AP 104G-1021-13

(Formerly AP 104G-1021-1
and AP 4515C, Vol. 3,
Part 1, Sect. 2, Chap. 48)

NOSE WHEEL
DUNLOP PART No. AH 9336

GENERAL AND TECHNICAL INFORMATION (-1)

PARTS CATALOGUE AND RELATED INFORMATION (-3)

BY COMMAND OF THE DEFENCE COUNCIL

Ministry of Defence

Sponsored for use in the

ROYAL AIR FORCE by D Air Eng (RAF)

Prepared by Industry Services International Ltd

Publications authority ATP/MOD(PE)

Service users should send their comments through
the channel prescribed for the purpose in:

AMENDMENT RECORD

Amdt	Incorporated by	Date
1	[signature]	10-9-86
2	[signature]	15/8/89
3	[signature]	1 OCT 93
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		
31		
32		
33		
34		

Amdt	Incorporated by	Date
35		
36		
37		
38		
39		
40		
41		
42		
43		
44		
45		
46		
47		
48		
49		
50		
51		
52		
53		
54		
55		
56		
57		
58		
59		
60		
61		
62		
63		
64		
65		
66		
67		
68		

RECORD OF ADVANCE INFORMATION LEAFLETS (AIL)

AIL	Date received	Deleted by Amdt or AIL

AIL	Date received	Deleted by Amdt or AIL

AIL	Date received	Deleted by Amdt or AIL

RECORD OF SERVICE TEMPORARY AMENDMENT LEAFLETS (STAL)

Identity *	Date received	Deleted by Amdt or AIL or STAL

Identity *	Date received	Deleted by Amdt or AIL or STAL

*Insert specific identity of STAL

Chapter 1

NOSE WHEEL (DUNLOP PART NO. AH 9336)

(completely revised)

CONTENTS

DESCRIPTION

1 This wheel is used with a tyre and tube assembly. The mating faces of the half hubs form a spigot joint.

SERVICING

Tools and equipment

2 The following special tools are required:

2.1 Bearing pressing-in tools, as follows:

2.1.1 Mandrel and base assembly (AO 42699).

2.1.2 Sleeve (AO 45032) (2 off).

2.1.3 Collar (AO 42878).

2.2 Bearing extractor tools, as follows:

2.2.1 Extractor (AO 49434).

2.2.2 Pressing-out mandrel (AO 45979, ref. no. 27A/3076).

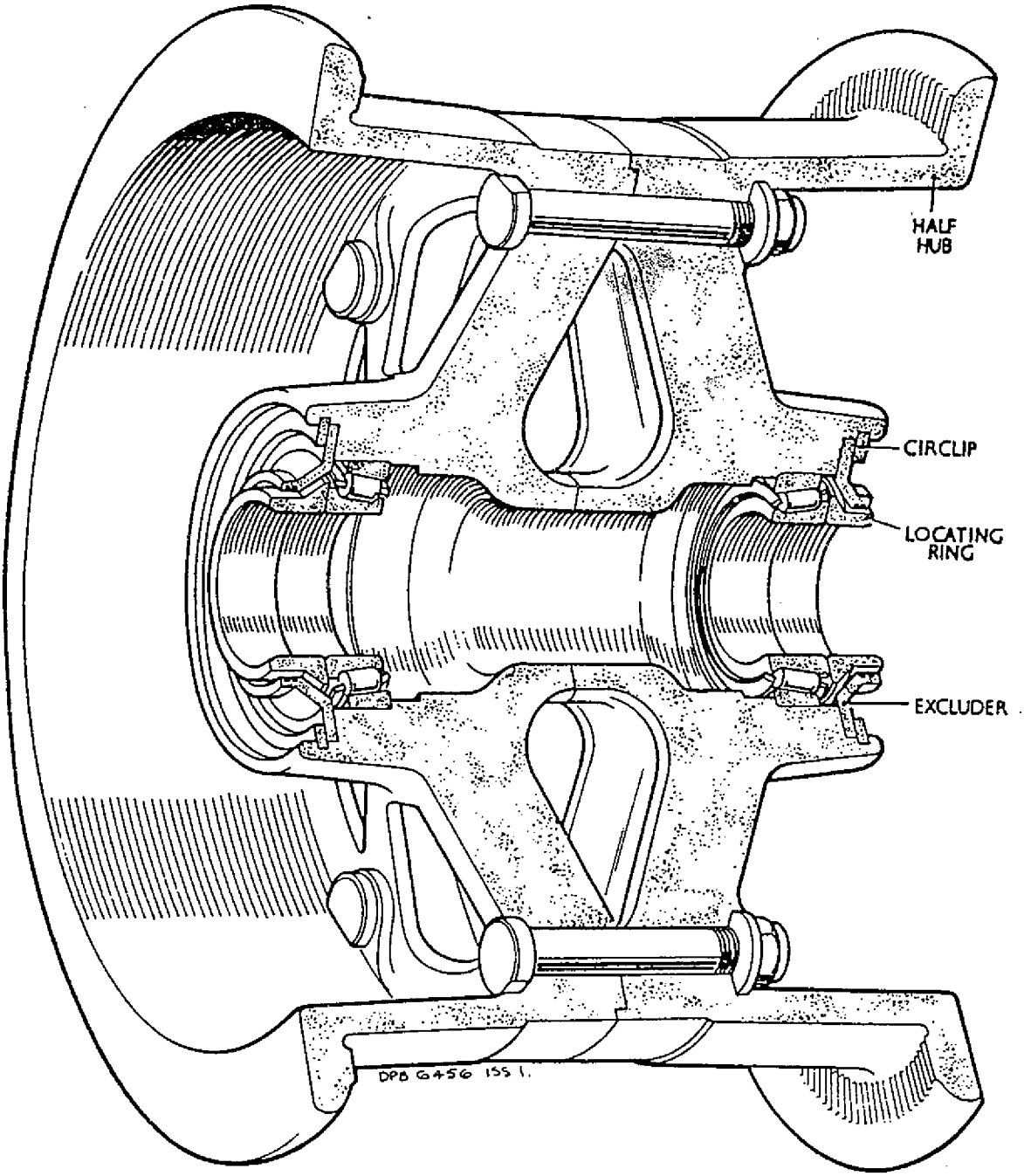

Fig 1 Sectional arrangement of the wheel

2.3 Other tools, as follows:

2.3.1 Bearing alignment mandrel and locating ring gap gauge (AM 10981).

2.3.2 Axle extractor (A 5286).

2.3.3 Torque spanner (DSR 1662/17, Acratork model C1, ref.no. 1L/1201252).

2.3.4 Torque spanner adaptor (DSR 2042/2, Britool ED 525).

Dismantling

WARNINGS ...

(1) BEFORE DISMANTLING A WHEEL, ENSURE THAT THE TYRE IS FULLY DEFLATED, AND THAT THE VALVE CORE HAS BEEN REMOVED. FAILURE TO OBSERVE THESE PRECAUTIONS MAY RESULT IN INJURY TO THE OPERATOR.

(2) DURING DEFLATION TEMPORARY BLOCKAGE OF THE VALVE DUE TO ICE FORMATION MAY OCCUR SEVERAL TIMES BEFORE DEFLATION IS COMPLETE. ALLOW SUFFICIENT TIME TO ELAPSE TO ENSURE FULL DEFLATION - DO NOT PROBE - BEFORE REMOVING THE VALVE CORE.

Removing the tyre

3 Deflate and remove the tyre as follows:

3.1 Note the relative positions of the marks on the tyre and the wheel, and check the tyre for creep before deflating it.

3.2 Remove the valve cap from the inflation valve.

3.3 Fit the special screw-on deflator, to deflate the assembly fully.

3.4 Screw-out the valve core.

3.5 Free the beads of the tyre from adhesion to the bead seats of the wheel.

3.6 Remove the nuts, bolts and washers, and separate the half hubs.

3.7 Remove the tyre, with the tube in position, from the relevant half hub.

3.8 Place the wheel on a rubber or felt mat during dismantling, to protect it from damage.

Dismantling the wheel (Fig 1)

4 Proceed as follows:

4.1 Using suitable circlip pliers, remove the circlips from both half hubs.

4.2 Withdraw the excluders and the locating rings.

4.3 Remove the bearing inner races.

4.4 Proceed no further with dismantling. The bearing outer races should be removed only when their renewal is necessary. At such times, use the special tools provided.

Cleaning

5 Remove the old bearing grease from the half hubs; ensure that the tyre bead seats are entirely free from grease, oil or any other foreign matter. Clean all metal parts with gasoline (non-lead 80 grade - ref. no. 34A/1302) or a suitably approved equivalent, and dry them with compressed air.

6 Clean the roller bearing components, using a suitable non-corrosive solvent such as white spirit, thinners, trichlorethylene or unleaded petrol.

CAUTION ...

Bearings will corrode rapidly if left ungreased. Ensure that the cleaning, examination and re-greasing operations are accomplished within one hour.

Examination

7 The following sub-paragraphs provide a comprehensive examination procedure for wheel components, based on complete overhaul. Interim servicing operations involving partial dismantling may necessitate the compilation of modified schedules which omit some of the procedure.

7.1 Examine the hub for damage and corrosion particularly in the vicinity of the flanges and tyre bead seats. Excessive damage in these areas will render the wheel unserviceable. Repairable damage, therefore, is limited to superficial cuts and abrasions. Carefully dress out superficial cuts and abrasions and slight surface corrosion with a smooth file and emery cloth, blending the sharp edges to maintain the essential curvature (where applicable) as far as possible. After dressing restore the protective treatment so as to prevent the ingress of moisture and contaminants.

7.2 Carefully examine the half hubs for cracks. Cracks are not permitted. When a crack is suspect use the ultrasonic and/or eddy current method of crack detection.

7.3 Examine the wheel for radial distortion by fitting a suitable mandrel and setting up between centres. Alternatively, mount the hub in a lathe with the chuck jaw locating around the wheel. In such a case, the hub centre at the fixed flange side must be concentric to within 0.002 in dial gauge indicator reading.

7.4 Apply a dial indicator to the tyre bead seat of the wheel and make a radial check throughout 360 deg. to ascertain that there is no radial distortion in excess of ±0.030 in. Distortion in excess of this limit renders the wheel unserviceable.

7.5 Examine the locating rings for damage and corrosion. The abutment faces of the locating rings must be undamaged and the bores free from score marks. Renew a faulty ring.

7.6 Examine the excluders for damage. Check that the protective treatment is in good condition. The excluder must be renewed if there is evidence of excessive wear in the bore. This will be indicated by partial or complete obliteration of the grease grooves. Distorted or softened circlips must be discarded.

7.7 Examine the taper roller bearings for tempering discoloration. This condition is frequently present and is not detrimental provided that the colour is yellow, brown or purple but not blue and there is no discoloration on the ends of the rollers. If an inner or outer race shows tempering discoloration beyond these limits the complete bearing assembly must be renewed. It is recommended that a discoloured bearing be dismantled and a hardness test applied to the rollers. The minimum hardness for serviceable rollers is Rockwell 58C. As a result of this test the bearing will be unserviceable but it should be retained for purpose of comparison.

7.8 Examine the inner and outer races and the rollers for corrosion, flaking, scuffing, brinelling or indentations. Cages must be free from damage, distortion and undue wear in the roller pockets. If such damage is present the relevant inner or outer face must be renewed (inner and outer races must be of the same manufacture).

Removal and renewal of outer races

Note ...

Inner and outer races of difference manufacture must not be mixed in one bearing assembly.

8 Heat the half hub to 140/150 deg.C. Carry out the dismantling or assembly operations while the half hub retains its heat, but allow the hub to cool before carrying out dimensional checks. Proceed as follows:

8.1 Press out the old outer race.

8.2 Check that the bearing housing diameter does not exceed 2.6865 in. If the diameter exceeds the limit the hub must be withdrawn from service.

8.3 Lightly coat the bearing housing in the half hub with jointing compound (ref.no. 33H/2202110).

8.4 Fit the new outer race in the housing within two minutes of removing the half hub from the oven and use a light press to ensure final location.

8.5 After the assembly has regained normal room temperature check that a 0.0015 in. feeler gauge will not enter between the back face of the outer race and the abutment face of the hub.

Assembling

9 Compounds to be used in assembling are as follows:

9.1 Jointing compound on bolt shanks, underside of bolt heads and washers: jointing compound ref.no. 33H/2202110.

9.2 Adjacent abutment faces: Titanine LR 4871 (ref.no. 34B/1481).

9.3 Bearings, bore of wheel threads of bolts, and bottom of nuts: grease XG-277 (ref.no. 34B/9100541)

10 When renewing a half hub, record the new component's serial number and the date of mating in the component servicing record book. Before fitting the tyre, examine it for wear and damage.

10.1 Dust the tube and the inside of the tyre with french chalk, and shake off any excess.

10.2 Fit the tube to the tyre, inflate the tube sufficiently to 'round out' and line up the balance marks. The red line on the tube denotes the heavy spot and the red spot on the tyre the light spot.

10.3 Fit the tyre and tube to the half hub which accommodates the valve, and ensure that the valve is correctly located.

10.4 Coat the half hub mating faces and the bolts and washers with the relevant compounds. Bring the half hubs together, and ensure that the valve retains its correct position and that the tube does not become trapped between the mating faces of the half hubs.

10.5 Position the nuts, bolts and washers. Check for gapping between the half hubs: an indication that the tube is trapped. Tighten the nuts alternately, to a torque loading of 12 lbf.ft (greased).

10.6 Pack the bearings and the bore with the specified grease and fit the mating inner races complete with bearings to the outer races of both half hubs.

10.7 Position the locating rings and the excluders, and secure them with the circlips.

Note ...

To ensure that the circlips fully engage their respective grooves, use a light alloy drift to tap the exposed upper face and the end of each leg.

10.8 Check the bearing alignment and the overall length over the locating rings, using the alignment mandrel and gap gauge. For new assemblies, the length must be between 5.48 in. and 5.50 in.; after bedding in, and in service, a minimum length of 5.46 in. is acceptable.

10.9 Inflate the assembly as described in AP 104H-1002-1.

Testing

11 After all servicing operations involving tyre deflation, test the wheel and tyre assembly as follows:

11.1 Inflate the tyre. Check for leakage from the valve core with the valve cap removed.

11.2 Take periodic pressure readings, making allowance for any substantial change in ambient temperature, and any obvious loss due to application of the gauge. A pressure loss of up to ten per cent (due to tyre stretch) may be recorded during the first 24 hours after inflation: this may be regarded as normal. Some natural losses can be expected to

occur over a period, dependant upon size/pressure combination: operator experience must be used in assessing whether these losses are normal or excessive.

Installation

12 When installing the wheel, first screw the axle nut tight, and then unscrew it so as to give between 0.005 in. and 0.010 in. clearance between axle abutment faces.

PARTS CATALOGUE AND RELATED INFORMATION (-3)

MODIFICATION RECORD

Mod. No.	AL No.	Mod. No.	AL No.	Mod. No.	AL No.	Mod. No.	AL No.	Mod. No.	AL No.	Mod. No.	AL No.
M.10393 Amdt.	*										
34768 Amdt.	*										
35983 Amdt	*										
▶ 37650	3 ◀										

* Incorporated in initial issue of catalogue
NA Mod. not applicable to this catalogue
C Mod. cancelled
AS Amendment Sheet

PREFACE

Changes to technical import within each new or revised leaf provided to amend this publication will be identified by a marginal indicator (>---<). Such indicators will be omitted when the leaf is reissued. When a chapter is reissued by amendment action and the content is so changed or reorientated that the inclusion of amendment indicators would be impracticable, the note "(completely revised)" will appear under the title of the chapter.

LIST OF ASSOCIATED PUBLICATIONS

AP 104H-1002-1	Dunlop wheel assemblies embodying tubeless tyres and tyre/tube adaptor scheme.
AP 119F-3202-1	Tyre removal machines (Dunlop part no. A10444, ref no. 4G/1047448, and part no. A12700, ref no. 4G/8082584).

Preliminary material

GENERAL AND TECHNICAL INFORMATION (-1)

PARTS CATALOGUE AND RELATED INFORMATION (-3)

Mod No	AL No	Mod No	AL No	Mod No	AL No	Mod No	AL No	Mod No	AL No	Mod No	AL No
		This AP incorporates all modifications up to and including Dunlop Amendment No 30931									

* Incorporated in initial issue of catalogue
MA Mod not applicable to this catalogue
C Mod cancelled
AS Amendment Sheet

LEADING PARTICULARS

NAME	Wheel, nose
PART NO.	Dunlop AH 9336
MATERIAL	Magnesium alloy
WEIGHT	4.6 Kg (10.125 lb)
TYRE SIZE (inches)	19 x 6.25 -9

INDEX OF PART NUMBERS

Part Number	Vocab Sect.	NATO Stock No., Ref. No. or LM	Chap. No.	Fig./ Index No.
AGS 2001/G1/66	28M	5310-99-101-1973		1/5
AHO 18423	27A	5330-99-647-2807		1/3
AHO 18903	27A	1680-99-647-1486		1/2
AHO 22425	27A	5310-99-647-7453		1/6
AHO 26467	27A	5306-99-123-7752		1/7
AHO 86987	27A	5365-99-611-5935		1/1
AH 9336	27A	1630-99-456-0316		1/-
AM 10981	27A	1630-99-456-0383		1/13
AO 106115	27A	5120-99-456-0727		1/14
AO 42699	27A	5120-99-456-0368		1/11
AO 42878	27A	1630-99-456-0362		1/10
AO 45032	27A	5120-99-456-0385		1/12
AO 45979	27A	5120-99-456-0333		1/9
AO 49434	27A	5120-99-456-0378		1/8
DAS 2062/126				1/4
DAS 2062/3	27A	3110-99-655-1388		1/4
DSR 04312-1005	28M	5310-99-101-1973		1/5
▶ DSR 4629-1018	27A	3110-99-648-3973		1/4 ◀

INDEX OF NATO STOCK NUMBERS

Vocab Sect.	NATO Stock No.	Part Number	Chap. No.	Fig/ Index No.	ICY MR	C of S
28M	5310-99-101-1973	AGS 2001/G1/66		1/5		C
		DSR 04312-1005		1/5		C
27A	5306-99-123-7752	AHO 26467		1/7		C
27A	1630-99-456-0316	AH 9336		1/-		P
27A	5120-99-456-0333	AO 45979		1/9		C
27A	1630-99-456-0362	AO 42878		1/10		C
27A	5120-99-456-0368	AO 42699		1/11		C
27A	5120-99-456-0378	AO 49434		1/8		C
27A	1630-99-456-0383	AM 10981		1/13		C
27A	5120-99-456-0385	AO 45032		1/12		C
27A	5120-99-456-0727	AO 106115		1/14		L
27A	5365-99-611-5935	AHO 86987		1/1		C
27A	1680-99-647-1486	AHO 18903		1/2		C
27A	5330-99-647-2807	AHO 18423		1/3		C
27A	5310-99-647-7453	AHO 22425		1/6		C
27A	3110-99-648-3973	DSR 4629-1018		1/4		C
27A	3110-99-655-1388	DAS 2062/3		1/4		C

DETAILED PARTS LIST

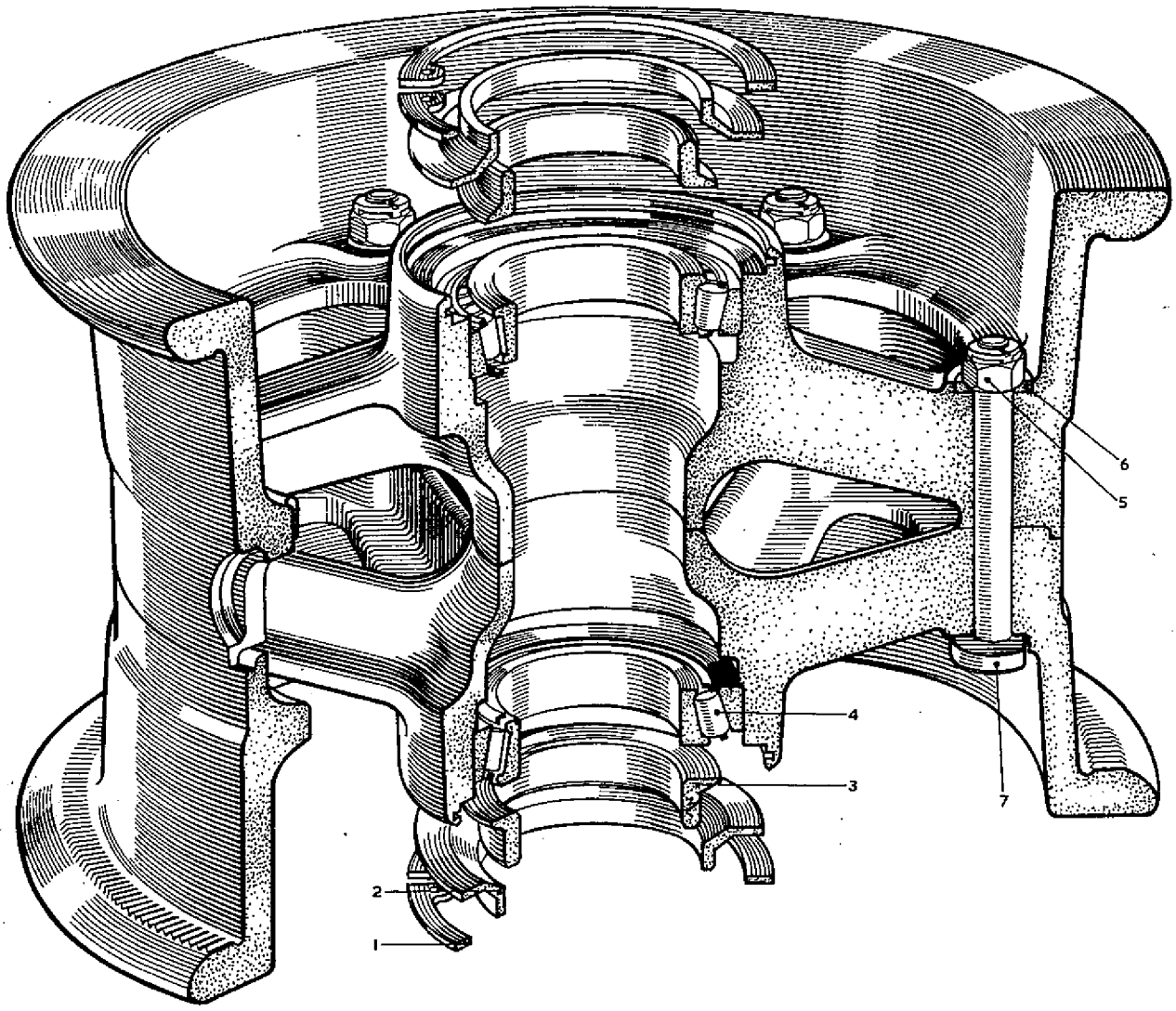

Fig. 1 Nose wheel assembly

DETAILED PARTS LIST

NOSE WHEEL ASSSEMBLY

Fig./ Index No.	Part Number	Nomenclature 1 2 3 4 5 6	Usage Code	Units Per Assy
1-	AH 9336	Wheel, nose,assembly		
-1	AHO 86987	. Circlip (Mod.M.10393)		2
-2	AHO 18903	. Excluder		2
-3	AHO 18423	. Ring, locating		2
-4	DAS 2062/3	. Bearing, taper roller (Pre-Amdt. 35983)		2
	DAS 2062/126	. Bearing, taper roller (Amdt. 35983) (Pre Amdt 37650)		2
	DSR4629-1018	. Bearing 19150 Code 629 19268 Code 629 (Amdt 37650)		2
-5	AGS 2001/G1/66	. Nut, stiff, 5/16 in BSF (DSR 04312-1005) (Amdt.34768)		6
-6	AHO 22425	. Washer		6
-7	AHO 26467	. Bolt, hub		6
		TOOLS REQUIRED		
-8+	AO 49434	Extractor) Pressing out		1
-9+	AO 45979	Mandrel) bearings		1
-10+	AO 42878	Collar)		1
-11+	AO 42699	Mandrel, and base,) Pressing assembly) in		1
-12+	AO 45032	Sleeve) bearings		1
-13+	AM 10981	Mandrel, alignment and gap gauge for bearing		1
-14+	AO 106115	Spanner .		1

+ Item not illustrated

PREFACE

Demands

1 Requirements for demands are:

1.1 The demand must quote the appropriate Vocabulary Section and Reference/Stock Number for each item. Unreferenced parts are not normally provisioned as spares and demands for such items must quote the Vocabulary Section, Maker's Part Number, and the name and type of the equipment. The location of each part within the equipment should be clearly indicated.

1.2 Demands are to be prepared in accordance with the procedure laid down in AP 830 Volume 1 or BR4.

Local manufacture

2 Parts annotated 'LM' are to be manufactured from local resources. If the manufacture of such items is beyond the capacity of the Unit, the demand is to be endorsed 'Unable to manufacture locally'.

Major repair

3 'MR' indicates that an item is required for major repair purposes only and will not normally be held in store by Units other than those authorised to undertake major repair of the equipment.

Units per assembly

4 The number quoted is the quantity required per next higher assembly in the position shown except 'attaching parts' which quote the quantity required to attach one item. The letters 'AR' in the 'Units per Assy' column indicate that the quantity is 'as required'. Where applicable the quantity normally fitted is shown as a nominal figure, e.g. (Nom 3). Where an item is listed only for reference purposes the letters 'RF' are quoted.

Classification of equipment

5 The Class of Store is indicated by a single letter as laid down in AP 830 Volume 1 or BR4.

Condition of Supply (Interchangeability Code)

6 Condition of Supply is indicated by one of the following letters and is only quoted against parts which are not directly interchangeable:

V Open up holes on assembly
W Partially assembled
X Ream or machine on assembly
Y Drill or drill and tap on assembly
Z Trim on assembly

Obsolescent stock

7 An asterisk in the 'Part No.' column indicates that no further purchases of the item will be made but the part is to be used until stocks are exhausted.

Modifications

8 When items are affected by a modification the 'Mod No.' is quoted in the Nomenclature. Modifications incorporated in the catalogue are listed in the Modification Record.