E805 Tier 3 Crawler Excavators
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* *Consult the Engine Service Manual*

[redacted] *Sections to be distributed at a later date*

NOTE: CNH Company reserves the right to make changes in the specification and design of the machine without prior notice and without incurring any obligation to modify units previously sold.

The description of the models shown in this manual has been made in accordance with the technical specifications known as of the date of design of this document.

Section

1001

SAFETY, GENERAL INFORMATION AND TORQUE 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.*

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 NEW HOLLAND service parts. When ordering refer to the Parts Catalog for the correct part number of the genuine NEW HOLLAND replacement items. Failures due to the use of other than genuine NEW HOLLAND 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

.

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 NEW HOLLAND 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.*

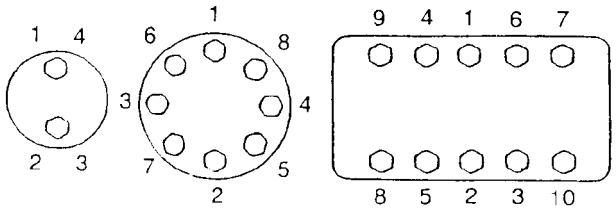
WARNING: *Engine exhaust fumes can cause death. If it is necessary to start the engine in a closed place, remove the exhaust fumes from the area with an exhaust pipe extension. Open the doors and get outside air into the area.*

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.



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Cap screws which have had Loctite used (white residue remains after removal) should be cleaned with loght 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	19.6	39.2	58.8	98.1	156.9	196.1	294.2
		[lb-ft]	5.1	14.5	28.9	43.4	72.3	115.7	144.6	217
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	78.5	117.7	176.5	245.2	343.2
		[lb-ft]	6.5	15.9	31.1	57.9	86.9	130.2	181	253.2

Section

1002

SPECIFICATIONS AND SPECIAL TORQUE SETTINGS

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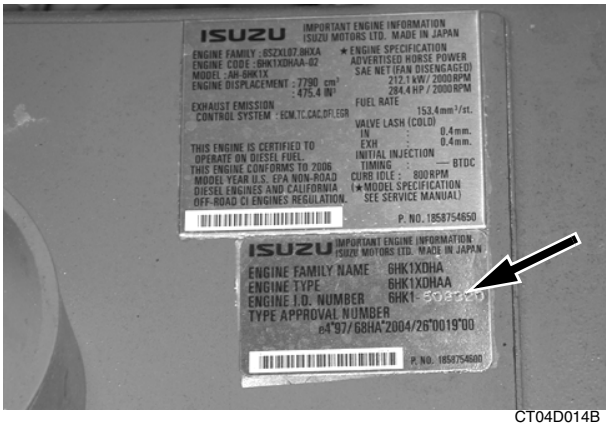
WARNING: *This symbol is used in this manual to indicate important safety messages. Whenever you see this symbol, carefully read the message which follows. Your safety depends on it.*

TYPE, SERIAL NUMBER AND YEAR OF MANUFACTURE OF THE MACHINE

When ordering parts, obtaining information or assistance, always supply your NEW HOLLAND service specialist with the type and serial number of your machine or accessories.

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

Engine



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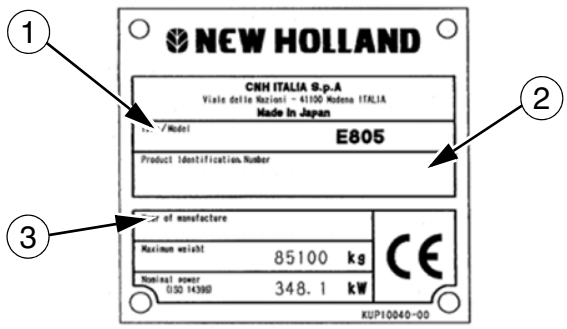
Make and type ..... **ISUZU AH-6WG1X**

Serial number .....

Machine



CD00K015N

(1) Type .....

(2) Serial number .....

(3) Year of manufacture .....

Serial numbers of the components

Hydraulic pump .....

Swing reduction gear .....

Travel reduction gears .....

Control valve .....

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

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

Temperate climates: -20°C to +40°C (-4° to 104° F)

AMBRA HYDROSYSTEM 46 HV (NH 646 H - ISO VG 46 - DIN 51524 PART 3 category HVLP)

Hot climates: 0°C to +50°C (32° to 122° F)

AMBRA HYDROSYSTEM 68 HV (NH 668 HV - ISO VG 68 - DIN 51524 PART 3 category HVLP)

Cold climates: -25°C to +20°C (-13° to 68° F)

AMBRA HYDROSYSTEM 32 (NH 632 - ISO VG 32 - DIN 51524 PART 2)

Biodegradable fluid: -30°C to +40°C (-22° to 104° F)

This yellow-coloured fluid is miscible with standard fluid. If used to change standard fluid, it is advisable to drain the circuit completely before refilling with this fluid.

AMBRA HYDROSYSTEM 46 BIO-S (NH 646 BS - ISO VG 46 - DIN 51524 PART 2)

Transmission component oil

Extreme pressure oil used for enclosed transmission components.

AMBRA HYPOIDE 90 (SAE 80W-90 - NH 520 A - API GL5 - MIL-L-2105 D - ZF TE-ML 05A)

Grease

AMBRA GR 75 MD (NH 720 A - NLGI 2 - Multipurpose grease with molybdenum disulphide).

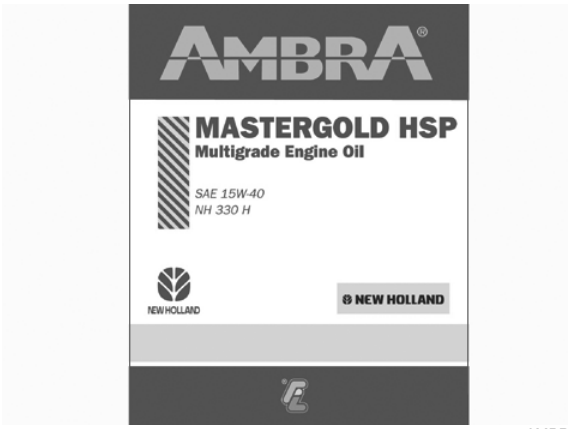
AMBRA GR9 (NH 710 A - NLGI 2 - Extreme Pressure multipurpose grease).

AMBRA GR EXP (NH 587/GR - NLGI 2 - Extreme Pressure multipurpose grease).

Engine Oil

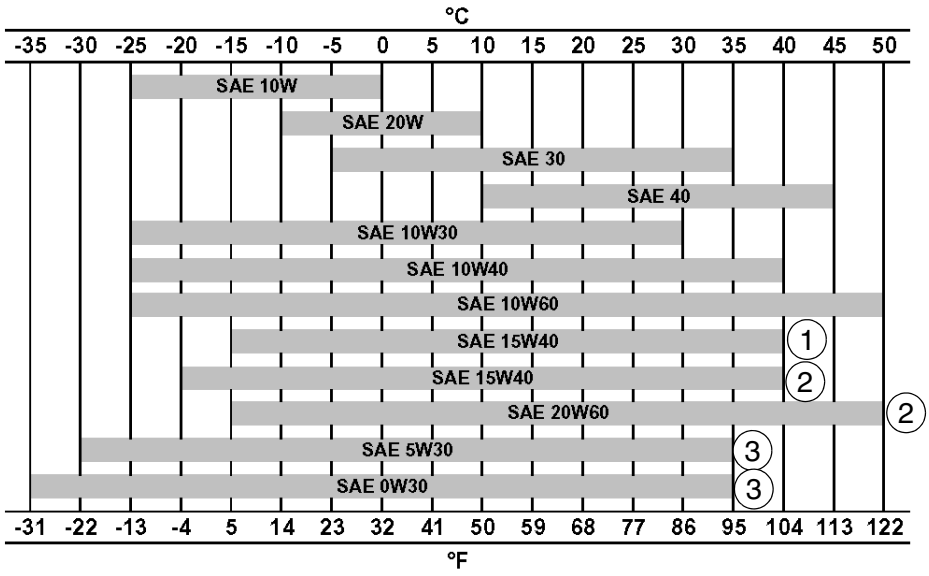
AMBRA MASTERGOLD HSP is recommended for your engine. This oil ensures correct lubrication of your engine in all working conditions.

If the AMBRA MASTERGOLD HSP cannot be obtained, use the oil corresponding to one of the following categories:
(SAE 15W-40 - NH 330 H - API CH-4 - ACEA E5)



AMBRA

Oil viscosity / Oil range



CT02M001

1) With mineral base

(2) With semi-synthetic base

(3) With synthetic base

Fuel

Use fuel which is to ASTM (American Society for Testing and Materials) 975 standard.

Use grade No. 2-D fuel. The use of other types of fuel can result in a loss of power of the engine and may cause high fuel consumption.

In cold weather (below -7°C), a mixture of fuels No. 1-D and No. 2-D is approved as a temporary measure. Consult your fuel supplier or your NEW HOLLAND service specialist.

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.

Conditions applicable to Diesel fuel

The diesel fuel used must:

- be free from even minute dust particles,
- have the correct viscosity,
- have a high cetane number,
- present great fluidity at low temperatures,
- have low sulphur content,
- have very little residual carbon.

Recommendations applicable to Diesel fuel

- JIS (Japanese Industrial Standard) : No. 2
- DIN (Deutsche Industrie Normen) : DIN 51601
- SAE (Society of Automotive Engineers) Based on SAE-J-313C: No. 2-D
- BS (British Standard) Based on BS/2869-1970: Class A-1

IMPORTANT : *Using any other fuel will reduce the operating performance of the engine.*

Using fuels other than those recommended can damage the fuel injection pump, the injector and other parts of the fuel supply system and the engine. **NEW HOLLAND disowns any responsibility concerning this kind of damage, which is not covered by the guarantee.** To avoid any damage to the engine fuel supply system, you are recommended to take the following safety messages into account:
- Certain fuel suppliers mix used engine oil with diesel fuel. Certain manufacturers of large engines allow them to do this. In all cases, for your engine, never use diesel fuel contaminated by engine oil. In addition to damaging the engine, this fuel can actually adversely affect the correct purification of exhaust gases. Before using any diesel fuel, ask the supplier if this fuel has been mixed with engine oil.

IMPORTANT : *For correct use of fuel additives consult your supplier or your NEW HOLLAND service specialist. Do not inject fuel oil or gasoline, both fuels can damage the engine.*

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.

AMBRA AGRIFLU (NH 900 A)

For areas where the temperature goes down to -38°C, mix 50/50 with water.

IMPORTANT : *Do not mix products of a different origin or brand. The same product must be used when topping up the system.*

Environment

Before carrying out any maintenance operation on this machine and before disposing of used fluids or lubricants, always think of the environment. Never throw oil or fluid on the ground and never place it in leaking receptacles.

Contact your local ecological recycling centre or your NEW HOLLAND service specialist to obtain information on the correct method of disposing of these lubricants.

SPECIFICATIONS

Main data

Model name ..... CX800 Hydraulic Excavator
Operating weight ..... 80300 kg (177031 lbs)
Engine output ..... 397 kW / 1800 rpm

Performance

Standard weight ..... 43.2 kN (9711 lbf)
Swing speed ..... 6.4 Tr/min.
Travel speed ..... Low Speed 2.9 km/h (1.80 mph)
..... High Speed 4.2 km/h (2.60 mph)
Maximum drawbar pull ..... 564kN (126792 lbf)
Grade ability ..... 70% (35°)
Ground pressure ..... 110 kPa (650 mm (25.59 in) grouser shoe)

Complete machine dimensions

	Standard arm (3.66 m) (12 ft 0.09 in)	Long arm (4.44 m) (14 ft 6.79 in)	Super Long arm (5.62 m) (18 ft 5.25 in)	Mass Digging arm (2.98 m) (9 ft 9.31in)
Length	14360 mm (565.35 in)	14320 mm (523.77 in)	13830 mm (544.48 in)	13230 mm (520.86 in)
Width	4360 mm (171.65 in)	4360 mm (171.65in)	4360 mm (171.65 in)	4360 mm (171.65 in)
Height	4810 mm (189.36 in)	5000 mm (196.84 in)	6300 mm (248.03 in)	5050mm (198.81in)

Main body dimensions

Main body length ..... 7460 mm (293.69 in)
Main body width ..... 4360 mm (171.65 in) (Grouser shoe retracted width: 4250 mm (167.32 in))
Upper swing body width ..... 4250 mm (167.32 in)
Cab width ..... 1000 mm (39.36 in)
Main body height ..... 3880 mm (152.75 in)
Tail swing radius ..... 4300 mm (169.29 in)
Distance of rear swing body ..... 4280 mm (168.50 in)
Ground clearance for upperstructure ..... 1590 mm (62.59 in)
Center-to-center of wheels ..... 5070 mm (199.60 in)
Overall track length ..... 6360 mm (250.39 in)
Maximum track width ..... 4100 mm (161.41 in) (Retracted width in transporting style: 3480 mm (137 in)
Center-to-center for track ..... 3450 mm (135.82 in) (Retracted width in transporting style: 2830 mm) (111.41 in)
Width of track shoe ..... 650 mm (25.59 in) (Optional: 750 mm (29.52 in), 900 mm) (35.43 in)
Minimum ground clearance ..... 890 mm (35.03in) (To bottom of lower frame)

Engine

Name ..... ISUZU, 6WG1X
Type: 4-cycle, water-cooled, overhead camshaft, common rail injection (electric control), with air-cooling type inter-cooler turbo with air-cooling.
No. of cylinders - bore x stroke ..... 6-dia. 147 mm x 154 mm (5.78 x 6.06 in)
Displacement ..... 15.7 L (4.15 gal)
Compression ratio 16
Rated output ..... 345 ± 7.0 kW / 1850 min^{-1}
Maximum torque ..... 2250 N•m (1659.51 lb-ft) / 1500 min^{-1}
Engine dimensions (LxWxH) ..... 1462x1017x1422 mm (57.55 x40.03x55.98 in)
Oil pan ..... All direction 35°, inclinable
Oil pan capacity ..... Maximum: 52 L (13.73 gal) Minimum: 37 L (9.77 gal) (excluding oil filter)
Direction of rotation ..... Right (viewed from fan side); compliant with
Starter, reduction type ..... 24 V, 7 kW
Alternator, AC type ..... 24 V, 50 A
Battery ..... 2x 12V/24V,140 Ah/5 Hr

Cooling system

Fan drive system ..... hydraulic drive
Fan type ..... diameter 1016 mm (40 in), suction type-6blades, resin & steel
Radiator capacity 205.7kW
  Fin type ..... wavy
  Fin space ..... 2.0 mm (0.07 in)
Oil cooler capacity ..... 174.4 kW
  Fin type ..... plate
  Fin space ..... 3.0 mm (0.11 in)
Inter-cooler capacity ..... 63.3 kW
  Fin type ..... triangular straight
  Fin space ..... 2.0 mm (0.07 in)
Fuel cooler capacity ..... 3.58 kW
  Fin type ..... wavy
  Fin space ..... 2.0 mm (0.07 in)
Coolant capacity ..... 36 L (9.51 gal) (engine only)

Capacity of coolant and lubricants

Coolant ..... 108 L (28.53 gal)
Fuel ..... 900 L (237.75 gal)
Lubricant for engine ..... 52 L (13.73 gal)
Lubricant for travel reduction gear (per side) ..... 13.8 L (3.64 gal)
Lubricant for swing reduction gear (per side) ..... 4.7 L (1.24 gal)
Hydraulic oil ..... 720 L (190.20 gal)
Capacity of hydraulic oil tank ..... 310 L (81.89 gal)

Hydraulic oil filter

Suction filter (inside tank) ..... 150 mesh
Return filter (inside tank) ..... 10 m m
Nephron filter (inside housing) ..... 1 m m
Pilot line filter (inside housing) ..... 10 m m

Operating devices

Operator's seat
- Location; left side
- Structure; low frequency air suspension with helical springs and double acting hydraulic damper.

Cab
- Smooth and round shape design cab, fabricated by press work Safety glass for all windows.

Levers and pedals
- For travel use; levers and pedals (hydraulic pilot type) (2)
- For operating machine use; levers (hydraulic pilot type) (2)

Instruments and switches
- Work mode switchover; 4 modes (heavy digging, standard, finishing and auto)
- Travel speed switchover; Low Speed / High Speed panel switch
- One-touch idle; Knob switch type

Monitor device
- Machine status display (full-dot liquid crystal)
- Travel speed selection status; Low Speed / High Speed
- Work mode selection status; H/S/L/A
- Auto idle selection status; ON/OFF

Instruments (full-dot liquid crystal, except for hour meter)
- Fuel gauge; bar graph indicator
- Engine coolant temperature gauge; bar graph indicator
- Hydraulic oil temperature gauge; bar graph indicator
- Hour meter; digital type
- Machine Status and Warning Alarms (full-dot liquid crystal and warning tone) *Items have a warning alarm

Over heat*	Battery charge*	Faulty electrical system*
Refill fuel*	Engine oil pressure*	Refill coolant*
Engine preheat	Auto warm-up	Air cleaner*
Idling	Service interval	Digging power up

- Lighting

Working light	House:	24V, 70W (1)
	Boom:	24V, 70W (1)
	Cab:	24V, 70W (2)
Interior light		24V, 10W (1)

- Horn; electric horn (2)
- Other
  - Wiper with intermittent function (1)
  - Window washer fluid (1)
  - Air conditioner (1)
  - Rear view mirror (right-hand side) (1)
  - DC converter (1)
  - High dump

Hydraulic system

Hydraulic pump drive system, directly coupled to the engine (no transmission)

Main pump

- Manufacturer ..... Kawasaki
- Pump type ..... double variable displacement piston pump
- Displacement ..... 278 cm^3 (16.96 cu in) X 2 /rev
- Rated operating pressure ..... 31.4 MPa (4555 psi)
- Maximum operating pressure ..... 34.3 MPa (4975 psi)
- Input revolution speed 1850 min-1
- Maximum flow ..... 514.3 L/min (135.86 gpm) X 2 at 1850 min^{-1}
- Input horsepower ..... 310.7 kW
- Shaft input horsepower ..... 314.3 kW at 1850 min^{-1}
- Shaft input torque ..... 1622 N•m (1197 lb-ft) at 1850 min^{-1}

Pilot pump

- Pump type ..... Gear pump
- Displacement ..... 15 cm^3 (0.91 cu in)/rev
- Operating pressure ..... 4.4 MPa (638.16 psi) to 4.6 MPa (667.17 psi)
- Maximum flow ..... 27.8 L/min (7.34 gpm) (at 1850 min^{-1}) (1850 rpm^{-1})
- Input horsepower ..... 3.6 kW

Control characteristics; simultaneous output control of overall, negative control, electric horse power control

Control Valve

Model; 4-spool section: integrated (1) or 5-spool section: integrated (1)
Operation method; hydraulic pilot method: travel, swing and operating machine
Maximum flow ..... 514.3 L / min (135.86 gpm)
Set pressure of main relief valve ..... standard; 31.4 MPa (4554 psi), power boost 34.3 MPa (4975 psi)
Set pressure of overload relief valve ..... 36.3 MPa (5265 psi) at 20 L / min

Functions

- Straight travel circuit
- Boom UP / 2-speed internal confluence for Arm
- Boom/arm load holding circuit
- Boom down regenerative circuit
- Arm IN forced regenerative circuit
- Boom up priority (speed restriction of bucket)
- Boom up priority (Speed restriction of swing)
- Swing priority (Speed restriction of arm)
- Bucket 2-speed internal confluence
- Resevbe 2-speed internal confluence

Hydraulic Cylinders

Boom cylinder (2)

- Inner diameter of tube x rod diameter x stroke ..... 200x140x1893 mm

Arm (dipper) cylinder

- Inner diameter of tube x rod diameter x stroke ..... 215x150x2290 mm

Bucket cylinder (Standard boom specifications)

- Inner diameter of tube x rod diameter x stroke ..... 190x130x1555 mm

Bucket cylinder (Mass boom specifications)

- Inner diameter of tube x rod diameter x stroke ..... 215x150x1520 mm

Rotating Joint
- Operating pressure
  - High pressure passage (ABCD) ..... 34.4 MPa (4989 psi)
  - Drain port (E) ..... 1.0 MPa (145 psi)
  - Pilot port (F) ..... 3.9 MPa (566 psi)
- Hydrostatic test pressure
  - High pressure passage (ABCD) ..... 51.5 MPa (7470 psi)
  - Drain port (E) ..... 2.0 MPa (290 psi)
  - Pilot port (F) ..... 5.9 MPa (856 psi)
- Flow
  - High pressure passage (ABCD) ..... 500 L/min (132 gpm)
  - Drain port (E) ..... 50 L/min (13.2 gpm)
  - Pilot port (F) ..... 27.8 L/min (7.34 gpm)
- Number of revolutions ..... 15 min^{-1}
- Torque, when pressurizing 2 ports ..... 196 N m (145 lb-ft)
- Port A; forward right ..... SAE 6000 psi $1^1/_4$
- Port B; forward left ..... SAE 6000 psi $1^1/_4$
- Port C; backward right ..... SAE 6000 psi $1^1/_4$
- Port D; backward left ..... SAE 6000 psi $1^1/_4$
- Port E; drain port ..... G3/4-A Class
- Port F; pilot port ..... G1/4-A Class

Solenoid Valve
- Maximum flow ..... P -> B: 30 L / min (7.92 gpm) Other: 5 L / min (1.32 gpm)
- Rated pressure ..... 4.41 MPa (640 psi)
- Operating voltage ..... DC 20 to 32 V
- Current ..... 13.0 W (at 24 V, 20× C)

Hand control valve
- Manufacturer ..... Kawasaki
- Operating pressure ..... 3.92 MPa (569 psi)
- Secondary pressure, primary short type ..... 0.49 ± 0.1 to 2.89 ± 0.15 MPa
- Operating angle
  - Ports 1, 3 ..... 19 ± 1.9×
  - Ports 2, 4 ..... 25 ± 2.5×
- Operating torque
  - Port 1 ..... 0.58 to 2.03 N m (0.42 to 1.49 lb-ft)
  - Port 3 ..... 0.47 to 1.92 N m (0.34 to 1.41 lb-ft)
  - Ports 2, 4 ..... 0.71 to 2.30 N m (0.52 to 1.69 lb-ft)

Foot control valve
- Manufacturer ..... Kawasaki
- Operating pressure ..... 3.92 MPa (569 psi)
- Secondary pressure; primary short type ..... 0.49 ± 0.1 to 2.89: 0.15 MPa
- Operating angle ..... 12.4 ± 0.3×
- Operating torque
  - Valve ..... 4.16 to 9.03 N m (3.06 to 19.90 lb-ft)
  - Damper ..... 4.90 ± 0.98 Nm (3.61 ±0.72 lb-ft) at 0.0275 m/s

Digging force (New JIS)

Bucket digging force (Standard power boost)
- Standard ..... 430 kN (96667 lbf)
- Power boost ..... 470 kN (105660 lbf)

Arm (dipper) digging force (Standard boom specifications)
- Standard
  - 2.98 m arm ..... 317 kN (71264 lbf)
- Power boost
  - 2.98 m arm ..... 347 kN (78008 lbf)

Swing unit

Swing circle; swing bearing type (with internal gears)

Swing hydraulic motor (2); fixed displacement piston motor with parking brake and reversal prevention valve
- Displacement ..... 210.1 cm^3 (12.82 cu in)/rev
- Operating pressure ..... 26.5 MPa (3843.5 psi)
- Operating flow ..... 257 L/min (67.89 gpm)
- Brake torque ..... 1161 to 1504 N m (856 to 1109 lb-ft)
- Brake off pressure ..... 2.6 MPa (377.09 psi) less than
- Relief set pressure ..... 25.6 to 26.5 MPa (3712 to 3843 psi) at 250 L/min (66.04 gpm)

Reduction gears, planetary gear 2-stage reduction system
- Reduction ratio 27.143

Swing parking brake; mechanical lock (operational lever linkage type)

Swing lock; mechanical lock (swing lock switch linkage type

Travel lower body

Travel hydraulic motor (2); variable displacement piston motor, automatic 2-speed switch-over with parking brake
- Displacement ..... 337.2 / 228.6 cm^3 (20.57/13.95 cu in)/rev
- Operating pressure ..... 34.3 MPa (4975 psi)
- Operating flow ..... 500 L/min (132.08 gpm)
- Brake torque ..... 1120 N•m (826.06 lb-ft) or over (excluding reduction gear)
- Relief set pressure ..... 35.3 MPa (5120 psi) at 40 L/min (10.56 gpm)
- 2-speed control pressure ..... 25.5 ± 1 MPa (3698 psi)

Reduction gears; planetary gear 3-stage reduction system
- Reduction ratio 94.358

Travel brake; hydraulic lock

Parking brake; mechanical lock (travel lever linkage type)

Track shoe
- Model; assembly-type double grouser shoe
- Number of shoes (per side) 51
- Shoe width
  - Standard ..... 650 mm (25.59 in)
  - Optional ..... 750 mm (29.52 in), 900 mm (35.43 in)
- Grouser height ..... 50 mm (1.96 in)
- Link pitch ..... 260.35 mm (10.24 in)

Roller
- Number of upper rollers (per side) 3
- Number of lower rollers (per side) 9

Track belt tension adjuster; grease cylinder type (with cushion spring)
- mounting length of spring ..... 1310 mm (51.57 in)

Work Unit

Model; backhoe attachment

Capacity / dimensions / working dimensions

Boom length (Standard boom spec.) ..... 7700 mm

Boom length (Mass boom spec.) ..... 6580 mm

	Standard boom Mass boom		
	Standard arm (3.66 m)	Long arm (4.44 m)	Super long arm (5.62 m)
Arm length	3666 mm	4440 mm	5620 mm
Bucket radius	2200 mm	2200 mm	2200 mm
Bucket wrist angle	167°	167°	167°
Maximum digging radius	14120 mm	14940 mm	16110 mm
Maximum digging radius at ground line	13840 mm	14680 mm	15860 mm
Maximum digging depth	8690 mm	9470 mm	10660 mm
Maximum vertical straight wall digging depth	6440 mm	7750 mm	9110 mm
Maximum reach height	12910 mm	13600 mm	14300 mm
Maximum dump height	8920 mm	9510 mm	10170 mm
Minimum swing radius at front	6270 mm	6130 mm	6210 mm
Overall height with minimum swing radius at front	10960 mm	10880 mm	10950 mm

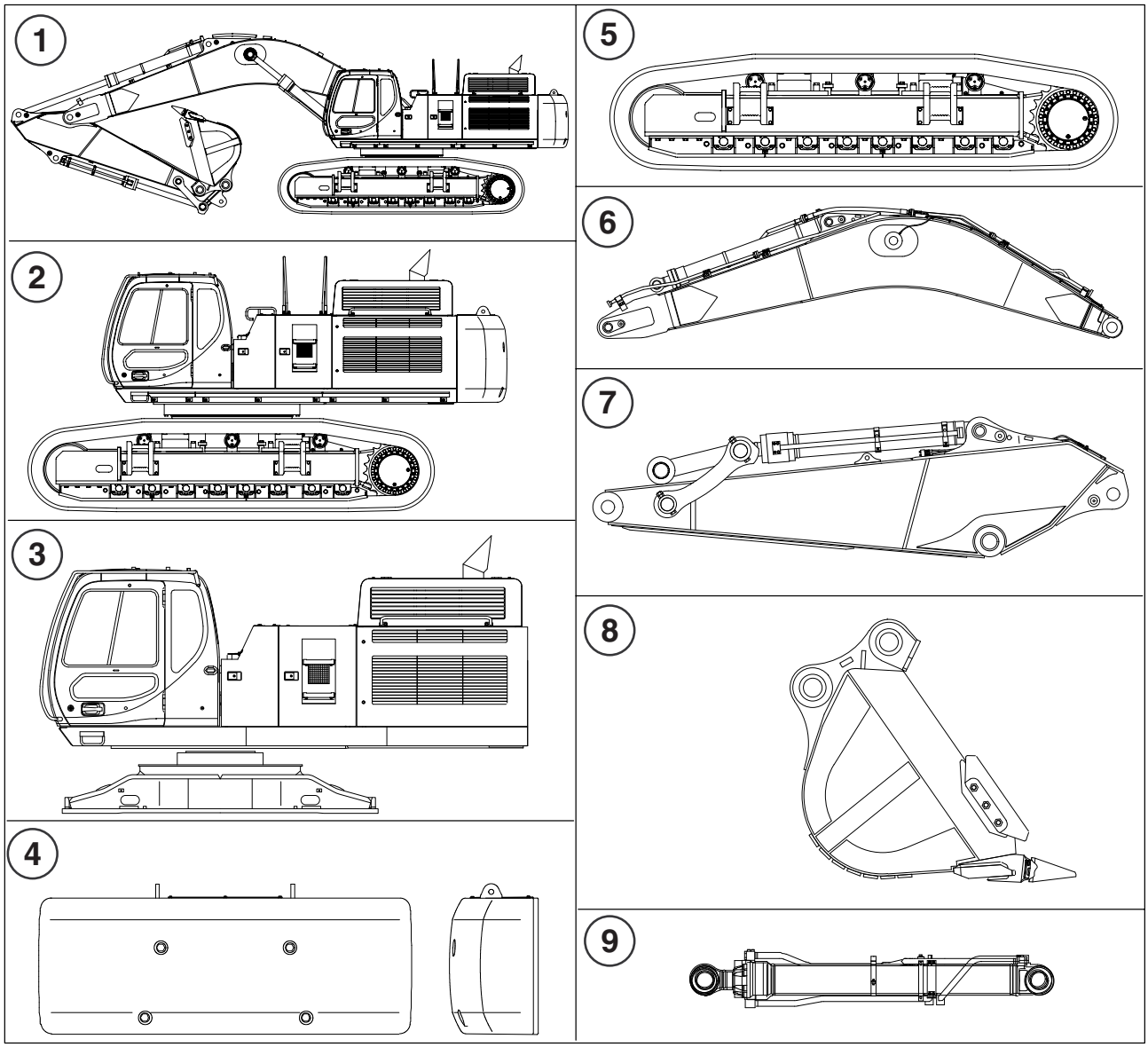
Reference Values

Numerical values for performance may change without notice due to product improvement.

Items				Reference values	Conditions
1	Engine speed (min^{-1})	Idling		900 ± 10	Mode: H
		Maximum without load		1870 ± 10	
2	Pressure of each part (MPa)	Main Relief	Standard	31.4 ± 1.0	Mode: S
			Boosting	34.3 ± 1.0	
		Swing relief	Vertical	26.5 ± 1.0	
		Pilot relief		4.4 ± 0.2	
3	Natural lowering level of each cylinder (mm)	Boom cylinder		11 or below	No load for 10 minutes
		Arm cylinder		17 or below	
		Bucket cylinder (when open)		12 or below	
		Overall		225 or below	No load for 10 minutes
4	Operational speed of each cylinder (sec)	Boom	Up	6.0 ± 0.6	Mode: S
			Down	4.1 ± 0.4	
		Arm	Open	4.3 ± 0.4	
			Close	5.4 ± 0.4	
		Bucket	Open	3.6 ± 0.3	
			Close	3.4 ± 0.3	
5	Swing speed (sec/1 revolution)			6.4 ± 0.3	Mode: S
6	Swing angle 180°, neutral brake flow angle (degrees)			60° or below	Mode: S
7	Travel speed (sec/6 m)		High	5.5 ± 0.3	Mode: S
8	Number of drive sprocket revolutions (sec/10 revolutions)		High	21.6 ± 1.6	Mode: S
			Low	15.0 ± 1.6	
9	Amount of turntable bearing shift (mm)		Horizontal	13.5 or below	Mode: S
			Vertical	2.1 or below	
10	Amount of shoe tension ranging from the side frame bottom to shoe surface (mm)			460 to 480	

COMPONENT WEIGHT

Major component weight



700-3-01-00-45A

Weight information is approximate

1) Overhall machine ..... 80000 kg (176369 lbs)
2) Machine without attachment ..... 63000 kg (138891lbs)
3) Upperstructure assembly ..... 25200 kg (55556 lbs)
4) Counterweight ..... 12500 kg (27560 lbs)
5) Side Frame 650 mm (25.6 in) (47 shoe) ..... 12400 kg (27337 lbs)
6) Boom assembly ..... 8300 kg (18298 lbs)
7) Dipper assembly ..... 4100 kg (9039 lbs)
8) Bucket ..... 3000 kg (6600 lbs)
9) Boom cylinder assembly ..... 800 kg (1764 lbs)

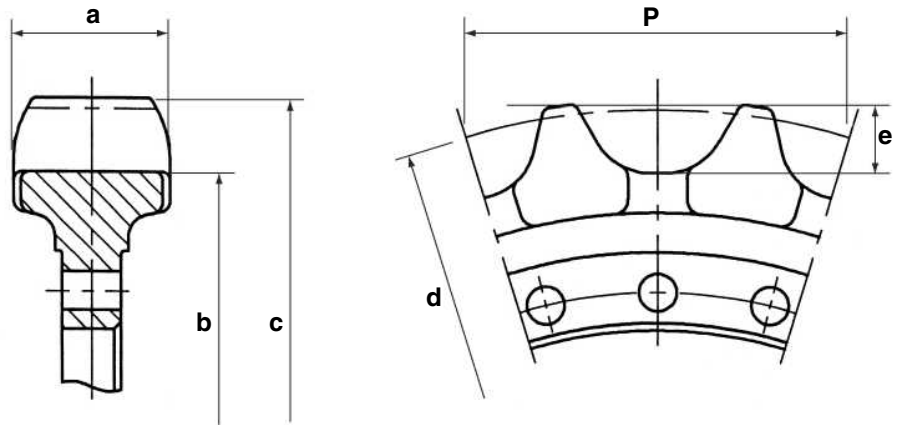
Other component weight

Engine	Approximately 1214 kg (2676 lbs)
Air cleaner	40.3 kg (89 lbs)
Hydraulic pump	300 kg (661lbs)
Attachment control valve	430 kg (948 lbs)
Swing motor and reduction gear assembly (2)	487 kg (1074 lbs)
Travel motor and reduction gear assembly	1052 kg (2319 lbs)
Rotary joint	107 kg (235 lbs)
8 solenoid valve bank	10.5 kg (23lbs)
Hand control valve	1.8 kg (4 lbs)
Foot control valve	7.8 kg (17 lbs)
Boom cylinder	715 kg (1576 lbs)
Arm (dipper) cylinder (Standard specification)	1055 kg (2325lbs)
Arm (dipper) cylinder (Mass digging specification)	1025 kg (2259 ibs)
Bucket cylinder (Standard specification)	600 kg (1322 lbs)
Bucket cylinder (Mass digging specification)	790 kg (1741 lbs)
Cab	255 kg (560 lbs)
Muffler	21.0 kg (46 lbs)
Radiator total weight	720 kg (1587 lbs
Oil cooler	215 kg (474 lbs)
Radiator	29.5 kg (65 lbs) x 3
Air cooler	35.5 kg (78 lbs)
Fuel cooler	6 kg (13.22 lbs)
Idler wheel	454 kg (1000 lbs)
Upper roller	76 kg (167 lbs)
Lower roller	187 kg (412 lbs)
Tension damper assembly	819 kg (1805 lbs)
Recoil spring assembly	662 kg (1459 lbs)
Grease cylinder assembly	153.4 kg (338 lbs)
Track chains	
650 mm (25.6 in) (47 shoe)	4451 kg (9812 lbs)
750 mm (29.5 in) (47 shoe)	4827 kg (10641 lbs)
900 mm (35.4 in) (47 shoe)	5271 kg (11620 lbs)

DIMENSIONS AND WEAR LIMIT OF THE TRACK ASSEMBLY

Sprocket

Dimensions

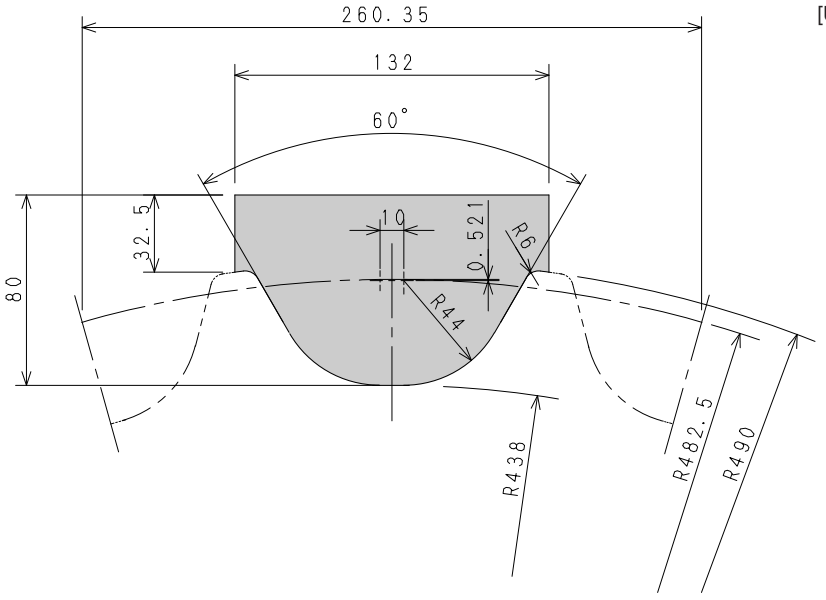


800-6-10-00-11A1

Mark		Dimension
		mm
a	Standard	106
	Limit	92
Ø b	Standard	876
	Limit	-
Ø c	Standard	980
	Limit	-
Ø d	Standard	99
	Limit	-
e	Standard	46.7
	Limit	51.7
P	Standard	260.35
	Limit	-

Gauge

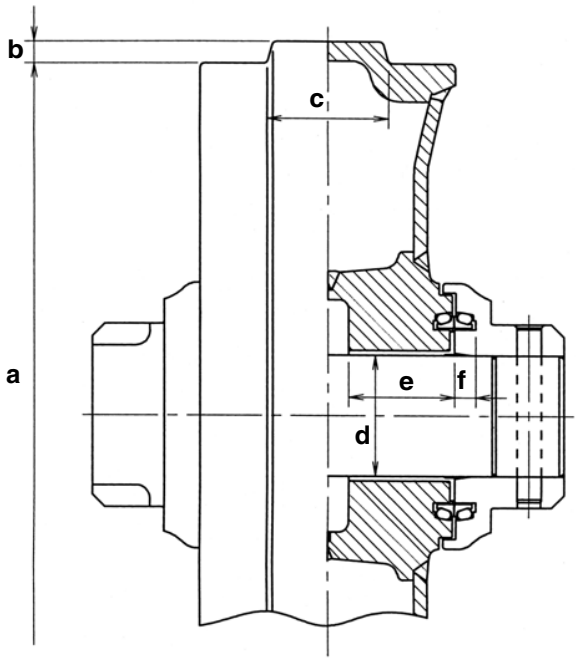
[Unit: mm]



800-6-10-03-14A

Idler wheel

Dimensions



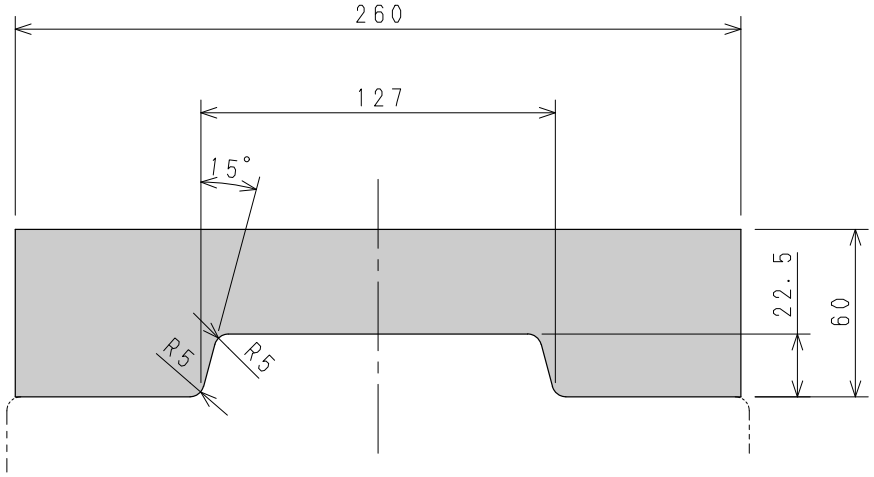
700-6-10-00-10B

Mark		Dimension
		mm
Ø a	Standard	830
	Limit	824
b	Standard	22.5
	Limit	25.5
c	Standard	127
	Limit	125
Ø d (shaft)	Standard	125
	Limit	124
Ø d (bushing)	Standard	125
	Limit	126
e (bushing)	Standard	110
	Limit	109.5
f	Standard	21.6
	Limit	-

Gauge

Unit in mm

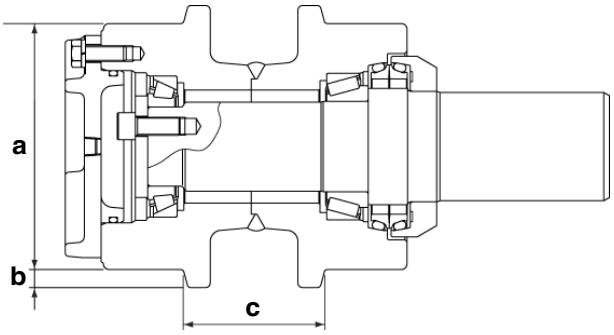
[Unit: mm]



800-6-10-03-14B

Upper roller

Dimensions



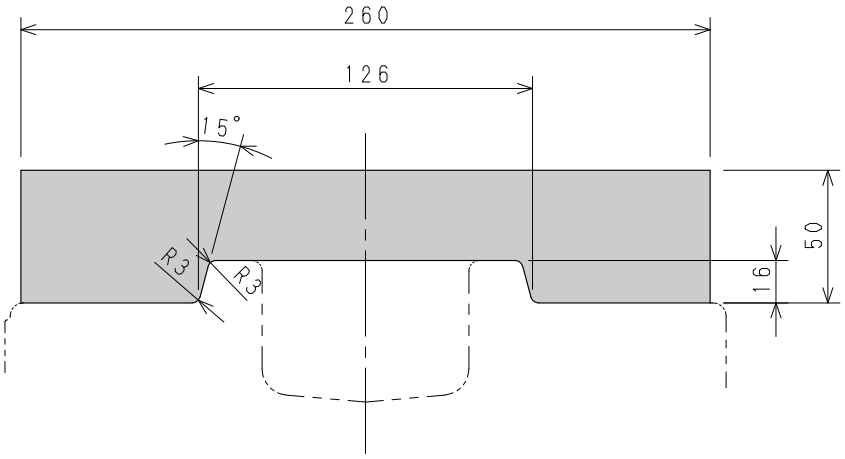
800.6.10.00.11C

Mark		Dimension
		mm
Ø a	Standard	218
	Limit	206
b	Standard	16
	Limit	22
c	Standard	126
	Limit	118

Gauge

Unit in mm

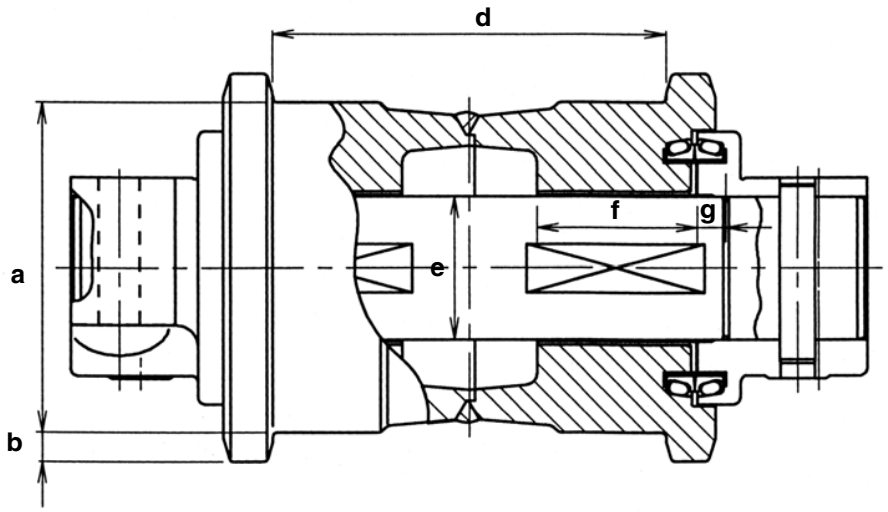
[Unit: mm]



800-6-10-03-14C

Lower roller

Dimensions

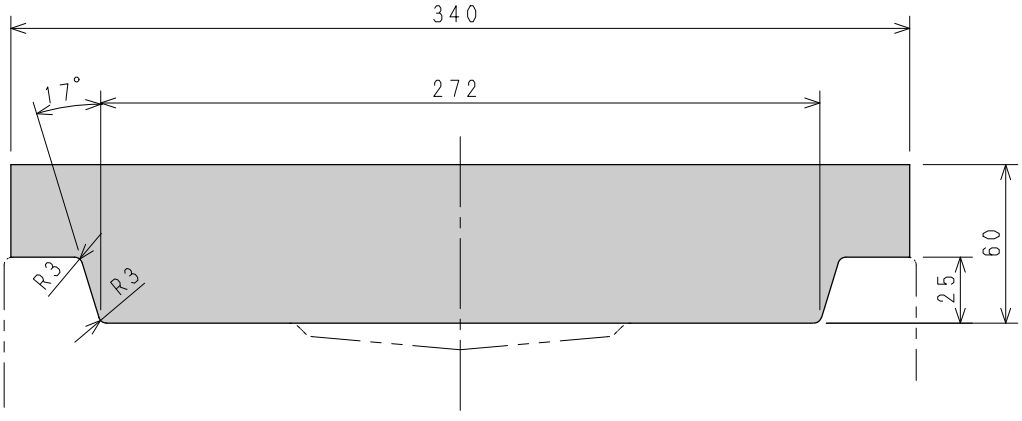


700-6-10-00-10D

Mark		Dimension mm	Mark		Dimension mm
Ø a	Standard	270	Ø e (bushing)	Standard	115.4
	Limit	252		Limit	116.4
b	Standard	25	f	Standard	113
	Limit	34		Limit	112.5
d	Standard	272	g	Standard	32
	Limit	284		Limit	31.5
Ø e (Shaft)	Standard	115			
	Limit	114			

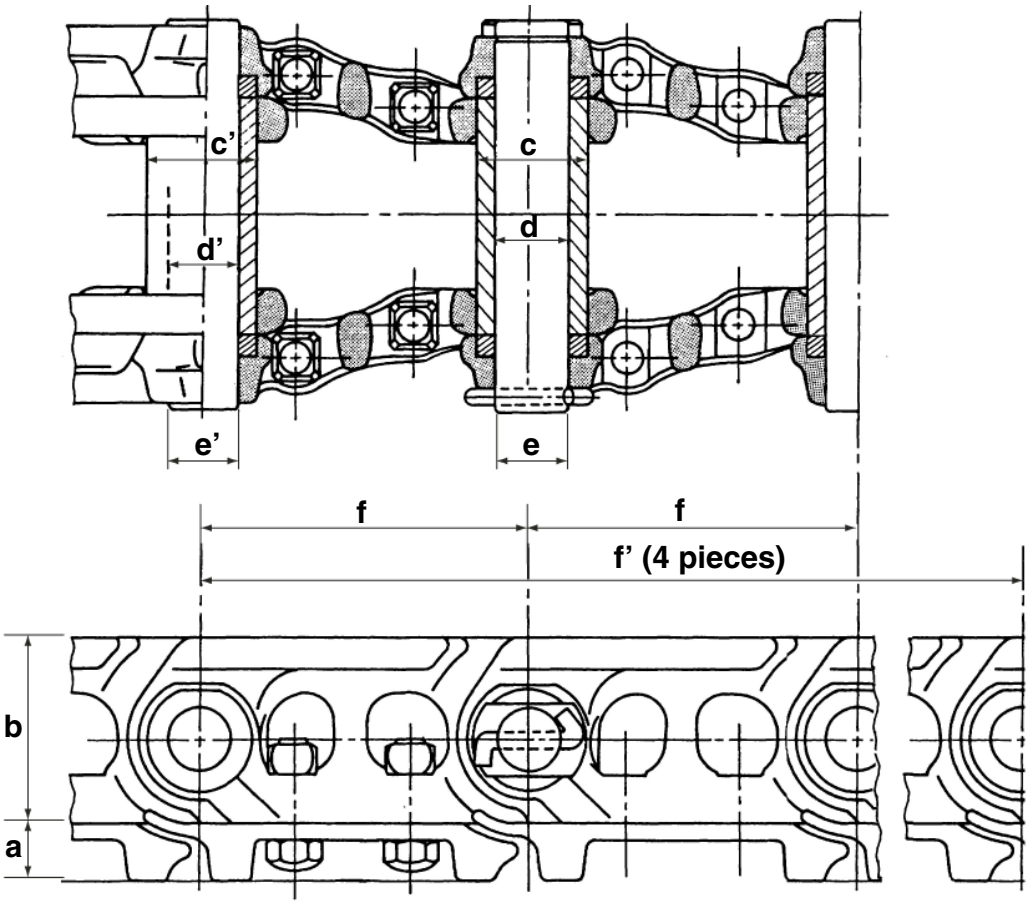
Gauge

Unit in mm



800-6-10-03-14D

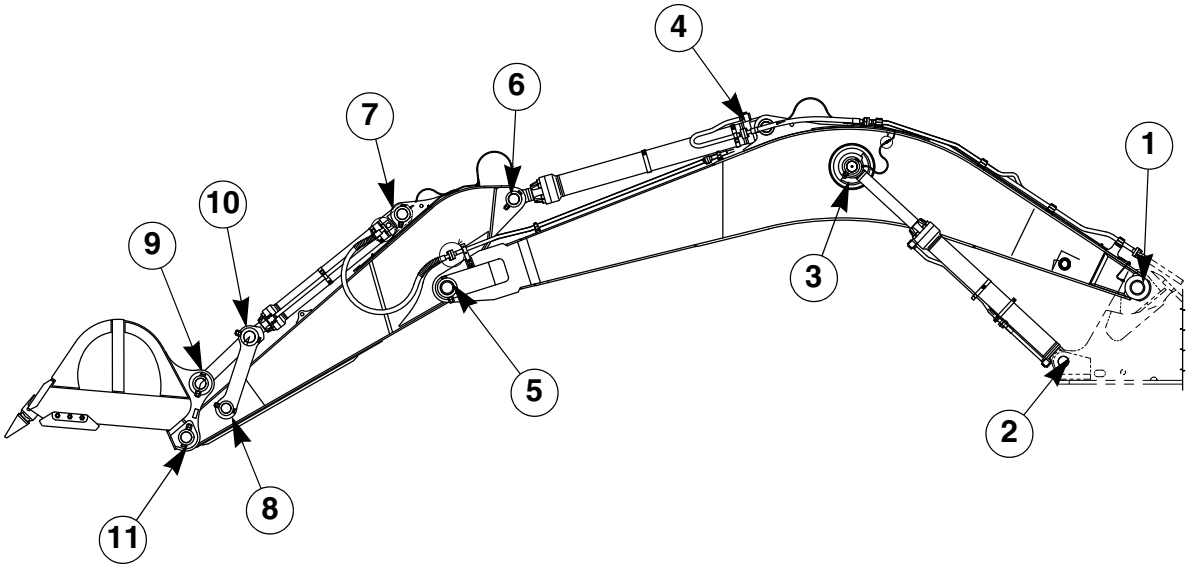
Track



800-6-10-00-11E-1

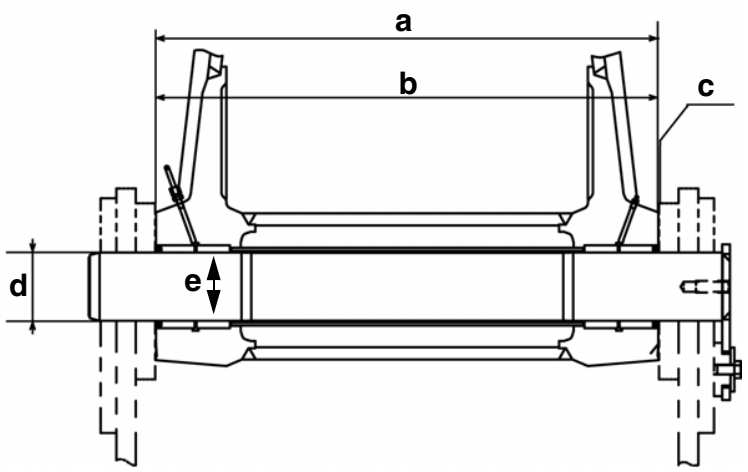
Mark		Dimension mm	Mark		Dimension mm
a	Standard	70.5	Ø c' (bushing)	Standard	88
	Limit	42.5		Limit	85.5
b	Standard	156	Ø d' (bushing)	Standard	55.65
	Limit	149		Limit	-
Ø c (bushing)	Standard	88	Ø e' (Pin)	Standard	55.65
	Limit	85.5		Limit	-
Ø d (bushing)	Standard	55.65	f' (4 pieces)	Standard	1041.4
	Limit	-		Limit	1063.2
Ø e (Pin)	Standard	55.35			
	Limit	-			
f	Standard	260.35			
	Limit	265.8			

DIMENSIONS AND WEAR LIMITS OF ATTACHEMENT MOBILE JOINTS



CRIL06C002

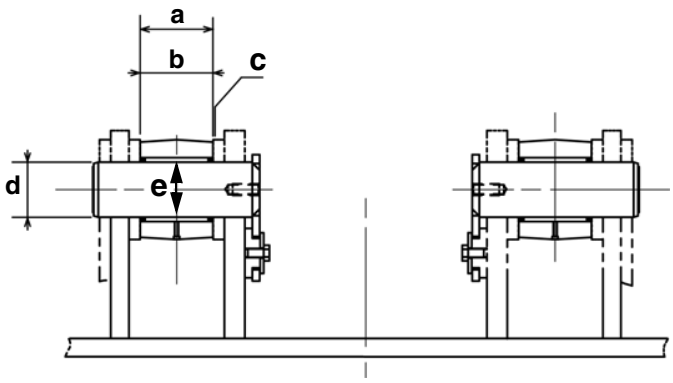
1. Boom foot/Frame



700-1-06-02-05JA

Mark		Dimension mm
a (frame)	Standard	1110
	Limit	1118
b boom)	Standard	1106
	Limit	1103
c (clearance)	Standard	4 to 6.5
	Limit	Shim adjustment
Ø d (shaft)	Standard	150
	Limit	149
Ø e (bushing)	Standard	150
	Limit	151.5

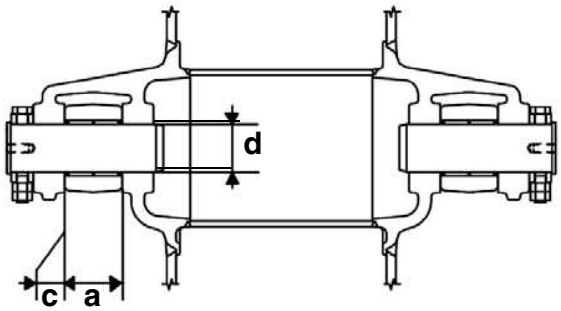
2. Boom cylinder foot/Frame



700-1-06-02-05A

Mark		Dimension mm
a (boom)	Standard	167
	Limit	173
b (cylinder)	Standard	166
	Limit	163
c (clearance)	Standard	1 to 3.5
	Limit	Shim adjustment
Ø d (shaft)	Standard	130
	Limit	129
Ø e (bushing)	Standard	130
	Limit	131.5

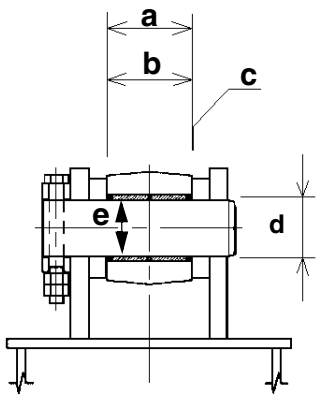
3. Boom cylinder head/Boom



CRPH06C001A

Mark		Dimension mm
a (boom)	Standard	157
	Limit	161
a (cylinder)	Standard	156
	Limit	153
c (clearance)	Standard	1 to 3.5
	Limit	Shim adjustment
Ø d (shaft)	Standard	130
	Limit	129
Ø d (bushing)	Standard	130
	Limit	131.5

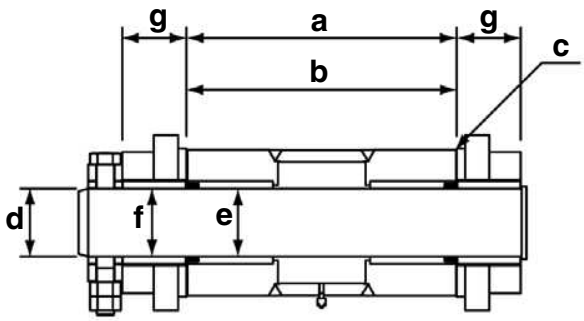
4. Dipper cylinder foot/Boom



CS01B525

Mark		Dimension mm
a (boom)	Standard	167
	Limit	173
b (cylinder)	Standard	166
	Limit	164
c (clearance)	Standard	0.5 to 3
	Limit	Shim adjustment
Ø d (shaft)	Standard	130
	Limit	129
Ø e (bushing)	Standard	130
	Limit	131.5

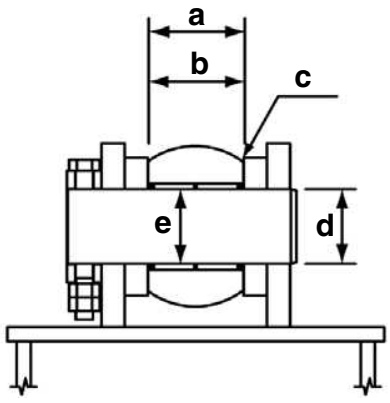
5. Boom/Dipper



800-6-10-11JA

Mark		Dimension mm
a (boom)	Standard	557
	Limit	560
b (dipper)	Standard	552.5
	Limit	549.5
c (clearance)	Standard	4.5 to 7.8
	Limit	Shim adjustment
Ø d (shaft)	Standard	140
	Limit	139
Ø e (bushing)	Standard	140
	Limit	141.5
f	Standard	140
	Limit	141.5
g	Standard	132
	Limit	130

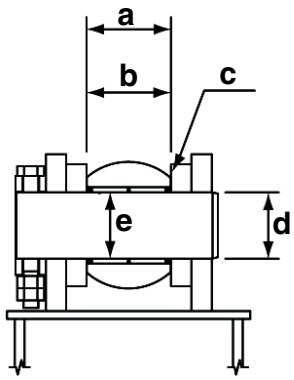
6. Dipper cylinder head/Dipper



800-6-10-00-11NA

Mark		Dimension mm
a (dipper)	Standard	167
	Limit	172
b (cylinder)	Standard	166
	Limit	164
c (clearance)	Standard	0.5 to 3
	Limit	Shim adjustment
Ø d (shaft)	Standard	130
	Limit	129
Ø e (bushing)	Standard	130
	Limit	131.5

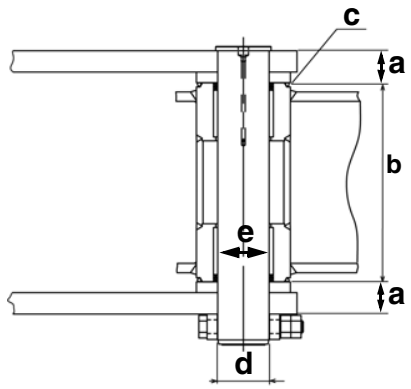
7. Bucket cylinder foot/Dipper



800-6-10-00-11NB

Mark		Dimension mm
a (dipper)	Standard	167
	Limit	172
b (cylinder)	Standard	166
	Limit	164
c (clearance)	Standard	0.5 to 3
	Limit	Shim adjustment
Ø d (shaft)	Standard	130
	Limit	129
Ø e (bushing)	Standard	130
	Limit	131.5

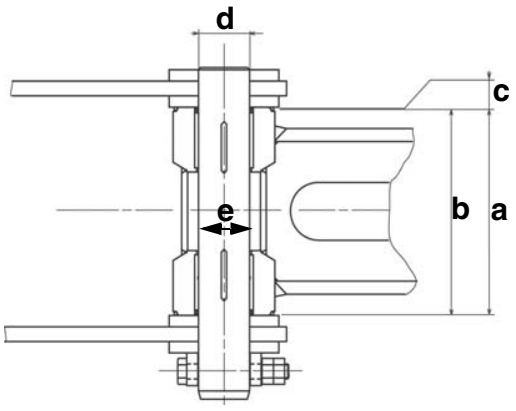
8. Connecting rod/Dipper



700-1-06-02-05JK

Mark		Dimension mm
a	Standard	82
	Limit	80
b	Standard	500
	Limit	496
c (clearance)	Standard	1 to 1.5
	Limit	Shim adjustment
Ø d (shaft)	Standard	120
	Limit	119
Ø e (bushing)	Standard	120
	Limit	121.5

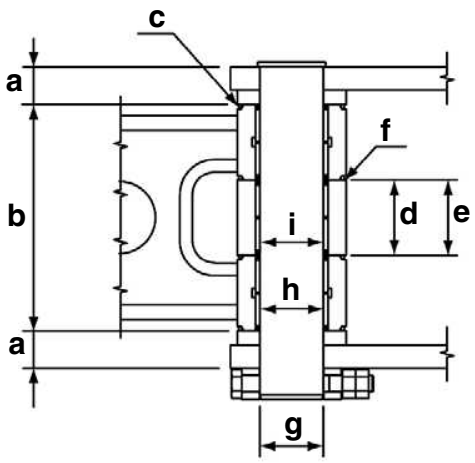
9. Compensator/Bucket



700-1-06-02-05JL

Mark		Dimension mm
a (bucket)	Standard	577
	Limit	582
b (link)	Standard	576
	Limit	573
c (clearance)	Standard	1 to 3.5
	Limit	Shim adjustment
Ø d (shaft)	Standard	130
	Limit	129
Ø e (bushing)	Standard	130
	Limit	131.5

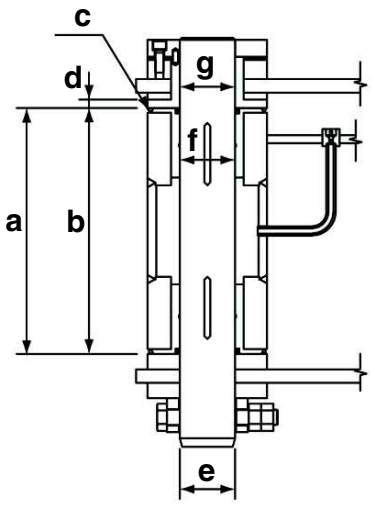
10. Connecting rod/Compensator/Bucket cylinder head



800-6-10-00-11TA

Mark		Dimension mm
a	Standard	82
	Limit	80
b	Standard	500
	Limit	495
c (clearance)	Standard	1 to 1.5
	Limit	Shim adjustment
d (link)	Standard	167
	Limit	169
e (cylinder)	Standard	166
	Limit	164
f (clearance)	Standard	1 to 2
	Limit	Shim adjustment
Ø g (shaft)	Standard	140
	Limit	139
Ø h (bushing)	Standard	140
	Limit	141.5
Ø i (bushing)	Standard	140
	Limit	141.5

11. Dipper/Bucket

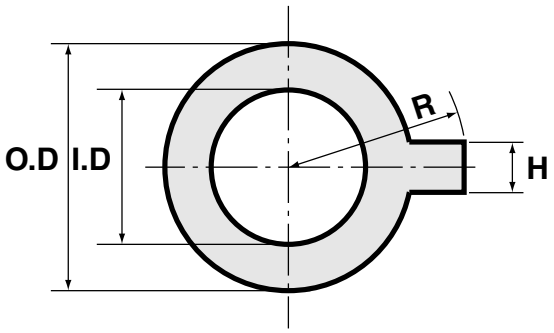


800-6-10-00-11VA

Mark		Dimension
a (bucket)	Standard	577
	Limit	582
b (dipper)	Standard	576
	Limit	579
c (clearance)	Standard	1 to 3.5
	Limit	Shim adjustment
d	Standard	20
	Limit	14
Ø e (shaft)	Standard	130
	Limit	129
Ø e (bushing)	Standard	130
	Limit	131.5
Ø e (bushing)	Standard	130
	Limit	131.5

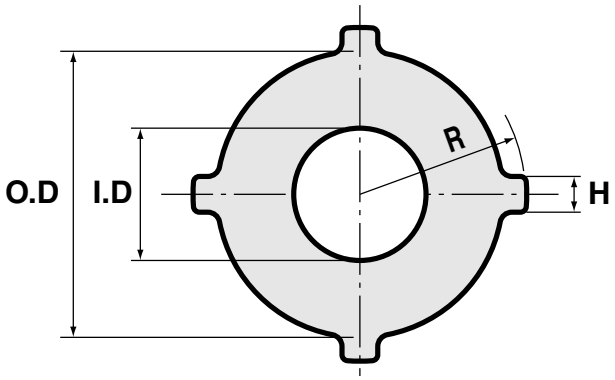
SHIMS FOR ADJUSTING ATTACHMENT GAPS

For boom foot



000-6-10-02-02A

Part No.	I.D.	O.D.	R	H	Shim Thickness	Material
KNV1132	76	160	100	30	1.2	SPHC
KRV2390	91	190	115	30	1.2	SPHC
KBV1441	101	220	130	30	1.2	SPHC
KBV1748	101	230	135	30	1.2	SPHC
KSV1805	111	240	140	30	1.2	SPHC



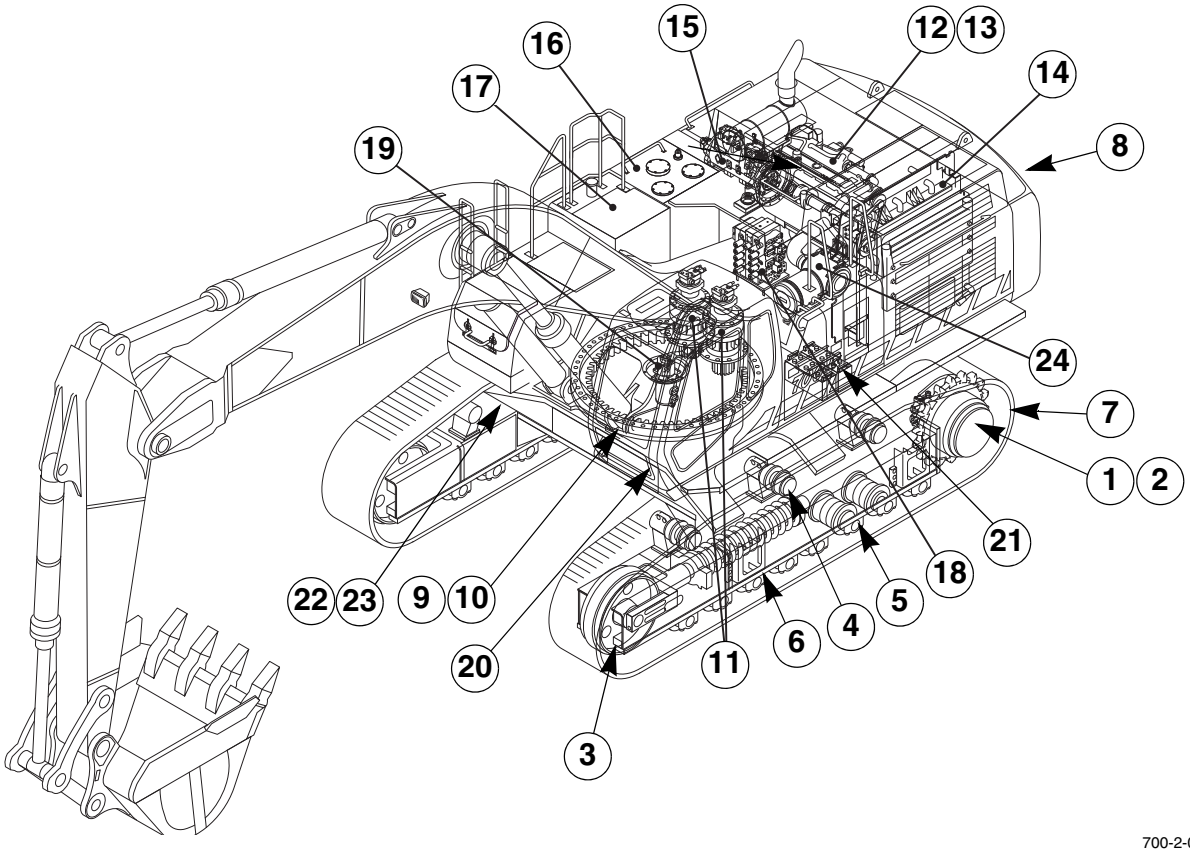
000-6-10-02-02B

Part No.	I.D.	O.D.	R	H	Shim Thickness	Material
KSV1930	111	240	140	30	1.0	Urethone
KSV11380	111	240	140	30	2.0	Urethone
KSV1931	116	240	140	30	1.0	Urethone
KSV11390	116	240	140	30	2.0	Urethone
KWV0097	141	280	160	50	1.0	Urethone
KWV10510	141	280	160	50	2.0	Urethone
KWV0096	141	300	180	50	1.0	Urethone
KWV10500	141	300	180	50	2.0	Urethone
KUV10150	141	300	170	30	1.0	Urethone
KUV10160	141	300	170	30	2.0	Urethone
KUV10130	151	300	170	30	1.0	Urethone
KUV10140	151	300	170	30	2.0	Urethone

SPECIAL TORQUE SETTINGS

No.	Component	Screw	Wrench (mm)	Torque setting
1 *	Travel motor and reduction gear assembly	M27	41	1307-1526 Nm (964 - 1125 lb-ft)
2 *	Sprocket	M27	41	1307-1526 Nm (964 - 1125 lb-ft)
3 *	Idler wheel			
4 *	Upper roller	M20	30	521-608 Nm (384-448 lb-ft)
5 *	Lower roller	M27	41	1307-1526 Nm (964-1125 lb-ft)
6 *	Chain guide	M30	46	1307-1526 Nm (964-1125 lb-ft)
7	Track pad	M27	30	1588-1869 Nm (1171-1378 lf-ft)
8	Counterweight	M42	65	2256-2550 Nm (1664-1880 lb-ft)
9*	Turntable (frame)	M30	46	1800-2100 Nm (1328-1549 lb-ft)
10*	Turntable (upperstructure)	M30	46	1800-2100 Nm (1328-1549 lb-ft)
11 *	Swing motor and reduction gear assembly	M24	36	900-1050 Nm (664-775 lb-ft)
12 *	Engine	M24	36	902-1049 Nm (665-774 lb-ft)
13 *	Engine bracket	M14	22	173-202 Nm (128-149 lb-ft)
14	Radiator	M20	30	520-608 Nm (384-448 lb-ft)
15 *	Hydraulic pump	M12	19	109-127 Nm (80-94 lb-ft)
16 *	Hydraulic reservoir	M20	30	471-258 Nm (347-419 lb-ft)
17 *	Fuel reservoir	M20	30	471-258 Nm (347-419 lb-ft)
18 *	Control valve	M20	30	343-392 Nm (253-289 lb-ft)
19 *	Hydraulic swivel	M16	24	267-312 Nm (197-230 lb-ft)
20	Cab	M16	24	78-80 Nm (58-59 lb-ft)
21	Battery	M10	17	20-29 Nm (15-21 lb-ft)
22	Frame	M36	55	2550-2942 Nm (1880-2170 lb-ft)
23	Frame	M30	46	1781-2078 Nm (1314-1533 lb-ft)
24	Air cleaner			

NOTE: *Use Loctite 262 or an equivalent on retaining screws of those components marked with an asterisk (*).*



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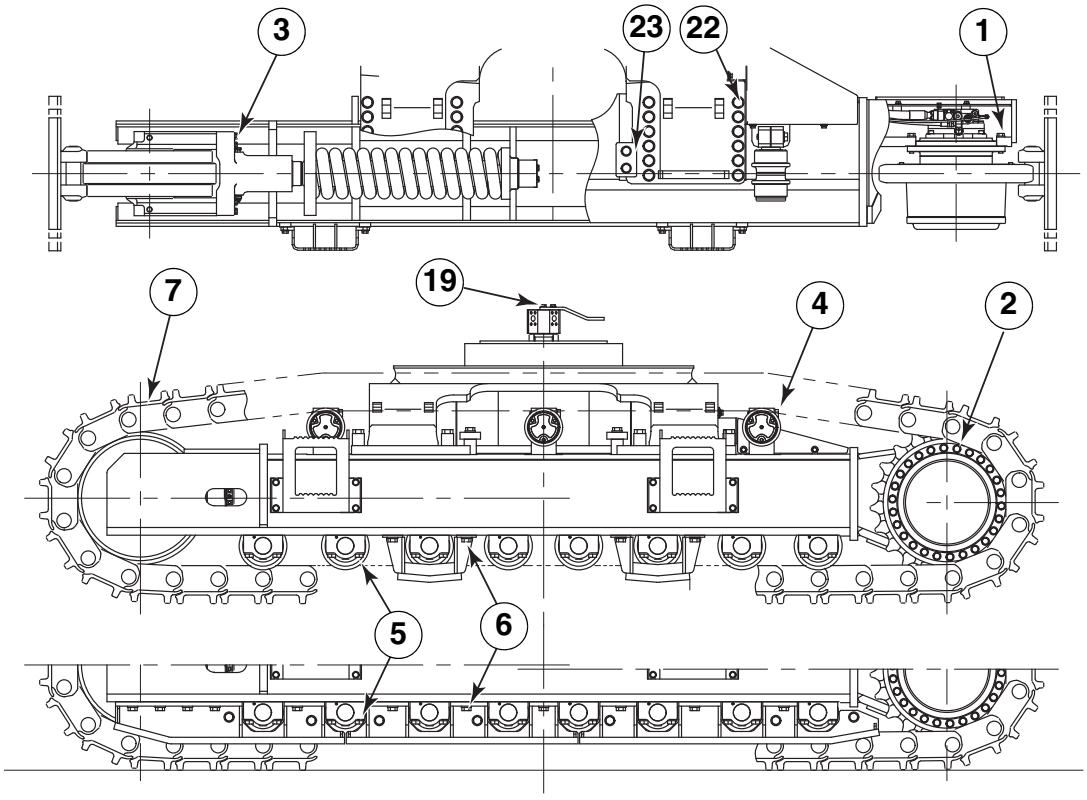

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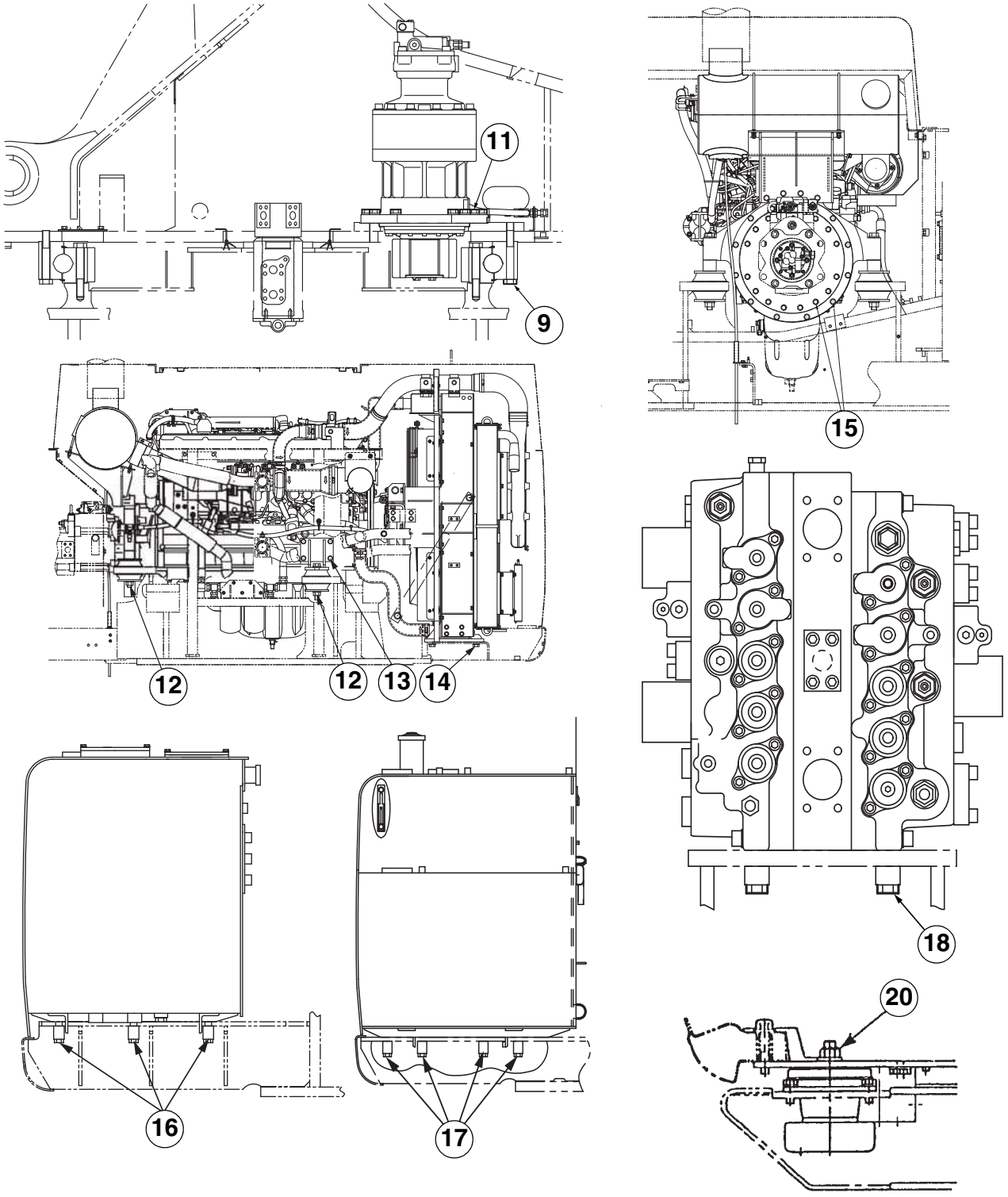
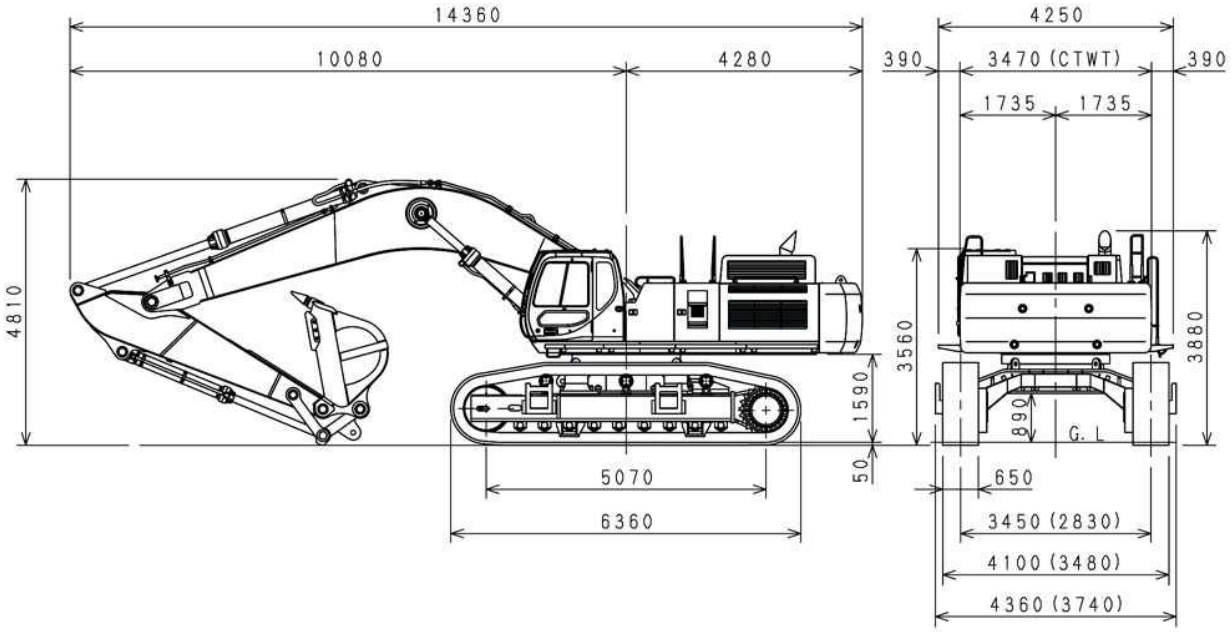


3-29-1-

MACHINE OVERALL DIMENSIONS

NOTE: *Numeral values may be changed without notice due to desing alterations or other reasons.*
The values in the diagram include the lug height of shoe (50 mm)
() Show the smallest dimension in the transport.
(1) Counterweight dimension

Standard arm (3.66 m)



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