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BQ-TADANO

eration and Maintenance Manual

GT-550E-2 / O1-1E

2009 BQ-TADANO LTD.

Operation and Maintenance Manual

Truck Crane

Model **GT-550E-2**

Applicable Serial No. GT

CAUTION: Read this manual before operat

Save this manual for future refe

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Safety

Most accidents that occur during crane operation and maintenance are caused by failure to observe basic safety rules and precautions. Before operating your machine or performing maintenance, read and become familiar with all the safety precautions and recommendations given in this section. Remember that failure to observe even a single precaution could involve you and the people around the machine in a serious accident.

Foreseeing potential dangers is vital for preventing accidents. All personnel working with the machine, including the supervisor, crane operator and oiler, should be sensitive to potentially dangerous situations and take the necessary measures to prevent accidents.

Safety precautions and recommendations are outlined in this section and are also included in the operation and maintenance instructions given in subsequent sections. Warning labels are also provided on the machine.
The cautionary instructions in this manual are identified as "DANGER", "WARNING", "CAUTION" or "NOTICE". These terms are defined as follows:

⚠ DANGER

⚠ DANGER indicates an imminently hazardous situation, which, if not avoided, would result in death or serious injury.

⚠ WARNING

⚠ WARNING indicates a potentially hazardous situation, which, if not avoided, could result in death or serious injury.

⚠ CAUTION

⚠ CAUTION indicates a potentially hazardous situation, which, if not avoided, may result in a minor or moderate injury.

[NOTICE]
◆NOTICE indicates an important operational or maintenance procedure or condition, which, if not strictly observed, can result in damage to machine components or deteriorated machine performance.

It is virtually impossible to anticipate every situation that might present a hazard. The safety precautions given in this manual and on the machine labels are not exhaustive.
It is important, therefore, to strictly follow the instructions in this manual and be sensitive to potential dangers in order to prevent bodily injury and damage to the machine.

Remember that your most important duty is to ensure the safety of you, your co-workers and any other people in the area.

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Safety Rules

⚠ WARNING

⚠ Use of improper or unauthorized method during operation or maintenance of this machine can be dangerous and could lead to serious injury or death. Read this manual thoroughly and be familiar with the proper operating and maintenance procedures before using the machine. Do not operate the machine or perform maintenance on it until you understand the instructions in this manual.

⚠ CAUTION

⚠ "Safety Rules" section describes the general instructions about operation with a hydraulic truck crane. For more detailed instructions about your machine, see corresponding pages (white pages) of this manual.
The figures in this manual are for reference showing the important points. They may be different from an actual machine.

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Before Operation

⚠ Qualifications of the Operator

The operator must be fully trained and qualified.
The operator must be fully familiar with on-site safety rules, and national and local crane operation regulations.

⚠ Study the Operation and Maintenance Manual

Improper operation, inspection or maintenance can damage the machine or cause injury or death.
Study the manual carefully. Become familiar with the proper procedures for operation, inspection and maintenance.
Keep the Operation and Maintenance Manual in the crane operator's cab so that it is always readily accessible.



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⚠ Follow All Instructions and Warnings

The Operation and Maintenance Manual and the warning labels on the machine contain instructions and must be followed to ensure safe operation.
Read and understand all DANGER, WARNING and CAUTION labels. Neglecting these instructions and warnings can result in injury or death.
If the manual is lost or any labels (decals) become illegible, order replacements from the nearest authorized TADANO distributor or dealer.

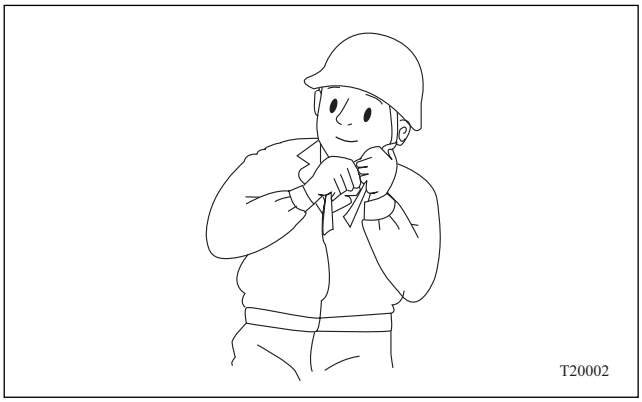
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⚠Always Maintain Labels

The warning labels on various parts of the machine provide important instructions for safe operation. Always keep the labels (decals) clean and visible. Should labels become lost or damaged, order replacements from the nearest authorized TADANO distributor or dealer.

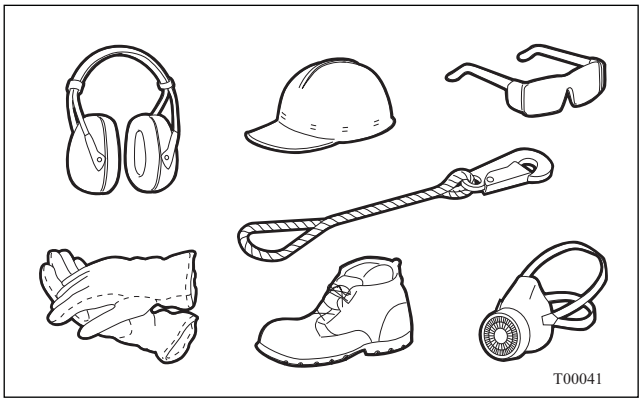
⚠Wear Proper Clothing

Sloppy clothing may result in sleeves or cuffs being caught and then cause an accident.



⚠Wear Approved Protective Gear

To ensure safety, always wear a hard hat and safety shoes. Also protective goggles, dust mask, earplugs, work gloves, safety belt, etc. must be worn as the situation requires. Check that all protective gear is in good condition before wearing it.



⚠Avoid Overwork. Never Operate under the Influence of Alcohol or Drugs

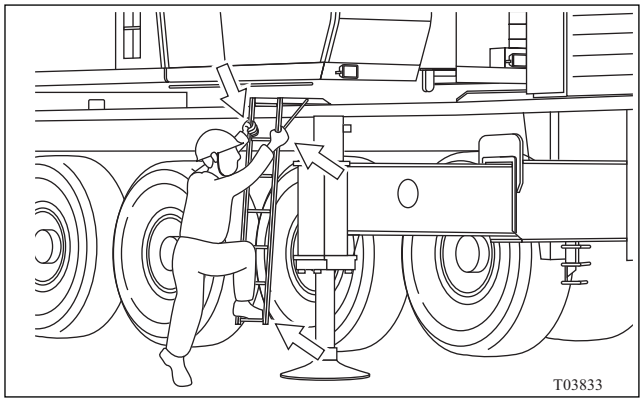
If the operator is tired, lacking in sleep, or under the influence of medication or alcohol, the probability of an accident event is greatly increased since attentiveness and judgment are impaired. Maintain proper physical fitness for crane operation.

⚠Keep All Footings and Shoes Clean

Oil, water or mud on soles of shoes, steps or decks can cause slip off and fall mishaps or cause accidental release of a control pedal. Always remove oil, mud, water or snow before operation and keep shoes and floor of the operator's cab clean.
Do not leave any parts or tools on the operator's cab floor or passageway.

⚠Safely Climbing onto and Descending from the Machine

Do not jump onto or off the machine.
Do not climb onto or descend from the machine with objects in hand.
Only climb onto or descend from the machine while it is completely at standstill. Use the handrails and steps, always support your hands and feet firmly (three point support); that is, one hand-two feet or two hands-one foot.
Never use the steering wheel or control levers as handrails.



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⚠Correctly Position the Seat

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

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

⚠Maintain Good Visibility

Fouled window panels, lights or rearview mirrors can limit the operator's visibility, impairing safe operation. Always keep the window panels and light lenses clean.

Position mirrors correctly as required by job conditions.

⚠Perform Pre-Operation Inspection

Neglecting routine inspections and maintenance can shorten service life of the machine or even result in an accident.

Before starting operation (and before taking over a shift), perform the pre-operation inspection on the carrier and the upper structure to ensure that the machine is in proper condition and free from any problems.

Should any problem be found, report it to the responsible person, remedy it, and only then start operation.

⚠Do Not Operate a Machine Being Inspected or Serviced

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

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



⚠Check the Position of Controls before Starting the Engine

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

⚠Make Sure Work Area Is Safe before Starting the Engine

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

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

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

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⚠Start the Engine from the Operator's Cab Only

If the engine is started from any location other than the crane operator's cab, it can become impossible to avoid a dangerous hazard if some machine action is initiated when the engine turns over.
Start the engine only from the operator's seat.

⚠Inspection after Starting the Engine

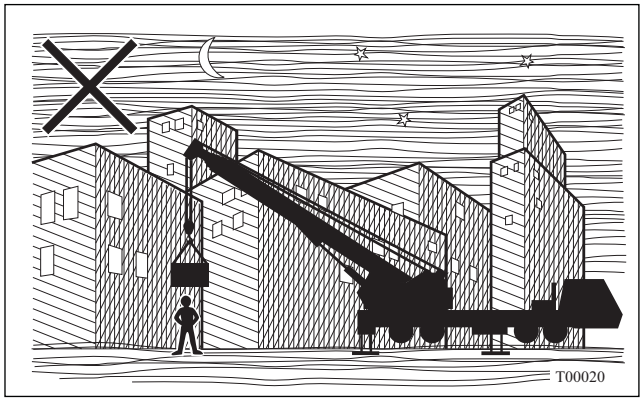
Failure to perform a basic inspection after starting the engine can result in not detecting fault or abnormality with the machine.
Inspect the machine in a safe location that is free from obstacles and people other than maintenance personnel.
Allow the engine to warm up after it is started while the instrument readings and checking the machine components. Once the engine is properly warmed up, make a safety check of the work area, and run the machine without a load to check out condition of the controls, machine elements and safety devices.

⚠Warm Up the Machine

Failure to properly warm-up the engine and various other machine components can result in decrease in service life of the machine or malfunctions. In winter, run the engine for at least five minutes for proper warm-up.
Then, run the engine at low speed without a load to warm up the hydraulic oil and other machine components.

⚠Night Operation

Operation in the dark makes it difficult to ensure good footing, and to locate nearby persons or obstacles, increasing the probability of an accident.
When operating at night, turn on all working lamps. Provide ancillary portable lighting equipment to illuminate the work area.

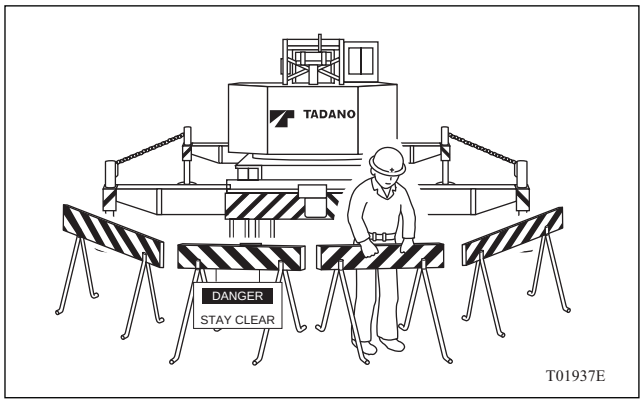


⚠Keep the Engine Clean

Dead leaves, paper dust and oil stains on and around the engine can catch fire. Remove all such debris before commencing operation.

⚠Keep Unauthorized Personnel Away from the Work Area

Unauthorized personnel or vehicles in the work area can result in collision accidents, injury or death.
Before operation, make sure there are no unauthorized personnel or obstacles within the work area.
If the work area is situated near heavy traffic, post a control person to prevent vehicular accidents.
Barricade the work area with appropriate means either colored tape or rope.



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⚠Anticipate Accident Situations

To deal with possible accidents or fires, equip the crane with a first-aid kit and fire extinguisher. Be aware of the locations of these safety items, and learn how to use them properly.

An emergency contact person and emergency liaison plan should be carefully prepared, and all personnel concerned must be made aware of the details.

⚠Observe Work-site Rules

Neglecting work-site rules can result in accidents.

To ensure safe operation, observe all work-site rules covering prohibited practices, precautions and correct procedures.

⚠Post a Signal Person

Assign a signal person for all crane operations as necessary and always follow instructions especially when:

- **Working near power lines.**
- **The load is hidden from the crane operator's view.**
- **Moving the carrier along narrow roads or when the operator's vision is obscured.**

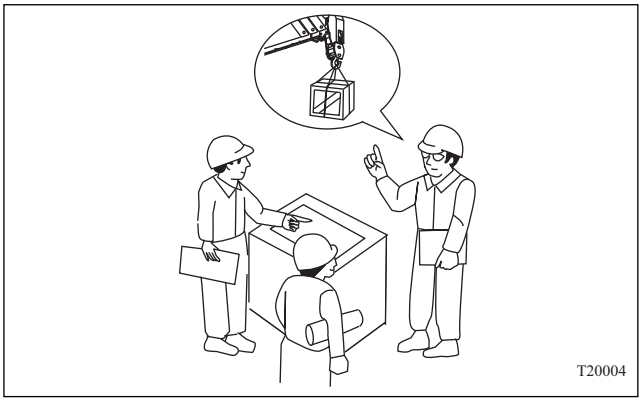
The signal person and the operator should communicate with each other using mobile transceiver phones.

⚠Hold Work Site Meetings with Concerned All Personnel

Lack of sufficient communications with concerned personnel can result in accidents.

Before starting the job, set up a liaison meeting with the site supervisor, rigging personnel, signal person, etc., to agree on the following details:

- **Mass of load, lifting height (per rated lifting capacity table), locations of loading and unloading, work area of the machine, craning procedures, rigging methods, etc.**
- **Conditions of ground where crane is set as well as whether city-water and gas pipings are buried.**
- **Overturning prevention by use of block plates and outriggers.**
- **Mutually agreed upon and OSHA approved signal conventions between rigging personnel and signal person.**
- **Designation of off-limit areas, provision of barricade.**
- **Work stations of all relevant workers.**
- **Emergency liaison plan and emergency contact person, as well as the safety/health organization.**



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⚠Always Study Work-site Conditions Carefully

Pay due attention to surrounding conditions.
Before starting the job, inspect the work area, check routes to the work area, and monitor the presence of any obstacles and locations of other machinery.
Note changes in the surroundings or site conditions as crane operations are carried out.

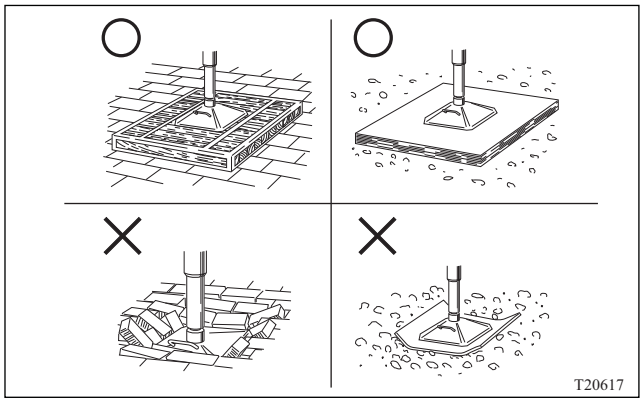
⚠Multi-Crane Operation

In lift situations involving the coordination of two or more cranes, establish an agreed system for communications and assign a signal person. The crane operators must proceed cautiously, strictly observing all instructions of the signal person.

Rules for Operation (Setting Outriggers)

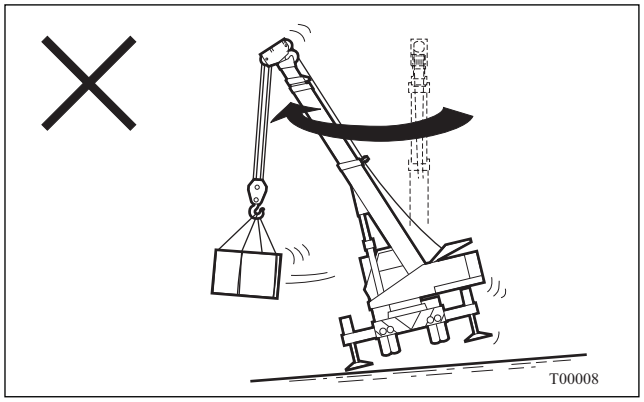
⚠Set the Crane on Firm Level Ground

The machine should not be located on soft ground, which can lead to sinking, sliding or overturning, nor on the edge of a pit, bank or slope.
If the ground conditions are doubtful, use blocks or steel plates of sufficient strength and size below the outrigger floats to disperse the load.



⚠Set the Crane Level

If the crane is tilted, and the load is swung over the side, the load radius will increase, and the machine can overturn.
When setting the outriggers, level the machine carefully using a level.

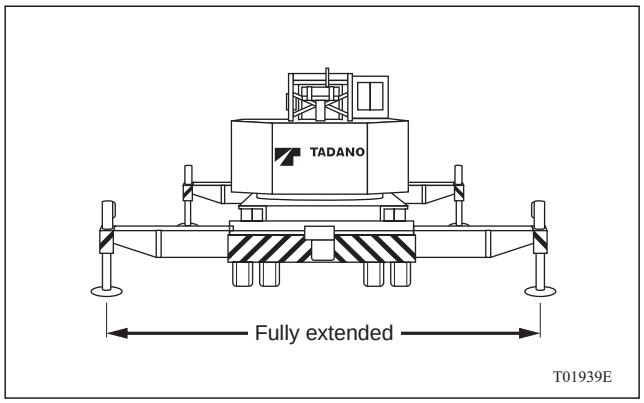


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⚠Fully Extend the Outriggers

If the outriggers are not extended correctly, the crane may become unstable, causing the crane to overturn.

As a general rule, always extend the outriggers fully, even if the crane is rated for operation with the outriggers at middle or minimum extension. If it is absolutely necessary to use the outriggers at middle or minimum extension, make sure the machine is within the rated limits.



⚠Check the Outrigger Setting

Incorrect setting of the outriggers can decrease the load lifting capacity of the machine and result in overturning. To avoid crane instability, make sure:

- **The machine is absolutely level.**
- **All outrigger floats are stable and set firmly on the ground or blocks.**
- **All tires are clear of the ground.**
- **The outriggers are secured with lock pins (if lock pins are available).**

Rules for Operation (General)

⚠Observe Working Conditions

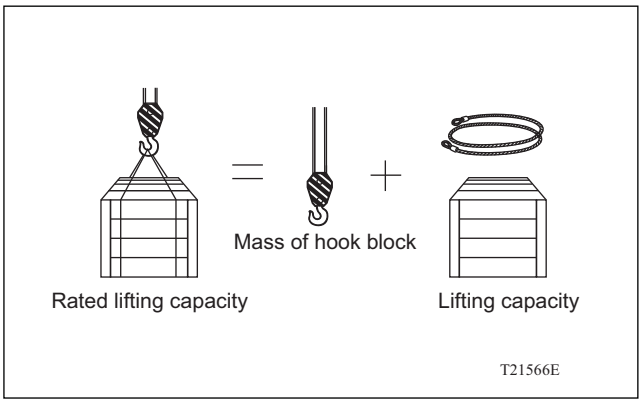
Operating the crane under conditions (outrigger beam length, boom length, load radius, etc.) other than specified in the rated lifting capacity table can cause overturn even when not lifting a load.

Follow all instructions in the rated lifting capacity table.

⚠Do not Exceed Rated Lifting Capacity

Exceeding the rated lifting capacity will overload the machine. Damage or overturning can result from this practice.

Check the rated lifting capacity table before operating to ensure that the lift is safe. Load lifting capacity of the crane varies depending on boom length and load radius. Never exceed the lifting capacity in the table.



⚠Use Safety Devices Correctly

Improper use of safety devices including the overload cutout can lead to damage or overturn the crane.

Use all safety devices according to instructions in the manual.

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⚠Do Not Rely Exclusively on Safety Devices

A safety device is not a substitute for human skill and judgment.

The overload cutout, for example, does not warn the operator about conditions on the ground, effects of wind, improperly adjusted devices, load being pulled sideways, or other possibly hazardous situations.

All safety devices are merely auxiliary means to help the operator perform the task at hand. Safe crane work requires the qualities of a good operator, such as skill, experience, judgment, and safety awareness.

⚠Do Not Deactivate Any Safety Devices

Avoid any action that impairs normal operation of the safety devices.

Intentionally deactivating any safety device may result in the inability to detect overloading or overwinding during operation, and lead to a serious accident.

Ensure that all safety devices are functioning correctly before starting any operation.

⚠Before Lifting a Load

Make sure of the following before attempting to pick up a load:

- **The mass does not exceed the rated lifting capacity.**
- **The number of rope parts conforms to the standard in the rated lifting capacity table.**
- **A proper load handling device is used and the load is securely rigged.**
- **The hook block is located directly above the center of gravity of the load.**
- **The wire ropes runs are plumb so that the load can be lifted vertically.**
- **The safety latch on the hook is working properly.**
- **The wire rope has no entanglement or disorderly winding on the drum.**

⚠Rig the Load Securely

Improper rigging procedure can result in the lifted load being dropped. Rig the load securely, paying special attention to the following points:

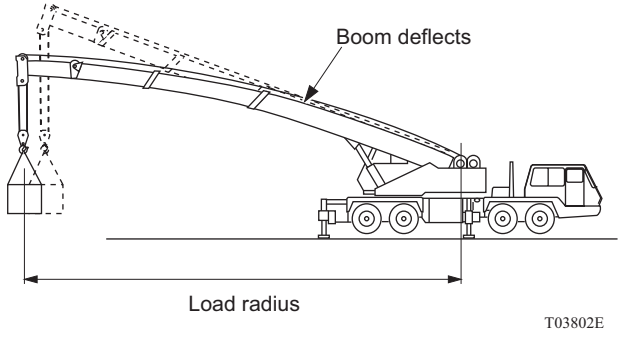
- **Know the mass, shape and center of gravity of the load, and use suitable load handling devices and rigging hardware.**
- **The load handling devices including wire ropes, chains and rigging hardware must have enough strength and be free from damage or excessive wear.**
- **Rig the load so that it is suspended at a point above its center of gravity. Otherwise, the load can overturn or come loose of the handling device when it is raised. Also, wire ropes and chains must not be crossed or twisted around each other.**
- **Do not rig the load with a single wire rope. Such rigging practice is very dangerous as the load can rotate, and untwist the wire rope, reducing its strength.**
- **When rigging a load with sharp corners, fit protective softeners at the load corners to protect the wire ropes and the load itself against damage.**

⚠Consider Boom Deflection before Lifting the Load

When a load is lifted, the boom will deflect downward, increasing the load radius. Swaying of the load also poses a hazard to the people around the crane, and may lead to overloading.

If the load starts to sway when lifted clear of the ground, lower the load back on the ground.

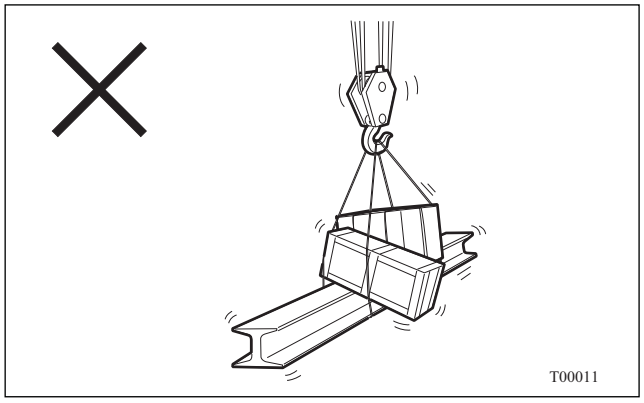
When lifting a heavy load or using the extended boom, anticipate the possible increase in the boom load radius.



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⚠Lift Single Loads Only

Do not lift two or more loads simultaneously even if their total mass is within the specified rated lifting capacity; otherwise, the loads may lose balance. It is usually not possible to maintain complete attention to multiple loads.



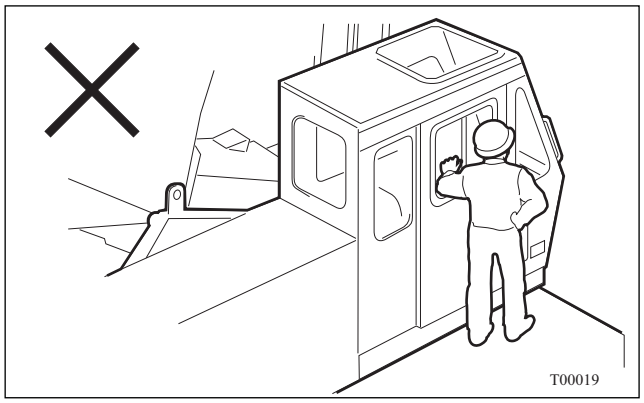
⚠Operate According to Signals

If signals are not obeyed or if signals are improperly made, accidents can occur.

Follow instructions of the signal person. An emergency shut down signal must be acknowledged whoever gives it.

⚠Operate the Crane from the Operator's Cab Only

Controlling the machine from outside the cab, through the cab window, is strictly forbidden and extremely dangerous.



⚠Conduct a Safety Check within the Load Radius of the Crane before Starting Operation

Any person located close to the crane may become caught between machine components or between the counterweight and a fixed obstacle. Before starting any swing motion, make sure that there is no one nearby. Sound the horn to warn all immediate personnel of crane startup.

During crane operations, fence off or barricade the work area to prevent unauthorized persons from approaching the machine.

⚠Be Extremely Careful When Raising the Load Clear of the Ground

Stop lifting the load once the rigging is fully taut, check that the load is suspended at a point just above its center of gravity, and that the load is not stuck to the ground or interfering with a nearby body or structure.

Lift the load vertically. When the load clears the ground, stop lifting and suppress any swaying; then check that the rigging is secure, the load is in a stable position, and the crane is not overloaded. Then, recommence the lift again.

⚠Do Not Lift the Load Clear of the Ground by Raising or Extending the Boom

Raise a load clear of the ground by vertical hoisting only.

Raising or extending the boom to lift a load clear of the ground will cause the load to sway, posing a hazard.

If the boom is elevated to raise a load clear of the ground, the crane will not be automatically stopped even in case of an overload. An overloaded machine can overturn or be damaged.

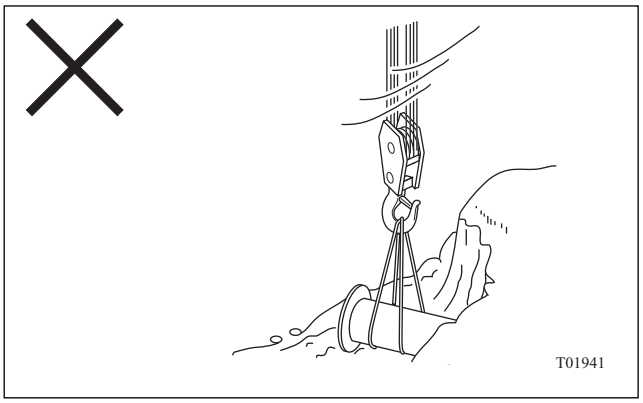
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⚠Move a Lifted Load Carefully

When the crane state comes near the full rating, the AML gives an intermittent alarm. Operate the crane more carefully and slow the load-moving speed.
Take best care for over-loading in boom-lowering operation which enlarges the load radius.

⚠Do Not Lift an Unknown Load

Attempting to uproot a garden tree or raise an object buried or driven into the ground can severely overload various components of the machine, possibly causing the machine to overturn or be damaged. Do not attempt to pull up poles or piles driven into the ground, trees or any objects buried or frozen in mud or sand.
Only lift objects free from all restraining forces.



⚠Avoid Overloading

A load below the rated lifting capacity can still cause overloading of the crane if swaying occurs. Do not trigger overloading while telescoping out or lowering the boom. These actions increase the load radius and are destabilizing.

⚠When Overloading Occurs

When overloading occurs, never attempt to raise or lower the boom rapidly. This situation is very dangerous as the machine can readily overturn.
Immediately set the load on the ground by carefully unwinding the wire rope off the winch drum.

⚠Operate the Crane Carefully

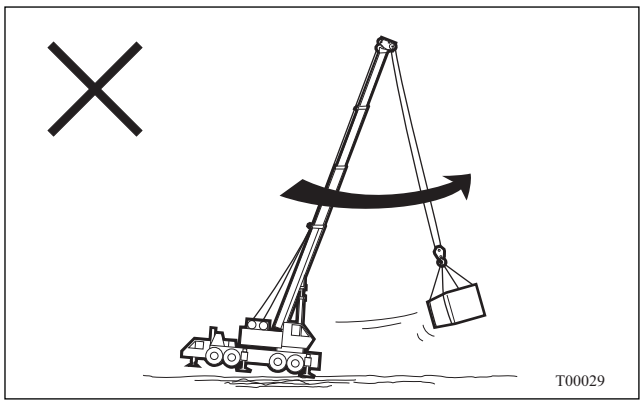
Operating the controls too abruptly can result in an accident: a swaying load can hit an object or damage the machine.
Operate all control levers and pedals smoothly and in a steady manner.

⚠Do Not Make Inadvertent Swing

When the front jack is not employed, lifting capacities in the over-front area are inferior to those in the over-rear and over-side areas. The crane may be overturned if inadvertently swung to the over-front area with a load lifted in the rear or side area.
Depending on boom length, boom angle, and outrigger extension, even the unloaded crane may overturn because of inadvertent swing.
Before operation, confirm the living capacity by the rated lifting capacity table. If there is an inferior capacity area, place signal corns or ropes for swing restriction to avoid swing into such a perilous area.

⚠Swing the Crane Carefully

If the swing speed is too high, substantial centrifugal force is applied to a load, resulting in an increased load radius. As a result, the machine may become overloaded and overturn.
Stopping a swing operation abruptly can cause a load to sway posing a hazard to nearby personnel and possibly leading to boom failure.
Swing all loads slowly. Carefully stop any swinging. Be extremely cautious when working with an extended boom.



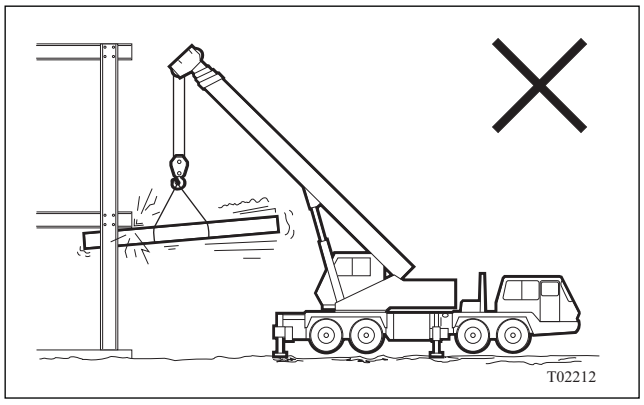
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⚠Be Careful during Complex Operations

Actions of the crane will be slower during complex operations. When switching from a complex operation to a simple operation, action of the machine will become faster. When executing a complex operation, do not change speed immediately.
Do not attempt any complex operation until fully familiar with the crane operation.

⚠Avoid Contact with Obstacles

While moving a load, be absolutely sure that the load or any part of the crane does not come into contact with nearby structures or other objects.
When working on a site where potential obstacles are present, post a signal person, and only move the load while following instructions.



⚠Operate the Crane with Correct Boom Position

When the boom configuration is irregular for purpose of inspection or maintenance, never attempt to lift a load.
During crane operation, check that all the boom sections are telescoping in the correct sequence. The rated lifting capacity table has been developed based on assumption that the boom sections are telescoped in the correct sequence.

⚠Do Not Extend the Boom Excessively

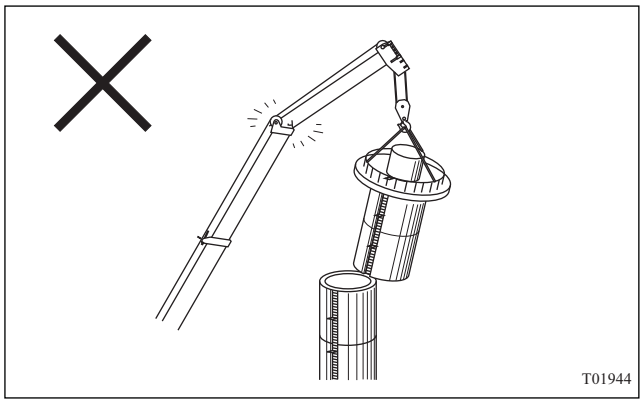
An excessively extended boom decreases the rated lifting capacity and also can cause overswing of the load or lower working efficiency.
Keep the length of the boom as short as possible during operation.

⚠Be Careful When the Boom Is at Maximum Permissible Angle

When the boom is raised to its maximum permissible angle, there exists minimum horizontal clearance between the boom and the load. A swaying load may hit the boom or jib, and cause damage. Handle the load carefully so that it does not strike the boom or jib.

⚠Be Careful in Demolition Work

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



⚠Carefully Lift a Load in Water

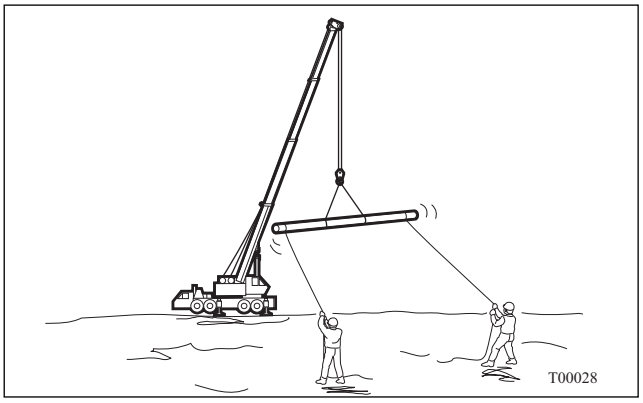
When handling a load submerged in water, it is important not to lift the load out “all at once” when it appears above the water’s surface. The load may be impregnated with water and heavier than expected. Allow the load to drain while raising it slowly.
A load lifted out of water, even when fully drained,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

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⚠Handle Wide Loads Carefully

Be careful when lifting a wide load. The load can swing and hit a rigging person, the crane itself or a nearby structure.

Use tethers tied to either or both ends of the load to control the position and/or movement of the load.

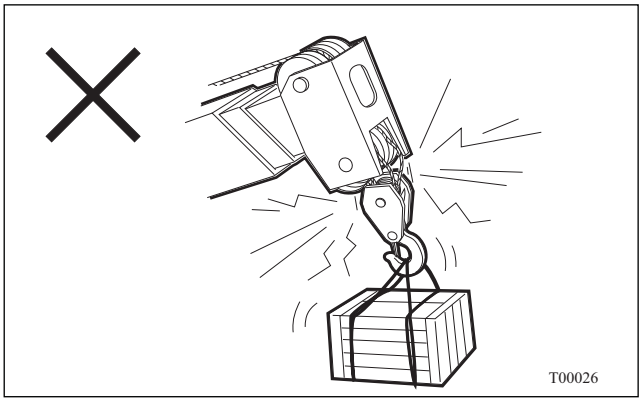


⚠Do Not Overwind the Hook Block

When the boom is lowered or extended, the hook block is wound up.

Usually, overwinding the hook block will cause the overwind cutout device to trip and the winch automatically stops. However, if the device is damaged or the automatic stop function has been deactivated for some reason, the hook block can impact the boom head.

Always be aware of the position of the hook block. If the hook block approaches the boom head, wind off the wire rope to lower the hook block and avoid contact.



⚠Know of the Number of Wire Rope Parts

If the number of the part lines is greater than specified for the boom length, the hoist line may become too short. As a result, the line can unwind off the winch drum causing the wire rope to be damaged or broken.

When lowering a very light load, or a bare hook block, the rope will unwind off the winch drum at a faster rate. The rope may then become improperly wound.

Use a number of part lines appropriate to the boom length.

⚠ Wire Rope Must Be Properly Wound on the Drum

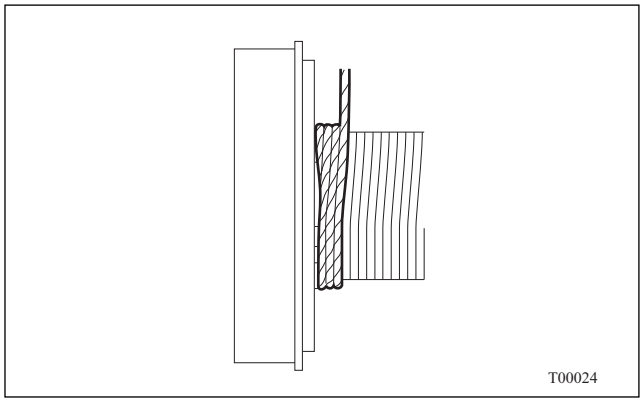
Lifting a load with the wire rope improperly wound on the winch drum can lead to damage of the wire rope, not only decreasing service life of the rope but possibly breaking wires and strands which can lead to ultimate failure.

After reeving or replacement of the wire rope, make sure that the line is properly seated in the sheaves and on the winch drum.

⚠Do Not Unwind the Wire Rope

If the entire rope is unwound from the winch drum, the frictional anchoring force will be insufficient to support a load. The rope will break or become damaged.

At least three winds of rope must always be left on the winch drum. This condition applies particularly when a load must be lowered below ground level such as a trench or excavation.



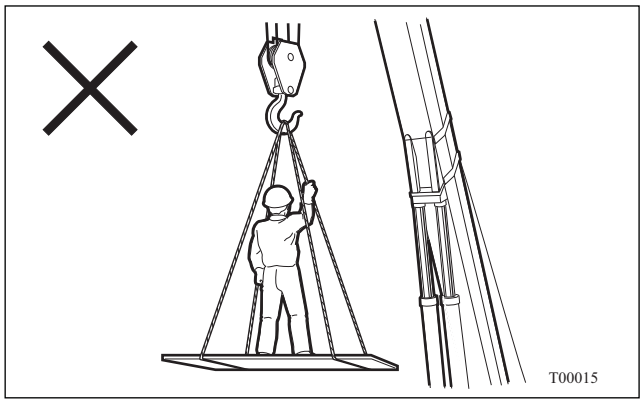
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⚠Do Not Leave a Load Suspended

Do not leave a load in a hoisted position. Actuate the winch brake to hold the load safely. Use working procedures that minimize the duration a load is left suspended.

⚠Use the Crane Only for Approved Applications

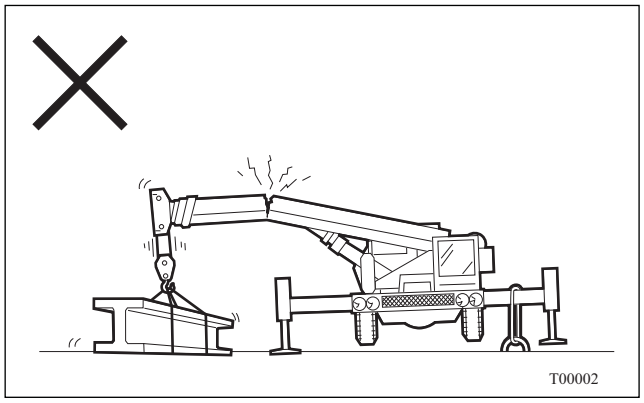
The crane is designed to lift a freely suspended vertical load. Never attempt to lift persons, or push/pull a load with the boom.



⚠Do Not Anchor the Machine

Do not attempt to hold down the crane frame or outrigger or contrary side to the lifted load, using wire rope.

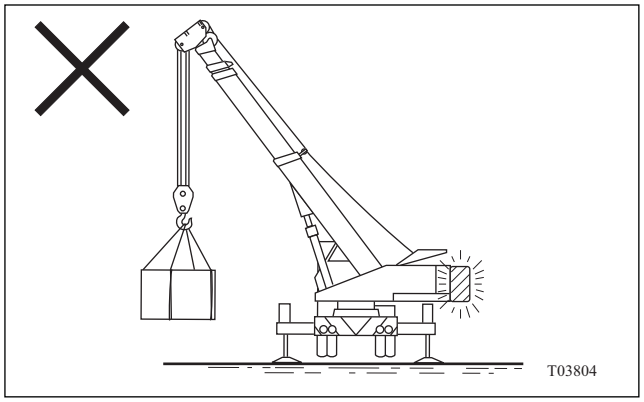
This practice might lead to crane damage or an accidents.



⚠Do Not Add Counterweights

Installing a counterweight(s) other than those specified can damage the machine, or cause the machine to overturn to the rear owing to decreased rearward stability.

Never install or place a counterweight(s) or equivalent other than those specified.



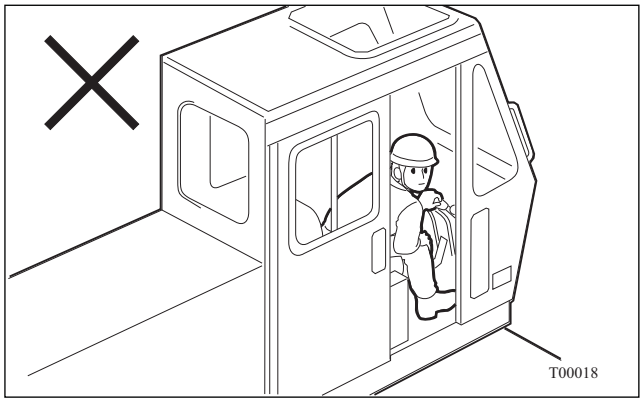
⚠Do Not Position Any Part of Your Body Out of the Window on the Boom Side

Sticking any part of your body out from the window on the boom side can result in being caught between the moving boom and the window frame. Serious injury or death can result from this dangerous practice.

If the window is equipped with a confining guard, do not remove it.

⚠Do Not Look Away from the Load While Operating the Crane

Looking away from the load, eating or performing any other action that can detract from awareness while operating the crane is very dangerous. During operation, concentrate all attention on the load and the signal person.

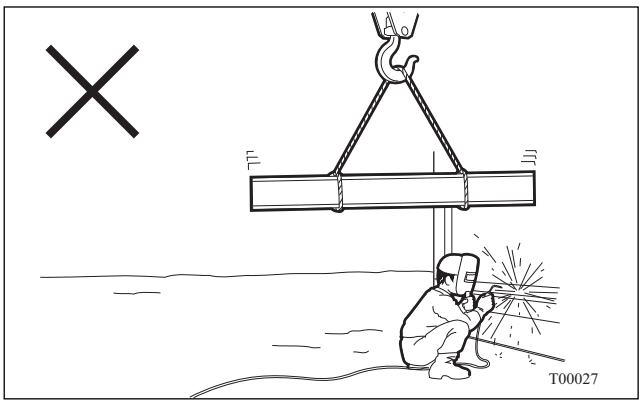


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⚠Do Not Pass a Load over Any Person

Passing a load over a person(s) is very dangerous and must be avoided.

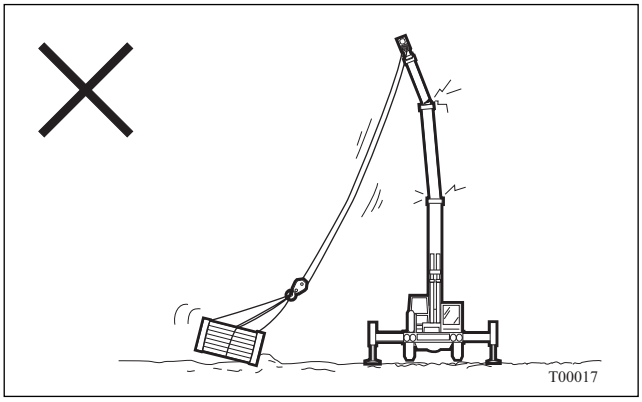
Do not allow anyone to enter the area below the boom or the load.



⚠Do Not Pull a Load Sideways, Do Not Lift a Load Obliquely, Do not Drag a Load

Pulling a load sideways, lifting a load obliquely or attempting to drag a load is very dangerous. Such actions can damage the boom, jib or swing mechanism, and lead to overturning of the crane.

Do not attempt to draw in a load that is located outside the load radius. To handle such a load, move the crane to the vicinity of the load, and lift it vertically.



⚠Do Not Leave the Operator's Cab While a Load Is Suspended

Before leaving the operator's cab for any reason, be sure to:

- **Lower the load to the ground.**
- **Fully retract the boom and stow it.**
- **Actuate all brakes.**
- **Place all control levers in their neutral positions.**
- **Shut off the engine, and remove the starter key.**
- **Lock the crane operator's cab door.**

⚠Never Allow Anyone to Ride on the Machine, Except the Operator

If any persons other than the operator (in the operator's seat) are on the machine, they must be stationed inside the operator's cab.

⚠Do Not Allow Anyone to Ride on the Machine

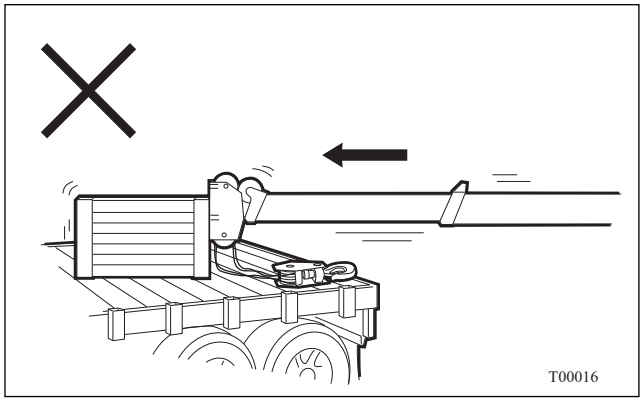
Persons on the machine other than the operator (in the operator's seat) may fall or be caught by a machine component or other objects. Other persons cause distraction and can disturb the attention and work of the operator.

⚠Do Not Push or Pull an Object with the Boom

Never use the boom to push or pull an object. Do not use the boom to thrust up an object or force the boom into an object.

To move an object, use a machine designed for that purpose, such as a fork lift truck or carryall.

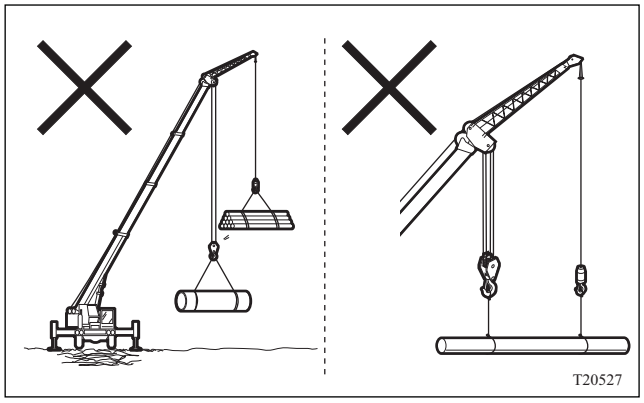
Do not use the crane in applications other than those specified.



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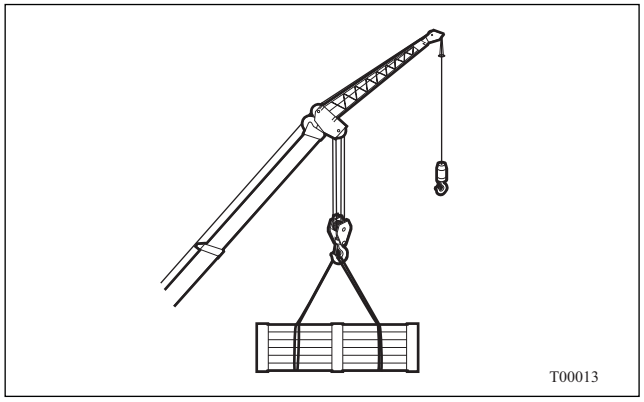
⚠Caution while Using the Jib (1)

Never attempt to lift separate loads on both the boom and jib at the same time, or a single load using both the main and auxiliary winches.
Such practices can damage the boom or jib, or overturn the machine.



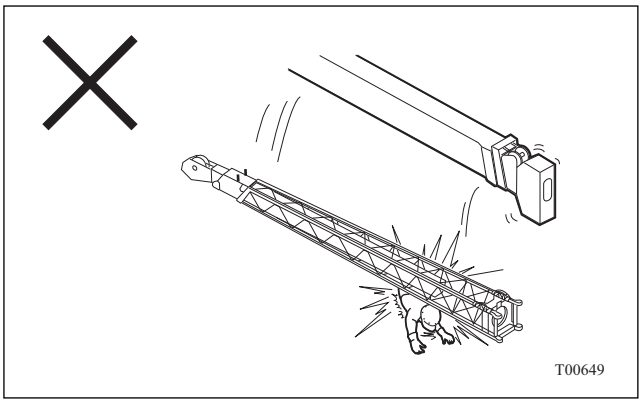
⚠Caution while Using the Jib (2)

Lifting a load on the boom with the jib mounted should be avoided, if possible.
If conditions require such a lift, observe the instructions given in the "AML" section of the manual and perform the operation with the utmost care and attention.



⚠Mount and Stow the Jib Correctly

Failure to observe the specified procedures for mounting and stowing the jib can damage the jib, or may cause the jib to drop.
Be sure to mount and stow the jib in the correct manner by referring to the "Jib" section in the manual.



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Rules for Operation (Weather)

⚠Stop Operation When Visibility Becomes Poor

During bad weather such as rain, snow or fog, stop operation and stow the machine. Wait until visibility improves before resuming operation.

⚠Stop Operation When Strong Winds are Present

Under strong winds, a lifted load will start swaying, posing a danger to working personnel and nearby structures and also possibly damaging the boom or overturning the machine.

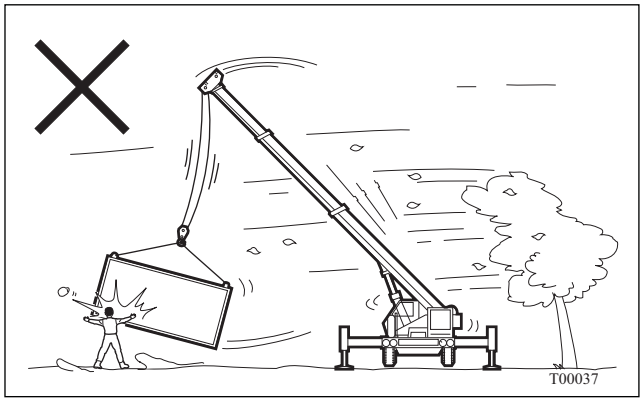
The influence of cross wind on machine stability is directly proportional to length of the boom and size of the load.

When the maximum instantaneous (i.e. gust) wind speed exceeds 10 m/sec, stop crane operation and stow the boom.

When the boom is substantially extended or a large-sized load is lifted, stop crane operation even if the wind speed is below 10 m/sec if there is any possible danger.

The table below lists wind speed ranges and the ground conditions for each range. Note that the wind speeds in the table are those at a point 10 m above open level ground.

Wind speed (m/sec)	Ground conditions
5.5– 8.0	Dust is raised, paper whirls up, and small branches sway.
8.0–10.8	Shrubs with leaves start swaying. Wave crests are apparent in ponds or swamps.
10.8–13.9	Tree branches move. Power lines whistle. It is difficult to open an umbrella.
13.9–17.2	Whole trees sway. It is difficult to walk against the wind.

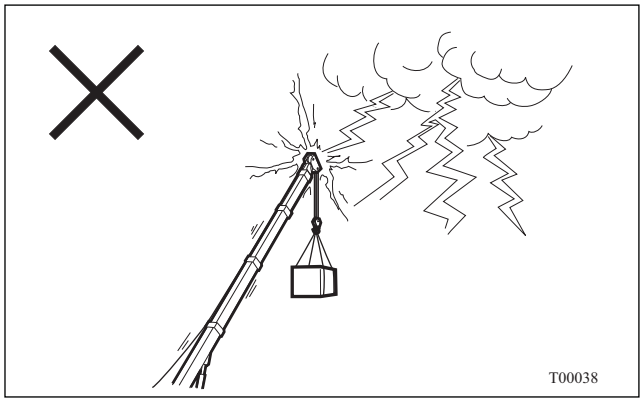


⚠Stop All Operation If There is Any Likelihood of Lightning

Lightning can not only damage the machine but also injure the operator and working personnel. If lightning is forecast or expected, stop operation, stow the boom, and leave the machine.

If the machine is struck by lightning:

- **Stay in the cab. Do not try to move out.**
- **Warn people around not to approach the machine.**
- **Afterward, inspect the entire crane carefully and have any damaged parts repaired.**



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⚠Cautions in Cold Weather

- **Snow or ice on the crane should be removed before operation; it is especially important to eliminate any accumulation on the boom, as it could fall and injure someone when the boom is moved.**
- **Do not let bare skin come in contact with the machine's metallic parts when the temperature is below freezing. Skin can freeze to the metallic surface, if any moisture is present.**
- **Warm up the machine sufficiently. Then, check that the machine is functioning correctly. Remove ice and dry machine components as required.**
- **After starting operation, run the machine slowly until oils fully circulates through all machine components.**
- **Before lifting, make sure that the load is not frozen to the ground or any other objects. Attempting to lift a load which is frozen to the ground can result in severe overloading and is very dangerous.**
- **If possible, stow the machine indoors so that the tires are not frozen to the ground. Remove mud from the undercarriage.**
- **Maintain the battery. Use oils and fuel rated for cold weather.**

Rules for Operation (Power Lines, Radio Waves)

⚠Prevent Electric Shock Accidents

Approaching too close to power lines can result in electric shock accidents. If conditions absolutely require operation near power lines or distribution lines, implement the following preventive measures:

- **Meet with the power company concerned to develop a relevant safety plan.**
- **Require that working personnel wear approved insulating shoes.**
- **Keep the crane and load beyond the required distance (stipulated by national or local laws and regulations) and away from power lines.**
- **Post a full-time signal person to ensure the machine or load does not approach power lines or unauthorized personnel do not enter the work area.**
- **Personnel on the ground must not directly touch the machine or load. When necessary to control the lifted load, use dry fiber ropes as tethers to prevent the load from rotating or swaying.**
- **Do not place a load below or near power lines.**
- **Operate the crane slowly with the utmost care and attention.**

(The data shown below describes the required distance recommended by Japanese power companies.)

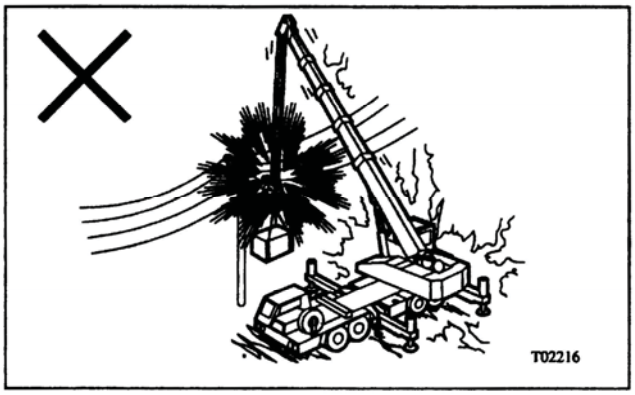
Voltage		Required stand-off distance
Low voltage	100 V, 200 V	2 meters
High voltage	6,600 V	
Extra high voltage	22,000 V	3 meters
	66,000 V	4 meters
	154,000 V	5 meters
	187,000 V	6 meters
	275,000 V	7 meters
	500,000 V	11 meters

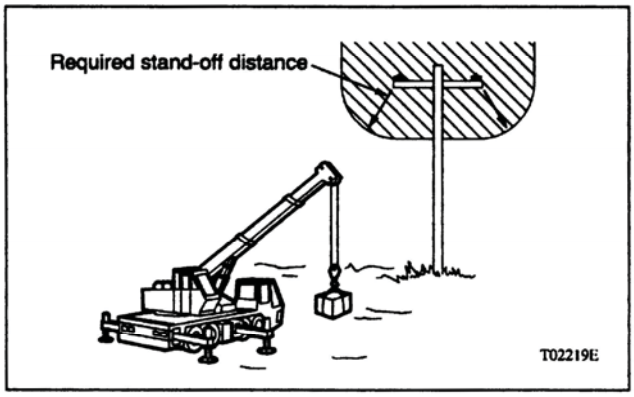
Should an electric shock accident occur, do not panic. Follow the instructions below:

- **Contact the power company to cut off the power and obtain instructions for emergency action.**
- **Direct all personnel around the machine to evacuate the site. Strictly control the site and keep everyone away from the electrified crane and load.**

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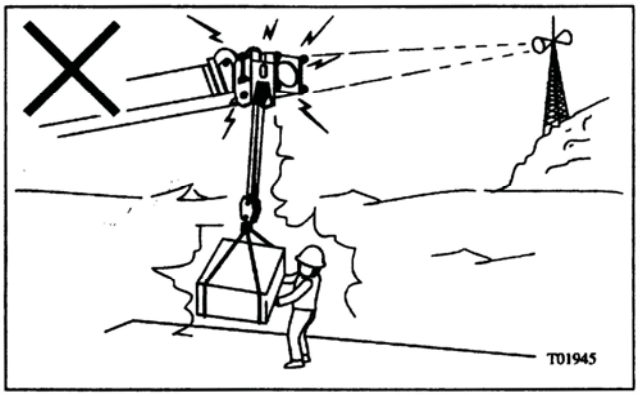
- **The operator should stay calm and cautiously move the crane and load away from the power lines to the required stand-off distance, and only then leave the cab.**
- **Should the machine be damaged and/or disabled, stay in the operator's seat until the power is cut off. If this is impossible, jump directly from the cab as far as possible. Do not touch any parts of the machine which may be electrified and can cause shock.**
- **After the accident, contact an authorized BQ–TADANO distributor or dealer to report the accident and discuss the measures, and inspection and repairs required.**





⚠Be Careful about High-Power Radio Waves

In areas near sources of high-power radio or TV station transmitters, a current can be induced in the crane structure. Electrified crane components can then result. Also, electronic devices such as the overload cutout may be damaged.
If necessary, ground the hook block to discharge any induced voltage and only then start rigging.



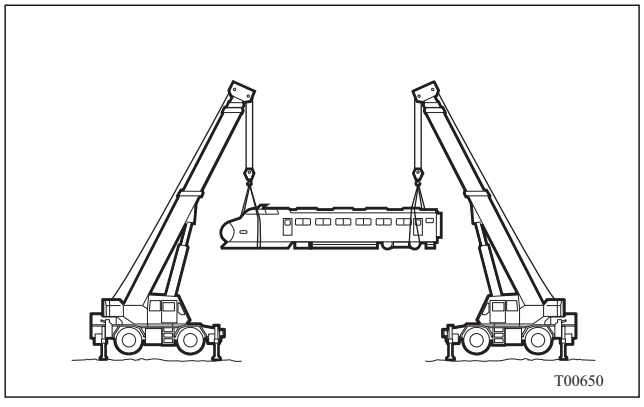
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Rules for Operation (Special Operation)

⚠Be Cautious in Multi-Crane Operation

Lifting a load with two or more cranes can be dangerous. In these operations, loads are lifted at points other than directly above the center of gravity and there is possibility of the load falling, the machine being overturned, or the boom failing.
In multi-crane lifting operations, be absolutely careful, and adhere to the following instructions:

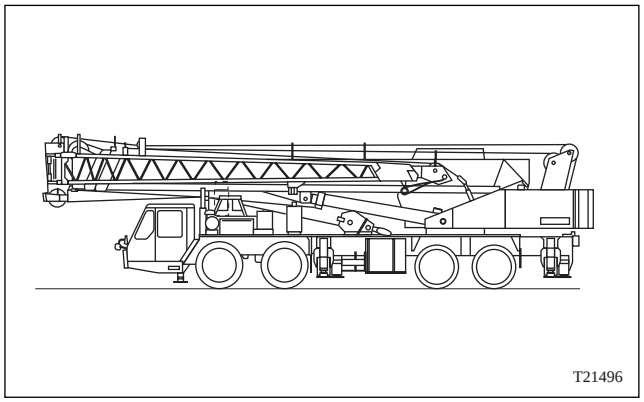
- **Meet with personnel to determine the proper working procedure and lift strategy.**
- **Assign a work leader, and follow instructions.**
- **Equip every person concerned with an appropriate communications device.**
- **Set each crane level on firm ground with the outriggers fully extended.**
- **The cranes used must have the same performance, characteristics and sufficient capacity for handling the load. Make sure that the cranes have the same settings for the boom length, boom angle, and number of rope parts.**
- **Lift the load so that the wire rope(s) of each crane are only subjected to vertical line pulls.**
- **Attempt to rig the load so that all the cranes are loaded equally.**
- **To move the load, use only the winches and booms. Swinging operations should be avoided. Do not perform hoisting, elevating (or telescoping) of the boom or swinging at the same time.**
- **To prevent overloading, operate the separate cranes simultaneously.**



After Operation

⚠After Operation, Stow the Machine

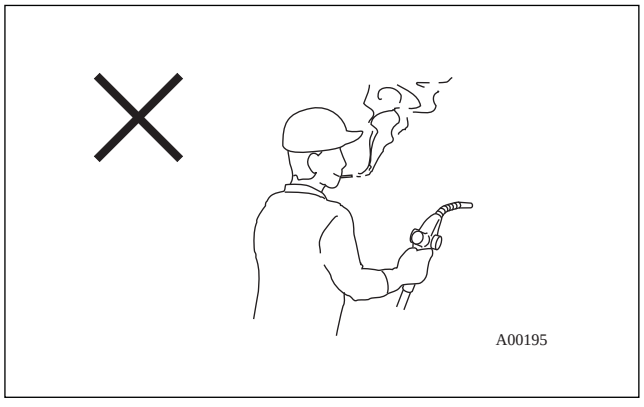
Leaving the machine unattended should be avoided. Once operation is complete, stow the machine.



⚠Cautions for Refilling the Fuel

Fuel and other oils are highly flammable and dangerous.
Handle combustibles very carefully.
While refueling, observe the following instructions:

- **Stop the engine.**
- **Refuel the machine outdoors in a well-ventilated place.**
- **Keep sources of flames or sparks away from the fuel.**
- **Wear a protective mask.**
- **Do not refuel in excess of fuel tank capacity.**



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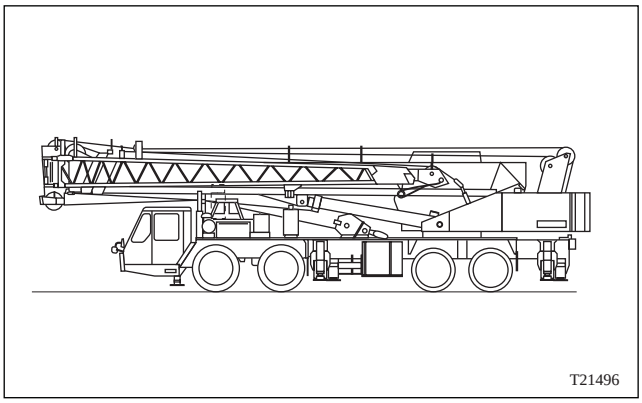
Rules for Road Travel

⚠Observe All Vehicles Code Requirements for Travel on Public Roads

Some national and local laws and rules exist regarding the travel of crane vehicles on public roads. Before traveling on roads, study the requirements for road travel for the crane, and strictly obey all the regulations.

⚠Driving Crane (Carrier) in Road Travel Configuration

A swaying hook block or boom, or extended outriggers pose extreme hazards during crane road travel. Before traveling, stow the hook block and boom in position, and lock the outrigger beams, etc., in position (if lock pins are available). Give a traveling configuration to the machine by referring to the manual.



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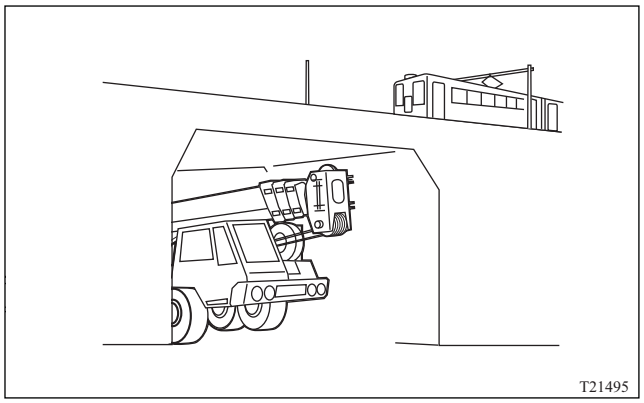
⚠Do Not Travel with Any Cargo on the Crane

Carrying cargo on a traveling crane can result in a spill or fall. Use a vehicle designed specifically for cargo transport.

⚠Be Aware of Overhead Obstacles

Pay attention to overhead clearance when passing under electric car wires, highway or railway bridges, and passing through a tunnel.

If the planned route necessitates travel below overhead railway lines or overhead bridges or through a tunnel, check the clearances in advance.



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Rules for Inspection and Maintenance

⚠Do Not Adjust or Disassemble the Hydraulic Equipment

The hydraulic equipment including the safety valve and pneumatic equipment have been strictly inspected and carefully adjusted before shipment from the factory.
Disassembly or improper adjustment of the hydraulic or pneumatic equipment can cause failures in safety and functional features.
For disassembly or adjustment, contact an authorized BQ-TADANO distributor or dealer.

⚠Do Not Modify the Machine

Unauthorized modification may affect the performance, safety and strength of the crane and can lead to damage or overturning.
Never modify any part or aspect of the machine.

⚠When an Irregularity is Detected

An irregularity which remains unremedied can cause a more serious failure or accident.
If an irregularity is found during inspection work, immediately determine the cause, then adjust and maintain the component in question to prevent a failure or accident.

⚠Inspect and Maintain at Regular Intervals

Sloppy inspection or maintenance work makes it impossible to detect faults at an early stage.
Perform inspection and maintenance at specified intervals to ensure fault prevention and early detection of potential problems.

⚠Become Familiar with Procedures for Inspection and Maintenance

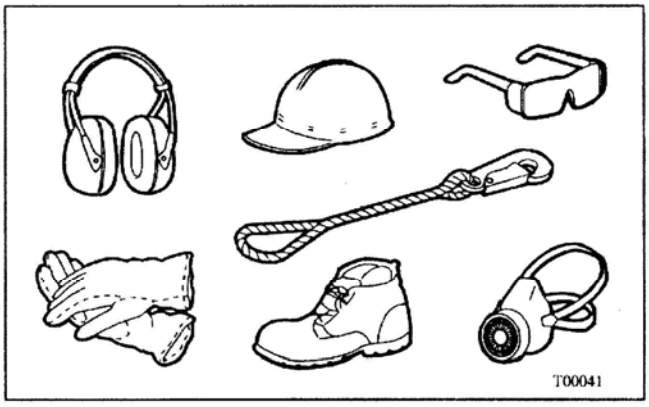
Improper inspection and maintenance procedures can lead to damage of the machine, and may cause injury or even death.
Read the "Inspection and Maintenance" section in the manual and become thoroughly familiar with all instructions given. Do not perform any inspection or maintenance work until the instructions are understood.
When inspection or maintenance work is more complicated, consult an authorized BQ-TADANO distributor or dealer.

⚠Wear Safe Clothing

Loose clothing may lead to sleeves or cuffs being caught by a projection or control lever on the machine.
Do not wear work clothing fouled with fuel or oil. It can readily catch fire.

⚠Wear Protective Gear

Performing inspection or maintenance work without wearing the proper protective gear can result in burns, cuts, falling accidents, or eye injuries.
Always wear a hard hat, and safety shoes, also safety goggles, dust mask, earplugs, protective gloves, safety belt, etc., as the situation requires.



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⚠Meet with Working Personnel

Working together with other persons on inspection or maintenance tasks without observing mutually agreed upon procedures can result in an accident. Meet with all involved personnel to agree on the detailed tasks. Also, assign a work leader, and always follow his or her instructions.

⚠Provide Effective Ventilation

Performing inspection or maintenance work in a confined space without effective ventilation can lead to toxic poisoning.

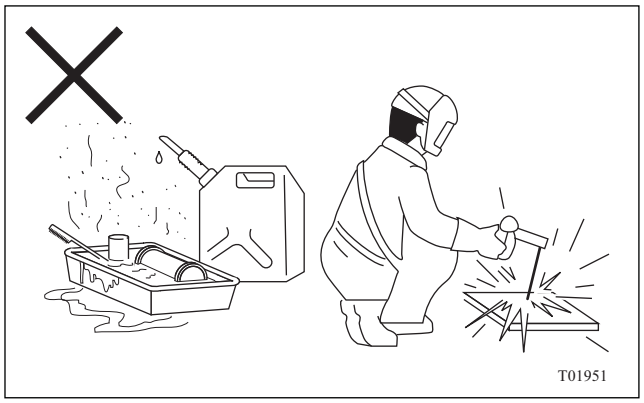
Be very careful when handling fuel, wash oil, and paint.

When starting the engine in an enclosed space, provide a means of positive ventilation. Connect a hose from the exhaust to vent the fumes outdoors. Open doors and windows to allow fresh air circulation. Install a ventilator as required.

⚠Fire Prevention

To prevent the risk of fire during inspection and maintenance work requiring handling of potentially flammable substances, observe the following instructions.

- **Use a non-flammable cleaning liquid to wash parts and components.**
- **Store fuel and oils away from fire.**
- **Do not allow sources of flames or sparks near any substance that is combustible.**
- **Do not smoke cigar or cigarette.**
- **Always carry a fire extinguisher in the operator's cab.**
- **When checking fuel, oils, and battery liquid, use an explosion-proof lamp.**
- **When grinding or welding, keep flammable substances away from flying sparks or molten metal.**



⚠About Illumination

Inspection or maintenance work in a poorly illuminated environment can lead to injury. Before starting the work, provide proper illumination.

Never use the exposed flame of a match or lighter for illumination, a fire accident may occur. The emitted gas from open lead storage batteries can explode.

Use explosion-preventive type illuminating devices when checking fuel and battery liquid level.

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⚠Clean the Machine before Inspection or Maintenance

Dirt and debris on the machine not only prevents easy detection of faulty components or parts but also can be trapped in components or parts. Also, dust or mud can enter your eyes or cause you to slip and be injured.
Before starting general inspection or maintenance activities, wash the machine to ensure a safe work area.

⚠Cautions for Washing the Machine

Wet footing can cause to slip and fall injuries.
Always wear non-slip shoes.
When washing the machine with high-pressure steam, the jet can penetrate skin or flying mud can cause eye damage. Always wear suitable protective gear during washing.
Do not direct water to electrical equipment, discharge and/or shortcircuits can result and lead to damage.

⚠Inspect and Maintain the Machine on Level Ground

It is difficult to inspect the machine properly if it is parked on a slope or grade. Also, the machine is liable to start moving if not parked properly.
Park the crane on firm flat ground, activate the parking brake, and chock the tires.

⚠Keep the Work Area Clean and Tidy

Performing inspection or maintenance work in a disorderly place can lead to personal injury or a falling accident.
Remove obstacles.

⚠Labeling for Inspection or Maintenance Work

If any unauthorized person starts the engine during inspection or maintenance work, the machine may be damaged or injury or even death may result.
When performing inspection or maintenance work, remove the starter key, and post a "DO NOT OPERATE" or "TAG OUT" sign on the door or control levers of the operator's cab as a warning.
Also, post relevant warning signs at entry to the work area to prevent access of unauthorized personnel.

⚠Start Inspection or Maintenance after the Machine Has Cooled Down

When the crane is operated, various machine components become very hot and can cause burns.
These components include the engine, muffler, engine cooling water, radiator, hydraulic oil, reducer, hydraulic equipment and hydraulic piping.
Allow these components and areas to cool down before starting inspection or maintenance work.

⚠Beware of High-Pressure Oils

High-pressure fuel or hydraulic oil that comes into contact with skin or eyes can cause serious injury.
To avoid this danger:

- **Release internal pressure, and only then, disconnect any piping.**
- **To check for leakage, wear protective goggles and gloves and use a piece of cardboard or wood as a monitor. Leaking high-pressure oil may be invisible.**
  Keep bare hands away from all leaking components.
- **Immediately obtain medical attention when high-pressure oil accidentally cuts into skin or affects the eyes.**

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⚠Inspect or Maintain Equipment with the Engine Shut Down

Performing inspection or maintenance work while the engine is running is very dangerous, and should be avoided. Unless otherwise necessary, be sure to shut down the engine before starting inspection or maintenance procedures.

⚠Use Two Persons for Inspection or Maintenance with the Engine Running

If for some reason it is necessary to perform an inspection or maintenance procedure with the engine running, post at least two persons—one in the operator's cab to shut down the engine immediately when necessary, and the other(s) to perform maintenance. During the maintenance, ensure safety of all persons involved in the work.

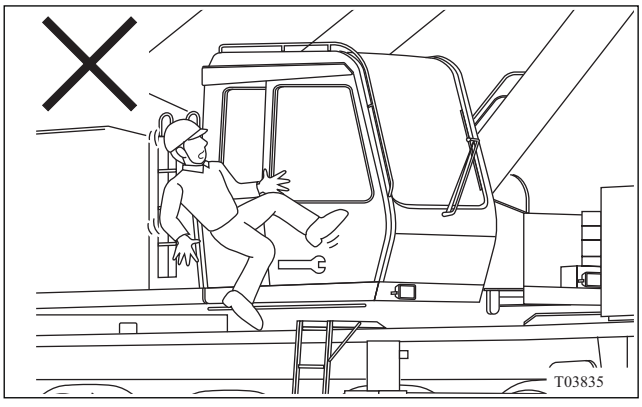
⚠Use Proper Tools

Performing inspection or maintenance work without the proper tools not only decreases work efficiency but also can lead to damage to parts or even injury. Do not use improper or damaged tools.

⚠Beware of Overhead Obstacles and Footing

Lack of awareness or loose footing can cause head impact with the hook block, boom, or jib or slip and falls off the machine.

Always be careful about overhead obstacles and footing. Walk on the non-slip strips if provided on the machine.



⚠Cautions for Working at Heights

Working at heights involves the possibility of falling. To reduce this risk, remove all obstacles, and any spilled grease and oil. Keep all footing areas clean and tidy.

To climb onto and descend from a position of high elevation, face the machine directly. Use the handrails and steps, always be supported by at least three points of your hands and feet.

Be careful not to slip. When non-slip strips are provided on the machine, walk on them.

Use safety equipment such as safety belts ties, lanyards and platforms as the situation requires.

⚠Cautions for Working Under the Machine

When working under the crane with the jack cylinders extended, place supports and wood blocks beneath the outriggers to support the machine securely. Do not work under the crane unless the machine is securely and positively supported.

⚠Do Not Stick Any Part of Your Body Out from the Window on the Boom Side

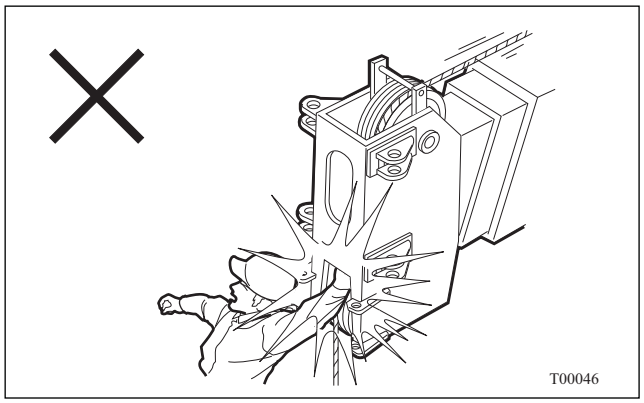
Sticking any part of your body out from the window on the boom side can result in being caught between the moving boom and the window frame. Serious injury or death can result from this dangerous practice.

If the window is equipped with a confining guard, do not remove it.

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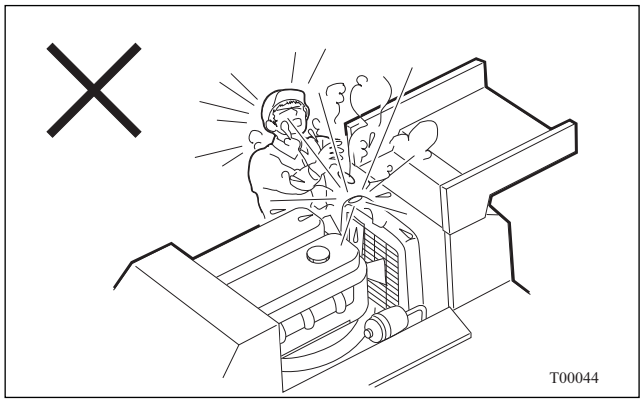
⚠Keep Away from Moving Parts

Inadvertent motion of the machine, or contacting a moving part can cause personal injury and even death.
When necessary to inspect or maintain the machine while running, do not approach moving parts such as the boom, elevating cylinder, winch, fan, fan belt, and propeller shaft, etc.
Keep hands and clothing away from moving parts.



⚠Beware of an Overheated Cooling System

Do not unfasten the radiator cap while the engine cooling water is hot. Hot steam and water can spurt out, causing burns.
First allow the radiator to cool down. Then, loosen the cap very slowly while facing away to release the internal pressure.



⚠Lock the Inspection Hole Covers

An inspection hole cover that remains open can be closed abruptly by a gust, etc., causing hands or a leg to be caught and injured.
If an inspection hole cover or access door, or the operator's cab door must remain open, secure in position.

⚠Do Not Allow Tools and Parts to Drop

When working through an inspection hole while facing down, be careful not to drop objects into the hole. Such mistakes can damage or lead to malfunction of the machine. Do not keep objects which are not needed for inspection in open pockets.
Recover any object or tool that has dropped into the machine.

⚠Beware of Oil Smears

Oil smears on the clutch, lining and brake disks can decrease braking effectiveness. Always keep these assemblies free from oil accumulation.

⚠Beware of Dust

Be careful not to inhale dust during inspection or maintenance work. To inspect or maintain brakes and linings, remove dust using a vacuum cleaner. Do not use compressed air because this action will scatter dust into the air.

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⚠About Starting the Engine with Booster Cables

Using improper booster cables to start the engine can cause the battery to explode or damage the machine.

When starting the engine using booster cables, wear protective goggles. This procedure requires two persons; one person must be seated in the operator's cab. The procedure consists of:

(1) Use an assist vehicle with a battery rated for 24 V. Do not use a 12 V or 48 V supply.

(2) Set the starter key to "OFF" position both for the dead vehicle and assist vehicle.

(3) Connect the booster cables in the following order:

[1] "+" terminal of the battery on the dead vehicle.

[2] "+" terminal of the battery on the assist vehicle.

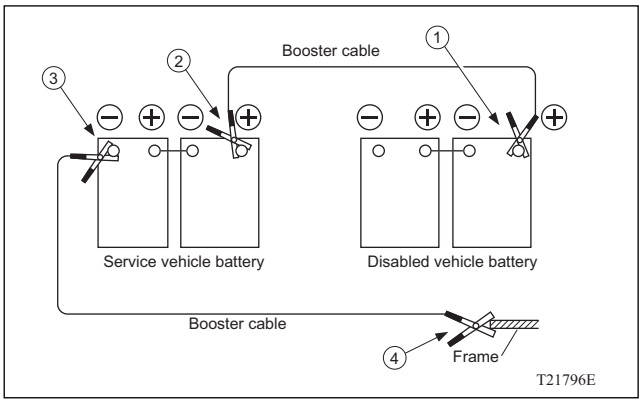
[3] "-" terminal of the battery on the assist vehicle.

[4] A portion of the frame or engine block of the dead vehicle, apart from its battery.

(4) Start the engine of the assist vehicle.

(5) Start the engine of the dead vehicle.

(6) Once the engine of the dead vehicle has successfully started, disconnect the booster cables in the order of [4], [3], [2] and [1].



⚠Disconnect the Battery Cable before Inspecting or Maintaining the Electrical System

Inspecting or maintaining the electrical system without disconnecting the battery cable can cause the wiring to be shortcircuited, possibly damaging the electrical and electronic systems.

Before inspecting or maintaining the electrical system, disconnect the battery cable from the minus terminal (ground side) of the battery.

⚠Be Cautious about Battery Fluid

The battery fluid contains dilute sulfuric acid. Battery fluid entering the eyes could cause blindness, and battery fluid on skin can cause burns. When handling the battery, wear protective goggles, protective gloves, and long-sleeved clothing.

If battery fluid touches your eyes or skin, wash with a large amount of fresh water and seek medical attention immediately.

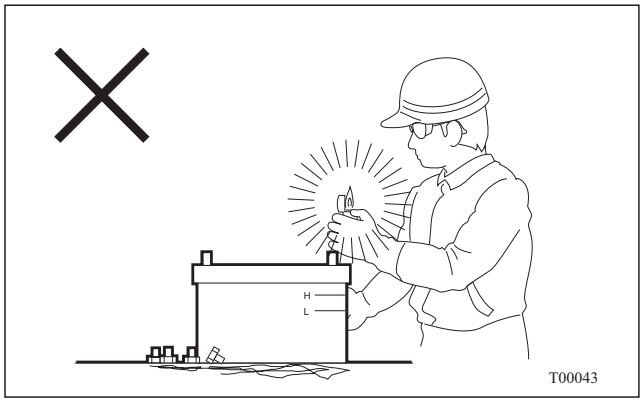
⚠Prevent Explosion of the Battery

The battery releases hydrogen gas. Do not light a match or lighter near the battery.

To check the battery fluid level, use a flash light.

If battery fluid is frozen in extreme freezing weather, do not charge the battery or start the engine with an alternative power supply.

Warm up the battery to 15°C so to avoid trouble.



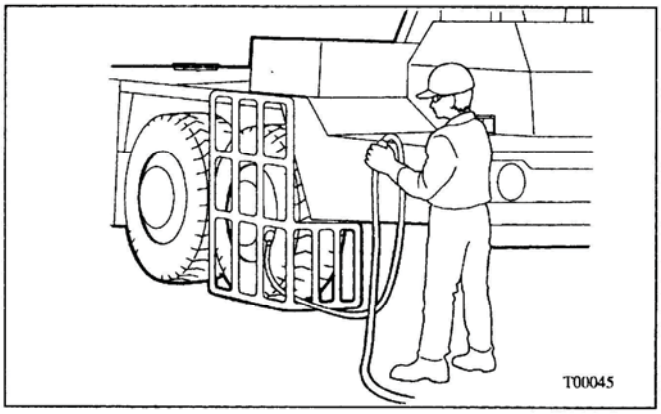
⚠Careful Handling of Wire Ropes

Careless handling of wire ropes can shorten their service life, or cause them to break. Handle wire ropes properly by observing all instructions in the manual.

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⚠Cautions for Adjusting Tire Pressure

When adjusting tire pressures, never stand facing the side of the tire. The tire may burst or wheel parts can fly off and cause injury or even death.
Place a tire cage over the wheel and stand behind the tire treads.



⚠Assign Replacement or Maintenance Work of Tires to Trained Personnels

Replacing or maintaining tires requires special facilities and skill. Inadequate procedures and tools can cause accidents.
For further information about replacement or maintenance of tires, contact an authorized BQ-TADANO distributor or dealer or other specialist.

⚠Use Genuine Parts Only

Use of non-factory approved parts can lead to failures in safety and functional systems.
To replace parts such as filters, etc., observe the parts list and use only the specified factory approved genuine items.

⚠Use Specified Oils

When replenishing or replacing oils, use recommended brands or grades of oils and greases.
Mixing different brands may change properties of the oil or grease owing to possible chemical reactions, and be detrimental to machine components.
When using oil or grease of a brand different from that in the machine, remove all existing oil or grease, and then refill with the new replacement oil or grease.

⚠Verification after Maintenance

Verification of proper component or mechanism function after maintenance work is essential.
Be sure to check that the maintained areas are working correctly, that there is no oil leakage, and all bolts have been securely tightened.
Remember that all "maintenance work" should include positive verification of correct machine operation.

⚠About Waste Disposal

Waste oils, used filters, and other such petrochemical-related products, if disposed of thoughtlessly, will cause environmental contamination.
Obtain a proper-sized vessel before releasing waste oils from the machine. Never discharge waste oils on the ground or into rivers, lakes or marshes.
Follow all governing environmental rules and regulations when disposing of oils, fuels, cooling water, brake fluid, solvents, filters, batteries or any other damaging substances.

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Warning Labels

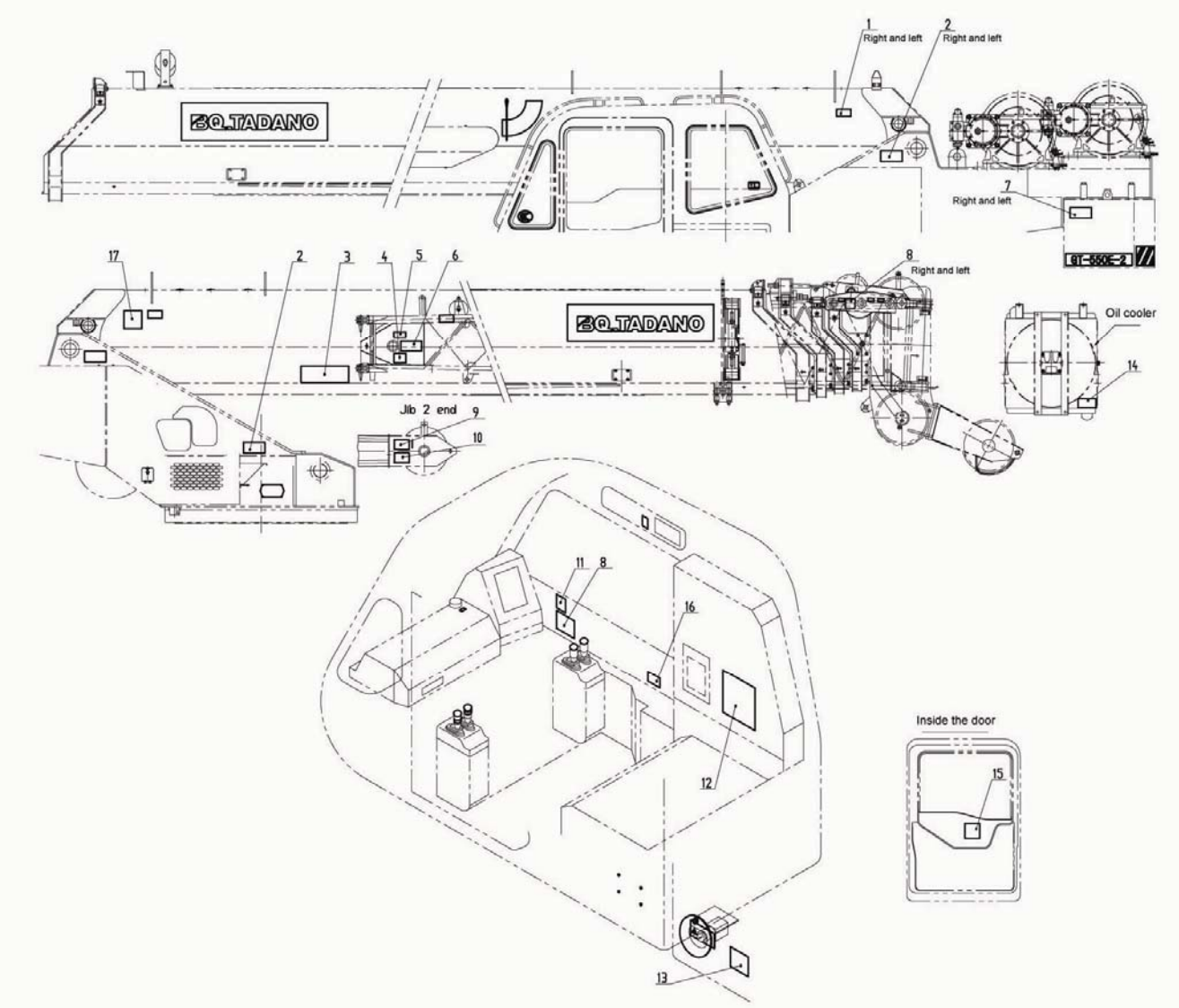
There are several warning labels affixed to your machine. These labels give important warnings and precautions which must be observed to ensure safety. This section reviews these warnings and precautions, and shows the location of the labels. All the information on the labels is vital for preventing accidents; familiarize yourself thoroughly with it.

Make sure that the labels are not soiled. Clean them if words are illegible or pictures are unclear.

Replace a damaged or missing label. New labels are available from your nearest authorized BQ-TADANO distributor or dealer.

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Warning Labels-Location and Contents



1. PROHIBITION OF CLIMBING ON BOOM JIB AND OUTRIGGERS
2. CAUTION TO BOOM IN MOTION
3. JIB PIN STATUS
4. WARNING IN JIB OFFSET
5. WARNING ON STOWING THE SINGLE TOP
6. JIB HANDLING INSTRUCTIONS
7. CAUTION TO BOOM SWING
8. CAUTION IN JIB OFFSET
9. WARNING ON TOP JIB
10. CAUTION IN HANDLING JIB
11. CAUTION TO OVERRIDE FUNCTION
12. CAUTION TO LIVE LINES
13. CAUTION IN HANDLING OVERRIDE KEY SWITCH
14. CAUTION TO OIL COOLER FAN
15. CAUTION IN HANDLING CONTROL CONSOLE
16. CAUTION IN HANDLING SWING ROCK PIN
17. STOWING AUXILIARY WINCH ROPE

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1. PROHIBITION OF CLIMBING ON BOOM,

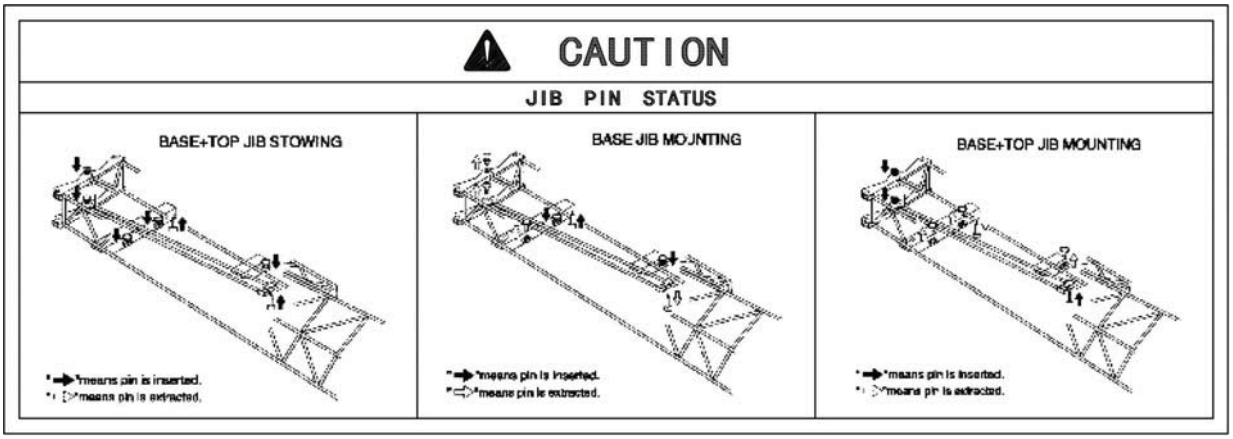
   JIB AND OUTRIGGERS



2. CAUTION TO BOOM IN MOTION

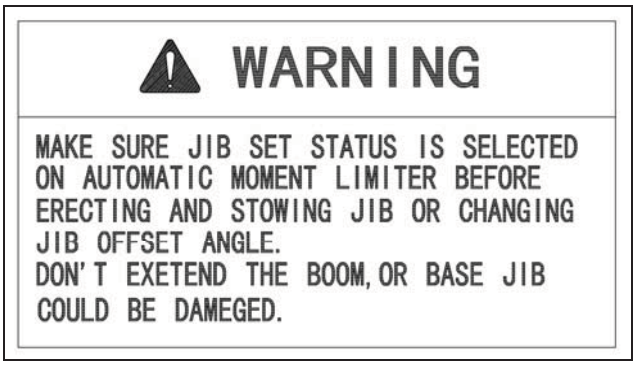


3. JIB PIN STATUS

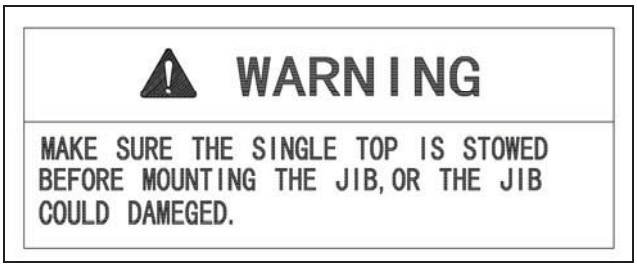


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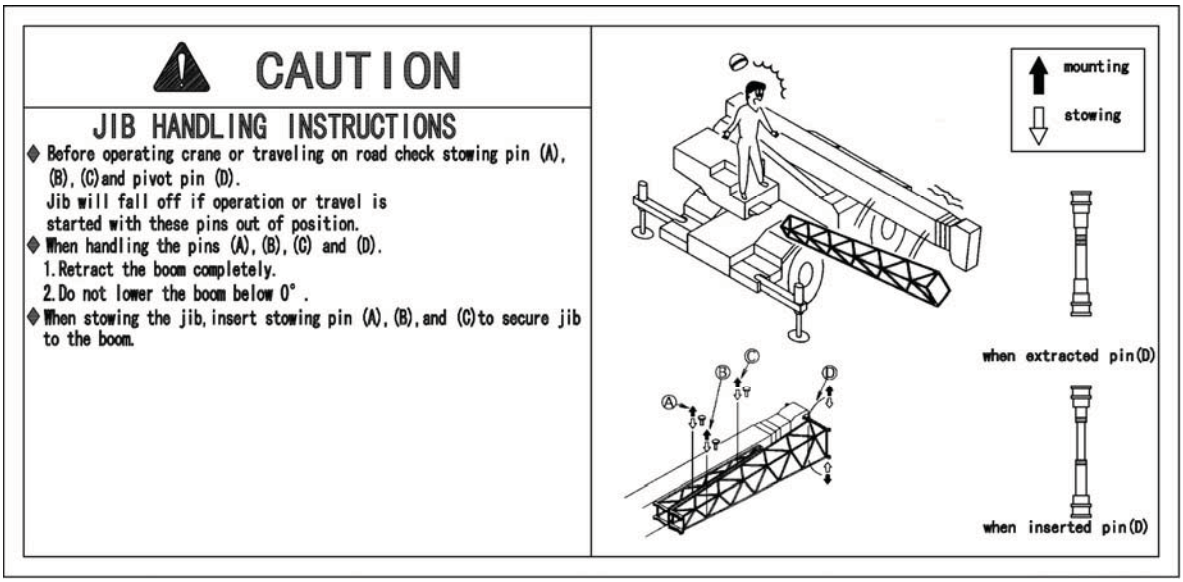
4. WARNING IN JIB OFFSET



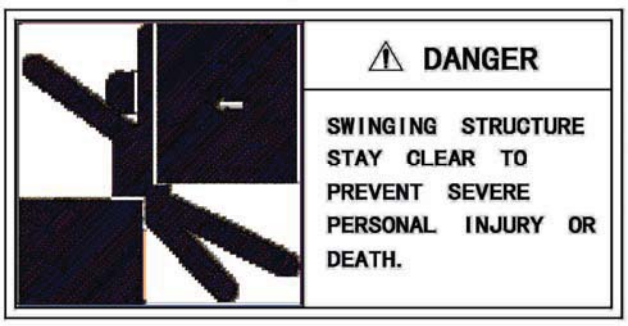
5. WARNING ON STOWING THE SINGLE TOP



6. JIB HANDLING INSTRUCTIONS



7. CAUTION TO BOOM SWING



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8. CAUTION IN JIB OFFSET

⚠ CAUTION

For jib offset(tilt)25° ,45° operation,be sure to store single top.
Never fail to install offset(tilt)lock pin at 5° ,25° ,or 45° position to prevent the jib form falling and causing injury or equipment damage.

9. WARNING ON TOP JIB

⚠ WARNING

HAZARDOUS CONDITION CAN CAUSE SEVERE INJURY
USE A TAGLINE TO PREVENT RAPID SWING OF TOP JIB FORM BASE JIB WHEN TOP JIB IS RELEASED AT CONNECTING PIN.
KEEP ALL PERSONNEL AWAY FORM TOP JIB SWING PATH.

10. CAUTION IN HANDLING JIB

⚠ DANGER

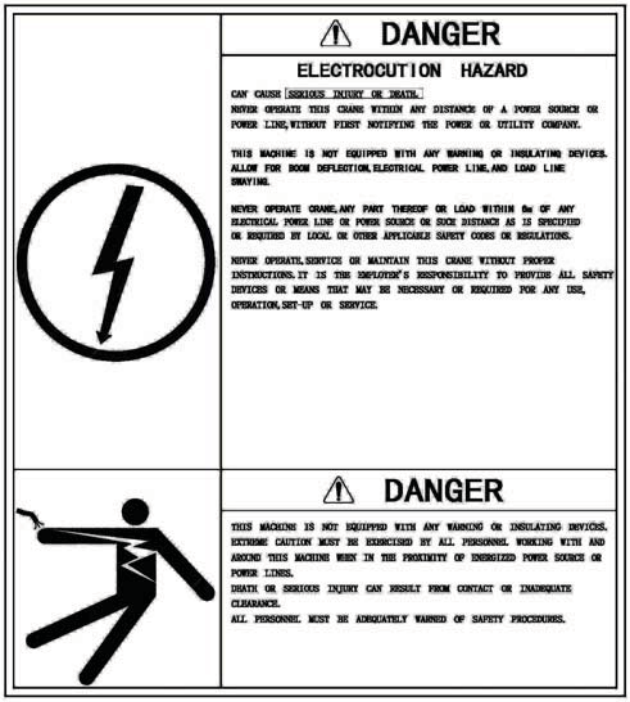
WHEN MOUNTING OR STOWING THE JIB, YOU SHOULD KNOW AND FOLLOW THE BQTADANO INSTRUCTION MANUAL. FAILURE TO FOLLOW THE BQTADANO INSTRUCTION MANUAL MAY RESULT IN PROPERTY DAMAGE AND OR PERSONAL INJURY OR DEATH.

11. CAUTION TO OVERRIDE FUNCTION

WARNING

WHEN THE OVERRIDE KEY SWITCH LOCATED OUTSIDE THE CRANE CAB IS ACTIVATED, AND THE AML OVERRIDE KEY SWITCH LOCATED IN THE RIGHT SIDE OF THE AML IS IN OVERRIDE, THE SYMBOL AML LIGHTS UP.
ALL SAFETY STOP FUNCTION WILL BE DISABLED WITH THIS LIGHT ON.
CONTINOUS SAFE OPERATION IS CONTRLED ONLY BY THE OPERATOR

12. CAUTION TO LIVE LINES

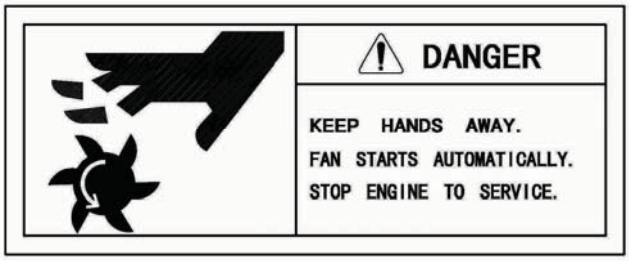


13. CAUTION IN HANDLING OVERRIDE KEY SWITCH

WARNING

THIS KEY SWITCH BYPASSES CONTROL LEVER LOCKOUT FUNCTION OF AUTOMATIC MOMENT LIMITER (AML-L). THE SWITCH MAY BE ONLY USED BY AUTHORIZED PERSONNEL DURING EMERGENCY SITUATIONS. FAILURE TO FOLLOW THIS INSTRUCTION MAY RESULT IN PROPERTY DAMAGE AND OR PRESONAL INJURY.

14. CAUTION TO OIL COOLER FAN



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15. CAUTION IN HANDLING CONTROL CONSOLE

WARNING

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 CONSOL.

TAKE CARE TO CLOSE THE DOOR WHEN THE CONTROL CONSOLE IS UPRIGHT.

16. CAUTION IN HANDLING SWING ROCK PIN

⚠ CAUTION

USE THE SWING LOCK DURING CRANE OPERATION.

THE SWING LOCK IS ENABLED ONLY WHEN THE BOOM FACES THE FRONT OR REAR.

17. STOWING AUXILIARY WINCH ROPE



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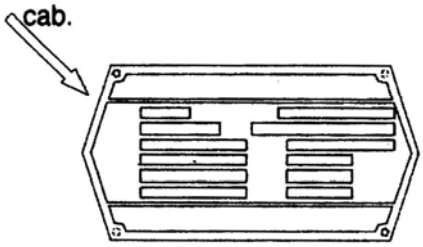
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Preface

This manual is intended as a guide to help you operate and maintain your **BQ-TADANO** crane safely and correctly. This manual covers cranes of the following specification number.

Specification number (The specification number of your crane is given on the nameplate as shown below.)	GT-550E-2-B0101

Nameplate: Located on the side of the crane operator's cab.



Please see the separate manuals for operation and maintenance of the crane carrier and crane operator's cab heater.

The "OPERATION" section of this manual describes the basic procedures for operating the crane. Read it carefully and familiarize yourself with the correct procedures for operating the crane. Your operating skill will improve as your knowledge of the crane and its capabilities deepens.

The "MAINTENANCE" section covers the procedures for inspecting and servicing the crane. Proper inspection and servicing is essential for minimizing problems and obtaining optimum performance. Follow the instructions in this section to perform inspection and servicing properly.

Note that the illustrations in the manual may differ slightly from your machine. Also, some illustrations show the machine's components with their covers and guards removed to facilitate explanation.

If you transfer this machine, also hand this manual together with the machine for the convenience of the next use of this machine.

Please note that, for product improvement, some changes may have been incorporated in your machine that are not covered in this manual.

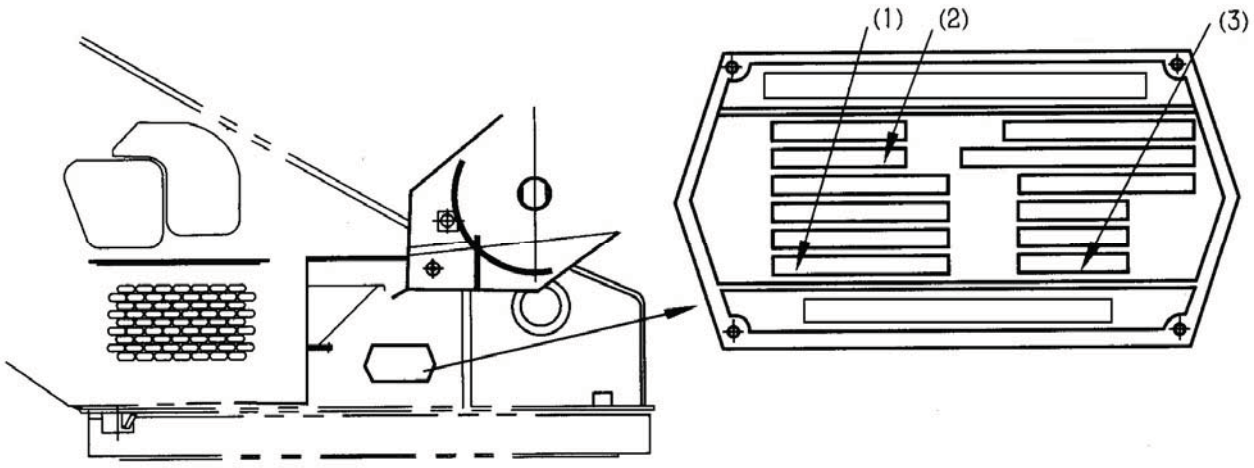
If you have any questions regarding your crane or this manual, contact your nearest **BQ-TADANO** distributor or dealer.

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Servicing and Ordering Parts

When contacting the TADANO distributor or dealer for repairs or to order parts, please specify the following information:

(1) Specification number
(2) Production serial number
(3) Year of production

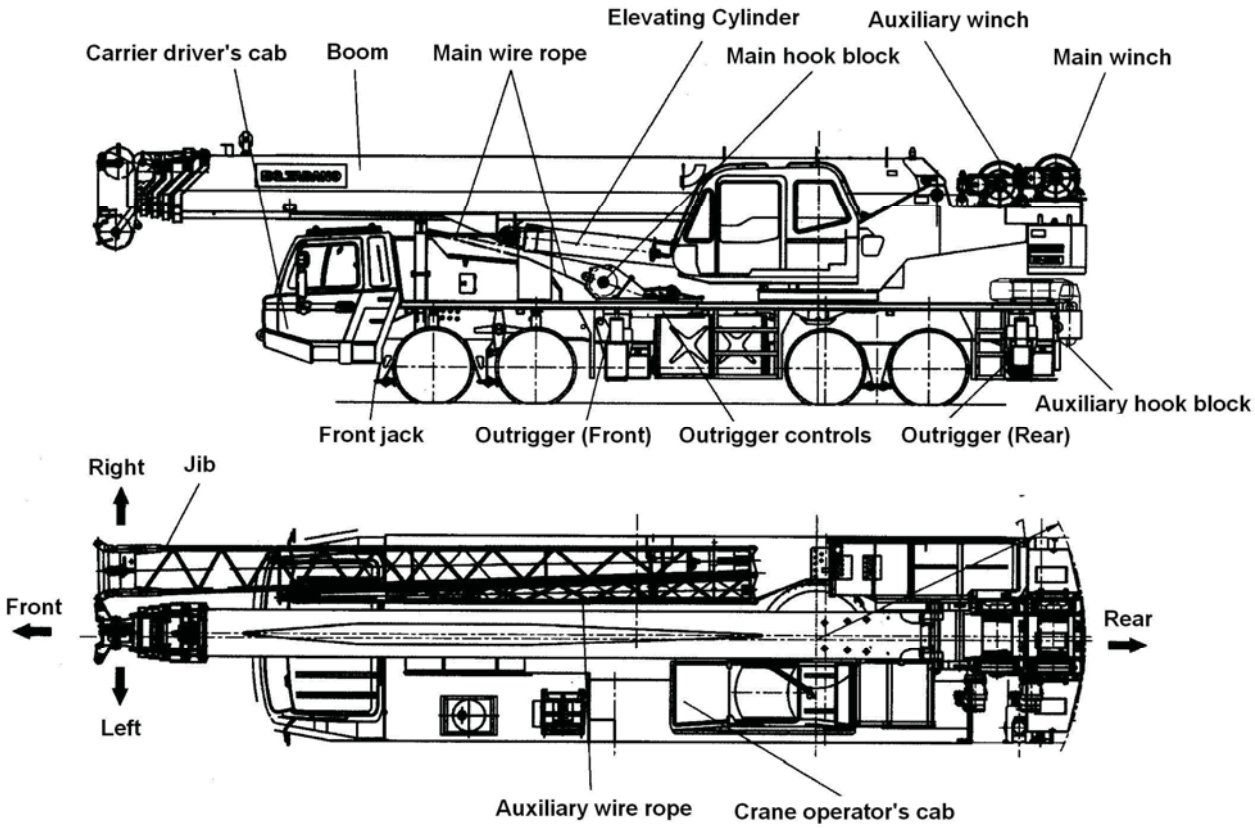


(4) Details of the problem, or the listing, number and quantity of desired parts

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Components

The directional terms (front, rear, right and left) used in this manual are defined with reference to the driver's position when seated in the carrier driver's cab. Their definitions remain the same even when the crane's upper structure is turned.

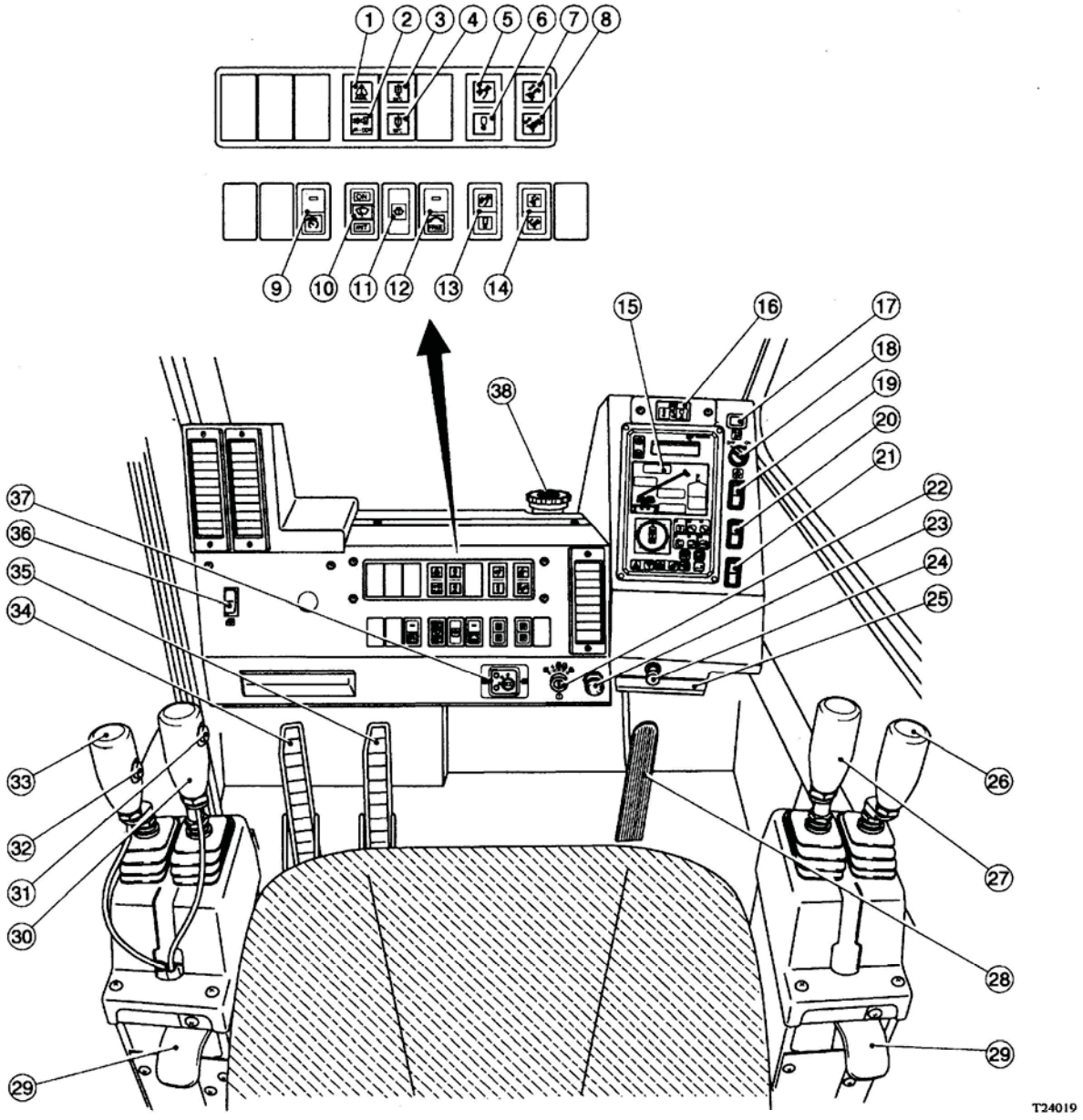


◆ The illustrations may slightly differ from the actual machine, due to designing alteration.

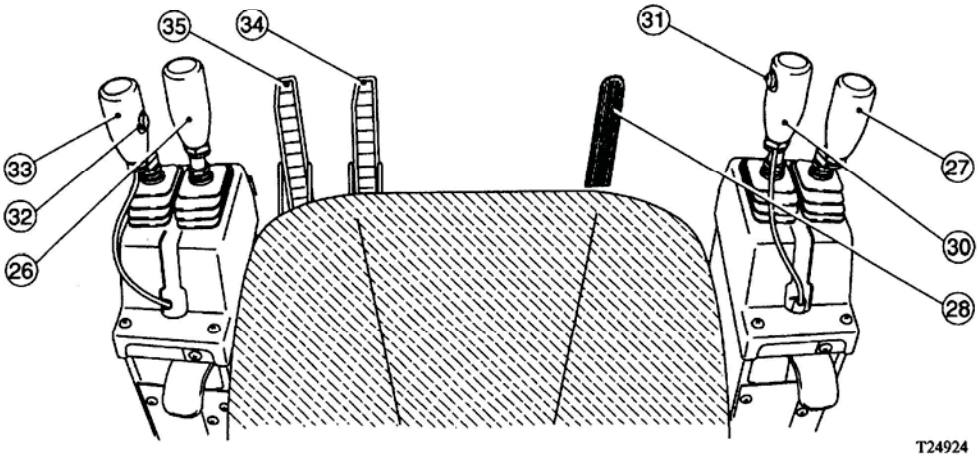
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Layout of Controls

Inside the Cab (ISO layout)



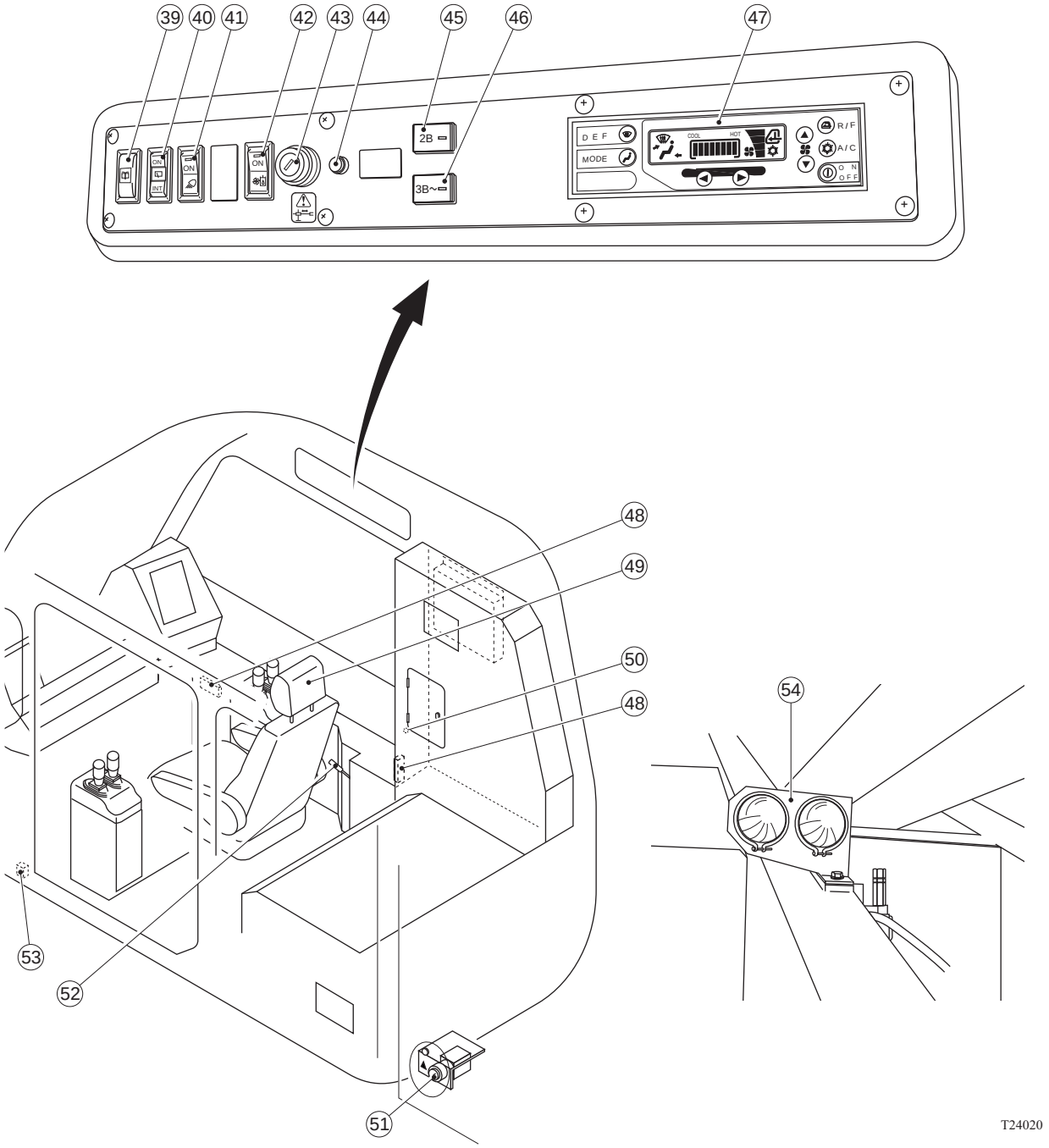
(BQ-TADANO layout)



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1. AML cancellation warning lamp ····· 29
2. Jib lock indicator lamp ····· 100
3. Hydraulic oil pressure 50°C indicator lamp ····· 126
4. Hydraulic oil pressure 85°C warning lamp ····· 126
5. Boom telescoping operation indicator lamp ····· 75
6. Auxiliary hoist operation indicator lamp ····· 72
7. Boom telescoping mode II indicator lamp ····· 75
8. Boom telescoping mode I indicator lamp ····· 75
9. Low noise mode switch ····· 126
10. Front wiper switch ····· 126 → 136
11. Front washer switch ····· 126
12. Swing free/lock selector switch ····· 84
13. Boom telescoping /auxiliary hoist control selector switch ····· 72, 75
14. Boom telescoping mode I/II switch ····· 75
15. AML (overload prevention device) ····· 29
16. Winch drum rotation indicator (option) ····· 72
17. Overwind cutout release switch ····· 52, 72
18. AML override switch ····· 29
19. Swing brake switch ····· 84
20. Swing stop override switch ····· 84
21. Slow elevation stop switch ····· 81
22. Starter switch ····· 54
23. Accelerator lock knob ····· 70
24. Cigarette lighter ····· 126
25. Ashtray ····· 126
26. Boom elevating control lever ····· 81
27. Main hoist control lever ····· 72
28. Accelerator pedal ····· 70
29. Lever stand unlock lever ····· 66
30. Boom telescoping /auxiliary hoist control lever ····· 72, 75
31. Head/end boom extension switch ····· 75
32. Horn switch ····· 84
33. Swing control lever ····· 84
34. Boom telescoping control pedal ····· 75
35. Boom elevating control pedal ····· 81
36. Power window switch ····· 66
37. Heater control panel (option) ····· 125
38. Oil reservoir ····· 70

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39. Roof washer switch ····· 126
40. Roof wiper switch ····· 126
41. Flood lamp switch ····· 126
42. Oil cooler switch ····· 126
43. Emergency outrigger control switch ····· 29
44. Emergency outrigger control indicator lamp ····· 29
45. 2nd boom emergency telescoping switch ····· 75
46. 3rd/4th/top boom emergency telescoping switch ····· 75
47. Air conditioner control panel (option) ····· 119
48. Cab lamp ····· 126
49. Seat ····· 66
50. Fan switch (option) ····· 126
51. Override key switch ····· 29
52. Swing lock lever ····· 11, 84
53. Power window close switch ····· 66
54. External warning lamps ····· 52

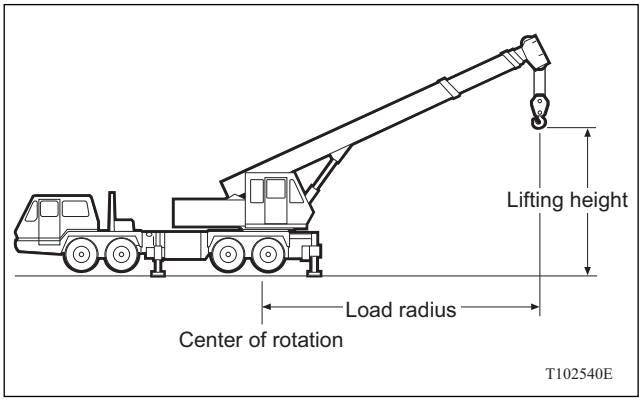
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Terminology

This section provides the meaning of some important terms used in this manual.

Load Radius, Lifting Height

"Load radius" refers to the horizontal distance between the crane's center of rotation and the vertical center of the lifted load.
A "lifting height" is defined for each load radius and refers to the vertical distance between the ground and the bottom of the hook block raised to its uppermost position.

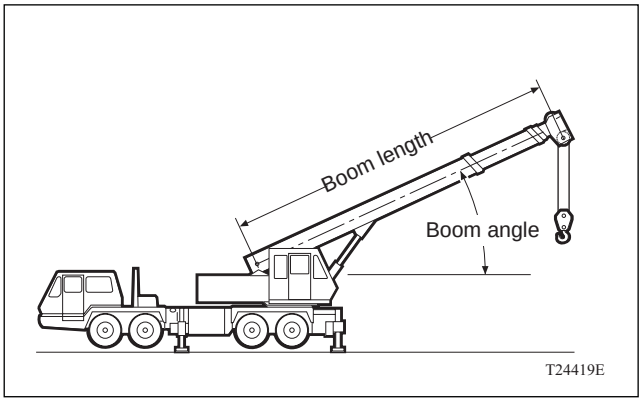


Maximum Lifting Height

"Maximum lifting height" refers to the maximum lifting height allowed.

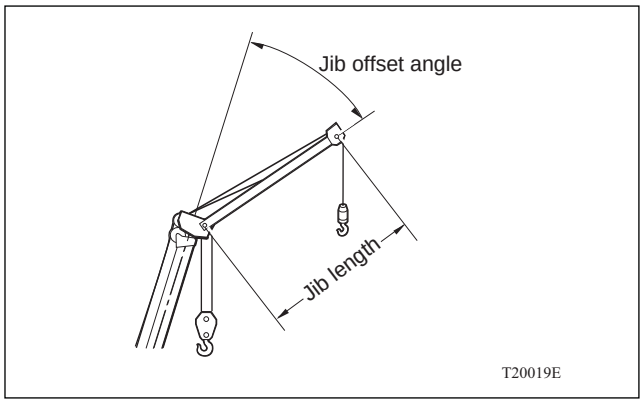
Boom Length, Boom Angle

"Boom length" refers to the distance from the pivot pin at the foot of the boom to the center axis of the sheave (s) at the boom head.
"Boom angle" refers to the angle formed by the boom's centerline and the horizontal.



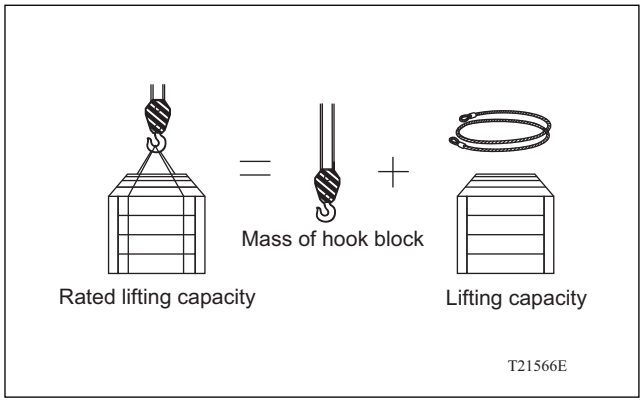
Jib Length, Jib Offset Angle

"Jib length" refers to the center-to-center distance as illustrated in the figure below.
"Jib offset angle" refers to the angle formed by the centerline of an extended jib and the centerline of the boom.



Rated Lifting Capacity

"Rated Lifting capacity" refers to the maximum allowable load for a particular boom length and load radius. The mass of load handling devices such as hook blocks and slings, shall be considered part of the load and must be deducted from rated lifting capacities.
The mass of individual hook blocks are indicated in the "INFORMATION AND DATA" section at the end of this manual.



Without Load

"Without load" is used to indicate that no load is being lifted on the hook block.

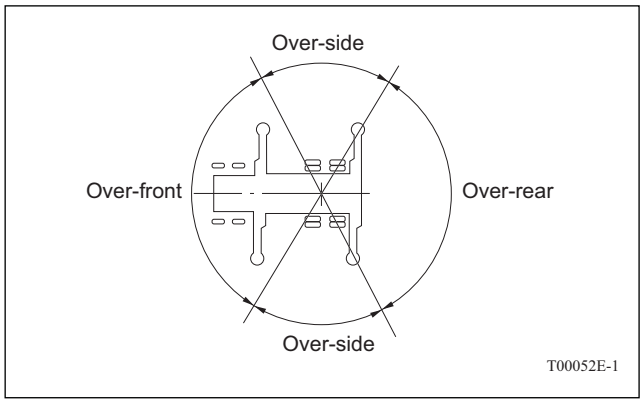
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Stability Section, Strength Section

"Stability section" refers to the section of the rated lifting capacities table in which the major factor for determining lifting capacity is the stability of the crane.
"Strength section" refers to the section of the rated lifting capacity table in which the major factor for determining lifting capacity is the structural strength of the crane.
In the rated lifting capacities table, the capacities given above the blue line are those determined based on structural strength, and the capacities given below are determined based on stability.

Over-front, Over-rear, Over-side

"Over-front" refers to the forward working area of the carrier for which lifting capacities have been rated and listed in the rated lifting capacities table.
"Over-rear" corresponds to the rear working area for which lifting capacities have been rated and listed in the rated lifting capacities table.
"Over-side" refers to the working areas not included in "over-front" and "over-rear".



Over-front, Over-rear and Over-side Capacities

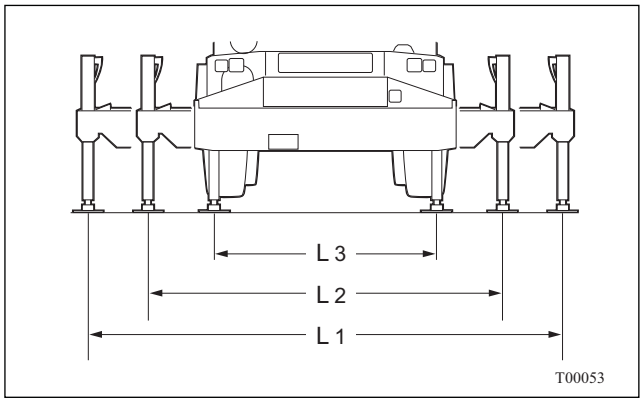
"Over-front capacity", "over-rear capacity" and "over-side capacity" refer to the rated lifting capacity that can be lifted in the over-front, over-rear and over-side areas, respectively.

360-degree Capacity

"360-degree capacity" means that the lifting capacities are the same regardless of the area in which the load is lifted.

Outrigger Extension Widths

"Outrigger extension width" refers to the horizontal distance between the centers of the right and left outrigger floats when the outriggers are extended.
(1) Full extension width of outriggers (L1)
The distance between outriggers when they are fully extended.
(2) Middle extension width of outriggers (L2)
The distance between outriggers when they are extended halfway.
(3) Minimum extension width of outriggers (L3)
The distance between outriggers when they are not extended.



Capacities with Outriggers at Full Extension, Middle Extension and Minimum Extension

(1) Capacities with outriggers at full extension
Lifting capacities specified for a crane supported on fully extended outriggers.
(2) Capacities with outriggers at middle extension
Lifting capacities specified for a crane supported on outriggers extended halfway.
(3) Capacities with outriggers at minimum extension
Lifting capacities specified for a crane supported on outriggers not extended.

Raising Load Just Clear of Ground

This phrase is used to express the operation where the load is hoisted up a few centimeters above the ground and held at that position.

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OPERATION

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Carrier Traveling Procedure—Summary

⚠ WARNING

⚠This summary describes briefly the essential steps for traveling the crane. For detailed information on the individual procedures, refer to the appropriate pages in this section of the manual. Do not travel until you have a complete understanding of all the instructions and information given in this section.

⚠The precautions you must observed when traveling are described in the "Safety" section at the beginning of this manual. Carefully read the section before traveling the crane.

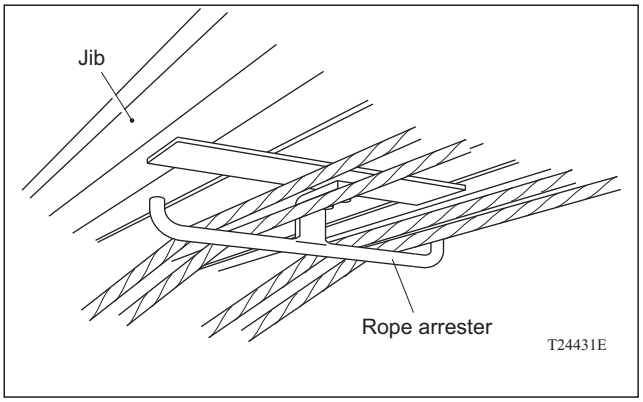
⚠If you find anything abnormal with the crane during traveling, stop the operation immediately, check and locate the cause, and repair any faulty components. To prevent accidents, do not travel until repairs have been completed.

Preparatory Steps

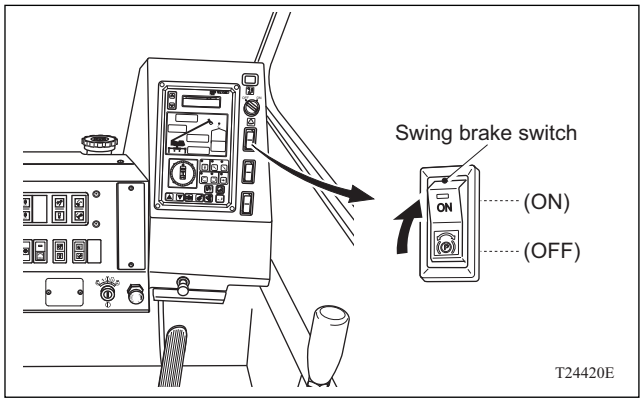
◆For detailed information on the individual procedures, refer to the sections shown in parentheses.

1. Set the crane as described in "At the End of Operation" of "Crane Operation Procedure-Summary" section.
("Crane Operation Procedure-Summary" ·····P. 13)

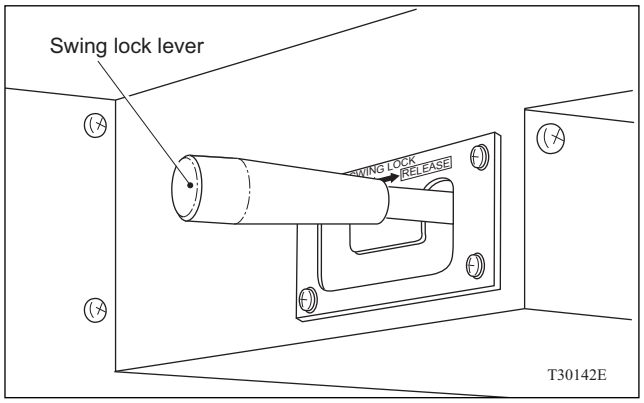
2. Make sure that the wire rope is reeved through the rope guide.
("Taking Out and Stowing the Main Hook Block" ·····P. 88)



3. Check that the swing brake switch is turned on.
("Swinging the Boom" ·····P. 84)



◆Activate swing lock lever only to travel for a small distance with the crane out of traveling configuration for unavoidable reasons.
Swing lock is not available while the boom is stowed on the boom rest.



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Outrigger Operations for Traveling a Small Distance

⚠ WARNING

⚠ If the crane is moved without proper traveling precautions, it may overturn.
For traveling without setting the crane in traveling configuration, make the following preparations for preventing overturning:

- **Make sure that the tire air pressure is kept at the specified value (850 kPa [8.5 kgf/cm²]). If the air pressure is not insufficient, inflate the tires.**
- **Retract the boom fully (to the length of 11.1 m), set the boom angle to 45°, retract the jib fully (to the length of 9.0 m), and set the jib offset angle to 5°.**
- **Orient the boom directly forward or backward and fix it with the swing lock pin before applying the swing brake.**
- **Observe the specified boom elevation angle. For detailed information, refer to the "Weight Distribution Chart" in the INFORMATION AND DATA section.**

⚠ To prevent overturning, do not travel with a load hoisted.
⚠ To prevent overturning, do not perform crane operation during traveling.
⚠ Do not travel on the soft ground. Otherwise the tires may fall in the ground and the crane may overturn.
⚠ For safety, avoid starting or stopping suddenly.

1. Set the crane as in the above described warning.
2. If the front jack is already extended, retract it.
3. Perform the jack stowing operation until the jack floats are raised slightly from the ground.
4. Travel slowly at the speed below 5 km/h paying attention to the surroundings.
5. After traveling, set the outriggers immediately.

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Crane Operation Procedure—Summary

⚠ WARNING

⚠This summary describes briefly the essential steps for crane operation from start to finish. For detailed information on the individual procedures, refer to the appropriate pages in this section of the manual. Do not operate the crane until you have a complete understanding of all the instructions and information given in this section.

⚠The precautions you must observe during crane operation are described in the "Safety" section at the beginning of this manual. Carefully read the section before operating the crane.

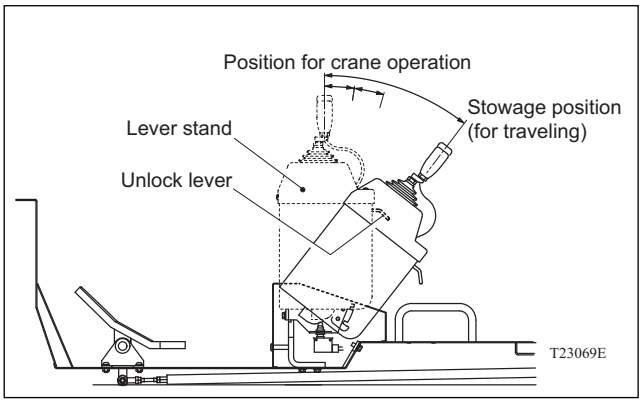
⚠If you find anything abnormal with the crane during operation, stop the operation immediately, check and locate the cause, and repair any faulty components. To prevent accidents, do not operate the crane until repairs have been completed.

Preparatory Steps

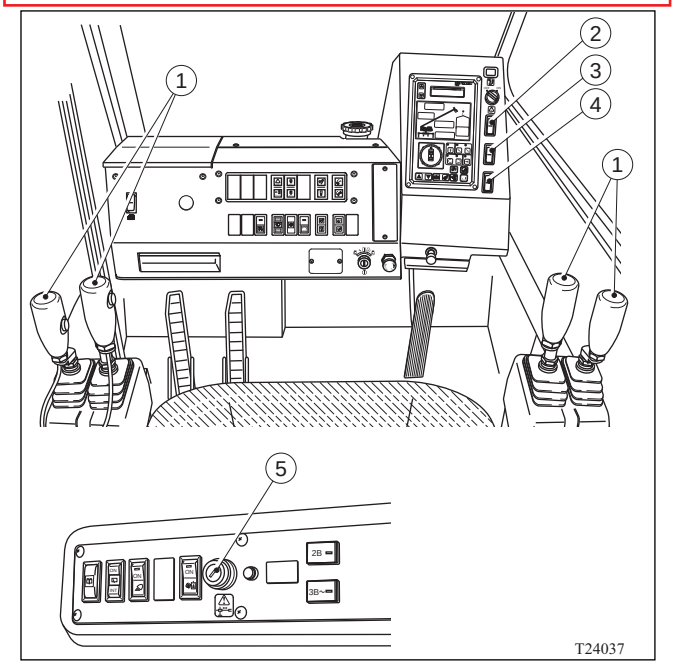
◆For detailed information on the individual procedures, refer to the sections shown in parentheses.

1. Perform pre-operational inspection.
(“Pre-operational and Periodic Inspection” ·····P. 132)

2. Enter the cab, and adjust the seat and each lever stand so that the levers and all other controls can be operated easily.
(“Crane Operator’s Cab” ·····P. 66)



3. Make sure that the controls in the crane operator’s cab are in the following positions:
(1) Main and auxiliary hoist levers, boom telescoping lever, boom elevating lever and swing lever ···Neutral
(2) Swing brake switch ·····“ON”
(3) Swing stop override switch ·····Activated
(4) Slow elevation stop switch ·····Activated
(5) Emergency outrigger control switch ·····“OFF”



4. Start the engine by using the starter switch in the carrier driver’s cab.
(“Starting and Stopping the Engine” ·····P. 54)

5. Engage the PTO.
(“Operating the PTO and Warming Up the Machine” ·····P. 57)

6. Let the machine warm up. While it is warming up, check that all meter and monitor displays are normal and that the machine is not making any abnormal sounds.
(“Operating the PTO and Warming Up the Machine” ·····P. 57)

7. Fully extend the outriggers and level the crane.
(“Outriggers” ·····P. 58)

8. Extend the front jack.
(“Outriggers” ·····P. 58)

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9. Enter the crane operator's cab, and adjust the seat and the length of each lever so that you can easily operate the levers and all other controls.
("Crane Operator's Cab" ·····P. 66)

10. In the crane operator's cab, turn the starter switch ON.

11. Select the operational status on the AML.
("AML <Overload Prevention Device>" ·····P. 24)

12. Take out the main hook block from its stowed position.
("Taking Out and Stowing the Main Hook Block" ···P. 88)

13. Perform the preoperational checks for after the engine has been started.
("Preoperational and Periodic Inspection" ·····P. 132)

14. Reeve the wire rope round the main hook block sheaves as required for the operation.
◆Register the number of part lines of rope on the AML if the actual number is smaller than the standard one.
("Reeving the Wire Rope"·····P. 90)

15. Mount the single top or jib as necessary.
("Single Top" ·····P. 95)
("Jib" ·····P. 100)

16. Select the operational status on the AML, when the single-top sheave system or the jib is installed.
("AML <Overload Prevention Device>" ·····P. 24)

During Operation

1. Follow the rated lifting capacity table to eliminate any possibility of overloading.
("How to Read Performance Data Plate" ·····P. 16)
("Acceleration" ·····P. 70)
("Hoisting" ·····P. 72)
("Telescoping the Boom" ·····P. 75)
("Elevating the Boom" ·····P. 81)
("Swinging the Boom" ·····P. 84)
("Single Top" ·····P. 95)
("Jib" ·····P. 100)
◆When the AML activates an alarm in response to overloading, take appropriate corrective measures.
("AML <Overload Prevention Device>" ·····P. 24)
◆When an error occurs in the AML system, take the corrective measure indicated by the failure message displayed on the AML.
("AML <Overload Prevention Device>" ·····P. 24)
◆When a safety device other than the AML is activated (such as the overwind cutout device), take the appropriate corrective measures.
("Other Safety Devices" ·····P. 52)
◆Use the air conditioner, and other equipment in the crane operator's cab, as necessary.
("Equipment Inside the Cab" ·····P. 125)
◆When the ambient temperature is high, use the oil cooler as necessary.
("Equipment Inside the Cab" ·····P. 125)

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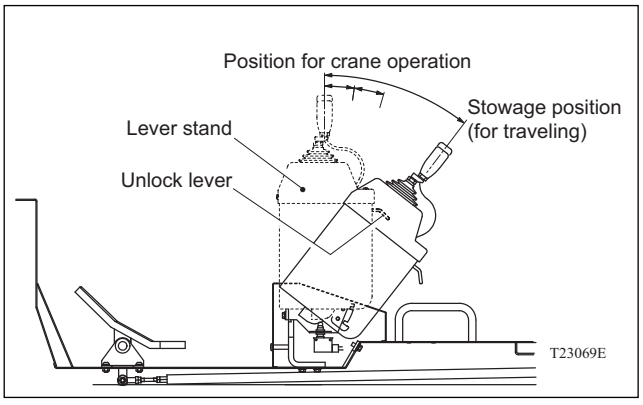
At the End of Operation

1. Stow the single top or jib.
(“Single Top” ·····P. 95)
(“Jib” ·····P. 100)

2. Stow the main hook block and stow the boom on the boom rest.
(“Taking Out and Stowing the Main Hook Block” ·····P. 88)

3. Make sure that the controls in the crane operator’s cab are in the following positions:
(1) Hoist, boom telescoping, boom elevating, and swing levers ·····Neutral
(2) Swing brake switch ·····“ON”

4. Return the lever stand to the stowage position.



5. Shut off the air conditioner, oil cooler and all other equipment.
(“Equipment Inside the Cab” ·····P. 125)

6. Close all the crane operator’s cab windows.

7. Remove the key from the starter switch in the crane operator’s cab.
(“Starting and Stopping the Engine”·····P.54)

8. Get out of the crane operator’s cab and lock the door.
(“Crane Operator’s Cab” ·····P.66)

9. Retract the front jack.
(“Outriggers” ·····P. 58)

10. Retract the outriggers completely.
(“Outriggers” ·····P. 58)

11. Disengage the PTO.
(“Operating the PTO and Warming Up the Machine” ·····P. 57)

12. Stop the engine by using the starter switch in the carrier driver’s cab.
(“Starting and Stopping the Engine” ·····P. 54)

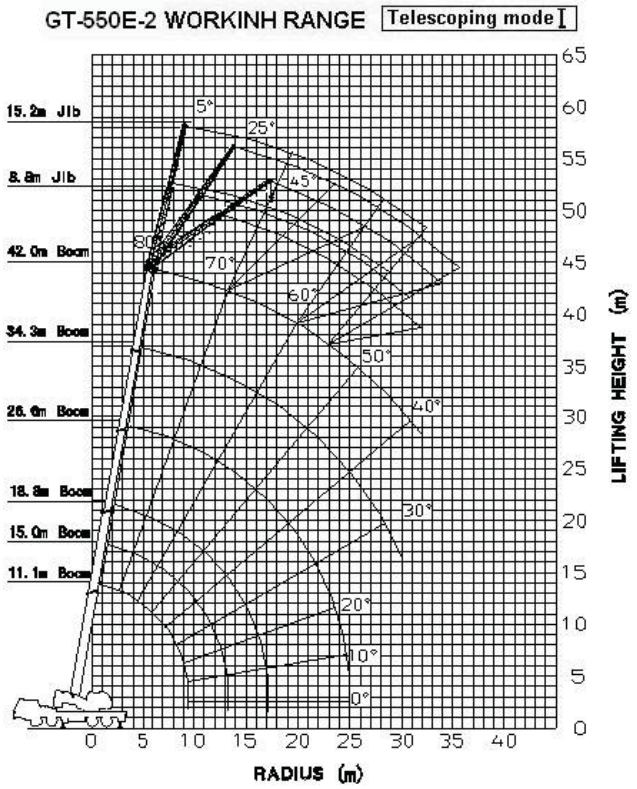
13. Perform the post-operational checks for the same points as for the pre-operational checks. If anything abnormal is found, have it repaired before operating the crane again.

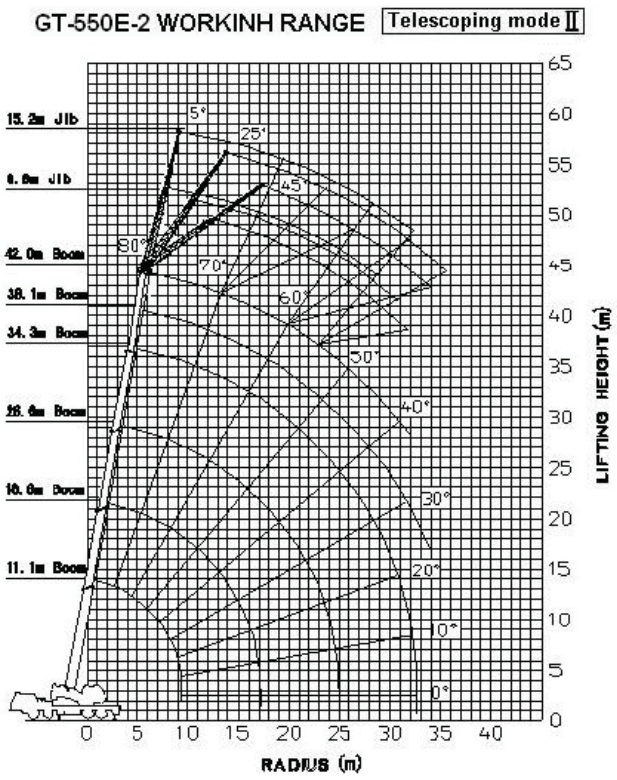
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How to Read Performance Data Plate

Working Radius/ Lifting Height Chart

◆ The following diagram is an example of the working radius/ lifting height chart. The chart for your crane is located inside the crane operator's cab.

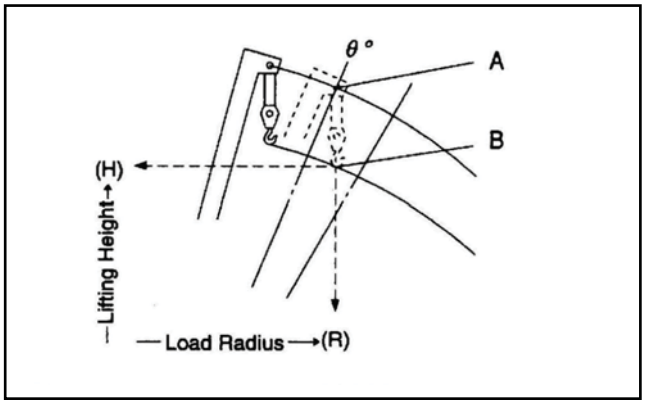


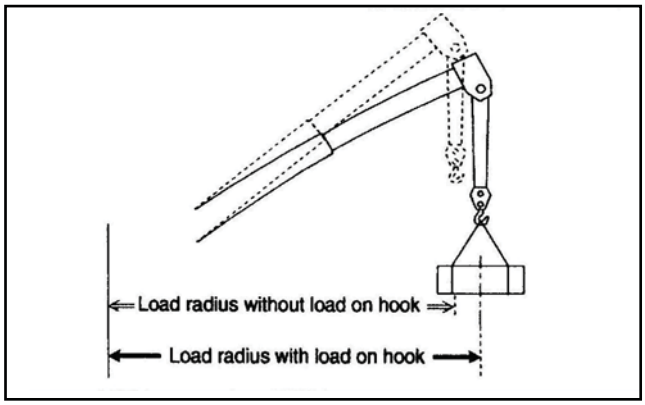


The working radius/ lifting height chart provides the load radii and lifting heights in relation to different boom lengths (jib lengths) and boom angles (jib offset angles). Use the chart in conjunction with the rated lifting capacity table when making an operation plan.

◆While points A and B in the figure are at the same load radius, point A denotes the boom angle (or jib offset angle), and point B the lifting height.

◆The working radius/ lifting height chart does not include the effect of boom deflection. The greater the mass o(the load is, the more the boom deflects, causing the load radius to increase somewhat. Take this effect into consideration when reading the working radius / lifting height chart.

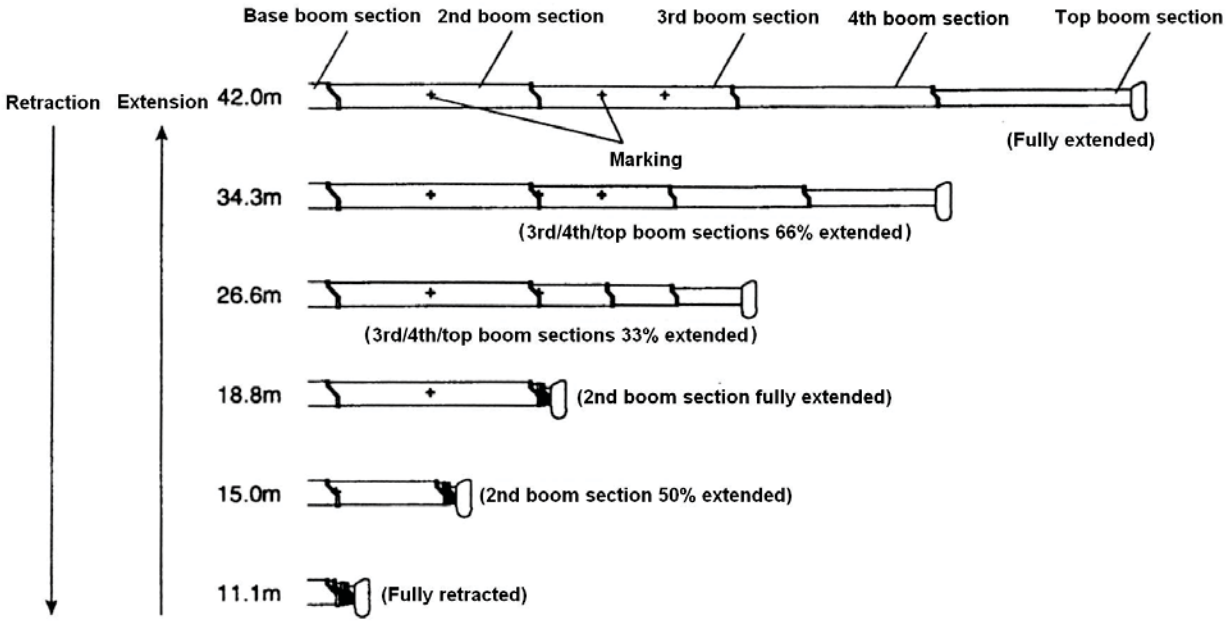




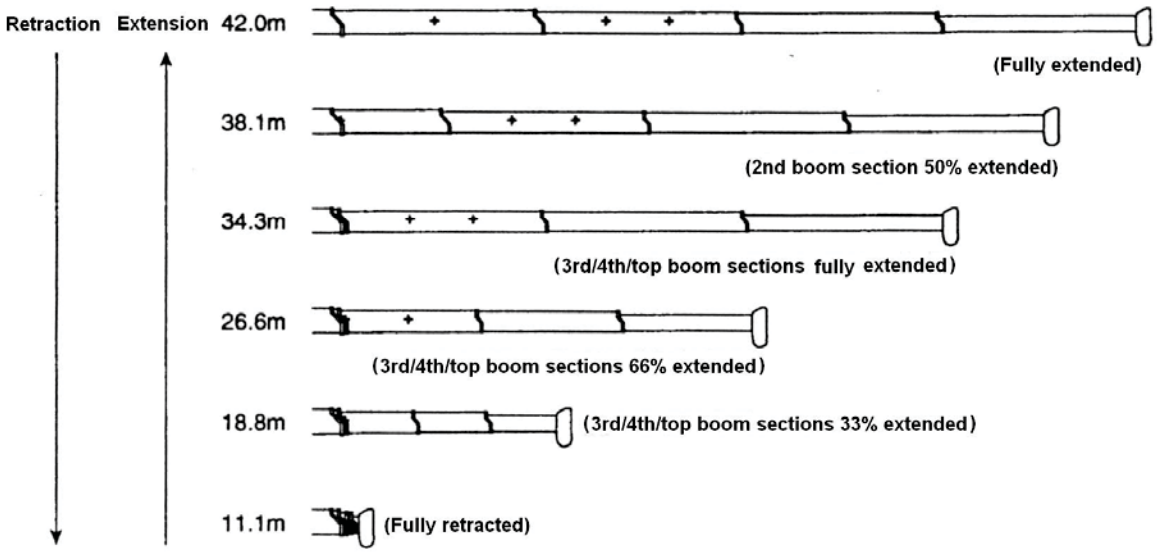
Boom Telescoping Mode and Boom Length

The telescoping mode I (the 2nd boom section extends first during boom extension) and the telescoping mode II (the 3rd through top boom sections extend first during boom extension) are available. When the boom length is any of the values listed in the load radius /lifting height chart and the rated lifting capacity table, the boom condition is among the one shown below.

Telescoping mode I （2nd boom section extends first.）



Telescoping mode II （3rd/4th/top boom sections extend first.）



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Rated Lifting Capacity Table

⚠ WARNING

⚠ The values shown in the rated lifting capacity table are based on ideal conditions where the crane is set level on a firm surface, there is no wind or side load, and the load is not swinging. When operating the crane under these conditions is not possible, reduce the load as necessary according to the actual operating conditions.

◆The table shown below is an example of the rated lifting capacity table. The rated lifting capacity table for your crane is located in the crane operator's cab.
◆In the rated lifting capacity table, the values above the blue line are based on the structural strength of the crane, whereas the values below that line are based on the stability of the crane.
◆The stability limit of the rated lifting capacities does not exceed the values calculated in the Part 2/ISO 4305.
◆For the rated lifting capacities for the boom lengths which are not listed in the chart, see the AML display.

Rated lifting capacities tables are set up as shown below with the kind of job and the outrigger extension conditions. For actual values see the rated lifting capacity tables provided in the crane operator's cab.

Operation	Outrigger extension
• Boom lift • Single top lift	Full extension (6.8 m)
	Middle extension (4.6 m)
	Minimum extension (2.39 m)
• Jib lift	Full extension (6.8 m)
	Middle extension (4.6 m)

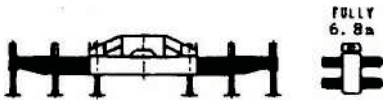
Below are some examples of rated lifting capacities tables.

[Example 1: Boom lift with outriggers fully extended]

GT-550E-2 RATED LIFTING CAPACITIES (BOOM)

UNIT：kg CLASS OF CRANE：C3

Outrigger max extended6.8m										
Working radius	11.1m boom	15.0m boom	18.8m boom		26.6m boom		34.3m boom		38.1m boom	42.0m boom
3.0	55,000	40,000	28,000	20,000						
3.5	43,700	40,000	28,000	20,000						
4.0	38,500	38,100	28,000	20,000						
4.5	34,200	33,800	28,000	19,800	20,000	14,000				
5.0	30,800	30,400	28,000	19,000	20,000	14,000				
5.5	27,800	27,400	27,200	18,200	20,000	13,600				
6.0	25,400	25,000	24,700	17,500	20,000	12,800	14,000	8,000		
6.5	23,200	22,800	22,500	16,800	18,900	12,000	14,000	8,000		
7.0	21,400	21,000	20,700	16,200	17,800	11,400	13,500	8,000	8,000	8,000
7.5	19,700	19,300	19,100	15,700	16,700	10,800	13,000	8,000	8,000	8,000
8.0	18,300	17,900	17,600	15,200	15,800	10,200	12,500	8,000	8,000	8,000
9.0	15,200	14,600	14,200	14,300	14,200	9,300	11,300	7,600	8,000	8,000
10.0		11,600	11,300	13,500	12,500	8,500	10,400	7,000	7,500	8,000
11.0		9,500	9,100	11,400	10,300	7,800	9,600	6,400	6,900	7,500
12.0		7,800	7,500	9,600	8,600	7,200	8,800	5,800	6,400	6,900
14.0			5,100	7,200	6,200	6,200	6,800	4,900	5,500	5,900
16.0			3,500	5,500	4,500	5,400	5,100	4,200	4,700	5,200
18.0					3,300	4,700	3,900	3,600	4,100	4,200
20.0					2,400	3,700	3,000	3,200	3,600	3,200
22.0					1,700	3,000	2,200	2,800	2,800	2,500
24.0					1,200	2,400	1,600	2,500	2,200	1,900
26.0							1,200	2,100	1,800	1,400
28.0							800	1,700	1,400	1,000
30.0							500	1,400	1,000	700
32.0								1,100	700	450
34.0									500	
Telescoping condition（%）										
Telescoping mode	Ⅰ,Ⅱ	Ⅰ	Ⅰ	Ⅱ	Ⅰ	Ⅱ	Ⅰ	Ⅱ	Ⅱ	Ⅰ,Ⅱ
2nd boom	0	50	100	0	100	0	100	0	50	100
3rd boom	0	0	0	33	33	66	66	100	100	100
4th boom	0	0	0	33	33	66	66	100	100	100
Top boom	0	0	0	33	33	66	66	100	100	100



[Example 2: Jib lift with outriggers fully extended]

UNIT：kg CLASS OF CRANE：C3

Outrigger max extended 6.8m						
	42.0m Boom					
	8.8m Jib			15.2m Jib		
Boom angle	5°offset	25°offset	45°offset	5°orffset	25°offset	45°offset
80°	3500	2500	1400	2300	1150	750
75°	3500	2330	1380	2100	1040	670
72°	3300	2250	1350	1950	1000	630
70°	3000	2100	1320	1750	950	610
65°	2300	1900	1250	1440	880	560
60°	1400	1300	1150	1100	830	520
55°	750	700	650	500	400	

UNIT：kg CLASS OF CRANE：C3

Outrigger max extended6.8m						
	38.1m Boom (Telescoping mode Ⅱ) or less than that					
	8.8m Jib			15.2m Jib		
Boom angle	5°offset	25°offset	45°offset	5°offset	25°offset	45°offset
80°	3500	2500	1400	2300	1150	750
75°	3500	2330	1380	2100	1040	670
72°	3300	2250	1350	1950	1000	630
70°	3000	2100	1320	1750	950	610
65°	2300	1900	1250	1440	880	560
60°	1900	1600	1150	1220	830	520
55°	1450	1350	1080	1100	750	490
50°	950	850	800	650	550	450
45°	500	450	450			

UNIT：kg CLASS OF CRANE：C3

Outrigger max extended 6.8m						
	34.3m Boom (Telescoping mode Ⅰ)or less than that					
	8.8m Jib			15.2m Jib		
Boom angle	5°offset	25°offset	45°offset	5°offset	25°offset	45°offset
80°	3500	2500	1400	2300	1150	750
75°	3500	2330	1380	2100	1040	670
72°	3300	2250	1350	1950	1000	630
70°	3000	2100	1320	1750	950	610
65°	2300	1900	1250	1440	880	560
60°	1900	1600	1150	1220	830	520
55°	1450	1350	1080	1100	750	490
50°	950	850	800	650	550	450
45°	500	450	450			

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Boom Lift

See the applicable section of the rated lifting capacity table and find the rated lifting capacity value that corresponds to the boom length and load radius

(1) Use the section of the rated lifting capacity table that corresponds to the status of the outriggers, front jack and working area.

(2) Take rated lifting capacity value W (tons) that corresponds to the desired telescoping mode, load radius R (m) and boom length L (m).

Outriggers fully extended ·····						
Load radius(m)	**m boom	**m boom	Lm boom		**m boom	
*			↓			
*			↓			
R	→	→	W			
*						

Telescoping mode	I , II	I	I	□	□	

◆The rated lifting capacity values for boom lift assume a boom with jib and single top stowed.

◆The rated lifting capacity values for boom lift are based on the load radius. The load radii shown in the rated lifting capacity table include the deflection of the boom under the mass of a load. When determining capacity from the table, therefore, find the rated lifting capacity value based on the actual measured load radius.

◆When the actual boom length exceeds the length specified for a certain boom extension, check the rated lifting capacity value for the specified length and for one stage longer, and use the smaller of the two. (The value may be different from that indicated by the AML)

◆When the front jack is not extended, note that the lifting capacity in the over-front area is poorer than in the over-rear and over-side areas. Keep this in mind when swinging the load from the over-rear or an over-side area to the over-front area.

◆The mass of load handling devices such as hook blocks and slings, shall be considered part of the load and must be deducted from rated lifting capacities.

Jib Lift

See the applicable section of the rated lifting capacity table and find the rated lifting capacity value that corresponds to the boom length and load radius.

(1) Use the section of the rated lifting capacity table that corresponds to the status of the outriggers, front jack, working area, boom length and boom telescoping mode.

(2) Take rated lifting capacity value W (tons) that corresponds to the desired jib length L (m), jib offset angle (°) and boom angle (°).

Outriggers fully extended ·····							
Boom angle	Telescoping mode Ⅱ ·····						
	Lm Jib						
	5° offset		25' offset		45° offset		
	R		R		R		
*							
*				↓			
θ	→	→	→	W			
*							

◆The mass of load handling devices such as 4.5-ton hook and slings, shall be considered part of the load and must be deducted from rated lifting capacities.

Single Top Lift

For operations with the single top mounted, use the boom lift section of the rated lifting capacity table to find the allowable load. Find the rated lifting capacity value based on boom length and load radius. From that value, subtract the mass of the main hook block. The resultant value is the rated lifting capacity for a single top lift. However, remember that the maximum rated lifting capacity for a single top lift is 4,500 kg. When the result of the above calculation (< table value > - < main hook block mass >) is over 4,500 kg, always regard the rated lifting capacity as 4,500 kg.

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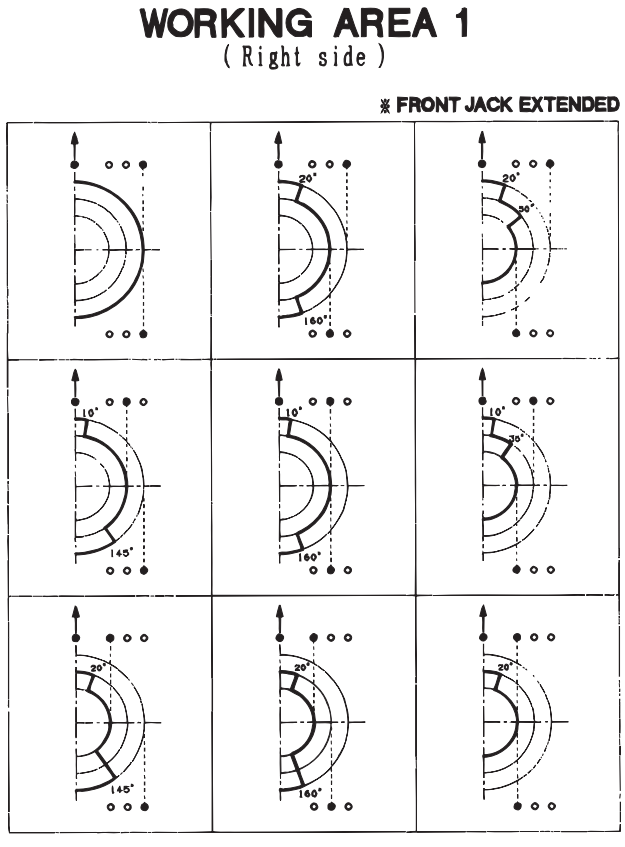
Working Area Chart

⚠ WARNING

⚠ While the swing stop override switch is shifted to OFF, the crane does not automatically stop even if it is overloaded by boom swing from an area allotted with greater lifting capacities to an area allotted with smaller lifting capacities.
Do not turn the swing stop override switch to OFF unless for unavoidable reasons.

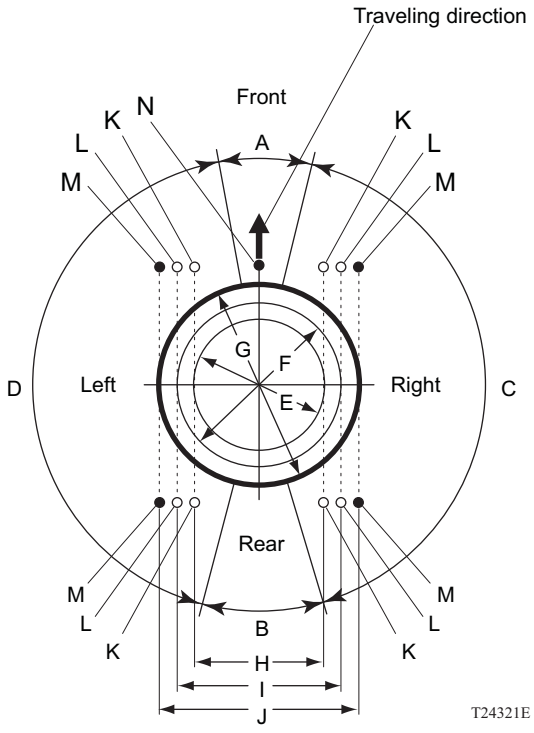
Applicable rated lifting capacities change as the ranges of the over-front area, the over-side areas, and the over-rear area vary, depending on the outrigger extension width and whether the front jack is used.

The following figures show examples of the rated lifting capacity in each condition.
The diagram indicating the working ares and their corresponding rated lifting capacities for your crane is included in the data plate file located in the crane operator's cab.



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Select the diagram that agrees with the desired condition of outrigger and front jack and see the lifting capacity for each working area.

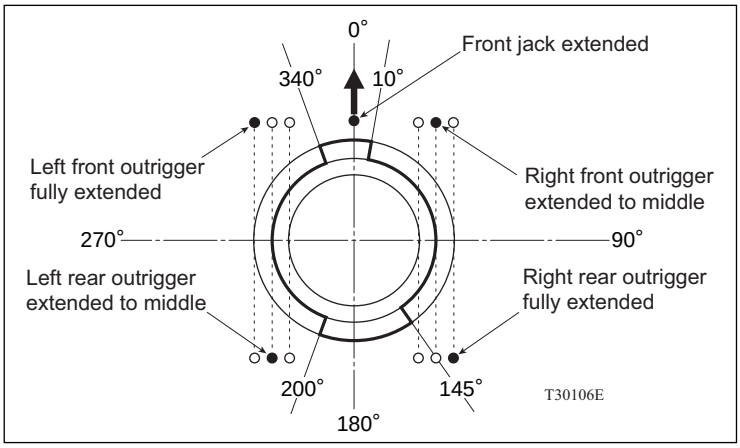


A: Over-front area
B: Over-rear area
C: Over-side area (right)
D: Over-side area (left)
E: Rated lifting capacity (capacity with outriggers at minimum extension)
F: Rated lifting capacity (capacity with outriggers at middle extension)
G: Rated lifting capacity (capacity with outriggers at full extension)
H: Minimum extension width of outriggers
I: Middle extension width of outriggers
J: Full extension width of outriggers
K: Position of outrigger jack with the beam not extended
L: Position of outrigger jack with the beam extended halfway
M: Position of outrigger jack with the beam extended fully
N: Front jack

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◆The area inside the bold line in the figure above shows the applicable rated lifting capacities.
◆Black marks among K, L, and M represent the actual positions of outrigger jacks. The black marks in the above figure shows that the left and right outriggers are extended fully.

–Example–
While the outrigger extension is as shown below and the front jack is used (extended), the rated lifting capacities determined for each working area for boom lift are as follows:
(1) Over-front area (340°–10°): capacities with outriggers at full extension
(2) Over-right area (10°–145°): capacities with outriggers at middle extension
(3) Over-rear area (145°–200°): capacities with outriggers at full extension
(4) Over-left area (200°–340°): capacities with outriggers at middle extension
If the outrigger extension is as shown below, the lifting capacity turns from the one with outriggers at full extension into the one with outriggers at middle extension when the boom passes the left rear (200° point) while swung from the over-rear area into the over-left area.
The lifting capacity turns from the one with outriggers at middle extension into the one with outriggers at full extension when the boom is swung further into the over-left area (340°–10°).



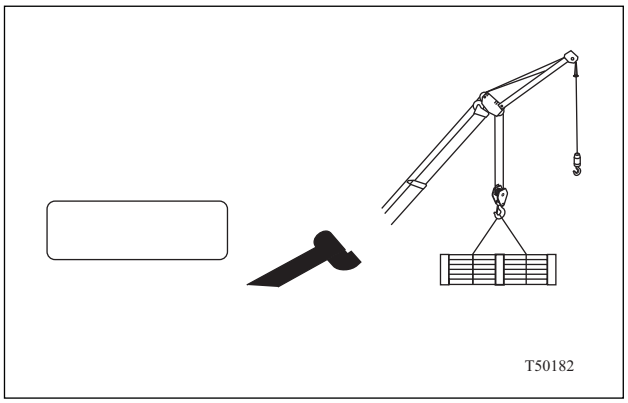
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AML (Overload Prevention Device)

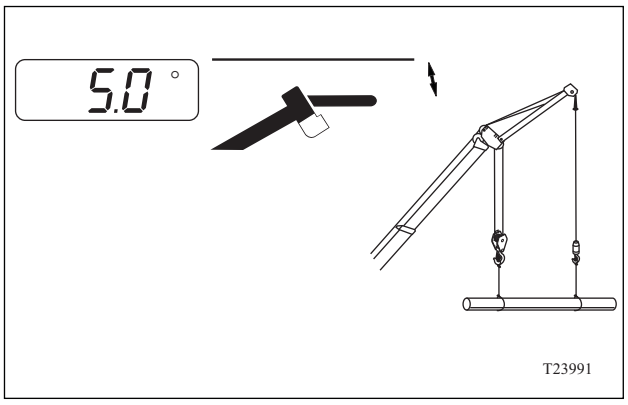
⚠ WARNING

⚠ The AML operates properly only when it is used exactly as instructed in this manual. If you do not follow the specified AML and crane operating procedures, the crane could overturn or be damaged, causing a serious accident. Be sure to observe the following precautions for safe operation.

- **Never perform any operation with the AML deactivated.**
- **Place the crane on firm and level ground with the outriggers extended and adjust the crane so that it is level.**
- **Before starting operation, perform pre-operational checks on the AML to ensure that it is operating properly.**
- **Always make sure that the actual outrigger extension width and the representation of the outrigger extension width on the AML display conform. Otherwise the crane may overturn.**
- **While the swing stop cancel switch is shifted to OFF, swinging will not stop automatically even if overloading occurs. The rated lifting capacity may vary during boom swing, depending on the outrigger extension width and the front jack condition. When swinging the load to the area allotted for smaller rated lifting capacities after lifting it in the area allotted for greater rated lifting capacities, pay attention not to overload the crane after understanding the section “How to Read Performance Data Plate”.**
  If the alarm buzzer sounds and the moment ratio indication on the AML exceeds 100% while a load is swung, stop swinging immediately. Then lower the load or swing the boom back. (For the specified values which trigger the alarm, see “Configuration and Functions of the AML System” section.)
- **When the AML exceeds the specified value, the alarm will sound intermittently. Slow the crane operation and take great care. (For the specified values, see the “Configuration and Functions of the AML System” section.)**
- **Do not lift a load on the boom with the jib mounted. If this must be done by unavoidable reasons, a boom lift status, and not a jib lift status, should be selected on the AML.**
  In this case, a precautionary warning is output when the moment is below 75% and a limit warning is output when the moment is below 85%. Remember that the warnings will be output earlier. (For the moment values corresponding to the warning types, see the "Configuration and Functions of the AML System".)



- **Do not lift a single load using both the boom and jib. If this must be done by unavoidable reasons, a jib lift status, and not a boom lift status, should be selected on the AML. (The figure shows a 5° offset angle with the first jib section extended.) Make sure that the mass of the load (including the mass of the load handling devices) is less than the specified rated lifting capacity for the jib. If the load is left held up only by the auxiliary wire rope when the main wire rope is loosened, the load's center of gravity moves to give an increased figure in moment display. Take care to overloading.**



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- **When the crane is automatically stopped during operation toward critical condition (hoisting up, boom extension or boom lowering), operate the appropriate controls to move toward the non-critical condition (hoist down, retract boom or raise boom).**
- **Do not raise the boom to raise the load clear of the ground. Doing so is dangerous because the crane will not stop automatically even when it is overloaded. Hoist up the load to raise it clear of the ground. Once the load has cleared the ground, stop hoisting and check for safety.**

[NOTICE]

◆While the elevating cylinder is extended or retracted to the full stroke, the display of the AML becomes erroneous. In this case, elevate the boom in the opposite direction to terminate the stroke end condition.

Configuration and Functions of the AML System

The AML (Automatic Moment Limiter) system is a safety device provided to prevent overloading of the crane which may cause it to overturn or be damaged.
The AML system has various kinds of functions, including the following four typical functions. Based on the registered work conditions by operator selection and the signals from various sensors, the crane operations are controlled.

(1) Automatic stop function for overloading

The AML calculates and compares the working and rated moment values and displays them as a percentage. When the working moment exceeds the rated moment (100% or more), failure message is shown, alarm buzzer sounds, and the crane operation toward the critical side stops.

(2) Automatic stop function by boom upper angle restriction

To prevent jib from contacting the hook block or wire rope during boom lift or single top lift, a message and an alarm is output and boom raising and boom retraction are halted in the following conditions:

- The boom is raised over approx. 76° while the boom extension is less than approx. 2 m.
- The boom extension is reduced less than approx. 2 m while the boom angle is over approx. 76°.

(3) Working range limit functions

When any working range limit is registered to AML, the crane is controlled so that the crane work posture does not exceed this registered working range limit. When the boom reaches the previously registered restriction, buzzer sounds, and the crane operation stops.

(4) Slow stop function

The elevating speed slows down before the boom stops slowly in the following conditions:

- Boom (lowering) stopping by overloading
- Boom (raising) stopping by boom upper angle restriction
- Boom reaches the stroke end (while raised and lowered)
- Boom (raising and lowering) stopping by working range limit function

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The situation of automatic stop due to automatic stop function and working range limit function is as listed below, depending on the working condition:

◎: Slow stop ○: Stop

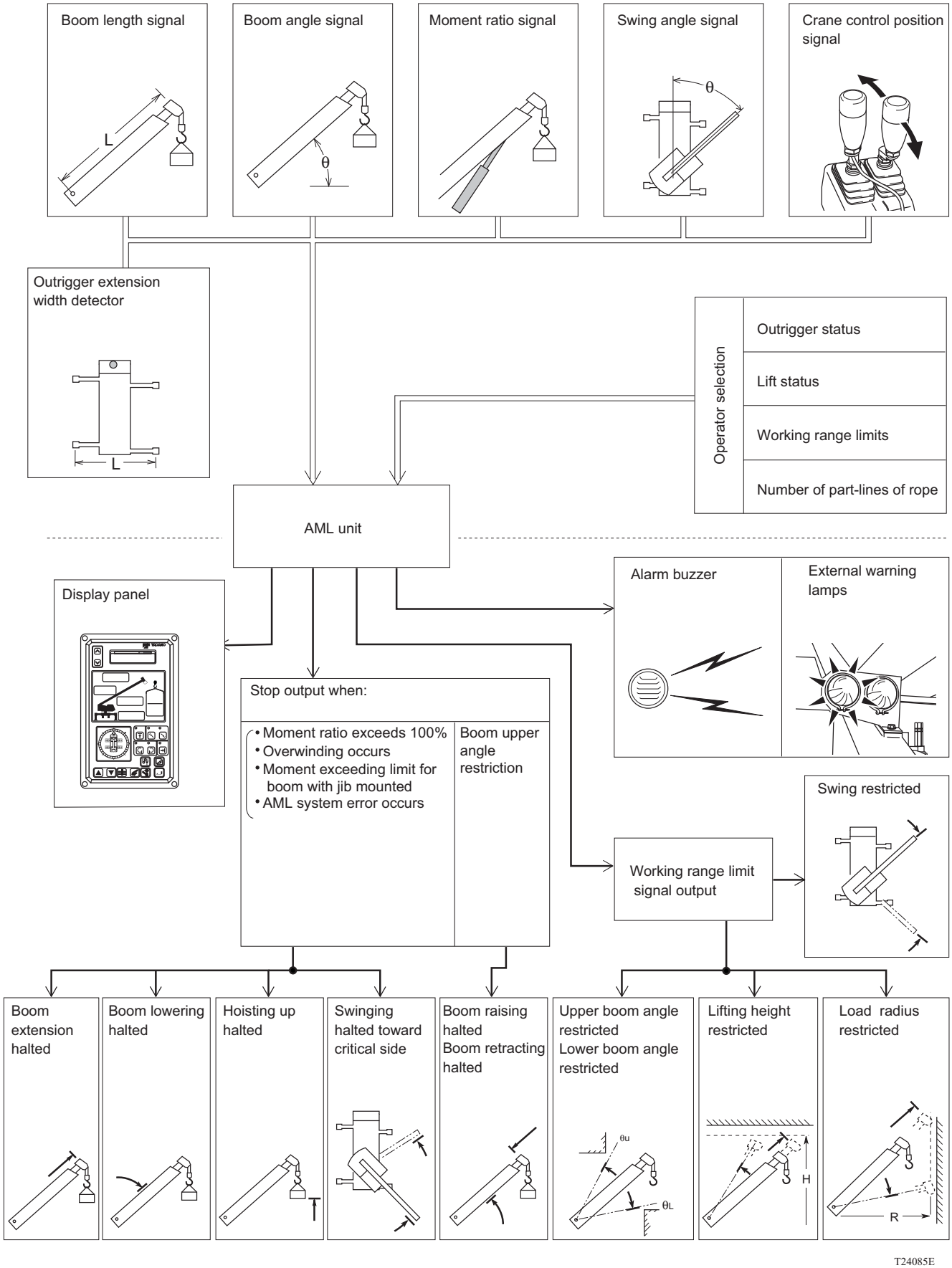
Automatic stop by overloading	Hoisting up	○
	Boom lowering	◎
	Boom extension	○
	Swing	○
Boom upper angle restriction	Boom raising	◎
	Boom retraction	○
Stop at stroke end	Boom raising/loweing	◎
Stop by working range restriction	Boom raising/lowering	◎
	Boom extension	○
	Swing	○

◆While the elevation slow stop cancel switch is in “OFF” position, the slow stop function for boom elevation is deactivated.

◆While the automatic swing stop function is in “OFF” position, swing does not stop automatically.

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AML System Configuration



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Automatic Stop Functions

Causes of automatic stop		Operation	Halted movement
• Moment ratio exceeds 100% (*1) • Overwinding • AML system error		• Boom lift • Single top lift • Jib lift	• Hoisting up • Boom lowering • Boom extension • Boom swing
Working range limit	Upper boom angle restricted		• Boom raising
	Lower boom angle restricted		• Boom lowering
	Lifting height restricted		• Boom raising • Boom extension
	Load radius restricted		• Boom lowering • Boom extension
	Swing restricted		• Boom swing
• Boom upper angle restriction		• Boom lift • Single top lift	• Boom raising • Boom retraction

(*1): For the boom lift with the jib mounted, automatic stop will work when the moment exceeds 85%.

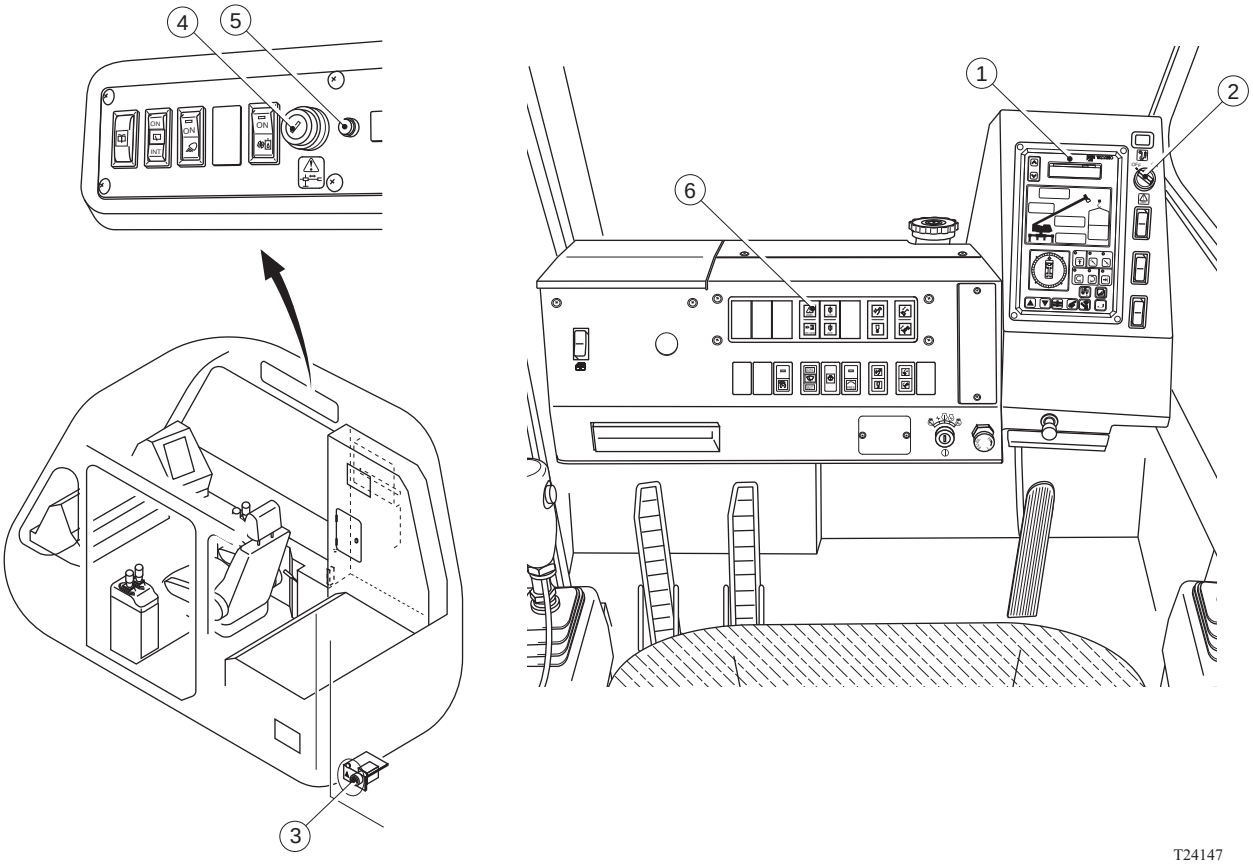
Alarm Functions

Condition	Alarm
Winch lever is moved toward critical side (hoist up, boom lowering or boom extension) while overwinding condition exists.	Moment display: Displays [Warning:0024]. Buzzer: Sounds continuously.
Overwind cutout function is released with the winch overwound.	Moment display: Displays [Warning:0015]. External warning lamps: Red lamp is lit. Buzzer: Sounds continuously.
Moment ratio exceeds 90%	Moment display: Yellow segment(s) is lit. External warning lamps : Orange lamp is lit. Buzzer: Sounds intermittently.
Moment ratio exceeds 100%	Moment display: Displays [Warning:0023]. External warning lamps: Red lamp is lit. Buzzer: Sounds continuously.
AML system error	Moment display: Displays failure messages. Buzzer: Sounds 3 seconds.
Working range limit function activated.	Moment display: Displays failure messages. Associated restriction indicator lamp flashes. Buzzer: Sounds continuously. AML buzzer: Sounds 3 seconds.
Slow stop control	Moment display: Displays [Warning:0081]or[0082] Buzzer: Sounds intermittently.
Boom lift with jib mounted on boom	
(1) Moment ratio is between 75%and 85%	Moment display: Green segment(s) is lit. External warning lamps: Orange lamp is lit. Buzzer: Sounds intermittently.
(2) Moment ratio exceeds 85%	Moment display: Displays [Warning:0088]. External warning lamps : Red lamp is lit. Buzzer: Sounds continuously.

◆In the above table, "Buzzer" is the device outside the AML unit, outputting buzzing sound.
"AML buzzer" is the device inside the AML unit, outputting beeping sound.
◆The AML buzzer sounds for 3 seconds every time a message appears. It outputs long sounds when slow stop control is activated and outputs short sounds when other controls are activated.

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Controls



1. AML unit
2. AML override switch
3. Override key switch
4. Emergency outrigger control switch
5. Emergency outrigger control indicator lamp
6. AML cancellation warning lamp

AML Override Switch
Override Key Switch

These are emergency switches provided to stow the boom when failure occurs in the AML system.
For details, see the “Disposition of System Troubles” section.

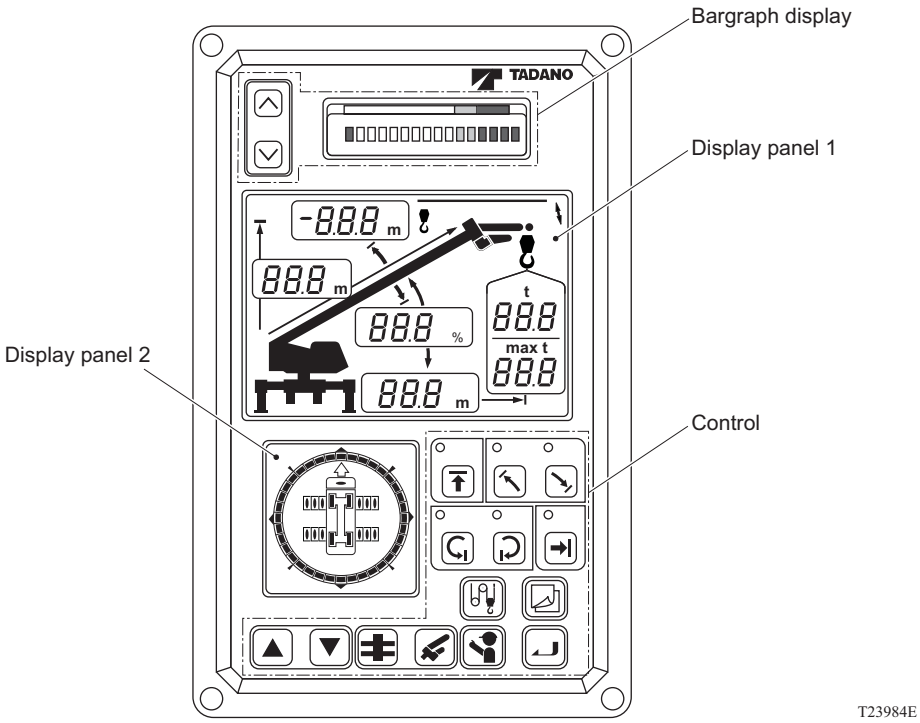
Emergency Outrigger Control Switch

This switch is used to enable registering outrigger extension width temporarily on the AML and to sustain crane operation while an error occurs on the outrigger extension detector.
◆For details, see the "Disposition of System Troubles" section.

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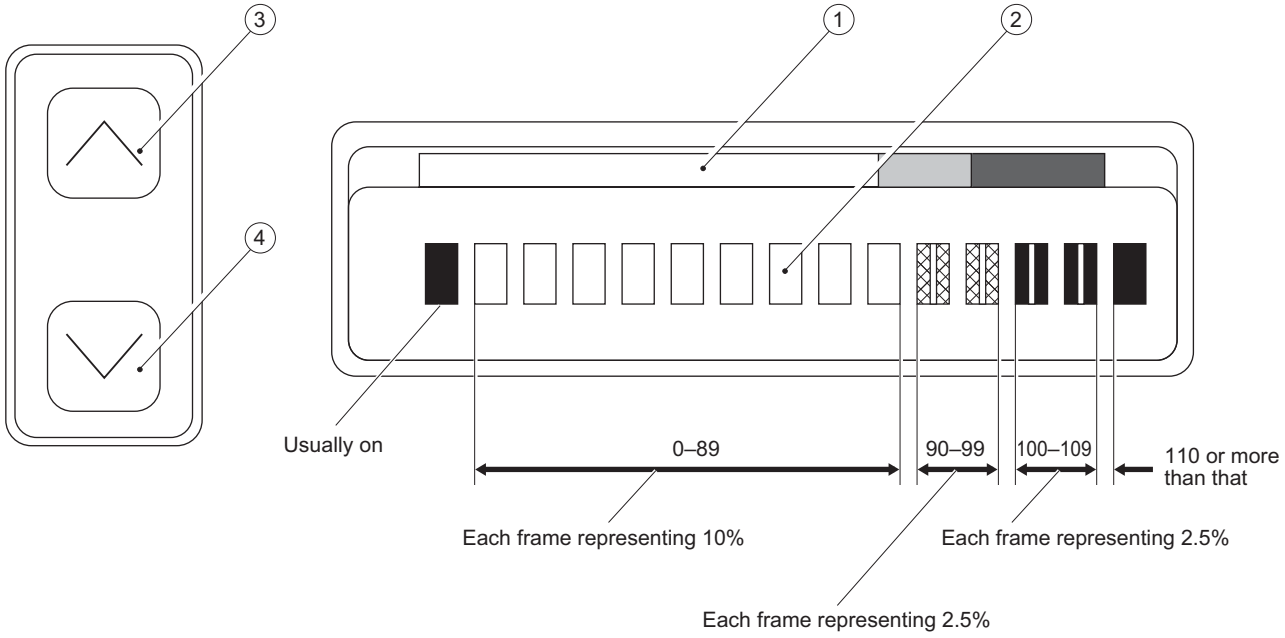
Names and Functions of AML Main Unit Parts

AML LIIB



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Bargraph Display



T23213E

1. Moment ratio mark

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

2. Moment display

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

3. Scroll-up key

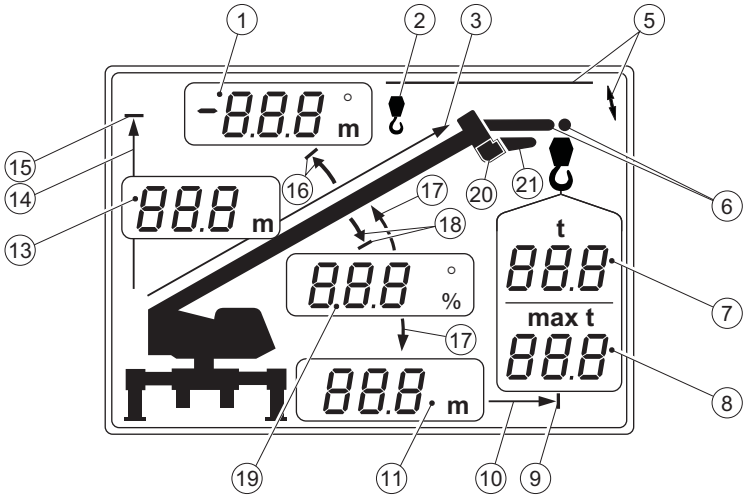
Used to see the previous lines of message displayed on the moment display.

4. Scroll-down key

Used to see the next lines of messages displayed on the moment display.

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Display Panel 1



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1. Jib angle display
When jib lift is selected, the jib angle offset is displayed. When the number of part-lines of rope select key is pressed, or the display select key is kept being pressed, the number of part-lines of ropes is displayed. Also, when the upper boom angle restriction function is activated, the registered upper boom angle limit value is displayed as long as the register key is kept being pressed.

2. Number of part-lines of indicative symbol
This symbol shows that the jib angle display (1) indicates the number of part-lines of rope

3. Boom length indicative symbol
This symbol, while marked up, means the value in the boom length display [13] is a boom length value.

5. Jib angle indicative symbol
Comes on to indicate that the value shown in the jib angle display [1] represents the offset angle.

6. Jib lift indicative symbol
Comes on when the jib lift is selected to represent the registered jib status.

7. Real load display
Displays the real load.

8. Rated lifting capacity display
Displays the rated lifting capacity.

9. Load radius limit restriction indicative symbol
Comes on to indicate that the value shown in the load radius display [11] represents the load radius limit. Note that the load radius indicative symbol [10] is also displayed at the same time.

10. Load radius indicative symbol
Indicates that the value shown in the load radius display [11] represents the load radius.

11. Load radius display
Normally displays the crane's load radius.
When the load radius limit restriction function is activated, the load radius limit restriction value is displayed while the register key is held down.

13. Boom length display
Usually displays boom length.
Displays the lifting height while the display alteration key is pressed.
When the lifting height restriction function is effective, this displays lifting height restriction value, while the register key is being pressed.

14. Lifting height indicative symbol
This symbol, while marked up, means the value in the boom length display [13] is a lifting height.

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15. Lifting height restriction symbol
This symbol, while marked up, means the value in the boom length display [13] is a lifting height restriction value.
The lifting height symbol [14] is marked up simultaneously.

16. Upper boom angle limit restriction symbol
Indicates that the jib angle display [1] displays the registered boom angle upper restricted value.

17. Boom angle indicative symbol
Indicates that the boom angle display [19] displays the boom angle.

18. Lower boom angle limit restriction symbol
Indicates that the boom angle display [19] displays the registered lower boom angle restricted value.

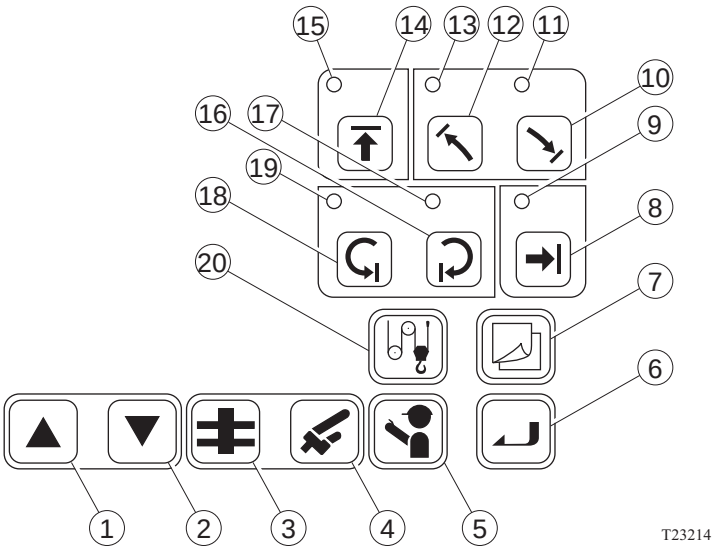
19. Boom angle display
Normally displays the boom angle.
Displays the moment % when the display alteration key is held down. When the restriction function is activated, the lower boom angle limit restriction value is displayed while the register key is held down.

20. Boom lift indicative symbol
Comes on when the boom lift is selected.

21. Single-top lift indicative symbol
Comes on when the single-top lift is selected.

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Controls



1. Increase key
Used to increase the selected value.

2. Decrease key
Used to decrease the selected value.

3. Outrigger mode select key
Used to select the outrigger status.

4. Lift mode select key
Used to select the lift status.

5. Check key
Used to check the AML system functions.

6. Register key
Used to register the selected state.

7. Display alteration key
Used to alternate the displays on display panel 1.

8. Load radius restriction key
Use to activate and cancel the load radius limiting function.

9. Load radius restriction indicator lamp
Lights up when the load radius limiting function is activated.

10. Lower boom angle limit restriction key
Used to activate and cancel the lower most boom angle limiting function.

11. Lower boom angle limit restriction indicator lamp
Lights up when the lowermost boom angle limiting function is activated.

12. Upper boom angle limit restriction key
Used to activate and cancel the upper most boom angle limiting function.

13. Upper boom angle limit restriction indicator lamp
Lights up when the uppermost boom angle limiting function is activated.

14. Lifting height restriction key
Used to activate and cancel the lifting height limiting function.

15. Lifting height restriction indicator lamp
Lights up when lifting height limiting function is activated.

16. Right swing restriction key
Used to activate and cancel the right swing limiting function.

17. Right swing restriction indicator lamp
Lights up when the right swing limiting function is activated.

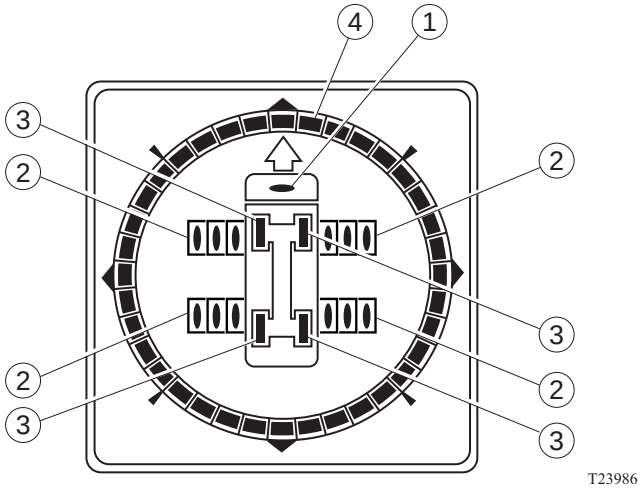
https://truckmanualshub.com/

18. Left swing restriction key
Used to activate and cancel the left swing limiting function.

19. Left swing restriction indicator lamp
Lights up when the left swing limiting function is activated.

20. Number of part-lines of rope select key
Used to register a number of part-lines of rope.

Display Panel 2



1. Front jack symbol
Indicates that the front jack is used.

2. Outrigger state indicative symbol
Displays the way the outriggers are extended.

3. "On-rubber" (Outrigger-not-in-use) state indicative symbol
Comes on when the starter switch in the crane operator’s cab is turned “ON”.

5. Boom position indicator
Displays the boom position in 10° increments.

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Selecting Operational Status

⚠ WARNING

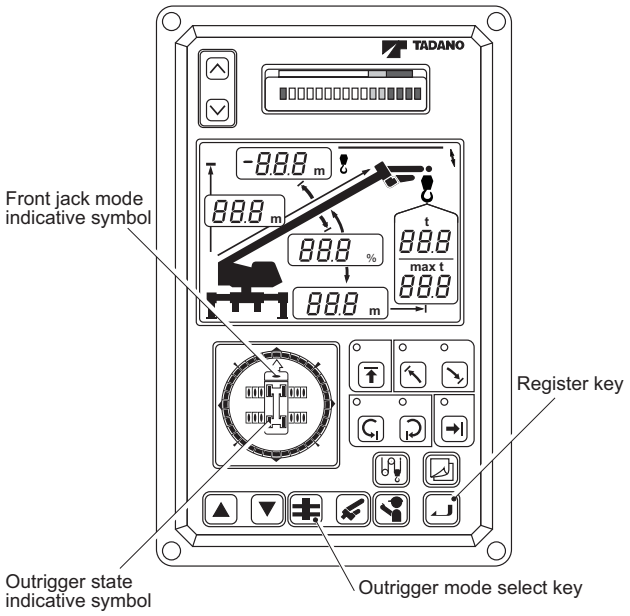
⚠ Should the operational status be incorrectly registered, the crane might overturn or be damaged, leading to a serious accident. Prior to every operation, check that the registered status corresponds to the actual status of the crane.

Selecting Outrigger Status

◆The "on-rubber" state indicative symbol is marked up when the power supply is turned on (the PTO switch in the carrier driver's cab is turned ON after the engine is started). (The outrigger state indicative symbols and front jack symbol remain off.)

◆Turning the power off (PTO switch: OFF) automatically erases all the previous settings stored in memory after approximately 2 hours. To resume the operation more than 2 hours after the power has been last turned off, enter the settings all over again.

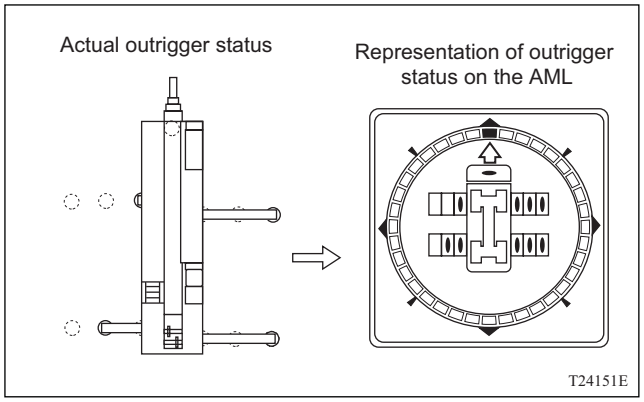
Register the outrigger status using the outrigger mode select key and register key.



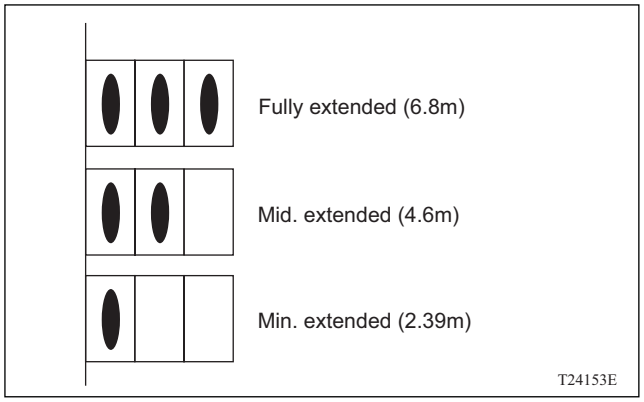
T24099E

When the outrigger mode select key is pressed, the outrigger state indicative symbols and front jack symbol flash in accordance with the status that the AML detects on.

After making sure that the display conforms to the actual outrigger conditions, press the register key. The outrigger state indicative symbol will change from flashing into being marked up continuously and the moment display, rated lifting capacity display and real load display will return to normal display conditions, meaning that the state has been registered.



T24151E



T24153E

◆If an outrigger or the front jack is stowed after registration of outrigger status, the registered status is erased. In this case, register the outrigger status again before starting crane operation.

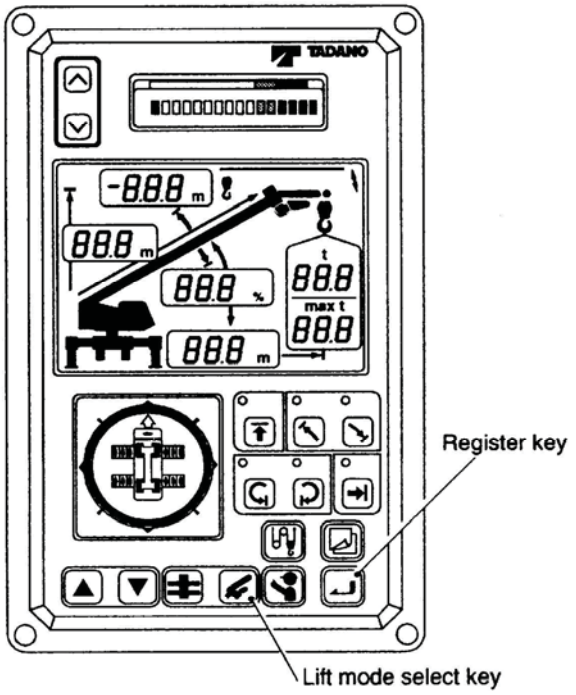
https://truckmanualshub.com/

Selecting Lift Status

◆The boom lift status is the default status and is automatically selected (the boom indicator lamp lights) when the power supply is turned on (the PTO switch is placed in the ON position).

◆Turning the power off (PTO switch: OFF) automatically erases all the previous settings stored in memory after approximately 2 hours. To resume the operation more than 2 hours after the power was last turned off, enter the settings all over again.

Register the lift status using the lift mode select key and register key.



T23988E

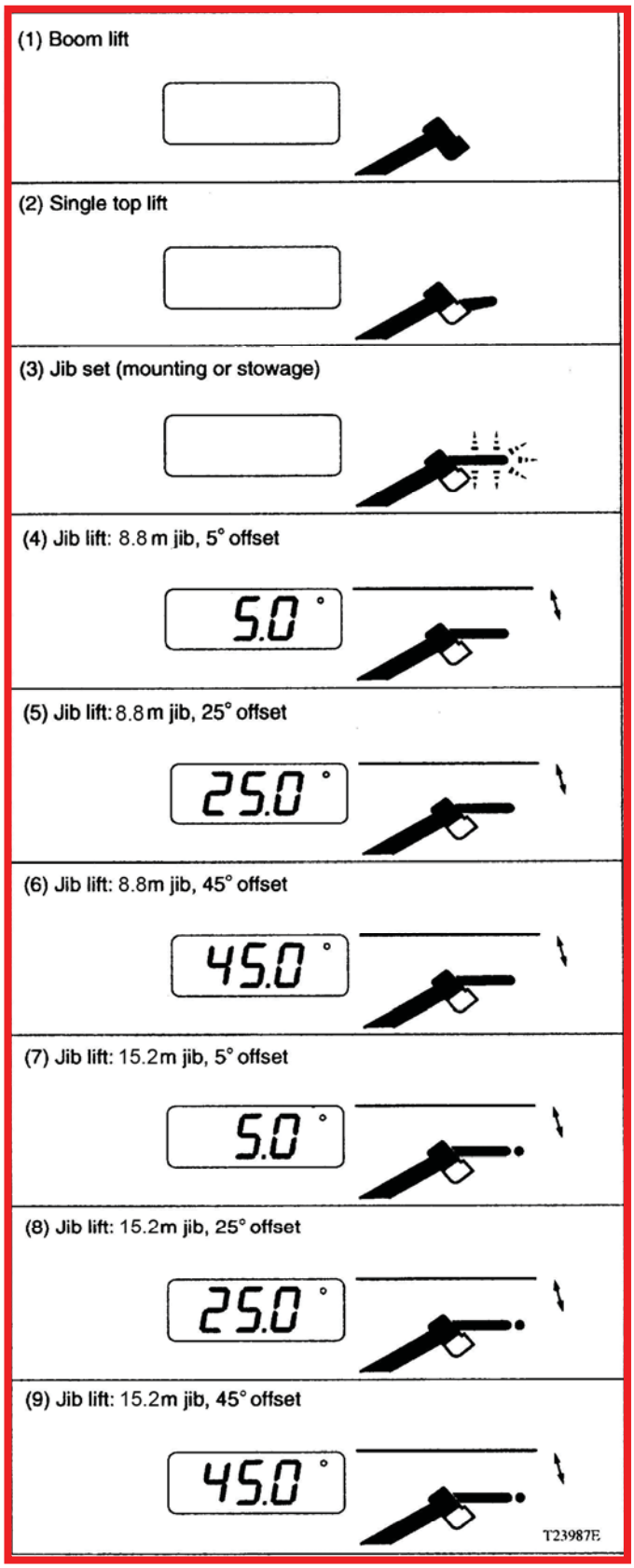
Each time the lift mode select key is pressed, the mode changes. The status changes in numerical sequence, from (1) to (9), as shown below. The display returns to (1) if you press the switch when status (9) is shown on the display. Select the status that corresponds to the actual lift status.

◆After making sure that the display conforms to the actual lift status, press the register key. The corresponding lift indicative symbol will change from flashing into being marked up continuously and the moment display, rated lifting capacity display and real load display will return to normal display conditions, meaning that the status has been registered.

(When the jib set status is selected, the jib lift indicative symbol will remain flashing.)

◆Select the boom lift status when lifting a load on the boom with the jib mounted.

◆Select a jib lift status when lifting a single load using both the boom and jib.



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Selecting Number of Part-lines of Rope

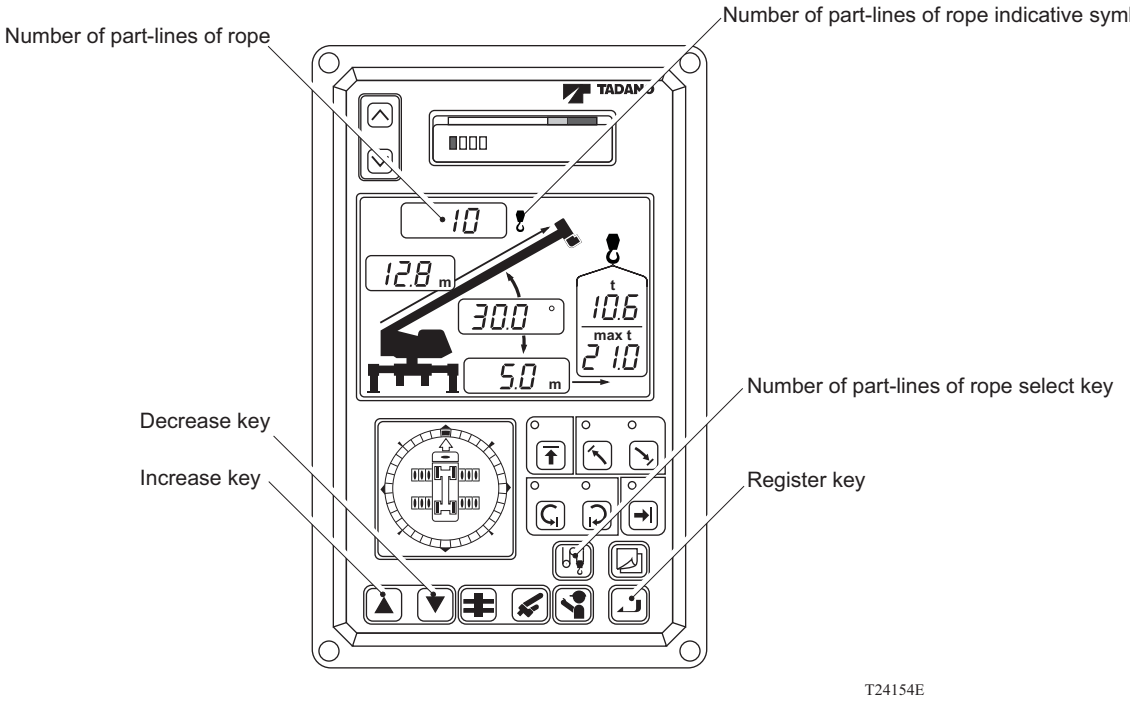
[NOTICE]

◆If the registered number of part-lines of rope is smaller than the standard number, a maximum allowable lifting load is limited, depending on the registered number. In case the number is registered as '0', however, a process takes place as if the standard number were registered.

◆Similarly, a process takes place on the basis of the standard number of part-lines of rope if the registered number is larger than the standard number or other than the values specified for your model.

◆When the power supply is turned on (i.e. PTO switch ON), the standard number of part-lines of rope corresponding to a work condition is selected.

Register the number of part-lines of rope by use of the number of part-lines of rope select key, as follows:



1. Press the number of part-lines of rope select key. The number of part-lines of rope symbol will flash, and the number of part-lines of rope will be shown on the jib angle display in a flashing mode.

2. Press the increase or the decrease key to set the number of part-lines of rope at a desired value.

◆When the increase or the decrease key is pressed, a numeral showing the number of rope changes from flashing to being marked up, showing a fixed value for the increase or decrease.

◆When the increase or the decrease key is kept pressed, the number of rope continuously increases or decreases.

3. Once the intended number of part-lines of rope is set, press the register key and register the number. Then, the number of part-lines of rope symbol is turned off and the jib angle display returns to a normal status.

◆The number of part-lines of rope can be confirmed by pressing the display alteration key.

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AML Pre-operational Inspection

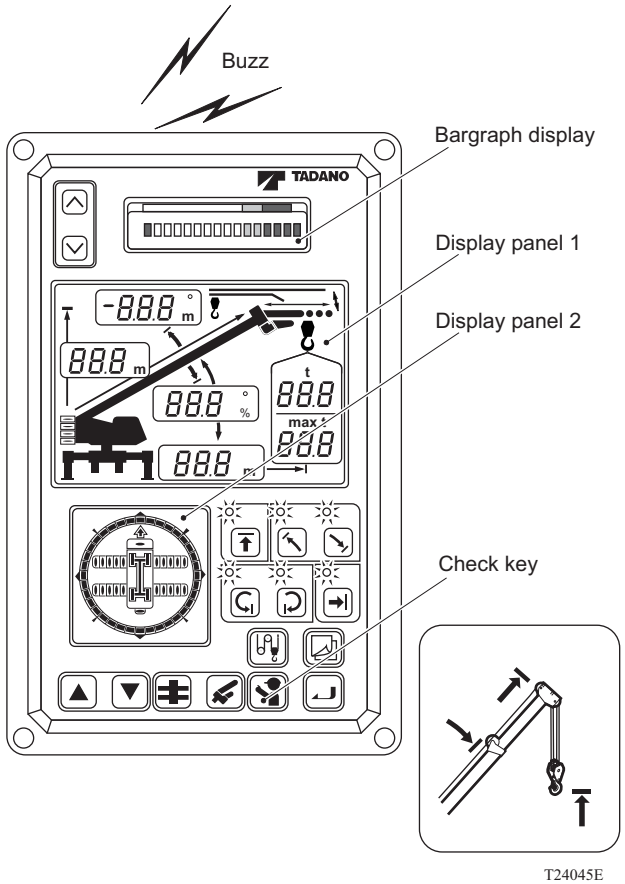
⚠ WARNING

⚠ Operating the crane with a malfunctioning AML could cause the crane to overturn or be damaged. Be sure to perform the pre-operational inspection on the AML system and start the crane only after ensuring that the system is operating properly.

Before starting operation, check that the AML works in good condition, as follows:

1. Press the check key and make sure that the AML is in the following conditions:

- Moment display.....All segments are marked up.
- Display panel (1 and 2)...All segments are marked up.
- Working range restriction indicator lamp .....All six lamps light up.
- Alarm buzzer.....Sounds continuously.
- Movement toward critical sides .....Automatically halted



2. Press either the set key, display alteration key or check key to return the display to the normal condition.

3. Make sure that the display on the display panels conforms to the actual crane conditions.

(1) Boom length

(2) Boom angle

(3) Jib angle.....shown while jib lift is selected

(4) Real load.....Make sure that the approximate mass of the hook block while no load is on the hook block.

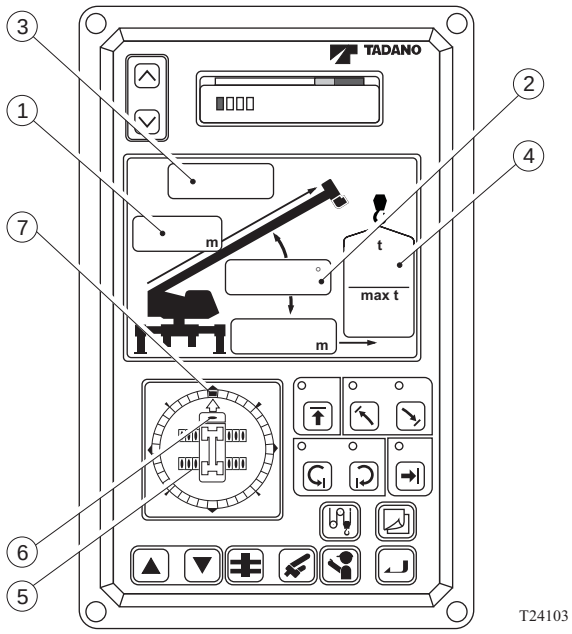
◆The real load is not shown correctly if the lift status is not registered correctly.

(5) Outrigger state indicative symbol

(6) Front jack symbol

(7) Boom position indicator

◆If the AML does not work properly, have it checked and repaired by the nearest TADANO distributor or dealer.



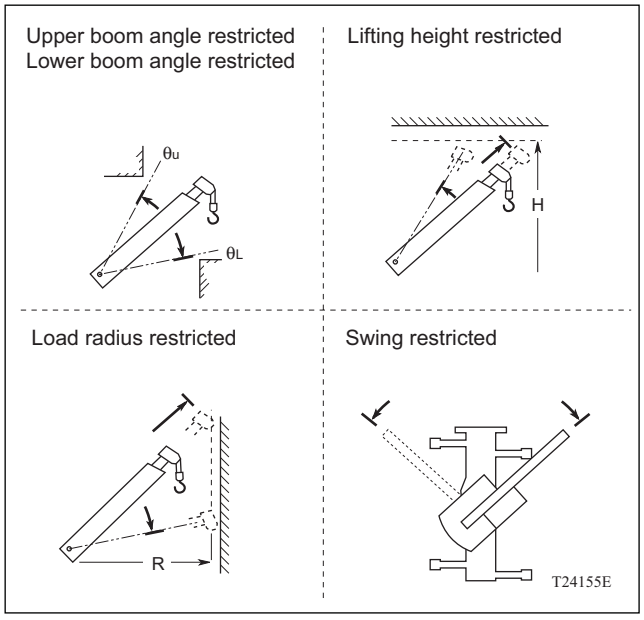
https://truckmanualshub.com/

How to Use the Working Range Limit Function

[NOTICE]

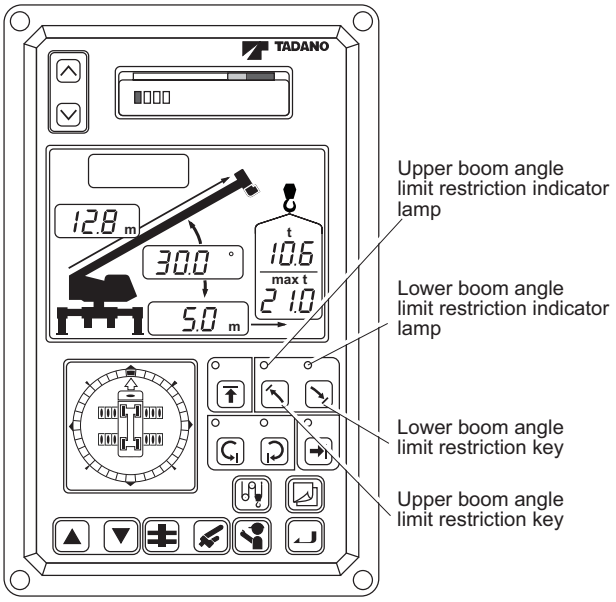
◆If the selected working range limits allow the crane to approach too close to an obstruction, the crane may be contacted or hit, depending on the operational status and the manner in which the load is handled. When selecting limits, allow sufficient clearance.

The working range restricting function makes the boom automatically stop at the previously registered boom angles (upper and lower), lifting height and radius.
If makes the alarm sound when the boom reaches the previously registered swing restriction.
The function is useful for handing a load in a confined place because it defines the area in which the boom can operate.
◆Turning the power off (PTO switch: OFF) automatically erases all the previous settings stored in memory after approximately 2 hours. To resume the operation more than 2 hours after the power has been last turned off, enter the settings all over again.



Boom Angle Limit

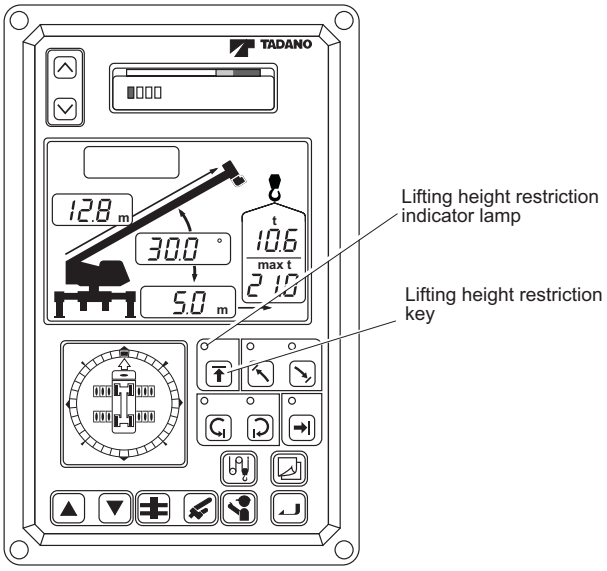
Raise or lower the boom to the desired angle, and press the boom upper or lower limit restriction key. The corresponding limit restriction indicator lamp will flash and the buzzer will sound continuously, indicating that the limit boom angle has been registered in the memory. When the boom is moved back to an angle within the set limit, the limit restriction indicator lamp stops flashing and stays illuminated and the buzzer stops.
Thereafter, the upper or lower boom angle limit restriction indicator lamp flashes and the buzzer sounds continuously whenever the upper or lower limit previously registered is reached.
To cancel the boom angle limit function, press the boom angle limit restriction key again. The corresponding boom angle limit restriction indicator lamp will go off.



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Lifting Height Limit

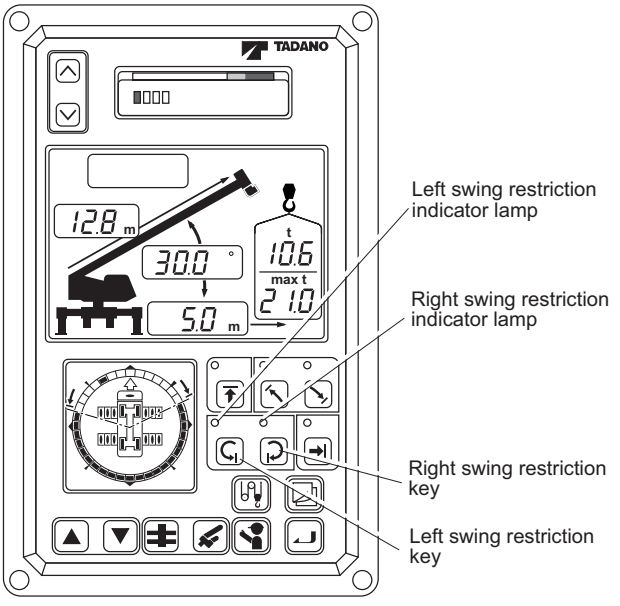
Move the boom to the desired height, and press the lifting height restriction key. The lifting height restriction indicator lamp will flash and the buzzer will sound continuously, indicating that the limit height has been registered in the memory. When the boom is moved back to a height within the set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



T24157E

Swing Limit

Swing the boom to the desired position, and press a swing restriction key. The corresponding swing restriction indicator will flash and the buzzer will sound continuously, indicating that the swing angle limit has been registered in the memory. When the boom is swing back to an angle within the set limit, the swing restriction lamp stops flashing and stays illuminated and the buzzer stops. Thereafter, a swing restriction indicator lamp flashes, the swinging boom stops automatically, and the buzzer sounds whenever the limit previously registered is reached. To cancel the swing limit function, press the corresponding swing restriction key again. The corresponding swing restriction indicator lamp will go out.
◆ When registering the swing angle limit, register both the right and left boom swinging restriction positions. Registering only one side cannot fulfill this working range limit function nor make the alarm buzzer sound.
◆ In case that the swing stop override switch is set to "OFF," the swinging boom will not stop automatically even when the limit previously registered is reached. Be very careful in performing swing operation as only the swing restriction indicator lamp flashes, a message is displayed, and the AML buzzer beeps for three seconds.



T24158E

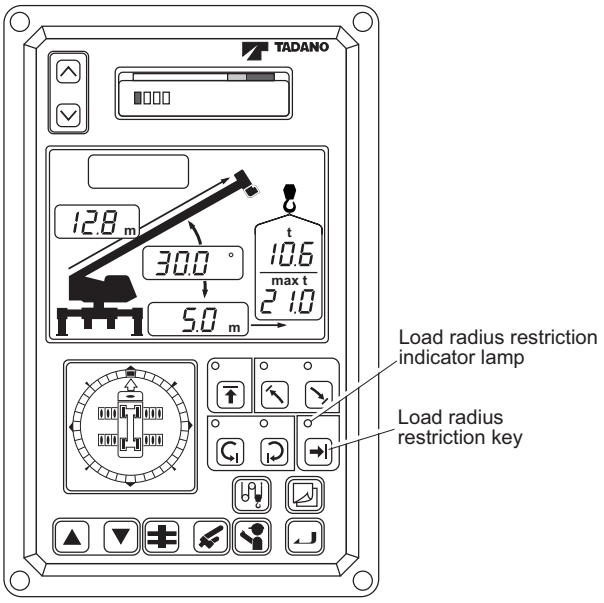
https://truckmanualshub.com/

Load Radius Limit

Move the boom to the desired load radius, and press the load radius restriction key. The load radius restriction indicator lamp will flash and the buzzer will sound continuously, indicating that the limit load radius has been registered in the memory. When the boom is moved back toward the non-critical side, the load radius restriction indicator lamp stops flashing and stays illuminated and the buzzer stops.

The load radius restriction indicator lamp flashes and the buzzer sounds continuously whenever the limit previously registered is reached.

To cancel the load radius limit function, press the load radius restriction key again. The corresponding load radius restriction indicator lamp will go off.

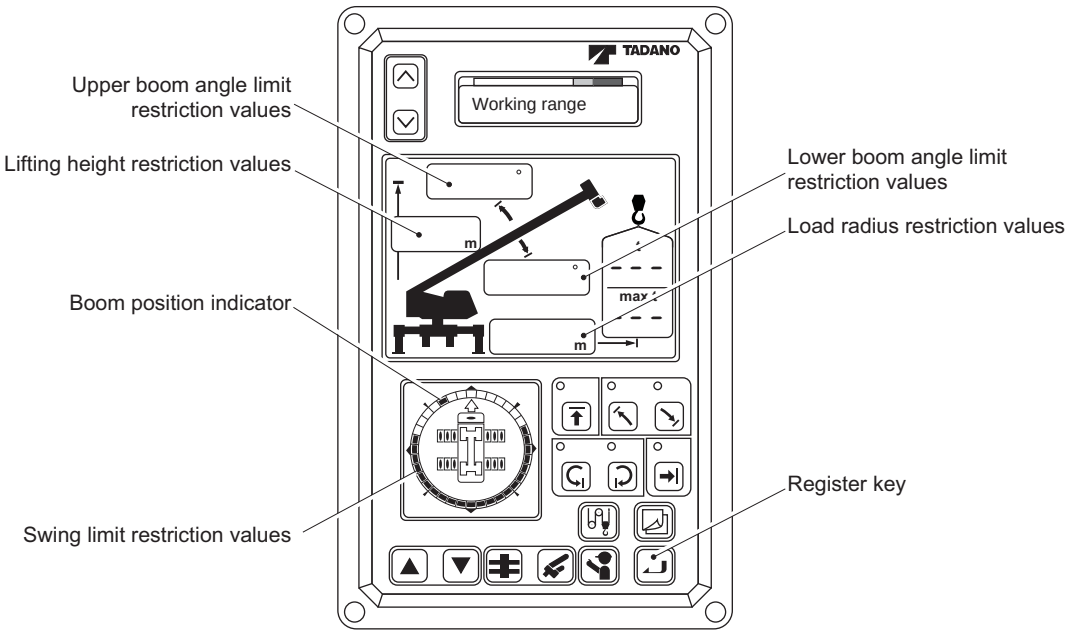


T24159E

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Display of Working Range Restriction Values

Press in the register key while working range restricting functions are registered.
While the key is being pressed in, the registered working range restriction values are displayed. On the moment display will be displayed a message “Working range”.
◆This display is not available when preoperational AML check is made and when working state is registered.
◆When working range restricting functions are not registered, the message “– – –” will be displayed.

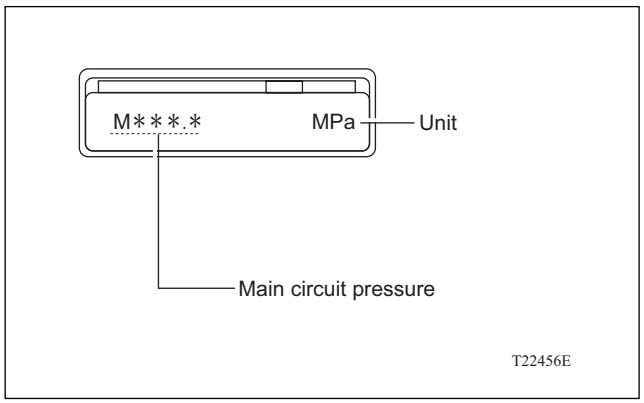


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Display Alteration

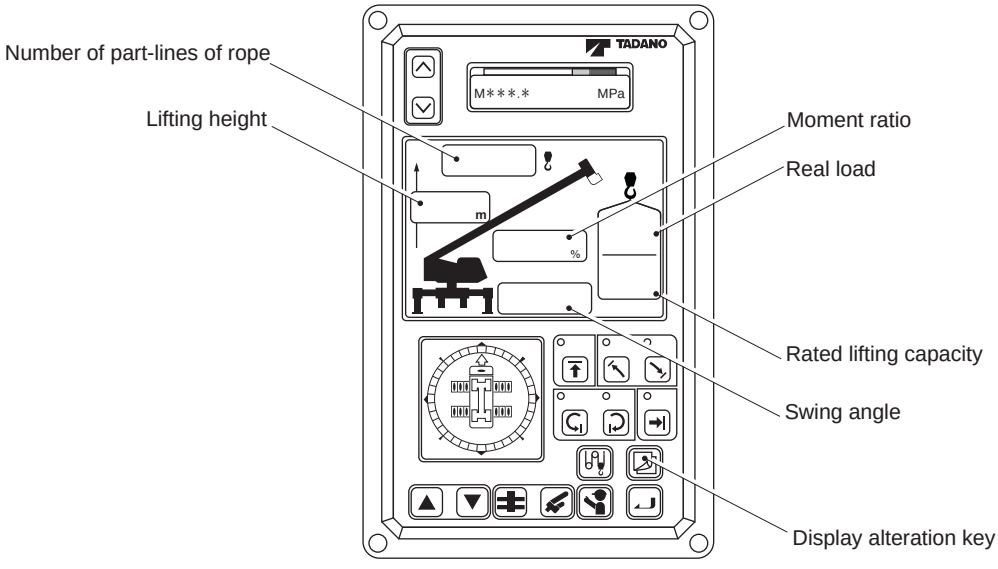
Displays on the moment display and the display panel 1 can be altered, as shown below in the figures, while the display alteration key is being pushed. The indicative symbols are displayed, too.

Moment Display



Display Panel 1

◆Displays on the real load display and the rated lifting capacity display do not alter even when the display alteration key is pressed in.



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Recovery from a Stop

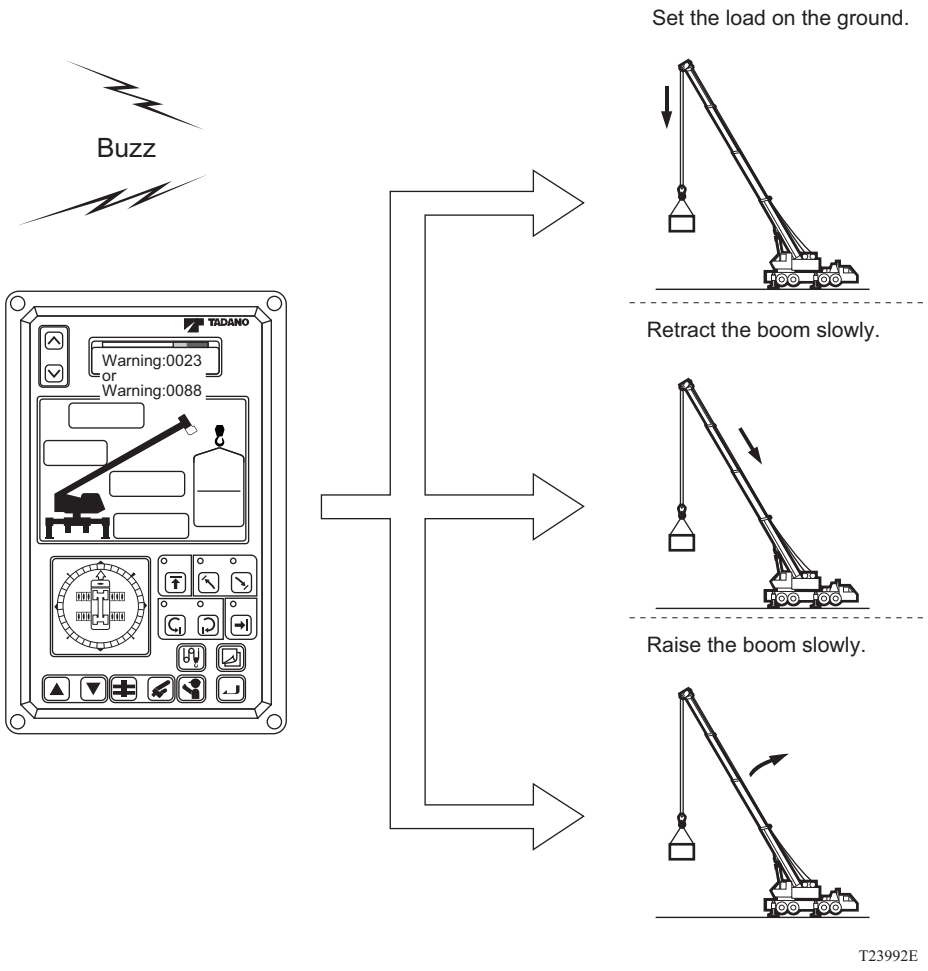
Restore the crane operation according to the following steps.

(1) When moment is more than 100 %

- Moment display: [Warning:0023]
- Buzzer sounds continuously.

(2) When the limit moment for the boom lift with the jib mounted is exceeded

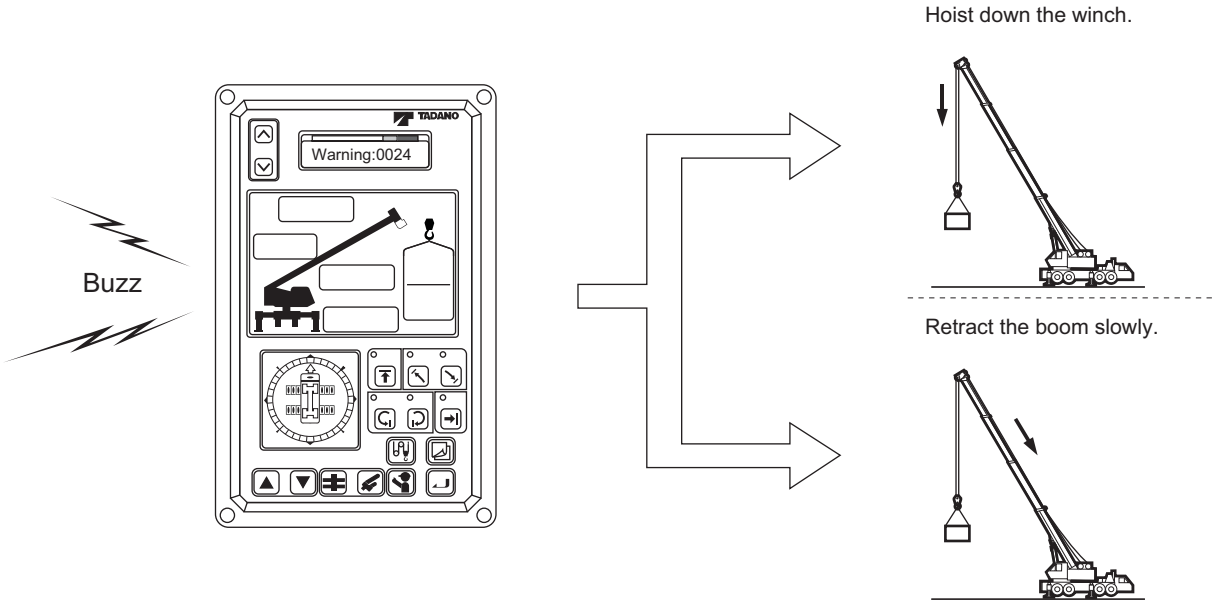
- Moment display: [Warning:0088]
- Buzzer sounds continuously.



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(3) Two-blocking

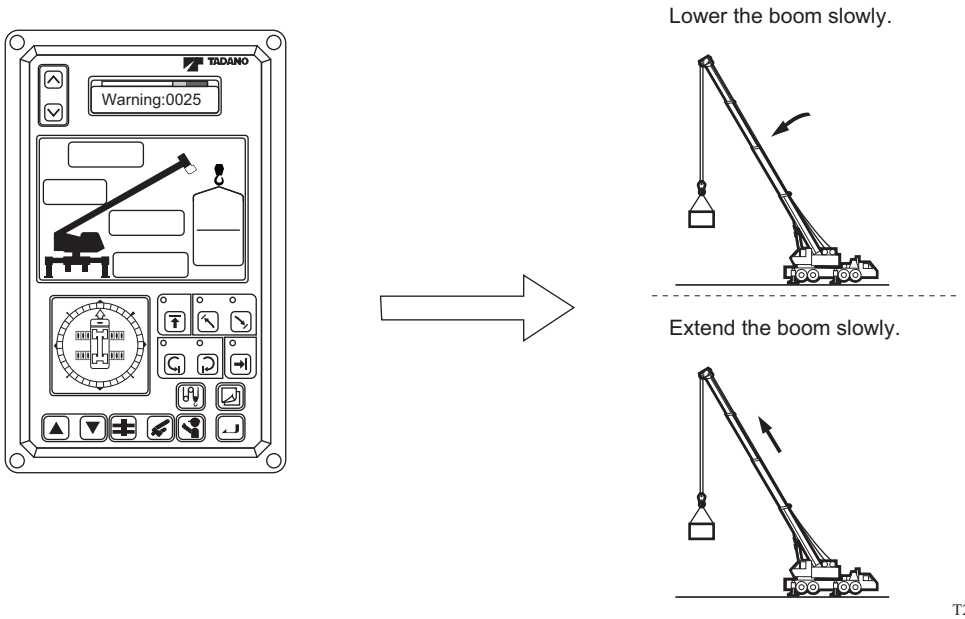
- Moment display: [Warning:0024]
- Buzzer sounds intermittently.



T23993E

(4) When rearward stability control function works

- Moment display: [Warning:0025]



T24100E

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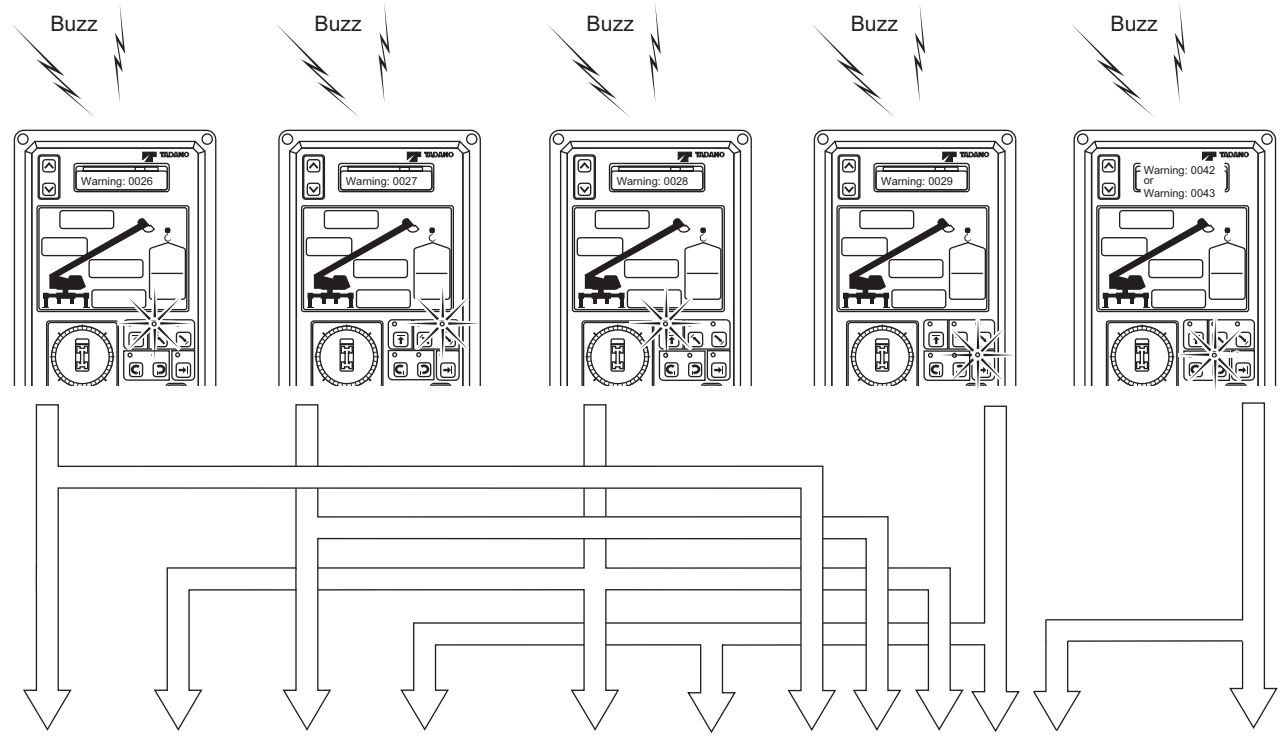
(5)When upper boom angle restriction function works:
- Moment display: [Warning:0026] is shown.
- Buzzer: Continuous
- Upper boom angle restriction indicator lamp flashes.

(6)When lower boom angle restriction function works:
- Moment display: [Warning:0027] is shown.
- Buzzer: Continuous
- Lower boom angle restriction indicator lamp flashes.

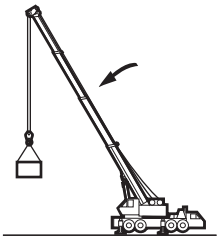
(7)When lifting height restriction function works:
- Moment display: [Warning:0028] is shown.
- Buzzer: Continuous
- Lifting height restriction indicator lamp flashes.

(8)When load radius restriction function works:
- Moment display: [Warning:0029] is shown.
- Buzzer: Continuous
- Load radius restriction indicator lamp flashes.

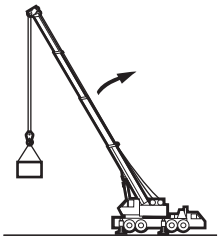
(9)When swing angle restriction function works:
- Moment display: [Warning:0042 or 0043] is shown.
- Buzzer: Continuous
- Swing restriction indicator lamp flashes.



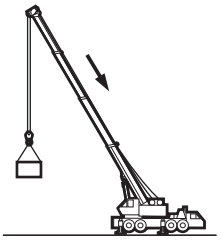
Lower the boom slowly.



Raise the boom slowly.

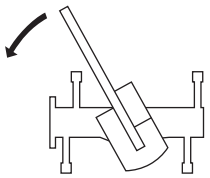


Retract the boom slowly.



Cancel working range restriction function.

Swing back the boom.

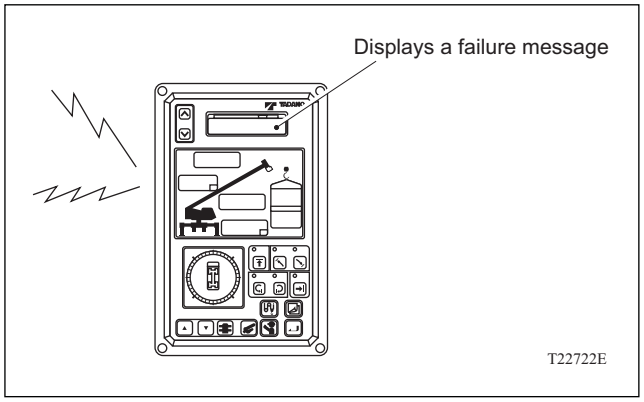


T24102E

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Display and Disposition of Failure Messages

When failure messages are shown on the AML moment display, the AML buzzer sounds for 3 seconds. Stop working and take appropriate action.



Messages	Meanings	Causes	Solutions
[Warning:0001]	R.F. outrigger retracts	Outrigger beam retracts and extended width decreases.	Re-extend outrigger.
[Warning:0002]	R.R. outrigger retracts		
[Warning:0003]	L.F. outrigger retracts		
[Warning:0004]	L.R. outrigger retracts		
[Warning:0010]	Approaching to the swing limit	The boom is swung close to the registered swing limit. (This message appears while the swing limit is registered and the swing stop override switch is set to OFF.)	Swing in the opposite direction. Cancel the swing limit function.
[Warning:0015]	Overwinding (with overwind cutout function deactivated)	Main (or auxiliary) winch is wound excessively.	Hoist down the main (or auxiliary) winch.
[Warning:0024]	Stops by overwinding		
[Error:0016]	Operational status not applied <case 1>	Wrong registration of operational status (boom lift, jib lift, single top lift, outrigger)	Register operational status again.
[Error:0017]	Operational status not applied <case 2>		
[Error:0018] [Error:0019] [Error:0020] [Error:0021]	Wrong telescoping order	Boom telescoping order is out of the normal condition after emergency telescoping, etc.	Return the telescoping order to the normal one. If the message is output while the telescoping order is normal, check or repair is required. Contact nearest TADANO distributor or dealer.
[Warning:0023]	Stops at moment ratio 100%	Moment ratio beyond 100 %	Hoist down winch. Raise boom angle. Retract boom.
[Warning: 0025]	Stops by upper boom angle restriction	Automatic stop to prevent jib from contacting jib or wire ropes by boom raising or boom retraction	Lower the boom. Extend the boom.
[Warning:0026]	Upper boom angle restricted	Boom is raised above the upper boom angle restriction.	Lower the boom. Cancel upper boom angle restriction.

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Messages	Meanings	Causes	Solutions
[Warning:0027]	Lower boom angle restricted	Boom is lowered below the lower boom angle restriction.	Raise the boom. Cancel lower boom angle restriction.
[Warning:0028]	Lifting height restricted	Lifting height is beyond lifting height restriction.	Lower the boom. Retract the boom. Cancel lifting height restriction.
[Warning:0029]	Load radius restricted	Load radius is beyond load radius restriction.	Raise the boom. Retract the boom. Cancel load radius restriction.
[Warning:0042]	Right swing angle restricted	Boom is swung beyond the swing restriction.	Swing back the boom. Cancel the swing restriction function.
[Warning:0043]	Left swing angle restricted		
[Warning:0046]	Unexpected outrigger retraction	Outrigger is retracted.	Register operational status again.
[Warning:0057]	R.F. outrigger state change	Outrigger state change as to decrease extension. Crane performance shifted to that with smaller outrigger extension.	Re-extend outrigger. Register operational status again.
[Warning:0058]	R.R. outrigger state change		
[Warning:0059]	L.F. outrigger state change		
[Warning:0060]	L.R. outrigger state change		
[Error:0006]	Pins inserted in jib	Jib connecting pin and jib set pin inserted.	Set the pins on the jib to normal conditions.
[Warning:0011]	Connecting pin uninserted	Jib connecting pin is not inserted.	
[Warning:0077]	Front jack moved	Front jack is operated.	Extend the front jack again and re-register the front jack status.
[Warning:0081]	Elevation slowed down	Elevation slow stop function is activated and the elevation speed is reduced because the limit angle is approaching due to boom elevation.	Stop operation. Elevate the boom to the opposite direction. Cancel the boom angle restriction. Move the boom toward non-critical side.
[Warning:0082]	Swinging slowed down	Swing slow stop function is activated and the swing speed is reduced because the limit angle is approaching due to boom swing.	Stop operation. Swing back the boom. Retract the boom. Raise the boom. Cancel the swing restriction function.
[Warning:0085]	Stroke end of elevation cylinder	Boom elevation is automatically stopped as it reaches the stroke end.	Stop operation. Operate in the opposite direction.
[Warning:0088]	Moment exceeding limit for boom with jib mounted	During lifting a load on the boom with the jib moment ratio beyond 85%.	Hoist down the winch. Raise the boom. Retract the boom.
Others	———	AML main body or detector defective	Check or repair required. Contact nearest TADANO distributor or dealer. For crane stowing, see “Disposition of System Troubles”.

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Disposition of System Troubles

How to Use AML Override Switch and Override Key Switch

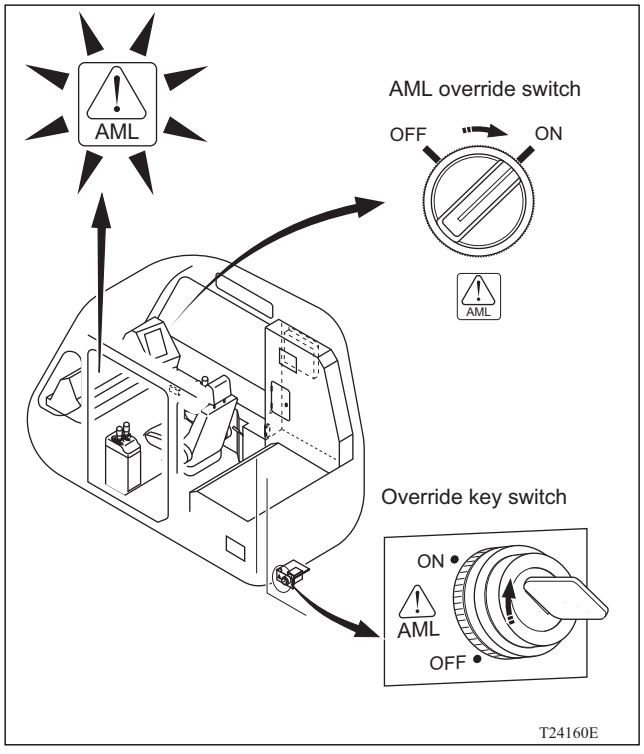
⚠ WARNING

⚠ Keeping the AML override switch set to ON and the override key switch set to ON cancels the AML's safety feature, the stop function. Using these switches during normal operation is extremely dangerous. Do not use these switches during normal operation. Use the switches only when operation has been disabled due to failure of the AML system. Be sure to set the load on the ground and retract the boom before using the switch. Use the elevating and/or swing functions to stow the boom.

If restoring operations after a failure message appears does not normalize crane operations, the AML is in trouble. When the system is out of order, crane operation becomes impossible.

The AML override switch and override key switch are only intended for use to stow the boom. Insert the key into the key hole and turn the switch to ON. The crane operation is available and the AML cancellation warning lamp lights up while the AML override switch is kept in the ON position in this condition.

◆The key should be kept by a person who takes care of the crane, or a person responsible for job-site works.



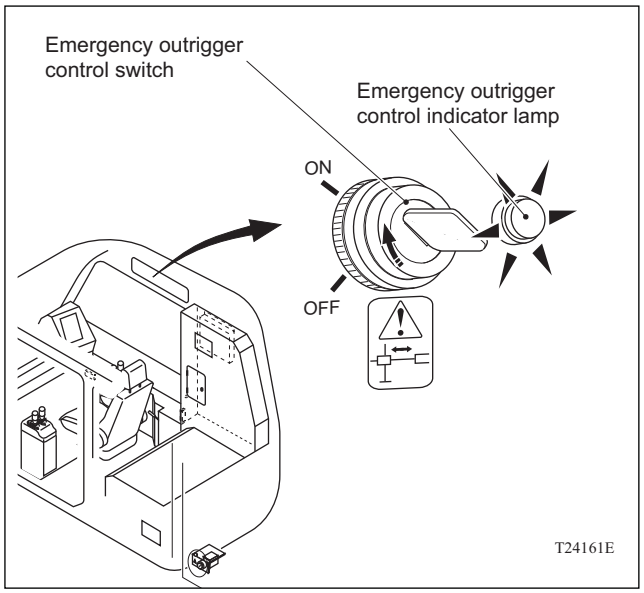
How to Use Emergency Outrigger Control Switch

⚠ WARNING

⚠ Use the emergency outrigger control switch only when the crane is in an emergency. After the operation, contact your nearest TADANO distributor or dealer to repair the outrigger detection device.

When the outrigger extension detection device, such as a code reel, breaks down, the registered outrigger state in the AML is cancelled to make the crane inoperable. In this emergency, use the emergency outrigger control switch to register the outrigger state into AML, and the indicator lamp will light up.

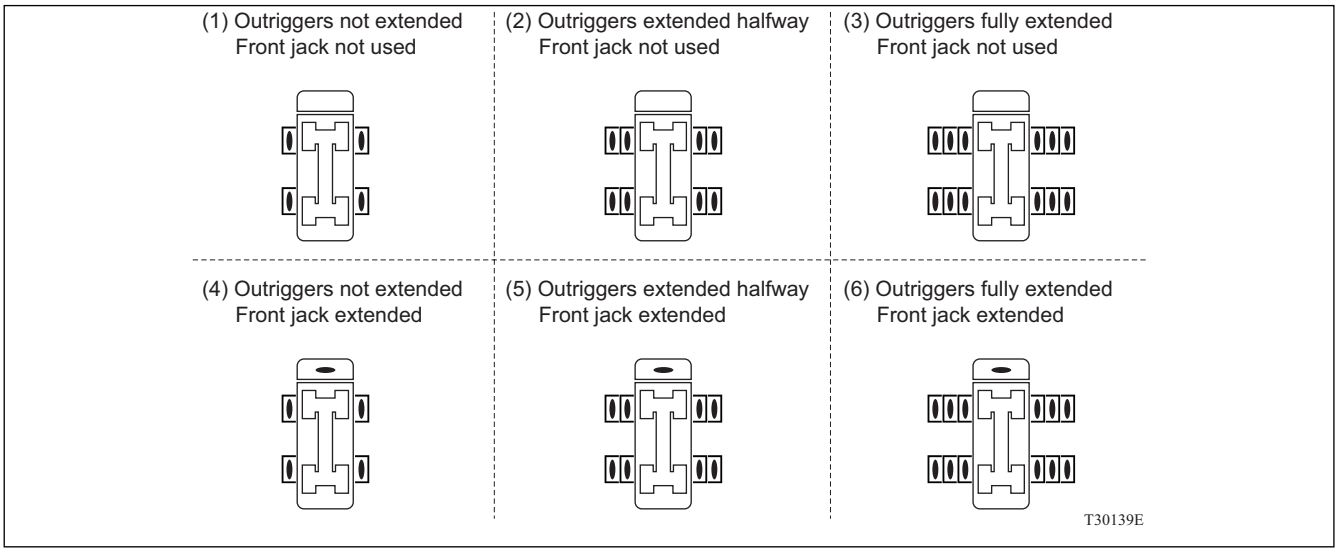
1. Set the emergency outrigger control switch to ON. The emergency outrigger control indicator lamp will light up and the outrigger state on the AML will be set to the default status.



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2. Press the outrigger mode select key in conformity with the actual outrigger extension width.

◆Each time the outrigger mode select key is pressed, the status changes in numerical sequence, from (1) to (6), as shown below. The display returns to (1) if you press the switch when status (6) is displayed on the screen.



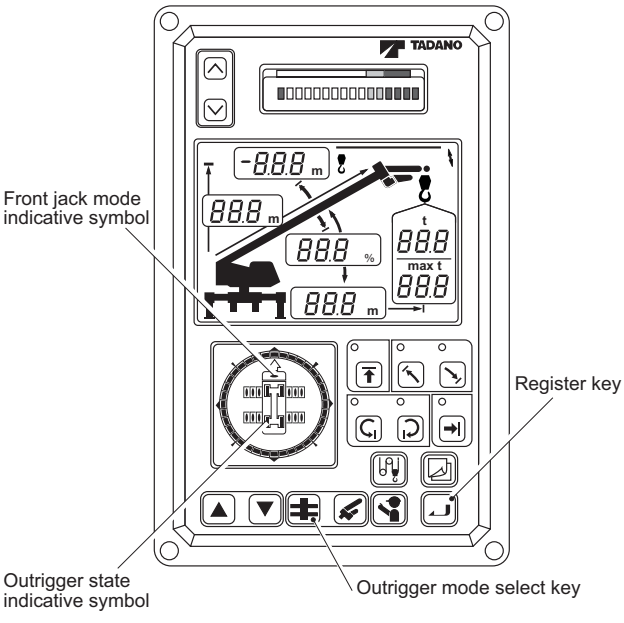
◆When the front, rear, right and left outrigger extension widths differ, select the smaller width.

◆The outrigger state indicative symbol is switched with flashing.

3. After selecting the intended outrigger status and front jack status, press the register key to register the status. The outrigger state indicative symbol will stop flashing and become marked up.

4. Register the lift status.

◆See “Selecting Lift Status” section.



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Other Safety Devices

Overwind Cutout Device

The overwind cutout device prevents damage to the crane that would be caused by pulling the hook block into the boom head. When the hook block approaches the boom head, single top or jib, the overwind cutout device detects it and sends a signal to the AML, which then stops any further crane action toward the critical condition.

When overwinding is detected, the crane will be set in the following status:

(1) Any operation involving action toward the critical state (hoisting up, extending or lowering the boom) is halted.

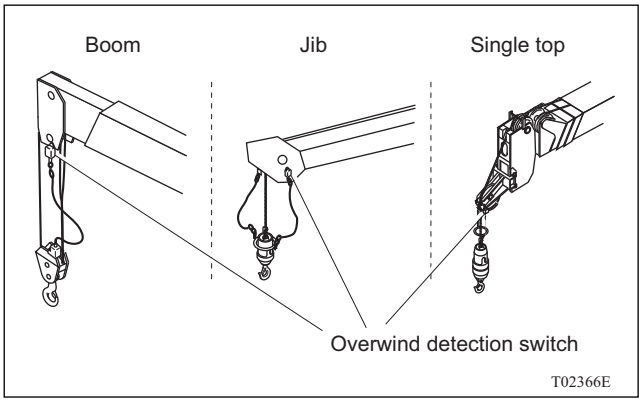
(2) If a critical-state operation is attempted, the alarm buzzer sounds to alert the operator.

When the crane is automatically stopped because the overwind cutout device has been activated, retract the boom or hoist down to move the hook block away from the boom head, single top or jib.

◆The overwind cutout device for the jib can also be used for the single top.

◆When the jib or single top is mounted, be sure to connect the leads of the overwind cutout device correctly. If the leads are not connected, the AML assumes an overwind condition, and all actions toward the critical condition are automatically stopped.

◆Once overwinding has occurred, alarm buzzer keeps sounding till the hook block is lowered.



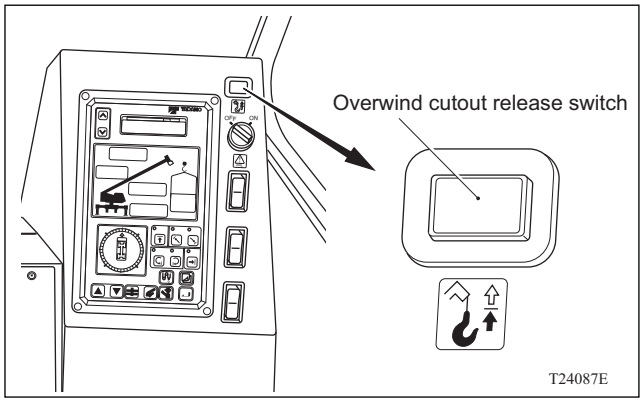
Deactivation of Overwind Cutout Function

⚠ WARNING

⚠ When the overwind cutout function is deactivated, the automatic stop function will not operate even if the hook block is overwound. Be careful not to overwind when deactivating the overwind cutout function is unavoidable or specifically required.

Use the overwind cutout release switch to deactivate the overwind cutout function. The overwind cutout function may hinder stowing the main hook block and mounting or stowing the jib. To prevent this, you can temporarily deactivate the function by keeping the overwind cutout release switch pressing.

◆Overwind cutout function is deactivated while the jib set status is registered on the AML.



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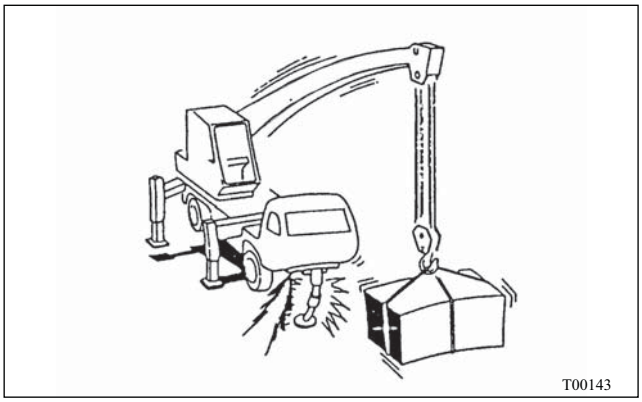
Front Jack Overload Warning Device

⚠ WARNING

⚠ The horn sounds during an operation with the front jack extended to signal that there is an overload on the front jack. Move the boom until the horn stops.

The purpose of the front jack overload warning device is to prevent damage to the carrier's chassis frame by an excessive load during an operation with the front jack extended. When a load exceeding the limit is placed on the front jack, the horn sounds, warning the operator of an overload.

◆On certain surface, the horn may sound even if the load is within the limit. For example, when the ground supporting the front outriggers is soft, the load on the front jack may increase, causing the horn to sound. In such a case, check the ground support conditions of the outriggers and front jack.



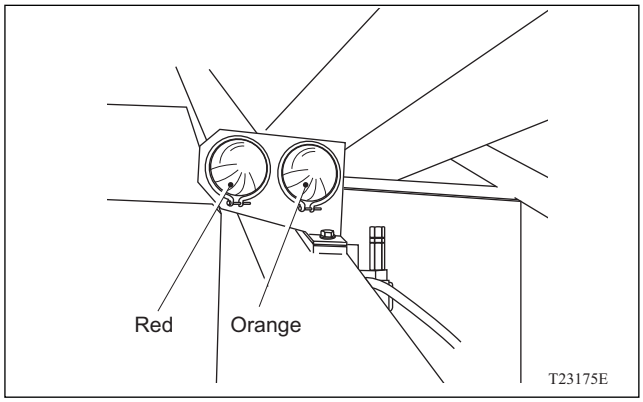
External Warning Lamps (Option)

⚠ WARNING

⚠ When the external warning lamp in red lights, crane operation to the critical side stops. Do not cancel AML stop function to continue crane operation. Operate the crane toward safety side and then the work after lamp lighting has changed from red to orange, or lamp has gone off.

The external warning lamps are to inform the people engaged in work around the crane of AML conditions. While any of the following functions are deactivated, the red lamp lights up in addition to inform the people engaged in work that an automatic stop function is deactivated.

(1) Overwind cutout function
(2) Swing stop function
(3) Automatic stop by the AML (caused by the moment exceeding 100%, working range limit, etc.)

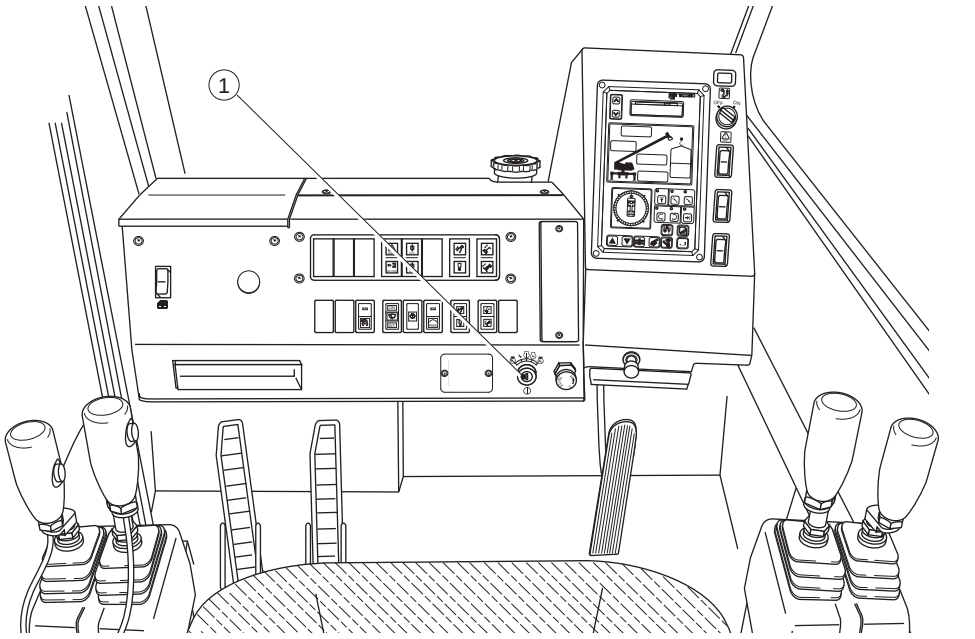


Color	Crane (or AML) conditions
Not lighted	Safe
Orange	Not in danger, but attention needed • Moment ratio is within the range in which alarm function is activated.
Red	(1) In danger (Motion to critical side stops) • Moment ratio exceeds the limit at which automatic stop function is activated. (2) Automatic stop function cancelled • Swing stop function is shifted to “OFF”. • Overwind cutout function is deactivated. • AML override switch and override key switch are turned ON.

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Starting and Stopping the Engine

Control



1. Starter switch

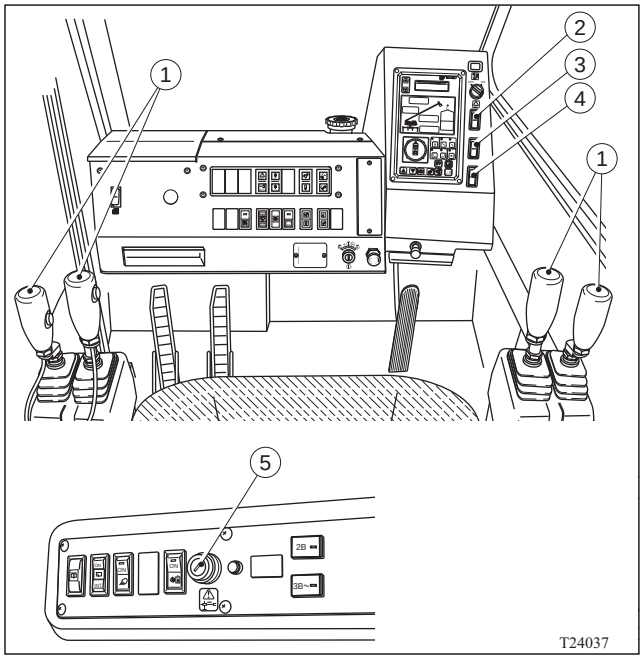
Pre-starting Checks

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

1. Perform the pre-operational inspection.

2. Make sure that the controls in the crane operator's cab are placed in the following positions:

(1) Main and auxiliary hoist levers, boom telescoping lever, boom elevating lever and swing lever ···Neutral
(2) Swing brake switch ·····“ON”
(3) Swing stop override switch·····Activated
(4) Slow elevation stop switch ·····Activated
(5) Emergency outrigger control switch·····“OFF”



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Starting the Engine

[NOTICE]

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

◆The engine can be started from both the carrier driver's cab and crane operator's cab. Normally, however, use the starter switch in the carrier driver's cab. Use the switch in the crane operator's cab only when the engine stalls during operation.

Starting Engine from Carrier Driver's Cab

◆For a detailed explanation of the engine starting procedure, see the Crane Carrier Operation and Maintenance Manual.

1. Place the gearshift in the neutral position and activate the parking brake.

2. Make sure that the PTO switch is in the OFF position.

3. Turn the starter switch to the START position to crank the engine.

Starting Engine from Crane Operator's Cab

◆When the engine is cold, use the starter switch in the carrier driver's cab.

1. Turn the starter switch to the START position to crank the engine. Release the key immediately once the engine has started.

◆The starter switch positions and their functions are as follows:

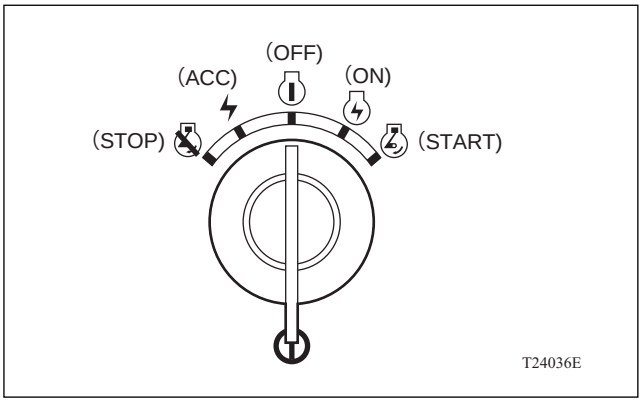
"START" ・・・・・Starts the engine. Release the key after the engine has started. The switch will automatically return to ON.

"ON" ・・・・・・・・・Supplies current to the electrical circuits. Keep the key in this position during crane operation.

"OFF" ・・・・・・・・The key can be inserted and removed in this position. Keep the key in this position when the engine is stationary.

"ACC" ・・・・・・・・The power windows, fan, washer, wiper, horn, and flood lamps can be used with the engine off.

"STOP" ・・・・・・・Stops the engine. Releasing the key automatically returns the switch to “ACC” position.



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Stopping the Engine

◆The engine can be stopped from both the carrier driver's cab and crane operator's cab. Normally, however, use the starter switch in the carrier driver's cab to stop the engine. Use the switch in the crane operator's cab only when the engine must be stopped during operation.

Stopping Engine from the Carrier Driver's Cab

◆For a detailed explanation of how to stop the engine, see the separate Crane Carrier Operation and Maintenance Manual.

1. Make sure that the PTO switch is in the OFF position.

2. Turn the key to the stop position to stop the engine.

Stopping Engine from the Crane Operator's Cab

1. Turn the starter switch to the STOP position. Turn it to OFF position immediately after the engine has stopped.

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Operating the PTO and Warming Up the Machine

Operating the PTO

"PTO" is an abbreviation for "Power Take Off". The PTO, by engaging the gears, transmits engine power to the hydraulic pump.
When the PTO gears are engaged (PTO is ON) after starting the engine, the hydraulic pump is driven, making hydraulic pressure available for operating the crane. The hydraulic pump stops when the PTO is disengaged (PTO is OFF) and the power from the engine is interrupted.

Engaging the PTO

1. Depress the clutch pedal all the way and place the PTO switch in the ON position. The PTO lamp will light up.
◆The location of the PTO switch depends on the crane carrier. See the separate Crane Carrier Operation and Maintenance Manual.
◆For a transmission Hi/Lo switch installed Mitsubishi carrier, tip the switch to H side.

2. Slowly release the clutch pedal and remove your foot.

Disengaging the PTO

1. Depress the clutch pedal all the way and place the PTO switch in the OFF position. The PTO lamp will go out.

2. Release the clutch pedal.

Warming Up the Machine

[NOTICE]
◆Be sure to allow your machine to warm up before the start of every operation. This is especially important in cold weather when the engine and hydraulic oil viscosities are high. If you start an operation without sufficiently warming up the engine and machine, highly viscous oils may cause damage to the engine and hydraulic system.
◆For this machine, the hydraulic oil temperature should be within the range of 30°C to 60°C. Operate the crane at low engine speed until the oil temperature reaches 30°C or higher.

1. Let the engine warm up at idling speed for approximately five minutes after engaging the PTO. When it is very cold, extend the warm up time as necessary, according to the ambient temperature.

2. Increase the engine speed to between 800 and 1,000 min^{-1} and operate the crane without a load for approximately five to ten minutes. When it is very cold, extend the operating time according to the atmospheric temperature.

3. Start a loaded operation after the machine has been sufficiently warmed up without a load.

Checks to Make during Warmup

◆Check the instruments and monitors in the carrier driver's cab as instructed in the separate Crane Carrier Operation and Maintenance Manual.

Check the engine, hydraulic pumps, hydraulic motors, swing bearing and each pivot pin for any unusual sound. If any are found, stop operation immediately and contact your nearest TADANO distributor or dealer to have them inspect your machine.

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Outriggers

Setting the Crane

⚠ WARNING

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

The most important factor for safe crane operation is setting the outriggers on ground firm enough to support both the mass of the crane and the load to be lifted.
The crane is normally supported by four outriggers during operation, but in certain operating positions, a large part of the crane mass and lifted load mass may end up being supported by only one outrigger. If this occurs when the outriggers are set on soft ground, the outrigger floats may sink into the ground, causing the crane to list and, in the worst case, overturn.
Some surfaces may appear to be firm, when in fact they are not hard enough to support the machine. Be especially careful of the following surfaces:
(1) Asphalt pavement
(2) Sidewalk or other areas with stone pavement
(3) Areas that have been filled in after excavation
(4) Reclaimed land
(5) Areas near the shoulder of a road or the edge of a pit

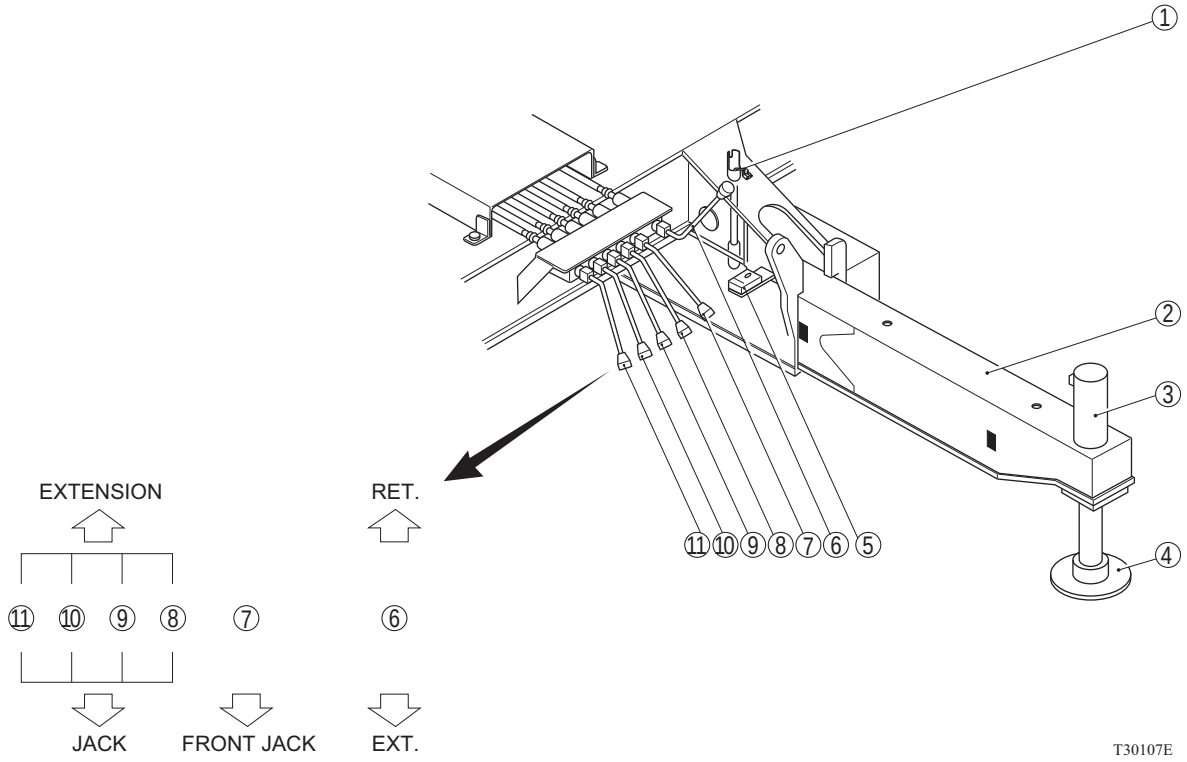
Preparing the Ground

When it is unavoidable to set the crane on soft ground or on ground that cannot bear the load of the crane plus a load to be lifted, carry out the following procedures:
(1) Grade a slope or rough surface so that the crane can be set in a level position.
(2) Place steel plates or wood blocks on the surfaces where the outrigger floats are to be located, in order to distribute the bearing pressure over a larger area. The steel plates and wood blocks must be sufficiently strong and large in area and also appropriate for the ground condition. The outrigger floats must be set at the center of the plates or blocks.

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Controls

◆The illustration shows the right side of the crane carrier. The lever arrangement on the left side is symmetrical to this.



1. Lock pin
2. Outrigger beam
3. Jack cylinder
4. Outrigger float
5. Bubble level
6. Extend/retract control lever
7. Front jack lever
8. Individual control lever (left front)
9. Individual control lever (right front)
10. Individual control lever (left rear)
11. Individual control lever (right rear)

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Extending the Outriggers

⚠ WARNING

⚠ Outriggers with improperly extended beams cannot assure safety. Adhere to the rated lifting capacity table, which specifies the correct beam length for different lifting capacities. Make it a rule to fully extend the beams whenever possible even on a crane which is rated for operation on outriggers at half extension.

⚠ The machine can sometimes remain level even when it is supported on only three jacks. Operating the machine in such a condition is very dangerous. After extending the outriggers, make sure that all outrigger floats are in contact with the ground. Any unseated float must be lowered so that it is in firm contact with the ground.

⚠ If the crane is not level on the ground, the load radius will increase when the load is swung toward the lower side. In the worst case, this could cause the crane to overturn. Always use the bubble levels to make sure that the crane is level after extending the outriggers.

⚠ Operating on outriggers when any tires are in contact with the ground will reduce machine stability. Extend jacks and, if necessary, place blocking under the outrigger floats to raise the tires clear of the ground.

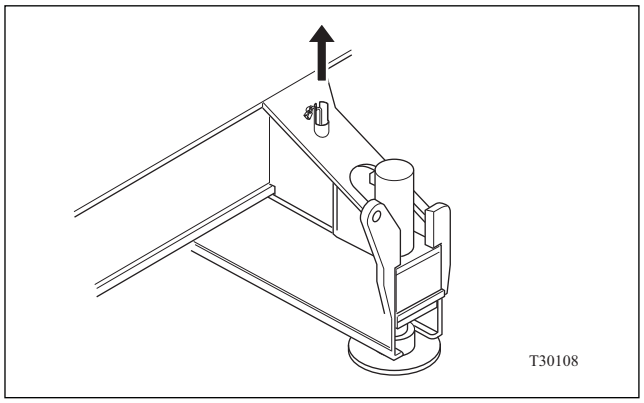
⚠ The outrigger beams may accidentally retract during operation if they are not properly locked with the lock pins. Be sure to secure the outrigger beams with the lock pins whenever they are extended.

[NOTICE]

◆If an outrigger or the front jack is stowed after registration of outrigger status, the registered status is erased. In this case, register the outrigger status again before starting crane operation.

Full Extension Procedure

1. Remove all four lock pins.

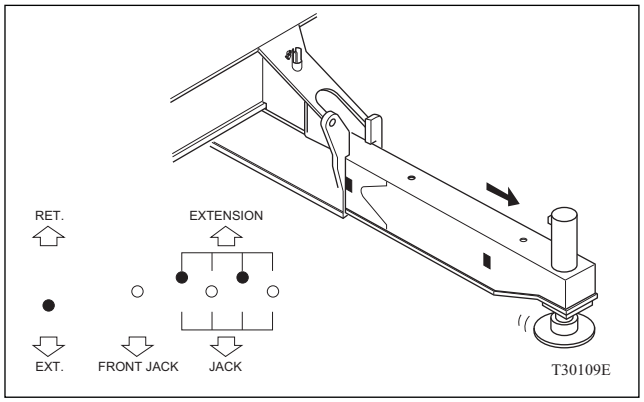


2. Place the two individual control levers of the outriggers on your side to EXTENSION. Then move the extend/retract control lever toward EXT. to extend the outrigger beams fully.

◆The figure below shows an outrigger on the left side of the carrier.

⚠ WARNING

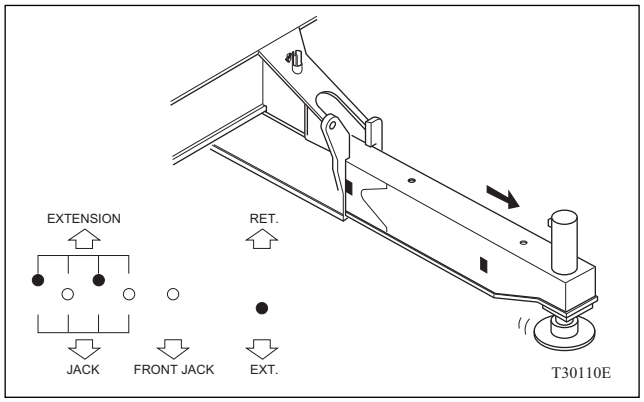
⚠ When extending four outrigger beams simultaneously, check the other side of the carrier well before operation.



3. Insert the lock pins to lock the extended outrigger beams.

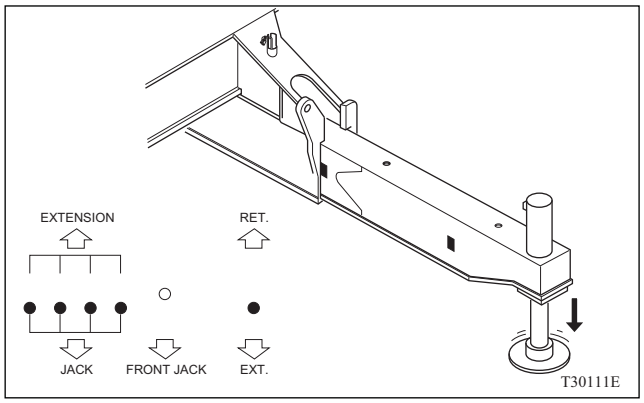
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4. Go the the other side of the carrier. Place the two individual control levers of the outriggers on your side to EXTENSION. Then move the extend/retract control lever toward EXT. to extend the outrigger beams fully.
◆The figure below shows an outrigger on the right side of the carrier.



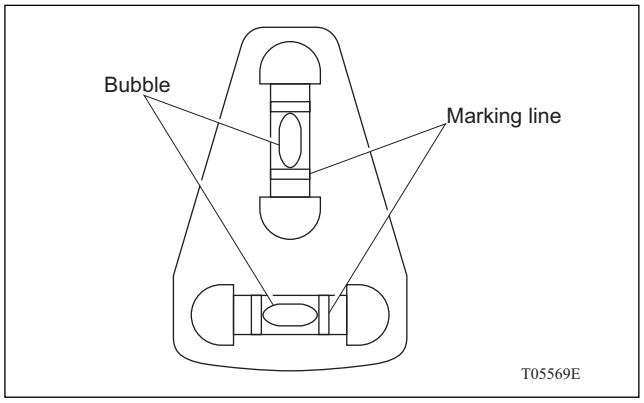
5. Insert the lock pins to lock the extended outrigger beams.

6. Place all four individual control levers in the JACK position. Move the extend/retract control lever toward EXT. to fully extend the jack cylinders.



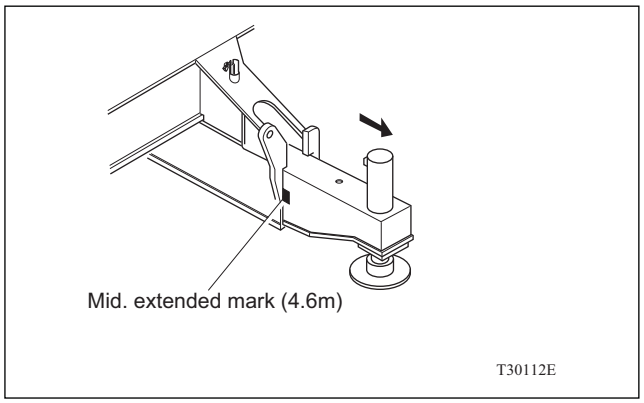
7. After all four jack cylinders are fully extended, return the extend/retract control lever and all the individual control levers to the neutral position.

8. Use the bubble levels to make sure that the crane is level. If the crane is not level, refer to the "Level Adjustment" section for detailed instructions on leveling the crane.



Middle Extension Procedure

1. Extend the outrigger beams to the mid. extended mark (4.6 m) in the same procedure as the full extension procedure.



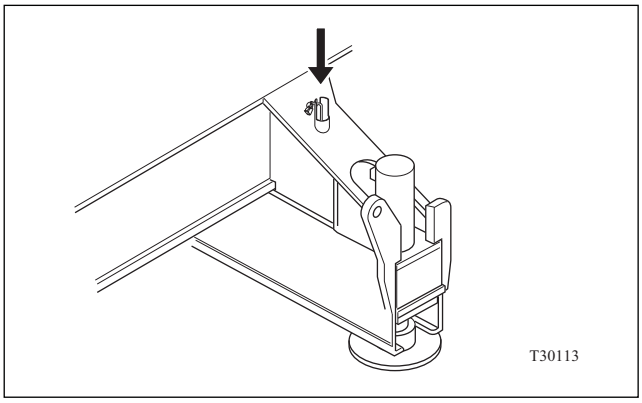
2. Insert four lock pins into the pin holes to lock the outrigger beams.

3. Extend all the jack cylinders fully in the same procedure as the full extension procedure.

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Minimum Extension Procedure

1. Retract all four outrigger beams fully and inset four lock pins into the pin holes to lock the outrigger beams.

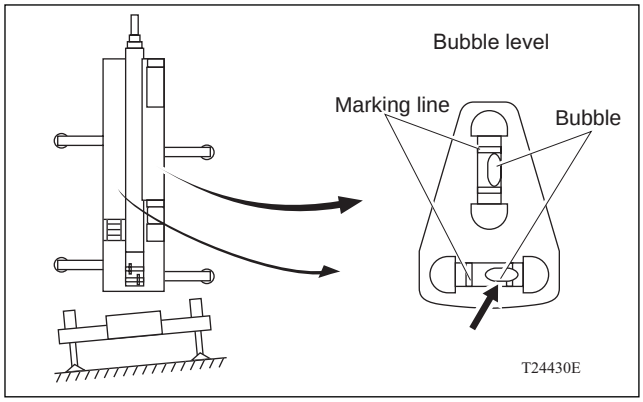


2. Extend all the jack cylinders fully in the same procedure as the full extension procedure.

Level Adjustments

Using the Bubble Level

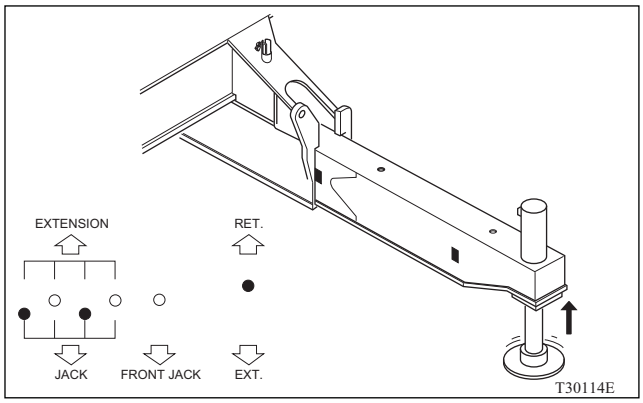
“Setting the vehicle level” refers to the condition that the vehicle is set so that the bubbles in the spirit level are between the marking lines.
Check the position of the bubbles in the bubble level. If a bubble is off-center, it means that the crane is not level, and the side of the crane in the direction of the bubble is higher.
—Example—
A bubble in the glass level is off-center and to the right.
= The crane is listing to the left.



Adjustment

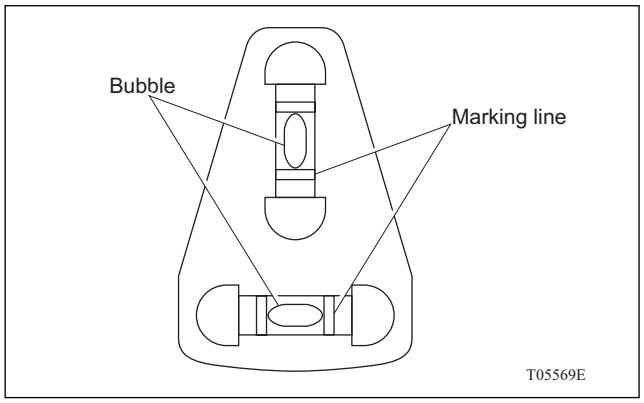
The crane should be adjusted to a level position by retracting (extending) the jack cylinders located on the higher (lower) side of the crane. The following explanation assumes that the right side of the crane is higher (lower).

1. Place the right front and right rear individual control levers (levers corresponding to the higher (lower) side) in the JACK position. Move the extend/retract control lever toward RET. (EXT.) a little at a time to retract (extend) the jack cylinders on the right side of the crane.



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2. If the bubbles in the spirit level is between the marking lines, the vehicle is set level. Return the extend/retract control lever and individual control levers to the neutral position.



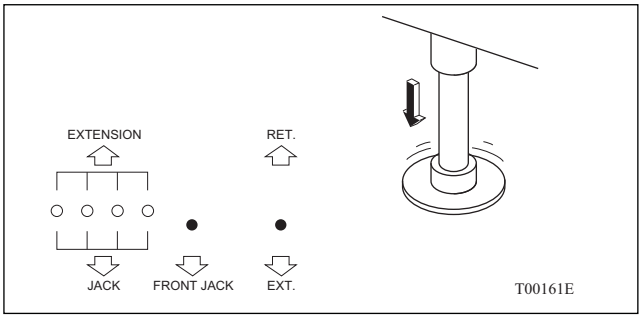
3. Make sure that all four outrigger floats are in contact with the ground. Any unseated outrigger floats must be lowered until they are in firm contact with the ground.

Front Jack

Extension

◆Extend the front jack only after extending and setting the outriggers to install the crane level.

1. Place the front jack lever in the FRONT JACK position. Move the extend/retract control lever toward EXT. The front jack will start extending.



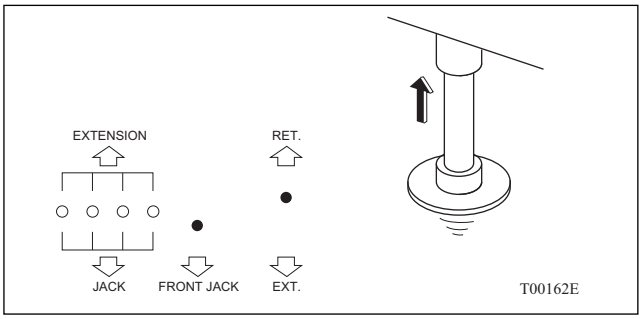
2. Keep the extend/retract control lever toward EXT. for approx. 3 seconds after the front jack float has reached the ground. Then, return the extend/retract control lever and front jack lever to the neutral position.

Retraction

[NOTICE]

◆Retract the front jack before retracting the outriggers. If the outriggers are retracted without first retracting the front jack, the carrier chassis frame will be damaged.

1. Place the front jack lever in the FRONT JACK position. Move the extend/retract control lever toward RET. The front jack will start retracting.



2. Once the front jack has been completely retracted, return the extend/retract control lever and front jack lever to their neutral position.

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Stowing the Outriggers

⚠ WARNING

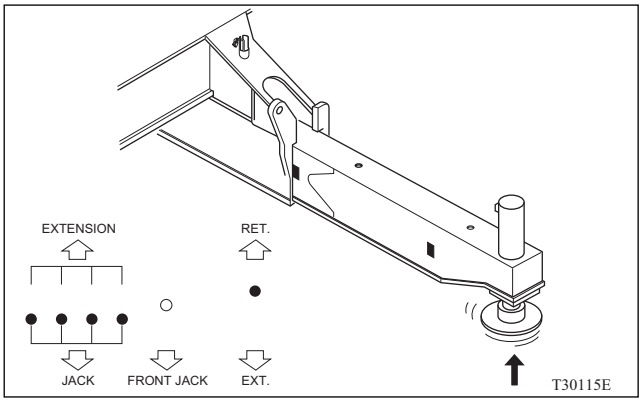
⚠ If the outriggers are retracted with the boom extended, the crane may overturn. Fully retract the boom and stow it on the boom rest before retracting the outriggers.

⚠ Traveling with the crane without first securing the retracted outriggers with the lock pins is dangerous. The outrigger beams could accidentally extend during travel. Be sure to securely pin the outrigger beams whenever they are stowed.

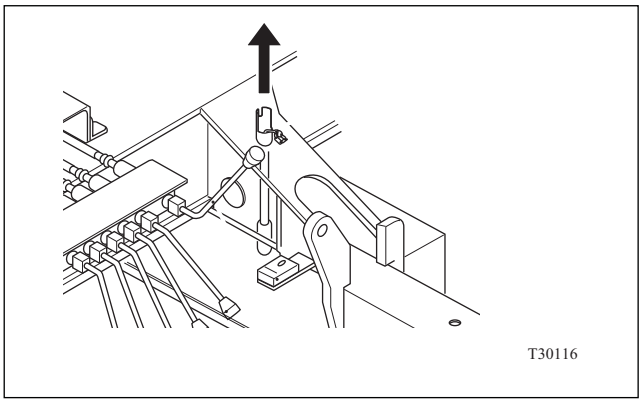
[NOTICE]

◆Retract the front jack before retracting the outriggers. If the outriggers are retracted the front jack left extended, the carrier chassis frame will be damaged.

1. Place all four individual control levers in the JACK position. Move the extend/retract control lever toward RET. and fully retract the jack cylinders.

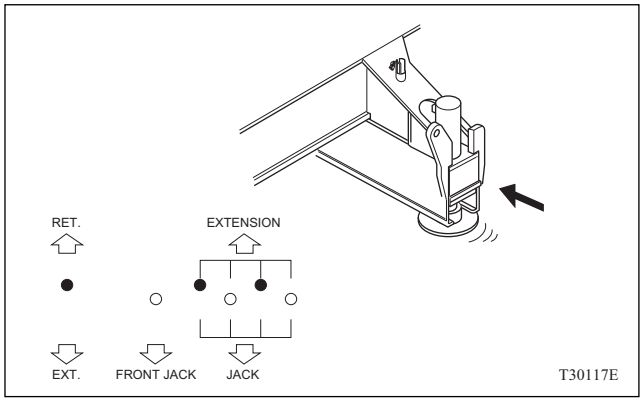


2. Remove all four lock pins.



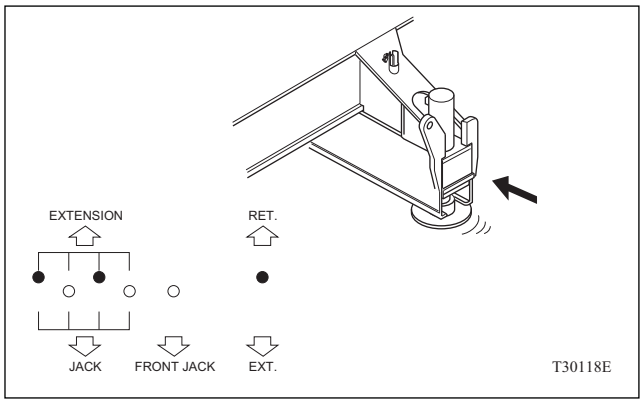
3. Place the two individual control levers of the outriggers on your side to EXTENSION. Then move the extend/retract control lever toward RET. to retract the outrigger beams fully.

◆The figure below shows an outrigger on the left side of the carrier.



4. Go the the other side of the carrier. Place the two individual control levers of the outriggers on your side to EXTENSION. Then move the extend/retract control lever toward RET. to retract the outrigger beams fully.

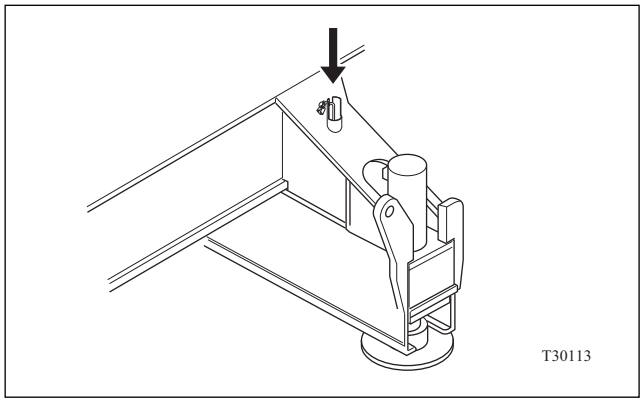
◆The figure below shows an outrigger on the right side of the carrier.



5. After all four outrigger beams are fully retracted, return the extend/retract control lever and all the individual control levers to the neutral position.

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6. Insert four lock pins into the pin holes to lock the outrigger beams.



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Crane Operator’s Cab

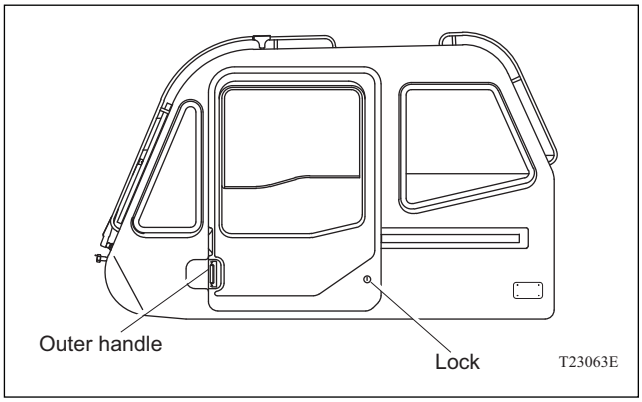
Opening and Closing the Door

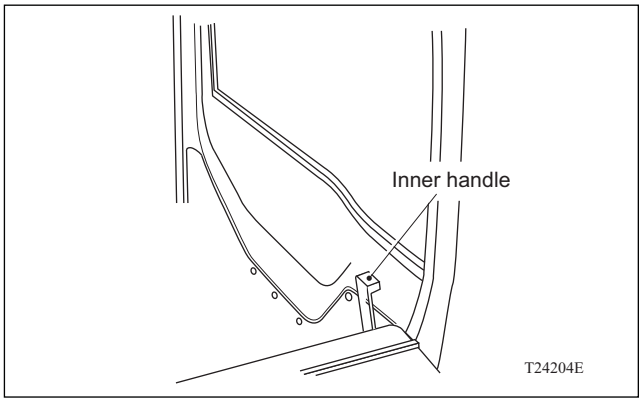
⚠ WARNING

⚠The door, if not completely shut, could open when the vehicle is traveling. Before traveling, be sure to close and lock the door.

⚠ CAUTION

⚠ Do not attempt to shut the door, holding it at the end. Your fingers may be pinched. When shutting the door, hold the door handle.





From Outside the Cab

Pull the outer handle sideways to slide the door open or shut.

From Inside the Cab

Pull the inner handle sideways to slide the door open or closed.

Locking and Unlocking

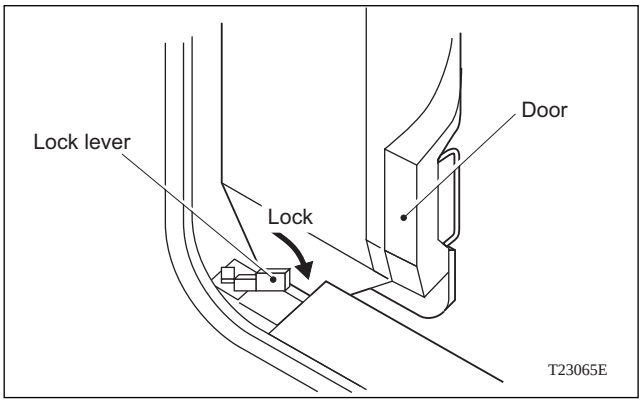
Insert the door key in the lock, and rotate it clockwise to lock the door, or counterclockwise to unlock it.

◆Do not leave the crane with the key inserted in the lock.

Leaving the Door Held Open

To keep the door open during crane operation, open the door fully and press the lock lever forward with the door fully open.

Before closing the door, press the lock lever to the rear.



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Opening and Closing the Windows

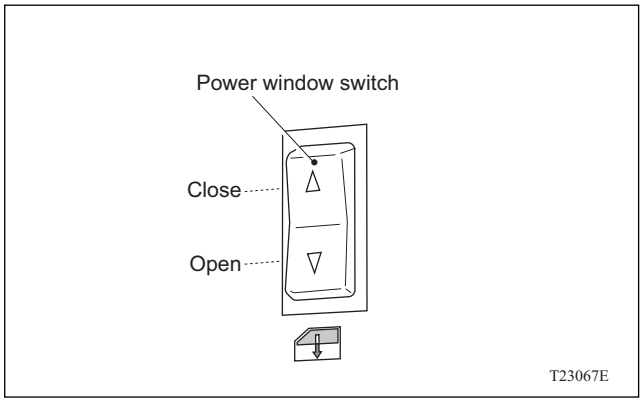
[NOTICE]

◆Do not leave the windows open; wet controls may cause problems. Be sure to shut the windows before leaving the cab.

Opening and Closing the Door Window

Operate the power window switch to open or close the door window.

◆The door window can be opened or closed only while the door is closed.

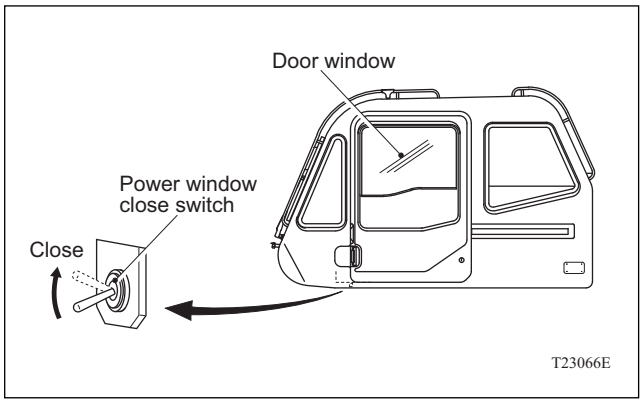


Closing the Door Window from Outside of the Cab

You can close the door window from outside of the cab by operating the power window close switch.

Use this switch if you have exited the cab with the door window left open.

◆This switch is only for closing the door windows.

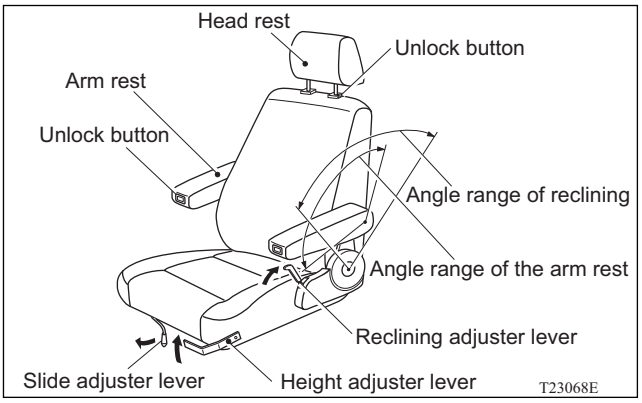


Adjusting the Seat Position

⚠ WARNING

⚠Adjust the seat position before starting operation. Making adjustments during operation could be dangerous.

The seat can be adjusted up or down, and forward or backward. The headrest height, the armrest angle, and the seatback angle are also adjustable. Adjust the seat to a position that allows you to easily operate the control levers and pedals.



Height Adjustment

Pull up the height adjuster lever and adjust the seat height. Return the lever to the original position after adjustment.

Forward/Backward Adjustment

Pull the slide adjuster lever forward, and adjust the seat forward or backward. The seat is locked in position when the lever is released. Try to move the seat back and forth to ensure that it is locked in place.

Seatback Angle Adjustment

Pull the reclining adjuster lever backward and adjust the angle of the seatback. The seatback is locked in position when the lever is released.

Armrest Angle Adjustment

Press the unlock button and move the armrest. The armrest can be locked either at the stowage position behind or one of the four front positions (at 8° intervals).

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Headrest Height Adjustment

Pull up the headrest and adjust the headrest height. The headrest can be adjusted at either of the two positions. To lower the headrest, push down the headrest while pressing the unlock button.

Adjusting Position of the Lever Stands

⚠ WARNING

⚠ Unintentional touch of control levers when entering the cab may cause the machine to move, which is very dangerous. For entering or exiting the cab or when crane operation is over, stow the armrest and lean the lever stands backward.

Adjusting Position of the Lever Stands

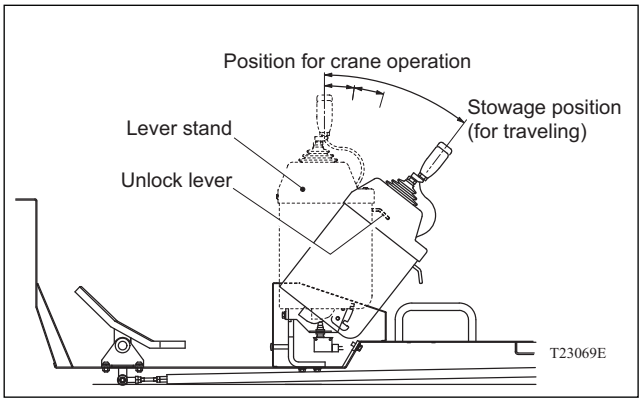
[NOTICE]

◆Move the lever stands to the position for crane operation before starting crane operation. While any lever stand is in the stowage position, the crane does not move even if a control lever is operated.

Before starting crane operation, move the lever stands to the position appropriate for crane operation. The operating position of each lever stand can be selected among three positions.

1. Raise the lever stand while pulling the unlock lever.
◆To prevent faulty operation, do not touch the control levers.

2. After raising the lever stand to the operating position, release the unlock lever to lock the lever stand.



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Stowing the Lever Stands

[NOTICE]

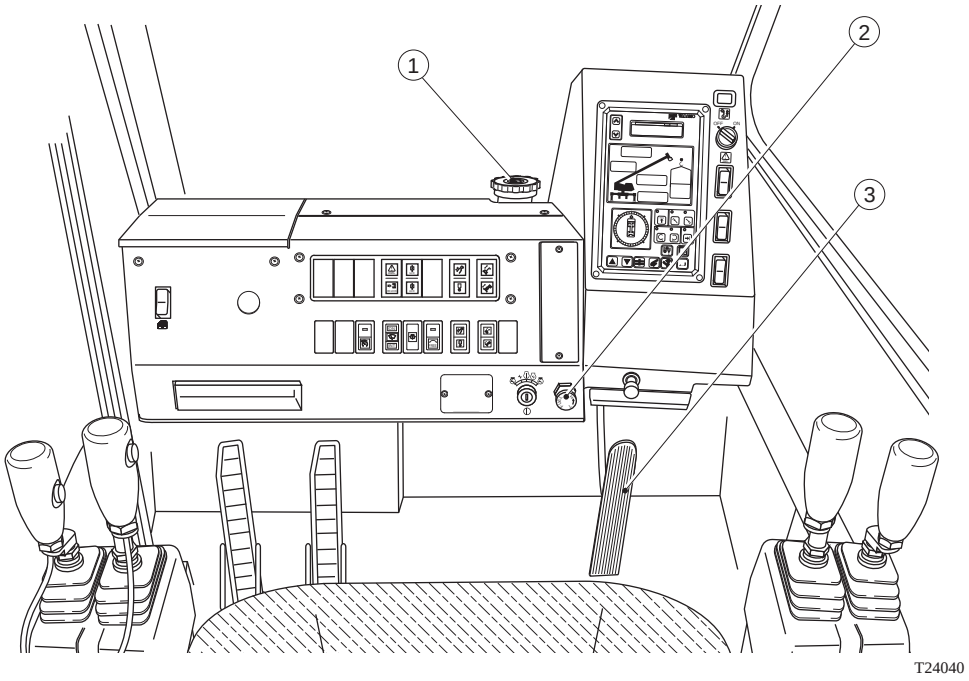
◆The crane may move unexpectedly if a control lever touches an armrest of the seat. Stow the armrests before moving the lever stands to their stowage position.

1. Move the lever stand to the stowage position while pulling the unlock lever.

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Acceleration

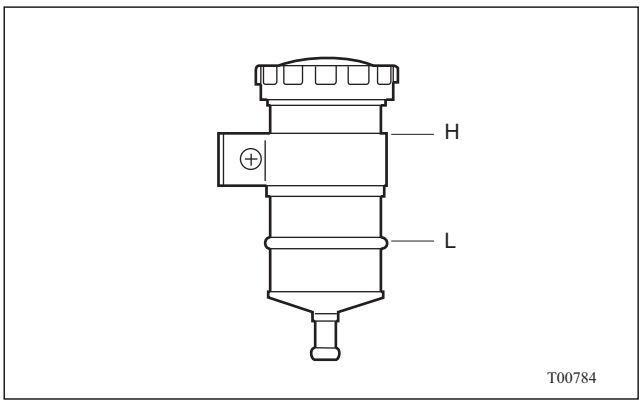
Controls



1. Oil reservoir
2. Accelerator lock knob
3. Accelerator pedal

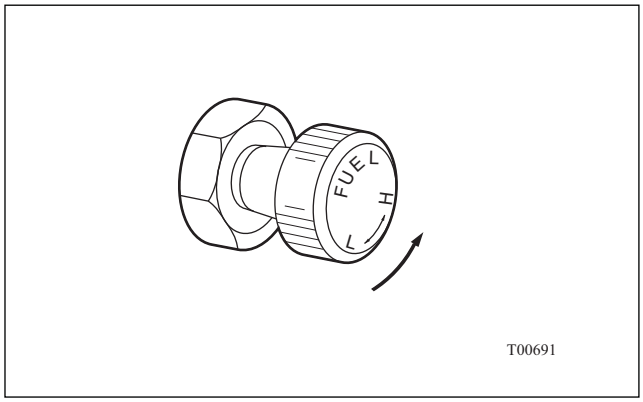
Oil Reservoir

The oil reservoir contains the hydraulic oil for the accelerator circuit.



Accelerator Lock Knob

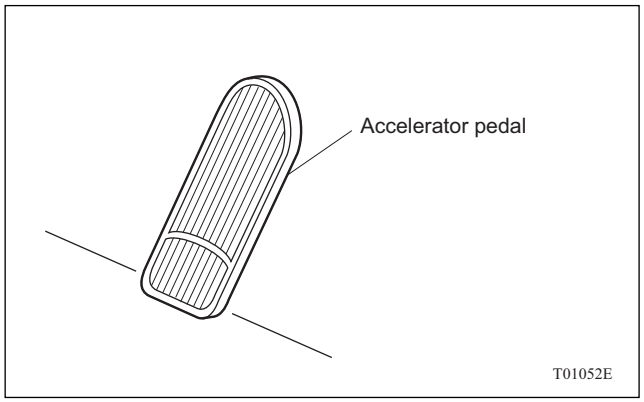
Rotating the knob allows fine adjustment of the engine speed; turn the knob toward "H" to increase the engine speed or toward "L" to reduce it.



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Accelerator Pedal

The engine speed changes from idling speed to maximum speed according to the amount the accelerator pedal is depressed.

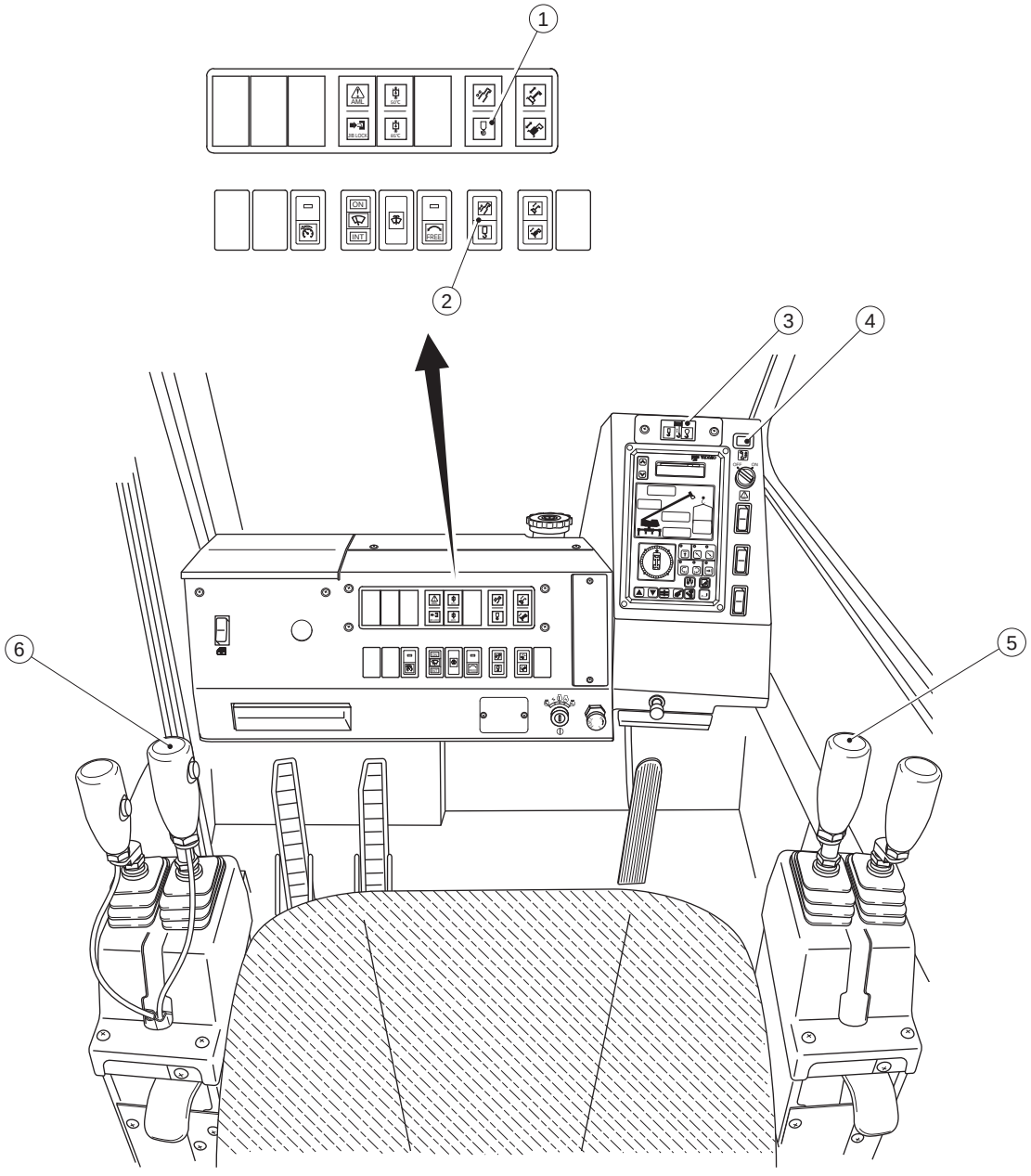


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Hoisting

Controls (ISO Layout)

◆The arrangement of the levers shown here is based on the ISO layout. The arrangement on machines adopting the TADANO layout is different from the one shown. (See “Layout of Controls” for TADANO layout.)



1. Auxiliary hoist operation indicator lamp
2. Boom telescoping /auxiliary hoist control selector switch
3. Winch drum rotation indicator (option)
4. Overwind cutout release switch
5. Main hoist control lever
6. Boom telescoping /auxiliary hoist control lever

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Hoisting Up and Down

⚠ WARNING

⚠ Moving the control levers abruptly is dangerous because it causes the load to bounce and swing. This practice could result in damaging the crane, and injury or death. Be sure to operate the levers slowly and carefully.

⚠ Never attempt to pull a load sideways or inward by operating the winch. Doing so may not only cause the boom failure but also overturn the crane.

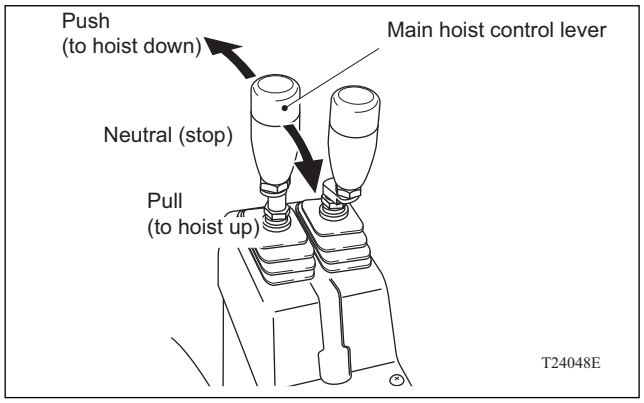
⚠ When a load is lifted, the boom deflects and the working radius increases, possibly exceeding the allowable limit. This result causes an overload condition. Stop lifting when the load just clears the ground, and check the condition of the load, as well as for any sign of overloading, before continuing.

◆Since the main and auxiliary winch systems are independent of each other, both winches can be used simultaneously.

Main Hoist

Operate the main hoist control lever to hoist up or hoist down the load.

To hoist up : Pull the lever rearward.
To hoist down : Push the lever forward.
To stop : Return the lever to the neutral position.



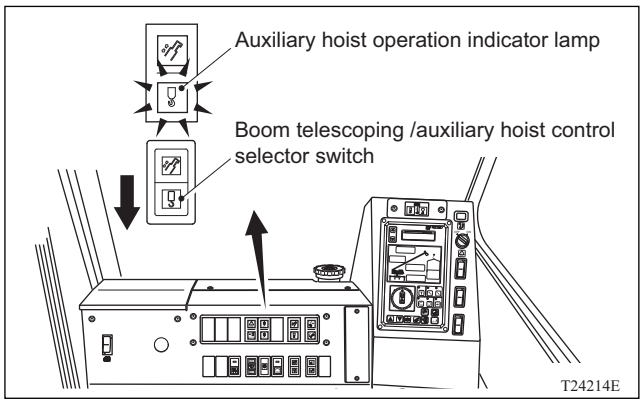
Auxiliary Hoist

⚠ WARNING

⚠ Check the control mode of the boom telescoping /auxiliary hoist control lever before operating the lever by making sure that the auxiliary hoist operation indicator lamp is lit; otherwise the crane can move independent of your intent and create a hazard.

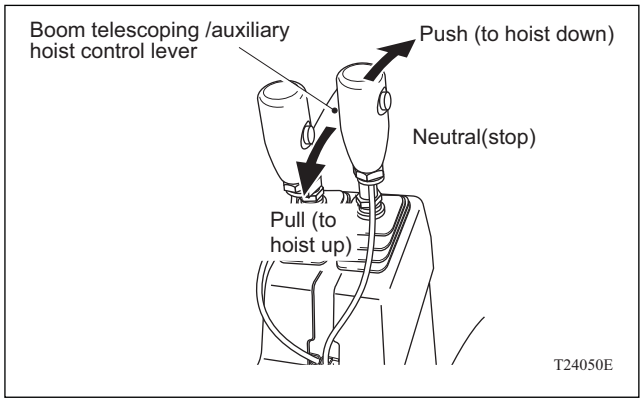
Operate the boom telescoping /auxiliary hoist control lever and the boom telescoping /auxiliary hoist selector switch to hoist up or down the auxiliary winch.
The hoisting speed can be controlled by changing the amount the boom telescoping /auxiliary hoist control lever is moved and by using the accelerator pedal.

1. Flip the boom telescoping /auxiliary hoist selector switch to the “auxiliary hoist” side.
◆Make sure that the auxiliary hoist operation condition indicator lamp lights up.



2. Operate the boom telescoping /auxiliary hoist control lever.

To hoist up: Pull the lever rearward.
To hoist down: Push the lever forward.
To stop: Return the lever to the neutral position.

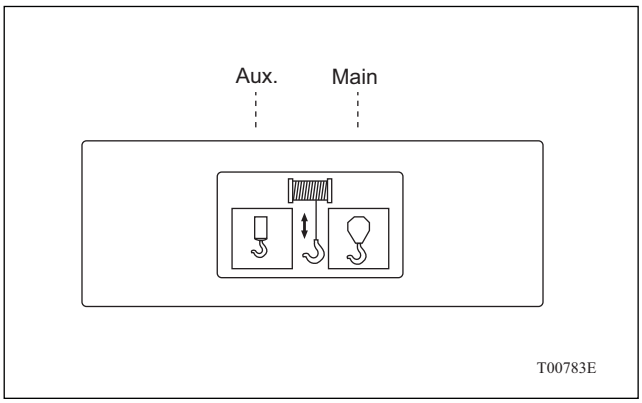


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Other Winch-related Controls and Devices

Winch Drum Rotation Indicator (option)

This indicator flashes to indicate that the winch drum is rotating.



Overwind Cutout Release Switch

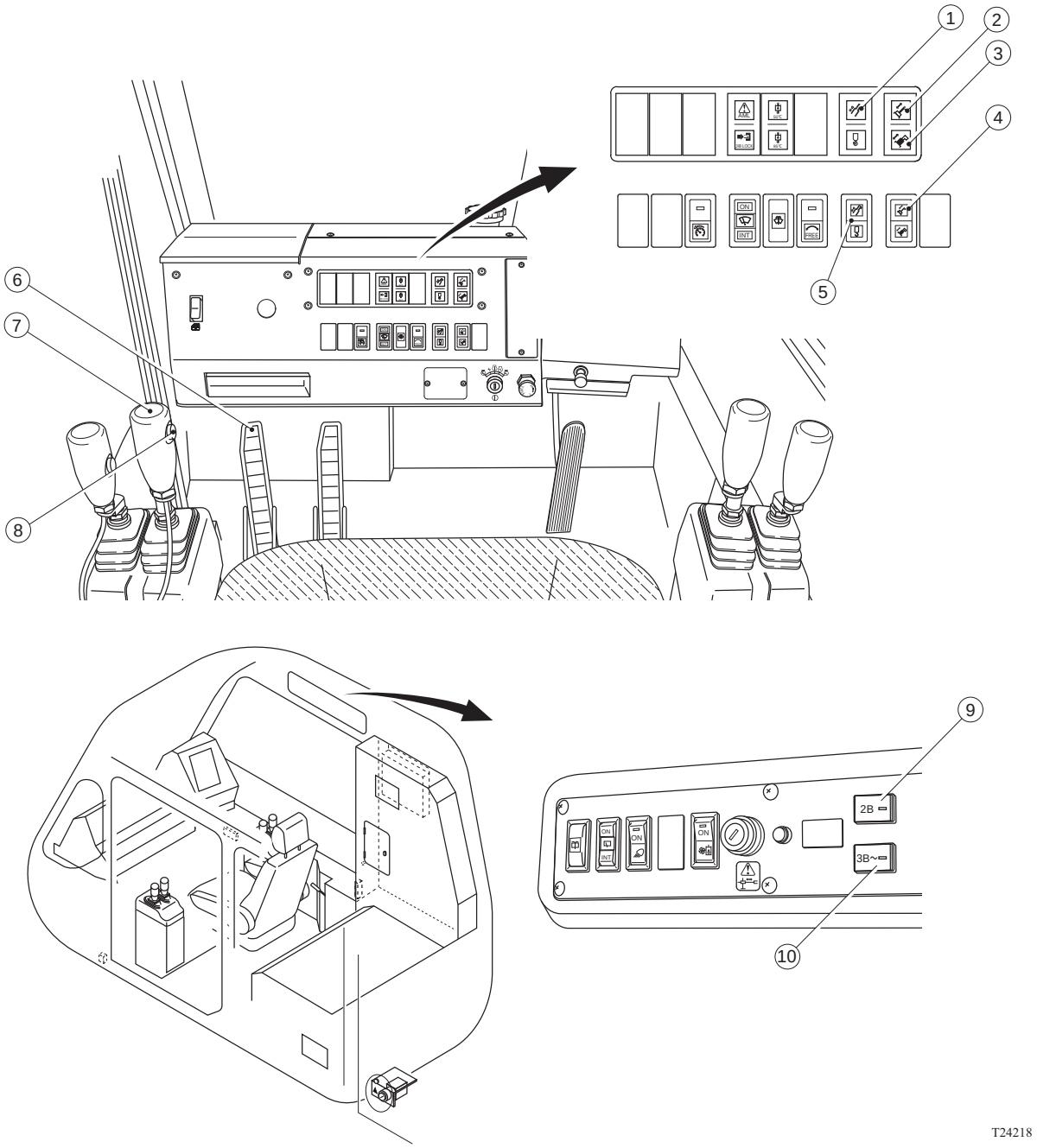
For details, see the “Other Safety Devices” section.

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Telescoping the Boom

Controls (ISO Layout)

◆The arrangement of the levers shown here is based on the ISO layout. The arrangement on machines adopting the TADANO layout is different from the one shown. (See “Layout of Controls” for TADANO layout.)



1. Boom telescoping operation indicator lamp
2. Telescoping mode II indicator lamp
3. Telescoping mode I indicator lamp
4. Telescoping mode I/II switch
5. Boom telescoping/auxiliary hoist control selector switch
6. Boom telescoping control pedal
7. Boom telescoping /auxiliary hoist control lever
8. Head/end boom extension switch
9. 2nd boom emergency telescoping switch
10. 3rd/4th/top boom emergency telescoping switch

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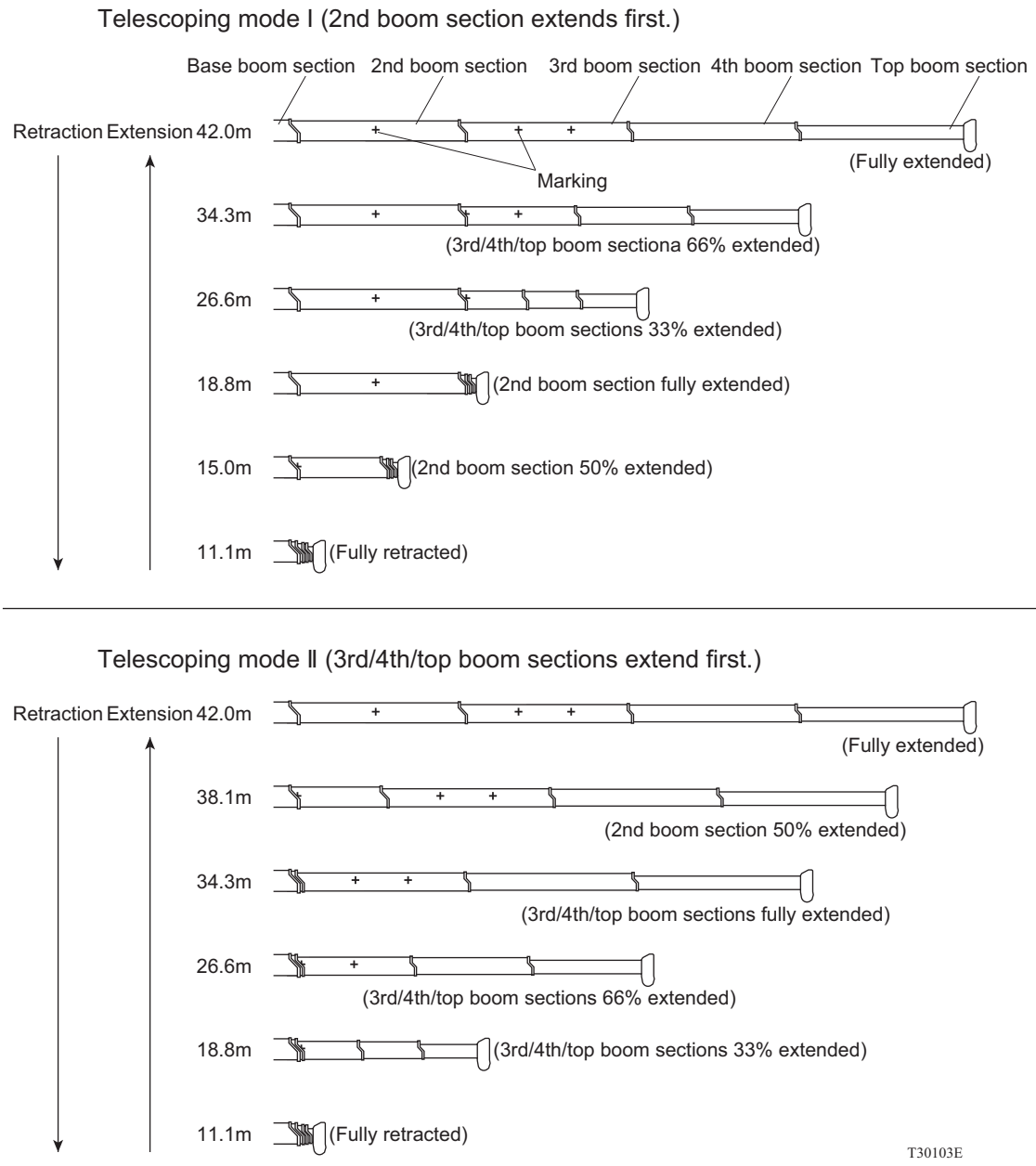
Telescoping Mode I/II Switch

Before performing boom telescoping operation, select the boom telescoping mode using the telescoping mode I/II switch.

The rated lifting capacities vary for the “telescoping mode I (2nd boom section extends first)” and “telescoping mode II (3rd through top boom sections extends first)”. See the rated lifting capacity tables for both modes and select the telescoping mode that suits your job plan.

The lifting capacities for the “telescoping mode II” are smaller than the ones for the “telescoping mode I” in the strength sections, but exceeds them in the stability sections.

The boom telescoping sequence for each telescoping mode are shown below.



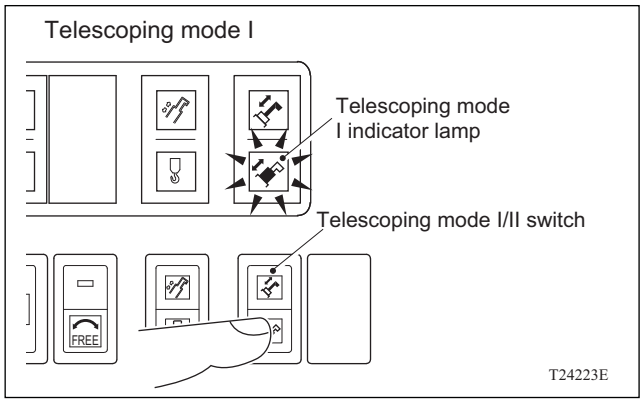
https://truckmanualshub.com/

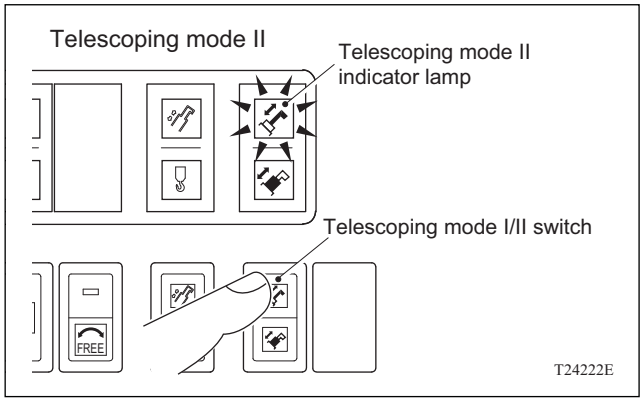
1. Fully retract the boom.

◆While the boom is not fully retracted, the telescoping mode cannot be changed even if the telescoping mode I/II switch is pressed.

2. Press the telescoping mode I/II switch to select the boom telescoping mode I or II.

◆Make sure that the indicator lamp that corresponds the selected mode lights up.

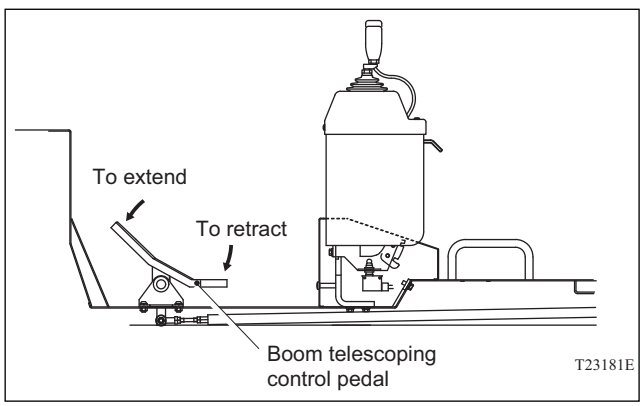




Boom Telescoping Control Pedal

This pedal is for extending and retracting the boom.

◆You can telescope the boom by using the boom telescoping control pedal independent of the boom telescoping /auxiliary hoist control selector switch condition.



Extending and Retracting the Boom

⚠ WARNING

⚠ Moving the control levers abruptly is dangerous because it causes the load to bounce and swing. Operate levers slowly and carefully.

⚠ When the boom is extended, the working radius increases. Be alert to any sign of overloading when extending the boom.

⚠ Do not push or pull the load by telescoping the boom. This practice can damage the crane and lead to an accident.

⚠ A boom telescoped incorrectly can collapse if a lift is made in this condition. Watch out for any error in the boom section telescoping sequence while operating the crane.

⚠ Check that the boom telescoping operation indicator lamp is lit before operating the lever; otherwise the crane can move regardless of your intent and create a hazard.

[NOTICE]

◆The extended boom retracts, though slightly, in course of time, due to hydraulic oil temperature change. For example, 5 m extended boom retracts by approx. 40 mm along with lowering of temperature by 10°C. Besides temperature, the boom's telescoping conditions, boom angle, lubrication, etc. affect the amount of retraction.

For boom retraction prevention, use the following precautions:

(1) Do not extend the boom when the hydraulic oil is extremely high. (Activate the oil cooler when the hydraulic oil is still cold to prevent the oil from getting hot.)

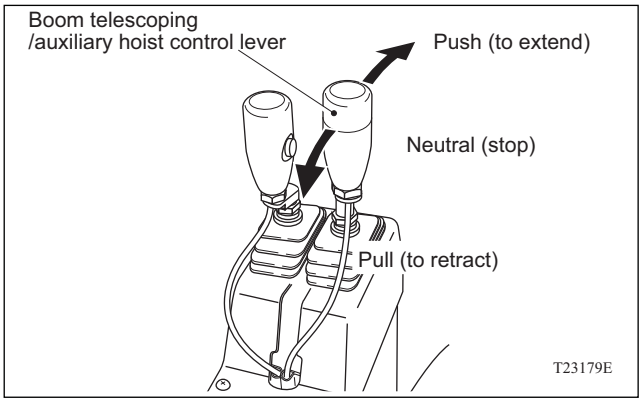
(2) Manipulate the telescoping control lever slightly to the EXTEND direction to mitigate the oil effect.

(3) Perform boom extending operation at appropriate intervals.

◆When you retract the boom while the boom angle is 76° or over, the retraction stops approx. 2 m short of the full retraction to prevent the main hook block from contacting the jib.

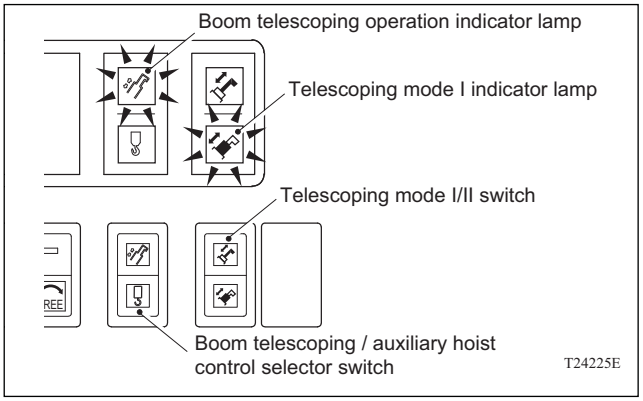
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The boom consists of five sections. The telescoping of these boom sections is controlled by using the boom telescoping /auxiliary hoist control lever, the boom telescoping control pedal, boom telescoping /auxiliary hoist control selector switch and the head/end boom extension switch.
The telescoping speed can be controlled by changing the amount the boom telescoping /auxiliary hoist control lever and the boom telescoping control pedal are moved and by using the accelerator pedal.
To extend: Push the lever forward.
To retract: Pull the lever rearward.
To stop: Return the lever to neutral position.



Boom Extension (Boom Telescoping Mode I)

1. Flip the boom telescoping /auxiliary hoist control selector switch to the “boom telescoping” side and the boom telescoping mode I/II switch to the “I” side.
◆Make sure that the boom telescoping operation indicator lamp and telescoping mode I indicator lamp light up.



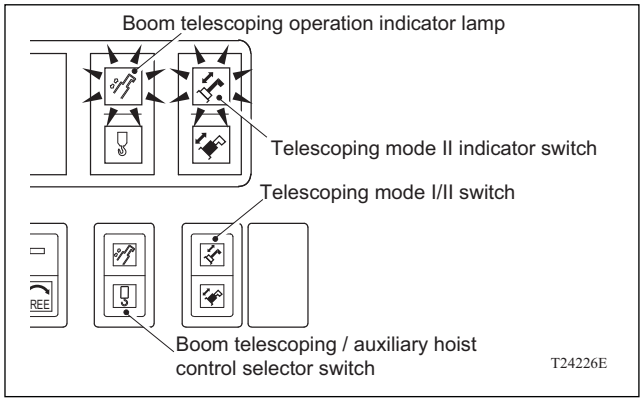
2. Push the boom telescoping /auxiliary hoist control lever forward. The 2nd boom section will extend.

3. Once the 2nd boom section has extended fully, press the head/end boom extension switch while keeping the boom telescoping /auxiliary hoist control lever pressed.
◆Release the head/end boom extension switch as soon as the 3rd, 4th, and top boom sections start to extend.

4. Once the boom has extended to the desired length, return the lever to the neutral position.

Boom Extension (Boom Telescoping Mode II)

1. Flip the boom telescoping /auxiliary hoist control selector switch to the “boom telescoping” side and the boom telescoping mode I/II switch to the “II” side.
◆Make sure that the boom telescoping operation indicator lamp and telescoping mode II indicator lamp light up.



2. Push the boom telescoping /auxiliary hoist control lever forward. The 3rd, 4th and top boom sections will extend simultaneously.

3. Once the 3rd through top boom sections have extended fully, press the head/end boom extension switch while keeping the boom telescoping /auxiliary hoist control lever pressed. The 2nd boom sections will extend.
◆Release the head/end boom extension switch as soon as the 3rd, 4th, and top boom sections start to extend.

4. Once the boom has extended to the desired length, return the lever to the neutral position.

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Boom Retraction (Boom Telescoping Mode I)

1. Pull the boom telescoping /auxiliary hoist control lever toward you. If the boom is already extended fully, the 3rd, 4th and top boom sections will retract first. After the 3rd through top boom sections have retracted fully, the 2nd boom section will start retracting.

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

Boom Retraction (Boom Telescoping Mode II)

1. Pull the boom telescoping /auxiliary hoist control lever toward you. If the boom is already extended fully, the 2nd boom section will retract first. After the 2nd boom section has retracted fully, the 3rd, 4th and top boom sections will start retracting.

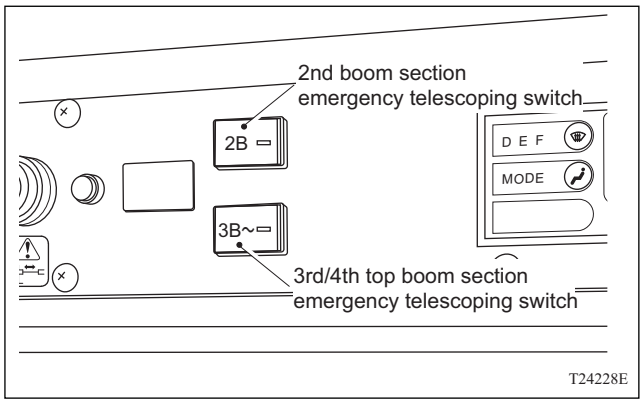
2. Once the boom has retracted to the desired length, return the boom telescoping /auxiliary hoist control lever to the neutral position.

Emergency Telescoping Procedure

⚠ WARNING

⚠ When the boom is extended or retracted using the emergency telescoping procedure, it is no longer in normal operating condition. The strength of a boom extended to any length by this mode will be considerably less than when extended normally to the same length. When the emergency telescoping procedure must be used, remove the load from the hook. Never hoist any load until the boom has been returned to its normal operating condition.

This mode of telescoping the boom should be used to stow the boom when the boom cannot be extended or retracted for some reason, such as a malfunctioning boom length sensor.
Use this procedure also when you need to extend or retract a boom section in a sequence other than the normal sequence, for inspection or maintenance purposes.
The controls used in the emergency telescoping procedure are the boom telescoping/auxiliary hoist control lever, 2nd boom emergency telescoping switch, and 3rd/4th/top boom emergency telescoping switch.



2nd Boom Section Telescoping Procedure

While pressing the 2nd boom emergency telescoping switch, operate the boom telescoping/auxiliary hoist control lever. The 2nd section will extend or retract regardless of the status of the 3rd, 4th and top boom sections.

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3rd/4th/Top Boom Section Telescoping Procedure

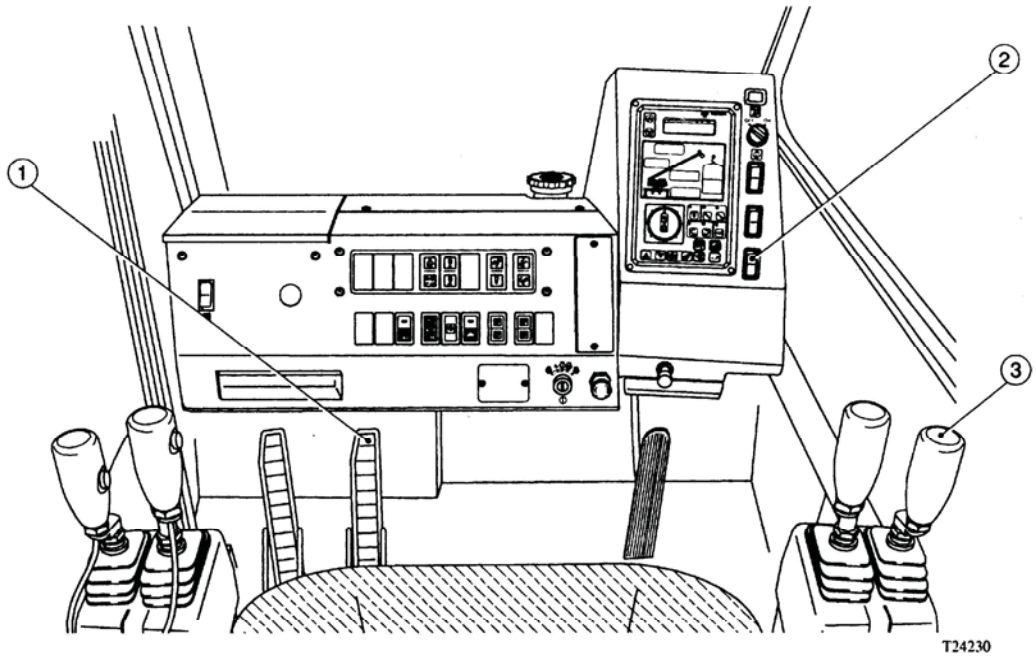
While pressing the 3rd/4th/top boom emergency telescoping switch, operate the boom telescoping/auxiliary hoist control lever. The 3rd, 4th and top boom sections will extend or retract regardless of the status of the 2nd boom section.

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Elevating the Boom

Controls (ISO Recommended Layout)

◆The arrangement of the levers shown here is based on the ISO layout. The arrangement on machines adopting the TADANO recommended layout is different from the one shown. (See "Layout of Controls" for BQ-TADANO recommended layout.)



1. Boom elevating control pedal
2. Slow elevation stop switch
3. Boom elevating control lever

Raising and Lowering the Boom

⚠ DANGER

⚠Do not stick your hand or head out of the window during crane operation. Serious injury or death can result from this practice.

⚠ WARNING

⚠Moving the control levers abruptly is dangerous because it causes the load to bounce and swing. Be sure to operate the levers slowly and carefully.

⚠The machine is not automatically stopped even if the boom is elevated to raise a dangerously heavy load clear of the ground. An overloaded machine could overturn or be damaged. Use only the hoist-up operation to raise the load clear of the ground.

⚠When the boom is lowered, the working radius increases. Be alert to any sign of overloading when lowering the boom.

⚠Do not try to pull the load inward by raising the boom. This practice can damage the crane, leading to an accident.

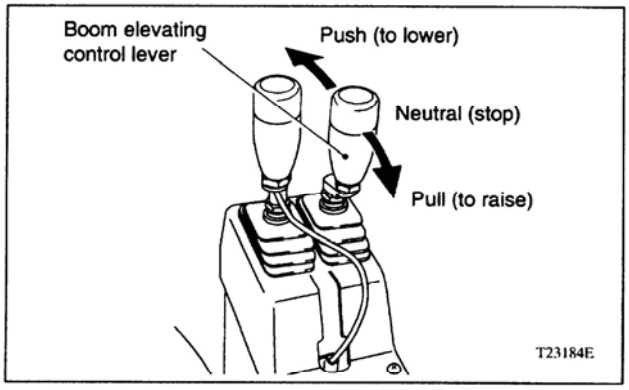
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[NOTICE]

◆ While the elevating cylinder is extended or retracted to the full stroke, the display of the real load and the moment ratio on the AML becomes erroneous. In this case, elevate the boom in the opposite direction to terminate the stroke end condition.

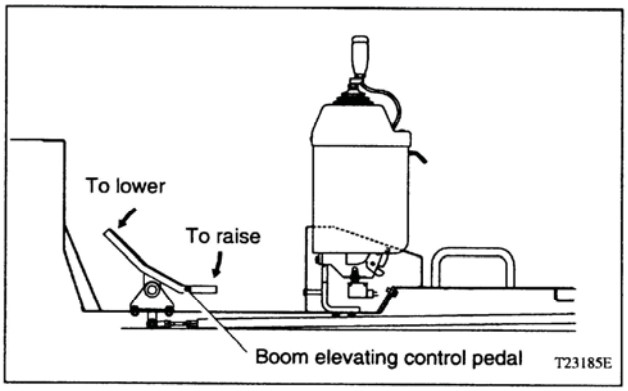
◆ When the boom angle is raised to a very high angle with the hook block positioned near the boom top, abrupt boom elevating operation will cause the hook block or the lifted load to hit the elevating cylinder or the boom at the lower face. The cylinder or the boom may be damaged.

The boom elevating control lever (or boom elevating control pedal) is used to raise or lower the boom.
Control the elevating speed by changing the amount you move the boom elevating control lever and by using the accelerator pedal.
To raise: Pull the lever rearward.
To lower: Push the lever forward.
To stop: Return the lever to neutral position.



Boom Elevating Control Pedal

This pedal is for raising and lowering the boom.



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Elevation Slow Stop

⚠ WARNING

⚠ Stopping elevating the boom while the slow stop function is canceled can cause a shock according to the way of operation. Operate the crane carefully.
When the cancellation of the slow stop function is required no more, restore the slow stop function immediately.

Slow Stop Function

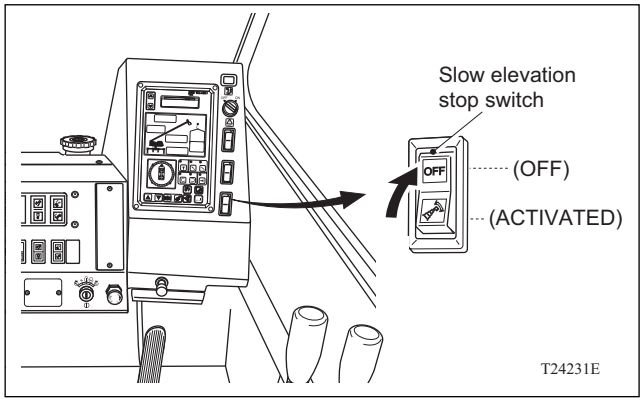
This function prevents abrupt shocks caused by stop of boom elevation. In the following cases, the boom elevation speed gradually decreases to stop before the boom reaches the stoppage position.

(1) When the elevating cylinder is extended to its stroke end
(2) When the automatic stop is caused by overloading
(3) When the automatic stop is caused by working range limit function
(4) When the automatic stop is caused by upper boom angle restriction

Canceling the Slow Stop Function

If the actual job condition requires cancellation of the elevation slow stop function, shift the slow elevation stop switch to OFF side. The elevation slow stop function will be canceled.

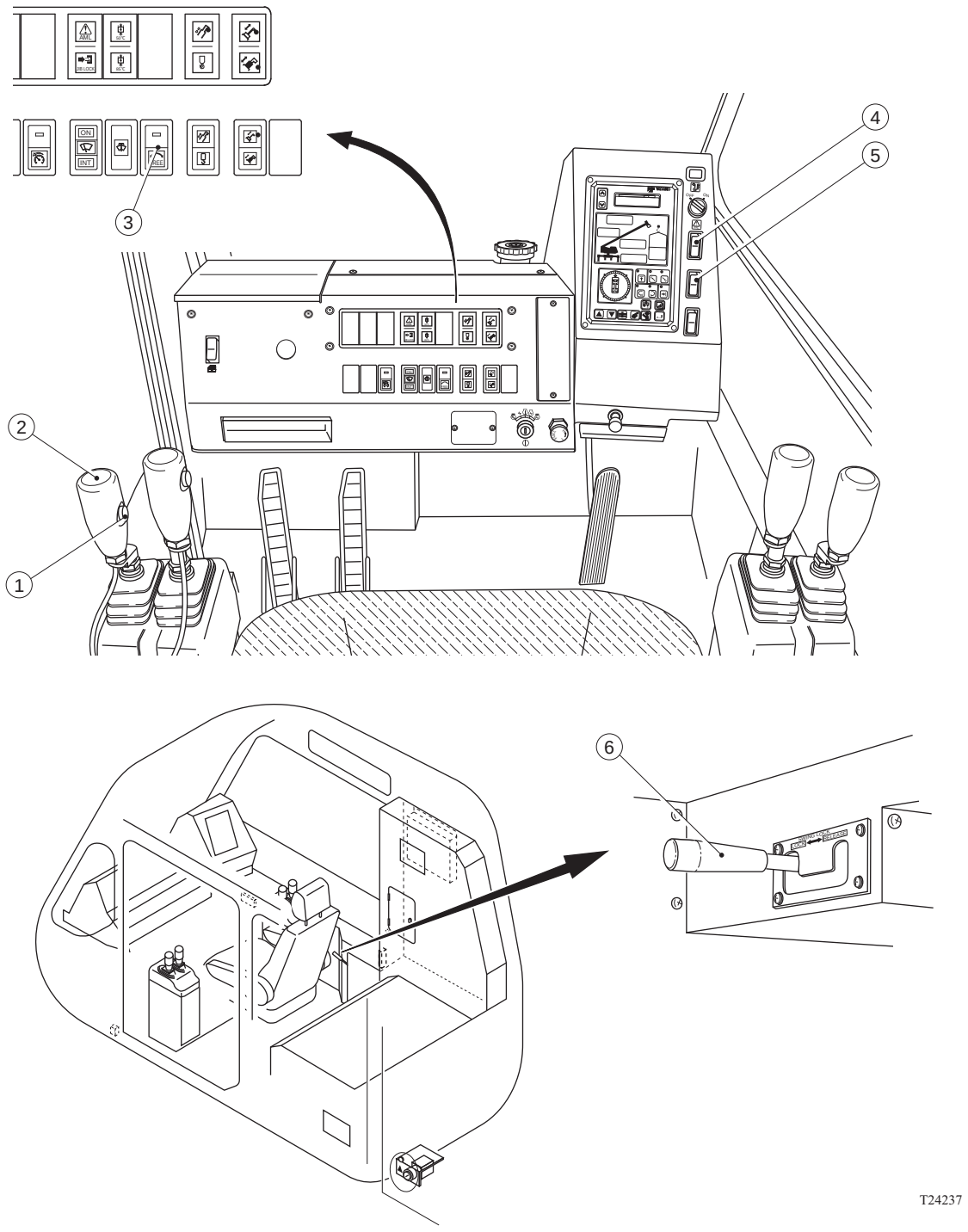
◆To restore the slow stop function, return the switch to the “ACTIVATED” side.



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Swinging the Boom

Controls



1. Horn switch
2. Swing control lever
3. Swing free/lock selector switch
4. Swing brake switch
5. Swing stop override switch
6. Swing lock lever

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Swinging the Boom

⚠ WARNING

⚠ Be sure to move the swing control lever slowly and carefully. Moving the lever abruptly is dangerous because it causes the load to bounce and swing. This practice could result in injury or death and may also damage the crane.

⚠ During a swing operation, the crane will not be stopped even if it is in an overload condition.

When swinging a load from the over-front area to an over-side area during on-rubber operation, be extremely careful not to have the crane become overloaded.

If the alarm buzzer sounds and a message appears on the AML moment display during a swing, stop the swing immediately. Then lower the load or swing the boom back to avoid an accident.

⚠ Do not try to pull the load inward or sideways by swinging the boom. This practice can damage the crane, leading to an accident.

⚠ Before swinging the load, make sure that the work area is clear of obstructions which the boom or jib could hit.

⚠ Before swinging the load, press the horn switch to alert people in the work area around the crane.

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Use the swing control lever to swing the crane. The swing speed can be controlled by changing the amount you move the swing control lever and by using the accelerator pedal.

◆When the swing free/lock selector switch is in the FREE position, be sure to take into account the effect of inertia on the swing when you stop the swing.

◆Be sure to set the swing brake switch “ON” after a swing operation.

1. Place the swing free/lock selector switch to either the FREE or LOCK position, depending on the job to be performed.

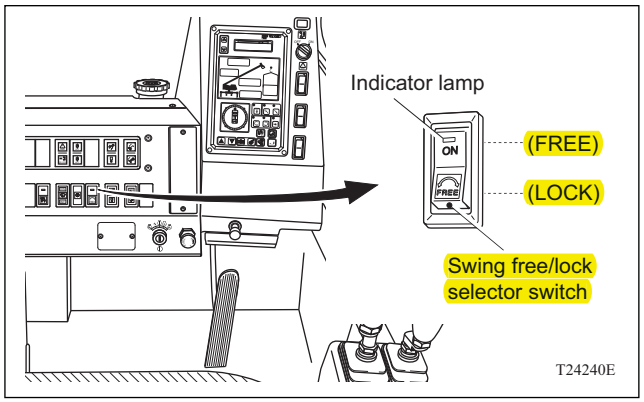
"FREE": The swing continues even after the swing control lever has been returned to the neutral position due to the effects of inertia. Keep this in mind when returning the lever to the neutral position.

This position is useful when the boom is used short to lift a heavy load and the load is not located directly below the hook block. When a hoist up operation is started with the switch in the "FREE" position, the boom swings toward the load, making it possible to lift the load vertically.

"LOCK": When the switch is in this position, the swing stops as soon as the swing control lever is returned to the neutral position. Be sure to return the swing control lever to the neutral position slowly.

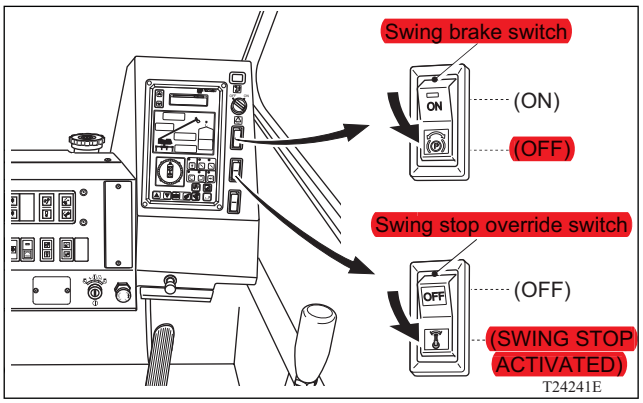
◆The position of the switch must not be changed during a swing operation.

◆ The indicator lamp is lit while the switch is in the “FREE” position.

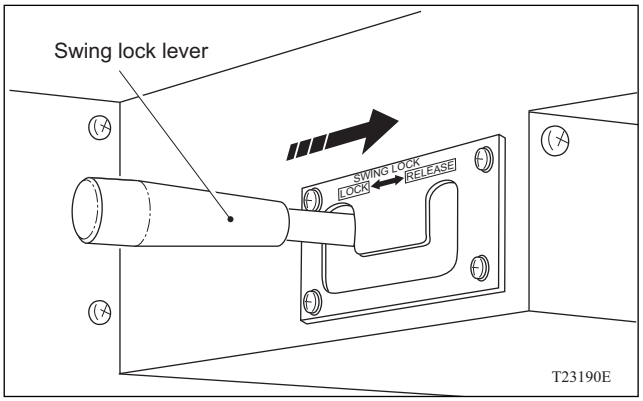


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2. Set the swing brake switch to OFF to release the swing brake.
Also set the swing stop override switch to the “SWING STOP ACTIVATED” to make the swing stop function available.
◆Swing sto function is activated even while the swing free/lock selector switch is set to “FREE”..

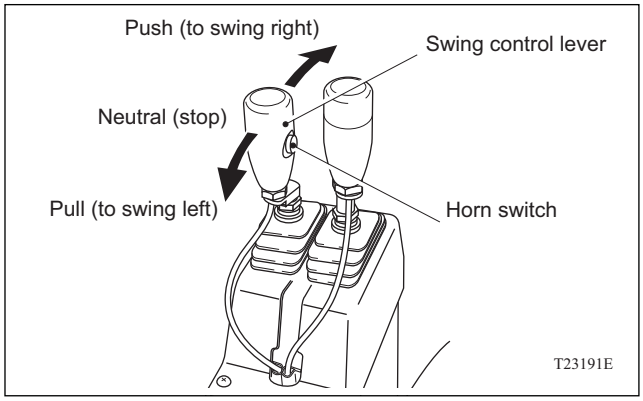


3. If the swing lock pin is engaged, position the swing lock lever in the RELEASE position to extract the swing lock pin.
◆When the swing lock pin is too heavy to come out, move the swing control lever slightly to and fro.



4. Before operating the swing control lever, press the horn switch to alert people around the crane.

5. Operate the swing control lever as follows:
To swing left: Pull the lever rearward.
To swing right: Push the lever forward.
To stop: Return the lever to the neutral position.
◆Be sure to set the swing brake switch ON after a swing operation.
◆Do not set the swing lock lever to "LOCK" during swing operation.
◆Activate swing lock only to travel for a small distance with the crane out of traveling configuration for unavoidable reasons.
Swing lock is not available while the boom is stowed on the boom rest.



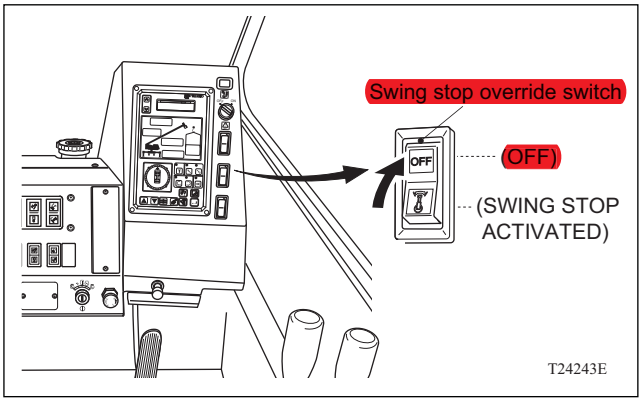
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important!!

Swing Stop

⚠ WARNING

⚠ While the swing stop function is canceled, the boom does not stop swinging even if the crane is overloading by boom swing operation. It will be very hazardous when lifting capacities vary depending on the working areas (extension width of the four outriggers is not equal).
As a rule, do not cancel the swing stop function. If you must cancel it unavoidably, pay extreme attention to the moment display during crane operation to prevent overloading.



[NOTICE]

◆The swing stop override switch shoud be shifted to "SWING STOP ACTIVATED" side and the following conditions should be satisfied to activate the swing automatic function:

- **The crane is set level.**
- **A load does not sway while the boom is swung.**
- **There is no or weak wind blowing.**

◆If a load moment in a stationary state is between 90 and 100% of the limit, there is a possibility that the swing operation is automatically stopped because the moment exceeds 100% due to an added moment by sway of the load or centrifugal force during swing motion. In this case a message of "Warning: 0042" or "Warning: 0043" will appear and the swing operation may be automatically stopped.

Swing Stop Function

This function automatically halts the boom swing in the following cases by making the boom swing speed gradually decrease to stop before the boom reaches the stoppage position.

(1) Automatic stop by swing range limit

(2) Automatic stop by overloading during boom swing

Canceling the Swing Stop Function

If the actual job condition requires cancellation of the swing stop function, shift the swing stop override switch to the OFF side. The swing stop function will be canceled.

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Taking Out and Stowing the Main Hook Block

[NOTICE]

◆When the overwind cutout function is deactivated, a hoisting up operation is not automatically stopped even if the hook block is overhoisted. Overwinding damages the wire rope and crane. Always be careful not to overwind when the overwind cutout function is deactivated.

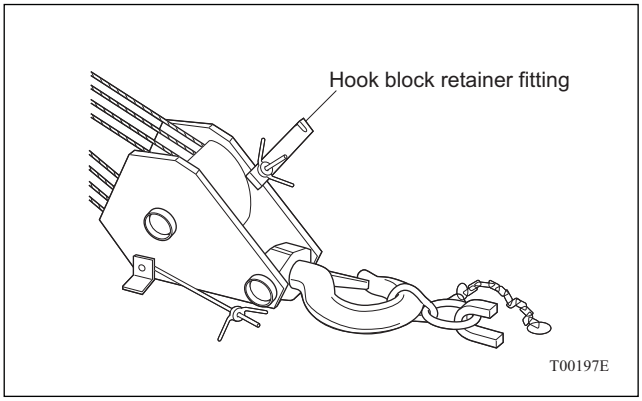
◆Operating the winch with no tension on the wire rope causes the rope to wind improperly. Perform the hoist-down operation at the tension given by the mass of the hook block.

◆When the main hook block is being taken out or stowed, the overwind cutout device may be activated, making any further operation impossible. You can avoid this condition by placing the overwind cutout release switch in the ON position to deactivate the automatic cutout function. Always be sure to return the switch to the OFF position as soon as the hook block has been taken out or stowed.

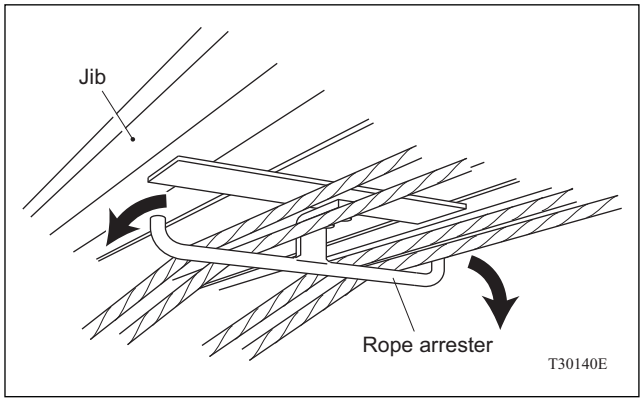
Taking Out Main Hook Block

1. Extend the outriggers and place the crane in a level position.

2. Remove the hook retainer fitting.

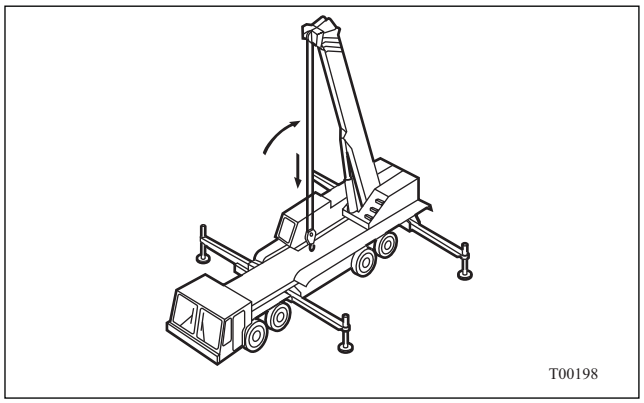


3. After slacking the main winch wire rope slightly by hoisting down the main winch, remove the wire rope from the rope arrester on the bottom of the jib.



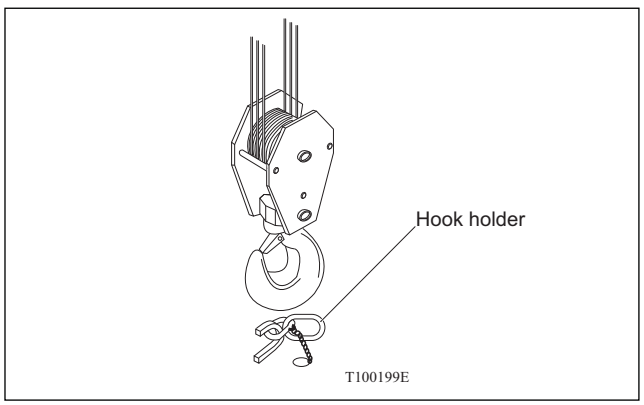
4. Hoist down with the main winch to loosen the main wire rope, and, at the same time, raise the boom to a position where the hook holder can be released.

◆Raise the boom, taking care not to apply too much tension to the wire rope and being sure that the wire rope winds properly around the drum.



5. Detach the hook holder from the main hook block.

◆Operate the crane slowly to avoid the hook block swaying.

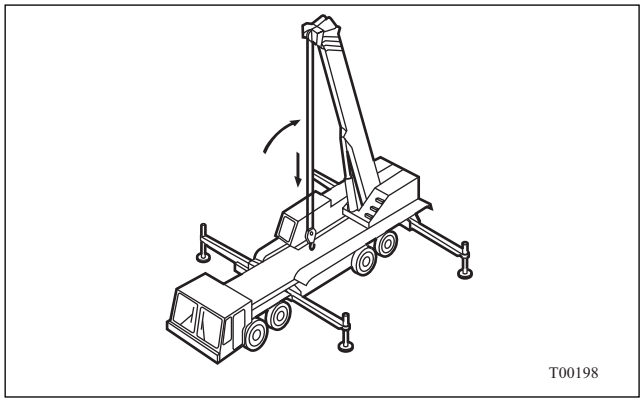


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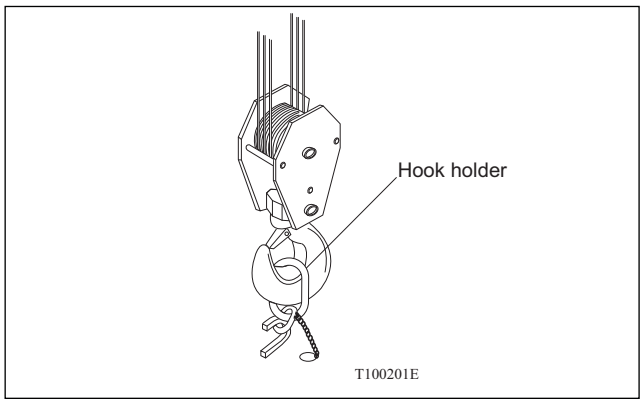
Stowing Main Hook Block

1. Fully retract the boom.

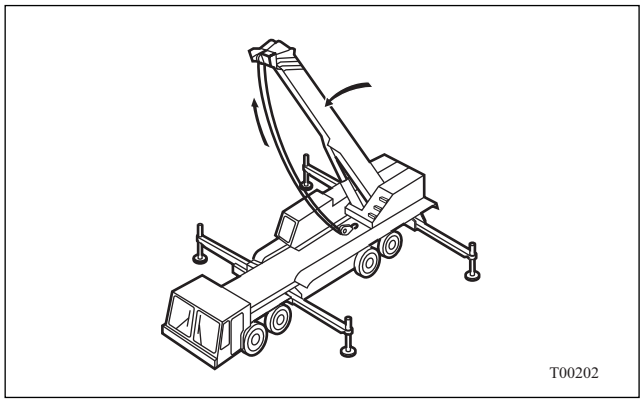
2. Move the main hook block to its stowing position.



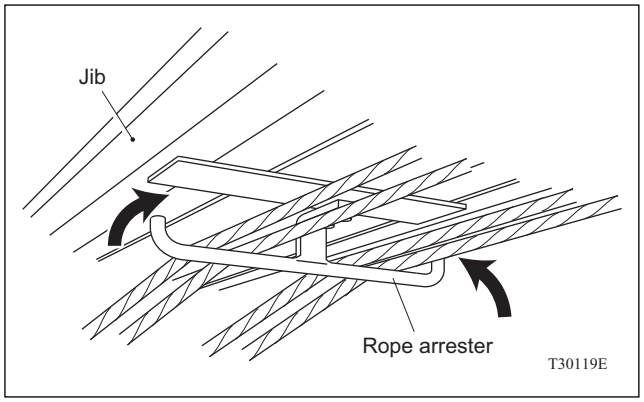
3. Attach the hook holder to the main hook block.



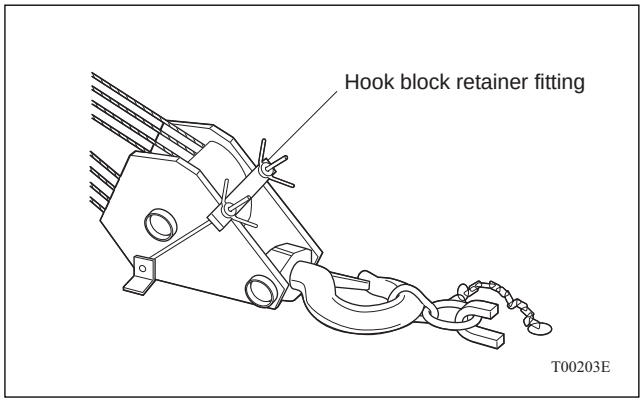
4. Lower the boom while hoisting up with the main winch, and stow the boom on the boom rest.



5. Attach the wire rope to the rope arrester on the bottom of the jib. Then wind in the wire rope until it becomes slightly taut.



6. Secure the main hook block with the hook block retainer fitting.



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Reeving Wire Rope

Standard Number of Parts of Line

⚠ WARNING

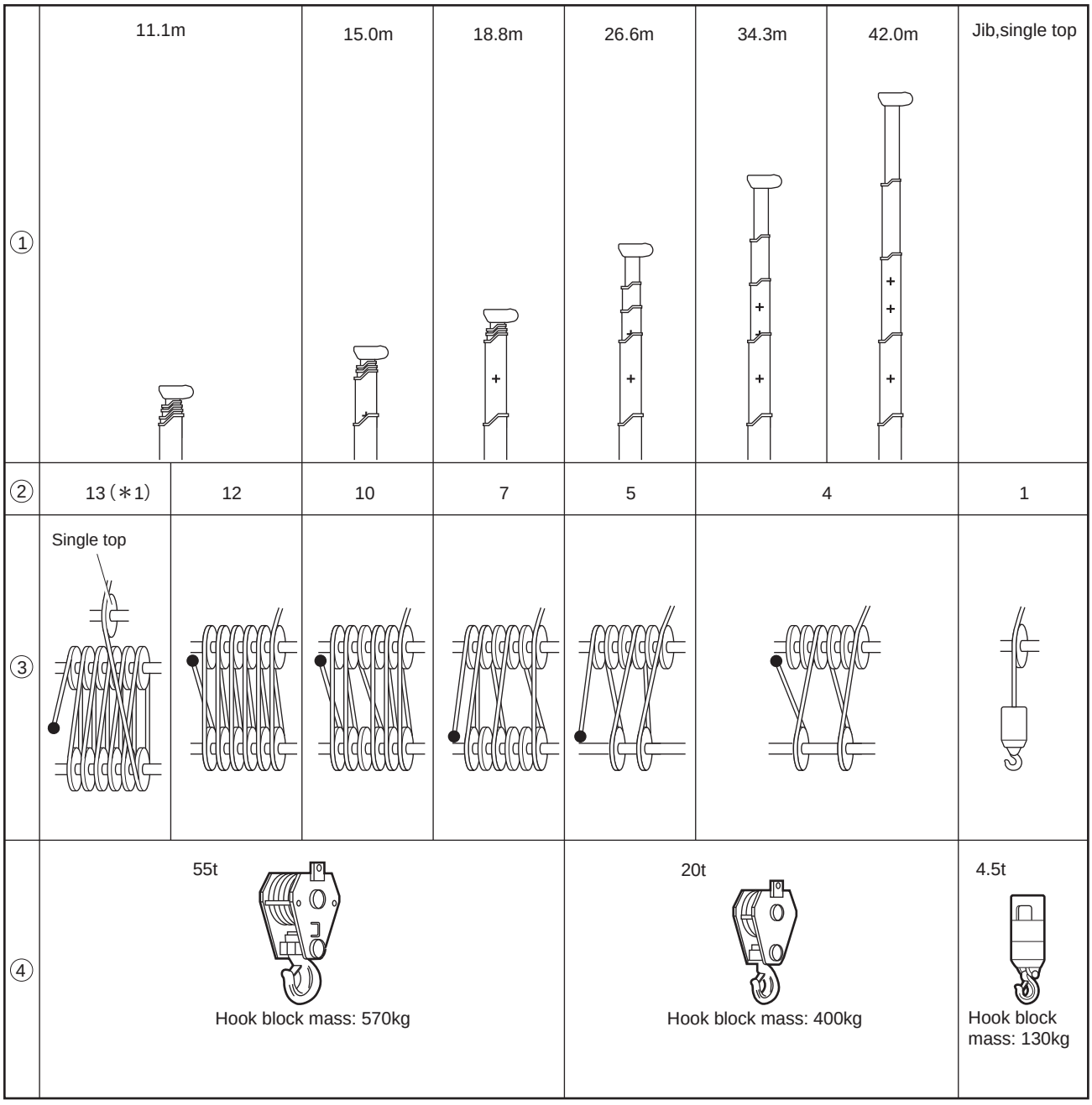
⚠ If you reeve the wire rope in a number of parts of line greater than the standard and raise the boom to a large angle, the extra wraps of rope that should be left on the drum will be lost before the hook block reaches the ground, causing damage to the wire rope. Even with the standard number of parts of line, this problem will arise if the load is lowered below ground level. When the number of parts of line is greater than the standard or the load is being handled on a site that has a significant level differences, ensure that at least three wraps of rope will remain on the winch drum when the load is lowered.

⚠ When the number of parts of line is less than the standard, be sure not to exceed the allowable load for one part of line (see the "INFORMATION AND DATA" section).

The following tables show the standard number of parts of line for different boom lengths. Select the number of parts of line that ensures the most efficient operation, taking into consideration boom length, load mass, hoisting speed and other conditions.

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Telescoping Mode I (2nd boom section extends first.)



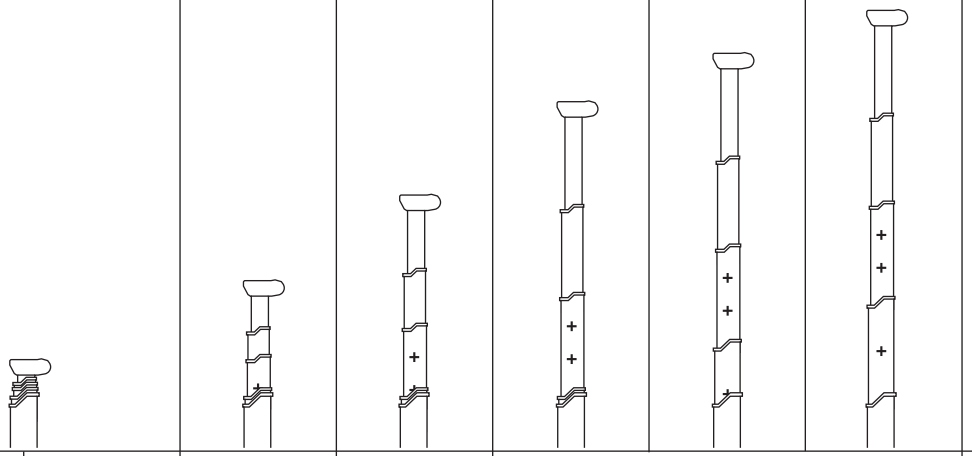
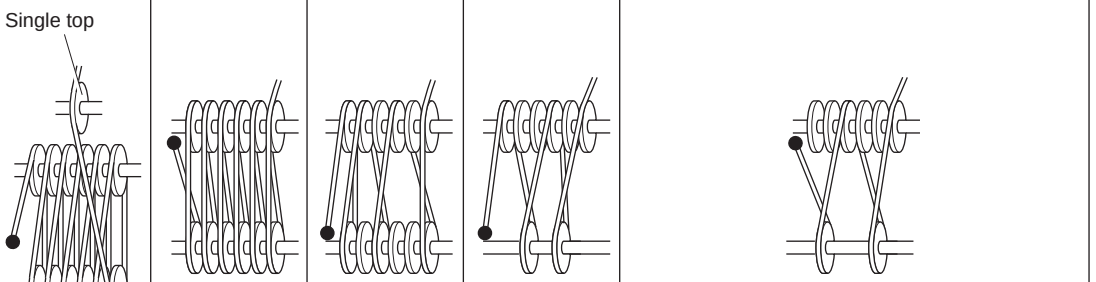
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1. Boom length
2. Number of parts of line
3. Reeving pattern
4. Hook block

(*1): Use 13 parts of line only while the allowable maximum load is 55 t.

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Telescoping Mode II (3rd through top boom sections extend first.)

	11.1m		18.8m	26.6m	34.3m	38.1m	42.0m	Jib,single top
①								
②	13 (＊1)	12	7	5	4			1
③								
④	55t  Hook block mass: 570kg			20t  Hook block mass: 400kg				4.5t  Hook block mass: 130kg

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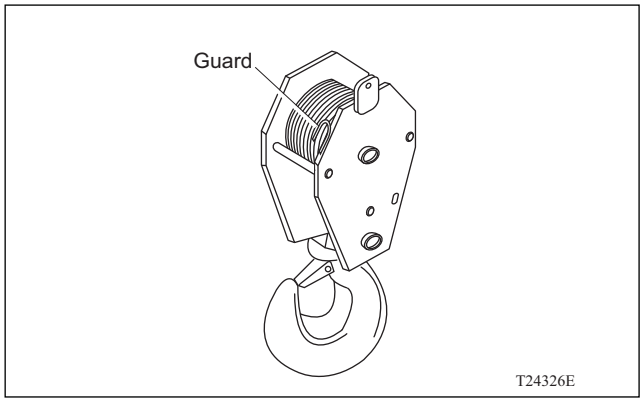
1. Boom length
2. Number of parts of line
3. Reeving pattern
4. Hook block

(*1): Use 13 parts of line only while the allowable maximum load is 55 t.

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Reeving Procedure

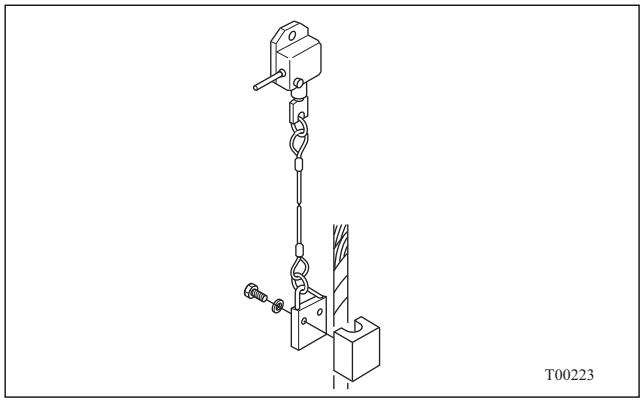
◆When installing the hook block, the guard attached to the hook block must be facing the weight of the over-wind cutout device. Be sure to install the hook in the correct direction.



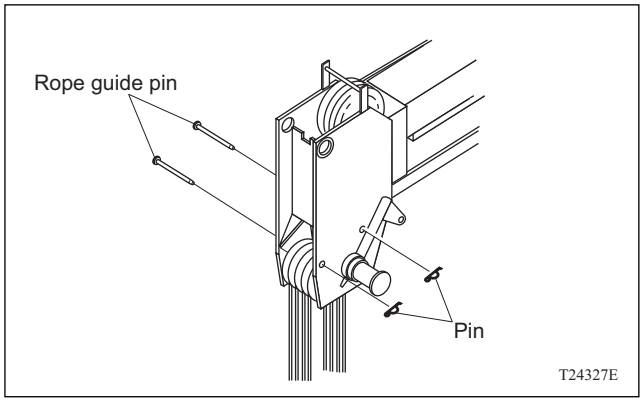
1. Extend the outriggers and place the boom over a side or over the rear.

2. Lower the boom all the way and set the hook block on the ground.

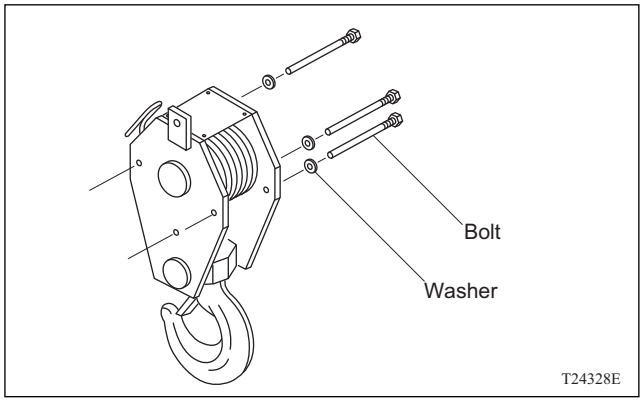
3. Remove the weight of the overwind cutout device from the wire rope.



4. Remove the two rope guide pins from the boom head.



5. Remove the three bolts from the main hook block and remove the cover.

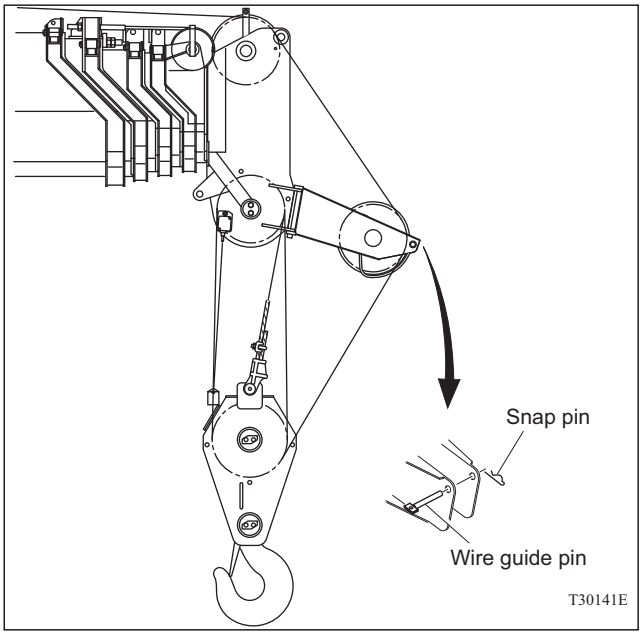


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6. Reeve the wire rope according to the "Standard Number of Parts of Line" table.

◆When you need to pull out the wire rope, pull the rope by hand while hoisting down with the winch in order to prevent improper winding.

◆Mount the single top when making the 13 parts of line using the 55-t hook block. In this case, attach the rope guide pin to the single top after reeving the wire rope on the sheve of the single top.

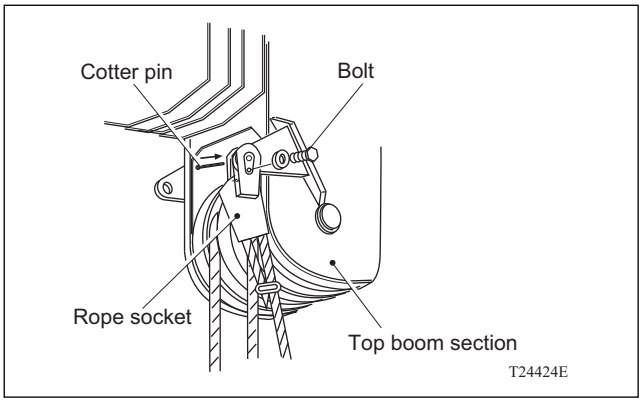


7. After reeving the rope, install the rope socket on the boom if the number of parts of line is even, or on the hook if the number is odd.

⚠ CAUTION

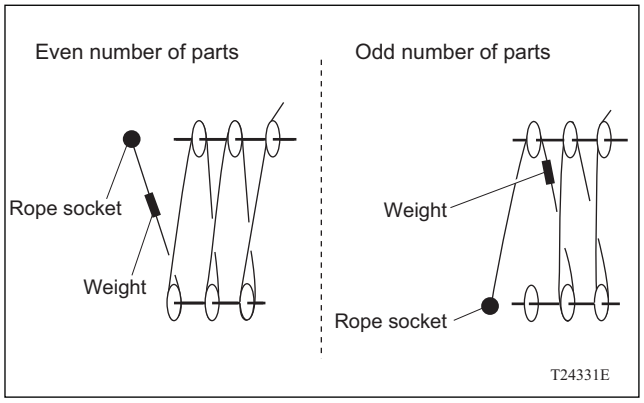
⚠ Secure the rope socket fixing pin installing bolt using a wrench. Always insert the cotter pin to prevent the bolt from falling out.

◆Have the rope socket facing in the direction shown in the figure when it is installed on the boom.



8. Install the weight for the overwind cutout device on the rope.

◆Where the weight should be installed depends on the number of parts of line. When the number of parts of line is even, install the weight on the last part of line. When the number is odd, install the weight on the second to last part of line.



9. Replace the two rope guide pins at the the boom head. Place the cover in position on the hook block and secure with the three bolts.

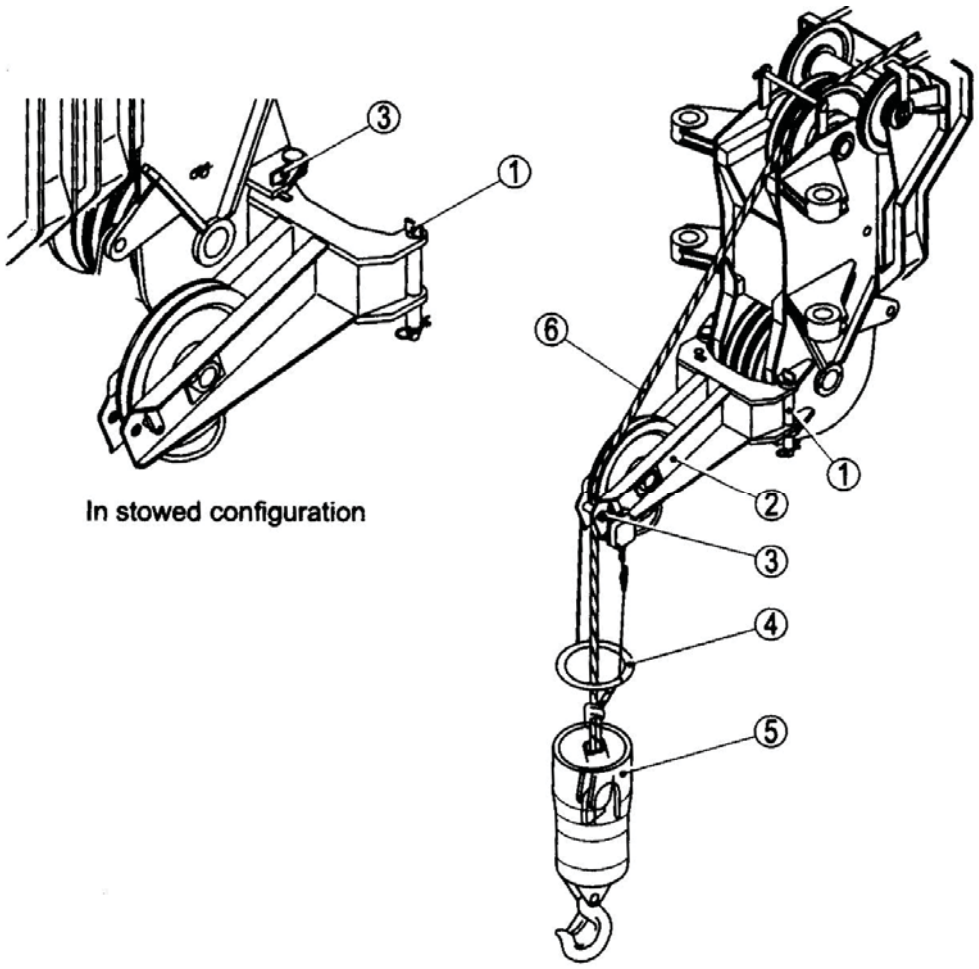
10. Raise the boom and hoist up the winch to wind the rope around the drum.

◆The rope is often wound improperly when the wire rope is reeved. Rewind the ropes if necessary.

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Single Top

Components



1. Connecting pin
2. Single top
3. Stowing pin (doubling as rope guide pin)
4. Weight for overwind cutout device
5. Auxiliary hook block
6. Auxiliary wire rope

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Single Top Lift

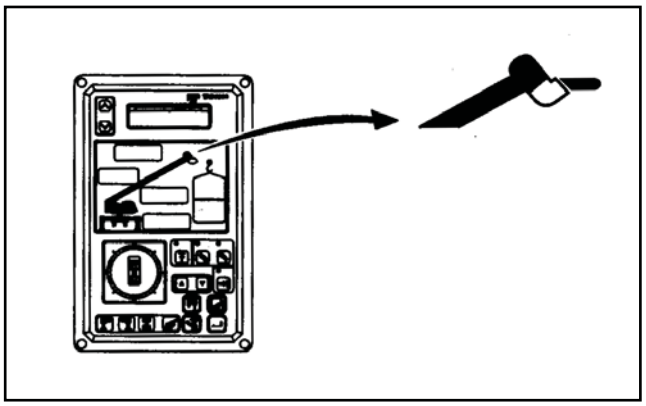
⚠ WARNING

⚠ When you perform single top lift employing the auxiliary winch, determine the rated lifting capacity by subtracting the mass of main hook block suspended from the boom from the rated lifting capacity for boom lift.The maximum load permitted for the single top lift, however, is limited to 3,500 kg. If the load obtained from the above calculation is over 3,500kg, 3,500 kg must be taken as the rated lifting capacity.

The single top is mounted on the boom head and used for lifting relatively light loads. Although the load that the single top can handle is limited in weight, the single top utilizes a single rope arrangement which significantly shortens hoisting time.

For single top lift, use the auxiliary wire rope, auxiliary hook block and auxiliary winch.

◆Prior to lifting a load with the single top, select the single top lift status on the AML



Mounting the Single Top

⚠ WARNING

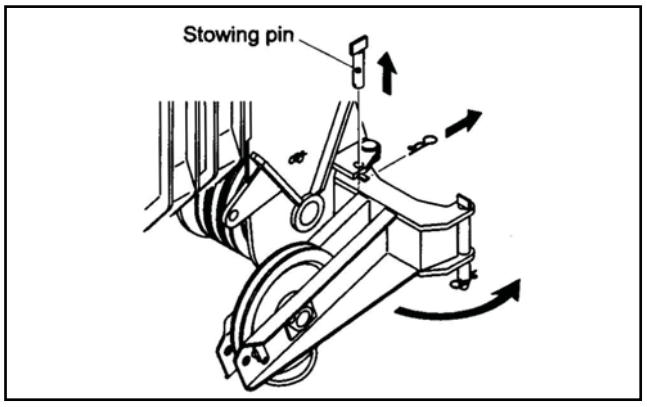
⚠ When working at an elevated position, use a platform or scissor lift to prevent falling and ensure safety.

⚠ Mount the single top securely. Use the attached bolts, cotter pins and rings to ensure that the stowing pin, connecting pins, rope guide pins, and hook mounting pins do not slip out of position.

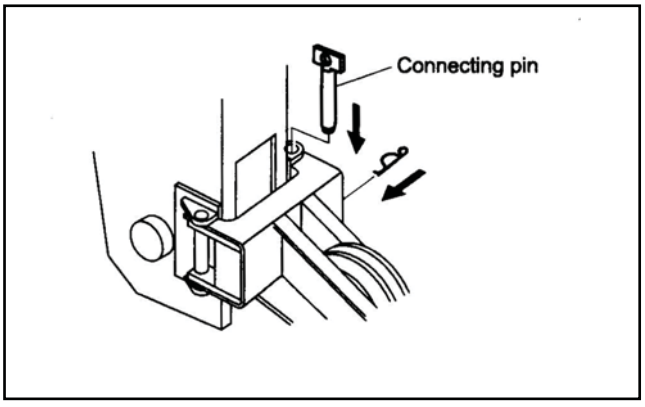
1. Extend the outriggers and set the crane in a level position.

2. Lower the boom all the way down.

3. Remove the stowing pin and swing the single top forward. Replace the stowing pin in its original position. Keep the stowing pin; the pin will be used later as the rope guide pin.

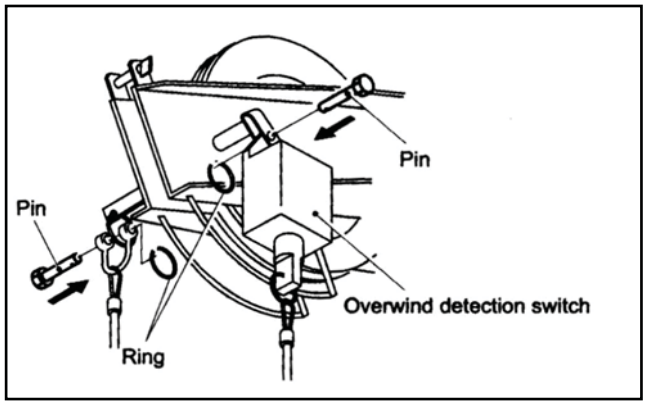


4. Insert the connecting pin to secure the single top in position.

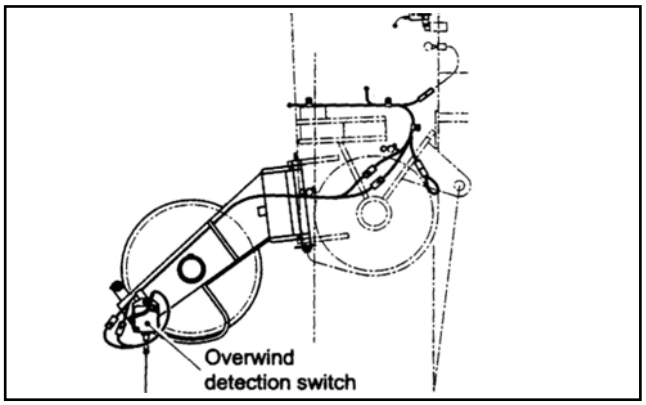


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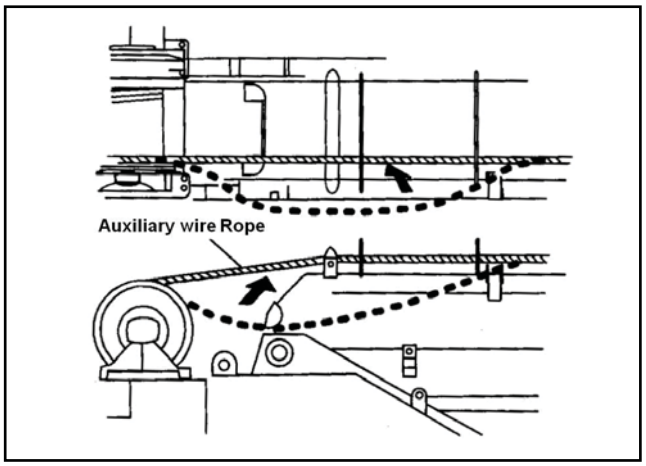
5. Remove the overwind cutout device from the jib and remount it on the single top.



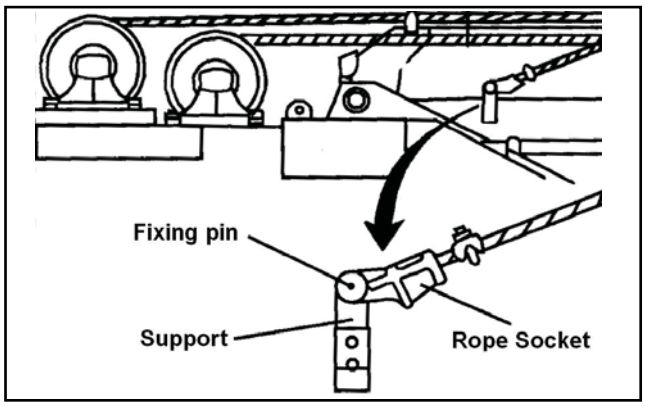
6. Connect the leads of the overwind cutout device as shown.



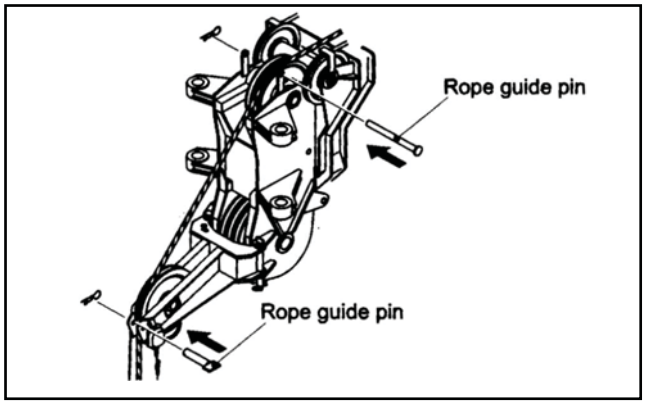
7. Return the stowed auxiliary wire rope over the upper side of the boom.



8. Remove the fixing pin to detach the auxiliary wire rope socket from the anchor on the jib.



9. Reeve the auxiliary wire rope around the sheaves of the top boom section (boom head) and single top. Set the rope guide pin on the boom back in the original position.
Use the stowing pin as the rope guide pin on the single top

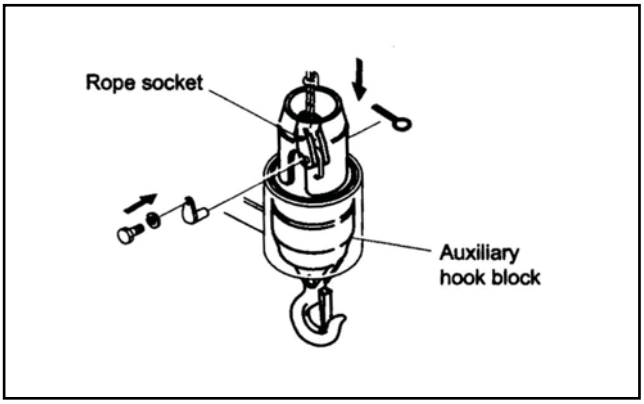


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⚠ CAUTION

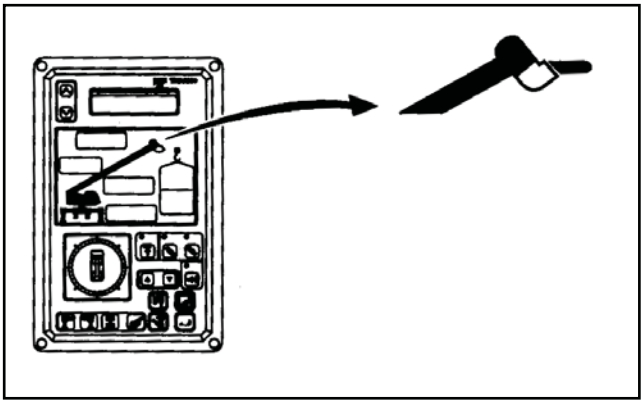
⚠ Secure the rope socket lock pin installing Bolt using a wrench.

10. Install the rope socket in the auxiliary hook block.



11. Hoist up the hook block to remove it from its stowing position.

12. Select the single top lift status on the AML.



13. Ovehoist the auxiliary hook block and make sure that the overwind cutout device is operating normally.

Stowing the Single Top

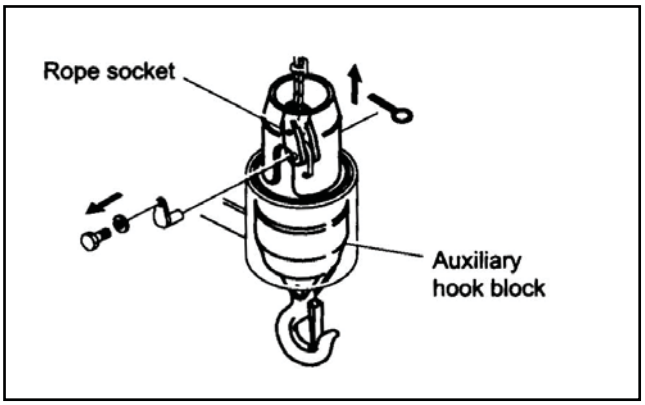
⚠ WARNING

⚠ When working at an elevated position, use a platform or scissor lift to prevent falling and ensure safety.

⚠ Stow the single top securely. Use the attached bolts, cotter pins and rings to ensure that the stowing pin, connecting pins, rope guide pins, and hook mounting pins do not slip out of position.

1. Stow the auxiliary hook block in its stowing position.

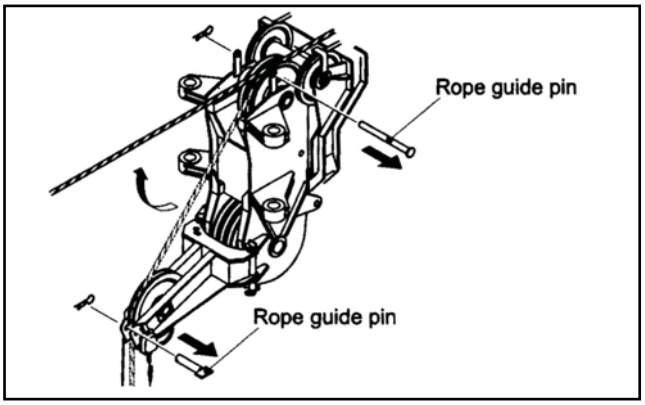
2. Take the rope socket out from the auxiliary hook block.



3. Lower the boom all the way down.

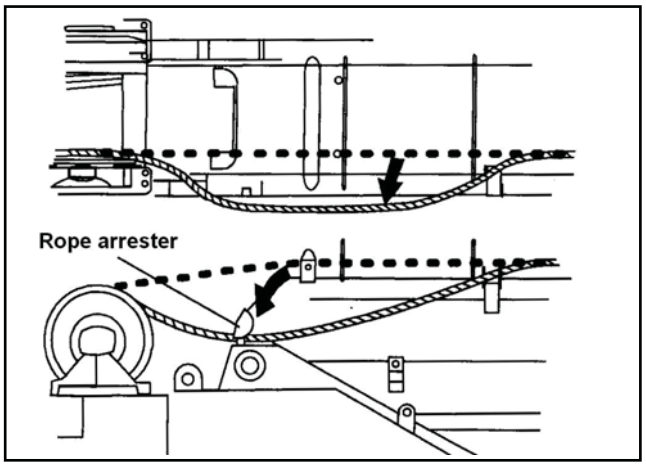
4. Remove the weight for the overwind cutout device and remove the wire rope from the sheaves of the boom head and single top.

◆Place the rope guide pin for the boom sheave in the original position. Keep the rope guide pin for the single top sheave; the pin will be used later to fix the single top.

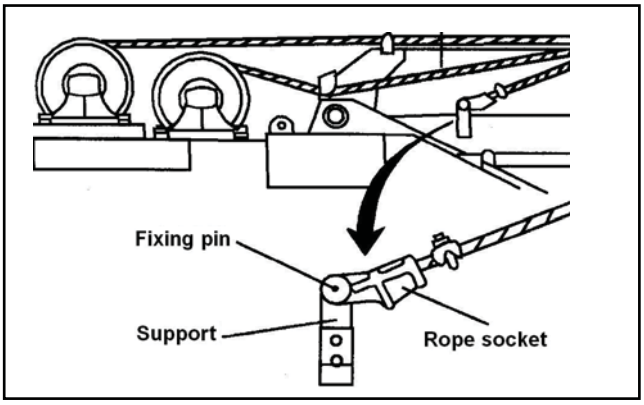


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5. Reeve it through the rope arrester.



6. Attach the rope socket to the anchor on the jib.

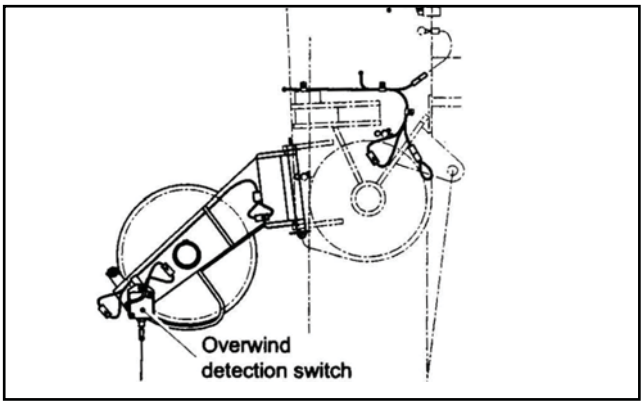


[NOTICE]

◆ **Operate the auxiliary winch carefully. If the wire rope is wound too tight, the anchor will be broken.**

7. Wind the auxiliary wire rope, leaving it slightly slack.

8. Connect and disconnect the leads of the overwind cutout device as shown.



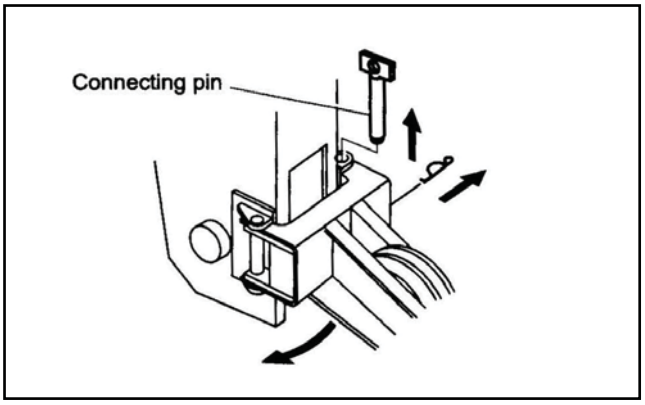
⚠ WARNING

⚠ If you fail to remove the pin inserted in the rod of the overwind detection switch, the overwind cutout device for the boom will not work and consequently the boom can be damaged.

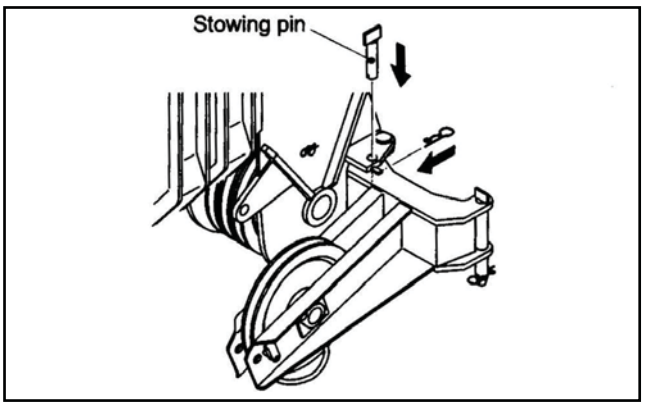
⚠ Before performing boom lift, make sure that the overwind cutout device works.

9. Remove the overwind cutout device and return it to its stowing position at the head of the jib.

10. Remove the connecting pin and swing the single top back to its stowing position.

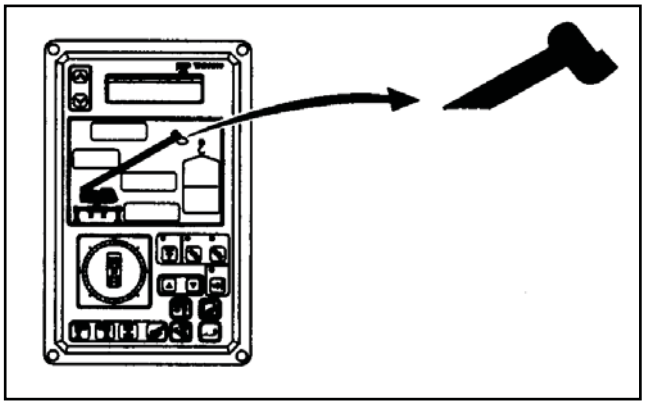


11. Insert the stowing pin that has been kept to secure the single top.



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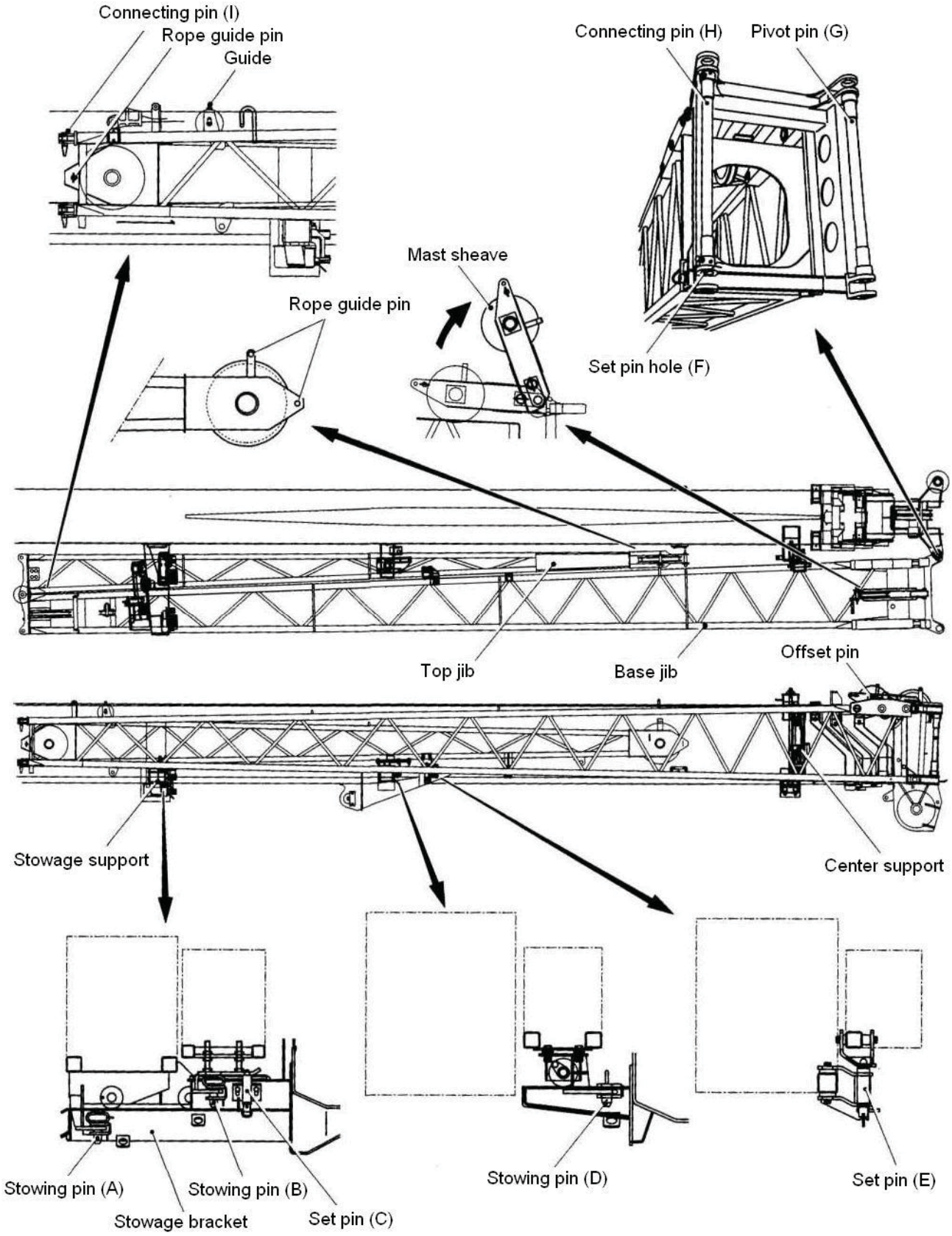
12. Select the boom lift status on the AML.



13. Overhoist the main hook block and make sure that the overwind cutout device is operating normally.

Jib

Component



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Jib Lift

WARNING

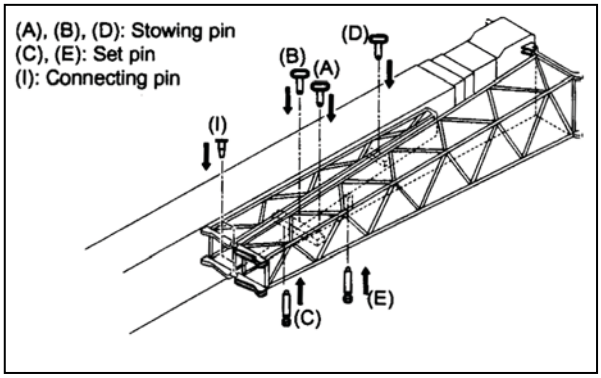
⚠ Install the crane on firm ground and set it level by extending the outriggers.

⚠ Extend the outriggers to the maximum length as far as possible.

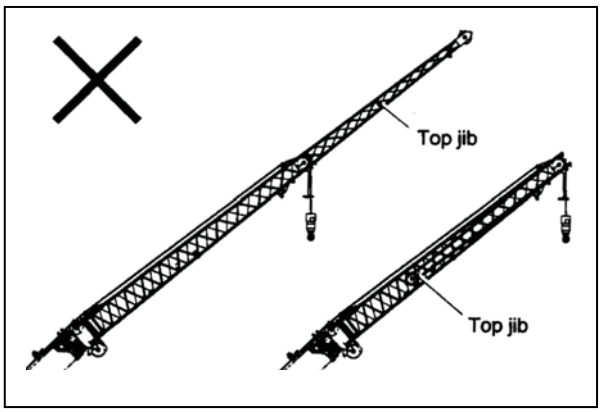
⚠ Make sure that the wire rope is not wound disorderly on the drum.

⚠ Before jib operation, register jib lift on the AML.

⚠ After jib lift is completed, make sure that the jib is secured by the pins shown in the figure below. If you attempt boom lift or traveling operation while the jib is not secure, the jib will fall off.



⚠Do not suspend a load from the base jib section while the top jib section is mounted or attached to the side of the base jib section. In this condition, the AML does not work properly. Moreover, the top jib section is not secured com pletely and will create hazard.



[NOTICE]

◆When you mount or stow the jib with the overwind cutout function deactivated, operation will not be stopped even if the hook block is overwound. Overwinding damages the crane. Be sure not to overwind when mounting or stowing the jib.

◆If the jib is mounted while the single top is mounted, the jib may hit the single top and they can damage each other. Before mounting the jib, make sure that the single top is stowed.

The jib is mounted on the boom head and is used for lifting a relatively light load to a higher location. Three jib offset angles (5°, 25° and 45°) are available. Use the angle suitable for the operation to be performed. For jib lift, use the auxiliary wire rope, auxiliary hook block and auxiliary winch.

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Jib Lock Pin Switch

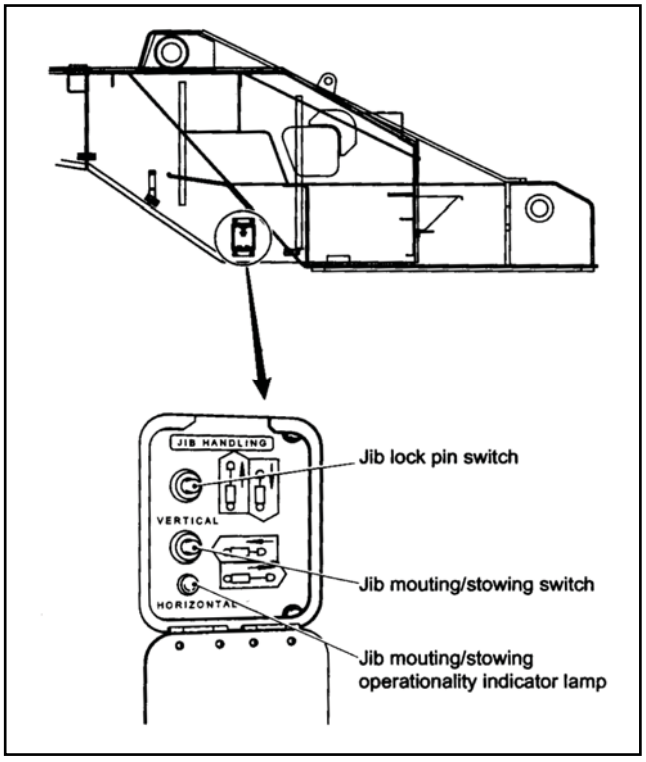
Use this switch to extend or retract the jib lock pin at the center support on the boom when mounting/dismounting the jib on/from the boom.

Jib Mounting/Stowing Operationality Indicator Lamp

When the jib lock pin at the boom center support on the boom retracts, this lamp will light up. Operate the jib mounting/stowing switch while this lamp is lit.

Jib Mounting/Stowing Switch

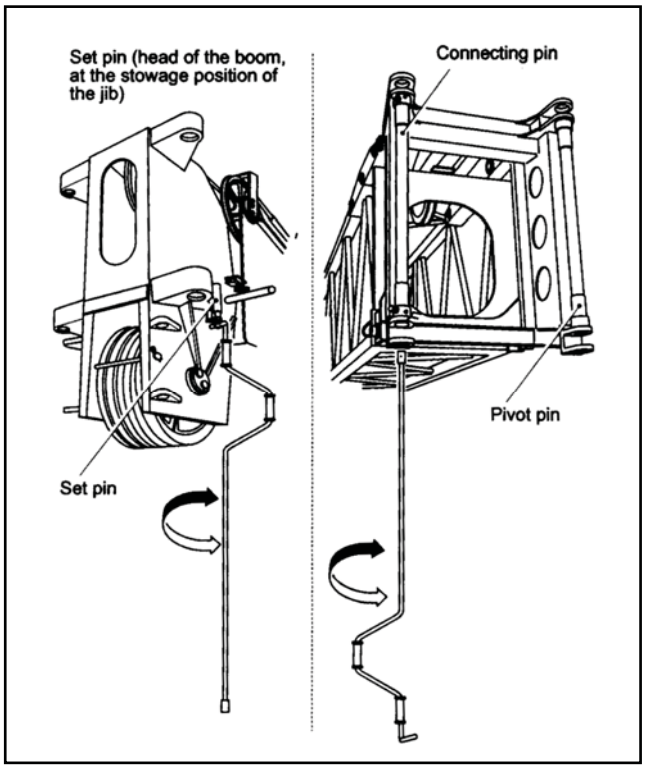
Use this switch to detach or stow the jib from/onto the stowage support on the boom when mounting /dismounting the jib on/from the boom.



How to Use the Jib Handle

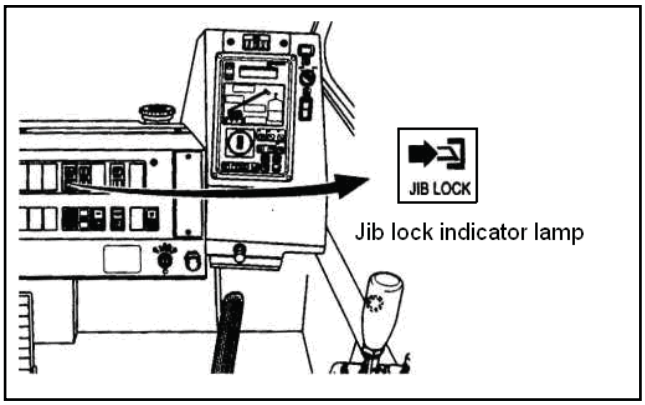
Use the jib handle for the following purposes when mounting or stowing the jib.

(1) Mounting and removing the pivot pin and connecting pin
(2) Setting and removing the set pin



Jib Lock Indicator Lamp

This lamp indicates the mounting condition of the jib.
Not lit.... The jib is stowed.
Lit..... The jib is mounted.
◆This lamp lights up when the jib disengages from the center support on the boom.

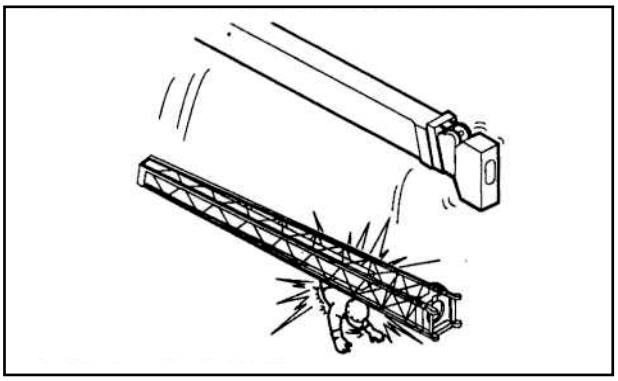


Mounting the Base Jib

WARNING

⚠ Do not lower the boom to an angle below 1°. This action could cause the jib to disengage and drop off.

⚠ Always make sure that either the stowing pin or pivot pin is inserted before starting any operation. If these pins are both extracted, the jib will drop off when an operation is started.



⚠ Take the necessary precautions to ensure that nobody enters the area over which the jib will swing. Anyone standing in this area could be injured. Also check the adjacent work area for any structure or other obstructions that may present a problem when mounting/stowing the jib.

⚠ The AML control functions and the automatic stop function are deactivated when the jib set status is selected on the AML. Mount the jib carefully with no load on the crane.

⚠ When working at an elevated position, use a platform or scissor lift to prevent falling and ensure safety.

⚠ Use the attached bolts and cotter pins to secure the lock pin, rope guide pins, and stowing

[NOTICE]

◆Select the jib set status on the AML before mounting/stowing the jib; otherwise neither the jib lock pin switch nor the jib mounting/stowing switch will work.

◆Before operating the winch, make sure that the wire rope is not wound disorderly on the winch drum.

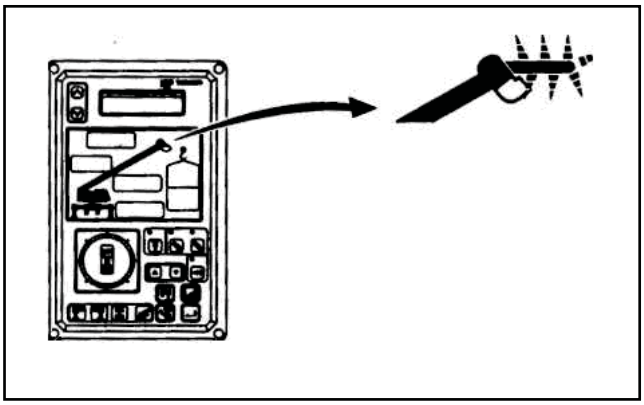
◆Retract the boom fully before mounting/stowing the jib. The jib cannot be mounted/stowed if the boom is extended even slightly.

◆Before mounting the jib, provide a guide rope to attach to the jib head.

1. Set the crane on fully extended outriggers in a location large enough for mounting the jib.

2. Take the auxiliary hook block out of stowage, and place it below the expected position of the jib tip.

3. Select the jib set status on the AML.

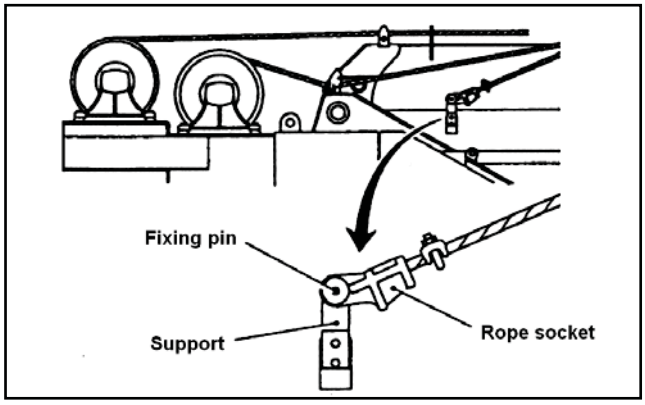


WARNING

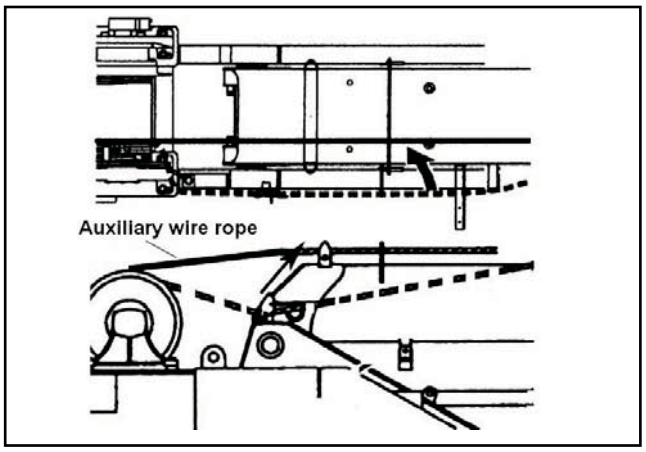
⚠ Do not lower the boom below 1°. This action could cause the jib to disengage and drop off.

4. Fully retract the boom, and lower the boom to an angle of 1.5-2°.

5. Take out the fixing pin and remove the rope socket from the support on the base jib section.



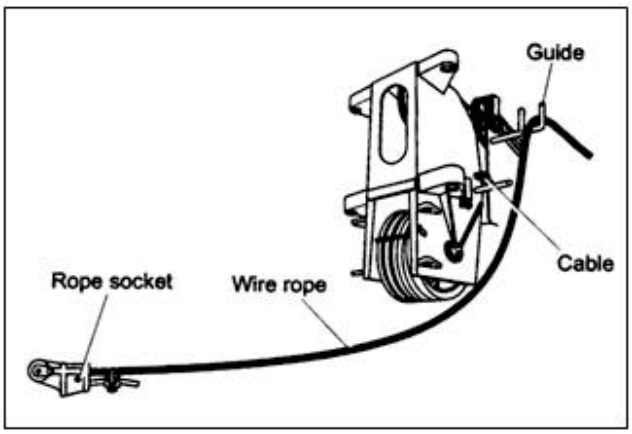
6. Return the stowed auxiliary wire rope over the upper side of the boom.



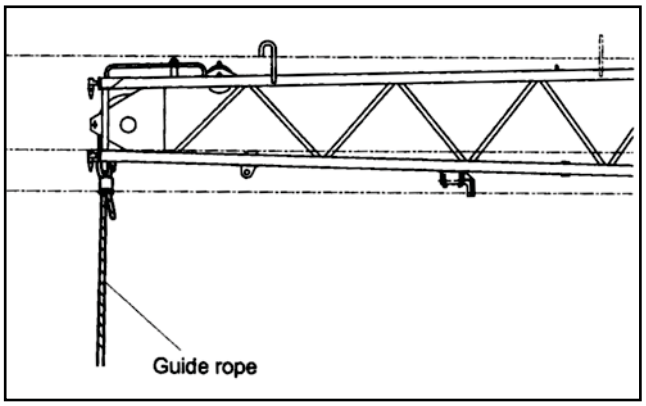
7. Reeve the auxiliary wire rope through the guide on the left side of the 4th boom section head.

◆Do not damage the cable of the boom length detector.

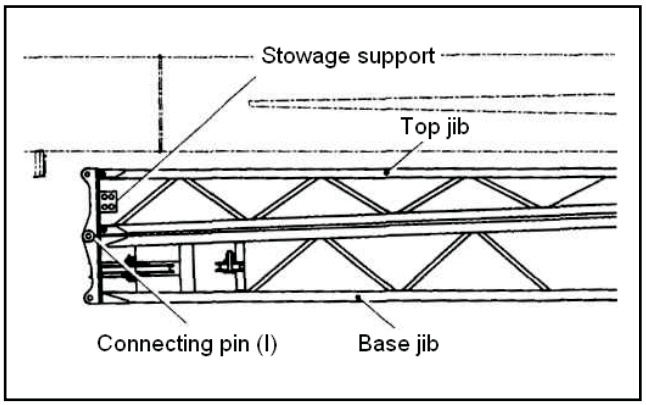
◆When working at an elevated position, use a platform to prevent falling and ensure safety.



8. Attach the guide rope to the head of the base jib section.



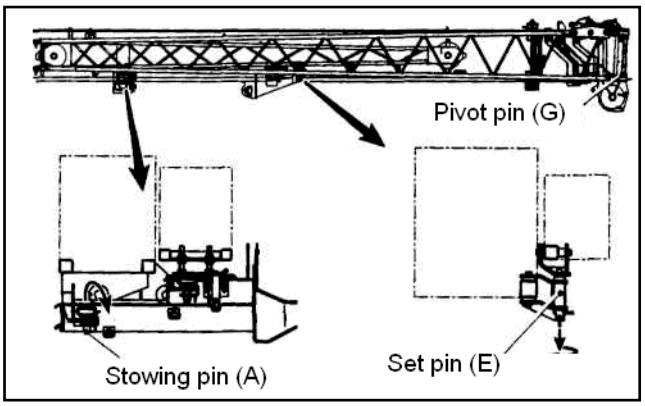
9. Remove the connecting pin (I) that connects the base jib section with the top jib section, and stow it into the stowage support on the rear end of the top jib section.



⚠ WARNING

⚠ If the connecting pin (I), the stowing pin (A) and the set pin (E) are out of position, the jib will fall off the boom when an operation is started. Always make sure that the pivot pin (G) is in position before starting any crane operation.

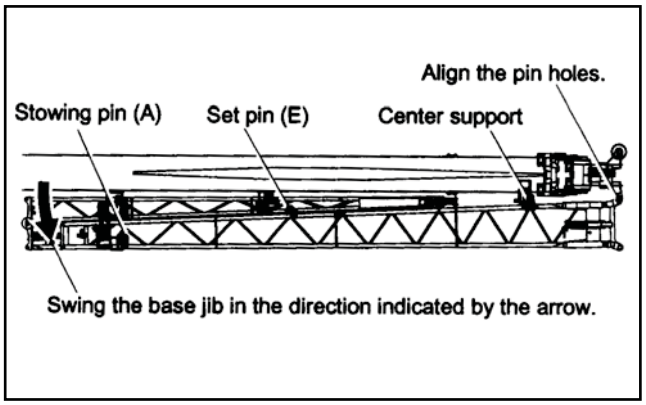
10. Remove the stowing pin (A) of the base jib section and the set pin (E) that connects the base jib section with the top jib section.



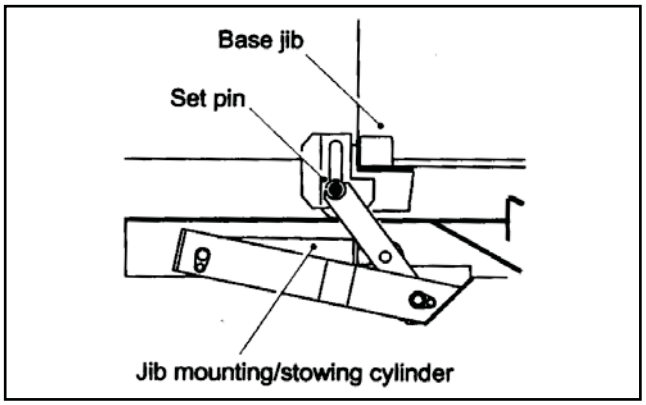
https://truckmanualshub.com/

11. Swing the the head of the base jib section out away from the boom.

The jib will swing around the axis of the center support on the boom.



◆Make sure that the set pin for the jib mounting/stowing cylinder on the stowage support is inserted in the pin hole on the base jib section.

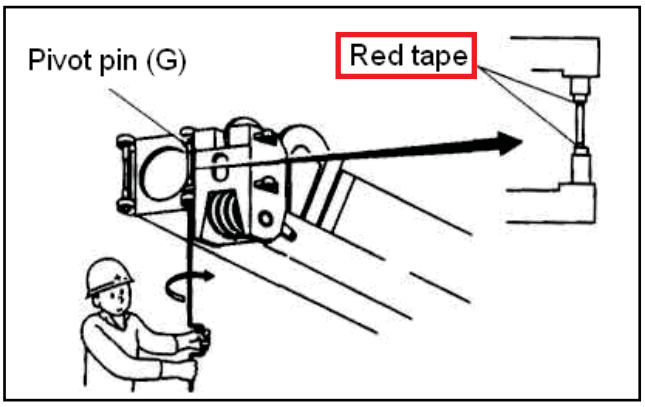


WARNING

To prevent damage to the jib, do not extend the boom while the jib is supported at the pivot pin and the center support on the boom.

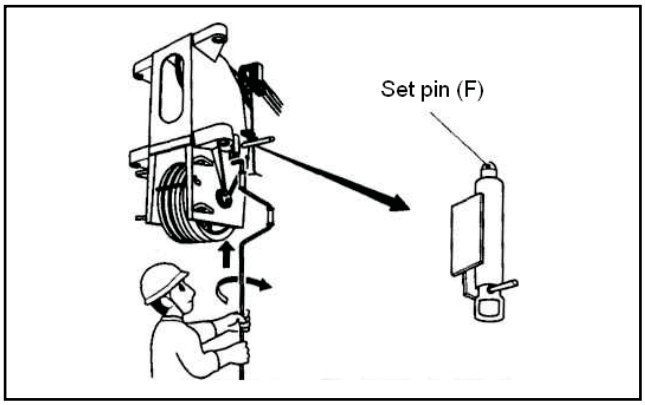
12. After making sure that the pivot pin (G) is aligned with the pin hole in the base jib section, insert the pivot pin (G) in the pin hole using the jib handle.

◆insert the pivot pin (G) properly; the red tape on the threaded portion should be exposed.



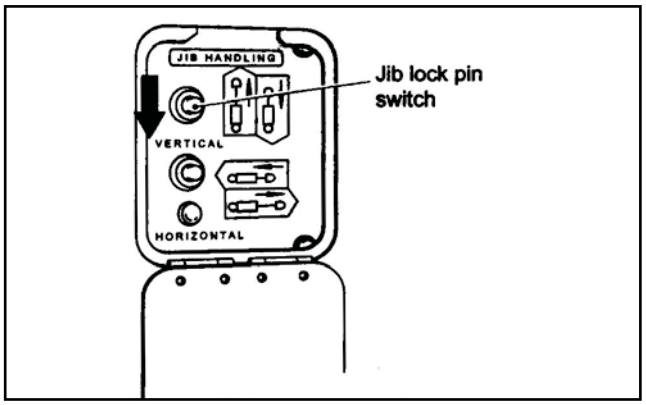
◆After the pivot pin (G) is inserted, the jib lock pin on the center support on the boom can be retracted.

13. Free the set pin (F) so that the jib can be locked by the set pin (F) when the jib is swung forward.



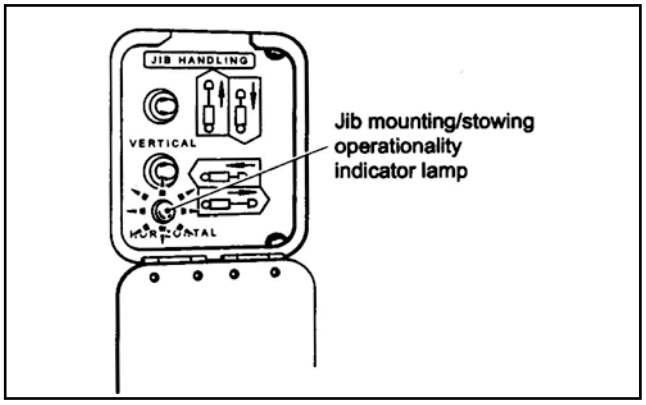
14. Flip the jib lock pin switch downward to retract the jib lock pin.

◆Jib will come apart from the center support on the boom.

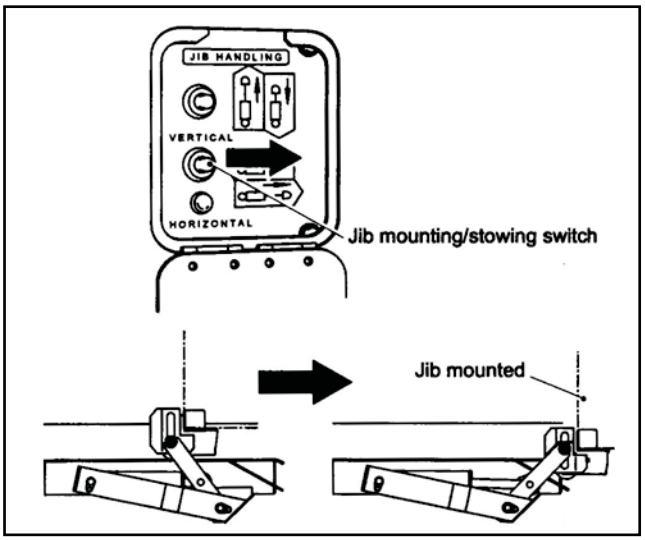


◆After the jib lock pin at the center support on the boom is retracted, the jib mounting/stowing operationality indicator lamp will light up.

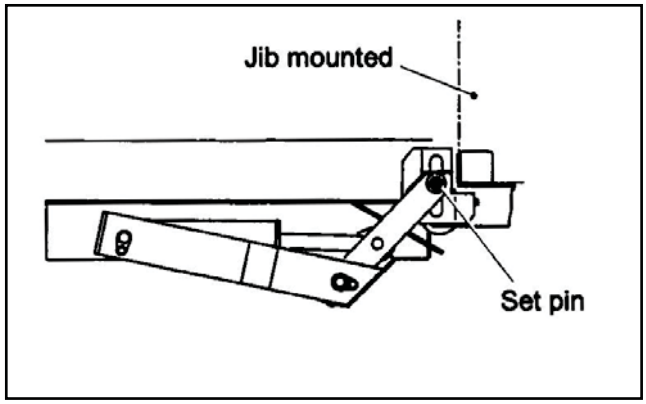
If the jib lock pin is not retracted fully, the jib mounting /stowing operationality indicator lamp remains unlit and the jib mounting/stowing cylinder cannot be moved.



15. Swing the jib out using the jib mounting/stowing switch.



16. Pull out the set pin for the stowage support, and rotate it to hook it on the guide. The stowage support will come apart from the jib.

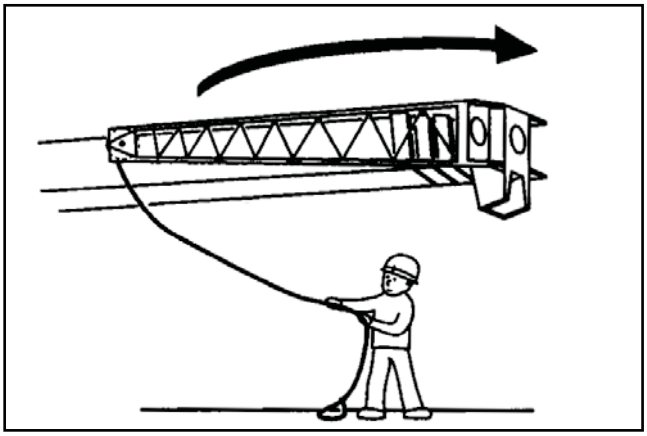


◆Then retract the jib mounting/stowing cylinder. If the cylinder is left extended, it can hinder crane operation or be damaged.

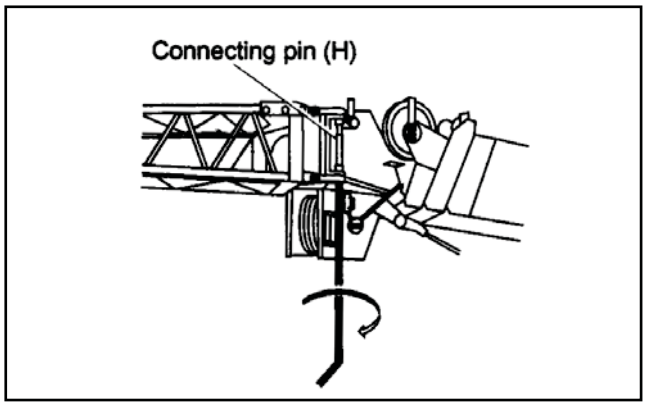
WARNING

To prevent accidents, never let anyone stand in the path of nor under the jib.

17. Hold the guide rope, and swing the jib forward until it can be secured by the set pin (F).

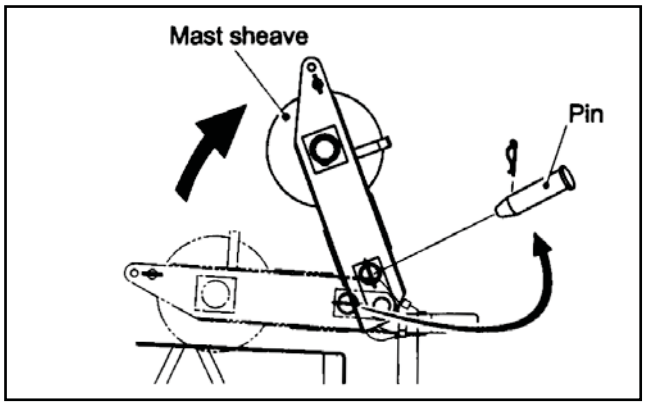


18. After checking that the connecting pin (H) is aligned with the lower pin hole of the base jib section, insert the connecting pin (H) in the pin hole using the jib handle. In this step, the connecting pin (H) is inserted only in the lower pin hole.



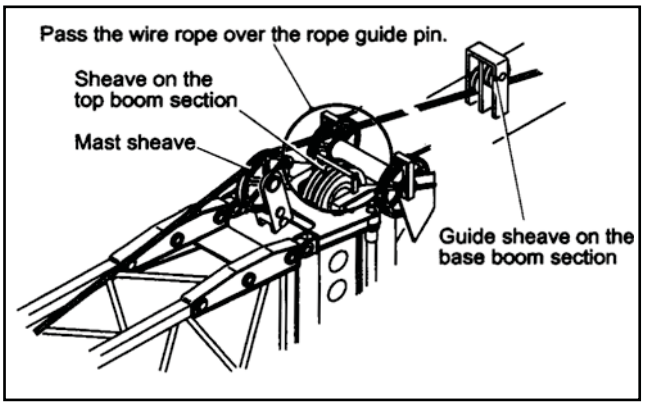
19. Set the boom angle to 0° and remove the guide rope from the base jib section.

20. Raise the mast sheave on the base jib section and lock it with the pin.



21. Reeve the auxiliary wire rope over the jib sheave.

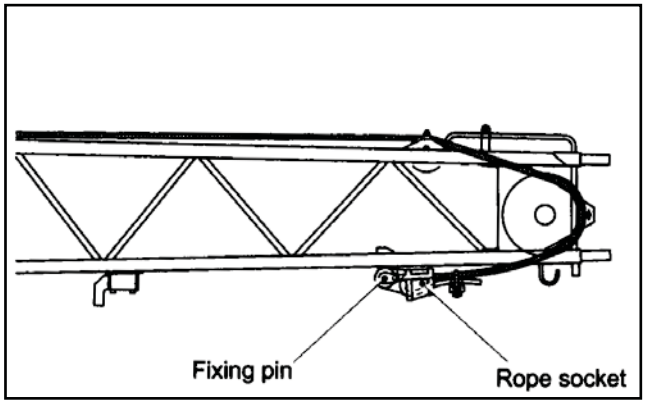
◆Do not reeve the auxiliary wire rope over the sheave of the top boom section; otherwise the rope guide pin will be damaged.



[NOTICE]

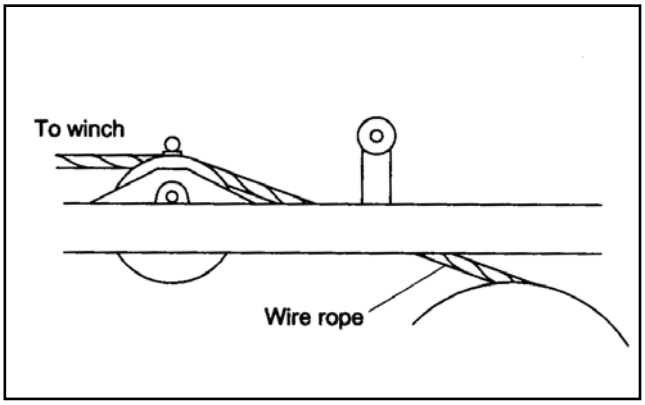
◆Take care of the rope socket orientation when attaching it to the bracket. (See the figure below.) If positioned inversely, the rope socket hits the jib at the lower face when the winch is operated, and the socket will be damaged.

22. Attach the rope socket to the underside jib bracket with the fixing pin.

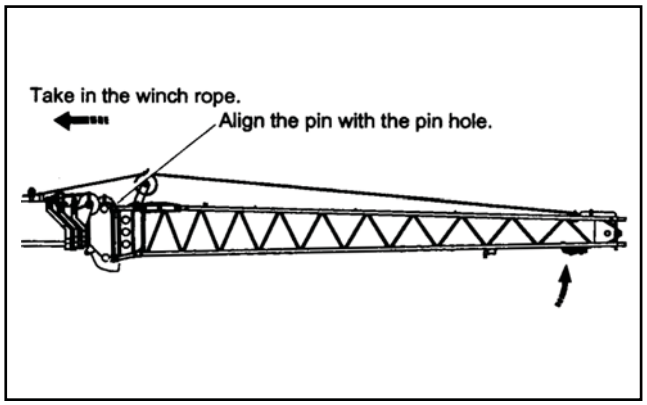


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◆Reeve the wire rope below the guide roller as shown in the figure when passing the rope through the jib head.

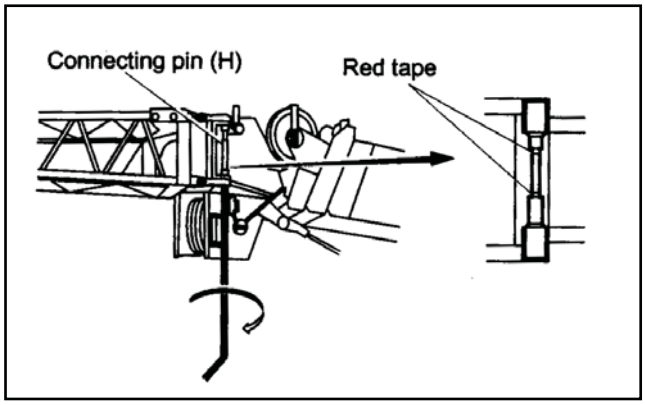


23. Take in the rope slowly by operating the auxiliary winch until the rope becomes slightly tense. Then slowly extend the boom until the connecting pin (H) is aligned with the upper pin hole of the jib



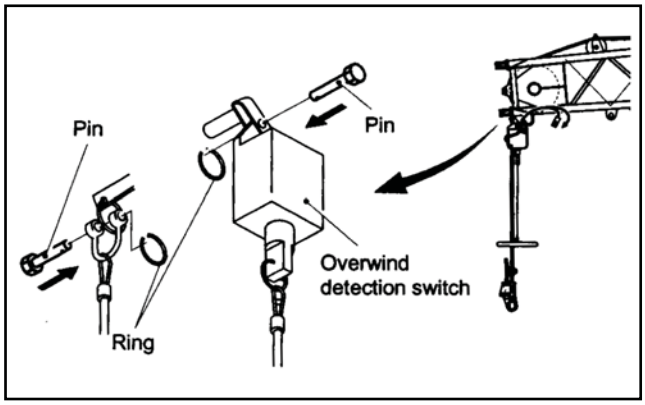
24. After checking that the connecting pin (H) is aligned with the upper pin hole, insert the connecting pin (H) in the pin hole using the jib handle.

◆insert the connecting pin (H) properly; the red tape on the threaded portion should be exposed.

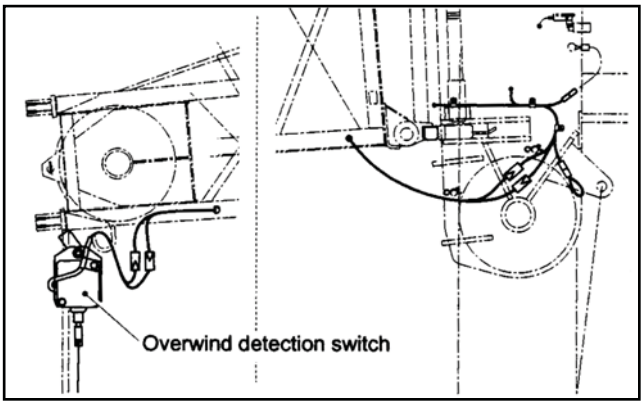


25. Operate the auxiliary winch to let out the wire rope until the wire rope becomes slightly slack. Then remove the rope socket from the jib bracket

26. Attach the overwind cutout device.

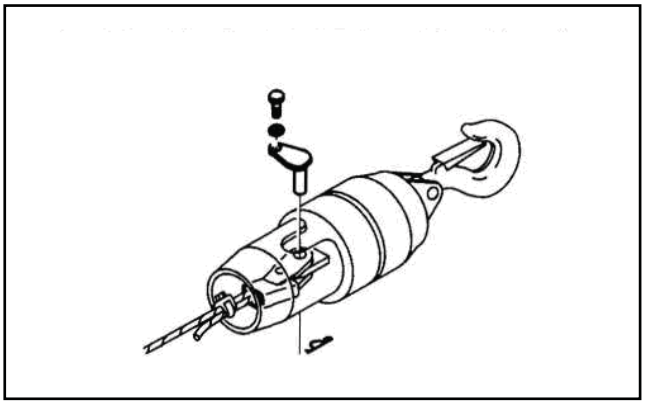


27. Connect the wiring for the overwind cutout device as shown in the figure below.

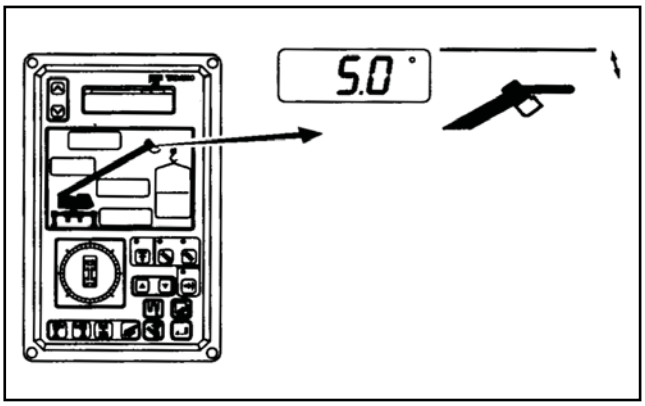


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28. Operate the auxiliary winch to let out the wire rope. Then mount the rope socket on the auxiliary hook block.
◆To prevent the wire rope from being wound disorderly, pull the wire rope by hand. Wear protective gloves.



29. Select the status for 8.8 m jib,.5° offset on the AML.



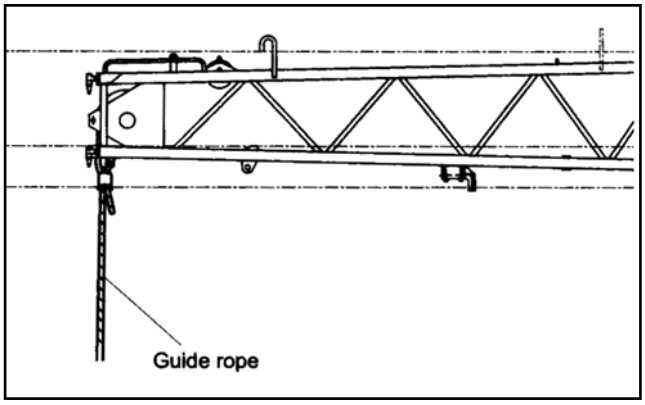
30. Overhoist the auxiliary hook block and make sure that the overwind cutout device is operating properly.
◆Make sure that the wire rope is not wound disorderly on the winch drum before applying tension on the wire rope.

31. The jib is now mounted at 8.8 m with a 5° offset angle.
◆To change the offset angle, see the "Changing Jib Offset Angle" section.
◆Before mounting the jib, provide a guide rope to attach to the jib head.

Mounting the Base Jib and the Top Jib

[NOTICE]
◆Strictly follow the warnings and notices in the "Mounting the Base Jib" section.

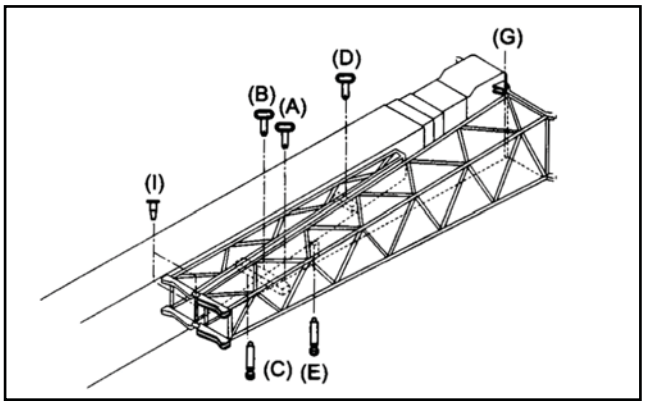
1. Perform the steps 1 .-8. described in the "Mounting the Base Jib" section.



⚠ WARNING

⚠If the stowing pins (B) and (D) are removed while the connecting pin (I) is out of position, the top jib section may fall off.

2. Make sure that the base jib and the top jib sections are connected by the connecting pin (I).

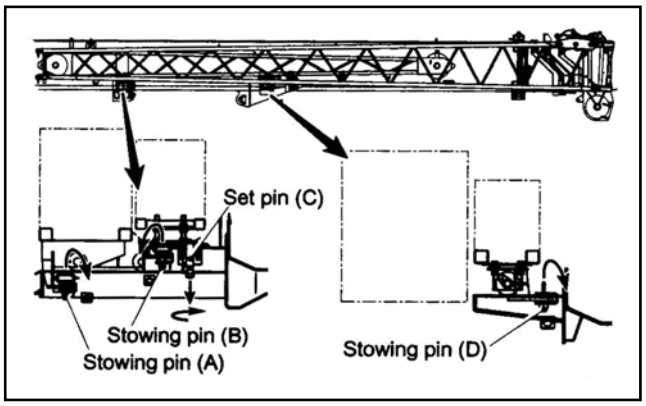


https://truckmanualshub.com/

WARNING

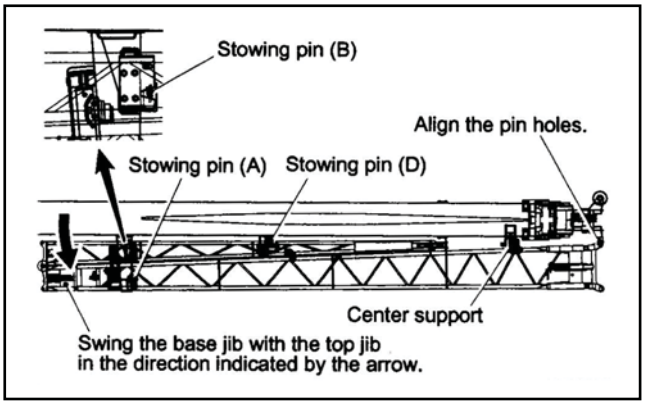
If stowing pins (A), (B), and (D) and the set pin (C) are out of position, the jib will fall off the boom when an operation is started.
Always make sure that the pivot pin (G) is in position before starting any crane operation.

3. Remove the stowing pins (A), (B), and (D) and the set pin (C).

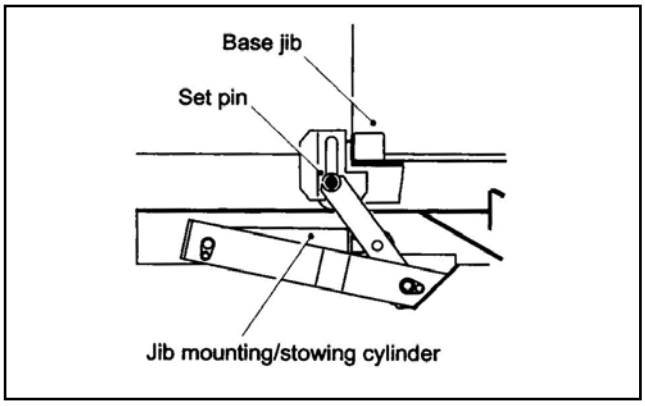


4. Swing the head of the base jib section out away from the boom.

◆he jib will swing around the axis of the center support on the boom.



◆Make sure that the set pin of the jib mounting/stowing cylinder in the stowage support is inserted into the pin-hole on the base jib section.

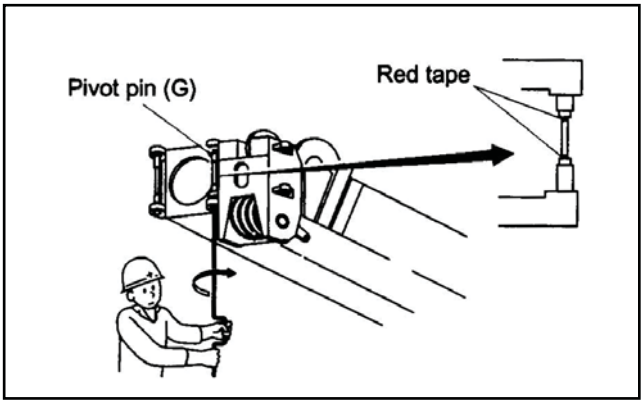


WARNING

To prevent damage to the jib, do not extend the boom while the jib is supported at the pivot pin and the center support on the boom.

5. After making sure that the pivot pin (G) is aligned with the pin hole on the base boom section, insert the pivot pin into the pin hole using the jib handle.

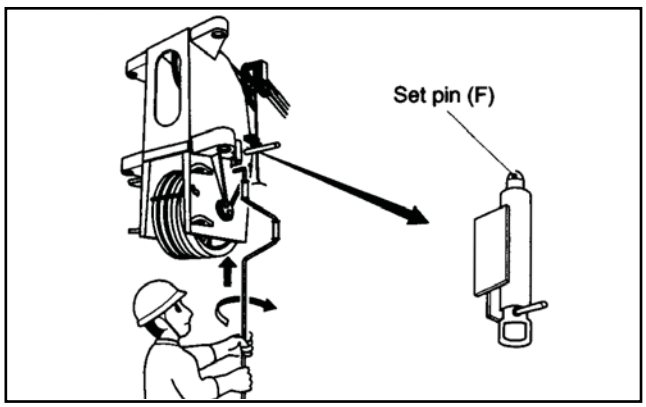
Insert the pivot pin (G) properly; the red tape on the threaded portion should be exposed.



◆After the pivot pin (G) is inserted, the jib lock pin at the center support on the boom can be retracted.

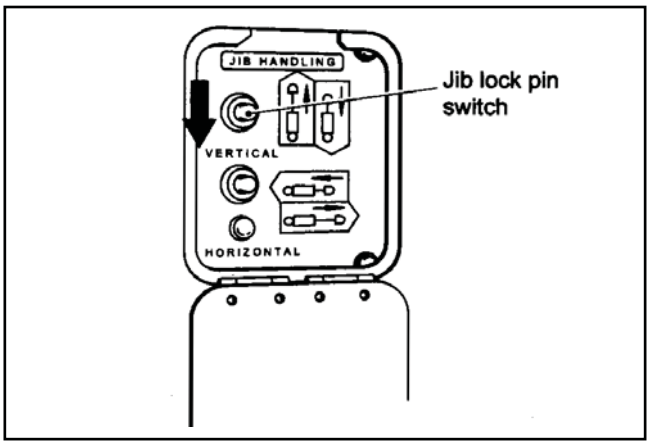
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6. Free the set pin (F) so that the jib can be locked by the set pin (F) when the jib is swung forward.



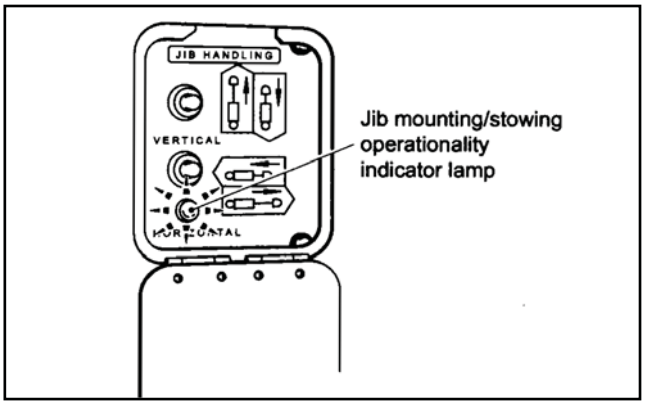
7. Flip the jib lock pin switch downward to retract the jib lock pin.

◆Jib will come apart from the center support on the boom.

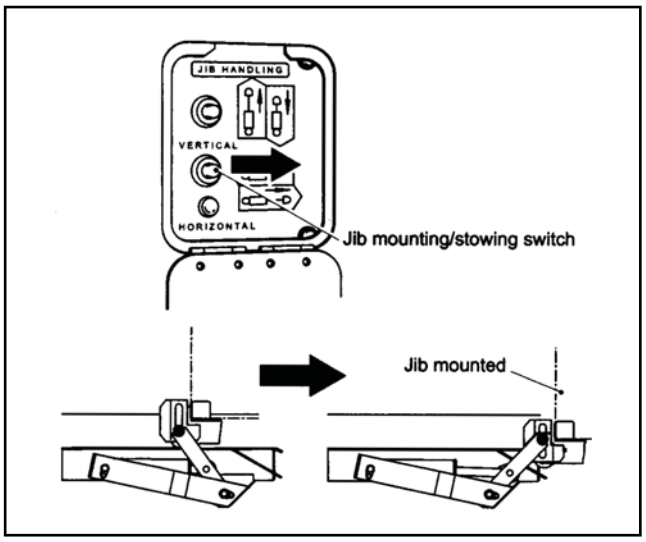


◆After the jib lock pin at the center support on the boom is retracted, the jib mounting/stowing operationality indicator lamp will light up.

If the jib lock pin is not retracted fully, the jib mounting /stowing operationality indicator lamp remains unlit and the jib mounting/stowing cylinder cannot be moved.



8. Swing the jib out using the jib mounting/stowing switch.



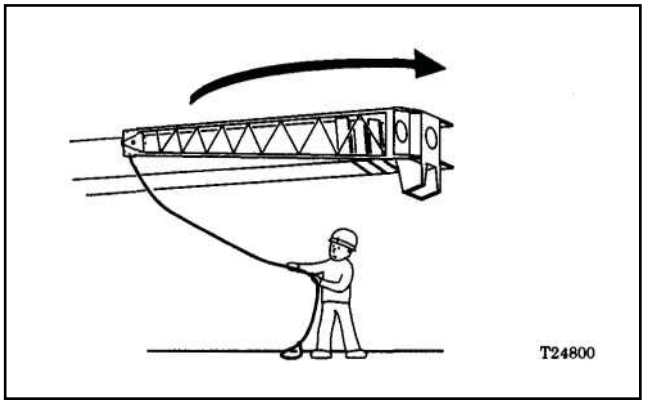
9. Pull out the set pin for the stowage support, and rotate it to hook it on the guide. The stowage support will come apart from the jib.

◆Then retract the jib mounting/stowing cylinder. If the cylinder is left extended, it can hinder crane operation or be damaged.

⚠ WARNING

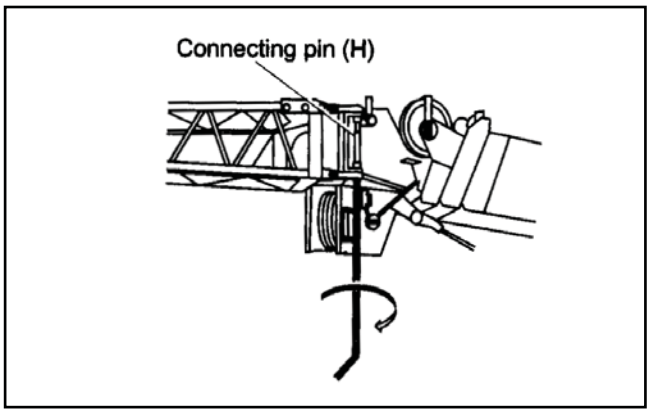
⚠ To prevent accidents, never let anyone stand in the path of nor under the jib.

10. While holding the guide rope by hand, swing the jib forward until the set pin (F) fixes it.



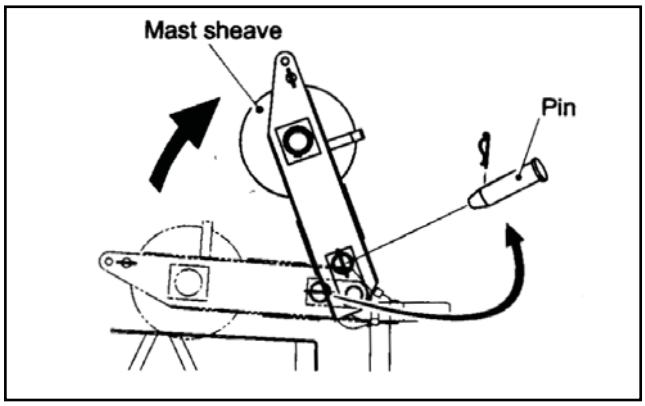
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11. After checking that the connecting pin (H) is aligned with the lower pin hole of the base jib section, insert the connecting pin (H) in the pin hole using the jib handle. In this step, the connecting pin (H) is inserted only in the lower pin hole.



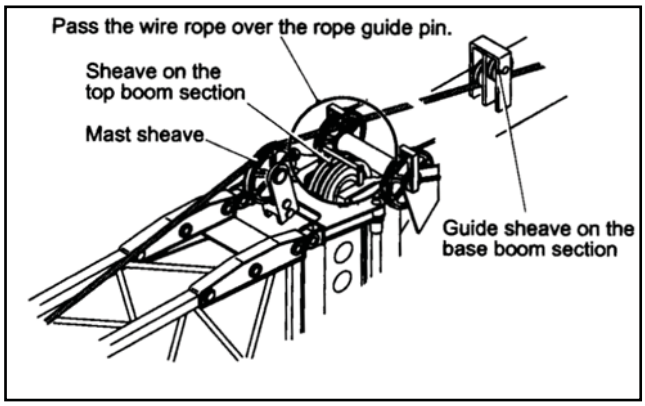
12. Lower the boom to an angle of 0°, and remove the guide rope from the base jib section.

13. Raise the mast sheave on the base jib section and lock it with the pin.



14. Reeve the auxiliary wire rope over the jib sheave.

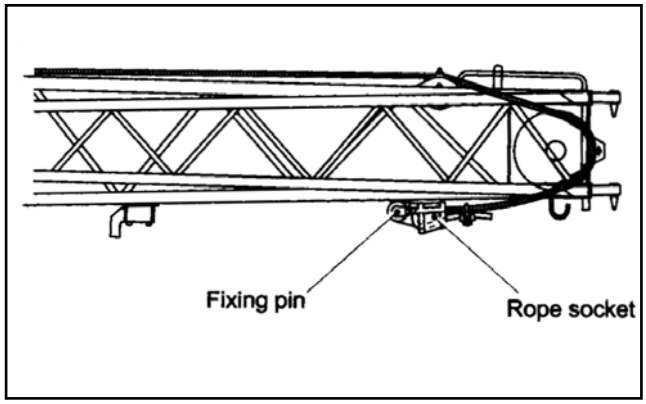
◆Do not reeve the auxiliary wire rope over the sheave of the top boom section; otherwise the rope guide pin will be damaged.



[NOTICE]

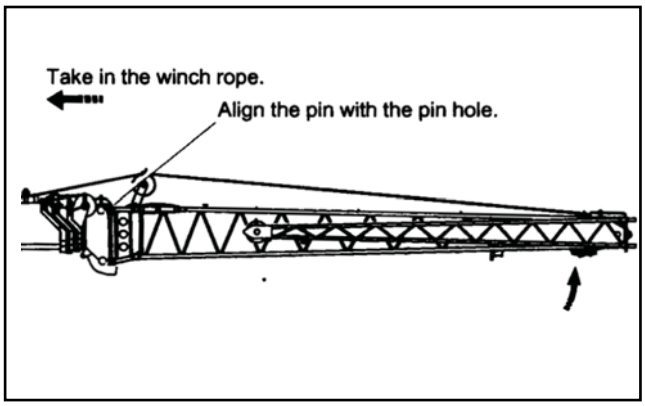
◆Take care of the rope socket orientation when attaching it to the bracket. (See the figure below.) If positioned inversely, the rope socket hits the jib at the lower face when the auxiliary winch is operated, and the socket will be damaged.

15. Attach the rope socket to the bracket on the base jib section with the fixing pin.



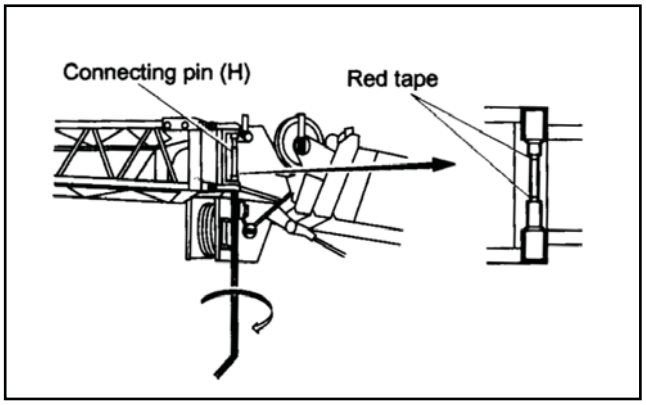
https://truckmanualshub.com/

16. Take in the wire rope by operating the auxiliary winch until the rope becomes slightly tense. Then slowly extend the boom until the connecting pin (H) is aligned with the upper pin hole of the jib.



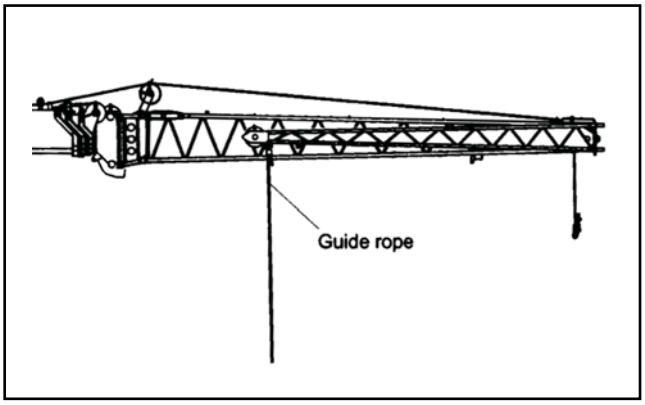
17. After making sure that the connecting pin (H) is aligned with the upper pin hole of the base jib section, insert the connecting pin (H) into the pin hole using the jib handle.

◆Insert the connecting pin (H) properly; the red tape on the threaded portion should be exposed.



18. Operate the auxiliary winch to let out the wire rope until the auxiliary wire rope becomes slightly slack. Then remove the rope socket from the bracket on the base jib section.

19. Attach the guide rope to the head of the top jib section.

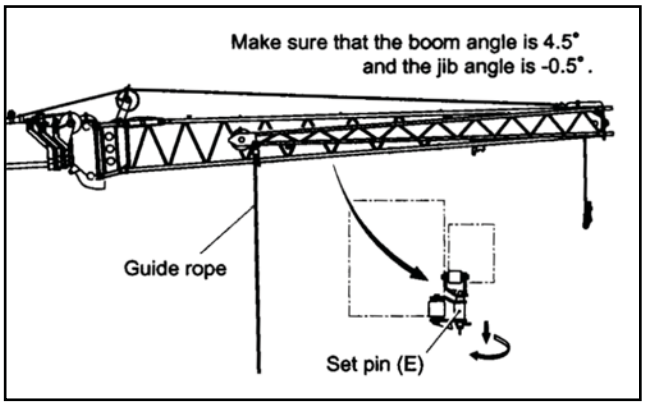


20. Raise the boom so that the boom angle is 4.5° (jib angle is -0.5°).

WARNING

⚠ Make sure that the boom angle is 4.5° or over before pulling out the set pin (E). The swinging speed of the top jib section will increase and create hazard if the set pin (E) is pulled out while the jib is steeply inclined.

21. While holding the guide rope by hand, pull out the set pin (E) that connects the base jib section with the top jib section.

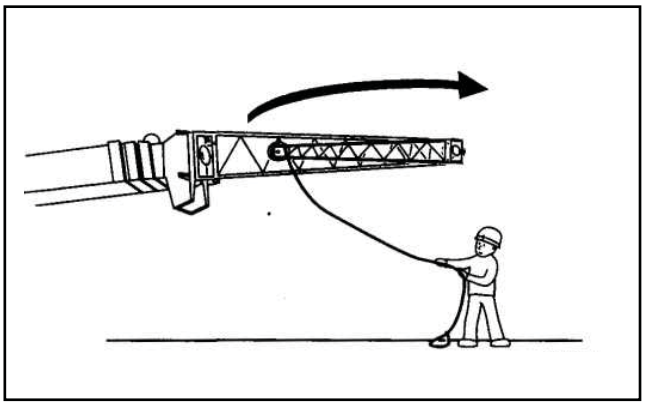


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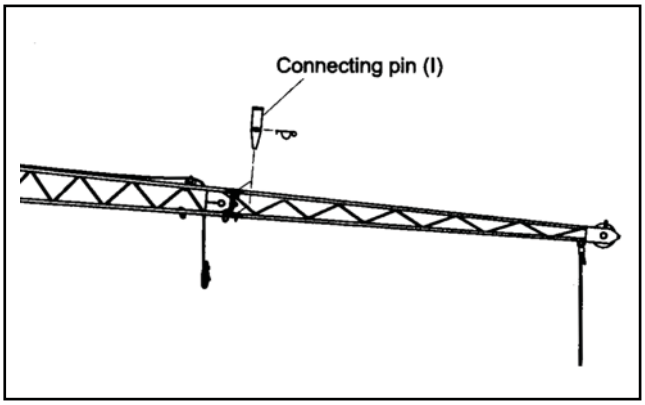
⚠ WARNING

⚠ To prevent accidents, never let anyone stand in the path of nor under the jib.

22. Pull the guide rope and swing the top jib section forward.

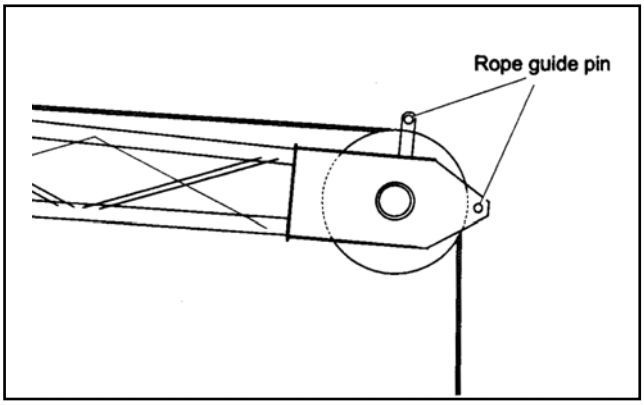


23. Lower the boom and insert the connecting pins (I) to connect the base jib section with the top jib section.

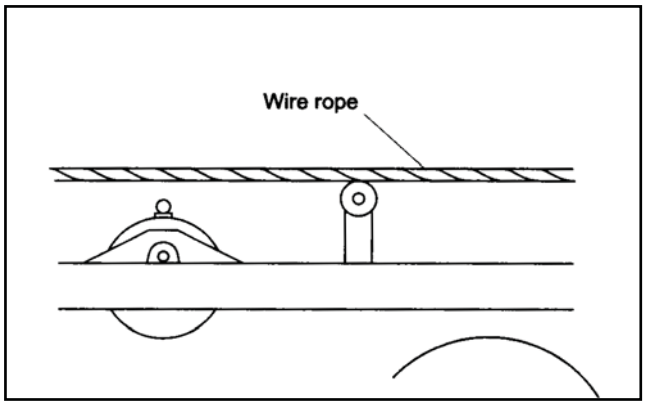


24. Operate the auxiliary winch to let out the wire rope, and reeve the wire rope over the sheave at the head of the top jib section. Then remove the guide rope.

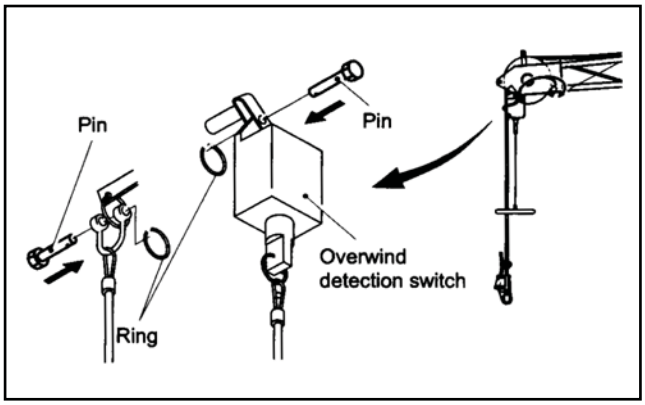
◆To prevent the wire rope from being wound disorderly, pull the wire rope by hand. Wear protective gloves.



◆Do not reeve the wire rope around the guide Sheave on the head of the base jib section.

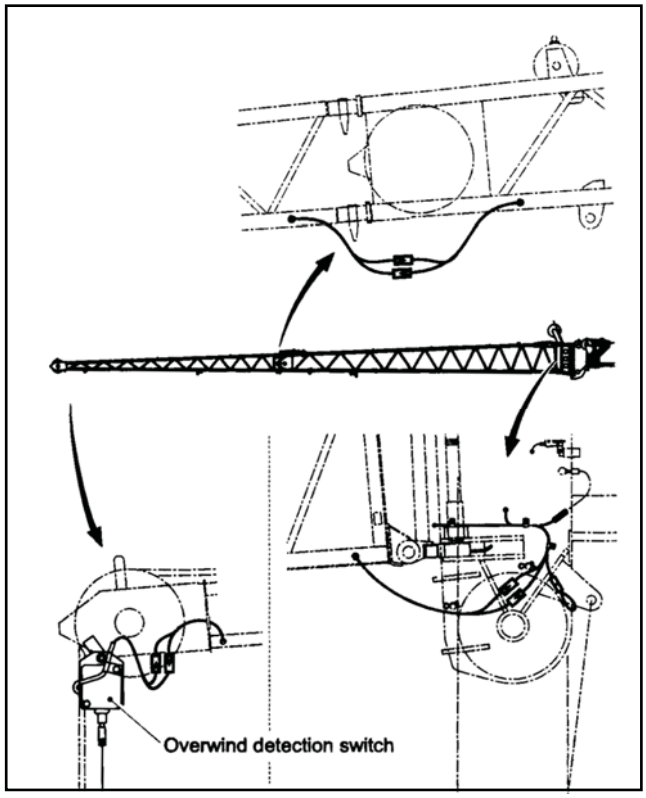


25. Attach the overwind cutout device.



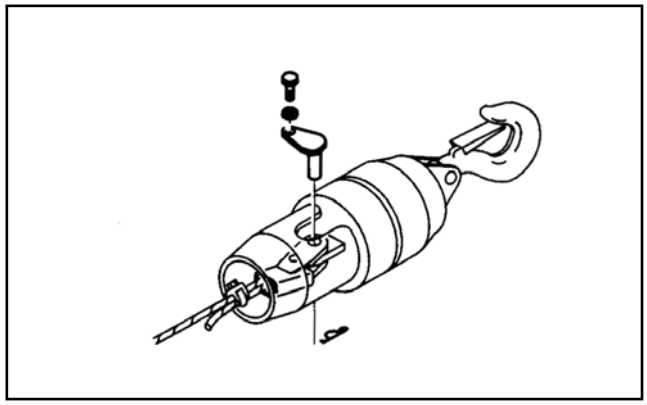
https://truckmanualshub.com/

26. Connect the wiring for the overwind cutout device as shown in the figure below.

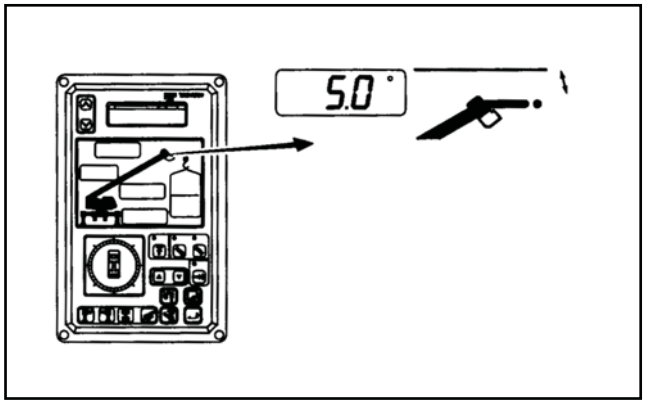


27. Operate the auxiliary winch to let out the auxiliary wire rope. Then mount the rope socket on the auxiliary hook block.

◆To prevent the wire rope from being wound disorderly, pull the wire rope by hand. Wear protective gloves.



28. Select the status for 15.2 m jib, 5° offset on the AML.



29. Overhoist the auxiliary hook block and make sure that the overwind cutout device is operating properly.

◆Make sure that the wire rope is not wound disorderly on the winch drum before applying tension on the wire rope.

30. The jib is now mounted at 15.2 m with a 5° offset angle.

◆To change the offset angle, see the "Changing the Jib Offset Angle" section.

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Changing the Jib Offset Angle

WARNING

⚠ Never let anyone stand under the jib.

⚠ When working at an elevated position, use a platform or scissor lift to prevent falling and ensure safety.

⚠ Secure the offset pin in place by using the attached cotter pin.

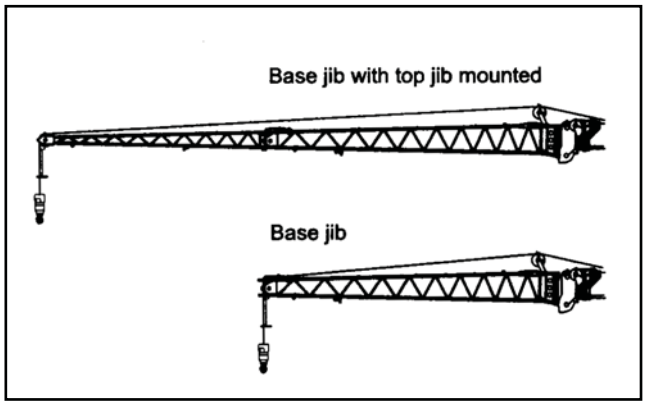
[NOTICE]

◆Select the jib set status on the AML before changing the jib offset angle; otherwise neither the jib lock pin switch nor jib mounting/stowing switch will work.

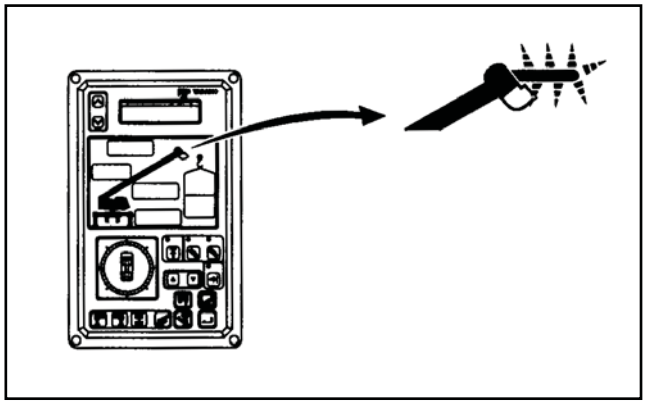
◆Before operating the winch, make sure that the wire rope is not wound disorderly on the winch drum.

Increasing the Jib Offset Angle (from 5° to 25° or 45°)

1. Retract the boom fully and set it to the horizontal.



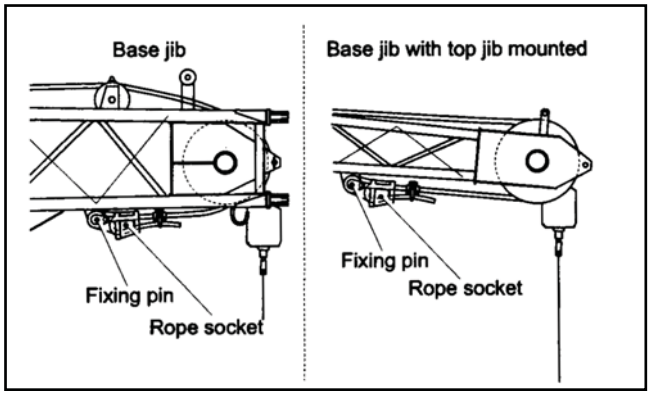
2. Select the jib set status on the AML.



[NOTICE]

◆Take care of the rope socket orientation when attaching it to the bracket. (See the figure below.) If positioned inversely, the rope socket hits the jib at the lower face when the winch is operated, and the socket will be damaged.

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



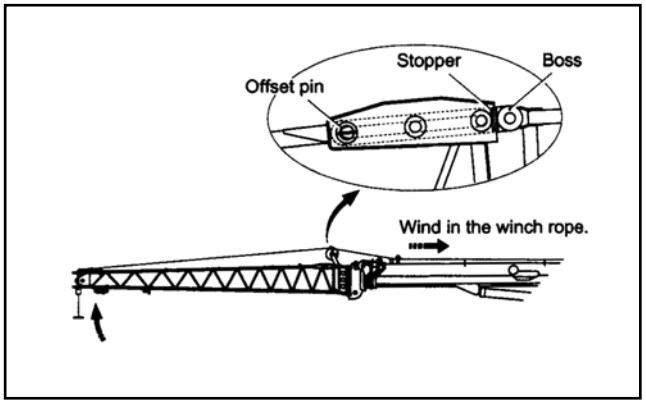
WARNING

⚠ Do not lower the boom while the wire rope is tense; otherwise the jib or the wire rope will be damaged, creating a hazard of serious accidents.

4. Slowly operate the auxiliary winch to wind in the wire rope to a point where the offset pins can be removed.

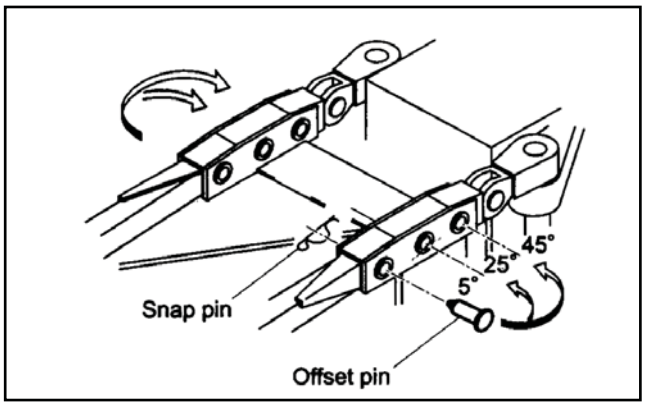
◆Wind in the wire rope until the stopper touches the boss.

◆Although the figure below shows the case of a base jib, this same method of raising the jib should be also used where the top jib is mounted on the base jib.



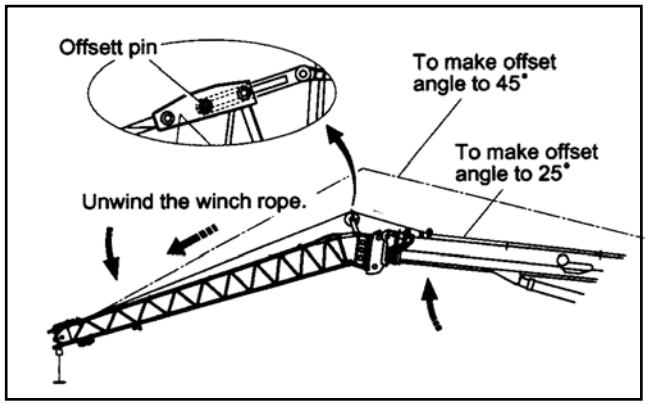
https://truckmanualshub.com/

5. Reinsert the offset pins in the pin holes of the desired offset angle.



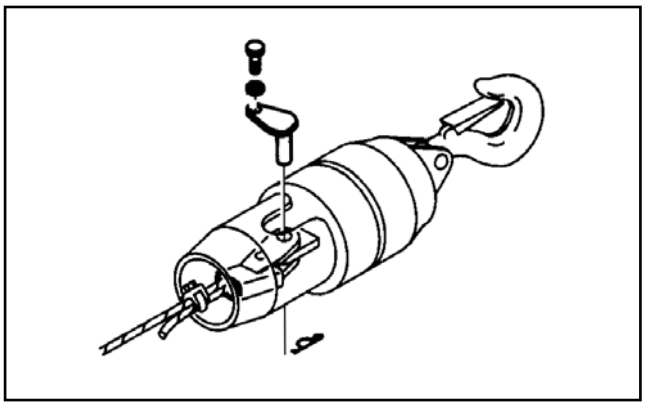
6. Slowly lower the jib by unwinding the auxiliary winch wire rope until the jib is held in place by the offset pins.

◆When increasing the offset angle, raise the boom as necessary while lowering the jib to prevent the jib head from hitting against the ground.

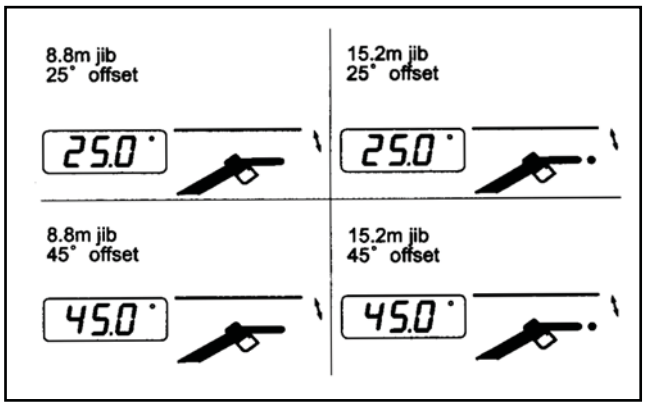


7. Unwind the auxiliary winch wire rope until the wire rope becomes slightly slack. Then remove the rope socket from the jib bracket.

8. Pass the rope socket through the weight of the overwind cutout device and mount it on the auxiliary hook block.



9. Select the jib offset angle on the AML corresponding to the actual angle.



Increasing the Jib Offset Angle from 25° to 45°

⚠ WARNING

⚠ Do not lower the boom while the wire rope is tense; otherwise the jib or the wire rope will be damaged, creating a hazard of serious accidents.

Take the same procedure as described in the "Increasing the Jib Offset Angle" section. However, substitute the following operation for the steps 4. and 5.

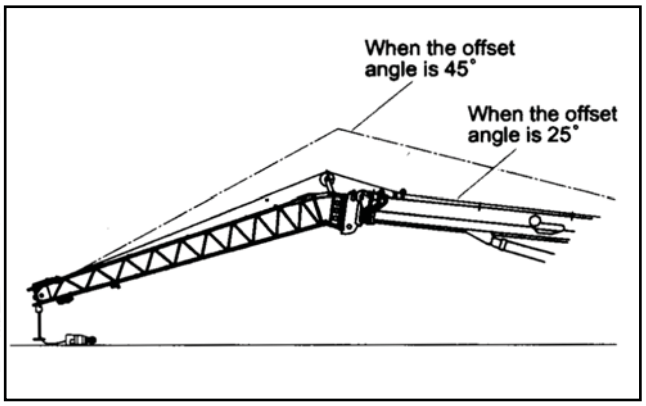
(1) Wind in the auxiliary winch wire rope to a point where the jib offset pins can be removed.
(2) Reinsert the offset pins in the pin holes of the 45°-angle.

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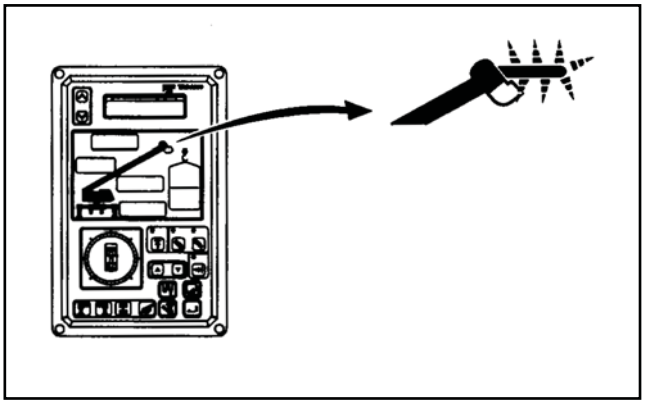
Reducing the Jib Offset Angle (from 25° or 45° to 5°)

1. After retracting the boom fully, lower the boom until the jib head is close to the ground.

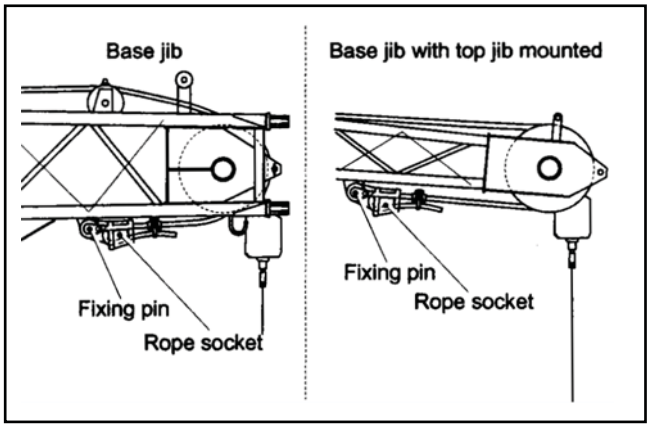
◆Although the figure below shows the case of a base jib, this same configuration of the crane should be also taken where the top jib is mounted on the base jib.



2. Select the jib set status on the AML.



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

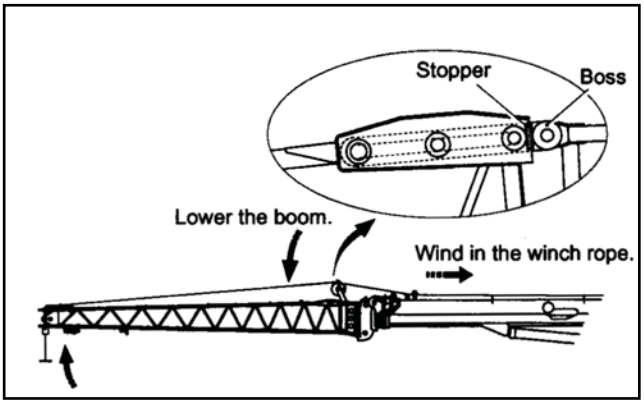


4. Wind in the auxiliary winch wire rope until the wire rope is tense.

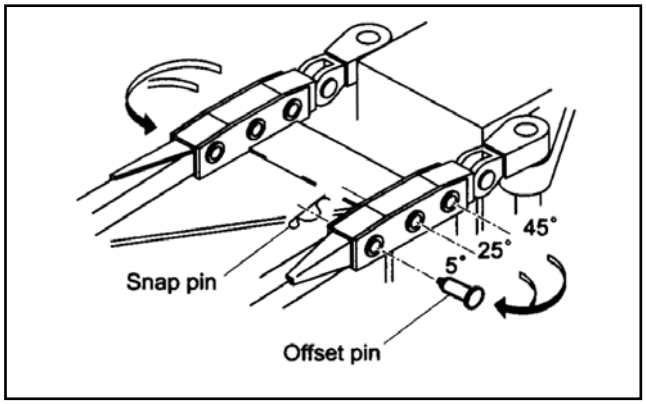
WARNING

⚠ Do not let the stoppers hit the bosses while lowering the boom; otherwise the jib or the wire rope will be damaged, creating a hazard of serious accidents.

5. While lowering the boom, slowly wind in the auxiliary winch wire rope until the stopper touches the boss.



6. Reinsert the offset pins in the pin holes of the 5°-angle.



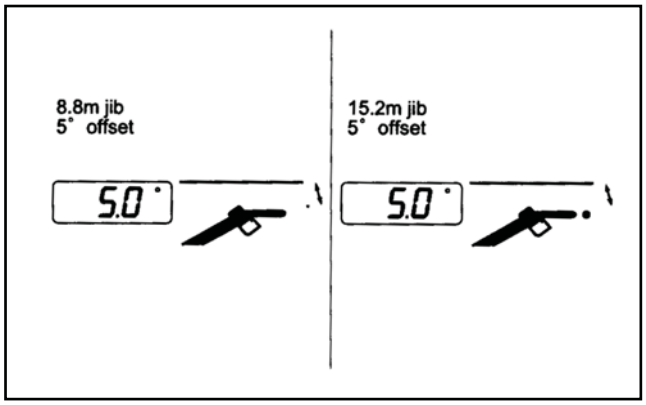
7. Slowly lower the jib by unwinding the auxiliary
winch wire rope until the jib is held in place by the offset pins.

8. Unwind the auxiliary winch wire rope until the auxiliary wire rope becomes slightly slack. Then remove the rope socket from the jib bracket.

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9. Pass the rope socket through the weight of the overwind cutout device and mount it on the auxiliary hook block.

10. Select the jib offset angle on the AML corresponding to the actual angle.



Reducing the Jib Offset Angle from 45° to 25°

Take the same procedure as described in the "Reducing the Jib Offset Angle" section. However, substitute the following operation for the steps 5. and 6.

(1) Wind in the auxiliary winch wire rope to a point where the jib offset angle is 25° or less (where the offset pins can be inserted).

(2) Reinsert the offset pins in the pin holes of the 25°-angle.

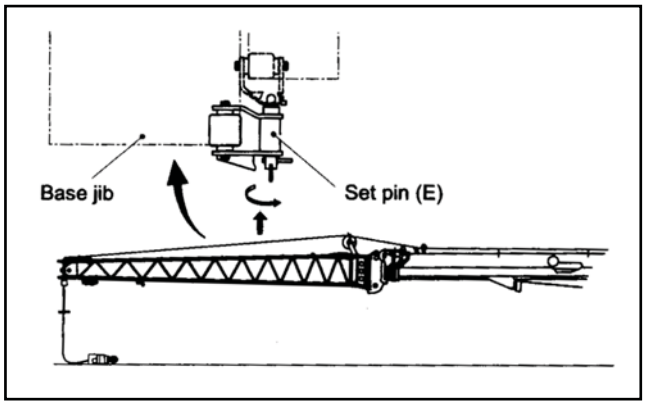
Stowing the Base Jib

[NOTICE]

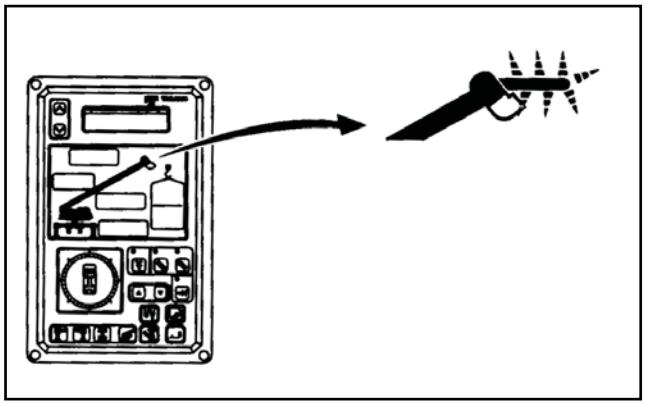
◆Strictly follow the warnings and notices in the "Mounting the Base Jib" section.

◆If the jib offset angle is other than 5°, change its offset to 5° beforehand, referring to the "Changing the Jib Offset Angle" section.

1. Retract the boom fully and set it to horizontal. Free the set pin (E) so that it can fix the jib when the jib is stowed.

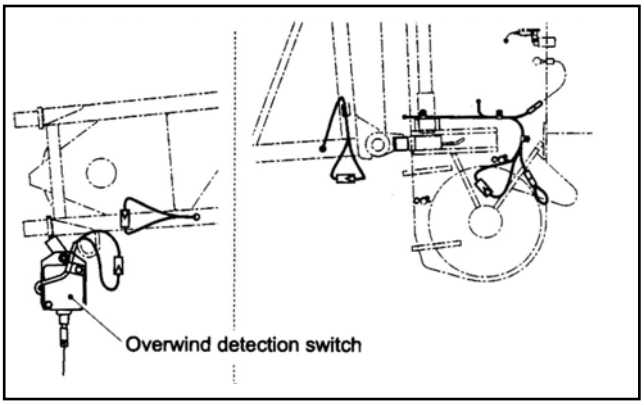


2. Select the jib set status on the AML.

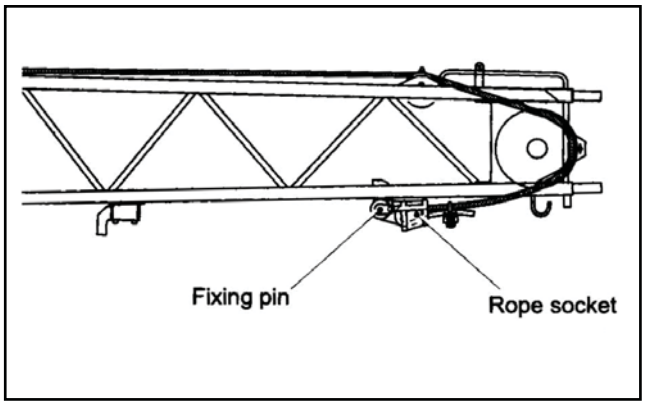


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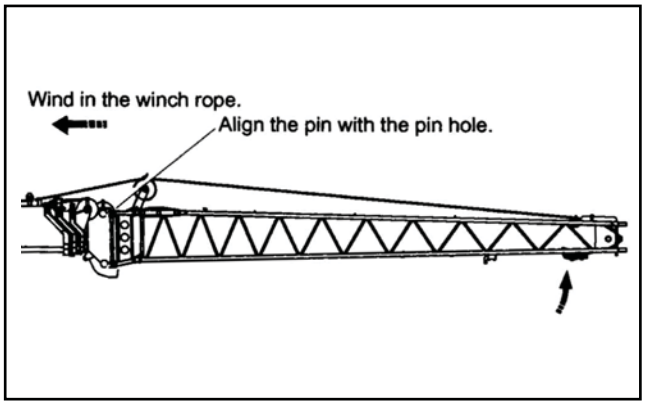
3. Connect the wiring for the overwind cutout device as shown in the figure below.



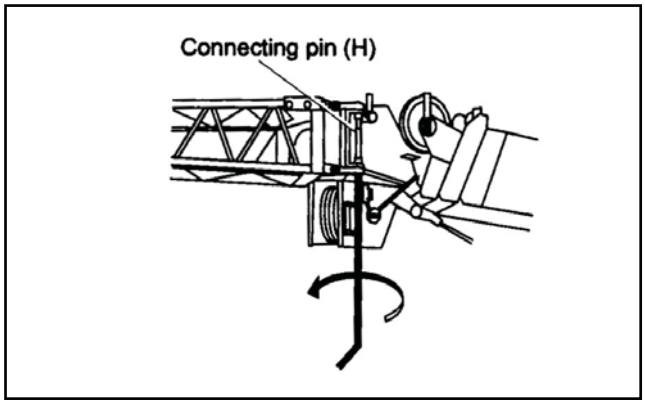
4. Remove the rope socket from the auxiliary hook block and attach it to the bracket on the head of the base jib section.



5. Wind in the auxiliary winch wire rope until the wire rope becomes tense; then slowly extend the boom to a point where the connecting pin (H) can be pulled out



6. Remove the connecting pin (H) using the jib handle.

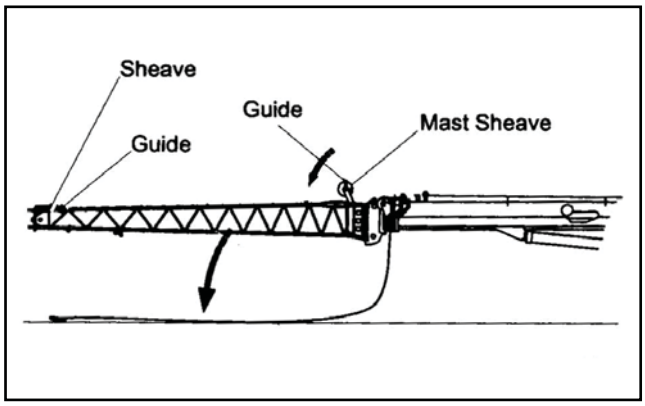


7. Unwind the auxiliary winch wire rope until the wire rope becomes slightly slack. Then remove the rope socket from the jib bracket

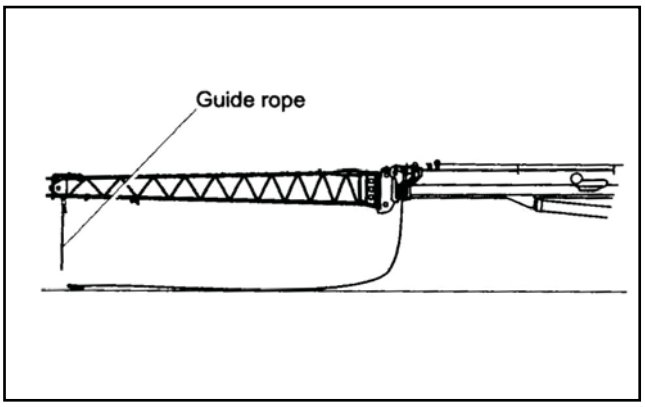
8. Remove the auxiliary wire rope from the sheaves and guides on the head of the boom and jib.

◆Set the guides and the rope guide pins back in their original position.

◆Stow the mast sheave in the jib.

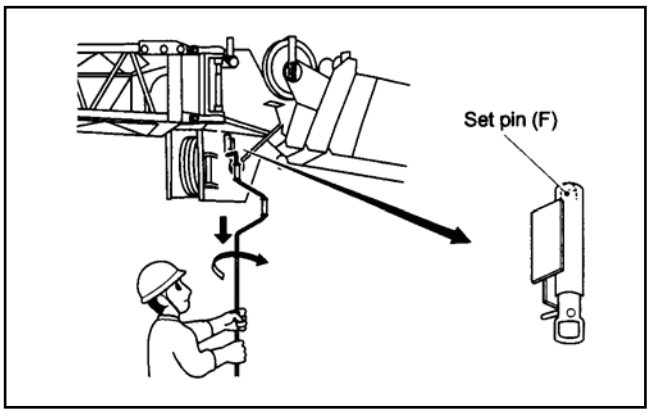


9. Attach the guide rope to the jib head.



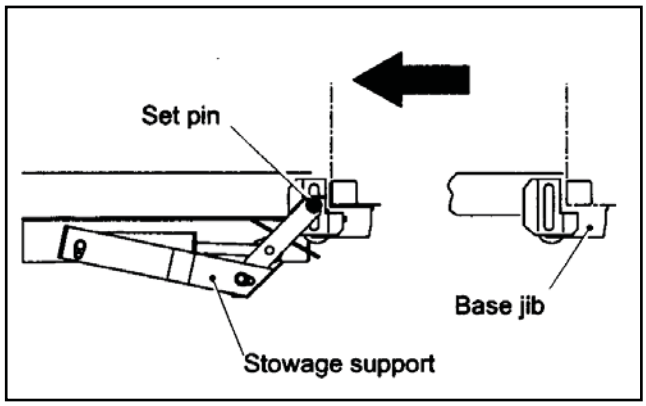
https://truckmanualshub.com/

10. Pull the set pin (F) down using the jib handle. Lock the set pin in place by turning it clockwise.



11. Free the set pin on the stowage support.

◆If the stowage support is not extended, extend it by using the jib mounting/stowing switch before freeing the set pin.



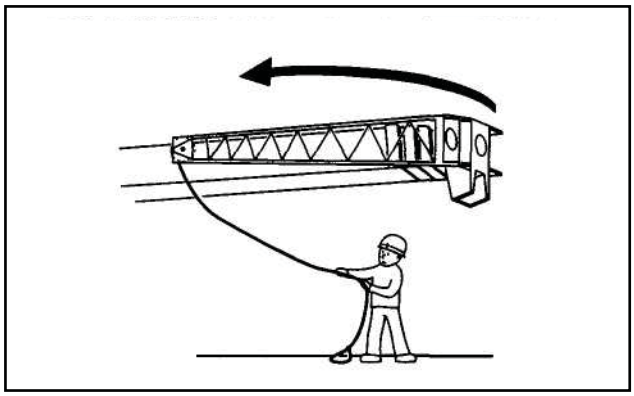
⚠ WARNING

⚠ To prevent accidents, never let anyone stand in the path of nor under the jib.

[NOTICE]

◆Make sure that the boom is fully retracted before swinging the jib. The boom can be damaged if it is extended.

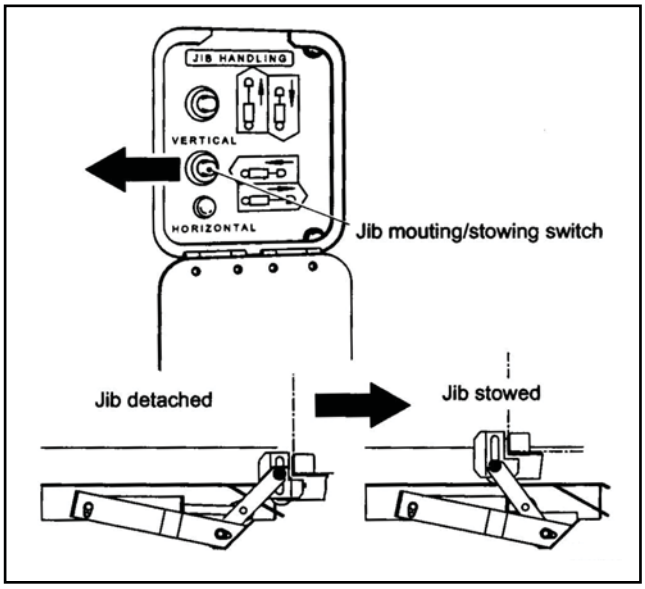
12. Fold the jib in toward the boom by pulling the guide rope. The set pin for the stowage support will be engaged to connect the base jib section.



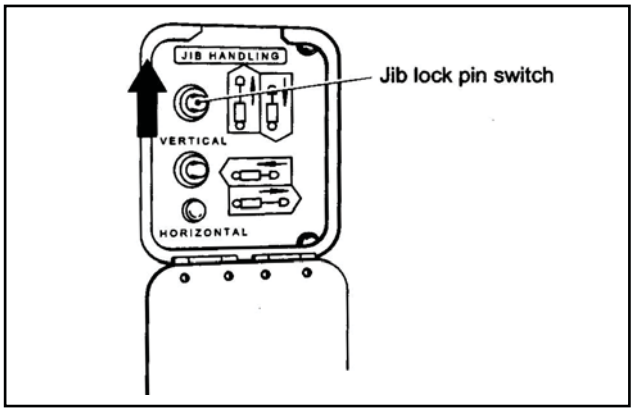
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13. Stow the stowage support using the jib mounting /stowing switch. The base jib section will move toward the boom.

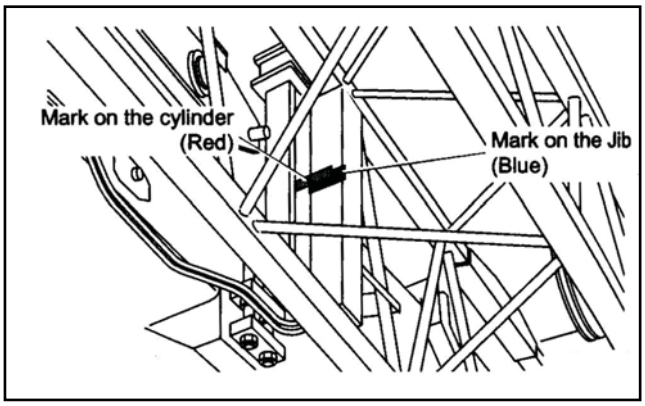
◆Make sure that the jib mounting/stowing operationality indicator lamp is lit. While it is unlit, the jib mounting /stowing cylinder does not move. The lamp does not light up if the jib lock pin cylinder is not retracted fully.



14. Flip the jib lock pin switch upward to connect the jib lock pin at the center support on the boom with the jib.



◆After the jib lock pin at the center support is extended, marks on both the cylinder (red) at the center support and the jib (blue) will be aligned.



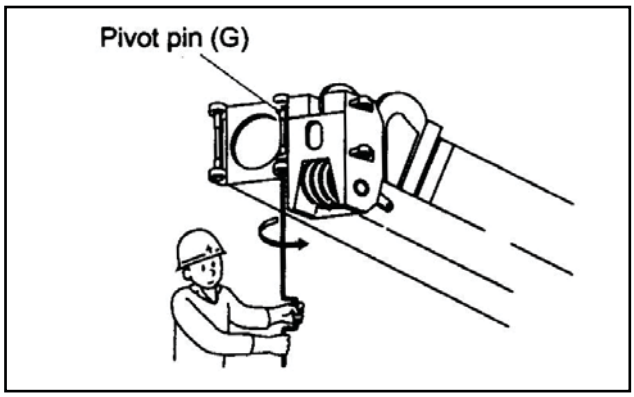
◆Make sure that the jib is connected with the jib lock pin at the center support.

WARNING

⚠ Make sure that the boom angle is horizontal or over before removing the pivot pin (G). If the pin is removed while the boom is below horizontal, the jib can fall.

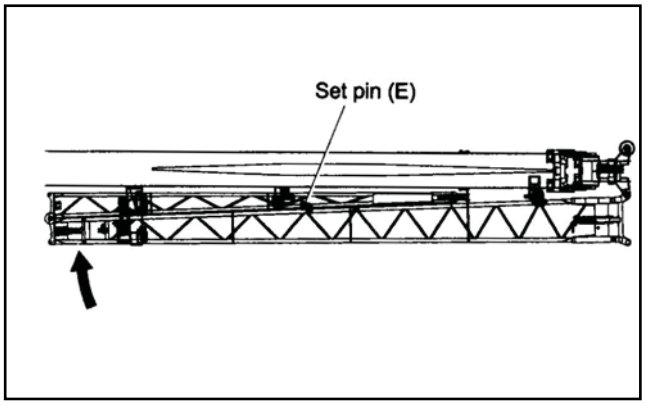
⚠ To prevent the jib from falling off, secure the jib by inserting the set pin immediately after removing the pivot pin (G).

15. Remove the pivot pin (G) using the jib handle.

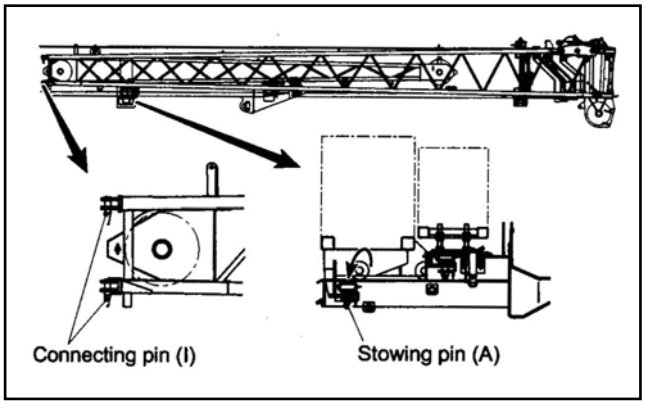


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16. Remove the set pin on the stowage support and move the base jib section toward the boom until the set pin (E) connects the base jib section with the top jib section.

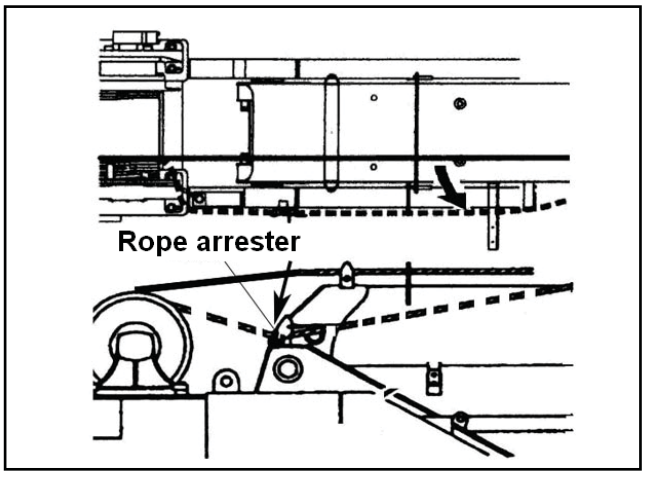


17. Insert the stowing pin (A) for the base jib section. Insert the connecting pin (I) to connect the base jib section with the top jib section.

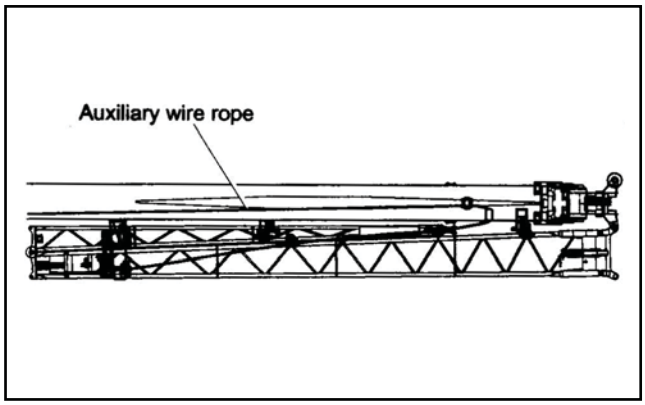


18. Remove the wire rope confining the jib opening angle from the head of the base jib section and stow it into the bottom of the jib stowage support.

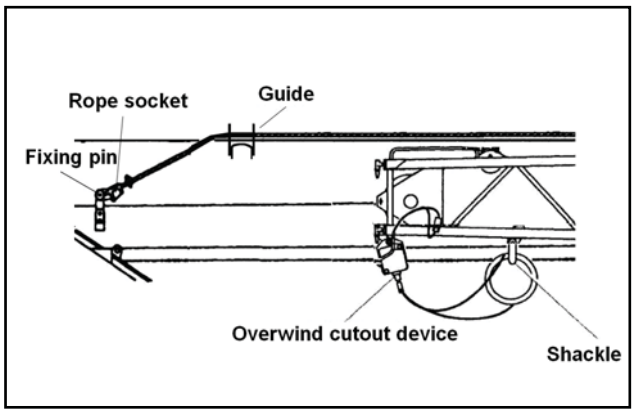
19. Hook the auxiliary wire rope on the rope arrester.



20. Pass the auxiliary wire rope as shown below



21. .Attach the rope socket onto the support on the jib. Stow the overwind cutout device onto the head of the base jib section.



[NOTICE]

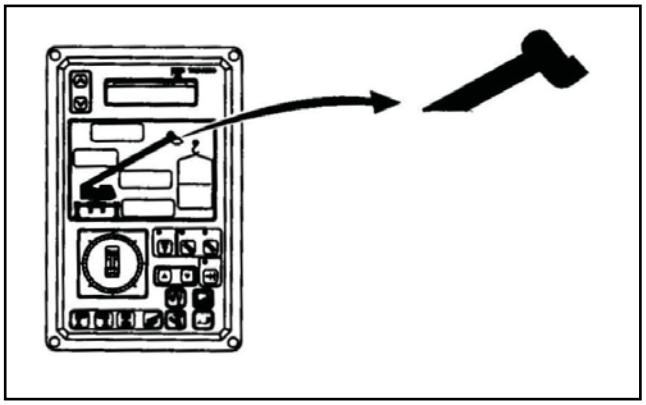
◆Operate the auxiliary winch carefully. If the wire rope is wound too far, the support on the jib will be broken.

◆Stow the auxiliary wire rope with some slack in it. If it is tense, the wire rope stowage support can be damaged due to tension when the boom is raised.

22. Take in the auxiliary wire rope, leaving it slightly slack.

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23. Select the boom lift on the AML.



24. Overhoist the main hook block and make sure that the overwind cutout device is operating properly.

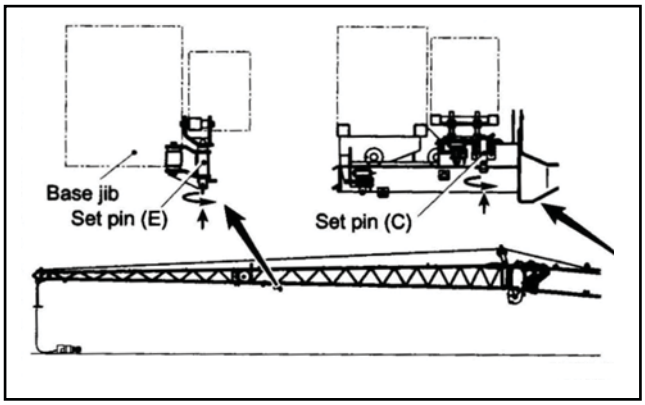
Stowing the Base Jib and the Top Jib

[NOTICE]

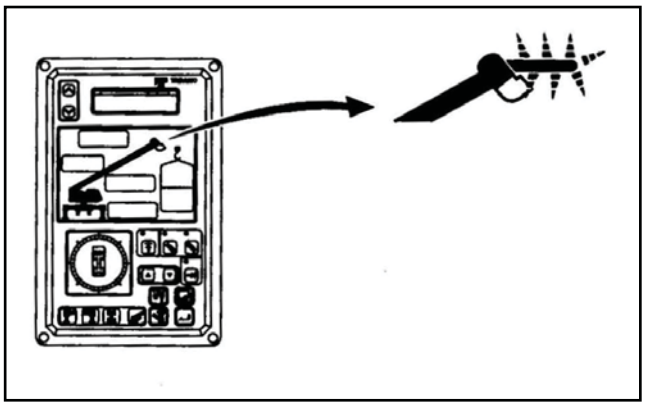
◆Strictly follow the warnings and notices in the "Mounting the Base Jib" section.

◆If the jib offset angle is other than 5°, change its offset to 5° beforehand, referring to the "Changing the Jib Offset Angle" section.

1. Retract the boom fully and set it to horizontal. Free the set pin (E) so that it can fix the top jib section to the base jib section when the top jib section is stowed. Also, free the set pin (C) so that it can fix the jib assembly to the boom when the jib assembly is stowed.

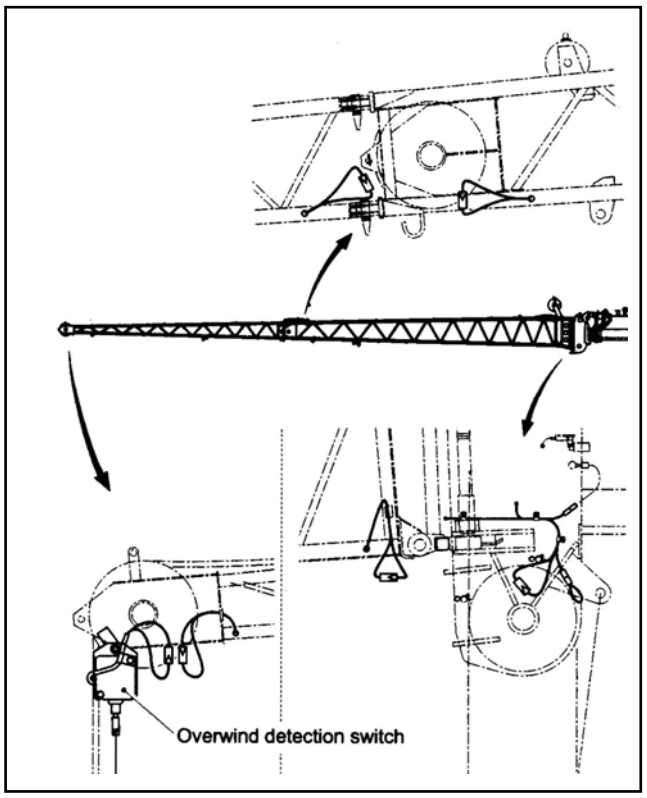


2. Select the jib set status on the AML.



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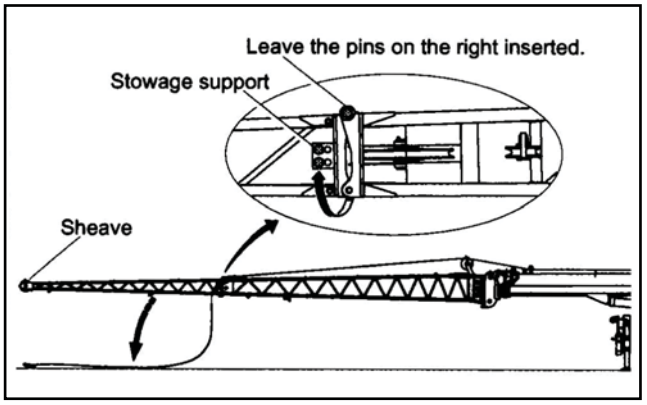
3. Connect the wiring for the overwind cutout device as shown in the figure below. Remove the overwind cutout device from the jib head.



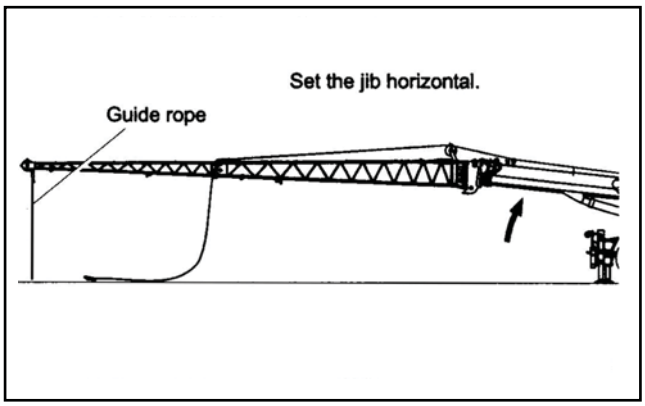
4. Remove the rope socket from the auxiliary hook block and remove the auxiliary wire rope from the sheave on the head of the top jib section. Replace the rope guide pins in their original position.

5. Remove the connecting pins (I) on the left that connects the base jib section with the top jib section and stow them in the stowage support

◆To remove the connecting pins (I), hit it by a plastic hammer.



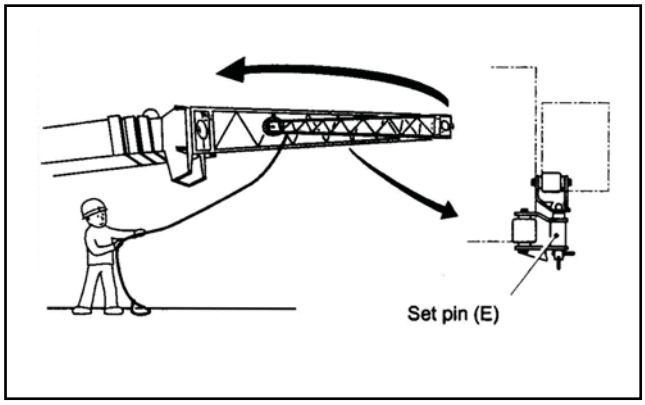
6. Attach the guide rope to the head of the top jib section. Then raise the boom to the 5° boom angle to make the jib horizontal.



WARNING

To prevent accidents, never let anyone stand in the path of nor under the jib.

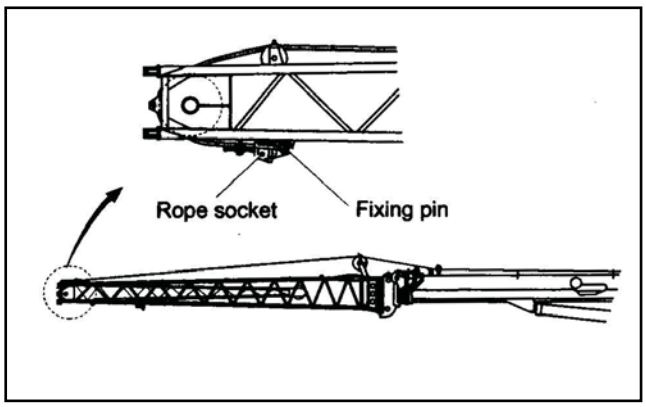
7. Pull the guide rope to stow the top jib section onto the base jib section. Then make sure that the set pin (E) connects the top jib section with the base jib section.



8. Lower the boom to the horizontal. Then remove the guide rope from the head of the top jib section.

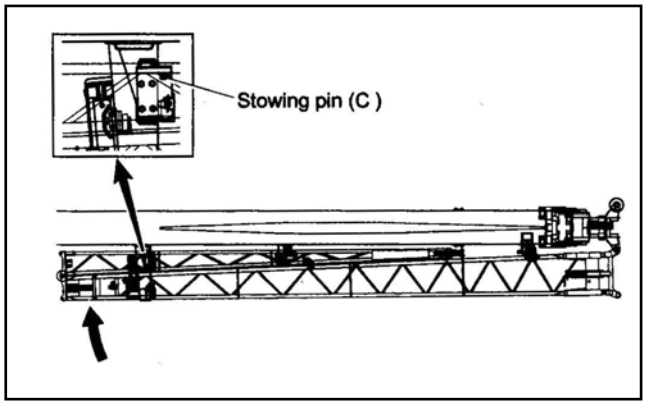
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9. Attach the rope socket to the bracket on the head of the base jib section. Changing the Jib Offset Angle.

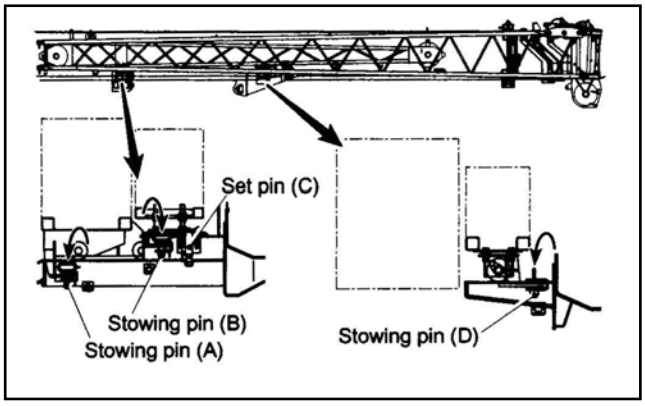


10. Perform the steps of 5.-15. in the "Stowing the Base Jib" section.

11. Remove the set pin on the stowage support, and swing the jib toward the boom until the set pin (C) connects the jib with the boom.



12. Insert the jib stowing pins (A), (B) and (D)



13. Stow the wire rope by performing the steps 18. and onward in the "Stowing the Base Jib" section and select the boom lift status on the AML.

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Air Conditioner

WARNING

⚠ While the engine and the air conditioner are running, be sure not to touch the rotating objects (fan belt, condenser fan, etc).

[NOTICE]

◆Operate the air conditioner after starting the engine. Before stopping the engine, turn off the power switch of the air conditioner.

◆Do not place an obstructive object at the front of the louvers.

◆While the air conditioner is running, keep the window and door closed.

◆Avoid parking the carrier in a place where it is exposed to direct sunlight When the carrier has been parked in such a place, ventilate the cab first before starting the air conditioner.

◆For healthy air conditioning:

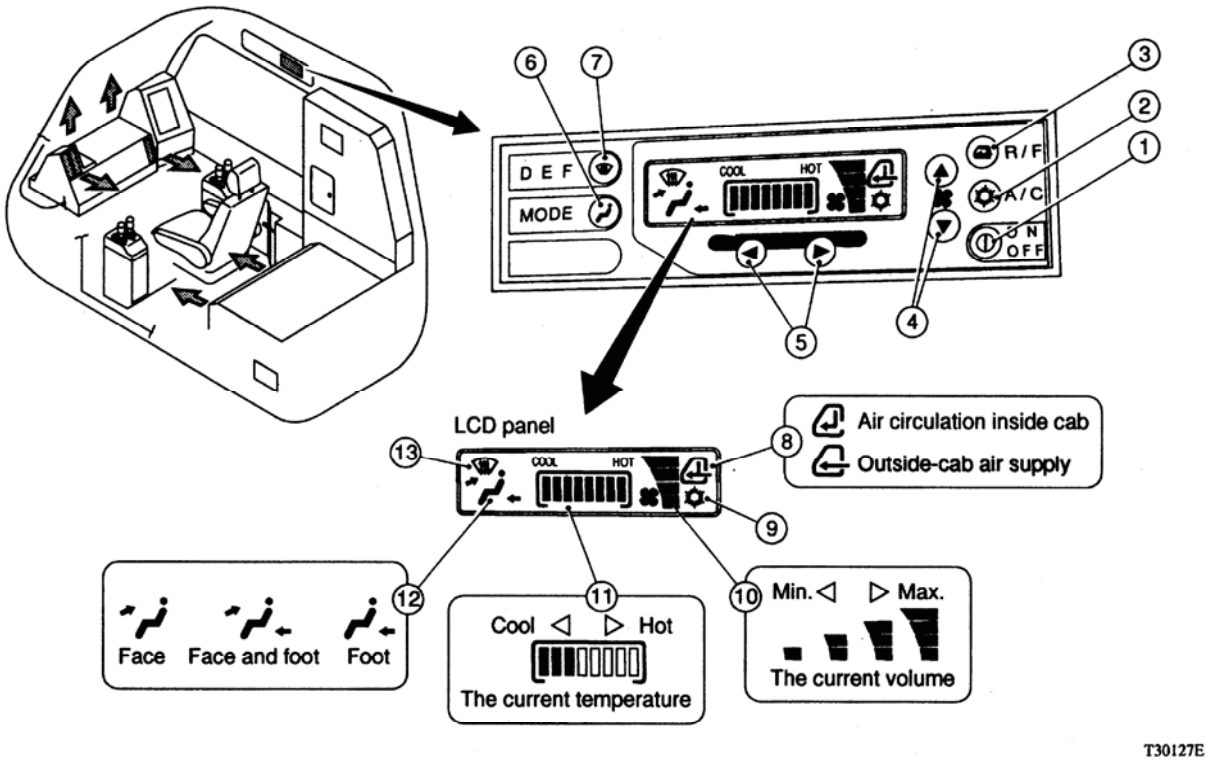
Use the air conditioner to lower the temperature and humidity.

For healthy air conditioning, the optimum condition is to provide a 5-8°C temperature difference from the ambient temperature. Adjust the room temperature so that it is not excessively lowered and the operator is not exposed to cold air for a long time.

◆Ventilation

The air inside the cab becomes dry due to the air conditioner's dehumidifying effect. During smoking, open the window for a while to ventilate the cab.

Components



T30127E

Switches

1. Power switch
2. Air conditioner switch
3. Inside/outside air selector switch
4. Air flow switches
5. Temperature control switches
6. Air outlet changeover switch
7. Defroster switch

Signs on the LCD panel

8. Sign of air supply selection
9. Sign of air conditioner operation (snow-shaped sign)
10. Sign of air flow volume
11. Sign of air temperature
12. Sign of air blowing direction
13. Sign of defrosting

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Power switch

As this switch is pressed, the power to the air conditioner is turned on or off repeatedly.
While the switch is on, signs are shown on the liquid crystal display.

Air conditioner switch

This switch is used to start up the compressor and to activate the cooling/dehumidification function.
As it is pressed, it is turned on or off repeatedly. While the switch is on, the snow-shaped sign appears on the display.

Inside/outside air selector switch

This switch is used to select air supply between outside-cab air supply and air circulation inside cab.
As it is pressed, the air supply changes between outside-cab air supply and air circulation inside cab repeatedly.
The current air supply is shown on the display.

Air flow switches

These switches are used to select air flow volume among four steps.
The current volume is shown on the display.

Temperature control switches

These switches are used to adjust the temperature of the air from the air conditioner among eight steps.
The current temperature is shown by the bargraph on the display.

Air outlet changeover switch

This switch is used to select the air blowing direction. As it is pressed, the direction changes Face → Face and foot → Foot in sequence repeatedly.
The current direction is shown on the display.

Defroster switch

This switch is used to set the air flow coming out of the defroster.
To cancel the defroster mode, press this switch again or press the air outlet changeover switch. The air flows will come out in the direction last selected.
While the defroster is used, the corresponding sign is shown on the display.

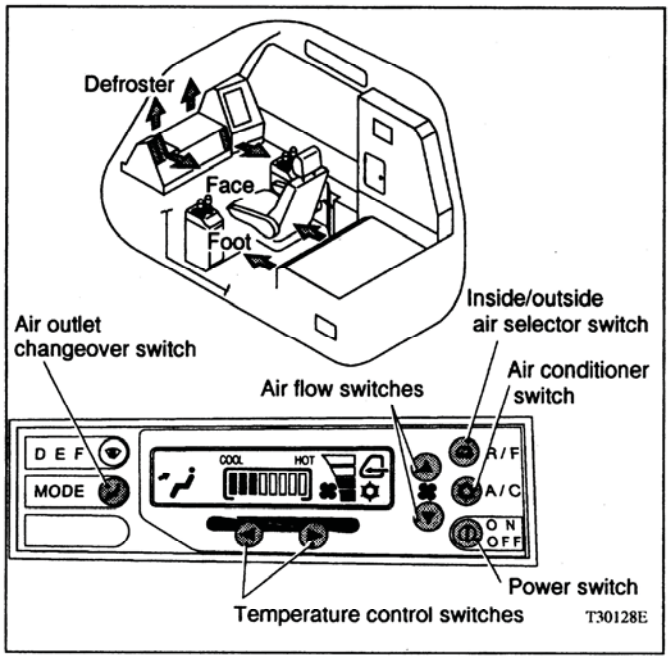
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How to Use

Startup Operation and Backup Function of the Air Conditioner

The motor sounds for a few seconds after the power switch is pressed to turn on the power to the air conditioner. During this period, the microcomputer locates the damper which chooses the air flow direction and adjusts the air temperature. After this period, the air conditioner begins normal operation.
The setup condition of the air conditioner is stored in the microcomputer. The air conditioner works at the condition set up at the last operation.

For Normal Use



[NOTICE]

◆Select air circulation inside cab in the tunnel and in the dirty air.

◆Cold air may come out when the engine is not warm.

1. Press the power switch to turn on the power to the air conditioner.

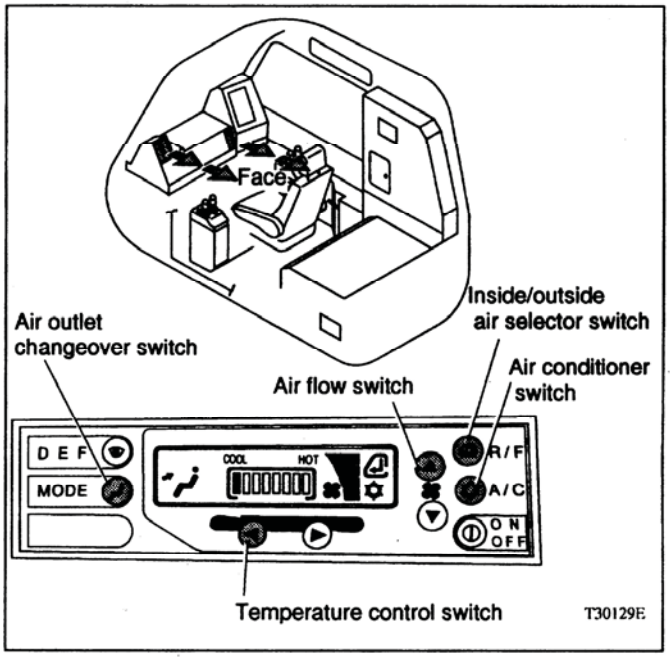
2. If necessary, press the air conditioner switch to turn it on. The cooling/dehumidification function will start up.

3. Adjust the air temperature, air flow volume and air flow direction as desired by using the corresponding switches.

4. Select outside-cab air supply using the inside/outside air selector switch.

5. To stop the air conditioner, press the power switch.

For Quick Cooling



1. Turn on the air conditioner switch. The cooling/dehumidification function will start up.

2. Press the temperature control switch (◄) until only one segment of the bargraph indicating the air temperature remains marked up.

◆While only one segment of the bargraph remains marked up, the air conditioner is locked to the maximum cooling.

3. Set the air flow volume at the maximum using the air flow switches.

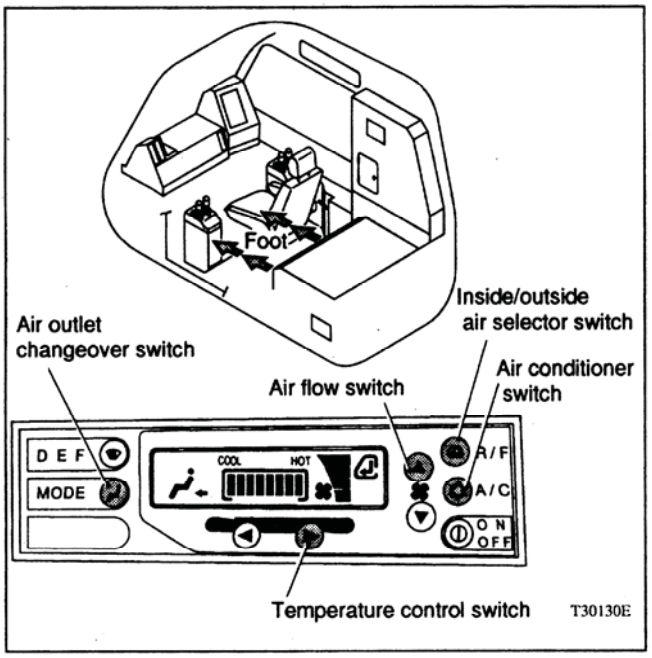
[NOTICE]

◆Select air circulation inside cab for cooling/heating the cab quickly and when the vehicle is in a dusty atmosphere, such as in a tunnel. The window glasses easily fog up when the air circulation inside cab is selected while the compressor does not work, causing hazard due to poor visibility. As soon as the temperature inside the cab drops, select outside-cab air supply.

4. Select air circulation inside cab using the inside/outside air selector switch.

5. Select the air blowing direction toward Face using the air outlet changeover switch.

For Quick Heating



1. Press the air conditioner switch to turn it off.

2. Press the temperature control switch (▶) until eight segments of the bargraph indicating the air temperature are marked up.

◆While eight segment of the bargraph is marked up, the air conditioner is locked to the maximum heating.

3. Set the air flow volume at the maximum using the air flow control switch.

[NOTICE]

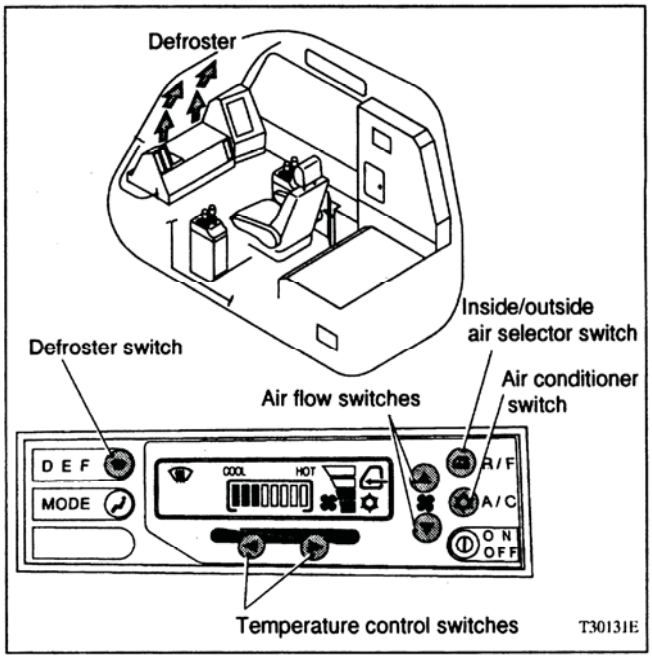
◆Select air circulation inside cab for cooling/heating the cab quickly and when the vehicle is in a dusty atmosphere, such as in a tunnel. The window glasses easily fog up when the air circulation inside cab is selected while the compressor does not work, causing hazard due to poor visibility. As soon as the temperature inside the cab rises, select outside-cab air supply.

◆Do not select air circulation inside cab for quick heating when using the vehicle in an extreme cold district. Once fogged, the window glasses are not easily defogged even after outside-cab air supply is selected.

4. Select air circulation inside cab using the inside/outside air selector switch.

5. Select the air blowing direction toward Foot using the air outlet changeover switch.

For Defrosting the Windshield



1. Turn on the air conditioner switch. The cooling/humidification function will start up.

◆When the atmospheric temperature drops close to 0°C, dehumidification does not work even with the air conditioner switch turned ON.

2. Press the defroster switch to set the air flow coming out of the defroster.

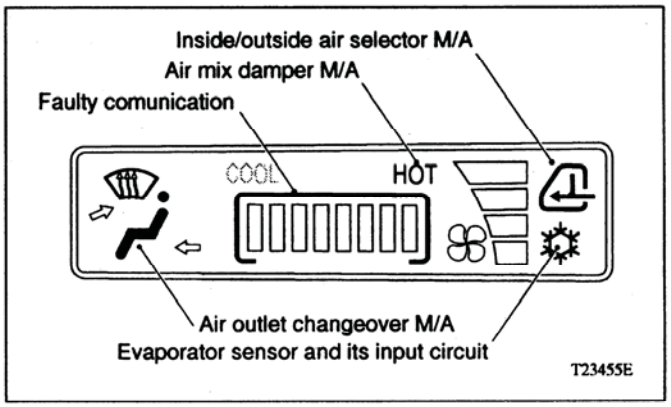
3. Adjust the air temperature and air flow volume using the corresponding switches.

4. Select outside-cab air supply using the inside/outside air selector switch.

Error Display on the Display Panel

If the wiring for the sensors or the motor actuator (M/A) is broken or shortcircuited when the power is turned on, the following error displays appear according to the fault. In this case, inspection and repairs are necessary. Contact your nearest **BQ-TADANO** distributor or dealer.

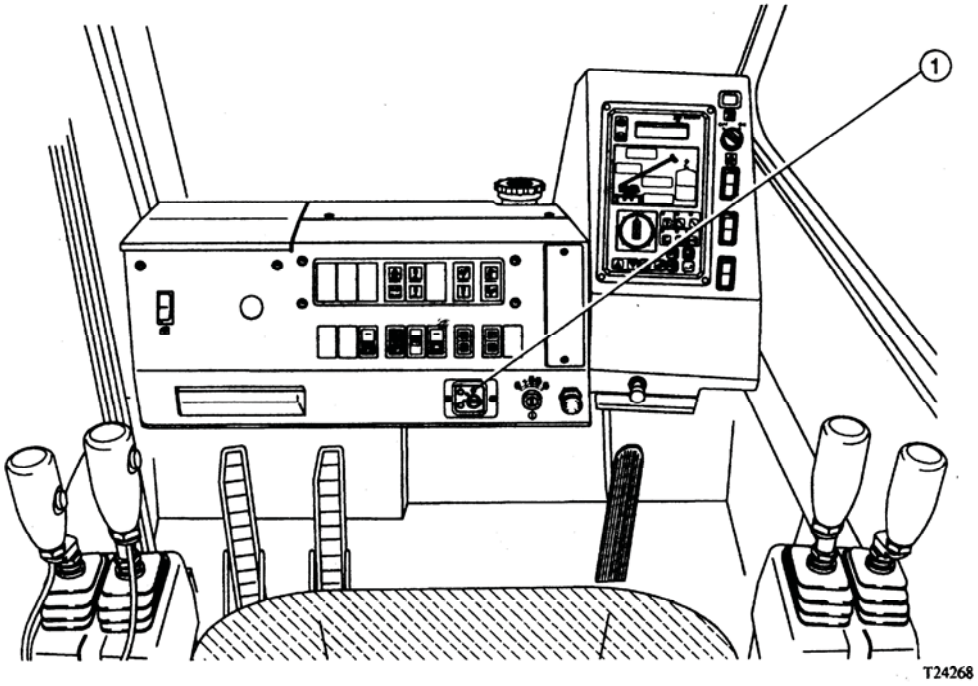
Error display	Error location
"HOT" sign flashes.	Air mix damper M/A
"〜" sign flashes.	Air outlet changeover M/A
Sign indicating inside/outside air selection flashes.	Inside/outside air selector M/A
Snow-shaped sign flashes.	Evaporator sensor and its input circuit
Frame enclosing the bargraph flashes.	Faulty communication between the control panel and amplifier
No signs appear on the display.	Faulty amplifier



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Heater (option)

Controls



1. Heater control panel

Operation

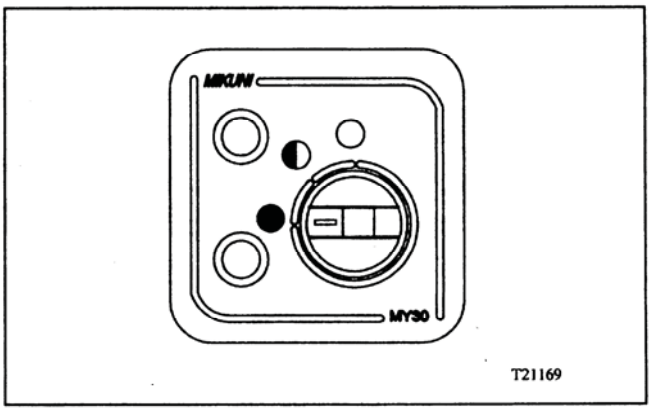
⚠ WARNING

⚠ Do not turn off the main power source on the carrier while the heater is in operation. This attempt may cause not only heater trouble but also fire and burn through overheating.

The heater is a combustion heater using diesel fuel. For operation, inspection and maintenance of the heater itself, refer to the separate heater operation and maintenance manual.

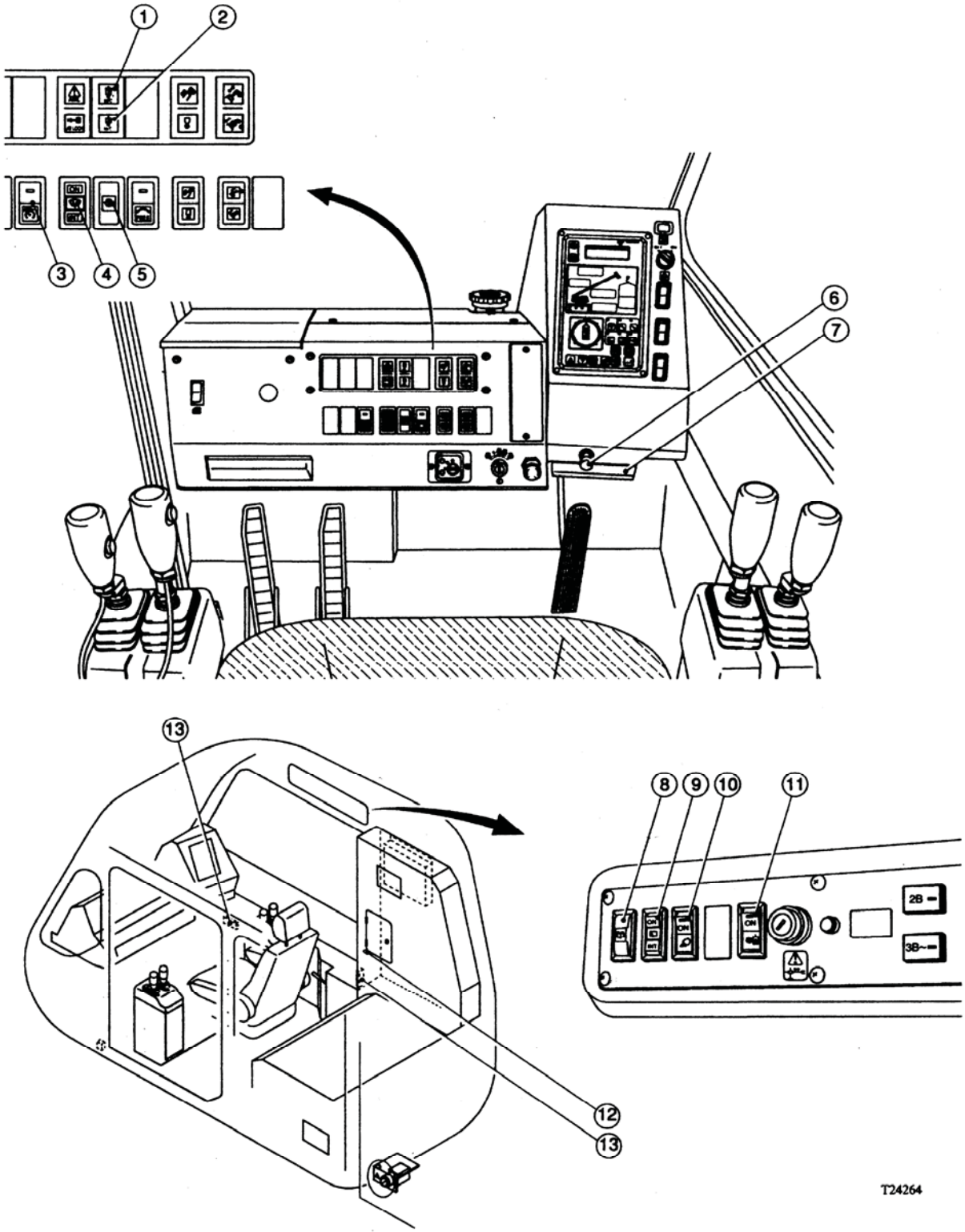
Heater Control Panel

Heater operation is controlled from this panel. See the separate heater operation and maintenance manual for detailed instructions.



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Other Equipment



1. Hydraulic oil temperature 50°C indicator lamp
2. Hydraulic oil temperature 85°C warning lamp
3. Low noise mode switch
4. Front wiper switch
5. Front washer switch
6. Cigarette lighter
7. Ashtray
8. Roof washer switch
9. Roof wiper switch
10. Flood lamp switch
11. Oil cooler switch
12. Fan switch (option)
13. Cab lamp

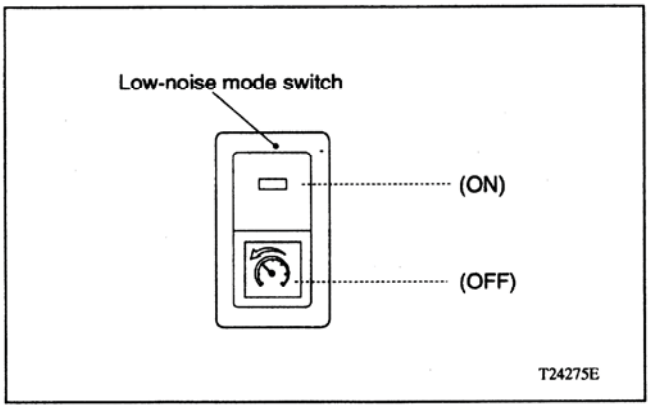
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Low Noise Mode Switch

While this switch is ON, the engine revolution is limited and does not reach to maximum even when the accelerator pedal is depressed fully. Use this switch for night operation or to avoid high noise.

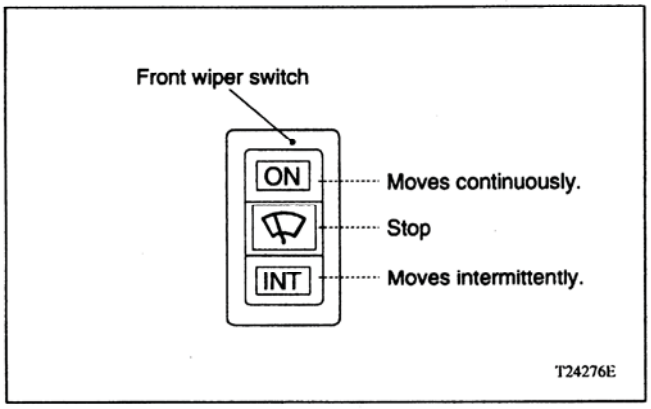
ON.....low noise mode activated (engine speed limited to approx. 1,250 min^{-1} [rpm])

OFF .....low noise mode canceled (maximum engine speed: approx. 2,000 min^{-1} [rpm])



Front Wiper Switch

Use this switch to operate the front wiper for a rainy day.



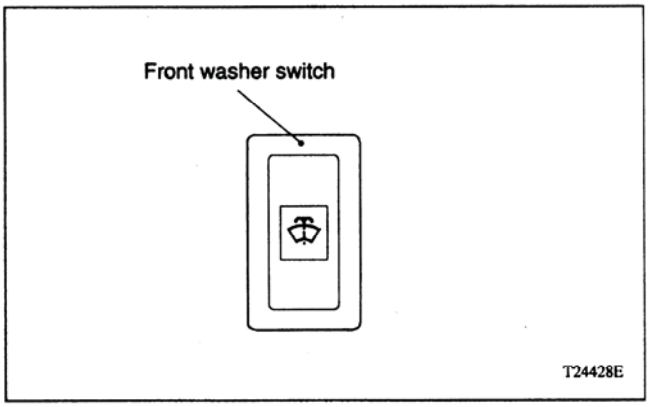
Front Washer Switch

[NOTICE]

◆Do not use the wipers on dry glass; doing so will damage the glass. Wet glass by spraying the window with washer fluid before using the wipers.

◆Never spray washer fluid continuously for more than 3 seconds and do not operate the washer switch when there is no window washer fluid. This practice may burn out the pump.

Washer fluid can be sprayed on the front glass by pressing this switch.



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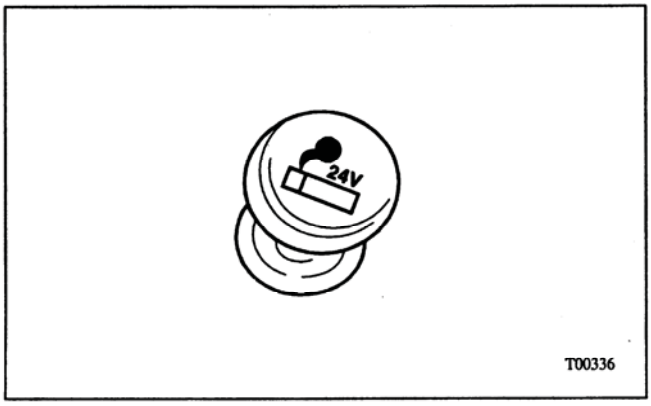
Cigarette Lighter

[NOTICE]

◆Observe the following precautions to prevent a fault in the electrical system:

- **Do not let the cigarette lighter remain pushed in.**
- **Pull out the cigarette lighter by hand if it does not pop out within 15 to 20 seconds after it has been pushed in.**
- **Do not use the cigarette lighter power supply for anything other than as a cigarette lighter.**
- **Do not allow the cigarette lighter to become deformed. A misshapen cigarette lighter will not pop out properly. Replace a lighter that is malfunctioning.**

The cigarette lighter will pop out a few seconds after it has been pushed in. Pull out to use.



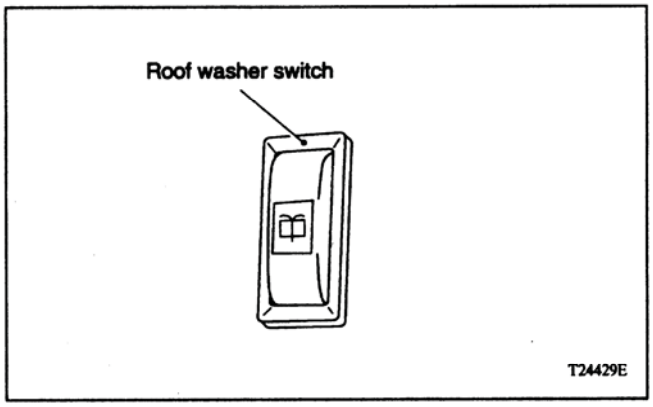
Roof Washer Switch

[NOTICE]

◆Do not use the wipers on dry glass; doing so will damage the glass. Wet glass by spraying the window with washer fluid before using the wipers.

◆Never spray washer fluid continuously for more than 3 seconds and do not operate the washer switch when there is no window washer fluid. This practice may burn out the pump.

Washer fluid can be sprayed on the roof glass by pressing this switch.



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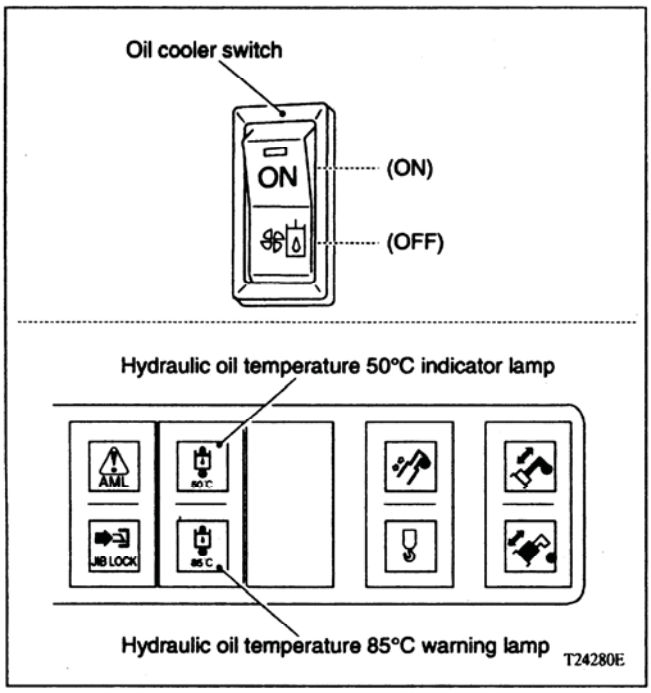
Oil Cooler Switch

[NOTICE]
◆If the hydraulic oil temperature 85°C warning lamp lights up, stop operation until the oil temperature drops.

ON .....The oil cooler functions regardless of the hydraulic oil temperature. Shift the switch to this position to cool down the hydraulic oil whose temperature is below 50°C. If cooling down the oil is required no more, return the switch to "OFF".

OFF .....The oil cooler functions automatically when the hydraulic oil temperature exceeds 50°C. For ordinary operation, keep the switch to this position.

◆When the hydraulic oil temperature exceeds 50°C, the hydraulic oil temperature 50°C indicator lamp lights up. When the oil temperature exceeds 85°C, the hydraulic oil temperature 85°C warning sign lights up.

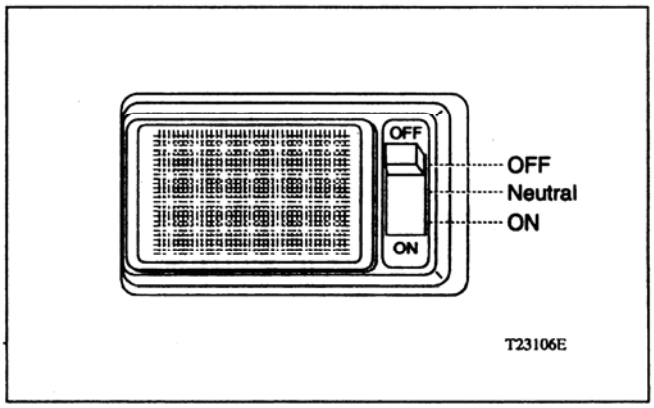


Cab Lamp Switch (in the left of cab close to the door)

Neutral ···· lamp turns on when the door is open and goes off when the door is closed
"OFF" ····· lamp stays off regardless door position
"ON" ····· lamp stays on regardless door position.

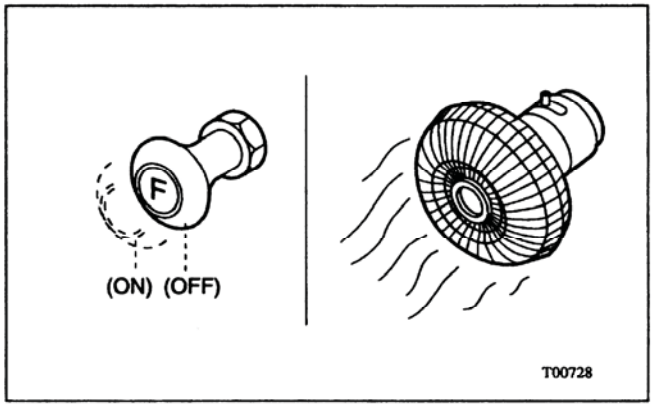
Cab Lamp Switch (in the right of cab)

"ON" ·········· lamp stays off.
Neutral, "ON" ··· lamp stays on.



Fan Switch (Option)

The fan switch is used to turn the fan ON and OFF.
"ON" ····· fan comes on
"OFF" ····· fan goes off



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Equipment Outside the Cab

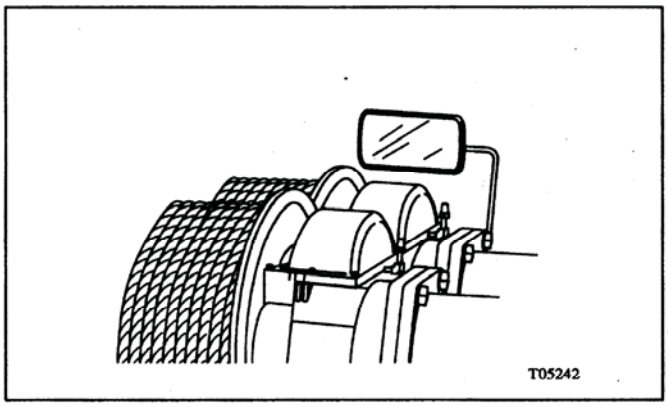
Winch Drum Monitor Mirror (Option)

[NOTICE]

◆Lifting a load with a wire rope disorderly wound on a winch drum will damage the wire rope the shorten the life of the wire rope. Do not lift a load with a wire rope disorderly wound.

Use the mirror to check the wire rope condition on the winch drum.

◆To look at the mirror, turn to the rear of the crane operator's cab.



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INSPECTION AND MAINTENANCE

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Inspection and Maintenance

Proper inspection and maintenance helps ensure safety and prolongs the life of your crane. To keep your crane in peak condition and maintain optimum performance, inspect and service it at the recommended intervals. In this way, you can prevent failures and detect problems in their early stages.

Two recommended inspection and maintenance intervals are provided; one based on the hourmeter reading and the other on calendar months; perform inspections and maintenance according to whichever comes first.

◆The inspection intervals are based on the assumption that the crane is used under normal operating conditions. If it is used under severe or unusual conditions, shorten the intervals accordingly.

◆If you are unable to perform any inspection or maintenance work yourself, contact your nearest **BQ-TADANO** distributor or dealer for assistance.

Pre-operational inspection		Perform before start of each day's operation.
Inspection and maintenance intervals	100 hours or 1 month	Perform every 100 hours or once a month.
	250 hours or 3 months	Perform every 250 hours or every 3 months.
	500 hours or 6 months	Perform every 500 hours or every 6 months.
	1,000 hours or 1 year	Perform every 1,000 hours or once a year.
	2,000 hours or 2 years	Perform every 2,000 hours or every 2 years.

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Pre-Operational and Periodic Inspection

⚠ WARNING

⚠ If you neglect pre-operational and periodic inspections, you will not be able to detect problems in their early stages or prevent consequent accidents. Make it a habit to perform the recommended pre-operational and periodic inspections. If you find any abnormality, take corrective action immediately.

◆For inspection and maintenance of the optional heater itself, refer to the separate heater operation and maintenance manual.

System/Component		Check Point	Pre-operational Inspection	Periodic Inspection 100 hrs 1 month	
Power transmission system	PTO	Installation, external appearance		●	
		Operation (abnormal sounds, overheating), oil leaks	●	●	
	Propeller shaft	Installation	●	●	
		Runout, worn splices		●	
Hydraulic system	Hydraulic pump	Installation		●	
		Operation (abnormal sounds, overheating, trapped air,etc.), oil leaks	●	●	
	Hydraulic oil tank	Installation, external appearance	●	●	
		Oil level, contamination, oil leaks	●	●	
		Clean filters, tanks, and air breathers		●	
Swing system	Swing table (including swing bearing)	Installation, external appearance (cracks, deformation, etc.)	●	●	
		Swing motion		●	
	Swing motor, speed reducer	Installation, external appearance		●	
		Operation, oil level, oil leaks	●	●	
		Swing brake operation	●	●	
	Rotary joint	Installation		●	
		Operation, oil leaks	●	●	
Boom elevating system	Boom elevating cylinder	Installation, external appearance	●	●	
		Operation, oil leaks	●	●	
		Spontaneous retraction		●	
Boom telescoping system	Boom	Installation, external appearance	●	●	
		Operation, oil leaks	●	●	
		Worn slide plates		●	
		Spontaneous retraction		●	
	Jib and single top	Installation, external appearance	●	●	
		Operation	●	●	

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System/Component		Check Point	Pre-operational Inspection	Periodic Inspection 100 hrs 1 month	
Hoisting System	Winch motor and speed reducer	Installation	●	●	
		Operation, oil level, oil leaks		●	
	Hook blocks, sheaves, wire ropes	Installation, external appearance	●	●	
		Operation	●	●	
		Condition of wire rope (rope socket, wedge)	●	●	
		Condition of safety latch	●	●	
		Wire rope reeving	●	●	
	Disorderly winding prevention device	Installation, external appearance	●	●	
		Operation		●	
Crane control system	Operating controls	Movement of each lever/pedal	●	●	
		Movement of accelerator	●	●	
	Selector valves	Installation, external appearance		●	
		Operation, oil leaks	●	●	
		Relief valve pressure setting, condition of seal		●	
Safety devices	Angle meter	Installation, external appearance		●	
		Operation	●	●	
	Overload prevention device (AML)	Installation, external appearance	●	●	
		Functions (check button, automatic stop)	●	●	
		Operation (lamps, buzzers, etc.)	●	●	
		External appearance of boom length detector		●	
	Overwind cutout device	Installation, external appearance		●	
		Operation	●	●	
	Working area control devices	Installation, external appearance		●	
		Operation	●	●	
	Other safety device	Operation	●	●	
Crane supporting and positioning device	Outriggers, jack cylinders	Installation, external appearance	●	●	
		Operation, oil leaks	●	●	
		Jack cylinder spontaneous retraction		●	
	Bubble levels	Installation, external appearance		●	
		Condition of bubbles	●	●	
	Front jack	Installation, external appearance		●	
		Operation, oil leaks	●	●	
Electrical system	Lamps	Installation, external appearance		●	
		Operation	●	●	
	Switches	Installation, external appearance		●	
		Operation	●	●	
	Wipers	Installation, external appearance		●	
		Operation	●	●	
		Worn or damaged blades		●	

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System/Component		Check Point	Pre-operational Inspection	Periodic Inspection 100 hrs 1 month	
Other Components	Pipes, hoses	Oil leaks	●	●	
		Obstructions, twists, damage, worn hose, etc.	●	●	
		Loose support		●	
	Crane operator's cab	Installation, external appearance	●	●	
		Door lock function		●	
		Condition of seat adjusting mechanism		●	
	Air conditioner	Installation, external appearance		●	
		Operation	●	●	
		Check and wash condenser and check coolant amount			
		Clean internal air filter			
		Check V-belt			
	Oil cooler	Installation, external appearance		●	
		Operation		●	
	Lubrication	Apply grease to each grease nipple	●	●	
		Apply grease to wire ropes, sheaves and slide plates	●	●	
	Chassis frame	External appearance (rust, cracks, deformation, twists, etc.)	●	●	
	Indication plates	External appearance		●	

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Safety Parts Requiring Regular Replacement

⚠ WARNING

⚠ Be sure to replace safety parts regularly. Neglecting to replace the safety parts regularly can cause accidents.

Some components of your machine use parts which wear with time. It is not always easy to determine when they should be replaced, even if the periodic inspection is performed as recommended. For safety, such parts must be replaced regularly.The following table gives the replacement intervals for the major safety parts. Contact your nearest **BQ-TADANO** distributor or dealer to have these parts replaced at the regular intervals.

Safety parts requiring regular replacement	Interval
Boom telescoping wire ropes	4 years

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Greasing

[NOTICE]

◆Using different brands of grease together can change the properties of the grease and have an adverse effect on the machine. When you add grease, be sure to use the brand that is in the machine.

If a different brand of grease must be used, take out all the remaining grease before adding the new grease.

◆Dust in the grease causes premature wear of sliding surfaces, and consequently, shortens the life of the crane. Always clean grease nipples and other surfaces before applying grease.

The wire ropes should be cleaned using a wire brush, compressed air, etc., before they are greased.

◆Lubricating wire ropes with an improper gear oil, cup grease or waste oil only shortens their life. Use rope grease or other grease that has properties suitable for wire ropes.

◆In addition to the areas listed in the "Maintenance Table", the following areas should also be lubricated with grease to protect them from rusting and ensure smooth movement.

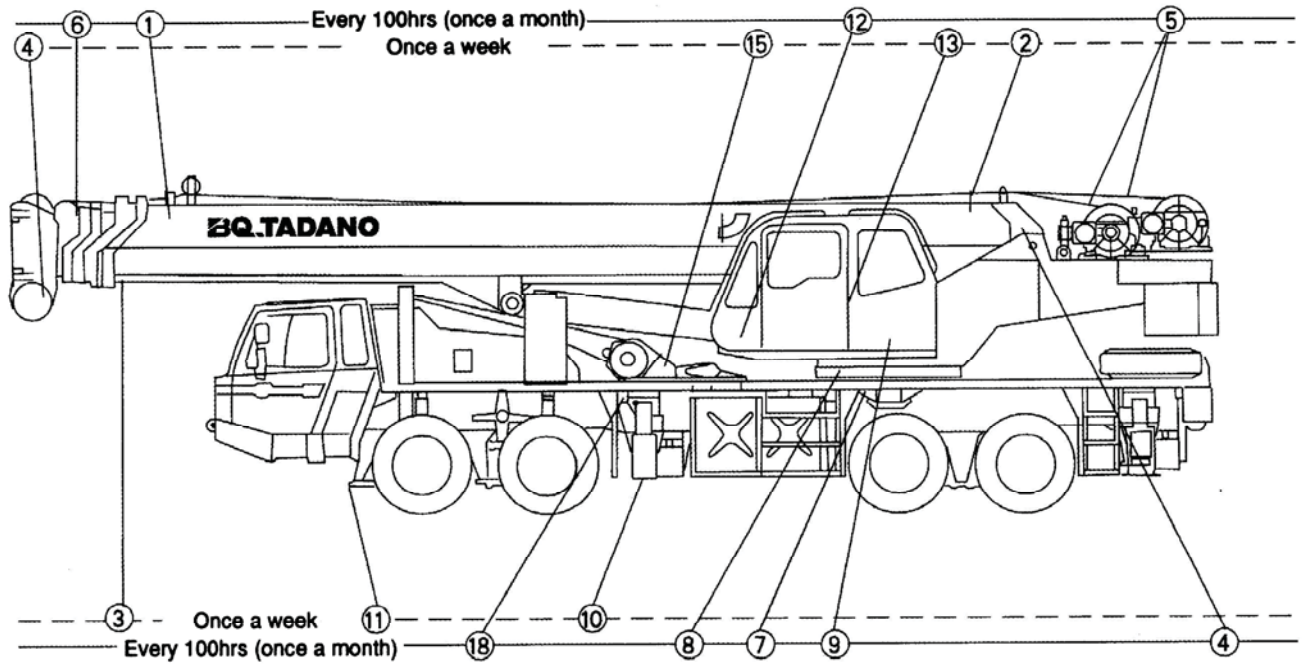
- **Hydraulic cylinder rods (boom elevating cylinder, jack cylinder, etc.) that are exposed to air when the cylinder is in a fully retracted position**
- **Links and sliding sections that were coated with grease before shipment from the factory**

Maintenance Table

No.	Grease Points and Method		Number of Points	Check Interval						
				1 day	1 week	100 hrs / 1 month				
1	Side and bottom surfaces of boom	Coat	4 points			●				
2	Slide plate (top surface of boom)	Inject	8 points		●					
3	Slide plate (bottom surface of boom)	Inject	8 points		●					
4	Boom bottom end	Inject	1 point			●				
5	Wire rope (for winch)	Coat	2 points			●				
6	Wire rope (for telescoping)	Coat	2 points			●				
7	Swing bearing	Inject	3 points			●				
8	Swing gear	Coat	1 point			●				
9	Rotary joint	Inject	2 points			●				
10	Outrigger floats	Inject	4 points		●					
11	Front jack float	Inject	1 point		●					
12	Elevating cylinder	Inject	1 point			●				
13	Pin (for jib head sheave)	Inject	1 point		●					
14	Pin (for single top sheave)	Inject	1 point		●					
15	Main hook block (55-ton)	Inject	1 point		●					
16	Main hook block (20-ton)	Inject	1 point		●					
17	Auxiliary hook block (4.5-ton)	Inject	2 points		●					
18	Propeller shaft	Inject	3 points			●				

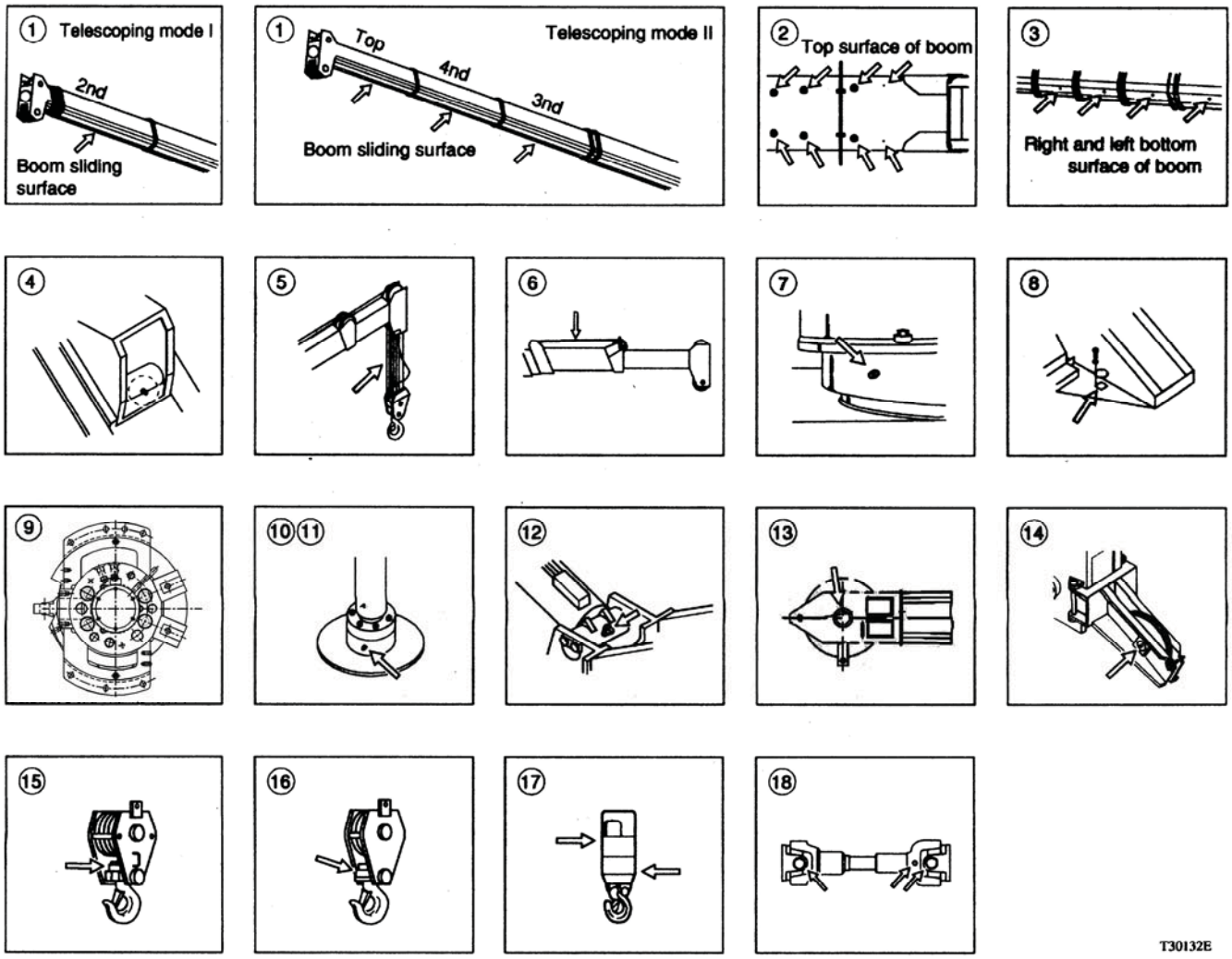
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Greasing Chart



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Gear Oil

[NOTICE]

◆Using different brands of gear oil together can change the properties of the gear oil and have an adverse effect on the machine. When gear oil is added, be sure to use the same brand that is in the machine. If a different brand of oil must be used, remove all the remaining gear oil before adding the new oil.

◆Clean the area around the plugs before removing them to prevent dust and other foreign matter from entering.

◆Clean the plugs and plug holes, and wrap sealing tape around the plugs before installing and tightening the plugs.

Maintenance Table

No.	Component and Required Operation		Number of Points/Quantity	Check Interval					
				1 week	100 hrs 1 month	250 hrs 3 months	500 hrs 6 months	1000 hrs 1 year	
1	Winch speed reducer	Check oil level	2 points				●		
		Replace oil	4.0 L × 2			◎		●	
2	Swing speed reducer	Check oil level	1 point				●		
		Replace oil	2.3 L			◎		●	

◎ : First replacement only

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Winch Speed Reducer Oil Level Check ····· Every 500 Hours or Every 6 Months

Winch Speed Reducer Oil Replacement ····· Every 1,000 Hours or Once a Year

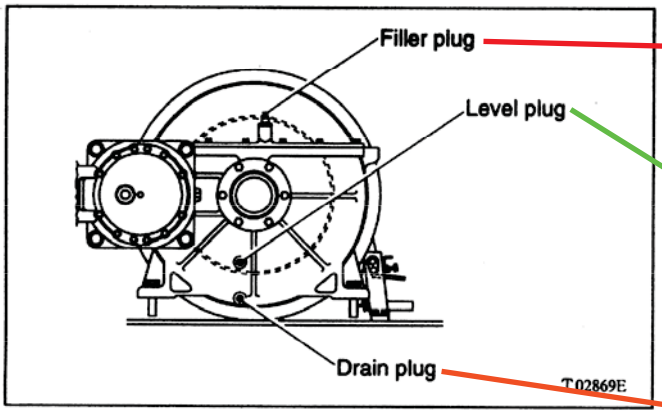
⚠ WARNING

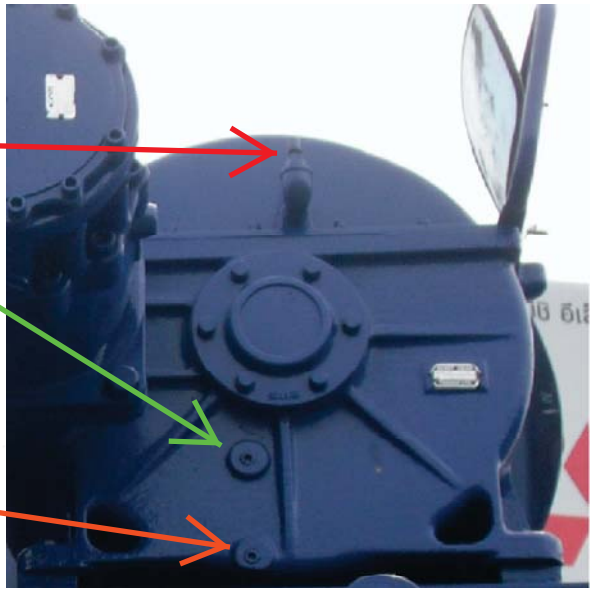
⚠ The speed reducer is very hot immediately after operating. Let the speed reducer cool down until it can be touched with your bare hand before performing maintenance work on it.

Checking Oil Level

1. Set the crane on a level surface.

2. Remove the level plug and check the oil level. There is no need to add oil if the oil level comes to the bottom of the plug hole. If low, remove the filler plug and add oil through the filler plug hole.





3. Install and tighten the level and filler plugs.

Replacing Oil

1. Set the crane on a level surface.

2. Place an oil pan under the drain plug to catch the oil.

3. Remove the drain, filler and level plugs, and drain the oil.

4. After all of the oil has drained out, install and tighten the drain plug.

5. Pour fresh gear oil through the filler plug hole until it begins to come out of the level plug hole.

6. Install and tighten the filler and level plugs.

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Swing Speed Reducer Oil Level Check ····· Every 500 Hours or Every 6 Months

Swing Speed Reducer Oil Replacement ····· Every 1,000 Hours or Once a Year

⚠ WARNING

⚠ The speed reducer is very hot immediately after operating. Let the speed reducer cool down until it can be touched with your bare hand before performing maintenance work on it.

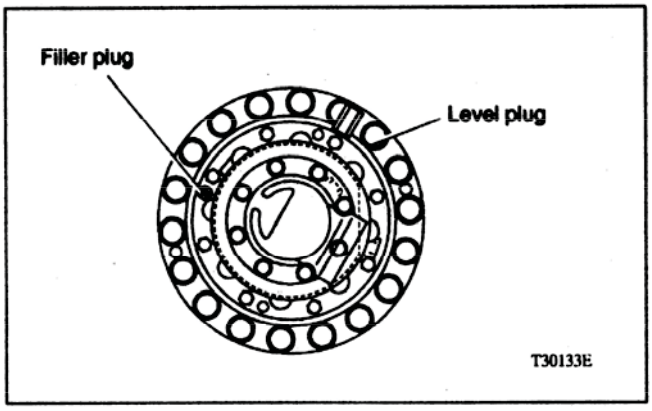
Checking Oil Level

1. Set the crane as follows:

(1) Support the crane on extended outriggers in a level position.

(2) Raise the boom to an angle where it does not hinder maintenance work.

2. Remove the level plug and check the oil level. There is no need to add oil if the oil comes to the bottom of the level plug hole. If low, remove the filler plug and add oil through the filler plug hole.



3. Install and tighten the level and filler plugs.

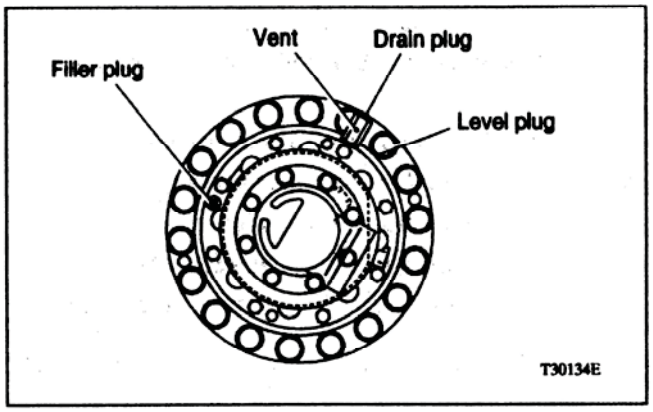
Replacing Oil

1. Set the crane as follows:

(1) Support the crane on extended outriggers in a level position.

(2) Raise the boom to an angle where it does not hinder the maintenance work.

2. Remove the drain plug and attach a hose to the vent. Remove the filler and level plugs to drain the oil.



3. After all of the oil has drained out, remove the hose. Install and tighten the drain plug.

4. Pour fresh gear oil through the filler plug hole until it begins to come out of the level plug hole.

5. Install and tighten the filler and level plugs.



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Hydraulic System

⚠ WARNING

⚠ The hydraulic oil and hydraulic equipment become very hot immediately after an operation. Let them cool down before starting maintenance work on them.

⚠ Some hydraulic components remain highly pressurized inside even after the engine has been stopped. Their careless disassembly will cause serious bodily injuries. Do not attempt to disassemble hydraulic components, pipings and couplings.

[NOTICE]

◆Using different brands of hydraulic oil together can change the properties of the oil and have an adverse effect on the machine. When you add hydraulic oil, be sure to use the brand that is in the machine. If a different brand of oil must be used, be sure to take out all the remaining hydraulic oil before adding the new oil.

◆If the crane is operated for a long time with the hydraulic oil at a temperature exceeding 60°C, the oil will rapidly deteriorate, shortening life of the hydraulic components.
When the oil temperature is over 60°C, the oil cooler should be used to control the oil temperature even if within the operating temperature range.

◆The hydraulic oil is less fluid when its temperature is low. If, in cold weather, the crane is operated with a heavy load at high speed without allowing it to warm up, the hydraulic components could be damaged. When the ambient temperature is low, do not start crane operation right away. Instead, let the crane warm up sufficiently; until the oil temperature rises to approximately 20°C.

◆Be sure to handle the hydraulic pipes carefully. Handling the pipes incorrectly can cause oil leaks or the hydraulic components to malfunction. Whenever a pipe has to be removed, be sure to consult the nearest BQ-TADANO distributor or dealer.

◆Dust, foreign matter, water, etc. in the hydraulic oil tank or pipes could cause a machine failure. Keep these parts free of dust when working on them.

Maintenance Table

◆Replacement interval depends on the brand of the hydraulic oil in use.

◆Contact your nearest BQ- TADANO distributor or dealer for replacing the line filters numbered from 6 to 7 on the list below.

No.	Component and Required Operation		Number of Points/Quantity	Check Interval				
				1 day	250 hrs / 3 months	500 hrs / 6 months	1000 hrs / 1 year	2000 hrs / 2 years
1	Hydraulic oil tank	Check oil level	1 point	●				
		Replace oil	773 L(*1) 985 L(*2)		◎			●(*3)
2	Oil reservoir (for accelerator)	Check oil level	1 point	●				
		Replace oil	0.17 L(*1) 0.6 L(*2)		◎			●
3	Return filter (hydraulic oil tank)	Replace	1 point		◎	●		
4	Air breather (hydraulic oil tank)	Replace	1 point			●		
5	Return filter (drain circuit)	Replace	1 point					●
6	Line filter (winch brake circuit)	Replace	1 point					●
7	Line filter (automatic stop circuit)	Replace	2 points					●
8	Line filter (accumulator circuit)	Clean	1 point					●

(*1): Tank capacity (*2): Total capacity ◎: First replacement only

(*3): When the hydraulic oil other than BQ-TADANO Hydraulic Oil is used, replace the oil every 1,000 hours or 1 years.

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Oil Level Check (Hydraulic Oil Tank) ····· Once a Day

Oil Replacement (Hydraulic Oil Tank) ····· Every 2,000 Hours or Every 2 Years

····· Every 1,000 Hours or Every 1 Years

[NOTICE]

◆After the hydraulic oil has been replaced, the hydraulic pump must be bled since air may be present in the suction side of the pump. The hydraulic pump could experience failure if it is operated without first bleeding it. The hydraulic pump must not be operated after replacing the hydraulic oil unless it has been properly bled. For instructions on how to bleed the hydraulic pump, contact the nearest BQ-TADANO distributor or dealer.

◆Replace the oil within 250 hours or 3 months after the machine has been delivered (whichever comes earlier):

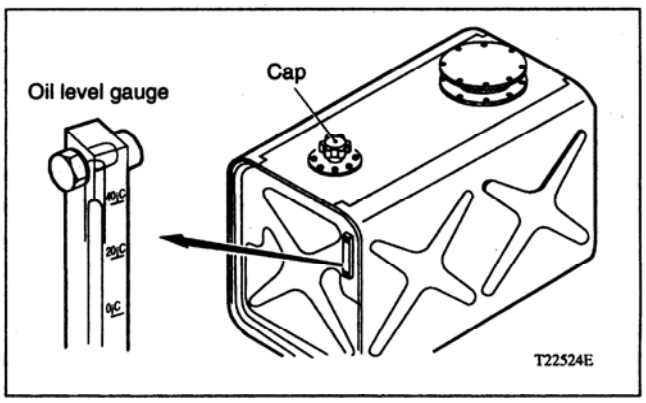
- **Replace it every 2,000 hours or 2 years after that. (Applicable to BQ-TADANO Hydraulic Oil .)**
- **Replace it every 1,000 hours or 1 years after that. (Applicable to other than BQ-TADANO Hydraulic Oil .)**

◆Replace the oil filters described in this chapter at designated intervals.

Checking Oil Level

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

2. Check the oil level with the oil level gauge. The oil level gauge is marked taking into account the effect of oil temperature. Check whether the oil level is between the 0°C mark and the mark corresponding to the current oil temperature.
If the oil is low, remove the cap on the hydraulic oil tank and add oil through the filler port.
- Example -
When the current oil temperature is 20°C, there is sufficient oil in the tank if the oil level is between the 0°C and 20°C marks.
◆When the oil temperature is 0°C or lower, regard the 0°C mark as the proper level.

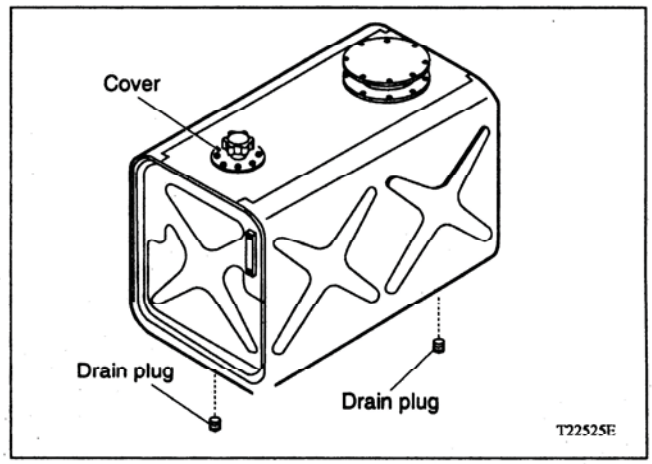


Replacing Oil

◆When replacing the hydraulic oil, also replace the return filter.

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

2. Remove the cover from the filler port and use an oil pump to pump the hydraulic oil from the tank into an oil drum or other suitable container.



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3. Remove the drain plugs at the bottom of the tank to release any remaining hydraulic oil.

4. Check the inside of the tank and clean if any dust or foreign matter is found.

5. Clean the drain plug and wrap sealing tape around it, then reinsert and tighten.

6. While watching the oil level on the level gauge, add new hydraulic oil into the tank.

7. Remount the cover on the hydraulic oil tank.
◆Mount the cover with the stamped "F" facing to the front.

8. Bleed the hydraulic pump.

9. Check the oil level again. If low, add more hydraulic oil.

Oil Level Check (Oil Reservoir)

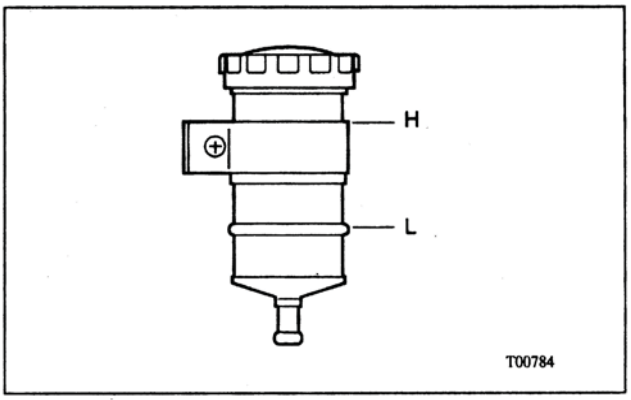
· · · Once a Day

Oil Replacement (Oil Reservoir)

· · · Every 2,000 Hours or Every 2 Years

Checking Oil Level

Check the level of the oil in the oil reservoir (at the front of the cab). The oil level should be between the "H" and "L" marks. If low, remove the cap on the oil reservoir, and add oil.



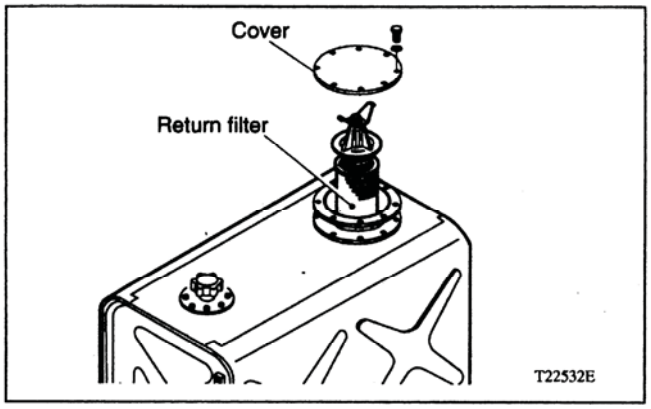
Replacing Oil

◆Replace oil at your nearest BQ-TADANO distributor or dealer.

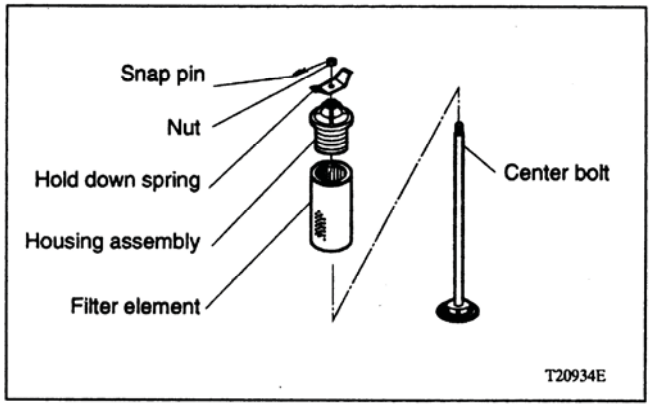
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Return Filter Replacement (Hydraulic Oil Tank) ····· Every 500 Hours or Every 6 Months

1. Remove the top cover on the hydraulic oil tank and take out the return filter.



2. Remove the snap pin and then the nut from the return filter.

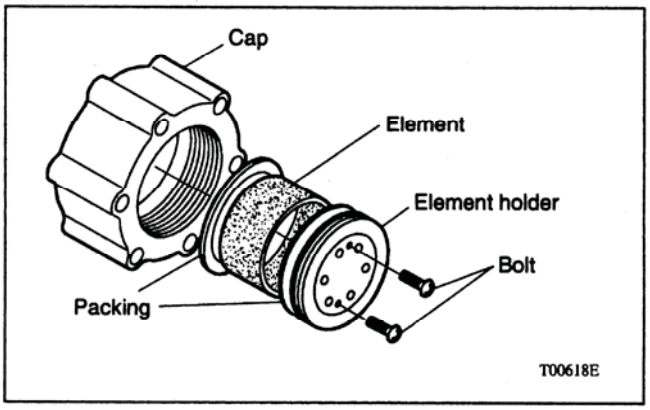


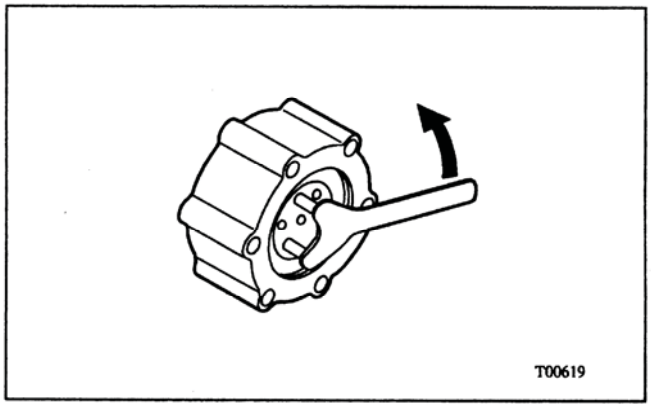
3. Replace the filter element with a new one and reassemble the return filter.

4. Install the return filter in the tank and remount the cover.

Air Breather Replacement (Hydraulic Oil Tank) ·· Every 500 Hours or Every 6 Months

Unlock the air breather cap to remove it.
Remove the two bolts, then use a wrench (spanner) as shown in the figure to remove the element holder.
Replace the element with a new one.





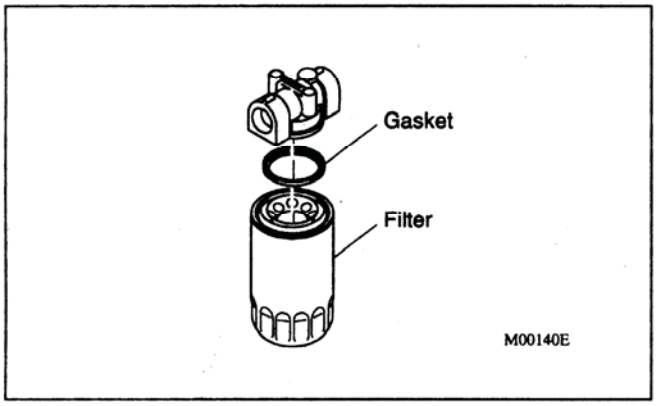
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Return Filter Replacement (Drain Circuit) ····· Every 2000 Hours or Every 2 Years

◆Location: rear of the hydraulic oil tank

1. Remove the filter using a strap wrench.
◆Place a waste beforehand to catch the hydraulic oil which may spill when the filter is removed.

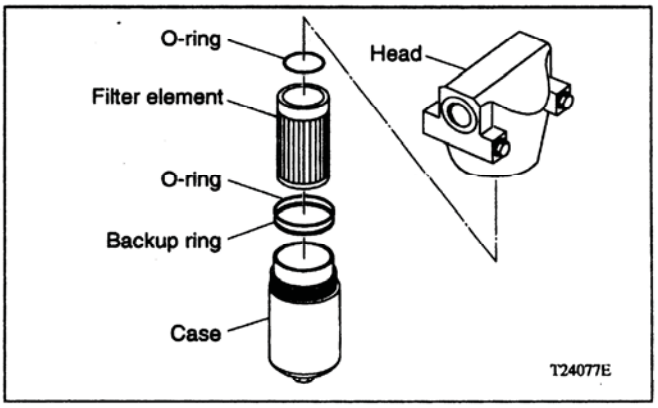
2. Attach a new filter.
◆Apply hydraulic oil thinly to the gasket beforehand.
◆Tightening torque: 39 N·m {4 kgf·m}



Line Filter Cleaning (Accumulator Circuit) ····· Every 2,000 Hours or Every 2 Years

◆Location: rear side of the front right outrigger

1. Remove the case using a wrench (24 mm).
◆After removing the case, place an oil pan to catch the oil leaking from the pipe.

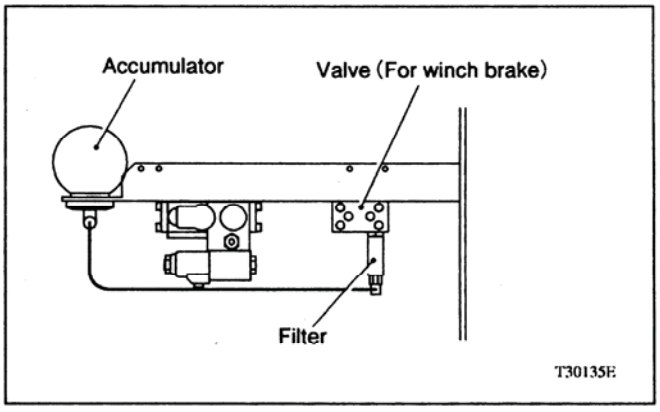


2. Remove the filter element. Wash its surface with a soft nylon brush in kerosene.

3. Apply compressed air of 300–400 kPa {3–4 kgf/cm²} from the inside of the filter element and dry it.

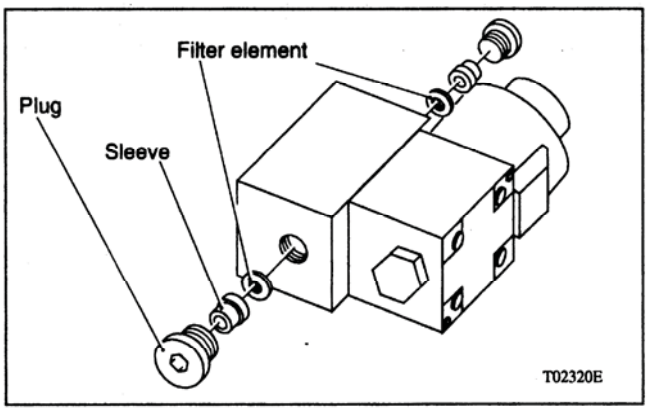
4. Apply the hydraulic oil to the O-ring, install the filter element, and attach the casing.
◆Tightening torque: 39–49 N·m {4–5 kgf·m}

Line Filter Replacement (Winch Brake Circuit) ····· Every 2,000 Hours or Every 2 Years



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Line Filter Replacement (Automatic Stop Circuit) · Every 2,000 Hours or Every 2 Years



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Swing System

Maintenance Table

No	Component and Required Operation		Number of points/ Quantity	Check Interval					
				1 week	100 hrs 1 month	250 hrs 3 month	500 hrs 6 months		
1	Swing bearing mounting bolt	Check	1 point				●		

Swing Bearing Mounting Bolt Check

• • • • • • • • • • • • • • • Every 500 Hours or Every 6 Months

⚠ WARNING

⚠ If the mounting bolts come loose and/or break, the crane's upper and lower structures will be separated, resulting in a serious accident. Check the bolts at regular intervals. If they are loose, have the nearest BQ-TADANO distributor or dealer retighten them. The bolts should be checked at least once a year by a BQ-TADANO distributor or dealer.

Tightening torque (bearing inner ring bolts)	1620 to 1810 N·m {165-185 kgf·m}
Tightening torque (bearing outer ring bolts)	1177 to 1275 N·m {120-130 kgf·m}

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Maintenance Table

No.	Component and Required Operation	Number of points/Quantity	Check Interval
1	Accelerator circuit/Bleed	1 point	Whenever Necessary

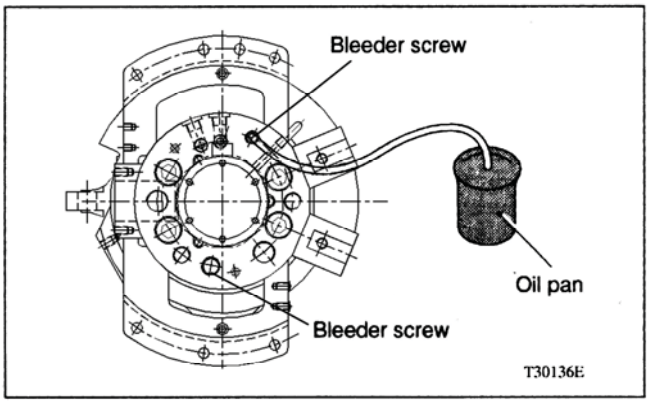
Accelerator Circuit Bleeding

· · ·Whenever Necessary

◆When air is being bled, the level of oil in the oil reservoir will drop as the oil is discharged from the circuit. Bleed the air, while at the same time supplying the reservoir with new hydraulic oil in order to prevent air from entering the circuit.

1. Bleed the accelerator circuit, using the bleeder screws (2 points) on the inside of the swing table, as follows:

(1) Connect one end of a vinyl hose to the bleeder screw and place the other end in an oil pan.



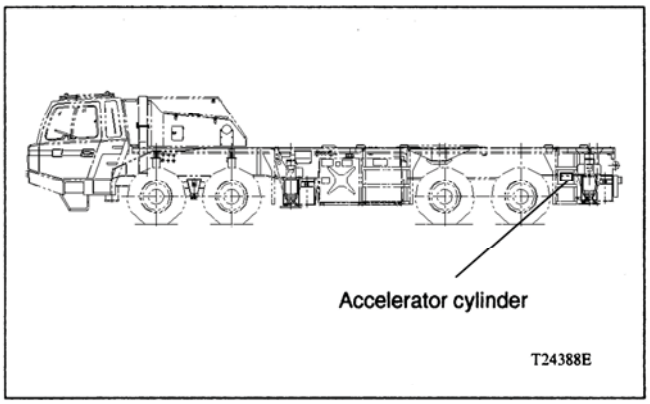
(2) Pump the accelerator pedal two or three times, then keep it depressed. Loosen the bleeder screw and release the air from the circuit.

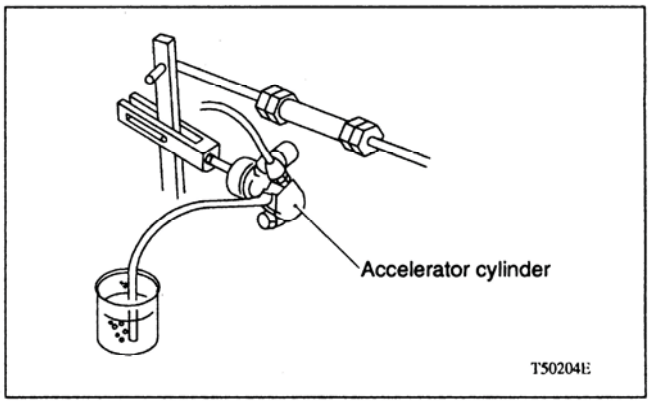
(3) When the flow of oil weakens, tighten the bleeder screw and release the accelerator pedal.

(4) Repeat steps (2) and (3) until oil flows out free of air from the bleeder screw.

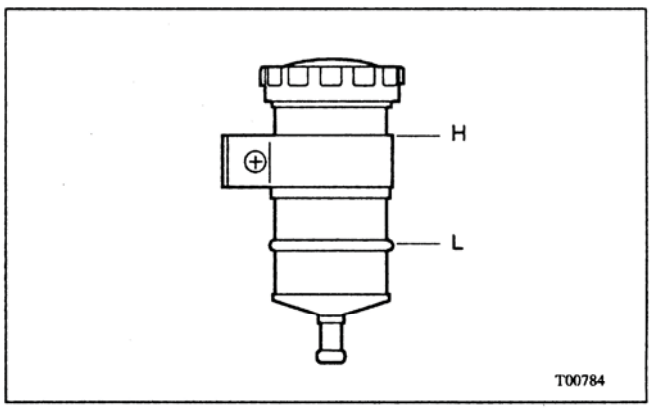


2. After bleeding the circuit, repeat the above steps to bleed the accelerator cylinder, using the bleeder screw located inside the carrier frame.





3. Check the oil level in the reservoir. Add if low.



Maintenance Table

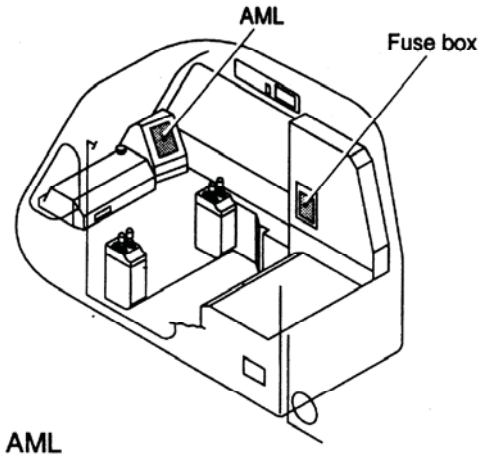
No.	Component and Required Operation	Check Interval
1	Fuse/Replace	When fuse blows

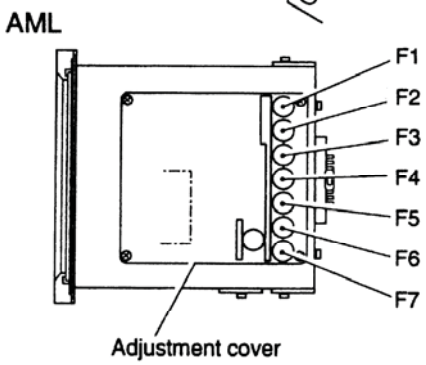
Fuse Replacement

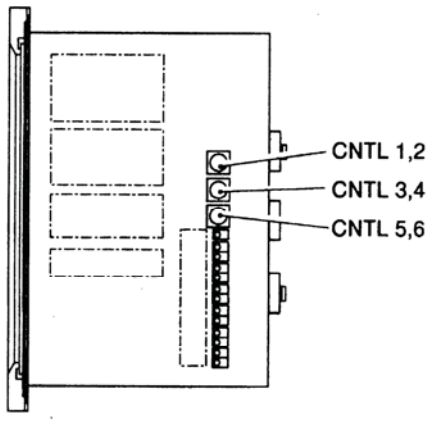
[NOTICE]

◆Be sure to turn OFF the starter switch to prevent a short circuit when replacing a fuse.

◆Using a fuse with a larger capacity than the rated capacity may cause the wiring or electrical devices to be burned in the event of a short circuit. Always replace a fuse with a fuse of the specified capacity.







Fuse box

BATTERY
BATTERY

POSITION	CAPACIY	No.	COLOR	OBJECT
A	5A	—	L	RESERVE
B	5A	22	LB	POWER SOUCE FOR AML
C	15A	250	LW	POWER SOUCE FOR CRANE
D	10A	—	LG	RESERVE
E	15A	152	LY	WORKING LAMP
F	10A	238	LR	AIR CONDITIONER(opt.)
G	10A	472	G	FAN(opt.)
H	10A	—	GB	RESERVE
I	10A	—	GW	RESERVE
J	15A	151	GR	CIGAR LIGHTER
K	15A	218	GY	POWER WINDOW
X	5A	—	—	SPARE
Y	10A	—	—	SPARE
Z	15A	—	—	SPARE

BATTERY
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BATTERY

POSITION	CAPACIY	No.	COLOR	OBJECT
A	5A	—	L	RESERVE
B	5A	234	LB	AIR CONDITIONER(opt.)
C	15A	225	LW	AIR CONDITIONER(opt.)
D	10A	470	LG	EXTERNAL WARNING LAMP(opt.) DRUM INDICATOR(opt.)
E	15A	2	LY	POWER WINDOW
F	10A	226	LR	AIR CONDITIONER(opt.)
G	10A	471	G	RADIO(opt.)
H	10A	37	GB	BUZZER
I	10A	155	GW	HORN, OIL LAMP
J	15A	150	GR	FRONT WINDSHIELD WIPER
K	15A	158	GY	WASHER, ROOF WIND WIPER
X	5A	—	—	SPARE
Y	10A	—	—	SPARE
Z	15A	—	—	SPARE

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Fuses for AML are installed on the inside of the adjustment covers on the top of the AML. When a fuse is burnt out, check for the cause, remove the cause and replace the fuse.

Symbol	Name	Rating	Circuits
CNTL 1, 2		250 V, 2 A	SOL 1, 2
CNTL 3, 4		250 V, 2 A	SOL 3, 4
CNTL 5, 6		250 V, 2 A	SOL 5, 6
F1	MAIN	250 V, 3 A	Main fuse
F2	RLY 1,2	250 V, 3 A	For relay output 1,2
F3	RLY 3,4	250 V, 3 A	For relay output 3,4
F4	RLY 5,6	250 V, 3 A	For relay output 5,6
F5	RLY 7,8	250 V, 3 A	For relay output 7,8
F6	SIF 2	250 V, 2 A	Fuse to SIF2SRC power source output terminal
F7	SIF 1	250 V, 2 A	Fuse to SIF1SRC power source output terminal

◆It is prohibited to connect new wiring to fuses other than reserve fuses.

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Air Conditioner (Option)

⚠ WARNING

⚠ While the engine and the air conditioner are running, be sure not to touch the rotating objects (fan belt, etc.).

⚠ Do not disconnect the piping of the air conditioner carelessly. To replenish refrigerant gas, do not use an improper method.

⚠ Touching the air conditioner's piping is dangerous since it is filled with high-pressure refrigerant gas. Anyone other than qualified persons must not touch the piping.

Maintenance Table

No.	Component and required operation	Check interval					
		1 day	1 week	3 months	6 months	1 year	2 years
1	Condenser check and cleaning					●	
2	Refrigerant level check					●	
3	Refrigerant piping connection check					●	
4	Inside air filter check and cleaning				●		
5	Outside air filter replacement						●
6	V-belt check			●			

Condenser Check and Cleaning

····· Once a Year (During the Summer)

⚠ CAUTION

⚠ Stop the engine when washing a condenser.

[NOTICE]

◆Do not use a detergent.

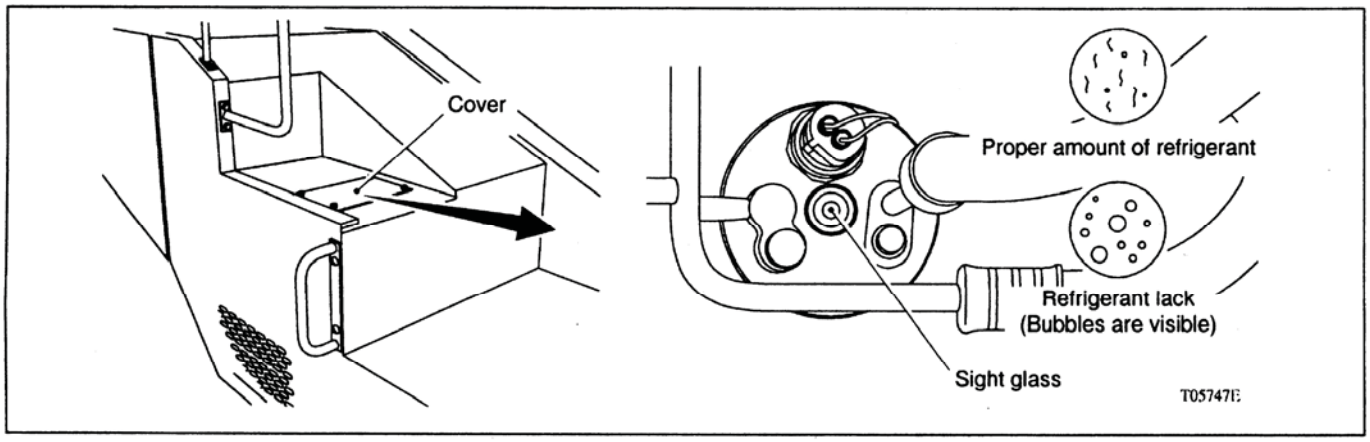
Wash away dirt and dust attached on the fins of condenser with water.

Refrigerant Level Check

····· Once a Year (During the Summer)

Turn ON the air conditioner switch. While magnet clutch of the compressor is ON, check the sight glass to see how the bubbles are coming out. No bubbles are seen when the amount is proper.

◆The cover for the inspection port is located upper part on the right of the vehicle.



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Refrigerant Piping Connection Check
····· Once a Year (During the Summer)

⚠ CAUTION

⚠ In case the extreme amount of oil leaks, perform inspections and maintenance properly to check any gas escaping from the refrigerant piping.

Check any oil leaking from the refrigerant piping connections visually.

Inside Air Filter Check and Cleaning
····· Every 6 Months

[NOTICE]

◆Do not use the organic solvent such as gasoline, trichloroethylene and thinner.

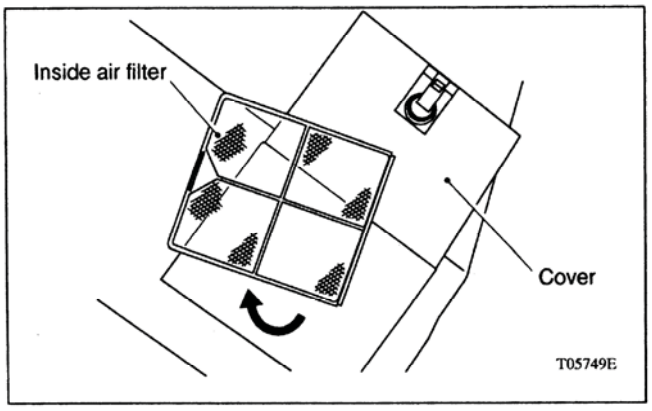
Normally

Blow the air from the clean side.

When it is extremely dirty

Immerse the filter in the warm water that household detergent dissolved. Wash it well, rinse it with clean water, and wait till it dries out completely.

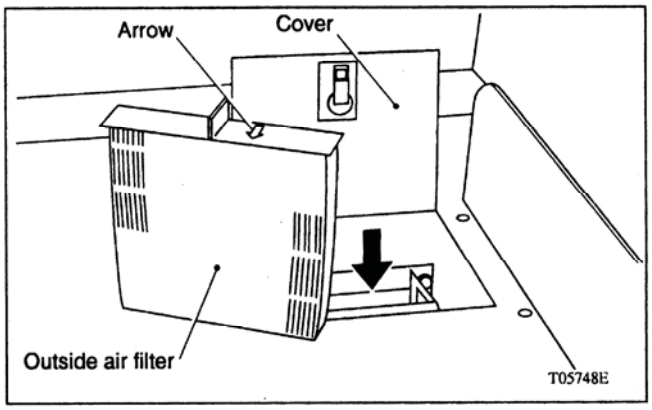
◆The cover for the inspection port of the inside air filter is located behind the driver's seat.



Outside Air Filter Replacement
····· Every 2 Years

Replace the filter, taking care of the arrow located on the top of the filter.

◆The cover for the inspection port of the outside air filter is located behind the driver's seat.



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V-belt Check ···· Every 3 Months (During the Summer)

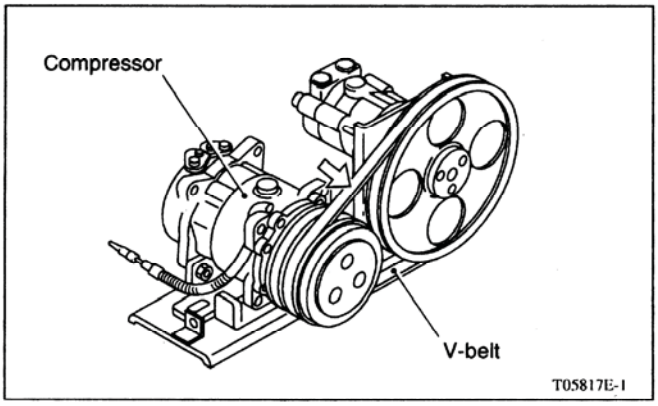
[NOTICE]

◆Fasten the belt and nuts after adjustment. Too much tension of the belt will damage the belt and bearings.

◆Do not put grease on the belt, because the life of the belt will be shortened by slipping.

Check the tension of the belt by following the table below. Check any damage of the belt, too.

Check point	Deflection when depressing center of belt by approx. 98 N (10 kg) force	Belt tension gauge
When checking	10 to 12 mm	196 to 343 N {20 to 35 kg}
When installing the new one	5 to 6 mm	441 to 539 N {45 to 55 kg}



Parts Recommended Regular Replacement

Some components of the air conditioner use parts which wear with time. For safety, such parts must be inspected regularly. The following table gives recommended replacement intervals for the parts. Contact your nearest **BQ-TADANO** distributor or dealer to have these parts inspected at the regular intervals.

Parts recommended regular replacement	Interval
Receiver dryer	4 years
Blower motor	2 years (Differs by usage.)
Electromotive fan motor	2,000 hrs (Differs by usage.)

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Wire Ropes

Proper Handling of Wire Ropes

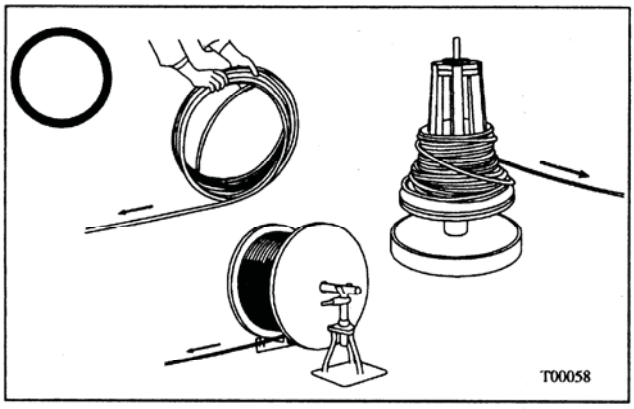
⚠ CAUTION

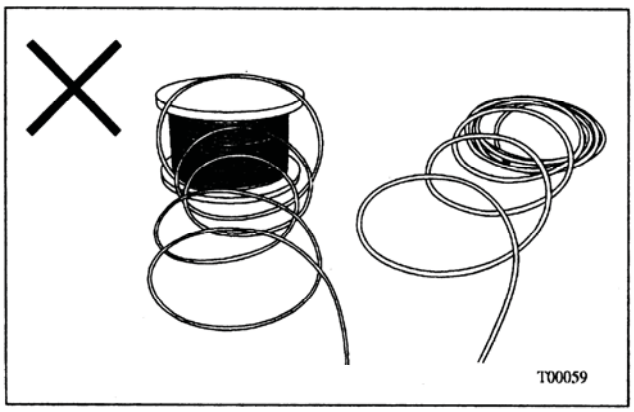
⚠ Do not handle wire ropes with your bare hands. Always wear protective gloves when handling the wire ropes; otherwise you will be injured.

Always handle wire ropes carefully and correctly. The life of wire ropes can be maximized if they are handled correctly. If handled improperly, they become deformed or lose their original strength, and must be replaced prematurely.

How to Unwind Wire Rope

Wire rope is wound in a coil or around a wooden bobbin when supplied. Unwind the wire rope by rolling the coil, or pull out the rope while rotating the bobbin.
If the wire rope is unwound improperly, it may become twisted or have kinks, rendering it unusable. Even a slight added twist may cause the wire rope to become tangled.





Disentangling Wire Rope Parts

If a new wire rope is used when the boom is long and the parts of line are small in number, a coiling effect may be created, causing the rope to become tangled.This is dangerous because it will cause the hook block or load to rotate. Disentangle the rope as follows:

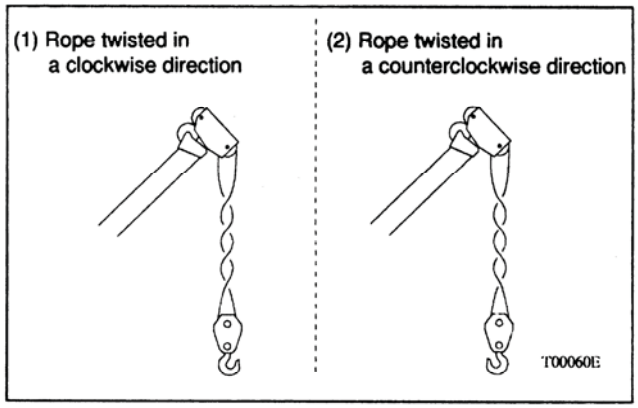
1. Let out the wire rope until only a few wraps of rope are left on the winch drum, and check the direction and number of twists.

2. Remove the rope socket from the boom or hook block, eliminate the twists as described below, then remount it.

(1) If the rope is twisted in a clockwise direction, twist the rope further (i.e., turn it in the same direction as the twist).

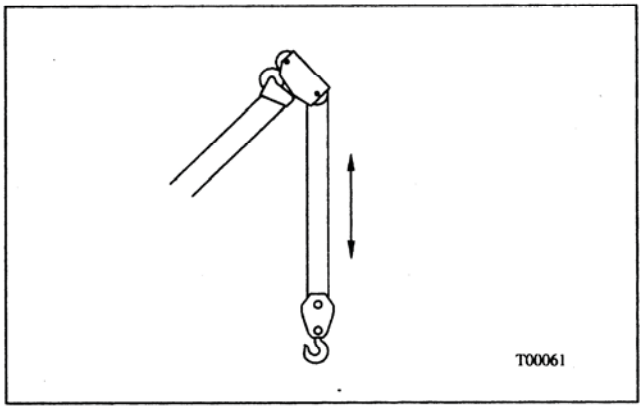
(2) If the rope is twisted in a counterclockwise direction, untwist the rope (i.e., turn it in the opposite direction of the twist).

◆If there are many twists, correct the rope in stages. Do not twist or untwist the rope more than four turns at a time.



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



Correcting the Torsion of the Wire Rope

【NOTICE】

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

Wire Rope Replacement

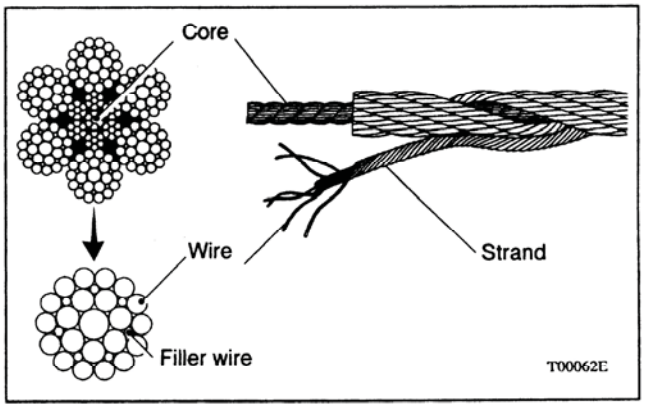
Criteria for Replacing Wire Ropes

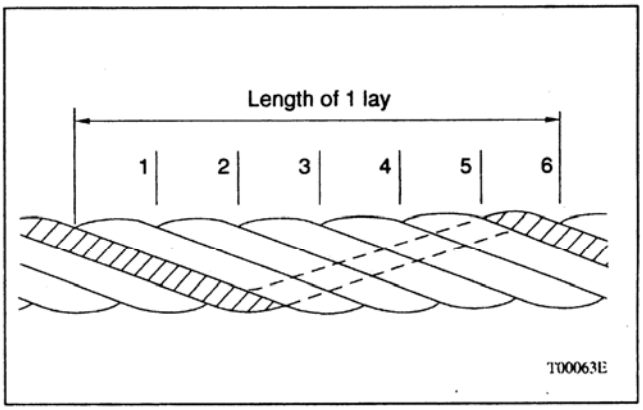
⚠ WARNING

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

Perform routine and periodic (monthly) inspections on the wire ropes for breaks, wear, corrosion, deformation, arcing or heat effects, oil coat condition, and rope end condition. If any of the following conditions (1) through (5) are met, replace the wire rope.
◆If the end of wire rope is not in proper condition, repair or cut.

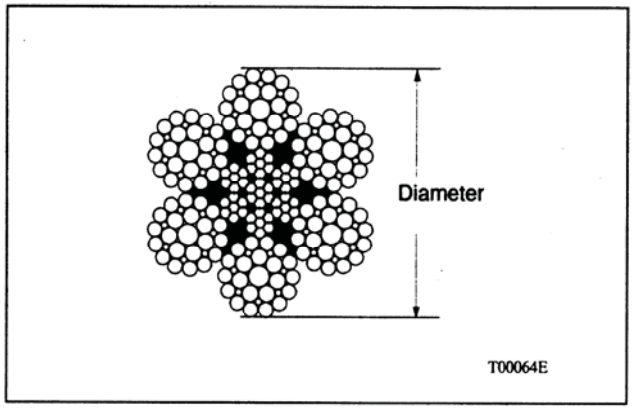
(1) Ten percent or more of the wires (except filler wires) in a lay are broken.
◆The criteria are explained using the illustrations below, based on a standard wire rope consisting of six strands.



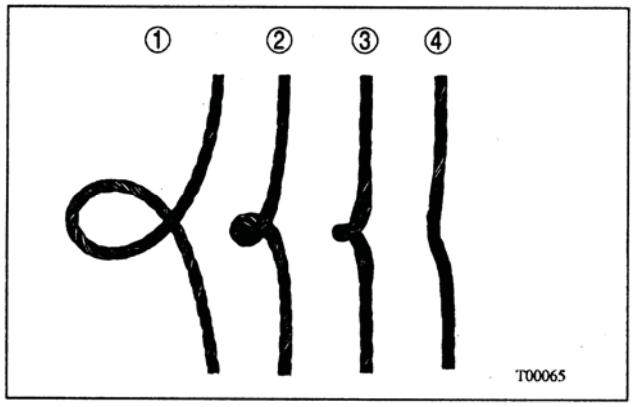


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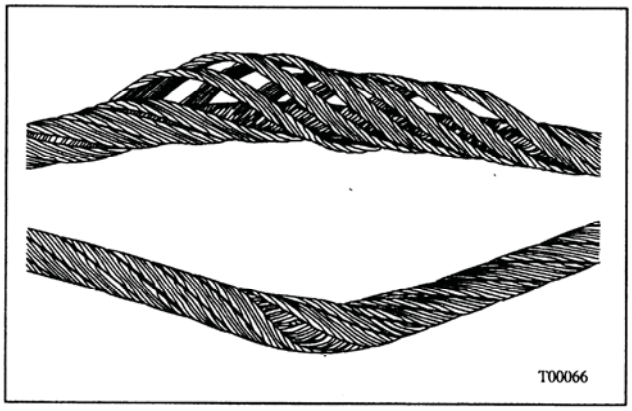
(2) The diameter of the wire rope is reduced by more than 7% of the nominal diameter.



(3) A kinked wire rope [refers to a rope used in a looped state as shown in 1, which became knotty as in 2, 3 and 4 after use].



(4) A badly deformed or corroded wire rope. (A badly deformed wire rope refers to one whose strands are caved in or are loosened as shown, or whose core is exposed. A corroded wire rope refers to one which has evident pittings on the wire surfaces, or where corrosion has extended to the inside of the rope.)

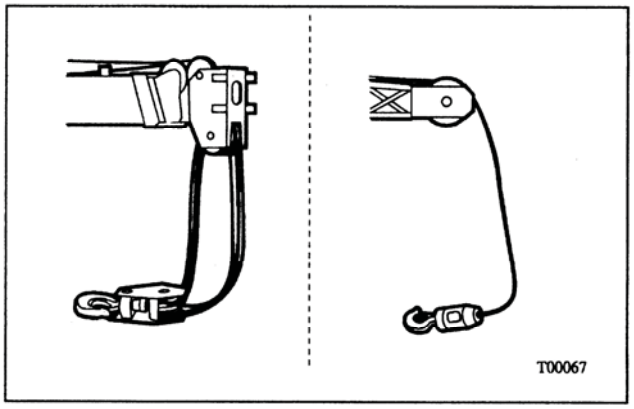


(5) A wire rope damaged by heat or sparks

Removing Wire Rope

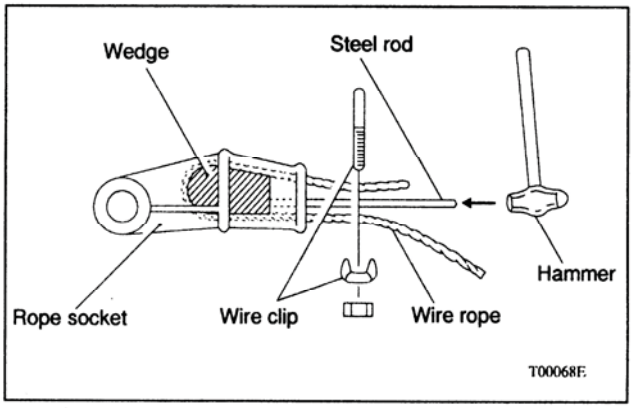
1. Extend the outriggers and place the boom in the over-rear or an over-side area.

2. Fully lower the boom and lay the hook block on the ground.



3. Remove the rope socket from the hook block or boom head.

4. Detach the wire rope from the rope socket by removing the wire clip, then hammering the wedge out of position.

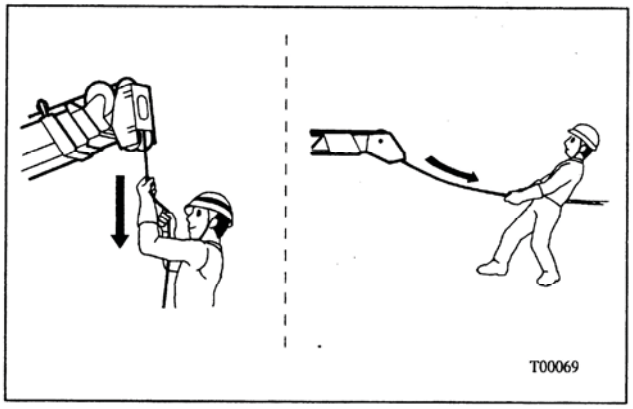


5. Pull the wire rope out of the hook block and weight for the overwind cutout device.

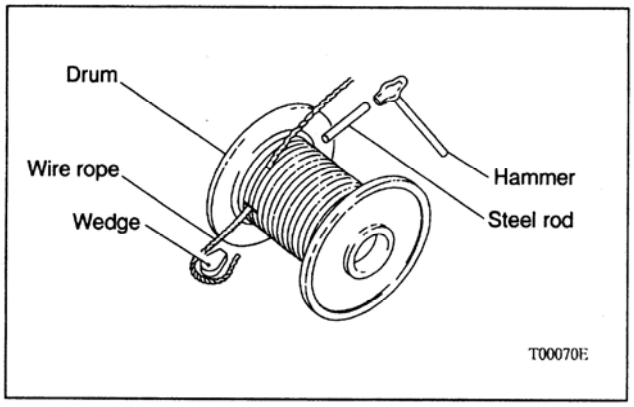
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6. Wind the wire rope around a wooden bobbin while hoisting down with the winch.

◆Pull on the wire rope as you let it out to prevent improper winding.



7. When there is no wire rope left on the winch drum, hammer the wedge out of the winch drum and wind up all the remaining wire rope.

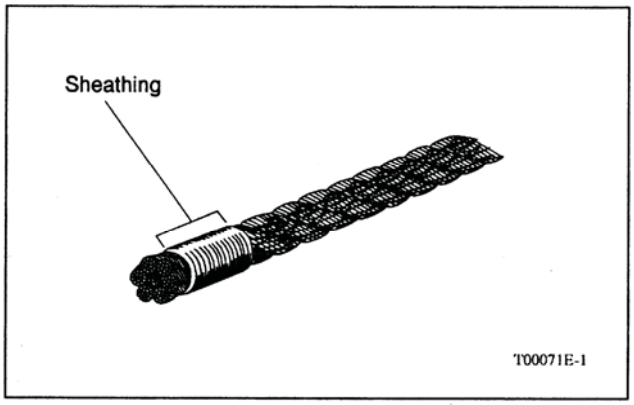


Installing of Wire Rope

◆When you cut a wire rope or apply treatment to the ends, wrap the cut or treated ends with sheathing to prevent the strands from coming loose. Use an annealed low carbon steel wire covered with zinc plating. Wrap it around the wire rope.

The width of the sheathing should be two or three times the diameter of the rope.

Wire rope diameter (mm)	Sheathing wire diameter (mm)
Less than 12	0.8
12 or more but less than 18	1.0
18 or more but less than 30	2.0
30 or more but less than 50	2.5



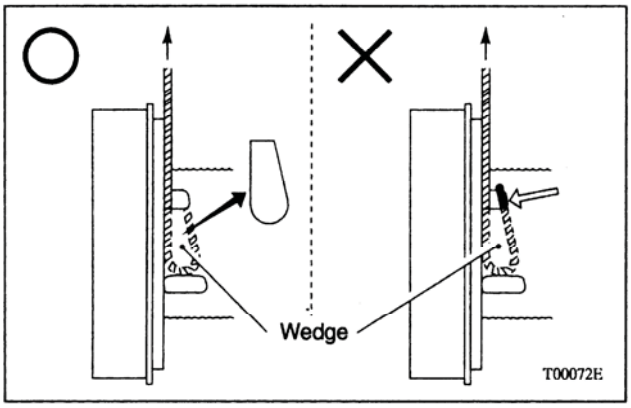
1. Pass a new wire rope from the boom head or jib head to the winch drum.

◆Be sure to route the rope correctly.

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2. Secure the end of the wire rope to the winch drum with the wedge.

◆The wedge must be oriented correctly. Make sure that the end of the wire rope does not extend beyond the edge of the winch drum.



3. Operate the winch to wind the rope around the drum leaving only enough rope for attaching it to the hook block.

◆Wind the rope slowly while applying it some tension to prevent improper winding.

◆Pay attention to the following when winding the rope:

(1) The first wrap must be wound along the guide at the end of the drum. (See Fig. 1.)

(2) In the first layer of wraps, the rope should be fitted in the grooves made on the drum.

(3) When winding over a layer of wraps, the rope should be set in the valleys between the wraps. (See Fig. 2.)

Fig.1

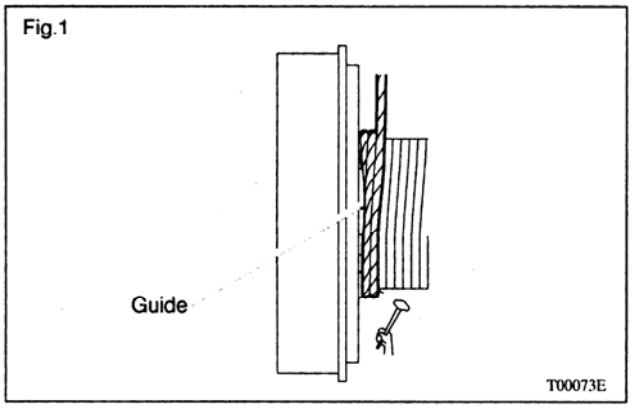
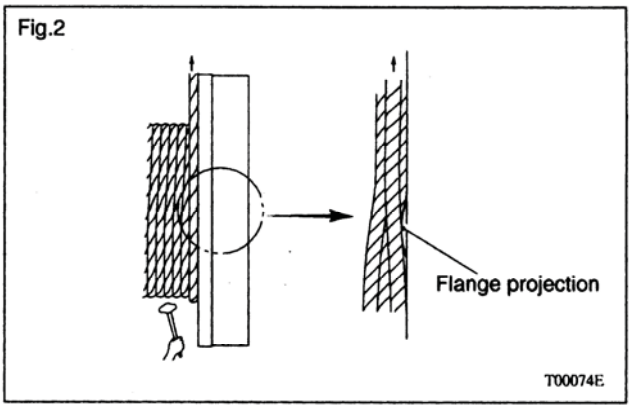


Fig.2

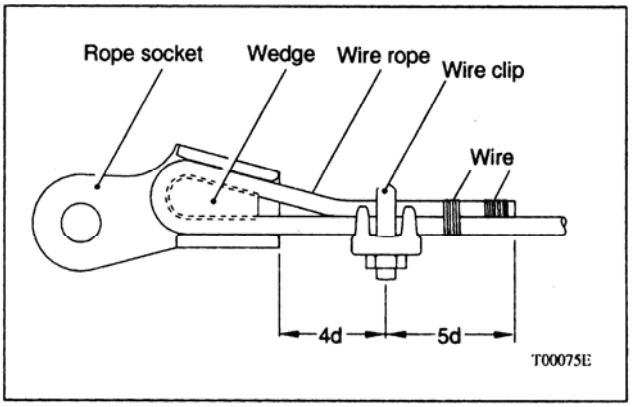


4. After passing the rope through the weight of the overwind cutout device, reeve it on the boom and hook block sheaves in the pattern appropriate to the number of parts of line.

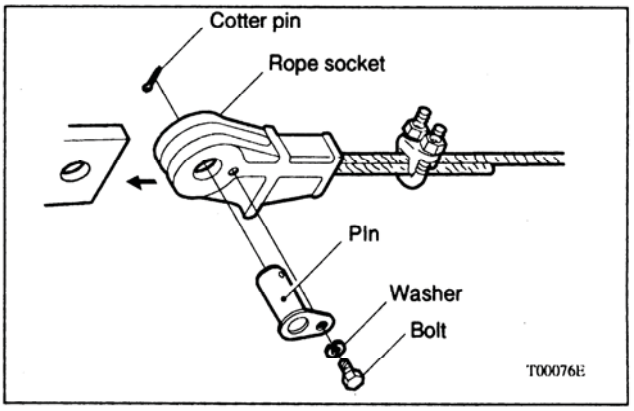
◆For information on how to reeve, see the "Reeving Wire Ropes" section.

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

◆Be sure to insert the wedge and attach the wire clip in the proper orientations. (d: wire rope diameter)



6. Secure the rope socket to the hook block or boom head.



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INFORMATION AND DATA

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Conversion

Thick-line-enclosed units are SI units.

Force

N	kgf
1	1.01972×10^{-1}
9.80665	1

Pressure

Pa	kPa	MPa	kgf/cm^2
1	1×10^{-3}	1×10^{-6}	1.01972×10^{-5}
1×10^{3}	1	1×10^{-3}	1.01972×10^{-2}
1×10^{6}	1×10^{3}	1	1.01972×10
9.80665×10^{4}	9.80665×10	9.80665×10^{-2}	1

Torque, Moment

N · cm	N · m	kgf · cm	kgf · m
1	1×10^{-2}	1.01972×10^{-1}	1.01972×10^{-3}
1×10^{2}	1	1.01972×10	1.01972×10^{-1}
9.80665	9.80665×10^{-2}	1	1×10^{-2}
9.80665×10^{2}	9.80665	1×10^{2}	1

Power

W	kW	PS
1	1×10^{-3}	1.35962×10^{-3}
1×10^{3}	1	1.35962
0.735499×10^{3}	0.735499	1

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Major Specifications

Crane Specifications

Maximum Rated Lifting Capacity
(number of parts of line given in parentheses)

11.1m boom ..... 55,000 kg x 3.0 m (13)
15.0 m boom .....40,000 kg x 3.5 m (10)
18.8 m boom ..... 28,000 kg x 5.0 m (7)
26.6 m boom ..... 20,000 kg x 6.0 m (5)
34.3 m boom ..... 14,000 kg x 6.5 m (4)
42.0 m boom ..... 8,000 kg x 10.0 m (4)
8.8 m jib (5°offset) ..... 3,500 kg x 75° (1)
8.8 m jib (25°offset) ..... 2,500 kg x 80° (1)
8.8 m jib (45°offset) .....1,400kgx80°(1)
15.2 m jib (5°offset) .....2,300 kg x 80° (1)
15.2 m jib (25°offset) ..... 1,150 kg x 80° (1)
15.2 m jib (45°offset) ..... 750 kg x 80° (1)
Single top ..... 4,500 kg (1)

Lifting Height, Boom Length, Boom Angle and Speeds

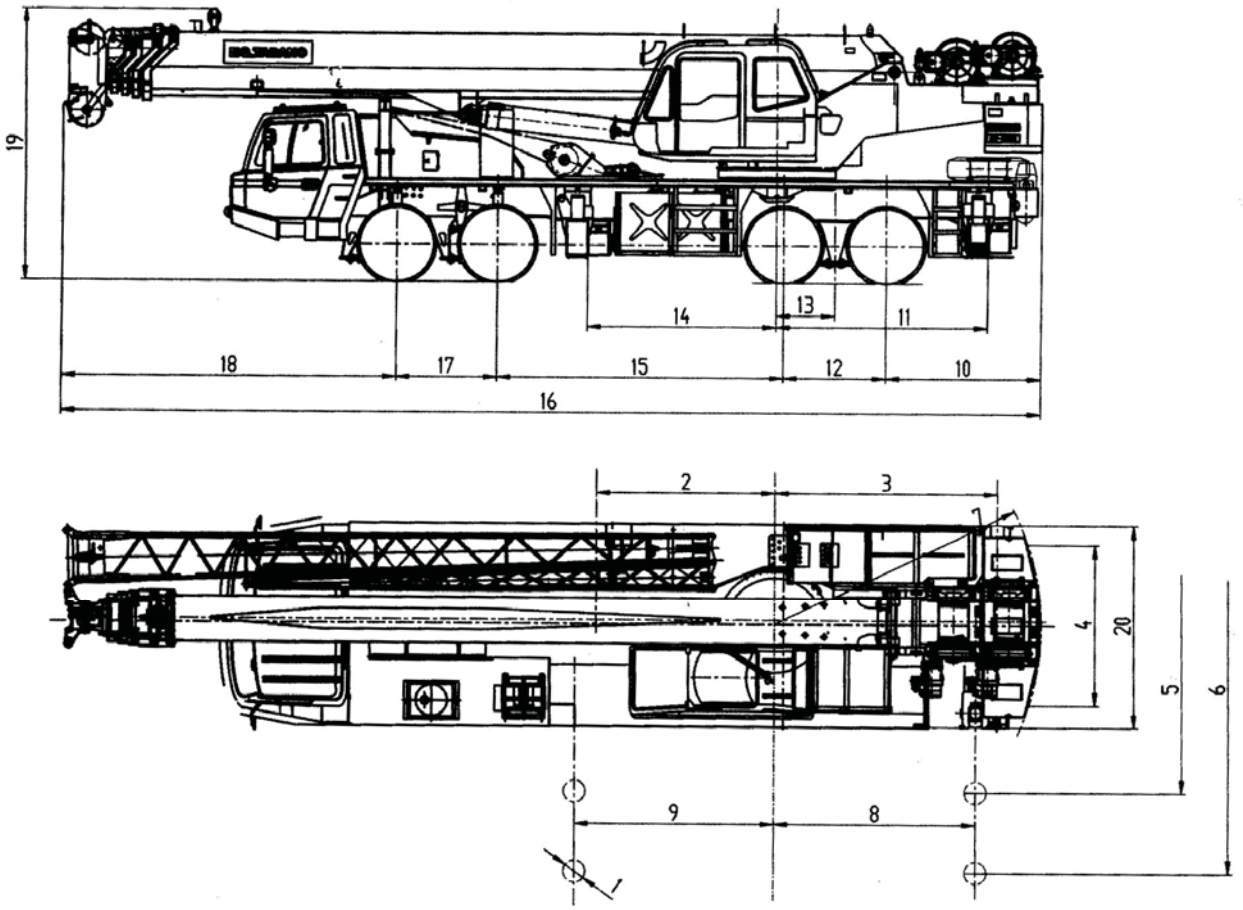
Maximum lifting height ..... Boom: 41.5 m
Jib: 56.0 m
Maximum load radius .....Boom: 34.0 m
Jib: 39.0 m
Boom length ..... 11.1 m to 42.0 m
Boom extension speed ..... 30.9 m/132 s
Jib length ..... 8.8 m, 15.2 m
Main winch single line speed ..... 143 m/min.
(at the 4th layer)
Auxiliary winch single line speed.....123 m/min.
(at the 2nd layer)
Boom elevation angle.....-2.0° to 80°
Elevation speed .....-2.0° to 80° / 72 s.
Swing angle ..... 360° continuous
Swing speed .....1.6 r / min[1]

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Overall Dimensions

GT-55E-2-10165～Unit：mm

N0. ·····	Dimension
1. ·····	Φ400
2. ·····	2,435
3. ·····	3,045
4. Minimum extension width ···	2,390
5. Half extension width·····	4,600
6. Full extension width ·····	6,800
7. ·····	3,650
8. ·····	2,755
9. ·····	2,725
10. ·····	2,065
11. ·····	2,900
12. ·····	1,400
13. ·····	800
14. ·····	2,580
15. ·····	3,915
16. Overall lenqth·····	13,480
17. ·····	1,385
18. ·····	4,655
19. Overall height·····	3,680
20.Overall width t·····	2,820



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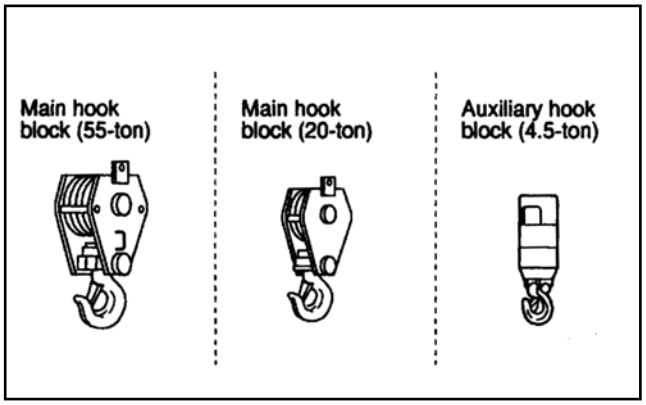
Mass

Carrier Mass

GT-550E-2-B0101	Gross vehicle mass:	41,500 kg
	Front axle:	16,800 kg
	Rear axle:	24,700 kg

Hook Block Mass

Main hook block mass (55 tons): 570 kg
Main hook block mass (20 tons): 400 kg
Auxiliary hook block mass (4.5 tons): 130 kg



Relief Valve Pressure

Winch hoist up circuit:
23.0 to 24.0 MPa {235 to 245 kgf/cm^2}
Winch hoist down circuit:
8.3 to 9.3 MPa {85 to 95 kgf/cm^2}
Boom raising/extending/retracting circuit:
20.1 to 21.1 MPa {205 to 215 kgf/ cm^2}
Boom lowering circuit:
2.9 to 3.4 MPa {30 to 35 kgf/cm^2 }
Swing circuit: 15.7 to 16.2 MPa {160 to 165 kgf/cm^2}
Outrigger circuit: 18.6 to 19.6 MPa {190 to 200 kgf/cm^2}
Front jack circuit: 3.4 to 3.9 MPa {35 to 40 kgf/cm^2}

Wire Rope Specifications

Wire rope for main winch	Configuration	: 7x7 + 6xWS(31)%
	Allowable load	: 42.2 kN {4,300 kg}
	Ultimate (failure) load	: 243 kN {24.8 ton}
	Diameter	: 19.70 mm
	Length	: 227 m
	Mass	: 1.59kg/m
Wire rope for auxiliary winch	Configuration	: 7x7 + 6xWS(31)%
	Allowable load	: 44.1kN {4,500 kg}
	Ultimate (failure) load	: 243 kN {24.8 ton}
	Diameter	: 19.0 mm
	Length	: 127 m
	Mass	: 1.59kg/m

Other

Maximum vertical load capacity of outrigger
GT-550E-2-B0101 ····· 52,000kg

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Oils and Greases

Oil and Grease Table

The oils and greases listed below are used in new cranes at shipment

◆For the kind of hydraulic oil in use now, confirm the label affixed on the oil tank.

Oil or grease	No	Component	Brand (manufacturer)	Capacity/Quantity
Grease	1	Side and bottom surfaces of boom	L-XBCHB2	As required
	2	Slide plate (top surface of boom)		
	3	Slide plate (bottom surface of boom)		
	4	Boom bottom end		
	5	Wire rope (for winch)		
	6	Wire rope (for telescoping)		
	7	Swing bearing		
	8	Swing gear		
	9	Rotary joint	L-XCCHA2 GB/T 5671-1995	
	10	Outrigger floats		
	11	Front jack float		
	12	Elevating cylinder		
	13	Pin (for jib head sheave)		
	14	Pin (for single top sheave)		
	15	Main hook block (55-ton)		
	16	Main hook block (20-ton)		
	17	Auxiliary hook block (4.5-ton)		
	18	Propeller shaft		
Gear oil	1	Winch speed reducer	SHC 320	4.0 L x 2
	2	Swing speed reducer		2.3 L
Hydraulic oil	1	Hydraulic oil tank	HV-46 LTK VG46	773L(∗1) 985 L (∗2)
	2	Oil reservoir (for accelerator)	Mobil DTE 11 M	0.17L (∗1) 0.6 L (∗2)

(∗1): Tank capacity (∗2): Total capacity

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Consumable Parts

Filters

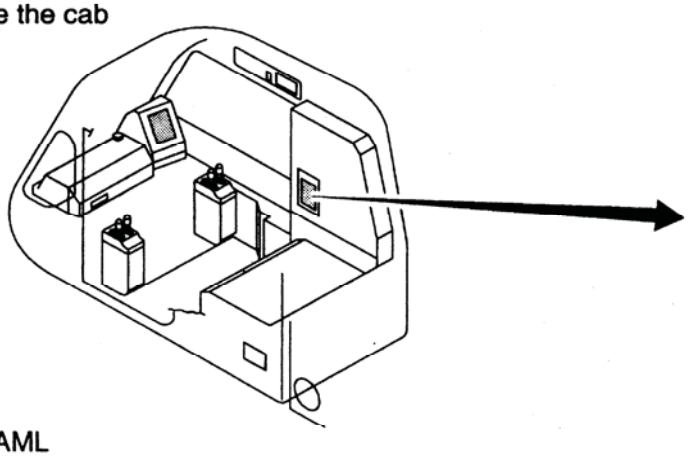
◆For locations and instructions on how to replace the filters, see the "Hydraulic System" section.

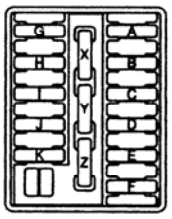
No.	Filter (location)	Consumable part	Part No.
1	Return filter (hydraulic oil tank)	Filter element	366-707-50010
2	Air breather (hydraulic oil tank)	Element	336-600-07510
3	Return filter (drain circuit)	Filter element	366-701-05030
4	Line filter (winch brake circuit)	Filter element	366-719-75060
5	Line filter (automatic stop circuit)	Filter element	366-455-45010
6	Line filter (accumulator circuit)	Filter element	366-729-65010

Fuses

◆For instructions on how to replace fuses, see the "Electrical System" section.

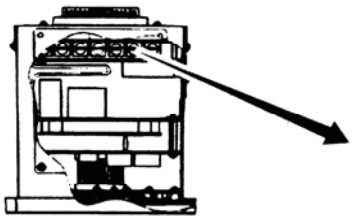
Inside the cab



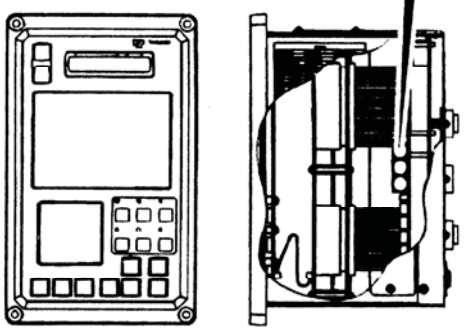


5A (Brown): 821-000-01837
10A (Red) : 821-000-01839
15A (Blue) : 821-000-01840

AML



2A : 821-000-02890
3A : 821-000-02891



T30138E

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History of Revision		
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