

INCH-POUND

MIL-DTL-32496/1

08 APRIL 2014

DETAIL SPECIFICATION SHEET

GENERATOR SETS, SKID MOUNTED, TACTICAL

ADVANCED MEDIUM-SIZED MOBILE POWER SOURCES (AMMPS)

DIESEL FUEL DRIVEN, ALTERNATING CURRENT

5 KILOWATTS, 50/60 HERTZ

This specification is approved for use within US Army Research Development and Engineering Command, Communications and Electronics Research and Development Center, Product Realization Directorate, Department of the Army and is available for use by all Departments and Agencies of the Department of Defense.

The requirements for acquiring the product described herein shall consist of this specification sheet and MIL-DTL-32496.

1. SCOPE

1.1 Scope. This specification sheet covers the detail requirements for AMMPS generator sets, size 5 kW, mode I (50/60 Hz), MEP-1030, NSN 6115-01-561-7329.

2. SET RATING

2.1 Set rating. The set shall be reconnectable for the following voltage ratings:

	Voltage	Phase	Conductors
a.	120-volt	Single	2 wire
b.	120/240-volt	Single	3 wire
c.	120/208-volt	Three	4 wire

3. REQUIREMENTS

3.1 Requirements. Requirements for acquiring the product described herein shall consist of this document and MIL-DTL-32496.

3.2 Description. The set shall be IAW TA 30554-04-1030 and as specified herein.

AMSC N/A

FSC 6115

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

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3.3 Reliability. The minimum acceptable mean time between essential function failure (MTBEFF) for the set shall be 750 hours with an 80 percent lower confidence limit.

3.4 Size and weight. The maximum operating set dimensions with control panel doors closed and the total operational weight shall not exceed the following:

Parameter	Dimension
Length	1143 mm (45 inches)
Width	813 mm (32 inches)
Height	915 mm (36 inches)
Weight	367 kg (810 pounds)

3.5 Fuel consumption. Fuel consumption shall not be more than 1.438 l/h (0.38 gallons per hour [GPH]), nominal, when tested IAW paragraph 4.8.8 of the general specification.

3.6 Frequency regulation.

3.6.1 Frequency regulation (60 Hz). The frequency control system shall maintain the frequency within 3 percent of rated frequency for all loads from no load up to and including rated load.

3.6.2 Frequency regulation (50 Hz Single Unit and Parallel Operations). The frequency control system shall maintain the frequency within 0.5 percent of rated frequency for all loads from no load up to and including rated load

3.7 Frequency short-term stability (30 seconds). At every constant load from no load to rated load, the system shall maintain frequency within a bandwidth equal to 2 percent of rated frequency. The system shall not permit repetitive frequency variations, commonly called "hunting", even though within the allowable 2 percent band.

3.8 Frequency long-term stability (4 hours). At constant ambient temperature, constant barometric pressure, constant voltage, and any constant load from no load to rated load, the system shall maintain frequency within a bandwidth equal to 3 percent of rated frequency in a 4-hour operation period.

3.9 Frequency drift. With the regulation set at not more than 3 percent and with the set operating at constant load and voltage, a change in ambient temperature of up to 33C° (60F°) in an 8-hour period shall not cause the frequency to change by more than 3 percent, set temperature stabilization being accomplished at both the initial and final ambient temperature conditions.

3.10 Frequency transient performance.

3.10.1 Frequency transient performance in 60 Hz mode. Following any sudden increase in load, including from no load to rated load, the governing system shall re-establish stable set operation within 4 seconds, and the maximum transient frequency change below the new steady-state frequency (undershoot) shall be not more than 4 percent of rated frequency. Following any

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sudden decrease in load, including from rated load to no load, the governing system shall re-establish stable set operation within 4 seconds, and the maximum transient frequency change above the new steady-state frequency (overshoot) shall be not more than 4 percent of rated frequency.

3.10.2 Frequency transient performance in 50 Hz mode. Following any sudden increase in load, including from no load to rated load, the governing system shall re-establish stable set operation within 4 seconds, and the maximum transient frequency change below the new steady-state frequency (undershoot) shall be not more than 6.5 percent of rated frequency. Following any sudden decrease in load, including from rated load to no load, the governing system shall re-establish stable set operation within 4 seconds, and the maximum transient frequency change above the new steady-state frequency (overshoot) shall be not more than 6.5 percent of rated frequency.

3.10.3 Frequency transient performance while operating in parallel. Following any sudden increase in load, including from no load to rated load, the governing system shall re-establish stable set operation within 4 seconds, and the maximum transient frequency change below the new steady-state frequency (undershoot) shall be not more than 8.0 percent of rated frequency. Following any sudden decrease in load, including from rated load to no load, the governing system shall re-establish stable set operation within 4 seconds, and the maximum transient frequency change above the new steady-state frequency (overshoot) shall be not more than 8.0 percent of rated frequency.

3.11 Voltage waveform. There shall be no evident discontinuities, spikes, or notches in the waveform when viewed on an oscilloscope having a bandwidth of DC to 1.5 MHz and usable viewing screen of 8x10 cm. The oscilloscope gain shall be adjusted such that one cycle of voltage wave covers approximately the entire viewing screen. The deviation factor and any single voltage harmonic for the line-to-line and line-to-neutral voltage for each voltage connection and load connection shall be not more than specified in the following paragraphs.

3.11.1 Deviation factor. The deviation factor shall not exceed 6 percent in the single phase connections or 5 percent in the 3-phase, 120/208-volt connection.

3.11.2 Harmonics. Single frequency harmonics shall not exceed 3 percent in the single phase connections or 2 percent in the 3-phase, 120/208-volt connection.

3.12 Voltage unbalance. Maximum difference between line-to-line voltages shall be not more than 5 percent of rated voltage for the 120/208-volt connection under the conditions of a single phase, line-to-line unity PF-load of 25 percent rated current and no other load on the generator.

3.13 Phase balance voltage. With the set operating at rated voltage and frequency and no load, maximum difference in the three line-to-neutral voltages shall be not more than 1 percent of the rated line-to-neutral voltage when connected for 120/208-volt, 3-phase, 4 wire. The maximum difference between the voltage of the 120-volt windings of any phase shall not exceed 1 volt.

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3.14 Voltage regulation. The voltage regulation from no load to rated load and from rated load to no load shall be not more than 3 percent of the rated voltage for all voltage connections throughout the voltage ranges specified in paragraph 3.19.

3.15 Voltage short-term stability (30 seconds). At every constant load from no load to rated load, the voltage at the set terminals shall remain within a bandwidth equal to 2 percent of rated voltage.

3.16 Voltage long-term stability (4 hours). At constant ambient temperature, constant barometric pressure, constant frequency and any constant load from no load to rated load, the voltage shall remain within a bandwidth of 4 percent of rated voltage in a 4-hour operating period.

3.17 Voltage drift. With the set operating at constant load and frequency, a change in ambient temperature up to 33C° (60F°) in an 8-hour period shall not cause the voltage to change by more than 4 percent, set temperature stabilization being accomplished at both the initial and final ambient temperature conditions.

3.18 Voltage transient performance. Performance of the set under transient conditions shall be as follows (reactive droop compensation of the voltage regulator being inoperative):

3.18.1 Low power factor load. With the set initially operating at no load, rated voltage, and rated frequency, the terminal voltage of the set shall not drop to less than 60 percent of no load voltage when a balanced 3-phase, 0.4 PF (or less) lagging, static load having an impedance of 0.5 per unit, is suddenly applied to the output terminals of the set. When connected to the specified load, the output voltage shall recover to a minimum of 95 percent of rated voltage within 5 seconds and shall stabilize at or above this voltage. The above specified voltage dip shall not be exceeded when a fully-loaded induction motor of the above specified impedance is used in place of a static load, and no reactions shall be set up to prevent full acceleration of the motor with rated torque applied to its shaft.

3.18.2 Rated load. When the set is initially operating at rated frequency, rated voltage, and following any sudden change in load from no load to rated load, the instantaneous voltage shall not drop to less than 80 percent of rated voltage and shall reach stable conditions within 3 seconds; no overshoot or undershoot of the final voltage shall not exceed the initial voltage transient in amplitude. The above requirements shall also apply when the load is suddenly changed from rated load to no load, except that the initial voltage transient shall not exceed 130 percent of rated voltage.

3.18.3 Motor starting. The generator set shall be capable of across-the-line starting a motor rated at 1 horsepower per kW of set kW rating. The starting current rating of the motor shall be NEMA Code F and the motor shall be loaded with a flywheel having inertia equal to that of the motor rotor.

3.19 Voltage adjustment range. The minimum voltage adjustment range shall be:

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Voltage Connection	Range (60 Hz)	Range (50 Hz)
120/208-volt, 3-phase	205 to 240 volts	190 to 213 volts
120-volt, 1-phase	114 to 126 volts	114 to 122 volts
120/240-volt, 1-phase	228 to 252 volts	228 to 244 volts

This voltage adjustment range shall apply for all loads between no load and rated kW, rated power factor at rated frequency under all environmental conditions. It shall not be possible to adjust the voltage of a value that activates the over voltage protective device.

3.20 Endurance. The set shall operate for 3,600 hours without critical failure at all loads, continuous and intermittent, up to and including rated load under all of the individual or combination of conditions specified in paragraph 3.8.1 of the general specification.

3.21 Trailer compatibility. The set shall be capable of being operated and maintained as specified when mounted IAW specification slash sheets 11, 21, and 22.

3.22 Audio noise. Audio noise sound-pressure levels (SPL) emanating from the set shall not exceed 68 dBA at 7 meters from the perimeter of the set when measured at 1.2 meters above the ground. In addition, audio noise emanating from the set shall not exceed 85 dBA at the operator's station, defined to be 0.7 meters (2.3 feet) from the control panel, while the control panel door(s) are open. These requirements apply under all operating conditions specified herein with the set operating at all loads from the no-load to rated load.

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Concluding Material

Custodian:

Army - CR4

Review Activities:

DLA – GS

Preparing Activity:

Army - CR4
(Project 6115- 2014-030)

Note: The activities listed above were interested in this document as of the date of this document. Since organization and responsibilities can change, you should verify the currency of the information above using ASSIST Online @ <https://assist.dla.mil>.

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