UTKARSH™
Life demands. We deliver.

UTKARSH INDIA LIMITED
(Formerly Utkarsh Tubes & Pipes Limited)

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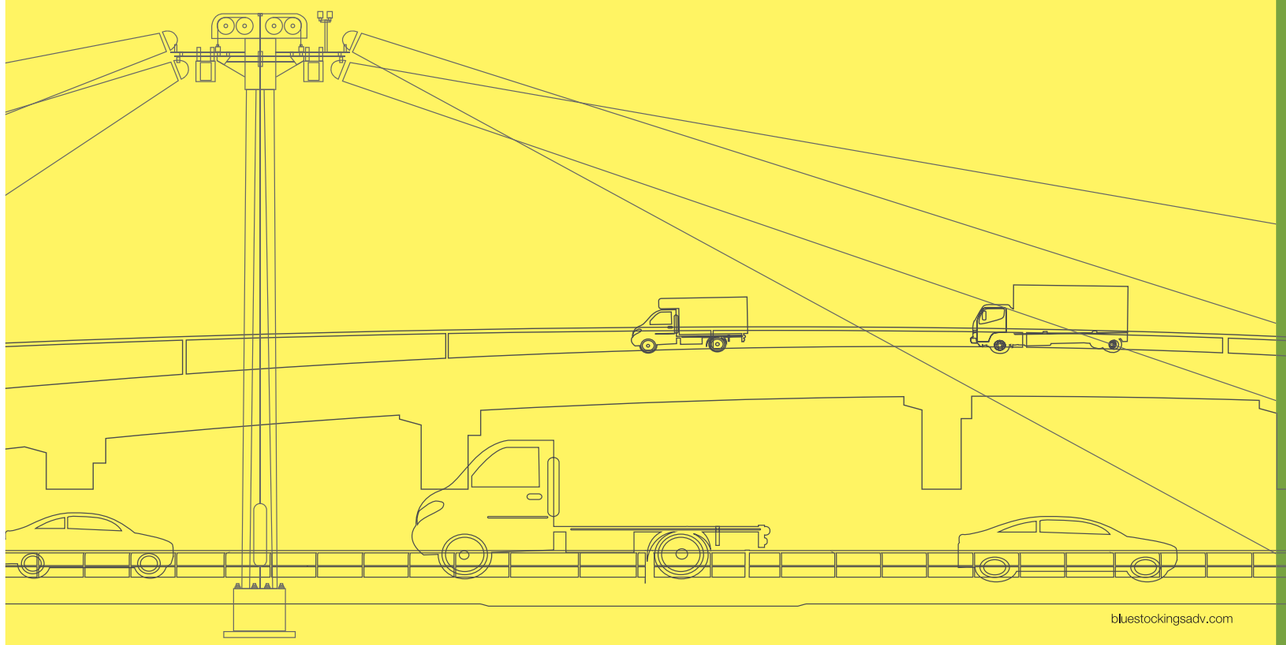
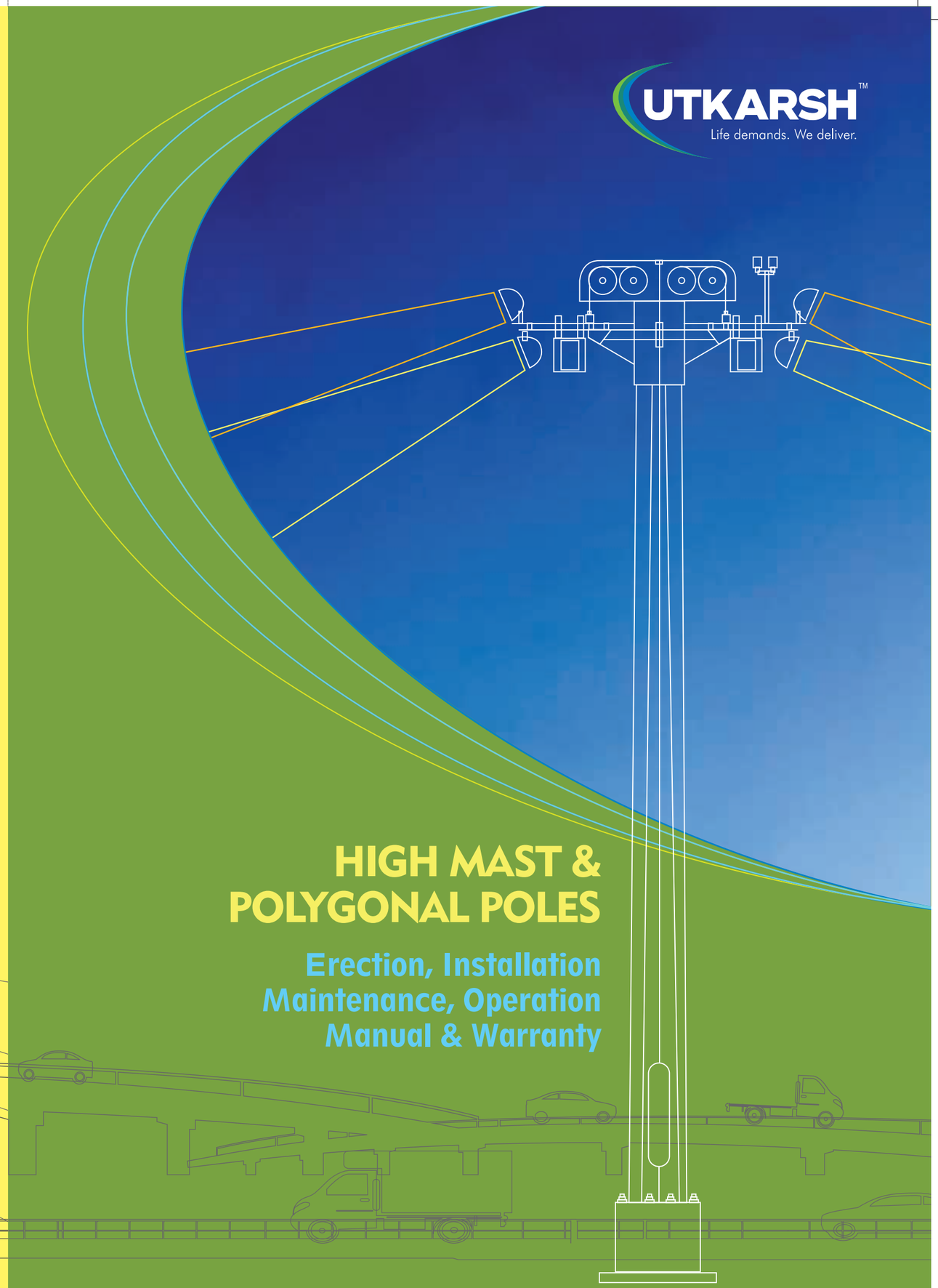
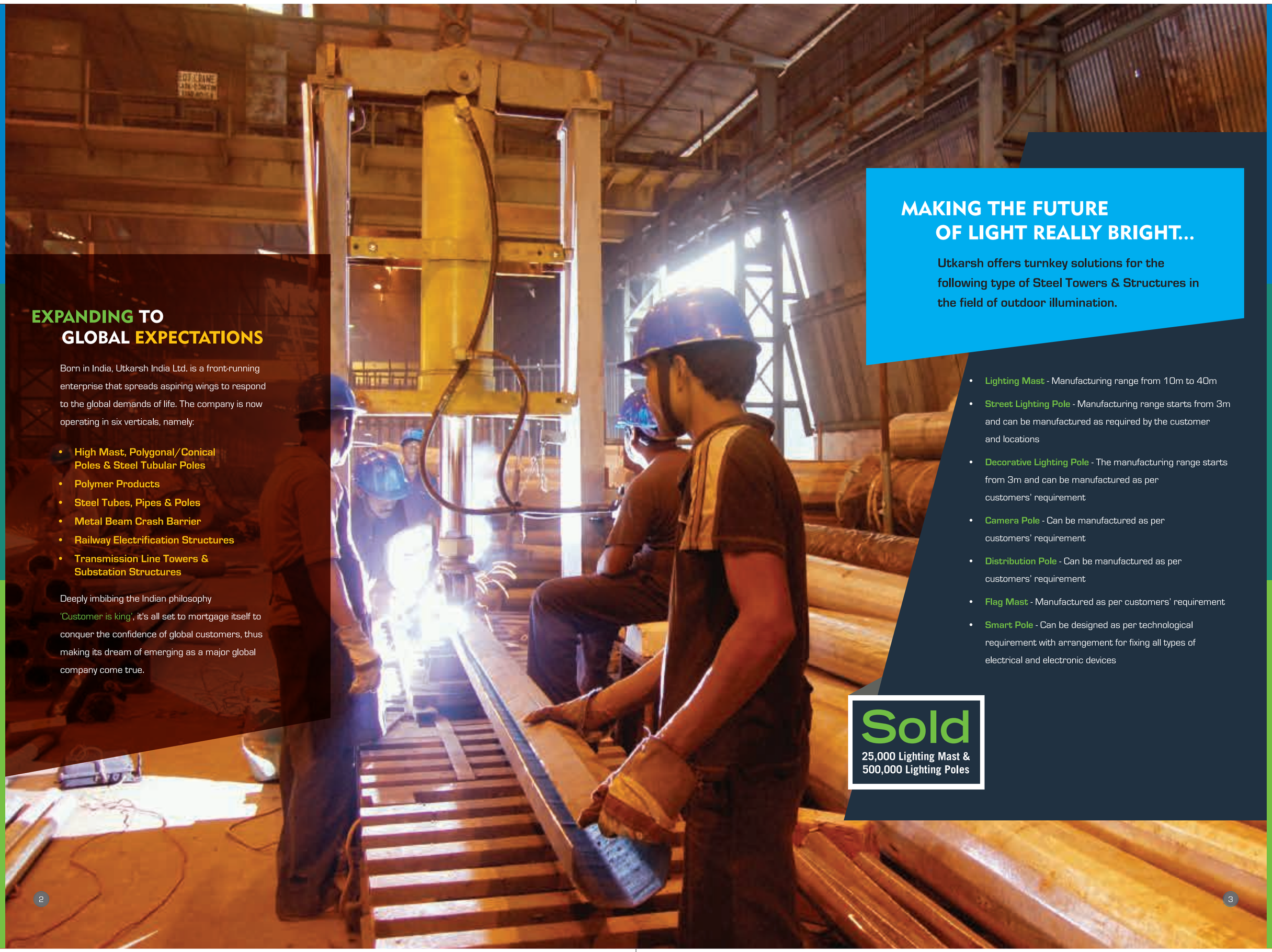




HIGH MAST & POLYGONAL POLES

Erection, Installation Maintenance, Operation Manual & Warranty

CONTENT



EXPANDING TO GLOBAL EXPECTATIONS

Born in India, Utkarsh India Ltd. is a front-running enterprise that spreads aspiring wings to respond to the global demands of life. The company is now operating in six verticals, namely:

- **High Mast, Polygonal/Conical Poles & Steel Tubular Poles**
- **Polymer Products**
- **Steel Tubes, Pipes & Poles**
- **Metal Beam Crash Barrier**
- **Railway Electrification Structures**
- **Transmission Line Towers & Substation Structures**

Deeply imbibing the Indian philosophy 'Customer is king', it's all set to mortgage itself to conquer the confidence of global customers, thus making its dream of emerging as a major global company come true.

MAKING THE FUTURE OF LIGHT REALLY BRIGHT...

Utkarsh offers turnkey solutions for the following type of Steel Towers & Structures in the field of outdoor illumination.

- **Lighting Mast** - Manufacturing range from 10m to 40m
- **Street Lighting Pole** - Manufacturing range starts from 3m and can be manufactured as required by the customer and locations
- **Decorative Lighting Pole** - The manufacturing range starts from 3m and can be manufactured as per customers' requirement
- **Camera Pole** - Can be manufactured as per customers' requirement
- **Distribution Pole** - Can be manufactured as per customers' requirement
- **Flag Mast** - Manufactured as per customers' requirement
- **Smart Pole** - Can be designed as per technological requirement with arrangement for fixing all types of electrical and electronic devices

Sold

25,000 Lighting Mast & 500,000 Lighting Poles

MISSION

To deliver world class products at competitive prices, on demand as well as provide superior service to customers by developing leading-edge solutions in technology and processes, providing opportunities for inclusive growth for our employees, by nurturing human resource, so that all our partners can share the pride of success.

VISION

To be an industry benchmark across all verticals, while becoming the supplier of choice, delivering premium products and services, creating value with our customers and demonstrating high ethical standards.

THE IDENTITY

Utkarsh, as the name suggests, is a responsive business house serving the basic demands of life and committed to making the quality of life better. The brand statement 'life demands, we deliver' confers its corporate identity an exalted image reflecting dynamism, capability, commitment, empathy, consistency and continuity. The embedded philosophy is the responsiveness to the ever-changing demands of life.
The new logo of Utkarsh, with a bold font represents strength and growth. The dynamic vision of growth with which we have been striding ahead towards the challenges of life is captured in the swoosh.
It reflects a more youthful and futuristic image of ours and our strong, sturdy and bold attitude in delivering the best. The green represents 'life and its newer demands,' while the blue reflects technology and corporate commitment. The coming together of these two elements is symbolic of the effective way in which we have been responding to the several requirements of life with an arsenal of technology and collective corporate dedication.

UTKARSH™
Life demands. We deliver.

MD SPEAKS

We have reached out with Brand Offerings to global markets, a major step in strengthening leadership status, PAN India.

Dear Friends,

"Growth is the only evidence of life"- a quote by John Henry Newman is something our ideals completely correspond with. Hence, we have transitioned into becoming Utkarsh India Limited from Utkarsh Tubes and Pipes Ltd., widening our horizons into providing infrastructural solutions. And I firmly believe that a nation grows when its infrastructures grow. Hence, it is a humble step in that direction.

We have been making our way into more lives by providing our services and products at good value. We, at Utkarsh, have branched out to different infrastructural arenas like telecom towers, transmission line towers, substation structures, poles and masts for lighting and distribution, road crash barriers, railway electrification structures and polymer products. Empowered with this diversification, Utkarsh India Limited has taken a step further and gone global, aiding in infrastructural development across several countries. This is a distinctly proud step for us as our expertise is helping not only add pace to the infrastructural enhancement of the country, but also contributing to the growth of foreign nations.

In the 40 years of our presence, Utkarsh has been scaling the mountains of success which could not have been achieved without a team of the excellent trekkers, who are our employees. This group of innovative, talented and passionate young people has brought a modern vision into the organization. A strong, experienced management ensures a smooth flow of the inner-workings quite like our pipes do for our customers. This perfect balance between management and co-workers is what gives Utkarsh its efficiency.

Sticking to our corporate ethos- 'Life demands, We deliver;' we bring the strong promise of consistency and reliability ensuring optimum consumer satisfaction. 'Consumer first' is the motto that drives us to bring you quality.

We could have never reached out to the world with our products without the worthy associations of our suppliers, distributors and dealers and I extend my gratitude to all of them. I firmly believe that Utkarsh, along with all its associates will emerge as the finest infrastructural brand in the recent future.

Regards,

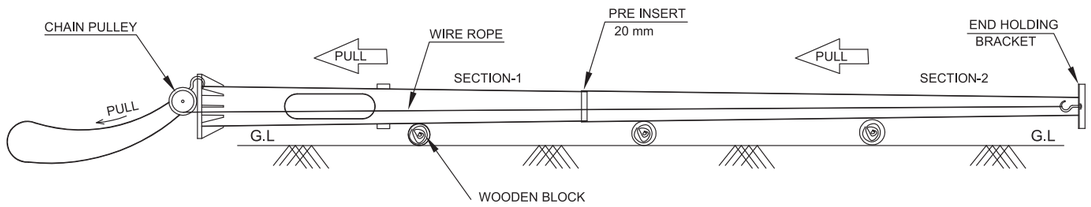
Sunil Bansal
CMD

1. ERECTION AND INSTALLATION PROCEDURE

1.1 Collect all the accessories (e.g., head frame, lantern ring, etc.) of high mast at erection site.

1.2 Check PCD and diameter of foundation bolts on the foundation. Then check PCD and hole diameter of base plate in the bottom section.

1.3 **Section Assembly**



Pic - 1

1.3.1 Bottom section and middle section are placed horizontally on round wooden block. Insert the middle section approx. 20mm into the bottom section.

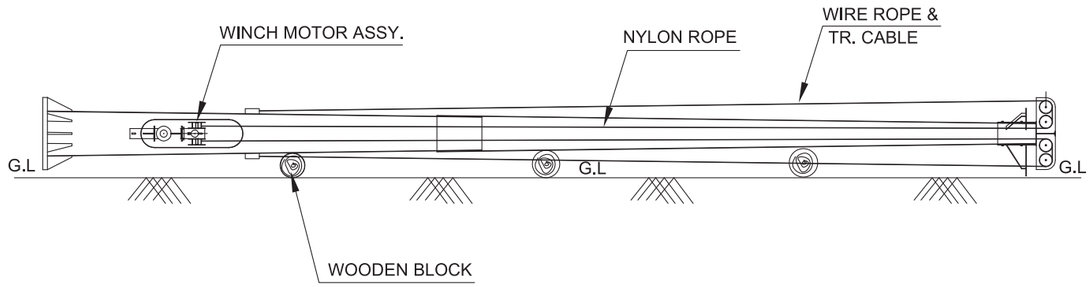
1.3.2 A chain pulley block approx 5 M/T is placed behind the base plate of the mast. The end of the chain pulley is fixed with the flange of the mast and the chain hook is fixed to the top end of the inserted section.

1.3.3 Then the sections are pulled by the chain block.

1.3.4 Care is to be taken to align the section properly to achieve correct insertion. Welding joint of each section to be aligned with each other.

After proper sleeve joint assembly of bottom and middle section, the same procedure is continued to join the top section.

1.4 HEAD FRAME ASSEMBLY



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1.4.1 The head frame of the mast is fitted on the top section.

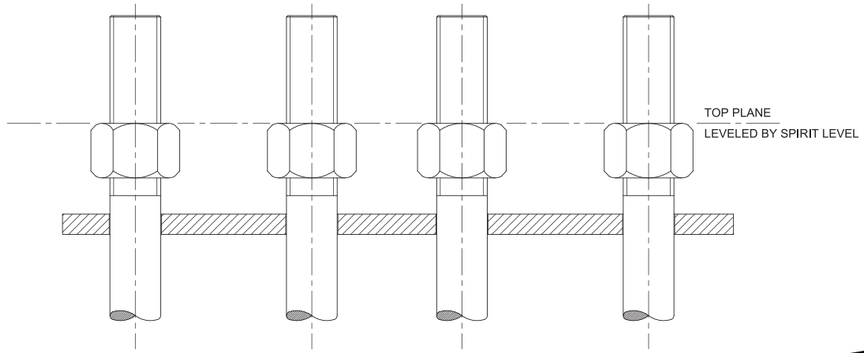
1.4.2 The wire ropes and cables are inserted inside the mast with the help of a nylon rope which was initially inserted during assembly of sections.

1.4.3 The compensating disc, power tools and winch assembly are fixed inside the mast.

1.4.4 The wire rope and the cables are passed on the pulleys of the head frame and attached to the stopper clamp welded on the mast's base section.

1.5. FOUNDATION BOLT ARRANGEMENTS

Ensure the bolt threads are cleaned and greased and have one nut on each bolt within 15mm bottom clearance from base. Using a spirit level ensure that all the nuts are in one plane.



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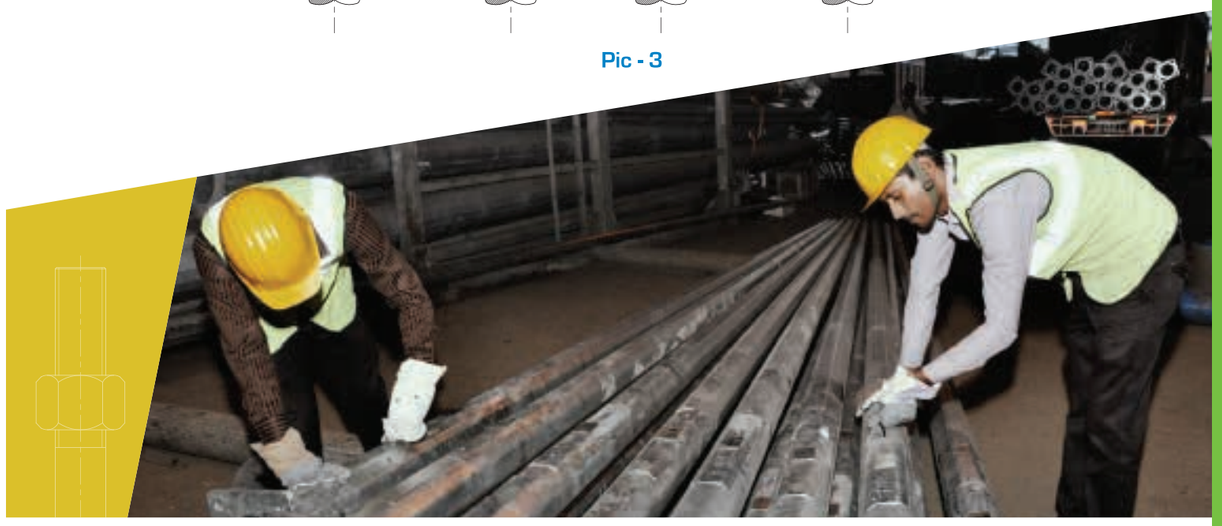
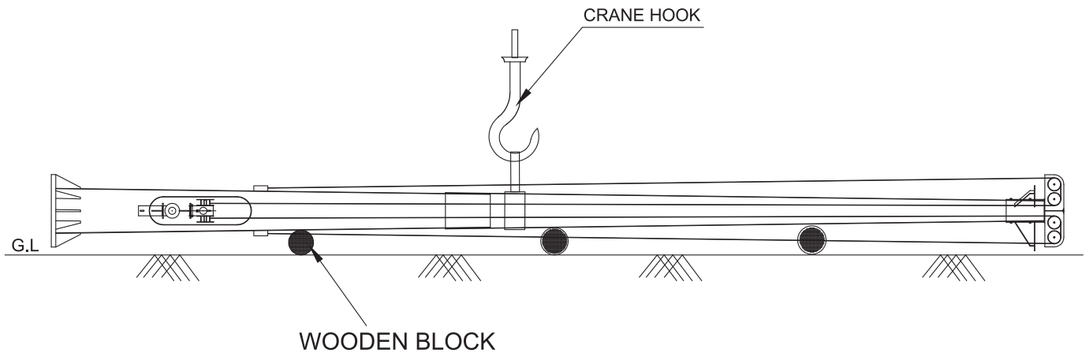


1.6. ELEVATION OF ASSEMBLED HIGH MAST

The center of gravity of the mast should be determined and the sling placed in position just above the point. A straining wire rope with shackles is secured to the sling and the fixed hole provided in the gussets (stiffners). One further rope should be attached to the sling for assisting the removal of sling, when the mast is firmly secured to the foundation bolt.



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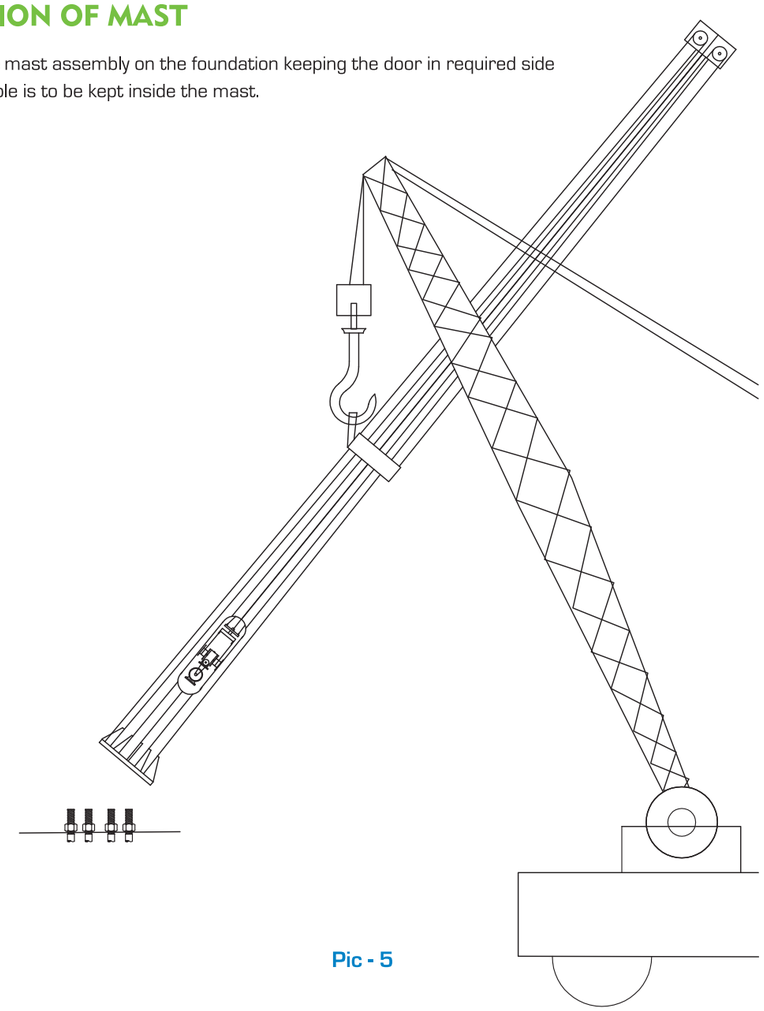
1.7. ERECTION OF MAST

The crane lifts the mast assembly on the foundation keeping the door in required side and the supply cable is to be kept inside the mast.



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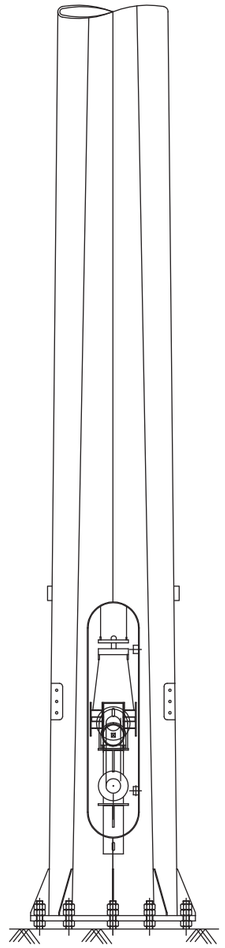
1.8. TIGHTENING OF FOUNDATION BOLT

Nuts should be tightened properly. Ensure that two nuts in each foundation bolt have been placed on the base plate (LOCK NUT).



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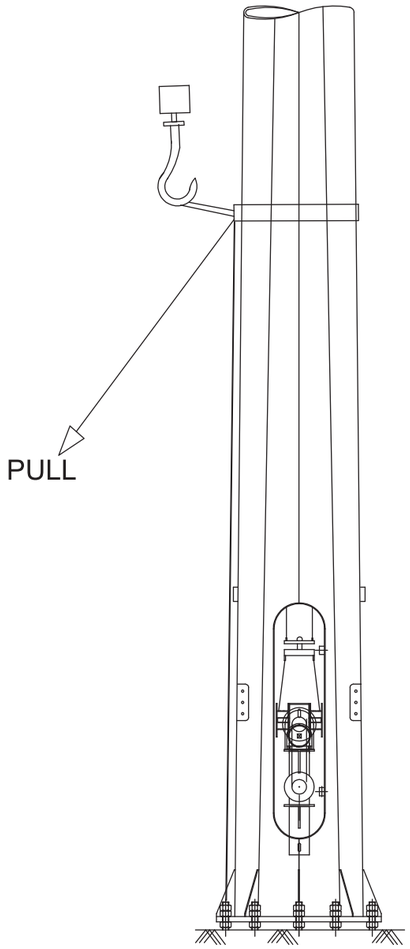
1.9. SLING PULLING

The straining wire can be removed from the gusset (stiffener). Then the sling is to be removed by pulling down the rope attached and straining wire.



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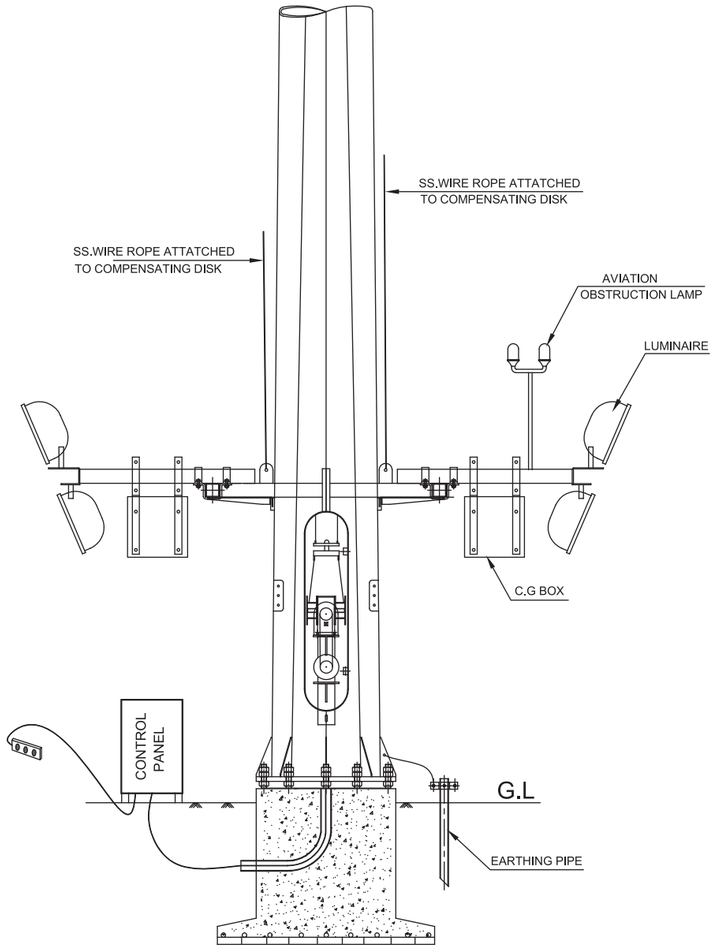
1.10. LANTERN RING ARRANGEMENT AND WIRING

The two halves of the lantern carriage are fitted with luminaires, CG box, junction box and wiring is completed.



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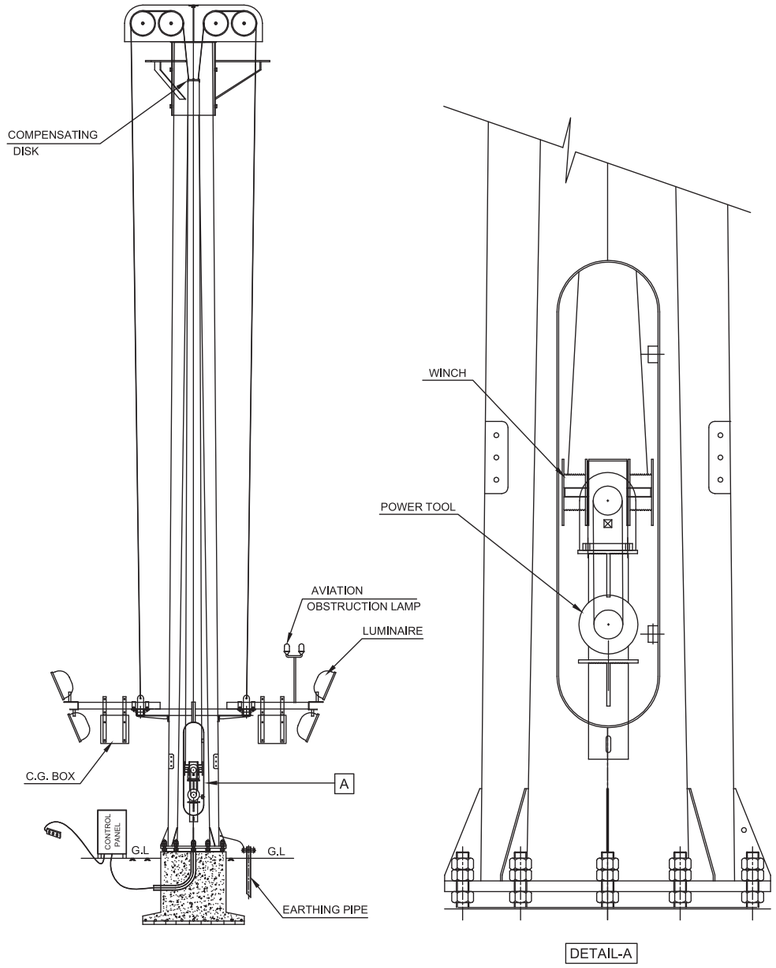
1.11. RISING OF LANTERN RING

Operate the pendant switch to lift the lantern carriage.



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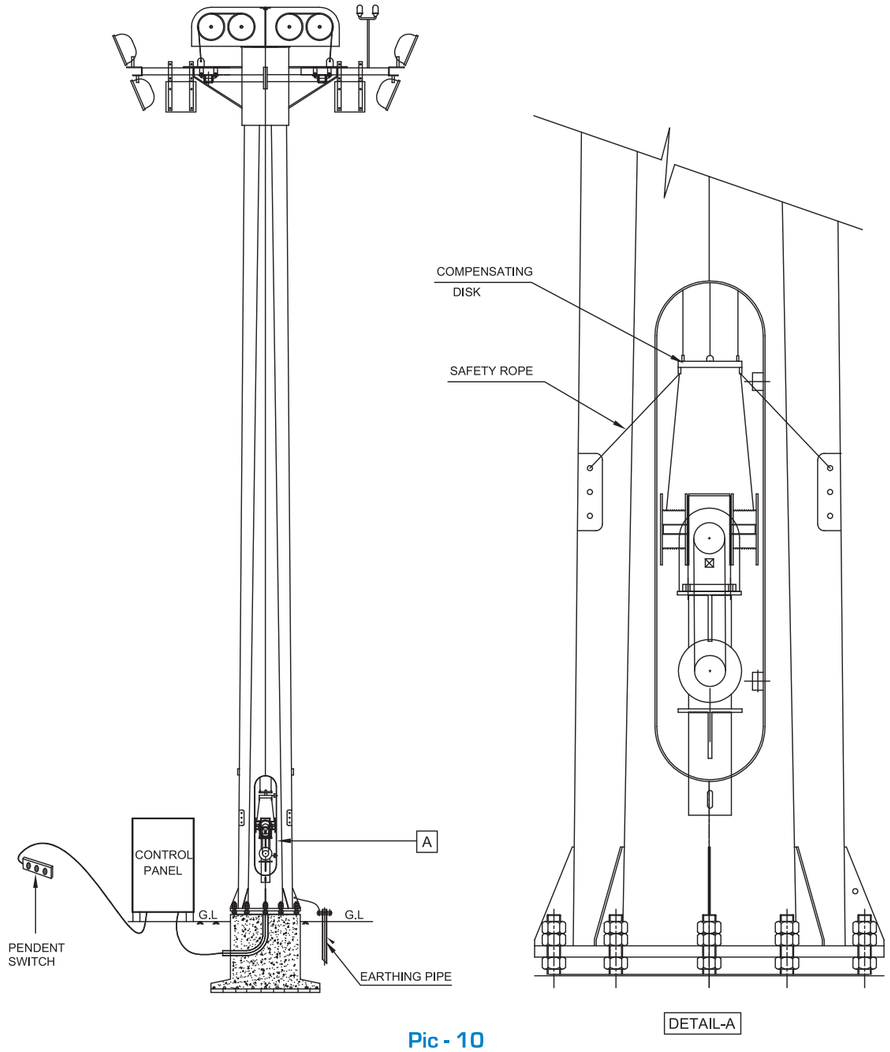
1.12. FITTING THE SAFETY POLE



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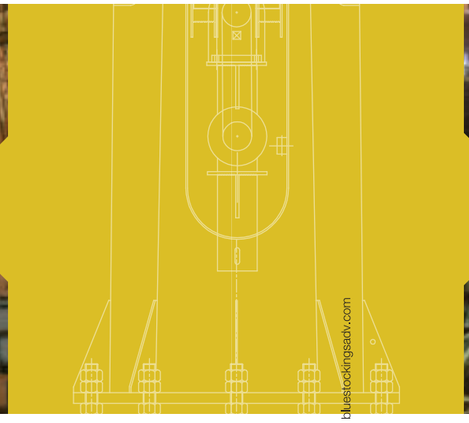

2. GENERAL MAINTENANCE OF HIGH MAST

A periodic maintenance is very much required for Utkarsh High Mast, as this system is erected to provide a vital utility item like light.

To ensure the proper working of the High Mast certain precautions are to be taken periodically.

Every 6 months or whenever the system requires a light change

1. Feeder Pillar Box to be checked for any heated parts, loose connection and flash marks.
2. High Mast door to be opened & cleaned, electrical connection checked for loose & heated (flash marks on plugs, sockets contactors) parts, etc.
3. If flash mark is found then light load (Amp) and loose connection to be checked.
4. Gear Box oil to be checked (Oil Capacity Max 200ml). To be replaced with new oil every year.
5. Checking of Backlash. Gear Backlash is checked by gently rotating the input shaft in either direction to feel the looseness. The permissible limit is 0.4 to 0.7mm on the Input Shaft. Run the Gear System/Motor and confirm smooth operation.
6. Motor Chain & Sprockets to be checked, it should be neither too loose nor too tight.
7. All screws & nuts to be checked and tightened.
8. Cleaning of lights to be carried out.
9. Check if water has entered the Luminaires/Ballasts/Junction Box. If yes, provide suitable & adequate protection (IP protection is needed).
10. Junction, Control Gear & Luminaires Box terminals to be tightened adequately.
11. General cleaning of the area around the Mast to be carried out regularly.
12. Precaution against (Rats, Reptiles, even Ants & Termites etc) to be taken as they sometimes cause massive Short circuit resulting into loss of vital components.

3. OPERATION OF HIGH MAST

1. Be sure that the earthing is properly done and then disconnect the Power Supply from the Feeder Pillar Box.
2. Open the door cover and see that the Trailing Cable is clamped properly with S.S wire rope.
3. Disconnect the plug of the Trailing Cable and also the safety rope.
4. Put the L-Stopper in stopper clamps.
5. Hold the pendant switch off power tool and keep yourself away at least 3mtr from the mast shaft.
6. Select the reverse mode of the pendant switch and start operation initially by inching and observe the Lantern ring coming down. Then start the operation and observe the continuous motion of Lantern ring. If some difficulty is experienced during the operation, slightly lift the Lantern ring in forward direction and continue the reverse operation.
7. When the Lantern ring comes down near the L-Stopper, start inching operation and stop it when it is properly docked.
8. Then the luminaires and other maintenance can be done safely.
9. Test the whole circuit by giving temporary supply to the Junction box.
10. Hold the pendant switch of the power tool and select the forward mode initially by inching and observe the Lantern ring going up.
11. When the Lantern ring reaches near the L-Stopper, then start inching the operation and stop it when it is properly docked.

UNLOADING AND HANDLING INSTRUCTION

Material Handling (at the site)

1. Ensure that proper arrangement (Like wooden plank for stacking, hydra/mobile crane for unloading, PVC/nylon ceiling for lifting the segments & the components) have been made to keep the material on the site. Unload maximum 2 segments for High Mast and maximum 10 for polygonal poles at a time.
2. Unload the wooden box by the crane or hydra and keep it in the safe custody to avoid any losses of the materials.
3. First unload the foundation bolts, head frame and lantern ring one by one and keep these separately, to avoid the damage of the components.
4. Unload the segments one by one and keep it on the wooden block, on the ground by the hydra/crane.
5. Keep it away from dump or other metal to avoid WHITE RUST.
6. If in case no crane/hydra is available for unloading then use the wooden plank along with the tyres, to avoid any damage to the segments.

INSTRUCTION FOR INSTALLATION

1. Insert the segments up to the marking by using 12mm (minimum) DIA rope and chain pulley. Do not use L-ring lifting rope for installation purpose.
2. Before placing on foundation bolts, please check the segments alignment.
3. Keep one nut in each foundation bolt over the base plate.
4. Tighten the bolts of head frame properly.
5. Trailing cable to be passed through the centre hole of compensating disc to avoid cable damage.
6. Aluminium cable clamp and cable and wire clamp to be tightened properly to avoid slippage of cable.
7. Tighten the 4 nuts of each SS DOC clamp of wire rope and use at least 2 DOC clamp to each end of rope to avoid accident. Use aluminium ferrule to avoid unwinds of rope.
8. Before operation check the oil of winch and file SAE 90 grade oil into it to avoid winch failure.
9. Set overload relay of the motor in required position (approx. 2.2A) to avoid motor burn.
10. Before raising and lowering, check the buffer of L-ring to avoid scratching on mast surface during operation. Before operation, check the balancing of lantern ring.
11. After installation, use safety rope to release the load from winch. Winch to keep load free after installation to enhance the life of winch and to avoid accident.

5. DOs & DON'Ts

DOs	DON'Ts
1. Count the number of items as per the packing list. 2. Always use PVC ceiling to handle the segments by the crane. 3. If you are using forklift, then always wrap the jute bag or thick paper on to the fork to avoid any metal contact – black & GI. 4. The concerned person at the site at the time of unloading should ensure that the site has got the wooden logs & planks. Each layer of poles should be separated by wooden planks TO AVOID WHITE RUST. 5. If the site is remote – no crane/forklift/other lifting device is available, then for polygonal poles use manpower to unload and stack. Suppose there is no manpower, then wooden planks can be placed at larger angle and dropped one by one to hit a rubber tyre at the end of planks and stacked properly. Always ensure that before unloading the next segment, previous one must be removed from that tyre.	1. Never keep the segments on the ground directly. 2. Never unload it by pulling directly from the truck. 3. Avoid the use of wire ceiling to handle the segments. 4. Never keep the segments on the metallic sheet, sand, in and near wet areas and water. 5. Never tilt the wooden box. 6. Never throw any items directly to the ground. 7. Do not use L-Ring rope for installation purpose.