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| <p>BACHMAN MACHINE COMPANY</p> <p>GENERAL INSTRUCTIONS</p> | <p>PREPARED BY: Production Supv.</p> | <p>DATE: 03/14/11</p> | <p>PAGE 1 OF 3</p> |
| | <p>APPROVED BY: Production Mgr.</p> | <p>REVISION: B</p> | <p>GI-M10</p> |
| <p>TITLE: Set-up Procedures</p> | | | |

1.0 PURPOSE

The purpose of this instruction is to describe the set-up procedure for press operations.

2.0 SCOPE

This instruction applies to all Press Room employees expected to perform set-ups.

3.0 RESPONSIBILITY

The department manager is responsible for adhering to this procedure, working with the shift supervisors.

4.0 DEFINITIONS - N/A

5.0 REFERENCE DOCUMENTS - N/A

6.0 PROCEDURE

- 1) Supervisor or designated personnel fills out job sheet and prints off material inventory sheet.
 - a. The material inventory sheet is given to the tow motor driver.
 - b. The set-up manual and forms #29 & # 75 are retrieved from Document Control. Gages, if required, are retrieved from the Q.A department and all are delivered to designated press and the set-up person notified.
- 2) Set-up man
 - a. Set-up person reviews manual for unique set-up requirements.
 - b. The set-up checklists (FM29) and tonnage record (FM75) are to be taken from the book and completed during each set-up.
- 3) Die is brought to the press and the bottom and top of the die are wiped clean and burrs removed. The bolster plate and bottom of slide should be wiped clean of all oil, slugs and other debris. Also remove burrs from the bolster plate and face of the slide if needed.

6.0 PROCEDURE (continued)

- 4) Shut height is set by: (1) Measuring the overall height of the die, this is the pre-set shut height with the ram at 180 (unless the top shoe is resting on the stop blocks, then add ¼"). Do not use shut height indicator to set shut height.
- 5) The die is then set on the bolster plate, squared and physically centered according to the requirement of the die, i.e. keys, locating pins, (unless noted differently in set-up book).
- 6) Hook up the die protection cable. The tool # is then recalled in the press control and the press settings are confirmed with the set-up book.
- 7) Verify and adjust the nitrogen pressure to the required pressure stamped on the die, when applicable. If the pressure is not stamped on die alert lead person or supervisor.
- 8) Inch the ram down to bottom of the stroke and measure the distance between the top shoe and stop block. Raise ram, adjust the shut height half of the measured distance. Bring the ram down in inch mode, as a general rule, between 160 and 170 and clamp the die in. Do not use the slide adjust to set your shut height when the die is closed up or under any type spring pressure.
- 9) Complete the shut height setting by : (1) Putting lead on top of the stop block and bringing the shut height down, .075 at a time, until you make contact on the lead. Place new piece of lead in the slot and bring the shut height down until you reach .101 on the lead, unless the set-up book states differently. (2) When that is accomplished, open the die, set the feed height, feed the material through the first few lifters, set the stock guides and pinch & lift pressure on the feed rollers. Back the material up to the strip start point. If none is present alert the lead person or supervisor. (Make sure the start of strip is dykemed red).
- 10) Hook up lubrication, change if needed, and prime the lines. Verify that all of the oilers are working properly.
- 11) Now start the strip through the die. (Note any special starting procedures in the set-up book). The first two progressions, whether it's from starting a coil or during die maintenance, must be held in a red container at each press, rather than immediately discarded by the operator. It will then be necessary to have these parts verified by the production supervisor, along with the operator by the end of each shift. Each person involved, must sign a designated spot on the production control sheet. Once this cross-functional verification is done, the parts can then be scrapped.

Note: Essentially, each coil start will be represented individually on the production control sheet, and each coil start entry must include at least two people's initials for validation. Failure to do this will result in a quarantine of the affected containers, 100% sort and possible action towards the operator and/or supervisor.

6.0 PROCEDURE (continued)

- 12) Check and adjust stop block reading according to the set-up manual. Also verify tonnage to the set-up manual and form # 75. If the tonnage is not comparable alert the lead person or supervisor.
- 13) Scrap the first few parts, as stated in set-up manual, then run additional parts in continuous to produce 1st part. Check the part visually and on the hard gages, if any, before submitting to Q.A. department along with the job sheet.
- 14) While Q.A. is inspecting the parts install conveyors and shakers. Set-up scrap bin, finished parts containers, rakes and scrap pushers as needed. Whenever practical, parts should be run into smaller containers than those used for storage. This is to prevent contaminating larger quantities when mishaps occur, i.e. mis-progressions, slug marks, material flaws...etc.
- 15) Q.A. stamps job sheet for 1st part and returns the job sheet with labels and sample part/s to the designated press.
- 16) Verify labels are correct
- 15) Verify that the set-up book is accurate and make changes as needed (after change has been proven out and considered permanent). Any changes made must be initialed and dated. Update the set-up checklist (form #29) and tonnage record (form #75), as needed, to reflect the specific set-up needs of the tool for the job. Zero the counters and verify that the batch counter is set properly. Check safeties and die protection with the remote box. Run the job a minimum of 10 minutes to verify a quality set-up.
- 16) At the conclusion of the job
 - a. The supervisor should make every effort to schedule their time or designate a person to obtain last part sign off from QA, last progression sign off from die maintenance and return the set-up book to the basket in Document Control along with taking end of job inventory. If someone is not available then the responsibility will be that of the set-up person.
 - b. The set-up person or operator completes their paperwork and proceeds to breakdown the set-up, this includes but is not limited to unhooking all lines, cords, conveyors, chutes and wiping them off and storing them in their proper location. Unclamping die and storing the bolts in their proper location. Having the die removed from the press. Cleaning out all slugs from the bolster, troughs, under exit conveyors...etc. Wiping down the ram, bolster and any tables that were used. Cleaning the floor of slugs, parts and debris from around the press and mopping if applicable.