CASE

REPAIR MANUAL

Crawler Excavator

CX330
CX330NLC
CX350
Tier 3

Lep 9-94900EN

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CX330, CX330NLC and CX350 Tier 3 Crawler Excavators
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* *Consult the Engine Service Manual*

[redacted] *Sections to be distributed at a later date*

NOTE: CNH Company reserves the right to make changes in the specification and design of the machine without prior notice and without incurring any obligation to modify units previously sold.

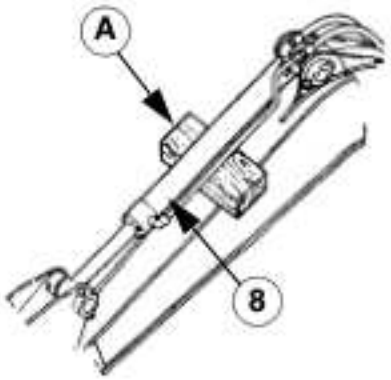
The description of the models shown in this manual has been made in accordance with the technical specifications known as of the date of design of this document.

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Removal

NOTE: *The numbers within brackets in the following steps refer to the dipper cylinder schematic on page 9.*

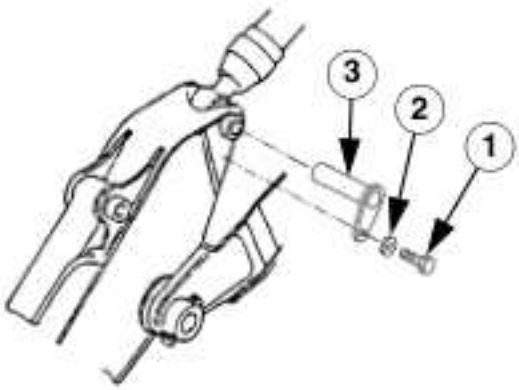
STEP 1



JS02594A

Place a wooden shim (A) under the dipper cylinder (8).

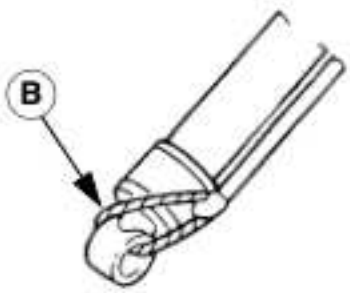
STEP 2



CS02B566

Remove the screw (1) and the washer (2).
Remove the shaft (3) carefully.

STEP 3



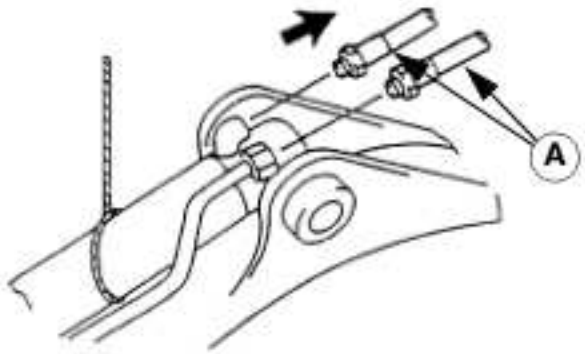
JS02595A

Attach a suitable sling (B) to hold the cylinder rod to the cylinder barrel.

STEP 4

Start the vacuum pump.

STEP 5



JS02596A

Disconnect the two hydraulic supply hoses (A) from the dipper cylinder.

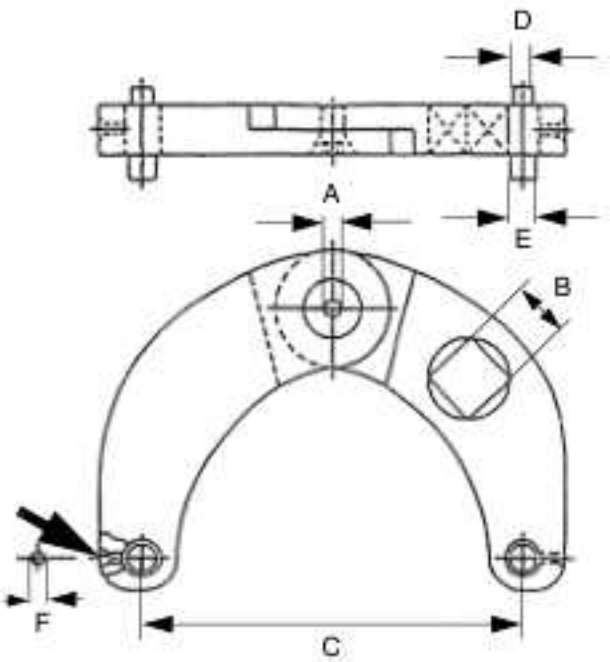
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SPECIAL TOOLS

Bush Tool Kit Number ---------
The composition item is as follows

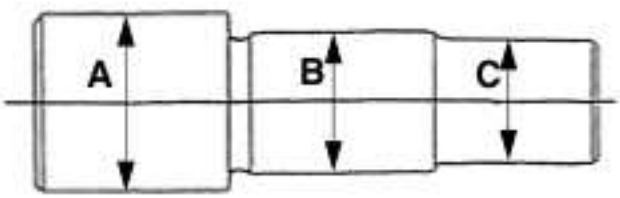
Tool	Item Name	Item Number	Remarks
U1	Wrench Assembly	-----	
U2	Piston Ring Expander	-----	
U3	Clamp	-----	Outside diameter of piston for ϕ120 – ϕ135
		-----	Outside diameter of piston for ϕ100 – ϕ115
U4	Ring (Rubber band)	-----	Outside diameter of piston for ϕ120 – ϕ135
		-----	Outside diameter of piston for ϕ100 – ϕ115

Wrench Assembly U1
Use it for detaching type of screwing piston



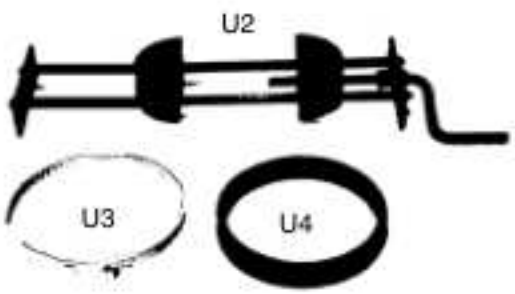
CRPH06B103B

A	5.556 mm (7/32 in)	**D**	6.35 mm (1/4 in)
B	19.05 mm (3/4 in)	**E**	7.938 mm (5/16 in)
C	Mini 50.8 mm (2 in)	**F**	2.381 mm (3/32 in)
C	Max 152.4 mm (6 in)		



CRPH06B104A

A	Ø14 mm (9/16 in)	**B**	Ø11.15 mm (29/64 in)
A	Ø8 mm (0.55 in)	**C**	Ø10 mm (0.39 in)
B	Ø11.15 mm (29/64 in)	**C**	Ø5 mm(0.19 in)

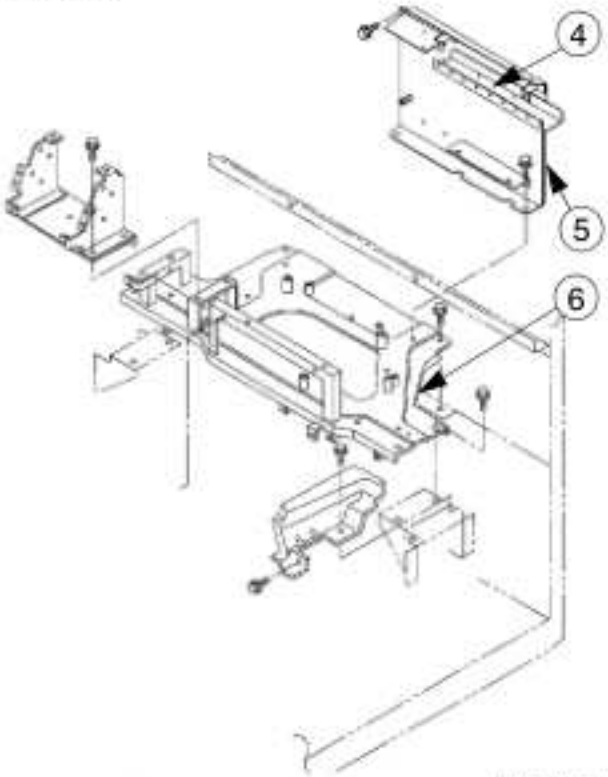


CRPH06B105A

The teflon ring used for the oil pressure cylinder is not possible to install it by as is shape.
Turns a handle of piston ring expander, the teflon ring can be swollen easily without damage.
Also the ring can surely install the teflon ring in the piston.
(Piston Ring Expander, range can be adjusted diameter 35 to 310 mm (1.37 to 12.20 in)).

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STEP 10



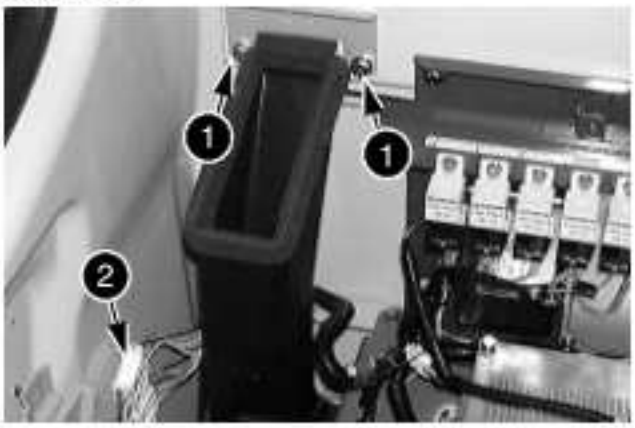
CRPH05B077B

Remove the retaining plate of the relays (4).

STEP 11

Remove the controller brackets (5) and (6).

STEP 12



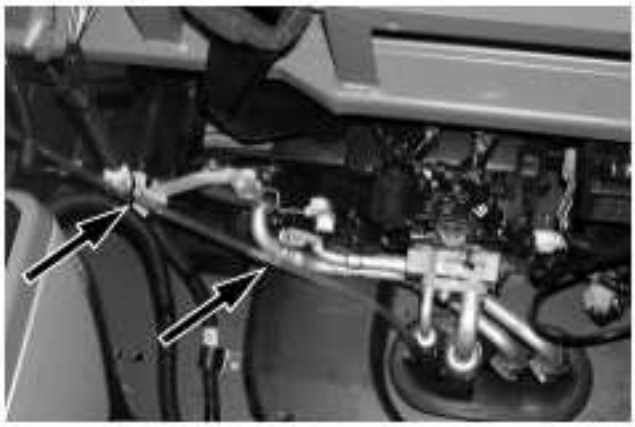
CD00G005

Remove the screws (1) which fasten the rear ventilation and remove the two conduits.

STEP 13

Remove the connectors (2) at the rear of the cab.

STEP 14



CD00D006

Disconnect the windshield washer pipe and remove the retaining clip.

STEP 15

Remove the windshield wiper motor (see page 13).

STEP 16

Remove the upper RH trim panel, disconnect the display and remove it.

STEP 17



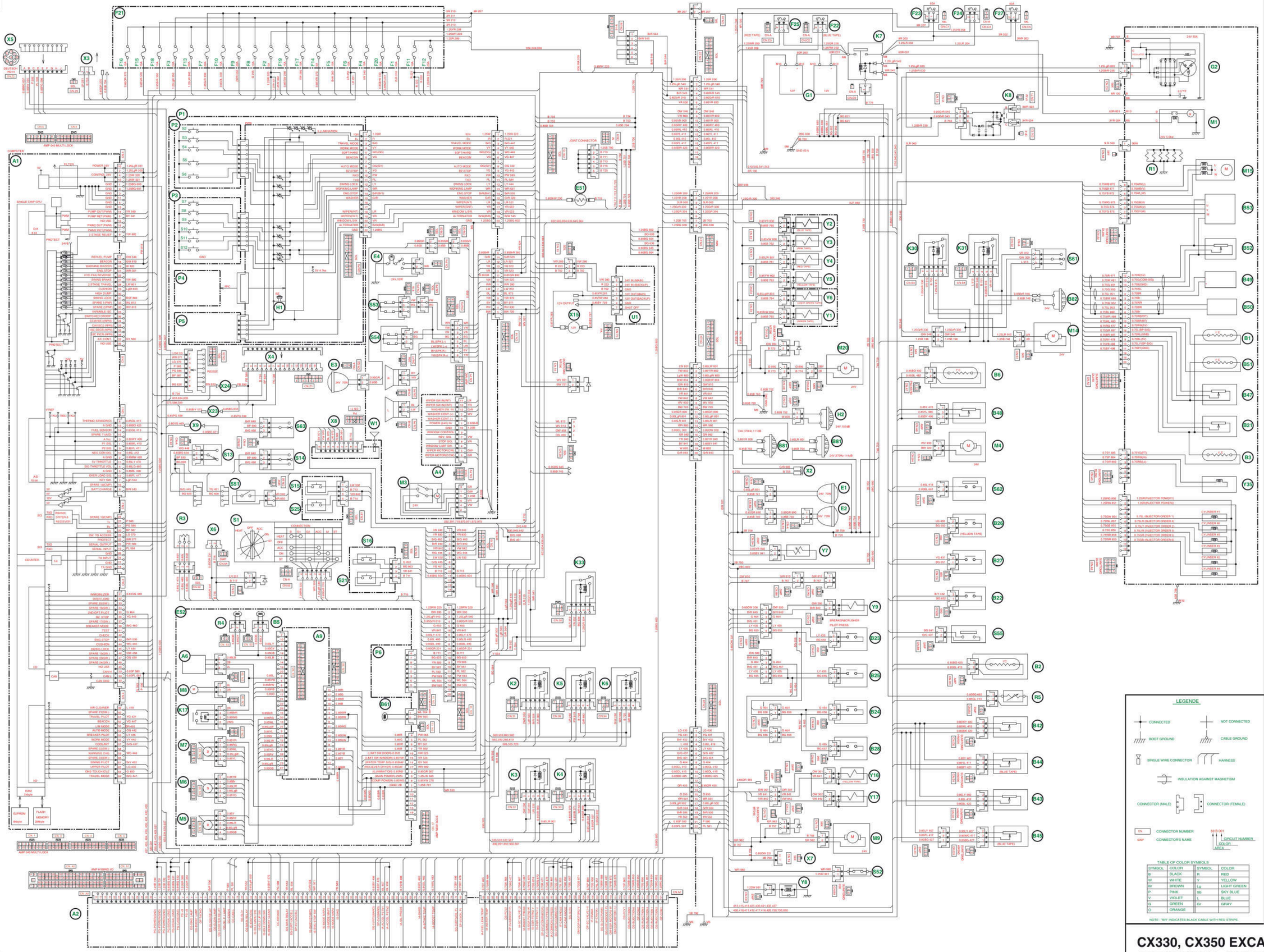
CD00G007

Remove the pollen filter guard, remove the pollen filter and remove the pollen filter conduit.

STEP 18

Remove the working light from the top of the cab. Retract the radio aerial. Install suitable lifting rings on the top of the cab. Install lifting equipment.

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A1 COMPUTER
A2 ENGINE CONTROLLER
A4 WIPER CONTROLLER
A6 BLOWER CONTROLLER
A9 AIR CONDITIONER CONTROLLER
B1 COOLANT TEMPERATURE SENSOR
B2 HYDRAULIC OIL TEMPERATURE SENSOR
B3 FUEL TEMPERATURE SENSOR
B5 EVA SENSOR
B6 AIR INTAKE TEMPERATURE SENSOR
B21 ENGINE OIL PRESSURE SWITCH
B22 SWING PILOT PRESSURE SWITCH
B23 BREAKER / CRUSHER PILOT PRESSURE SWITCH
B24 SECOND OPTION PILOT CIRCUIT 2 PRESSURE SWITCH
B25 BREAKER PILOT PRESSURE SWITCH
B26 UPPER PILOT PRESSURE SWITCH (YELLOW BAND)
B27 TRAVEL PILOT PRESSURE SWITCH
B28 SECOND OPTION PILOT CIRCUIT 1 PRESSURE SWITCH
B42 PUMP PRESSURE SENSOR (P1)
B43 PRESSURE SENSOR (NEGA-CONT)
B44 PUMP PRESSURE SENSOR (P2) (BLUE BAND)
B45 OVERLOAD INDICATOR PRESSURE SWITCH
B47 BOOST PRESSURE SENSOR
B48 AMBIENT AIR (BAROMETRIC) PRESSURE SENSOR
B49 CRANKSHAFT POSITION SENSOR
B50 CAMSHAFT POSITION SENSOR
B51 BOOST TEMPERATURE SENSOR
B52 COMMON RAIL PRESSURE SENSOR
B53 EXHAUST GAS RECIRCULATION VALVE POSITION SENSOR
B61 SUNLOAD SENSOR
B81 HORN
B82 REFUEL PUMP STOP ALARM
E1 WORKING LIGHT (UPPERSTRUCTURE)
E2 WORKING LIGHT (ATTACHMENT)
E3 WORKING LIGHT (CAB)
E4 CAB LIGHT
E51 CIGARETTE LIGHTER
E52 AIR CONDITIONER
F1 FUSE 20A: ENGINE CONTROLLER
F2 FUSE 5A: COMPUTER CONTROL INSTRUMENT PANEL AND DIAGNOSTIC TEST SOCKET
F3 FUSE 20A: COMPUTER POWER
F4 FUSE 10A: HYDRAULIC FUNCTION CANCELLATION LEVER SWITCH
F5 FUSE 10A: AIR CONDITIONER CONDENSER FAN
F6 FUSE 10A: ROTARY LIGHT
F7 FUSE 20A: FUEL FILLER PUMP
F8 FUSE 10A: FUEL FEED PUMP
F9 FUSE 30A: GLOW PLUG
F10 FUSE 15A: OPTION LINE AND LUBRICATOR CONNECTOR
F11 FUSE 10A: BACK-UP
F12 FUSE 20A: KEY SWITCH
F13 FUSE 20A: HEATER / AIR CONDITIONER
F14 FUSE 5A: AIR CONDITIONER COMPRESSOR
F15 FUSE 15A: WORKING LIGHT
F16 FUSE 15A: WORKING LIGHT (NOT USED)
F17 FUSE 10A: DC-DC (24V-12V) CONVERTER
F18 FUSE 15A: WIPER AND WASHER
F19 FUSE 15A: HORN
F20 FUSE 15A: CIGARETTE LIGHTER AND CAB SEAT COMPRESSOR ADJUSTMENT
F21 FUSE BOX
F22 FUSE 20A: MAIN FUSE FOR F11 AND F12 CIRCUITS
F23 FUSE 65A: MAIN FUSE FOR F3 TO F10 AND F13 TO F20 CIRCUITS
F24 FUSE 20A: MAIN FUSE FOR F2 CIRCUIT
F25 FUSE 20A: MAIN FUSE FOR F1CIRCUITS
F27 FUSE 50A: SAFETY RELAY
G1 BATTERY
G2 ALTERNATOR
H1 AUDIBLE WARNING DEVICE
H2 TRAVEL ALARM
K2 RELAY-GLOW PLUG
K3 RELAY-HORN
K4 RELAY-WORKING LIGHT
K5 RELAY-ROTARY LIGHT
K6 RELAY-AIR CONDITIONER CONDENSER FAN
K7 RELAY BATTERY
K8 RELAY SAFETY
K17 BLOWER OFF RELAY
K30 REFUEL PUMP RELAY
K31 REFUEL PUMP STOP RELAY
K33 MAIN RELAY
M1 STARTER MOTOR
M3 WIPER MOTOR
M4 WASHER MOTOR
M5 MOTOR (AIR CHANGING)
M6 AIR VENT DIRECTION CONTROL MOTOR
M7 MOTOR ACT (AIR-MIX)
M8 BLOWER MOTOR
M9 AIR CONDITIONER CONDENSER FAN MOTOR
M14 FUEL FEED PUMP MOTOR
M15 EXHAUST GAS RECIRCULATION MOTOR
M20 ELECTRIC FUEL PUMP
P1 INSTRUMENT PANEL
P2 SWITCH PANEL (LEFT-HAND)
P3 SWITCH PANEL (RIGHT-HAND)
P4 MONITOR DISPLAY
P5 HOURMETER
P6 AIR CONDITIONER CONTROL PANEL
R1 GLOW PLUG
R3 THROTTLE VOLUME
R4 THERMISTOR INNER TEMPERATURE
R5 FUEL SENSOR
S1 KEY SWITCH
S2 TRAVEL MODE SWITCH
S3 WORK MODE SWITCH
S4 AUTO MODE SWITCH
S5 CUSHION CONTROL SWITCH
S6 ROTARY LIGHT SWITCH
S7 AUDIBLE ALARM CUT OUT SWITCH
S8 SWING BRAKE SWITCH
S9 ENGINE EMERGENCY STOP SWITCH
S10 WORKING LIGHT SWITCH
S11 WIPER SWITCH
S12 WASHER SWITCH
S13 OVERLOAD SWITCH
S14 BREAKER / CRUSHER SWITCH
S15 HORN SWITCH
S16 ONE TOUCH IDLE
S21 DOUBLE ACTING SWITCH (RIGHT)
S25 DOUBLE ACTING SWITCH (LEFT)
S51 HYDRAULIC FUNCTION CANCELLATION LEVER SWITCH
S52 AIR CONDITIONING COMPRESSOR CLUTCH SWITCH
S53 DOOR LIMIT SWITCH
S54 FRONT WINDOW LIMIT SWITCH
S55 RESERVE TANK LOW SWITCH
S61 REFUEL PUMP SWITCH
S62 AIR CLEANER SENSOR
S63 DOUBLE ACTING SWITCH (OPTIONAL)
U1 DC-DC (24V-12V) CONVERTER
W1 ANTENNA
X2 ROTARY LIGHT CONNECTOR
X3 OPTIONAL POWER CONNECTOR
X4 ENGINE TEST POINT CONNECTOR
X5 CONTROLLER TEST POINT CONNECTOR
X6 CAB SEATCOMPRESSOR MOTOR CONNECTOR
X7 LUBRICATOR CONNECTOR
X8 RADIO CONNECTOR
X9 ANTI-THEFT SYSTEM CONNETOR
X15 ACCESSORY SOCKET
X23 CLEAR MEMORY 1
X24 CLEAR MEMORY 2
Y1 SWING PILOT SHUT-OFF SOLENOID VALVE (GREEN BAND)
Y2 PILOT PRESSURE SOLENOID VALVE (BLUE BAND)
Y3 SWING BRAKE SOLENOID VALVE (PINK BAND)
Y4 2 STAGE TRAVEL SOLENOID VALVE (RED BAND)
Y5 POWER-UP SOLENOID VALVE (YELLOW BAND)
Y6 CUSHION CONTROL SOLENOID VALVE (LIGHT GREEN BAND)
Y7 MAIN PUMP PROPORTIONAL SOLENOID
Y8 AIR CONDITIONER MAGNET CLUTCH
Y9 CRUSHER/BREAKER OPTION TWO FLOW SOLENOID VALVE
Y16 DOUBLE ACTING SOLENOID VALVE (RIGHT)
Y17 DOUBLE ACTING SOLENOID VALVE (LEFT)
Y35 SUCTION CONTROL VALVE

LEGEND

CONNECTED
NOT CONNECTED
BOOT GROUND
CABLE GROUND
SINGLE WIRE CONNECTOR
HARNESS
INSULATION AGAINST MAGNETISM
CONNECTOR (MALE)
CONNECTOR (FEMALE)
CN: CONNECTOR NUMBER
SWP: CONNECTOR'S NAME
60 R 0.85 — CIRCUIT NUMBER / COLOR / AREA

TABLE OF COLOR SYMBOLS

SYMBOL	COLOR	SYMBOL	COLOR
B	BLACK	R	RED
W	WHITE	Y	YELLOW
Br	BROWN	Lg	LIGHT GREEN
P	PINK	Sb	SKY BLUE
V	VIOLET	L	BLUE
G	GREEN	Gr	GRAY
O	ORANGE		

NOTE : "BW" INDICATES BLACK CABLE WITH RED STRIPE.

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ELECTRICAL SCHEMATIC - 9-93970 EN

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