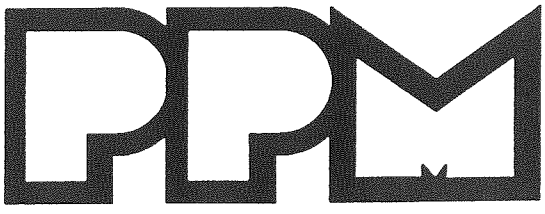


SIEGE SOCIAL ET USINES
Zone Industrielle de la Saule
B.P. 106
71304 – MONTCEAU CEDEX
TEL. : (33) 85 67 38 00
FAX : (33) 85 67 38 99

UPPERSTRUCTURE

● CONSTRUCTION

- PPM design. Machine welded frame made from high-tensile steel. Ball bearing slewing ring with external gear teeth.

● HYDRAULICS

- The FLOWMATIC system guarantees:
  - All movements are simultaneous, even when the engine is idling.
  - All movements are independent of each other.
  - The speed of all movements is independent from the weight of the load.
  - Precise and progressive start of all movements.
  - Speed of movements proportional to the joystick angle.
  - All crane movements executed as ordered by the crane operator, even if the total flow requested is greater than that which the pump can provide: in this case, the speed of each movement remains proportional to the demand.
- 1 main pump with variable displacement, 1 pump with fixed displacement for slewing: pumps driven by thermal engine. 2nd generation Load Sensing regulation. Proportional valve block. 200 litre reservoir. 10 μ filtering. Hydraulic oil cooler.
- 2 hydraulic joysticks with automatic return to neutral.

● WINCH

- Axial piston motor. Integrated planetary reducer. Cable diameter 15 mm, length 150 metres, resistance 21,000 kilos. 20-tonne hookblock standard.

● DERRICKING

- 1 double acting ram. Speed of descent controlled by safety valve.

● SLEWING

- New PPM-designed slewing mechanism:
  - Free rotation of the upperstructure with dynamic foot braking.
  - Precise and progressive start of movements.
  - Movements more gradual when the engine is idling.
- Hydraulic vane motor with planetary reducer. Dynamic hydraulic disc brake integrated in the reducer.

● TELESCOPING

- 3-section telescoping boom: full power telescope gives total and continuous synchronization.
- Boom sections designed and manufactured by PPM:
  - Made of 4 machine welded high-tensile steel plates into one continuous piece.
  - Resistance/weight ratio optimized by rectangular section and by the use of different thicknesses of steel plate.
  - Boom guided by slide pads. Lateral slide pads can be adjusted from outside the boom.
- 1 double-acting cylinder with synchronization of the third section by cables.

● CAB

- Panoramic cab with full visibility and equipped with all the controls for travelling and operating the crane in comfort and safety. Tinted windows. Cataphoresis treated cab.

● STOWING

- Front right stowage box for hookblocks and sleepers.
- Rear stowage box for slings.
- Stowage box for personal belongings behind upper cab.

● SECURITY DEVICES

- LMI (Load Moment Indicator). Alphanumeric LCD readout.
- Safety valves on telescoping, derricking and stabilizers.
  Anti two-block device, lower stroke block limiter. Pressure limiters on all hydraulic functions.

OPTIONS

○ Lattice extension: 8 metres, can be folded and stored along the right hand side of the boom. Offset angles: 0°, 15°, 30°.

○ Double-folding extension: 8 metres + 7 metres. Offset angles: 0°, 15°, 30°.

○ 10-tonne hookblock (3 lines) and single line hook.

○ Rooster sheave for single line work.

○ Tyres: 16.00 R 25, 17.5 R 25.

○ Spare wheel.

○ Auxiliary winch: cable diameter 15 mm, length 150 m.

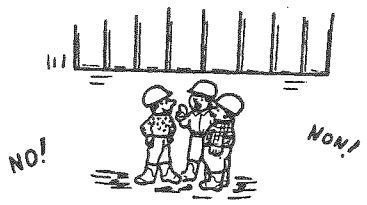
○ Electrical retarder (TELMA).

○ Other optional equipment on request.

■ In case of a malfunction or missing part, shut off the machine and carry out repair.In case of non respect of this rule, an accident may occur.

■ Sparks can come from the exhaust pipe or from the electrical system. DO not operate in closed areas where there are flammable materials, dust or exhalations that can cause an explosion or fire. Severe injury or death can be the result if you do not follow these instructions.

■ Always be watchful. Never allow anybody in the working area. You must always know where they stand in the working zone.



■ Before you put the machine on a trailer, remove all ice, oil or grease from the trailer and ramp.

■ When you check the charge of the battery, never put a metal object across the battery posts. The sparks can cause an explosion. Use a voltmeter or a hydrometer to check the battery.

■ Never wear metal rings or metal watch bands. You can make a ground for the electrical circuit and get a burn on your hand or arm.

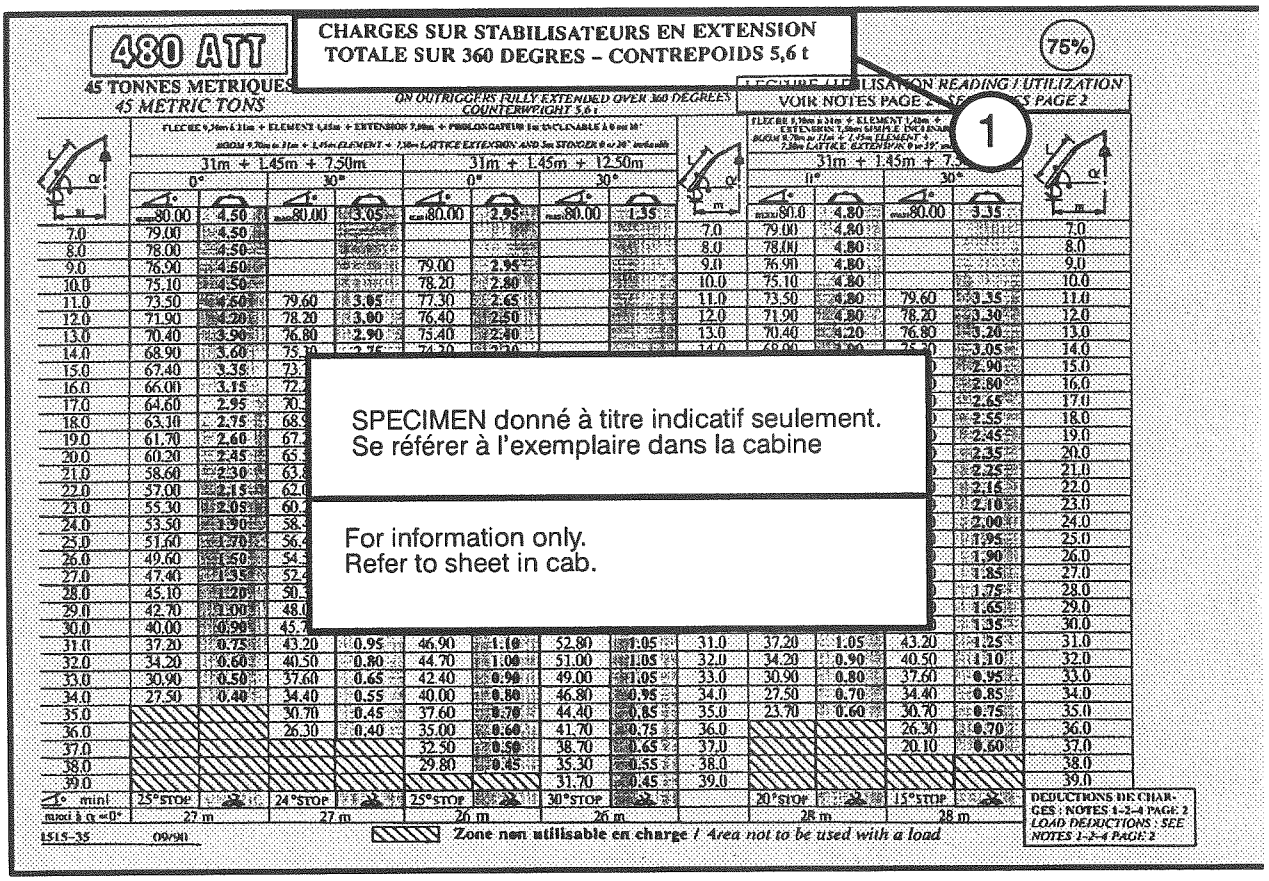
■ Know the electrical circuit before you connect or disconnect an electrical component. A wrong connection can cause injury or damage.

■ Wear eye or face protection when you service the machine. Use a hammer with a soft face, such as plastic, wood, brass or leather. When you hit hardened tools or hardened metal surfaces. Any other procedure can cause injury from flying chips.

Choice of the correct capacity chart :

Refer to the chart corresponding to the working conditions required (mark 1 on the following example.)

Ensure that the installed counterweight(s) correspond to the chosen capacity chart. (check information on capacity chart).



Driving controls

Carrier control panel

51 / Engine oil pressure warning light

52 / Battery charge indicator

53 / Not used

54 / Water temperature warning light

55 / Power steering warning light

56 / Power steering warning light (S O S)

57 / Front suspension locking warning light

58 / Rear suspension locking warning light

59 / Front brake air pressure warning light

60 / Converter oil temperature warning light

61 / Rear brake air pressure warning light

62 / Not used

63 / Parking brake air pressure warning light

64 / Torque converter mode warning light

65 / Air filter clogging warning light

66 / Telma warning light (Option)

67 / Carrier directional indicator light

68 / Trailor directional indicator light

69 / Not used

70 / Not used

71 / Roadlights indicator

72 / Dipped headlights indicator

73 / Not used

74 / Full beam headlights indicator (blue)

Central control panel

121 / Front interwheels differential locking warning light

122 / Rear interwheels differential locking warning light

123 / Outriggers selector control

124 / Free slewing warning light

125 / Front suspension locking warning light

126 / Rear suspension locking warning light

127 / Rear steering locking warning light

128 / Front axle dog clutch control

129 / Working ligth indicator

130 / Not used

131 / Undercarriage general warning light

132 / Locked 4th section indicator light

134 / Unlocked 4th section indicator light

135 / Indicator light, working area in centreline

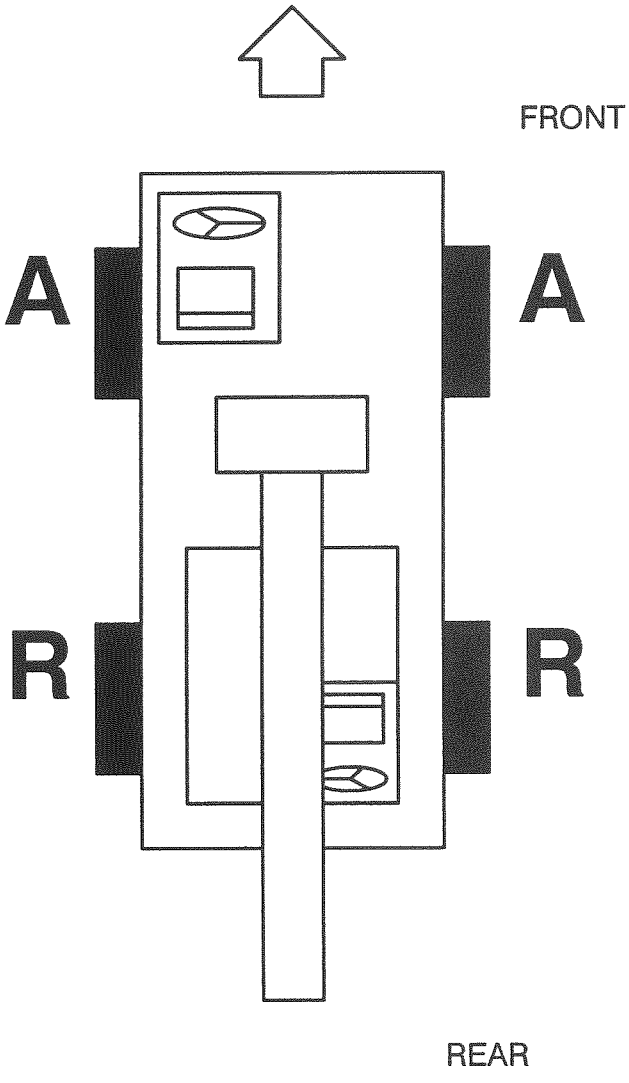
136 / Not used

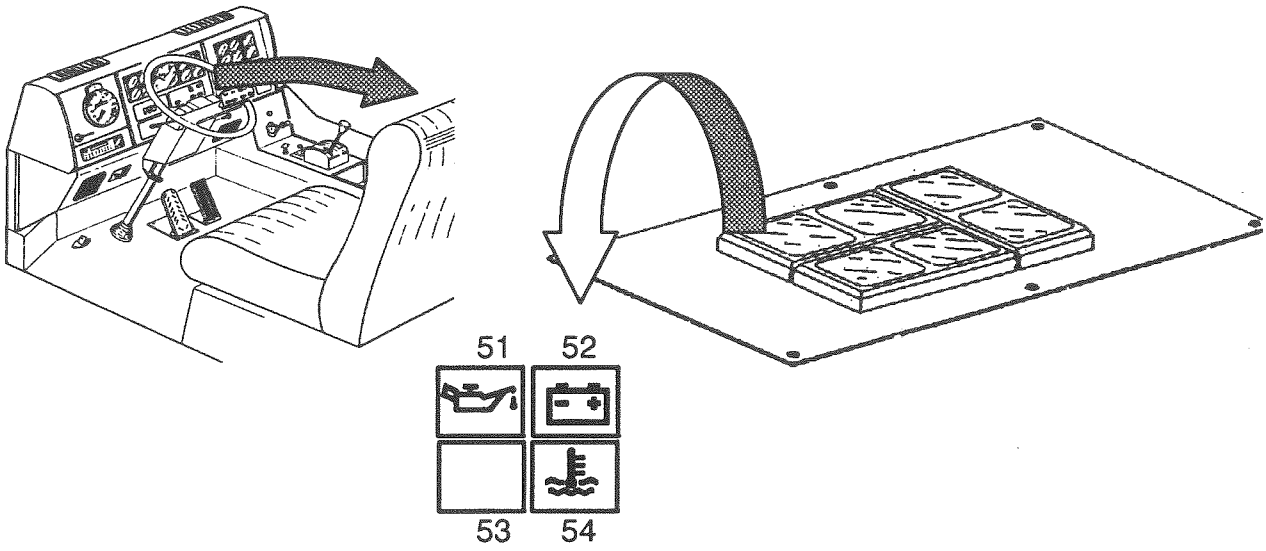
137 / Clogged hydraulic filter warning light

138 / Front suspension locking control

139 / Front suspension unlocking control

According to the current practice
– the FRONT wheels of the carrier frame are referred to as A
– the REAR wheels of the carrier frame are referred to as R
To simplify matters we shall only use these two designations in the present notice.





51 / Engine oil pressure warning light

This light comes on when the engine is started and remains lit until pressure reaches the norma level (do not make sudden accelerations on the engine).The warning light will go out when pressure reaches:

MERCEDES engine :

CUMMINS engine : Normal working pressure – 3,45 bar

Minimum pressure – 0,69 bar.

This light also comes on if the engine oil pressure is too low. In this case stop the engine and find out the cause.If a MERCEDES engine is installed also check the pressure gauge Ref. 30.

52 / Battery charging warning light

This warning light comes on when :

the ignition switch is turned but the engine has not yet started.

the alternator does not charge the batteries.

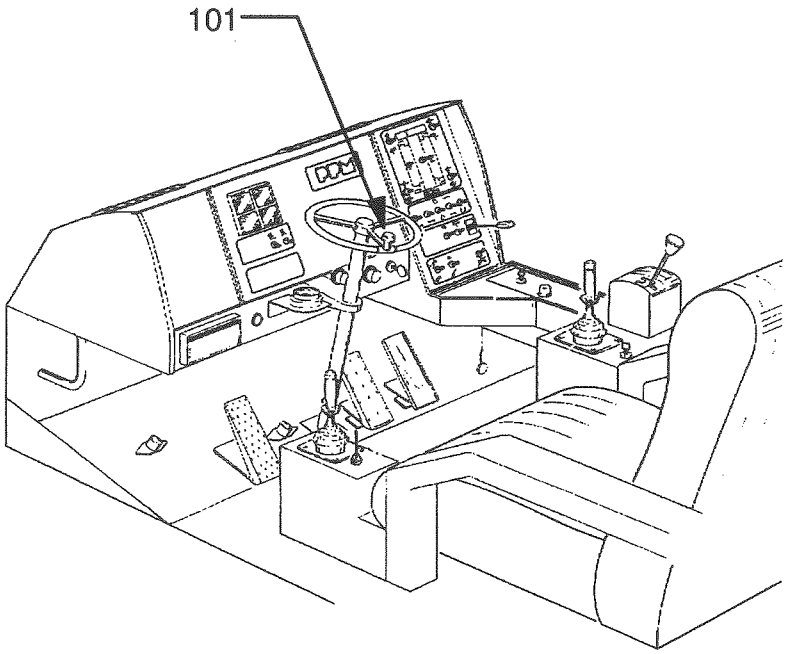
Find out the cause.

53 /Not used

54 / Engine coolant temperature warning light

This warning light comes on when the engine coolant liquid exceeds the maximum admissible temperature. Stop the machine and find the cause of the problem.Also check the temperature gauge indication Ref. 30 for CUMMINS engine and Ref. 31 for MERCEDES engine.

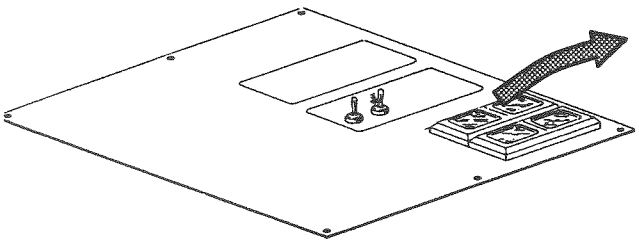
Turret operator's cab controls

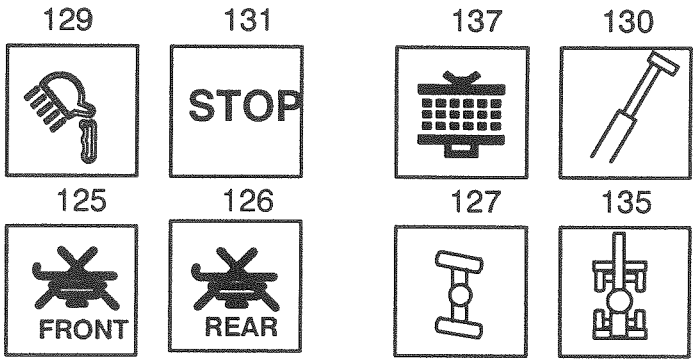


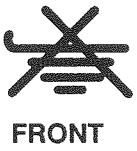
101 / Steering wheel of rear wheels

STEERING CAN ONLY BE EFFECTED FROM THE UPPERSTRUCTURE CAB, in other words : – cab selection switch 82 is in upperstructure
cab position, and indicator light on the control panel is on.
– parking brake is applied.
– gear box is in position N.

Central control panel







125 / Front suspension locking warning light

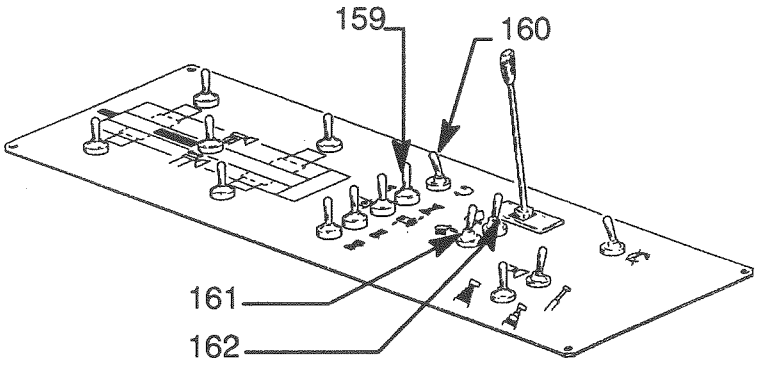
When this warning light is on, it indicates that the rear suspension is locked (using switch 138 located on the front panel of upperstructure or switch 83 located on the carrier instrument panel).

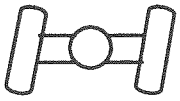
126 / Rear suspension locking warning light

When this warning light is on, it indicates that the front suspension is locked (using switch 139 located on the side panel of upperstructure or switch 83 located on the carrier instrument panel).

127 / Rear steering locking warning light

When the warning light is on, it indicates that the rear wheels are unlocked by action on the switch 159 located on side instrument panel.





159 /Rear wheel steering unlocking control

– flip the switch forwards to unlock the rear wheels
– flip the switch backwards to lock the rear wheels
The warning light Ref. 127 comes on when the wheels are unlocked.
Rear wheel steering is controlled by the steering wheel.

160 / Free slewing control

Flip the switch to free the slewing function.
Warning light Ref. 124 comes on.Slewing is automatically braked in the following cases:
– by the operator's seat safety device which cuts all handling functions if the operator leaves his seat
– when the engine is stopped

161 / Working spotlight control

162 / Cab roof windshield wiper control

On worksites

Conditions for using locked or unlocked suspensions

Flip the control switch to lock the suspension, the warning light comes on.
Flip the switch in the opposite direction to unlock the suspension, the warning light goes out.

STATIC HANDLING ON OUTRIGGERS (360ø)

- Wheels clear of the ground
- Suspension locked

STATIC HANDLING ON WHEELS, OVER THE REAR OF THE MACHINE IN THE AXIS OF THE CHASSIS (MACHINE TRAVEL FORBIDDEN)

- Let down or raise the suspension following requirements.
- Lock the suspensions.

DRIVING THE MACHINE WITHOUT A LOAD ON SLOPING GROUND

- Do not exceed a transversal slope angle of more than %.
- Lock the suspensions

Unlock the suspensions for:

- Highway travel
- driving on the worksite without loads
- All terrain driving

Each evening empty the suspension rams and the oleo–pneumatic reservoir bottles to enhance depollution of the suspension circuit's hydraulic fluid.

Driving the machine with a suspended load.

- Make sure that the load does not exceed the values indicated in the on wheel handling capacity chart.
- Keep the load as close as possible to the ground and carefully attach it with slings to the chassis to avoid swinging
- Respect tyre inflation.
- Driving the machine with a suspended load should only be carried out on solid, flat horizontal ground.
- The boom should be positioned over the rear of the machine in the longitudinal axis of the chassis, with the turret locked in position.

When driving the machine with a load the turret should never be slewed (turret locked in position)
MAXIMUM SPEED WHEN DRIVING THE MACHINE WITH A LOAD : 0,4 m/s

IMPORTANT : Never use the manual accelerator to drive the machine, with or without a load. This control allows a minimum engine speed of 700 rpm.

8 m + 7 m extension Unfolding of the 8 m extension only.

Raise the machine on fully extended outriggers, on flat, solid and horizontal ground with the wheels clear of the ground.Engine running at idling speed.

Derrick the boom up and slew the turret over the side of the chassis.

Make sure that the boom is fully retracted.

Place the boom in a horizontal position.

Connect the two hydraulic hoses.

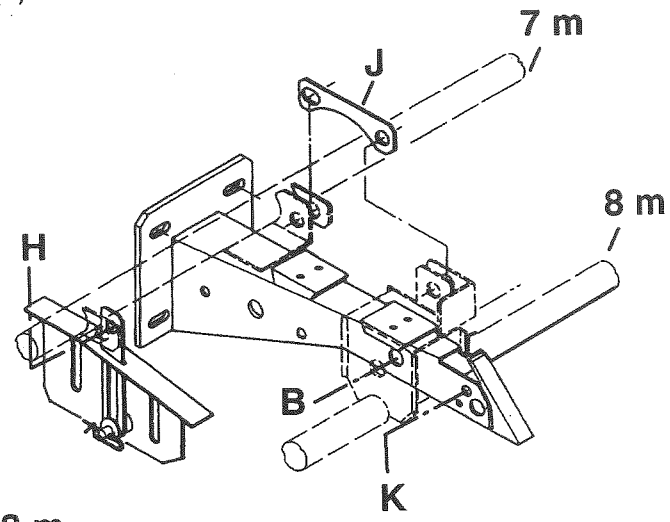
Connect the electric remote control unit.

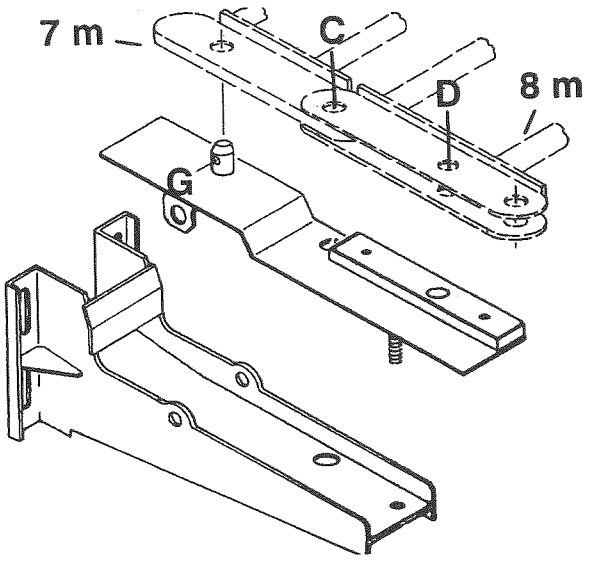
Put the cable return pulley in the vertical position.

As the 7 m extension is not to be used, it remains stored on its supports

Take out the two pins which fix the 7 m extension to the 8 m extension (C)

Take out the front pin (B).

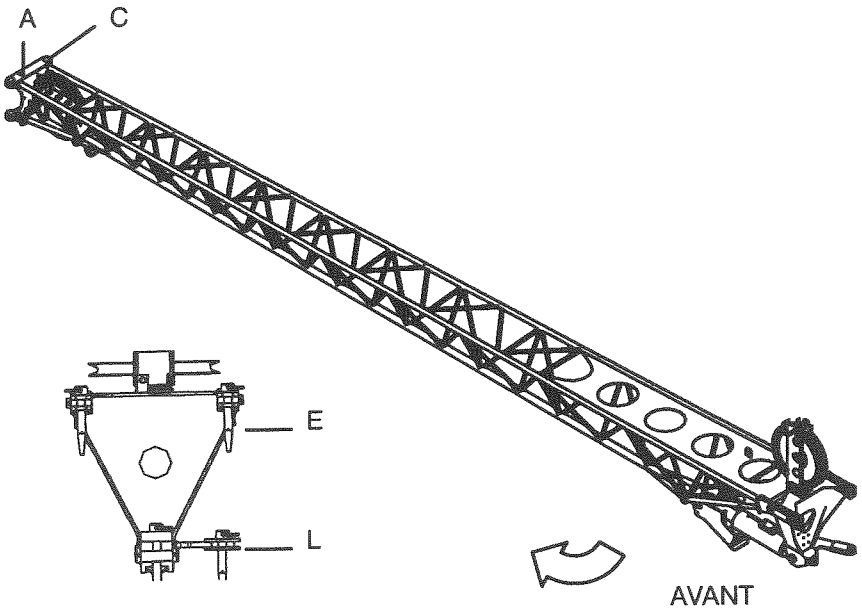




Refit the two extensions' upper swivel clip.

Reinsert the 8 m extension retainer pin (A).

At the front end :– Take out the two swivel pins (D) and (E).– Pull back the extension to lock it onto B.



Put the 7 m extension back into its storage position.

Remove the link bar J

Push the front of the 7 m extension towards the boom, making it slide up onto the ramp

Reinsert the 7 m extension retainer pin (H) by lifting the link bar.

Turn down the upper pulley into its storage position.

Disconnect the remote control unit and store it away.

Disconnect the two hydraulic hoses and place them in their storage position.

BLOCK FOR MOBILE CRANE

DIRECTIONS FOR USE AND MAINTENANCE

CE

6) REPAIR AND MAINTENANCE

- repair the lifting block with original components only.
- periodic maintenance :
  - Lubrification of the hook rotation.
  - Checking of the correct rotation of the sheave empty.
  - Functioning of the savety catch, shifting of the spring, or the entire savety catch.
  - Stripping and rust preventer, and paint on the oxidate parts.

It is recomended to have it repaired by a specialised and chartered workshop.

S.A. USINES DU PAQUIS
TREC
Moufles et accessoires de levage

Boîte Postale 28
17 Rue de la Gravelle
08800 HAUTES RIVIERES

Tél (33) 24.53.60.60
Tél (33) 24.53.42.08
Fax (33) 24.53.49.48
Télex 840 334 F

d) Torque settings

– Define the nominal torque setting in the previous table according to the type of assembly.

– For each of the two rings which constitute the slewing ring assembly, mark all fasteners whose torque reading is less than 85 % of the nominal setting.

– If the total number of fasteners showing this characteristic is greater than 20 % of the total number of fasteners for a given ring, then the whole set of fasteners on that ring must be replaced.

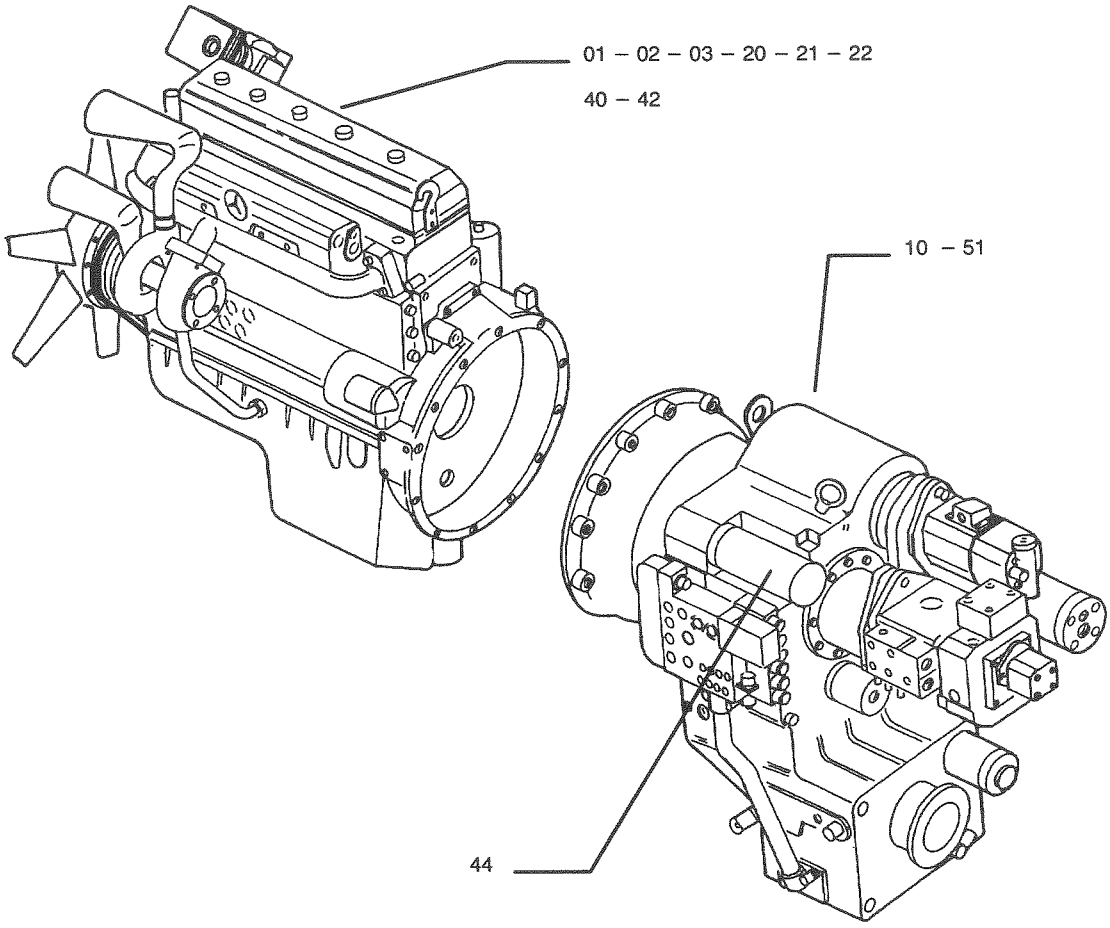
– If the total number of fasteners showing this characteristic is less than 20 % of the total number on that ring, then retighten all fasteners with an initial torque reading of above 85 % to the nominal torque setting, and replace those with a torque reading of less than 85 % of the nominal torque setting.

– In cases where nut and bolt assemblies are mounted with spacers always make sure beforehand that the bearing surfaces at both ends of the spacers are perfectly smooth.

– Polish any surfaces which present the slightest roughness.

– Fastener tightening sequence as illustrated above.

Power unit



Power unit capacity chart			
Reference	**Assembly**	**Litres**	
41	CUMMINS engine162 / 210 cv MERCEDES engine	14,3/12,3 L	
	Gear box + convertor Gear box + convertor	L 28 L	ATT240 ATT290C ATT290M ATT340 ATT390

Maintenance list "G"
Yearly or 2000 hourly maintenance

Company: _____

Adress: _____

Person responsible for the maintenance: _____

_____

Date of maintenance: _____

Serial number: _____

MAINTENANCE OPERATIONS	*DONE BY*
Perform lists "A", "B", "C", "D", "E" and "G"	_____
Do oil change on hydraulic tank	_____
Exchang brake circuit flexible hosing	_____
Change hydraulic filters	_____
Check condition of counterweight attachments	_____
Do oil change on front axle differential unit and reducer gears	_____
Do oil change on rear axle differential unit and reducer gears	_____
Check condition of telescoping chain attachments	_____
Check wiring loom attachments	_____
Check tightness of all fasteners	_____
Check for leaks on all flexible hosing	_____

List "D" – 200h/250h

Tyre pressures

Check tyre pressures:
1400 x 25 tyres: FR = 9 b, R = 9 b – ATT240
1400 x 25 tyres: FR = 10 b, R = 10 b –ATT290 – ATT290M1 – ATT340 – ATT390
1600 x 25 tyres: FR = 10b, R = 10b – ATT290 – ATT290M1 – ATT340 – ATT390
1700 x 25 tyres : FR = 8 b R = 8 b
2500 x 25 tyres : FR = 7 b R = 7b – ATT390

Batteries

Checking the specific gravity

Specific gravity	Baumé degree	observations
1.285	32°	correctly charged
1.200	24°	charged to half capacity
1.120	16°	discharged

– If necessary, recharge the batteries and have them controlled by an auto–electrical workshop.
– If the charging current is too high(requires frequent water addition) or too weak (low specific gravity), a diagnostic should be made and the cause corrected in order to prolongate battery life.

General battery maintenance

Keep the top of the batteries clean and dry to avoid short–circuits and corrosion.Remove the battery terminals and check to see if they are attacked by corrosion. If they are scrape off the corrosion and a thin film of metal and coat them with petroleum jelly or another suitable product.Moderately tighten the terminals.Take care when using the spanner so as not to touch the battery casing or other battery terminals.Never allow a naked flame above the batteries.

Battery fixation

Moderately tighten the battery securing bolts by only half flattening the washers, then tightening the counter nut.

EXEMPLES VISUELS DES DIFFÉRENTS DÉFAUTS
POUVANT SE PRODUIRE SUR UN CÂBLE

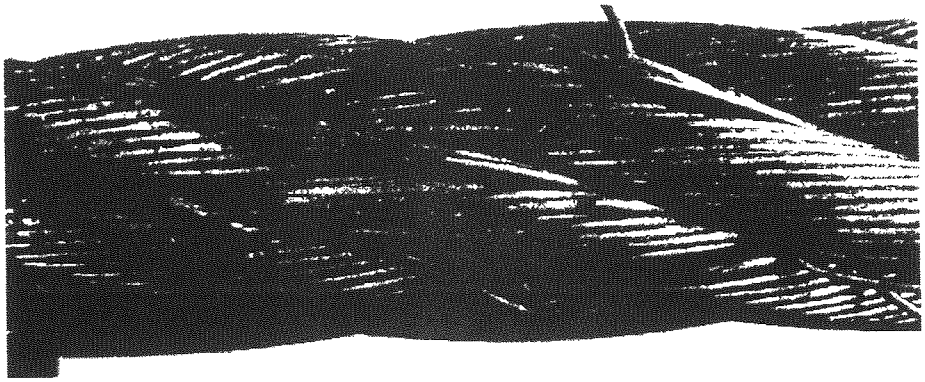


Figure 1 – Ruptures et arrachement de fils sur deux torons consécutifs ayant justifié la dépose (toronnage croisé)

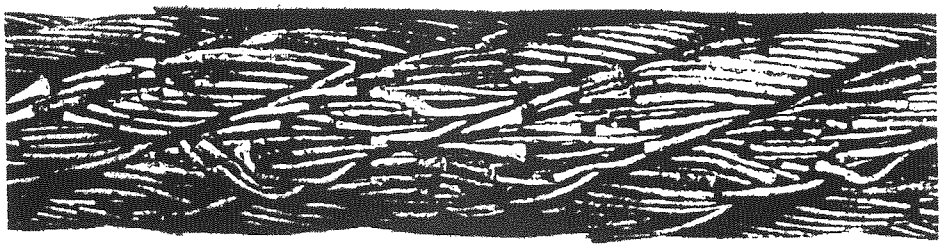


Figure 2 – Forte usure et très nombreuses ruptures de fils ayant entraîné la dépose immédiate (toronnage croisé)

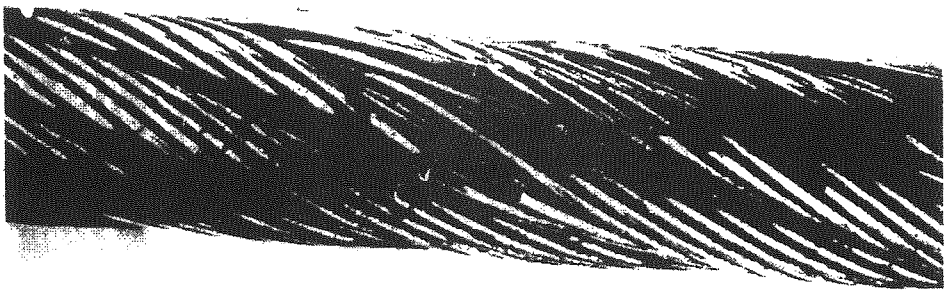


Figure 3 – Ruptures de fils sur un même toron et légère usure

Fuel – lubricants – hydraulic fluid (upperstructure)

Engine :

Fuel.....gas oil
Oil : ELF PERFORMANCE 3C (following temperature)

Hydraulic circuit.....PPM hydraulic fluid

Slewing motor driven reduction gear.....TRANSELF RFI 1

Slewing ring.....EPEX ELF M 02

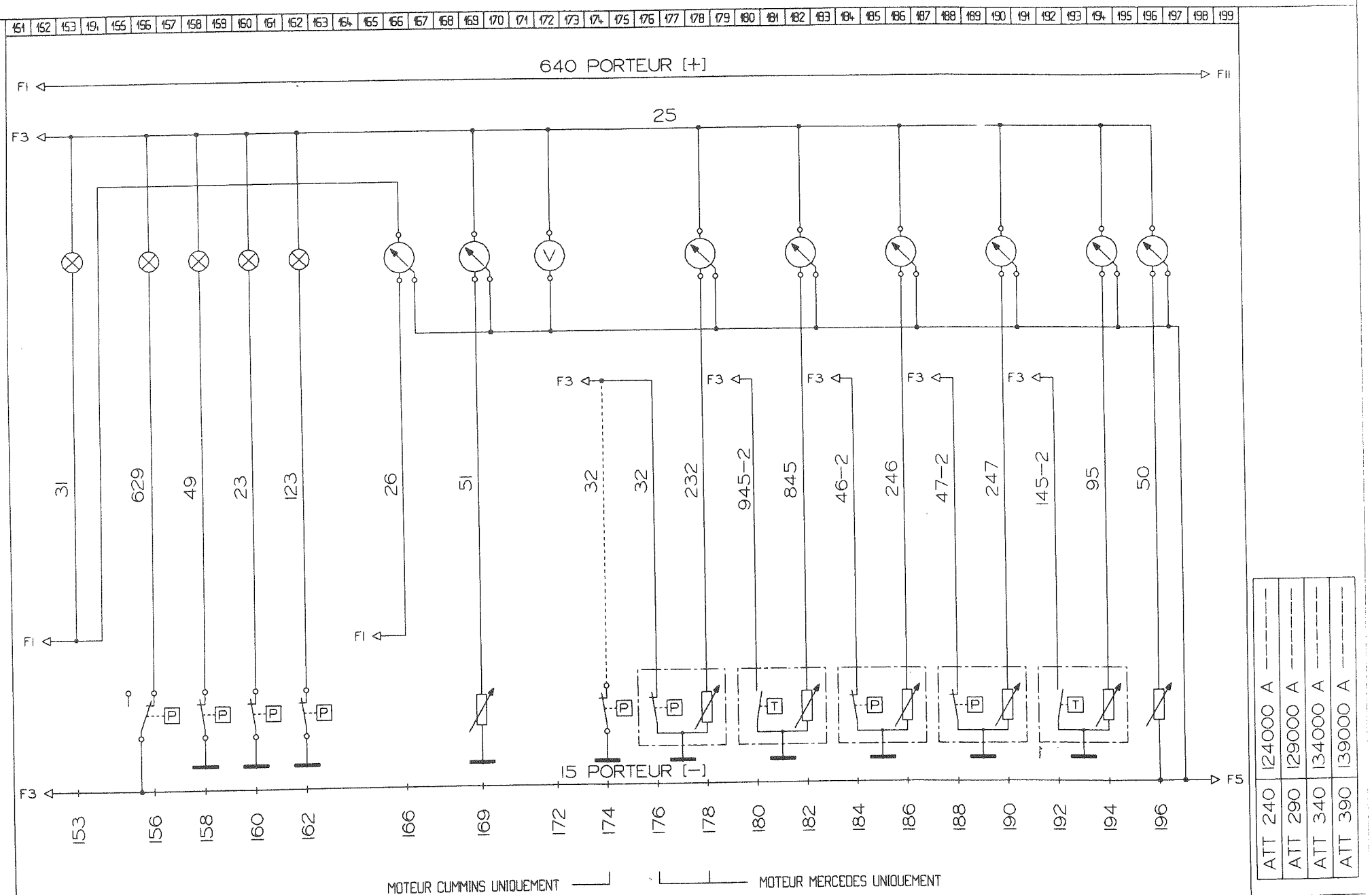
Winch reducer :.....TRANSELF EP SAE 80W/90

Grease nipples.....EPEXELF 2

Torque converter + gear box :.....ELF PERFORMANCE 3C SAE 10 W

Axles :.....TRANSELF B 80/90

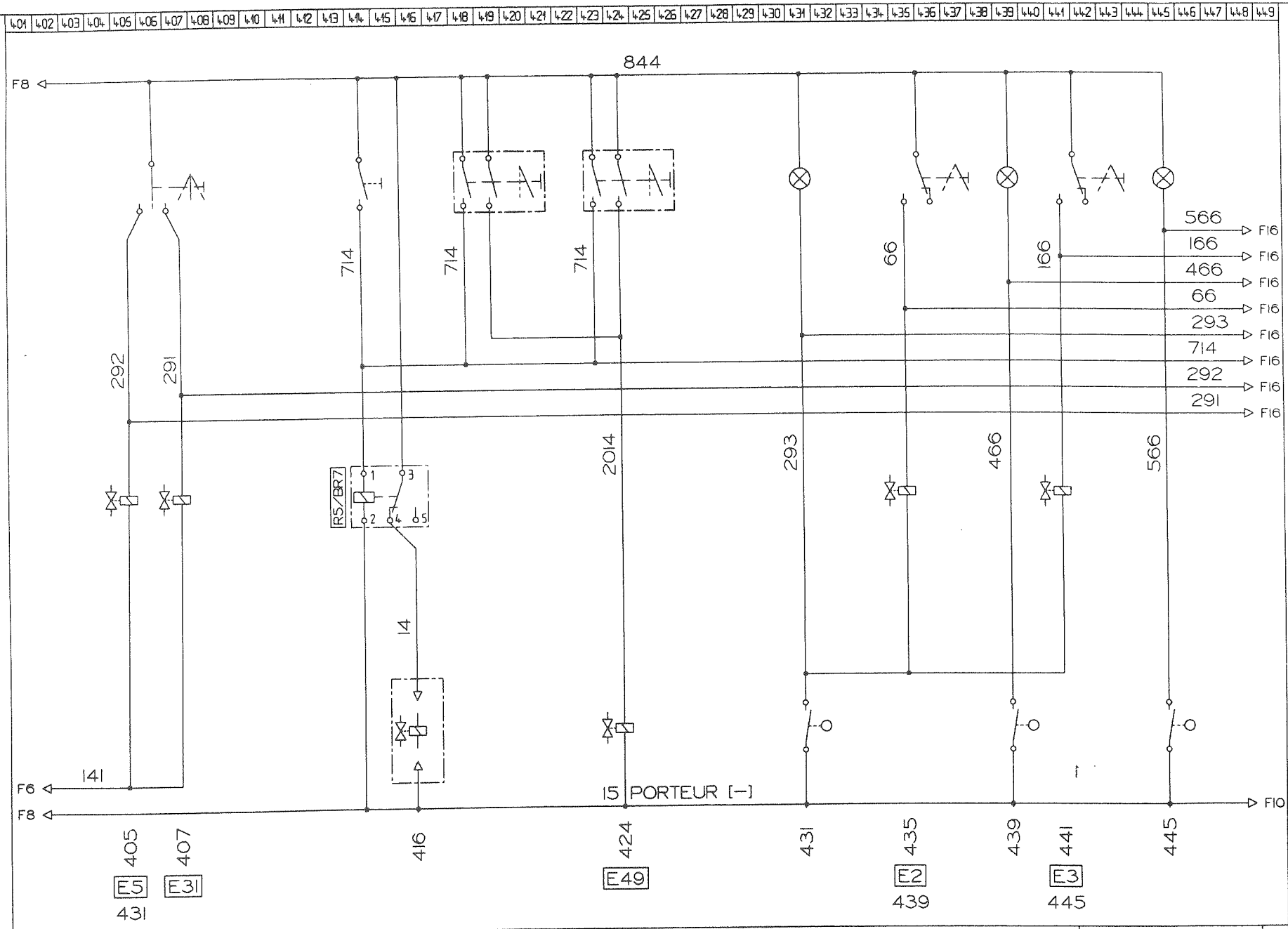
Steering :.....TRANSELF EP SAE 80W/90



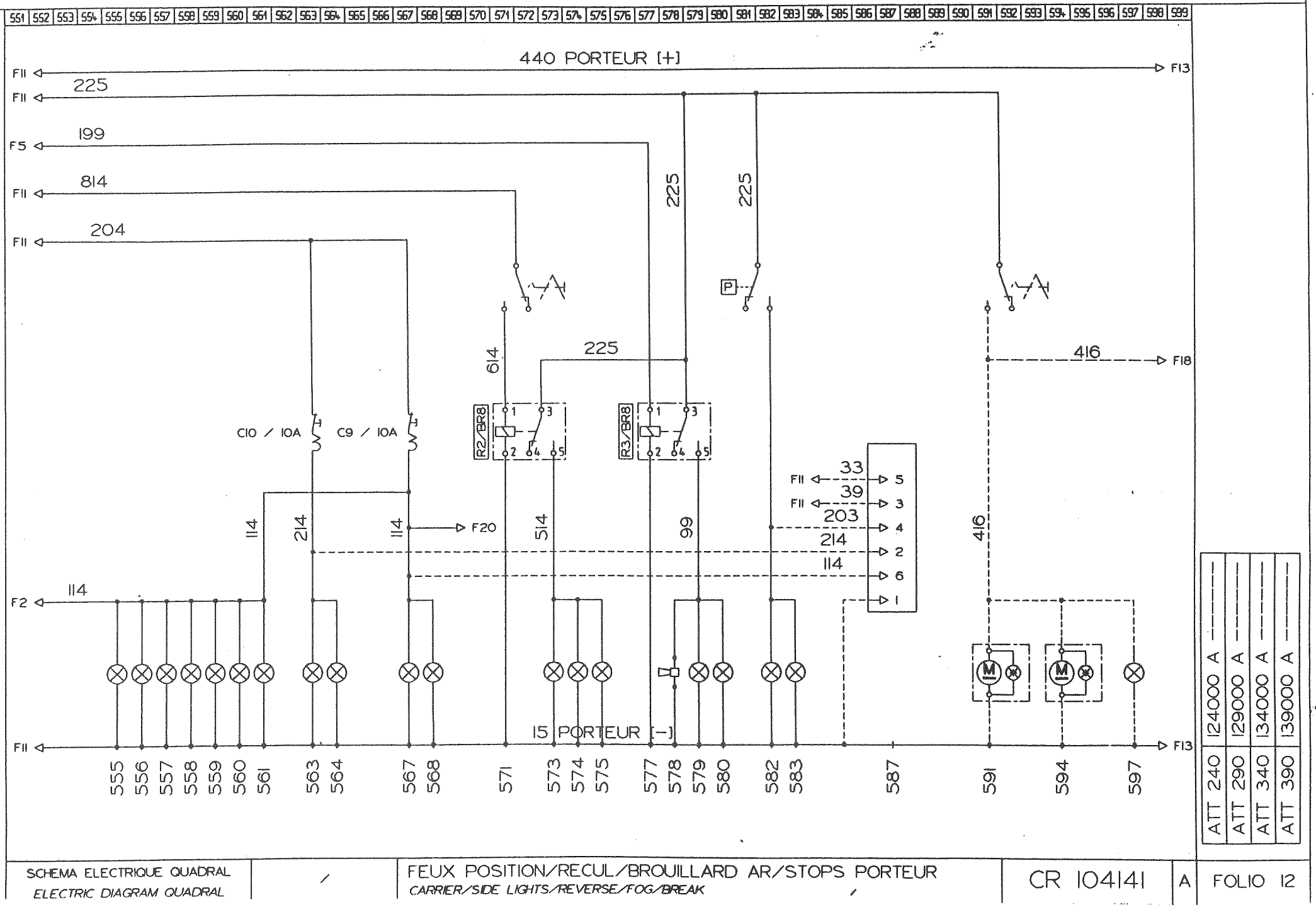
SCHEMA ELECTRIQUE QUADRAL
ELECTRIC DIAGRAM QUADRAL

TEMOINS ALERTES ET RECEPTEURS DIVERS PORTEUR
CARRIER/WARNING LIGHTS AND RECEIVERS

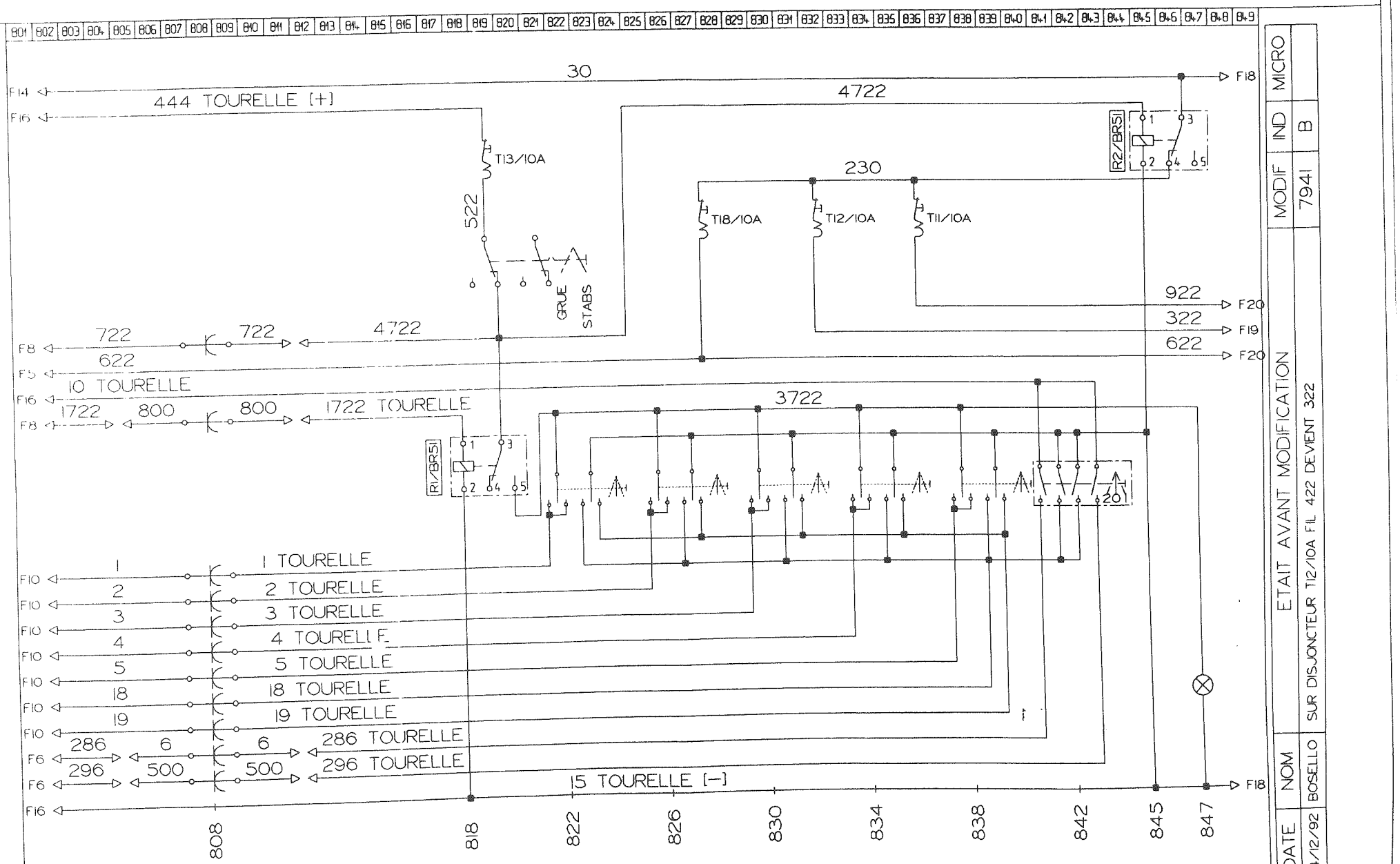
CR 10414 | A | FOLIO 4



SCHEMA ELECTRIQUE QUADRAL *ELECTRIC DIAGRAM QUADRAL*	/	CRABOTAGE PONT AVANT/DIFFERENTIELS/STOP MOTEUR *CARRIER/FRONT AXLE LOCKING/DIFFERENTIAL/STOP ENGINE*	CR 104141	A	FOLIO 9

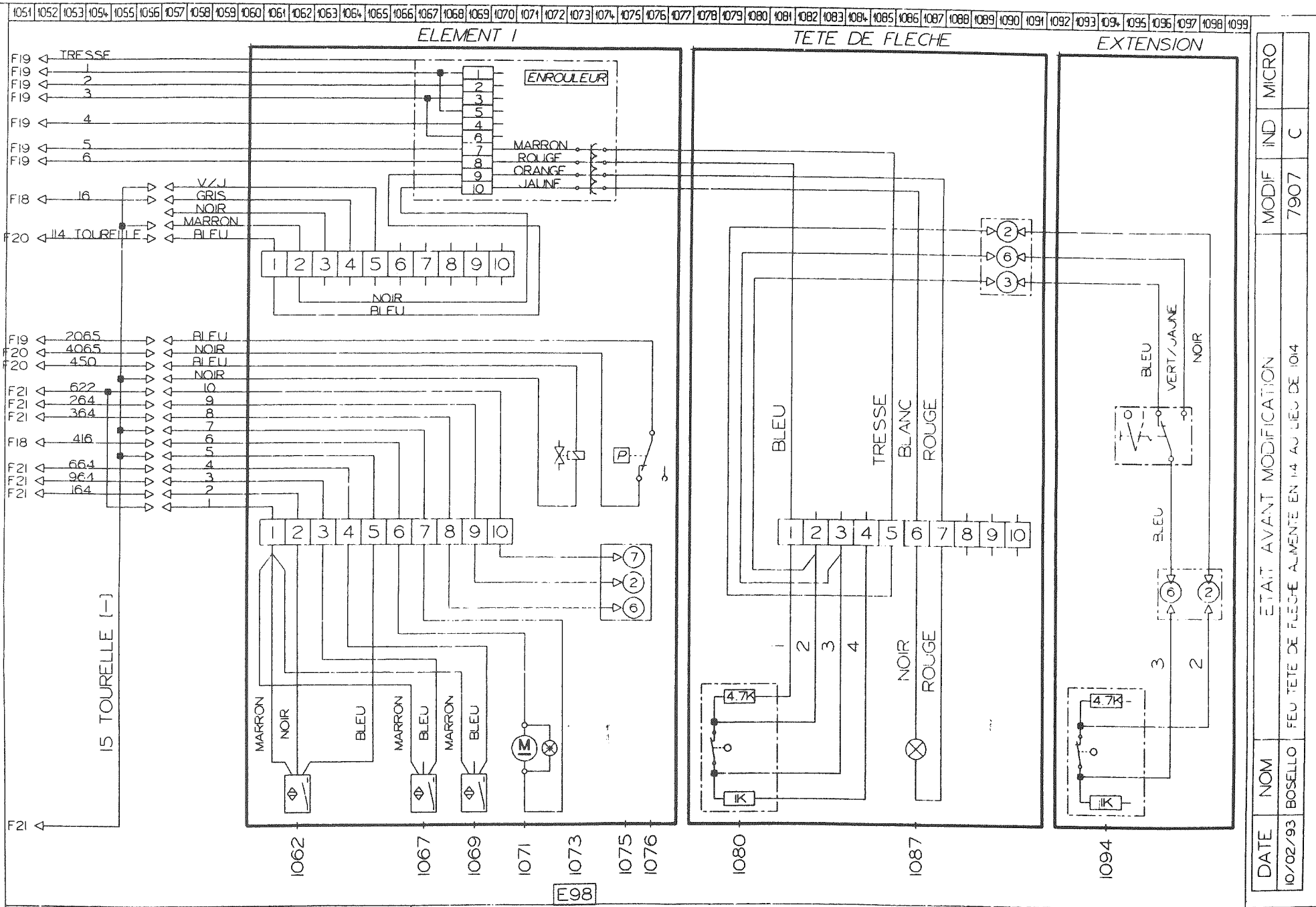


SCHEMA ELECTRIQUE QUADRAL *ELECTRIC DIAGRAM QUADRAL*		FEUX POSITION/RECUL/BROUILLARD AR/STOPS PORTEUR *CARRIER/SIDE LIGHTS/REVERSE/FOG/BREAK*	CR 104141	A	FOLIO 12



DATE	NOM	ETAIT AVANT MODIFICATION	MODIF	IND	MICRO
24/12/92	BOSELLO	SUR DISJONCTEUR T12/10A FIL 422 DEVIENT 322	7941	B	

SCHEMA ELECTRIQUE QUADRAL *FI FCTRIC DIAGRAM QUADRAL*	MODIF 7941	POUTRES/STABS/DIRECTION ARRIERE TOURELLE *TURRET/OUTRIGGERS/STABILIZERS/REAR STEERING*	CR 104141	B	FOLIO 17

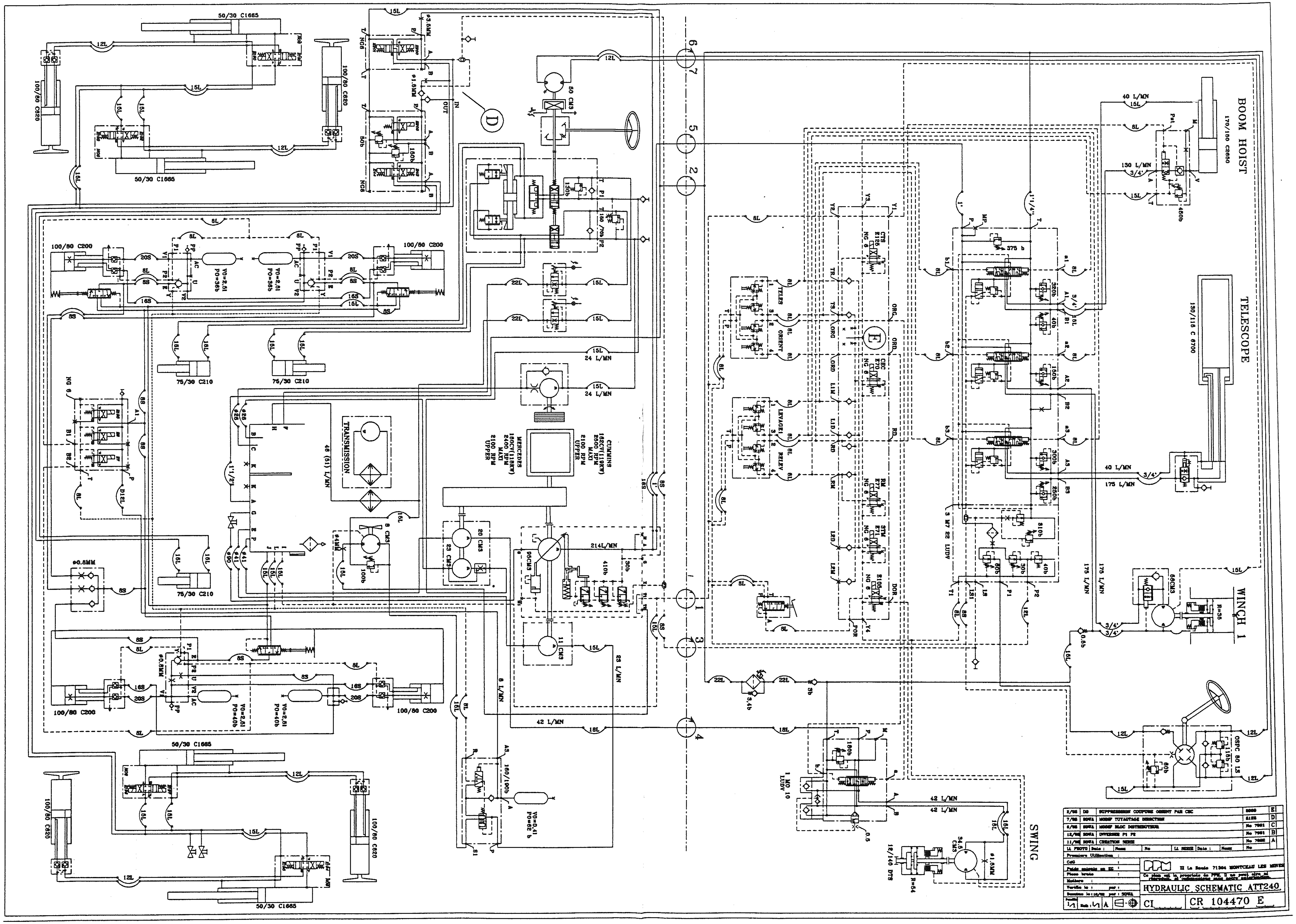


DATE	NOM	MODIF	IND	MICRO
10/02/93	BOSELLO	7907	C	

ETAT AVANT MODIFICATION

FEU TETE DE FLECHE A MONTE EN 114 AU LIEU DE 104

SCHEMA ELECTRIQUE QUADRAL *ELECTRIC DIAGRAM QUADRAL*	MODIF 7907	FLECHE–FLECHETTE *BOOM–FLY GIB*	CR 104141	C	FOLIO 22


BOOM HOIST
170/150 C2650
TELESCOPE
150/115 C 6700
WINCH 1
SWING
TRANSMISSION
CUMMINS
182CV(118KW)
2000 RPM
MAXI
UPPER
MERCEDES
160CV(118KW)
2400 RPM
2100 RPM
MAXI
UPPER
50/30 C1665
100/60 C620
100/60 C200
75/30 C210
214L/MN
24 L/MN
42 L/MN
175 L/MN
40 L/MN
130 L/MN
VO=2,6l
PO=35b
VO=2,8l
PO=40b
VO=0,4l
PO=62 b
OSPC 80 LS
18/140 DTS
R=54
R=36
D
E
1
2
3
4
5
6
7
HYDRAULIC SCHEMATIC ATT240
CR 104470 E
CI
SUPPRESSION COUPURE ORIENT PAR CEC
MODIF BLOC DISTRIBUTEUR
INVERSER P1 P2
CREATION SERIE
ZI La Saule 71304 MONTCEAU LES MINES

7 Button "Horn off"

The audible alarm can be cut-off for 15 seconds by means of actuating this button (7).

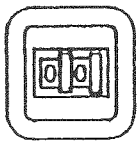
8 Button "Tare"

This button (8) is used to indicate the "tare load" on the display. The tare load or net load is the actual load on the hook lifted after the "Tare" button has been pushed. Slings and hook block are not included.

After actuating the "Tare" button the display will be set to zero (taring). After releasing the button, the load display will blink, indicating that the tare load is being displayed.

The display continues to blink until the radius of the boom (either by the angle or the length) is modified. Then, the load display will indicate the total load on the crane.

9 Button "Operating Modes"



The button "Operating Modes" (9) is actuated when a new operating code is to be entered.

After actuating the button "Operating Modes", this one will light up in order to indicate that the function "Enter an operating code" has been activated. Simultaneously, the anti-two block switch warning light as well as the overload warning light will light up and the crane movements will be cut-off.

Then, a new operating code is completed by means of actuating the keys "Counting upwards" or "Counting downwards", the lights go off and the crane movements can be continued.

The procedure "Enter an operating code" is described in detail in chapter 4.1.

Caution

The correct setting is of utmost importance for the proper function of the system and the crane. Therefore, only operators who are thoroughly familiar with the crane's load charts and the operation of the load moment limiting system should set the thumbwheel switches.