

Chapter 5 Assembly, Disassembly, Adjustment (Crane)

Conversion Table

1

Tightening Torque

- A necessary tightening torque is described in the drawing of each group and / or system.
- The thread size and tightening torque are written in the parts reassembly portion by three kinds of units (SI, Metric, ft-lbs).
- Where there is no specified figure for tightening torque, please refer to the standard tightening torque table of the separate service manual (A01-01-2E, page 40).

Disassembly and Reassembly

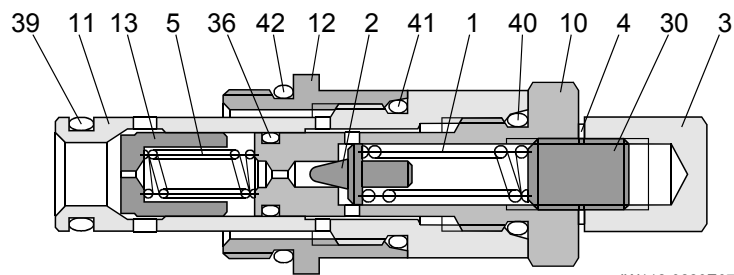
- | | |
|-------------------------------------|---|
| • Hydraulic Power Generating System | B |
| • Swing System | D |
| • Boom Elevating System | E |
| • Winch System | F |
| • Boom Telescoping System | G |
| • Safety System | H |
| • Cab | K |
| • Control System | L |

Adjustment

- | | |
|-------------------------------|---|
| • Data, Adjustment and Checks | Y |
|-------------------------------|---|

Solenoid Control Valve (Jib Set)

Relief valve



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- | | | | |
|----------------|------------|-----------|-----------|
| 1.Spring | 5.Spring | 13.Poppet | 40.O-ring |
| 2.Needle valve | 10.Housing | 30.Screw | 41.O-ring |
| 3.Nut | 11.Sleeve | 36.O-ring | 42.O-ring |
| 4.Gasket | 12.Sleeve | 39.O-ring | |

Telescoping System

G-1 Telescoping System

1. Function

1.1 Telescoping cylinder

1. The telescoping cylinders are incorporated in the boom, and serve to telescope the boom to which they are connected by pins.
2. It telescopes the 2nd boom section, and telescopes the 3rd, 4th and top boom sections simultaneously using two double-acting hydraulic cylinders and wire ropes.

1.2 Counterbalance valve

1. The counterbalance valve is directly connected to the telescoping cylinder, and serves to prevent the cylinder from retracting while the control lever is in NEUTRAL, to prevent the cylinder from being driven by the load during retraction, and to prevent its violent retraction, when the hoses and other parts of the extension circuit are damaged.

1.3 Hose reel

The hose reel serves to let out and take in the hose as the boom telescopes to maintain the hydraulic circuit to the No.2 cylinder all the time

1.4 Hydraulic valve

This valve is electrically controlled to selectively deliver the pressurized oil from the hydraulic pilot control valve into the No. 1 cylinder circuit or the No.2 cylinder circuit.

1.5 Jib lock pin

This lock pin fixes the jib to the bracket on the boom to prevent fall of the jib due to misoperation during jib mounting and stowing.

1.6 Jib offset cylinder

This cylinder is used to kill the offset between the jib and the boom in order to connect the jib with top part of the boom.

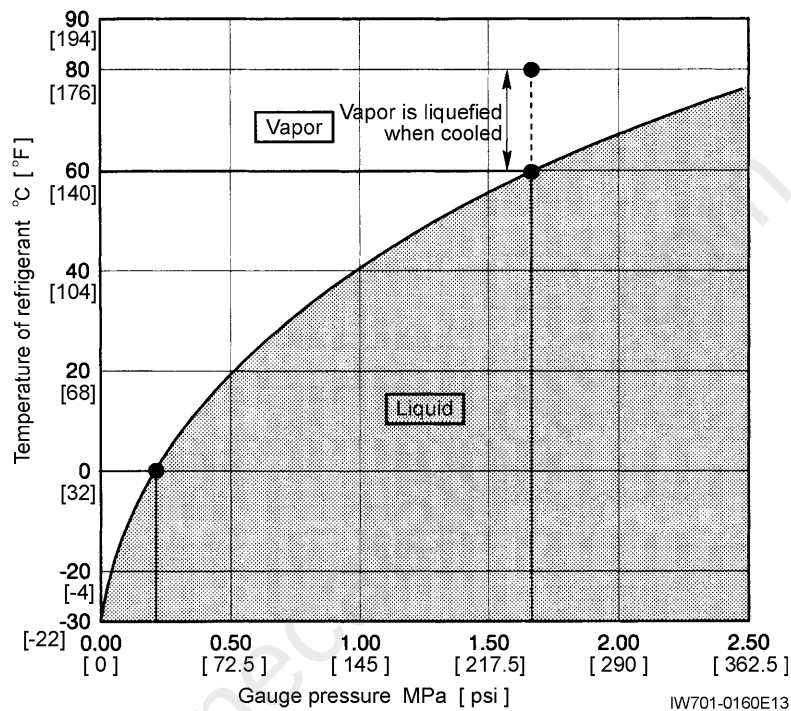
1.7 Pilot check valve (jib set)

This valve ensures the offset position of the jib and the lock of the lock pin position.

Air Conditioner

3.3 Refrigerant

1. The substance that circulates through the refrigeration cycle, and functions to transmit heat, is known as the refrigerant. In our air conditioning system, HFC134a is used. It is a freon-based refrigerant, but does not contain chlorine.
2. As shown in the figure below, the refrigerant HFC134a remains in liquid form at relatively high temperatures when it is strongly compressed. However, at low pressures it vaporizes at temperatures as low as 0°C (32°F) or -10°C (14°F).



3. This means, for example, that if the refrigerant vaporizes at 0°C (32°F), then the evaporator is also at 0°C (32°F). The air that passes through this evaporator should be cooled.
4. If the pressure is reduced so that the refrigerant evaporates at -5°C (23°F), the evaporator is also maintained at -5°C (23°F). This results in the formation of frost, which inhibits the flow of air through the evaporator and prevents cooling.
5. The vaporized refrigerant must then be liquefied. However, it is impossible to obtain a temperature as low as 40°C (104°F) in a hot summer environment.
6. If 60°C (140°F) is possible, HFC134a will become a liquid at 60°C (140°F) if the pressure is approximately 1.7 MPa (17.3 kgf/cm²) (246.5 psi) or above. When the gaseous refrigerant is compressed to 1.7 MPa (17.3 kgf/cm²) (246.5 psi) (by the compressor), the gas temperature rises to approximately 80°C (176°F).
7. Therefore, the temperature of the gas as it enters the condenser is 80°C (176°F). The curve above shows that when the refrigerant gas is cooled by 20°C (68°F), it becomes a liquid at approximately 60°C (140°F) by the time it reaches the condenser outlet.

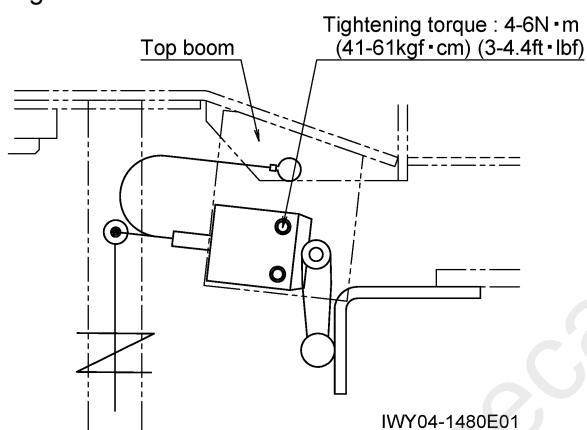
Adjustment Procedure (Electric Device)

Y-4 Adjustment Procedure (Electric Device)

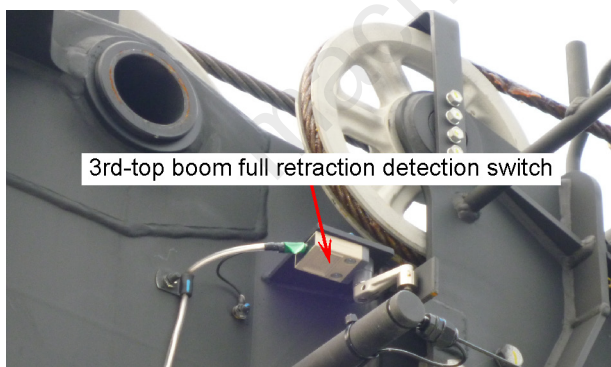
1. Detection switch adjustment procedure

1.1 3rd - top boom full retraction detection switch (CN859)

Adjust the switch position so that its contact is shifted (opened/closed) when the top boom section is extended/retracted beyond the position where it is 5-8 mm (0.2-0.31 in) longer than its fully retracted length.



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Left side of boom top end

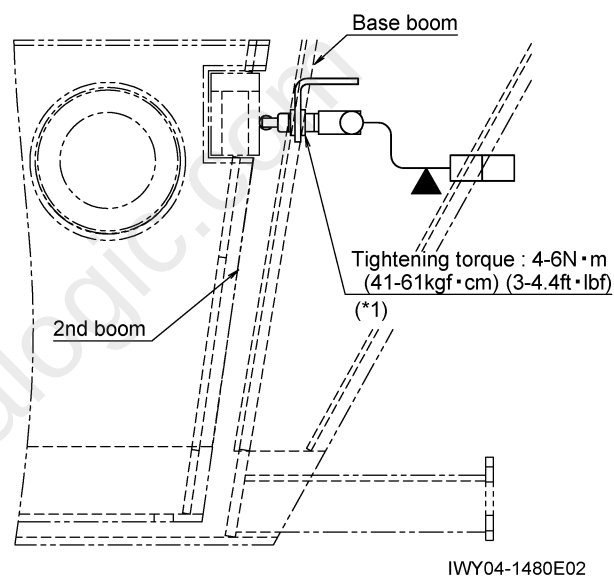
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For the location, refer to Chap.2 crane "Z-5 Location of Electric Parts (AML, Length, Overwinding)" page23 (CN859).

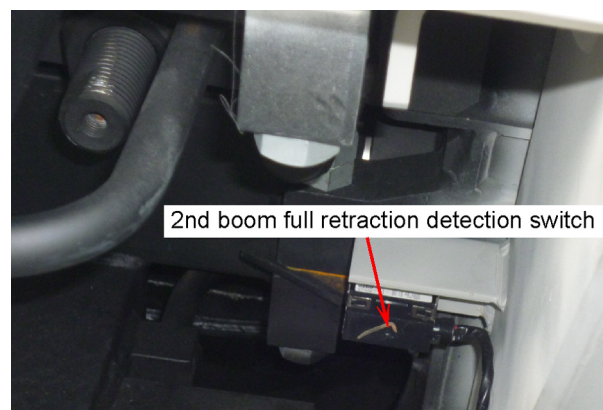
1.2 2nd boom full retraction detection switch (CN553)

Adjust the switch position so that its contact is shifted (opened/closed) when the 2nd boom section is extended/retracted beyond the position where it is 2-3 mm (0.08-0.12 in) longer than its fully retracted length.

(*1): Apply the screw locking agent (Three-Bond 1401 or the equivalent).



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View from boom rear end

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For the location, refer to Chap.2 crane "Z-5 Location of Electric Parts (AML, Length, Overwinding)" page23 (CN553).

Full Version Available

Tadano GT-600EX-1 Truck Crane Service Manual

Tadano GT-600EX-1 truck crane service manual with repair procedures, adjustments and troubleshooting for the main systems. Instant PDF download.

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