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## Preface

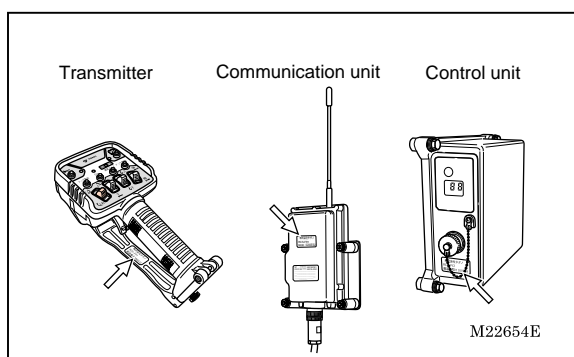
This operation and maintenance manual is for safe and proper operation and inspection/maintenance of the radio-control system whose model is shown in the following table.

Refer to the operation and maintenance manual of the main unit of the crane for operation and inspection/maintenance of the main unit.

Applicable model		
Radio-control system	Transmitter	RCS-FT1
	Communication unit	RCS-FR1
	Control unit	RCS-FC1

Confirm the model of your radio-control system with the nameplates shown in the following illustrations.

Illustrations in this manual may differ from the actual products in details. Note that the illustrations for explanation purposes are sometimes drawn without any cover or guard.

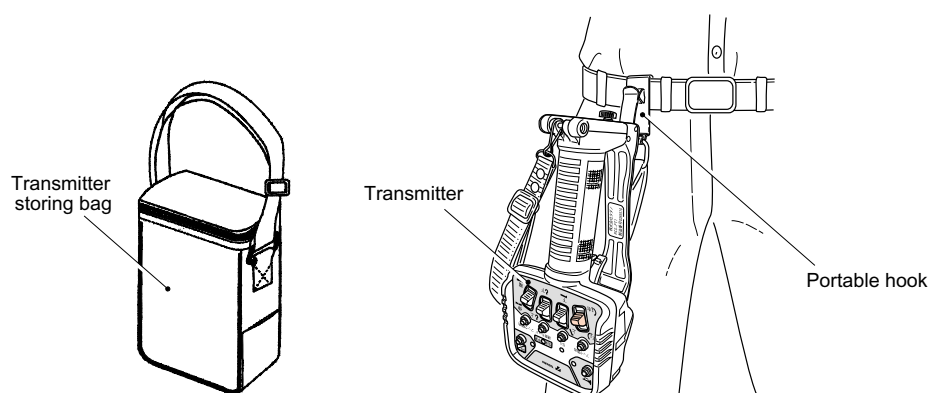
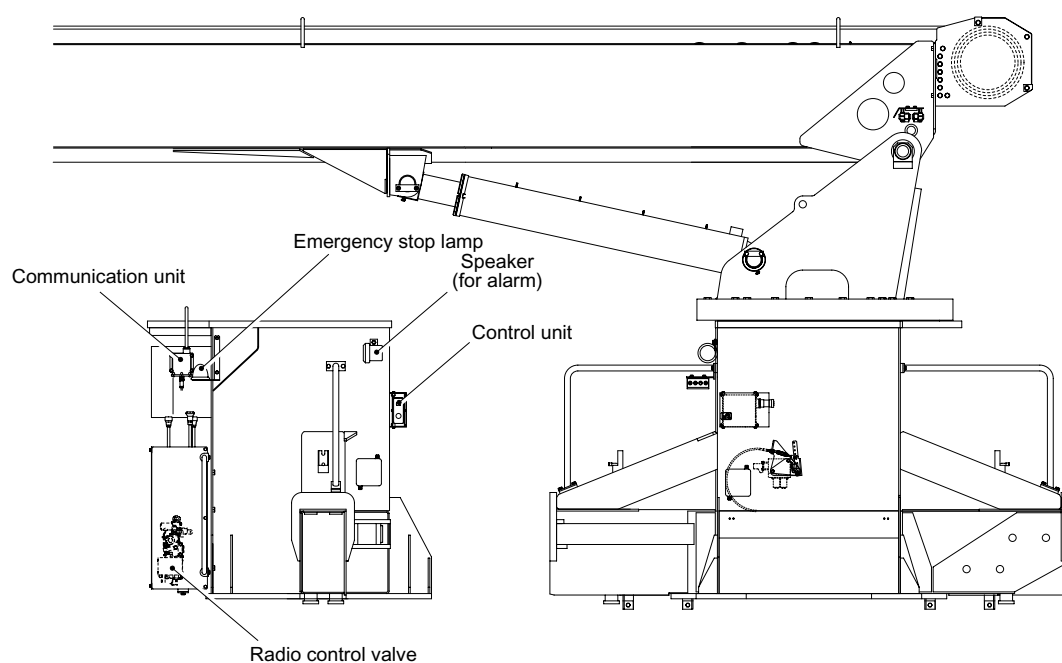


Note that the products may be subject to modifications that are not reflected in this manual, because of product improvement.

When transferring the crane to another party, transfer this manual also together with the crane.

Should you have any comments or inquiries on the delivered crane or this manual, contact the nearest TADANO distributor or dealer.

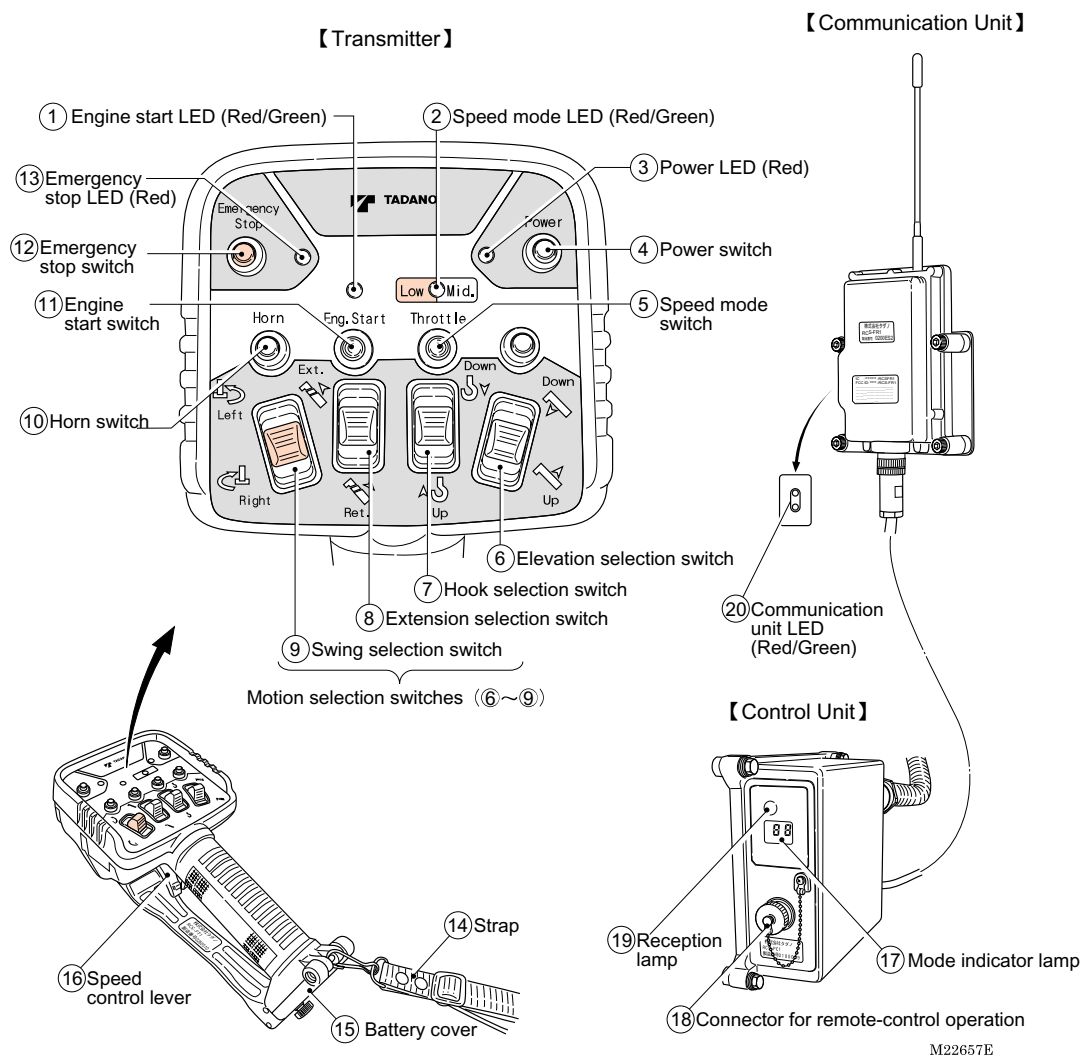
# Configurations of Radio-control System



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# Names and Functions of Each Part

## 1. Radio-control Block



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## 1. Engine Start LED

The LED shows the condition of the engine start switch.

- When the switch is not operated: Turned off
- When the switch is operated: Turned on (Red)

## 2. Speed Mode LED

The LED shows the speed modes.

- At high-speed mode: Turned off
- At medium-speed mode: Turned on (Green)
- At low-speed mode: Turned on (Red)

## 3. Power LED

The LED shows the power ON/OFF of the transmitter and battery consumption condition.

- At power OFF: Turned off
- At power ON: Turned on (Red)
- At battery exhaustion: Flashing (Red)

## 4. Power Switch

This is the switch for power ON/OFF of the transmitter.

When the power switch is pressed while the radio-control /manual changeover switch of the crane is turned to "Radio" position after PTO is set to "Engaged" state, the power of the transmitter is turned on and the power LED lights up.

When the power switch is pressed once again, the power is turned off and the power LED turns off.

## 5. Speed Mode Switch

This is the switch to select the speed mode. Every time the switch is pressed, the mode changes in the order of: "low-speed" → "medium-speed" → "high-speed" → "low-speed" ..... At the same time, the speed mode LED changes in the order of: "turned on in red" → "turned on in green" → "turned off" → "turned on in red" .....

## 6. Elevation Selection Switch

## 7. Hook Selection Switch

## 8. Extension Selection Switch

## 9. Swing Selection Switch

These are the motion selection switches for the crane operation. When the speed control lever is pulled after the motion selection switch is changed, the crane can be operated.

## 10. Horn Switch

When the switch is pressed, the vehicle's horn sounds.

## 11. Engine Start Switch

This is the switch to output the engine start signal. When the switch is pressed, the engine starts up.

- ◆ The engine start-up is disabled under the emergency stop state.

## 12. Emergency Stop Switch

Pressing the switch causes an emergency stop and all the crane operation stops. At the same time, the emergency stop LED and emergency stop lamp of the crane light up.

When the switch is pressed once again, the emergency stop state is released, and the emergency stop LED and emergency stop lamp of the crane turn off.

## 13. Emergency Stop LED

The LED shows the emergency stop state.

- Under normal condition: Turned off
- Under emergency stop state: Turned on (Red)

## 14. Strap

The strap is for portable use of the transmitter. Hook the transmitter onto a belt on your waist or hang it from your neck by extending the strap.

## 15. Battery Cover

This is used when replacing the batteries.

## 16. Speed Control Lever

This is the lever to adjust operation speeds of the crane.

According to the pulling amount of the lever, the engine speed increases to increase the speed of the crane.

## 17. Mode Indicator Lamp

The lamp indicates the current operation mode.

- At power on of the control unit: "L0"
- At radio-control mode: "L1"
- ◆ At error occurrence, an error number is displayed.

## 18. Connector for Remote-control Operation

This is the connector to connect the remote-control transmitter when the remote-control is used.

- ◆ The connector is not used for this system.

## 19. Reception Lamp

The lamp lights up while operation signals are received from the radio-control transmitter.

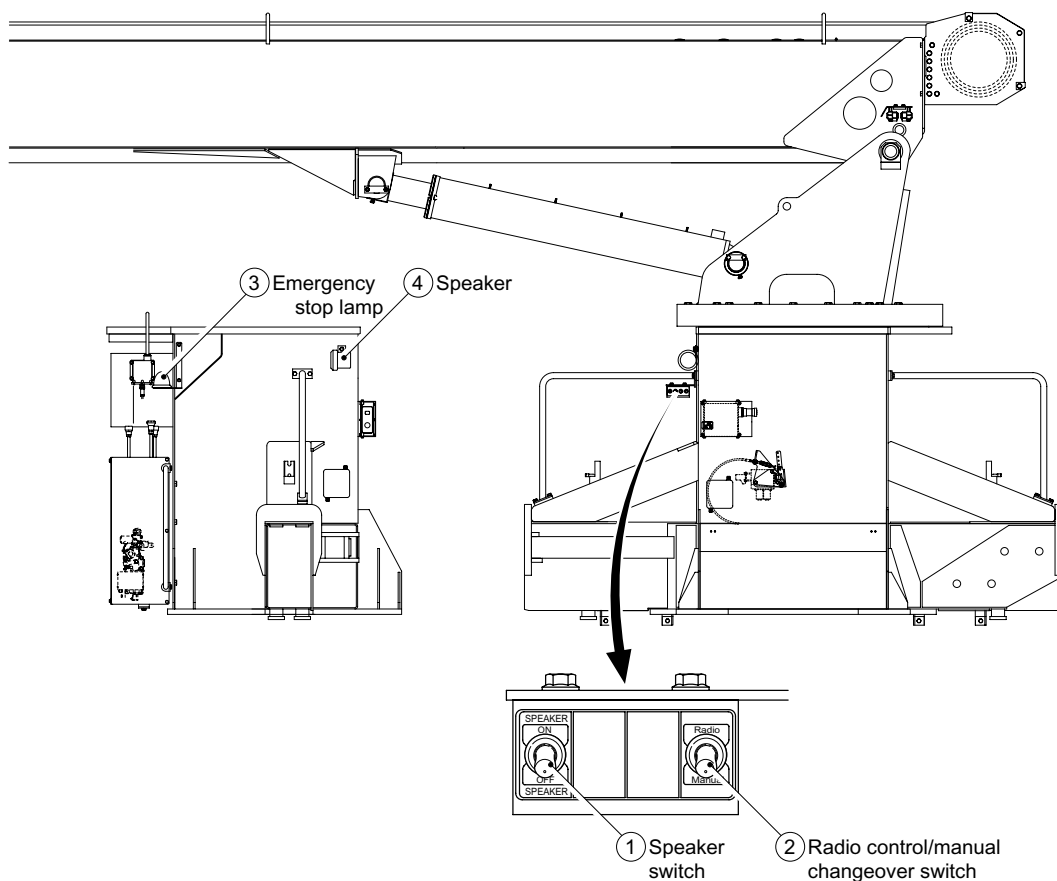
- ◆ When the power of the control unit is turned on while the radio-control /manual changeover switch of the crane is turned to the "Radio" position after PTO is set to "Engaged" state, the lamp also lights up once.

## 20. Communication Unit LED

The LED shows the power ON/OFF of the communication unit and communication conditions.

- "Upper side": Power LED  
When the power is supplied to the communication unit from the control unit while the radio-control /manual changeover switch of the crane is turned to "Radio" position after PTO is set to "Engaged" state: Turned on (Red)  
At error: Turned on (Orange)
- "Lower side": Radio wave LED  
Under communication: Turned on (Green)  
Before communication, at communication disconnected, and at power OFF of the transmitter: Turned off  
At error: Turned on (Orange)  
When communication is interrupted during the operation: Flashing (Green)

## 2. Crane



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### 1. Speaker Switch

This is the switch to select output/stop of the alarm.

“ON”: Alarm sounds

“OFF”: Alarm stops

### 2. Radio-control/Manual Changeover Switch

This is the switch to select radio-control operation/manual operation.

“Radio”: Radio-control operation

“Manual”: Manual operation

### 3. Emergency Stop Lamp

The LED shows the emergency stop state.

- Under normal condition: Turned off
- Under emergency stop state: Turned on (Yellow)

◆ The lamp shows the same indication as the emergency stop LED of the radio-control transmitter.

### 4. Speaker

The speaker outputs an alarm sound at occurrence of a problem, at wrong operation, and to call attention for proper operations.

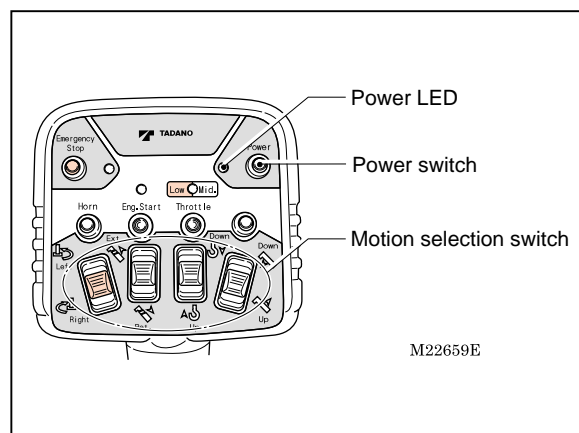
# Safety Functions of Radio-control System

The radio-control system has the following functions to realize safety operations.

## 1. Auto Power-off Function

When the motion selection switch is not operated for approximately one hour, the power of the transmitter is automatically turned off to save battery consumption.

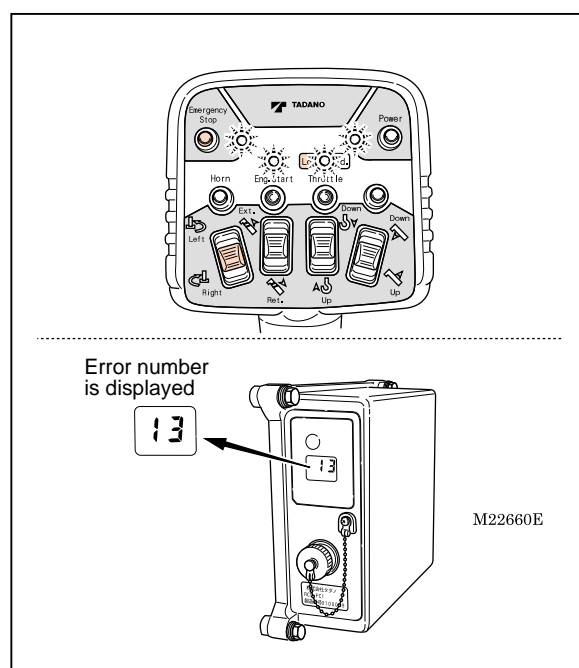
- ◆ The power LED of the transmitter is turned off, and the mode indicator lamp of the control unit changes from the radio-control mode “L1” to the manual mode “L0”.
- ◆ To resume the radio-control operation, press the power switch once again to turn on the power LED to set to the radio-control mode.



## 2. Switch Failure Detection Function

Error is displayed when the power of the transmitter is turned on while the switches or speed control lever is operated.

- ◆ Four LEDs on the transmitter flash to show the failure condition. In addition, the mode indicator lamp of the control unit displays the error number “13”, and both the radio-control operation and manual operation are disabled. (Refer to the chapter of “Measures for Emergency Case”)
- When the power of the transmitter is turned off, the mode indicator lamp of the control unit changes to “L0”.
- ◆ To perform a radio-control operation, press the power switch while releasing your finger from the other switches and the speed control lever.





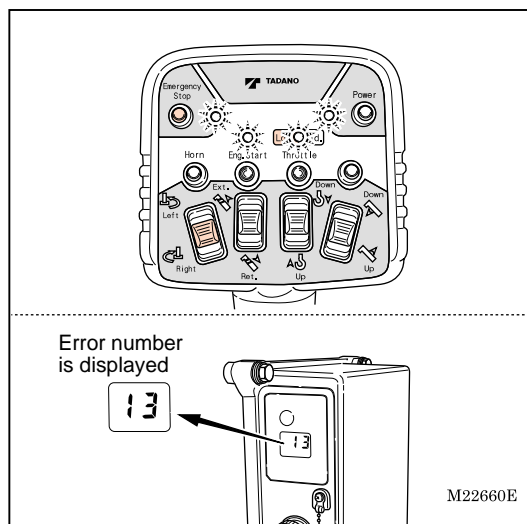
### 3. Continual Operation Restriction Function

Error is displayed when any of the motion selection switches is kept in the operation state for approximately five minutes due to a failure, trapped dirt or the like.

- ◆ Four LEDs on the transmitter flash to show the failure condition. In addition, the mode indicator lamp of the control unit displays the error number “13”, and both the radio-control operation and manual operation are disabled. (Refer to the chapter of “Measures for Emergency Case”)

When the power of the transmitter is turned off, the mode indicator lamp of the control unit changes to “LO”.

- ◆ To resume the radio-control operation, turn the power on once again after confirming the position of the motion selection switches.



### 4. Instant Stop Alarm Function

If the radio wave from the transmitter is hindered during the radio-control operations due to changing surrounding conditions and the like, the speaker outputs a “beep” alarm.

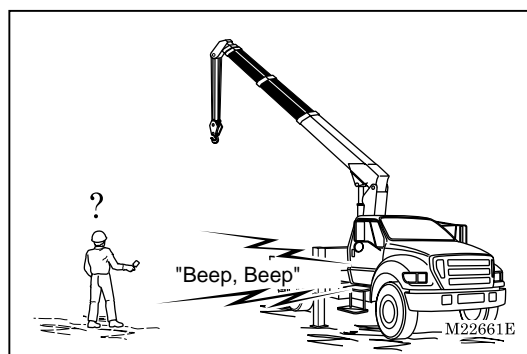
- ◆ Condition of the crane is as follows according to the number of beeps of the alarm.

#### (1) “Beep”

The crane continues to work although there is a warning of poor radio wave transmission.

#### (2) “Beep, Beep”

The crane operation stops when two continual alarms sound.



In either case the warning is of poor radio wave transmission condition. Take measures such as reducing the distance between the transmitter and the communication unit.

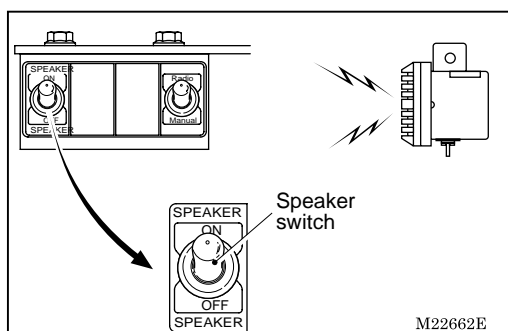
## 5. Alarm Function



### Warning

**!** No alarm sounds when the speaker switch is turned "OFF". Since it is an important alarm, turn the speaker switch "ON" except for special cases. Operation should be made with special care when the switch needs to be turned off due to noise prevention at nighttime operation and the like. In addition, make sure that the switch is returned to "ON" position after the operation.

The following alarms sound when the system has a problem, when a wrong operation is made, or to call attention for proper operations. Take appropriate measures according to the following tables when the alarm sounds.



(1) At the time of abnormal stop of the radio-control system:

Warning sound	Beep (Three times)
Warning timing	When the computer judges that serious trouble has occurred to the system
Crane operation	The radio-control operation is disabled.
Measure	Refer to the chapter of "Measures for Emergency Case"

(2) At the time of a problem occurring when the operation lever is at the neutral position

Warning sound	Beep (Three times)
Warning timing	When the operation lever of the crane does not return to the neutral position even after the motion selection switch of the transmitter is returned to the neutral position.
Crane operation	The radio-control operation is disabled.
Measure	Refer to the chapter of "Measures for Emergency Case"

(3) Battery exhaustion warning

Warning sound	Two-tone alarm (once)
Warning timing	When the motion selection switch of the transmitter is operated under the low battery-voltage condition of the transmitter.
Measure	Refer to the chapter of "Battery Replacement for Transmitter"

(4) At the set of emergency stop state

Warning sound	Beep (Once)
Warning timing	When the operation to set the emergency stop state is made.

(5) At the release of emergency stop state

Warning sound	Two-tone alarm (once)
Warning timing	When the operation to release the emergency stop state is made.

# Radio-control

## [NOTE]

- ◆ Even after the radio-control transmitter is turned OFF under the condition where the radio wave is out of reach, the control unit still remains on in the radio-control mode. Make sure to confirm that the mode indicator lamp of the control unit indicates “L0” after the radio-control operation is completed (or after the power of the transmitter is turned OFF).

## 1. Preparation for Radio-control Operation

- ◆ Confirm that each lever is at the following position before starting up the engine.  
Each operation lever for extension/winch/elevation/swing/jack ..... “Neutral”  
PTO lever (Switch) ..... “Disconnected”

- ◆ Operation mode changes as is shown in the figure according to the PTO operation, operation of the radio-control /manual changeover switch, and power ON/OFF of the radio-control transmitter. In addition, an indication on the mode indicator lamp of the control unit changes as the figure shows.

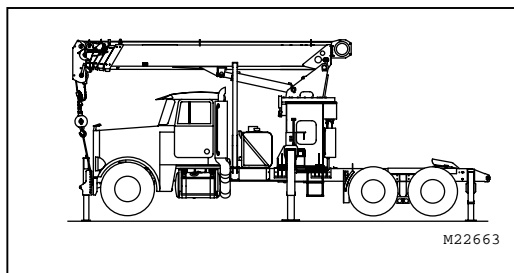
PTO	Radio control/ manual changeover switch	Transmitter power	Mode indicator lamp	Operation mode
ON	「Manual」	OFF		Manual operation
ON	「Radio」	OFF	L 0	
ON	「Radio」	ON	L 1	Radio-control operation

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1. Start up the engine and turn PTO to “Connected (ON)” position.

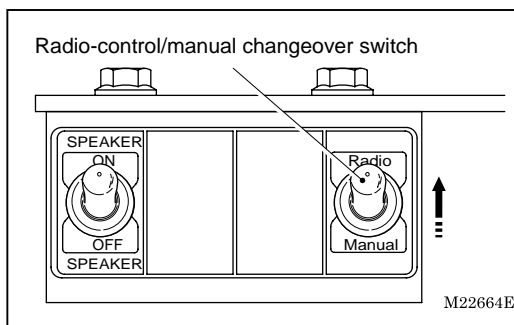
- ◆ Confirm that the radio-control /manual changeover switch is on “Manual” position.

2. After extending the outriggers, extend the jacks and set the crane level.



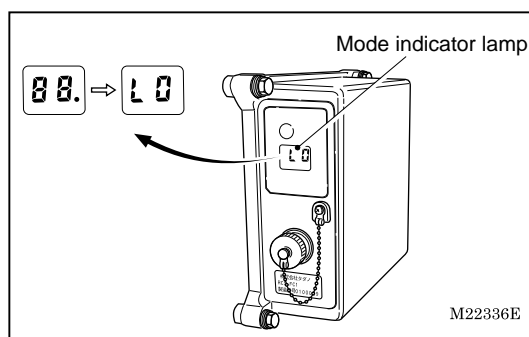
3. Turn the radio-control /manual changeover switch to “Radio” position.

- ◆ When the switch is turned to “Radio” position, the power of the control unit is turned ON.



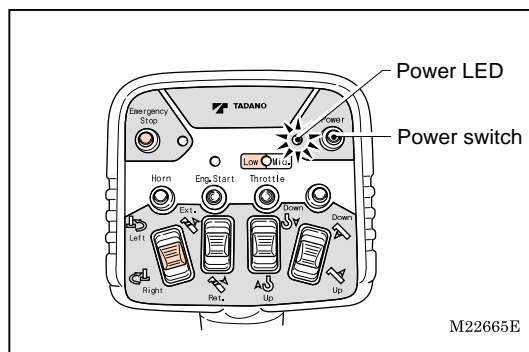
4. Confirm that the mode indicator lamp of the control unit displays "L0".

- ◆ The lamp displays "L0" after displaying "88." (All light up).

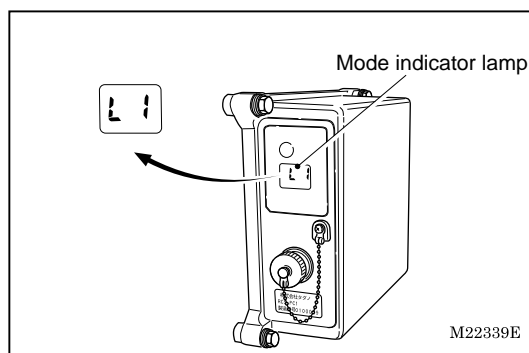


5. Press the power switch to turn on the power of the transmitter. The power LED of the transmitter lights up.

- ◆ If the power switch is pressed while other switches or the speed control lever is under operation, the switch failure detection function works to indicate the error state. (Refer to the chapter of "Safety Functions of Radio-control System"). Do not touch any other switch or lever than the power switch.

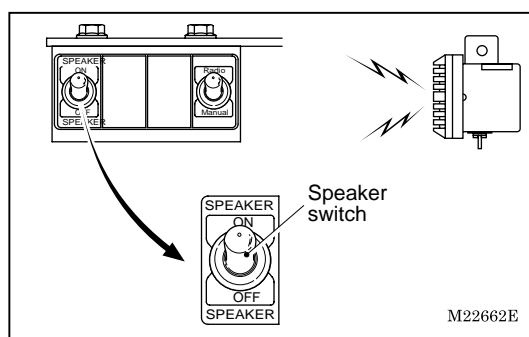


6. Confirm that the mode indicator lamp of the control unit has changed from "L0" to the radio-control mode "L1".



7. Confirm that the speaker switch is turned "ON".

- ◆ No alarm sounds if the speaker switch is "OFF".



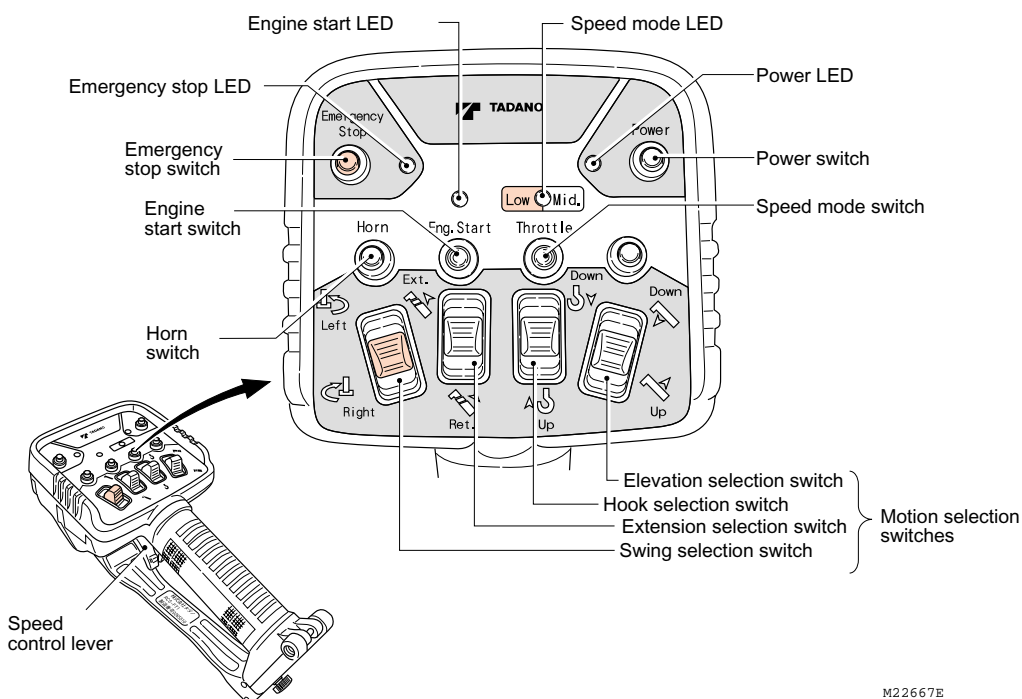
## 2. How to Operate the Radio-control



### Warning

- ⚠ Before starting the crane operation, confirm whether or not it is possible to make each motion of the crane normally by making the following operations: Extending and retracting of the boom, raising and lowering of the boom, hoisting up and down the hook, and turning of the hook.
- ⚠ It is dangerous to rapidly pull the speed control lever, causing sudden movement of the crane. Pull the lever slowly. Also, release the speed control lever slowly.
- ⚠ It is dangerous to release your finger from the motion selection switch while the speed control lever is pulled, since it causes a shock. Release your finger from the motion selection switch after letting go of the speed control lever.
- ⚠ While the radio-control operation is made, the manual operation lever moves correspondingly. Do not touch the manual operation lever.

### (1) Operation device

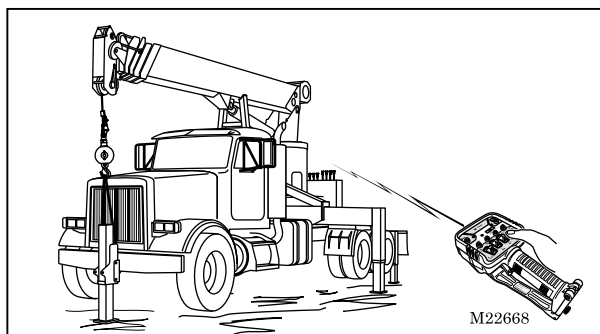


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## (2) Basic operations

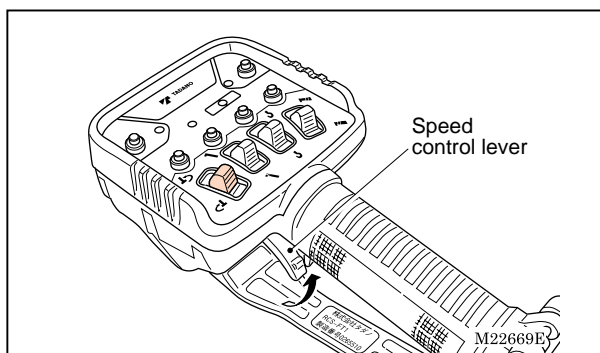
1. Operate the motion selection switch while pointing the transmitter in the direction of the crane.

- ◆ When the motion selection switch is operated, the engine speed increases slightly higher than the idling speed.

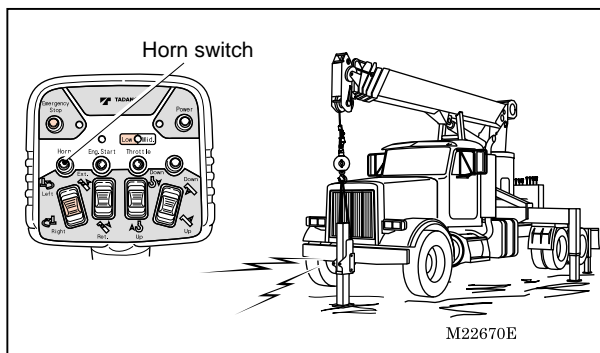


2. Pull the speed control lever slowly. Then the crane starts to move.

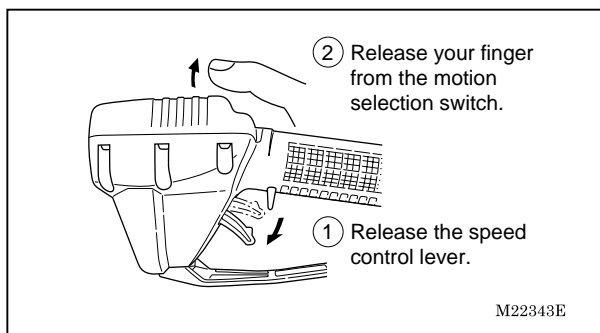
- ◆ The engine speed increases according to the amount the lever is pulled. Adjust the moving speed of the crane with the speed control lever.



3. To call the attention of the surrounding people during the operation, press the horn switch. Then the vehicle's horn beeps.



4. To stop the crane operation, release the speed control lever slowly. The operation stops when the lever is released. Then release the motion selection switch.



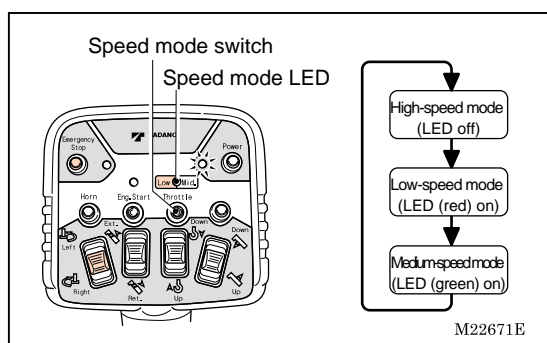
### 3. Changing Speed Mode

With the speed mode switch, operating speed of the crane can be changed to three levels: High-speed, medium-speed and low-speed. Select the high-speed mode when the crane needs to be used under normal conditions, the medium-speed mode when the crane needs to be used with medium-speed range of the engine, and low-speed mode when the crane needs to be used with low-speed (at idle up) or when noise prevention is necessary during nighttime operation and the like.

- ◆ The speed mode is memorized even after the power is turned off. Next time the power of the transmitter is turned on; the previously selected speed mode is set.

1. Press the speed mode switch while the power LED of the transmitter is turned on. Every time the switch is pressed, an indication of the speed mode LED changes in the following order and the speed mode changes accordingly.

- (1) At high-speed mode: LED off
- (2) At low-speed mode: LED on (Red)
- (3) At medium-speed mode: LED on (Green)



## 4. Engine Start-up Operation



### Warning

⚠ It is dangerous to start up the engine while the motion selection switch of the manual operation lever or transmitter is under operation, causing sudden movement of the crane. Start-up the engine after confirming that the operation levers and motion selection switches are in the neutral position.

⚠ The engine is damaged if the starting-up operation of the engine is made while the engine is rotating. Start-up the engine after confirming that the engine has stopped.

### [NOTE]

- ◆ Engine start-up operation is disabled under the emergency stop state. Release the emergency stop state before the operation.

Press the engine start switch after conforming that the engine is stopped. The engine start LED lights up while the switch is pressed and the engine starts.

- ◆ After the engine starts up, quickly release your finger from the switch.

## 5. Emergency Stop Operation

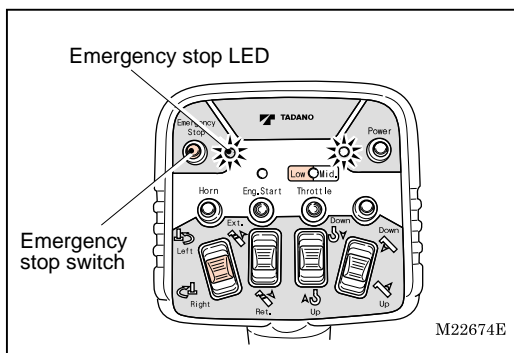
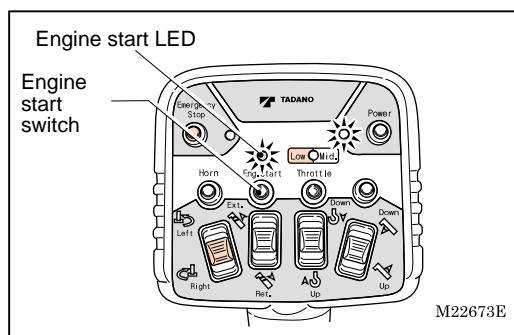
When the control cannot be made through the radio-control operation, or when the surrounding situation becomes dangerous, press the emergency stop switch. If the switch is pressed, the engine stops, which stops the crane operation.

- ◆ When the switch is pressed, the emergency stop LED and emergency stop lamp of the crane light up to indicate the emergency stop state.
- ◆ Beep alarm sounds.

### How to Release Emergency Stop

Press the switch once again. Then the emergency stop LED and emergency stop lamp of the crane turn off and the emergency stop state is released.

- ◆ Two-tone alarm sounds.
- ◆ The emergency stop state is also released when the switch of the control unit is turned off after the radio-control /manual changeover switch is turned to "Manual" position.

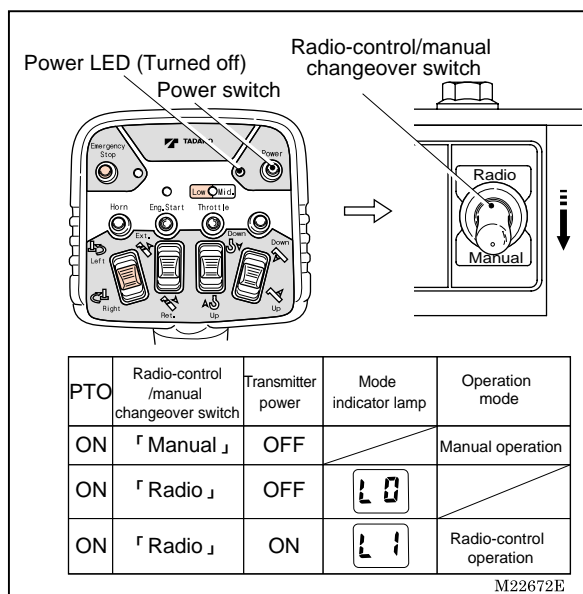




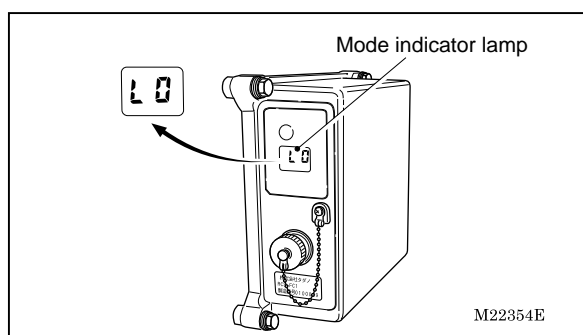
## Manual Operation

### [NOTE]

- ◆ To change from the radio-control operation to manual operation, turn off the power of the radio-control transmitter, and then turn the radio-control /manual changeover switch to the "Manual" position.



- ◆ Even after the radio-control transmitter is turned off under the condition where the radio wave is out of reach, the control unit still appears to be on, in the radio-control mode. Make sure to confirm that the mode indicator lamp of the control unit indicates "L0" after the radio-control operation is completed (or after the power of the transmitter is turned off).



# Battery Replacement for Transmitter

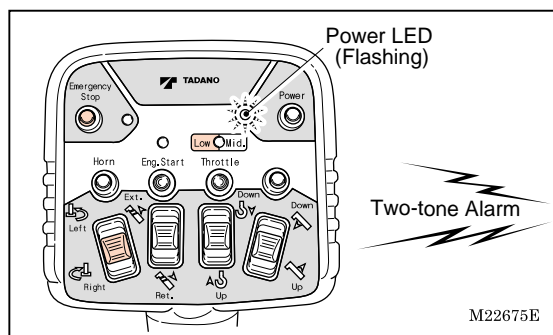
## 1. Battery Replacement Timing

Replace the batteries in the following cases.

(1) When the power LED of the transmitter flashes.

(2) When the alarm (which has a “two-tone” sound) sounds while the motion selection switch is operated.

The power LED also flashes in this case.



## 2. How to Replace Batteries

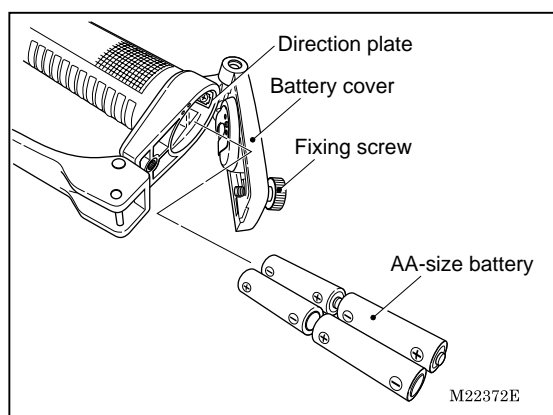
### [NOTE]

- ◆ Inserting the batteries incorrectly for plus (+) and minus (-) may cause a liquid spill, ignition, heat generation, and burst. Insert the batteries according to the direction plate.
- ◆ If the battery cover is loosely fixed, water may enter inside and cause a problem. Fasten the fixing screw securely.

1. Open the batteries cover and remove the old batteries.

2. After replacing the new batteries, close the battery cover and fasten the fixing screw.

- ◆ Use four AA-size batteries.
- ◆ Do not mix any old or different types.



# Measures for Emergency Case

## 1. When Radio-control Operation is Impossible



### Warning



Depending on the failure conditions, changing to the manual operation may not restore the normal operation.  
Check the LED indications of the transmitter or the error number on the mode indicator lamp of the control unit in order to take the correct measure for the error number.

The radio-control operation is electrically made with the radio-control system. Therefore, a part or the whole of the radio-control operation becomes impossible when the radio-control system has a problem.

If a problem of the radio-control operation is recognized, confirm the operation of the four LEDs of the transmitter and the mode indicator lamp of the control unit.

### (1) If the LED of the transmitter flashes

- If the power of the transmitter is turned on while the motion selection switch is operated, indications (2) as shown in the table are displayed.

If the power of the transmitter is turned on while the speed control lever is operated, indications (4) as shown in the table are displayed.

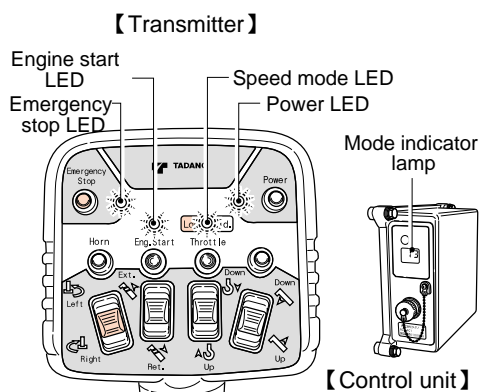
If the power of the transmitter is turned on while the motion selection switch and speed control lever are operated, indications (1) as shown in the table are displayed.

In either case, once again turn the power on.

- If the power of the transmitter is turned on while the push switch (the horn, engine start and speed mode) is operated, indications (3) as shown in the table are displayed.

After confirming the switch, once again turn the power on.

- If the motion selection switch is kept under the operation state approximately for five minutes due to a failure, trapped dirt or the like, indications (2) as shown in the table are displayed. After confirming the switch, once again turn the power on.



I/R	Emergency stop LED	Engine start LED	Speed mode LED	Power LED	Mode indicator lamp
①	●	○	○	●	13
②	●	●	○	●	
③	●	●	●	●	
④	●	○	●	●	
⑤	●	●	●	●	
⑥	●	●	●	●	
⑦	●	●	●	●	11

\*I/R: Indication priority

● : Flashing red (with short cycle)

● : Flashing red (with long cycle)

○ : Flashing orange

○ : Flashing green

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
If the normal operation is not restored or if the indications (5) – (7) as shown in the table remain to be displayed even after the above measures are taken, quickly stow the crane with the manual operation. Then have the crane and radio-control system inspected /repaired at the nearest TADANO distributor or dealer.

## (2) When the mode indicator lamp of the control unit displays an error number

The mode indicator lamp of the control unit displays indications as are shown in the figure to the right according to the operational conditions.



If the mode indicator lamp displays the indications not listed in the figure to the right, the radio-control system has a problem.



Take an appropriate measure according to the following table.

Radio control/manual changeover switch	Transmitter power	Mode indicator lamp	Operation mode
「Manual」	Control Unit Power: OFF	OFF	 Manual operation
「Radio」	Control Unit Power: ON	OFF	
	ON		Radio control operation

M22677E

- ◆ If more than two problems occur, each error number flashes in turn.
- ◆ If the normal operation is not restored even after the measures in the following table are taken, quickly stow the crane. Then, have the crane and radio-control system inspected/repaired at the nearest TADANO distributor or dealer.

Error number	Trouble and measure
13	After releasing your fingers from the switch of the transmitter and speed control lever, turn on the power of the transmitter. If the above does not restore the normal operation, the radio-control operation is impossible. Change to the manual operation and operate the crane.
30-33	<p>After the operation lever that corresponds to the error number is manually returned to the neutral position, check if the error number disappears. When the mode indicator lamp displays “L1” and when the error number does not reappear after operation is started, the operation can be continued.</p> <p>If the operation lever cannot be returned to the neutral position or if the error number does not disappear, the radio-control operation of the part that has a problem is not possible. Change to the manual operation and then operate the crane.</p> <div style="border: 1px solid black; padding: 10px; margin-top: 10px;"> <p style="text-align: center;"> <b>Warning</b></p> <p> It is dangerous to make other operations when the operation lever of the part that has a problem cannot be returned to the neutral position, since this would cause the part that has a problem to move at the same time. Do not make such operations.</p> </div>

	"30": Extension operation "32": Winching operation "31": Elevation operation "33": Swing operation
34	The auto acceleration cannot be controlled with the radio-control operation. Although the radio-control operation is possible, the operation should be made carefully when the engine is revved up. Or, change to the manual operation and then operate the crane.
45-49	The part that has a problem cannot be operated with the radio-control operation. Change to the manual operation and then operate the crane. <div style="text-align: center; margin: 10px 0;">  <b>Warning</b> </div> <div style="border: 1px solid black; padding: 10px; margin: 10px 0;">  It is dangerous to make other operations when the operation lever of the part that has a problem cannot be returned to the neutral position, since this would cause the part that has a problem to move at the same time. Do not make such operations.       </div> "45": Extension operation "47": Winching operation "46": Elevation operation "48": Swing operation "49": Accelerating operation
50-59	The part that has a problem cannot be operated with the radio-control operation. Change to the manual operation and then operate the crane. "50" "55": Extension operation "52" "57": Winching operation "51" "56": Elevation operation "53" "58": Swing operation "54" "59": Accelerating operation
60-63	First change to the manual operation. Then, after the operation lever that corresponds to the error number is manually returned to the neutral position, change to the radio-control mode and check that the error number disappears. When the mode indicator lamp displays the normal number and when the error number does not reappear after operation is made, the operation can be continued. If the operation lever cannot be moved or if the error number does not disappear, then radio-control operation is impossible. Change to the manual operation and then operate the crane. "60": Extension operation "62": Winching operation "61": Elevation operation "63": Swing operation
70-89	The radio-control operation is impossible. Change to the manual operation and then operate the crane.

## 2. If the Radio-control is not Possible



### Warning



This is a measure to stow the crane in an emergency case. Do not make any crane operation.

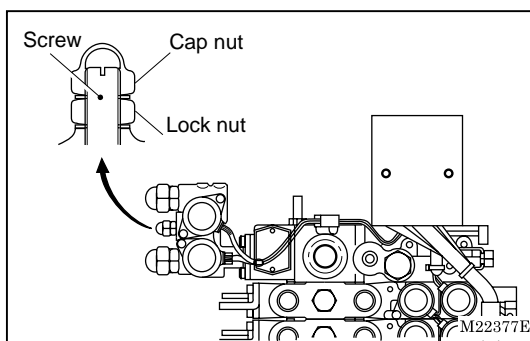
1. The unloading solenoid of the radio-control valve should be fastened so that the crane can be manually stowed.

(1) Remove the cap nut.

(2) Loosen the lock nut and lightly tighten the screw inside until it cannot be turned any longer.

◆ Fastening the screw too tight may cause operation failures. Make sure to lightly tighten the screw.

2. After manually stowing the crane, have the crane and radio-control system inspected/repared at the nearest TADANO distributor or dealer.



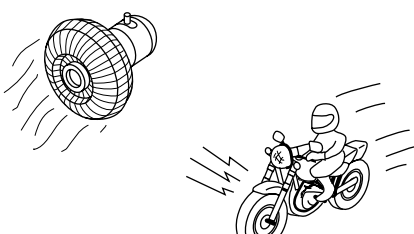
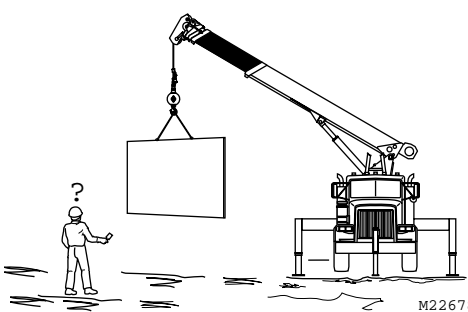
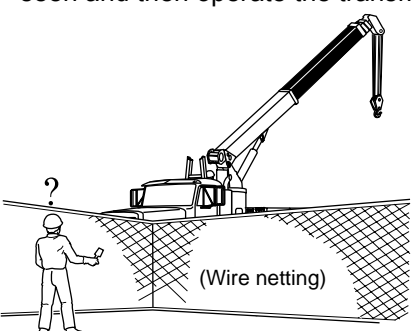
## Troubleshooting Guide

First check the following when a problem occurs during the radio-control operation.

Trouble	Checkpoints	Measures
Power LED does not light up.	<ul style="list-style-type: none"> <li>• Are batteries inserted?</li> <li>• Are batteries inserted in the correct manner?</li> <li>• Are batteries exhausted?</li> </ul>	<ul style="list-style-type: none"> <li>• Insert batteries.</li> <li>• Insert batteries in the correct manner.</li> <li>• Replace batteries.</li> </ul>
Power LED flashes.	<ul style="list-style-type: none"> <li>• Are batteries exhausted?</li> </ul>	<ul style="list-style-type: none"> <li>• Replace batteries</li> </ul>
After the power is turned on, four LEDs flash.	<ul style="list-style-type: none"> <li>• Was the power turned on while the switch on the transmitter was operated?</li> <li>• Was the power turned on while the speed control lever was pulled?</li> </ul>	<ul style="list-style-type: none"> <li>• After releasing your finger from the switch, turn on the power.</li> <li>• After releasing your finger from the speed control lever, turn on the power.</li> </ul>
The power of the transmitter spontaneously turned off.	<ul style="list-style-type: none"> <li>• When no operation is made for approximately one hour, the power of the transmitter is automatically turned off to save battery consumption.</li> </ul>	<ul style="list-style-type: none"> <li>• Turn on the power again.</li> </ul>
The power is turned off during the radio-control operation.	<ul style="list-style-type: none"> <li>• When the motion selection switch is under operational state continuously for approximately five minutes, transmission from the transmitter is automatically cut off to prevent accidents.</li> </ul>	<ul style="list-style-type: none"> <li>• After confirming that the motion selection switches are returned to the neutral positions, turn on the power again.</li> </ul>
The accelerator cannot be revved up.	<ul style="list-style-type: none"> <li>• Is the low-speed mode (with the speed mode LED lighting in red) selected?</li> </ul>	<ul style="list-style-type: none"> <li>• Change to the medium-speed or high-speed mode.</li> </ul>
Batteries are exhausted in a short time	<ul style="list-style-type: none"> <li>• Battery longevity is shortened under the conditions with extremely cold temperatures.</li> </ul>	<ul style="list-style-type: none"> <li>• Replace batteries.</li> </ul>
The crane stops with two-tone sound.	<ul style="list-style-type: none"> <li>• Are cables of the reception unit or control unit loose?</li> <li>• Is the crane used in the situation as shown on the next page?</li> </ul>	<ul style="list-style-type: none"> <li>• Connect the cable properly.</li> <li>• Refer to the next page.</li> </ul>

Radio wave transmission is hindered under the following conditions, which may stop the crane operation. Take an appropriate measure according to the operational condition.

- ◆ If the appropriate measure does not improve the situation, use the manual operation.

Operation example	Appropriate measure
<p>Distance between the transmitter and reception unit is too far.</p>	<ul style="list-style-type: none"> <li>Too large a distance between the transmitter and reception unit may not only hinder the radio wave transmission but also increase noise influences. Normally, make the operations within the operating radius of the crane.</li> </ul>
<p>Operation is made near the noise-generating source.</p>  <p style="text-align: right;">M00247</p>	<ul style="list-style-type: none"> <li>When a noise generating device such as a revolving light, electric fan or vehicle's air conditioner is used nearby, the radio-control operation is influenced by the source.</li> </ul> <p>Turn off the noise-generating device when it is possible to refrain from using it. Since a motorcycle also generates a noise, pay attention to motorcycles passing through.</p>
<p>Operation is made in a place with an intensive radio wave interference causing noise to the radios and to television screens.</p>	<ul style="list-style-type: none"> <li>Approach the transmitter to the reception unit and operate the transmitter.</li> </ul>
<p>A large metal cargo is lifted with the crane. Or, there are obstacles between the transmitter and reception unit such as wire netting or metal doors.</p>  <p style="text-align: right;">M22678</p>	<ul style="list-style-type: none"> <li>Metal products between the transmitter and reception unit hinder the radio wave transmission. Move yourself to the location where the reception unit can be seen and then operate the transmitter.</li> </ul>  <p style="text-align: right;">M22652E</p>

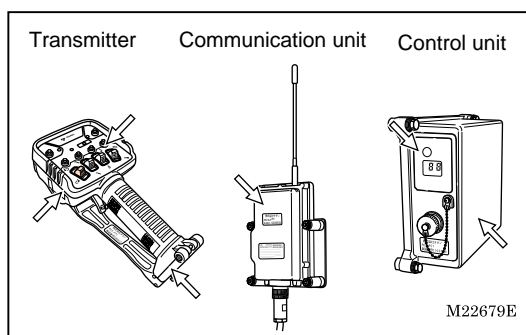


## Daily Inspection

Inspect the radio-control system at the time of the pre-operational inspection of the main unit of the crane.

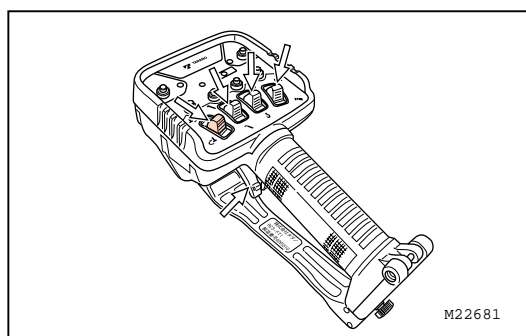
- (1) **Is the case of the transmitter or control unit damaged? Do switches or rubber parts of the transmitter have any crack or flaw?**

Any damage on the case or any crack or flaw on the rubber parts may allow water or dust to enter inside, causing electronic circuit problems or malfunction of the crane.



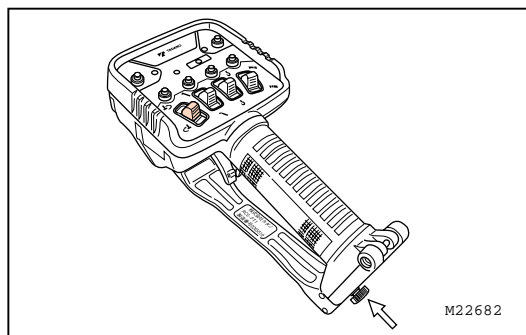
- (2) **Do the motion selection switches and speed control lever move smoothly?**

Adhered dust or dirt may give unfavorable impact on operations of the motion selection switches or speed control lever, causing operation failures or malfunctions of the crane.



- (3) **Is the fixing screw of the transmitter's battery cover securely tightened?**

A loose fixing screw of the transmitter's battery cover may allow water or dust to enter inside, causing electronic circuit problems or malfunction of the crane.

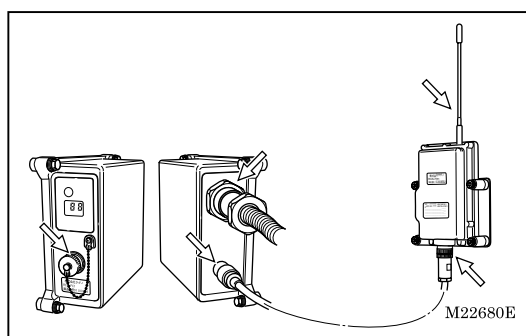


- (4) **Is the cable between the control unit and communication unit loose or damaged?**

**Is the antenna of the communication unit damaged or loose?**

If the connector of the cable or antenna is loose, a radio wave reaching distance may be reduced or the radio-control system may be subject to noises.

In addition, if the cable or antenna is damaged, the radio-control system may be subject to noises.



# MEMO

# TADANO LTD.

Head Office

Ko-34, Sindén-cho, Takamatsu, Japan

Overseas Service Dept.

Tadano Ryogoku Bldg.  
4-12, Kamezawa 2-chome,  
Sumida-ku,  
Tokyo, Japan  
Tel. 81-3-3621-7765  
Tel fax 81-3-3621-7785

# TADANO AMERICA CORP.

333 Northpark Central Drive, SuiteZ,  
Houston Texas, 77073 U.S.A.  
Tel. 1-281-869-0030  
Fax 1-281-869-0040

History of Revision		
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