ETA-HIAC06

Revision 0
Effective: November 1, 2004

Receipt Inspection

Prepared by

Electric Transportation Applications

Prepared by: _____ Date:_____
Garrett P. Beauregard

Approved by: _____ Date: _____
Donald B. Karner

TABLE OF CONTENTS

Appendices

1.0 Objective

This procedure identifies a common protocol for thereceipt of each vehicle delivered for HICEV America testing. These activities shall be completed in conjunction with procedure ETA-HITP11, “Vehicle Verification,” and prior to commencement of testing activities.

2.0 Purpose

This procedure identifies the verification parameters that shall be recorded prior to testing of any Hydrogen Internal Combustion Engine Vehicle(HICEV) provided to HICEV America. Additional verification requirements are addressed in Procedure ETA-HITP11, “Vehicle Verification,” which shall be completed concurrent with and subsequent to this procedure.

3.0 Documentation

Documentation addressed by this procedure shall be consistent, easy to understand, easy to read and readily reproducible This documentation shall contain enough information to "stand alone"; that is, be self-contained to the extent that all individuals qualified to review it could be reasonably expected to reach a common conclusion, without the need to review additional documentation. Storage and retention of records shall be completed as described in Procedure ETA-HIAC01, "Control, Close-out and Storage of Documentation."

4.0 Prerequisites

4.1 Individuals assigned to verify completion of this procedure shall be conversant with the Technical Guidelines against which the vehicle is being inspected, the basic technologies involved, and familiar with the design configuration documentation as provided by the manufacturer of the vehicle being inspected.

4.2 Individuals assigned to complete this activity shall have received the appropriate training in accordance with ETA-HIAC05, "Training and Certification of Personnel Utilizing ETA Procedures."

4.3 Prior to commencing activities controlled by this procedure a meeting of the involved personnel shall be held to discuss, at a minimum, the following:

4.3.1 Data required;

4.3.2 Data available;

4.3.2 Data sources;

4.3.4 Contingencies

4.3.5 Methods to ensure safety

4.4 The verification of data may be completed at any time prior to the need for information being evidenced, but in all cases shall be completed prior to testing to any procedure other than that required by procedure ETA-HITP11.

4.5 All documentation required to complete the activities addressed by this or other procedures shall be completed, approved and issued prior to commencing the testing it addresses. In no case shall any document be used for official testing or data collection prior to its effective date.

5.0 Verification Requirements

This procedure shall be completed for each vehicle which is received for testing in HICEV America. The vehicle must be present to obtain some of the required information (curb weight, vehicle heights, ground clearance, etc.). However, a significant amount of information concerning the vehicle may be obtained from data provided by the Supplier prior to receipt of the vehicle. As such, this procedure may be implemented upon receipt of the Supplier's information, but shall not be completed prior to actual inspection of the vehicle.

5.1 Review the Supplier documentation provided in accordance with HICEV America Vehicle Specification Appendices A and B for the following:

5.1.1 All blanks have been filled in.

5.1.2 All data required have been provided.

5.1.3 For blanks which have either no entry or an "N/A" (or similar notation), note the specific entry which is incomplete and the reason the entry is incomplete (if known).

5.1.4 Attempt to obtain the missing data from the proposal.

5.1.5 The Program Manager or the Test Manager shall be notified of any missing data. They shall notify the Supplier's representative of which data are missing, and request their assistance in obtaining it. However, all requests for data from the Supplier shall be made in writing, through the Program/Project Manager.

5.2 From the Supplier's Submittal, record the following information:

5.2.1 Vehicle Year, Make and Model

5.2.2 Vehicle Manufacturer

5.2.3 Number of occupants

5.2.4 Amount of payload beyond the passenger capacity

5.2.5 Design curb weight

5.2.6 Design rated payload

5.2.7 Speedometer accuracy

5.2.8 Odometer accuracy

5.2.9 The standard tire Manufacturer

5.2.10 The standard tire model and size

5.2.11 Interior passenger volumes/dimensions

5.2.12 Cargo area volumes/dimensions

5.2.13 Transmission is a single speed, multi-speed automatic, manual or continuous variable speed (CVT)

5.2.14 Transmission has a parking mechanism

5.2.15 The Supplier has provide interior and exterior photographs of the vehicle (as appropriate)

5.2.16 The vehicle is SULEV certifiable to California Air Resources Board (CARB) requirements as a SULEV, or

5.2.17 The vehicle conforms to EPA requirements for receiving a SULEV Certificate of Conformity

5.2.18 The Supplier has described safety measures and safety related design features included in their vehicle's design

5.2.19 The Supplier has provided an explanation of the purpose and the anticipated effect on performance and reliability of the safety or design measures described in step 5.2.58

5.2.20 The Supplier recycling plan identifies post-purchase recycling costs that will be passed on to the vehicle purchaser

5.2.21 The Supplier has provided a list of all available additional vehicle systems

5.2.22 For each additional system, the Supplier has specified the impact on fuel economy

5.2.23 For each additional system, the Supplier has specified the impact on payload

5.2.24 Service manuals provided by the Supplier include details on the design of vehicle systems

5.2.25 Service manuals provided by the Supplier include details on the operation of vehicle systems

5.2.26 Service manuals provided by the Supplier include details on the availability of parts and service

5.2.27 Service manuals provided by the Supplier include a list of additional or special maintenance tools

5.2.28 Maintenance personnel training programs are offered by the Supplier

5.2.29 Engine Model or Designation

5.2.30 Engine Configuration

5.2.31 Engine Displacement (liters)

5.2.32 Engine Number of Cylinders

5.2.33 Engine Power (hp@rpm)

5.2.34 Engine Torque (lb-ft@rpm)

5.2.35 Engine Operating Range (rpm)

5.2.36 Engine Recommended Fuel (all types)

5.2.37 Transmission Manufacturer

5.2.38 Transmission Type

5.2.39 Transmission Model

5.2.40 Transmission Description

5.2.41 Transmission Gear Ratio(s)

5.3 Upon receipt of the vehicle, measure and record the following information:

5.3.1 Vehicle identification number (VIN)

5.3.2 Overall maximum dimensions (including projected frontal area) at curb weight

5.3.3 Overall maximum dimensions (including projected frontal area) at curb weight plus 332 pounds

5.3.4 Gross vehicle weight rating (GVWR)

5.3.5 Gross vehicle axle weight ratings (GAWR)

5.3.6 Curb Weight (as delivered)

5.3.7 Payload rating (GVWR - curb weight)

5.3.8 Weight at each wheel

5.3.9 Tire manufacturer, design, size and sidewall inflation pressure rating

5.3.10 Seating capacity (seat-belted positions)

5.3.11 Options included on the vehicle

5.3.12 Restraint system type(s)

5.3.13 Vehicle attitude measurements

5.3.14 Vehicle exterior dimensions

5.4 Take receiving pictures of the vehicle, including the following minimum:

5.4.1 Eight-point walk-around (front; rear; right profile; left profile; right front and right rear quarter; left front and left rear quarter)

5.4.2 Dashboard instrument cluster

5.4.3 Console instrument cluster

5.4.4 VIN

5.4.5 FMVSS Certification Label

5.4.6 Fuel Storage Tank(s)

5.4.7 Fuel delivery hardware

5.4.8 Fueling connection and its location

5.4.9 Engine

5.410 Tire Placard

5.4.11 Any other placards or labels providing vehicle specific information on safety or operational requirements

5.5 Note the location of the fuel storage and delivery system and other converstion components as applicable:

5.5.1 Storage tank(s) manufacturer

5.5.2 Storage tank(s) model number

5.5.3 Storage tank type

5.5.5 Storage tank description

5.5.6 Storage tank(s) quantity and location

5.5.7 Storage tank liquid volume (liters)

5.5.8 Storage tank nominal and MAWP (psi)

5.5.9 For pickup trucks, if the bed space or volume has been encroached upon, note the approximate reduction in usable space, as well as the equipment occupying the volume.

5.5.10 For sedans, if the trunk space volume has been encroached upon, note the approximate reduction in usable space, as well as the equipment occupying the volume.

5.6 Conduct the following tests.

5.6.1 Using a 5-inch cubic go/no-go block, with the vehicle loaded to GVWR and standing on a flat surface, when the block is in contact with the flat surface and passed beneath the sprung portions of the vehicle, the block does not contact any of the sprung portions of the vehicle. Record the results of this test in Appendix B.

5.6.2 Verify that the fuel gauge (pressure and/or quantity) is accurate to ± 10% of full scale. This verification data can be obtained from section 5.1 of ETA-HITP04, completed as required by ETA-HTP11. Record the results of this test in Appendix B.

6.0 Glossary

6.1 Effective Date - The date, after which a procedure has been reviewed and approved, that the procedure can be utilized in the field for official testing.

6.2 Program Manager - As used in this procedure, the individual within Electric Transportation Applications responsible for oversight of the HEV America Performance Test Program. [Subcontract organizations may have similarly titled individuals, but they are not addressed by this procedure.]

6. Shall - Items which require adherence without deviation. Shall statements identify binding requirements. A go, no-go criterion.

6.4 Should - Items which require adherence if at all possible. Should statements identify preferred conditions.

6.5 Test Director - The individual within Electric Transportation Applications responsible for all testing activities associated with the HEV America Performance Test Program.

6.6 Test Engineer - The individual(s) assigned responsibility for the conduct of any given test. [Each contractor/subcontractor should have at least one individual filling this position. If so, they shall be responsible for adhering to the requirements of this procedure.]

6.7 Test Manager - The individual within Electric Transportation Applications responsible for the implementation of the test program for any given vehicle(s) being evaluated to the requirements of the HEV America Performance Test Program. [Subcontract organizations may have similarly titled individuals, but they are not addressed by this procedure.]

7.0 References

7.1 HICEV America Vehicle Specification

7.2 ETA-HIAC01, "Control, Close-out and Storage of Documentation."

7.3 ETA-HIAC04, “Procedure for the Review of Test Results.”

7.4 ETA-HIAC05, "Training and Certification of Personnel Utilizing ETA Procedures."

7.5 ETA-HIAC07, “Control of Measuring and Test Equipment”

7.6 ETA-HITP04, “Electric Vehicle Constant Speed Range Test”

7.7 ETA-HITP11, “Vehicle Verification Procedure”

APPENDIX-A
Manufacturer's Proposal Review
Check List (Page 1 of 3)

VIN Number: _____

AC06 Ref:	T/S Ref:	Parameter:	Initials:	Date:
5.2.1	--	Vehicle Year:		
5.2.1	--	Vehicle Make:		
5.2.1	--	Vehicle Model:		
5.2.2	--	Vehicle Manufacturer:		
5.2.3	3.1	Number of Occupants: (Minimum of 2)		
5.2.4	--	Payload Beyond Passenger Capacity:		
5.2.5	2.2	Design Curb Weight:		
5.2.6	2.1	Design Rated Payload: (Minimum of 400 lbs.)		
5.2.7	2.4	Speedometer Accuracy: (± 5%)		
5.2.8	2.4	Odometer Accuracy: (± 5%)		
5.2.9	2.6	Tire Manufacturer:		
5.2.10	2.6	Tire Model/Size:		
5.2.11	3.2	Interior Passenger Volumes/Dimensions:		
5.2.12	3.2	Cargo Area Volumes/Dimensions:		
5.2.13	4.1	Transmission Type:		
5.2.14	4.1	Transmission Parking Mechanism:		
5.2.15		Vehicle Interior/Exterior Photographs Provided:		
5.2.16	1.2	Vehicle Is SULEV Certifiable to CARB Requirements, or		
5.2.17	1.2	Conformance to EPA Requirements for SULEV Certificate of Conformity:		

APPENDIX-A
Manufacturer's Proposal Review
Check List (Page 2 of 3)

AC06 Ref:	T/S Ref:	Parameter:	Initials:	Date:
5.2.18	1.3	Safety Measures / Safety Related Design Features Described:		
5.2.19	1.3	Explanation of the Purpose and Anticipated Effect Provided:		
5.2.20	1.6	Recycling Plan Post-Purchase Recycling Costs Provided:		
5.2.21	7.0	List of Available Additional Vehicle Systems Provided:		
5.2.22	7.0	Range Impact for Each Option Provided:		
5.2.23	7.0	Payload Impact for Each Option Provided:		
5.2.24	8.1	Detailed Design of Vehicle Systems (Service Manual) Provided:		
5.2.25	8.1	Detailed Operation of Vehicle Systems (Service Manual) Provided:		
5.2.26	8.1	Detailed Availability of Service/Parts (Service Manual) Provided:		
5.2.27	8.1	Additional/Special Maintenance Tools (Service Manual) Provided:		
5.2.28	8.2	Maintenance Personnel Training Programs Available:		

Comments (initials/date):

APPENDIX-A
Manufacturer's Proposal Review
Check List (Page 3 of 3)

General Comments (initials/date):

Completed By:	(Printed Name)	(Signature)	(Date)
Reviewed By:	(Printed Name)	(Signature)	(Date)
Approved By:	(Printed Name)	(Signature)	(Date)

APPENDIX-B
Vehicle Receipt Check List
(Page 1 of 3)

VIN Number: _____

Date Received:				Odometer (miles):			
Vehicle Year:		Vehicle Make:			Vehicle Model:		
Vehicle Body Style:				Vehicle Color:			
Vehicle Identification Number:					Date of Manufacture:		
GVWR (lbs):		Front GAWR (lbs):			Rear GAWR (lbs):		
Recommended Tire Size - F/R:				Recommended Tire Pressure - F/R:			
Traction Motor Type:				Traction Motor Rating:			
Overall Drive Train Ratio(s):							
Transmission Type:				Shift Lever Location:			
Designated Seating - Front: Rear: Total:				Front Seat Type:			
RESTRAINT SYSTEM DESCRIPTION							
Driver:		C.F. Pass:			R.F. Pass:		
L.R. Pass:		C.R. Pass:			R.R. Pass:		
VEHICLE CONDITION AND INSTALLED OPTIONS							
Air Conditioning		Power Steering		Power Brakes		Power Windows	
Power Door Locks		Cruise Control		Space Saver Spare		Front Wheel Drive	
Telescoping Wheel		Tilt Wheel		Front Disk Brakes		Rear Disk Brakes	
Power Seats		4 Wheel Drive		Anti-Lock Brakes			
Additional Significant Options / Accessories:							
Significant Body Damage / Corrosion:_____							
VEHICLE WEIGHTS AS RECEIVED (WITH MAX. FLUIDS)							
Left Front (lbs):		Right Front (lbs):		Total Front (lbs):		Percent Front:	
Left Rear (lbs):		Right Rear (lbs):		Total Rear (lbs)		Percent Rear:	
				Total Weight (lbs):			
VEHICLE ATTITUDE MEASUREMENTS AS RECEIVED (WITH MAX. FLUIDS)							
Left Front (in): at				Right Front (in): at			
Left Rear (in): at				Right Rear (in): at			
VEHICLE WEIGHTS WITH PAYLOAD (RECEIVED CURB + 332 POUNDS)							
Left Front (lbs):		Right Front (lbs):		Total Front (lbs):		Percent Front:	
Left Rear (lbs):		Right Rear (lbs):		Total Rear (lbs)		Percent Rear:	
				Total Weight (lbs):			
VEHICLE ATTITUDE MEASUREMENTS WITH PAYLOAD (RECEIVED CURB + 332 POUNDS)							
Left Front (in): at				Right Front (in): at			
Left Rear (in): at				Right Rear (in): at			
INSTALLED TIRES							
Tire Manufacture:				Tire Design:			
Tire Size:				Sidewall Inflation Pressure:			

APPENDIX-B
Vehicle Receipt Check List
(Page 2 of 3)

ENGINE							
Engine Model:							
Configuration:							
Displacement (liters):				Fuel Tank Capacity:			
Number of Cylinders:				Operating Range (rpm)			
Torque (lb-ft@rpm)				Power (hp@rpm)			
Fuel Types (all):							
VEHICLE RECEIVING PHOTOGRAPHS							
Eight-Point Walk-Around:							
Front		Rear		Right Profile		Left Profile	
Right Front		Right Rear Quarter		Left Front		Left Rear Quarter	
Additional Misc:							
Dashboard Instrument Cluster		VIN		Tire Placard			
Console Instrument Cluster		FMVSS Certification Label		Fuel Tank(s)			
Fueling Fitting		Fuel Shutoff Valve(s)		Drive System Components			
Misc. Placards		Misc. Labels		Misc.( )			
Misc.( )		Misc.( )		Misc.( )			
Misc.( )		Misc.( )		Misc.( )			
MISCELLANEOUS							
Vehicle/Truck Trunk/Bed Space or Volume Encroachment: Yes _____ No _____							
Using a 5-inch cubic go/no-go block, with the vehicle loaded to GVWR and standing on a flat surface, when the block is in contact with the flat surface and passed beneath the sprung portions of the vehicle, the block does not contact the sprung portions of the vehicle. CLEARANCE (inches) _____							
Verify that the fuel gauge is accurate to ± 10% of full scale. ACCEPTABLE_____ UNACCEPTABLE_____							

APPENDIX-B
Vehicle Receipt Check List
(Page 3 of 3)

General Comments (initials/date):

Completed By:	(Printed Name)	(Signature)	(Date)
Reviewed By:	(Printed Name)	(Signature)	(Date)
Approved By:	(Printed Name)	(Signature)	(Date)