

Performance Number: EM1754

Change Level: 04

SALES MODEL:	3516E	COMBUSTION:	DIRECT INJECTION
BRAND:	CAT	ENGINE SPEED (RPM):	1,800
ENGINE POWER (BHP):	3,004	PEAK TORQUE SPEED (RPM):	1,400
PEAK TORQUE (FT-LB):	11,269.2	ASPIRATION:	TA
COMPRESSION RATIO:	14.3	AFTERCOOLER TYPE:	SCAC
RATING LEVEL:	A-RATING	AFTERCOOLER CIRCUIT TYPE:	JW+OC+1AC, 2AC
PUMP QUANTITY:	2	AFTERCOOLER TEMP (F):	95
FUEL TYPE:	DIESEL	JACKET WATER TEMP (F):	210.2
MANIFOLD TYPE:	DRY	TURBO CONFIGURATION:	PARALLEL
GOVERNOR TYPE:	ADEM5	TURBO QUANTITY:	2
ELECTRONICS TYPE:	ADEM5	TURBOCHARGER MODEL:	TPC49-A13_CV33-CT65_TT16-TA60
CAMSHAFT TYPE:	STANDARD	CERTIFICATION YEAR:	2016
IGNITION TYPE:	CI	CRANKCASE BLOWBY RATE (FT3/HR):	3,174.4
INJECTOR TYPE:	EUI	FUEL RATE (RATED RPM) NO LOAD (GAL/HR):	12.7
FUEL INJECTOR:	4575312	PISTON SPD @ RATED ENG SPD (FT/MIN):	2,539.4
UNIT INJECTOR TIMING (IN):	64.34		
REF EXH STACK DIAMETER (IN):	14		
MAX OPERATING ALTITUDE (FT):	656		

INDUSTRY	SUBINDUSTRY	APPLICATION
MARINE	DREDGE	MARINE PROPULSION
MARINE	PLEASURE CRAFT	MARINE PROPULSION
MARINE	FERRY	MARINE PROPULSION
MARINE	OFFSHORE	MARINE PROPULSION
MARINE	GENERAL CARGO	MARINE PROPULSION
MARINE	TUG & SALVAGE	MARINE PROPULSION
MARINE	GOVERNMENT	MARINE PROPULSION
MARINE	CRUISE	MARINE PROPULSION
MARINE	FISHING	MARINE PROPULSION
MARINE	INLAND WATERWAY	MARINE PROPULSION

General Performance Data

THIS RATING IS PACKAGED WITH EXHAUST AFTERTREATMENT. THE ENGINE OUTLET TEMP, AND ENGINE OUTLET WET EXH GAS VOL FLOW RATE, LISTED IN THE GENERAL PERFORMANCE DATA ARE AT TURBINE OUTLET CONDITIONS. FOR AFTERTREATMENT OUTLET VALUES, PLEASE SEE THE AFTERTREATMENT SUPPLEMENTARY DATA.

ZONE 1

ENGINE SPEED	ENGINE POWER	ENGINE TORQUE	BRAKE MEAN EFF PRES (BMEP)	BRAKE SPEC FUEL CONSUMPTN (BSFC)	VOL FUEL CONSUMPTN (VFC)
RPM	BHP	LB-FT	PSI	LB/BHP-HR	GAL/HR
1,800	3,004	8,765	277	0.339	143.5
1,700	2,819	8,709	276	0.326	129.6
1,600	2,673	8,773	278	0.321	121.0
1,500	2,535	8,874	281	0.316	112.9
1,400	2,376	8,915	282	0.314	105.2
1,300	2,226	8,994	285	0.318	99.8
1,200	1,108	4,848	153	0.344	53.8
1,100	945	4,514	143	0.351	46.8
1,000	735	3,860	122	0.360	37.3
900	605	3,529	112	0.364	31.1
800	544	3,574	113	0.373	28.6
700	443	3,320	105	0.367	22.9
650	358	2,893	92	0.362	18.3

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
1,800	3,004	76.4	121.1	1,095.2	70.6	765.7	83	420.8
1,700	2,819	73.7	119.8	1,031.1	64.7	720.8	79	401.1
1,600	2,673	69.3	118.6	1,020.4	57.6	735.3	74	386.5
1,500	2,535	62.5	117.2	1,034.8	48.7	777.0	67	361.8
1,400	2,376	54.4	116.4	1,084.4	39.7	840.7	58	340.1
1,300	2,226	47.9	118.6	1,156.9	32.2	939.2	51	316.9
1,200	1,108	15.0	119.4	1,110.5	11.3	984.4	17	176.6
1,100	945	10.5	117.1	1,105.7	7.4	977.3	12	149.3
1,000	735	6.4	122.5	1,075.9	5.3	978.9	7	127.9

PERFORMANCE DATA[EM1754]

November 22, 2021

900	605	4.2	125.1	1,045.0	4.0	964.1	5	114.3
800	544	3.2	126.7	1,066.2	3.1	978.0	4	106.6
700	443	1.9	119.4	913.1	1.8	812.8	2	95.7
650	358	1.2	116.8	798.7	1.4	678.8	2	91.5

General Performance Data (Continued)

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
1,800	3,004	7,172.8	14,356.6	31,431.3	32,447.9	5,760.2	5,314.6
1,700	2,819	6,780.9	13,282.9	29,368.0	30,286.3	5,532.5	5,117.1
1,600	2,673	6,351.1	12,509.9	27,142.0	27,998.3	5,147.2	4,759.1
1,500	2,535	5,760.1	11,597.1	24,167.4	24,966.8	4,610.9	4,250.7
1,400	2,376	4,867.3	10,716.0	20,538.4	21,284.1	4,051.9	3,712.7
1,300	2,226	4,285.8	10,051.6	17,779.8	18,487.8	3,533.0	3,218.5
1,200	1,108	2,219.9	5,794.3	9,376.3	9,757.7	1,972.8	1,794.5
1,100	945	1,830.5	4,836.4	7,742.3	8,074.1	1,654.9	1,498.9
1,000	735	1,463.5	3,891.7	6,193.5	6,457.9	1,330.1	1,205.4
900	605	1,223.7	3,209.6	5,180.7	5,401.3	1,108.3	1,004.2
800	544	1,044.3	2,802.3	4,412.0	4,614.9	958.4	862.7
700	443	895.8	2,138.6	3,792.1	3,954.3	826.3	748.7
650	358	818.8	1,796.9	3,464.4	3,593.8	776.1	710.3

ZONE 1-2

ENGINE SPEED	ENGINE POWER	ENGINE TORQUE	BRAKE MEAN EFF PRES (BMEP)	BRAKE SPEC FUEL CONSUMPTN (BSFC)	VOL FUEL CONSUMPTN (VFC)
RPM	BHP	LB-FT	PSI	LB/BHP-HR	GAL/HR
1,800	3,004	8,765	277	0.339	143.5
1,700	3,004	9,280	294	0.332	140.4
1,600	2,996	9,834	311	0.323	136.4
1,500	2,741	9,598	304	0.315	121.6
1,400	2,564	9,619	304	0.312	112.8
1,300	2,446	9,882	313	0.316	109.0
1,200	1,108	4,848	153	0.344	53.8
1,100	945	4,514	143	0.351	46.8
1,000	735	3,860	122	0.360	37.3
900	605	3,529	112	0.364	31.1
800	544	3,574	113	0.373	28.6
700	443	3,320	105	0.367	22.9
650	358	2,893	92	0.362	18.3

General Performance Data (Continued)

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
1,800	3,004	76.4	121.1	1,095.2	70.6	765.7	83	420.8
1,700	3,004	76.7	120.5	1,093.6	67.1	769.7	82	411.8
1,600	2,996	75.3	120.1	1,102.0	62.5	785.9	80	409.1
1,500	2,741	68.7	118.4	1,061.9	53.7	777.4	73	383.5
1,400	2,564	60.1	117.6	1,103.7	44.1	837.1	64	362.8
1,300	2,446	55.3	118.9	1,167.0	37.2	930.9	58	342.9
1,200	1,108	15.0	119.4	1,110.5	11.3	984.4	17	176.6
1,100	945	10.5	117.1	1,105.7	7.4	977.3	12	149.3
1,000	735	6.4	122.5	1,075.9	5.3	978.9	7	127.9
900	605	4.2	125.1	1,045.0	4.0	964.1	5	114.3
800	544	3.2	126.7	1,066.2	3.1	978.0	4	106.6
700	443	1.9	119.4	913.1	1.8	812.8	2	95.7
650	358	1.2	116.8	798.7	1.4	678.8	2	91.5

ZONE 1-2

ENGINE SPEED	ENGINE POWER	WET INLET AIR VOL FLOW RATE	ENGINE OUTLET WET EXH GAS VOL FLOW	WET INLET AIR MASS FLOW RATE	WET EXH GAS MASS FLOW RATE	WET EXH VOL FLOW RATE (32 DEG F AND	DRY EXH VOL FLOW RATE (32 DEG F AND
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PERFORMANCE DATA[EM1754]

November 22, 2021

			RATE		29.98 IN HG)		29.98 IN HG)
RPM	BHP	CFM	CFM	LB/HR	LB/HR	FT3/MIN	FT3/MIN
1,800	3,004	7,172.8	14,356.6	31,431.3	32,447.9	5,760.2	5,314.6
1,700	3,004	6,948.2	14,015.2	30,167.4	31,161.9	5,605.3	5,165.4
1,600	2,996	6,522.8	13,555.7	28,291.8	29,260.1	5,350.9	4,919.6
1,500	2,741	5,928.2	12,267.6	25,303.8	26,163.9	4,875.7	4,485.9
1,400	2,564	5,061.7	11,313.4	21,620.4	22,420.3	4,289.5	3,925.1
1,300	2,446	4,703.3	10,778.6	19,452.3	20,225.8	3,811.1	3,472.6
1,200	1,108	2,219.9	5,794.3	9,376.3	9,757.7	1,972.8	1,794.5
1,100	945	1,830.5	4,836.4	7,742.3	8,074.1	1,654.9	1,498.9
1,000	735	1,463.5	3,891.7	6,193.5	6,457.9	1,330.1	1,205.4
900	605	1,223.7	3,209.6	5,180.7	5,401.3	1,108.3	1,004.2
800	544	1,044.3	2,802.3	4,412.0	4,614.9	958.4	862.7
700	443	895.8	2,138.6	3,792.1	3,954.3	826.3	748.7
650	358	818.8	1,796.9	3,464.4	3,593.8	776.1	710.3

General Performance Data (Continued)

ZONE 2-3

ENGINE SPEED	ENGINE POWER	ENGINE TORQUE	BRAKE MEAN EFF PRES (BMEP)	BRAKE SPEC FUEL CONSUMPTN (BSFC)	VOL FUEL CONSUMPTN (VFC)
RPM	BHP	LB-FT	PSI	LB/BHP-HR	GAL/HR
1,800	3,004	8,765	277	0.339	143.5
1,700	3,004	9,280	294	0.332	140.4
1,600	3,004	9,860	312	0.323	136.8
1,500	2,989	10,466	331	0.315	132.7
1,400	2,771	10,394	329	0.311	121.4
1,300	2,513	10,153	321	0.316	111.9
1,200	1,108	4,848	153	0.344	53.8
1,100	945	4,514	143	0.351	46.8
1,000	735	3,860	122	0.360	37.3
900	605	3,529	112	0.364	31.1
800	544	3,574	113	0.373	28.6
700	443	3,320	105	0.367	22.9
650	358	2,893	92	0.362	18.3

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
1,800	3,004	76.4	121.1	1,095.2	70.6	765.7	83	420.8
1,700	3,004	76.7	120.5	1,093.6	67.1	769.7	82	411.8
1,600	3,004	75.4	120.1	1,104.3	62.6	787.8	80	409.5
1,500	2,989	74.0	119.4	1,109.8	58.2	802.0	79	402.1
1,400	2,771	66.4	118.0	1,125.0	48.9	833.6	70	384.8
1,300	2,513	57.6	119.0	1,169.2	38.8	927.1	61	350.6
1,200	1,108	15.0	119.4	1,110.5	11.3	984.4	17	176.6
1,100	945	10.5	117.1	1,105.7	7.4	977.3	12	149.3
1,000	735	6.4	122.5	1,075.9	5.3	978.9	7	127.9
900	605	4.2	125.1	1,045.0	4.0	964.1	5	114.3
800	544	3.2	126.7	1,066.2	3.1	978.0	4	106.6
700	443	1.9	119.4	913.1	1.8	812.8	2	95.7
650	358	1.2	116.8	798.7	1.4	678.8	2	91.5

General Performance Data (Continued)

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
1,800	3,004	7,172.8	14,356.6	31,431.3	32,447.9	5,760.2	5,314.6
1,700	3,004	6,948.2	14,015.2	30,167.4	31,161.9	5,605.3	5,165.4
1,600	3,004	6,528.7	13,581.6	28,320.3	29,291.5	5,353.2	4,921.0
1,500	2,989	6,144.2	13,046.8	26,431.3	27,371.3	5,084.4	4,662.8
1,400	2,771	5,328.3	11,979.3	22,937.4	23,798.7	4,554.2	4,161.5
1,300	2,513	4,835.3	11,016.0	19,997.6	20,791.1	3,905.6	3,559.4
1,200	1,108	2,219.9	5,794.3	9,376.3	9,757.7	1,972.8	1,794.5
1,100	945	1,830.5	4,836.4	7,742.3	8,074.1	1,654.9	1,498.9

PERFORMANCE DATA[EM1754]

November 22, 2021

1,000	735	1,463.5	3,891.7	6,193.5	6,457.9	1,330.1	1,205.4
900	605	1,223.7	3,209.6	5,180.7	5,401.3	1,108.3	1,004.2
800	544	1,044.3	2,802.3	4,412.0	4,614.9	958.4	862.7
700	443	895.8	2,138.6	3,792.1	3,954.3	826.3	748.7
650	358	818.8	1,796.9	3,464.4	3,593.8	776.1	710.3

MAXIMUM LIMIT

ENGINE SPEED	ENGINE POWER	ENGINE TORQUE	BRAKE MEAN EFF PRES (BMEP)	BRAKE SPEC FUEL CONSUMPTN (BSFC)	VOL FUEL CONSUMPTN (VFC)
RPM	BHP	LB-FT	PSI	LB/BHP-HR	GAL/HR
1,800	3,004	8,765	277	0.339	143.5
1,700	3,004	9,280	294	0.332	140.4
1,600	3,004	9,860	312	0.323	136.8
1,500	3,004	10,518	333	0.315	133.4
1,400	3,004	11,269	357	0.311	131.9
1,300	2,513	10,153	321	0.316	111.9
1,200	1,640	7,178	227	0.333	76.9
1,100	1,214	5,795	183	0.354	60.5
1,000	936	4,916	156	0.368	48.5
900	666	3,889	123	0.370	34.8
800	581	3,812	121	0.380	31.1
700	500	3,753	119	0.381	26.9
650	402	3,251	103	0.364	20.7

General Performance Data (Continued)

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
1,800	3,004	76.4	121.1	1,095.2	70.6	765.7	83	420.8
1,700	3,004	76.7	120.5	1,093.6	67.1	769.7	82	411.8
1,600	3,004	75.4	120.1	1,104.3	62.6	787.8	80	409.5
1,500	3,004	74.2	119.4	1,113.2	58.4	804.5	79	402.9
1,400	3,004	73.3	116.3	1,148.9	54.3	842.7	77	402.8
1,300	2,513	57.6	119.0	1,169.2	38.8	927.1	61	350.6
1,200	1,640	28.9	117.8	1,227.0	19.0	1,049.4	31	243.7
1,100	1,214	17.0	119.3	1,277.7	10.9	1,124.3	18	188.7
1,000	936	9.9	123.7	1,280.0	6.8	1,134.9	11	148.9
900	666	5.2	129.0	1,152.3	4.6	1,065.2	6	121.8
800	581	3.8	133.4	1,182.1	3.7	1,099.1	5	112.6
700	500	2.7	128.4	1,109.7	2.5	1,010.8	3	104.0
650	402	1.5	118.3	863.9	1.4	761.6	2	93.3

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
1,800	3,004	7,172.8	14,356.6	31,431.3	32,447.9	5,760.2	5,314.6
1,700	3,004	6,948.2	14,015.2	30,167.4	31,161.9	5,605.3	5,165.4
1,600	3,004	6,528.7	13,581.6	28,320.3	29,291.5	5,353.2	4,921.0
1,500	3,004	6,157.9	13,092.2	26,492.0	27,437.1	5,092.0	4,668.8
1,400	3,004	5,767.7	12,762.9	24,738.6	25,672.8	4,818.4	4,398.5
1,300	2,513	4,835.3	11,016.0	19,997.6	20,791.1	3,905.6	3,559.4
1,200	1,640	2,944.1	7,811.7	12,315.0	12,860.7	2,545.1	2,299.0
1,100	1,214	2,137.0	6,170.0	9,039.5	9,469.1	1,915.1	1,719.4
1,000	936	1,591.7	4,684.6	6,715.8	7,059.7	1,444.5	1,286.7
900	666	1,239.5	3,531.5	5,237.6	5,484.3	1,138.7	1,022.1
800	581	1,042.6	3,032.5	4,393.4	4,613.7	956.5	854.2
700	500	900.5	2,502.3	3,802.5	3,992.9	836.6	747.8
650	402	826.8	1,889.8	3,498.6	3,645.2	760.8	690.4

General Performance Data (Continued)

PROP DEMAND CURVE P

ENGINE SPEED	ENGINE POWER	ENGINE TORQUE	BRAKE MEAN EFF PRES	BRAKE SPEC FUEL	VOL FUEL CONSUMPTN (VFC)
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PERFORMANCE DATA[EM1754]

November 22, 2021

			(BMEP)	CONSUMPTN (BSFC)	
RPM	BHP	LB-FT	PSI	LB/BHP-HR	GAL/HR
1,800	3,004	8,765	277	0.339	143.5
1,700	2,531	7,818	247	0.327	116.8
1,600	2,110	6,925	219	0.326	96.9
1,500	1,738	6,087	193	0.326	79.9
1,400	1,413	5,302	168	0.331	66.0
1,300	1,132	4,572	145	0.339	54.1
1,200	890	3,895	123	0.348	43.7
1,100	686	3,273	104	0.354	34.2
1,000	515	2,705	86	0.359	26.1
900	375	2,191	69	0.364	19.2
800	264	1,731	55	0.374	13.9
700	177	1,326	42	0.393	9.8
650	141	1,143	36	0.405	8.1

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
1,800	3,004	76.4	121.1	1,095.2	70.6	765.7	83	420.8
1,700	2,531	67.1	118.5	971.6	58.7	699.2	72	380.7
1,600	2,110	52.7	116.5	959.8	43.4	728.8	57	330.8
1,500	1,738	37.5	116.5	976.1	29.1	785.4	41	275.8
1,400	1,413	25.5	116.6	1,009.6	19.8	854.8	28	225.9
1,300	1,132	16.3	116.9	1,016.4	12.3	885.1	18	182.6
1,200	890	10.3	120.4	1,006.8	8.7	907.1	12	150.3
1,100	686	5.9	115.4	897.9	5.0	799.3	7	121.1
1,000	515	3.5	121.2	843.2	4.0	787.9	4	109.9
900	375	1.8	118.4	701.7	2.5	657.0	3	96.4
800	264	0.5	113.5	555.1	1.3	501.3	1	86.1
700	177	0.1	116.1	486.0	1.1	453.5	1	84.4
650	141	-0.0	118.7	466.5	1.2	450.6	1	84.5

General Performance Data (Continued)

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
1,800	3,004	7,172.8	14,356.6	31,431.3	32,447.9	5,760.2	5,314.6
1,700	2,531	6,692.3	12,449.0	28,468.6	29,297.0	5,281.6	4,907.9
1,600	2,110	5,492.6	10,721.3	23,081.9	23,770.0	4,435.3	4,116.1
1,500	1,738	4,269.3	9,012.1	17,754.7	18,321.3	3,558.8	3,288.6
1,400	1,413	3,245.7	7,437.4	13,613.0	14,081.0	2,781.9	2,558.2
1,300	1,132	2,488.2	6,011.1	10,491.0	10,874.6	2,197.8	2,014.7
1,200	890	1,961.2	4,879.1	8,304.7	8,614.3	1,755.2	1,606.7
1,100	686	1,618.9	3,747.0	6,850.8	7,093.5	1,463.4	1,344.4
1,000	515	1,356.8	3,112.2	5,754.8	5,939.9	1,226.5	1,134.1
900	375	1,173.7	2,403.3	4,983.4	5,119.1	1,058.1	986.8
800	264	1,013.5	1,785.9	4,295.9	4,394.4	913.7	859.5
700	177	869.5	1,446.8	3,679.6	3,749.0	779.0	738.8
650	141	801.7	1,332.9	3,386.5	3,443.8	719.9	685.3

MAXIMUM POWER CURVE M

ENGINE SPEED	ENGINE POWER	ENGINE TORQUE	BRAKE MEAN EFF PRES (BMEP)	BRAKE SPEC FUEL CONSUMPTN (BSFC)	VOL FUEL CONSUMPTN (VFC)
RPM	BHP	LB-FT	PSI	LB/BHP-HR	GAL/HR
1,800	3,004	8,765	277	0.339	143.5
1,700	3,004	9,280	294	0.332	140.4
1,600	3,004	9,860	312	0.323	136.8
1,500	3,004	10,518	333	0.315	133.4
1,400	3,004	11,269	357	0.311	131.9
1,300	2,513	10,153	321	0.316	111.9
1,200	1,982	8,675	275	0.326	91.1
1,100	1,214	5,795	183	0.354	60.5
1,000	936	4,916	156	0.368	48.5
900	732	4,273	135	0.377	38.9
800	617	4,050	128	0.386	33.5

PERFORMANCE DATA[EM1754]

November 22, 2021

700	500	3,753	119	0.381	26.9
650	402	3,251	103	0.364	20.7

General Performance Data (Continued)

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
1,800	3,004	76.4	121.1	1,095.2	70.6	765.7	83	420.8
1,700	3,004	76.7	120.5	1,093.6	67.1	769.7	82	411.8
1,600	3,004	75.4	120.1	1,104.3	62.6	787.8	80	409.5
1,500	3,004	74.2	119.4	1,113.2	58.4	804.5	79	402.9
1,400	3,004	73.3	116.3	1,148.9	54.3	842.7	77	402.8
1,300	2,513	57.6	119.0	1,169.2	38.8	927.1	61	350.6
1,200	1,982	39.1	116.2	1,242.0	24.9	1,054.7	41	287.5
1,100	1,214	17.0	119.3	1,277.7	10.9	1,124.3	18	188.7
1,000	936	9.9	123.7	1,280.0	6.8	1,134.9	11	148.9
900	732	6.2	136.2	1,297.6	5.4	1,207.3	7	130.2
800	617	4.4	140.1	1,297.9	4.2	1,220.2	5	118.6
700	500	2.7	128.4	1,109.7	2.5	1,010.8	3	104.0
650	402	1.5	118.3	863.9	1.4	761.6	2	93.3

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
1,800	3,004	7,172.8	14,356.6	31,431.3	32,447.9	5,760.2	5,314.6
1,700	3,004	6,948.2	14,015.2	30,167.4	31,161.9	5,605.3	5,165.4
1,600	3,004	6,528.7	13,581.6	28,320.3	29,291.5	5,353.2	4,921.0
1,500	3,004	6,157.9	13,092.2	26,492.0	27,437.1	5,092.0	4,668.8
1,400	3,004	5,767.7	12,762.9	24,738.6	25,672.8	4,818.4	4,398.5
1,300	2,513	4,835.3	11,016.0	19,997.6	20,791.1	3,905.6	3,559.4
1,200	1,982	3,482.7	9,195.6	14,571.3	15,216.9	2,985.5	2,698.2
1,100	1,214	2,137.0	6,170.0	9,039.5	9,469.1	1,915.1	1,719.4
1,000	936	1,591.7	4,684.6	6,715.8	7,059.7	1,444.5	1,286.7
900	732	1,258.5	3,846.1	5,305.6	5,581.0	1,134.4	1,008.1
800	617	1,041.0	3,262.8	4,374.7	4,612.5	955.0	846.0
700	500	900.5	2,502.3	3,802.5	3,992.9	836.6	747.8
650	402	826.8	1,889.8	3,498.6	3,645.2	760.8	690.4

Heat Rejection Data

MAXIMUM LIMIT

ENGINE SPEED	ENGINE POWER	REJECTION TO JACKET WATER	REJECTION TO ATMOSPHERE	REJECTION TO EXH	EXHAUST RECOVERY TO 350F	FROM OIL COOLER	FROM 1ST STAGE AFTERCOOLER	FROM 2ND STAGE 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	BTU/MIN
1,800	3,004	53,514	2,866	123,051	56,437	16,454	15,954	23,536	127,387	308,925	329,083
1,700	3,004	52,075	2,933	119,381	54,763	16,123	14,981	21,927	127,387	302,701	322,453
1,600	3,004	51,085	2,869	113,166	53,828	15,690	14,157	20,523	127,387	294,581	313,803
1,500	3,004	49,902	2,978	110,610	52,485	15,454	13,105	18,700	127,387	290,140	309,071
1,400	3,004	49,503	3,177	111,511	53,487	15,449	12,529	17,414	127,387	290,056	308,983
1,300	2,513	41,637	3,307	96,416	51,134	12,955	7,806	11,138	106,573	243,225	259,096

Sound Data

SOUND DATA REPRESENTATIVE OF NOISE PRODUCED BY THE "ENGINE AND CEM" AS A UNIT WITHOUT A MUFFLER INSTALLED

EXHAUST: Sound Power (1/3 Octave Frequencies)

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	BHP	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
1,800	3,004	103.4	81.7	96.5	87.8	97.2	90.9	91.5	90.3	90.7	88.5	89.1
1,700	3,004	100.7	87.2	89.1	90.1	89.2	90.5	90.2	89.3	89.3	87.4	88.4
1,600	3,004	100.5	86.3	92.2	90.0	89.8	89.6	89.4	88.5	88.5	86.3	88.6
1,500	3,004	99.4	93.4	87.2	83.9	87.2	88.5	88.2	86.3	86.2	84.8	88.6
1,400	3,004	101.3	89.5	85.9	86.9	91.6	91.1	91.5	88.9	91.1	90.2	95.1
1,300	2,513	96.6	87.0	81.9	82.9	88.6	83.4	83.1	82.6	81.2	91.0	82.2
1,200	1,982	94.3	75.8	74.1	110.8	84.8	74.1	66.7	71.5	85.6	88.8	69.4
1,100	1,214	88.9	76.8	73.6	77.3	78.2	80.9	77.1	72.4	78.9	82.4	75.8
1,000	936	86.7	72.0	76.2	74.1	77.5	78.3	78.5	74.9	75.6	71.7	73.7
900	732	87.7	69.9	77.6	78.5	80.0	80.7	76.5	72.8	74.7	73.0	73.4
800	617	89.0	81.9	77.6	76.5	81.8	82.0	73.3	72.6	80.9	72.0	69.6
700	500	87.1	77.7	75.3	77.9	79.7	78.5	74.8	74.2	75.5	74.4	73.3
650	402	88.0	73.9	83.5	75.5	78.0	77.6	75.1	82.0	71.6	69.7	75.5

EXHAUST: Sound Power (1/3 Octave Frequencies)

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	BHP	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
1,800	3,004	91.1	90.3	89.3	88.1	86.5	83.5	80.7	78.7	77.7	74.4	71.0
1,700	3,004	89.6	89.0	87.7	86.6	85.2	82.0	79.4	77.4	76.9	73.1	69.8
1,600	3,004	88.2	88.3	86.8	85.5	83.9	80.9	78.4	76.2	76.3	71.7	68.7
1,500	3,004	86.3	86.5	84.8	83.7	81.8	78.7	75.9	74.5	78.8	69.3	64.1
1,400	3,004	88.4	87.2	88.8	85.2	83.1	81.5	78.8	78.4	80.7	76.6	62.1
1,300	2,513	81.4	80.5	80.4	79.0	76.4	75.1	69.5	70.9	75.4	64.3	62.2
1,200	1,982	73.7	72.5	73.5	75.5	72.9	76.8	94.8	75.7	19.0	94.1	59.8
1,100	1,214	74.1	74.5	73.5	72.5	78.2	73.4	71.5	61.9	56.0	58.9	49.7
1,000	936	72.0	73.1	72.1	69.3	73.3	75.9	62.6	57.7	56.6	48.4	47.2
900	732	72.7	73.2	71.8	68.8	69.7	72.4	62.9	59.5	53.2	49.0	48.2
800	617	70.8	69.2	69.1	66.0	62.7	68.9	62.2	55.0	50.8	49.6	48.7
700	500	70.8	72.2	70.3	66.7	64.3	71.1	60.6	55.6	51.1	47.1	45.8
650	402	69.0	74.9	72.3	68.3	65.7	73.7	51.8	50.5	48.5	37.9	29.5

Sound Data (Continued)

MECHANICAL: Sound Power (1/3 Octave Frequencies)

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	BHP	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
1,800	3,004	127.0	90.9	105.6	102.9	101.8	103.6	106.3	106.8	108.4	110.7	114.9
1,700	3,004	127.1	98.2	104.7	103.4	102.7	102.9	106.7	107.3	109.8	111.3	115.8
1,600	3,004	127.0	99.0	99.6	99.4	98.2	105.1	106.5	106.6	108.9	110.8	119.5
1,500	3,004	125.2	94.7	96.4	98.8	97.1	99.4	103.4	104.7	107.7	110.9	117.1
1,400	3,004	127.7	94.7	100.1	98.7	98.2	101.9	101.0	103.8	106.1	119.5	123.7
1,300	2,513	126.7	90.9	95.0	96.9	96.0	99.1	99.5	103.0	104.6	120.6	114.6
1,200	1,982	131.3	88.0	86.9	85.7	93.2	97.7	94.8	100.3	105.9	117.2	106.4
1,100	1,214	123.0	85.7	89.4	91.2	96.8	96.8	98.3	99.3	107.2	110.7	108.7
1,000	936	121.9	83.2	91.2	91.6	94.9	94.1	97.7	99.3	102.0	106.0	108.6
900	732	119.5	85.4	93.6	92.2	93.5	95.9	97.8	100.0	106.8	105.4	107.6
800	617	118.5	89.9	87.7	95.6	92.0	96.2	99.2	105.4	102.2	105.0	106.0
700	500	116.6	82.5	87.7	87.4	90.7	92.5	96.6	97.6	100.0	103.1	105.4
650	402	117.7	77.1	87.9	86.8	88.7	89.7	98.2	98.4	101.6	105.7	106.7

MECHANICAL: Sound Power (1/3 Octave Frequencies)

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	BHP	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
1,800	3,004	117.9	115.7	117.9	116.2	115.2	112.9	112.0	110.5	116.5	118.2	115.7
1,700	3,004	114.9	115.8	117.4	116.1	114.9	113.0	112.2	111.1	119.1	118.5	114.8
1,600	3,004	114.7	114.7	116.8	115.8	113.9	112.5	112.4	110.6	119.1	114.9	114.9
1,500	3,004	112.6	113.6	115.5	114.3	112.7	112.1	112.1	110.3	122.0	113.4	111.6
1,400	3,004	112.2	112.8	115.9	113.9	112.0	112.7	112.8	115.0	123.4	115.1	105.9
1,300	2,513	109.7	112.8	114.6	112.7	111.3	112.2	114.6	113.9	121.3	109.7	113.7
1,200	1,982	112.7	109.4	114.0	114.1	110.8	108.3	126.1	130.6	73.6	141.0	131.0
1,100	1,214	108.4	111.9	112.3	109.6	111.5	113.7	113.8	106.0	103.9	115.5	105.2
1,000	936	107.7	111.0	111.7	107.7	110.8	119.3	108.8	104.6	107.5	101.5	103.7
900	732	106.4	110.3	110.6	105.9	109.7	113.2	107.1	104.2	100.1	99.1	101.4

800	617	105.9	109.7	109.2	104.6	103.4	114.4	108.1	101.9	99.9	98.6	101.0
700	500	103.8	107.7	107.9	102.5	102.0	111.7	104.5	99.4	97.1	95.9	98.0
650	402	103.6	109.3	109.9	103.7	100.9	112.5	102.5	100.5	98.5	97.1	97.6

Emissions Data

CATERPILLAR EMISSIONS CERTIFIED ENGINES TESTED WITHIN EPA SPECIFIED TEST CONDITIONS, AND USING TITLE 40 CFR PART 1065 TEST PROTOCOL, MEET THE NEW SOURCE PERFORMANCE STANDARDS. POTENTIAL SITE VARIATION DATA ACCOUNT FOR PRODUCTION ENGINE AND SYSTEM VARIABILITY IN ADDITION TO MEASUREMENT VARIABILITY FOR TYPICAL FIELD TEST METHODS AS DESCRIBED IN DM1176. THIS DATA ASSUMES SITE CORRECTIONS FOR AMBIENT HUMIDITY TO 75 GRAINS, AND STANDARD CONDITIONS OF 25 C (77 F) AIR TO TURBO TEMPERATURE AND 152.4 M (500 FT) ALTITUDE. GUIDANCE ON HUMIDITY CORRECTION METHODS ARE AVAILABLE IN TITLE 40 CFR SECTION 1065.670. FOR APPLICATIONS WITH GEOGRAPHIC OR AMBIENT CONDITIONS BEYOND THESE PUBLISHED VALUES, CONSULT CATERPILLAR (APPLICATION SUPPORT CENTER) FOR ADDITIONAL VARIABILITY INFORMATION.

EMISSIONS VALUES ARE TAILPIPE OUT WITH AFTERTREATMENT.

DIESEL

RATED SPEED NOMINAL DATA: 1800 RPM

ENGINE POWER		BHP	3,004	2,253	1,502	751	300
PERCENT LOAD		%	100	75	50	25	10
TOTAL NOX (AS NO2)		G/HR	2,624	2,357	1,475	694	534
TOTAL CO		G/HR	610	499	574	768	1,135
TOTAL HC		G/HR	95	96	65	44	56
TOTAL CO2		KG/HR	1,429	1,088	754	440	254
PART MATTER		G/HR	54.9	16.4	15.6	27.8	36.6
TOTAL NOX (AS NO2)	(CORR 5% O2)	MG/NM3	375.9	435.8	394.1	326.9	420.5
TOTAL CO	(CORR 5% O2)	MG/NM3	87.7	92.2	153.2	347.8	883.0
TOTAL HC	(CORR 5% O2)	MG/NM3	11.9	15.5	15.0	17.5	37.9
PART MATTER	(CORR 5% O2)	MG/NM3	6.7	2.6	3.6	13.1	25.3
TOTAL NOX (AS NO2)	(CORR 5% O2)	PPM	183	212	192	159	205
TOTAL CO	(CORR 5% O2)	PPM	70	74	123	278	706
TOTAL HC	(CORR 5% O2)	PPM	22	29	28	33	71
TOTAL NOX (AS NO2)		G/HP-HR	0.88	1.05	0.98	0.93	1.78
TOTAL CO		G/HP-HR	0.20	0.22	0.38	1.02	3.79
TOTAL HC		G/HP-HR	0.03	0.04	0.04	0.06	0.19
PART MATTER		G/HP-HR	0.02	0.01	0.01	0.04	0.12
TOTAL NOX (AS NO2)		LB/HR	5.79	5.20	3.25	1.53	1.18
TOTAL CO		LB/HR	1.35	1.10	1.27	1.69	2.50
TOTAL HC		LB/HR	0.21	0.21	0.14	0.10	0.12
TOTAL CO2		LB/HR	3,150	2,399	1,661	970	560
PART MATTER		LB/HR	0.12	0.04	0.03	0.06	0.08
OXYGEN IN EXH		%	10.4	11.8	12.5	13.7	15.5

RATED SPEED POTENTIAL SITE VARIATION: 1800 RPM

ENGINE POWER		BHP	3,004	2,253	1,502	751	300
PERCENT LOAD		%	100	75	50	25	10
TOTAL NOX (AS NO2)		G/HR	3,280	2,947	1,844	868	668
TOTAL CO		G/HR	1,373	1,122	1,292	1,727	2,554
TOTAL HC		G/HR	171	173	117	80	101
PART MATTER		G/HR	123.5	37.0	35.2	62.6	82.4
TOTAL NOX (AS NO2)	(CORR 5% O2)	MG/NM3	469.9	544.7	492.7	408.6	525.6
TOTAL CO	(CORR 5% O2)	MG/NM3	197.4	207.4	344.7	782.6	1,986.8
TOTAL HC	(CORR 5% O2)	MG/NM3	21.4	27.8	26.9	31.5	68.3
PART MATTER	(CORR 5% O2)	MG/NM3	15.1	5.9	8.2	29.4	56.9
TOTAL NOX (AS NO2)	(CORR 5% O2)	PPM	229	265	240	199	256
TOTAL CO	(CORR 5% O2)	PPM	158	166	276	626	1,589
TOTAL HC	(CORR 5% O2)	PPM	40	52	50	59	127
TOTAL NOX (AS NO2)		G/HP-HR	1.10	1.31	1.23	1.16	2.23
TOTAL CO		G/HP-HR	0.46	0.50	0.86	2.30	8.52
TOTAL HC		G/HP-HR	0.06	0.08	0.08	0.11	0.34
PART MATTER		G/HP-HR	0.04	0.02	0.02	0.08	0.27
TOTAL NOX (AS NO2)		LB/HR	7.23	6.50	4.07	1.91	1.47
TOTAL CO		LB/HR	3.03	2.47	2.85	3.81	5.63
TOTAL HC		LB/HR	0.38	0.38	0.26	0.18	0.22
PART MATTER		LB/HR	0.27	0.08	0.08	0.14	0.18

Regulatory Information

EPA TIER 4 FINAL2016 - ----				
GASEOUS EMISSIONS DATA MEASUREMENTS PROVIDED TO THE EPA ARE CONSISTENT WITH THOSE DESCRIBED IN EPA 40 CFR PART 1042 FOR MEASURING HC, CO, PM, AND NOX. THIS ENGINE CONFORMS TO US EPA MARINE COMMERCIAL 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 COMMERCIAL	TIER 4 FINAL	CO: 5.0 NOx: 1.8 HC: 0.19 PM: 0.04

EU STAGE IIIA2009 - 2019				
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 III2016 - ----				
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 FOR USE WITHIN DESIGNATED EMISSION CONTROL AREAS.				

Altitude Derate Data

THE FOLLOWING ALTITUDE DERATE TABLE INCLUDES SOFTWARE DERATES THAT PROTECT THE ENGINE AT HIGH AMBIENT TEMPERATURES AND ALTITUDES. ACTUAL OBSERVED POWER CAN CHANGE DUE TO AMBIENT CONDITIONS AND FUEL USED. PLEASE REVIEW THE SUPPLEMENTARY FILE LINKED TO THIS PERFORMANCE FILE FOR ADDITIONAL INFORMATION.

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	3,004	3,004	3,004	3,004	3,004	3,004	3,004	3,004	3,004	3,004	3,004	2,865	3,004
1,000	3,004	3,004	3,004	3,004	3,004	3,004	3,004	3,004	3,004	3,004	2,936	2,696	3,004
2,000	3,004	3,004	3,004	3,004	3,004	3,004	3,004	3,004	3,004	2,936	2,720	2,556	3,004
3,000	3,004	3,004	3,004	3,004	3,004	3,004	3,004	2,864	2,784	2,708	2,564	2,428	3,004
4,000	3,004	3,004	3,004	3,004	3,004	3,004	2,890	2,804	2,738	2,669	2,524	2,395	3,004

Cross Reference

Test Spec	Setting	Engine Arrangement	Engineering Model	Engineering Model Version	Start Effective Serial Number	End Effective Serial Number
4577140	LL1800	4449157	EE324	-	MRC00001	
4577253	LL1947	5170182	EE324	-	MRC00001	
4577332	LL8494	5170182	EE324	-	MRC00001	

Supplementary Data

Type	Classification	Performance Number
AFTERTREATMENT	SCR	EM1810
CHART	AMBIENT CAPABILT Y CHART	EM1933
CHART	FUEL AND UREA CONTOUR PLOT	EM1939

Performance Parameter Reference

Parameters Reference:DM9600-14

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%

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

PERFORMANCE DATA[EM1754]

November 22, 2021

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 : 10/27/21