

Operation Manual

Operation Manual

Rough Terrain Crane **GR-600EX**

Model: GR-600EX-2
Serial No.: 547856 –

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

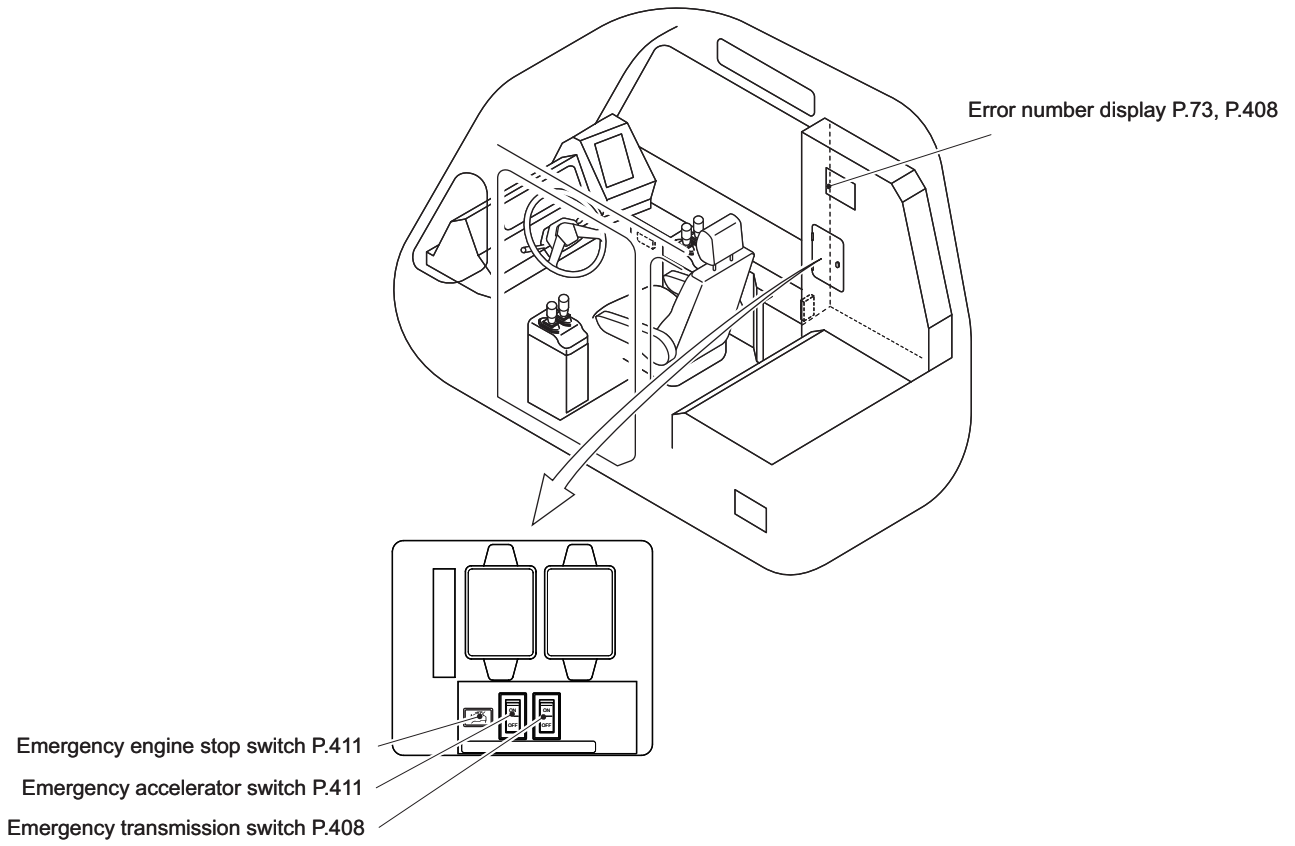
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K06360-00E

• Care of Warning Labels (Nameplates)

The warning labels (nameplates) attached on the machine give important precautions necessary when you use the machine. Always keep the warning labels (nameplates) clean and readable.

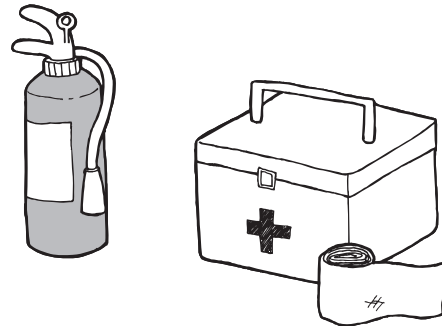
If any warning label is lost or damaged, order a new one from your nearest TADANO distributor or dealer and attach it.



G05003-00E

• Prepare for Emergency

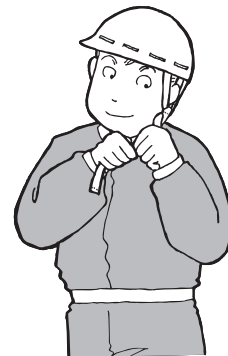
Make sure you know where the first-aid kit and fire extinguishers are kept, and how to use them against possible accidents or fire. In addition, prepare a list of emergency contact persons and communication methods beforehand.



G05004-000

• Wear Proper Clothing

If you do not wear your clothes properly, they can catch levers or protrusions of the machine, and an accident can occur. Always wear your clothes properly.

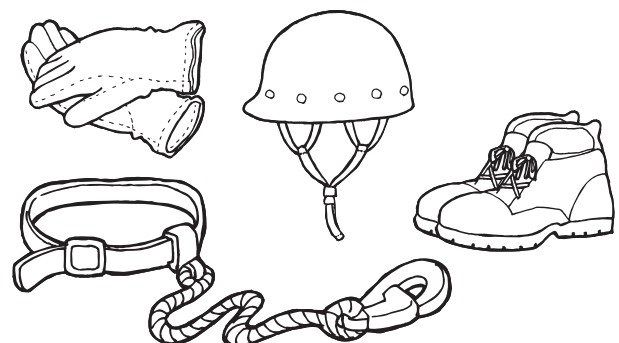


G05005-000

• Wear Protective Equipment

Wear protective equipment such as a hard hat, safety shoes, and protective gloves to ensure safety while you work.

Wear a safety belt while you work at an elevated area (height of 2 m or more).

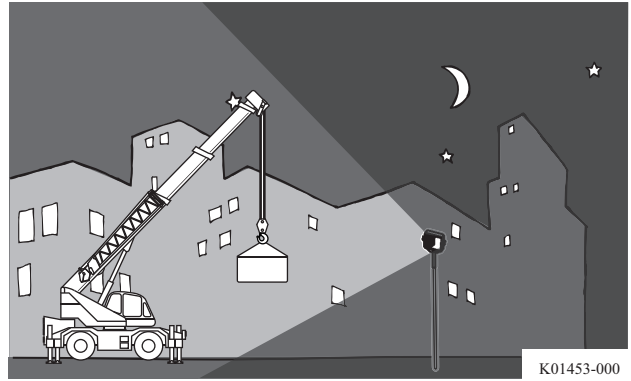


G05006-000

- **Use Sufficient Illumination at Night**

When you are in a dark area, you cannot find persons and obstacles around easily. This increases the risk of the accidents.

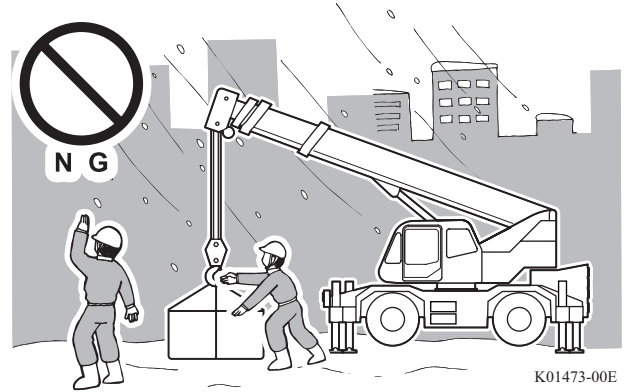
During work at night, use work lights so that you can see the movements of the machine and lifted load clearly. And install some other illumination equipment to illuminate around the machine.



K01453-000

• Stop Operation when Visibility Becomes Poor

When visibility becomes poor due to bad weather such as rain, snow, or fog, stop the operation and stow the machine. Wait until the visibility recovers good enough for operation.



• Stop Operation during Strong Wind Conditions

A strong wind sways the lifted load. This is dangerous to workers and surrounding structures, and can damage the boom and can cause the machine to overturn. Note that the longer the boom is, and the bigger the size of the load is, the more the wind affects the machine operation.

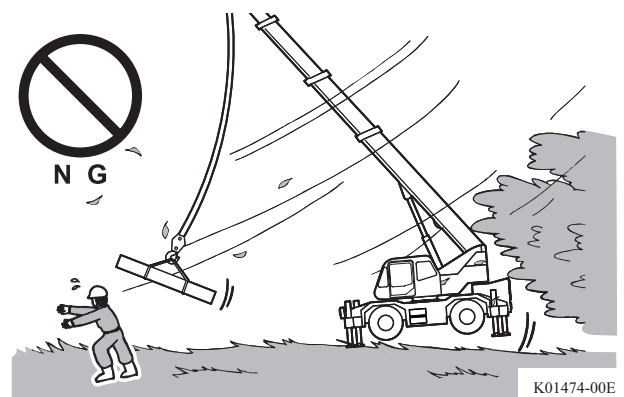
Stop the crane operation if the load becomes out of control by strong wind. Reduce the load considering the wind speed, if the wind speed exceeds 9 m/s.

When strong winds with maximum instantaneous wind speed of 14 m/s or more blow, stop the operation and stow the boom.

Pay special attention when the boom is long or the lifted load has a large area. Stop the operation as the situation requires even if the wind speed is slower than 9 m/s.

The table below shows a rough indication of wind speeds. The wind speeds shown below are at a height of 10 m from an open flat ground.

Wind speed	Influence on land
5-8 m/s	Dust and loose paper raised. Small tree branches begin to move.
8-11 m/s	Low trees with leaves start to sway. Water surfaces in ponds or marshes start to make waves.
11-14 m/s	Large branches move. Whistling heard in overhead wires. Umbrella use becomes difficult.
14-17 m/s	Whole tree sways. Effort needed to walk against the wind.



(5) Prevention of jib falling

⚠ DANGER	
	<p>The pivot pin 支点销</p>
<p>Always make sure that either the center support (the red mark aligned with the blue one) or the pivot pin is in the specified position. Never remove the pivot pin while the lock pin is out of the position. Otherwise, the jib will fall off the boom and this can result in injury or death.</p>	
⚠ 危险	
<p>始终确保中间支座（红色、蓝色标记对齐）或支点销处于指定位置。 当副臂锁销没有插入中间支座时，不可缩回支点销。否则，副臂将会从吊臂脱落，造成伤亡事故。</p>	
343-972-21301	
343-972-21301-0	

(6) Caution for falling jib

	DANGER
危险	
343-972-21401	
343-972-21401-0	

(7) Falling hazard

	⚠ WARNING
	<p>To prevent bodily injury do not climb boom, jib or outrigger.</p>
	⚠ 警告
<p>为防止人身伤害事故，不得攀援吊臂、副臂或支腿。</p>	
333-960-51011	
333-960-51011-0	

(8) Stow control levers

⚠ WARNING	
<p>Pull the control console backward to the stowing position when traveling or getting out of the cab. Fold up the armrest before adjusting the angle of control console. Take care to close the door when the control console is upright.</p>	
⚠ 警告	
<p>在行驶中或走出驾驶室时，将操纵杆台拉回到收存位置。 调整操纵杆台角度之前首先收存好扶手。 在操纵杆台处于竖直状态时，关门必须小心。</p>	
333-960-51081	
333-960-51081-0	

(9) Prohibit access to working radius

作业半径内注意安全
333-960-51600
333-960-51600-0

(10) Prohibit access below boom

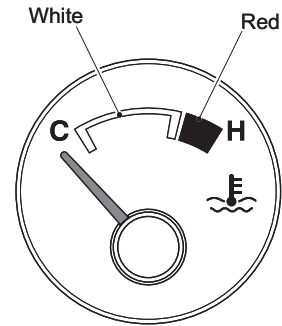
起重臂下严禁站人
333-960-51700
333-960-51700-0

Water Temperature Gauge

NOTICE

When the pointer is in the red zone, the engine is overheated. Stop the crane at a safe area, and idle the engine to cool down the coolant. Refer to "If Overheated" (page 412) for details.

Shows the temperature of engine coolant.
While the pointer is in the white zone, the coolant temperature is normal.



K00412-01E

Gear Position Indicator

While the gear position is "D" (automatic drive), the gear position "D" and the current gear position are shown by the illumination of the lamps.

Gear position	First gear	Second gear	Third gear
Lighting state of indicator	R	R	R
	N	N	N
	D	D	D
	S	S	S
	2	2	2
	1	1	1

K02352-00E

Shift Lever Operation during Traveling (Manual Operation)


⚠ WARNING

**Do not drive the machine with the shift lever is in "N".
Otherwise, seizure of the transmission or over-speeding can cause an accident.**

NOTICE

- If the vehicle speed exceeds the specified speed range of the currently selected shift position, the engine can overrun, resulting in engine damage. When the speed is likely to exceed the speed range of the current shift position on a steep downhill, use the intermittent foot brake to decrease the vehicle speed.
- If the shift lever is moved from forward ranges to reverse or vice versa while the vehicle moves, the transmission can be damaged. Operate the shift lever after the vehicle is completely stopped.

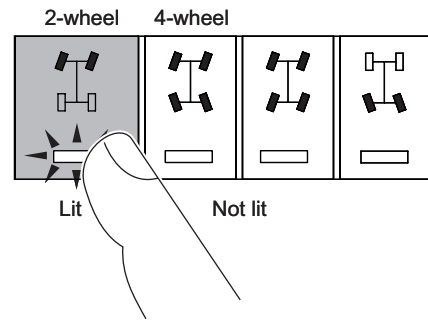
When traveling on a slope, use the shift positions of "1", "2", and "D" properly depending on the gradient. Before upshifting, release the accelerator pedal. Before downshifting, decrease the vehicle speed to the speed range of the lower gear position.

 If the shift lever is moved to "2", or "1" while the vehicle speed is not reduced, the gear would not shifted down until the speed reaches the specified speed range of the shift position.

Shift position	2WD, H/4D		L/4D	
	Gear position	Vehicle speed range	Gear position	Vehicle speed range
1	Fixed to 1st	0 to 9 km/h	Fixed to 1st	0 to 3 km/h
2	Fixed to 2nd	0 to 19 km/h	Fixed to 2nd	0 to 5 km/h
D	1st to 3rd	0 to 36 km/h	Fixed to 3rd	0 to 10 km/h
R	Fixed to 2nd	0 to 6 km/h	Fixed to 1st	0 to 3 km/h

(2WD, H/4D and L/4D indicate drive mode.)

3. Push the "2-wheel" steering mode selector.
- The "2-wheel" operation indicator lights up.
 - The "4-wheel" operation indicator goes out.



K02804-00E

⚠ WARNING

Do not travel while the "4-wheel" operation indicator flashes. The mode is not changed back to 2-wheel steering. It can cause a serious accident. Before traveling make sure that the "4-wheel" operation indicator is not lit, and the 2-wheel operation indicator is lit.

NOTICE

If the special steering warning or off-straight-ahead wheel indicator lamp does not go out, inspection is necessary. Contact your nearest TADANO distributor or dealer.

4. Make sure that the wheels are steered according to the selected mode.

⚠ WARNING


If the rear wheels go out of the straight-ahead position during traveling in two-wheel steering, the alarm buzzer sounds. (For serial No. 548728 or later)
In this case, stop traveling and adjust the rear wheels into the straight-ahead position.
If you continue traveling while the rear wheels are out of the straight-ahead position, a serious accident can occur.


⚠ CAUTION

After you change the steering mode to the 2-wheel steering mode, make sure that only the front wheels are steered before you start to travel.

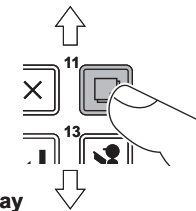
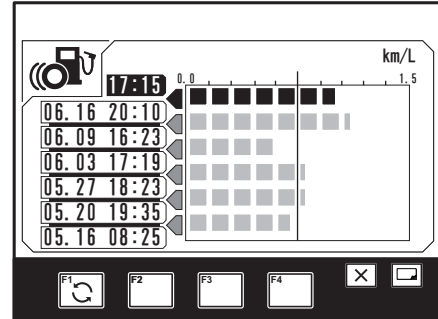
5. The display changes every time the display change key is pushed.
- History of the fuel consumption and the average fuel consumption is shown in either a bargraph or number.
 - The items shown on the numerical display screen are as follows:

L(N) Fuel consumption when standby
 L(D) Fuel consumption when traveling
 km/L Average fuel consumption during standby and traveling (km/liter).

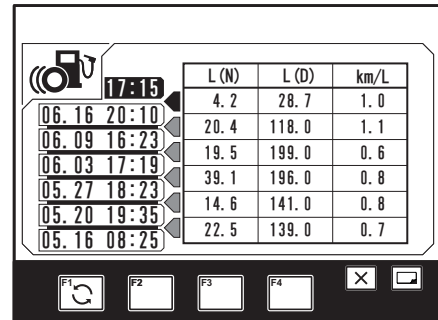
 The measurement restarts when F1 (reset) key is pushed. The previous records are moved down every time the F1 (reset) key is pushed. 6 previous records (Max.) including the current rate are displayed. You can reset the histories both for traveling and crane operation at the same time by pushing F1 (reset) key and hold it for a while.

 Push the 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



K05294-00E

MEMO

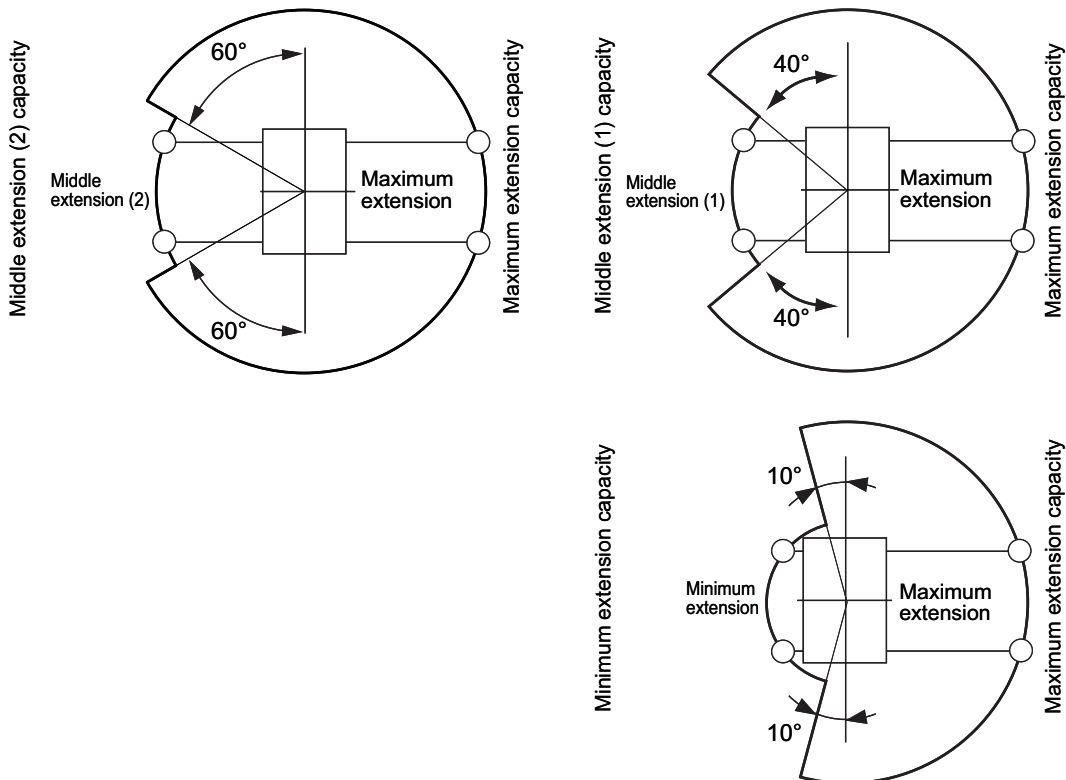
Outrigger Extending Status and Lifting Performance

With the outrigger maximum extension, the crane's capacity is the same throughout 360 degrees.

The rated lifting capacity in the side area changes depending on the extension width of outriggers. When a load is lifted on a side of larger extension width of outriggers and swung to a side of smaller extension width, the rated lifting capacity decreases. Be careful to avoid overloading.

Rated lifting capacities in front and rear areas are the same as the outrigger maximum extension capacity.

Depending on the extension width of outriggers, the ranges of front and rear areas are decreased as shown in the diagrams below.



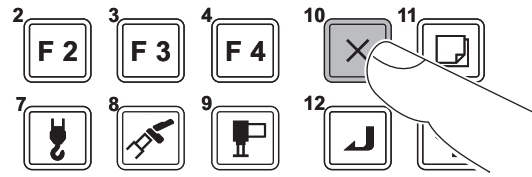
K02694-00E

 For details refer to the section "Extension Width of Outriggers and Working Area" (page 432).

(17) ECO mode indicator

Lights up when ECO mode switch is on and displays current mode such as ECO mode 1 or ECO mode 2.

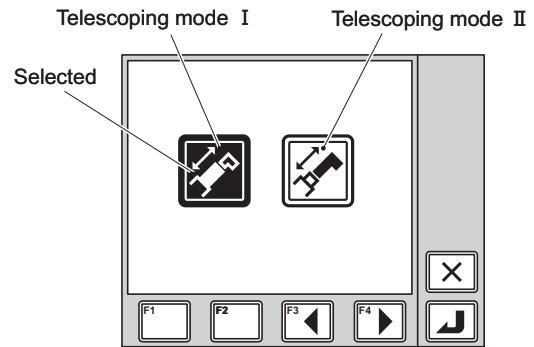
☞ When you want to stop registration, push the exit key. The pop-up window closes and the AML returns to the state before start of the registration.



K00680-000

- 8.** Push the set key.
- When the booms are fully retracted, the pop-up window for boom telescoping mode selection appears on the display panel.

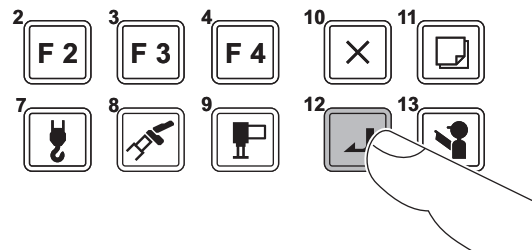
☞ When a boom is extended, the boom telescoping modes cannot be selected.



K01838-01E

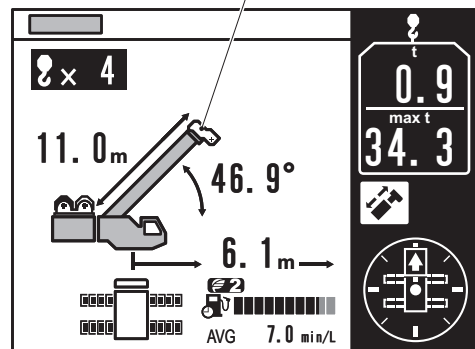
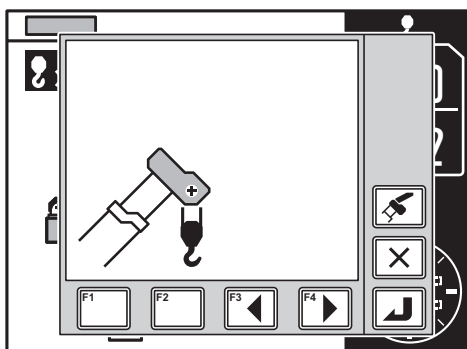
- 9.** Push the F3 (Backward) or F4 (Forward) key to select one of the telescoping mode icons.
- The selected icon is highlighted.

- 10.** Push the set key to register the setting.
- After registration is completed, the pop-up window closes and the AML returns to the crane operation state.



K00678-000

Lift status indication symbol represents the registered status.



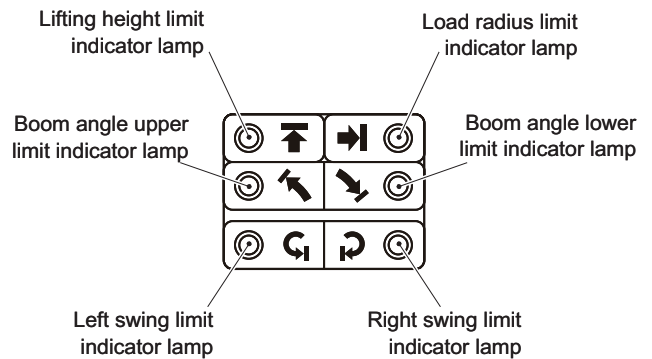
K04247-01E

Display of Limit Function State

You can monitor the registered state of the work range limit by the limit indicator lamps on the LED display.

The limit indicator lamp(s) representing the work range limit currently activated lights up.

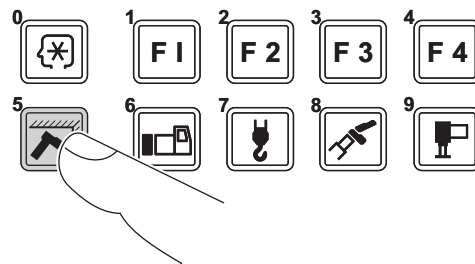
When the crane reaches the limit and stops automatically, the condition of the limit indicator lamp changes from "staying lit" to "flashing".



K00695-00E

Registering Boom Angle, Lifting Height, and Load Radius Limit

1. Push the work range limit key and select the item to be registered.
 - The pop-up window for work range limit registration appears on the display panel.
 - Every time you push the work range limit key, the item to be selected changes in the following sequence.
 1. Lifting height limit
 2. Load radius limit
 3. Boom angle upper limit
 4. Boom angle lower limit
 5. Left swing limit
 6. Right swing limit

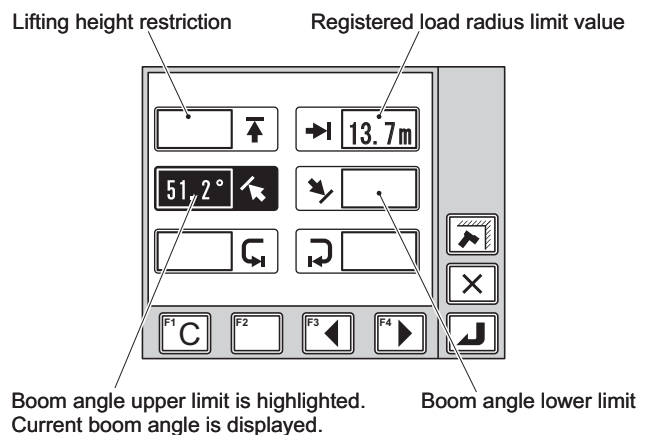


K00696-000

- The illustration on the right shows an example of display where "load radius limit" is registered and "boom angle upper limit" is selected.

☞ Instead of the work range limit key, you can use the F3 (Backward) key or F4 (Forward) key to change the highlight of the item to be selected.

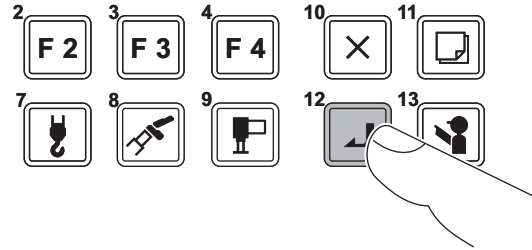
☞ When you want to stop registration, push the exit key. The pop-up window closes and the AML returns to the state before start of the registration.



K04218-00E

3. Press the set key.

- After the registration is completed, the pop-up window closes and the AML returns to the crane operation state.
- When ECO mode switch is turned "ON", ECO mode indicator (ECO mode 1 or ECO mode 2) is displayed.

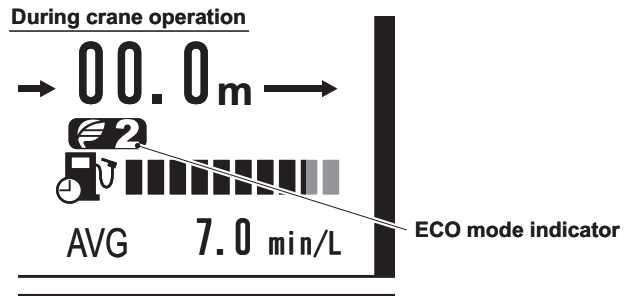


K00678-000

When you want to cancel the selection, push the exit key.

The pop-up window closes and the AML returns to the crane operation state without changing registration.

Even after the AML is turned off, the registered information is retained. When the AML is turned on, the operation starts with the retained information.



K04326-00E

Action against AML system errors

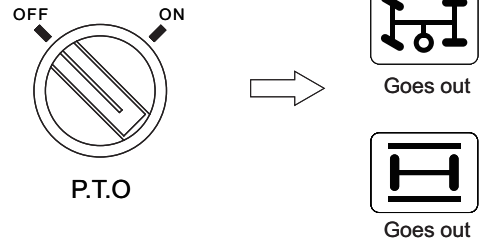
If the cases listed below occur, an error in the AML system is the likely cause.

- Even after a recovery operation corresponding to the error code, the error code remains.
- An error code other than given in the error code list is shown.
- The crane stops and you cannot operate it.

In these cases, refer to "If Error Occurs in AML System" (page 416) and stow the crane.

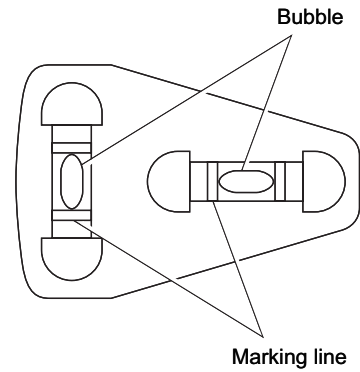
PTO "OFF" Operation

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 AML is turned off.
 - The suspension lock is released, and the suspension lock indicator goes out.



K04332-00E

9. Check that the machine is set up horizontally using the bubble level. If it is not set up horizontally, refer to "Horizontal Set-up" (page 191) to set the machine up horizontally.
- When the bubble in the level is between the marking lines, the machine is horizontal.



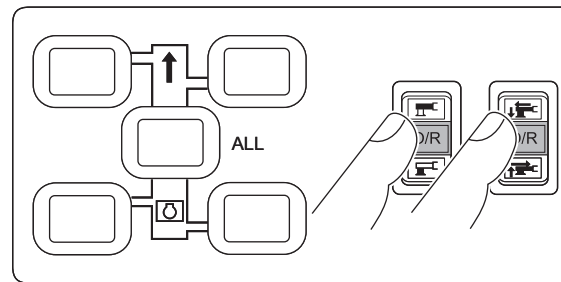
G37011-01E

⚠ WARNING

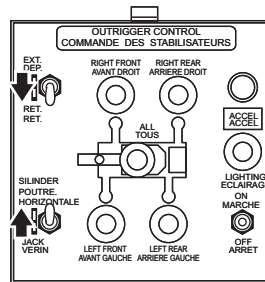
Sometimes, the machine can be supported horizontally only by 3 jack cylinders. If you operate the crane in this state, an overturning accident can occur. Check that all the outrigger floats are firmly in contact with the ground. If any of the floats are off the ground, adjust them into proper seating on the ground.

10. Return the jack/slide selector switch and the extend/retract selector switch to the neutral positions.
- Check that the indicator of the outrigger switch out of neutral icon on the AML is not lit.

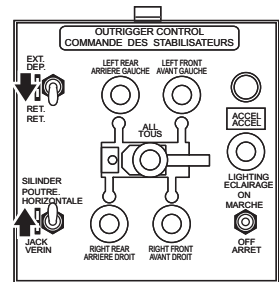
Inside the Cab



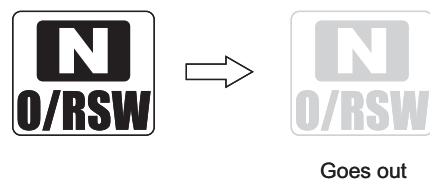
Left side of the machine



Right side of the machine



K04373-00E



K00538-00E

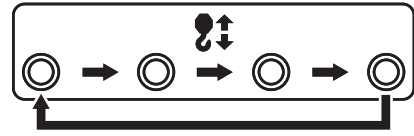
Drum Indicator (visual type)

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

The moving distance of the hook block per one flash of the indicator is approximately 20 mm to 30 mm.

The winch to be indicated is as shown below according to the winch selection on the AML winch selection menu, or the lift status registered to the AML.


- Main winch is selected Main winch
- Auxiliary winch is selected
 - Boom lift is registered Main winch
 - Single top/jib lift is registered Auxiliary winch

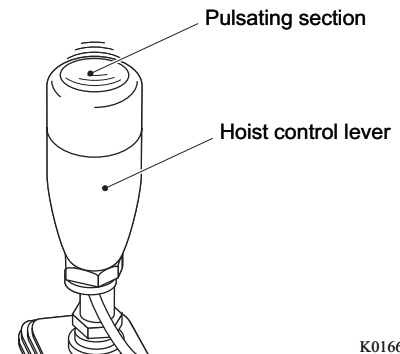


K00542-000

Drum Indicator (vibration type) (optional)

When the winch drum rotates, the pulsating section of the winch lever vibrates.

 The winch lever vibrates only when the winch drum turns at a low speed.



K01662-00E

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Swinging Boom


⚠ WARNING

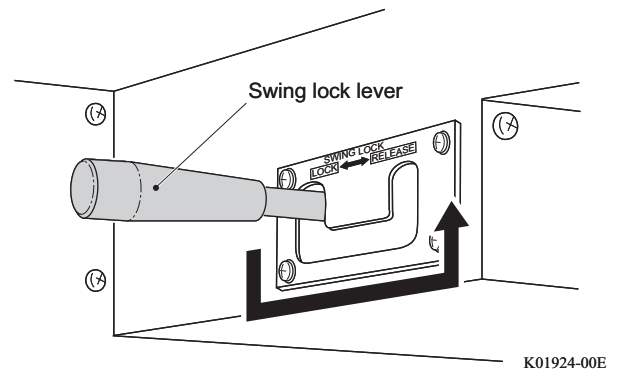
- Never drag a load sideways by swing operation. The machine can be damaged, resulting in an accident.
- Before swinging the boom, push the horn switch to alert the people around the machine to prevent an accident.

The swing operation is performed by operating the swing lever.

The swing speed is adjusted by the operating amount of the swing lever and the accelerator.

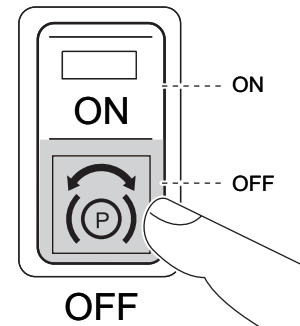
1. Set the swing lock lever to "RELEASE."
 - The swing lock pin is released.

 If the swing lock pin does not come out, swing the boom slightly, and then operate the swing lock lever again.



2. Push the "OFF" side of the swing brake switch to release the swing brake.
 - The indicator built in the switch goes out.


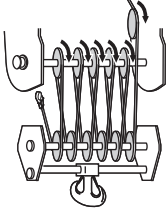

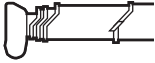
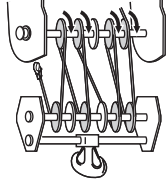
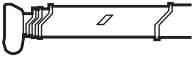
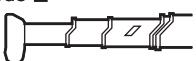
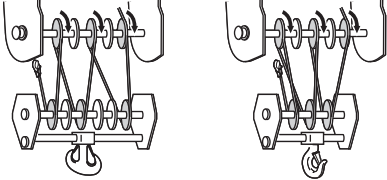



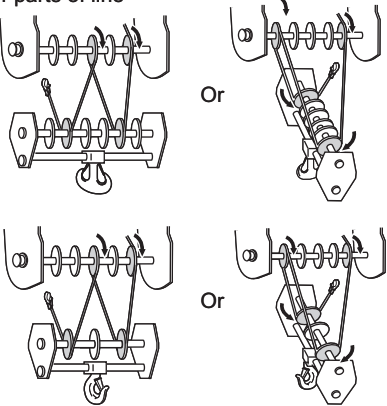


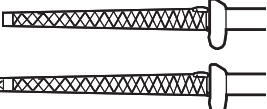


Swing brake switch



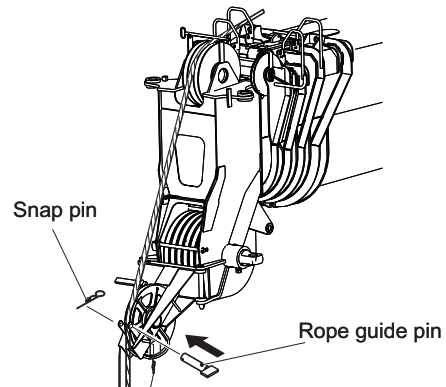
3. Before you operate the swing control lever, push the horn switch to sound the horn, and alert the people around the machine.

Select an optimum number of parts of line according to the boom length, lifting capacity, and hoisting speed.

On-outrigger Operation

Boom length and standard number of parts of line	Reeving pattern	Hook block to be used, hook mass	Allowable load of rope
<p>11.0 m ; 12 parts of line</p> 	<p>12 parts of line Mount the single top.</p> 	<p>Main hook block 60 t : 6 sheaves</p> 	
<p>11.0—15.0 m ; 8 parts of line</p> <p>Telescoping mode I</p> 	<p>8 parts of lines</p> 	<p>Main hook block 60 t : 6 sheaves</p> <p>540 kg</p>	
<p>15.0—19.0 m ; 6 parts of line</p> <p>Telescoping mode I</p>  <p>11.0—19.0 m ; 6 parts of line</p> <p>Telescoping mode II</p> 	<p>6 parts of lines</p> 	 <p>580 kg</p>	<p>5.6 t /part of line</p>
<p>19.0—43.0 m ; 4 parts of line</p> <p>Telescoping mode I</p>  <p>19.0—43.0 m ; 4 parts of line</p> <p>Telescoping mode II</p> 	<p>4 parts of line</p> 	<p>Main hook block 35 t : 3 sheaves</p>  <p>450 kg</p>	
<p>Single top lift: 1 part of line</p>  <p>Jib lift: 1 part of line</p> 		<p>Auxiliary hook block 5.6 t</p>  <p>150 kg</p>	<p>K06203-03E</p>

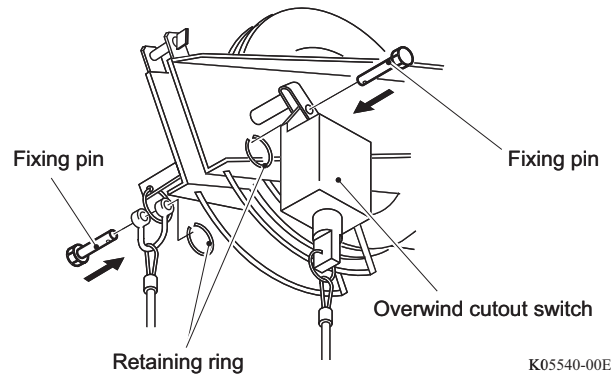
6. Reeve the wire rope through the sheave of the single top, and then insert the rope guide pin next to the sheave of the single top.



K02856-01E

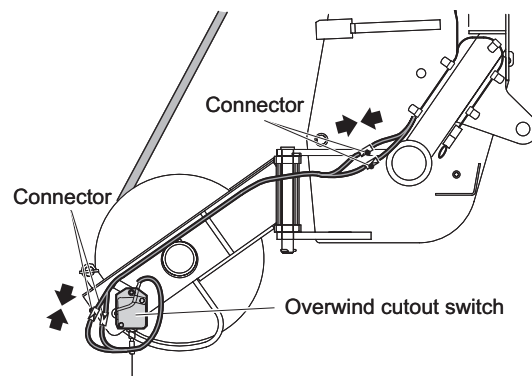
7. Remove the overwind cutout device from the tool box, and reeve the wire rope through the weight for the overwind cutout device.

8. Mount the overwind cutout device to the single top.



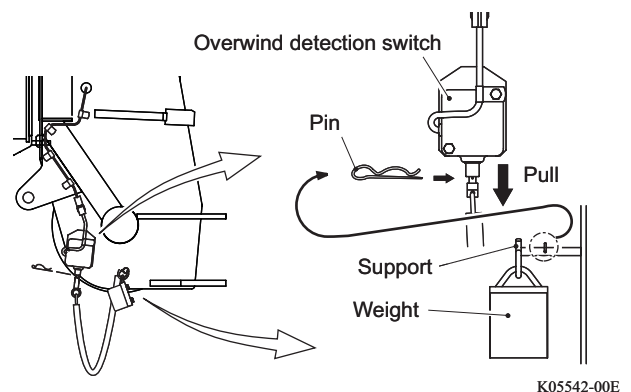
K05540-00E

9. Connect the connectors (4 points) for the overwind cutout device.



K05541-00E

10. Hang the weight on the support on the boom head, and insert the pin through the rod of the overwind detection switch in order that the overwind cutout device for boom lift does not activate.



K05542-00E

Outline of Jib Installation

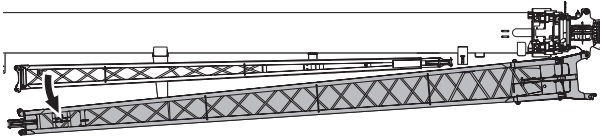
Outline of the jib installing operation is as follows.

Base jib

1. Disconnect the base jib from the boom and top jib. (Steps 1 to 13)



2. Swing out the base jib from the boom. (Steps 14 to 20)



3. Connect the base jib and boom, and pass the wire rope. (Steps 21 to 34)



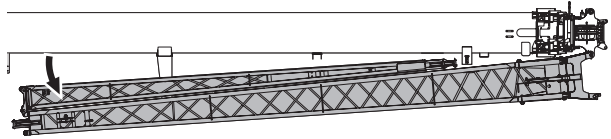
Completion of jib mounting

Base jib + Top jib

1. Disconnect the base jib and top jib from the boom. (Steps 1 to 9)



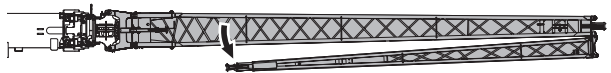
2. Swing out the base jib and top jib from the boom. (Steps 10 to 16)



3. Connect the base jib and boom. (Steps 17 to 23)



4. Swing out the top jib from the base jib. (Steps 24 to 27)




5. Connect the top jib and base jib, and pass the wire rope. (Steps 28 to 37)



Completion of jib mounting


K03041-02E

34. Check that the crane automatically stops when the auxiliary hook block is overhoisted.

 If the crane does not stop automatically, refer to Step 29 and check that the wiring is connected correctly.

Now, the mounting of the base jib is completed.

34. Wind down and reel out the wire rope.

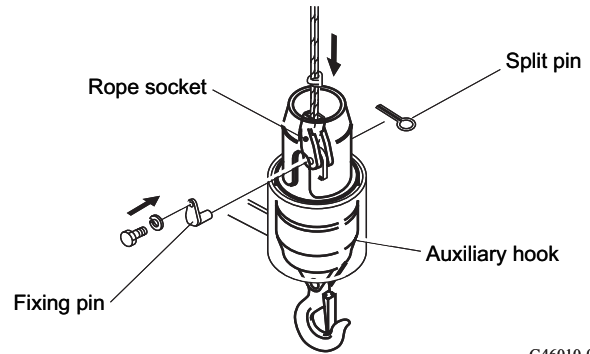
 To prevent a disorderly rope winding, pull the wire rope by hand while winding down.

35. Install the rope socket to the auxiliary hook block.

⚠ WARNING


Securely tighten the fixing pin mounting bolt for the rope socket using a wrench. After attaching the fixing pin, secure it using a split pin so that the fixing pin does not come out.

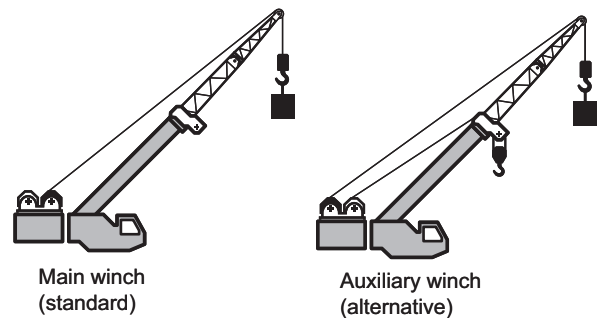
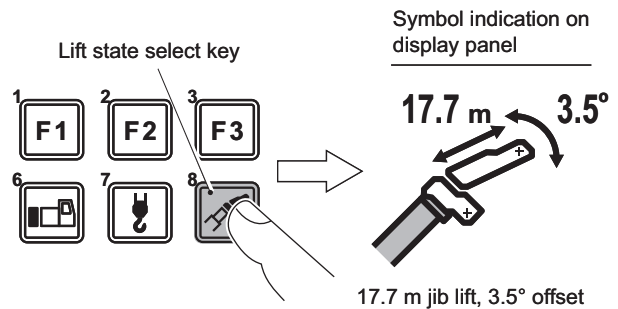
Improper installation can cause the rope socket to come off and the lifted load to fall, resulting an accident.



G46010-00E


36. Register the lift state (main winch use, 17.7 m jib, 3.5° offset operation) to the AML.

 To use the auxiliary winch, refer to "Selection of Winch to be used" (page 164), and change the AML setting.



K05530-01E

37. Check that the crane automatically stops when the auxiliary hook block is overhoisted.

 If the crane does not stop automatically, refer to Step 32 and check that the wiring is connected correctly.

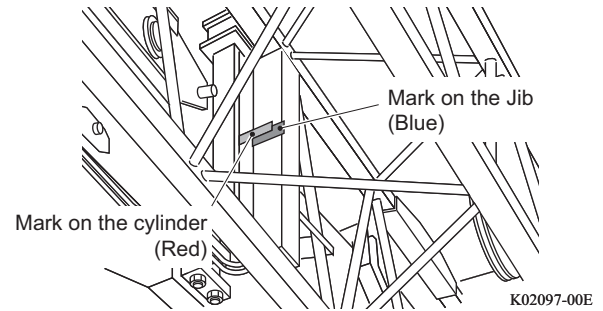
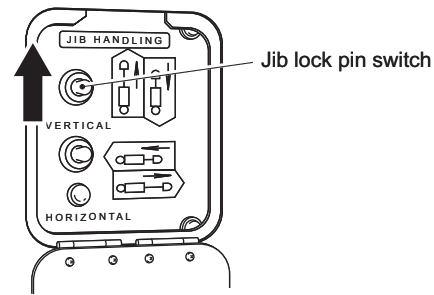
Now, the mounting of the base jib and top job is completed.

- 17.** Set the jib lock pin switch to the up side, and let the jib lock pin of the center support engaged to the jib.

⚠ WARNING

Do not remove the pivot pin (G) while the jib lock pin is removed. The jib can fall and cause a serious accident.

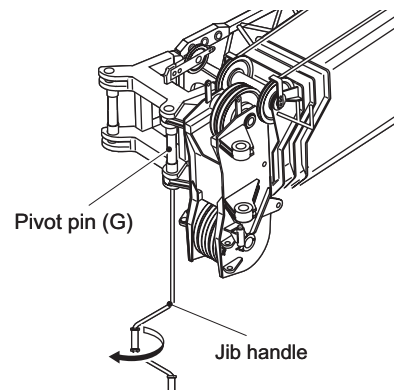
- ☞ When the extension of the jib lock pin is completed, the marks on the cylinder (red) and on the jib (blue) of the center support are aligned.



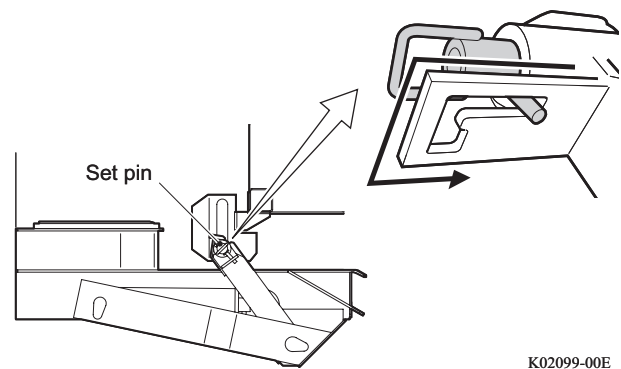
- 18.** Using the jib handle, pull out the pivot pin (G).

⚠ WARNING

- Check that the boom is set to the horizontal or higher angle before operation. If the pivot pin (G) is pulled out with the boom set below the horizontal angle, the jib may fall.
- To prevent the falling of the jib, carry out the procedure below immediately after the pivot pin is pulled out in order to insert the set pin and to secure the jib.



- 19.** Pull out the set pin of the stowage support.



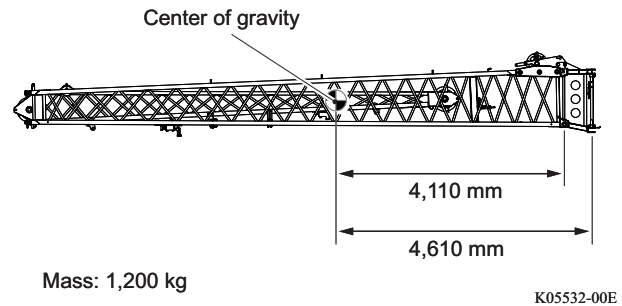
Dismounting Jib

⚠ WARNING

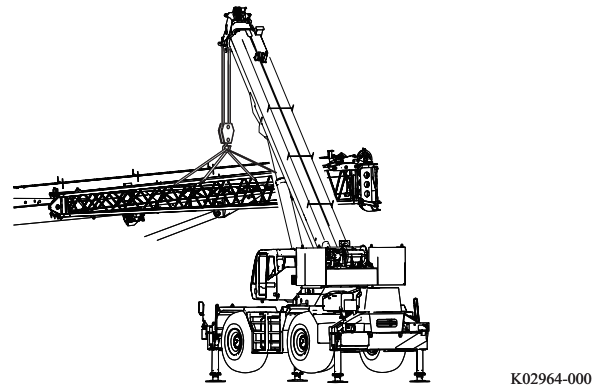
For the basic precautions, refer to the previous section "Mounting of Base Jib".
Observe the precautions in the section "Mounting of Base Jib" during operation.

NOTICE

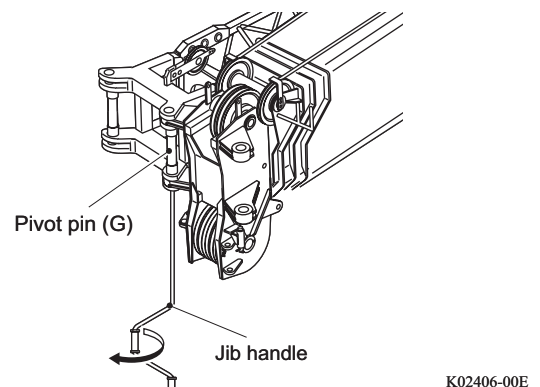
Prepare a suitable second crane for dismounting a jib from a boom in consideration of a lifting method and crane operation conditions.



1. Perform Steps 1 to 13 of the chapter "Mounting of Base Jib + Top Jib", and take the jib off from the stowing support.
2. Pull the guide rope and swing the jib to the position where the jib can be lifted up.
3. Support the jib with another crane.



4. Using the jib handle, pull out the pivot pin (G).



Under Severe Use (Severe Condition)

If the machine is used under severe conditions which are considerably different from standard use, the components can deteriorate remarkably earlier. In this case, it is necessary to carry out inspection and maintenance at the time earlier than the standard periods.

To keep machines that are routinely used under severe conditions always in good condition, perform the inspection and maintenance which TADANO recommends apart from the periodic inspections.

Conditions of Severe Use

If any one of the following conditions is satisfied, "severe use" is applicable.

Carrier

- A: Traveling distance on rough roads (such as an uneven road, gravel road, unpaved road) or snow-covered roads, or in dusty zones is 15% or more of the whole traveling distance.
- B: Traveling distance is long (Criterion: 1,000 km/month) or over.
- C: Traveling distance on mountainous roads, uphill and downhill is 15% or more of the whole traveling distance.
- D: Starts and stops are frequently repeated, or low-speed traveling distance is 15% or more of the whole traveling distance.
- E: Traveling with a weight that exceeds the road traveling vehicle condition on the roads other than public roads is 15% or more of the whole traveling distance, or traveling at a speed exceeding the recommended speed for the weight.

Crane

- A: Loads of full lifting capacity are lifted often, but usually the loads are heavier than half of the lifting capacity.
(Usually, lifting loads of 50% to 80% of the lifting capacity)
- B: Usually lifting the lifting capacity.
(Usually, lifting loads of 80% or more of the lifting capacity)
- C: Using a crane equipped with a bucket, grapple, and magnet, or using for general stevedoring such as carrying containers and tetrapods.

Inspection and Maintenance Interval (Crane)

The following table describes the maintenance items for the daily (pre-operational) inspection and periodic in-house inspection (every month or earlier; every year or earlier).

The following table describes the maintenance items for the daily (pre-operational) inspection and in-house inspection to be conducted by users. Carry out the inspection before traveling. For the inspection procedure, refer to "Pre-operational Inspection" (page 333).

○: TADANO designated inspection

◇: TADANO designated severe condition.

(*1): Overhaul every 4800 hours or 4 years. Overhaul every 2400 hours or 2 years if the crane is used for foundation work or stevedoring. Remove the dust in the boom with an air blow as necessary if the crane is used in a place where there is a large amount of dust such as sandblasting.

(*2): Apply proper tension at periodic inspection.


Inspection and maintenance item		Inspection and maintenance interval			Remarks	
		Daily inspection	Every month or earlier	Every year or earlier		
Components	Inspection item					
Hydraulic pressure generating system	PTO system	Operation, oil leakage	○	○	○	
		Mounting, damage, heat generation, abnormal noise		○	○	
	Piping, hose	Oil leakage, deterioration	○	○	○	
		Mounting status, abnormal vibration, heat generation, abnormal noise		○	○	
	Hydraulic oil tank	Oil level	○	○	○	
		Mounting, crack, contamination, oil leakage		○	○	
		Clogging and contamination of air breather		○	○	
	Filter, case	Clogging, oil leakage, damage		○	○	
	Hydraulic pump	Operation, oil leakage	○	○	○	
		Mounting, looseness, crack, damage		○	○	
	Center joint	Mounting, looseness, leakage (oil, water, air), abnormal noise, greasing		○	○	
	Control valve	Oil leakage	○	○	○	
Mounting, operation, looseness			○	○		
Oil cooler	Mounting, motor operation, looseness, oil leakage, damage, abnormal noise		○	○		
Outrigger system	Inner case, outer case	Mounting, damage	○	○	○	
		Operation, bend, crack, dent		○	○	
		Damage, wear, breakage, deformation of outrigger structure, abnormal noise		◇		
		Welded structural parts		◇		
		Important structure mounting parts (pin, bolt, etc.)		◇		
	Jack cylinder (including holding valve)	Operation, oil leakage, spontaneous lowering	○	○	○	
Mounting, looseness, damage, spontaneous retraction			○	○		

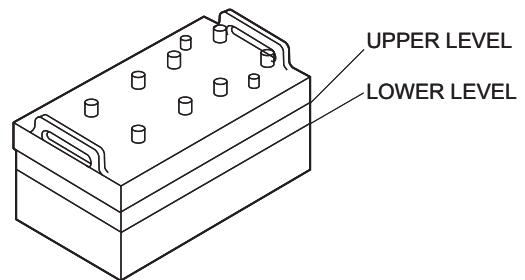
Battery Electrolyte Level

⚠ WARNING

- The gas released from the battery is explosive. Do not use a match, cigarette lighter, or other open flame for illumination. The gas can catch a fire and explode. Use explosion-proof illuminating equipment when you check the battery electrolyte level.
- If battery electrolyte comes into your eyes, it can cause blindness. If this occurs, immediately flush your eyes with a large amount of water, and seek medical attention.
- Before removing the battery, turn the starter switch to the OFF position. Then, disconnect the cable from the ground (negative) terminal of the battery first, then the positive terminal. When connecting the cable, connect it to the positive terminal of the battery first, then to the ground terminal. Always be careful with the terminal connection.
- If you use or charge the battery when its electrolyte level is below the "LOWER LEVEL" line indicated on its side, it can cause an explosion of the battery. Always take a proper care of the battery electrolyte level.

1. Remove the battery cover.
2. Inspect that the battery electrolyte level is within the specified range.

 The electrolyte level should be between the "UPPER LEVEL" and "LOWER LEVEL" lines indicated on the side of the case.



G63005-000

3. If the electrolyte level is below the "LOWER" line, refill the replenishment fluid or distilled water.

Function of Foot Brake

Air Pressure, Rising Condition

⚠ WARNING

Do not start to travel if the air pressure gauge reading is below the red mark (lower limit of the specified pressure) and the low air pressure warning is lit.

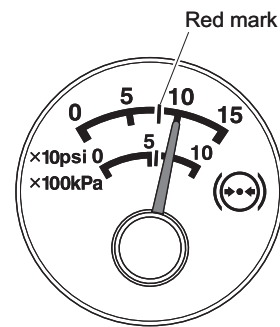
Otherwise, the braking force of the foot brake decreases and the parking brake drags, and they can cause an accident.

Start traveling after the air pressure becomes the specified value and the low air pressure warning goes out.

Make sure that the pointer of the air pressure gauge exceeds the specified value (red mark).

If the air pressure does not rise, or it takes a long time for the pressure to rise, contact your nearest TADANO distributor or dealer for maintenance.

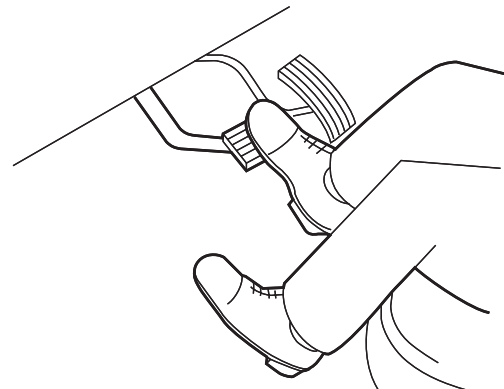
- ☞ Discharge the air in the air tank completely while the engine is stopped, then start the engine. It is normal when the pointer on the air pressure gauge goes to the specified value (red mark) at idling within 6 minutes.



K01218-00E

Response to Depressing Brake Pedal

1. Depress the brake pedal all the way while the engine is running, and check that the depressing response is normal.
2. Release the pedal, and check that the pedal completely returns without sticking.
3. If any abnormality is found, contact your nearest TADANO distributor or dealer for inspection and maintenance.



G16003-000

Boom, jib system

Damage to the Boom, Jib, and Single Top

Check for any crack, deformation, or damage.

If there is any crack or deformation, contact your nearest TADANO distributor or dealer for inspection and maintenance.

Boom, Jib Mounting State

Check the mounting state of each mounting pin.

If there is any abnormality in the mounting state, contact your nearest TADANO distributor or dealer for inspection and maintenance.

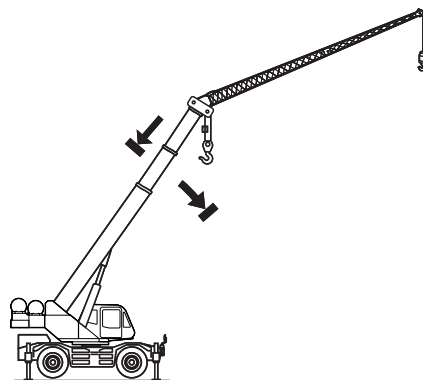
Operating State and Oil Leakage of Boom Elevating Cylinder and Boom Telescoping Cylinder

1. Operate the boom elevating cylinder and boom telescoping cylinder to check the operating state.
2. Check for any oil leaks from each cylinder.

If there is oil leakage, contact your nearest TADANO distributor or dealer for inspection and maintenance.

Spontaneous Lowering of Boom

1. Perform the boom raising and boom extending operations.
 - ☞ Stop operation just before each cylinder reaches the stroke ends.
2. Stop the engine.



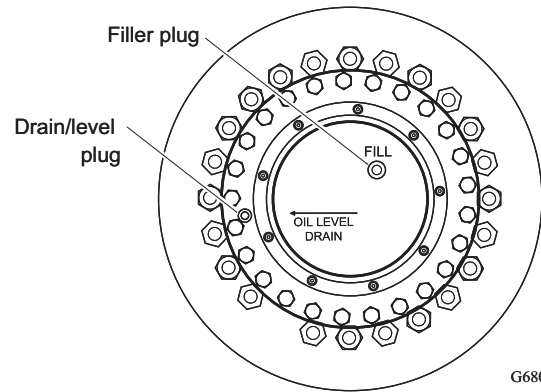
K02417-000

Maintenance Table

	No.	Item	Points	Inspection and maintenance interval			
				1 week	100 h 1 month	Others	
Upper structure	(1)	Side and lower surface of boom (sliding sections)	Coat	4 points		●	
	(2)	Slide plate (Upper side of boom)	Inject	8 points	●		
	(3)	Wire rope (for main winch)	Coat	1 point		●	
	(4)	Wire rope (for auxiliary winch)	Coat	1 point		●	
	(5)	Wire rope (for boom telescoping)	Coat	2 points		●	
	(6)	Swing bearing	Inject	3 points	●		
	(7)	Swing gear	Coat	1 point		●	
	(8)	Jib connecting pin boss	Inject	4 points		●	
	(9)	Jib end sheave pin	Inject	2 points	●		
	(10)	Boom elevating cylinder lower pivot pin	Inject	1 point	●		
	(11)	Boom bottom pivot pin	Inject	1 point	●		
	(12)	Main hook block (option)	Inject	1 point	●		
	(13)	Auxiliary hook block (option)	Inject	1 point	●		
Lower structure	(21)	Outrigger float	Inject	4 points	●		
	(22)	Propeller shaft	Inject	9 points		●	
	(23)	Suspension lock cylinder	Inject	4 points		●	
	(24)	King pin	Inject	8 points		●	
	(25)	Steering cylinder	Inject	8 points		●	
	(26)	Tie rod end	Inject	4 points		●	
	(27)	Axle oscillation pivot pin	Inject	2 points		●	

 For the brands of grease, refer to "Oils and Greases" (page 427).

5. After all the oil has drained out, rotate the tire by hand until the indication "OIL LEVEL" becomes horizontal as shown in the illustration.
6. Add new gear oil through the filler plug hole until the oil overflows from the drain/level plug hole.
7. Wrap a sealing tape around the filler plug and drain/level plug, and tighten them.

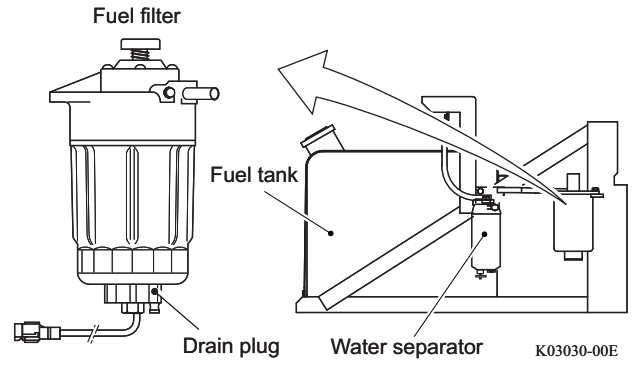


G68005-06E

Engine fuel filter

Draining Water

When the water separator warning lights up, refer to the separate engine manual and drain water from the engine fuel filter.



Hydraulic system

⚠ WARNING

Never dismount or disassemble the hydraulic components, piping, and couplings. Even when the engine is not running, some components remain under high pressure. Careless dismounting or disassembling may cause serious injury or death.

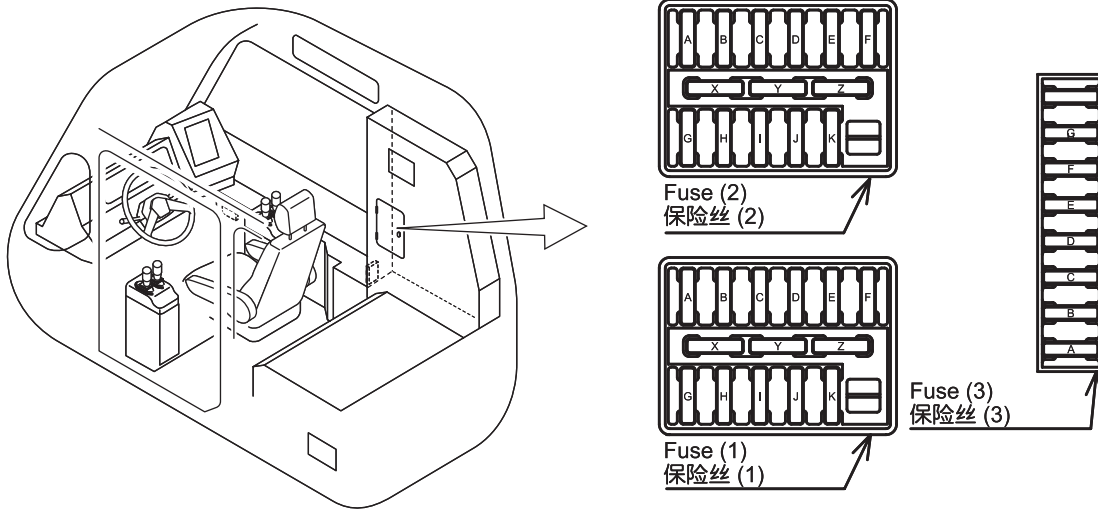
⚠ CAUTION

The hydraulic oil and hydraulic components are very hot immediately after the operation, and you may suffer burns if you work on them. Let them cool down until they can be touched by bare hands before starting the work.

NOTICE

- Do not use different brands of hydraulic oil together. Using different brands of hydraulic oil together may change the properties of the oil and cause an adverse effect on the machine.
When you add hydraulic oil, use the same brand that is already used in the machine. If a different brand of hydraulic oil must be used, be sure to drain all the remaining hydraulic oil before adding the new oil.
- Do not operate the crane if the temperature of the hydraulic oil is beyond 80°C. If the hydraulic oil temperature is 80°C or higher, it deteriorates fast and decreases the service life of the hydraulic components.
- The hydraulic oil is more viscous when its temperature is low. If the crane is operated without warming-up in cold weather for high-speed operation with load, it damages the hydraulic components. When the ambient temperature is low, do not start crane operation right away. Instead, let the crane warm up sufficiently with the engine running at slow speed until the oil temperature rises to approx. 20°C.
- Handle the hydraulic pipes carefully. If you handling these pipes incorrectly, it may cause the oil leaks or the hydraulic components to malfunction. Whenever a pipe has to be removed, request your nearest TADANO distributor or dealer.
- If dust, foreign matter, water etc., enter into the hydraulic oil tank or pipes, it may cause a machine failure. Pay sufficient attention to keep these parts from dust when working on them.

Upper Structure(For Serial No.548093 later)



Fuse 1 保险丝 1

Position 位置	Capacity 负载	No. 号码	Color 颜色	Object 对象
A	5A	213	L	Multiplex data transmitter 多路数据转发器
B	5A	154	L/B	PTO switch PTO开关
C	15A	156	L/W	Power source for crane (STD) 起重机电源 (STD)
D	10A	254	L/G	Power source for crane (emergency) 起重机电源 (紧急)
E	15A	152	L/Y	Working lamp 作业灯
F	10A	238	L/R	Air conditioner 空调
G	10A	144	G	Parking brake 驻车制动蹄
H	10A	157	G/B	Steering select, Outrigger control Combination switch, Over speed limiter Level indicator for dpl, Dip1 switch 转向选择, 支腿控制, 组合开关, 限速器, DPF 程度显示器, DPF 开关, 前大灯灯光选择, 高低档切换, 排气制动器 组合仪表
I	10A	750	G/W	Combination meter 组合仪表
J	15A	151	G/R	Cigar lighter 点烟器
K	15A	218	G/Y	Power window 电动升降车窗
X	5A	-	-	Spare 备用
Y	10A	-	-	Spare 备用
Z	15A	-	-	Spare 备用

Fuse 2 保险丝 2

Position 位置	Capacity 负载	No. 号码	Color 颜色	Object 对象
A	5A	820	L	Power source for crane (AML) 起重机电源 (AML)
B	5A	234	L/B	Air conditioner 空调
C	15A	225	L/W	Air conditioner 空调
D	10A	-	L/G	Reserve 预留件
E	15A	845	L/Y	Power source for crane (STD) 起重机电源 (STD)
F	10A	226	L/R	Air conditioner 空调
G	10A	-	G	Reserve 预留件
H	10A	214	G/B	T/M shift select Emergency T/M switch Emergency accelerator switch 换挡选择 紧急传动开关 紧急油门开关
I	10A	155	G/W	Head lamp, Air horn, Air buzzer 前大灯, 喇叭, 蜂鸣器
J	15A	150	G/R	Front windshield wiper 前挡风玻璃刮水器
K	15A	158	G/Y	Washer, Roof windshield wiper 洗涤剂, 顶棚玻璃刮水器
X	5A	-	-	Spare 备用
Y	10A	-	-	Spare 备用
Z	15A	-	-	Spare 备用

Fuse 3 保险丝 3

Position 位置	Capacity 负载	No. 号码	Color 颜色	Object 对象
H	10A	159	W/R	Power source for crane (opt.) Self-removing counter weight 起重机电源 (选配件) 自主动配重
G	5A	-	Y/R	Reserve 预留件
F	5A	327	R/Y	Power source for crane (STD) 起重机电源 (STD)
E	5A	-	G	Reserve 预留件
D	5A	-	L	Reserve 预留件
C	10A	-	W	Reserve 预留件
B	5A	-	Y	Reserve 预留件
A	10A	1080	R	Power source for crane (opt.) 起重机电源 (选配件)

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K06701-01C

3. Wind up the winch to wind the wire rope around the drum until a length only sufficient for attaching it to the hook block is left.

Pay attention to the following when winding the rope.

- At the start of the winding, wind the rope along the guide at the verge of the drum.
(See Fig. 1)
- For the first layer of winding, put the rope in the grooves on the drum.
- When you wind over another layer of windings, set the rope in the valleys between the ropes.
(See Fig. 2)

Fig. 1

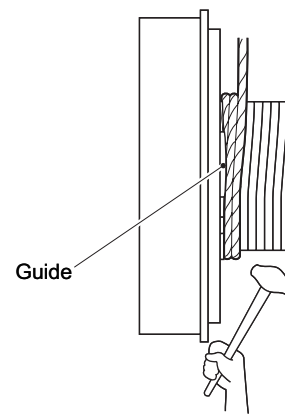
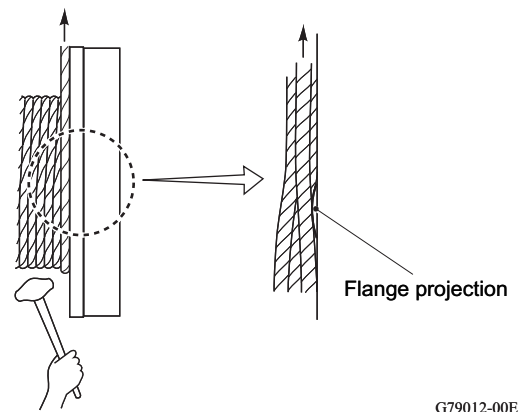



Fig. 2



G79012-00E

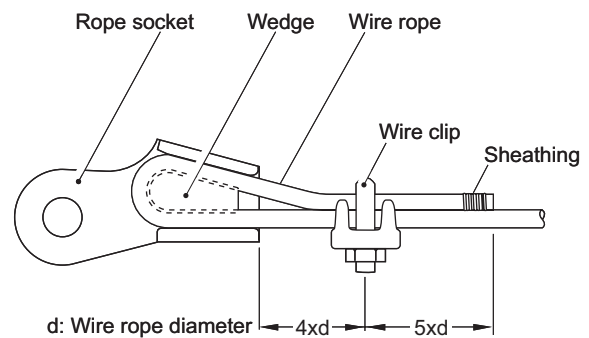
4. After you reeve the rope through the boom and hook block sheaves in the pattern appropriate to the number of part lines, pass it through the weight for overwind cutout device.

 For information on how to reeve the wire rope, refer to "Reeving Wire Rope" (page 219).

5. Pass the wire rope through the rope socket, and secure it with the wire clip.


NOTICE

Pay attention to the orientations and positions of the wedge and wire clip installation.

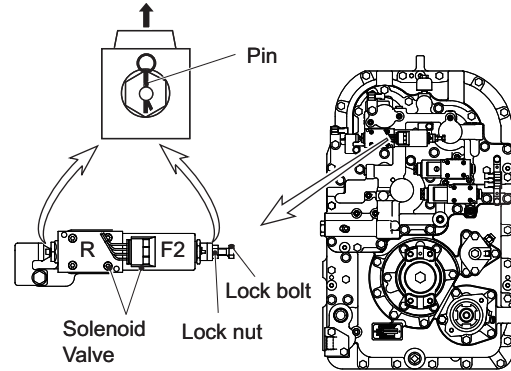


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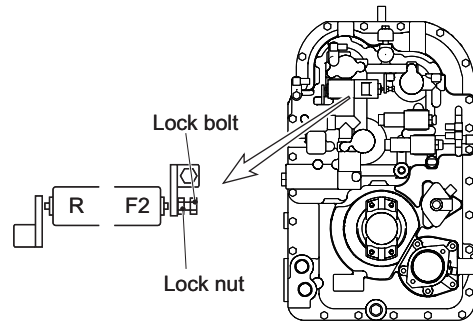
4. After you move the vehicle, return the emergency transmission switch to "OFF".

 If you cannot move the vehicle even with the transmission emergency procedure, it may be possible to move the vehicle by forcibly changing over the solenoid valve with the hexagon bolt and lock nut. Before you use this device, contact a TADANO distributor or dealer for instructions on how to use.

For Serial No.548457 or later



For up to Serial No.548456



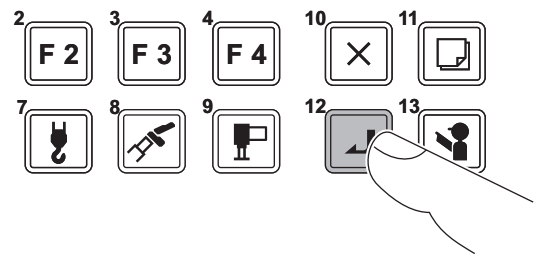
K06335-01E

- 5.** Push the outrigger status select key and F3 or F4 key to enter the actual outrigger extension status.
- Outrigger status select key
Select a target outrigger.
 - F3 key
Extend (when a left-side outrigger is selected)
Retract (when a right-side outrigger is selected)
 - F4 key
Retract (when a left-side outrigger is selected)
Extend (when a right-side outrigger is selected)

- 6.** Push the set key to register the setting.

- 7.** Stow the crane.

- 8.** Set the outrigger status emergency registration switch to "OFF", and remove the key.



K00678-000

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