Risk Assessment - Fusible Plug Manufacture Process

Assessing the risks and use of lead in the manufacturing process of fusible plugs

Reference No: GLO-45367-48
Version No: 1
Assessment Approver: Kevin Jarvis

Department: Global
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Lead Assessor: Geoff Goring
Team:

Using the flamefast brazing station fusible plugs; lead

Type	Hazard Cause	Persons Affected	Control Measures	L S T Overall	Additional Control Measures	L S T Overall	Owner/Action
Health and Safety	Lead poisoning, neurological effects, kidney damage Lead fume generation during melting	Volunteers & Staff	1) CRITICAL - Engineering: Local exhaust ventilation (LEV), temperature controls - Effective 2) CRITICAL - Engineering: 14 monthly LEV certification by third party - Effective 3) CRITICAL - Administrative: Good housekeeping, wet cleaning methods, no dry sweeping, hand washing facilities - Effective 4) CRITICAL - Administrative: Health surveillance - operators enrolled in at least 12-monthly blood testing - Effective 5) CRITICAL - Administrative: Inspect all extraction equipment before commening process - Effective 6) CRITICAL - Administrative: provide adequate welfare facilities, and ensure washing of hands, no eating or drinking whilst operating - Effective 7) CRITICAL - PPE: PPE to use AT ALL TIMES: Heat resistant Gloves, Fire Retardant protective clothing, eye protection [glasses or face shield], Safey footwear with metatarsal metal or composite end caps - boots preferred. Face masks - Effective	1 x 4 = 4 Low - Risk to be monitored to ensure it remains adequately controlled to an acceptable level.	1) PPE: Blood and urine testing. Face masks and / or hoods - Effective	1 x 1 = 1 Low - Risk to be monitored to ensure it remains adequately controlled to an acceptable level.	n/a
Health and Safety	Serious burns, eye injuries Burns from molten lead and solder	Volunteers & Staff	1) CRITICAL - Engineering: Guarded work area, controlled pouring procedures - Effective 2) CRITICAL - Engineering: Dry moulds, preheat moulds, inspect materials - Effective 3) CRITICAL - Administrative: Hearth inspection, fire extinguishers, combustible material exclusion zone - Effective 4) CRITICAL - Administrative: signage, insulated tools and training - Effective 5) CRITICAL - PPE: PPE to use AT ALL TIMES: Heat resistant Gloves, Fire Retardant protective clothing, eye protection [glasses or face shield], Safey footwear with metatarsal metal or composite end caps - boots preferred. Face masks - Effective	1 x 1 = 1 Low - Risk to be monitored to ensure it remains adequately controlled to an acceptable level.	None	1 x 1 = 1 Low - Risk to be monitored to ensure it remains adequately controlled to an acceptable level.	n/a
Health and Safety	Musculoskeletal injuries Manual handling of moulds and materials	Volunteers & Staff	1) CRITICAL - Engineering: Mechanical aids, lifting training, weight limits - Effective	1 x 1 = 1 Low - Risk to be monitored to ensure it remains adequately controlled to an acceptable level.	None	1 x 1 = 1 Low - Risk to be monitored to ensure it remains adequately controlled to an acceptable level.	n/a

Type	Hazard Cause	Persons Affected	Control Measures	L S T Overall	Additional Control Measures	L S T Overall	Owner/Action
Health and Safety	Minor to major injuries Slips and trips	Volunteers & Staff	1) CRITICAL - Administrative: Good housekeeping and clear walkways - Effective	1 x 1 = 1 Low - Risk to be monitored to ensure it remains adequately controlled to an acceptable level.	None	1 x 1 = 1 Low - Risk to be monitored to ensure it remains adequately controlled to an acceptable level.	n/a
Health and Safety	Delayed emergency response Lone working	Volunteers & Staff	1) CRITICAL - Administrative: Apply GWSR lone working policy - Effective 2) Administrative: Ensure a colleague is made aware of process occurence and is not impacted - safe exclusion zone 2m - Effective	1 x 1 = 1 Low - Risk to be monitored to ensure it remains adequately controlled to an acceptable level.	None	1 x 1 = 1 Low - Risk to be monitored to ensure it remains adequately controlled to an acceptable level.	n/a

COSHH Assessments

There are no COSHH assessments associated with this risk assessment.

Reference Documents

- ORR Full Guide to Fusible Washout Plugs: HGR B9008 revision 03 - FUll document of HGR B9008
- Solder Paste MSDS - The solder paste details on an international MSDS
- The GWSR process / training sheet for Fusible Plugs Process - The sheet used to train operatives in the Fusible Wash out plug process - backs as a comprehensive process step sheet
- Flux MSDS - Bakers No. 3 - The FULL MSDS of Bakers No. 3 flux that is used in the fusible plug process
- Fryolux T1333 Leaded Solder Paint MSDS - MSDS for solder paint used in the fusible plug process

Ends

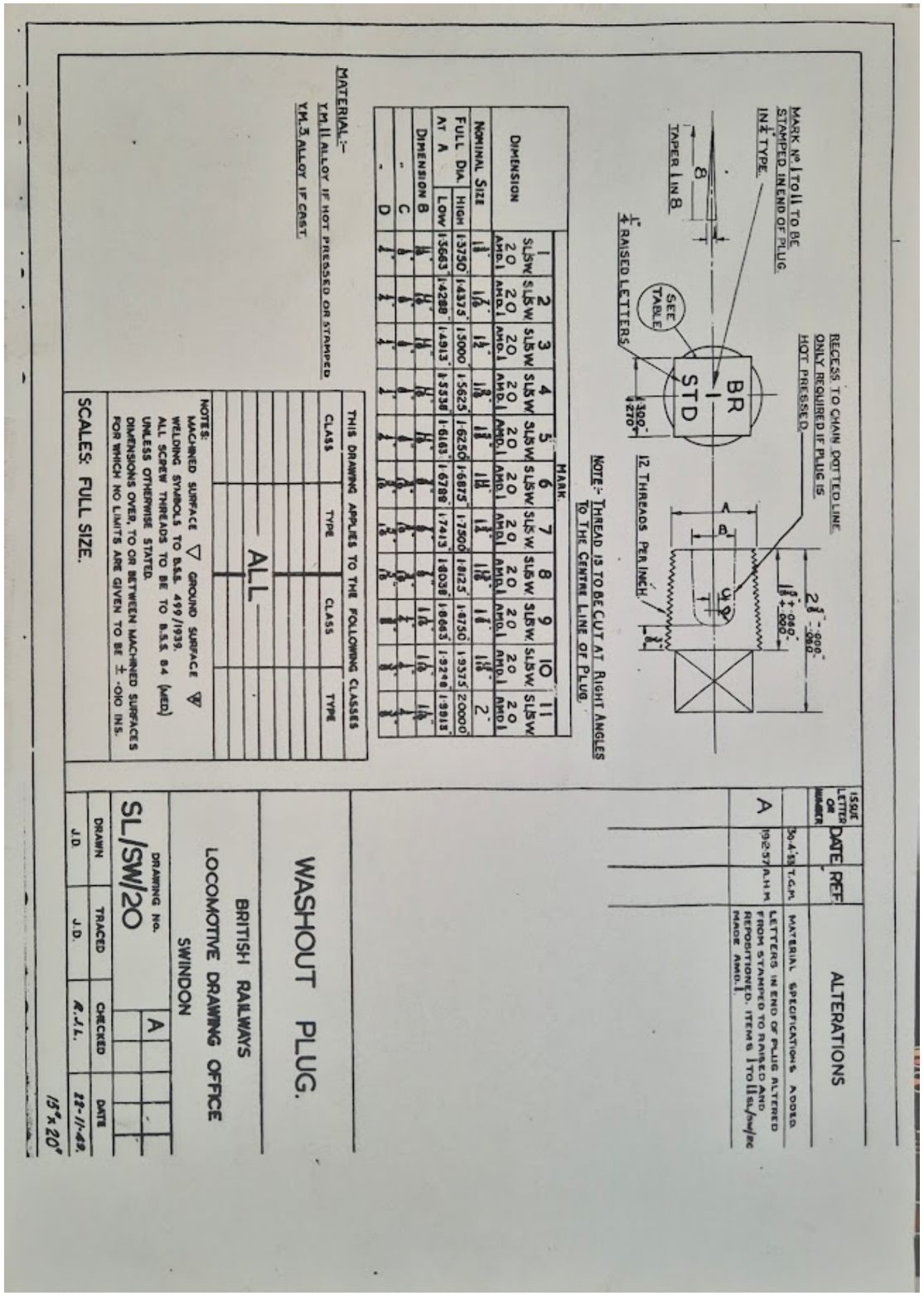
Appendix

GWSR Toddington Machines and Kit Skills & Competency Matrix

		Tracy Hallet		Rod Minchin		David
5	Turning	1	4	5	5	5
6	Milling - vertical and horizontal	0	2	5	5	3
7	Milling - Universal; specific machining centre Huron #06	0	2	5	5	3
8	Boring - jig; horizontal and vertical	0	2	5	5	3
9	Shaping / Slotting	0	2	4	4	5
10	Brazing, heat treatment and white metalling	2	4	5	5	5
11	Fusible Plugs	2	4	5	5	0
12	Grinding - Tool, cutter, surface and cylindrical	0	2	3	3	5
13	Abrasive Wheels, cutting disc use & Hand held grinding tools	0	3	3	3	5
14	Off-hand grinding, pedestal wheel grinding, wire wheel	0	2	4	4	5
15	Drilling [Radial]	0	2	4	4	3
16	Band sawing and power sawing	0	2	4	4	5
17	Welding [TIG, MIG, oxy acetylene]	2	4	4	4	0
18	Drilling [Pillar]	0	2	5	5	5
19	Heavy duty pressing	0	2	2	2	0
20	Plasma Cutting	0	2	1	1	
21		7	41	63	63	52
22		17%		100%		87%
23						
24	KEY (Dreyfuss Model)					
25	0 = Not done					
26	1 = Novice					
27	2 = Advanced Beginner					
28	3 = Competent					
29	4 = Proficient					
30	5 = Expert					

Reference: UI-46218-745

Competency Matrix - Extracted Dreyfuss modelled competency matrix. REFER specifically to Fusible Plugs



Reference: UI-46218-151