

No:3H.SPEC.002.0.B SHEETNO.:A/1	BROAD SPECIFICATIONS 3R1040NAENGINE Pump-Set Application	SECT. A	 Enriching Lives
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PROVISIONAL BROAD SPECIFICATIONS OF ENGINE SUITABLE FOR OFF-HIGHWAY APPLICATION

S. NO.	PARAMETER	UNIT	VALUE
1.1	Engine Model	--	3R1040NA
1.2	Emission compliance	--	Non-Emission
1.3	Engine cooling	--	Water cooled
1.4	Bore x Stroke	mm x mm	105 x 120
1.5	No. of cylinders	--	3
1.6	Total displacement	cc	3117
1.7	Valves per cylinder–intake/exhaust	--	1/1
1.8	Compression Ratio	--	18:1
1.9	Firing order(starting from flywheel end)	--	1-2-3
1.10	Combustion system	--	Direct Injection
1.11	Aspiration	--	Naturally Aspirated
1.12	Rated Power /Speed for the lead rating	hp /rpm	55 /2200
1.13	<i>All intermediate & lead rating engine performance Parameter mentioned in the following table.</i>		

Engine Performance Parameter				High Idle Speed Range		BMEP (bar)
RPM	Gross Power (HP)	Gross Torque (NM)	Gross BSFC (gm/hphr)	Min RPM	Max. RPM	
2200	55	175.5	165	2376	2420	7.2
2000	50	175.5	165	2160	2200	7.2
1800	47	183.3	163	1944	1980	7.5
1500	41	191.9	163	1620	1650	7.9

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S.NO.	PARAMETER	UNIT	VALUE						
1.14	Max. Crank case pressure	mm of H2O kPa	15 (0.147)						
1.15	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 70%;">Lubricating oil pressure</td> <td style="width: 30%;">At low idle speed</td> </tr> <tr> <td></td> <td>At Rated speed and full load</td> </tr> </table>	Lubricating oil pressure	At low idle speed		At Rated speed and full load	bar	1.5 Min. 3.5 Min.		
Lubricating oil pressure	At low idle speed								
	At Rated speed and full load								
1.16	Lubricating oil change period for K oil Premium (*First oil change at 50 hrs)	hours	500						
1.17	Maximum oil temperature in sump	°C	75° above ambient						
1.18	Lubricating oil consumption (As per KOEL std test cycle and test procedure)	% of fuel consumption	0.3 Max.						
1.19	Fuel injection pump	---	Mechanical inline pump						
1.20	Mani fuel filter	---	1.1 ltr duel bowl filter MICO no – F002H20116						
1.21	Maximum allowable back pressure of exhaust system At rated power (at Exhaust manifold outlet)	mm of Hg	50						
1.22	Maximum exhaust temperature	Deg C	650						
1.23	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Maximum inlet restriction</td> <td></td> </tr> <tr> <td>- Clean air cleaner</td> <td style="text-align: right;">200</td> </tr> <tr> <td>- Used air cleaner</td> <td style="text-align: right;">500</td> </tr> </table>	Maximum inlet restriction		- Clean air cleaner	200	- Used air cleaner	500	mm of H2O	
Maximum inlet restriction									
- Clean air cleaner	200								
- Used air cleaner	500								
1.24	Maximum Air flow	kg/hr	198						
1.25	Maximum Exhaust flow	kg/hr	207						

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BROAD SPECIFICATIONS

SECT.



Enriching Lives

SHEETNO.:A/3

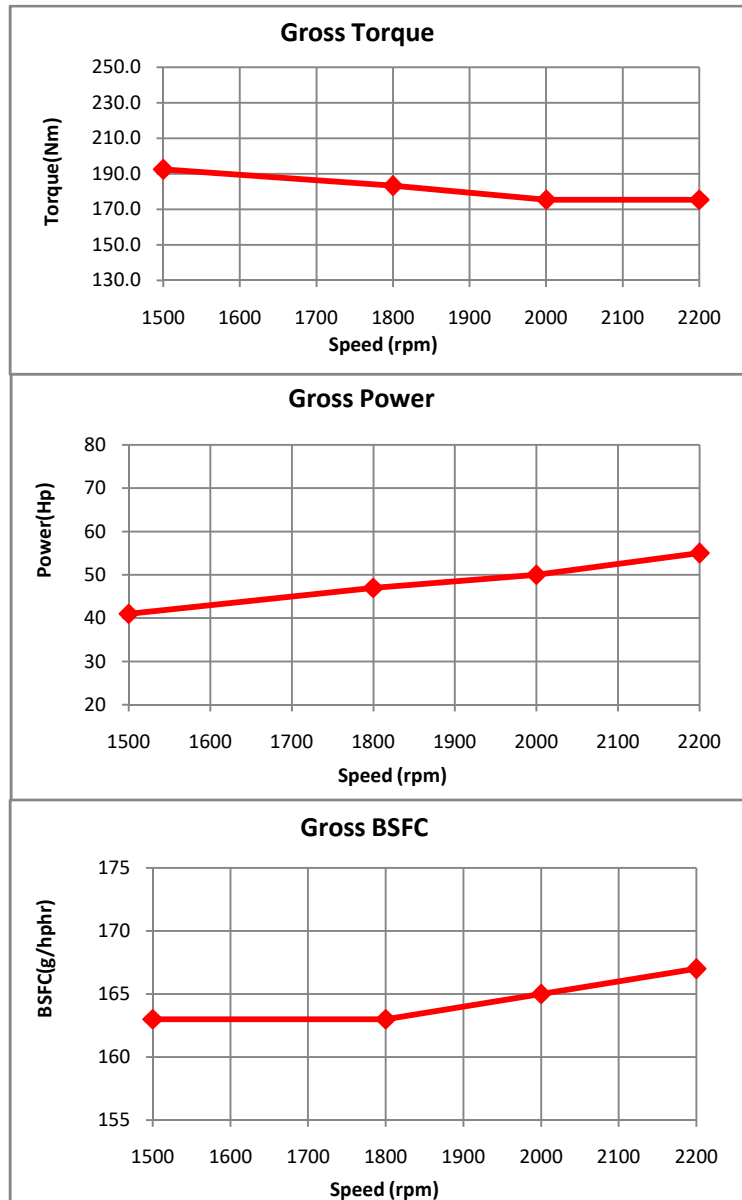
3 R1040NA ENGINE

Pump-Set Application

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ENGINE PERFORMANCE CURVES:-

Note: Production Tolerance: $\pm 5\%$ for Gross Torque, Gross Power and $+5\%$ for Gross BSFC



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Heat Balance Sheet:-

Note: Heat balance is calculated at NTP conditions

3R1040NA power pack projects

DESCRIPTIONS	At Max. Power condition	At Max. Power condition	At Max. Power condition	At Max. Power condition
Power (Hp)	55	50	47	41
Engine rated speed (rpm)	2200	2000	1800	1500
Heat released by fuel (kW)	110.4	100.3	93.2	81.3
Brake Power (kW)	40.5	36.8	34.6	30.2
Heat lost to cooling water (kW)	32.0	29.1	27.0	23.6
Heat lost to exhaust (kW)	33.1	30.1	28.0	24.4
Unaccounted / Radiation losses (kW)	4.8	4.4	3.7	3.2

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