

OPERATION MANUAL

CRAWLER CRANE CC1908S-1

Serial No. 9003 and up

WARNING

Unsafe use of this machine may cause serious injury or death. Operators must read this manual before operating this machine. This manual should be kept near the machine for reference and periodically reviewed by all personnel who will come into contact with it.

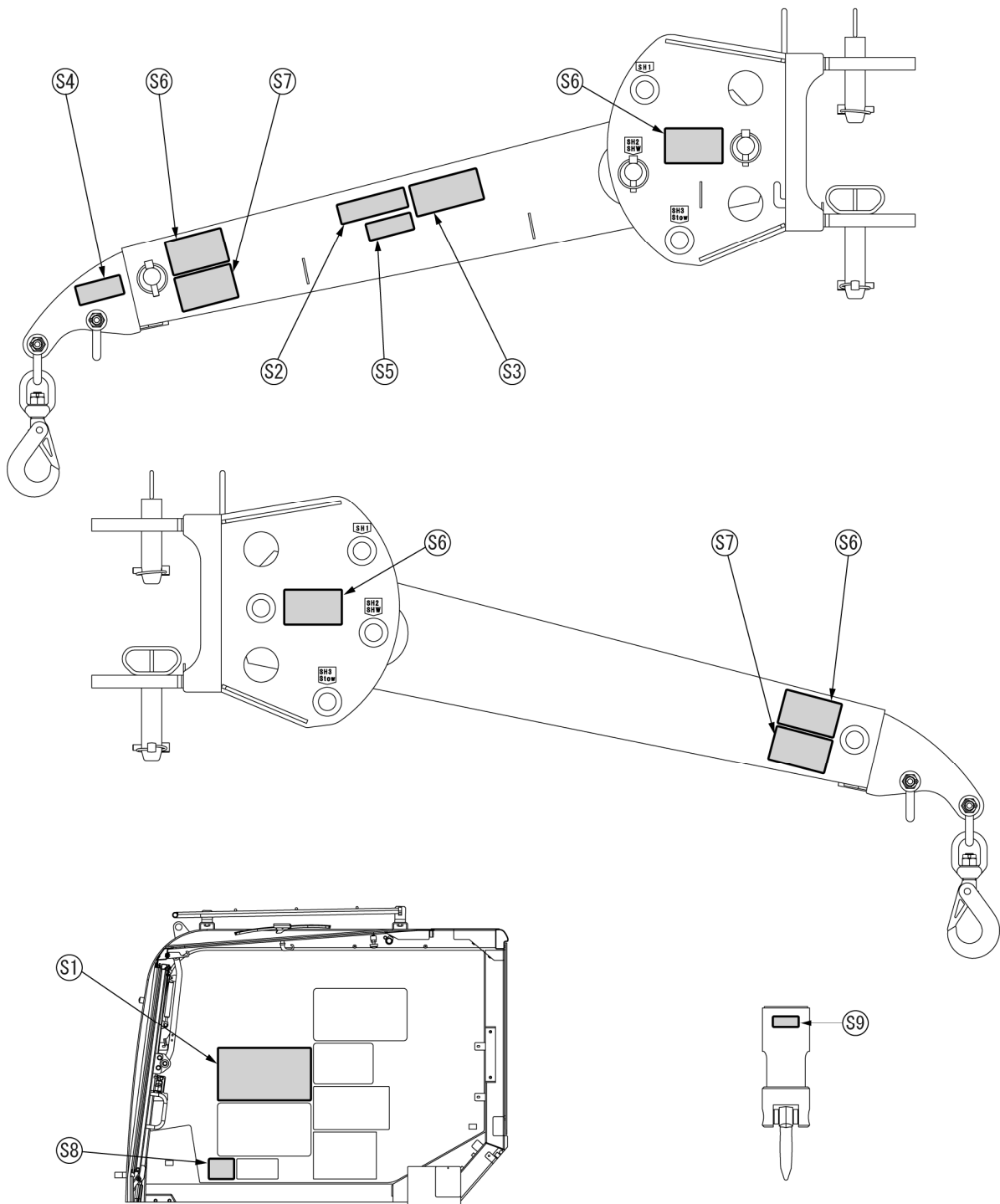
NOTICE

MAEDA has Operation Manuals written in some other languages. If a foreign language manual is necessary, contact your local distributor for availability.

MAEDA

Add.

[SEARCHER HOOK LABEL LOCATIONS]



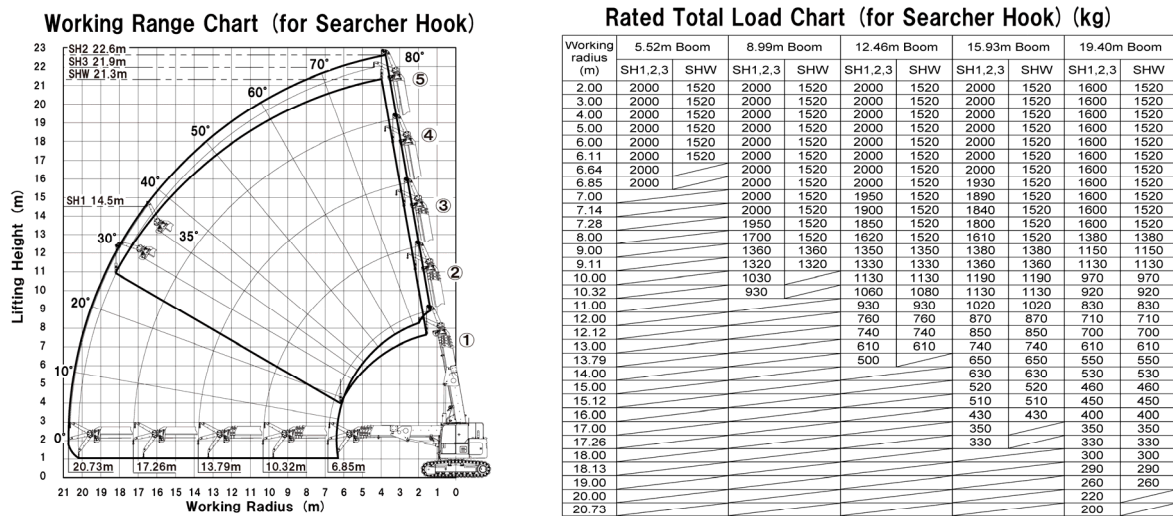
SAM25510E

2.2 SAFETY LABEL LOCATIONS

MAEDA Crawler Crane

Add.

[S1] 520-2276200
Working range / Rated total load chart
for Searcher hook (Option)



⚠ DANGER

TIPPING HAZARD

- When using the Searcher Hook, the Moment Limiter 'Number of falls' setting must be set to Searcher Hook mode, and select Searcher Hook offset position.
- When using the Searcher Hook Winch, the Moment Limiter 'Number of falls' setting must be set to Searcher Hook Winch mode.
- Before start working, always make sure the Moment Limiter is correctly set to the actual working condition.

Notes:

- This Rated Total Load Chart shows maximum allowable capacities. These rated total loads are based on the machine standing level on a firm ground support surface, under ideal job conditions and a freely suspended load, raising, wind or adverse conditions. Crane users must reduce Rated Total Loads ratings to take all conditions into account.
- The load radius shown in the Rated Total Load Chart is based on practical load radius including boom deflection due to loading. The Crane user must calculate and compensate for boom deflection as the load is lifted.
- Deductions from Searcher Hook Rated Total Load must be made for the weight of the fixed hook (3kg), the ball hook (20kg), and all rigging.
- Crane users must consult the Operators Manual for complete details about assembly, operation, maintenance, configuration, and its limitations. Modifications to the crane, other than what is specified or supplied by the original equipment manufacturer, can result in a reduction of rated total load ratings.
- The Working Range Chart does not include boom deflection.
- The moment limiter, sometimes, may display a bigger actual load value than the total lifted load, due to rounding up of the display.
- RESTRICTED AREA:** At high boom angles, the E-Boom (arm) and the hook may interfere with each other.
- To avoid this interference: In SH1 position, do not operate above 35 degree boom angle. In SHW position, do not operate below 30 degree boom angle.
- Normal Searcher Hook lifting operation is between 0 to 80 degree boom angle.
- You can extend/retract boom with a load.
- Do not use the Searcher Hook and the Hook Block/Ball simultaneously to hoist load.

520-2276200

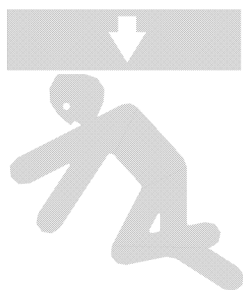
[S2] 520-4856300 Max capacity (Option)

SEARCHER HOOK
MAX. CAPACITY
2000 kg

Use MAEDA Genuine Shackle
(Using Load: 2.0t or more)

520-4856300

[S3] 520-4856400 Crush hazard (Option)



⚠ DANGER

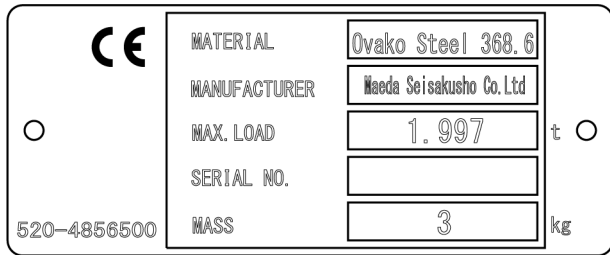
Crush Hazard
Failure to secure the E-boom (arm) properly will result in the E-boom falling, causing damage or injury.

When the E-boom is in stored and lifting positions, ALWAYS install the 2 position pins and 2 lynch pins properly.

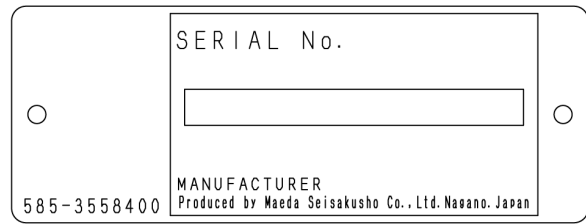
520-4856400

Add.

[S4] 520-4856500 Hook CE plate (Option)



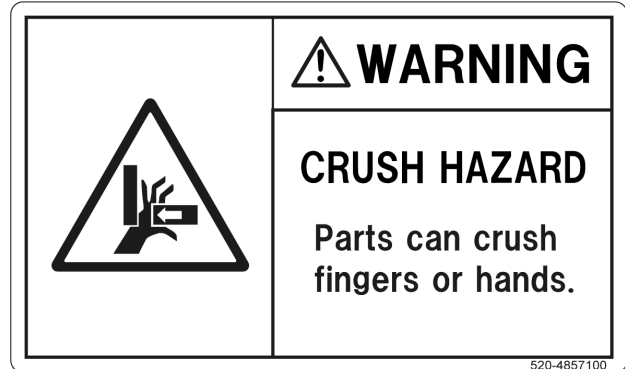
[S5] 585-3558400 Serial plate (Option)



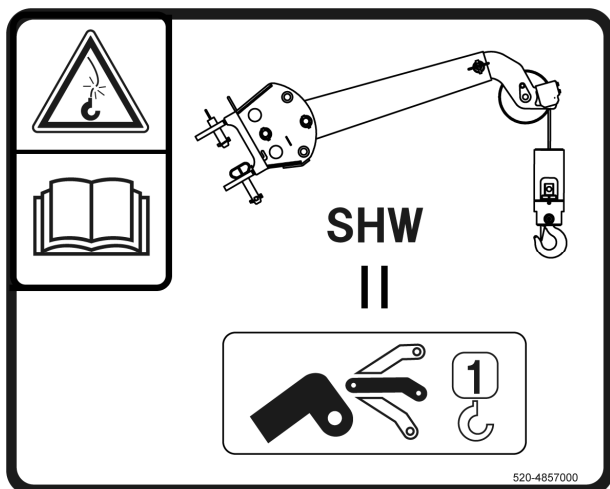
[S6] 103-4589600 Pin hole (Option)



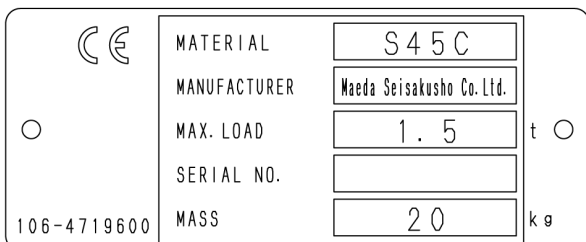
[S7] 520-4857100 sandwich the hand (Option)



[S8] 520-4857000 Searcher hook winch



[S9] 106-4719600 Hook CE plate (Option)



3.1.2 WITH FLY JIB MOUNTED

Equipment / Item		Fly jib
Weight and dimensions	Main body weight	+ 500 kg
	Overall length × width × height	7,480 mm × 2,490 mm × 3,015 mm

3.1.3 WITH BLADE MOUNTED

Equipment / Item		Blade
Weight and dimensions	Main body weight	+ 950 kg
	Overall length × width × height	7,380 mm × 2,490 mm × 3,015 mm

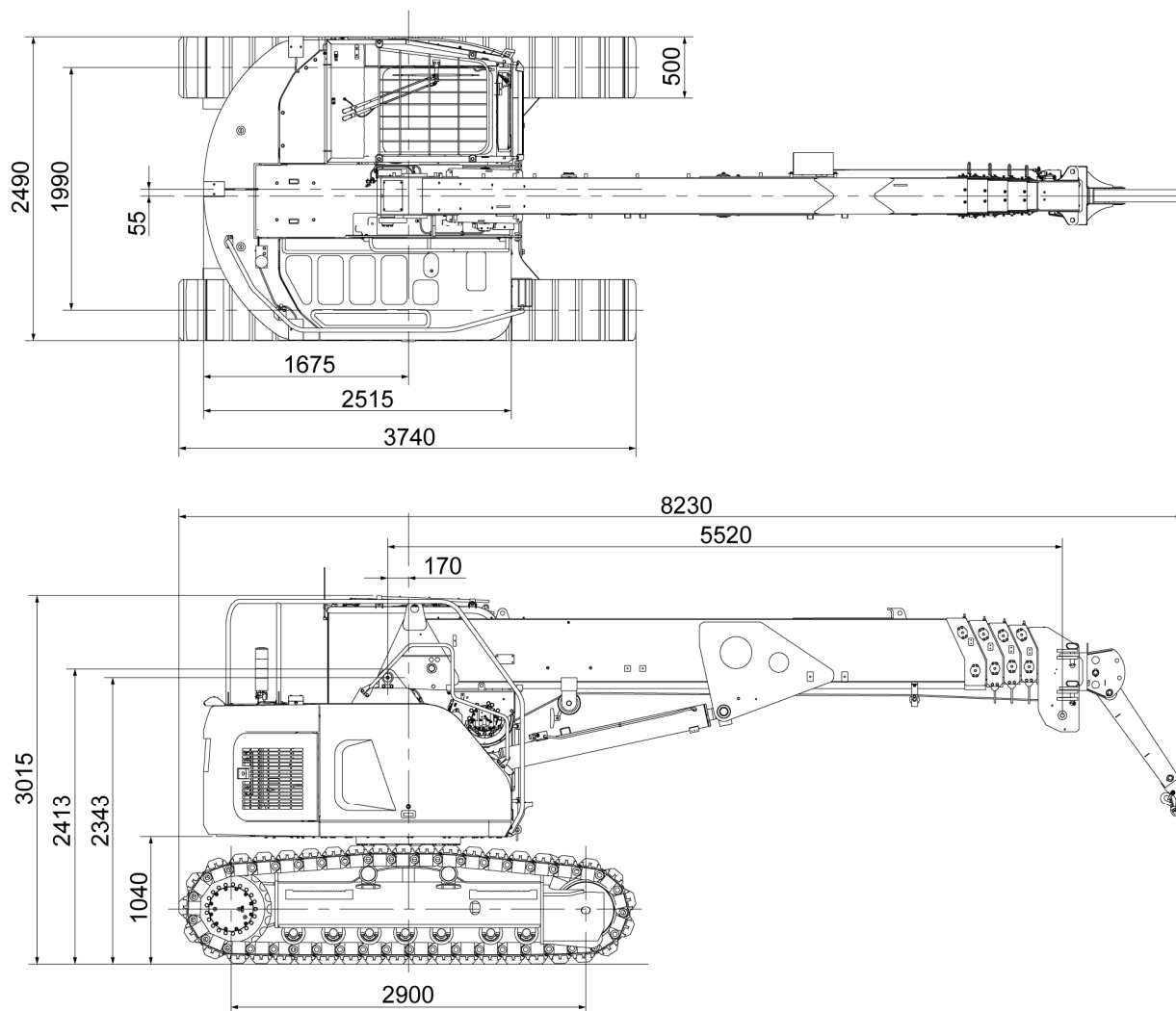
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3.1.4 WITH SEARCHER HOOK MOUNTED

Equipment / Item		Searcher hook
Weight and dimensions	Main body weight	+ 70 kg
	Overall length × width × height	8,230 mm × 2,490 mm × 3,015 mm
Performance	Maximum rated total load × working radius	2.0 t × 7.14 m (Searcher Hook) 1.52 t × 8.0 m (Winch)
	Maximum working radius	20.73 m
	Maximum lifting height above ground	22.6 m

Add.

3.2.4 WITH SEARCHER HOOK MOUNTED



SAM25520

Add.

3.3.4.6 SEARCHER HOOK RATED TOTAL LOAD CHARTS

⚠ DANGER

- When using the Searcher Hook, the Moment Limiter "Number of falls" setting must be set to Searcher Hook mode, and select Searcher Hook offset position.
- When using the Searcher Hook Winch, the Moment Limiter "Number of falls" setting must be set to Searcher Hook Winch mode.
- Before start working, always make sure the Moment Limiter is correctly set to the actual working condition.

⚠ WARNING

- The rated total load is based on the level and hard ground.
- The fly jib operation is only allowed in stationary position.
- When the boom length in use exceeds the boom lengths shown in the Rated Total Load Chart, always operate in accordance with the capacities shown for the next higher boom length.
- Deductions from Rated Total Loads must be made for the weight of : hook block(standard : 20kg), ball/hook, slings, rigging or other suspended gear.

1. This Rated Total Load Chart shows maximum allowable capacities. These rated total loads are based on the machine standing level on a firm ground support surface, under ideal job conditions and a freely suspended load.
2. Sufficient design tolerance must be used to ensure adequate ground support surface design. The rated total loads are for static conditions only, and do not include dynamic effects of swing, extending, retracting, lowering, raising, wind or adverse conditions. Crane users must reduce Rated Total Loads ratings to take all conditions into account.
3. The load radius shown in the Rated Total Load Chart is based on practical load radius including boom deflection due to loading. The Crane user must calculate and compensate for boom deflection as the load is lifted.
4. Deductions from Searcher Hook Rated Total Load must be made for the weight of the fixed hook(3kg), the ball hook(20kg), and all rigging.
5. Crane users must consult the Operators Manual for complete details about assembly, operation, maintenance, configuration, and its limitations. Modifications to the crane, other than what is specified or supplied by the original equipment manufacture, can result in a reduction of rated total load ratings.
6. The Working Range Chart dose not include boom deflection.
7. The moment limiter, sometimes, may display a bigger actual load value than the total lifted load, due to rounding up of the display.
8. RESTRICTED AREA : At high boom angles, the E-Boom (arm) and the hook may interfere with each other. To avoid this interference : In SH1 position, do not operate above 35 degree boom angle. In SHW positiom, do not operate below 30 degree boom angle.
9. Normal Searcher Hook lifting operation is between 0 to 80 degree boom angle.
10. You can extend/retract boom with a load.
11. Do not use the Searcher Hook and the Hook Block/Ball simultaneously to hoist load.

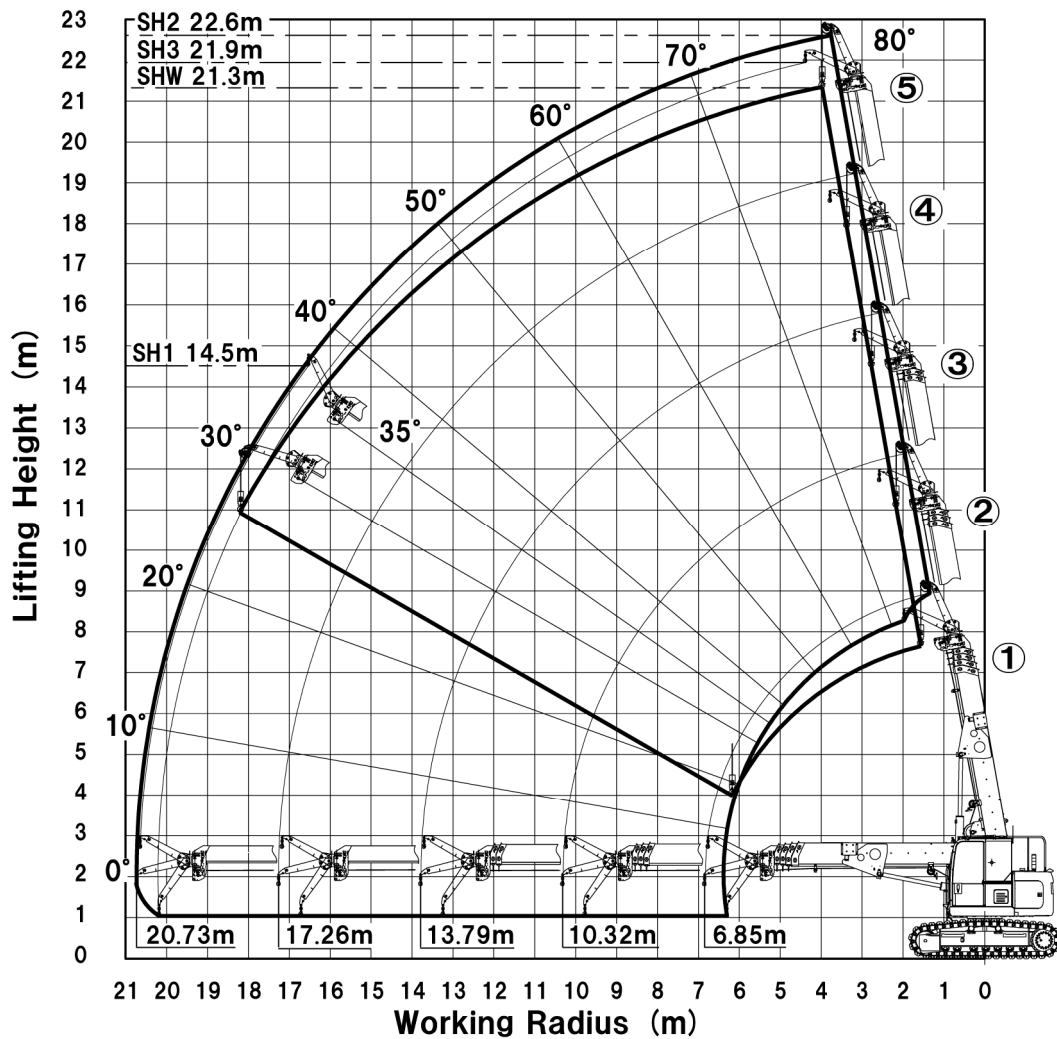
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Units : kg

Working radius (m)	5.52m Boom		8.99m Boom		12.46m Boom		15.93m Boom		19.40m Boom	
	SH1,2,3	SHW	SH1,2,3	SHW	SH1,2,3	SHW	SH1,2,3	SHW	SH1,2,3	SHW
2.00	2000	1520	2000	1520	2000	1520	2000	1520	1600	1520
3.00	2000	1520	2000	1520	2000	1520	2000	1520	1600	1520
4.00	2000	1520	2000	1520	2000	1520	2000	1520	1600	1520
5.00	2000	1520	2000	1520	2000	1520	2000	1520	1600	1520
6.00	2000	1520	2000	1520	2000	1520	2000	1520	1600	1520
6.11	2000	1520	2000	1520	2000	1520	2000	1520	1600	1520
6.64	2000		2000	1520	2000	1520	2000	1520	1600	1520
6.85	2000		2000	1520	2000	1520	1930	1520	1600	1520
7.00			2000	1520	1950	1520	1890	1520	1600	1520
7.14			2000	1520	1900	1520	1840	1520	1600	1520
7.28			1950	1520	1850	1520	1800	1520	1600	1520
8.00			1700	1520	1620	1520	1610	1520	1380	1380
9.00			1360	1360	1350	1350	1380	1380	1150	1150
9.11			1320	1320	1330	1330	1360	1360	1130	1130
10.00			1030		1130	1130	1190	1190	970	970
10.32			930		1060	1080	1130	1130	920	920
11.00					930	930	1020	1020	830	830
12.00					760	760	870	870	710	710
12.12					740	740	850	850	700	700
13.00					610	610	740	740	610	610
13.79					500		650	650	550	550
14.00							630	630	530	530
15.00							520	520	460	460
15.12							510	510	450	450
16.00							430	430	400	400
17.00							350		350	350
17.26							330		330	330
18.00									300	300
18.13									290	290
19.00									260	260
20.00									220	
20.73									200	

Add.

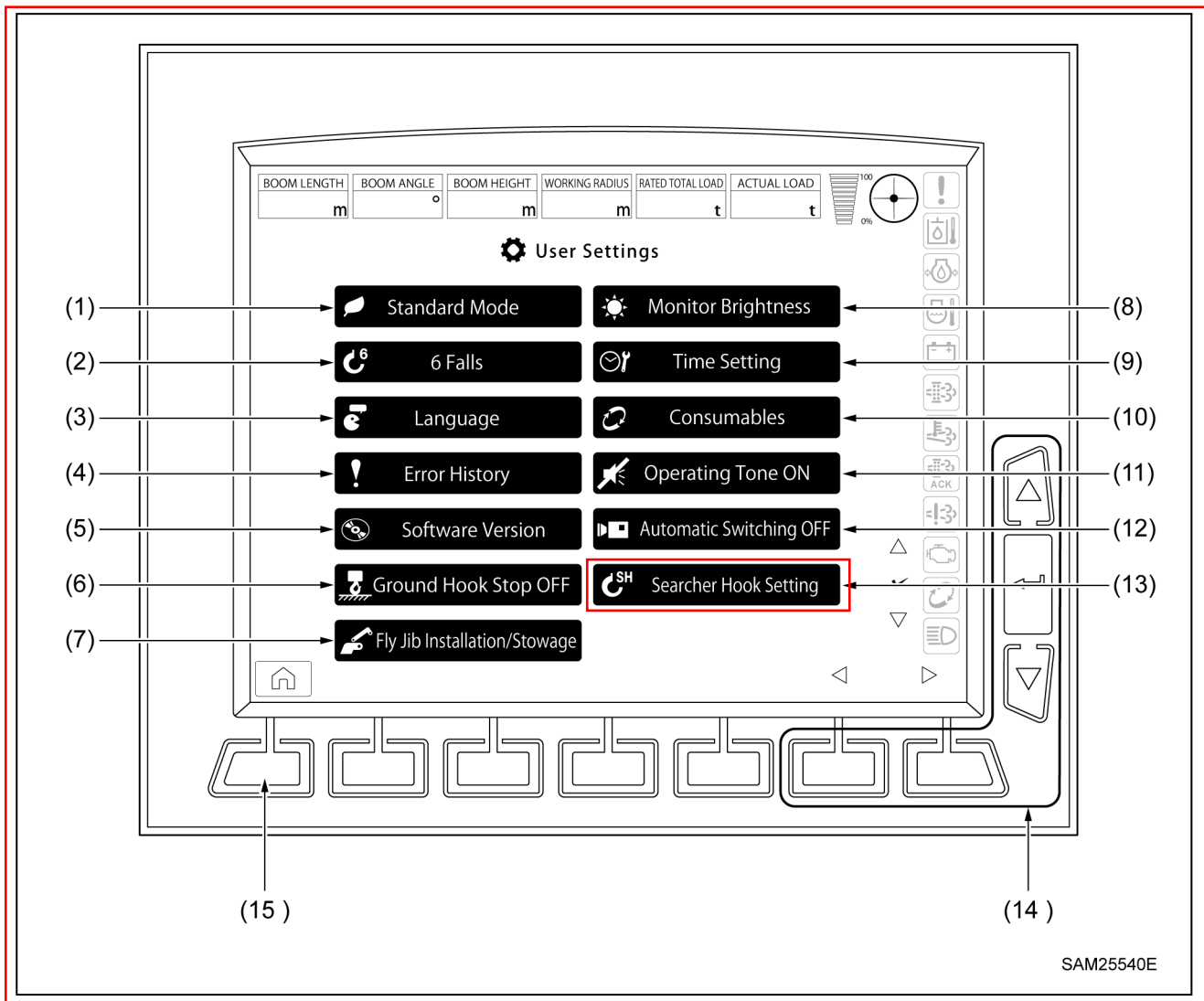
3.4.2.3 SEARCHER HOOK WORKING RADIUS/LIFTING HEIGHT DIAGRAM



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4.2.3 USER SETTINGS SCREEN

The User Settings screen is displayed by pressing the user setting switch on the home screen.

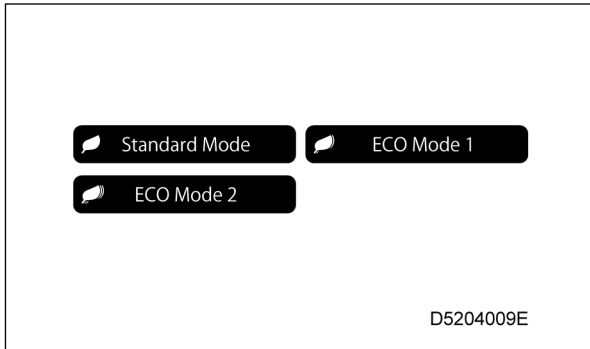


- | | | |
|--|--|------|
| (1) ECO setting selection | (8) Monitor brightness adjustment | |
| (2) Number of falls selection | (9) Time setting | |
| (3) Language selection | (10) Consumables display | |
| (4) Error history display | (11) Switch operation tone on/off selection | |
| (5) Software version | (12) Multi-assist view automatic switching on/off | |
| (6) Hook grounding stop on/off selection | (13) Searcher Hook Setting
(Only when searcher hook is mounted) | Add. |
| (7) Fly jib installation/stowage (Only with fly jib mounted) | (14) Pop-up selector switches (User Settings screen) | |
| | (15) Home switch | |

☞ Each setting item can be selected by tapping or by using the pop-up selector switches.

[1] ECO setting

Tap to display the ECO setting selection screen, then tap or use the pop-up selector switches to switch the ECO mode setting.

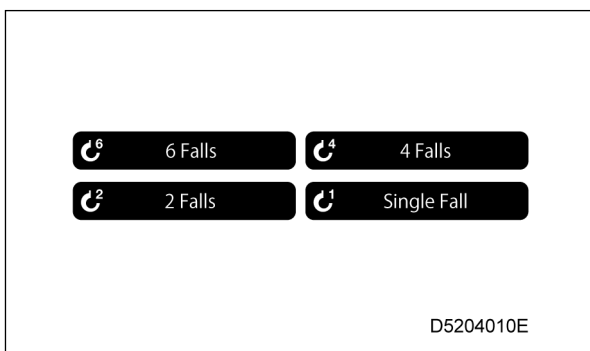


- Standard Mode: Normal mode with no restrictions.
- ECO Mode 1: Restricts the pump flow rate.
- ECO Mode 2: Restricts the engine speed upper limit to the preset level.

[2] Number of falls selection**⚠ WARNING**

Be sure to match the displayed number with the actual hook fall number. Setting the incorrect number of falls may result in a serious accident.

Tap to display the number of falls selection screen, then tap or use the pop-up selector switches to select the number of falls.



- 6 Falls
- 4 Falls
- 2 Falls
- Single Fall

When the number of falls is changed, the number on the hook part of the moment limiter changes, and the rated total load also changes.

☞ The setting will be fixed at "Single Fall Fixed" when the fly jib is mounted, and this cannot be changed even when the buttons on the User Settings screen are tapped.

☞ The setting will be fixed to "Searcher Hook" or "Single Fall Fixed" when the searcher hook is mounted, and this cannot be changed even when the buttons on the User Settings screen are tapped.

Add.

[3] Language selection

Tap to display the language selection screen, then tap or use the pop-up selector switches to select the required display language.

**[4] Error history display**

Tap to display the error history screen and to view currently occurring errors as well as errors that have occurred in the past.

Error History					page.1/5
Code	Error Detail	Occurrence	Initial	Latest	
EC50	Slope angle sensor communication error	27times	0002h	0007h	
EI07A	Right Travel Lever start position error	5times	0002h	0007h	
EI08A	Left Travel Lever start position error	5times	0002h	0007h	
ES12	Acceleration pedal start position error	4times	0002h	0007h	
EI07B	Right Travel Lever input error	16times	0002h	0007h	
EI08B	Left Travel Lever input error	13times	0002h	0007h	
ES12L	Acceleration pedal Lo input error	21times	0002h	0007h	
ES12H	Acceleration pedal Hi input error	4times	0002h	0007h	
ES06	P1 pressure sensor input error	5times	0002h	0007h	
ES07	P2 pressure sensor input error	5times	0002h	0007h	
ES02	Pressure sensor ① input error	9times	0002h	0007h	
ES03	Pressure sensor ② input error	10times	0002h	0007h	
ES13	Fuel sensor input error	33times	0002h	0007h	
EI01A	Right joystick front-rear start position error	5times	0002h	0007h	
EI01B	Right joystick left-right start position error	5times	0002h	0007h	

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For details on the display, refer to "6.21.3 MONITOR ERROR CODES" on P.6-115.

[5] Software version

Tap to display the software version screen for checking the version of the display and controller software.

Add.

[13] Searcher Hook Setting**⚠ WARNING**

With or without searcher hook setting must be matched to the actual condition. The wrong settings can cause a serious accident.

By touching these buttons With/Without Searcher Hook and Winch ON/OFF can be switched.

**[With/Without Searcher Hook]**

Touch to switch between With or Without Searcher Hook.

- With Searcher Hook:
Select this when searcher hook is mounted.
This switches to searcher hook mode.
 - Without Searcher Hook:
Select this when searcher hook is not mounted.
- ☞ Switch this when mounting or removing the searcher hook. When the setting is changed, the moment limiter display will change and the rated total load will change.

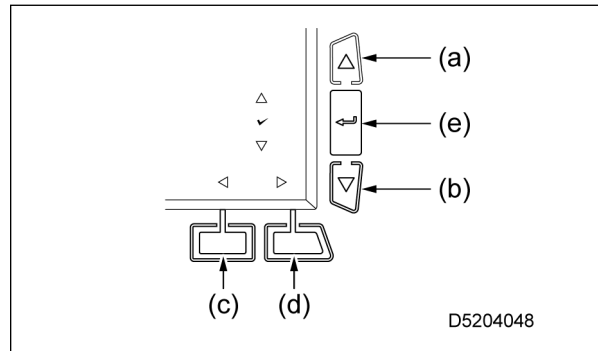
[Winch ON/OFF]

Touch to switch the Winch ON or OFF.

- OFF :Winch does not work even when winch is operated.
 - ON : The winch works as usual.
- ☞ This is not available when the main hook is used or without the searcher hook attached.

**[14] Pop-up selector switches
(User Settings screen)**

Press to operate the pop-up functions.



- (a) Up
- (b) Down
- (c) Left
- (d) Right
- (e) Select/enter

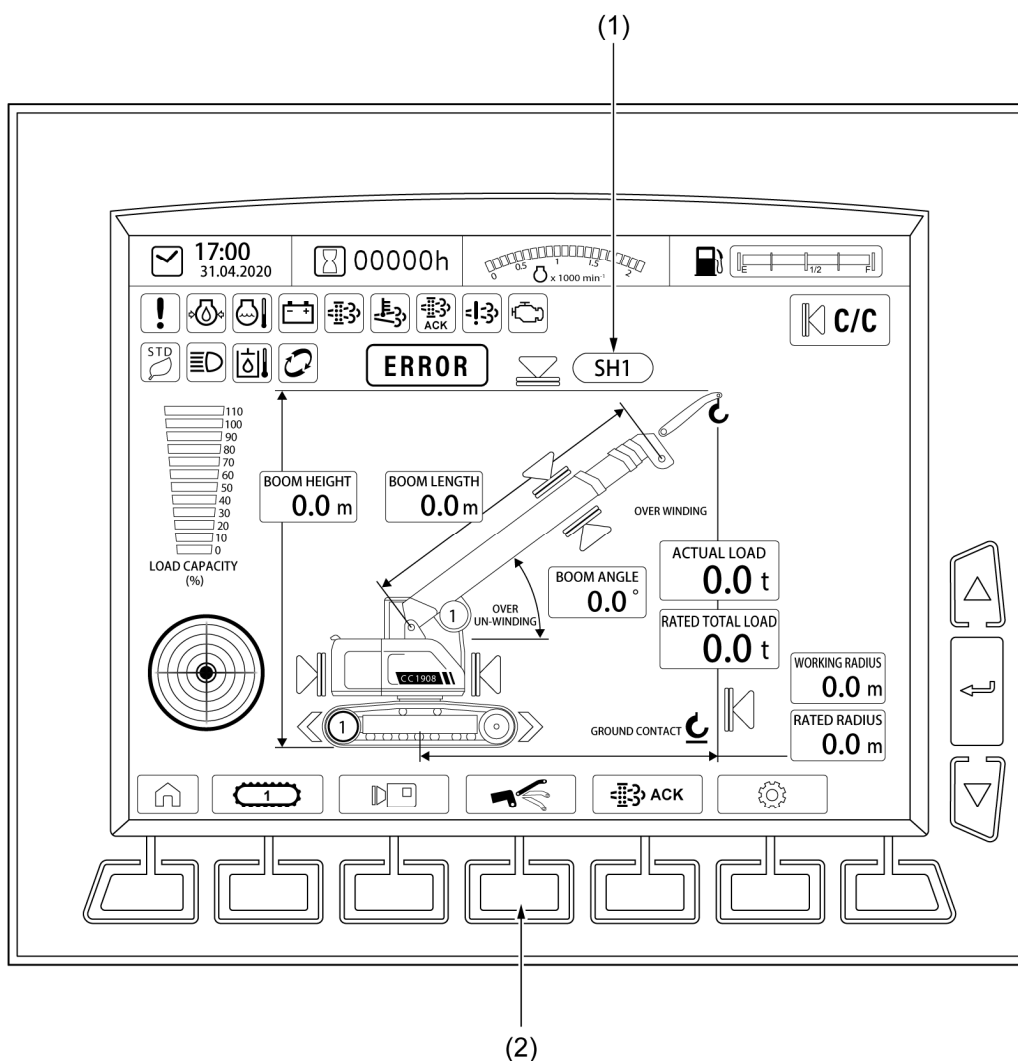
[15] Home switch

Press to return to the previous screen.

Press and hold to return to the home screen.

Add.

4.2.6 SEARCHER HOOK MODE SCREEN



SAM25550E

(1) Searcher hook position display

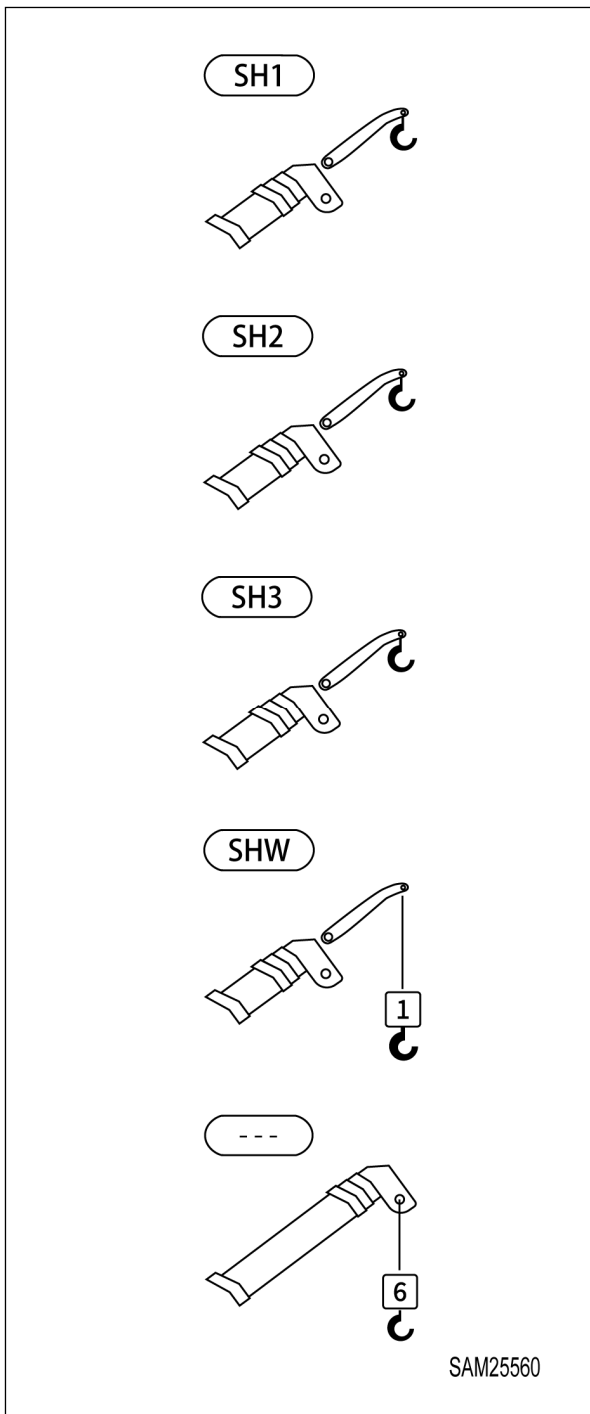
(2) Searcher hook position switch

☞ Only the items that change when in Searcher Hook mode are explained. For other items, refer to "4.2.2 HOME SCREEN" on page 4-5.

Add.

[1] Searcher Hook Position Display

Displays the position of the currently set searcher hook.

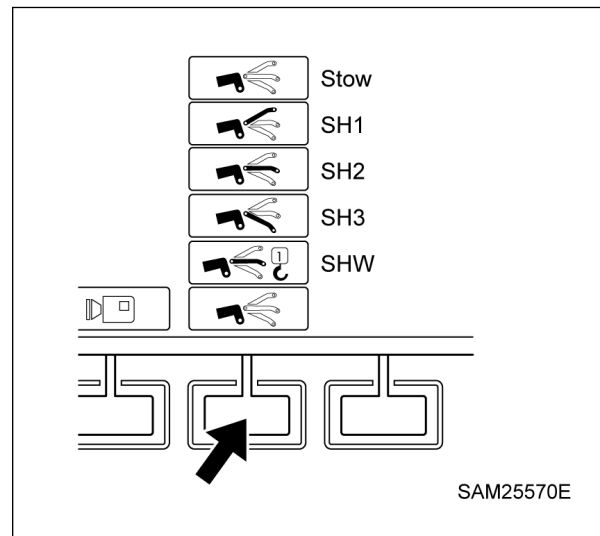


☞ In the searcher hook mode, the position display remains even if the searcher hook is stowed and changed to crane operation with the main hook.

In this condition, the weight of the searcher hook will be added to the actual load.

[2] Searcher Hook Position Switch

Use this to switch the searcher hook position.



The switchover is as follows in order from the top.

- Stow : Stow searcher hook
- SH1 : SH1 position
- SH2 : SH2 position
- SH3 : SH3 position
- SHW : Searcher hook winch

☞ Switching cannot be performed until the crane operation is stopped.

Add.

4.3.6 MOMENT LIMITER FUNCTION WHEN USING SEARCHER HOOK

⚠ DANGER

When using the searcher hook, you may not be able to work in all the working range.

The following crane operations are prohibited in the prohibited operating area, not limited to overload conditions

[When Searcher Hook Winch SHW is used]

- Boom lowering operation
- Hook raising operation

[Searcher hook position SH1]

- Boom raising operation

[Searcher hook position SH2 and SH3]

- No prohibited work

- When the searcher hook position is SH1, the prohibited operations in the prohibited operation area do not change under any conditions.

IMPORTANT

If you set to "With Searcher Hook" on the User Settings screen, it will be in Searcher Hook mode and the moment limiter and machine will be in the following state of operation.

- The value of the rated total load displayed on the monitor is switched to the value for the searcher hook.
- The number of falls is fixed to the "Searcher Hook" or "Single Fall Fixed".
- When using the searcher hook, the prohibited operation area is the range where the value is not stated in the rated total load table. Check the working radius/range chart before starting work.
- When using the Searcher Hook Winch SHW, various kind of crane operation can be performed even in the prohibited operation area if all of the following conditions are met.
 - Boom fully retracted
 - Actual load less than 0.25t
- When the searcher hook position is SH1, the prohibited operation in the prohibited operation area does not change under any conditions.

Add.

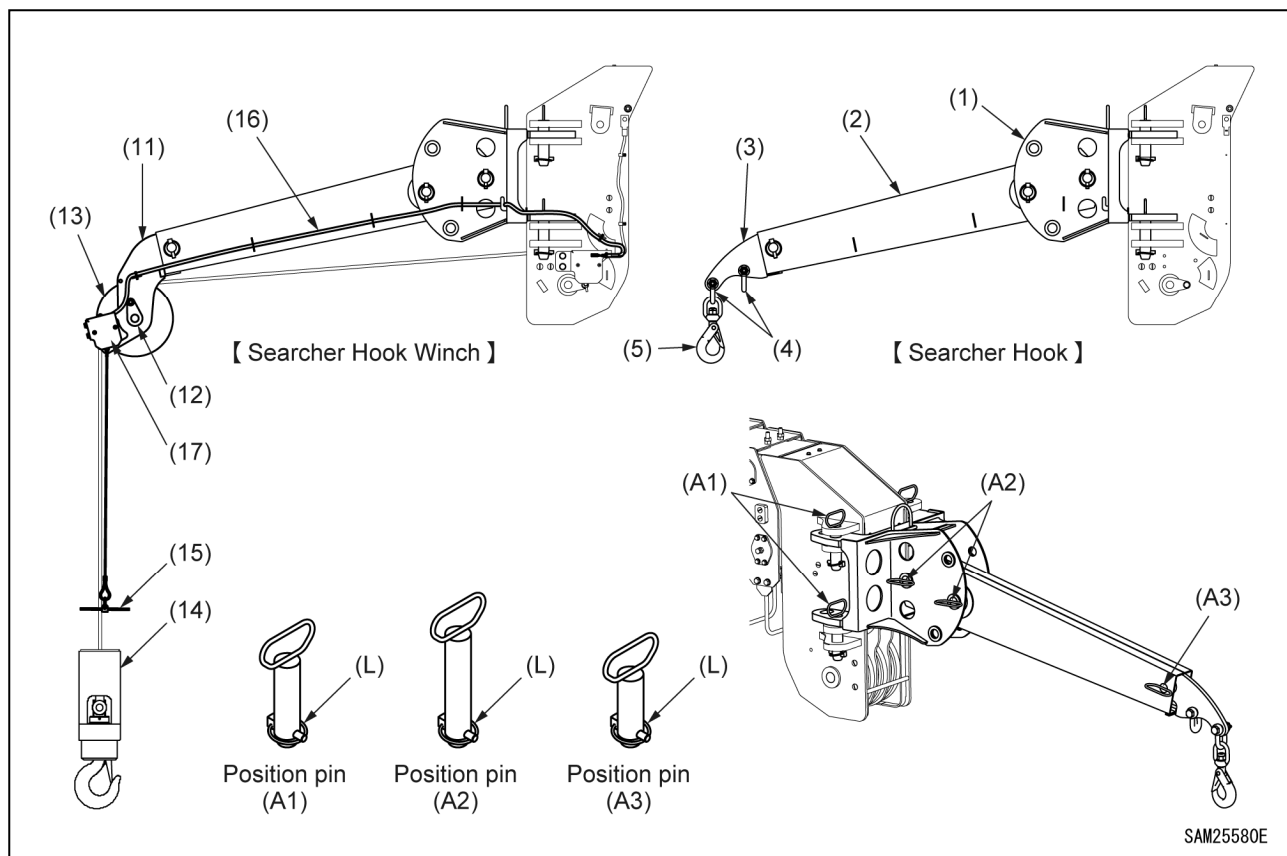
5.10 SEARCHER HOOK (OPTION)

5.10.1 USAGE PRECAUTIONS

WARNING

- Be sure to change the setting after mounting or removing the searcher hook to the main unit. Using the machine without changing the moment limiter setting may result in a serious accident, such as damage to the machine or the machine tipping over.
- Be sure to use the searcher hook with the actual position and the monitor position settings matched. Failure to do so may result in a serious accident, such as damage to the searcher hook or the machine tipping over.
- When using the winch with the searcher hook, be sure to replace the wiring connected to the overwinding detector on the main boom side to the searcher hook side. If the wiring is not properly connected, the moment limiter and overwinding detection device may not operate properly, resulting in a serious accident.
- Make sure that the searcher hooks and brackets are securely pinned. Make sure that the linch pin is also securely set to prevent the pin from falling out.
- When using the searcher hook, always set the engine to low idle and operate the crane at a micro speed. Sudden lever operation may cause excessive force to be applied, damaging the searcher hook and causing a serious accident.
- Incorrect operation of the searcher hook may cause deformation of the bracket or E-boom, cracks in the welds, etc., which may cause the searcher hook to fall off. Before starting work, be sure to inspect each part of the searcher hook to make sure there are no deformations or cracks in the welds.
- See "Chapter 2: Safety" for more information on precautions other than those indicated in this section.

Add. 5.10.2 PART NAMES



- (1) Bracket
- (2) E boom
- (3) Boom head
- (4) Shackle
- (5) Swivel hook
- (11) Sheave head
- (12) Sheave pin
- (13) Sheave

- (14) Single hook block
- (15) Overwinding detector weight
- (16) Overwinding detector harness
- (17) Overwinding detector
- (A1) Position pin A1 ($\phi 35 \times 148L$)
- (A2) Position pin A2 ($\phi 30 \times 186L$)
- (A3) Position pin A3 ($\phi 30 \times 130L$)
- (L) Linch pin

Add.

5.10.3 MOUNTING AND REMOVING

⚠ WARNING

- Read and understand the instructions carefully before you start the process.
- Once the machine is in the working position, stop the engine and perform the work. Work during machine running may result in malfunctions or serious accidents due to unforeseen movement.
- The searcher hook should be used with the main hook removed.
- The mounting, stowing, and removal of the searcher hook should be performed on a level and firm surface with the main boom set to level.
- Use a crane to mount, stow, and remove the searcher hook.
- Use a stable workbench with sufficient height when working. Using an unstable workbench can cause you to fall from a height and cause a serious accident.
- Do not work on the crawler.
- Do not get into a position where you will be under the searcher hook while working.
- Do not put your finger in the pinhole.
- Do not put your fingers between the boom head and the sheave head and the E-boom.
- Be sure to insert the position pin from the top in the correct position and secure it with the linch pin.

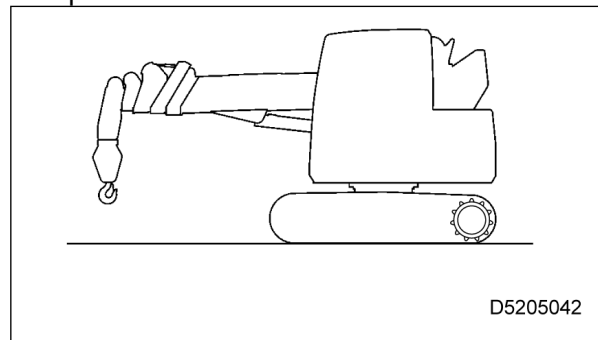
5.10.3.1 MOUNTING SEARCHER HOOK

⚠ WARNING

When mounting the searcher hook to the main unit, be sure to set the searcher hook setting to "With Searcher Hook". Using the machine without changing the moment limiter setting may result in a serious accident, such as damage to the machine or machine tipping.

Mount the searcher hook according to the below procedure.

1. The machine should be in the below position:

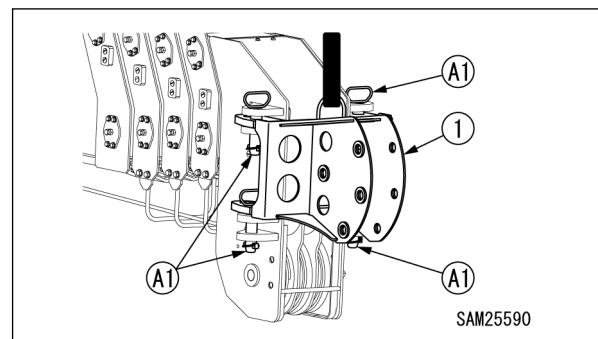


Move the machine to a level surface.

Make the boom fully retracted.

Set the boom angle to 0°.

2. Attach the bracket (1).
Once the holes for the main boom head and bracket (1) are in place, insert the position pins (A1) into the 4 positions from the top. Securely lock the position pins (A1) with the linch pins (L).

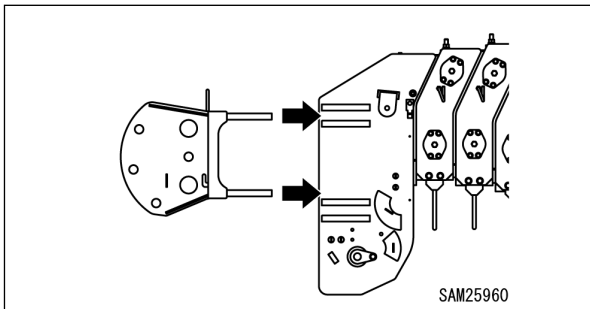
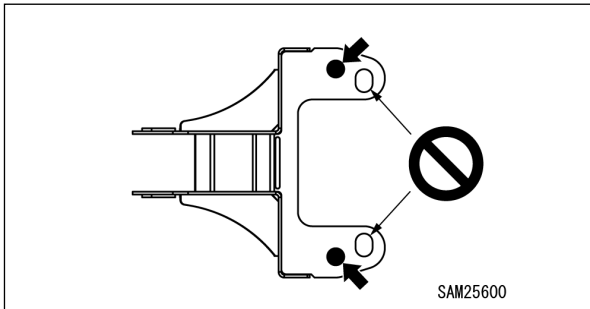


The bracket (1) must be lifted by a crane for mounting. To lift it, set the sling to the hook at the top of the bracket.

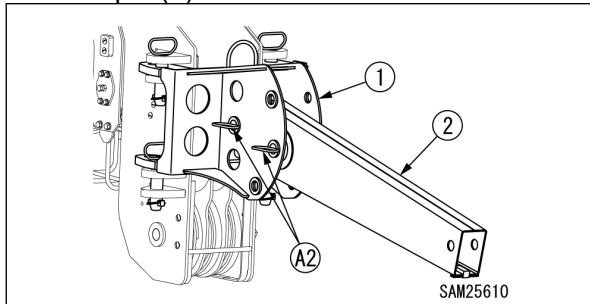
Add.

⚠ WARNING

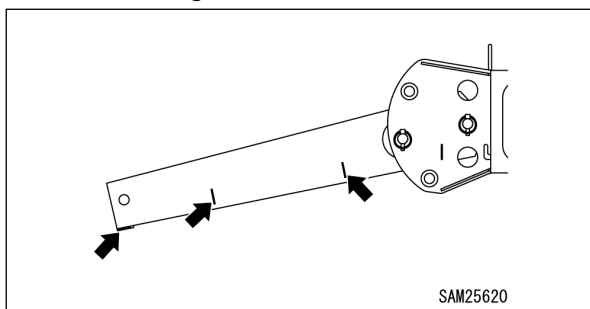
When mounting the bracket, pay attention to the hole position and the mounting position to be used.



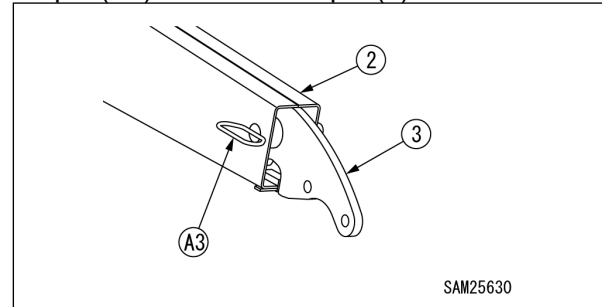
3. Install the E-boom (2) on the bracket (1). Once the holes for the bracket (1) and E-boom (2) have been positioned, insert the position pin (A2) into the two positions. Securely lock the position pin (A2) with the linch pin (L).



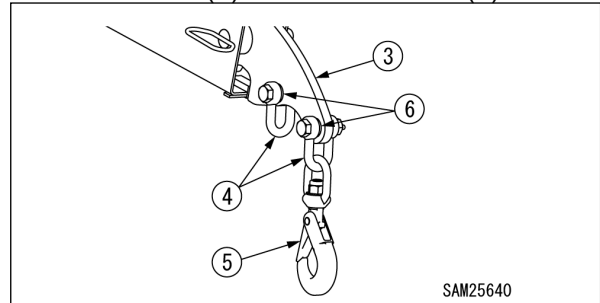
Be careful not to install the E-boom (2) in the wrong direction. Install it so that the stopper or harness guide is at the bottom.



4. Install the boom head (3) on the E-boom (2). Once the holes for the E-boom (2) and boom head (3) have been positioned, insert the position pin (A3). Securely lock the position pin (A3) with the linch pin (L).

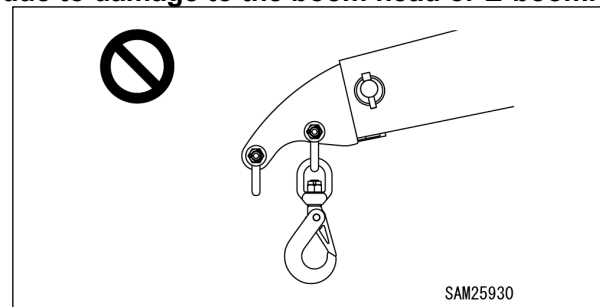


5. Install the shackles (4) and swivel hook (5) on the boom head (3). At this time, put washers (6) between the boom head (3) and the shackles (4).

**⚠ DANGER**

Do not use the swivel hook at the shackle section for stowage.

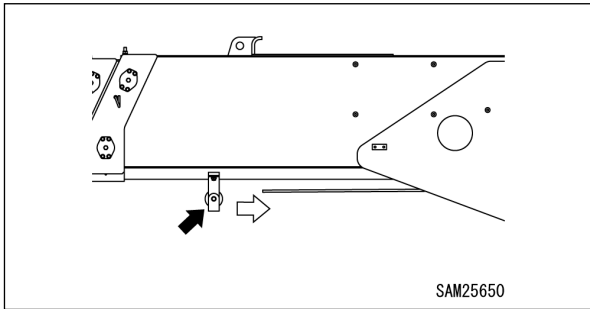
The shackle section for stowage is not strong enough. Using this may lead to serious accidents, such as dropping the load due to damage to the boom head or E-boom.



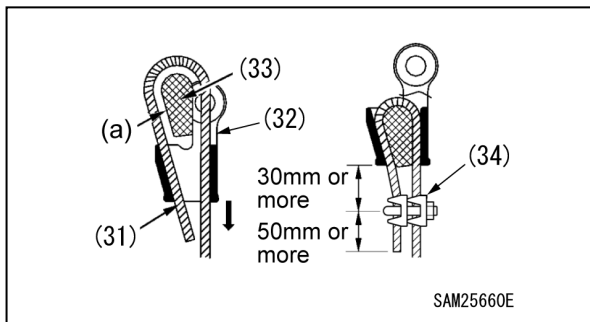
6. Remove the hook block and wire rope from the boom head
For the removal procedure, refer to steps 1 to 9 of "6.18.1.4 [1] Removal of Winch Wire Rope" on P.6-79.

Add.

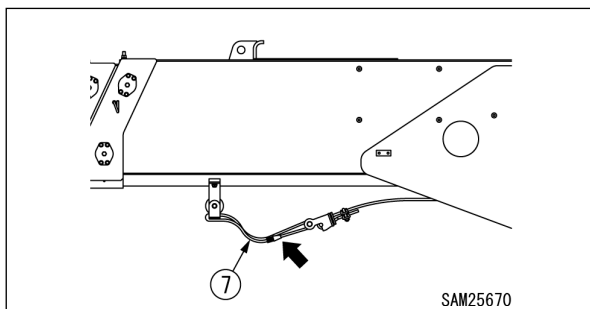
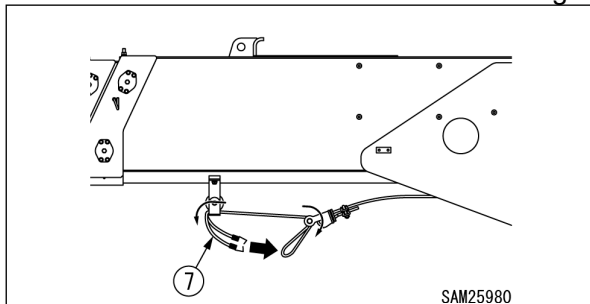
- 7.** Wind the wire rope with the hook raising operation until it comes off the guide roller at the bottom of the boom.



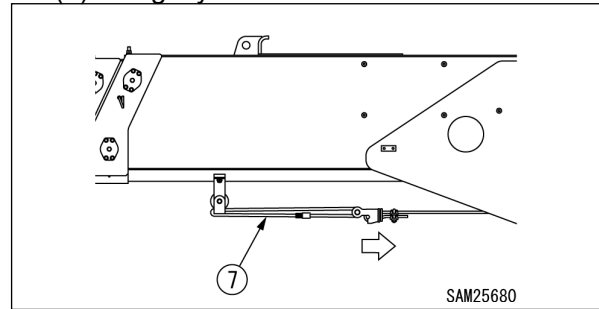
- 8.** Secure the end of the wire rope (31) to the wire socket (32). Pass the wire rope (31) through the wire socket (32), put the rope wedge (33) in position (a), and then pull the wire rope (31) strongly in the direction of the arrow. Install the wire clip (34) with the following dimensions.



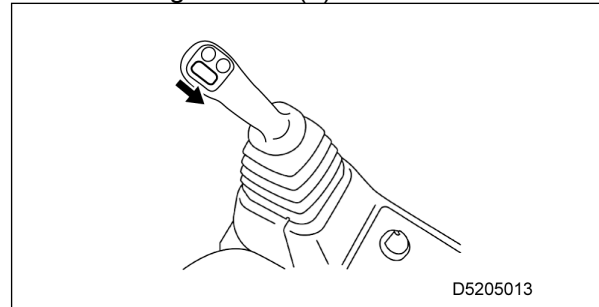
- 9.** Fold the stowage rubber (7) in half and pass it through the guide roller and wire socket on the underside of the boom before hooking it.



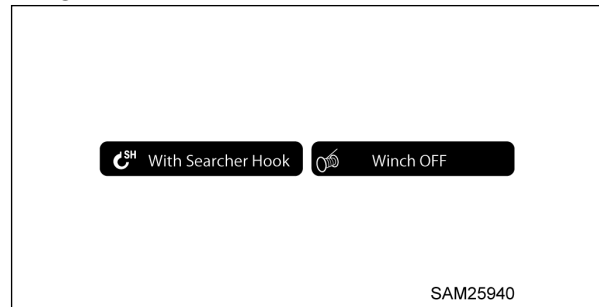
- 10.** Slide the hook stowage lever downward and wind the wire rope until the stowage rubber (7) is slightly taut.



Use the hook stowage lever to reel in the wire rope. Be careful not to wind up too much, as the stowage rubber (7) will be cut off.



- 11.** Select "With Searcher Hook" in the searcher hook setting on the user setting screen of the monitor.
- 12.** Set the searcher hook setting on the user setting screen of the monitor to "Winch OFF".



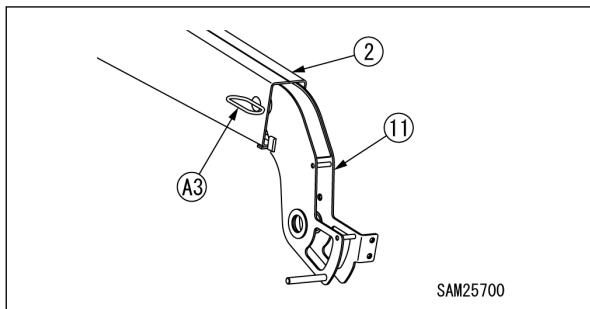
Add.

5.10.3.2 MOUNTING WINCH SHEAVE

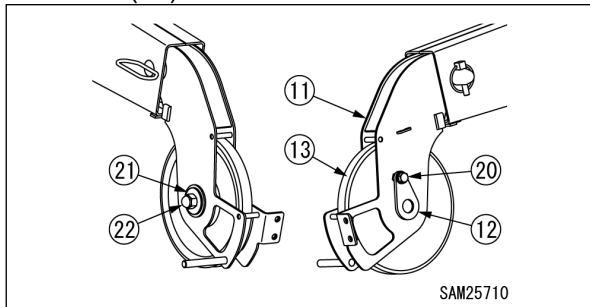
When using the winch, carry out installation according to the following procedure.
Start without the boom head attached to the end of the E-boom.

If the E-boom is not mounted, refer to steps 1 to 3 of "5.10.3.1 MOUNTING SEARCHER HOOK" on P. 5-79.

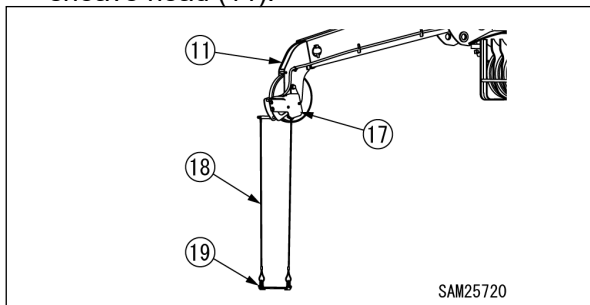
1. Mount the sheave head (11) to the E-boom (2).
Once the holes for the E-boom (2) and the sheave head (11) have been positioned, insert the position pin (A3). Securely lock the position pin (A3) with the linch pin (L).



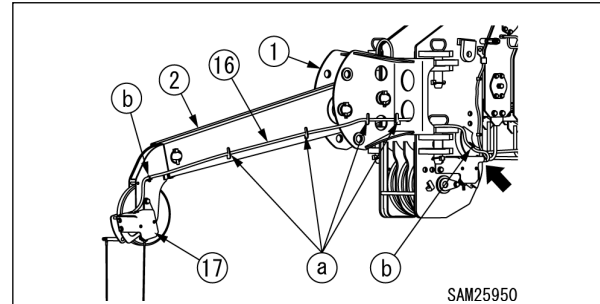
2. Attach the sheave (13) on the sheave head (11). The sheave (13) should be secured with the sheave pin (12), bolt (20), plate (21) and nut (22).
Designated torque:
Bolt (20) : $53 \pm 8 \text{ N} \cdot \text{m}$
Nut (22) : $231 \pm 35 \text{ N} \cdot \text{m}$



3. Attach an overwinding detector (17), overwinding detector ropes (18) and an overwinding detector weight (19) to the sheave head (11).

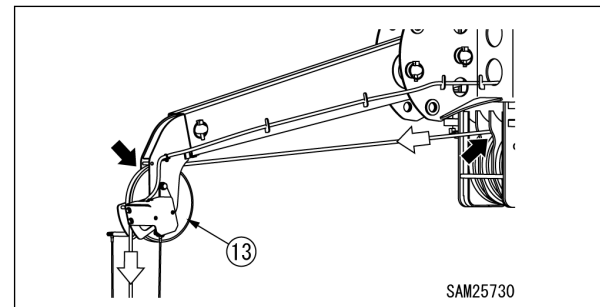


4. Connect the overwinding detector harness (16) of the overwinding detector (17) to the overwinding detection harness of the main boom.
At this time, hook the overwinding detection harness (16) onto section (a) and secure it to section (b) with cable ties.

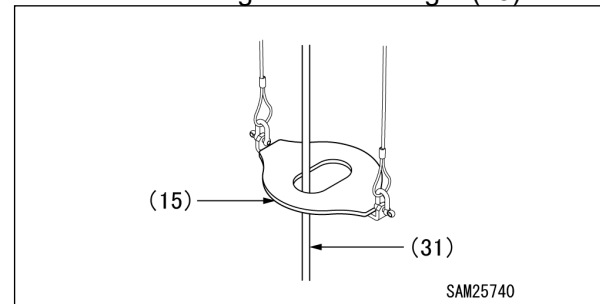


Connected harnesses should be tied together in the case of the overwinding detector on the main boom.

5. Remove the hook block and wire rope from the boom head.
For the removal procedure, refer to steps 1 to 9 of "6.18.1.4 [1] Removal of Winch Wire Rope" on P. 6-79.
If the hook block has already been removed, move on to the next step.
6. Thread the wire rope from the sheave in the center of the boom head to the sheave (13) at the end of the searcher hook.

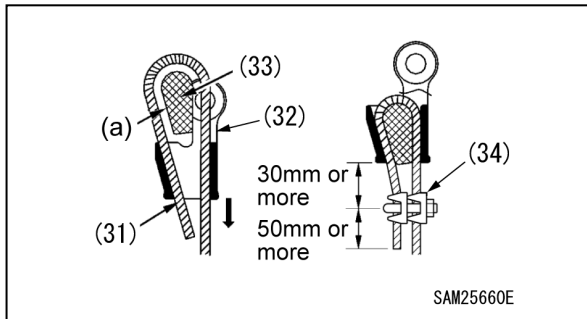


7. Pass the wire rope (31) through the circle of the overwinding detection weight (15).

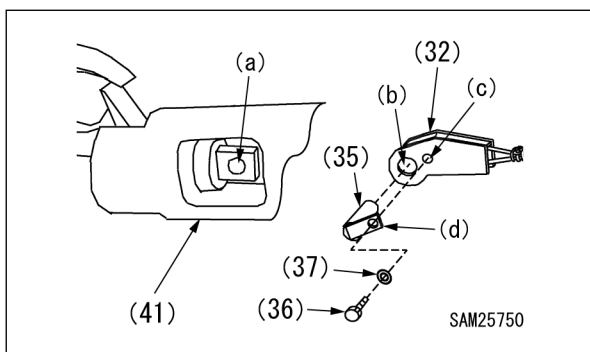


Add.

8. Secure the end of the wire rope (31) to the wire socket (32). Pass the wire rope (31) through the wire socket (32), put the rope wedge (33) in position (a), and then pull the wire rope (31) strongly in the direction of the arrow. Set the wire clip (34) with the following dimensions.



9. Hold the wire socket (32) and insert it so that the hole (b) of the wire socket (32) meets the hole (a) of the pin inside the hook block (41). Insert the wedge socket pin (35) into the matched holes, align the fixing hole (D) of the wedge socket pin (35) with the fixing hole (C) of the wire socket (32) and secure it with the washer (37) and bolt (36).

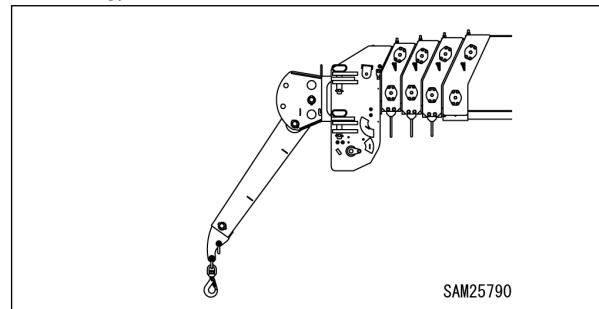


10. Lift the hook block from the ground surface by boom raising operation. Do not operate the winch while the hook block is grounded, as it may cause random winding.

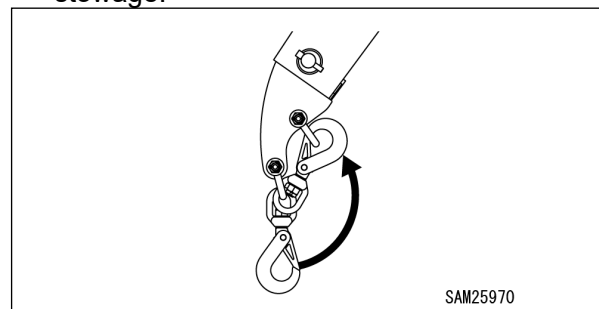
5.10.3.3 STOWAGE

The searcher hook can be stowed as follows.

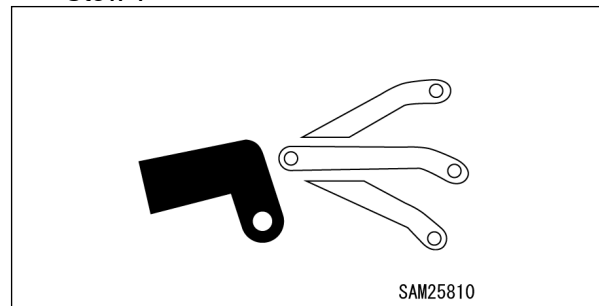
1. Set the position of the E-boom (2) to "SH3/Stow".



2. Hang the swivel hook on the shackle for stowage.



3. Set the monitor's position selection to "Stow".



5.10.3.4 REMOVING THE SEARCHER HOOK

To remove the searcher hook body, follow the reverse procedure of mounting. To install the main hook, refer to step 26 of "5.9.3.2 STOWING" the fly jib on P. 5-69.

The winch sheave must be removed in the reverse order of mounting the winch sheave.

When you remove the searcher hook from the unit, be sure to switch to "Without Searcher Hook" in the searcher hook setting on the user setting screen.

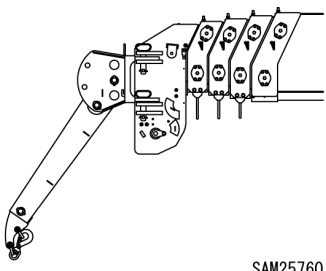
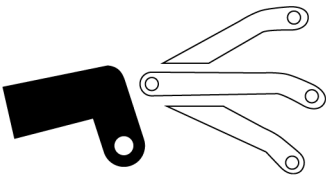
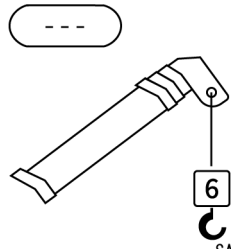
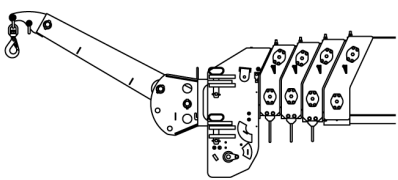
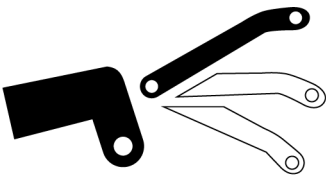
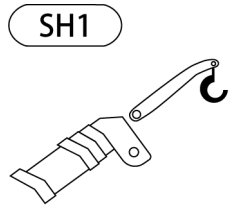
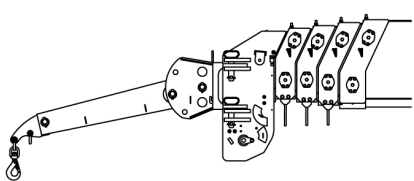
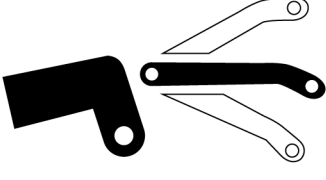
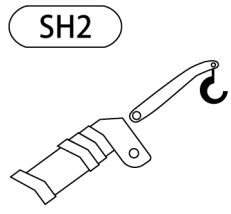
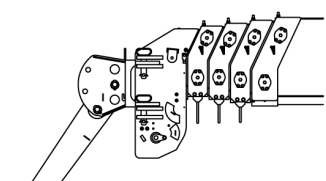
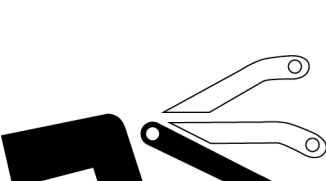
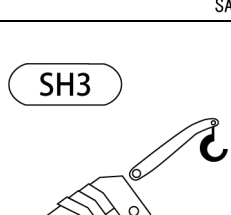
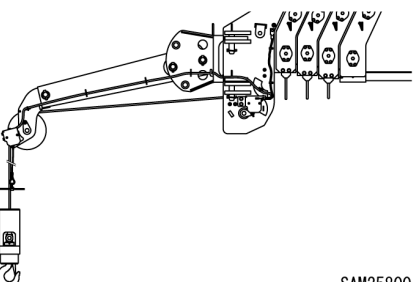
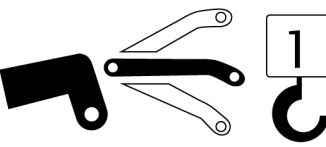
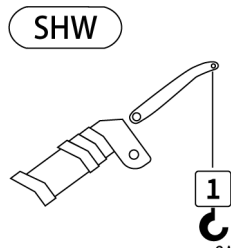
Add.

5.10.4 POSITION AND SETTING

⚠ DANGER

When using the searcher hook, be sure to set the "actual position" and "moment limiter setting" correctly.

If work is performed without the correct setting, the moment limiter value will not be displayed correctly, and there is a risk of serious injury due to the machine tipping over or being damaged.

	Actual Position	Moment Limiter Setting	
		Position Selection	Display
S T O W	 SAM25760	 SAM25810	 SAM25860
S H 1	 SAM25770	 SAM25820	 SAM25870
S H 2	 SAM25780	 SAM25830	 SAM25880
S H 3	 SAM25790	 SAM25840	 SAM25890
S H W	 SAM25800	 SAM25850	 SAM25900

Add.

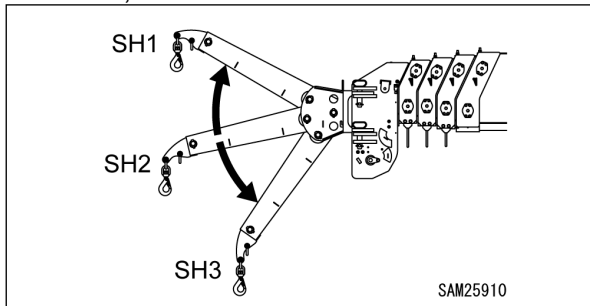
5.10.5 CHANGING POSITIONS

⚠ WARNING

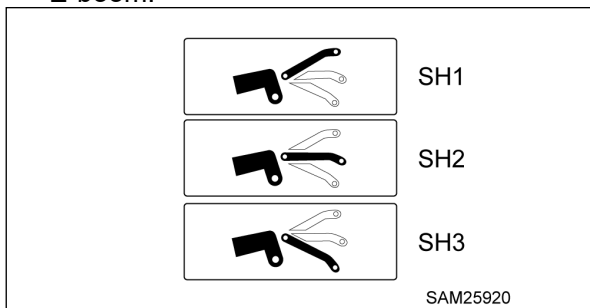
- When changing the position of the E-boom, use a stable workbench with sufficient height. Using an unstable workbench can cause you to fall from a height and cause a serious accident.
- When you pull out the position pin, the E-boom will go down, so be sure to pull out the pin while holding the E-boom.
- Do not put your finger in the pinhole.
- Be sure to insert the position pin in the correct position and secure it with the linch pin.

5.10.5.1 FOR SEARCHER HOOK

1. Set the E-boom (2) to the desired position "SH1", "SH2" or "SH3".



2. Set the monitor position selection to "SH1", "SH2" or "SH3" to match the position of the E-boom.



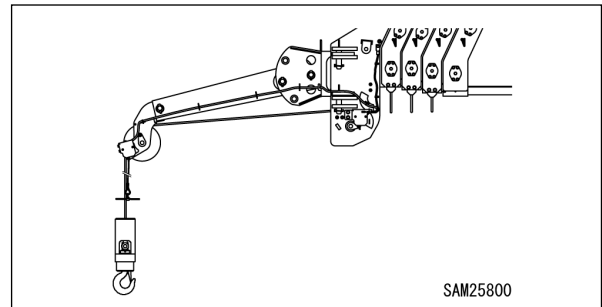
5.10.5.2 FOR WINCH

⚠ WARNING

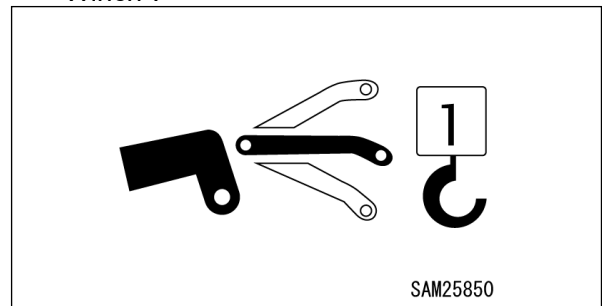
When using the searcher hook winch, be sure to set the position to "SHW".

Use in any other position may result in a serious accident due to damage to the machine itself or the searcher hook.

1. If the sheave is not mounted to the end of the E-boom, refer to "5.10.3.2 MOUNTING WINCH SHEAVE" on P. 5-82.
2. Set the position of the E-boom (2) to "SH2/SHW".



3. Set the monitor's position selection to "Winch".



5.10.6 OPERATION

⚠ WARNING

When operating the crane, always set the engine to low idle and work at a micro speed. Sudden lever operation may cause excessive force to be applied, damaging the searcher hook and causing a serious accident.

The crane operation will be the same as a normal crane operation.

Refer to "5.4 CRANE OPERATION" on P.5-19.

5.11.3 HOISTING MACHINE

⚠ WARNING

- For details on the machine dimensions and weight, refer to "3.1 MAIN SPECIFICATIONS" on P. 3-2.
- Only persons qualified to operate cranes may hoist the machine using a crane.
- Do not hoist the machine with anyone on the machine.
- Use only a sling (e.g. wire rope and shackles) that has been approved and is capable of lifting the weight of the machine.
- Keep the machine level while lifting.
- When hoisting, place the lock lever in the lock position to prevent the machine from moving unexpectedly.
- Never stand underneath or near the machine while it is being hoisted.
- Never attempt to lift the machine using procedures or slinging positions other than those described here. If the machine needs to be lifted in any other manner, contact us or our sales service agency.

IMPORTANT

- When lifting the machine, be sure to use hoisting accessories that comply with the following specifications:
When lifting the machine, be careful not to allow the wire ropes for slinging to come into contact with the main body of the machine.

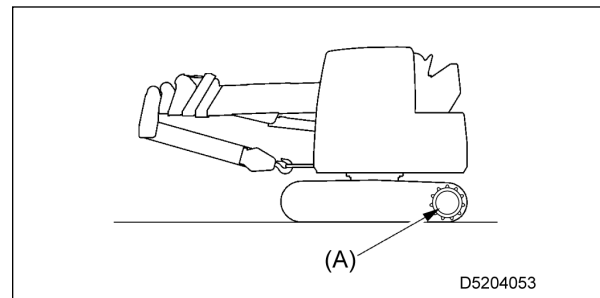
- **Wire rope (Boom side):**
Breaking load not less than 60 tonnes
• 1.0 m × 2 pieces
- **Wire rope (Counter weight side):**
Breaking load not less than 15 tonnes
• 1.8 m × 2 pieces
- **Shackle (Boom side):**
Working load not less than 10.0 tonnes
• 2 pieces (hole diameter 55 mm)
- **Shackle (Counter weight side):**
Working load not less than 2.5 tonnes
• 2 pieces (hole diameter 28 mm)

Change

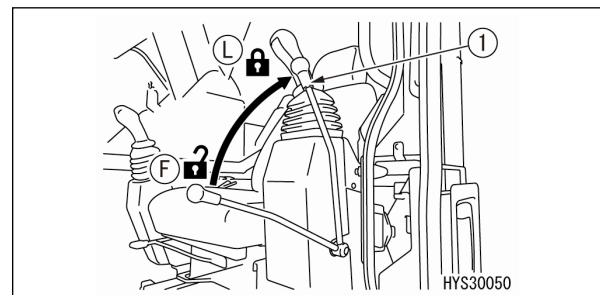
- When lifting the machine, be sure to attach the hook block to the stowage rope. Take care not to over-tension the rope here.

When lifting the machine, use the following procedure on firm, level ground:

1. Attach the stowage rope to the hook block to arrange the machine in the stowage posture.



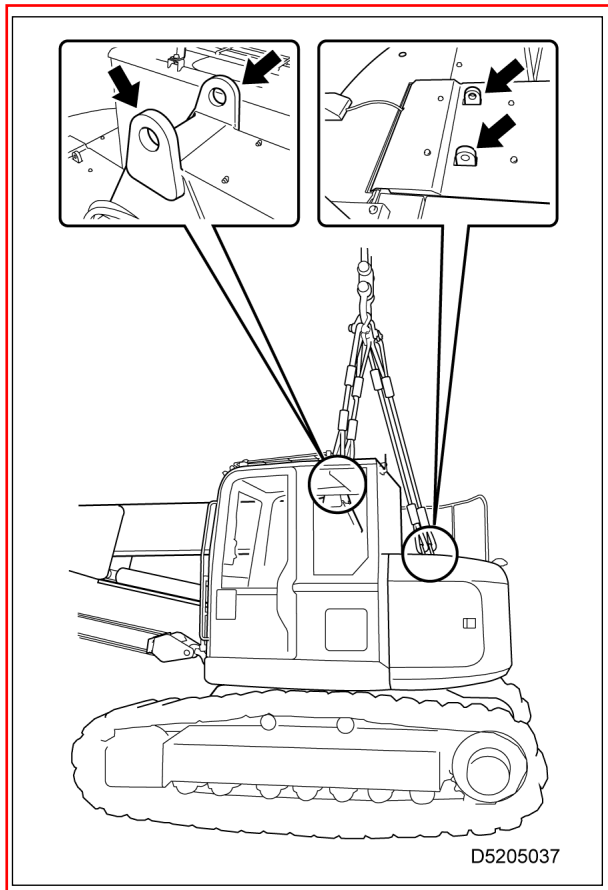
2. Place the safety lock lever (1) securely in the lock position (L).



5.11 TRANSPORT

3. Stop the engine and remove the starter switch key. Check that there is nothing around the operator's seat, and get off the machine.
4. Close all the doors, windows, and covers. Lock all the lockable doors, covers, and caps.
5. Attach the hoisting wires and shackles to the machine body. Be sure to hoist from four points, as shown in the following figure:

Change



6. Lift the machine slowly.
 - ☞ Immediately after lifting off the ground, stop briefly to check the state of the hoisting accessories and slinging posture.

Add.

[1] Inspection around crane

- Look around the surrounding area and lower parts of the boom and boom mounts to check for oil leaks. In particular, thoroughly inspect the derricking cylinder and the lower part of the winch motor around the mounts. Repair if any abnormality is found.
- Check the mounts for cracks, noticeable deformation, or dirt. Also check the bolts, nuts, pins, and pipe connections for looseness, detachment, or damage. Repair if any abnormality is found.
- Check the boom parts for cracks, noticeable deformation, or dirt. Also check bolts, nuts, pins, and pipe connections for looseness, detachment, or damage. In particular, check boom supporting pins and derricking cylinder supporting pins for significant wear and damage. Repair if any abnormality is found.
- Check the wire rope for the overwinding detection weight on the overwinding detector at the boom tip for noticeable damage or deformation. Repair if any abnormality is found.
- Check the boom working light and head light for damage, noticeable deformation, or dirt. Repair if any abnormality is found. Clean if dirty.
- Check the electric wiring for slackness and connections for looseness, and also check if there are any traces of burning. Repair if any abnormality is found.

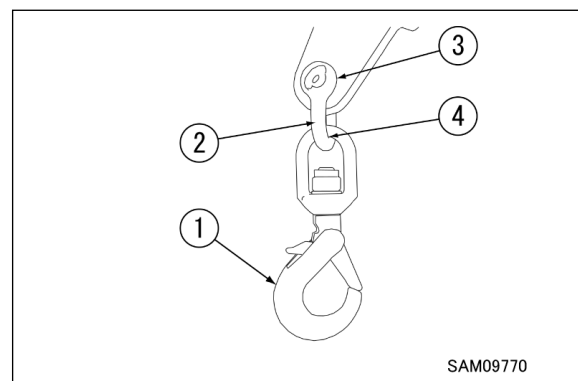
[When the fly jib is mounted]

- Inspect for any cracks, significant deformation, or dirt on the fly jib. Also check for any loose, missing, or damaged bolts, nuts, and pins. Especially check each position pin for any significant wear or damage. Repair if any abnormality is found.
- Inspect the sheave and guide roller for any significant wear. Replace the parts if any abnormality is found.
- Inspect the cord reel on the left side of the fly jib for any significant damage or deformation. Also check for any damage on the cord reel cables, and make sure they operate smoothly. Repair if any abnormality is found.

[When the searcher hook is mounted]

- Inspect the E-boom and bracket for cracks, significant deformation or dirt. Repair or replace any abnormality in the area.
- Check that bolts of specified strength are being used. Also, make sure that it is tightened to the specified torque.
- Inspect the bolts for cracks, damage, crushes, significant dirt, and rust. Replace it with a new one if there is anything wrong.
- Check that the position pins are secured with lynch pins. Inspect the pins for damage or significant deformation. If there is anything wrong, replace it.
- Wipe the old grease clean in the following areas and apply the new lithium grease.

1	Contact hole (3) of e-boom and shackle (2)
2	Contact part (4) of the swivel hook (1) and the shackle (2)



[2] Wire rope inspection

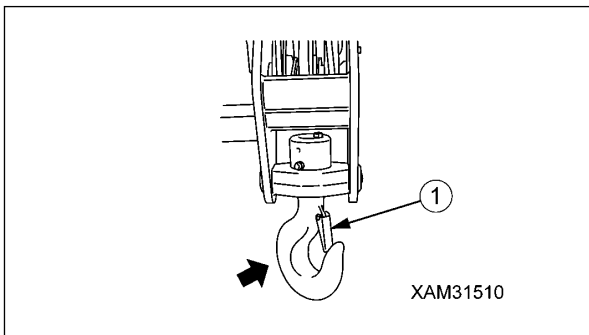
For details on the wire rope, refer to "6.18.1 WIRE ROPE" on P. 6-75.

- Inspect the wire rope for damage, deformation, wear, twisting, kinks, or corrosion. Replace if any abnormality is found.
- Inspect the binding condition of the wire rope end. Replace if the wire rope end is loose.
- Inspect the wire rope (on the winch drum) for irregular winding. Rewind if it is irregularly wound.
- If the fly jib is fitted, inspect the wire rope for the overwinding detector weight on the overwinding detector at the fly jib tip for any significant damage or deformation. Repair if any abnormality is found.

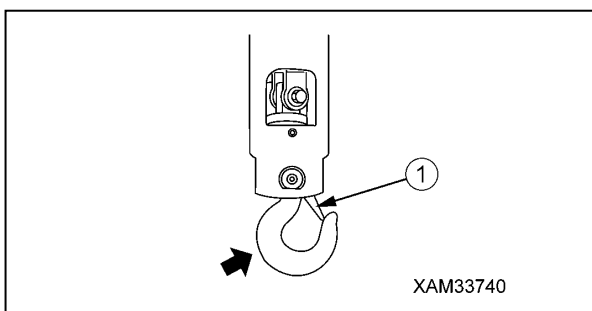
[3] Hook block inspection

- Inspect whether the wire rope latch (1) functions properly. Repair if any abnormality is found.
- Turn the hook and check that it turns smoothly. Also check that no abnormal noise comes from the trunnion.
Repair if any abnormality is found.
- Inspect the hook for cracks and noticeable deformation.
Repair if any abnormality is found.

[With 6-fall, 4-fall, or 2-fall hook]

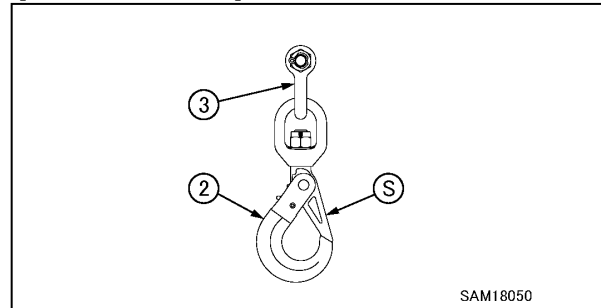


[With single-fall hook]



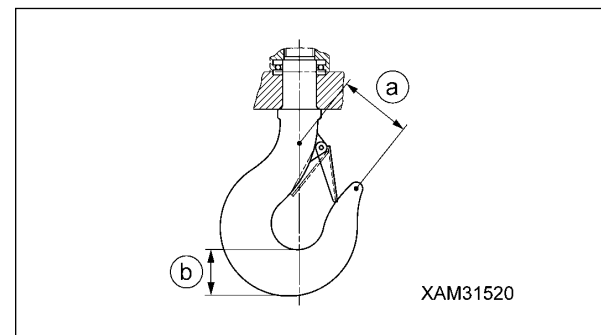
- Check that the swivel hook (2) is not deformed, that there is no noise generated from the bearing, and that the latch (S) is functioning properly. Also inspect the shackle (3) where the swivel hook (2) is installed.

[For swivel hooks]



- Replace the hook if the dimension (a) between the punch marks stamped on the hook is 122.4 mm or more and the dimension (b) for the lower part of the hook is 70.8 mm or less.

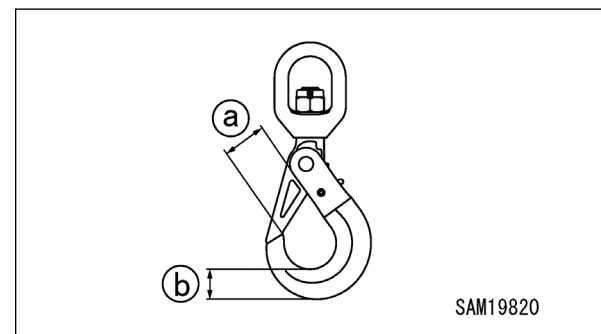
[For 6, 4, 2 falls and single fall hook]



[Replacement criteria]

	a	b
6-fall, 4-fall, or 2-fall hook	122.4 mm or more	70.8 mm or less
Single fall hook	81.6 mm or more	39.9 mm or less

[For swivel hook]



Replacement criteria

	a	b
Swivel hook	38.9mm or more	23.7mm or less

Change
and
Add.

4. Operate the fly jib as follows, and check that the monitor display is correct.

Fly jib posture and display item	Monitor display
"Number of fly jib boom sections" display when fly jib is stowed	R
"Number of fly jib boom sections" display when fly jib is fully retracted	1
"Number of fly jib boom sections" display when fly jib is fully extended	2
"Fly jib angle" display when fly jib is fully raised	0
"Fly jib angle" display when fly jib is fully lowered	60

5. Start the engine and operate the crane as follows. Check that the moment limiter functions correctly.

[Crane operation]

- The boom is lowered to the auto stop position under the following conditions:
 - A boom length between 6.1 m and 12.4 m
 - Fly jib angle of 0 degrees
 - Boom angle of 20 degrees or more

[Moment limiter operation]

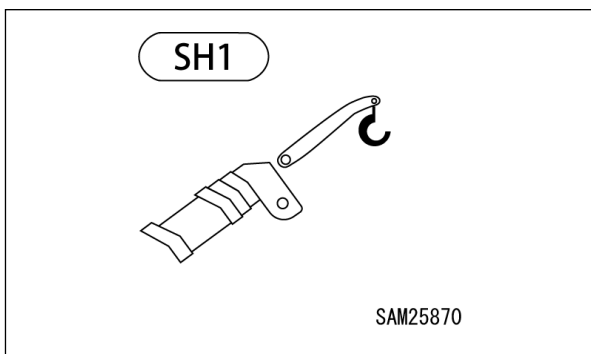
- Stops at a boom angle of 10 degrees.
- After stopping, the working status lamp illuminates in red.
- Boom lowering, boom extension, hook hoisting, fly jib lowering, and fly jib extension operations are stopped.

Add.

[When searcher hook is mounted]

1. Start the engine.

- ☞ Check the working status lamps. After the rotating lights of all colors are lit, the green rotating lights will come on.
- ☞ Make sure that the monitor display is in searcher hook mode.



- ☞ Make sure that the actual position of the searcher hook and the position display on the monitor are matched.

Add.

6.20.8 SEARCHER HOOK

Abnormal phenomenon	Main causes	Corrective action
Searcher hook settings are not displayed on the user settings screen.	The searcher hook setting on the monitor is set to "Without Searcher Hook".	Change the setting to "With Searcher Hook".
Winch doesn't work. (When a winch is used)	The searcher hook position setting on the monitor is not set to "SHW".	Change the setting to "SHW".
	The searcher hook setting on monitor is set to "Winch OFF".	Change the setting to "Winch ON".
	Failure of overwinding detector	Inspection and replacement (★)
	Wiring failure	Inspection and repair (★)
Extension and winch up does not work even though it is not overwound . (When a winch is used)	Overwinding detector failure	Inspection and replacement (★)
	Damage and tangle of overwinding detector wire	Inspection, repair and replacement (★)
	Damage of overwinding detector weight	Inspection and replacement (★)
	Wiring failure	Inspection and repair (★)
Overwinding detector does not activate. (When a winch is used)	Forgot to replace wiring	Replace the overwinding detector wiring from the main hook to the tip of the searcher hook.
	Failure of overwinding detector	Inspection and replacement (★)
	Wiring failure	Inspection and repair (★)

6.21.3 MONITOR ERROR CODES

If any of the following error codes are displayed, refer to "Corrective action", and take corrective action. If the problem persists, contact us or our sales service agency for repairs.

If an error code is displayed, check the following table and take the appropriate corrective action.

Error code	Error details	Explanation	Corrective action
EC□□	Controller error	A system error or communication error occurred in the controller.	Stop using the machine and contact us or our sales service agency.
EI□□□	Input error	An input error occurred.	
ES□□□	Sensor input error	A sensor-related input error occurred.	
EO□□□	Output error	An output error occurred.	
EV□□□	Power supply error	An optional power supply-related error occurred.	
EFJ□□	Specifications setting error	An error occurred with option mounting and monitor settings. (Excluding the searcher hook mode)	Changes are required to monitor settings. Contact us or our sales service agency.
		Occurs when the limit switch for fly jib stowage is turned off in searcher hook mode.	Check the searcher hook mode setting. Perform an inspection of the limit switch. If the problem remains, please contact us or our sales service agency.
EV001	Battery voltage error	The power supply voltage was below 22 V or above 30 V continuously while the engine was running.	Visually check the battery and measure the voltage. Replace or recharge the battery as necessary. If the problem is not resolved, contact us or our sales service agency.
EH01	Hydraulic oil temperature error	The hydraulic oil temperature was above 95 °C continuously.	Run the engine at idle for a while without shutting down the engine.
EH02	Air cleaner clogging error	Air cleaner clogging occurred.	Clean the air cleaner element. Replace the element if the problem is not resolved even after cleaning.
All other codes □□□-□	Engine	An engine-related error occurred.	If the codes listed above appear simultaneously, corrective action for those codes should take priority. If only the engine error code is displayed, stop using the machine and contact us or our sales service agency.

Add.

- The numbers indicated by in the error code will vary depending on the individual error.
- Perform a driving cycle after resolving an engine error code.

[Driving cycle]

Engine start (1 minute) → Engine stop (1 minute) → Engine start (1 minute) → Engine stop (1 minute)

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