HITACHI

KO-493-02

ASSEMBLY PROCEDURE MANUAL

ZAXIS

ZX470-5 class

ZAXIS-5B series
470-5B
470LC-5B
470H-5B
470LCH-5B
470R-5B
470LCR-5B

ZAXIS-5G series
470-5G
470LC-5G
470H-5G
470LCH-5G
470R-5G
470LCR-5G

ZAXIS-5A series
470-5A
470LC-5A
490H-5A
490LCH-5A
530LCH-5A

ZX670-5 class

ZAXIS-5B series
670LC-5B
670LCH-5B
670LCR-5B

ZAXIS-5G series
670LC-5G
670LCH-5G
670LCR-5G

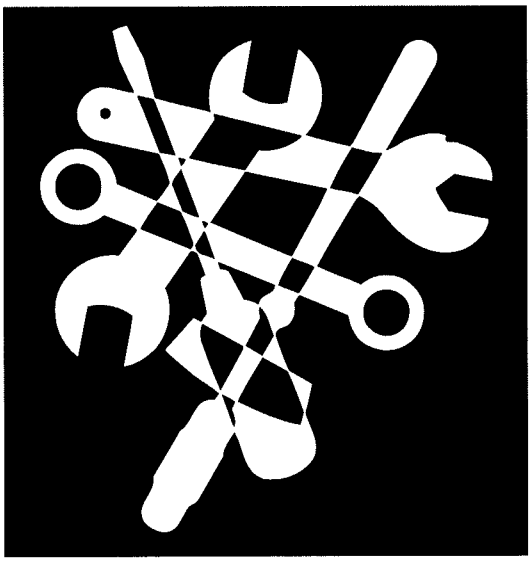
ZAXIS-5A series
670LC-5A
690LCH-5A

ZX870-5 class

ZAXIS-5B series
870-5B
870LC-5B
870H-5B
870LCH-5B
870R-5B
870LCR-5B

ZAXIS-5G series
870-5G
870LC-5G
870H-5G
870LCH-5G
870R-5G
870LCR-5G

ZAXIS-5A series
870-5A
870LC-5A
890H-5A
890LCH-5A



Hitachi Construction Machinery Co., Ltd.

3 FOLLOW SAFETY INSTRUCTIONS

Carefully read and follow all safety signs on the machine and all safety messages in this manual.

Safety signs should be installed, maintained, and replaced when necessary.
If a safety sign or this manual is damaged or missing, order a replacement from your Hitachi dealer in the same way as you order other replacement parts (be sure to state the machine model and serial number when ordering.)

Fig. 1-3

Learn how to operate the machine and its controls correctly and safely.
Allow only trained, qualified, authorized personnel to operate the machine.

Keep your machine in proper working condition.
Unauthorized modifications to the machine may impair its functions and safety, and affect machine life.
The safety messages in this chapter are intended to illustrate basic safety procedures for hydraulic excavators. However it is impossible for these safety messages to cover every hazardous situation you may encounter. If you have any questions, you should first consult your supervisor before operating or performing maintenance work on the machine.

4 DESIGNATE ONE LEADER AND TWO SUBLEADERS

In order to work with the greatest safety and ease, designate a foreman and two subleaders as working partners. When assembling the superstructure, station the subleaders at the front and rear of the machine. They should carry out and follow the leader's signals with utmost care to avoid breakage of components and personal injury.

- Briefing on work procedure
  To ensure absolute safety, provide an explanation on the work order, responsibilities of each worker, cautionary remarks and such to all related staff.
- Decide in advance the signal method, signal persons, supervisor, signal method between the driver and signal person.
  Only have one signal person for the work.
  Everyone obeys the signals of the signal person to proceed with the work.
  To have several signal persons can confuse the workers and lead to accidents.

Fig. 1-4

5 CLEAN THE MACHINE REGULARLY

Remove any grease, oil or dirt build-up to avoid possible injury or machine damage.

Do not spray water or steam inside the cab.

Fig. 1-5

27 DISPOSE OF WASTE PROPERLY

Improper waste disposal can threaten the environment and ecology. Potentially harmful waste used with HITACHI equipment includes such items as oil, fuel, coolant, brake fluid, filters, and batteries.

Use leakproof containers when draining fluids. Do not use food or beverage containers that may mislead someone into drinking from them.

Do not pour waste onto the ground, down a drain, or into any water source.

Allowing air conditioning refrigerants to escape into the air can damage the Earth's atmosphere. Government regulations may require a certified air conditioning service center to recover and recycle used air conditioning refrigerants.

Inquire as to the proper way to recycle or dispose of waste from your local environmental or recycling center, or from your HITACHI dealer.

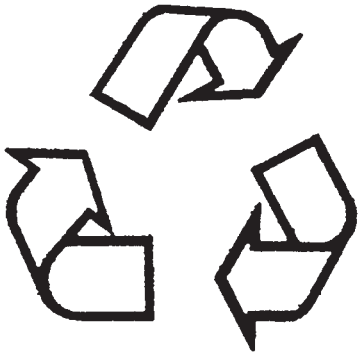


Fig. 1-35

28 SERVICE THE AIR CONDITIONING SYSTEM SAFELY

Refer to the outside of the freon container for proper handling procedures when servicing the air conditioning system.
Use a recovery and recycling system to avoid venting freon into the atmosphere.
Never let the freon stream make contact with your skin. Severe frost burns will result.

29 HANDLE CHEMICAL PRODUCTS SAFELY

Direct exposure to hazardous chemicals can cause serious injury. Potentially hazardous chemicals used with your machine include such items as lubricants, coolants, paint, and adhesives.

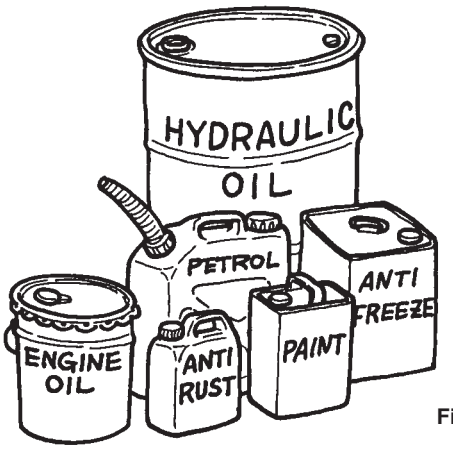


Fig. 1-36

13 Safety remarks to move the machine

❶ General cautionary remarks to move the machine

- Sit down in the driver's seat, and then, start the machine.
- To start the engine or drive forward/backward, look around carefully.
  Sound a warning or signal in one way or another.
- If the visibility is poor, place a signal person or a guide. This person is always visible to the driver.
- All workers should know the meanings of all signal lights and signals.
  Decide the signal and guide supervisor.
- The confines of machine movements should be free of all persons and obstacles.

❷ Travel safety

- When you travel, be very careful with the surrounding safety.
- Before starting to travel, confirm the relationship of the travel direction of the travel lever and the actual travel direction. Then, enable the travel lever.

❸ Prevention of accidents during swinging, reversing

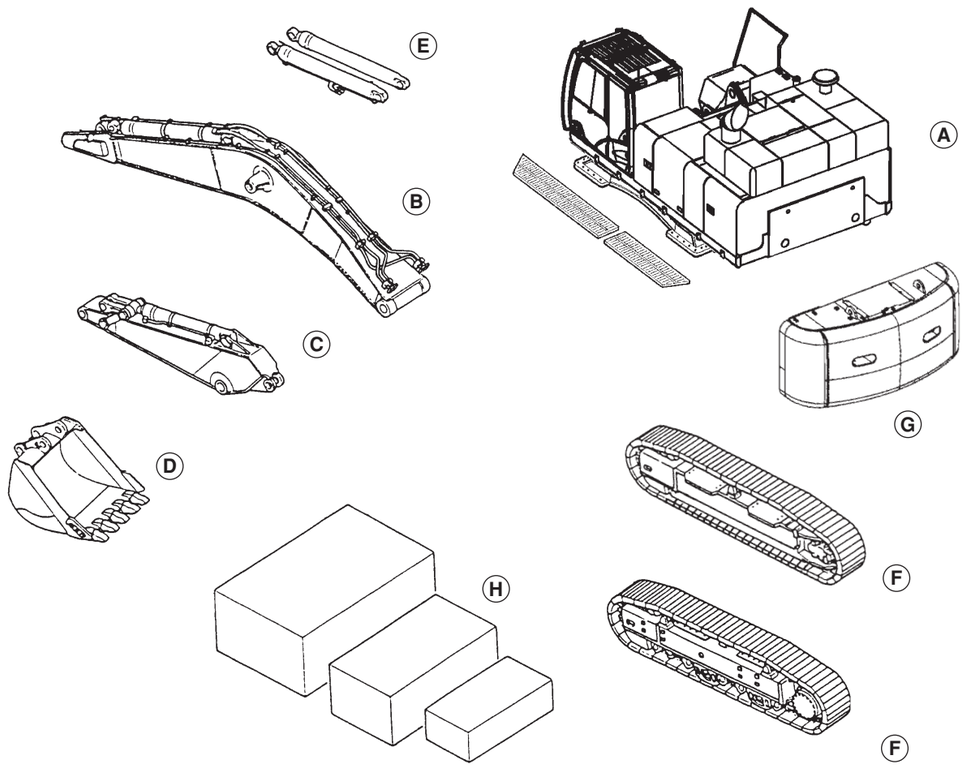
Swinging and reversing are particularly dangerous because the angle of the vision is narrow. If the visibility is poor, place a signal person or a guide.

- Before you start to swing or reverse, confirm that there is no one around.
- Horn or signal as a warning to make sure that no one enters the machine confines.

2-3 Transport arrangements

1 Transport of ZX470-5 class

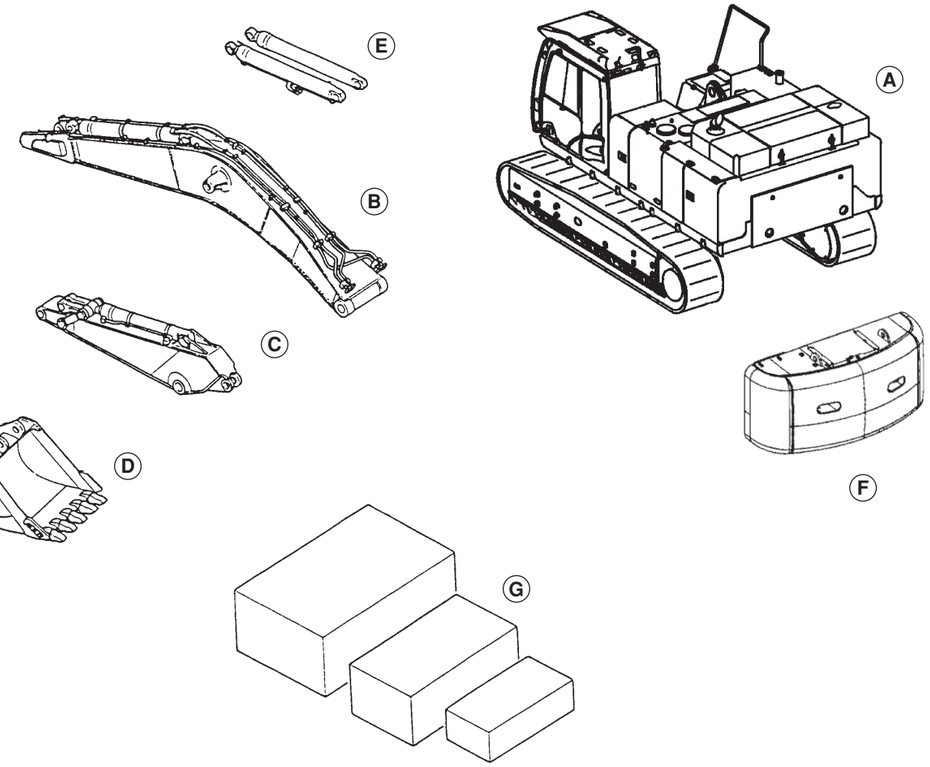
❶ Transport of ZX470-5B series/ZX470-5A series (backhoe front)



ZX470-5B series/ZX470-5A series backhoe front (Unit: metric tonne)

		Ⓐ Superstructure (with track center frame)	· Boom Ⓑ · Arm Ⓒ · Bucket Ⓓ · Cylinder Ⓔ X 2	Side frame Ⓕ X 2	Counter-weight Ⓖ	Handrails, Ladders, Steps, etc. Ⓗ
Trailers/trucks	28-tonne trailer			**28t**		
	16-tonne trailer	**16t**				
	10-tonne truck		**10t**		**10t**	
	8-tonne truck					**8t**

❷ Transport of ZX470-5G series/ZX470-5A series (backhoe front)



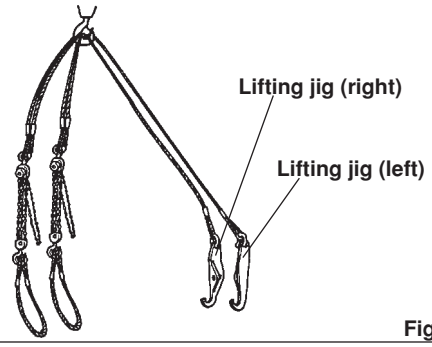
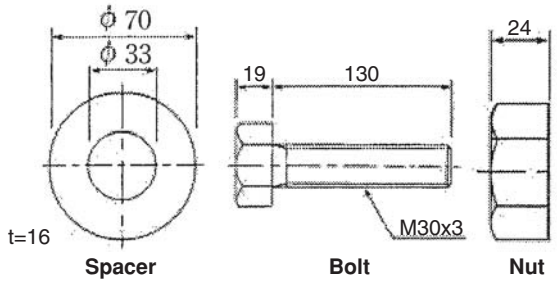
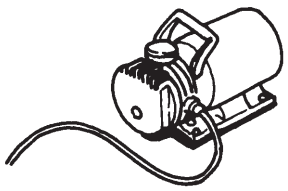
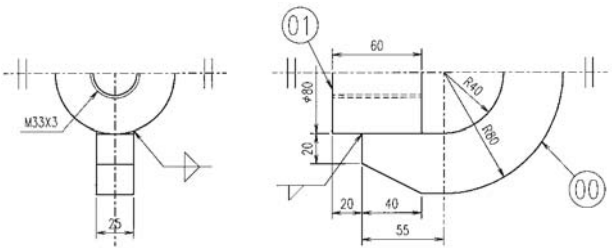
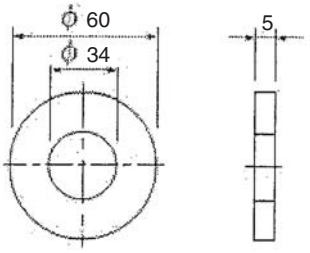
ZX470-5G series/ZX470-5A series backhoe front (Unit: metric tonne)

		Ⓐ Base machine (no attachment)	· Boom Ⓑ · Arm Ⓒ · Bucket Ⓓ · Cylinder Ⓔ X 2	Counter-weight Ⓕ	Handrails, Ladders, Steps, etc. Ⓖ
Trailers/trucks	30-tonne trailer	**30t**			
	10-tonne truck		**10t**	**10t**	
	8-tonne truck				**8t**

Note:

If you are unable to procure the tools locally, order them in advance from Hitachi.

SPECIAL TOOLS (others)

Item	Illustration	Tool name	Q'ty	Usage
6	 Fig. 8	Right side / Left side ZX470 -5 class: 8123248 / 8123249 ZX670LC -5 class: 8102865 / 8102864 ZX870 -5 class: 8102726 / 8102725	1 1 1	Base machine lifting jig (For details of lifting jigs, refer to the appendix on pages 249 to 265.)
	 Fig. 9	Spacer P/No. 4241784 Bolt P/No. J833006 Nut P/No. J953039	4 2 2	
7	 Fig. 10	Vacuum pump assembly ST6905 Vacuum pump ST6440 Hose ST6326 NipplePT 1/8 ST6066 NipplePT 3/8 ST6068	1	Use to create a vacuum in the hydraulic oil tank.
8	**Nut, eye**  Fig. 11	Lifting jig (nut, eye) P/No. 9772243	4	Track center lifting jig **ZX870-5 class only**
	Flat washer  Fig. 12	Lifting jig (flat washer) P/No. A590133	4	

2 Cleaning the track center frame

⚠ *CAUTION:*

Before working under the superstructure, place supports under the front, back, left and right of the superstructure so that the load doesn't drop.

Support for 5t load:	4 pcs.
Height:	1 000 mm (40 in)

❶ Clean the front bottom, back bottom, left bottom and right bottom at ⓐ-ⓓ (4 locations) of the track center frame of superstructure ⑩⓪

❷ Finish the all spot-face bolt holes of the track center frame neatly.

❸ Check the surface for any damage.

⚠ *Note:*

Repair or re-finish any damage.

❹ Clean all spot-facing surfaces of the track center frame.

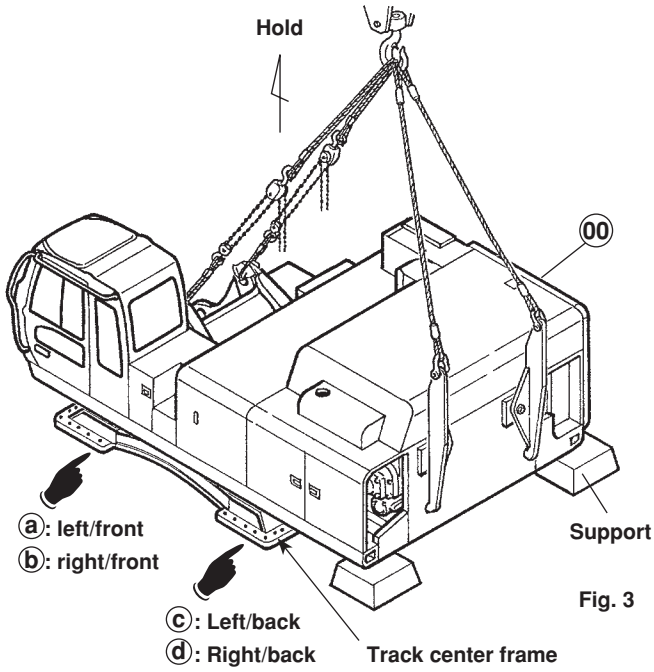


Fig. 3

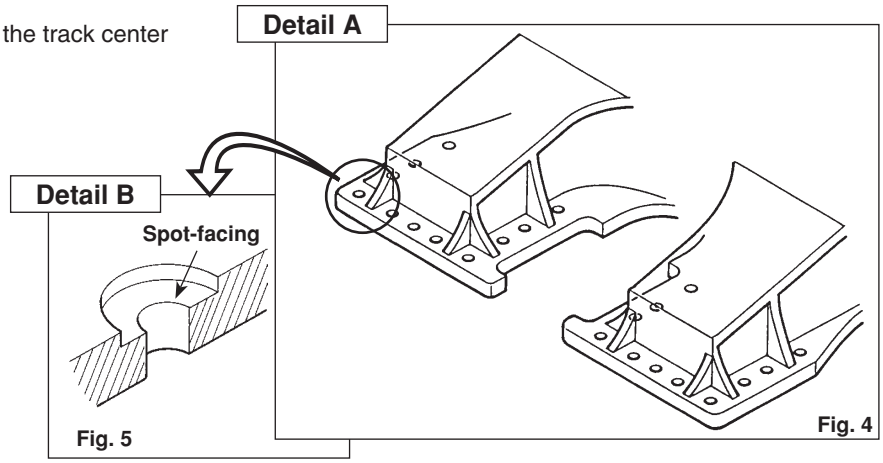


Fig. 4

Fig. 5

3 Confirming the superstructure and side frame locations

❶ Lift superstructure ⑩⓪ horizontally.

⚠ *Note:*

Adjust the chain blocks to make the superstructure level.

⚠ *CAUTION:*

The work is dangerous, so make sure that there is no one under the lifting superstructure.

❷ Check the direction of the track center frame of superstructure ⑩⓪. Check that the track center frame is facing the direction as shown in Ⓐ in Fig. 6.

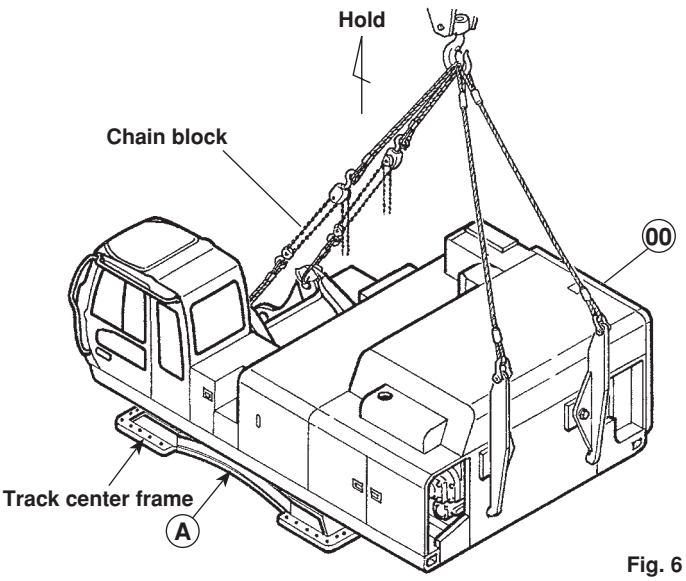


Fig. 6

Case B: In the case of ZX870-5 class

6-2-2 Connecting the track center frame and side frames

Step 1

Preparing the side frame (right)

1 Slinging the side frame (right)

❶ Sling wire ropes over side frame (right) ⑭ as shown in Fig. 1.

⚠ *Note:*

Use protectors in 4 locations ⓐ, ⓑ, ⓒ, ⓓ shown by (☛) so that the wire rope doesn't damage.

Weight of side frame assembly ⑭: Refer to the chart on page 41.

Wire rope used:			
26 mmø (1.0 inø)	×	8 000 mm (L) (312 in L)	: 2 pcs.

Protector:	8 pcs.

❷ Lift side frame (right) ⑭ as shown in Fig. 1.

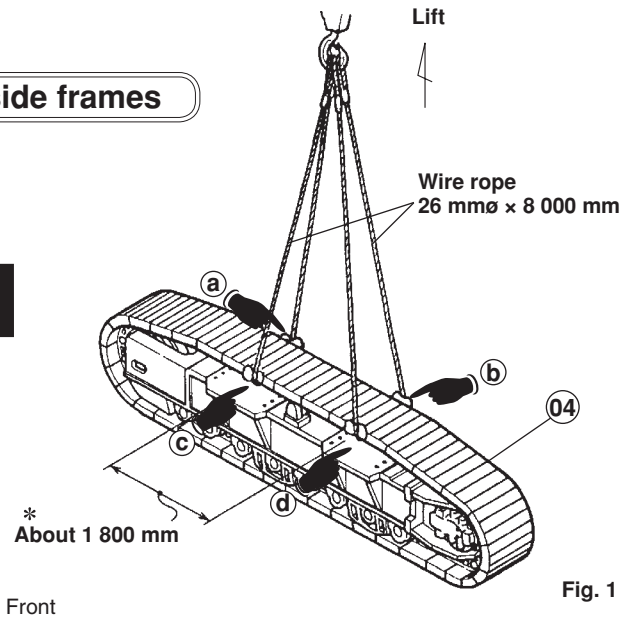


Fig. 1

⚠ *CAUTIONS:*

i) The work is dangerous, so make sure that there is no one under the lifting side frame.

ii) A qualified worker undertakes sling work and lifting work.

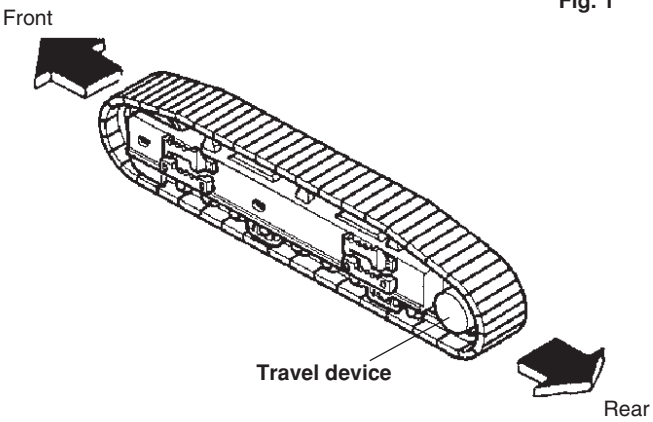


Fig. 2

2 Place the side frame on ground and set the travel device so that it is positioned at the back.

3 Cleaning the side frame (right) and finish

❶ Using a tap, tap all the screw holes noted at ⓔ and ⓕ on the surface of side frame (right) ⑭ on which the track center frame is installed.

ZX870-5 class
Tap size: M36 × P3.0

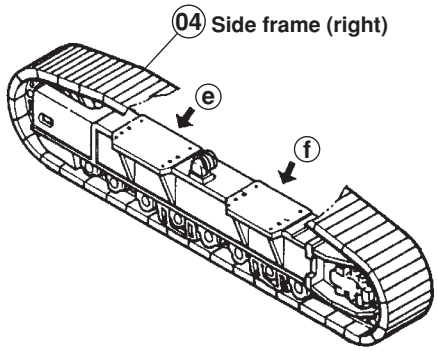


Fig. 3

❷ Clean the surface on which side frame (right) ⑭ is installed.
Check the surface for any damage.

⚠ *Note:*

Repair or re-finish any damage.

Detail A

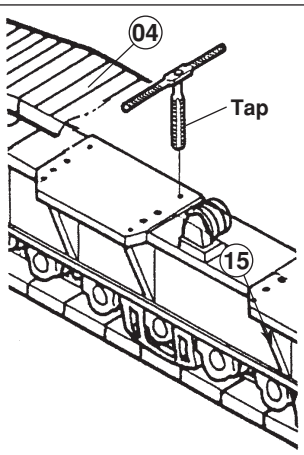


Fig. 4

Step 6

Removing the wire rope

1

❶ Lower the crane that was used to lift side frame (left) ⑮, and land the side frame on the ground.

❷ Remove the wire ropes that was used to lift side frame (left) ⑮.

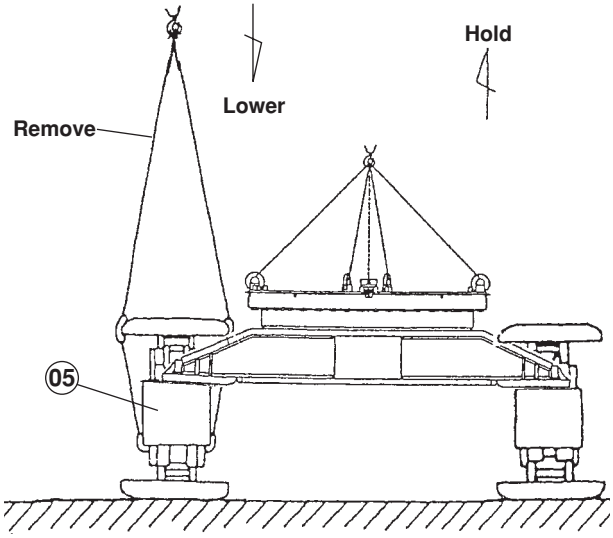


Fig. 1

2

❶ Lower the crane that was used to lift track center frame ⑩.

❷ From the swing bearing, remove the wire ropes and eyebolts that were used to lift track center frame ⑩.

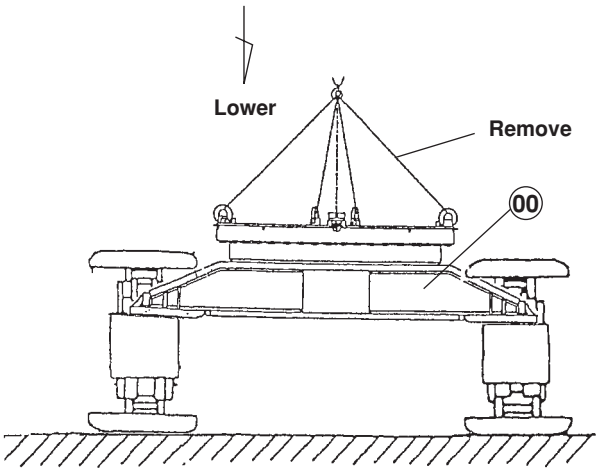


Fig. 2

3

This completes the undercarriage assembly work.

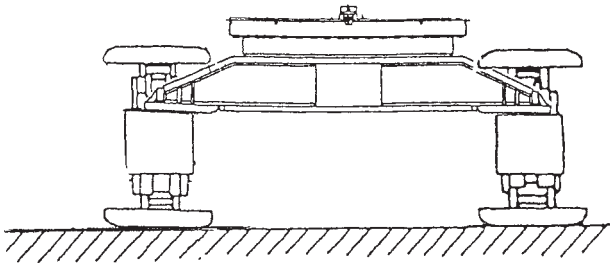


Fig. 3

Step 5

Restoring the swing lock function (plug insertion)

IMPORTANT:

The assembly supervisor follows this procedure to restore the functions of the swing lock. If the work is not carried out properly, the device can be damaged.

Detail A

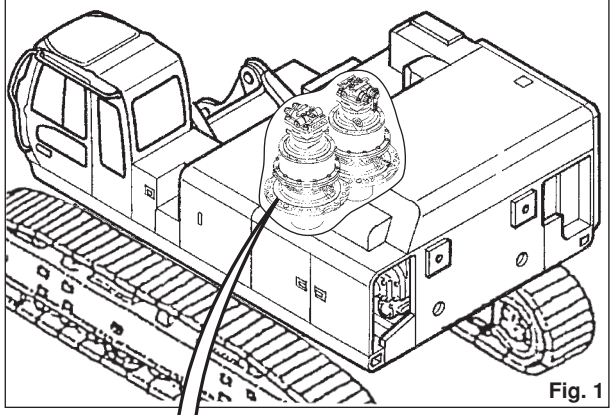


Fig. 1

Detail B

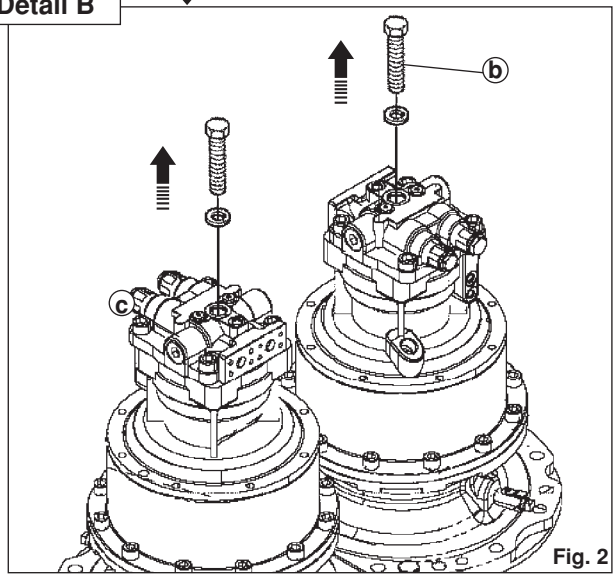


Fig. 2

1 Remove the bolt ⓑ that was screwed in on page 94 and insert the plug ⓐ instead (motors at the left and right).

2 After cleaning off all the oil, carefully wash the parts.

Detail C

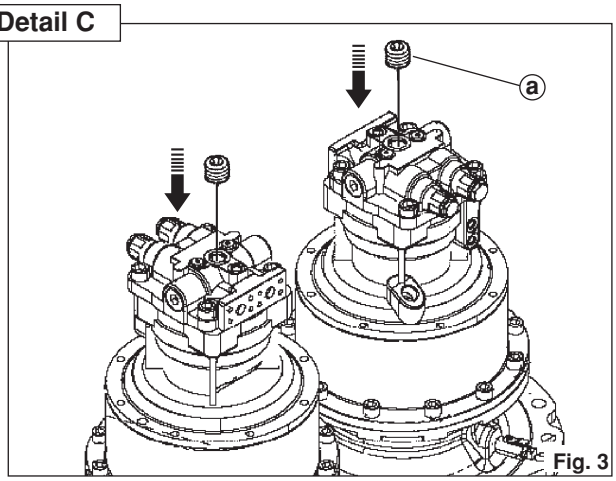


Fig. 3

6-3 Connection of travel hoses and installation of steps, handrails

Step 1

Connecting the travel motor hoses

1 Removing the travel motor covers

❶ Remove the cover ⓐ from the travel motor.
❷ In the same way, remove the opposite travel motor cover.

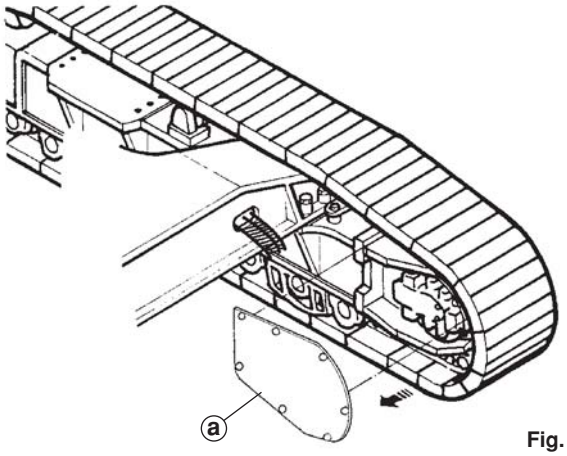


Fig. 1

2 Connecting the travel motor hoses

Note:

Stop the engine and move each operation lever back and forward, left and right a few times to release any residual pressure.

❶ Remove the caps from the travel motor ports and travel hoses.

CAUTION:

In removing the caps from the hose ends, slowly loosen the tightening bolt and remove the cap only after confirming that all pressure has been released.

❷ Connect travel hoses ⓑ, ⓒ, ⓓ and ⓔ to the travel motor.
❸ Connect the travel hoses for the opposite travel motor in the same manner.

Notes:

i) Connect the hose so it does not make contact with other parts.
ii) Make sure that no dust has adhered to the seat face of the hose.
iii) Do not damage the joining surfaces of the hose.
iv) Do not twist hose when connecting them. Their service life will be shortened.
v) Use O-rings to connect the hoses. Apply a thin layer of sealant #98D to the O-ring before installation.

Tightening torque of M12 socket bolts (ⓑ, ⓒ):	90 N·m (9 kgf·m/66 lbf·ft)
Socket size:	10 mm
Tightening torque (ⓔ):	120 N·m (12 kgf·m/89 lbf·ft)
Width across flats:	27 mm
Tightening torque (ⓓ):	60 N·m (6 kgf·m/44 lbf·ft)
Width across flats:	22 mm

3 After connecting the travel motor hoseing, clean away any residue oil from the outside of all parts.

Detail A

Example: ZX870-5 class

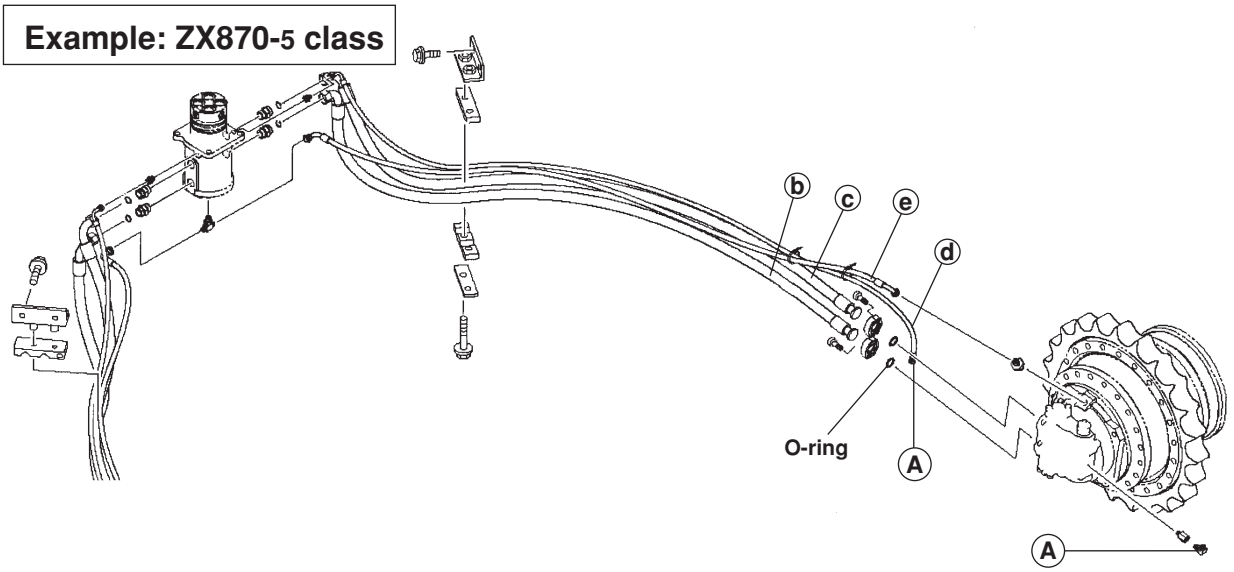


Fig. 2

6-4 Greasing of swing bearing

Greasing (1)

1 The machine is provided with a pneumatically operated grease lubricator connected to the hose reel and a grease gun.

Operation procedure (Refer to the next page for the specific greasing method.)

(1) Connect air supply hose to lubricator pump ⓐ.
(2) Pull out the grease hose from hose reel ⓒ while holding grease gun ⓑ.
(3) Stop pulling out when the reel clicks and desired hose length is obtained; the hose will be locked automatically.
(4) Connect grease gun ⓑ to the desired grease fitting and pull the gun lever; grease will be supplied automatically by air pressure.

IMPORTANT:

Run the engine at medium speed or more when supplying grease using the lubricator.

2 Start the engine.

3 Supply grease to 3 points as shown in Fig. 3.

Notes:

i) When using a lubricator, increase the engine speed above medium speed.
ii) If an optional automatic greasing system is not equipped, the ZX470-5 class, ZX670LC-5 class, and ZX870-5 class come equipped with a standard air grease gun. Grease up at the swing bearing with the air grease gun manually.
iii) Insufficient greasing will cause wear to the pins.

Detail A

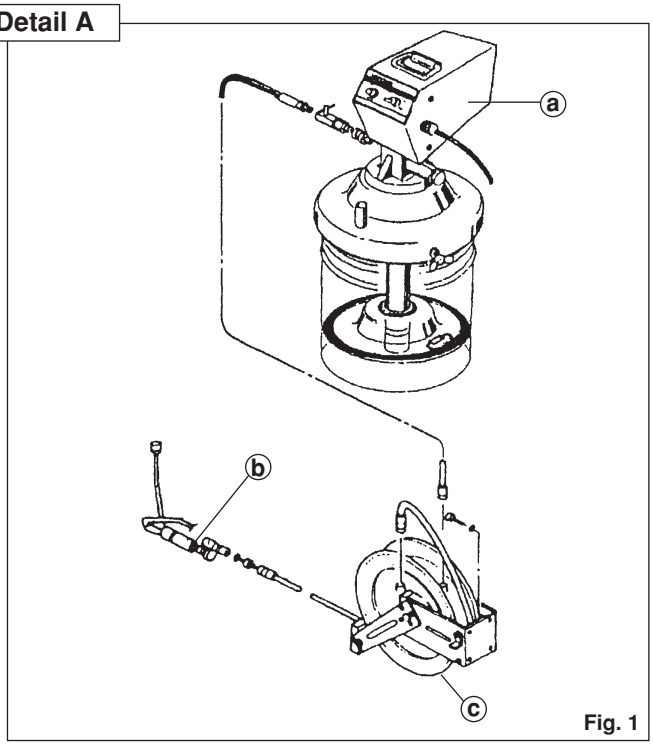


Fig. 1

Example: ZX670LC-5 class

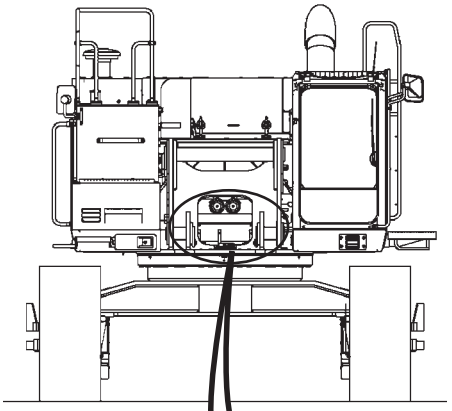


Fig. 2

Detail B

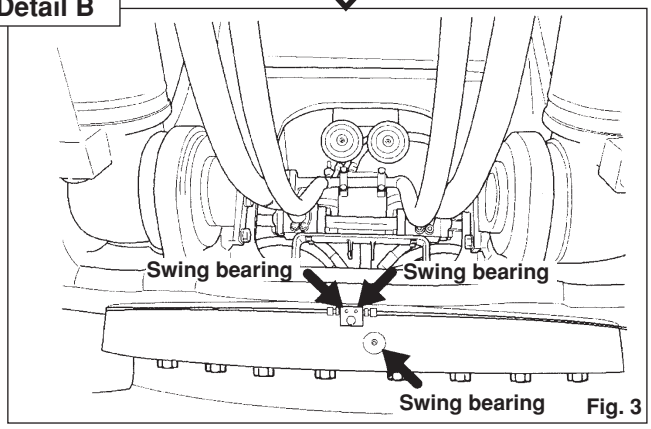


Fig. 3

Switch Operation

❶ When lever ① is in a transverse direction, battery disconnect switch ② turns ON. Lever ① can not be removed when lever ① is in a transverse direction.

❷ When lever ① is turned counterclockwise and is in a vertical position, battery disconnect switch ② turns OFF.
Lever ① can be removed from battery disconnect switch ② when it is in the OFF position.

❸ Insert lever ① remove from switch ② into hole ③ of the holder.

Battery Disconnect Switch ON

Detail C

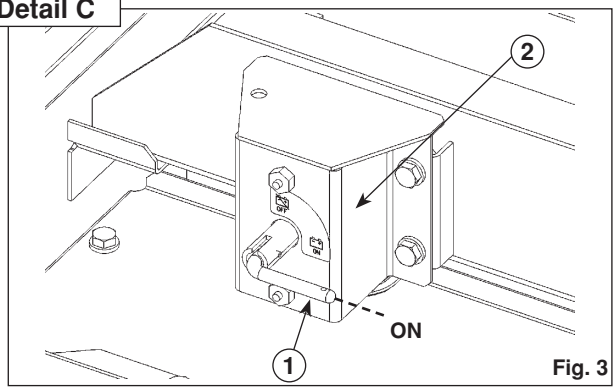


Fig. 3

Battery Disconnect Switch OFF

Detail D

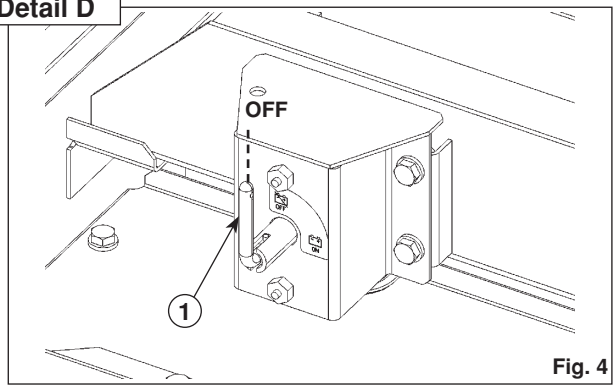


Fig. 4

ZX470-5 class

Detail D'

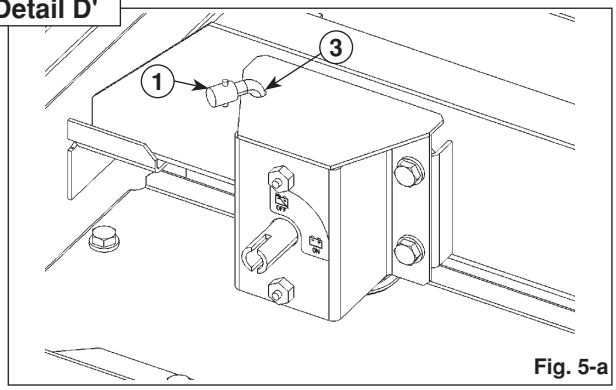


Fig. 5-a

ZX670-5, 870-5 class

Detail D''

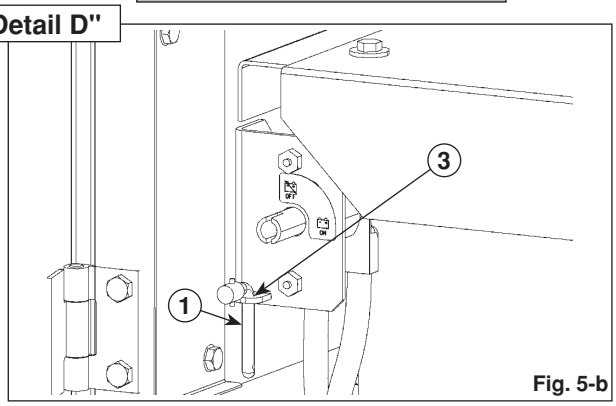


Fig. 5-b

7-2 Preparing to assemble the backhoe front

Step 1

Preparing to assemble the base machine

*

Getting the base machine ready

❶ Before you begin to work, extract the boom foot pin that is mounted to the body.

Pin weight:	ZX470-5 class	103 kg (227 lb)
	ZX670LC-5 class	178 kg (392 lb)
	ZX870-5 class	248 kg (546 lb)

Nylon sling:	1pc.

Notes:

i) Firmly tie a nylon sling around the pin, making sure that the sling doesn't slide.
Next, lift the pin with a crane and then, pull it out.

ii) The foot pin has a shim.
Use this shim to assemble the boom.
Temporarily store the shim.

❷ Clean off the anti-rust that is applied to the boom foot pins and pin holes.

❸ Apply grease to the above boom foot pins and pin holes.

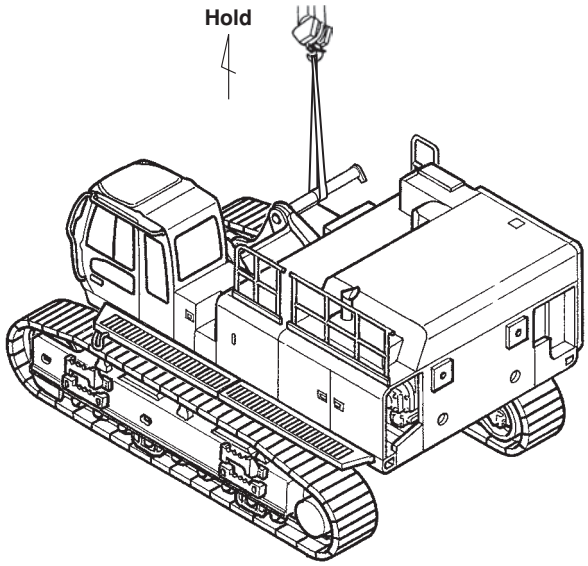


Fig. 1

Step 2

Installing the boom cylinders

1

Wiring the boom cylinder

❶ Slightly lift boom cylinder (left) ⑪ with wire ropes as shown in Fig. 1.

Boom cylinder weight:	ZX470-5 class	420 kg (925 lb)
	ZX670LC-5 class	550 kg (1 210 lb)
	ZX870-5 class	850 kg (1 870 lb)

Wire rope used:				
12 mmø (0.5 inø)	×	5 000 mm (L) (195 in L)	:	2 pcs.

❷ Clean off the anti-rust that is applied to the bosses ⓐ, ⓑ at the boom cylinder bottom and rod.

❸ Apply grease to the holes in the bosses ⓐ and ⓑ.

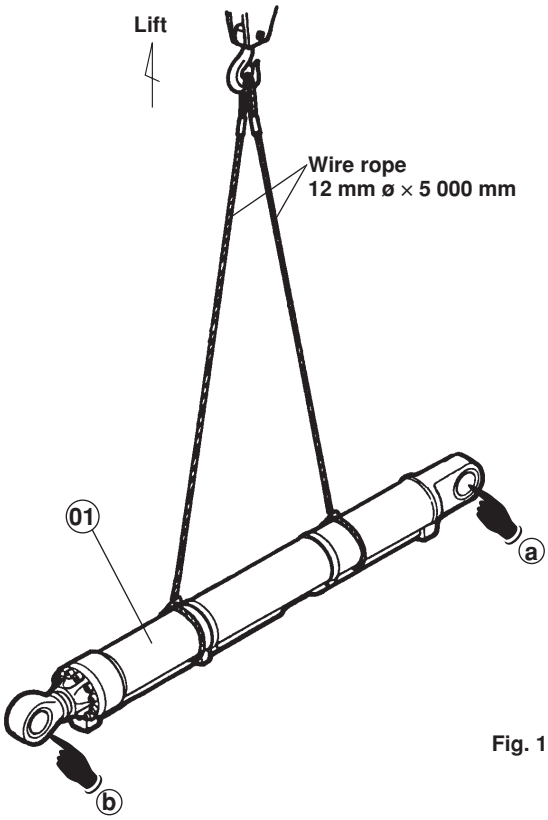


Fig. 1

CAUTION:

The work is dangerous, so make sure that there is no one under the lifting boom cylinder.

Note:

A qualified worker undertakes sling work and crane work.

2

❶ Lift boom cylinder ⑪.

❷ To lift, keep the boom cylinder level.

Note:

Assemble the boom cylinder carefully. The left and right sides are not the same as shown in Fig. 2. Install the cylinder to the machine, the hydraulic duct-side face down.

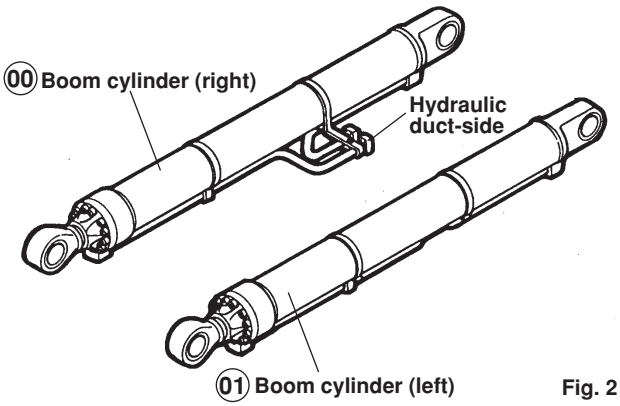


Fig. 2

7-3 Installing the boom

Step 1

Installing the boom

1 Cleaning the boom

❶ Clean the boss holes ⓐ in boom ⑧.

❷ After cleaning, apply grease to the boss holes ⓐ.

2 Wiring the boom

❶ Using a chain block, wire ropes, shackles and protector, sling the boom as shown in Fig. 1.

❷ To lift, adjust the boom to keep boom holes ⓐ level.

Note:

Adjust the preinstalled chain block and keep the boom level.

CAUTION:

The work is dangerous, so make sure that there is no one under the lifting boom.

Note:

A qualified worker undertakes sling work and crane work.

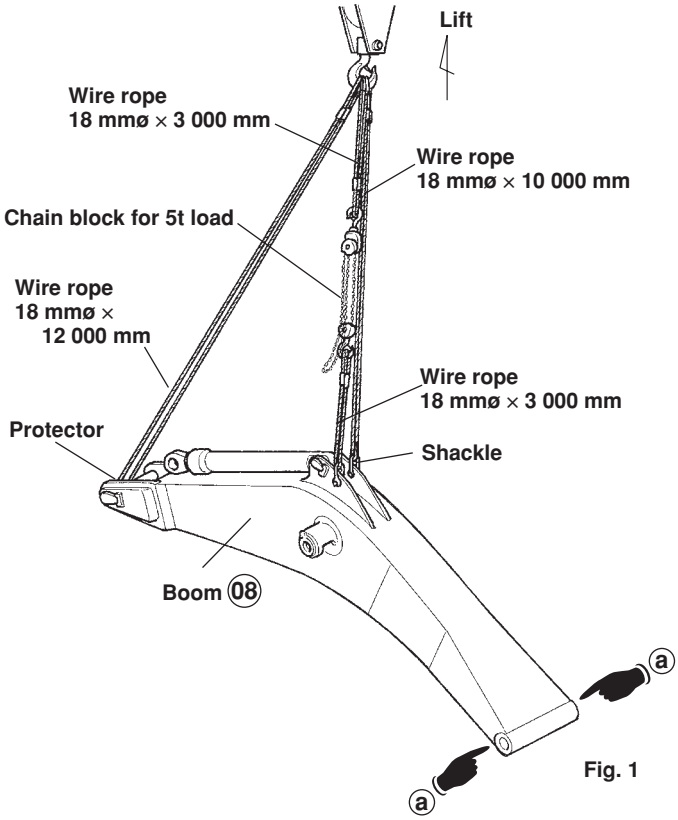


Fig. 1

Weight of boom ⑧:			
ZX470-5 class	HD boom	4 370 kg	(9 615 lb)
	BE boom	4 450 kg	(9 790 lb)
ZX670LC-5 class	STD boom	6 560 kg	(14 430 lb)
	H boom	6 580 kg	(14 475 lb)
	BE boom	6 130 kg	(13 490 lb)
ZX870-5 class	STD boom	8 210 kg	(18 060 lb)
	H boom	8 210 kg	(18 060 lb)
	BE boom	7 680 kg	(16 895 lb)
	Reinforced R boom	8 280 kg	(18 215 lb)
	Reinforced BE boom	7 690 kg	(16 920 lb)

Wire rope used: 4 pcs.			
18 mmø (0.7 inø)	×	3 000 mm (L) (117 in L)	: 2 pcs.
18 mmø (0.7 inø)	×	10 000 mm (L) (390 in L)	: 1 pc.
18 mmø (0.7 inø)	×	12 000 mm (L) (468 in L)	: 1 pc.

Protector:	1 pc.
Chain block (for 5t load):	1 set
Shackle (for 5t load):	2 pcs.

3 Moving the boom

Align the heights of the pin holes ⓐ of the boom foot with the foot pin holes ⓑ of the main frame and slowly bring them towards the machine.

Notes:

i) Move the boom carefully so that it doesn't touch the cab.

ii) A hanging boom is very dangerous because it can all of a sudden move in the most unexpected way. Guide it by tying a wire rope around the end of the boom.

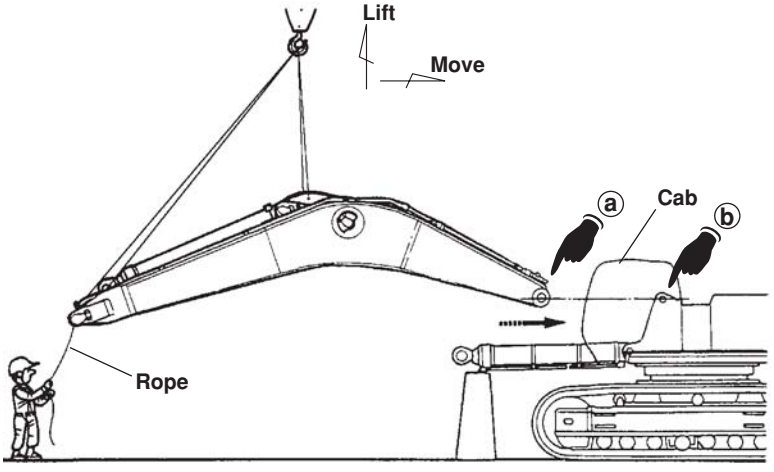


Fig. 2

Rope used:		
8 mmø (0.3 inø)	×	5 000 mm (L) : 1 pc. (195 in L)

Step 7

Air bleeding of arm cylinder

1 ❶ Start the engine.

CAUTION:

Make sure that nobody other than the operator is in or on the hydraulic excavator.

❷ Idle the engine sufficiently to release the air in the hydraulic system.

❸ Check for unusual vibration or noise.

❹ Operate each cylinder a few times to bleed the air in the hydraulic system, according to the following procedure.

Note:

The engine speed should be kept as low as possible.

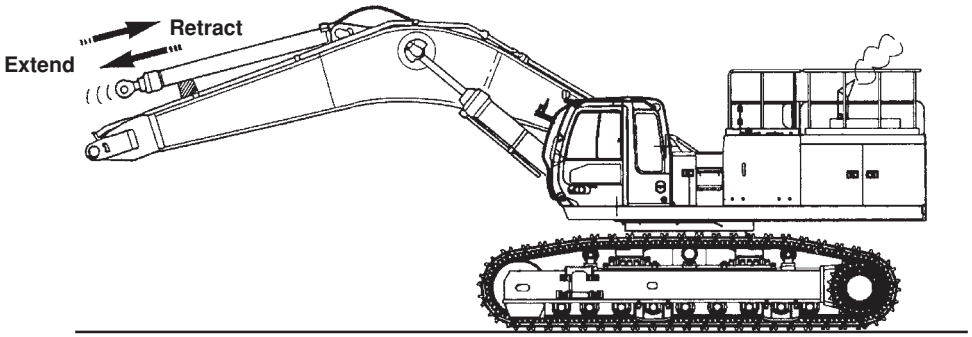


Fig. 1

2 Procedure

Action

❶ Start the engine.

Note:

Run the engine at low speed.

❷ Move each cylinder back and forth five times.

Notes:

i) Avoid moving the cylinder suddenly or quickly, or the seals may be burnt.

ii) Stop the cylinder 100 mm before the cylinder rod hits the stroke end during the first four cycles.

iii) Move the cylinder at full stroke on the fifth cycle.

❸ Hold the cylinder at the stroke end for a minute to apply relief pressure and bleed the air from the cylinder. Repeat the procedure twice.

❹ Stop the engine.

Bleeding Locations & Cylinder Positions for Bleeding Air

4 Connect grease hose at part ⓐ Fig. 3 by (☛.

Tightening torque:	30 N·m
	(3 kgf·m/22 lbf·ft)
⬢ Width across flats:	19 mm

⚠ ***Notes:***

i) When connecting hose, do not twist them, or their service life will be shortened.
ii) Connect the hose so as not to contact parts.
iii) Make sure that there is no dust sticking to the seat faces of the hose.
iv) Pay attention not to damage the joining surfaces of the hose.

Detail A

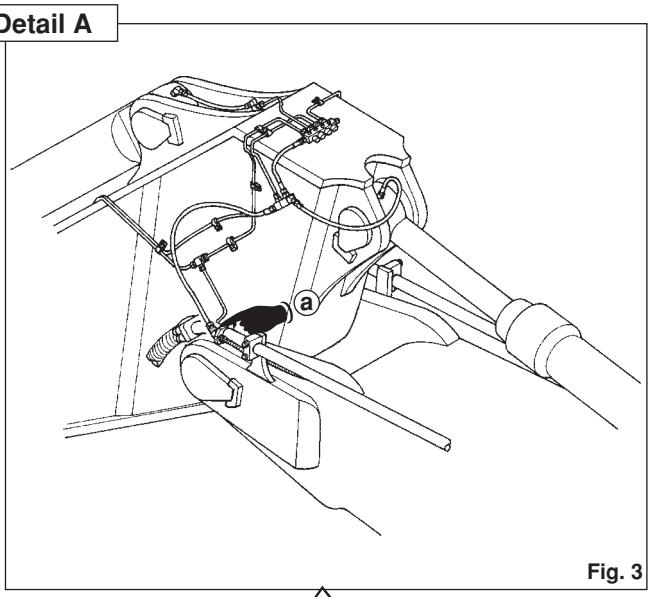


Fig. 3

5 After connecting the grease hose, clean away any residue grease from the outside of all parts.

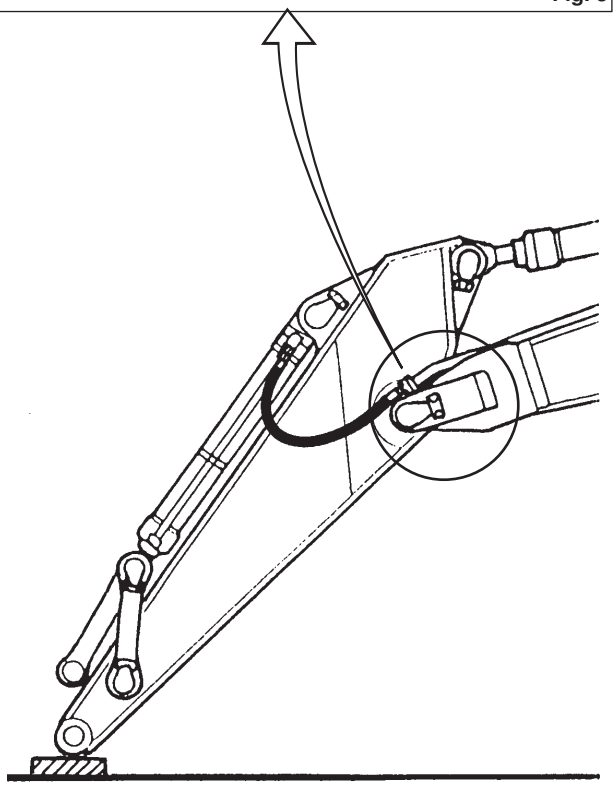


Fig. 4

7 Aligning the bucket and arm pin holes

❶ Start the engine and slightly lift the bucket off the ground.

❷ By lifting the bucket off the ground slightly and moving the arm to and fro, align the pin hole ⓐ at the arm-end with the bucket pin holes ⓑ.
Or else, the pin holes can be aligned by extending/retracting the bucket cylinder and adjusting the arm angle.

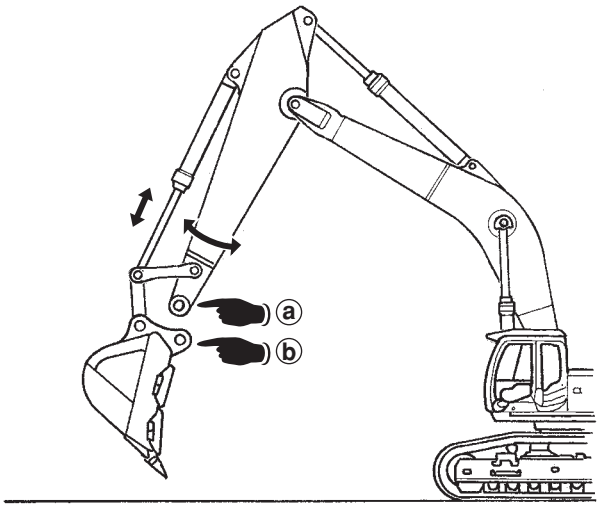


Fig. 11

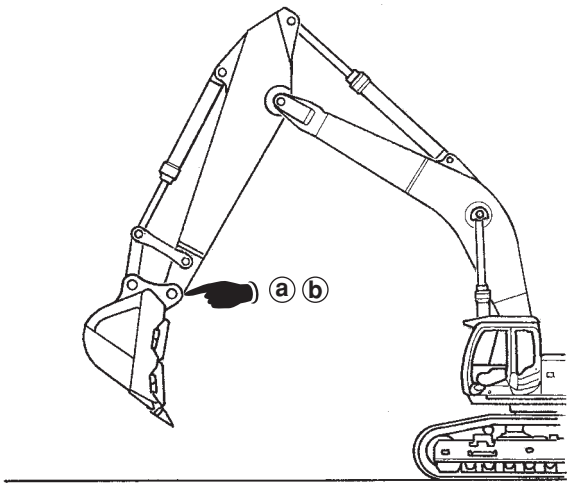


Fig. 12

8 Connecting the link and bucket

❶ Carefully align the link and bucket pin hole centers and insert the pin.

❷ Insert the pin to connect the bucket and link.

Pin weight:	ZX470-5 class	52 kg (114 lb)
	ZX670LC-5 class	65 kg (143 lb)
	ZX870-5 class	81 kg (178 lb)

Nylon sling:	1 pc.

⚠ *Notes:*

i) Apply grease to the pin before insertion.

ii) Firmly tie a nylon sling around the pin, making sure that the sling doesn't slide. Next, lift the pin with a crane and then, insert it in place.

⚠ *WARNING:*

- *Never put your finger inside the hole to align the pin holes.*
- *Work carefully. When using a hammer metal fragments can fly up, and this can cause injuries. Wear protective gear such as goggles and helmet.*
- *Do not go under the boom cylinder to insert the pin.*

❸ For ZX670LC-5 class and ZX870-5 class, tighten the stopper with bolts and spring washers to prevent the pin from coming loose.
For ZX470-5 class, ZX470-5B 1.9m³ lock bucket and ZX870-5 (BER) class, tighten the bolt and double nuts.

⚠ *Notes:*

i) Before installing the bolts, apply lubricant around the thread.

ii) Screw in all of the bolts by hand before tightening them to the specified torque.

ZX470-5/ZX870-5	
M20 bolt tightening torque:	400 N·m
	(40 kgf·m/295 lbf·ft)
⬣ Width across flats	30 mm
ZX670LC-5	
M16 bolt tightening torque:	210 N·m
	(21 kgf·m/155 lbf·ft)
⬣ Width across flats:	24 mm

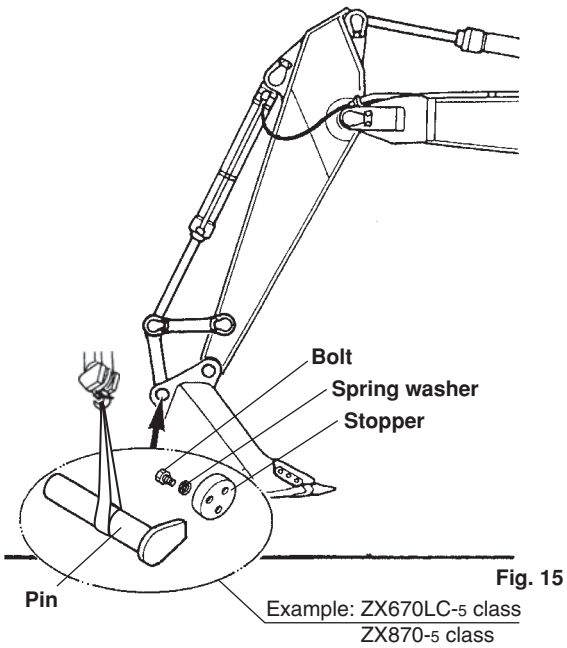


Fig. 15
Example: ZX670LC-5 class
ZX870-5 class

ZX470-5 class

Detail G

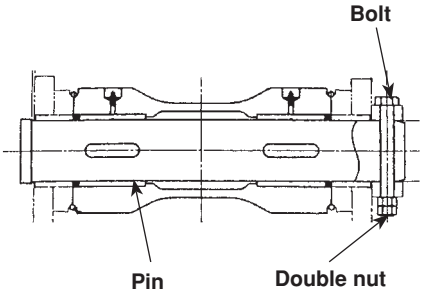
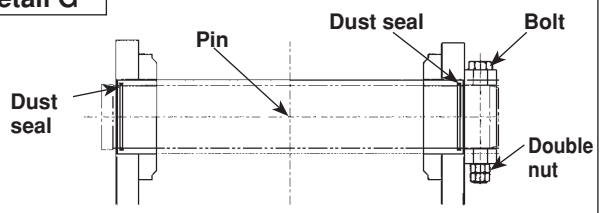


Fig. 16-a

ZX470-5B 1.9m³ lock bucket

Detail G'



Dust seals are installed to the bucket.
Work carefully so that you don't damage the seal.

Fig. 16-b

ZX870-5 class (BER)

Detail G'''

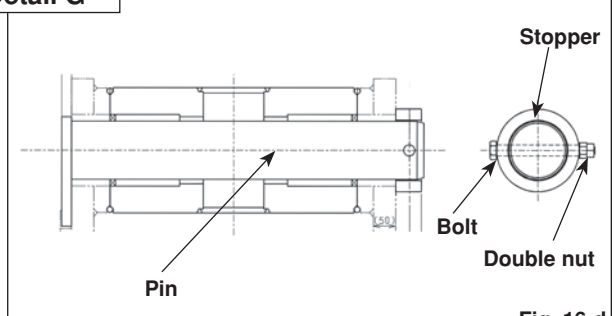


Fig. 16-d

ZX670LC-5 class/ZX870-5 class

Detail G''

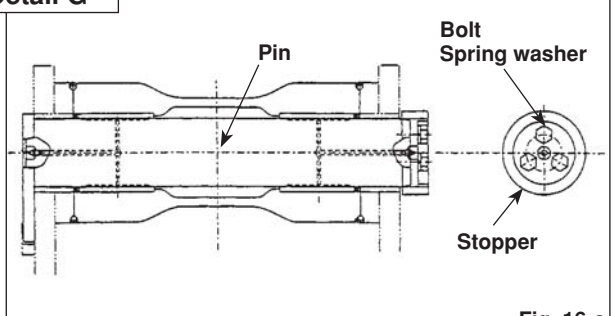
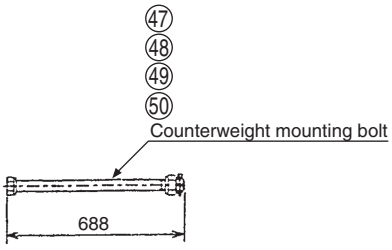
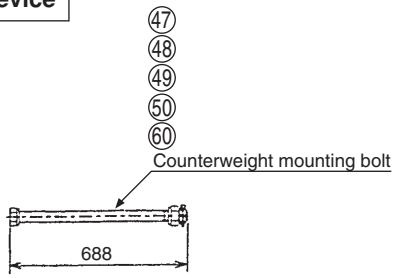
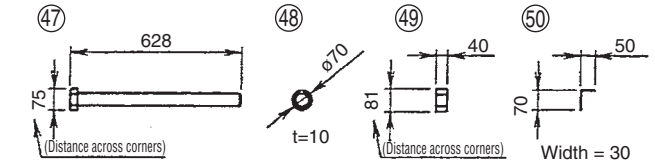
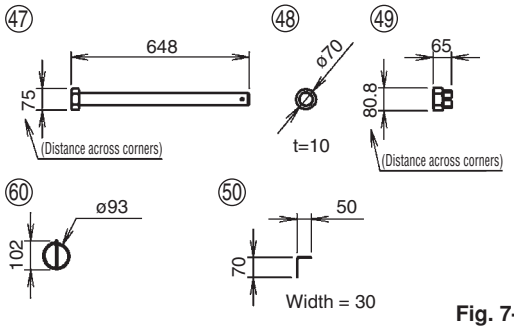
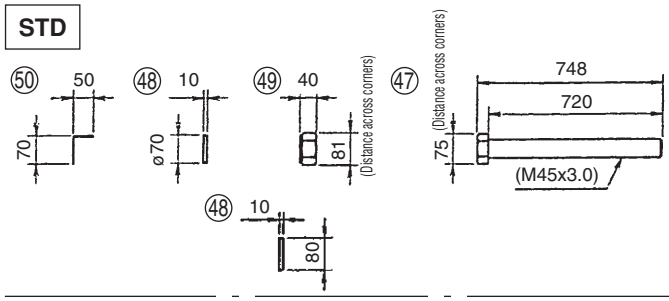
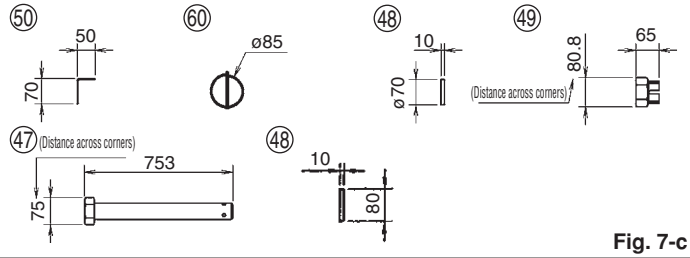


Fig. 16-c

Model	Part Name	Drawing of Parts
ZX470-5 class	**STD** |	Parts	Part No.	Qty | | ⑰ | Bolt | 4635562 | 2 | | ⑱ | Washer | 4103743 | 4 | | ⑲ | Nut, U | M660045 | 2 | | ⑳ | Shim | 4345741 | 4 | **Removal Device** |	Parts	Part No.	Qty | | ⑰ | Bolt | 4658786 | 2 | | ⑱ | Washer | 4103743 | 4 | | ⑲ | Nut;Castle | 4246150 | 2 | | ⑳ | Shim | 4345741 | 4 | | ⑥⓪ | Pin;ring | 9701925 | 2 |	**STD**  **Removal Device**  **Fig. 7-a**
ZX670LC-5 class	**STD** |	Parts	Part No.	Qty | | ⑰ | Bolt | 4714214 | 2 | | ⑱ | Washer | 4103743 | 4 | | ⑲ | Nut, U | 4455400 | 2 | | ⑳ | Shim | 4345741 | 4 | **Removal Device** |	Parts	Part No.	Qty | | ⑰ | Bolt | YA00002468 | 2 | | ⑱ | Washer | 4103743 | 4 | | ⑲ | Nut;Castle | 4246150 | 2 | | ⑳ | Shim | 4345741 | 4 | | ⑥⓪ | Pin:ring | 9701925 | 2 |	**STD**  **Removal Device**  **Fig. 7-b**
ZX870-5 class	**STD** |	Parts	Part No.	Qty | | ⑳ | Shim | 4345741 | 2 | | ⑱ | Washer | 4114413 | 2 | | ⑱ | Washer | 4103743 | 2 | | ⑲ | Nut, U | 4455400 | 2 | | ⑰ | Bolt | 4631671 | 2 | **Removal Device** |	Parts	Part No.	Qty | | ⑳ | Shim | 4345741 | 4 | | ⑱ | Washer | 4103743 | 2 | | ⑱ | Washer | 4114413 | 2 | | ⑲ | Nut;Castle | 4246150 | 2 | | ⑰ | Bolt | 4341856 | 2 | | ⑥⓪ | Pin;ring | 9701925 | 2 |	**STD**  **Removal Device**  **Fig. 7-c**

7-8 Adjusting the track link tension

1 Adjusting the track link tension

❶ Rotate the superstructure 90°, and tilt the machine over to one side by lowering the bucket.
Make sure to keep the angle between the arm and boom in the range 90° to 110°, and place the rounded front of the bucket flat against the ground during this procedure.

❷ Jack up the machine as shown in Fig. 1.

❸ Place wooden blocks under the main frame to support the machine, as indicated in Fig. 1.

Wooden blocks: 2 pcs.		
1 200 mm (L) ×	800 mm (W) ×	1 000 mm (H)
(47 in)	(30 in)	(40 in)

❹ Rotate the uplifted track link forwards through 2 turns, and then backwards through 2 turns.

2 Measuring the distance between the top of the lower shoes, and the bottom of the track frame. Measure the distance between the base of the track frame and the back of the track shoes, at the center of the track frame.
The standard distance is as detailed below.

Model / Standard tension	ZX470-5			ZX670LC-5	ZX870-5	
	ZX470-5 ZX470H-5 ZX470R-5 ZX490H-5	ZX470LC-5 ZX470LCH-5 ZX470LCR-5 ZX490LCH-5	ZX520LCH-5 ZX530LCH-5	ZX670LC-5 ZX670LCH-5 ZX670LCR-5 ZX690LCH-5	ZX870-5 ZX870H-5 ZX870R-5 ZX890H-5	ZX870LC-5 ZX870LCH-5 ZX870LCR-5 ZX890LCH-5
(Length L)	380 ~ 430	390 ~ 440	430 ~ 480	450 ~ 500	400 ~ 500	470 ~ 530

3 To loosen the track link tension, slowly loosen valve ⓐ (24mm hex) to release excess grease.
1 to 1.5 turns of the valve should be sufficient.
If grease does not escape at a constant rate, slightly rotate the uplifted track link. Tighten valve ⓐ on completion of adjusting the track link tension.
Tightening torque: 150 N·m (15 kgf·m/111 lbf·ft)

CAUTION:
Over-loosening valve ⓐ or loosening the valve over-abruptly can cause the valve to fly off the machine or pressurized grease to shoot from the valve due to the adjuster cylinder being highly pressurized. Make sure to keep your face and body parts well away from valve ⓐ, and to loosen the valve slowly. Under no circumstances should grease fitting ⓑ be loosened.

4 Adjusting the track link track link tension

❶ If the track link tension is outside the range of the standard tension, tighten or loosen the track link appropriately (see the next page).

❷ After adjusting both the left and right track links, equalize the left and right track link tensions by driving the machine forward and backward.

❸ Recheck the track link tension. If the tension is outside the range of the standard value, readjust the track links.

Note:
Remove any rocks and other debris caught in the sprockets.

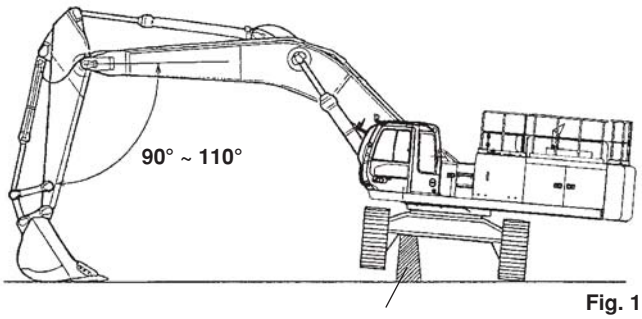


Fig. 1

Detail A

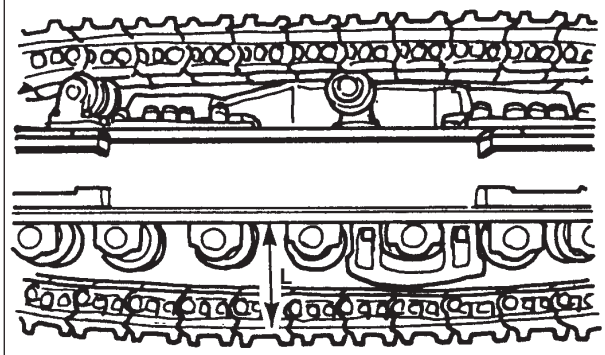


Fig. 2

Detail B

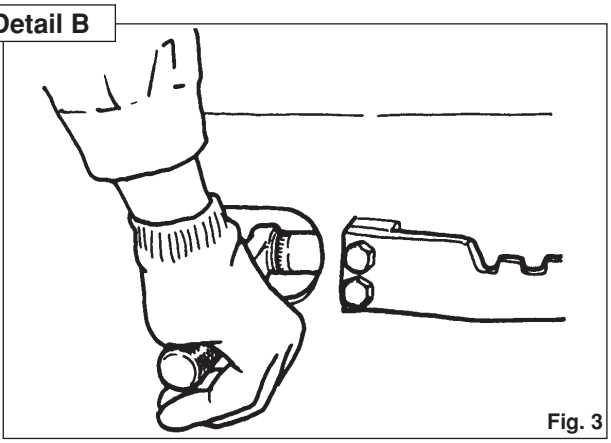


Fig. 3

Detail C

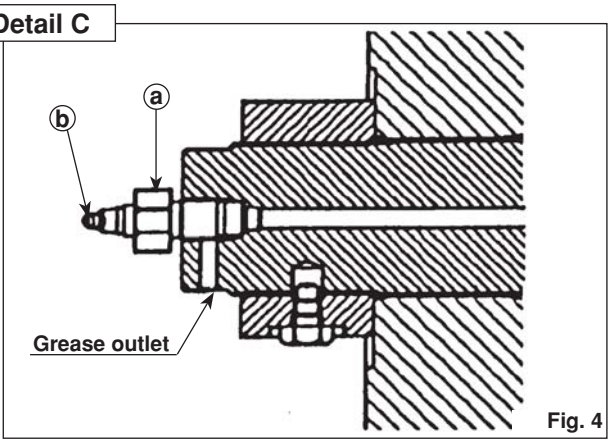
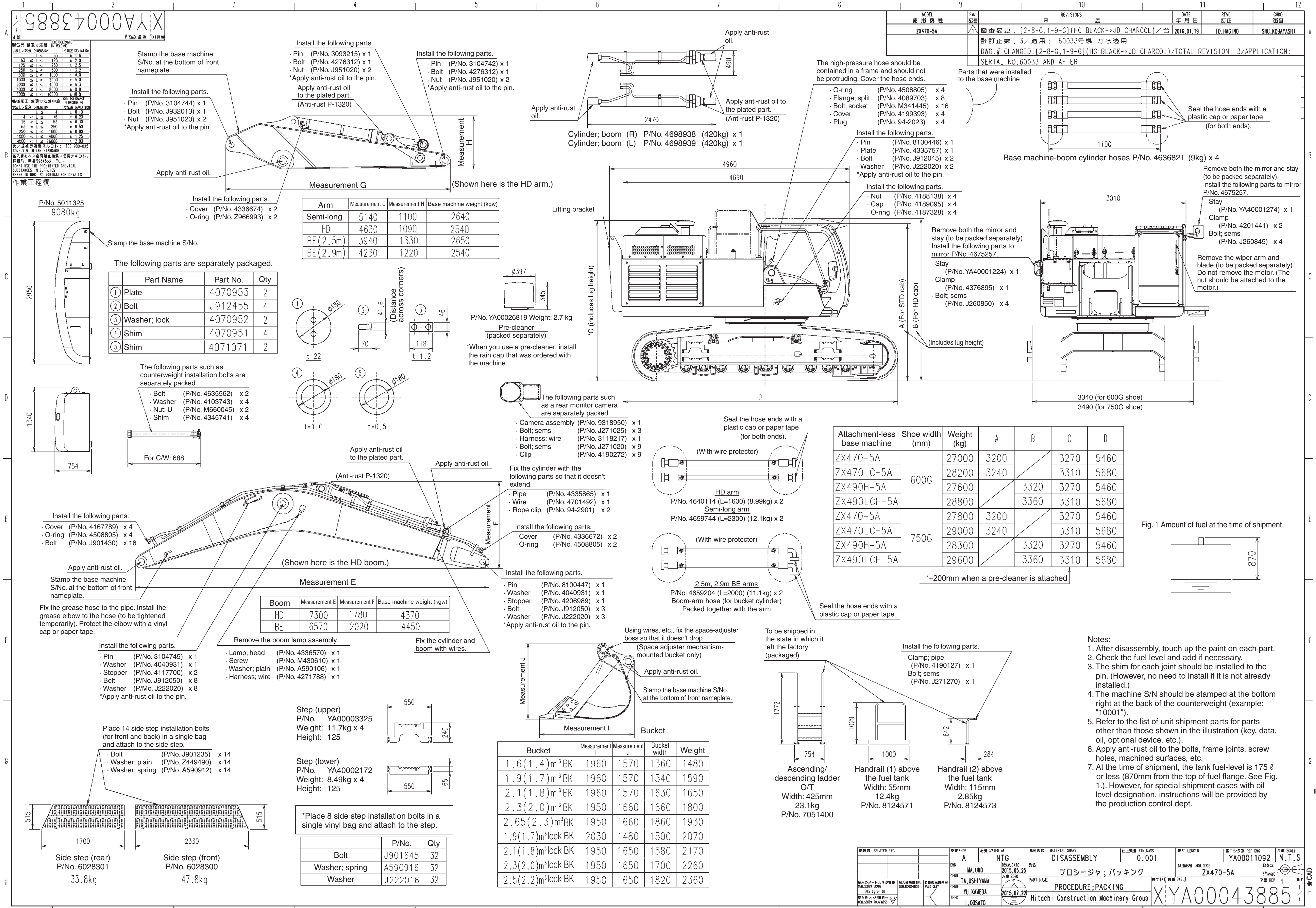


Fig. 4

ZX470-5A series



The following parts are separately packed.

	Part Name	Part No.	Qty
1	Plate	4070953	2
2	Bolt	J912455	4
3	Washer; lock	4070952	2
4	Shim	4070951	4
5	Shim	4071071	2

Arm	Measurement G	Measurement H	Base machine weight (kgw)
Semi-long	5140	1100	2640
HD	4630	1090	2540
BE(2.5m)	3940	1330	2650
BE(2.9m)	4230	1220	2540

Boom	Measurement E	Measurement F	Base machine weight (kgw)
HD	7300	1780	4370
BE	6570	2020	4450

Attachment-less base machine	Shoe width (mm)	Weight (kg)	A	B	C	D
ZX470-5A	600G	27000	3200		3270	5460
ZX470LC-5A		28200	3240		3310	5680
ZX490H-5A		27600		3320	3270	5460
ZX490LCH-5A		28800		3360	3310	5680
ZX470-5A	750G	27800	3200		3270	5460
ZX470LC-5A		29000	3240		3310	5680
ZX490H-5A		28300		3320	3270	5460
ZX490LCH-5A		29600		3360	3310	5680

Bucket	Measurement I	Measurement J	Bucket width	Weight
1.6(1.4)m³BK	1960	1570	1360	1480
1.9(1.7)m³BK	1960	1570	1540	1590
2.1(1.8)m³BK	1960	1570	1630	1650
2.3(2.0)m³BK	1950	1660	1660	1800
2.65(2.3)m³BK	1950	1660	1860	1930
1.9(1.7)m³lock BK	2030	1480	1500	2070
2.1(1.8)m³lock BK	1950	1650	1580	2170
2.3(2.0)m³lock BK	1950	1650	1700	2260
2.5(2.2)m³lock BK	1950	1650	1820	2360

	P/No.	Qty
Bolt	J901645	32
Washer; spring	A590916	32
Washer	J222016	32

Notes:
1. After disassembly, touch up the paint on each part.
2. Check the fuel level and add if necessary.
3. The shim for each joint should be installed to the pin. (However, no need to install if it is not already installed.)
4. The machine S/N should be stamped at the bottom right at the back of the counterweight (example: "10001").
5. Refer to the list of unit shipment parts for parts other than those shown in the illustration (key, data, oil, optional device, etc.).
6. Apply anti-rust oil to the bolts, frame joints, screw holes, machined surfaces, etc.
7. At the time of shipment, the tank fuel-level is 175 ℓ or less (870mm from the top of fuel flange. See Fig. 1.). However, for special shipment cases with oil level designation, instructions will be provided by the production control dept.

8. Side Frame Extension and Retraction Method

1 **Precautions when extending or retracting the side frames**

Accumulation of dust or debris on the mounting faces of the track frames and side frames can lead to the loosening of bolts. Thoroughly clean all affected portions of the frames before performing any work.

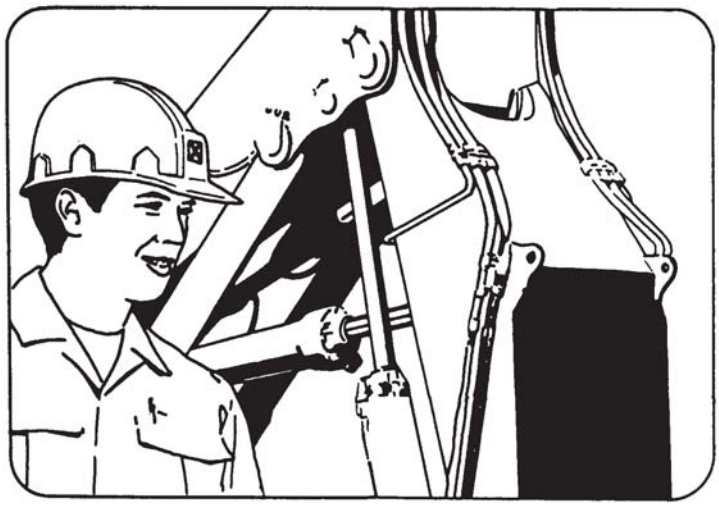
Note:

The side frames should be retracted only during transportation (when loading onto or off a truck and when operating the machine during loading /unloading). Under no circumstances should the side frames be retracted during digging work on when driving the machine. Operation of the machine with the side frames retracted (or one side frame retracted) will lead to machine instability and potentially cause damage to the track and side frame bolts.

Note:

The ZX470-5G, 5A (H, LCH, for CHAINA) series is an integrated side frame and truck frame model.
The "Side frame extension and retraction method" page does not apply to this series.

CHECKS
&
PERFORMANCE STANDARDS



TRACK LINK SPEED FOR 3 FULL TURNS

1 Preparation

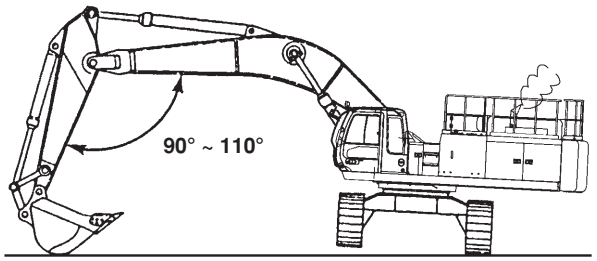
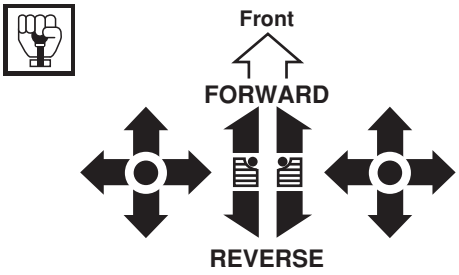


Fig. 3

❶ Mark any one of the track shoes on the side where this test is to be performed.
❷ Jack up the track to be tested. (Fig. 3)

2 Measurement

❶ Accelerate the engine to maximum speed.
❷ Measure the time required to make three full turns.
❸ Repeat this test for both tracks in the forward and reverse directions.



3 Pass standard

Unit: sec.

Item		Standard					
		ZX470-5 class		ZX520LCH-5 class ZX530LCH-5 class	ZX670LC-5 class	ZX870-5 class	
		ZX470-5	ZX470LC-5 ZX470LCH-5			ZX870-5	ZX870LC-5 ZX870LCH-5
Fast spead	Track link speed/3 rev.	20.5 ± 2.0	22.0 ± 2.0	27.2 ± 2.0	25.4 ± 2.0	28.5 ± 2.0	30.9 ± 2.0
Slow spead	Track link speed/3 rev.	28.5 ± 2.0	30.5 ± 2.0	35.4 ± 2.0	36.7 ± 2.0	42.0 ± 2.0	45.5 ± 2.0

2. ZX470-5 class assembly drawing (left-side bracket)

Detail B

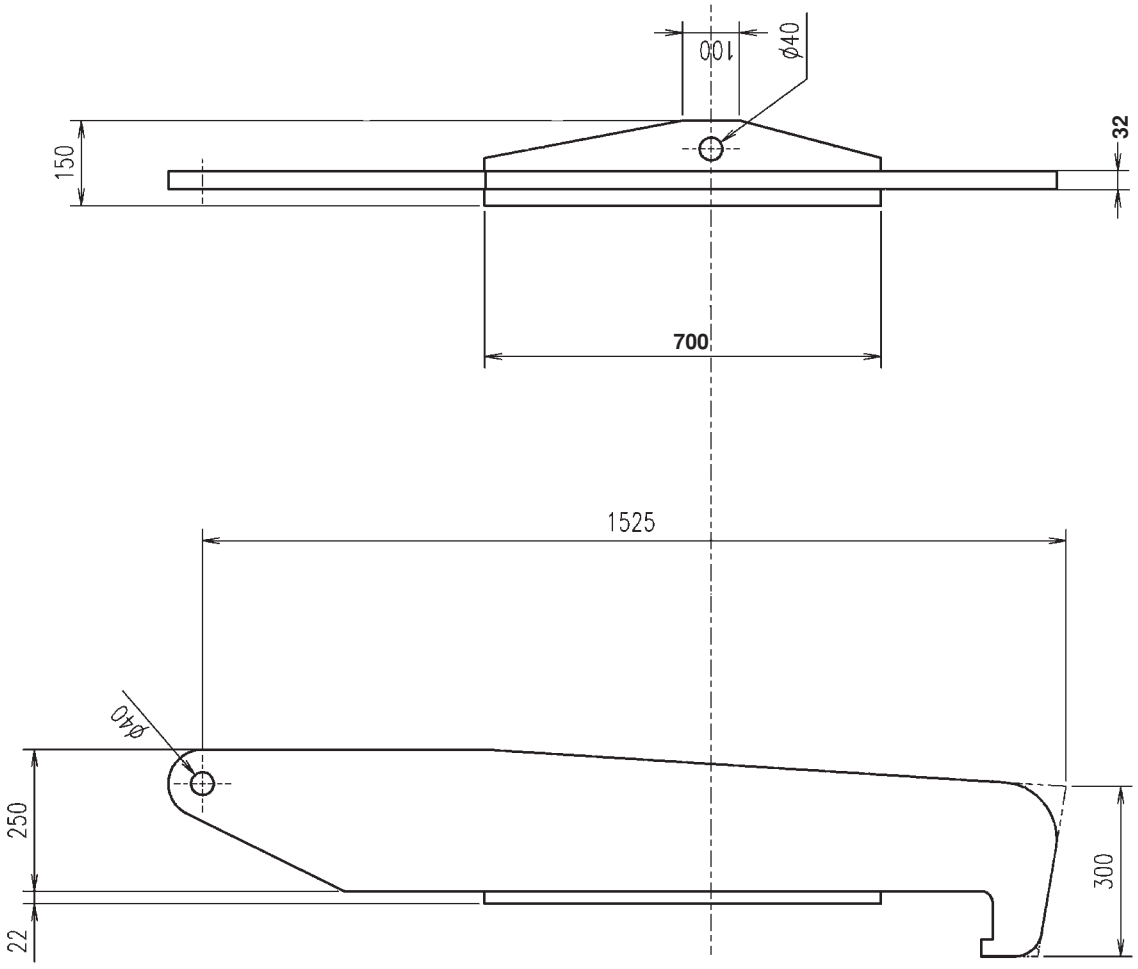
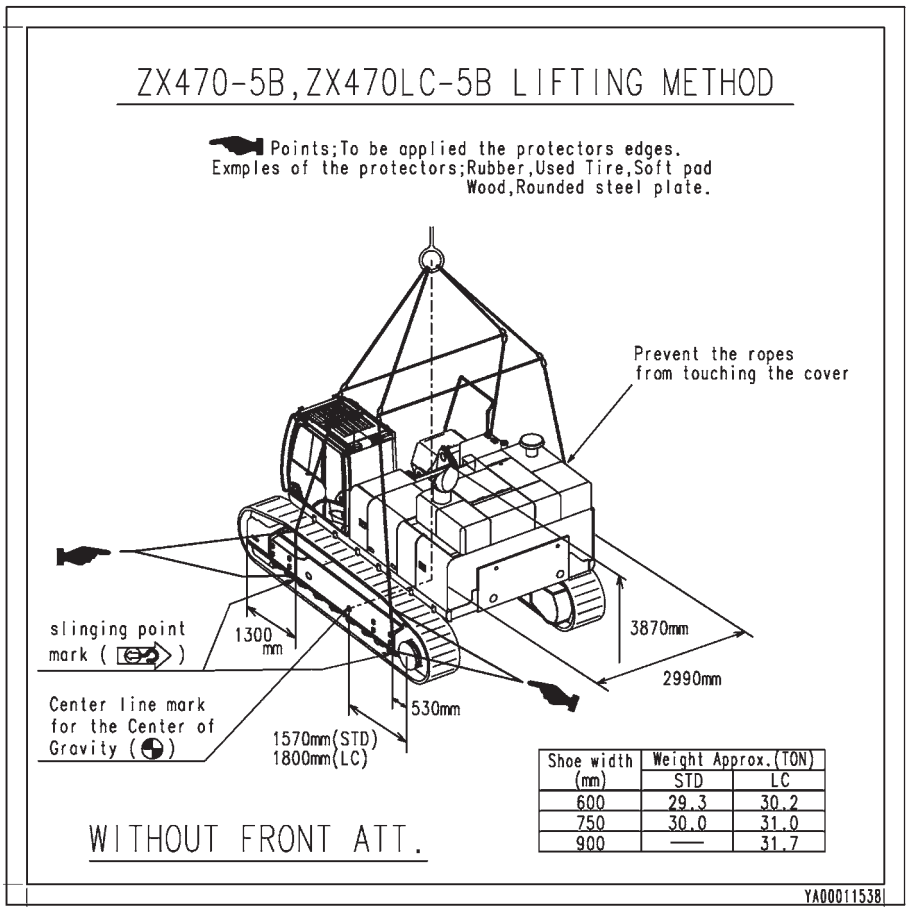


Fig. 2

DWG. No.
8123249

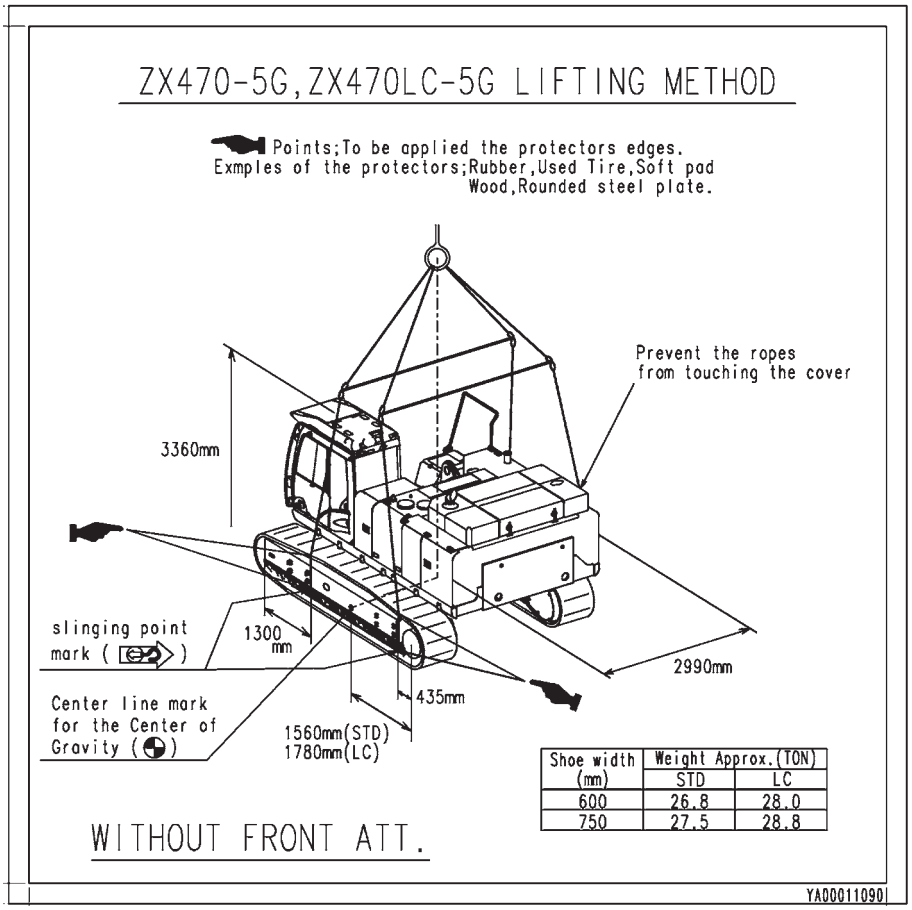
11-4 Instructions for lifting the base machine assembly

1 **ZX470-5 class**



Shoe width (mm)	Weight Approx.(TON)	
	STD	LC
600	29.3	30.2
750	30.0	31.0
900	—	31.7

Fig. 1



Shoe width (mm)	Weight Approx.(TON)	
	STD	LC
600	26.8	28.0
750	27.5	28.8

Fig. 2