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## JD’s Babbitt Bearings functional specifications for Motor Babbitt Bearing Workflow

## overview

The JD’s Babbitt Bearings product allows managers and employees to process parts through the JD’s Workflow. This document defines the workflow related to the motor type of Babbitt Bearings.

## UI 1 – Babbitt Bearing Workflows

In general, each page has the JD Job Number, Customer, and Customer Contact information at the top. Directly following is the Part type, Scope, and Part ID. An informational drop-down is available on each page with quick-links to frequently accessed information. The workflow is visualized as a list of steps on the left of the screen. As each step is completed, it gets a checkmark by it. The currently active step has an arrow. Future, uncompleted steps are displayed in gray. The user may navigate to past steps if desired by clicking on the step name like a link. The user may navigate to future steps, going out of order, but to do so requires a manager sign-off. Each page generally has a Save button at the bottom, which will advance to the next step if all required information is present. If there is some optional information that is NOT entered, a warning will be displayed to give the user notice, but will allow the user to proceed anyway. If there are some items that are not individually signed off on, the user will have the option to sign off for ALL of the unsigned steps on the page at once. There is a Cancel button that will discard any unsaved changes and lead back to the Current Jobs screen.

### General notes:

**Regarding UT and PT (Ultrasonic Testing and Penetrant Testing):** If the Work Scope for this part requires UT or PT, then check boxes for these options will be available on each page starting on “Pre-cast roughout” and ending on “Final Inspection.” This is to allow the user to perform the test at any point along the way. It is not intended that this test be performed at EACH step, just once. When the user clicks the check box, a sign-off will appear, and if successfully signed off upon, this box will remain checked through the rest of the workflow. The pop-up must allow the user to fail the test and send the part back to “Precast Roughout.”

**Regarding concurrent users:** It is required that multiple users can work on the same part at the same time, perhaps even the same step. To facilitate this, ensure that data that is entered is never replaced with data that is empty. Take, for example, the Incoming Inspection. Assume user 1 and user 2 both bring up the page at the same time. User 1 enters a series of Included Parts and clicks Save. At the same time, User 2 enters incoming measurements and clicks Save. User 2’s blank list of parts must not overwrite the list of parts that user 1 already added. If both user edit the same data field, then the last edit will be persisted.

* 1. Motor Babbitt Bearings. This workflow is intended to handle all Babbitt bearings that belong to motors.
     1. Incoming Inspection.
        1. Disassembled and Stencilled by sign off
        2. Photo management button to allow taking of photos. Clicking this launches the Photo Management screen.
        3. Incoming photo sign off
        4. Incoming DWG and Files management to allow association of DWG and other files with this part. Clicking this launches the DWG/File management screen
        5. Incoming DWG sign off
        6. Incoming measurements for left and right ID, with an Add button. Clicking the Add button adds another row where measurements may be entered.
        7. Incoming measurements for left and right OD, with an Add button. Clicking the Add button adds another row where measurements may be entered.
        8. AR Radio Buttons
        9. AR measurement entry: Diameter & (height or depth depending on radio button). NOTE that if an AR pin is specified, a sub-part will be automatically created with the description of “AR Pin” and the quantity as indicated. This sub-part will be again displayed on the Final Assembly page to ensure the bearing is correctly re-assembled.
        10. Insulated check box that indicates the bearing is insulated.
        11. Non-Insulated check box that indicates bearing is NOT insulated.
        12. Seal size measurement entry fields with an Add button to add additional rows for more entries. This is an optional field.
        13. Overall length entry field. This field is mandatory: Incoming Inspection may not proceed until this field is entered.
        14. Insulation dropdown containing fields: (only visible if the Insulated –Yes box is selected)
            1. Insulated for size
            2. Insulated
            3. Not insulated (default)
        15. Measured incoming sizes sign off
        16. Part notes entry field
        17. Final incoming inspection sign off field
        18. Material drop down containing: Steel, cast iron, bronze, unknown
        19. Thermocouple fields visible if the T/C field is checked:
            1. T/C Depth entry field
            2. T/C Diameter entry field
            3. T/C Drawing Manage button opens the Manage Files dialog to the thermocouple drawing, if any
     2. Pre-cast Roughout
        1. Roughed Out by signoff
        2. Base material read-only showing the material that was selected in the Incoming Inspection screen
        3. Tinned by signoff. This is only required and visible IF the base material is Cast Iron.
     3. Spincast process
        1. Deburred sign off
        2. Tinned by sign off (only if material is cast iron, invisible otherwise)
        3. Plastered by sign off
        4. RPM sign off AND entry field
        5. Babbitt temp sign off AND entry field
        6. Plate Temperature sign off AND entry field
        7. Scrubbed for bonding sign off
        8. Spuncast by sign off
        9. Cut apart by sign off
     4. Post-cast Roughout
        1. The JD’s orientation diagram will be displayed, showing one column for one end’s measurements and one column for the measurements for the opposite end
        2. The user may enter Incoming ID measurements for both columns, with an Add button that creates a new, empty row
        3. The user may enter the customer-specified ID measurements for both columns, with an Add button that creates a new, empty row
        4. There is an OD Info field that shows the insulation type entered from the incoming inspection page
        5. There is a “Verified Customer Sizes” checkbox that must be checked in order to proceed to the next step. This is only visible if there are entries in the Customer ID sizes above.
        6. Roughed Out sign off
     5. Insulation Process. This step is only visible if insulation was indicated on the incoming inspection
        1. Insulation made by sign off
        2. Grit blasted by sign off
        3. Slinger ring cut out by sign off
        4. Insulation installed by sign off
     6. Clean-up process
        1. Cleaned up by sign off
        2. Slinger Ring cut out by sign off. This is only visible if there was no insulation indicated on the incoming inspection
     7. Final Machine Inspection
        1. There are check boxes that must be checked before progressing to the next step:
           1. Split Lines verified
           2. Dowel Checks good
           3. Verified Customer Sizes
           4. Bond verified. This should be automatically checked IF UT or PT is indicated for this part AND this testing has been done successfully.
           5. Clean
        2. The JD’s orientation diagram is displayed allowing for two columns of measurements
        3. The user may enter an OD for each column, with an Add button that creates a new, empty row of measurements.
        4. Ready for final machine sign off
        5. Flag for Customer Approval button, which indicates a problem on the Big Board, and puts this part in a Hold state
        6. UT/PT signoff
        7. Show Customer Sizes button that opens the customer sizes dialog
        8. Problem resolution drop down containing options for Spray, Insulate for size, and Leave alone. When the user calls the customer for approval, these are the possible ways to resolve the problem.
        9. Flag for Customer Approval Button
        10. Size Approved By manager sign off
        11. If the inspector finds that rework is necessary, instead of clicking Save to proceed, he can select a problem resolution and click Send part to rework. When he does so, he’ll be prompted to enter some notes, and the job will roll back to the appropriate step. Before doing so, the user should consult the customer.
     8. Finish Bore Process
        1. The Incoming ID measurements from the part creation screen are displayed in a read-only manner for the user’s reference:
           1. Shaft
           2. Clearance
           3. Shim Size
           4. Tolerance
           5. Notes
           6. Bore Size
           7. Bore Size (horiz)
           8. OD Size
           9. Verify Customer Sizes. This must be done before the workflow can be advanced. Clicking this brings up a pop-up that displays the previously entered customer sizes. After the sizes are verified, a check-box will be shown next to the Verify Customer Sizes button to indicate it has been verified.
        2. Entry fields for OD Runout:
           1. Front
           2. Back
           3. Middle
        3. Entry fields for ID Runout and ID Runout Front
        4. Finish Bore sign off
        5. Final Assembly
        6. Mill Work done by sign off
        7. Deburred by sign off
        8. Manage Photos button that, when clicked, opens the Manage Photos screen. This allows the user to associate out-going photos to this part
        9. The parts/accessories list from the incoming inspection is re-displayed in a read-only manner. Next to each part is a check box that must be checked that indicates that this part was re-installed.
        10. Parts/accessories sign off.
        11. All holes checked and verified clean sign off.
     9. Final Inspection
        1. The JD’s orientation diagram is displayed allowing for entry of outgoing ID and OD in two columns.
        2. ID and OD measurements in two columns, each with an Add button that creates a new, empty row
        3. Quantity field of Thermocouples. This is not visible if no thermocouples were indicated in the incoming inspection
        4. Overall Length entry field
        5. Two checkboxes: Acceptable and Call Customer. The Acceptable checkbox must be checked in order to complete this job.
        6. Final inspection sign off
        7. If the inspection fails, the user may select the step to return to and then click the Fail Job button. He will be prompted to enter notes regarding the failure, and the job will revert to the indicated step
        8. All parts must be installed before proceeding. If indicated, UT or PT must be done before proceeding. Attempts to proceed without doing these will put the job in a Blocked state.
        9. Upload Cert button opens the part info popup to the file management screen / New File popup. Here the user may upload the test cert.
     10. Delivery
         1. Packed by sign off
         2. Shipped via drop down to indicate FedEx, UPS, courier, etc.
         3. Date Shipped entry field
         4. Date Required entry field
         5. Tracking number
     11. Final Inspection
         1. Manage photos button to allow review of photos
         2. Manage files button to allow review of certs, and drawings
         3. Outgoing Dimensions form download button to download the packing sheet
         4. Final Inspection sign off
         5. Non-conformance notes entry if the inspection fails; the user may select the step to return to and then click the Fail Job button. The job will revert to the indicated step
         6. When the user clicks save on this last step, he returns to the current job screen, and this job is marked as ready for billing.
  2. Part Details Modal
     1. Photos tab
        1. Will be used by the user as a photo viewing / management portal
     2. Info tab
        1. Date required.
        2. Estimated Ship Date
        3. Show Outgoing Form button that shows the printable JD’s Outgoing Dimensions Form for this part.
        4. Enter Customer Sizes button opens same dialog as customer sizes in part creation
        5. Files Manage button – opens file management area
        6. Prints Manage button – opens file management area with prints selected
        7. Work Scope (same as in job creation)
        8. Job Notes
        9. Part Notes
        10. Save/Close buttons