TADANO

Publication No. TR-600XL-3/O4(U)-1E

Operation and Maintenance Manual

Rough Terrain Crane

Model TR-600XL-3

Applicable Serial No. **545206-545287**

⚠ CAUTION: Read this manual before operating the crane. Save this manual for future reference.

TADANO LTD.

Operation and Maintenance Manual

TR-600XL-3/O4(U)-1E

PRINTED IN JAPAN
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TADANO

⚠ Correctly Position the Seat

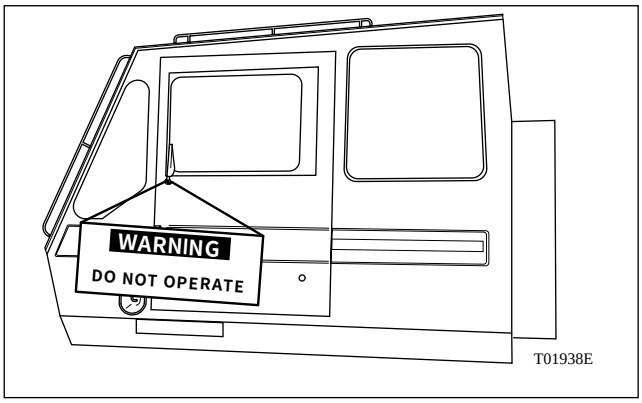
Incorrect positioning of the operator's seat can result in mistakes or fatigue, possibly leading to an accident.

Before operating the machine, correctly position the seat so that the pedals and levers can be manipulated correctly.

⚠ Do Not Operate a Machine Being Inspected or Serviced

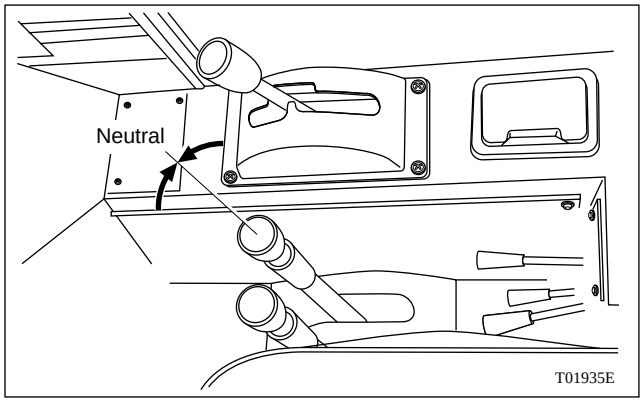
Operating the machine while it is undergoing inspection or maintenance work can cause damage or an accident.

Post a "DO NOT OPERATE" sign on the operator's cab door or any control lever. Do not attempt to operate the machine until the sign is removed by maintenance personnel.



⚠ Check the Position of Controls before Starting the Engine

If any control lever is in a position other than "neutral", the machine may initiate some mechanical or hydraulic function as soon as the engine is turned over. This situation is very dangerous. Start the engine only when completely sure that all controls are in the proper neutral or inactive position.



⚠ Make Sure Work Area Is Safe before Starting the Engine

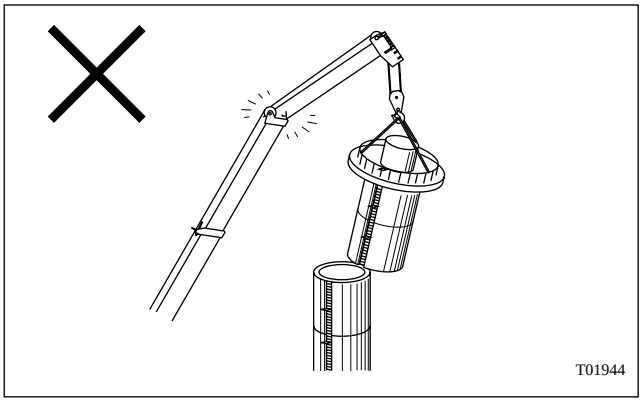
Starting the engine without performing a thorough safety check of the work area may cause damage to the machine or injury or death.

Make sure there are no personnel or obstacles underneath or around the machine.

Before starting the engine, sound the horn to warn any nearby personnel.

⚠ Be Careful in Demolition Work

It is very dangerous to lift parts or components of a structure undergoing demolition, if the weight and center of gravity are unknown. Before starting operation, ascertain the weight and center of gravity of the loads, and establish the lift procedure to be taken.

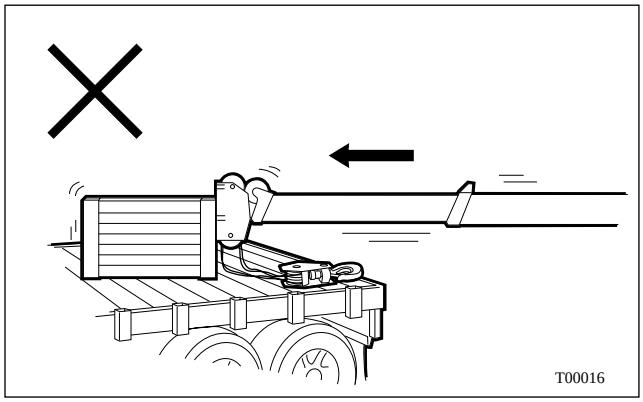


⚠ Carefully Lift a Load in Water

When handling a load submerged in water, it is important not to lift the load out "all at once" when it appears above the water's surface. The load may be impregnated with water and heavier than expected. Allow the load to drain while raising it slowly.
A load lifted out of water, even when fully drained, weighs more than it did when submerged because of buoyancy effects. Lift the load carefully so as not to cause overloading.

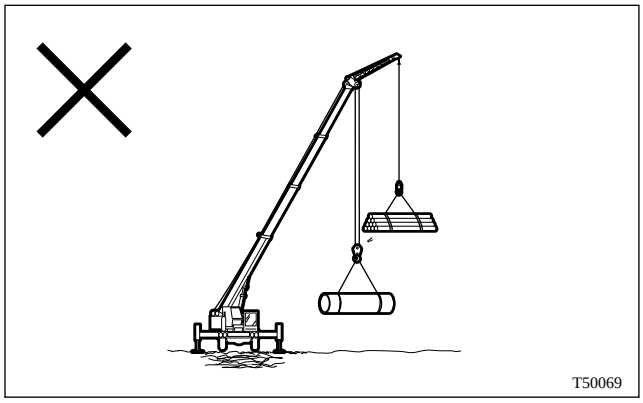
⚠ Do Not Push or Pull an Object with the Boom

Never use the boom to push or pull an object. Do not use the boom to thrust up an object or force the boom into an object.
To move an object, use a machine designed for that purpose, such as a fork lift truck or carryall.
Do not use the crane in applications other than those specified.



⚠ Caution while Using the Jib (1)

Never attempt to lift separate loads on both the boom and the jib at the same time. Otherwise, the boom or the jib might be damaged, or the crane might overturn.



Rules for Transportation and Towing

⚠ Load and Unload the Machine Safely

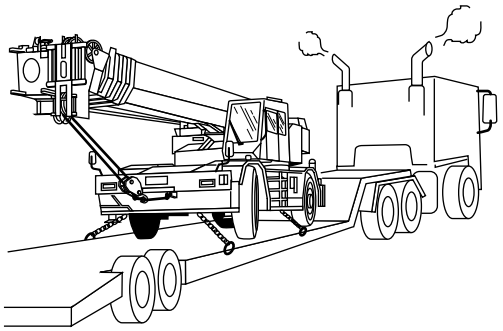
Improper loading and unloading procedures can displace the machine off a transporter. Observe the following instructions, and take extreme care in loading and unloading the crane on a transporter:

- **Secure a trailer of sufficient capacity for the machine's weight so that it is not overloaded.**
- **Park the trailer on firm level ground, actuate the parking brake, and chock the tires.**
- **Use gangplanks of sufficient length, strength and width. Ensure that they provide a gentle slope from ground up to the trailer deck.**
- **If there is slippery object such as oil or mud on the trailer platform or gangplanks, remove it. On rainy days, the gangplanks can get very slippery. Then, do not load or unload the machine to and from the trailer.**
- **Post a signal person, and follow all instructions for loading and unloading the machine.**
- **Turning the machine on the gangplanks is liable to result in a falling accident, and must be avoided. To change direction, first descend to the ground, turn on the ground, and climb the gangplanks again.**
- **While loading or unloading the machine to or from the trailer, do not attempt any operation other than traveling.**

⚠ Precautions for Transportation

Prevent the crane from moving during transportation, as follows:

- **Apply the parking brake, chock the front and rear of each tire, and securely tie down the machine to the platform with chain binders.**
- **Ensure that the hook block and boom are stowed in position, and the upper structure and outriggers are locked.**
- **Remove the detachable outrigger floats and stow them securely.**

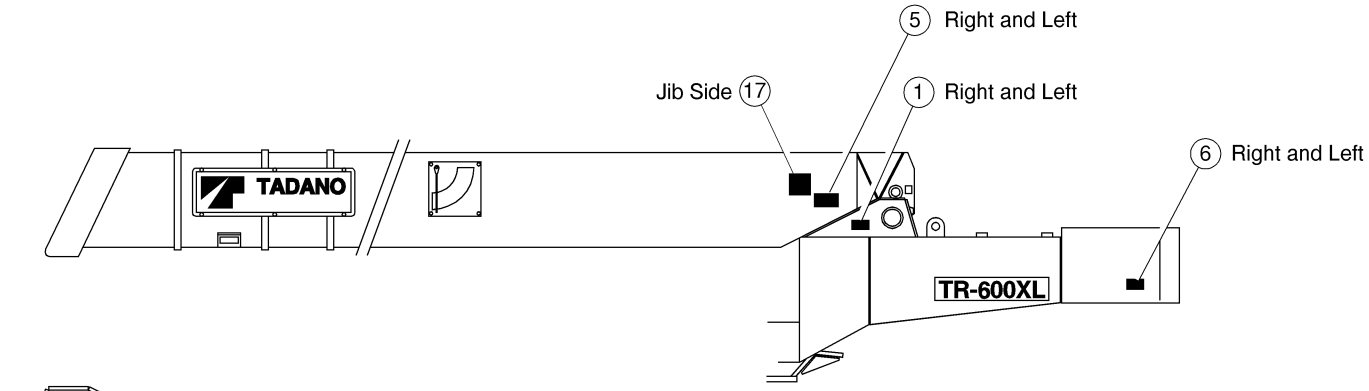


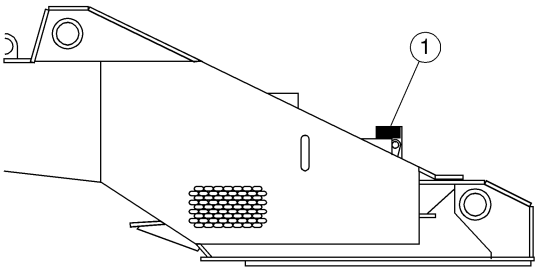
⚠ Cautions for Transportation

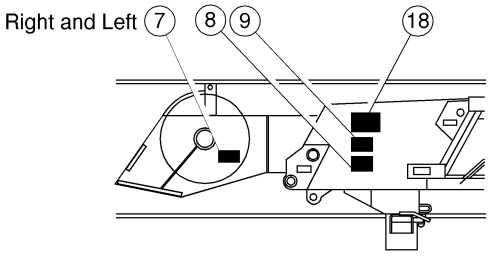
- **Post a relevant caution sign according to applicable local and national laws and rules. Be guided by a lead car, if required.**
- **Check the planned route for road width, overhead clearances, load limits on bridges, and other conditions to make sure that the route is appropriate for transporting the crane.**
- **Speeding on curves can overturn the trailer or break the tie-down ropes, possibly causing the machine to fall off the trailer. Always drive carefully.**

Warning Labels - Location and Contents

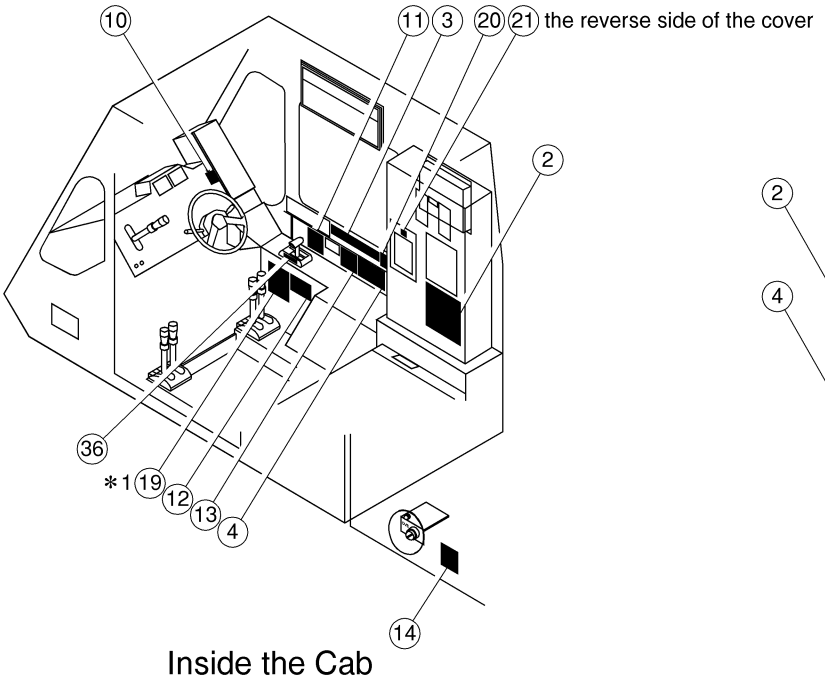
Upper structure



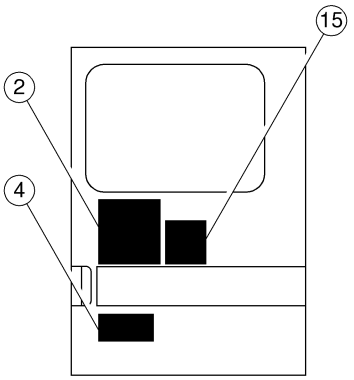




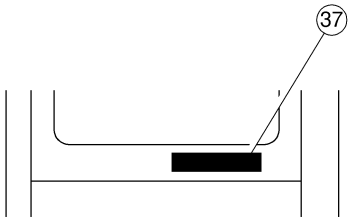
Jib head



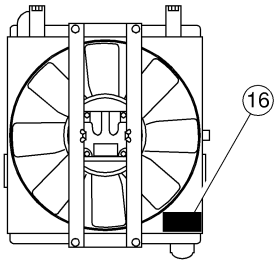
Inside the Cab



Outside of Door



Glove Box



Oil Cooler

T102662E

＊1：～545233

No.37

Never remove

OPERATION, SAFETY & MAINTENANCE MANUAL

from this machine.

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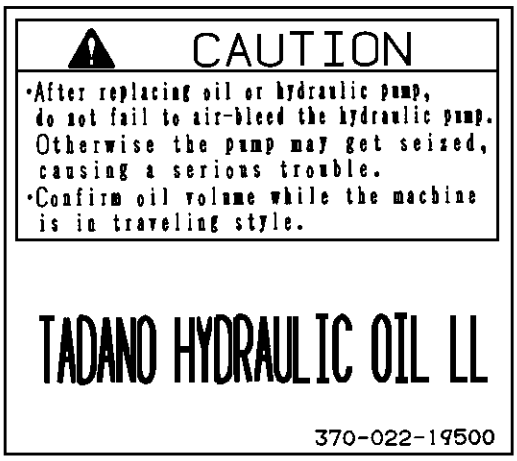
No.38



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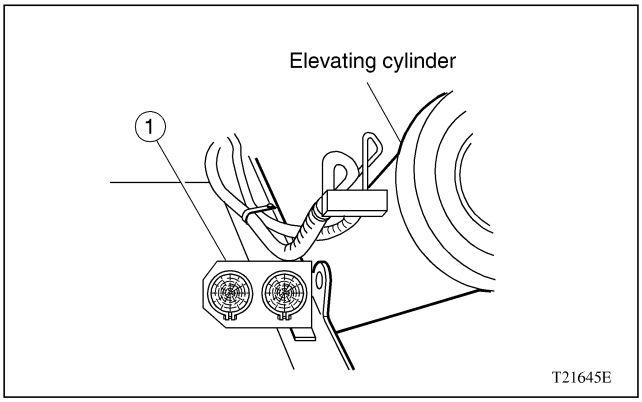
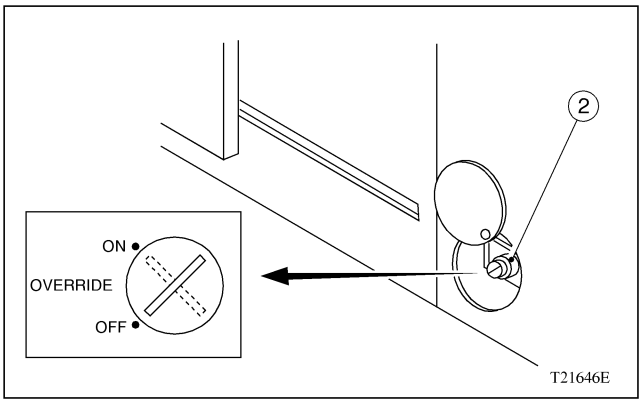
◆According to TADANO's system, lever arrangement changes as follows:
①Main hoist control lever→Auxiliary hoist control lever
②Boom elevating control lever
→Main hoist control lever
⑨Auxiliary hoist control lever
→Boom elevating control lever

Outside the Cab





①External warning lamps (option) ····· 84
②Override key switch ····· 82

Stopping

1. Release foot from the accelerator pedal and activate engine braking to slow down.

2. Depress the service brake pedal to stop the vehicle.

3. Shift into Neutral.

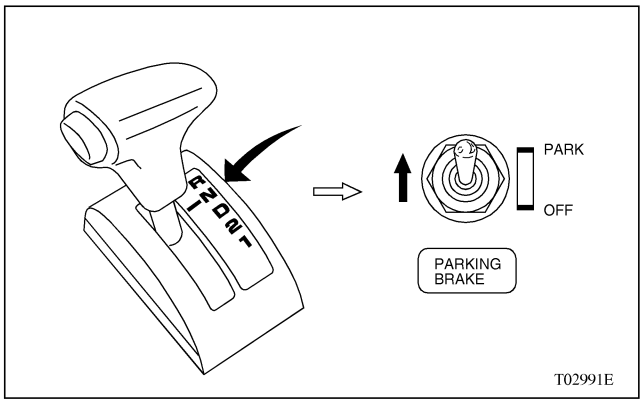
4. Switch the parking brake switch to PARK, then release foot from the service brake pedal.

Parking

◆Parking the crane for long periods causes the portion of the tires that contact the ground to flatten. This effect may produce vibration until the tires return to their original shape with continued travel. To park for long periods, extend the outriggers and keep the tires off the ground.

1. Depress the brake pedal to stop the vehicle.

2. With the service brake pedal held down, shift into Neutral and activate the parking brake.



3. Release the service brake pedal.

4. Turn off the equipment inside the cab.

5. If a special traveling mode has been selected, return the steering mode and drive mode to the normal modes (two-wheel steering mode and high-speed two-wheel drive mode).

6. Close all the side windows and roof window in the cab.

7. Shut off the engine and remove the starter key.

8. Leave the cab and lock the door.

Pre-starting Checks

Before starting the engine, perform the following inspection and checks:

1. Perform the pre-operational inspections.

◆For an explanation of the engine pre-operational inspection procedure, see the "Engine Operation and Maintenance Manual".

2. Make sure that the controls are placed in the following positions:

(1)Winch, boom telescoping, boom elevating and swing levers ····· Neutral
(2)Parking brake switch ····· "PARK"
(3)Gearshift lever ····· "N"
(4)PTO switch ····· "OFF"

Starting the Engine

[NOTICE]

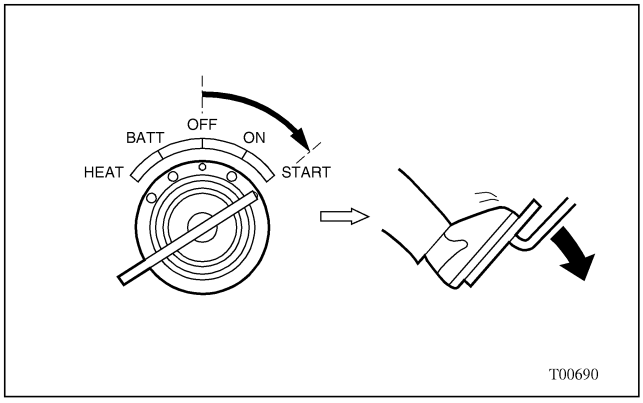
◆Do not hold the starter switch in the start position for more than 15 seconds, as this practice will overheat the starter motor. If the first attempt to start the engine fails, wait at least 30 seconds before trying again.

Starting the Engine

1. Depress the brake pedal and position the starter switch at “START”. Release the key immediately once the engine has started.

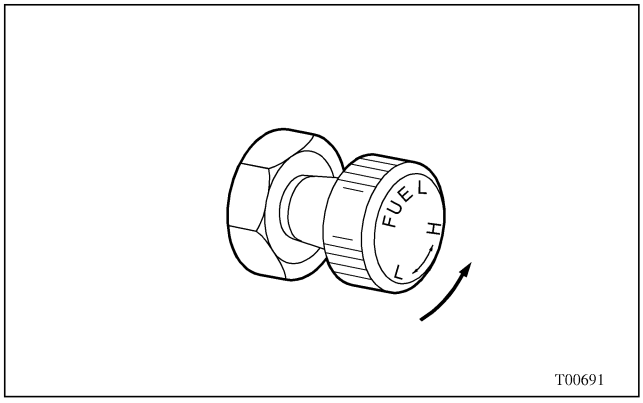
◆In cold weather, turn the starter switch to HEAT and hold it for about 10 seconds to preheat the engine. Once the engine has been preheated, immediately turn the starter switch to START.

◆Do not step on the accelerator pedal if the PTO switch is on.



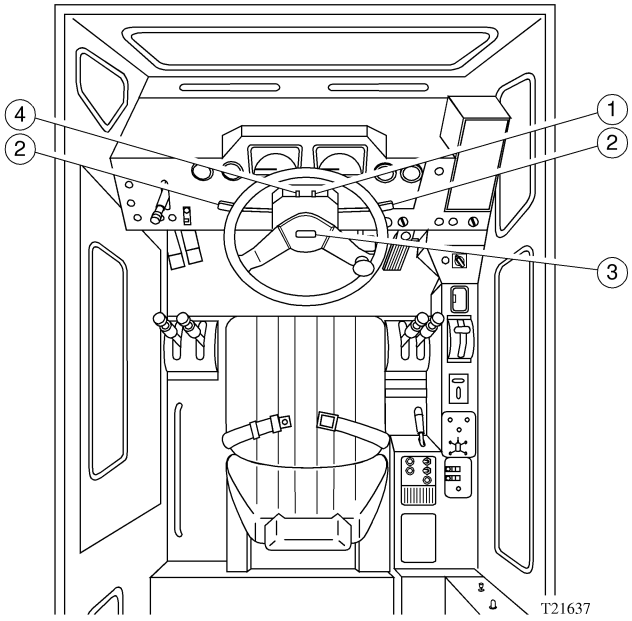
Warming Up the Machine

1. Once the engine has started, turn the fuel control knob toward "H" to increase the engine speed until it's running smoothly. Warm up the vehicle until the needle in the water temperature gauge begins to move.



Lighting and Other Switches

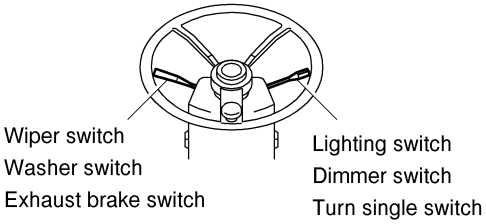
Controls



①Parking lamp switch
②Combination switch
③Horn switch
④Hazard lamp switch

Combination Switch

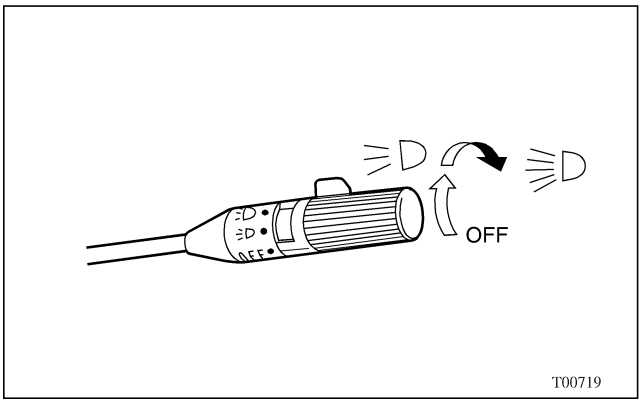
The combination switch attached to the steering column activates the following functions:



(1)Lighting switch

Turning the lighting switch when the starter switch is ON activates the following lamps:

Switch position	Headlight	Clearance lamps, tail lamps, license plate lamps, instrument lamp, and boom top lamp
"OFF"	———	———
≡D	———	Lights
≡D	Lights	Lights

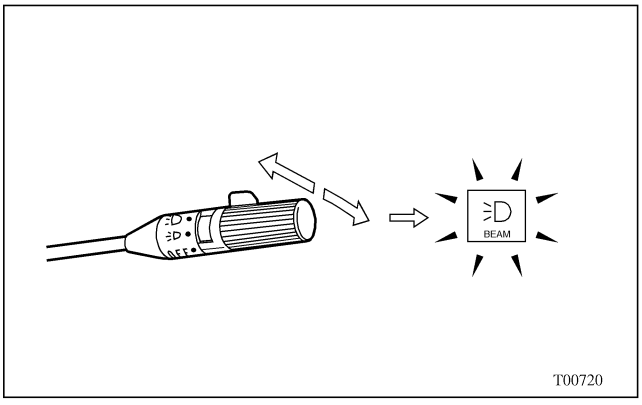


(2)Dimmer switch

Holding the lever back when the headlights are on switches from low beams to high beams. Returning the lever switches back to low beams.

If you want to momentarily turn on the headlights, pull up the lever. The high beams will turn on regardless of the position of lighting switch. Releasing the lever returns it to its original position and the high beams turn off.

◆The high beam indicator lamp is illuminated when the high beams are on.



[NOTICE]

◆ When a crane is towed, the transmission is not supplied with lubricating oil. Be sure to place the output shaft of the transmission in neutral before towing. Otherwise the transmission bearing of the towed vehicle may seize.

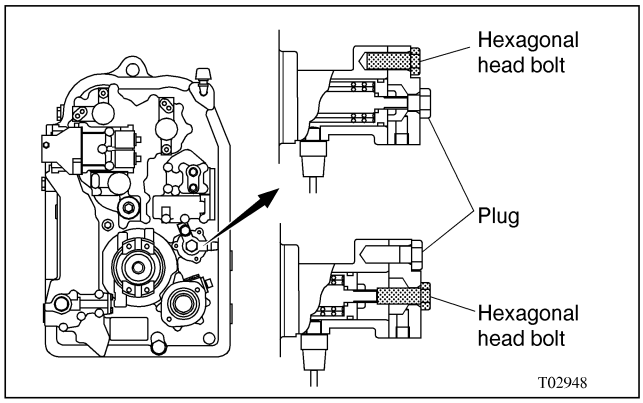
When towing is completed, remember to return the hexagonal head bolt to its original position.

3. Place the transmission output shaft in the neutral position.

(1)Remove the plug on the high/low changer of the transmission.

(2)Screw in the supplied hexagonal head bolt in place of the plug. This will place the output shaft in neutral.

(3)Screw the plug in the hole for the hexagonal head bolt.



4. Place the switches and levers in the following positions:

(1)Gearshift lever ・・・・・・・・・・・・ "N"

(2)Drive mode select switch ・・・・ "2-WHEEL(Hi)"

(3)Starter switch ・・・・・・・・・・・・ "ON"

5. Make sure that the air pressure is as specified and release the parking brake. Start towing the crane.

[Example 2:Outriggers extended to middle (21´ 11 3/4")]

TR-650XL RATED LIFTING CAPACITIES (IN POUNDS)
ON OUTRIGGERS MID EXTENDED 21´ 11 3/4 " (6.7m) SPREAD
═ 360° ROTATION ═

Load Radius in Feet	Boom Length in Feet						
	36.1 (11.0m)	49 (14.9m)	62.3 (19.0m)	75 (22.9m)	89 (27.1m)	102 (31.1m)	114.8 (35.0m)
10	130.000	91.000	82.000				
12	113.800	91.000	82.000	47.400			
15	95.200	91.000	72.000	47.400	47.400		
20	73.300	72.800	63.000	47.400	43.600	34.700	
25	49.400	49.200	51.400	43.600	38.100	31.400	28.800
30	33.500	35.300	35.700	37.300	32.900	27.500	25.500
35		26.600	26.300	27.400	28.500	24.500	22.400
40		20.400	20.300	21.200	22.700	21.700	19.700
45			16.100	17.000	18.300	19.100	17.500
50			12.800	14.000	15.100	16.100	15.800
55			10.100	11.600	12.600	13.200	13.000
60				9.300	10.500	11.000	10.900
65				7.600	8.600	9.200	9.300
70					7.100	7.600	7.900
75					5.700	6.400	6.900
80					4.600	5.200	5.700
85						4.400	4.800
90						3.600	4.000
95						2.900	3.300
100							2.600
105							2.100
108							1.700
A	0°						

A:Minimum boom angle(deg.) for indicated length(no load)

Boom Angle in Degree	Boom Length in Feet			
	114.8(35.0m) Boom+32.2(9.8m) Jib			
	5° offset		30° offset	
	R	W	R	W
80°	26.3	12.300	38.2	6.100
75°	40.0	11.000	50.9	5.500
70°	52.7	8.800	63.4	5.000
65°	64.4	7.000	74.7	4.700
60°	75.9	5.700	85.4	4.400
55°	86.5	4.700	95.1	3.800
50°	96.1	3.200	104.0	2.800
45°	105.0	2.100	111.0	1.800
40°	113.0	1.200	118.0	1.100

Boom Angle in Degree	Boom Length in Feet			
	114.8(35.0m) Boom+56.1(17.1m) Jib			
	5° offset		30° offset	
	R	W	R	W
80°	33.8	6.100	54.7	2.400
75°	49.5	5.000	69.5	2.200
70°	64.6	4.100	83.4	1.900
65°	78.6	3.500	96.1	1.800
60°	92.3	3.000	108.0	1.700
55°	105.0	2.600	119.0	1.600
50°	116.0	2.300	129.0	1.500
45°	126.0	1.600	137.0	1.100

R:Load Radius in Feet
W:Rated Lifting Capacity in Pounds

343-953-81120

343-953-81120-0

[Example 3:Outriggers extended to middle (18´ 1/2")]

TR-650XL RATED LIFTING CAPACITIES (IN POUNDS)
ON OUTRIGGERS MID EXTENDED 18´ 1/2 " (5.5m) SPREAD
═ 360° ROTATION ═

Load Radius in Feet	Boom Length in Feet						
	36.1 (11.0m)	49 (14.9m)	62.3 (19.0m)	75 (22.9m)	89 (27.1m)	102 (31.1m)	114.8 (35.0m)
10	130.000	91.000	82.000				
12	113.800	91.000	82.000	47.400			
15	95.200	91.000	72.000	47.400	47.400		
20	60.300	60.300	59.500	47.400	43.600	34.700	
25	39.700	39.700	38.300	38.200	38.100	31.400	28.800
30	27.800	27.400	27.200	28.800	29.800	27.500	25.500
35		20.400	20.000	21.100	22.500	23.100	22.400
40		15.500	15.100	16.100	17.500	18.000	18.600
45			11.300	12.500	14.000	14.300	15.000
50			8.600	9.900	11.100	11.500	12.200
55			6.500	7.900	8.900	9.400	10.000
60				6.200	7.100	7.700	8.200
65				4.800	5.700	6.200	6.700
70					4.400	4.900	5.400
75					3.400	4.000	4.300
80					2.500	3.000	3.500
85						2.300	2.800
90						1.600	2.100
95							1.600
A	0°					12°	28°

A:Minimum boom angle(deg.) for indicated length(no load)

Boom Angle in Degree	Boom Length in Feet			
	114.8(35.0m) Boom+32.2(9.8m) Jib			
	5° offset		30° offset	
	R	W	R	W
80°	26.3	12.300	38.2	6.100
75°	40.0	11.000	50.9	5.500
70°	52.7	8.800	63.4	5.000
65°	64.4	7.000	74.7	4.700
60°	75.5	4.600	85.2	3.800
55°	85.6	2.700	94.4	2.200
50°	95.3	1.400	103.0	1.100

Boom Angle in Degree	Boom Length in Feet			
	114.8(35.0m) Boom+56.1(17.1m) Jib			
	5° offset		30° offset	
	R	W	R	W
80°	33.8	6.100	54.7	2.400
75°	49.5	5.000	69.5	2.200
70°	64.6	4.100	83.4	1.900
65°	78.6	3.500	96.1	1.800
60°	92.3	3.000	108.0	1.700
55°	104.0	1.900	119.0	1.400

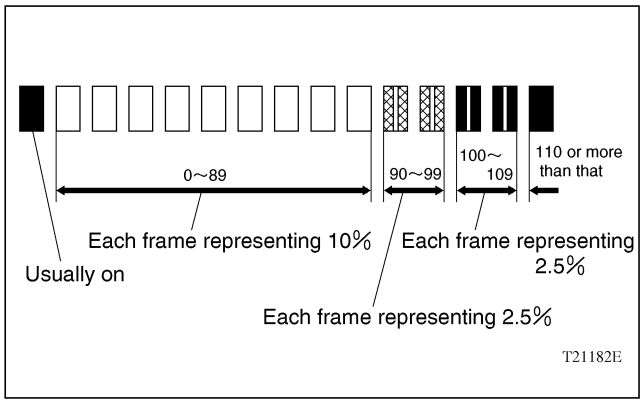
R:Load Radius in Feet
W:Rated Lifting Capacity in Pounds

343-953-81130

343-953-81130-0

①Moment ratio mark
The moment ratios on the bargraph are color coded as follows:
safe (green), notice(yellow) and limit (red).

② Moment display
Normally displays a moment ratio on a bargraph.
Displays the main-circuit oil pressure and torque converter oil pressure when the display alteration key is held down.
Also displays error messages when the load moment indicator or any of its associated devices fail(s).

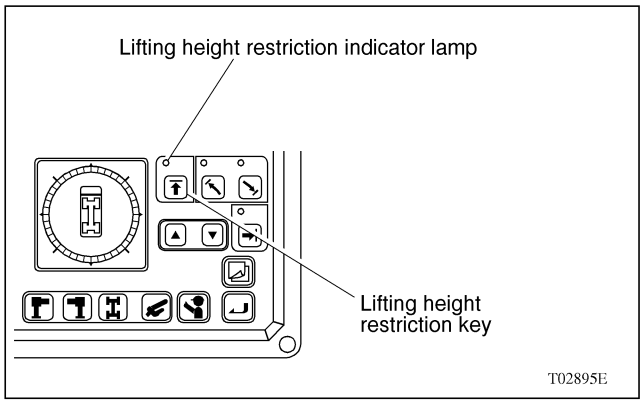


③ Scroll-up key
Used to see the previous lines of message displayed on the moment display.

④Scroll-down key
Used to see the next lines of messages displayed on the moment display.

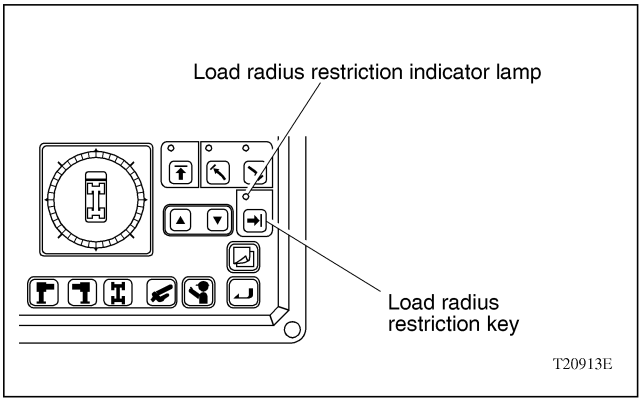
Lifting Height Limit

Move the boom to the desired height, and press the lifting height restriction key. The lifting height restriction indicator lamp flashes and the buzzer sounds continuously, indicating that the limit height has been stored in the memory. When the boom is moved back to a height within the set limit, the lifting height restriction indicator lamp stops flashing and stays illuminated and the buzzer stops.
Thereafter, the lifting height restriction indicator lamp flashes and the buzzer sounds continuously whenever the height limit previously registered is reached.
To cancel the height limit function, press the lifting height restriction key again. The corresponding lifting height restriction indicator lamp goes off.



Load Radius Limit

Move the boom to the desired load radius, and press the load radius restriction key. The load radius restriction indicator lamp flashes and the buzzer sounds continuously, indicating that the limit load radius has been stored in the memory. When the boom is moved back toward the non-critical side, the load radius restriction indicator lamp stops flashing, and stays illuminated and the buzzer stops.
The load radius restriction indicator lamp flashes and the buzzer sounds continuously whenever the limit previously registered is reached.
To cancel the load radius limit function, press the load radius restriction key again. The corresponding load radius restriction indicator lamp goes off.



Outriggers

Setting the Crane

⚠ WARNING

⚠ If the crane is set on inappropriate ground, it is possible that the crane could overturn. Always set the crane on firm ground.

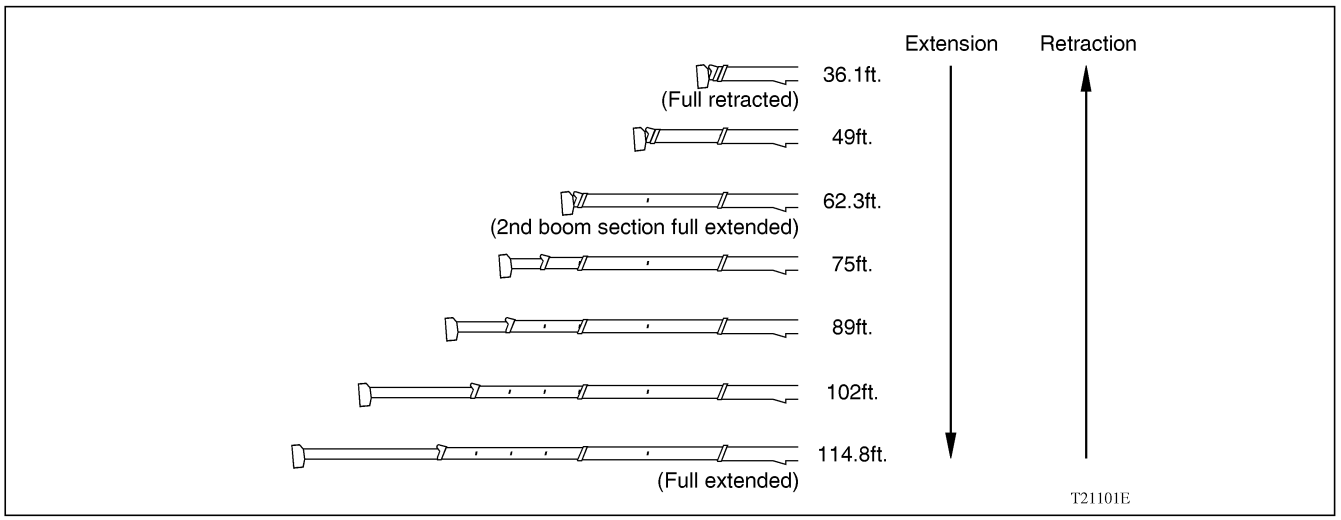
Preparing the Ground

When setting the crane on soft ground or on ground that cannot bear the weight of the crane , carry out the following procedures:

(1) Grade a slope or rough surface so that the crane can be set in a level position.

(2) Place steel plates or wood blocks on the surfaces where the outrigger floats are to be located, in order to distribute the ground bearing pressure over a larger area. The steel plates and wood blocks must be sufficiently strong and large in area and also appropriate for the ground condition. The outrigger floats must be set at the center of the plates or blocks.

The boom length and boom telescoping sequence are shown below.



Extension

1. Push the boom telescoping control lever forward. The 2nd boom section will extend.

2. After the 2nd boom section has fully extended, press the 3rd/top boom extending switch. The 3rd and the top boom sections go extending simultaneously. Keep the lever pushed in this while.
◆When the 3rd boom section begins to extend, release the switch.

3. Once the boom has extended to the desired length, return the boom telescoping control lever to the neutral position.

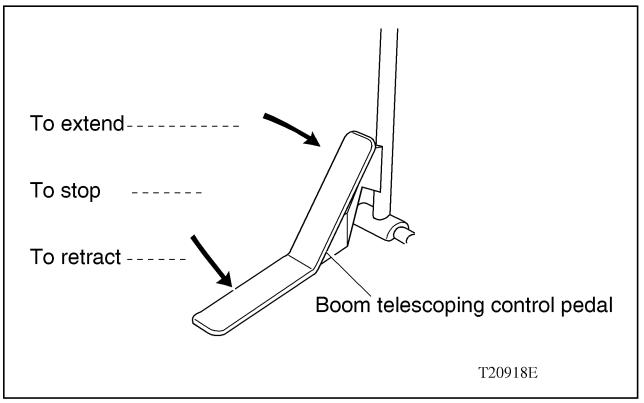
Retraction

1. Pull the boom telescoping control lever rearward. The boom will begin to retract. When retracting a fully extended boom, first the 3rd and top boom sections will retract simultaneously. After the 3rd and top boom sections have completely retracted, the 2nd section will retract.

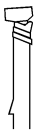
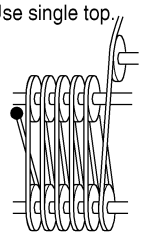
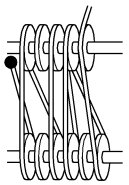
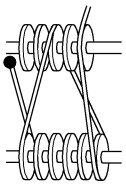
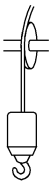
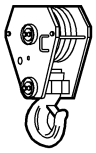
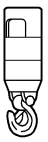
2. Once the boom has retracted to the desired length, return the boom telescoping control lever to the neutral position.

Boom Telescoping Control Pedal

This pedal is for extending and retracting the boom. It is linked with the boom telescoping control lever in motion.



The following table shows the standard number of parts of line for different boom lengths. Select the number of parts of line that ensures the most efficient operation, taking into consideration boom length, load mass, hoisting speed and other conditions such as winch drum wire rope capacity.

①	36.1ft (11.0m) 	36.1ft to 62.3ft (11.0m to 19.0m) 	62.3ft to 114.8ft (19.0m to 35.0m) 	Jib,single top
②	12	8	4	1
③	Use single top. 			
④	65 t 			6.2 t 
⑤	1,320 lbs.(600 kg)			330 lbs.(150 kg)

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①Boom length
②Number of parts of line
③Reeving pattern
④Hook block
⑤Hook block mass

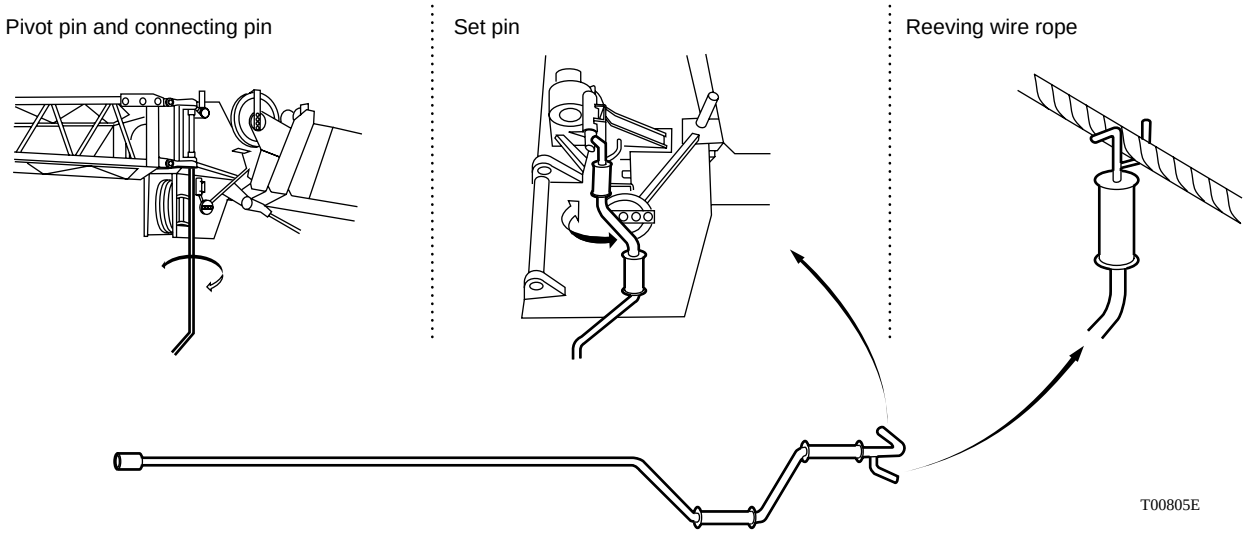
How to Use the Jib Handle

Use the jib handle for the following purposes when mounting or stowing the jib.

(1)Mounting and removing the pivot pin and connecting pin

(2)Setting and removing the set pin

(3)Reeving wire rope



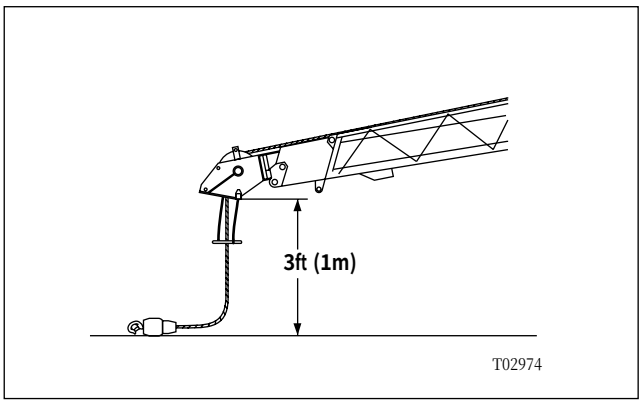
Traveling in Work Site with Jib Mounted

Avoid traveling in a work site with the jib mounted. If traveling in a work site in this state is necessary, set the boom and jib to the following state. Refer to "Traveling with a Load Lifted" section.

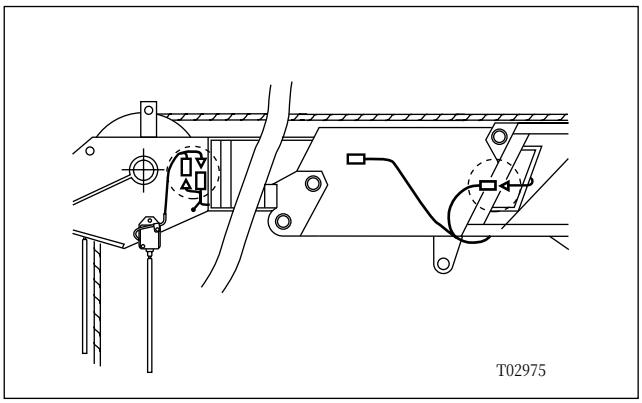
- Boom length: 36.1 ft (11.0 m) (full retraction)
- Boom angle: 0° to 40°
- Swing position: front of vehicle (the over-front position symbol on the load moment indicator shall be lit.)
- Jib length:32.2 ft (9.8 m) or 56.1 ft (17.1 m)
- Jib offset angle: 5°

Traveling in a work site is prohibited while the crane condition is other than above mentioned.

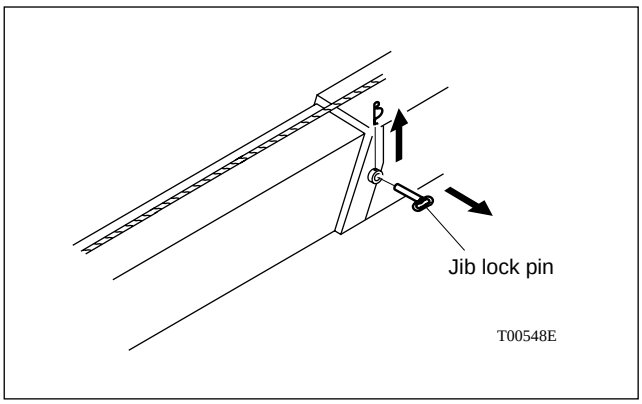
2. To make handling the job easier, lower the boom until the jib head is approximately 3 feet (1 meter) above the ground.



3. Disconnect the anti two block device leads.



4. Remove the jib lock pin.

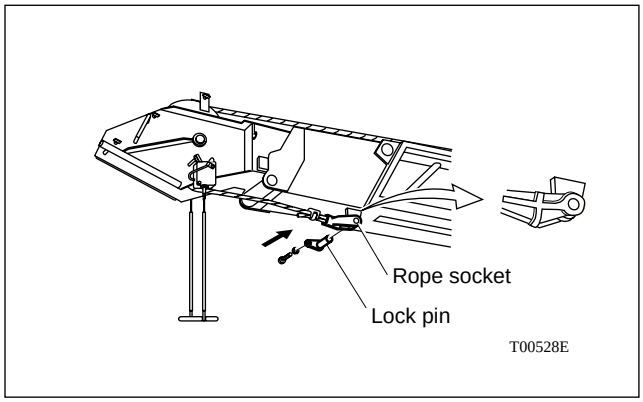


[NOTICE]

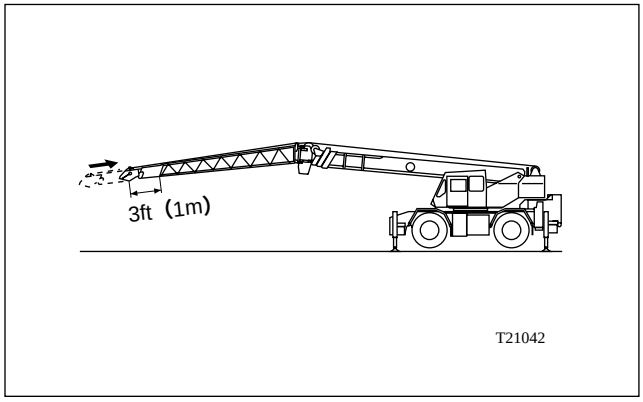
◆Take care to the rope socket position when attaching it to the bracket. (See the enlarged portion of the figure.)

If positioned inversely, the rope socket hits the jib at the lower face when the auxiliary winch is operated, and the socket will be damaged.

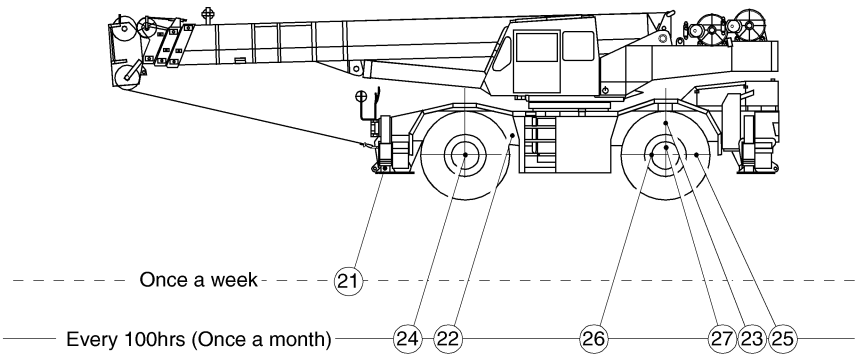
5. Remove the auxiliary hook block and secure the rope socket to the bracket on the jib using the fixing pin.

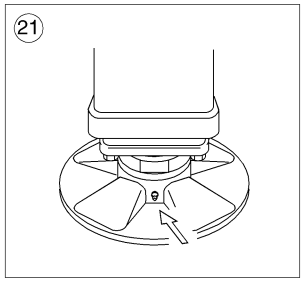


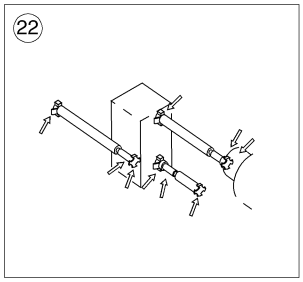
6. Slowly hoist up using the auxiliary winch to retract the top jib section until about 3 feet (1 meter) remains extended.

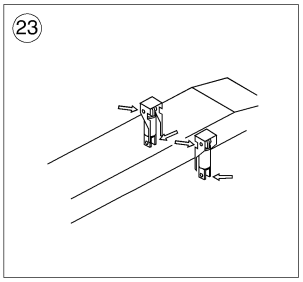


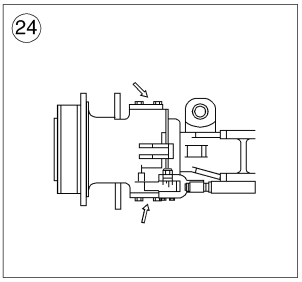
Lower Structure

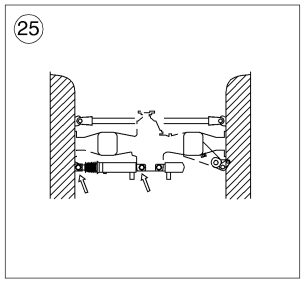


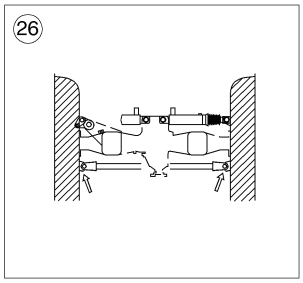


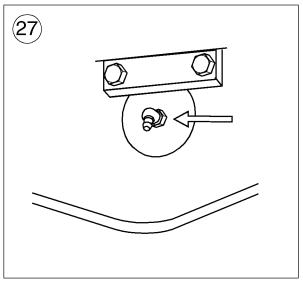












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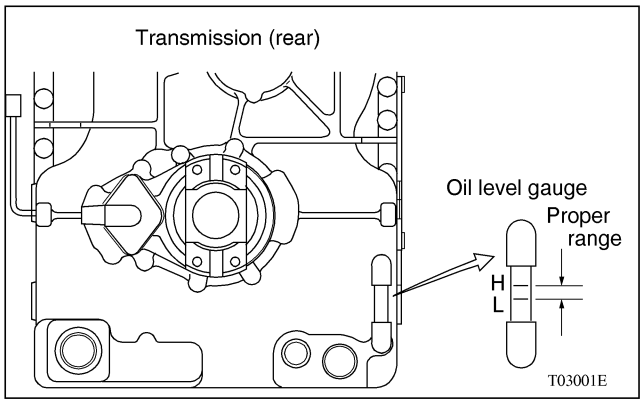
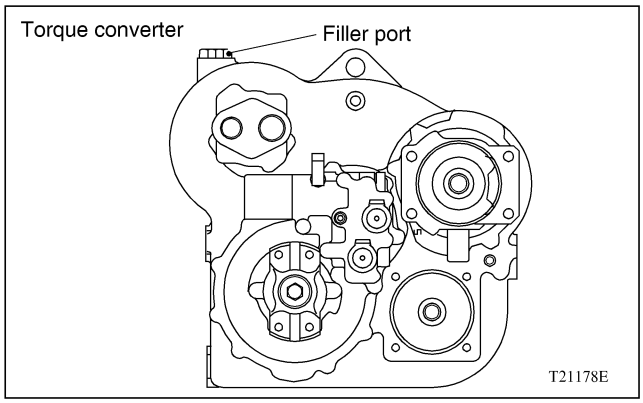
4. After making sure that the level in the oil gauge on the transmission does not sink any more, check the oil level. If the oil level is in the middle of "H" and "L", the oil level is ok. If the oil level is low, add oil through the filler port of the torque converter.



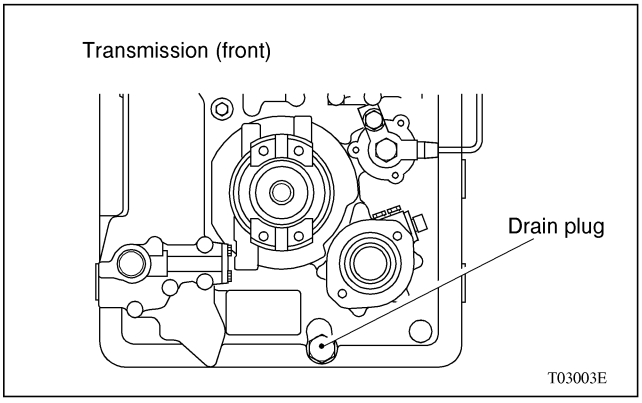


Replacing Oil

◆Clean the area around the plug before removing it to prevent dust and other foreign materials from entering the torque converter system.
◆When replacing the oil, also clean the strainer and replace the oil filter.

1. Set the crane in the traveling configuration on level ground.

2. Remove the drain plug at the lower part of the transmission to completely drain the oil.



3. Clean the drain plug. Install the drain plug and tighten it.

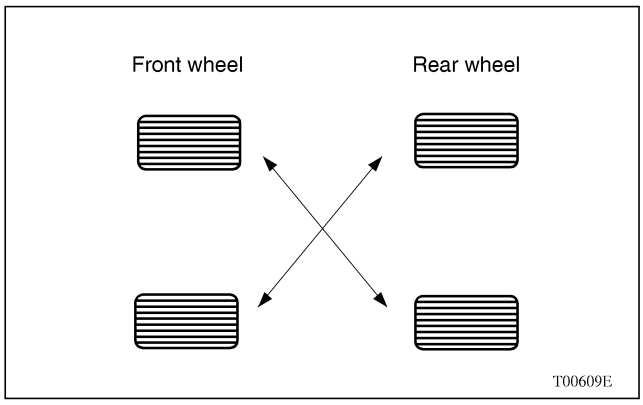
4. With the engine shut off, add oil through the torque converter filler port until the level reaches the "H" mark of the transmission oil level gauge.

5. Switch the PTO switch to OFF and shift into Neutral. Start the engine and let it idle.

6. The oil level drops gradually because the oil is passing through the torque converter, pipes, oil-cooler, filter, etc.
Add oil little by little to compensate for the drop in oil level. Keep the engine idling for approximately 5 minutes and continue to add oil until the indicator bar in the transmission oil level gauge remains in the specified range with the oil at a temperature of 122°F (50°C).

5. Mount the tires with the wheel bolts aligned to the wheel bolt holes.

◆When performing tire rotation, change the tire positions as shown.



6. Apply light weight grease to the spherical areas of the wheel nuts and the threaded sections of the bolts.

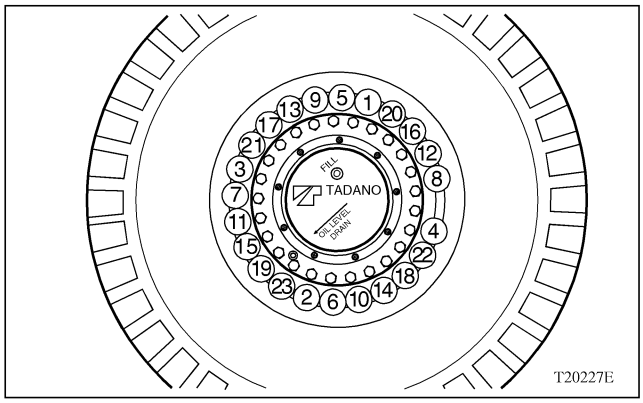
7. Loosely tighten the wheel lug nuts.

8. Stow the outriggers and lower the tires to the ground gently.

9. Tighten the wheel lug nuts to the specified tightening torque.

Tightening torque	360 to 435 ft-lb (50 to 60 kgf·m)

◆Tighten the wheel lug nuts diagonally as shown.



10. After replacing tires, check for loose wheel lug nuts after approximately 30 miles (50 km) travel. Re-tighten if a loose nut is found.

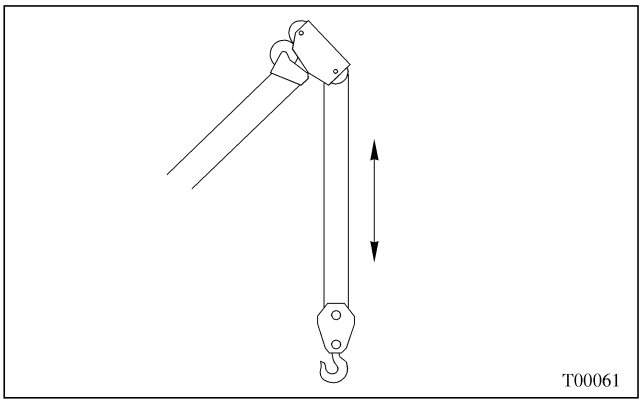
Loose Wheel Lug Nut Check · ·Every 250 Hours or Every 3 Months

⚠ WARNING

⚠Loose wheel lug nuts or wheel lug nuts tightened beyond the specified torque can be extremely dangerous because the wheel bolts can experience fatigue failure(s). If more than one or two bolts break the entire wheel can come off while the crane is traveling. Periodically check for loose wheel lug nuts. Re-tighten if a loose wheel nut is found.

Check for loose wheel nuts. Re-tighten if a loose wheel nut is found.

3. Hoist the hook block up and down several times to distribute any remaining twists evenly throughout the rope. If, after this action, twists still remain, correct again.



Correcting the Torsion of the Wire Rope

【NOTICE】

◆Wire ropes may lose its structural elongation and be untwisted with use. Using such wire ropes for a long time can lead torsions to gather at the rope ends, damaging the wire ropes.
To settle twisting condition of the wire rope, re-reeve the wire ropes regularly to remove the torsions on the rope ends. It is essential for a while after the wire rope has been replaced.

Wire Rope Replacement

Criteria for Replacing Wire Ropes

⚠ WARNING

⚠If a wire rope breaks during operation, a serious accident could occur. Check the wire ropes at regular intervals. Wire ropes that do not meet even one of the criteria given below should be replaced immediately.

Perform routine and periodic (monthly) inspections of the wire ropes for breaks, wear, corrosion, deformation, arcing or heat effects, oil coat condition, and rope end condition. If any of the following conditions 1 through 5 exist, replace the wire rope.

◆If the end of wire rope is not in proper condition, repair or cut.

1. In running ropes: six randomly distributed broken wires in one lay, or three broken wires in one strand in one lay.
2. Wear of one-third of the original diameter of outside individual wires. Evidence of kinking, crushing, bird caging, or any other damage resulting in distortion of the rope structure.
3. Evidence of any heat damage from any cause.
4. Reductions from nominal diameter of more than:
   1/64 inch for diameters up to and including 5/16 inch
   1/32 inch for diameters 3/8 to 1/2 inch inclusive
   3/64 inch for diameters 9/16 to 3/4 inch inclusive
   1/16 inch for diameters 7/8 to 1-1/8 inches inclusive
   3/32 inch for diameters 1-1/4 to 1-1/2 inches inclusive
5. In standing ropes: more than two broken wires in one lay in sections beyond end connections, or more than one broken wire at an end connection.

Removing Wire Rope

1. Extend the outriggers and place the boom in the over-rear or an over-side area.

Overall Dimensions

No.		Dimension
①		11´ 5 5/8″ (3,367 mm)
②		12´ 6 15/16″ (3,833 mm)
③	Max. extension width	23´ 7 1/2″ (7,200 mm)
	Mid. extension width	21´ 11 3/4″ (6,700 mm)
	Mid. extension width	18´ 1/2″ (5,500 mm)
④		ϕ 1´ 7 2/3″ (500 mm)
⑤		11´ 7 11/16″ (3,548 mm)
⑥		11´ 11 13/16″(3,652 mm)
⑦	Overall width	10´ 10 1/2″ (3,315 mm)
⑧		13´ 6 1/4″ (4,120 mm)
⑨	Departure angle	14.6°
⑩		7´ 4 3/8″ (2,245 mm)
⑪	Wheel base	12´ 11 1/2″ (3,950 mm)
⑫		6´ 4 1/4″ (1,937 mm)
⑬	Approach angle	18.6°
⑭		24´ 4 5/16″ (7,435 mm)
⑮	Overall length	44´ 8 2/3″ (13,630 mm)
⑯	Overall height	12´ 4 3/4″ (3,780 mm)