

## Working Near Overhead 'Dck Yf Lines

### 1. Low Voltage Overhead 'Dck Yf Lines

Low voltage is classed as voltages up to 1000V AC and 1500V DC

Aerial bundle conductor (ABC) low voltage overhead power lines (figure 1) are used as an alternative to uninsulated conductor low voltage overhead power lines (figure 2).

ABC low voltage overhead power are insulated and bound together to form one continuous conductor. Uninsulated low voltage lines are arranged vertically with 1, 2 or 3 phases above the neutral conductor. The neutral conductor is spaced lower than the phases for safety purposes.

These types of overhead power lines are for domestic distribution and are commonly found near housing and commercial buildings, normally running along carriageways (figure 3).

Examples of low voltage overhead power lines are shown below:



**Figure 1**  
Aerial Bundle Conductor  
Low Voltage Overhead  
Power Lines



**Figure 2**  
Uninsulated Conductor  
Low Voltage Overhead  
Power Lines



**Figure 3**  
Three Phase, Neutral, Uninsulated  
Conductor Low Voltage Overhead  
Power Lines

## 2. High Voltage Overhead Power Lines

High voltage is considered to be any voltage above 1000V AC and 1500V DC.

Most 11kV and 33kV overhead power lines are horizontally mounted on wooden poles (figures 4 - 6) in contrast to uninsulated low voltage wooden pole mounted overhead power lines, which are mounted vertically. These types of overhead power lines can also be found along carriageways in urban areas.

There are many variations of high voltage overhead power lines; always seek advice from your supervisor to calculate the exclusion zone and stand off distance and prior to deciding on the best course of action to take.

Examples of high voltage overhead power lines are shown below:



**Figure 4**  
11kV Overhead  
Power Lines



**Figure 5**  
11kV Overhead  
Power Lines



**Figure 6**  
33kV Overhead  
Power Lines

## High Voltage Tower Mounted Overhead Power Lines

High voltage overhead power lines above 33kV are normally mounted on towers, however there are many variations in the type of tower and pole mounted overhead power line (figures 7 - 10). It is therefore vital that you seek advice from your supervisor to establish the voltage and type of overhead power line in order to calculate the exclusion zone and stand off distance prior to starting work.

Examples of high voltage tower mounted overhead power lines are shown below:



**Figure 7**  
66kV Tower Mounted  
Overhead Power Lines



**Figure 8**  
275kV - 400kV Tower  
Mounted Overhead  
Power Lines



**Figure 9**  
132kV Tower Mounted  
Overhead Power Lines

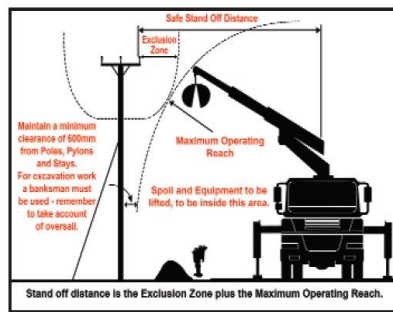
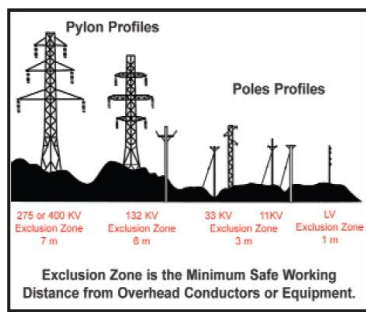


**Figure 10**  
132kV Pole Mounted Triton  
Overhead Power Lines

**Remember: it is vital to seek advice from your supervisor to establish the voltage and type of overhead power line to calculate the exclusion zone and stand off distance prior to starting work.**

### 3. Calculating Safe Stand Off Distances and Exclusion Zones

#### Overhead Power Line Exclusion Zones



#### Exclusion Zones

- Low-Voltage power lines = **1m**
- 11 kV and 33 kV power lines = **3m**
- 132 kV power lines = **6m**
- 275 kV and 400 kV power lines = **7m**

**Remember: to calculate the minimum stand off distance you must add the maximum reach of the vehicle to the overhead power line exclusion zone.**

### 4. Emergency Guidance

If the vehicle comes into contact with an overhead power line follow the procedure below:

#### If the vehicle is still operable:

Lower any raised parts that are controlled from the driving position and/or drive the vehicle clear of the power line, as long as neither of these actions risk breaking the power line or dragging it to the ground.

#### If the vehicle is not operable or cannot be driven clear of the line:

- Stay in the cab
- Immediately contact the site manager, or if you're unable to, then contact your line manager or transport controller by radio or mobile phone
- Instruct everyone outside the vehicle not to approach it
- **DO NOT** exit the cab until given **CLEAR** instruction that it is safe to do so

#### If the vehicle is inoperable or cannot be driven free and there is risk of fire or other immediate hazard(s):

- Jump clear of the vehicle, avoiding simultaneous contact with any part of the vehicle and the ground
- Try to land with your feet as close together as possible
- Where possible, continue to move away from the vehicle using "bunny hops" with your feet together until at least 15m from the vehicle
- Instruct other people nearby not to approach the vehicle

### 5. Further Guidance

- MUS-MOP's-S-022: Procedure for Avoiding Danger From Overhead Services
- HSE GS6 Guidance Note Avoiding Danger from Overhead Power Lines
- MUS-FM-S-013: Site Specific Risk Assessment