Formerly AP 2337 Vol 4 Pt 6
Bk 1 Sect 1 Chap 2 App 7

AIR PUBLICATION
104F-1031-5F
Issued December 1972

BAY SERVICING SCHEDULE

MAINWHEELS
PT NO. AH 50701 AND AH 51338
(DUNLOP)

BY COMMAND OF THE DEFENCE COUNCIL

(Ministry of Defence)

FOR USE IN THE

ROYAL AIR FORCE

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1	October 1973	Incorporated	20-2-74
2	February 1974	Incorporated	1-5-74
3	January 1975	Incorporated	8-4-75
4	October 1976	Incorporated	7-3-77
5	February 1978	Incorporated	10-5-78
6	December 1988	Incorporated	8-2-89
7	March 1997	Incorporated	24-4-97
AEDAL No	AEDAL MONTH & YEAR OF ISSUE	AMENDMENT INCORPORATED SIGNATURE	DATE OF INCORPORATION
1	Nov 1998	Pickering	10 Nov 98
2			
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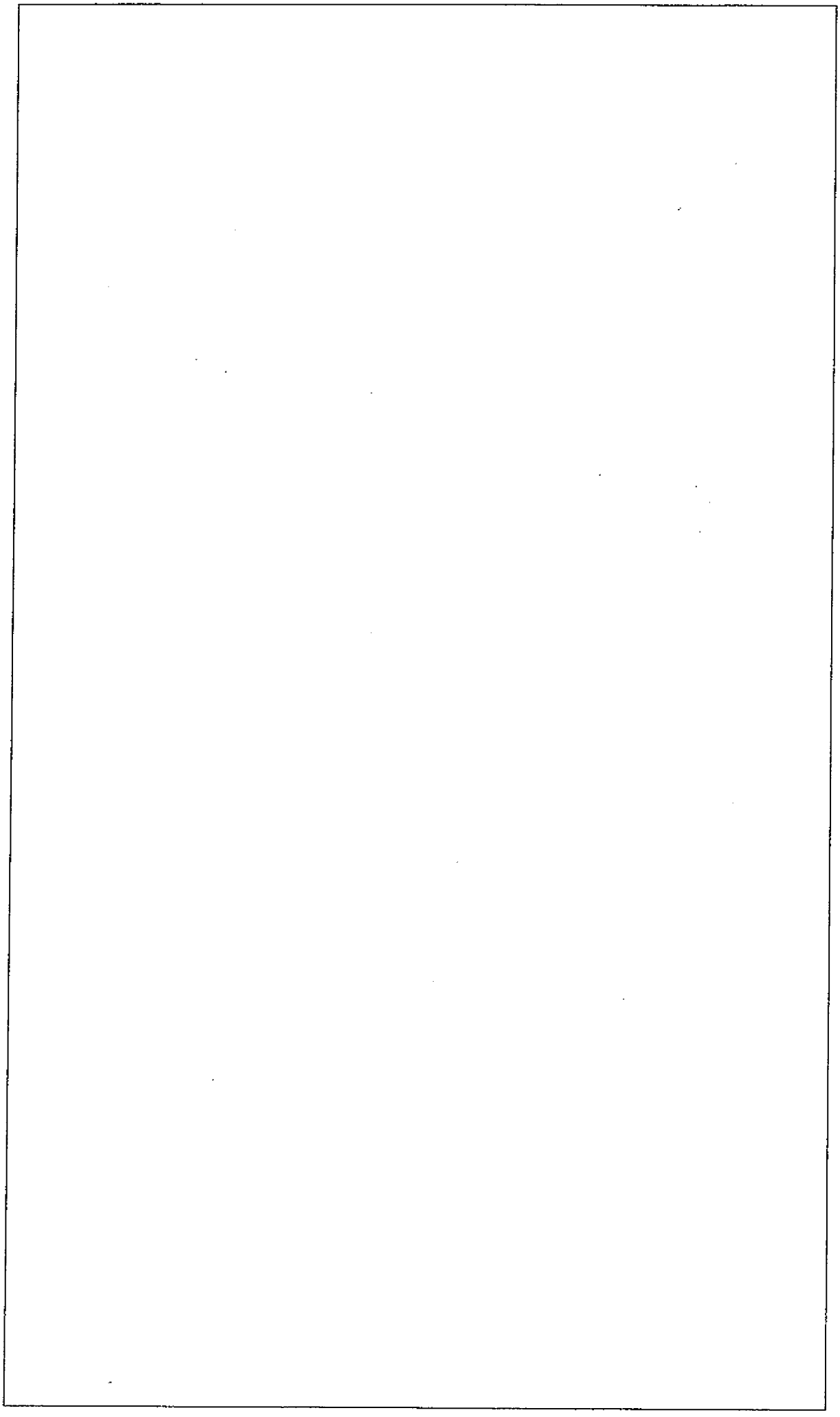
MAINWHEELS

SUPPLEMENTARY SERVICING

ITEM No	ITEM	OPERATION



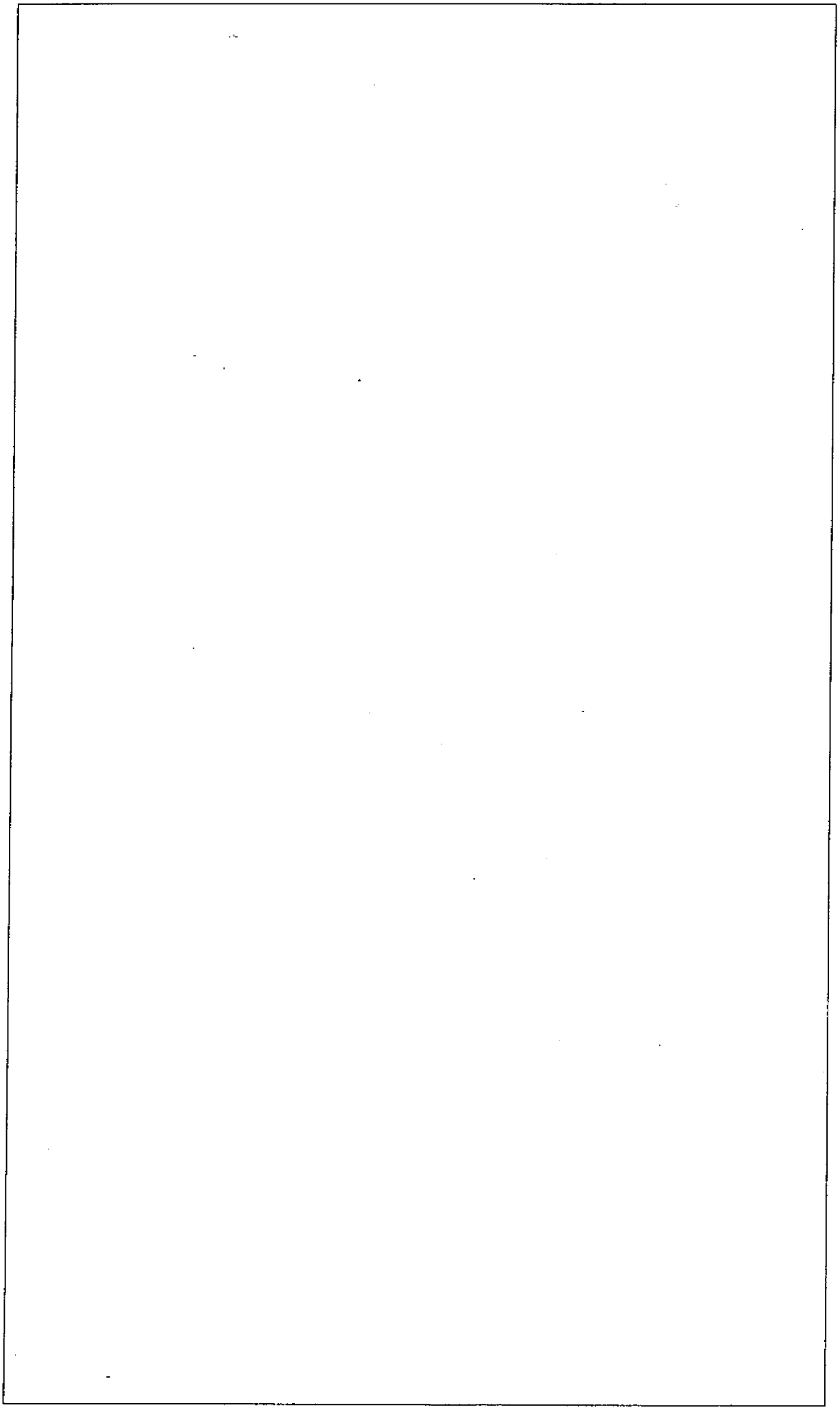
AL5

REF NO.	EQUIPMENT AND TOOLS	QTY
	Kits, Tool, Airframe Fitter, to Scale A2. AP830, Vol 3, Pt A.	1
1B/1205713	Pliers, Retaining Ring, Universal.	1
1C/6124	Tool, Repair, Schrader Valve.	1
1C/1201256	Wrench, Torque, 15 to 80 lb ft x ½ in. SD.	1
1L/9106393	Spanner, Socket, Bi-Hexagon ½ in. BSW x ½ in. SD.	1
4G/5874	Gauge, Tyre Pressure.	1
4G/5969	Inflator, Tyre.	1
4G/6269	Machine, Tyre Removal Pt No. A10444.	1
4G/6215	Rings, Tyre Removal Pt No. AM20753.	2
27A/4462	Spanner, Torque, Valve Core Pt No. A0106115.	1
27A/3311	Alignment Mandrel and Gap Gauge Pt No. AM10969.	1
27A/3306	Mandrel and Base Assembly Pt No. A042700.	1
27A/4328	Sleeve Pt No. A0101017.	1
27A/4329	Sleeve Pt No. A055535.	1
27A/4289	Collar Pt No. A0100844.	1
27A/3335	Pressing Out Mandrel Pt No. AM10254.	1
27A/4326	Bearing Extractor (Large) Pt No. AM20159.	1
27A/4327	Bearing Extractor (Small) Pt No.102359.	1

SPARES

Refer to AP4515C, Vol 3, Pt 1, Sect 2, Chap 48.

	MATERIALS	NATO CODE NO.
33B/1111	Finish, Synthetic, White.	A/R
33C/2202882	Powder, Dusting.	A/R
33D/2201949	Trichloroethane.	A/R
33H/2202110	Compound, Pigmented Varnish JointingS-726	A/R
34B/1538	Jointing Compound 5 (Titanine LR4871).	A/R
34B/2241797	Grease, XG-293.G-395	A/R
33B/9433046	Cleaning Compound.	A/R



AL4

SERVICING NOTES

1. AP104F-0001-5F is to be complied with throughout the work detailed in this schedule.

2. Wheels Pt No. AH50701 and AH51338 are similar to each other and differ only in respect of hub design, wheel AH51338 being fitted with shorter bolts for retaining the steel sleeves.

3. RP214 stamped in close proximity to wheel Pt No. indicates that the Maxaret tracks on wheels that have been damaged have been renewed.

4. NDT examination in accordance with Appendix 1 (Ex Local Test Procedure ASE/EFDC/HUNTER/EDD/2). Examination standards are:
Total length of crack indication in any 160 mm of circumference is not to exceed 40mm. AIRCRAFT WHEEL/EDD/13A is applicable only if RP214 has been embodied, examination standard nil defect.

5. A tube base support is unserviceable if any of the following faults exist:
(a) Surface splits deeper than 1/32 in.
(b) Mould blemishes exceeding 1/2 in. length and 1/16 in. depth.
(c) If any of the mould flash lines are invisible on the sides and base.

6. On re-assembly of this wheel with a Goodyear tyre, check cross sectional width when fully inflated, New tyre is not to exceed 6.85 in. Re-mould tyre is not to exceed 6.9 in.

7. The technical content of STI/Hunter/347A is included in this schedule.

8. Hubs which have been repaired in accordance with repair scheme RP710 (repair to worn or oversized Maxaret track) ie, hubs with 'RP710' vibro-etched adjacent to the Pt No. are not to be cleaned with a chlorinated hydrocarbon solution, eg, trichloroethane (Inhibisol or Genklene). These agents will attack the adhesive bond of the repair. Titanine brush wash thinners or any other suitable cleaning agent may be used to clean the filled Maxaret track if applied sparingly by hand and wiped dry.

9. The material specification for this hub assembly is MAGNESIUM ALLOY.

ITEM No	ITEM	OPERATION
1.	Preparation	
1.1	Servicing Notes.	Read.
1.2	Tyre.	(i) Examine. (ii) Check creep.
2.	Tyre Removal	
2.1	Inflation valve. (a) Dust cap. (b) Deflator 'Screw on'.	 Remove. Fit, ensuring air escapes freely.
2.2	Tyre.	Permit to fully deflate.
2.3	Inflation valve. (a) Deflator 'Screw on'.) (b) Valve core.)	 Remove
2.4	Wheel assembly. (a) Assembly. (b) Tyre beads. (c) Assembly. (d) Split pins.) (e) Loose flange securing nuts.) (f) Washers.) (g) Loose flange.)	 Set up in tyre removal machine with appropriate tyre removal rings. Unseat from bead seats. (i) Remove from tyre removal machine. (ii) Lay flat, loose flange upper-most. Remove.
2.5	Tyre and tube.	Remove from hub.
2.6	Tube.	Remove from tyre.
2.7	Tube base support.	Remove from tube.
3.	Dismantling	
3.1	Hub, loose flange side. (a) Circlip.) (b) Excluder.) (c) Locating ring.) (d) Inner bearing race.)	 Remove.

Continued overleaf

ITEM No	ITEM	OPERATION
3.2	Hub, fixed flange side.	
	(a) Circlip.)	
	(b) Oil seal housing.)	Remove.
	(c) Inner bearing race.)	
3.3	Oil seal housing.	
	(a) Felt seal.)	Remove and discard.
	(b) Sealing ring.)	
3.4	This Sub-item is applicable only if RP214 has been embodied.	
	Maxaret track.	
	(a) Securing bolts.	Remove.
	(b) Locking washers.	Remove and discard.
	(c) Track.	Remove.
4.	<u>Examination</u>	
4.1	Tyre and tube assembly.	
	(a) Tyre.)	(i) Clean.
	(b) Tube.)	(ii) Examine.
	(c) Base support.	(i) Clean.
		(ii) Examine. (Servicing Note 5 refers).
4.2	Loose flange assembly.	
	(a) Assembly.	(i) Clean.
		(ii) Examine and particularly for corrosion and damage.
	(b) Bead seat radius.)	Carry out NDT examination for cast wheel.
	(c) Bead seat area.)	(Servicing Note 4 refers).
	(d) Attachment bolt holes.	Examine and particularly for elongation and damage.
4.3	In this Sub-item, Sub-sub-item (j) is applicable only if RP214 has been embodied.	
	Hub.	
	(a) Assembly.	(i) Clean. (Servicing Note 8 refers).
		(ii) Examine and particularly for corrosion and damage.
	(b) Bead seat radius.)	Carry out NDT examination for cast wheel.
	(c) Bead seat area.)	(Servicing Note 4 refers).
	(d) Steel sleeve.	Examine and particularly for corrosion and security of attachment. Note: Ensure a 0.0015 in. feeler gauge does not enter between the sleeve shoulder and hub abutment face. No attempt must be made to tighten securing bolts.

ITEM No	ITEM	OPERATION
4.	Examination (Contd)	
4.3	Hub. (Contd)	
	(e) Steel retaining bolts.)	Ensure locked with wire in pairs.
	(f) Retaining nuts.)	Note: The same pair of nuts must be locked together as bolts to which they are fitted (Fig 1 refers).
	(g) Shrouds.)	(i) Examine and particularly for insecurity of attachment, damage and corrosion.
	(h) Drive blocks.)	(ii) Examine shrouds for wear in the break plate location channels. Note: The width of the channel must not exceed 0.890 in.
	(j) Maxaret track securing bolt holes.	Carry out NDT examination. (Servicing Note 4 refers).
4.4	Loose flange securing bolts.)	(i) Clean.
4.5	Loose flange securing nuts.)	(ii) Examine.
4.6	Circlips.	Examine and particularly for distortion and loss of resilience.
4.7	Oil seal housing.)	
4.8	Excluder)	Examine.
4.9	Locating ring.)	
4.10	Inner bearing races.)	(i) Clean.
4.11	Taper roller bearings.)	(ii) Examine.
4.12	Outer bearing races.	Examine and particularly for signs of cup rotation.

Continued overleaf

ITEM No	ITEM	OPERATION
5.	Assembling (Hub for checks)	
5.1	Hub fixed flange side.	
	(a) Outer bearing race.	Lubricate. (Grease, XG-293).
	(b) Taper roller bearing.)	(i) Lubricate. (Grease XG-293).
	(c) Inner bearing race.)	(ii) Refit.
5.2	Oil seal housing.	
	(a) Sealing ring.)	Fit.
	(b) Felt seal.)	
	(c) Housing.)	Refit.
	(d) Circlip.)	
5.3	Maxaret track.	
	(a) Track.	Refit.
	(b) Locking washers.	Fit new items.
	(c) Securing bolts.	(i) Refit and tighten.
		(ii) Torque load to 25 to 30 lbf in.
		(iii) Lock.
5.4	Hub, loose flange side.	
	(a) Outer bearing race.	Lubricate. (Grease XG-293).
	(b) Taper roller bearing.)	(i) Lubricate. (Grease XG-293).
	(c) Inner bearing race.)	(ii) Refit.
	(d) Locating ring.)	
	(e) Excluder plate.)	Refit.
	(Pt No. AH0857).)	
	(f) Circlip.)	
5.5	Loose flange.)	
5.6	Washers.)	Refit.
5.7	Loose flange securing nuts.)	

ITEM No	ITEM	OPERATION
6.	Bearing checks	
6.1 6.2	Alignment.) Overall length.)	Check from edge of locating ring to outer face of bearing at brake side of wheel using alignment mandrel and gap gauge Pt No. AM10969. The measured length must be within the limits 4.5 in. to 4.48 in. Note: Bearings bedded in during service are acceptable 0.020 in. below limits quoted.
7.	Radial Distortion Check	
7.1	Wheel.	Position on suitable mandrel and set up level between centres.
7.2	Bead seats.	Check for radial distortion.
7.3	Wheel.	Remove from centres and mandrel.
8.	Flange and Hub Separation	
8.1 8.2 8.3	Loose flange securing nuts.) Washers.) Loose flange.)	Remove.
9.	Surface Finish	
9.1 9.2	Hub.) Loose flange.)	(i) Examine. (ii) Restore finish in accordance with AP104F-1000-1.
10.	Assembling (Tyre and Tube to Wheel)	
10.1	Tyre.	Dust interior with dusting powder.
10.2	Tube.	Dust with dusting powder.
10.3	Tube base support.	(i) Dust with dusting powder. (ii) Fit to tube.
10.4	Washer.	Fit in moulded cavity in base support.
10.5	Sleeve nut.	Fit.

Continued overleaf

ITEM No	ITEM	OPERATION
10.6	Tube.	Position deflated in tyre leaving base support outside.
10.7	Valve core.	Refit.
10.8	Tube.	(i) Connect air supply. (ii) Inflate sufficiently to 'round out'. (iii) Ensure base is concentric with tyre beads. (iv) Further inflate until beads are approximately 2 1/2 in. apart. (v) Disconnect air supply.
10.9	Valve core.	Slacken, allowing air to escape slowly.
10.10	Tube base support.	(i) Insert between tyre beads. Note: Start operation at valve position and finish while tube is deflating and beads are apart. (ii) Ensure concentric with tyre beads.
10.11 10.12 10.13	Tyre.) Tube.) Tube base support.)	Fit to wheel ensuring support does not hang up on flange ledge of hub. Note: If this does occur give light push with tyre lever to lift support over obstruction and enable assembly to slide on.
10.14	Valve stem.	Ensure correctly located.
10.15	Hub.	Smear mating face with Titanine LR4871.
10.16	Loose flange.	(i) Smear mating face with Titanine LR4871. (ii) Refit.
10.17	Loose flange securing bolts.	Lubricate threads (Grease XG-293).
10.18	Washers.	(i) Smear both faces with pigmented varnish. (ii) Refit.
10.19	Loose flange securing nuts.	(i) Refit. (ii) Tighten evenly in diametrically opposed sequence. (iii) Torque load to 50 to 60 lbf ft.
10.20	Split pins.	Fit, bending legs around the nuts. Note: Do not bend a leg of a split pin over end of bolt.
10.21	Valve core.	Tighten.

ITEM No	ITEM	OPERATION
10.	Assembly (Tyre and Tube to Wheel (Contd)	
10.22	Wheel assembly.	(i) Connect air supply. (ii) Inflate slowly to locate tyre beads on wheel flanges. Note: Minimum time not less than 30 seconds. (iii) Disconnect air supply.
10.23	Valve core.	Remove.
10.24	Wheel assembly.	Permit to fully deflate.
10.25 10.26	Tyre beads.) Inflation valve.)	Ensure correctly located.
10.27	Valve core.	Refit.
10.28	Wheel assembly.	(i) Connect air supply. (ii) Inflate slowly to 20 lbf/in². Note: Minimum time not less than 2 minutes. (iii) Inflate slowly to pressure detailed in aircraft servicing manual. Note: Minimum time not less than 4 1/2 minutes. (iv) Disconnect air supply.
10.29	Inflation valve.	Ensure no leaks.
	Item 10.30 is applicable only if a Goodyear tyre is fitted.	
10.30	Tyre.	Check width. (Servicing Note 6 refers).
11.	Duration Leak Test	
11.1	Tyre and tube assembly.	Carry out periodic pressure checks in accordance with AP104H-1003-1.
12.	Completion	
12.1	Inflation valve dust cap.	Refit.
12.2	Wheel assembly. (a) Major components. (b) Unit serial numbers. (c) Old creep marks. (d) New creep marks.	 Ensure details correctly recorded. Ensure legible. Remove. Paint on.
12.3	Servicing forms.	Sign.

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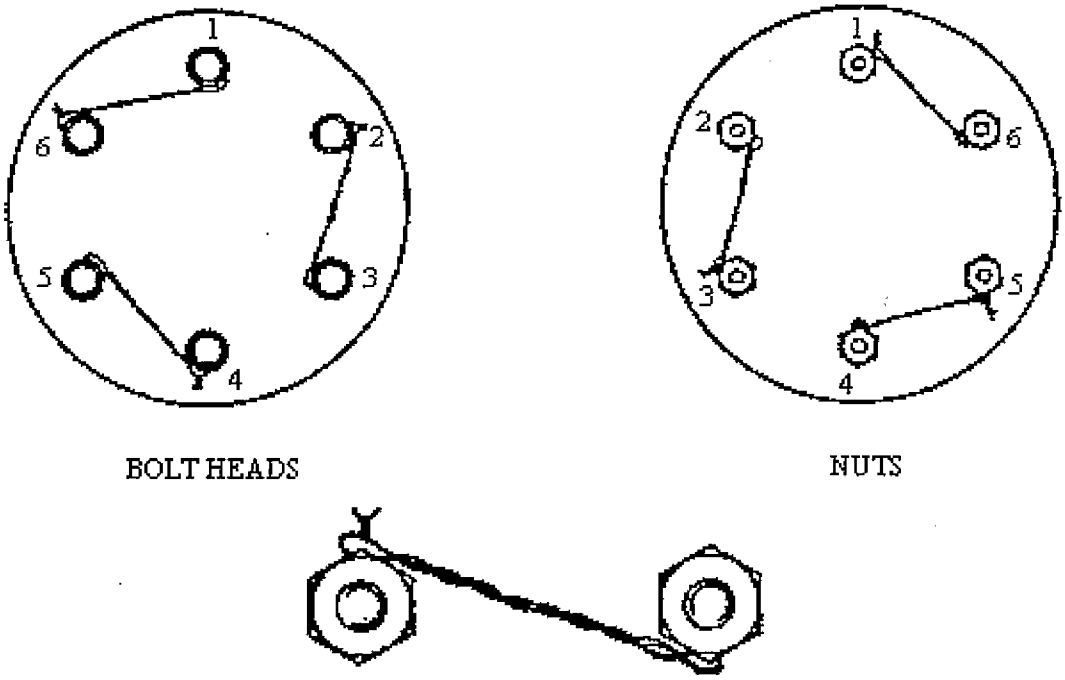

Fig. 1 Lockwire Arrangement

NON-DESTRUCTIVE TEST SCHEDULE
EDDY CURRENT TECHNIQUE
HUNTER MAIN WHEEL HALF-HUBS
(Previously ASE/EFDC/HUNTER/EDD/2)

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

Object

To define the Category 'B' Eddy Current test technique for Hunter Main Wheel Half-Hubs.

References

AP119A-20620-1

1.	Technique.	Eddy Current
2.	Component to be Examined.	Main Wheel Half-Hubs.
3.	Area of Examination.	Bead seat area and flange radius (See Additional Information).
4.	Purpose of Examination.	To detect surface cracking.
5.	Equipment Required.	(i) Automatic wheel inspection rig 4XE/5911754. (ii) Probe lead 4XE/7714562. (iii) Shielded spade probe 4XE/2529614. (iv) Shielded pencil probe 4XE/7714570. (v) PTFE Tape 4XE/378.
6.	Preparation.	Thoroughly clean area to be examined.
7.	Examination Procedure.	
7.1	Instrument Calibration.	
	(a) Initial setting.	Set up i.a.w. AP119A-20620-1.
	(b) Frequency.	2 Mhz.
	(c) Instrument warning.	ALRM 50.
	(d) Filter.	FILT OUT.
	(e) Gain.	As required to obtain 80% full scale meter deflection from 0.5mm slot in reference block.

7.2	Procedure.	Part A.	(i) Position probe on initial point of examination (Fig 1). (ii) Set lift off. (iii) Zero equipment. (iv) Carry out a tight zig-zag scan of the wheel around the complete circumference (Fig 2). **(See additional information)**
		Part B.	(i) Position probe on initial point of examination (Fig 1). (ii) Set lift off. (iii) Zero equipment. (iv) Carry out a complete circumferential scan of wheel (Fig 3). (v) Position probe 2mm from previous scan. (vi) Zero equipment. (vii) Carry out a further complete circumferential scan of the wheel. (vii) Repeat operations (v) to (vii) until complete area has been examined.
		Part C.	(i) Position probe in the scan area on bead seat (Fig 4). (ii) Set lift off. (iii) Zero equipment. (iv) Carry out a tight zig-zag scan around the complete wheel circumference. **(See additional information).**
		Part D.	(i) Place probe 3.2mm (0.125in.) from edge of fastener hole to be examined (Fig 5). **(See additional information).** (ii) Set lift off. (iii) Zero equipment. (iv) Carry out a complete circumferential scan of the fastener, maintaining the probe/hole distance. **Note:** Spurious indications may occur if probe/hole distance decreases. (v) Repeat operations (i), (iii) and (iv) on all remaining fasteners in the scan area.
7.3	Fault indications.		Any indication not attributable to probe handling, edge, geometric or ferrous effect is to be considered a fault.
7.4	Examination standard.		In accordance with AP104F-1031-5F. Servicing Note 4 refers.

8.	Reporting Procedure.	In accordance with current bay maintenance instructions.
9.	Estimated Manhours.	1.5
10.	**Additional Information**	(i) This technique has been written to satisfy the requirements of the Bay Servicing Schedule; incorporating techniques: Aircraft Wheel/Edd/1 and 3, adapted specifically for Hunter Wheels; and an update to reflect current equipment scaling. (Techniques: Aircraft Wheel/Edd/1 and 3 withdrawn from AP104F/G-0001-5G). (ii) During sub-item 7.2, as faults are expected to propagate circumferentially around the wheel, Part A is to be used wherever possible. Part B is only to be used if Part A is not practicable. (iii) The scan area in Part A and Part B is restricted by the knurled flange. In this instance the flange area should be examined as far as possible. (iv) During sub-item 7.2 Part C, the scan area is obstructed by 12 of the fasteners securing the outer drive block shrouds. In this instance, Part C is to be carried out as far as possible and Part D carried out on the fastener holes.

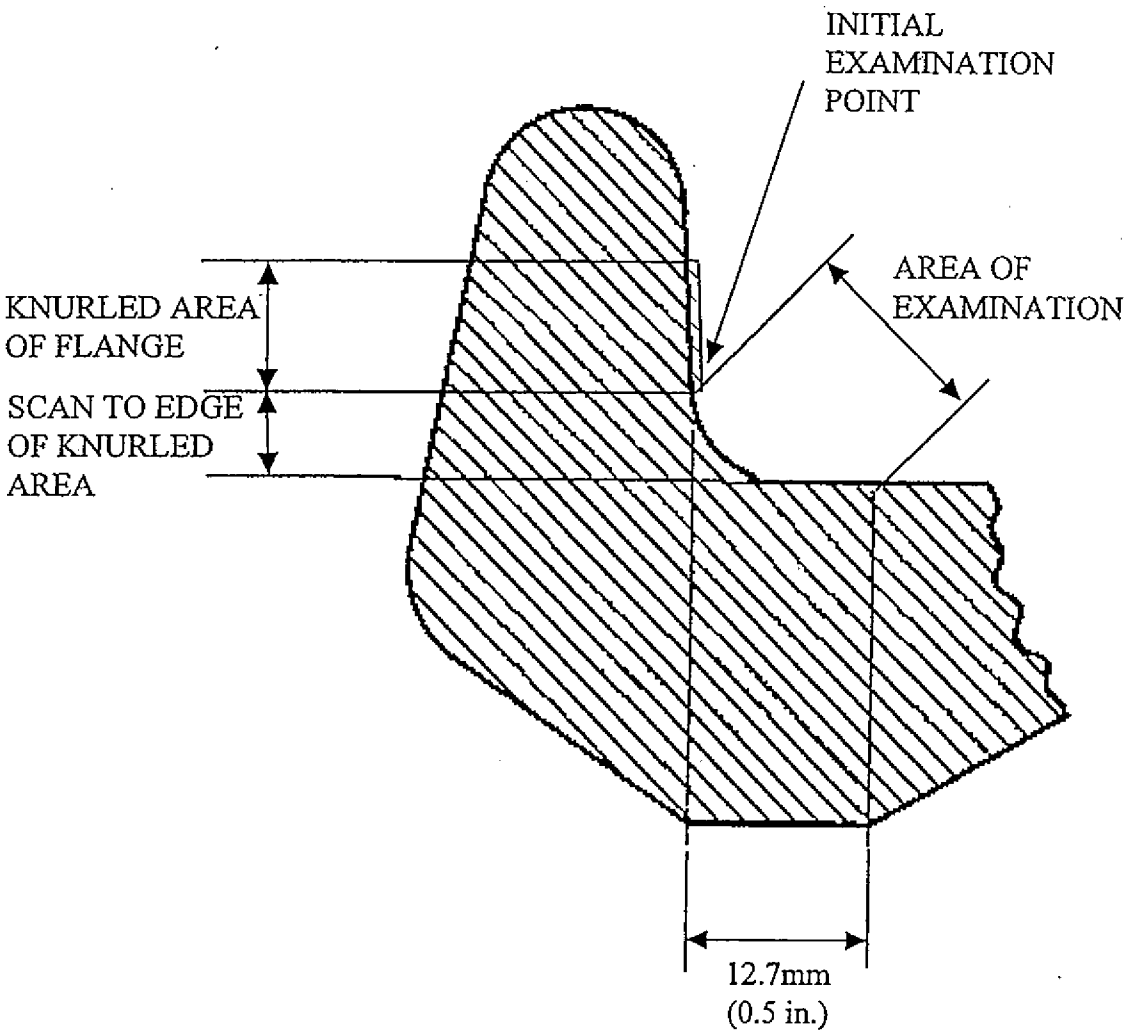

Fig. 1. Cross section of bead seat showing area of examination.

Part A

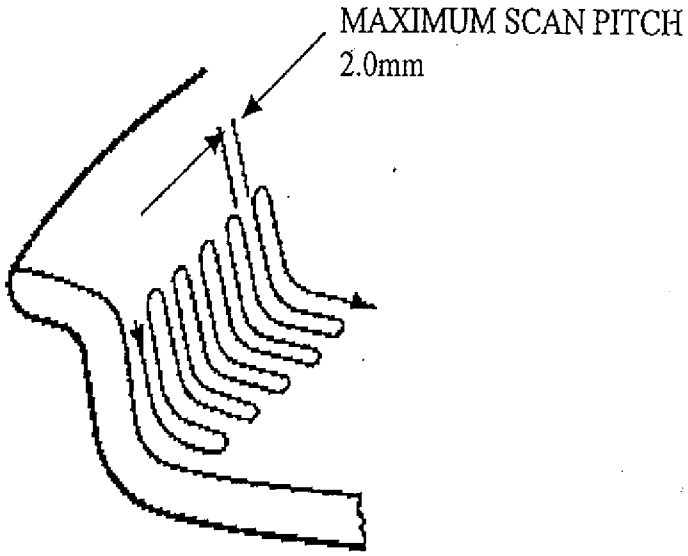

Fig. 2. Zig-Zag scan

Part B

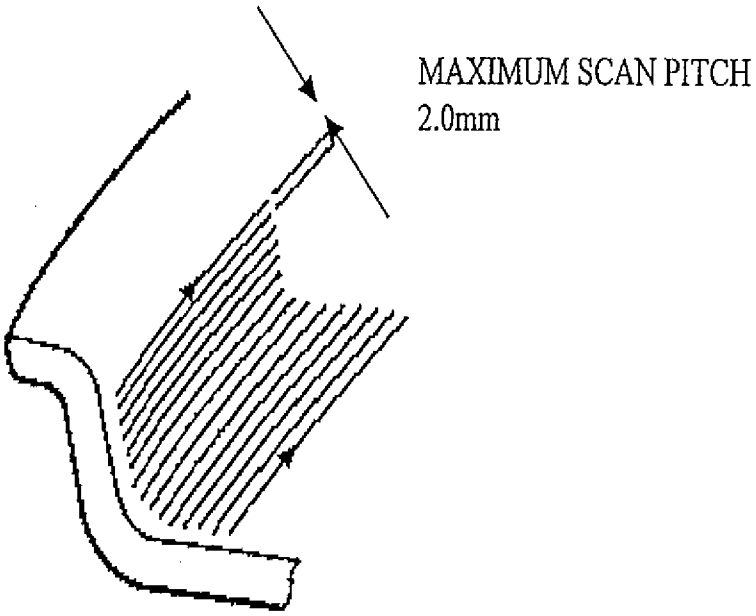

Fig. 3. Circumferential scan

Part C

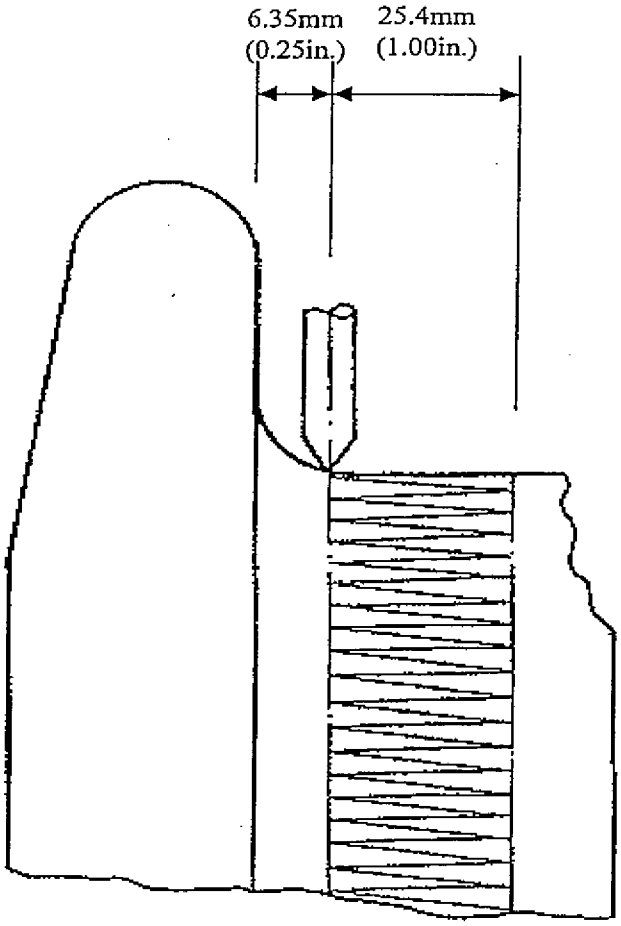

Fig. 4. Area of examination

Part D

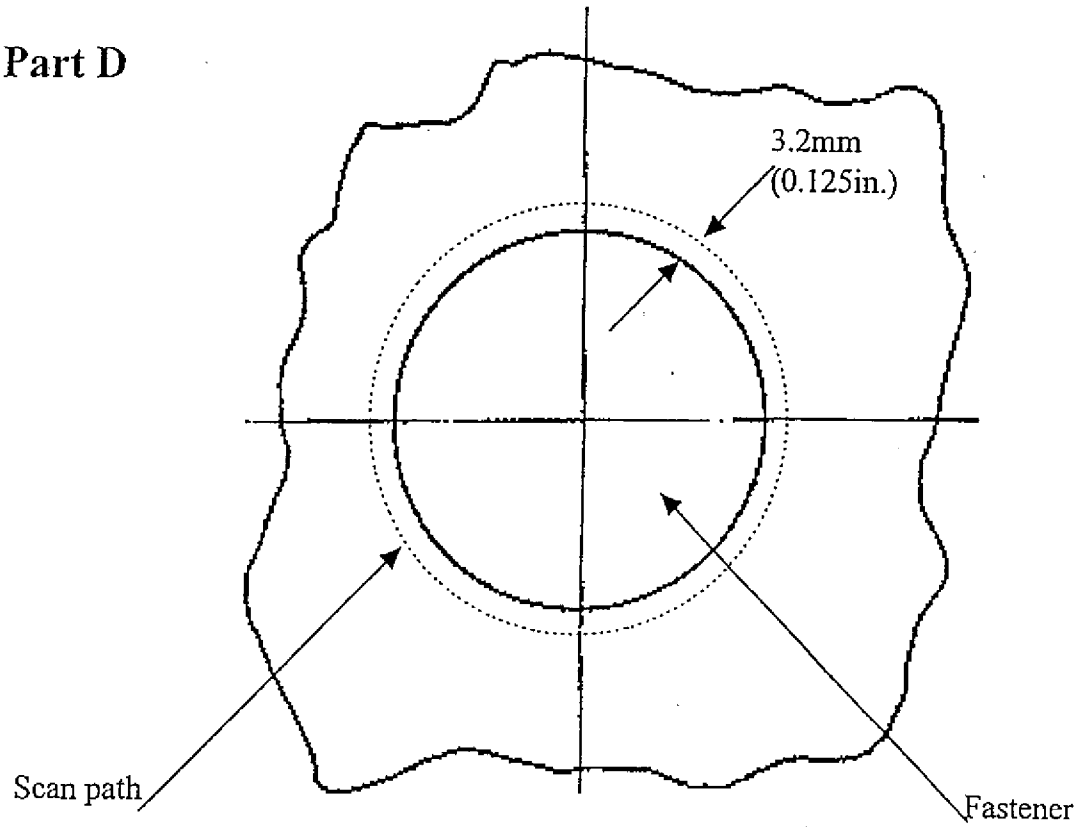

Fig. 5. Outer drive block shroud fastener holes