



**DRIVETRAIN
SYSTEMS**

Service Manual

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NOTE

All references in this manual to 'Forward' and 'Reverse' assume a front-mounted engine.

PD 40 AXLES

Publication No. 9803/9281
Issue 4

PD40 Axles Service Manual

Publication No. 9803/9281

Record of Changes

2nd Update

Date	Page	Issue	Changes
Nov 1998	Cover	2	Issue number raised.
	1/Cont i	2	Axle Build Identification added.
	2/4-2	2	Warning GEN-1-12 and GEN-1-13 added
	5/7-1	2	Blanking plugs Y and Z added to illustration.
	5/7-2	2	Note regarding excessive wear added to item 7.
	5/7-3	2	Blanking plugs Y and Z added to illustration.
	5/7-4	2	Residual brake system pressure note added. (Taken from 9803/3620 520-50 S/M) Notes added to items 5 and 7. Item 7 changed.
	5/7-5	2	Information moved from 7-4.
	5/8-1	2	Blanking plugs Y and Z added to illustration.
	5/8-2	2	Note regarding excessive wear added to item 7.
	5/8-3	2	Blanking plugs Y and Z added to illustration.
	5/8-4	2	Residual brake system pressure note added. Notes added to items 5 and 7. Item 7 changed.
	5/8-5	2	Information moved from page 8-4.
	6/Cont i	2	Residual brake system pressure added. Brake seal or Component Leakage added.
	6/2-1	2	Residual brake system pressure added. (Taken from 9803/3620 520-50 S/M).
	6/3-1	1	New page.
	6/3-2	1	New page.

PD40 Axles Service Manual

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Record of Changes

1st Update

Date	Page	Issue	Changes
Sept 1998	Cover	2	Issue number raised.
	1/1-1	2	Axle Build Identification heading was Limited Slip Differential.

Introduction

This publication is designed for the benefit of Service Engineers.

These personnel should have a sound knowledge of workshop practice, safety procedures, and general techniques associated with the maintenance and repair of hydraulic equipment.

Renewal of oil seals, gaskets, etc., and any component showing obvious signs of wear or damage is expected as a matter of course. It is expected that components will be cleaned and lubricated where appropriate, and that any opened hose or pipe connections will be blanked to prevent excessive loss of hydraulic fluid and ingress of dirt. Finally, please remember above all else

SAFETY MUST COME FIRST!

The manual is compiled in sections, the first three are numbered and contain information as follows:

- 1 = **General Information** - includes torque settings and service tools.
- 2 = **Care & Safety** - includes warnings and cautions pertinent to aspects of workshop procedures etc.
- 3 = **Routine Maintenance** - includes service schedules and recommended lubricants etc.

The remaining sections deal with Dismantling, Overhaul etc. of specific components:

- 4 = **Hydraulics**
- 5 = **Axles**
- 6 = **Brakes**

The page numbering in each section is not continuous. This allows for the insertion of new items in later issues of the manual.

Section contents, technical data, operation descriptions etc. are inserted at the beginning of each section.

All sections are listed on the front cover; tabbed divider cards align directly with individual sections on the front cover for rapid reference.

Page cross references are generally made by presenting the subject title printed in bold, followed by the title of the section containing the subject. For example:

“**24** If the axle is still on the machine, fit the brake calipers (see **Brake Caliper Removal and Replacement**, Section 6).”

Note: If only the subject title in bold is given, i.e. no section title, the cross reference is to another part of the same section.

Use the contents list at the beginning of each section to find the exact page number.

Where a torque setting is given as a single figure it may be varied by plus or minus 3%. Torque figures indicated are for dry threads, hence for lubricated threads may be reduced by one third.

'Left Hand' and 'Right Hand' are as viewed from the rear of the machine facing forwards.

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Torque Settings

Use only where no torque setting is specified in the text. Values are for dry threads and may be within three per cent of the figures stated. For lubricated threads the values should be REDUCED by one third.

UNF Grade 'S' Bolts

Bolt Size in	(mm)	Hexagon (A/F) in	Torque Settings		
			Nm	kgf m	lbf ft
1/4	(6.3)	7/16	14	1.4	10
5/16	(7.9)	1/2	28	2.8	20
3/8	(9.5)	9/16	49	5.0	36
7/16	(11.1)	5/8	78	8.0	58
1/2	(12.7)	3/4	117	12.0	87
9/16	(14.3)	13/16	170	17.3	125
5/8	(15.9)	15/16	238	24.3	175
3/4	(19.0)	1 1/8	407	41.5	300
7/8	(22.2)	1 5/16	650	66.3	480
1	(25.4)	1 1/2	970	99.0	715
1 1/4	(31.7)	1 7/8	1940	198.0	1430
1 1/2	(38.1)	2 1/4	3390	345.0	2500

Metric Grade 8.8 Bolts

Bolt Size	(mm)	Hexagon (A/F) mm	Torque Settings		
			Nm	kgf m	lbf ft
M5	(5)	8	7	0.7	5
M6	(6)	10	12	1.2	9
M8	(8)	13	28	3.0	21
M10	(10)	17	56	5.7	42
M12	(12)	19	98	10	72
M16	(16)	24	244	25	180
M20	(20)	30	476	48	352
M24	(24)	36	822	84	607
M30	(30)	46	1633	166	1205
M36	(36)	55	2854	291	2105

Metric Grade 12.9 Bolts

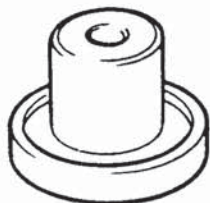
Bolt Size	(mm)	Torque Settings		
		Nm	kgf m	lbf ft
M8	(8)	48	4.9	35
M10	(10)	94	9.6	69
M12	(12)	166	16.9	122
M14	(14)	320	32.6	236
M16	(16)	400	40.8	295

Note: All bolts are high tensile and must not be replaced by bolts of a lesser tensile specification.

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Service Tools



992/07604 Replacer - Crownwheel Bearing and Differential Bearing Cones



992/07606 Measuring Cup - Pinion Bearing



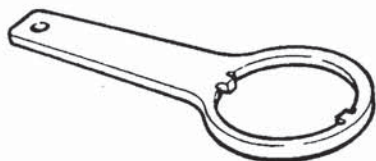
992/07609 Adapter - Drive Axle Pinion Bearing Cone



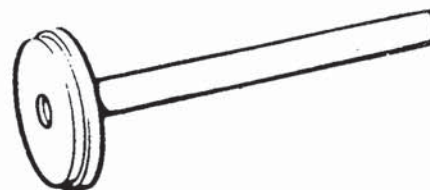
892/00817 17 mm A/F x 3/4 in square drive
 892/00818 22 mm A/F x 3/4 in square drive
 892/00819 15 mm A/F x 1/2 in square drive
 892/00333 19 mm A/F x 3/4 in square drive



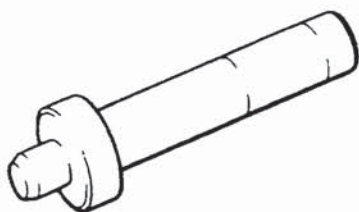
992/07607 Spacer - Pinion Bearing Preload



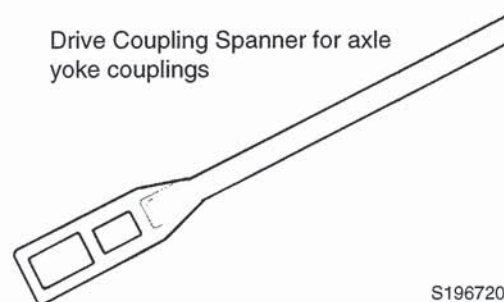
992/07601 Spanner for Half Shaft Nuts



992/07603 Replacer - Pinion Head Bearing Cup



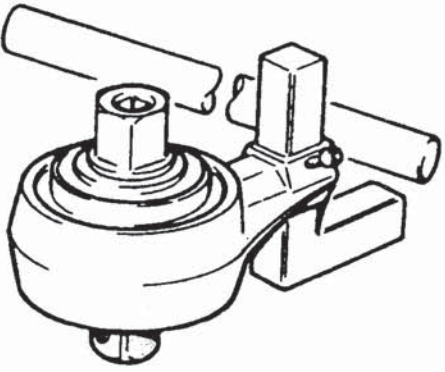
892/00182 Bearing Pad Driver



892/00812 Drive Coupling Spanner for axle yoke couplings

S196720

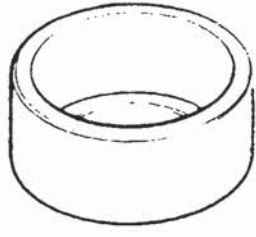
Service Tools (cont'd)



992/04000

Torque Multiplier (use in conjunction with a torque wrench to give a 5:1 multiplication when tightening pinion nuts)

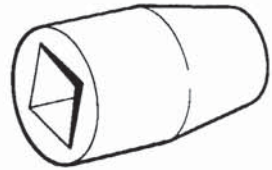
S197030



892/00174

Measuring Cup - Pinion Head Bearing

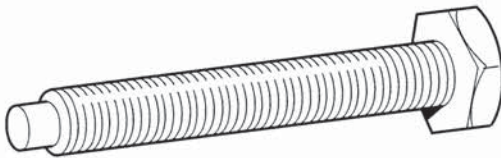
S190770



892/00822


Splined Bolt Socket for driveshafts

S197060



892/00833


Annulus Removal Tool



892/00224

Impulse Extractor Set for Hub Bearing Seals

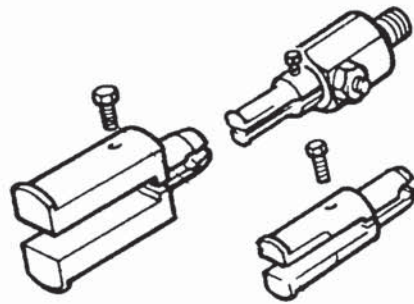
S197070



A272520

892/00891

Oil Seal Insertion Tool



892/00225

Adapter - Impulse Extractor

Small	17 mm to 25 mm
Medium	25 mm to 45 mm
Large	45 mm to 80 mm

Sealing and Retaining Compounds

Loctite 574 or Permabond A136	A medium strength sealant suitable for all sizes of gasket flanges, and for hydraulic fittings of 25-65 mm diameter.	4102/1212	
Loctite 275 or Permabond A140	For all size of flanges where the strength of the joint is important.	4102/0551	
Loctite 932 or Permabond A137	For all retaining parts which are likely to be dismantled and for use on threads larger than 50 mm dia.	† 4101/0451	
Loctite 242 or Permabond A113	A medium strength locking fluid for sealing and retaining nuts, bolts, and screws up to 50mm diameter, and for hydraulic fittings up to 25 mm diameter.	† 4101/0251	
Loctite 243	A medium strength locking fluid similar to Loctite 242 but with greater resistance to thread contamination.	4101/0250	
Loctite 648 or Permabond A118	For retaining parts which are unlikely to be dismantled.	4101/0651	
Loctite 577	A medium strength thread sealing compound.	4102/1951	
Loctite Activator	A cleaning primer which speeds the curing rate of anaerobic products.	† 4104/0251 † 4104/0253	Aerosol Bottle
Cleaner/Degreaser	For degreasing components prior to use of anaerobic adhesives and sealants.	† 4104/1557	Aerosol

Note: The above list is the range of sealants and retaining compounds available. Items marked † are those referred to within the sections.

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