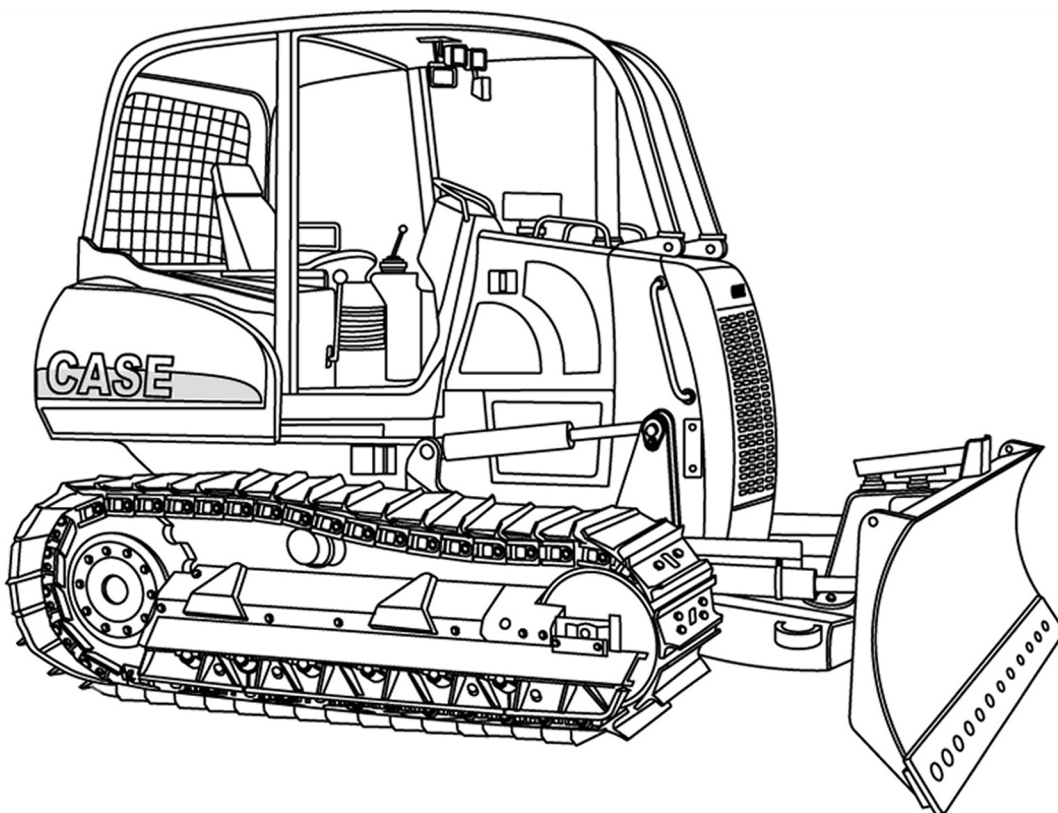




SERVICE MANUAL

CRAWLER DOZER 650L TIER3



84276960

Replaces 84260831

Issued October 2009

Contents

INTRODUCTION

DISTRIBUTION SYSTEMS..... A

PRIMARY HYDRAULIC POWER SYSTEM..... A.10.A

SECONDARY HYDRAULIC POWER SYSTEM..... A.12.A

ELECTRICAL POWER SYSTEM A.30.A

LIGHTING SYSTEM..... A.40.A

FAULT CODES A.50.A

POWER PRODUCTION B

ENGINE B.10.A

FUEL AND INJECTION SYSTEM..... B.20.A

AIR INTAKE SYSTEM..... B.30.A

LUBRICATION SYSTEM B.60.A

POWER TRAIN C

TRANSMISSION Hydrostatic..... C.20.F

TRAVELLING..... D

Final drive D.15.A

SERVICE BRAKE Hydraulic..... D.30.C

WHEELS AND TRACKS Tracks D.50.B

BODY AND STRUCTURE E

USER CONTROLS AND SEAT E.32.A

USER CONTROLS AND SEAT Operator seat E.32.C

USER PLATFORM E.34.A

ENVIRONMENT CONTROL Heating system E.40.B

ENVIRONMENT CONTROL Air-conditioning system E.40.C

ENVIRONMENT CONTROL Heating, ventilation and air-conditioning..... E.40.D

SAFETY SECURITY ACCESSORIES Safety E.50.B

TOOL POSITIONING G

LIFTING G.10.A

TILTING	G.20.A
SWINGING	G.40.A
TOOLS AND COUPLERS.....	J
DIGGING Non-articulated digging tools	J.20.B
LANDSCAPING Dozer blade.....	J.40.F



INTRODUCTION

Click on the image link below for the full version of the service manual



Basic instructions

Technical Information

This manual has been produced by a new technical information system. This new system is designed to deliver technical information electronically through CDROM and in paper manuals. A coding system called ICE has been developed to link the technical information to other Product Support functions e.g. Warranty.

Technical information is written to support the maintenance and service of the functions or systems on a customers machine. When a customer has a concern on his machine it is usually because a function or system on his machine is not working at all, is not working efficiently, or is not responding correctly to his commands. When you refer to the technical information in this manual to resolve that customers concern, you will find all the information classified using the new ICE coding, according to the functions or systems on that machine. Once you have located the technical information for that function or system then you will find all the mechanical, electrical or hydraulic devices, components, assemblies and sub-assemblies for that function or system. You will also find all the types of information that have been written for that function or system, the technical data (specifications), the functional data (how it works), the diagnostic data (fault codes and troubleshooting) and the service data (remove, install adjust, etc.).

By integrating this new ICE coding into technical information , you will be able to search and retrieve just the right piece of technical information you need to resolve that customers concern on his machine. This is made possible by attaching 3 categories to each piece of technical information during the authoring process.

The first category is the Location, the second category is the Information Type and the third category is the Product:

- **LOCATION** - is the component or function on the machine, that the piece of technical information is going to describe e.g. Fuel tank.
- **INFORMATION TYPE** - is the piece of technical information that has been written for a particular component or function on the machine e.g. Capacity would be a type of Technical Data that would describe the amount of fuel held by the Fuel tank.
- **PRODUCT** - is the model that the piece of technical information is written for.

Every piece of technical information will have those 3 categories attached to it. You will be able to use any combination of those categories to find the right piece of technical information you need to resolve that customers concern on his machine.

That information could be:

- the description of how to remove the cylinder head
- a table of specifications for a hydraulic pump
- a fault code
- a troubleshooting table
- a special tool

How to Use this Manual

This manual is divided into Sections. Each Section is then divided into Chapters. Contents pages are included at the beginning of the manual, then inside every Section and inside every Chapter. An alphabetical Index is included at the end of a Chapter. Page number references are included for every piece of technical information listed in the Chapter Contents or Chapter Index.

Each Chapter is divided into four Information types:

- **(D)** Technical Data (specifications) for all the mechanical, electrical or hydraulic devices, components and assemblies.
- **(C)** Functional Data (how it works) for all the mechanical, electrical or hydraulic devices, components and assemblies.
- **(G)** Diagnostic Data (fault codes, electrical and hydraulic troubleshooting) for all the mechanical, electrical or hydraulic devices, components and assemblies.
- **(F)** Service data (remove disassembly, assemble, install) for all the mechanical, electrical or hydraulic devices, components and assemblies.

Sections

Sections are grouped according to the main functions or a systems on the machine. Each Section is identified by a letter A, B, C etc. The amount of Sections included in the manual will depend on the type and function of the machine that the manual is written for. Each Section has a Contents page listed in alphabetic/numeric order. This table illustrates which Sections could be included in a manual for a particular product.

PRODUCT	SECTION										
	A - Distribution Systems										
	B - Power Production										
	C - Power Train										
	D - Travelling										
	E - Body and Structure										
	F - Frame Positioning										
	G - Tool Positioning										
	H - Working Arm										
	J - Tools and Couplers										
	K - Crop Processing										
	L - Field Processing										
Tractors	X	X	X	X	X	X		X	X		
Vehicles with working arms: backhoes, excavators, skid steers,	X	X	X	X	X	X	X	X	X		
Combines, forage harvesters, balers,	X	X	X	X	X	X	X	X	X	X	
Seeding, planting, floating, spraying equipment,	X	X	X	X	X	X	X		X		X
Mounted equipment and tools,					X	X	X		X		

Chapters

Each Chapter is identified by a letter and number combination e.g. Engine B.10.A The first letter is identical to the Section letter i.e. Chapter B.10 is inside Section B, Power Production.

CONTENTS

The Chapter Contents lists all the **(D)** technical data (specifications), **(C)** functional data (how it works), **(F)** service data (remove, install adjust, etc.) and **(G)** diagnostic data (fault codes and troubleshooting) that have been written in that Chapter for that function or system on the machine.

Contents

POWER PRODUCTION ENGINE _ 10.A

TECHNICAL DATA

ENGINE - General specification (B.10.A - D.40.A.10) 3

FUNCTIONAL DATA

ENGINE - Dynamic description (B.10.A - C.30.A.10) 4

SERVICE

ENGINE - Remove (B.10.A - F.10.A.10) 5

DIAGNOSTIC

ENGINE - Troubleshooting (B.10.A - G.40.A.10) 6

INDEX

The Chapter Index lists in alphabetical order all the types of information (called Information Units) that have been written in that Chapter for that function or system on the machine.

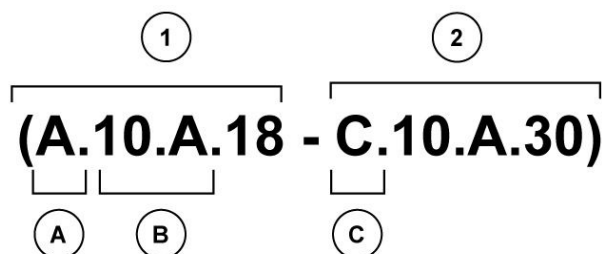
Index

POWER PRODUCTION - B ENGINE	
ENGINE - Dynamic description (B.10.A - C.30.A.10)	4
ENGINE - General specification (B.10.A - D.40.A.10)	3
ENGINE - Remove (B.10.A - F.10.A.10)	5
ENGINE - Troubleshooting (B.10.A - G.40.A.10)	6

Information Units and Information Search

Each chapter is composed of information units. Each information unit has the ICE code shown in parentheses which indicates the function and the type of information written in that information unit. Each information unit has a page reference within that Chapter. The information units provide a quick and easy way to find just the right piece of technical information you are looking for.

example information unit	Stack valve - Sectional View (A.10.A.18 - C.10.A.30)				
Information Unit ICE code	A	10.A	18	C	10.A.30
ICE code classification	Distribution systems	Primary hydraulic power	Stack valve	Functional data	Sectional view



CRIL03J033E01 1

Navigate to the correct information unit you are searching for by identifying the function and information type from the ICE code.

- **(1)** Function and **(2)** Information type.
- **(A)** corresponds to the sections of the repair manual.
(B) corresponds to the chapters of the repair manual.
(C) corresponds to the type of information listed in the chapter contents, **(D)**, Technical data, **(E)**, Functional Data, **(F)**, Diagnostic, and **(G)**, Service.
(A) and **(B)** are also shown in the page numbering on the page footer.
THE REST OF THE CODING IS NOT LISTED IN ALPHA-NUMERIC ORDER IN THIS MANUAL.
- You will find a table of contents at the beginning and end of each section and chapter.
You will find an alphabetical index at the end of each chapter.
- By referring to **(A)**, **(B)** and **(C)** of the coding, you can follow the contents or index (page numbers) and quickly find the information you are looking for.

Page Header and Footer

The page header will contain the following references:

- Section and Chapter description

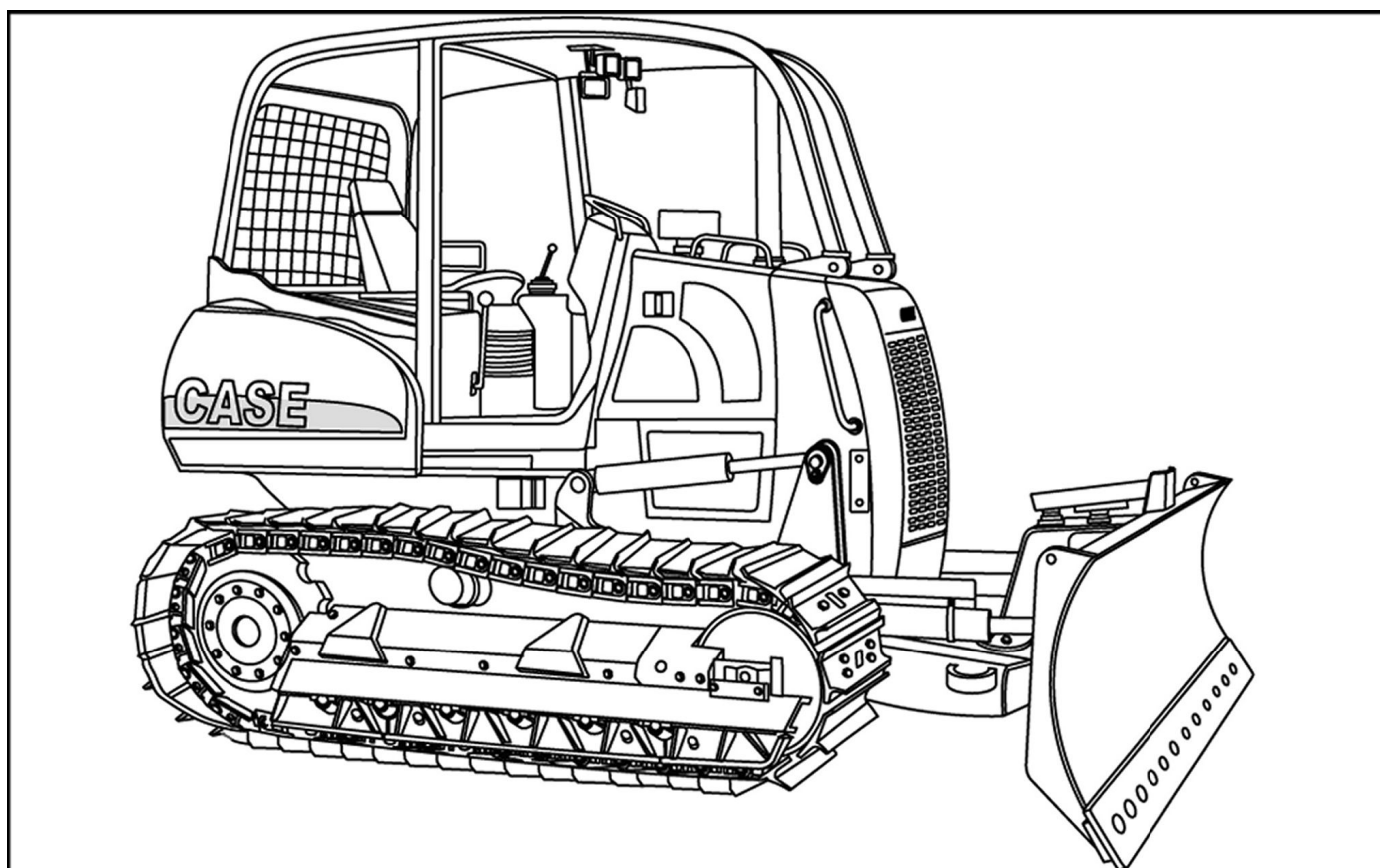
The page footer will contain the following references:

- Publication number for that Manual, Section or Chapter.
- Version reference for that publication.
- Publication date
- Section, chapter and page reference e.g. A.10.A / 9



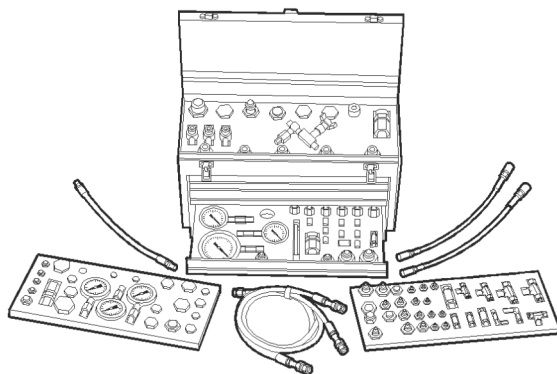
SERVICE MANUAL

DISTRIBUTION SYSTEMS



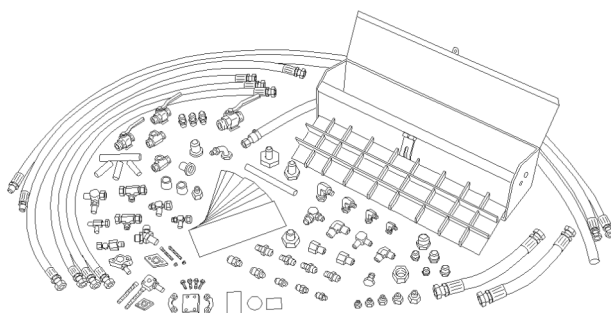
650L

PRIMARY HYDRAULIC POWER SYSTEM - Special tools



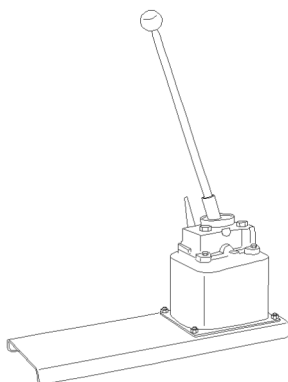
RCPH09CWL005AAD 1

CAS1804 Hydraulic pressure fitting kit



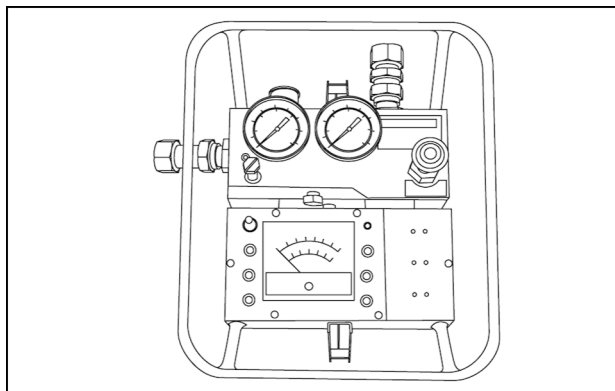
RCPH09CWL006AAD 2

CAS1808 Flowmeter fitting kit



RCPH09CWL004AAD 3

CAS10090 Hand pump



RCPH09CWL339AAD 4

CAS10280 Flowmeter

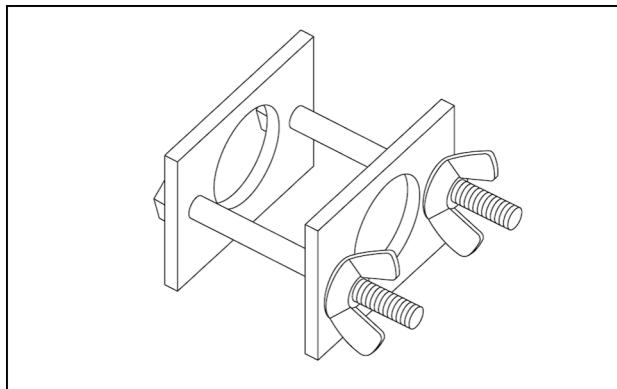
PRIMARY HYDRAULIC POWER SYSTEM - General specification

Type of oil	CASE AKCELA AW68 HYD FLUID MAT 3508
Temperature of hydraulic oil when testing	52 - 79 °C (125 - 175 °F)
Neutral system pressure	12 - 15 bar (180 - 220 psi) at 2000 RPM
Main relief valve pressure All models at 2000 RPM	203 - 214 bar (2950 - 3100 psi)
Circuit relief valves A and B ports ripper/auxiliary section	214 - 227 bar (3100 - 3300 psi) with hand pump
Dozer blade lift speed	457 mm second (18 in second)
Dozer blade lift time (measure from ground level to full height)	2 seconds

Stack valve - Torque

Special torques	Nm	lb
Bolts and nuts that fasten the sections together	39 - 47 Nm	28.7 - 34.6 lb ft
Relief valves and load check valves	24 - 30 Nm	17.7 - 22 lb ft
Allen head screws	12 - 15 Nm	106 - 133 lb in
Centering spring screw	13 - 16 Nm	115 - 142 lb in

Stack valve - Special tools



RCPH09CWL075AAD 1

Centering spring compression tool

Stack valve - Calibration

Relief Valves	bar	psi
Main relief valve	203 - 214 bar	2950 - 3100 psi
Circuit relief valves tested with hand pump	214 - 227 bar	3100 - 3300 psi

Stack valve - General specification

Spool travel	MM	Inch
Neutral to pressure - lift, tilt and auxiliary	7.9 mm	0.31 in
Neutral to pressure - angle section	6.6 mm	0.26 in
Neutral to float - lift	13.5 mm	0.53 in

