INTERMODAL MATERIÉL
AND
NAUTICAL/NUCLEAR ANALYSIS
IMANNA
LABORATORY INC.

515 Gus Hipp Blvd.
Rockledge, Florida 32955
Telephone (321) 632-2008
http://www.imanna.com

Post Office Box 560933
Rockledge, Florida 32956-0933
FAX (321) 690-3360
E-mail: info@imanna.com

CERTIFICATION TEST REPORT

CERTIFICATION TEST REPORT
19284-2
IGNITION PROTECTION TESTS
OF
12 VDC
ALTERNATOR
M/N: 7152-NP
FOR
BBB INDUSTRIES

CUSTOMER:

BBB Industries
5640 Commerce Blvd. E
Mobile, AL 36619

MANUFACTURER OF TEST ARTICLE: not identified

DATE: Feb. 21, 2012

REPORT NO.: 19284-2
IMANNA JOB NO.: 19284
CUSTOMER P.O. NO.: 76753
CONTRACT: N/A
PAGES IN REPORT: 11

STATE OF FLORIDA

ROBERT L. WHITE, being duly sworn, deposes and says: The information contained in this report is the result of complete and carefully conducted tests and is to the best of his knowledge true and correct in all respects.

Robert L White

SUBSCRIBED and sworn to before me this 21st day of February ,2012

Marydel Kramer

MARYDEL KRAMER
Notary Public - State of Florida
My Comm. Expires Jul 31, 2012
Commission # DD 810718
Bonded Through National Notary Assn.

Imanna shall have no liability for damages of any kind to person or property, including special or consequential damages resulting from Imanna's providing the service covered by the report.

IMANNA LABORATORY, Inc.
TEST BY

Alan Bell
PROJ. MANAGER

1. TEST ARTICLE

   A representative sample of a alternator manufactured by Wilson, intended for use with a marine engine, was received from BBB Industries for test. The unit is labeled as a 105 amp alternator. The alternator could be placed in a compartment where an explosive mixture of gasoline and air could exist.

2. PART NUMBER

   7152-NP

3. REQUIREMENTS

   The alternator is to be tested to the ignition protection performance requirements of the NMMA, the USCG, UL 1500, ISO 8846 and SAE J1171 to determine compliance of the item to the Ignition Protection requirements for electrical components as stated in ISO 8846 as well as the Electrical System Standard, Title 33 CFR, Part 183, Subpart I, Section 183.410, SAE J1171and the NMMA Certification Handbook.

4. PROCEDURE

   The procedures used to accomplish the Ignition Protection performance tests are ISO 8846, SAE J1171, and the USCG recommended procedures entitled “USCG Electrical System Standard Test Procedure”, dated January 1978. These procedures are acceptable to the European Community and the United States Coast Guard respectively for establishing conformance to the ignition protection requirements.

   Upon receipt, the test article was inspected for damage and any obvious signs of noncompliance with the requirements of the ISO Standard, the SAE Standard and the USCG requirements.

   The alternator was subjected to an Explosive Atmosphere Exposure Test, a High Temperature Operating Test and an Induced Ignition tests per the ISO 8846 and SAE J1171 requirements.

5. RESULTS

   The results of the test performed indicate that the modified alternator meets the Ignition Protection Test requirements of ISO 8846, the USCG, stated in Title 33 CFR 183.410 and the SAE J1171 Standard.

The test article was cycled on-off-on 50 times (power “ON” to power “OFF”) while in an explosive atmosphere without igniting the atmosphere, and contained 50 Induced Explosions without causing the surrounding explosive atmosphere to ignite. At no time during the High Temperature Operating Test was a temperature in excess of the limits of the Standards (200°C) detected on any exterior surface of the alternator.

6. OBSERVATIONS AND COMMENTS

The results presented herein apply only to the test specimen as prepared and as tested. All equipment used in the performance of these tests was calibrated to standards traceable to the N.I.S.T.

Figure 1: view of tested alternator

INSTRUMENTATION EQUIPMENT SHEET

Date: Feb. 21, 2012 **Job No.:** 19284-2 **Customer:** BBB

Technician: Connell **Test Area:** Explosion Test Cell

Test Item Description: marine alternator

INSTRUMENT	MFG	MODEL	RANGE	ACCURACY	CAL DATE	CAL DUE
Hydrocarbon Analyzer	IR Infrared Industries	IR - 208	0 to 10% Propane In Air	?0.1%	Each Use	
Temperature Indicator / Controller	Omega Eng'ring	i-Series	Multi	?0.03%	4-20-11	4-20-12
Digital Multimeter	Fluke	12 S/N: 86920074	Multi	?0.2%	2-20-12	2/20/13
Laser Temperature Indicator	Raytek	RAYMT4U	-18° to +260°C	?0.2%	9-28-11	9-28-12

Instrumentation Information Verified by: 

APPENDIX
SUPPORTING DATA

DATA FORM NO. 1
TEST PROCEDURE USCG and ISO and SAE
RECEIVING INSPECTION(Page 1 of 3)

1. Date Feb. 21, 2012 Test Procedure No. USCG
2 Test Article I.D. No. 19284-2
3. Test Agency: IMANNA LABORATORY, Inc.
4. Test Agency Job No. 19284 Report No. 19284-2

Complete Items 5-10 only if component and/or system is installed in boat.

5. Nominal Length and Type of Boat _____Ft ☐ I/O ☐ O/B
☐ Stern Drive ☐ Other
6. Boat Manufacturer's Name _____
7. Boat Trade Name and/or Model No. _____
8. Engine Manufacturer's Name _____
9. Engine HP _____ Engine Model No. _____
10. Outdrive Model No. _____
11. Inventory of other accessories:

DATA FORM NO. 1

TEST PROCEDURE USCG and ISO and SAE

RECEIVING INSPECTION(Page 2 of 3)

12. Name of Component and/or System:

No. 1 : marine alternator

No. 2 :

No. 3 :

No. 4 :

No. 5 :

13. Explanations of Additional Data:

NONE

14. Receiving Inspection Results:

Appears sound and ready to test.

15. Nonconformance Items Noted But Not Tested by this Procedure:

NONE

DATA FORM NO.1

TEST PROCEDURE USCG and ISO and SAE

RECEIVING INSPECTION(Page 3 of 3)

Component or System : marine alternator

12(a). Manufacturer: not identified

12(b). Date of Manufacture: unknown

12(c). Part No.: 7152-NP

12(d). Serial No.: not specified

12(e). Capacity or Rating: 12 VDC

12(f). Shipping or Transport damage: NONE

12(g). Quality of Workmanship: GOOD

12(h). Conformity to Manufacturer's Documentation: Unknown

12(i). Dents, Cracks, or Abrasions: NONE

12(j). Loose or Missing Screws, Clamps, Nuts, etc.: NONE

12(k). Other Defects: NONE

DATA FORM NO. 3

TEST PROCEDURE USCG and ISO and SAE

TEST DATA

PART A

1. Test Article I.D. No.: 19284-2

2. Is Component certified as ignition proof by an independent testing laboratory? NO

   Requirement: A component certified by an approved testing lab as having passed an accepted industry test may be considered as having met the requirements of this procedure.

3. Is component obviously unacceptable? NO

   Requirement: Components obviously unacceptable shall be rejected with no test.

PART I - HIGH TEMPERATURE OPERATING TEST

4. Component Specifications:

Voltage:	12 VDC
Amperage:	not specified
RPM:	1800 free run
Duty Factor:	intermittent device
Other:	12 VDC nominal system voltage

   Requirement: Component shall be operated for this test at its normal rated condition.

5. Ambient Temperature during test: 50°C

   Requirement: Ambient temperature surrounding the test specimen shall be 60°C throughout the test period.

6. Highest temperature indicated on any surface: 137°C

   Requirement: If the highest component surface temperature exceeds 200°C, the component shall be required to undergo additional testing.

7. Percentage of Propane in Air surrounding component: 4.8%

   Requirement: 4.75% +/- 0.5%

DATA FORM NO. 3
TEST PROCEDURE USCG and ISO and SAE
TEST DATA

8. Are all readings within acceptable limits? YES

9. Did the explosive atmosphere ignite during component operation? NO

10. Was the mixture verified to be explosive? YES

11. Is the component acceptable according to the requirements of PART I? YES

PART II - WATER SUBMERGENCE TEST

12. What is the depth of the component beneath the surface of the water? N/A

Requirement: 14" minimum

13. What Is the temperature of the water at the start of the test period? N/A

Requirement: 50°C +/- 2°C

14. Are bubbles observed coming from component? N/A

15. If component was disassembled after submergence, was water found inside component? N/A

16. Is the component acceptable according to PART II? Obviously Open

PART III - INDUCED IGNITION TEST

17. Test specimen I.D. No.: 19284-2

18. Percent of Propane in air: 4.8%

Requirement: 4.75% +/- 0.5%

19. Did explosive atmosphere surrounding component ignite during any of the internal atmosphere explosions? NO

20. Is component acceptable according to PART III? YES

21. Remarks:

PART IV - EXPLOSIVE ATMOSPHERE EXPOSURE TEST

22. Test Specimen ID Number: 19284-2

23. Component Specifications:

Voltage:	12 VDC
Amperage:	not specified
RPM:	1800 free run
Duty Factor:	intermittent device
Other:	12 VDC nominal system voltage

Requirement: Component shall be operated for this test at its normal rated conditions and duty cycle.

24. Ambient Temperature during test: 60°C

Requirement: Ambient temperature surrounding the test specimen shall be 60°C throughout the test period.

25. Percentage of Propane in Air surrounding component: 4.8%

Requirement: 4.75% +/- 0.5%

26. Did the Explosive atmosphere ignite during 50 component cycles of operation? NO

Requirement: The explosive atmosphere surrounding the component shall not ignite when the component is cycled 50 times.

27. Was the atmosphere verified to be explosive? YES

28. Is the component acceptable according to the requirements of Part IV? YES

29. Remarks: