

# ARTIS<sup>®</sup>

ART IN MOTION

## STRENGTH

*SERVICE & MAINTENANCE MANUAL*

*Rev. 1.1*



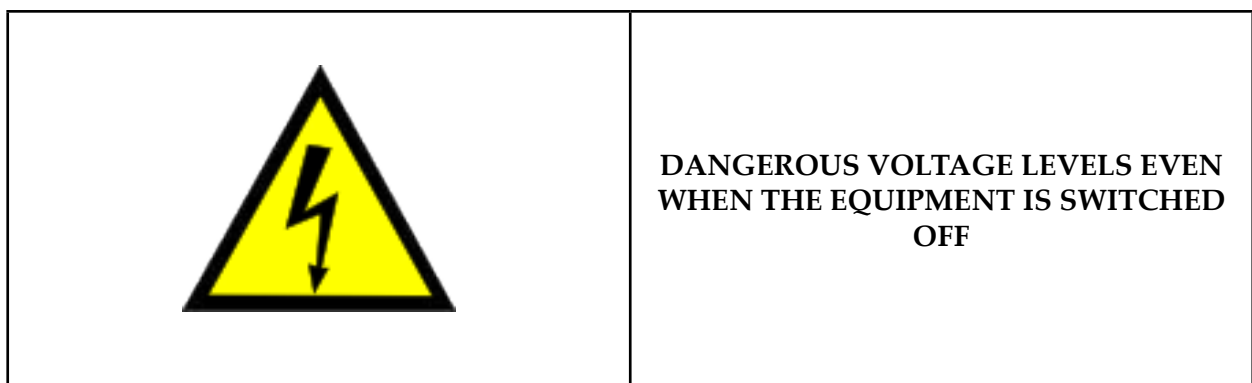
**TECHNOGYM**

The Wellness Company



The information in this manual is aimed at **QUALIFIED TECHNICAL PERSONNEL**, who have been specifically trained by TECHNOGYM and are qualified to carry out fine tuning and start-up of the equipment, as well as major maintenance work and repairs, requiring in-depth understanding of the equipment, how it works, its safety devices and maintenance procedures.

**READ ALL THE INFORMATION IN THIS DOCUMENT VERY CAREFULLY BEFORE CARRYING OUT ANY SERVICE WORK ON THE EQUIPMENT.**



**NOTE:**

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# 1. GENERAL WARNINGS

## 1.1 INTRODUCTION

This document has been prepared specifically for **Technogym After Sales Service** with the aim of providing authorised personnel with the information for carrying out maintenance and repair operations in the correct manner.

A thorough understanding of the technical data contained herein is absolutely fundamental in order for the operator to achieve the highest level in professional training.

To make the text more readily understandable, the paragraphs have illustrations and diagrams which highlight the specific subject matter.

**This manual includes informative notes with specific meanings:**



**ATTENTION: REGULATION WHICH MAY LEAD TO INJURY IF NOT COMPLIED WITH.**



**CAUTION: REGULATION WHICH MAY CAUSE DAMAGE TO THE EQUIPMENT IF NOT COMPLIED WITH.**



**WARNING: INFORMATION REGARDING THE OPERATION IN PROGRESS.**



*Detail regarding the operation in progress.*

## 1.1 USEFUL ADVICE

**Technogym advises you to plan your technical assistance task in the following way:**

Carefully assess the impressions reported by the Customer regarding the equipment's operating faults and ask questions suitable to clarify the signs of the defect.

Be clear in your diagnosis of the reasons for the fault. You can pick up the basic theory from this manual, but this needs to be bolstered by your own personal experience and by taking part in the training courses organised periodically by Technogym.

Plan the repair work in a rational manner so as to avoid wasting any time, e.g. collecting spare parts, preparing tools and equipment etc.

Gain access to the part that needs to be repaired and limit yourself to the essential operations. On this point, it will be extremely helpful if you consult the dismantling sequences shown in this manual.

## 1.2 GENERAL REGULATIONS REGARDING SERVICE WORK

1. Always mark components or positions which might easily be confused with each other during re-assembly.
2. Use original Technogym spare parts and recommended brand lubricants.
3. Use special tools when specified to do so.
4. Consult the Technical Newsletters as they might contain more up-to-date details on regulation and servicing procedures compared to those in this manual.
5. Before undertaking any work, check that the recommended tools are available and that they are in good condition.
6. With regard to the procedures given in this manual, only use the tools that have been indicated.



*Tool sizes in this manual are expressed in mm.*



**ATTENTION: IT IS THE RESPONSIBILITY OF THE TECHNICIAN TO CLOSE OFF THE AREA WHERE HE IS WORKING AND OBSERVE SAFETY PRECAUTIONS.**

## 2. TECHNICAL SPECIFICATIONS

### 2.1 MACHINES CODES

The ARTIS LINE - STRENGTH machine code, consists of 16 alphanumeric characters arranged as follows:

| Characters        | Description                   | Key to values  |
|-------------------|-------------------------------|--|
| 1,2,              | Line Type                     | MK = ARTIS Line - STRENGTH   |
| 3,4,              | Machine Type;                 | 12 = Lat Machine<br>13 = Pectoral<br>16 = Squat<br>17 = Adductor<br>18 = Abductor<br>45 = Arm Extension<br>46 = Rear Delt Row<br>50 = Rotary Torso<br>51 = Leg Press<br>58 = Lower Back<br>67 = Multi Hip<br>69 = Shoulder Press<br>70 = Chest Press<br>71 = Vertical Traction<br>80 = Low Row<br>83 = Total Abdominal<br>90 = Leg Curl<br>91 = Leg Extension<br>92 = Arm Curl |
| 5,                | Weight Stack;                 | 0 = Standard<br>3 = Plus   |
| confor-<br>mity6, | Conformity                    | E = EC   |
| 7,                | Display / integrated devices; | H = U-GO / NFC+TGS+QR code   |

| Characters | Description             | Key to values                |
|------------|-------------------------|------------------------------|
| 8,9,       | Frame Colour            | BW = Carbon Grey             |
| 10,11,     | Upholstery Colour       | 9A = Mocha                   |
| 12,13,     | Plastic Colour          | 2N = Dark Grey + Carbon Grey |
| 14,15,     | Casings & Inlay Colour; | 2P = Carbon Grey + Grey      |
| 16.        | Packaging               | I = No Package               |

For example, a possible code is as follows:

|    |    |   |   |   |    |    |    |    |   |
|----|----|---|---|---|----|----|----|----|---|
| MK | 12 | 0 | E | H | BW | 9A | 2N | 2P | I |
|----|----|---|---|---|----|----|----|----|---|

## 2.2 BENCHES CODES

Il **CODICE** delle **PANCHE** della linea **ARTIS LINE - STRENGTH**, è un codice alfa-numerico di 16 caratteri così strutturato:

| Characters | Description       | Key to values  |
|------------|-------------------|--|
| 1,2,       | Line Type         | PA = Benches   |
| 3,4,       | Machine Type;     | 01 = Inclined bench<br>02 = Vertical bench<br>03 = Crunch bench<br>04 = Adjustable bench<br>05 = Lower Back bench<br>06 = Scott bench<br>07 = Horizontal bench<br>10 = AB Crunch bench |
| -          | -                 | -  |
| 5,6,       | Frame Colour      | BW = Carbon Grey   |
| 7,8,       | Upholstery Colour | 9A = Mocha   |
| 9,10.      | Plastic Colour    | GG = Grey RAL 7024   |

For example, a possible code is as follows:

|    |    |   |    |    |    |
|----|----|---|----|----|----|
| PA | 01 | - | BW | 9A | GG |
|----|----|---|----|----|----|

## 2.3 AMBIENT SPECIFICATIONS

|             |           |                                |
|-------------|-----------|--------------------------------|
| Temperature | Operating | from 5° to 35°C                |
|             | Storage   | from 10 to 25°C                |
| Dampness    | Operating | from 30% to 80% non-condensing |
|             | Storage   | from 20% to 90% non-condensing |

Tab. 1

## 2.4 CONFORMITY TO REGULATIONS

The machine conforms to the following standards:

|                   | EUROPE  | USA         |
|-------------------|---|-------------|
| <b>DIRECTIVES</b> | 2004/108/EC EMC Directive<br>2006/95/EC Low Voltage Directive<br>2006/42/EC Machinery Directive<br>1999/5/EC R&TTE Directive<br>2002/95/EC RoHS Directive<br>2002/96/EC WEEE Directive<br>2006/66/EC Battery Directive<br>2009/125/EC Ecodesign Directive |             |
| <b>EMI</b>        | EN55014-1<br>EN55014-2<br>EN55022 class   | FCC part 15 |
| <b>SAFETY</b>     | EN60335-1   | UL1647      |

Tab. 2

## 2.5 SERIAL NUMBER STRUCTURE

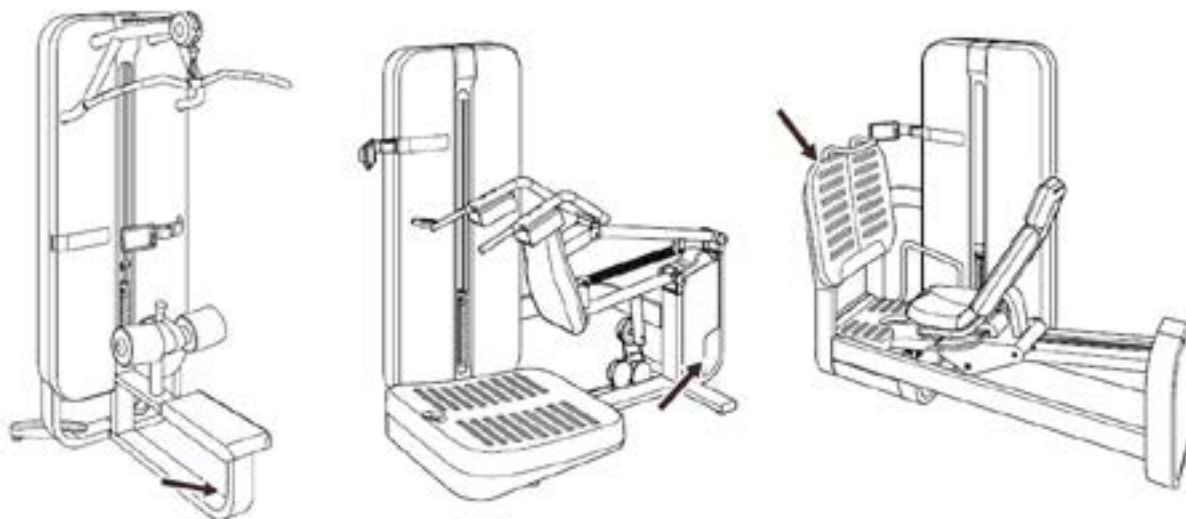
The Serial Number is made up of alphanumeric characters as follows:

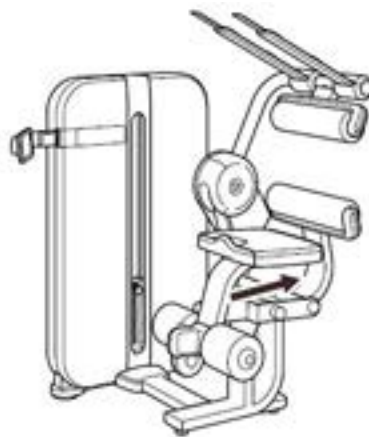
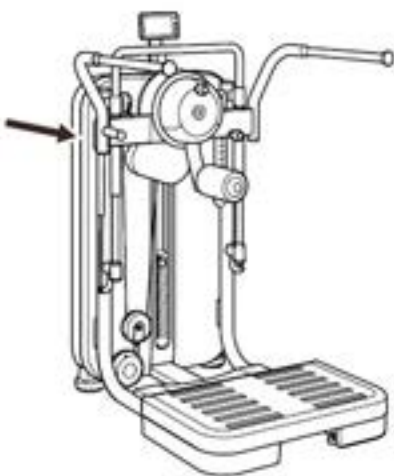
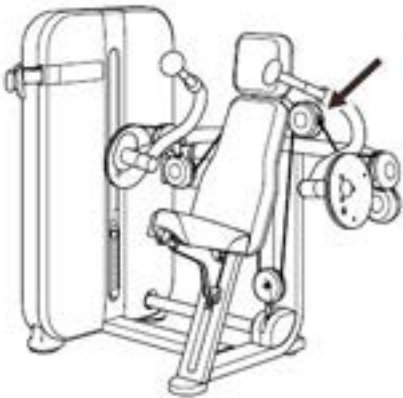
| Characters       | Description         | key to values   |
|------------------|---------------------|---|
| 1,2,3,4,5,       | Product Type        | MK = ARTIS Line - STRENGTH<br>xx = (Machine code)<br>y = (conformity) |
| 6,7,             | Year of production; | 13  |
| 8,9,10,11,12,13. | Progressive.        | 000001  |

For example, a possible product code would be:

|    |    |   |    |        |
|----|----|---|----|--------|
| MK | 12 | E | 13 | 000001 |
|----|----|---|----|--------|

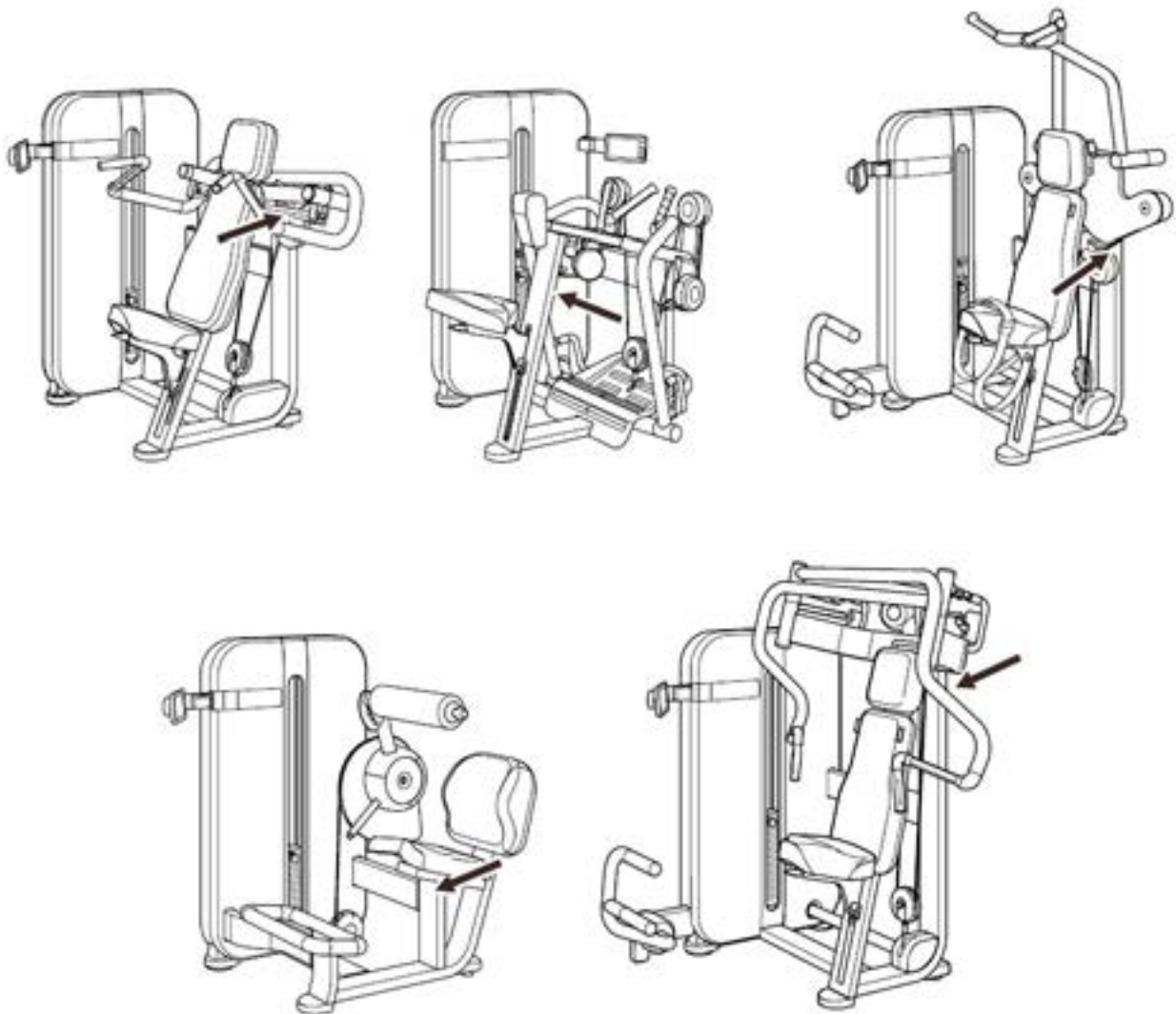
You can find the SN label on the machine, in the position indicated in the following pictures:







ARTIS LINE - ARTIS STRENGTH LINE:  
Technical Service guide - Rev. 1.1



## 2.1 CARATTERISTICHE MECCANICHE

### 2.1.1 ABDUCTOR



| OVERALL DIMENSIONS    |                |                |
|-----------------------|----------------|----------------|
| <i>Length</i>         | <i>1438 mm</i> | <i>57 in</i>   |
| <i>Width</i>          | <i>1097 mm</i> | <i>43 in</i>   |
| <i>Height</i>         | <i>1375 mm</i> | <i>54 in</i>   |
| <i>Machine Weight</i> | <i>208 kg</i>  | <i>459 lbs</i> |
| WEIGHT STACK          |                |                |
| <i>Standard</i>       | <i>70 kg</i>   | <i>140 lbs</i> |
| <i>Plus</i>           | <i>100 kg</i>  | <i>200 lbs</i> |

### 2.1.2 ADDUCTOR



| OVERALL DIMENSIONS    |                |                |
|-----------------------|----------------|----------------|
| <i>Length</i>         | <i>1438 mm</i> | <i>57 in</i>   |
| <i>Width</i>          | <i>1160 mm</i> | <i>46 in</i>   |
| <i>Height</i>         | <i>1375 mm</i> | <i>54 in</i>   |
| <i>Machine Weight</i> | <i>217 kg</i>  | <i>478 lbs</i> |
| WEIGHT STACK          |                |                |
| <i>Standard</i>       | <i>70 kg</i>   | <i>140 lbs</i> |
| <i>Plus</i>           | <i>100 kg</i>  | <i>200 lbs</i> |

### 2.1.3 ARM CURL



| OVERALL DIMENSIONS    |         |         |
|-----------------------|---------|---------|
| <i>Length</i>         | 1083 mm | 43 in   |
| <i>Width</i>          | 1450 mm | 57 in   |
| <i>Height</i>         | 1375 mm | 54 in   |
| <i>Machine Weight</i> | 232 kg  | 512 lbs |
| WEIGHT STACK          |         |         |
| <i>Standard</i>       | 70 kg   | 140 lbs |
| <i>Plus</i>           | 100 kg  | 200 lbs |

### 2.1.4 ARM EXTENSION



| OVERALL DIMENSIONS    |         |         |
|-----------------------|---------|---------|
| <i>Length</i>         | 1083 mm | 43 in   |
| <i>Width</i>          | 1439 mm | 57 in   |
| <i>Height</i>         | 1375 mm | 54 in   |
| <i>Machine Weight</i> | 234 kg  | 516 lbs |
| WEIGHT STACK          |         |         |
| <i>Standard</i>       | 70 kg   | 140 lbs |
| <i>Plus</i>           | 100 kg  | 200 lbs |

### 2.1.5 CHEST PRESS



| OVERALL DIMENSIONS    |         |         |
|-----------------------|---------|---------|
| <i>Length</i>         | 1409 mm | 55 in   |
| <i>Width</i>          | 1427 mm | 56 in   |
| <i>Height</i>         | 1673 mm | 66 in   |
| <i>Machine Weight</i> | 295 kg  | 650 lbs |
| WEIGHT STACK          |         |         |
| <i>Standard</i>       | 100 kg  | 200 lbs |
| <i>Plus</i>           | 125 kg  | 250 lbs |

### 2.1.6 LAT MACHINE



| OVERALL DIMENSIONS    |         |         |
|-----------------------|---------|---------|
| <i>Length</i>         | 1289 mm | 51 in   |
| <i>Width</i>          | 1202 mm | 47 in   |
| <i>Height</i>         | 2279 mm | 90 in   |
| <i>Machine Weight</i> | 286 kg  | 631 lbs |
| WEIGHT STACK          |         |         |
| <i>Standard</i>       | 100 kg  | 200 lbs |
| <i>Plus</i>           | 130 kg  | 260 lbs |

### 2.1.7 LEG CURL



| OVERALL DIMENSIONS    |         |         |
|-----------------------|---------|---------|
| <i>Length</i>         | 1304 mm | 51 in   |
| <i>Width</i>          | 1132 mm | 45 in   |
| <i>Height</i>         | 1375 mm | 54 in   |
| <i>Machine Weight</i> | 297 kg  | 655 lbs |
| WEIGHT STACK          |         |         |
| <i>Standard</i>       | 100 kg  | 200 lbs |
| <i>Plus</i>           | 125 kg  | 250 lbs |

### 2.1.8 LEG EXTENSION



| OVERALL DIMENSIONS    |         |         |
|-----------------------|---------|---------|
| <i>Length</i>         | 1095 mm | 43 in   |
| <i>Width</i>          | 1133 mm | 45 in   |
| <i>Height</i>         | 1375 mm | 54 in   |
| <i>Machine Weight</i> | 293 kg  | 646 lbs |
| WEIGHT STACK          |         |         |
| <i>Standard</i>       | 100 kg  | 200 lbs |
| <i>Plus</i>           | 125 kg  | 250 lbs |

### 2.1.9 LEG PRESS



| OVERALL DIMENSIONS    |                |                 |
|-----------------------|----------------|-----------------|
| <i>Length</i>         | <i>2083 mm</i> | <i>82 in</i>    |
| <i>Width</i>          | <i>1225 mm</i> | <i>48 in</i>    |
| <i>Height</i>         | <i>1950 mm</i> | <i>77 in</i>    |
| <i>Machine Weight</i> | <i>638 kg</i>  | <i>1407 lbs</i> |
| WEIGHT STACK          |                |                 |
| <i>Standard</i>       | <i>190 kg</i>  | <i>380 lbs</i>  |
| <i>Plus</i>           | <i>250 kg</i>  | <i>500 lbs</i>  |

### 2.1.10 LOWER BACK



| OVERALL DIMENSIONS    |                |                |
|-----------------------|----------------|----------------|
| <i>Length</i>         | <i>1448 mm</i> | <i>57 in</i>   |
| <i>Width</i>          | <i>1127 mm</i> | <i>44 in</i>   |
| <i>Height</i>         | <i>1375 mm</i> | <i>54 in</i>   |
| <i>Machine Weight</i> | <i>235 kg</i>  | <i>518 lbs</i> |
| WEIGHT STACK          |                |                |
| <i>Standard</i>       | <i>70 kg</i>   | <i>140 lbs</i> |
| <i>Plus</i>           | <i>100 kg</i>  | <i>200 lbs</i> |

### 2.1.11 Low Row



| OVERALL DIMENSIONS    |         |         |
|-----------------------|---------|---------|
| <i>Length</i>         | 1420 mm | 56 in   |
| <i>Width</i>          | 1185 mm | 47 in   |
| <i>Height</i>         | 1375 mm | 54 in   |
| <i>Machine Weight</i> | 268 kg  | 591 lbs |
| WEIGHT STACK          |         |         |
| <i>Standard</i>       | 100 kg  | 200 lbs |
| <i>Plus</i>           | 130 kg  | 260 lbs |

### 2.1.12 MULTI HIP



| OVERALL DIMENSIONS    |         |         |
|-----------------------|---------|---------|
| <i>Length</i>         | 1240 mm | 49 in   |
| <i>Width</i>          | 1123 mm | 44 in   |
| <i>Height</i>         | 1749 mm | 69 in   |
| <i>Machine Weight</i> | 312 kg  | 688 lbs |
| WEIGHT STACK          |         |         |
| <i>Standard</i>       | 100 kg  | 200 lbs |
| <i>Plus</i>           | 125 kg  | 250 lbs |

**2.1.13 PECTORAL**



| OVERALL DIMENSIONS    |                |                |
|-----------------------|----------------|----------------|
| <i>Length</i>         | <i>1414 mm</i> | <i>56 in</i>   |
| <i>Width</i>          | <i>1414 mm</i> | <i>56 in</i>   |
| <i>Height</i>         | <i>1375 mm</i> | <i>54 in</i>   |
| <i>Machine Weight</i> | <i>305 kg</i>  | <i>673 lbs</i> |
| WEIGHT STACK          |                |                |
| <i>Standard</i>       | <i>100 kg</i>  | <i>200 lbs</i> |
| <i>Plus</i>           | <i>130 kg</i>  | <i>260 lbs</i> |

**2.1.14 REAR DELT ROW**



| OVERALL DIMENSIONS    |                |                |
|-----------------------|----------------|----------------|
| <i>Length</i>         | <i>1186 mm</i> | <i>47 in</i>   |
| <i>Width</i>          | <i>1195 mm</i> | <i>47 in</i>   |
| <i>Height</i>         | <i>1875 mm</i> | <i>74 in</i>   |
| <i>Machine Weight</i> | <i>240 kg</i>  | <i>529 lbs</i> |
| WEIGHT STACK          |                |                |
| <i>Standard</i>       | <i>70 kg</i>   | <i>140 lbs</i> |
| <i>Plus</i>           | <i>100 kg</i>  | <i>200 lbs</i> |



### 2.1.15 ROTARY TORSO



| OVERALL DIMENSIONS    |         |         |
|-----------------------|---------|---------|
| <i>Length</i>         | 1139 mm | 45 in   |
| <i>Width</i>          | 1148 mm | 45 in   |
| <i>Height</i>         | 1375 mm | 54 in   |
| <i>Machine Weight</i> | 212 kg  | 467 lbs |
| WEIGHT STACK          |         |         |
| <i>Standard</i>       | 70 kg   | 140 lbs |
| <i>Plus</i>           | 100 kg  | 200 lbs |

### 2.1.16 SHOULDER PRESS



| OVERALL DIMENSIONS    |         |         |
|-----------------------|---------|---------|
| <i>Length</i>         | 1409 mm | 56 in   |
| <i>Width</i>          | 1415 mm | 56 in   |
| <i>Height</i>         | 1375 mm | 54 in   |
| <i>Machine Weight</i> | 234 kg  | 516 lbs |
| WEIGHT STACK          |         |         |
| <i>Standard</i>       | 70 kg   | 140 lbs |
| <i>Plus</i>           | 100 kg  | 200 lbs |

### 2.1.17 SQUAT



| OVERALL DIMENSIONS    |         |         |
|-----------------------|---------|---------|
| <i>Length</i>         | 2156 mm | 85 in   |
| <i>Width</i>          | 1122 mm | 44 in   |
| <i>Height</i>         | 1950 mm | 77 in   |
| <i>Machine Weight</i> | 385 kg  | 849 lbs |
| WEIGHT STACK          |         |         |
| <i>Standard</i>       | 100 kg  | 200 lbs |
| <i>Plus</i>           | 130 kg  | 260 lbs |

### 2.1.18 TOTAL ABDOMINAL



| OVERALL DIMENSIONS    |         |         |
|-----------------------|---------|---------|
| <i>Length</i>         | 1389 mm | 55 in   |
| <i>Width</i>          | 1029 mm | 41 in   |
| <i>Height</i>         | 1403 mm | 55 in   |
| <i>Machine Weight</i> | 211 kg  | 465 lbs |
| WEIGHT STACK          |         |         |
| <i>Standard</i>       | 70 kg   | 140 lbs |
| <i>Plus</i>           | 100 kg  | 200 lbs |

### 2.1.19 VERTICAL TRACTION



| OVERALL DIMENSIONS    |         |         |
|-----------------------|---------|---------|
| <i>Length</i>         | 1415 mm | 56 in   |
| <i>Width</i>          | 1428 mm | 56 in   |
| <i>Height</i>         | 1868 mm | 74 in   |
| <i>Machine Weight</i> | 313 kg  | 690 lbs |
| WEIGHT STACK          |         |         |
| <i>Standard</i>       | 100 kg  | 200 lbs |
| <i>Plus</i>           | 125 kg  | 250 lbs |

### 2.1.20 AB CRUNCH



| OVERALL DIMENSIONS    |         |         |
|-----------------------|---------|---------|
| <i>Length</i>         | 1583 mm | 62 in   |
| <i>Width</i>          | 903 mm  | 36 in   |
| <i>Height</i>         | 1014 mm | 40 in   |
| <i>Machine Weight</i> | 60 kg   | 132 lbs |

### 2.1.21 CRUNCH BENCH



| OVERALL DIMENSIONS    |                |               |
|-----------------------|----------------|---------------|
| <i>Length</i>         | <i>1436 mm</i> | <i>57 in</i>  |
| <i>Width</i>          | <i>697 mm</i>  | <i>27 in</i>  |
| <i>Height</i>         | <i>1108 mm</i> | <i>44 in</i>  |
| <i>Machine Weight</i> | <i>44 kg</i>   | <i>97 lbs</i> |

### 2.1.22 INCLINED BENCH



| OVERALL DIMENSIONS    |                |                |
|-----------------------|----------------|----------------|
| <i>Length</i>         | <i>1896 mm</i> | <i>75 in</i>   |
| <i>Width</i>          | <i>1267 mm</i> | <i>50 in</i>   |
| <i>Height</i>         | <i>1528 mm</i> | <i>60 in</i>   |
| <i>Machine Weight</i> | <i>71 kg</i>   | <i>157 lbs</i> |

### 2.1.23 LOWER BACK BENCH



| OVERALL DIMENSIONS    |         |        |
|-----------------------|---------|--------|
| <i>Length</i>         | 1069 mm | 42 in  |
| <i>Width</i>          | 757 mm  | 30 in  |
| <i>Height</i>         | 769 mm  | 30 in  |
| <i>Machine Weight</i> | 36 kg   | 79 lbs |

### 2.1.24 HORIZONTAL BENCH



| OVERALL DIMENSIONS    |         |         |
|-----------------------|---------|---------|
| <i>Length</i>         | 1725 mm | 68 in   |
| <i>Width</i>          | 1606 mm | 63 in   |
| <i>Height</i>         | 1302 mm | 51 in   |
| <i>Machine Weight</i> | 59 kg   | 130 lbs |

### 2.1.25 ADJUSTABLE BENCH



| OVERALL DIMENSIONS    |                |               |
|-----------------------|----------------|---------------|
| <i>Length</i>         | <i>1198 mm</i> | <i>47 in</i>  |
| <i>Width</i>          | <i>697 mm</i>  | <i>27 in</i>  |
| <i>Height</i>         | <i>1312 mm</i> | <i>52 in</i>  |
| <i>Machine Weight</i> | <i>36 kg</i>   | <i>79 lbs</i> |

### 2.1.26 SCOTT BENCH



| OVERALL DIMENSIONS    |                |               |
|-----------------------|----------------|---------------|
| <i>Length</i>         | <i>1011 mm</i> | <i>40 in</i>  |
| <i>Width</i>          | <i>780 mm</i>  | <i>31 in</i>  |
| <i>Height</i>         | <i>998 mm</i>  | <i>39 in</i>  |
| <i>Machine Weight</i> | <i>41 kg</i>   | <i>90 lbs</i> |

### 2.1.27 VERTICAL BENCH



| OVERALL DIMENSIONS    |                |                |
|-----------------------|----------------|----------------|
| <i>Length</i>         | <i>1197 mm</i> | <i>47 in</i>   |
| <i>Width</i>          | <i>1606 mm</i> | <i>63 in</i>   |
| <i>Height</i>         | <i>1776 mm</i> | <i>70 in</i>   |
| <i>Machine Weight</i> | <i>71 kg</i>   | <i>157 lbs</i> |

## 2.1 WIRING DIAGRAMS

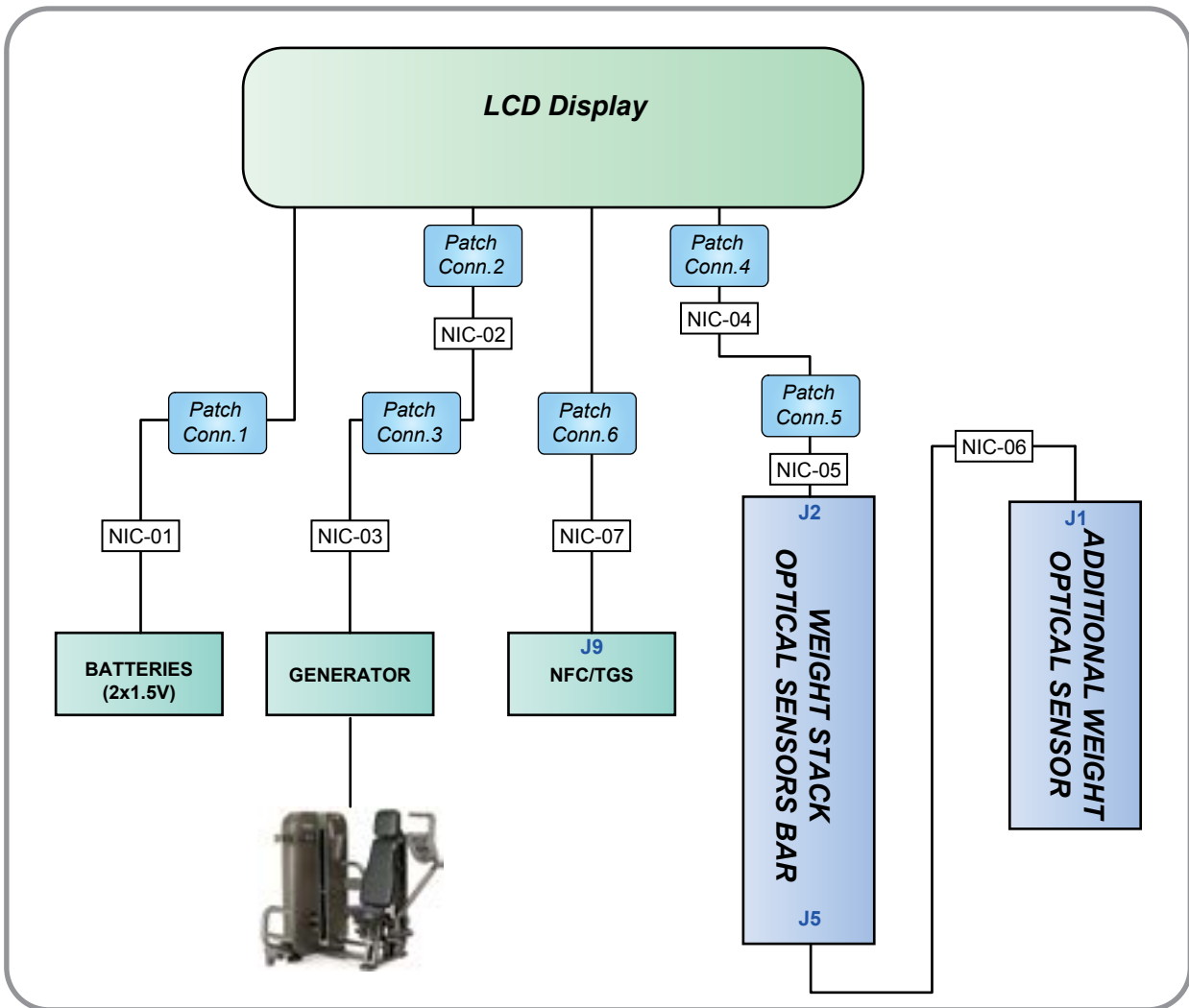


Fig. 1



## 2.2 CABLES



The colour of the cables can be changed, refer in particular to the Pin Out.

| NIC-01: Auxiliary battery cable<br>(Battery holder – Patch conn. 1) |        |        |               |
|---|--------|--------|---------------|
| Battery holder  | Signal | Colour | Patch Conn. 1 |
| Battery holder  | + VDC  | Red    | 1             |
|   | - VDC  | Black  | 2             |

| NIC-02: Generator Cable<br>(Patch Conn. 2 – Patch Conn. 3) |                |        |               |
|--|----------------|--------|---------------|
| Patch Conn. 2  | Signal         | Colour | Patch Conn. 3 |
| 1  | <i>R Phase</i> | Brown  | 1             |
| 2  | <i>S Phase</i> | Red    | 2             |
| 3  | <i>T Phase</i> | Black  | 3             |

| NIC-03: Generator Cable<br>(Generator - Patch Conn. 3) |                |        |               |
|--|----------------|--------|---------------|
| Generator  | Signal         | Colour | Patch Conn. 3 |
| 1  | <i>R Phase</i> | Brown  | 1             |
| 2  | <i>S Phase</i> | Red    | 2             |
| 3  | <i>T Phase</i> | Black  | 3             |

| NIC-04: Weight Stack Optical Sensor Cable<br>(Patch Conn. 4 – Patch Conn. 5) |                         |        |                |
|--|-------------------------|--------|----------------|
| Patch Conn. 4:   | Signal                  | Colour | Patch Conn. 5: |
| 2  | <i>3V3 Power Supply</i> | Red    | 1              |
| 3  | <i>RX Signal</i>        | Brown  | 2              |
| 4  | <i>TX Signal</i>        | Yellow | 3              |
| 5  | <i>Gnd.</i>             | Black  | 4              |

| NIC-05: Weight Stack Optical Sensor Cable<br>(Weight Stack sensor bar – Patch Conn. 5) |                  |        |                |
|--|------------------|--------|----------------|
| Sensor bar<br>J2   | Signal           | Colour | Patch Conn. 5: |
| 2  | 3V3 Power Supply | Red    | 1              |
| 3  | RX Signal        | Brown  | 2              |
| 4  | TX Signal        | Yellow | 3              |
| 5  | Gnd.             | Black  | 4              |

| NIC-06: Extra weight sensor cable<br>(Weight Stack sensor bar – Additional weight) |                  |        |                         |
|--|------------------|--------|-------------------------|
| Sensor bar<br>J5   | Signal           | Colour | Additional weight<br>J1 |
| 1  | 3V3 Power Supply | Red    | 1                       |
| 2  | DET5 Signal      | Brown  | 2                       |
| 3  | COM4 Signal      | Yellow | 3                       |
| 4  | Gnd.             | Black  | 4                       |

| NIC-07: NFC / TGS Cable<br>(NFC/TGS Board – Patch Conn. 7) |                  |        |               |
|--|------------------|--------|---------------|
| NFC board<br>J9  | Signal           | Colour | Patch Conn. 7 |
| 1  | 3V3 Power Supply | Red    | 1             |
| 2  | RX Signal        | Brown  | 2             |
| 3  | TX Signal        | Yellow | 3             |
| 9  | Gnd.             | Black  | 4             |

### 3. OPERATING PRINCIPLES

#### 3.1 BLOCK DIAGRAM

The machine block diagram is illustrated in the figure below:

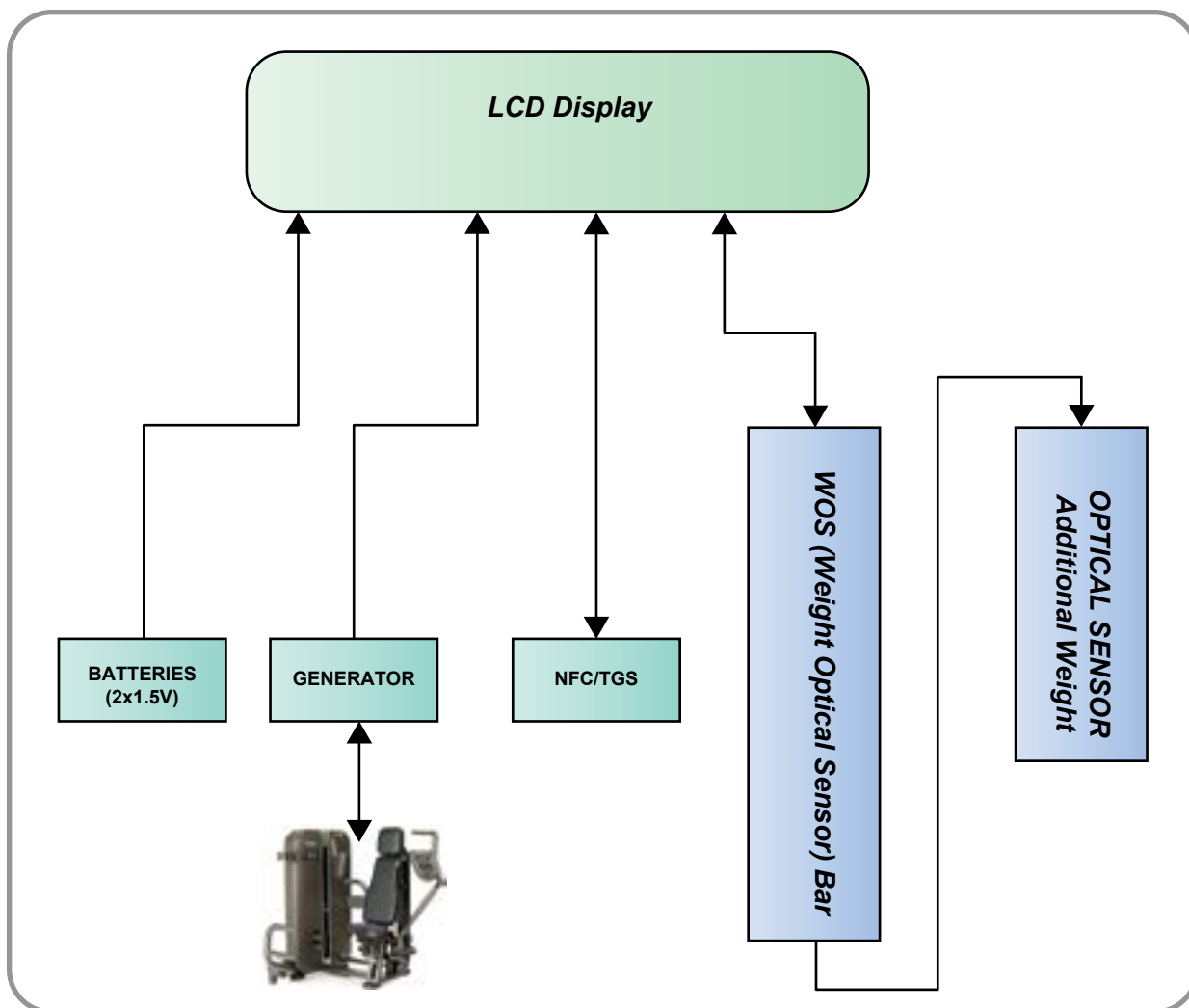


Fig. 2

## 3.2 COMPONENTS

### 3.2.1 DISPLAY ASSEMBLY

This is the assembly that includes the LCD and the main board that controls communications and signals to all the components of the U-GO device:

1. Generator;
2. Weight stack optical sensor bar and extra weight;
3. NFC/TGS;
4. Auxiliary batteries.

There is a power storage battery on the main board to control recovery of power generated by the movement of the levers during exercise performed by a user.

The LCD panel used is a 7" monochrome model and is not backlit, to limit energy consumption as far as possible.

The assembly also integrates the cables for connection to the various components.

### 3.2.2 GENERATOR

This is a three-phase generator connected to the movement of the equipment's levers, sufficient to generate the energy required to power all the components of the device, guaranteeing its operation.

The power supply signal sent to the main board is also used to display the ROM trend and the direction of the movement.

### 3.2.3 WEIGHT STACK OPTICAL SENSOR BAR AND ADDITIONAL WEIGHT

This is an electronic board on which a series of optical sensors are installed. It is installed on the extra weight slide bar, behind the weight stack, so that each sensor is located next to a weight plate and can detect its presence.

The sensors detect the presence of the weight plates issuing an infra-red signal which is reflected on a white sticker placed on the related weight plate, precisely opposite the sensor.

Another sensor is placed on the additional weight, which also has a white sticker, to detect whether or not it is present during the workout.

The sensor signals are then sent to the main board to be processed and to display which weight has been selected; they are also used to support the signal from the generator for correct display of the ROM trend.

### **3.2.3.1 NFC / TGS READER**

This is the board that manages user data (pre-loaded workout, exercise data, etc.) by means of devices such as TGS keys, MyWellness Key, or personal mobile devices (smartphones, tablets, etc).

### **3.2.3.2 AUXILIARY BATTERIES**

These are two 1.5 V “AA” non-rechargeable batteries, used to switch on the display when the energy accumulated is insufficient.

When the device is in stand-by mode the only power supply required is for a LED that flashes on the display and indicates that the device is ready to operate

### 3.3 POWER SUPPLY MANAGEMENT

The U-GO device is powered by a three-phase generator connected to the movement of the levers. This supplies the energy required for operation of the device during the workout performed by a user and any energy in excess of that required to keep the display lit up is accumulated by the main board and used when the equipment is not moving.

The auxiliary batteries are used only if the energy accumulated runs out and the display is lit up while the levers are not moving.

Energy consumption by the device is so low that the auxiliary batteries lose power very slowly

### 3.4 ROM AND EXERCISE WEIGHT DISPLAY MANAGEMENT

The power supply signal sent by the generator to the main board is also used to display the ROM trend during the exercise, also indicating the correct direction of the movement.

If necessary, the signal sent by the weight stack sensor bar is used to support the generator signal.

Obviously, the signal sent by the optical sensor bar is used to show the weight actually lifted during the exercise on the display.

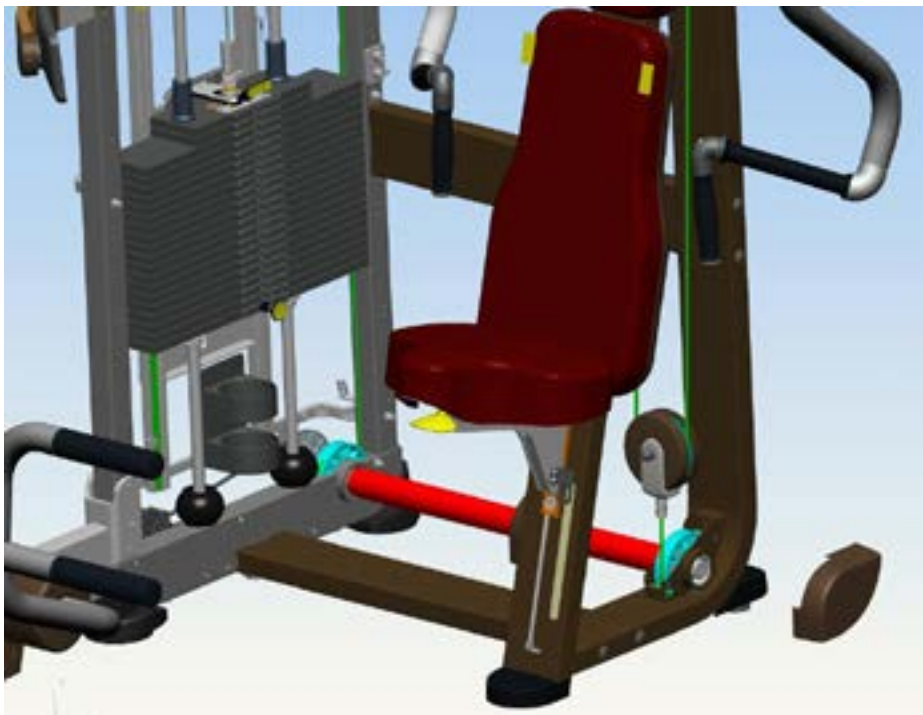


**ATTENTION:** THE DATUM RELATED TO THE SELECTED WEIGHT IS SHOWN WHEN THE WEIGHT STACK IS ACTUALLY LIFTED, IN PRACTICE DURING THE FIRST REPETITION OF THE SERIES IN PROGRESS..

### 3.5 TRANSMISSION OF THE MOVEMENT

The transmission of the movement and of the forces between user levers and weight stack during the workout, is done through a system of cables, pulleys and transmission shaft. In particular, the movement of the levers generates the weight stack lifting.

The machines, due to their mechanical configuration, can be separated into two main groups, one with the weight stack and the other with the seat and levers. To easily carry divide the machine avoiding to disconnect the cable from levers or weight stack, the transmission of the movement between these 2 parties has been done via a transmission shaft connected to two pulleys on the 2 sides, on which are connected to the cables coming from weight stack and levers.



*Fig. 3*

In figure above you can see this solution, where is visible as the cable (green) it is connected to the pulley on the “seat” side and to the weight stack pulley (blue). The pulleys are rigidly fixed to the shaft that transmits motion from one side of the machine.

### 3.6 EASY START SYSTEM

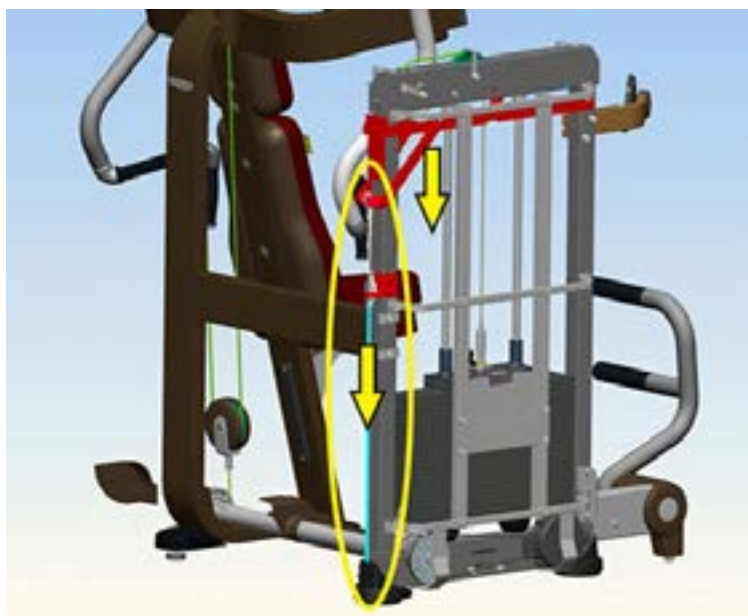
The easy start system, present on some machines of the line, allow the user to start the workout in a easily way.

The system consist of a lever in front of the seat, the user can push with the legs. As visible in the figure below, the lever is connected to a chain (red, in the figure) which pass through the frame and connected on the other end to a flexible cable (blue).



*Fig. 4*

When you push on the easy start lever, this pull the chain and the cable that move downward the frame (red, in the figure below). The frame is connected to the weight stack cable and when it moves downward, lift the weight stack up and unload the weight on the levers to easily start the exercise.



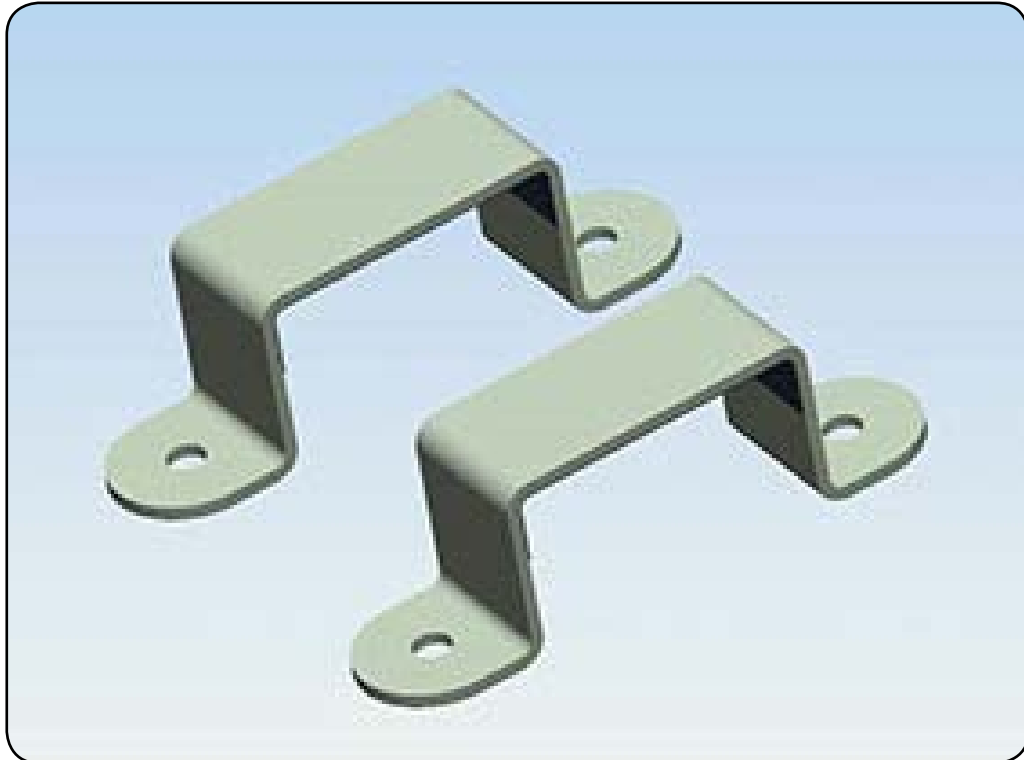
*Fig. 5*



## 4. ACCESSORIES

### 4.1 FLOOR FIXING BRACKETS

There are available the brackets to fix the equipment to the floor, ordering the code A0000652-#, where you need to replace # with the correct colour suffix. The kit includes the assembly instructions sheet.



*Fig. 6*

*Blank page.*

## 5. MOVING AND INSTALLING THE EQUIPMENT

### 5.1 INSTALLATION SPECIFICATIONS AND REQUIREMENTS

To correctly install and position the equipment:

1. Place the equipment on a flat surface, where there are no vibrations and where the loading bearing capacity is sufficient for the weight to be supported, also taking into consideration the weight of the user.
2. The area is not dusty or sandy.
3. You have observed the temperature and humidity operating requirements indicated in paragraph: [“2.3 Ambient specifications” a pagina 14.](#)



*Carry out the assembly operations indicated on the instruction sheet attached to each item of equipment.*

## 5.2 LIFTING AND MOVING THE EQUIPMENT

For each item of equipment, follow the instructions detailed below and the related notes.



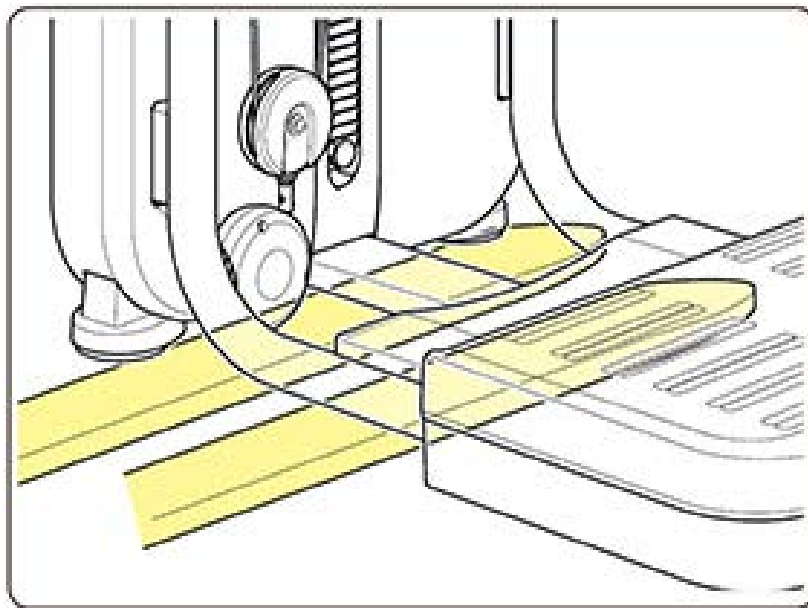
**ATTENTION: MOVING AND PLACING ON THE FLOOR MUST BE CARRIED OUT WITH EXTREME CARE, BECAUSE THE EQUIPMENT MAY LOSE STABILITY.**



Once the equipment has been placed in its final position, the height of its feet can be adjusted to level it as indicated in paragraph: [“8.3 The equipment is not flat” a pagina 59.](#)

Use a pallet truck or a fork-lift truck to lift the equipment, position the forks to the weight stack side.

It is recommended to place some padded material between the frame and the lifting equipment.



*Fig. 7*



**WARNING:** DUE TO ITS SIZE AND WEIGHT, THIS EQUIPMENT CANNOT BE MOVED BY ONE PERSON ONLY.

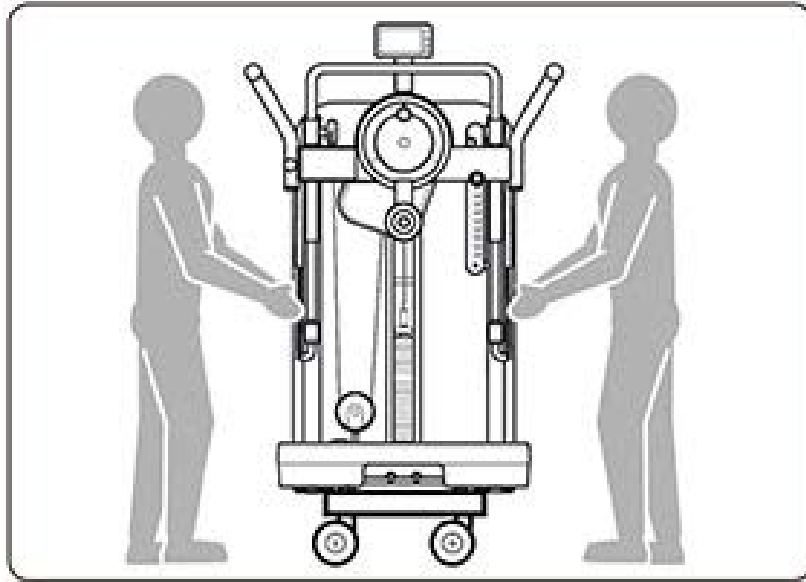


Fig. 8



**WARNING:** WHEN MOVING THE EQUIPMENT, DO NOT EXERT PRESSURE AGAINST THE WEIGHT STACK PROTECTIVE PANEL. DO NOT USE THE ADJUSTING LEVER OR THE SUPPORT DISPLAY ARM, WHEN TRYING TO MOVE THE EQUIPMENT. THIS COULD CAUSE **DAMAGE** AND INSTABILITY.



Fig. 9



Fig. 10

*Blank page.*

## 6. TROUBLESHOOTING

### 6.1 LED TEST

This is an automatic test that makes it possible to check the operation of the LCD, by lighting up all the pixels.

To activate it, follow the instructions below:

1. Switch on the device;
2. Connect a powered USB Mini-B cable;
3. Disconnect the cable from the device;
4. Press the “Λ” and “V” keys together.
5. When the test has been completed, press the “□” button to exit.

### 6.2 WEIGHT OPTICAL SENSORS BAR CALIBRATION

This is an automatic function that makes it possible to perform sensor bar calibration.

To perform the calibration, follow the instructions below:

1. Access the Service Menu;
2. Select “CONFIG MENU”;
3. Select “CALIBRATION”;
4. Press the “Confirm” button and wait for the test to finish.

### 6.3 DISPLAY SPENTO

| PROBLEM  | POSSIBLE CAUSE                   | COMPONENTS INVOLVED                  | WHAT TO DO?   |
|--|----------------------------------|--------------------------------------|---|
| Display remains off when the levers are not moving | No one is working out.           | None                                 | Device in stand-by mode.<br>Correct operation.  |
| Display remains off when the levers are moving     | Incorrect generator installation | Generator/wiring/generator belt      | 1. Check the wiring between the display and the generator and/or replace the generator;<br>2. Generator belt tension.   |
| Display remains off when the levers are moving     | Faulty LCD.                      | Display                              | Check that when a workout is in progress the orange LED is off and replace the display.   |
| Display remains off if I press a button            | Faulty keyboard                  | Keyboard                             | Replace the display   |
| Display remains off if I press a button            | Auxiliary batteries flat.        | Auxiliary batteries.                 | Replace the batteries.  |
| System freeze with LCD on                          | HW/SW problem.                   | Display board / Auxiliary batteries. | 1. Disconnect the batteries.<br>2. Wait 10-15 sec.<br>3. Replace the batteries.<br>4. Connect the batteries.<br>5. Check that the orange LED on the display flashes.<br>6. If the problem persists, repeat the procedure without replacing the batteries again. |



## 6.4 FLAT BATTERIES

| PROBLEM                            | POSSIBLE CAUSE           | COMPONENTS INVOLVED | WHAT TO DO?           |
|------------------------------------|--------------------------|---------------------|-----------------------|
| "Flat battery" icon on the display | Auxiliary batteries flat | Auxiliary batteries | Replace the batteries |

## 6.5 DISPLAY DOES NOT SHOW THE ROM TREND

| PROBLEM                                  | POSSIBLE CAUSE                   | COMPONENTS INVOLVED | WHAT TO DO?  |
|--|----------------------------------|---------------------|--|
| No ROM bar on the display during workout | Incorrect generator installation | Generator/wiring    | <ol style="list-style-type: none"> <li>1. Check generator cable connection to the display.</li> <li>2. Replace the cables.</li> <li>3. Replace the generator.</li> </ol> |
| No ROM bar on the display during workout | Incorrect generator installation | Generator belt      | <ol style="list-style-type: none"> <li>1. Check the generator belt tension.</li> <li>2. Tighten belt tension.</li> </ol>   |

## 6.6 IMPOSSIBLE TO UPDATE THE WEIGHT STACK SENSOR BOARD FW

| PROBLEM           | POSSIBLE CAUSE  | COMPONENTS INVOLVED   | WHAT TO DO?  |
|-------------------|---|-----------------------|--|
| FW download fails | Defective connection or sensor bar incorrectly programmed | Sensor bar and wiring | <ol style="list-style-type: none"> <li>1. Check wiring.</li> <li>2. Start FW upgrade from the Service menu.</li> <li>3. Replace wiring.</li> <li>4. Start FW upgrade from the Service menu.</li> <li>5. Replace sensor bar.</li> <li>6. Start FW upgrade from the Service menu.</li> <li>7. Sensor bar calibration.</li> </ol> |

## 6.7 DISPLAY DOES NOT SHOW/INCORRECTLY SHOWS WEIGHT STACK WEIGHT

| PROBLEM  | POSSIBLE CAUSE  | COMPONENTS INVOLVED              | WHAT TO DO?   |
|--|---|----------------------------------|---|
| No weight shown                                    | No communication or incorrect communication between display and sensor bar. | Display, sensor bar, wiring.     | <p>Select only top plate and check that weight is shown:</p> <ol style="list-style-type: none"> <li>1. Check the wiring connecting the display to the sensor bar.</li> </ol> <p>Select only top plate and check that weight is shown:</p> <ol style="list-style-type: none"> <li>1. Upgrade weight stack sensor bar FW from the Service menu.</li> <li>2. Replace wiring.</li> <li>3. Replace sensor bar and calibrate.</li> <li>4. Replace the display.</li> </ol> |
|  | Weight stack labels incorrectly positioned or missing.                      | Weight stack labels, sensor bar. | <p>Select only top plate and check that weight is shown:</p> <ol style="list-style-type: none"> <li>1. Check presence and position of the labels on the weight stack plates.</li> <li>2. Replace sensor bar.</li> </ol>   |
| Incorrect weight shown (higher than weight lifted) | Incorrect SW configuration  | Display/sensor bar               | <ol style="list-style-type: none"> <li>1. Correctly configure "Machine ID" and "Weight stack type"</li> <li>2. Perform weight stack sensor bar calibration</li> <li>3. Replace sensor bar and calibrate.</li> </ol>   |

| PROBLEM   | POSSIBLE CAUSE             | COMPONENTS INVOLVED  | WHAT TO DO?   |
|---|----------------------------|----------------------|---|
| Incorrect weight shown (lower than weight lifted) | Incorrect SW configuration | Display/sensor bar   | <ol style="list-style-type: none"> <li>1. Correctly configure "Machine ID" and "Weight stack type"</li> <li>2. Perform weight stack sensor bar calibration</li> <li>3. Replace sensor bar and calibrate.</li> </ol> |
| Incorrect weight shown                            | Sensor bar too dirty.      | Sensor bar.          | Check that the sensor bar is not too dirty with oil and dust residues on the sensors. Clean if necessary and/or replace.  |
|   | Sensor bar not calibrated. | Sensor bar, display. | Calibrate from the Service menu.  |
| Display shows "-- --"                             | Incorrect SW configuration | Display/sensor bar   | <ol style="list-style-type: none"> <li>1. Correctly configure "Machine ID" and "Weight stack type"</li> <li>2. Perform weight stack sensor bar calibration</li> <li>3. Replace sensor bar and calibrate.</li> </ol> |

## 6.8 THE DEVICE DOES NOT RECOGNISE THE USER

| PROBLEM  | POSSIBLE CAUSE                                    | COMPONENTS INVOLVED          | WHAT TO DO?                           |
|--|---|------------------------------|---------------------------------------|
| When you move the TGS device/ MyWellness Key/ mobile device close to the device it does not recognise the user | NFC/TGS board installed in an incorrect position. | NFC/TGS board.               | Position the NFC/TGS board correctly. |
|  | Defective TGS device / MyWellness Key.            | TGS device / MyWellness Key. | Try using a different device.         |
|  | Defective NFC/TGS board.                          | NFC Board.                   | Replace the NFC Board.                |

## 6.9 DEVICE ERRORS DISPOSITIVO

| PROBLEM        | POSSIBLE CAUSE   | COMPONENTS INVOLVED  | WHAT TO DO?  |
|----------------|--|--|--|
| none           | This is the factory setting for errors in positions E02..E10   | -  | -  |
| WS FW fail     | sensor board firmware upgrade failed   | Weight stack sensor board/SW corrupt/<br>Connecting cables | <ol style="list-style-type: none"> <li>1. Check cables and perform FW upgrade from Service Menu</li> <li>2. Replace weight stack sensor board</li> </ol> |
| NVRam Reset    | <p>External memory chip problem with machine configuration, life timer and error log data.</p> <p><b>(NOTE: This is the first error detected at the beginning of the product's life, when the chip has not been initialised: in other words it is the value of E01 at the beginning of the product's life)</b></p> | Main board   | Replace the main board   |
| TGS disconn.   | Sudden disconnection of the TGS key  | NFC board/TGS key  | <ol style="list-style-type: none"> <li>1. Check that TGS key is correctly inserted</li> <li>2. Replace NFC Board</li> </ol>                              |
| TGS bad format | Illegible TGS key  | TGS key  | TGS key  |
| MWK disconn.   | Sudden MWK disconnection   | NFC board/MWK  | <ol style="list-style-type: none"> <li>1. Check that TGS device is correctly inserted</li> <li>2. Replace NFC Board</li> </ol>                           |

## 7. HOW TO REMOVE...

### 7.1 DISPLAY GROUP

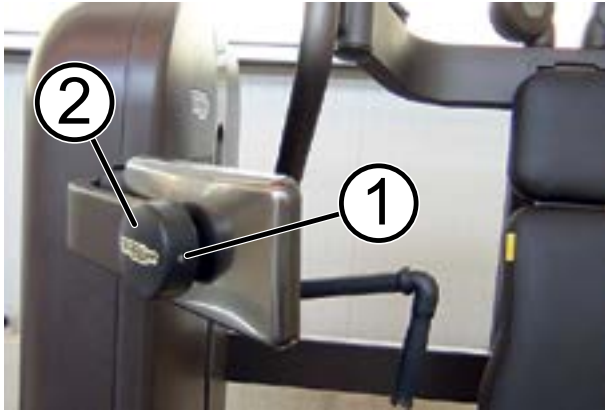


Fig. 11

1. Unscrew the grub screw (1) using a 2.5mm hexagonal wrench.
2. Remove the rear cover (2).



Fig. 12

3. Pull out the cable from the support frame tube and disconnect the 4 connectors highlighted in the above figure.
4. Unscrew the 4 screws which are fixing the display group, using a medium Phillips screwdriver.
5. Remove the display group.

### 7.2 LETTORE TGS/NFC

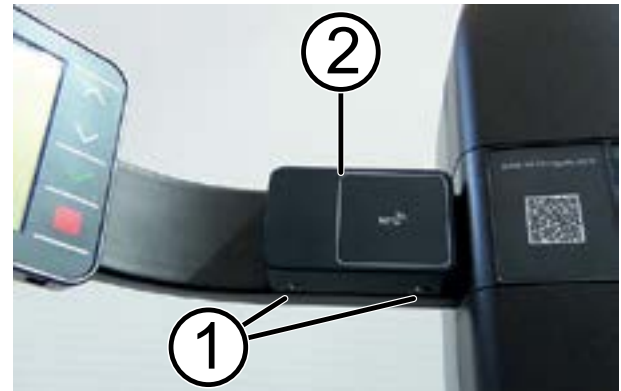


Fig. 13

1. Unscrew the 2 screws (1) using a 2.5mm hexagonal wrench.
2. Remove the plastic box (2) which contains NFC/TGS from the machine frame.



**WARNING: CAREFULLY REMOVE THE PLASTIC BOX WHICH CONTAINS NFC/TGS BECAUSE YOU NEED FIRST TO DISCONNECT THE CABLE FROM THE ELECTRONIC BOARD.**



Fig. 14

3. Disconnect the cable highlighted in the picture at the side, which connects the NFC/TGS board to the display board.
4. Remove the NFC/TGS board from its housing using a small flat screwdriver.



Fig. 15



**WARNING:** WHEN YOU REASSEMBLE THE **NFC/TGS** BOARD TAKE CARE TO POSITION IT CORRECTLY IN ITS PLASTIC BOX, RESPECTING THE SLOT IN THE BOARD AND THE PIN IN THE PLASTIC BOX, AS HIGHLIGHTED IN THE FIGURE.

### 7.3 WEIGHT OPTICAL SENSOR (WOS)

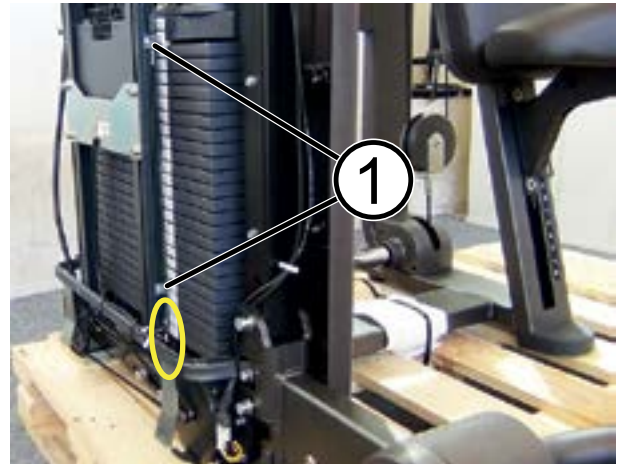


Fig. 16

1. Remove the rear casing (4 screws using a 4mm hexagonal wrench).
2. Disconnect the connectors highlighted in the figure, from the WOS.
3. Unscrew the 2 screws (1) which are fixing the WOS on the additional weight support guide, using a small Phillips screwdriver.



Fig. 17

4. Pull out the WOS from the additional weight support guide.



**WARNING,** BE CAREFUL DURING THE REASSEMBLY TO NOT DAMAGE THE **WOS**.

## ADDITIONAL WEIGHT SENSOR

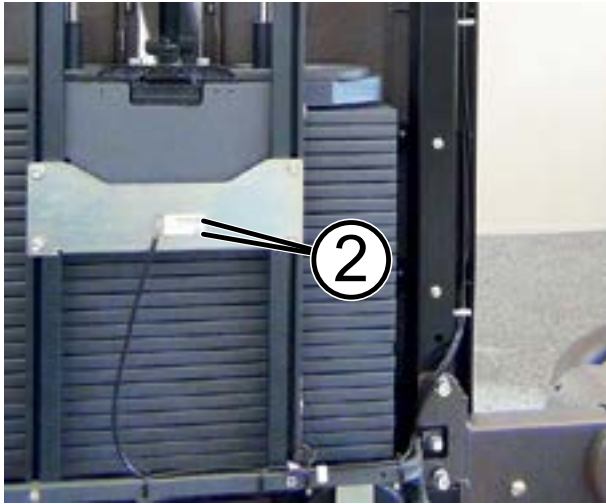


Fig. 18

5. Unscrew the 2 screws (2) using a 3mm hexagonal wrench.
6. Disconnect the cable from the sensor board and remove the sensor.



**WARNING: WHENEVER THE WOS IS REPLACED IT IS MANDATORY TO RUN A SW UPGRADE OF THE WOS AND RUN THE CALIBRATION PROCEDURE, AS DETAILED IN THE RELEVANT CHAPTER OF THIS MANUAL.**

## 7.4 GENERATOR AND BELT

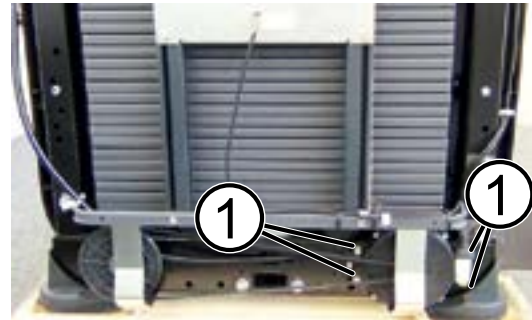


Fig. 19

1. Remove the rear casing (4 screws using a 4mm hexagonal wrench).
2. Decrease the generator belt tension, backing off the 4 screws (1) using a 5mm hexagonal wrench.
3. Remove the belt.

## GENERATOR

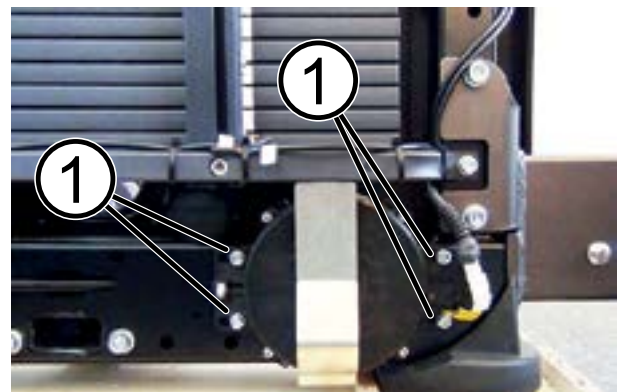


Fig. 20

4. Disconnect the cable from the generator.
5. Unscrew the 4 screws (1) using a 5mm hexagonal wrench and remove the generator.

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## 8. ADJUSTMENTS

### 8.1 WEIGHT STACK OPTICAL SENSORS POSITION

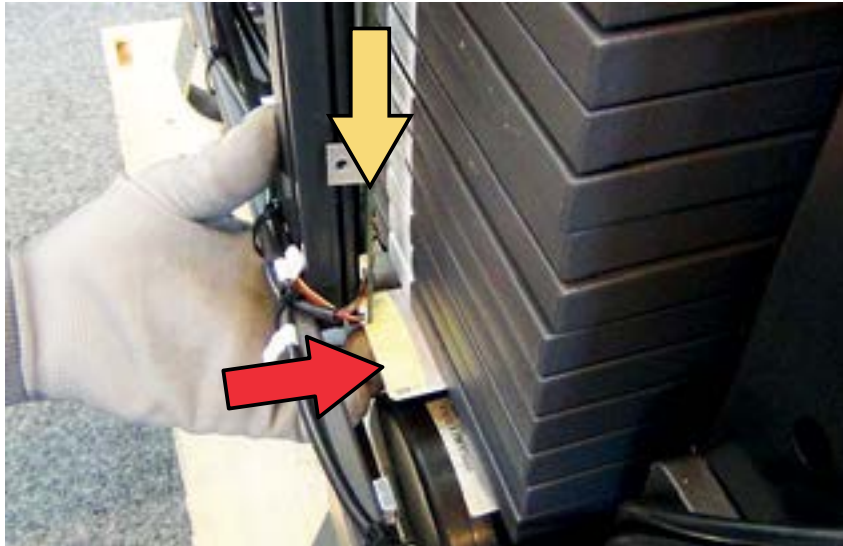


Fig. 21

Place the Weight Optical Sensors (WOS) so that the sensors are perfectly aligned with the white stickers on the rear side of the weight plate, as visible in the above figure.

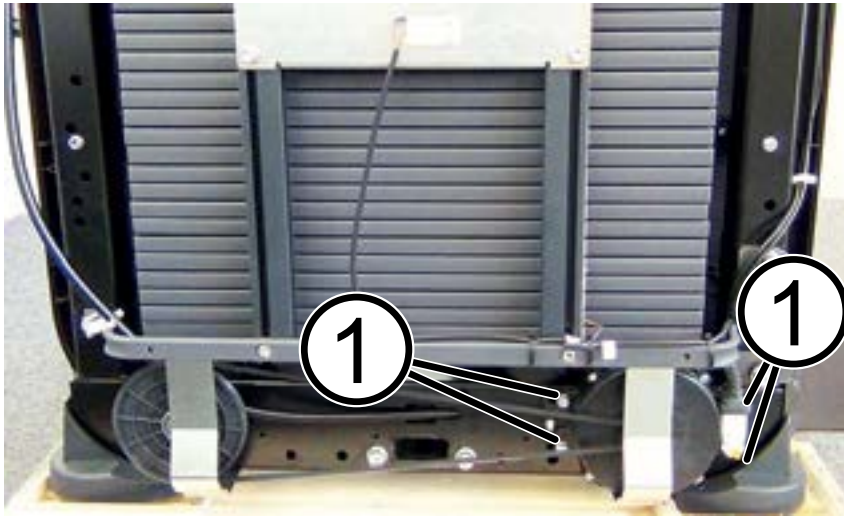


**WARNING:** TO CORRECTLY POSITION THE **WOS** YOU CAN USE A LITTLE PLATE OR A PLASTIC CARD (INDICATED BY THE RED ARROW IN FIGURE ABOVE) PUTTING IT UNDER THE WEIGHT STACK AND RESTING THE **WOS** ON IT, TOO.



**WARNING:** WHENEVER THE **WOS** IS REPLACED IT IS MANDATORY TO RUN A **SW UPGRADE OF THE WOS** AND RUN THE CALIBRATION PROCEDURE, AS DETAILED IN THE RELEVANT CHAPTER OF THIS MANUAL.

## 8.2 GENERATOR BELT TENSION



*Fig. 22*

1. Losen the 4 screws (1) which fix the generator on the frame and move it on the eyelets to adjust the tension of the belt. Check that moving the levers, the belt does not slip on the pulleys.

### 8.3 THE EQUIPMENT IS NOT FLAT

The equipment is levelled by adjusting the foot (A)

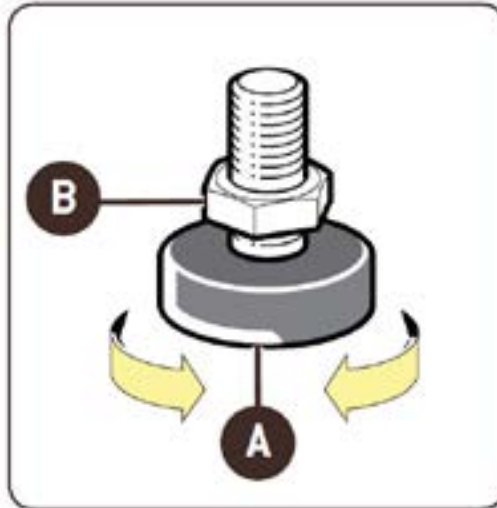
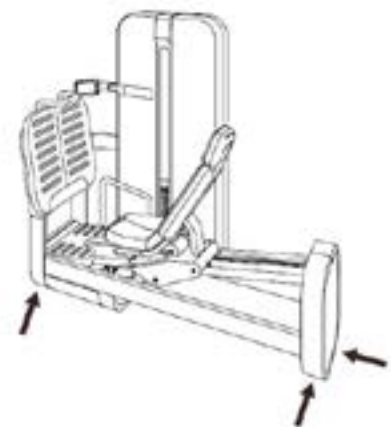
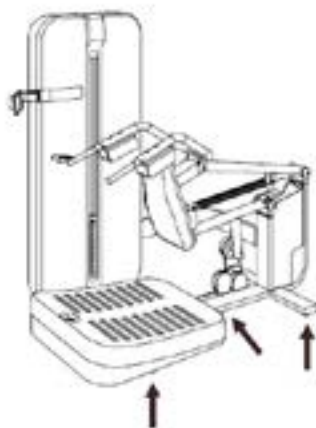
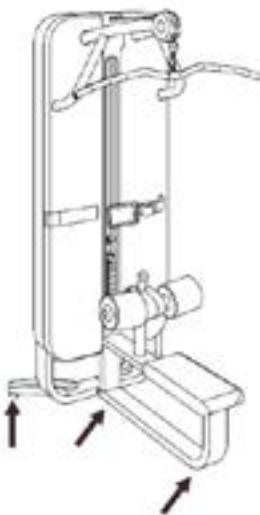
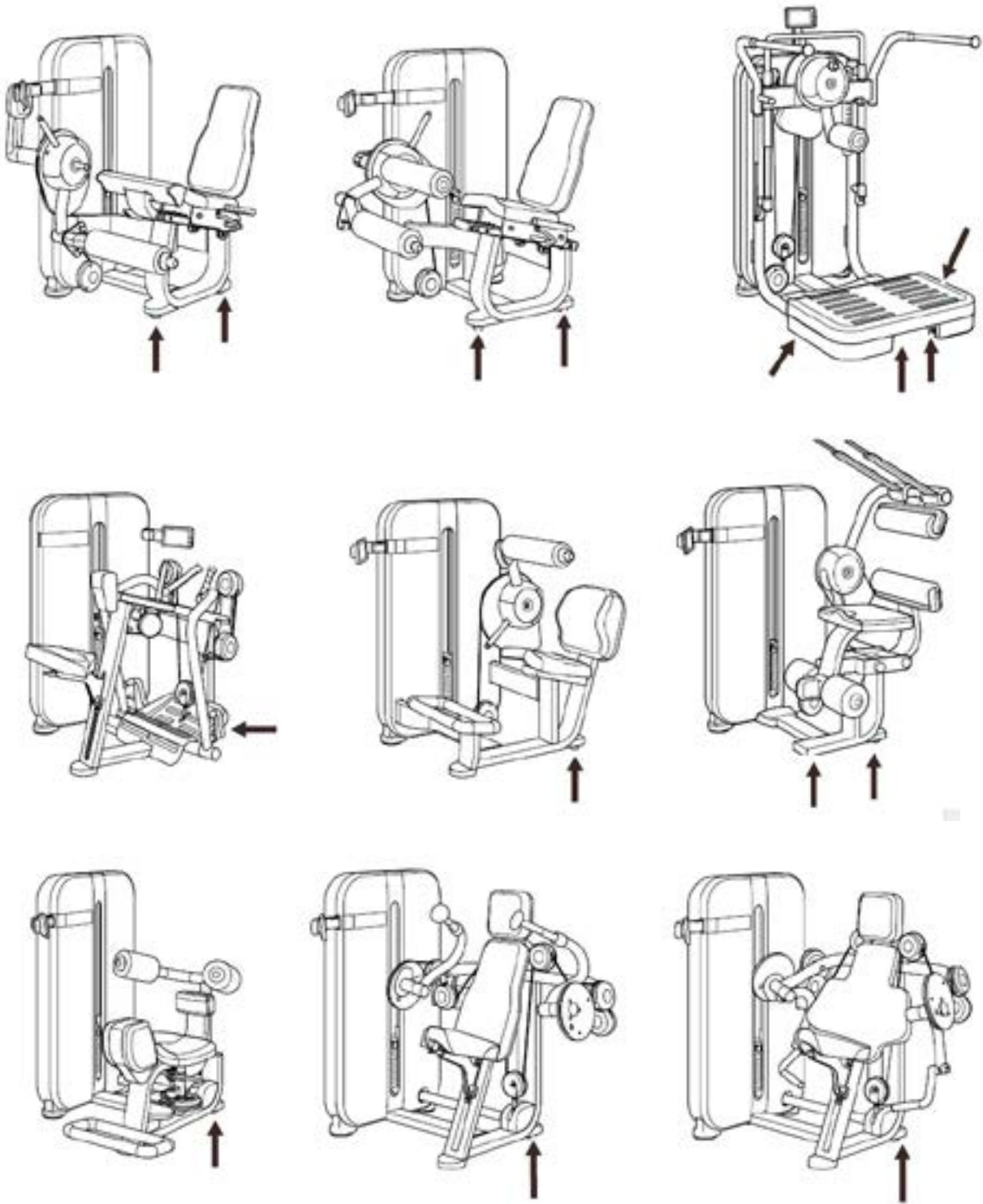


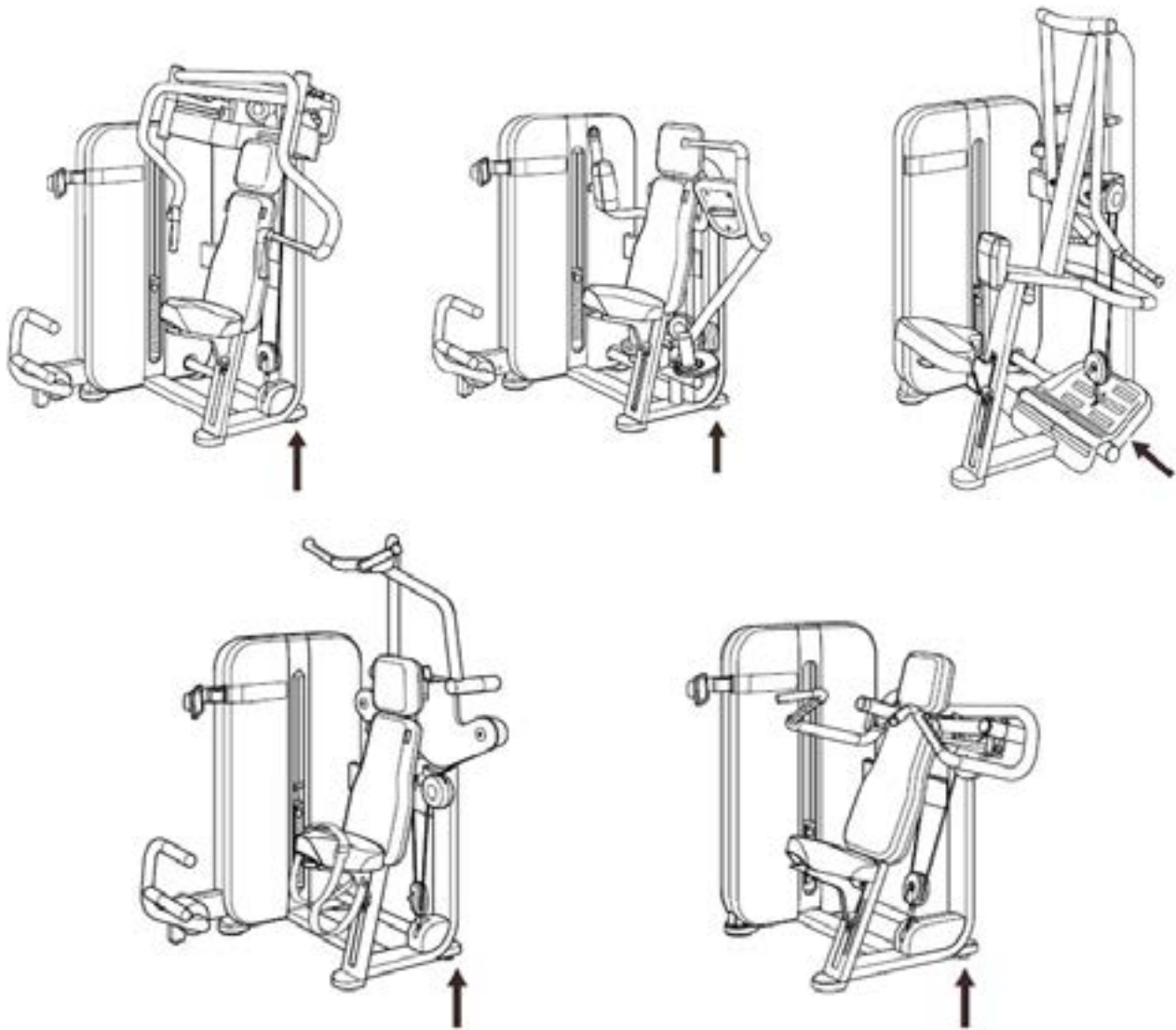
Fig. 23

1. Losen the locknut (B).
2. Screw or unscrew the foot (A) until the frame is stable.
3. After adjusting, tight the locknut (B).

In the following pictures, the arrows point the adjusting feet on the equipment.







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## 9. CONFIGURING THE EQUIPMENT: U-GO

### 9.1 CONFIGURING THE USER MENU



Fig. 24

The equipment configuration procedure can be activated when the equipment is on, by pressing the “Λ” and “V” keys at the same time for a few seconds. The display will show:

0000

To access the menu, you must enter the password 2406 and press the CONFIRM button to confirm. Enter this password by changing one figure at a time, using the Λ and V keys to increase or decrease it. Confirm and go on to the next figure by pressing CONFIRM. By pressing the STOP button you can go back to the previous figure. If you press and hold the STOP button for a couple of seconds, you exit the password entry screen.

At this point, the display will show the following parameters in sequence:

|                     |
|---------------------|
| LANGUAGE            |
|                     |
| UNIT OF MEASUREMENT |
|                     |
| MOVES               |
|                     |
| NFC MESSAGES        |

Use the CONFIRM button to scroll from one parameter to another saving any data that has been changed and the Λ and V keys to change each parameter setting. To cancel the operation, press on the STOP button for a few seconds.

### 9.1.1 LANGUAGE

When a language has been chosen from the list of available languages, all the messages on the display and the menu items are shown in the selected language. To change the setting, when the display shows the current setting:

**LANGUAGE: xxx**

Press the  $\Lambda$  and V keys to select the desired language from the available options:

|               |            |           |        |           |            |           |         |           |           |
|---------------|------------|-----------|--------|-----------|------------|-----------|---------|-----------|-----------|
| <b>it</b>     | Italian    | <b>fr</b> | French | <b>es</b> | Spanish    | <b>ru</b> | Russian | <b>nv</b> | Norwegian |
| <b>UK eng</b> | UK English | <b>de</b> | German | <b>pt</b> | Portuguese | <b>da</b> | Danish  | <b>sv</b> | Swedish   |
| <b>US eng</b> | US English | <b>nl</b> | Dutch  | <b>jp</b> | Japanese   | <b>tr</b> | Turkish | <b>fi</b> | Finnish   |

### 9.1.2 UNITS OF MEASUREMENT

You can choose between the EUROPEAN system Kilograms (Kg) and the AMERICAN system Pounds (lb).

To change the setting, when the display shows the current setting:

**MEASUREMENT : xxx**

Press the  $\Lambda$  and V to select the desired unit of measurement from the options in the table below:

|           |           |
|-----------|-----------|
| <b>KG</b> | Kilograms |
| <b>LB</b> | Pounds    |

### 9.1.3 MOVES

This option allows you to enable/disable the assessment screen with motivating messages and Moves.

To change the setting, when the display shows the current setting:

**MOVES : xxx**

Press the  $\Lambda$  and V to select the desired setting from the options shown in the table below:

|            |
|------------|
| <b>YES</b> |
| <b>NO</b>  |



#### 9.1.4 NFC MESSAGES

This option allows you to enable/disable a number of messages at the beginning of each workout, linked to use of the NFC board.

To change the setting, when the display shows the current setting:

**NFC messages: xxx**

Press the  $\Lambda$  and V to select the desired setting from the options shown in the table below:

|     |
|-----|
| YES |
| NO  |

## 9.2 CONFIGURING THE SERVICE MENU



Fig. 25

The equipment configuration procedure can be activated when the equipment is on, by pressing the “Λ” and “V” keys at the same time for a few seconds. The display will show:

0000

To access the menu, you must enter the password 2501 and press the CONFIRM button to confirm. Enter this password by changing one figure at a time, using the Λ and V keys to increase or decrease it. Confirm and go on to the next figure by pressing CONFIRM. By pressing the STOP button you can go back to the previous figure. If you press and hold the STOP button for a couple of seconds, you exit the password entry screen.

At this point, the display will show the following messages:

**up** = CONFIG MENU

**down** = FW VERSIONS

**confirm** = DATA LOG

**stop** = ERR LOG

Where “up”, “down”, “confirm” and “stop” refer to the 4 buttons on the device. Press the desired button to access the various areas of the menu. To cancel the operation, press on the STOP button for a few seconds.

## 9.3 CONFIG MENU

The display will show the following messages:

**up = PARAMETERS**

**down = CALIBRATION**

Press the desired button to access the various areas of the menu. Press the STOP button to go back to the higher level.

### 9.3.1 PARAMETERS

The display will show the following settings in sequence:

|                    |                 |                 |
|--------------------|-----------------|-----------------|
| ID                 | Pacer ret (%)   | Timeout-SC (s)  |
| Optical ROM enable | ROM init (cm)   | T. ratio (/100) |
| Machine Setting    | ROM exc (cm)    | Std settings?   |
| W. stack type      | LCD contrast    |                 |
| Pacer (cm/s)       | Timeout-EOS (s) |                 |

Press the  $\Lambda$  and V buttons to change the setting. Press “confirm” to confirm and go on to the next parameter or press “stop” to exit and go back to the higher level.

### 9.3.2 CALIBRATION

The display will show the following message:

**OK to calibrate**

Press “confirm” to start calibrating the Weight Stack Optical Sensors Bar. Press the stop button to exit and go back to the higher level.

If the procedure is successfully completed, the “DONE” message will appear, if not the “FAILED” message will appear.

### 9.3.3 FIRMWARE VERSION

The display will show the firmware versions of the various components in the sequence shown below:

Appcode v [xx]

WOS local v [xx]

WOS remote v [xx]

upgrade WOS?

Press the  $\Lambda$  and V buttons to scroll through the parameters.

To upgrade the firmware of the Weight Stack Optical Sensor Bar, press “confirm” when the following message is shown:

**upgrade WOS?**

During the upgrading the display will show the “Upgrading WOS” message. If the procedure is successfully completed, the “DONE” message will appear, if not the “FAILED” message will appear.

Press the stop button to exit and go back to the higher level.

### 9.3.4 DATA LOG

The display will show the following list of parameters with the related settings:

|           |                 |
|-----------|-----------------|
| Vbatt (V) | ON time         |
| WS users  | CAP time (m)    |
| Sets      | Reps time (m)   |
| Reps      | Clear data log? |
| Weight    |                 |

Press the  $\Lambda$  and V buttons to scroll through the parameters.

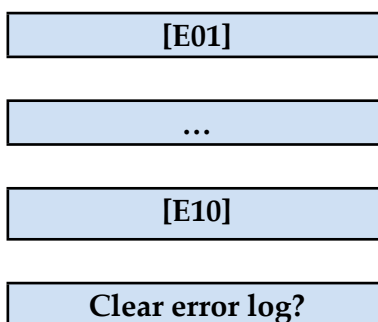
Press the “confirm” button for a few seconds to reset each parameter setting to zero. Press the “confirm” button when the following message is shown:

**Clear data log?**

To reset all the parameter settings to zero. Press the STOP button to go back to the higher level.

### 9.3.5 ERROR LOG

The display will show a list of the last 10 Errors logged:



Press the  $\Lambda$  and V buttons to scroll through the errors.

Press the “confirm” button when the following message is shown:

**Clear error log?**

To reset all the settings to zero. Press the STOP button to go back to the higher level.

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## 10. SW UPGRADE

### 10.1 UPGRADING THE DEVICE

Upgrading of the device must be performed using the Equipment Software Loader 2 (ESL2), (vers. 1.1.0.0 and DB vers. 2.1.0.0).



**WARNING: DO NOT CONNECT A PC TO THE DEVICE WHEN IT IS ON. IF YOU DO THE DEVICE WILL GO INTO A TEST MODE USED ONLY FOR RELEASE DIAGNOSIS. TO EXIT THIS MODE, PRESS THE “Λ” AND “V” BUTTONS AT THE SAME TIME; THIS WILL CAUSE THE LCD TEST TO START LIGHTING UP ALL THE PIXELS TO CHECK OPERATION**

Proceed as detailed below:

1. Connect a PC to the device using a “USB Mini-B” cable, with the device switched off.
2. Start the SW ESL2. Select the device and follow the instructions. When loading is completed, the ESL2 will show this message: “Software correctly loaded”.
3. When upgrading has been completed, disconnect the USB cable and press a button.
  - If you need to upgrade the weight stack optical sensor board, the upgrade will start automatically and while the firmware is being upgraded the “Upgrade FW” message will be shown. When the downloading operation has been completed, a message tells the user whether the download has been successful or has failed. If it has failed, automatic upgrading can be started twice more.
  - If the weight stack sensor board is already upgraded, the device returns to operating mode.

### 10.2 UPGRADING PERIPHERALS

The weight stack sensor board can be upgraded in two different ways:

1. AUTOMATICALLY at the end of upgrading of the device. Only when necessary, because it has not been upgraded (see detailed procedure in the paragraph on “Upgrading the device”).
2. MANUALLY from the Service menu, by accessing the section:



*“Firmware version” --> “Upgrade WOS?”*

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## 11. PLANNED MAINTENANCE

To keep the equipment perfectly efficient, planned maintenance work must be periodically performed to prevent possible problems. The operations can be divided essentially according to the type of work and to the staff who must do it:

| ROUTINE maintenance   | MAJOR maintenance  |
|---|--|
| <p><b>ROUTINE</b> maintenance operations can be performed by the owner of the machine and <b>do not require any particular technical expertise</b>; they are simple operations regarding external cleaning, for the purposes of observing good hygiene practices.</p> | <p><b>MAJOR</b> maintenance means operations that can only be performed by a <b>Qualified Technician specially trained by Technogym</b>; authorised to carry out fine tuning and start-up of the equipment, maintenance and repair work, testing of operation and wear of the mechanical parts in order to ensure perfect and safe operation of the equipment.</p> |
| <p> Refer to the <i>USER</i> manual.</p>  | <p> Refer to the <i>PLANNED MAINTENANCE</i> manual, which can be downloaded from <i>TG DIRECT</i>.</p>   |
| <p><b>ROUTINE MAINTENANCE:</b><br/>                 No specialisation.</p>  | <p><b>MAJOR MAINTENANCE:</b><br/>                 Qualified Technician authorised by Technogym and maintenance envisaged in the preventive maintenance contract.</p>   |

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## 12. TOOLS TO BE USED

The following tools are required to carry out all the fitting, adjustment and maintenance tasks on the equipment:

- *Medium-sized Phillips screwdriver;*
- *Small flat screwdriver;*
- *2,5 mm hex key;*
- *3mm hex key;*
- *4mm hex key;*
- *5mm hex key;*
- *6mm hex key;*
- *Torque wrench.*



Using the code R0003677AA, you can order a set of 7 hex keys with the following sizes: 2, 2.5, 3, 4, 5, 6 and 8 mm.

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