

Safe Working Practices:

SWP- 08 Hot Working

Before doing any type of work you must carry out an assessment of the task to be undertaken. This will include the equipment to be worked on, the task itself, Personal Protective Equipment requirements, the work area and environment, plus the tools and equipment required to carry out the job safely. Consult your team leader if you are not satisfied the job can be carried out in a safe manner.

GENERAL

- 1.0 This SWP applies to any work process that involves the use of any welding plant or equipment that generates heat or sparks and therefore likely to constitute a fire hazard. It includes the use of grinders, blow lamps and where appropriate soldering irons.
- 1.1 Before starting any "Hot Work" the customer should be advised of the nature of the work about to be undertaken and any perceived dangers, in order that any extra precautions necessary may be taken.
- 1.2 Many customers "Terms and Conditions for Contractors" require that a "Permit to Work" be obtained before tasks involving any of the above equipment/processes can commence. Please make sure that you are aware of the existence of such terms and conditions before starting work of any description, not just "Hot Work".
- 1.3 All team members who undertake welding as part of their tasks are subject to annual health surveillance.

WORK AREA

- 2.0 Refer to SWP-01 - on the selection of a safe working area. Of particular importance is the proximity of flammable materials. All combustible material should be made safe or removed from the area. If this is not possible choose another work area.
- 2.1 Making safe means covering combustible materials (including the fabric of the building if necessary) that cannot be removed with flame proof welders blankets or similar.
- 2.2 If not able to work in a designated welding location, It is recommended that a clear area of not less than six metres surrounding the work be maintained.
- 2.3 The floor should be swept clear of flammable debris and dust. Work should not be carried out on wooden floors or close to wooden joists without using suitable protection. If possible, wooden floors and walls should be doused with water before work is started. Sparks falling through gaps in floor boards or inadvertent heating of thermal insulation, ie. polyurethane foam, are a particular source of danger since the material may start smouldering and may take some time to develop into a fire. It is therefore essential to carry out subsequent inspections of the area, at frequent intervals, until satisfied that the risk of fire has passed. See 3.8 & 9 below.
- 2.4 Flame retardant screens must be erected to prevent onlookers observing the welding process particularly when arc or m.i.g. equipment is involved and to protect against metal sparks generated by any grinding carried out.
- 2.5 The precautions and advice offered in SWP-03 in respect of batteries should be observed.

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SWP- 08 Hot Working

- 2.6 Make sure that appropriate fire fighting equipment is available (kept adjacent to the work area). See SWP-09 "In Case of Fire".
- 2.7 Make sure that you are aware of the escape routes should it be necessary and that they are unobstructed.
- 2.8 Locate the Fire Alarm and make sure that you know the procedure for raising it.

WORK PROCESS

- 3.0 The work piece should be cleaned of oil and greases, any combustible components must be shielded or removed. Remember that oil soaked fluff or debris is particularly flammable.
- 3.1 Although portable electrical equipment is tested in accordance with the relevant legislation (Electricity at Work Regulations 1989) all equipment should be examined before starting work.
- 3.2 Leads in particular should be checked, there should be no makeshift joins the insulation should have no patent defects and should be kept as short as possible.
- 3.3 Gas welding hoses should have no obvious defects, all clips should be of the approved type. The whole (pipes, gauges and torches) should be checked for leaks, do not use equipment that cannot be made safe.
- 3.4 All hoses and cables must be kept clear of walkways and be protected where they could be damaged, or if they present a danger to others.
- 3.5 Equipment will be lit for as short a time as possible before use and extinguished immediately after use.
- 3.6 Lighted equipment will not be left unattended.
- 3.7 It is desirable that the services of a second person should be obtained to act as a safety observer whilst the welding or grinding is carried out.
- 3.8 A thorough search for any signs of fire will be made within and around the area in which work has been carried out half an hour after the termination of each work period.
- 3.9 The site/work area must not be vacated until such an examination has been conducted.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

- 4.0 Suitable PPE should be arranged through the local service manager. See SWP-32 on PPE.
- 4.1 Do not carry out welding, cutting or grinding work in oily overalls.
- 4.2 Minimum PPE requirements should be flame retardant overalls, Safety Boots, gauntlets and an appropriate shield or goggles.

ADDITIONAL DANGERS

- 5.0 There are hazards from fumes in some applications, eg, silver brazing, work on painted or galvanised metals etc. Welding staff by virtue of training received and the provision of Hazard Data Sheets will be aware of the potential hazards and should ensure that they, and anyone

else likely to be affected, are not exposed to any risk, eg, by providing adequate ventilation or protection.

- 5.1 All welding activities carried out indoors will require the use of Local Exhaust Ventilation (LEV) and company provided Respiratory Protective Equipment. All users must have suitable training for the use of LEV and RPE and all equipment must be suitably maintained. Any welding activities carried out outdoors will require the use of RPE.
Any canopies or part enclosure will be considered as working indoors.
- 5.2 The possible effects of fumes and particulates generated by grinding, welding or cutting has been evaluated and the conducting of these operations in accordance with training delivered and observance of the Procedures, Work Instructions and Safe Working Practices will eliminate or minimise such hazards.
- 5.3 Great care should be exercised when flame cutting or welding adjacent to polyurethane (Duthane) wheel treads. Burning wheel treads of this kind give off a poisonous gas called Isocyanide.
- 5.4 There is less danger if treads are removed by cutting with an angle grinder or none if a hacksaw is used.
- 5.5 All TMHUK welders are subject to annual health surveillance

6.0 Hazard Awareness

6.1 Cadmium

A review of Toyota Material Handling products and materials has identified that cadmium and cadmium-containing coatings are not used within standard equipment or processes.

Therefore, under normal working conditions, the risk of cadmium exposure from welding, cutting, or grinding activities is considered not applicable.

However, where work is undertaken on non-standard, third-party, damaged, or previously modified equipment, the presence of cadmium cannot be fully ruled out.

In such cases:

- A task-specific risk assessment must be conducted
- Material composition should be verified where possible
- Appropriate control measures (e.g. LEV, RPE) must be implemented if a risk is identified

6.2 Hexavalent Chromium (Cr⁶)

A review of Toyota Material Handling products indicates that hexavalent chromium is not intentionally used in materials or surface treatments within standard equipment.

Therefore, exposure risk from normal welding or cutting activities is considered low or not applicable.

However, welding or cutting of stainless steel or chromium-containing alloys may still generate hexavalent chromium fumes.

To control any potential risk:

- A task-specific risk assessment must be conducted
- Suitable fume extraction (LEV) must be used
- Appropriate Respiratory Protective Equipment (RPE) must be worn where required
- Team members must be aware of the hazards associated with welding fumes

CHILDREN AND YOUNG PERSONS

- 6.0 See Safety & Environmental Manual procedure “Employment of Young Persons” for precise definitions on children and young persons.
- 6.1 “Children” will not be involved in any “Hot Work” task. They may be allowed to observe such operations and work practices, but must take no active part, be kept at a safe distance and under the constant supervision of a competent person.
- 6.2 “Young Persons” may be allowed to conduct “Hot Working” subject to the conditions imposed above and only when being trained under the constant supervision of a competent person.