PERFORMANCE DATA[EM0260]

April 25, 2024

Performance Number: EM0260 **Change Level: 03**

SALES MODEL:	C18	**COMBUSTION:**	DIRECT INJECTION
BRAND:	CAT	**ENGINE SPEED (RPM):**	2,300
MACHINE SALES MODEL:		**PEAK TORQUE SPEED (RPM):**	1,600
ENGINE POWER (BKW):	847.0	**TORQUE RISE (%):**	23
PEAK TORQUE (NM):	4,330.0	**ASPIRATION:**	TA
COMPRESSION RATIO:	15	**AFTERCOOLER TYPE:**	SWAC
RATING LEVEL:	E-RATING (HIGH PERFORMANCE)	**AFTERCOOLER CIRCUIT TYPE:**	JW+OC, AC
PUMP QUANTITY:	1	**AFTERCOOLER TEMP (C):**	32
FUEL TYPE:	DIESEL	**JACKET WATER TEMP (C):**	85
MANIFOLD TYPE:	WATER COOLED	**TURBO CONFIGURATION:**	PARALLEL
GOVERNOR TYPE:	ELEC	**TURBO QUANTITY:**	2
ELECTRONICS TYPE:	ADEM4	**TURBOCHARGER MODEL:**	S430WG 83CJI 95N71AI 0.85VOW
CAMSHAFT TYPE:	STANDARD	**CERTIFICATION YEAR:**	2013
IGNITION TYPE:	CI	**PISTON SPD @ RATED ENG SPD (M/SEC):**	14.0
INJECTOR TYPE:	EUI		
REF EXH STACK DIAMETER (MM):	203		
MAX OPERATING ALTITUDE (M):	300		

INDUSTRY	SUBINDUSTRY	APPLICATION
MARINE	PLEASURE CRAFT	MARINE PROPULSION
MARINE	GOVERNMENT	MARINE PROPULSION

General Performance Data

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	BKW	NM	KPA	G/BKW-HR	G/BKW-HR	L/HR	L/HR
2,300	847	3,517	2,437	218.6	214.5	217.9	213.7
2,200	847	3,676	2,548	216.3	212.2	215.6	211.5
2,100	847	3,852	2,669	214.5	210.4	213.7	209.6
2,000	839	4,004	2,775	212.0	207.9	209.1	205.2
1,900	831	4,178	2,895	209.3	205.4	204.7	200.8
1,800	809	4,292	2,975	205.5	201.6	195.6	191.9
1,700	766	4,301	2,981	203.7	199.9	183.5	180.1
1,600	723	4,316	2,991	200.6	196.8	170.7	167.4
1,500	651	4,147	2,874	199.0	195.2	152.5	149.6
1,400	583	3,976	2,756	197.7	193.9	135.6	133.0
1,300	457	3,355	2,325	198.3	194.5	106.6	104.5
1,200	363	2,891	2,004	201.3	197.4	86.0	84.4
1,100	287	2,491	1,726	204.4	200.6	69.0	67.7
1,000	234	2,239	1,552	220.6	216.4	60.9	59.7
900	201	2,133	1,478	214.9	210.8	50.8	49.9
800	169	2,021	1,401	214.9	210.8	42.8	42.0
700	127	1,736	1,203	217.8	213.7	32.6	32.0
600	99.2	1,579	1,094	217.3	213.2	25.4	24.9

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	BKW	KPA	DEG C	DEG C	KPA	DEG C	KPA	DEG C
2,300	847	255.5	53.2	722.6	300.1	443.3	274	232.8
2,200	847	257.3	52.7	721.2	292.7	443.9	274	230.6
2,100	847	259.5	52.3	726.1	284.4	448.1	276	229.7
2,000	839	261.4	52.5	725.3	274.0	448.5	277	227.5
1,900	831	262.3	54.9	730.7	259.7	455.2	276	225.1
1,800	809	257.1	52.6	725.6	244.6	449.9	269	222.4
1,700	766	250.5	51.4	713.2	225.8	443.2	262	216.3
1,600	723	241.9	52.1	708.7	204.1	441.5	251	209.6
1,500	651	224.2	48.9	684.1	178.7	421.7	232	198.6
1,400	583	200.1	48.7	679.9	147.1	420.5	207	186.9
1,300	457	146.4	47.3	667.9	96.9	418.0	151	155.1
1,200	363	107.9	47.1	665.5	65.8	423.1	111	128.9
1,100	287	73.5	49.4	658.1	42.3	422.5	76	102.6
1,000	234	57.6	45.0	620.9	31.1	381.1	60	88.2
900	201	47.1	42.9	610.5	23.7	359.4	49	79.5

800	169	37.3	41.8	606.1	17.0	343.1	39	69.9
700	127	22.0	41.4	533.8	9.9	270.4	23	51.7
600	99.2	14.9	44.3	499.7	6.7	261.1	15	46.3

General Performance Data (Continued)

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	ENGINE OUTLET WET EXH VOL FLOW RATE (0 DEG C AND 101 KPA)	ENGINE OUTLET DRY EXH VOL FLOW RATE (0 DEG C AND 101 KPA)
RPM	BKW	M3/MIN	M3/MIN	KG/HR	KG/HR	M3/MIN	M3/MIN
2,300	847	61.1	150.8	4,189.5	4,374.6	57.5	51.9
2,200	847	59.9	147.9	4,105.0	4,288.2	56.3	50.9
2,100	847	58.7	145.7	4,018.0	4,199.7	55.2	49.8
2,000	839	57.2	141.9	3,907.6	4,085.3	53.7	48.4
1,900	831	54.9	137.3	3,743.6	3,917.6	51.5	46.3
1,800	809	51.6	129.0	3,544.5	3,710.7	48.7	43.8
1,700	766	48.7	120.2	3,333.1	3,489.1	45.8	41.2
1,600	723	45.1	110.7	3,074.7	3,219.8	42.3	38.0
1,500	651	41.0	97.2	2,779.4	2,909.0	38.2	34.4
1,400	583	35.8	84.4	2,412.6	2,527.8	33.2	29.8
1,300	457	27.7	64.8	1,856.5	1,947.0	25.6	22.9
1,200	363	21.6	50.7	1,442.1	1,515.3	19.9	17.7
1,100	287	16.6	38.8	1,102.3	1,161.1	15.3	13.5
1,000	234	13.9	30.5	919.5	971.2	12.7	11.2
900	201	11.7	25.0	777.1	820.2	10.8	9.5
800	169	9.8	20.3	646.9	683.3	9.0	7.9
700	127	7.6	13.9	504.5	532.2	7.0	6.2
600	99.2	6.1	11.1	404.1	425.6	5.7	5.0

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	BKW	NM	KPA	G/BKW-HR	G/BKW-HR	L/HR	L/HR
2,300	847	3,517	2,437	218.6	214.5	217.9	213.7
2,200	741	3,217	2,230	224.6	220.3	195.9	192.2
2,100	645	2,932	2,032	232.9	228.5	176.7	173.3
2,000	557	2,659	1,843	224.9	220.6	147.3	144.5
1,900	477	2,400	1,663	221.4	217.2	124.4	122.0
1,800	406	2,154	1,493	224.2	220.0	107.1	105.1
1,700	342	1,921	1,332	219.7	215.5	88.4	86.7
1,600	285	1,702	1,179	215.2	211.1	72.2	70.8
1,500	235	1,496	1,037	213.6	209.6	59.1	57.9
1,400	191	1,303	903	212.7	208.6	47.8	46.9
1,300	153	1,123	779	210.7	206.7	37.9	37.2
1,200	120	957	663	208.9	204.9	29.6	29.0
1,100	92.7	804	557	246.6	241.9	26.9	26.4
1,000	69.6	665	461	222.3	218.0	18.2	17.9
900	50.7	538	373	235.6	231.1	14.1	13.8
800	35.6	425	295	219.0	214.9	9.2	9.0
700	23.9	326	226	237.3	232.8	6.7	6.5
600	15.0	239	166	269.8	264.7	4.8	4.7

General Performance Data (Continued)

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	BKW	KPA	DEG C	DEG C	KPA	DEG C	KPA	DEG C
2,300	847	255.5	53.2	722.6	300.1	443.3	274	232.8
2,200	741	252.1	52.3	690.2	288.1	423.6	269	226.5
2,100	645	246.6	51.7	668.7	271.0	408.0	263	219.5
2,000	557	223.8	50.2	608.1	227.6	371.9	238	200.4
1,900	477	202.3	47.3	565.6	195.4	342.8	214	183.9
1,800	406	182.7	50.0	555.6	167.0	344.7	193	172.1
1,700	342	139.2	48.2	534.1	121.0	342.4	147	144.0
1,600	285	99.9	47.3	514.4	83.4	337.4	106	117.2
1,500	235	71.1	47.8	488.4	57.6	329.4	75	96.4

1,400	191	48.9	46.2	452.8	41.5	319.2	52	79.5
1,300	153	35.9	47.1	415.6	28.3	293.6	38	63.5
1,200	120	21.4	47.7	376.3	18.5	267.4	23	51.9
1,100	92.7	11.7	44.0	328.6	12.5	241.7	13	48.2
1,000	69.6	6.7	47.2	287.7	9.0	215.8	8	36.9
900	50.7	3.2	44.9	241.1	6.4	183.3	4	33.1
800	35.6	3.3	43.9	196.5	6.1	154.3	4	32.4
700	23.9	1.9	42.1	163.3	4.6	128.8	2	30.4
600	15.0	1.1	42.7	135.2	3.3	113.8	2	29.5

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	ENGINE OUTLET WET EXH VOL FLOW RATE (0 DEG C AND 101 KPA)	ENGINE OUTLET DRY EXH VOL FLOW RATE (0 DEG C AND 101 KPA)
RPM	BKW	M3/MIN	M3/MIN	KG/HR	KG/HR	M3/MIN	M3/MIN
2,300	847	61.1	150.8	4,189.5	4,374.6	57.5	51.9
2,200	741	59.5	142.0	4,075.9	4,242.4	55.7	50.6
2,100	645	57.4	133.4	3,919.8	4,069.9	53.5	48.9
2,000	557	52.1	112.9	3,545.1	3,669.8	47.8	43.9
1,900	477	47.4	98.1	3,206.4	3,312.1	43.5	40.2
1,800	406	42.1	87.9	2,867.7	2,958.7	38.9	36.0
1,700	342	34.4	71.3	2,328.4	2,403.5	31.6	29.3
1,600	285	27.4	56.2	1,845.5	1,906.9	25.2	23.3
1,500	235	22.1	44.5	1,478.7	1,528.9	20.2	18.6
1,400	191	18.0	35.7	1,204.8	1,245.5	16.5	15.2
1,300	153	15.0	28.3	1,000.0	1,032.2	13.6	12.6
1,200	120	12.6	22.7	835.4	860.9	11.5	10.7
1,100	92.7	10.6	18.0	701.7	723.8	9.5	8.8
1,000	69.6	9.1	14.5	603.0	618.5	8.1	7.6
900	50.7	8.0	11.9	528.5	540.5	7.1	6.7
800	35.6	7.3	10.1	482.7	490.5	6.4	6.1
700	23.9	6.3	8.2	418.2	423.9	5.6	5.3
600	15.0	5.4	6.7	355.1	359.1	4.7	4.5

General Performance Data (Continued)

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	BKW	NM	KPA	G/BKW-HR	G/BKW-HR	L/HR	L/HR
2,300	847	3,517	2,437	218.6	214.5	217.9	213.7
2,200	847	3,676	2,548	216.3	212.2	215.6	211.5
2,100	847	3,852	2,669	214.5	210.4	213.7	209.6
2,000	839	4,004	2,775	212.0	207.9	209.1	205.2
1,900	831	4,178	2,895	209.3	205.4	204.7	200.8
1,800	809	4,292	2,975	205.5	201.6	195.6	191.9
1,700	766	4,301	2,981	203.7	199.9	183.5	180.1
1,600	723	4,316	2,991	200.6	196.8	170.7	167.4
1,500	651	4,147	2,874	199.0	195.2	152.5	149.6
1,400	583	3,976	2,756	197.7	193.9	135.6	133.0
1,300	457	3,355	2,325	198.3	194.5	106.6	104.5
1,200	363	2,891	2,004	201.3	197.4	86.0	84.4
1,100	287	2,491	1,726	204.4	200.6	69.0	67.7
1,000	234	2,239	1,552	220.6	216.4	60.9	59.7
900	201	2,133	1,478	214.9	210.8	50.8	49.9
800	169	2,021	1,401	214.9	210.8	42.8	42.0
700	127	1,736	1,203	217.8	213.7	32.6	32.0
600	99.2	1,579	1,094	217.3	213.2	25.4	24.9

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	BKW	KPA	DEG C	DEG C	KPA	DEG C	KPA	DEG C
2,300	847	255.5	53.2	722.6	300.1	443.3	274	232.8
2,200	847	257.3	52.7	721.2	292.7	443.9	274	230.6
2,100	847	259.5	52.3	726.1	284.4	448.1	276	229.7
2,000	839	261.4	52.5	725.3	274.0	448.5	277	227.5
1,900	831	262.3	54.9	730.7	259.7	455.2	276	225.1
1,800	809	257.1	52.6	725.6	244.6	449.9	269	222.4

1,700	766	250.5	51.4	713.2	225.8	443.2	262	216.3
1,600	723	241.9	52.1	708.7	204.1	441.5	251	209.6
1,500	651	224.2	48.9	684.1	178.7	421.7	232	198.6
1,400	583	200.1	48.7	679.9	147.1	420.5	207	186.9
1,300	457	146.4	47.3	667.9	96.9	418.0	151	155.1
1,200	363	107.9	47.1	665.5	65.8	423.1	111	128.9
1,100	287	73.5	49.4	658.1	42.3	422.5	76	102.6
1,000	234	57.6	45.0	620.9	31.1	381.1	60	88.2
900	201	47.1	42.9	610.5	23.7	359.4	49	79.5
800	169	37.3	41.8	606.1	17.0	343.1	39	69.9
700	127	22.0	41.4	533.8	9.9	270.4	23	51.7
600	99.2	14.9	44.3	499.7	6.7	261.1	15	46.3

General Performance Data (Continued)

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	ENGINE OUTLET WET EXH VOL FLOW RATE (0 DEG C AND 101 KPA)	ENGINE OUTLET DRY EXH VOL FLOW RATE (0 DEG C AND 101 KPA)
RPM	BKW	M3/MIN	M3/MIN	KG/HR	KG/HR	M3/MIN	M3/MIN
2,300	847	61.1	150.8	4,189.5	4,374.6	57.5	51.9
2,200	847	59.9	147.9	4,105.0	4,288.2	56.3	50.9
2,100	847	58.7	145.7	4,018.0	4,199.7	55.2	49.8
2,000	839	57.2	141.9	3,907.6	4,085.3	53.7	48.4
1,900	831	54.9	137.3	3,743.6	3,917.6	51.5	46.3
1,800	809	51.6	129.0	3,544.5	3,710.7	48.7	43.8
1,700	766	48.7	120.2	3,333.1	3,489.1	45.8	41.2
1,600	723	45.1	110.7	3,074.7	3,219.8	42.3	38.0
1,500	651	41.0	97.2	2,779.4	2,909.0	38.2	34.4
1,400	583	35.8	84.4	2,412.6	2,527.8	33.2	29.8
1,300	457	27.7	64.8	1,856.5	1,947.0	25.6	22.9
1,200	363	21.6	50.7	1,442.1	1,515.3	19.9	17.7
1,100	287	16.6	38.8	1,102.3	1,161.1	15.3	13.5
1,000	234	13.9	30.5	919.5	971.2	12.7	11.2
900	201	11.7	25.0	777.1	820.2	10.8	9.5
800	169	9.8	20.3	646.9	683.3	9.0	7.9
700	127	7.6	13.9	504.5	532.2	7.0	6.2
600	99.2	6.1	11.1	404.1	425.6	5.7	5.0

Heat Rejection Data

MAXIMUM LIMIT

ENGINE SPEED	ENGINE POWER	REJECTION TO JACKET WATER	REJECTION TO ATMOSPHERE	REJECTION TO EXH	EXH RECOVERY TO 177C	FROM OIL COOLER	FROM AFTERCOOLER	WORK ENERGY	LOW HEAT VALUE ENERGY	HIGH HEAT VALUE ENERGY
RPM	BKW	KW	KW	KW	KW	KW	KW	KW	KW	KW
2,300	847	556	45.4	686	346	117	210	847	2,201	2,344
2,200	847	551	42.3	675	340	116	204	847	2,178	2,320
2,100	847	543	42.4	669	339	115	199	847	2,159	2,300
2,000	839	526	42.6	652	330	113	191	839	2,113	2,251
1,900	831	515	42.2	637	325	110	178	831	2,068	2,203
1,800	809	491	39.0	598	302	105	168	809	1,976	2,105
1,700	766	459	42.5	555	277	98.8	154	766	1,854	1,975
1,600	723	429	37.5	511	254	91.8	135	723	1,724	1,836
1,500	651	393	38.0	442	211	82.1	116	651	1,541	1,641

Sound Data

EXHAUST:SOUND POWER(1/3 Octave Frequencies) MAXIMUM POWER CURVE M

ENGINE	ENGINE	OVERALL	100 HZ	125 HZ	160 HZ	200 HZ	250 HZ	315 HZ	400 HZ	500 HZ	630 HZ	800 HZ

PERFORMANCE DATA[EM0260]

April 25, 2024

SPEED	POWER	SOUND										
RPM	BKW	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
2,300	847	129.6	106.5	117.3	115.6	111.9	119.1	116.7	118.5	120.1	118.2	119.6
2,200	847	129.9	111.9	108.5	116.9	114.4	116.6	116.2	117.3	120.7	119.8	121.7
2,100	847	131.5	116.1	103.5	117.3	120.9	117.2	122.4	120.6	122.5	121.7	122.1
2,000	839	130.9	118.3	101.0	116.3	117.8	117.8	119.0	119.8	122.9	121.1	120.9
1,900	831	133.1	121.4	104.5	111.4	126.9	119.7	123.8	123.8	123.6	121.7	120.3
1,800	809	128.4	118.6	107.6	106.4	113.9	117.7	115.5	114.1	118.0	116.8	118.9
1,700	766	127.5	103.9	106.0	113.1	110.9	114.2	113.2	113.6	118.7	117.3	118.1
1,600	723	126.9	99.6	104.0	112.1	105.5	111.8	110.5	114.1	118.0	117.1	117.5
1,500	651	126.3	96.2	99.4	111.2	105.3	108.7	111.5	114.4	118.3	116.4	115.7
1,400	583	125.8	99.1	105.4	107.0	110.6	109.1	110.0	114.6	117.7	115.4	115.3
1,300	457	125.7	102.7	111.4	109.8	116.6	112.3	112.3	111.6	115.8	114.7	114.8
1,200	363	124.2	99.3	113.3	107.0	109.0	113.4	112.6	110.5	111.9	111.1	113.2
1,100	287	121.2	103.9	101.5	105.6	105.0	108.1	109.7	106.5	109.9	109.3	111.3
1,000	234	119.3	104.1	91.1	102.2	105.3	104.2	103.7	104.5	108.4	106.1	108.9
900	201	118.4	103.5	91.9	95.1	102.4	100.1	99.6	102.2	106.4	105.6	108.1
800	169	117.1	89.5	91.3	97.4	103.0	98.0	99.0	101.2	105.0	105.7	106.3
700	127	114.1	81.7	87.5	96.2	95.3	96.3	95.8	99.1	102.8	103.7	103.6
600	99.2	112.7	86.8	101.6	97.8	90.3	92.1	94.6	97.4	103.0	101.9	101.7

EXHAUST:SOUND POWER(1/3 Octave Frequencies) MAXIMUM POWER CURVE M

ENGINE SPEED	ENGINE POWER	1000 HZ	1250 HZ	1600 HZ	2000 HZ	2500 HZ	3150 HZ	4000 HZ	5000 HZ	6300 HZ	8000 HZ	10000 HZ
RPM	BKW	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
2,300	847	118.5	117.1	115.2	117.4	116.3	115.7	114.7	111.0	105.7	99.8	92.2
2,200	847	119.9	117.5	115.5	117.6	116.3	115.7	114.7	111.2	105.9	99.9	92.6
2,100	847	120.2	118.1	115.7	117.3	116.1	115.4	114.3	110.8	105.5	99.4	92.6
2,000	839	120.4	117.9	115.8	116.9	115.8	115.2	113.8	110.4	105.3	99.3	92.8
1,900	831	119.1	117.7	116.8	116.8	115.5	115.0	113.6	110.4	105.9	100.3	94.1
1,800	809	117.7	115.7	115.7	116.8	115.3	114.8	113.5	110.3	105.1	99.4	93.5
1,700	766	117.0	116.0	115.5	116.3	114.7	114.4	113.0	109.3	104.1	98.9	93.8
1,600	723	116.7	116.0	115.2	115.8	114.6	114.4	112.6	108.8	103.6	98.6	95.4
1,500	651	115.9	115.1	113.5	114.7	114.1	114.7	111.8	107.6	102.8	98.1	98.4
1,400	583	115.2	114.4	112.3	113.6	113.7	115.6	111.2	106.7	102.5	98.5	102.4
1,300	457	115.9	115.3	112.4	112.9	111.4	113.1	110.1	104.6	100.9	98.7	101.2
1,200	363	115.4	115.1	112.1	111.0	110.3	110.8	107.7	104.3	100.4	100.7	91.5
1,100	287	114.0	111.0	108.7	108.8	107.8	105.9	104.9	101.6	99.6	95.0	89.7
1,000	234	112.9	109.9	105.7	107.3	106.3	105.0	103.3	100.3	97.4	92.5	88.4
900	201	112.3	109.8	105.4	107.0	106.0	105.5	103.6	100.3	95.9	92.8	86.0
800	169	110.8	109.1	104.5	105.3	104.4	103.8	102.4	99.3	94.6	91.3	83.7
700	127	107.3	105.1	102.7	103.8	102.3	99.9	99.6	95.6	92.0	86.1	80.2
600	99.2	105.0	103.7	101.1	102.0	100.9	96.5	98.6	93.0	85.7	83.8	77.2

MECHANICAL:SOUND POWER(1/3 Octave Frequencies) MAXIMUM POWER CURVE M

ENGINE SPEED	ENGINE POWER	OVERALL SOUND	100 HZ	125 HZ	160 HZ	200 HZ	250 HZ	315 HZ	400 HZ	500 HZ	630 HZ	800 HZ
RPM	BKW	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
2,300	847	120.0	80.8	92.3	93.9	95.0	103.7	101.5	102.9	109.7	110.5	109.0
2,200	847	119.5	87.0	89.7	92.4	97.6	101.0	101.1	105.4	107.2	106.8	108.1
2,100	847	118.7	90.5	85.5	91.7	93.5	99.5	99.6	102.2	106.5	106.8	107.3
2,000	839	118.9	92.7	85.2	92.0	93.0	97.6	102.2	102.0	105.2	106.1	108.8
1,900	831	118.8	94.7	89.1	94.1	97.2	97.0	101.1	104.7	106.0	105.4	107.4
1,800	809	118.6	92.5	90.0	89.4	95.8	96.7	96.8	103.5	105.9	104.6	108.0
1,700	766	118.4	78.8	88.0	92.2	91.8	96.4	97.6	99.9	105.9	104.7	106.6
1,600	723	118.4	78.0	89.6	94.2	90.8	95.7	96.9	103.0	104.9	104.0	106.9
1,500	651	118.3	77.8	86.9	93.3	89.9	94.7	96.8	101.1	104.2	104.3	105.3
1,400	583	118.8	77.5	89.3	89.7	90.8	94.6	95.9	100.8	100.4	102.8	104.8
1,300	457	117.6	80.3	88.3	85.2	88.2	95.2	93.3	96.8	101.4	100.0	105.7
1,200	363	117.2	77.1	92.4	84.6	87.2	91.8	90.0	93.5	97.4	100.1	105.1
1,100	287	115.5	79.1	81.8	83.0	83.4	89.8	90.9	95.5	97.9	99.6	102.5
1,000	234	114.3	83.8	80.4	81.0	84.5	88.7	89.8	94.3	96.7	97.7	102.2
900	201	113.6	84.3	81.3	80.9	85.2	86.3	88.7	93.8	96.4	96.8	101.7
800	169	112.4	68.4	79.2	79.5	83.0	86.3	89.0	93.7	95.4	95.4	100.6
700	127	109.9	70.0	75.2	77.7	79.9	82.4	86.0	90.2	93.0	95.0	98.6
600	99.2	107.6	64.4	73.3	73.7	75.3	81.5	83.7	86.3	90.3	93.8	97.7

MECHANICAL:SOUND POWER(1/3 Octave Frequencies) MAXIMUM POWER CURVE M

PERFORMANCE DATA[EM0260]

April 25, 2024

ENGINE SPEED	ENGINE POWER	1000 HZ	1250 HZ	1600 HZ	2000 HZ	2500 HZ	3150 HZ	4000 HZ	5000 HZ	6300 HZ	8000 HZ	10000 HZ
RPM	BKW	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
2,300	847	109.6	109.2	109.9	109.8	109.4	108.7	107.3	105.2	102.8	103.1	100.2
2,200	847	109.9	109.9	109.5	109.3	109.5	108.8	106.6	104.7	102.6	102.2	100.2
2,100	847	109.7	108.4	108.9	108.1	108.8	108.1	106.2	104.4	102.6	101.9	100.3
2,000	839	109.9	108.8	109.0	108.4	108.9	108.2	106.4	104.7	102.8	101.6	100.9
1,900	831	109.8	108.1	109.0	108.6	108.7	108.0	106.5	104.7	102.9	102.1	101.6
1,800	809	108.8	107.5	108.8	108.1	108.8	108.0	106.6	105.1	103.4	102.6	102.5
1,700	766	108.8	106.8	108.0	108.1	108.5	107.8	106.9	105.7	104.3	103.9	104.7
1,600	723	108.7	106.8	108.0	107.6	108.2	107.5	106.1	105.3	104.3	104.4	107.7
1,500	651	107.9	106.3	107.9	107.0	107.2	107.9	106.1	105.1	104.2	104.7	110.5
1,400	583	106.8	105.3	106.6	106.1	106.5	108.7	106.0	105.0	104.4	105.4	114.1
1,300	457	105.0	105.5	105.8	105.3	105.5	106.8	105.3	104.6	104.6	106.5	112.3
1,200	363	104.5	104.2	104.5	104.3	103.7	105.8	105.6	106.0	106.1	112.6	103.5
1,100	287	103.5	102.8	103.9	104.4	102.6	105.0	106.1	106.0	107.2	104.2	100.8
1,000	234	102.7	100.7	103.0	103.2	101.3	104.4	105.6	106.0	104.6	100.5	98.9
900	201	102.3	99.9	101.9	102.5	101.3	104.6	105.7	105.3	101.5	99.4	97.1
800	169	101.5	98.8	101.0	101.8	101.1	104.2	105.0	102.8	98.4	97.2	94.9
700	127	99.6	96.5	98.6	99.8	98.7	101.4	103.7	96.3	93.7	92.0	89.5
600	99.2	98.1	96.1	96.1	96.8	96.7	96.8	101.8	92.0	89.3	88.5	86.5

Emissions Data

DIESEL

RATED SPEED NOMINAL DATA: 2300 RPM

ENGINE POWER		BKW	847	635	424	212	84.7
PERCENT LOAD		%	100	75	50	25	10
TOTAL NOX (AS NO2)		G/HR	6,494	3,195	2,705	1,486	702
TOTAL CO		G/HR	910	335	221	484	413
TOTAL HC		G/HR	25	45	31	33	31
TOTAL CO2		KG/HR	590	469	303	178	102
TOTAL NOX (AS NO2)	(CORR 5% O2)	MG/NM3	2,561.7	1,601.0	2,102.5	1,968.4	1,646.0
TOTAL CO	(CORR 5% O2)	MG/NM3	358.4	166.2	173.2	640.6	970.4
TOTAL HC	(CORR 5% O2)	MG/NM3	8.7	19.2	21.0	37.5	63.8
TOTAL NOX (AS NO2)	(CORR 5% O2)	PPM	1,248	780	1,024	959	802
TOTAL CO	(CORR 5% O2)	PPM	287	133	139	512	776
TOTAL HC	(CORR 5% O2)	PPM	16	36	39	70	119
TOTAL NOX (AS NO2)		G/HP-HR	5.76	3.77	4.78	5.24	6.19
TOTAL CO		G/HP-HR	0.81	0.40	0.39	1.71	3.64
TOTAL HC		G/HP-HR	0.02	0.05	0.06	0.12	0.28
TOTAL NOX (AS NO2)		LB/HR	14.32	7.04	5.96	3.28	1.55
TOTAL CO		LB/HR	2.01	0.74	0.49	1.07	0.91
TOTAL HC		LB/HR	0.06	0.10	0.07	0.07	0.07
TOTAL CO2		LB/HR	1,301	1,033	667	393	225
OXYGEN IN EXH		%	7.8	10.2	12.6	14.1	15.9
DRY SMOKE OPACITY		%	2.3	2.2	2.2	7.2	8.4
BOSCH SMOKE NUMBER			1.05	0.98	0.97	2.34	2.54

RATED SPEED POTENTIAL SITE VARIATION: 2300 RPM

ENGINE POWER		BKW	847	635	424	212	84.7
PERCENT LOAD		%	100	75	50	25	10
TOTAL NOX (AS NO2)		G/HR	7,014	3,451	2,922	1,605	759
TOTAL CO		G/HR	1,701	626	414	906	773
TOTAL HC		G/HR	48	84	59	62	59
TOTAL NOX (AS NO2)	(CORR 5% O2)	MG/NM3	2,766.7	1,729.0	2,270.7	2,125.8	1,777.6
TOTAL CO	(CORR 5% O2)	MG/NM3	670.2	310.8	323.9	1,197.9	1,814.6
TOTAL HC	(CORR 5% O2)	MG/NM3	16.5	36.2	39.7	70.8	120.6
TOTAL NOX (AS NO2)	(CORR 5% O2)	PPM	1,348	842	1,106	1,035	866
TOTAL CO	(CORR 5% O2)	PPM	536	249	259	958	1,452
TOTAL HC	(CORR 5% O2)	PPM	31	68	74	132	225
TOTAL NOX (AS NO2)		G/HP-HR	6.23	4.07	5.16	5.66	6.69
TOTAL CO		G/HP-HR	1.51	0.74	0.73	3.20	6.81
TOTAL HC		G/HP-HR	0.04	0.10	0.10	0.22	0.52

TOTAL NOX (AS NO2)	LB/HR	15.46	7.61	6.44	3.54	1.67
TOTAL CO	LB/HR	3.75	1.38	0.91	2.00	1.70
TOTAL HC	LB/HR	0.11	0.19	0.13	0.14	0.13

Regulatory Information

EPA TIER 3	2013 - ----	CYCLE :E5
GASEOUS EMISSIONS DATA MEASUREMENTS PROVIDED TO THE EPA ARE CONSISTENT WITH THOSE DESCRIBED IN EPA 40 CFR PART 1042 AND ISO 8178 FOR MEASURING HC, CO, PM, AND NOX. THIS ENGINE CONFORMS TO US EPA MARINE RECREATIONAL COMPRESSION-IGNITION EMISSION REGULATIONS. THE "MAX LIMITS" SHOWN BELOW ARE WEIGHTED CYCLE AVERAGES AND ARE IN COMPLIANCE WITH THE MARINE REGULATIONS.		

Locality	Agency	Regulation	Tier/Stage	Max Limits - G/BKW - HR
U.S. (INCL CALIF)	EPA	MARINE RECREATIONAL	TIER 3	CO: 5.0 NOx + HC: 5.8 PM: 0.12

EU STAGE IIIA	2009 - 2019	CYCLE :E3
GASEOUS EMISSION DATA MEASUREMENTS ARE CONSISTENT WITH THOSE DESCRIBED IN EU 97/68/EC (AS AMENDED BY EU 2004/26/EC) AND ISO 8178 FOR MEASURING HC, CO, PM, AND NOX. GASEOUS EMISSIONS VALUES ARE WEIGHTED CYCLE AVERAGES AND ARE IN COMPLIANCE WITH THE MARINE REGULATIONS.		

Locality	Agency	Regulation	Tier/Stage	Max Limits - G/BKW - HR
EUROPE	EU	MARINE COMMERCIAL	STAGE IIIA	CO: 5.0 NOx + HC: 7.2 PM: 0.20

IMO II	2011 - ----	CYCLE :E3
GASEOUS EMISSIONS DATA MEASUREMENTS ARE CONSISTENT WITH THOSE DESCRIBED IN REGULATION 13 OF REVISED 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.		

Cross Reference

Test Spec	Setting	Engine Arrangement	Engineering Model	Engineering Model Version	Start Effective Serial Number	End Effective Serial Number
3717544	PP6954	3770532	EE152	-	JLE00001	
3717545	PP6956	3770532	EE152	-	JLE00001	
3717544	PP6954	3770533	EE152	-	JLE00001	
3717545	PP6956	3770533	EE152	-	JLE00001	
3717544	PP6954	5177187	EE152	-	JLE00001	
3717545	PP6956	5177188	EE152	-	JLE00001	

Supplementary Data

Type	Classification	Performance Number
CHART	AMBIENT CAPABILTY CHART	EM0466
SOUND	SOUND POWER	EM0762
CHART	BSFC CONTOUR PLOT	EM0998

This performance data is supplementary data for:
EM0466

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

PERFORMANCE DATA[EM0260]

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