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BLOCK 2: ADRESSE
BLOCK 3: KONTONUMMER
BLOCK 4: NAME DES KONTAKTES
BLOCK 5: TEILNUMMER DER WARTUNGSANLEITUNG
BLOCK 6: TITEL DER DRUCKSCHRIFT

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BLOCCO 3: NUMERO DI CONTO
BLOCCO 4: NOME INTERMEDIARIO
BLOCCO 5: NUMERO DI PART. MANUALE PER LE
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SERVICE MANUAL

Backhoe Loader

From M/C No. 337,001

JCB INC. 10939 Philadelphia Road, White Marsh, MD 21162-0209, USA (410) 335-2800
JCB EXCAVATORS Ltd. 3375, North Service Road, Unit 6, Burlington, Ontario L7N, CANADA (905) 335-3441

Publication No. 9803/3257J

Published by the Technical Publications Dept. of JCB Service, Rokester, Staffordshire, England.

GB

Service Manual

Publication No. 9803/3257

Excavator Loader

M/C No. 337001→

French

Manuel de service

Publication No. 9803/3257A

Chargeuse-pelleteuse

M/C No. 337001→

German

Wartungshandbuch

Druckschrift Nr. 9803/3257A

Baggerlader

M. Nr. 337001→

Spanish

Manual de reparaciones

Publicación No. 9803/3257A

Cargadora-Excavadora

Máquina No. 337001→

Italian

Manual di servizio

Publication No. 9803/3257B

Terna

Macchina No. 337,001→

Portuguese

Manual de assistência

Publication No. 9803/3257C

Retroescavadora

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USA

Service Manual

Publication No. 9803/3257U

Excavator Loader

M/C No. 337001→

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Introduction

This publication is designed for the benefit of JCB Distributor Service Engineers who are receiving, or have received, training by JCB Technical Training Department.

It is assumed that these personnel have a sound knowledge of workshop practice, safety procedures, and general techniques associated with the maintenance and repair of hydraulic earthmoving equipment. Therefore these basic subjects generally are omitted from this manual, the intention being to convey only more specialised information concerning particular aspects of a machine or component.

For example, renewal of oil seals, gaskets, etc., and any component showing obvious signs of wear or damage is expected as a matter of course, and therefore information of this nature is included only in the context of specialised procedures or where a range of wear tolerances is required. Similarly, it is expected that components will be cleaned and lubricated where appropriate, also that any opened hose or pipe connections will be blanked to prevent excessive loss of hydraulic fluid and ingress of dirt.

For convenience this manual is compiled in sections, e.g. "Hydraulics", "Electrics", etc. but, to find details of a specific component, reference should be made to the alphabetical index at the back of the book.

Illustrations which show a dismantled component are numbered as a guide to the dismantling sequence, which generally can be reversed for assembly.

Torque settings are given as a 'mean' figure which 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.

References to alternative servicing intervals are to be treated on a "whichever occurs first" basis.

Colour Coding

The following colour coding, used on illustrations to denote various conditions of oil pressure and flow, is standardised throughout JCB Service Publications.



Blue: Neutral Circuit Pressure.

Light Green: Oil subjected to a partial vacuum due to a drop in pressure (cavitation).



Red: Pressure generated by the operation of a service. Depending on application this may be anything between Neutral Circuit Pressure and M.R.V. Operating Pressure.

Yellow: Oil trapped within a chamber or line, preventing movement of components (lock-up).



Pink: Pressure that is above Neutral Circuit Pressure but lower than that denoted by Red.



Orange: Oil pressure used in a controlling device (servo).



Green: Exhaust.

LUBRICANTS AND CAPACITIES

Note: To promote thorough running-in, engines of new machines are filled at the factory with JCB 10W/30 Multigrade Oil. This oil should be drained after the first 100 hours of operation and the engine filled with the recommended grade shown in the engine lubrication chart. JCB 10W/30 should be used also for the first 100 hours operation whenever a new or reconditioned engine is installed in a machine. Alternatively, when a new or reconditioned engine requires protection against corrosion during prolonged storage, Mobilarma 524 may be used during the storage period, and during the first 100 hours use thereafter. It is essential that both these oils are replaced by the recommended lubricant after the first 100 hours operation.

ITEM	LUBRICANT	CAPACITY		
		Litres	UK gal	US gal
ENGINE Naturally Aspirated & Turbo	See Separate Chart (overleaf)	11.0	2.42	2.90
SYNCHRO SHUTTLE 2WD 4WD	JCB Special Transmission Fluid	18.8 21.0	4.1 4.6	4.9 5.5
FRONT AXLE Differential Hubs (each)	†† JCB HD90 Gear Oil	15.0 1.30	3.30 0.29	3.96 0.35
FRONT AXLE (from m/c serial no. 351001) Differential Hubs (each)	†† JCB HD90 Gear Oil	19 1.5	4.18 0.33	5.02 0.40
REAR AXLE Differential	JCB Special Gear Oil	28.0	6.2	7.4
REAR AXLE (from m/c serial no.351001)	JCB Special Gear Oil	25	5.5	6.6
SLEW GEARBOX Sideshift only	†† JCB HD90 Gear Oil	4.30	0.95	1.14
HYDRAULIC SYSTEM Below 38 °C Above 38 °C Standard Machine 1700B with Twin Ram Slew	JCB Special Hydraulic Fluid JCB High Performance Hydraulic Fluid	118.0 138.0	26.0 30.4	31.0 36.4
Note: The capacity quoted is approximate, and will vary with the attachments fitted. Fill with rams closed.				
BRAKE SYSTEM	JCB Light Hydraulic Fluid	1.2	0.27	0.32
BRAKE SYSTEM (from m/c serial no.351001) Basic Machine Servo Machine	JCB Light Hydraulic Fluid	1.0 1.5	0.22 0.33	0.26 0.40
CAUTION: Do not use conventional brake fluid.				
BOOM/SLEW LOCK (remotely operated)	JCB Light Hydraulic Fluid			
CAUTION: Do not use conventional brake fluid.				
EXTENDING DIPPER Without Replaceable Wear Pads With Replaceable Wear Pads	JCB Extradig Dipper Lubricant (See WARNING overleaf) Waxyol (See WARNING overleaf)			
GREASE POINTS	††† JCB Special MPL Grease			
COOLING SYSTEM	See Page 5/5-1 for Anti-freeze recommendations	17.0	3.74	4.5

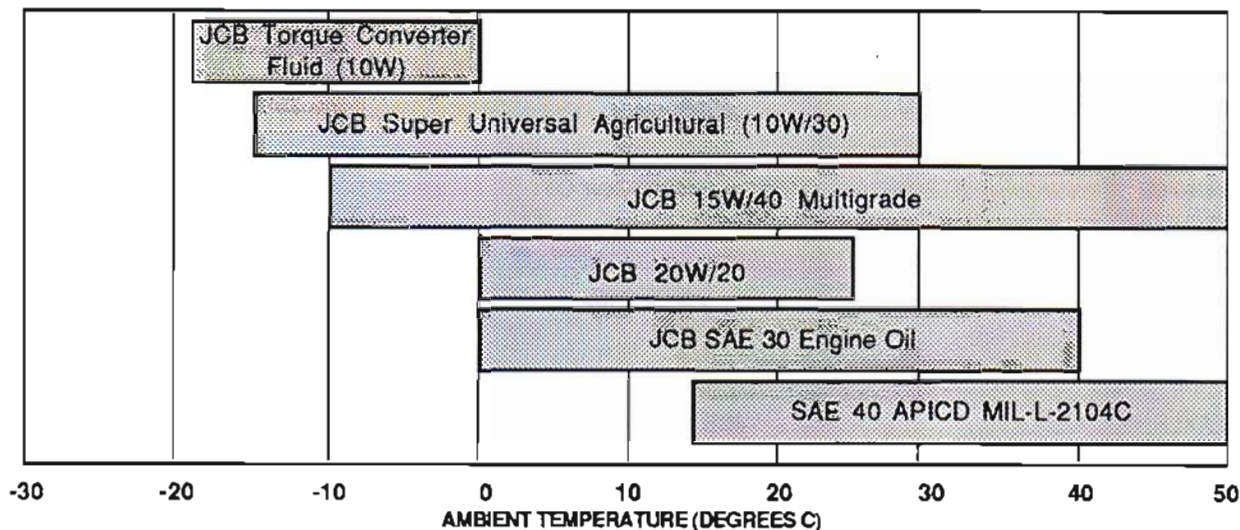
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LUBRICANTS AND CAPACITIES (cont'd)

ITEM	LUBRICANT	CAPACITY		
		Litres	UK gal	US gal
FUEL		90	19.8	23.8

ELECTRICAL CONNECTIONS As a corrosion and moisture inhibitor all exposed connections should be coated liberally with petroleum jelly

PERKINS 1000 SERIES ENGINES MODELS AA, AB, AC - LUBRICATION CHART



WARNING

Waxoyl contains turpentine substitute, which is flammable. Keep flames away when applying Waxoyl. Waxoyl can take a few weeks to dry completely. Keep flames away during the drying period.

Do not weld near the affected area during the drying period. Take the same precautions as for oil to keep Waxoyl off your skin. Do not breathe the fumes. Apply in a well-ventilated area.
GEN-008

WARNING

JCB Extradig dipper lubricant contains 1.53% lead. The repeated swallowing of very small quantities can cause chronic lead poisoning. Do not smoke or touch food while handling this lubricant. Dispose of waste (rags etc.) in accordance with local regulations.

GEN-010

Note: All Engine oils meet the following specifications:

- API CD
- MIL-L-2104C and MIL-L-2104D
- MIL-L-46152

†† JCB HD90 Gear Oil meets specifications API-GL-5 and MIL-L-2105C

††† JCB Special MPL Grease is a lithium based No.2 consistency grease

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 (AF) 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 (AF) 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

Rivet Nut Bolts/Screws

Bolt Size	(mm)	Nm	Torque Settings (for steel rivet nuts)	
			kgf m	lbf ft
M3	(3)	1.2	0.12	0.9
M4	(4)	3.0	0.3	2.0
M5	(5)	6.0	0.6	4.5
M6	(6)	10.0	1.0	7.5
M8	(8)	24.0	2.5	18.0
M10	(10)	48.0	4.9	35.5
M12	(12)	82.0	8.4	60.5

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

SERVICE SCHEDULES**EVERY 10 OPERATING HOURS OR DAILY
whichever occurs first****Clean**

- 1 Machine generally
- 2 Engine air filter pre-cleaner (if fitted)

Check and adjust where necessary (Engine stopped)

- 1 Generally for damage
- 2 Engine coolant level and condition
- 3 Hydraulic fluid level
- 4 Hydraulic system for leaks
- 5 Syncro Shuttle oil level
- 6 Engine oil level and condition
- 7 Engine generally for leaks
- 8 Tyre pressures and condition
- 9 Tightness of wheel nuts
- 10 Brake fluid level
- 11 Windscreen washer level
- 12 Parking brake lever operation
- 13 Warning lights operation
- 14 Audible alarm
- 15 Seat belt condition and security (if fitted)

Check and adjust where necessary (Engine running)

- 1 Instrument readings
- 2 Operation of all electrical equipment
- 3 Exhaust for excessive smoke
- 4 Footbrake operation
- 5 Transmission operation
- 6 Steering operation
- 7 Operation of all hydraulic services
- 8 Optional equipment (as required)

Grease

- 1 Steer axle - yoke pivot
- 2 - king pins and bushes
- 3 - hubs (2WD only)
- 4 - track rod ends
- 5 - universal joints (4WD only)
- 6 - steering ram
- 7 All pivot pins
- 8 Kingpost and carriage
- 9 6 in 1 clam shovel (if fitted)
- 10 Excavator Quick-Hitch (if fitted)
- 11 Loader Quick-Hitch (if fitted)

Drain

- 1 Water from slew gearbox (only if operating in below zero conditions)

**EVERY 50 OPERATING HOURS OR WEEKLY
whichever occurs first****Do the daily jobs plus:-****Clean**

- 1 Fuel sediment bowl
- 2 Twin ram slew area
- 3 Battery terminals

Check and adjust where necessary (Engine stopped)

- 1 Front and rear axle for oil leaks
- 2 Front hubs for oil leaks (4WD only)
- 3 Hydraulic oil cooler connections
- 4 Transmission oil cooler connections
- 5 Radiator hoses and condition
- 6 Fan belt tension
- 7 Sideshift slew gearbox for oil leaks (check level if leaking)
- 8 Remote boom/slew lock hydraulic level
- 9 Optional equipment (as required)
- 10 Condition of ram piston rods
- 11 Condition of pump drive
- 12 Hoses and pipework for chafing and damage
- 13 Air cleaner hose security
- 14 Wiring for chafing
- 15 Extra-dig dipper wear pads
- 16 Fuel system for leaks/contamination

Note: Item 15 is only for machines fitted with adjustable wear pads.

Grease

- 1 Driveshafts - universal and sliding joints
- 2 Extending dipper

Oil

- 1 All linkage points
- 2 All cables
- 3 All hinges

Drain

- 1 Fuel filter
- 2 Fuel sediment trap

Note: For instructions on servicing vacuum servo brake units refer to Page 8/7-1.

SERVICE SCHEDULES (continued)**INITIAL 100 HOUR SERVICE (NEW MACHINES ONLY)**

Do the Daily to 50 hour jobs plus:-

Clean

Fuel lift pump

Check and adjust where necessary (Engine stopped)

- 1 Front and rear axle oil levels
- 2 Front hub oil levels (4WD only)
- 3 Exhaust system security
- 4 All mounting bolts for tightness
- 5 Battery terminals
- 6 Battery electrolyte level
- 7 Battery charge condition
- 8 Coolant for leaks and antifreeze strength
- 9 Parking brake adjustment
- 10 Security of teeth and sidecutters
- 11 Glazing for correct fit and sealing
- 12 Condition of doors and hinges
- 13 Door and bonnet locks
- 14 Seat belts
- 15 Slew gearbox oil levels (sideshift machines only)

Check and adjust where necessary (Engine running)

- 1 M.R.V. pressure
- 2 A.R.V. pressures
- 3 Offloading valve pressure
- 4 Steering relief valve pressure
- 5 Idling speed
- 6 Maximum governed speed
- 7 Pulled down speed
- 8 Fuel system for leaks/contamination
- 9 Clutch oil pressures
- 10 Torque converter main line pressure
- 11 Front wheel hub bearings
- 12 King pins and bushes
- 13 Operation of hose burst protection valves (if fitted)

Change

- 1 Engine oil
- 2 Engine oil filter element
- 3 Fuel filter element
- 4 Hydraulic oil filter element
- 5 Transmission oil filter

Note: For instructions on servicing vacuum servo brake units refer to Page 8/7-1.

EVERY 250 OPERATING HOURS OR THREE MONTHS whichever occurs first

Do the Daily to 100 hour jobs plus:-

Change

- 1 Fuel filter element

EVERY 500 OPERATING HOURS OR SIX MONTHS whichever occurs first

Do the Daily to 50 hour jobs plus:-

Clean

- 1 Fuel lift pump
- 2 Cab heater filter

Check and adjust where necessary (Engine stopped)

- 1 Exhaust system security
- 2 All mounting bolts for tightness
- 3 Parking brake adjustment
- 4 Pivot pins and bushes
- 5 Front wheel hub bearings
- 6 King pins and bushes
- 7 Driveshafts
- 8 Slew gearbox oil level (sideshift machines only)
- 9 Battery electrolyte level

Check and adjust where necessary (Engine running)

- 1 Idling speed
- 2 Maximum governed speed
- 3 Pulled down speed
- 4 Maximum no-load speed
- 5 M.R.V. pressure
- 6 A.R.V. pressures
- 7 Steering relief valve pressure
- 8 Offloading valve pressure
- 9 Servo pressure
- 10 Clutch oil pressure
- 11 Torque converter main line pressure
- 12 Hose burst protection valve operation
- 13 Attachment circuit pressure

Change

- 1 Engine oil (see Note)
- 2 Engine oil filter (see Note)
- 3 Hydraulic fluid filter element
- 4 Transmission oil filter

Note: If operating under arduous conditions, change every 250 hours.

**EVERY 1000 OPERATING HOURS OR YEARLY
whichever occurs first**

Do the Daily to 500 hour jobs plus:-

Clean

- 1 Air cleaner dust valve

*** Check and adjust where necessary (Engine stopped)**

- 1 Optional equipment (as required)
- 2 Coolant quality

Change

- 1 Air cleaner outer element
- 2 Transmission oil (clean strainer)
- 3 Axles - oil
- 4 Hubs - oil

**EVERY 2000 OPERATING HOURS OR 2 YEARS
whichever occurs first**

Do the Daily to 1000 hour jobs plus:-

Clean

- 1 Engine injectors (and test)
- 2 Turbocharger impeller and compressor casings

*** Check and adjust where necessary (Engine stopped)**

- 1 Valve clearances
- 2 Compression
- 3 Exhauster operation

Change

- 1 Air cleaner inner element
- 2 Hydraulic fluid (clean tank breather and suction strainer)
- 3 Brake system fluid
- 4 Coolant

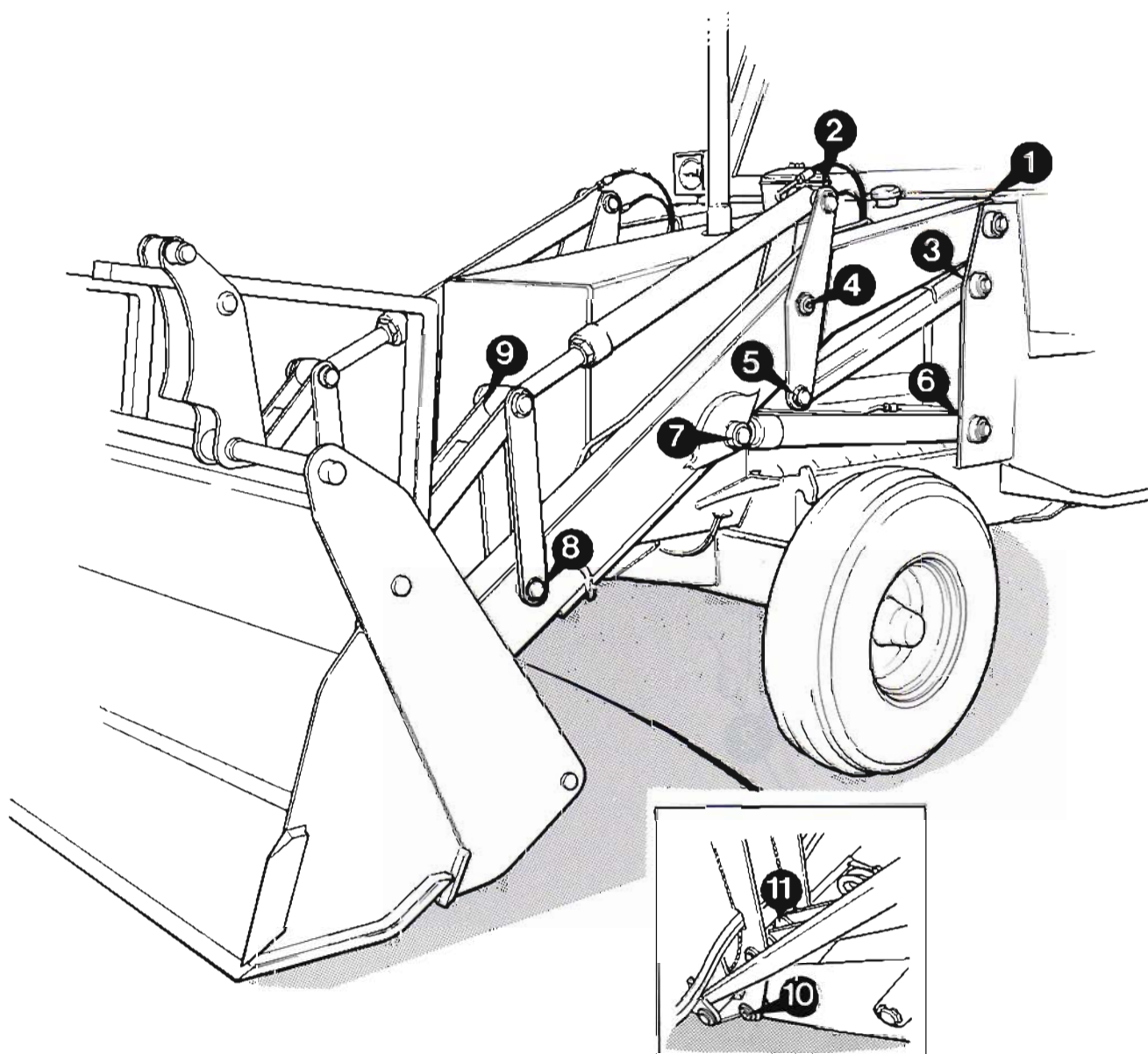
GREASING

Loader Arms - for Interval see Service Schedule

For each grease point there is another on the other side of the machine.

11 grease points each side -
Total 22 grease points.

Normally two strokes of the grease gun should be sufficient.
Stop greasing when fresh grease appears at the joint.



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GREASING

6 - in - 1 Clamshovel - for Interval see Service Schedule

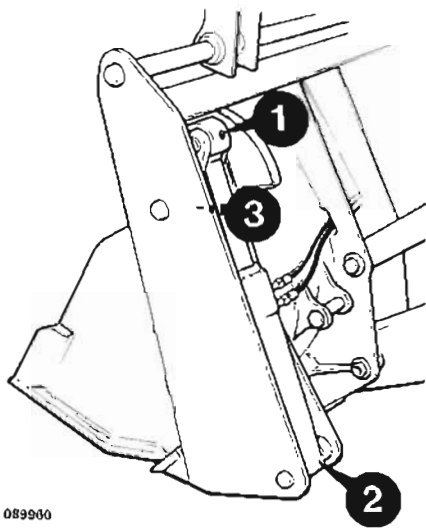
Excavator Quick-Hitch - for Interval see Service Schedule

For each grease point there is another at the other end of the bucket.

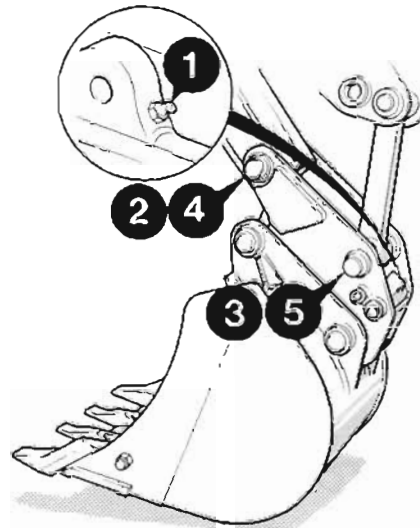
For grease points 2 and 3 there is another on the opposite side of the Quick-Hitch (4 and 5).

3 grease points each side -
Total 6 grease points.

Total 5 Grease Points



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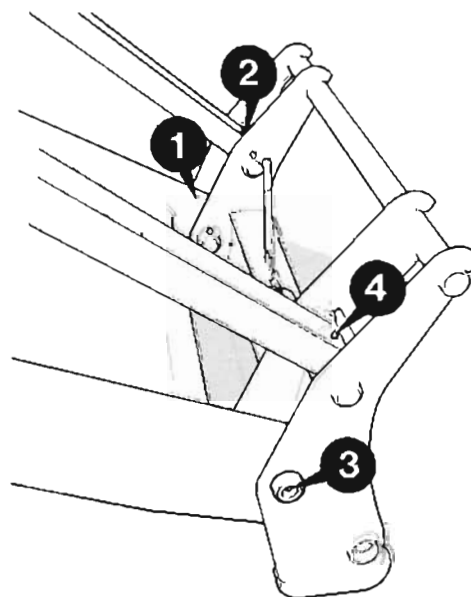
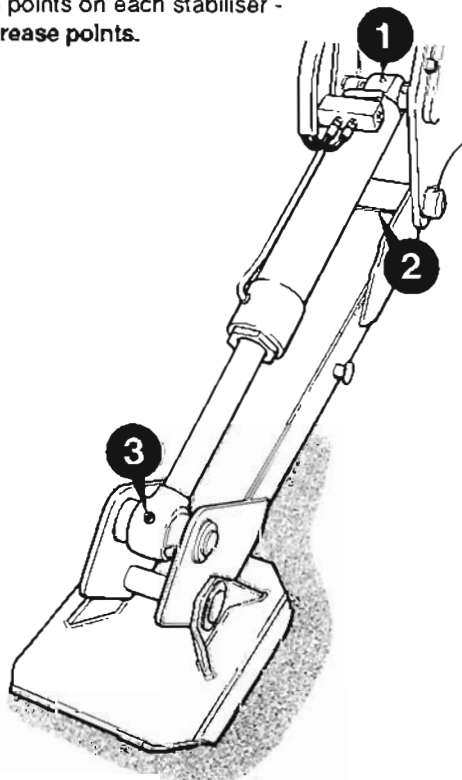
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Stabilisers (Centremount Machines) - for Interval see Service Schedule

Loader Quick-Hitch - for Interval see Service Schedule

3 grease points on each stabiliser -
Total 6 grease points.

2 grease points each side -
Total 4 Grease Points.



GREASING

Excavator (Sideshift Machines) - for Interval see Service Schedule

20 Grease Points

Note: Do not grease the kingpost mounting rails.

