PERFORMANCE DATA[EM2754]

September 22, 2023

Performance Number: EM2754 **Change Level: 00**

SALES MODEL:	3512B	**COMBUSTION:**	DIRECT INJECTION
BRAND:	CAT	**ENGINE SPEED (RPM):**	1,500
MACHINE SALES MODEL:		**HERTZ:**	50
ENGINE POWER (BKW):	1,500.0	**FAN POWER (KW):**	46.0
GEN POWER WITH FAN (EKW):	1,400.0	**ASPIRATION:**	TA
COMPRESSION RATIO:	15.5	**AFTERCOOLER TYPE:**	SCAC
RATING LEVEL:	MISSION CRITICAL STANDBY	**AFTERCOOLER CIRCUIT TYPE:**	JW+OC, AC
PUMP QUANTITY:	2	**AFTERCOOLER TEMP (C):**	30
FUEL TYPE:	DIESEL	**JACKET WATER TEMP (C):**	99
MANIFOLD TYPE:	DRY	**TURBO CONFIGURATION:**	PARALLEL
GOVERNOR TYPE:	ADEM3	**TURBO QUANTITY:**	2
ELECTRONICS TYPE:	ADEM3	**TURBOCHARGER MODEL:**	GT604105B-53T-1.70
CAMSHAFT TYPE:	STANDARD	**COMBUSTION STRATEGY:**	LOW EMISSION
IGNITION TYPE:	CI	**CRANKCASE BLOWBY RATE (M3/HR):**	56.2
INJECTOR TYPE:	EUI	**FUEL RATE (RATED RPM) NO LOAD (L/HR):**	37.0
UNIT INJECTOR TIMING (MM):	64.34	**PISTON SPD @ RATED ENG SPD (M/SEC):**	10.8
REF EXH STACK DIAMETER (MM):	254		
MAX OPERATING ALTITUDE (M):	800		

INDUSTRY	SUBINDUSTRY	APPLICATION
ELECTRIC POWER	STANDARD	PACKAGED GENSET
OIL AND GAS	LAND PRODUCTION	PACKAGED GENSET

General Performance Data

THIS STANDBY RATING IS FOR A STANDBY ONLY ENGINE ARRANGEMENT. RERATING THE ENGINE TO A PRIME OR CONTINUOUS RATING IS NOT PERMITTED.

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	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)
EKW	%	BKW	KPA	G/BKW-HR	G/BKW-HR	L/HR	L/HR
1,400.0	100	1,497	2,045	208.3	204.3	366.8	359.8
1,260.0	90	1,349	1,844	208.2	204.2	330.5	324.2
1,120.0	80	1,204	1,645	207.9	203.9	294.5	288.9
1,050.0	75	1,132	1,546	207.8	203.9	276.7	271.5
980.0	70	1,060	1,448	207.8	203.8	259.1	254.2
840.0	60	917	1,252	208.0	204.0	224.3	220.0
700.0	50	774	1,057	209.5	205.5	190.7	187.0
560.0	40	631	861	212.2	208.2	157.4	154.4
420.0	30	487	665	217.4	213.3	124.5	122.1
350.0	25	414	566	221.8	217.6	108.1	106.1
280.0	20	342	467	228.7	224.3	91.9	90.2
140.0	10	195	266	267.7	262.6	61.4	60.2

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	INLET MFLD PRES	INLET MFLD TEMP	EXH MFLD TEMP	ENGINE OUTLET TEMP	COMPRESSOR OUTLET PRES	COMPRESSOR OUTLET TEMP
EKW	%	BKW	KPA	DEG C	DEG C	DEG C	KPA	DEG C
1,400.0	100	1,497	251.7	42.5	606.3	444.0	261	208.1
1,260.0	90	1,349	232.7	40.9	575.2	417.1	243	195.0
1,120.0	80	1,204	204.8	39.2	551.2	400.8	214	179.0
1,050.0	75	1,132	190.3	38.4	540.1	394.5	199	170.6
980.0	70	1,060	175.7	37.6	529.0	388.7	184	161.9
840.0	60	917	146.4	36.3	506.8	378.0	154	143.9
700.0	50	774	117.0	35.7	482.5	367.8	124	125.4
560.0	40	631	88.4	35.0	452.2	353.3	95	106.6
420.0	30	487	61.3	34.3	412.3	331.1	67	87.6
350.0	25	414	49.0	33.9	386.0	314.1	54	78.0
280.0	20	342	37.6	33.6	355.8	293.8	43	68.3
140.0	10	195	20.3	33.0	282.3	242.3	25	53.3

General Performance Data (Continued)

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	WET INLET AIR VOL FLOW RATE	ENGINE OUTLET WET EXH GAS VOL	WET INLET AIR MASS FLOW RATE	WET EXH GAS MASS FLOW RATE	ENGINE OUTLET WET EXH VOL	ENGINE OUTLET DRY EXH VOL

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				FLOW RATE			FLOW RATE (0 DEG C AND 101 KPA)	FLOW RATE (0 DEG C AND 101 KPA)
EKW	%	BKW	M3/MIN	M3/MIN	KG/HR	KG/HR	M3/MIN	M3/MIN
1,400.0	100	1,497	128.1	323.0	9,076.0	9,387.8	123.0	111.7
1,260.0	90	1,349	122.6	296.6	8,016.3	8,297.2	117.4	106.6
1,120.0	80	1,204	113.7	268.2	7,075.5	7,325.9	108.7	98.7
1,050.0	75	1,132	108.8	253.9	6,635.2	6,870.4	103.9	94.4
980.0	70	1,060	103.6	239.7	6,209.4	6,429.7	98.9	89.8
840.0	60	917	92.8	211.5	5,390.9	5,581.6	88.7	80.6
700.0	50	774	81.6	183.3	4,599.2	4,761.3	78.1	70.9
560.0	40	631	70.7	155.4	3,811.0	3,944.7	67.7	61.5
420.0	30	487	60.5	127.9	3,027.8	3,133.7	57.8	52.5
350.0	25	414	55.8	114.6	2,640.8	2,732.7	53.3	48.4
280.0	20	342	51.5	101.7	2,259.3	2,337.5	49.0	44.5
140.0	10	195	45.1	80.4	1,628.4	1,680.5	42.6	38.7

Heat Rejection Data

GENSET POWER WITH FAN	PERCENT LOAD	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
EKW	%	BKW	KW	KW	KW	KW	KW	KW	KW	KW	KW
1,400.0	100	1,497	514	121	1,383	715	185	417	1,497	3,691	3,932
1,260.0	90	1,349	479	114	1,238	611	167	366	1,349	3,328	3,545
1,120.0	80	1,204	443	107	1,099	526	149	314	1,204	2,973	3,167
1,050.0	75	1,132	425	104	1,031	488	140	288	1,132	2,797	2,980
980.0	70	1,060	406	101	964	451	131	262	1,060	2,622	2,793
840.0	60	917	368	95.0	834	383	113	211	917	2,276	2,424
700.0	50	774	328	89.0	708	319	96.0	161	774	1,934	2,060
560.0	40	631	286	83.0	586	255	79.5	115	631	1,597	1,701
420.0	30	487	243	77.0	468	189	63.0	73.9	487	1,266	1,348
350.0	25	414	220	74.0	410	154	54.5	56.4	414	1,104	1,176
280.0	20	342	197	71.0	354	120	46.0	41.0	342	944	1,005
140.0	10	195	148	65.0	244	58.1	31.0	19.0	195	631	672

Sound Data

EXHAUST:SOUND PRESSURE(OBCF) DISTANCE:1.5 METER

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	OVERALL SOUND	63 HZ	125 HZ	250 HZ	500 HZ
EKW	%	BKW	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
1,400.0	100	1,497	116.0	110.0	121.0	116.0	109.0
1,260.0	90	1,349	115.0	109.0	120.0	115.0	108.0
1,120.0	80	1,204	114.0	108.0	119.0	114.0	107.0
1,050.0	75	1,132	113.0	108.0	118.0	114.0	106.0
980.0	70	1,060	113.0	107.0	118.0	113.0	106.0
840.0	60	917	112.0	106.0	117.0	112.0	105.0
700.0	50	774	111.0	105.0	116.0	111.0	104.0
560.0	40	631	109.0	104.0	114.0	110.0	102.0
420.0	30	487	108.0	102.0	113.0	108.0	101.0
350.0	25	414	107.0	102.0	112.0	107.0	100.0
280.0	20	342	106.0	101.0	111.0	107.0	99.0
140.0	10	195	104.0	99.0	109.0	104.0	97.0

EXHAUST:SOUND PRESSURE(OBCF) DISTANCE:1.5 METER

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	1000 HZ	2000 HZ	4000 HZ	8000 HZ
EKW	%	BKW	dB(A)	dB(A)	dB(A)	dB(A)
1,400.0	100	1,497	107.0	109.0	109.0	106.0
1,260.0	90	1,349	106.0	108.0	108.0	105.0

1,120.0	80	1,204	105.0	107.0	107.0	104.0
1,050.0	75	1,132	105.0	106.0	107.0	104.0
980.0	70	1,060	104.0	106.0	106.0	103.0
840.0	60	917	103.0	105.0	105.0	102.0
700.0	50	774	102.0	104.0	104.0	101.0
560.0	40	631	101.0	102.0	103.0	100.0
420.0	30	487	99.0	101.0	101.0	98.0
350.0	25	414	98.0	100.0	101.0	97.0
280.0	20	342	98.0	99.0	100.0	97.0
140.0	10	195	95.0	97.0	98.0	94.0

EXHAUST:SOUND PRESSURE(OBCF) DISTANCE:7 METER

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	OVERALL SOUND	63 HZ	125 HZ	250 HZ	500 HZ
EKW	%	BKW	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
1,400.0	100	1,497	102.0	99.0	110.0	104.0	95.0
1,260.0	90	1,349	101.0	98.0	109.0	103.0	94.0
1,120.0	80	1,204	100.0	97.0	108.0	102.0	93.0
1,050.0	75	1,132	100.0	97.0	107.0	101.0	92.0
980.0	70	1,060	99.0	96.0	107.0	101.0	92.0
840.0	60	917	98.0	95.0	106.0	100.0	91.0
700.0	50	774	97.0	94.0	105.0	99.0	90.0
560.0	40	631	96.0	93.0	103.0	97.0	88.0
420.0	30	487	94.0	91.0	102.0	96.0	87.0
350.0	25	414	94.0	90.0	101.0	95.0	86.0
280.0	20	342	93.0	89.0	100.0	94.0	85.0
140.0	10	195	91.0	87.0	98.0	92.0	83.0

EXHAUST:SOUND PRESSURE(OBCF) DISTANCE:7 METER

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	1000 HZ	2000 HZ	4000 HZ	8000 HZ
EKW	%	BKW	dB(A)	dB(A)	dB(A)	dB(A)
1,400.0	100	1,497	94.0	95.0	96.0	91.0
1,260.0	90	1,349	93.0	95.0	95.0	90.0
1,120.0	80	1,204	92.0	94.0	94.0	89.0
1,050.0	75	1,132	92.0	93.0	94.0	89.0
980.0	70	1,060	91.0	93.0	93.0	88.0
840.0	60	917	90.0	91.0	92.0	87.0
700.0	50	774	89.0	90.0	91.0	86.0
560.0	40	631	88.0	89.0	90.0	85.0
420.0	30	487	86.0	87.0	88.0	83.0
350.0	25	414	86.0	87.0	87.0	83.0
280.0	20	342	85.0	86.0	86.0	82.0
140.0	10	195	83.0	84.0	84.0	80.0

EXHAUST:SOUND PRESSURE(OBCF) DISTANCE:15 METER

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	OVERALL SOUND	63 HZ	125 HZ	250 HZ	500 HZ
EKW	%	BKW	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
1,400.0	100	1,497	96.0	92.0	103.0	97.0	88.0
1,260.0	90	1,349	95.0	92.0	102.0	96.0	87.0
1,120.0	80	1,204	94.0	91.0	101.0	95.0	86.0
1,050.0	75	1,132	93.0	90.0	101.0	95.0	86.0
980.0	70	1,060	93.0	90.0	100.0	94.0	85.0
840.0	60	917	92.0	88.0	99.0	93.0	84.0
700.0	50	774	91.0	87.0	98.0	92.0	83.0
560.0	40	631	89.0	86.0	97.0	91.0	82.0
420.0	30	487	88.0	84.0	95.0	89.0	80.0
350.0	25	414	87.0	84.0	94.0	88.0	79.0
280.0	20	342	86.0	83.0	94.0	88.0	79.0
140.0	10	195	84.0	81.0	91.0	85.0	76.0

EXHAUST:SOUND PRESSURE(OBCF) DISTANCE:15 METER

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GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	1000 HZ	2000 HZ	4000 HZ	8000 HZ
EKW	%	BKW	dB(A)	dB(A)	dB(A)	dB(A)
1,400.0	100	1,497	88.0	89.0	89.0	85.0
1,260.0	90	1,349	87.0	88.0	89.0	84.0
1,120.0	80	1,204	86.0	87.0	88.0	83.0
1,050.0	75	1,132	85.0	86.0	87.0	82.0
980.0	70	1,060	85.0	86.0	87.0	82.0
840.0	60	917	84.0	85.0	85.0	81.0
700.0	50	774	83.0	84.0	84.0	80.0
560.0	40	631	81.0	82.0	83.0	78.0
420.0	30	487	80.0	81.0	81.0	77.0
350.0	25	414	79.0	80.0	81.0	76.0
280.0	20	342	78.0	79.0	80.0	75.0
140.0	10	195	76.0	77.0	78.0	73.0

MECHANICAL:SOUND PRESSURE(OBCF) DISTANCE:1 METER

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	OVERALL SOUND	63 HZ	125 HZ	250 HZ	500 HZ
EKW	%	BKW	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
1,400.0	100	1,497	102.0	94.0	98.0	97.0	94.0
1,260.0	90	1,349	102.0	94.0	98.0	97.0	94.0
1,120.0	80	1,204	102.0	94.0	98.0	97.0	94.0
1,050.0	75	1,132	102.0	94.0	98.0	97.0	94.0
980.0	70	1,060	102.0	94.0	98.0	97.0	94.0
840.0	60	917	102.0	94.0	98.0	97.0	94.0
700.0	50	774	102.0	94.0	98.0	97.0	94.0
560.0	40	631	102.0	94.0	98.0	97.0	94.0
420.0	30	487	102.0	94.0	98.0	97.0	94.0
350.0	25	414	102.0	94.0	98.0	97.0	94.0
280.0	20	342	102.0	94.0	98.0	97.0	94.0
140.0	10	195	102.0	94.0	98.0	97.0	94.0

MECHANICAL:SOUND PRESSURE(OBCF) DISTANCE:1 METER

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	1000 HZ	2000 HZ	4000 HZ	8000 HZ
EKW	%	BKW	dB(A)	dB(A)	dB(A)	dB(A)
1,400.0	100	1,497	97.0	97.0	95.0	99.0
1,260.0	90	1,349	97.0	97.0	95.0	99.0
1,120.0	80	1,204	97.0	97.0	95.0	99.0
1,050.0	75	1,132	97.0	97.0	95.0	99.0
980.0	70	1,060	97.0	97.0	95.0	99.0
840.0	60	917	97.0	97.0	95.0	99.0
700.0	50	774	97.0	97.0	95.0	99.0
560.0	40	631	97.0	97.0	95.0	99.0
420.0	30	487	97.0	97.0	95.0	99.0
350.0	25	414	97.0	97.0	95.0	99.0
280.0	20	342	97.0	97.0	95.0	99.0
140.0	10	195	97.0	97.0	95.0	99.0

MECHANICAL:SOUND PRESSURE(OBCF) DISTANCE:7 METER

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	OVERALL SOUND	63 HZ	125 HZ	250 HZ	500 HZ
EKW	%	BKW	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
1,400.0	100	1,497	90.0	82.0	86.0	85.0	82.0
1,260.0	90	1,349	90.0	82.0	86.0	85.0	82.0
1,120.0	80	1,204	90.0	82.0	86.0	85.0	82.0
1,050.0	75	1,132	90.0	82.0	86.0	85.0	82.0
980.0	70	1,060	90.0	82.0	86.0	85.0	82.0
840.0	60	917	90.0	82.0	86.0	85.0	82.0
700.0	50	774	90.0	82.0	86.0	85.0	82.0
560.0	40	631	90.0	82.0	86.0	85.0	82.0
420.0	30	487	90.0	82.0	86.0	85.0	82.0
350.0	25	414	90.0	82.0	86.0	85.0	82.0
280.0	20	342	90.0	82.0	86.0	85.0	82.0
140.0	10	195	90.0	82.0	86.0	85.0	82.0

MECHANICAL:SOUND PRESSURE(OBCF) DISTANCE:7 METER

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	1000 HZ	2000 HZ	4000 HZ	8000 HZ
EKW	%	BKW	dB(A)	dB(A)	dB(A)	dB(A)
1,400.0	100	1,497	85.0	85.0	83.0	87.0
1,260.0	90	1,349	85.0	85.0	83.0	87.0
1,120.0	80	1,204	85.0	85.0	83.0	87.0
1,050.0	75	1,132	85.0	85.0	83.0	87.0
980.0	70	1,060	85.0	85.0	83.0	87.0
840.0	60	917	85.0	85.0	83.0	87.0
700.0	50	774	85.0	85.0	83.0	87.0
560.0	40	631	85.0	85.0	83.0	87.0
420.0	30	487	85.0	85.0	83.0	87.0
350.0	25	414	85.0	85.0	83.0	87.0
280.0	20	342	85.0	85.0	83.0	87.0
140.0	10	195	85.0	85.0	83.0	87.0

MECHANICAL:SOUND PRESSURE(OBCF) DISTANCE:15 METER

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	OVERALL SOUND	63 HZ	125 HZ	250 HZ	500 HZ
EKW	%	BKW	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
1,400.0	100	1,497	85.0	76.0	80.0	79.0	76.0
1,260.0	90	1,349	85.0	76.0	80.0	79.0	76.0
1,120.0	80	1,204	85.0	76.0	80.0	79.0	76.0
1,050.0	75	1,132	85.0	76.0	80.0	79.0	76.0
980.0	70	1,060	85.0	76.0	80.0	79.0	76.0
840.0	60	917	85.0	76.0	80.0	79.0	76.0
700.0	50	774	85.0	76.0	80.0	79.0	76.0
560.0	40	631	85.0	76.0	80.0	79.0	76.0
420.0	30	487	85.0	76.0	80.0	79.0	76.0
350.0	25	414	85.0	76.0	80.0	79.0	76.0
280.0	20	342	85.0	76.0	80.0	79.0	76.0
140.0	10	195	85.0	76.0	80.0	79.0	76.0

MECHANICAL:SOUND PRESSURE(OBCF) DISTANCE:15 METER

GENSET POWER WITH FAN	PERCENT LOAD	ENGINE POWER	1000 HZ	2000 HZ	4000 HZ	8000 HZ
EKW	%	BKW	dB(A)	dB(A)	dB(A)	dB(A)
1,400.0	100	1,497	79.0	80.0	78.0	81.0
1,260.0	90	1,349	79.0	80.0	78.0	81.0
1,120.0	80	1,204	79.0	80.0	78.0	81.0
1,050.0	75	1,132	79.0	80.0	78.0	81.0
980.0	70	1,060	79.0	80.0	78.0	81.0
840.0	60	917	79.0	80.0	78.0	81.0
700.0	50	774	79.0	80.0	78.0	81.0
560.0	40	631	79.0	80.0	78.0	81.0
420.0	30	487	79.0	80.0	78.0	81.0
350.0	25	414	79.0	80.0	78.0	81.0
280.0	20	342	79.0	80.0	78.0	81.0
140.0	10	195	79.0	80.0	78.0	81.0

Emissions Data

DIESEL

RATED SPEED NOMINAL DATA: 1500 RPM

GENSET POWER WITH FAN	EKW	1,400.0	1,050.0	700.0	350.0	140.0
PERCENT LOAD	%	100	75	50	25	10

PERFORMANCE DATA[EM2754]

ENGINE POWER		BKW	1,497	1,132	774	414	195
TOTAL NOX (AS NO2)		G/HR	7,308	4,994	3,438	2,152	1,442
TOTAL CO		G/HR	1,359	1,245	1,113	533	571
TOTAL HC		G/HR	310	247	196	156	164
TOTAL CO2		KG/HR	989	745	513	291	165
PART MATTER		G/HR	132.7	119.2	135.5	98.1	78.0
TOTAL NOX (AS NO2)	(CORR 5% O2)	MG/NM3	1,709.3	1,545.6	1,555.0	1,717.1	2,016.5
TOTAL CO	(CORR 5% O2)	MG/NM3	317.9	385.4	503.5	425.6	798.4
TOTAL HC	(CORR 5% O2)	MG/NM3	72.5	76.5	88.5	124.7	229.4
PART MATTER	(CORR 5% O2)	MG/NM3	31.0	36.9	61.3	78.2	109.1
TOTAL NOX (AS NO2)	(CORR 5% O2)	PPM	832	756	758	826	978
TOTAL CO	(CORR 5% O2)	PPM	254	324	391	346	651
TOTAL HC	(CORR 5% O2)	PPM	117	122	143	200	374
TOTAL NOX (AS NO2)		G/HP-HR	3.64	3.29	3.31	3.87	5.52
TOTAL CO		G/HP-HR	0.68	0.82	1.07	0.96	2.18
TOTAL HC		G/HP-HR	0.15	0.16	0.19	0.28	0.63
PART MATTER		G/HP-HR	0.07	0.08	0.13	0.18	0.30
TOTAL NOX (AS NO2)		LB/HR	16.11	11.01	7.58	4.74	3.18
TOTAL CO		LB/HR	3.00	2.74	2.45	1.18	1.26
TOTAL HC		LB/HR	0.68	0.54	0.43	0.34	0.36
TOTAL CO2		LB/HR	2,181	1,643	1,131	640	363
PART MATTER		LB/HR	0.29	0.26	0.30	0.22	0.17
OXYGEN IN EXH		%	10.8	11.9	12.8	14.2	16.2
DRY SMOKE OPACITY		%	2.5	2.6	3.8	3.7	3.1
BOSCH SMOKE NUMBER			0.90	0.95	1.40	1.36	1.15

RATED SPEED POTENTIAL SITE VARIATION: 1500 RPM

GENSET POWER WITH FAN		EKW	1,400.0	1,050.0	700.0	350.0	140.0
PERCENT LOAD		%	100	75	50	25	10
ENGINE POWER		BKW	1,497	1,132	774	414	195
TOTAL NOX (AS NO2)		G/HR	8,769	5,993	4,125	2,582	1,730
TOTAL CO		G/HR	2,446	2,241	2,003	959	1,027
TOTAL HC		G/HR	412	329	261	207	218
PART MATTER		G/HR	185.8	166.9	189.7	137.3	109.2
TOTAL NOX (AS NO2)	(CORR 5% O2)	MG/NM3	2,051.1	1,854.7	1,866.0	2,060.5	2,419.9
TOTAL CO	(CORR 5% O2)	MG/NM3	572.2	693.7	906.3	766.1	1,437.2
TOTAL HC	(CORR 5% O2)	MG/NM3	96.4	101.7	117.7	165.8	305.1
PART MATTER	(CORR 5% O2)	MG/NM3	43.4	51.7	85.8	109.5	152.8
TOTAL NOX (AS NO2)	(CORR 5% O2)	PPM	998	907	910	991	1,173
TOTAL CO	(CORR 5% O2)	PPM	457	583	704	623	1,172
TOTAL HC	(CORR 5% O2)	PPM	156	162	190	266	497
TOTAL NOX (AS NO2)		G/HP-HR	4.37	3.95	3.98	4.65	6.62
TOTAL CO		G/HP-HR	1.22	1.48	1.93	1.73	3.93
TOTAL HC		G/HP-HR	0.21	0.22	0.25	0.37	0.83
PART MATTER		G/HP-HR	0.09	0.11	0.18	0.25	0.42
TOTAL NOX (AS NO2)		LB/HR	19.33	13.21	9.09	5.69	3.81
TOTAL CO		LB/HR	5.39	4.94	4.42	2.12	2.26
TOTAL HC		LB/HR	0.91	0.72	0.57	0.46	0.48
PART MATTER		LB/HR	0.41	0.37	0.42	0.30	0.24

Regulatory Information

NON-CERTIFIED	1970 - 2100
THIS ENGINE RATING IS NOT EMISSIONS CERTIFIED BY ANY DOMESTIC OR FOREIGN AGENCY.	

Altitude Derate Data

STANDARD

ALTITUDE CORRECTED POWER CAPABILITY (BKW)

PERFORMANCE DATA[EM2754]

September 22, 2023

AMBIENT OPERATING TEMP (C)	0	5	10	15	20	25	30	35	40	45	50	55	60	NORMAL
ALTITUDE (M)														
0	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,479	1,500
250	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,480	1,457	1,435	1,500
500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,482	1,459	1,436	1,414	1,393	1,500
750	1,500	1,500	1,500	1,500	1,500	1,500	1,485	1,461	1,438	1,415	1,393	1,372	1,352	1,500
1,000	1,466	1,466	1,466	1,466	1,466	1,465	1,441	1,418	1,395	1,373	1,352	1,331	1,311	1,466
1,250	1,424	1,424	1,424	1,424	1,424	1,421	1,398	1,375	1,353	1,332	1,311	1,291	1,272	1,424
1,500	1,384	1,384	1,384	1,384	1,384	1,379	1,356	1,334	1,312	1,292	1,272	1,253	1,234	1,384
1,750	1,344	1,344	1,344	1,344	1,344	1,337	1,315	1,293	1,273	1,253	1,233	1,215	1,196	1,344
2,000	1,306	1,306	1,306	1,306	1,306	1,296	1,275	1,254	1,234	1,214	1,196	1,177	1,160	1,306
2,250	1,270	1,270	1,270	1,270	1,270	1,256	1,235	1,215	1,196	1,177	1,159	1,141	1,124	1,270
2,500	1,234	1,234	1,234	1,234	1,234	1,217	1,197	1,178	1,159	1,141	1,123	1,106	1,090	1,234
2,750	1,199	1,199	1,199	1,199	1,199	1,180	1,160	1,141	1,123	1,106	1,088	1,072	1,056	1,199
3,000	1,166	1,166	1,166	1,166	1,162	1,143	1,124	1,106	1,088	1,071	1,054	1,038	1,023	1,166
3,250	1,133	1,133	1,133	1,133	1,126	1,107	1,089	1,071	1,054	1,037	1,021	1,006	991	1,133
3,500	1,102	1,102	1,102	1,102	1,090	1,072	1,054	1,037	1,021	1,005	989	974	930	1,102
3,750	1,072	1,072	1,072	1,072	1,056	1,038	1,021	1,004	988	973	958	915	855	1,072
4,000	1,042	1,042	1,042	1,040	1,022	1,005	988	972	957	942	885	840	780	1,042
4,250	1,014	1,014	1,014	1,006	989	972	956	941	926	870	825	765	720	1,014
4,500	986	986	986	974	957	941	925	910	855	810	750	705	660	986

Cross Reference

Test Spec	Setting	Engine Arrangement	Engineering Model	Engineering Model Version	Start Effective Serial Number	End Effective Serial Number
4581926	GG1410	4869926	GS655	XJ	DB900001	
5643575	GG1557	5331486	PG278	DK	TNP00001	
5643734	GG1943	5331486	PG278	DK	TZX00001	
5643575	GG1598	5331488	PG278	DK	TNP00001	
5643734	GG1958	5331488	PG278	DK	TZX00001	
4581914	GG1402	5390555	PG241	-	LY900001	

Supplementary Data

Type	Classification	Performance Number
SOUND	SOUND PRESSURE	DM8779
AFTERCOOLER TEMP	60C	EM2755
AFTERCOOLER TEMP	90C	EM2756

General Notes

General Notes EM2754 - 00
SOUND PRESSURE DATA FOR THIS RATING CAN BE FOUND IN PERFORMANCE NUMBER - DM8779

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 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

PERFORMANCE DATA[EM2754]

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