DRIVETRAIN SYSTEMS

Service Manual

General Information 1

Care & Safety 2

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NOTE

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

SD 70/PT AXLES

CENTRAL AND OFFSET DRIVE HEAD

Publication No. 9803/9280
Issue 6

SD70/PT Axles Service Manual

Publication No. 9803/9280

Record of Changes

4th Update

Date	Page	Issue	Changes
Novs 2002	Cover	5	Issue number raised.
	1/1-3	2	Addition to Service Tools list.
	1/4-3	2	Addition to Service Tools illustrations.
	6/Cont-1	2	Additions as details following:
	6/1-1	2	Parking brake added to Technical Data.
	6/6-1	1	New page - New parking brake torque figures.
	6/6-2	1	New page - Parking brake caliper - removal and replacement.
	6/6-3	1	New page - Parking brake component list illustration.
	6/6-4	1	New page - Parking brake caliper - dismantling and assembly.
	6/6-5	1	New page - Parking brake caliper illustration.
	6/6-6	1	New page - Parking brake caliper - assembly.
	6/6-7	1	New page - Parking brake disc, removal and replacement.
	6/7-1	1	New page - Service procedures - Park brake, testing.
	6/7-2	1	New page - Service procedures - Park brake, adjustment.- Type A
	6/7-3	1	New page - Service procedures - Park brake, switch adjustment- Type A
	6/7-4	1	New page - Service procedures - Park brake adjustment - Type B
	6/7-5	1	New page - Service procedures - Park brake adjustment - Type B
	6/7-6	1	New page - Service procedures - renewing brake pads.

SD70/PT Axles Service Manual

Publication No. 9803/9280

Record of Changes

3rd Update

Date	Page	Issue	Changes
May 2001	Cover	4	Issue number raised.
	5/Cont i	2	Additions as details following.
	5/1-2	2	Trunnion Mounted added to Installation.
	5/2-3	1	New Page - Illustration - Description Cutaway of SD70/PT Axle - Central Drive Head (with Dropbox) added
	5/7-1	2	Page heading - (Pad Mounted) added.
	5/7-2	2	Page heading - (Pad Mounted) added.
	5/7-3	2	Page renumbered - illustration Central Drive Head (Trunnion Mounted) added.
	5/7-4	2	Page renumbered - New Text - Central Drive Head (Trunnion Mounted) added.
	5/7-5	1	New Page - Text Proximity Switch Settings Procedure moved from 7-3.
	5/7-6	1	New Page - Text/illustrations - Propshafts, Removal and Replacement move from 7-4.
	5/10-8	1	New Page - Central Drive Head - Drop Box (with no Park Brake - 2/4WD fitted).
	5/10-9	1	New Page - Central Drive Head - Drop Box (with no Park Brake - 2/4WD fitted).
	5/10-10	1	New Page - Drop Box (with no Park Brake -2/4WD fitted).
	5/10-11	1	New Page - Drop Box (with no Park Brake - 2/4WD fitted).
	5/10-12	1	New Page - Drop Box (with no Park Brake fitted)
	5/10-13	1	New Page - Drop Box (with Park Brake fitted).
	5/10-14	1	New Page - Drop Box (with Park Brake - 2/4WD fitted).
	5/10-15	1	New Page - Drop Box (with Park Brake - 2/4WD fitted).
	5/10-16	1	New Page - Drop Box (with P{ark Brake - 2/4WD fitted).
	5/10-17	1	New Page - Drop Box (with Park Brake - 2/4WD fitted).
	5/10-18	1	New Page - Drop Box (with Park Brake fitted (Yokes fitted to Driveshafts)).
	5/10-19	1	New Page - Drop Box (with Park Brake fitted (Yokes fitted to Driveshafts)).
	5/10-20	1	New Page - Drop Box (Optional 2/4WD Disconnect).

SD70/PT Axles Service Manual

Publication No. 9803/9280

Record of Changes

2nd Update

Date	Page	Issue	Changes
Dec 1998	Cover	3	Issue number raised.
	1/Cont i	2	Axle Build Identification was Limited Slip Differential.
	2/4-2	2	Warnings GEN-1-12 and GEN-1-13 added.

SD70/PT Axles Service Manual

Publication No. 9803/9280

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.

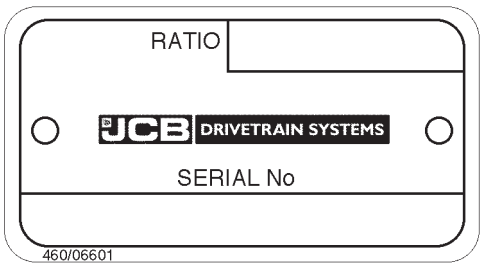
Use the contents list at the beginning of each section to find the exact page number.

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.

	Contents	Page No.
	Unit Identification	1 - 1
	Replacement Parts	1 - 1
*	Axle Build Identification	1 - 1
	Torque Settings	2 - 1
	Service Tools Numerical List	3 - 1
	Service Tools	4 - 1
	Sealing and Retaining Compounds	5 - 1

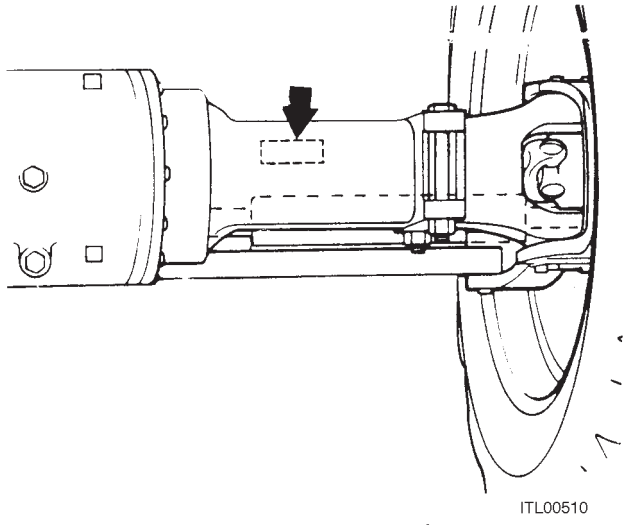
Unit Identification

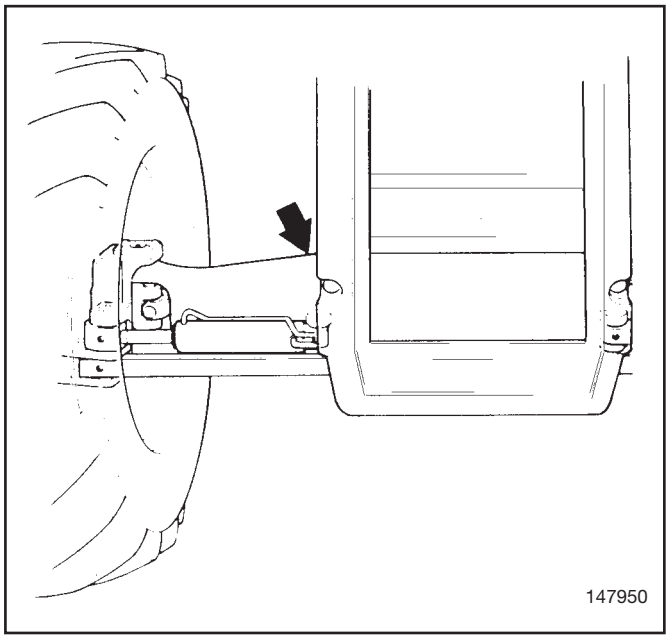


234620

Axle Serial Plate (Central Drive Head)

The axle serial number is stamped on a plate mounted to the front face of the axle, as shown.





Axle Serial Plate (Offset Drive Head)

The axle serial number is stamped on a plate mounted on the axle.

Replacement Parts

1 When replacement parts are required, always ensure that the correct parts are obtained, e.g. in the case of gear replacements, always check the part number stamped on the gear, and the number of teeth.

2 When ordering replacement parts, quote the details on the serial plate shown.

3 It is essential that all gaskets and seals removed while dismantling, should be renewed on reassembly.

4 On reassembly care should be taken that all parts are correctly replaced since any component omitted or incorrectly assembled can lead to a complete failure.

5 Lubricants should comply with the recommended list as provided in this manual. It is important to adhere to the oil changing procedure.

6 It is advisable to lightly lubricate with a recommended lubricant, parts such as gears, shafts, thrust washers and oil seals during reassembly.

* Axle Build Identification

To identify an axle build, the number on the axle data plate should be cross-referenced with the part number in the parts information.

Example:

450 / 2760 / 1 / 0091
A B C

A 450/2760: Axle assembly part number (450/27600) without the final zeros.

B /1: Internal issue number of the main manufacturing drawing.

C /0091: Axle serial number. The complete 12 digit number must be quoted for warranty purposes. The parts information will detail the number of friction plates required for the axle.

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.

Service Tools Numerical List

		Page No.
4003/0211	Anti-Seize Paste	5 - 1
4101/0250	Loctite 243	5 - 1
4101/0251	Loctite 242	5 - 1
4101/0451	Loctite 932	5 - 1
4101/0651	Loctite 648	5 - 1
4102/0551	Loctite 275	5 - 1
4102/1212	Loctite 574 or Permabond A136	5 - 1
4102/1951	Loctite 577	5 - 1
4103/0955	Superbonder	5 - 1
4104/0251	Activator (Aerosol)	5 - 1
4104/0253	Activator (Bottle)	5 - 1
4104/1557	Cleaner Degreaser	5 - 1
892/00174	Measuring Cup - Pinion Head Bearing	4 - 2
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892/00224	Impulse Extractor Set for Hub Bearing Seals	4 - 2
892/00333	Heavy Duty Socket	4 - 1
892/00334	Gland Seal Fitting Tool	4 - 2
892/00812	Drive Coupling Spanner	4 - 1
892/00817	Heavy Duty Socket	4 - 1
892/00818	Heavy Duty Socket	4 - 1
892/00819	Heavy Duty Socket	4 - 1
892/00822	Splined Bolt Socket	4 - 2
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992/00800	Extractor for Removing Axle Pivot Pin	4 - 2
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* 992/04800	Flange Spanner	4 - 3
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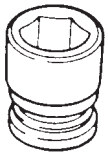
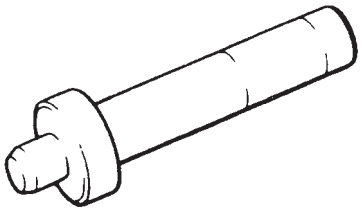
992/07604	Replacer - Crownwheel Bearing and Differential Cones	4 - 1
992/07606	Measuring Cup - Pinion Bearing	4 - 1
992/07607	Spacer - Pinion Bearing Preload	4 - 1
992/07609	Adapter - Steer/Drive Axle Pinion Bearing Cone	4 - 1
992/07614	Adapter Set - Bull Pinion Bearing Remover/Replacer	4 - 1
993/59500	Adapter - Impulse Extractor	4 - 3

Service Tools



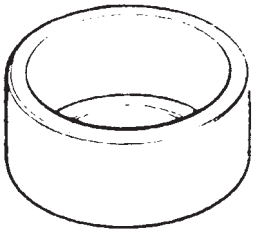
892/00817 17 mm A/F x 3/4 in square drive
892/00818 22 mm A/F x 3/4 in square drive
892/00819 15 mm A/F x 1/2 in square drive
892/00333 19 mm A/F x 3/4 in square drive



892/00182 Bearing Pad Driver

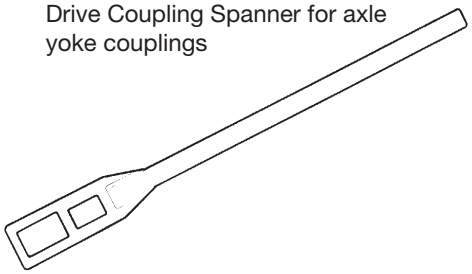
892/00174

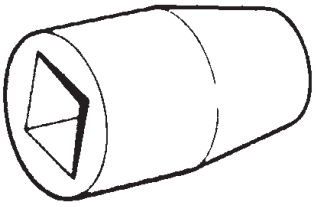
Measuring Cup - Pinion Head Bearing



S190770

892/00812 Drive Coupling Spanner for axle yoke couplings





892/00822

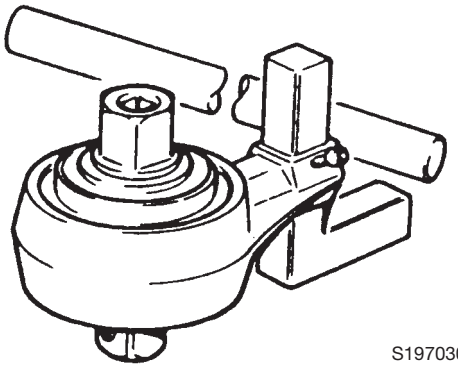
Splined Bolt Socket for driveshafts

S197060

S197070

892/00224

Impulse Extractor Set for Hub Bearing Seals

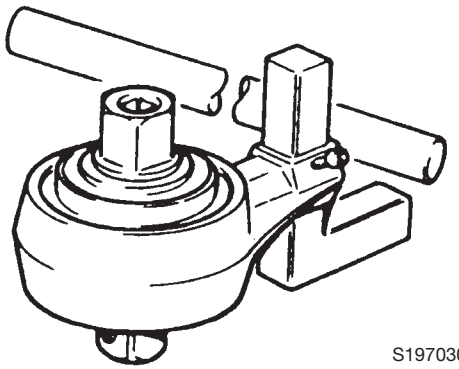


S197030

992/04000

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

Service Tools (cont'd)



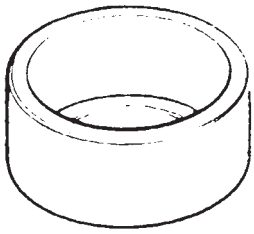
S197030

992/04000

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

892/00174

Measuring Cup - Pinion Head Bearing



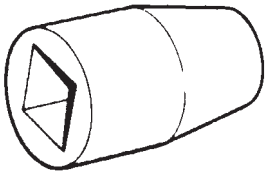
S190770

992/00800 Extractor for removing axle pivot pin

S197070

892/00224

Impulse Extractor Set for Hub Bearing Seals

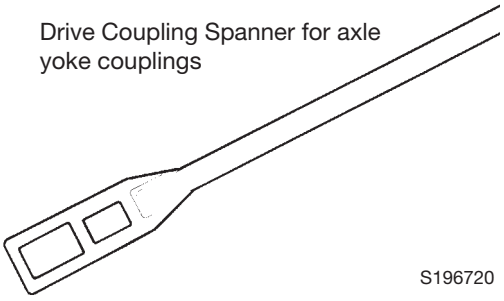


892/00822

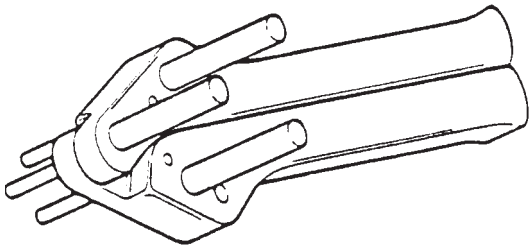
Splined Bolt Socket for driveshafts

S197060

892/00812 Drive Coupling Spanner for axle yoke couplings



S196720



892/00334 Gland Seal Fitting tool

Our support email:

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