

## 9060B Excavator Service Manual No. 7-65272

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# LOCTITE PRODUCT CHART

Product	Color	Similar Products	Gap (In Inches)	Strength (Steel/Steel)	Working Temperature Range-Fahrenheit	Fixture/Full Cure (Steel/Steel) Time	Primer	Description
#3	Dark Brown					24 hr	N/A	Form a Gasket (works with oil, fuel or grease) Pliable
80	Yellow					Fast	N/A	Weatherstrip Adhesive
123	Clear					N/A	N/A	Parts Cleaner Fluid
220	Blue	290	0.003	57/143 in lbs	-65 to +250	6 min/24 hrs	747	Wicking Threadlocker
221	Purple	222	0.005	75/44 in lbs	-65 to +300	2 min/24 hrs	747	Low Strength Threadlocker
222	Purple		0.005	53/30 in lbs	-65 to +300	20 min/24 hrs	764	Low Strength Threadlocker (Small Screws)
225	Brown	222	0.010	45/25 in lbs	-65 to +300	7 min/24 hrs	747	Low Strength Threadlocker
242	Blue		0.005	80/50 in lbs	-65 to +300	10 min/24 hrs	764	Medium Strength Threadlocker
262	Red	271	0.005	160/190 in lbs	-65 to +300	5 min/24 hrs	747	High Strength Threadlocker
270	Green	271	0.007	160/320 in lbs	-65 to +300	3 min/24 hrs	747	High Strength Threadlocker
271	Red	262	0.007	160/320 in lbs	-65 to +300	10 min/24 hrs	764	High Strength Threadlocker
272	Red	620	0.007	180/220 in lbs	-65 to +450	30 min/24 hrs	764	High Temperature, High Strength
275	Green	277	0.010	210/300 in lbs	-65 to +300	3 min/24 hrs	747	High Strength Threadlocker
277	Red		0.010	225/300 in lbs	-65 to +300	60 min/24 hrs	764	High Strength Threadlocker
290	Green		0.003	85/350 in lbs	-65 to +300	6 min/24 hrs	764	Wicking Threadlocker
*404	Clear	495	0.006	3200 psi	-65 to +180	30 sec/24 hrs	NA	Instant Adhesive
*406	Clear		0.004	3200 psi	-65 to +180	15 sec/24 hrs	N/A	Surface Insensitive Adhesive
*409	Clear	454	0.008	2500 psi	-65 to +180	50 sec/24 hrs	N/A	Gel Instant Adhesive
*414	Clear		0.006	2500 psi	-65 to +180	30 sec/24 hr	N/A	Instant Adhesive
*415	Clear	454	0.010	2500 psi	-65 to +180	50 sec/24 hrs	N/A	Gap Filling Instant Adhesive (Metals)
*416	Clear	454	0.010	2500 psi	-65 to +180	50 sec/24 hrs	N/A	Gap Filling Instant Adhesive (Plastics)
*420	Clear		0.002	2500 psi	-65 to +180	15 sec/24 hrs	N/A	Wicking Instant Adhesive
*422	Clear	454	0.020	2800 psi	-65 to +180	60 sec/24 hrs	N/A	Gap Filling Instant Adhesive
*430	Clear		0.005	2500 psi	-65 to +180	20 sec/24 hrs	N/A	Metal Bonding Adhesive
*445	White/Black		0.250	2000 psi	-65 to +180	5 min/24 hrs	N/A	Fast Setting 2 Part Epoxy
*454	Clear		0.010	3200 psi	-65 to +180	15 sec/24 hrs	N/A	Surface Insensitive Gen Instant Adhesive
*495	Clear		0.004	2500 psi	-65 to +180	20 sec/24 hrs	N/A	General Purpose Instant Adhesive
*496	Clear		0.005	2500 psi	-65 to +180	20 sec/24 hrs	N/A	Metal Bonding Adhesive
504	Brt Orange	515	0.030	750 psi	-65 to +300	90 min/24 hrs	None	Rigid Gasket Eliminator
509	Light Blue		0.020	750 psi	-65 to +320	6 hr/72 hrs	764	Flange Sealant
510	Red		0.020	1000 psi	-65 to +400	30 min/24 hrs	764	High Temperature, Gasket Eliminator
515	Purple		0.010	750 psi	-65 to +300	1 hr/24 hrs	764	Gasket Eliminator 515

Rac 8-98902

\* Products 404-496 (except for #445) are all instant adhesives (super glues) they differ mostly in viscosity

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# LOCTITE PRODUCT CHART

Product	Color	Similar Products	Gap (In Inches)	Strength (Steel/Steel)	Working Temperature Range-Fahrenheit	Fixture/Full Cure (Steel/Steel) Time	Primer	Description
518	Red	515	0.030	500psi	-65 to +300	1 hr/24 hrs	764	Gasket Eliminator 518 for Aluminum
542	Brown	569	N/A	132/92 in lbs	-65 to +300	2 hr/24 hrs	747	Hydraulic Sealant
545	Purple		N/A	25/20 in lbs	-65 to +300	4 hr/24 hrs	747	Low Strength Pneumatic/Hydraulic Sealant
549	Orange	504	0.020	2500 psi	-65 to +300	2 hr/24 hrs	747	Instant Seal Plastic Gasket
554	Red	277	0.015	240/240 in lbs	-65 to +300	2 to 4 hrs/24 hrs	764	Refrigerant Sealant
567	White	592	N/A	500 psi	-65 to +400	4 hrs/24 hrs	764	Pipe Sealant for Stainless Steel
568	Orange	277	0.015	2500 psi	-65 to +300	12 hrs/24 hrs	764	Plastic Gasket
569	Brown	545	0.010	40/25 in lbs	-65 to +300	1 hr/24 hrs	764	Hydraulic Sealant
570	Brown	592	N/A	25/40 in lbs	-65 to +300	6 hrs/72 hrs	764	Steam Sealant
571	Brown	592	0.015	40/20 in lbs	-65 to +300	2 to 4 hrs/24 hrs	764	Pipe Sealant
572	White	578.575	N/A	80/27 in lbs	-65 to +300	24 hrs/72 hrs	None	Gasketing
592	White		0.020	500 psi	-65 to +400	4 hrs/72 hrs	736	Pipe Sealant with Teflon
593	Black		0.250	400 psi	-95 to +400	30 min/24 hrs	N/A	RTV Silicone
601	Green	609	0.005	3000 psi	-65 to +300	10 min/24 hrs	764	Current PIN #609
609	Green		0.005	3000 psi	-65 to +300	10 min/24 hrs	764	General Purpose Retaining Compound
620	Green	640	0.015	3000 psi	-65 to +450	30 min/24 hrs	747	High Temperature Retaining Compound
635	Green	680	0.010	4000 psi	-65 to +300	1 hr/24 hrs	747	High Strength Retaining Compound
638	Green	680	0.015	4100 psi	-65 to +300	10 min/24 hrs	747	High Strength Retaining Compound
640	Green	620	0.007	3000 psi	-65 to +400	1 hr/24 hrs	747	High Temperature Retaining Compound
660	Silver		0.020	3000 psi	-65 to +300	20 min/24 hrs	764	Quick Metal
675	Green	609	0.005	3000 psi	-65 to +300	20 min/24 hrs	747	General Purpose Retaining Compound
680	Green	635	0.015	4000 psi	-65 to +300	10 min/24 hrs	747	High Strength Retaining Compound
706	Clear	755	N/A	N/A	N/A	N/A	N/A	Cleaning Solvent
707	Amber		N/A	N/A	N/A	N/A	N/A	Activator for Structural Adhesives
736	Amber		N/A	N/A	N/A	N/A	N/A	Primer NF
738	Amber		N/A	N/A	N/A	N/A	N/A	Depend Activator
747	Yellow	N/A	N/A	N/A	N/A	N/A	N/A	Primer T
751	Clear		N/A	N/A	N/A	N/A	N/A	Activator for Structural Adhesives
755	Clear		N/A	N/A	N/A	N/A	N/A	Cleaning Solvent
764	Green		N/A	N/A	N/A	N/A	N/A	Primer N
767	Silver		N/A	N/A	-65 to +1600	N/A	N/A	Anti-Seize Lubricant

# Section 1001

**SAFETY, GENERAL INFORMATION  
AND TORQUE SPECIFICATIONS**

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## SAFETY

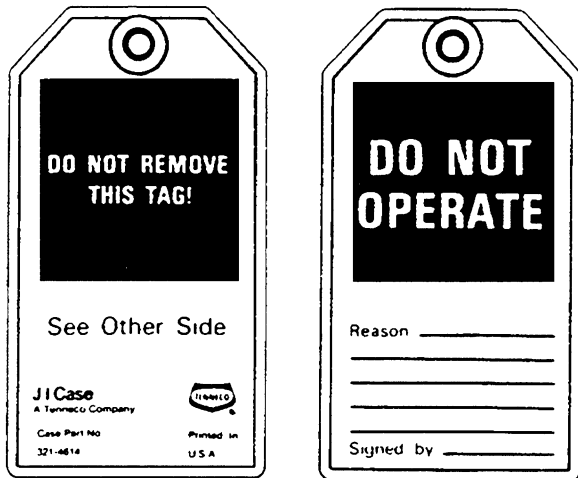


*This symbol means ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED. The message that follows the symbol contains important information about safety. Carefully read the message. Make sure you fully understand the causes of possible injury or death.*

SB001

To prevent injury always follow the Warning, Caution and Danger notes in this section and throughout the manual.

Put the warning tag shown below on the key for the keyswitch when servicing or repairing the machine. One warning tag is supplied with each machine. Additional tags Part Number 331-4614 are available from your service parts supplier.



1001-01



**WARNING:** Read the operator's manual to familiarize yourself with the correct control functions.

46-27



**WARNING:** Operate the machine and equipment controls from the seat position only. Any other method could result in serious injury.

48-55



**WARNING:** This is a one man machine, no riders allowed.

35-8



**WARNING:** Before starting engine, study Operator's Manual safety messages. Read all safety signs on machine. Clear the area of other persons. Learn and practice safe use of controls before operating.

It is your responsibility to understand and follow manufacturers instructions on machine operation, service and to observe pertinent laws and regulations. Operator's and Service Manuals may be obtained from your Case dealer.

SA055



**WARNING:** If you wear clothing that is too loose or do not use the correct safety equipment for your job, you can be injured. Always wear clothing that will not catch on objects. Extra safety equipment that can be required includes hard hat, safety shoes, ear protection, eye or face protection, heavy gloves and reflector clothing.

45-3A



**WARNING:** When working in the area of the fan belt with the engine running, avoid loose clothing if possible, and use extreme caution.

35-4



**WARNING:** When doing checks and tests on the equipment hydraulics, follow the procedures as they are written. DO NOT change the procedure.

47-44



**WARNING:** When putting the hydraulic cylinders on this machine through the necessary cycles to check operation or to remove air from a circuit, make sure all people are out of the way.

47-45



**WARNING:** Use insulated gloves or mittens when working with hot parts. 47-41A



**CAUTION:** Lower all attachments to the ground or use stands to safely support the attachments before you do any maintenance or service. 49-11



**CAUTION:** Pin sized and smaller streams of hydraulic oil under pressure can penetrate the skin and result in serious infection. If hydraulic oil under pressure does penetrate the skin, seek medical treatment immediately. Maintain all hoses and tubes in good condition. Make sure all connections are tight. Make a replacement of any tube or hose that is damaged or thought to be damaged. **DO NOT** use your hand to check for leaks, use a piece of cardboard or wood. 40-6A



**CAUTION:** When removing hardened pins such as a pivot pin, or a hardened shaft, use a soft head (brass or bronze) hammer or use a driver made from brass or bronze and a steel head hammer. 46-17



**CAUTION:** When using a hammer to remove and install pivot pins or separate parts using compressed air or using a grinder, wear eye protection that completely encloses the eyes (approved goggles or other approved eye protectors). 46-13



**CAUTION:** Use suitable floor (service) jacks or chain hoist to raise wheels or tracks off the floor. Always block machine in place with suitable safety stands. 40-7A



**CAUTION:** When servicing or repairing the machine, keep the shop floor and operator's compartment and steps free of oil, water, grease, tools, etc. Use an oil absorbing material and/or shop cloths as required. Use safe practices at all times. 40-8



**CAUTION:** Some components of this machine are very heavy. Use suitable lifting equipment or additional help as instructed in this Service Manual. 40-10



**DANGER:** Engine exhaust fumes can cause death. If it is necessary to start the engine in a closed place, remove the exhaust fumes from the area with an exhaust pipe extension. Open the doors and get outside air into the area. 48-56



**WARNING:** When the battery electrolyte is frozen, the battery can explode if (1), you try to charge the battery, or (2), you try to jump start and run the engine. To prevent the battery electrolyte from freezing, try to keep the battery at full charge. If you do not follow these instructions, you or others in the area can be injured. SA033



## GENERAL INFORMATION

### CLEANING

Clean all metal parts except bearings, in a suitable cleaning solvent or by steam cleaning. Do not use caustic soda for steam cleaning. After cleaning, dry and put oil on all parts. Clean oil passages with compressed air. Clean bearings in a suitable cleaning solvent, dry the bearings completely and put oil on the bearings.

### INSPECTION

Check all parts when the parts are disassembled. Replace all parts that have wear or damage. Small scoring or grooves can be removed with a hone or crocus cloth. Complete a visual inspection for indications of wear, pitting and the replacement of parts necessary to prevent early failures.

### BEARINGS

Check bearings for easy action. If bearings have a loose fit or rough action replace the bearing. Wash bearings with a suitable cleaning solvent and permit to air dry. **DO NOT DRY BEARINGS WITH COMPRESSED AIR.**

### NEEDLE BEARINGS

Before you press needle bearings in a bore always remove any metal protrusions in the bore or edge of the bore. Before you press bearings into position put petroleum jelly on the inside and outside diameter of the bearings.

### GEARS

Check all gears for wear and damage. Replace gears that have wear or damage.

### OIL SEALS, O-RINGS AND GASKETS

Always install new oil seals, O-rings and gaskets. Put petroleum jelly on seals and O-rings.

### SHAFTS

Check all shafts that have wear or damage. Check the bearing and oil seal surfaces of the shafts for damage.

### SERVICE PARTS

Always install genuine Case service parts. When ordering refer to the Parts Catalog for the correct part number of the genuine Case replacement items. Failures due to the use of other than genuine Case replacement parts are not covered by warranty.

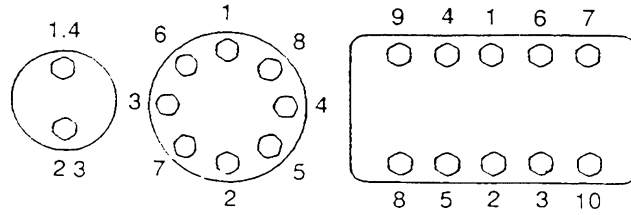
### LUBRICATION

Only use the oils and lubricants specified in the Operator's or Service Manuals. Failures due to the use of non-specified oils and lubricants are not covered by warranty.

# STANDARD TORQUE DATA FOR CAP SCREWS AND NUTS

## TIGHTENING OF CAP SCREWS, NUTS

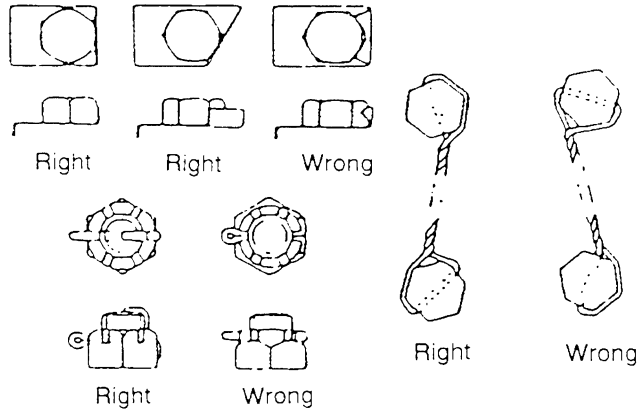
Tighten alternately so that tightening torque can be applied evenly. The numbers in the figure below indicate the order of tightening.



1001-02

Apply engine oil to the thread portion of the cap screw so that uniform tightening torque is obtained.

The cap screws and nuts that cannot be inspected externally or those as indicated in the assembly/installation sections should be safetied with lockwire, cotter pin or bent washer.



1001-03

Cap screws which have had Loctite used (white residue remains after removal) should be cleaned with light oil or suitable cleaning solvent and dried. Apply 2-3 drops of Loctite to the thread portion of the cap screw and then tighten.

## TORQUE TABLE

Tighten cap screws and nuts according to the table below if there are no other special instructions.

Cap Screw Name Size (Size)			M6	M8	M10	M12	M14	M16	M18	M20
<b>Cap Screw</b>	Spanner	[mm]	10	13	17	19	22	24	27	30
		[in.]	0.39	0.51	0.67	0.75	0.87	0.95	1.06	1.18
	Tightening torque	[Nm]	6.9	15.7	32.3	58.8	98.0	137.2	196.0	274.0
		[lb-ft]	5.1	11.6	23.9	43.4	72.3	101.2	144.6	202.4
<b>Socket Head Cap Screw</b>	Spanner	[mm]	5	6	8	10	12	14	14	17
		[in.]	0.20	0.24	0.32	0.39	0.47	0.55	0.55	0.67
	Tightening torque	[Nm]	8.8	21.6	42.1	78.4	117.6	176.4	245.0	343.0
		[lb-ft]	6.5	15.9	31.1	57.8	86.8	130.1	180.8	253.1



# **Section 1002**

## **SPECIFICATIONS**

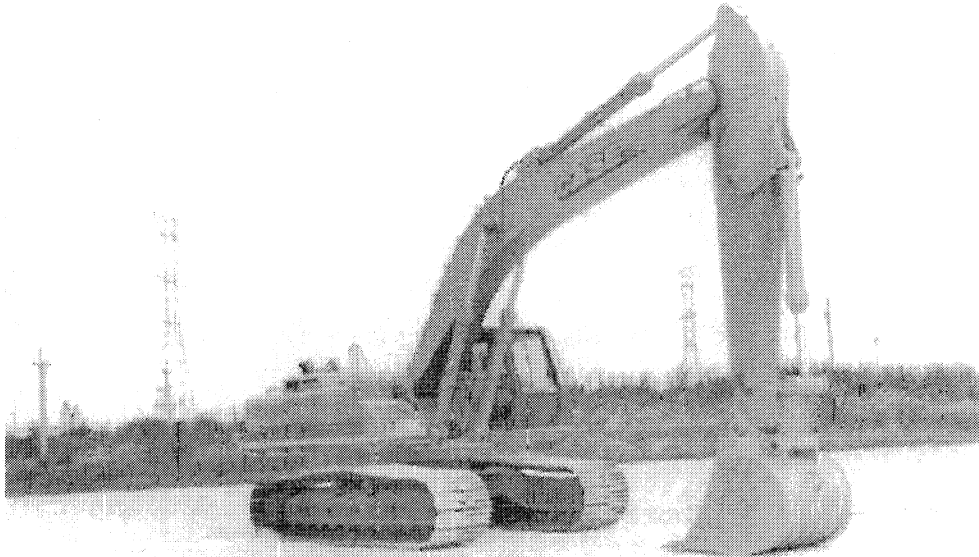
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**IMPORTANT:** *This engine was made by using the metric system. All measurements and checks must be made with metric tools to make sure of accurate readings when inspecting parts.*

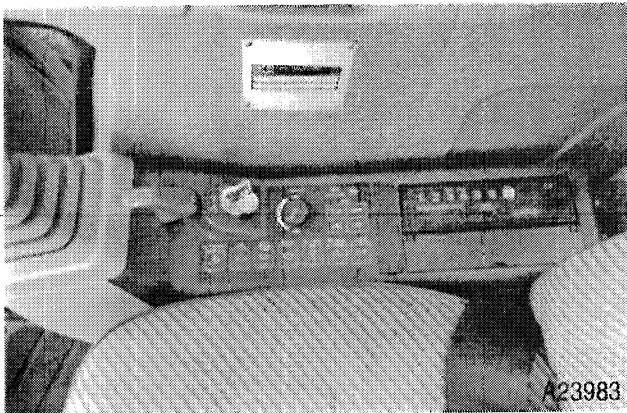
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# MODEL AND PIN NUMBERS

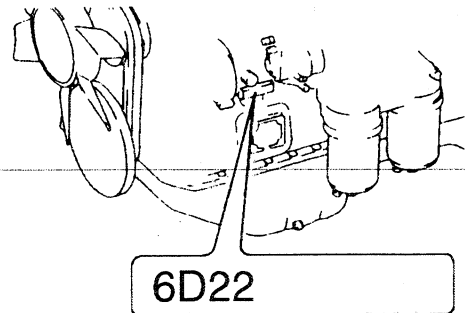
When ordering parts or when requesting information or assistance, always give the identification numbers of your machine. Write the model and PIN numbers of your machine on the lines below.



RP95G131



A23983



JS01443A

Machine Model Number \_\_\_\_\_

Machine PIN Number \_\_\_\_\_

Engine Serial Number \_\_\_\_\_

## GENERAL SPECIFICATIONS

### Capacities

Engine Crank Case Capacity .....	29 liters	7.7 US gallons
Engine Cooling System .....	49 liters	13 US gallons
Fuel Tank .....	650 liters	172 US gallons
Hydraulic Oil Tank Capacity .....	210 liters	55.5 US gallons
Total Hydraulic System Capacity .....	450 liters	119 US gallons
Final Drive Case Capacity .....	7 liters	1.8 US gallons
Swing Drive Case Capacity .....	21 liters	5.5 US gallons
Track Front Idlers .....	960 to 980 cc	31.7 to 32.3 oz
Track Lower Rollers .....	530 to 540 cc	17.5 to 17.8 oz
Track Upper Roller .....	690 to 700 cc	22.8 to 23.1 oz

**NOTE:** These capacities are only a guide to the quantities. Always use the dipstick, sight gauges or level plug to make sure that fluid levels are correct.

### Drawbar Pull

Drawbar Pull .....	32195 kg	70989 lb
--------------------	----------	----------

### Drive Speed

Drive Speed: High .....	5.0 km/h	3.1 mph
Drive Speed: Middle .....	3.1 km/h	1.9 mph
Drive Speed: Low .....	2.2 km/h	1.4 mph

### Electrical System

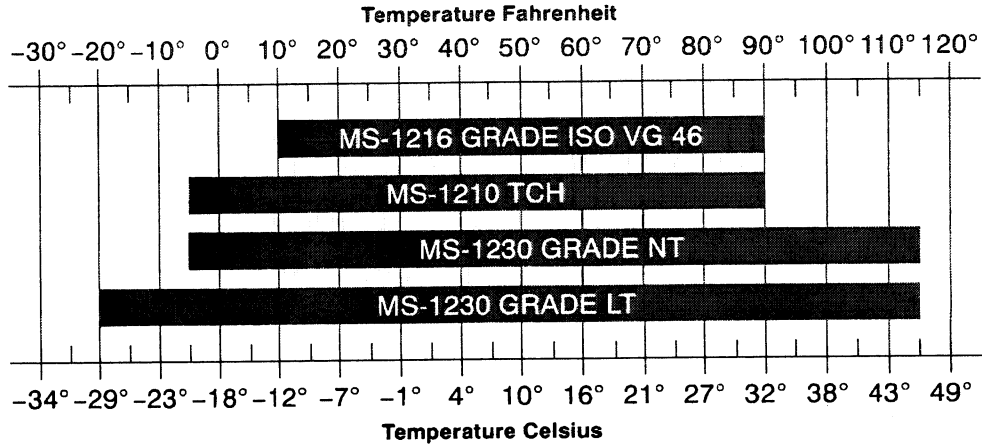
Type of System .....	24 volts negative ground
Alternator	
Manufacturer .....	Mitsubishi Electric Corp.
Output .....	40 amperes
Batteries	
Number of batteries required .....	2
Voltage of each battery .....	12 volts
Reserve capacity .....	160 minutes
Cold cranking capacity at -17°C (0°F) .....	800 amperes
Load for capacity (load) test .....	400 amperes
Starter Motor	
Manufacturer .....	Mitsubishi Electric Corp.
Voltage .....	24 volts



## Fluids and Lubricants

- Batteries..... add drinking or distilled water
- Engine Coolant Solution..... refer to page 12
- Engine Lubrication..... refer to page 12
- Fuel..... refer to entry on page 5
- Hydraulic System..... refer to the following Hydraulic Fluid Chart
- Final Drive Lubricant..... API GL-4, SAE 90
- Swing Drive Case Lubricant..... API GL-4, SAE 90
- Track Roller and Front Idler Lubricant..... Case No. 1 Single Grade engine oil SAE 30
- Turntable Ring Gear Lubricant..... No. 2 EP lithium grease
- Grease Fitting Lubricant..... No. 2 EP lithium grease

Use only hydraulic oils meeting Case specifications or equivalent AW (anti-wear) hydraulic oils.



JS01435A

**NOTE:** Case specification MS-1210 TCH Fluid is used in place of ISO VG 32 (-5 to +65 F) and ISO VG 46 (+10 to +90 F).

Case specifications MS-1230 Grade NT or Grade LT is used in place of SO VG 32 (-5 to +65 F), ISO VG 46 (+10 to +90 F), ISO VG 100 (+30 to +115 F), and MS-1210 TCH.

### Hydraulic Fluid Chart

## Fuel

Use Number Two Diesel fuel having a grade of ASTM D 975-Grade 2-D.

## Hydraulic System

### Hydraulic Pump

Uchida A8V172ESBR6, 201F2-995-0 (KTJ1172)

Displacement.....	170 cm <sup>3</sup> /rev x 2	10.37 in <sup>3</sup> /rev x 2
Speed.....	2000 RPM	
Maximum Flow.....	340 l/min	89.9 gpm

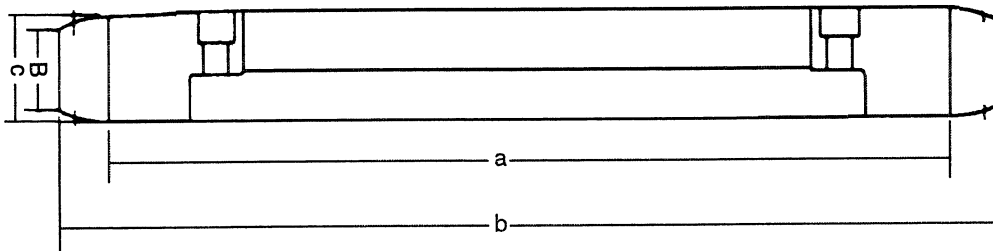
# Tracks, Rollers and Idlers

## Lower Mechanism (with standard 900 mm grouser shoe)

Total Length .....	5285 mm	17 ft 4.1 in.
Total Width .....	3650 mm	11 ft 11.7 in.
Total Weight (approximate).....	17390 kg	38338 lb

## Drive Sprocket

Sprocket:	a standard value .....	89 mm	3.5 in.
	service limit.....	83 mm	3.27 in.
b	standard value .....	890 ± 2 mm	35.039 ± 0.078 in.
	service limit.....	884 ± 2 mm	34.803 ± 0.078 in.
c	standard value .....	89 mm	3.50 in.
	service limit.....	83 mm	3.27 in.
B	standard value .....	65 mm	2.56 in.
	service limit .....	—	—

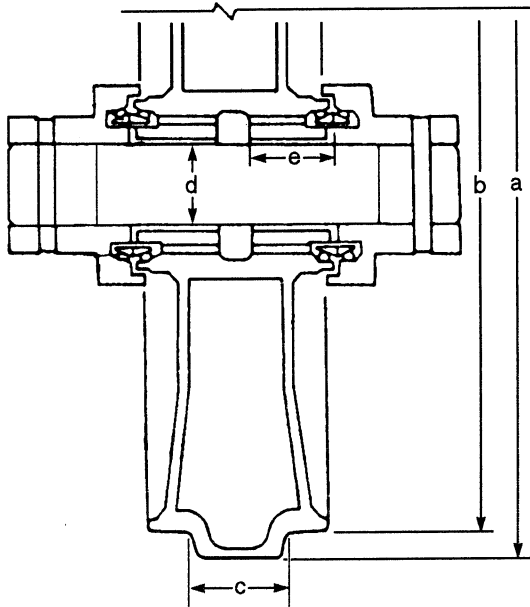


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**Drive Sprocket**

Take-Up Roller  
Take-Up Roller:

a	standard value.....	750 mm	29.5 in.	
	service limit .....	744 mm	29.3 in.	
b	standard value.....	710 mm	27.9 in.	
	service limit .....	706 mm	27.8 in.	
c	standard value.....	102 mm	4.01 in.	
	service limit .....	98 mm	3.86 in.	
Shaft:	d	standard value.....	101.6 mm	4.0 in.
		service limit .....	100.6 mm	3.96 in.
Bushing:	d	standard value.....	101.6 mm	4.0 in.
		service limit .....	102.6 mm	4.04 in.
	e	standard value.....	90 mm	3.54 in.
		service limit .....	89 mm	3.50 in.



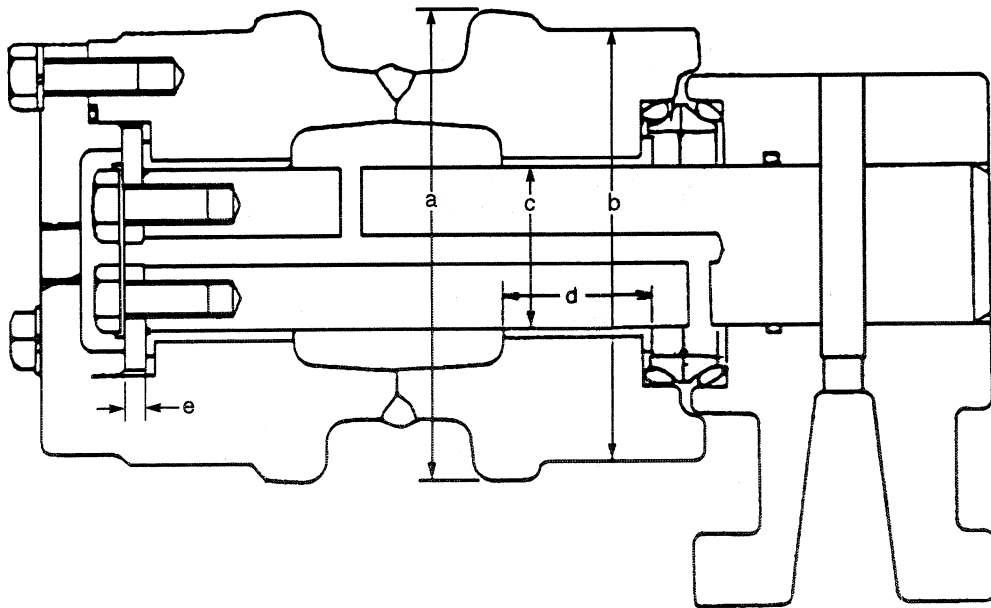
JS01712A

**Take-Up Roller**

1002-8

Upper Roller

Carrier Roller:	a standard value .....	175 mm	6.88 in.
	service limit.....	168 mm	6.61 in.
	b standard value .....	145 mm	5.70 in.
	service limit.....	140 mm	5.51 in.
Shaft:	c standard value .....	60 mm	2.36 in.
	service limit.....	59 mm	2.32 in.
Bushing:	c standard value .....	60 mm	2.36 in.
	service limit.....	61 mm	2.40 in.
Bushing:	d standard value .....	57.5 mm	2.26 in.
	service limit	—	—
Thrust Plate:	e standard value .....	5.5 mm	0.21 in.
	service limit.....	5 mm	0.197 in.



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Upper Roller