MATRIX

S-Force (SPT)
Service Manual

TABLE OF CONTENTS

CHAPTER 1: SERIAL NUMBER LOCATION

1.1 Serial Number Location....3

CHAPTER 2: IMPORTANT SAFETY INSTRUCTIONS

2.1 Read and Save These Instructions....4

2.2 Before Getting Started....5

CHAPTER 3: PREVENTIVE MAINTENANCE

3.1 Care and Maintenance Instruction....6

3.2 Lubricating the magnets....6

CHAPTER 4: CONSOLE OVERLAY AND WORKOUT DESCRIPTION

4.1 Console Description....7

CHAPTER 5: MANAGER MODE

5.1 Using Manager Mode....8

5.2 Manager Mode Overview....9

CHAPTER 6: TROUBLESHOOTING

6.1 Electrical Diagrams....10

6.2 Console Low Power....11

CHAPTER 7: PARTS REPLACEMENT GUIDE

7.1 Battery Replacement....14

7.2 Linkage Replacement....15

7.3 Sensor Replacement....18

7.4 Magnetic Plate Replacement....19

7.5 Magnetic Carriage Replacement....20

7.6 Copper Blade Replacement....21

7.7 Console Mast Replacement....23

7.8 Console Replacement....24

7.9 Lever Replacement....25

CHAPTER 8: SPECIFICATIONS AND ASSEMBLY GUIDE

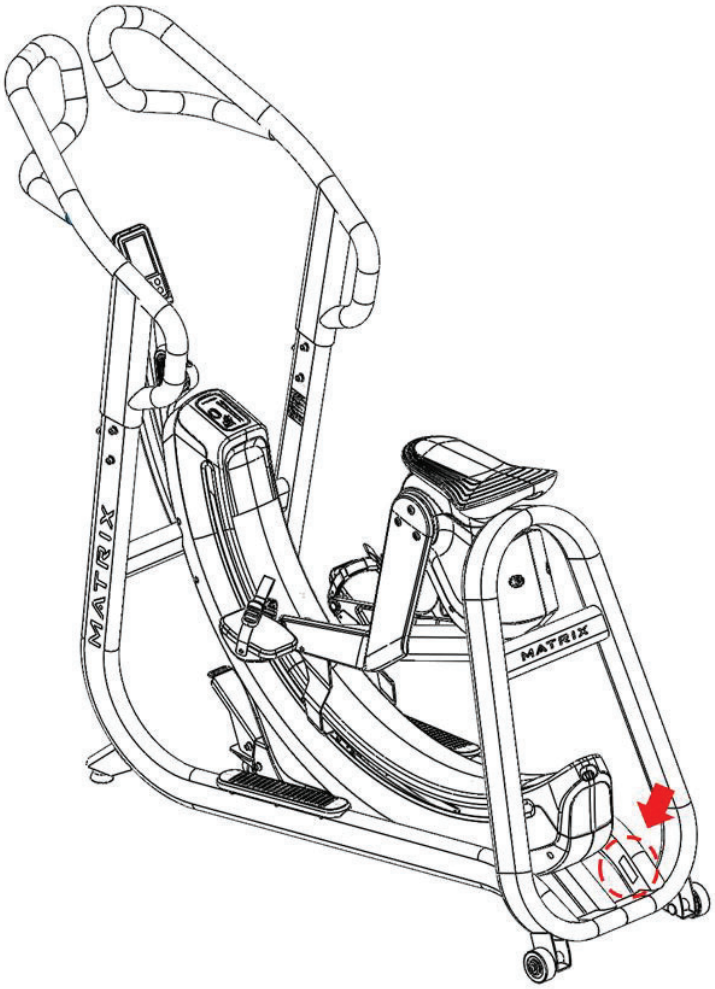
8.1 Production Specification....26

8.2 Fasteners and Assembly Tools....26

8.3 Assembly Instructions....27

CHAPTER 1: SERIAL NUMBER LOCATION

1.1 Serial Number Location



CHAPTER 2: IMPORTANT SAFETY INSTRUCTIONS

2.1 Read and Save These Instructions

- When using this equipment, basic precautions should always be followed, including the following: Read all instructions before using this equipment. It is the responsibility of the owner to ensure that all users of this equipment are adequately informed of all warnings and precautions.
- This equipment is intended for commercial use. To ensure your safety and protect the equipment, read all instructions before operating.
- Use the product for its intended purpose as described in this manual. Do not use attachments that have not been recommended by the manufacturer.
- Never drop or insert any object into any opening in the product. If an object should drop inside, carefully retrieve it while the unit is not in use. If the item cannot be reached, contact Matrix Fitness or authorized dealers.
- Never operate the product if it is not working properly, or if it has been damaged or immersed in water. Contact Matrix Fitness or an authorized dealer for further assistance.
- Keep hands and feet clear at all times from moving parts to avoid injury.
- Do not reach into, or underneath the unit, and do not tip the unit on its side during operation.
- Do not use the product outdoors, near swimming pools or in areas of high humidity.
- Do not remove the covers. Service should only be done by an authorized service technician.
- Close supervision is necessary when used near children or disabled people.
- When the product is in use, young children and pets should be kept at least three meters / ten feet away.
- Keep children under the age of 14 away from this equipment. Teenagers must be supervised at all times while using this equipment.
- Assemble and operate the unit on a solid, level surface. Place the unit at least one meter / three feet of clearance from any obstructions, including walls and furniture.
- Do not wear any clothing that might catch on any moving parts of this product.
- Perform proper maintenance as described in the Maintenance section of this manual.
- **CAUTION**:

  If you experience chest pain, nausea, dizziness or shortness of breath, STOP exercising immediately and consult a physician before continuing.

  Any changes or modifications to this equipment could void the product warranty.

  Consult a physician before using this equipment. Read owner's manual before use.

2.2 Before Getting Started

1) Location (Figure A)

Place the equipment on a level and stable surface away from direct sunlight. The intense UV light can cause discoloration on the plastics. Locate your equipment in an area with cool temperatures and low humidity. Ensure a minimum clearance width of 0.6 meters (24”) on each side for access to and passage around MATRIX equipment. Please note, 0.91 meters (36”) is the ADA recommended clearance width for individuals in wheelchairs. Do not place the equipment in any area that will block any vent or air openings. The equipment should not be located in a garage, covered patio, near water or outdoors.

2) Moving (Figure B)

Our equipment is heavy. To avoid injury and damage, use care and additional help if necessary when moving.

3) Leveling the equipment (Figure C)

It is extremely important that the levelers are correctly adjusted for proper operation.

Use of a level is recommended.

Once you have placed the equipment where you intend to use it, raise or lower one or both of the adjustable levelers located on the bottom-front of the frame.

4) Adjusting the resistance (Figure D)

The resistance is adjustable. There are 5 levels of resistance, 5 being the highest. The resistance also increases the faster the pedals are used.

5) Proper usage (Figure E)

Use the seat for easy entrance and exit of the equipment. Be sure to tighten the pedal straps before using the machine.

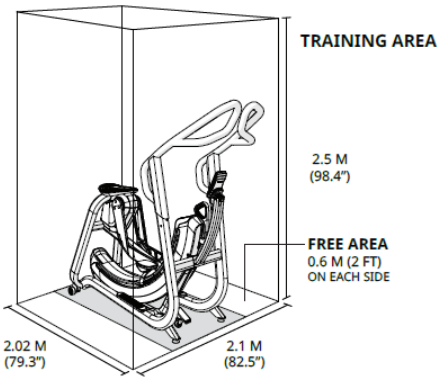


Figure A

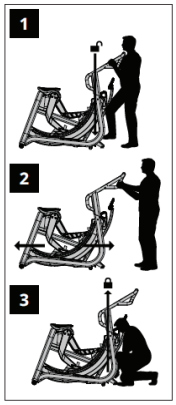


Figure B

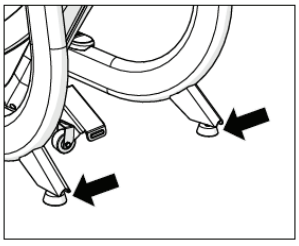


Figure C

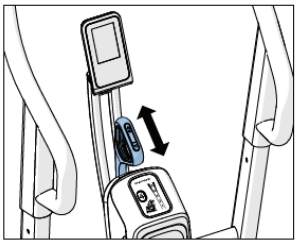


Figure D



Figure E

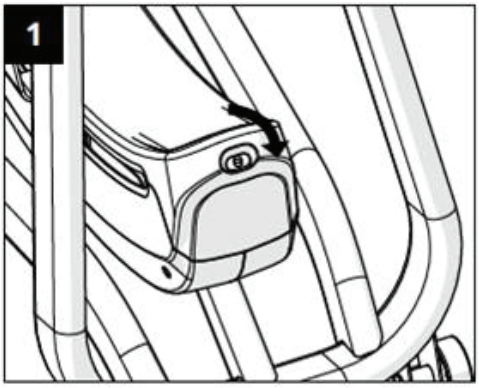
CHAPTER 3: PREVENTIVE MAINTENANCE

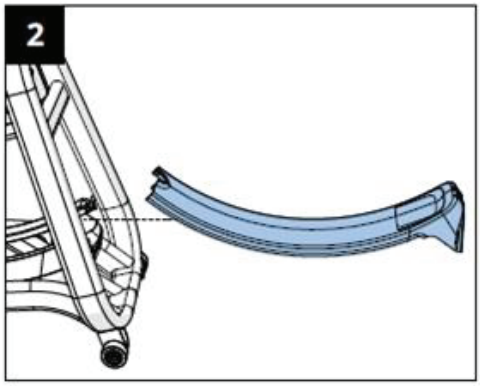
3.1 Care and Maintenance Instruction

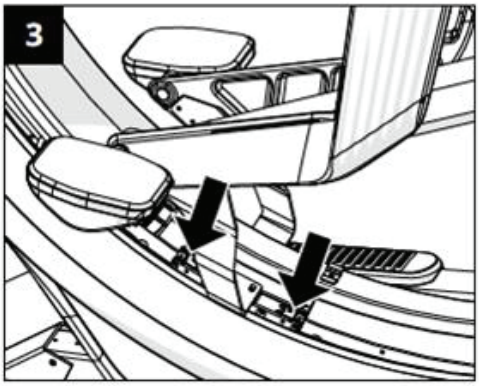
1) Any and all part removal or replacement must be performed by a qualified service technician.
2) DO NOT use any equipment that is damaged and or has worn or broken parts.
   Use only replacement parts supplied by your country's local MATRIX dealer.
3) MAINTAIN LABELS AND NAMEPLATES: Do not remove labels for any reason. They contain important information. If unreadable or missing, contact your MATRIX dealer for a replacement.
4) MAINTAIN ALL EQUIPMENT: Preventive maintenance is the key to smooth operating equipment as well as keeping your liability to a minimum. Equipment needs to be inspected at regular intervals.
5) Ensure that any person(s) performing maintenance is qualified to do so.

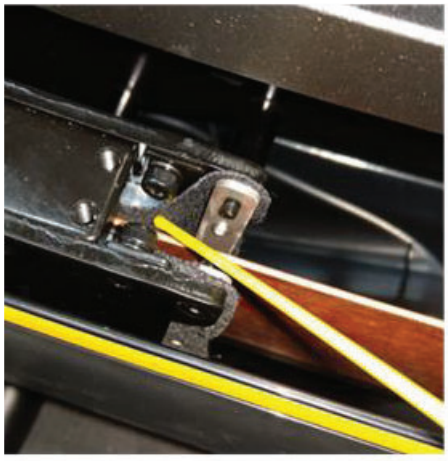
3.2 Lubricating the Magnets

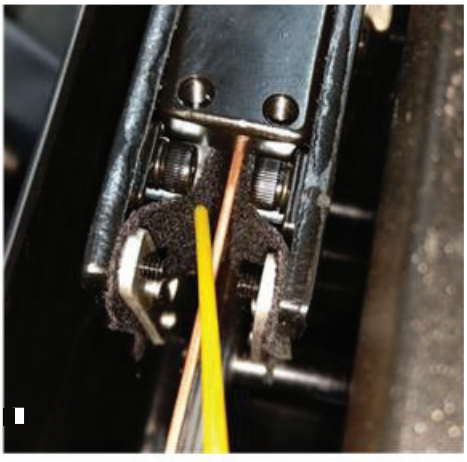
1) Use a coin to turn the release screw 90˚ clockwise.
2) Remove plastic cover.
3) Remove the magnetic carriage and place it on a rag. Apply 3-IN-ONE Oil (around 0.25cc of oil quantity) to the leather pads in the carriage. Use a rag to rub any oil runoff onto the copper blade.
4) Replace plastic cover and turn release screw 90˚ counter-clockwise to secure plastic cover.

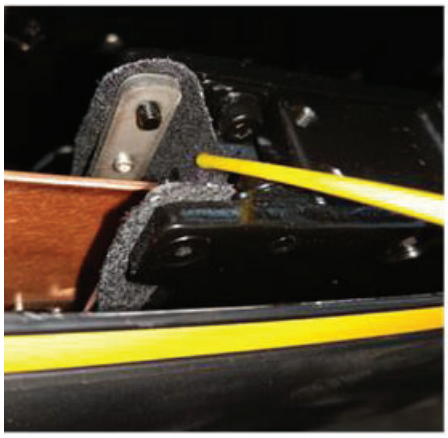












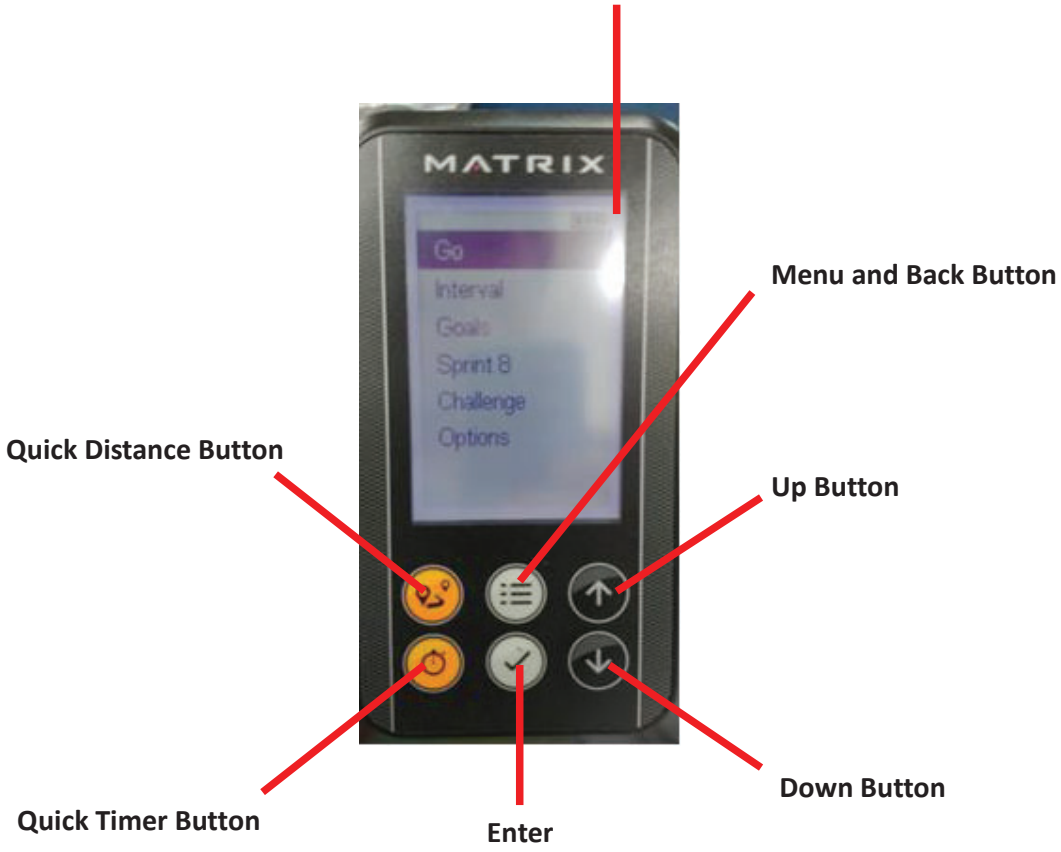


MAINTENANCE SCHEDULE	
ACTION	**FREQUENCY**
Clean entire machine using water and a mild soap or other Matrix approved solution (cleaning agents should be alcohol and ammonia free).	DAILY
Remove the back cover. Check for debris and clean with a dry cloth or small vacuum nozzle.	MONTHLY
Lubricate magnets	EVERY 6 MONTHS

CHAPTER 4: CONSOLE OVERLAY AND WORKOUT DESCRIPTION

4.1 Console Description

Display feedback	Time
	Steps/min
	Steps
	Distance(meter)
	HR(B.P.M)



CHAPTER 5: MANAGER MODE

5.1 Using Manager Mode

1) Press up and down simultaneously for 5 seconds to enter manager mode.
2) In manager mode, use up and down to select different functions.
3) Press enter to see the settings of different functions.
4) Press up and down to adjust the setting value.
5) Press enter save the adjusted value.
6) Press back to go back to previous page without saving the value.
7) Press up and down simultaneously for 5 seconds to exit.



Figure A

CHAPTER 5: MANAGER MODE

5.2 Manager Mode Overview

Group	Item1	Item2	Default value	Values/Range	Unit	Notes
Workouts	Max.Time	-	60	5-60	Minutes	-
	Default Time	-	1	1-60	Minutes	
	Pause Time	-	00:30	00:30 01:00 02:00 03:00 04:00 05:00	Minutes:Second	-
User	Gender	-	-	-	-	-
	Age	-	-	-	-	-
	Height	-	-	-	-	-
	Weight	-	-	-	-	-
Unit	-	Metric	Metric/Imperial	-	-	-
Software	Bootload	-	-	-	-	-
	USB	-	-	-	-	-
General	Total Dist	-	0	0.00~99999.99	Km/mi	-
	Total Time	-	0	0~99999	HR	
	Total Step	-	0	0~999999999	steps	
	Avg Stride	-	0	0.00~9.99	m/stride	
Language	English only					
LCD	Backlight					
Sleep Mode	15sec~4min	-	00:15	00:15 00:30 01:00 02:00 03:00 04:00	Minutes:Second	-

CHAPTER 6: TROUBLESHOOTING

6.1 Electrical Diagrams

1) SPT electrical block diagrams

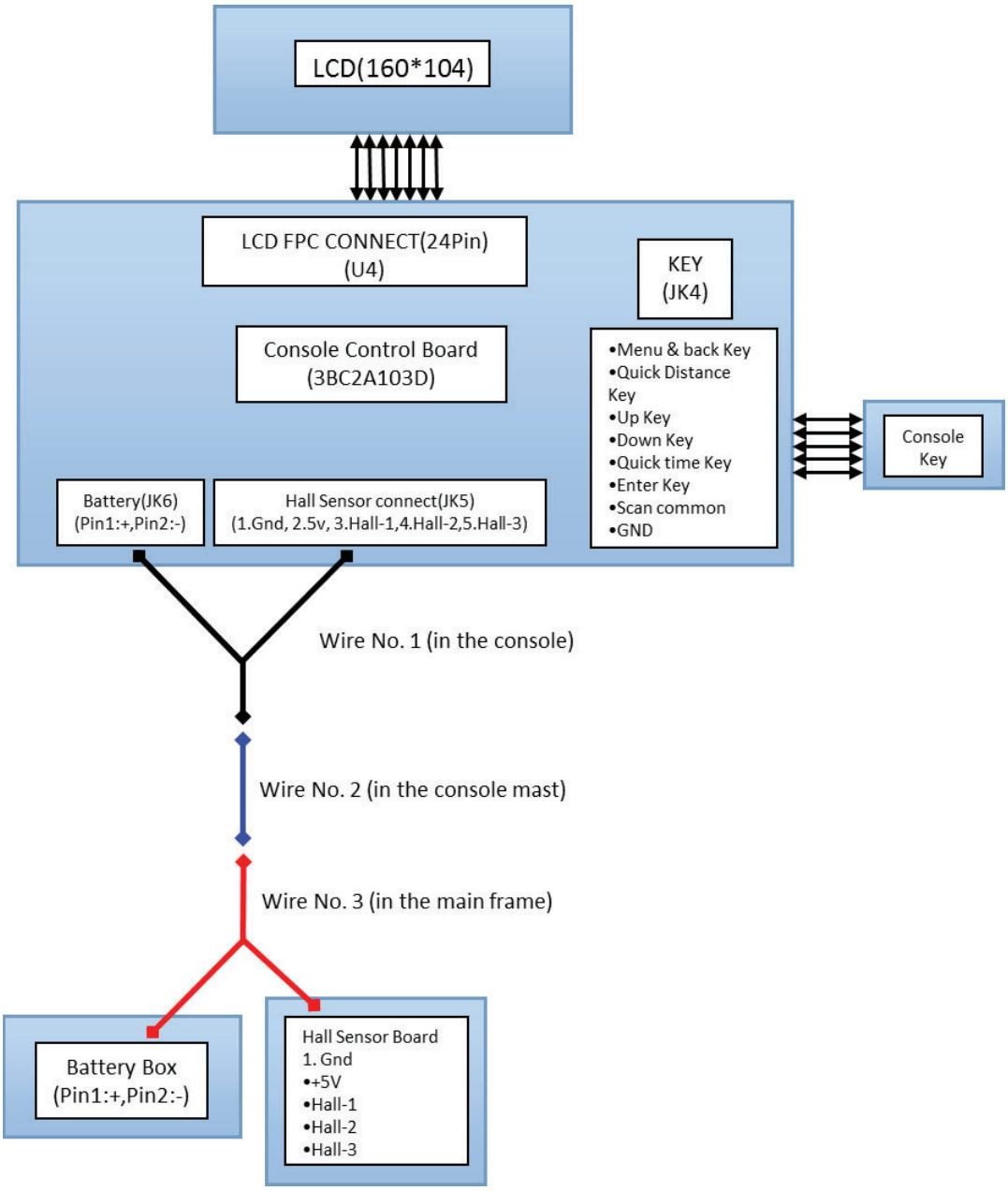


Figure A

CHAPTER 6: TROUBLESHOOTING

6.1 Electrical Diagrams Continued

2) Wire No. 1 in the console

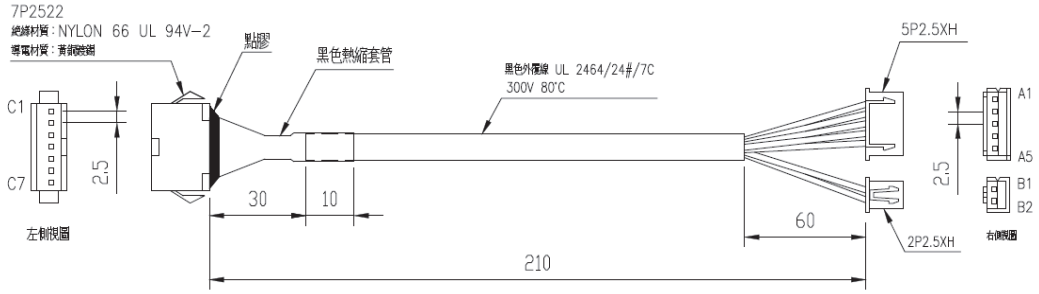


Figure A

C \ A,B	A1	A2	A3	A4	A5	B1	B2
C1	●						
C2		●					
C3			●				
C4				●			
C5					●		
C6						●	
C7							●

A1:Gnd
A2:+5V
A3:Hall-1
A4:Hall-2
A5:Hall-3
B1:Bat+
B2:Gnd

Figure B

3) Wire No. 2 in the console mast

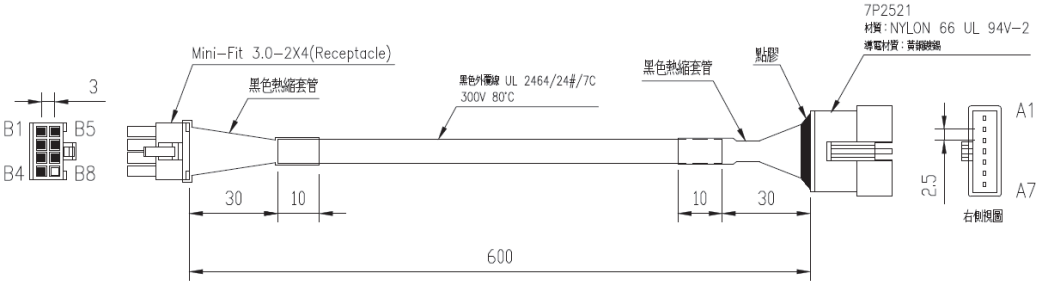


FIGURE C

B \ A	A1	A2	A3	A4	A5	A6	A7
B1	●						
B2		●					
B3			●				
B4				●			
B5					●		
B6						●	
B7							●
B8							

A1:Gnd
A2:+5V
A3:Hall-1
A4:Hall-2
A5:Hall-3
A6:Bat+
A7:Gnd

Figure D

CHAPTER 6: TROUBLESHOOTING

6.1 Electrical Diagrams Continued

4) Wire No. 3 in the frame

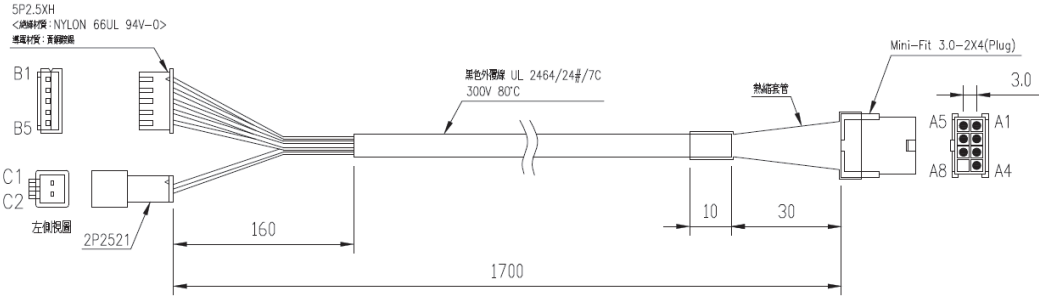


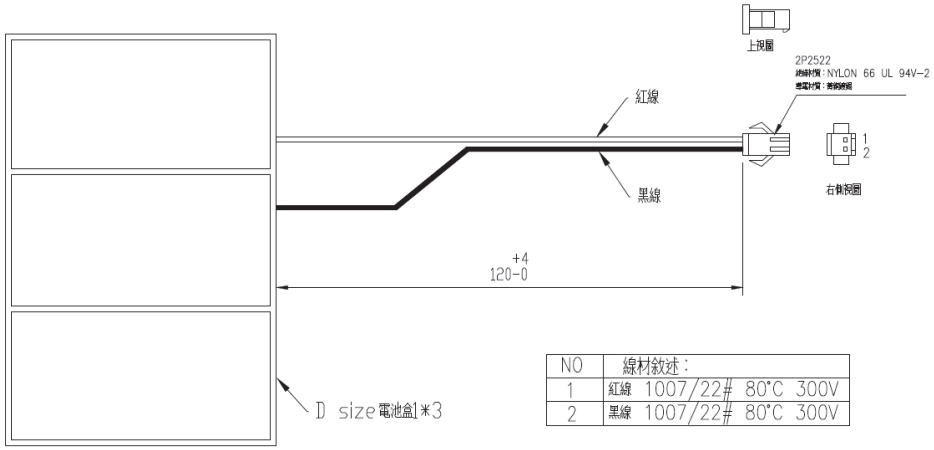
Figure E

A / B,C	A1	A2	A3	A4	A5	A6	A7	A8
B1	●							
B2		●						
B3			●					
B4				●				
B5					●			
C1						●		
C2							●	

A1:Gnd
A2:+5V
A3:Hall-1
A4:Hall-2
A5:Hall-3
A6:Bat+
A7:Gnd
A8:x

Figure F

5) The battery box



NO	線材敘述：
1	紅線 1007/22# 80°C 300V
2	黑線 1007/22# 80°C 300V

Figure G

CHAPTER 6: TROUBLESHOOTING

6.2 Console Low Power

1) The display shows “Replace battery” (Figure A).

2) Check all connectors to make sure they are properly connected.

3) Check the voltage of the battery. The proper voltage is 3v-4.5v.

4) Please replace all batteries if the voltage is lower than 3v. (The console uses three D batteries.)

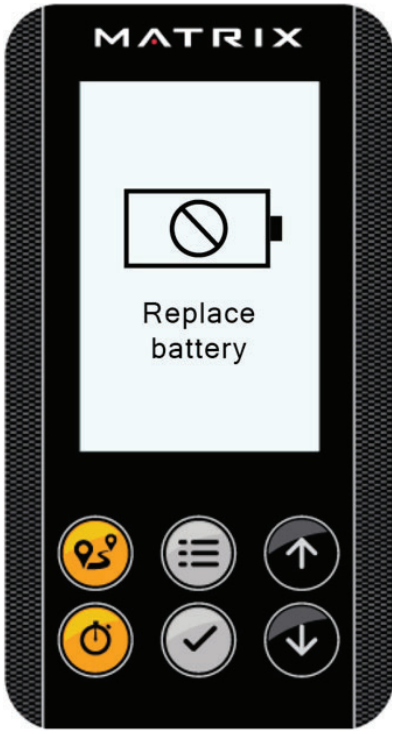


Figure A



Figure B

CHAPTER 7: PARTS REPLACEMENT GUIDE

7.1 Battery Replacement

1) Use 6mm T-Handle Allen Wrench to remove the screw behind seat pad (Figure A)

2) Push the seat pad backward (Figure B)

3) Pull upward to remove seating pad (Figure C)

4) Replace all batteries.



Figure A

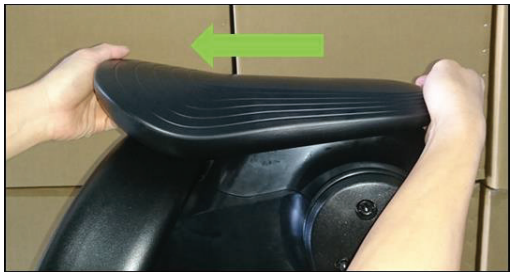


Figure B



Figure C

5) Before assembling back the seat pad, make sure the round button is in alignment with the frame slot.(Figure D)

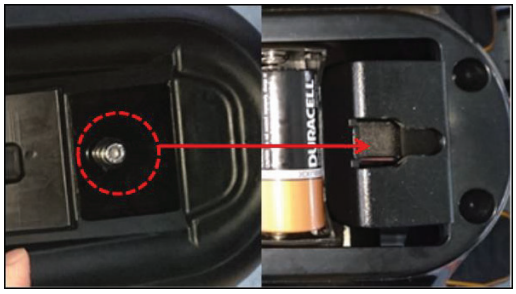


Figure D

CHAPTER 7: PARTS REPLACEMENT GUIDE

7.2 Linkage Replacement

1) After removing seating pad (Section 7.1) , then please remove top cover (Figure A) and left/right cover (Figure B~D)



Figure A



Figure B



Figure C



Figure D

2) Remove lower arc cover by rotating the clip counterclockwise with a coin and sliding it backward (Figure E), and then remove upper arc cover (Figure F).



Figure E



Figure F

CHAPTER 7: PARTS REPLACEMENT GUIDE

7.2 Linkage Replacement Continued

3) Pull the lever to Level 1 (Figure G) and then remove crank (Figure H~J)



Figure G



Figure H

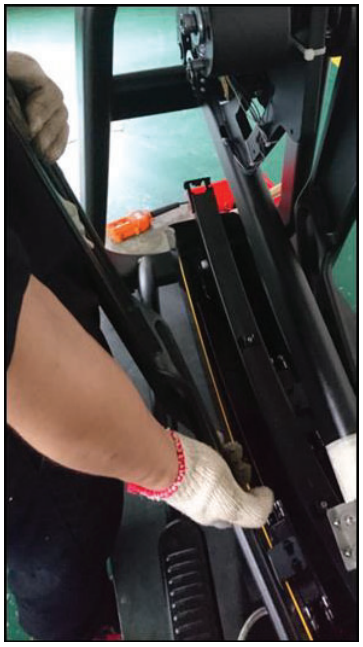


Figure I



Figure J

4) Remove the magnetic plate (Figure K) and then remove the screw and nut (Figure L).

Important: Handle the magnetic plate carefully and keep it away from metal to ensure the magnets stay intact.

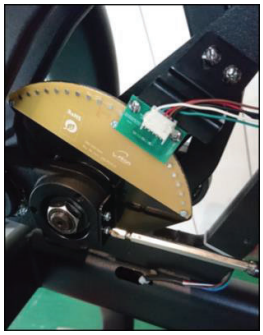


Figure K

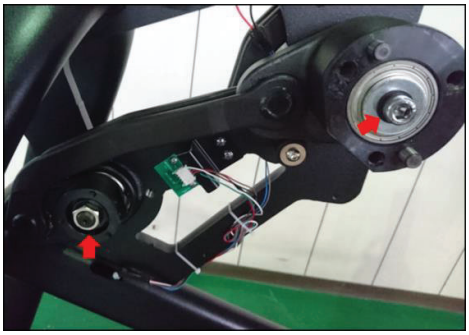


Figure L

CHAPTER 7: PARTS REPLACEMENT GUIDE

7.2 Linkage Replacement Continued

5) After removing the nut, use the tool (part number 010687-00, Figure M) to separate the linkage and shaft (Figure N).



Figure M



Figure N

6) Use a heat gun to loosen Loctite (Figure O) and a gear puller to remove the main linkage (Figure P).



Figure O

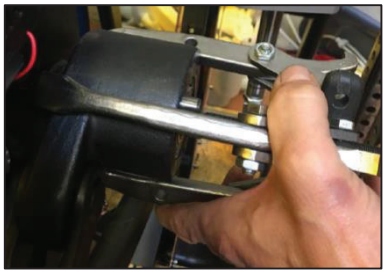


Figure P

7) Replace the linkage sets (the process is the same for both right/left linkages).



Figure Q

8) After installing the linkage sets, take note that the gap between sensor and magnetic plate is about 2 mm (Figure S).

Important: Keep metal objects away from the magnetic plate, as they could damage or remove the magnets from the plate.

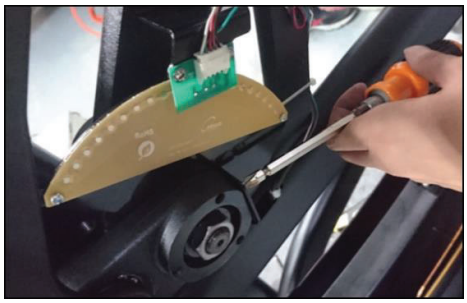


Figure R



Figure S

CHAPTER 7: PARTS REPLACEMENT GUIDE

7.3 Sensor Replacement

1) Remove Right Cover (Figure A~D)

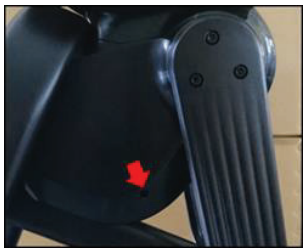


Figure A



Figure B



Figure C



Figure D

2) Remove the sensor (Figure E)

Important: Keep metal objects away from the magnetic plate, as they could damage or remove the magnets from the plate.

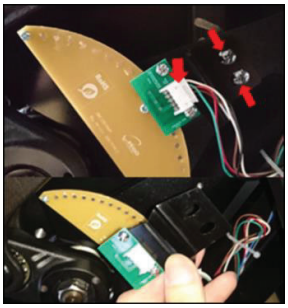


Figure E

3) Install the new sensor and make sure the edge of the metal sheet is parallel to the edge of the frame. Adjust the sensor in alignment with the magnet on the magnetic plate (Figure F).

4) Operate the equipment and make sure the console is functioning normally (Figure G).

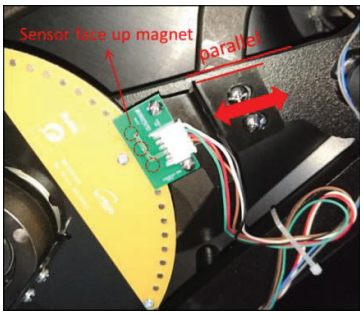


Figure F

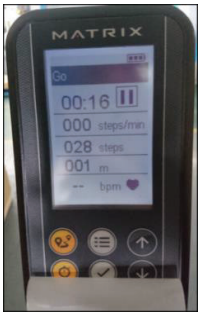


Figure G

CHAPTER 7: PARTS REPLACEMENT GUIDE

7.4 Magnetic Plate Replacement

1) Remove Right Cover (Section 7.3).

2) Remove and replace the magnetic plate (Figure A). Take note that the gap between the sensor and magnetic plate is about 2 mm (Figure B).

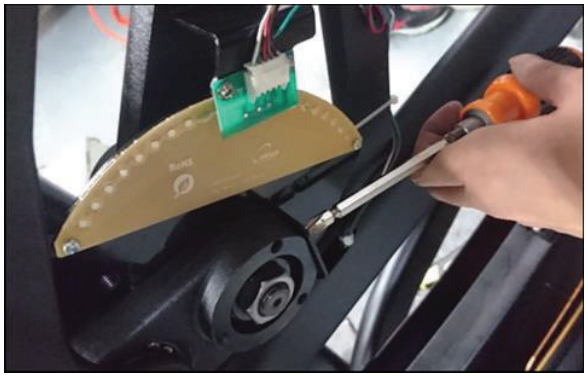


Figure A



Figure B

CHAPTER 7: PARTS REPLACEMENT GUIDE

7.5 Magnetic Carriage Replacement

1) Push the lever to Level 5 (Figure A) and remove lower arc cover (Figure B).

2) Remove the screws and then take the carriage out (Figure C).



Figure A



Figure B



Figure C

3) When installing the new magnetic carriage, note that the inner side of the copper blade is slightly contacted with the magnet of the carriage (Figure E).



Figure D



Figure E

CHAPTER 7: PARTS REPLACEMENT GUIDE

7.6 Copper Blade Replacement

1) Remove upper and lower arc covers (Figure A~B).



Figure A



Figure B

2) Remove side covers (right/left), the locations of the screws are shown in Figure C.



Figure C

3) Pull the lever to Level 1, and remove the screws as in Figure E.



Figure D

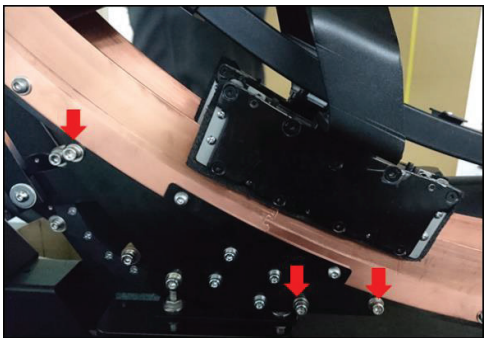


Figure E

CHAPTER 7: PARTS REPLACEMENT GUIDE

7.6 Copper Blade Replacement Continued

4) Remove the screw as in Figure F, and remove the right copper blade.



Figure F

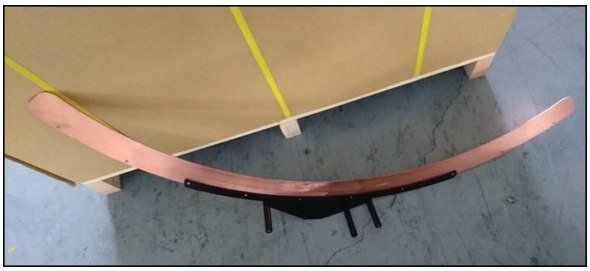


Figure G

5) Remove the 5 screws as in Figure H, and remove the left Copper blade.

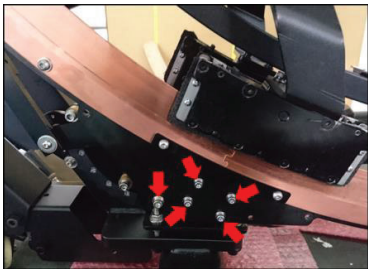


Figure H



Figure I

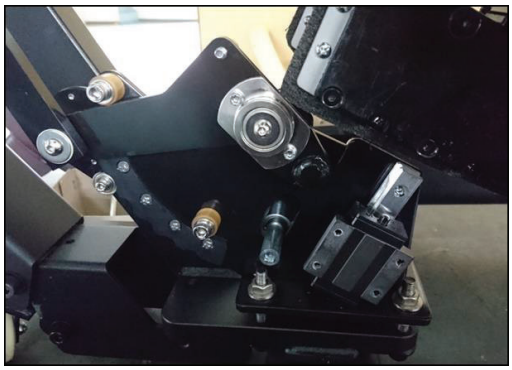


Figure J

6) Reverse these steps to install the new copper blades.

CHAPTER 7: PARTS REPLACEMENT GUIDE

7.7 Console Mast Replacement

1) Remove the screws, and then remove the connector.

2) Install the new mast.



Figure A



Figure B

3) When you are installing the mast, make sure the position of the lever is at the middle of the mast (Figure C).



Figure C

CHAPTER 7: PARTS REPLACEMENT GUIDE

7.8 Console Replacement

1) Remove the screws and the console connectors.

2) Install the new console.



Figure A



Figure B

CHAPTER 7: PARTS REPLACEMENT GUIDE

7.9 Lever Replacement

1) Remove plastic cover (Section 7.6 **1)** & **2)**), and the lever (Figure A~B).

2) After installing the lever, adjust the level indicator (Figure C) and make sure the number stays at the middle of the window (Figure D).



Figure A



Figure B

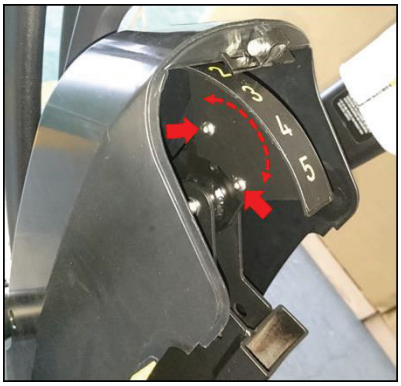


Figure C



Figure D

CHAPTER 8: SPECIFICATIONS AND ASSEMBLY GUIDE

8.1 Production Specification

CONSOLE	
Display Screen	Extra-large LCD display
Display Readout	Time, Distance, SPM (strokes per minute), Stroke, HR(B.P.M)
Programs	Manual, Interval, Challenge
Telemetric Receiver	No
TECHNICAL DATA	
Resistance Technology	Magnetic resistance
Resistance Levels	5
Drive System	linkage
Max User Weight	181.4 kg / 400 lbs
Product Weight	132 kg / 290 lbs
Shipping Weight	155 kg / 340 lbs
Overall Dimensions (L x W x H)*	182 x 69 x 166 cm / 72” x 27” x 65”
Power Requirement	Battery powered for LCD display (three D batteries)
SPECIAL FEATURES	
*Note	

8.2 Fasteners and Assembly Tools

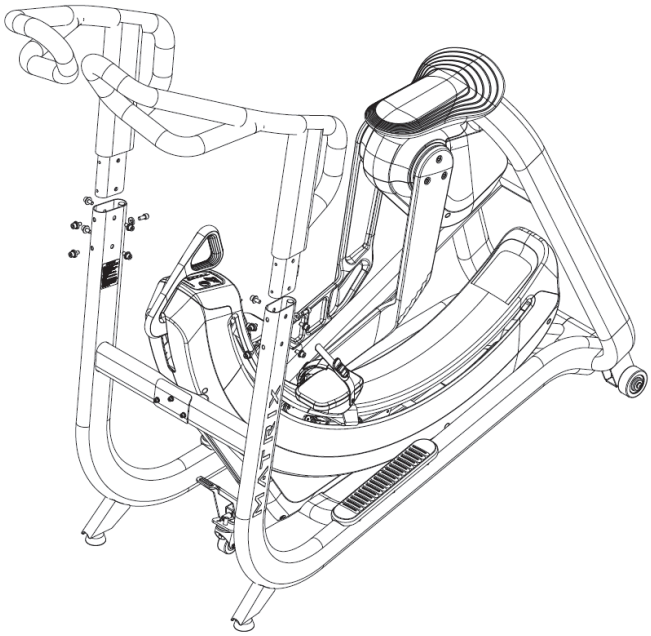
1) Tools Required for Assembly (not included)

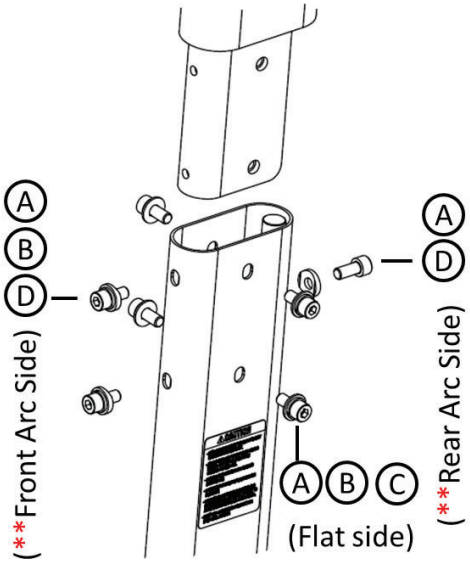
- □ 5mm **L**-Shaped Allen Wrench
- □ 6mm **L**-Shaped Allen Wrench
- □ 6mm **T**-Shaped Allen Wrench

CHAPTER 8: SPECIFICATIONS AND ASSEMBLY GUIDE

8.3 Assembly Instructions

1) STEP 1: Assemble the handlebars





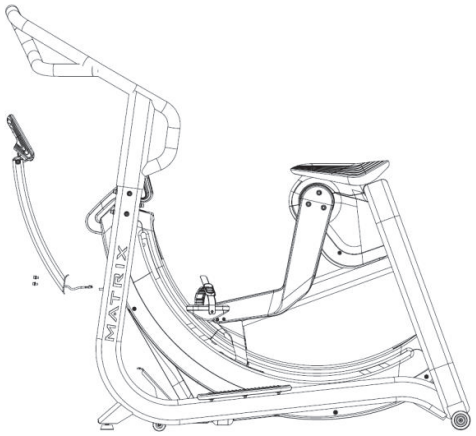
**The bolt of the arc side should be tightened first.

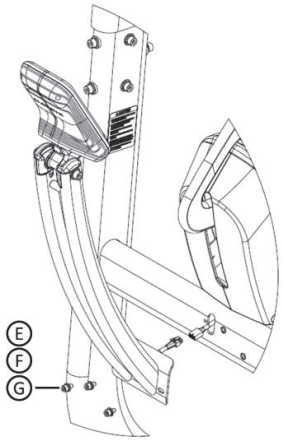
	DESCRIPTION	Qty
A	M8 Bolt	14
B	Spring Washer	12
C	Flat Washer	8
D	Arc Washer	6
Torque Values : 22.5 N · m		

CHAPTER 8: SPECIFICATIONS AND ASSEMBLY GUIDE

8.3 Assembly Instructions Continued

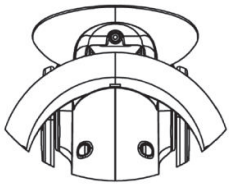
2) STEP 2: Assemble the console mast

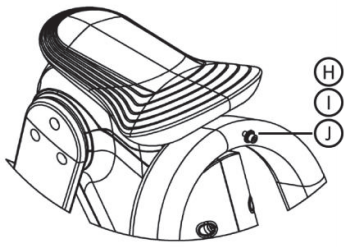


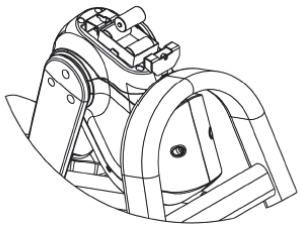


	DESCRIPTION	Qty
E	M6 Bolt	3
F	Spring Washer	3
G	Flat Washer	3
Torque Values : 9.6 N · m		

3) STEP 3: Install the batteries







	DESCRIPTION	Qty
H	M8 Bolt	1
I	Spring Washer	1
J	Flat Washer	1
Torque Values : 22.5 N · m		



MATRIX FITNESS SYSTEMS CORP.

1610 LANDMARK DRIVE COTTAGE GROVE WI 53527 USA

TOLL FREE 866.693.4863 wwww.matrixfitness.com FAX 608.839.1717

REV 4/12/2021