Abacus®

Leaders in Lighting

Part No: INS-HL

High Lume (HL) Masts

Applicable products:

- HL250
- HL330

Product Manual

16th June 2014

WE STRONGLY RECOMMEND THAT THESE INSTRUCTIONS ARE READ CAREFULLY BEFORE ATTEMPTING TO INSTALL, OPERATE AND MAINTAIN THIS EQUIPMENT

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1. Safety

WE STRONGLY RECOMMEND THAT THESE REQUIREMENTS ARE READ CAREFULLY BEFORE ATTEMPTING TO INSTALL, OPERATE AND MAINTAIN THIS EQUIPMENT.

i) It is essential that all operators are trained and authorised in the safe use of the counterbalance unit.

ii) It is recommended that certified operator training be carried out by Abacus personnel.

iii) The counterbalance unit must only be used for the purpose intended, as described in these operating instructions. Abacus Lighting Limited will not be held responsible for any misuse or abuse of the unit. Similarly no repair, modification or maintenance work, other than that specified in these instructions, must be carried out unless authorised by Abacus.

iv) During the lowering and raising operation the operator must ensure that all non essential personnel and members of the public are kept clear from the areas adjacent to and in front of the mast. These areas should be clearly defined and cordoned off to prevent access.

v) It is important that hands and loose items of clothing are kept away from moving parts, both on the mast and counterbalance unit.

vi) Head protection must be worn at all times when operating a counterbalance unit on a raise and lower mast.

vii) When manhandling or lifting the counterbalance the operator should ensure that they are physically capable of carrying out the task. Ensure good manual handling techniques are employed at all times and for heavy units two people should carry out the task.

viii) Refer to the appropriate performance data sheet, supplied on request, for details of maximum permitted head-load weights and wind areas.

ix) The counterbalance must be visually checked, before and after use, for signs of damage or worn parts. If repairs are necessary they must be carried out prior to using the counterbalance unit. For hydraulic units it is essential that the ram be closed after use. Failure to do so could result in damage to the piston rod and seals, which in turn could compromise the safe working of the unit.

x) It is recommended that the counterbalance unit be stored indoors when not in use.

xi) When using hydraulic counterbalance units it is essential that the operator is aware of the COSHH regulations relating to the safe handling of hydraulic oil. Reference should be made to the COSHH data sheet supplied in these instructions.

2. Installation

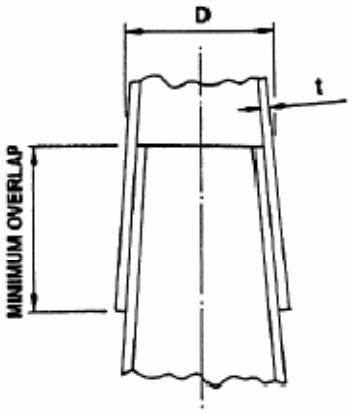
2.1.General

The masts are used for sports lighting and general floodlighting applications typically up to 20m in height. Each mast is supplied in kit form for on-site assembly. The foundation bolts should be cast in concrete 3 to 4 weeks prior to erection of the mast to allow time to cure. Foundation block sizes for a variety of ground conditions can be supplied on request.

Masts are constructed from steel to EN10025 grade S275 and S355, pressed to form a tapering octagonal shaft. The shafts are slotted together and require no on site welding or bolting. The mast and foundation bolts are finished galvanised with small fasteners being from stainless steel.

In the following instructions mention is made of the minimum permissible shaft overlap distances relating to tapered octagonal shafts. In addition, because these masts are designed for specific applications it is essential that reference is made to the engineering drawings during assembly. These will give details of the shaft design overlaps. The overlaps achieved on site will vary due to manufacturing tolerances.

For shafts of 5mm or less in thickness the **minimum permissible overlap** can be determined from Fig 1.



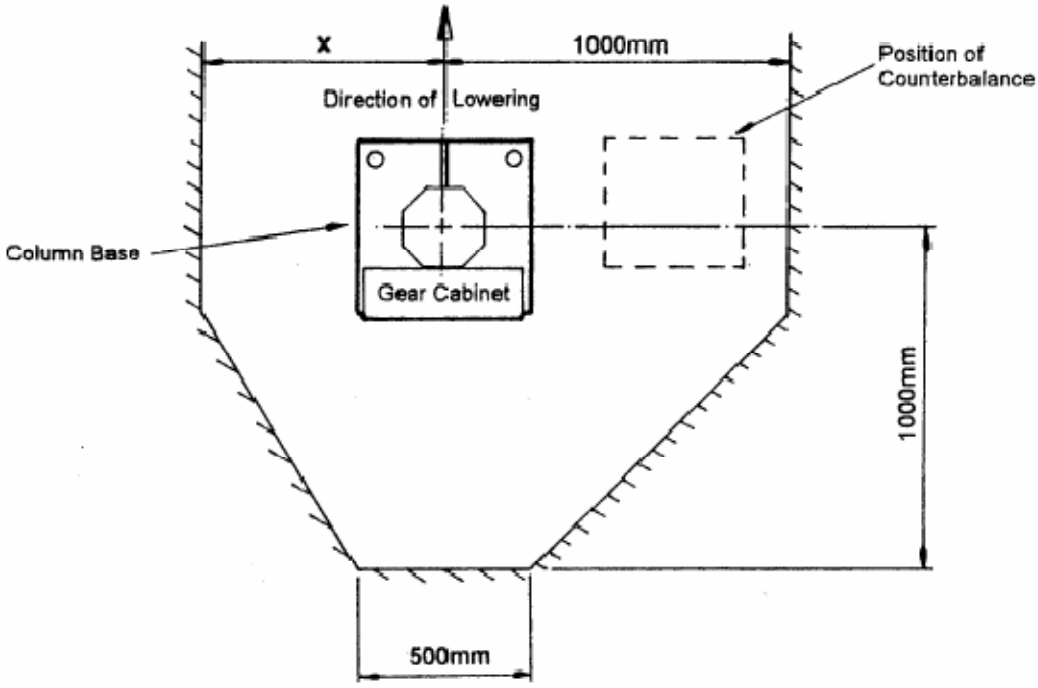
For t <= 5mm
Minimum Overlap = 1.94*D

Where D = A/F's of outer shaft at the top of the Design Overlap.

Fig. 1 Minimum Overlaps for Shafts

2.2.Mast Positioning

It is essential that the area around the base is kept clear of obstructions at all times to allow for the safe operation of mast and counterbalance. The illustration below gives details of the minimum clearance zone around the mast, assuming a gear cabinet is installed and that the counterbalance is positioned adjacent to the base.



Clearance Zone for the HL250 & HL330 columns and counterbalance units

Distance **x** dependant upon position and size of bracket relative to direction of lowering

RLH5 Counterbalance minimum width over wheels = 550mm
RLH11 Counterbalance minimum width over wheels = 760mm

2.3.Mast Assembly

Reference should be made to the illustrations which follow the text.

1. Before commencement of assembly examine the items and ensure that there are no missing or damaged parts. The following items of equipment will be required (not Abacus supply);

- Mobile crane to erect the base (typically 0.5 tonne)
- Torque multiplier and wrench
- Timber supports and packers
- Liquid soap

2. The holding down bolts are each fitted with two nuts and washers. The upper nuts and washers and template should be removed. The threads should be examined for any damage and rectified using a die nut if necessary. The nuts should be set in a level plane using a steel bar and spirit level across each opposing pair of nuts. Check, referring to the counterbalance operating instructions (see section 3.6), that the base section is fully closed and locked. Using a crane, lift

the mast base and place over the foundation bolts and on to the lower set of nuts, ensuring the direction of lowering is as required and that the mast will clear any obstructions.

3. If the mast is supplied with a gear cubicle this should now be fitted. Ensure that the box sits on the rear pair of bolts and that the cable entry gland between the box and mast is in place. Using the fixing bracket as a guide, drill and tap M8 holes in the mast, as required, and secure the box with the stainless steel screw provided. Fit the retaining washers and nuts to the 4 bolts and roughly 'plumb up' the base section. Referring to the operating instructions fit the counterbalance unit and lower the mast base to the horizontal.

4 - 5. Before assembly lay the shaft sections end to end on the ground and ensure by sighting from one end that the shafts are straight. Check the overlap area for any signs of damage, excess zinc or weld that may impede fitting of the shafts together and rectify if necessary. It may be necessary to rotate one or all of the sections to achieve the best alignment. The orientation of the shaft seam weld relative to the joining section is not important.

With the base section lowered, pick up, locate and slide home as far as possible the larger shaft section. The minimum overlap distance must be achieved. It may be necessary to tap the shaft as illustrated to achieve this. Smearing liquid soap over the end of each inner shaft before assembly may also help. Repeat this exercise until all the shaft sections are in position. Remove any surplus soap from the shaft sections.

6 - 7. Fit the floodlight mounting bracket to the top shaft section and secure with the screws provided. It should be noted that the power supply cable can be installed during assembly or, if preferred, after assembly is completed, but prior to fixing the floodlight bracket.

8 - 9. Follow the counterbalance operating instructions (see section 3.6) and raise the mast into its vertical position and close the mast. Remove and store the counterbalance unit.

After completion of assembly and with the mast raised, recheck for vertical alignment. Use the levelling nuts to accurately 'plumb up' the mast shaft. It should be noted that the shafts taper approximately 14mm per metre overall, 7mm per side.

Once satisfactory, all bolts should be tightened to a torque setting of 310Nm on the HL250 and 850Nm on the HL330.

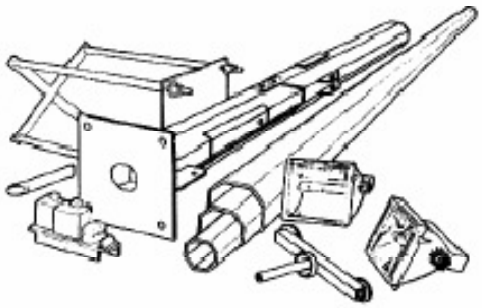
If the gap below the flange is to be grouted it is essential that adequate provision is made for ventilation and drainage of any water collecting inside the base.

The mast can then be commissioned.

'Plumbing up' in hot weather or climates. To minimise the effect of the sun on one side of the mast, which can cause considerable temporary curvature of the mast it is recommended that the 'plumbing up' be carried out very early or late in the day.

INSTALLATION INSTRUCTIONS FOR HILUME COLUMN

(COUNTERBALANCE UNIT MAY DIFFER FROM ILLUSTRATION)



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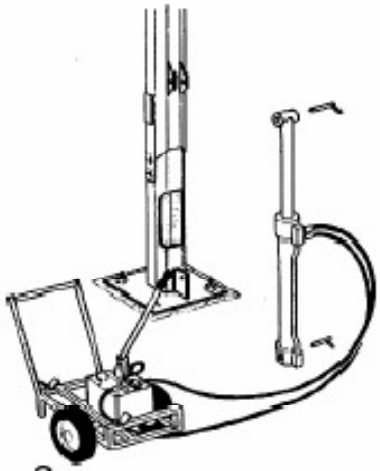

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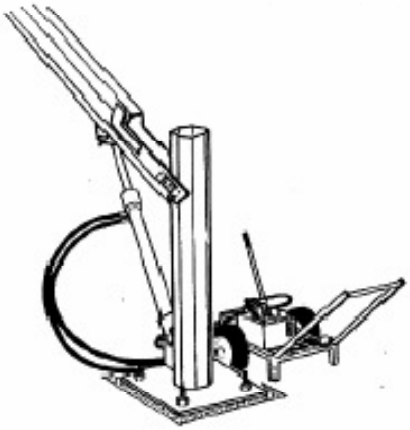

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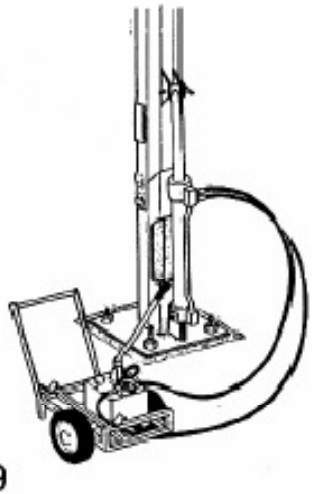

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3. Operation

3.1.General

The HL250 mast is lowered using the RLH5 counterbalance unit. The HL330 mast is lowered using the RLH11 counterbalance unit. Both counterbalance units consist of a double acting hydraulic ram mounted on a trolley, which also houses the electric motor driven pump unit.

The ram on the counterbalance is individually colour coded (see section 4.3). In the event of a hose failure a flow control valve, integral with the ram ensures that the mast lowers at a safe rate.

RLH5 counterbalance (for HL250 masts)

RLH11 counterbalance (for HL330 masts)

3.2.Moving the Counterbalance

The upper ram anchor pin is lengthened to serve as a handle. To move the unit, pull the ram backwards so that the weight bears on the axle of the chassis and, with the weight being balanced by the pump unit, wheel the unit in the normal manner. The unit must never be moved with the ram in the extended position.

3.3. Checks Before Use

1. Examine the trolley framework for damage. Check that the wheels are operating and retained in position.

2. Examine the ram in particular the area around the seals for signs of damage and leakage of oil.

3. Check the oil level is to the centre of the level gauge with the tank top horizontal and the ram closed.

4. Check the hydraulic hoses for damage and loose connections.

5. Check the electrical flex for damage or loose connections. Connect to a 240v supply and switch on.

6. Check the function of the pump and control valve by extending the ram for a short distance i.e. 100mm. Retract the ram at the same time observe the pressure gauge. During extension it should be 0 to 300psi and 1000psi minimum during retraction. As the ram reaches fully closed the reading should build up to the relief valve pressure of 2500psi.

7. Check that the upper and lower ram anchor pins are the correct diameter and colour code.

IF ANY OF THESE CHECKS ARE FAILED THE COUNTERBALANCE MUST NOT BE USED.

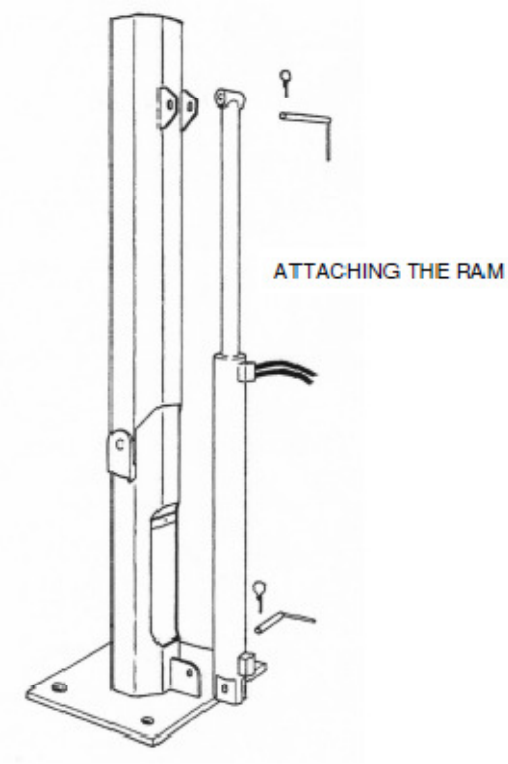
3.4. Fitting the Ram to the Mast

The ram attachment procedure differs between the HL250 and HL330 masts.

3.4.1. HL250 Mast

Wheel the unit up to the mast and park it conveniently to one side. Remove the mast door and connect the unit to a suitable power source either from within the mast base or via a portable generator, minimum 2.5Kva.. Remove the upper and lower ram anchor pins and place next to the base of the mast. Lift the ram from the trolley and place between the gussets at the base of the mast.

Fit the lower ram anchor pin through the ram and gusset and insert the retaining pin. Support the ram against the mast. Operate the control valve to extend the ram until it is possible to insert the upper end of the ram between the two gussets and secure with the upper ram anchor pin. Fit the retaining clips to the upper and lower ram anchor pins.

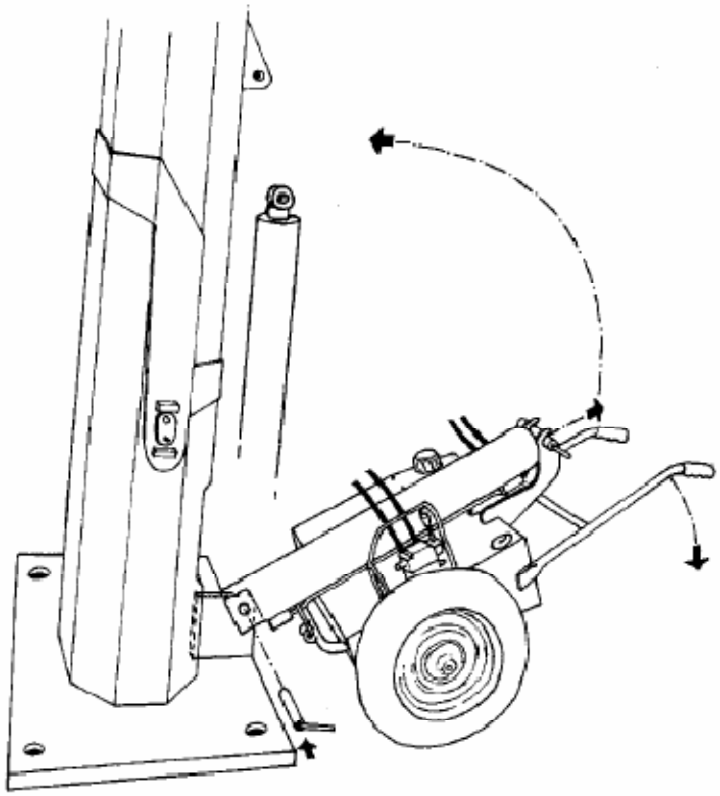


3.4.2. HL330 Mast

Connect the unit to a suitable power source either from within the column base or via a portable generator, minimum 2.5Kva. With the ram attached to the motor/pump unit as described in the previous section, switch on the power supply and remove the lower ram anchor pin. Wheel the unit up to the mast and align the ram with the ram anchor gusset on the mast. Tilt the handles upwards and offer the lower end of the ram to the anchor gusset as indicated. Align the holes and insert the lower ram anchor pin and secure with the retaining pin provided. With the pump unit still inclined, operate the control valve to extend the ram and allow the upper ram anchor pin to be released. Grasp the upper end of the ram and lift it towards the mast whilst simultaneously releasing the ram support/lifter bracket from the lower location bracket on the motor/pump body.

The ram is finely balanced at this position and must therefore be supported against the column by hand to prevent it being accidentally toppled backwards.

Extend the ram until the upper end is aligned with the upper ram anchor gusset. Insert the pin and secure with its retaining pin.



ATTACHING RAMS TO THE MAST

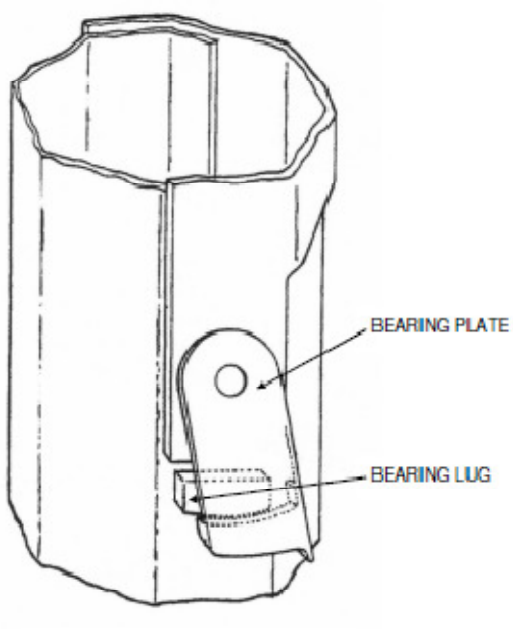
3.5.Lowering the Mast

DO NOT ATTEMPT TO LOWER THE MAST IF THE WIND SPEED IS 30KPH (18MPH) OR GREATER.

If the bearing plate has a locking screw, withdraw it using the door key sufficient distance to allow the bearing plate to rotate. Turn the bearing plate through 90° so that the projection on the inside of the bearing plate clears the fixed lug. The relative positions of the pivot bearing plates for the various stages of the lowering and raising operation are shown in the operating sequence diagrams at the end of this section and reference should be made to this throughout.

Operate the control valve to extend the hydraulic ram. As the ram extends, the hinged part of the mast will be observed lifting relative to the fixed part of the base. Continue to lift until the pivot reaches the limit of its travel. Rotate the bearing plate towards the bearing lug as far as it will go. The bearing lug and projection inside the bearing plate should touch. A gap of 10mm should be visible between the lid and base at 'X' as illustrated. Hold the bearing plate in position and retract the ram, maintaining a steady pressure on the control valve. There may be some slight vibration of the mast shaft at commencement of lowering as the various pivot and anchor pin clearances reverse, but this will cease very quickly to give a constant smooth descent.

Once a smooth descent is underway the control valve may be released to stop the mast in any desired position. When the mast reaches a horizontal position, place a suitable support below the shaft at approximately 2/3 of the mast height and at an overlap joint.



DETAIL OF THE PIVOT AREA

3.6. Raising the Mast

Operate the control valve such that the ram extends and the hinged part of the shaft is raised into a vertical position.

ENSURE AS THE RAISING PROGRESSES THAT THE FLEXIBLE CONDUITS DO NOT GET TRAPPED BETWEEN THE FIXED AND HINGED PARTS OF THE MAST.

Fully extend the ram and wait for any shaft oscillations to decay. Swing the bearing plate through 90° away from the bearing lug and reverse the control valve to retract the ram. Check during retraction that the hinged part of the shaft fully overlaps the fixed part of the base. A warning label indicates the correct amount of overlap.

When the shaft has overlapped to the correct amount the ram anchor pins will loosen. Rotate the bearing plate towards the bearing lug. The projection on the inside of the bearing plate should locate under the bearing lug. If the bearing plate has a locking screw, align it with the hole and tighten.

3.7. Removing the Ram

CHECK THAT THE MAST IS PROPERLY DOCKED AND THE BEARING PLATES ARE IN THEIR LOCKED POSITION.

The ram removal procedure differs between the HL250 and HL330 masts.

3.7.1. HL250 Mast

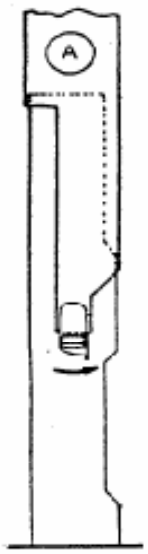
Remove the upper ram anchor pin and ease the ram out from between the gussets. Refit the anchor pin and retaining clip. Support the ram against the mast and operate the control valve

until the ram is fully closed. Remove the retaining clip and lower ram anchor pin and place conveniently near the pump unit. Remove the ram from the mast and locate it on the gusset welded to the trolley unit. Support the ram and fit the lower anchor pin through the ram and gusset. Secure with the retaining pin. Lean the ram forward into its storage position. Disconnect from the electrical supply and stow the cable. Refit the mast door.

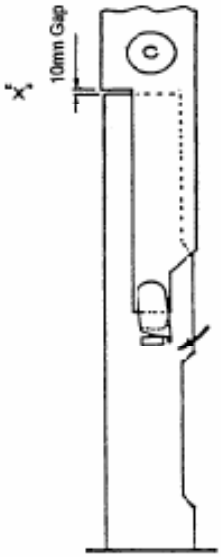
3.7.2. HL330 Mast

Pull out the retaining pin and remove the upper ram anchor pin. Pull the ram out from between the gussets and refit the anchor and retaining pin. Support the ram against the column and operate the control valve to retract the ram. Release the control valve when the ram is about 100mm short of being fully closed. Offer the lower location bracket on the counterbalance up to the ram support/lifter bracket by swinging the ram backwards and tilting the motor/pump unit handles upwards as necessary. With the weight of the ram supported on the counterbalance, release the lower ram anchor pin and pull the unit away from the mast. Refit the pin to the ram and secure with its retaining pin. Fully close the ram to engage the upper anchor pin in the location bracket on the counterbalance. The ram must be fully closed with the ram anchor pin fitted to securely fix it to the motor pump unit.

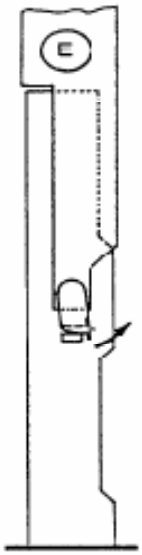
Switch off the electric motor and disconnect the power supply. Refit the door cover to the mast, and secure with the retaining screw.



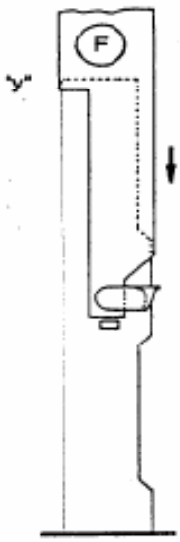
Loosen locking screw if fitted so that the bearing plate can rotate through 90° and.....



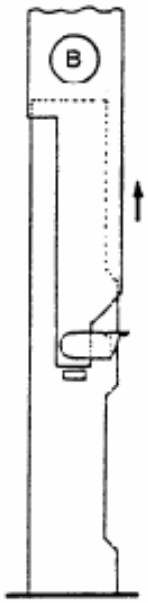
Turn the bearing plate approximately 90° and retract the ram to.....



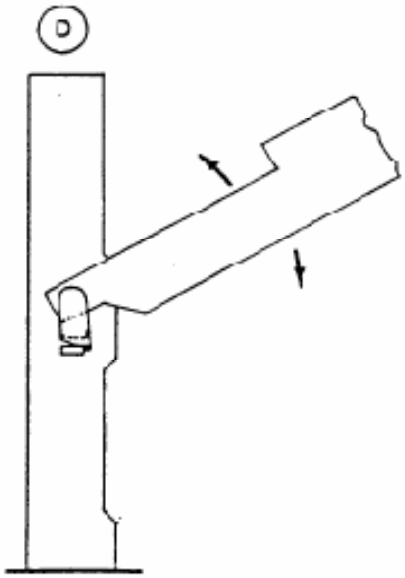
Until the column is vertical. Turn the bearing plate through 90° and.....



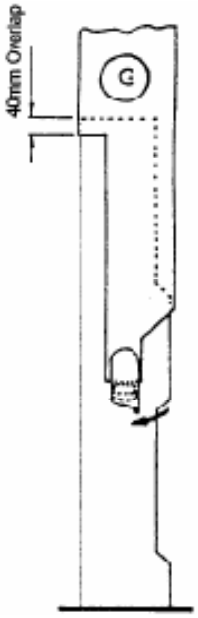
Retract the ram by 50mm approximately, checking that the shaft overlaps correctly at 'Y'.



Extend the ram by 50mm approximately.



Start the column lowering. To raise, extend the ram...

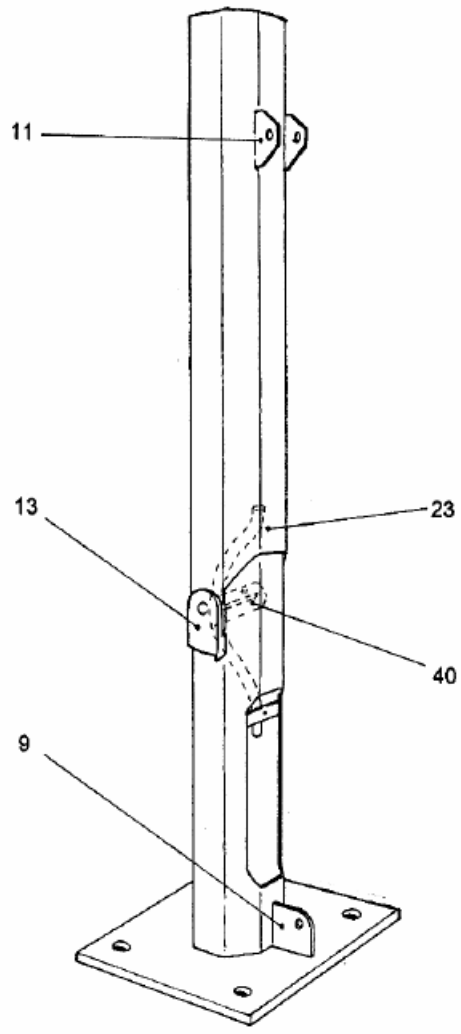


Turn the bearing plate 90° and secure with the locking screw if fitted.

4. Maintenance

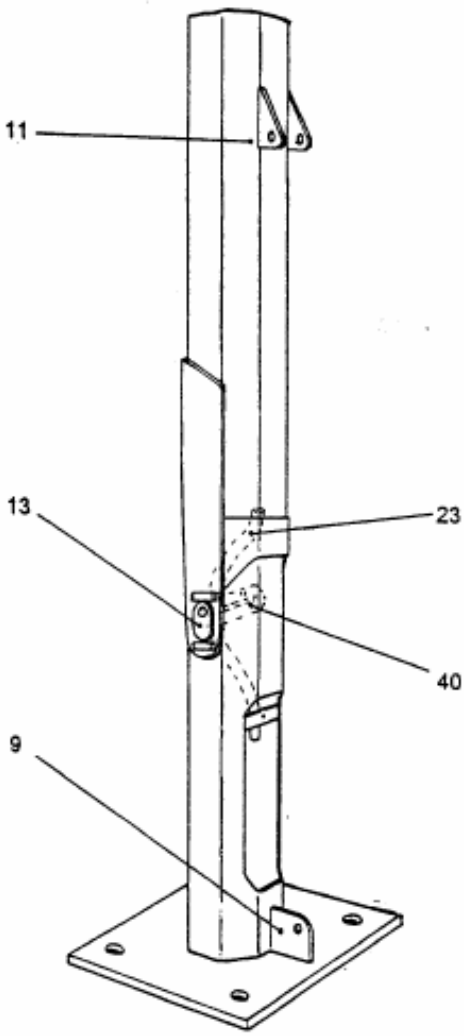
4.1.Mast Type Identification

These masts are of galvanised steel construction with tapering slip joint type octagonal shafts. They can be identified by measuring the width of the base at flange level. The width should be approximately 250mm on the HL250 and 330mm on the HL330. The illustrations below show the typical arrangement of the HL250 and HL330 mast bases.



9. Lower ram anchor gusset
11. Upper ram anchor gusset
13. Pivot bearing plate
23. Flexible conduit
40. Pivot anti float bar

HL250



9. Lower ram anchor gusset
11. Upper ram anchor gusset
13. Pivot bearing plate
23. Flexible conduit
40. Pivot anti float bar

HL330

Maintenance requirements are minimal but the following checks are recommended at the intervals stated.

4.2.Masts

4.2.1. Every Time the Mast is Lowered

1. Check that all external hinge components are present and undamaged before attempting to lower the mast.

2. Check that the flexible conduits are not damaged.

4.2.2. Every 12 Months

1. Check that all hinge components are present and undamaged.

2. Check the anti float bar is present and the screws securing it to the pivot are present and tight.

3. Check that the foundation bolts have not worked loose. The foundation bolt torque setting is 310Nm (M30, grade 4.6) on the HL250 and 850Nm (M30, grade 8.8) on the HL330.

4. Check that the upper and lower ram anchor gussets are not damaged.

5. Check warning label is attached to the base.

6. Check the door cover is secure and that the screw functions satisfactorily. Lightly grease the screw thread.

4.2.3. As Required

Paint the shafts and base. Aesthetically the galvanised finish will typically last 5 - 7 years before painting is required. In polluted or saline environments this may be shorter and in a mild climate considerably longer.

Lubrication of the hinge assembly is not recommended.

4.3.Counterbalances

Technical details are as follows;

	RLH5	RLH11
To be used with mast	HL250	HL330
Ram colour coding	Brown	Yellow
Bore	76 mm	101 mm
Ram weight	39 Kg	53 Kg
Pin diameter	25 mm	35 mm
Motor rating	0.75 KW (0.37 KW pre 2003)	0.75 KW
Supply voltage	240 V	240 V
Pressure relief setting	170 bar (120 bar pre 2003)	170 bar
Lifting capacity	46.3 KNm (33.0 KNm pre 2003)	85.3 KNm
Tank capacity	15 litre	23 litre
Hydraulic fluid (or equiv.)	Hydran 38F SAE 10 mineral oil	Hydran 38F SAE 10 mineral oil
Tyre pressure	32 psi	32 psi

The rating refers to the maximum turning moment about the hinge of the mast. For details of the full range of safe working loads refer to the manufacturer's mast data. Note that the safe working load for a counterbalance unit varies with mast height.

The unit is supplied ex works with Hydran 38F SAE 10 mineral oil (or equivalent) in the tank. For export the unit is supplied empty and the tank must be filled with oil before use. The correct oil level is 30mm below the upper face of the filler port with the tank horizontal. Note that if this level is exceeded with the ram extended, oil will be ejected during operation of the equipment. The pump incorporates a breather unit/filler port in the top of the tank and when not in use the counterbalance should be stored with the tank in an upright position to avoid leakage.

The base of the ram is fitted with a flow control valve which will allow the mast to lower at a fixed rate in the event of a major hydraulic failure such as a severed hose. The valve is of the fixed orifice type and is not adjustable.

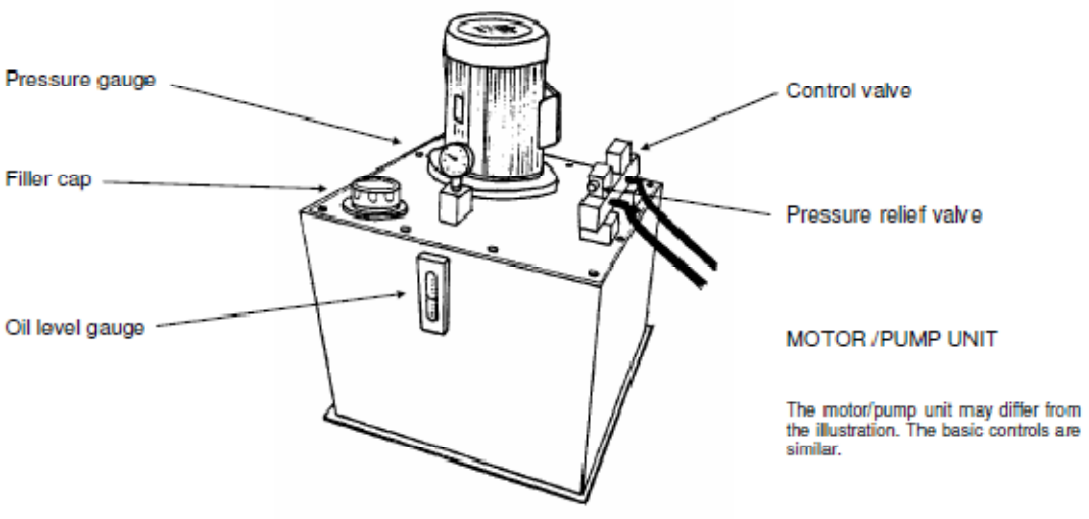
The hydraulic circuit is fitted with 3 filters. A suction strainer is fitted inside the reservoir, a return line filter is located below the tank and a micro strainer is located inside the flow control valve poppet. All filters are adequate for the life of this unit and will only need replacing if contaminated oil has been used to refill the unit.

Due to its irregular usage it is difficult to specify a periodic maintenance schedule. Storage of the counterbalance without use for long periods of time may lead to seals drying out. It is therefore recommend that the following simple checks, including extending and retracting the ram, be carried out at a minimum of 12 monthly intervals and any defective items replaced.

Check the oil level in the tank and top up if necessary. This should be carried out with the tank as near horizontal as possible and with the ram fully closed. The oil level should be to the centre of the clear indicator panel on the tank side or to the level mark if one is provided. Note that if the oil level is topped up with the ram extended, oil may be expelled from the filler cap during lowering of the mast.

Examine the hydraulic hoses that link the ram to the pump unit control block and ensure that the couplings and connections are firm, intact and free from leaks.

Check that the electrical flex and plug for damage and then connect it to the mains, ensuring the correct voltage is being used. Check that the electric motor is running by operating the control valve to extend the ram a short distance. Operate the control lever to retract the ram. Both movements up and down should be smooth and jerk free.



Before attempting any work on the flow control valve ensure the ram is fully closed and supported in the vertical position, with the flow control valve uppermost. Switch off the electric motor and operate the flow control valve back and forth several times to depressurise the hydraulic circuit. Clean the area around the large plug. Removing it will expose the spring and valve poppet. Check that the micro filter inside the valve poppet is present and remove.

Clean and dry all components and check that the orifice (0.7mm bore) is unobstructed. Check that the filter has not collapsed due to heavy contamination. Carefully reassemble the components paying particular attention to cleanliness. Replace the bonded seal and plug and tighten securely.

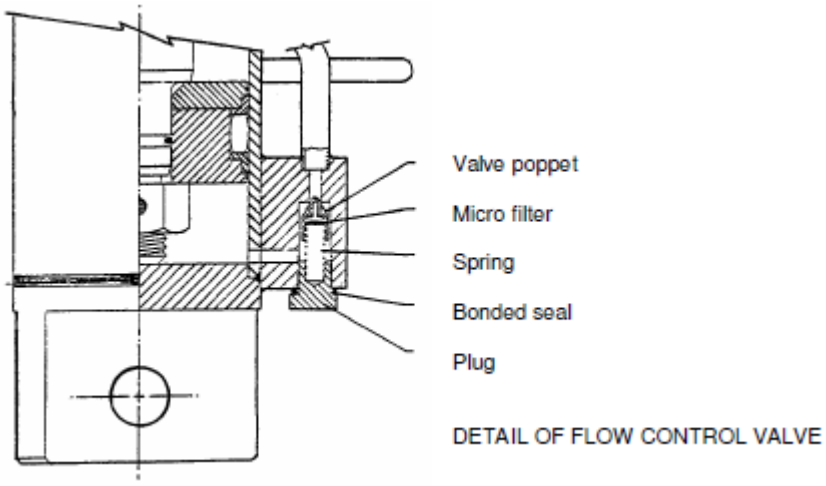
CAUTIONARY NOTE: THE RAM IS A SIGNIFICANT WEIGHT (see table above). ENSURE THE CORRECT MANUAL HANDLING TECHNIQUES ARE USED AT ALL TIMES WHEN LIFTING OR MOVING THE RAM.

The hydraulic ram can, if necessary be bled to remove any air that has entered the system. To do this requires the ram to be removed from the trolley and laid horizontally with the flow control valve blocks uppermost (see cautionary note above). The procedure is as follows;

- Slightly raise the top end of the ram and fully extend the piston.
- Slightly raise the flow control valve end of the rams and fully close.
- The ram can then be returned to the trolley.

Check that the flow control valve is functioning correctly. This is accomplished by extending the ram about 300mm then retracting it. During retraction the reading on the pressure gauge should not be less than 1000psi. The pressure will increase to the relief valve pressure of 2500psi (1750psi for pre 2003 units) as the end of the stroke is reached.

Ensure that the upper and lower ram anchor pins and are present and undamaged. The correct pins are colour coded as shown in the table above.



DETAIL OF FLOW CONTROL VALVE

Check that the relief valve pressure is correctly set at 2500 ± 100psi or for pre 2003 units 1750 ± 100psi, by operating the control valve to retract the rams when they are already fully closed. The pressure should rise quickly and stabilise at the correct value. If the reading is incorrect adjust the pressure relief valve setting as follows:-

The relief valve is located below or adjacent to the control valve. Some valves are fitted with a screwed cap which must be removed to allow the adjustment to be made. Hold the centre adjusting screw with an Allen key and slacken the locknut. With the ram fully closed, operate the control valve such that the relief valve pressure can be read on the pressure gauge. Turn the Allen key clockwise to increase the relief valve pressure and anticlockwise to decrease it. When the correct reading has been obtained, tighten the locknut and recheck the pressure setting. Refit the screwed cap if provided.

Examine the hydraulic ram, in particular the area around the seal, for any signs of damage and oil leakage. Fully extend the piston rod and check the polished surface for signs of bruising and corrosion pitting. Either will cause failure of the gland seals.

Check that the wheels on the unit are operational and retained in position. The tyres should be fully inflated to a maximum pressure of 32psi.

DO NOT USE THE UNIT UNLESS ALL THESE CHECKS ARE SATISFACTORY.

IN THE EVENT OF DAMAGE TO COMPONENTS OR FOR FURTHER ADVICE CONTACT THE ABACUS TECHNICAL DEPARTMENT AT THE ADDRESS BELOW.

5. EN 1090 Certificate of Conformity

SGS

Certificate of Conformity of the Factory Production Control

GB14/91485

In compliance with **Regulation 305/2011/EU** of the European Parliament and of the Council of 9 March 2011 (the Construction Products Regulation or CPR), this certificate applies to the construction product

Execution of steel structures and aluminium structures to Execution Class EXC2.
Responsible Welding Coordinator: Phil Kelsall to EN ISO 14731.

produced by or for

Abacus Lighting Ltd
Oddicroft Lane, Sutton in Ashfield, NG17 5FT, United Kingdom

and produced in the manufacturing plant

Abacus Lighting Ltd
Oddicroft Lane, Sutton in Ashfield, NG17 5FT, United Kingdom

This certificate attests that all provisions concerning the assessment and verification of constancy of performance described in Annex ZA of the standard(s)

EN 1090-1:2009/AC:2010

under system 2+ for the performances set out above are applied and that the factory production control fulfils all the prescribed requirements for these performances.

This certificate is valid from 06 June 2014 until 01 August 2016 and will remain valid as long as the test methods and/or factory production control requirements included in the harmonised standard, used to assess the performances of the declared essential characteristics, do not change, and the construction product and the manufacturing conditions in the plant are not modified significantly, unless suspended or withdrawn by the factory production control certification body.

Re certification audit due before 26 July 2016.
Issue 1. This certificate was first issued on 06 June 2014.

Authorised by

[redacted]

SYSTEMS & SERVICES CERTIFICATION BUSINESS MANAGER

UKAS PRODUCT CERTIFICATION
005

SGS United Kingdom Limited, Notified Body 0120
Unit 202B Worle Parkway, Weston-super-Mare, BS22 6WA, United Kingdom
t +44 (0)1934 522917 f +44 (0)1934 522137
e-mail sgsprodcert@sgs.com www.sgs.com

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6. CE Marking

CE 0120	CE 0120
Abacus Lighting, Oddicroft Lane, Sutton-in-Ashfield, Nottinghamshire, NG17 5FT, UK 14 GB14/91485	Abacus Lighting, Oddicroft Lane, Sutton-in-Ashfield, Nottinghamshire, NG17 5FT, UK 14 GB14/91485
EN 1090-1:2009+A1:2011 HL250 High-lume mast	**EN 1090-1:2009+A1:2011** HL330 High-lume mast
Tolerances: EN1090-1 Weldability: S275 & S355 Fracture toughness: 27J at 0°C Reaction to fire: Class A1 Release of cadmium: NPD Emission of radioactivity: NPD Durability: Galvanised <u>Structural characteristics:</u> Standards: ILP PLG07 Load bearing capacity: See calculations Deformation at SLS: See calculations Fatigue strength: NPD Resistance to fire: NPD Calculation reference: HL250-RANGE Manufacturing: EN1090-2: EXC2	Tolerances: EN1090-1 Weldability: S275 & S355 Fracture toughness: 27J at 0°C Reaction to fire: Class A1 Release of cadmium: NPD Emission of radioactivity: NPD Durability: Galvanised <u>Structural characteristics:</u> Standards: ILP PLG07 Load bearing capacity: See calculations Deformation at SLS: See calculations Fatigue strength: NPD Resistance to fire: NPD Calculation reference: HL330-RANGE Manufacturing: EN1090-2: EXC2

7. Environmental Advice

7.1. General

WE STRONGLY RECOMMEND THAT THIS ENVIRONMENTAL INFORMATION IS READ CAREFULLY BEFORE ATTEMPTING TO OPERATE AND STORE THIS EQUIPMENT.

Operatives should be familiar with the requirements of the following documentation-

i) Pollution Prevention and Control Regulations

ii) Control of Pollution (Oil Storage) Regulations

iii) Control of Substances Hazardous to Health Regulations

iv) Hazardous Waste Regulations

v) Environmental Protection Act

7.2. Information

Hydraulic counterbalances incorporate the use of hydraulic oil to successfully raise and lower a range of Abacus Lighting columns and masts.

Each counterbalance unit will have an oil reservoir, whether this will be separate on a trolley (usually for raising and lower bigger masts) or on the same assembly as the hydraulic ram. Each reservoir will have a 'breather cap' on top of the tank which is required for using a hydraulic system, the breather cap will leak out oil if the unit is tipped at any point therefore it must be kept upright to prevent this from happening.

Before use ensure that all the hydraulic hoses are connected properly to prevent any spillages when in use.

If you store or use oil you should be prepared for any spillages, keeping a stock of absorbent materials and ensuring the operatives are trained to deal with any spills that may occur. If there is a spill immediate action should be done to prevent the oil from entering any drains or water courses.

If absorbents are used to combat a spill, they may well be classified as hazardous waste and should be treated as such.