Service Manual

506-36, 507-42, 509-42, 510-56, 512-56, 514-56

Section 1 - General Information

Section 2 - Care and Safety

Section 3 - Routine Maintenance

Section B - Body and Framework

Section C - Electrics

Section E - Hydraulics

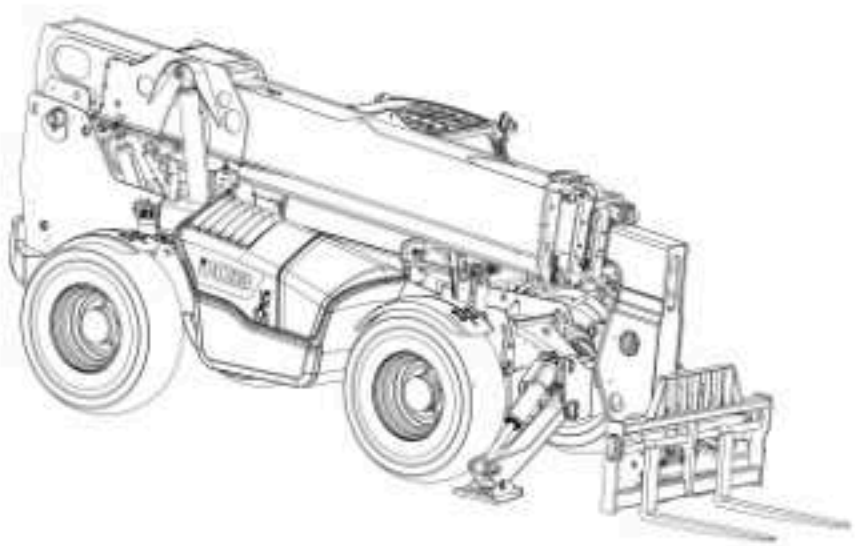
Section F - Transmission

Section G - Brakes

Section H - Steering

Section K - Engine

Section M - Electronic Network



Publication No.

9813/1800-2



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Contents Page No.

Applications
Introduction 1-1-1
Tables 1-1-2

Use
Introduction 1-2-1
Scope 1-2-2
Format 1-2-3
Left and Right Sides 1-2-4
Hydraulic Schematic Codes 1-2-5

Machine Identification
Introduction 1-3-1
Related Topics 1-3-2
Machine Identification Plate 1-3-3
Component Identification Plates 1-3-7

Torque Settings
Introduction 1-4-1
Zinc Plated Fasteners and Dacromet Fasteners 1-4-2
Hydraulic Connections 1-4-6
'Positional Type' Hydraulic Adaptors 1-4-10

Service Tools
Introduction 1-5-1
Numerical List 1-5-2
Tool Detail Reference 1-5-5
Rivet Nuts 1-5-27
Slide Hammer Kit 1-5-29

Service Consumables
Introduction 1-6-1
Sealing and Retaining Compounds 1-6-2

Fuel
Introduction 1-7-1
Related Topics 1-7-2
Acceptable and Unacceptable Fuels 1-7-3

Stall Speed Combinations
Introduction 1-8-1
Related Topics 1-8-2
Specifications 1-8-3

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Contents Page No.

Safety Notices

Introduction 2-1-1
Important Information 2-1-2
Safety Check List 2-1-3
Safety Decals 2-1-16

General Procedures

Introduction 2-2-1
Related Topics 2-2-3
Parking the Machine and Making it Safe 2-2-4
Boom Safety Strut (P1) 2-2-6
Boom Safety Strut (P2) 2-2-9
Venting the Hydraulic Pressure 2-2-12
Venting the Brake System Pressure 2-2-14
Connecting/Disconnecting Hydraulic Hoses 2-2-15
Quick Release Couplings 2-2-16
Hydraulic Contamination 2-2-18
Battery Disconnection/Connection 2-2-20
Battery Charging System Precautions 2-2-21
Removing and Replacing Components 2-2-22
Hydraulic Rams 2-2-24
Gas Hydraulic Bladder Accumulators 2-2-26

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Contents **Page No.**

Maintenance
Related Topics 3-1-1
Introduction 3-1-2
Health and Safety 3-1-3
Lubricants 3-1-3
Battery 3-1-5
Service Schedules 3-1-7
Introduction 3-1-7
How to Use the Service Schedules 3-1-7
Calendar Equivalents 3-1-7
Pre-start Cold Checks, Service Points and Fluid Levels 3-1-8
Functional Test and Final Inspection 3-1-11
Fluids, Lubricants and Capacities 3-1-13
Coolant Mixtures 3-1-13
Fuel 3-1-15
Acceptable and Unacceptable Fuels 3-1-15
Usage and Effects of Fuels 3-1-18
Sulphur Content 3-1-19
Effects of Fuel Contaminates 3-1-19
Prepare the Machine for Maintenance 3-1-20
Cleaning the Machine 3-1-21
Introduction 3-1-21
Preparing the Machine for Cleaning 3-1-21
Cleaning the Machine 3-1-22
Checking for Damage 3-1-25
Check the Machine Body and Structure 3-1-25
Check the Tires 3-1-25
Check the Seat and Seat Belt 3-1-25
Check the Hydraulic Hoses and Fittings 3-1-25
Check the Electrical Circuits 3-1-26
Checking the ROPS/FOPS Structure 3-1-26
Greasing 3-1-28
Introduction 3-1-28
Preparing the Machine for Greasing 3-1-28
Every 50 Hours 3-1-29
Every 500 Hours 3-1-31
Every 1000 Hours 3-1-34
Oiling 3-1-35
Park Brake Cable 3-1-35
Control Levers 3-1-35
Boom Chains 3-1-36
Access Panels 3-1-37
Battery Cover 3-1-37
Engine Cover 3-1-38
Undershield 3-1-39
Rear Boom Cover 3-1-40
Central Access Panels 3-1-41
Cab Heater and Air Conditioning 3-1-42
Changing the Air Intake Filter 3-1-42
Boom 3-1-43
Boom Chains 3-1-43
Brakes 3-1-47
Park Brake 3-1-47
Foot Brake 3-1-49

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Descriptions

The schematic diagrams show a typical system. For machine specific schematics refer to ***Systems and Schematics***. ⇨ *Related Topics (E4-2)*

Note: *Pressures quoted are for illustration purposes only. Refer to the* ***Hydraulic SYSTEM*** *topic for the correct pressures for machine variant.*

Table 2. Colour Key to Oil Flow and Pressure

	Full Pressure
	Load Sense Line
	Servo
	Neutral
	Exhaust

Note: *For illustration purposes the isolation proportional solenoid* ***H*** *and the Variable Orifice pilot valve* ***J*** *are shown with the service valve spool* ***E*** *receiving full hydraulic supply. Depending on the state of the LLMC system the Variable Orifice pilot valve* ***J*** *and isolation proportional solenoid* ***H*** *may be operative to stop or restrict flow to the service valve spool* ***E****. For LLMC system operation and components refer to* ***Section B - Longitudinal Load Moment SYSTEM****.* ⇨ *Related Topics (E4-2)*

Note: *For illustration purposes a double gearpump is shown.*

Neutral

⇨ *Fig 1. (E4-4)*

Oil from the primary pump **B** flows to the inlet-outlet section of the control valve **D** through the valve spool **E** and returns to tank **A**.

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Removal and Replacement

Introduction

The engine and gearbox must be removed from the machine as a complete unit. The total weight of the engine and gearbox assembly is approximately 1000 kg.

A suitable overhead crane and lifting frame will be required to safely lift and manoeuvre the assembly in and out of the machine chassis. The following procedures describe removing and replacing the engine and gearbox as a complete unit. Before separating the engine and bevel box. ⇨ *Separating the Engine and Bevel Box (K10-9)*

Removal

Note: *The following procedures are for a typical engine and gearbox installation. There will be some procedural differences dependant on machine variant. Before attempting to remove the engine and gearbox ensure that all the necessary components have either been removed, or safely disconnected.*

Important: *Switch OFF the engine before working in the engine compartment. Remove key or isolate battery to prevent the engine from being started.*

⚠ WARNING

Make the machine safe before working underneath it. Park the machine on level ground, lower the attachments to the ground. Apply the park brake, put the transmission in neutral and stop the engine. Block both sides of all four wheels.

Disconnect the battery, to prevent the engine being started while you are beneath the machine.

GEN-4-1_1

Machines with Air Conditioning

⇨ *Fig 1. (K10-5)*

1 Discharge the air conditioning system and disconnect the pipes **10** at the compressor. See ***Section B - Cab Air Conditioning SYSTEM***. ⇨ *Related Topics (K10-2)*

⚠ WARNING

The air conditioning system is a closed loop system and contains pressurised refrigerant. No part of the system should be disconnected until the system has been discharged by a refrigeration engineer or a suitably trained person. You can be severely frostbitten or injured by escaping refrigerant.

4-3-4-1_2

All Machines

1 Remove the engine cover and side pod, see ***Section B - Chassis Panels***. ⇨ *Related Topics (K10-2)*

2 Remove the cooling pack. Refer to the applicable ***Cooling Pack*** topic. ⇨ *Related Topics (K10-2)*

3 Remove the coolant expansion tank. Refer to the ***Coolant Expansion Tank*** topic. ⇨ *Related Topics (K10-2)*

4 Disconnect the following electrical connectors at the points shown: ⇨ *Fig 1. (K10-5)*

- **a** The engine ECU machine electrical harness connector **7**. Make sure that the open connectors on the harness and ECU are capped. DO NOT touch the connector pins on the ECU.
- **b** Starter motor electrical connections **4**.
- **c** Fan motor solenoids **14** and speed sensor **15** (if fitted)
- **d** Intake air sensor **9** and air cleaner vacuum switch **8**.
- **e** Alternator **3**.
- **f** Cold start heater electrical cables at the relay **13** (if fitted).
- **g** Air conditioning binary switch **11**(if fitted)
- **h** Air conditioning compressor **6** (if fitted)
- **i** Lambda sensor **12** (if fitted)
- **j** Transmission oil temperature sensor **16**.
- **k** Transmission speed sensor.

  PS750 - item **5**

  PS760 - items **2**
- **l** Disconnect the engine electrical harness connector **1** from the pod harness connector.
- **m** Disconnect the gearbox harness connection from the chassis harness connector.

5 If necessary remove the air cleaner housing assembly to improve access. Refer to the ***Air Cleaner Housing*** topic. ⇨ *Related Topics (K10-2)*

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Chassis 'C' Codes

Note: *Faults that are classed as 'Trivial' severity will not be displayed on the RHC. These can only be read using Servicemaster.*

Fault Code	Description	Warning Display Colour	Severity
C1019-38	LLMI Transducer 1 PWM signal error	Amber	Operator
C101A-29	LLMI Transducer 1 range error	Amber	Operator
C101B-38	LLMI Transducer 2 PWM signal error	Amber	Operator
C101C-29	LLMI Transducer 2 range error	Amber	Operator
C1500-13	boom retracted switch open	Amber	Operator
C1501-64	boom retracted switch short	Amber	Operator
C1502-1C	boom retracted switch OOR	Amber	Operator
C1503-07	boom retracted switch stuck	Amber	Operator
C1504-62	Load Moment Indicator disagreement fault	Amber	Operator
C1505-13	Accumulator Solenoid Open	Amber	Operator
C1506-11	Accumulator Solenoid STG	Amber	Operator
C1507-12	Accumulator Solenoid STB	Amber	Operator
C1508-13	Drain Solenoid Open	Amber	Operator
C1509-11	Drain Solenoid STG	Amber	Operator
C150A-12	Drain Solenoid STB	Amber	Operator
C150B-13	Extend Solenoid Open	Amber	Operator
C150C-11	Extend Solenoid STG	Amber	Operator
C150D-12	Extend Solenoid STB	Amber	Operator
C150E-13	Retract Solenoid Open	Amber	Operator
C150F-11	Retract Solenoid STG	Amber	Operator
C1510-12	Retract Solenoid STB	Amber	Operator
C1511-13	Extend/Retract Solenoid Return Open	Amber	Operator
C1512-11	Extend/Retract Solenoid Return STG	Amber	Operator
C1513-12	Extend/Retract Solenoid Return STB	Amber	Operator
C1514-13	Auxiliary A Solenoid Open	Amber	Operator
C1515-11	Auxiliary A Solenoid STG	Amber	Operator
C1516-12	Auxiliary A Solenoid STB	Amber	Operator
C1517-13	Auxiliary B Solenoid Open	Amber	Operator
C1518-11	Auxiliary B Solenoid STG	Amber	Operator
C1519-12	Auxiliary B Solenoid STB	Amber	Operator
C151A-13	Auxiliary Changeover Solenoid Open	Amber	Operator
C151B-11	Auxiliary Changeover Solenoid STG	Amber	Operator
C151C-12	Auxiliary Changeover Solenoid STB	Amber	Operator

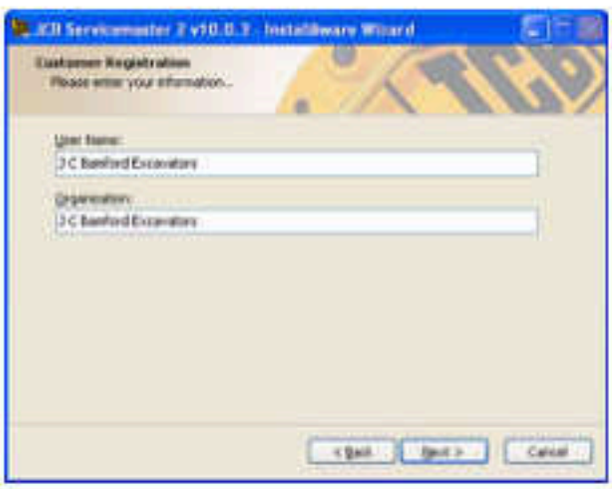
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T040310-5

Fig 7.

6 The next screen requires you to put in your username and organization. Once inserted, click next.



T040310-6

Fig 8.

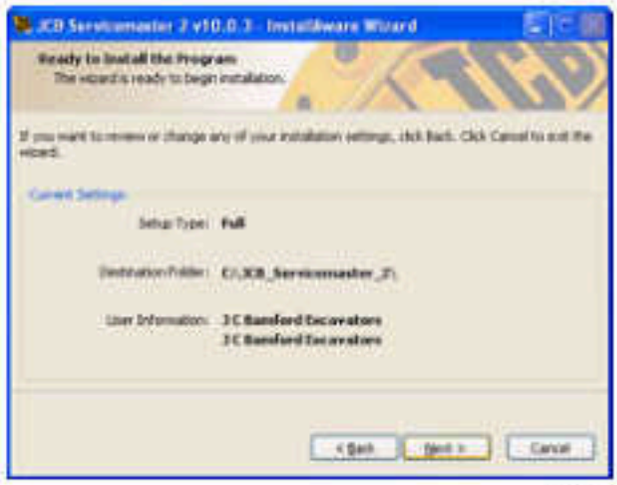
7 On the next screen, please choose "Complete" to do the full install to your laptop.



T040310-7

Fig 9.

8 The next screen shows you where ServiceMaster will be installed to on your computer. Click next to begin the install.



T040310-7

Fig 10.

9 During the install you may get a number of errors indicating language files for TransLink haven't been found. Please click Ignore, these files will be installed later via WebUpdate.

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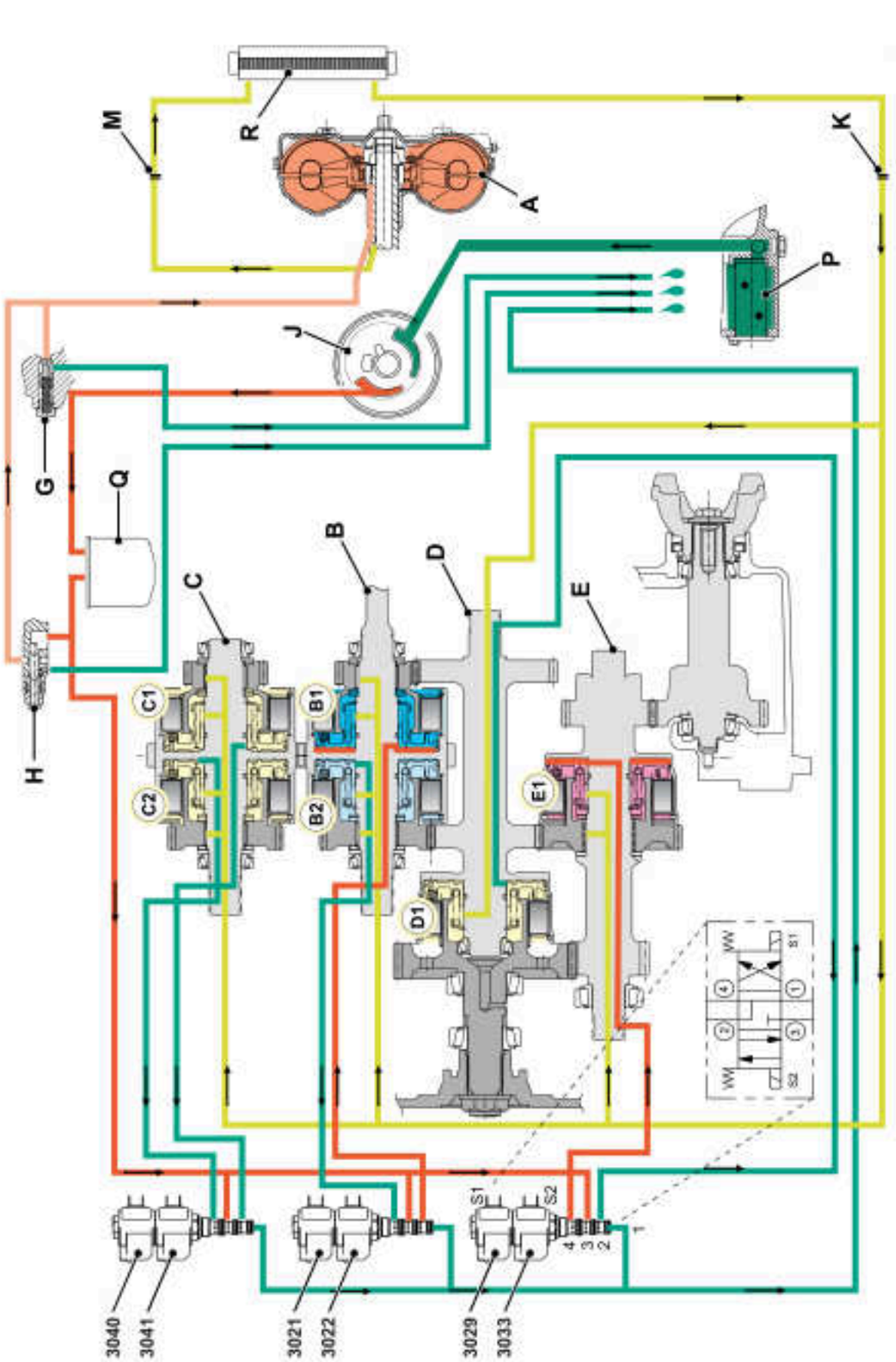


Fig 10. Hydraulic Schematic

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