<table>
<thead>
<tr>
<th>Trade of Sheet Metalwork</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Module 3:</strong></td>
</tr>
<tr>
<td><strong>Unit 16:</strong></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>
Table of Contents

List of Figures ......................................................................................................................... 4
List of Tables ............................................................................................................................ 5
Document Release History ...................................................................................................... 6
Module 3 – Thermal Processes ............................................................................................. 7
   Unit 16 – Frame Work ......................................................................................................... 7
   Learning Outcome: ............................................................................................................. 7
   Key Learning Points: ....................................................................................................... 7
   Training Resources: ........................................................................................................... 7
   Key Learning Points Code: ............................................................................................... 7
Introduction ............................................................................................................................ 10
Hazard Statement .................................................................................................................. 11
Hydraulic Power Saw ........................................................................................................... 12
   Safe Work Practices ....................................................................................................... 12
Self Assessment ..................................................................................................................... 13
Answers to Questions 1-2. Module 3.Unit 16 .................................................................... 14
Index ....................................................................................................................................... 15
List of Figures

Figure 1 – Frame Work 1 .................................................................................................... 8
Figure 2 - Frame Work 2 .................................................................................................. 9
Figure 3 - Hazard Statement ............................................................................................ 11
## Document Release History

<table>
<thead>
<tr>
<th>Date</th>
<th>Version</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>13/10/06</td>
<td>First draft</td>
<td></td>
</tr>
<tr>
<td>07/04/14</td>
<td>2.0</td>
<td>SOLAS transfer</td>
</tr>
</tbody>
</table>

Module 3 – Thermal Processes

Unit 16 – Frame Work

Duration – 16 Hours

Learning Outcome:
By the end of this unit each apprentice will be able to:

- Tack and continuous weld work pieces A, B and C.
- Clean, sand down and polish welds using disc sander, portable belt sander. (“dynafile”) with “Flexi-Shaft” machine.

Key Learning Points:

<table>
<thead>
<tr>
<th>Sk</th>
<th>Deburring.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sk</td>
<td>Positioning and tack welding.</td>
</tr>
<tr>
<td>Sk</td>
<td>No filler rod required for fillet weld – filler rod required elsewhere.</td>
</tr>
<tr>
<td>Sk</td>
<td>Joint restraint/jogs.</td>
</tr>
<tr>
<td>Sk</td>
<td>Care of tungsten tips.</td>
</tr>
<tr>
<td>Sk</td>
<td>Weld finishing.</td>
</tr>
<tr>
<td>Sk</td>
<td>Polishing and blending.</td>
</tr>
<tr>
<td>RK</td>
<td>Sk</td>
</tr>
</tbody>
</table>

Training Resources:

- TIG welding plant
- Toolkit
- Disc sander and flexi-shaft
- Safety clothing and equipment, reference library
- 32 x 32 x 1.2 stainless steel box section
- 1.2 mm stainless steel
- Welding booths and fume extraction system
- Machine accessories
- Polishing materials
- 50 x 25 x 1.2 stainless steel box section

Key Learning Points Code:

- M = Maths
- D = Drawing
- RK = Related Knowledge
- S = Science
- P = Personal Skills
- Sk = Skill
- H = Hazards
Figure 1 – Frame Work 1
Figure 2 - Frame Work 2
**Introduction**

It is important before using any machinery to be aware of the dangers.

Read the safety manual provided with each piece of equipment and also the hazard warning statement (included).
Hazard Statement

HAZARD STATEMENT

STAFF MEMBER RESPONSIBLE FOR THIS RISK REDUCTION SYSTEM/PROCEDURE

AUTHORIZED DEPUTY

HAZARD IDENTIFIED

HAZARD: METAL CUTTING USING HYDRAULIC POWER SAW

RISK: Risk of body damage from machines.

- HIGH

Risk of eye damage from flying particles.

RISK CATEGORY

2

RISK CONTROL ACTION

CONTROLS:

1. Machine to be guarded to greatest extent practicable
2. Operators trained in correct operation of machines
3. Personal protection to be worn
4. Machines maintained regularly
5. Supervision to ensure safety

RESOURCES:

1. Maintenance programme for machinery
2. Operators training programme
3. Provision of personal protection
4. Safe Work Procedure manual
5. Provision of adequate and suitable guards.

RISK CATEGORY LEGEND 1=EXTREME, 2=HIGH, 3=MEDIUM, 4=LOW

Figure 3 - Hazard Statement
Hydraulic Power Saw

Safe Work Practices

OBJECTIVE:

To cut round bars to length in a safe manner using Hydraulic Power Saw.

PERSONAL PROTECTIVE EQUIPMENT:

Safety boots, overalls, gloves (as required).

PROCEDURE:

1. Inspect equipment to ensure there are no obvious defects.
2. Lift cutting blade housing by handle to sufficient clearance for metal.
3. Take out round bar from stack and place it in the clamp with the end supported by a stand.
4. Measure the distance to be cut and drop down blade to near the point of cut.
5. Make fine adjustment. Tighten clamp and adjust guard to width of material plus sufficient clearance.
6. Switch on isolator switch with key.
7. Press start button and weight using knob to control hydraulic pressure (as per instructions).
8. When cut is finished machine cuts off automatically when pre-adjusted limit switch breaks connection.
9. Switch off isolator using key.

SAFETY ISSUES:

1. Always wear the prescribed personal protection.
2. Exercise caution. Some bars are very heavy. Sometimes help will be required.
4. Ensure bar is properly supported at ends.
Self Assessment

Questions on Background Notes – Module 3.Unit 16

1. Is injury from band saw rated high or low?

2. What is the greatest risk to the body from this machine?
Answers to Questions 1-2. Module 3.Unit 16

1.

Risk injury from the band saw is rated high.

2.

Risk of eye damage from flying particles. It is also important to realise the damage to fingers and limbs as it is a powerful machine capable of cutting through steel.
Index

H
Hazard Statement, 11
Hydraulic Power Saw, 12
  Safe Work Practices, 12

I
Introduction, 10

S
Self Assessment, 14