



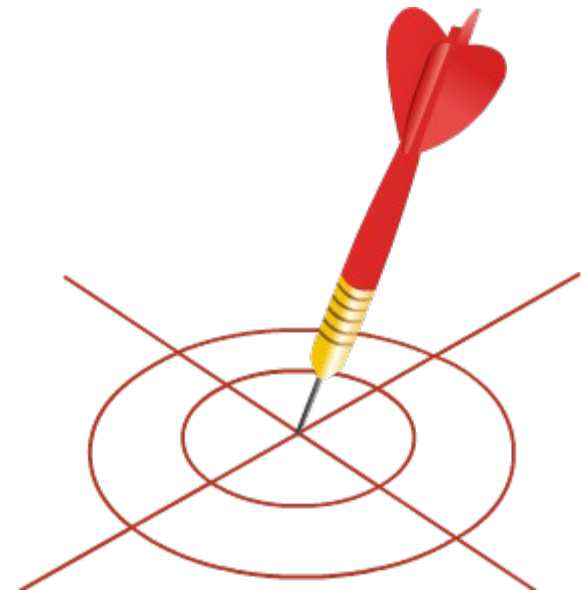
**Welcome to the Session on
LT and HT Line Maintenance**

Learning Objectives



By the end of this session, you will be able to:

- Explain the steps involved in maintenance of LT and HT power distribution lines
- Identify the accessories installed on LT and HT lines, along with electrical switch gears and their components
- Explain the PPE, safety tools and tackles required for working on preventive maintenance of overhead lines



- Preventive maintenance is carried out for safe and proper functioning of distribution lines, machines and equipment throughout their usable life
- Such maintenance helps reduce breakdowns and unplanned shutdowns
- It also helps improve the reliability and quality of supply and reduces maintenance costs



Low Tension Line Maintenance



Before starting work, the team makes certain preparations, like checking tools and wearing personal protective equipment.



Safety Equipment Used by Linemen



Discharge Rod



Clamp



Hook

Safety Equipment Used by Linemen



Safety Gloves



Safety Harness



Danger Board



Safety Equipment Used by Linemen



Safety Chain



Lock Out and Tag
Out Tag



Screwdrivers

Tools Used by Technicians



Pipe Wrench



Nose Pliers



Adjustable Wrench

Tools Used by Technicians



Hammer



Insulation Tapes of Different Colours



HT Tape

Tools Used by Technicians



CRC Spray



Hydraulic
Crimping Tool

Tools Used by Technicians



Hacksaw



Tree Saw

Safety Equipment Used by Linemen



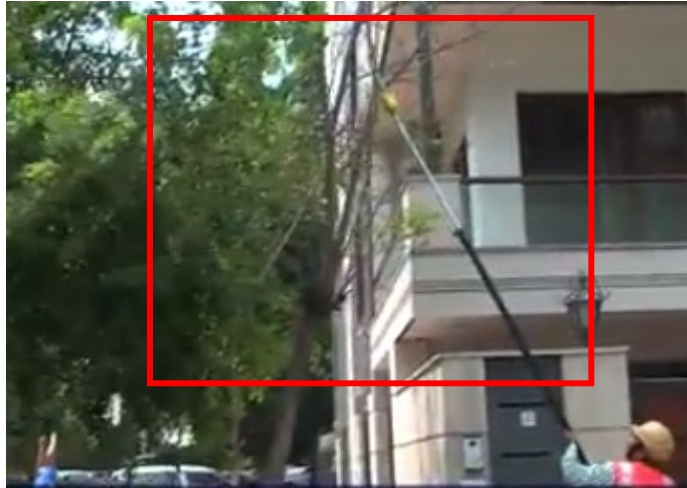
Name of the Lineman



Date of Work

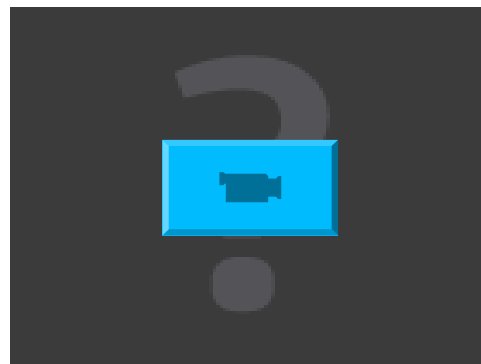


Trimming the Tree with Tree Saw



Tree saw

Cutting the tree with tree saw



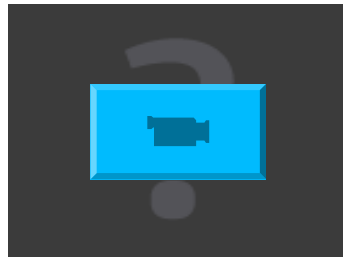
LT Line Maintenance – Safety Measures



LT Line
Maintenance Pole



Ladder to
Climb the Pole



LT Line Maintenance – Safety Measures



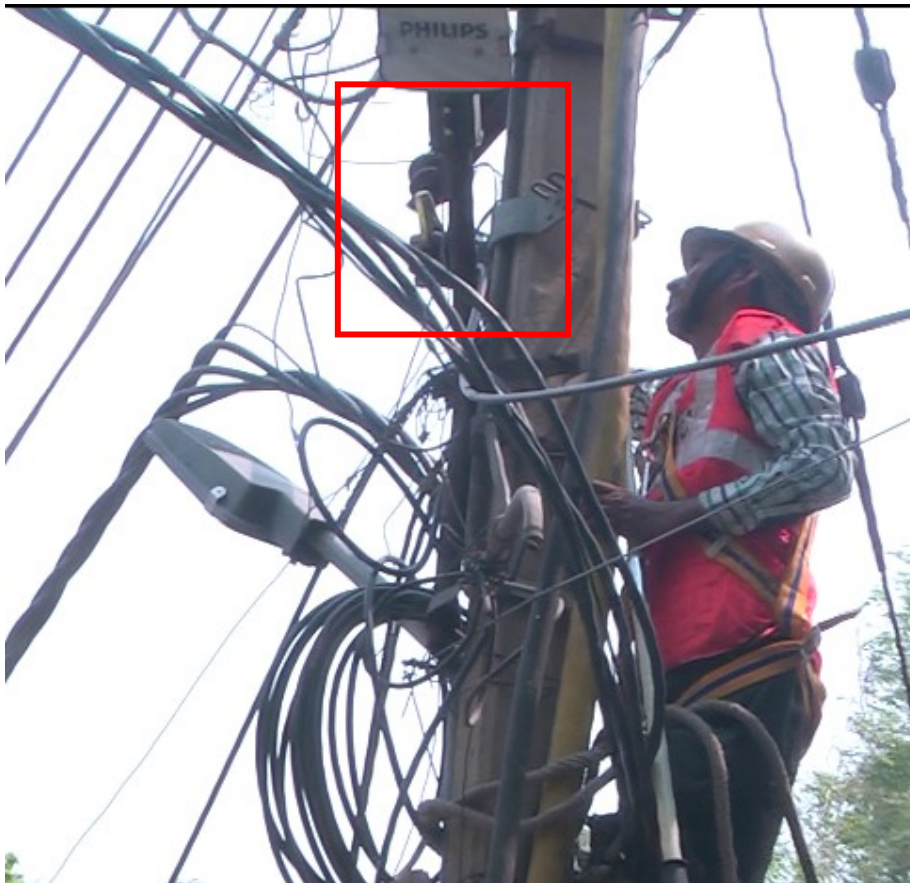
Helmet

Rope

**Safety Body
Harness**

**Climbing the
Ladder**

LT Line Maintenance – Safety Measures

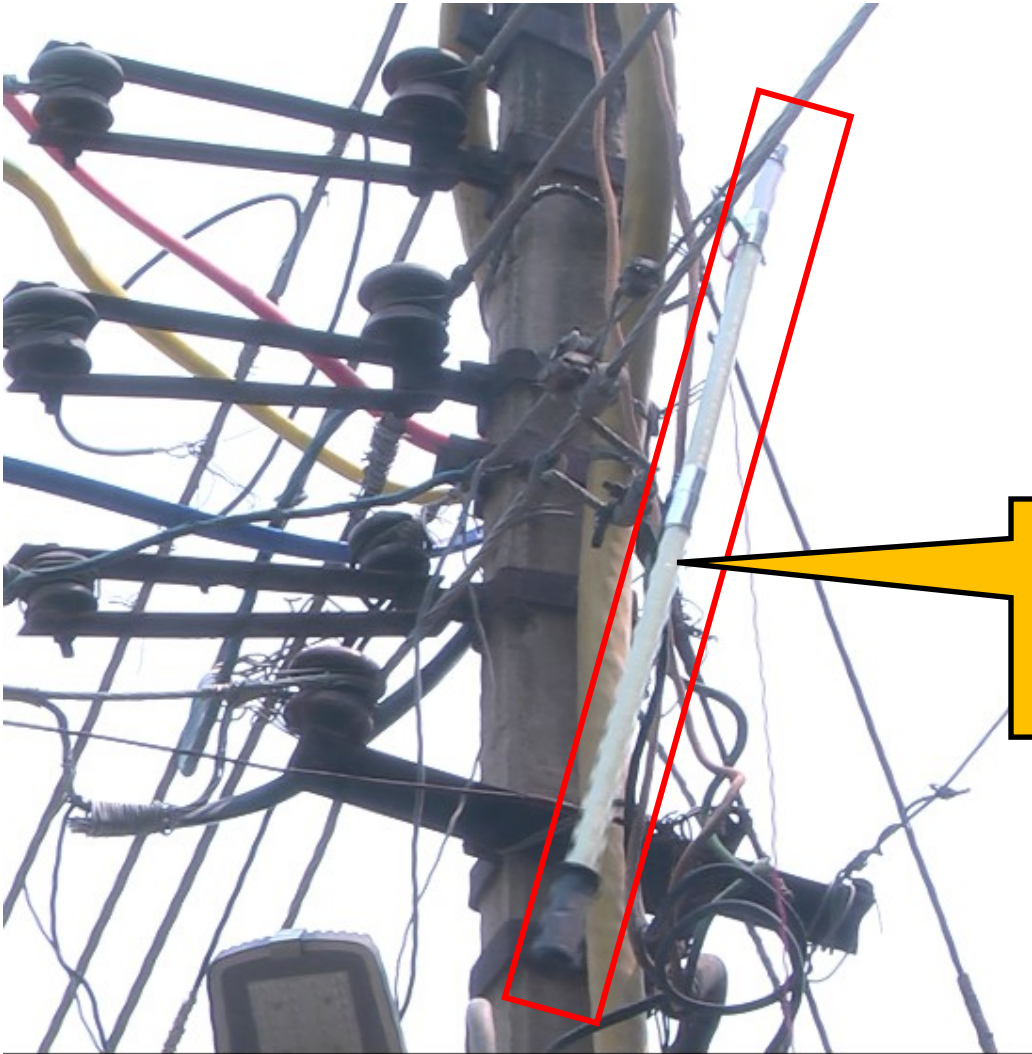


Connecting the discharge rod earth lead with a clamp



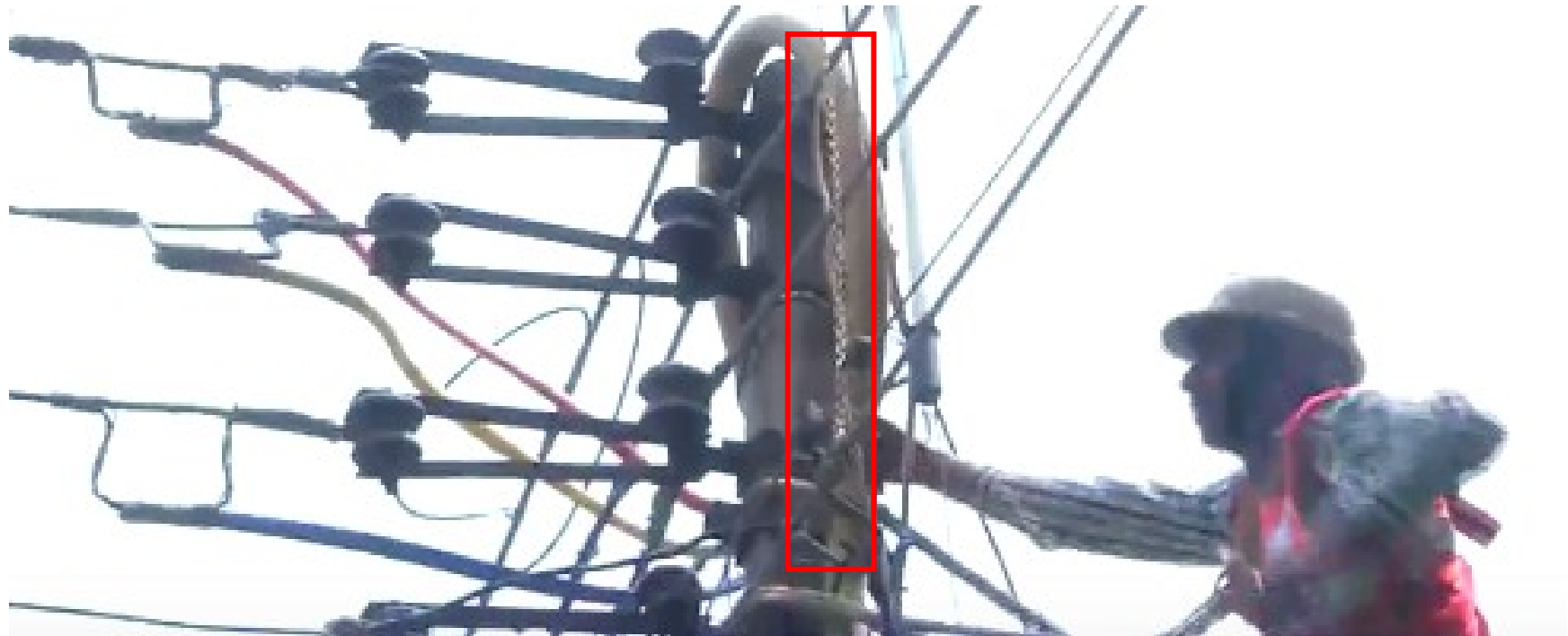
Discharge Rod

LT Line Maintenance – Safety Measures



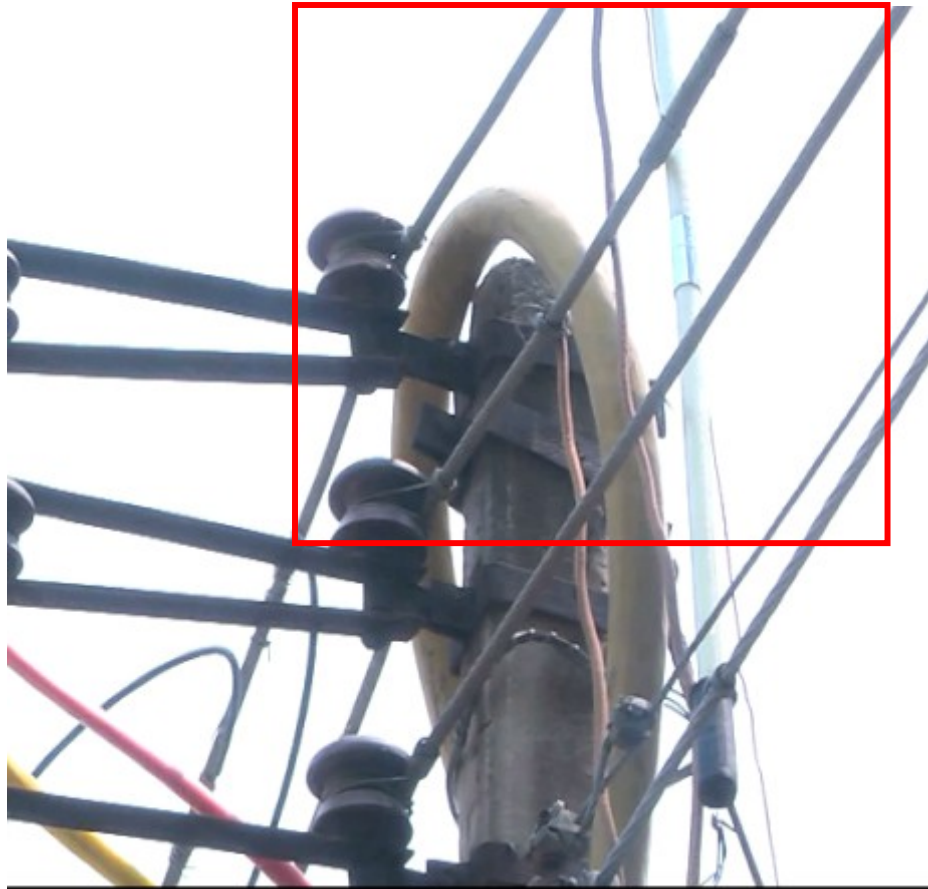
Discharge rod is hung on the wire

LT Line Maintenance – Safety Measures

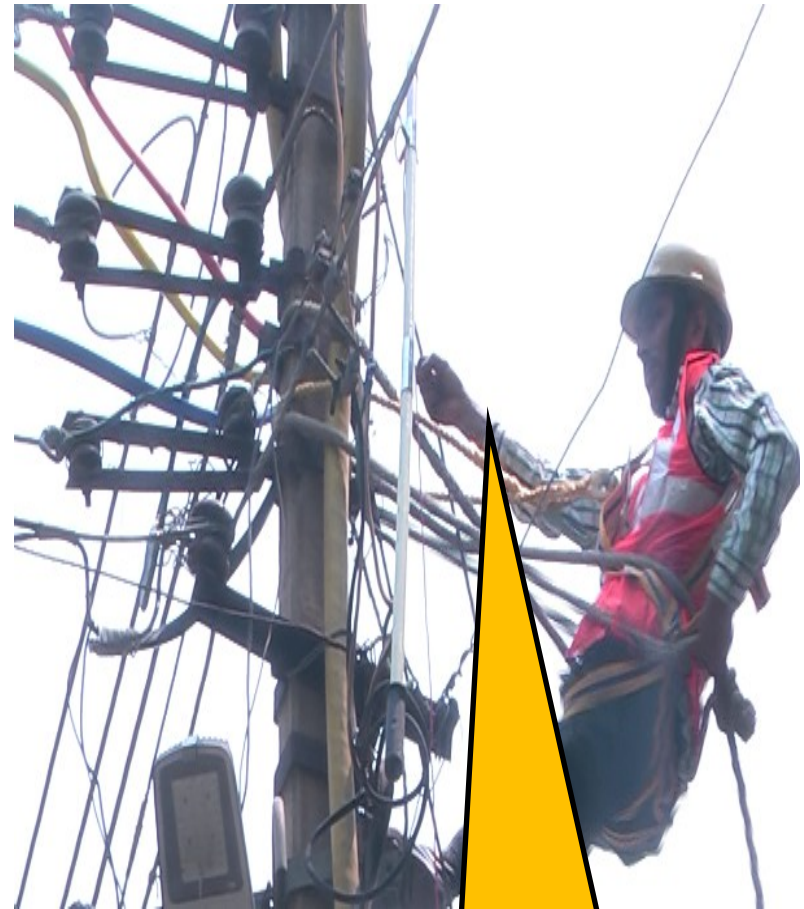


Shorting all the three phase lines with the help of grounding or short chain

LT Line Maintenance – Safety Measures



Three-Phase Lines



Lineman working on three-phase lines

LT Line Maintenance – Safety Measures



Helper is providing D-clamp and a duster through rope



Lineman removing the dust from the insulators

LT Line Maintenance – Safety Measures



Fixing the D-Clamp



D-Clamp is fixed to avoid loose connections

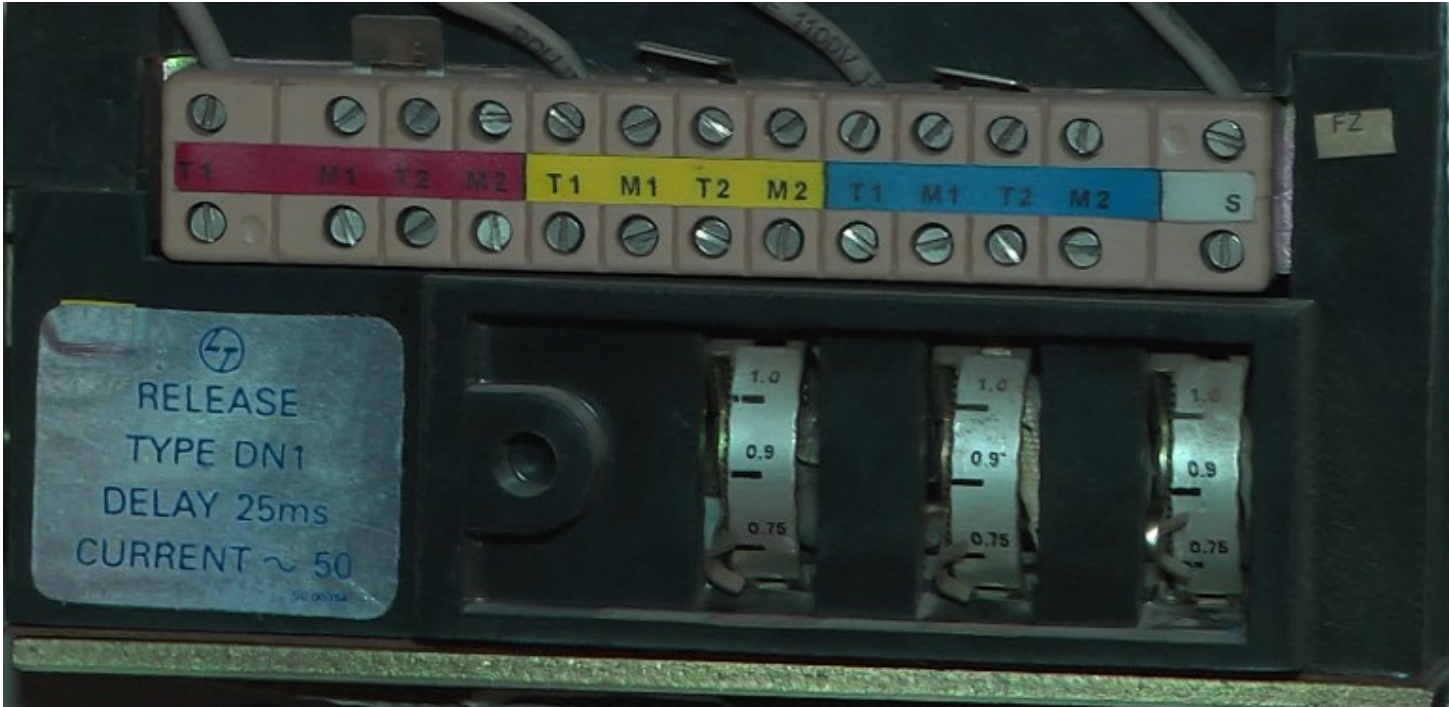
Use of Blower to Clean the Dust



Lineman using the blower to clean the dust on LT air circuit breaker

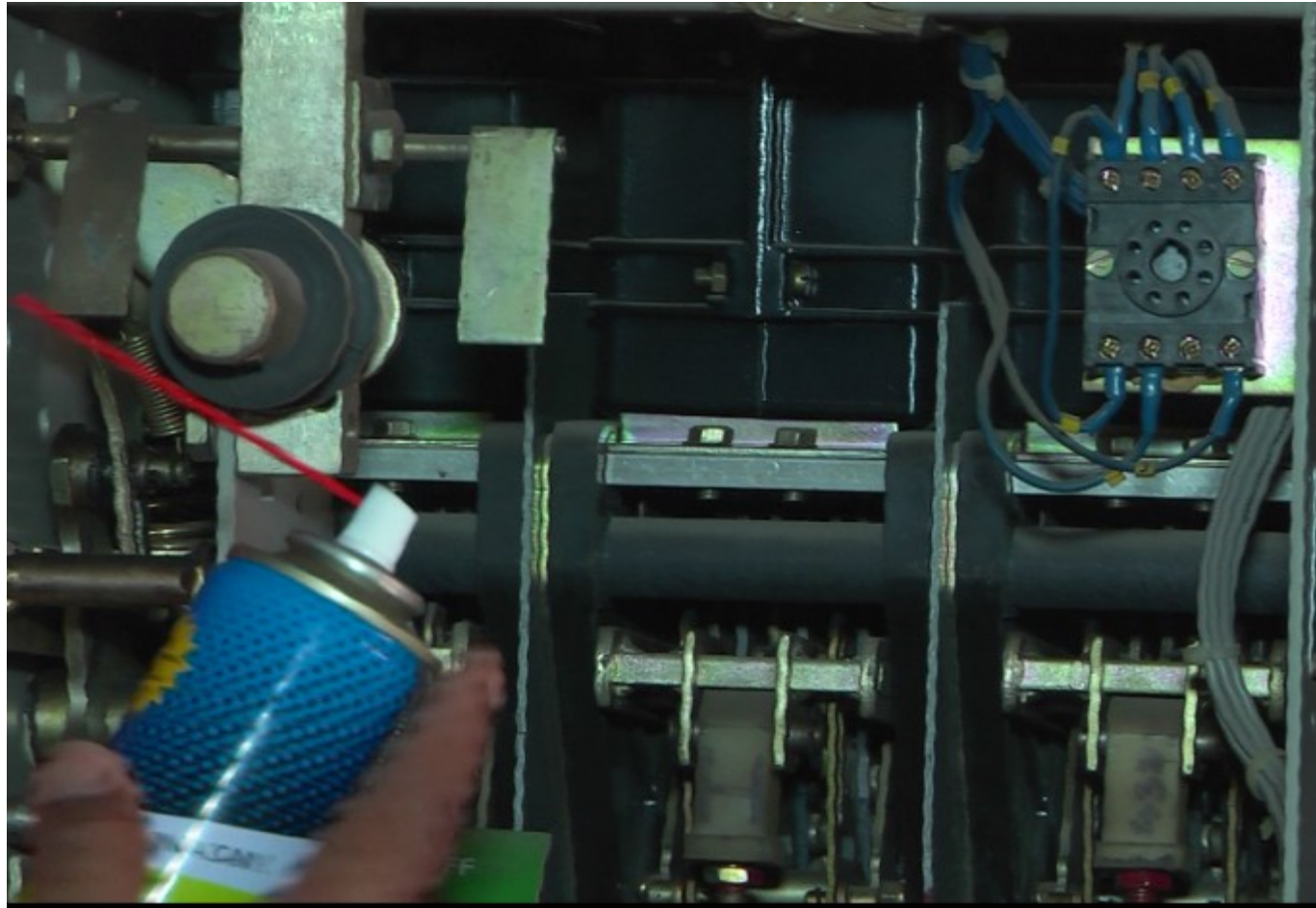


LT Line Maintenance – Safety Measures



Relays for proper settings

LT Line Maintenance – Safety Measures



Cleaning with CRC Spray

- We need PPE, safety and other tools and tackles required for preventive maintenance of HT overhead lines
- Preventive maintenance is taken up as per the periodical schedules fixed
- Maintenance is carried out only after getting the planned shutdown approval and Permit to Work (PTW) on a particular HT feeder



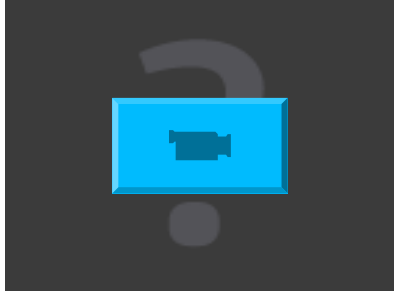
HT Overhead Line Preventive Maintenance



Double Pole (DP) Structure



Check for Loose Connections



HT Overhead Line Preventive Maintenance



Cutting the tree with tree cutter



Trimming the tree with saw



Trimming the tree manually

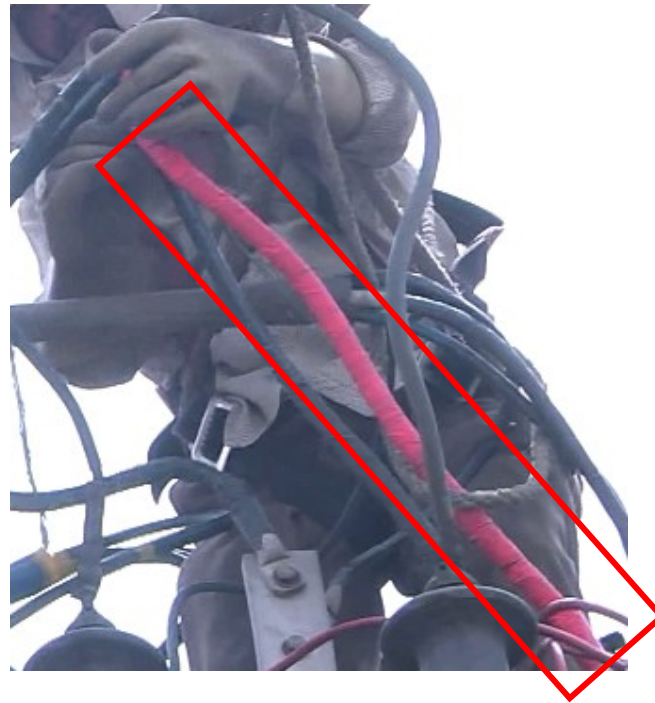


Lineman repairing the LT
cable joints

HT Overhead Line Preventive Maintenance



Tightening the Sockets



Covering the Cable with LT Tape

HT Overhead Line Preventive Maintenance



Replacing the old and worn-out DD fuse units is part of preventive maintenance

HT Overhead Line Preventive Maintenance



Old fuse units

New fuse unit with barrel to insert fuse element



Procedure to Change Jumpers of DD Fuse unit

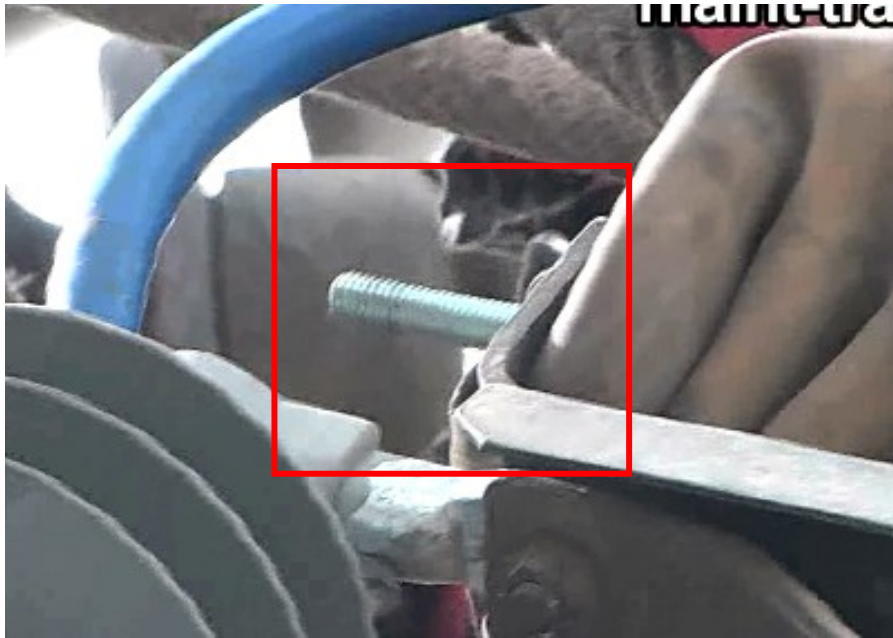


Burnt DD fuse jumpers



New jumpers to be used for replacement

Procedure to Change Jumpers of DD Fuse unit



Lineman fixing jumpers in new DD fuse assembly at pole

Lineman cleaning the porcelain insulators

Key Learning Outcomes



- Preventive maintenance is carried out periodically to ensure that machines and equipment are safe and in a good working condition
- A discharge rod is used for discharging the line or live equipment before working on that equipment
- The important safety tools used include gloves, safety harness, danger boards, safety chain, lock out and tag out tags and other tools



Key Learning Outcomes



- Hydraulic crimping tool is used to crimp 630 and 300 square millimetre sockets
- A blower is used to clean the dust accumulated in switchgears
- HT Handle is used to switch the equipment On or Off
- D clamps are used on line conductors to avoid carbon and hot spots in the main line conductor
- Spacers are used to provide gaps on overhead lines
- A tree saw is used for trimming trees

