CERTIFIED TEST DATA

GAS TURBINE-DRIVEN GENERATOR SET

GAS TURBINE MODEL TITAN 130

PERFORMANCE ACCEPTANCE CERTIFICATE

SOLAR PROJECT NO:	SOLAR NAME:	UNIT NO:
3N061	SHL-SUN	2

SERIAL NUMBERS

PACKAGE	ENGINE	GEARBOX	GENERATOR
KG12N57	0745L	SEP12-98719	8268693

PACKAGE ACCEPTANCE APPROVAL

Solar Turbines Incorporated at San Diego certifies that the equipment identified above was tested as described herein and found to meet applicable requirements of the Solar Project Definition, the engineering specifications and the contractual requirements.

PRODUCTION TEST ENGINEER: Thomas Jessup DATE: 11/13/2012
T. Jessup

MANAGER, PRODUCTION TEST ENGINEERING: DATE: 11/16/2012
J. Scabarozi

TEST CONDITIONS AND TEST DATA

The turbine was performance tested on a Solar facility test stand using a facility control console. A facility generator was used to load the turbine for the performance test. An engine test report was issued under a separate cover.

The generator package was tested with the turbine, reduction gearbox and generator mounted and aligned on the generator package base. The package control console was used for the test. All generator load testing was conducted at unity (1.0) power factor.

The generator nameplate rating is 14000 KW; rated voltage is 6900 volts.

ITEM 1. PACKAGE ACCEPTANCE TEST

The attached figures labeled "Package Acceptance Test" are the specific test agenda for this unit. They were prepared to reflect contractual requirements and compliance with Solar Engineering Specification ES2004.

ITEM 2. PACKAGE OPERATING PARAMETERS

The attached section titled "Package Operating Parameters" contains recorded data from the package control console and facility instrumentation from no load to full load. The data provides "new condition" operating parameters for comparative purposes.

ITEM 3. PACKAGE VIBRATION DATA

The attached section titled "Package Vibration Data" contains vibration spectra at full load.

ITEM 4. SUDDEN LOAD, FREQUENCY (SPEED) AND VOLTAGE REGULATION

The attached charts show the regulation and sudden load testing of this unit with the speed governing and voltage regulation adjusted for isochronous operation. Testing was performed by application and rejection of step loads in accordance with Solar Engineering Specification ES2004.

ITEM 1. PACKAGE ACCEPTANCE TEST

Solar Turbines
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PACKAGE ACCEPTANCE TEST
TITAN 130 GENERATOR SET

PROJECT NAME: SHL-SUN
UNIT#: 2
ENGINE S/N: 0745L

PROJ. DEF. #: 3N061
PACKAGE S/N: KG12N57
GEARBOX S/N: SEP12-98719

TEST ENGINEER: T. JESSUP
GENERATOR S/N: 8268693

OPERATION		REV DATE	BRIEF DESCRIPTION	STAMP
PRE-TEST OPERATIONS				
20	SAFETY INSTRUCTIONS AND FAMILIARIZATION	11/1/2011	THE PURPOSE OF THIS OPERATION IS TO VERIFY THAT THE OPERATOR IS FULLY AWARE OF THE PROJECT REQUIREMENTS AND GENERAL SAFETY PRECAUTIONS TO BE FOLLOWED WHEN OPERATING TURBO MACHINERY IN SUPPORT OF PRODUCTION TEST OPERATIONS.	d44337 10/18/2012 5:20:05 PM
25	SKID INSPECTION	2/7/2012	THE PURPOSE OF THIS OPERATION IS TO PERFORM A PRELIMINARY INSPECTION OF THE SKID FOR PROPER ASSEMBLY AND COMPLETENESS.	
			LUBE OIL SYSTEM	d25079 10/18/2012 8:40:59 PM
			GAS FUEL SYSTEM	d44337 10/18/2012 10:53:51 PM
			AIR/DRAIN SYSTEM	d44337 10/18/2012 8:07:34 PM
			START SYSTEM	d25079 10/18/2012 10:37:12 PM
			GENERAL SKID SYSTEMS	d25079 10/19/2012 8:31:11 PM
			WIRING VERIFICATION	d46184 10/25/2012 1:25:22 PM
35	SOFTWARE QTR COMPLETION CHECK	1/11/2011	THE PURPOSE OF THIS OPERATION IS TO REVIEW THE STATIC SOFTWARE TEST REPORT TO ENSURE ALL STATIC SOFTWARE TESTS WERE PERFORMED BEFORE PRODUCTION TEST.	d44337 10/18/2012 5:48:25 PM
40	SHORTAGES	10/18/2011	THE PURPOSE OF THIS OPERATION IS TO ENSURE THAT ALL SHORTAGES ARE RECOGNIZED AND DOCUMENTED.	d44337 10/18/2012 5:21:57 PM
120	CSA INSULATION DIELECTRIC STRENGTH TEST (AC)	10/18/2011	THE PURPOSE OF THIS OPERATION IS TO ENSURE THAT INSULATION BREAKDOWN DID NOT OCCUR WHEN PACKAGE WIRING WAS PULLED THROUGH CONDUIT.	d52440 10/16/2012 12:29:47 AM
200	GENERATOR WINDING INSULATION RESISTANCE (AC)	12/6/2011	THE PURPOSE OF THIS OPERATION IS TO MEASURE THE INSULATION RESISTANCE OF THE GENERATOR WINDINGS. (COMMON “HYPOT”)	d51543 10/26/2012 12:11:13 PM
210	GENERATOR VISUAL INSPECTION (AC)	6/9/2004	THE PURPOSE OF THIS OPERATION IS TO PERFORM A VISUAL INSPECTION OF THE GENERATOR IN ORDER TO CONFIRM ALL WIRING AND PLUMBING IS PER THE "LEGAL" WIRING DIAGRAM AND TO ENSURE THAT THERE IS NO METALLIC DEBRIS PRESENT INSIDE THE GENERATOR FRAME PRIOR TO CONDUCTING TEST OPERATIONS.	d52440 10/27/2012 12:37:59 AM
LUBE OIL SYSTEM FLUSH AND MECHANICAL SYSTEMS PREPARATION				
1020	PREPARATION FOR PACKAGE OIL FLUSH	2/7/2012	THE PURPOSE OF THIS OPERATION IS TO PROVIDE GENERAL PROCEDURAL AND SAFETY GUIDELINES FOR PREPARING THE PACKAGE FOR FLUSHING RESIDUAL DEBRIS FROM THE OIL SYSTEM.	d46184 10/20/2012 6:33:09 AM
1060	LUBE OIL TANK LEVEL DEVICE VERIFICATION	10/18/2011	THE PURPOSE OF THIS OPERATION IS TO VERIFY THE OPERATION OF THE LUBE OIL TANK LEVEL SWITCH OR TRANSMITTER AS THE LUBE OIL TANK IS BEING FILLED OR DRAINED.	d53085 10/22/2012 11:19:47 AM
1080	LUBE OIL HEATER RESISTANCE CHECK	6/22/2010	THE PURPOSE OF THIS OPERATION IS TO VERIFY THE PART NUMBER AND INTEGRITY OF THE LUBE OIL TANK AND CIRCULATION HEATERS, AS APPLICABLE.	d46184 10/22/2012 10:54:51 AM
1090	INSPECTION OF ON-SKID ELECTRICAL MOTORS	9/26/2008	THE PURPOSE OF THIS OPERATION IS TO VERIFY THE CORRECT MOTOR DRIVEN PUMPS ARE INSTALLED AND SERVICED.	d46184 10/19/2012 5:21:51 AM
1100	SPACE HEATER CHECKOUT (AC)	7/16/2009	THE PURPOSE OF THIS OPERATION IS TO VERIFY THAT CORRECT AND FUNCTIONAL MOTOR SPACE HEATERS ARE INSTALLED.	d51543 10/23/2012 11:34:16 AM
1105	MOTOR CONNECTIONS (AC)	4/2/2012	THE PURPOSE OF THIS OPERATION IS TO PERFORM SAFE AND RELIABLE MOTOR CONNECTIONS.	d52440 10/27/2012 2:10:21 PM

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PACKAGE ACCEPTANCE TEST
TITAN 130 GENERATOR SET

PROJECT NAME: SHL-SUN
UNIT#: 2
ENGINE S/N: 0745L

PROJ. DEF. #: 3N061
PACKAGE S/N: KG12N57
GEARBOX S/N: SEP12-98719

TEST ENGINEER: T. JESSUP
GENERATOR S/N: 8268693

OPERATION		REV DATE	BRIEF DESCRIPTION	STAMP
1140	PACKAGE OIL FLUSH	5/15/2012	THE PURPOSE OF THIS OPERATION IS TO REMOVE FOREIGN MATTER FROM THE OIL SYSTEM SUCH AS GRIT, BEAD BLAST, WELD SLAG, ETC, TO PREVENT PREMATURE WEARING AND DAMAGE TO THE ENGINE BEARINGS WHILE RUNNING. --> MIN. CLEANLINESS REQUIREMENT (FOR 4µm/6µm/14µm MEASUREMENTS): ISO 16/14/12	
			PARTICLE COUNT COMPLETE FINAL ISO CLEANLINESS LEVEL (4µm/6µm/14µm): 12/10/09	d44337 10/22/2012 7:51:08 PM
			FLUSH COMPLETE	d46184 10/24/2012 12:19:21 PM
1160	DE-PREP FROM PACKAGE OIL FLUSH	5/15/2012	THE PURPOSE OF THIS OPERATION IS TO PROVIDE GUIDELINES FOR THE RESTORATION OF PACKAGE SYSTEMS UPON COMPLETION OF FLUSH OPERATIONS.	
			START-UP STRAINERS	d52438 10/30/2012 2:41:14 PM
			MAIN LO FILTER ELEMENTS	d46184 10/23/2012 7:23:54 AM
			DEPREP COMPLETE	d48005 10/25/2012 12:52:10 AM
1200	PRELIMINARY FACILITY ATTACHMENTS	11/10/2010	THE PURPOSE OF THIS OPERATION IS TO PREPARE VARIOUS PACKAGE SYSTEMS AND CONNECTIONS FOR HOOKUP IN THE TEST CELL.	d26345 10/20/2012 9:41:24 AM
1230	MAGNETIC SPEED PICKUPS	1/24/2012	THE PURPOSE OF THIS OPERATION IS TO SERVE AS A GUIDE FOR PROPER SETTING OF THE MAGNETIC SPEED PICKUPS AND INSTALLATION OF ASSOCIATED WIRING.	d26345 10/20/2012 6:52:22 AM
1300	SKID SUPPORT LOCATION AND LEVELING	10/4/2011	THE PURPOSE OF THIS OPERATION IS TO VERIFY THAT THE SKID IS SUPPORTED AT THE APPROPRIATE LOCATIONS AND THAT THE SKID IS LEVELED ON THESE SUPPORTS AND THE ALIGNMENT DATA IN THE QC FOLDER AGREES WITH THE M/I DRAWING FIGURES.	d44337 10/19/2012 8:07:40 PM
ELECTRICAL SYSTEMS PREPARATION AND STATIC TESTS				
2040	OUTPUT MODULE WIRING VERIFICATION	2/7/2012	THE PURPOSE OF THIS OPERATION IS TO VERIFY THAT NONE OF THE OUTPUT CIRCUITS FROM THE PLC ARE SHORTED TO “0V” OR GROUND. .	d46184 10/20/2012 7:58:36 AM
2060	ELECTRICAL SYSTEM GROUND CHECK	8/9/2011	THE PURPOSE OF THIS OPERATION IS TO VERIFY THAT THERE IS A MINIMUM RESISTANCE OF 100K OHMS BETWEEN FRAME GROUND AND ZERO VOLTS (0V AND 24V), AND THAT THERE IS NO CONTINUITY BETWEEN INSTRUMENT (IE) AND PHYSICAL EARTH (PE) GROUNDS.	d46184 10/20/2012 9:30:25 AM
2080	CONTROL SYSTEM POWER HOOKUP	10/18/2011	THE PURPOSE OF THIS OPERATION IS TO SAFELY CONNECT POWER TO THE CONSOLE.	d46184 10/21/2012 4:23:39 AM
2100	SOFTWARE LOADING	9/1/2010	THE PURPOSE OF THIS OPERATION IS TO PROVIDE A GUIDE IN THE PROCEDURES TO UPDATE PROJECT SOFTWARE.	d43352 10/20/2012 8:42:32 PM
2101	SHOP AND FIELD IMPACT CHECK	1/24/2012	THE PURPOSE OF THIS OPERATION IS TO ENSURE THAT ALL SHOP AND FIELD IMPACTS HAVE BEEN INCORPORATED.	d26345 10/20/2012 5:23:28 AM
2110	STATIC SIMULATOR HOOKUP	8/24/2011	THE PURPOSE OF THIS OPERATION IS TO CONNECT SIMULATION INSTRUMENTS TO THE PACKAGE CONTROL CONSOLE IN ORDER TO PERFORM STATIC OPERATIONS.	d51286 10/22/2012 8:20:58 PM
2115	CONTROL SYSTEM LOCKUP	9/13/2007	THE PURPOSE OF THIS OPERATION IS TO "LOCK-UP" PACKAGE PARAMETERS, WHICH WILL PREVENT THE PACKAGE FROM OBTAINING READY TO RUN AND READY TO LOAD CONDITIONS AFTER POWER HOOKUP.	d46184 10/21/2012 12:06:41 PM
2120	VIBRATION SYSTEM AND GAP VOLTAGE CHECK	2/7/2012	THE PURPOSE OF THIS OPERATION IS TO CHECK THE PACKAGE VIBRATION SYSTEM SENSORS AND ASSOCIATED PACKAGE DEVICES FOR CORRECT PART NUMBERS, PROPER OPERATION, SOFTWARE CONFIGURATION, AND PROXIMITOR PROBE GAP VOLTAGE SETTING.	d46184 10/22/2012 9:34:30 AM
2140A	PACKAGE ELECTRICAL AND SENSING DEVICE VERIFICATION	10/2/2012	THE PURPOSE OF THIS OPERATION IS TO VERIFY THE CALIBRATION OF ALL PACKAGE SENSING DEVICES AND TO CONFIRM PROPER COMMUNICATION TO AND SETPOINTS IN THE CONTROL SYSTEM (WHERE APPLICABLE).	d46184 10/22/2012 1:13:40 PM

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PACKAGE S/N: KG12N57
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TEST ENGINEER: T. JESSUP
GENERATOR S/N: 8268693

OPERATION		REV DATE	BRIEF DESCRIPTION	STAMP
2150	CONTROL ACTUATORS TEST	8/15/2008	THE PURPOSE OF THIS OPERATION IS TO VERIFY PROPER INSTALLATION, SETUP, AND FUNCTION OF ALL ELECTRIC BLEED VALVE, GUIDE VANE, AND FUEL CONTROL ACTUATORS.	
			MAIN FUEL - GAS	d53646 10/21/2012 4:28:18 PM
			PILOT FUEL - GAS	d53646 10/21/2012 4:35:18 PM
			GUIDE VANE	d53646 10/21/2012 3:51:44 PM
			BLEED VALVE	d53646 10/21/2012 3:58:38 PM
2155	ENGINE CONSTANTS	4/2/2012	THE PURPOSE OF THIS OPERATION IS TO VERIFY ALL ENGINE CONSTANTS (K-VAL'S), AS DETERMINED DURING THE ENGINE PERFORMANCE TEST, ARE ENTERED INTO THE CONTROL SYSTEM LOGIC.	d46237 10/22/2012 11:05:40 AM
2160	BLEED VALVE OPERATIONAL CHECK (STATIC)	8/7/2012	THE PURPOSE OF THIS OPERATION IS TO VERIFY THE CORRECT ELECTRICAL AND MECHANICAL OPERATION OF THE BLEED VALVE	d46237 10/22/2012 1:55:23 PM
2165	INLET GUIDE VANES CALIBRATION/ VERIFICATION	10/2/2012	THE PURPOSE OF THIS OPERATION IS TO VERIFY PROPER SCHEDULING, CALIBRATION, AND FUNCTION OF THE INLET GUIDE VANE ACTUATOR.	d44337 10/22/2012 3:53:54 PM
2170	GAS FUEL SYSTEM ADJUSTMENT AND PRELIMINARY LEAK CHECK	8/20/2008	THE PURPOSE OF THIS OPERATION IS TO ADJUST THE GAS FUEL SYSTEM REGULATORS AND CHECK FOR LEAKS IN THE GAS FUEL SYSTEM.	d46184 10/23/2012 11:00:02 AM
2200	EMERGENCY MANUAL STOP TEST (STATIC)	1/24/2012	THE PURPOSE OF THIS OPERATION IS TO VERIFY THE EMERGENCY STOP LOGIC AND PLC ANNOUNCEMENTS WHEN THE PACKAGE, CONSOLE, AND REMOTE EMERGENCY STOP SWITCHES ARE PRESSED.	d51286 10/22/2012 5:33:44 PM
2215	SYSTEM STOP-COOLDOWN (STATIC)	7/1/2002	THE PURPOSE OF THIS OPERATION IS TO VERIFY THE COOLDOWN STOP LOGIC AND PLC ANNOUNCEMENTS WHEN THE SYSTEM STOP SWITCH IS PRESSED.	d51286 10/22/2012 5:33:52 PM
2220	FUEL CONTROL TOPPING(STATIC)	10/2/2012	THE PURPOSE OF THIS OPERATION IS TO VERIFY THE FUNCTIONALITY OF THE SPEED AND TEMPERATURE FUEL CONTROL TOPPING LOGIC.	d34044 10/23/2012 12:12:43 AM
2230	IGNITION FAILURE SHUTDOWN (STATIC)	5/9/2007	THE PURPOSE OF THIS OPERATION IS TO VERIFY THAT IF THE T5 TEMP DOES NOT EXCEED 400°F [204°C] AFTER THE IGNITION COMMAND WITHIN THE TIME SPECIFIED IN THE APPROPRIATE ENGINE CONTROL SPECIFICATION, AN IGNITION FAIL SHUTDOWN WILL OCCUR.	d51286 10/22/2012 5:45:51 PM
2240	GAS PRODUCER OVERSPEED TEST (STATIC)	2/28/2012	THE PURPOSE OF THIS OPERATION IS TO VERIFY THAT THE CONTROL SYSTEM GAS PRODUCER OVERSPEED SETPOINT IS CORRECT; THE CONTROL SYSTEM ANNUNCIATES A SHUTDOWN WHEN THE SETPOINT IS EXCEEDED; AND THE CONTROL SYSTEM ANNUNCIATES A SHUTDOWN WHEN AN OPEN PROBE CONDITION OCCURS.	d51286 10/22/2012 6:36:05 PM
2242	GAS PRODUCER AND POWER TURBINE SPEED SENSOR TEST (STATIC)	1/24/2012	THE PURPOSE OF THIS OPERATION IS TO CONFIRM THAT THE PACKAGE WIRING FOR THE SPEED SENSORS IS CORRECT AND THAT THE CONTROL SYSTEM DETECTS IF THE WIRE IS DISCONNECTED AT THE SENSOR.	d51286 10/22/2012 6:32:55 PM
2300	SIMULATED BACKUP OVERSPEED TEST (STATIC)	2/28/2012	THE PURPOSE OF THIS OPERATION IS TO VERIFY CORRECT ANNUNCIATION AND FUNCTION OF THE BACK-UP OVERSPEED MONITOR AND ASSOCIATED CONTROL SYSTEM LOGIC. RECORD BACKUP OVERSPEED SETTING (in HZ): 12072	d51286 10/22/2012 8:32:10 PM
2380	ENGINE TEMPERATURE (T5) ALARM/SHUTDOWN TESTS	2/28/2012	THE PURPOSE OF THIS OPERATION IS TO VERIFY THAT THE UNIT WILL ALARM AND SHUTDOWN AT THE APPROPRIATE T5 TEMPERATURES (IN BOTH FUELS, IF APPLICABLE) AND WILL ALARM IF ONE T5 READING IS GREATER THAN 200°F ABOVE THE AVERAGE T5 TEMPERATURE, AND WILL SHUTDOWN IF MORE THAN 3 THERMOCOUPLES FAIL.	d34044 10/23/2012 12:40:32 AM
2420	GAS FUEL PRESSURE ALARM/SHUTDOWN TESTS (STATIC)	6/7/2010	THE PURPOSE OF THIS OPERATION IS TO VERIFY STATICALLY THAT 1) SIMULATED HIGH GAS FUEL PRESSURE WILL RESULT IN A SHUTDOWN AND 2) THAT SIMULATED LOW GAS FUEL PRESSURE WILL RESULT IN AN APPROPRIATE ALARM.	d51286 10/22/2012 10:28:17 PM
2530	GENERATOR HOOKUP (AC)	10/4/2011	THE PURPOSE OF THIS OPERATION IS TO SAFELY CONNECT THE GENERATOR PACKAGE LOAD CABLES TO THE FACILITY LOAD TESTING NETWORK.	d52440 10/26/2012 10:50:23 PM

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PACKAGE S/N: KG12N57
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OPERATION		REV DATE	BRIEF DESCRIPTION	STAMP
2535	FACILITY GROUND FAULT INDICATOR SETUP (AC)	4/2/2012	THE PURPOSE OF THIS OPERATION IS TO CONNECT THE FACILITY GROUND FAULT INDICATOR SYSTEM TO AN UNUSED PACKAGE SOFTWARE INPUT PRIOR TO BUILDING VOLTAGE ON A PACKAGE.	d51543 10/22/2012 12:37:44 PM
2540	GENERATOR FACILITY INTERCONNECTS (AC)	4/24/2003	THE PURPOSE OF THIS OPERATION IS TO PROPERLY CONNECT THE FACILITY INSTRUMENTATION AND SENSING TRANSFORMERS TO THE GENERATOR PACKAGE.	d51543 10/22/2012 12:37:48 PM
2545	GENERATOR CURRENT TRANSFORMER VERIFICATION (AC)	9/4/2012	THE PURPOSE OF THIS OPERATION IS TO VERIFY THAT THE WIRING FOR ANY INSTALLED GENERATOR DIFFERENTIAL CURRENT OR NEUTRAL CURRENT TRANSFORMER LEADS (AS APPLICABLE) IS PER THE LEGAL ELECTRICAL SCHEMATIC AND WIRING DIAGRAM.	d35525 11/12/2012 10:33:36 PM
2550	GENERATOR SPACE HEATERS (AC)	10/2/2012	THE PURPOSE OF THIS OPERATION IS TO VERIFY THE INTEGRITY OF THE GENERATOR SPACE HEATERS.	d51543 10/23/2012 11:38:20 AM
2543	FACILITY LOAD TESTING SETUP AND OVERCURRENT RELAY SETTINGS	3/4/2009	THE PURPOSE OF THIS OPERATION IS TO SETUP THE FACILITY LOAD TESTING CIRCUIT BREAKER OVERCURRENT TRIP RELAYS AND PREPARE THE FACILITY LOAD BANKS FOR TESTING.	d52440 10/27/2012 12:15:09 AM
2555	CGCM CONFIGURATION (AC)	10/4/2011	THE PURPOSE OF THIS OPERATION IS TO VERIFY THAT THE COMBINED GENERATOR CONTROL MODULE (CGCM) SYSTEM IS CONFIGURED CORRECTLY.	d51543 10/23/2012 8:57:53 AM
2570	TEST CELL INSTRUMENTATION HOOK-UP	8/24/2011	THE PURPOSE OF THIS OPERATION IS TO INSTRUMENT THE PACKAGE WITH THE FACILITY EQUIPMENT REQUIRED TO MONITOR PACKAGE TEST.	d46184 10/25/2012 7:45:38 AM
2666	LUBE OIL AND BEARING TEMP ALARM AND SHUTDOWN TESTS	8/24/2011	THE PURPOSE OF THIS OPERATION IS TO VERIFY THAT THE PACKAGE WILL ALARM AND SHUTDOWN WHEN PERTINENT LUBE OIL TEMPERATURE LIMITS ARE REACHED.	d51286 10/22/2012 9:29:21 PM
2670	LUBE OIL HEATER CONTROL TEST	3/22/2011	THE PURPOSE OF THIS OPERATION IS TO VERIFY THE PROPER LUBE OIL TANK HEATER CONTROL, INCLUDING ON-OFF, ENGINE START PERMISSIVE, AND LOW LEVEL.	d51286 10/22/2012 9:19:20 PM
2700	CONTROLNET NODE COMMUNICATION FAILURE TEST	10/3/2003	THE PURPOSE OF THIS OPERATION IS TO VERIFY THAT THE APPROPRIATE RESPONSE OCCURS IN THE EVENT OF A CONTROL NET NODE COMMUNICATION FAILURE.	d46184 10/23/2012 5:24:39 AM
2720	ENGINE CLEANING (WATER WASH) SYSTEM CHECK	1/25/2011	THE PURPOSE OF THIS OPERATION IS TO PERFORM AN INSTALLATION VERIFICATION, FLUSH, LEAK CHECK, AND OPERATIONAL VERIFICATION OF THE ON-CRANK AND ON-LINE ENGINE CLEANING SYSTEMS (AS APPLICABLE).	d46184 10/23/2012 6:36:21 AM
PACKAGE PRE-DYNAMIC OPERATIONS				
4100	BACKUP CONTROL SYSTEM VERIFICATION (STATIC)	5/1/2012	THE PURPOSE OF THIS OPERATION IS TO VERIFY THAT IN THE EVENT OF A PLC FAILURE THE BACKUP CONTROL SYSTEM WILL PROPERLY CONTROL THE PACKAGE LUBE OIL PUMPS FOR THE DURATION OF THE POST-LUBE CYCLE.	d46184 10/25/2012 12:10:32 PM
4115	PTI DATA COLLECTION FUNCTIONALITY TEST	9/20/2011	THE PURPOSE OF THIS OPERATION IS TO VERIFY THAT THE DATA COLLECTION PORTION OF THE PTI IS FUNCTIONING CORRECTLY.	d46184 10/25/2012 1:23:54 PM
4040	CONTROL SYSTEM LOCKUP & PRE-CRANK VERIFICATION	5/1/2012	THE PURPOSE OF THIS OPERATION IS TO DEPREP THE CONTROL SYSTEM FROM A STATIC TEST MODE INTO A DYNAMIC OPERATIONAL MODE.	d46184 10/25/2012 2:09:52 PM
4060	VFD CONFIGURATION (AC)	2/7/2012	THE PURPOSE OF THIS OPERATION IS TO SAFELY SETUP AND CONFIGURE ALL PACKAGE VARIABLE FREQUENCY DRIVES (VFD'S).	
			DAC START MOTOR	d51543 10/23/2012 7:49:08 AM
4070	BURNER ACOUSTIC MONITORING (BAM) SYSTEM VERIFICATION	3/16/2011	THE PURPOSE OF THIS OPERATION IS TO VERIFY PROPER INSTALLATION AND OPERATION OF THE BURNER ACOUSTIC MONITOR (BAM) AND ASSOCIATED COMPONENTS.	d46237 10/23/2012 9:09:29 AM
4020	FACILITY HOOKUPS (TEST CELL)	3/3/2011	THE PURPOSE OF THIS OPERATION IS TO CONNECT VARIOUS PACKAGE SYSTEMS TO TEST CELL FACILITIES.	d46184 10/25/2012 11:33:34 AM
4065	PRE-LUBE PACKAGE	10/2/2012	THE PURPOSE OF THIS OPERATION IS TO PRIME THE LUBE OIL SYSTEM AND VERIFY THAT SUFFICIENT EACH LUBE OIL SUPPLY LINE IS DELIVERING PRESSURE.	d46184 10/25/2012 1:22:55 PM

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4080	LUBE OIL PUMPS SEQUENCE TEST	6/14/2011	THE PURPOSE OF THIS OPERATION IS TO VERIFY THE PROPER SEQUENCING OF ALL PACKAGE ELECTRIC LUBE OIL PUMPS UNDER PRE-LUBE, POST LUBE, AND PUMP FAILURE CONDITIONS.	d51976 10/25/2012 12:49:38 PM
4120	AIR INLET INSPECTION	1/14/2002	THE PURPOSE OF THIS OPERATION IS TO VERIFY THAT THE AIR INLET DUCT IS CLEAN AND FREE OF FOREIGN OBJECTS AND DEBRIS. (FOR A NON-DYNAMIC PACKAGE TEST, THE PURPOSE OF THIS OPERATION IS TO VERIFY THE ENGINE HAS BEEN PRESERVED.)	d46237 10/23/2012 9:30:57 AM
4140	PMG BREAKER VERIFICATION (PRE-OPERATIONAL) (AC)	3/3/2011	THE PURPOSE OF THIS OPERATION IS TO VERIFY THAT THE PMG BREAKER IS OPEN AND TAGGED PRIOR TO ROTATING THE ENGINE.	d51543 10/23/2012 7:48:49 AM
4150	GENERATOR EXCITER FIELD DC RESISTANCE (AC)	9/6/2011	THE PURPOSE OF THIS OPERATION IS TO MEASURE THE DC RESISTANCE OF THE GENERATOR'S EXCITER FIELD. FIELD RESISTANCE (OHMS): 17.75	d51543 10/23/2012 7:48:11 AM
TEST ENGINEER'S OR TEAM LEADER'S AUTHORIZATION FOR DYNAMIC OPERATION			THE PURPOSE OF THIS CHECK IS FOR THE APPROPRIATE PERSONNEL TO VERIFY THAT ALL STATIC OPERATIONS, CUSTOM FEATURE VERIFICATIONS, AND PTI STATIC VERIFICATION PROCEDURES HAVE BEEN COMPLETED BEFORE FIRST CRANK OF THE ENGINE.	d27414 10/27/2012 4:35:13 AM
PACKAGE DYNAMIC OPERATIONS				
4180	DAC START LUBE PRESSURE INTERLOCK (AC)	11/1/2011	THE PURPOSE OF THIS OPERATION IS TO VERIFY THAT THE DAC STARTER WILL BE PREVENTED FROM TURNING UNLESS THE START VFD SENSES PROPER LUBE OIL HEADER PRESSURE.	d27771 10/27/2012 5:28:53 AM
4190	DIRECT AC START MOTOR CONNECTION AND CHECK (AC)	2/28/2012	THE PURPOSE OF THIS OPERATION IS TO VERIFY THE PROPER SET UP OF THE AC START SYSTEM. (COMMON "DACSTCHK")	d38514 10/27/2012 7:22:46 AM
GAS FUEL - PACKAGE DYNAMIC OPERATIONS				
4200	FIRST / TEST CRANK	8/24/2011	VERIFY OIL FLOWS AND PRESSURES ARE ACCEPTABLE PRIOR TO FIRST CRANK, INITIATE A CRANK, AND VERIFY PROPER OPERATION OF THE CRANK AND STARTER SYSTEMS.	d38514 10/27/2012 7:23:48 AM
4207	GENERATOR JACKIING OIL SYSTEM	10/18/2011	THE PURPOSE OF THIS OPERATION IS TO VERIFY THE PROPER OPERATION OF THE GENERATOR JACKING OIL SYSTEM.	d38514 10/27/2012 8:45:13 AM
4220	FIRST LIGHTOFF ON GAS FUEL	8/24/2011	THE PURPOSE OF THIS OPERATION IS TO VERIFY THAT WHILE ON GAS FUEL ENGINE IGNITION AND LIGHTOFF OCCUR, THE ENGINE ACCELERATES SMOOTHLY TO STARTER DROPOUT, AND THE ENGINE CONTINUES TO SMOOTHLY ACCELERATE TO IDLE. TORCH PRESSURE (PSIG) 19	d38514 10/27/2012 9:30:53 AM
4221	VERIFY OPERATION OF FUEL TOTALIZER	3/24/2010	VERIFY PROPER OPERATION OF FUEL TOTALIZER'S FOR BACK TEST CELLS BY CHECKING FUEL FLOW READOUT ON TOTALIZER AFTER FIRST LIGHT OFF BUT PRIOR TO REST OF DYNAMIC OPS.	d38514 10/27/2012 9:04:40 AM
4360	BACKUP OVERSPEED SENSOR PROBE MALFUNCTION TEST	10/18/2011	THE PURPOSE OF THIS OPERATION IS TO VERIFY CORRECT ANNUNCIATION AND FUNCTION OF THE BACK-UP OVERSPEED MONITOR AND ASSOCIATED CONTROL SYSTEM LOGIC.	d46184 10/27/2012 11:34:08 AM
4361	GAS PRODUCER SPEED SENSOR PROBE MALFUNCTION TEST	3/10/2011	VERIFY PROPER OPERATION OF THE GAS PRODUCER SPEED SENSOR MALFUNCTION SHUTDOWN.	d46184 10/27/2012 10:58:32 AM
4410	ENGINE OVERSPEED SHUTDOWN TEST	7/13/2011	VERIFY A UNIT SHUTDOWN OCCURS WHEN THE ENGINE EXCEEDS THE OVERSPEED LIMITS.	d38514 10/27/2012 9:50:38 AM
4450	FLAMEOUT TEST	6/14/2011	THE PURPOSE OF THIS OPERATION IS TO VERIFY THE ENGINE WILL GO INTO A FAST STOP SHUTDOWN IN THE EVENT THE FLAMEOUT SWITCH SENSES THE SUDDEN LOSS OF PCD.	d38514 10/27/2012 9:39:21 AM

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UNIT#: 2
ENGINE S/N: 0745L

PROJ. DEF. #: 3N061
PACKAGE S/N: KG12N57
GEARBOX S/N: SEP12-98719

TEST ENGINEER: T. JESSUP
GENERATOR S/N: 8268693

OPERATION		REV DATE	BRIEF DESCRIPTION	STAMP
GAS FUEL PACKAGE DYNAMIC OPERATIONS COMPLETE				
4600	START RELIABILITY TEST	4/19/2011	THE PURPOSE OF THIS OPERATION IS TO DEMONSTRATE THE MINIMUM NUMBER OF SUCCESSFUL CONSECUTIVE STARTS REQUIRED BY THE APPLICABLE PACKAGE TEST SPECIFICATION. (COMMON "STARTREL")	
			GAS FUEL	d43352 10/28/2012 8:17:21 PM
4230	ACCELERATION TEST	7/24/2012	THE PURPOSE OF THIS OPERATION IS TO VERIFY THAT THE UNIT ACCELERATES SMOOTHLY WHILE OPERATING ON GAS FUEL. ACCELERATION ON START (SEC): 244 ROLLDOWN TIME FROM 100% NGP (SEC): 430	d38514 10/27/2012 9:07:26 AM
4620	DUPLEX LUBE OIL FILTER TEST	5/1/2012	THE PURPOSE OF THIS OPERATION TO VERIFY THAT IT IS POSSIBLE TO MANUALLY SELECT EACH LUBE OIL FILTER CANISTER AND THAT THE FILTER SELECTION VALVE MEETS LEAKAGE REQUIREMENTS WHILE RUNNING.	d46184 10/27/2012 11:52:28 AM
4630	BACKUP POST LUBRICATION PUMP PERIODIC CHECK	7/24/2012	THE PURPOSE OF THIS OPERATION IS TO VERIFY THAT A MANUAL OR PERIODIC OPERATIONAL CHECK OF THE BACKUP LUBE OIL PUMP CAN BE PERFORMED AND THAT AN ALARM WILL ANNUNCIATE IF THE CHECK FAILS.	d34044 10/27/2012 6:49:24 PM
4660	LUBE OIL TEMPERATURE CONTROL VALVE TEST	5/7/2003	THE PURPOSE OF THIS OPERATION IS TO VERIFY THE LUBE OIL TEMPERATURE CONTROL VALVE MAINTAINS THE OIL TEMPERATURE AT THE PROPER VALUE.	d46184 10/27/2012 11:29:36 AM
GENERATOR OPERATIONS				
6020	PMG VOLTAGE & FREQUENCY CHECK (AC)	11/1/2011	THE PURPOSE OF THIS OPERATION IS TO VERIFY THAT PRIOR TO VOLTAGE BUILD, THE GENERATOR'S PMG PRODUCES THE PROPER VOLTAGE AND FREQUENCY.	d27771 10/27/2012 11:49:37 AM
6040	VOLTAGE BUILDUP (AC)	9/2/2005	THE PURPOSE OF THIS OPERATION IS TO VERIFY VOLTAGE BUILD ON THE GENERATOR.	d52687 10/27/2012 8:44:46 PM
1066	SVMS SETUP AND CONFIGURATION	4/2/2012	THE PURPOSE OF THIS OPERATION IS TO SETUP AND CONFIGURE THE S.V.M.S SYSTEM PROPERLY WITH THE CORRECT TEST CELL AND PACKAGE DATA.	d43352 10/27/2012 9:04:30 PM
6070	GENERATOR BEARING OIL PRESSURE AND FLOWS	5/1/2012	THE PURPOSE OF THIS OPERATION IS TO VERIFY THAT THE OIL LEVELS IN THE SIGHT GLASSES MAINTAIN THE PROPER LEVEL, GENERATOR BEARING TEMPERATURES ARE MAINTAINED BELOW ALARM SETPOINTS, AND THAT THE BEARING OIL FLOWS ARE WITHIN THE RANGE SPECIFIED BY THE GENERATOR MANUFACTURER.	d43352 10/28/2012 2:30:07 PM
6090	PACKAGE OPERATING PARAMETERS	11/29/2011	THE PURPOSE OF THIS OPERATION IS TO RECORD NEW CONDITION OPERATING PARAMETERS.	d29119 10/31/2012 11:02:50 AM
6100	GENERATOR WINDING RTD VERIFICATION	6/3/2000	THE PURPOSE OF THIS OPERATION IS TO MEASURE AND RECORD ALL GENERATOR WINDING RTD READINGS.	d43352 10/28/2012 2:27:36 PM
6120	VOLTAGE AND SPEED RANGE ADJUST (AC)	9/1/2005	THE PURPOSE OF THIS OPERATION IS TO MANUALLY VERIFY SPEED AND VOLTAGE RANGE ADJUSTABILITY.	
			GAS FUEL	d52687 10/27/2012 8:52:47 PM
6140	SPEED DROOP (AC)	9/20/2011	THE PURPOSE OF THIS OPERATION IS TO ADJUST AND VERIFY THE OPERATION OF THE SPEED DROOP FEATURE OF THE GENERATOR CONTROLS SYSTEM. SPEED DROOP (%): 3.5	d52687 10/27/2012 8:54:27 PM
6160	SPEED ISOCH TO SPEED DROOP BUMPLESS TRANSFER (AC)	9/20/2011	THE PURPOSE OF THIS OPERATION IS TO VERIFY THE SPEED ISOCH TO SPEED DROOP BUMPLESS TRANSFER FEATURE.	d27771 10/28/2012 8:31:10 AM
6180	VOLTAGE DROOP (AC)	7/12/2011	THE PURPOSE OF THIS OPERATION IS TO VERIFY THE VOLTAGE DROOP FEATURE OF THE VOLTAGE REGULATOR.	d39045 10/28/2012 6:44:16 PM

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A Caterpillar Company

PACKAGE ACCEPTANCE TEST
TITAN 130 GENERATOR SET

PROJECT NAME: SHL-SUN
UNIT#: 2
ENGINE S/N: 0745L

PROJ. DEF. #: 3N061
PACKAGE S/N: KG12N57
GEARBOX S/N: SEP12-98719

TEST ENGINEER: T. JESSUP
GENERATOR S/N: 8268693

OPERATION		REV DATE	BRIEF DESCRIPTION	STAMP
6280	LOAD TRANSIENT TESTS	8/7/2012	THE PURPOSE OF THIS OPERATION IS TO DEMONSTRATE, IN ACCORDANCE WITH THE APPLICABLE PACKAGE TEST SPECIFICATION, ACCEPTABLE VOLTAGE AND FREQUENCY EXCURSIONS RESULTING FROM SUDDEN APPLICATION AND REMOVAL OF ANY BALANCED LOAD.	
			GAS FUEL	d46184 10/28/2012 8:03:01 AM
6290	GENERATOR VOLTAGE RESPONSE TIME TEST	4/25/2011	THE PURPOSE OF THIS OPERATION IS TO VERIFY THE VOLTAGE WILL SETTLE TO WITHIN 1% OF THE FINAL VALUE IN LESS THAN ONE SECOND WHEN THE VOLTAGE SET POINT IS STEPPED UP OR DOWN BY 5%	d39045 10/28/2012 8:01:06 PM
6320	SINGLE UNIT AUTOSYNCH (AC)	2/7/2012	THE PURPOSE OF THIS OPERATION IS TO VERIFY THE UNIT'S ABILITY TO SYNCHRONIZE VOLTAGE, FREQUENCY, AND PHASE ANGLE WITH A SIMULATED THREE-PHASE BUS AND CLOSE THE OUTPUT BREAKER WHEN AN AUTO SYNC OR MANUAL SYNC COMMAND IS INITIATED.	d39045 10/28/2012 4:05:06 PM
6340	CGCM KW & IMPORT / EXPORT VERIFICATION (PERFORMED IN ISLAND MODE ONLY) (AC)	3/4/2009	THE PURPOSE OF THIS OPERATION IS TO VERIFY THE UNIT'S KW CONTROL FEATURE AND IMPORT/EXPORT CONTROL (IF APPLICABLE)..	d39045 10/28/2012 8:13:56 PM
6360	KVAR/PF CONTROL (AC)	5/15/2012	THE PURPOSE OF THIS OPERATION IS TO VERIFY THAT THE KVAR/PF CONTROLLER FUNCTIONS PROPERLY AND WILL CHANGE THE GENERATOR VOLTAGE AS THE KVAR/PF SET POINT IS VARIED.	d39045 10/28/2012 4:31:27 PM
6380	DIODE FAIL MONITOR (AC)	5/15/2012	THE PURPOSE OF THIS OPERATION IS TO VERIFY THAT THE DIODE MONITOR PROTECTS THE GENERATOR EXCITER AGAINST DAMAGE BY DETECTING A DIODE FAILURE.	d35525 10/30/2012 8:31:17 PM
6420	LOSS OF EXCITATION RELAY (AC)	8/17/2005	THE PURPOSE OF THIS OPERATION IS TO VERIFY THE PROPER SETTING AND FUNCTIONALITY OF THE LOSS OF EXCITATION RELAY AND ASSOCIATED CONTROL CIRCUITS.	d52687 10/30/2012 12:46:25 AM
6440	STANDBY START TO A HOT BUS	2/19/2009	THE PURPOSE OF THIS OPERATION IS TO VERIFY THAT THE UNIT STARTS UP AUTOMATICALLY AND SYNCHRONIZES TO A HOT BUS WHEN A REMOTE START COMMAND IS INITIATED.	d39045 10/28/2012 3:56:46 PM
PACKAGE TEST CLOSURE				
TEST ENGINEER'S AUTHORIZATION FOR PACKAGE DEPREP FOR FINAL LEAK CHECK			THE PURPOSE OF THIS CHECK IS TO ALLOW THE TEST ENGINEER TO REVIEW THE STATUS OF PACKAGE TESTING TO AUTHORIZE THE REMOVAL OF TEST EQUIPMENT FOR FINAL LEAK CHECK.	d29119 10/31/2012 11:04:21 AM
8020	PACKAGE SYSTEM LEAK TESTS	11/29/2011	THE PURPOSE OF THIS OPERATION IS TO PRESSURE/LEAK CHECK PIPING AND TUBING SYSTEMS TO ENSURE THE PACKAGE IS LEAK-FREE.	
			GAS FUEL SYSTEM	d38514 10/30/2012 12:46:23 PM
			LUBE OIL SYSTEM	d43352 11/3/2012 12:21:01 AM
			AIR SYSTEM	d38514 10/30/2012 12:46:32 PM
8060	TEST COMPLETE - READY TO VIDEOSCOPE/ PRESERVE	5/14/2010	THE PURPOSE OF THIS OPERATION IS TO VERIFY ALL GREEN CHANGES, TEST OPERATIONS AND DISCREPANCIES HAVE BEEN STAMPED OFF OR ADDRESSED AND THAT THE PACKAGE TEST IS COMPLETE TO WHERE THE ENGINE AND FUEL SYSTEM CAN BE PRESERVED AND ENGINE BUILD CAN BE NOTIFIED THE ENGINE IS READY TO BORESCOPE.	d46237 11/3/2012 5:52:51 AM
PACKAGE PRESERVATION				
TEST ENGINEER'S AUTHORIZATION			THE PURPOSE OF THIS CHECK IS TO ALLOW THE TEST ENGINEER TO REVIEW THE DATA PRIOR TO PRESERVATION/PULL TO VERIFY THAT ALL DATA IS IN PLACE, ACCURATE, AND ACCEPTABLE.	d29119 11/7/2012 12:56:26 PM
8100	ENGINE AND FUEL SYSTEM PRESERVATION	5/1/2012	THE PURPOSE OF THIS OPERATION IS TO SAFELY AND PROPERLY PRESERVE APPLICABLE PACKAGE SYSTEM(S) UPON CONCLUSION OF PACKAGE TEST.	
			ENGINE AIR PATH	d46237 11/3/2012 7:40:30 AM
			GAS FUEL SYSTEM	d46237 11/3/2012 4:52:28 AM
8030	PECC FAULT CLEARING	5/4/2005	THE PURPOSE OF THIS OPERATION IS TO CLEAR ANY FAULTS FROM THE FAULT FILE ON PECC ACTUATORS AFTER PACKAGE TEST IS COMPLETE.	d46237 11/3/2012 4:57:13 AM

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PACKAGE ACCEPTANCE TEST
TITAN 130 GENERATOR SET

PROJECT NAME: SHL-SUN
UNIT#: 2
ENGINE S/N: 0745L

PROJ. DEF. #: 3N061
PACKAGE S/N: KG12N57
GEARBOX S/N: SEP12-98719

TEST ENGINEER: T. JESSUP
GENERATOR S/N: 8268693

OPERATION		REV DATE	BRIEF DESCRIPTION	STAMP
8040	AS-TEST PROGRAM SAVE AND PROGRAM CONSTANTS	6/12/2008	THE PURPOSE OF THIS OPERATION IS TO SAVE A COPY OF THE "AS-TESTED" SOFTWARE TO THE S:\ DRIVE AND PRINT THE PROGRAM CONSTANTS.	d46237 11/3/2012 5:13:14 AM
9820	CLEAR PLC MEMORY	3/24/2011	THE PURPOSE OF THIS OPERATION IS TO VERIFY THAT THE PLC MEMORY IS WIPED CLEAR PRIOR TO SHIPMENT.	d46237 11/3/2012 5:13:14 AM
8110	PMG BREAKER VERIFICATION (POST-OPERATIONAL) (AC)	10/27/2006	THE PURPOSE OF THIS OPERATION IS TO VERIFY THAT THE PMG BREAKER IS OPEN AND TAGGED PRIOR TO PULLING THE PACKAGE FROM THE TEST CELL.	d27771 11/3/2012 11:59:34 AM
8120	CONTROL SYSTEM DE-PREP	1/24/2012	THE PURPOSE OF THIS OPERATION IS TO RESET ALL PACKAGE TIMERS AND REMOVE ALL FACILITY TEST EQUIPMENT FROM THE PACKAGE CONTROL SYSTEM, AND PREPARE THE OFF-SKID CONSOLE FOR REMOVAL FROM TEST IF APPLICABLE.	d47170 11/3/2012 5:56:31 PM
8130	GENERATOR AND AC FACILITY DISCONNECT (AC)	12/6/2011	THE PURPOSE OF THIS OPERATION IS TO DISCONNECT THE GENERATOR PACKAGE LOAD CABLES AND GENERATOR INSTRUMENTATION.	d27771 11/5/2012 12:38:43 PM
8140	PACKAGE DE-PREP	5/15/2012	THE PURPOSE OF THIS OPERATION IS TO PREPARE THE PACKAGE FOR REMOVAL FROM THE TEST CELL.	d43352 11/3/2012 8:21:42 PM
8200	LOOSE SHIP ITEMS FROM TEST	9/23/2002	THE PURPOSE OF THIS OPERATION IS TO ENSURE THAT ALL LOOSE SHIP ITEMS (SHAFTS, VFD'S, CUSTOMER PARTS, ETC.) ARE IDENTIFIED CORRECTLY, DELIVERED TO SHIPPING, AND SIGNED FOR BY SHIPPING PERSONNEL.	d27771 11/5/2012 12:38:33 PM
8220	PROJECT DISCREPANCY VERIFICATION	10/4/2011	THE PURPOSE OF THIS OPERATION IS TO VERIFY THAT ALL ITEMS IN THE PACKAGE TEST INSTRUCTIONS (PTI) ARE SIGNED OR STAMPED OFF AS COMPLETE, AND THAT UNRESOLVED PACKAGE TEST DISCREPANCIES HAVE BEEN REVIEWED AND APPROVED BY THE TEST ENGINEER TO CARRY OVER INTO FINAL.	d47170 11/3/2012 5:57:38 PM
EQUIPMENT REMOVAL				
8300	PACKAGE REMOVAL	9/26/2007	THE PURPOSE OF THIS OPERATION IS TO REMOVE THE PACKAGE FROM THE TEST CELL.	d43352 11/3/2012 8:22:07 PM
8340	PAPERWORK COMPLETE	8/24/2011	THE PURPOSE OF THIS OPERATION IS TO RETURN THE COMPLETED PACKAGE PAPERWORK TO THE APPROPRIATE LOCATIONS.	d29119 11/13/2012 10:06:42 AM

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PACKAGE ACCEPTANCE TEST
ENCLOSURE AND FINAL VISUAL

PROJECT NAME: SHL-SUN
UNIT #: 2
ENGINE S/N: 0745L

PROJ. DEF. #: 3N061
PACKAGE S/N: KG12N57
GEARBOX S/N: SEP12-98719

TEST ENGINEER: T. JESSUP
GENERATOR S/N: 8268693

OPERATION		REV DATE	BRIEF DESCRIPTION	STAMP
9020	LEGAL DRAWING VERIFICATION	8/9/2011	THE PURPOSE OF THIS OPERATION IS TO OBTAIN THE REQUIRED PROJECT "LEGAL" DRAWINGS AND VERIFY THEIR COMPLETENESS.	
			ELECTRICAL LEGAL	d33042 11/6/2012 12:16:53 PM
			MECHANICAL LEGAL	d33042 11/6/2012 8:38:19 AM
9040	SKID GROUND CHECK (DRIVER SKID)	1/10/2001	THE PURPOSE OF THIS OPERATION IS TO VERIFY THAT ON THE DRIVER SKID THERE IS A MINIMUM RESISTANCE BETWEEN ALL CIRCUITS AND SKID GROUND.	d33042 11/6/2012 8:12:43 AM
9060	SKID GROUND CHECK (DRIVEN SKID)	1/10/2001	THE PURPOSE OF THIS OPERATION IS TO VERIFY THAT ON THE DRIVEN SKID THERE IS A MINIMUM RESISTANCE BETWEEN ALL CIRCUITS AND SKID GROUND.	d33042 11/6/2012 8:14:01 AM
9080	PRELIMINARY FINAL VISUAL	8/9/2011	THE PURPOSE OF THIS OPERATION IS TO PERFORM A PRELIMINARY FINAL VISUAL INSPECTION OF THE DRIVER SKID TO DETERMINE ALL WIRING IS PER THE "LEGAL" WIRING DIAGRAM.	d33042 11/6/2012 12:07:12 PM
9100	PRELIMINARY FINAL VISUAL - DRIVEN SKID	8/9/2011	THE PURPOSE OF THIS OPERATION IS TO PERFORM A PRELIMINARY FINAL VISUAL INSPECTION OF THE DRIVEN SKID TO DETERMINE ALL WIRING IS PER THE "LEGAL" WIRING DIAGRAM	d33042 11/6/2012 12:07:57 PM
9120	ENGINE NAMEPLATE VERIFICATION	5/4/2010	THE PURPOSE OF THIS OPERATION IS TO VERIFY THAT THE ENGINE NAMEPLATE IS INSTALLED AND THE INFORMATION ON THE NAMEPLATE IS CORRECT.	d33042 11/13/2012 9:39:12 AM
3820	ENCLOSURE OPERATIONS COMPLETE	6/7/2007	THE PURPOSE OF THIS INSTRUCTION IS TO INSURE THAT THERE ARE NO OPEN ENCLOSURE OPERATIONS AND THAT THE UNIT CAN BE "DE-PREPPED".	d33042 11/6/2012 12:19:30 PM
ENCLOSURE OPERATIONS COMPLETE				
9840	FINAL DISCREPANCY VERIFICATION	10/4/2011	THE PURPOSE OF THIS OPERATION IS TO VERIFY THAT ALL DISCREPANCIES HAVE BEEN CLEARED.	d33042 11/13/2012 9:41:58 AM
9860	FINAL VISUAL COMPLETE	8/9/2011	THE PURPOSE OF THIS OPERATION IS TO ENSURE THAT ALL GREEN CHANGES HAVE BEEN WORKED.	d33042 11/6/2012 12:20:48 PM
9880	FINAL DOCUMENTATION	8/9/2011	THE PURPOSE OF THIS OPERATION IS TO COPY AND DISTRIBUTE THE ENCLOSURE AND FINAL VISUAL STAMP OFF SHEET.	d33042 11/13/2012 9:45:22 AM
9900	FINAL LEGAL DRAWINGS VERIFICATION	8/9/2011	THE PURPOSE OF THIS OPERATION IS TO INSURE THAT ALL THE LEGAL DRAWINGS ARE RETURNED TO THEIR PROPER LOCATION.	d33042 11/6/2012 12:18:03 PM

ITEM 2. PACKAGE OPERATING PARAMETERS

Solar Turbines
A Caterpillar Company

PACKAGE OPERATING PARAMETERS

T130 GENERATOR SET

PROJECT NAME: SHL-SUN | **PROJ. DEF. #: 3N061** | **TEST ENGINEER: T. Jessup**

UNIT #: 2 | **PACKAGE S/N: KG12N57** | **DATE: 10/28/12**

ENGINE S/N: 0745L | **GEARBOX S/N: SEP12-98719** | **GEN. S/N: 8268693**

RECORDED PARAMETER	UNITS	LIMITS		0 KW	4500 KW	9000 KW	FULL LOAD GAS	
		MIN	MAX					
DISPLAY SUMMARY PAGES								
Operation Summary								
TIME	HH:MM:SS			1:39:48 PM	1:49:50 PM	2:01:00 PM	2:10:39 PM	
NGP	%			100.0	100.0	100.0	100.0	
T1	°C			27.8	26.4	26.8	28.3	
T5 AVERAGE	°C		**760**	362	492	742	758	
PCD	kPag			1196.10	1297.35	1086.24	1496.26	
LUBE HEADER TEMP	°C	**51**	**60**	55	56	56	56	
LUBE TANK TEMP	°C			71	71	71	71	
LUBE HEADER PRESSURE	kPag	**193.05**	**310.26**	249.94	241.98	238.33	236.01	
LUBE TANK PRESSURE	kPa		**2.12**	0.07	0.08	-0.02	0.11	
LUBE OIL FILTER D/P	kPad		**206.84**	29.83	36.68	41.10	41.55	
ACTUAL POWER	KW			0	4509	8959	13294	
AVG LL VOLTAGE	V_{AC}	**6831**	**6969**	6900	6899	6899	6899	
AVG CURRENT	A			0	378	753	1122	
FREQUENCY	Hz	**58.5**	**61.5**	60.0	60.0	60.0	60.0	
Temperature Summary								
T5 TC1	°C			360	470	737	757	
T5 TC2	°C			357	448	741	765	
T5 TC3	°C			343	440	760	781	
T5 TC4	°C			350	492	765	785	
T5 TC5	°C			359	549	754	772	
T5 TC6	°C			364	512	746	760	
T5 TC7	°C			376	514	731	752	
T5 TC8	°C			378	507	726	744	
T5 TC9	°C			376	509	744	750	
T5 TC10	°C			362	496	724	728	
T5 TC11	°C			356	483	738	743	
T5 TC12	°C			361	482	742	757	
BEARING #2/3	°C		**≤T.Hdr + 61.1**	90	92	90	95	
GP THRUST	°C		**115.6 and ≤T.Hdr + 50**	77	80	76	85	

Solar Turbines
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PACKAGE OPERATING PARAMETERS

T130 GENERATOR SET

PROJECT NAME: SHL-SUN | **PROJ. DEF. #: 3N061** | **TEST ENGINEER: T. Jessup**

UNIT #: 2 | **PACKAGE S/N: KG12N57** | **DATE: 10/28/12**

ENGINE S/N: 0745L | **GEARBOX S/N: SEP12-98719** | **GEN. S/N: 8268693**

RECORDED PARAMETER	UNITS	LIMITS		0 KW	4500 KW	9000 KW	FULL LOAD GAS	
		MIN	MAX					
PHASE A WDG	°C		120	42	44	49	50	
PHASE B WDG	°C		120	41	44	49	53	
PHASE C WDG	°C		120	41	44	47	50	
GEN BRG DRIVEN END	°C		85	77	78	79	80	
GEN BRG EXCITER END	°C		85	75	77	78	78	
Fuel System Summary								
GAS FUEL SUPPLY PRES	kPag	985.95	3447.38	2584.87	2553.93	2492.06	2369.85	
GAS VLV CHECK PRES	kPag			2580.62	2549.63	2487.66	2361.05	
GAS FUEL VLV CMD	%			35.2	41.3	52.0	65.6	
GAS FUEL VLV POS	%			35.5	41.3	52.2	65.6	
MAIN VLV DIS PRES 1	kPag			1231.15	1376.07	1293.75	1754.63	
MAIN VLV DIS PRES 2	kPag			1233.34	1378.57	1296.25	1757.13	
GAS PILOT VALVE CMD	%			51.0	50.2	25.9	29.0	
GAS PILOT VALVE POS	%			51.2	50.1	26.0	29.1	
PILOT VLV DIS PRES 1	kPag			1865.43	1836.95	1121.29	1531.16	
PILOT VLV DIS PRES 2	kPag			1864.02	1836.01	1120.35	1529.90	
GUIDE VANE CMD	%			85.6	85.6	38.7	85.6	
GUIDE VANE POS	%			85.6	85.6	38.8	85.6	
BLEED VLV CMD	%			0.0	0.0	0.0	0.0	
BLEED VLV POS	%			0.0	0.0	0.1	0.0	
BAM 0	kPag/RMS		3.447	0.596	1.113	0.298	0.467	
BAM 1	kPag/RMS		3.447	0.464	0.434	0.297	0.517	
BAM 2	kPag/RMS		3.447	0.448	0.291	0.301	0.480	
BAM 3	kPag/RMS		3.447	0.099	0.091	0.057	0.103	
BAM OA	kPag/RMS			2.777	3.223	1.740	2.488	
Vibration Summary								
GP B1 Y	um p-p		50.8	31.0	29.2	38.9	26.2	
GP B1 X	um p-p		50.8	32.0	29.0	38.6	25.7	
GP B2 Y	um p-p		50.8	43.4	40.6	31.5	36.8	
GP B2 X	um p-p		50.8	45.0	40.9	33.0	34.5	
GP B3 Y	um p-p		50.8	35.6	32.8	28.2	28.4	
GP B3 X	um p-p		50.8	37.6	34.8	27.9	28.4	
GP AXIAL	mm	-0.508	0.102	-0.047	-0.027	-0.075	-0.001	
Non-synch STAMP	≤0.4 mil on each engine bearing*			d43352 10/28/2012 1:41:03 PM	d43352 10/28/2012 1:50:10 PM	d43352 10/28/2012 2:10:06 PM	d43352 10/28/2012 2:10:48 PM	

* Vibration, at other than rotor frequency, averaged over 10-100 readings shall not exceed 0.4 mils (p-p), except for bearings #1 and #2, which shall not exceed 0.75 mils (p-p) at 73.6 Hz (for 50 Hz Gearbox)) or 0.6 mils (p-p) at 88.3 Hz (for 60 Hz Gearbox) and bearing #3, which shall not exceed 0.8 mils (p-p) at 50 Hz. Bearing #1 readings shall not exceed 0.05 mils (p-p) within 1500-5000 Hz NOTE: NON-SYNC DOES NOT APPLY TO AXIAL.

GB ACCEL	g's		16.0	0.8	2.5	2.0	2.7	
GEN DR AXIS Y	um p-p		63.5	13.5	12.2	13.0	11.4	
GEN DR AXIS X	um p-p		63.5	16.3	14.2	13.7	14.0	
GEN EX AXIS Y	um p-p		63.5	15.5	16.0	15.7	16.0	
GEN EX AXIS X	um p-p		63.5	23.4	21.1	21.3	22.1	
Non-synch STAMP	≤0.8 mil p-p on each generator bearing			d43352 10/28/2012 1:41:15 PM	d43352 10/28/2012 1:50:19 PM	d43352 10/28/2012 2:10:15 PM	d43352 10/28/2012 2:10:57 PM	

Solar Turbines
A Caterpillar Company

PACKAGE OPERATING PARAMETERS

T130 GENERATOR SET

PROJECT NAME: SHL-SUN | **PROJ. DEF. #: 3N061** | **TEST ENGINEER: T. Jessup**

UNIT #: 2 | **PACKAGE S/N: KG12N57** | **DATE: 10/28/12**

ENGINE S/N: 0745L | **GEARBOX S/N: SEP12-98719** | **GEN. S/N: 8268693**

RECORDED PARAMETER	UNITS	LIMITS		0 KW	4500 KW	9000 KW	FULL LOAD GAS	
		MIN	MAX					
Generator Summary								
GEN L1 L2 VOLTAGE	V_{AC}	**6762**	**7038**	6887	6886	6883	6886	
GEN L2 L3 VOLTAGE	V_{AC}	**6762**	**7038**	6913	6915	6920	6914	
GEN L3 L1 VOLTAGE	V_{AC}	**6762**	**7038**	6900	6898	6898	6898	
GEN L1 AMP	A			0	377	756	1121	
GEN L2 AMP	A			0	376	747	1122	
GEN L3 AMP	A			0	380	757	1123	
EXCITATION VOLTAGE	V_{DC}			18.45	22.04	25.61	36.26	
EXCITATION CURRENT	A			2.75	3.05	3.75	4.76	
Facility Instrumentation								
Lube Oil Hdr Pressure	psig	**28**	**45**	37	36	35	35	
#1 Bearing / GB Pressure	psig	**28**	**45**	35	33	32	32	
#2/3 Bearing Pressure	psig	**30**	**40**	33	33	32	32	
Seal Air Pressure	psig			39	47	27	51	
Lube Supp DE Pressure	psig	**28**	**73**	29	29	29	28	
Lube Flow DE	Hz			206	202	200	200	
Lube Flow DE	gpm	**3.58**	**4.92**	4.18	4.10	4.06	4.06	
Lube Supp EE Pressure	psig	**28**	**73**	30	30	29	28	
Lube Flow EE	Hz			193	191	190	186	
Lube Flow EE	gpm	**3.58**	**4.92**	3.92	3.88	3.86	3.78	

ITEM 3. PACKAGE VIBRATION DATA

Solar Turbines
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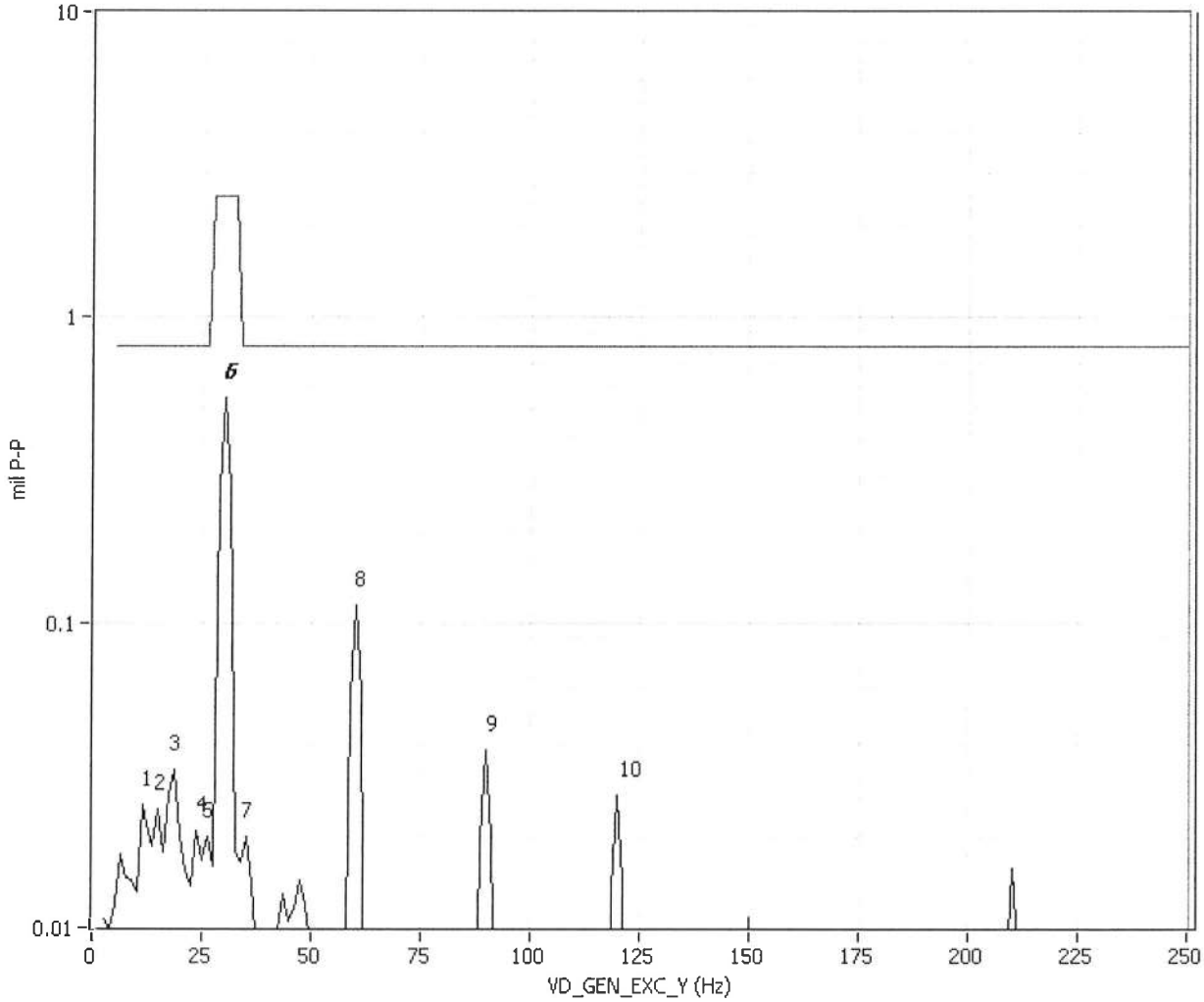
Spectrum

Tag Name: VD_GEN_EXC_Y 0:250
Test Cell: TEST CELL # 17
PDN: 3N061
Engine S/N: 0745L

Date & Time: 10/28/2012 14:09:04
Customer Name: SHL-SUN
Comment: OPERATING PARAMETERS

Speed Tag Name	RPM	%	Hz
GP_KP	11170	100.03	186.22
GEN_KP	1800	100.03	30.01
RGM			9272.41



Process Tag Name	Value	Units

Peak	Frequency	Amplitude
1	11.87	0.025
2	14.56	0.024
3	18.18	0.032
4	24.25	0.020
5	25.67	0.019
6	***30.01***	***0.544***
7	34.43	0.019
8	60.01	0.114
9	90.01	0.038
10	120.0	0.027

Spectrum details

Window	Hanning
Number Lines	200
Number Averages	10
Overall	0.786
Sensitivity	200

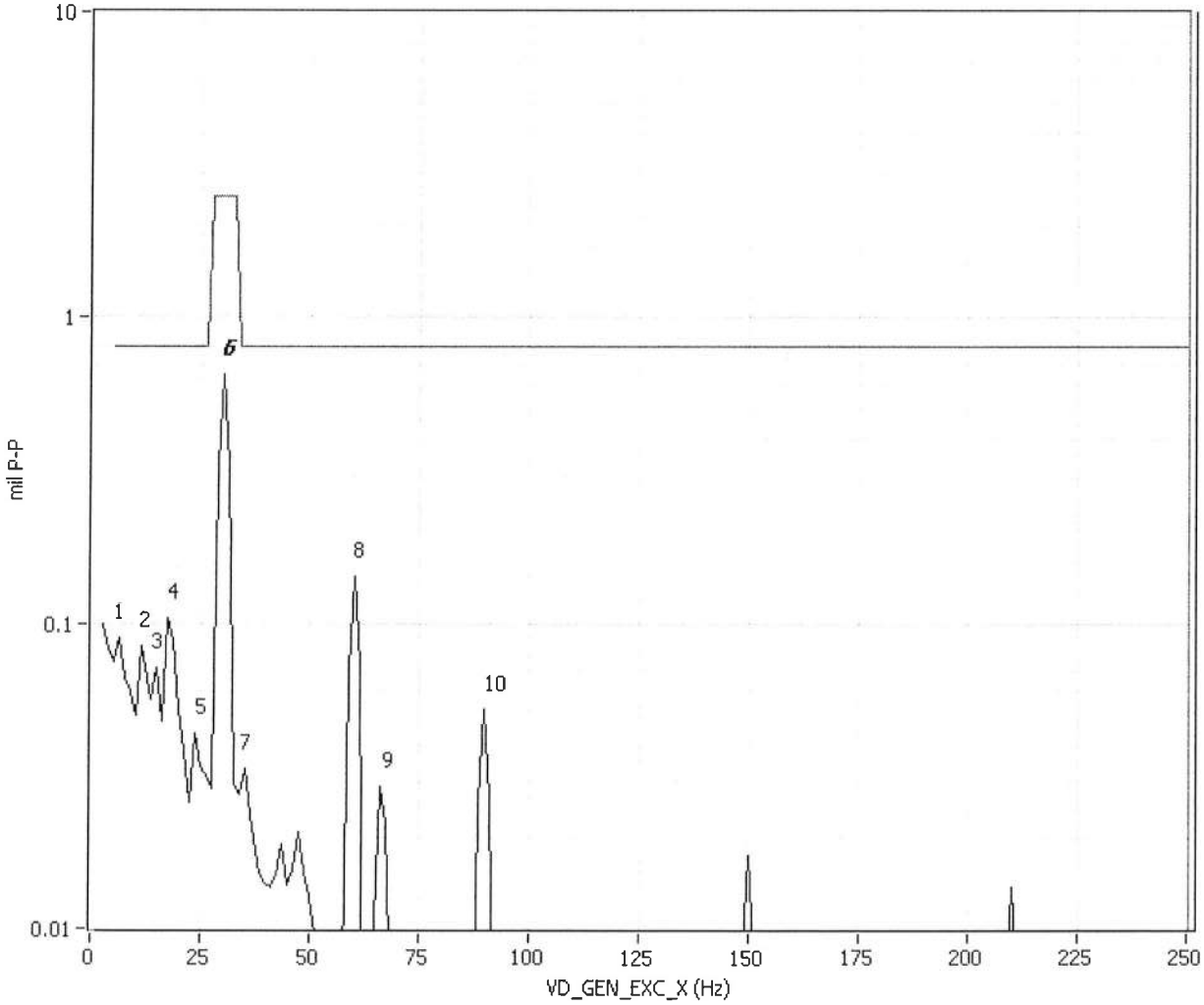
Solar Turbines
A Caterpillar Company

Spectrum

Tag Name: VD_GEN_EXC_X 0:250
Test Cell: TEST CELL # 17
PDN: 3N061
Engine S/N: 0745L

Date & Time: 10/28/2012 14:09:04
Customer Name: SHL-SUN
Comment: OPERATING PARAMETERS

Speed Tag Name	RPM	%	Hz
GP_KP	11170	100.03	186.22
GEN_KP	1800	100.03	30.01
RGM			9272.41



Process Tag Name	Value	Units

Peak	Frequency	Amplitude
1	5.677	0.090
2	11.85	0.085
3	14.49	0.071
4	18.09	0.105
5	24.22	0.043
6	***30.01***	***0.652***
7	34.45	0.033
8	60.02	0.142
9	66.68	0.029
10	90.03	0.052

Spectrum details

Window	Hanning
Number Lines	200
Number Averages	10
Overall	1.15
Sensitivity	200

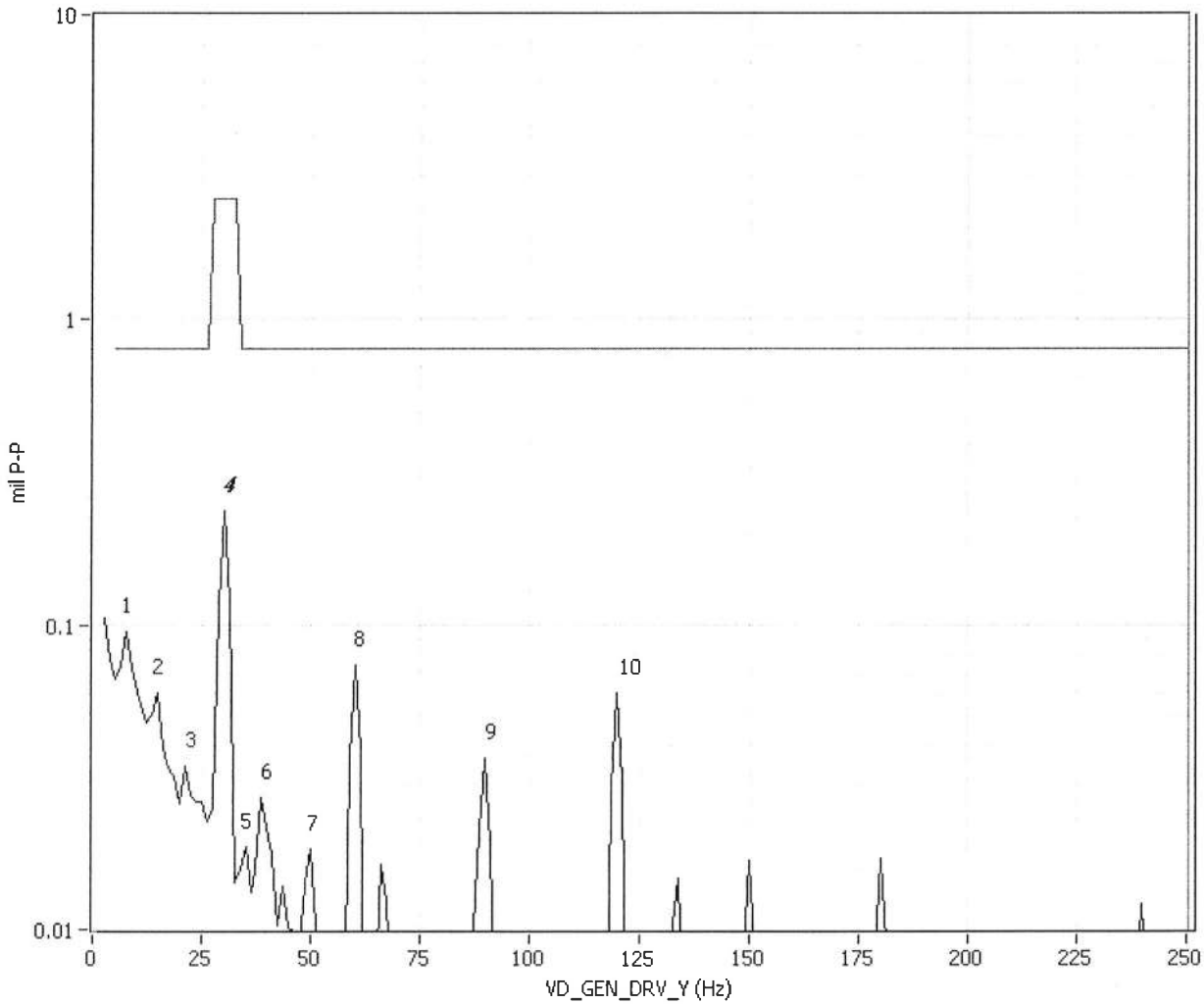
Solar Turbines
A Caterpillar Company

Spectrum

Tag Name: VD_GEN_DRV_Y 0:250
Test Cell: TEST CELL # 17
PDN: 3N061
Engine S/N: 0745L

Date & Time: 10/28/2012 14:09:04
Customer Name: SHL-SUN
Comment: OPERATING PARAMETERS

Speed Tag Name	RPM	%	Hz
GP_KP	11170	100.03	186.22
GEN_KP	1800	100.03	30.01
RGM			9272.41



Process Tag Name	Value	Units

Peak	Frequency	Amplitude
1	7.038	0.094
2	14.39	0.059
3	21.75	0.034
4	***30.00***	***0.236***
5	34.38	0.018
6	39.26	0.027
7	49.56	0.018
8	60.03	0.073
9	89.87	0.036
10	120.0	0.059

Spectrum details

Window	Hanning
Number Lines	200
Number Averages	10
Overall	0.747
Sensitivity	200

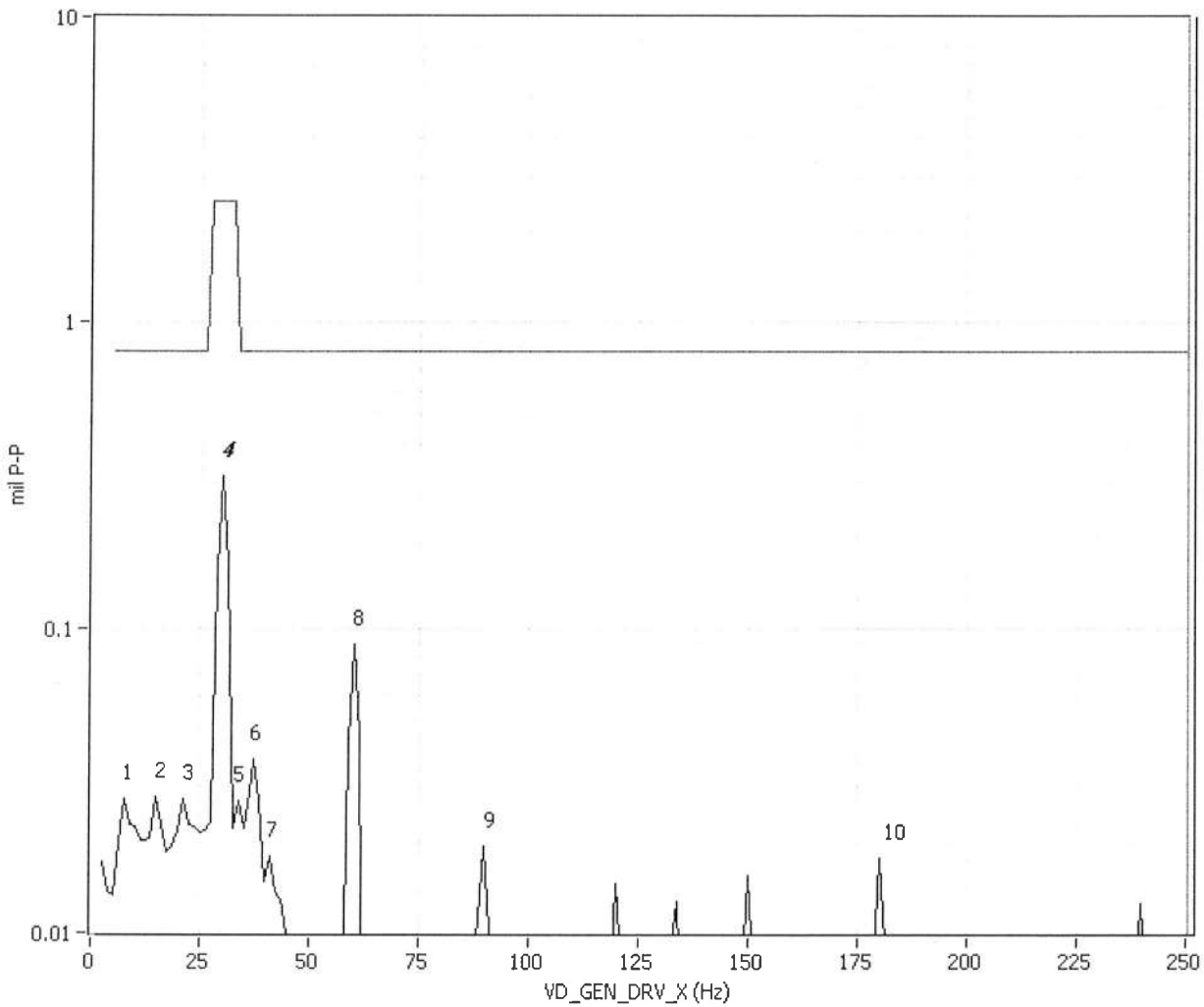
Solar Turbines
A Caterpillar Company

Spectrum

Tag Name: VD_GEN_DRV_X 0:250
Test Cell: TEST CELL # 17
PDN: 3N061
Engine S/N: 0745L

Date & Time: 10/28/2012 14:09:04
Customer Name: SHL-SUN
Comment: OPERATING PARAMETERS

Speed Tag Name	RPM	%	Hz
GP_KP	11170	100.03	186.22
GEN_KP	1800	100.03	30.01
RGM			9272.41



Process Tag Name	Value	Units

Peak	Frequency	Amplitude
1	8.053	0.027
2	15.55	0.027
3	21.82	0.027
4	***30.02***	***0.315***
5	33.21	0.027
6	37.03	0.037
7	40.71	0.018
8	60.01	0.088
9	89.89	0.019
10	180.1	0.017

Spectrum details

Window	Hanning
Number Lines	200
Number Averages	10
Overall	0.648
Sensitivity	200

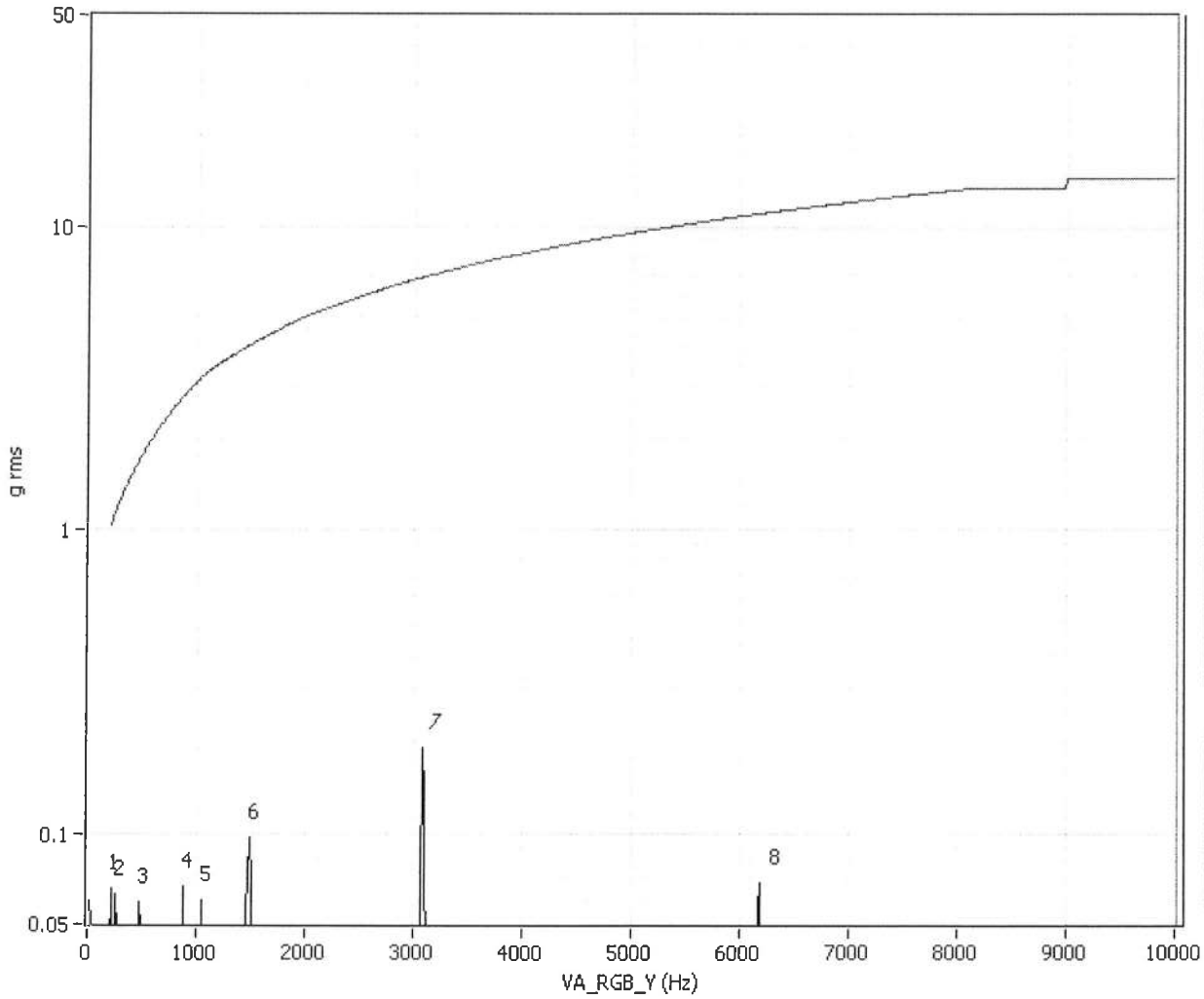
Solar Turbines
A Caterpillar Company

Spectrum

Tag Name: VA_RGB_Y 0:10000
Test Cell: TEST CELL # 17
PDN: 3N061
Engine S/N: 0745L

Date & Time: 10/28/2012 14:09:04
Customer Name: SHL-SUN
Comment: OPERATING PARAMETERS

Speed Tag Name	RPM	%	Hz
GP_KP	11170	100.03	186.22
GEN_KP	1800	100.03	30.01
RGM			9272.41



Process Tag Name	Value	Units

Peak	Frequency	Amplitude
1	216.7	0.065
2	267.1	0.062
3	480.5	0.059
4	883.0	0.066
5	1050	0.059
6	1483	0.096
7	*3091*	*0.193*
8	6182	0.068

Spectrum details

Window	Hanning
Number Lines	800
Number Averages	10
Overall	0.353
Sensitivity	25.0

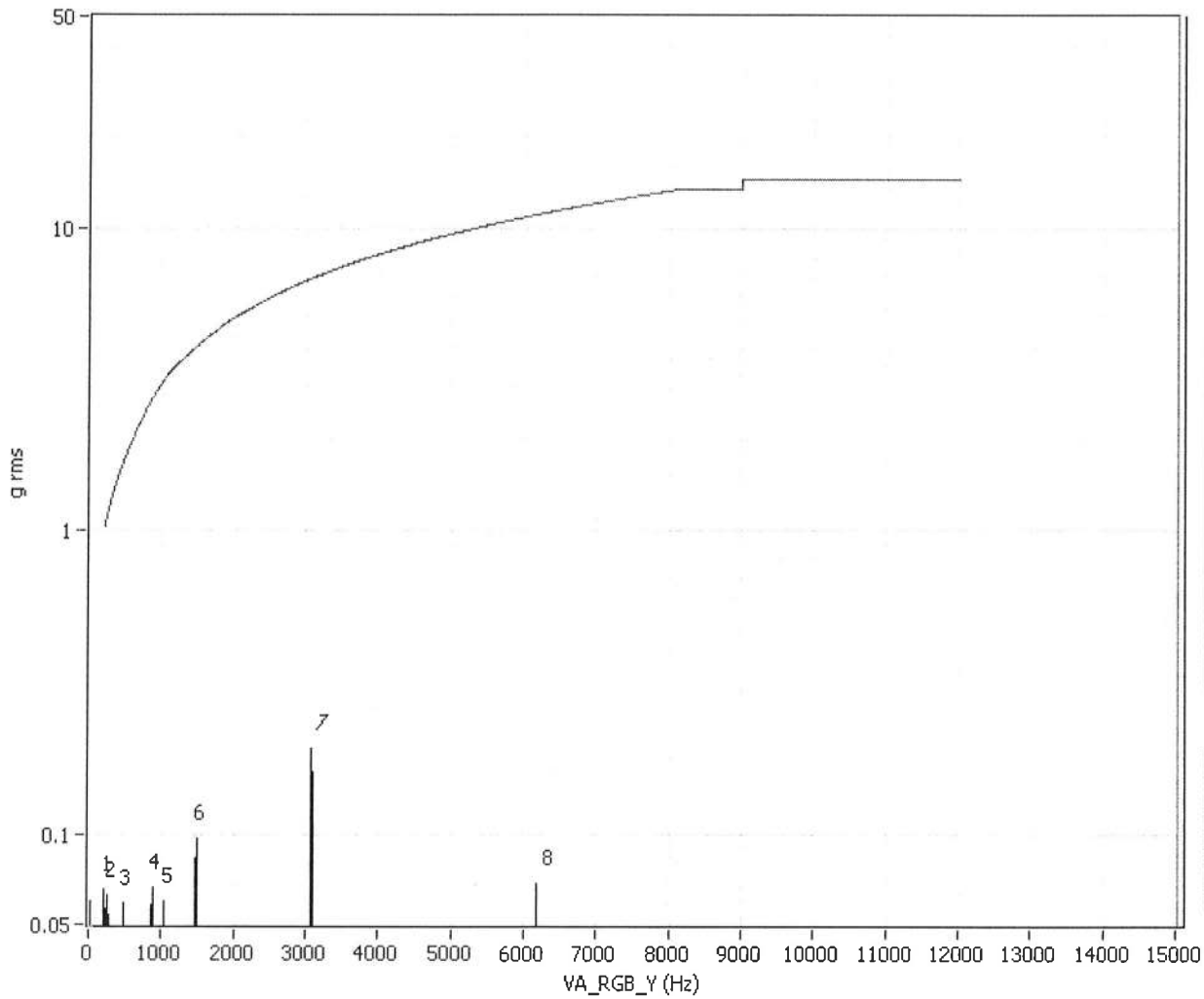
Solar Turbines
A Caterpillar Company

Spectrum

Tag Name: VA_RGB_Y 0:15000
Test Cell: TEST CELL # 17
PDN: 3N061
Engine S/N: 0745L

Date & Time: 10/28/2012 14:09:04
Customer Name: SHL-SUN
Comment: OPERATING PARAMETERS

Speed Tag Name	RPM	%	Hz
GP_KP	11170	100.03	186.22
GEN_KP	1800	100.03	30.01
RGM			9272.41



Process Tag Name	Value	Units

Peak	Frequency	Amplitude
1	216.7	0.065
2	267.1	0.062
3	480.5	0.059
4	883.0	0.066
5	1050	0.059
6	1483	0.096
7	*3091*	*0.193*
8	6182	0.068

Spectrum details

Window	Hanning
Number Lines	1200
Number Averages	10
Overall	0.353
Sensitivity	25.0

Solar® Turbines

A Caterpillar Company

Spectrum

Tag Name: VD_BRG_1_Y 0:300

Test Cell: TEST CELL # 17

PDN: 3N061

Engine S/N: 0745L

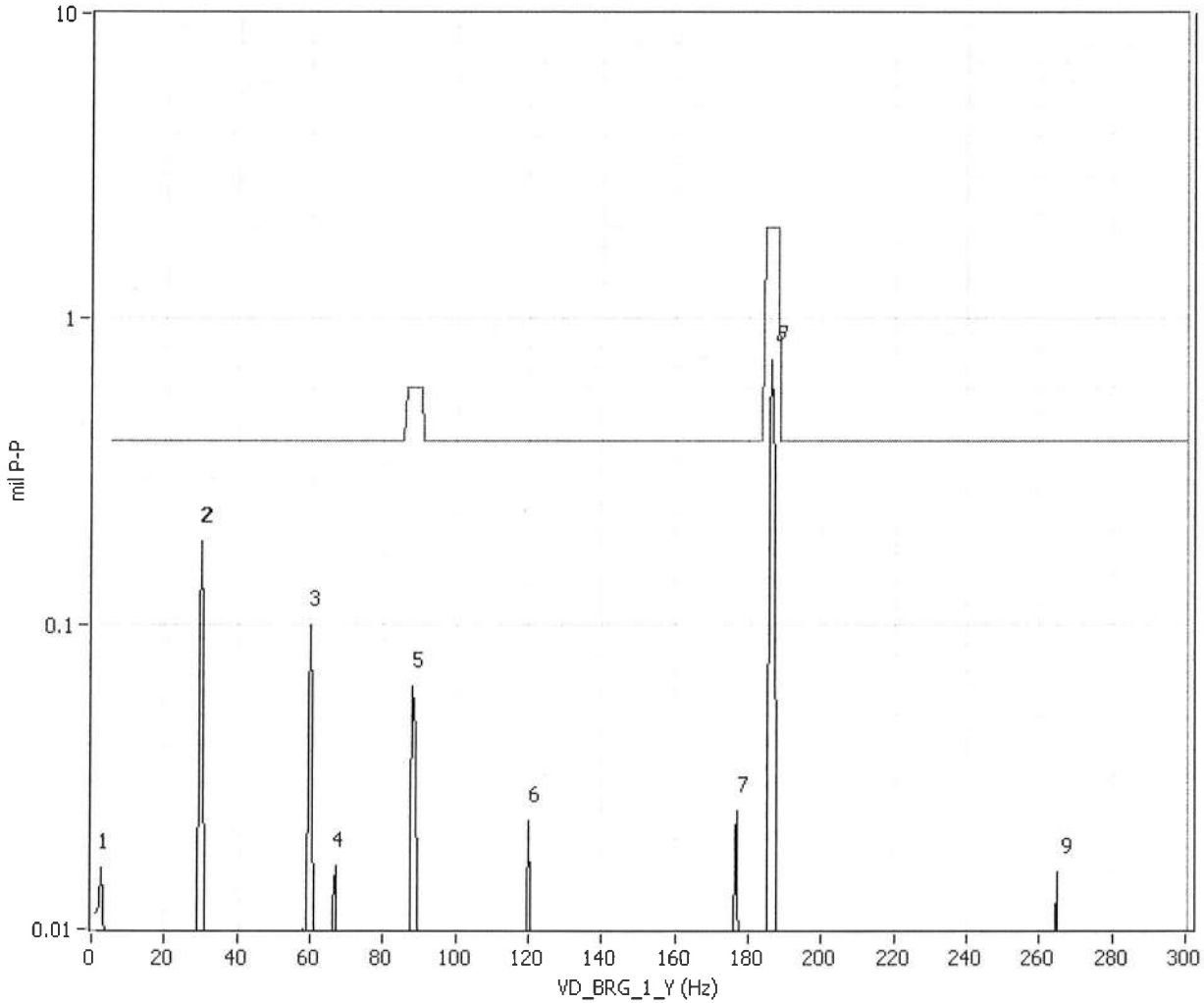
Date & Time: 10/28/2012 14:09:04

Customer Name: SHL-SUN

Comment: OPERATING PARAMETERS

Speed Tag Name	RPM	%	Hz
GP_KP	11170	100.03	186.22
GEN_KP	1800	100.03	30.01
RGM			9272.41

Process Tag Name	Value	Units



Peak	Frequency	Amplitude
1	2.727	0.016
2	**30.00**	**0.185**
3	60.01	0.100
4	66.67	0.016
5	88.30	0.062
6	120.0	0.022
7	176.6	0.024
B	*186.2*	*0.736*
9	264.9	0.015

Spectrum details

Window	Hanning
Number Lines	480
Number Averages	10
Overall	1.15
Sensitivity	200

Solar Turbines
A Caterpillar Company

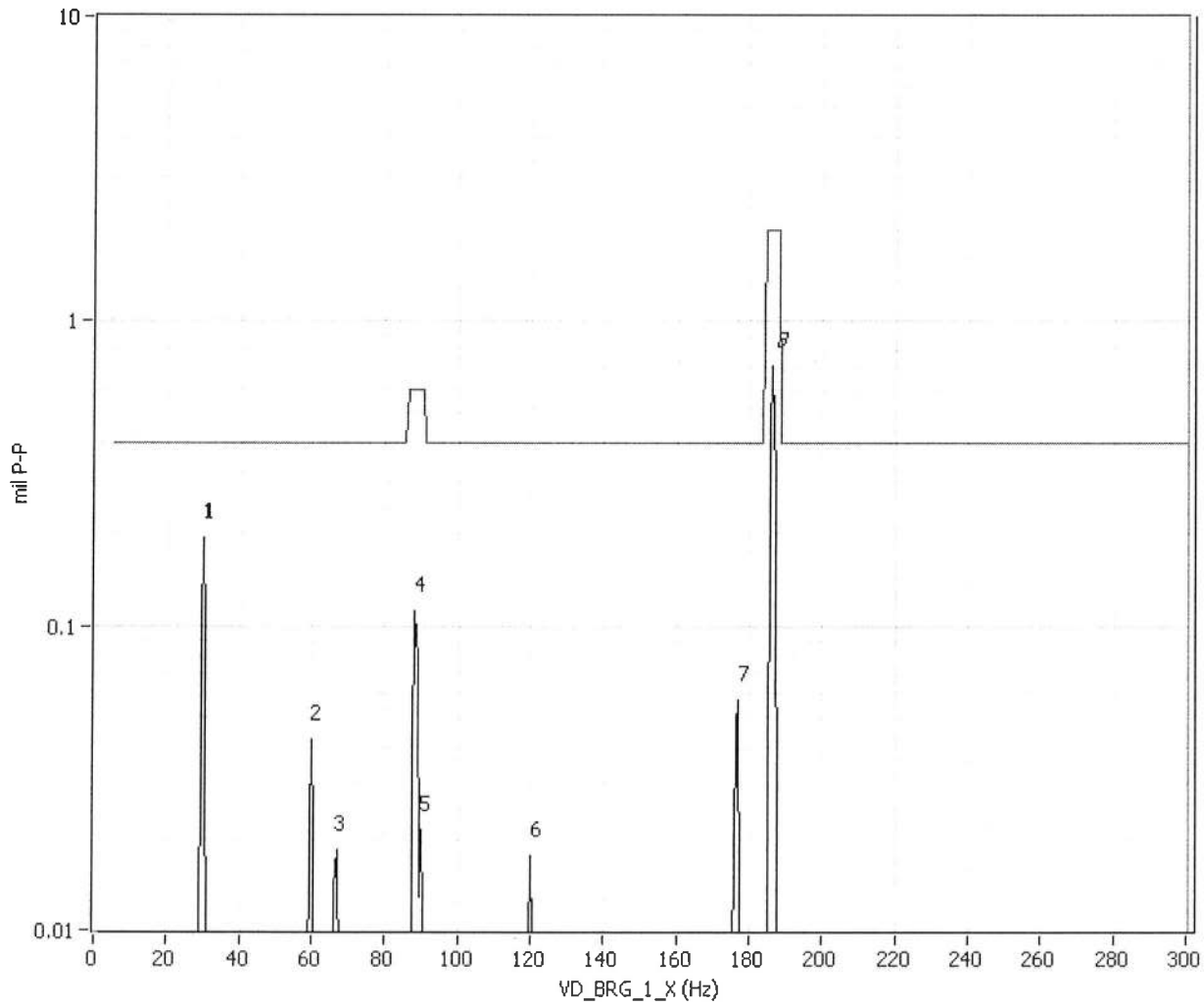
Spectrum

Tag Name: VD_BRG_1_X 0:300
Test Cell: TEST CELL # 17
PDN: 3N061
Engine S/N: 0745L

Date & Time: 10/28/2012 14:09:04
Customer Name: SHL-SUN
Comment: OPERATING PARAMETERS

Speed Tag Name	RPM	%	Hz
GP_KP	11170	100.03	186.22
GEN_KP	1800	100.03	30.01
RGM			9272.41

Process Tag Name	Value	Units



Peak	Frequency	Amplitude
1	**30.01**	**0.193**
2	60.00	0.042
3	66.67	0.018
4	88.29	0.112
5	89.92	0.021
6	120.0	0.017
7	176.6	0.057
8	*186.2*	*0.710*

Spectrum details

Window	Hanning
Number Lines	480
Number Averages	10
Overall	1.13
Sensitivity	200

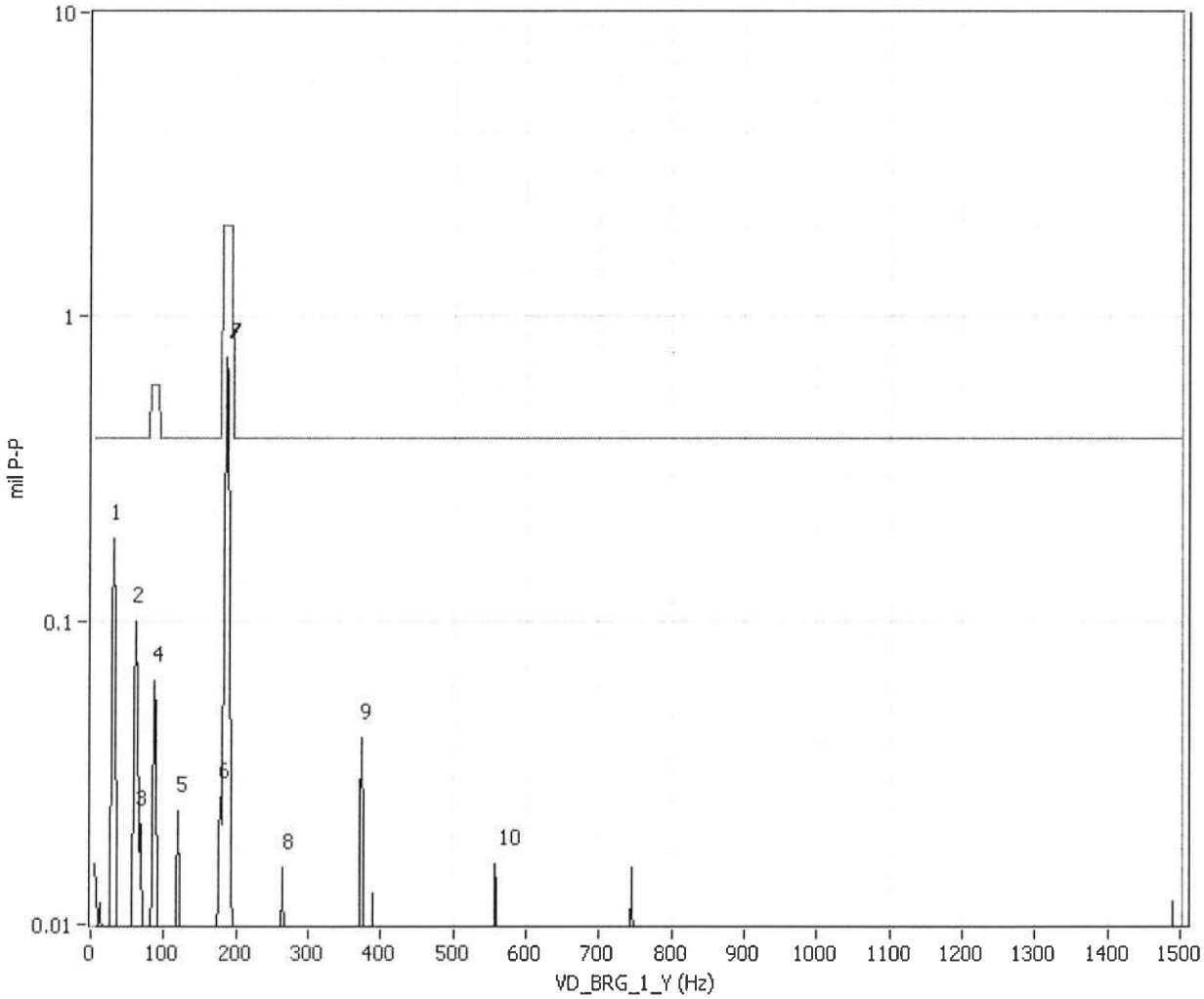
Solar Turbines
A Caterpillar Company

Spectrum

Tag Name: VD_BRG_1_Y 0:1500
Test Cell: TEST CELL # 17
PDN: 3N061
Engine S/N: 0745L

Date & Time: 10/28/2012 14:09:04
Customer Name: SHL-SUN
Comment: OPERATING PARAMETERS

Speed Tag Name	RPM	%	Hz
GP_KP	11170	100.03	186.22
GEN_KP	1800	100.03	30.01
RGM			9272.41



Process Tag Name	Value	Units

Peak	Frequency	Amplitude
1	30.01	0.186
2	60.15	0.100
3	66.43	0.021
4	88.36	0.063
5	120.1	0.023
6	178.6	0.026
7	***186.2***	***0.731***
8	264.9	0.015
9	372.4	0.041
10	558.6	0.015

Spectrum details

Window	Hanning
Number Lines	600
Number Averages	10
Overall	1.15
Sensitivity	200

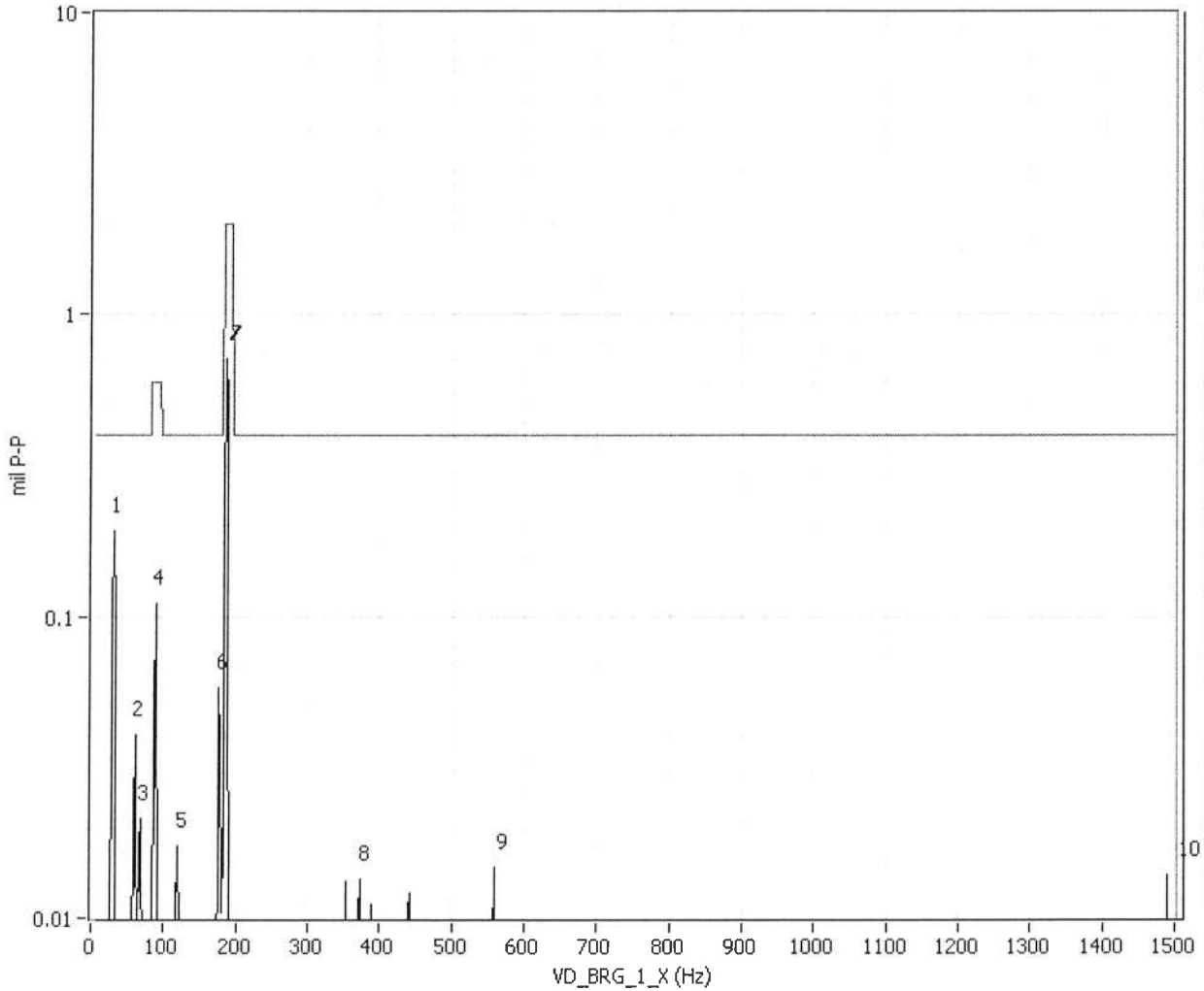
Solar Turbines
A Caterpillar Company

Spectrum

Tag Name: VD_BRG_1_X 0:1500
Test Cell: TEST CELL # 17
PDN: 3N061
Engine S/N: 0745L

Date & Time: 10/28/2012 14:09:04
Customer Name: SHL-SUN
Comment: OPERATING PARAMETERS

Speed Tag Name	RPM	%	Hz
GP_KP	11170	100.03	186.22
GEN_KP	1800	100.03	30.01
RGM			9272.41



Process Tag Name	Value	Units

Peak	Frequency	Amplitude
1	30.02	0.193
2	59.95	0.041
3	66.67	0.021
4	88.35	0.111
5	119.8	0.017
6	176.7	0.058
7	***186.2***	***0.709***
8	372.5	0.013
9	558.6	0.014
10	1490	0.013

Spectrum details

Window	Hanning
Number Lines	800
Number Averages	10
Overall	1.13
Sensitivity	200

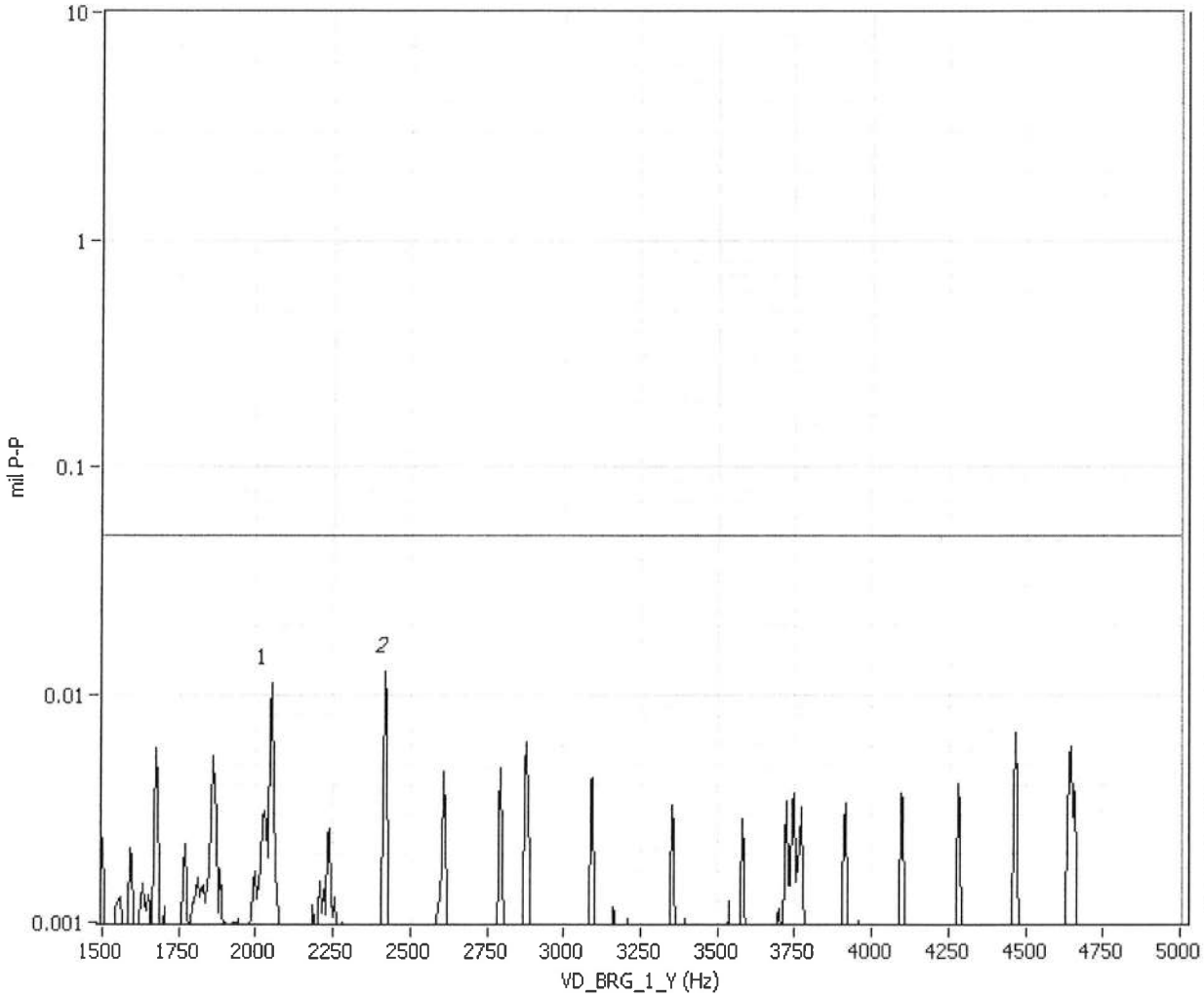
Solar Turbines
A Caterpillar Company

Spectrum

Tag Name: VD_BRG_1_Y 1500:5000
Test Cell: TEST CELL # 17
PDN: 3N061
Engine S/N: 0745L

Date & Time: 10/28/2012 14:09:04
Customer Name: SHL-SUN
Comment: OPERATING PARAMETERS

Speed Tag Name	RPM	%	Hz
GP_KP	11170	100.03	186.22
GEN_KP	1800	100.03	30.01
RGM			9272.41



Process Tag Name	Value	Units

Peak	Frequency	Amplitude
1	2048	0.011
2	*2421*	*0.012*

Spectrum details

Window	Hanning
Number Lines	560
Number Averages	10
Overall	1.15
Sensitivity	200

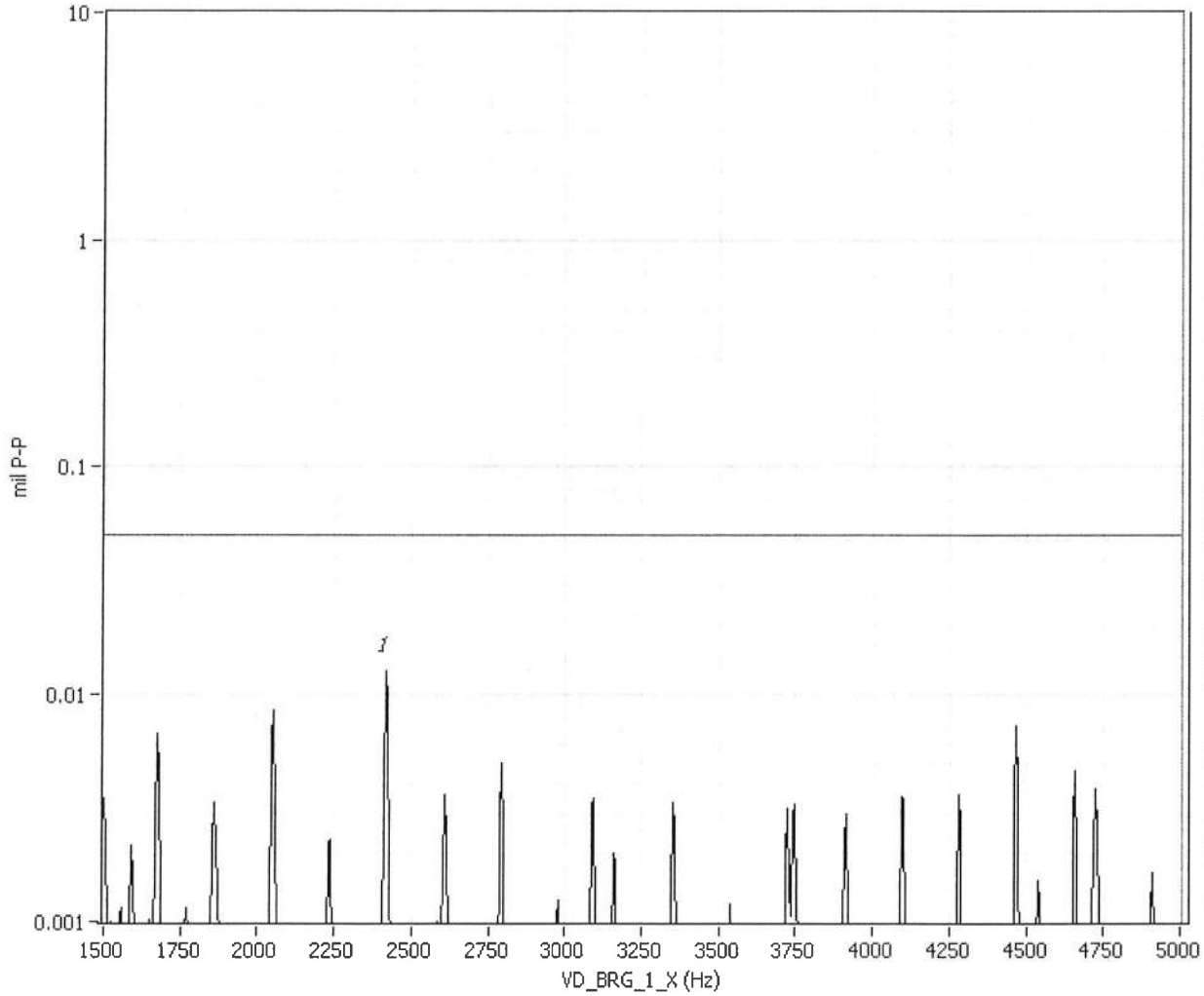
Solar Turbines
A Caterpillar Company

Spectrum

Tag Name: VD_BRG_1_X 1500:5000
Test Cell: TEST CELL # 17
PDN: 3N061
Engine S/N: 0745L

Date & Time: 10/28/2012 14:09:04
Customer Name: SHL-SUN
Comment: OPERATING PARAMETERS

Speed Tag Name	RPM	%	Hz
GP_KP	11170	100.03	186.22
GEN_KP	1800	100.03	30.01
RGM			9272.41



Process Tag Name	Value	Units

Peak	Frequency	Amplitude
1	*2421*	*0.012*

Spectrum details

Window	Hanning
Number Lines	560
Number Averages	10
Overall	1.13
Sensitivity	200

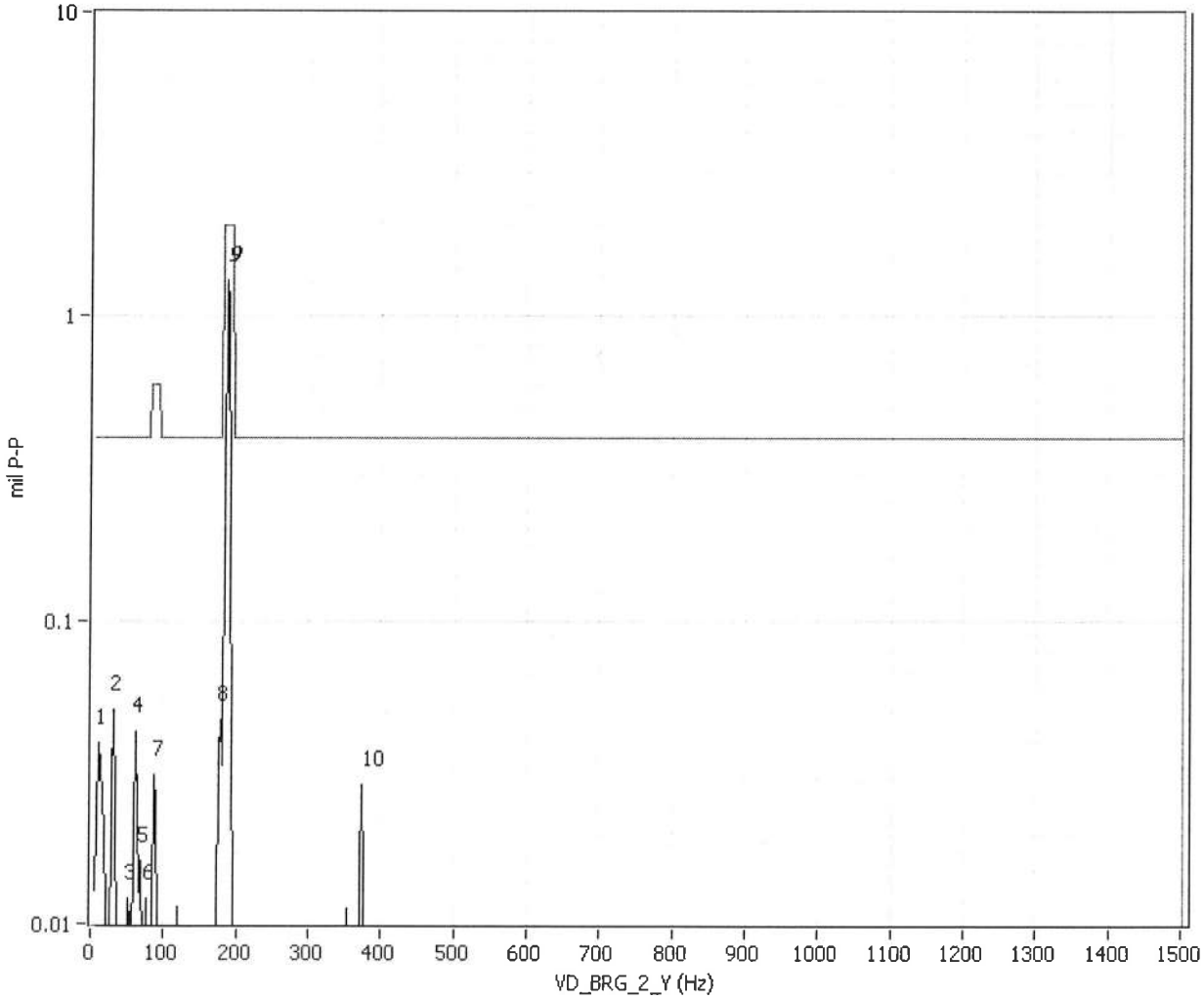
Solar Turbines
A Caterpillar Company

Spectrum

Tag Name: VD_BRG_2_Y 0:1500
Test Cell: TEST CELL # 17
PDN: 3N061
Engine S/N: 0745L

Date & Time: 10/28/2012 14:09:04
Customer Name: SHL-SUN
Comment: OPERATING PARAMETERS

Speed Tag Name	RPM	%	Hz
GP_KP	11170	100.03	186.22
GEN_KP	1800	100.03	30.01
RGM			9272.41



Process Tag Name	Value	Units

Peak	Frequency	Amplitude
1	11.25	0.039
2	29.82	0.050
3	51.12	0.012
4	60.10	0.042
5	66.53	0.016
6	76.45	0.012
7	88.55	0.031
8	176.6	0.047
9	***186.2***	***1.31***
10	372.5	0.028

Spectrum details

Window	Hanning
Number Lines	600
Number Averages	10
Overall	1.59
Sensitivity	200

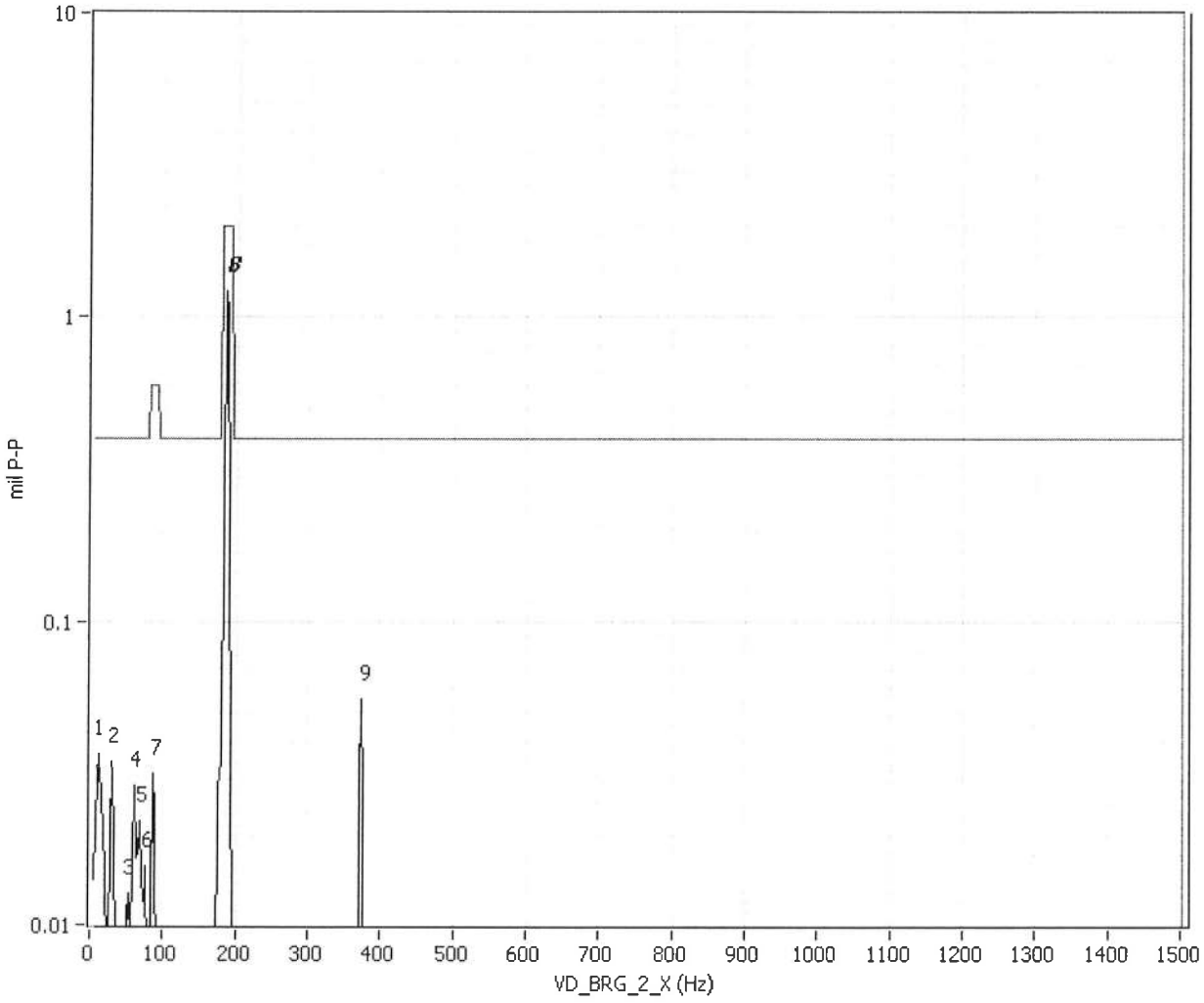
Solar Turbines
A Caterpillar Company

Spectrum

Tag Name: VD_BRG_2_X 0:1500
Test Cell: TEST CELL # 17
PDN: 3N061
Engine S/N: 0745L

Date & Time: 10/28/2012 14:09:04
Customer Name: SHL-SUN
Comment: OPERATING PARAMETERS

Speed Tag Name	RPM	%	Hz
GP_KP	11170	100.03	186.22
GEN_KP	1800	100.03	30.01
RGM			9272.41



Process Tag Name	Value	Units

Peak	Frequency	Amplitude
1	11.27	0.036
2	29.80	0.034
3	51.34	0.012
4	60.24	0.029
5	66.55	0.022
6	76.37	0.015
7	88.37	0.031
8	***186.2***	***1.23***
9	372.4	0.055

Spectrum details

Window	Hanning
Number Lines	600
Number Averages	10
Overall	1.47
Sensitivity	200

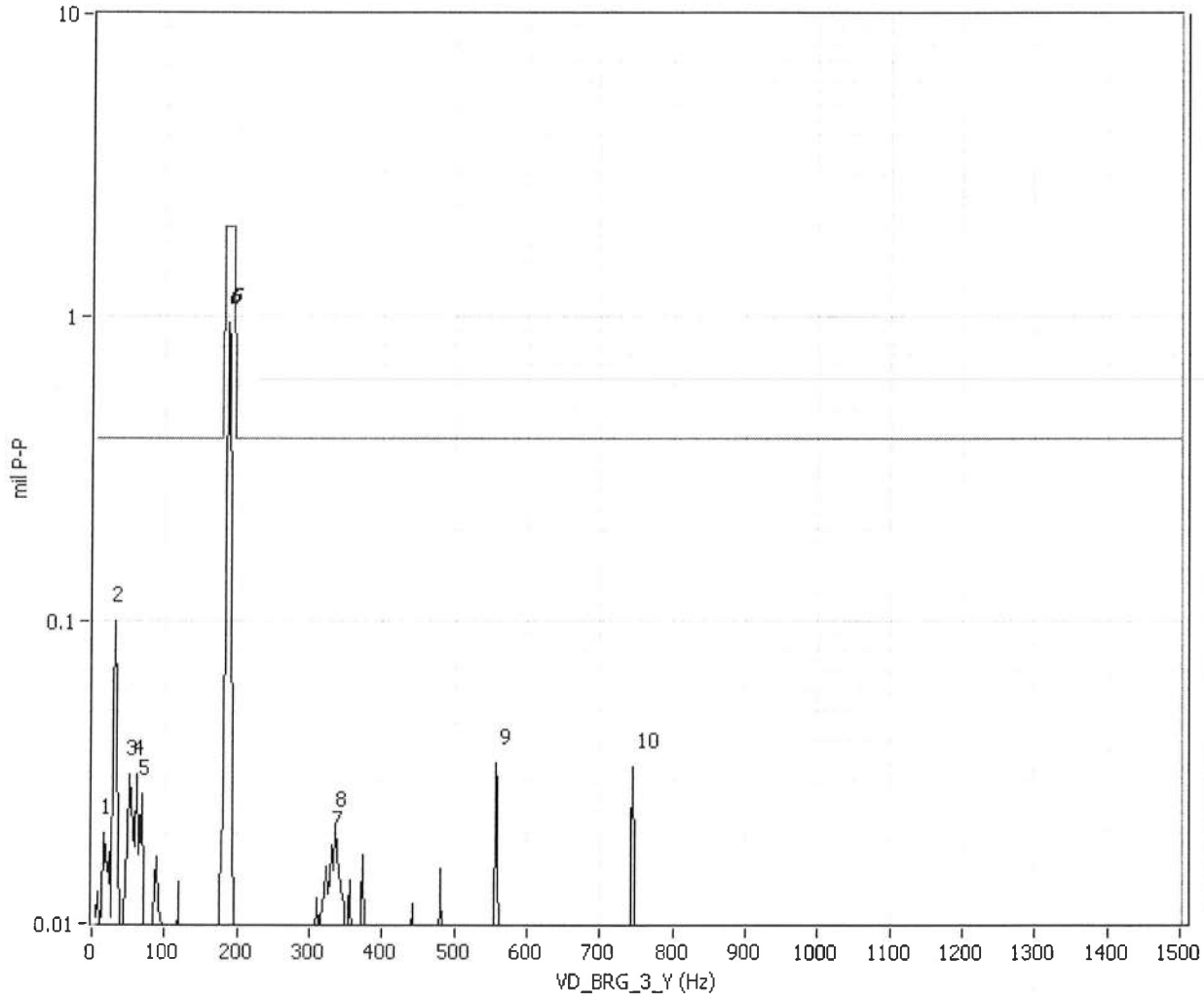
Solar Turbines
A Caterpillar Company

Spectrum

Tag Name: VD_BRG_3_Y 0:1500
Test Cell: TEST CELL # 17
PDN: 3N061
Engine S/N: 0745L

Date & Time: 10/28/2012 14:09:04
Customer Name: SHL-SUN
Comment: OPERATING PARAMETERS

Speed Tag Name	RPM	%	Hz
GP_KP	11170	100.03	186.22
GEN_KP	1800	100.03	30.01
RGM			9272.41



Process Tag Name	Value	Units

Peak	Frequency	Amplitude
1	16.25	0.019
2	30.09	0.099
3	51.14	0.031
4	59.76	0.031
5	66.72	0.026
6	***186.2***	***0.968***
7	331.1	0.018
8	336.1	0.021
9	558.6	0.034
10	744.9	0.033

Spectrum details

Window	Hanning
Number Lines	600
Number Averages	10
Overall	1.24
Sensitivity	200

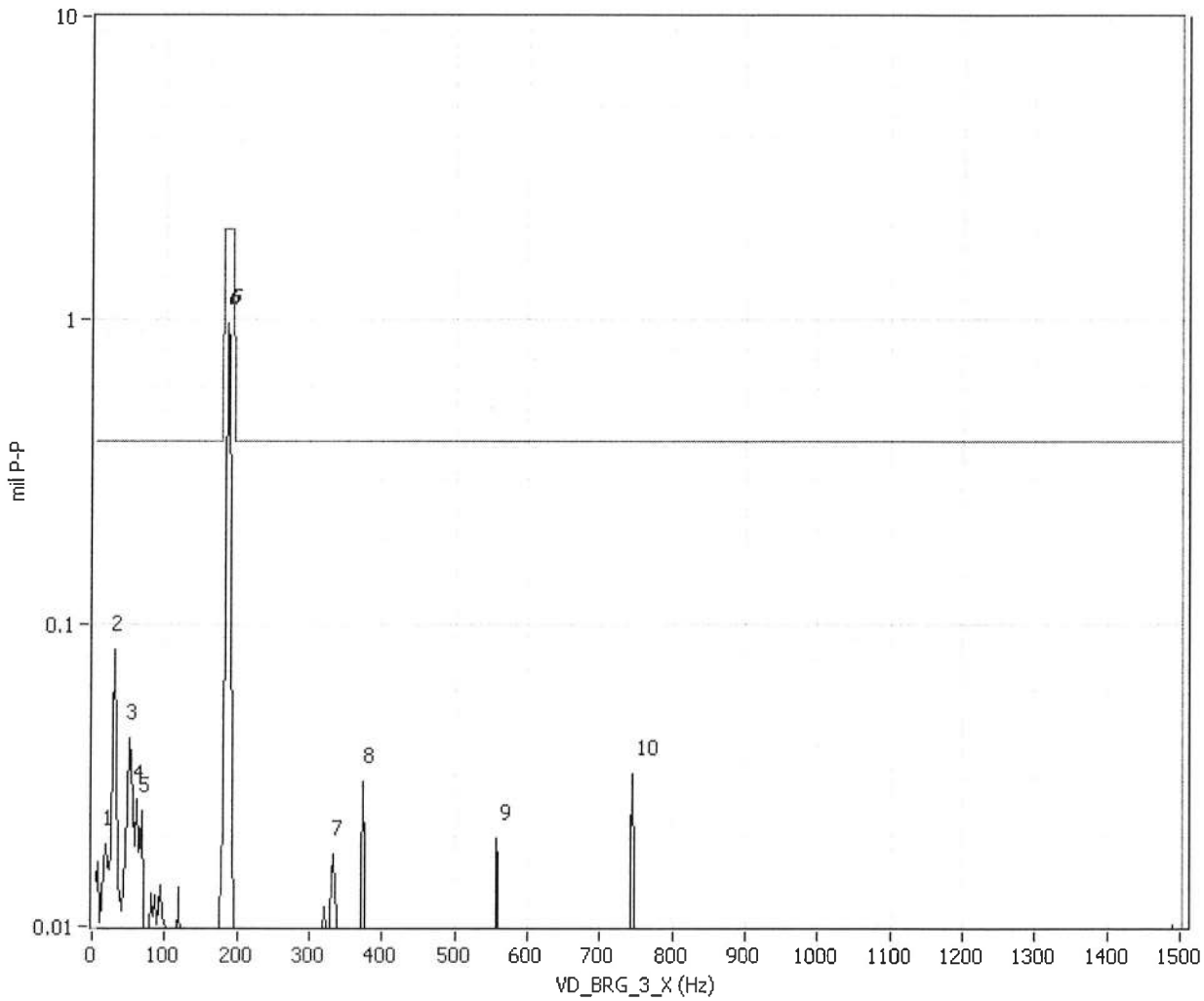
Solar Turbines
A Caterpillar Company

Spectrum

Tag Name: VD_BRG_3_X 0:1500
Test Cell: TEST CELL # 17
PDN: 3N061
Engine S/N: 0745L

Date & Time: 10/28/2012 14:09:04
Customer Name: SHL-SUN
Comment: OPERATING PARAMETERS

Speed Tag Name	RPM	%	Hz
GP_KP	11170	100.03	186.22
GEN_KP	1800	100.03	30.01
RGM			9272.41



Process Tag Name	Value	Units

Peak	Frequency	Amplitude
1	18.75	0.018
2	29.92	0.082
3	51.18	0.042
4	59.33	0.026
5	66.63	0.024
6	***186.2***	***0.971***
7	331.3	0.017
8	372.6	0.030
9	558.6	0.019
10	744.9	0.032

Spectrum details

Window	Hanning
Number Lines	600
Number Averages	10
Overall	1.26
Sensitivity	200

ITEM 4. SUDDEN LOAD, FREQUENCY (SPEED) AND VOLTAGE REGULATION

Solar® Turbines
A Caterpillar Company

Load Transient Analysis

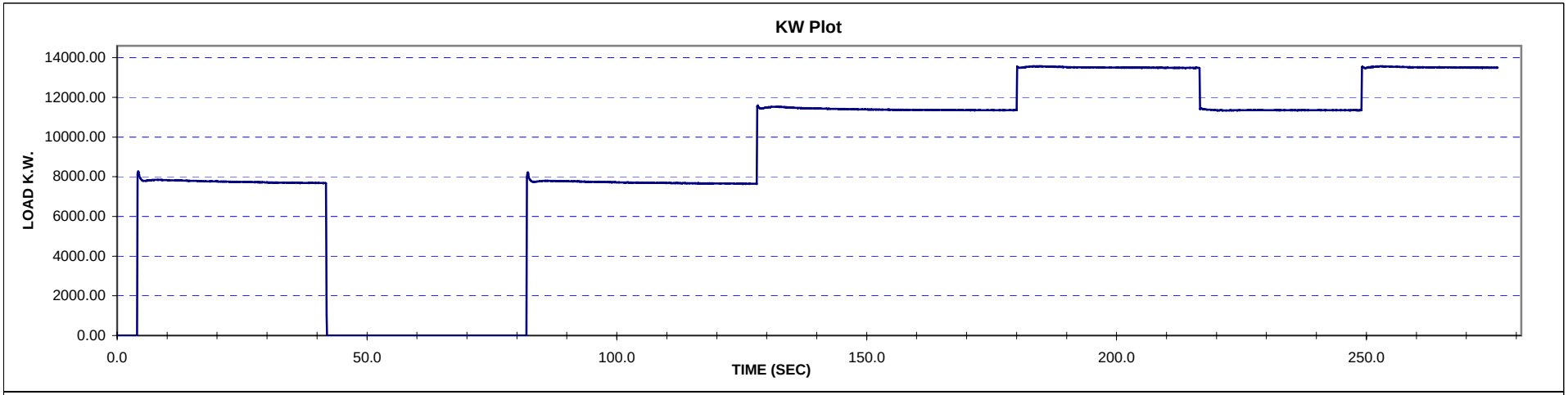
10/28/2012 07:21:34

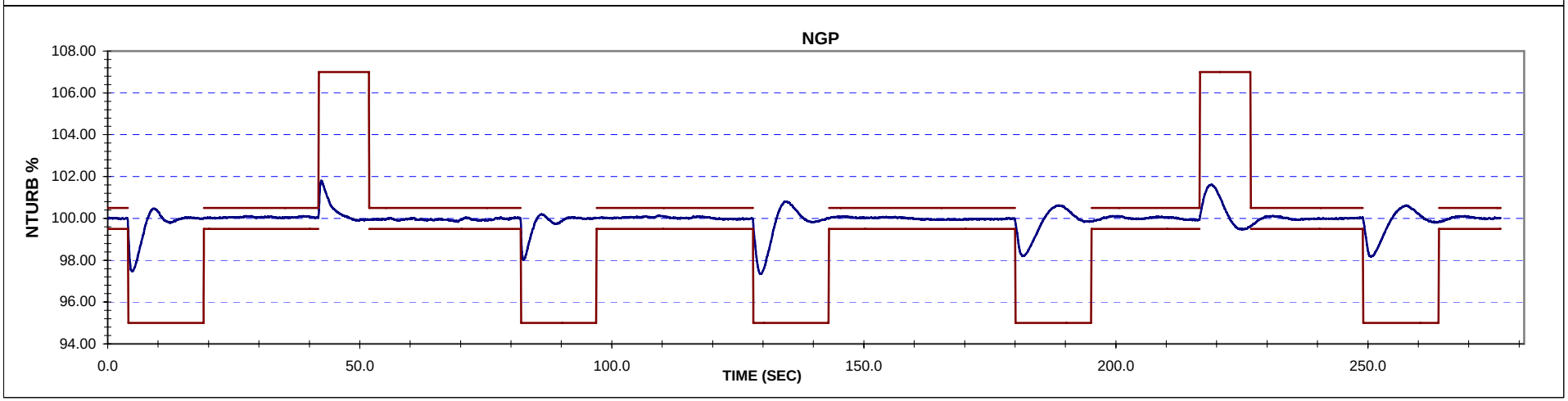
CUSTOMER NAME: SHL-SUN #2
PD NO: 3N061

UNIT NO: 2
ENG S/N: 0745L

CELL NO: 17
FUEL: GAS

RATED VOLTAGE: 6900
STEP LOAD





Solar® Turbines
A Caterpillar Company

Load Transient Analysis

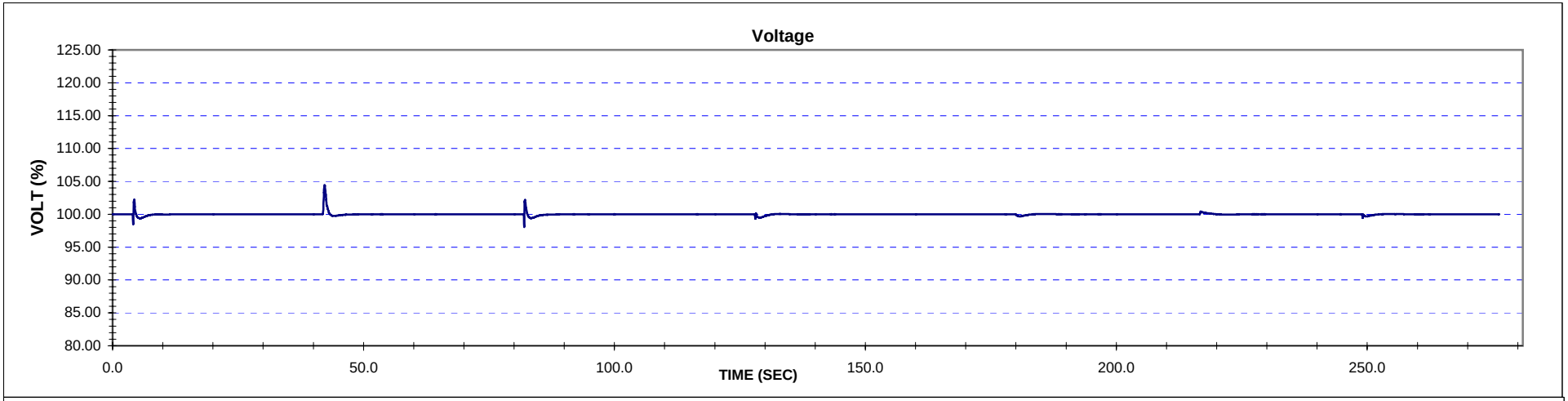
10/28/2012 07:21:34

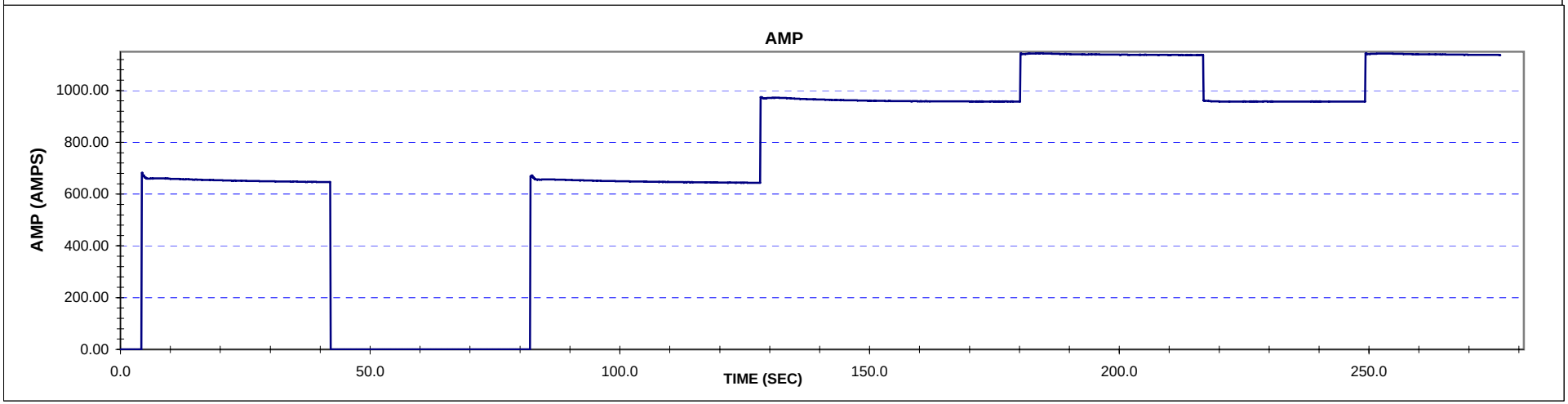
CUSTOMER NAME: SHL-SUN #2
PD NO: 3N061

UNIT NO: 2
ENG S/N: 0745L

CELL NO: 17
FUEL: GAS

RATED VOLTAGE: 6900
STEP LOAD





Solar® Turbines
A Caterpillar Company

Load Transient Analysis

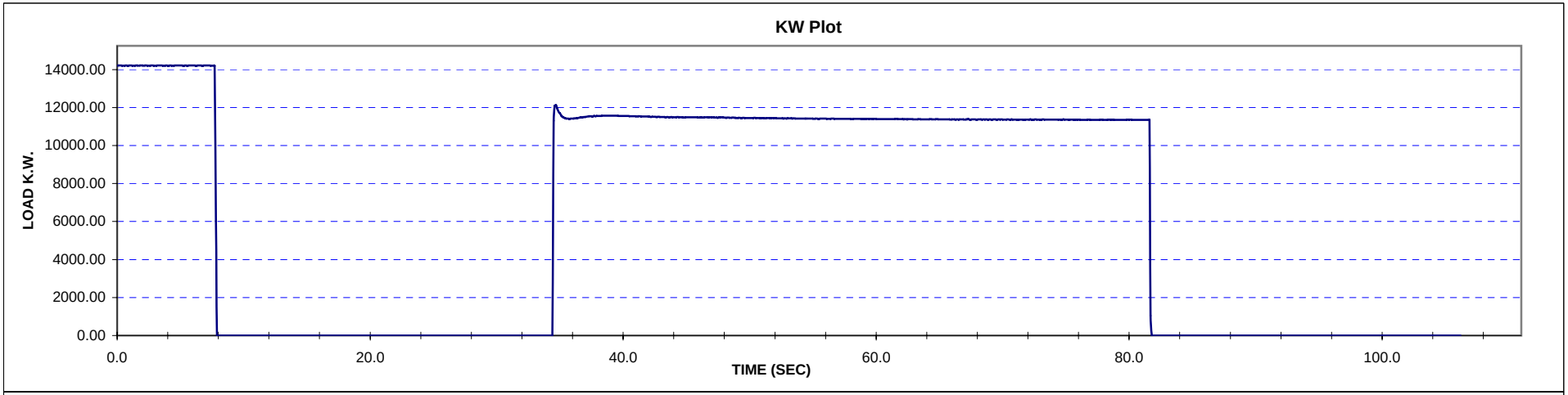
10/28/2012 07:32:40

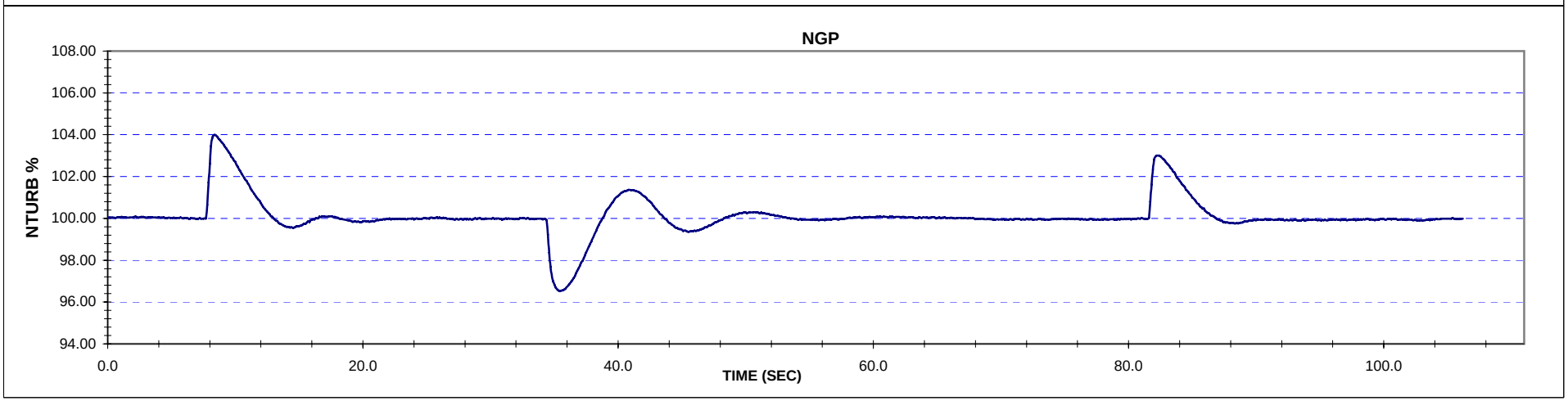
CUSTOMER NAME: SHL-SUN #2
PD NO: 3N061

UNIT NO: 2
ENG S/N: 0745L

CELL NO: 17
FUEL: GAS

RATED VOLTAGE: 6900
FULL OFFLOAD





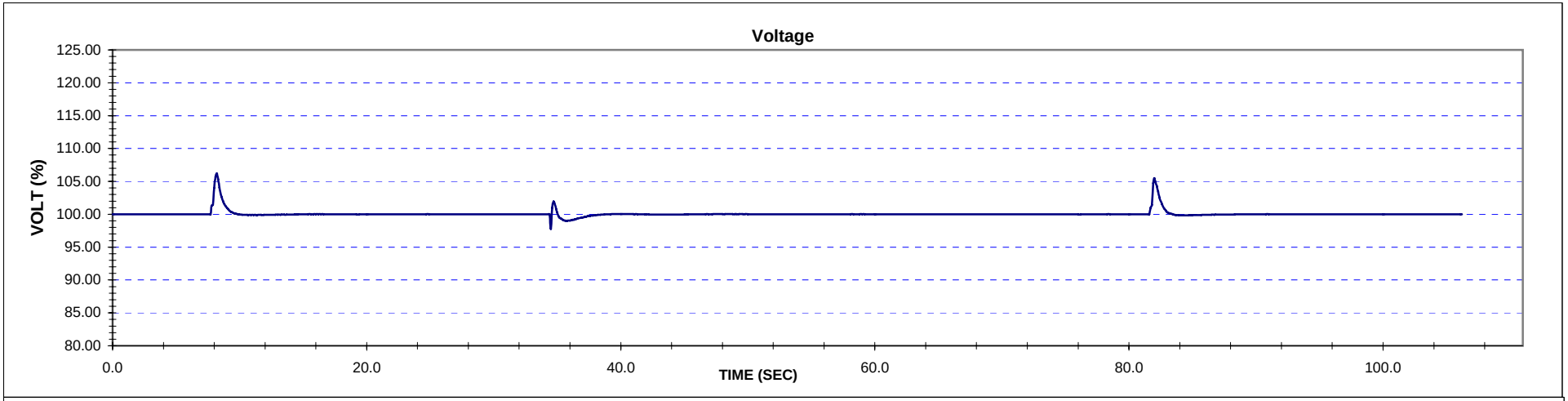
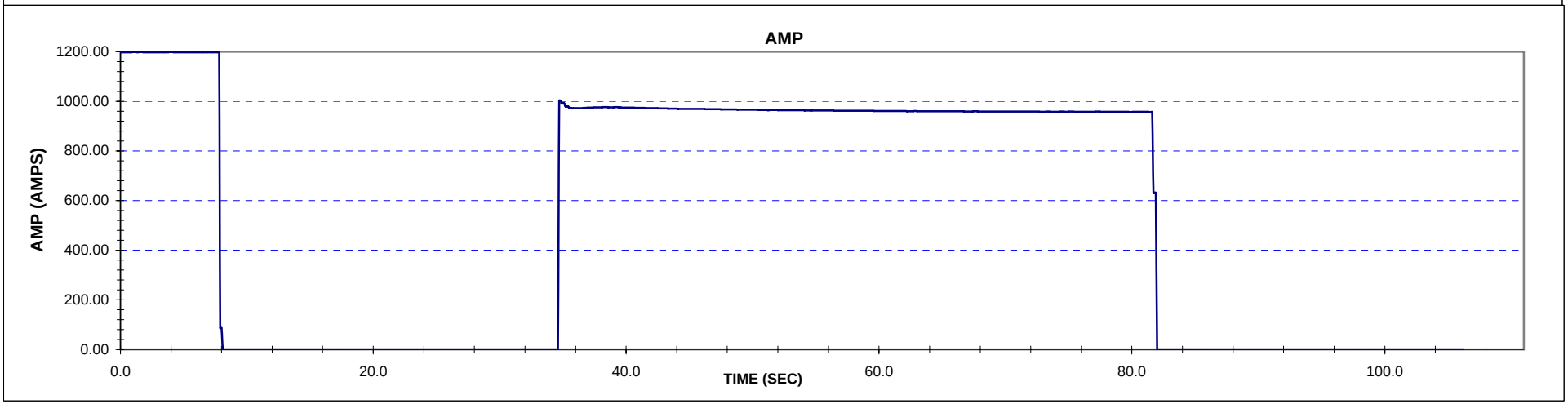
Solar® Turbines
A Caterpillar Company

Load Transient Analysis

10/28/2012 07:32:40

CUSTOMER NAME: SHL-SUN #2
PD NO: 3N061

UNIT NO: 2
ENG S/N: 0745L

CELL NO: 17
FUEL: GAS

RATED VOLTAGE: 6900
FULL OFFLOAD