2.3 SPECIFICATIONS

2.3.1 Travel Speeds

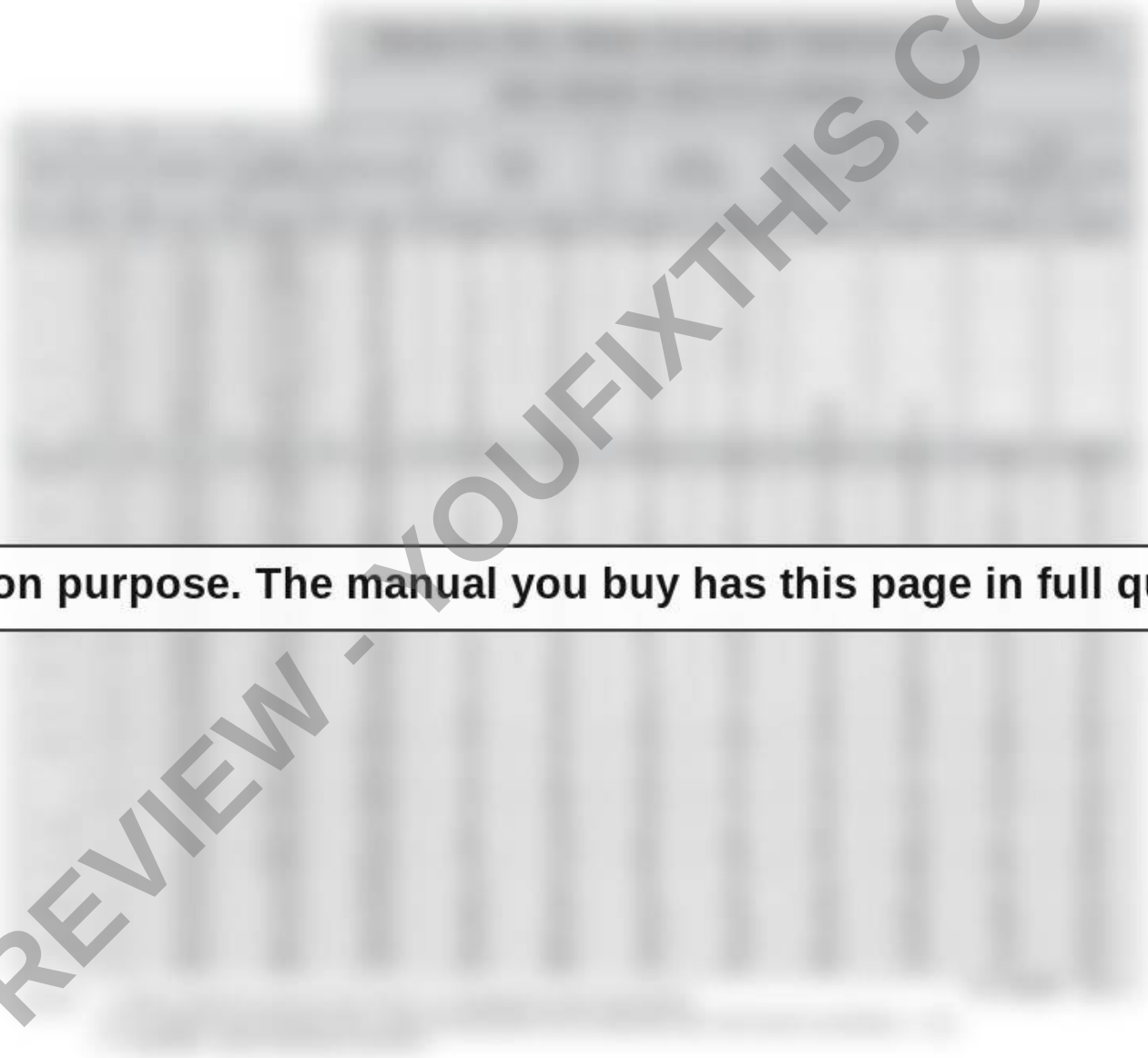
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2.2 TORQUE CHARTS

2.2.1 SAE Fastener Torque Chart



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3.2 SAFETY INFORMATION

WARNING

DO NOT service the machine without following all safety precautions as outlined in the “Safety Practices” section of this manual.

3.3 BOOM SYSTEM - THREE SECTION (6036, 6042, 8042 & 10042)

3.3.1 Boom System Operation

The three section boom assembly consists of first, second and third boom section assemblies with double top boom extend chains and a single retract chain. Boom extension and retraction is accomplished via hydraulic power and chain movement.

As the Extend/Retract hydraulic cylinder, which is anchored at the rear of the second boom section and the rear of the first boom section, begins to extend, it forces the second boom section out of the first boom section.

The second and third boom sections are connected by extend and retract chains. These chains are routed around sheaves on the second boom section. As the second boom section is forced out, the extend chain pulls the third boom section out of the second boom section.

As hydraulic pressure is applied to the retract port on the Extend/Retract cylinder, the second boom section is pulled back into the first boom section, and retract chain pulls the third boom section back into the second section.

This mechanical linkage formed by the chains and supporting hardware extends and retracts the second and third boom sections at the same rate.

The first boom section does not extend or retract, but lifts and lowers via action of the lift/lower cylinder.

3.4 BOOM ASSEMBLY MAINTENANCE

These instructions must be completed in sequence. The third boom section must be removed before removing the second boom section. The third and second boom section must be removed at one time before removing the first boom section.

Before beginning, conduct a visual inspection of the machine and work area, and review the task about to be undertaken. Read, understand and follow these instructions.

WARNING

NEVER weld or drill the boom unless approved in writing by the manufacturer. The structural integrity of the boom will be impaired if subjected to any repair involving welding or drilling.

3.4.1 Boom Removal

1. Remove any attachment from the quick attach assembly. Refer to Section 3.8.1, “Disconnecting from an Attachment.”

Note: *If replacing the third section boom, remove the quick attach from the third section. Refer to Section 3.8.3, “Quick Attach Removal.”*

2. Park the machine on a hard, level surface, level the machine, fully retract the boom, lower the boom, place the transmission control lever in (N) NEUTRAL, engage the park brake and shut the engine OFF.
3. Place a Do Not Operate Tag on both the ignition key switch and the steering wheel, stating that the machine should not be operated.
4. Open the rear door. Allow the system fluids to cool.
5. Move the Attachment Tilt joystick in both directions to relieve any trapped pressure in the Attachment Tilt system. If the machine is equipped with Auxiliary controls, move the Auxiliary hydraulic joystick in both directions to relieve any trapped pressure in the Auxiliary hydraulic system.
6. Properly disconnect the battery.
7. Label, disconnect and cap the hydraulic hoses at the rear of the boom. Cap all fittings to keep dirt and debris from entering the hydraulic system.
8. Label and disconnect the boom proximity sensor at the rear of the boom.
9. Remove the pin from the rod end of the slave cylinder being careful not to drop the cylinder. Lower the cylinder onto the frame rails.
10. Remove the pin from the rod end of the lift/lower cylinders. Lower the cylinders onto the frame rails.
11. Confirm that the boom assembly is balanced with the sling and remove the boom assembly pivot pin.
12. Lift the boom assembly from the machine and lower onto suitable supports

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c. Pressure Specifications (6036)



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9.5 ELECTRICAL SYSTEM SCHEMATICS

The following Ladder Diagrams may be used to further investigate electrical circuits. If a resolution cannot be



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9.13.4 Engine Fault Codes Chart

Fault Code	SPN Code	FMI Code	Description
0001			Exhaust Gas Pressure Sensor Number 1 Circuit - High
0002			Exhaust Gas Pressure Sensor Number 1 Circuit - Low
0003			Exhaust Gas Pressure Sensor Number 1 Circuit - Erratic
0004			Exhaust Gas Temperature Sensor Number 1 Circuit - Erratic
0005			Exhaust Gas Temperature Sensor Number 1 Circuit - Low
0006			Exhaust Gas Temperature Sensor Number 1 Circuit - High
111	629	12/12	Engine Control Module
115	612	2	Engine Magnetic Crankshaft Speed/Position
122	102	3/3	Intake Manifold Pressure Sensor Circuit - High
123	102	4/4	Intake Manifold Pressure Sensor Circuit - Low
124		0/16	Intake Manifold 1 Pressure Sensor Circuit
131	91	3/3	Accelerator Pedal or Lever Position Sensor Circuit - High
132	91	4/4	Accelerator Pedal or Lever Position Sensor Circuit - Low
133	974	3/3	Remote Accelerator Pedal or Lever Position Sensor Circuit - High
134	974	4/4	Remote Accelerator Pedal or Lever Position Sensor Circuit - Low
135	100	3	Oil Pressure Sensor Circuit - High
141	100	4/4	Oil Pressure Sensor Circuit - Low
143	100	1/18	Engine Oil Rifle Pressure
144	110	3/3	Engine Coolant Temperature 1 Sensor Circuit - High
145	110	4/4	Engine Coolant Temperature 1 Sensor Circuit - Low
146	110	0/16	Engine Coolant Temperature - High - Warning
147		1	Accelerator Pedal or Lever Position 1 Sensor Circuit - Low
148		0	Accelerator Pedal or Lever Position 1 Sensor Circuit - High
151	110	0/0	Engine Coolant Temperature - High - Critical
153	105	3/3	Intake Manifold Air Temperature Sensor Circuit - High
154	105	4/4	Intake Manifold Air Temperature Sensor Circuit - Low
155	105	0/0	Intake Manifold 1 Temperature
187	1080	4/4	Sensor Supply Voltage Number 2 Circuit - Low
195	111	3/3	Coolant Level Sensor Circuit - High
196	111	4/4	Coolant Level Sensor Circuit - Low
197	111	1/18	Coolant Level - Low
221	108	3/3	Barometric Pressure Sensor Circuit - High
222	108	4/4	Barometric Pressure Sensor Circuit - Low
227	1080	3/3	Sensor Supply 2 Circuit - High
234	190	0/0	Engine Crankshaft Speed/Position
235	111	1	Coolant Level - Low
237	644	2	External Speed Command Input (Multiple Unit Synchronization)
238	611	4/4	Sensor Supply 3 Circuit - Low
241	84	2/2	Vehicle Speed Sensor Circuit
242	84	10/10	Vehicle Speed Sensor Circuit Tampering Has Been Detected

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3.12 TROUBLESHOOTING

This section provides an easy reference guide covering the most common problems that occur during operation of the boom.

Problem	Cause	Remedy
1. Boom will not extend or retract	1. Broken hydraulic hose(s) or tube(s) and/or connections leaking.	1. Locate break, replace hose(s) or tube(s), tighten connections.
	2. Extend/retract hydraulic system not operating properly.	2. Refer to Section 8.4, “Hydraulic Circuits.”
	3. Faulty extend/retract cylinder.	3. Repair cylinder. Refer to Section 8.8.1, “General Cylinder Instructions.”
	4. Broken chains or anchors	4. Replace chains as needed
2. Boom shifts to right or left when extending.	1. Boom side wear pads improperly shimmed or worn.	1. Shim wear pads to correct gap. Replace wear pads as needed. Refer to Section 3.9, “Boom Wear Pads.”
3. Excessive pivot pin noise and/or wear.	1. Insufficient lubrication.	1. Lubricate at regular intervals. Refer to Section 2.6, “Lubrication Schedules.” Replace worn pins as needed.
	2. Worn bearing(s).	2. Replace bearing(s) and lubricate at regular intervals Refer to Section 2.6, “Lubrication Schedules.”
4. Excessive Compensation cylinder pivot pin noise and/or wear.	1. Insufficient lubrication.	1. Lubricate at regular intervals. Refer to Section 2.6, “Lubrication Schedules.” Replace worn pins as needed.
	2. Worn bushing(s).	2. Replace bushing(s) and lubricate at regular intervals.
5. Boom will not raise or lower.	1. Broken hydraulic hoses or tubes and/or connection leaks.	1. Locate break, replace hose(s) or tube(s), tighten connections.
	2. Lift/lower hydraulic system not operating properly.	2. Refer to Section 8, “Hydraulic System.”
	3. Faulty lift/lower cylinder.	3. Repair cylinder. Refer to Section 8.8, “Hydraulic Cylinders.”
	4. Seized boom pivot pin bearing.	4. Replace bearing.

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SECTION CONTENTS

Section	Subject	Page
Section 1		
Safety Practices		**1-1**
1.1	Introduction	1-2
1.2	Disclaimer	1-2
1.3	Operation & Safety Manual	1-2
1.4	Do Not Operate Tags	1-2
1.5	Safety Information	1-2
1.6	Safety Instructions	1-3
1.7	Safety Decals	1-4
Section 2		
General Information and Specifications		**2-1**
2.1	Replacement Parts and Warranty Information	2-2
2.2	Torque Charts	2-3
2.3	Specifications	2-11
2.4	Fluid and Lubricant Capacities	2-16
2.5	Service and Maintenance Schedules	2-18
2.6	Lubrication Schedules	2-22
Section 3		
Boom		**3-1**
3.1	Boom System Component Terminology	3-3
3.2	Safety Information	3-4
3.3	Boom System - Three Section (6036, 6042, 8042 & 10042)	3-4
3.4	Boom Assembly Maintenance	3-4
3.5	Boom System - Four Section (10054)	3-15
3.6	Boom Assembly Maintenance	3-15
3.7	Boom Extend and Retract Chains	3-28
3.8	Quick Attach Assembly	3-48
3.9	Boom Wear Pads	3-49
3.10	Boom Extend and Retract Chains	3-50
3.11	Forks	3-53
3.12	Troubleshooting	3-54
Section 4		
Cab and Covers		**4-1**
4.1	Operator Cab and Covers Component Terminology	4-2
4.2	Operator Cab	4-3
4.3	Cab Components	4-3
4.4	Cab Removal	4-8
4.5	Cab Installation	4-9

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1.1 INTRODUCTION

This service manual provides general directions for accomplishing service and repair procedures. Following the procedures in this manual will help assure safety and equipment reliability.

Read, understand and follow the information in this manual, and obey all locally approved safety practices, procedures, rules, codes, regulations and laws.

These instructions cannot cover all details or variations in the equipment, procedures, or processes described, nor provide directions for meeting every possible contingency during operation, maintenance, or testing. When additional information is desired consult your local authorized service distributor.

Many factors contribute to unsafe conditions: carelessness, fatigue, overload, inattentiveness, unfamiliarity, even drugs and alcohol, among others. For optimal safety, encourage everyone to think, and to act, safely.

Appropriate service methods and proper repair procedures are essential for the safety of the individual doing the work, for the safety of the operator, and for the safe, reliable operation of the machine. All references to the right side, left side, front and rear are given from the operator seat looking in a forward direction.

Supplementary information is available from JLG in the form of Service Bulletins, Service Campaigns, Service Training Schools, the manufacturer website, other literature, and through updates to the manual itself.

1.2 DISCLAIMER

All information in this manual is based on the latest product information available at the time of publication. The manufacturer reserves the right to make changes and improvements to its products, and to discontinue the manufacture of any product, at its discretion at any time without public notice or obligation.

1.3 OPERATION & SAFETY MANUAL

The mechanic must not operate the machine until the Operation & Safety Manual has been read and understood, training has been accomplished and operation of the machine has been completed under the supervision of an experienced and qualified operator.

An Operation & Safety Manual is supplied with each machine and must be kept in the manual holder located in the cab. In the event that the Operation & Safety Manual is missing, consult your local authorized service distributor before proceeding.

1.4 DO NOT OPERATE TAGS

Place Do Not Operate Tags on the ignition key switch and the steering wheel before attempting to perform any service or maintenance. Remove key and disconnect battery leads.

1.5 SAFETY INFORMATION

To avoid possible death or injury, carefully read, understand and comply with all safety messages.

In the event of an accident, know where to obtain medical assistance and how to use a first-aid kit and fire extinguisher/fire suppression system. Keep emergency telephone numbers (fire department, ambulance, rescue squad/paramedics, police department, etc.) nearby. If working alone, check with another person routinely to help assure personal safety.

1.5.1 Safety Alert System and Signal Words

⚠ DANGER

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

⚠ WARNING

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

⚠ CAUTION

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

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Section	Subject	Page
Section 5		
Axles, Drive Shafts, Wheels and Tires		**5-1**
5.1	Axle, Drive Shaft and Wheel Component Terminology (6036 & 6042)	5-2
5.2	Axle, Drive Shaft and Wheel Component Terminology (8042, 10042 & 10054)	5-3
5.3	General Information	5-4
5.4	Axle Assemblies	5-4
5.5	Axle Assembly and Drive Shaft Troubleshooting	5-11
5.6	Drive Shafts	5-14
5.7	Wheels and Tires	5-15
5.8	Brakes	5-16
5.9	Towing a Disabled Machine	5-18
Section 6		
Transmission		**6-1**
6.1	Transmission Assembly Component Terminology	6-2
6.2	Transmission Serial Number	6-3
6.3	Transmission Specifications and Maintenance Information	6-3
6.4	Transmission Replacement	6-3
6.5	Transmission Troubleshooting	6-7
Section 7		
Engine - Cummins QSB3.3T/QSB4.5T		**7-1**
7.1	Introduction	7-2
7.2	Engine Serial Number	7-4
7.3	Specifications and Maintenance Information	7-4
7.4	Engine Cooling System	7-4
7.5	Engine Electrical System	7-5
7.6	Fuel System	7-5
7.7	Engine Exhaust System	7-7
7.8	Air Cleaner Assembly	7-8
7.9	Engine Replacement	7-9
7.10	Isolation Coupler	7-10
7.11	Troubleshooting	7-12
Section 8		
Hydraulic System		**8-1**
8.1	Hydraulic Component Terminology	8-2
8.2	Safety Information	8-4
8.3	Hydraulic Pressure Diagnosis	8-4
8.4	Hydraulic Circuits	8-5
8.5	Hydraulic Reservoir	8-21
8.6	Hydraulic System Pump	8-22
8.7	Valves and Manifolds	8-23
8.8	Hydraulic Cylinders	8-32

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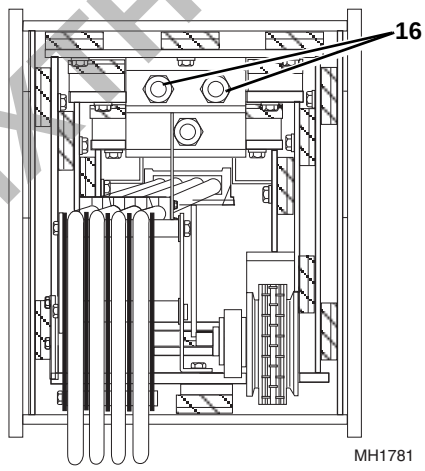
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14. From the rear of the boom, have an assistant push the threaded clevis end of the chain under the chain sheave and down between the second and first boom sections. Pull the front clevis using the string or wire. Keep the chain to the right side of the boom, push the threaded clevis down to the tab at the front underside of the first boom section.
15. Have an assistant guide the threaded end of the clevis through the hole in the tab.
16. Remove the string or wire from the end of the clevis.
17. Reassemble the flat washer and locknut onto the threaded clevis. Tighten the locknut until the threaded end of the clevis is flush with the top of the locknut.
18. At the rear of the boom, place the retract chain up and over the chain sheave. Place the clevis between the two anchor plates.
19. If re-installing a used chain, insert the saved shoulder bolt, in the same position in the plates and clevis recorded during removal.
20. If installing a new chain, line up the hole in the clevis with the second hole from the rear of the anchor plates. Insert the shoulder bolt, saved during removal of the old chain.
21. Secure the shoulder bolt in place with a locknut. Tighten the locknut securely.
22. Tighten the locknut on the retract chain clevis until the amount of threads protruding beyond the locknut is the same as the measurement recorded during removal of the retract chain.
23. Check and adjust retract chain tension. Refer to Section 3.7.5, “Boom Chain Tension Check.”
24. Install the boom rear cover.
25. Properly connect the battery.
26. Remove the Do Not Operate Tags from both the ignition key switch and the steering wheel.

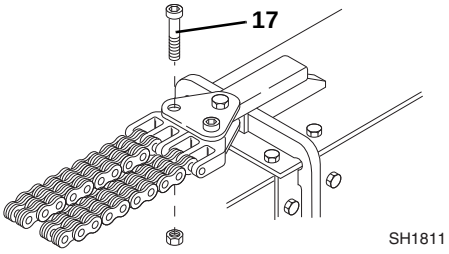
3.7.10 Extend Chains Removal and Replacement (10054)

a. Second and Third Boom Section Extend Chains Removal and Replacement

1. Park the machine on level ground. Place the transmission control lever in (N) NEUTRAL, engage the parking brake switch, level the boom and shut the engine OFF.
2. Place a Do Not Operate Tag on both the ignition key switch and the steering wheel, stating that the machine should not be operated.
3. Properly disconnect the battery.
4. Remove the boom rear cover.



5. At the rear of the boom, locate the extend chain locknuts (**16**). Record the amount of threads extending beyond the locknuts. This measurement will be the starting point for adjustment of the extend chains after installation.
6. Remove and replace the boom extend chains one at a time. Remove the right side locknut and flat washer holding the right side chain clevis to the anchor plate.



7. At the front of the first boom section, remove the capscrews (**17**) and locknuts holding the extend chain clevis’ to the yoke plates.

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Test Location	Hydraulic Pump Flow Test
1	To check flow readings, a flow meter capable of measuring 60 gpm (3.8 liter/sec) and a load

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