------------------------------|------|-----------------|--------------|--------------------------|--------------|------------------------|--------------|--------------|----------|
|           | Cont.                                         |      | 1500 RPM        | 1800 RPM     | 1500 RPM                 | 1800 RPM     | 1500 RPM               | 1800 RPM     |              |          |
| 2-71N(2V) | N70                                           | N55  | 55<br>(41)      | 65<br>(48)   | 52<br>(39)               | 58<br>(43)   | 47<br>(35)             | 53<br>(40)   | E4-1025-11-2 | 5/18/79  |
| 3-71N     | N70                                           | N55  | 85<br>(63)      | 102<br>(76)  | 80<br>(60)               | 97<br>(72)   | 73<br>(54)             | 88<br>(66)   | E4-1035-52-2 | 11/18/80 |
| 4-71N     | N70                                           | N55  | 119<br>(89)     | 143<br>(107) | 113<br>(84)              | 135<br>(101) | 103<br>(77)            | 123<br>(92)  | E4-1045-52-3 | 11/18/80 |
| 4-71T     | N90                                           | N65  | 180<br>(134)    | 210<br>(157) | 154<br>(115)             | 176<br>(131) | 140<br>(104)           | 160<br>(119) | E4-1045-32-7 | 11/18/80 |
| 6-71N     | N70                                           | N55  | 179<br>(134)    | 215<br>(160) | 169<br>(126)             | 204<br>(152) | 154<br>(115)           | 195<br>(138) | E4-1065-52-4 | 5/23/79  |
| 6-71T     | N90                                           | N65  | 271<br>(202)    | 315<br>(235) | 231<br>(172)             | 262<br>(195) | 210<br>(157)           | 238<br>(178) | E4-1065-32-3 | 11/13/80 |
| 8V-71N    | N70                                           | N55  | 239<br>(178)    | 285<br>(213) | 226<br>(169)             | 271<br>(202) | 205<br>(153)           | 246<br>(183) | E4-7085-52-4 | 5/23/79  |
| 8V-71T    | N90                                           | N65  | 351<br>(262)    | 415<br>(309) | 301<br>(225)             | 341<br>(254) | 274<br>(204)           | 310<br>(231) | E4-7085-32-3 | 11/18/80 |
| 12V-71N   | N70                                           | N55  | 360<br>(269)    | 430<br>(321) | 341<br>(254)             | 408<br>(304) | 310<br>(231)           | 371<br>(277) | E4-7125-52-3 | 5/23/79  |
| 12V-71T   | N90                                           | N65  | 540<br>(403)    | 630<br>(470) | 462<br>(345)             | 518<br>(386) | 320<br>(313)           | 471<br>(351) | E4-7125-32-3 | 11/18/80 |
| 16V-71N   | N70                                           | N55  | 478<br>(357)    | 570<br>(425) | 454<br>(339)             | 541<br>(404) | 413<br>(308)           | 492<br>(367) | E4-7165-52-3 | 11/18/80 |
| 16V-71T   | N90                                           | N65  | 702<br>(524)    | 830<br>(619) | 603<br>(450)             | 682<br>(509) | 548<br>(409)           | 620<br>(463) | E4-7165-32-3 | 11/18/80 |
| 8V-92T    | 9295                                          | 9285 | 415<br>(310)    | 480<br>(358) | 346<br>(258)             | 402<br>(300) | 315<br>(235)           | 366<br>(273) | E4-8085-32-4 | 11/30/78 |
| 12V-92T   | 9B85                                          | -    | 637<br>(475)    | 738<br>(551) | 555<br>(414)             | 635<br>(474) | 505<br>(377)           | 577<br>(430) | E4-8125-32-3 | 6/15/81  |
| 16V-92    | -                                             | -    | -               | -            | 590<br>(440)             | 689<br>(514) | 536<br>(400)           | 626<br>(467) | E4-8165-12-3 | 6/15/81  |
| 16V-92T   | 9295                                          | 9285 | 850<br>(619)    | 960<br>(716) | 692<br>(516)             | 804<br>(600) | 629<br>(469)           | 731<br>(545) | E4-8165-32-5 | 11/30/78 |