ATTACHED IS THE COMPLETED ACCEPTANCE TEST PERFORMED AT THE VENDOR'S LOCATION FOR THE NEW SPARE 150KW PORTABLE GENERATOR.

15. DATA TRANSMITTED

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<tr>
<th>(A) Item No.</th>
<th>(B) Document/Drawing No.</th>
<th>(C) Sheet No.</th>
<th>(D) Rev. No.</th>
<th>(E) Title or Description of Data Transmitted</th>
<th>Approval Designator</th>
<th>Reason for Transmittal</th>
<th>Originator Disposition</th>
<th>Receiver Disposition</th>
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16. KEY

- E, S, Q, D or N/A (see WHC-CM-3-5, Sec.12.7)
  - 1. Approval
  - 2. Release
  - 3. Information
  - 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)

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<th>(I) Name</th>
<th>(K) Signature</th>
<th>(L) Date</th>
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<td>G. P. JANICEK</td>
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<td>N/A</td>
<td>Env.</td>
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18. Signature of EDT Originator

B.R. JOHNS

19. Authorized Representative Date for Receiving Organization

J. S. SCHOFIELD

20. Design Authority/ Cognizant Manager

G. P. JANICEK

21. DOE APPROVAL (if required)

- [ ] Approved
- [ ] Approved w/comments
- [ ] Disapproved w/comments

BD-7400-172-2 (05/96) GEF097
GENERATOR ACCEPTANCE TEST AND INSPECTION REPORT

B. R. JOHNS
SGN Eurisys Services Corporation, Richland, WA 99352
U.S. Department of Energy Contract DE-AC06-96RL13200

EDT/ECN: 620241 Org Code: 08E00 B&R Code: EW3120074
UC: 2070 Charge Code: N4H3B Total Pages: 34

Key Words: GENERATORS, ELECTRICAL DISTRIBUTION, POWER, CORE SAMPLING, CHARACTERIZATION

Abstract: This Acceptance Test Report (ATR) is the completed testing and inspection of the new portable generator. The testing and inspection is to verify that the generator provided by the vendor meets the requirements of specification WHC-S-0252, Revision 2. Attached is various other documentation to support the inspection and testing.

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Approved for Public Release

A-6400-073 (10/95) EF321
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APPENDICES: GENERATOR ACCEPTANCE TEST AND RELATED DOCUMENTATION ................................................................. 3
1.0 INTRODUCTION

The purpose of this test report is to document the inspection and testing of the new 150KW portable generator. A formal inspection and acceptance test plan (Johns, 1997) was performed at the vendor's location to verify that the generator met the required specification (Johns, 1996). Inspection and testing were completed on June 30, 1997. Engineering, quality control and maintenance representing the Characterization Project witnessed the performance of the test by the vendor. Inspections were performed by Characterization quality control, engineering and a National Electrical Code (NEC) inspector.

2.0 DESCRIPTION OF TEST

The acceptance test plan was performed on one portable 150KW generator at Cummins Northwest located in Renton, Washington. This generator is a model 150DGFA, with serial number K960624099. The test verified the proper functioning of the generator unit and correct voltage outputs required by the specification. Inspections were to verify that the unit was constructed per the procurement specification.

3.0 TEST METHOD AND TEST EQUIPMENT

The testing method was to verify that the diesel engine, load bank and generator functioned correctly by operating the unit. Gauges were monitored to verify the unit operated within the desired parameters. Voltage measurements were taken to verify correct outputs. The vendor performed the testing with calibrated digital voltmeters as identified on pages 15 and 20.
4.0 TEST RESULTS

The test was successfully completed and all exceptions satisfactorily resolved to allow shipment of the generator site from the vendor. A copy of the completed and signed test is in the appendices. All the NEC discrepancies found on the initial inspection were resolved to the inspector’s satisfaction and an NEC inspection sticker was placed on the generator unit.

Exceptions found during the inspection and acceptance testing are listed in the Appendix B of the original acceptance test plan, pages 17 and 18 of this report. Of the sixteen exceptions, fifteen were corrected and verified at the vendor’s location. Exception #16 was required updating of the vendor’s drawings showing the electrical layout of the trailer. The resolution of this exception was for the drawings to be revised and reviewed by the engineer when the generator was received on the Hanford site. This drawing review is part of the Receipt Inspection Plan and the engineer must approve the drawings prior to the generator being accepted by Quality Control and green tagged.

5.0 CONCLUSIONS AND RECOMMENDATIONS

The 150KW generator unit is considered ready for field use when received from the vendor. No further testing is necessary on the unit before deploying to the field.

6.0 DISPOSITION OF TEST ITEM

The generator unit will receive an inspection when arriving on site to verify the correct serial number and no damage during shipping. Engineering will review the generator drawings from the vendor as part of the inspection plan. An “HO” number and licensing must be added to the unit when brought on site.

7.0 REFERENCES


APPENDICES: GENERATOR ACCEPTANCE TEST AND RELATED DOCUMENTATION

GENERATOR ACCEPTANCE TEST: pages 4 through 20.

TEST LOG: pages 21 through 24.

RECEPTACLE EQUIVALENTS: page 25.

HANFORD 150KW TRAILER: pages 26 through 27.

TRAILER CERTIFICATION: pages 28 through 29.

TRAILER WEIGHT: page 30.

NEC INSPECTION REPORT: pages 31 through 32.
1.0 Scope

This Acceptance Test Procedure (ATP) verifies that the trailer mounted 150KW Cummins/Onan Diesel Generator Set meets the requirements of Westinghouse Hanford specification WHC-S-0252, Revision 2.

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 shall be accomplished and 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 engine, generator set and trailer.

<table>
<thead>
<tr>
<th>ITEM</th>
<th>MODEL NO.</th>
<th>SERIAL NO.</th>
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</thead>
<tbody>
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<td>ENGINE</td>
<td>6CTA8.3-G</td>
<td>45431256</td>
</tr>
<tr>
<td>GENERATOR SET</td>
<td>150DGFA</td>
<td>K960624099</td>
</tr>
<tr>
<td>TRAILER</td>
<td>N-2431</td>
<td>V/N#D9U51525V5151982</td>
</tr>
</tbody>
</table>

3.2 A National Electrical Code (NEC) inspection is to be performed by an inspector of WHC's choosing. Inspection is to include, but is not limited to correct wire sizes, proper grounding, proper mounting of electrical panels and breakers, proper clearances for electrical equipment, and proper conduit sizes.

3.2.1 An NEC inspection sticker is placed on the unit upon completion of the inspection and all discrepancies resolved to the inspector's satisfaction.

Exception #1

Exceptions completed: 6/30/97

BR
3.3 Verify by record and/or physical review that the generator is capable of the following:

**Exception #16**

✓ 3.3.1 3-phase, 4-wire, 277/480 VAC and single-phase 240/120 VAC.
✓ 3.3.2 Nominal operating frequency is 60 Hertz ± 0.5%.
✓ 3.3.3 Standby Rating Range is 150KW @ 0.8 power factor.

**Exception #12**

✓ 3.3.4 Prime Rating Range is 135KW @ 0.8 power factor.
✓ 3.3.5 Voltage dip does not exceed 20% of rated voltage upon application of rated load at rated power factor. 17%
✓ 3.3.6 Voltage regulation under load from no load to 100% load is within ±2% of rated voltage, (±10 V). 1%
✓ 3.3.7 Frequency regulation under varying loads from no load to 100% load is within ±3 Hz.

Items in section 3.3 verified.

Bruce John	5/28/97

BUYER'S ENGINEER	DATE

3.4 Verify the control panel contains the following:

✓ 3.4.1 Run-Stop-Remote switch: (Run: manually start engine) (Stop: stop engine) (Remote: start engine by closing of a remote contact)
✓ 3.4.2 Accessible remote start-stop terminals.

3.5 Verify controls are provided to shutdown and lock out the engine under the following abnormal operating conditions:

✓ 3.5.1 Engine failure to start after a specified cranking time as recommended by the vendor of 3 cycles of 16 seconds on and 16 seconds off.
✓ 3.5.2 Engine over-speed.
✓ 3.5.3 Engine low lube oil pressure.
✓ 3.5.4 Engine high operating temperature.

**Exception #2**

✓ 3.5.5 Remote manual stop activated.
3.6 Verify the following instrumentation is provided as a minimum:

- 3.6.1 Engine lube oil pressure gauge.
- 3.6.2 Coolant temperature gauge.
- 3.6.3 Cranking time meter.
- 3.6.4 Hour meter.
- 3.6.5 Battery charge-rate ammeter.
- 3.6.6 Fuel gauge for day tank.
- 3.6.7 Other instruments normally provided by the manufacturer for the proper operation and maintenance of their particular engine-generator set.

   - 1. Pre High engine operating temperature.
   - 2. Pre Low lube oil pressure.

3.7 Verify battery-powered visual alarms for the following condition as a minimum are provided. Verify lamp test switch and alarm reset switch and contacts for each alarm for remote signaling are provided:

- 3.7.1 Over-crank shutdown.
- 3.7.2 High engine temperature shutdown.
- 3.7.3 Low engine lube oil pressure shutdown.
- 3.7.4 Over-speed of engine shutdown.

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

- 3.8.1 AC voltmeter with a phase selector switch with an OFF position.
- 3.8.2 AC ammeter with a phase selector switch with an OFF position.
- 3.8.3 Frequency meter.
- 3.8.4 AC voltage adjust rheostat.
- 3.8.5 Generator output circuit breaker with manual reset.
Items in sections 3.4, 3.5, 3.6, 3.7, and 3.8 verified.

Bruce L. Johns  5/28/97
Buyer's Engineer  Date

P.J. Culverdor*  5/28/97
QC Inspector *WITH EXCEPTIONS #2, 3, 4 AS NOTED.  Date

3.9 Verify the following equipment has been installed:

3.9.1 The basic trailer is provided with an electrical equipment rack located on the rear 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 fasten to the equipment with screws.

3.9.2 The distribution and wiring system have been installed per NFPA 70, National Electrical Code and an NEC inspection sticker is on the unit. STICKER # 8072

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

3.9.4 A 100KW load bank is on the unit. The load bank is divided into 2 sections, 2 (two) 50KW sections, which have an automatic, off and manual switch positions. The load bank is wired for operation in parallel with the normal load.

3.9.5 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.)

3.9.5.1 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.

---

1 Appleton is a register name for Appleton Electric Company, Chicago, Illinois
3.9.5.2 Exception #8

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.

3.9.5.3 Exception #9

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. # AR20044.

3.9.5.4 Exception #10

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

3.9.5.5 Exception #11

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".

3.9.6 Exception #11

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

3.9.6 The unit has 5/8" diameter by 10' long grounding rods and a 100 foot of #6AWG (minimum) cable to allow grounding to a ground grid. (IS #4AWG cable)

Items in section 3.9 verified.

Buyer's Engineer

P.J. Edmundson

QC Inspector

6/30/97

6/30/97
3.10 Verify the following engine-generator trailer requirements are satisfied:

✓ 3.10.1 The engine-generator set including all accessories are mounted on a heavy duty type trailer designed for use in construction, communications, and utility applications.

✓ 3.10.2 The trailer meets Department of Transportation (DOT) requirements for highway travel. (DOT Certification)

✓ 3.10.3 Vibration isolators are used between the engine-generator set base and the trailer.

✓ 3.10.4 The trailer is equipped with running lights, brake lights, safety brake, stabilizer jack on each corner; a front wheel jack with wheel; and hitches.

✓ 3.10.5 The trailer has a 2 3/4 inch Lunette hitch with vertical adjustment.

✓ 3.10.6 The underside of the trailer is undercoated for rust protection. Ref. DWS. N-2431 sh.1

✓ 3.10.7 The trailer has hydraulic surge type brakes.

✓ 3.10.8 The generator is within an enclosure.

✓ 3.10.9 The instruments and controls are vibration isolated to prevent gauge and control malfunction.

✓ 3.10.10 Verify gross weight of unit is below the maximum gross weight limit of the trailer.

Weighted existing generator HO-74-4984 (C-8) on the scales at 1163 building (downtown) with generator full of fuel, weight was 10,700 lbs. Gross weight limit is 12,000 lbs. Therefore, unit weight is below gross weight limit and acceptable. Bjoern 6/6/97
3.11 Verify the following engine requirements are satisfied:

- 3.11.1 Diesel fuel engine.
- 3.11.2 Engine shall be electric start from negative grounded battery supplied.
- 3.11.3 Battery shall be charged with alternator having automatic voltage regulation supplied with engine.
- 3.11.4 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 250 gal, Consumption rate 9.7 gal/hr)
- 3.11.5 Two (2) stage dry type air cleaner with a restriction gauge.
- 3.11.6 Furnished with the capability for cold weather starting such as electric glow plugs. Engine hot start 1500 watt, 110 volt heater.
- 3.11.7 Drip pan to catch fuel or oil leaks.
- 3.11.8 Painted inside and out. Exterior is White.
- 3.11.9 Verify there are no Suspect Fasteners as identified on the U.S. Custom's Fasteners Headmark List.

3.11.10 Check the general appearance of all welds that are visible for good workmanship.

Items in sections 3.10 and 3.11 are verified.

[Signatures and dates]

Buyer's Engineer: [Signature] 6/30/97

QC Inspector: [Signature] 6/30/97
4.0 Run Test

4.1 No Load Cold start: Verify that the engine starts and comes to 1800 rpm in the specified time. (Manufactures Recommendation (MFR) 0 - 10 sec.)

4.1.1 Switch Run-Stop-Remote switch to Run. (Time from close of contacts to 1800 rpm 3.5 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. (20 psi, MFR 10 - 75 psi)
   4.1.2.2 Coolant temperature gauge. (110 °F, MFR 80 - 230 °F)
   4.1.2.3 Hour meter. (1.2 hrs)
   4.1.2.4 Battery charge-rate voltmeter. (28 volts, MFR 24 - 30 volts)
   4.1.2.5 Fuel gauge for day tank. (~½ full level)

4.1.3 Measure and record with a sound meter the noise level around the generator set. (This check is for information only.)

   4.1.3.1 90 decibels near control panel.
   4.1.3.2 90 decibels near left side of unit. (Main BCR SIDE)
   4.1.3.3 102 decibels near right side of unit.
   4.1.3.4 104 decibels near front (hitch end) of unit.

Verify Section 4.1 completed.

P/C Emmeurdf 5.29.97
QC Inspector Date
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 rpm, and the load is automatically switched on-line in the specified time. (MFR 0 - 10 sec.)

4.2.1 Switch Run-Stop-Remote switch to Remote.

4.2.2 Close contacts on a temporarily installed switch. (Time from close of contacts to load on-line. 4 sec.)

4.2.3 Switch Run-Stop-Remote switch to Stop. (Remove temporary switch.)

Verify Section 4.2 completed.

P.J. Fleming 5.29.97
QC Inspector

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. Attempt to restart engine after each alarm is activated to verify that the engine is locked out and will not restart. Restart the generator after each alarm is cleared.) Verify alarms, lamp test switch and alarm reset switch are operational:

4.3.1 Engine failure to start after a specified cranking time, with alarm light. (Cranking time is 3 cycles of 16 seconds of cranking followed by a 16 seconds wait.)

4.3.2 Engine over-speed, with alarm light.

4.3.3 Engine low lube oil pressure, with alarm light.

4.3.4 Engine high operating temperature, with alarm light.

4.3.5 Remote manual stop activated. (Temporary switch).

Verify section 4.3 completed.

P.J. Fleming 5.29.97
QC Inspector
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.) (Generator to be located for highest possible ambient temperature, but not to exceed 110°F.)

4.4.1 Step 1 (50KW Resistive Load for 15 min.)

- **4.4.1.1** Amperage 160, 260, 360 amps
- **4.4.1.2** Voltage 1-2412, 2-3412, 1-3412 (480V AFTER METER REPLACED)
- **4.4.1.3** Frequency 60 Hz
- **4.4.1.4** Oil Pressure 70 psi
- **4.4.1.5** Water Temperature 165°F

**EXCEPTION #13**

4.4.2 Step 2 (Second 50KW Resistive Load for a total of 100KW Resistive Load for 15 min.)

- **4.4.2.1** Amperage 1120, 2117, 3117 amps
- **4.4.2.2** Voltage 1-2425, 2-3422, 1-3422 (480V AFTER METER REPLACED)
- **4.4.2.3** Frequency 59 Hz
- **4.4.2.4** Oil Pressure 70 psi
- **4.4.2.5** Water Temperature 165°F

**EXCEPTION #13**

4.4.3 Continue run with Resistive Load at full power for 5 hours to verify proper operation of unit.

- **4.4.3.1** Start time. 11:35
- **4.4.3.2** Environmental conditions: Amb. Temperature 75°F

Describe location and weather conditions: Cloudy, light rain at times, cool, hump.
4.4.3.3 Stop time.  15:35

4.4.3.4 No overheating of Resistive Load Bank.

4.4.3.5 No overheating of diesel engine.

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 CW
   4.4.4.1.2 Voltage 1-2 484, 2-3 484, 1-3 484

4.4.4.2 SERVICE TRAILER 240 VAC 80 AMPS outlet
   4.4.4.2.1 Voltage 1-2 240,3

4.4.4.3 BREATHING AIR COMPRESSOR 480 VAC 50 AMPS outlet
   4.4.4.3.1 Phase rotation CW
   4.4.4.3.2 Voltage 1-2 484, 2-3 485, 1-3 485

4.4.4.4 240 VAC 20 Amp Single Receptacle
   4.4.4.4.1 Voltage 240,3

4.4.4.5 120 VAC 20 Amp Duplex Receptacle
   4.4.4.5.1 Voltage 120.5

4.4.4.6 PURGE GAS TRAILER 120 VAC 30 Amp Single Receptacle
   4.4.4.6.1 Voltage 120.5

4.4.5 Switch Run-Stop-Remote switch to Stop.

4.5 No load hot (near normal run temperature) start: Verify that the engine starts and comes to 1800 rpm in the specified time. (MFR 0 - 10 sec.)

4.5.1 Switch Run-Stop-Remote switch to Run.  Time 3.5 sec.

4.5.2 Switch Run-Stop-Remote switch to Stop.
4.6 Loaded hot (near normal run temperature) start: Verify, with the 100 KW load bank on line, that the engine starts, comes to 1800 rpm, and the load is automatically switched on-line in the specified time. (MFR 0 - 10 sec.)

4.6.1 Switch Run-Stop-Remote switch to Run. (Time from close of contacts to load on-line. 3.5 sec.)

4.6.2 Switch Run-Stop-Remote switch Stop.

Verify sections 4.4 and 4.5 completed.

5.0 Inspection and Test Completion:

Inspections and tests on the portable generator unit are completed. All exceptions have been resolved. (It is acceptable for exceptions to be verified upon receipt of the unit at the buyers location provided WHC engineer and QC agree.) The generator is ready for shipment.

All exceptions resolved except #16. Engineer to receive connected electrical drawings and verify drawings are correct. BRJ

Buyer's Engineer Date

Instruments Used:

Phase Sequence Indicator
Knopp Model K3

Fluke 87
WQL #819-45-08-003
CAL. DUE 4-9-98
# Appendix A

## 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:

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<th>Grade 5</th>
<th>Grade 8</th>
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Grade 5 fasteners with the following Manufacturers' headmarks:

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<th>Manufacturer</th>
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<td>J</td>
<td>Jinn Her (TW)</td>
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<tr>
<td>KS</td>
<td>Kosaka Kogyo (JP)</td>
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Grade 8 fasteners with the following Manufacturers' headmarks:

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<td>FM</td>
<td>Fastener Co. of Japan (JP)</td>
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<td>MS</td>
<td>Minato Kogyo (JP)</td>
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<td>UNY</td>
<td>Unylite (JP)</td>
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Grade 8.2 fasteners with the following headmarks:

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<td>KS</td>
<td>Kosaka Kogyo (JP)</td>
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</table>

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

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<td>A325 KS Kosaka Kogyo (JP)</td>
</tr>
<tr>
<td>2</td>
<td>A325 KS Kosaka Kogyo (JP)</td>
</tr>
<tr>
<td>3</td>
<td>A325 KS Kosaka Kogyo (JP)</td>
</tr>
</tbody>
</table>

### Key:
- CA-Canada, JP-Japan, TW-Taiwan, YU-Yugoslavia
- Any bolt on this list should be treated as defective without further testing.

If any of these fasteners are located, contact your QA representative for instructions or J. N. Nansen or C.R. Hoover.
## Appendix B
### Test Exceptions

<table>
<thead>
<tr>
<th>Step#</th>
<th>Description of Exception</th>
<th>Exception Resolution</th>
<th>Eng Int.</th>
<th>QA Int.</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.2</td>
<td>Items need correcting per NEC. Replace gray wires. Redd brkr terminations.</td>
<td>Brkr terminations done. Gray wires replaced. Color code label on.</td>
<td>BRJ</td>
<td>RE 030.97</td>
</tr>
<tr>
<td>3.5.5</td>
<td>No remote stop indicator.</td>
<td>Separate indicator. RUN light goes out when engine stops. Accept as is.</td>
<td>BRJ</td>
<td>GEO</td>
</tr>
<tr>
<td>3.6.3</td>
<td>No cranktime meter</td>
<td>No cranktime meter on. Accept as is.</td>
<td>BRJ</td>
<td>GEO</td>
</tr>
<tr>
<td>3.6.5</td>
<td>Is voltmeter rather than ammeter.</td>
<td>Is voltmeter as normally supplied and in use. Accept as is.</td>
<td>BRJ</td>
<td>GEO</td>
</tr>
<tr>
<td>3.7.1</td>
<td>Blockheater label needs to be fastened with screws.</td>
<td>Screws installed in label.</td>
<td>BRJ</td>
<td>GEO</td>
</tr>
<tr>
<td>3.7.4</td>
<td>Loadbank has four 25kW Spec requires two 50kW switches.</td>
<td>Changed to two 50kW switches.</td>
<td>BRJ</td>
<td>RE 030.97</td>
</tr>
<tr>
<td>3.9.5.1</td>
<td>Brkr is 100 amp frame, 480 volts. Is Grove TRC AR 1092.</td>
<td>Neutral wire relocated. 100 amp frame is greater than 80 amp, 480 volt.</td>
<td>BRJ</td>
<td>GEO</td>
</tr>
<tr>
<td>3.9.5.2</td>
<td>Brkr is 60 amp frame. Is Grove</td>
<td>Brkr frame is equal to 60 amp. Acceptable.</td>
<td>BRJ</td>
<td>GEO</td>
</tr>
<tr>
<td>3.9.5.3</td>
<td>Brkr rating is 250 volts.</td>
<td>Brkr carries 240 volts. 250 volts is acceptable.</td>
<td>BRJ</td>
<td>GEO</td>
</tr>
<tr>
<td>3.9.5.4</td>
<td>Recept rating is 250 volts.</td>
<td>Recept carries 240 volts. 250 volts is acceptable.</td>
<td>BRJ</td>
<td>GEO</td>
</tr>
<tr>
<td>3.9.5.6</td>
<td>Recept rating is 125 volts.</td>
<td>Recept carries nominally 110 to 120 volts. 125 volts is acceptable.</td>
<td>BRJ</td>
<td>GEO</td>
</tr>
<tr>
<td>3.3.4</td>
<td>Power factor of 0.8 not listed on records.</td>
<td>Power factor of 0.8 is listed on study power and is same for the prime. Accept as is.</td>
<td>BRJ</td>
<td>GEO</td>
</tr>
<tr>
<td>4.4.1.2</td>
<td>Detective voltmeter on panel board.</td>
<td>Volts meter replaced. Voltsages were rechecked.</td>
<td>BRJ</td>
<td>GEO</td>
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</table>

* cont. exception #1: Need ground bushing on transformer. Need color code label on panel board. BRJ

**Continued on attached page. BRJ**
## Appendix B
### Test Exceptions

<table>
<thead>
<tr>
<th>Step#</th>
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<th>QA Int.</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.2</td>
<td>Load bank brkr (isamp) failed. Trips on partial load.</td>
<td>Brkr. replaced. New brkr functions correctly</td>
<td>BRG</td>
<td>DP</td>
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<tr>
<td>4.4.3</td>
<td>Test ran for 4 hours instead of 5 hours.</td>
<td>The initial four hours during highest temp of day. Engine/load within parameters. Steady. Engineer decided no value to run for additional hour.</td>
<td>BRG</td>
<td>WM</td>
</tr>
<tr>
<td>3.3.1</td>
<td>Electrical diagrams B/R</td>
<td>Drawings need to be sent to engineer when completed. Part of receiving inspection plan.</td>
<td>BRG</td>
<td>JE</td>
</tr>
</tbody>
</table>

### Initials
- INT: JSS
- NAME: Jon Sparks, J. P. Sparks
- SLO: J. P. Sparks
- BRJ: Bruce R. Johns, BR Johns
- PHE: Phyllis J. Emsendorf, P. E. Emsendorf
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.) (Generator to be located for highest possible ambient temperature, but not to exceed 110°F.)

4.4.1 Step 1 (50KW Resistive Load for 15 min.)

- 4.4.1.1 Amperage 160, 260, 360 amps
- 4.4.1.2 Voltage 1-2800, 2-3400, 1-3400
- 4.4.1.3 Frequency 60.5 Hz
- 4.4.1.4 Oil Pressure 25.875 psi
- 4.4.1.5 Water Temperature 160°F

4.4.2 Step 2 (Second 50KW Resistive Load for a total of 100KW Resistive Load for 15 min.)

- 4.4.2.1 Amperage 1117, 2117, 3117 amps
- 4.4.2.2 Voltage 1-2400, 2-3400, 1-3400
- 4.4.2.3 Frequency 69.5 Hz
- 4.4.2.4 Oil Pressure 70 psi
- 4.4.2.5 Water Temperature 165°F

4.4.3 Continue run with Resistive Load at full power for 5 hours to verify proper operation of unit.

N/A 4.4.3.1 Start time. N/A

N/A 4.4.3.2 Environmental conditions: N/A Ambient Temperature °F

Describe location and weather conditions:

N/A
4.4.3.3 Stop time. 

N/A 4.4.3.4 No overheating of Resistive Load Bank.

N/A 4.4.3.5 No overheating of diesel engine.

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

N/A 4.4.4.1 UTILITY 480 VAC 110 AMPS outlet

4.4.4.1.1 Phase rotation ___  (to be clockwise)

4.4.4.1.2 Voltage 1-2___, 2-3___, 1-3___

N/A 4.4.4.2 SERVICE TRAILER 240 VAC 80 AMPS outlet

4.4.4.2.1 Voltage 1-2___

N/A 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 238.9

✓ 4.4.4.5 120 VAC 20 Amp Duplex Receptacle

4.4.4.5.1 Voltage 119.5 / 119.5 V

✓ 4.4.4.6 PURGE GAS TRAILER 120 VAC 30 Amp Single Receptacle

4.4.6.1 Voltage 119.4

4.4.5 Switch Run-Stop-Remote switch to Stop.

4.5 No load hot (near normal run temperature) start: Verify that the engine starts and comes to 1800 rpm in the specified time. (MFR 0 - 10 sec.)

N/A 4.5.1 Switch Run-Stop-Remote switch to Run. Time ___ sec.

4.5.2 Switch Run-Stop-Remote switch to Stop.

FLUKE 87 - CALIBRATED BY GTE ELECTRONIC REPAIR SERVICE

RPT. # 911M 08X10 (994)
The following test log entries were made during acceptance testing of a newly procured 150KW diesel generator set at the Onan/Cummins Northwest Service Center in Renton, Washington on May 28 and May 29. Personnel present for testing: James E. Daniels/Numatec Hanford Company, Bruce Johns/SESC, Bill Bresina/Pacific Northwest Laboratory, Janie Elmendorf/Lockheed Martin Hanford Company, John Rudick/Fluor Daniel Hanford Company, Jim Woodcock/Cummins Northwest Inc.

5/29/97-0820 Arrived at Onan/Cummins Northwest Service Center shop for test. Prepared paperwork to perform testing and recapped the previous days activity. Redid list for discrepancies not noted on the original Test Exception List. That new list is as follows:

1) The generator grounding wire at the main generator breaker needs rework because of excessive scoring created during fabrication.

2) The weatherproof gasket for the 480VAC Utility power distribution receptacle needs to be installed. It is missing.

3) The covers for the duplex 120VAC receptacles needs replacing since the presently installed ones do not meet the minimum NEC 1996 requirements.

4) The gray SIS wire that is installed on the line and load side of the 240/120 convenience receptacles needs to be replaced with correctly color coded THHN or THWN wire.

5) The ground electrode conductor needs to be installed from the transformer to the ground electrode conductor lug attached to the frame. This wire is continuous with no breaks.

6) A phase color coding label detailing the phase color code used by Onan/Cummins needs to be installed on the power distribution panelboard.

5/29/97-0850 Bruce and Janie have a question about the air cleaner being two stage since there are no markings on it for identification. Jim Woodcock disassembled the air cleaner and demonstrated that it was actually two stage. Both Bruce and Janie were satisfied that the air cleaner is two stage.

5/29/97-0900 Performed a cold start with no load in accordance with step 4.1. Unit came up to speed of 1800 RPM and 60 Hertz in 3.5 seconds. All parameters indicate normal as listed in step 4.1.2.
5/29/97- 0905 Chuck Salotti informed me that D.T.S (company that supplied Cummins with the trailer bed) will send him the DOT certification in a couple of days. Chuck will send this certification to me or Bruce. This will complete step 3.10.2. We will need this completed prior to transport to Hanford.

5/29/97- 0920 Performed loaded remote cold start test per step 4.2. Load bank breaker does not stay closed. Keeps tripping. Will not stay closed with any load bank configuration, 25KW, 50KW, 75KW, or 100KW. Suspect load bank breaker is defective. Installed amp probes and found that the breaker will trip on any phase current above 50 Amps. This is a 150 Amp breaker and appears defective. Instructed Jim Woodcock to replace the breaker with a new one. Chuck Salotti found a new one in their stock.

5/29/97- 1019 Jim Woodcock installed the new load bank breaker. Restarted the test with amp probes installed on load side phase wiring and breaker remained closed with full load of 100KW @ 121 amps. Reperformed test satisfactorily per step 4.2. Jim Woodcock used two wires (jumper) connected to the remote start terminals to simulate a switch. Steps 4.2.1, 4.2.3, and 4.2.2 performed satisfactorily.

5/29/97- 1030 Started test at step 4.3.

4.3.1 OK- Jim W. disconnected the control wire to the fuel solenoid to stop fuel supply to the engine in order to test re-cranking feature and alarm light. The re-cranking feature performed as specified - 3 cycles of 16 seconds cranking and 16 seconds of wait and then engine recranks lockout.

4.3.2 OK- Jim W. started the engine and then adjusted the overspeed high potentiometer on the engine control module to simulate an overspeed condition and engine shutdown with overspeed feature and then engine recranks lockout.

4.3.3 OK- Jim W. started the engine and then disconnected the control wire to the fuel solenoid to stop fuel supply to force the engine to shutdown in order to test the low oil pressure shutdown feature and engine recranks lockout.

4.3.4 OK- Jim W. started the engine and then shorted the coolant temperature sensor wire to ground. This simulated a high coolant temperature condition. Engine shutdown with locked in alarm and engine rechark
lockout. Jim W. also shorted to ground the radiator coolant level alarm and engine shutdown with engine re crank lockout.

4.3.5 OK- Remote manual stop activated.

5/29/97- 1115 Started load test at step 4.4. Loaded generator to 50KW per step 4.4.1. Recorded data.

5/29/97- 1135 Continued load test by adding remaining 50KW resistive load (100KW Total) banks. Recorded data. This is the start time for the five hour load test.

5/29/97- 1135 Continued load test run and recorded environmental data in accordance with step 4.4.3. Checked full load current with an amp probe on one of the 480VAC phases and read 120 amps.

5/29/97- 1145 Lunch and wait time during load test run.

5/29/97- 1430 Discussed with the test group the re-evaluation of terminating the load test early. Phoned Bruce Johns at Hanford and received his concurrence to decrease the run time to four hours. The basis for this decreased time is the hottest part of the day was past and any further testing would not yield any discrepancies.

5/29/97- 1435 Jim W. informed us that he just discovered that the voltmeter installed on the generator control panel appears to be defective. It intermittently sticks midscale but it is not very apparent since midscale is near the voltages that we were recording. The voltages recorded at steps 4.4.1.2 and 4.4.2.2 are suspect and should be disregarded. Jim W. replaced the analog voltmeter with a new spare that came from their stock. A quick retest verified the meter was now reading the correct voltage of 480VAC.

5/29/97- 1445 Performed phase rotation steps per steps 4.4.4.1.1 and 4.4.4.3.1. Checked OK. Clockwise rotation observed in both cases.

Note: The electrician from Hanford has been very busy helping perform testing along with Jim Woodcock. We are happy to have him with us since he has assisted greatly in our troubleshooting along with test measurements and equipment setup.

Performed voltage checks in accordance with steps 4.4.4.1.2, 4.4.4.2.1, 4.4.4.3.2, 4.4.4.4.1, 4.4.4.5.1, and 4.4.4.6.1. Recorded data as required.

5/29/97- 1530 Five more minutes remaining prior to four hour load test termination. The following reading were taken prior to test
termination. L1-L2 120 AMPS L2-L3 118 AMPS L1-L3 118 AMPS
Frequency 58.5 HZ Oil Press 70 PSI Eng Temp. 115 F

5/29/97- 1535 Commenced shutdown at 4 hours run time. Recorded shutdown time at step 4.4.3.3.

5/29/97- 1540 Performed testing at step 4.5 and 4.6. Tested OK.

5/29/97- 1550 Performed an additional test recommended by Jim W. Tested the loadbank overtemperature shutdown by shorting the thermoswitch on the loadbank. Test shutdown loadbank as required.

5/29/97- 1600 Departed the Onan/Cummins Service Center for Richland, Wa.
## Powertite® Series Intermateable Equivalents

Appleton Powertite and Crouse-Hinds Arkite Plugs, Receptacles, Cord Connectors and Mounting Boxes listed here are Equivalent and Completely Intermateable.

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**HANFORD**

150KW TRAILER

**Generator Set Requirements:**
- GenSets in parallel (step load requirements calculated on a per-genset basis): 1
- Max Starting Voltage Dip, %: 35
- Max Running Surge Voltage Dip, %: 35
- Max Frequency Dip, %: 10
- Site Altitude, ft (m): 500 (152)
- Site Ambient Temperature, °F (°C): 77 (25)
- Fuel: Diesel
- Voltage: 277/480, Series Wye
- 3 Phase

**Load Running and Surge Requirements:**

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<th>Description</th>
<th>150KW</th>
<th>Max SkW</th>
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<th>Max SkVA Req:</th>
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<td>none</td>
<td>none</td>
<td>none</td>
</tr>
</tbody>
</table>

**Step 1**

START 150KW STEP LOAD

<table>
<thead>
<tr>
<th>Description</th>
<th>150KW</th>
<th>Max SkW</th>
<th>SkW Req:</th>
<th>Max SkW Req:</th>
<th>Max SkVA Req:</th>
<th>RSkW:</th>
<th>RSkVA:</th>
<th>RSkVA Req:</th>
</tr>
</thead>
<tbody>
<tr>
<td>RkW:</td>
<td>150</td>
<td>150</td>
<td>150</td>
<td>150</td>
<td>none</td>
<td>none</td>
<td>none</td>
<td>none</td>
</tr>
<tr>
<td>RkVA:</td>
<td>150</td>
<td>150</td>
<td>150</td>
<td>150</td>
<td>none</td>
<td>none</td>
<td>none</td>
<td>none</td>
</tr>
<tr>
<td>RPF:</td>
<td>1.00</td>
<td>none</td>
<td>none</td>
<td>none</td>
<td>none</td>
<td>none</td>
<td>none</td>
<td>none</td>
</tr>
</tbody>
</table>

**150KW Resistive Load Step**

<table>
<thead>
<tr>
<th>Category</th>
<th>Resistive</th>
<th>3 Phase</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>RkW:</td>
<td>150.00</td>
<td>none</td>
<td>1</td>
</tr>
<tr>
<td>RkVA:</td>
<td>150.00</td>
<td>none</td>
<td>1</td>
</tr>
<tr>
<td>RPF:</td>
<td>1.00</td>
<td>none</td>
<td>1</td>
</tr>
</tbody>
</table>

**Onan GenSize '96 Steps and Loads Detail Report**

Page: 26
## HANFORD
### 150KW TRAILER

### Generator Set Requirements:

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Duty</th>
<th>Standby</th>
</tr>
</thead>
<tbody>
<tr>
<td>GenSets in parallel (step load requirements)</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Max Starting Voltage Dip, %</td>
<td>35</td>
<td>Diesel</td>
</tr>
<tr>
<td>Max Running Surge Voltage Dip, %</td>
<td>35</td>
<td>3 Phase</td>
</tr>
<tr>
<td>Max Frequency Dip, %</td>
<td>10</td>
<td>60</td>
</tr>
<tr>
<td>Site Altitude, ft (m)</td>
<td>500</td>
<td>(152)</td>
</tr>
<tr>
<td>Site Ambient Temperature, °F (°C)</td>
<td>77</td>
<td>(25)</td>
</tr>
</tbody>
</table>

### Load Running and Surge Requirements:

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>RkW:</td>
<td>150</td>
</tr>
<tr>
<td>Max SkW:</td>
<td>150</td>
</tr>
<tr>
<td>In step 1</td>
<td>150</td>
</tr>
<tr>
<td>Max SkW Req:</td>
<td>150</td>
</tr>
<tr>
<td>GkW:</td>
<td>150</td>
</tr>
<tr>
<td>RkVA:</td>
<td>150</td>
</tr>
<tr>
<td>Max SkVA:</td>
<td>150</td>
</tr>
<tr>
<td>In step 1</td>
<td>150</td>
</tr>
<tr>
<td>Max SkVA Req:</td>
<td>150</td>
</tr>
<tr>
<td>RSkW:</td>
<td>none</td>
</tr>
<tr>
<td>RSkW Req:</td>
<td>none</td>
</tr>
<tr>
<td>RSkVA:</td>
<td>none</td>
</tr>
<tr>
<td>RSkVA Req:</td>
<td>none</td>
</tr>
</tbody>
</table>

### Model:

<table>
<thead>
<tr>
<th>Model</th>
<th>150DGFA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Running at</td>
<td>100% Rated Load</td>
</tr>
</tbody>
</table>

### Engine Details:

<table>
<thead>
<tr>
<th>Engine Model</th>
<th>6CTA8.3-G</th>
</tr>
</thead>
<tbody>
<tr>
<td>Displacement, cu in:</td>
<td>504</td>
</tr>
<tr>
<td>Cylinders:</td>
<td>6</td>
</tr>
</tbody>
</table>

### Recommended by Onan

- **Fuel:** Diesel
- **Temperature Rise at full rated load, °C:** 125
- **Excitation:** Reconnectable
- **Voltage Range:** 208-240/416-480 BR

### Fuel Details:

- **Feature Code:** B255
- **Number Leads:** 12

### Electrical Specifications:

- **Starting Voltage Dip, %:** 17
- **Running Surge Voltage Dip, %:** none
- **Frequency Dip, %:** 7
- **Site Rated Standby kW:** 150
- **Site Rated Alternator Max kW at 125°C and 480 volts:** 165
- **Site Rated Alternator Max kVA at 125°C and 480 volts:** 206
- **Site Rated Max SkW:** 186
- **Max SkVA:** 607
- **Max Starting Voltage Dip, %:** 35
- **Max Running Surge Voltage Dip, %:** 35
- **Max Frequency Dip, %:** 10
- **Load RkW:** 150
- **Load GkW:** 150
- **Load RkVA:** 150
- **Reduced Load Max SkW Requirement:** 128
- **Reduced Load Max SkVA Requirement:** 150

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HNF-SD-WM-ATR-190

REVISION 0

811 S.W. Grady Way (98055)

P.O. Box 9611

Renton, WA 98057-3000

(206) 235-3400, FAX 235-8202
CUMMINS NORTHWEST
811 S W Grady Way
Renton Wash. 98055

Attn: Chuck Salotti

Chuck,

This letter is to certify that the trailer DTS manufactured on our N-2431 does meet DOT certifications.

Thanks

D.T.S. Inc.

Larry Will
MANUFACTURER'S
STATEMENT OF ORIGIN
TO A MOTOR VEHICLE

The undersigned corporation hereby certifies that the new trailer described below, the property of said corporation, has been transferred this:

15 day of January 1997 on invoice No. 70745
to Hanford Corporation
whose address is P.O. Box 1300
City Richland State Washington 99352

Trade Name D.T.S. Inc. Year 1997 Model Standard
Body Type Trailer No. Axles Two (2)
Price $9,975.00 Serial No. 1D9US1525VS151482
Color Body White Weight 6,229 lbs.

The corporation further certifies that this was the first transfer of such new vehicle in ordinary trade and commerce.

D.T.S., INC.
P.O. Box 1068
Exit 73 & I-29 South
Sioux Falls, S.D. 57101

By: [Signature]
President
## TRAILER WEIGHT

<table>
<thead>
<tr>
<th>ON SCALE</th>
<th>OFF SCALE</th>
<th>WEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Truck and generator</td>
<td>n/a</td>
<td>25,080</td>
</tr>
<tr>
<td>Truck attached</td>
<td>Generator</td>
<td>15,020</td>
</tr>
<tr>
<td>Generator attached</td>
<td>Truck</td>
<td>10,140</td>
</tr>
<tr>
<td>Generator</td>
<td>n/a</td>
<td>10,700</td>
</tr>
</tbody>
</table>

## WEIGHT PRINTOUT FROM SCALE

WESTINGHOUSE HANFORD COMPANY  
RICHLAND, WA 99352

- 6-6-97 9:32AM  25,080 lb
- 6-6-97 9:33AM  10,140 lb
- 6-6-97 9:34AM  15,020 lb
- 6-6-97 9:38AM  10,700 lb

**CONTRACT NUMBER OR INVOICE**  
**TRUCK**  
**COMMENTS**  

BC-6001-340 (04/94)
NEC INSPECTION REPORT

Project/W.O. No. F3GE4D


Inspection Requested By Phone Inspector Phone Page 1 of 2
Bruce Johns 373-3429 Bresina WL 372-2459

Item Inspected:
Generator and equipment built by Cummins Northwest at Renton, WA

Condition Found: ☒ Acceptable ☒ Unacceptable (see description below)

Inspector Signature: WL Bresina

Original Inspection Date: Mar. 26, 1997

Closure Date: 5/28/97

Description of NEC Violation Cause Code Days to Correct Violation Corrected Date

1 The 240/120 volt panelboard, by definition, is a branch-circuit panelboard requiring a main breaker to be installed. Article 384-14 and 384-16. 30 WL 5/28/97

2 The #2 conductors on the secondary side of transformer must be size #1/0 because the total breaker ampacity in panelboard is 150 amps. Article 240-21(b) and 240-3. 30 WL 5/28/97

3 Install a main bonding jumper from transformer X-0 terminal to the transformer frame. Must be a size #4 conductor. Article 250-79(d) 30 WL 5/28/97

4 Not all ungrounded conductors have phase tape to identify the two voltage system conductors. The panelboards also must have phase color code posted on front. Article 210-4(d) 30 WL 5/28/97

5 All thread nipples no longer have a coating of corrosion resistant material for outside use. Replace with approved galvanized nipple. Article 300-6(a) 30 WL 5/28/97

6 Neutral coming from transformer must be floated inside panelboard. Article 250-26 30 WL 5/28/97

7 80 amp receptacle needs neutral conductor. Article 110-3(b) 30 WL 5/28/97

Electrical service will be discontinued for the equipment or facility identified if violations are not corrected within time allowed by the "Days to Correct" column. "Days to Correct" starts with the original inspection date. For concerns regarding this, call the Chief Electrical Engineer at 376-6347.
<table>
<thead>
<tr>
<th>Description of NEC Violation</th>
<th>Cause Code</th>
<th>Days to Correct</th>
<th>Violation Corrected</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equipment grounding conductors and grounded conductors under size #4 must have a continuous outer finish of green or white when used for equipment grounds or neutrals. Cannot be just taped. Article 310-12(a), (b) and 200-8</td>
<td>30</td>
<td></td>
<td></td>
<td>5/28/97</td>
</tr>
<tr>
<td>Panelboard must have circuit directory installed to identify purpose of breakers. Article 384-13</td>
<td>30</td>
<td></td>
<td></td>
<td>5/28/97</td>
</tr>
<tr>
<td>The #6 neutral conductor from transformer to panelboard must be increased in size to handle maximum calculated load. Article 220-22</td>
<td>30</td>
<td></td>
<td></td>
<td>5/28/97</td>
</tr>
<tr>
<td>The neutral conductor must be bonded to the generator frame (now floating) and then floated in the panelboard. (now bonded to the panel enclosure.) Since a grounded conductor is not needed at panelboard, make existing conductor the equipment grounding conductor and bond to generator frame and panelboard enclosure. Plus remove white tape and install green tape. Article 250-6(c) and 250-26.</td>
<td>30</td>
<td></td>
<td></td>
<td>5/28/97</td>
</tr>
<tr>
<td>Install a #6 grounding electrode conductor to the grounded conductor at generator and transformer. Article 250-26 and 250-91(a)</td>
<td>30</td>
<td></td>
<td></td>
<td>5/28/97</td>
</tr>
<tr>
<td>A weatherproof cover must be installed at all receptacles to be used in a wet location. Article 410-57(b)</td>
<td>30</td>
<td></td>
<td></td>
<td>5/28/97</td>
</tr>
<tr>
<td>A 150 amp overcurrent device must be installed in panelboard for the load bank circuit. Conductors do not meet the 10' tape rule, only the 25' tape rule, which requires conductors to terminate at a single overcurrent device. Article 240-21(c)</td>
<td>30</td>
<td></td>
<td></td>
<td>5/28/97</td>
</tr>
<tr>
<td>Equipment grounding conductors needed from panelboard to load bank and transformer, size #8, green in color conductors. Article 310-12(b) and Table 250-95 DOE requirement, 6430.1A - 1639-1</td>
<td>30</td>
<td></td>
<td></td>
<td>5/28/97</td>
</tr>
<tr>
<td>The grounded conductor (4/0 in size) from generator to panelboard is not terminated all the way into terminal. Article 110-14(a)</td>
<td>30</td>
<td></td>
<td></td>
<td>5/28/97</td>
</tr>
</tbody>
</table>