

Performance Number: DM6910

Change Level: 02

SALES MODEL:	3508B	COMBUSTION:	DIRECT INJECTION
BRAND:	CAT	ENGINE SPEED (RPM):	1,600
MACHINE SALES MODEL:		ASPIRATION:	TA
ENGINE POWER (BHP):	1,000	AFTERCOOLER TYPE:	SCAC
COMPRESSION RATIO:	14	AFTERCOOLER CIRCUIT TYPE:	JW+OC, AC
RATING LEVEL:	A RATING (UNRESTRICTED CONTINUOUS)	AFTERCOOLER TEMP (F):	86
PUMP QUANTITY:	2	JACKET WATER TEMP (F):	210.2
FUEL TYPE:	DIESEL	TURBO CONFIGURATION:	PARALLEL
MANIFOLD TYPE:	DRY	TURBO QUANTITY:	2
GOVERNOR TYPE:	ADEM3	TURBOCHARGER MODEL:	BTLA8503-55T-0.96
ELECTRONICS TYPE:	ADEM3	CERTIFICATION YEAR:	2000
CAMSHAFT TYPE:	STANDARD	CRANKCASE BLOWBY RATE (FT3/HR):	999.3
IGNITION TYPE:	CI	PISTON SPD @ RATED ENG SPD (FT/MIN):	1,994.8
INJECTOR TYPE:	EUI		
FUEL INJECTOR:	3920206		
UNIT INJECTOR TIMING (IN):	64.34		
REF EXH STACK DIAMETER (IN):	8		
MAX OPERATING ALTITUDE (FT):	2,297		

INDUSTRY	SubIndustry	APPLICATION
MARINE	FERRY	MARINE PROPULSION
MARINE	FISHING	MARINE PROPULSION
MARINE	DREDGE	MARINE PROPULSION
MARINE	INLAND WATERWAY	MARINE PROPULSION
MARINE	TUG & SALVAGE	MARINE PROPULSION
MARINE	OFFSHORE	MARINE PROPULSION
MARINE	GENERAL CARGO	MARINE PROPULSION

General Performance Data

ZONE 1	ENGINE SPEED	ENGINE POWER	ENGINE TORQUE	BRAKE MEAN EFF PRES (BMEP)	BRAKE SPEC FUEL CONSUMPTN (BSFC)	ISO BRAKE SPEC FUEL CONSUMPTN (BSFC)	VOL FUEL CONSUMPTN (VFC)	ISO VOL FUEL CONSUMPTN (VFC)
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RPM	BHP	LB-FT	PSI	LB/BHP-HR	LB/BHP-HR	GAL/HR	GAL/HR
1,600	1,000	3,284	235	0.331	0.325	46.7	45.8
1,500	1,000	3,503	251	0.330	0.323	46.5	45.6
1,400	1,000	3,753	269	0.327	0.320	46.1	45.2
1,300	1,000	4,042	289	0.320	0.314	45.2	44.3
1,200	1,000	4,379	314	0.320	0.313	45.1	44.2
1,100	575	2,747	197	0.336	0.330	27.3	26.7
1,000	430	2,261	162	0.349	0.343	21.2	20.8
900	345	2,011	144	0.372	0.364	18.0	17.7
800	253	1,664	119	0.382	0.374	13.6	13.4
700	208	1,560	112	0.392	0.384	11.5	11.3
650	190	1,539	110	0.397	0.389	10.7	10.5

ZONE 1

ENGINE SPEED	ENGINE POWER	INLET MFLD PRES	INLET MFLD TEMP	EXH MFLD TEMP	EXH MFLD PRES	ENGINE OUTLET TEMP	COMPRESSOR OUTLET PRES	COMPRESSOR OUTLET TEMP
RPM	BHP	IN-HG	DEG F	DEG F	IN-HG	DEG F	IN-HG	DEG F
1,600	1,000	60.7	120.4	982.2	54.0	616.1	61	373.9
1,500	1,000	62.5	120.5	1,011.9	51.9	636.4	63	373.0
1,400	1,000	62.3	118.8	1,045.5	48.6	673.8	62	367.2
1,300	1,000	59.6	114.0	1,068.7	43.6	716.8	60	358.5
1,200	1,000	57.1	109.2	1,143.9	38.6	748.6	57	357.9
1,100	575	23.1	101.9	1,154.2	17.7	805.2	23	221.0
1,000	430	13.9	102.3	1,150.5	11.0	792.6	14	173.3
900	345	9.1	103.7	1,145.5	6.6	824.3	9	145.5
800	253	5.1	102.6	1,033.5	3.3	738.6	5	120.1
700	208	3.2	103.7	1,001.9	2.0	692.0	3	109.6
650	190	2.4	105.0	999.8	1.9	673.6	2	106.1

ZONE 1

ENGINE SPEED	ENGINE POWER	WET INLET AIR VOL FLOW RATE	ENGINE OUTLET WET EXH GAS VOL FLOW RATE	WET INLET AIR MASS FLOW RATE	WET EXH GAS MASS FLOW RATE	WET EXH VOL FLOW RATE (32 DEG F AND 29.98 IN HG)	DRY EXH VOL FLOW RATE (32 DEG F AND 29.98 IN HG)
RPM	BHP	CFM	CFM	LB/HR	LB/HR	FT3/MIN	FT3/MIN
1,600	1,000	2,422.0	5,063.5	10,663.8	10,995.4	2,314.2	2,139.9
1,500	1,000	2,342.7	4,975.1	10,278.0	10,607.5	2,231.8	2,058.4
1,400	1,000	2,201.5	4,825.7	9,606.6	9,932.6	2,093.3	1,922.6
1,300	1,000	1,996.6	4,544.6	8,707.3	9,027.8	1,899.3	1,732.8

1,200	1,000	1,785.1	4,205.1	7,809.8	8,129.5	1,711.1	1,547.0
1,100	575	977.3	2,402.2	4,235.4	4,428.7	933.7	836.4
1,000	430	723.0	1,752.7	3,115.6	3,266.0	688.1	613.1
900	345	573.0	1,427.4	2,467.9	2,596.0	546.6	483.4
800	253	455.9	1,061.4	1,972.5	2,069.2	435.5	387.0
700	208	370.6	831.8	1,603.4	1,684.8	355.1	314.2
650	190	331.1	729.9	1,429.0	1,504.6	316.7	279.0

ZONE 1-2

ENGINE SPEED	ENGINE POWER	ENGINE TORQUE	BRAKE MEAN EFF PRES (BMEP)	BRAKE SPEC FUEL CONSUMPTN (BSFC)	ISO BRAKE SPEC FUEL CONSUMPTN (BSFC)	VOL FUEL CONSUMPTN (VFC)	ISO VOL FUEL CONSUMPTN (VFC)
RPM	BHP	LB-FT	PSI	LB/BHP-HR	LB/BHP-HR	GAL/HR	GAL/HR
1,600	1,000	3,284	235	0.331	0.325	46.7	45.8
1,500	1,000	3,503	251	0.330	0.323	46.5	45.6
1,400	1,000	3,753	269	0.327	0.320	46.1	45.2
1,300	1,000	4,042	289	0.320	0.314	45.2	44.3
1,200	1,000	4,379	314	0.320	0.313	45.1	44.2
1,100	624	2,977	213	0.334	0.328	29.4	28.8
1,000	451	2,367	170	0.350	0.343	22.2	21.8
900	359	2,097	150	0.374	0.366	18.9	18.6
800	253	1,664	119	0.382	0.374	13.6	13.4
700	208	1,560	112	0.392	0.384	11.5	11.3
650	190	1,539	110	0.397	0.389	10.7	10.5

ZONE 1-2

ENGINE SPEED	ENGINE POWER	INLET MFLD PRES	INLET MFLD TEMP	EXH MFLD TEMP	EXH MFLD PRES	ENGINE OUTLET TEMP	COMPRESSOR OUTLET PRES	COMPRESSOR OUTLET TEMP
RPM	BHP	IN-HG	DEG F	DEG F	IN-HG	DEG F	IN-HG	DEG F
1,600	1,000	60.7	120.4	982.2	54.0	616.1	61	373.9
1,500	1,000	62.5	120.5	1,011.9	51.9	636.4	63	373.0
1,400	1,000	62.3	118.8	1,045.5	48.6	673.8	62	367.2
1,300	1,000	59.6	114.0	1,068.7	43.6	716.8	60	358.5
1,200	1,000	57.1	109.2	1,143.9	38.6	748.6	57	357.9
1,100	624	26.1	102.8	1,187.7	19.2	815.3	26	236.3
1,000	451	15.0	102.7	1,177.7	11.5	806.4	15	179.9
900	359	9.8	104.1	1,178.8	6.9	848.2	10	150.1
800	253	5.1	102.6	1,033.5	3.3	738.6	5	120.1
700	208	3.2	103.7	1,001.9	2.0	692.0	3	109.6

650	190	2.4	105.0	999.8	1.9	673.6	2	106.1
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ZONE 1-2

ENGINE SPEED	ENGINE POWER	WET INLET AIR VOL FLOW RATE	ENGINE OUTLET WET EXH GAS VOL FLOW RATE	WET INLET AIR MASS FLOW RATE	WET EXH GAS MASS FLOW RATE	WET EXH VOL FLOW RATE (32 DEG F AND 29.98 IN HG)	DRY EXH VOL FLOW RATE (32 DEG F AND 29.98 IN HG)
RPM	BHP	CFM	CFM	LB/HR	LB/HR	FT3/MIN	FT3/MIN
1,600	1,000	2,422.0	5,063.5	10,663.8	10,995.4	2,314.2	2,139.9
1,500	1,000	2,342.7	4,975.1	10,278.0	10,607.5	2,231.8	2,058.4
1,400	1,000	2,201.5	4,825.7	9,606.6	9,932.6	2,093.3	1,922.6
1,300	1,000	1,996.6	4,544.6	8,707.3	9,027.8	1,899.3	1,732.8
1,200	1,000	1,785.1	4,205.1	7,809.8	8,129.5	1,711.1	1,547.0
1,100	624	1,031.6	2,558.3	4,475.5	4,684.1	986.6	882.1
1,000	451	741.8	1,819.4	3,196.2	3,353.7	706.5	628.3
900	359	582.9	1,480.5	2,508.5	2,642.8	556.6	490.6
800	253	455.9	1,061.4	1,972.5	2,069.2	435.5	387.0
700	208	370.6	831.8	1,603.4	1,684.8	355.1	314.2
650	190	331.1	729.9	1,429.0	1,504.6	316.7	279.0

ZONE 2-3

ENGINE SPEED	ENGINE POWER	ENGINE TORQUE	BRAKE MEAN EFF PRES (BMEP)	BRAKE SPEC FUEL CONSUMPTN (BSFC)	ISO BRAKE SPEC FUEL CONSUMPTN (BSFC)	VOL FUEL CONSUMPTN (VFC)	ISO VOL FUEL CONSUMPTN (VFC)
RPM	BHP	LB-FT	PSI	LB/BHP-HR	LB/BHP-HR	GAL/HR	GAL/HR
1,600	1,000	3,284	235	0.331	0.325	46.7	45.8
1,500	1,000	3,503	251	0.330	0.323	46.5	45.6
1,400	1,000	3,753	269	0.327	0.320	46.1	45.2
1,300	1,000	4,042	289	0.320	0.314	45.2	44.3
1,200	1,000	4,379	314	0.320	0.313	45.1	44.2
1,100	693	3,310	237	0.334	0.327	32.6	32.0
1,000	451	2,367	170	0.350	0.343	22.2	21.8
900	373	2,176	156	0.376	0.368	19.7	19.4
800	253	1,664	119	0.382	0.374	13.6	13.4
700	208	1,560	112	0.392	0.384	11.5	11.3
650	190	1,539	110	0.397	0.389	10.7	10.5

ZONE 2-3

ENGINE SPEED	ENGINE POWER	INLET MFLD PRES	INLET MFLD TEMP	EXH MFLD TEMP	EXH MFLD PRES	ENGINE OUTLET TEMP	COMPRESSOR OUTLET PRES	COMPRESSOR OUTLET TEMP
RPM	BHP	IN-HG	DEG F	DEG F	IN-HG	DEG F	IN-HG	DEG F
1,600	1,000	60.7	120.4	982.2	54.0	616.1	61	373.9
1,500	1,000	62.5	120.5	1,011.9	51.9	636.4	63	373.0
1,400	1,000	62.3	118.8	1,045.5	48.6	673.8	62	367.2
1,300	1,000	59.6	114.0	1,068.7	43.6	716.8	60	358.5
1,200	1,000	57.1	109.2	1,143.9	38.6	748.6	57	357.9
1,100	693	30.8	103.9	1,230.7	21.5	825.7	31	259.4
1,000	451	15.0	102.7	1,177.7	11.5	806.4	15	179.9
900	373	10.5	104.4	1,208.0	7.2	870.0	10	154.5
800	253	5.1	102.6	1,033.5	3.3	738.6	5	120.1
700	208	3.2	103.7	1,001.9	2.0	692.0	3	109.6
650	190	2.4	105.0	999.8	1.9	673.6	2	106.1

ZONE 2-3

ENGINE SPEED	ENGINE POWER	WET INLET AIR VOL FLOW RATE	ENGINE OUTLET WET EXH GAS VOL FLOW RATE	WET INLET AIR MASS FLOW RATE	WET EXH GAS MASS FLOW RATE	WET EXH VOL FLOW RATE (32 DEG F AND 29.98 IN HG)	DRY EXH VOL FLOW RATE (32 DEG F AND 29.98 IN HG)
RPM	BHP	CFM	CFM	LB/HR	LB/HR	FT3/MIN	FT3/MIN
1,600	1,000	2,422.0	5,063.5	10,663.8	10,995.4	2,314.2	2,139.9
1,500	1,000	2,342.7	4,975.1	10,278.0	10,607.5	2,231.8	2,058.4
1,400	1,000	2,201.5	4,825.7	9,606.6	9,932.6	2,093.3	1,922.6
1,300	1,000	1,996.6	4,544.6	8,707.3	9,027.8	1,899.3	1,732.8
1,200	1,000	1,785.1	4,205.1	7,809.8	8,129.5	1,711.1	1,547.0
1,100	693	1,123.1	2,810.3	4,873.8	5,105.0	1,075.0	959.7
1,000	451	741.8	1,819.4	3,196.2	3,353.7	706.5	628.3
900	373	592.4	1,530.9	2,548.0	2,688.1	566.1	497.6
800	253	455.9	1,061.4	1,972.5	2,069.2	435.5	387.0
700	208	370.6	831.8	1,603.4	1,684.8	355.1	314.2
650	190	331.1	729.9	1,429.0	1,504.6	316.7	279.0

MAXIMUM LIMIT

ENGINE SPEED	ENGINE POWER	ENGINE TORQUE	BRAKE MEAN EFF PRES (BMEP)	BRAKE SPEC FUEL CONSUMPTN (BSFC)	ISO BRAKE SPEC FUEL CONSUMPTN (BSFC)	VOL FUEL CONSUMPTN (VFC)	ISO VOL FUEL CONSUMPTN (VFC)
RPM	BHP	LB-FT	PSI	LB/BHP-HR	LB/BHP-HR	GAL/HR	GAL/HR
1,600	1,000	3,284	235	0.331	0.325	46.7	45.8
1,500	1,000	3,503	251	0.330	0.323	46.5	45.6
1,400	1,000	3,753	269	0.327	0.320	46.1	45.2

1,300	1,000	4,042	289	0.320	0.314	45.2	44.3
1,200	1,000	4,379	314	0.320	0.313	45.1	44.2
1,100	793	3,784	271	0.334	0.328	37.3	36.6
1,000	502	2,634	189	0.352	0.345	24.9	24.4
900	406	2,371	170	0.382	0.374	21.9	21.5
800	271	1,778	127	0.385	0.378	14.7	14.4
700	216	1,620	116	0.395	0.387	12.0	11.8
650	197	1,593	114	0.400	0.393	11.1	10.9

MAXIMUM LIMIT

ENGINE SPEED	ENGINE POWER	INLET MFLD PRES	INLET MFLD TEMP	EXH MFLD TEMP	EXH MFLD PRES	ENGINE OUTLET TEMP	COMPRESSOR OUTLET PRES	COMPRESSOR OUTLET TEMP
RPM	BHP	IN-HG	DEG F	DEG F	IN-HG	DEG F	IN-HG	DEG F
1,600	1,000	60.7	120.4	982.2	54.0	616.1	61	373.9
1,500	1,000	62.5	120.5	1,011.9	51.9	636.4	63	373.0
1,400	1,000	62.3	118.8	1,045.5	48.6	673.8	62	367.2
1,300	1,000	59.6	114.0	1,068.7	43.6	716.8	60	358.5
1,200	1,000	57.1	109.2	1,143.9	38.6	748.6	57	357.9
1,100	793	38.0	105.4	1,285.4	25.0	834.3	38	292.6
1,000	502	17.9	103.7	1,240.4	12.9	841.3	18	197.2
900	406	12.2	105.1	1,276.9	8.1	922.4	12	166.0
800	271	5.7	103.9	1,094.8	3.5	778.2	6	124.3
700	216	3.4	104.1	1,038.0	2.1	713.1	3	111.3
650	197	2.6	105.1	1,033.4	2.0	691.9	3	107.4

MAXIMUM LIMIT

ENGINE SPEED	ENGINE POWER	WET INLET AIR VOL FLOW RATE	ENGINE OUTLET WET EXH GAS VOL FLOW RATE	WET INLET AIR MASS FLOW RATE	WET EXH GAS MASS FLOW RATE	WET EXH VOL FLOW RATE (32 DEG F AND 29.98 IN HG)	DRY EXH VOL FLOW RATE (32 DEG F AND 29.98 IN HG)
RPM	BHP	CFM	CFM	LB/HR	LB/HR	FT3/MIN	FT3/MIN
1,600	1,000	2,422.0	5,063.5	10,663.8	10,995.4	2,314.2	2,139.9
1,500	1,000	2,342.7	4,975.1	10,278.0	10,607.5	2,231.8	2,058.4
1,400	1,000	2,201.5	4,825.7	9,606.6	9,932.6	2,093.3	1,922.6
1,300	1,000	1,996.6	4,544.6	8,707.3	9,027.8	1,899.3	1,732.8
1,200	1,000	1,785.1	4,205.1	7,809.8	8,129.5	1,711.1	1,547.0
1,100	793	1,267.2	3,196.8	5,505.8	5,770.3	1,214.7	1,083.2
1,000	502	792.2	2,007.6	3,417.5	3,594.1	758.8	671.5
900	406	619.0	1,666.3	2,660.7	2,815.8	592.8	517.6

800	271	463.4	1,115.5	2,002.5	2,106.9	443.1	391.3
700	216	373.1	854.1	1,613.6	1,698.8	358.1	315.5
650	197	332.8	747.0	1,436.2	1,515.1	318.9	279.8

PROP DEMAND CURVE P

ENGINE SPEED	ENGINE POWER	ENGINE TORQUE	BRAKE MEAN EFF PRES (BMEP)	BRAKE SPEC FUEL CONSUMPTN (BSFC)	ISO BRAKE SPEC FUEL CONSUMPTN (BSFC)	VOL FUEL CONSUMPTN (VFC)	ISO VOL FUEL CONSUMPTN (VFC)
RPM	BHP	LB-FT	PSI	LB/BHP-HR	LB/BHP-HR	GAL/HR	GAL/HR
1,600	1,000	3,284	235	0.331	0.325	46.7	45.8
1,500	824	2,886	207	0.336	0.329	39.0	38.3
1,400	670	2,514	180	0.338	0.331	31.9	31.3
1,300	537	2,168	155	0.339	0.333	25.7	25.2
1,200	422	1,847	132	0.344	0.338	20.5	20.1
1,100	325	1,552	111	0.352	0.346	16.1	15.8
1,000	244	1,283	92	0.362	0.355	12.5	12.2
900	178	1,039	74	0.375	0.368	9.4	9.2
800	125	821	59	0.396	0.388	7.0	6.9
700	83.8	629	45	0.434	0.426	5.1	5.0
650	67.1	542	39	0.466	0.457	4.4	4.3

PROP DEMAND CURVE P

ENGINE SPEED	ENGINE POWER	INLET MFLD PRES	INLET MFLD TEMP	EXH MFLD TEMP	EXH MFLD PRES	ENGINE OUTLET TEMP	COMPRESSOR OUTLET PRES	COMPRESSOR OUTLET TEMP
RPM	BHP	IN-HG	DEG F	DEG F	IN-HG	DEG F	IN-HG	DEG F
1,600	1,000	60.7	120.4	982.2	54.0	616.1	61	373.9
1,500	824	51.5	112.5	950.5	43.0	614.2	51	332.8
1,400	670	38.9	104.4	939.7	31.8	642.0	39	283.6
1,300	537	26.1	99.3	938.7	22.8	687.6	26	229.7
1,200	422	16.3	96.8	928.2	16.2	705.1	16	182.8
1,100	325	9.9	95.9	887.1	11.2	687.2	10	146.9
1,000	244	6.0	94.6	806.4	7.1	621.4	6	122.4
900	178	3.5	93.8	709.3	3.9	531.6	4	106.8
800	125	1.9	94.1	611.2	1.6	441.1	2	97.9
700	83.8	0.9	94.6	517.1	0.9	363.1	1	93.4
650	67.1	0.6	94.7	474.3	1.1	332.6	1	92.2

PROP DEMAND CURVE P

ENGINE SPEED	ENGINE POWER	WET INLET AIR VOL FLOW RATE	ENGINE OUTLET WET EXH GAS VOL FLOW RATE	WET INLET AIR MASS FLOW RATE	WET EXH GAS MASS FLOW RATE	WET EXH VOL FLOW RATE (32 DEG F AND 29.98 IN HG)	DRY EXH VOL FLOW RATE (32 DEG F AND 29.98 IN HG)
RPM	BHP	CFM	CFM	LB/HR	LB/HR	FT3/MIN	FT3/MIN
1,600	1,000	2,422.0	5,063.5	10,663.8	10,995.4	2,314.2	2,139.9
1,500	824	2,088.4	4,328.0	9,135.3	9,412.1	1,981.6	1,832.6
1,400	670	1,673.8	3,534.4	7,267.9	7,494.3	1,577.4	1,456.0
1,300	537	1,263.4	2,777.7	5,472.7	5,654.8	1,190.4	1,093.5
1,200	422	939.1	2,101.5	4,068.0	4,213.3	887.1	810.7
1,100	325	725.9	1,594.6	3,133.2	3,247.6	683.6	623.5
1,000	244	588.8	1,216.5	2,539.7	2,628.0	553.2	506.1
900	178	496.8	934.5	2,137.2	2,204.0	463.5	426.8
800	125	422.9	720.1	1,817.6	1,867.1	393.1	364.5
700	83.8	351.7	545.7	1,513.6	1,550.0	326.1	304.2
650	67.1	316.4	474.0	1,366.3	1,397.6	294.1	275.1

MAXIMUM POWER CURVE M

ENGINE SPEED	ENGINE POWER	ENGINE TORQUE	BRAKE MEAN EFF PRES (BMEP)	BRAKE SPEC FUEL CONSUMPTN (BSFC)	ISO BRAKE SPEC FUEL CONSUMPTN (BSFC)	VOL FUEL CONSUMPTN (VFC)	ISO VOL FUEL CONSUMPTN (VFC)
RPM	BHP	LB-FT	PSI	LB/BHP-HR	LB/BHP-HR	GAL/HR	GAL/HR
1,600	1,000	3,284	235	0.331	0.325	46.7	45.8
1,500	1,000	3,503	251	0.330	0.323	46.5	45.6
1,400	1,000	3,753	269	0.327	0.320	46.1	45.2
1,300	1,000	4,042	289	0.320	0.314	45.2	44.3
1,200	1,000	4,379	314	0.320	0.313	45.1	44.2
1,100	793	3,784	271	0.334	0.328	37.3	36.6
1,000	502	2,634	189	0.352	0.345	24.9	24.4
900	406	2,371	170	0.382	0.374	21.9	21.5
800	271	1,778	127	0.385	0.378	14.7	14.4
700	216	1,620	116	0.395	0.387	12.0	11.8
650	197	1,593	114	0.400	0.393	11.1	10.9

MAXIMUM POWER CURVE M

ENGINE SPEED	ENGINE POWER	INLET MFLD PRES	INLET MFLD TEMP	EXH MFLD TEMP	EXH MFLD PRES	ENGINE OUTLET TEMP	COMPRESSOR OUTLET PRES	COMPRESSOR OUTLET TEMP
RPM	BHP	IN-HG	DEG F	DEG F	IN-HG	DEG F	IN-HG	DEG F
1,600	1,000	60.7	120.4	982.2	54.0	616.1	61	373.9
1,500	1,000	62.5	120.5	1,011.9	51.9	636.4	63	373.0
1,400	1,000	62.3	118.8	1,045.5	48.6	673.8	62	367.2

1,300	1,000	59.6	114.0	1,068.7	43.6	716.8	60	358.5
1,200	1,000	57.1	109.2	1,143.9	38.6	748.6	57	357.9
1,100	793	38.0	105.4	1,285.4	25.0	834.3	38	292.6
1,000	502	17.9	103.7	1,240.4	12.9	841.3	18	197.2
900	406	12.2	105.1	1,276.9	8.1	922.4	12	166.0
800	271	5.7	103.9	1,094.8	3.5	778.2	6	124.3
700	216	3.4	104.1	1,038.0	2.1	713.1	3	111.3
650	197	2.6	105.1	1,033.4	2.0	691.9	3	107.4

MAXIMUM POWER CURVE M

ENGINE SPEED	ENGINE POWER	WET INLET AIR VOL FLOW RATE	ENGINE OUTLET WET EXH GAS VOL FLOW RATE	WET INLET AIR MASS FLOW RATE	WET EXH GAS MASS FLOW RATE	WET EXH VOL FLOW RATE (32 DEG F AND 29.98 IN HG)	DRY EXH VOL FLOW RATE (32 DEG F AND 29.98 IN HG)
RPM	BHP	CFM	CFM	LB/HR	LB/HR	FT3/MIN	FT3/MIN
1,600	1,000	2,422.0	5,063.5	10,663.8	10,995.4	2,314.2	2,139.9
1,500	1,000	2,342.7	4,975.1	10,278.0	10,607.5	2,231.8	2,058.4
1,400	1,000	2,201.5	4,825.7	9,606.6	9,932.6	2,093.3	1,922.6
1,300	1,000	1,996.6	4,544.6	8,707.3	9,027.8	1,899.3	1,732.8
1,200	1,000	1,785.1	4,205.1	7,809.8	8,129.5	1,711.1	1,547.0
1,100	793	1,267.2	3,196.8	5,505.8	5,770.3	1,214.7	1,083.2
1,000	502	792.2	2,007.6	3,417.5	3,594.1	758.8	671.5
900	406	619.0	1,666.3	2,660.7	2,815.8	592.8	517.6
800	271	463.4	1,115.5	2,002.5	2,106.9	443.1	391.3
700	216	373.1	854.1	1,613.6	1,698.8	358.1	315.5
650	197	332.8	747.0	1,436.2	1,515.1	318.9	279.8

Heat Rejection Data

ZONE 1

ENGINE SPEED	ENGINE POWER	REJECTION TO JACKET WATER	REJECTION TO ATMOSPHERE	REJECTION TO EXH	EXHAUST RECOVERY TO 350F	FROM OIL COOLER	FROM AFTERCOOLER	WORK ENERGY	LOW HEAT VALUE ENERGY	HIGH HEAT VALUE ENERGY
RPM	BHP	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN
1,600	1,000	18,275	4,758	31,694	12,100	5,088	11,081	42,424	101,623	108,254
1,500	1,000	17,912	4,982	31,780	12,592	5,060	10,627	42,424	101,073	107,668
1,400	1,000	17,517	5,275	31,673	13,390	5,015	9,786	42,424	100,163	106,699
1,300	1,000	16,986	5,453	31,078	13,869	4,921	8,721	42,424	98,279	104,692
1,200	1,000	17,869	6,166	29,935	13,659	4,907	7,954	42,424	98,001	104,395
1,100	575	12,476	6,270	17,877	8,571	2,967	2,048	24,397	59,264	63,132
1,000	430	10,510	6,234	13,206	6,155	2,308	899	18,255	46,100	49,108
900	345	9,441	6,186	11,142	5,273	1,965	416	14,615	39,250	41,811

800	253	7,554	5,157	7,971	3,414	1,484	140	10,748	29,647	31,581
700	208	6,579	4,911	6,224	2,442	1,249	37	8,815	24,948	26,576
650	190	6,192	4,892	5,503	2,065	1,160	6	8,075	23,166	24,677

Sound Data

EXHAUST:SOUND PRESSURE(OBCF) DISTANCE:1.5 METER ZONE 1

ENGINE SPEED	ENGINE POWER	OVERALL SOUND	63 HZ	125 HZ	250 HZ	500 HZ
RPM	BHP	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
1,600	1,000	112.0	107.0	117.0	113.0	105.0
1,500	1,000	111.0	105.0	116.0	111.0	104.0
1,400	1,000	109.0	104.0	114.0	110.0	102.0
1,300	1,000	108.0	107.0	113.0	108.0	101.0
1,200	1,000	107.0	106.0	112.0	107.0	100.0
1,100	575	105.0	104.0	110.0	105.0	98.0
1,000	430	104.0	112.0	108.0	102.0	98.0
900	345	103.0	110.0	107.0	101.0	97.0
800	253	102.0	109.0	106.0	100.0	96.0
700	208	101.0	108.0	105.0	99.0	95.0
650	190	101.0	108.0	105.0	99.0	95.0

EXHAUST:SOUND PRESSURE(OBCF) DISTANCE:1.5 METER ZONE 1

ENGINE SPEED	ENGINE POWER	1000 HZ	2000 HZ	4000 HZ	8000 HZ
RPM	BHP	dB(A)	dB(A)	dB(A)	dB(A)
1,600	1,000	104.0	105.0	106.0	103.0
1,500	1,000	102.0	104.0	104.0	101.0
1,400	1,000	101.0	102.0	103.0	100.0
1,300	1,000	99.0	102.0	101.0	99.0
1,200	1,000	98.0	101.0	100.0	98.0
1,100	575	97.0	100.0	98.0	96.0
1,000	430	97.0	100.0	93.0	89.0
900	345	96.0	99.0	92.0	87.0
800	253	95.0	98.0	91.0	86.0
700	208	94.0	97.0	90.0	85.0
650	190	94.0	97.0	90.0	85.0

EXHAUST:SOUND PRESSURE(OBCF) DISTANCE:7 METER ZONE 1

ENGINE SPEED		ENGINE POWER	OVERALL SOUND	63 HZ	125 HZ	250 HZ	500 HZ
RPM		BHP	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
1,600		1,000	99.0	96.0	106.0	100.0	91.0
1,500		1,000	97.0	94.0	105.0	99.0	90.0
1,400		1,000	96.0	93.0	103.0	97.0	88.0
1,300		1,000	95.0	97.0	101.0	96.0	89.0
1,200		1,000	93.0	95.0	100.0	94.0	87.0
1,100		575	92.0	94.0	98.0	93.0	86.0
1,000		430	91.0	101.0	99.0	90.0	87.0
900		345	90.0	100.0	98.0	89.0	86.0
800		253	89.0	99.0	97.0	88.0	85.0
700		208	88.0	98.0	96.0	87.0	84.0
650		190	87.0	98.0	95.0	86.0	83.0

EXHAUST:SOUND PRESSURE(OBCF) DISTANCE:7 METER ZONE 1

ENGINE SPEED		ENGINE POWER	1000 HZ	2000 HZ	4000 HZ	8000 HZ
RPM		BHP	dB(A)	dB(A)	dB(A)	dB(A)
1,600		1,000	91.0	92.0	93.0	88.0
1,500		1,000	89.0	90.0	91.0	86.0
1,400		1,000	88.0	89.0	90.0	85.0
1,300		1,000	88.0	89.0	89.0	84.0
1,200		1,000	87.0	88.0	87.0	82.0
1,100		575	86.0	86.0	86.0	81.0
1,000		430	85.0	85.0	80.0	76.0
900		345	84.0	84.0	79.0	75.0
800		253	83.0	83.0	78.0	73.0
700		208	82.0	82.0	77.0	72.0
650		190	82.0	81.0	76.0	72.0

EXHAUST:SOUND PRESSURE(OBCF) DISTANCE:15 METER ZONE 1

ENGINE SPEED		ENGINE POWER	OVERALL SOUND	63 HZ	125 HZ	250 HZ	500 HZ
RPM		BHP	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
1,600		1,000	92.0	89.0	100.0	94.0	85.0
1,500		1,000	91.0	87.0	98.0	92.0	83.0
1,400		1,000	89.0	86.0	97.0	91.0	82.0
1,300		1,000	88.0	90.0	94.0	89.0	82.0
1,200		1,000	87.0	89.0	93.0	88.0	81.0

1,100	575	85.0	87.0	92.0	86.0	79.0
1,000	430	84.0	95.0	92.0	83.0	80.0
900	345	83.0	93.0	91.0	82.0	79.0
800	253	82.0	92.0	90.0	81.0	78.0
700	208	81.0	91.0	89.0	80.0	77.0
650	190	81.0	91.0	89.0	80.0	77.0

EXHAUST:SOUND PRESSURE(OBCF) DISTANCE:15 METER ZONE 1

ENGINE SPEED		ENGINE POWER	1000 HZ	2000 HZ	4000 HZ	8000 HZ
RPM	BHP		dB(A)	dB(A)	dB(A)	dB(A)
1,600	1,000		84.0	85.0	86.0	81.0
1,500	1,000		83.0	84.0	84.0	80.0
1,400	1,000		81.0	82.0	83.0	78.0
1,300	1,000		82.0	82.0	82.0	77.0
1,200	1,000		80.0	81.0	81.0	76.0
1,100	575		79.0	80.0	79.0	74.0
1,000	430		79.0	78.0	73.0	69.0
900	345		77.0	77.0	72.0	68.0
800	253		76.0	76.0	71.0	67.0
700	208		75.0	75.0	70.0	66.0
650	190		75.0	75.0	70.0	65.0

MECHANICAL:SOUND PRESSURE(OBCF) DISTANCE:1 METER ZONE 1

ENGINE SPEED		ENGINE POWER	OVERALL SOUND	63 HZ	125 HZ	250 HZ	500 HZ
RPM	BHP		dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
1,600	1,000		102.0	93.0	98.0	97.0	94.0
1,500	1,000		101.0	93.0	97.0	96.0	93.0
1,400	1,000		101.0	92.0	96.0	95.0	92.0
1,300	1,000		100.0	96.0	97.0	94.0	90.0
1,200	1,000		100.0	95.0	96.0	93.0	89.0
1,100	575		99.0	95.0	95.0	93.0	88.0
1,000	430		98.0	94.0	95.0	92.0	88.0
900	345		98.0	93.0	94.0	91.0	87.0
800	253		97.0	93.0	94.0	91.0	87.0
700	208		96.0	92.0	93.0	90.0	86.0
650	190		96.0	92.0	93.0	90.0	86.0

MECHANICAL:SOUND PRESSURE(OBCF) DISTANCE:1 METER ZONE 1

ENGINE SPEED		ENGINE POWER	1000 HZ	2000 HZ	4000 HZ	8000 HZ
RPM		BHP	dB(A)	dB(A)	dB(A)	dB(A)
1,600		1,000	97.0	97.0	95.0	99.0
1,500		1,000	96.0	96.0	94.0	98.0
1,400		1,000	95.0	96.0	94.0	97.0
1,300		1,000	95.0	95.0	92.0	96.0
1,200		1,000	94.0	95.0	92.0	95.0
1,100		575	93.0	94.0	91.0	94.0
1,000		430	93.0	94.0	90.0	94.0
900		345	92.0	93.0	90.0	93.0
800		253	91.0	92.0	89.0	93.0
700		208	91.0	92.0	89.0	92.0
650		190	90.0	91.0	88.0	92.0

MECHANICAL:SOUND PRESSURE(OBCF) DISTANCE:7 METER ZONE 1

ENGINE SPEED		ENGINE POWER	OVERALL SOUND	63 HZ	125 HZ	250 HZ	500 HZ
RPM		BHP	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
1,600		1,000	90.0	81.0	86.0	85.0	82.0
1,500		1,000	89.0	81.0	85.0	84.0	81.0
1,400		1,000	89.0	80.0	84.0	83.0	80.0
1,300		1,000	88.0	84.0	85.0	82.0	78.0
1,200		1,000	88.0	83.0	84.0	81.0	77.0
1,100		575	87.0	83.0	83.0	81.0	76.0
1,000		430	86.0	82.0	83.0	80.0	76.0
900		345	86.0	81.0	82.0	79.0	75.0
800		253	85.0	81.0	82.0	79.0	75.0
700		208	84.0	80.0	81.0	78.0	74.0
650		190	84.0	80.0	81.0	78.0	74.0

MECHANICAL:SOUND PRESSURE(OBCF) DISTANCE:7 METER ZONE 1

ENGINE SPEED		ENGINE POWER	1000 HZ	2000 HZ	4000 HZ	8000 HZ
RPM		BHP	dB(A)	dB(A)	dB(A)	dB(A)
1,600		1,000	85.0	85.0	83.0	87.0
1,500		1,000	84.0	84.0	82.0	86.0
1,400		1,000	83.0	84.0	82.0	85.0
1,300		1,000	83.0	83.0	80.0	84.0
1,200		1,000	82.0	83.0	80.0	83.0

1,100	575	81.0	82.0	79.0	82.0
1,000	430	81.0	82.0	78.0	82.0
900	345	80.0	81.0	78.0	81.0
800	253	79.0	80.0	77.0	81.0
700	208	79.0	80.0	77.0	80.0
650	190	78.0	79.0	76.0	80.0

MECHANICAL:SOUND PRESSURE(OBCF) DISTANCE:15 METER ZONE 1

ENGINE SPEED	ENGINE POWER	OVERALL SOUND	63 HZ	125 HZ	250 HZ	500 HZ
RPM	BHP	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
1,600	1,000	84.0	75.0	80.0	79.0	76.0
1,500	1,000	83.0	75.0	79.0	78.0	75.0
1,400	1,000	83.0	74.0	78.0	77.0	74.0
1,300	1,000	82.0	78.0	79.0	76.0	72.0
1,200	1,000	82.0	77.0	78.0	75.0	71.0
1,100	575	81.0	77.0	77.0	75.0	70.0
1,000	430	80.0	76.0	77.0	74.0	70.0
900	345	80.0	75.0	76.0	73.0	69.0
800	253	79.0	75.0	76.0	73.0	69.0
700	208	78.0	74.0	75.0	72.0	68.0
650	190	78.0	74.0	75.0	72.0	68.0

MECHANICAL:SOUND PRESSURE(OBCF) DISTANCE:15 METER ZONE 1

ENGINE SPEED	ENGINE POWER	1000 HZ	2000 HZ	4000 HZ	8000 HZ
RPM	BHP	dB(A)	dB(A)	dB(A)	dB(A)
1,600	1,000	79.0	79.0	77.0	81.0
1,500	1,000	78.0	78.0	76.0	80.0
1,400	1,000	77.0	78.0	76.0	79.0
1,300	1,000	77.0	77.0	74.0	78.0
1,200	1,000	76.0	77.0	74.0	77.0
1,100	575	75.0	76.0	73.0	76.0
1,000	430	75.0	76.0	72.0	76.0
900	345	74.0	75.0	72.0	75.0
800	253	73.0	74.0	71.0	75.0
700	208	73.0	74.0	71.0	74.0
650	190	72.0	73.0	70.0	74.0

Emissions Data
DIESEL

ENGINE POWER		BHP	1,000	750	500	250	100
PERCENT LOAD		%	100	75	50	25	10
TOTAL NOX (AS NO2)		G/HR	7,080	3,949	2,705	1,712	1,163
TOTAL CO		G/HR	136	182	210	468	775
TOTAL HC		G/HR	124	133	116	103	111
TOTAL CO2		KG/HR	473	366	256	148	86
PART MATTER		G/HR	69.6	69.2	58.1	38.6	24.8
TOTAL NOX (AS NO2)	(CORR 5% O2)	MG/NM3	3,473.7	2,453.3	2,393.4	2,685.5	2,991.1
TOTAL CO	(CORR 5% O2)	MG/NM3	67.2	114.1	195.2	1,012.5	2,030.8
TOTAL HC	(CORR 5% O2)	MG/NM3	53.2	74.3	88.9	163.2	252.2
PART MATTER	(CORR 5% O2)	MG/NM3	29.4	38.5	45.9	53.3	58.9
TOTAL NOX (AS NO2)	(CORR 15% O2)	MG/NM3	1,289.0	910.3	888.1	996.5	1,109.9
TOTAL CO	(CORR 15% O2)	MG/NM3	24.9	42.3	72.4	375.7	753.6
TOTAL HC	(CORR 15% O2)	MG/NM3	19.8	27.6	33.0	60.6	93.6
PART MATTER	(CORR 15% O2)	MG/NM3	10.9	14.3	17.0	19.8	21.9
TOTAL NOX (AS NO2)	(CORR 5% O2)	PPM	1,692	1,195	1,166	1,308	1,457
TOTAL CO	(CORR 5% O2)	PPM	54	91	156	810	1,625
TOTAL HC	(CORR 5% O2)	PPM	99	139	166	305	471
TOTAL NOX (AS NO2)	(CORR 15% O2)	PPM	628	443	433	485	541
TOTAL CO	(CORR 15% O2)	PPM	20	34	58	301	603
TOTAL HC	(CORR 15% O2)	PPM	37	51	62	113	175
TOTAL NOX (AS NO2)		G/HP-HR	7.14	5.31	5.45	6.90	11.69
TOTAL CO		G/HP-HR	0.14	0.24	0.42	1.88	7.79
TOTAL HC		G/HP-HR	0.13	0.18	0.23	0.42	1.12
PART MATTER		G/HP-HR	0.07	0.09	0.12	0.16	0.25
TOTAL NOX (AS NO2)		G/KW-HR	9.57	7.12	7.31	9.25	15.68
TOTAL CO		G/KW-HR	0.18	0.33	0.57	2.53	10.45
TOTAL HC		G/KW-HR	0.17	0.24	0.31	0.56	1.50
PART MATTER		G/KW-HR	0.09	0.12	0.16	0.21	0.33
TOTAL NOX (AS NO2)		LB/HR	15.61	8.71	5.96	3.77	2.56
TOTAL CO		LB/HR	0.30	0.40	0.46	1.03	1.71
TOTAL HC		LB/HR	0.27	0.29	0.26	0.23	0.25
TOTAL CO2		LB/HR	1,042	807	564	327	190
PART MATTER		LB/HR	0.15	0.15	0.13	0.09	0.05
OXYGEN IN EXH		%	11.9	12.8	13.6	15.2	16.9
DRY SMOKE OPACITY		%	0.9	1.2	1.3	1.1	0.8
BOSCH SMOKE NUMBER			0.75	0.80	0.82	0.78	0.72

RATED SPEED POTENTIAL SITE VARIATION: 1600 RPM

ENGINE POWER		BHP	1,000	750	500	250	100
PERCENT LOAD		%	100	75	50	25	10
TOTAL NOX (AS NO2)		G/HR	8,496	4,739	3,246	2,054	1,395
TOTAL CO		G/HR	244	327	378	842	1,394
TOTAL HC		G/HR	165	177	155	138	148
PART MATTER		G/HR	97.5	96.9	81.3	54.0	34.7
TOTAL NOX (AS NO2)	(CORR 5% O2)	MG/NM3	4,168.4	2,943.9	2,872.1	3,222.6	3,589.3
TOTAL CO	(CORR 5% O2)	MG/NM3	120.9	205.3	351.3	1,822.6	3,655.4
TOTAL HC	(CORR 5% O2)	MG/NM3	70.8	98.8	118.2	217.1	335.4
PART MATTER	(CORR 5% O2)	MG/NM3	41.1	53.9	64.2	74.7	82.5
TOTAL NOX (AS NO2)	(CORR 15% O2)	MG/NM3	1,546.8	1,092.4	1,065.8	1,195.8	1,331.9
TOTAL CO	(CORR 15% O2)	MG/NM3	44.9	76.2	130.4	676.3	1,356.4
TOTAL HC	(CORR 15% O2)	MG/NM3	26.3	36.7	43.9	80.5	124.4
PART MATTER	(CORR 15% O2)	MG/NM3	15.3	20.0	23.8	27.7	30.6
TOTAL NOX (AS NO2)	(CORR 5% O2)	PPM	2,030	1,434	1,399	1,570	1,748
TOTAL CO	(CORR 5% O2)	PPM	97	164	281	1,458	2,924
TOTAL HC	(CORR 5% O2)	PPM	132	184	221	405	626
TOTAL NOX (AS NO2)	(CORR 15% O2)	PPM	753	532	519	582	649
TOTAL CO	(CORR 15% O2)	PPM	36	61	104	541	1,085
TOTAL HC	(CORR 15% O2)	PPM	49	68	82	150	232
TOTAL NOX (AS NO2)		G/HP-HR	8.56	6.37	6.54	8.28	14.03
TOTAL CO		G/HP-HR	0.25	0.44	0.76	3.39	14.02
TOTAL HC		G/HP-HR	0.17	0.24	0.31	0.55	1.49
PART MATTER		G/HP-HR	0.10	0.13	0.16	0.22	0.35
TOTAL NOX (AS NO2)		G/KW-HR	11.48	8.54	8.77	11.10	18.81
TOTAL CO		G/KW-HR	0.33	0.59	1.02	4.55	18.80
TOTAL HC		G/KW-HR	0.22	0.32	0.42	0.74	2.00
PART MATTER		G/KW-HR	0.13	0.17	0.22	0.29	0.47
TOTAL NOX (AS NO2)		LB/HR	18.73	10.45	7.16	4.53	3.08
TOTAL CO		LB/HR	0.54	0.72	0.83	1.86	3.07
TOTAL HC		LB/HR	0.36	0.39	0.34	0.30	0.33
PART MATTER		LB/HR	0.21	0.21	0.18	0.12	0.08

Regulatory Information

EPA TIER 1	2004 - 2007
GASEOUS EMISSIONS DATA MEASUREMENTS PROVIDED TO THE EPA ARE CONSISTENT WITH THOSE DESCRIBED IN EPA 40 CFR PART 94.103 AND ISO 8178 FOR MEASURING HC, CO PM, AND NOX. THIS ENGINE CONFORMS TO US EPA MARINE COMPRESSION-IGNITION EMISSION REGULATIONS.	

IMO	2000 - 2010
GASEOUS EMISSIONS DATA MEASUREMENTS ARE CONSISTENT WITH THOSE DESCRIBED IN REGULATION 13 OF ANNEX VI OF MARPOL 73/78 AND ISO 8178 FOR MEASURING HC, CO, PM, AND NOX.THIS ENGINE CONFORMS TO INTERNATIONAL MARINE ORGANIZATION'S (IMO) MARINE COMPRESSION-IGNITION EMISSION REGULATIONS.	

Altitude Derate Data

STANDARD

ALTITUDE CORRECTED POWER CAPABILITY (BHP)

AMBIENT OPERATING TEMP (F)	30	40	50	60	70	80	90	100	110	120	130	140	NORMAL
ALTITUDE (FT)													
0	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	990	973	1,000
1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	988	971	954	938	1,000
2,000	1,000	1,000	1,000	1,000	1,000	1,000	987	969	952	936	920	905	1,000
3,000	1,000	1,000	1,000	1,000	987	969	951	934	918	902	887	872	976
4,000	1,000	1,000	989	970	951	934	917	900	885	869	855	840	947
5,000	991	972	953	934	917	900	883	867	852	837	823	810	918
6,000	955	936	917	900	883	866	851	835	821	807	793	780	890
7,000	919	901	883	866	850	834	819	804	790	777	763	751	863
8,000	885	867	850	834	818	803	788	774	761	748	735	723	837
9,000	852	835	818	802	787	773	759	745	732	719	707	695	811
10,000	819	803	787	772	757	743	730	717	704	692	680	669	785
11,000	788	772	757	742	728	715	702	689	677	666	654	643	761
12,000	758	742	728	714	700	687	675	663	651	640	629	619	737
13,000	728	714	700	686	673	661	649	637	626	615	605	595	713
14,000	700	686	672	659	647	635	623	612	602	591	581	571	690
15,000	672	659	646	633	621	610	599	588	578	568	558	549	668

Cross Reference

Test Spec	Setting	Engine Arrangement	Engineering Model	Engineering Model Version	Start Effective Serial Number	End Effective Serial Number
0K5444	LL5529	2322468	E763	-	S2E00001	S2E00853
0K5445	LL5530	2322468	E763	-	S2E00001	S2E00853
3496311	LL6205	3327842	E763	D	M8A00001	M8A00003

Performance Parameter Reference

Parameters Reference: DM9600 - 15

PERFORMANCE DEFINITIONS

PERFORMANCE DEFINITIONS DM9600

APPLICATION: Engine performance tolerance values below are representative of a typical production engine tested in a calibrated dynamometer test cell at SAE J1995 standard reference conditions. Caterpillar maintains ISO9001:2000 certified quality management systems for engine test Facilities to assure accurate calibration of test equipment. Engine test data is corrected in accordance with SAE J1995. Additional reference material SAE J1228, J1349, ISO 8665, 3046-1:2002E, 3046-3:1989, 1585, 2534, 2288, and 9249 may apply in part or are similar to SAE J1995. Special engine rating request (SERR) test data shall be noted.

PERFORMANCE PARAMETER TOLERANCE FACTORS: Power +/- 3% Torque +/- 3% Exhaust stack temperature +/- 8% Inlet airflow +/- 5% Intake manifold pressure-gage +/- 10% Exhaust flow +/- 6% Specific fuel consumption +/- 3% Specific fuel consumption (C7-C18) +/- 4% Fuel rate +/- 5% Specific DEF consumption +/- 3% DEF rate +/- 5% Heat rejection +/- 5% Heat rejection exhaust only +/- 10% Heat rejection CEM only +/- 10%

Heat Rejection values based on using treated water.

Torque is included for truck and industrial applications, do not use for Gen Set or steady state applications.

On C7 - C18 engines, at speeds of 1100 RPM and under these values are provided for reference only, and may not meet the tolerance listed.

On 3500 and C175 engines, at speeds below Peak Torque these values are provided for reference only, and may not meet the tolerance listed.

These values do not apply to C280/3600. For these models, see the tolerances listed below.

C280/3600 HEAT REJECTION TOLERANCE FACTORS: Heat rejection +/- 10% Heat rejection to Atmosphere +/- 50% Heat rejection to Lube Oil +/- 20% Heat rejection to Aftercooler +/- 5%

TEST CELL TRANSDUCER TOLERANCE FACTORS: Torque +/- 0.5% Speed +/- 0.2% Fuel flow +/- 1.0% Temperature +/- 2.0 C degrees Intake manifold pressure +/- 0.1 kPa
OBSERVED ENGINE PERFORMANCE IS CORRECTED TO SAE J1995 REFERENCE AIR AND FUEL CONDITIONS.

REFERENCE ATMOSPHERIC INLET AIR FOR 3500 ENGINES AND SMALLER SAE J1228 AUG2002 for marine engines, and J1995 JAN2014 for other engines, reference atmospheric pressure is 100 KPA (29.61 in hg), and standard temperature is 25deg C (77 deg F) at 30% relative humidity at the stated aftercooler water temp. or inlet manifold temp.

FOR 3600 ENGINES Engine rating obtained and presented in accordance with ISO 3046/1 and SAE J1995 JANJAN2014 reference atmospheric pressure is 100 KPA (29.61 in hg), and standard temperature is 25deg C (77 deg F) at 30% relative humidity and 150M altitude at the stated aftercooler water temperature.

MEASUREMENT LOCATION FOR INLET AIR TEMPERATURE Location for air temperature measurement air cleaner inlet at stabilized operating conditions.

REFERENCE EXHAUST STACK DIAMETER The Reference Exhaust Stack Diameter published with this dataset is only used for the calculation of Smoke Opacity values displayed in this dataset. This value does not necessarily represent the actual stack diameter of the engine due to the variety of exhaust stack adapter options available. Consult the price list, engine order or general dimension drawings for the actual stack diameter size ordered or options available.

REFERENCE FUEL DIESEL Reference fuel is #2 distillate diesel with a 35API gravity; A lower heating value is 42,780 KJ/KG (18,390 BTU/LB) when used at 15 deg C (59 deg F), where the density is 850 G/Liter (7.0936 Lbs/Gal).

GAS Reference natural gas fuel has a lower heating value of 33.74 KJ/L (905 BTU/CU Ft). Low BTU ratings are based on 18.64 KJ/L (500 BTU/CU FT) lower heating value gas. Propane ratings are based on 87.56 KJ/L (2350 BTU/CU Ft) lower heating value gas.

ENGINE POWER (NET) IS THE CORRECTED FLYWHEEL POWER (GROSS) LESS EXTERNAL AUXILIARY LOAD Engine corrected gross output includes the power required to drive standard equipment; lube oil, scavenge lube oil, fuel transfer, common rail fuel, separate circuit aftercooler and jacket water pumps. Engine net power available for the external (flywheel) load is calculated by subtracting the sum of auxiliary load from the corrected gross flywheel out put power. Typical auxiliary loads are radiator cooling fans, hydraulic pumps, air compressors and battery charging alternators. For Tier 4 ratings additional Parasitic losses would also include Intake, and Exhaust Restrictions.

ALTITUDE CAPABILITY Altitude capability is the maximum altitude above sea level at standard temperature and standard pressure at which the engine could develop full rated output power on the current performance data set.

Standard temperature values versus altitude could be seen on TM2001.

When viewing the altitude capability chart the ambient temperature is the inlet air temp at the compressor inlet.

Engines with ADEM MEUI and HEUI fuel systems operating at conditions above the defined altitude capability derate for atmospheric pressure and temperature conditions outside the values defined, see TM2001.

Mechanical governor controlled unit injector engines require a setting change for operation at conditions above the altitude defined on the engine performance sheet. See your Caterpillar technical representative for non standard ratings.

REGULATIONS AND PRODUCT COMPLIANCE TMI Emissions information is presented at 'nominal' and 'Potential Site Variation' values for standard ratings. No tolerances are applied to the emissions data. These values are subject to change at any time. The controlling federal and local emission requirements need to be verified by your Caterpillar technical representative. Customer's may have special emission site requirements that need to be verified by the Caterpillar Product Group engineer.

EMISSION CYCLE LIMITS: Cycle emissions Max Limits apply to cycle-weighted averages only. Emissions at individual load points may exceed the cycle-weighted limit.

WET & DRY EXHAUST/EMISSIONS DESCRIPTION: Wet - Total exhaust flow or concentration of total exhaust flow Dry - Total exhaust flow minus water vapor or concentration of exhaust flow with water vapor excluded

EMISSIONS DEFINITIONS: Emissions : DM1176

EMISSION CYCLE DEFINITIONS

1. For constant-speed marine engines for ship main propulsion, including diesel-electric drive, test cycle E2 shall be applied, for controllable-pitch propeller sets test cycle E2 shall be applied.

2. For propeller-law-operated main and propeller-law-operated auxiliary engines the test cycle E3 shall be applied.

3. For constant-speed auxiliary engines test cycle D2 shall be applied.

4. For variable-speed, variable-load auxiliary engines, not included above, test cycle C1 shall be applied.

HEAT REJECTION DEFINITIONS: Diesel Circuit Type and HHV Balance : DM9500

HIGH DISPLACEMENT (HD) DEFINITIONS: 3500: EM1500

RATING DEFINITIONS: Agriculture : TM6008

Fire Pump : TM6009

Generator Set : TM6035

Generator (Gas) : TM6041

Industrial Diesel : TM6010

Industrial (Gas) : TM6040

Irrigation : TM5749

Locomotive : TM6037

Marine Auxiliary : TM6036

Marine Prop (Except 3600) : TM5747

Marine Prop (3600 only) : TM5748

MSHA : TM6042

Oil Field (Petroleum) : TM6011

Off-Highway Truck : TM6039

On-Highway Truck : TM6038

SOUND DEFINITIONS: Sound Power : DM8702

Sound Pressure : TM7080

Date Released : 03/12/24