⚡ LESSON 4 – JUMP START A VEHICLE

INTRODUCTION

A vehicle that won't start due to a dead or weak battery is a common occurrence. One of the fastest ways to restore function is through jump-starting using another vehicle or a jump starter pack. However, incorrect connection can cause electrical system damage, personal injury, or even battery explosion. This lesson will guide you through safe and proper jump-starting procedures in compliance with industry best practices.

🎯 LEARNING OBJECTIVES

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

1. Explain the purpose and safety considerations when jump-starting a vehicle.
2. Demonstrate the correct connection and disconnection sequence for jumper cables.
3. Differentiate between jump-starting with another vehicle vs. a jump pack.

⚠️ SECTION 1: SAFETY FIRST

Hazards of improper jump-starting:
- Sparks can ignite hydrogen gas from batteries
- Connecting cables in reverse can cause ECU damage
- Poor contact can result in electrical arcing
- Incorrect grounding may cause shock or fire

Before starting:
- Wear goggles and gloves
- Make sure vehicles are not touching
- Set both vehicles in Park (P) or Neutral (N) with parking brakes engaged
- Turn OFF all accessories and ignition in both vehicles

SECTION 2: EQUIPMENT NEEDED

Tool	Use
Jumper Cables	Connect battery terminals between vehicles
Portable Jump Starter	Provides battery boost without another car
Safety Gloves & Goggles	Personal protection from sparks, acid, etc.

Cable Reminder:
RED = Positive (+)
BLACK = Negative (–)

🔋 SECTION 3: JUMP STARTING WITH ANOTHER VEHICLE

1. Position vehicles: Park them close, but not touching
2. Identify terminals: Confirm + and – on both batteries
3. Connect cables in this order:

✅ Connection Sequence:

- Red cable to positive (+) terminal of dead battery
- Red cable to positive (+) terminal of good battery
- Black cable to negative (–) terminal of good battery
- Black cable to unpainted metal part of dead vehicle's engine block or chassis (NOT the battery!)

4. Start the engine of the donor (good) vehicle
5. Wait 1–2 minutes, then start the dead vehicle
6. Once engine runs, remove cables in reverse order:

🔁 Disconnection Sequence:
- Black cable from engine/chassis of boosted car
- Black cable from donor battery
- Red cable from donor battery
- Red cable from boosted battery

7. Let the engine run for at least 10–15 minutes to recharge

🔋 SECTION 4: JUMP STARTING WITH A JUMP PACK

- - Turn off vehicle ignition
  - Connect red clip to positive terminal
  - Connect black clip to engine ground or unpainted metal
  - Power on jump starter
  - Attempt to start vehicle
  - Once engine starts, turn off jump pack and disconnect in reverse order

  ⚠️ Always check the voltage and compatibility before using a jump pack.

🧠 IMPORTANT REMINDERS

- Never allow cable clamps to touch each other
- Do not jump-start a frozen or damaged battery
- Avoid using jump start on hybrid or electric vehicles unless specifically trained
- Don’t use a jump pack while it’s being charged

🎥 RECOMMENDED VIDEO TUTORIAL

- Video: How to Jump Start Your Car

  YouTube Channel: Cars.com

  📺 https://www.youtube.com/watch?v=VdnkRQF5Cps

  Covers:

  - Proper sequence
  - Common mistakes
  - Safety advice and real demo

✅ LESSON SUMMARY

- Jump starting is useful but must be done with precision and caution
- Always follow the correct sequence of cable connection and removal
- Use jump packs only if they are rated for the vehicle type
- Post-start, allow time for alternator to recharge the battery
- If a battery dies repeatedly, it likely needs replacement or further testing

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 Jump Start a Car the Right Way
  https://www.youtube.com/watch?v=5pu7X3a2u5Q