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NOTA: This chapter describes only the use of the control console.
Rig installation, jack up or preload operations are not evoked in this chapter.

Before use the jacking system, check:

- **Racks chocks status (engaged or disengaged).**
- that mechanisms are well-fixed on the frame and screws are well-tightened.
- that greasing is good : oil level in the gear cases, grease on teeth of pinions and racks (See part E for details).
- that electric cabinets are locked.
- security devices : Guards must be fixed and in good conditions, sensors and others electrical security devices must be connected and accurately adjusted.
- that nobody is near moving or heating parts (pinions, racks, motors, etc...).
- that no defect light is on, on the console.

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D.1 Rig movements control

The rig is controlling by an individual control of legs from the central control desk.
Switch on the central control desk with selector « POWER ON/OFF »

- Selector « CONTROL MODE »

Action exerted on this selector allows to choose the functioning mode of the console :

LOCAL: For use of the brake portable control console

CENTRAL: For operating the jacking up/down

RETORQUE: For use of the retorquing device (equalizing the pinion torque)

- Push button « HULL UP – LEG DOWN »

Action exerted on this button enables the rig jacking up by means of the hoisting contactors, which fed all motors.

The switchgear and motors heating of corresponding leg is switching off. The brakes are energized during 1 second with voltage 115v and after with holding voltage (28v).

- Push button « HULL DOWN – LEG UP »

Action exerted on this button enables the rig jacking down by means of the lowering contactor.

- Push button « STOP »

Action exerted on this button stops the leg movement.

- Push button « EMERGENCY STOP »

Action exerted on this button stops all motors of the rig.

- Push button « TEST LAMPS »

Action exerted on this button switches on all lights of central console in order to check if a bulb is defective.

- Push button “ACKNOWLEDGE”

Action exerted on this button releases a defect alarm after checking and solving the trouble. Permit restart of rig movements.

- « SOUND SIGNAL »

The sound signal is audible when a defect appears.

- Push button « BUZZER STOP »

Action exerted on this button stops sound signal when a defect is signalling.

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- Selector switch «INCLINATION OVERRIDE »

Action exerted on this switch allows switching off inclination safeties, especially when moving the rig on other place.

- Selector switch «OVERRIDE SAFETIES»

Action exerted on this selector switch allows switching off rig safeties except inclination and emergency stop.

This operation mode must remain an exceptional mode and requires preliminary checking of the source of the defect that caused the jacking movement stop. During action on this switch, the locking devices are invalid. Very important mechanical damages may occur.

If the use of this switch is necessary, the operator shall supervise carefully the overload motor and brake visual alarm, and stops as soon as possible when a brake or overload defect appears on display.

- Miscellaneous

Voltage, frequency, and power are permanently displaying on the alarm display.

D.2 Retorquing control mode

Position the switch « CONTROL MODE » on « RETORQUING »

- Selector switch «CHORD SELECT»

Action exerted on this switch selects the chord for retorquer.

- Selector switch «MOTOR SELECT»

Action exerted on this switch selects the motor to retorquer.

- Selector switch «TORQUE %»

Action exerted on this switch selects the torque to apply on selected motor.

- Push button « RETORQUE AVAILABLE »

Action exerted on this button allows applying selected torque on chosen motor.

Position the selector switch mode on "RETORQUING". Choose the chord and the motor to be retorquing. Select the level of retorquer you want to apply with "TORQUE %" on the wished value.

Press the button until the pilot light « RETORQUE PERFORMED » is on, which indicates the retorquer is done.

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D.3 Brake control from local portable console

The individual brake control is possible from portable console.

On central console, position the selector switch mode on «LOCAL». Plug in the portable console on the socket box of the chosen chord.

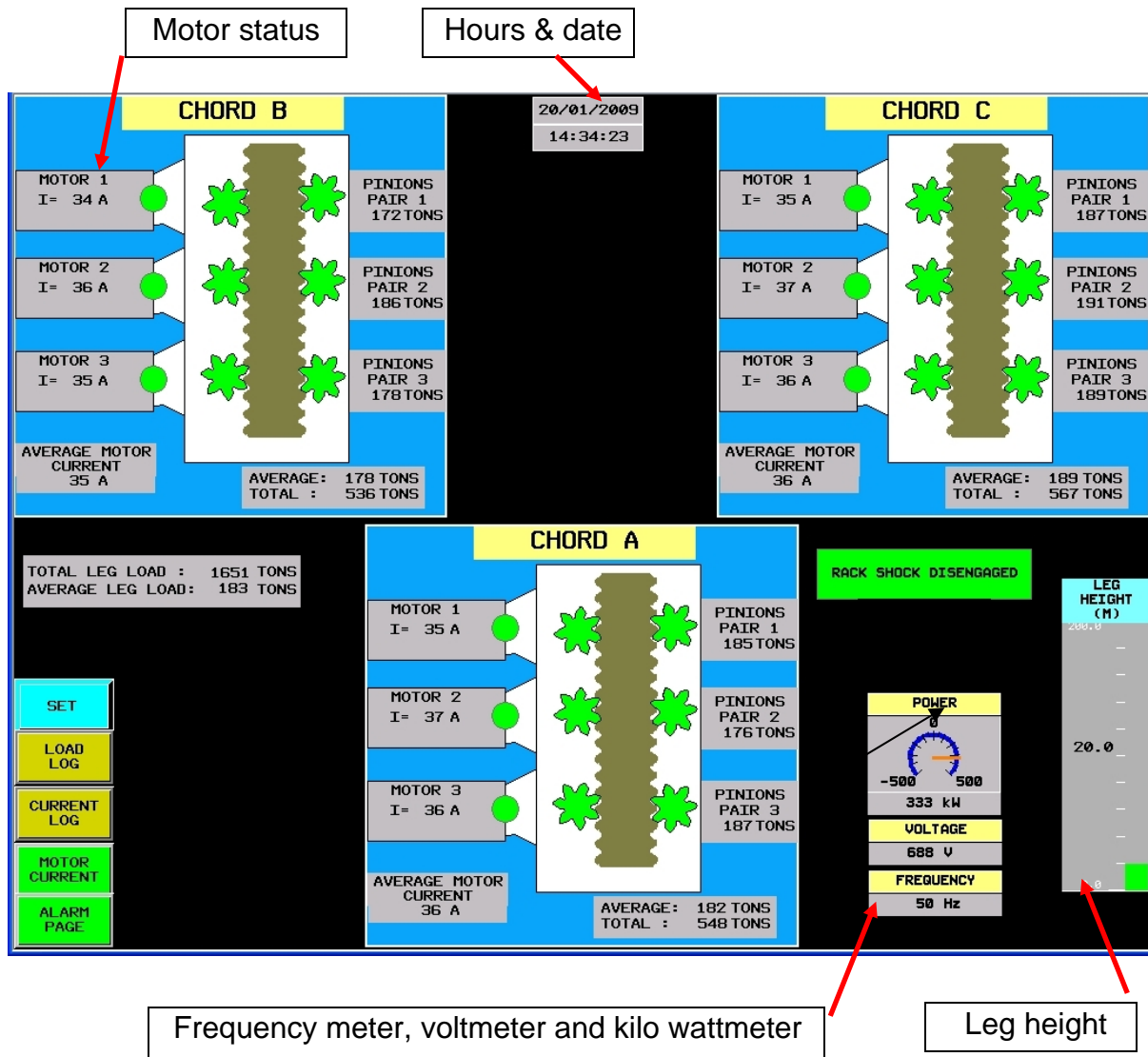
Push the button «RELEASE» of the brake who wants to release. The brake is on as long as you maintain the push button.

The individual command is also possible from the central console. Position the selector switch mode on «RETORQUING». Select the level of retorque «TORQUE %» on «OFF – 0%». Press the button until the pilot light «RETORQUE PERFORMED » is on, which indicates the retorque is done (brake released in this case). The brake is fed only during retorquing (~3sec).

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D.4 Dialogue operator console

- Home page



Note

This view is from inside leg.

The average current value is available for a whole leg.

Note

The display of the pinion load is not the display of rig weight because pinion load is different from rig weight (pinion rack meshing and leg guides induces efficiency)

Nevertheless, it remains a relation between hull weight and pinion load:

- During jacking up: pinion load > rig weight.
- During jacking down: pinion load < rig weight.

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The first page of this screen shows:

- the average load applied on the mechanism of each chord.
- the total load of each chord
- the total leg load
- the height of the leg

Each mechanism has a load sensor that sends a signal controlled by the PLC and displayed on the upper screen

- Alarms page

[illegible]

The active alarms are in yellow and the acknowledged alarms are green. The appearance and settlement hours of alarms are displayed.

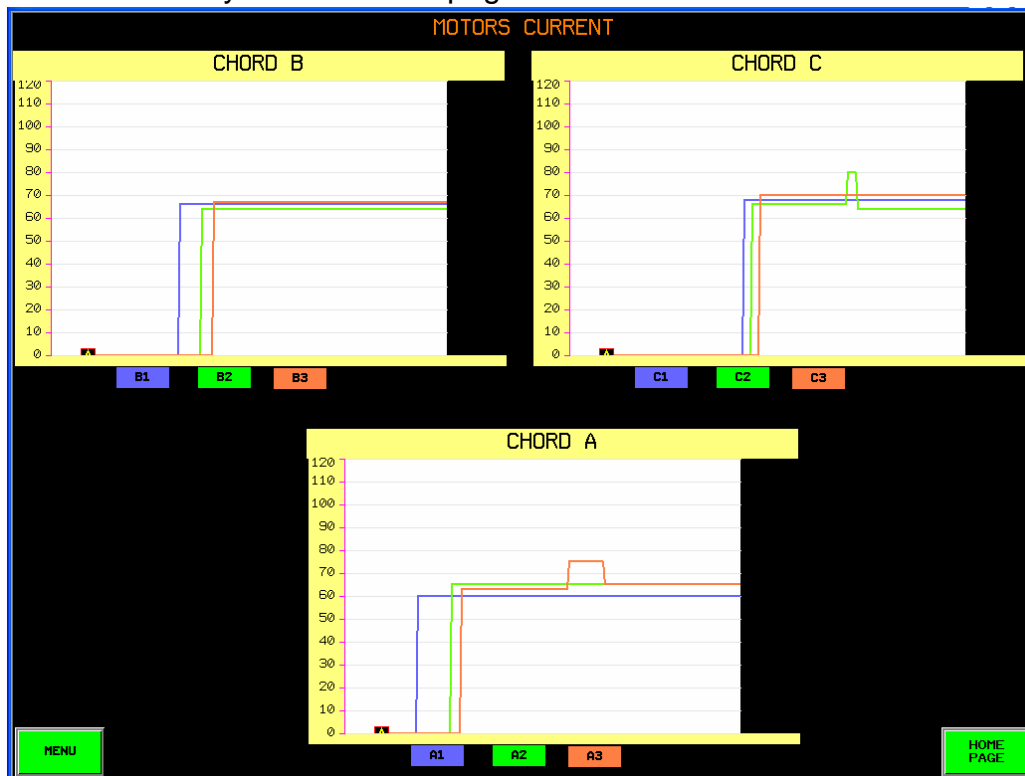
The alarms are memorized in their occurrence order.

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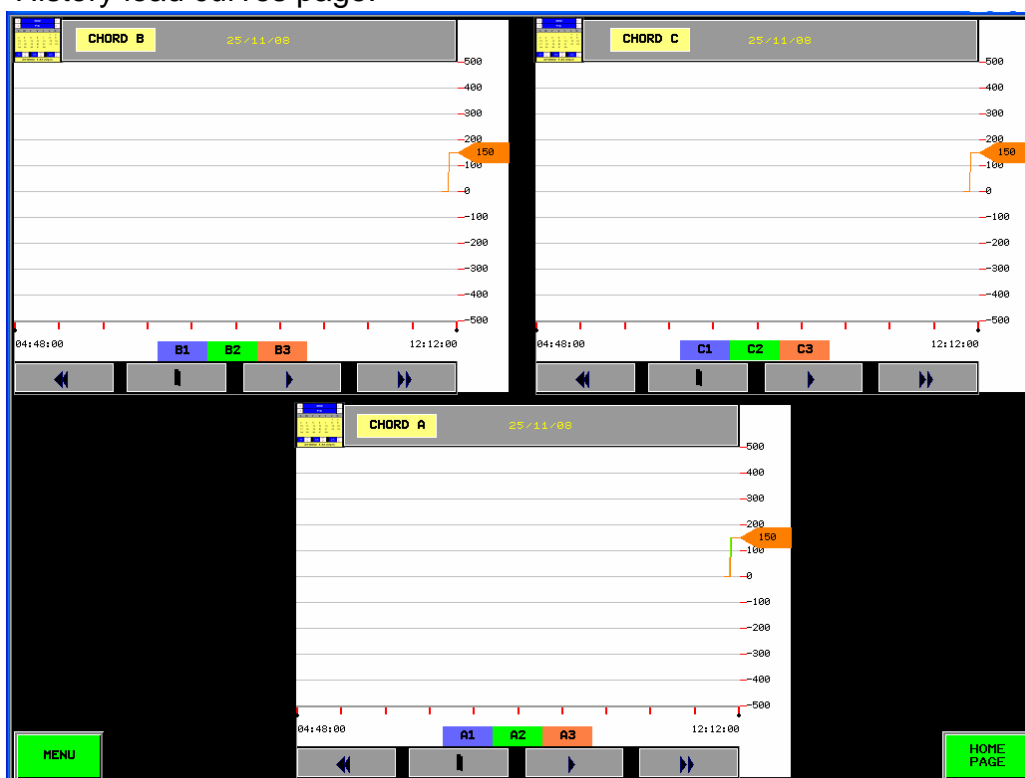
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- Instantaneously motor current page



- History load curves page.

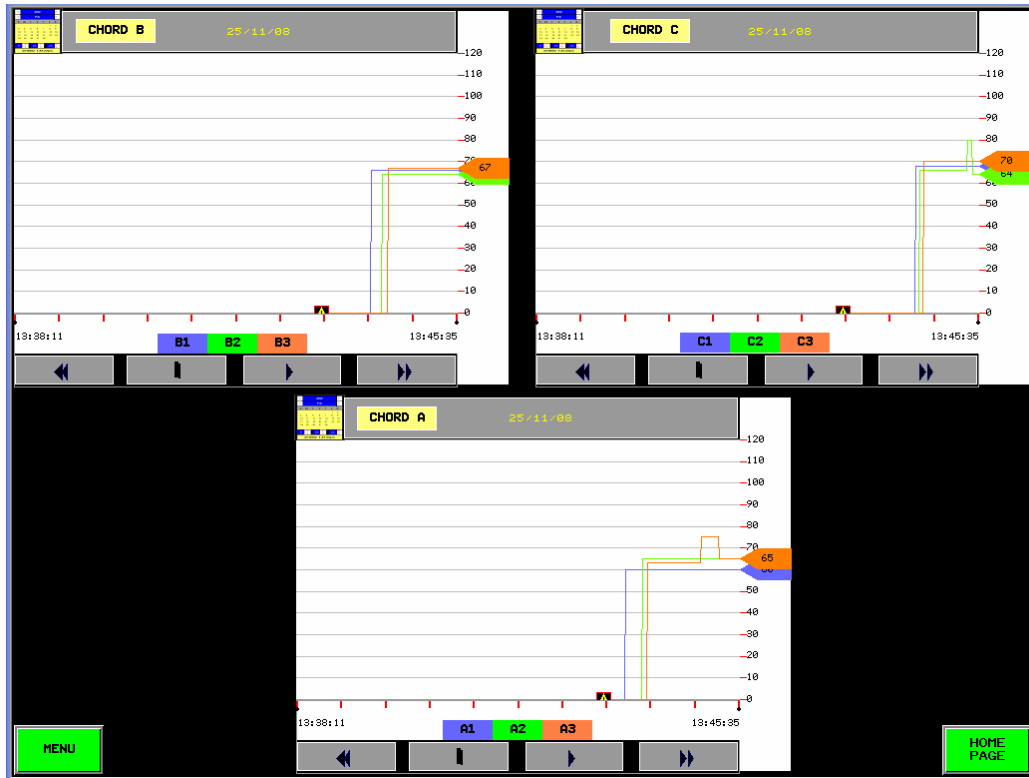


- History motor current page

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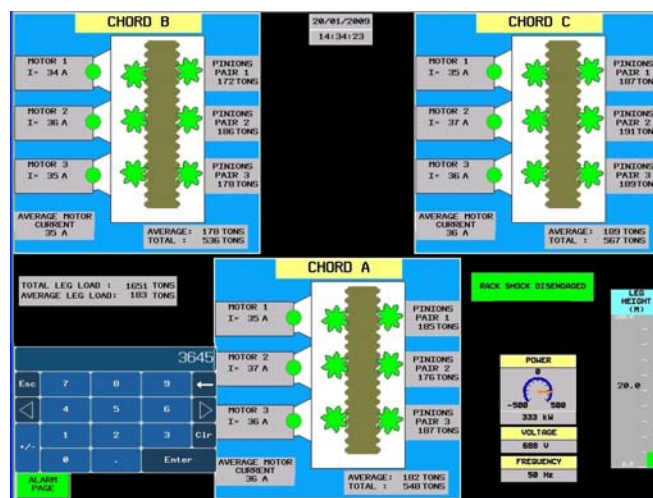
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Pinion load sensor zero adjustment :

During jacking operation, if one or several sensors indicate values very different from the others, it is necessary to check the offset value of the sensor.

Adjustable page displayed by password **3645** pressing the screen button “SET” in the left bottom of the home page.

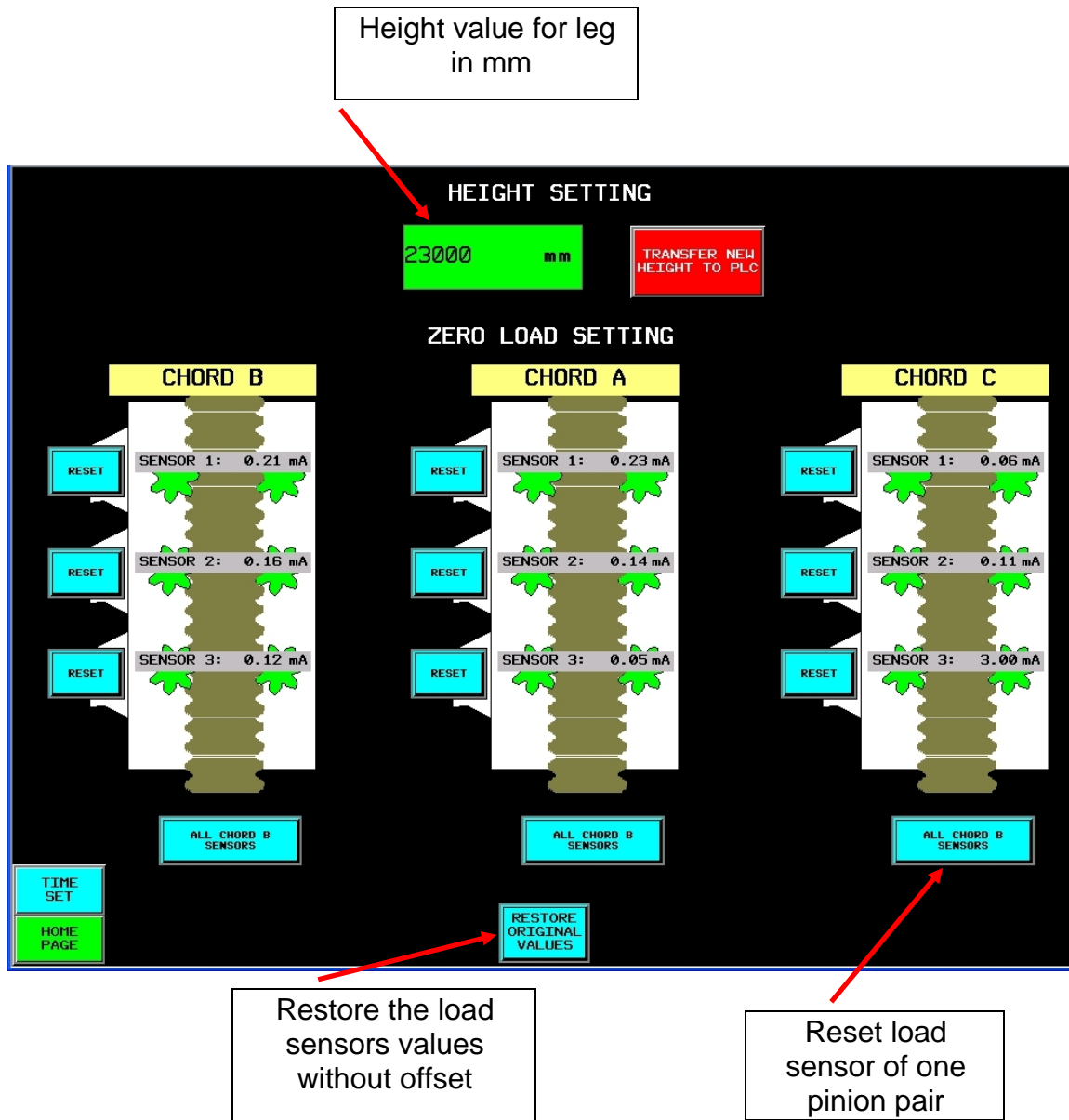


1. Load sensor and height adjust page

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First, prior to a zero adjustment, **the load on the pinion must be released** (brake must be released). The brake can be releasing by using the portable control box. Once the load on pinion is zero:

Select the unit by pressing on the screen button

If the output signal coming from the sensor is equal to ± 2 mA, then the value shown on the display comes to 0T

If the output signal coming from the sensor is out of the range ± 2 mA, then the message «ZERO OUT OF RANGE» is displayed on the screen. The zero adjustment of the sensor requires a mechanical recalibration of the sensor on the unit, by following the calibration procedure detailed in the installation procedure of the PLMS (Pinion Load Monitoring System) (mechanical adjustment in the range $\pm 0,2$ mA or $\pm 0,5$ mA).

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After recalibration, press the button of the selected unit. The message «ZERO OUT OF RANGE» disappears and the the value shown on the display comes to 0 T.

If the sensor presents a default (wires cut or measured value out of the normal range +/- 20 mA), a message appears on the screen «SENSOR DEFECT». This default can be solving by a mechanical recalibration or by replacement of the sensor.

- «ALL CHORD X SENSORS»

This button allows adjustment of all the sensors of one chord. **This can only be without load on any pinions of the chord.**

- «RESTORE ORIGINAL VALUES»

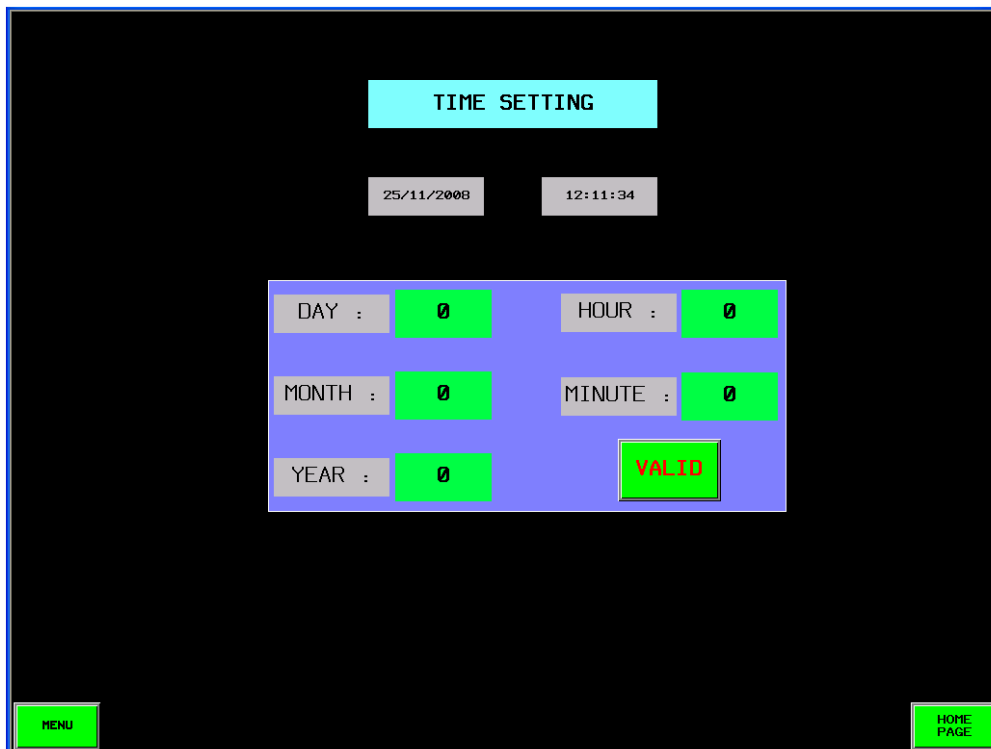
This button cancels the offset (zero adjustment) of all the sensors of one leg. **This can only be without load on any pinions of the chord.**

- «LENGTH ADJUST»

The height measurement must be accurate.

The value measured will be entering on the display, then push on “TRANSFERT NEW VALUES TO PLC” for valid.

2. Dating PLC page



Enter new values and valid them with the button “VALID”.

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➤ Inclination display

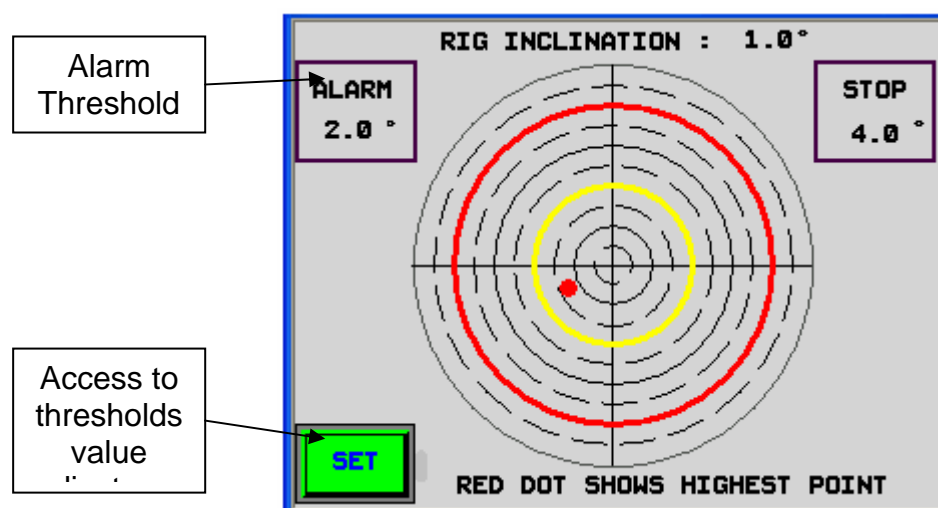
This device detects the slope of the rig according two measuring axes.

The direction and the inclination degree are permanently displayed (the red dot show the highest point).

Two alarm thresholds are adjustable. The measuring range is set between 0,1° and 5° on each axle.

Two bubble inclinometers (one with graduation from 0° to 2° and one with graduation from 0° to 5°) give the rig inclination.

a) Home page

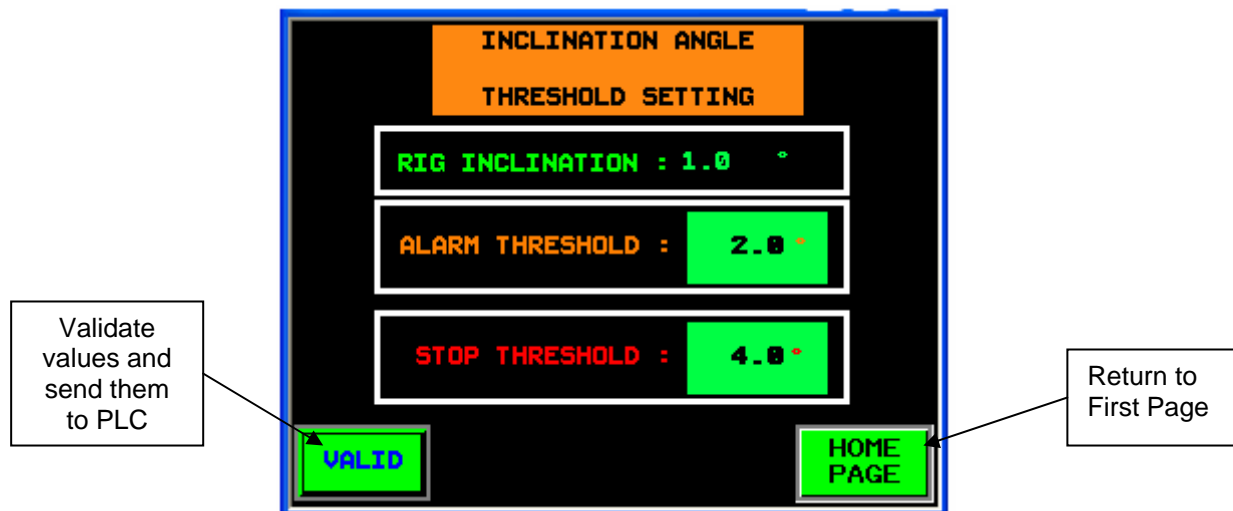


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b) Thresholds value adjustment page

This page is displaying after entering the following code: **3645**

Enter the suitable thresholds value and validate them by pushing on screen button «TRANSFER NEW VALUES TO PLC». The first threshold gives an audible alarm (buzzer) and the second one stops the jacking movement (Hull up / hull down).



«INCLINATION OVERRIDE»:

It is possible to override the second threshold by turning the key selector switch. The indication light «EXCESSIVE INCLINATION» flash and the message «WARNING INCLINATION OVERRIDE ON» appears on the display.

CAUTION

This operation mode must remain an exceptional mode. Operator takes the risk to expose the jack up to severe damages. This key selector switch requires the permanent survey of the inclination and of the visual alarms for “overloading” and “brake default”. It is operator responsibility to analyse and to take the corrective actions to put the platform in an acceptable inclination level.

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D.5 Safety notice

| Safeties | Actions | | |
|--|------------------------|--------------|---------------|
| | Emergency stop | Visual alarm | Audible alarm |
| Motor overload | Leg | X | X |
| Lack of starting current | Leg | X | X |
| Motor circuit breaker fault | Leg | X | X |
| Overheating motor (Motor thermistor) | - | X | X |
| Brake defect | Leg | X | X |
| Brake released | - | X | |
| Inclination 1 st threshold | - | X | X |
| Inclination 2 nd threshold | Rig | X | X |
| Overheating retorquing relay | - | X | X |
| End stroke limit switch (upper or lower) | Leg | X | X |
| Overheating autotransformer | Leg in RETORQUING mode | X | X |

In case of alarm and motion stop, it is necessary to understand the problem's causes and correct them before continuing jacking operations.

Especially, the defaults «Motor Overload» and «Motor Thermistor» indicate jacking operation with overload on pinions and excessive duration or excessive Start/Stop of the system.

In that situation, it is necessary to correct causes of overload and wait for the cooling down of motors before continuing jacking operations.

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D.6 «DISABLE THE SAFETIES»

- **LACK OF CURRENT**

It is possible to override the default «LACK OF CURRENT»:

- push on «ACKNOWLEDGE» button,
- Turn the key «OVERRIDE SAFETIES» and press the button «JACK UP» or «JACK DOWN» while maintaining the key turn.

Be careful, it is possible to override a maximum of two safeties per chord.

This operation mode must remain an exceptional mode and requires preliminary checking of the source of the defect that caused the jacking movement stop. During action on this switch, the safety locking devices are invalid. Very important mechanical damages may occur.

If the use of this switch is necessary, the operator shall supervise carefully the overload motor and brake visual alarm, and stops as soon as possible when a brake or overload defect appears on display.

- **BRAKE DEFAULT**

It is possible to override the default «BRAKE DEFAULT»:

DO NOT push on «ACKNOWLEDGE» button, turn the key «OVERRIDE SAFETIES» and press the button «BRAKE DEFAULT» of the motor concerned. The message «BRAKE DEFAULT» changes to «OVERRIDE». Press the button «JACK UP» or «JACK DOWN» while maintaining the key turn.

Before «BRAKE DEFAULT» override, we recommend to isolate the motor as explained in the following procedure D.7.

Be careful, it is possible to override a maximum of two safeties per chord.

This operation mode must remain an exceptional mode and requires preliminary checking of the source of the defect that caused the jacking movement stop. During action on this switch, the safety locking devices are invalid. Very important mechanical damages may occur.

If the use of this switch is necessary, the operator shall supervise carefully the overload motor and brake visual alarm, and stops as soon as possible when a brake or overload defect appears on display.

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D.7 Emergency jacking procedure

WARNING: It is not recommended to use the jacking system in case of damage of a gear unit.

This procedure is for emergency jacking only, under the responsibility of a qualified operator. HYDRALIFT – BLM will not recognise any responsibility for any damage, direct or indirect, resulting from the use of this procedure.

In all other situations, it is recommending to repair damages before jacking.

THIS PROCEDURE MUST NOT BE APPLIED IF MORE THAN ONE MOTOR IS DEFECTIVE

Refer to drawing PMOT962 for brake dismounting details

Refer to electric wiring details drawing 71069175.

- Release mechanically concerned brake:
 - Remove the two opposite screws (Rep. 1), spacers (Rep. 2) and washers (Rep. 3) from brake cover
 - Fully tight back the 2 screws only (no spacers nor washers) to free the brake disc, and consequently load on pinion
- Open concerned circuit breaker
- Bridge circuit breaker contact (71069175 folio 12)
- Inject approx. 10 mA signal into PLC input modulus (71069175 folio 24) to simulate motor current
- Operate jacking system with a particular survey to concerned motor/brake.

WARNING: The platform rise too slowly or it descends too fast in the area of leg having a defective mechanism. It is necessary to verify or correct periodically the horizontality of the platform.