

Operation Manual

# Operation Manual

## Rough Terrain Crane GR-150XL

Model: GR-150XL-2  
Serial No.: FD3345 –

Operate this machine only after reading this Manual.  
Keep this Manual in the cab so that it can be reviewed  
at any time.

GR-150XL-2\_OM1(U)-13E

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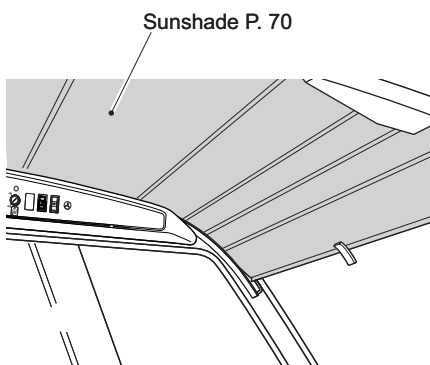
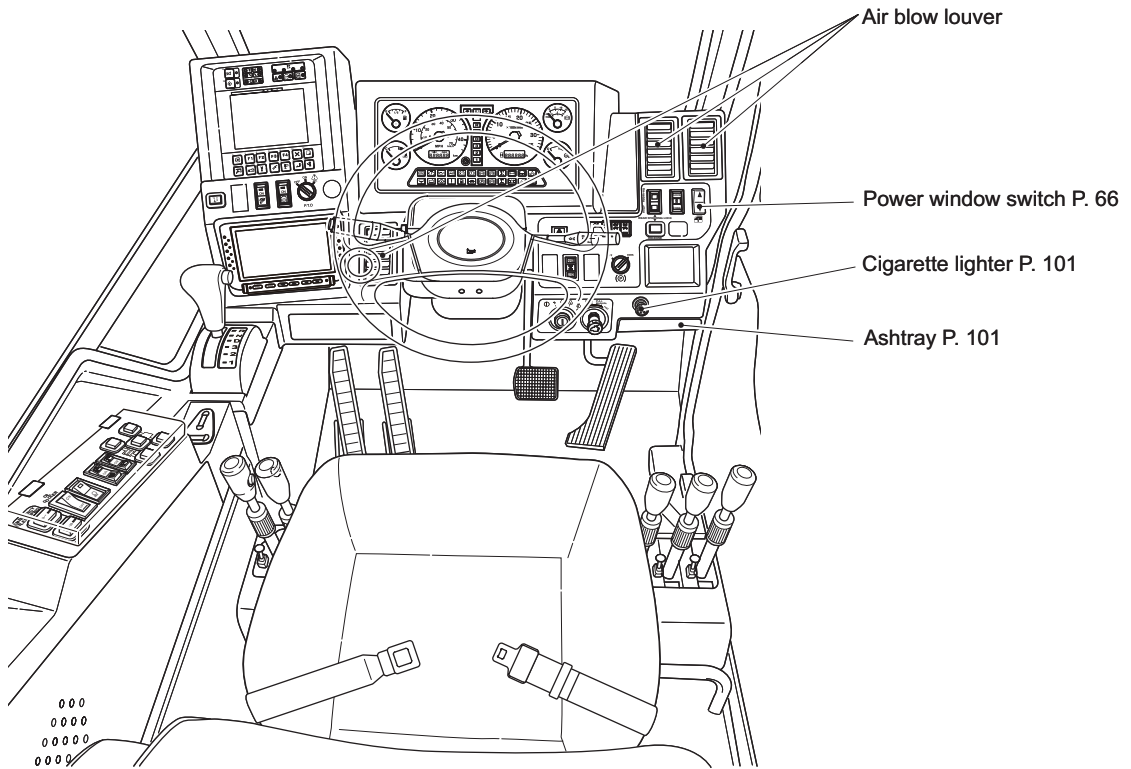
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## Other Controls

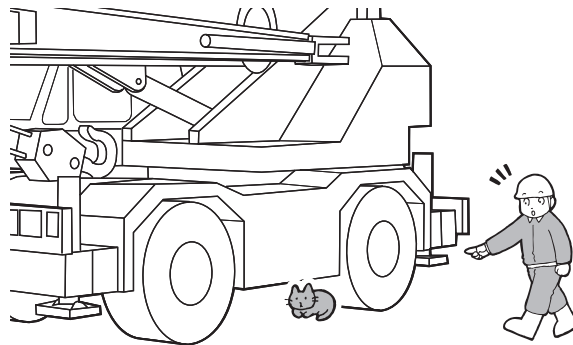
### Inside Cab



K14082-00E

- **Check around the Machine before Starting**

Check that there are no persons or obstacles around the machine before starting.



G05024-000

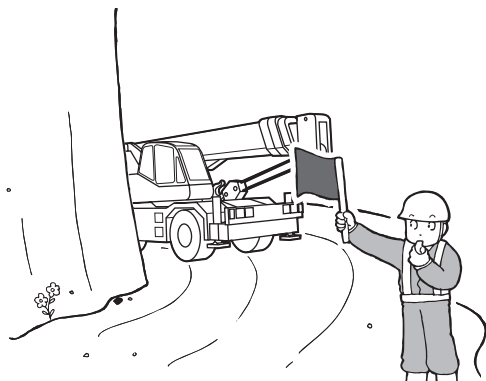
- **Attention to Safe Driving**

Keep a sufficient distance from the preceding vehicles, maintain a moderate speed, and apply brakes early.

Do not drive in an aggressive manner such as overspeeding, sudden starting, sudden braking or steering.

- **Assign a Guide at a Place with Poor Visibility**

Assign a guide at a corner, narrow place, a place where visibility is limited, and when reversing, to prevent collisions or crashes.



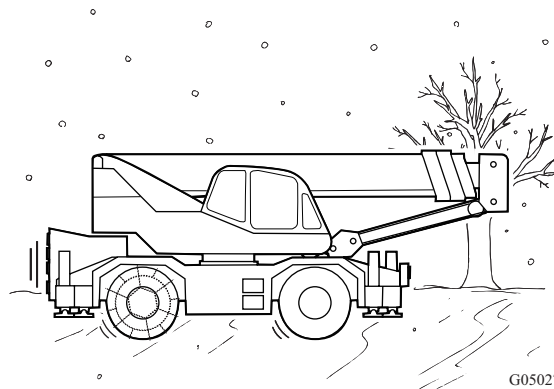
G05026-000

- **Be Careful of Road Surface Conditions**

Poor road surface conditions may cause an unexpected accident due to slippage or loss of steering wheel control.

When traveling on snow-covered road, frozen road surface, rough ground or slope, pay particular attention to safe driving and take safety into account.

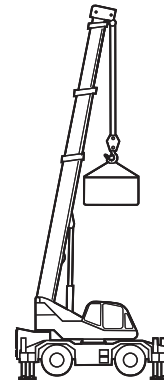
Before traveling, check road surface conditions, and use tire chains depending on road surface conditions.



G05027-000

- **Carefully Operate When the Boom Is Raised Almost Fully**

When the boom is raised to near the upper limit, the horizontal clearance between the lifted load and the boom is small. When the load sways, the lifted load may collide with the boom or jib, damaging itself, the boom, or jib. Carefully carry out operation near the boom angle upper limit so as not to allow the lifted load to collide with the boom.

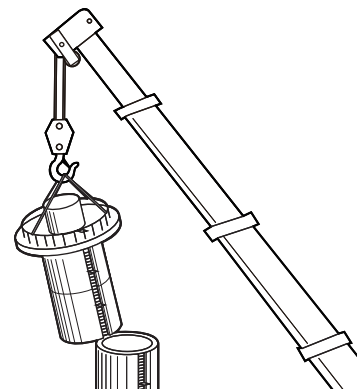


G05052-000

- **Carry Out Demolition Work Carefully**

It is dangerous to lift structures with an unclear mass and gravity center during demolition work.

Check the mass and gravity center of the load before operation, and decide the lifting method accordingly.

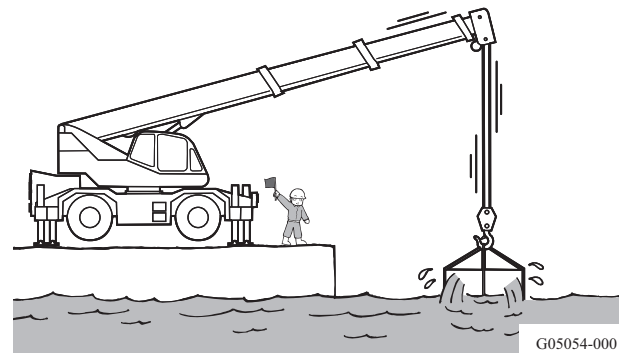


G05053-000

- **Lift a Submerged Load Carefully**

When a load submerged under water is lifted, be aware that the load contains water and may be several times heavier than the expected mass. Do not lift the load from water in one quick operation. Drain water while slowly lifting the load.

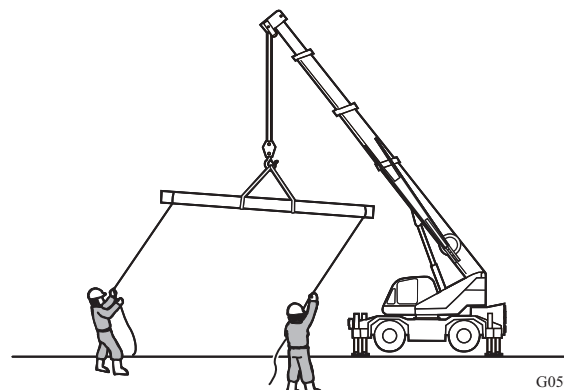
In addition, even if water is completely drained, a load raised out of water is much heavier than when it is given buoyancy in water. Be extremely careful not to allow overloading to occur.



G05054-000

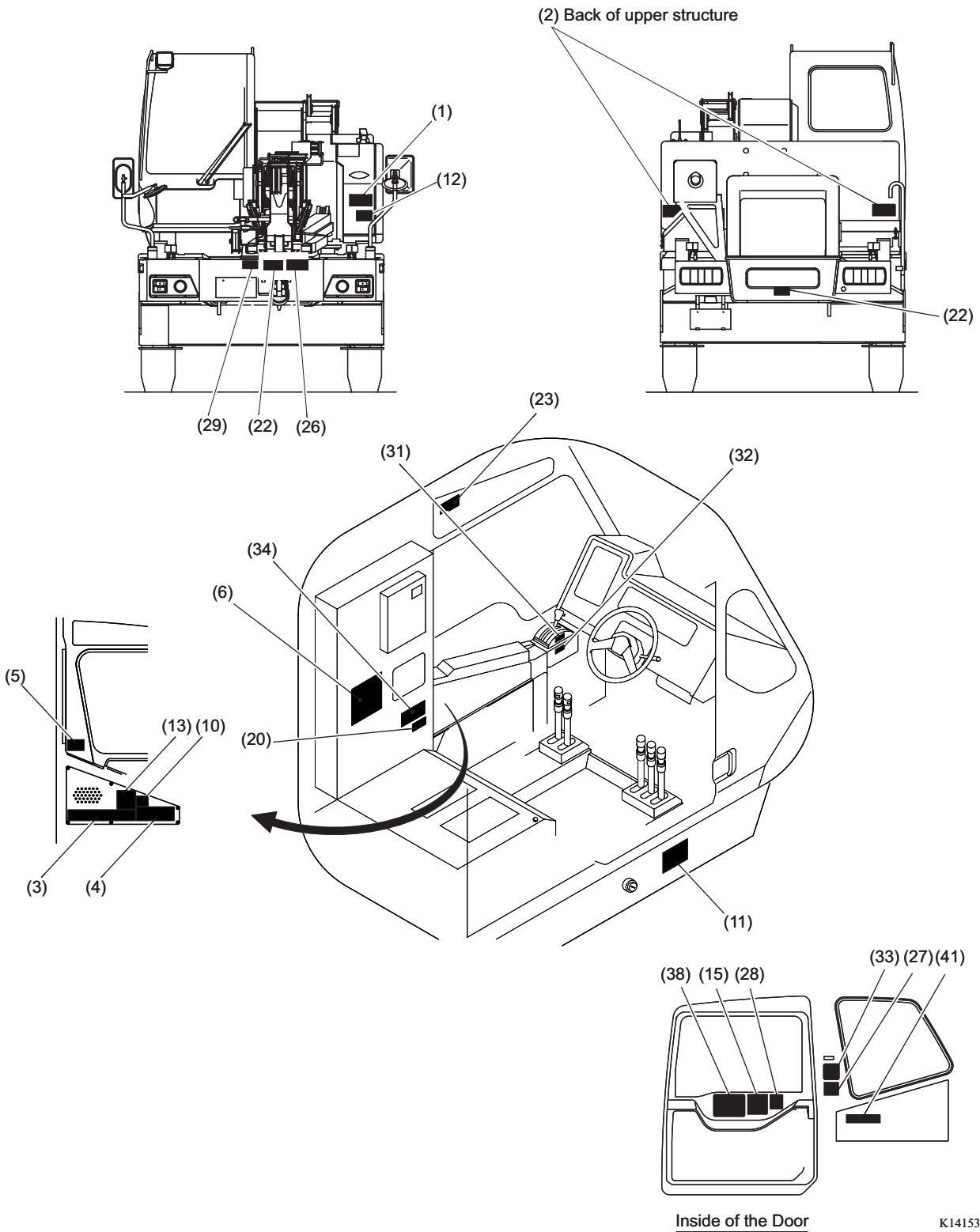
- **Pay Attention to Long Loads**

Be careful when raising a long load. A lifted load may turn and collide with the rigger, crane, or structures around the machine. Attach guide ropes to one end or both ends of the load and keep the position of the load, and prevent the load from turning or swaying.



G05055-000

# Label Location and Content of Warnings




K14153-01E

(39) Replacing filter element and hydraulic oil

 <b>CAUTION</b>
<p>Always replace the filter element and hydraulic oil within replacement period designated in operation manual. Failure to make replacements may lead to defects in hydraulic pump or other hydraulic devices (crane operation, steering etc.) and result in serious injury.</p> <p style="text-align: right;">343-975-21010</p>

343-975-21010-0

(40) Remove wire rope from guide

 <b>CAUTION</b>
<p>REMOVE THE WIRE ROPE FROM THE ROPE GUIDE BEFORE CRANE OPERATION.</p> <p style="text-align: right;">343-911-42100-1</p>

343-911-42100-1

(42) Keep fire away (2 points)

<b>USE OF FIRE STRICTLY PROHIBITED</b>
343-968-75100

343-968-75100-0

(44) Do not spatter water

<b>DO NOT SPATTER WATER</b>
-----------------------------

443-910-00080-0

(41) Prohibition of taking out manual


<p><b>Never remove OPERATION, SAFETY &amp; MAINTENANCE MANUAL from this machine.</b></p>
--

343-925-31270

343-925-31270-0

(43) Bleeding hydraulic pump

For USA


 <b>CAUTION</b>
<ul style="list-style-type: none"> <li>•After replacing oil or hydraulic pump, do not fail to air-bleed the hydraulic pump. Otherwise the pump may get seized, causing a serious trouble.</li> <li>•Confirm oil volume while the machine is in traveling style.</li> </ul>

**TADANO HYDRAULIC OIL LL**

370-022-19500

370-022-19500-0

For Canada

 <b>CAUTION</b>
<ul style="list-style-type: none"> <li>•After replacing oil or hydraulic pump, do not fail to air-bleed the hydraulic pump. Otherwise the pump may get seized, causing a serious trouble.</li> <li>•Confirm oil volume while the machine is in traveling style.</li> </ul>

**TADANO HYDRAULIC OIL ISO VG22**

370-022-20980

370-022-20980-0

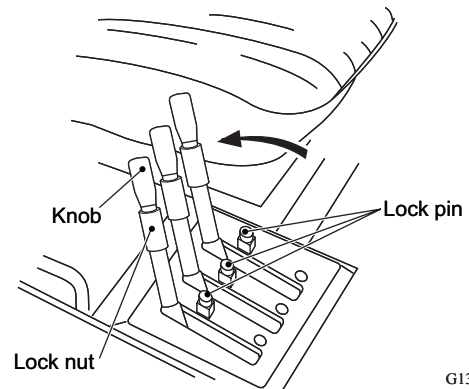
## Stowing Control Levers

### **⚠ WARNING**

**If you touch a control lever when getting in and out the cab, the crane may move, causing an accident. After completion of the crane operation, lock all control levers and tilt them backward.**

Stow all control levers before getting in and out the cab and traveling.

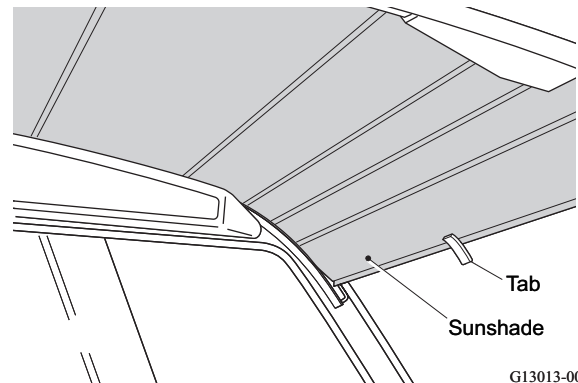
1. Insert the lock pins.
2. Turn each lock nut counterclockwise to loosen.
3. Press each knob to minimize length of the control levers.
4. Press the levers downward and tilt them backward.



G13012-00E

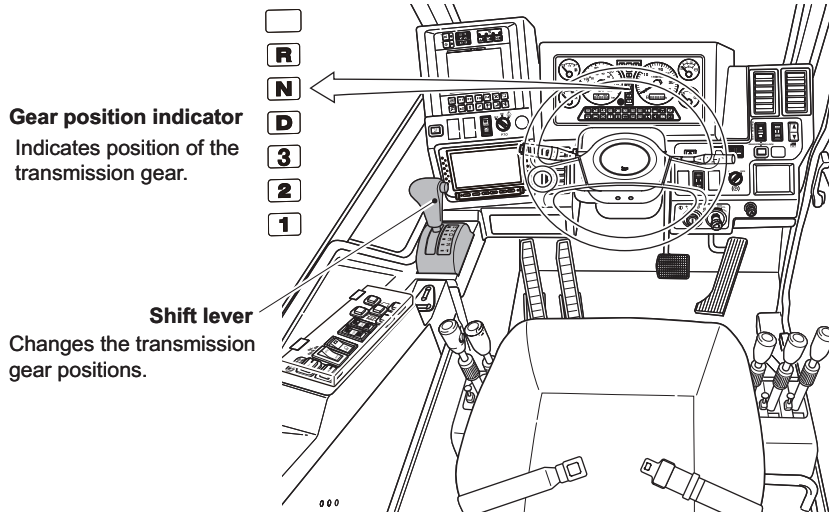
## Sunshade

Use the sunshade when the sun is dazzling.  
 For pulling it out, grab the tab located at the end of the sunshade and slide it.  
 For storing, slightly pull it out and let it return.



G13013-00E

# Transmission Operation



K01225-01E

## Positions and Functions of the Shift Lever

**⚠ WARNING**

Carry out operations of ↑ ↓ without pressing the shift lever button. If you always press the shift lever button to operate the lever, you may unintentionally change the lever to "R," resulting in an accident.

**Shift lever button**

**R (Reverse)**  
Reverse  
The gear is fixed to reverse.

**N (Neutral)**  
Neutral  
The engine drive power is not transmitted. This is a position for engine start, parking, and crane operation.

**D (Drive)**  
Drive  
Normal traveling  
The gear is automatically changed from the first through third gear depending on the vehicle speed. The gear is fixed to the third gear in the driving mode of L/4D (4WD low speed traveling).

**2 (Second)**  
Traveling on slope  
Use this when ascending a long slope, or using engine braking to descend a slope. The gear is fixed to the second gear.

**1 (Low)**  
Traveling on slope  
Use this when ascending a steep slope, or requiring a strong engine brake force. The gear is fixed to the first gear.

↑ ↓ The lever can be moved without pressing the shift lever button.

↑ ↓ The lever can be moved only while the shift lever button is pressed.

G16002-02E

## Steering Mode Selecting Operation

**⚠ WARNING**

The vehicle moves in an unusual manner in a special steering. Do not travel on roads in a special steering state. Travel on roads in the two-wheel steering mode.  
Use a special steering only for driving in a work site, and travel at a speed of 10 mph (15 km/h) or less.

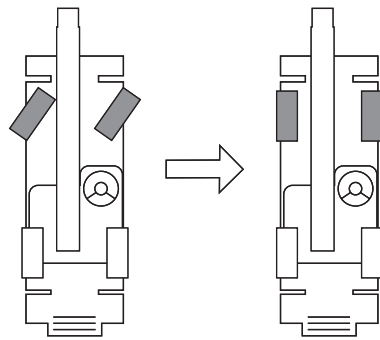
☞ If the vehicle speed is increased while traveling in a special steering, and the speed exceeds 10 mph (15 km/h), the lock pin warning rapidly flashes.

### Changing from the Two-wheel Steering to the Special Steering

1. Set the front wheels straight, and stop the vehicle.

**⚠ CAUTION**

Do not change steering modes with the front wheels steered left or right. Otherwise, turning angle of the front wheels becomes different from that of the rear wheels after the mode change, and normal steering is not possible.

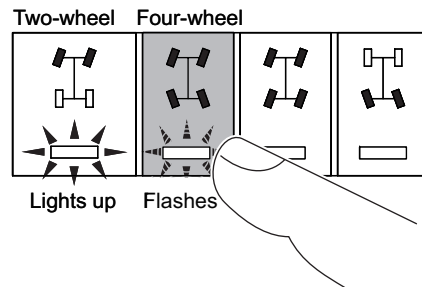


G18003-000

2. Move the shift lever to "N," and apply the parking brake.
3. Select a steering mode with the steering mode selector.

(The figure shows a case to select the four-wheel steering.)

- The "Four-wheel" operation indicator flashes.
- The "Two-wheel" operation indicator stays lit.



G18004-00E

**NOTICE**

The mode has not been changed to the selected mode while the "four-wheel" operation indicator of the pushed switch is flashing.


## Spraying the Washer Liquid

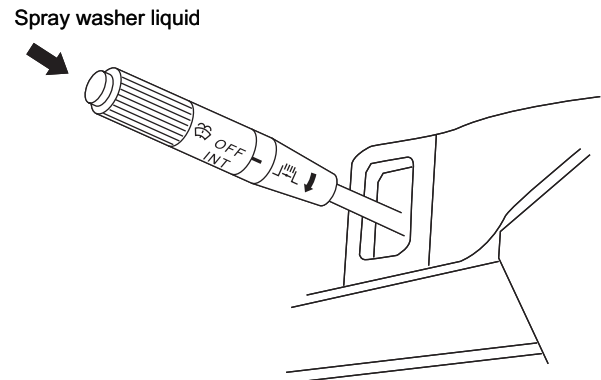
Press the knob at the top end of the wiper/washer switch.

- Washer liquid is sprayed onto the windshield.

### NOTICE

**Do not use washer liquid in cold season until the glass surface is warmed. Washer liquid freezes on the windshield glass, and reduces visibility.**

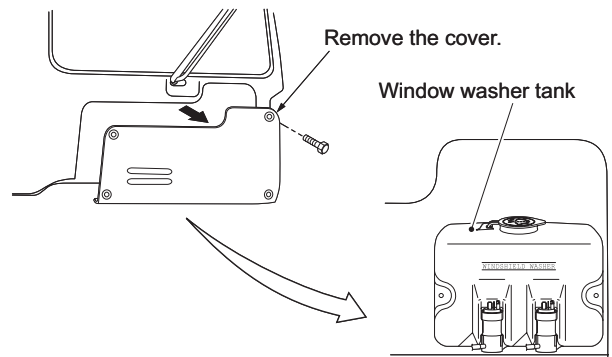
-  If the washer liquid does not come out, do not keep pressing the washer switch. Otherwise, the washer liquid pump will be damaged. Inspect for washer liquid amount and clogging of the washer nozzle.



G21009-00E

## Refilling the Washer Liquid

1. Remove the washer liquid tank cover on the front side of the cab.
2. Add washer liquid into the window washer tank.



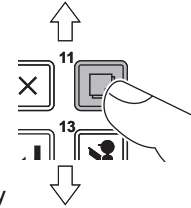
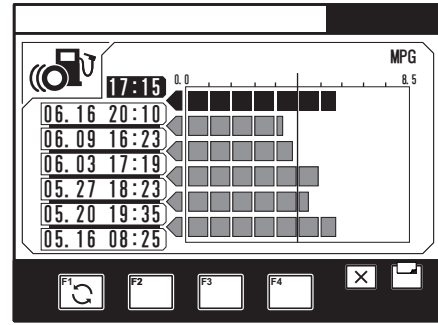
G21010-02E

4. The display changes every time the display change key is pushed.
- History of the fuel consumption and the average fuel consumption is shown in either a bargraph or number.
  - The items shown on the numerical display screen are as follows:

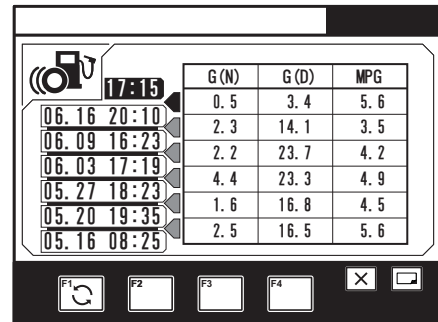
G(N) ..... Fuel consumption when standby  
 G(D) ..... Fuel consumption when traveling  
 MPG ..... Average fuel consumption during standby and traveling (mile/gallon).

- ☞ The measurements restart when F1 (reset) key is pushed. The previous records are moved down every time the F1 (reset) key is pushed. 6 previous records (Max.) including the current rate are displayed. You can reset the histories both for traveling and crane operation at the same time by pushing F1 (reset) key and hold it for a while.
- ☞ Press cancel key to exit the history display. The pop-up window closes and the screen changes back to the original crane traveling mode.

Bargraph display

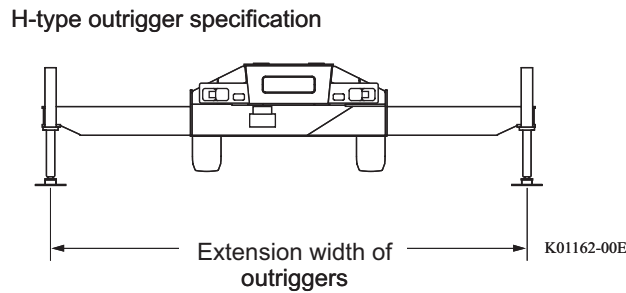


Numeric display



K06656-00E

## Extension Width of Outriggers



## Unequal Extension of Outriggers

The state that the individual extension width of outrigger is different from each other.

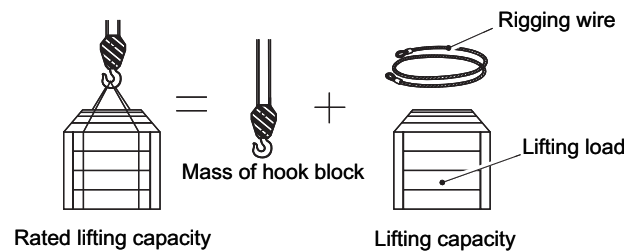
## Maximum Extension Capacity, Middle Extension Capacity, Minimum Extension Capacity

The lifting capacities when the outriggers are extended to respective width.

## Rated Lifting Capacity

The maximum load that can be lifted with the specified boom length and load radius.

The rated lifting capacity is the total of the lifted loads, and lifting devices such as rigging wires and the hook block.



G31005-00E

## Lifting Capacity

The load that can be actually lifted, and the value obtained by subtracting the mass of lifting devices such as hook block from the rated lifting capacity.

## No Load

The state that no load is lifted.

## On-rubber Stationary Operation

To carry out crane operation without using outriggers.

## On-rubber Creep Operation

To pick and carry (travel at low speed with a load lifted and without extending outrigger jacks).

## Clearing the Ground

To clear a load from the ground by hoist-up operation.

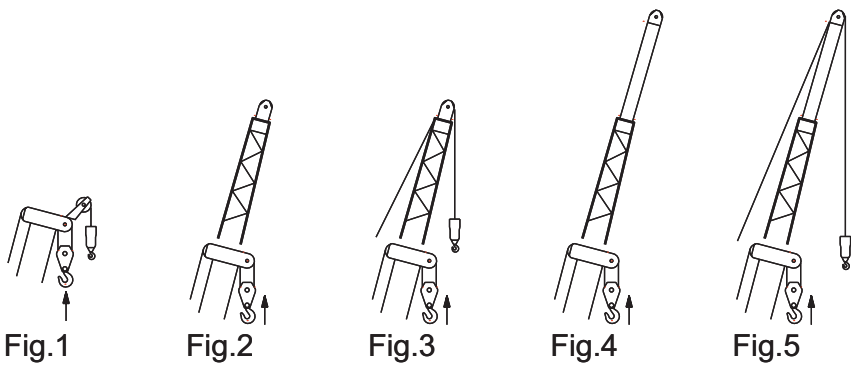
## Reduced Lifting Capacity from Rated Lifting Capacities

The rated lifting capacities for boom lift assume that the jib is stowed in the specified position and the main winch is used. When the jib is mounted on the boom head, subtract the values in the table below from the rated lifting capacities.

### WEIGHT REDUCTIONS FOR AUXILIARY LOAD HANDLING EQUIPMENT

Load Handling Equipment		
15ton,4Sheave Hook Block(See Hook Block for actual weight)	195	(lbs.)
Aux.Hook(See Hook for actual weight)	53	(lbs.)

Lifting from Main Boom with										
#1	Base and Top Jib stowed on base boom							0	(lbs.)	
	Single Top erected but not used+Aux.Hook on Single Top							0	(lbs.)	Fig.1
	11.8'(3.6m)Base Jib erected but not used								(lbs.)	Fig.2
	Boom Length	17.4'	30'	42'	54'	66'	78'			
		4,100	2,200	2,200	2,000	1,900	1,500			
	11.8'(3.6m)Base Jib erected but not used +Aux.Hook on Top Jib								(lbs.)	Fig.3
Boom Length	17.4'	30'	42'	54'	66'	78'				
	4,200	2,300	2,300	2,100	2,000	1,600				
18'(5.5m)Base and Top Jib erected but not used								(lbs.)	Fig.4	
Boom Length	17.4'	30'	42'	54'	66'	78'				
	4,200	2,200	2,300	2,100	2,000	1,500				
18'(5.5m)Base and Top Jib erected but not used +Aux.Hook on Top Jib								(lbs.)	Fig.5	
Boom Length	17.4'	30'	42'	54'	66'	78'				
	4,300	2,300	2,400	2,200	2,100	1,600				



Note \* Capacity deductions are for TADANO supplied equipment only.

\* When lifting from Jib,deduct total weight of all load handling devices reeved on Main Boom nose directly from Jib capacity.

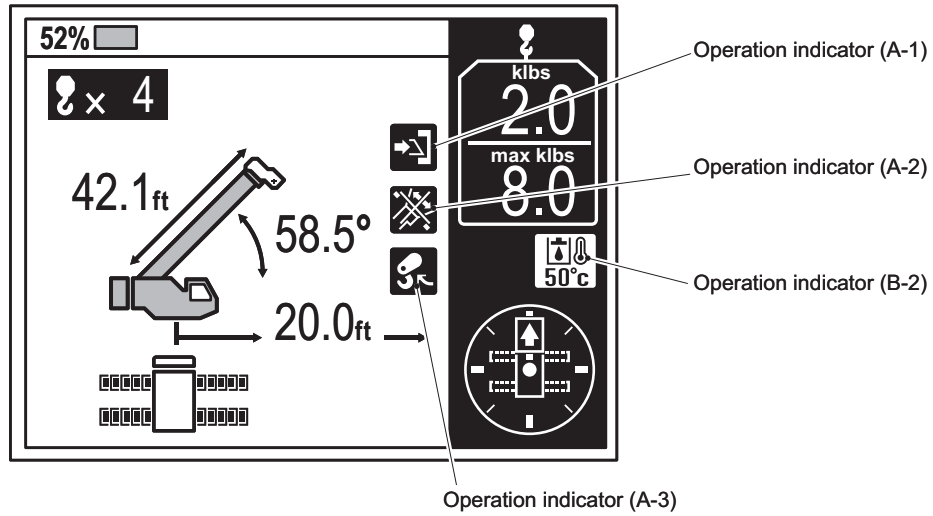
#1. Correct state of Jib, equipped or removed, should be inputted into the LOAD MOMENT INDICATOR(AML) by Jib state key switch.

343-975-31270-0





K13667-00E

## Crane State Indicator Display

The crane state is displayed by the indicators (icons). The positions and contents of the indicators are as follows.

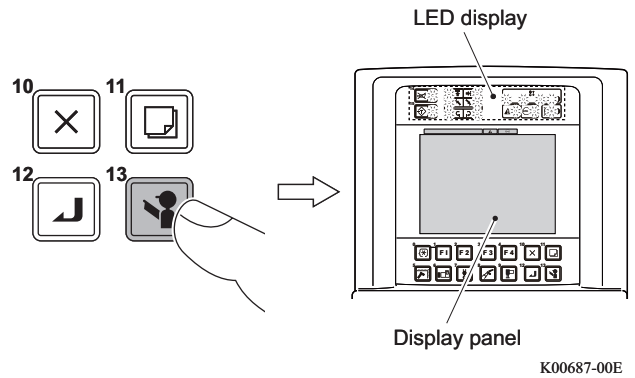


K01247-00E

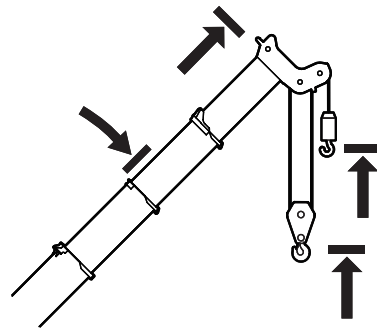
Icons	Name	Operation indicators	Display condition
 K00734-000	Jib lock	A-1	In the jib set state, when the jib lock pin and jib set pin are in the following state. <ul style="list-style-type: none"> <li>• Jib lock pin: Inserted</li> <li>• Jib set pin: Removed</li> </ul>
 K00736-000	Elevation slow stop cancel	A-2	Displayed when the boom elevation slow stop is canceled.
 K00879-000	Hook-in	A-3	Displayed when the hook block turns to the hook-in available state.
 K01341-000	Jib dismount	A-3	Displayed when the jib is removed from the boom, and the jib state switch is set to "REMOVED".

**12.** Press the check key and check that the load moment indicator is in the following state.

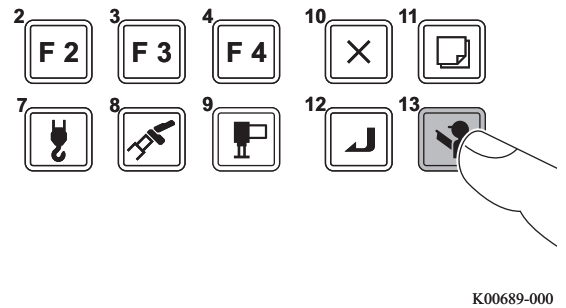
- LED display: All segments lit up
- Display panel: All segments lit up
- Alarm buzzer: Continuous sound



**13.** Attempt hoist-up operation, boom extension, and boom lowering operations to check that the crane does not operate.



**14.** Press the check key again to return to the normal state.



## Registration of Slewing Range Limit Function

### NOTICE

The crane does not stop automatically during on-rubber operation even if the right slewing limit or left slewing limit is registered.

When the slewing angle reaches the limit value, an error code is displayed on the load moment indicator.

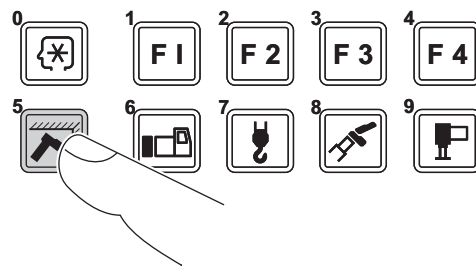
Operate paying attention to obstacles.

1. Press the working range limit key and select the item (left slewing limit or right slewing limit) to be registered.

- The symbol for the selected item flashes.
- Every time the working range limit key is pressed, the item to be selected changes in the following order.

1. Lifting height limit
2. Load radius limit
3. Boom angle upper limit
4. Boom angle lower limit
5. Left slewing limit
6. Right slewing limit

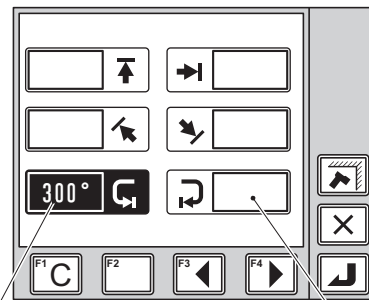
- The figure on the right shows the example of selecting the "Left slewing limit."



K00696-000

☞ Instead of the working range limit key, F3 (backward) key or F4 (forward) key can be used to change the item to be selected.

☞ When you want to cancel the registration, press the exit key. The pop-up window closes, and the crane lift state before the registration is restored.




Left slewing limit is highlighted.  
Current slewing angle is displayed.

Right slewing limit

K14041-00E

## Selection of Winch Drum Rotation Buzzer

When the winch drum rotates, the buzzer sounds in accordance with the rotation speed of the winch drum. Whether the buzzer sounds or not is selected.

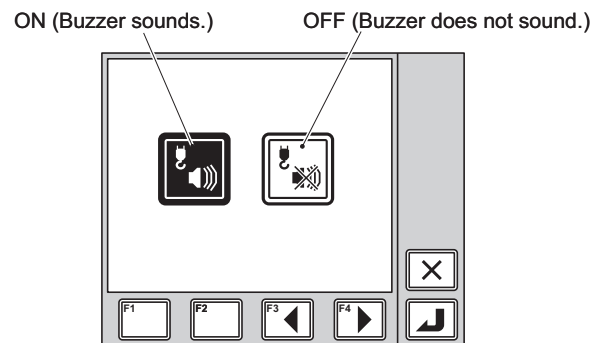
 The buzzer sounds only when the winch drum rotates at a low speed. When the winch drum rotation speed increases, the buzzer stops sounding.

**1.** Select the winch drum rotation buzzer selection menu, and press the set key.

- The pop-up window for the winch drum rotation buzzer selection is displayed on the display panel.

**2.** Press F3 (backward) key or F4 (forward) key to select the icon for the rotation buzzer.


- The selected icon is highlighted.

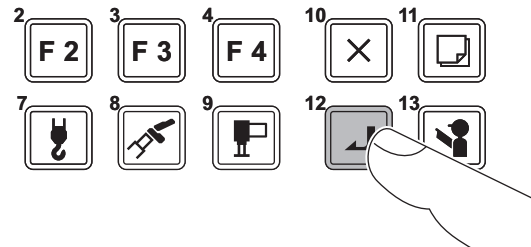


K00708-00E


**3.** Press the set key.

- After registration, the pop-up window closes, and the crane lift state before the registration is restored.

 When you want to cancel the selection, press the exit key. The pop-up window will be closed, and the crane lift state is restored without changing the registration.

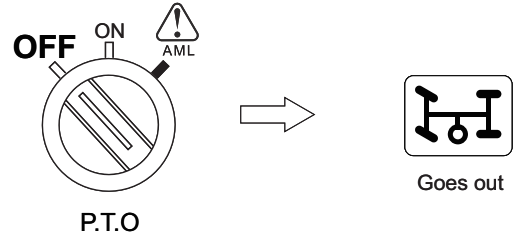


K00678-000

 Even after the load moment indicator is turned off, the registered contents are retained. When the load moment indicator is turned on, the operation starts with the registered contents.

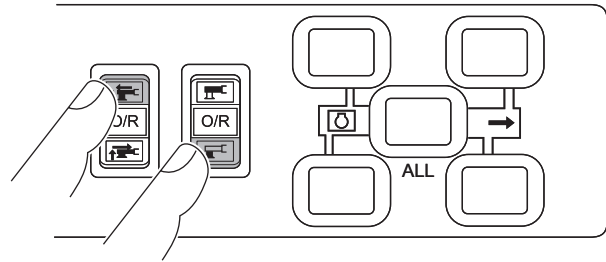
## Disengaging PTO (PTO "OFF" Operation)

1. Run the engine at idle.
2. Turn the PTO switch to "OFF."
  - The PTO indicator goes out.
  - The hydraulic pump stops.
  - Power of the load moment indicator turns off.



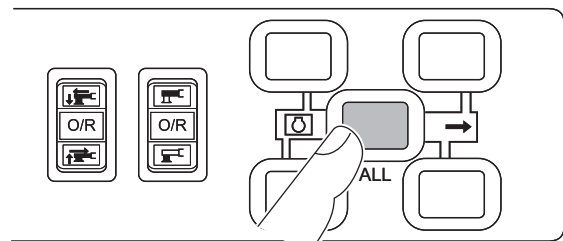
K01263-00E

8. Set the jack/beam selector switch to "JACK" and set the extend/retract selector switch to "EXT."



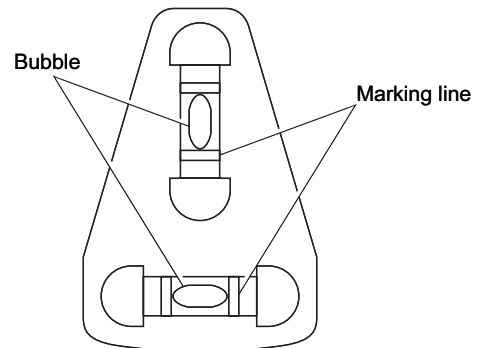
K01272-000

9. Press the central control switch to extend all the jack cylinders completely.



K01271-000

10. Check that the machine is horizontally set up using the level in the cab.  
If it is not set up horizontally, refer to "Level Set-up" (page 192) to set it up horizontally.
- When the bubble is between the marking lines of the level, the machine is set up horizontally.



G37011-00E

### **⚠ WARNING**

The machine may sometimes be supported by the 3 jack cylinders. Operation in this state may cause an overturning accident. Check that the outrigger floats contact the ground. If there is any outrigger float not contacting the ground properly, adjust it for proper seating on the ground.

## Auxiliary Winch Operation

Operate in the same manner as the main winch operation.

Refer to the procedure for the main winch, and operate by substituting each lever into those for the auxiliary winch.

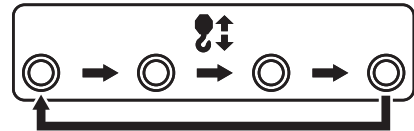
## Drum Indicator

When the winch drum rotates, the four drum indicators sequentially flash, and show that the drum is rotating.

The moving distance of the hook block per one flash of the indicator is approximately 0.87 in. (22 mm) (with 4 layers).

The displayed winch changes according to the lift state registered to the load moment indicator.

- Boom lift registered .....Main winch
- Single top/jib lift registered ...Auxiliary winch



K00542-000

CLICK HERE TO **DOWNLOAD** THE COMPLETE MANUAL

- Thank you very much for reading the preview of the manual.
- You can download the complete manual from: [www.heydownloads.com](http://www.heydownloads.com) by clicking the link below

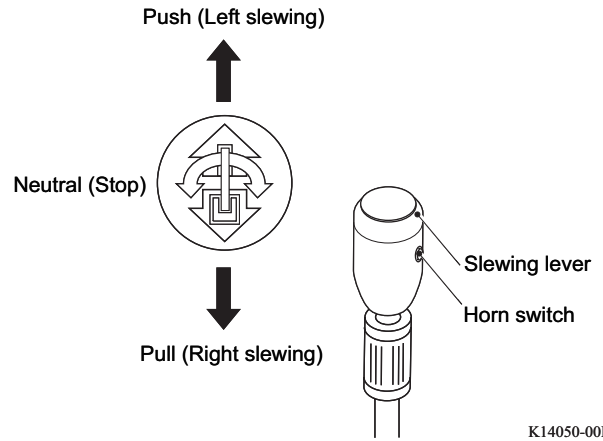


- Please note: If there is no response to CLICKING the link, please download this PDF first and then click on it.

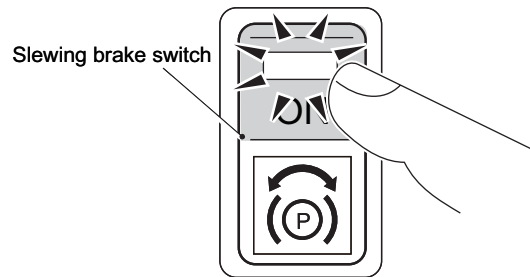
CLICK HERE TO **DOWNLOAD** THE COMPLETE MANUAL

3. Before operating the slewing lever, press the horn switch to sound the horn, and alert the people around the machine.
4. Operate the slewing lever to slew.
  - Left slewing…… Push the lever forward.
  - Stop …………… Return the lever to the neutral position.
  - Right slewing… Pull the lever backward.

**⚠ WARNING**  
Abrupt lever operation may cause the load to bounce or sway, resulting in a physical injury or damage to the machine. Slowly operate the lever.



5. After the slewing operation, set the slewing brake switch to "ON."
  - The indicator lamp built in the switch lights up.


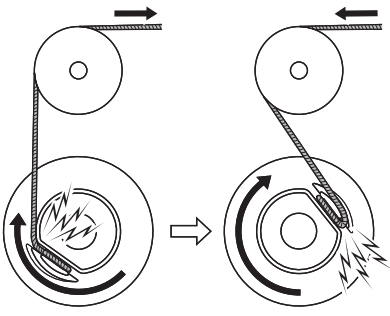


# Reeving Wire Rope

## Standard Number of parts of line

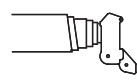
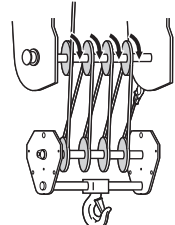
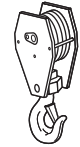

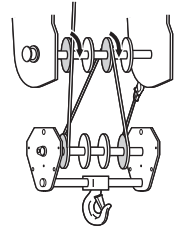

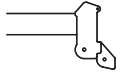
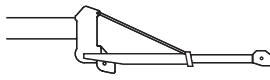
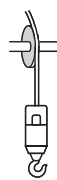

**⚠ WARNING**

- If the crane is operated with more number of parts of line than the standard, the wire rope length can become insufficient. If the entire length of wire rope on the winch drum is reeled out, the load will be then applied to the end of the wire rope. This can break the wire rope and cause an accident. Or the wire rope can be wound up in the opposite direction. In this situation, the hook block is hoisted up during winch hoist-down operation, this also can cause an accident. Select the number of parts of line so that 3 or more dead turns of rope always remain on the winch drum.
- If the number of parts of line is less than the standard, the load cannot be lifted as specified in the rated lifting capacity table. If the crane is operated with a load heavier than the allowable load, the wire rope will break, resulting in an accident. Make sure that the allowable load per one wire rope (4,000 lbs {1,800 kg} or less for both main and auxiliary wire ropes) is not exceeded.

G45012-00E

Select appropriate number of parts of line in accordance with the boom length, lifting capacity, and winding up speed.

Boom length: Standard number of parts of line	Reeving pattern	Mass of hook block to be used	Allowable load of wire rope
<p>Lifting capacity: 15 short tons (13.6 metric tons)</p> <p>17.4 ft (5.3 m) : 8-part</p>  <p>4-part for on-rubber operation</p>	<p>8-part</p> 	<p>Main hook block 15.0 short tons (13.6 metric tons) : 4 sheaves</p> 	<p>4,000 lbs (1.8 t) / line</p>
<p>17.4–78 ft (5.3–23.8 m) : 4-part</p> 	<p>4-part</p> 	<p>195 lbs (90kg)</p> 	
<p>Single top: 1-part</p>  <p>Jib: 1-part</p> 		<p>Auxiliary hook block 2.0 short tons (1.8 metric tons)</p>  <p>53 lbs (25kg)</p>	<p>4,000 lbs (1.8 t) / line</p>

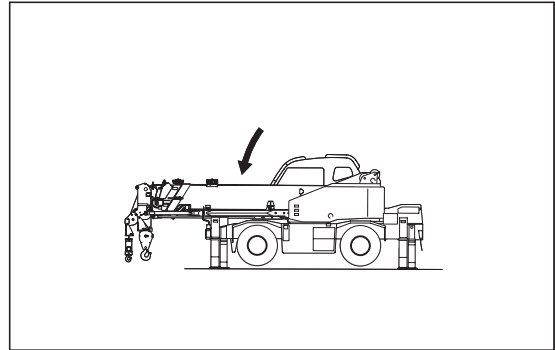
K01292-02E

GR-150XL-2\_OM1(U)-13E

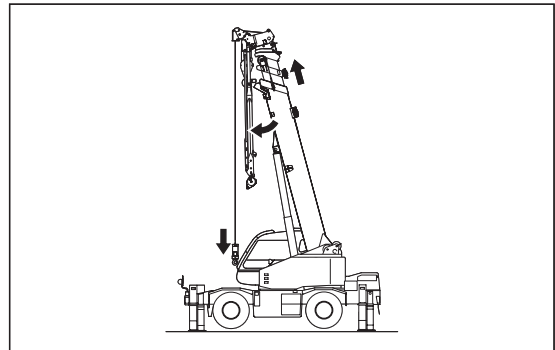
## Outline of Jib Mounting

The outline of the jib mounting is as follows:

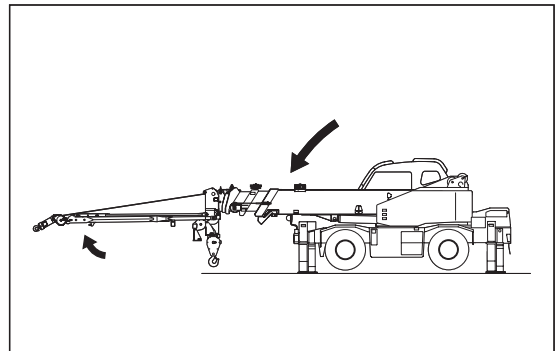
1. Prepare to swing out the jib from the boom.  
(Steps 1 through 7)



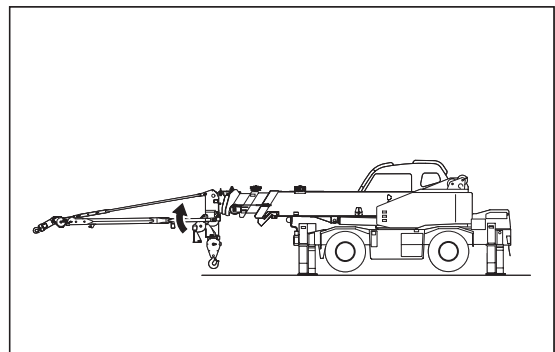
2. Swing out the jib from the boom.  
(Steps 8 through 13)



3. Wind up the auxiliary winch wire rope while lowering the boom, and swing up the jib forward.  
(Steps 14 through 16)



4. Connect the tension rod for the jib to the boom.  
(Steps 17 through 24)



Mounting jib is completed

K13541-00E

## Changing Jib Offset Angle

### ⚠ WARNING

When working at a high place, use a platform to prevent falling. Falling from a high place may cause a serious injury.

### NOTICE

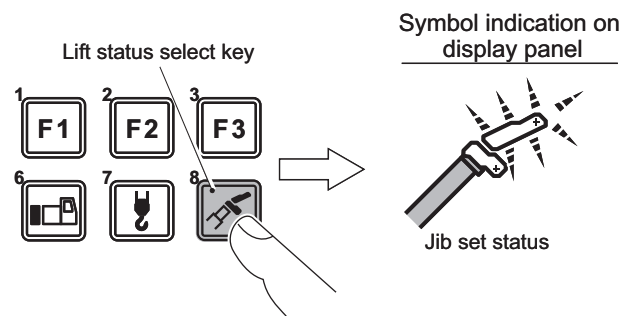
Change the jib offset angle with the jib fully retracted. If the jib offset angle is changed with the top jib extended, the jib may be damaged.

You can change the jib offset angle by re-inserting the jib offset pin. The jib offset angle can be adjusted in four stages (5°, 25°, 45°, and 60°).

1. Check that the top jib is fully retracted.
2. Register the jib set state to the load moment indicator.
  - The jib state indicator symbol flashes.


### NOTICE

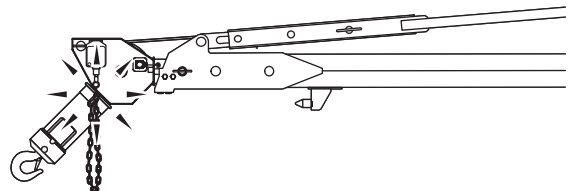
When the jib set state is registered to the load moment indicator, automatic stop does not work even when the hook block is twoblocked.



K00418-00E


3. Slew the boom to the front or side area.
4. Slowly wind up the auxiliary winch wire rope until the auxiliary hook block touches the jib head.

 Pay attention not to let the jib head touch the ground.

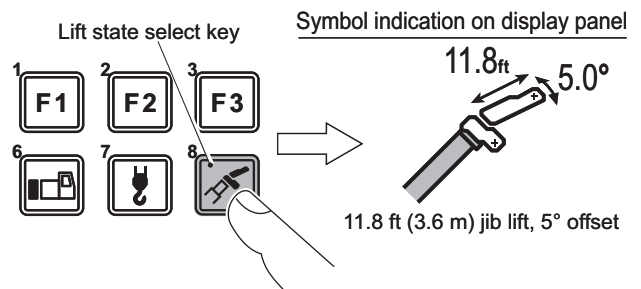


G49029-030

- 10.** Refer to the rated lifting capacity table for the jib, and raise the boom to the angle for jib lift.

 If the boom angle does not fall within the capacity range of the jib lift, the jib lift cannot be registered to the load moment indicator.

- 11.** Register the lift state to the load moment indicator.

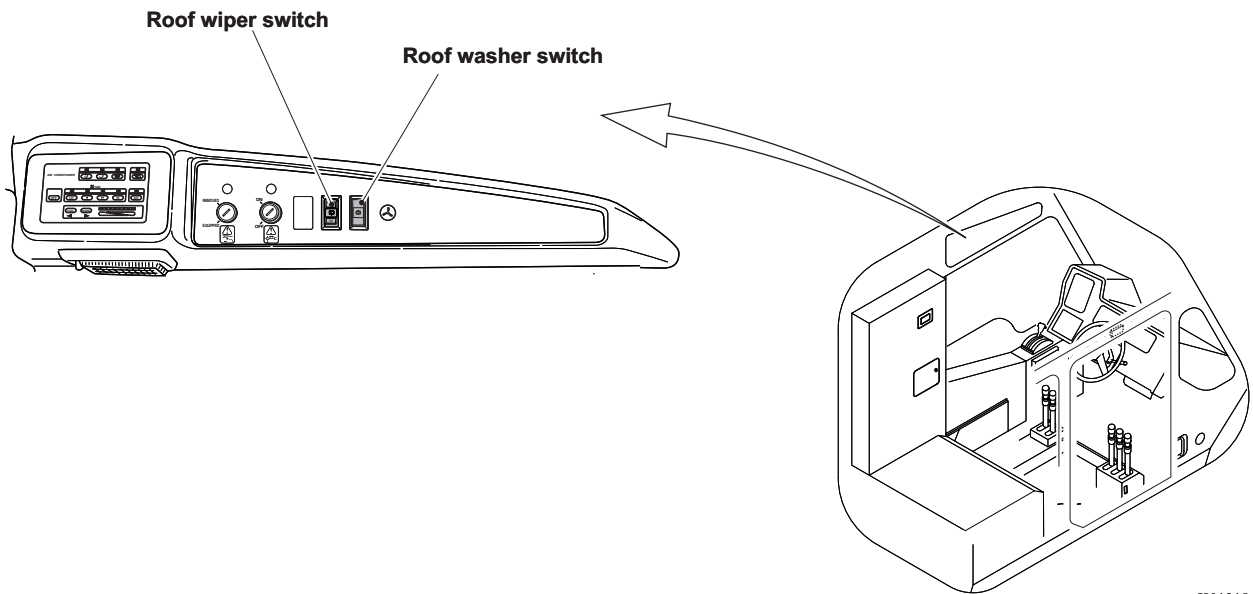
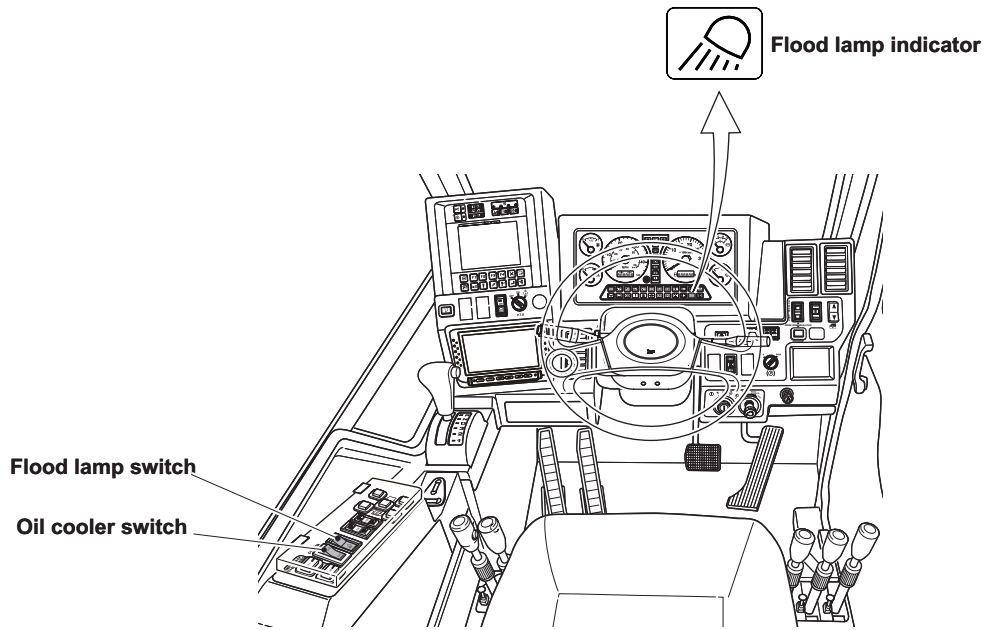


K01304-00E

- 12.** Check the points below.
- The crane stops automatically when the auxiliary hook block is overwound.
- If it does not stop automatically, refer to Step 9 and check that the wiring is securely connected.

Now, the preparation work for the 11.8 ft (3.6 m) jib lift is completed.

# Accessories in Cab



## • Prevention of Fire

You handle flammable and hazardous objects such as fuel and batteries during inspection and maintenance. Observe precautions below to prevent a fire.

- Use nonflammable cleaning liquid to clean parts.
- Keep oils and greases away from a fire for storage.
- Extinguish flames (such as a lit cigarette) that can cause a fire.
- Keep fire fighting equipment such as fire extinguishers at the ready.
- Use explosion-proof illuminating equipment when you inspect fuel, oil, and battery electrolyte.
- Particularly during grinder and welding work, keep hazardous objects away and watch out for a fire.



## • Illumination

If you work under insufficient illumination, an injury can occur. Provide sufficient illumination for operation.

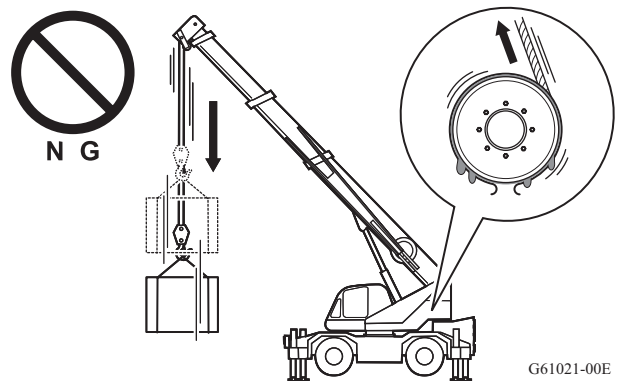
Do not use a match, cigarette lighter, or other open flame for illumination purposes. They can cause a fire, or the gas from the battery can be ignited and explode.

Use explosion-proof illuminating equipment when you inspect fuel or battery electrolyte.



## • Avoid Adherence of Oil and Grease

If oil or grease adheres to the lining or disk of the clutch or brake, the braking force will be reduced and creates hazardous situations. Be careful not to allow oil or grease to adhere to these surfaces.



Inspection and maintenance item		Inspection and maintenance interval				Remarks	
		Daily inspection	Monthly	Quarterly	Annually		
Components	Inspection item						
Traveling system	Tire	Air pressure in tires	<input type="radio"/>				
		Crack and damage	<input type="radio"/>				
		Unusual wear	<input type="radio"/>				
		Depth of groove	<input type="radio"/>				
	Wheel	Mounting state and damage of tire and wheel	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	
		Tire condition				<input type="radio"/>	
		Looseness and damage of wheel nut and wheel bolt			<input type="radio"/>	<input type="radio"/>	Tighten with a torque wrench every 3 months, and disassemble and check every 12 months.
		Vibration in wheel bearing				<input type="radio"/>	
		Damage of rim, side ring, and wheel				<input type="radio"/>	
		Tire rotation		Every 3,107 mile (5,000 km)			
Axle housing	Crack, damage, and deformation of axle				<input type="radio"/>		
Suspension system	Leaf spring type suspension	Damage of spring		<input type="checkbox"/>	<input type="radio"/>	<input type="radio"/>	
		Looseness and damage of mounting and connecting parts			<input type="radio"/>	<input type="radio"/>	
		Oil leakage in spring lock cylinder and pilot check valve	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	
		Looseness in spring lock cylinder mounting part			<input type="radio"/>	<input type="radio"/>	
		Function of pilot check valve			<input type="radio"/>	<input type="radio"/>	

## Inspection before Traveling

### ⚠ WARNING

**If inspection before traveling is neglected, it is impossible to find problems in their early stages and it may result in accidents. Conduct the inspection before traveling, and take corrective action immediately if any abnormality is found.**

Inspect the following items in the inspection before traveling.

If you find any abnormality, take corrective action by yourself, or contact a TADANO distributor or dealer for maintenance.

- Abnormal items detected on previous day or operation

- Inspection around carrier

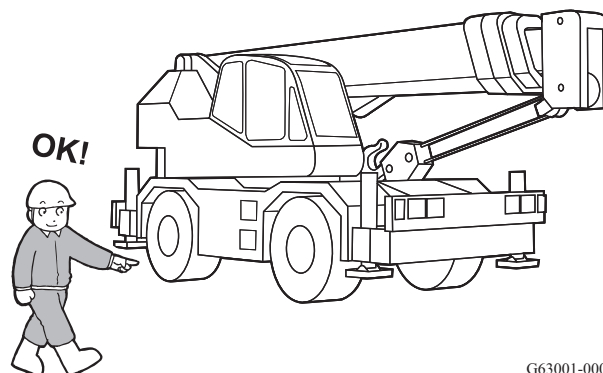
1. Water condensation in air tank
2. Soiling and damage of lamps and license plates
3. Fuel leakage
4. Water level in the water separator
5. Oil leaks from the spring lock cylinder
6. Oil leaks from the transmission, oil level
7. Battery electrolyte level
8. Brake fluid level
9. Tire condition

- Inspection of engine room

1. Engine oil level, soiling
2. Coolant level in the radiator
3. Looseness, tension, and damage of the fan belt
4. Air cleaner check

- Inspection at driver's seat

1. Engine start-up, abnormal noise
2. Condition in engine low speed and acceleration
3. Function of mirrors and monitor camera
4. Check of lamp operation
5. Washer liquid level, spraying condition
6. Operation of wipers
7. Function of foot brake
8. Function of parking brake





G63001-000

## Coolant Level in the Radiator

**⚠ WARNING**


**When the engine is warmed up to the normal operating temperature, the engine coolant is in a high temperature and high pressure state. In this state, do not remove the radiator cap. Careless opening may cause hot water and steam to spout, causing burns.**

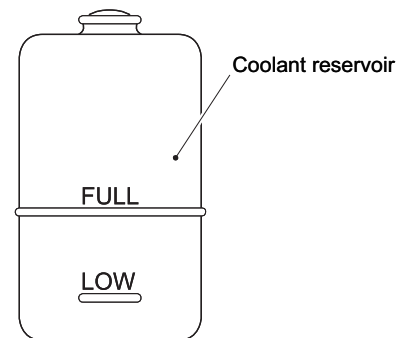
**Let the radiator cap cool down until it can be touched by bare hands before starting work.**

G63014-00E

1. Check the coolant level in the coolant reservoir.

 If the coolant level is between the "FULL" and "LOW" lines, the coolant amount is normal.



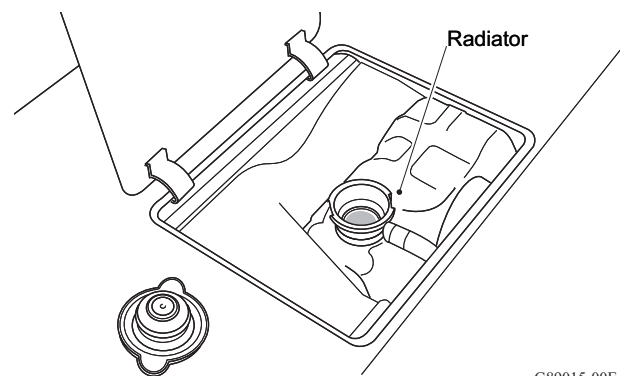
G89014-00E

2. If the coolant level is lower than the "LOW" line, check for any coolant leak from each part of the cooling system. If no water leakage is found, remove the radiator cap, and add coolant close to the opening.

3. Remove the cap for the coolant reservoir, and add coolant to "FULL."

4. If the coolant level decreases in a short time after replenishment, the cooling system may have a leak.

Contact a TADANO distributor or dealer for inspection.

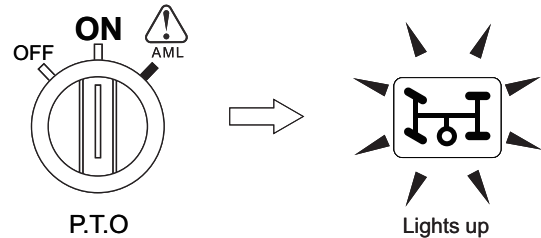


G89015-00E

## Hydraulic System

### PTO System Operating State, Oil Leaks

1. Set the PTO switch to "ON" to check that the PTO indicator on the instrument panel lights up and the display appears on the load moment indicator.



2. Check for any abnormal noise or oil leaks from the hydraulic pump.

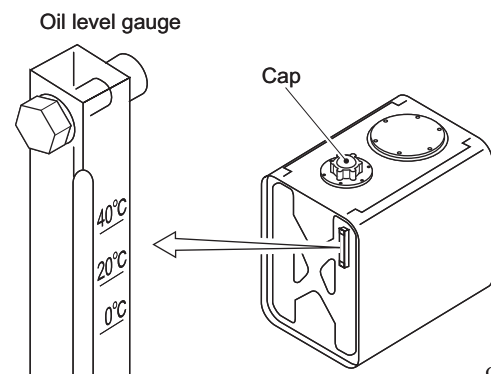
If there is any abnormal noise or oil leaks, contact a TADANO distributor or dealer for inspection and maintenance.

K01262-00E

### Oil Level in the Hydraulic Oil Tank

1. Set the machine into the traveling posture, and set up the machine on a level ground.
2. Inspect the oil level with the oil level gauge on the hydraulic oil tank. If the oil level is between the position corresponding to the current ambient temperature and 32°F (0°C), the oil amount is normal.

If it is insufficient, remove the cap of the hydraulic oil tank, and add oil.



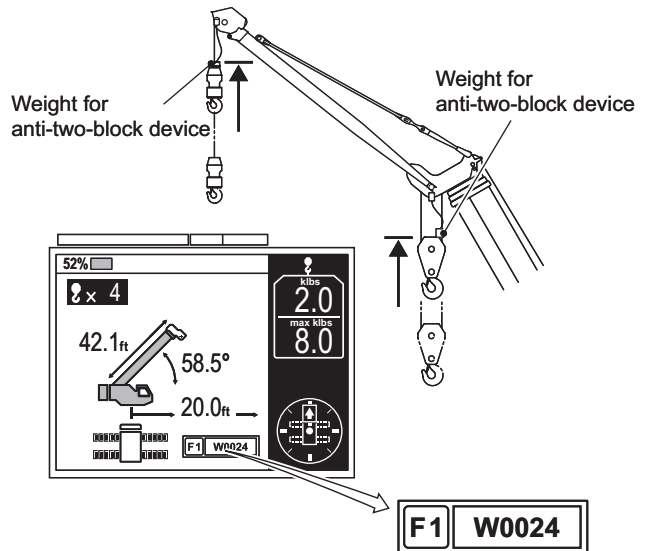
G64003-02E

## Safety Devices

### Anti-two-block Device Operating State

1. Extend the outriggers, and set the machine to the crane operation posture. Then, slowly wind up the winch.
2. Check that the winch winding up operation stops automatically, the alarm buzzer (tremolo) sounds, and then the error code of "W0024" is displayed on the load moment indicator.

If the operation does not stop automatically, or the alarm buzzer does not sound, contact a TADANO distributor or dealer for inspection and maintenance.



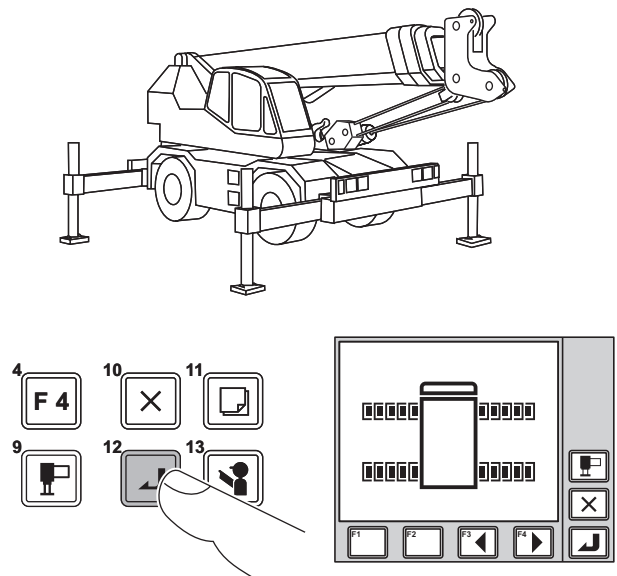
K14065-00E

### Registration of Operating State and Load Moment Indicator Function Check

Register the lift state to the load moment indicator, and perform load moment indicator function check.

- ☞ For registration of the operating state and load moment indicator function check, refer to "Registration of Operating State and Load Moment Indicator Function Check" (page 142).

If any abnormality is found, contact a TADANO distributor or dealer for inspection and maintenance.



K00332-000

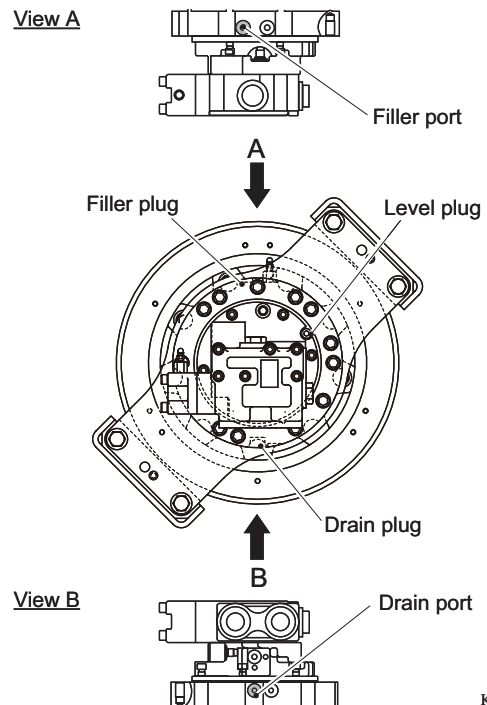
## Winch Speed Reducer (Main/Auxiliary Winch)

### ⚠ CAUTION

A speed reducer is very hot immediately after the operation, and you may suffer burns if you work on it. Let the speed reducer cool down until it can be touched by bare hands before starting the work.

### Checking the Oil Level

1. Set up the machine on a level ground.
2. Remove the level plug, and check the oil level. When the oil level is up to the bottom of the plug hole, the oil amount is sufficient. If it is insufficient, remove the filler plug and add oil through the filler plug hole.
3. Tighten the level plug and filler plug.



K00820-01E

### Replacing the Oil

1. Set up the machine on a level ground.
2. Place an oil pan.
3. Remove the drain plug, filler plug, and level plug, and then drain the oil.
4. After all of the oil has drained out, tighten the drain plug.
5. Add new gear oil through the filler plug hole until the oil overflows from the level plug hole.
6. Tighten the filler plug and level plug.

## Torque Converter System


### NOTICE

- Do not use the different brands of torque converter oil together. Using different brands of torque converter oil together can change the properties of the oil and may have an adverse effect on the system. If torque converter oil must be added, be sure to use the same brand of oil as that is already in the machine.  
If another brand of torque converter oil must be used, drain all the remaining torque converter oil before adding new oil.
- Dust, foreign material or water in the torque converter circuit could cause a failure. Be especially careful when adding or replacing torque converter oil to prevent any foreign substances from entering the torque converter.

### Maintenance Table

No.	Item		Points/ Quantity	Inspection and maintenance interval					
				1 week	100 h	300 h	600 h	1200 h	2400 h
					1 month	3 months	6 months	1 year	2 years
1	Transmission	Replace oil	5 gal (19 L) (*1)		◎			●	
		Clean strainer	1 point		◎			●	
2	Line filter	Replace element	1 point		◎			●	

(\*1): Total capacity ◎: First replacement only

 For brands of torque converter oil, refer to "Oils and Greases" (page 407).

### Transmission

#### CAUTION

The torque converter and transmission are very hot immediately after traveling, and you may suffer burns if you work on them. Let the torque converter and transmission cool down until it can be touched by bare hands before starting the work.

#### NOTICE

- An excessively low or high oil level can cause the clutch to fail or overheat. Make sure that the oil level is within the specified range.
- Clean the area around the plug before removing it to prevent entry of dust and other foreign matter.

## Tire, Wheel

### ⚠ WARNING

Replacing and remounting tires and wheels in an improper manner may cause tires to come off or burst, resulting in an accident. Contact a TADANO distributor or dealer for the work.

### Maintenance Table

No.	Item		Points/ Quantity	Inspection and maintenance interval				
				1 week	100 h	300 h	600 h	1200 h
					1 month	3 months	6 months	1 year
1	Tire	Rotate	4 points					● (*1)
2	Wheel nut	Check looseness	4 points		● (*2)			
		Disassemble and check	4 points				●	
3	Wheel parallelism	Check	-					● (*3)

(\*1): Every 3,107 mile (5,000 km)

(\*2): After crane purchase or tire replacement, make the first check after 31 miles (50 km) of traveling, and succeeding checks after 62, 124, 311, and 621 miles (100, 200, 500, 1,000 km) of traveling, and then every 3 months.

(\*3): When a wheel gets damaged, request a TADANO distributor or dealer for repair.


### Tire

#### NOTICE

Long hours of traveling may wear the tire unevenly. Rotate the tires periodically so that they wear evenly.

### Tire Rotation


1. Slightly loosen the wheel nuts with the tires in contact with the ground.
2. Extend the outriggers and raise the tires off the ground.
3. Remove the wheel nuts and remove the tire.
4. Clean the threads of the wheel nuts and wheel bolts. Replace the wheel nuts and wheel bolts whose threads are damaged. Also replace the deformed or cracked wheels.

 Dirt may cause wheel nuts to loosen.

# Telescoping System

## NOTICE

The boom may be moved due to a temperature change or friction change between boom sections even though no operation is performed. Perform inspection with care so that your fingers and hands are not pinched.

 For inspection of machines with the serial No. up to FD4261, check the telescoping wire rope visually from the rear end of the boom, as in daily inspection.

### Maintenance Table (for serial No. FD4262 or later)

No.	Item		Points/ Quantity	Inspection and maintenance interval						
				1 week	100 h	300 h	600 h	1,200 h	12,000 h	
					1 month	3 months	6 months	1 year	10 years	
1	Wire rope for boom telescoping	Check	4 points		●					
		Replace	1 point							●

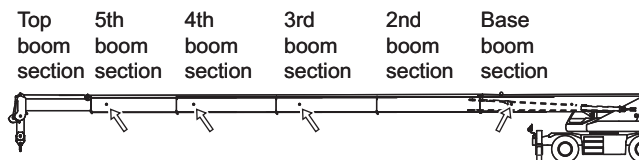
### Wire Rope for Boom Telescoping (for serial No. FD4262 or later)

#### Inspection


## ⚠ WARNING

Do not insert your finger into the inspection hole of the boom. When the boom is operated, your finger may be pinched and injured.

1. Extend the outriggers to maximum, and set up the crane horizontally.
2. Set the boom length to 12.5 m.
3. Check damage or slack of the boom telescoping wire rope through the inspection hole on the head of the base boom section.
4. Extend the boom length to 23.5 m.
5. Check damage or slack of the boom telescoping wire rope through the inspection holes on the 3rd to 5th boom sections.



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 If the inspection holes are not lined up, perform boom telescoping operation to adjust the position of the inspection holes.

# Wire Ropes

## Replacing Wire Ropes

### ⚠ CAUTION

- Do not handle wire ropes with your bare hands, or you may suffer an injury. Always wear protective leather gloves when handling the wire ropes.
- When replacing the wire ropes, wear protective gears. A jumping wire rope may cause an injury.


## Criteria for Replacing the Wire Ropes

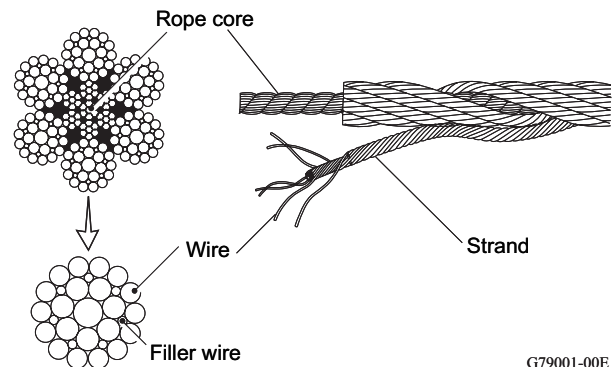
### ⚠ WARNING

If a wire rope breaks during operation, the load and hook block drop, resulting in a serious accident. Check the wire ropes periodically. Immediately replace wire ropes that reach the criteria for replacement.

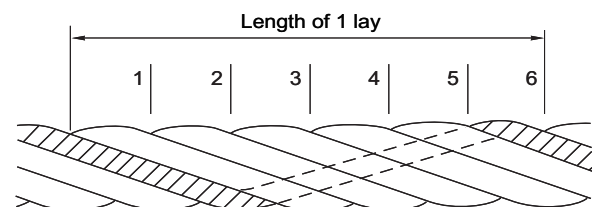
Perform daily and periodic (monthly) inspections of the wire ropes for breaks, wear, corrosion, deformation, damage due to sparks or heat, and also check the lubrication and rope end condition. If any of the following conditions exist, replace the wire rope. If the end of wire rope is not in proper condition, repair it or cut it short.

- In running ropes: six randomly distributed broken wires in one lay, or three broken wires in one strand in one lay.
- 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.
- Wear of one-third of the original diameter of outside individual wires.

 The figure shows the standard 6-strand wire rope.



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## If Error Occurs in Load Moment Indicator System

### ⚠ WARNING

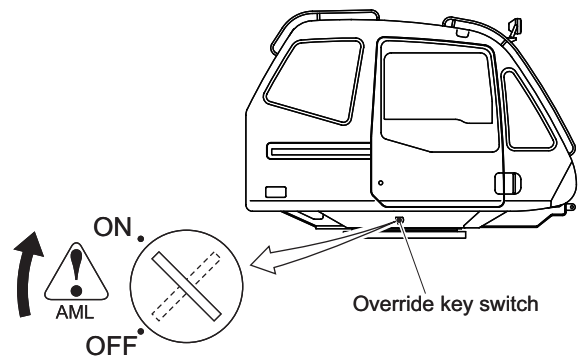
When the override key switch is turned to "ON" and the PTO switch is turned to "AML" (override), load moment indicator automatic stop function is cancelled. Never operate the crane in this status. The crane may overturn or be damaged, resulting in a serious accident.

### NOTICE

The person in charge of the machine or the job shall keep the key for the override key switch.


When the load moment indicator system is in error, the crane may not operate normally. In this case, stow the crane by the following procedure.

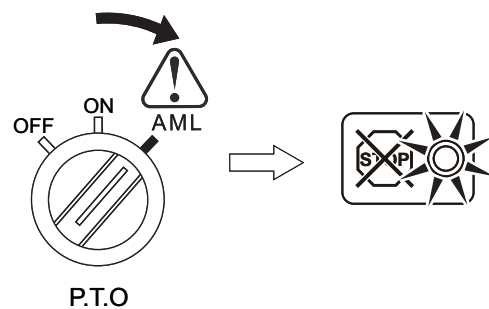
1. When a load is suspended, hoist down the load.
2. Insert the key into the override key switch, and turn it to "ON."



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3. Set the PTO switch to "AML" (override).
  - The emergency operation warning lamp on the load moment indicator will light up.

 When the switch is released, it will automatically return to "ON."

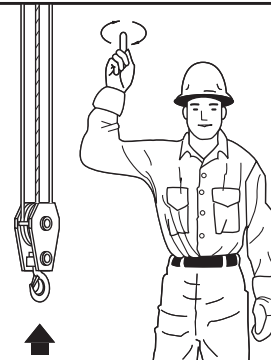
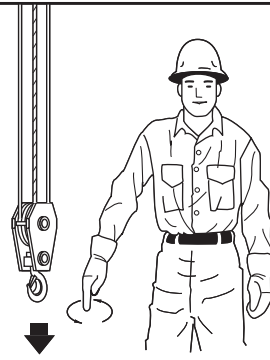
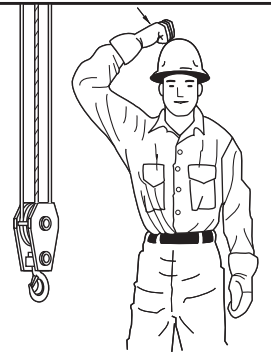
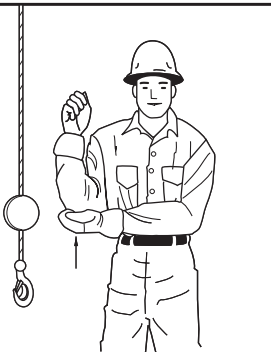
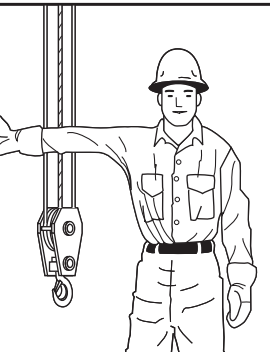
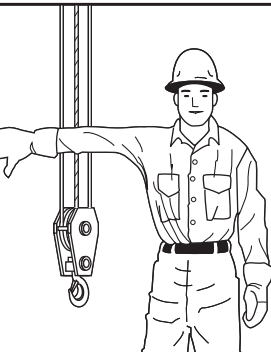
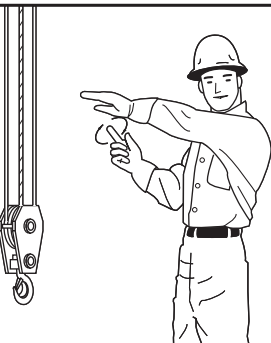
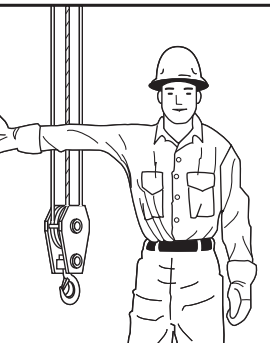
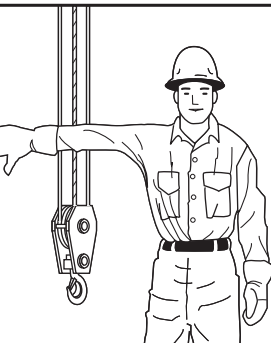


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4. Stow the crane.
5. Return the override key switch to "OFF," and remove the key.
6. Set the PTO switch to "OFF".

# Hand Signals

Hand signals shown are an excerpt from ASME B30.5-2004.

 <p><b>HOIST.</b> With forearm vertical, forefinger pointing up, move hand in small horizontal circle.</p>	 <p><b>LOWER.</b> With arm extended downward, forefinger pointing down, move hand in small horizontal circle.</p>	 <p><b>USE MAIN HOIST.</b> Tap fist on head; then use regular signals.</p>
 <p><b>USE WHIPLINE (Auxiliary Hoist).</b> Tap elbow with one hand; then use regular signals.</p>	 <p><b>RAISE BOOM.</b> Arm extended, fingers closed, thumb pointing upward.</p>	 <p><b>LOWER BOOM.</b> Arm extended, fingers closed, thumb pointing downward.</p>
 <p><b>MOVE SLOWLY.</b> Use one hand to give any motion signal and place other hand motionless in front of hand giving the motion signal. (Hoist slowly shown as example.)</p>	 <p><b>RAISE THE BOOM AND LOWER THE LOAD.</b> With arm extended, thumb pointing up, flex fingers in and out as long as load movement is desired.</p>	 <p><b>LOWER THE BOOM AND RAISE THE LOAD.</b> With arm extended, thumb pointing down, flex fingers in and out as long as load movement is desired.</p>

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## Engine Oil

Component	Oil/grease at shipment		Equivalent	
	Type		Manufacturer	Brand
Engine	(Standard) API service classification CD (or higher) SAE30		Refer to the separate engine manual.	
	(Cold climates) API service classification CD (or higher) SAE10W-30			

## LLC (Long-life Coolant)

Component	Oil/grease at shipment		Equivalent	
	Manufacturer	Brand	Manufacturer	Brand
Engine coolant	TADANO Genuine	TADANO Genuine Long-life Coolant LP	Exxon Mobil	
			Shell	
			Idemitsu	Apollo radiator coolant
			JXTG Nippon Oil & Energy	Super coolant X
			Cosmo	

## Torque Converter Oil

Component	Oil/grease at shipment			Equivalent	
	Manufacturer	Brand	Type	Manufacturer	Brand
Torque converter, transmission	TADANO Genuine	TADANO Genuine Torque Converter Oil	GM dexlon II or Ford M2C33-F	Exxon Mobil	Mobil ATF220
				Shell	Shell gelco ATF
				Idemitsu	Apolloil ATF D-2
				JXTG Nippon Oil & Energy	ATF II (N)
				Cosmo	Cosmo ATF2

## Brake Fluid

Component	Oil/grease at shipment		Equivalent	
	Manufacturer	Brand	Manufacturer	Brand
Brake fluid reservoir	TADANO Genuine	TADANO Genuine Brake Fluid DOT-5.1	BP	BP brake super DOT 4
			Pentosin	Pentosin super DOT 4
			Textar	Textar super DOT 4
			Ate	Ate super DOT 4
			M.Benz	DOT 4 Plus

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