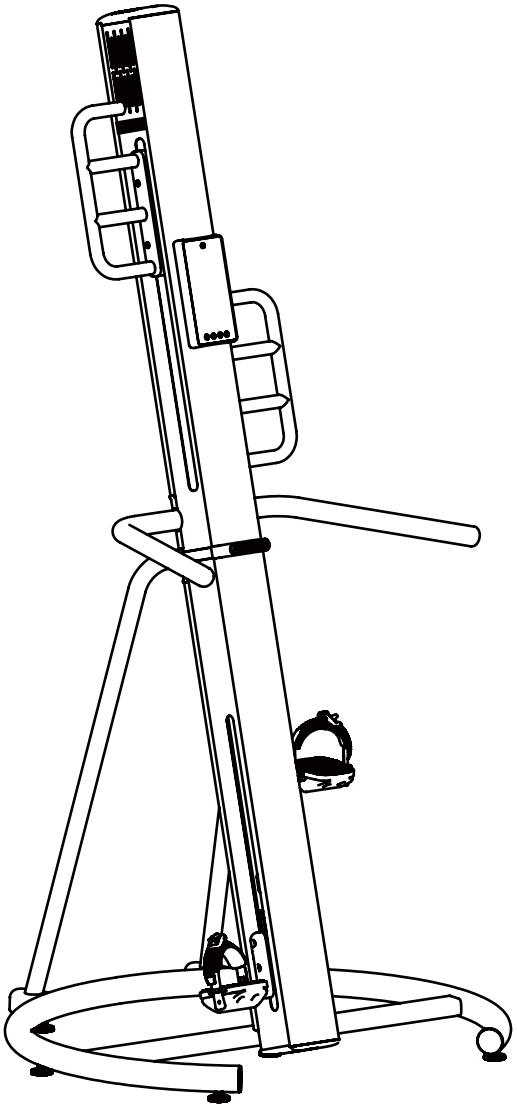


HC005

CLIMBER

OWNER'S MANUAL

25M

CAUTION! Read all precautions and instructions in this manual before using this equipment.

! CAUTION

Read all precautions and instructions in this manual before using this equipment.

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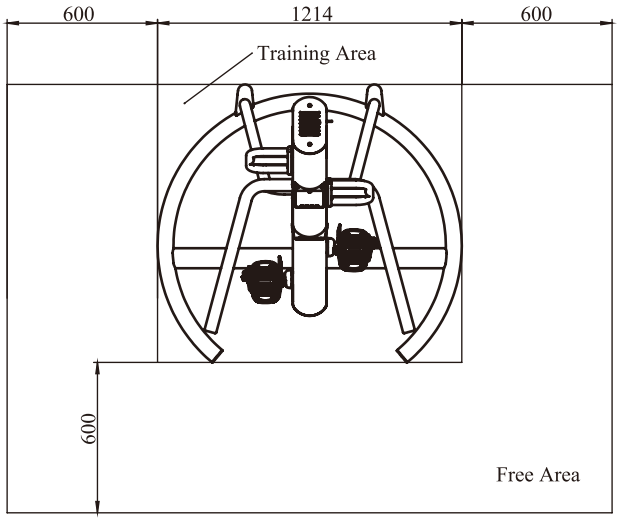
Maintenance Check List----------70

OPERATION

1. Always follow the console instructions for proper operation.
2. Do not reach into, or underneath the unit, and do not tip the unit on its side during operation.
3. Never insert objects into any opening of the equipment. If any object fall into this equipment, carefully retrieve it while the unit is not in use. If the object can't be reached, please contact customer services.
4. Never place any containers filled with liquids on the unit, except in the accessory tray or water bottle holder. Containers should be covered with lids.
5. Wear shoes with rubber or high-traction soles. Do not wear shoes with high heels, leather shoes, slippers, or spikes. Make sure no sharp stuff is embedded in the soles.
6. Do not use the equipment with bare feet.
7. Keep all loose clothing, shoelaces, and towels away from moving parts.
8. Take extra caution when stepping on or off the equipment. portant Safety Instructions.
9. Never face backward while using the equipment.
10. Only one user at a time is permitted to use the equipment.
11. Do not spill food or drink on the product.
12. The equipment should be used in a supervised environment.
13. Regularly check operation and components parts of the machine. Securely tighten any loose fittings or connections.
14. The equipment must be installed indoors in a location free of moisture and dust.
15. Pets should never be allowed near or on the equipment.
16. Do not leave children unsupervised near or on the equipment.
17. Always unplug the treadmill before cleaning and/or servicing. Service to your equipment should only be performed by an authorized service representative, unless authorized and or instructed by the manufacturer.
18. If the supply cord is damaged, it must be replaced by the manufacturer or its service agent or a similarly qualified person in order to avoid a hazard.

Save these instructions for future reference

Training Area and Free Area



Specifications

Class: SB
Maximum User Weight: 160kg/ 352lbs
Product Dimension: 1214*1109*2493mm
Product Total Surface: 1214*1109mm
AC 100-240V, 50/60Hz,
24VDC, 100W

Warm Up Exercises

EXERCISE GUIDELINES

WARNING! Before beginning this or any exercise program, you should consult your physician. This is especially important for individuals over the age of 35 or individuals with pre-existing health problems.

Warming up prepares the body for the exercise by increasing circulation, supplying more oxygen to the muscles and raising body temperature. Begin each workout with 5 to 10 minutes of stretching and light exercise to warm up. The photos on this page show several forms of basic stretching you may perform before your workouts. In order to achieve an adequate warm-up, perform each stretch three times.

TOE TOUCH STRETCH

Stand, bending your knees slightly and slowly bend forward from your hips. Allow your back and shoulders to relax as you reach down toward your toes as far as possible. Hold for 15 counts, then relax. This will stretch your hamstrings, back of knees, and back.

HAMSTRING STRETCH

Sit with one leg extended. Bring the sole of the opposite foot toward you and rest it against the inner thigh of your extended leg. Reach toward your toes as far as possible. Hold for 15 counts, then relax. This will stretch your hamstrings, lower back, and groin.

CALF/ACHILLES STRETCH

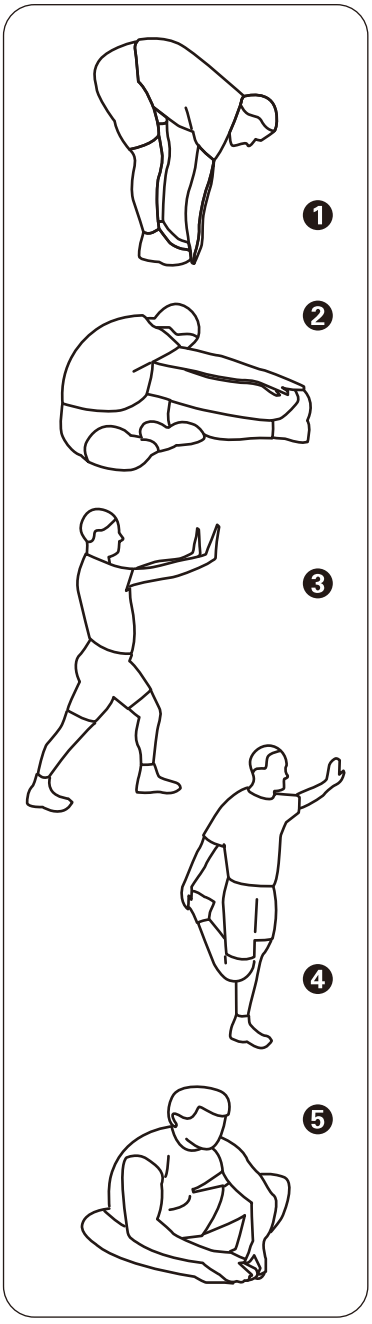
With one leg in front of the other, reach forward and place your hands against a wall. Keep your back leg straight and your back foot flat on the floor. Bend your front leg, lean forward and move your hips toward the wall. Hold for 15 counts, then relax. To cause further stretching of the achilles tendon, bend your back leg as well. This will stretch your calves, achilles tendons, and ankles.

QUADRICEPS STRETCH

With one hand against a wall for balance, reach back and grasp one foot with your other hand. Bring your heel as close to your buttocks as possible. Hold for 15 counts, then relax. This will stretch your quadriceps and hip muscles.

INNER THIGH STRETCH

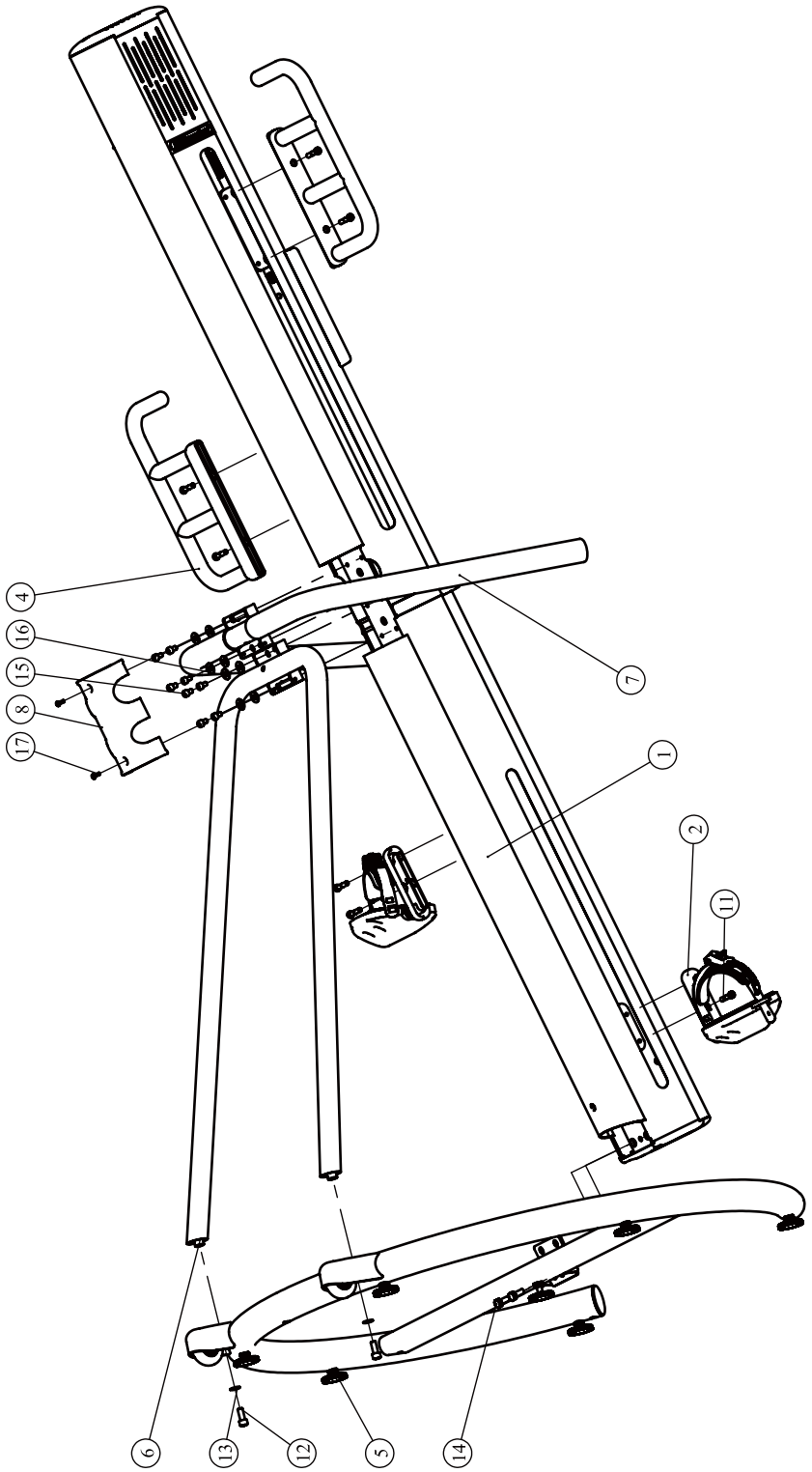
Sit with the soles of your feet together and your knees outward. Pull your feet toward your groin area as far as possible. Hold for 15 counts, then relax. This will stretch your quadriceps and hip muscles.



Overall

Item No.	Part No.	Description	QTY
1	HC00501ASSY	Main frame assembly	1
2	HC00504ASSY	Left pedal connection component	1
3	HC00505ASSY	Right pedal connection component	1
4	HC0050800V1	Handlebar	2
5	HC00503ASSY	Base frame assembly	1
6	HC0050400	Rear support pipe weldment	1
7	HC0050500	Support handlebar	1
8	HC0055700	Cover for assmbly	1
9	DQSPQ24V4A	Power adapter	1
10	A01-4	Power plug	1
11	HC0050900	M8*35 Shoulder bolt	8
12	GB70M10*25DS20	M10*25 Hexagonal socket head bolt	2
13	DQ10DS2	Φ11*Φ20*1.5 Washer	2
14	GB5781M10*25DS20	M10*25 Hexagon headed bolt	2
15	GB70M8*12DS20	M8*12 Hexagonal socket head bolt	8
16	DQ8DS2	Φ9*Φ22*1.6 Washer	8
17	GB818M5*15DHS20	M5*15 Phillip Screw	2

Overall



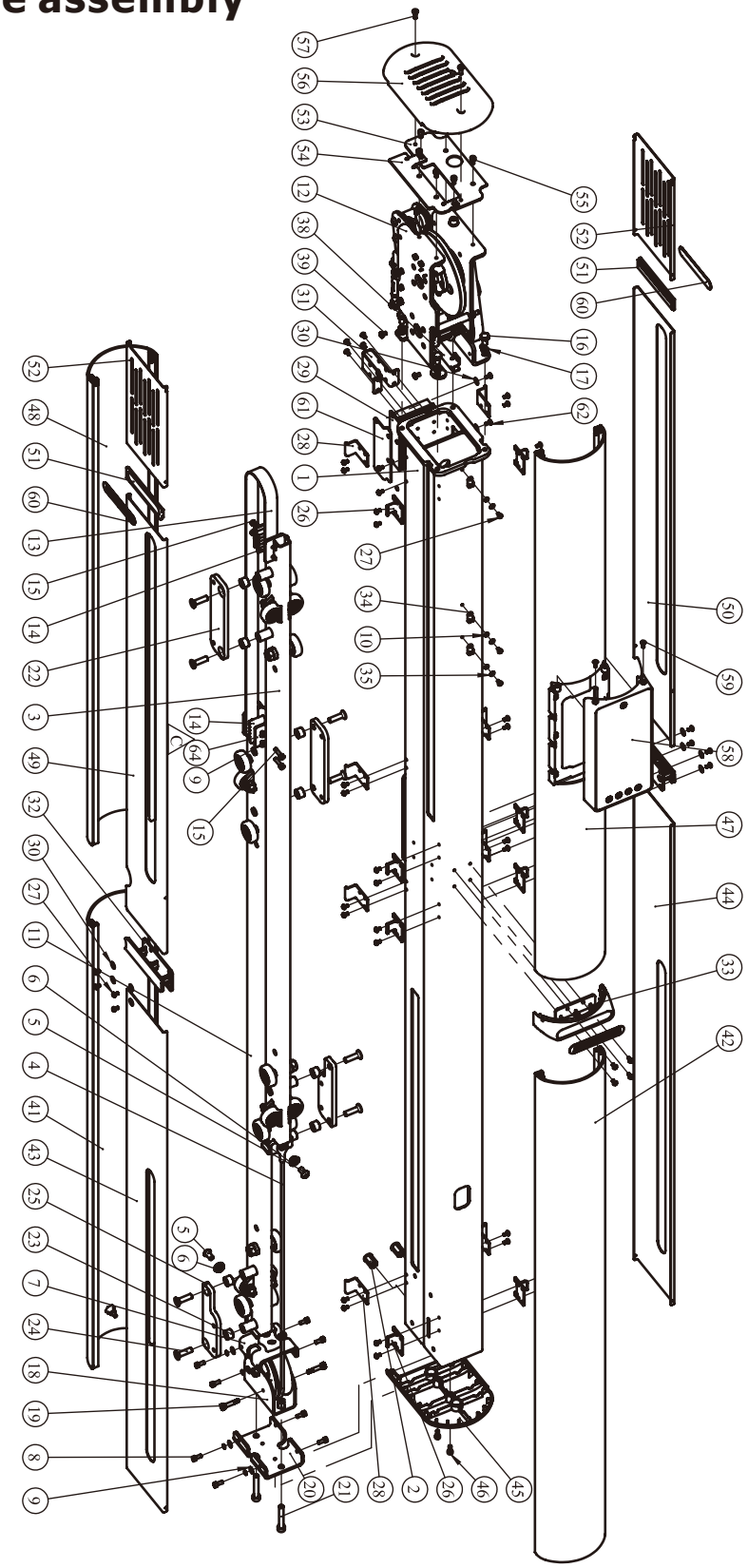
Main frame assembly

Grade No.	Part No.	Description	QTY
1.1	HC0050100	Main frame	1
1.2	GB17880.5M10*19.5DCS17	Hexagon riveted nuts M10	2
1.3	HC00506ASSY	Right side slide rail assembly	1
1.4	HC0051700	Lower section steel cable	1
1.5	PNLM8*15DHS20NL	Hexalobular socket pan head tapping screws M8*15	2
1.6	HC0051600	Sleeve for steel cable	2
1.7	HC00510ASSY	Limit buffer assembly	1
1.8	GB70M5*12DHS20	Hexalobular socket pan head tapping screws M5*12	8
1.9	DQ5DHS2	Washer 5.5*Φ12*1	8
1.10	GB935DHS12	Spring washer Φ5	11
1.11	HC00507ASSY	Left side slide rail assembly	1
1.12	HC00502ASSY	Resistance transmission component	1
1.13	TBD880S8M24	Timing belt	1
1.14	HC0051500	Timing belt holder	2
1.15	GB70M5*20DS20	Hexalobular socket pan head tapping screws M5*20	4
1.16	GB5781M8*15DHS20NL	Hexagon headed bolt M8*15	4
1.17	GB938DS12	Spring washer Φ8	4
1.18	HC00511ASSY	Lower pulley assembly	1
1.19	011-0712015	Shoulder bolt Φ6*34.3*M5	2
1.20	HC0052200	U bracket for holding lower cover	1
1.21	GB70M8*50DHS20	Hexalobular socket pan head tapping screws M8*50	2
1.22	HC0052300	Connect board for handlebar	2
1.23	HC0052500	Spacer for handrail	8
1.24	CNLM8*30DHS20	Hexagon socket countersunk head cap head screw M8*30	8
1.25	HC0052400	Connect board for pedal	2
1.26	HC0052600	Bracket A	8
1.27	HC0058000	Cross groove pan head three petal self tapping screw #8-32UNC*19	53
1.28	HC0052700	Bracket B	8
1.29	C79	Stepper motor controller	1
1.30	DQ4DHS2	Washer Φ5.3*Φ15*1.2	10
1.31	HC0057900	Bracket for height limit	1
1.32	HC00514ASSY	Side lower decorative strip assembly	2

Main frame assembly

Grade No.	Part No.	Description	QTY
1.33	HC00513ASSY	Front decorative strip assembly	1
1.34	SDZK	Band cable holder	3
1.35	GB954DS2	Washer Φ4.3*Φ9*0.8	3
1.36	L950XHB-EDG-2	Power cable for stepper motor	1
1.37	L950XHB-SMY-11	cable for Console	1
1.38	HC0052800	Bracket for protection cable	1
1.39	GB818M5*8DS2	Phillip Screw M5*8	2
1.40	SD4*150	Band cable	11
1.41	HC00515ASSY	Rear lower shell assembly	1
1.42	HC0056200	Front lower shell	1
1.43	HC0058100	Left lower cover	1
1.44	HC0058200	Right lower cover	1
1.45	HC0055600	Lower cover	1
1.46	GB70M5*12DS20NL	Hexalobular socket pan head tapping screws M5*12	2
1.47	HC00516ASSY	Console holder assembly	1
1.48	HC0056100	Rear upper shell	1
1.49	HC0058300	Left upper cover	1
1.50	HC0058400	Right upper cover	1
1.51	HC0055300	Side upper decorative strip	2
1.52	HC0058500	Upper cover for maintenance	2
1.53	HC0058700	Bracket A for holding upper cover	1
1.54	HC0058800	Bracket B for holding upper cover	1
1.55	GB70M5*10DHS20	Hexalobular socket pan head tapping screws M5*10	6
1.56	HC0055200	Upper cover	1
1.57	GB818M5*15DHS20	Phillip Screw M5*15	2
1.58	HC00517ASSY	Console assembly	1
1.59	GB819M4*12DS2	Cross groove countersunk head screw M4*12	2
1.60	IMPULSELOGOMP01	Logo band	3
1.61	HC0058900	Bracket for Stepper motor controller	1
1.62	GB818M4*8DS2	Phillip Screw M4*8	2
1.63	GB934DS12	Spring washer Φ4	2
1.64	HC0059000	Strengthening plate	2

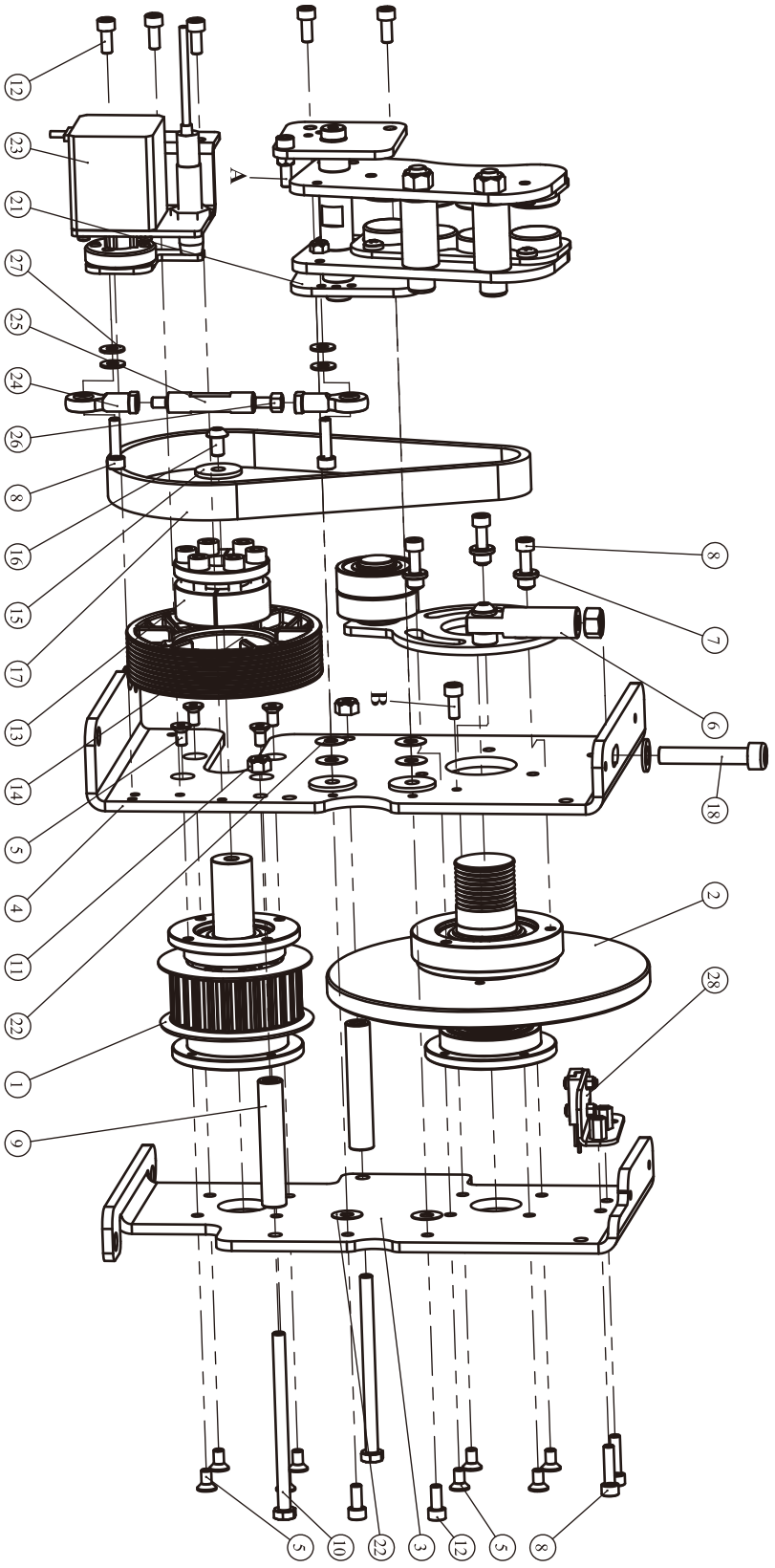
Main frame assembly



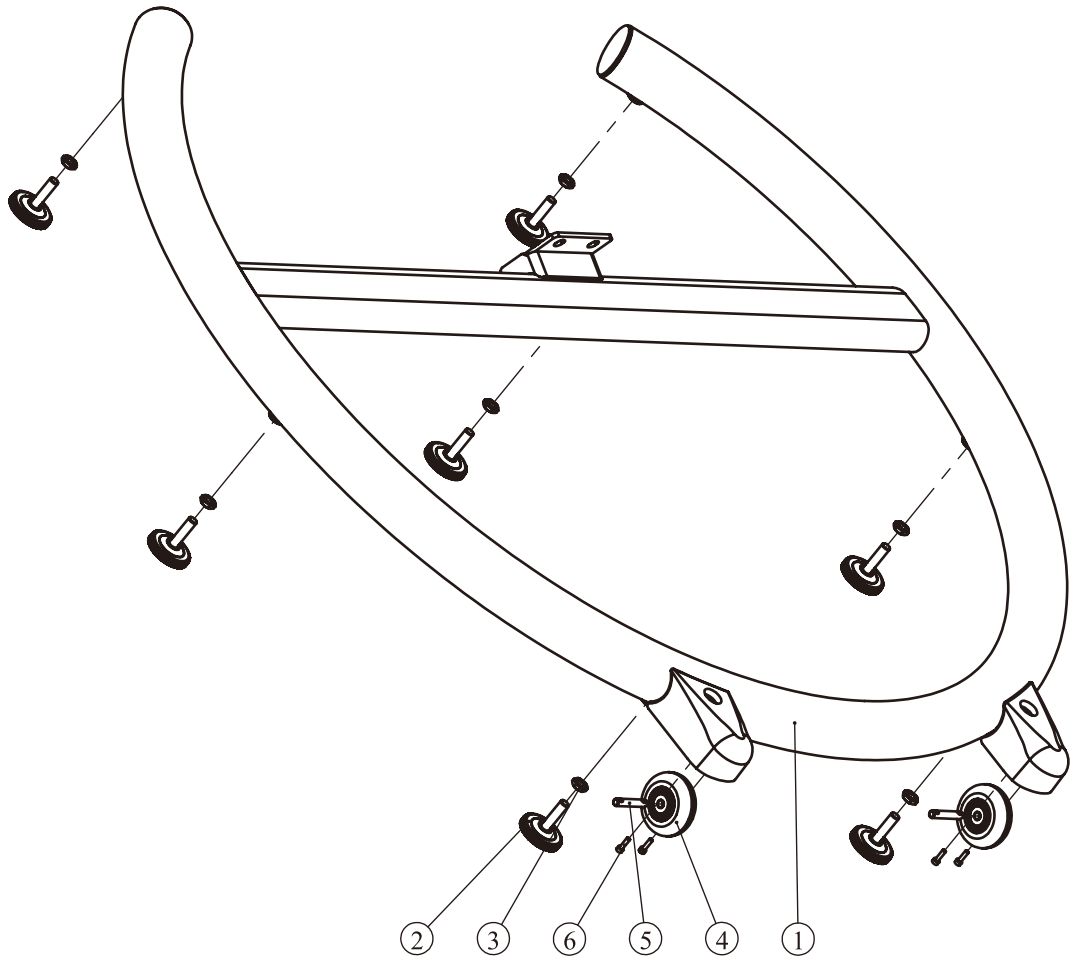
Resistance transmission component

Grade No.	Part No.	Description	QTY
1.12.1	HC00518ASSY	Belt pulley assembly	1
1.12.2	HC00519ASSY	Resistance disk assembly	1
1.12.3	HC0053200	Left side bracket for component	1
1.12.4	HC0053300	Right side bracket for component	1
1.12.5	CNLM5*10DHS20NL	Hexagon socket countersunk head cap head screw M5*10	12
1.12.6	HC00520ASSY	Tensioning component	1
1.12.7	HC0053100	Limit spacer sleeve	3
1.12.8	GB70M5*20DS20NL	Socket Head Cap Screw M5*20	7
1.12.9	HC0053400	Space cylinder	2
1.12.10	GB5780M6*90DS2	Hexagon headed bolt M6*90	2
1.12.11	NM6DS2	Locknut M6	2
1.12.12	GB70M5*12DS20NL	Hexalobular socket pan head tapping screws M5*12	8
1.12.13	Z3B-20X47	Z3 Expansion coupling	1
1.12.14	HC0055800	PJ belt pulley	1
1.12.15	DQ6DS2	Washer Φ6.6*Φ23*2	3
1.12.16	PNLM6*10DHS20	Hexalobular socket pan head tapping screws M6*10	1
1.12.17	DXD190J8A	V-Belt	1
1.12.18	GB70M8*45DS20	Hexalobular socket pan head tapping screws M8*45	1
1.12.19	GB958DS20	Washer Φ9*Φ16*1.6	1
1.12.20	GB41M8DS2	Hex nut M8	1
1.12.21	HC00521ASSY	Magnet assembly	1
1.12.22	HC0053500	Thin washer Φ15*Φ6.2*0.5	6
1.12.23	HC00522ASSY	Stepper motor assembly	1
1.12.24	SI5T-K	Joint bearing M5	2
1.12.25	HC0053600	Connect pole	1
1.12.26	GB41M5DS2	Hex nut	1
1.12.27	DQ5DS2	Washer Φ5.5*Φ12*1	4
1.12.28	HC00523ASSY	Speed sensor assembly	1
1.12.29	SD4*150	Band cable	4
1.12.30	NM5DS2	Locknut M5	1

Resistance transmission component

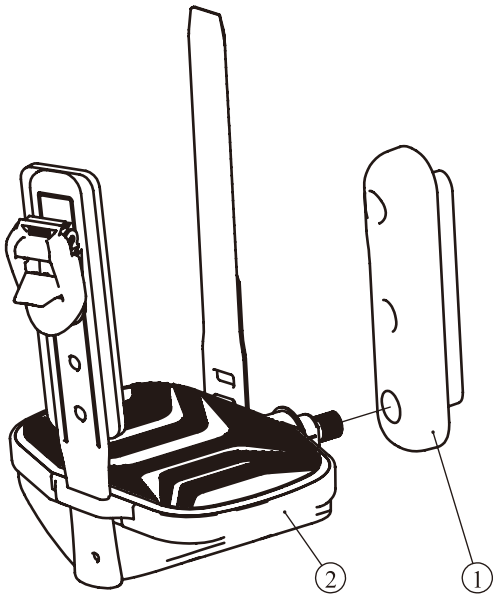


Base frame assembly

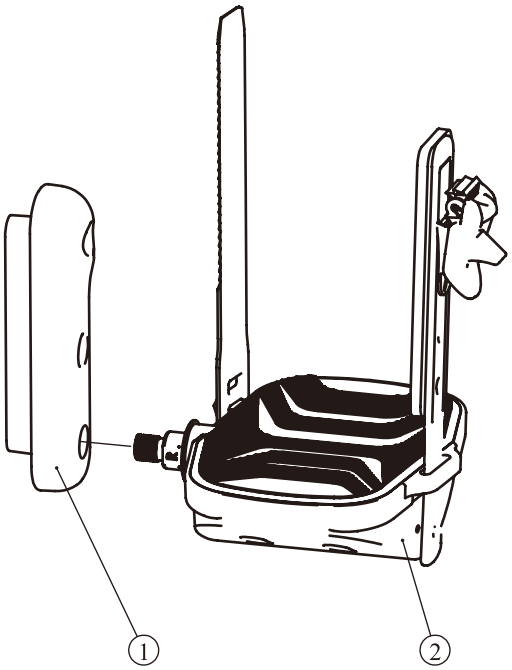


Grade No.	Part No.	Description	QTY
5.1	HC0050300	Base frame	1
5.2	ASCENT2900	Adjust the height pad	7
5.3	GB6172.1M10N19	Hex nut M10	7
5.4	DP86703100V1	PU wheel component	2
5.5	HC0051000	PU wheel shaft	2
5.6	GB70M4*15*15DHS20	Hexagonal socket head bolt M4*15	4

Left pedal connection component



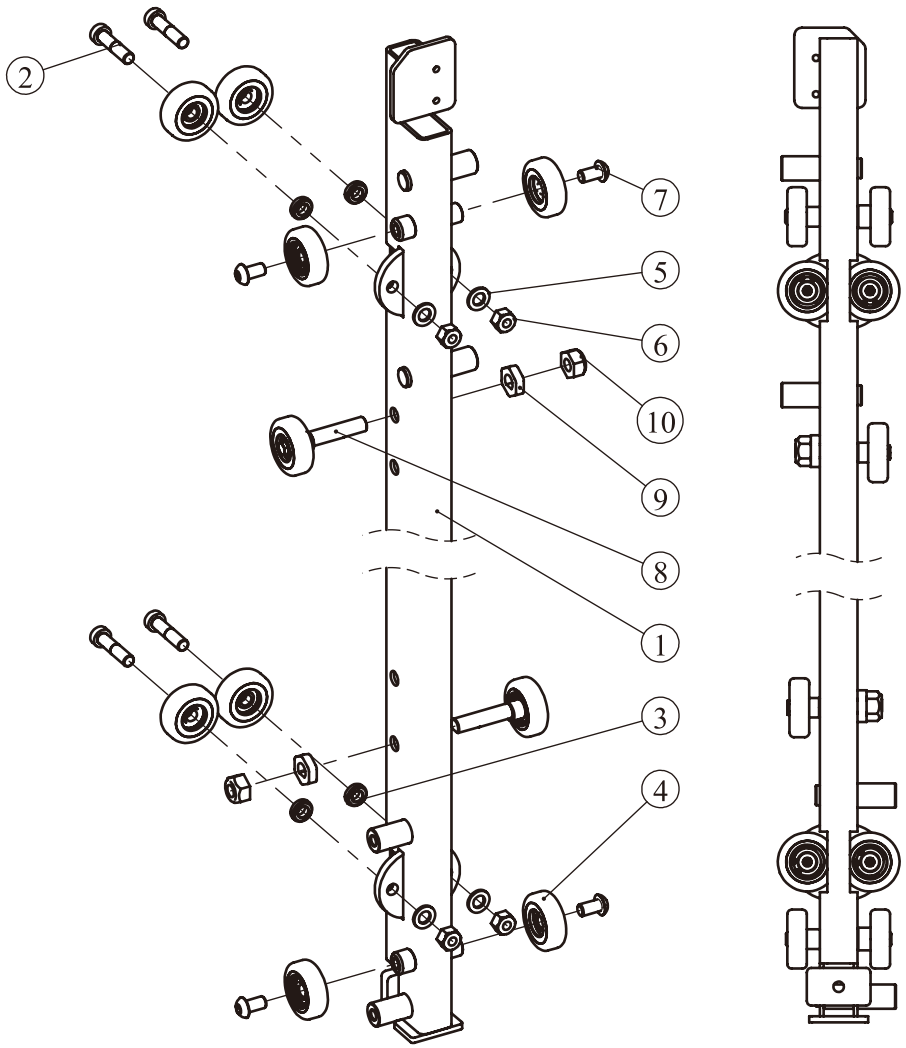
Right pedal connection component



Grade No.	Part No.	Description	QTY
2.1	HC0050600	Left pedal component	1
2.2	JD-61AM18-LV1	Left pedal component	1

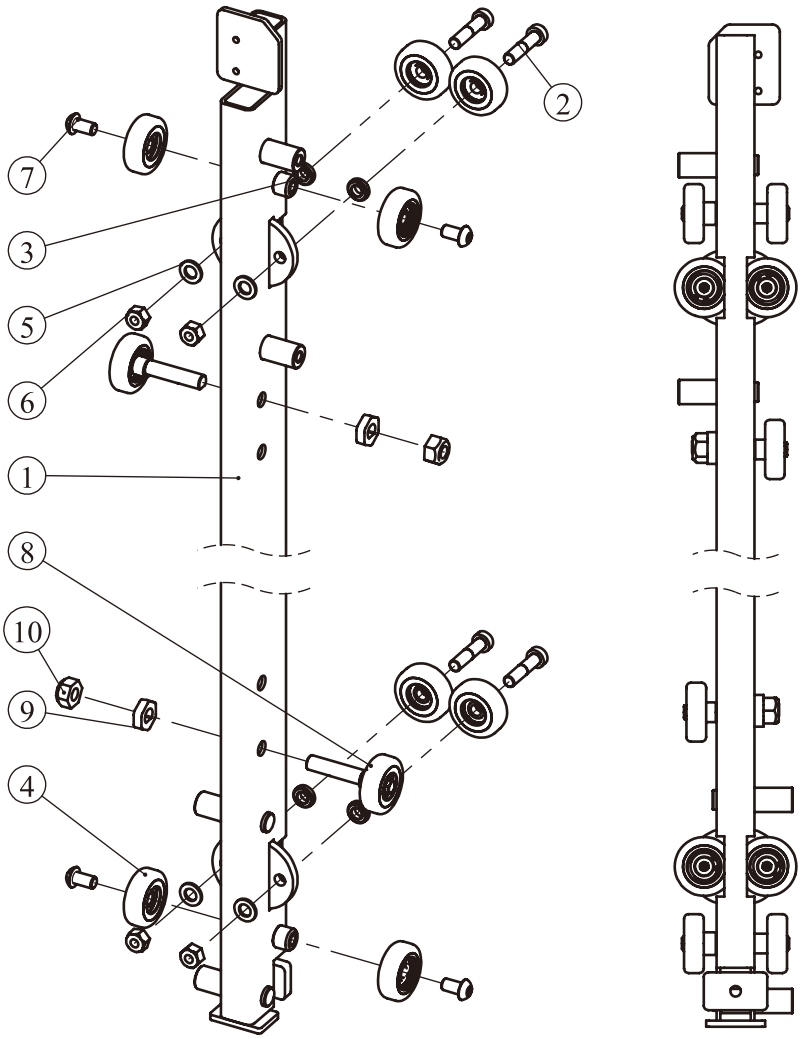
Grade No.	Part No.	Description	QTY
3.1	HC0050700	Right pedal crank	1
3.2	JD-61AM18-RV1	Right pedal component	1

Right side slide rail assembly



Grade No.	Part No.	Description	QTY
1.3.1	HC0051100	Right side slide rail bracket	1
1.3.2	HC0050900	Shoulder bolt M8*35	4
1.3.3	HC0051300	Space block	4
1.3.4	HC00508ASSY	PU roller assembly	8
1.3.5	GB958DS20	Washer Φ9	4
1.3.6	NM8DHS2	Locknut M8	4
1.3.7	PNLM8*15DHS20NL	Hexalobular socket pan head tapping screws M8*15	4
1.3.8	HC00509ASSY	Eccentric shaft roller assembly	2
1.3.9	HC0051400	Eccentric shaft washer	2
1.3.10	NM10DHS2	Locknut M10	2

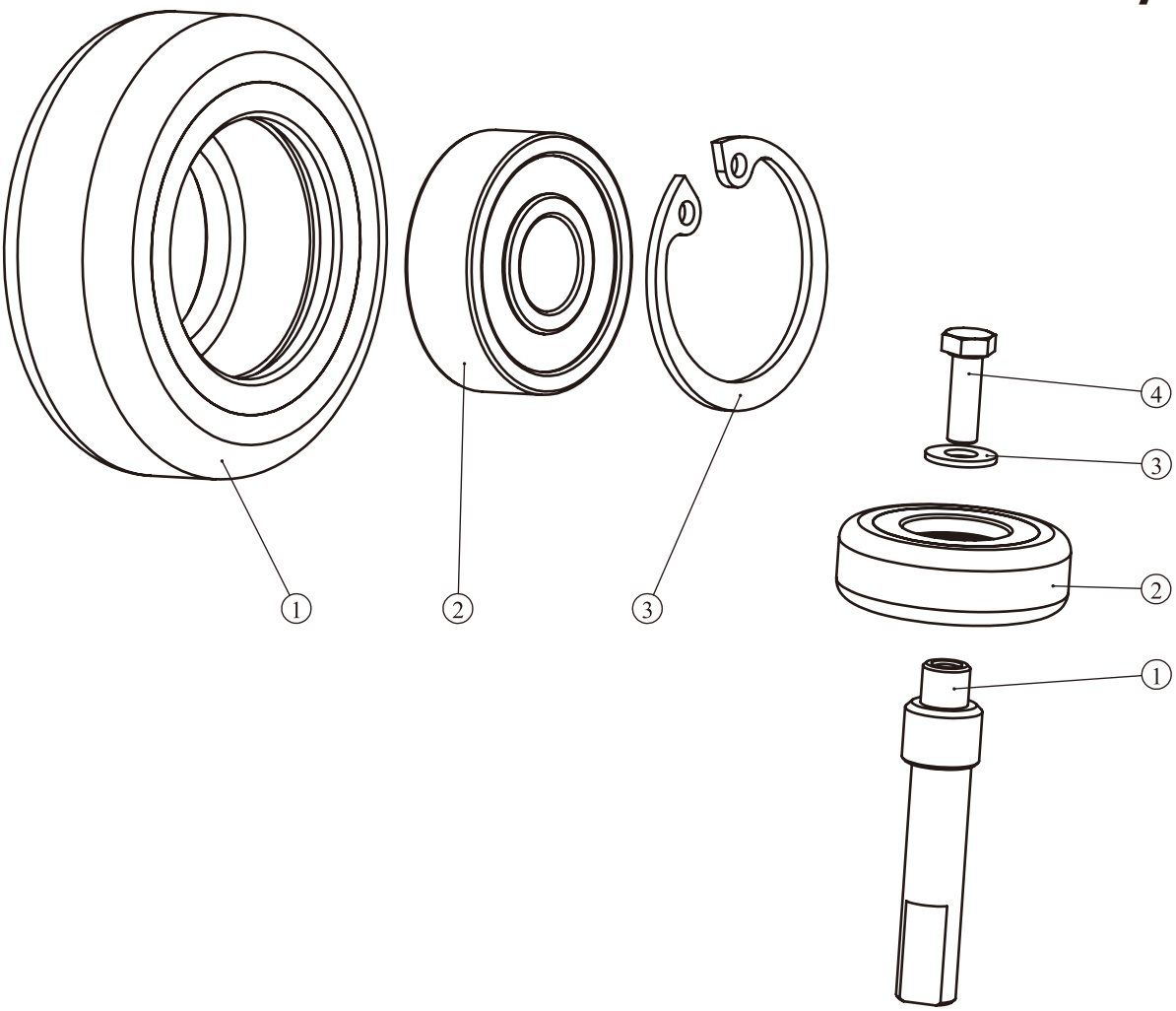
Left side slide rail assembly



Grade No.	Part No.	Description	QTY
1.11.1	HC0051200	Left side slide rail bracket	1
1.11.2	HC0050900	Shoulder bolt M8*35	4
1.11.3	HC0051300	Space block	4
1.11.4	HC00508ASSY	PU roller assembly	8
1.11.5	GB958DS20	Washer Φ9	4
1.11.6	NM8DHS2	Locknut M8	4
1.11.7	PNLM8*15DHS20NL	Hexalobular socket pan head tapping screws M8*15	4
1.11.8	HC00509ASSY	Eccentric shaft roller assembly	2
1.11.9	HC0051400	Eccentric shaft washer	2
1.11.10	NM10DHS2	Locknut M10	2

PU roller assembly

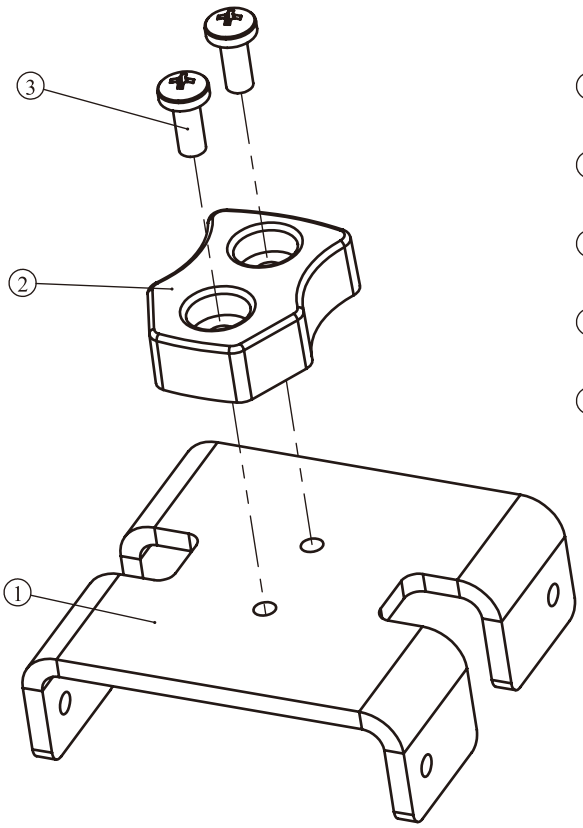
Eccentric shaft roller assembly



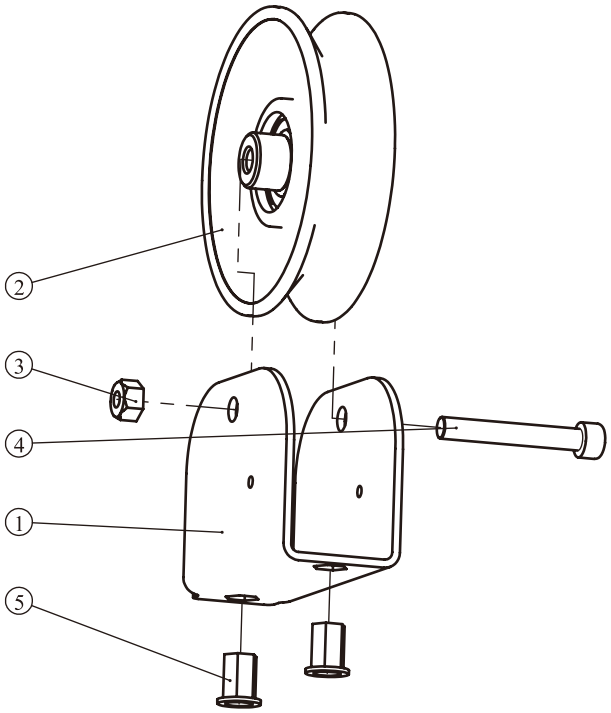
Grade No.	Part No.	Description	QTY
1.3.4.1	HC0052000	PU roller	1
1.3.4.2	GB276608-2RZTPI	Bearing 608	1
1.3.4.3	GB893.122FH12	Elastic retaining ring for holes Φ22	1

Grade No.	Part No.	Description	QTY
1.3.8.1	HC0057600	Eccentric shaft	1
1.3.8.2	HC00508ASSY	PU roller assembly	1
1.3.8.3	DQ5DS2	Washer Φ9	1
1.3.8.4	GB5781M5*15DS2	Hexagon headed bolt M5*15	1

Limit buffer assembly



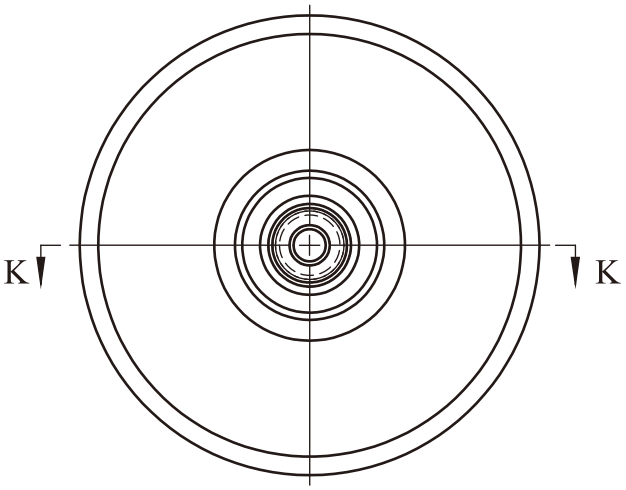
Lower pulley assembly

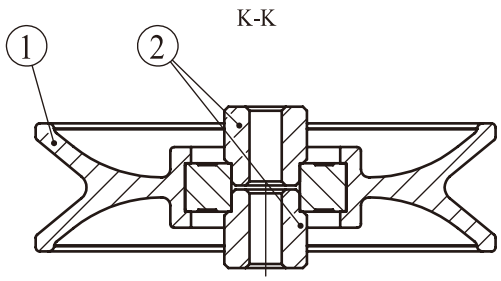


Grade No.	Part No.	Description	QTY
1.7.1	HC0051800	Limit buffer bracket	1
1.7.2	SR79100	Cushion	1
1.7.3	GB818M5*12DHS2	Phillip Screw M5*12	2

Grade No.	Part No.	Description	QTY
1.18.1	HC0051900	U bracket for holding pulley	1
1.18.2	HC00512ASSY	V shape pulley assembly	1
1.18.3	NM8DHS2	Locknut M8	1
1.18.4	GB70M8*55*55DHS6	Hexalobular socket pan head tapping screws M8*55	1
1.18.5	GB17880.5M8*16.5DCS17	Hexagon riveted nuts M8	2

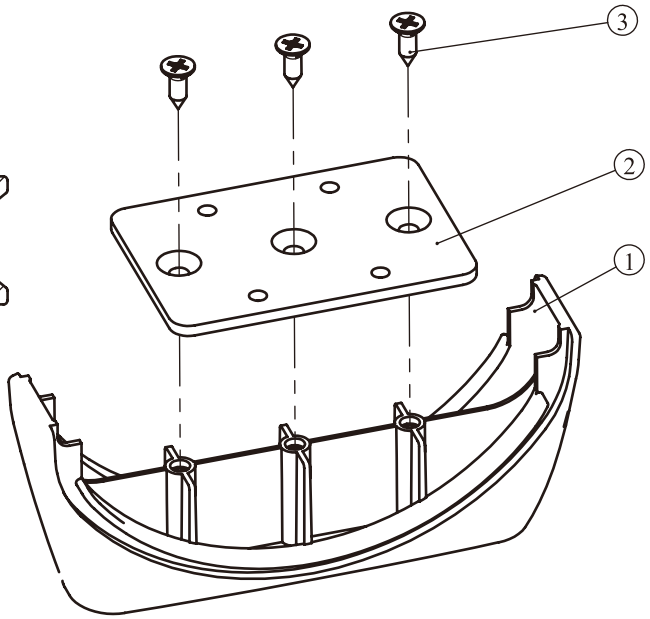
V shape pulley assembly





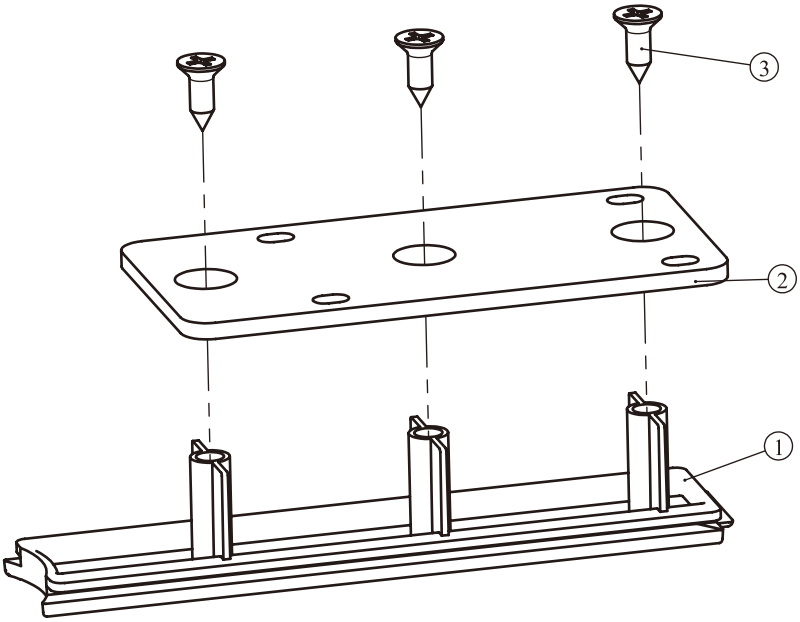
Grade No.	Part No.	Description	QTY
1.18.2.1	V37000V1	V shape pulley	1
1.18.2.2	HC0052100	Spacer for pulley	2

Front decorative strip assembly



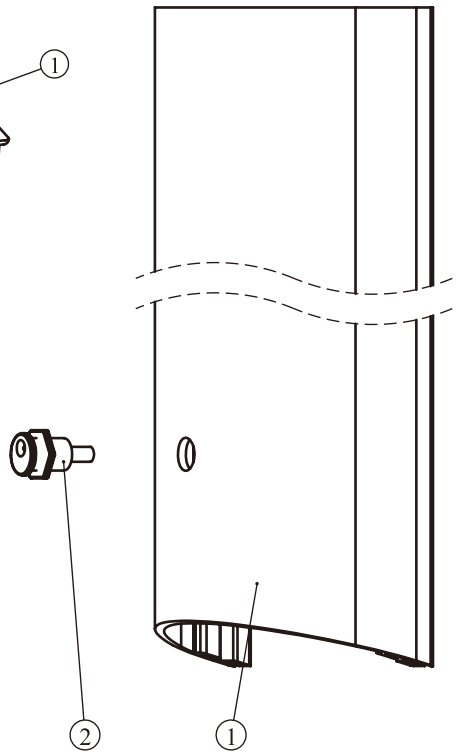
Grade No.	Part No.	Description	QTY
1.33.1	HC0055500PBLC	Front decorative strip	1
1.33.2	HC0052900	Bracket for holding front decorative strip	1
1.33.3	GB846ST4.2*13DS2	Cross recessed countersunk head tapping screw ST4.2*13	3

Side lower decorative strip assembly



Grade No.	Part No.	Description	QTY
1.32.1	HC0055400PBLC	Side lower decorative strip	1
1.32.2	HC0053000	Bracket for holding side lower decorative strip	1
1.32.3	GB846ST4.2*13DS2	Cross recessed countersunk head tapping screw ST4.2*13	3

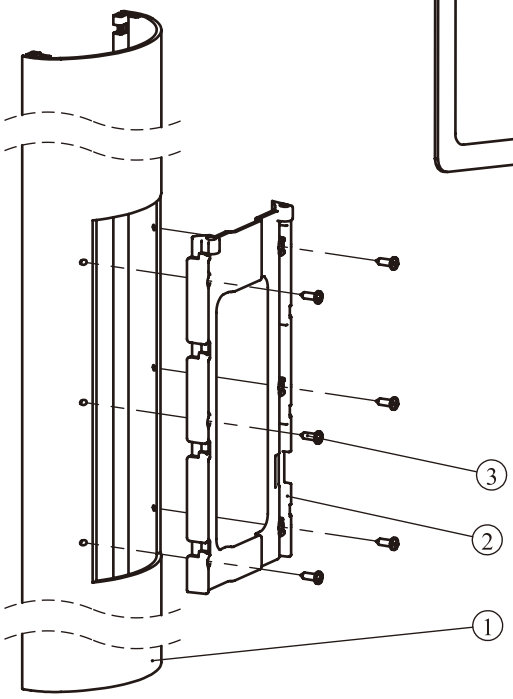
Rear lower shell assembly

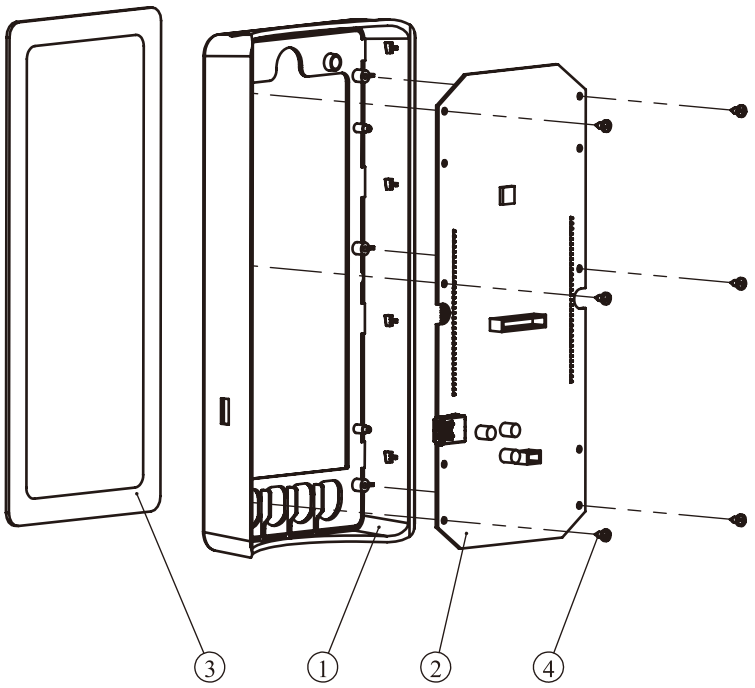


Grade No.	Part No.	Description	QTY
1.41.1	HC0056300	Rear lower shell	1
1.41.2	L2050XHB-DC-2	DC cable	1

Console holder assembly

Console assembly



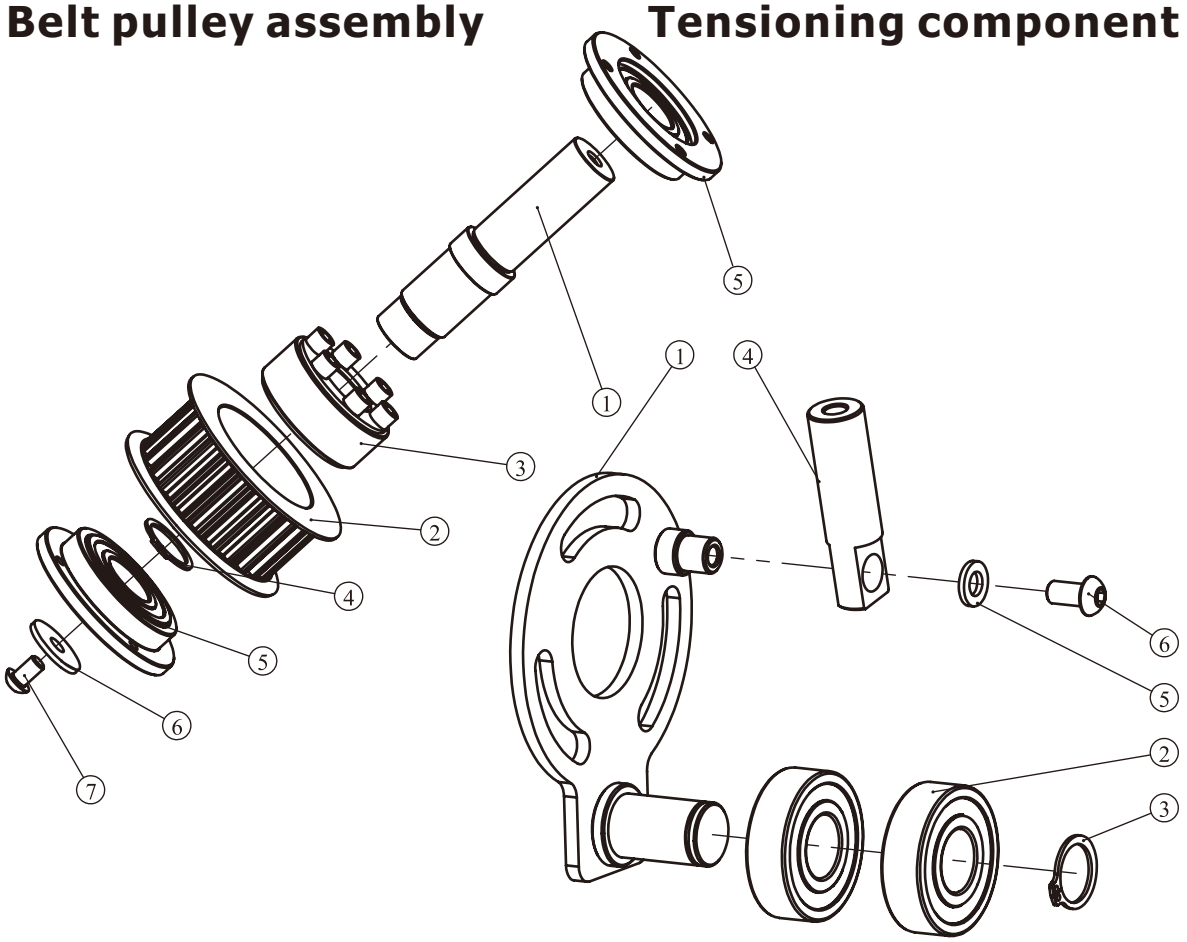


Grade No.	Part No.	Description	QTY
1.47.1	HC0056400	Front upper shell	1
1.47.2	HC0055100	Console holder	1
1.47.3	GB845ST4.2*13DHS	Phillip screw ST4.2*13	6

Grade No.	Part No.	Description	QTY
1.58.1	HC0055000	Console cover	1
1.58.2	B341	Console PCBA	1
1.58.3	HC005MM01	Frame glass	1
1.58.4	GB845ST2.9*6.5DS	Phillip screw ST2.9*6.5	6

Belt pulley assembly

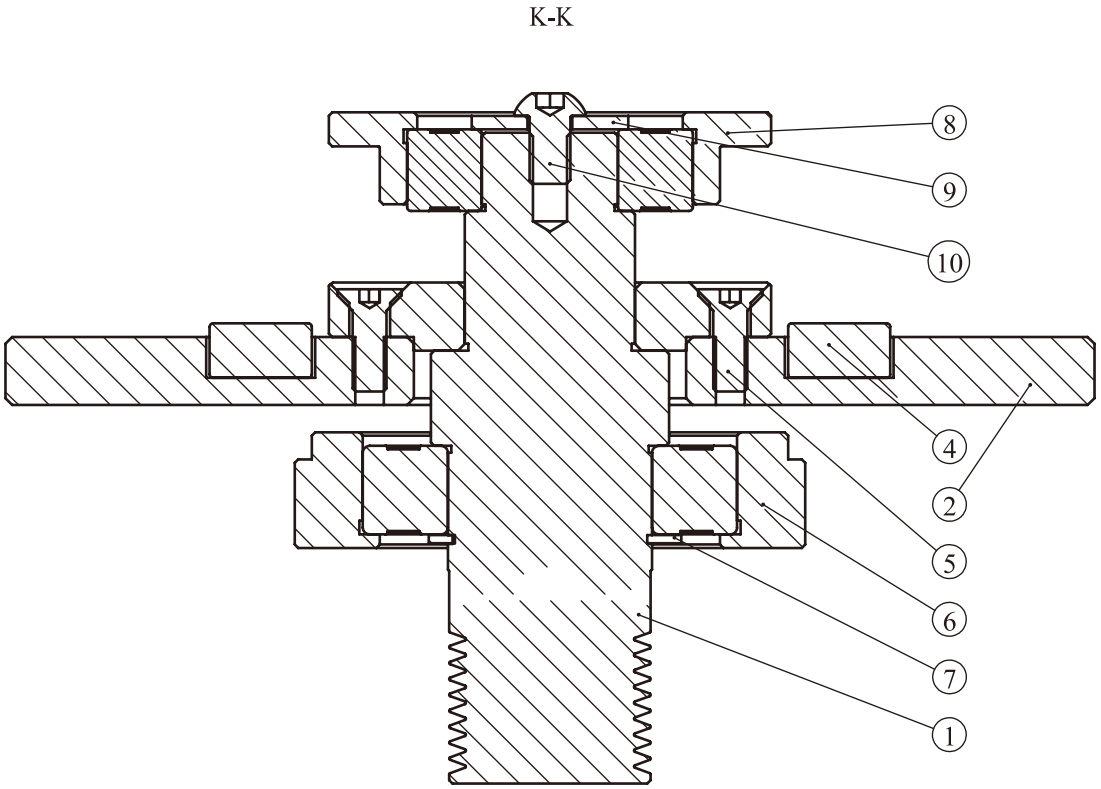
Tensioning component



Grade No.	Part No.	Description	QTY
1.12.1.1	HC0053700	Shaft for timing pulley	1
1.12.1.2	HC0053800	S8M timing pulley	1
1.12.1.3	Z2-22X47	Z2 Expansion coupling	1
1.12.1.4	GB894.120FH12	External retaining ring Φ20	1
1.12.1.5	HC00524ASSY	Bearing holder C component	2
1.12.1.6	DQ6DS2	Washer Φ6.6*Φ23*2	1
1.12.1.7	PNLM6*10DHS20	Hexalobular socket pan head tapping screws M6*10	1

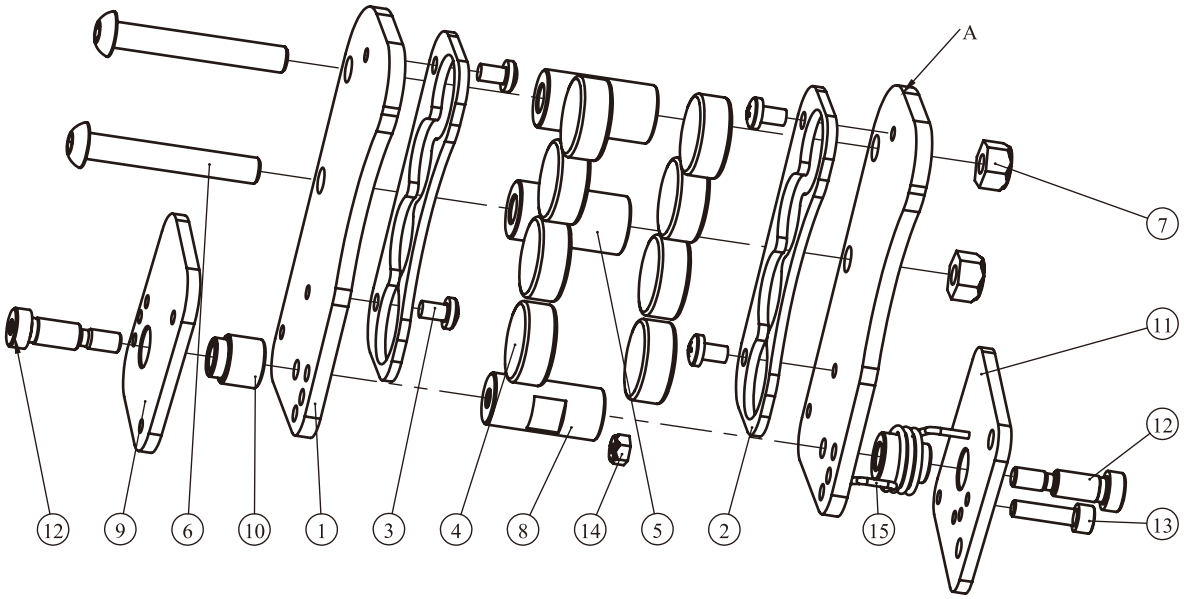
Grade No.	Part No.	Description	QTY
1.12.6.1	HC0054400	Tensioning bracket	1
1.12.6.2	GB2766203-2RSC3NBK	Bearing 6203	2
1.12.6.3	GB894.117FH12	External retaining ring Φ17	1
1.12.6.4	TBT0800	Thread sets for Tensioning	1
1.12.6.5	GB956DS2	Washer Φ6.6*Φ12*1.6	1
1.12.6.6	PNLM6*12DS2NL	Hexalobular socket pan head tapping screws M6*12	1

Resistance disk assembly



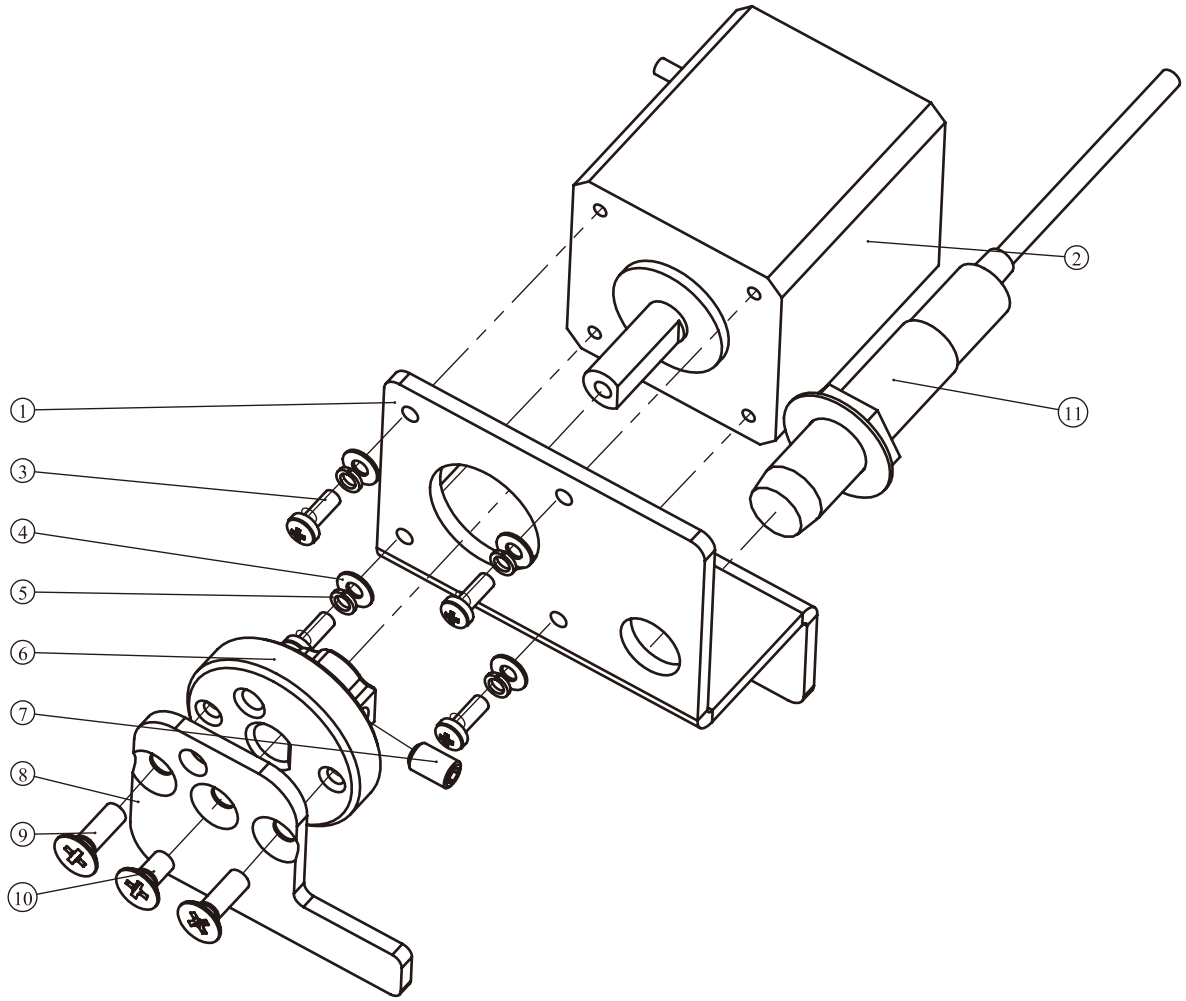
Grade No.	Part No.	Description	QTY
1.12.2.1	HC0054100	Shaft for resistance disk component	1
1.12.2.2	HC0054200	Resistance disk	1
1.12.2.3	ABJ	AB glue	1
1.12.2.4	E712800	Magnet Φ15*8	4
1.12.2.5	CNLM5*15DS20	Hexagon socket countersunk head cap head screw M5*15	4
1.12.2.6	HC00525ASSY	Bearing holder B component	1
1.12.2.7	GB894.130FH12	External retaining ring Φ30	1
1.12.2.8	HC00524ASSY	Bearing holder C component	1
1.12.2.9	DQ6DS2	Washer Φ6.6*Φ23*2	1
1.12.2.10	PNLM6*10DHS20	Hexalobular socket pan head tapping screws M6*10	1

Magnet assembly



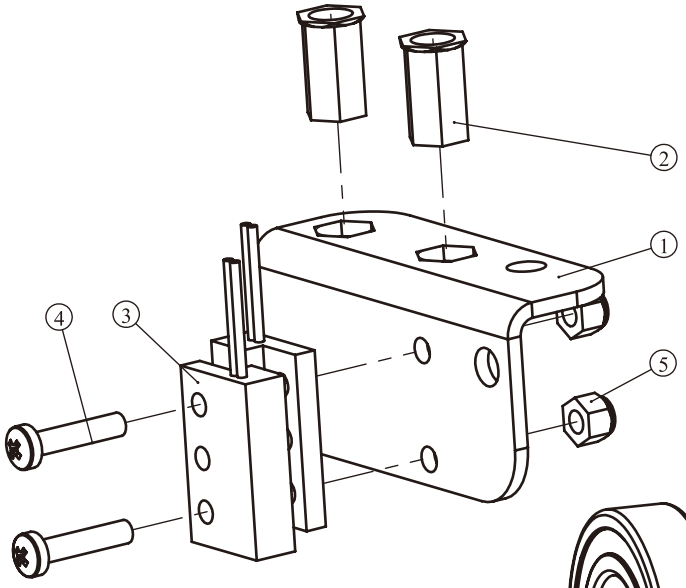
Grade No.	Part No.	Description	QTY
1.12.21.1	HC0054500	Bracket for holding magnet	2
1.12.21.2	HC0054700	Bracket for positioning magnet	2
1.12.21.3	GB818M5*8DS2	Phillip Screw M5*8	4
1.12.21.4	MT11400	Magnet Φ25*10	8
1.12.21.5	HC0054600	Spacer Φ8 for Magnet assembly	2
1.12.21.6	PNLM8*55DHS20	Hexalobular socket pan head tapping screws M8*55	2
1.12.21.7	NM8DHS2	Locknut M8	2
1.12.21.8	HC0054800	Spacer M6 for Magnet assembly	1
1.12.21.9	HC0057100	Right bracket for holding magnet assembly	1
1.12.21.10	HC0054900	Spacer for holding magnet assembly	2
1.12.21.11	HC0057200	Left bracket for holding magnet assembly	1
1.12.21.12	HC0054000	Shoulder bolt Φ8*34.2*M6	2
1.12.21.13	GB70M5*20DS20NL	Hexalobular socket pan head tapping screws M5*20	1
1.12.21.14	NM5DS2	Locknut M5	1
1.12.21.15	HC0059100	Torsional Spring	1

Stepper motor assembly

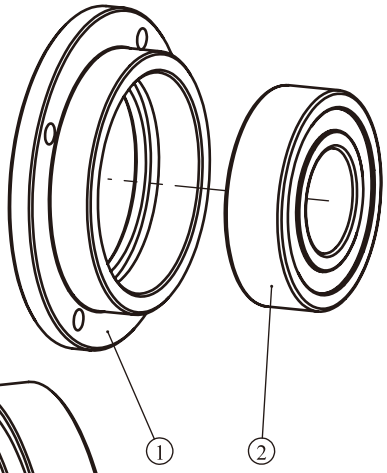


Grade No.	Part No.	Description	QTY
1.12.23.1	HC0057400	Bracket for holding Stepper motor	1
1.12.23.2	D92	Stepper motor	1
1.12.23.3	GB818M3*8DS20	Phillip Screw M3*8	4
1.12.23.4	DQ3DS2	Washer Φ3.2*Φ7*0.5	4
1.12.23.5	GB933DS12	Spring washer Φ3	4
1.12.23.6	HC0057000	Wheel for Stepper motor	1
1.12.23.7	GB77M5*8DHS4	Hexagon socket set screws with flat point M5*8	1
1.12.23.8	HC0057500	Motor position sensing plate	1
1.12.23.9	GB819M4*12DS2	Cross groove countersunk head screw M4*12	2
1.12.23.10	GB819M4*8DS2	Cross groove countersunk head screw M4*8	1
1.12.23.11	DQCGQ15C	Proximity switch	1

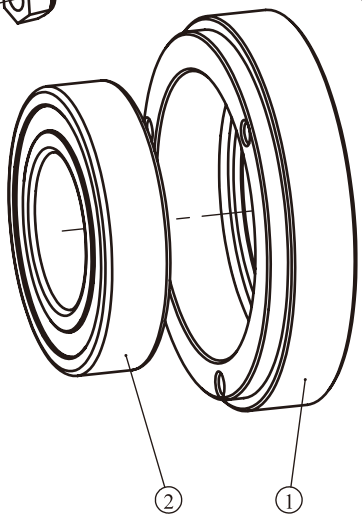
Speed sensor assembly



Bearing holder C component



Bearing holder B component

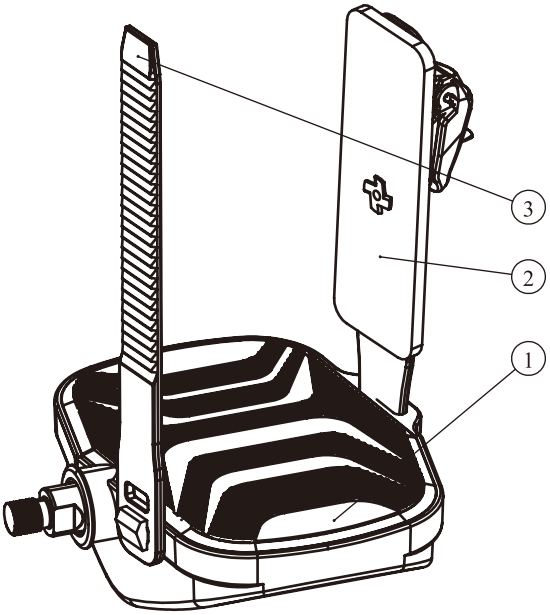


Grade No.	Part No.	Description	QTY
1.12.28.1	HC0057300	Bracket for holding speed sensor	1
1.12.28.2	GB17880.3M5*13DS17	Countersunk head hexagon riveted nuts M5	2
1.12.28.3	DQCGQ01	Speed sensor	2
1.12.28.4	GB818M3*14DS20	Phillip Screw M3*14	2
1.12.28.5	NM3DS2	Locknut M3	2
1.12.28.6	SD4*150	Band cable	1

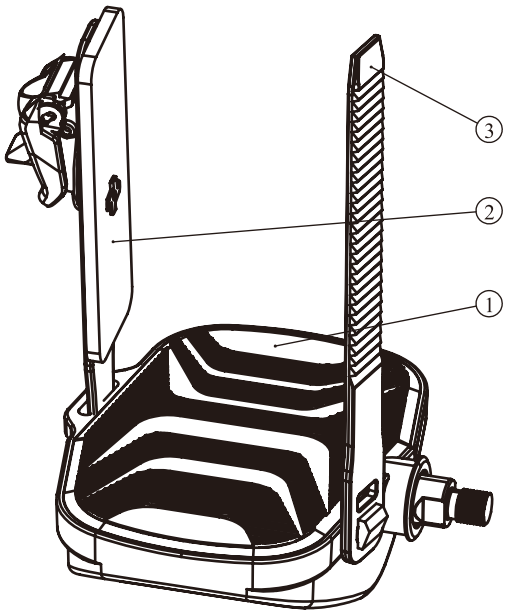
Grade No.	Part No.	Description	QTY
1.12.1.5.1	HC0053900	Bearing holder C	1
1.12.1.5.2	GB2766004-2RSC3NBK	Bearing 6004	1

Grade No.	Part No.	Description	QTY
1.12.2.6.1	HC0054300	Bearing holder B	1
1.12.2.6.2	GB2766006-2ZC3	Bearing 6004	1

Left pedal component



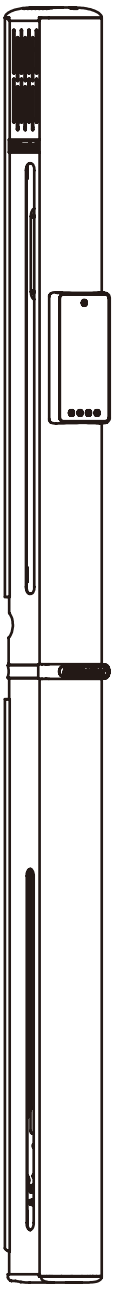
Right pedal component



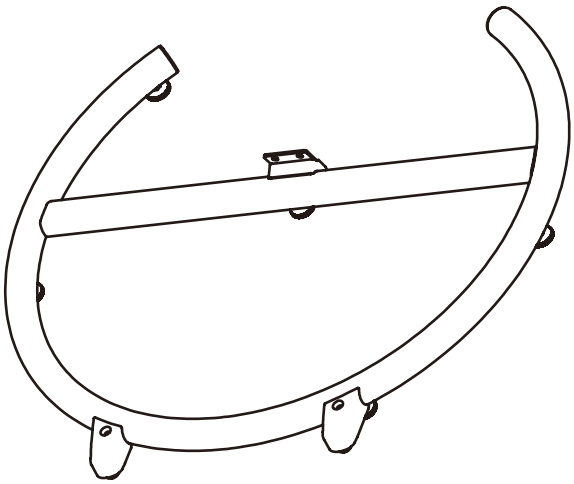
Grade No.	Part No.	Description	QTY
2.2.1	JD-61A-LV1	Left pedal	1
2.2.2	JD-61A-01V1	Left pedal holder belt	1
2.2.3	JD-61A-02	Left pedal adjustor belt	1

Grade No.	Part No.	Description	QTY
3.2.1	JD-61A-RV1	Right pedal	1
3.2.2	JD-61A-01V1	Right pedal holder belt	1
3.2.3	JD-61A-02	Right pedal adjustor belt	1

Subassembly Parts List



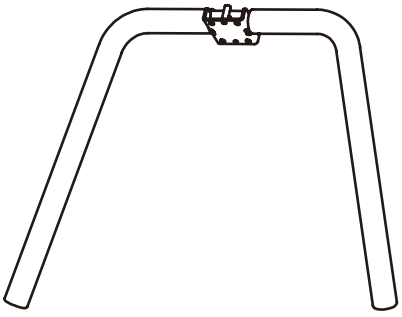
Main frame assembly



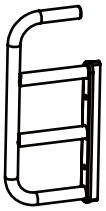
Base frame assembly



Left & Right pedal connection component



Support handlebar



Handlebar



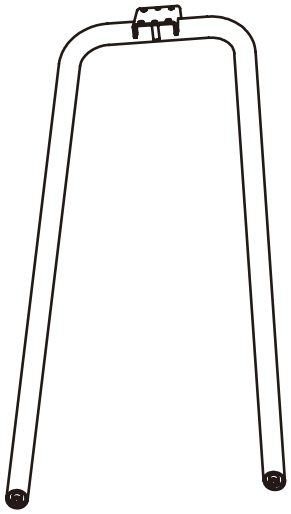
Cover for assmbly



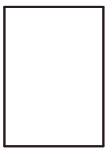
Power plug



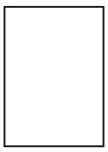
Power adapter



Rear support pipe weldment

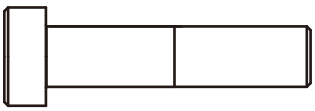


Hardware

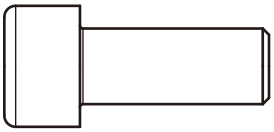


Manual

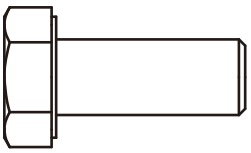
Hardware List



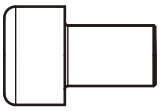
eight M8*35 Shoulder Bolts (#11)



two M10*25 Hexagonal
Socket Head bolts (#12)



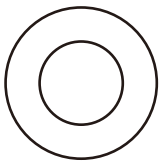
two M10*25 Hexagon
Headed Bolts (#14)



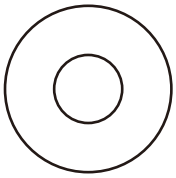
four M8*12 Hexagonal
Socket Head Bolts (#15)



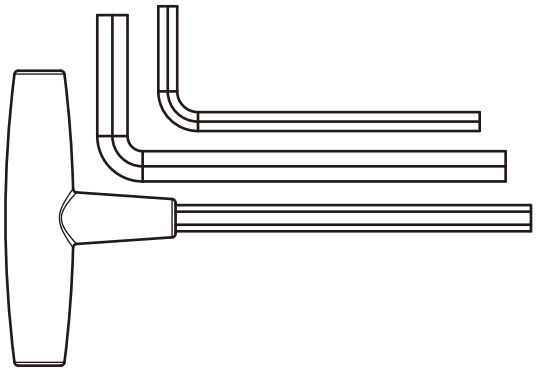
two M5*15 Phillip Screws (#17)



two Φ11*Φ20*1.5 Washers (#13)



eight Φ9*Φ22*1.6 Washers (#16)

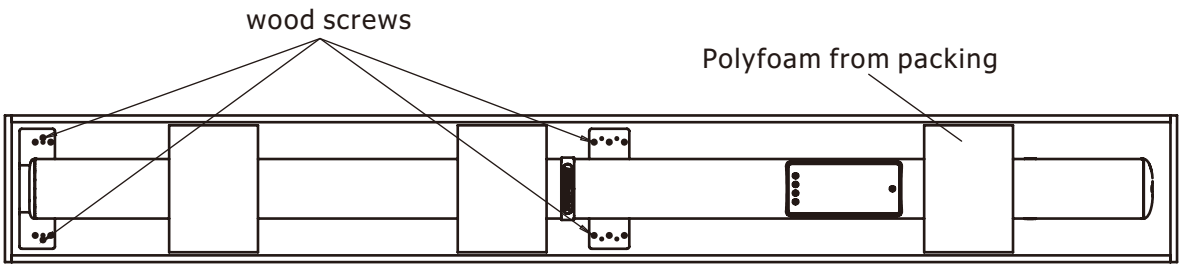


Allen Wrench S=5
Allen Wrench S=8
Allen Wrench S=6 W/HANDLE

Diameter of bolt (mm/inch)	M6(1/4")	M8(5/16")	M10(3/8")	M12(1/2")	M16(5/8")
Tightening torque (N.m)	9~12	22~30	45~59	78~104	193~257
Operational methods for adult men	The strength of the wrist	The strength of the wrist and forearm	The strength of the entire arm	The strength of the arm and upper body	with all strength

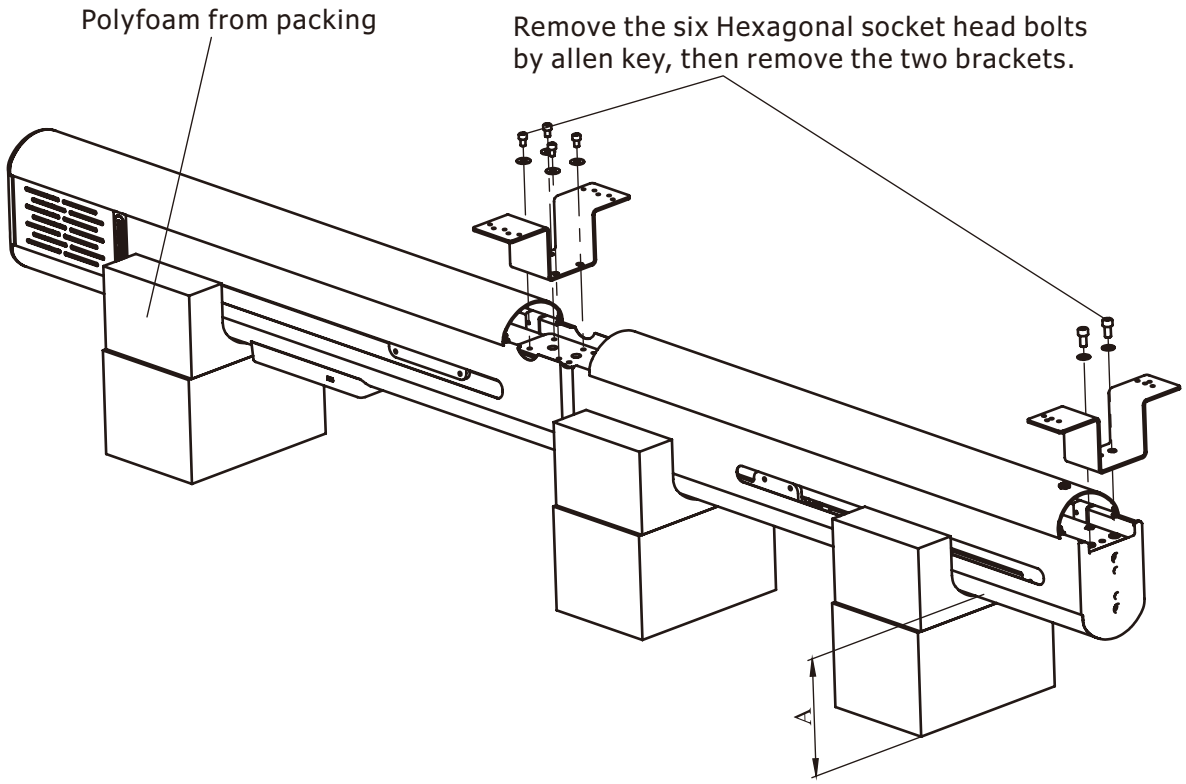
STEP 1

Remove the wood screws by screw driver and move the Main frame assembly from packing box.



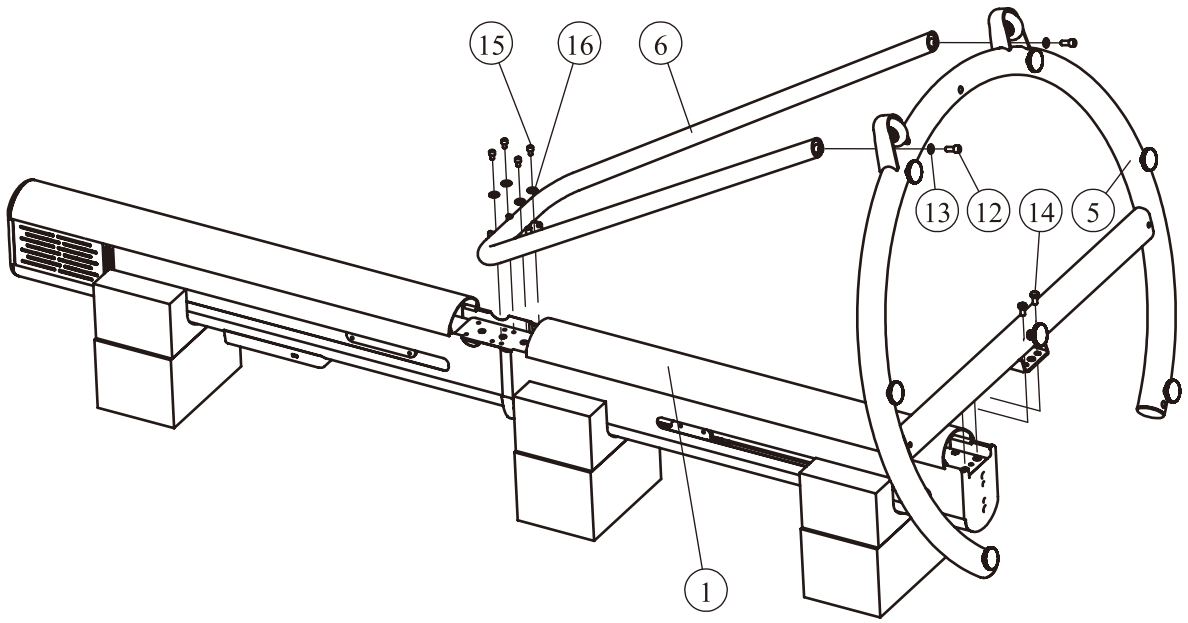
STEP 2

Use 3 Polyfoams from packing and 3 additional supports hold Main frame assembly as below drawing to keep height A greater than 200mm.



STEP 3

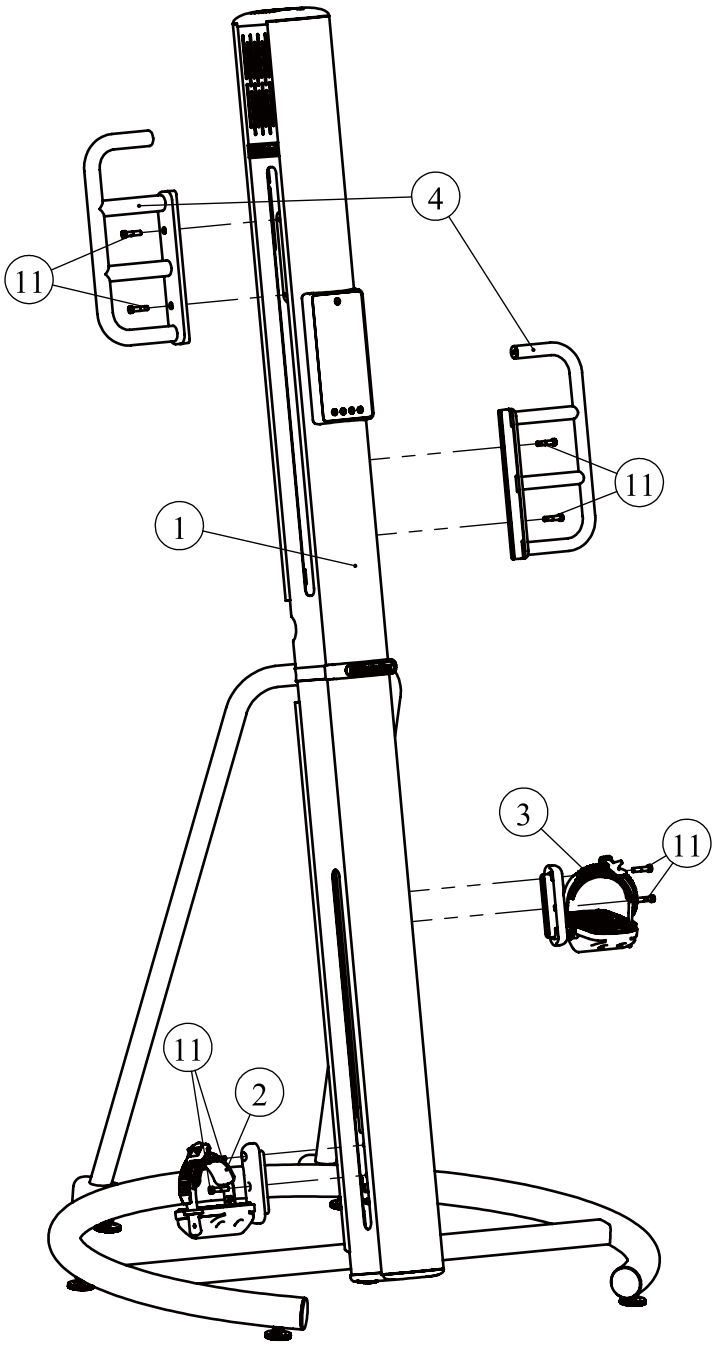
1. Fixing Base frame assembly (#5) to right position of Main frame assembly (#1) using:
   two M10*25 Hexagon headed bolt (#14)
2. Fixing Rear support pipe weldment (#6) to Main frame assembly (#1) and Base frame assembly (#5) using:
   four M8*12 Hexagonal socket head bolt (#15)
   four Φ9*Φ22*1.6 Washer (#16)
   two M10*25 Hexagonal socket head bolt (#12)
   two Φ11*Φ20*1.5 Washer (#13)



STEP 4

Fixing two Handlebar (#4), Left pedal connection component (#2), Right pedal connection component (#3) to right position of Main frame assembly (#1) as below drawing using:

eight M8*35 Shoulder bolt (#11)

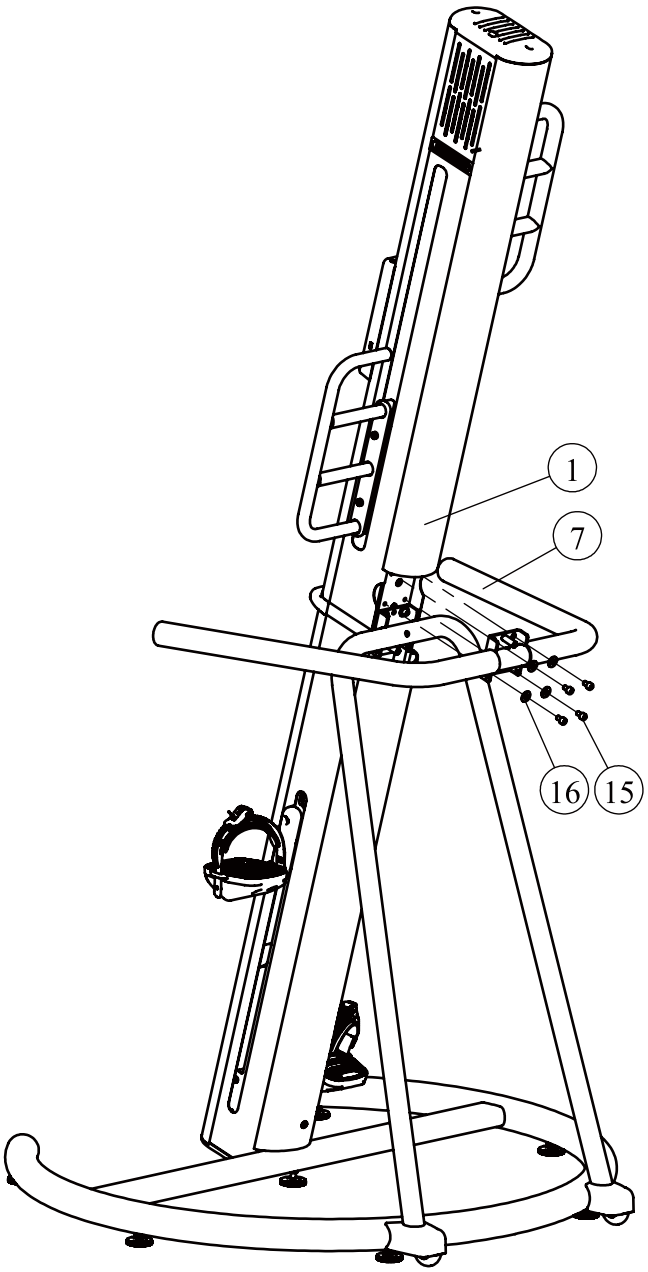


STEP 5

Fixing Support handlebar (#7) to right position of Main frame assembly (#1) using:

four M8*12 Hexagonal socket head bolt (#15)

four Φ9*Φ22*1.6 Washer (#16)

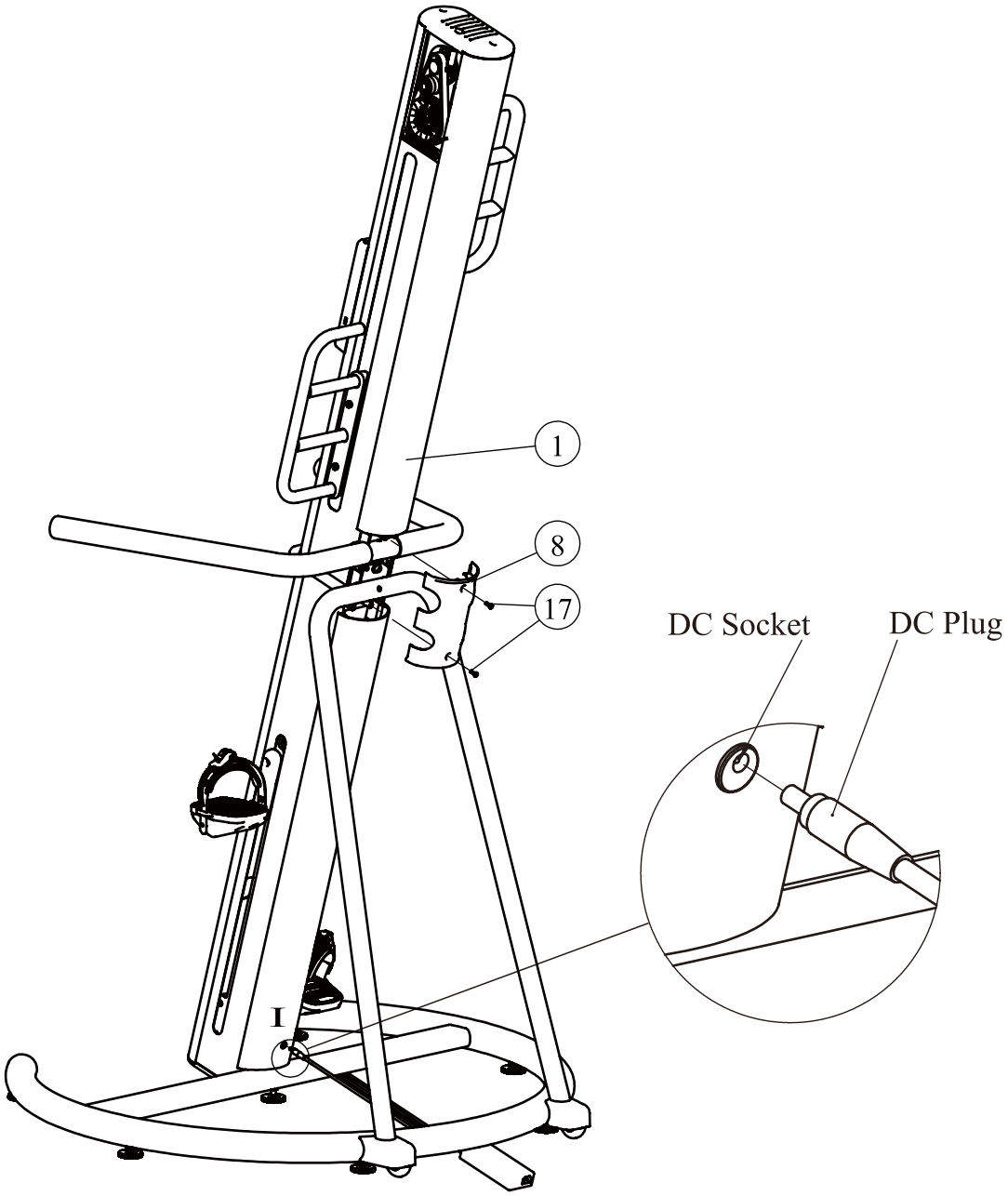


STEP 6

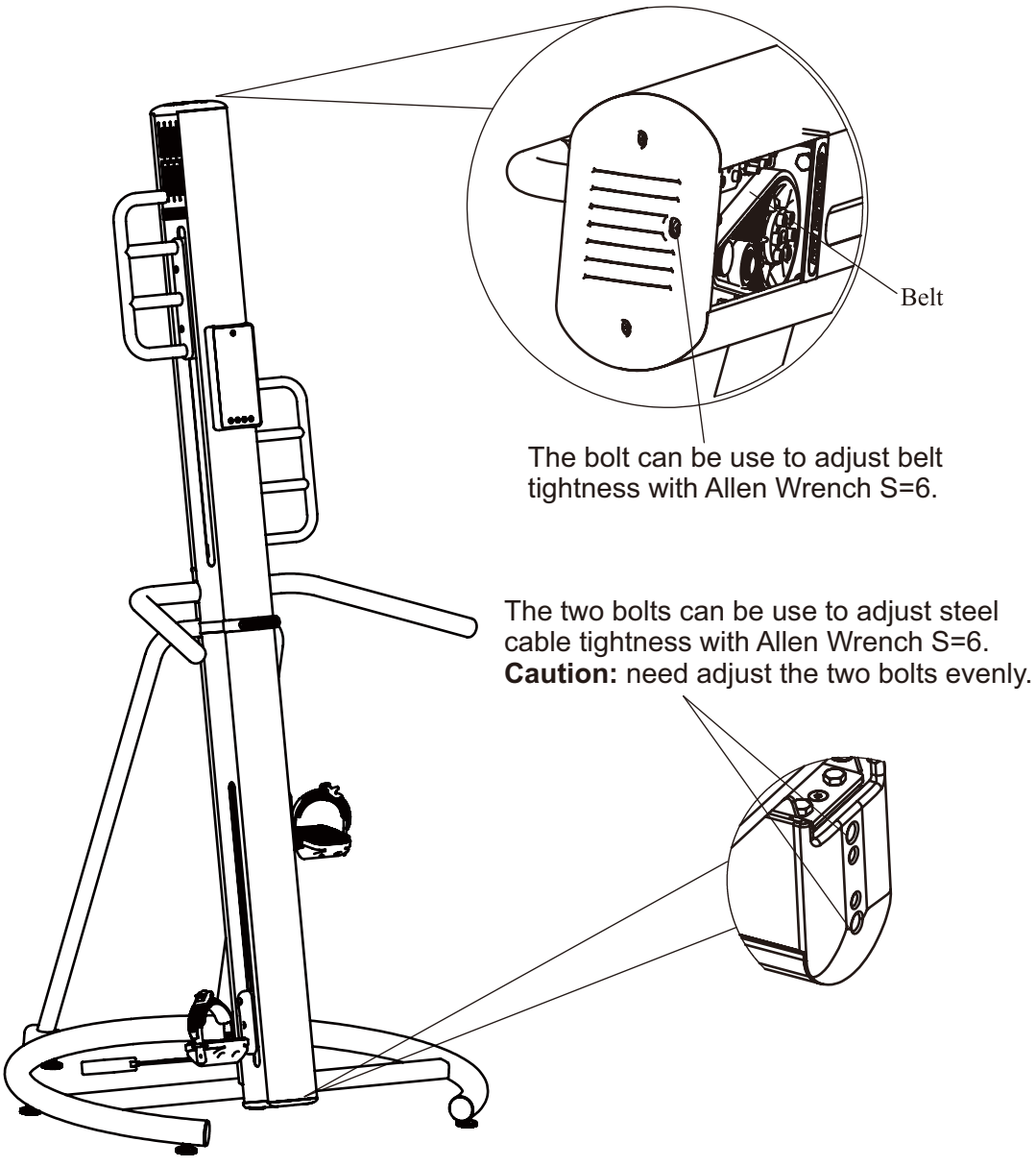
Fixing Cover for assembly (#8) to right position of Main frame assembly (#1) using:

two M5*15 Phillip Screw (#17)

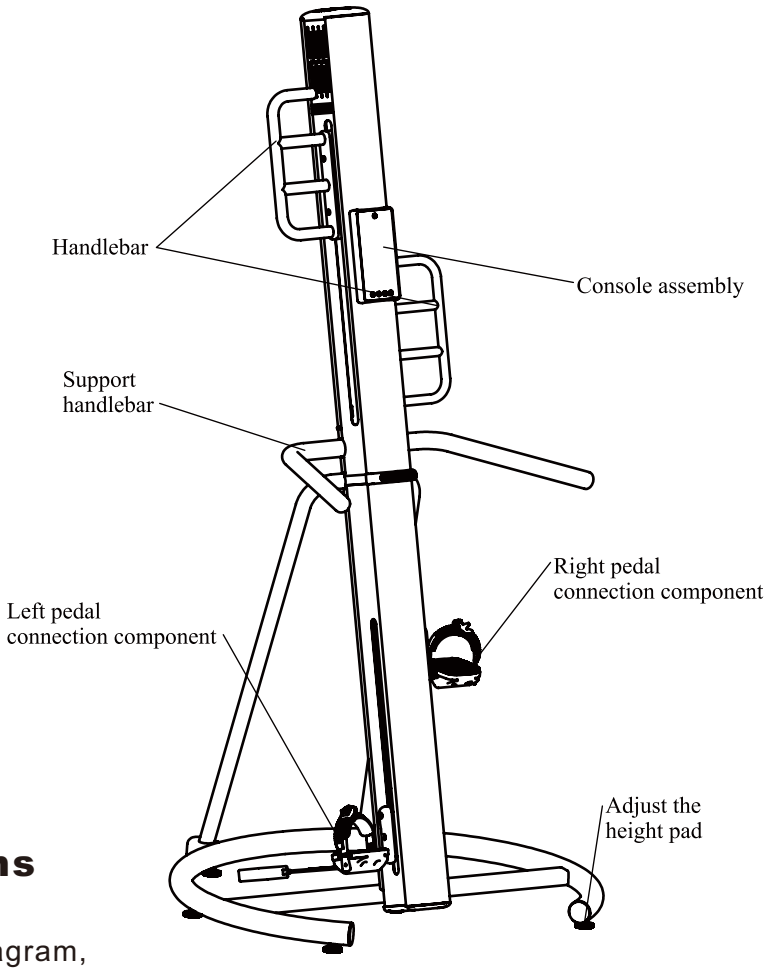
Connect DC Socket and DC Plug.



Adjustment Instructions

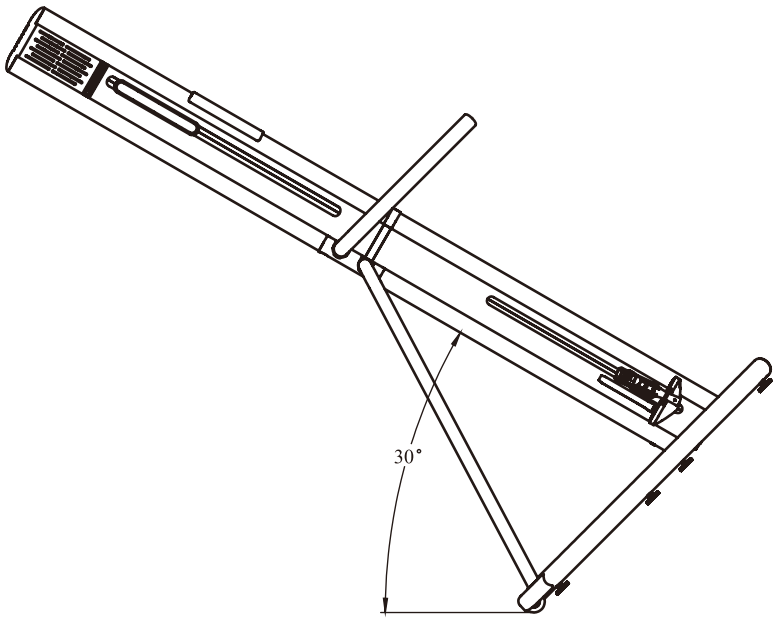


Main Parts List



Moving Instructions

You can move the equipment according to the following diagram, but the angle not less 30 degree.



1. HARDWARE OVERVIEW

The display shall consist of the following principal elements:

● **Main PCB**

Core microcontroller with internal flash memory which shall be programmable via an externally accessible USB interface.

- Physical USB port shall be available to perform firmware updates.

NPE GEM module

- Model: GEMSRB02 (supports both Bluetooth and ANT+ communication)
- Module shall be used for communication with smartphone APPs and HR straps.
- Communication between the main microcontroller and the NPE GEMMODULE will be via the latest version of the NPE GEM Host Controller Interface
- The GEMSRB02 module must be equipped with the latest firmware version.

Physical key switches

Connection for an RPM sensor and/or position sensor (i.e. reed switch and/or photo interrupter)

● **EBTN (Enhanced Black Twisted Nematic) LCD**

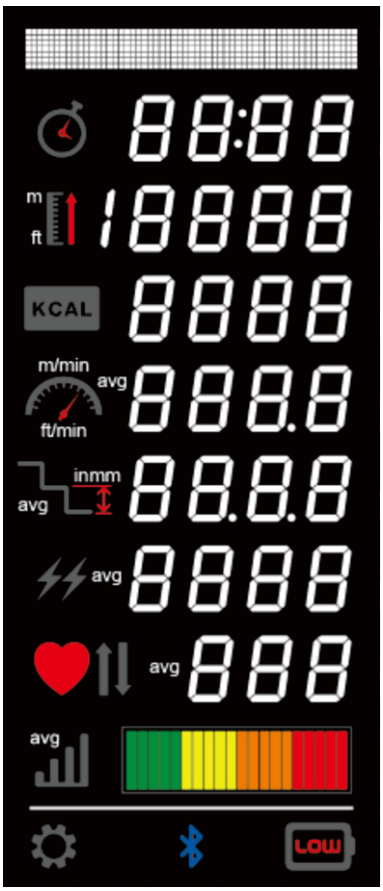
Defined below.

● **Graphic Overlay**

Defined below.

● **Power**

System shall be powered by removable adapter.

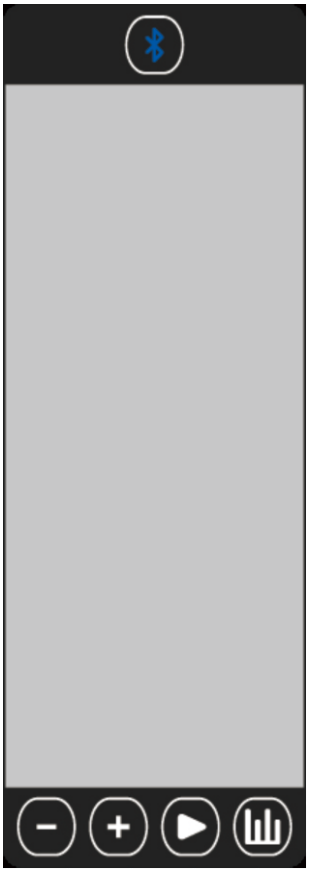


1.1 STATIC LCD

Screen Type: EBTN (Enhanced Black Twisted Nematic)

1.2 KEYPAD OVERLAY

The display shall utilize five (5) physical key switches mounted to the PCB. The display assembly shall consist of an outer plastic housing, PCB assembly, graphic overlay with clear lens, and batteries. The front housing shall consist of a recess for a graphic overlay with printed "buttons." The next layer shall be the ABS console housing that includes flexible elements to activate the physical switches when the overlay "button" is pressed.
The proposed keypad graphic overlay is below:



Button descriptions are below:

	This is the **WORKOUTS** button that will provide the user with the ability to select between time, distance, calories, heart rate, and interval-based workouts. During program setup, this button is used to return to the previous menu.
	This is the **CONNECT** button which is used to connect Bluetooth/ANT+ devices to the console (e.g. smartphone app via Bluetooth or wireless heart rate straps via Bluetooth LE or ANT+).
	This is the **START/ENTER BUTTON** that provides the user with the ability to begin a workout or accept a selection choice as applicable.
	The **MINUS BUTTON** allows the user to decrease the current setting value. During a workout, this button is used to decrease the resistance level.
	The **PLUS BUTTON** allows the user to increase the current setting value. During a workout, this button is used to increase the resistance level.

2. SYSTEM MODES OVERVIEW

Wake Mode – This is the mode the system enters upon power up or when it awakes from Sleep Mode. All system initializations happen in this mode.

Idle Mode – This is the mode the system enters upon successful power up of the system. At this point, the system is waiting for the user to begin their workout. Refer to section ***3 IDLE MODE*** below for all relevant details.

Program Setup Mode – This is the mode the system is in after the user has selected a program and needs to enter the required parameters prior to the program starting. Refer to section ***4 PROGRAM SETUP MODE*** below for all relevant details.

Program Mode – This is the mode the system is in during a given workout. Refer to section ***5 PROGRAM MODE (I.E. IN-WORKOUT FUNCTIONALITY)*** below for all relevant details.

Pause/Summary Mode – This is the mode the system enters when the user stops exercising (i.e. measured speed is less than a predetermined value). User data is maintained and displayed in the applicable indicators during this mode waiting for the user to resume or terminate their workout. Refer to section ***6 PAUSE/SUMMARY MODE*** below for all relevant details.

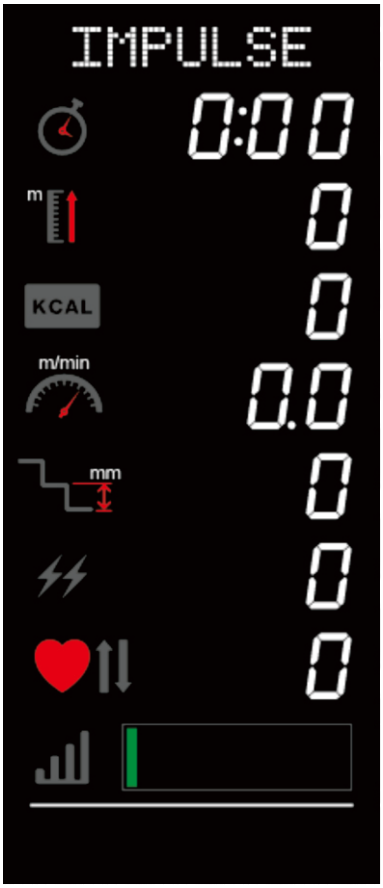
Connectivity Mode – This is the mode the system enters to perform Bluetooth and ANT+ connectivity. Refer to section ***7 CONNECTIVITY MODE*** below for all relevant details.

Settings Mode – This is the mode the system needs to be in prior to making any configuration changes, performing systems tests, or reviewing maintenance or performance metrics. Refer to section ***8 SETTINGS MODE*** below for all relevant details.

Sleep Mode – This is the mode the system enters to conserve power when the console is not in use. In this mode the console LCD shall be blank, all system functions are idled, and the console microcontroller is put into a low power sleep state.

3. IDLE MODE

During the IDLE MODE the system is waiting for the user to press either the START, WORKOUTS, or CONNECT buttons. The initial state of the display readouts shall be as follows:



To begin a workout quickly the user can press the **START** button on the keypad. Pressing this button will transition the system to ***PROGRAM MODE***. See section ***5 PROGRAM MODE (I.E. In-WORKOUT FUNCTIONALITY)*** below for more details.

To select a specific workout the user can press the ***WORKOUTS*** button. Pressing this button shall transition the system to ***PROGRAM SETUP MODE***. See section ***4 PROGRAM SETUP MODE*** below for more details.

The user shall be able to connect the console to a heart rate strap and/or smartphone app via the NPE GEM2 MODULE installed on the console PCB. See sections ***7 CONNECTIVITY MODE*** below for more details.

In addition to these features, the user shall also be able to enter ***SETTINGS MODE*** if they press the ***START, PLUS, and MINUS*** buttons simultaneously. See section ***8 SETTINGS MODE*** below for more details.

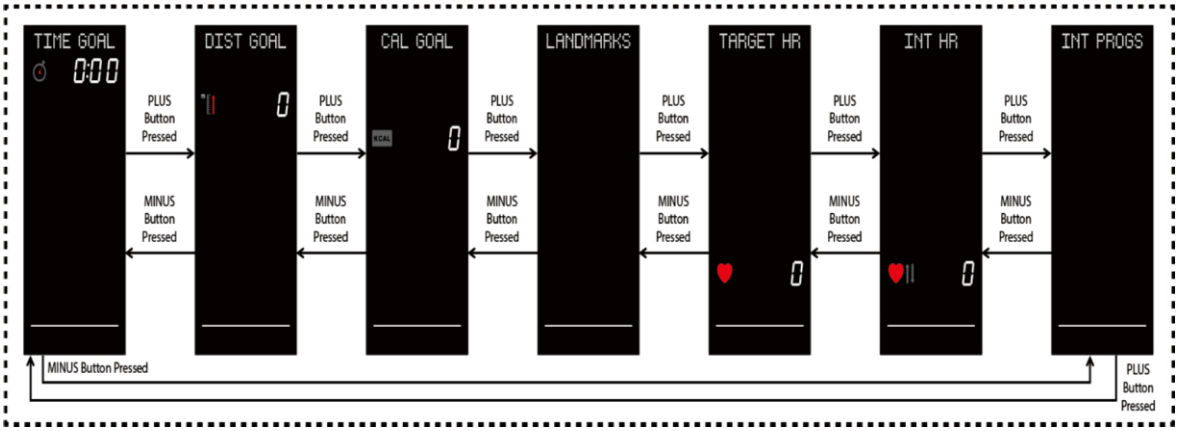
Also, if the user does not press any buttons to select or start a workout, then the console shall transition to ***SLEEP MODE*** after 60 seconds of inactivity.

4. PROGRAM SETUP MODE

To enter the PROGRAM SETUP mode the user needs to press the WORKOUTS button on the IDLE screen.

4.1 WORKOUT SELECTION SCREENS

In this mode the user shall select the type of program that they would like to do. The graphic below shows the available WORKOUTS screens during this mode.



There shall be seven workout types that can be selected and they are as follows:

- Time Goal
- Distance Goal
- Calorie Goal
- Landmarks (i.e. global landmarks with fixed heights)
- Target HR
- Interval HR
- Interval Workouts

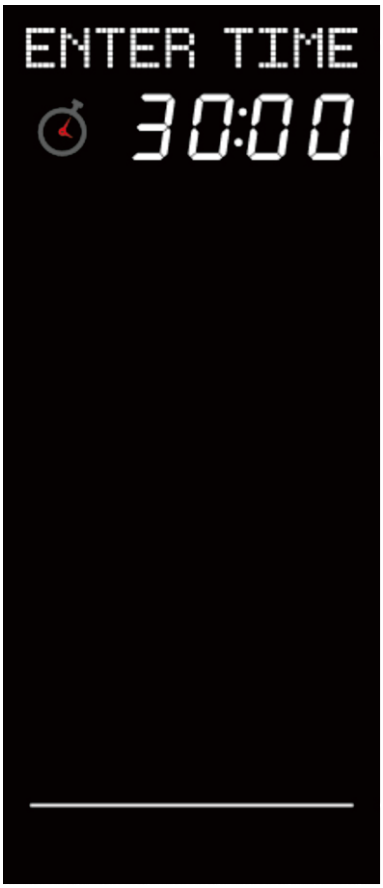
The first screen that shall be shown is the one for ***TIME GOAL***. To select between the available workouts, the user shall press either the ***PLUS or MINUS*** button to navigate to the next or previous choice, respectively.

If the user presses the ***START/ENTER*** button, they are selecting the displayed workout and the system shall transition to the applicable setup screen.

To exit the ***WORKOUTS*** screen and return to the ***IDLE*** screen the user shall press the ***WORKOUTS*** button.

4.2 TIME GOAL SCREEN

The TIME GOAL screen is shown below:



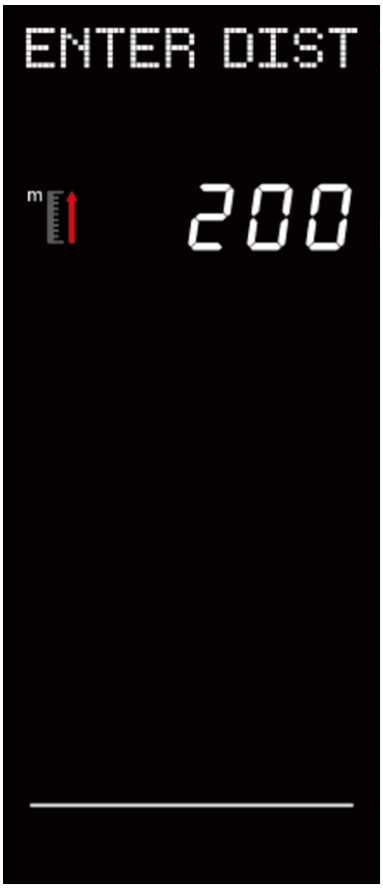
On the ***TIME GOAL*** screen, the user shall be able to choose the duration of their workout. The user shall be able to enter a duration from 1 to 99 minutes. The default value shall be 30:00 minutes. The user can adjust the value up or down by using the ***PLUS and MINUS*** buttons, respectively. Each press of either the ***PLUS or MINUS*** button shall change the current displayed value by 1. The ***PLUS*** button shall be used to increase the duration and the ***MINUS*** button shall be used to decrease the duration.

Once the duration is set to the desired value for the given workout, the user shall press the ***START/ENTER*** button. Upon pressing the ***START/ENTER*** button the system shall transition to ***PROGRAM MODE*** and the workout shall begin. See section ***5 PROGRAM MODE (I.E. IN-WORKOUT FUNCTIONALITY)*** below for more details.

To exit the ***TIME GOAL*** screen and return to the ***WORKOUTS*** screen the user shall press the ***WORKOUTS*** button.

4.3 DISTANCE GOAL SCREEN

The DISTANCE GOAL screen is shown below:



On the ***DISTANCE GOAL*** screen, the user shall be able to choose the desired vertical distance for their workout. The user shall be able to enter a vertical distance from 50 to 19999 meters (Metric Units Setting) or feet (Imperial Units Setting). The default value shall be 200 meters or feet. The user can adjust the value up or down by using the ***PLUS and MINUS*** buttons, respectively. Each press of either the ***PLUS or MINUS*** button shall change the current displayed value by 10. The ***PLUS*** button shall be used to increase the vertical distance and the ***MINUS*** button shall be used to decrease the vertical distance.

Once the vertical distance is set to the desired value for the given workout the user shall press the ***START/ENTER*** button. Upon pressing the ***START/ENTER*** button the system shall transition to ***PROGRAM MODE*** and the workout shall begin. See section ***5 PROGRAM MODE (I.E. In-WORKOUT FUNCTIONALITY)*** below for more details.

To exit the ***DISTANCE GOAL*** screen and return to the ***WORKOUTS*** screen the user shall press the ***WORKOUTS*** button.

4.4 CALORIES GOAL SCREEN

The CALORIE GOAL screen is shown below:



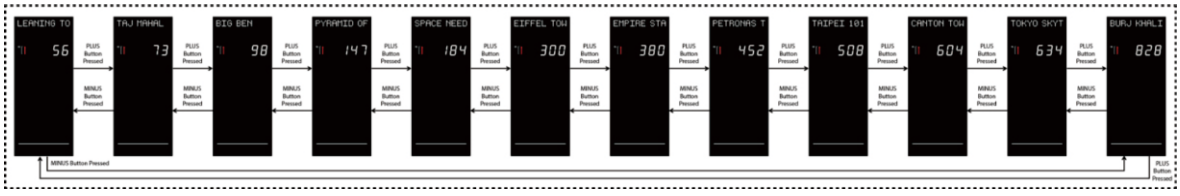
On the ***CALORIE GOAL*** screen, the user shall be able to choose the desired energy goal for their workout. The user shall be able to enter a goal from 5 to 9999 KCAL. The default value shall be 250 KCAL. The user can adjust the value up or down by using the ***PLUS and MINUS*** buttons, respectively. Each press of either the ***PLUS or MINUS*** button shall change the current displayed value by 5. The ***PLUS*** button shall increase the calories and the ***MINUS*** button shall be used to decrease the calories.

Once the value is set as desired for the given workout the user shall press the ***START/ENTER*** button. Upon pressing the ***START/ENTER*** button the system shall transition to ***PROGRAM MODE*** and the workout shall begin. See section ***5 PROGRAM MODE (I.E. In-WORKOUT FUNCTIONALITY)*** below for more details.

To exit the ***CALORIE GOAL*** screen and return to the ***WORKOUTS*** screen the user shall press the ***WORKOUTS*** button.

4.5 LANDMARK SELECTION SCREENS

In this mode the user shall select the landmark that they would like to "climb". The graphic below shows the available landmarks to choose from.



There shall be twelve landmarks to choose from and they are as follows:

Height: 56 meters (184 feet)	LEANING TOWER OF PISA
Height: 73 meters (240 feet)	TAJ MAHAL
Height: 98 meters (320 feet)	BIG BEN
Height: 147 meters (482 feet)	PYRAMID OF KHUFU
Height: 184 meters (605 feet)	SPACE NEEDLE
Height: 300 meters (984 feet)	EIFFEL TOWER
Height: 380 meters (1250 feet)	EMPIRE STATE BUILDING
Height: 452 meters (1483 feet)	PETRONAS TOWERS
Height: 508 meters (1667 feet)	TAIPEI 101 BUILDING
Height: 604 meters (1982 feet)	CANTON TOWER
Height: 634 meters (2080 feet)	TOKYO SKYTREE
Height: 828 meters (2716.5 feet)	BURJ KHALIFA TOWER

Since most of the landmark names' are too long to be fully displayed in the MESSAGE window, the names must scroll across the screen from right to left. The current selection shall continue to scroll until a new selection is made.

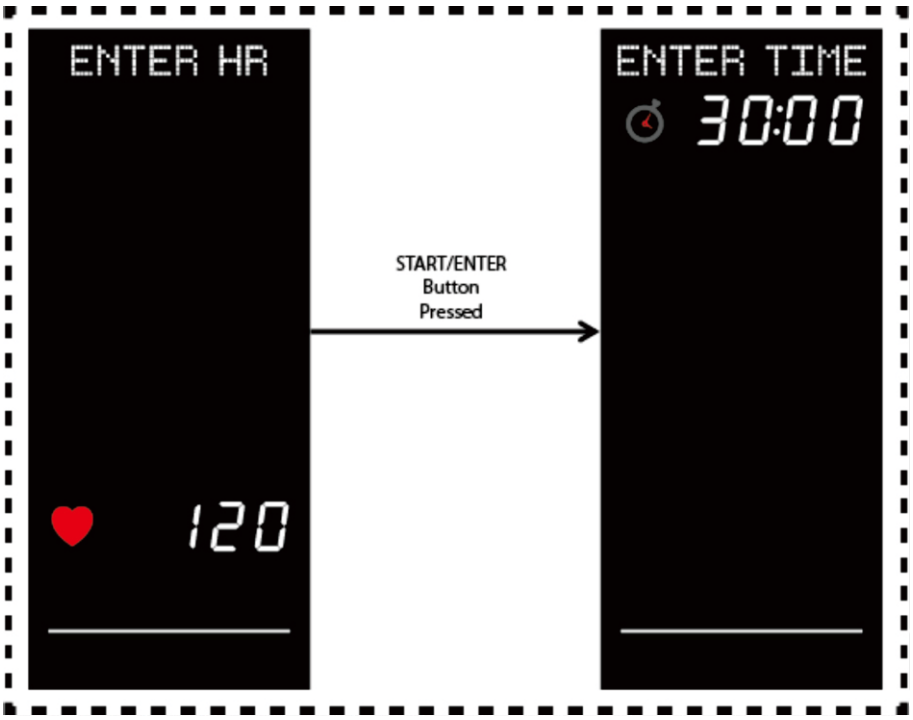
The first screen that shall be shown is the one for the ***LEANING TOWER OF PISA***. To select between the available landmarks, the user shall press either the ***PLUS or MINUS*** button to navigate to the next or previous choice, respectively.

If the user presses the ***START/ENTER*** button, they are selecting the displayed landmark. Upon pressing the ***START/ENTER*** button the system shall transition to ***PROGRAM MODE*** and the workout shall begin. The function of a landmark workout is the same as a ***DISTANCE GOAL*** but with the vertical distance target set by selecting the landmark instead of entering the specific value. See section ***5 PROGRAM MODE (I.E. In-WORKOUT FUNCTIONALITY)*** below for more details.

To exit the ***WORKOUTS*** screen and return to the ***IDLE*** screen the user shall press the ***WORKOUTS*** button.

4.6 TARGET HR SCREENS

The TARGET HR screens are shown below:



Upon entering the setup for this program, the ***ENTER HR*** screen shall be the first one displayed. The user can adjust the value up or down by using the ***PLUS and MINUS*** buttons, respectively. Each press of either the ***PLUS or MINUS*** button shall change the current displayed value by 1 BPM. The ***PLUS*** button shall increase the duration and the ***MINUS*** button decrease the duration.

Once the ***TARGET HR*** is set to the desired value for the given workout the user shall press the ***START/ENTER*** button. Upon pressing the ***START/ENTER*** button the screen shall switch to the desired ***WORKOUT DURATION*** screen.

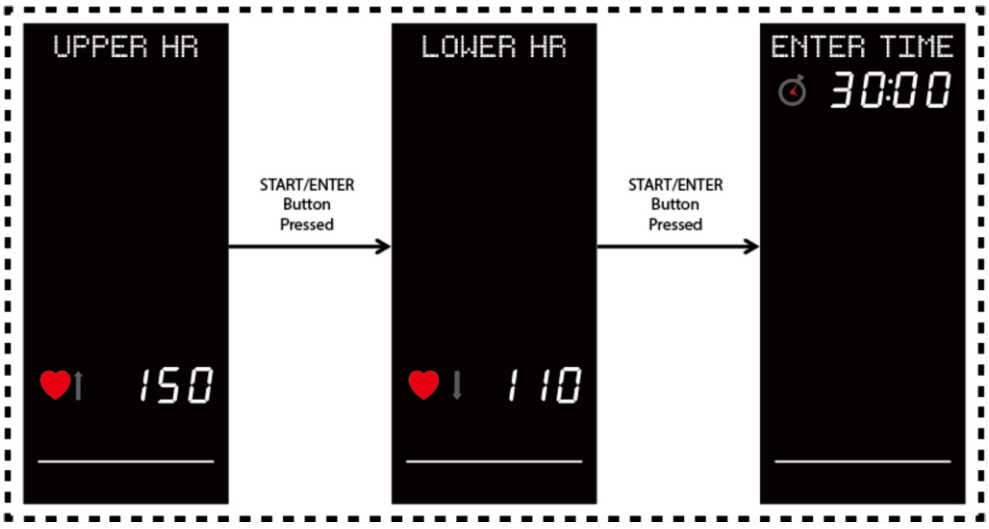
The user shall be able to enter a duration from 1 to 99 minutes. The default value shall be 30:00 minutes. The user can adjust the value up or down by using the ***PLUS and MINUS*** buttons, respectively. Each press of either the ***PLUS or MINUS*** button shall change the current displayed value by 1. The ***PLUS*** button shall be used to increase the duration and the ***MINUS*** button shall be used to decrease the duration.

Once the duration is set to the desired value for the given workout, the user shall press the ***START/ENTER*** button. Upon pressing the ***START/ENTER*** button the system shall transition to ***PROGRAM MODE*** and the workout shall begin. See section ***5 PROGRAM MODE (I.E. IN-WORKOUT FUNCTIONALITY)*** below for more details.

To exit the ***TARGET HR*** screens and return to the ***WORKOUTS*** screen the user shall press the ***WORKOUTS*** button.

4.7 INTERVAL HR SCREENS

The INTERVAL HR screens are shown below:



Upon entering the setup for this program, the ***UPPER HR*** screen shall be the first one displayed. The user can adjust the value up or down by using the ***PLUS and MINUS*** buttons, respectively. Each press of either the ***PLUS or MINUS*** button shall change the current displayed value by 1 BPM. The ***PLUS*** button shall increase the duration and the ***MINUS*** button decrease the duration.

Once the ***UPPER HR*** is set to the desired value for the given workout the user shall press the ***START/ENTER*** button. Upon pressing the ***START/ENTER*** button the screen shall switch to the desired ***LOWER HR*** screen.

The user can adjust the value up or down by using the ***PLUS and MINUS*** buttons, respectively. Each press of either the ***PLUS or MINUS*** button shall change the current displayed value by 1 BPM. The ***PLUS*** button shall increase the duration and the ***MINUS*** button decrease the duration.

Once the ***LOWER HR*** is set to the desired value for the given workout the user shall press the ***START/ENTER*** button. Upon pressing the ***START/ENTER*** button the screen shall switch to the desired ***WORKOUT DURATION*** screen.

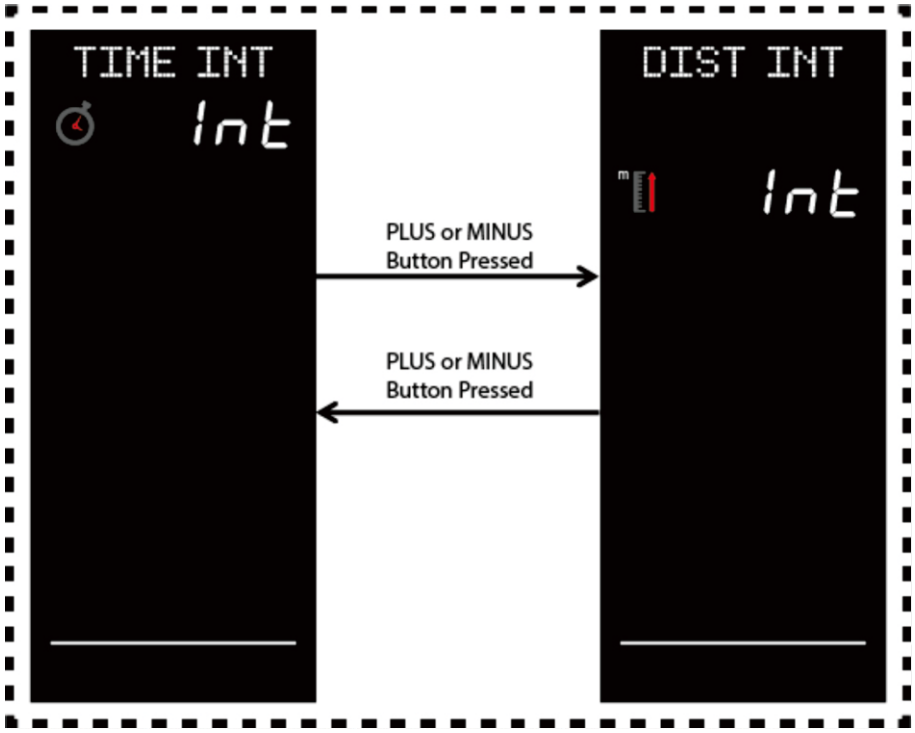
The user shall be able to enter a duration from 1 to 99 minutes. The default value shall be 30:00 minutes. The user can adjust the value up or down by using the ***PLUS and MINUS*** buttons, respectively. Each press of either the ***PLUS or MINUS*** button shall change the current displayed value by 1. The ***PLUS*** button shall be used to increase the duration and the ***MINUS*** button shall be used to decrease the duration.

Once the duration is set to the desired value for the given workout, the user shall press the ***START/ENTER*** button. Upon pressing the ***START/ENTER*** button the system shall transition to ***PROGRAM MODE*** and the workout shall begin. See section ***5 PROGRAM MODE (I.E. IN-WORKOUT FUNCTIONALITY)*** below for more details.

To exit the ***INTERVAL HR*** screens and return to the ***WORKOUTS*** screen the user shall press the ***WORKOUTS*** button.

4.8 INTERVALS SCREEN

The INTERVALS screens are shown below:



There shall be two interval types that can be selected, and they are as follows:

- Time Intervals
- Distance Intervals

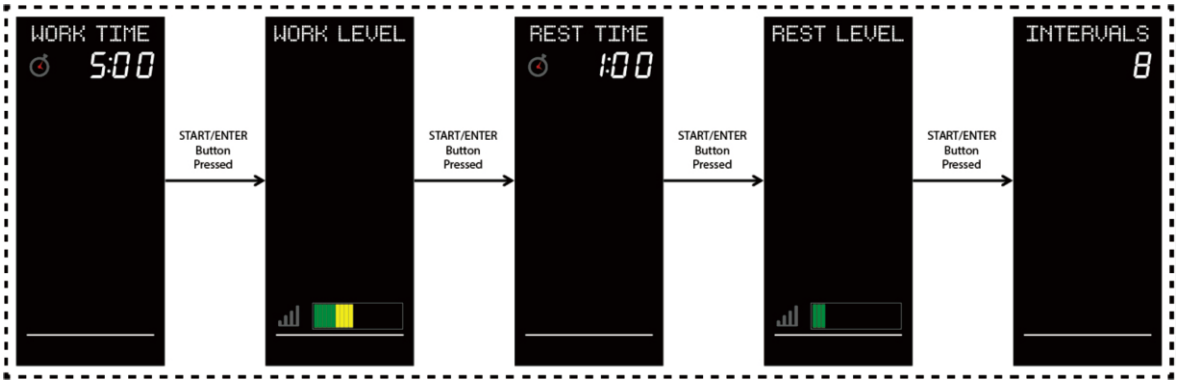
The first screen that shall be shown is the one for ***TIME INTERVAL GOAL***. To select between the available Interval types, the user shall press either the ***PLUS or MINUS*** button to navigate to the next or previous choice respectively.

If the user presses the ***START/ENTER*** button, they are selecting the displayed Interval workout type and the system shall transition to the applicable setup screen.

To exit the ***INTERVALS*** screen and return to the ***WORKOUTS*** screen the user shall press the ***WORKOUTS*** button.

4.9 TIME INTERVALS SCREEN

The TIME INTERVALS screen is shown below:



An interval consists of a segment of high intensity and segment of low intensity exercise. The ***WORK TIME*** defines the high intensity segment. The ***REST TIME*** defines the low intensity segment. On the ***TIME INTERVALS*** screens the user shall be able to specify the duration for the work and rest segments, the workout resistance levels for the work and rest segments, and the total number of intervals desired for the given workout. The user shall be able to enter a duration from 10 seconds to 99 minutes for the work segment and the rest segment. The default value for the work segment shall be 5:00 minutes. The default value for the rest segment shall be 1:00 minute. The user shall be able to enter between 1 and 99 intervals. The default value for the number of intervals shall be 8.

Upon entering the setup for this program, the ***WORK TIME*** screen shall be the first one displayed. The user can adjust the value up or down by using the ***PLUS and MINUS*** buttons, respectively. Each press of either the ***PLUS or MINUS*** button shall change the current displayed value by 10 seconds. The ***PLUS*** button shall increase the duration and the ***MINUS*** button decrease the duration.

Once the ***WORK TIME*** duration is set to the desired value for the given workout the user shall press the ***START/ENTER*** button. Upon pressing the ***START/ENTER*** button the screen shall switch to the ***WORK LEVEL*** screen.

The user can adjust the value up or down by using the ***PLUS and MINUS*** buttons, respectively. Each press of either the ***PLUS or MINUS*** button shall change the current level by 1. The ***PLUS*** button shall increase the level and the ***MINUS*** button shall decrease the level.

Once the ***WORK LEVEL*** is set to the desired value for the given workout the user shall press the ***START/ENTER*** button. Upon pressing the ***START/ENTER*** button the screen shall switch to the ***REST TIME*** screen.

The user can adjust the value up or down by using the ***PLUS and MINUS*** buttons respectively. Each press of either the ***PLUS or MINUS*** button shall change the current displayed value by 10 seconds. The ***PLUS*** button shall be used to increase the duration and the ***MINUS*** button shall be used to decrease the duration.

Once the ***REST TIME*** duration is set to the desired value for the given workout the user shall press the ***START/ENTER*** button. Upon pressing the ***START/ENTER*** button the screen shall switch to the REST ***LEVEL*** screen.

The user can adjust the value up or down by using the ***PLUS and MINUS*** buttons, respectively. Each press of either the ***PLUS or MINUS*** button shall change the current level by 1. The ***PLUS*** button shall increase the level and the ***MINUS*** button shall decrease the level.

Once the ***REST LEVEL*** is set to the desired value for the given workout the user shall press the ***START/ENTER*** button. Upon pressing the ***START/ENTER*** button the screen shall switch to the ***NUMBER OF INTERVALS*** screen.

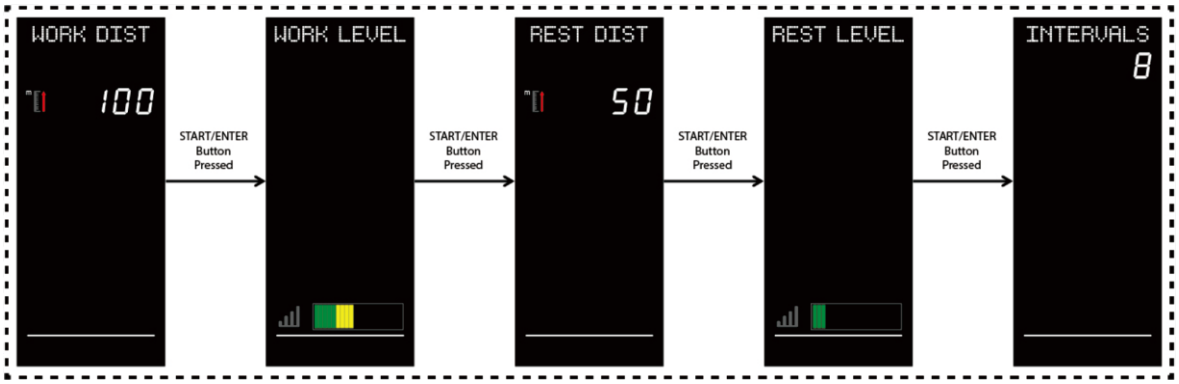
The user can adjust the value up or down by using the ***PLUS and MINUS*** buttons, respectively. Each press of either the ***PLUS or MINUS*** button shall change the current displayed value by 1. The ***PLUS*** button shall increase the number of intervals and the ***MINUS*** button shall decrease the number of intervals.

Once the ***NUMBER OF INTERVALS*** is set to the desired value for the given workout the user shall press the ***START/ENTER*** button. Upon pressing the ***START/ENTER*** button the system shall transition to ***PROGRAM MODE*** and the workout shall begin. See section ***5 PROGRAM MODE (I.E. In-WORKOUT FUNCTIONALITY)*** below for more details.

To exit the ***TIME INTERVALS*** screens and return to the ***INTERVALS*** screen the user shall press the ***WORKOUTS*** button.

4.10 DISTANCE INTERVALS SCREEN

The DISTANCE INTERVALS screen is shown below:



An interval consists of a segment of high intensity and segment of low intensity exercise. The high intensity segment is defined by the ***WORK DISTANCE***. The low intensity segment is defined by the ***REST DISTANCE***. On the ***DISTANCE INTERVALS*** screens the user shall be able to specify the desired vertical distance for the work and rest segments, the workout resistance levels for the work and rest segments, and the total number of intervals desired for the given workout. The user shall be able to enter a distance from 10 to 1000 meters/feet for the work segment and the rest segment. The default value for the work distance shall be 100 meters/feet. The default value for the rest distance shall be 50 meters/feet. The user shall be able to enter between 1 and 99 intervals. The default value for the number of intervals shall be 8.

Upon entering the setup for this program, the ***WORK DISTANCE*** screen shall be the first one displayed. The user can adjust the value up or down by using the ***PLUS and MINUS*** buttons, respectively. Each press of either the ***PLUS or MINUS*** button shall change the current displayed value by 10. The ***PLUS*** button shall be used to increase the vertical distance and the ***MINUS*** button shall be used to decrease the vertical distance.

Once the ***WORK DISTANCE*** is set to the desired value for the given workout the user shall press the ***START/ENTER*** button. Upon pressing the ***START/ENTER*** button the screen shall switch to the ***WORK LEVEL*** screen.

The user can adjust the value up or down by using the ***PLUS and MINUS*** buttons, respectively. Each press of either the ***PLUS or MINUS*** button shall change the current level by 1. The ***PLUS*** button shall increase the level and the ***MINUS*** button shall decrease the level.

Once the ***WORK LEVEL*** is set to the desired value for the given workout the user shall press the ***START/ENTER*** button. Upon pressing the ***START/ENTER*** button the screen shall switch to the ***REST DISTANCE*** screen.

The user can adjust the value up or down by using the ***PLUS and MINUS*** buttons, respectively. Each press of either the ***PLUS or MINUS*** button shall change the current displayed value by 10. The ***PLUS*** button shall be used to increase the vertical distance and the ***MINUS*** button shall be used to decrease the vertical distance.

Once the ***REST DISTANCE*** is set to the desired value for the given workout the user shall press the ***START/ENTER*** button. Upon pressing the ***START/ENTER*** button the screen shall switch to the ***REST LEVEL*** screen.

The user can adjust the value up or down by using the ***PLUS and MINUS*** buttons, respectively. Each press of either the ***PLUS or MINUS*** button shall change the current level by 1. The ***PLUS*** button shall increase the level and the ***MINUS*** button shall decrease the level.

Once the ***REST LEVEL*** is set to the desired value for the given workout the user shall press the ***START/ENTER*** button. Upon pressing the ***START/ENTER*** button the screen shall switch to the ***NUMBER OF INTERVALS*** screen.

The selection arrow signifies that the ***NUMBER OF INTERVALS*** value is editable. The user can adjust the value up or down by using the ***PLUS and MINUS*** buttons respectively. Each press of either the ***PLUS or MINUS*** button shall change the current displayed value by 1. The ***PLUS*** button shall be used to increase the number of intervals and the ***MINUS*** button shall be used to decrease the number of intervals.

Once the ***NUMBER OF INTERVALS*** is set to the desired value for the given workout the START/ENTER button shall be pressed. Upon pressing the ***START/ENTER*** button the system shall transition to ***PROGRAM MODE*** and the workout will begin. See section ***5 PROGRAM MODE (I.E. In-WORKOUT FUNCTIONALITY)*** below for more details.

To exit the ***DISTANCE INTERVALS*** screens and return to the ***INTERVALS*** screen the user shall press the ***WORKOUTS*** button.

5. PROGRAM MODE (I.E.IN-WORKOUT FUNCTIONALITY)

Upon transitioning to this mode time shall begin incrementing (or decrementing when in a ***TIME GOAL*** workout), distance shall begin accumulating (or decrementing when in a ***DISTANCE GOAL or LANDMARK*** workout), calories shall begin accumulating (or decrementing when in a ***CALORIE GOAL*** workout), and all other displays shall become active. The specifics of the workout views are described below.

5.1 STANDARD WORKOUT SCREEN

For quick workouts that are initiated by hitting the ***START/ENTER*** button from the ***IDLE SCREEN*** or workouts that are initiated by selecting a ***TIME GOAL, DISTANCE GOAL, or CALORIE GOAL*** the following screen shall be provided during the workout.

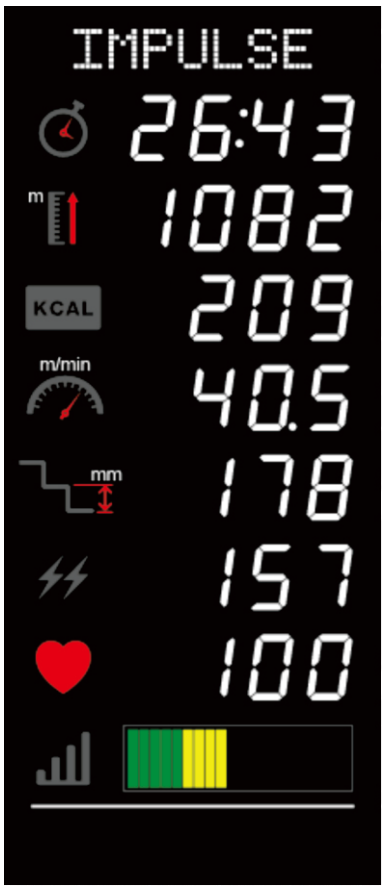


The following fields are available during a standard workout:

- **Time** – The elapsed time (non-TIME GOAL workouts) or remaining time (TIME GOAL workouts) for the workout in MMM:SS format
- **Vertical Distance** – The distance, in meters or feet, the user has "climbed" (non-DISTANCE GOAL or LANDMARK workouts) or has yet to "climb" (DISTANCE GOAL workouts) in the given workout
- **Calories** – The amount of KCAL the user has burned (non-CALORIE GOAL workout) or has yet to burn (CALORIE GOAL workout) through the workout
- **Watts** – The current amount of power the user is exerting
- **Speed** – The current speed the user is "climbing" at
- **Step Height** – The current height the user is stepping while climbing
- **Heart Rate** – The user's current heart rate as measured from their wireless HR strap
- **Level** – The current resistance level setting is shown in the horizontal bar graph

5.2 TARGET HR WORKOUT SCREEN AND PROGRAM BEHAVIOR

For a TARGET HR workout, the following screen shall be provided during the workout.



The following fields are available during a standard workout:

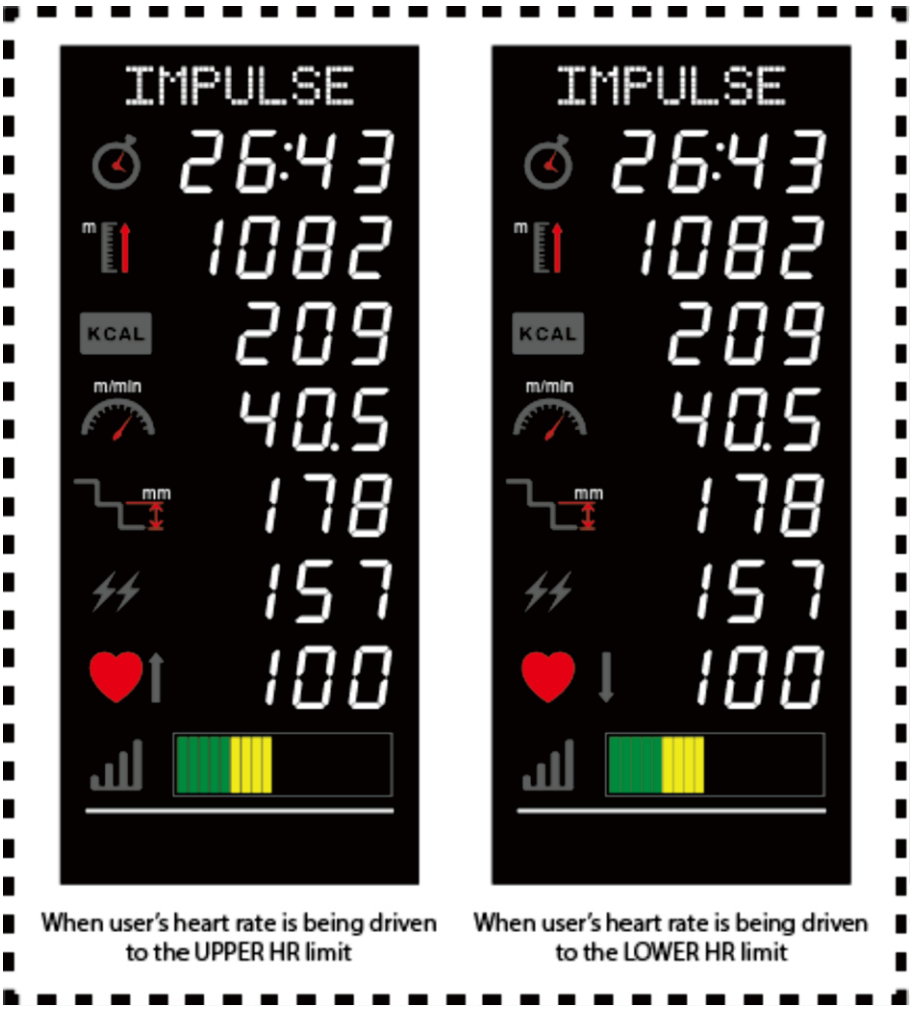
- **Time** – The elapsed time (non-TIME GOAL workouts) or remaining time (TIME GOAL workouts) for the workout in MMM:SS format
- **Vertical Distance** – The distance, in meters or feet, the user has "climbed" (non-DISTANCE GOAL or LANDMARK workouts) or has yet to "climb" (DISTANCE GOAL workouts) in the given workout
- **Calories** – The amount of KCAL the user has burned (non-CALORIE GOAL workout) or has yet to burn (CALORIE GOAL workout) through the workout
- **Watts** – The current amount of power the user is exerting
- **Speed** – The current speed the user is "climbing" at
- **Step Height** – The current height the user is stepping while climbing
- **Heart Rate** – The user's current heart rate as measured from their wireless HR strap
- **Level** – The current resistance level setting is shown in the horizontal bar graph

The above screen is the same as the STANDARD WORKOUT SCREEN, but the control behavior shall be different.

The program begins with a warm up with steps of 69%, 75%, 81%, 87%, 93% and 100% of the Target HR for the program. During the workout, the program shall use the algorithm defined below (see section Heart Rate Control Algorithm) to adjust the resistance to maintain the user's current heart rate within a margin of +/- 3 BPM of the TARGET HR. The initial resistance for this program shall be level 1 but during the Warm Up and during the workout, the resistance can be increased or decreased to reach the target value. The minimum resistance level is 1.

5.3 INTERVAL HR WORKOUT SCREENS AND PROGRAM BEHAVIOR

For an INTERVAL HR workout, the following screens shall be provided during the workout.



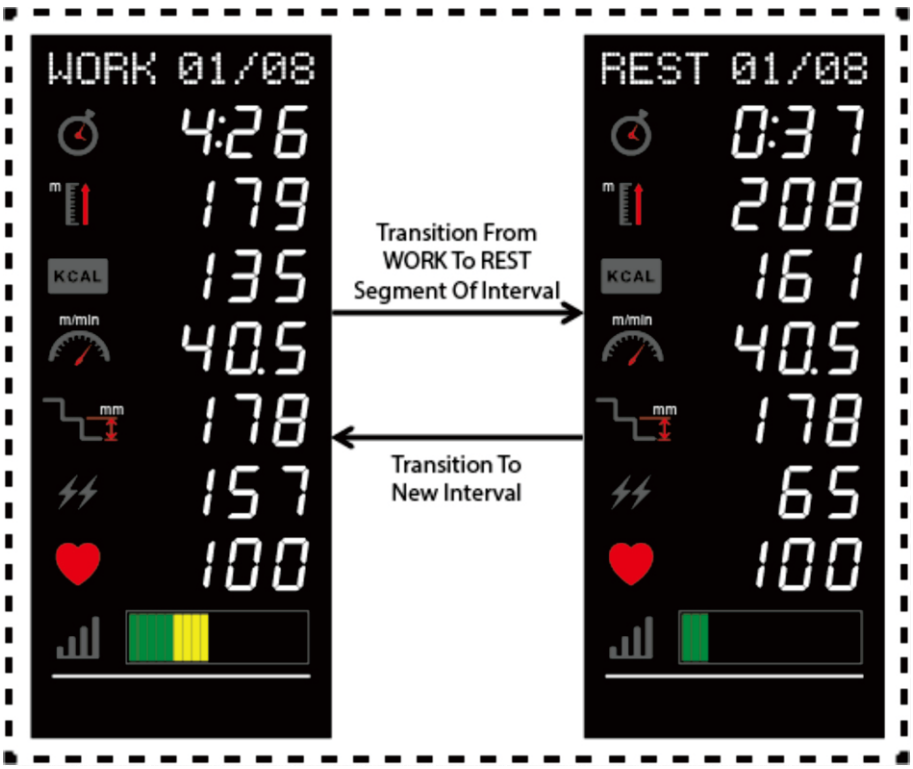
The following fields are available during a standard workout:

- **Time** – The remaining time for the workout in MMM:SS format
- **Vertical Distance** – The vertical distance, in meters or feet, the user has "climbed" during the workout
- **Calories** – The amount of KCAL the user has burned through the workout
- **Watts** – The current amount of power the user is exerting
- **Speed** – The current speed the user is "climbing" at
- **Step Height** – The current height the user is stepping while climbing
- **Heart Rate** – The user's current heart rate as measured from their wireless HR strap

● **Level** – The current resistance level setting is shown in the horizontal bar graph
The program begins with a warm up with steps of 69%, 75%, 81%, 87%, 93% and 100% of the Upper HR Limit for the program. Following the warm up the main portion of the workout shall consist of the two components that are listed below ad they shall alternate until the workout goal is reached:
● Workout segment where the console drives the user's heart rate up to the Upper HR Limit
● Workout segment where the console drives the user's heart rate down to the Lower HR Limit
During the workout, the program shall use the algorithm defined below to adjust the resistance to regulate the user's current heart rate within a margin of +/- 3 BPM of the given segments TARGET HR (between the Lower HR Limit and Upper HR Limit). The initial resistance for this program shall be level 1 but during the Warm Up and during the workout, the resistance can be increased or decreased to try and reach the current TARGET HR. The minimum resistance level is 1.

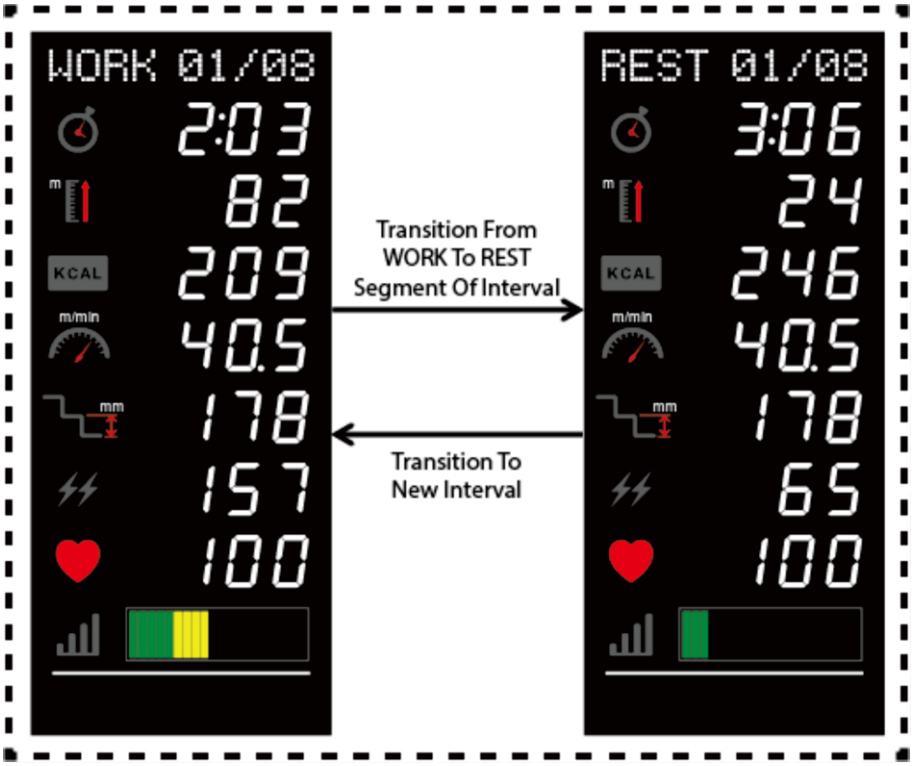
5.4 TIME INTERVAL WORKOUT SCREENS

For TIME INTERVAL workouts the following screen shall be provided during the workout.



The following fields are present:
● **Time** – The remaining time for the current WORK or REST segment of the workout in MM:SS format
● **Distance** – The distance, in meters or feet, the user has "climbed" in the given workout
● **Calories** – The amount of KCAL the user has burned through the workout
● **Watts** – The current amount of power the user is exerting
● **Speed** – The current speed the user is "climbing" at
● **Heart Rate** – The user's current heart rate as measured from their wireless HR strap
● **Work (X / Y)** – The time remaining in the current WORK segment displayed in MM:SS format; the initial value for WORK was established during program setup; the X denotes the current segment number while the Y denotes the total number of segments that will be run in the current workout and was defined in program setup; the example above on the left shows "WORK (01 / 08)" signifying that the first segment is in process and there are 8 total segments in the workout; the WORK segment would be followed by the REST segment (screen shown on right above).
● **Rest (X / Y)** – The time remaining in the current REST segment displayed in MM:SS format; the initial value for REST was established during program setup; the X denotes the current segment number while the Y denotes the total number of segments that will be run in the current workout and was defined in program setup; the REST segment follows the WORK segment; the X shall increment to the next segment once the current REST segment has been completed.
● **Level** – The current resistance level setting is shown via the horizontal bar graph. Note that the value however for level shall be determined based on the current position of the magnets.

5.5 DISTANCE INTERVAL WORKOUT SCREENS
For DISTANCE INTERVAL workouts the following screen shall be provided during the workout.



The following fields are present:

- **Time** – The elapsed time for the workout in MM:SS format
- **Distance** – The distance, in meters or feet, remaining for the applicable WORK or REST segment of the given workout
- **Calories** – The amount of KCAL the user has burned through the workout
- **Watts** – The current amount of power the user is exerting
- **Speed** – The current speed the user is "climbing" at
- **Heart Rate** – The user's current heart rate as measured from their wireless HR strap
- **Work (X / Y)** – The initial value for WORK was established during program setup; the X denotes the current segment number while the Y denotes the total number of segments that will be run in the current workout and was defined in program setup; the example above on the left shows "WORK (01 / 08)" signifying that the first segment is in process and there are 8 total segments in the workout; the WORK segment would be followed by the REST segment (screen shown on right above)
- **Rest (X / Y)** – The initial value for REST was established during program setup; the X denotes the current segment number while the Y denotes the total number of segments that will be run in the current workout

● To the next segment once the current REST segment has been completed
● **Level** – The current resistance level setting is shown via the horizontal bar graph. Note that the value however for level shall be determined based on the current position of the magnets.

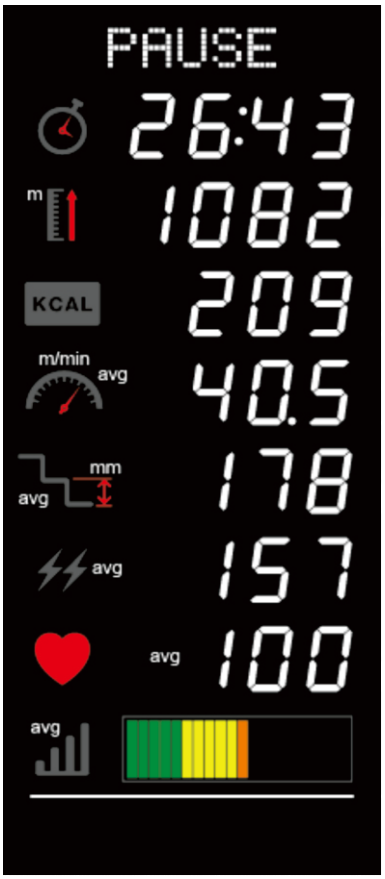
6. PAUSE/SUMMARY MODES

6.1 USER STOPS EXERCISING (PAUSE MODE)

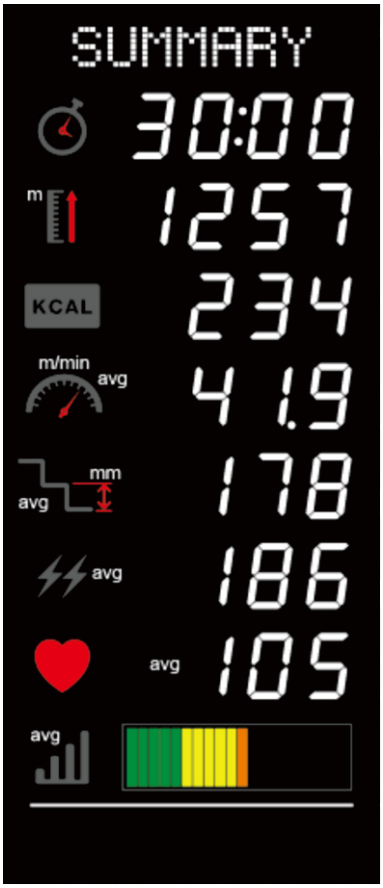
If the user stops exercising (i.e. the speed has been at 0 for 4 or more seconds) during a workout the system shall transition to ***PAUSE MODE***, the time, vertical distance, and calories shall freeze at their current values and the system shall start displaying the average values for speed, step height, watts, heart rate, and level as shown in the screen image below. Once this mode has been initiated a 20 second countdown timer shall be started and once it elapses, the system shall transition to ***IDLE MODE***. See section 3 ***IDLE MODE*** above for the desired behavior during ***IDLE MODE***.

If the user resumes exercising before the timer has expired, the system shall transition back to ***PROGRAM MODE*** and continue the workout from where the user left off.

To end this mode before the timer elapses the user shall press the ***MINUS*** button to immediately transition to ***IDLE MODE***.



6.2 WORKOUT GOAL IS REACHED (SUMMARY MODE)



If the user reaches their chosen workout goal, then the system shall transition to ***SUMMARY MODE***, the time, vertical distance, and calories shall freeze at their current values and the system shall start displaying the average values for speed, step height, watts, heart rate, and level as shown in the screen image below.
Once this mode has been initiated a 30 second countdown timer shall be started and once it elapses, the system shall transition back to ***IDLE MODE***. See section 3 ***IDLE MODE*** above for the desired behavior during ***IDLE MODE***.

To end this mode before the timer elapses the user shall press the MINUS button to immediately transition to ***IDLE MODE***.

7. CONNECTIVITY MODE

7.1 GENERAL

This console shall be capable of connecting to both ANT+ and BLE heart rate straps. In addition, the console shall be able to connect to smartphones via BLE. The console shall also be able to connect to both a heart rate strap (ANT+ or BLE) and simultaneously connect to a smartphone app. This capability is supported by the NPE GEM2 module.

7.2 CONNECTING TO A SMARTPHONE

Press the CONNECT button to initiate the Bluetooth pairing process.
The Bluetooth icon ᛒ at the bottom center of the display shall begin to flash at a 1Hz rate to indicate that the Bluetooth radio is advertising and is looking for an available mobile device to pair with.
During advertising, the console shall automatically generate a randomized 4-digit code that will serve as the unique identifier for the given console the first time the ***CONNECT*** Button is pressed, and the advertised label will be "Impulse Climber ####" where the #### is the randomized, 4-digit identifier. This same randomized 4-digit identifier shall be displayed in the top MESSAGE window for 5 seconds. The advertising period will last for 10 seconds.

While the console is advertising a user may connect to a compatible app via their smartphone. When the console successfully pairs with a smartphone, the BT advertising will end, the console will return to normal function, and the Bluetooth icon shall stay on and no longer blink. During the workout the console shall transmit the user's workout data to the user's smartphone app via the Bluetooth FTMS specification.

7.3 CONNECTING TO A BLE HR STRAP

If after pressing the ***CONNECT*** button and 10 seconds have elapsed without the user connecting to a smartphone app then the console shall scan for BLE HR straps and connect accordingly. When connecting to a BLE HR strap "BLE" shall be displayed in the HR window (see below) and the console shall connect to the HR strap. Once the connection to the BLE HR strap has been connected, the detected heart rate value shall be displayed in the HR window and the heart icon shall blink at the same rate as the user's detected heart rate.



Once a connection has been made to a BT HR strap the console shall also be able to connect a smartphone app simultaneously. The behavior described above in section 7.2 applies. Note that the user must connect to a heart rate strap prior to establishing a connection to a smartphone if they want to connect to both simultaneously.

7.4 CONNECTING TO AN ANT+ STRAP

To connect to an ANT+ HR strap, no connections to the console shall be active. If the user wants to connect the console to an ANT+ compatible heart rate chest strap, then press and hold the ***CONNECT*** button for 5 seconds. When connecting to an ANT+ HR strap "Ant" shall be displayed in the HR window (see below) and the console shall connect to the HR strap. Once the connection to the ANT+ HR strap has been made, the detected heart rate value shall be displayed in the HR window and the heart icon shall blink at the same rate as the user's detected heart rate.



If a connection has been made to an ANT+ HR strap the console shall also be able to connect a smartphone app simultaneously via BLE. The behavior described above in section 7.2 applies. Note that the user must connect to a heart rate strap prior to establishing a connection to a smartphone if they want to connect to both simultaneously.

7.5 DISCONNECTING CONSOLE FROM HR STRAPS AND SMARTPHONE APPS

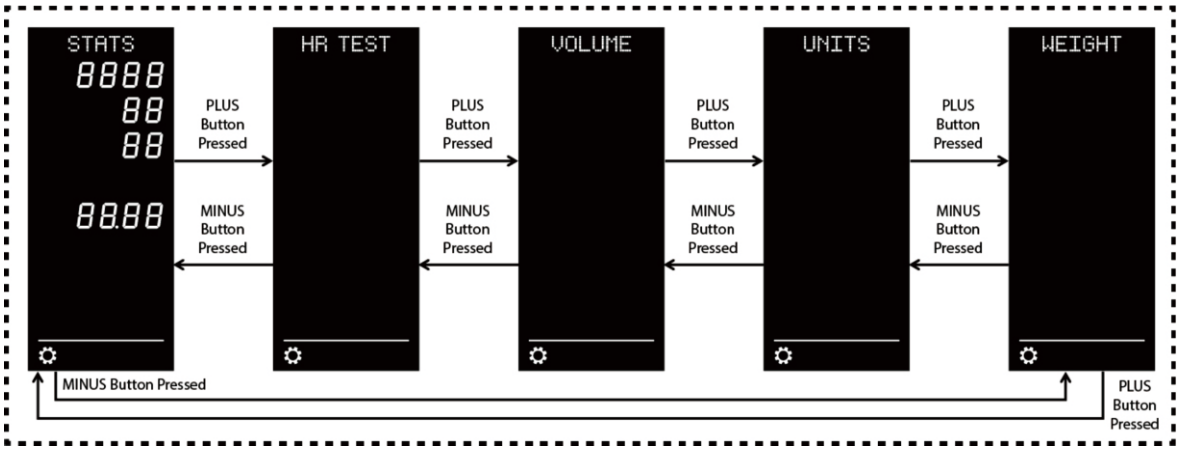
At any time if a connection has been made to either a smartphone app via BLE, a BLE HR strap, an ANT+ HR strap, or either HR strap and a smartphone app via BLE simultaneously, the user shall be able to sever all connections by either pressing and holding the ***CONNECT*** button for 10 seconds, by ending a workout, or by pressing and holding the ***MINUS*** button for 5 seconds while in Idle Mode.

8. SETTINGS MODE

8.1 SETTINGS SCREENS

To enter ***CONFIGURATION MODE*** the user shall press ***START, PLUS, and MINUS*** simultaneously.

The graphic below shows the ***SETTINGS*** screens:



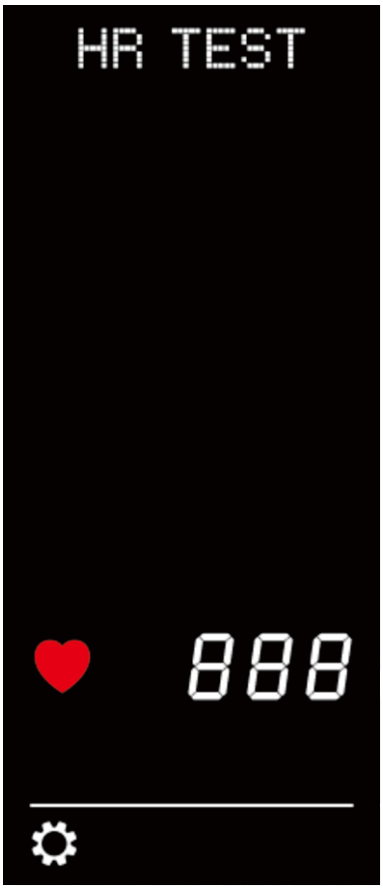
There shall be five options provided to the user on these screens and they are as follows:

- **STATS** – This selection gives the user the ability to review the total accumulated time and firmware version.
- **HR TEST** – This selection gives the user the ability to test the HR system.
- **VOLUME** – This selection gives the user the ability to adjust the volume of the beeper.
- **UNITS** – This selection gives the user the ability to switch between Metric and Imperial units.
- **WEIGHT** – This selection gives the user the ability to adjust the user's weight used for calculating calories.

The first screen that will be shown is the one for ***STATS***. To select between the available Settings, the user shall press either the ***PLUS or MINUS*** button to navigate to the next or previous choice respectively.
If the user presses the ***START/ENTER*** button, they are selecting the displayed Setting and the system shall transition to the applicable Setting screen. Note that pressing the ***START/ENTER*** button while on the STATS screen will not do anything as the screen already is displaying the desired information.
There STATS screen provides to the user with following:
● **Total Time** – This is the total amount of time, in hours, minutes, and seconds, of all workouts performed on this given machine; the top value is hours from 0 to 9999, the second value is minutes between 0 and 59, and the third value is seconds from 0 to 59.
● **Firmware Version** – The fourth value displayed is the current firmware version for the firmware currently running on the console in #.## format.

The ***Total Time*** values shall be maintained in non-volatile memory.
To exit the ***SETTINGS*** screens and return to the ***IDLE*** screen the user shall press the ***WORKOUTS*** button.

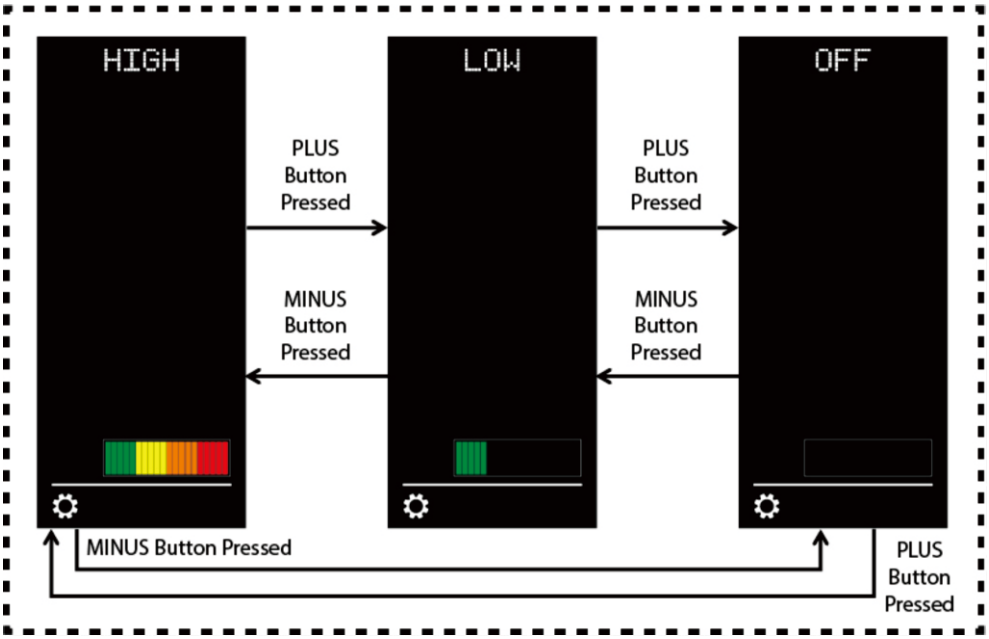
8.2 HR TEST SCREEN
The graphic below shows the ***HR TEST*** screen:



The HR Test shall allow the user to verify the functionality of their heart rate strap.
The method of connecting the console to either the Bluetooth or ANT+ heart rate chest straps is defined above in sections ***7***.
The ***888*** shown above is a placeholder for the actual HR detected from the connected heart rate chest strap.
To exit the ***HR TEST*** screen and return to the ***SETTINGS*** screens the user shall press the ***WORKOUTS*** button. Note that this shall also reset the NPE GEM MODULE.

8.3 VOLUME SCREEN

The graphic below shows the VOLUME screens:



The console shall be equipped with a piezo style beeper that shall be used to generate tones for button presses and various system related events. The volume of this beeper shall be adjustable in order to allow users to control how loud or quiet they desire the tones to be.

The ***PLUS and MINUS*** buttons shall be used to adjust the volume level. There shall be three choices to pick from and they are below:

- High (i.e. full volume) – Horizontal bar graph is full
- Low (i.e. half volume) – Horizontal bar graph is only partially full
- Off (i.e. Muted; no sound) – Horizontal bar graph is empty

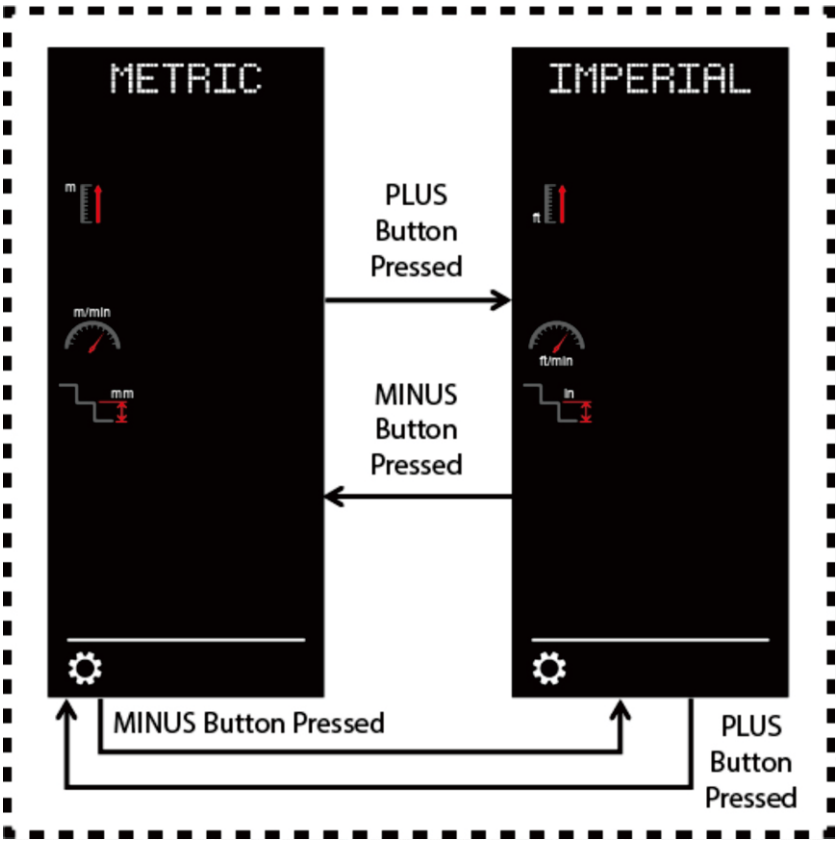
Also, each time the ***PLUS or MINUS*** buttons are pressed the volume of the tone played shall match the current set level. Once the user is satisfied with the volume level, they can save that level to memory by pressing the ***START/ENTER*** button. In addition to saving the volume level to non-volatile memory, pressing the ***START/ENTER*** button also transitions the system back to the ***SETTINGS*** screens.

The default volume level shall be ***HIGH***.

To exit the ***VOLUME*** screens and revert the volume to the last saved value the user shall press the ***WORKOUTS*** button. Pressing the ***WORKOUTS*** button also transitions the system back to the ***SETTINGS*** screens.

8.4 UNITS SCREENS

The graphic below shows the UNITS screens:



The screens above shall be used to select the desired units used for the vertical distance, speed, and step height. The user can select either metric or Imperial units. Use the ***PLUS or MINUS*** button to select the desired option.

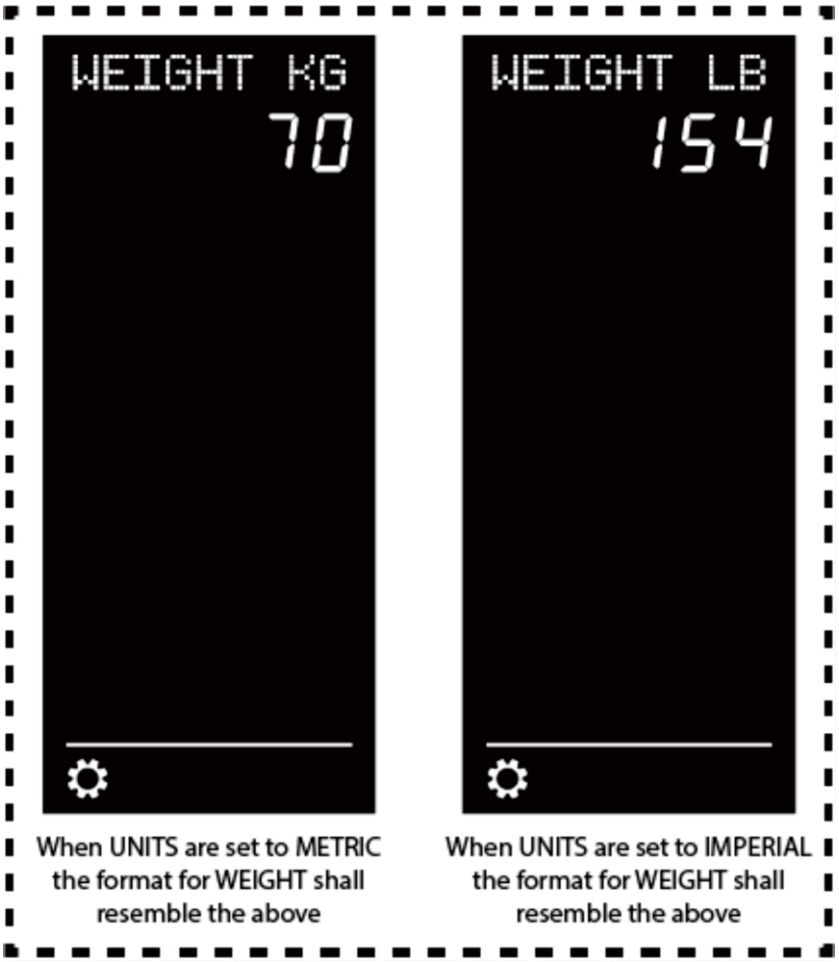
Once the user is satisfied with the unit choice, they can save that choice to non-volatile memory by pressing the ***START/ENTER*** button. In addition to saving the choice to non-volatile memory, pressing the ***START/ENTER*** button also transitions the system back to the ***SETTINGS*** screens.

The default unit setting shall be ***Metric*** units.

To exit the ***UNITS*** screens and revert the unit choice to the last saved value the user shall press the ***WORKOUTS*** button. Pressing the ***WORKOUTS*** button also transitions the system back to the ***SETTINGS*** screens.

8.5 WEIGHT SCREEN

The graphic below shows the user WEIGHT screen:



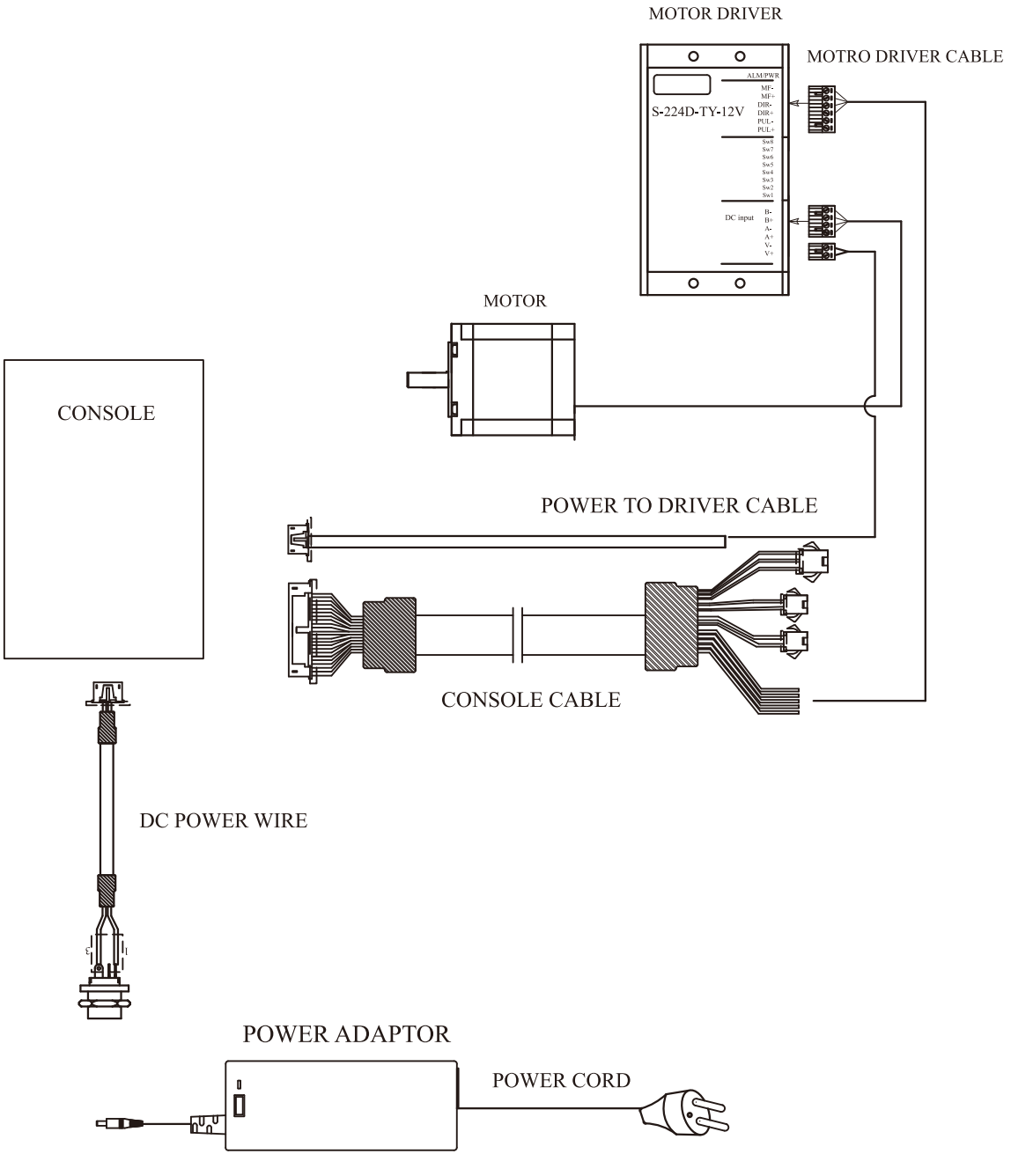
The screen above shall be used to specify the user's weight in kilograms or pounds depending on the selected units that shall be used for calculating the calories burned for a given workout. Use the ***PLUS and MINUS*** buttons to adjust the user's weight.

Once the user has entered their desired weight value they can save that value to non-volatile memory by pressing the ***START/ENTER*** button. In addition to saving the value to non-volatile memory, pressing the ***START/ENTER*** button also transitions the system back to the ***SETTINGS*** screens.

The default value for weight shall be ***70*** kilograms.

To exit the ***WEIGHT*** screen and revert the unit choice to the last saved value the user shall press the ***WORKOUTS*** button. Pressing the ***WORKOUTS*** button also transitions the system back to the ***SETTINGS*** screens.

Console Panel Functions



PREVENTIVE MAINTENANCE SCHEDULE						
CARDIO						
Item	*Daily*	*Weekly*	*Monthly*	*Quarterly*	*Biannual*	*Annual*
Mounting Bolts					Inspect	
Frame	Clean				Inspect	
Power Cord			Inspect			
Display Console	Clean		Inspect			
Cover	Clean					
Handlebar	Clean	Lock				
Seat	Clean					
Pedal	Clean	Lock				
Belt Tension				Inspect		
Interior Cable				Inspect		


SYSTEM CERTIFICATION
ISO 9001
SGS
SYSTEM CERTIFICATION
ISO 14001
SGS
SYSTEM CERTIFICATION
OHSAS 18001
SGS
SYSTEM CERTIFICATION
ISO 10015
SGS