Technical Service Information

TSI–04–13–01

This TSI replaces 03–13–03

Date: January, 2004

Subject File: TRANSMISSION

Subject: Addition of Fault Code 91 and Revised Electrical Pretest for Eaton AutoShift Transmissions

Model: 9200i

Model: 9400i

Model: 9900i

Unit Code: 13GNT

Unit Code: 13GNU

Unit Code: 13GNV

Unit Code: 13GNW

DESCRIPTION

NOTICE

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Roadranger

Information Bulletin

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Date: October 31, 2003

Bulletin Type: Software / Diagnostics **TAIB-0804**

Topic: Addition of Fault Code 91 and revised Electrical Pretest

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Issue/Background:
Lack of a true “load” test that determines the integrity of the main power and ground supply to the Transmission ECU (Fault Code 91). It was determined that previous version of the Electrical Pretest could cause damage to critical connections needed for Autoshift operation.

Correction/Action:
Introduce Fault Code 91. Fault Code 91 measures voltage at the Transmission ECU main power supply prior to transmission calibration and then while deadheading the rail motor. The system then interprets both measurements and determines the resistance between the Transmission ECU and the battery and or starter connections. Fault Code 91 will be set Inactive if the resistance level is greater than .5 ohms. **Note: Fault Code 91 will never be set active.**

New Electrical Pretest is a basic check of the critical powers and grounds that supply the transmission and also checks the battery integrity.

Affected Population:
Generation 2 transmissions with fall of 2002 software level equal to 794,795,796,797(System) and 088(Transmission) or greater will be capable of setting Fault Code 91.
The revised Electrical Pretest is not software level dependant.

Warranty:
New version of the TRTS-0062 Troubleshooting Guide that includes both of the changes can be viewed online at http://www.inforanger.roadranger.com/inforanger/asp/

 FSUD: 2003-AT-4094

System Code: 91 (SID 251, FMI 5) Power Connection

Overview

This fault code indicates an excessive resistance has been detected between the power supply source (battery or starter) and the transmission controller.

Detection

The fault is detected during power down.

NOTE: The fault will only be set inactive.

Fallback

None

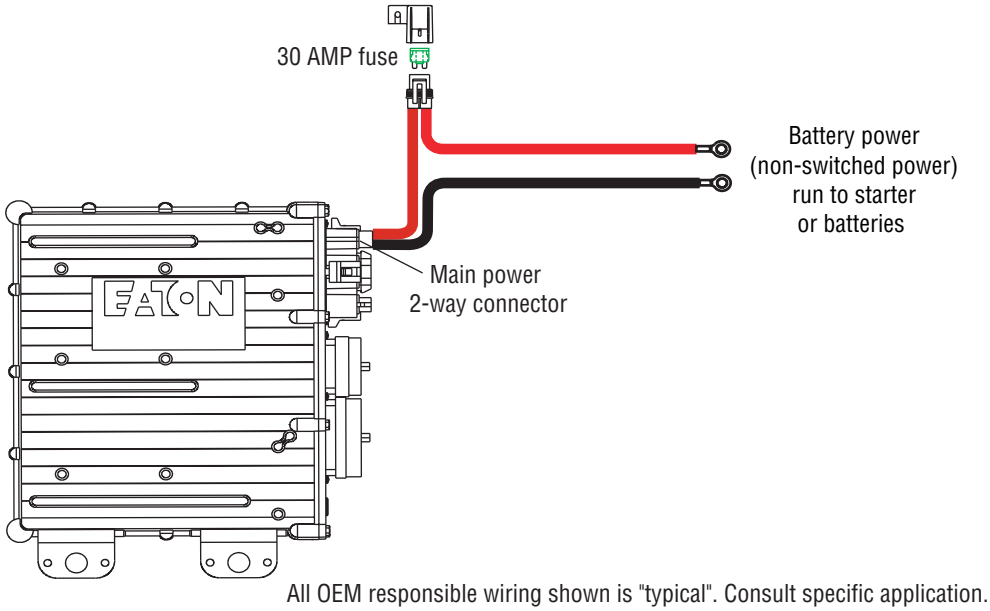
Required Tools

- Basic Hand Tools
- Troubleshooting Guide

Possible Causes

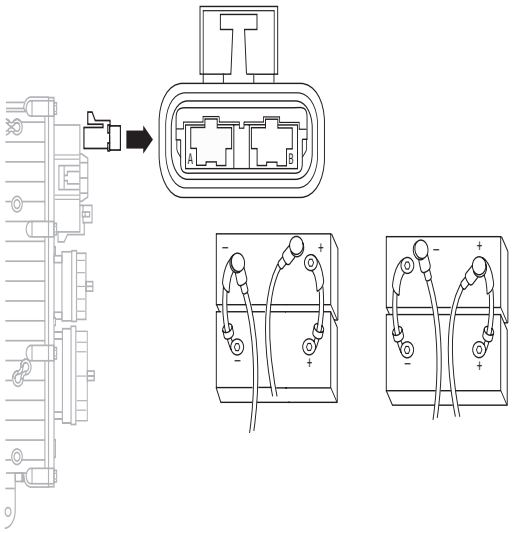
This fault code can be caused by any of the following:

- OEM Wiring Harness between battery or starter and transmission controller.



Code 91(SID 251, FMI 5), Power Connection Test

Step A	Procedure	Condition	Action
	1. Key off. 2. Disconnect the main power 2-way connector on the Transmission Controller. Disconnect battery power supply from vehicle. (may be starter post or battery) check with OEM for exact location 3. Inspect main power two-way connector terminals, in-line fuse holder, and power supply connections for integrity and corrosion.	→	
		If no problem found	→ Go to **Step V.**
		If problem is found	→ Repair power/ground path for the main power supply. Go to **Step V.**



Code 91(SID 251, FMI 5), Power Connection Test, continued

Step V	Procedure	Condition	Action
	1. Key off. 2. Clean and reconnect all connectors. 3. Key on. 4. Clear codes (see page 1-3). 5. Use Driving Techniques to attempt to reset the code (see page 1-4).		
	6. Check for codes (see page 1-3).	If no codes	Test complete.
		If code 91 appears	Return to **Step A** to find error in testing.
		If code other than 91 appears	Go to **Fault Code Isolation Procedure Index** (see page 1-8).

Electrical Pretest

Overview

The test does not relate to any specific fault code, but must be completed before performing Fault Code Isolation Table procedures. The pretest verifies the batteries are fully charged.

Detection

There is no detection process specifically for the basic electrical supply. However, failures of this type are generally detected by the transmission or driver as some other type of fault code or symptom.

Fallback

There is no fallback for the electrical pretest, however, it may effect other systems.

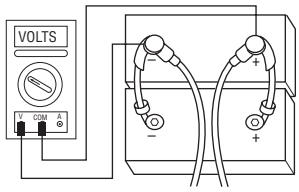
Required Tools

- Basic Hand Tools
- Digital Volt/Ohm Meter
- Troubleshooting Guide
- Battery Load Tester

Possible Causes

This pretest can be used for any of the following:

- Low Batteries
- Starter/Battery connections



Electrical Pretest

Step A	Procedure	Condition	Action
	1. Key off.		
	2. Inspect starter/battery and inline fuse holder connections for integrity.		
	3. Measure voltage across batteries. →	If voltage is 11 to 13 volts on a 12 volt system or	
		22 to 26 on a 24 volt system →	Proceed with battery load test. Repair or replace batteries as required .
		If voltage is outside of range →	Repair or replace batteries and charging system as required. Repeat this step.