



***INSTRUCTION MANUAL FOR THE USE OF THE  
AERIAL PLATFORM CONTROL SOFTWARE***

**LightLift 14.72/300**

**LightLift 19.65/100 - LightLift 19.65/200**

## **ELECTRICAL SYSTEM FUNCTIONING**

### **LIGHTLIFT 14.72/300 and 19.65/100-/200**

The electrical system is operated by 2 electronic boards that interact between them and with the different sensors placed on the platform. One of the two boards is equipped with a microprocessor and it has only command and control functions; the other one is an electromechanical board (with relays) and it integrates the security functions.

In the previous LL14.72 version the PLC was used for signals and to control the electric motor; it has now been removed and its functions have been integrated in the microprocessor board.

The microprocessor board is equipped with a display and with a keyboard through which you can access to the menu to control and regulate the platform behaviour.

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### **MENU CONSULTATION**

The menu consultation happens through the display and the coloured keys placed on the microprocessor board. To scroll the menu you have to use the coloured keys placed side by side the display itself. Every key may have different functions (UP, DW, OK, RET, REDUCE, INCREASE, MOVE, CHANGE) indicated on the display itself. Some functions are saved to the internal Hinowa staff and are readable only after you put a security code.

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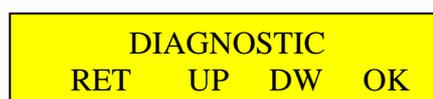
### **3. DIAGNOSTIC MENU**

From the DIAGNOSTIC menu you access to the control of the platform operative status.

It is composed by 4 sub menus: INPUT - OUTPUT - JOYSTICK - PROPORTIONALS

The access to the DIAGNOSTIC menu is not conditioned to the introduction of the security code ( see part 1.1)

The access to the sub menus comes through the underneath screen pushing the green button (OK).



### 3.1. DIAGNOSTIC MENU - INPUT

From this menu it is possible to find if the microprocessor board (assigned to the movements command and control) receives the commands coming from the remote control. You can monitor the signals status which activate the machine movements (aerial part and undercarriage part), the selectors position (120-200 kg selector, motors selectors, tracks/outriggers selector), the sensor status (load sensor, jib arm switch) and the securities bypass devices status.

- 1) by the DIAGNOSTIC screen push the green button (OK);
- 2) with the red button (UP) and yellow button (DW) scroll all the movements till the display of the following screen:

INPUT			
RET	UP	DW	OK

- 3) To return to the DIAGNOSTIC menu press the blue button (RET)
- 4) From the INPUT menu press the green button (OK) to enter into the input display modality.  
Through the red buttons (UP) and yellow buttons (DW) is possible to scroll all the input available up to the display of the desired one. All the available INPUT are listed below.
- 5) To return to the INPUT menus press the blue button (RET).

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#### 3.1.1. SPEED SELECTOR - *SLOW MODALITY* (only for LL19.65)

VEL. 1/2	:	(ON/OFF)
RET	UP	DW

It indicates the speed selector status:  
ON indicates the "slow" speed, selector on "TURTLE": all the movements happen with the engine at the minimum revolutions.  
OFF indicates the "slow" function is not active; the selector will be then on "N" or on "HARE"

**3.1.2. SPEED SELECTOR - NORMAL MODALITY**  
*(only for LL19.65)*

VEL. 1	:	(ON/OFF)
RET	UP	DW

It indicates the speed selector status:

ON indicates the "normal" modality; speed selector on "N" the movements happen with the revolutions programmed on the engine

OFF indicates the "normal" modality is not active; the selector will be then on "TURTLE" or "HARE";

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**3.1.3. SPEED SELECTOR - FAST MODALITY**  
*(only for LL19.65)*

VEL. 2	:	(ON/OFF)
RET	UP	DW

It indicates the speed selector status:

ON indicates the "fast travel" , the speed selector is on "HARE": only the travel movement on a straight track happens with double speed due to the activation of the displacement change of the traction engines (if the function is there);

OFF indicates the "fast modality" is not active; the selector will then be on "TURTLE" or on "N";

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**3.1.4. LOAD SENSOR**

CELLA C.	:	(ON/OFF)
RET	UP	DW

It reports the output signal of the load sensor board:

ON indicates the load in the basket is less than the selected maximum weight (120 or 200 kg) and therefore the machine isn't in an alarm condition; the machine can work with the aerial part;

OFF indicates the load in the basket is more than the selected maximum (120 o 200kg) and therefore the machine is in an alarm condition; the aerial part of the machine is blocked;

### 3.1.5. STABILIZED MACHINE

MAC. STAB. : (ON/OFF)  
RET UP DW

It senses the physical status of the machine, if the machine is correctly stabilized or not: ON or OFF depend on the spirit level status and on the micro switches placed on the machine outriggers.

ON the machine is physically stabilized: slope within the limit of 3°, ground support of the 4 outriggers and *stop emergency* buttons not pressed.

OFF the machine is not well stabilized; the slope is out of the maximum limit and/or one or more outriggers are not in contact with the ground and/or the emergency stop button are pressed.

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### 3.1.6. ALIGNED MACHINE

MAC. ALL. : (ON/OFF)  
RET UP DW

It senses the physical status of the machine, if it is aligned or not: ON or OFF depend on the signals sensed by the alignment system composed by the two photocells:

ON the machine is physically aligned; aerial part closed and centred;

OFF the machine is not aligned; the aerial part is either open or non centred.

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### 3.1.7. ALTERNATOR

ALTERNAT.: (RUN/STOP)  
RET UP DW

It senses the alternator status and therefore the thermic engine status (not running or started) : the systems is used to forbid the ignition manoeuvre when the engine is already started;

RUN the alternator is rotating so the thermic engine is on; the engine ignition signal is disinhibited;

STOP the alternator is not running so the thermic engine as well; it is possible to start the engine;

### 3.1.8. WEIGHT SELECTOR

PESO NAV. : (120/200)  
RET UP DW

It senses the selector position of the weight in the basket:  
120 the selector is on 120kg: the jib movement is allowed;  
200 the selector is on 200kg: the jib movement is not allowed;

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### 3.1.9. AERIAL MOVEMENTS USE

MOV.AEREI:(ABL/DISAB.)  
RET UP DW

It indicates the authorization of the aerial part movement of the machine: the status (DISAB. o ABIL.) depends on the machines status (input MAC. STAB.: ON-OFF) by the selected control position (ground or basket) and by the remote control position (in the operator's hands- correctly positioned on the basket support)

DISAB. the status DISAB. may be the result of a combination of the following conditions:

- a) the machine is not physically stabilized: input MAC. STAB.:OFF, see menu INPUT;
- b) the machine is correctly stabilized (input MAC. STAB.: ON), the selected control position is *"from the ground"* and the remote control is supported on the remote control support, see menu INPUT;
- c) the machine is correctly stabilized (input MAC. STAB.: ON), the selected control position is *"from the basket"* and the remote control is not on the remote control support, see menu INPUT;

ABIL. the status ABIL. may be the result of a combination of the following:

- a) the machine is correctly stabilized (input MAC. STAB.: ON), the selected control position is *"from the ground"* and the remote control is not supported on the remote control support, see menu INPUT ;
- b) the machine is correctly stabilized (input MAC. STAB.: ON), the selected control position is *"from the basket"* and the remote control is supported on the remote control support, see menu INPUT;

### 3.1.10. AERIAL MOVEMENTS SECURITY SYSTEM

SIC. AEREA:(ABI./DISAB.)  
RET UP DW

It senses the securities exclusion selector status of the aerial part:  
DISAB. indicates the selector has been rotated and the securities on the aerial part of the machine have been by passed; in this status it is possible to move the aerial part of the machine independently from the status of the input MAC. STAB. e MOV. AEREI;  
ABIL indicates the securities on the aerial part of the machine are not bypassed: the movements are possible only if the input MAC. STAB. e MOV. AEREI are both on ON;

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### 3.1.11. UNDERCARRIAGE PART MOVEMENTS SECURITY SYSTEM

SIC. CARRO:(ABI./DISAB.)  
RET UP DW

It senses the securities exclusion selector status of the undercarriage part:  
DISAB. indicates the selector has been rotated and the securities on the undercarriage part of the machine have been by passed; in this status it is possible to move the undercarriage part of the machine independently from the status of the input MAC. ALL., see INPUT menu (P.S.: it is not possible to exclude the securities of the outriggers movement);  
ABIL indicates the securities on the undercarriage part of the machine are not bypassed: the movements of the tracks and outriggers are possible only if the input MAC.ALL is on ON, see INPUT menu.

### 3.1.12. EMERGENCY STOP BUTTONS STATUS

STOP/EMER : (ON/OFF)  
RET UP DW

It indicates the emergency stop buttons status on the machine (on the basket, on the ground, on the remote control); keep in mind the pressure of the *emergency stop* button causes the arrest of the thermic or electrical engine):

ON indicates all *emergency stops* have been released: under this conditions if the engines are off it is possible to start them;

OFF indicates that one or more *emergency stops* are pressed: under this condition it is not possible to start any engine of the machine (neither the thermic nor the electric engine);

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### 3.1.13. EMERGENCY STOP BUTTONS BASKET

SW. NAV/EM : (ON/OFF)  
RET UP DW

It indicates the micro switch status for the takeover of the presence of the remote control on the basket in the right place:

ON indicates that the remote control is correctly placed on the basket

OFF indicates that the remote control is not correctly placed on the basket.

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### 3.1.14. START BUTTON

START MOT : (ON/OFF)  
RET UP DW

It senses the start button of the engines (thermic and electric):

ON the *start* button on the remote control is pressed;

OFF the *start* button on the remote control is released;

### 3.1.15. BASKET LEVELLING MOVEMENT

LIV. CESTO : (ON/OFF)  
RET UP DW

It senses the status of the basket levelling movement activation button:

ON the button is pressed

OFF the button is released

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### 3.1.16. BASKET ROTATION MOVEMENT *(only for LL19.65)*

ROT. CESTO : (ON/OFF)  
RET UP DW

It senses the status of the basket rotation movement activation button:

ON the button is pressed

OFF the button is released

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### 3.1.17. JIB ARM MOVEMENT

MOV. JIB : (ON/OFF)  
RET UP DW

It senses the status of the jib arm movement activation button:

ON the button is pressed

OFF the button is released

### 3.1.18. AERIAL PART ROTATION MOVEMENT

ROT. AEREA : (ON/OFF)  
RET UP DW

It senses the status of the aerial part rotation movement activation button:  
ON the button is pressed  
OFF the button is released

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### 3.1.19. FIRST ARM MOVEMENT (only for LL14.72)

1^ BRAC. : (ON/OFF)  
RET UP DW

It senses the status of the first arm movement activation button:  
ON the button is pressed  
OFF the button is released

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### 3.1.20. SECOND ARM MOVEMENT (only for LL14.72)

2^ BRAC. : (ON/OFF)  
RET UP DW

It senses the status of the second arm movement activation button:  
ON the button is pressed  
OFF the button is released

**3.1.21. FIRST AND SECOND ARM MOVEMENT**  
*(only for LL19.65)*

1E2 BRAC. : (ON/OFF)  
RET UP DW

It senses the status of the first and second arm movement activation button:  
ON the button is pressed  
OFF the button is released

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**3.1.22. THIRD AND FOURTH ARM MOVEMENT**  
*(only for LL19.65)*

3E4 BRAC. : (ON/OFF)  
RET UP DW

It senses the status of the third and fourth arm movement activation button:  
ON the button is pressed  
OFF the button is released

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**3.1.23. PROLONGATION ARM CYLINDER MOVEMENT**

SFILO : (ON/OFF)  
RET UP DW

It senses the status of the prolongation arm cylinder activation button:  
ON the button is pressed  
OFF the button is released

### 3.1.24. ENGINES SELECTOR

SEL. MOT. : (ON/OFF)  
RET UP DW

It senses the engines selector position (thermic/electric):

ON the selector is on *electric engine*: the following pressure on the *start* button determines the start of the electric motor;

OFF the selector is on *thermic engine*: if the machine is connected to the electrical system the following pressure on the *start* button determines the start of the electrical motor;

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### 3.1.25. UNDERCARRIAGE WIDENING MOVEMENT (only for LL19.65)

ALL. CARRO : (ON/OFF)  
RET UP DW

It senses the status of the undercarriage widening movement activation button:

ON the button is pressed

OFF the button is released

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### 3.1.26. OUTRIGGERS/TRACKS SELECTOR

TRA/STAB. : (ON/OFF)  
RET UP DW

It senses the outriggers/tracks position:

ON the selector is *on tracks*: the tracks movement is enabled (the joystick movement determines the machine translation);

OFF the selector is *on outriggers* : the outriggers movement is enabled (the pressure of the outrigger button and the movement of the relevant joystick determines the outrigger movement);

### **3.1.27. OUTRIGGER 1 MOVEMENT** *(left back)*

STABIL. 1 : (ON/OFF) RET UP DW
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It senses the status of the left back outrigger movement activating button:  
ON the button is pressed  
OFF the button is released

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### **3.1.28. OUTRIGGER 2 MOVEMENT** *(left front)*

STABIL. 2 : (ON/OFF) RET UP DW
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It senses the status of the front left outrigger movement activating button:  
ON the button is pressed  
OFF the button is released

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### **3.1.29. OUTRIGGER 3 MOVEMENT** *(right front)*

STABIL. 3 : (ON/OFF) RET UP DW
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It senses the status of the front right outrigger movement activating button:  
ON the button is pressed  
OFF the button is released

### 3.1.30. OUTRIGGER 4 MOVEMENT (right back)

STABIL. 4	:	(ON/OFF)
RET	UP	DW

It senses the status of the back right outrigger movement activating button:  
ON the button is pressed  
OFF the button is released

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### 3.1.31. ASPAC SWITCH

IN. ASPAC	:	(ON/OFF)
RET	UP	DW

**N.B.:** *HINOWA S.p.A. internal use only.*

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### 3.1.32. PROPORTIONAL VALVES CARTER

CARTER V.	:	OFF
RET	UP	DW

The signal has to be by default on OFF

### 3.2. DIAGNOSTIC MENU- OUTPUT

From this menu it is possible to sense if the microprocessor board which only has movements command and control it commands the output, that is the movements the operator selected through the remote control. You can monitor the status of the signals that activate the machine movements (aerial and undercarriage part), the supply of the signal lights (stabilized machine light, aligned machine light , load sensor and beeper) and the control currents that cover the proportional electro valves of the aerial and undercarriage part.

- 1) by the DIAGNOSTIC screen push the green button (OK);
- 2) with the red button (UP) and the yellow button (DW) scroll all the movements till the display of the following screen:

OUTPUT  
RET UP DW OK

- 3) To return to the DIAGNOSTIC menu press the blue button (RET)
- 4) From the OUTPUT menu press the green button (OK) to enter into the output display modality

Through the red buttons (UP) and yellow buttons (DW) it is possible to scroll all the output available up to the display of the desired one. All the available OUTPUT are listed below.

- 5) To return to the OUTPUT menu press the blue button (RET).

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#### 3.2.1. BASKET LEVELLING MOVEMENT

LV. CESTO: (ON/OFF) (ON/OFF)  
RET UP DW

It indicates the status of the feed of the electro valve for the basket levelling movement:

- OFF OFF no basket levelling movement;
- ON OFF forward basket levelling;
- OFF ON backward basket levelling;

### 3.2.2. JIB ARM MOVEMENT

BRAC. JIB : (ON/OFF) (ON/OFF)
RET UP DW

It indicates the status of the feed of the electro valve for the jib arm movement :

OFF OFF	no jib arm movement
ON OFF	jib arm descent movement
OFF ON	jib arm uphill movement

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### 3.2.3. PROLONGATION ARM CYLINDER MOVEMENT

SFILO : (ON/OFF) (ON/OFF)
RET UP DW

It indicates the status of the feed of the electro valve for the prolongation arm cylinder movement:

OFF OFF	no prolongation arm movement ;
ON OFF	prolongation arm exit movement
OFF ON	prolongation arm recess movement

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### 3.2.4. FIRST ARM MOVEMENT (only for LL14.72)

1^ BRAC. : (ON/OFF) (ON/OFF)
RET UP DW

It indicates the status of the feed of the electro valve for the first arm movement:

OFF OFF	no first arm movement
ON OFF	first arm descent movement
OFF ON	first arm uphill movement

**3.2.5. SECOND ARM MOVEMENT**  
*(only for LL14.72)*

2^ BRAC. : (ON/OFF) (ON/OFF)
RET UP DW

It indicates the status of the feed of the electro valve for second arm movement:

OFF OFF no first arm movement ;  
ON OFF first arm descent movement;  
OFF ON first arm uphill movement

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**3.2.6. FIRST AND SECOND ARM MOVEMENT**  
*(only for LL19.65)*

1E2BRAC: (ON/OFF) (ON/OFF)
RET UP DW

It indicates the status of the feed of the electro valve for the first and second arm movement:

OFF OFF no first and second arm movement ;  
ON OFF first and second arm descent movement;  
OFF ON first and second arm uphill movement

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**3.2.7. THIRD AND FOURTH ARM MOVEMENT**  
*(only for the LL19.65)*

3E4BRAC: (ON/OFF) (ON/OFF)
RET UP DW

It indicates the status of the feed of the electro valve for the third and fourth arm movement:

OFF OFF no third and fourth arm movement ;  
ON OFF third and fourth arm descent movement;  
OFF ON third and fourth arm uphill movement

### 3.2.8. AERIAL PART ROTATION MOVEMENT

RT.AAREA: (ON/OFF) (ON/OFF)  
RET UP DW

It indicates the status of the feed of the electro valve for the aerial part rotating movement:

OFF OFF no aerial part rotating movement  
ON OFF aerial part anticlockwise rotating movement;  
OFF ON aerial part clockwise rotating movement;

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### 3.2.9. BASKET ROTATING MOVEMENT (only for LL19.65)

RT.CESTO: (ON/OFF) (ON/OFF)  
RET UP DW

It indicates the status of the feed of the electro valve for the basket rotating movement:

OFF OFF no basket rotating movement;  
ON OFF basket anticlockwise rotating movement;  
OFF ON basket clockwise rotating movement;

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### 3.2.10. RIGHT TRACK MOVEMENT

TRA. DX: (ON/OFF) (ON/OFF)  
RET UP DW

It indicates the status of the feed of the electro valve for the machine right track movement:

OFF OFF no right track movement;  
ON OFF backward right track movement;  
OFF ON forward right track movement;

### 3.2.11. LEFT TRACK MOVEMENT

TRA. SX: (ON/OFF) (ON/OFF)
RET UP DW

It indicates the status of the feed of the electro valve for the machine left track movement:

OFF OFF no left track movement;  
ON OFF backward left track movement;  
OFF ON forward left track movement;

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### 3.2.12. OUTRIGGER 1 MOVEMENT (left back)

STAB. 1 : (ON/OFF) (ON/OFF)
RET UP DW

It indicates the status of the feed of the electro valve machine left back outrigger movement:

OFF OFF no left back outrigger movement;  
ON OFF left back outrigger descent movement;  
OFF ON left back outrigger uphill movement;

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### 3.2.13. OUTRIGGER 2 MOVEMENT (left front)

STAB. 2 : (ON/OFF) (ON/OFF)
RET UP DW

It indicates the status of the feed of the electro valve for the machine left front outrigger movement:

OFF OFF no front left outrigger movement;  
ON OFF front left outrigger descent movement;  
OFF ON front left outrigger uphill movement;

### 3.2.14. **OUTRIGGER 3 MOVEMENT** *(right front)*

STAB. 3 : (ON/OFF) (ON/OFF)  
RET UP DW

It indicates the status of the feed of the electro valve for the machine right front outrigger movement:

OFF OFF no right front outrigger movement;  
ON OFF right front outrigger descent movement;  
OFF ON right front outrigger uphill movement;

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### 3.2.15. **OUTRIGGER 4 MOVEMENT** *(right back)*

STAB. 4 : (ON/OFF) (ON/OFF)  
RET UP DW

It indicates the status of the feed of the electro valve for the machine right back outrigger movement:

OFF OFF no right back outrigger movement;  
ON OFF right back outrigger descent movement;  
OFF ON right back outrigger uphill movement;

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### 3.2.16. **WIDENING UNDERCARRIAGE MOVEMENT** *(only for LL19.65)*

AL.CARRO: (ON/OFF) (ON/OFF)  
RET UP DW

It indicates the status of the feed of the electro valve for the widening undercarriage movement:

OFF OFF no widening movement;  
ON OFF undercarriage return movement;  
OFF ON undercarriage widening movement;

**3.2.17. DOUBLE SPEED ELECTRO VALVE**  
*(only for machine equipped with second speed as optional)*

E.V. 2V : (ON/OFF)  
RET UP DW

It indicates the status of the electro valve for the second speed activation during the travelling:

ON the electro valve is excited;

OFF the electro valve is not excited;

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**3.2.18. ALIGNED MACHINE LIGHT**

SPIA ALL. : (ON/OFF)  
RET UP DW

It indicates the status of the "*aligned machine*" light placed on the remote control:

ON the "*aligned machine*" light is on;

OFF the "*aligned machine*" light is off;

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**3.2.19. STABILIZED MACHINE LIGHT**

SPIA STA. : (ON/OFF)  
RET UP DW

It indicates the status of the "*stabilized machine*" light placed on the remote control:

ON the "*stabilized machine*" light is on;

OFF the "*stabilized machine*" light is off;

### 3.2.20. LOAD SENSOR LIGHT

SPIA C. CA : (ON/OFF) RET UP DW
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It indicates the status of the *load sensor* light placed on the remote control:  
ON the *load sensor* light is on;  
OFF the *load sensor* light is off;

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### 3.2.21. BEEPER

BEEPER : (ON/OFF) RET UP DW
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It indicates the status of the *beeper* (acoustic signal) placed inside the remote control:  
ON the *beeper* is active;  
OFF the *beeper* è off;

*N.B.: in working condition the beeper is intermittent*

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### 3.2.22. START BUTTON

START MOT : (ON/OFF) RET UP DW
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With the engine off (either electrical or thermic) it indicates the status of consent to the starting of the thermic engine (the engine selector has to be on "thermic")

ON the *start* button on the remote control is pressed;  
OFF the *start* button on the remote control is released;  
With the engine on the output status is always OFF.

### 3.2.23. THERMIC ENGINE STATUS

STOP MOT : (ON/OFF)  
RET UP DW

It indicates the status of the consent to the thermic engine:

ON the consent to the functioning of the thermic engine is active (engine on)  
OFF the consent to the functioning of the thermic engine is not active (engine off)

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### 3.2.24. ELECTRICAL MOTOR STATUS

MOT. ELET : (ON/OFF)  
RET UP DW

It indicates the status of the consent to the electrical motor:

ON the consent to the functioning of the electrical engine is active (engine on)  
OFF the consent to the functioning of the electrical engine is not active (engine off)

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### 3.2.25. THERMIC ENGINE SPEED CONTROL (only for LL19.65)

SW1 MOT. : (ON/OFF)  
RET UP DW

It indicates the status of the micro switch SW1 that controls the thermic engine rotating speed control:

ON the micro switch SW1 is active (closed);  
OFF the micro switch "SW1" is released (open);

### 3.2.26. THERMIC ENGINE SPEED CONTROL (only for LL19.65)

SW2 MOT. : (ON/OFF)  
RET UP DW

It indicates the status of the micro switch SW2 that controls the thermic engine rotating speed control:

ON the micro switch SW2 is active (closed);

OFF the micro switch "SW2" is released (open);

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P.S.: The rotating running of the thermic engine is controlled by the status of the SW1 and SW2 micro switches following this logic

"SW1" OFF & "SW2" OFF minimum rotating running 1500rpm;

"SW1" ON & "SW2" OFF intermediate rotating running 2200rpm;

"SW1" ON & "SW2" ON maximum rotating running 3600rpm;  
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### 3.2.27. MOVEMENT DIRECTION

FORW/REV : (ON/OFF)  
RET UP DW

It indicates the status of the movement direction control output of the aerial and undercarriage part ( K6 relay):

ON the K6 relay is feed: the movement is uphill for the arms; descent for the outriggers, the aerial part rotation is clockwise and the basket rotation is clockwise (only on the LL19.65);

OFF the K6 relay is not feed: the movement is of descent for the arms, uphill for the outriggers; the aerial part rotation is anticlockwise and the basket rotation is anticlockwise (only on the LL19.65).

### 3.2.28. HOUR COUNTER

CONTAORE : (ON/OFF)  
RET UP DW

It indicates the status of the hour counter; its condition depends on the status of the *emergency stops*:

ON the hour counter is feed : the three emergency stops are released;

OFF the hour counter is not feed: at least one of the three emergency stop buttons is pressed

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### 3.2.29. OUTPUT 27

1) by the INPUT screen push the green button (OK);

2) with the red button (UP) and the yellow button (DW) scroll all the movements till the display of the following screen:

OUTPUT27 : (ON/OFF)  
RET UP DW

It indicates the status of the feeding line of the stabilization control security system:

ON the output that feeds the line is active: the system is feed;

OFF the output that feeds the line is off: the system is not feed;

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### 3.2.30. LEFT TRACK/AERIAL MOVEMENT DEVIATOR

E.V. DEV. : (ON/OFF)  
RET UP DW

It indicates the status of the hydraulic deviator; it is electrically controlled by the machine electronic and it deviates the oil flow coming from the pump:

ON the electro valve that controls the deviator is feed: the oil is sent to the valve block of the left track (tracks/outriggers);

OFF the electro valve that controls the deviator is not feed: the oil is sent to the valve block of the aerial part;

### 3.2.31. OUTPUT 15L (INTERNAL USE)

OUTPUT15L : (AEREI/CARRO)  
RET UP DW

It indicates the software outlet that commutes the valves group on/off of the aerial part and undercarriage part movements:

ON the outlet is active

OFF the outlet is off

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### 3.3. DIAGNOSTIC MENU - JOYSTICK

From this menu it is possible to monitor the functioning of the three joysticks; these controls the machine movements;

During the rest position (joystick in the middle) the indication given by the display has to be 0000 end of stroke in both directions the data has to be 0128

The correct functioning of the proportional control foresees that the number read on the display increases in a linear way with regards to the increase of the joystick movement travel in both directions ( upwards or downwards);

- 1) by the DIAGNOSTIC screen push the green button (OK);
- 2) with the red button (UP) and the yellow button (DW) scroll all the movements till the display of the following screen:

JOYSTICK  
RET UP DW OK

- 3) To return to the DIAGNOSTIC menu press the blue button (RET)
- 4) From the JOYSTICK menu press the green button (OK) to enter into the Joystick display modality.  
Through the red buttons (UP) and yellow buttons (DW) it is possible to scroll all the three Joystick available up to the display of the desired one. All the three Joystick are listed below.
- 5) To return to the JOYSTICK menu press the blue button (RET).

### **3.3.1. LEFT JOYSTICK – LEFT TRACK CONTROL (TRACK/OUTRIGGERS)**

JOYSTICK SX: (0000/0128)  
RET UP DW

It indicates the status of the left joystick that controls the left tracks and the left outriggers:

0000: no output signals go from the joystick to the board;

0128: the joystick is at the end of stroke in one of the two directions;

---

### **3.3.2. RIGHT JOYSTICK – RIGHT TRACK CONTROL (TRACK/OUTRIGGERS)**

JOYSTICK DX: (0000/0128)  
RET UP DW

It indicates the status of the right joystick that controls the right tracks and the right outriggers:

0000: no output signals go from the joystick to the board;

0128: the joystick is at the end of stroke in one of the two directions;

---

### **3.3.3. CENTRAL JOYSTICK – AERIAL PART MOVEMENT CONTROL**

JOYSTICK AE: (0000/0128)  
RET UP DW

It indicates the status of the central joystick for the aerial part movements control:

0000: no output signals go from the joystick to the board;

0128: the joystick is at the end of stroke in one of the two directions;

### 3.4. DIAGNOSTIC MENU - PROPORTIONAL VALVES

From this menu it is possible to monitor the currents from which the track proportional electro valves feed from, LEFT PROPORTIONAL – RIGHT PROPORTIONAL and the aerial part electro valve PROPORZ. AE.

During the rest position (joystick in the middle) the indication given by the display has to be 0000.

The correct functioning of the proportional control foresees that the number read on the display increases in a linear way with regards to the increase of the joystick movement travel in both directions ( upwards or downwards);

- 1) by the JOYSTICK screen push the green button (OK);
- 2) with the red button (UP) and the yellow button (DW) scroll all the movements till the display of the following screen:

PROPORIZIONALI  
RET UP DW OK

- 3) To return to the DIAGNOSTIC menu press the blue button (RET)

- 4) From the PROPORIZIONALI menu press the green button (OK) to enter into the proportional signals display modality.

Through the red buttons (UP) and yellow buttons (DW) it is possible to scroll all the three PROPORIZIONALI available up to the display of the desired one. All the three PROPORIZIONALI are listed below.

- 5) To return to the PROPORIZIONALI menu press the blue button (RET).

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#### 3.4.1. LEFT TRACK PROPORTIONAL VALVE (TRACKS/OUTRIGGERS)

PROPORIZ. SX: (0000/----)  
RET UP DW

It indicates the value of the current that goes through the proportional electro valve on the hydraulic valve block that controls the machine left track movements; (tracks/outriggers)

0000: no output signals go to the sx proportional valve;

----: The value read at the end of stroke of the joystick has to be the same as the one set on the CALIBRATIONS menu for such movement:

### **3.4.2. RIGHT TRACK PROPORTIONAL VALVE (TRACK/OUTRIGGERS)**

PROPORIZ. DX: (0000/----)  
RET UP DW

It indicates the value of the current that goes through the proportional electro valve on the hydraulic valve block that controls the machine right track movements; (tracks/outriggers)

0000: no output signals go to the DX proportional valve;

----: The value read at the end of stroke of the joystick has to be the same as the one set on the CALIBRATIONS menu for such movement.

---

### **3.4.3. AERIAL PART PROPORTIONAL VALVE (AERIAL PART MOVEMENTS )**

PROPORIZ. AE: (0000/----)  
RET UP DW

It indicates the value of the current that goes through the proportional electro valve on the hydraulic valve block that controls the machine right track movements; (tracks/outriggers)

0000: no output signals go to the proportional valve of the aerial part.

----: The value read at the end of stroke of the joystick has to be the same as the one set on the CALIBRATIONS menu for such movement.