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| Instruction:  **QP-120** | Pages: **3** |
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| Authorized By: **Manufacturing Manager** | |

**PROCESS SETUP**

1. Purpose and Scope

**PURPOSE**

To define the process for first-piece approvals using documented setup instructions and first-piece inspections of all primary setups.

**SCOPE**

This procedure applies to all production product.

1. Definitions

**Control Plans**: The written description of the systems for controlling parts and

processes that address important characteristics and engineering requirements. Each

part must have a control plan that may also apply to a family of parts or parts produced

with a common process. The features listed in the Control Plan under Characteristics must have units of measure describing whether the feature is defined in Imperial English (Inches) or International (Metric). The document should follow the print definition, defined by the customer.

**Non-Conformance:** Product or material that does not conform to customer requirements or specifications

**Setup Verification**: Producing, measuring and testing a small sample of parts for

conformance to quality control standards. If parts fall within the acceptable range, the

setup is approved for production.

1. Process Owners

**Manufacturing Manager**

**Process Designee: Production Supervisor**

**Department Setup Person**

**Quality Assurance Technician**

**4. Procedures**

**4.1 Production Supervisor**

**Initiate Job Setup**

Based on customer schedule, Supervisor/Lead person shall assign setup person/operator to setup operation in designated work center.

**4.2 Department Setup Person**

**Department Changeover and/or Setup**

Personnel assigned to a setup work center shall determine if the previous setup is still present, if so they shall remove it from the assigned work center and relocate all tooling and documentation to its appropriate location. Documentation required to properly setup a job in work center shall include, but not be limited to: the MIS, Job Packet, and Routing. Verification should be completed that all documents have the same Engineering Change Number (ECN). If not, setup should be halted and the Supervisor/Leadperson should immediately be notified.

Tooling that is listed on the MIS, used to perform the current operation, should be acquired by the operator and all inspection equipment listed on the MIS (per INS 1011) should be checked out of the gage crib and used to verify the dimensions produced meet the stated requirements. The Quality Tech. may assist personnel setting up the operation to retrieve inspection equipment and verify that equipment is calibrated.

After verifying that all tooling is correctly affixed in workcenter, personnel shall locate parts/material to be run and qualify the setup. Once qualified, the setup person/operator shall produce five (5) pieces (This # could vary if necessary), verify all dimensions are correct and then submit these to the Q.A. Technician for approval. If dimension(s) that do not meet the requirements are detected, machine settings should be adjusted and if possible, parts should be brought into compliance. If the process is of a nature that the person performing the setup cannot make an adjustment to bring parts into compliance, the operator must immediately notify the Supervisor/Leadperson of the nonconforming condition.

**Characteristics Checked by the Department**

The following characteristics, listed by department, are to be verified as correct by the setup person/operator prior to submitting the setup to the Quality Tech. for approval:

*Punch Press* - Visual attributes of part, Heights, Gages (Location, Spline, etc), Runouts (those audited by operator)

*Heat Treat* - Flatness, Hardness, Heights, Visual attributes

*Machine Shop* - Retrieve the part print and review, make a copy of the Setup Inspection Checklist, this checklist shall be identified with date and person who made the copy and stamp "Reference Only", it is to be used in conjunction with the print for dimensions produced in this operation.

*Grinding* - Retrieve the part print and review, make a copy of the Setup Inspection Checklist, this checklist shall be identified with the date and person who made the copy and stamp "Reference Only", it is to be used in conjunction with the print for dimensions produced in this operation.

*Tumbling* - Review MIS and routing. Visually inspect for surface conditions prior to running operation.

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**Produce First Piece**

Upon checking their own parts and finding that they meet requirements, the operator willsubmit five (5) pieces to the Quality Assurance Tech, along with the job packet, which identifies the product, and the operation to be performed. Although a five (5) piece inspection is the Inspection norm, a smaller sample may be taken if the inspection is a destructive test (i.e. Stainless Steel), the inspection is too intricate or the operation performed is too lengthy. Operations such as wash, stress relieve, vibro mill, and benchwork, do not require a full five (5) piece inspection. If a set-up job has a long inspection or inspection equipment is busy and part history shows no major previous issues, the supervisor can authorize production to begin. The supervisor must sign the back of the job packet and Inspection card. The Quality Assurance Tech will still have to finish a full inspection in a timely fashion, no later than by the end of their shift. Parts cannot be moved out of the department until a full inspection is completed.

***Grinding***-grinding operators shall validate thickness, cone, flatness, thickness variation, and micro requirements and may start running production immediately. Set up pieces with the job packet will be left for the Quality Assurance Tech. who will be contacted to complete the full inspection within 2 hours.

**Completion of operation**

When an operation is completed, all inspection equipment is to be returned the gage crib (per INS 1011). Gages and equipment assigned full time to a department are not required to be returned to the crib. Inspection check lists or other similar reference copies of documents for performing an operation shall be DESTROYED by the operator once the job is completed. Original documents must be returned to their appropriate locations.

**Deviated Parts**

If parts are outside the manufacturing tolerance or do not meet all tolerances on the checklist, the Quality Assurance Tech. will bring this to the attention of the Quality Supervisor or his/her designee who will, if appropriate, initiate an MRB/Corrective Action and make a disposition regarding the parts or material.

**5 References**

**5.1 Related Procedure**

Production Process QP-119

Production Process Development and Qualification QP-118

**5.2 Reference Documents**

**None**

**6. Records**

MRB/Corrective Action Form INSP-144 Retain life of job + 1 yr. or customer requirements

Inspection Record INSP-140 Retain life of job + 1 yr. min.

Setup Inspection Log INSP-150 Retain life of job + 1 yr. min.

In Process Inspection Checklist INSP-146 Retain life of job + 1 yr. min.

**7. Revisions of QP-121**

Rev. 1, 9/21/18: Added last two sentences under Sec. 2 Control Plans: “The features listed…

Rev. 2: 12/12/2018: Added *Grinding-*under Sec. 4.2 ***“Grinding***-….inspection within 2 hours.”