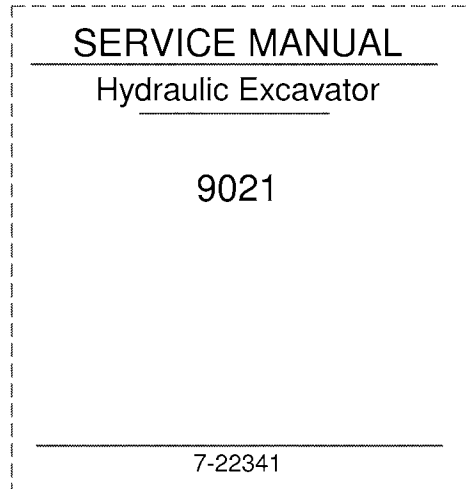


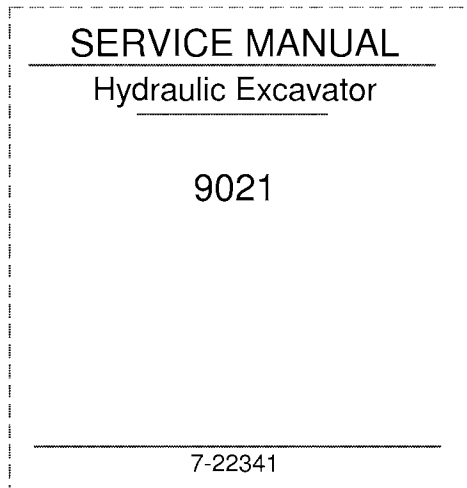
1. Trim along dashed line.
2. Slide into pocket on Binder Spine.

TYPE 1-4



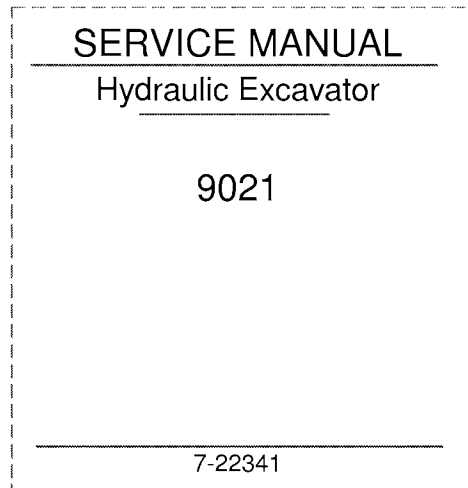
1. Trim along dashed line.
2. Slide into pocket on Binder Spine.

TYPE 1-4



1. Trim along dashed line.
2. Slide into pocket on Binder Spine.

TYPE 1-4



1. Trim along dashed line.
2. Slide into pocket on Binder Spine.

TYPE 1-4

9021 HYDRAULIC EXCAVATOR

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Large format hydraulic schematic (options)	in rear pocket	7-22990GB

Sections to be distributed at a later date

Section

1001

SAFETY, GENERAL INFORMATION AND TORQUE SPECIFICATIONS

**Thanks very much for your reading,
Want to get more information,
Please click here, Then get the complete
manual**

JustClickHere 

NOTE:

**If there is no response to click on the link above,
please download the PDF document first, and then
click on it.**


**Have any questions please write to me:
admin@servicemanualperfect.com**

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STANDARD TORQUE DATA FOR CAP SCREWS AND NUTS.....6



WARNING : *This symbol is used in this manual to indicate important safety messages. Whenever you see this symbol, carefully read the message that follows, as there is a risk of serious injury.*

GENERAL INFORMATION

Cleanning

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.

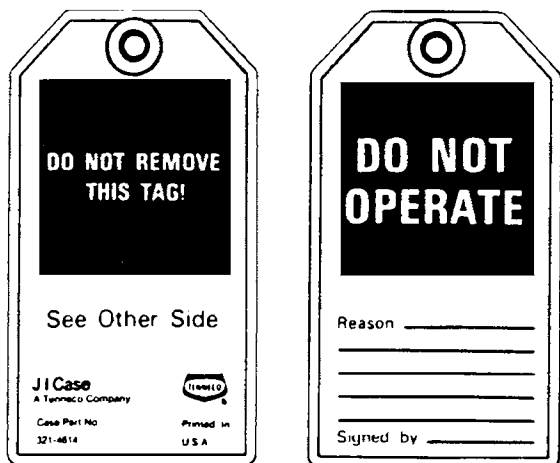
SAFETY



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.

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



JS00480A



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



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



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



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.



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.



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



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



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.



WARNING: Use insulated gloves or mittens when working with hot parts.



WARNING: Lower all attachments to the ground or use stands to safely support the attachments before you do any maintenance or service.



WARNING: 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.



WARNING: 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.



WARNING: 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).



WARNING: 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.



WARNING: 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.



WARNING: Some components of this machine are very heavy. Use suitable lifting equipment or additional help as instructed in this Service Manual.



WARNING: 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.

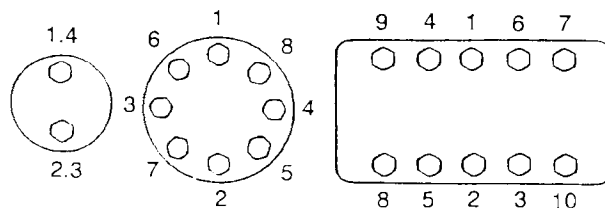


WARNING: When the battery electrolyte is frozen, the battery can explode if (1), you try to charge the battery, or (2), you try to jump start and run the engine. To prevent the battery electrolyte from freezing, try to keep the battery at full charge. If you do not follow these instructions, you or others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

STANDARD TORQUE DATA FOR CAP SCREWS AND NUTS

Tightening of cap screws, nuts

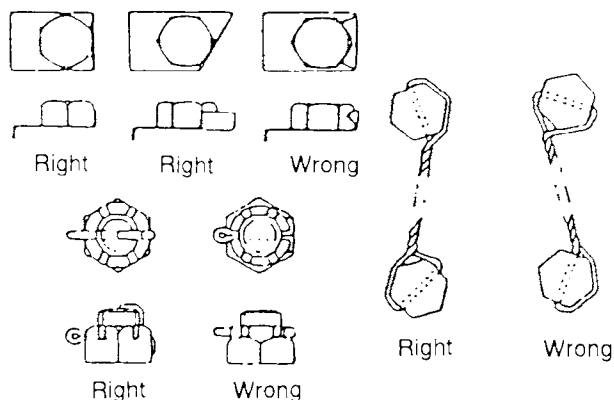
Tighten alternately so that tightening torque can be applied evenly. The numbers in the figure below indicate the order of tightening.



JS00481A

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 saftied with lockwire, cotter pin or bent washer.



JS00482A

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
Cap Screw	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
Socket Head Cap Screw	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

1002

SPECIFICATIONS

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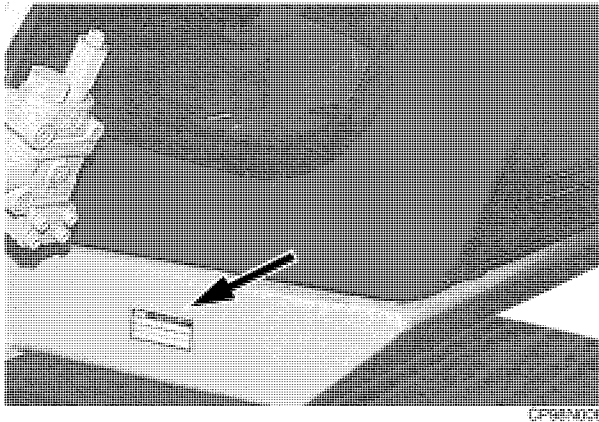
WARNING : *This symbol is used in this manual to indicate important safety messages. Whenever you see this symbol, carefully read the message that follows, as there is a risk of serious injury.*

TYPE, SERIAL NUMBER AND YEAR OF MANUFACTURE OF THE MACHINE

When ordering parts, obtaining information or assistance, always supply your CASE Dealer with the type and serial number of your machine.

Write the following in the spaces below: The type, serial number and year of manufacture of your machine and the serial numbers of the various hydraulic and mechanical components.

Machine



Made for : CASE CE	
Marca Registrada	
Case France	
Rue des Meuniers 60330 Le Plessis-Belleville (F)	
By : SUMITOMO (S.H.I.) Construction Machinery CO. LTD., Chiba (Japan)	
(1) Type :	(3) Year :
Serial Number :	
Engine power : kW	
Maximum weight : kg	

188205A1

CS99A668

- (1) Type
- (2) Serial number
- (3) Year of build

Engine

Make and type

Serial number

Component serial numbers

Hydraulic pump

Swing reduction gear

Travel reduction gears

Travel control valve

Attachment control valve

Swing control valve

GENERAL SPECIFICATIONS

Capacities

	9013	9021	9033	9046
Engine Oil Capacity.....	13.2 liters	21.5 liters	34 liters	34 liters
Engine Cooling System	17.2 liters	25.5 liters	56.8 liters	60 liters
Fuel Tank	240 liters	310 liters	580 liters	650 liters
Hydraulic Oil Tank Capacity	73 liters	120 liters	152 liters	210 liters
Total Hydraulic System Capacity	124 liters	200 liters	320 liters	450 liters
Final Drive Case Capacity	3 liters	4.7 liters	8.5 liters	7 liters
Swing Drive Case Capacity	2.2 liters	5 liters	12.5 liters	21 liters
Track Front idler wheels.....	160 cc	180 cc	200 to 210 cc	420 cc
Track Lower Rollers	190 cc	210 cc	360 to 370 cc	600 cc
Track Upper Rollers.....	35 to 40 cc	50 cc	190 to 200 cc	260 cc

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.*

Drive Speed

	9013	9021	9033	9046
Drive Speed: High	5.5 km/h	5.5 km/h	5 km/h	50 km/h
Drive Speed: Medium	3.8 km/h	3.3 km/h	3.5 km/h	2.8 km/h
Drive Speed: Low	2.2 km/h	2.3 km/h	2.5 km/h	2.0 km/h

Electrical System

	9013 - 9021	9033 - 9046
Type of System	24 volts negative ground	24 volts negative ground
Alternator		
Manufacturer	Hitachi or Nikko	Mitsubishi Electric Corp.
Output	40 amperes	40 amperes
Batteries		
Number of batteries required.....	2	2
Voltage of each battery	12 volts	12 volts
Amp/hour rating	120	170
Starter Motor		
Manufacturer	Hitachi or Nikko	Mitsubishi Electric Corp.
Voltage	24 volts	24 volts

Fluids and lubricants

Lubricants must have the correct properties for each application.



WARNING : *The conditions of use for individual fluids and lubricants must be respected.*

Hydraulic fluid

CASE hydraulic fluid is specially designed for high pressure applications and for the CASE hydraulic system. The type of fluid to be used depends on the ambient temperature.

Temperate climates

-20°C to +40°C
Fluid type ISO VG 46

Hot climates

0°C to +60°C
Fluid type ISO VG 100

Cold climates

-40°C to +20°C
Fluid type ISO VG 22

These various grades of fluid must be in conformity with CASE France Specifications.

Transmission component oil

Extreme pressure oil used for enclosed transmission components.
Extreme pressure oil type API GL5 grade 80W90 or ISO VG 150

Grease

The type of grease to use depends on ambient temperature.

Temperate and hot climates

-20°C to +60°C
Extreme pressure grease EP NLGI grade 2 with molybdenum disulphide.

Cold climates

-40°C to +20°C
Extreme pressure grease EP NLGI grade 0.

Engine oil

CASE N°1 motor oil is the oil recommended for your engine. This oil ensures correct lubrication of your engine in all working conditions.

If CASE N°1 Multipurpose or Performance engine oil cannot be obtained, use only oil of the API/CG/CF category.

NOTE : *Do not put any Performance Additive or other additive in the sump. Oil change intervals shown in the Operator's manual are based on tests carried out on CASE lubricants.*

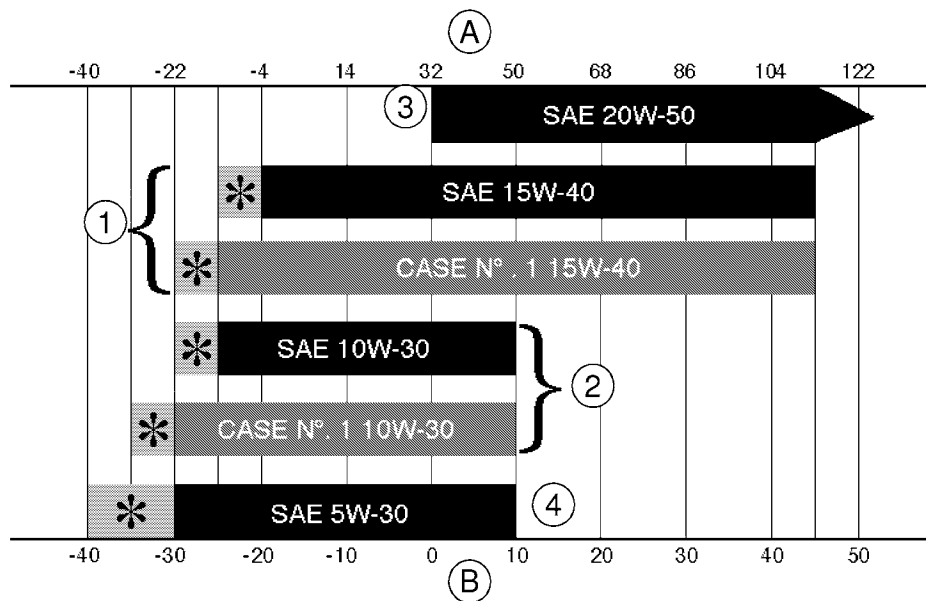


RD97F136



RB97F100

Oil viscosity/Oil range



CS98M561

(A) Fahrenheit Temperature

(B) Celsius Temperature

(1) All seasons

(2) Winter

(3) Tropical

(4) Arctic

(*) Use of an engine oil heater, or and engine coolant heater is required.

Fuel

Use fuel which is to ASTM (American Society for Testing and Materials) D975 standard.

Use grade N°2 fuel. The use of other types of fuel can result in a loss of power and may cause high fuel consumption.

When the temperature is very cold, the use of a mixture of N°1 and N°2 fuel is permitted. See your fuel vendor for winter fuel requirements in your area.

If the temperature falls below the fuel cloud point (point at which wax begins to form) the wax crystals will cause power loss or will prevent the engine from starting.

IMPORTANT: In cold weather, fill the fuel tank at the end of the day's work, in order to prevent the formation of condensation.

Fuel storage

Long storage can lead to the accumulation of impurities and condensation in the fuel. Engine trouble can often be traced to the presence of water in the fuel.

The storage tank must be placed outside and the temperature of the fuel should be kept as low as possible. Drain off water and impurities regularly.

Anti-freeze/Anti-corrosion

Use anti-freeze in all seasons to protect the cooling system from corrosion and all risk of freezing.

For areas where ambient temperature is over -36°C, use a blend of 50% ethylene-glycol based anti-freeze.

For areas where the temperature is below -36°C, it is advisable to use a blend of 40% water and 60% anti-freeze.

Hydraulic system

Hydraulic pump

	9013	9021	9033	9046
Two variable flow piston-type pumps.				
Main pump output	2 x 121 L/mn	2 x 196 L/mn	2 x 268 L/mn	2 x 340 L/mn
Safety valve pressure setting				
Attachment/power boost	314/343 bar	314/343 bar	320/348 bar	320/348 bar
Swing	280 bar	280 bar	280 bar	294 bar
Travel	343 bar	343 bar	343 bar	320 bar

Control valves

9013

Three control valve sections for left-hand travel, boom and bucket.
Four control valve sections for right-hand travel, swing, auxiliary attachment and dipper.
Boom/dipper load holding valves.

9021

Four control valve sections for left-hand travel, boom, bucket, dipper and bucket acceleration.
Five control valve sections for right-hand travel, swing, dipper, auxiliary attachment and boom acceleration.
Boom/dipper load holding valves.

9033

Four control valve sections for left-hand travel, boom acceleration, swing and dipper.
Five control valve sections for right-hand travel, auxiliary attachment, boom, bucket and dipper acceleration.
Boom/dipper load holding valves.

9046

Four control valve sections for left-hand travel, bucket, boom and dipper acceleration.
Five control valve sections for right-hand travel, auxiliary attachment, dipper, swing and boom acceleration.
Boom/dipper load holding valves.

Swing

	9013	9021	9033	9046
Fixed flow, piston-type pump.				
Automatic disk brake.				
Upperstructure swing speed	13.4 rpm	11.9 rpm	10.3 rpm	8.5 rpm

Travel

Three speed hydraulic motors with axial pistons.
Planetary reduction gears.

Low speed	0 to 2.2 kph	0 to 2.3 kph	0 to 2.5 kph	0 to 2.0 kph
Medium speed	0 to 3.8 kph	0 to 3.3 kph	0 to 3.5 kph	0 to 2.8 kph
High speed	0 to 5.5 kph	0 to 5.5 kph	0 to 5 kph	0 to 5.0 kph
Gradeability	70%	70%	70%	70%
Tractive effort	9900 daN	18300 daN	23300 daN	? daN
	(with 2.50m	(with 2.40m	(with 2.60m	(with 3.40 m
	Dipper)	Dipper)	Dipper)	Dipper)
Crowd force	8530 daN	12450 daN	19120 daN	24060 daN
Break-out force	6470 daN	11870 daN	16710 daN	19570 daN

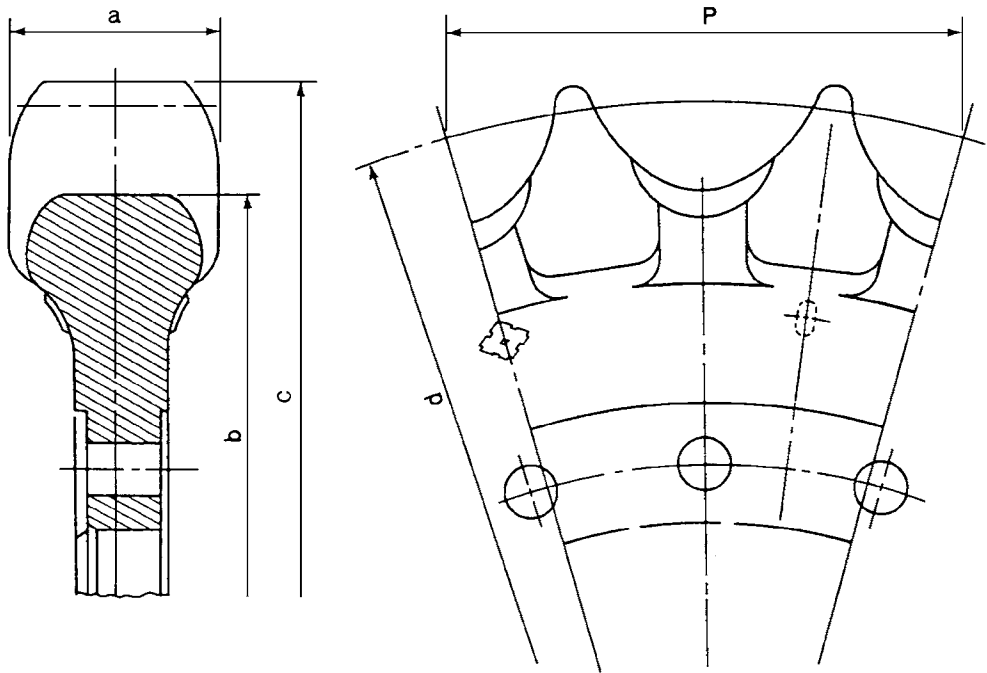
Tracks, Rollers and Idlers

Lower Mechanism (with standard 600 mm track shoe)

	9013	9021	9033	9046
Total Length	3550 mm	4460 mm	5050 mm	5470 mm
Total Width	2590 mm	2990 mm	3200 mm	3430 mm
Total Weight (approximate)	4070 kg	7120 kg	11728 kg	17390 kg

Drive Sprocket

Sprocket:.....a	standard value	xx mm	66 mm	80 mm	102 mm
	service limit	xx mm	60 mm	70 mm	90 mm
b	standard value	xx mm	582.5 mm	686 mm	770 mm
	service limit	xx mm	576.5 mm	678 mm	758 mm
c	standard value	xx mm	659 mm	770 mm	860 mm
	service limit	xx mm	653 mm	760 mm	847 mm
d	standard value	xx mm	644.6 mm	753 mm	847.3 mm
	service limit	—	—	—	—
P	standard value	xx mm	190 mm	203.2 mm	229 mm
	service limit	—	—	—	—



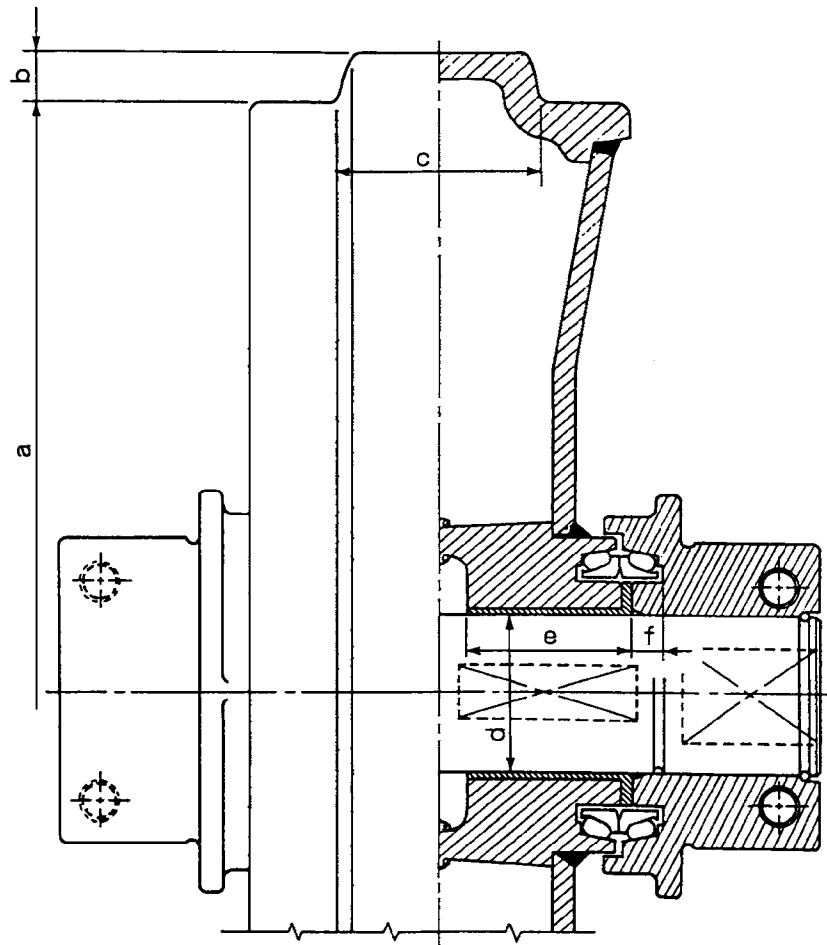
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Drive Sprocket

NOTE : Refer to Gauge Table for measurements to be respected.

Track idler wheel

		9013	9021	9033	9046
Track idler					
wheel:.....	a	standard value 494 mm.....	494 mm.....	600 mm.....	666 mm.....
		service limit..... 490 mm.....	490 mm.....	590 mm.....	655 mm.....
	b	standard value 21 mm.....	21 mm.....	20 mm.....	25 mm.....
		service limit..... —.....	—.....	—.....	—.....
	c	standard value 84 mm.....	84 mm.....	102 mm.....	122 mm.....
		service limit..... 80 mm.....	80 mm.....	92 mm.....	112 mm.....
Shaft:.....	d	standard value 65 mm.....	65 mm.....	80 mm.....	95 mm.....
		service limit..... 64.5 mm.....	64.5 mm.....	79 mm.....	94 mm.....
Bushing:.....	d	standard value 65 mm.....	65 mm.....	80 mm.....	95 mm.....
		service limit..... 65.8 mm.....	65.8 mm.....	81.5 mm.....	96 mm.....
	e	standard value 69 mm.....	69 mm.....	81.5 mm.....	100 mm.....
		service limit..... 68.6 mm.....	68.6 mm.....	80 mm.....	99 mm.....
Hub:.....	f	standard value 12.4 mm.....	12.4 mm.....	17 mm.....	15 mm.....
		service limit..... 11.9 mm.....	11.9 mm.....	16.5 mm.....	—.....



Track idler wheel

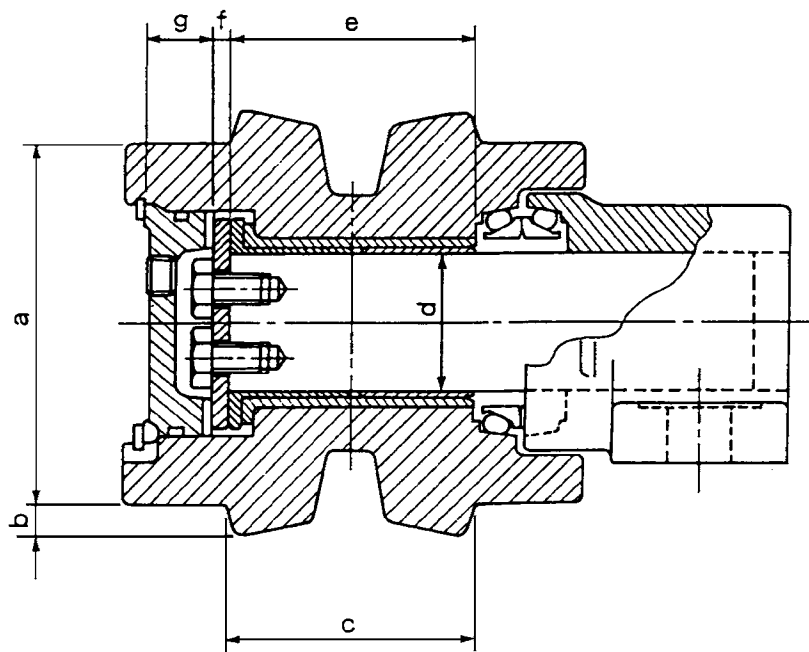
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NOTE : Refer to Gauge Table for measurements to be respected.

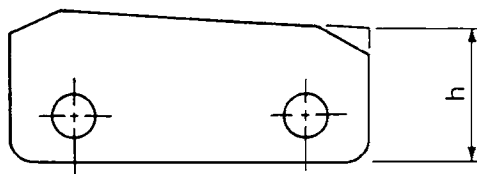
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Upper Roller 9013 - 9021

Upper Roller:	a	standard value	120 mm
		service limit	112 mm
	b	standard value	10 mm
		service limit	—
	c	standard value	85 mm
		service limit	79 mm
Shaft:	d	standard value	46 mm
		service limit	45.5 mm
Bushing:	d	standard value	46 mm
		service limit	46.8 mm
	e	standard value	83 mm
		service limit	82.6 mm
Thrust Plate:	f	standard value	5.5 mm
		service limit	5.0 mm
Cover:	g	standard value	23 mm
		service limit	22.5 mm
Slide Plate			
Plate:	h	standard value	50.7 mm
		service limit	40 mm or until chamfering is gone



Upper roller



Slide Plate

JS00067A

NOTE : Refer to Gauge Table for measurements to be respected.