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Servicing Notes

1. Immediately prior to use the following checks are to be carried out on ultrasonic equipment.

a. Examine mains supply electrical cable for damage and security of plug.

b. Examine probe, probe lead and connectors for damage.

c. When using an Ultrasonoscope Mk 7 or 8 ensure that mains/battery supply unit is firmly locked in place.

Servicing Notes are to be read and complied with throughout the work detailed in this technique.

1	Technique	Hunter/Ult/2C.
2	Component to be Examined	Main undercarriage hydraulic jack, Pre Mod/Hunter/1348. See 10 Additional Information, paragraph a.
3	Area of Examination	Forging flash lines running full length of jack body. Fig 2 refers.
4	Purpose of Examination	To detect stress corrosion cracking on flash lines, propagating from internal and external surfaces of jack body.
5	Equipment Required	4X/2024322 Ultrasonoscope Mk 5. 4X/4136 Probe box type triangular wedges, 4/55/5S. 4X/2031995 Probe rectangular end entry 41 mm radius, 6/40/5S. 4X/4306 Probe rectangular end entry 60 mm radius, 6/60/5S. Blocks reference, Qty 1. Fig 1 refers. Blocks reference, Qty 1. Fig 3 refers.
6	Preparation	
	a. Aircraft	Ensure undercarriage in down position.
	b. Component	Ensure: (1) Clip retaining electrical leads on jack body is slackened. (2) Probing surfaces are clean. (3) Flaking paint is removed and if necessary, chipped paintwork smoothed. (4) Paint on scan areas of indicator group housing is removed. Fig 3 refers.
7	Examination Procedure	
	a. Instrument Calibration	
	(1) Coupling Medium	Suitable grease liberally applied.
	(2) Range Setting	B.

(Continued overleaf)

7 Examination Procedure (Contd)

a. Instrument Calibration

(3)	Frequency Setting	5 MHz.
(4)	Reject Control Setting	Off.
(5)	Reference Signal Position	As detailed in individual procedures.
(6)	Reference Signal Amplitude	As detailed in individual procedures.

b. Procedure

(1) Scan A

a. Position probe 6/40/5S on on reference block in accordance with Fig 1, identify signal from internal slot, set at 3 on time base.
b. Move probe rearwards, identify signal from external slot, set at 6 on time base with 40 mm amplitude.
c. Recheck that signal from internal slot is at 3 on time base, adjust as necessary.
d. Examine accessible areas as shown in Fig 2, scanning in direction of arrows and, where possible, from both sides of flash lines.
e. Defect indications will occur at 3 or 6 on time base.
NOTE: Any increase in gain from that recommended will produce spurious indications from surface blemishes.

(2) Scan B Part 1

a. Position probe 6/40/5S on reference block in accordance with Fig 1, identify signal from internal slot, set at 3 on time base.
b. Move probe rearwards, identify signal from external slot, set at 6 on time base with 50 mm amplitude.
c. Re-check signal from internal slot is at 3 on time base; adjust as necessary.
d. Examine areas shown in Fig 2, scanning in direction of arrows, and where possible, from both sides of flash lines. Use liberal couplant around edges of flash line flat surfaces.

(Continued)

7 Examination Procedure (Contd)

(2) Scan B Part 1

e. Defect indications will occur at approximately 4 or 8 on time base. Spurious indications may occur from edges of flats and should be identified by damping and relating to probe position on reference block.

(3) Scan B Part 2

a. Position probe 6/60/5S on reference block in accordance with Fig 1, identify signal from internal slot, set at 3 on time base with 50 mm amplitude.
NOTE: Probe will be further away from slot in reference block than in Scan B Part 1, due to change in probe angle.
b. Examine areas shown in Fig 2, scanning in direction of arrows, and where possible, from both sides of flash lines.
c. Defect indications will occur at approximately 4 on time base, as this scan procedure is only intended to examine internal surface of jack body.

(4) Scan C

a. Position probe 6/40/5S on reference block in accordance with Fig 1, identify signal from internal slot, set at 3 on time base.
b. Move probe rearwards, identify signal from external slot, set at 6 on time base.
c. Re-check that signal from internal slot is at 3 on time base; adjust as necessary.
d. Move probe further rearwards until skip signal from internal slot peaks at 9 on time base and set 40 mm amplitude.
e. Using delay control move signal to zero point on time base.

(Continued overleaf)

7 Examination Procedure (Contd)

(4) Scan C

f. Continue moving probe rearwards to identify skip signal from external slot at 3 on time base and with further rearward movement of probe identify skip signal from internal slot at 6 on time base.
g. Note probe position in relation to reference slot, place probe in that relative position on jack body and examine area as shown in Fig 2.
h. Defect indications will occur at 6 or 9 on time base.
NOTE: If hydraulic pipe prevents correct location of probe for scan the following action is to be taken:
j. Return probe to reference block, identify skip signal from external slot at 9 on time base and note probe position in relation to reference slot.
k. Place probe in that relative position on jack body and examine area as shown in Fig 2. At this position, however, both internal and external defects will be detected.
l. Defect indications will occur at 6 or 9 on time base.
NOTE: Due to mode changes and/or beam spread, further indications may appear on either side of defect signal at reduced amplitude. Also, because of high sensitivity and skip technique employed, indications may be obtained from external blemishes. These are to be investigated.

(5) Scan D

a. Position probe 6/40/5S on reference block is accordance with Fig 1, identify signal from internal slot, set at 3 on time base.
b. Move probe rearwards, identify signal from external slot, set at 6 on time base with 40 mm amplitude.
c. Re-check that signal from internal slot is at 3 on time base; adjust as necessary.

(Continued)

7 Examination Procedure (Contd)

(5) Scan D

d. Examine top flash line, scanning in direction of arrows, from both sides where possible. Where cover of indication group obstructs probe movement, scan in normal manner to where front of probe abuts cover and continue search on body with probe touching cover. Fig 2 refers.
e. Examine bottom flash line scanning from both sides where possible.
f. Defect indications will normally occur at approximately 4 or 8 on time base.
NOTE: A signal, from an internal dowel recess along flash line, should appear between 5.1 and 5.5 on time base. Fig 2 refers. Should the signal not appear, scan from opposite side of jack body. If signal still does not appear, increase gain above 40 mm search amplitude in order to establish that signal. Single indications appearing from dowel recess are acceptable. Twin peaks, or time base shift of dowel recess signal, render jack suspect.

(6) Scan E

a. Position probe 4/55/5S on reference block, identify signal from internal slot and position at 5 on time base with 40 mm amplitude. Fig 3 refers.
b. Increase amplitude of signal by 10dB, examine indicator group housing in accordance with Fig 3.
c. Defect indications will occur at 5 and 5.5 on time base.
NOTE: Indications may be received from the centre hole, peaking at 4.5 on time base and tapped holes, peaking at 2 and 8 on time base.

(Continued overleaf)

7	Examination Procedure (Contd)	
	c. Examination Standard	No defects permitted. In all suspect cases jack is to be removed from aircraft, paint removed, and re-examined ultrasonically. Jacks still suspect are to be rejected. Additionally, jacks removed from aircraft as suspect are to be examined in flash line areas not previously accessible, or where it was only possible to scan from one side of flash line.
8	Reporting Procedure	All defects to be reported in accordance with AP 3158 Vol 2, 2nd Edition, Leaflet C17.
9	Estimated Technique Manhours	1 1/2.
10	Additional Information	a. Embodiment of Mod/Hunter/1348 (Dowty Mod AC/7500) renders application of this technique unnecessary. Modified jacks can be identified by Pt No. 103665001 (Port) and 103665002 Starboard. b. This technique is required to detect small defects, therefore special care must be taken. Probe must be maintained at normal to expected defects, ie at right angles to flash line. Deviation from normal will result in a loss of defect signal. Furthermore, where access permits, ensure probe traverses flash line. NB: Where possible repeat examination from both sides of flash line.

(Continued)

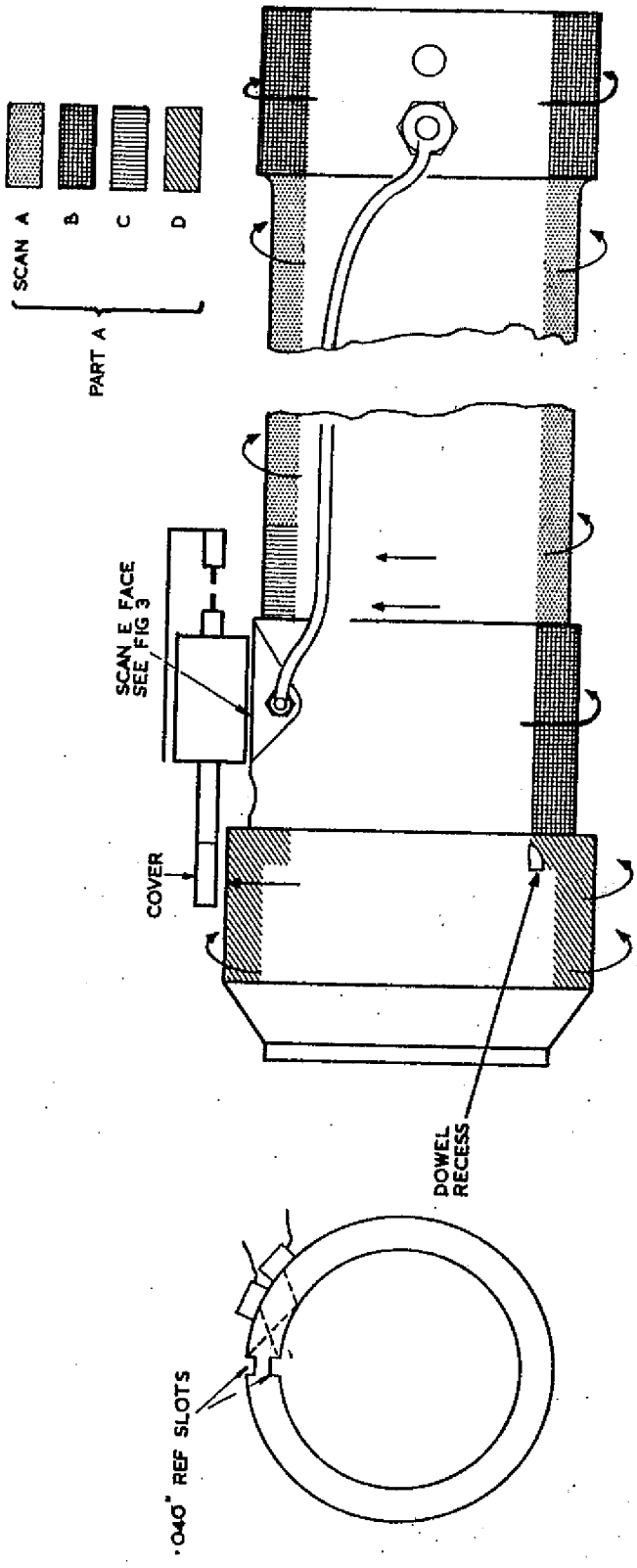


FIG 2
SCAN AREAS ON JACK BODY

FIG 1
MAIN BODY REFERENCE BLOCK

(Continued overleaf)

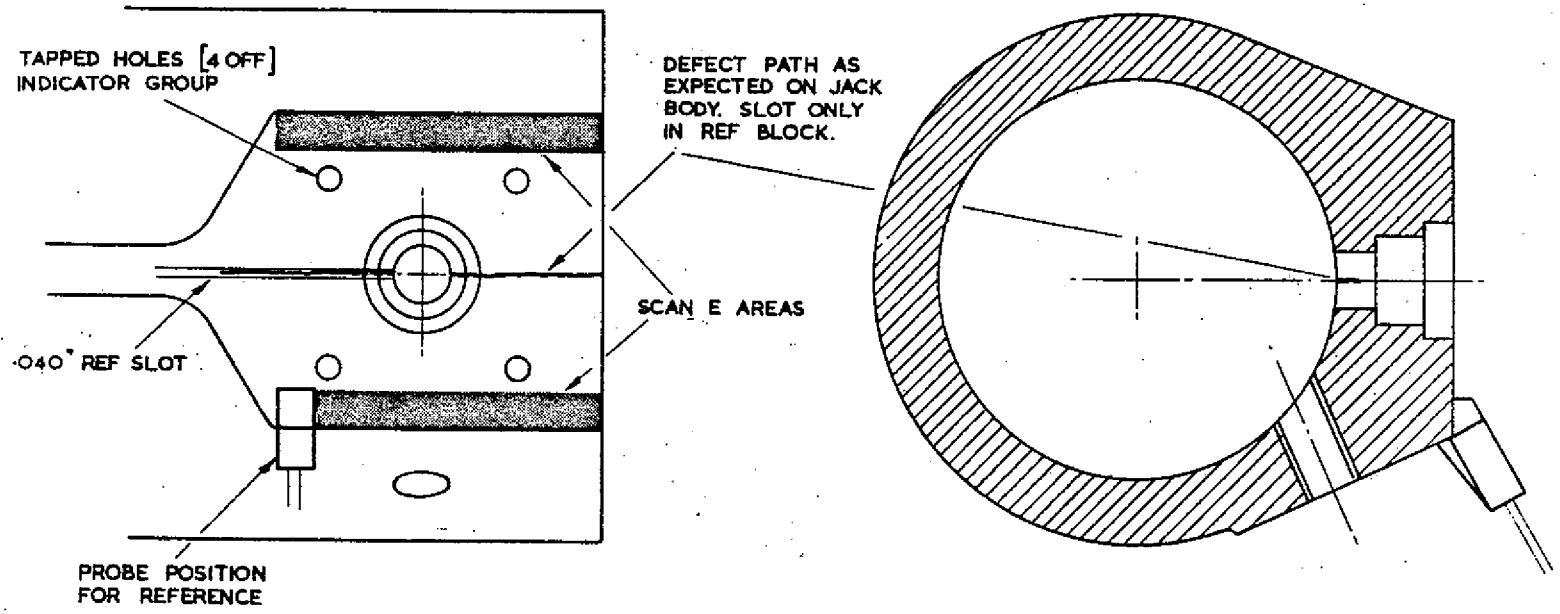


FIG 3

INDICATOR GROUP HOUSING REFERENCE BLOCK

Warnings, Cautions and Maintenance Notes are to be complied with throughout the work detailed in this technique.

1. Technique — HUNTER/ULT/3A (Category A).

2. Component to be Examined — Mainplane locating spigot port and starboard (Fig. 1).

3. Area of Examination — Inboard face of elongated spigot pin hole (Fig. 1).

4. Purpose of Examination — To examine for fatigue cracking of spigot at lower and upper surfaces at change of section (Fig. 1).

5. Equipment Required
   (i) USD 10 Ultrasonic set 4X/S9153775
   (ii) Probe 4XS/0270622
   (iii) Reference block, CSDE supplied (Fig. 2)
   (iv) Any suitable couplant

6. Preparation

6.1 Aircraft.
   (i) Ensure small access panel in mainplane upper skin removed port and starboard.
   (ii) Ensure pin removed from hole.

6.2 Component. Ensure examination area is clean and free from loose or flaking paint.

7. Examination Procedure

7.1 Instrument Settings.

(a) Basic setup.

(i)	DISP. DEL.	Set to `12.00 mm'.
(ii)	DIS. WDTH.	Set to `40.00 mm'.
(iii)	SOUND VEL.	Set to `5900 m/s'.
(iv)	PROBE DEL.	Set to `0'.
(v)	FREQU.	Set to `4 MHZ'.
(vi)	RECTIFY.	Set to `FULLWAVE'.
(vii)	P-POWER.	Set to `2'.
(viii)	DAMPING.	Set to `75 OHMS'.

7. Examination Procedure (Cont)

7.1 Instrument Settings (Cont).

(a) Basic setup (Cont).

(ix)	DUAL.	Set to 'ON'.
(x)	REJECT.	Set to '3%'.
(xi)	A-MODE.	Set to 'OFF'.
(xii)	MAGNIFY.	Set to 'OFF'.
(xiii)	FREEZE.	Set to 'OFF'.

(b) Auxilary setup.

(i)	PRF.	Set to '16'.
(ii)	SEL. AMPL.	Set to '% SCREEN'.
(iii)	SEL. DEPTH.	Set to 'ABSOLUTE'.
(iv)	FILTER.	Set to '0'.

(c) Installation.

(i)	GRID.	Set to 'ON'.

(d) Gates.

(i)	HORN.	Set to 'OFF'.
(ii)	TOF-MODE.	Set to 'PEAK'.
(iii)	B-MODE.	Set to 'OFF'.

(e) Angle beam.

(i)	ANGLE.	Set to '0.0' degrees.

7.2 Sensitivity Setting.

(i) Connect probe 4XS/0270622

(ii) Place probe in reference block at position A (Fig. 3), identify signal from the 1/2 inch slot. Withdraw the probe until the signal from the end of the reference block is obtained. Using display delay and display width place the signals at 5 and 10 respectively on the timebase.

(iii) Place probe in the reference block at position B (Fig. 3) and maximise the signal from the 5/32 inch slot, adjusting the gain to achieve 80 per cent FSH (See para 10 (ii)).

Continued

7. Examination Procedure (Cont)

7.3 Procedure.

(i) Place probe in the scan area (Fig. 1), scan the full length of the face. Ensure good probe contact and adequate couplant.

(ii) Fault indications will appear between 4.5 and 5.5 on the timebase.

(iii) Repeat operation (i) on the other spigot.

7.4 Examination Standards.

All fault indications in excess of 30 per cent screen height are to be reported.

8. Reporting Procedure

In accordance with AP 100B-01 Order No. 0770 and relevant maintenance instructions.

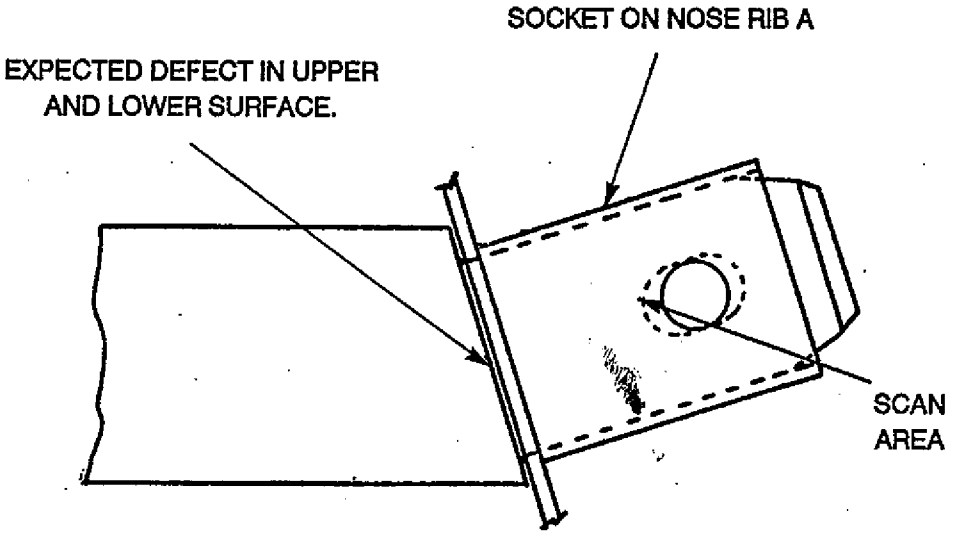
9. Estimated Manhours

1.

10. Additional Information

(i) Ensure adequate couplant is maintained at all times.

(ii) Ensure full length of probe is in contact with calibration block during set up procedure. The probe must not overlap the ends of hole.



DETAIL OF SPIGOT FITTING SITUATED IN STUB WING (SPIGOT EXTENDING INTO MAINPLANE)

Fig. 1 Spigot

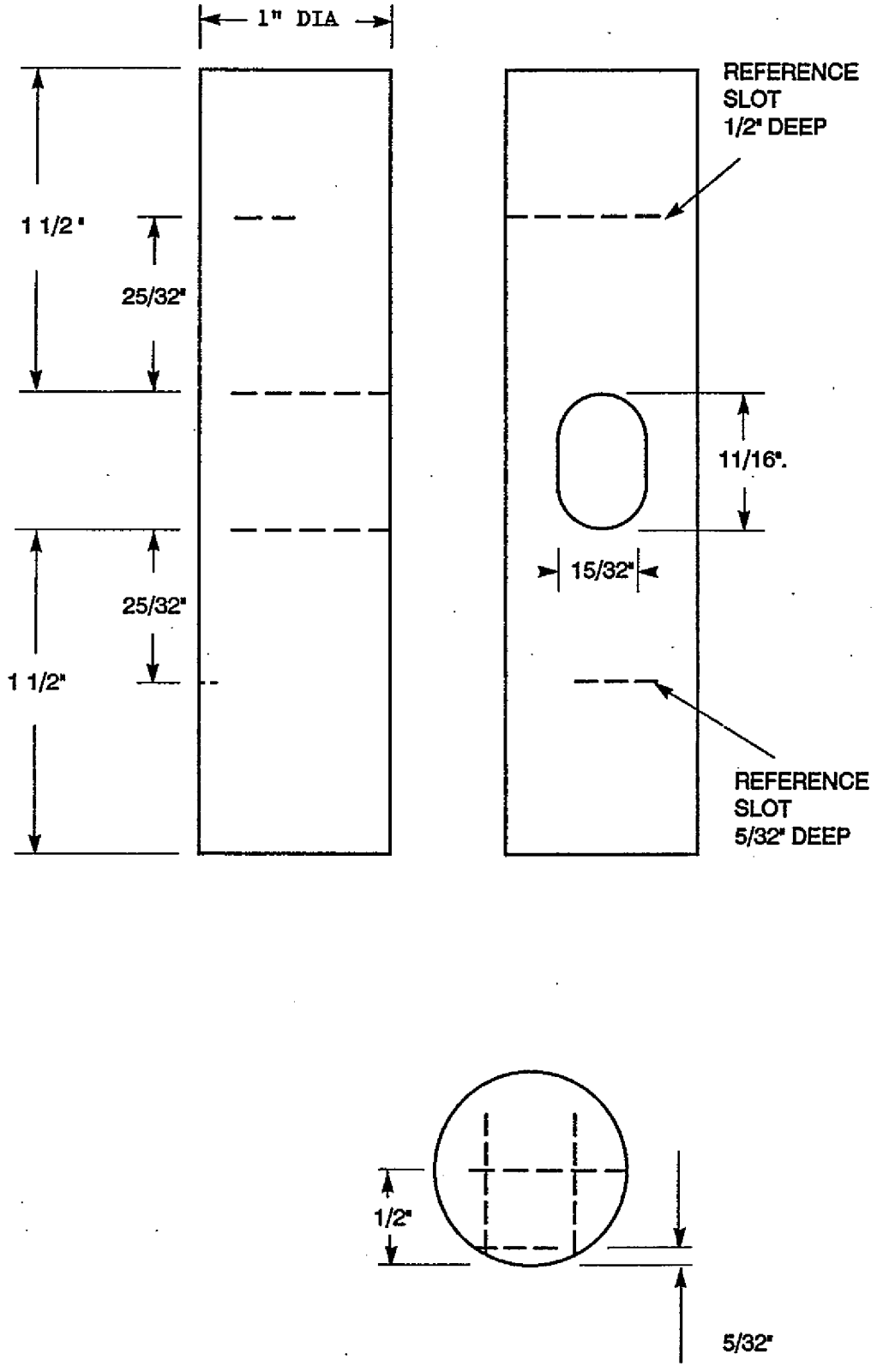
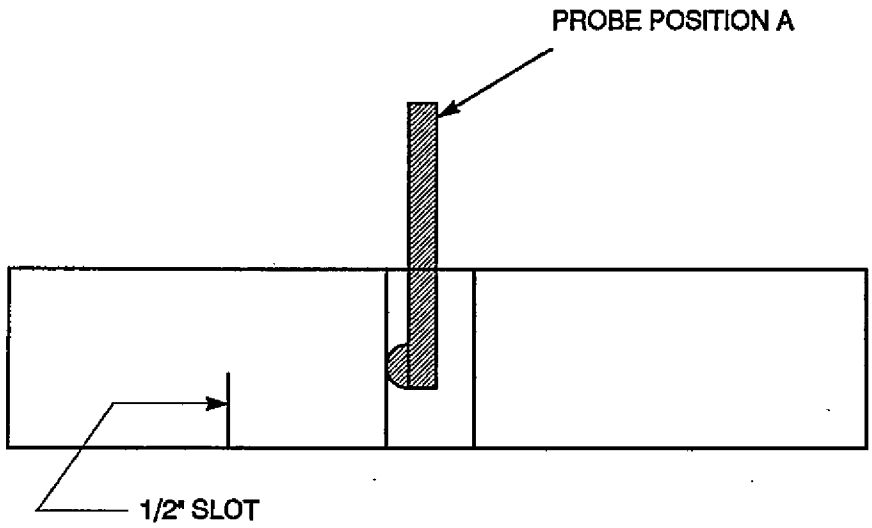


Fig. 2 Reference block



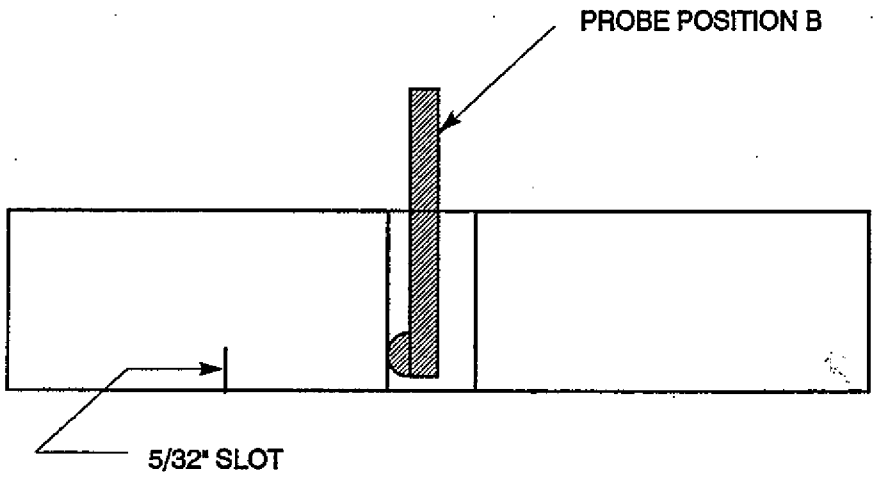


Fig. 3 Probe positions

Servicing Notes are to be complied with throughout the work detailed in this technique.

1. Technique. — HUNTER/ULT/5A.

2. Component to be Examined. — Main undercarriage leg, Port and Starboard.

3. Area of Examination. — Circumference at bottom of main fitting to a height of 2.75 inches at front of fitting increasing to 3.5 inches at rear of fitting. See Fig 1.

4. Purpose of Examination.

a. To detect cracking in internal lower gland nut seat radius.

b. To detect cracking on flash line of main fitting.

c. To detect cracking propagating from small corrosion pits in lower internal bore of main fitting.

5. Equipment Required.

a. 4X/2024322 Ultrasonoscope Mk 5.
or
4X/4660268 Ultrasonoscope Mk 7.
or
4X/4660275 Ultrasonoscope Mk 8.

b. 4X/4660270 Probe rectangular 6/60/5s end entry 60mm radius.

6. Preparation.

a. Aircraft. — Ensure aircraft weight is on the legs to provide access in torque link area.

b. Component. — Ensure:

(1) Leg fairing flap link rods are disconnected from leg.

(2) Paint is to be removed from scan area, (See Fig 1), if considered necessary by operator if:

(a) In a flaking or poor condition.

(b) Satisfactory transmission cannot be obtained.

(3) Grease nipple is removed from bottom of main fitting.

Note: If leg is to be examined off the aircraft, ensure all pressure is released.

Continued overleaf

7. Examination Procedure.

a. Instrument Calibration.

(1)	Coupling Medium.	Any suitable grease.
(2)	Range Setting.	'C'.
(3)	Frequency Setting.	5 MHz.
(4)	Reject Control Setting.	As required to obtain a clean timebase while maintaining reference signal amplitude.
(5)	Reference Signal Position.	5 on Timebase.
(6)	Reference Signal Amplitude.	30mm.

b. Procedure.

(1) Place probe approximately 1.0 inches to the side of grease nipple hole. (See Fig 2).

(2) Adjust probe position to obtain greatest signal amplitude from grease nipple hole.

(3) Repeat operations (1) and (2) from opposite side of grease nipple hole.

(4) Select probe position which gives greatest amplitude and use as reference signal.

(5) Adjust attenuator to set reference signal amplitude to 30mm.

(6) Ensure reference signal is at 5 on timebase.

(7) Scan full circumference of lower machined portion of main fitting in:

(a) Horizontal scans of probe width increments.

(b) Single scan at bottom of fitting with probe angled approximately 10 degrees downwards. (See Fig 3, and Additional Information para 10a).

Continued

7. Examination Procedure (Contd)

b. Procedure.

(8) Circumferentialy inspect the remaining scan area (See Fig 1), in probe width increments scanning as far as lugs permit, in both directions by:

(a) Horizontal scans.

(b) Scans with probe angled approximately 10 degrees downwards.

(c) Scans with probe angled approximately 10 degrees upwards.

Note: See Aditional Information para 10a and b.

(9) Defect indications will appear between 4 and 10 on timebase.

c. Examination Standard. Any defect indication of less than 15mm amplitude is to be disregarded.

8. Reporting Procedure. All defect indications of 15mm and above are to be reported in accordance with AP 3158 Vol 2 2nd Edition Leaflet C17 and relevant SI.

9. Estimated Technique Manhours. 1.

10. Additional Information.

a. When scanning with probe angled, ensure there is sufficient couplant to fill gap between curved surface of probe and surface of barrel.

b. Spurious indications may be obtained from lugs due to hand finish of barrel in this area. Every effort is to be made to identify the causes of these signals.

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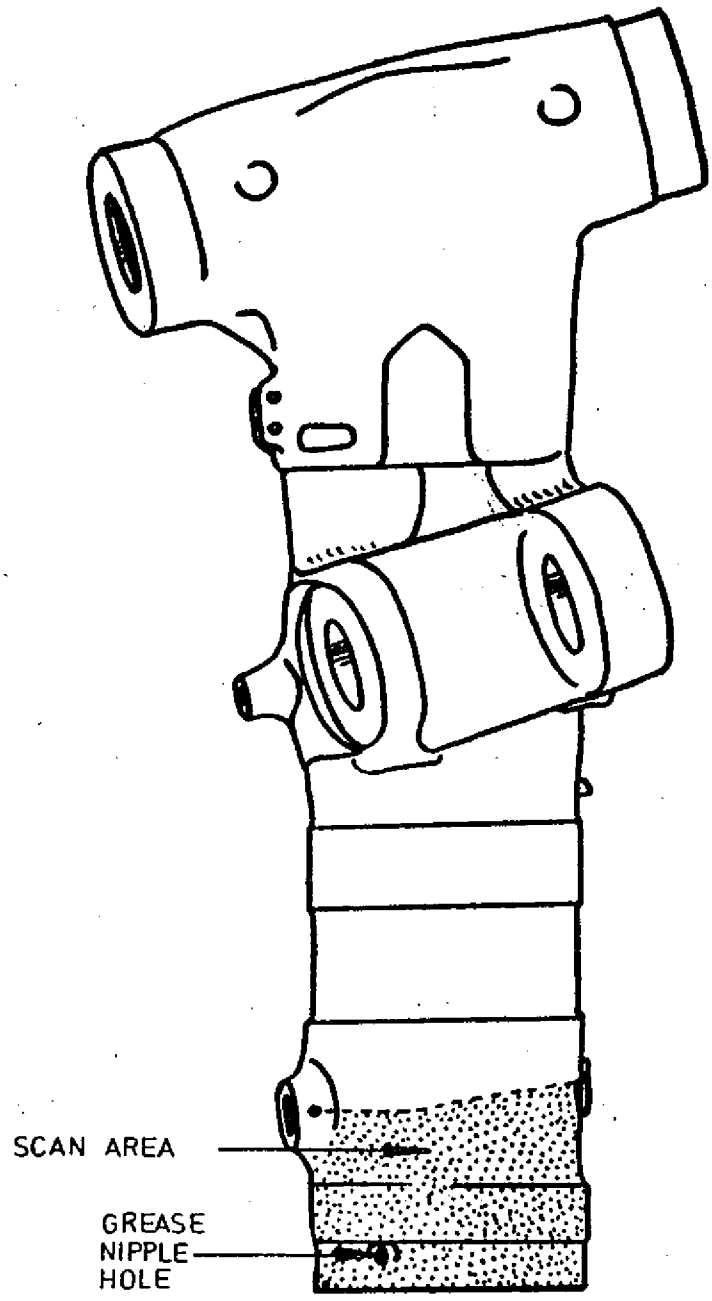

FIG 1

Continued

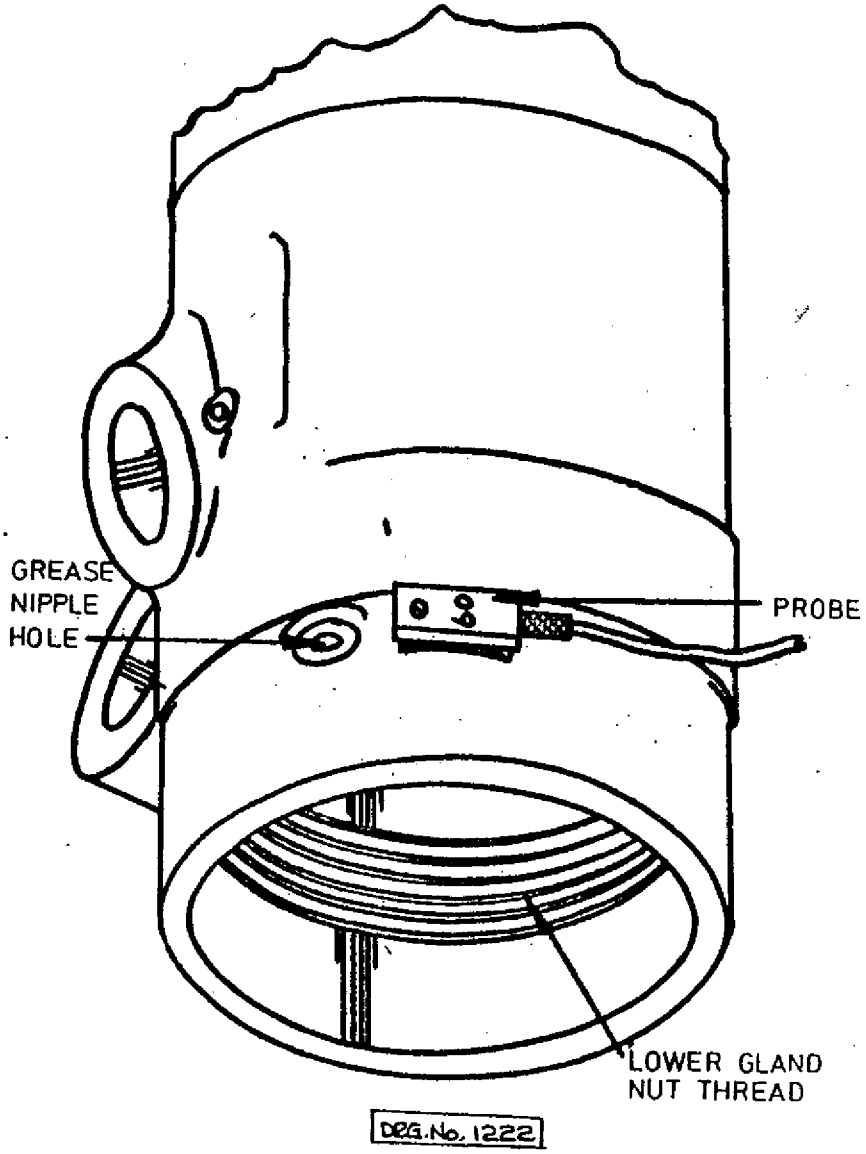

FIG 2

Continued overleaf

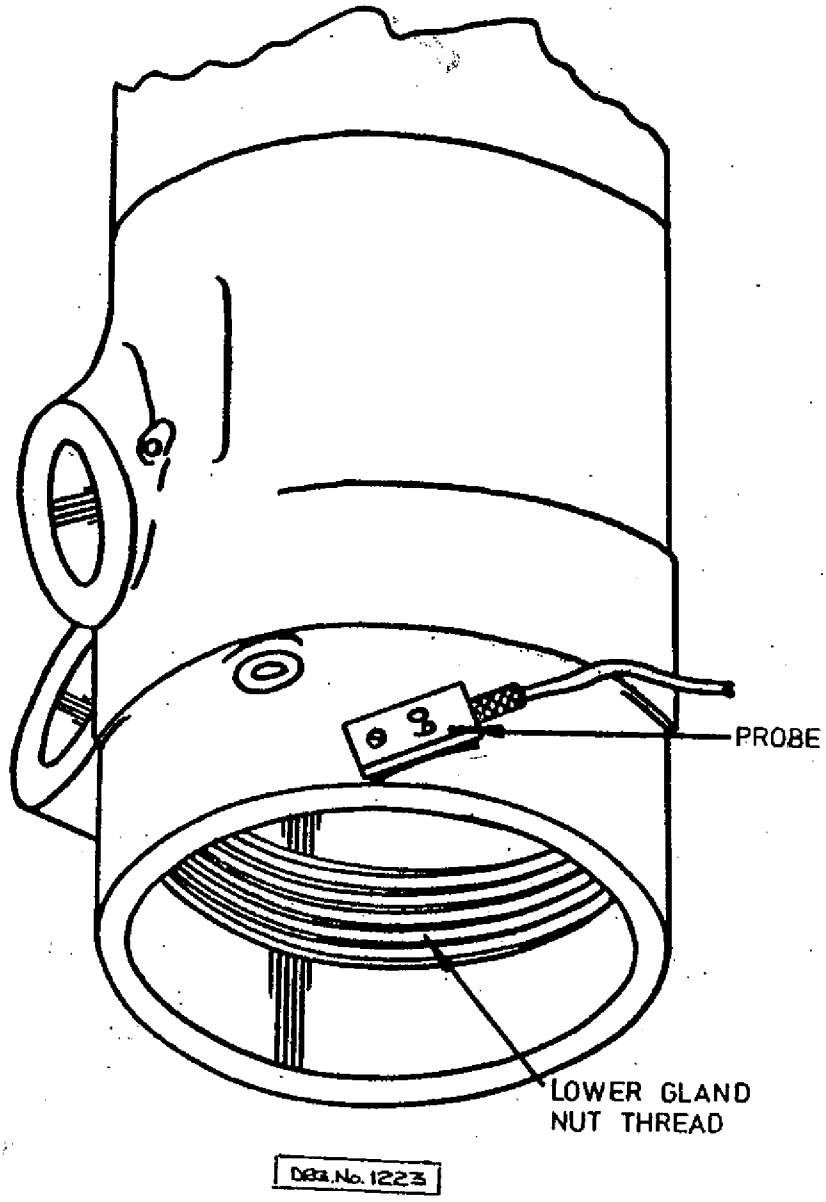

FIG 3

SM 74/751 (5A)

ALL MARKS ULTRASONIC TECHNIQUE

Warnings, Cautions and Maintenance Notes are to be complied with throughout the work detailed in this technique.

1. Technique — HUNTER / ULT / 5B (Category A).

2. Component to be Examined — Main undercarriage leg.

3. Area of Examination — Circumference at bottom of main fitting to a height of 70mm at front of fitting increasing to 90mm at rear of fitting(See Fig. 1).

4. Purpose of Examination

a. To detect cracking in the internal lower gland nut seat radius.
b. To detect cracking on flash line of main fitting.
c. To detect cracking propagating from small corrosion pits in lower internal bore of main fitting.

5. Equipment Required

(i) USD 10 Ultrasonic set 4XS/9153775.
(ii) Probe 6/60/5S 60mm radius 4XS/4660270
(iii) Couplant UCA-1M 4XS/3008482.

6. Preparation

6.1 Aircraft — Ensure aircraft weight is on the legs to provide access in the torque link area.

6.2 Component — Ensure:

(a) Leg fairing flap link rods are disconnected from leg.
(b) Scan area is clean and free from flaking paint.
(c) Grease nipple is removed from bottom of main fitting.

7. Examination Procedure

7.1 Instrument set up.

(a) Installation.

(i) UNIT. Set to ' MM '.

(ii) GRID. Set to ' ON '.

7. Examination Procedure (Cont.).

7.1 (b) Basic set up

(i)	DISP. DEL.	Set to	' 0.000 MM '.
(ii)	DIS. WDTH.	Set to	' 63.00 MM '.
(iii)	SOUNDVEL.	Set to	' 3130 M/S '.
(iv)	PROBEDEL.	Set to	' 0.000 µS '.
(v)	FREQU.	Set to	' 4 MHZ '.
(vi)	RECTIFY.	Set to	' FULLWAVE '.
(vii)	P-POWER.	Set to	' 2 '.
(viii)	DAMPING.	Set to	' 75 OHMS '.
(ix)	DUAL.	Set to	' OFF '.
(x)	REJECT.	Set to	' 00 % '.

(c) Auxiliary set up.

(i)	PRF	Set to	' 16 '.
(ii)	SEL.AMPL.	Set to	' %SCREEN '.
(iii)	SEL.DPTH.	Set to	' ABSOLUTE '.
(iv)	FILTER.	Set to	' 0 '.

(d) Gates.

(i)	A-MODE.	Set to	' OFF '.
(ii)	TOF MODE.	Set to	' PEAK '.
(iii)	B-MODE.	Set to	' OFF '.

Examination Procedure (Cont.).

(e) Angle beam.

(i) HORN. Set to ' OFF '.

(ii) ANGLE. Set to ' 00 DEG. '.

7.2 Procedure

(i) Place probe approximately 25mm to the side of grease nipple hole(See Fig. 2).

(ii) Adjust probe position to maximise signal from grease nipple hole.

(iii) Repeat 7.2(i) and 7.2(ii) from opposite side of hole.

(iv) Probe position giving greatest amplitude for minimum dB is to be used as reference signal.

(v) Position reference signal at 5 and set to 60% F.S.H.

(vi) Scan full circumference of lower machined portion of main fitting in:

(a) Horizontal scans of probe width increments.

(b) Single scan at bottom of fitting with probe angled at 10 degrees downwards(See Fig 3 and Additional Information para. 10a).

(vii) Circumferentially inspect the remaining scan area(See Fig. 1) in probe width increments scanning as far as lugs permit, in both directions by:

(a) Horizontal scans.

(b) Scan with probe angled 10 degrees downwards.

(c) Scans with probe angled 10 degrees upwards.

Note: See Additional Information para 10a and 10b.

(viii) Fault indications will appear between 4 and 10 on the timebase

7.3 Examination Standard — Any fault indication of 30% F.S.H. and above is to be reported.

8. Reporting Procedure — In accordance with AP 100B - 01 Order No. 0770.

9. Estimated Technique Manhours — 1.0 per fitting.

10. Additional Information

a. When scanning with the probe angled, ensure that there is sufficient couplant to fill the gap between curved surface of probe and fitting.

b. Spurious indications may be obtained from lugs due to hand finishing of barrel in this area. Every effort is to be made to identify the cause of these signals.

Prepared by:
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17 Apr 97

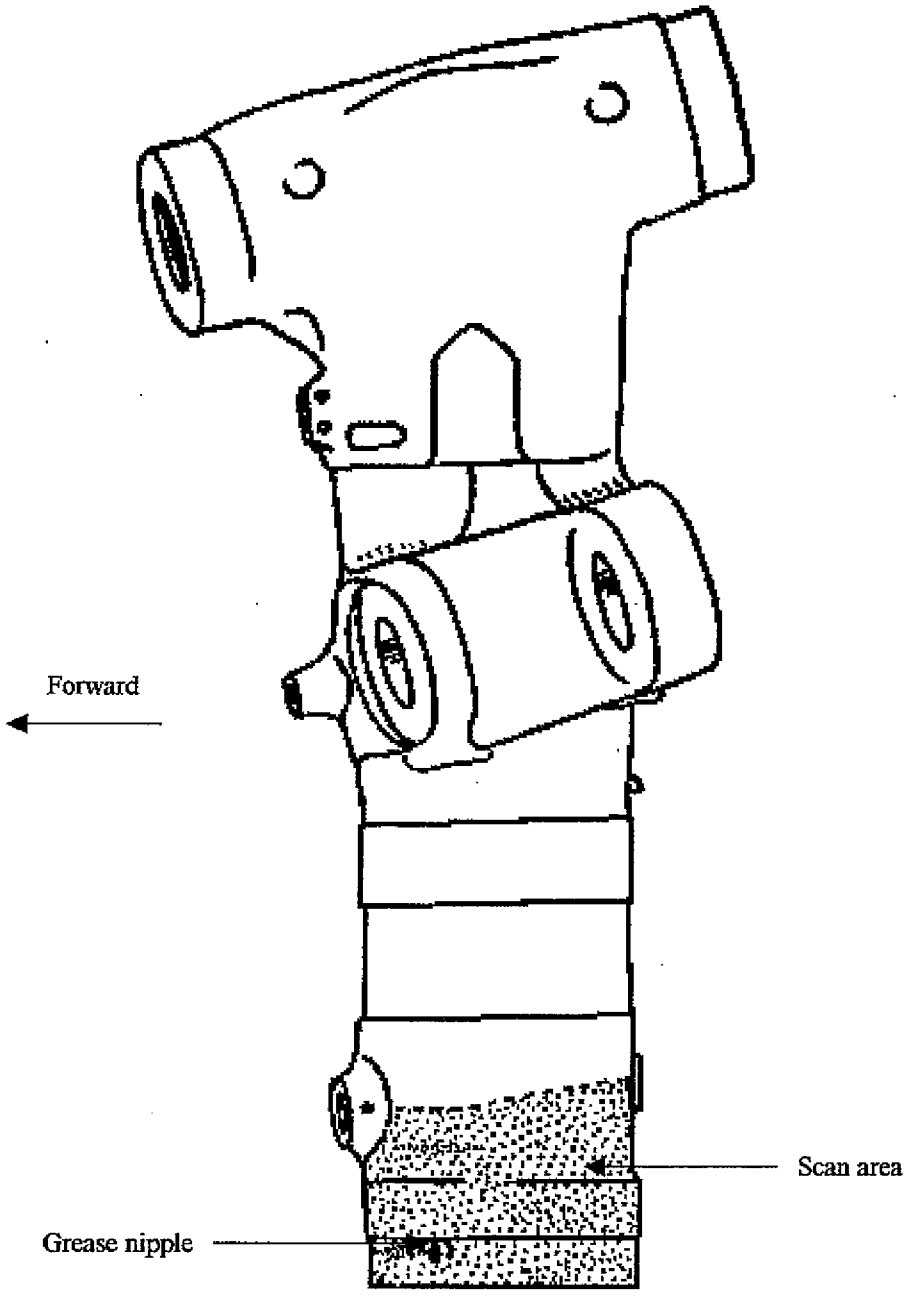

Fig. 1. Undercarriage main fitting
(Port shown)

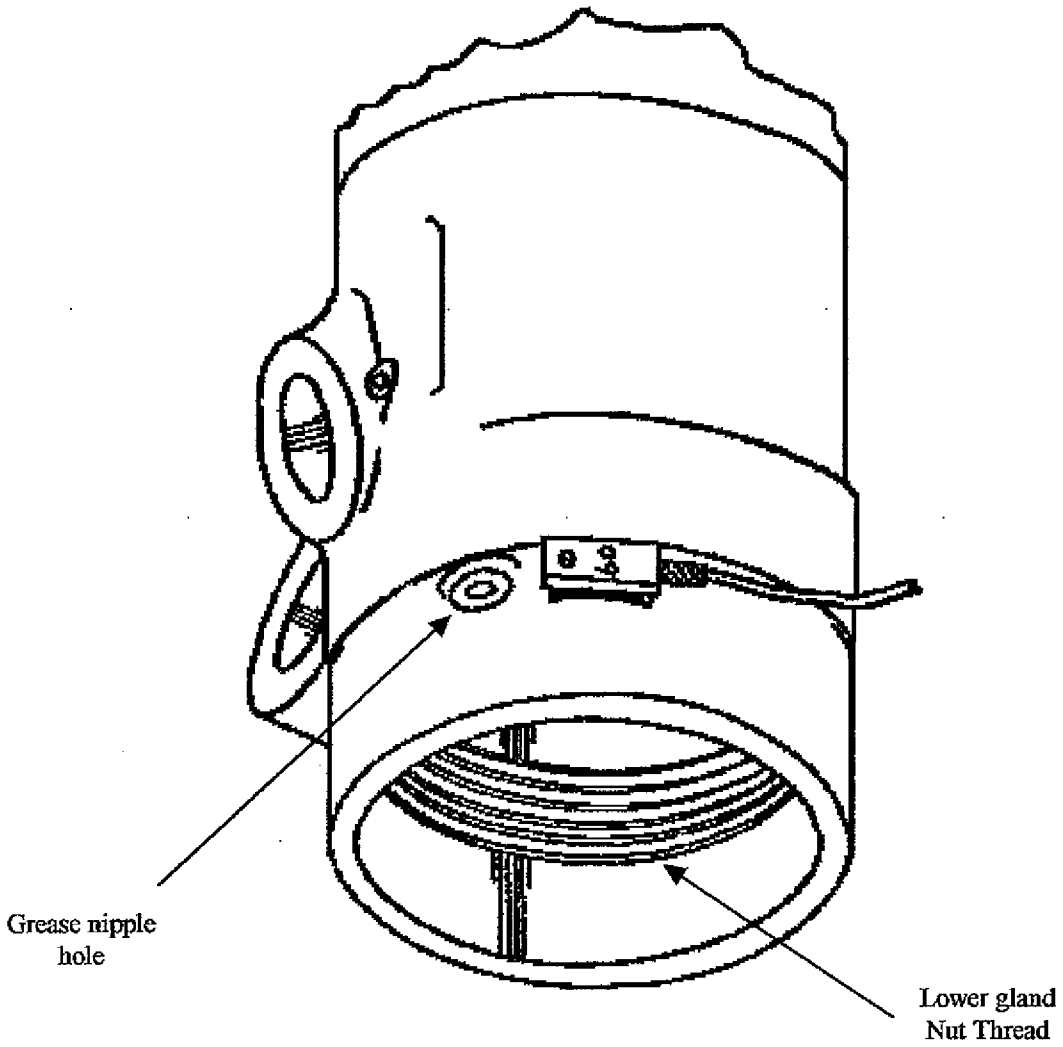

Fig. 2.

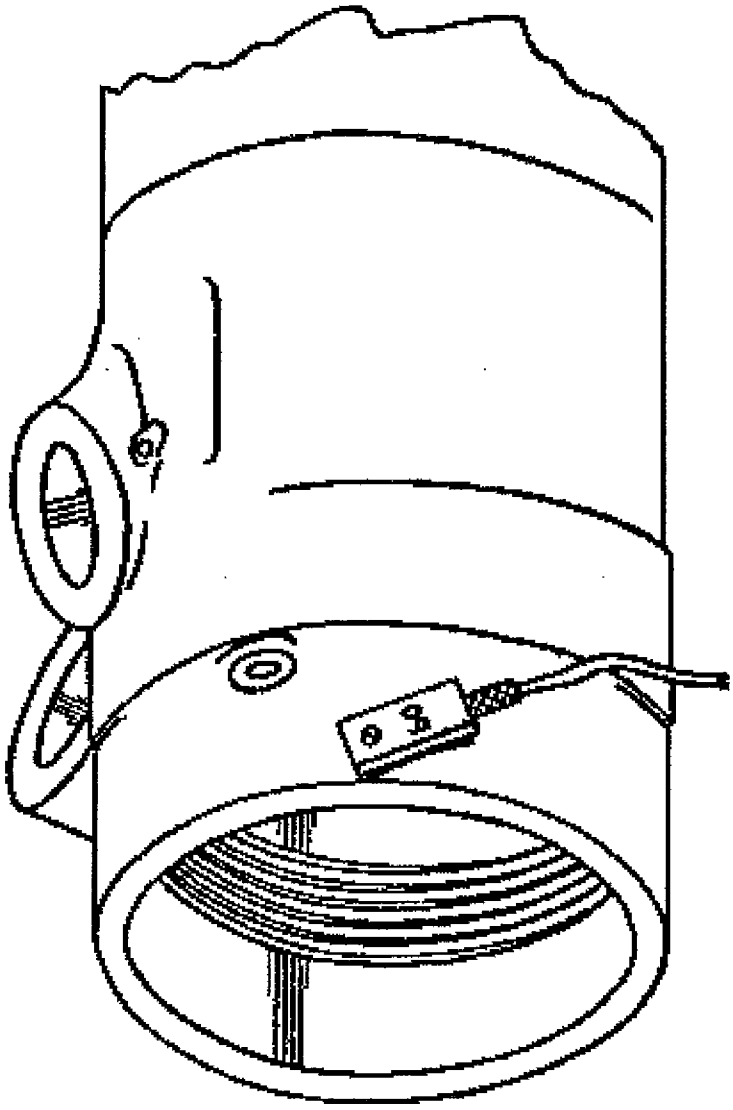

Fig. 3.

Servicing Notes are to be complied with throughout the work detailed in this technique.

1. Technique. — HUNTER/ULT/6A.

2. Component to be Examined. — Nose undercarriage leg.

3. Area to be Examined. — Flash lines at front and rear of cylinder portion of main fitting from bottom of cylinder to a height of 9.75 inches. (See Fig 1).

4. Purpose of Examination. — To detect stress corrosion cracking in the area of examination.

5. Equipment Required.

a. 4X/2024322 Ultrasonoscope Mk 5.
or
4X/4660268 Ultrasonoscope Mk 7.
or
4X/4660275 Ultrasonoscope Mk 8.

b. 4X/4660270 Probe rectangular 6/60/5s end entry 60 mm radius.

6. Preparation.

a. Aircraft. — Nil.

b. Component.

(1) Ensure identification band is loosened.

(2) Ensure grease nipple removed from bottom of main fitting.

(3) Paint is to be removed from scan surface, (see Fig 1), if considered necessary by operator for following reasons:

(a) Flaking or in poor condition.

(b) Satisfactory transmission cannot be obtained.

7. Examination Procedure.

a. Instrument Calibration.

(1) Coupling Medium. — Any suitable grease.

(2) Range Setting. — 'B'.

(3) Frequency Setting. — 5 MHz.

(4) Reject Control Setting. — As required to obtain a clean timebase while maintaining reference signal amplitude.

Continued overleaf

7. Examination Procedure (Contd)

a. Instrument Calibration.

(5) Reference Signal Position.	Set to 4 on timebase.
(6) Reference Signal Amplitude.	30 mm.

b. Procedure.

(1) Place probe close to and on one side of grease nipple hole at bottom of leg.

(2) Adjust probe position to obtain greatest amplitude from grease nipple hole.

(3) Repeat operations (1) and (2) from opposite side of grease nipple hole.

(4) Select probe position which gives greatest amplitude, and use as reference signal.

(5) Adjust attenuator to set reference signal amplitude to 30 mm.

(6) Ensure reference signal is at 4 on timebase.

(7) Position probe 1 inch to one side of flash line at lower extremity of scan area 'A', (see Fig 1). Scan towards flash line and across it for a distance of 0.25 inches.

(8) Scan complete area 'A' in a tight zig-zag pattern.

(9) Repeat scan, (operations (7) and (8)), from opposite side of flash line.

(10) Repeat scan pattern, as for scan 'A', (operations (7) and (8)), for rear flash line over distance 'B'. (See Fig 1).

(11) Repeat scan, (operation 10), from opposite side of flash line.

(12) Defect indications will appear at approximately 4 on timebase for an internal wall defect and at approximately 7 for an external surface defect.

Continued

7. Examination Procedure (Contd)

c. Examination Standard. Any indication of less than 15 mm in amplitude is to be desregarded.

8. Reporting Procedure. All defect indications of 15 mm and above are to be reported in accordance with AP 3158 Vol 2 (2nd Edition) Leaflet C17 and relevent SI.

9. Estimated Technique Machours 1.

10. Additional Information.

a. Excess grease in upper internal bearing may give spurious indications.

b. All indications are to be confirmed by eddy current or assisted visual inspection with leg stripped before reporting.

Continued overleaf

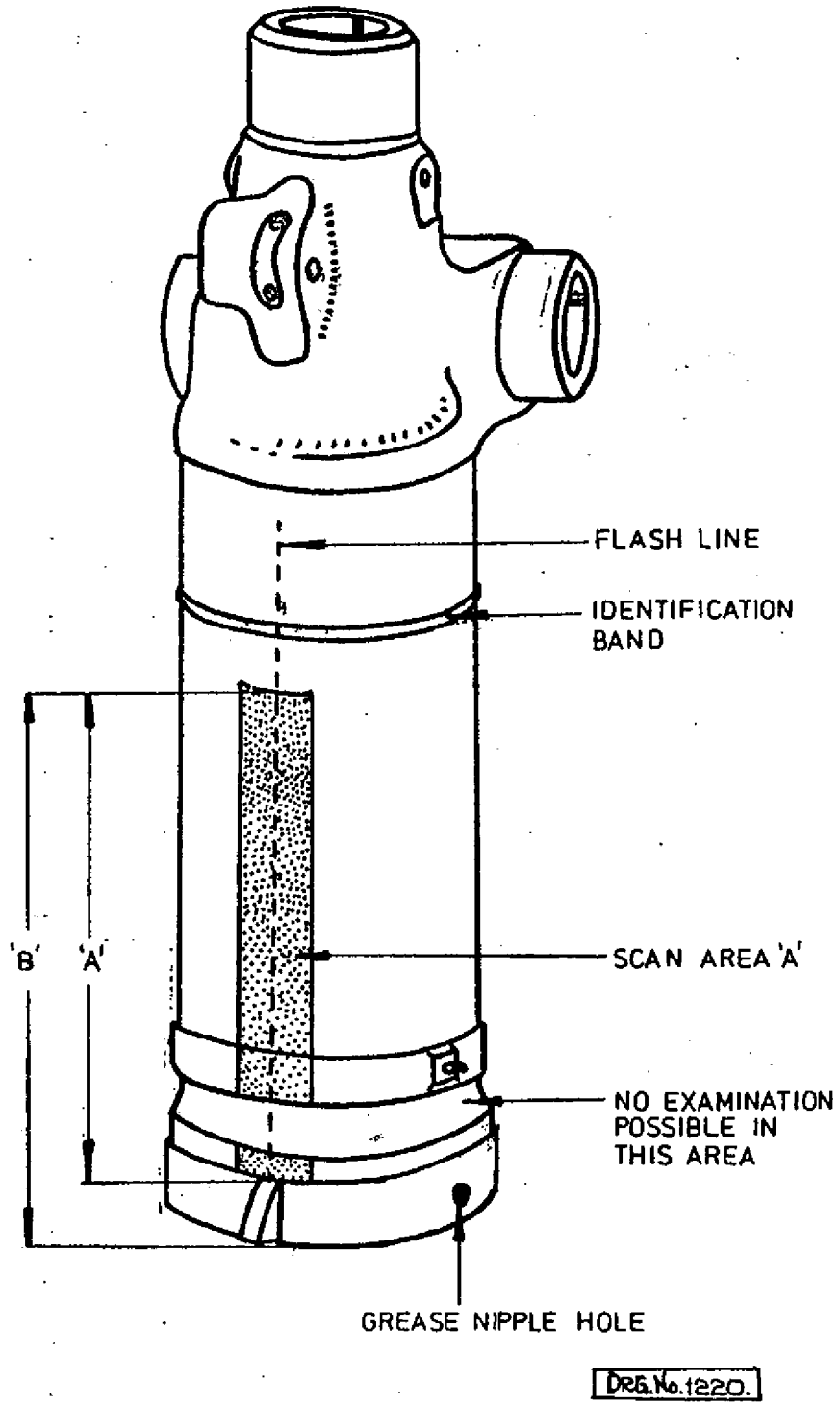

FIG 1

SM 74/751 (7A)

ALL MARKS ULTRASONIC TECHNIQUE

Warnings, Cautions and Maintenance Notes are to be complied with throughout the work detailed in this technique.

1. Technique — HUNTER / ULT / 6B (Category A).

2. Component to be Examined — Nose undercarriage leg.

3. Area of Examination — Flash lines at front and rear of cylinder portion of main fitting from bottom of cylinder to a height of 250mm. (See Fig. 1).

4. Purpose of Examination — To detect stress corrosion cracking in the area of examination.

5. Equipment Required
   (i) USD 10 Ultrasonic set 4XS/9153775.
   (ii) Probe 6/60/5S 60mm radius 4XS/4660270
   (iii) Couplant UCA-IM 4XS/3008482.

6. Preparation

6.1 Aircraft — Nil.

6.2 Component
   a. Ensure ident. band is loosened.
   b. Ensure grease nipple removed from bottom of fitting.
   c. Ensurer scan area is clean and free from flaking paint.

7. Examination Procedure

7.1 Instrument set up.

(a) Installation.

(i) UNIT. Set to ' MM '.

(ii) GRID. Set to ' ON '.

(b) Basic set up

(i) DISP. DEL. Set to ' 0.00 MM '.

(ii) DIS. WDTH. Set to ' 77.0 MM '.

Examination Procedure (Cont)

(b) Basic set up

(iii)	SOUNDVEL.	Set to	' 3130 M/S '.
(iv)	PROBEDEL.	Set to	' 0.000 µS '.
(v)	FREQU.	Set to	' 4 MHZ '.
(vi)	RECTIFY.	Set to	' FULLWAVE '.
(vii)	P-POWER.	Set to	' 2 '.
(viii)	DAMPING.	Set to	' 75 OHMS '.
(ix)	DUAL.	Set to	' OFF '.
(x)	REJECT.	Set to	' 00 % '.

(c) Auxiliary set up.

(i)	PRF	Set to	' 16 '.
(ii)	SEL.AMPL.	Set to	' %SCREEN '.
(iii)	SEL.DPTH.	Set to	' ABSOLUTE '.
(iv)	FILTER.	Set to	' 0 '.

(d) Gates.

(i)	A-MODE.	Set to	' OFF '.
(ii)	TOF MODE.	Set to	' PEAK '.
(iii)	B-MODE.	Set to	' OFF '.

(e) Angle beam.

(i)	HORN.	Set to	' OFF '.
(ii)	ANGLE.	Set to	' 0.0 DEG. '.

Examination Procedure (Cont)

7.2	Procedure	(i)	Place probe approximately 25mm to the side of grease nipple hole(See Fig. 1).
		(ii)	Adjust probe position to maximise signal from grease nipple hole.
		(iii)	Repeat 7.2(i) and 7.2(ii) from opposite side of hole.
		(iv)	Probe position giving greatest amplitude for minimum dB is to be used as reference signal.
		(v)	Position reference signal at 4 and set to 60% F.S.H.
	Scan area 'A' (See Fig. 1)	(vi)	Position probe 25mm to one side of forward flash line at lower extremity of scan area 'A'. Scan towards flash line and across it for a distance of 25mm.
		(vii)	Scan complete area 'A' in a tight zig-zag pattern.
		(viii)	Repeat 7.2(vi) to 7.2(vii) from opposite side of flash line.
		(ix)	Repeat 7.2(vi) to 7.2(viii) on aft flash line.
		(x)	Fault indications will appear between 4 and 7 on the timebase.
	Scan area 'B' (See Fig 1)	(xi)	Position probe 25mm to one side of aft flash line at lower extremity of scan area 'B'. Scan towards flash line and across it for a distance of 25mm.
		(xii)	Scan complete area 'B' in a tight zig-zag pattern.
		(xiii)	Repeat 7.2(vi) to 7.2(viii) from opposite side of flash line.
		(xiv)	Fault indications will appear between 4 and 7 on the timebase.
7.3	Examination Standard	Any fault indication of 30% F.S.H. and above is to be reported.	
8.	Reporting Procedure	In accordance with AP 100B - 01 Order No. 0770.	
9.	Estimated Technique Manhours	1.0	
10.	Additional Information	a.	Excess grease in upper internal bearing may give spurious indications.

10. Additional Information(Cont.).

b. All fault indications are to be confirmed by eddy currents or assisted visual inspection with leg stripped, before reporting.

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17 Apr 97

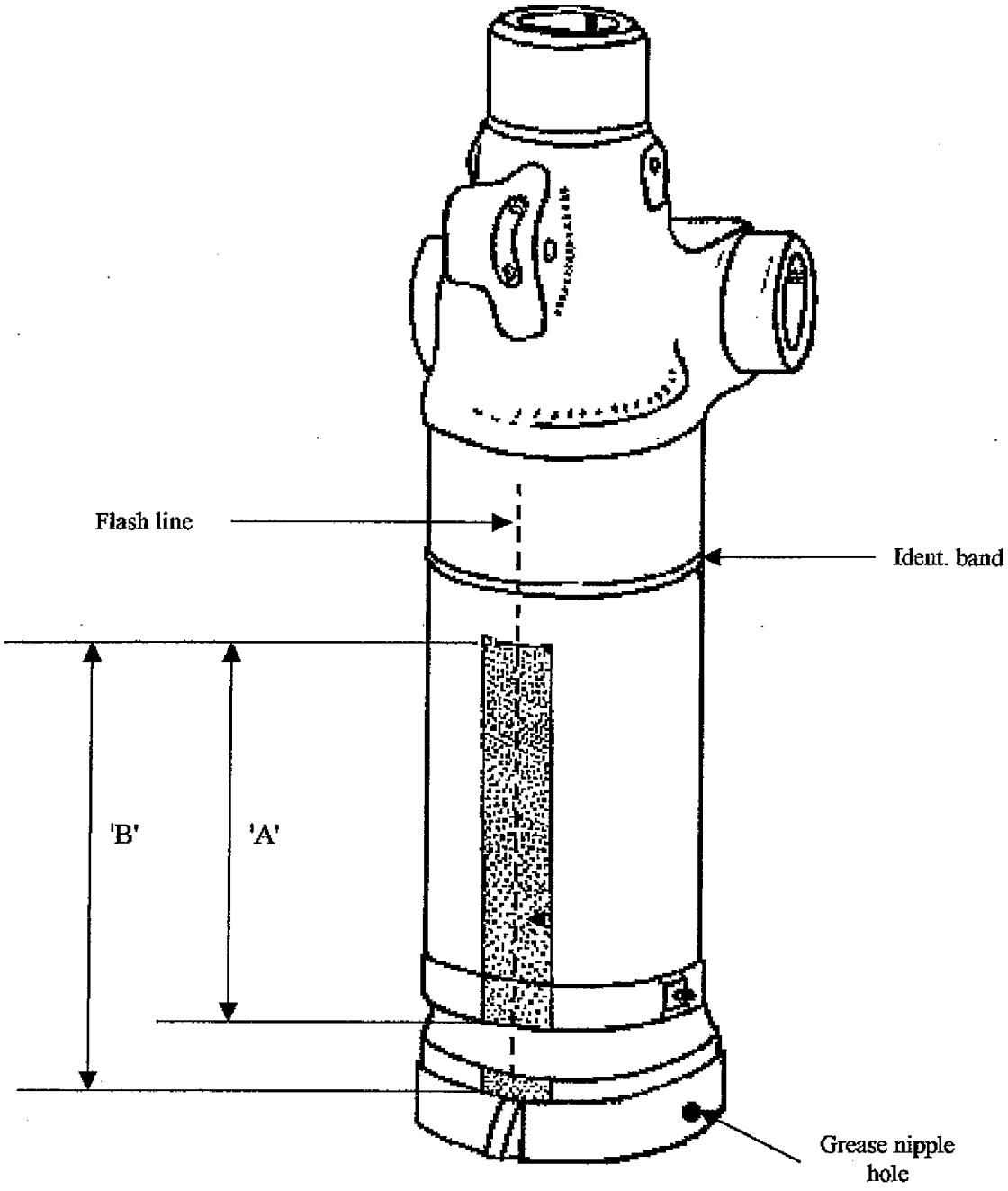


Fig. 1.View on front flash line

Servicing Notes are to be read and complied with throughout the work detailed in this technique.

1.	Technique.	Hunter/Ult/7.
2.	Component to be Examined.	Nose undercarriage leg.
3.	Area of Examination.	Pintle Housing. Fig 1 refers.
4.	Purpose of Examination.	To detect gross stress corrosion cracking.
5.	Equipment Required.	a. 4X/4290 Ultrasonoscope Mk 7. Or b. 4X/2024322 Ultrasonoscope Mk 5. c. 4X/2681 Probe 10/0/5/F/S.
6.	Preparation.	
	a. Aircraft.	None.
	b. Component.	Ensure suitable scan surface.
7.	Examination Procedure.	
	a. Instrument Calibration.	
	(1) Coupling Medium.	Any suitable grease.
	(2) Range Setting.	'B'.
	(3) Frequency Setting.	5 MHz.
	(4) Reject Control Setting.	As required to obtain a clean timebase while maintaining reference signal amplitude.
	(5) Reference Signal.	(a). Place probe 1¼inches below grease nipple, (position P1) Fig 1 refers. Calibrate time base signals at 2,4 and 6. (b). Place probe in position P2, 1¼inches from grease nipple centre line, check signal at 5 on time base.

(Continued overleaf)

	(6) Reference Signal Amplitude.	Set signal at 5 on time base to 40 mm. NOTE: It may be necessary to move the probe slightly to obtain maximum signal amplitude.
	b. Procedure.	(1) Scan in straight line, $\frac{1}{2}$inch above forging edge, 1inch from greaser centre line to radius, on left and right side of leg. (2) Defects will be indicated by multiple signals after 5 on time base. (3) Small individual signals before 5 on time base may be ignored.
	c. Examination Standard.	No defects allowed.
8.	Reporting Procedure.	In accordance with AP3158 Vol 2 (2nd Edition) Leaflet C17.
9.	Estimated Technique Manhours.	$\frac{1}{2}$.
10.	Additional Information.	Nil.

(Continued)

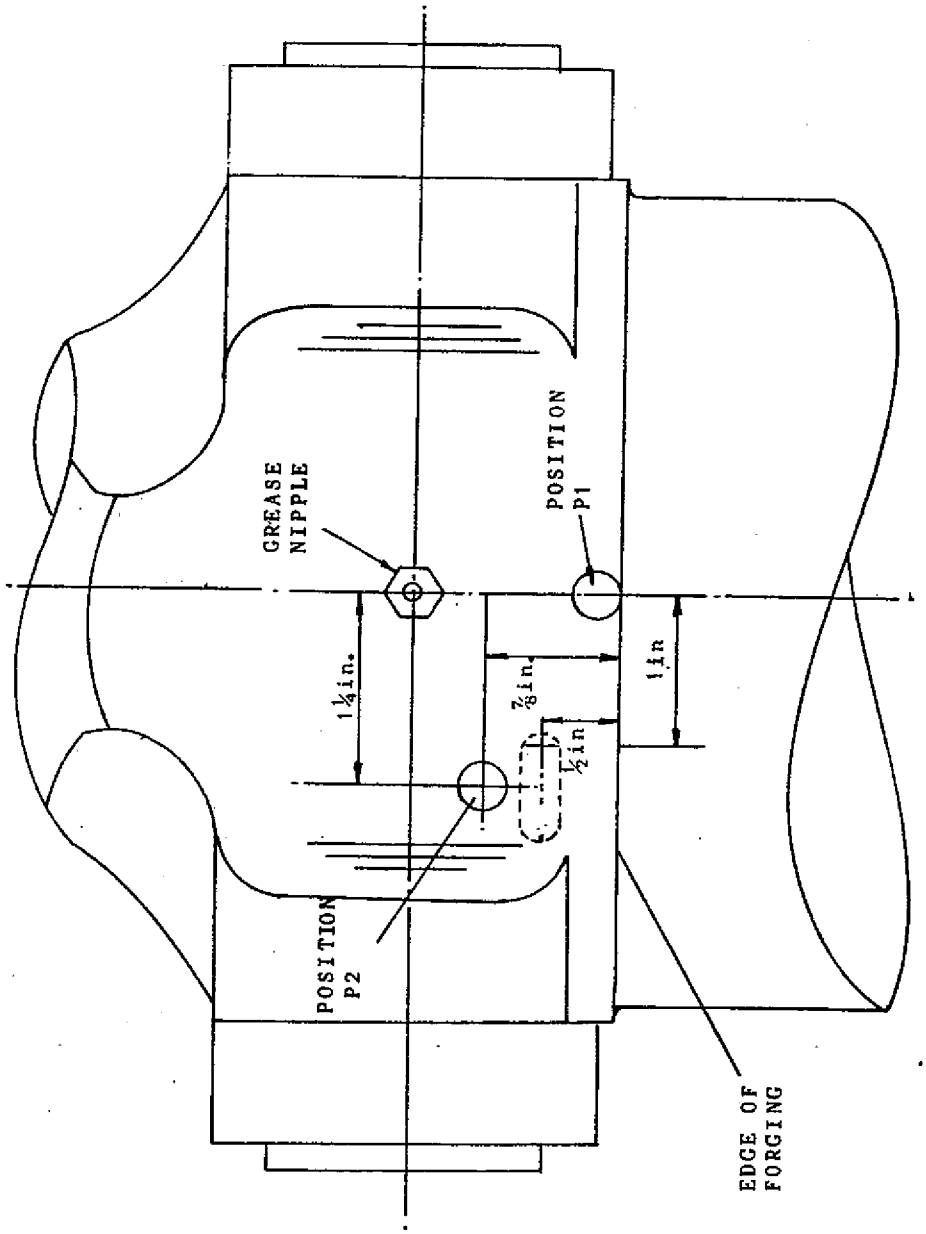

GREASE NIPPLE
POSITION P1
POSITION P2
1¼in.
⅞in.
½in
1in
EDGE OF FORGING

Fig 1

Servicing Notes are to be complied with throughout the work detailed in this technique.

1. Technique. Hunter/Ult/9. OR NATEC ULT 14

2. Component to be Examined. Main undercarriage pivot fitting, Port and Starboard.

3. Area of Examination. Outboard rear face of pivot bore. (Fig 1).

4. Purpose of Examination. To detect fatigue cracking.

5. Equipment Required.
   a. 4X/4660268 Ultrasonoscope Mk 7, or 4X/4660275 Ultrasonoscope Mk 8.
   b. 4X/4712 Probe 4/80/5S radiused to suit.

6. Preparation.
   a. Aircraft. Nil.
   b. Component. Ensure scan area shown in Fig 1 is clean. If considered necessary by the NDT technician, the paint is to be removed.

7. Examination Procedure.
   a. Instrument Calibration.
      (1) Coupling Medium. Suitable grease.
      (2) Range Setting. 'C'.
      (3) Frequency Setting. 5MHz.
      (4) Reject Control Setting. As required to obtain a clean timebase while maintaining reference signal amplitude.
      (5) Reference Signal Position. See procedure.
      (6) Reference Signal Amplitude. See procedure.

(Continued overleaf)

b. Procedure.

(1) Place probe at position 'A' for Port and Starboard fitting. (Fig 2).

(2) Establish reference signal at maximum amplitude from bolt hole No 3, position it at 4 on timebase.

(3) Move probe upwards through approximately 5 mm and obtain signal from bolt hole No 4, which will peak at approximately 7 on the timebase.

(4) Adjust maximum signal amplitude from bolt hole No 4 to 35mm.

(5) Continue probe movement through a further 7mm, approximately. A defect indication will occur at approximately 8 on the timebase, which may be in the form of a twin signal.

(6) Further probe movement will produce a signal at 4 on the timebase indicating that the probe has passed through the scan area.

(7) Place probe at position 'B'. (Fig 2).

(8) Establish reference signal at maximum amplitude from bolt hole No 3, position it at 4 on timebase.

(9) Move probe upwards through approximately 5mm and obtain signal from bolt hole No 4, which will peak at approximately $7\frac{1}{2}$ on the timebase.

(10) Adjust maximum signal amplitude from bolt hole No 4 to 35 mm.

(11) Continue probe movement through a further 7 mm, approximately. A defect indication will occur at approximately $8\frac{1}{2}$ on the timebase, which may be in the form of a twin signal.

(Continued)

7. Examination Procedure (Contd)

b. Procedure (Contd)

(12) Further probe movement will produce a signal at 5 on the timebase indicating that the probe has passed through the scan area.

(13) Repeat items (1) to (12) inclusive on opposite pivot fitting.

c. Examination Standard.

All defects are to be reported stating:

a. Aircraft No.
b. Port or Starboard Pivot fitting.
c. Inboard or outboard face.
d. Defect signal amplitude.

8. Reporting Procedure.

In accordance with AP 3158 Vol 2 (2nd Edition) Leaflet C17 and relevant instructions.

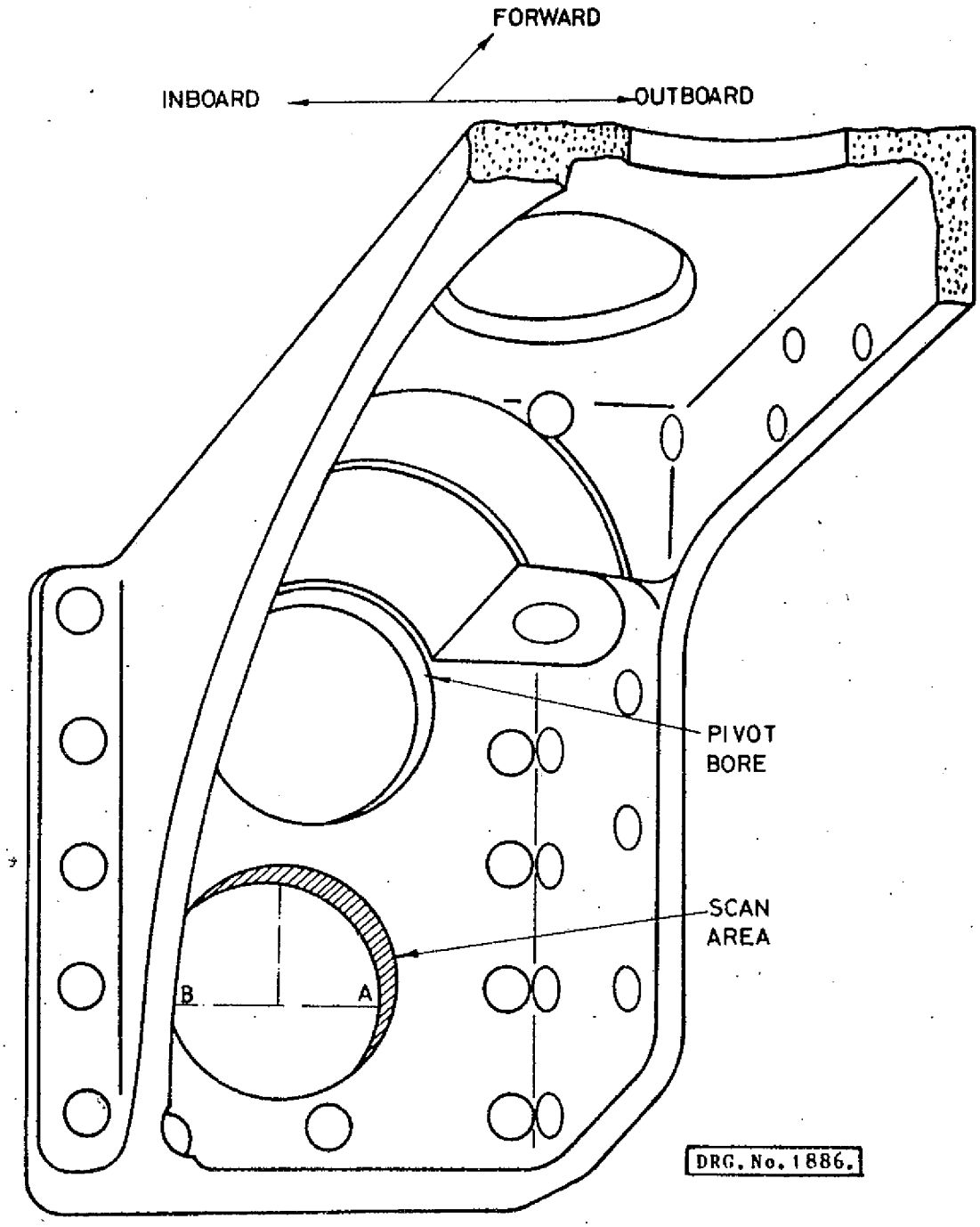
9. Estimated Technique Manhours.

1½.

10. Additional Information.

A spurious signal will occur at approximately 8 or 8½ on the timebase when scanning from position 'A' or 'B' respectively if the reference signal amplitude is too high.

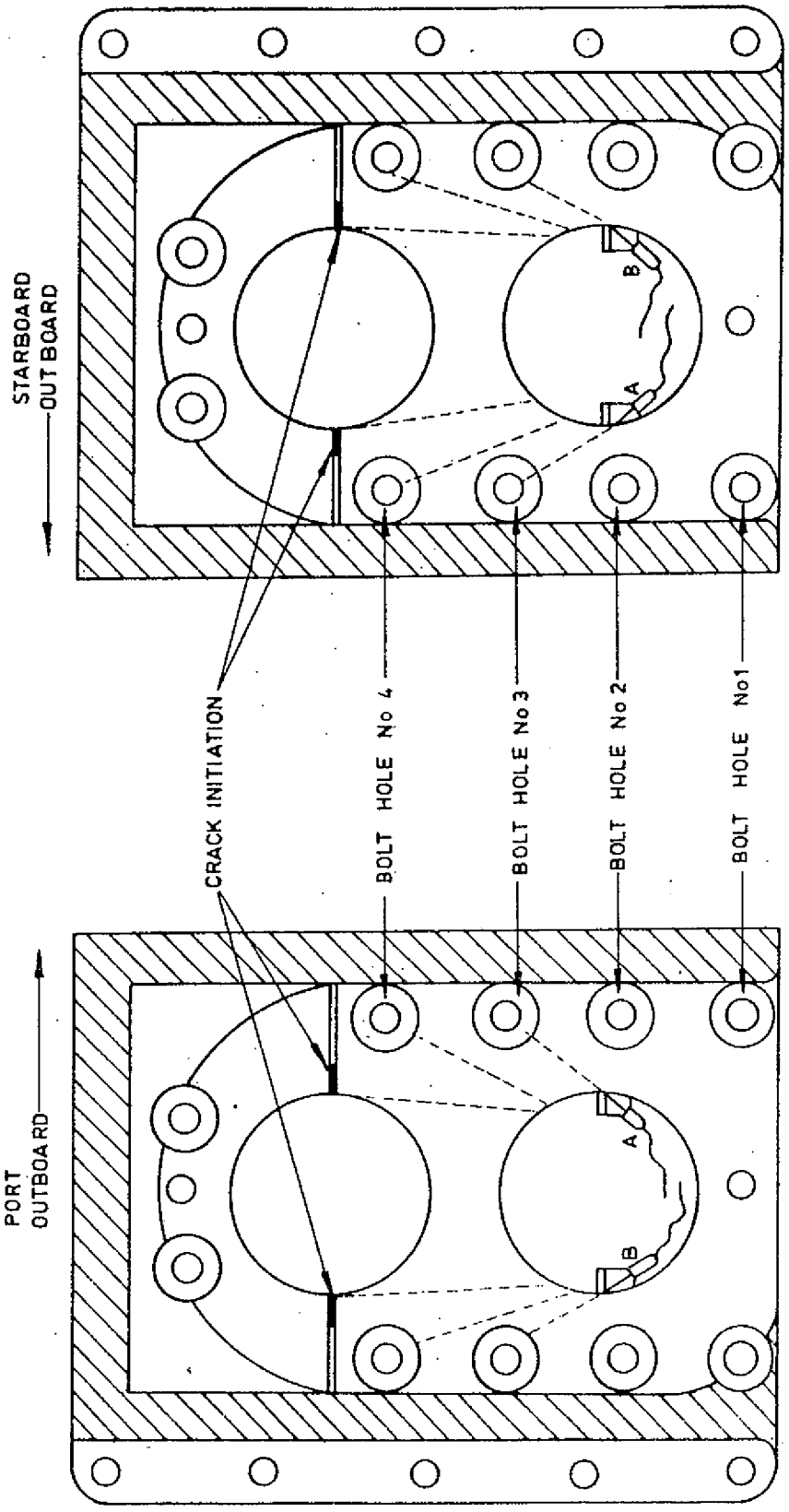
(Continued overleaf)



MAIN UNDERCARRIAGE PIVOT FITTING REAR FACE(PORT)

FIG 1

(Continued)



MAIN UNDERCARRIAGE PIVOT FITTING REAR FACES

FIG 2

ALL MARKS ULTRASONIC TECHNIQUE

Warnings, Cautions and Maintenance Notes are to be complied with throughout the work detailed in this technique.

1.	Technique	HUNTER / ULT / 9A (Category A).
2.	Component to be Examined	Main undercarriage pivot fitting(Fig. 1).
3.	Area of Examination	Outer rear face of pivot fitting
4.	Purpose of Examination	To detect fatigue cracking.
5.	Equipment Required	(i) USD 10 Ultrasonic set 4XS/9153775. (ii) Probe 4/80/5S radiused to suit. 4XS/4712 (iii) Couplant UCA-1M 4XS/3008482.
6.	Preparation	
6.1	Aircraft	Nil.
6.2	Component	Ensure scan area is clean and free from flaking paint.

7. Examination Procedure

7.1 Instrument set up.

(a) Installation.

(i)	UNIT.	Set to	' MM '.
(ii)	GRID.	Set to	' As required '.

(b) Basic set up

(i)	DISP. DEL.	Set to	' 0.00 MM '.
(ii)	DIS. WDTH.		
	Scan A.	Set to	' 117.0 MM '.
	Scan B.	Set to	' 104.0 MM '.

7. Examination Procedure(Contd).

7.1	(i)	SOUNDVEL.	Set to	' 3130 M/S '
	(ii)	PROBEDEL.	Set to	' 0.00 µS '.
	(iii)	FREQU.	Set to	' 4 MHZ '.
	(vi)	RECTIFY.	Set to	' FULLWAVE '.
	(v)	P-POWER.	Set to	' 2 '.
	(vi)	DAMPING.	Set to	' 75 OHMS '.
	(vii)	DUAL.	Set to	' OFF '.
	(viii)	REJECT.	Set to	' 0.00 % '.

(c) Auxiliary set up.

(i)	PRF	Set to	' 16 '.
(ii)	SEL.AMPL.	Set to	' % SCREEN '.
(iii)	SEL.DPTH.	Set to	' ABSOLUTE '.
(iv)	FILTER.	Set to	' 0 '.

(d) Gates.

(i)	A-MODE.	Set to	' OFF '.
(ii)	TOF MODE.	Set to	' PEAK '.
(iii)	B-MODE.	Set to	' OFF '.

(e) Angle beam.

(i)	HORN.	Set to	' OFF '.
(ii)	ANGLE.	Set to	' 0.00 '.

7. Examination Procedure(Contd).

7.3 Procedure

(a) Scan 'A'

(i) Place probe at position 'A' on pivot fitting(Fig. 2).
(ii) Identify bore signal from hole No.3 and position at 4 on the timebase.
(iii) Move probe upwards through approximately 5mm and identify bore signal from hole No.4 at approximately 7 on the timebase. Maximise signal and set to 70% F.S.H.
(iv) Continue probe movement upwards. A fault indication will occur at approximately 8 on the timebase.
(v) The end of the scan is indicated by a signal at 4 on the timebase.

(b) Scan 'B'

(i) Place probe at position 'B' on pivot fitting(Fig. 2).
(ii) Identify bore signal from hole No. 3 and position at 4 on the timebase.
(iii) Move probe upwards through approximately 5mm and identify bore signal from hole No. 4 at approximately 7.5 on the timebase. Maximise and set signal to 70% F.S.H.
(iv) Continue probe movement upwards. A fault indication will occur at approximately 8.5 on the timebase.
(v) The end of the scan is indicated by a signal at 5 on the timebase.

7.5 Examination Standard — All fault indications to be reported and confirmed by application of

8. Reporting Procedure — In accordance with AP 100B - 01 Order No. 0770.

9. Estimated Technique Manhours — 1.0 per fitting.

10. Additional Information — All fault indications are to be confirmed by inspection IAW LTP EFDC/HUNTER/EDD/1 with leg assy removed before reporting.

ALL MARKS ULTRASONIC TECHNIQUE

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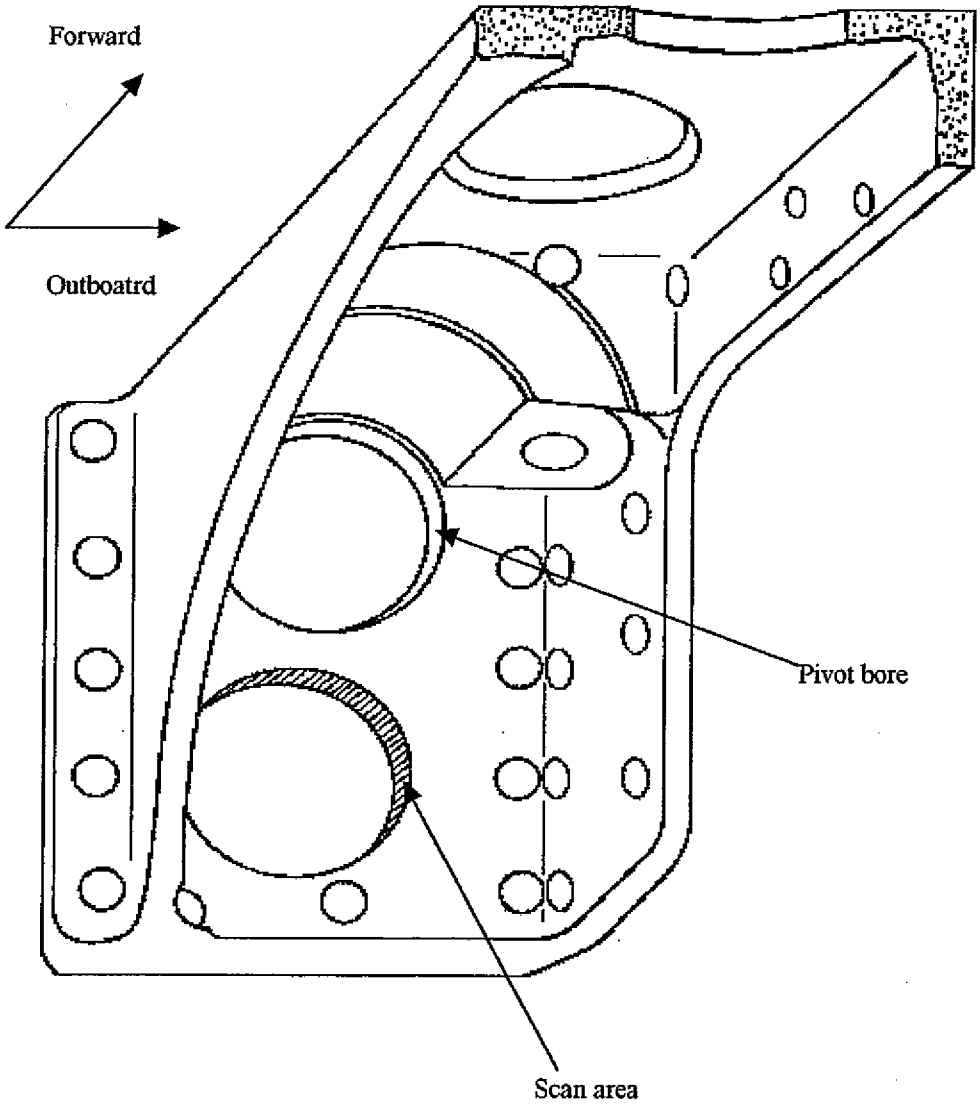

Fig. 1 Main undercarriage pivot fitting
(Port shown)

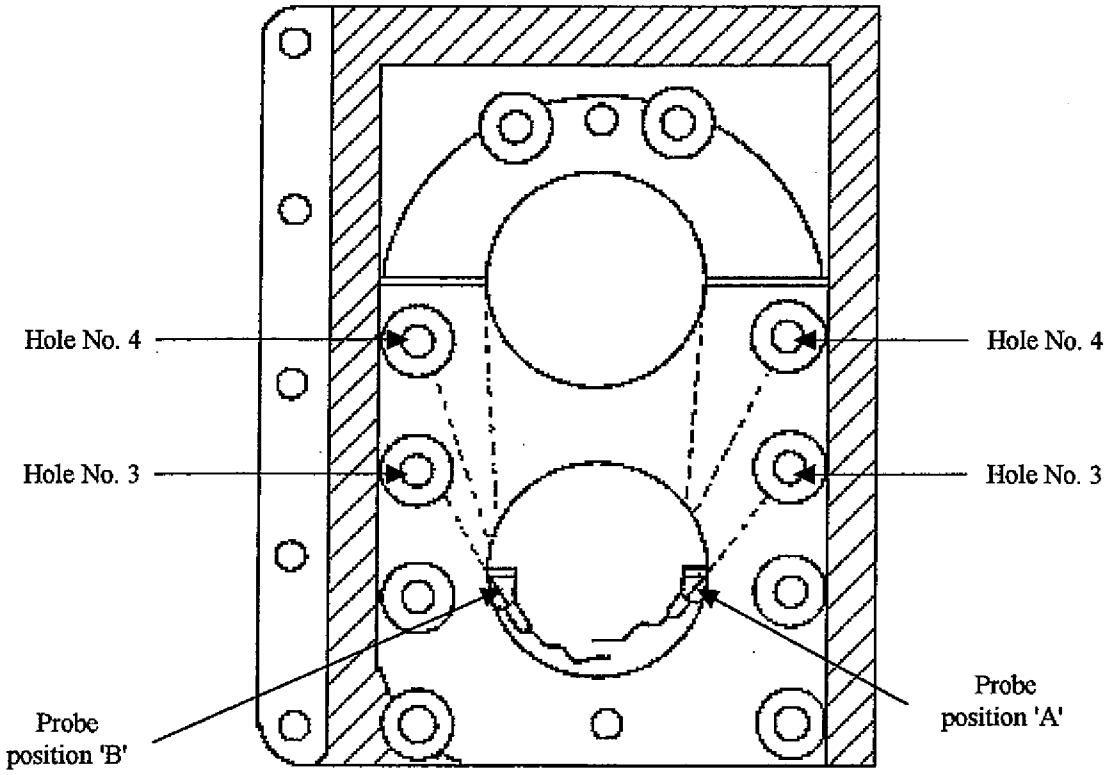

Fig. 2 View aft on pivot fitting
(Port shown)

RBDTQA 1
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VZCZCFQJ048 UU
RR RBDTQA
: RBDPGR 004 1661015
ZNR UUUUU
1510007 JUN
CSDE
TO RBDBYT/HQSTC
RBDBYH/HQRAFSC
RBFWYA/HQRAF GERMANY
RBDBYT/RAF BRIZE NORTON
RBDPIS/RAF KINLOSS
RBDPGG/RAF MARHAM
RBDTQS/RAF ST ATHAN
RBDTOG/RAF VALLEY
RBFWYP/431 MU
RBDTQA/AAEE BOSCOMBE DOWN
RBDPCU/RAE BEDFORD 32117
RBDTQF/RAE FARNBOROUGH
RBDPCU/DOWTY ROTOL LTD 43246
BT
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IC HII

HQSTC FOR ME (OST) 2, HQSTC FOR ME (GES) 2, HQRAFSC FOR ME 4, HQRAFG FOR NDT CONTROL OFFICER, DOWTY ROTOL FOR RTO AND MR J

PAGE 2 RBDPGR 004 UNCLAS
WESTLAKE, FOR NDT TEAMS AT BRIZE, KINLOSS, MARHAM, ST ATHAN, VALLEY, 431 MU, BOSCOMBE, BEDFORD, FARNBOROUGH. SUBJECT IS HUNTER NDT TECHNIQUE/CSDE/HUNTER/ULT/10. FOLLOWING ADVICE FROM DOWTY ROTOL EXAMINATION STANDARD OF SUBJECT NDT TECHNIQUE IS TO BE AMENDED AND ADHERED TO AS FOLLOWS:
A. DEFECT INDICATION IN EXCESS OF 10MM SCREEN HEIGHT, JACK IS TO BE REJECTED
B. DEFECT INDICATION BELOW 10MM SCREEN HEIGHT, JACK IS TO BE REMOVED FROM AIRCRAFT, PAINT REMOVED AND RE-EXAMINED ULTRASONICALLY. IN ADDITION, JACK IS TO BE DISMANTLED AND JACK BODY BORE CHECKED IN SUSPECT AREA. BORE CHECK IS TO BE CARRIED OUT USING NOVALEC 96C, SET TO 80 PER CENT METER NEEDLE DEFLECTION FROM A 0 DECIMAL 5MM SLOT IN CALIBRATION BLOCK. ANY EDDY CURRENT INDICATION NOT ATTRIBUTABLE TO EDGE OR GEOMETRY, JACK IS TO BE REJECTED
C. WHERE ULTRASONIC RE-EXAMINATION REMAINS BELOW 10MM SCREEN HEIGHT AND NO EDDY CURRENT INDICATION IS APPARENT, DETAILS ARE TO BE RECORDED AND JACK RE-ISSUED FOR SERVICE
D. ON SUBSEQUENT PERIODIC INSPECTION JACK IS CONSIDERED SERVICEABLE IF THERE IS NO FURTHER INCREASE IN AMPLITUDE OF ULTRASONIC INDICATION
E. FORMAL AMENDMENT TO ULT/10 IN AP 101B-1300-3G AND ISSUE OF NEW

PAGE 3 RBDPGR 004 UNCLAS
EDDY CURRENT TECHNIQUE WILL FOLLOW WHEN TECHNIQUE DEVELOPMENT IS COMPLETE
BT

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Servicing Notes are to be complied with throughout the work detailed in this technique.

1. Technique. — HUNTER/ULT/10.

2. Component to be Examined. — Main undercarriage hydraulic jacks Port and Starboard (Part Nos 103665001 and 103665002).

3. Area of Examination. — Intersection of main bore with hole for the indicator assembly.

4. Purpose of Examination. — To detect stress corrosion cracks.

5. Equipment Required.

a. 4X/4660268 Ultrasonascope Mk 7
or 4X/4660275 Ultrasonascope Mk 8
or 4X/4683 Sonatest UFD 2.

b. 4X/4136 Probe box type, triangular wedges, 4/55/5S. (4X/4455662.)

c. 4X/NIV Block Reference, Qty 1.

6. Preparation.

a. Aircraft. — Ensure undercarriage is locked down.

b. Component. — Ensure paint removed from scan area, and area is free from oil or grease.

7. Examination Procedure.

a. Instrument Calibration.

(1) Coupling Medium. — Any suitable grease.

(2) Range Setting. — 'B', 3 Sonatest.

(3) Frequency Setting. — 5 MHz, III Sonatest.

(4) Reject Control Setting. — Off.

(5) Reference Signal Position. — As detailed in procedure.

Continued overleaf

7. Examination Procedure (Contd)

a. Instrument Calibration.

(6) Reference Signal Amplitude. As detailed in procedure.

b. Procedure.

(1) Position probe on reference block as shown in Fig 1, identify signal from reference slot and position at 5 on timebase. Check this by moving the probe along the scan area until it is in line with the central hole, from which a signal should occur at 4.5 on the timebase.

(2) Relocate the probe at the reference position and maxamise the reference signal by slight probe movement.

(3) Set reference signal amplitude to 40mm, and increase amplitude by 5dB.

(4) Examine indicator group housing along scan areas as shown in Fig 1.

(5) Any defect indications due to cracking will occur between 5 and 5.5 on timebase.

Note: Indications may be received from the centre hole, peaking at 4.5 on timebase, and the tapped holes, peaking at 2 and 8 on the timebase.

▶ c. Examination Standard.

(1) Defect indication in excess of 10mm screen height, jack is to be rejected.

(2) Defect indication below 10mm screen height, jack is to be removed from aircraft, paint removed and re-examined ultrasonically. In addition jack is to be dismantled and jack body bore checked in accordance with CSDE/Hunter/EDD/11.

(3) Where ultrasonic re-examination remains below 10mm screen height and no eddy current indication is apparent details are to be recorded and jack re-issued for service.

(4) On subsequent periodic inspection jack is to be considered serviceable if there is no further increase in amplitude of ultrasonic indication. ◀

8. Reporting Procedure. In accordance with AP 3158, Vol 2, 2nd Edition, Leaflet C17 and current servicing instructions.

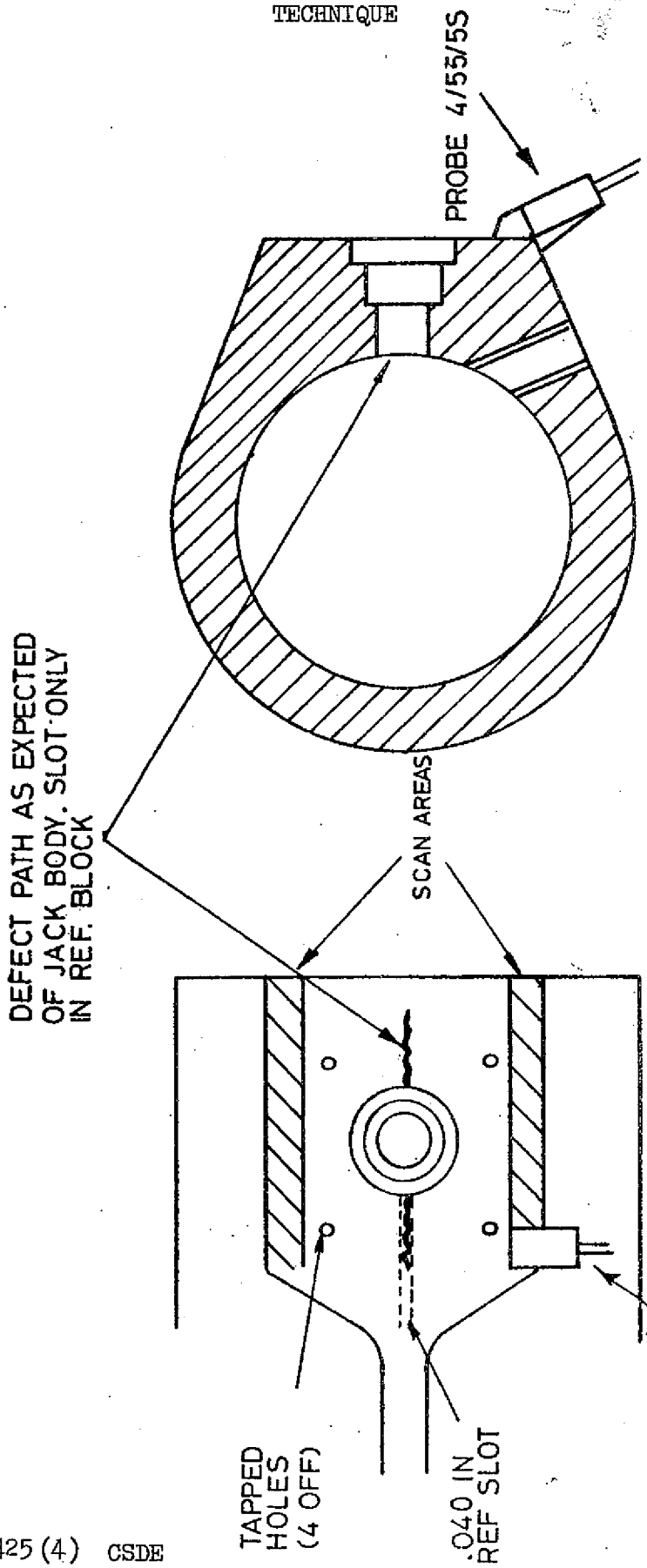
9. Estimated Technique Manhours. 1.00.

Continued

10. Additional Information

a. The probe face may be filed slightly to facilitate correct location on the jack body.

b. This technique is required to detect small defects therefore special care must be taken. Probe must be maintained at normal to expected defects.



INDICATOR GROUP HOUSING REFERENCE BLOCK

DRG No 3572

Fig.1

Servicing Notes are to be read and complied with throughout the work detailed in this technique.

1.	Technique. (Category A).	HUNTER/ULT/11.
2.	Component to be Examined.	Nose undercarriage leg.
3.	Area of Examination.	Front and rear flash lines of cylinder portion of main fitting. Figs 1 and 2 refer.
4.	Purpose of Examination.	To detect inclusions in the flash line area.
5.	Equipment Required.	a. Any ultrasonic test set in current service use. b. 4X/6285420 Probe rectangular 6/60/5S end entry, radiused to suit. c. Reference block, CSDE supplied.
6.	Preparation.	
	a. Aircraft.	(1) Nose undercarriage door disconnected from nose leg. (2) Ensure nose undercarriage ground lock fitted.
	b. Component.	(1) Paint to be removed if in a poor or flaking condition. (2) Any irregularity in surface finish, which prevents smooth probe handling is to be reported. See Reporting Procedure para 8.
7.	Examination Procedure.	
	a. Instrument Calibration.	
	(1) Coupling Medium.	Any suitable grease.
	(2) Range Setting.	Sonics 2 (Ultrasonoscope B).
	(3) Frequency Setting.	5MHz.
	(4) Reject Control Setting.	As required to obtain a clean timebase while maintaining reference signal amplitude.
	(5) Reference Signal Position.	See procedure.
	(6) Reference Signal Amplitude.	See procedure.

Continued overleaf

7. Examination Procedure. (Contd)

b. Procedure.

(1) Place probe on reference block at Position A, Fig 3 refers and maximise signal from 2 mm (1/16 in) hole.

(2) Set reference signal to 4 on timebase, and adjust signal to full screen height.

(3) Scan towards front and rear flash lines from both sides as shown in Fig 4, angling probe as shown.

(4) Defect indications will occur between approx 3.5 and 9 on timebase.

c. Examination Standard.

Any defect indication in excess of 10mm screen height is to be reported.

8. Reporting Procedure.

a. In accordance with AP3158 Vol 2 (2nd Edition) Leaflet C17 and current servicing instructions stating:

(i) Maximum screen height of defect indication.

(ii) Vertical length of defect indication.

(iii) Whether front or rear flash line and defect position vertically, (measured from top edge of chamfer), at which indication starts.

b. Report any undercarriages on which it is impossible to carry out any part of the inspection due to surface irregularities.

9. Estimated Technique Manhours. 1.00.

10. Additional Information. Nil.

5A.

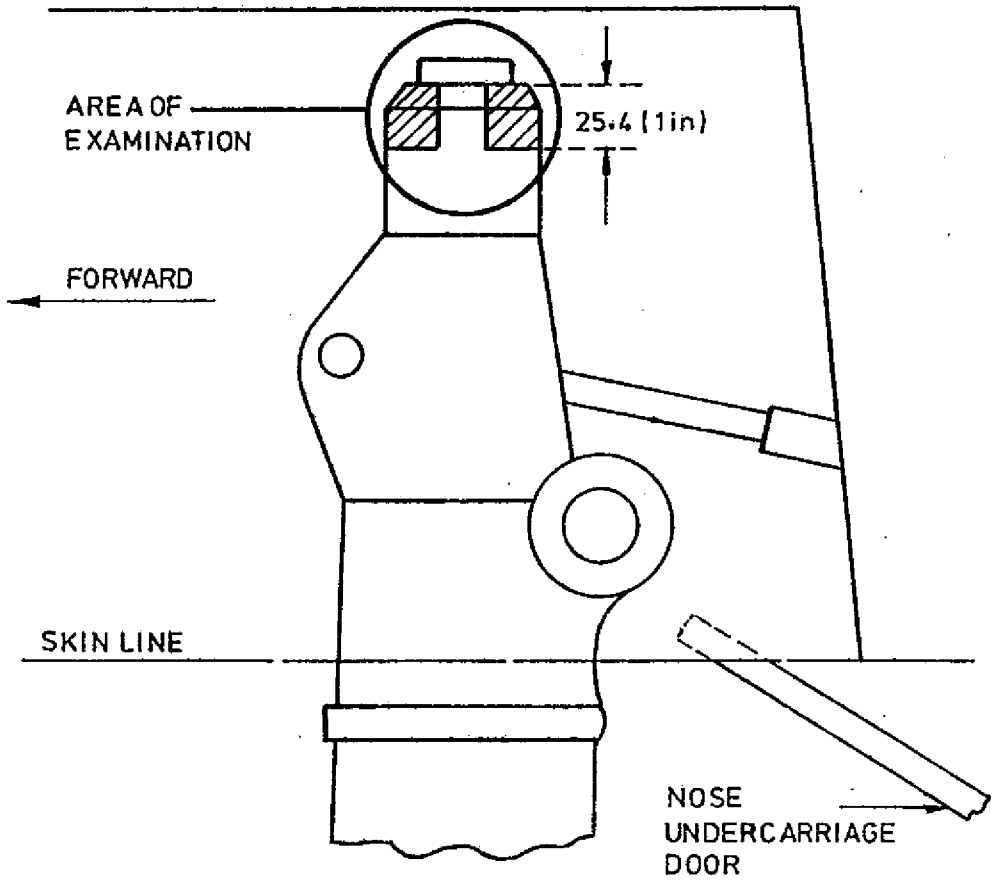


Fig.1

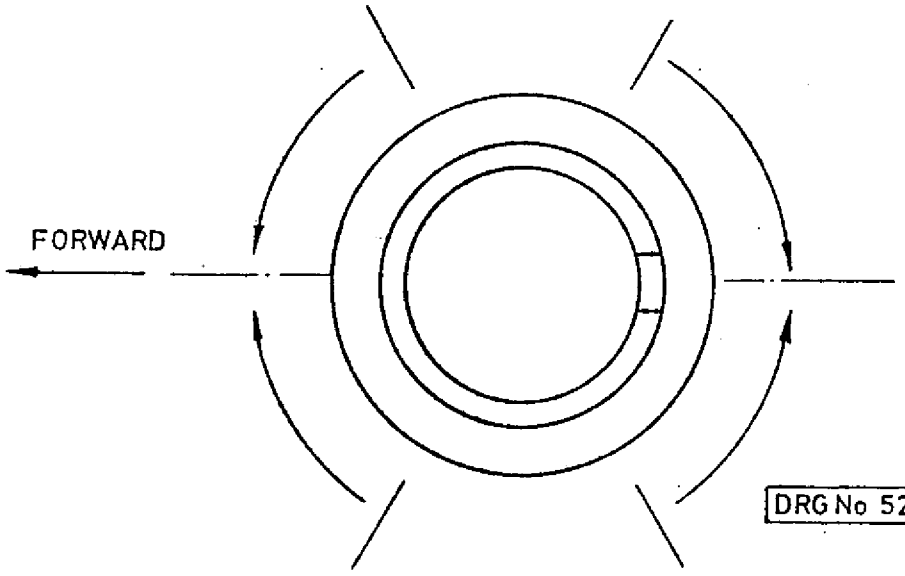


Fig.2 Extent of Scan

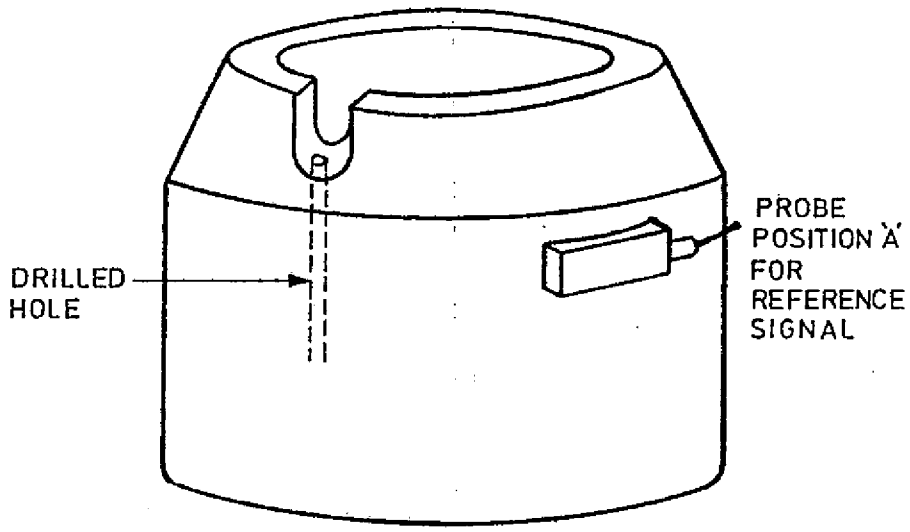


Fig.3 Reference Block

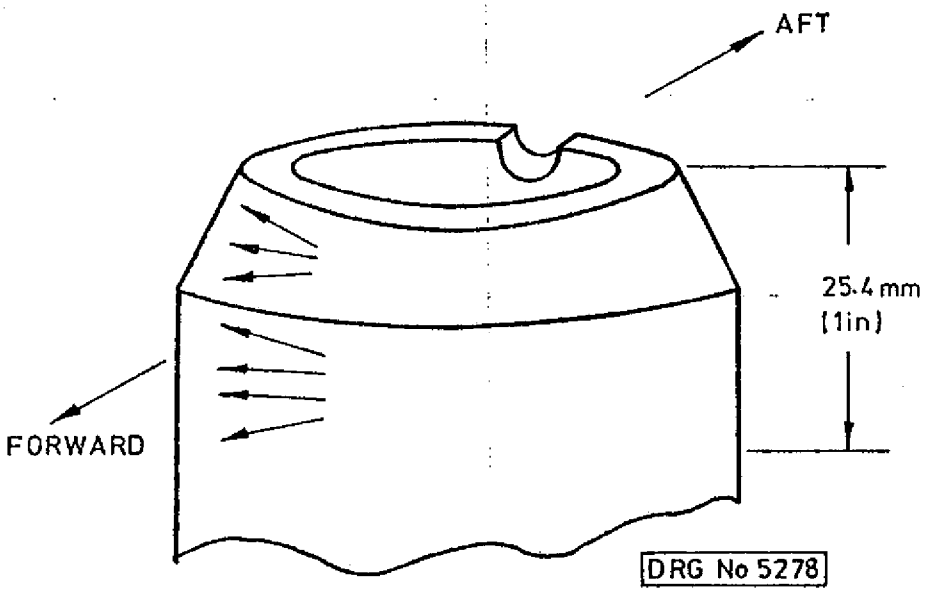


Fig.4 Scan Pattern

Servicing Notes are to be read and complied with throughout the work detailed in this technique.

1.	Technique. (Category A).	HUNTER/ULT/12.
2.	Component to be Examined.	Nose undercarriage leg.
3.	Area to be Examined.	Flash lines at front and rear of cylinder portion of main fitting from bottom of cylinder to a height of 247mm (9.75 in.). See Fig 1.
4.	Purpose of Examination.	To detect inclusions in the flash line areas.
5.	Equipment Required.	a. Any ultrasonic test set in current service use. b. 4X/4660270 Probe rectangular 6/60/5S end entry, 60mm (2.37 in.) radius.
6.	Preparation.	
	a. Aircraft.	Nil.
	b. Component.	(1) Ensure identification band clear of scan area. (2) Ensure grease nipple removed from bottom of main fitting. (3) Paint is to be removed from scan area if: a. In a poor or flaking condition. b. Satisfactory transmission cannot be obtained.
7.	Examination Procedure.	
	a. Instrument Calibration.	
	(1) Coupling Medium.	Any suitable grease.
	(2) Range Setting.	B.
	(3) Frequency Setting.	5MHz.
	(4) Reject Control Setting	Off.
	(5) Reference Signal Position	See Procedure.
	(6) Reference Signal Amplitude.	See Procedure.

Continued overleaf

P.F.C

7. Examination Procedure. (Contd)

b. Procedure.

(1) Place probe close to and to one side of grease nipple hole at bottom of leg.

(2) Adjust probe position to obtain greatest amplitude from grease nipple hole.

(3) Repeat items (1) and (2) from opposite side of grease nipple hole.

(4) Select probe position which gives the greatest signal amplitude and use as reference signal.

(5) Adjust signal amplitude to 30mm (1.2 in.) screen height.

(6) Set reference signal to 4 on timebase.

(7) Position probe 25mm (1 in.) to one side of flash line at lower extremity of scan area A. (Fig 1 refers). Scan towards flash line and across it for a distance of 6.5mm (0.25 in.).

(8) Scan complete area A in a tight zig-zag pattern.

(9) Repeat items (7) and (8) from opposite side of flash line.

(10) Repeat scan pattern, as for scan A, items (7), (8) and (9), for rear flash line over distance B. (Fig 1 refers).

(11) Defect indications due to inclusions in flash line area will appear between 1 and 7 on timebase.

c. Examination Standard.

(1) Any indication of less than 15mm (.6 in.) screen height having no length is to be disregarded.

(2) When an indication exceeds 15mm (.6 in.) screen height, proceed as follows:

(a) Reduce signal height by 12dB and re-inspect. If the signal exceeds 30mm (1.2 in.) screen height, the fitting is to be rejected.

6A.

7. Examination Procedure. (Contd)

c. Examination Standard. (Contd)

(b) When the signal does not exceed 30mm (1.2 in.) screen height, report the signal height and timebase position as required by the STI.

8. Reporting Procedure.

In accordance with AP3158 Vol 2 (2nd Edition) Leaflet C17 and current servicing instructions. State length of inclusion and position in scan area.

9. Estimated Technique Manhours.

1.00.

10. Additional Information.

A build-up of couplant in front of the probe may give rise to spurious indications.

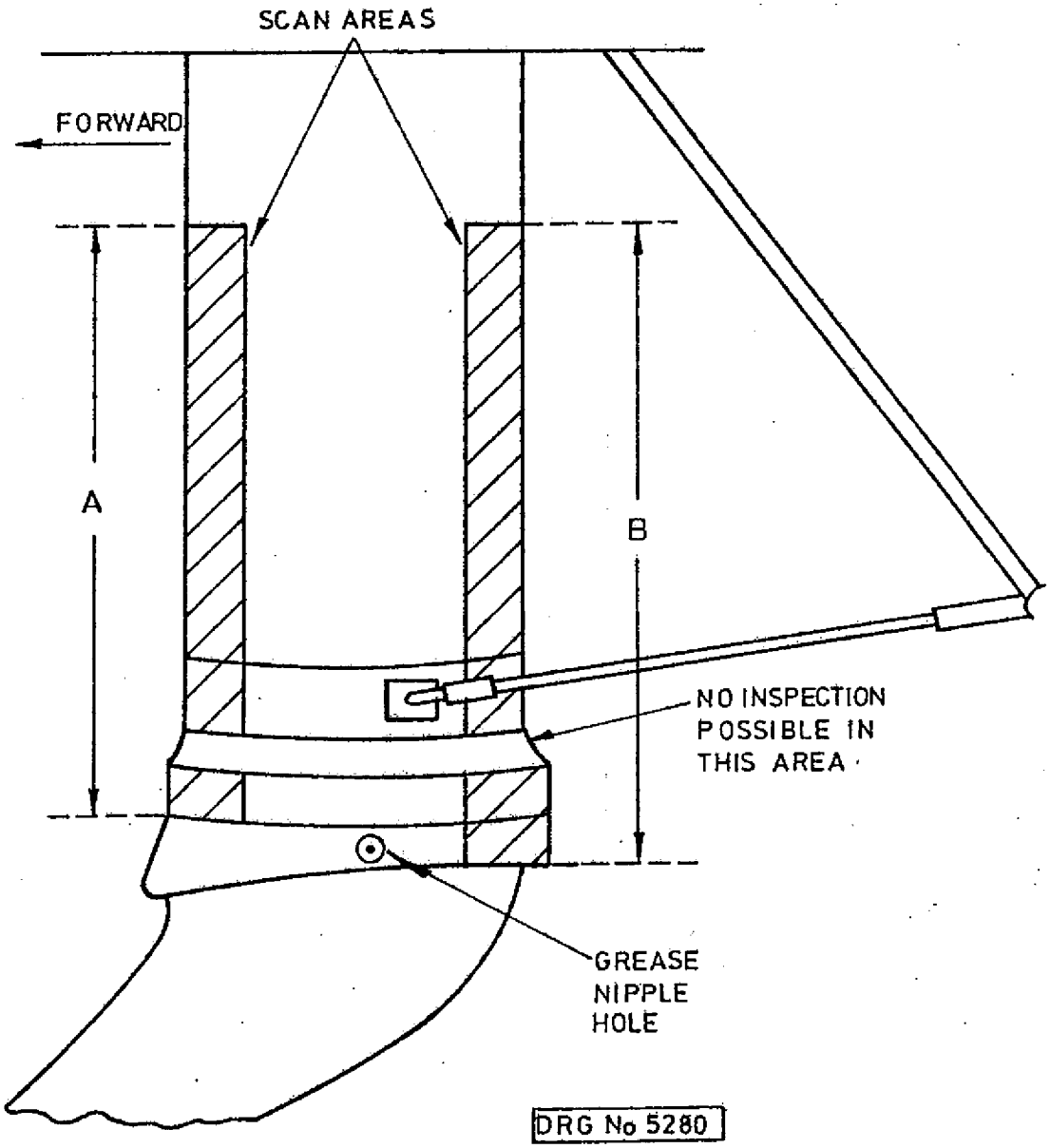


Fig.1 - Nose Undercarriage Main Fitting