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SEP 23 1994

ENGINEERING DATA TRANSMITTAL

1. EDT 608068

2. To: (Receiving Organization) Core Sampling	3. From: (Originating Organization) Characterization Equipment	4. Related EDT No.: N/A
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8. Originator Remarks: ETN-94-0023-D This Acceptance Test Procedure is transmitted for approval. The procedure was prepared by the Seller and will be performed at the Sellers location. It will show compliance with specification WHC-S-0252 Rev. 0.1 aAK 9-7-94		9. Equip./Component No.: N/A
11. Receiver Remarks:		10. System/Bldg./Facility: 200 General
		12. Major Assm. Dwg. No.: N/A
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		14. Required Response Date: 9/15/94

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I	WHC-SD-WM-ATP-105	N/A	0	Diesel Generator Trailer Acceptance Test Procedure	Q	I	I	I

16. KEY		
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E, S, Q, D or N/A (see WHC-CM-3-5, Sec. 12.7)	1. Approval 2. Release 3. Information 4. Review 5. Post-Review 6. Dist. (Receipt Acknow. Required)	1. Approved 2. Approved w/comment 3. Disapproved w/comment 4. Reviewed no/comment 5. Reviewed w/comment 6. Receipt acknowledged

17. SIGNATURE/DISTRIBUTION (See Approval Designator for required signatures)											
(G)	(H)	(J) Name (K) Signature (L) Date (M) MSIN				(J) Name (K) Signature (L) Date (M) MSIN				(G)	(H)
Reason	Disp.									Reason	Disp.
I	/	Cog. Eng. J.L. Smalley	<i>J.L. Smalley</i>	9/22/94	RI-17	OSTI (2)	<i>[Signature]</i>	18-07		3	
I	/	Cog. Mgr. R.J. Blanchard	<i>R.J. Blanchard</i>	9/22/94	RI-17						
I	/	QA J.J. Verdenber	<i>J.J. Verdenber</i>	9-22-94	SI-57						
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I	/	Core Sampling Cog. A.P. Mousel	<i>A.P. Mousel</i>	9-22-94	APM	57-12					
3		Central Files		18-04							

18. Signature of EDT Originator <i>AJ Kostelny</i> Date: 9-7-94	19. Authorized Representative for Receiving Organization AP Mousel See Block 17 Date: 9-22-94	20. Cognizant Manager <i>R.J. Blanchard</i> Date: 9/22/94	21. DOE APPROVAL (if required) Ctrl. No. <input type="checkbox"/> Approved <input type="checkbox"/> Approved w/comments <input type="checkbox"/> Disapproved w/comments
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**RELEASE AUTHORIZATION**

**Document Number:** WHC-SD-WM-ATP-105, REV 0

**Document Title:** Diesel Generator Trailer Acceptance Test Procedure

**Release Date:** 9/23/94

\* \* \* \* \*

**This document was reviewed following the  
procedures described in WHC-CM-3-4 and is:**

**APPROVED FOR PUBLIC RELEASE**

\* \* \* \* \*

**WHC Information Release Administration Specialist:**



Kara Broz

(Signature)

9/23/94

(Date)

# SUPPORTING DOCUMENT

1. Total Pages 13

2. Title

Diesel Generator Trailer Acceptance Test Procedure

3. Number

WHC-SD-WM-ATP-105

4. Rev No.

0

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Core Sampling, Diesel Generator, Specification  
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6. Author

Name: Alois J Kostelnik

Signature

Organization/Charge Code 7EA40/N457D

7. Abstract

**PUBLIC RELEASE**

This Acceptance Test Procedure (ATP) will document compliance with the requirements of WHC-S-0252 Rev.1 and ECNs 609271, and 609272. The equipment being tested is a 150KW Diesel Generator mounted on a trailer with switchgear. The unit was purchased as a Design and Fabrication procurement activity. The ATP was written by the Seller and will be performed by the Seller with representatives of the Westinghouse Hanford Company witnessing the test at the Seller's location.

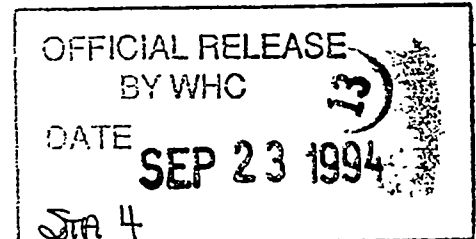
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10.

RELEASE STAMP



9. Impact Level Q

**MASTER**

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**1.0 Scope**

This acceptance test procedure is to verify that the trailer mounted 150KW Cummins/Onan Diesel Generator Set meets the requirements of Westinghouse Hanford specification WHC-S-0252.

**2.0 Test Performance**

Cummins Northwest will complete the following test in the order deemed best by Cummins personnel. Westinghouse Hanford Company (WHC) personnel shall witness all testing and shall perform the inspection portion of the test. All steps will be completed and any exceptions shall be noted on the attached exception sheet along with the resolution. Cummins Northwest shall resolve all exceptions with the concurrence of WHC.

**3.0 Inspection Plan**

3.1 Record the model and serial numbers of the Generator Set and Trailer.

GENERATOR SET	TRAILER

3.2 Verify by record review that the generator is capable of the following:

- \_\_\_\_\_ 3.2.1 3-phase, 4-wire, 277/480 VAC and single-phase 240/120 VAC.
- \_\_\_\_\_ 3.2.2 Operating frequency is 60 Hertz  $\pm$  0.5%.
- \_\_\_\_\_ 3.2.3 Standby Rating Range is 150KW @ 0.8 power factor.
- \_\_\_\_\_ 3.2.4 Prime Rating Range is 135KW @ 0.8 power factor.
- \_\_\_\_\_ 3.2.5 Voltage dip does not exceed 20% of rated voltage upon application of rated load at rated power factor.
- \_\_\_\_\_ 3.2.6 Voltage regulation under load from no load to 100% load is within  $\pm$  2% of rated voltage, ( $\pm$ 10 V).
- \_\_\_\_\_ 3.2.7 Frequency regulation under varying loads from no load to 100% load is within  $\pm$  3 Hz.

- 3.3 Verify the control panel contains the following:
- \_\_\_\_\_ 3.3.1 Run-Off-Auto switch: (Run: manually start engine) (Off: stop engine) (Auto: start engine by closing of a remote contact)
  - \_\_\_\_\_ 3.3.2 Accessible remote start-stop terminals.
- 3.4 Verify controls are provided to shutdown and lock out the engine under the following abnormal operating conditions:
- \_\_\_\_\_ 3.4.1 Engine failure to start after a specified cranking time.
  - \_\_\_\_\_ 3.4.2 Engine over-speed.
  - \_\_\_\_\_ 3.4.3 Engine low lube oil pressure.
  - \_\_\_\_\_ 3.4.4 Engine high operating temperature.
  - \_\_\_\_\_ 3.4.5 Remote manual stop activated.
- 3.5 Verify the following instrumentation is provided as a minimum:
- \_\_\_\_\_ 3.5.1 Engine lube oil pressure gauge.
  - \_\_\_\_\_ 3.5.2 Coolant temperature gauge.
  - \_\_\_\_\_ 3.5.3 Hour meter.
  - \_\_\_\_\_ 3.5.4 Battery volt meter.
  - \_\_\_\_\_ 3.5.5 Fuel gauge for day tank.
  - \_\_\_\_\_ 3.5.6 Cranking time meter (Internal timer, alarm light indicator)
  - \_\_\_\_\_ 3.5.7 Other instruments normally provided by the manufacturer for the proper operation and maintenance of their engine-generator set.
- 3.6 Verify battery-powered visual and audible alarms for the following condition as a minimum are provided. Verify alarm test switch, lamp test switch and alarm reset switch and contacts for each alarm for remote signaling are provided:
- \_\_\_\_\_ 3.6.1 Over-crank shutdown.
  - \_\_\_\_\_ 3.6.2 High engine temperature shutdown.
  - \_\_\_\_\_ 3.6.3 Low engine lube oil pressure shutdown.
  - \_\_\_\_\_ 3.6.4 Over-speed of engine shutdown.

3.7 Verify the generator AC power output monitoring and controls include the following as a minimum:

\_\_\_\_\_ 3.7.1 AC voltmeter with a phase selector switch with an OFF position.

\_\_\_\_\_ 3.7.2 AC ammeter with a phase selector switch with an OFF position.

\_\_\_\_\_ 3.7.3 Frequency meter.

\_\_\_\_\_ 3.7.4 AC voltage adjust rheostat.

\_\_\_\_\_ 3.7.5 Generator output circuit breaker with manual reset.

3.8 Verify the following equipment has been installed:

\_\_\_\_\_ 3.8.1 The basic trailer is provided with an electrical equipment rack located on the side of the engine-generator set enclosure that does not increase the total width dimension of the unit. The equipment rack is located for easy access but allows accessibility to the engine-generator set for maintenance and operation. All receptacles are on the same side of the generator and labels are mechanically fastened to the equipment with screws.

\_\_\_\_\_ 3.8.2 The distribution and wiring system have been installed per NFPA 70, National Electrical Code.

\_\_\_\_\_ 3.8.3 There is a 25KVA transformer on the unit to provide single phase power of 240/120 volt. The transformer has fault protection on the primary side.

\_\_\_\_\_ 3.8.4 A 100KW load bank is on the unit. The load bank is divided into 3 sections, 2 (two) 25KW and 1 (one) 50KW sections, which may be manually switched on individually as required to maintain the generator near 70% of capacity. The load bank is wired for operation in parallel with the normal load.



3.8.5 The electrical equipment furnished by the engine-generator set Supplier, mounted on the equipment rack outside of the engine-generator set enclosure, and wired to the generator output terminals via a 3-phase, 4-wire bus is as follows: (Rated current capacity of components shall not be less than the rating requested.)

\_\_\_\_\_ 3.8.5.1 One (1), 3-pole, 3-wire, 150 amp rated, 80 amp trip, 600 VAC, lockable circuit breaker. A 100 amp. receptacle is on the load side of the circuit breaker and is labeled as "**SERVICE TRAILER 240 VAC 80 AMPS**". The receptacle is an Appleton Cat. # ADR1034.

\_\_\_\_\_ 3.8.5.2 One (1), 3-pole, 3-wire, 150 amp rated, 50 amp trip, 600 VAC, time delay lockable circuit breaker. A 60 amp. receptacle is on load side of the circuit breaker and is labeled as "**BREATHING AIR COMPRESSOR 480 VAC 50 AMPS**". The receptacle is an Appleton Cat. # ADR6034.

\_\_\_\_\_ 3.8.5.3 One (1), 3-pole, 3-wire, 200 amp rated, 110 amp trip, 600 VAC, lockable circuit breaker. A 200 amp. receptacle to the load side of the circuit breaker and label receptacle as "**UTILITY 480 VAC 110 AMPS**". The receptacle is an Appleton Cat. # ADR20044.

\_\_\_\_\_ 3.8.5.4 One (1), 20 amp, 240 VAC, single receptacle, wired from a two pole, 20 amp breaker to be used for hookup of temporary power boxes. Labeled as "**240 VAC 20 AMPS**".

\_\_\_\_\_ 3.8.5.5 One (1), 20 amp, 120 VAC, duplex receptacle, wired from a single pole, 20 amp breaker with ground fault protection, to be used for hookup of temporary tools and lighting. Labeled as "**120 VAC 20 AMPS**".

\_\_\_\_\_ 3.8.5.6 One (1), 30 amp, 120 VAC, single receptacle, wired from a single pole, 30 amp breaker. Labeled as "**PURGE GAS TRAILER 120 VAC 30 AMPS**".

\_\_\_\_\_ 3.8.6 The unit has grounding rods and a 100 foot cable to allow grounding to a ground grid.

3.9 Verify the following engine-generator trailer requirements are satisfied:

- \_\_\_\_\_ 3.9.1 The engine-generator set including all accessories are mounted on a heavy duty type trailer designed for use in construction, communications, and utility applications.
- \_\_\_\_\_ 3.9.2 The trailer meets Department of Transportation (DOT) requirements for highway travel. (DOT Certification)
- \_\_\_\_\_ 3.9.3 Vibration isolators are used between the engine-generator set and the trailer.
- \_\_\_\_\_ 3.9.4 The trailer is equipped with running lights, brake lights, safety brake, stabilizer jack on each corner; a front wheel jack with wheel; and hitches.
- \_\_\_\_\_ 3.9.5 The trailer has a 2 3/4 inch Lunette hitch with vertical adjustment.
- \_\_\_\_\_ 3.9.6 The underside of the trailer is undercoated for rust protection.
- \_\_\_\_\_ 3.9.7 The trailer has hydraulic surge type brakes.
- \_\_\_\_\_ 3.9.8 The generator is within an enclosure and the enclosure is lined with sound deadening material.
- \_\_\_\_\_ 3.9.9 The instruments and controls are vibration isolated to prevent gauge and control malfunction.

3.10 Verify the following engine requirements are satisfied:

- \_\_\_ 3.10.1 Diesel fuel engine.
- \_\_\_ 3.10.2 Engine shall be electric start from negative grounded battery supplied.
- \_\_\_ 3.10.3 Battery shall be charged with alternator having automatic voltage regulation supplied with engine.
- \_\_\_ 3.10.4 A fuel tank is on the unit that will supply fuel for the engine to operate at full load for at least 24 hours. (Capacity \_\_\_ gal, Consumption rate \_\_\_ gal/hr)
- \_\_\_ 3.10.5 Two (2) stage dry type air cleaner with a restriction gauge.
- \_\_\_ 3.10.6 Furnished with the capability for cold weather starting such as electric glow plugs. Engine hot start 1500 watt, 110 volt heater.
- \_\_\_ 3.10.7 Record the freeze point of the engine antifreeze. (\_\_\_ °F)
- \_\_\_ 3.10.8 Drip pan to catch fuel or oil leaks.
- \_\_\_ 3.10.9 Painted inside and out. Exterior is White.
- \_\_\_ 3.10.10 Verify there are no Suspect Fasteners as identified on the U.S. Custom's Fasteners Headmark List.
- \_\_\_ 3.10.11 Verify all visible welds are acceptable per AWS D1.1.

#### 4.0 Run Test

4.1 No Load Cold start: Verify that the engine starts and comes to 1800 ±9 rpm in the specified time. (MFR \_\_\_ - \_\_\_ sec.)

- \_\_\_ 4.1.1 Switch Run-Off-Auto switch to Run.  
(Time from close of contacts to 1800 rpm \_\_\_ sec.)
- 4.1.2 Verify the following instrumentation is functional and the value indicated is within the range specified by the manufacturer:
  - \_\_\_ 4.1.2.1 Engine lube oil pressure gauge.  
(\_\_\_ psi, MFR \_\_\_ - \_\_\_ psi)
  - \_\_\_ 4.1.2.2 Coolant temperature gauge.  
(\_\_\_ °F, MFR \_\_\_ - \_\_\_ °F)

- \_\_\_\_\_ 4.1.2.3 Hour meter.  
(\_\_\_\_ hrs)
  - \_\_\_\_\_ 4.1.2.4 Battery volt meter.  
(\_\_\_\_ volts, MFR \_\_\_\_ - \_\_\_\_ volts)
  - \_\_\_\_\_ 4.1.2.5 Fuel gauge for day tank.  
(\_\_\_\_\_ level)
  - \_\_\_\_\_ 4.1.2.6 Other instruments normally provided by the manufacturer for the proper operation and maintenance of their particular engine-generator set.
- \_\_\_\_\_ 4.1.3 Record and with a sound meter the generator noise level at the electrical control panel and verify that it is less than 85 decibels. \_\_\_\_\_ decibels.
- 4.2 Loaded Cold start with Remote/Auto start: Verify, with the 100 KW load bank on line, that the engine starts, comes to  $1800 \pm 9$  rpm, and the load is automatically switched on-line in the specified time. (MFR \_\_\_\_ - \_\_\_\_ sec.)
- \_\_\_\_\_ 4.2.1 Switch Run-Off-Auto switch to Auto.
  - \_\_\_\_\_ 4.2.2 Close contacts on a temporarily installed switch.  
(Time from close of contacts to load on-line. \_\_\_\_ sec.)
  - \_\_\_\_\_ 4.2.3 Switch Run-Off-Auto switch to Off. (Remove temporary switch.)
- 4.3 Verify controls shutdown and lock out the engine under the following simulated abnormal operating conditions. (Temporarily install contacts and jumpers as required to simulate conditions. Restart the generator between each alarm test.) Verify alarm test switch, lamp test switch and alarm reset switch are operational:
- \_\_\_\_\_ 4.3.1 Engine failure to start after a specified cranking time, with alarm.
  - \_\_\_\_\_ 4.3.2 Engine over-speed, with alarm.
  - \_\_\_\_\_ 4.3.3 Engine low lube oil pressure, with alarm.
  - \_\_\_\_\_ 4.3.4 Engine high operating temperature, with alarm.
  - \_\_\_\_\_ 4.3.5 Remote manual stop activated. (Located on distribution panel).

4.4 Verify proper operation of the generator, power distribution components and load bank according to the manufacturer's supplied information. (For load bank test operate for 15 minutes at each step prior to recording information.)

4.4.1 Step 1 (25KW Resistive Load for 15 min.)

\_\_\_ 4.4.1.1 Amperage 1\_\_\_, 2\_\_\_, 3\_\_\_ amps

\_\_\_ 4.4.1.2 Voltage 1-2\_\_\_, 2-3\_\_\_, 1-3\_\_\_

\_\_\_ 4.4.1.3 Frequency \_\_\_Hz

\_\_\_ 4.4.1.4 Oil Pressure \_\_\_psi

\_\_\_ 4.4.1.5 Water Temperature \_\_\_°F

4.4.2 Step 2 (50KW Resistive Load for 15 min.)

\_\_\_ 4.4.2.1 Amperage 1\_\_\_, 2\_\_\_, 3\_\_\_ amps

\_\_\_ 4.4.2.2 Voltage 1-2\_\_\_, 2-3\_\_\_, 1-3\_\_\_

\_\_\_ 4.4.2.3 Frequency \_\_\_Hz

\_\_\_ 4.4.2.4 Oil Pressure \_\_\_psi

\_\_\_ 4.4.2.5 Water Temperature \_\_\_°F

4.4.3 Step 3 (100KW Resistive Load for 15 min.)

\_\_\_ 4.4.3.1 Amperage 1\_\_\_, 2\_\_\_, 3\_\_\_ amps

\_\_\_ 4.4.3.2 Voltage 1-2\_\_\_, 2-3\_\_\_, 1-3\_\_\_

\_\_\_ 4.4.3.3 Frequency \_\_\_Hz

\_\_\_ 4.4.3.4 Oil Pressure \_\_\_psi

\_\_\_ 4.4.3.5 Water Temperature \_\_\_°F

4.4.4 Verify voltage and clockwise phase rotation as noted for the following:

\_\_\_ 4.4.4.1 UTILITY 480 VAC 110 AMPS outlet

4.4.4.1.1 Phase rotation \_\_\_\_\_

4.4.4.1.2 Voltage 1-2\_\_\_, 2-3\_\_\_, 1-3\_\_\_

- \_\_\_\_ 4.4.4.2 SERVICE TRAILER 240 VAC 80 AMPS outlet
- 4.4.4.2.1 Voltage 1-2\_\_\_\_
- \_\_\_\_ 4.4.4.3 BREATHING AIR COMPRESSOR 480 VAC 50 AMPS outlet
- 4.4.4.3.1 Phase rotation \_\_\_\_\_
- 4.4.4.3.2 Voltage 1-2\_\_\_\_, 2-3\_\_\_\_, 1-3\_\_\_\_
- \_\_\_\_ 4.4.4.4 240 VAC 20 Amp Single Receptacle
- 4.4.4.4.1 Voltage \_\_\_\_\_
- \_\_\_\_ 4.4.4.5 120 VAC 20 Amp Duplex Receptacle
- 4.4.4.5.1 Voltage \_\_\_\_\_
- \_\_\_\_ 4.4.4.6 PURGE GAS TRAILER 120 VAC 30 Amp Single Receptacle
- 4.4.4.6.1 Voltage \_\_\_\_\_
- \_\_\_\_ 4.4.5 Switch Run-Off-Auto switch to Off.
- 4.5 No load hot start: Verify that the engine starts and comes to 1800 rpm in the specified time. (MFR \_\_\_\_\_ - \_\_\_\_\_ sec.)
- \_\_\_\_ 4.5.1 Switch Run-Off-Auto switch to Run. Time \_\_\_\_\_ sec.
- \_\_\_\_ 4.5.2 Switch Run-Off-Auto switch to Off.
- 4.6 Loaded hot start: Verify, with the 100 KW load bank on line, that the engine starts, comes to 1800 ±9 rpm, and the load is automatically switched on-line in the specified time. (MFR \_\_\_\_\_ - \_\_\_\_\_ sec.)
- \_\_\_\_ 4.6.1 Switch Run-Off-Auto switch to Run.  
(Time from close of contacts to load on-line. \_\_\_\_\_ sec.)
- \_\_\_\_ 4.6.2 Switch Run-Off-Auto switch Off.



SUSPECT FASTENER HEADMARK LIST



Help Stamp Out Suspects/Counterfeits



Suspect Fastener Headmark List

All Grade 5 and Grade 8 fasteners of foreign origin which do not bear any manufacturers' headmarks:



Grade 5 fasteners with the following Manufacturers' headmarks:

Mark	Manufacturer	Mark	Manufacturer
	J Jinn Her (TW)		KS Kosaka Kogyo (JP)

Grade 8 fasteners with the following Manufacturers' headmarks:

Mark	Manufacturer	Mark	Manufacturer
	A Asahi Mfg (JP)		KS Kosaka Kogyo (JP)
	NF Nippon Fasteners (JP)		RT Takai Ltd (JP)
	H Hinomoto Metal (JP)		FM Fastener Co. of Japan (JP)
	M Minamida Sleybo (JP)		KY Kyoei Mfg (JP)
	MS Minato Kogyo (JP)		J Jinn Her (TW)
	Hollow Triangle Infasco (CA, TW, JP, YU) (Greater than 1/2-inch diameter Grade 8 Hollow Triangle only)		
	E Dalei (JP)		UNY Unyite (JP)

Grade 8.2 fasteners with the following headmarks:

Mark	Manufacturer
	KS Kosaka Kogyo (JP)

Grade A325 fasteners (Bennett Denver target only) with the following headmarks:

Type	Mark	Manufacturer
Type 1		A325 KS Kosaka Kogyo (JP)
Type 2		
Type 3		

Key: CA-Canada, JP-Japan, TW-Taiwan, YU-Yugoslavia

Any bolt on this list should be treated as defective without further testing.