

Product: New Holland CX720/CX740/CX760/CX780/CX820/CX840/CX860/CX880 Combine Harvester Service Repair Manual
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NEW HOLLAND

CX720

CX740

CX760

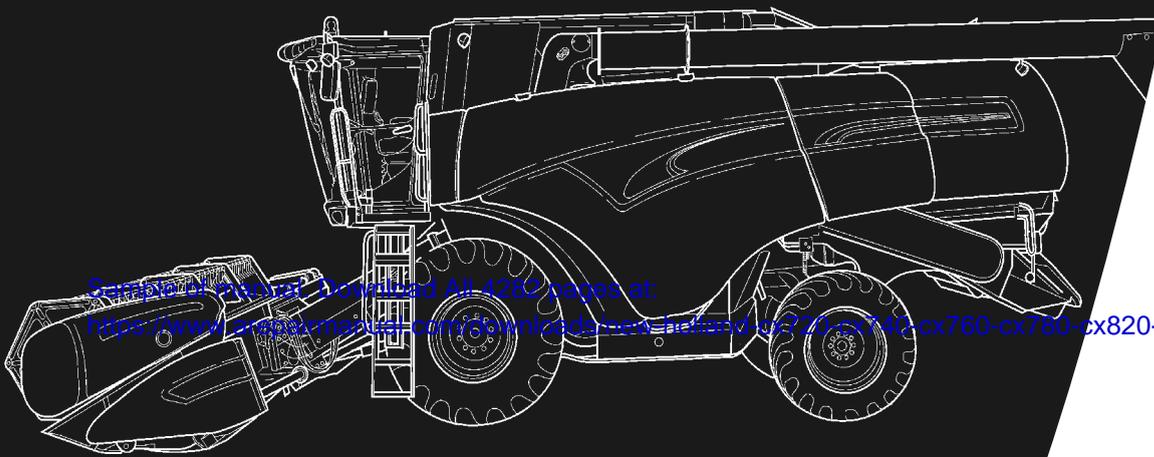
CX780

CX820

CX840

CX860

CX880



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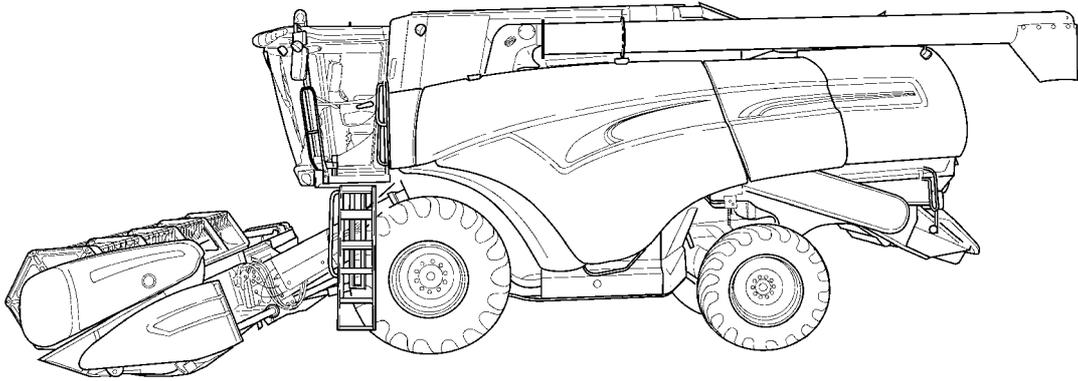
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NEWHOLLAND

REPAIR MANUAL



CX720 , CX740 , CX760 , CX780 , CX820 , CX840 , CX860 , CX880

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IMPORTANT INFORMATION

All repair and maintenance works listed in this manual must be carried out only by staff belonging to the NEW HOLLAND Service network, strictly complying with the instructions given and using, whenever required, the special tools.

Anyone who carries out the above operations without complying with the prescriptions shall be responsible for the subsequent damages.

The manufacturer and all the organizations of its distribution chain, including - without limitation - national, regional or local dealers, reject any responsibility for damages due to the anomalous behavior of parts and/or components not approved by the manufacturer himself, including those used for the servicing or repair of the product manufactured or marketed by the Manufacturer. In any case, no warranty is given or attributed on the product manufactured or marketed by the Manufacturer in case of damages due to an anomalous behavior of parts and/or components not approved by the Manufacturer.

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Basic instructions (- A.90.A.05)

SHIMMING

For each adjustment operation, select adjusting shims and measure individually using a micrometer, then add up the recorded values. Do not rely on measuring the entire shimming set, which may be incorrect, or the rated value indicated on each shim.

ROTATING SHAFT SEALS

For correct rotating shaft seal installation, proceed as follows:

- before assembly, allow the seal to soak in the oil it will be sealing for at least thirty minutes
- thoroughly clean the shaft and check that the working surface on the shaft is not damaged
- position the sealing lip facing the fluid; with hydrodynamic lips, take into consideration the shaft rotation direction and position the grooves so that they will deviate the fluid towards the inner side of the seal
- coat the sealing lip with a thin layer of lubricant (use oil rather than grease) and fill the gap between the sealing lip and the dust lip on double lip seals with grease
- insert the seal in its seat and press down using a flat punch, do not tap the seal with a hammer or mallet
- whilst inserting the seal, check that it is perpendicular to the seat; once settled, make sure that it makes contact with the thrust element, if required
- to prevent damaging the seal lip on the shaft, position a protective guard during installation operations

O-RING SEALS

Lubricate the O-RING seals before inserting them in the seats, this will prevent them from overturning and twisting, which would jeopardise sealing efficiency.

SEALING COMPOUNDS

Apply one of the following sealing compounds on the mating surfaces marked with an X: RTV SILMATE, RHODORSIL CAF 1 or LOCTITE PLASTIC GASKET. Before applying the sealing compound, prepare the surfaces as follows:

- remove any incrustations using a metal brush;
- thoroughly de-grease the surfaces using one of the following cleaning agents: trichlorethylene, petrol or a water and soda solution.

COTTER PINS

When fitting split cotter pins, ensure that the pin notch is positioned in the direction of the force required to stress the pin. Spiral cotter pins do not require special positioning.

PROTECTING THE ELECTRONIC/ ELECTRICAL SYSTEMS DURING CHARGING OR WELDING

To avoid damage to the electronic/electrical systems, always observe the following:

1. Never make or break any of the charging circuit connections, including the battery connections, when the engine is running.
2. Never short any of the charging components to ground.
3. Always disconnect the ground cable from the battery before arc welding on the combine or on any header attached to the combine.
 - Position the welder ground clamp as close to the welding area as possible.
 - If welding in close proximity to a computer module, then the module should be removed from the combine.
 - Never allow welding cables to lay on, near or across any electrical wiring or electronic component while welding is in progress.
4. Always disconnect the negative cable from the battery when charging the battery in the combine with a battery charger.

IMPORTANT: *If welding must be performed on the unit, either the combine or the header (if it is attached), the battery ground cable must be disconnected from the combine battery. The electronic monitoring system and charging system will be damaged if this is not done.*

Remove the battery ground cable. Reconnect the cable when welding is completed.



WARNING



Battery acid causes severe burns. Batteries contain sulfuric acid. Avoid contact with skin, eyes or clothing. Antidote - EXTERNAL: flush with water. INTERNAL: drink large quantities of water or milk. Follow with milk of magnesia, beaten egg or vegetables oil. Call physician immediately. EYES: flush with water for 15 minutes and get prompt medical attention. 84-110

SPARE PARTS

Only use original NEW HOLLAND spare parts bearing the logo shown below.



geninfo_03 1

Only genuine spare parts guarantee the same quality, duration and safety as original parts, as they are the same parts that are assembled during standard production. Only NEW HOLLAND genuine spare parts can offer this guarantee. When ordering spare parts, always provide the following information:

- Machine model (commercial name) and serial number
- part number of the ordered part, which can be found in the "Microfiches" or the "Spare Parts Catalogue", used for order processing

TOOLS

The tools that NEW HOLLAND suggests and illustrate in this manual have been:

- specifically researched and designed for use with NEW HOLLAND machines
- essential for reliable repair operations
- accurately built and rigorously tested so as to offer efficient and long-lasting operation

By using these tools, Repair Personnel will benefit from:

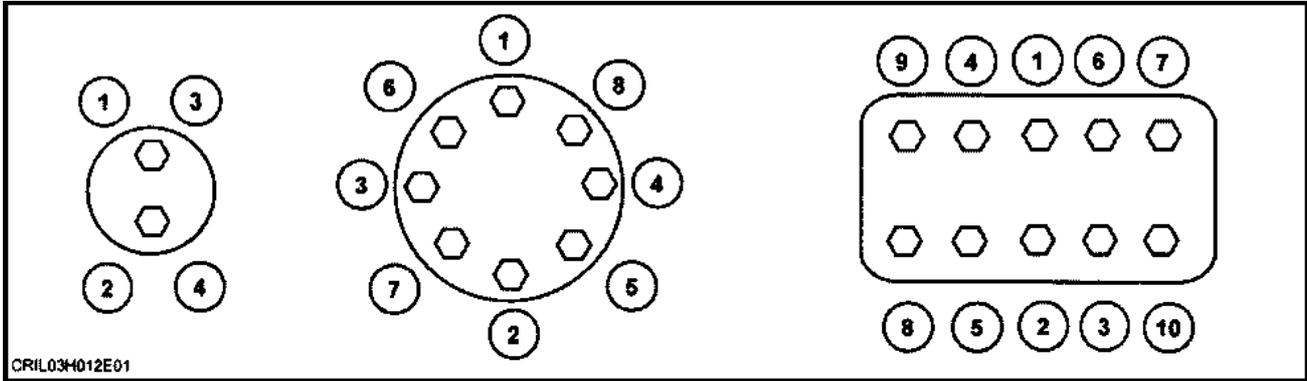
- operating in optimal technical conditions
- obtaining the best results
- saving time and effort
- working in safe conditions

NOTE: Wear limit values indicated for certain parts should be considered to be recommended, but not binding. The terms "front", "rear", "right-hand" and "left-hand" (when referred to different parts) are determined from the rear, facing in the direction of travel of the machine during operation.

Torque (- A.90.A.10)

Minimum hardware tightening torques Nm lb ft lb in for normal assembly applications unless otherwise stated

IMPORTANT: Shown below is the suggested initial torque tightening sequences for general applications, tighten in sequence from item 1 through to the last item of the hardware.



CRIL03H012E01

df5019-1 1

Imperial hardware

Nominal Size	SAE GRADE 2 Unplated or Silver plated	SAE GRADE 2 plated w/ZnCr GOLD	SAE GRADE 5 Unplated or Silver plated	SAE GRADE 5 plated w/ZnCr GOLD	SAE GRADE 8 Unplated or Silver plated	SAE GRADE 8 plated w/ZnCr GOLD	LOCK-NUTS GR.B w/GR5 BOLT	LOCK-NUTS GR.B w/GR8 BOLT
1/4	6.2 Nm 55 lb in	8.1 Nm 72 lb in	9.7 Nm 86 lb in	13 Nm 112 lb in	14 Nm 121 lb in	18 Nm 157 lb in	6.9 Nm 61 lb in	9.8 Nm 86 lb in
5/16	13 Nm 115 lb in	17 Nm 149 lb in	20 Nm 178 lb in	26 Nm 229 lb in	28 Nm 250 lb in	37 Nm 324 lb in	14 Nm 125 lb in	20 Nm 176 lb in
3/8	23 Nm 17 lb ft	30 Nm 22 lb ft	35 Nm 26 lb ft	46 Nm 34 lb ft	50 Nm 37 lb ft	65 Nm 48 lb ft	26 Nm 19 lb ft	35 Nm 26 lb ft
7/16	37 Nm 27 lb ft	47 Nm 35 lb ft	57 Nm 42 lb ft	73 Nm 54 lb ft	80 Nm 59 lb ft	104 Nm 77 lb ft	41 Nm 30 lb ft	57 Nm 42 lb ft
1/2	27 Nm 42 lb ft	73 Nm 54 lb ft	87 Nm 64 lb ft	113 Nm 83 lb ft	123 Nm 91 lb ft	159 Nm 117 lb ft	61 Nm 45 lb ft	88 Nm 64 lb ft
9/16	81 Nm 60 lb ft	104 Nm 77 lb ft	125 Nm 92 lb ft	163 Nm 120 lb ft	176 Nm 130 lb ft	229 Nm 169 lb ft	88 Nm 65 lb ft	125 Nm 92 lb ft
5/8	112 Nm 83 lb ft	145 Nm 107 lb ft	174 Nm 128 lb ft	224 Nm 165 lb ft	244 Nm 180 lb ft	316 Nm 233 lb ft	122 Nm 90 lb ft	172 Nm 127 lb ft
3/4	198 Nm 146 lb ft	256 Nm 189 lb ft	306 Nm 226 lb ft	397 Nm 293 lb ft	432 Nm 319 lb ft	560 Nm 413 lb ft	217 Nm 160 lb ft	305 Nm 226 lb ft
7/8	193 Nm 142 lb ft	248 Nm 183 lb ft	495 Nm 365 lb ft	641 Nm 473 lb ft	698 Nm 515 lb ft	904 Nm 667 lb ft	350 Nm 258 lb ft	494 Nm 364 lb ft
1.0	289 Nm 213 lb ft	373 Nm 275 lb ft	742 Nm 547 lb ft	960 Nm 708 lb ft	1048 Nm 773 lb ft	1356 Nm 1000 lb ft	523 Nm 386 lb ft	739 Nm 545 lb ft

INTRODUCTION

Metric hardware

Nominal Size	CLASS 5.8 UNPLATED	CLASS 5.8 UNPLATED	CLASS 8.8 UNPLATED	CLASS 8.8 UNPLATED	CLASS 10.9 UNPLATED	CLASS 10.9 UNPLATED	LOCKNUT CL.8 w/CL8.8 BOLT
M4	1.7 Nm 15 lb in	2.2 Nm 19 lb in	2.6 Nm 23 lb in	3.4 Nm 30 lb in	3.7 Nm 33 lb in	4.8 Nm 42 lb in	1.8 Nm 16 lb in
M6	5.8 Nm 51 lb in	7.6 Nm 67 lb in	8.9 Nm 79 lb in	12 Nm 102 lb in	13 Nm 115 lb in	17 Nm 150 lb in	6.3 Nm 56 lb in
M8	14 Nm 124 lb in	18 Nm 159 lb in	22 Nm 195 lb in	28 Nm 248 lb in	31 Nm 274 lb in	40 Nm 354 lb in	15 Nm 133 lb in
M10	28 Nm 21 lb ft	36 Nm 27 lb ft	43 Nm 32 lb ft	56 Nm 41 lb ft	61 Nm 45 lb ft	79 Nm 58 lb ft	30 Nm 22 lb ft
M12	49 Nm 36 lb ft	63 Nm 46 lb ft	75 Nm 55 lb ft	97 Nm 72 lb ft	107 Nm 79 lb ft	138 Nm 102 lb ft	53 Nm 39 lb ft
M16	121 Nm 89 lb ft	158 Nm 117 lb ft	186 Nm 137 lb ft	240 Nm 177 lb ft	266 Nm 196 lb ft	344 Nm 254 lb ft	131 Nm 97 lb ft
M20	237 Nm 175 lb ft	307 Nm 107 lb ft	375 Nm 277 lb ft	485 Nm 358 lb ft	519 Nm 383 lb ft	671 Nm 495 lb ft	265 Nm 195 lb ft
M24	411 Nm 303 lb ft	531 Nm 392 lb ft	648 Nm 478 lb ft	839 Nm 619 lb ft	897 Nm 662 lb ft	1160 Nm 855 lb ft	458 Nm 338 lb ft

**IDENTIFICATION
CAP SCREWS AND CARRIAGE BOLTS**



SAE
GRADE 2



SAE
GRADE 5



SAE
GRADE 8



REGULAR
NUTS

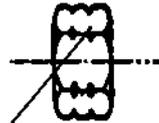


SAE
GRADE 5
HEX NUTS

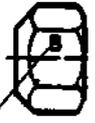


SAE
GRADE 8
NUTS

LOCKNUTS



GRADE IDENTIFICATION
GRADE A NO NOTCHES
GRADE B ONE CIRCUMFRETIAL NOTCH
GRADE C TWO CIRCUMFRETIAL NOTCHES



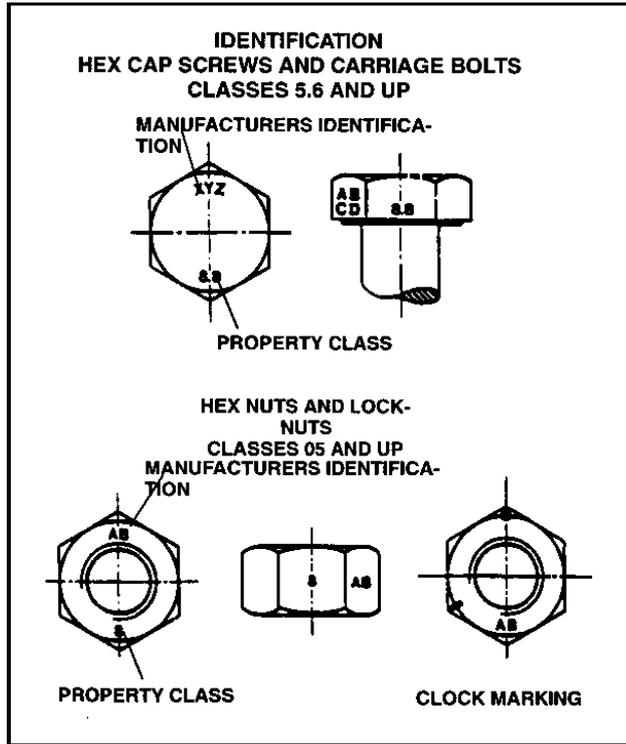
GRADE IDENTIFICATION
GRADE A NO MARK
GRADE B LETTER B
GRADE C LETTER C



GRADE IDENTIFICATION
GRADE A NO MARKS
GRADE B THREE MARKS
GRADE C SIX MARKS

MARKS NEED NOT BE LOCATED AT CORNERS

INTRODUCTION



dave5019 3

Conversion factors (- A.92.A.21)
Linear

1 mm	=	0.03937 in	1 in	=	25.4 mm
1 Km	=	0.6214 miles	1 mile	=	1.6093 km
1 m	=	3.281 ft	1 ft	=	0.3048 m

Area

1 ha	=	2.471 acre	1 acre	=	0.4047 ha
------	---	------------	--------	---	-----------

Volume

1 litre	=	0.0063 barrel	1 barrel	=	158.987 litre
1 litre	=	0.028 US bushel	1 US bushel	=	35.2391 litre
1 litre	=	0.2642 US gal	1 US gal	=	3.7853 litre
1 litre	=	1.057 US quart	1 US quart	=	0.9464 litre
1 mm ³	=	0.061 in ³	1 in ³	=	16387 mm ³

Weight

1 kg	=	2.204 pound	1 pound	=	0.4536 kg
------	---	-------------	---------	---	-----------

Torque

1 Nm	=	0.7376 lbf.ft	1 lbf.ft	=	1.3558 Nm
------	---	---------------	----------	---	-----------

Power

1 kW	=	1.358 hp	1 hp	=	0.746 kW
------	---	----------	------	---	----------

Pressure

1 bar	=	14.505 lbf/in ² (psi)	1 lbf/in ² (psi)	=	0.06894 bar
1 kPa	=	0.145 lbf/in ² (psi)	1 lbf/in ² (psi)	=	6.894 kPa
1 pa	=	10 ⁻⁵ bar	1 bar	=	100 kPa

Temperature

1 °C	=	((1.8 x ° C) + 32) °F	1 °F	=	(0.56 x (° F - 32)) °C
------	---	-----------------------	------	---	------------------------

Flow

1 L/min	=	0.2642 US gpm	1 US gpm	=	3.7853 L/min
---------	---	---------------	----------	---	--------------

Product identification (- A.80.A.10)

EXPLANATION OF MACHINE SERIAL NUMBERS

Example : n° 221226001

221226001: The first two digits identify the model within a product line:

CX720 = 20

CX740 = 21

CX760 = 22

CX780 = 23

CX820 = 33

CX840 = 30

CX860 = 31

CX880 = 32

221226001: The third digit indicates the product line. There are 5 product lines in Zedelgem:

CX Combine harvesters:	1
TC/L Combine harvesters:	2
Combine headers:	3
Balers:	4
Forage Harvesters:	5

221226001: These 3 digits indicate the batch in which the machine was made.

221226001: Product line number (**1**) and batch together form the series number (1226).

221226001: The last 3 digits are a sequential number for each model within a batch.

Summarizing we can say that this machine is the first CX760 of serie 1226.

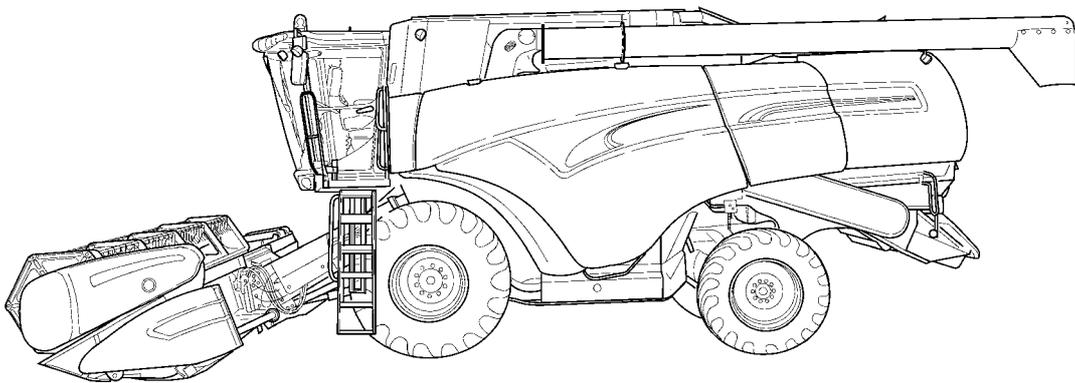
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NEW HOLLAND

REPAIR MANUAL

DISTRIBUTION SYSTEMS



CX720 , CX740 , CX760 , CX780 , CX820 , CX840 , CX860 , CX880

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LIGHTING SYSTEM CX720 , CX740 , CX760 , CX780 , CX820 , CX840 , CX860 , CX880	A.40.A
ELECTRONIC SYSTEM CX720 , CX740 , CX760 , CX780 , CX820 , CX840 , CX860 , CX880	A.50.A



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DISTRIBUTION SYSTEMS - A

PRIMARY HYDRAULIC POWER SYSTEM - 10.A

CX720 , CX740 , CX760 , CX780 , CX820 , CX840 , CX860 , CX880

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PRIMARY HYDRAULIC POWER SYSTEM - Special tools (A.10.A - D.20.A.40)

DESCRIPTION	NEW HOLLAND PART NUMBER (All Markets Except North America)
Blanking Cap 11/16 ORFS	297671
Pressure Gauge 0 - 10 bar (0 - 150 psi)	293241#
Pressure Gauge 0 - 40 bar (0 - 600 psi)	293242#
Pressure Gauge 0 - 250 bar (0 - 5000 psi)	293244#
Remote valve coupling	5101741 or 293449
Quick release adaptor (Female)	291924
Pressure gauge hose	292246#
1/8 NPT fitting to attach hose 292246 to gauge	291927#
Adaptor M10 x 1.0p x 7/16 JIC male (enables use of gauges with 7/16 JIC hoses if used)	297417
MiniMess (M16x2) Quick attach fitting (procure locally)	
Flow Meter 120 ltr/min (0-50 gal/min) minimum (procure locally)	
# Part of hydraulic pressure test kit 292870	
O-RING FACE SEAL TUBE ADAPTORS	PARKER HANNIFIN PART NUMBER
Tee Piece (M12x1.5 with 9/16 UNF) - CCLS Pump Load sensing	4M12R870MLOS
Tee Piece (13/16 UNF fittings) - Steering	8R6MLOS
Elbow (13/16 UNF fittings) - Steering	8ELOS
Quick Release Fitting (9/16 UNF Male) - CCLS Pump Load Sensing	PD34BTL
Quick Release Fitting (13/16 UNF Male) - Steering	PD38BTL

Hydraulic pump - General specification (A.10.A.20 - D.40.A.10)

MAIN HYDRAULIC PUMP

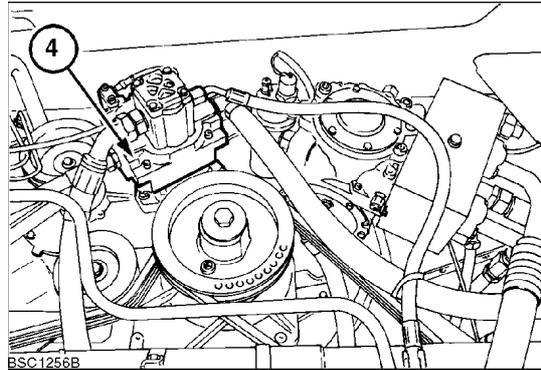
Type	Variable Flow Closed Centre Load Sensing Piston Pump
Minimum Output @ engine rated speed	114 Ltr/min 30 US gal/min
Standby Pressure	21 bar (305 psi)
Maximum System Pressure	207 bar (3000 psi)
Flow to Steering Motor	36 Ltr/min 9.5 US gal/min
Steering Pressure	186 bar (2700 psi)

PRIMARY HYDRAULIC POWER SYSTEM - Static description (A.10.A - C.30.A.20)

The high pressure circuit operates all of the work hydraulics and steering. The circuit is fed by a closed centre load sensing variable displacement pump (4). Oil is drawn by the pump, from the main reservoir, shared with the hydrostatic system, through the inline pressure filter to the mainframe valve block.

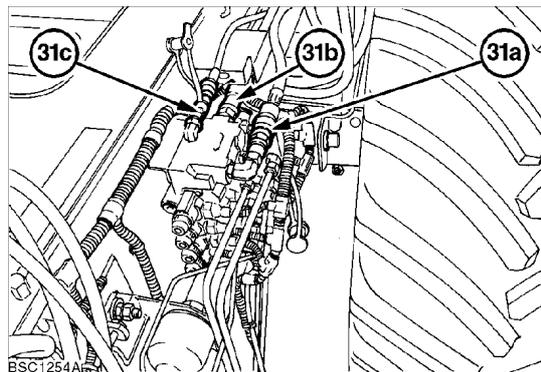
The oil enters the main frame valve block at the priority valve slice and there the oil is split, dependant on demand, to the steering valve, which has priority, or to the other hydraulic functions.

The unloading tube control, drum variator control and header height control are served by the main frame stack.



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The straw elevator and header reverser, lateral flotation control, reel vertical and horizontal adjustment and reel speed control are served by the straw elevator stack valve. The straw elevator stack valve is an extension of the main frame stack valve and is connected with pressure (31a), return (31b), and load sensing lines (31c), via quick release couplings.

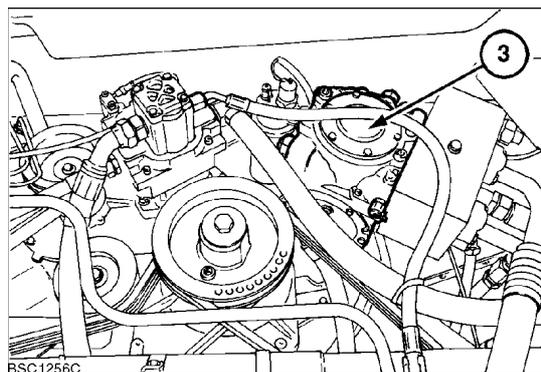


BSC1254A 2

The last section of the straw elevator stack valve is a flush valve. This valve allows a very small oil flow through the stack valves, when no services are being operated, allowing warm oil to bring the stack valve assembly gradually up to temperature.

The circuit return oil flows through to the return side filter back to the pump or to the reservoir.

The high pressure circuit is linked with the hydrostatic circuit. The hydrostatic pump (3) feeds the hydrostatic circuit. The charge return and case drain oil flows through to the thermostat and cooler back to the reservoir or high pressure circuit.



BSC1256C 3

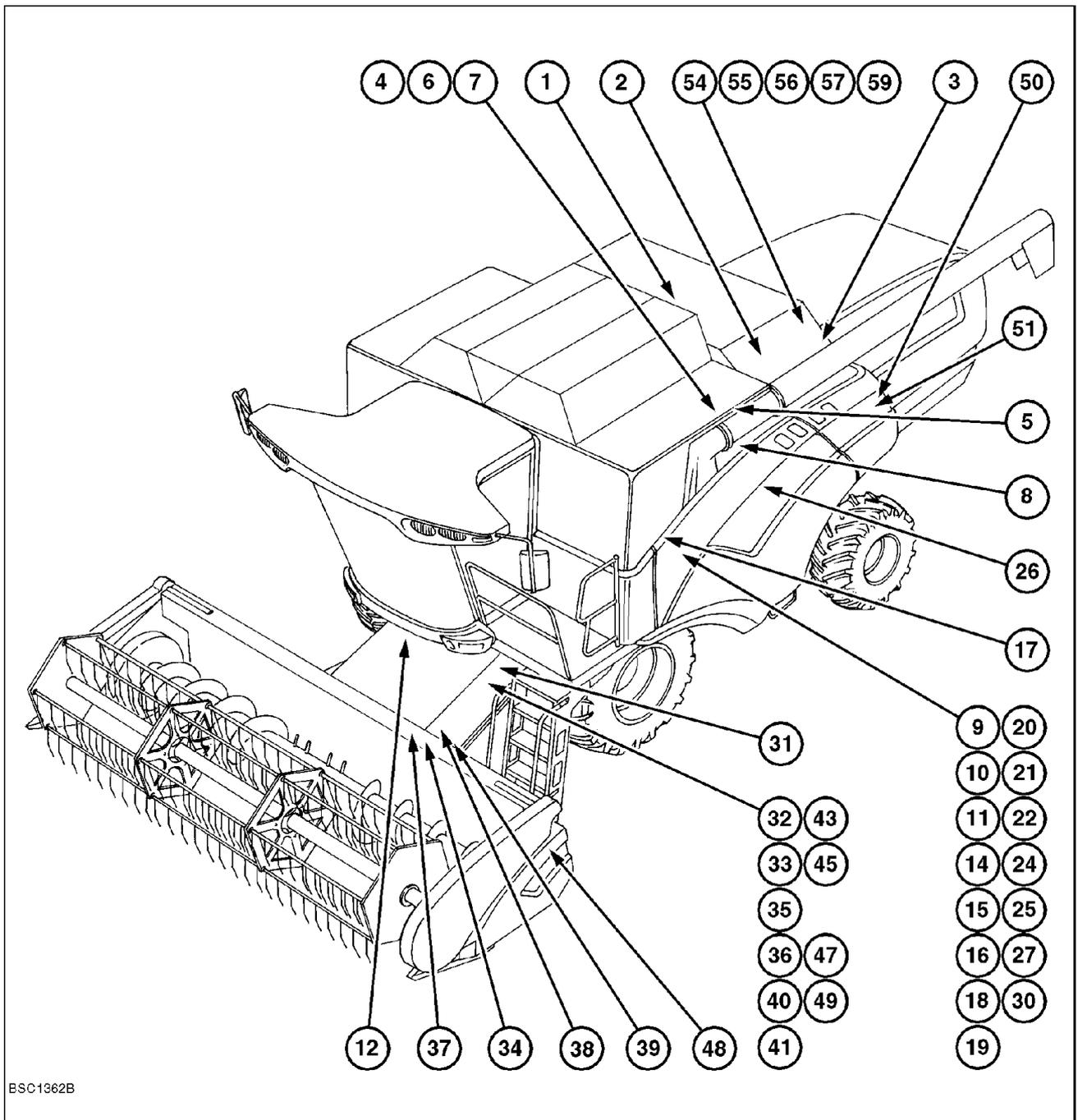
DISTRIBUTION SYSTEMS - PRIMARY HYDRAULIC POWER SYSTEM

The CCLS pump uses the return oil from the hydrostatic system as its charge pressure oil and therefore does not incorporate a charge pump. The hydrostatic return oil comes into the pump via the oil cooler at the rate of **60 l/min (63 qts/min)**. Only when working in high demand conditions does the CCLS pump create an under pressure in the suction line.

PRIMARY HYDRAULIC POWER SYSTEM - Overview (A.10.A - C.40.B.10)

HIGH PRESSURE SYSTEM - COMPONENT LOCATION

1	Engine	2	Gearbox
3	Hydrostatic pump	4	CCLS pump
5	Low pressure gear pump	6	Load sensing valve
7	High pressure relief valve (197 bar (2856 psi))	8	In-line high pressure filter
9	Priority valve	10	Load sensing lock out valve
11	Load sensing shuttle valve	12	Steering motor
13	Steering cylinders	14	Header height pressure valve
15	High pressure relief valve 220 bar (3190 psi)	16	Accumulator lock out valve
17	Header suspension accumulator (70 bar [1015 psi], 0.5 L [17 oz])	18	Pressure sensor
19	Header height control valve	20	Header raise valve
21	Header lower valve	22	Header pressure compensation valve
23	Header lift cylinders	24	Electronic control unit
25	Drum variator valve	26	Drum variator adjustment plunger
27	Unloading tube control valve	28	Unloading tube cylinder lock out
29	Unloading tube cylinder	30	Top plate
31	Quick attach couplers	32	Straw elevator stack valve top plate
33	Straw elevator and header reversing valve	34	Straw elevator and header reversing motor
35	Lateral flotation control valve	36	Lateral float pressure compensation valve
37	Lateral flotation cylinder	38	Lateral float accumulator (80 bar [1160 psi], 0.5 L [17 oz])
39	Lateral float accumulator (100 bar [1450 psi], 0.5 L [17 oz])	40	Lateral float minimum pressure valve
41	Reel horizontal adjustment valve	42	Reel horizontal adjustment cylinders
43	Reel vertical adjustment valve	44	Reel vertical adjustment cylinders
45	Reel drive / speed adjustment valve	46	(Not used)
47	Reel pressure compensation valve	48	Reel drive motor
49	Flush valve	50	Return filter with by-pass
51	Blocked filter indicator switch	52	Thermostat valve
53	Cooler	54	Suction filter
55	Filler cap with breather	56	Hydraulic oil, minimum level indicator
57	Reservoir	58	Drain hose
59	Temperature sensor	60	Multi-line quick coupler

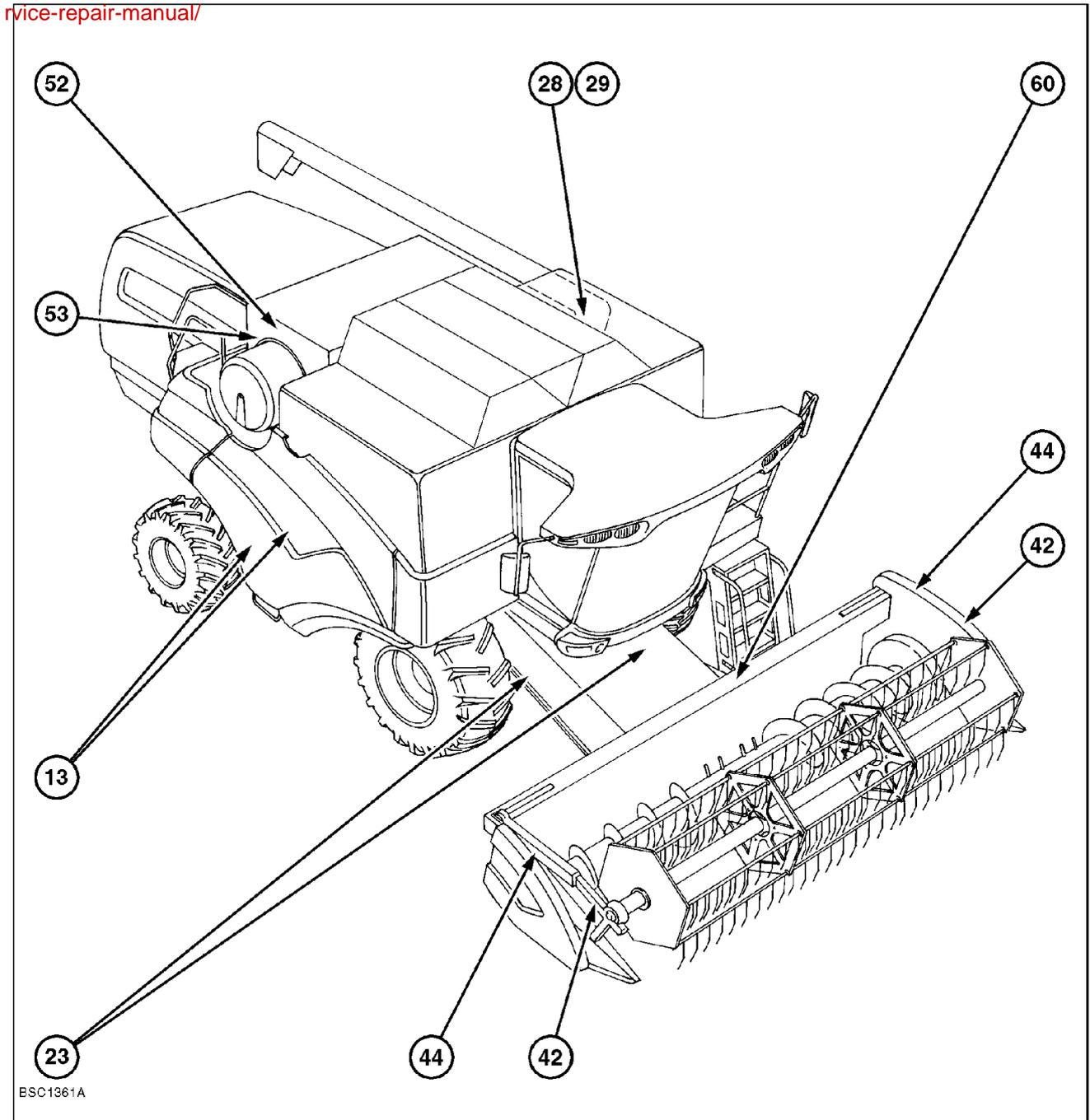


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BSC1362B 1

HIGH PRESSURE SYSTEM - COMPONENT LOCATION

DISTRIBUTION SYSTEMS - PRIMARY HYDRAULIC POWER SYSTEM



BSC1361A

BSC1361A 2

HIGH PRESSURE SYSTEM - COMPONENT LOCATION