204: Installation of wiring systems and enclosures  
**Worksheet 2-060: Fused and non-fused spurs power circuit**

**NB**: Students must not attempt this exercise before the correct use of all tools and materials has been demonstrated.

**Technical data**

* You are to make sure that your work area is clear and safe for work to proceed.
* You are to make sure that all your work conforms to the requirements of the Health and Safety at Work Act.
* All practical electrical installation exercises must comply with BS7671 (IET Wiring Regulations).
* All terminations must be mechanically and electrically sound.

**Material required**

The following are the items of material required **IN ADDITION** to those used in the previous worksheet (Worksheet 2‑050).

|  |  |
| --- | --- |
| 3 off | Surface mounted moulded socket box 1‑gang |
| 1 off | Insulated switched flush socket outlet 1‑gang, 13A |
| 1 off | Insulated switched flush fused connection unit (C/W 3A fuse) |
| 1 off | ‘FAN’ connection unit |
| 2 off | Surface mounted moulded socket box 2‑gang |
| 2 off | Insulated switched flush socket outlet 2‑gang, 13A |
| 1 off | 30 amp, 3‑terminal insulated junction box |
| 10 off | 3.5 x 20mm raised countersunk set pins |
|  | 2.5mm2 twin and cpc PVC insulated and sheathed cable |
|  | 1.5mm2 twin and cpc PVC insulated and sheathed cable |
| 300mm | 2mm green/yellow cpc sleeving |
|  | Clips, screws and pins, as detailed in the exercise demonstration |

**Procedure**

1. Enter the start time on the assessment sheet.
2. Study the diagram and from it draw a wiring diagram.
3. **This diagram must be handed in for assessment before proceeding.**
4. Prepare the material requisition for the required materials.
5. **Have the requisition checked before proceeding.**
6. Obtain the material from the stores.
7. Carry out the installation.
8. Carry out the necessary tests on the installation and record all readings obtained on the assessment sheet.
9. **Notify the Lecturer that the work is ready for assessment.**
10. Enter the finish time on the assessment sheet.

|  |
| --- |
| Exercise 02-060 Fused & Non Fused Spurs Circuit.png |

### Test results

# **cpc Continuity Test**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Instrument Used: |  | | | |
| Instrument Serial No.: |  | | Range Setting: |  |
| CCU-Socket 1 Reading: | |  |
| CCU-Socket 2 Reading: | |  |
| CCU-Socket 3 Reading: | |  |
| CCU-Socket 4 Reading: | |  |
| CCU-Socket 5 Reading: | |  |
| CCU-Socket 6 Reading: | |  |
| CCU-Connection unit (FCU) Reading: | |  |
| CCU-Fan terminal Reading: | |  |

# **Continuity of Ring Final Circuit Test**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Instrument Used: |  | | | |
| Instrument Serial No.: |  | | Range Setting: |  |
| Line-Line Loop Reading (r1): | |  |
| Neutral-Neutral Loop Reading (rn): | |  |
| CPC-CPC Loop Reading (r2): | |  |
| Line-Neutral Skt 1 Reading: | |  |
| Line-Neutral Skt 2 Reading: | |  |
| Line-Neutral Skt 3 Reading: | |  |
| Line-Neutral Skt 4 Reading: | |  |
| Line-Neutral Skt 5 Reading: | |  |
| Line-Neutral Skt 6 Reading: | |  |
| Line-Neutral Skt 7 Reading: | |  |
| Line-Neutral FCU Reading: | |  |
| Line-CPC Skt 1 Reading: | |  |
| Line-CPC Skt 2 Reading: | |  |
| Line-CPC Skt 3 Reading: | |  |
| Line-CPC Skt 4 Reading: | |  |
| Line-CPC Skt 5 Reading: | |  |
| Line-CPC Skt 6 Reading: | |  |
| Line-CPC Skt 7 Reading: | |  |
| Line-CPC FCU Reading:: | |  |

# **Insulation Resistance Test**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Instrument Used: |  | | | |
| Instrument Serial No.: |  | | Range Setting: |  |
| Line-Neutral Reading: | |  |
| Line/Neutral-Earth Reading: | |  |

# **Polarity Test**

|  |  |  |  |
| --- | --- | --- | --- |
| Instrument Used: |  | | |
| Socket 1 Polarity: | |  |
| Socket 2 Polarity: | |  |
| Socket 3 Polarity: | |  |
| Socket 4 Polarity: | |  |
| Socket 5 Polarity: | |  |
| Socket 6 Polarity: | |  |
| Socket 7 Polarity: | |  |
| FCU Polarity: | |  |
| Fan terminal Polarity: | |  |

Assessments are based on **observed** safety procedures, and the **quality** and **accuracy** of the completed exercise.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | | **YES** | **NO** |
| **1.** | Wiring diagram function correct | | **□** | **□** |
| **2.** | Wiring diagram drawn neatly | | **□** | **□** |
| **3.** | Wiring diagram drawn using correct symbols | | **□** | **□** |
| **4.** | Wiring diagram labelled correctly | | **□** | **□** |
| Assessed by: ………....………….. | | |  | |
| **5.** | Material requisition correct first time | | **□** | **□** |
| **6.** | Method statement completed | | **□** | **□** |
| Assessed by: ………....………….. | | |  | |
| **7.** | Inspection and testing completed correctly | | **□** | **□** |
| **8.** | Test results correctly recorded | | **□** | **□** |
| **9.** | Accessories fixed in correct positions | | **□** | **□** |
| **10.** | Accessory covers all fixed securely | | **□** | **□** |
| **11.** | Correct sized cable used | | **□** | **□** |
| **12.** | Cable sheath taken into all accessories | | **□** | **□** |
| **13.** | Clip position/spacings acceptable | | **□** | **□** |
| **14.** | Bends formed correctly (minimum radii and uniform) | | **□** | **□** |
| **15.** | Circuit functions correctly | | **□** | **□** |
| **16.** | Consumer unit correctly connected | | **□** | **□** |
| **17.** | Consumer unit correct size protective device | | **□** | **□** |
| **18.** | cpc sheathed correctly | | **□** | **□** |
| **19.** | Conductors connected to correct terminations | | **□** | **□** |
| **20.** | Suitable amount of spare cable left in accessories | | **□** | **□** |
| **21.** | Conductor insulation undamaged at terminations | | **□** | **□** |
| **22.** | Conductors doubled as appropriate and secure | | **□** | **□** |
| **23.** | Sheath/insulation stripped to correct position | | **□** | **□** |
| **24.** | Conductors undamaged at terminations | | **□** | **□** |
| **25.** | Overall appearance to a commercially acceptable standard | | **□** | **□** |
| **26.** | Work area conformed to requirements of HASAWA | | **□** | **□** |
| **27.** | Correct safety procedures observed at all times | | **□** | **□** |
| Assessed by: ………....………….. | | |  | |
| Start Date & Time: ………………........………….. | | Finish Date & Time: ……...…...........…………… | | |
| Target Time: 4 hours | | Time Taken: …………………….........…………… | | |