E LESSON 2 – REMOVE AND REPLACE AUTOMOTIVE BATTERY

INTRODUCTION

Replacing a battery seems simple—but done incorrectly, it can cause serious electrical damage, erase vehicle settings, or even result in injury. This lesson covers the correct tools, safety procedures, and step-by-step method for removing and installing automotive batteries safely and professionally.

© LEARNING OBJECTIVES

By the end of this lesson, students should be able to:

- I. Explain the safety precautions required before and during battery removal or replacement.
- Demonstrate the correct procedure to remove and install a 12V automotive battery.
- 3. Verify post-installation functions to ensure proper operation of vehicle systems.

SECTION I: SAFETY PRECAUTIONS

Batteries can explode, leak acid, or shock the user if mishandled.

Before starting:

- Turn off engine and all electrical accessories
- Wear safety gloves and goggles
- Ensure tools have insulated handles
- Check for loose cables, corrosion, or signs of leakage

Always remove the NEGATIVE terminal first, and install it last. This avoids accidental short-circuiting.

SECTION 2:TOOLS AND MATERIALS NEEDED

Tool / Material	Use
Wrench or socket set	Loosen battery clamps and brackets
Battery terminal puller	Helps remove stuck cable terminals
Wire brush	Clean corrosion off terminals
Petroleum jelly / anti-corrosion spray	Protect new terminals from rust
Battery carrier (strap or handle)	Safer lifting of heavy batteries

SECTION 3: REMOVAL PROCEDURE (STEP-BY-STEP)

- Turn off ignition and remove key.
- Locate the battery—usually in the engine bay or trunk.
- Identify the terminals: Positive (+) and Negative (-)
- Remove the negative cable first
- Remove the positive cable second
- Loosen or unbolt the battery hold-down bracket
- Carefully lift the battery straight up using a carrier or both hands

TIP: Avoid tipping the battery—liquid acid may spill in older types.

SECTION 4: REPLACEMENT PROCEDURE

- Clean battery tray and cable ends using a wire brush
- Place the new battery in the tray (matching polarity)
- Secure it using the hold-down bracket
- Connect the positive cable first
- Connect the negative cable last
- Apply anti-corrosion gel to terminals if available
- Double-check all connections are tight and secure

SECTION 5: AFTER INSTALLATION CHECKS

After the battery is replaced, perform the following checks:

- Start the engine
- Check for warning lights on the dash
- Reset clock, radio, and electronic settings if necessary
- Verify battery voltage with a multimeter (should be 12.4–12.8V)
- Inspect for sparking or smoke (which indicates loose or incorrect wiring)

COMMON MISTAKES TO AVOID

Mistake	Risk
Removing the positive terminal first	May cause sparks if tool touches metal
Forgetting to secure the battery	Movement may damage cables or short out
Using uninsulated tools	Risk of shock or short circuit
Over-tightening clamps	Can crack battery post or cable lugs

*** RECOMMENDED VIDEO

 Video: How to Change a Car Battery | DIY Car Repairs | The Home Depot YouTube Channel: How to Change a Car Battery | DIY Car

https://www.youtube.com/watch?v=0JE-VbmzOzo

Shows:

- Removal and installation process
- Proper order of connections

Repairs | The Home Depot

- Tools, safety, and tips for beginners



LESSON SUMMARY

- Removing and replacing a battery requires proper order, tools, and safety.
- Always disconnect negative terminal first, reconnect last.
- Use corrosion prevention methods and check system function afterward.
- Avoid shortcuts—batteries are powerful and dangerous if mishandled.

REFERENCES

- Auto Electrical System Module Competency-Based Learning Material https://www.scribd.com/document/601714455/Auto-Electrical-System-Module-PDF
- TESDA Training Regulations Automotive Servicing NC II https://www.tesda.gov.ph
- YouTube ChrisFix / The Home Depot
 How to Replace a Car Battery Safely
 https://www.youtube.com/watch?v=8oJBgWkAFeA
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