Series 730 Stadia Turnstile

Operation and Maintenance Manual

Please read this manual before using this product for the first time! Act in accordance with the manual and keep it in a safe place for later use or for the following owner.

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FOREWORD

Thank you for choosing Heras. You have selected one of our industry-leading entrance control solutions. This manual gives operation and maintenance information for the 94x range of barrier systems.

DISCLAIMER

Although every effort has been made to ensure that the information contained in this manual is correct at the time of issue, no responsibility is accepted for any loss or damage arising from incorrect information.

This manual forms no part whatsoever of any contract or agreement between Heras and others. In no circumstances will Heras be responsible or liable for any costs, damage or injury whatsoever arising from the use of this Manual.

Should the turnstile be tampered with and/or any non-approved equipment is fitted to the turnstile then any warranty will be considered void.

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1 PREFACE

1.1 MANUFACTURER / SUPPLIER

Manufacturer: Heras UK
33 Stakehill Industrial Estate
Middleton, Manchester M24 2RW
England
Tel.: +44(0)1302 364 551
www.heras.co.uk

Technical Construction File: Heras UK, T&I Department

1.2 DEFINITIONS: USER / OPERATOR / ENGINEER

User: Anyone using the product.

Operator: A user who is familiar with all safety aspects dealt with in this manual. Operators are not allowed to carry out any installation work on the turnstile unless explicitly specified.

Engineer: The engineer is a Heras fitter (or an engineer employed by the customer who has been given explicit permission in writing from Heras) who is qualified to perform technical interventions on the turnstile.

1.3 PRESCRIBED USE / APPLICATION

Only the correct installation and maintenance by an authorised/qualified company or person in agreement with the user manual, logbook, check lists and maintenance lists can ensure the safe operation of the system.

A qualified person is, according to EN 12635, a person who has the required training, qualified knowledge and practical experience required to install, test and maintain the system correctly and safely.
1.4 **CONFORMITY WITH EUROPEAN DIRECTIVES**

The installation complies with the following EU Directives/ regulations:

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<td>EC</td>
<td>Machine Directive</td>
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<tr>
<td>2014/30/EU</td>
<td>EU</td>
<td>EMC Directive (electromagnetic compatibility)</td>
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<tr>
<td>305/2011/EC</td>
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The design and production has been executed compliant with the applicable product standard EN 13241 and the underlying standards EN 12604 and EN 12453.

A Declaration of Performance (DoP) and Declaration of Conformity (DoC) are obligatory for this product. The DoP and DoC are included in Appendix B.

1.5 **DELIVERY**

The 730 must be installed, connected, set up and commissioned by a fitter or an engineer who also connects and programs any accessories. The control unit is adjusted to the options/accessories agreed with the user. The relevant options are laid down during hand-over.

Of course, you can add optional/accessories afterwards. Contact your supplier for this.

Turnstiles are always delivered fully tested.

After installation and commissioning, by a Heras technician or a technician trained by Heras, the cover of the turnstile must be closed. This is done to prevent unauthorised access.
2 SAFETY

2.1 EXPLANATION OF THE SYMBOLS

Caution: To prevent personal injury, you must observe the safety instructions below.

Note: To prevent material damage, you must observe the safety instructions below.

Information: This is followed by further information or by a reference to other documents.

Warning: Risk of limbs getting crushed.

Warning: Risk of injury to hands by rotating parts.

2.2 GENERAL SAFETY INSTRUCTIONS

• The operator must read the entire user manual before the turnstile is used for the first time. The instructions stated in the user manual must be observed and complied with. All other forms of use can cause unexpected hazards and are forbidden.

• It is forbidden to apply the drive unit to turnstiles other than those stated in this manual, without Heras’ permission.

• Applying a third-party drive unit and/or safety edge may affect safety and will invalidate the CE mark.

• The turnstile must only be put into use if all safety facilities are in place and connected, and work properly.

• All faults which might present a source of danger to the user or to third persons must be eliminated immediately.

• All warnings and safety notices on the equipment must be in place and clearly legible at all times.

• Closing the turnstile infill openings in any way, such as by means of banners, advertising signs etc, is not allowed as this may negatively affect the safe operation of the turnstile.

• All alterations or extensions to the turnstile must be carried out by qualified personnel using parts which the manufacturer has defined as suitable for such alterations or extensions. Any failure to comply with these instructions will be considered as non-compliant behaviour and will invalidate the manufacturer’s guarantee, as a result of which the risk entirely transfers to the user.
• For a double sliding turnstile, it is strictly forbidden to remove the central slam support (mounted on the floor in the opening). This is important for the stability of the turnstile when closed.

• Improper usage or servicing or ignoring the operating instructions can be a source of danger for persons, and/or result in material damage.

• If the meaning of any part of these installation and operating instructions is not clear, then please contact your supplier before you use the equipment.

2.3 INTENDED USE

The turnstile is intended to control access to a specific plot, premises or site. The turnstile is intended for both industrial and private use.

The turnstile drive and control unit is adjusted to the options agreed with the user. The relevant options are laid down during hand-over.

Carefully read this user manual before operating the turnstile. You must always be familiar with the operating mode the turnstile is in.

2.4 SAFETY DURING USE

Children or people with a disability must not operate the turnstile. Parents must supervise their children to prevent them playing with the turnstile.

PARENTS ARE RESPONSIBLE FOR THEIR CHILDREN

• Keep a safe distance from the moving turnstile. Warning icons to this effect have been installed in various locations.

• The safety edges serve as emergency facilities to immediately stop and reverse the turnstile movement. Using them as a regular turnstile stop feature is not allowed.

• When hold-to-run-control is employed, the turnstile must only be operated if it can be seen completely, directly and in real-time. Operation must be via a permanently installed operating device, for instance a key switch or push button. This operating device must be located in such a way that the operator’s position is safe. The turnstile must stop immediately when the button or key is released. Other operating devices are not allowed.

• The turnstile must be able to move freely without there being obstacles in the gate opening passage or anywhere else on the moving trajectory of the gate.

• Do not stick any objects through, over or under the gate which might block the gate.

• The gate running surface must always be free from snow, ice or dirt that might affect its sliding behaviour. In the event of frost, check this before commissioning
the gate. If the running surface is blocked, the gate will not move at all or will not complete its movement. An irregular running surface may cause damage to the drive and/or road wheels.

- In certain circumstances, the sun can temporarily distort the gate. When closing the gate, the leaf is guided to its neutral position. When opening the gate, the leaf will move around somewhat. This has no adverse consequences for the construction.

- Climbing the gate is strictly forbidden as people climbing the gate could be hurt if the gate is started unexpectedly.

- Do not place any obstacles in the opening.

- Always lock the drive unit cabinet during use.

2.5 **SAFETY DURING INSTALLATION, MAINTENANCE AND DISASSEMBLY**

- When work is carried out or while cleaning the turnstile, the power supply to the system must be switched off and it must be ensured that it cannot be switched on unexpectedly.

- Use the necessary personal safety equipment.

- The turnstile is driven by means of a gear wheel. This is located under the beam and it is partly screened off by the drive unit cabinet. Beware of moving parts when carrying out maintenance under the turnstile at the drive unit cabinet.

- To move the gate manually, first switch the automatic fuse in the drive unit cabinet to “off” and make sure it cannot be switched on again (e.g. by locking the cabinet).

- The EN 13241 and EN 12453 standards must be taken into consideration during installation. To achieve a good safety level, both the above standards and the national regulations must be taken into account in non-EC countries.
3 DESCRIPTION

3.1 OVERVIEW

The Series 730 Stadia Turnstile is an electromechanical turnstile. It is used to control pedestrian access of spectators. The turnstile is usually installed within sporting venues where customers use the turnstiles to enter the venue. In a typical installation the turnstile is not used for exiting the venue/building and alternative routes should be provided by the end user/owner of the building.

The Series 720 Pod Turnstile is an electromechanical turnstile. It is used to control pedestrian access into restricted areas.

![Diagram of turnstile components]

The turnstile operating mechanism is of an electro-magnetic solenoid release type, with bi-directional non-return tooth sprocket assembly to select the direction of the rotor and the pawl-locking feature.

The ratchet system ensures that the rotor returns to the locked position after each 90-degree movement. Intermediate movement is restricted preventing unauthorised access. The turnstile rotor has a 90-degree configuration with four sets of horizontal straight arms positioned at 90-degree intervals. Upon isolation of the electrical supply the turnstile remains locked. The turnstile can be released for one rotation (i.e. 90-degree rotation) by means of push button control and/or card access control reader system.
3.2 DETAILS

Description: Series 730 Stadia Turnstile

Controllers: 1 No Integrated Programmable Controller. With provision for connection of remote push button and card access control.

Available Additional Equipment: Way Mode Indicators, Pay Screen & Push Buttons (These are available on request and at an extra cost)

Electrical Supply: All Turnstiles required a Single Phase 230VAC 50 Hz Supply rated @ 6 Amps.

(Please note this is not the consumption of the unit)

Battery Backup/UPS: Available on request as an extra is the choice of a backup system to allow the turnstile to operate after loss of the site’s electrical supply.

Further details are available on request.

Overall Height: 2200mm

Passage Height: 2000mm

Minimum Height Required For Servicing: 2500mm

Overall Width: 1100mm

Standard Colour: BS 04E53 Poppy Red – Other RAL/BS colours available on request.
4 OPERATION

4.1 PUSH BUTTON CONTROL

When remote push button controls are installed it is possible for an operator to allow persons to pass through the turnstile in either entry or exit direction. Push button units can be used together with intercom systems which allow visitors to speak to someone in order to gain entry / exit through the turnstile.

4.2 CARD READER SYSTEMS

4.2.1 GENERAL

Please note that this section is intended to provide a basic understanding of the factors that should be taken into account when it is intended to connect card readers that have not been supplied by Heras. This information is only relevant to the experience Heras has gained over the past 20 years and is based on our understanding of the card reader systems that have been interfaced to our turnstiles in the past.

This should not be used as a definitive guide to all card reader systems that may be connected to our turnstiles (or that you intend to connect). You should consult your card reader provider to clarify that the reader system is compatible with our turnstiles and are capable of providing the correct functionality.

4.2.2 DOOR OPEN TIME

As mentioned in the previous section Card Readers Systems can be interfaced to the turnstile for entry and/or exit. It is necessary that the output from the card reader system is a volt free contact and has a normally open configuration. Many card reader systems refer to the period of time that the relay output (of the reader system) is activated as “door open” time. The turnstile control panel will only allow one rotation per “door open” (or activation of relay) regardless of the duration time of the “door open”. This is necessary to avoid the turnstile rotating more than once per “door open” time.
4.2.3. **TRANSIT TIME**

It is important to note that it is possible for a person to transit through the turnstile very quickly; this transit time is dependent on the person using the turnstile and therefore varies dependant on how familiar the person is with the turnstile and card reader. For persons who are familiar with the turnstile and card reader system and who are regular users this transit time can be as low as 2 seconds.

4.2.4. **WITHOUT FEEDBACK**

When a card reader system does not have a “feedback” input which is usually used to reset the “door open time” then it’s very important that the “door open” time of the card reader system be set to a maximum of 1 second in order to allow a quick transit through the turnstile. Please note that many card reader systems may have a default time as high as 5 seconds this will considerably slow down the transit time for each entry/exit (rotation). In other words the transit time will be at least as long as the “door open” time (therefore at least 5 seconds).

\[
\begin{array}{c}
\text{card reader door open time} \\
\hline
\text{TIME (SEC)}: \quad 0 \quad 1 \quad 2 \quad 3 \quad 4 \quad 5 \\
\text{transit time} \\
\end{array}
\]

**Representation of 2 second transit time with 3 second lag**

In instances where each person using the turnstile has a transit time of 2 seconds; then the above (5-second door open time) will result in a 3-second lag/delay between each person being able to use the card reader and therefore being able to use the turnstile.

4.2.5. **WITH FEEDBACK**

When a card reader system which requires “feedback” is installed then we would recommend that the “door open” time should be set to the same value as the “Re-Lock” time minus 2 seconds (see section 2.4). This type of card reader system requires an output from the turnstile to tell it when to lock the turnstile (this is provided as standard). This output which is connect to the an input on the card reader system is usually referred to as “feedback”.

This type of card reader system is used when more accurate monitoring of access/egress to site is needed.

\[
\begin{array}{c}
\text{card reader signal} \\
\hline
\text{TIME (SEC)}: \quad 0 \quad 1 \quad 2 \quad 3 \quad 4 \quad 5 \\
\text{feedback} \\
\text{transit time} \\
\end{array}
\]

**Representation of 2 second transit time with feedback**
4.3 **RE-LOCK TIMER**

When an entry or exit signal is received from either a push button or card reader the turnstile will unlock in the relevant direction, should no person walk through the turnstile then the turnstile controller will relock after 30 seconds. This parameter is preset within the controller’s software.

![Diagram of re-lock timer](image)

**Representation of no transit (entry or exit to site) & 30 sec relock**

4.4 **RELEASE INPUTS**

The turnstile controller has 4 release inputs as standard. Two of which are “single release” inputs. The remaining two are “hold open” release inputs. The control panel is wired to the “single release” inputs.

4.4.1. **SINGLE RELEASE INPUTS**

Inputs I1 and I2 are single release inputs, for entry and exit respectively. A single release input will not allow the turnstile to rotate more than once per release signal. Hence regardless of how long the release signal is the controller will only allow one rotation of the turnstile rotor. This type of input avoids multiple rotations when the release signal is longer than the transit time.

**Important Note:** When a controller is being installed as a replacement/upgrade on a turnstile, which previously had an old type controller; then we recommend that the “single release” inputs (I1 & I2) are not used and that the “hold open” inputs (I3 & I4) are used instead. This will allow the turnstile to behave in the same manner as the previous system; therefore resulting in the unit’s behaviour being predictable and avoiding confusing with users.
4.4.2. **HOLD OPEN RELEASE INPUTS**

Inputs I3 and I4 are hold open release inputs, for entry and exit respectively. A hold open input will allow the turnstile to rotate more than once per release signal. The number of rotations is dependent on the length of the signal. Should the release signal be longer than the average transit time then it will be possible to rotate the turnstile rotor more than once which is suitable for card readers using free entry/exit time zones; but will be unsuitable for normal operation.

**Important Note:** When a hold open input is active the turnstile will always momentarily relock the turnstile rotor after each complete rotation it will then immediately unlock the rotor to allow the next rotation. This feature is necessary in order to stop the rotor being pushed at velocity, which could result in injury to users. Should both entry and exit hold open inputs be activated together then the controller will default to exit. It will not allow the turnstile be held open in both directions (entry and exit).

4.5 **ELECTRICAL ISOLATION**

To isolate the turnstile it is necessary to switch off the unit using the isolator located at the top of the turnstile unit.

Do not work on the turnstile until the unit has been isolated!

It is advisable that a permit to work system is put in place complete with remote isolation being carried out prior to working on the unit.
5 TECHNICAL DETAILS

5.1 CONTROL PANEL

The control panel for the turnstile incorporates a PLC, a switch mode power supply unit and a set of field termination connectors/terminals.

The connection details and layout of the control panel is shown below

View of control panel with terminal details & parts list

Please Note: On Turnstiles with Battery Back Up The PSU is mounted externally

Only Qualified & Electrically Competent Personnel should work within the control panel. Always Test that no voltage is present! prior to working on the turnstile.
5.2 **MECHANICAL ARRANGEMENT AND DRIVE OPERATION**

The main framework is constructed from steel section; surface finished to clients specified RAL colour. The central rotors are of steel hollow section; surface finished to clients specified RAL colours. The rotor arms are of steel circular hollow section. The bearing housings are fully enclosed above ground level. All bearings are heavy duty, triple sealed, dirt and moisture resistant. Lifetime lubricated with high quality all weather grease to provide minimum maintenance operation.

5.3 **HEAD MECHANISM**

The turnstile head mechanism is located at the top of the turnstile and is coupled to the turnstile rotor. There are two 24VDC solenoids used to secure and release the turnstile. When the relevant solenoid is energised / activated this allows the turnstile to release in either the entry or exit direction. There are two PNP 24VDC normally closed proximity limit switches, which are used to tell the control panel when to de-energise the relevant solenoid and thus relock the turnstile after one rotation.

View of turnstile head mechanism
5.4 **PNP PROXIMITY SWITCH SETTINGS**

It is beneficial to use a plug-in LCD display to carry out the following adjustments. This unit is not supplied with the turnstile and is available on request. The display monitors the inputs/outputs of the turnstile controller.

**Entry Proximity Switch Setting**

- Loosen the 2 x M6 grub screws in the relevant cam, this will allow the cam to rotate.
- Check the gap between each sensing screw and the proximity switch and adjust if necessary by turning the screws with a screwdriver until a gap of 1mm is achieved on all screws.
- Important note: - 90-degree turnstiles have 4 sensing screws; 120-degree turnstiles have 3.
- When the switch detects then the yellow LED at the end of proximity switch will switch off.
- Rotate the cam clockwise until both lights are illuminated, and a gap of 3mm between the proximity sensor and the edge of the sensor screw is achieved.
- Re-tighten both M6 locking grub screws in the cam.
- Check the operation of the turnstile in the relevant direction using a signal from the control equipment i.e. push button, card reader etc.

**Exit Proximity Switch Setting**

As entry proximity switch setting.
5.5 PROGRAMMABLE CONTROLLER

The control logic for the turnstile incorporates a Programmable Controller as the main control component. This incorporates input terminals and output terminals. The controller is used to replace a large number of relays and timers. The controller is programmed via a PC/Laptop; the program being stored in a Random Access Memory (RAM), which allows the program to be modified on site to ensure that the system performs exactly as required.

The inputs are digital and activate when + 24 Volts is fed into the relevant input terminal. Any proximity limits connected to the inputs of the PLC must be PNP type. The outputs are relay contacts which are capable of switching 8 Amp resistive loads.

Only qualified electrical personnel should perform work on control panel. Always ensure that no voltage is present prior to working on the turnstile.

5.6 LOGIC AND LOGIC LINKS

Using keys located on the front of the PLC, it is possible to have the turnstile operate in four different control logics. This is the amalgamation of 4 versions of software into one, allowing us to standardise our control panels for conventional turnstiles, as well as stadia and tripod turnstiles.

The followings control logics are available of links should be used:

1. Standard Logic
2. Stadia Logic
3. Tripod Logic
4. FULEX Logic
5.6.1. **STANDARD LOGIC**

This is the default logic of the turnstile. This logic is only active when any of the other three logics are not switched ON.

This logic is suitable when both entry & exit solenoids are configured to lock when power is removed from the turnstile. With this configuration output 3 & output 4 of the controller will work as entry and exit feedbacks respectively.

5.6.2. **STADIA LOGIC**

This logic works as per the standard logic with exception to output 4. When stadia logic is used then output 4 works in tandem with output 3. This allows output 3 to be kept as entry feedback while output 4 is used to switch 24VDC to an electromechanical counter, which records the number of entry rotations. This logic also activates the Stadia Counter on the PLC LCD.

The procedure for switching this control logic on/off is as follows:

To switch between ON/OFF Press and hold the A button together with the MINUS button located on PLC for 10 continuous seconds.

5.6.3. **TRIPOD LOGIC**

Tripod logic simply inverts output 1 and output 2 of the controller to work with entry & exit solenoids that are configured to unlock when power is removed from the turnstile.

The procedure for switching this control logic on/off is as follows:

To switch between ON/OFF Press and hold the B button together with the MINUS button located on PLC for 10 continuous seconds.

5.6.4. **FULEX LOGIC**

FULEX stands for Fail Unlocked Exit. This logic is used when only the exit solenoid is configured to unlock when power is removed from the turnstile. Please note to achieve this for entry in place of exit, i.e. only the entry solenoid should unlock when power is removed from the turnstile then it is merely necessary to interchange the entry field terminations with those of the exit.

The procedure for switching this control logic on/off is as follows:

To switch between ON/OFF Press and hold the A button together with both the MINUS and B buttons located on PLC for 10 continuous seconds.
5.7 CONTROLLER PARAMETER VARIABLES

The PLC controller has three parameters which can be switched on or off using the buttons located on the front of the PLC controller.

To view the parameter screen press and hold the down the minus button

The parameters are as follows:

5.7.1. NORMALLY CLOSED FEEDBACK (NC FEEDBACK)

This function will allows feedback outputs O3 & O4 to be switched from normally open to normally closed during standby.

The procedure for switching on/off this parameter is as follows see picture of controller here above:

- Press and hold MINUS button on PLC to view parameter screen
- If “00000NC FEEDBACK” is shown then this indicates that the function is currently switched OFF
- If “00001NC FEEDBACK” is shown then this indicates that the function is currently switched ON
- To switch between ON/OFF Press and hold the A button located on PLC for 10 continuous seconds.
- Once again press and hold the MINUS button on PLC to view parameter screen and verify the parameters.
5.7.2. **EARLY FEEDBACK (EARLY FEED)**

This function allows the feedback outputs to be activated at the start of the turnstile’s rotation. When this function is off the feedback outputs will activate towards the end of the turnstile’s rotation. The procedure for switching on/off the early feedback parameter is as follows see picture of controller on previous page:

- Press and hold MINUS button on PLC to view parameter screen
- If “00000EARLY FEED” is shown then this indicates that the function is currently switched OFF
- If “00001EARLY FEED” is shown then this indicates that the function is currently switched ON
- To switch between ON/OFF Press and hold the A button located on PLC for 10 continuous seconds.
- Once again press and hold the MINUS button on PLC to view parameter screen and verify the parameters.

5.7.3. **HOLD OPEN LOGIC (HOLD OP LOG)**

When this parameter is active an open input will allow the turnstile to rotate more than once per release signal. The number of rotations is dependent on the length of the signal. Should the release signal be longer than the average transit time then it will be possible to rotate the turnstile rotor more than once which is suitable for card readers using free entry/exit time zones; but will be unsuitable for normal operation.

Important Note: When a hold open input is active the turnstile will always momentarily relock the turnstile rotor after each complete rotation it will then immediately unlock the rotor to allow the next rotation. This feature is necessary in order to stop the rotor being pushed at velocity, which could result in injury to users. Should both entry and exit hold open inputs be activated together then the controller will default to exit. It will not allow the turnstile be held open in both directions (entry and exit). The procedure for switching on/off the Collision Return parameter is as follows see picture of controller on previous page:

- Press and hold MINUS button on PLC to view parameter screen
- If “00000HOLD OP LOG” is shown then this indicates that the function is currently switched OFF
- If “00001HOLD OP LOG” is shown then this indicates that the function is currently switched ON
- To switch between ON/OFF Press and hold both A and B buttons located on PLC for 10 continuous seconds.
- Once again press and hold the MINUS button on PLC to view parameter screen and verify the parameters.
5.8  POWER SUPPLY UNIT

5.8.1. STANDARD

The control panel has a 230VAC to 24VDC switch mode PSU which provides the low voltage for the controls and solenoid. The power supply unit also takes care of thermal overload of the 24VDC output this provides the electrical protection on the inputs/outputs of the control panel as well as the solenoids and proximity switches.

5.8.2. BATTERY BACKUP VERSION

The battery backup power supply unit is a trickle-charge unit. This unit has its own enclosure which houses 2 No 7AH 12VDC batteries. The Batteries are configured in series with each other; this is required to achieve the 24DC required. Please Note the standard PSU is removed from the control panel and is replaced by the unit shown below:

![View of Battery Backup PSU Enclosure](image1)
![Internal View of Battery Backup PSU](image2)

In order to fully isolate the low voltage output of the battery back-up system, disconnect the two batteries from the PSU’s printed circuit board.

Only qualified electrical personnel should work within the power supply enclosure. Always test that no voltage is present prior to working on the turnstile.

5.9  FAULT DIAGNOSIS

In the event that the turnstile will not rotate, it is possible to test the system via the Card reader test key switch as follows:

- Change the key switch position from Normal operation (position 1) to Card reader isolate (position 2). This will isolate either the entry or exit card readers depending on which key switch is being operated.

- Change the key switch position to Turnstile rotate (position 3), and the Turnstile should rotate.

- If the Turnstile rotates the fault is with the Card reader signal.

- If however the Turnstile does not rotate the fault may be with the equipment. In this event please contact Heras service department.
6 MAINTENANCE

6.1 GENERAL

The turnstile equipment described in this manual is designed to a high standard in order to cope easily with long periods of arduous duty. It is however, necessary to maintain the working efficiency at a level, which reduces wear and tear and so avoids premature breakdown.

A scheme of planned preventative maintenance will ensure an optimum return of reliability and security, at a minimum cost. Heras can provide a quote for a preventative maintenance scheme.

A system logbook should be kept for the system and a record kept of faults, damage, breakdowns and spares used. This record will help to identify any continuing problems such as worn or miss-aligned components.

6.2 WARNING

Whenever work is to be carried out, or checks are to be made on electrical components or connections, the complete system must be isolated at or adjacent to the control cabinet and locked out until work is completed.

It is recommended that a ‘permit to work’ system is instituted and that proper control of the mains supply is affected.

6.3 LIVE WORKING

If it is necessary to work on live equipment, such work must be carried out by skilled personnel who are aware of potential dangers and of the safety precautions, which must be taken. Rotating parts of drive systems may present a particular danger of snagging or pick-up of loose clothing. For this reason, ties, scarves or other loose items must be removed.
6.4 ROUTINE MAINTENANCE

Mechanical Checklist

The Turnstile should be cleaned externally every month with a mild non-abrasive detergent. Fixing and all exterior bolts should be checked and re-tightened if necessary.

6.4.1. SIX MONTH MAINTENANCE

- Check overall turnstile condition for deterioration.
- Check foundation bolts are secure and re-grease.
- Check security of bolts on all equipment.
- Check control panel for correct operation.
- Check all cable terminations are secure.
- Check bottom and top bearing assembly and grease.
- Check full operation of turnstile by releasing exit and entry from control points.

6.4.2. ANNUAL MAINTENANCE

- Examine sprocket condition and lightly oil.
- Check proximity switch operation
- Check solenoid spring tension.
- Check solenoid plungers are clean and free from contamination.
- Lubricate using good quality Mineral engine oil
- Note: Under no circumstances use grease on the mechanism as this may solidify under cold conditions and the mechanism may jam.
7 SPARE PARTS

<table>
<thead>
<tr>
<th>Description</th>
<th>Part number</th>
<th>Quantity</th>
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<tbody>
<tr>
<td>Controller XD10</td>
<td>01288</td>
<td>1</td>
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<tr>
<td>PSU 60W</td>
<td>001078</td>
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<tr>
<td>M8 2- Proximity Sensor</td>
<td>001084</td>
<td>2</td>
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<tr>
<td>Mechanical head</td>
<td>000157 x 1, 00067 x 2, 000160 x 2</td>
<td>941/19</td>
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<tr>
<td>Bottom bearing rotor</td>
<td>000154</td>
<td>1</td>
</tr>
</tbody>
</table>

8 DECOMMISSIONING AND REMOVAL

Ensure that the gate is dismantled by a qualified technician.

Disconnect the electricity supply in a safe way from the drive unit.

Use the installation manual.

At the end of their service lives the products must be disposed of in accordance with all local, regional and national rules and instructions.