737-300 AND 737-400 EDDY CURRENT INSPECTION BRAKE VALVE SUPPORT HOUSING

1. Purpose

A. To find the repair welds in the brake-metering-valve-control housing that were not subsequently heat treated.

B. This procedure will find a change in the conductivity of the heat affected zone of the base material.

C. Service Bulletin Reference: 737-32-1238

2. Equipment

A. Instruments -- All metered eddy-current instruments and probes that can operate together between 200 kHz and 500 kHz and satisfy the conditions of this procedure are permitted. The following instruments were used to develop this procedure:

(1) Locator UHB; Hocking instruments

(2) MIZ 10A; Zetec

(3) MIZ 10B; Zetec

B. Probe -- All shielded pencil probes that can operate between 200 kHz and 500 kHz and are not longer than 2.375 inches if a straight probe is used. The probe tip diameter must not exceed 0.125 inch.

NOTE: A probe tip that is too large will not engage in the inspection contour properly and thus can cause false readings.

(1) The following probes were used to develop this procedure:

(a) MP-20 L500K; NDT Product Engineering

(b) MP902-40BL500K; NDT Product Engineering

C. Reference standard - Part #126. Refer to Part 6, 51-00-00, Procedure 4.

NOTE: Refer to Part 1, 51-01-00, for information on the equipment manufacturers.

3. Prepare for the Inspection

A. Remove the center floorboard at BS 721 to get access to the housings at LBL 13 and RBL 13. See Figure 1 and Figure 2.

B. Make sure that the inspection area is clean.

C. Make sure that the inspection equipment, probe, standard, and the part to be inspected are at the same ambient temperature.

4. Instrument Calibration

A. Set the instrument frequency between 200 kHz and 500 kHz.

B. Put the probe normal (90 degrees) to the surface on the reference standard at least 0.5 inch from the reference notch.

C. Balance the instrument per the manufacturer's instructions and set the instrument baseline at 10% of full scale.

D. Lift off must be set so that probe-to-part spacings of up to 0.006 inch do not give more than a 5% full scale meter needle movement.

E. Move the probe over the reference notch and adjust the instrument sensitivity to get an 80% full scale upward meter needle movement from the notch.

F. Check calibration and lift off again. If the adjustments are made, check sensitivity again to make sure of the 80% meter needle movement.

5. Inspection Procedure

A. Calibrate the instrument per Paragraph 4.

B. Put the probe in the vertical radius/contour of the housing between 1 and 2 inches above the area to be inspected. See Figure 2. Be sure that the probe is set as close as possible to 90 degrees to the surface of the contour.

C. With the probe still set at 90 degrees to the vertical radius/contour, balance the instrument and set the baseline to 50% of full scale (if using the Locator UH or UHB, press the zero button and adjust the zero knob. This will accomplish this step. Do not retrain the Locator on the part).

D. Keep the probe at this point in the vertical radius and lightly move the probe at an angle in all directions. Monitor the needle movement. When the needle reaches a minimum movement, hold the probe in this position. Balance the instrument again and adjust the needle position to 50% full scale again. (This indicates a good probe to part interface 90% to the surface).

NOTE: Do not balance the instrument again on the inspection area (horizontal contour).

E. Put the probe on the outboard end of the horizontal inspection contour 0.125 inch (approximately one probe tip diameter) away from the end of the contour going inboard. This will be the start position. See Figure 2.

NOTE: The outer ends of the horizontal contour are ignored due to the contour change at these points.

F. Keep the probe at this point in the inspection contour and lightly move the probe at an angle in all directions until a minimum needle movement is monitored. Do not angle the probe more than 30 degrees to the surface. See Figure 3. Note this meter indication.

G. Move the probe 0.125 inch inboard and do Paragraph 5.F. again at this point.

H. Do Paragraph 5.F. again at 0.125 inch intervals throughout the inspection area. Ignore the inboard most point (the last 0.125 inch of the horizontal contour).

I. Do Paragraph 5.F., Paragraph 5.G., and Paragraph 5.H. again on the contour on the opposite side of the part.

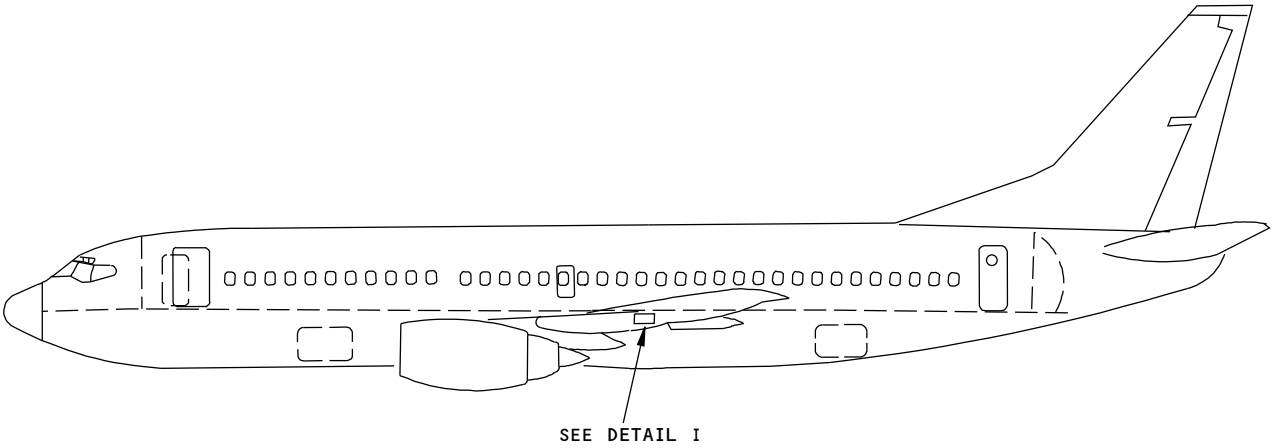
J. Needle drift can occur and must be checked throughout the inspection and after each side of the part is examined. To make sure that drift does not occur, place the probe back in the vertical contour and set as close to 90 degrees to the surface of the contour as possible. Keep the probe at this point and lightly move the probe at an angle in all directions until the needle is at a minimum. If this reading is greater than ±10% full scale meter needle movement from the 50% inspection setting, the instrument will have to be calibrated again as specified in Paragraph 5.A., Paragraph 5.B., and Paragraph 5.C. and the inspection areas examined again.

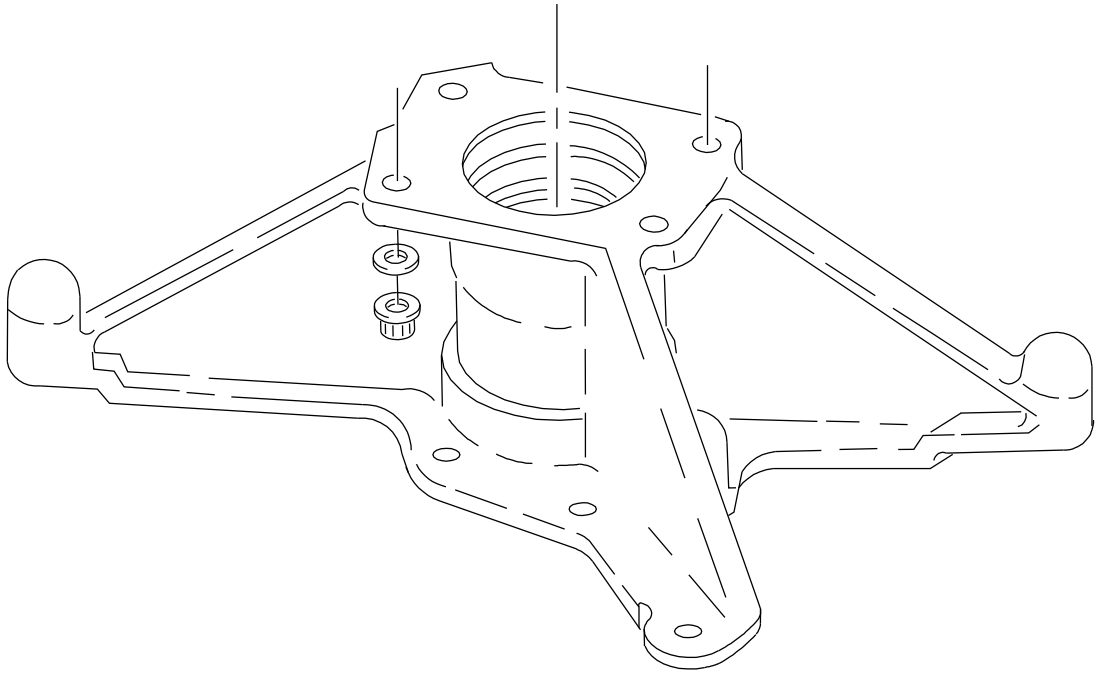
K. After the completion of the inspection, balance the probe again on the standard. Do not adjust the sensitivity but check the notch indication. If the notch indication is not within 80% ±5% full scale needle movement, then the equipment must be calibrated again as specified in Paragraph 4. and the part must be examined again.

6. Inspection Results

A. Downscale indications that are 30% or greater of the full scale meter needle movement show that a non-heat treated weld was found.

B. A sharp upscale indication over a small area that is 40% or greater of the full scale meter needle movement is an indication of a crack. Make an analysis of crack indications as specified in Part 6, 51-00-00, Procedure 4.





DETAIL I

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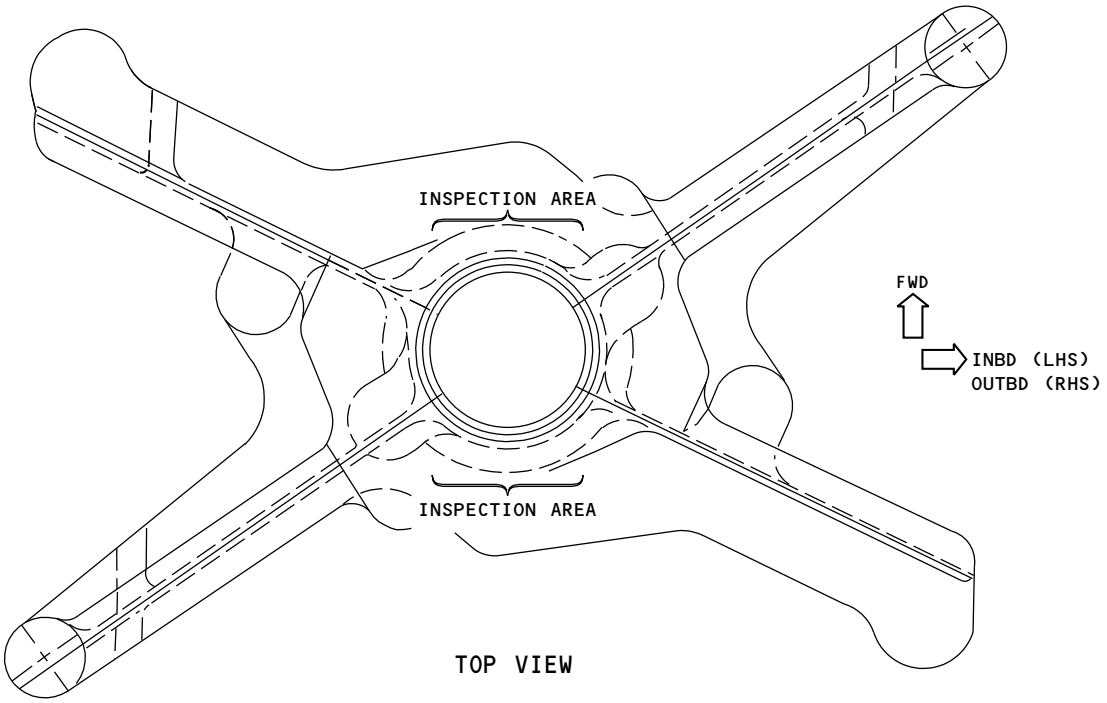
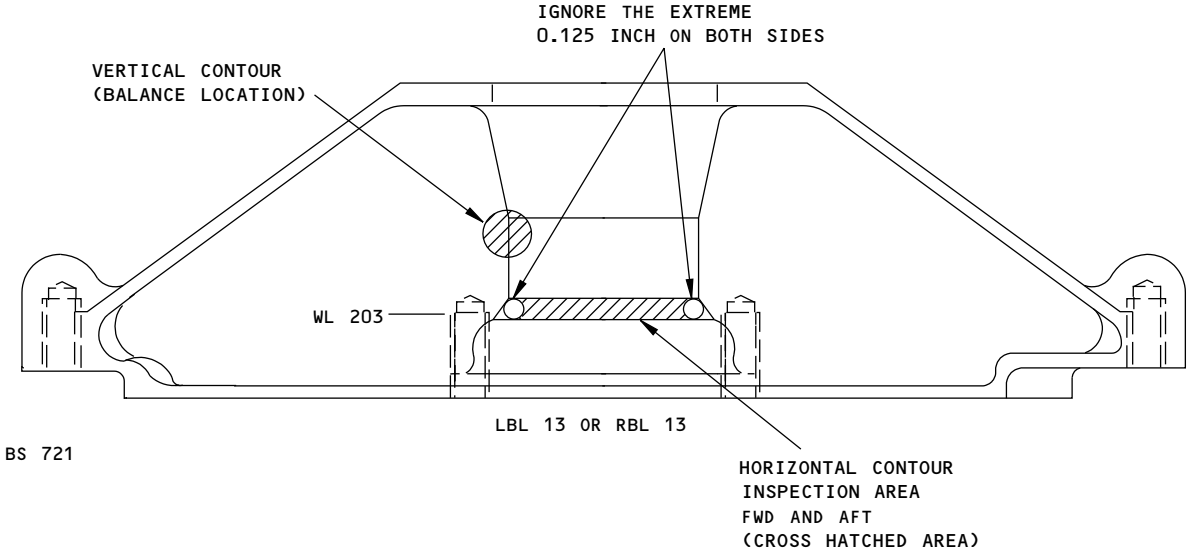
737-300 and -400 Brake Valve Support Housing
Figure 1



TOP VIEW



SIDE VIEW - AFT LOOKING FWD OR FWD LOOKING AFT
(SYMMETRICAL PART)

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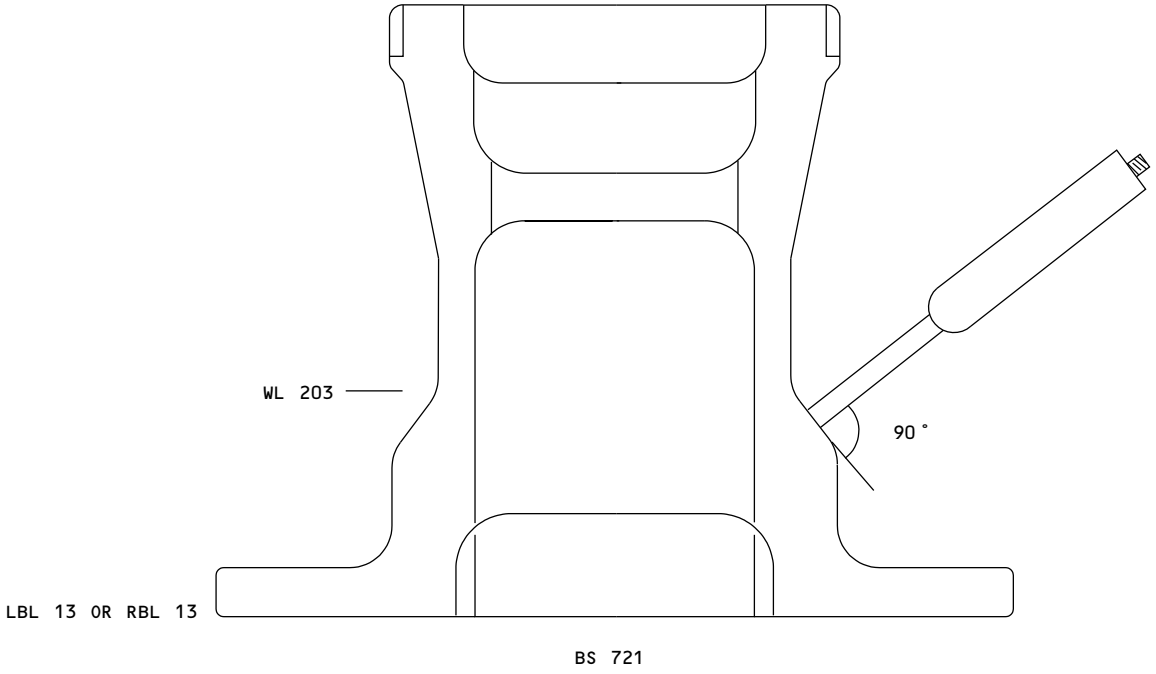
737-300 and -400 Brake Valve Support Housing
Figure 2



PROBE SHOWN NORMAL (90°) TO INSPECTION SURFACE/CONTOUR

SIDE VIEW - OUTBOARD LOOKING INBOARD OR
INBOARD LOOKING OUTBOARD
(SYMMETRICAL PART)

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737-300 and -400 Brake Valve Support Housing
Figure 3