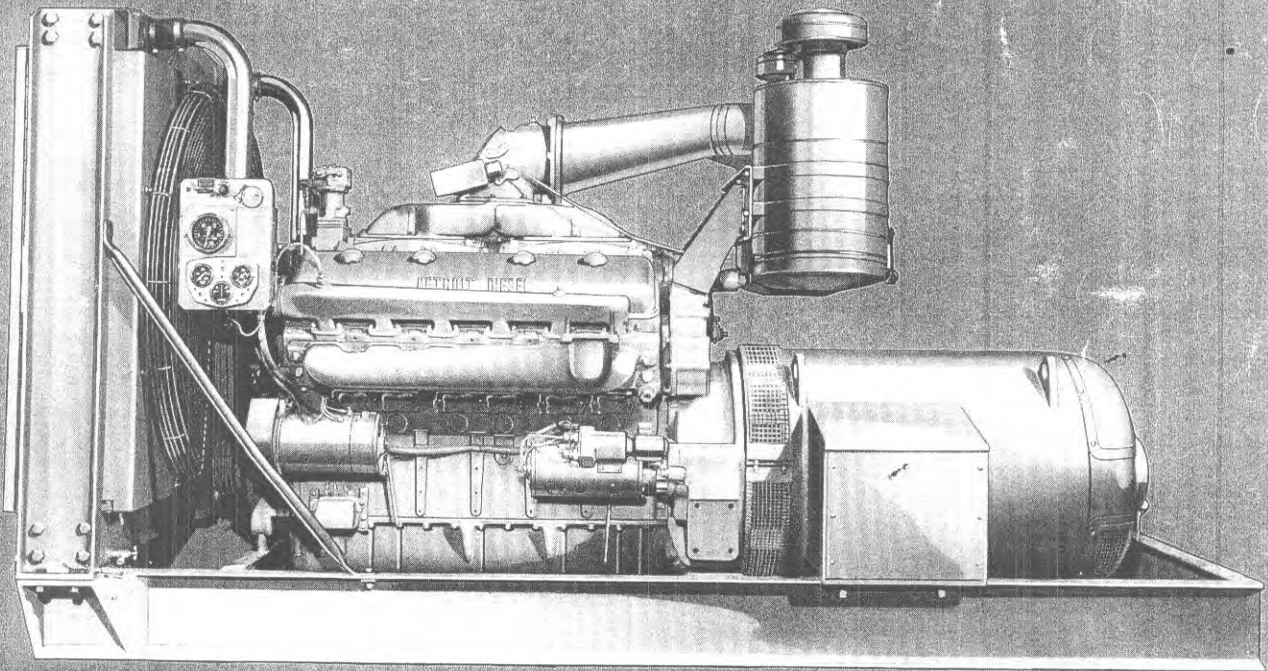


# Detroit Diesel Engines

12V-71  
300 kW

12V-71T  
440 kW



Typical 12V-71  
Electric Set

**Basic Engine**

**12V-71**

**12V-71T**

	7123-7005 Two Cycle				7123-7305 Two Cycle			
	12		12		12		12	
Bore & stroke—in (mm)	4.25 x 5 (108 x 127)				4.25 x 5 (108 x 127)			
Displacement—cu in (litres)	852 (13.97)				852 (13.97)			
Application	Standby				Standby			
Frequency @ rpm	60 Hz @ 1800		50 Hz @ 1500		60 Hz @ 1800		50 Hz @ 1500	
Rated Power, less fan—BHP (kW)*	430	(321)	360	(269)	630	(470)	532	(397)
kW Rating max. @ P.F. 1.0**	300		250		440		370	
Generator efficiency (assumed)—%	94		94		94		94	
Compression ratio	18.7 to 1		18.7 to 1		17 to 1		17 to 1	
Piston speed—ft/min (m/sec)	1500	(7.62)	1250	(6.35)	1500	(7.62)	1250	(6.35)
No. of main bearings	7		7		7		7	
Approx. net weight dry—lbs (kg)***	8500	(3856)	8500	(3856)	8650	(3924)	8650	(3924)
<b>Air and exhaust system:</b>								
Combustion air requirements—cfm (m <sup>3</sup> /min)	1128	(32)	946	(27)	1900	(54)	1510	(43)
Max. air intake restriction—in H <sub>2</sub> O (kPa)	25.0	(6.22)	18.0	(4.48)	14.5	(3.61)	10.5	(2.61)
Exhaust gas temp. @ Rated BHP—°F (°C)								
Engine manifold dry	970	(521.1)	955	(512.8)	880	(471.1)	915	(490.6)
Engine manifold wet	920	(493.3)	910	(487.8)				
Exhaust gas flow @ Rated BHP—cfm (m <sup>3</sup> /min)								
Engine manifold dry	2960	(84)	2456	(70)	4670	(132)	3810	(108)
Engine manifold wet	2856	(81)	2378	(67)				
Max. exhaust back press. allowable—in Hg (kPa)	3.3	(11.17)	2.3	(7.79)	2.0	(6.77)	1.4	(4.74)
Exhaust outlet I.D.—in (mm)								
Engine manifold dry	3.5	(88.9)	3.5	(88.9)				
Engine manifold wet	4.0	(101.60)	4.0	(101.60)				
Recommended stack single outlet minimum	6	(152.40)	6	(152.40)	8	(203.20)	8	(203.20)
<b>Cooling system:</b>								
Basic engine water capacity—gal (litres)	13.75	(52.05)	13.75	(52.05)	13.75	(52.05)	13.75	(52.05)
Jacket water flow—gpm (litres/min)	173	(654.87)	143	(541.31)	217	(821.43)	183	(692.73)
Jacket water temp., normal operation—°F (°C)	170-185	(76.7-85.0)	170-185	(76.7-85.0)	170-185	(76.7-85.0)	170-185	(76.7-85.0)
Heat rejection to jacket water @ Rated BHP—Btu/min (W)								
Exhaust manifold dry	12900	(226837)	10800	(189910)	20790	(365577)	17555	(308692)
Exhaust manifold wet	14620	(257082)	12240	(215231)				
Engine heat radiated @ Rated BHP—Btu/min (W)								
Engine manifold dry	3310	(58209)	2866	(50392)	2529	(44471)	2518	(44277)
Engine manifold wet	2814	(49477)	2436	(42833)				
Max. static head @ water pump inlet—ft H <sub>2</sub> O (kPa)	30	(89.58)	30	(89.58)	30	(89.58)	30	(89.58)
Max. heat exchanger raw water press.—psi (kPa)	65	(448.18)	65	(448.18)	65	(448.18)	65	(448.18)
Generator heat radiated to room @ Rated BHP—Btu/min (W)†	1092	(19202)	910	(16002)	1601	(28152)	1346	(23668)
Air required to radiator—cfm (m <sup>3</sup> /min.)††	20000	(566)	17000	(481)	24000	(680)	19000	(538)
Static pressure for air flow—in H <sub>2</sub> O (kPa)	1.4	(.35)	.90	(.22)	1.6	(.40)	1.1	(.27)
<b>Fuel system:</b>								
Fuel pump max. suction, clean system—in Hg (kPa)	6	(20.32)	6	(20.32)	6	(20.32)	6	(20.32)
Fuel quantity pumped—gph (litres/hr)	120	(454.25)	120	(454.25)	120	(454.24)	120	(454.24)
<b>Lubrication system:</b>								
Oil pan capacity—qts (litres)†††	33	(31.23)	33	(31.23)	33	(31.23)	33	(31.23)
<b>Starting system:</b>								
Electric motors—quantity	1		1		1		1	
Voltage††††	24		24		24		24	
Battery recommended capacity—amp/hr	205 [2]		205 [2]		205 [2]		205 [2]	
Engine rolling current @ 32°F (0.0°C)—amps	820		820		820		820	

\*Nominal basic engine horsepower rating at 85°F (29.4°C) and 29.00 in Hg (98.19 kPa) Barometer-Dry.

\*\*Maximum kW rating at assumed generator efficiency.

\*\*\*Radiator-cooled set.

†Generator heat radiated to room @ P.F. 1.0 and assumed generator efficiency.

††Engine standard option fan.

†††Engine standard option oil pan.

††††Engine standard option starting motor.

# specifications

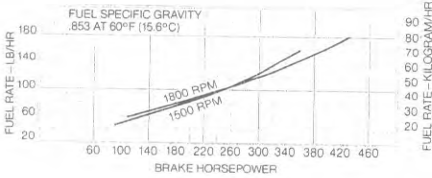
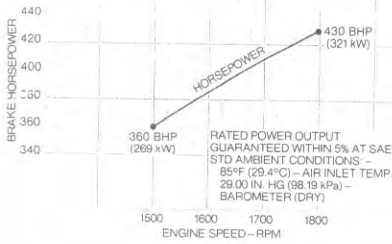
## Rating Explanation

kW Ratings are based on a nominal engine at 85°F (29.4°C) and 29.00 in. Hg (98.19 kPa) engine operating conditions. Losses for fan and accessory equipment are not included. Appropriate generator efficiencies as shown have been assumed.

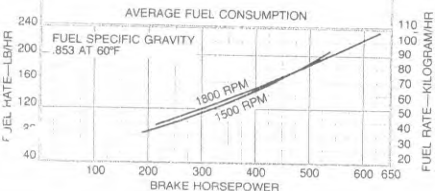
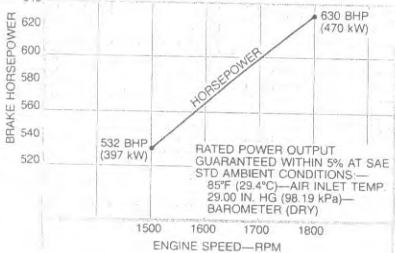
Ratings shown in specifications and on performance curves apply to engines used for standby electric set power systems which must deliver rated power continuously for the interval between interruption and restoration of the normal power source.

For complete specifications regarding your standby electric power requirements, contact your local authorized Detroit Diesel Allison Distributor.

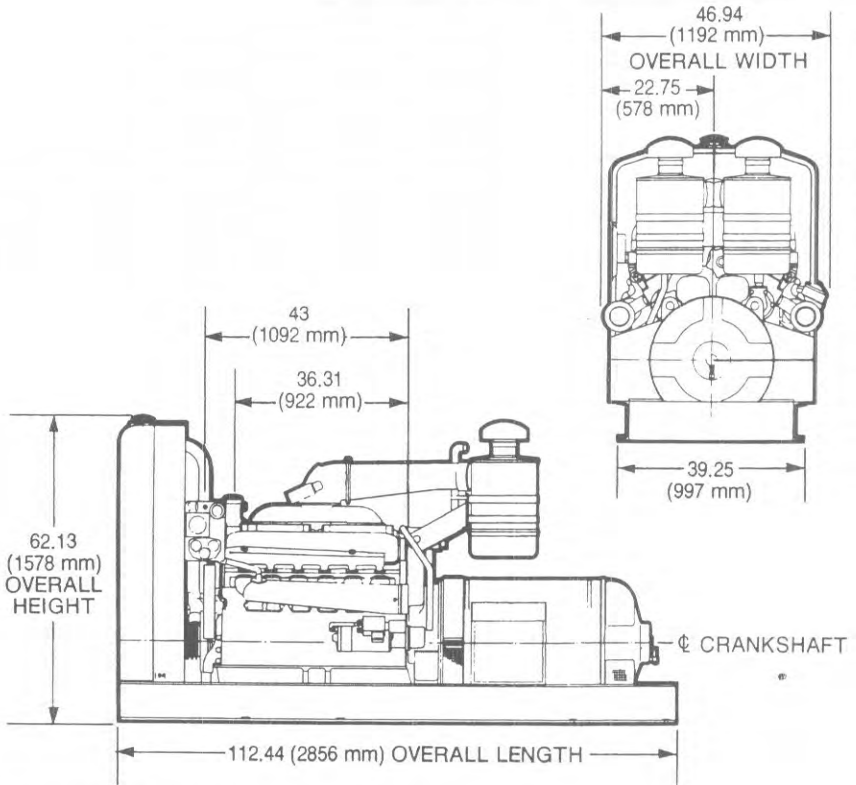
**ENGINE PERFORMANCE  
12V-71 WITH N70 INJECTORS**



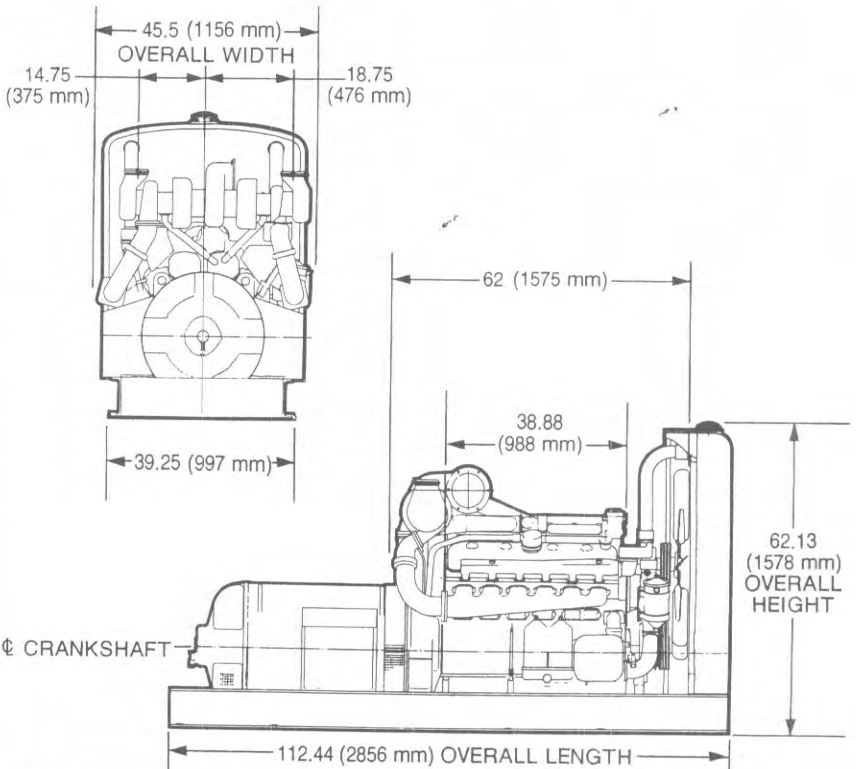
**ENGINE PERFORMANCE  
12V-71T WITH M95 INJECTORS**



# principal dimensions



## Typical 12V-71 electric set



## Typical 12V-71T electric set

Consult Detroit Diesel Allison Distributor installation drawings for detailed dimensions.

## standard equipment

**Engine Protection**—With positive fault protection air shut off due to low oil pressure or high coolant temperature

**Fuel Filters**—Replaceable primary and secondary filters

**Fuel Transfer Pump**—Positive displacement, gear driven pump

**Governor**—Hydraulic SGX governor, 3-5% frequency regulation

**Lube Oil Filter**—Full-flow replacement filter

**Lube Oil Pump**—Gear-driven

**Power Generator**—Brushless 208/240 volt, 3-phase, 4-wire with built-in static voltage regulator

**Starting Equipment**—24 volt starting motor with sprag over-running clutch

**Water Pump**—Gear driven

For a complete listing of standard and optional equipment, consult your authorized Detroit Diesel Allison Distributor.

## generator features

**Widespread Application**—Delco generators are built to a "Broad Range" design. A standard generator can be applied in installations requiring any voltage within the listed output range. Stability over the entire range is assured by a "Broad Range" exciter.

**Meet More Specs**—All models meet or exceed ASA and NEMA specifications. "ABS" units meet or exceed AIEE and ABS specifications.

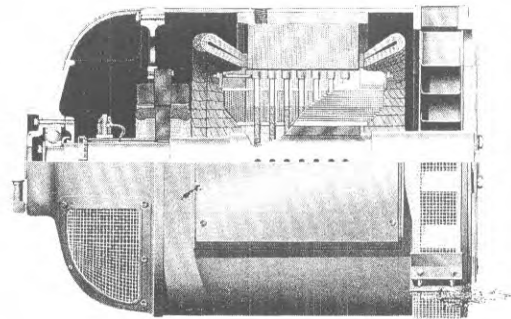
**Good Wave Form**—A low deviation factor is obtained by optimum pitch of stator windings, specifically tapered air gaps, and the use of ample skew of laminations. Deviation factors are from  $\frac{1}{3}$  to  $\frac{1}{2}$  of NEMA limits.

**Compact Design**—Good bearing operating conditions, minimum length and low weight are assured by the exciter being mounted inboard of the bearing and nesting under the stator coil.

**Smooth Running**—Torsional vibration is minimized by use of rugged shafts accurately coupled to prime mover through flexible discs.

**Torsionally Compatible**—A torsional analysis can be obtained for each engine/generator combination.

**Balance**—Delco rotors are dynamically balanced to limits which permit units to withstand 50% overspeed during laboratory tests.



Performance and Specification information for the Detroit Diesel Engine Electric Set models listed are based on the use of Delco generators. However, generators of many other manufacturers are compatible, and optional generators are offered and selected as determined by design criteria and customer preference.

Specifications subject to change without notice



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

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