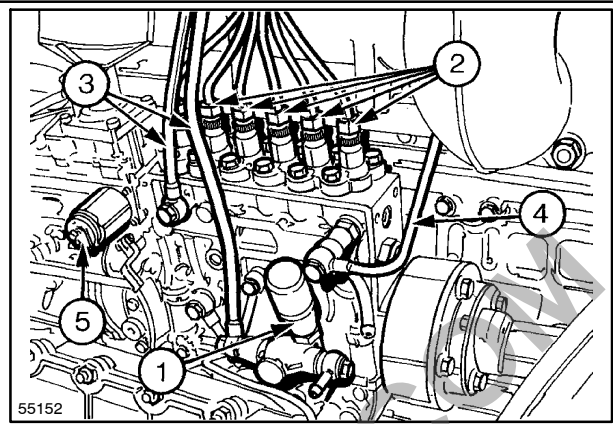
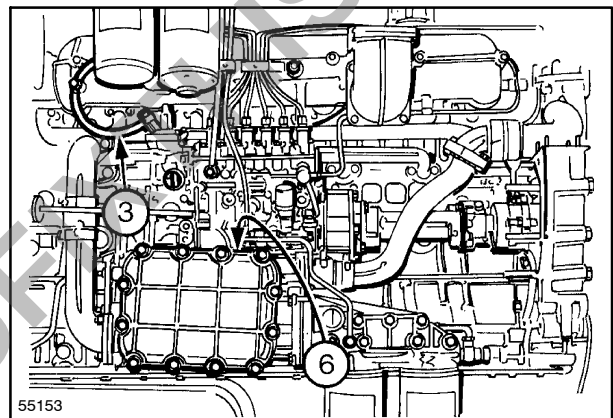


FUEL INJECTION PUMP**Removal** (Fig. 5 to 7)

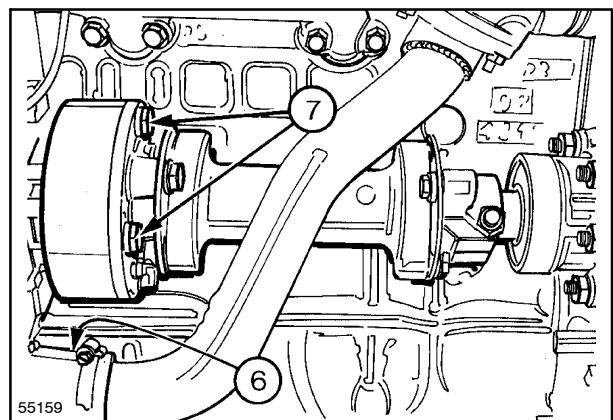
1. Clean the pump area carefully.
2. Disconnect all components and assemblies which may interfere with the disassembly procedure in the injection pump area.
3. Disconnect the throttle control actuator.
4. Remove delivery pump 1.
5. Unscrew the fittings of high-pressure lines 2 from both the pump and the injectors.
6. Remove the brackets used to secure lines 2 to the engine and move them inwards.
7. Remove fuel and oil supply lines 3 and return lines 4.
8. Disconnect all remaining lines.
9. Disconnect the engine stop solenoid cable 5.
10. Remove mounting bolts 6 and nuts 7.
11. Remove the pump carefully.
12. Plug up all openings of the lines and pump carefully to avoid dust ingress.



5



6

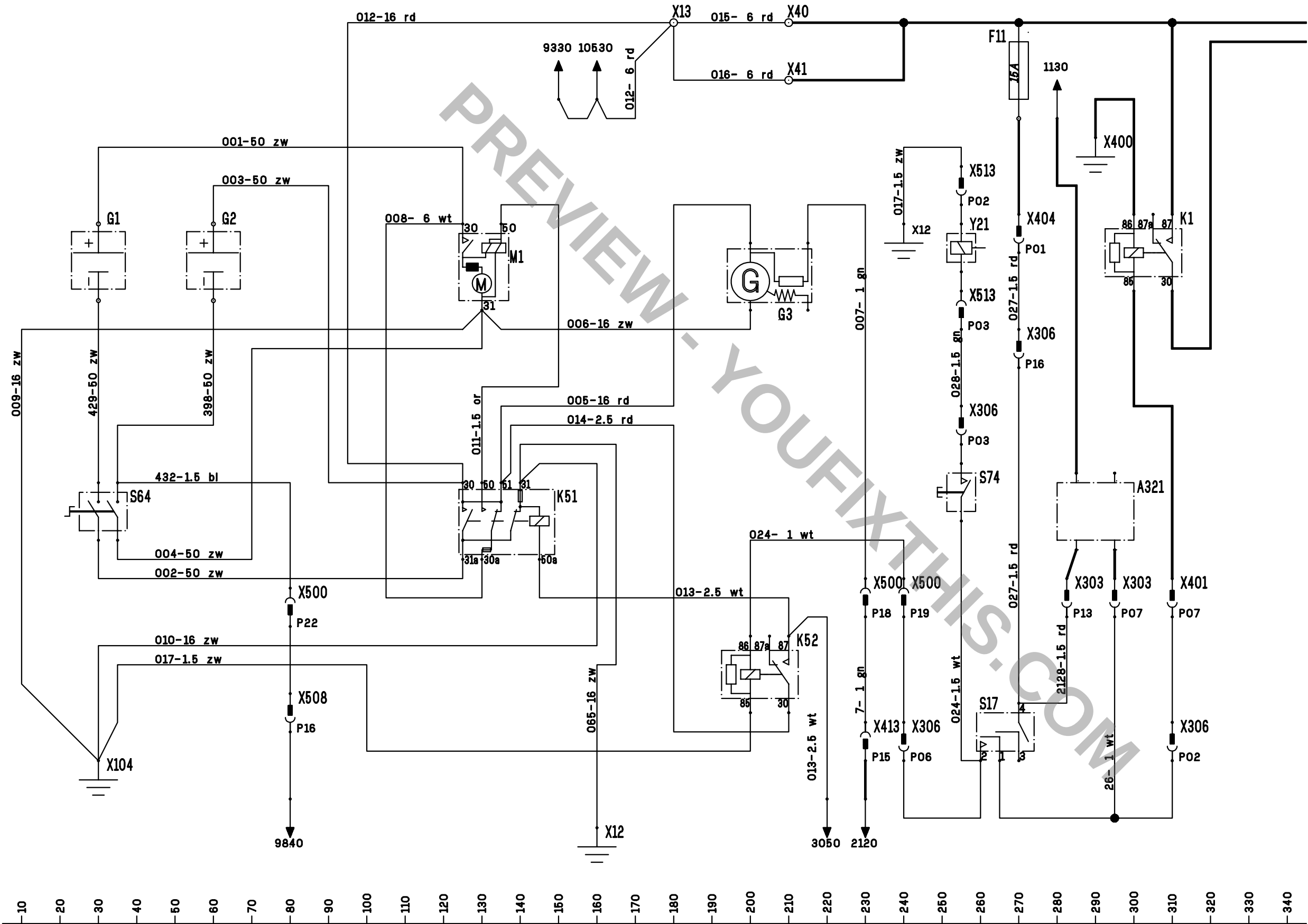


7

WARNING

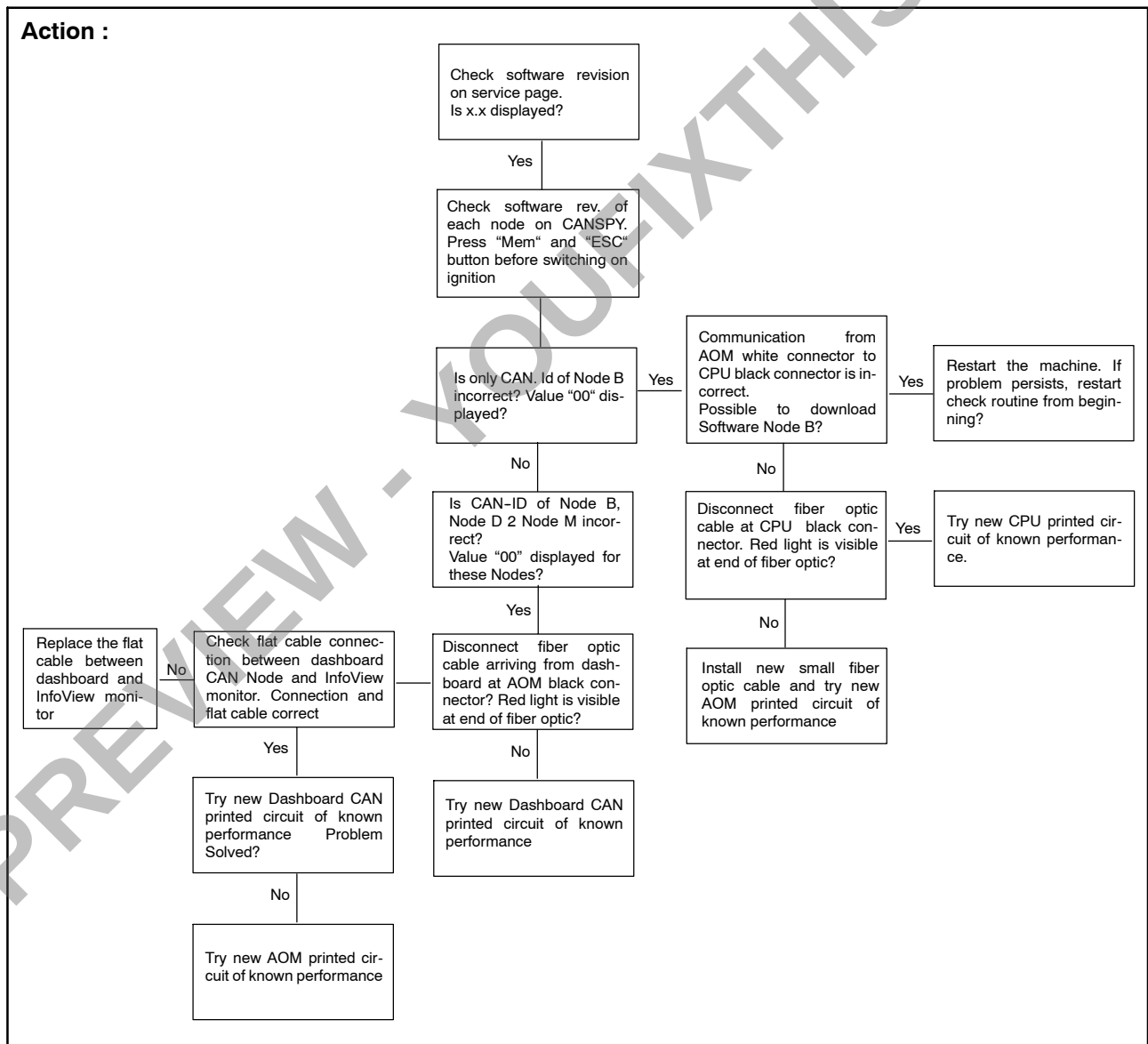
Handle all components with great care.
Do not insert your hands or fingers in between components.
Wear appropriate safety clothing, including goggles, gloves and safety boots.

START 24V
FX25 39.01 >5080 FX45 47.01 >5080



MACHINE ERROR MESSAGES

Error Code	Description	Importance
001	LCD NETWORK ERROR	High
Explanation :	<p>General CAN network failure.</p> <p>Information sent out by the different nodes, through the optical fibres and the flat cable, is not arriving.</p> <p>If the outgoing communication from the InfoView monitor to dashboard can node, from the dashboard can node to the AOM node and from the AOM node to the CPU node is interrupted.</p> <p>All the nodes react as if there is no network, as if they are not connected to the network. This failure can be caused by any node on the network or by a network path that generates so many errors that all the nodes can not communicate any more.</p>	

Action :

MINIMUM HARDWARE TIGHTENING TORQUES

IN NEWTON-METRES - Nm (FOOT POUNDS - LBF. FT)
FOR NORMAL ASSEMBLY APPLICATIONS

METRIC HARDWARE AND LOCKNUTS

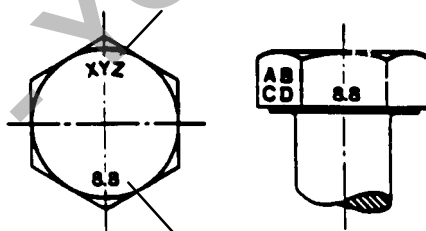
NOMINAL SIZE	CLASS 5.8		CLASS 8.8		CLASS 10.9		LOCKNUT CL.8 W/CL8.8 BOLT
	UNPLATED	PLATED W/ZnCr	UNPLATED	PLATED W/ZnCr	UNPLATED	PLATED W/ZnCr	
M4	1.7 (15*)	2.2 (19*)	2.6 (23*)	3.4 (30*)	3.7 (33*)	4.8 (42*)	1.8 (16*)
M6	5.8 (51*)	7.6 (67*)	8.9 (79*)	12 (102*)	13 (115*)	17 (150*)	6.3 (56*)
M8	14 (124*)	18 (159*)	22 (195*)	28 (248*)	31 (274*)	40 (354*)	15 (133*)
M10	28 (21)	36 (27)	43 (32)	56 (41)	61 (45)	79 (58)	30 (22)
M12	49 (36)	63 (46)	75 (55)	97 (72)	107 (79)	138 (102)	53 (39)
M16	121 (89)	158 (117)	186 (137)	240 (177)	266 (196)	344 (254)	131 (97)
M20	237 (175)	307 (226)	375 (277)	485 (358)	519 (383)	671 (495)	265 (195)
M24	411 (303)	531 (392)	648 (478)	839 (619)	897 (662)	1160 (855)	458 (338)

NOTE: Torque values shown with * are inch pounds.

IDENTIFICATION

HEX CAP SCREW AND CARRIAGE BOLTS
CLASSES 5.6 AND UP

MANUFACTURER'S IDENTIFICATION

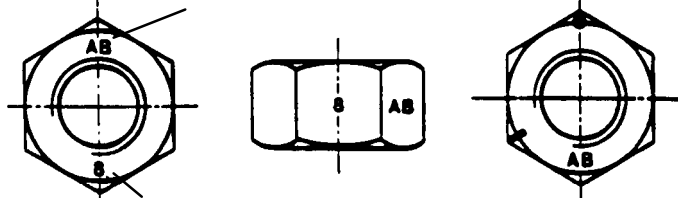


PROPERTY CLASS

HEX NUTS AND LOCKNUTS

CLASSES 05 AND UP

MANUFACTURER'S IDENTIFICATION



PROPERTY CLASS

CLOCK MARKING

SECTION 21 - TRANSMISSION

BOOK 1 - 87051241

Chapter 1 - Traction Gearbox

CONTENTS

Section	Description	Page
21.145	Lubrication	2
	Gearbox shafts and shifting diagram	3
	Disassembly of traction gearbox	4
	Assembly of traction gearbox	9

SECTION 23 - 4WD LINES

BOOK 1 - 87051241

Chapter 1 - 4WD Angle Gearbox

CONTENTS

Section	Description	Page
23.000	Removal from the base unit	2
	Disassembly of 4WD angle gearbox	2
	Assembly of 4WD angle gearbox	4
	Installation on base unit	6

SECTION 25 - FRONT MECHANICAL DRIVE

BOOK 1 - 87051241

Chapter 1 - Final Drives

CONTENTS

Section	Description	Page
25.310	Lubrication	2
	Disassembly and assembly of final drives	2

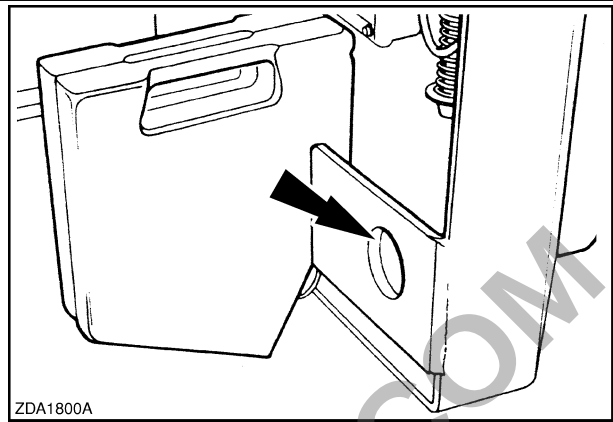
34. If a forklift or a platform with a capacity of at least 5000 kg is available: lift the forage harvester rear end using the lift eyes on the rear bumper.

! DANGER !

Make sure that the forage harvester can not move while lifting.

! DANGER !

Make sure that the connections between the forklift or the platform and the lifting eyes are strong enough and that they are installed in a safe way.



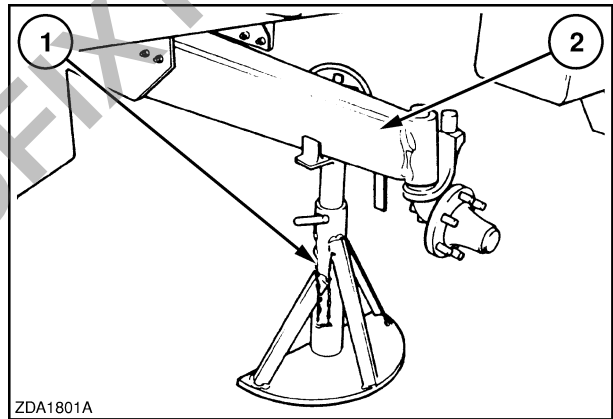
16

35. Pull the fuel reservoir and its protection plate out to the rear.

36. If no forklift or platform is available, use a jack 1.

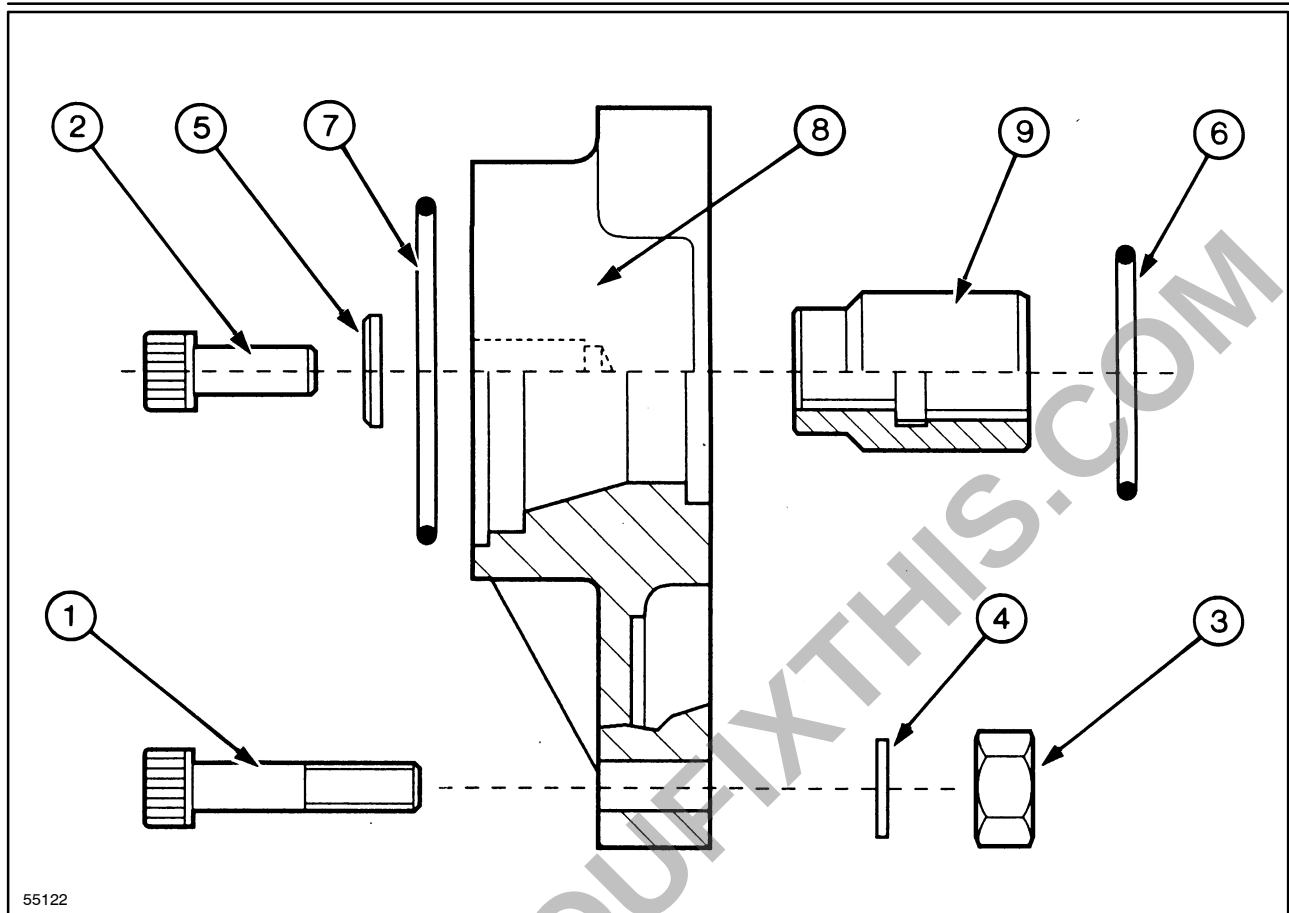
37. Install jack 1 under rear axle 2 on the right-hand side and remove the rear wheel.

38. Jack up the forage harvester until the fuel reservoir filler neck can pass under the forage harvester frame and pull out the fuel reservoir and its protection plate to the right-hand side of the machine.



17

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55122

14

1. Four cap screws h (M8)
2. Two cap screws j (M10)
3. Four nuts (M8)
4. Four washers (M8)
5. Two washers (M10)
6. O-ring seal (towards the steering hydraulics pump)
7. O-ring seal (towards the low pressure pump)
8. Intermediate piece
9. Fitting sleeve (connection between drive shafts)

The steering hydraulics pump E is connected to the work hydraulics pump D with 4 long stud bolts k (M10 x 185.5 mm) (Fig. 13).

These bolts are screwed into the part that connects the triple pump to the hydrostatic pump.

The steering and the work hydraulics pumps are tightened to each other with special M10 nuts l on these stud bolts (Fig. 13).

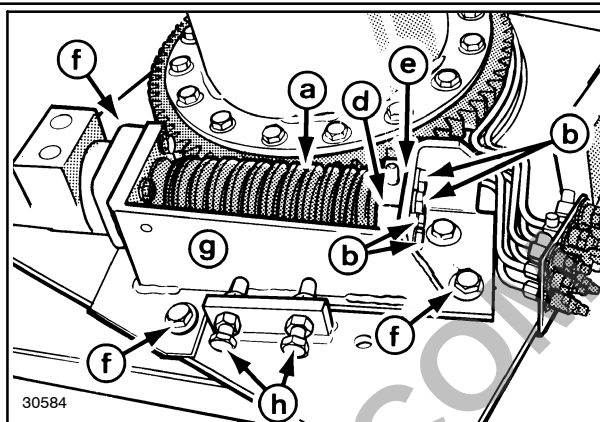
The drive shafts of the latter pumps are connected to each other with coupling m (Fig. 13 and 15).

To adjust, proceed as follows:

FX/96 Series 01 to 10
FX25/45 Series 01 and 02

1. Check worm gear a for axial play.
Maximum allowed axial play: 0.25 mm (0,01").
2. To remove possible play, loosen bolts b and install shims between worm bracket g and bearing block d at e. Retighten bolts b.
3. Loosen the four worm gear bracket bolts f + j and adjust bracket g with bolts h so that there is no rotational play on the spout.
4. Rotate the spout a full cycle both left and right to ensure it moves freely. Readjust, if necessary.
5. Retighten all hardware and install all grease lines and covers.
6. Tighten bolts f + j to 95 Nm (70 lbf.ft) torque and retighten them after the first 50 operating hours.

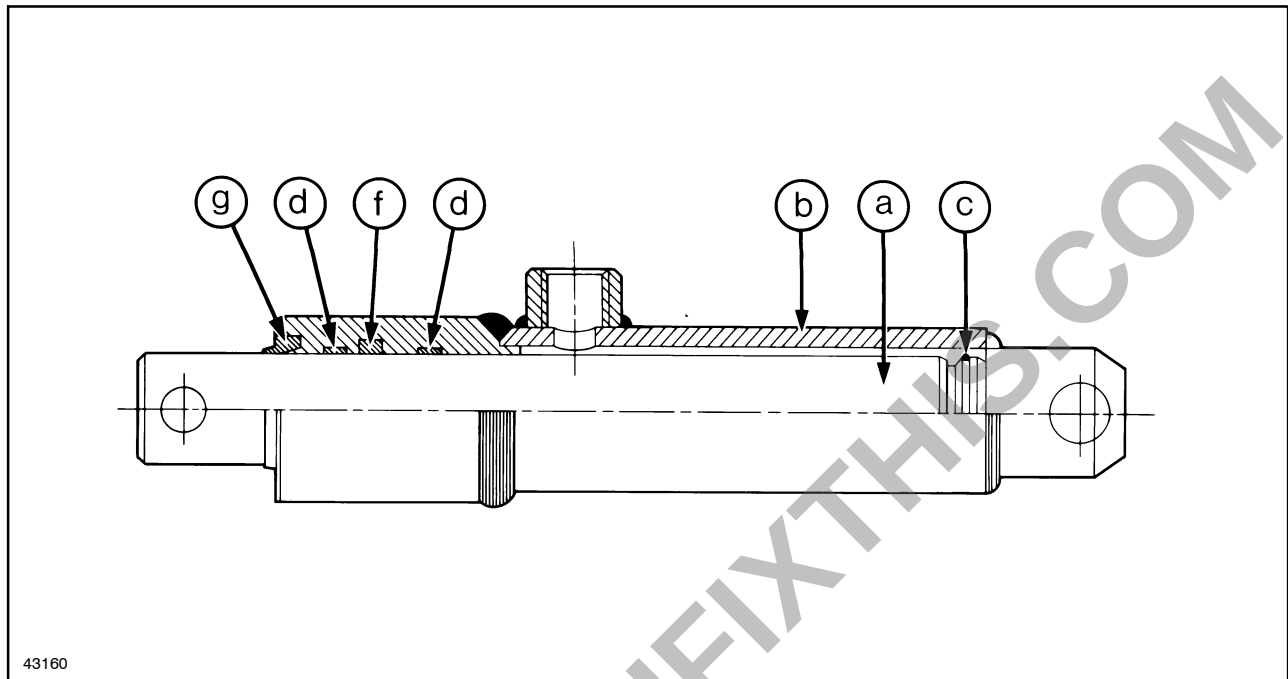
NOTE: Covers and grease lines are removed for clarity



13

FX/96 Series 13 >
FX25/45 Series 05 >

1. Check worm gear a for axial play.
Maximum allowed axial play: 0.25 mm (0,01").
2. To remove possible play, loosen bolts b and install shims between worm bracket g and bearing block d at e. Retighten bolts b.
3. The worm gear assembly pivots around the bolt and bushing connection j.
4. Loosen the three worm gear bracket bolts f and adjust bracket g with bolts h so that there is no rotational play on the spout.
5. Rotate the spout a full cycle both left and right to ensure it moves freely. Readjust, if necessary.
6. Retighten all hardware and install all grease lines and covers.
Tighten bolts f to 95 Nm (70 lbf.ft) torque and retighten them after the first 50 operating hours.

MAIN DRIVE BELTS TENSIONING CYLINDER

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- a** Piston
- b** Cylinder
- c** Locking wire
- d** Piston guide ring (2x)
- f** Seal ring
- g** Guide ring
- h** Seal ring

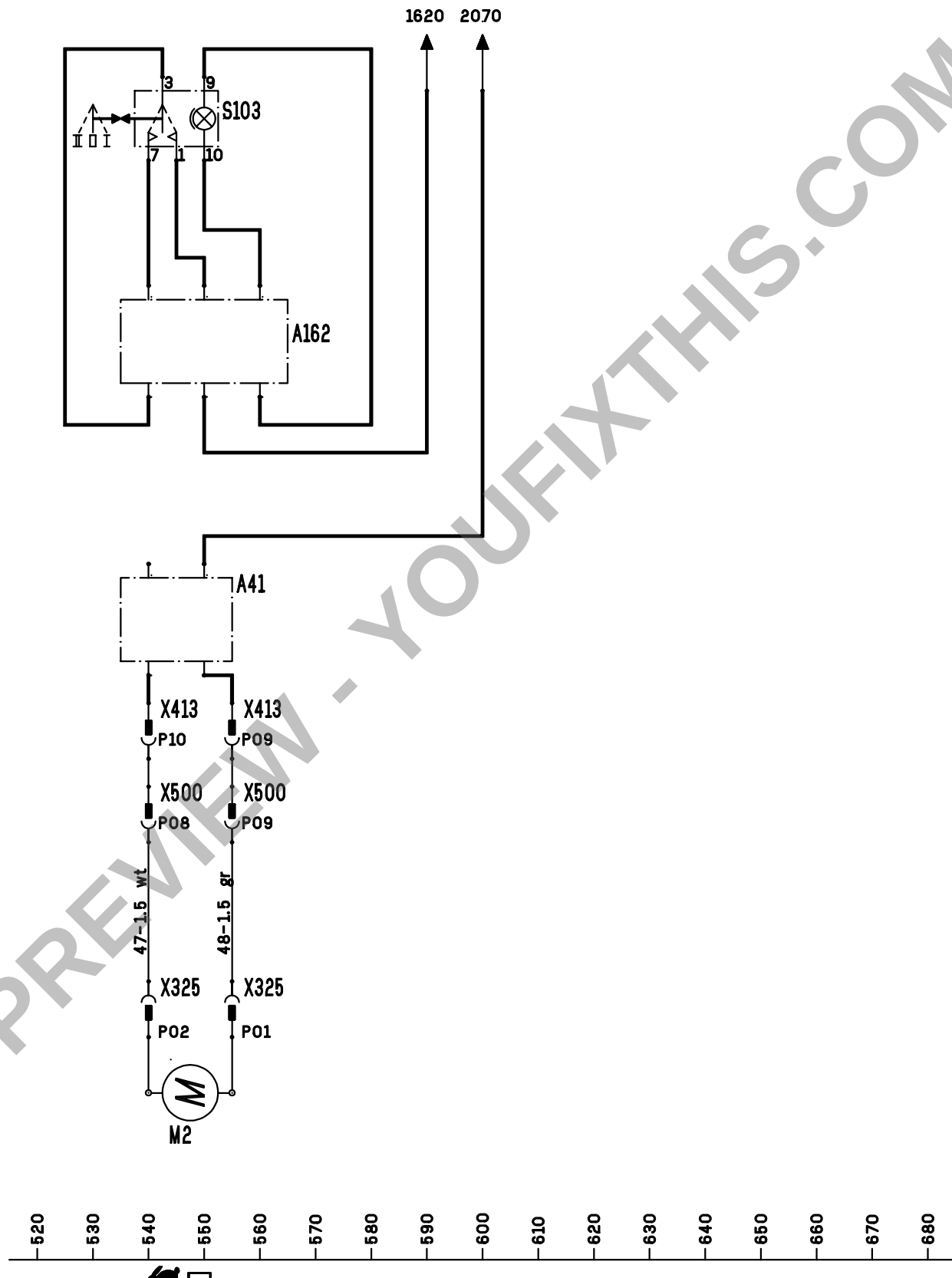
The disassembly and assembly instructions are similar to those for the attachment lift cylinders.

ELECTRICAL DIAGRAMS

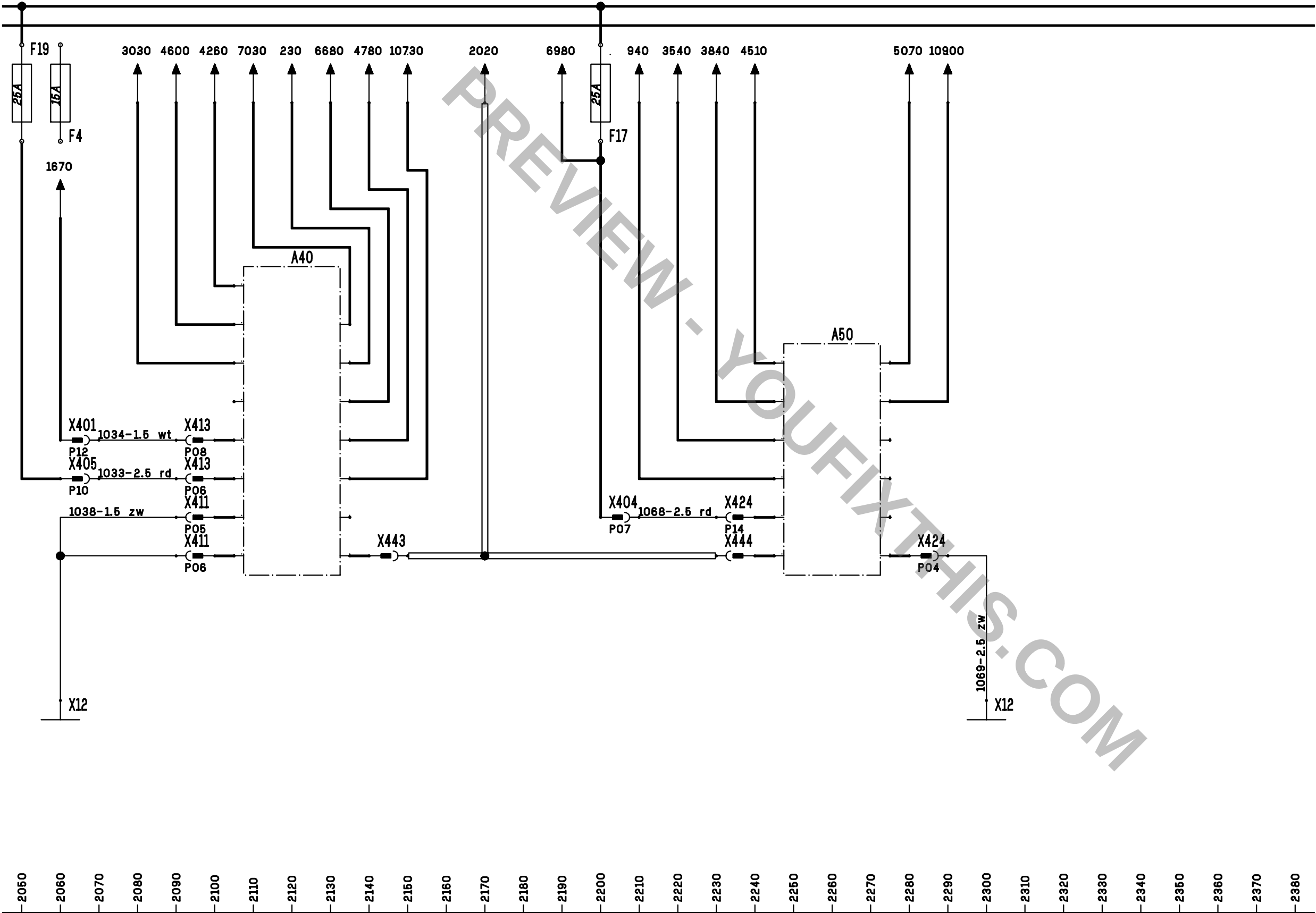
Ref.	Line	Group / Series
1a	10	STARTER CIRCUIT 24V FX25 39.01 > 5080 FX45 47.01 > 5080
1b	10	STARTER CIRCUIT 24V FX28NA 5083 > 5168 FX38NA 5083 > 5168
1c	10	STARTER CIRCUIT 24V FX28NA 5186 > 5206 FX38NA 5186 > 5206
1d	10	STARTER CIRCUIT 24V IVECO FX28NA 5218 > FX38NA 5218 >
1e	10	STARTER CIRCUIT 24V CATERPILLAR FX58NA 5083 > 5168
1f	10	STARTER CIRCUIT 24V CATERPILLAR FX58NA 5186 > 5206
1g	10	STARTER CIRCUIT 24V CATERPILLAR FX58NA 5218 >
2a	520	ENGINE THROTTLE CONTROL FX25 39.01 > 5080 FX45 47.01 > 5080
2b	520	ENGINE THROTTLE CONTROL FX28NA 5083 > 5168 FX38NA 5083 > 5168
2c	520	ENGINE THROTTLE CONTROL FX28NA 5186 > 5206 FX38NA 5186 > 5206
2d	520	ENGINE THROTTLE CONTROL IVECO FX28NA 5218 > FX38NA 5218 >
2e	520	ENGINE THROTTLE CONTROL CATERPILLAR FX58NA 5083 > 5168
2f	520	ENGINE THROTTLE CONTROL CATERPILLAR FX58NA 5186 > 5206
2g	520	ENGINE THROTTLE CONTROL CATERPILLAR FX58NA 5218 >
3a	690	HYDROSTATIC CONTROL FX25 39.01 > 5080 FX45 47.01 > 5080
3b	690	HYDROSTATIC CONTROL FX28NA 5083 > 5206 FX38NA 5083 > 5206
3c	690	HYDROSTATIC CONTROL IVECO FX28NA 5218 > FX38NA 5218 >
3d	690	HYDROSTATIC CONTROL CATERPILLAR FX58NA 5083 > 5206

GASBEDI ENING

FX28NA 5186 > 5206 FX38NA 5083 > 5168

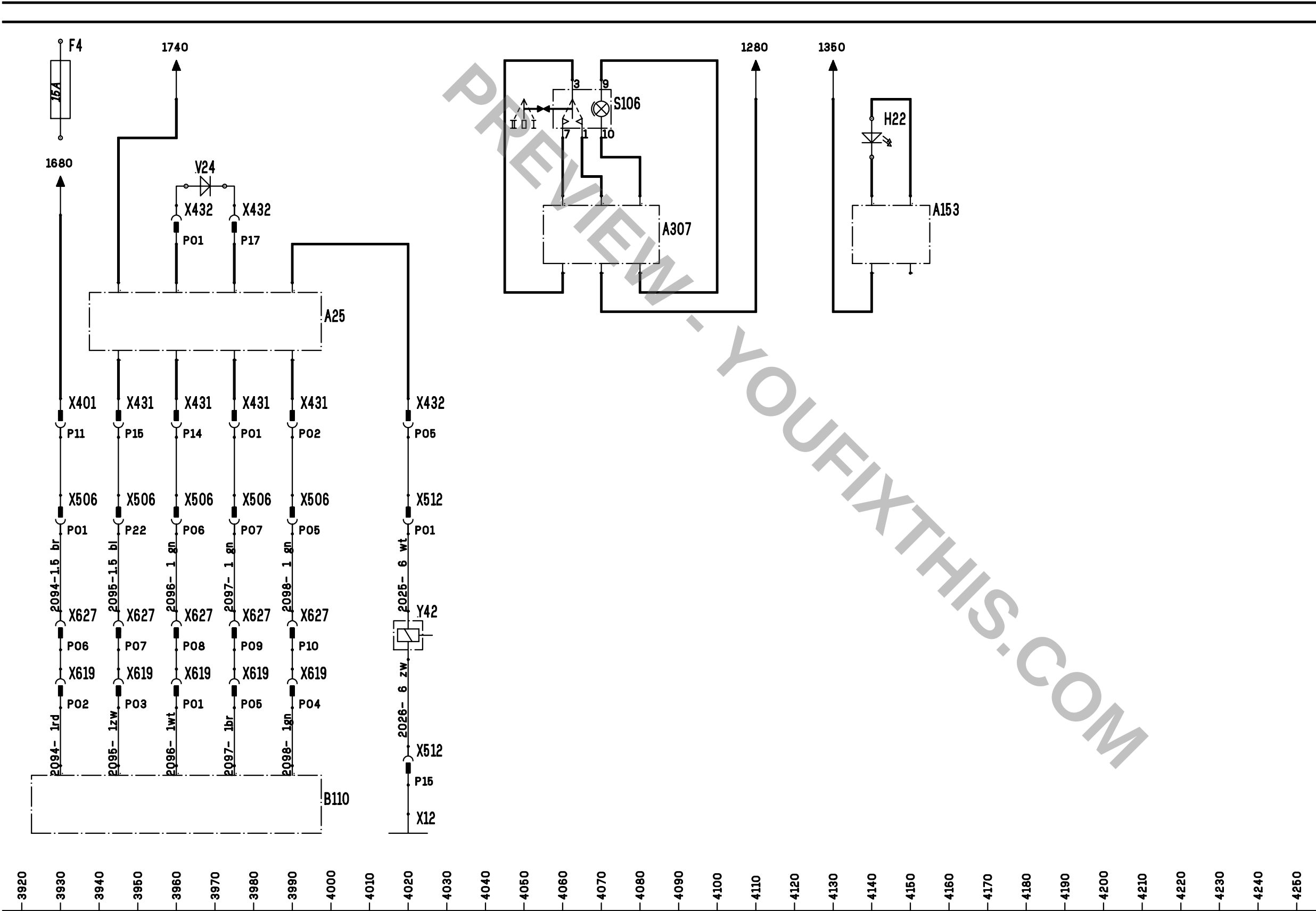


ELEK-SYST: CENTR. KAST2
FX28NR 5218 > FX38NR 5218 > FX58NR 5218 >



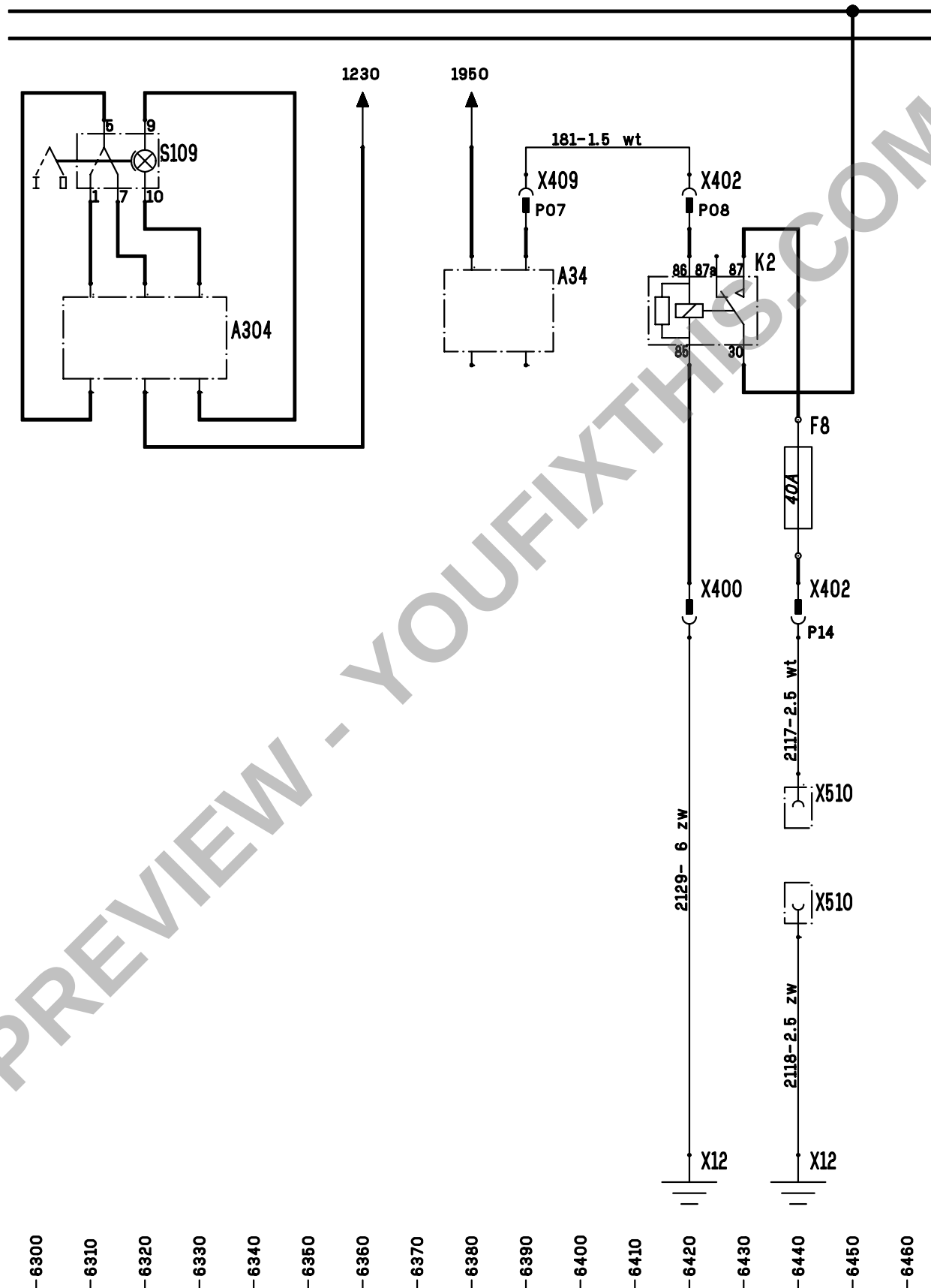
METAALDETECTOR

FX28NR 5083 > 5168 FX38NR 5083 > 5168



ZUURI NJECTI E

FX25 39.02 >5080 FX45 47.02 >5080



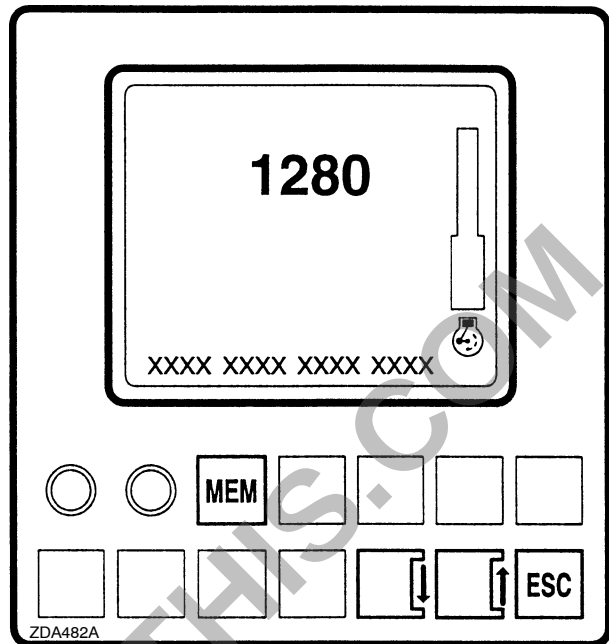


How to Enter CAN-SPY

Simultaneously press MEM and ESC on the InfoView panel. The Can Spy screen will appear and shows the following information:

- The identifier number or "Page number" (e.g. 1280). This can be changed with the scroll buttons.
- Four words in the bottom text line (shown as xxxx xxxx xxxx xxxx). Each word contains four digits.

The four words in the bottom text line contain the information of the CAN system in hexadecimal numbers.



5

CAN-SPY in practice:

The CAN identifier values are shown in four columns known as 'Words'. In each word there are four digit positions. There are four basic rules that must be used to calculate the appropriate value from the notes:

1. Only add values together. Never subtract.
2. Identify the function status statements that match the current machine situation ('true statements') and add the relevant values together.
3. Only add values in the same word and the same digit position.
4. Calculate the 'expected value' on paper and then check that it corresponds to the value given on the Info View screen.

NOTE: Values in the same Word that are not relevant to the function description are shown in the notes as =.

SECTION 55 - ELECTRICAL SYSTEM**Chapter 7 - Troubleshooting****CONTENT**

Section	Description	Page
55.000	Error messages overview	
	- Machine error messages	2
	- Attachment height control error messages	54
	- Caterpillar error messages	60
	List of Can identifier	62
	Detailed analysis per function	89

Error Code	Description	Importance
461	REVERSER CUTTERHEAD	Medium
Explanation :	The solenoid of the reverse cutterhead hydraulic valve is open or shorted.	
Action :	<p>Refer to wiring diagram : solenoid Y31, line 4960.</p> <p>Disconnect the solenoid Y31 on the stack valve. Check for battery voltage at Y31 while the cutterhead reverse switch is switched on (harvest function activated).</p> <p>If no battery voltage can be measured, locate and repair the open or shorted circuit in wire 2001-wt and/or wire 2002-zw. If no open or shorted circuit can be found, try new hydraulic printed circuit of known performance.</p> <p>If battery voltage is measured at the end connector, check coil resistance of the solenoid (a resistance of app. 4 ohm should be measured) or eventually power the solenoid with separate battery (insert fuse in power cable). If the valve is not functioning, try new hydraulic valve Y31 of known performance. If the coil resistance is correct and the hydraulic valve is functioning, connect everything and try again.</p>	

Error Code	Description	Importance
463	REVERSE FEEDING ROLLS	Medium
Explanation :	The feed rolls reverse electro magnetic clutch is open or shorted.	
Action :	<p>Refer to wiring diagram : electric clutch Y43, line 3510.</p> <p>On machines build before season '99 (up to serial number 5080), the feed rolls reverse output is located on the hydraulic printed circuit. On machines build from season '99 onwards (serial number 5083 onwards), the feed rolls reverse output is located on the actuator printed circuit. If the machine is installed with software revision REV99 or later, recalibrate first the new 'stromag feed rolls engagement clutch' option by means of PDT or PC calibration program.</p> <p>If problem persists after recalibration, disconnect the electric clutch Y43. Check for battery voltage at Y43 while the feed rolls reverse output is activated (harvest function activated).</p> <p>If no battery voltage can be measured, locate and repair the open or shorted circuit in wire 2029-wt and/or wire 2030-zw. If no open or shorted circuit can be found, try new hydraulic printed circuit on machines before season '99 or try new actuator printed circuit on machines from season '99 onwards.</p> <p>If battery voltage is measured at the end connector, check coil resistance of the electric clutch (a resistance of app. 1-2 ohm should be measured for the Stromag clutch) or eventually power the electric clutch with separate battery (insert fuse in power cable). If the clutch is not functioning, try new electro magnetic clutch Y43 of known performance. If the coil resistance is correct and the electro magnetic clutch is functioning, connect everything and try again.</p>	

1. ELECTRIC CONDITIONS, ENGINE RUNNING OR NOT RUNNING**Reason**

The system must know if the engine is running or not. A lot of functions can only be activated when the engine is physically running.

Indication

An indication for the engine running or not running are the rotary screens.

As soon as one of the three conditions for "engine is running" is valid, also the rotary screens will rotate.

Or, if the rotary screens rotate (engine running or not), this means that for the electronics the engine is started.

Conditions for "engine is running"

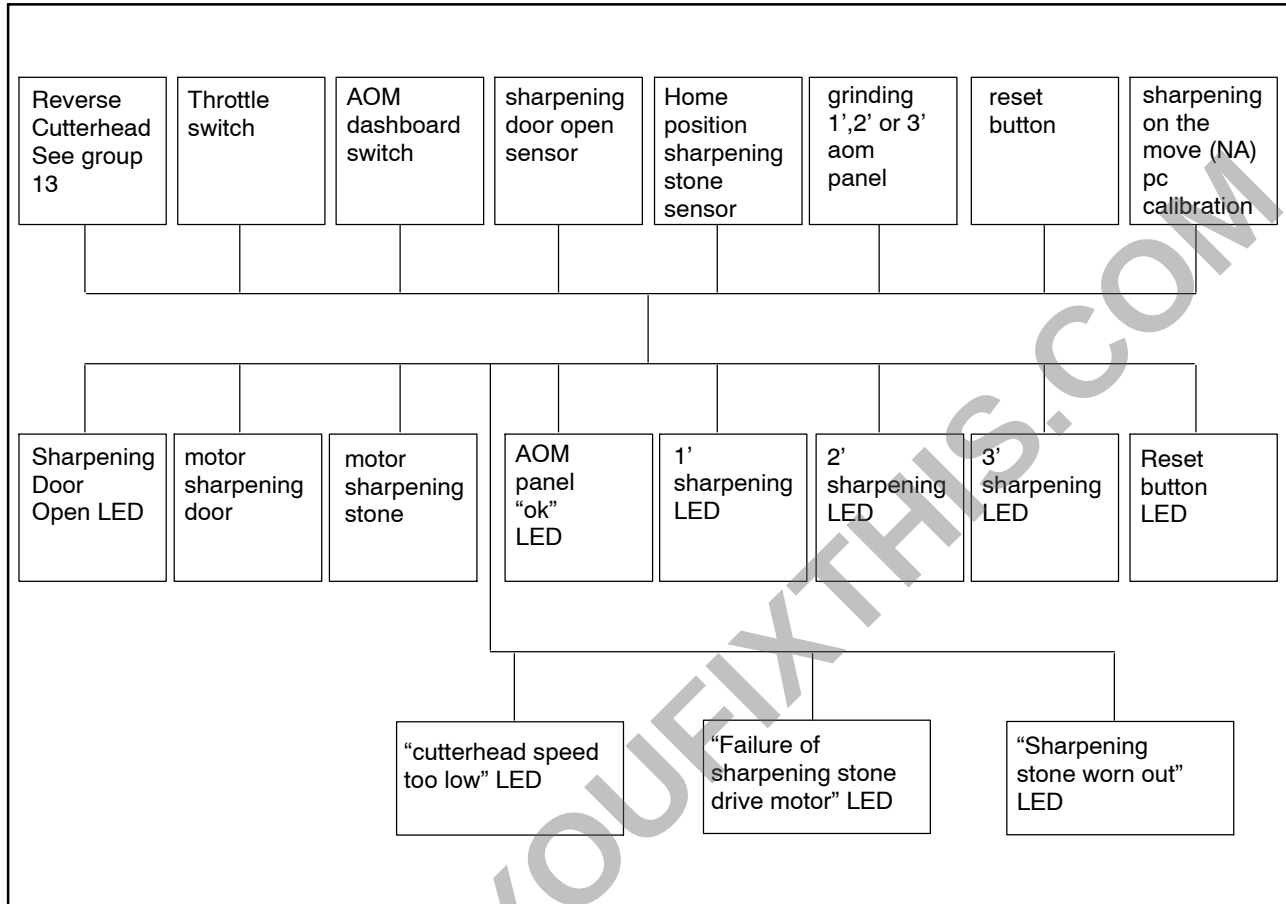
1. Indication that the alternator is charging
- or
2. Sufficient engine oil pressure and sufficient hydrostatic oil pressure
- or
3. Information from engine rpm sensor

Conditions for "engine is not running"

1. Insufficient charge of the alternator
- and
- Insufficient engine oil pressure
- and
- No information from engine rpm sensor
- or
2. Insufficient charge of the alternator
- and
- Insufficient hydrostatic oil pressure
- and
- No information from engine rpm sensor

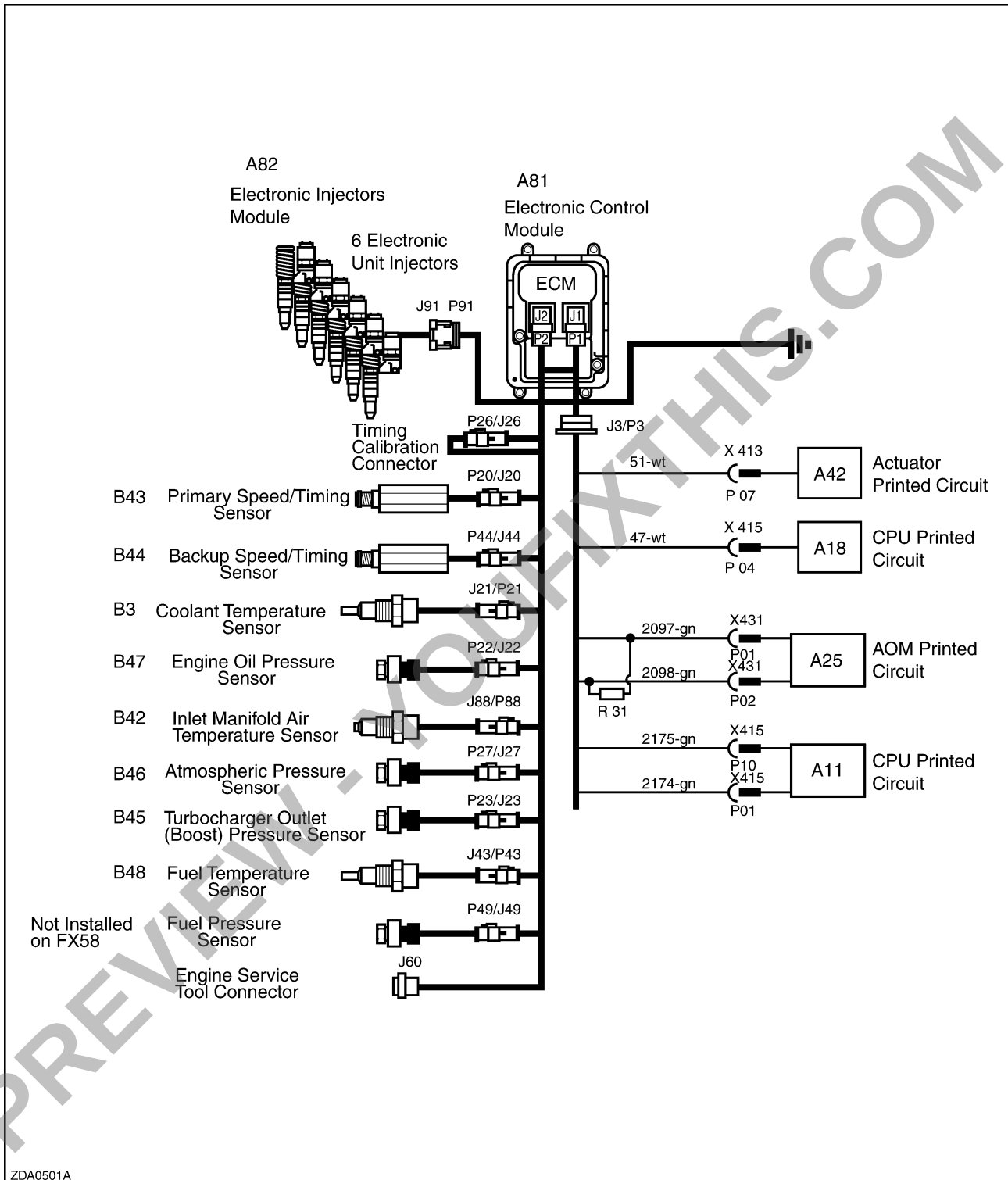
REMARK: If the engine is running, but there is no rotary screen rotation, possible consequences are:

- No engagement of the cutterhead and feed rolls.
- No pawl stop system.
- Engine rpm not displayed on the screen.
- Engine oil pressure led, battery alternator led and hydrostatic oil pressure led remain illuminated.

18. KNIFE SHARPENING**Conditions**

1. Start the engine and set speed at low idle
2. Disengage the feed rolls by pushing the feed roll drive switch (MF lever)
3. Disengage the cutterhead by switching off the cutterhead drive switch. Wait until the cutterhead has stopped rotating.
4. Ensure the harvest switch is switched to its harvest position
5. Switch on reverse drive cutterhead switch
6. Throttle up the engine speed until the cutterhead speed is at least 750 rpm. This will ensure a good sharpening quality. The higher the speed, the better the sharpening.

27. CATERPILLAR ENGINE

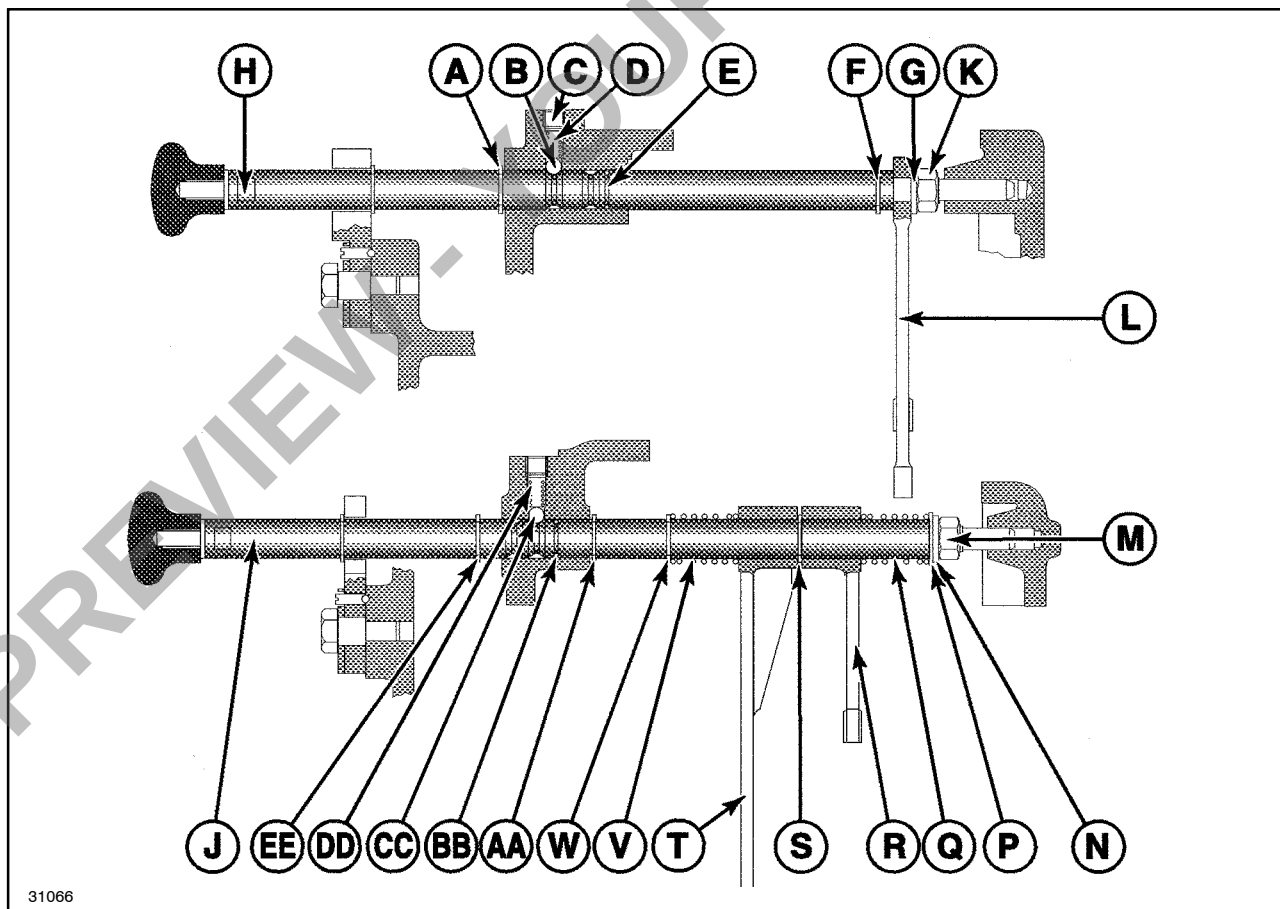


LENGTH-OF-CUT GEARBOX ASSEMBLY**INSTALLATION OF THE (SHORT) SHIFTER SHAFT H INTO THE GEARBOX HOUSING**

1. Remove any paint from shaft H and lubricate the shaft.
2. Move circlip A on the shaft as close as possible to the black knob.
3. Introduce the shaft into the gearbox. As soon as possible slide the O-ring E onto the lubricated shaft H so that it is seated in its groove at E.
4. Pull O-ring K into the housing far enough to install circlip A. Install circlip F.
5. Install ball B, spring D and Allen screw C. Lock screw C in place with thread retainer.

INSTALLATION OF THE (LONG) SHIFTER SHAFT J INTO THE GEARBOX HOUSING

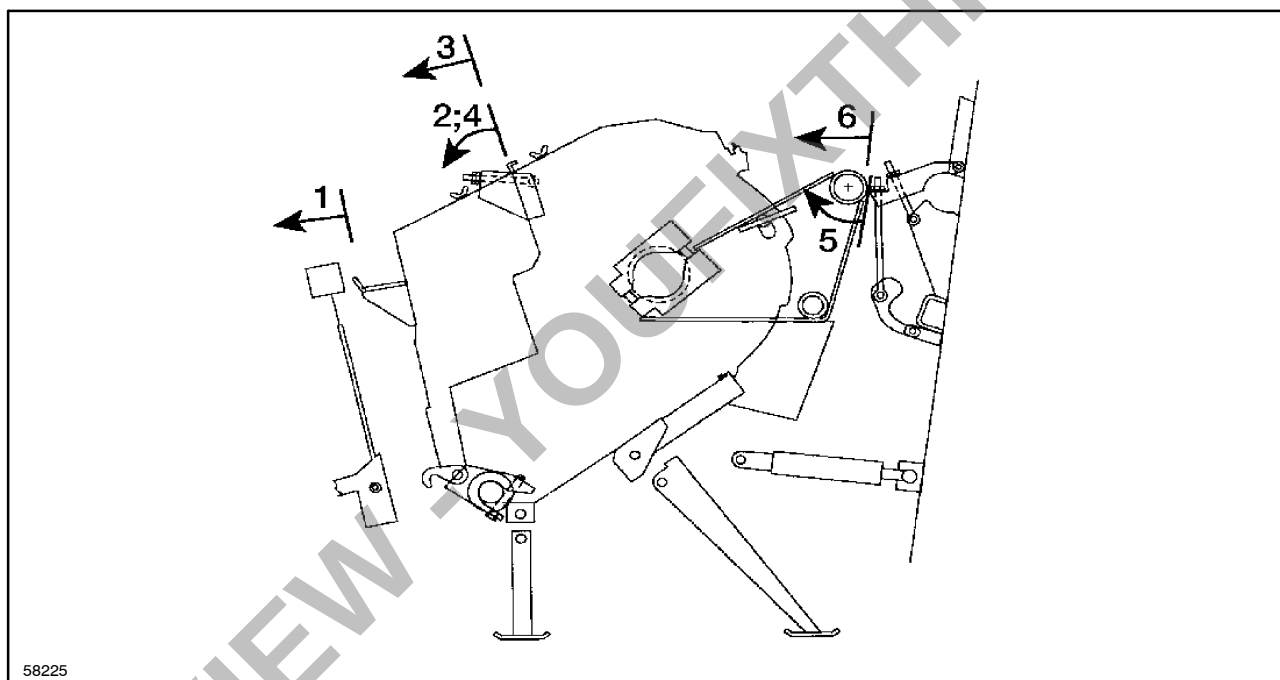
1. Remove any paint from shaft J and lubricate the shaft.
2. Move circlip EE on the shaft as close as possible to the black knob.
3. Introduce shaft J into the gearbox. Slide the O-ring BB onto the lubricated shaft. Move shaft J so far that the O-ring can be installed in its groove at BB. Install circlips AA and W into their grooves.
4. Pull O-ring BB into the housing far enough to install circlip EE.
5. Install ball CC, spring DD and Allen screw FF. Secure screw FF in place with thread retainer.



SPLITTING OF COMPONENTS**⚠ WARNING ⚠**

Splitting of components must always be carried out with the utmost care and attention. Failure to do so may lead to severe injuries or even death.

The forage harvester offers several possibilities to detach functional elements of the machine in an easy way. These possibilities allow you to check, repair or replace almost every part of the chopper body and the blower in a quick way.



58225

1

1. Attaching and detaching the attachment
2. Inspection between the upper feed rolls and the cutterhead (refer to Section 60 - chapter 1)
3. Attaching and detaching the attachment with the upper feed rolls (refer to Section 60 - chapter 1)
4. Flip down the upper feed rolls (refer to Section 60 - chapter 1)
5. Inspection between the cutterhead (or the crop processor) and the blower (refer to Section 70 - chapter 1)
6. Dismounting and mounting the chopper body

⚠ WARNING ⚠

Follow the correct sequence of the proper procedure as detailed further in this paragraph.

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