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FABRICATION PROCESS TEST - FPT-63-28
REDUCTION OF IN-PROCESS INVENTORY

11

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FABRICATION PROCESS TEST -

REDUCTION OF IN-PROCESS INVENTORY

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FABRICATION PROCESS TEST

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Test No. FPT-63-28 Reduction of In-Process Inventory

Functional Area: Machining and Storage HoodsObjective of Test:

The objective of this test is to reduce in-process inventory by rough machining plutonium castings to approximate dimensions prior to the ten-day storage.

Description of Test:

The present process will remain the same through the casting and cold leg cycle. Following the cold leg, the castings will be rough machined, then visually inspected for casting defects. Observations will be recorded regarding casting quality of part and recommended disposition of the part. Following machining, all parts will be transported to Final Inspection for radiography and results recorded. The parts will then be stored for the required period, after which they will be machined to finish dimensions. After machining, the parts will again go to Final Inspection and be radiographed a second time. The remainder of the process will be performed in the usual manner.

Duration of Test:

Initially ten parts will be evaluated and if found acceptable, the test will continue. Start of the test will be subject to results of the tests underway to determine minimum necessary holding time. If complete test is conducted, the test period will cover approximately five weeks.

Test Procedure:

1. Obtain ten parts as they complete the cold cycle and transport to hood HC-42M1.
2. Check to make sure the generating tool is in good condition.
3. Face off the rough casting in the facing fixture in order to generate a good chucking surface.

If sparking occurs during any machining operation "STOP" and check to see if the O₂ content is low enough for machining purposes.

4. Secure the part to the chuck by means of vacuum.
5. Generate the outside contour by means of template tracing.

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Fabrication Process Test
(continued)

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6. Machine the outside surface to within .020" of finish diameter and take .015" off the pole.
7. Record any gross casting defects and note apparent casting quality, e.g., no apparent defects, numerous pits, etc.
8. Move the part to HC-41M2. Make sure the pot chuck and part are washed thoroughly with CCl_4 to rinse out any chips that may adhere to the surfaces. Secure in pot chuck by vacuum.
9. Generate the inside contour by template tracing.
10. Close control of inside diameter at the base plane necessary to properly fit the rounding ring used in finish machining the outside surface. This will be done by rough machining to within .015" of finish wall thickness at the waist and remove .025" at pole, ignoring actual polar wall thickness.
11. Repeat item 7.
12. Move the part to HC-46-F hood for degreasing then forward to Final Inspection.
13. Prepare part for radiography. Scratch part where initial index point is located, so the part can be indexed in same position upon completion of finish machining. Take the regular six shots in the usual manner.
14. These ten parts will then be stored for required period and gaged daily by Sheffield inspector at 10° increments programmed to include a polar height measurement.
15. Return parts to HC-41M1 for finish machining of the outside surface. Rough machining part must fit over rounding ring without excessive force.
16. Mark chuck to line up with radiographic scratch mark. Machine in usual manner and groove if a U 206 part is desired.
17. Mark part for radiography. This may be done by grease pencil or appropriate marker, if mark can be protected. Otherwise, a dash will be placed at proper height so it can become part of the numbering at final inspection.
18. Transfer to HC-42M2 for finish machining of inside surface in the usual manner. If a U 205 part is desired, groove and slot in usual manner.

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Fabrication Process Test
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19. Perform usual functions in HC-46-F hood.
20. Move to radiography and take care to use identification mark for indexing of parts.
21. Dimensional Inspection will proceed in the usual manner.
22. If satisfactory results are obtained through step 15, all parts produced for one calendar week will be processed in the manner prescribed in this test.

SPONSOR: J. G. Fisher
L. I. Lewis
J. M. Pinkerton

ISSUED BY:

R. Smith
Manager-Weapons Process Engineering

Date: 11/4/63

L. I. Lewis
Manager-Research and Engineering

Date: 11/7/63

W. J. Garton
Manager-Weapons Manufacturing

Date: 11-11-63

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November 1, 1963

CRITICAL MASS CONTROL

Process Test No. FPT-63-28

Conditions affecting critical mass control have been reviewed for changes proposed in this test.

Since only processing sequence and minor equipment changes are involved no new nuclear safety hazards exist. However, hood batch limits should be observed carefully.

A handwritten signature in cursive script, reading "J M Pinkerton".

J. M. Pinkerton
Weapons Process Engineering
Research and Engineering

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DATE

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6 / 22 / 94

END