

Charging System 812FJ

Student Manual

Charging System

Activity 1

Program Overview

Performance Objectives:

- Identify all training materials used in the program.
- Explain the course objectives and NATEF tasks to be accomplished.
- Perform a system demonstration.

Tools and Materials:

- ATech Model 812FJ Charging System Trainer
- Fully charged 12-Volt Battery
- Jumper Cables (to connect the battery to the trainer)
- Starting and Charging Tester with inductive ammeter and carbon-pile load (VAT 40 or equivalent)
- Battery Charger
- Digital Multi-Meter

References:

- Ford Starting and Charging System Diagnosis Reference Book
- Ford Service Manual Information - Battery Maintenance
- 2003 Chevrolet Impala Service Manual Information

Program Materials:

Locate the ATech Model 812FJ Charging System Trainer, a fully-charged 12V battery and jumper cables, the test equipment (as specified under the Tools and Materials heading on the preceding page), the Reference Book, and the Service Manual Information. During this program, you will be asked to work with one or more of these “pieces of equipment”.

The ATech Charging System Training Program is divided into separate Activities found in the Student Manual. Most activities will ask you to answer questions from the Reference Book and the Service Manual Information, and to complete On-Trainer and/or In-Shop Worksheets.

Course Objectives:

This ATech program is designed to address the following NATEF Task areas:

VI. ELECTRICAL/ELECTRONIC SYSTEMS

- A. General Electrical System Diagnosis**
- B. Battery Diagnosis and Service**
- D. Charging System Diagnosis and Repair**

The activities cover diagnosis, testing, and repair of Battery and Charging System components.

NATEF Task Record Keeping:

A NATEF Task Record Keeping Sheet is provided at the end of each group of activities; one for Battery, one for Starting, and one for Charging. After completing a group of activities, ask your instructor to review your ability to perform the NATEF tasks for that area and to record your progress on the appropriate NATEF Task Record Keeping Sheet.

Service Manual Information:

- Locate the 2003 Chevrolet Impala Service Manual Information for the Charging System Program. Turn to the Table of Contents.

1. Identify the pages where the following information begins:
 - a. Generator Usage _____
 - b. Charging System Description and Operation _____
 - c. Charging System Test _____
 - d. Battery Charging _____
 - e. Battery Disconnect Caution _____

During this program, you will be required to answer questions taken from this service information.

Conclusion:

This ATech program is designed to teach you how the Battery and Charging System works and how to diagnose electrical faults in the system. The training materials include the ATech Trainer with 12-Volt Battery, Service Manual Information, and activities found in the Student Manual.

Complete the On-Trainer Worksheet at this time.

On-Trainer Worksheet

Activity 1

Charging System Trainer Overview

Tools and Materials:

- ATech Model 812FJ Charging System Trainer
- Fully charged 12-Volt Battery

Procedures:

1. Identify each of the following Components on the ATech Charging System Trainer. Check off each item below as you identify it:

- _____ Generator
- _____ GEN-L Indicator
- _____ BATT Indicator
- _____ MIL Indicator
- _____ Generator Connector
- _____ C2-61 / Ground (PCM) Connectors
- _____ Fuse Block
- _____ DLC

- Set the System Power Switch to the OFF position.
- Set the Ignition Switch to the OFF position.
- Set the Motor Switch (located on the trainer side of the motor) to the OFF (down) position.
- Make sure both of the trainer's Connector switches are in the connected position.
- Make sure the Scan Tool Mode / User Mode switch is in the down (User Mode) position.
- Connect the ATech Charging System Trainer to the 12-Volt Battery.

Be sure to observe the correct polarity!

- Turn the System Power Switch on.
 - Turn the Ignition Switch on.
2. Which Indicators come on? (choose all that apply if more than one)
 - a. GEN-L
 - b. BATT
 - c. MIL
 - d. All of these
 - Flip the Motor Switch (located on the trainer side of the motor) to the ON (up) position.
 3. Which Indicators come on? (choose all that apply if more than one)
 - a. GEN-L
 - b. BATT
 - c. MIL
 - d. All of these

4. Do the Indicators that came on in Question 2 go off when the motor is running?

- a. Yes
- b. No

- Set the Motor Switch (located on the trainer side of the motor) to the OFF (down) position.
- Set the Ignition Switch to the OFF position.
- Set the System Power Switch to the OFF position.
- Disconnect the ATech Charging System Trainer from the 12-Volt Battery.

Conclusion:

The ATech Charging System Trainer presents the live operation of a Charging System to help you transfer the necessary skills and knowledge to a live vehicle.