Preventative Maintenance and Safety Checks
for
Crane Electronic Components

1. Periodic Maintenance

- Tighten hydraulic connection (fittings) for hydraulic lines to pressure transducers.
- Replace seals for hydraulic connections to pressure transducer if oil leakage is present.
- Tighten strain relief nuts for cable entering into junction boxes and connectors.
- Replace saturated moisture protection packets inside electronic compartments, junction boxes, and length angle cable reels.
- Carefully remove dust and foreign objects (sand, insects, spiders, etc.) out of electronic compartments, junction boxes, consoles and non sealed sensors.
- Wipe off dirt, excessive grease, and oil on gear assemblies in cable reel and length sensor.
- Clean the o-ring clutch assembly that drives the length potentiometer shaft. Remove oil and grease to prevent future slipping.
- Replace angle sensor if oil leakage (dampening oil for pendulum) around the angle sensor enclosure is detected.
- Replace A2B chain and shackle if damaged or deformed.
- Ensure free rotation and grease all moving parts on lineriders to avoid future friction resulting in signal failure.
- Lubricate all pins and rotating parts on load cells and load pins.
- Replace safety clips for pins if they are missing, worn out or damaged.
- Grease boom pivot pin cylinder pins as per crane manufacturers recommendation to avoid friction and failure of pressure sensing in the pressure transducers.
- Grease and lubricate boom sections as recommended by crane manufacturer's specification to avoid jerky telescope section movements that could result in breakage of the length cable.
- Lubricate hoist rope as per crane manufacturer's recommendation to avoid friction and tightness when running through a linerider.
- Wipe off dirt and built up grease on length cables to ensure smooth spooling on the cable reel drum.
- Lubricate cover mounting screws of junction boxes and cable reels to prevent the screw from seizing in the thread and breaking.

2. Preventative & Safety Checks

- Inspect cables and wiring harnesses for damage and/or brittle insulation.
- Check wiring on terminals and their connectors for tight connection.
- Check tightness of screw terminals. Re-tighten screws.
- Inspect wire connection for short circuits. Remake connection if wire end is spliced.
- Check crimp connections for tight wire connection. Use *new* crimp connector to remake connection.
- Ensure sufficient insulation and proper storage of non used wires and wire ends to avoid contact with other wires or electronic components.

- Secure loose cables, wires, and wiring harnesses with cable ties. Replace broken cable ties.
- Check electronic compartments, junction boxes and cable reels for moisture built up by condensation or water ingress. Carefully dry out moisture. Replace seals and desiccant bags.
- Inspect strain relief plastic or rubber inserts for cracks or damage. Replace if needed.
- Check sensor connector shells for moisture ingress and dry out if needed.
- Check connector pins for corrosion causing insufficient contact.
- Ensure tight hydraulic connection on fittings, hydraulic hoses and hydraulic lines to the pressure transducers. Check for hydraulic oil leakage on all pressure transducers when booming up and booming down.
- Inspect the length cable roller guides on the boom for free rotation. Remove paint or corrosion to avoid friction between the length cable and a sticking roller guide. Friction causes damage to the length cable, bad spooling on the drum, and cuts into the roller material.
- Check for smooth spooling of the length cable onto the drum. Avoid built up of length cable on one side to prevent that length cable from jumping over the drum sidewall and becoming cut or damaged.
- Compare actual boom angle with indicated boom angle. Use a digital level on an even surface of the boom. Angle difference should not exceed the system manufacturer's specification and tolerance. Indication shall meet the local standards.
- Check fully retracted and fully extended boom length indication and compare with actual value published in the load chart. Length indication difference should not exceed the system manufacturer's specification and tolerance. Indication shall meet the local standards.
- Conduct a few radius checks. Use crane load chart to determine safe working areas and compare actual with indicated radius at different boom length and boom angles. Radius difference should not exceed the system manufacturer's specification and tolerance. Indication shall meet the local standards.
- Conduct load checks. Use crane load chart to determine safe working areas. Lift a certified test load and compare actual with indicated load. Load indication difference should not exceed the system manufacturer's specification and tolerance. Indication shall meet the local standards
- Inspect the A2B switch on the boom nose, jib nose, etc. for corrosion damage or defective wiring.
- Conduct A2B switch function test by pulling and releasing the chain for the A2B switch weight. Alarm should sound.
- Inspect the A2B switch weight and chain. Check for damaged or missing parts. Replace damaged and missing safety clips and pins.
- Inspect load cells and pins for mechanical damage. Replace damaged or missing safety clips for the pins.
- Where applicable, test the motion cut off system. For example, simulate a two blocking condition and check if the applicable crane controls have cut off.
- Check system for any tamper or misuse. For example check that crane motion cut off is not by-passed or spring-loaded by-pass key switch is not in by-pass position permanently by use of a paper clip or other item.