

4 Operation

4.1 CONTROL CIRCUIT COMPONENTS

- 4.1.1 CONTROL BOARD:** - Situated under the canopy, the control board comprises a PCB (printed circuit board) design that incorporates all of the relays to control the machine operation. The control board is common between models with the same power source, and will contain, where appropriate, discrete fuses for the circuits concerned.
- 4.1.2 KLAXON:** - Also mounted under the canopy is a klaxon, which is interlocked into the stabiliser control circuit. It is this device that sounds continuously if a jack goes light in operation, with the booms raised, warning the operator of this condition. It will also sound if the Ground Control Key switch is turned to Platform position before the jacks are deployed.
- 4.1.3 BOOM-SWITCH (170H ONLY):** - Mounted on the side of Boom 1 near the boom rest and operated by contact with boom 3, this switch controls the changeover function between jacks and platform. The jack control function is not available unless this switch is engaged with the boom, ensuring that the machine must be stowed to operate the hydraulic jacks. It is also similarly linked into the platform control circuit, such that if the switch is not engaged with the booms, (i.e. machine is in operation) then the outrigger sensors are active and would warn the operator of an unsafe condition, should one of them lose contact with the ground. These control functions are of primary importance to safety of the machine and operator. Under no circumstances should this control function be isolated or bypassed.
- 4.1.4 BATTERY ISOLATOR:** - A grey battery isolator handle is located beneath the canopy which allows the machine control and power circuits to be isolated from the batteries themselves. Under normal operation, the machine Key switch should be used to isolate the machine with the Battery Isolator only being required to disconnect the batteries for maintenance or in the event of a short circuit. The battery charging circuit is connected directly to the battery side, so charging is unaffected by use of this switch.
- 4.1.5 POWER SOURCE SELECTION (170H ONLY):**- On multiple power option machines, the machine is fitted with an 'instinctive' circuit for power source selection. Pressing the green button will automatically select battery operation. The engine can be started using the two position START/STOP selector in the platform and the machine will 'default' to engine operation via a flow switch in the hydraulic circuit. Stopping the engine by selecting STOP on the two position selector in the platform and pressing the green button will return the machine to battery mode.
- 4.1.6 DIESEL ENGINE:** - Generally a Yanmar L40 or Kubota OC60 engine, described in the maintenance section of the Workshop Manual, driving a single bodied pump with direct mounted pump dump valve.
- 4.1.7 PETROL ENGINE:** - Generally a Honda GX 160 engine, described in the maintenance section of the Workshop Manual, driving a single body pump with direct mounted pump dump valve.

4.2 SETTING UP PROCEDURES

FAILURE TO DEPLOY THE OUTRIGGERS CORRECTLY COULD RESULT IN DEATH OR SERIOUS INJURY.



ALL MODELS

- 1) Read and fully comply with all safety precautions and operating instructions in the Operating and Safety manual and the warning decals on the machine.
- 2) Position Niftylift on firm ground, bearing in mind range of boom movement so that any overhead obstructions or possible hazards such as, but not limited to, power cables, telephone lines, drains, manhole covers, etc. can be safely avoided
- 3) **APPLY HANDBRAKE:** Chock wheels and cordon off the area using appropriate cones, barriers and flags.
- 4) Levelling the machine using the outriggers can accommodate a slope of up to 12 degrees, if necessary using suitable load bearing pads to support the downhill jacks. Do not elevate the platform unless the base can be corrected to within one degree of level.
- 5) If the load bearing capacity of the ground is in any doubt the machine must **NOT** be used.
- 6) Release boom travelling clamp.
- 7) Check all red emergency stops are not engaged (i.e. fully out).
- 8) Follow instructions below for either manual or hydraulic outrigger models

MANUAL OUTRIGGER (170M) MODELS

- 9) Leave ground control key in centre "OFF" position until jacks are deployed. Turning this key to platform position will cause the Klaxon to sound, as the outriggers will detect that the jacks are not in contact with the ground.
- 10) All four outrigger beams must be fully extended with all of the retaining pins engaged (i.e. dropped) and all jack feet screwed down hard onto a firm, surface.
- 11) Check that the base is level using the spirit level adjacent to boom clamp post.
- 12) To operate the booms from the ground turn the key switch selector at the ground control station to "Ground", (i.e. anti-clockwise). Depress and hold green power button and select appropriate control lever. Note: If no power is available check that each retaining pin has engaged and that each jack foot is in contact with the ground and taking equal weight.
- 13) To operate the booms from the platform turn the key switch selector at the ground control station to "platform" (i.e. clockwise). Note: If alarm sounds return key to centre "OFF" position and check that each retaining pin has engaged and that each jack foot is in contact with the ground and taking equal weight.

HYDRAULIC OUTRIGGERS (170H) MODELS

- 9) Ensure that the key switch at the ground control station is turned to the “ON” position (i.e. clockwise).
- 10) At the outrigger control station press down and hold the power lever on the right hand side. This activates the power and diverts hydraulic flow to the legs for setting up. Then select the appropriate control lever to begin set up. Note: No power will be available if the booms are not stowed onto the boom rest.
- 11) Using the four outrigger control levers, lower each outrigger onto a firm, surface and level the machine base ensuring each outrigger foot is taking equal weight with the wheels clear of the ground. Note: Deploy the front two outriggers first to minimise the risk of damaging the jockey wheel.
- 12) Check that the base is level using the spirit level adjacent to outrigger control station.
- 13) The booms can now be operated from the ground control station by pressing and holding the green power button. Note: If no power is available check that each outrigger is lowered and each footpad is taking equal weight.
- 14) To operate the booms from the platform, remove the key from the ground control station (turn key anti-clockwise) and put the key in the platform control station and switch to “ON” (clockwise). Note: If the klaxon alarm sounds check that each outrigger is lowered and each footpad is taking equal weight.

ALL MODELS

- 15) Always lower booms fully before adjusting, raising, retracting or moving the outriggers in any way.
- 16) Never alter, modify or block any of the safety circuits on the Niftylift.

**THIS MACHINE IS NOT ELECTRICALLY INSULATED. DO NOT WORK WITHIN
10FT (3M) OF OVERHEAD CABLES EXCEEDING 415 VOLTS**



4.3 GROUND CONTROL OPERATION

ALWAYS ALLOW THE ENGINE TO WARM UP BEFORE OPERATING.



4.3.1 GROUND CONTROL INSTRUCTIONS

ALL MODELS

- 1) Check below, above and around the platform for any obstructions or hazards before operating any function.
- 2) Ensure all red emergency stops are out.
- 3) For the **hydraulic outrigger** model (170H), turn the key switch at the ground control station to the "ON" position (i.e. clockwise). For **manual outrigger** model (170M) turn the key switch at the ground control station to "Ground" (i.e. anti-clockwise)
- 4) Battery/Electric models go to step 11).

DIESEL ENGINE OR BI-ENERGY MODELS

- 5) Turn the main engine ignition switch, located on the side of the canopy through "ON" to the "ST" (start) position and the engine will fire.
- 6) Go to step 11). Note – Unless the diesel engine is running, the 170 will automatically default to the primary power source (usually battery)

PETROL (GASOLINE) ENGINE OR PETROL (GASOLINE)/ELECTRIC MODELS

- 7) For a cold engine start go to step 8) or for a warm engine start go to step 9).
- 8) **COLD ENGINE:** - turn the engine fuel tap "ON" and engage the choke lever. Turn the main engine ignition through "ON" to "ST" (Start) and the engine will fire. Return the choke lever to its normal running position after the engine is started.
- 9) **WARM ENGINE:** - turn the engine fuel tap on and turn the main engine ignition through "ON" to "ST" (start) position and the engine will fire.
- 10) Go to step 11). Note – Unless the petrol engine is running, the 170 will automatically default to the primary power source (usually battery)

ALL MODELS

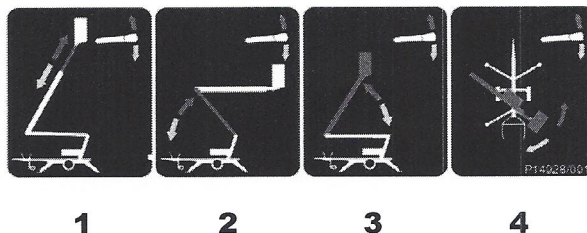
- 11) Push and hold green power button.
- 12) Select the boom function required and operate hand levers in full accordance with manufacturers Operating and Safety manual.
- 13) When not in use return machine to stowed position, fully raise and stow all outriggers, turn the key to the "OFF" position (i.e. anti-clockwise), remove key and chock wheels.

EMERGENCY PROCEDURES

- 1) Push in red emergency stop to shut down all functions.
- 2) Use emergency hand pump to provide motive power and manoeuvre the machine as normal using the hand levers (Platform or Base).

4.3.2 BOOM FUNCTIONS

- A) Push and hold green power button.



- B) Select lever 1, 2, 3 or 4 for desired boom function.

1 Operates Telescope	UP for out	DOWN for in. **
2 Operates Lower Boom	UP for up	DOWN for down
3 Operates Upper Boom	UP for up	DOWN for down
4 Operates Swing	UP for right	DOWN for left

** (If applicable, Ground control of telescoping is optional)



ALWAYS ENSURE THE AERIAL PLATFORM IS ON A FIRM SURFACE AND THE AREA IS FREE OF ANY OVERHEAD OBSTRUCTIONS.

ENGAGING THE RED EMERGENCY STOP BUTTON WILL SHUT DOWN THE ENGINE AND THE ELECTRIC CIRCUIT PREVENTING OPERATION OF ANY FUNCTION.

4.4 PLATFORM CONTROL OPERATION



NEVER START THE NIFTYLIFT IF YOU SMELL PETROL (GASOLINE), LIQUID PROPANE OR DIESEL. THESE FUELS ARE FLAMMABLE.

BEFORE OPERATING THE NIFTYLIFT ENSURE THAT EACH OPERATOR HAS READ AND FULLY UNDERSTOOD THE OPERATING MANUAL. FAILURE TO DO SO MAY RESULT IN DEATH OR SERIOUS INJURY.

*****FOR COLD START PROCEDURES SEE SECTION 4.3.1*****

ALWAYS ALLOW THE ENGINE TO WARM UP BEFORE OPERATING.

4.4.1 PLATFORM CONTROL INSTRUCTIONS

ALL MODELS

- 1) **NEVER** exceed the maximum platform capacity.
- 2) Check below, above and around the platform for any obstruction or hazards before operating any function.
- 3) Ensure all red emergency stops are out.
- 4) For **hydraulic outrigger** models (170H), remove the key from the ground control station (turn key anti-clockwise) and put the key in the platform control station and switch to "ON" (clockwise). For **manual outrigger** models (170M) turn the key switch at the ground control station to "Platform" (clockwise) then remove key and place in the platform control station and switch to "ON" (clockwise)
- 5) Battery electric models go to step 11).

DIESEL ENGINE OR BI ENERGY MODELS ONLY

- 6) Ensure that the main engine ignition switch is "ON". Turn the "Engine Start" switch on the platform control box clockwise and the engine will fire.
- 7) Go to step 11). Note – Unless the diesel engine is running, the 170 will automatically default to the primary power source (usually battery).

PETROL ENGINE OR PETROL/ELECTRIC MODELS ONLY

- 8) Ensure that the fuel tap is turned to the "ON" position and that the main engine ignition switch is "ON". Turn the "Engine Start" switch on the platform control box clockwise and the engine will fire.
- 9) Go to step 11). Note – Unless the petrol engine is running, the 170 will automatically default to the primary power source (usually battery)
- 10) If the engine is too cold to start from the platform, try starting from the ground controls as described in step 8) of the ground control operation section (4.3.1).

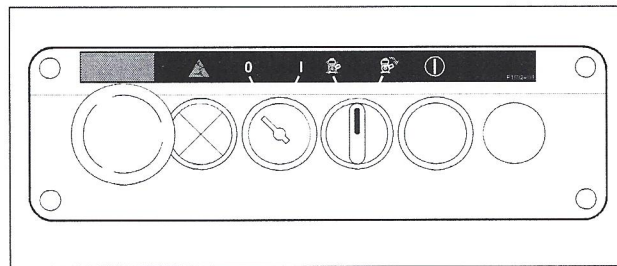
ALL MODELS

- 11) Push and hold green power button.
- 12) Select the boom function required and operate hand levers in full accordance with manufacturers Operating and Safety manual.
- 13) When not in use return machine to stowed position, fully raise and stow all outriggers, turn the key to the "OFF" position (anti-clockwise), remove key and chock wheels.

EMERGENCY PROCEDURES

- 1) Push in red emergency stop to shut down all functions.
- 2) Use emergency hand pump to provide motive power and manoeuvre the machine as normal using the hand levers (Platform or Base).

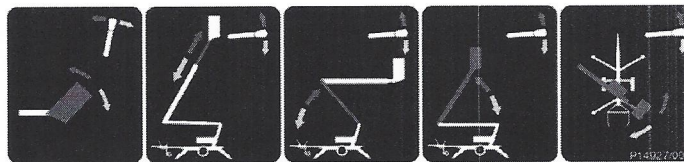
PLATFORM CONTROL STATION



(BI-ENERGY MODEL)

4.4.2 BOOM FUNCTIONS

- 1) Push and hold green "Power Control" button



1 2 3 4 5

- 2) Select lever 1, 2, 3, 4 or 5 for desired function

1 Operates Platform Lev.	FWD for forward	BACK for back
2 Operates Telescope	UP for out	DOWN for in.
3 Operates Lower Boom	UP for up	DOWN for down
4 Operates Upper Boom	UP for up	DOWN for down
5 Operates Swing	UP for right	DOWN for left