LESSON 3 – SERVICE AND CHARGE BATTERY

INTRODUCTION

Even a good-quality automotive battery will eventually require maintenance or charging due to age, extreme temperatures, or long periods of inactivity. Improper maintenance leads to shortened lifespan, poor performance, and no-start issues. This lesson teaches learners to safely perform basic battery servicing and charging procedures, which are critical to automotive reliability and safety.

© LEARNING OBJECTIVES

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

- I. Describe the basic service needs of different battery types, especially lead-acid batteries.
- 2. Perform correct battery charging procedures using appropriate equipment.
- 3. Identify signs of battery faults and know when servicing is no longer sufficient.

SECTION I: TYPES OF AUTOMOTIVE BATTERIES

Туре	Description
Flooded Lead-Acid (FLA)	Traditional serviceable type with removable caps
Maintenance-Free (MF)	Sealed, no need to add water, requires voltage testing only
AGM (Absorbed Glass Mat)	Sealed type, supports fast charge/discharge, sensitive to overcharging

SECTION 2: SERVICING LEAD-ACID BATTERIES

1. Visual Inspection:

Look for cracked case, bulging sides, leaking acid, corrosion, loose clamps

2. Cleaning Terminals:

Use wire brush, baking soda + water mix, rinse and dry, apply jelly/spray

3. Check Electrolyte Level (FLA only):

Open caps, ensure electrolyte covers plates, top up with distilled water

→ SECTION 3: CHARGING AUTOMOTIVE BATTERIES - SAFETY

Safety First:

- Ventilated area (explosive hydrogen gas)
- Wear goggles and gloves
- No flames, sparks, or smoking
- Disconnect negative terminal before removal

→ SECTION 3: CHARGING - CHARGER TYPES

Type

Manual Charger

Automatic Charger

Smart Charger

Description

Requires supervision; must be disconnected manually

Stops or switches to maintenance mode when full

Adjusts rate based on battery condition and type (ideal for AGM/gel)

→ SECTION 3: CHARGING - PROCEDURE

- Turn off charger before connecting
 - Connect positive to +, negative to -
 - Set charger based on battery type (6V/12V, FLA/AGM)
 - Turn on charger
 - Monitor charge: 12.6–12.8V target, 10% of Ah rating rate
 - Turn off and disconnect cables in reverse
 - Oharging a dead battery may take 4–12 hours

Types of Chargers:

Туре	Description
Manual Charger	Requires supervision; must be disconnected manually
Automatic Charger	Stops or switches to maintenance mode when full
Smart Charger	Adjusts rate based on battery condition and type (ideal for AGM/gel)

Charging Procedure (General):

- I. Turn off charger before connecting
- 2. Connect positive clamp to + terminal, negative clamp to terminal
- 3. Set charger based on battery type (6V/12V, FLA/AGM)
- 4. Turn on charger
- 5. Monitor charging:
 - 12V batteries: charge until they reach 12.6–12.8V
 - Typical charging rate: 10% of battery Ah rating (e.g., 4A for a 40Ah battery)
- 6. Turn off charger, disconnect cables in reverse order
- The condition and charger output.

SECTION 4: SIGNS OF BATTERY FAULTS (BEYOND CHARGING)

Sign	Likely Problem
Voltage doesn't rise during charging	Sulfated or shorted battery
Battery charges too quickly, then dies	Low capacity or internal damage
Excessive bubbling, overheating	Overcharging, internal short
Leaks or strong acid smell	Case damage or overheating

If these signs appear \rightarrow replace the battery.

RECOMMENDED VIDEO TUTORIAL

Video: How to Charge a Car Battery the Right Way
 YouTube Channel: ChrisFix

https://www.youtube.com/watch?v=COJr7OB23Hw

Covers:

- Charger settings
- Proper connection order
- Safety tips for flooded vs. sealed batteries

LESSON SUMMARY

- Batteries require regular inspection, cleaning, and recharging
- Use only distilled water in refillable batteries
- Match charger type to battery type (avoid overcharging sealed batteries)
- Monitor voltage, temperature, and charge time
- Know when to replace instead of charge again

REFERENCES

 Auto Electrical System Module – Competency-Based Learning Material (TESDA)

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
 How to Charge a Car Battery the Right Way
 https://www.youtube.com/watch?v=COJr7OB23Hw