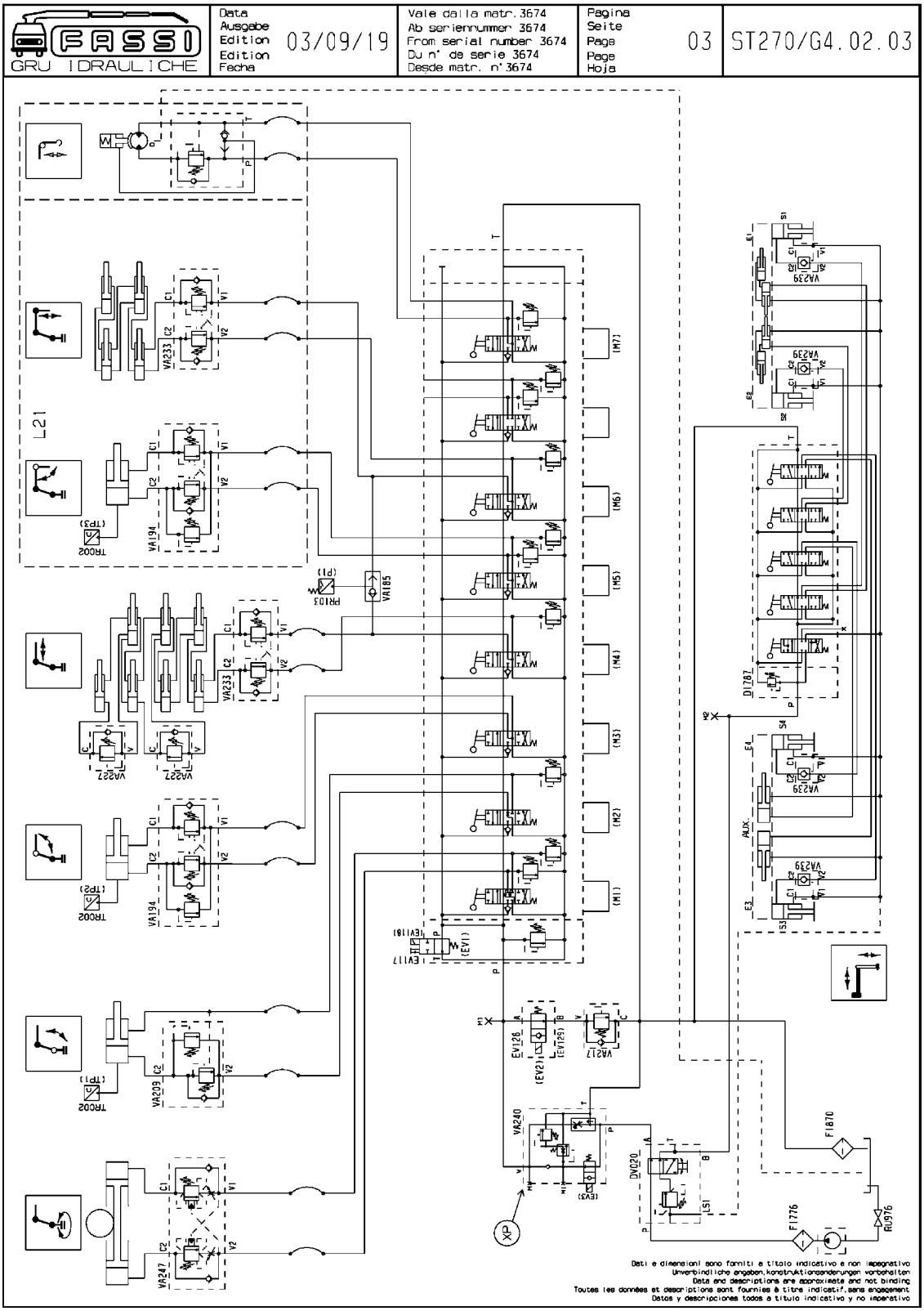
F 210A.24

use and maintenance

FROM SERIAL NUMBER *3324*

INDEX

Hydraulic schematic for crane - HCD4 distributor - top seat controls - “electronic” lifting moment limiting device (F170A from s.n. ⁎3743⁎ - F190A from s.n. ⁎3709⁎ - F210A from s.n. ⁎3855⁎ - F220A from s.n. ⁎4111⁎ - F240A from s.n. ⁎3257⁎ - F250A from s.n. ⁎0404⁎ - F270A from s.n. ⁎3674⁎)



CODE	*DESCRIPTION*
DI787	DISTRIBUTOR
DV020	DEVIATOR
EV128	ELECTROVALVE
EV117	ELECTROVALVE
FI870	OIL FILTER (RETURN)
M1/M2	GAUGE QUICK CONNECTION
PR103	PRESSURE SWITCH
RU976	FAUCET
TR001	PRESSURE TRANSDUCER
VA185	SELECTOR VALVE
VA194	DOUBLE EFFECT BLOCK VALVE
VA209	SIMPLE EFFECT BLOCK VALVE
VA217	SEQUENCE VALVE
VA227	SEQUENCE VALVE
VA233	DOUBLE EFFECT BLOCK VALVE
VA239	SIMPLE EFFECT BLOCK VALVE
VA247	OIL FLOW REGULATOR VALVE FOR ROTATION CYLINDER
XP	
VA240	"XP" VALVE

10 NOMENCLATURE OF THE SAFETY AND PROTECTION DEVICES

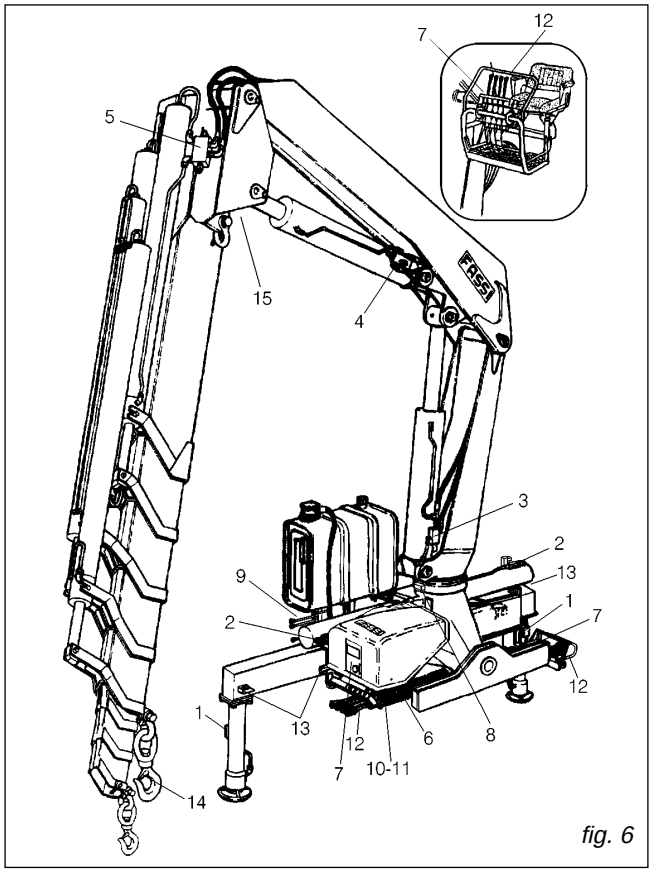


fig. 6

10.1 Crane with ground controls on both sides.
Crane with ground controls on both sides and with top seat controls by hand cables (on request)(fig. 6).

Pos.	Description
1.	Check valves for outrigger rams
2.	Check valves for rotation control (flow regulators)
3.	Check valve for inner ram
4.	Check valve for outer ram
5.	Check valve for booms extension rams
6.	Lifting moment limiting device assembly
7.	Control panels
8.	Rotation limiting device
9.	Main pressure valve (outriggers)
10.	Main pressure valve (crane)
11.	Auxiliary valves (crane)
12.	Levers guard
13.	Safety device for outriggers supports
14.	Hook safety device
15.	Safety device for extension booms (only for the crane version “C”)

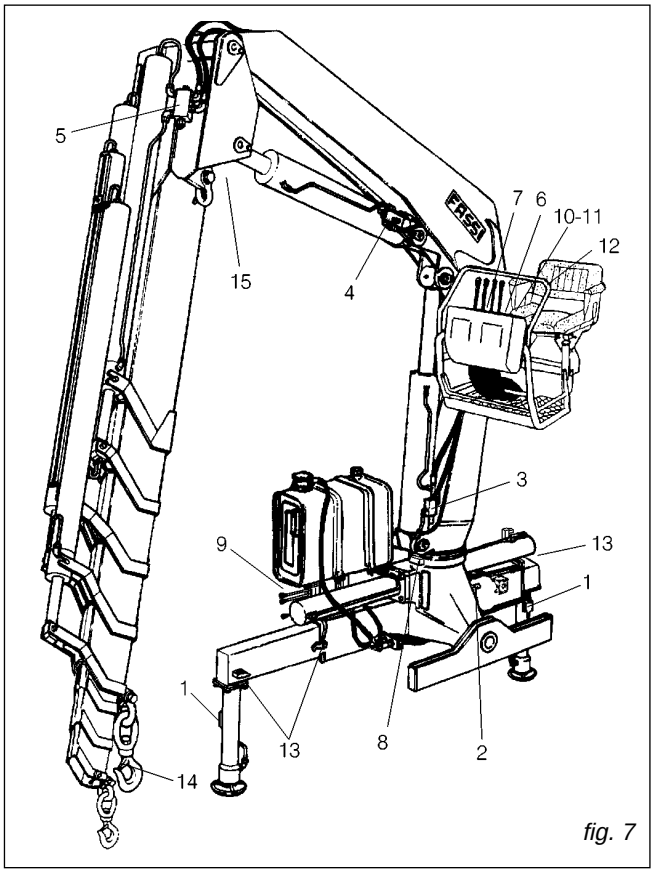


fig. 7

10.2 Crane with top seat controls and with ground controls for outriggers. (fig. 7)

Pos.	Description
1.	Check valves for outrigger rams
2.	Check valve for rotation control
3.	Check valve for inner ram
4.	Check valve for outer ram
5.	Check valve for booms extension rams
6.	Lifting moment limiting device assembly
7.	Control panel
8.	Rotation limiting device
9.	Main pressure valve (outriggers)
10.	Main pressure valve (crane)
11.	Auxiliary valves (crane)
12.	Levers guard
13.	Safety device for outriggers supports
14.	Hook safety device
15.	Safety device for extension booms (only for the crane version “C”)

Before crane use check that safety and protection devices are fitted and active.

Under no circumstances interfere with the safety and protection devices.

Interference with the check valves and removal of the lead seal remove the Manufacturer and invalidate the warranty.

Use the ladder for the access to the top seat.

16.2 "Electronic" lifting moment limiting device

This device utilises an electro-hydraulic system managed by an electronic logic that prevents any operation tending to cause an increase in the pressure induced by the load in the lifting rams (inner, outer rams of the crane and of the hydraulic extension, if fitted), up to the critical values. These values, which are not exceedable, determine the intervention levels and provide the data for setting the device.

The pressure values detected in the lifting rams are turned into electric signals by the transducers, and sent to the electronic logic of the device which determines the locking or unlocking of the controls concerned, according to the horizontal position of the crane outer boom (mercury level switch); only the controls allowing a reduction of the overload are enabled, while those increasing it are disabled.

The device features an electro-hydraulic control that does not allow the set value to be exceed, by deactivating the controls (levers in neutral position) commanded by the limiting device. When the controls are released (levers in neutral position) it's this electronic logic that handles which manoeuvres are disabled, according to the position of the crane outer boom and in overload condition, by sending electric signals to special micro-switches placed on the elements of the distributor.

(!) ATTENTION (!)

The presence of the lifting moment limiting device does not release the user from the obligation to respect what is indicated on capacity plates and lifting curves.

16.3 Control panels

Layout of the control panel (fig. 17), placed next to the distributor of the crane

A - green, yellow and red led band signalling the load percentage as compared to the capacity plate
  Green light load between 0 and 90%
  Yellow light load between 90 and 100%
  Red light load higher than 100%

B - Display
C - Control buttons (4 control buttons)
D - "STOP" button
E - Audible alarm push button (danger)
F - Green warning light (electric on)
G - Control button for XP
H - Control button for the temporary exclusion of the lifting moment limiting device

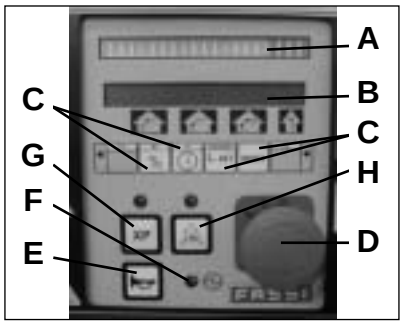


fig. 17

Layout of the control panel (fig. 18) placed on the double control side and on top seat (version with hand-cable controls)

D - "STOP" button
E - Audible alarm push button (danger)
F - Green warning light (electric on)
G - Control button for XP
H - Control button for the temporary exclusion of the lifting moment limiting device

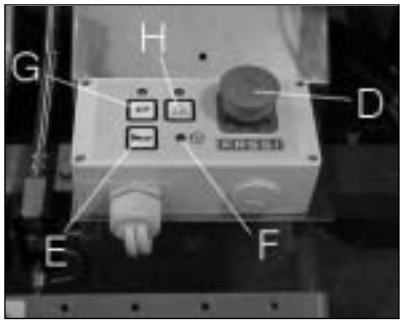


fig. 18

If the **green warning light F** comes on, it confirms that the electric circuit is active.

!NOTE! **In the absence of electric power all crane functions will be desactivated.**

If the **yellow led A** comes on during load handling, 90% of the capacity (lifting moment) has been reached.

17.2 Hydraulic connections for implements - supplementary hoses.

(!) WARNING (!)

To ensure that the control corresponds to the implement movement, hydraulic connections are symmetrically fitted with coupling unions. Never invert such positions: movements inversion as well as operating difficulties or unusual overload with implement itself could occur.

NOTE

When using coupling unions it is necessary to verify that there is no trace of soil, curt etc. on the unions and inside the seats so as to avoid the oil contamination and consequently wear the tightening “ surface of unions or ram seals.

21.2.1 Winches equipped with an electric stroke end device

Winches are equipped with a stroke end device that in the lifting or in the booms extension rams exit prevents the cable hook or the block from hitting the fixed pulley, and in the unwinding keeps at least **three (3)** turns of the cable wound around the winch drum, tripping either device disactivates the relevant controls.
To reactivate the controls the winch control lever must be activated controlling:
- the descent if the device operation is happened in the lifting or in exit with the booms extension rams;
- the lifting if the operation is happened in the unwinding of the same one.

It is recommended to avoid working with the cable hook or the block too close to the pulley structure; the activation of the device could provoque dangerous swinging.

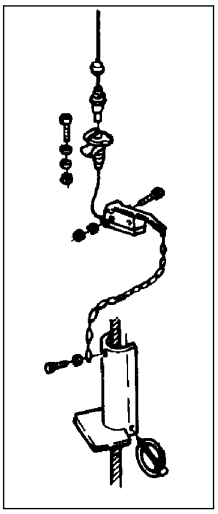


fig. 25

The pulley structure is provided with a group with microswitch (fig. 23) whose lever is kept in position by a balance weight (sliding on the cable); the cable hook or the block lift the balance weight thus releasing the lever becomes impossible with the consequent disactivation of the controls. Please note that each movement of the crane resulting in the exclusion of the balance weight action, engenders the disactivation of the controls.

Folding the crane in rest position
- withdraw the flying drive (it is assembled on the cable of the cable winder) from the pin placed near the microswitch, placed on the pulley, assembled on the booms extension rams.
- Release the cable from all support rings placed on the booms letting that it winds free in the cable winder.
- Insert the flying drive in the pin placed in the cable winder; this operation gets active all crane controls to complete the rest position operations.
- Withdraw the cable from the pulleys, then remove them from the crane (reposition the pins and the security pins)
- Operate the ascent of the winch in order to wind the cable onto the winch drum, always keeping the cable in tension, using the cable layer to rewind the cable without overlaping.
- Hook the thimble to a support apt to keep the cable sufficiently taut.

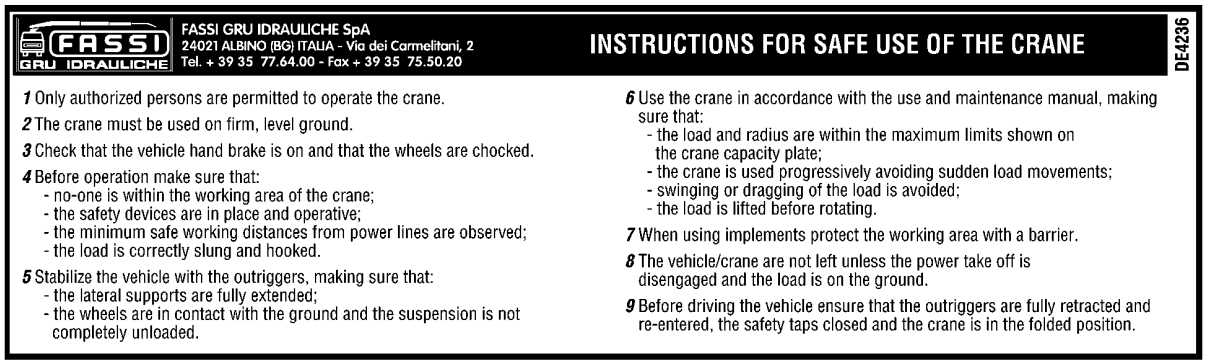
Rotating support for winch.
On cranes fitted with hydraulic extension, in some cases the winch is mounted on a rotating support to reduce the overall dimensions; to put the winch to the rest position, operate as following:
- to position the outer boom vertically.
- to withdraw the security pin, the screw nut and the locking pin from the supports. The pin should be withdraw easily and without putting up resistance; if so the winch support is not enough vertical with consequent dangerous rotation of the group when the pin is finally removed. Then position the crane outer boom in vertical position, and try to withdraw the security pin once again.
- Rotate the winch support until it reaches its new position,
- Insert the locking pin, the screw nut and the security pin.

To put the crane in working position it is necessary to carry out the operations in reverse.

Rotate the winch support with extreme care in order not to damage the hoses and electric components.

To put the crane in working position see Paragraph 14.3

(!) ATTENTION (!)
Please remember that after placing the crane in working position it is compulsory to reset the functionality of end stroke device, otherwise the cable could be damaged.



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INSTRUCTIONS FOR SAFE USE OF THE CRANE

DE4236

1 Only authorized persons are permitted to operate the crane.

2 The crane must be used on firm, level ground.

3 Check that the vehicle hand brake is on and that the wheels are chocked.

4 Before operation make sure that:
- no-one is within the working area of the crane;
- the safety devices are in place and operative;
- the minimum safe working distances from power lines are observed;
- the load is correctly slung and hooked.

5 Stabilize the vehicle with the outriggers, making sure that:
- the lateral supports are fully extended;
- the wheels are in contact with the ground and the suspension is not completely unloaded.

6 Use the crane in accordance with the use and maintenance manual, making sure that:
- the load and radius are within the maximum limits shown on the crane capacity plate;
- the crane is used progressively avoiding sudden load movements;
- swinging or dragging of the load is avoided;
- the load is lifted before rotating.

7 When using implements protect the working area with a barrier.

8 The vehicle/crane are not left unless the power take off is disengaged and the load is on the ground.

9 Before driving the vehicle ensure that the outriggers are fully retracted and re-entered, the safety taps closed and the crane is in the folded position.

DE 4236
Instruction plate and safety norms

FASSI GRU IDRAULICHE

ATTENZIONE: PRIMA DI AZIONARE LA GRU E' OBBLIGATORIO METTERE IN OPERA GLI STABILIZZATORI.

WARNING: BEFORE OPERATING THE CRANE IT IS COMPULSORY TO EXTEND THE OUTRIGGERS.

ATTENTION: AVANT D'UTILISER LA GRUE IL EST OBLIGATOIRE DE METTRE EN FONCTION LES STABILISATEURS.

ACHTUNG: VOR INBETRIEBNAHME DES KRANS MUESSEN DIE ABSTUETZUNGEN AUSGEFAHREN.

ATENCIÓN: ANTES DE ACCIONAR LA GRÚA ES OBLIGATORIO ESTABILIZAR EL VEHÍCULO.

ATENÇÃO: ANTES DE UTILIZAR A GRUA É OBRIGATÓRIO COLOCAR EM FUNCIONAMENTO OS ESTABILIZADORES.

DE2327

DE 2327
Warning plate to stabilize the vehicle before using the crane

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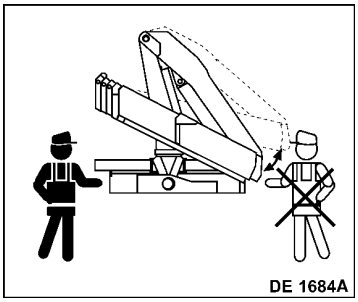

DE 1684A

DE 1684A
Do not operate from the double control side, to unfold or fold the crane

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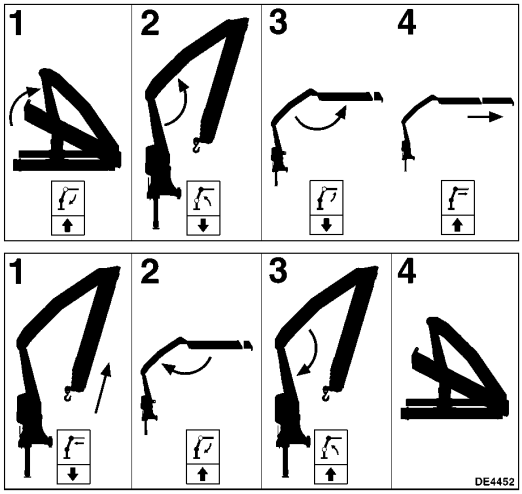

DE 4452
Instruction plate to fold the crane into the rest condition
