

Operation and Maintenance Manual

Rough Terrain Crane

GR-450XL-1

Model **GR-500XL-1**

Applicable Serial No. **540483** ~

⚠ CAUTION: Read this manual before operating the crane. Save this manual for future reference.

TADANO LTD.

Rules for Inspection and Maintenance

⚠ Do Not Adjust or Disassemble the Hydraulic Equipment

The hydraulic equipment including the safety valve and pneumatic equipment have been strictly inspected and carefully adjusted before shipment from the factory.

Disassembly or improper adjustment of the hydraulic or pneumatic equipment can cause failures in safety and functional features.

For disassembly or adjustment, contact an authorized TADANO distributor or dealer.

⚠ Do Not Modify the Machine

Unauthorized modification may affect the performance, safety and strength of the crane and can lead to damage or overturning.

Never modify any part or aspect of the machine.

⚠ When an Irregularity is Detected

An irregularity which remains unremedied can cause a more serious failure or accident.

If an irregularity is found during inspection work, immediately determine the cause, then adjust and maintain the component in question to prevent a failure or accident.

⚠ Inspect and Maintain at Regular Intervals

Sloppy inspection or maintenance work makes it impossible to detect faults at an early stage.

Perform inspection and maintenance at specified intervals to ensure fault prevention and early detection of potential problems.

⚠ Become Familiar with Procedures for Inspection and Maintenance

Improper inspection and maintenance procedures can lead to damage of the machine, and may cause injury or even death.

Read the "Inspection and Maintenance" section in the manual and become thoroughly familiar with all instructions given. Do not perform any inspection or maintenance work until the instructions are understood.

When inspection or maintenance work is more complicated, consult an authorized TADANO distributor or dealer.

⚠ Wear Safe Clothing

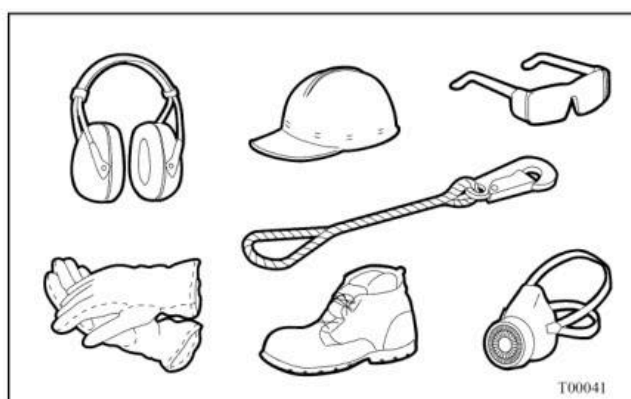
Loose clothing may lead to sleeves or cuffs being caught by a projection or control lever on the machine.

Do not wear work clothing fouled with fuel or oil. It can readily catch fire.

⚠ Wear Protective Gear

Performing inspection or maintenance work without wearing the proper protective gear can result in burns, cuts, falling accidents, or eye injuries.

Always wear a hard hat, and safety shoes, also safety goggles, dust mask, earplugs, protective gloves, safety belt, etc., as the situation requires.



T00041

Preface

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

Specification No. (Specification No. of the crane is given on the nameplate as shown below.)
(1) GR-500-1-00311 (2M2D-specification)
(2) GR-500-1-00313 (1M1D-specification)
(3) GR-500-1-00314 (2M2D-specification)
(4) GR-450-1-00314 (2M2D-specification)

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



T200169

Please consult the separate engine manual for operation and maintenance of the engine.

The "TRAVELING" section of this manual describes the basic procedures for driving the vehicle. Read it carefully and become thoroughly familiar with the correct procedures for driving the vehicle.

The "OPERATION" section of this manual describes the basic procedures for operating the crane. Read it carefully and become thoroughly familiar with the correct procedures for operating the crane. Operating skill will improve as you gain knowledge of the crane and its capabilities.

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

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

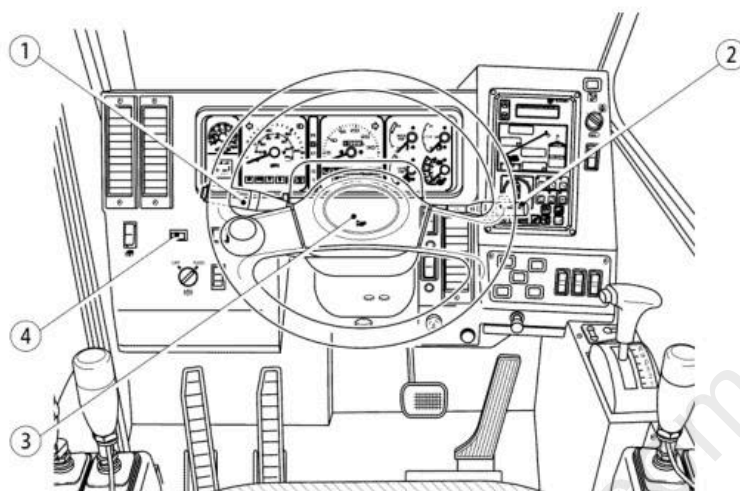
If you transfer the crane, make sure to hand over this manual to the next user together with the crane.

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

If there are any questions regarding the crane or this manual, contact the nearest TADANO distributor or dealer.

Lighting and Other Switches

Controls



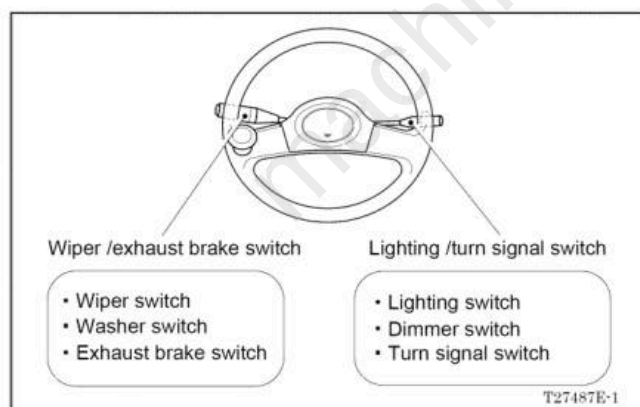
T28699-1

1. Wiper /exhaust brake switch
2. Lighting /turn signal switch

3. Horn switch
4. Hazard lamp switch

Wiper /Exhaust Brake Switch, Lighting /Turn Signal Switch

The switches shown in the figure below are incorporated in the wiper /exhaust brake switch and the lighting /turn signal switch.

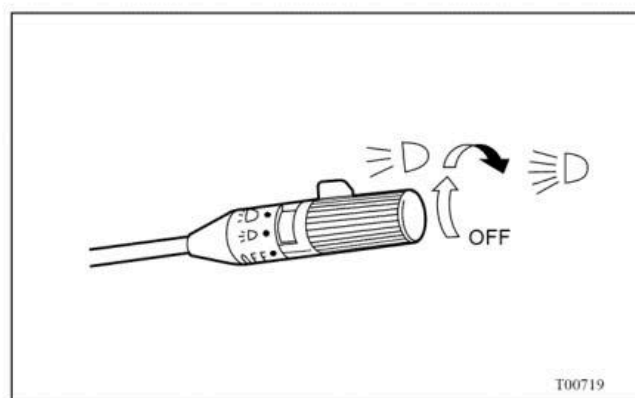


T27487E-1

(1) Lighting switch

Turning the lighting switch when the starter switch is ON activates the following lamps:

Switch position	Headlight	Clearance lamps, tail lamps, license plate lamps, and instrument lamp
"OFF"	—	—
☰D	—	Lights
☰D	Lights	Lights



T00719

Load Moment Indicator (AML)

⚠ WARNING

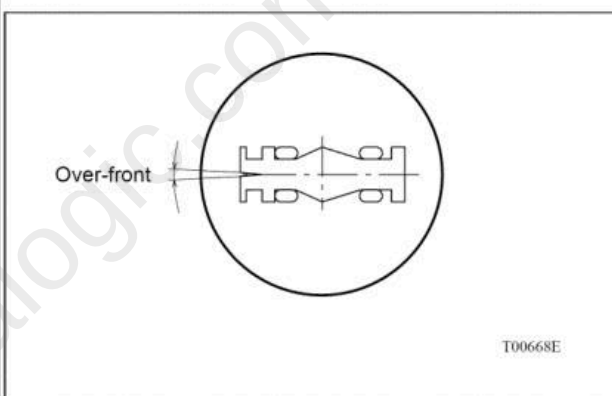
⚠ The load moment indicator (AML) is intended as an aid to the operator. Under no condition should it be relied upon to replace use of Rated Lifting Capacity Table and Operating Instructions. Sole reliance upon the load moment indicator aids in place of good operating practice can cause an accident. The operator must exercise caution to assure safety.

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

- Never perform any operation with the load moment indicator deactivated.
- Place the crane on firm and level ground with the outriggers extended and adjust the crane so that it is level (when outriggers extended).
- Before operating on rubber, check that the tires have the specified air pressure.
- Before starting operation, perform pre-operational checks on the load moment indicator to ensure that it is operating properly.
- Rated lifting capacities vary depending on the outrigger extension width. When swinging the load to the area allotted for smaller rated lifting capacities after lifting it in the area allotted for greater rated lifting capacities, pay attention not to overload the crane after understanding the section "How to Read Performance Data Plate".

- Swinging will not stop automatically even if overloading occurs during on-rubber operation. When lifting a load on rubber, note that the 360-degree capacity is less than the over-front capacity.

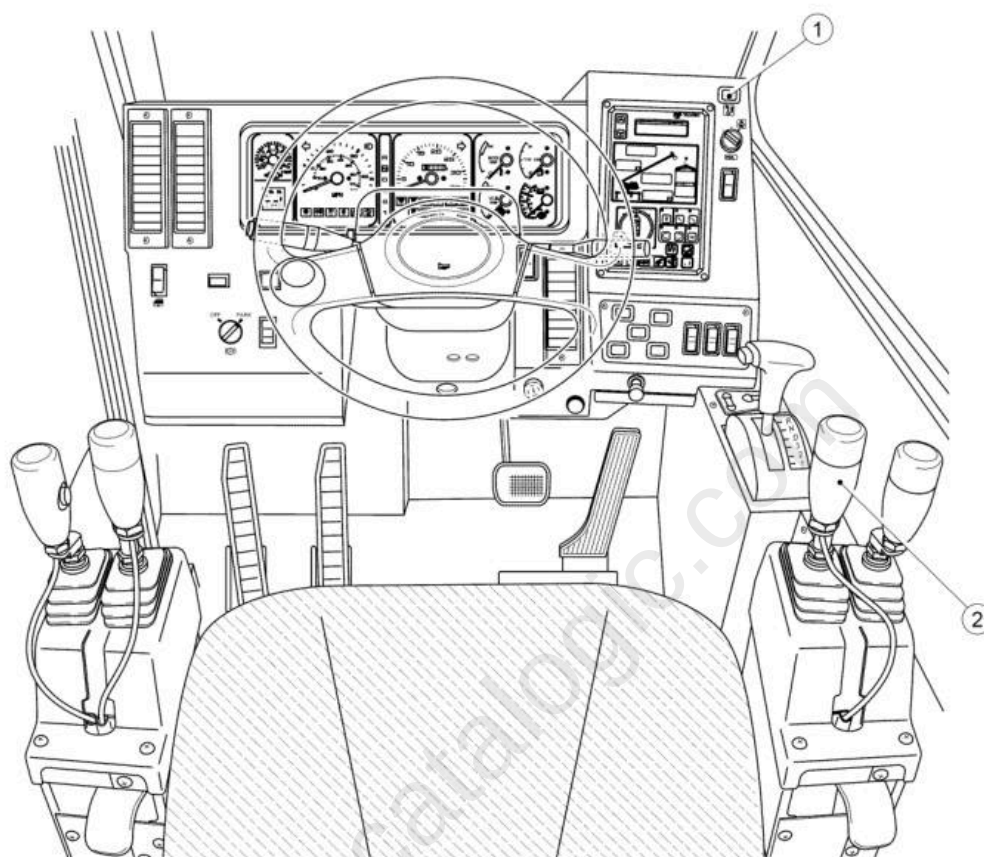
When swinging a load lifted up in the over-front area toward an over-side area, be extremely careful not to overload the crane. If the moment ratio indication on the load moment indicator exceeds 100% and the alarm buzzer sounds during boom swing toward the over-side area, stop swinging immediately. Then lower the load or swing the boom back.



- When the load moment indicator exceeds the specified value, the alarm will sound intermittently. Slow the crane operation and take great care. (For the specified value, see the "Configuration and Functions of the Load Moment Indicator System" section.)

Hoisting (for 1M1D Specification)

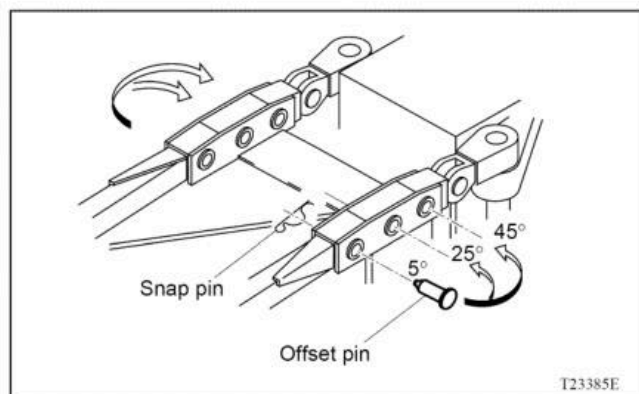
Controls



T29656-1

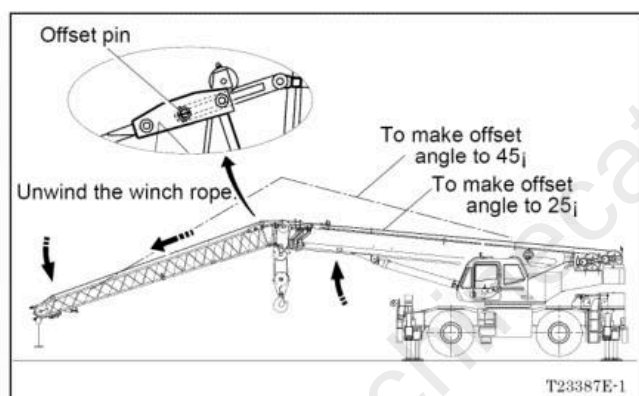
1. Anti-twoblock disable switch
2. Main winch control lever

5. Reinsert the offset pins in the pin holes of the desired offset angle.



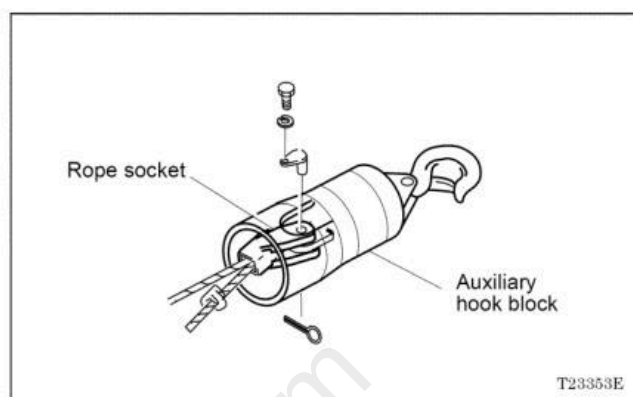
6. Slowly lower the jib by unwinding the auxiliary wire rope until the jib is held in place by the offset pins.

◆ When increasing the offset angle, raise the boom as necessary while lowering the jib to prevent the jib head from hitting against the ground.



7. Unwind the auxiliary wire rope until the wire rope becomes slightly slack. Then remove the rope socket from the jib bracket.

8. Pass the rope socket through the weight of the anti-two-block device and mount it on the auxiliary hook block.



9. Select and register the jib offset angle on the load moment indicator corresponding to the actual angle.

28.9 ft (8.8 m) jib 25° offset	50.0 ft (15.2 m) jib 25° offset
25.0°	25.0°
28.9 ft (8.8 m) jib 45° offset	50.0 ft (15.2 m) jib 45° offset
45.0°	45.0°

T23389E

Increasing the Jib Offset Angle from 25° to 45°

⚠ WARNING

⚠ Do not lower the boom while the auxiliary wire rope is tense; otherwise the jib or the wire rope will be damaged, creating a hazard of serious accidents.

Take the same procedure as described in the "Increasing the Jib Offset Angle" section. However, substitute the following operation for the steps 4. and 5.

- (1) Extend the boom to a point where the jib offset pins can be removed.
- (2) Reinsert the offset pins in the pin holes of the 45°-angle.

System/Component		Check point	Pre-operational inspection	Periodic inspection	
				100 hrs	1 month
Hoisting system	Winch motor, speed reducer	External appearance	●	●	
		Operation, oil quantity, oil leaks, abnormal sounds	●	●	
	Hook blocks, wire ropes, sheaves	External appearance	●	●	
		Operation	●	●	
		Condition of wire rope (rope socket, wedge)	●	●	
		Condition of safety latch	●	●	
		Wire rope reeving	●	●	
	Disorderly winding prevention device	External appearance	●	●	
		Operation		●	
Crane control system	Operating controls	Movement of each lever/pedal	●	●	
		Movement of accelerator	●	●	
	Selector valves	External appearance		●	
		Operation, oil leaks	●	●	
		Relief valve pressure setting, condition of seal		●	
Safety device	Angle meter	External appearance		●	
		Operation	●	●	
	Load moment indicator	External appearance	●	●	
		Functions (check button, stop)	●	●	
		Operation (lamps, buzzers, etc.)	●	●	
		External appearance of boom length detector		●	
	Anti two block device	External appearance		●	
		Operation	●	●	
	Working area control devices	External appearance		●	
		Operation	●	●	
	Other safety devices	Operation	●	●	
Crane supporting and positioning devices	Outriggers, jack cylinders	External appearance	●	●	
		Operation, oil leaks	●	●	
		Jack cylinder spontaneous retraction		●	
	Bubble levels	External appearance		●	
		Condition of bubbles	●	●	
Electrical system	Lamps	External appearance		●	
		Operation	●	●	
	Switches	External appearance		●	
		Operation	●	●	
	Wipers	External appearance		●	
		Operation	●	●	
		Worn or damaged blades		●	

*1: Every 300 hrs or every 3 months

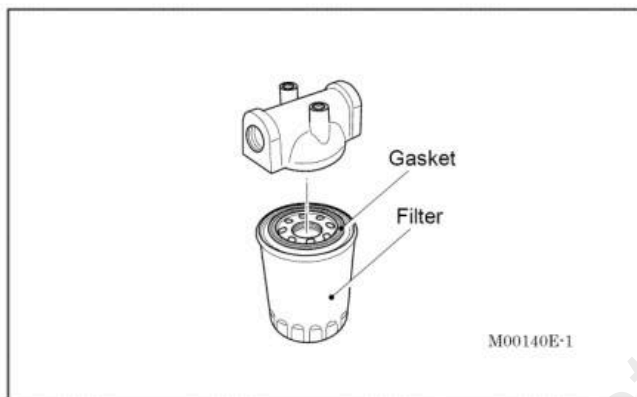
*2: Every 600 hrs or every 6 months

*3: Every 1,200 hrs or once a year

Return Filter Replacement • • Every 600 Hours or Every 6 Months

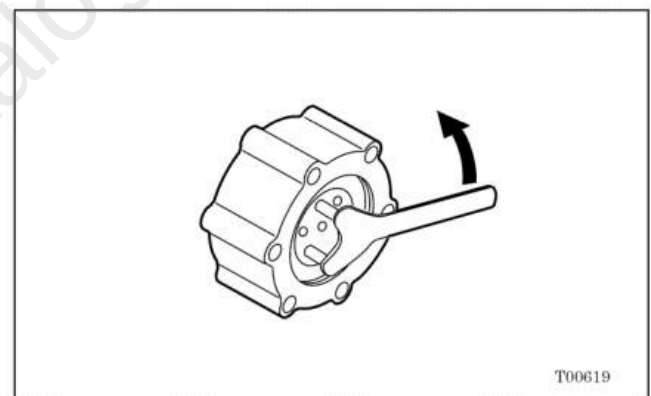
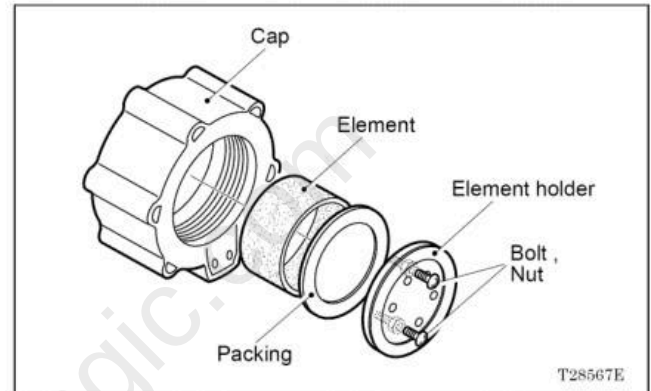
◆ Location: front of the hydraulic oil tank

1. Remove the filter using a strap wrench.
- ◆ Place a waste beforehand to catch the hydraulic oil which may spill when the filter is removed.
2. Attach a new filter.
- ◆ Apply hydraulic oil thinly to the gasket beforehand.
- ◆ Tightening torque: 14.8 ft-lb [20 N·m]



Air Breather Replacement (Hydraulic Oil Tank) • • • Every 600 Hours or Every 6 Months

Unlock the air breather cap to remove it.
Remove the two bolts, then use a wrench (spanner) as shown in the figure to remove the element holder.
Replace the element with a new one.



Full Version Available

Tadano GR-450XL-1 Rough Terrain Crane Operator Manual

Tadano GR-450XL-1 rough terrain crane operator manual covering controls, safe operation, setup and daily checks. Instant PDF download.

VIEW THE FULL MANUAL

<https://machinecatalogic.com/tadano-gr-450xl-1-rough-terrain-crane-operator-manual/>

File Pages: 298 · File Count: 2 · File Language: English