BISOMAC210-3P800
European Version 3-phase
Electric Traction Hoist
Operator’s Manual

NIHON BISOH CO., LTD.
WARNING

- All operators must read and understand this manual before operating this Hoist.

- All operators must be fully trained in the use of the equipment including its safety features and must be qualified.

- Only authorized and physically fit operators shall operate the equipment.

- Each day before the equipment is used, the operator must carry out the Daily Tests and Inspections described in Section 7 of this manual to confirm that equipment is in a normal and safe operating condition.

- Any operation in violation of these instructions is at the operator’s own risk and may result in serious injuries.

- Keep this manual with the hoist at all times.

- Only use spare parts and steel wire rope provided and/or specified by NIHON BISOH CO., LTD.

- Use only machinery or incorporated component, which has been declared to be in conformity with BS EN 1808 and national implementing. Do not operate this machine until safety is declared.

MANUFACTURER: NIHON BISOH CO., LTD.
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Attachment:
1. 3P-800 Hoist Wiring Drawing
0. READ BEFORE USING BISOMAC210 TRACTION HOIST

This Operator’s Manual had been prepared for the safe and proper operation of the BISOMAC210 Electric Traction Hoist (referred to as “BISOMAC210”). To understand the usage of the BISOMAC210, please refer to the following explanation and system compositions. It is operator’s responsibility to be sure that this hoist is used safely and properly.

TSP = Temporary Suspended Platform
TSPs are Suspended access equipment which are temporary installed on a building or structure for specific tasks. TSPs consist of platform and suspension rigs which are assembled prior to use on a work site. They are disassembled and removed from site on completion of the work for which they were installed.

The portion of assembly designed to install Electric Traction Hoist to platform.
PRECAUTIONS

See European Standard EN1808 for details on Applications that are excluded from the EN1808 and other relevant exclusions.

1. Power Supply to the TSP must be fitted with
   a) Main switch
      NOTE: Main switch with key-lock or Junction Box with key-lock shall be provided.
   b) Residual Current Device (or Ground fault circuit interrupter) of 30 mA
   c) Rated 10A of Overcurrent Protective Device (Automatic fuse Type C)
      NOTE: Check that the specifications of the electrical supply cable match the power requirement of the platform and will avoid a voltage drop due to cable length.

2. Weather conditions
   - Temperature Range: -10 degree and +55 degree
   - Humidity: Less than 75%
   - Contaminants: Degree of protection IP54
   - Max. wind speed: Accordant with SAE user manual
   - Altitude: Less than 1,000 meter

3. Precautions prior to use
   a) Before using the equipment, operators must carry out the Daily Tests and Inspections and make sure that the equipment is in normal working condition.
   b) Before using the equipment, operators must confirm that there are no obstacles along the movement of the TPS.
   c) Before using the equipment, the suspension system must be checked to ensure the stability of the TPS at all times.
   d) In case the area below the TPS is open to the public, preventive measures have to be taken to safeguard the people below (e.g. barriers, roof protected walkways, etc.)
   e) All hazards related to the platform encountering obstructions are not completely covered by the TPS’s safety devices. The operator shall check for obstructions along the travel of the platform.
   f) The Overload Protection may not protect the TSP in all configurations. The operator must check that the loading of the platform does not exceed the rated load indicated on the nameplate.
   g) An area on the platform must be available to allow operators to operate the hoist safely.
   h) Use approved personnel harnesses, lanyards, rope grabs, and independent lifelines at all times.
   i) Operating the equipment in low temperatures may reduce the ease of ascent, descent, and Emergency Controlled Descent of the platform. The operator must take measures to prevent the equipment from getting cold.
j) Emergency Controlled Descent of the platform may be slower with a light load on the equipment. The operator must not use the equipment with a load less than the minimum load for use in Section 2.1.

k) Make sure suspension wire rope remains vertical and that the suspension points are directly above the hoist at all times.

Example 1:

Example 2:
4. Precautions during use

a) The operators must stop working with the equipment and notify the supervisor if faults, damage to the equipment or other circumstances may jeopardize safety.
b) A suitable communication between the operator and the supervisor is recommended.
c) When you leave a platform, shut off the power supply at the main switch and lock it so that no one else can operate it.
d) When the hoist stops for more than 30 minutes in low temperature, the hoist can be difficult to rise. In that case, allow the hoist 30 seconds to idle or lower the hoist before trying to use.

5. Forbidden Uses

a) BISOMAC210 are not allowed to use for any other purpose than for lifting and lowering a platform.
b) Two units or more of the BISOMAC210 is not allowed to use on one wire rope.
c) The BISOMAC210 is not allowed to use by inserting a wire rope into the wire rope outlet.
d) Do not tight end of suspension wire rope when using BISOMAC210.
e) Do not apply more than 20kg discharge resistance to the end of wire rope.
f) The BISOMAC210 is not allowed to use as a crane for lifting and lowering materials.
g) The BISOMAC210 is not allowed to use as a lifting device of a permanent elevator.
h) The BISOMAC210 is not allowed to use as a horizontally pulling traction device.
i) The BISOMAC210 is not allowed to use as a medical traction device.
j) The BISOMAC210 is not allowed to use in the water.
1. FOR SAFE USE

1.1 General

This Operator’s Manual is applicable to the BISOMAC210 Electric Traction Hoist manufactured by Nihon Bisoh Co., Ltd. The BISOMAC210 (referred to as “Hoist”) consists of Hoist Device (referred to as “BISOMAC”) and Fall Arrest Detection Device (referred to as “BISOLOCK”) and Overload Detection Device (referred to as “BISOLOAD”) and Upper/Ultimate Limit Detection Device.

BISOMAC210 Traction Hoist consists of:
I. BISOMAC
II. BISOLOCK
III. BISOLOAD
IV. Upper/Ultimate Limit Detection Device

NOTE: Please refer to Section 2 for specification of each device.

1. Read and fully understand this manual before using the BISOMAC210.
2. The BISOMAC210 is designed for vertical ascent and descent of personnel-carrying suspended platforms. The BISOMAC210 should only be used for this purpose.
3. All operators must be fully trained in the use of the equipment including its safety features.
4. Daily Tests and Inspections described in Section 7 must be performed at the start of each work shift.
5. Use Section 9 troubleshooting guide in this manual to solve problems. Understand the problem before attempting to solve it.

It is very important that anyone using the BISOMAC210 determine for themselves whether the BISOMAC210 is safe. You must be familiar with the operating characteristics of the BISOMAC210. You must understand how the BISOMAC210 will interact with other equipment and it is very important to confirm safety of the whole platform. You must also be certain not to jeopardize yourself or others, or cause damage to the surroundings, or the BISOMAC210.

1.2 Maintenance

Handling, maintenance, inspections and repairs of the following products must be performed by trained personnel only who have been read the BISOMAC210 Maintenance Manuals (another sheet).
1.3 Categories of Safety Instructions

The safety instructions are classified according to risk levels.

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Code Word</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>⚠️</td>
<td>WARNING</td>
<td>Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.</td>
</tr>
<tr>
<td>⚠️</td>
<td>CAUTION</td>
<td>Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to show potential damage to property.</td>
</tr>
<tr>
<td></td>
<td>NOTE</td>
<td>Indicates a potentially hazardous situation which, if not avoided, could result in damage of the BISOMAC210.</td>
</tr>
</tbody>
</table>

Warning labels attached to Hoist and Safety Devices
The operator must check that the following labels are attached properly and legible.

![Image of BISOMAC SURFACE]

<table>
<thead>
<tr>
<th>Description</th>
<th>Message/Location</th>
</tr>
</thead>
</table>
| 1.Emergency Descent | • Instruction of Emergency Control Descent  
|                   | • Instruction of Electromagnetic Brake  
|                   | • Warning of burnt  
|                   | 【ELECTROMAGNETIC BRAKE】 |
【BISOMAC LEFT SIDE】

<table>
<thead>
<tr>
<th>Description</th>
<th>Message/Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Surface</td>
<td>Instruction of burnt Motor</td>
</tr>
</tbody>
</table>
### Description

<table>
<thead>
<tr>
<th>Description</th>
<th>Message/Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.φ9</td>
<td>● Instruction of wire rope dia.</td>
</tr>
<tr>
<td></td>
<td>[Casing A]</td>
</tr>
<tr>
<td>4. If rope-EU</td>
<td>● Handling precaution</td>
</tr>
<tr>
<td></td>
<td>[Motor]</td>
</tr>
<tr>
<td>Description</td>
<td>Message/Location</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>----------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>5. BISOMAC210-800kg</td>
<td>• Instruction of specification and operation</td>
</tr>
<tr>
<td></td>
<td>• With QR code to access operator's manual by electronic device</td>
</tr>
<tr>
<td></td>
<td>[Control Box]</td>
</tr>
<tr>
<td></td>
<td>[Operator’s manual pipe]</td>
</tr>
</tbody>
</table>
### [BISOLOCK]

<table>
<thead>
<tr>
<th>Description</th>
<th>Message/Location</th>
</tr>
</thead>
</table>
| Slack       | • Instruction of device  
               [Side Plate] |

### [BISOLOAD]

<table>
<thead>
<tr>
<th>Description</th>
<th>Message/Location</th>
</tr>
</thead>
</table>
| 1.800KG     | • Instruction of rated load  
               [Guard] |
2. SPECIFICATIONS

2.1 BISOMAC

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated Load</td>
<td>800 kg (W.L.L.)</td>
</tr>
<tr>
<td>Voltage</td>
<td>3-phase 380V – 415V ±10% (50Hz)</td>
</tr>
<tr>
<td>Ampere in rated load</td>
<td>4A (380V – 415V)</td>
</tr>
<tr>
<td>Motor Power</td>
<td>1.5KW (4P)</td>
</tr>
<tr>
<td>Wire Rope Dia</td>
<td>9mm – 9.5mm</td>
</tr>
<tr>
<td>Rated Speed</td>
<td>8.5m/min (50Hz)</td>
</tr>
<tr>
<td>Minimum use load</td>
<td>200 kg</td>
</tr>
<tr>
<td>Noise</td>
<td>63 dBA</td>
</tr>
<tr>
<td>Protection Construction</td>
<td>IP54</td>
</tr>
<tr>
<td>Dimension (including safety devices)</td>
<td>640mm (high) x 386 mm (width) x 382mm (depth)</td>
</tr>
<tr>
<td>Hoist Self Weight</td>
<td>45.5kg</td>
</tr>
<tr>
<td>Weight including safety devices</td>
<td>54kg</td>
</tr>
<tr>
<td>Control Method</td>
<td>Central Control Method</td>
</tr>
<tr>
<td>Maintenance Cycle</td>
<td>Maintain every 100 hour of operation hour or no longer than every year. See Maintenance Manual for instruction on maintaining.</td>
</tr>
<tr>
<td>Safety Features</td>
<td>Electromagnetic Brake</td>
</tr>
<tr>
<td></td>
<td>Controlled Descent Device</td>
</tr>
</tbody>
</table>

2.2 BISOLOCK

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>AT-800</td>
</tr>
<tr>
<td>Rated Load</td>
<td>800 kg</td>
</tr>
<tr>
<td>Activation Angel</td>
<td>14 degree (can be adjusted)</td>
</tr>
<tr>
<td>Dimension</td>
<td>246 mm (high) x 204 mm (width) x 60 mm (depth)</td>
</tr>
<tr>
<td>Self-Weight</td>
<td>3.5 kg (will be 4kg include Upper/Ultimate Limit Detection Device)</td>
</tr>
</tbody>
</table>

2.3 BISOLOAD

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>800</td>
</tr>
<tr>
<td>Rated Load</td>
<td>800 kg</td>
</tr>
<tr>
<td>Activating Load</td>
<td>1000 kg (800 kg × 125%)</td>
</tr>
<tr>
<td>Dimensions</td>
<td>270 mm (high) x 375 mm (width) x 93 mm (depth)</td>
</tr>
<tr>
<td>Self-Weight</td>
<td>4.5 kg</td>
</tr>
<tr>
<td>Control Feature</td>
<td>No ascending while BISOLOAD 800 is activated.</td>
</tr>
<tr>
<td>Use Voltage</td>
<td>230V</td>
</tr>
</tbody>
</table>
2.4 UPPER/ULTIMATE LIMIT DETECTION DEVICE

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>146 mm (high) × 80 mm (width) × 46 mm (depth)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>0.5 kg</td>
</tr>
<tr>
<td>Control Feature</td>
<td>No ascending while the Upper Limit Switch Device is activated. No operation while the Ultimate Limit Switch Device is activated.</td>
</tr>
<tr>
<td>Use Voltage</td>
<td>230V</td>
</tr>
</tbody>
</table>

2.5 Wire Rope (Variety specified by us)

<table>
<thead>
<tr>
<th></th>
<th>TYPE 1</th>
<th>TYPE 2</th>
<th>TYPE 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diameter (mm)</td>
<td>9.0 mm</td>
<td>9.4 mm</td>
<td>9.2 mm</td>
</tr>
<tr>
<td>Construction</td>
<td>4 x 36WS</td>
<td>4 x 36WS</td>
<td>5 x 26</td>
</tr>
<tr>
<td>Minimum Breaking Load (Actual)</td>
<td>67.2 kN (6,857 kg)</td>
<td>64.9 kN (6,622 kg)</td>
<td>66.8 kN (6,816 kg)</td>
</tr>
<tr>
<td>Treatment</td>
<td>Galvanized</td>
<td>Galvanized</td>
<td>Galvanized</td>
</tr>
</tbody>
</table>

NOTE: Variety specified by us.

WARNING

1. USE only authorized Wire Rope shown as above.
Using any other Wire Rope could make BISOMAC and BISOLOCK malfunction. It could cause the platform to fall or tilt, possibly resulting in falls and serious injury or death.

2. USE same Wire Rope for Suspension Wire Rope and Secondary Wire Rope
Using any other Wire Rope could make BISOLOCK malfunction. It could cause the platform to fall or tilt, possibly resulting in falls and serious injury or death.

2.6 Recommended Power Cable

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>H07RN-F</td>
</tr>
<tr>
<td>Core and Size</td>
<td>5 cores 2.5 mm²</td>
</tr>
<tr>
<td>Rated Voltage</td>
<td>450/750 V</td>
</tr>
<tr>
<td>Max Length</td>
<td>100 m per platform</td>
</tr>
</tbody>
</table>

NOTE

Due to the various possible suspended platform loading situations and electric voltage sources, IT IS NOT POSSIBLE TO SPECIFY THE MAXIMUM POWER CABLE LENGTH EXACTLY. When hoist is difficult to start up, please take measures against voltage drop such as boosting power supply voltage and using thicker size of cable.
3. FUNCTION AND DESCRIPTION OF EACH COMPONENT

3.1 BISOMAC210 TRACTION HOIST

<table>
<thead>
<tr>
<th>FUNCTION</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Suspension Wire Rope Inlet For inserting the main suspension wire rope.</td>
</tr>
<tr>
<td>B</td>
<td>Guard Plate for Brake Leads Protect Brake Leads from damages.</td>
</tr>
<tr>
<td>C</td>
<td>Oil Level Gauge Plug Use when replacing oil.</td>
</tr>
<tr>
<td>D</td>
<td>Fluid Discharge Hole Use when replacing oil.</td>
</tr>
<tr>
<td>E</td>
<td>Gear Box Decelerate motor’s rotation for lifting appointed suspension load and speed.</td>
</tr>
<tr>
<td>F</td>
<td>Stirrup Fix Bolts and Nylon Nuts The special bolts and Nuts are used to mount the BISOMAC210 to stirrup. (Q’ty: 2 pcs)</td>
</tr>
<tr>
<td>G</td>
<td>Guide Roller Support end of wire rope load</td>
</tr>
<tr>
<td>H</td>
<td>Serial Number BISOMAC210 Serial Number</td>
</tr>
<tr>
<td>I</td>
<td>Carrying Handle Carrying handles for BISOMAC210</td>
</tr>
<tr>
<td>FUNCTION</td>
<td>DESCRIPTION</td>
</tr>
<tr>
<td>------------------</td>
<td>------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>J Shackle for Transportation</td>
<td>Only use at transportation of the BISOMAC210. NOTE: Max lifting load is 75kg.</td>
</tr>
<tr>
<td>K Electric Motor</td>
<td>BISOMAC210 is powered by electricity through gear drive.</td>
</tr>
<tr>
<td>L AC Power Plug</td>
<td>This plug is for connecting the BISOMAC210 to the worksite power supply.</td>
</tr>
<tr>
<td>M Protection Cover</td>
<td>Does not allow water and dirt to get into Electromagnetic Brake.</td>
</tr>
<tr>
<td>N Water-proof Cap Bolt of Electromagnetic Brake</td>
<td>Cap bolt with sealing to avoid water getting into the Electromagnetic Brake</td>
</tr>
<tr>
<td>O Electromagnetic Brake</td>
<td>Electromagnetic Brake is released when the Operation Button is pressed. The BISOMAC210 stops when the Operation Button is released or the main power is disconnected.</td>
</tr>
<tr>
<td>P Controlled Descent Lever</td>
<td>This allows the platform to be lowered at regular speed when electrical power to the BISOMAC210 is lost.</td>
</tr>
</tbody>
</table>
### FUNCTION DESCRIPTION

<table>
<thead>
<tr>
<th>FUNCTION</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>S Hour Meter</td>
<td>Shows the BISOMAC210’s integrated operating hours.</td>
</tr>
<tr>
<td>T Control Box</td>
<td>Electric components are assembled to control BISOMAC210 lifting.</td>
</tr>
<tr>
<td>U Connector Box</td>
<td>Junction Box to connect connector between BISOLOAD and Upper/Ultimate Limit Detection Device.</td>
</tr>
<tr>
<td>V Vent Filter</td>
<td>Remove moisture inside of Control Box.</td>
</tr>
</tbody>
</table>
3.2 BISOLOCK

The BISOLOCK is designed to engage the safety wire rope when platform angle exceeds pre-set angle.

**WARNING**

When platform suddenly incline or BISOLOCK activates, only trained and authorized personnel are allowed to reset this device. Contact the local authorized distributor and wait for rescue of the operators on the platform. Improperly resetting the device may result in the platform falling and tilting, allowing persons or things to fall and possibly resulting in serious injury, death or damage.

<table>
<thead>
<tr>
<th>FUNCTION</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Safety Wire Rope Inlet</td>
<td>Insert safety wire rope.</td>
</tr>
<tr>
<td>B Special Bolts for BISOLOCK</td>
<td>Special bolts for installing BISOLOCK to BISOLOAD. (Q'ty : 2 pcs)</td>
</tr>
<tr>
<td>C Slack Rope Lever</td>
<td>Lever to detect tilting of platform.</td>
</tr>
</tbody>
</table>
3.3 BISOLOAD

The BISOLOAD is designed to protect overload platform. If overload (rated load × 125%) is applied to the hoist, the hoist cannot be ascending operation.

WARNING

It does not ascend even if up button is pushed. Or, if the platform is pumping while ascending, please unload from the platform. Dropping rigging or tilting due to overloading may result in the platform falling and allowing persons or things to fall and possibly resulting in serious injury, death or damage.

<table>
<thead>
<tr>
<th>FUNCTION</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Special Bolts for holding BISOLOAD&lt;br&gt;(use Q'ty 2 bolts)</td>
</tr>
<tr>
<td>B</td>
<td>Stirrup Fix Bolts&lt;br&gt;(use Q'ty 2 bolts)</td>
</tr>
</tbody>
</table>
3.4 Upper / Ultimate Limit Detection Device

If the upper limit switch activates, hoist cannot ascend even pressing up button. Also, the ultimate limit switch activate, all operation of a platform is not possible.

WARNING

When the Ultimate Detection Device activates, only trained and authorized personnel are allowed to reset this device. Contact the local authorized distributor and wait for rescue of the operators on the platform. Improperly resetting the device may result in the platform falling and titling, allowing persons or things to fall and possibly resulting in serious injury, death or damage.

<table>
<thead>
<tr>
<th>FUNCTION</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>A  Upper Limit Detection Device</td>
<td>When the upper limit switch activates, hoist cannot ascend even pressing up button.</td>
</tr>
<tr>
<td>B  Ultimate Limit Detection Device</td>
<td>If the upper limit switch does not activate some reason and continue to ascend, the ultimate limit switch activates. Once the ultimate limit switch activates, all operation of platform is not possible. Contact authorized agent and wait for rescue.</td>
</tr>
</tbody>
</table>
4. WORK ENVIRONMENT

Many work environments contain contaminants that could adversely affect the performance of the BISOMAC210 and the Safety devices. Perform the daily tests described in Section 7 to ensure that the BISOMAC210 is operating properly. If contaminants such as paint, epoxy, cement, corrosive chemicals or sand blasting is present at the work site, use the protective cover for the BISOMAC210 and the safety devices in accordance with instructions and precautions below on this page.

The protective cover may obstruct some or all of the safety warnings and instruction labels on the BISOMAC210 and the safety devices. Before operating the BISOMAC210 and the safety devices equipped with the protective cover, the operator must remove the protective cover and read and understand all of the labels on the BISOMAC210. Each new operator must fully understand all warning and instruction labels before operating the BISOMAC210.

⚠️ WARNING

ALWAYS test and inspect the BISOMAC210 on a daily basis especially in work environments contains contaminants. Maintain hoist after completing work at each work site to remove dusts and foreign objects inside of the hoist. Improper maintenance may result in the platform falling or tilting, allowing persons or things to fall or tilt and possibly resulting in serious injury, death or damage.

⚠️ WARNING

NEVER use the BISOMAC210 in an explosive atmosphere, under water, or in a marine environment. Especially, use in explosive or wet atmospheres could result in serious injury or death from fire, explosions, or electric shock.

NOTE: An explosive atmosphere is one in which flammable gases or vapors or small particles are or may be present in the air in quantities sufficient to produce an explosive or ignitable mixture.

⚠️ CAUTION

Prolonged use of the BISOMAC210 with the protective cover in place may result in the motor overheating due to restricted air supply. This can cause the BISOMAC210 to stop moving. When using the protective cover, be sure that the cooling fan has an unobstructed air supply to the motor and the motor is not overheated.

NOTE: Make sure to use the protective cover for BISOMAC210 and the safety devices, if contaminants such as paint, epoxy, cement, corrosive chemicals or sand blasting are present at the work site.

NOTE: In a subfreezing environment, inside of BISOMAC210 that water droplets and moisture freeze and affect constituting the parts of BISOMAC210 may malfunction. In addition, the oil of the Gear Box may stiff, and BISOMAC210 may become difficult to start up. Take measures to prevent the BISOMAC210 from freezing after the work is done.
5. SET UP INSTRUCTIONS

This section describes procedure of the BISOMAC210 for safety operation. Before attempting set up, read and understand Steps 1 - 8 of this section which describes the installation procedures of the BISOMAC210 and the safety devices.

WARNING: INSTALLATION

**WARNING**

1. **DO NOT allow anyone under suspended platform.** If necessary, provide protection below the suspended platform to prevent potential serious injury or death to passers-by from falling objects.

2. **DO NOT use different types of hoists in the same platform.** Otherwise, an operation error may occur from the difference in the hoists' performance (ascending and descending speed, etc.) and the difference of the operation method and the safety unit. This may result in the platform falling or tilting, allowing persons or things to fall or tilt and possibly resulting in serious injury, death or damage.

3. **When attaching the BISOMAC210 to the platform, it is necessary to plan how to attach safety devices in advance,** otherwise, the safety devices may not activate. Failure to activate may cause serious injury, death or damage.

4. **Attach Ground Fault Circuit Interrupter to power source and ensure that is properly grounded.** Failure to do so increases the risk of electric shock or electrocution.

5. **DO NOT use damaged or cracked power cable and control cables.** Doing so could result in electrocution or death.

6. **Operators are not allowing opening the Central Control Box.** Doing so could result in electrocution or death.

7. **When connecting the plug to the Safety Devises to BISOMAC210, verify that inner side of the plug is dry and there is no deposit of water.** Due to malfunction of hoist, platform may fall down or topple the operator, and there is a risk of injury or death of the operator or the passerby.

**CAUTION**

Use protective cover over the BISOMAC210. Otherwise buttons and indicators may get dirty and malfunction.
**CAUTION**

The Voltage supplied to the BISOMAC210 should not exceed ±10% rated voltage (See Section 2.1) while lifting. If the voltage is not in the proper range, the BISOMAC210 may not operate or the motor may overheat and malfunction or create a burn hazard.

Note: The rated voltage range shown above is permitted to only temporary operation. It is not permitted to continuous operation of the BISOMAC210.

**WARNING: MAIN WIRE ROPE AND SAFETY WIRE ROPE**

1. The BISOMAC210 operation requires the use of authorized wire rope and the strict adherence to the operation methods and the instructions. If using a wire rope that is not required, the wire rope will have reduced strength and will be served. This may cause the platform to fall or tilt, resulting in falls and serious injury or death.

2. **DO NOT** expose the wire rope to fire, temperatures above 93°C, electrical current, or corrosive atmospheres and chemicals. Doing so will reduce the rope’s strength and possibly allow the rope to break. This could result in platform falling or tilting, possibly causing serious injury, death or damage.
   - Discard the wire rope if any damage is evident after completing the project.
   - If there is anything suspicious, replace with a new wire rope.
   - Discard wire rope that has been exposed to any of these conditions.

3. The suspension wire rope should be long enough (lifting height plus at least 2 meter) to cover the height where the platform is placed on the ground or on the specified area. If the wire rope cannot cover the height where the platform can be placed on a stable area, the wire rope may slip out of the BISOMAC210. This may cause the platform to fall or tilt, and consequently operators or objects might fall, resulting in serious injury, death or damage to operators or passers-by.

4. **DO NOT** operate the BISOMAC210 with a wire rope having a kink or deformation. Doing so will damage the hoist inside and interfere with the up and down movement of the BISOMAC210. Also, this may cause the platform to fall or tilt, and consequently operators or objects might fall, resulting in serious injury, death or damage to operators or passers-by.

5. When fixing the suspension wire rope and the safety wire rope to the building material, be sure that these wire ropes are not contacting any sharp edge. Otherwise, if the wire rope becomes heavily loaded and severed by a sharp edge, this may cause the platform to fall or tilt, and consequently operators or objects might fall, resulting in serious injury, death or damage to operators or
6. The wire rope should be able to go through the inside of the BISOMAC210 freely. Inconsistent winding speed suggests the wire rope or the BISOMAC210 may be damaged. Stop operation at once and replace the wire rope or the BISOMAC210. If it is used continuously, the wire rope may be severed or the BISOMAC210 may stop. This may cause the platform to fall or tilt, and consequently operators or objects might fall, resulting in serious injury, death or damage to operators or passers-by.

7. DO NOT fasten or apply load to the tail end of the suspension wire rope discharged from the BISOMAC210. Otherwise, the internal parts of the BISOMAC210 will become extremely worn and the wire rope may be damaged or severed. This may cause the platform to fall or tilt, and consequently operators or objects might fall, resulting in serious injury, death or damage to operators or passers-by.

8. Install the suspension wire rope and the safety wire rope with the range of distance 100 ±10mm. Otherwise, BISOLOCK will not work properly. This may cause the platform to fall or tilt, and consequently operators or objects might fall, resulting in serious injury, death or damage to operators or passers-by.

---

**CAUTION**

DO NOT put your hand near the wire rope inlet when self-reeving the wire rope and moving the platform up and down. Otherwise, your hand may be caught in the opening along with the wire rope, causing serious injury.

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**CAUTION: BISOMAC210 INSTALLATIONS**

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**CAUTION**

1. DO NOT throw or drop the BISOMAC210. The BISOMAC210 may become damaged and cannot be used and may result in serious injury or property damage.

2. DO NOT pull or step the cables of the safety device. Lead the cables and connector to break, BISOMAC210 and Safety Devices cannot be used.
**STEP1** Installation of Safety Devices to the Hoist

First install the BISOLOCK and BISOLOAD to Hoist. See instructions below. Refer section 3.1 for assembled condition.

**BOX CONTENTS**

1. Insert the BISOLOAD into the BISOMAC from the bottom as shown in Fig. 1 and tightening 2 Special Bolts B, 4 Washers and 4 Nylon Nuts provided by manufacture. Use Torque Wrench to tighten the Bolts.

   **Torque Standard: 76 N-m (770 kgf-cm)**

2. Insert the BISOLOCK into BISOLOAD from the top as shown in Fig. 1 and tighten with 2 Special Bolts, 2 Washers and 2 Nylon Nuts provided by manufacture. Use Torque Wrench to tighten the Bolts.

   **Torque Standard: 76 N-m (770 kgf-cm)**

3. Connect the Plug of each Safety Device to the Hoist as shown in Fig. 2.
4. After inserting, rotate the stopper in the direction of the blue arrow and lock the connector. When removing, rotate in the opposite direction to release the lock and pull it down. (Fig. 3)
STEP 2 Connection of Power Supply

WARNING
DO NOT pull or step on AC power plug and cable of safety devices. Electric shock may be caused by cable disconnection resulting fatal accident.

CAUTION
Use electric power source and power cable suitable for BISOMAC210. When electric power source not suitable to specifications is used, it may heat up and damage the cable etc., and equipment may no longer operate normally.

1. Connect the power supply from the Central Control Box to the AC Power Plug of the BISOMAC210. Please check the types of connector.

   The types of female connector and the cover are shown below.

   Model: 10.195000 (Maker: CONTACT)
   Please cover the socket with a cover of the type shown below.

   Model: 70.090200 (Maker: CONTACT)

2. Necessary power is 4A per BISOMAC210.

3. Ensure that the Emergency Stop Button of the BISOMAC210 and the interlock of the Safety Devices are reset.
   <Confirmation Method>
   Press UP/DOWN button if BISOMAC210 is able to ascent or descent.

4. Ensure that current capacity and size of circuit fuse is adequate, refer to specification in section 2.

5. Check if connector has any sign of deterioration or damaged.
STEP 3  Main Wire Rope Reeving

1. Insert the bullet end of the wire rope approximately 15 cm into the suspension wire rope inlet of the BISOMAC210.

2. Press the "UP" Button while maintaining downward pressure on the wire rope until self-reeving starts.

3. Make sure the wire rope can freely exit the BISOMAC210 and is not blocked by any parts.

4. Install the suspension wire rope so that an interval of platform side and rigging Metal side become equal.

5. To avoid run off the suspension wire rope from the BISOMAC210, make the loop on the end of the suspension wire rope and fix it using the clamp as shown in Fig. 5.
STEP 4  Mounting BISOMAC210 to the platform

Press the “UP” Button of the Central Control Box to lift the BISOMAC210 from ground to become the hole of frame of the BISOLOAD and the hole in stirrup are lined up, and then attach the hoist to the stirrup as shown in below with 2 Special Bolts, 4 Washers and 2 Nylon Bolts provided by manufacture. Position the Rope End (discharged side) of the wire rope should be outside of the platform as shown Fig. 6.

Use Torque Wrench to tighten the Bolts.

Torque Standard: 76 N·m (770 kgf·cm)
STEP 5 Installation of Safety Wire Rope

1. Lift the platform by using the BISOMAC210 until the suspension wire rope is straight.
2. Reeve the safety wire rope into the BISOLOCK inlet until and the safety wire rope is straight and make sure the safety wire moves smoothly without resistance in the device.
3. Install counterweight (more than 10kg) to rope end of the safety wire rope to protect lift up of the safety wire rope.
4. Install the suspension wire rope and the safety wire rope with the range of distance 100mm ± 10mm. (Fig. 7)
STEP 6  Operation Confirmation of BISOLOCK  
(Caution: BISOLOCK Operation Check)

<table>
<thead>
<tr>
<th>CAUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Ensure that there is no object, which is easy to roll and slip in platform before attempt to incline. If there is an object, please remove it. This may cause serious injury, or damage to operators or passers-by when the platform is tilted.</td>
</tr>
<tr>
<td>2. Confirm that a floor of a platform does not get wet and slippery. Operators may slip and injure when the platform is tilted.</td>
</tr>
<tr>
<td>3. Perform tilting angle adjustment shall be adjusted by authorized personnel. If the operator operates improperly, this may cause the platform to fall or tilt, and consequently operators or objects might fall, resulting in serious injury, death or damage to operators or passers-by.</td>
</tr>
</tbody>
</table>

Perform the following procedure to confirm that the BISOLOCK within 14 degree.

1. Raise the platform approximately 2 m from ground.
2. Descend one side of hoist by operating the Central Control Box.
3. Make sure that BISOLOCK engages the safety wire rope.

If the angle of the platform inclination exceeds 14 degree, ask the authorized trained personnel for adjustment.
Refer the attached maintenance manual for the adjustment.
Raise the platform to reset the BISOLOCK after testing.

STEP 7  Perform of Daily Inspection
Before installing the supporting plate for the Upper/Ultimate Limit Switch, perform the Section 7 Daily Test and Inspection.

STEP 8  Install the Supporting Plate for the Upper/Ultimate Limit Detection Device
Set the supporting plate with approximately 200mm distance as shown in Fig. 8.

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[Installation procedure]

1. Sandwich Suspension Wire Rope and Safety Wire Rope with limit detection plates as shown in Fig. 9. The Suspension Wire Rope installs into the limit detection plates that opening space is larger shown.

2. Tighten a knob (blue knob in Fig. 9) until limit detection plates are maintained by friction with wire rope.

3. Then tighten a nut (a yellow butterfly nut in Fig. 9) until it hits a wall surface of the limit detection plate.
   - This nut is for loosen prevention of the blue knob, not need to tighten further after hitting the wall.

4. Loosen prevention glue is painted on the screw part of the blue knob, do not tear it off.

5. On the occasion of the installation, use a reserve rope for prevention of fall, connect the reserve rope to shackle (a green shackle in Fig. 9), and fix the reserve rope to a suspension point.

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![Fig. 9](image-url)
6. OPERATION / HANDLING METHODS

This section describes the following methods to safely handle and operate of the BISOMAC210.


**WARNING**

1. Each BISOMAC210 operator has to understand the operator’s manual and the warning label and manuals before using. If the operator operates the BISOMAC210 improperly, this may cause the platform to fall or tilt, and consequently operators or objects might fall, resulting in serious injury, death or damage to operators or passers-by.

2. **DO NOT** exceed the maximum load of the BISOMAC210. The rigging portion may fall, resulting in potential of death or injury to operators or passers-by.

**CAUTION**

**DO NOT** apply excess load on the shackle for transportation.
Applying load of 50 kg above may damage the bow shackle, because of which BISOMAC210 may fall down and cause injury and damage the surrounding objects.

**CAUTION: Carrying**

1. **When carrying the Hoist by hand, please grasp the grip handle and carry it.** Carrying in unstable state may result in injury, damage to the hoist or damage to the surrounding objects.
2. **Do not use the Grip handle for other purpose.** If an excessive load is applied to the handle, the hoist may be damaged, injured, or damaged the surrounding objects.

**CAUTION: STORAGE**

**CAUTION**

Remove the BISOLOAD from the BISOMAC210 before storing hoist.
For removal of BISOLOAD, please refer to section 5 in step 1.
Carefully store the hoist so that it does not fall down and become damaged.

**NOTE:** Do not 2 steps stacking of BISOMAC210; otherwise, it may be damaged.
**WARNING: LIFTING AND EMERGENCY STOP**

**WARNING**

1. **DO NOT have the Operation Button continuously depressed.** Otherwise, the BISOMAC210 cannot stop. This may cause the platform to fall or tilt, and consequently operators or objects might fall, resulting in serious injury, death or damage to operators or passers-by.

2. **Always allow the BISOMAC210 to come to a full stop before changing the direction of travel.** Failure to do so may result in control circuit failure, or may prevent the BISOMAC210 from stopping. This may cause the platform to fall or tilt, and consequently operators or objects might fall, resulting in serious injury, death or damage to operators or passers-by.

3. **DO NOT use the BISOMAC210 if the Emergency Stop Button does not operate.** Failure to do so may result in control circuit failure, or may not prevent the BISOMAC210 from stopping. This may cause the platform to fall or tilt, and consequently operators or objects might fall, resulting in serious injury, death or damage to operators or passers-by.

4. **Manually operate the Emergency Stop Button and the raising/lowering button.** Operating the buttons using tools etc. may damage the switch cover and the switch. Because of this, water may seep in and BISOMAC210 may not stop operating. Platform may tilt and operator or loaded objects may fall down resulting in injury or death of the operator or the passerby.

**CAUTION**

Do not operate the BISOMAC210 more than 30 minutes during any 2 hours period. If you do so, the brake surface will become very hot and could result in burns if it is touched.

**WARNING: CONTROLLED DESCENT LEVER**

**WARNING**

1. **Use the Emergency Descent Lever only when power supply is cut off.** After use, make sure to lock the Emergency Descent Lever by lever stopper. Failure to do so may cause the platform to fall or tilt, and consequently operators or objects might fall, resulting in serious injury, death or damage to operators or passers-by.

2. **DO NOT use the Emergency Descent Lever when operating the Operation Button.** Otherwise, the BISOMAC210 may not stop, and this may cause the platform to fall or tilt, and consequently operators or objects might fall, resulting in serious injury, death or damage to operators or passers-by.

3. **Confirm that the Emergency Descent Lever is locked by the Lever Stopper**
and in the vertical position before operating the BISOMAC210 up and down. Refer to Fig. 10. The brake may not function properly, causing the platform to fall or tilt, and consequently operators or objects might fall, resulting in serious injury, death or damage to operators or passers-by.

4. **Always operate the Emergency Descent Lever by hand.** Otherwise, the BISOMAC210 cannot be stopped instantly. This may cause the platform to fall or tilt, and consequently operators or objects might fall, resulting in serious injury, death or damage to operators or passers-by.

5. **Make sure Emergency Descent Lever is locked automatically by lever Stopper after using.** (Fig. 10) Otherwise, BISOMAC210 cannot be stopped instantly. This may cause the platform to fall or tilt, and consequently operators or objects might fall, resulting in serious injury, death or damage to operators or passers-by.

**CAUTION**

Be sure to remove the AC Power Plug of the BISOMAC210 from Central Control Box when using the Emergency Descent Lever. Otherwise, sudden movement may be induced when the power is regained. This may cause serious injury, death or damage to operators or passers-by.

**CAUTION**

Pull the Emergency Descent Lever as far as it goes toward. If failed to do so, it may result in serious burns, overheating of the BISOMAC210 and premature brake wear. If this occurs, the brake may become not repairable.

**NOTE:**

DO NOT use the BISOMAC210 if the platform does not descend using the Emergency Descent Lever. Otherwise, the platform may not descent and it may not be possible to rescue operators in the event of a power failure. DO NOT use the BISOMAC210 until it is repaired and retested.

6.1 Carrying BISOMAC210

For safety transportation, separate the BISOMAC and BISOLOCK. (Refer to Section 5 step1)

BISOMAC self-weight: 48 kg  
BISOLOCK self-weight: 3.5 kg  
BISOLOAD self-weight: 4.5 kg  
Upper/Ultimate Limit Detection Device weight: 0.5kg

6.2 Operation

6.2.1 UP/DOWN and Use of Emergency Stop
1. Control BISOMAC210 by operating button on the Central Control Box.
2. BISOMAC210 ascends by pressing “Up” Button
3. BISOMAC210 descends by pressing “Down” Button.
4. BISOMAC210 stops by pressing “Emergency Stop Button” and will not ascend or descend.

6.2.2 Emergency Descent Lever

- In the event of loss of electric power, the BISOMAC210 may be lowered at regular speed using this Emergency Descent Lever.
- The procedure is shown as below.

1. Disconnect the AC Power Plug of the BISOMAC210 from Central Control Box.
2. Loosen the Screw and lift the Lever Stopper from the Electromagnetic Brake. (Fig.10)
3. Release the Electromagnetic Brake by gently pulling the Emergency Descent Lever as far as it will go toward the arrow as shown. The BISOMAC210 safely lowers at regular speed.

NOTE: Do not apply excessive force to the Emergency Descent Lever. The pin will break if approximately 100kg power is applied and will not able to descent in emergency condition. Refer to Maintenance manual to repair the pin.
7. DAILY TESTS AND INSPECTIONS

This section describes necessary test procedure before and after installation of the BISOMAC210.

- Read and understand Steps 7.1 to 7.6 of this section describing the inspection and installation procedures of the rigging metal, wire rope, and BISOMAC210 before using.
- Follow each device’s maintenance manuals if the daily tests and inspections are not described in this manual.

⚠️ WARNING

1. **DO NOT** allow anyone under suspended platform. If necessary, provide protection below the suspended platform to prevent potential of death or injury to passers-by from falling objects.

2. **NEVER** perform any disassembly, maintenance, repair, or part replacement of the BISOMAC210 **when it is suspended in air or is under load**. This may cause the platform to fall or tilt, and consequently operators or objects might fall, resulting in serious injury, death or damage to operators or passers-by.

3. **ALWAYS** test and inspect the BISOMAC210 on a **daily basis**, otherwise the BISOMAC210 may malfunction. This may cause the platform to fall or tilt, and consequently operators or objects might fall, resulting in serious injury, death or damage to operators or passers-by.

4. Test and inspect the BISOMAC210 on a **daily basis** by following this manual, otherwise the BISOMAC210 may malfunction. This may cause the platform to fall or tilt, and consequently operators or objects might fall, resulting in serious injury, death or damage to operators or passers-by.

5. **ALWAYS** test and inspect the BISOMAC210 on a **daily basis especially in work environments that contain contaminants**. Maintain hoist (Refer to Section 4) after completing work at each work site to remove dusts and foreign objects inside of hoist or safety devices. Failure to do so may cause the platform to fall or tilt, and consequently operators or objects might fall, resulting in serious injury, death or damage to operators or passers-by.

⚠️ WARNING: TEST AND INSPECTION PROCEDURE OF RIGGING METAL

If the Rigging is in an abnormal condition, **STOP using platform**. If the wire rope runs out from rigging or wire rope is cut, this may cause the platform to fall or tilt, and consequently operators or objects might fall, resulting in serious injury, death or damage to operators or passers-by.
WARNING: TEST AND INSPECTION PROCEDURE OF WIRE ROPE

⚠️ WARNING

The Wire Rope will wear out with repeated operation. Therefore, it must be regularly inspected to be sure it is in good condition. If you use a wire rope that is deformed or damaged, it will have reduced strength and may break. This may cause the platform to fall or tilt, and consequently operators or objects might fall, resulting in serious injury, death or damage to operators or passers-by.

WARNING: TEST AND INSPECTION PROCEDURE

OF LIFTING PLATFORM AND EMERGENCY STOP FUNCTION

⚠️ WARNING

1. If you hear any strange noises such as grinding during operation or if the BISOMAC210 does not appear to work normally, STOP it immediately. DO NOT continue to use the BISOMAC210 until it is replaced. It is possible that parts inside the BISOMAC210 have been damaged. Continuing to use the BISOMAC210 may cause the platform to fall or tilt, and consequently operators or objects might fall, resulting in serious injury, death or damage to operators or passers-by.

2. STOP the BISOMAC210 immediately, when the BISOMAC210 is suspended in the air and the motor is running but the wire rope is not moving through the BISOMAC210. Damaged wire rope may be jammed inside the BISOMAC210. Any attempt to move the BISOMAC210 up or down can damage the equipment and/or sever the wire rope, making the BISOMAC210 unable to sustain a load. This may cause the platform to fall or tilt, and consequently operators or objects might fall, resulting in serious injury, death or damage to operators or passers-by.

3. DO NOT use the BISOMAC210 if the Emergency Stop Button does not operate. Failure to do so may result in control circuit failure, or may not prevent the BISOMAC210 from stopping. This may cause the platform to fall or tilt, and consequently operators or objects might fall, resulting in serious injury, death or damage to operators or passers-by.

4. Manually operate the Emergency Stop Button and the raising/lowering button. Operating the buttons using tools etc. may damage the switch cover and the switch. Because of this, water may seep in and BISOMAC210 may not stop operating. Platform may tilt and operator or loaded objects may fall down resulting in injury or death of the operator or the passerby.
When oil is leaking from BISOMAC210, stop using BISOMAC210 and replace with a defect-free product. Reduction in the amount of oil increases the temperature of the Gear Box and Motor which may cause burn injury. Besides, operating it at high temperature may emit smoke from Gear Box and Motor. It may not be possible to ascent or descent the equipment.

CAUTION

WARNING

If the BISOMAC210 has a defect, replace it with one that has passed the pre-shipment inspection by certified personnel. BISOMAC210, which has not passed the pre-shipment inspection, may malfunction or not perform normally. This may cause the platform to fall or tilt, and consequently operators or objects might fall, resulting in serious injury, death or damage to operators or passers-by.

WARNING

DO NOT use the BISOMAC210 if the BISOLOCK does not engage the wire rope. Replace it with a properly operating BISOLOCK, failure to do so may cause the suspension wire rope to be cut, the platform to fall or tilt, and consequently operators or objects might fall, resulting in serious injury, death or damage to operators or passers-by.

WARNING

DO NOT use the BISOMAC210 if the Upper/Ultimate Limit Detection Device does not operate properly. Stop using it and replace good condition one. Failure to do so may cause damage on rigging, the platform to fall or tilt, and resulting in serious injury, death or damage to operators or passers-by.

WARNING

7.1 Test Procedure of Rigging

Inspect all components of the suspended platform, especially the components supporting loads, to be sure there are no signs of damage or excessive wear and that all fasteners (nuts, bolts, clamps, wire-clip, shackle, etc.) and wire rope are properly and securely tightened.
7.2 Test Procedure of Wire Rope

7.2.1 Wire rope shape and dimension

- Wire rope MUST be taken out of service when ANY of the following conditions apply, refer to Picture.1.

1. Loose, kinked, crushed, bird caged wire rope, waviness (more than 4/3d) or any damage resulting in distortion of the rope structure.

2. More than 10% of single wire is broken in one lay. (Fig.12)

   Example: Wire Rope construction 6 x 19
   
   \[6 \times 19 = 114 \text{ wires} \times 10 \% = 11 \text{ wires}\]

3. Reduction of wire rope diameter’s average: under 8.8 mm.

4. Increase of wire rope diameter’s average: exceed 9.5 mm.

5. Pitting on wire surfaces due to rusting corrosion.

6. Evidence of exposure to temperatures above 93° C.

- With the load applied on the wire rope, measure the average value by taking measurement of diameter of circumscribed circle at two diagonally opposite places. Take measurement at few places in the length direction of rope. (Fig.13)
NOTE:
DO NOT use wire rope that has been worn, kinked, bird caged or damaged. Replace it with new wire rope.

7.2.2 End of wire rope shape and dimension

- The end of the wire rope must be prepared for insertion into the BISOMAC210, refer to Picture 2.

NOTE:
Improperly prepared bullet can cause the wire rope to jam in the BISOMAC210 or BISOLOCK and the wire may get stuck in the hoist or safety device.

- The end of the wire rope treatment is shown as below.

  Wire rope diameter: 9 – 9.5mm
  Braze distance: within 10mm
  Top Radius: R5mm
7.3 **Hoist Inspection and Inspection Procedures**

1. Check that none of the bolts/nuts and Operator’s Manual Cap are loose.
2. Check the visual appearance of the Traction Hoist (Include Cables and Connectors) that there is no damaged place such as crack or deformation.
3. Check if BISOMAC210 are installed properly in the platform.
4. Make sure the AC Power Plug is connected to Central Control Box properly.
5. Check circuit breaker if the power supply is shut off or not.

7.3.1 **Test procedures for Lifting and use of the Emergency Stop**

1. Press UP button on Central Control Box, raise the platform about 100 cm off the ground, and then lower it to its original position. Repeat this procedure several times. Check that there is not abnormal vibration such as the Traction Hoist is shaking.
2. Check that Hour Meter is working normally.
3. Press the Emergency Stop Button located Central Control Box to disconnect the power to the BISOMAC210.
4. Press the UP/DOWN buttons located Central Control Box to confirm that the BISOMAC210 will not operate.
5. Reset the Emergency Stop Button located Central Control Box to confirm that the BISOMAC210 will operate.

7.4 **Test procedures for Controlled Descent**

**CAUTION**

1. **Be sure to remove the AC Power Plug of the BISOMAC210 from power source when using the Emergency Descent Lever.** Otherwise, sudden movement may be induced when the power is regained. This may cause serious injury, death or damage to operators or passers-by.

2. **Pull the Emergency Descent Lever as far as it goes toward.** If failed to do so, it may result in serious burns, overheating of the BISOMAC210 and premature brake wear. If this occurs, the brake may become not repairable.

1. Raise the platform about 100 cm off the ground.
2. Disconnect the AC Power Plug of the BISOMAC210 from power source.
3. Release the Lever Stopper.
4. Release the Electromagnetic Brake by gently pulling the Emergency Descent Lever as far as it will go toward the arrow.
5. Make sure if the BISOMAC210 is safely lower at regular speed.

NOTE: If the descent speed is too fast, contact local BISOMAC210 distributor.
7.5 Test procedures for BISOLOCK
Confirm that BISOLOCK operates properly by the following procedure.
The following is same as Section 5 Step 6 Operation Confirmation of BISOLOCK.
1. Raise the platform approximately 2 m from ground.
2. Descend one side of hoist by operating the Central Control Box.
3. Make sure that BISOLOCK engages the safety wire rope within 14 degree.
4. Raise one side of the hoist that engaged safety wire rope, and reset the BISOLOCK.
5. Perform same procedure to other side of BISOLOCK.

NOTE: If the BISOLOCK will not engage the safety wire rope, contact local BISOMAC210 distributor. If the angle of the platform inclination exceeds 14 degree, ask the authorized trained personnel for adjustment.
Refer the attached maintenance manual for the adjustment.

7.6 Test procedures of Upper/Ultimate Limit Detection Device
Confirm that Upper/Ultimate Limit Detection Device operates properly by the following procedure.
1. Push one side of Upper Limit Detection Lever down and press the UP button on the Central Control Box to attempt to rise.
2. The BISOMAC210 where pushed the Lever down does not rise. Refer to Fig. 14.
3. Push Down button of the Central Control Box with pushing the Lever down and make sure the both side of BISOMAC210 descent.
4. The both side of BISOMAC210 descent.
5. Next, press the Roller of the Ultimate Detection Device and press the UP bottom to attempt to not rise the both side of BISOMAC210. Refer to Fig.14.
6. Push a Down button of the Central Control Box while pressing the Roller of the Ultimate Detection Device, and make sure the both side of BISOMAC210 does not descent.
7. Perform same procedure to other side of the BISOMAC210.

NOTE: If the Upper/Ultimate Limit Detection Device does not operate properly, contact local BISOMAC210 distributor to replace a new device.
8. PERIODIC INSPECTIONS

The BISOMAC210 has to conduct the following periodic inspections if the BISOMAC210 experiences the following conditions. The periodic inspections have to be performed by certified personnel.

The following time periods should be used to determine to perform periodic inspections. However, depending on job and environmental conditions, periodic inspections may need to be done sooner:

1) Unit is more than 1 year old after purchasing
2) Unit over 1 year after previous periodic inspection
3) Unit operation hour is over 100 hours since last periodic inspection
4) When BISOMAC210 used in a bad work environment, such as dirt, dust, etc.

NOTE: Follow the Traction Hoist Maintenance Manual concerning periodic inspections.

WARNING

1. Only trained and certified personnel may replace the Brake, Motor, or Gear Box. Otherwise, the BISOMAC210 may malfunction or not perform normally. This may cause the platform to fall or tilt, and consequently operators or objects might fall, resulting in serious injury, death or damage to operators or passers-by.

2. DO NOT replace any BISOMAC210 parts with ones that are not approved. Such replacement may cause the BISOMAC210 to malfunction or not perform adequately. This may cause the platform to fall or tilt, and consequently operators or objects might fall, resulting in serious injury, death or damage to operators or passers-by.

9. TROUBLESHOOTING AT JOB SITE

PROBLEM FROM MISHANDLING

The following information is intended to help identify faults that can occur and recommended corrections

WARNING

If the problems (Case 1 – Case 8) cannot be solved by performing the corrective measures below, replace the BISOMAC210 or contact local authorized BISOMAC210 distributor. All repairs and solution of these problems must be performed by trained and certified service personnel, otherwise, this may cause the platform to fall or tilt, and consequently operators or objects might fall, resulting in serious injury, death or damage to operators or passers-by.
### CASE 1

**Press “UP” or “Down” Buttons but BISOMAC210 will not Operate.**

<table>
<thead>
<tr>
<th>Problem</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Main power is not connected.</td>
<td>Confirm the main power and the AC Power Plug connections are proper.</td>
</tr>
<tr>
<td>2 Emergency Stop Button is pushed.</td>
<td>Reset the Emergency Stop Button.</td>
</tr>
<tr>
<td>3 Reversed-Phase Detection Indicator is lit. Only for 3 phase model.</td>
<td>Check the phase of power supply and reconnect.</td>
</tr>
<tr>
<td>4 Ultimate Limit Switch is activated.</td>
<td>Remove the obstruction from the Ultimate Limit Switch Device.</td>
</tr>
<tr>
<td>5 The connector of the Upper/Ultimate Limit Detection Device is disconnected.</td>
<td>Connect the connector of Upper/Ultimate Limit Detection Device properly.</td>
</tr>
<tr>
<td>6 Overload protection feature is activated due to overload.</td>
<td>Unload the weight in platform.</td>
</tr>
</tbody>
</table>

### CASE 2

**Press “UP” Button, but BISOMAC210 will not Ascent. Or pumping.**

<table>
<thead>
<tr>
<th>Problem</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 BISOLOAD’s connector is disconnected.</td>
<td>Connect BISOLOAD’s connector properly.</td>
</tr>
<tr>
<td>2 Upper Limit Switch is activated.</td>
<td>Remove the obstruction from the Upper Limit Switch.</td>
</tr>
<tr>
<td>3 BISOLOAD is activated due to weight is exceeded.</td>
<td>Unload the weight in platform.</td>
</tr>
<tr>
<td>4 Voltage is too low.</td>
<td>Supply power within allowable power of BISOMAC210, see Section 2.1.</td>
</tr>
<tr>
<td>5 Power Cable is too long or size is too small.</td>
<td>Shorten power cable or use larger size.</td>
</tr>
</tbody>
</table>

### CASE 3

**Motor runs but Hoist will not self-reeve**

<table>
<thead>
<tr>
<th>Problem</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Inadequate bullet on the wire rope.</td>
<td>Make sure the proper wire rope is used, see Section 7.2.2.</td>
</tr>
<tr>
<td>2 Wire rope is worn or damaged.</td>
<td>Stop operation of the BISOMAC210 immediately and replace wire rope.</td>
</tr>
<tr>
<td>3 The exit of wire rope is blocked.</td>
<td>Remove obstruction which caused blockage.</td>
</tr>
</tbody>
</table>
### CASE 4
*Hoist self-reeves, but will not lift platform*

<table>
<thead>
<tr>
<th>Problem</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Inadequate wire rope is used.</td>
<td>Make sure the proper wire rope is used, see Section 2.2.</td>
</tr>
<tr>
<td>2 Wire rope is worn or damaged.</td>
<td>Replace wire rope.</td>
</tr>
</tbody>
</table>

### CASE 5
*BISOMAC210 ascending speed is too low.*

<table>
<thead>
<tr>
<th>Problem</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Power voltage is too low.</td>
<td>Supply proper voltage, see Section 2.1.</td>
</tr>
<tr>
<td></td>
<td>Replace a correct power cable, see Section 2.4.</td>
</tr>
<tr>
<td>2 Wire rope is worn or damaged.</td>
<td>Replace wire rope.</td>
</tr>
</tbody>
</table>

### CASE 6
*BISOMAC210 makes unusual noise*

<table>
<thead>
<tr>
<th>Problem</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Insufficient oil charge to the Gear Box.</td>
<td>Replace it with a proper functioning BISOMAC210.</td>
</tr>
<tr>
<td>2 Gear Box is damaged or broken.</td>
<td></td>
</tr>
<tr>
<td>3 Foreign material became deposited in the each device inside.</td>
<td></td>
</tr>
<tr>
<td>4 There will be problem in the each device inside.</td>
<td></td>
</tr>
<tr>
<td>5 Each device’s bolts and nuts are loosened.</td>
<td>Check them and tighten properly.</td>
</tr>
<tr>
<td>6 Wire rope is not appropriated for BISOMAC210.</td>
<td>Make sure the proper wire rope is used. See section 2.4 and 2.5.</td>
</tr>
</tbody>
</table>
### CASE 7

**BISOMAC210 is too hot**

<table>
<thead>
<tr>
<th>Problem</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Voltage of input power is too high</td>
<td>The supply voltage should not exceed +10 %, See Section 2.1.</td>
</tr>
<tr>
<td>2 Air supply to Motor is in bad condition</td>
<td>Improve air ventilation on protection cover of BISOMAC210.</td>
</tr>
<tr>
<td>3 Frequency use of BISOMAC210.</td>
<td>Strict observance of BISOMAC210 operation hours, see Section 6.</td>
</tr>
<tr>
<td>4 Beyond BISOMAC210 lifting capacity.</td>
<td>Check the weight of platform and the load on it is right. If any problems found, adjust it to proper load.</td>
</tr>
</tbody>
</table>

### CASE 8

**BISOLOCK is activated**

<table>
<thead>
<tr>
<th>Problem</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 There is kink, deformation on safety wire rope.</td>
<td>Stop the operation of BISOMAC210 immediately and replace it with good condition wire rope.</td>
</tr>
<tr>
<td>2 The diameter of the safety wire rope is thick.</td>
<td>Confirm the wire rope diameter and replace it with good condition wire rope. See section 7.2.1.</td>
</tr>
</tbody>
</table>
Revise History:

Revision 1: December 4, 2009
   3P 800 Hoist wiring drawing & 6.3 Emergency Descent Lever section was revised.
   (EM0003)
Revision 2: February 8, 2012
   3P 800 Hoist wiring drawing was revised (EM0013).
Revision 3: August 1, 2012
   Page 11 core and size was revised. (EM0014)
Revision 4: June 5, 2018
   1. Add explanation on BISOLOCK.
   2. Add explanation on one-point hanging platform.
   3. Review and add content of warning and caution.
   5. Add minimum usage load on specification.