



T656 16,19 Repair Manual(Electronic)



Date: 2018/09/ V1.0

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1-1.Product Picture

SportsArt



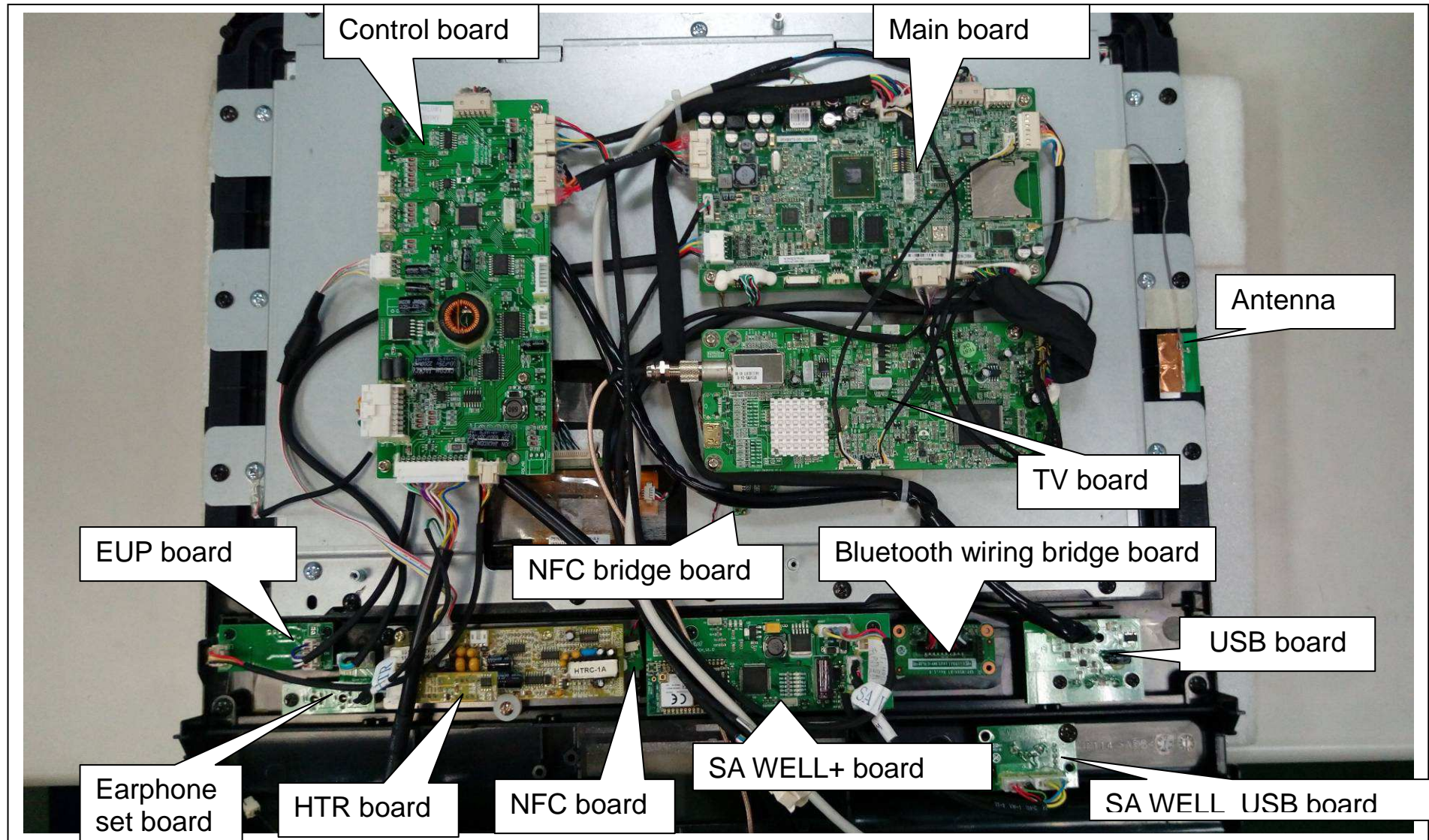
1-1-1

1-2.Display-T656

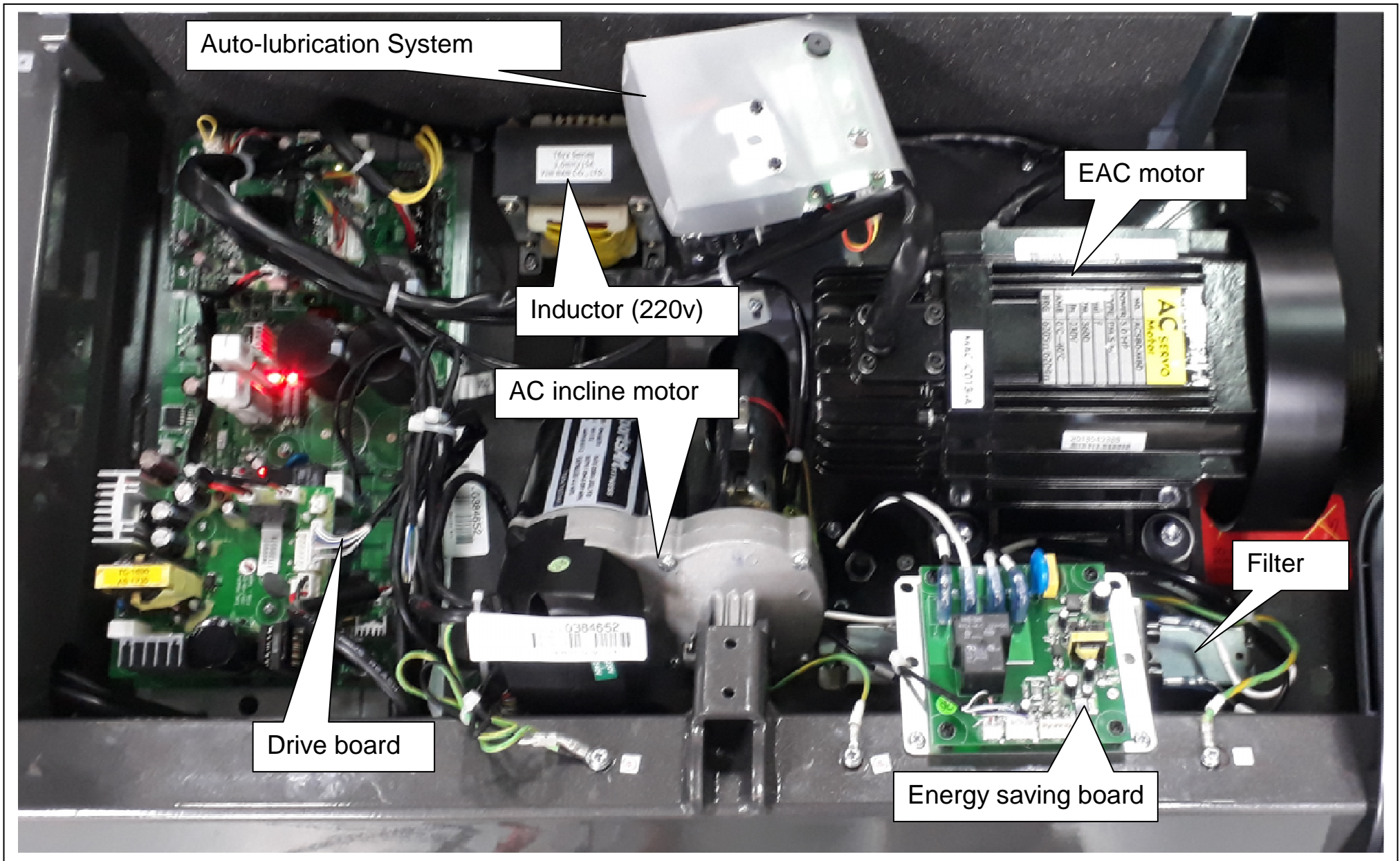
SportsArt



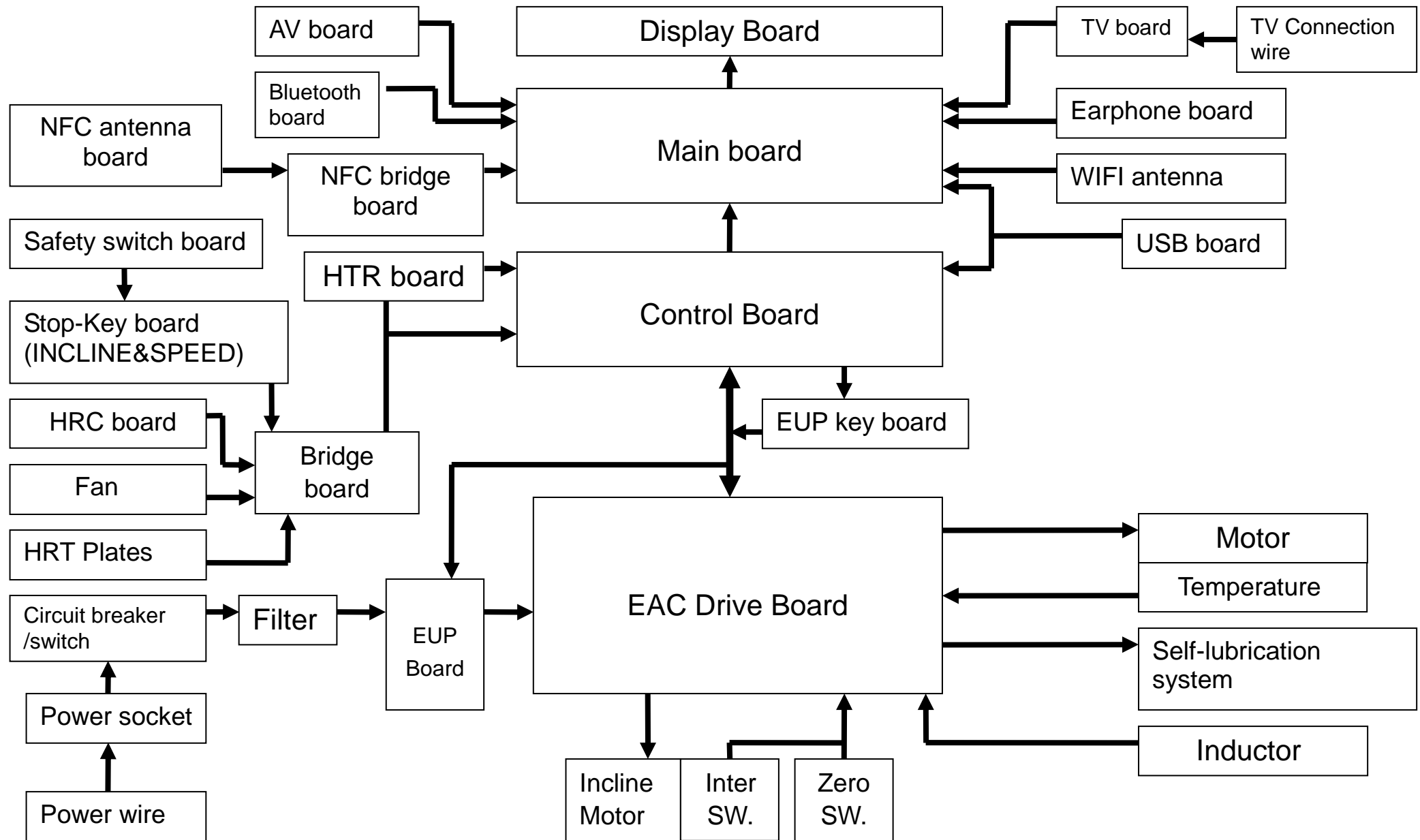
1-3. Components placement - T656 display



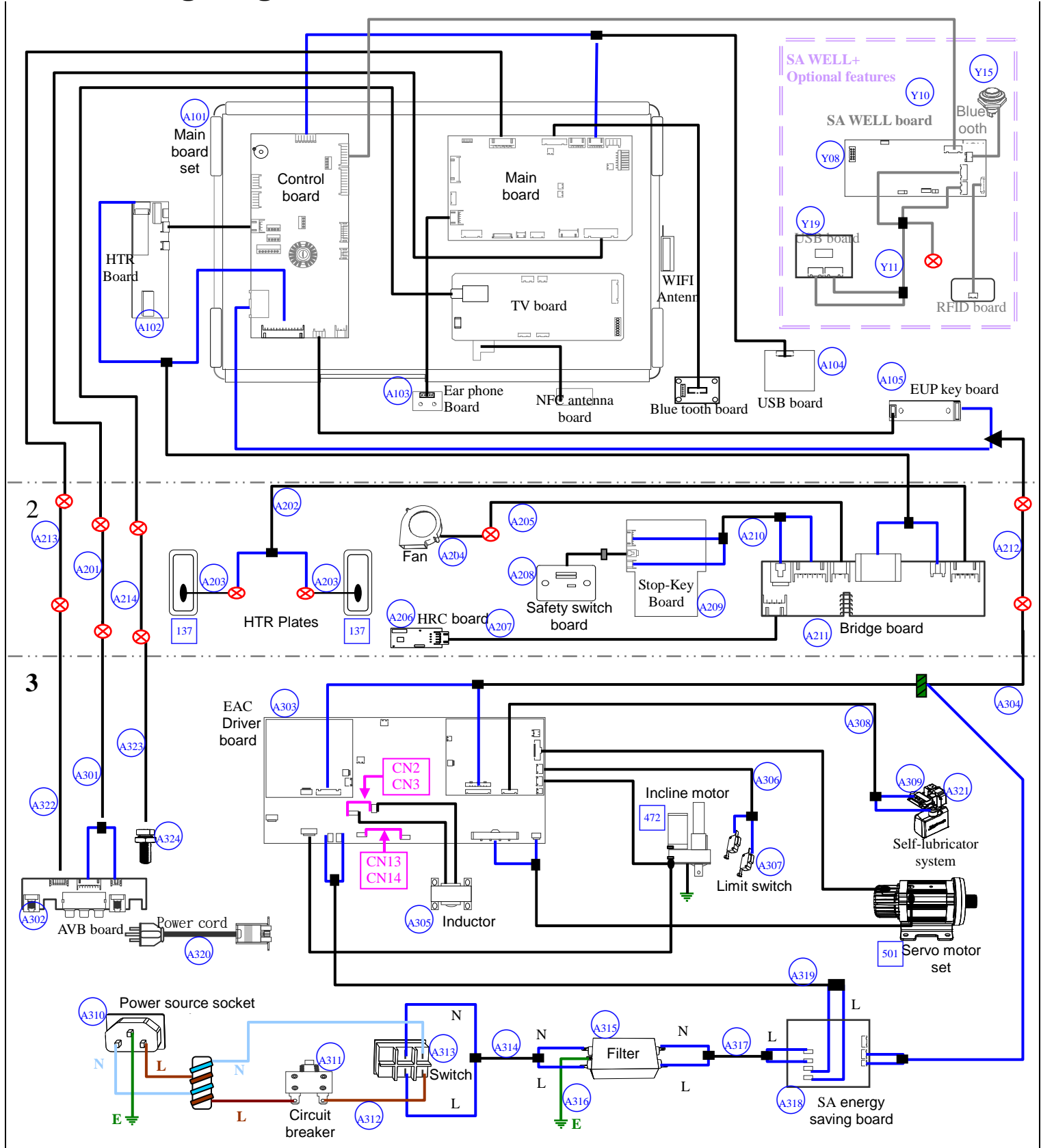
1-3.components placement- T656 lower Mechanical set



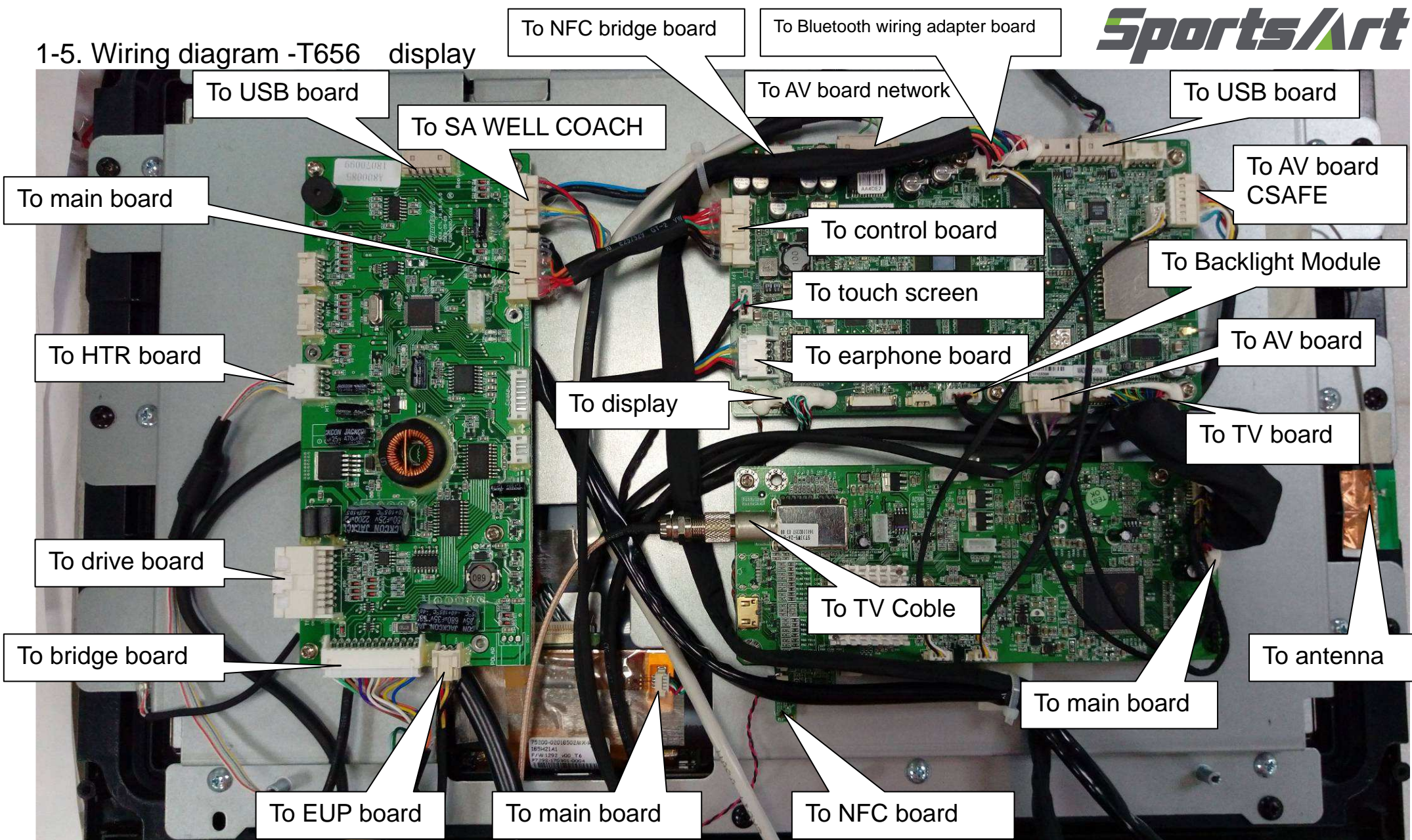
1-4. Block diagram -T656



1-4. Wiring diagram -T656



1-5. Wiring diagram -T656 display



1-5.wiring -T656 console 19" & 16" difference



19" direct wiring to main board



16" wiring connection to main board through touch board



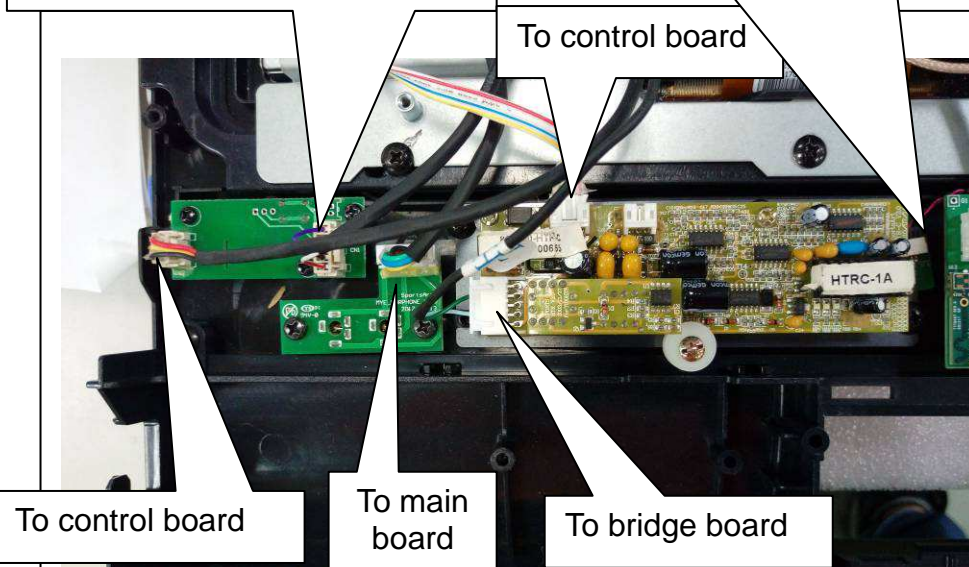
1-5.Wiring-T656 console

NFC board to NFC bridge board



To drive board and energy saving board

To control board



To control board

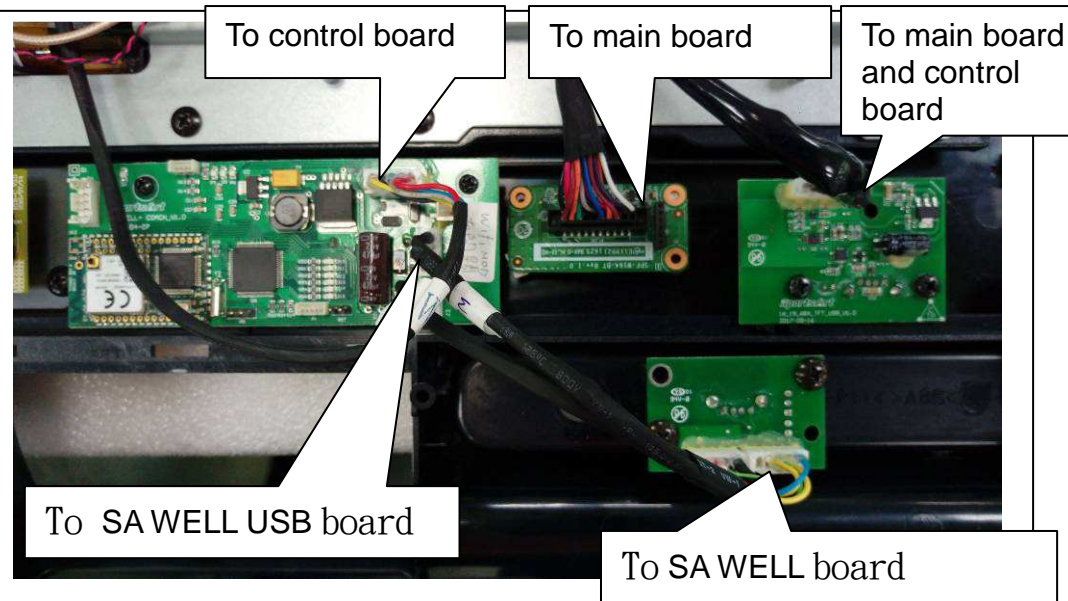
To main board

To bridge board

To control board

To main board

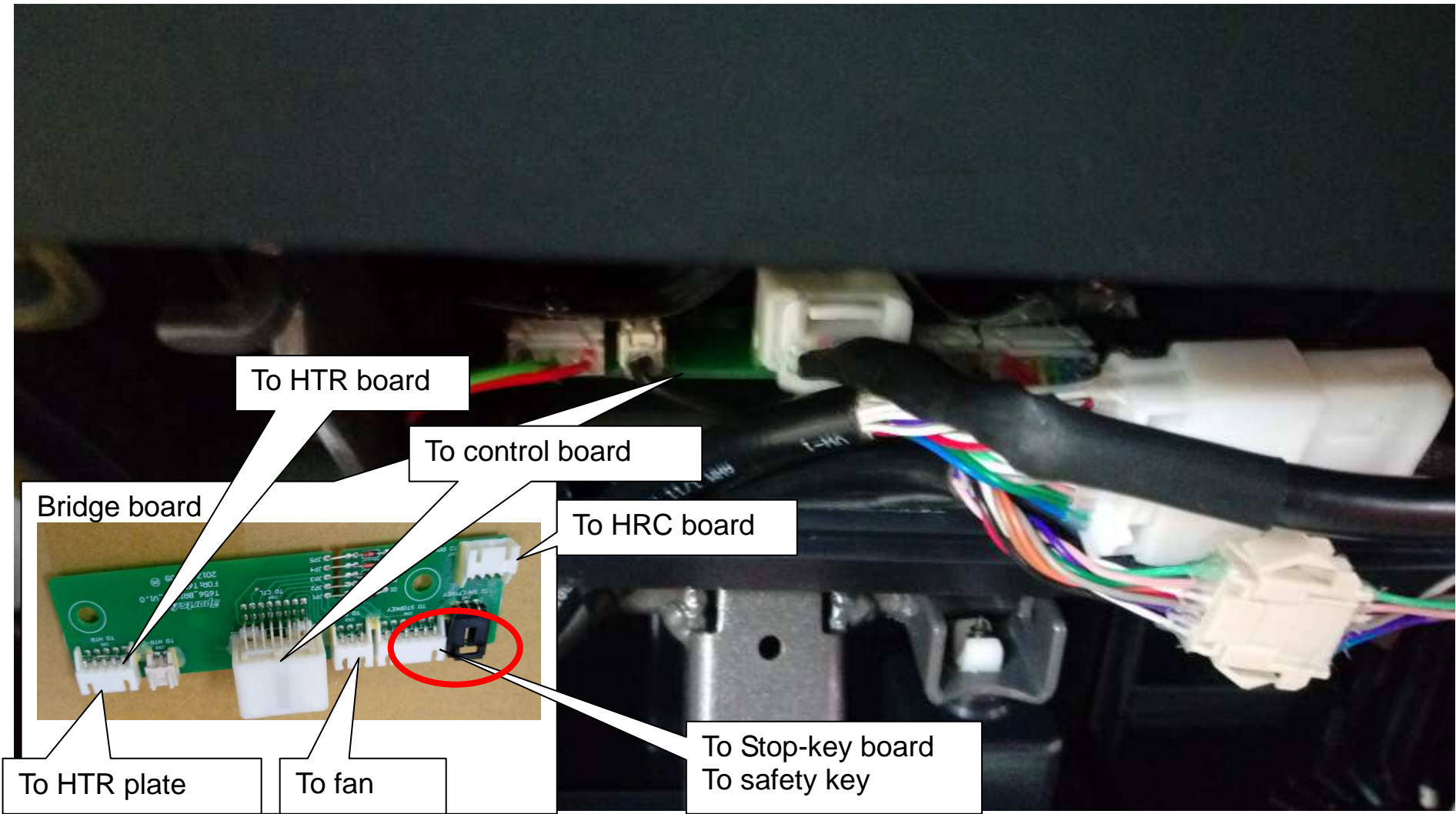
To main board and control board



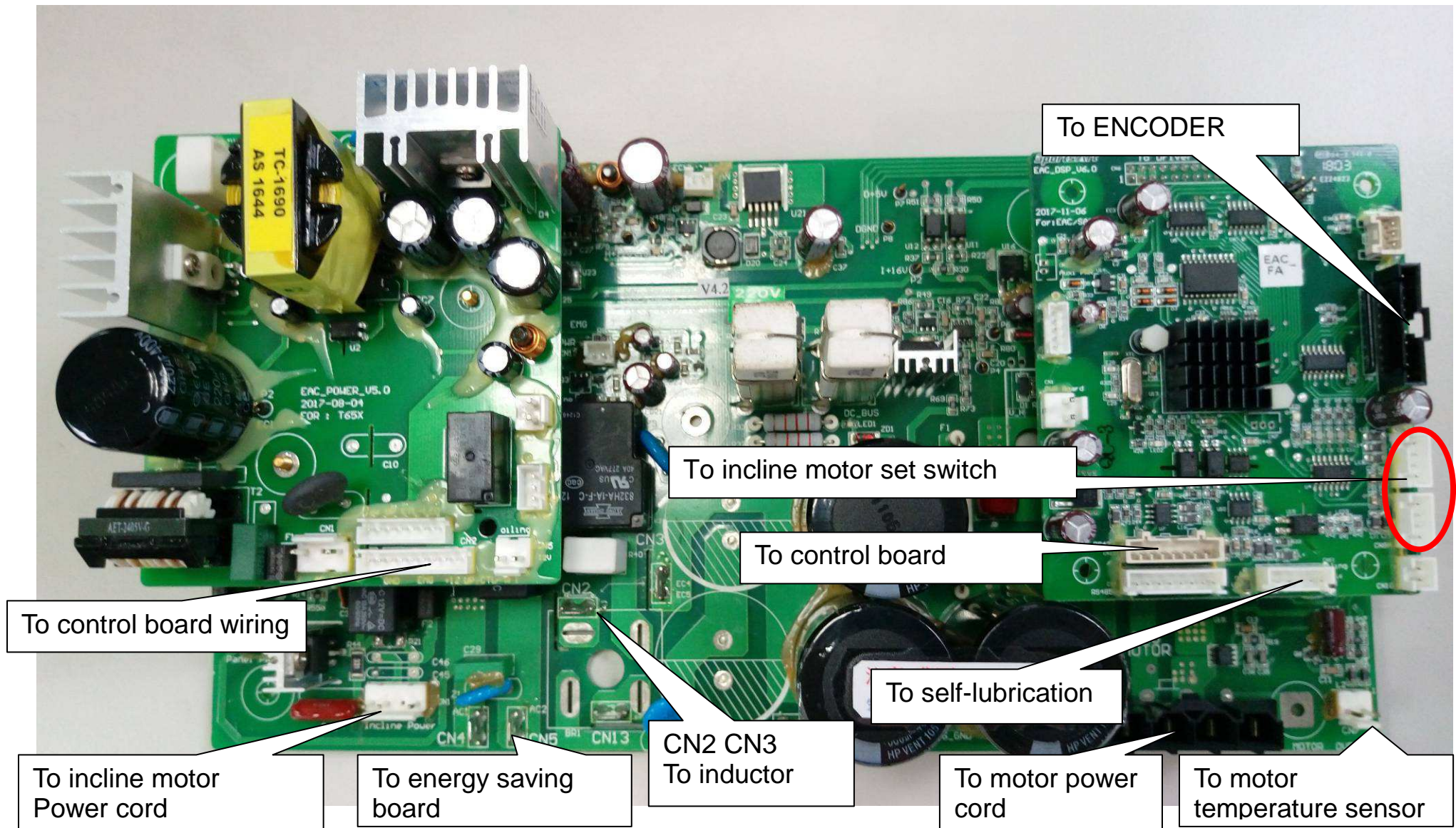
To SA WELL USB board

To SA WELL board

1-5.wiring -T656 console

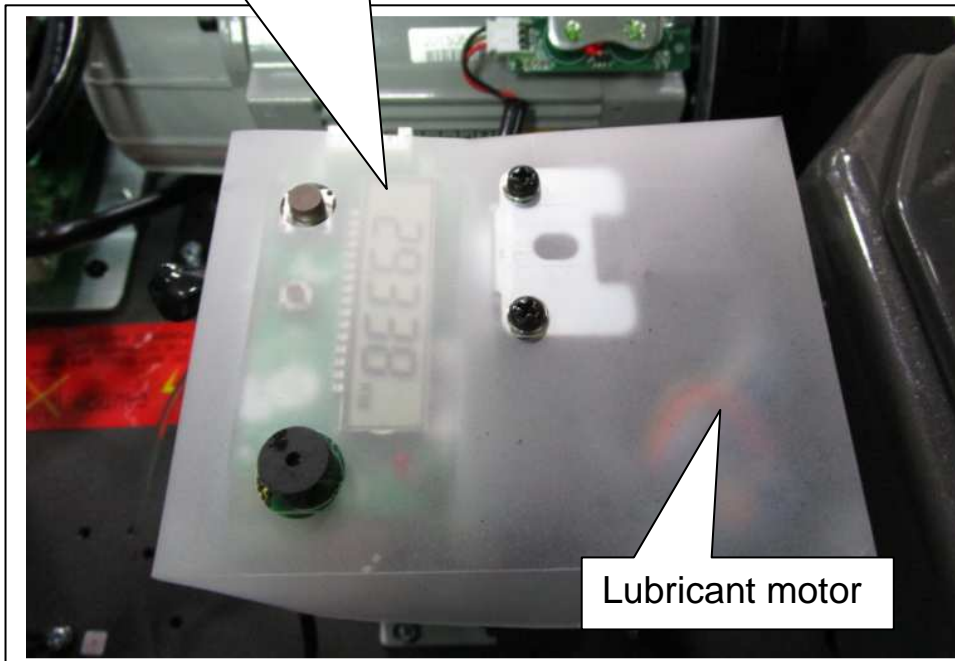


1-5.Wiring - T656 EAC Drive board set

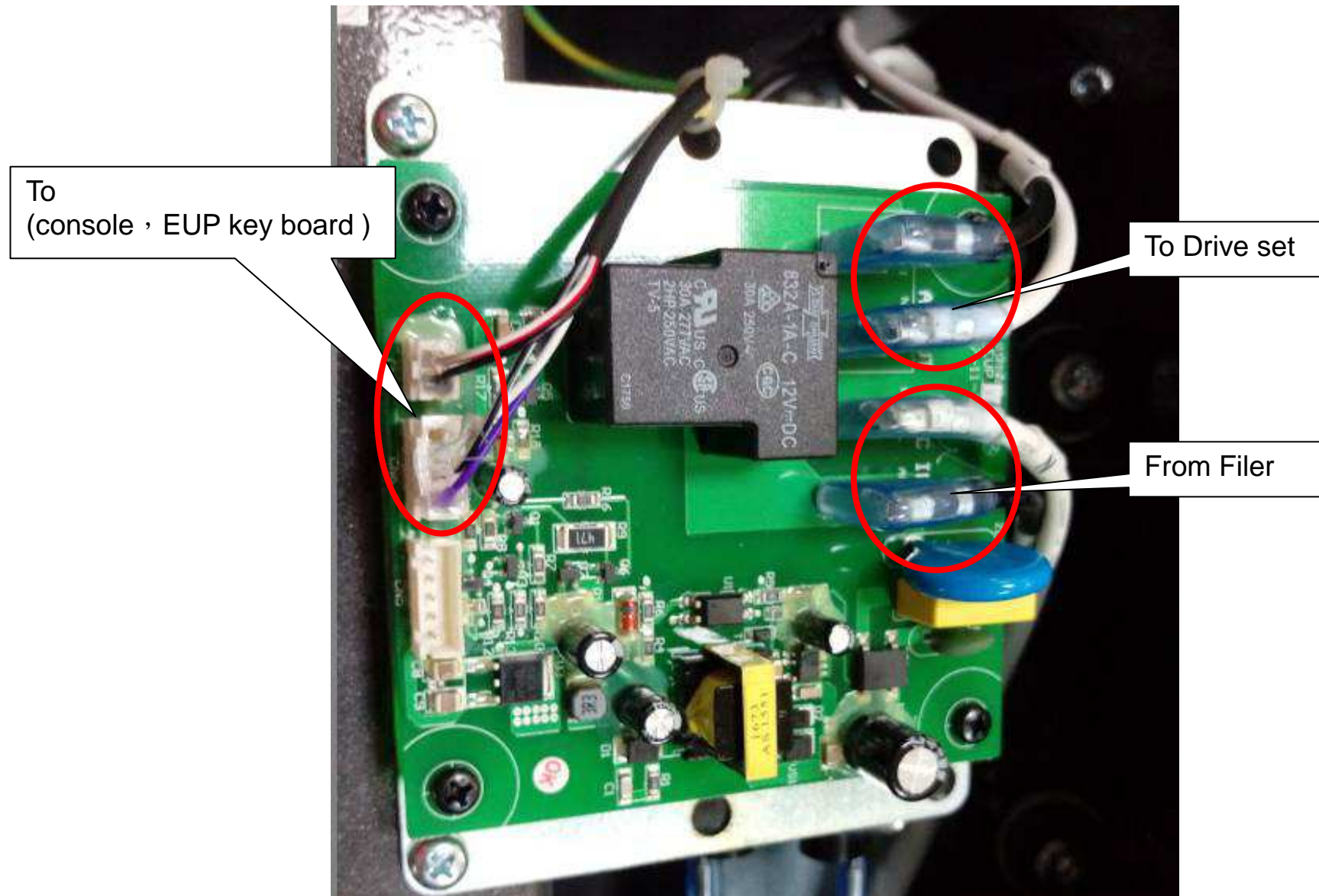


1-5. Wiring - T656 self-lubrication system

Lubricant control system



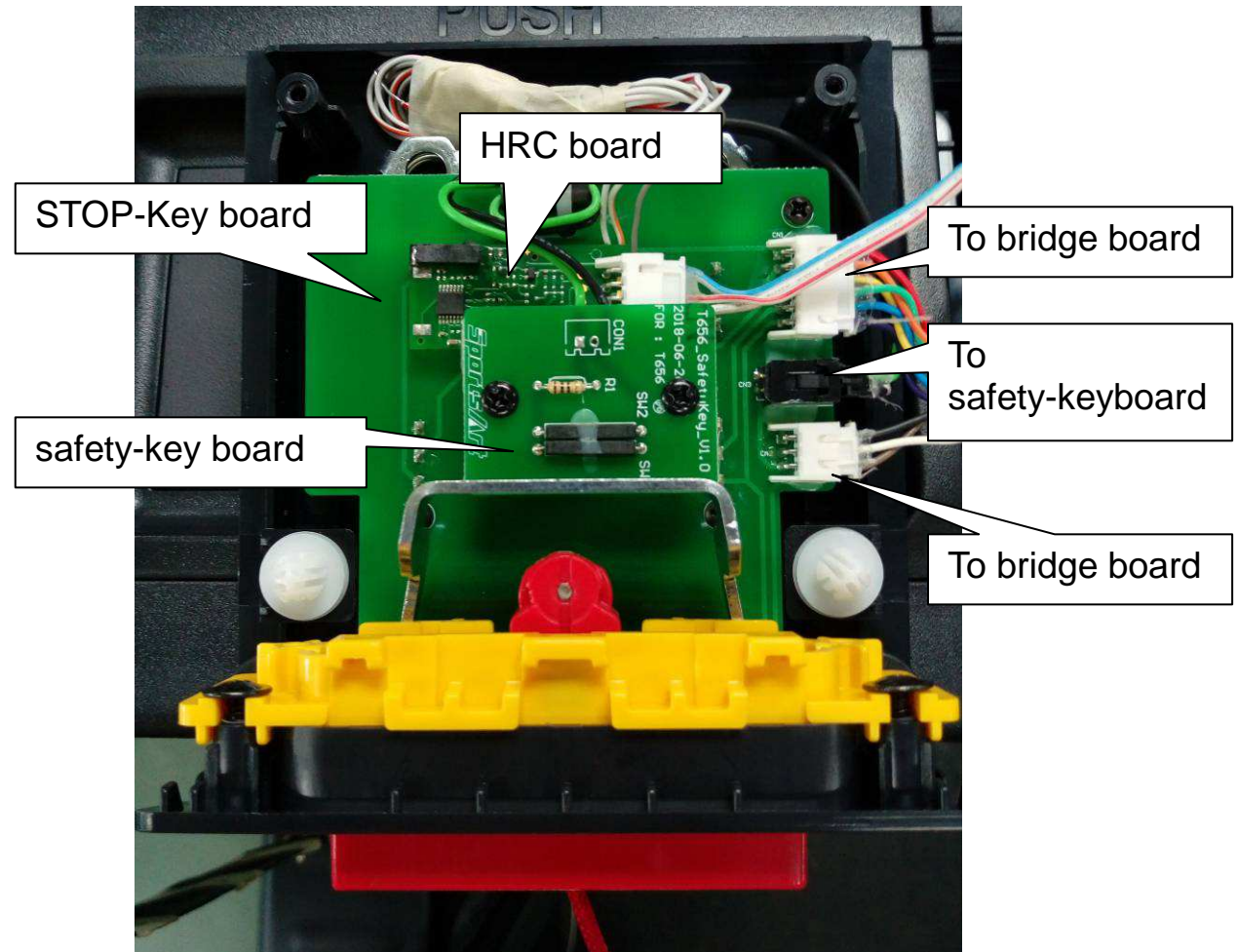
1-5.Wiring - energy saving board



1-5. Keys instructions - T656



INCLINE / SPEED key
And STOP key

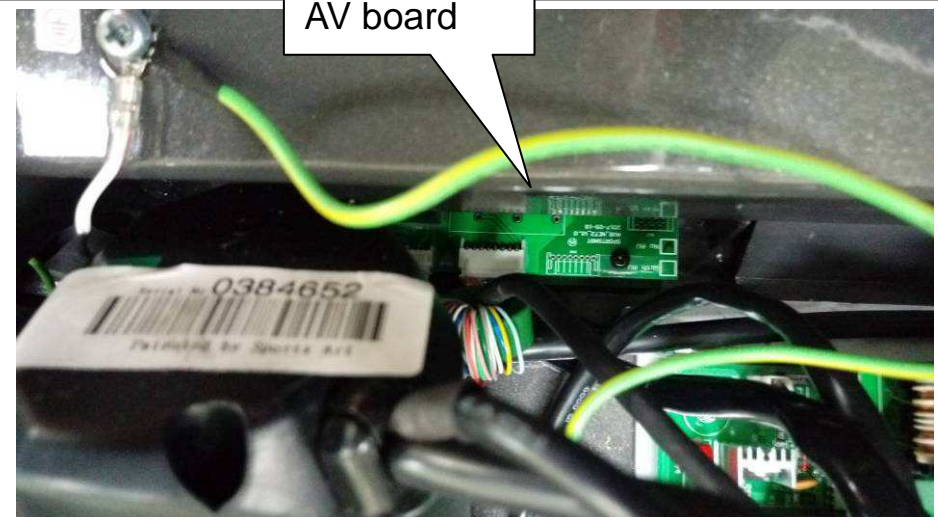


1-5.Wiring AV board

Appearance



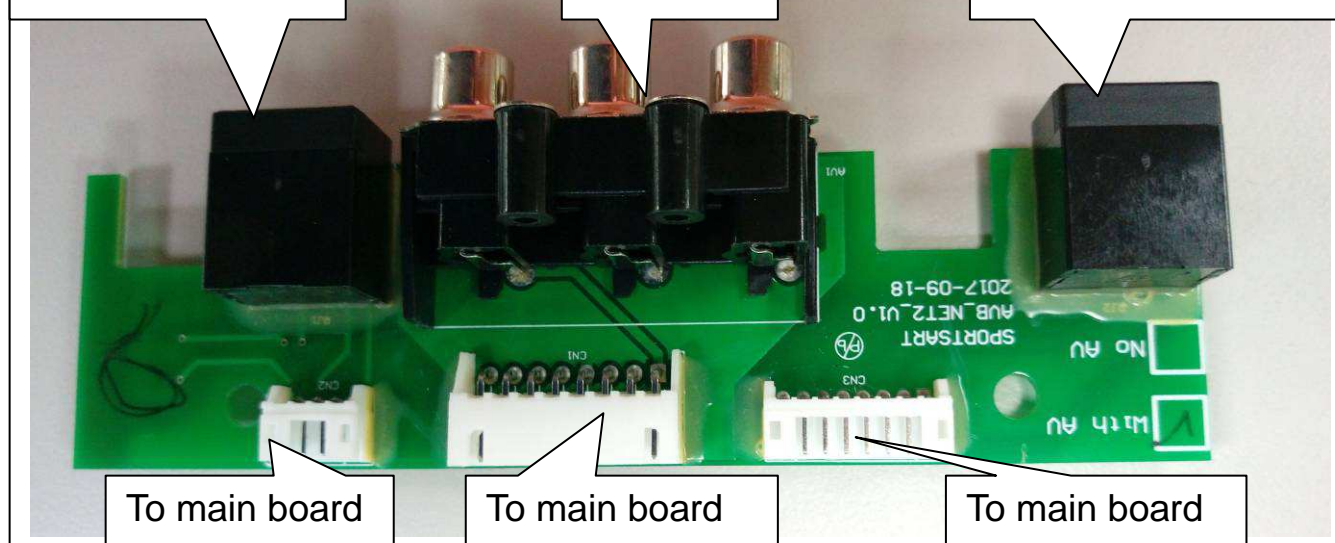
AV board



CSAFE socket

AV socket

Network wire socket

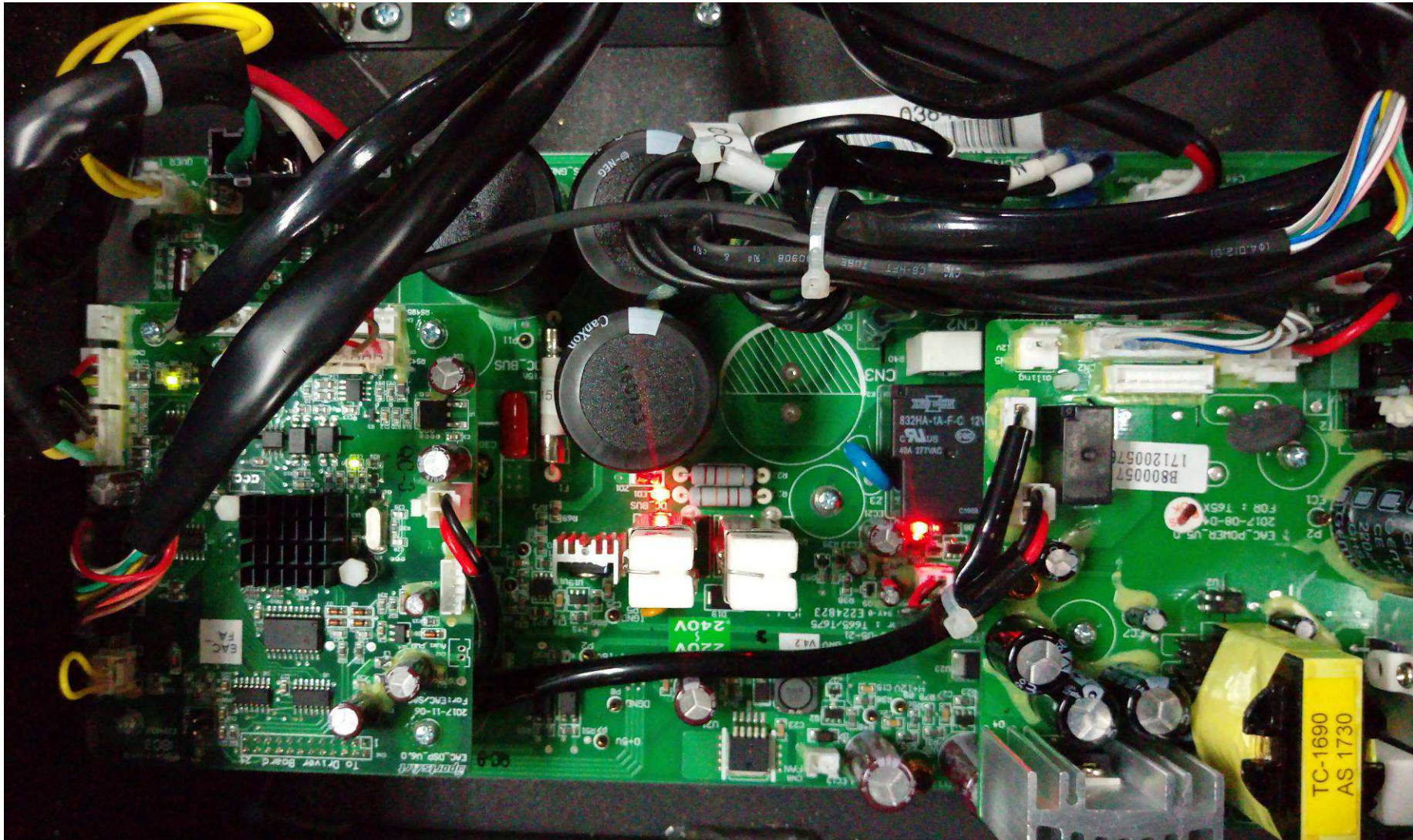


To main board

To main board

To main board

1-6. indicators - T656 drive board



1-7. Electronic specification - T656

Item	Description	Note
Power source	110V / 220V	
Motor	AC serve motor (temperature proactive switch)(same for 110Vand 220V) 5.0 HP Speed detective: magnetic encoder	
Speed Range	0.1 - 15.0 MPH / 0.2 - 24.0 KPH (General) 0.1 - 12.0 MPH / 0.2 - 20.0 KPH (Japan)	
Incline Range	Power source : AC MOTOR (110V or 220V) Gradient -3% - 15% , minimum 0.5%。 Zero setting ; timer control	
display	LCD	
Program mode	HILL, INTERVAL, RANDOM, TRACK, FAT BURN, FIT TEST, ZONE TRAINER, WE LOSS CARDIO	
Workout data	CALORIES, SPEED, TIME, DISTANCE, CAL/HR, METS, PACE, INCLINE	
Heart rate	HTR / POLAR telemetry	
Other functions	Program time setting, energy saving mode, CSAFE, USB charging	
Self-lubrication system	Manual or self-lubrication Self-lubrication programs every 200km, and sprays oil 14 times into belt (about 2cc in total), A bottle of lubricant can satisfy 40000 km of self-lubrication program maintenance	
Language	ENGLISH 、 GERMAN 、 FRENCH 、 POLISH 、 SPANISH 、 JAPANESE	
Fan	FAN LOW, MIDDLE, HIGH	
Note		

2-1. Electronic Troubleshooting chart- T656

Malfunction item:	Circumstance	Inspect and test procedures	Suggesting replacement parts
Safety-key	Console is not responding while safety key in place.	<ol style="list-style-type: none"> 1. Check console bridge board and safety key wiring connection. 2. Replace Safety-key 3. Replace or test STOP-Key board 	<ol style="list-style-type: none"> 1. Safety-keyBoard 2. STOP-Key board
No power	Display is not lit up when power is turned on	<ol style="list-style-type: none"> 1. Check product fuse 2. Check drive board fuse and power source LED 3. Check drive board LED and program IC 	<ol style="list-style-type: none"> 1. Product fuse 2. Drive board 3. Control board
Fuse burnt as power on	Fuse burnt as power on	<ol style="list-style-type: none"> 1. Replace fuse and test 2. Check wiring connection 3. Replace drive board 	<ol style="list-style-type: none"> 1. Fuse 2. EAC drive board
Main fuse Burt	Motor fuse burnt after speed key pressed	<ol style="list-style-type: none"> 1. Check motor condition 2. Replace drive board 	<ol style="list-style-type: none"> 1. EAC drive board
Main fuse Burt	Main fuse burnt while running	<ol style="list-style-type: none"> 1. Adjust walk belt tension or manually lubricate 2. Check wear condition of walk belt & deck 	<ol style="list-style-type: none"> 1. EAC drive board 2. walk belt / deck
Inappropriate touch screen	Inappropriate touch screen function	<ol style="list-style-type: none"> 1. bad or non-connection of touch screen wiring 2. bad display drive board 3. bad display module 	<ol style="list-style-type: none"> 1. replace screen 2. replace display drive board
No/ bad telemetry reception	Wearing strap, and no/bad heart rate signal	<ol style="list-style-type: none"> 1. Replace polar transmitter 2. Check the Polar board wiring or replace it 3. Check interference sources, such as light or speaker 	<ol style="list-style-type: none"> 1. Polar transmission 2. Polar board
No/bad contact heart rate reception	No/bad HTR heart rate signal	<ol style="list-style-type: none"> 1. Check HTR wiring 2. Check HTR board indicator condition 3. Replace HTR board 	<ol style="list-style-type: none"> 1. Drive board
Incline doesn't work	Pressing incline & no response	<ol style="list-style-type: none"> 1. Check incline system wiring connections 2. Test with a different drive board 	<ol style="list-style-type: none"> 1. Drive board
inappropriate fan working (key board)	Pressing <FAN> & no response	<ol style="list-style-type: none"> 1. bad wiring connection 2. bad CTL board wiring connection 3. bad fan motor 	<ol style="list-style-type: none"> 1. check bridge board wiring 2. check fan set wiring 3. replace CTL control board or fan

ERROR_1_1_	Abnormal serve motor encoder	<ol style="list-style-type: none"> 1. Motor is not turning → Possible cause: bad EAC drive board 2. If motor is turning, then replace speed Sensor 	<ol style="list-style-type: none"> 1. drive board 2. servo encoder
ERROR_1_2_	Serve motor overheat ; speed limits below 10KPH	<ol style="list-style-type: none"> 1. Check temperature switch wiring 2. Adjust walk belt tension if motor is overheat 3. Check whether walk belt & deck needs replacement 4. if self-lubrication operate poorly, then check the system 	<ol style="list-style-type: none"> 1. walk belt
ERROR_1_3_	Motor over loading	<ol style="list-style-type: none"> 1. Rest and check 2. If issue persists, replace EAC drive board 	<ol style="list-style-type: none"> 3. EAC drive board
ERROR_2_1_	IGBT over current	<ol style="list-style-type: none"> 1. Rest and check 2. If issue persists, replace EAC drive board 	<ol style="list-style-type: none"> 1. EAC drive board
ERROR_2_2_	IGBT overheat	<ol style="list-style-type: none"> 1. Rest and check 2. If issue persists, replace EAC drive board 	<ol style="list-style-type: none"> 1. EAC drive board
ERROR_3_1_	Abnormal zero setting of incline motor	<ol style="list-style-type: none"> 1. Check wire connections 2. Replace drive board 3. Replace incline motor 	<ol style="list-style-type: none"> 1. EAC drive board 2. Incline motor
ERROR_4_2_	Low voltage	<ol style="list-style-type: none"> 1. Check if it is low voltage 2. Rearrange power wiring if power is overloading. 	
ERROR_4_3_	High voltage	<ol style="list-style-type: none"> 1. Check to see if it is high voltage 2. When treadmill is over tension, stop using and waiting for normal voltage to use. 	
ERROR_8_1_	communication error as First time power on	<ol style="list-style-type: none"> 1. Bad wire connections 2. Bad EAC drive board 	<ol style="list-style-type: none"> 1. EAC drive board
ERROR_8_2_	Power-on communication error	<ol style="list-style-type: none"> 1. Reset and check 2. Check for proper grounding 3. If issue persists, replace EAC drive board 	<ol style="list-style-type: none"> 1. EAC drive board
ERROR_8_3_	Interference issue of drive board	<ol style="list-style-type: none"> 1. check wiring connection between control board to drive board 	<ol style="list-style-type: none"> 1. drive board

		2. replace drive board	
Bad wired network	Non-connected wired network	1. Check wired network connection 2. reset wired network connection 3. replace display module	1. display module
Bad WIFI	Bad WIFI connection	1. check WIFI antenna connection 2. reset WIFI connection 3. replace display module	1. display module
Bad TV	Bad digital TV signal or cannot watch TV	1. check TV external signal source 2. re-browse TV channel and resetting 3. replace TV board	1. TV board 2. display module
Bad display	Bad display	1. bad display drive board 2. bad display LCD	1. replace display drive board 2. replace display screen
Program cannot be update	USB cannot update	1. check USB board wiring 2. check USB spec, USB is incompatible with latest version 3. check control board upper wiring connection	1. USB board

Troubleshooting:

Model: T656

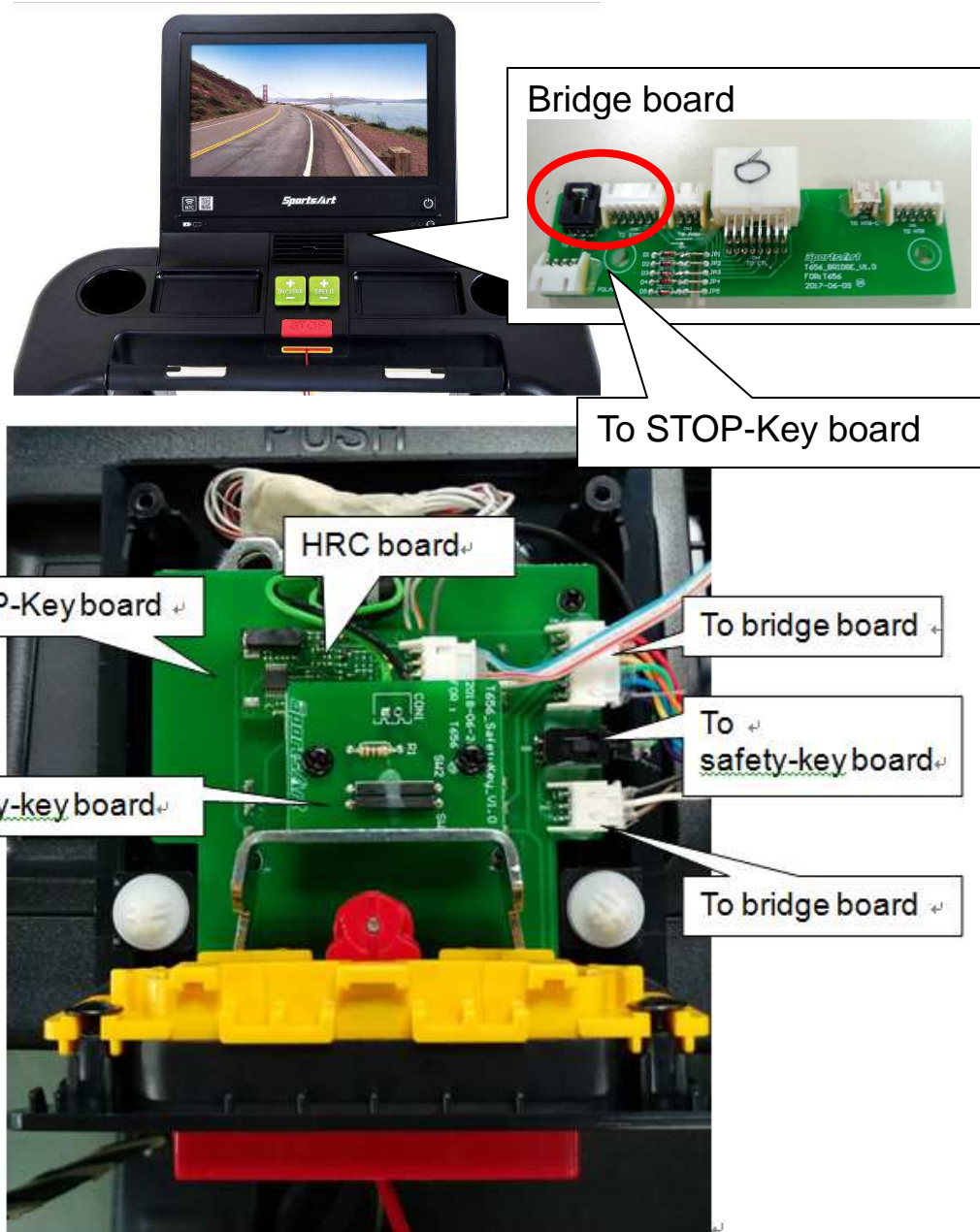
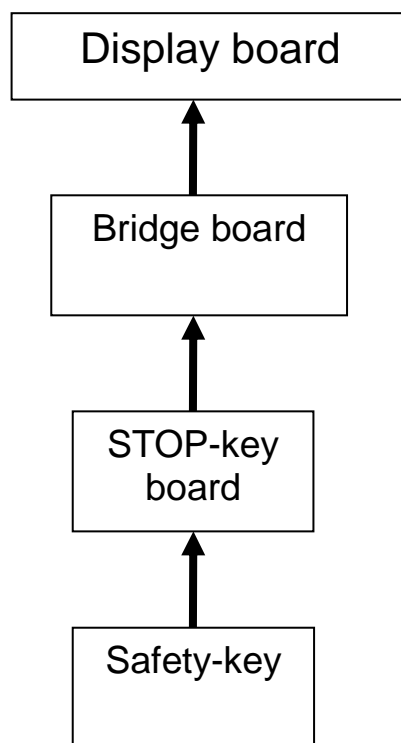
Malfunction item: SAFETYKEY

Circumstance : Console is not responding while safety key in place

Possible cause : Bad safety-key

Troubleshooting:

1. Check safety-key magnet
2. Check bridge board connections
3. Test or replace safety-key board
4. Test or replace stop-key board



Troubleshooting:

Model: T656

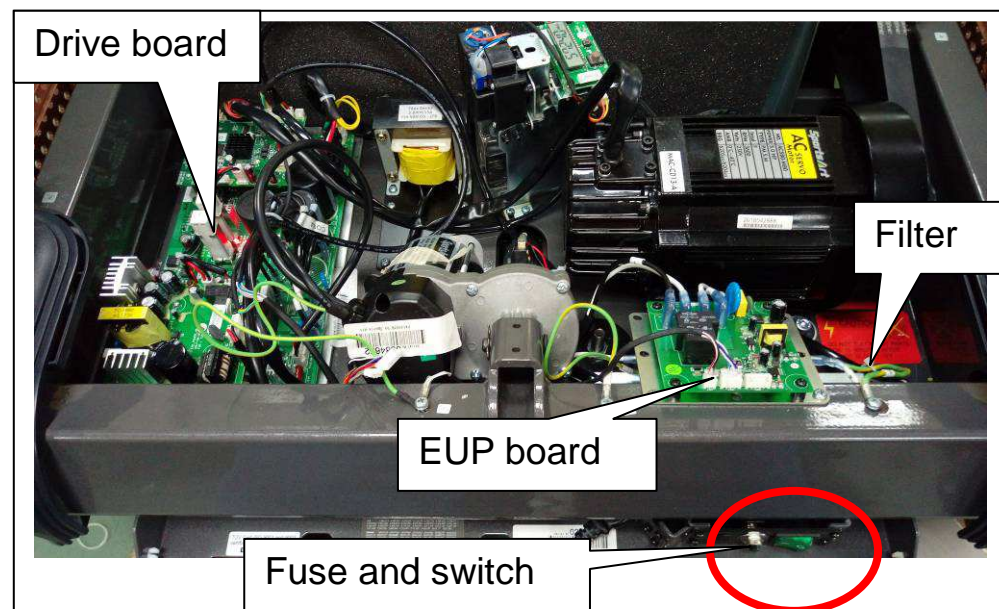
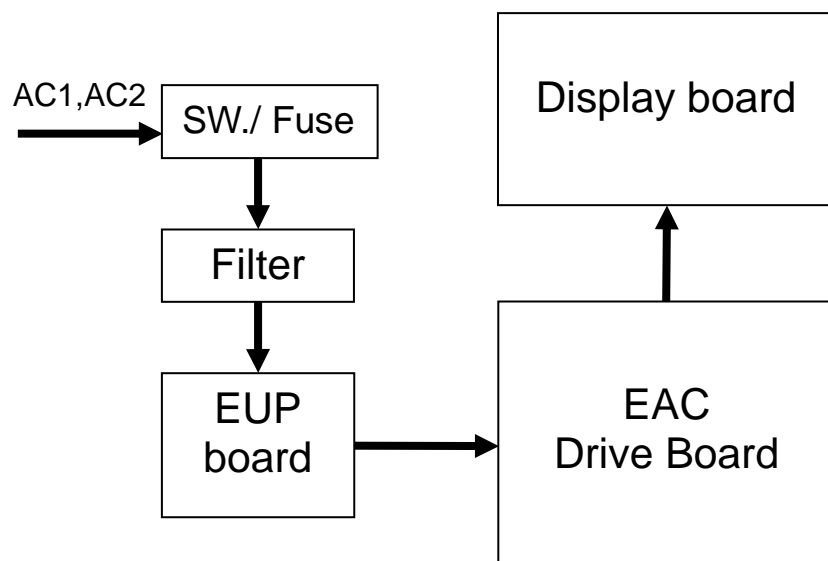
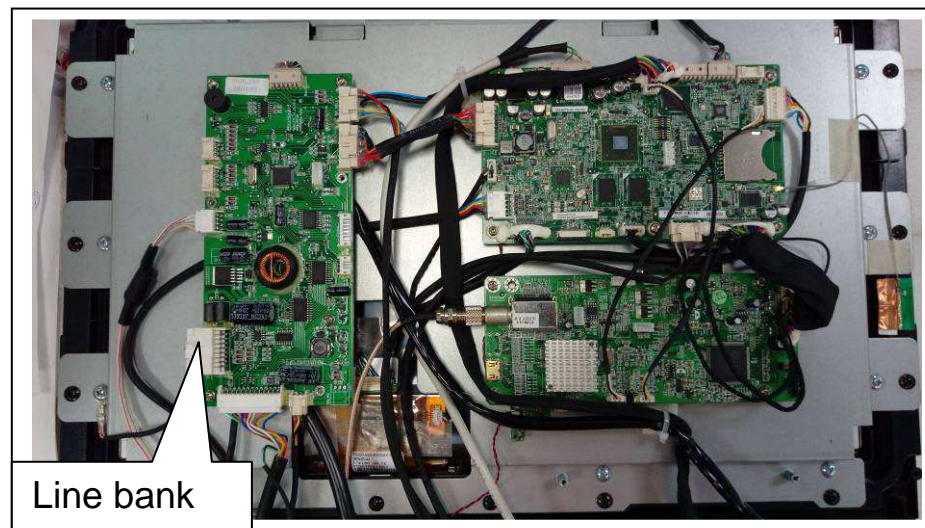
Malfunction item: Problem power on

Circumstance : Display not lit up when power on

Possible cause : Abnormal power input or bad component

Troubleshooting:

1. Check product fuse & switch
2. Check all wire connections
3. Check drive board power indicator or replace it
4. Check control board power indicator and program IC
5. Replace EUP board



Troubleshooting:

Model: T656

Malfunction item: Burnt fuse

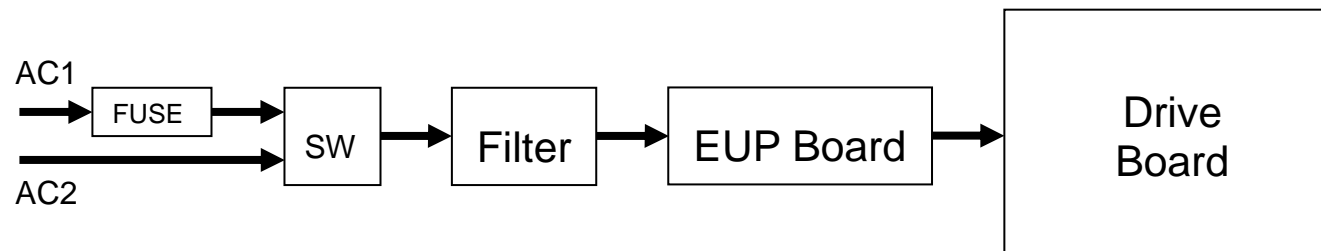
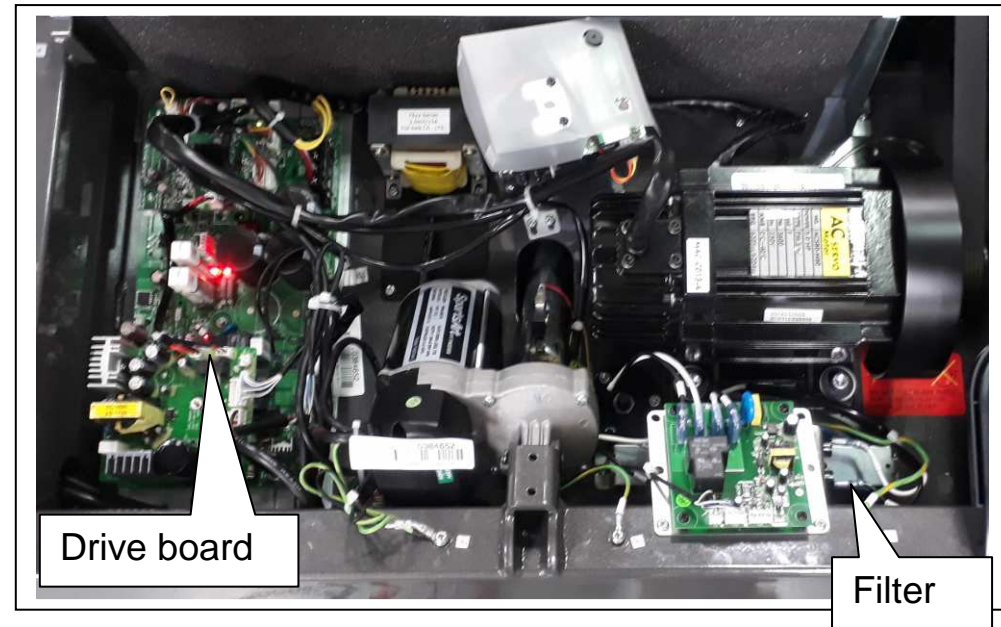
Circumstance : Fuse burnt as power on

Possible cause :

1. Short circuit on product components
2. Bad drive board component

Troubleshooting:

1. Check for broken wire or a short circuit on wiring
2. Measure voltage from the power cord
AC1- housing screw
AC2- AC1- housing screw
Check for short circuit
3. Replace drive board
4. Replace filter



Troubleshooting:

Model: T656

Malfunction item: Burnt fuse

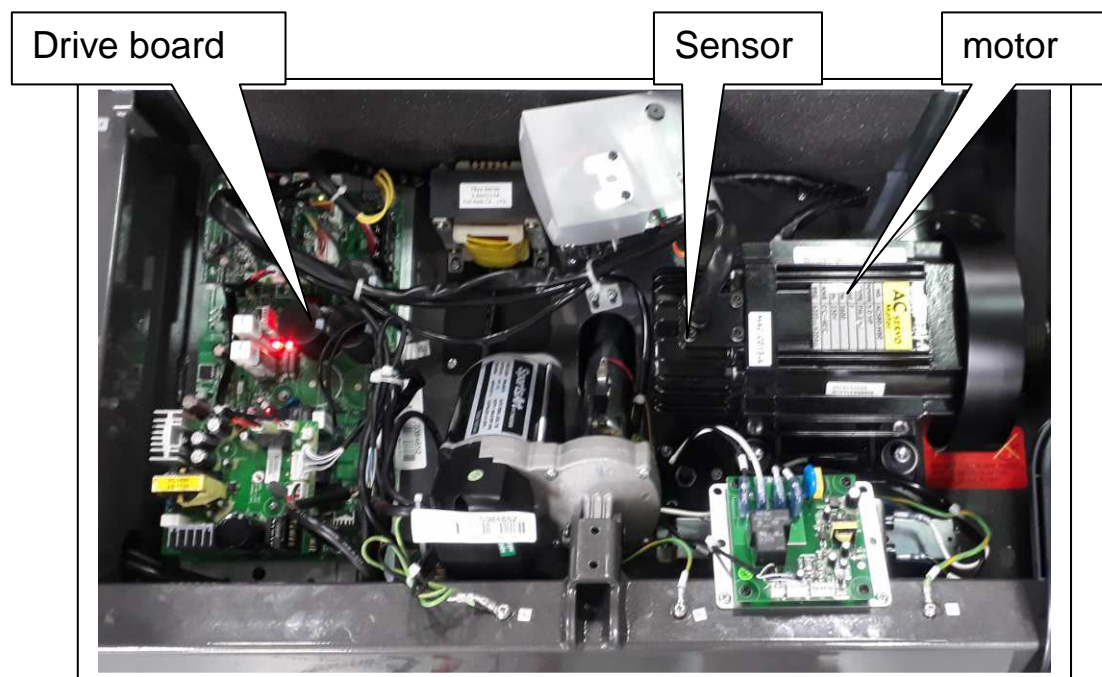
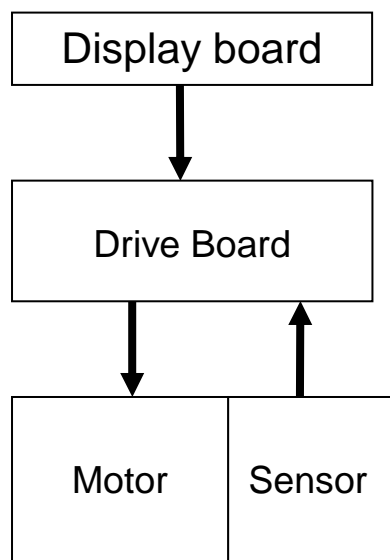
Circumstance : Fuse burnt while pressing speed key to accelerate

Possible cause :

1. Short circuit inside motor
2. Bad drive board

Troubleshooting:

1. Replace drive board and test
2. Replace motor and test
3. Replace sensor and test



Troubleshooting:

Model: T656

Malfunction item: Burnt fuse

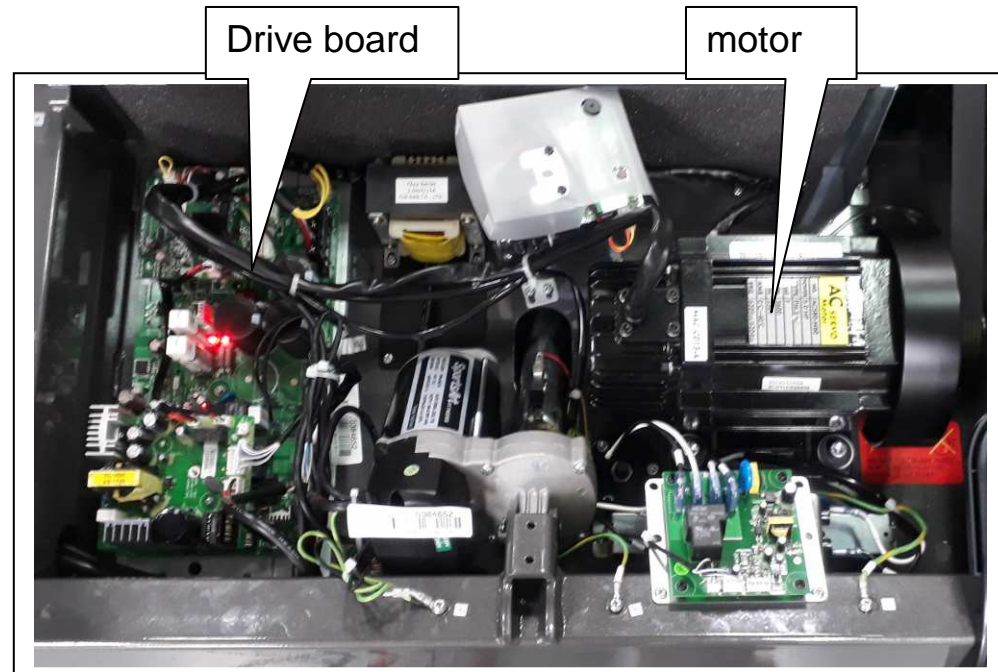
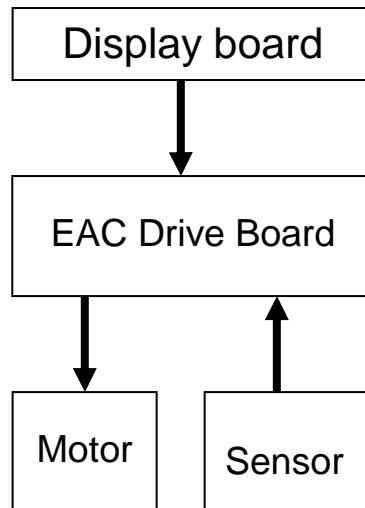
Circumstance : Fuse burnt after running on treadmill for a while

Possible cause :

1. Poor contact of fuse housing
2. Worn walk deck or belt
3. Bad drive board

Troubleshooting:

1. Check for proper fuse and fuse housing installation
2. Check mechanical parts
 - A. Wear and tear condition on the walk belt & proper lubrication maintenance
 - B. Check for walk belt tension
3. Replace drive board to test



Troubleshooting:

model T656

Malfunction item: touch screen

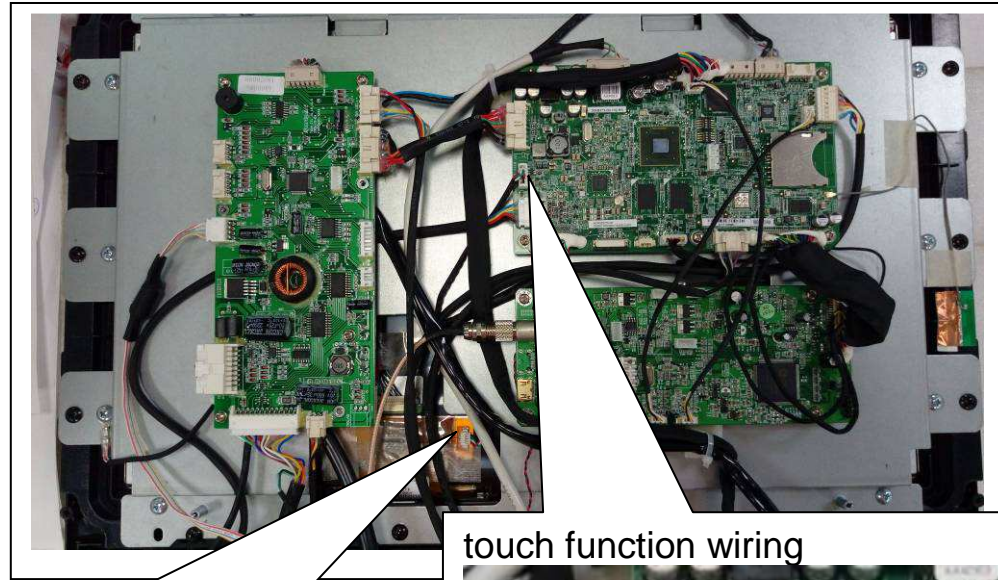
Circumstance : malfunction of touch screen

Possible cause :

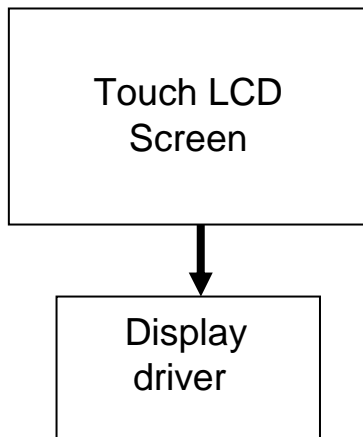
- 1.Bad or non-connection of touch screen wiring
- 2.bad display drive board
- 3.Bad display module

Troubleshooting:

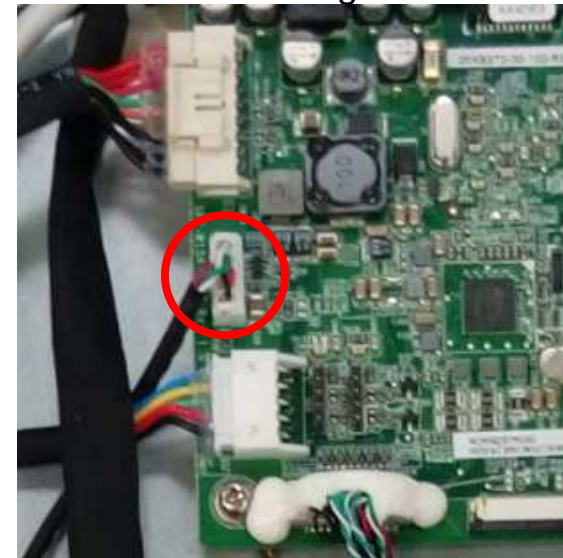
- 1.check touch screen wiring
- 2.replace screen
- 3.replace display drive board



touch function wiring



touch function wiring



Troubleshooting:

Model: T656

Malfunction item: Bad telemetry heart rate reception

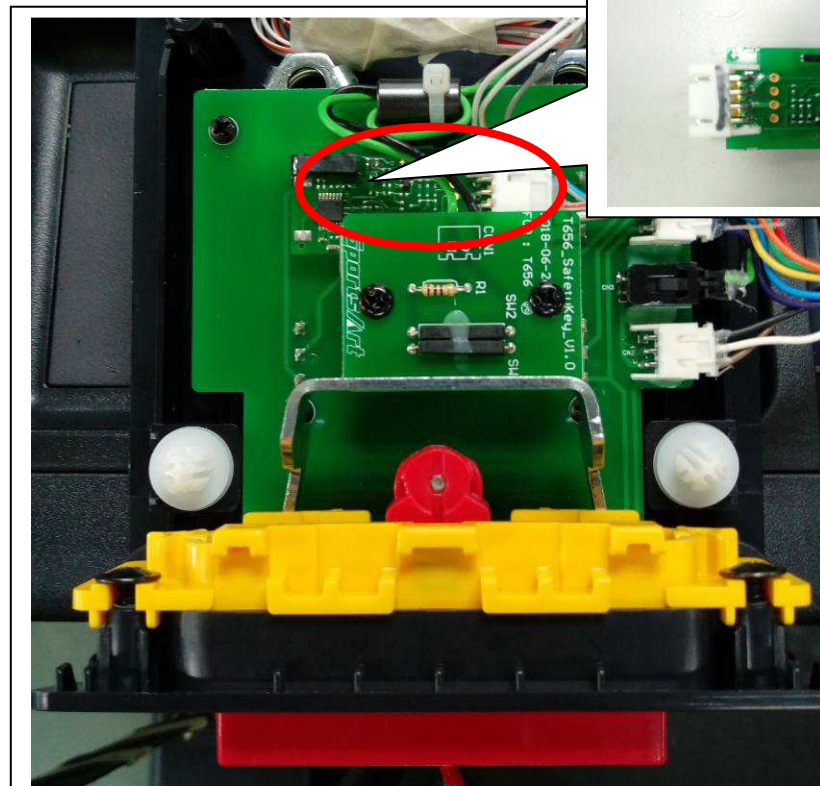
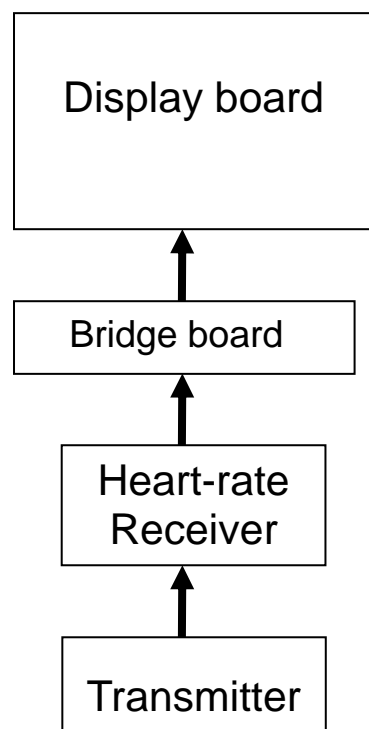
Circumstance : Bad or no telemetry heart rate reception

Possible cause :

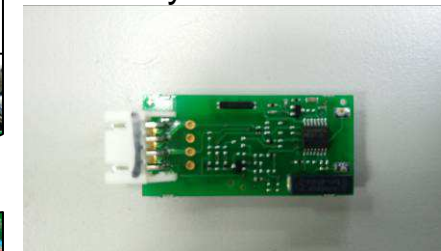
1. Low battery of Telemetry transmitter
2. Bad HR receiver board
3. Interference issue, such as lights, speakers

Troubleshooting:

1. Replace the transmitter or battery
2. Check HR receiver board wiring
3. Replace the receiver board



Telemetry receiver board



Polar T34 transmitter



Troubleshooting:

Model: T656

Malfunction item: Bad HTR signal

Circumstance :

Holding HTR but incorrect reading

Possible cause :

1. Bad HTR wire connection
2. Bad HTR board
3. Bad display wire connection on the

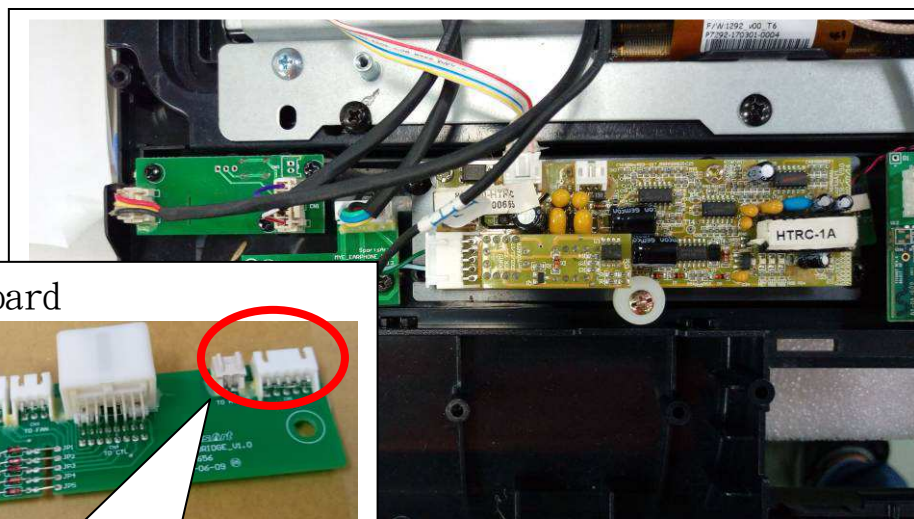
Troubleshooting:

1. Check display wire connection
2. Check bridge board HTR wire connections
3. Check HTR plates wire connections
4. Check HTR LED indicator board
5. Replace HTR board

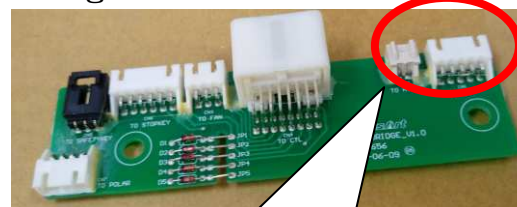
HTR indicator
on HTR board



indicator	Name	description
LED1	Telemetry	Flashes indicate incoming telemetry signal
LED2	HTR contact	Lights indicate hands on contact plates
LED3	HTR indicator	Flashes indicate incoming HTR signal
LED4	Heart rate signal output	Each flash indicates each heart rate output

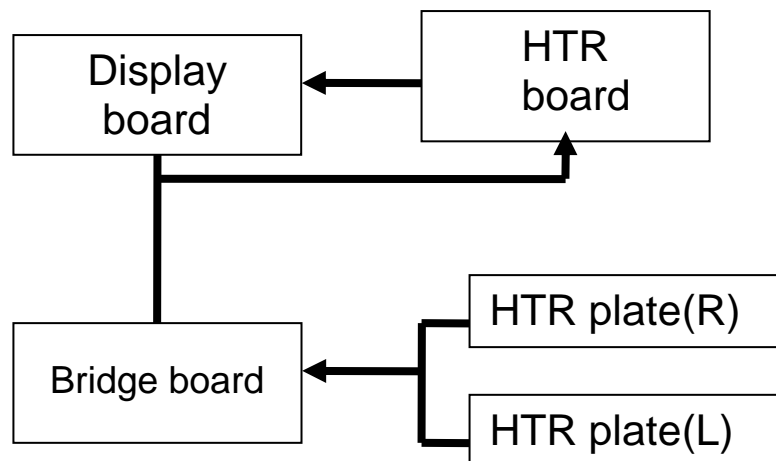


Bridge board



To
HTR board and
HTR plate(R)-(L)

HTR plates



Troubleshooting:

Model T656

Malfunction item : Incline doesn't work correctly

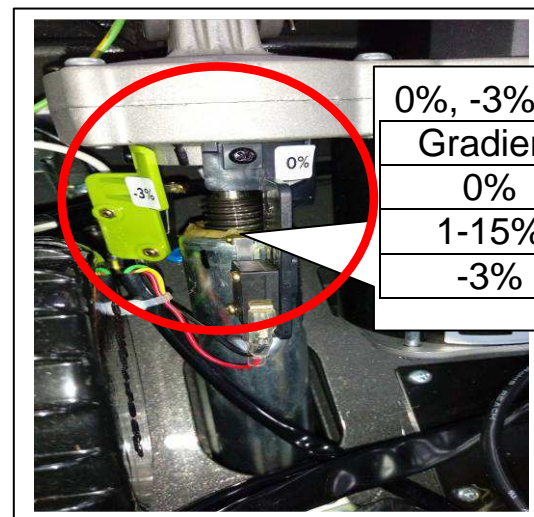
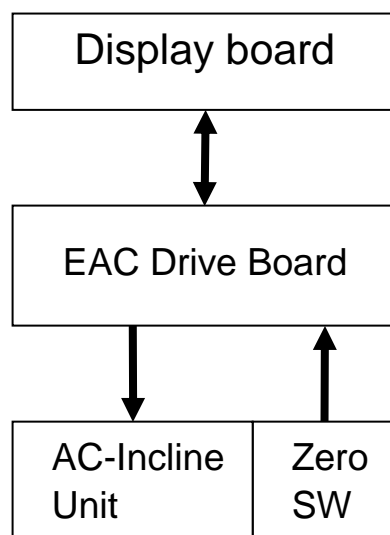
Circumstance : Incline can't go up or down while pressing the incline key

Possible cause :

1. Bad Zero switch
2. Bad wire connections
3. Bad incline motor

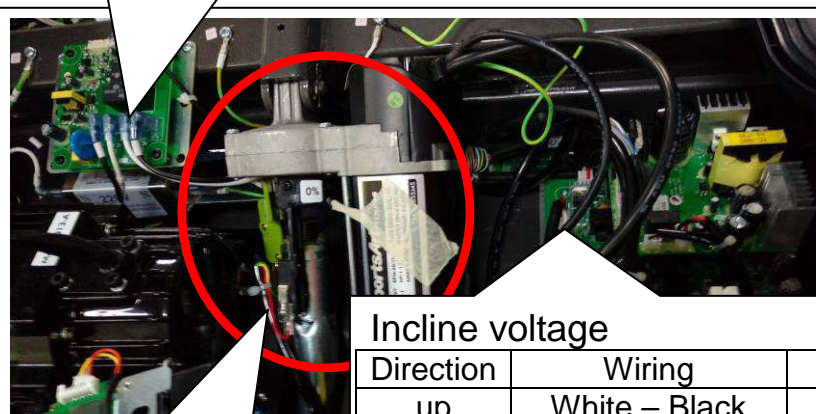
Troubleshooting:

1. Check drive board wire connections
2. Check to see if Zero switch is returning to 0 positions
3. Check drive board incline indicator and output voltage
4. Replace drive board or incline motor to test



0%, -3% switch

Gradient	0% switch	-3% switch
0%	on	off
1-15%	off	off
-3%	on	on



Incline motor set

Incline voltage

Direction	Wiring	Voltage
up	White – Black	110v or 220v
down	White – Red	110v or 220v



Troubleshooting:

Model: T656

Malfunction item: inappropriate fan working

Circumstance :

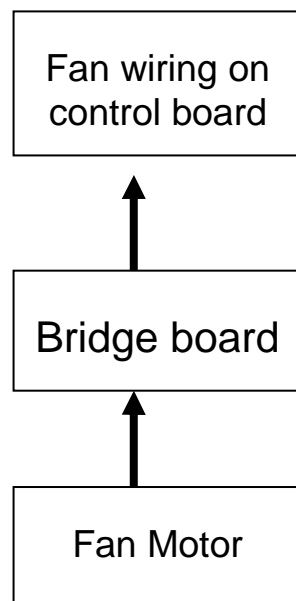
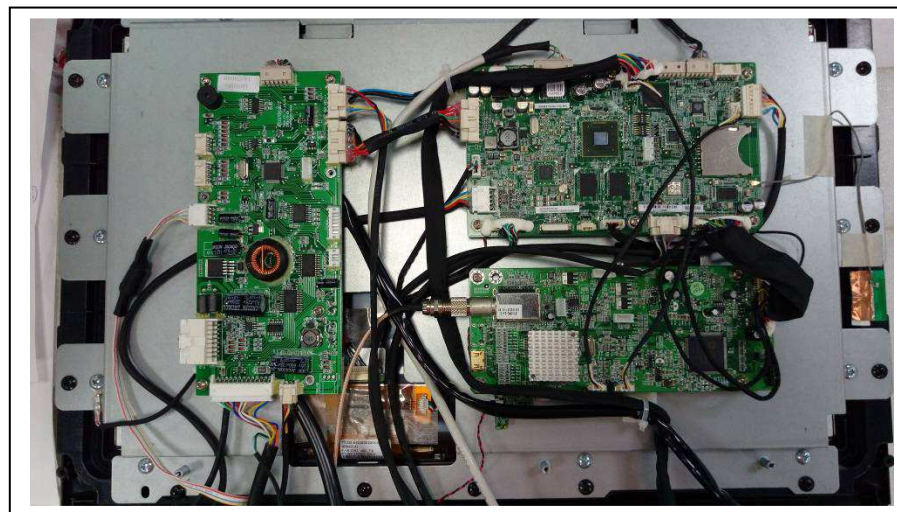
No response while pressing <FAN> key

Possible cause :

1. Bad wire connections
2. Bad fan wiring on control board
3. Bad fan motor

Troubleshooting:

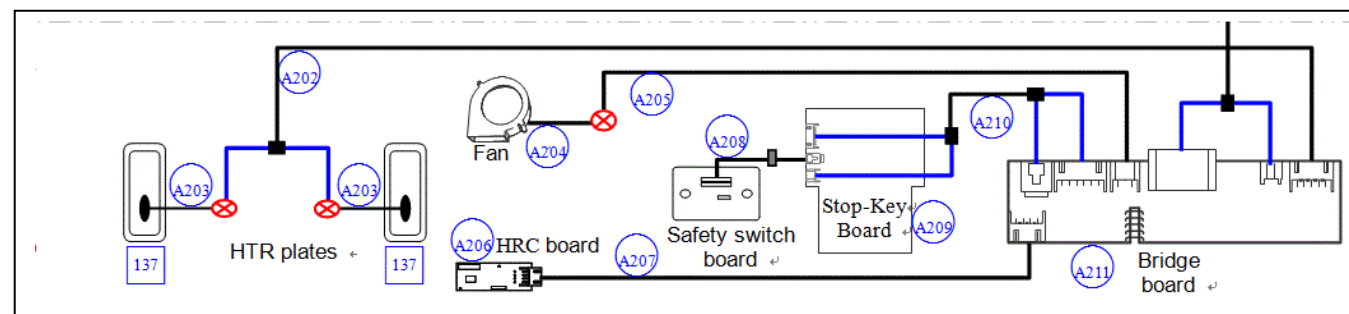
1. Check bridge board wiring
2. Check fan wiring
3. Replace control board or fan



Fan voltage on control board

Fan	Voltage(V)
Fan low	3 v
Fan mid	6v
Fan high	9v

Bridge board



Troubleshooting:

Model T656

Malfunction item : ERROR_1_1_

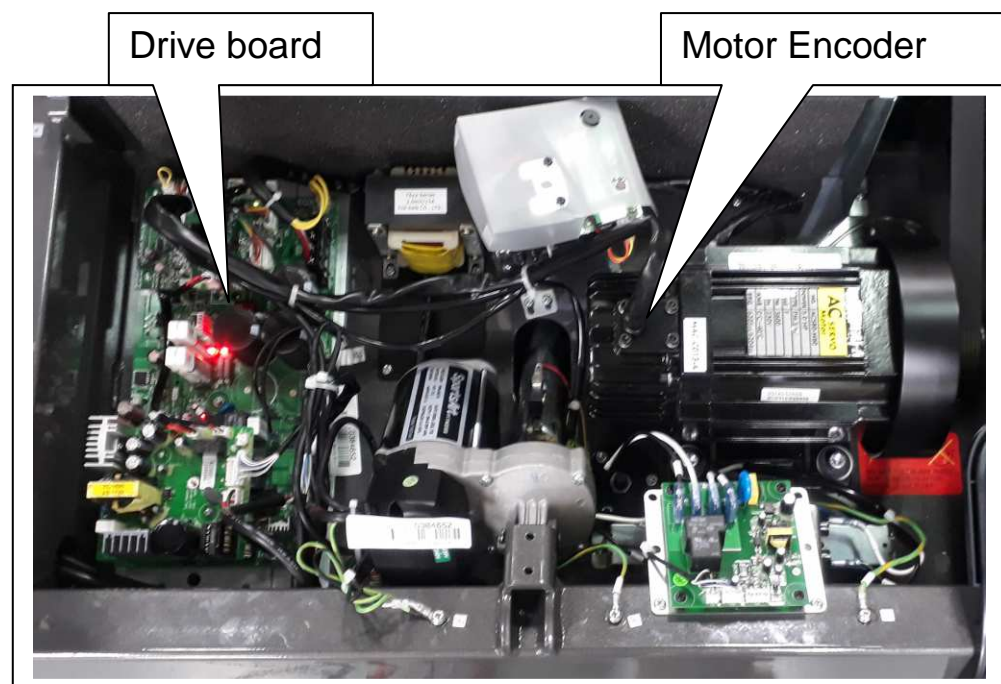
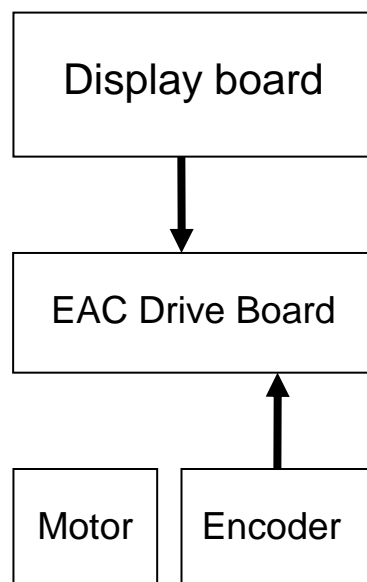
Circumstance : ERROR_1_1_ message displayed on console after pressed <Speed> key

Possible cause :

1. Bad drive board
2. Bad motor encoder

Troubleshooting:

1. check encoder wiring
2. replace driver board to test
3. replace motor Encoder to test



Troubleshooting:

Model T656

Malfunction item: ERR0R_1_2_

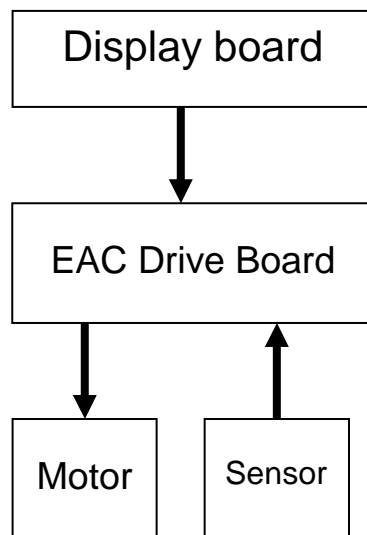
Circumstance : ERR0R_1_2 message displayed on console and treadmill speed reduced in half

Possible cause :

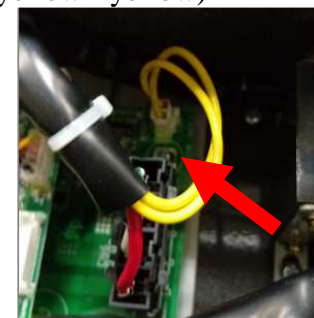
1. severe worn walk belt and deck
2. Bad temperature switch or bad wire connections

Troubleshooting:

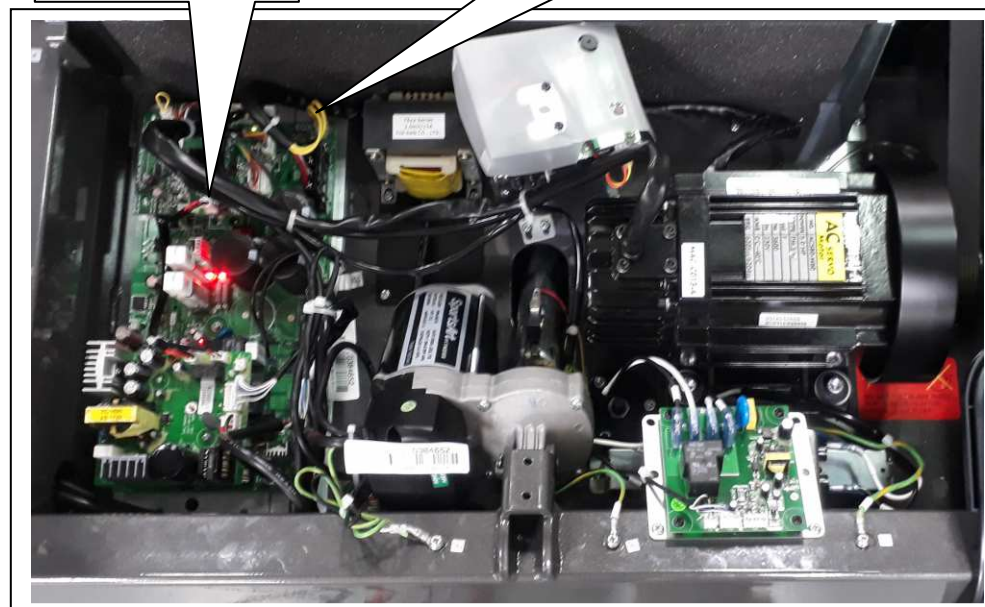
1. Check to see if motor is overheating when message appears.
If so, it means walk belt and deck are severely worn.
Then add lubricant or replace the walk belt.
2. If motor is not overheat when message appears,
Then check temperature switch wire connection
3. If the motor is normal & wiring is fine,
then it could be bad temperature switch



Temperature switch wiring
(yellow - yellow)



Drive board



Troubleshooting:

Model T656

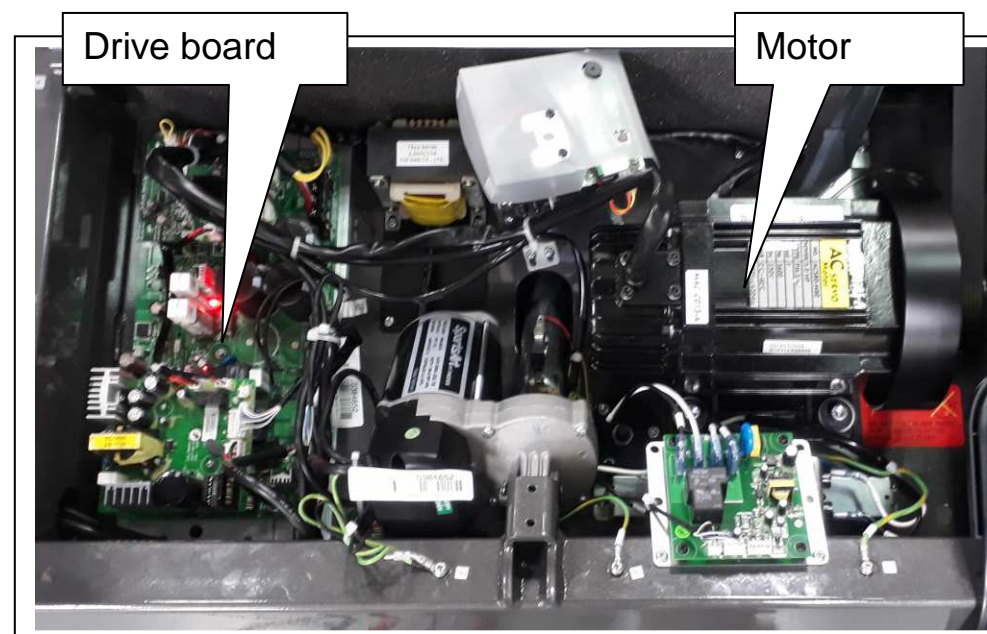
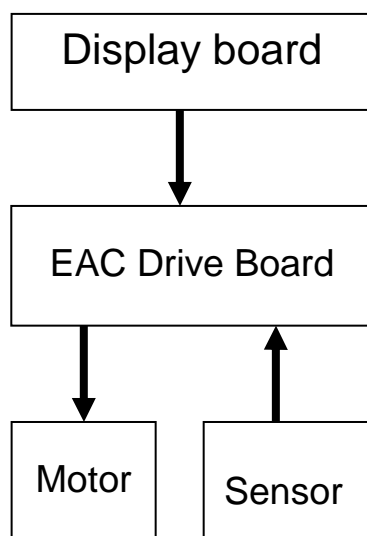
Malfunction item ERROR_1_3_

Circumstance : ERROR_1_3 message on display

Possible cause : Drive board

Troubleshooting:

1. Replace drive board to test
2. Replace motor to test

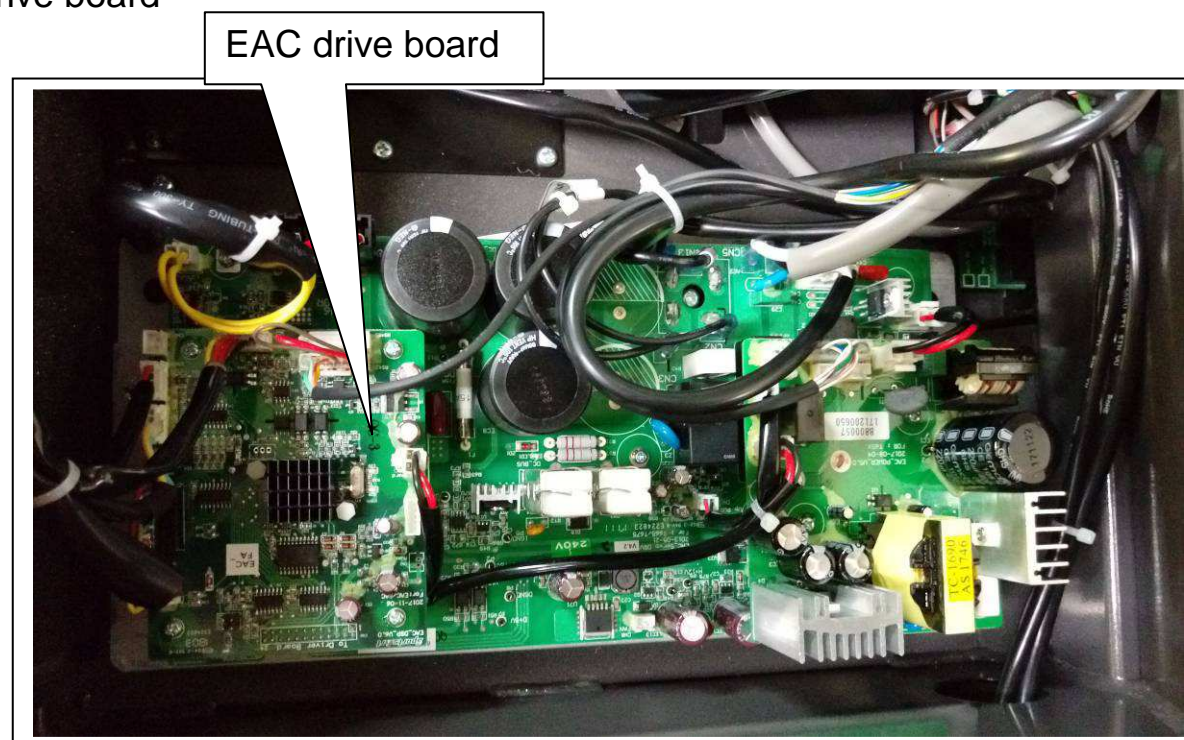
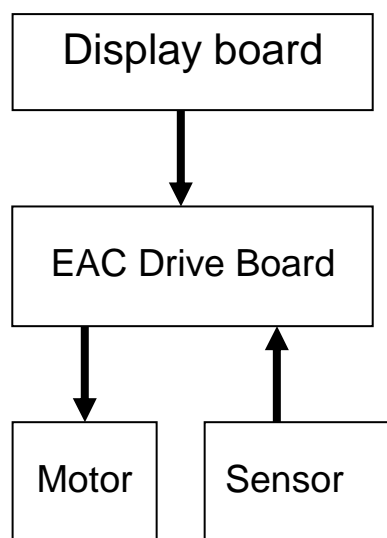


Troubleshooting:

Model T656
 Malfunction item ERROR_2_1_, ERROR_2_2_
 Circumstance : ERROR_2_1 message on display
 Possible cause : Drive board IGBT overheating or IGBT over current

Troubleshooting:

1. Restart treadmill and test it
2. Turn off power for 10min then restart to test
3. If message persists, replace SAC drive board



Troubleshooting:

Model T656

Malfunction item ERROR_3_1_

Circumstance :

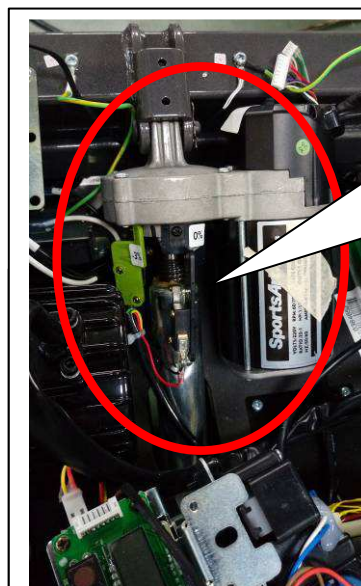
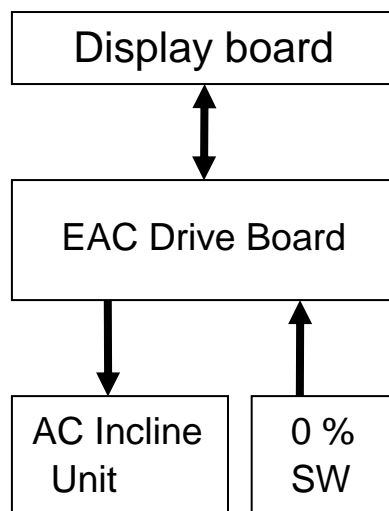
Incline will not return to 0 position
after power on

Possible cause :

1. bad drive board
2. Bad incline 0% switch
3. Bad incline motor

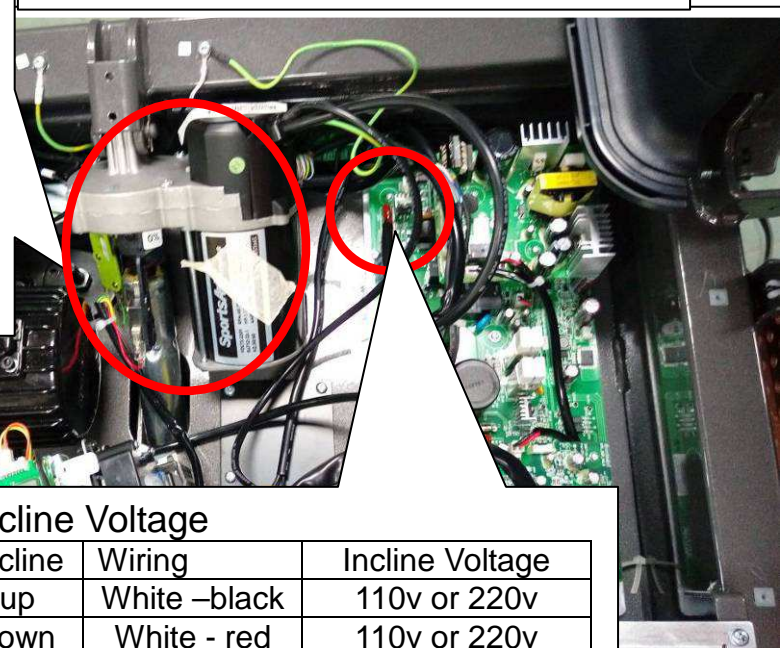
Troubleshooting:

1. Check to see if there is incline
or decline setting.
1. If not, then it is a bad drive board
2. Check incline 0% switch
3. Replace incline motor



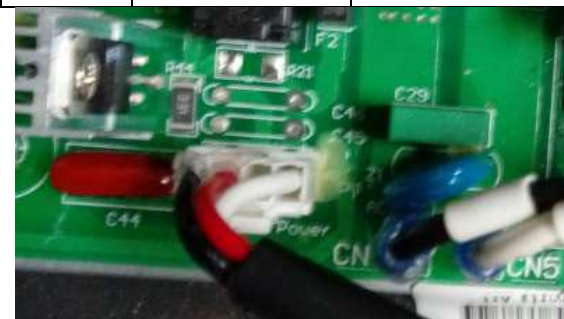
0%, -3% switch

Gradient	0% switch	-3% switch
0%	on	off
1-15%	off	off
-3%	on	on



Incline Voltage

Incline	Wiring	Incline Voltage
up	White -black	110v or 220v
down	White - red	110v or 220v



Troubleshooting:

Model T656

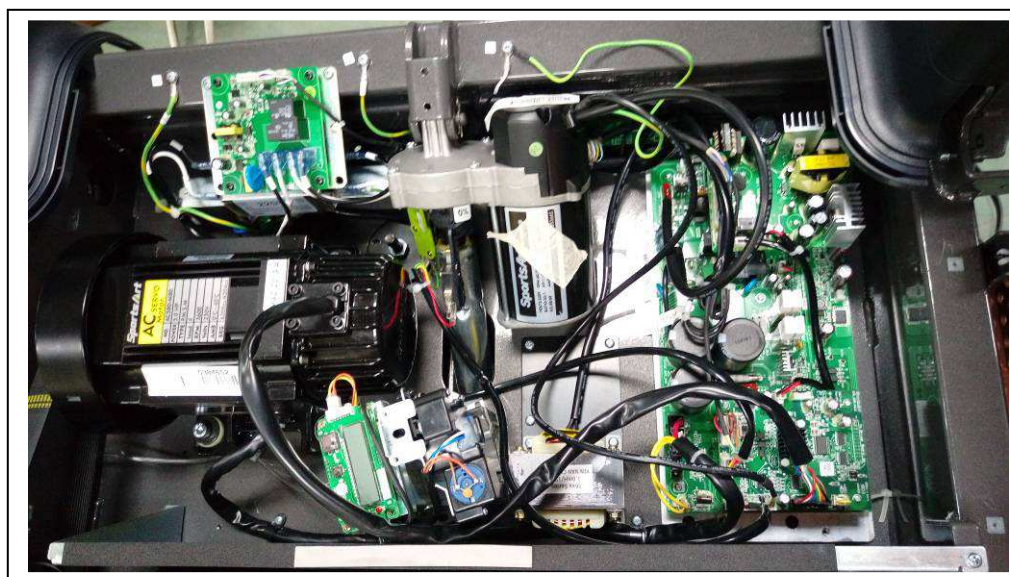
Malfunction item ERROR_4_2_, ERROR_4_3_

Circumstance : ERROR_4_2 , or ERROR_4_3 message on display

Possible cause : Power source voltage is too low or too high

Troubleshooting:

1. ERROR_4_2 power source voltage too high
ERROR_4_3 power source voltage too low
2. Measure power source voltage to see if it is too low or too high
The range should be 100-130V for 110V system
And 200-250V for 220V system
3. If the power source voltage is normal, then it could be a bad drive board.
4. if the power source voltage is too low, check to see if the power cord is not matching the specification requirement.



Troubleshooting:

Model: T656

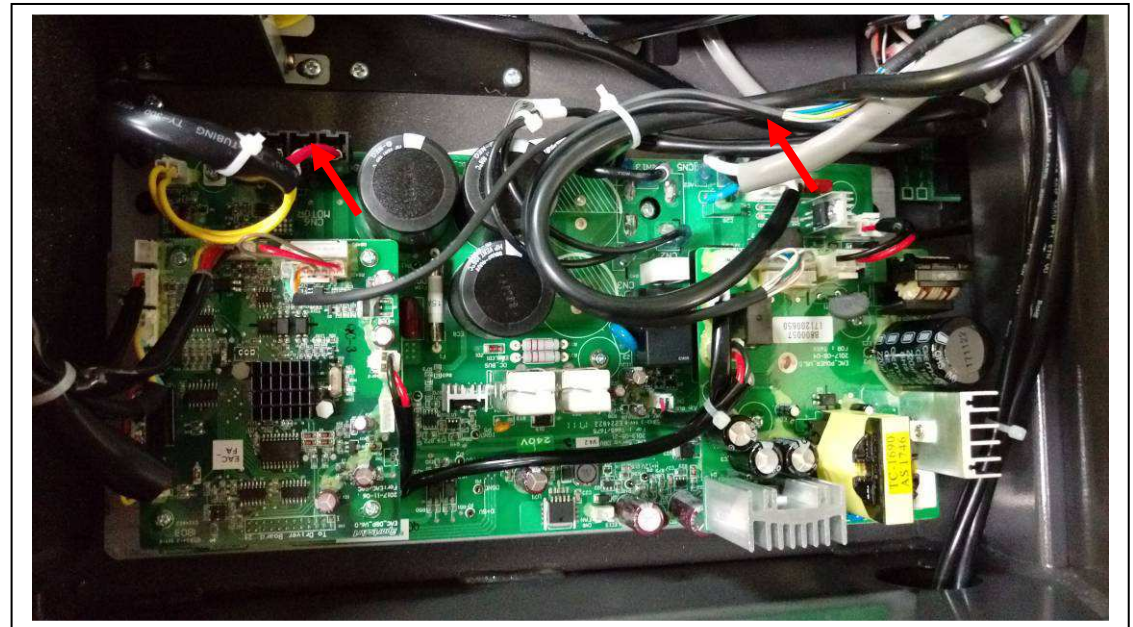
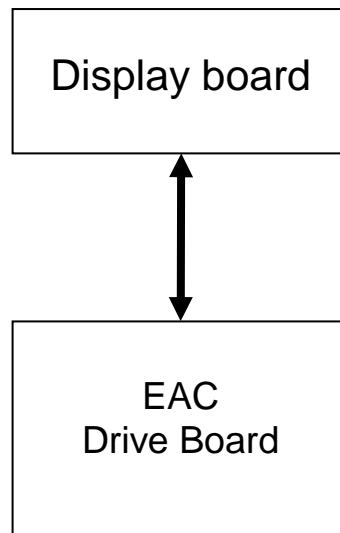
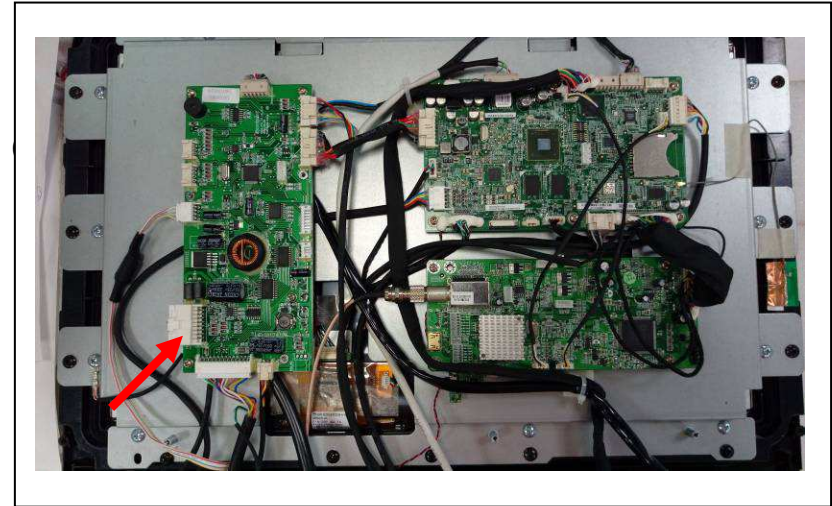
Malfunction item: ERROR_8_1_

Circumstance : display shows ERROR_8-1_ after power on

Possible cause : Communication issue between drive board and

Troubleshooting:

1. There is a communication occurring between drive board & control board upon power on. If there is an issue, the message of ERROR_8_1_ will appear on display
2. The reason why message pops up might be bad communication, then reset power to solve the problem.
3. If message persists after power resets, please check all wiring or replace drive board



Troubleshooting:

Model: T656

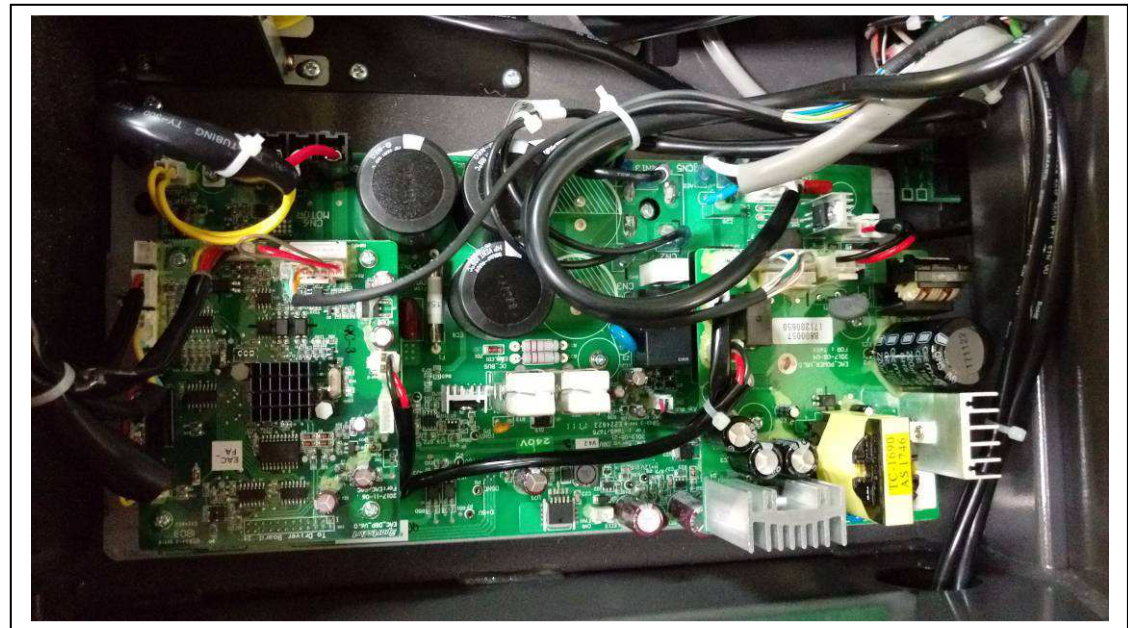
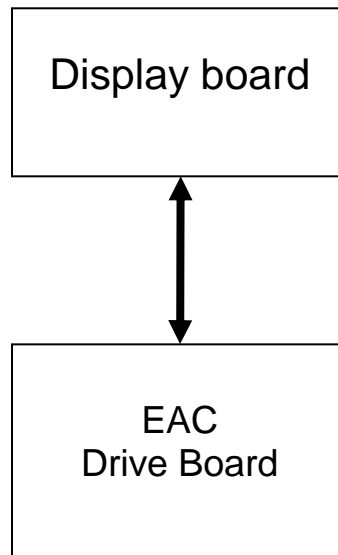
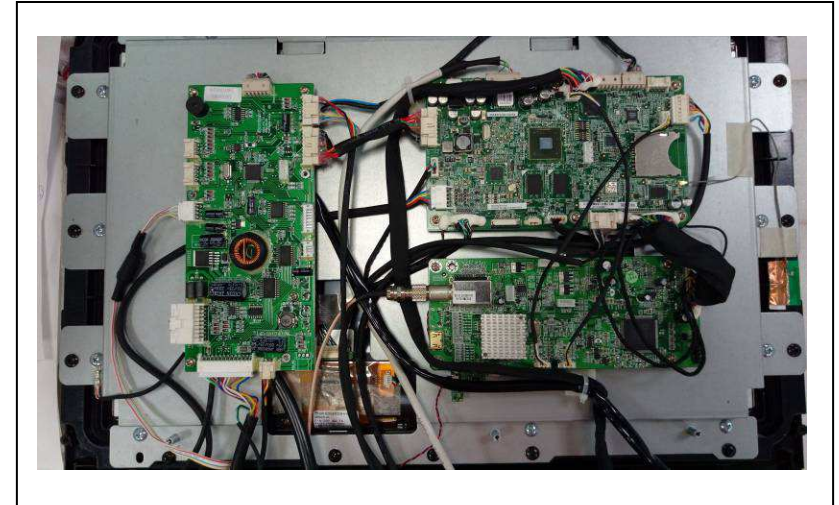
Malfunction item: ERROR_8_2_

Circumstance : Display shows ERROR_8_2_ while using

Possible cause : Improper interferences influence signal communications between Displays and Drive board

Troubleshooting:

1. If the message appears occasionally, please reset and operate the Machine again as this is its self-protection mechanism.
2. If the message appears frequently,
 - A. Inspect cable connection
(from Control board to the Drive board)
 - B. Replace Drive board



Troubleshooting:

Model: T656

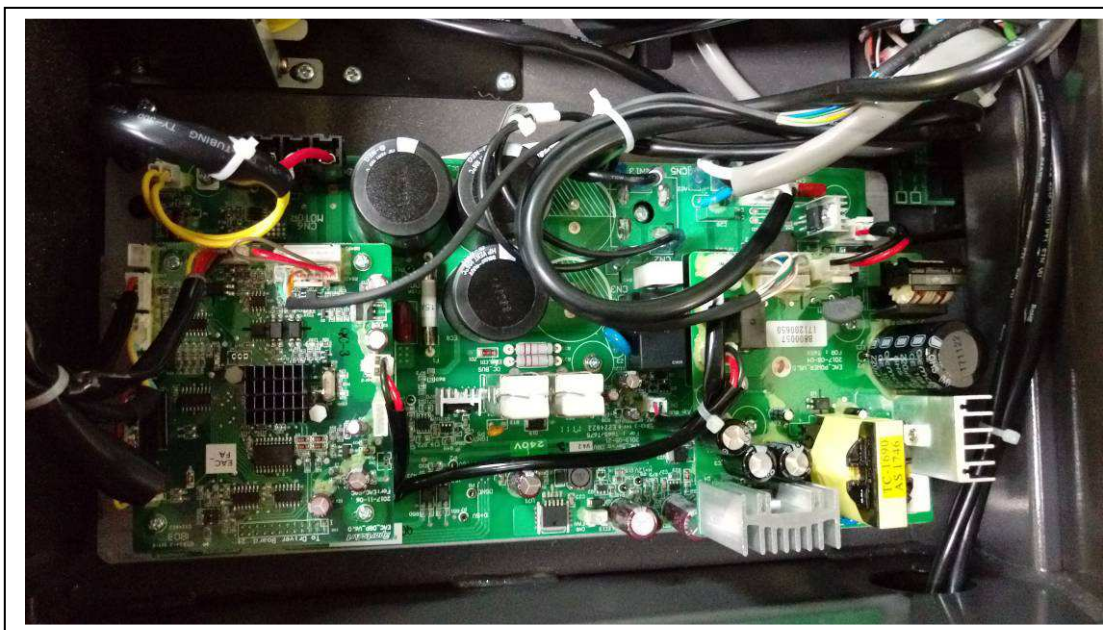
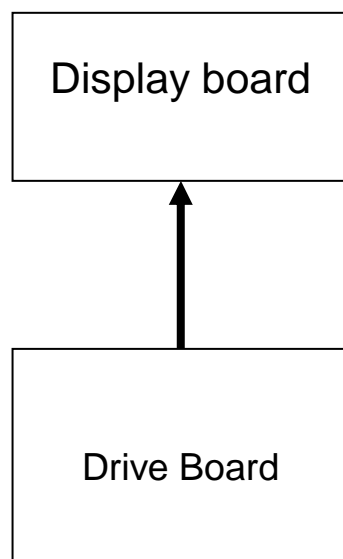
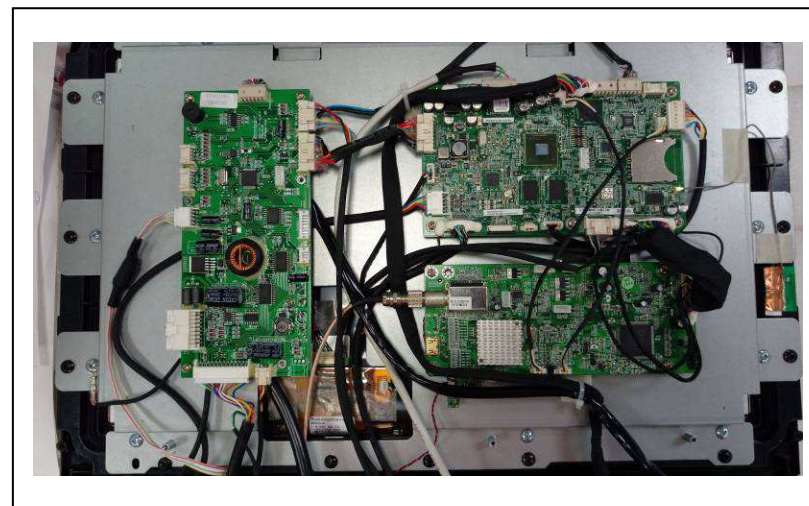
Malfunction item: ERROR_8_3_

Circumstance : Display shows ERROR_8_3_ while using

Possible cause : Improper interferences influence signal communications between Displays and EAC Drive board.

Troubleshooting:

1. If the message appears occasionally, please reset and operate the Machine again as this is its self-protection mechanism.
- 2.If the message appears frequently,
 - A. Inspect cable connection
(from Control board to the Drive board)
 - B.Replace Display or Drive board to test again.



Troubleshooting:

Model T656

Malfunction item: wired network

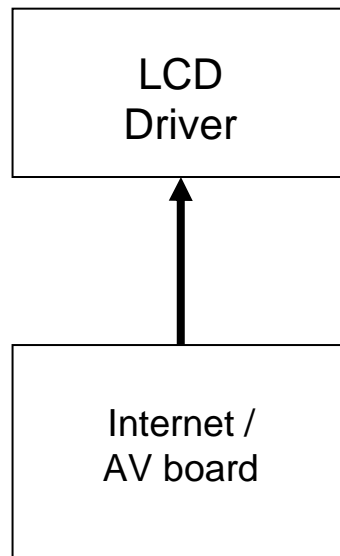
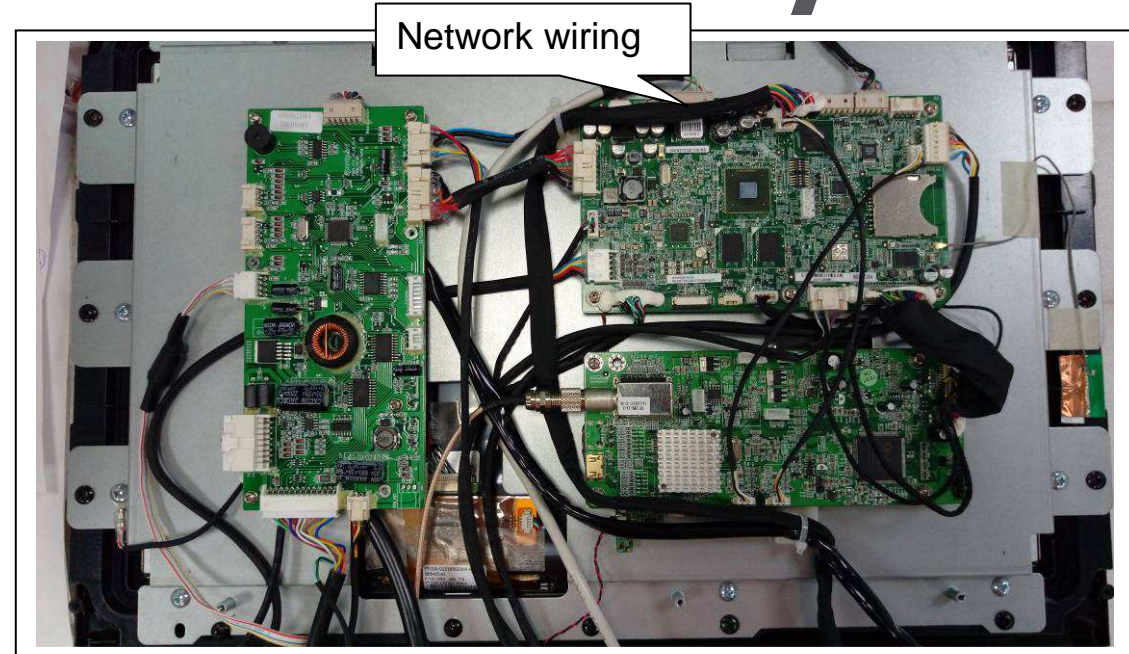
Circumstance : wired network can't be connected

Possible cause :

1. wired network setting issue
2. bad wired network connection
3. bad LCD display board

Troubleshooting:

1. check display wired network setting
2. check wired network signal
3. replace and test display drive board



Troubleshooting:

Model T656

Malfunction item: WIFI

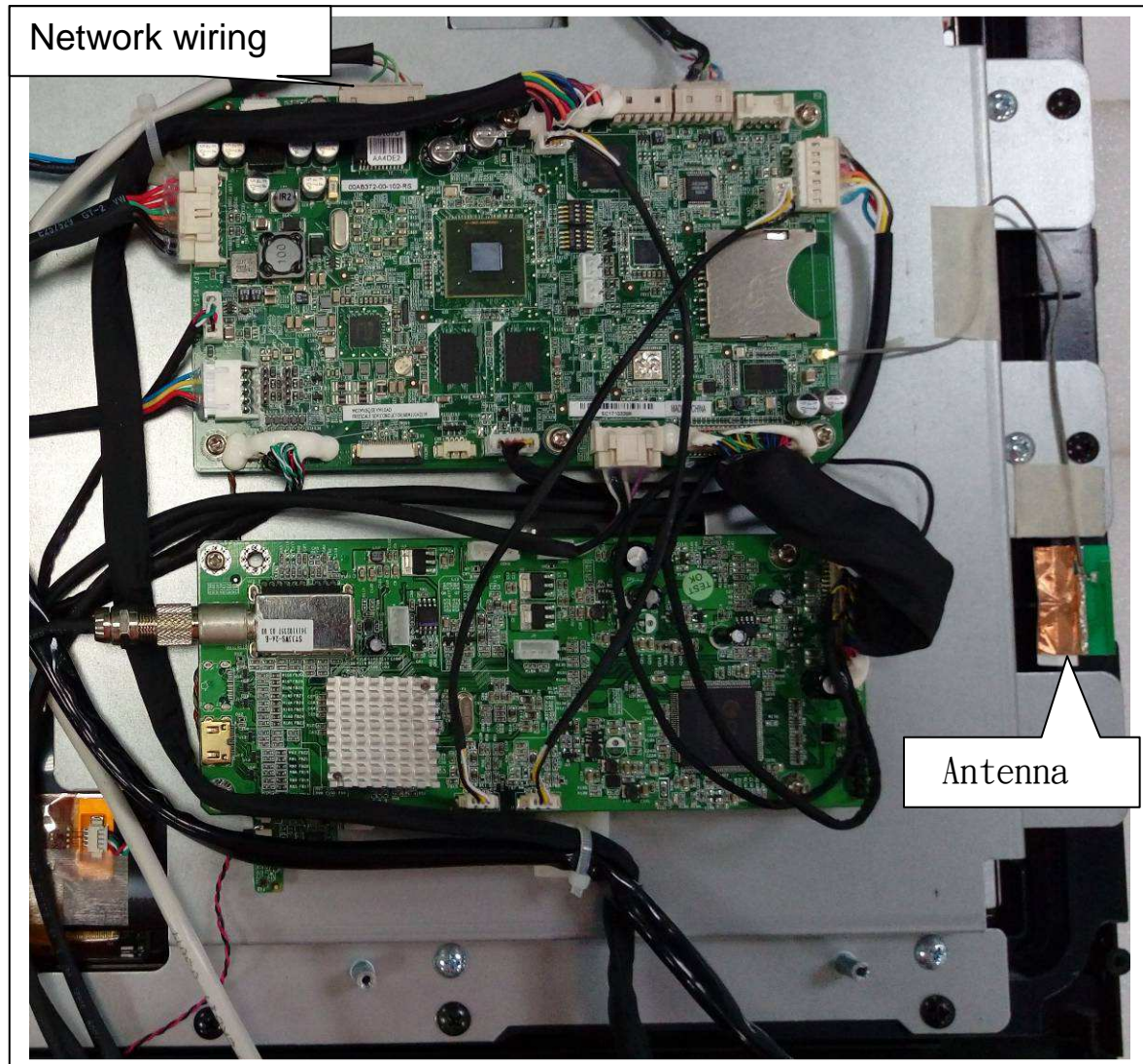
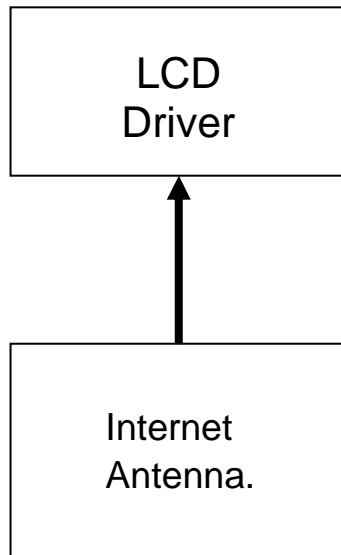
Circumstance : WIFI can't be connected

Possible cause :

1. WIFI setting issue
2. bad WIFI antenna wiring

Troubleshooting:

1. Check WIFI signal source
2. Check WIFI settings on display
3. Check WIFI Antenna Wire connection.
4. Replace display drive board and test again



Troubleshooting:

Model T656

Malfunction item: TV

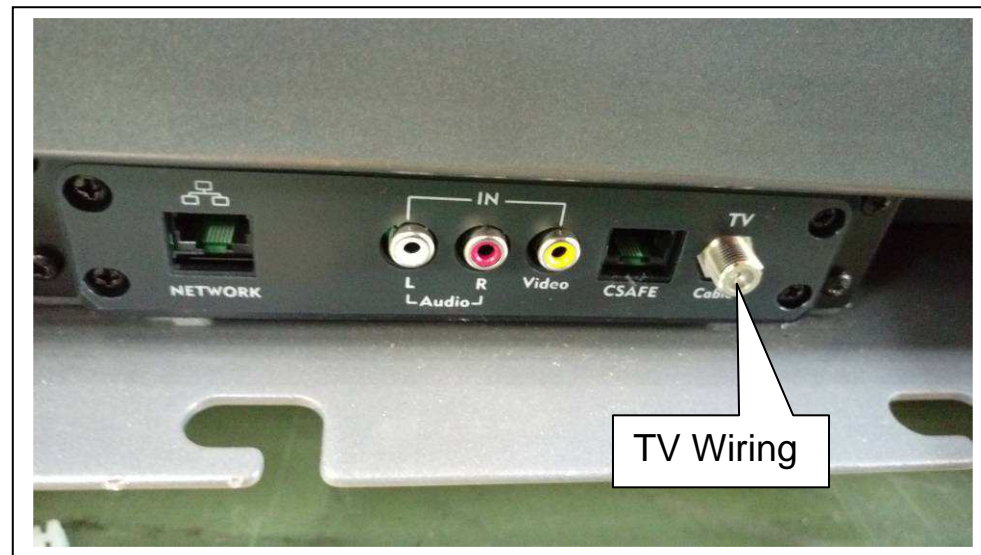
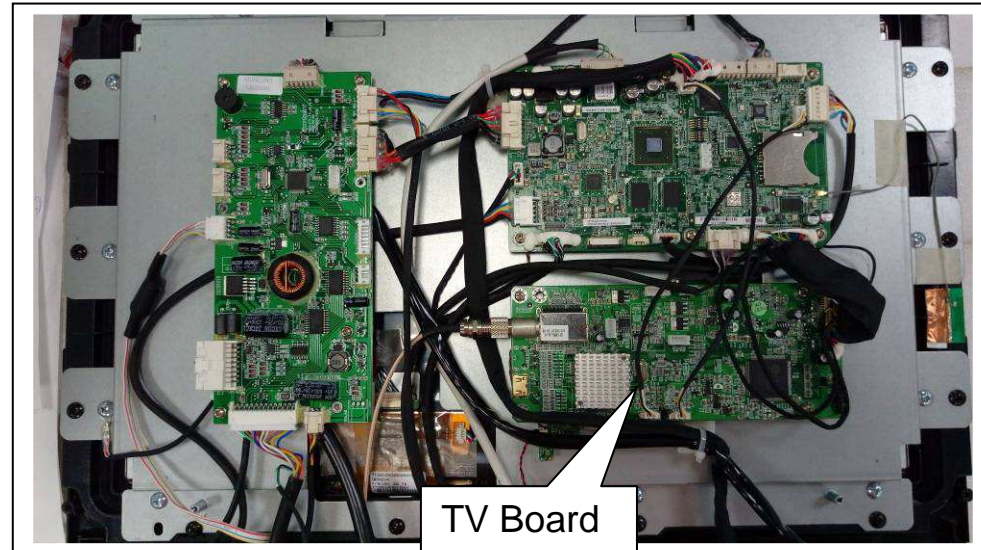
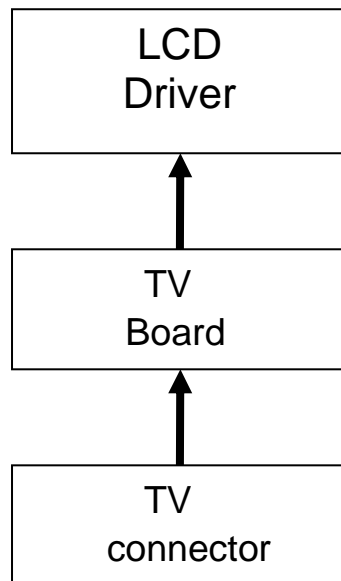
Circumstance : TV can't be watch

Possible cause :

- 1.TV setting issue
- 2.Bad TV wiring
- 3.Bad TV board or
LCD display drive board

Troubleshooting:

- 1.Check TV wiring
- 2.check TV signal source
- 3.replace and test TV board or
LCD display drive board



Troubleshooting:

Model: T656

Malfunction item: Display

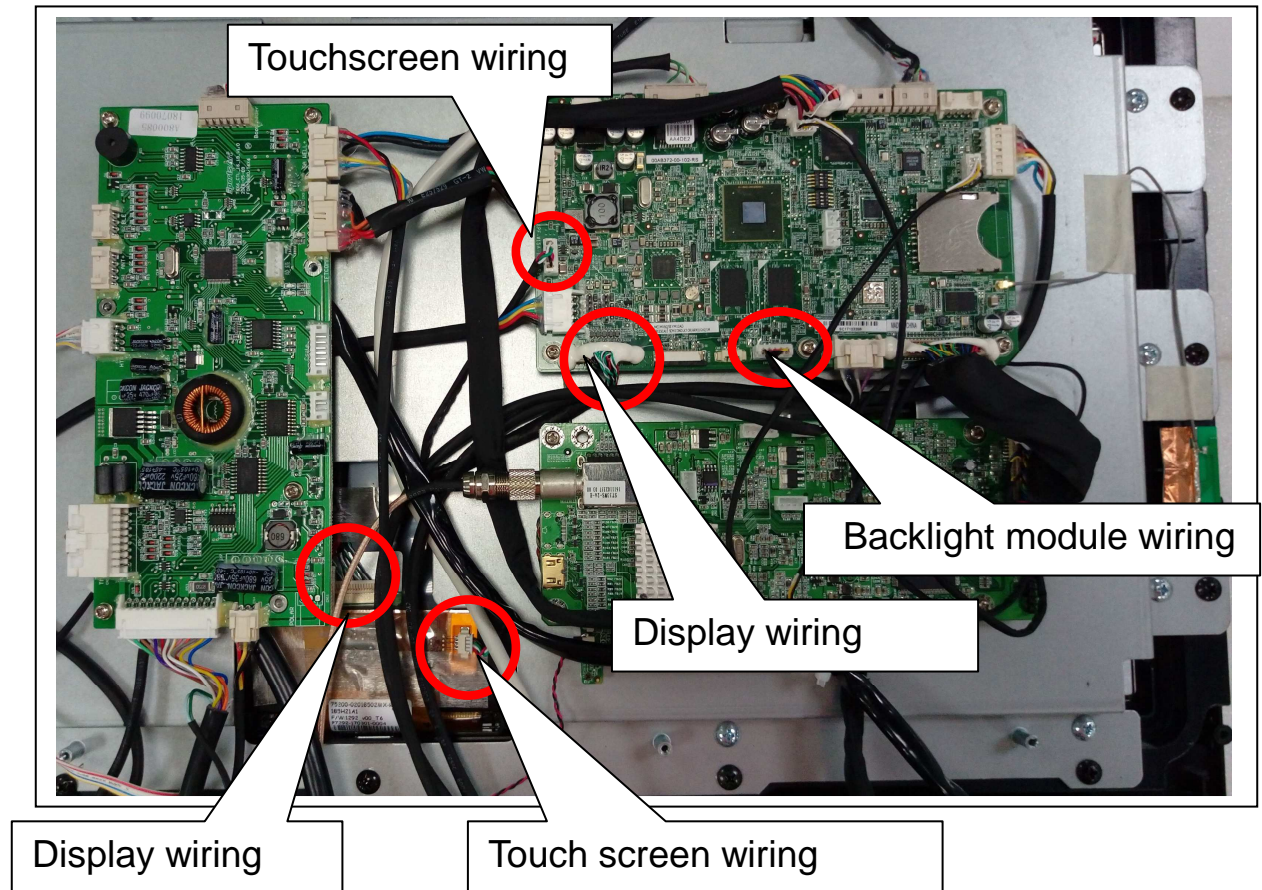
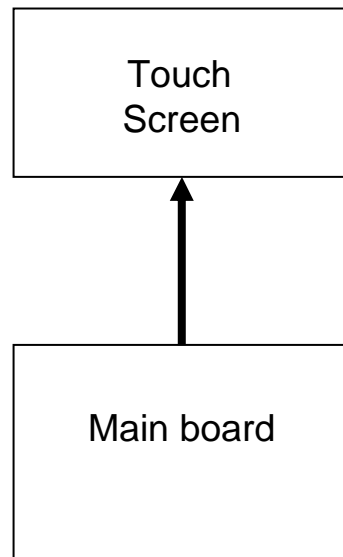
Circumstance : Bad display

Possible cause :

1. bad Main board
2. bad LCD display

Troubleshooting:

1. check LCD display and drive board wiring
2. Replace display drive board
3. replace display board



Troubleshooting:

Model T656

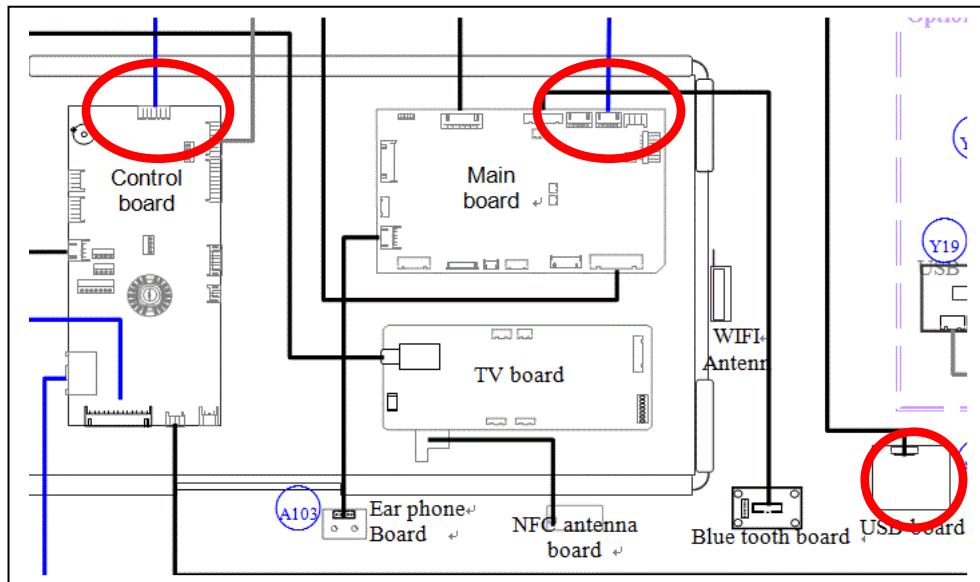
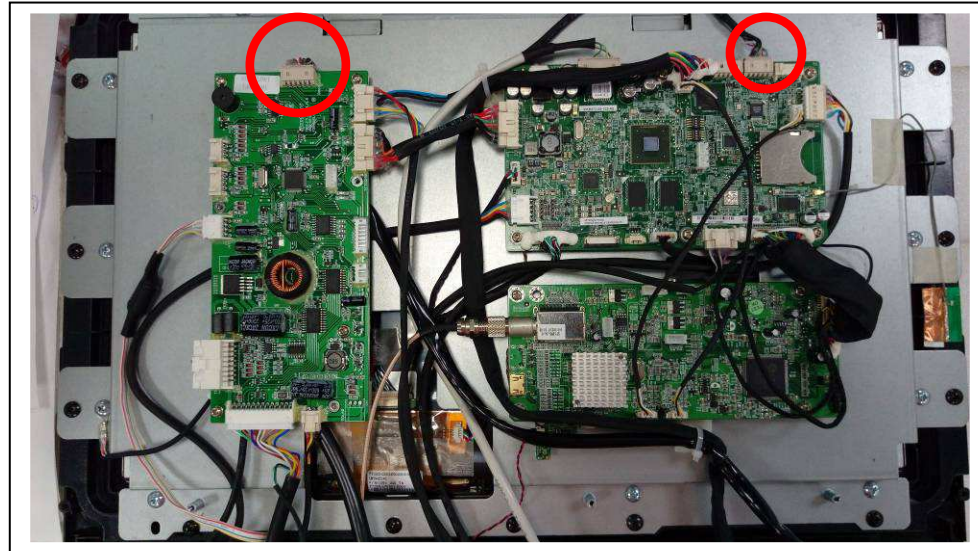
Malfunction item: Program can't be update
Circumstance : can't read USB

Possible cause :

1. bad USB board
2. bad USB wiring

Troubleshooting:

1. check USB board to main
Wiring and upper control board wiring
2. replace USB Board



USB board



Other descriptions:

Model: T656

Item: Error Message list

ERROR_1_1_	:	Serve motor encoder abnormal; power reset to recover
ERROR_1_2_	:	Serve motor overheating; reduce speed to protect
ERROR_1_3_	:	Serve motor over loading; power reset to recover
ERROR_2_1_	:	IGBT over current; recover in 10 seconds °
ERROR_2_2_	:	IGBT overheating; reduce speed in half to protect
ERROR_3_1_	:	Abnormal incline motor zero setting
POWER OFF	:	Power switch at OFF position
ERROR_4_2_	:	Power source voltage too low; wait until it returns to normal to restart
ERROR_4_3_	:	Power source voltage too high; wait until it returns to normal to restart
ERROR_8_1_	:	Communication error during power on
ERROR_8_2_	:	Communication error during normal operation
ERROR_8_3_	:	Server shut down due to interference

Other descriptions:

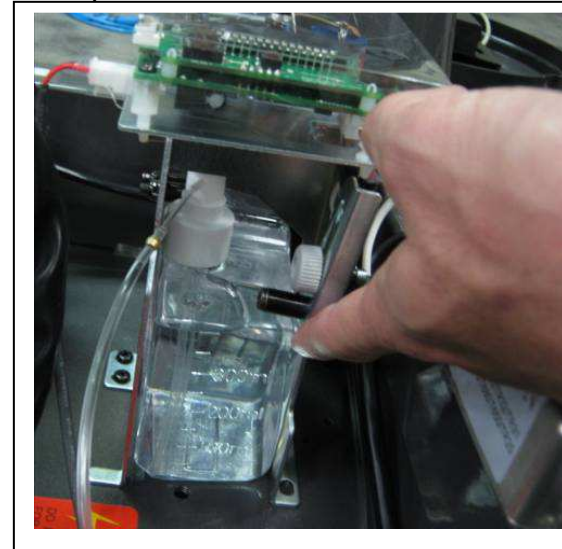
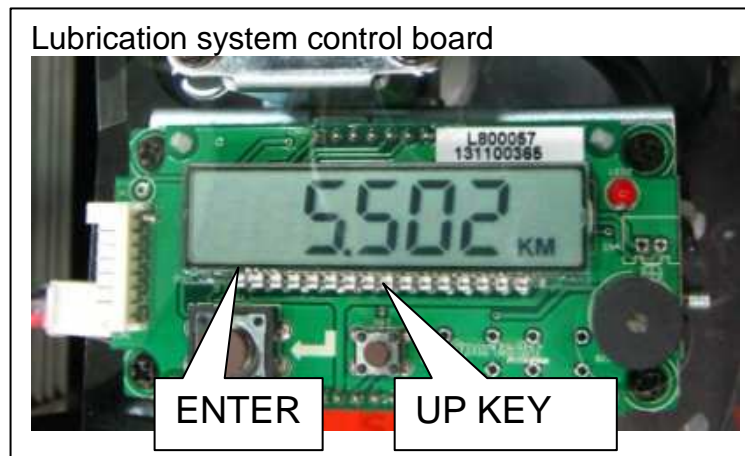
Model T656

Item: Self-lubrication system operation

System: The system is consisting of control board, lubrication motor VR, speed sensor and lubricant bottle

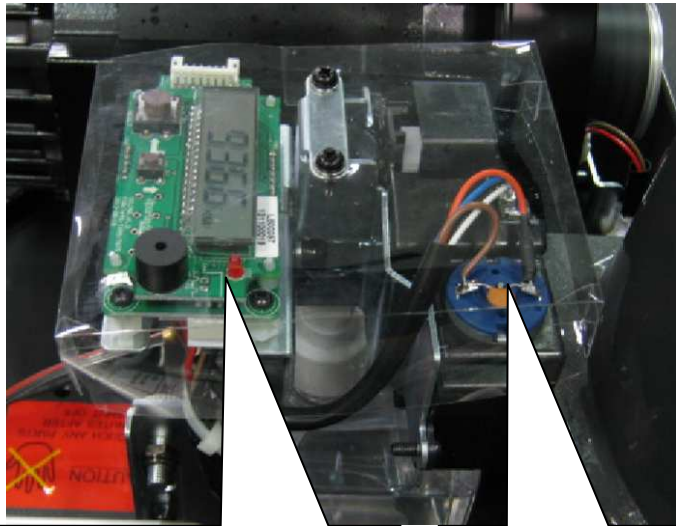
- Operation:
1. When motor operating, self-lubrication control board will accumulate mileage. And every 200 km, self-lubrication program will be performed once
 2. Once start self-lubrication program, motor will lead lubrication bottle to spray oil by 14 times into belt (about 2cc in total) when motor operating, self-lubrication control board will accumulate mileage. And every 200 km, self-lubrication program will be performed once
 3. A new bottle of lubricant is about 400cc which can perform 196 times (2cc per time) of self-lubrication program and satisfy 4 0,000 km of maintenance. And once auto-lubrication perform done, the mileage will return to zero.
 4. Self-lubrication control board display instruction
Press <RESET> key to show total distance in mile & km and total time.
Press <UP> key to display total exercise distance, speed and software program version.
 5. When self-lubrication performed over 196 times, the display will show “CH O’L” and beep; that means it is time to replace lubricant bottle.
 6. To replace lubricant bottle untighten the screws which shown in below figure. And push up the metal plate to remove the bottle. Then replace with new one and put origin nozzle onto it.
 7. The self-lubrication operates independently from console. Once speed sensor reached default mileage, it will start to perform auto-lubrication.

(Refer to self-lubrication software specification manual V1.3)

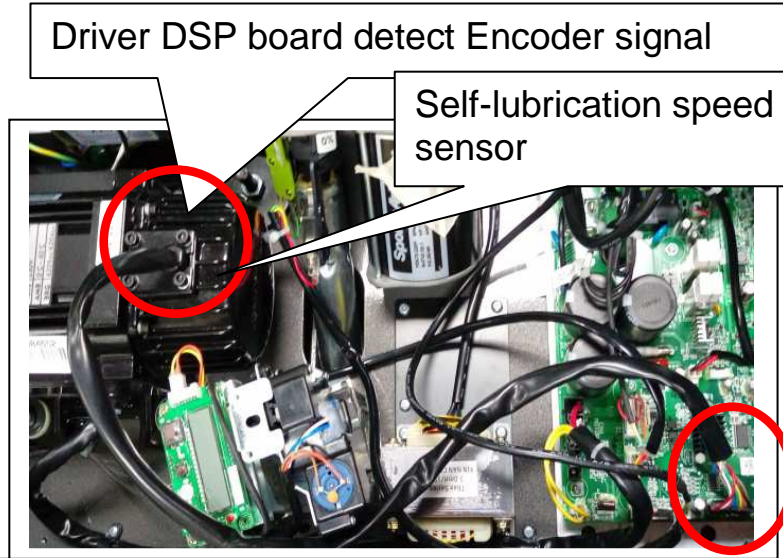


Other descriptions:

Model T656
Item Self-lubrication system wiring and block diagram



Lubrication control board

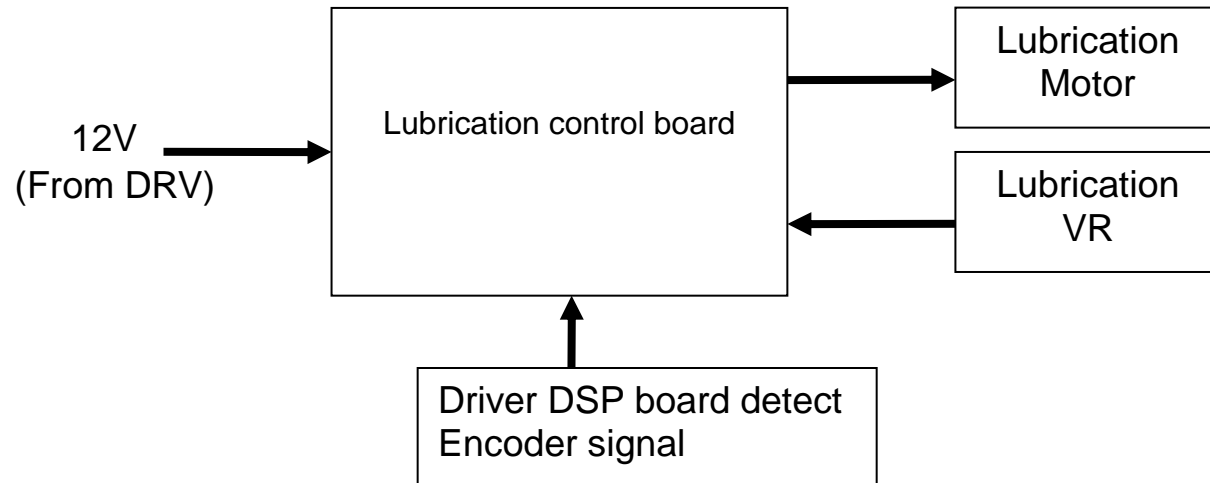
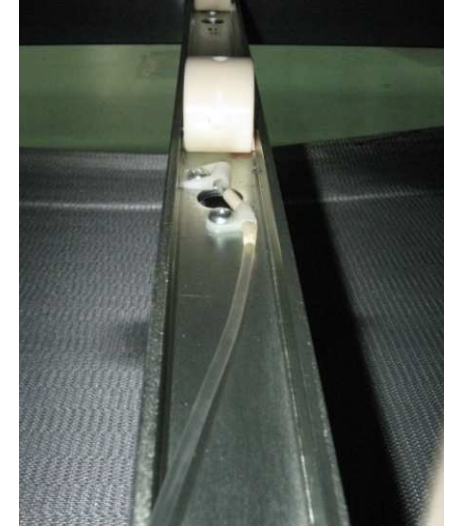


Self-lubrication speed sensor

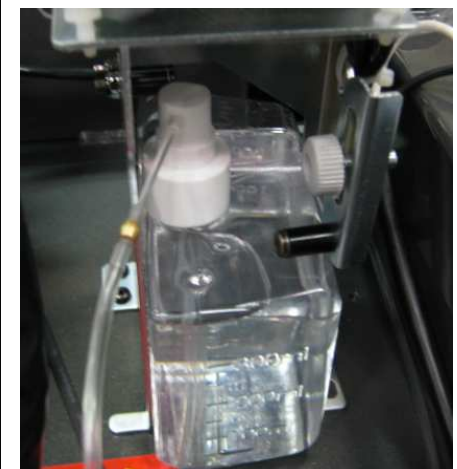
Driver DSP board detect Encoder signal

Lubrication motor & VR

Lubrication wiring to second supporting bar of running deck

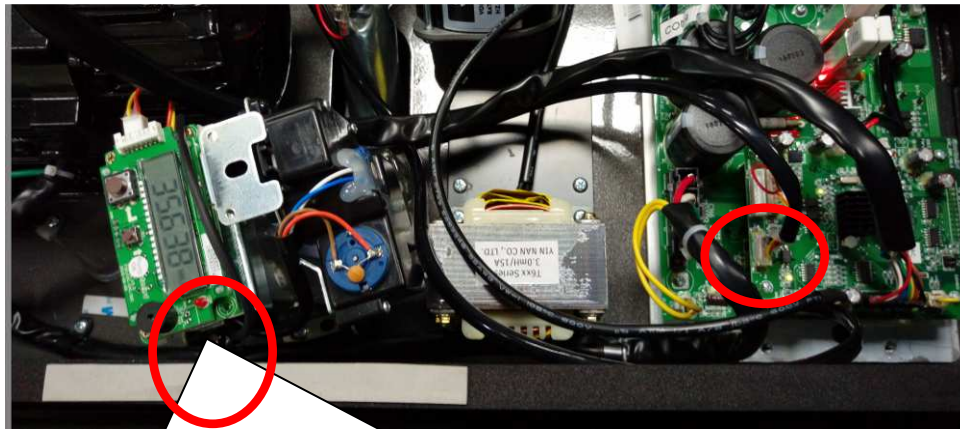


Lubricant bottle

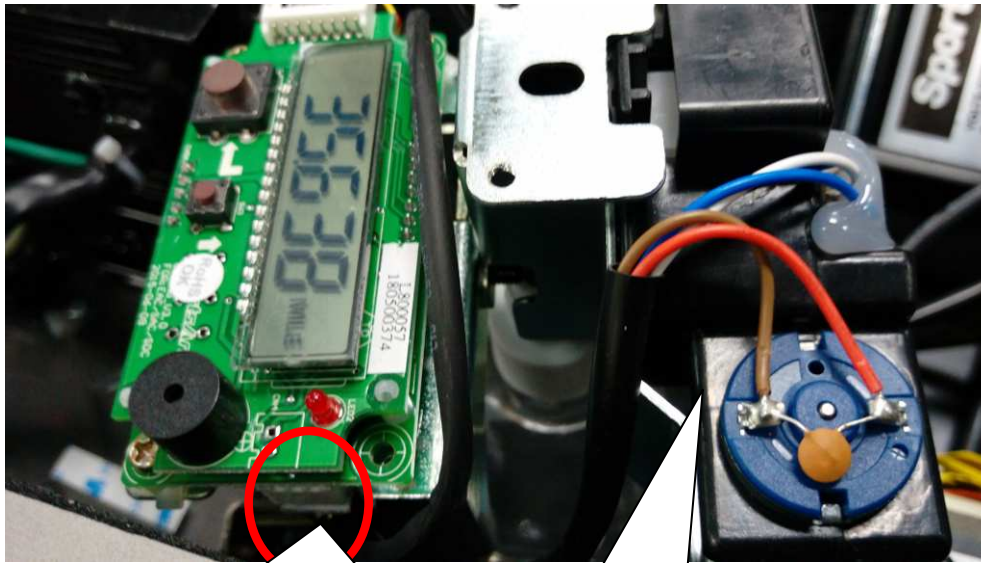


Other descriptions:

Model T656
Item lubrication system wiring

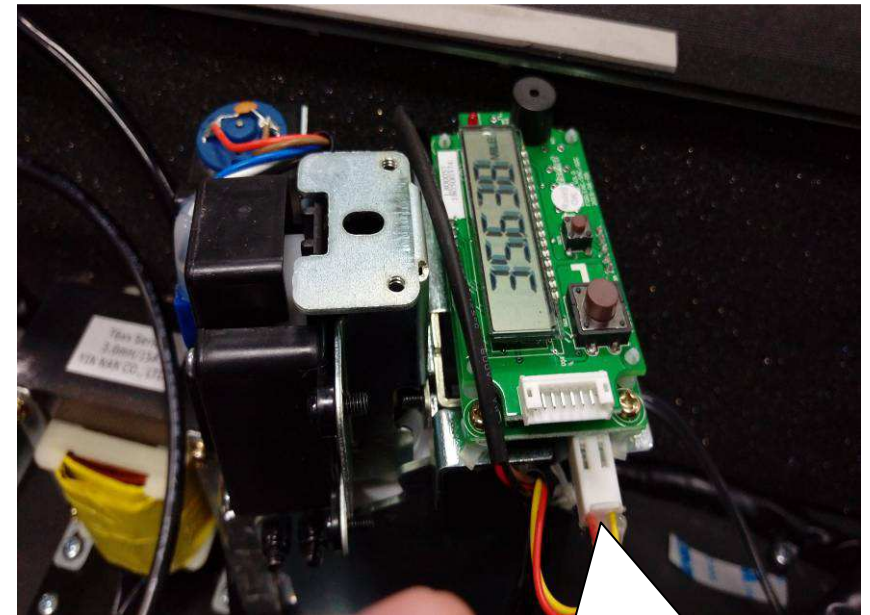


To driver DSP board



To driver DSP board

To motor gear box



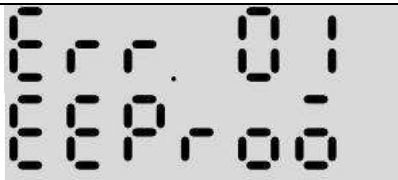

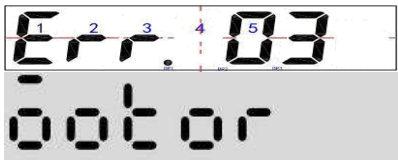
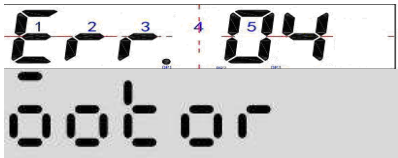
Power input to speed sensor

Other descriptions:

Model T656

Item Lubrication error messages & Troubleshooting:

Troubleshooting:

error messages	Circumstance :	Possible cause :	Components replacement
Non- distance accumulating	Motor is running, but total distance is not accumulating	Speed sensor issue	1.Check speed sensor wiring 2.Replace speed sensor
	ERR 01 and EEPROM message on lubrication display	Control board wiring issue	1. Check if the power source on lubrication control board is about 12V 2. Check lubrication control board wiring 3. Replace lubrication control board
	ERR 02 and MOTOR message on lubrication display	lubrication motor gear box VR issue	1. Check lubrication control board wiring 2. Replace lubrication motor gear box VR set
	ERR 03 message on lubrication display	Non-accumulating clock over 20 times as power on will beep for warning. And it might cause by defective speed sensor.	1. Check lubrication control board wiring 2.Check speed sensor 3.Check DSP board 4.Replace speed sensor 5.Replace DSP board
	ERR 04 message on lubrication display	Over 480hrs of non-accumulating clock while using will beep for warning. And it might cause by defective speed sensor.	1. Check lubrication control board wiring 2.Check speed sensor 3.Check DSP board 4.Replace speed sensor 5.Replace DSP board

Other descriptions:

Model T656

Item lubrication replacement

Step1. Untighten the screws



Step2. Push up metal plate and take bottle out



Step3. Place the origin nozzle on to the new bottle and screw nuts in.



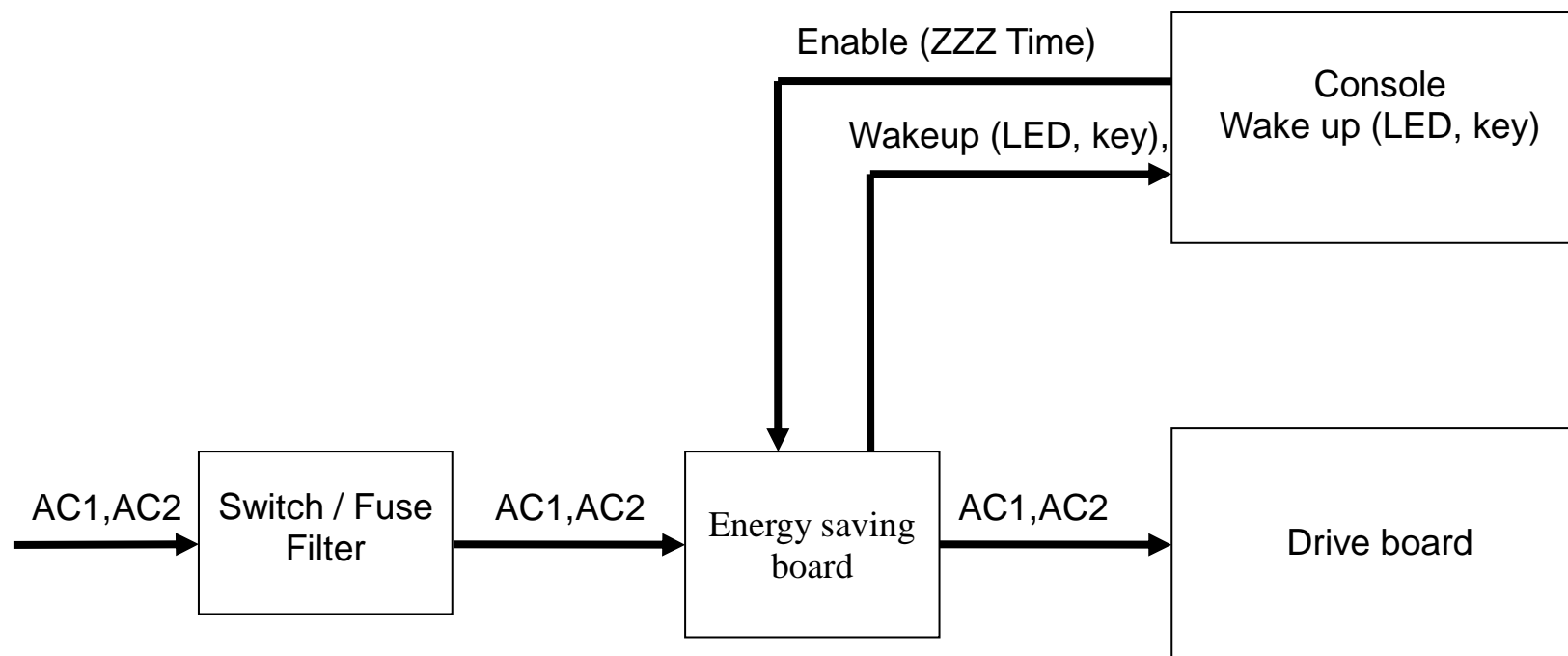
Other descriptions:

Model T656

Item Energy saving system operation

Function : While product is idle, turn off drive board power source to reduce energy consumption down under 5W

- Operation :
1. When power on, energy saving board will send AC1 /AC2 to drive board, and start running console and light up wake-up indicator to green.
 2. When treadmill is idle, no key being pressed and energy saving timer limit reached, it will enter energy saving mode and wake up indicator will turn red. Then power of console and control board will be cut off by energy saving board to reduce energy consumption down under 5W.
 3. Press "Wake Up" key to wake up treadmill, then energy saving board will send power to drive board. When treadmill is in use mode, the indicator light turns green.
 4. To set up Energy saving timer by pressing <Display change> key for 3 seconds. Once display show <ZZZ TIME>, it can be adjust from 5min to 600min.



Other descriptions:

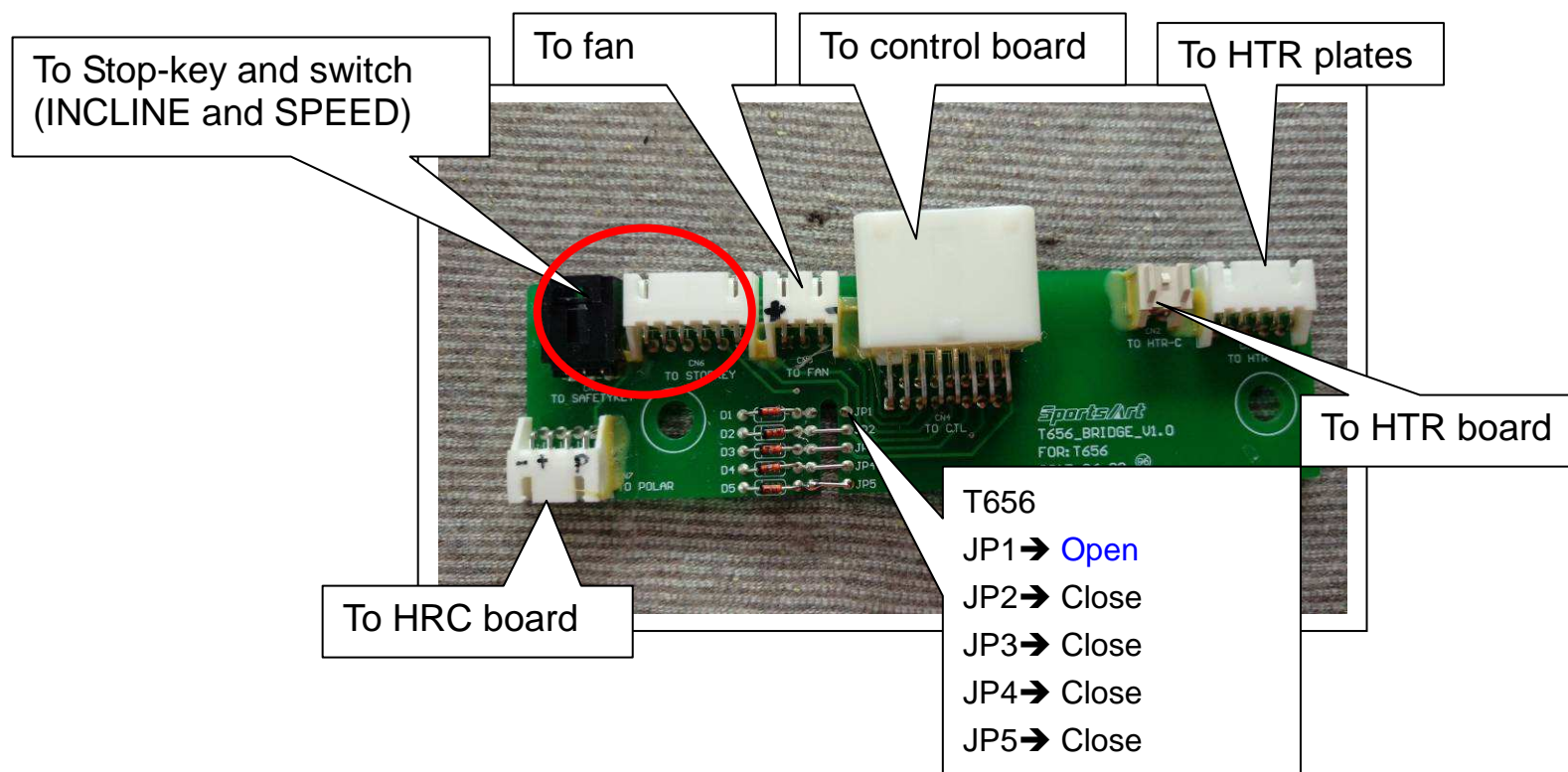
Model T656

Item Bridge board operation

Function :
 1. Connect the wiring to the lower soft keys, fan, HTR contact plates
 2. Coordinate with drive board program to set product model no.

Description: Model no. setting: 0: close , 1 : open

Model	JP5	JP4	JP3	JP2	JP1
T656	0	0	0	0	1

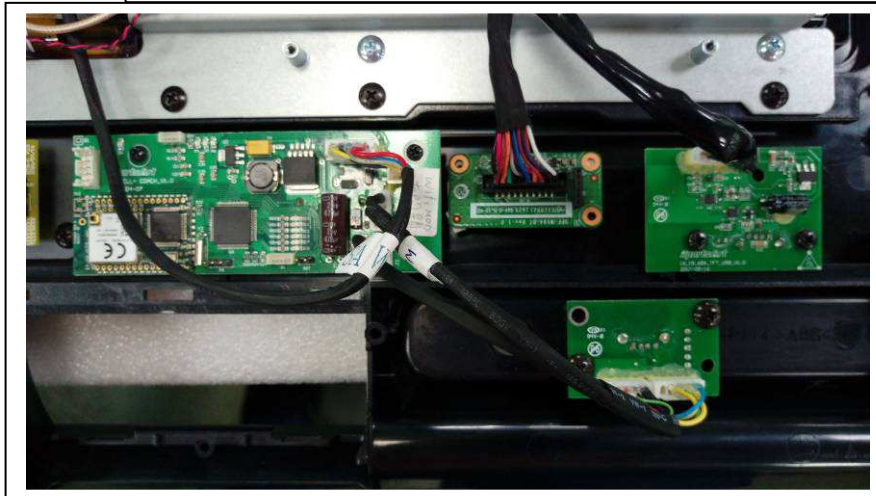


Other description:

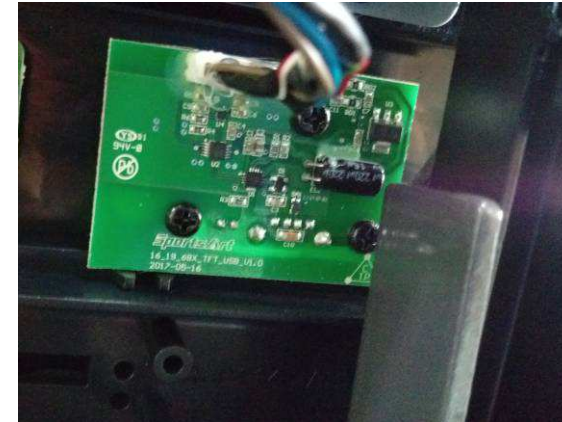
Model : T656

Item : USB board instruction

Function : 1.Charger: cell phone charging socket (USB)
2.Data Transfer: workout data transfer or software program update
3.Member Card: Member card slot (reserved)



USB board



Troubleshooting:

Model: T656

Malfunction item: machine model unidentified

Circumstance : Display shows “machine model unidentified” as power on

Possible cause :

1. bridge board setting failure of JP1, JP2, JP3, JP4
2. Number keypad failure.

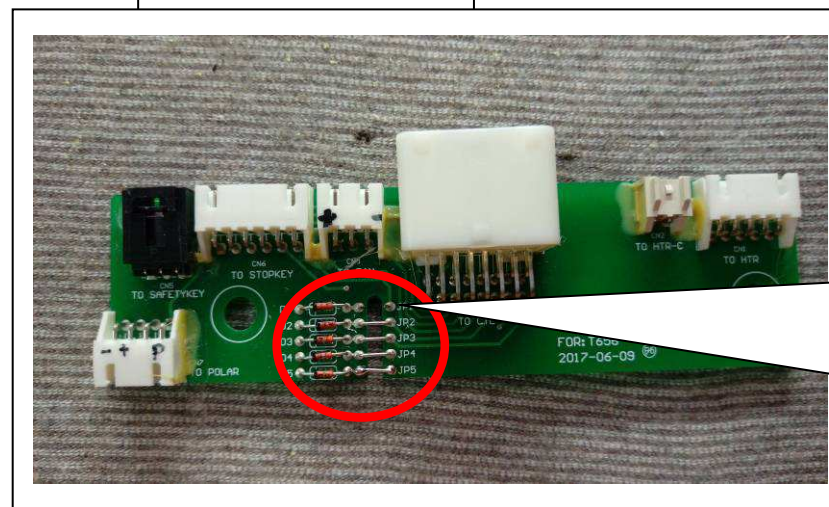
Troubleshooting:

1. Inspect the bridge board form JP1 to JP5 setting.
JP1 is open , JP2,JP3,JP4,JP5 are close
2. Replace Number keypad

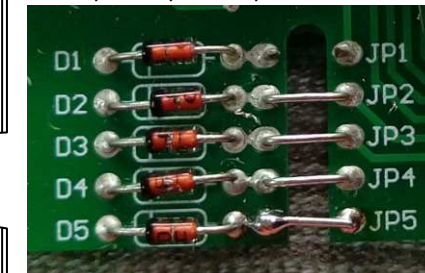


Display board

Number keypad



JP1 → open
JP2,JP3,JP4 ,JP5 → close



Troubleshooting:

Model: T656

Malfunction item: display black out

Circumstance : display black out while using

Possible cause :

1. Bad saving energy board
2. Bad wiring of console to drive board

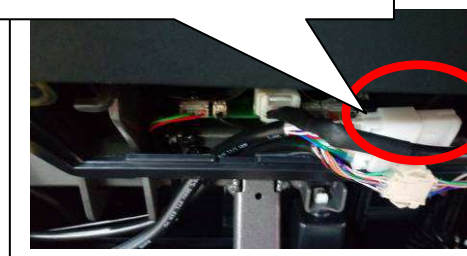
Troubleshooting:

1. Open display board to check wiring is squeezed or not.
2. Turn off energy saving board, and test treadmill will shut down or not.

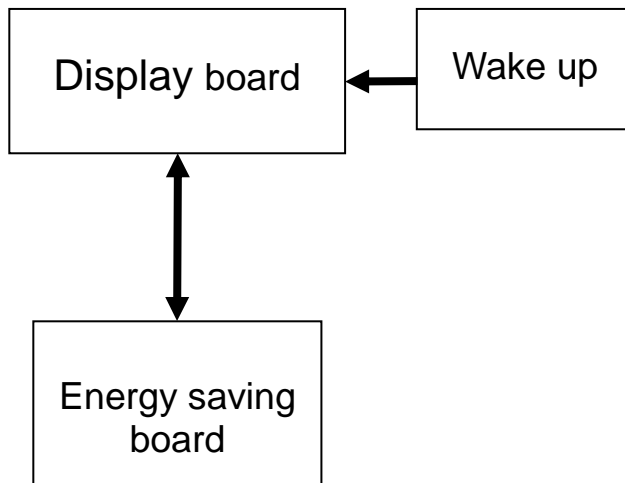
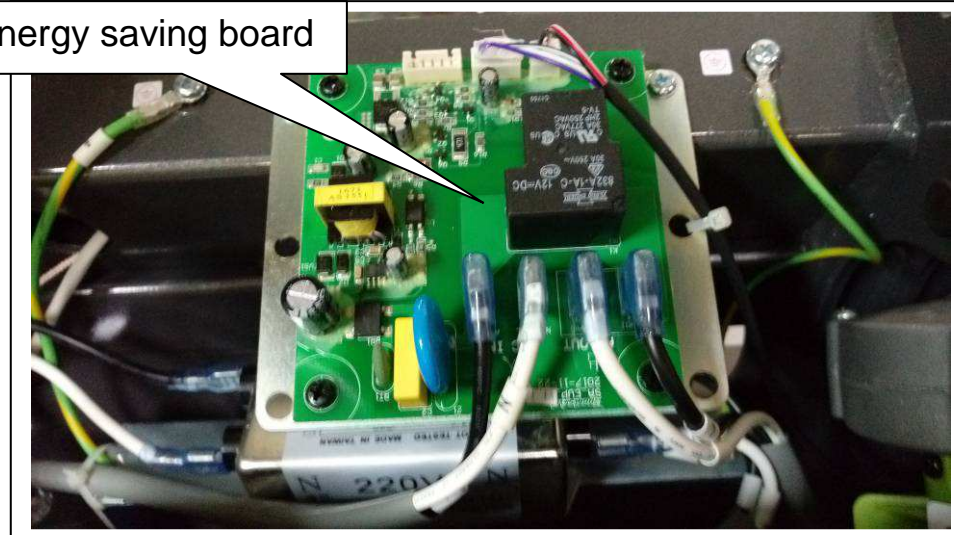
Press <DISPLAY CHANGE> for ZZZ TIME set OFF.

3. Bad fuse or main cord connection

Check wiring is not squeezed



Energy saving board



Inspection and measurement

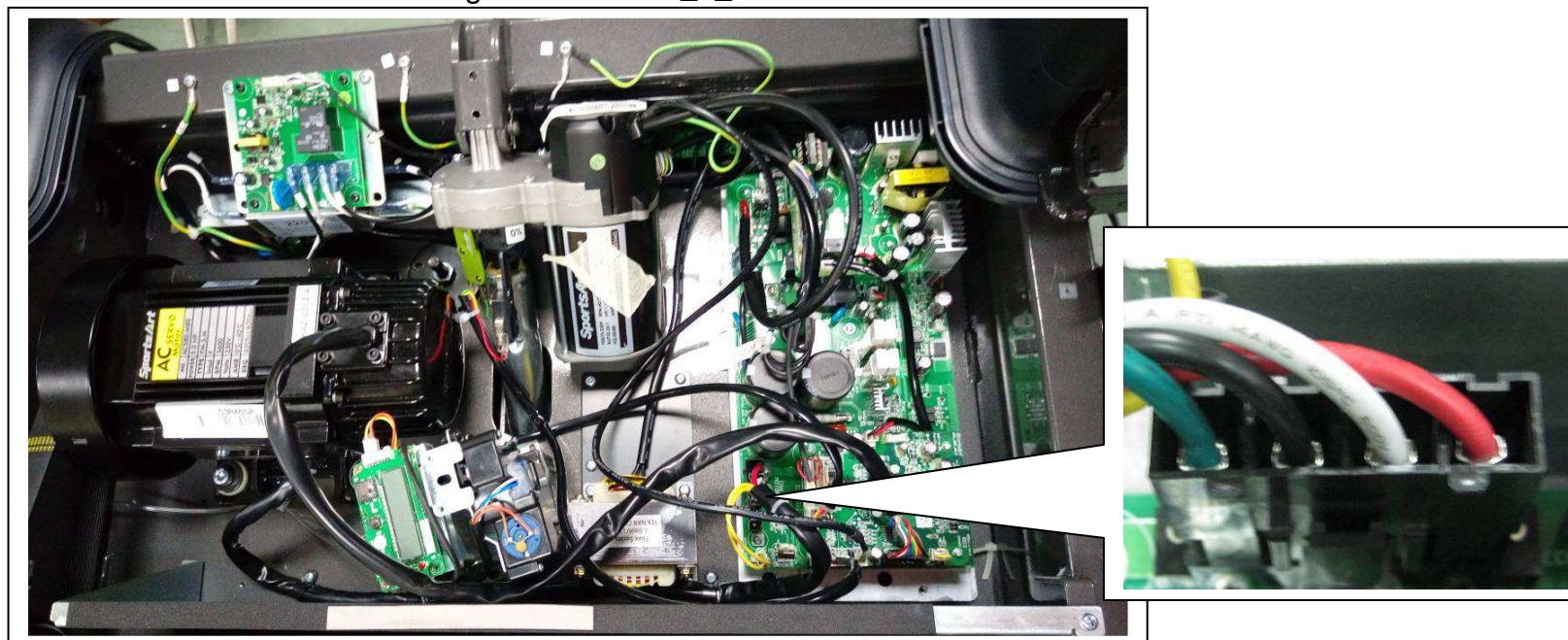
Model T656

Testing item : AC serve motor circuit breaker inspection

Method : 1. Unplug motor wires from controller then measure resistance of wire by multi-meter (set on ohm scale) with black and red bar connect to the motor wiring

Motor wiring	Ohms reading	Note
Green-Black	No reading	Green = ground
Green - White	No reading	Green = ground
Green - Red	No reading	Green = ground
Black- White	Shorted	
Black-Red	Shorted	
White - Red	Shorted	

2.If Black to White; Black to Red or White to Red has a shorted occurring, it means there is a motor break issue and display show an error message of ERROR 1_3_



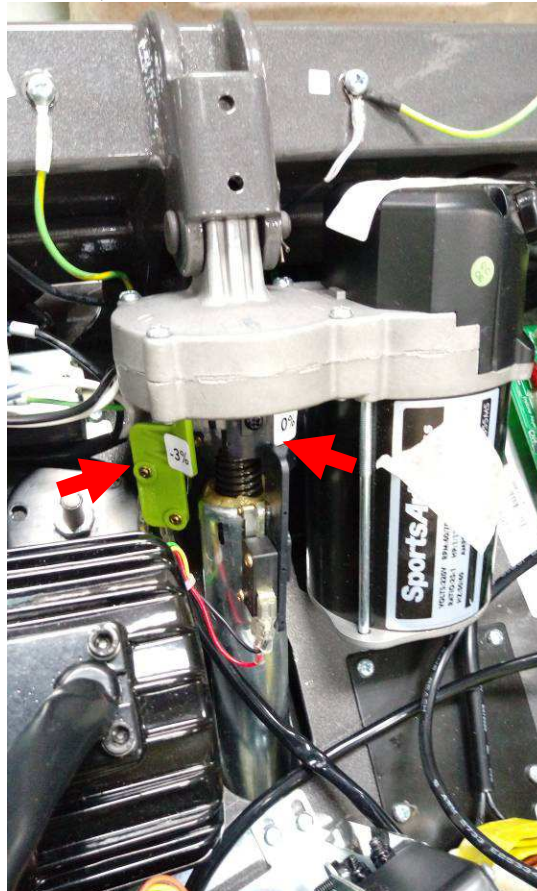
Inspection and measurement

Model T656

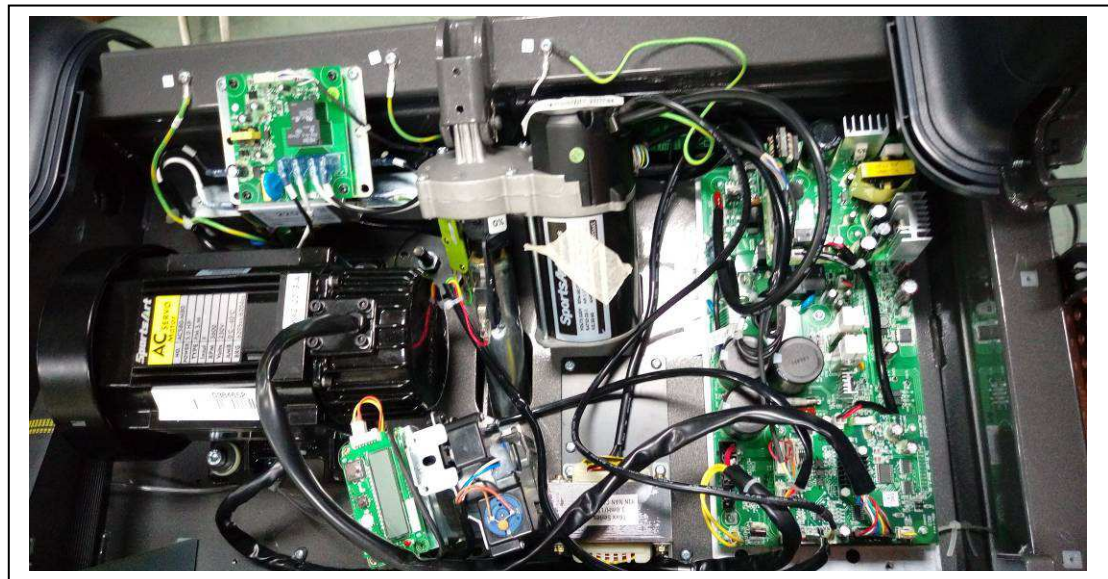
Testing item : Incline Zero% limit switch test

- Method :
1. Turn the power on and start the treadmill, the incline should return to 0% position. At this time, the incline will reach 0% limit switch
 2. If incline setting is between 1 – 15%, then the incline will never reach 0% or -3% limit switch
 3. When gradient setting is -3%, decline down to -3% and incline tube will reached -3% switch

-0%,-3% switch



Gradient	0% switch	-3% switch
0%	on	off
1-15%	off	off
-3%	on	on



Inspection and measurement

Model T656

Testing item : Incline motor voltage test

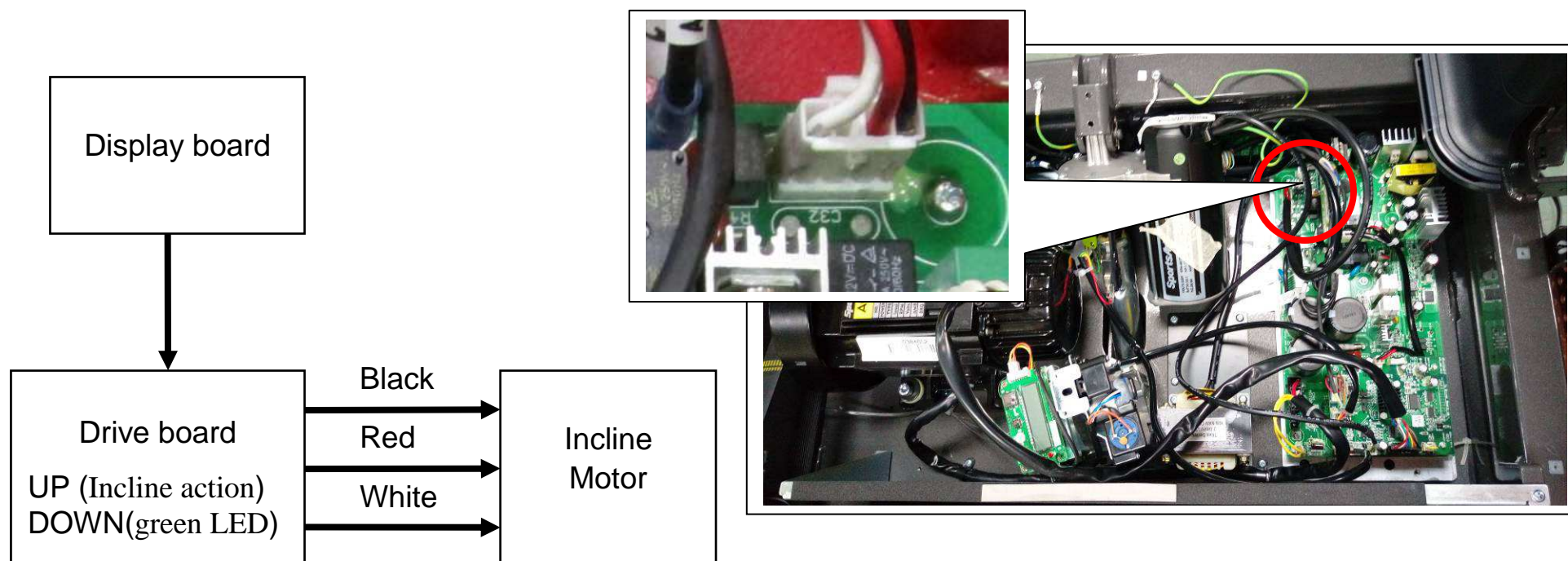
Method : 1. Set the volt meter to AC > 300V setting

2. Press INCLINE<▲>/<▼> key; the incline indicator should light up.

Measure the incline motor voltage output at this time.

3. Voltage spec. as below:

display	Drive board	Incline	Incline action
Press <▲> key	UP (Orange LED)	White - Black → 110V or 220V	Incline
Press <▼> key	DOWN(Green LED)	White - Red → 110V or 220V	Decline



Inspection and measurement

Model T656

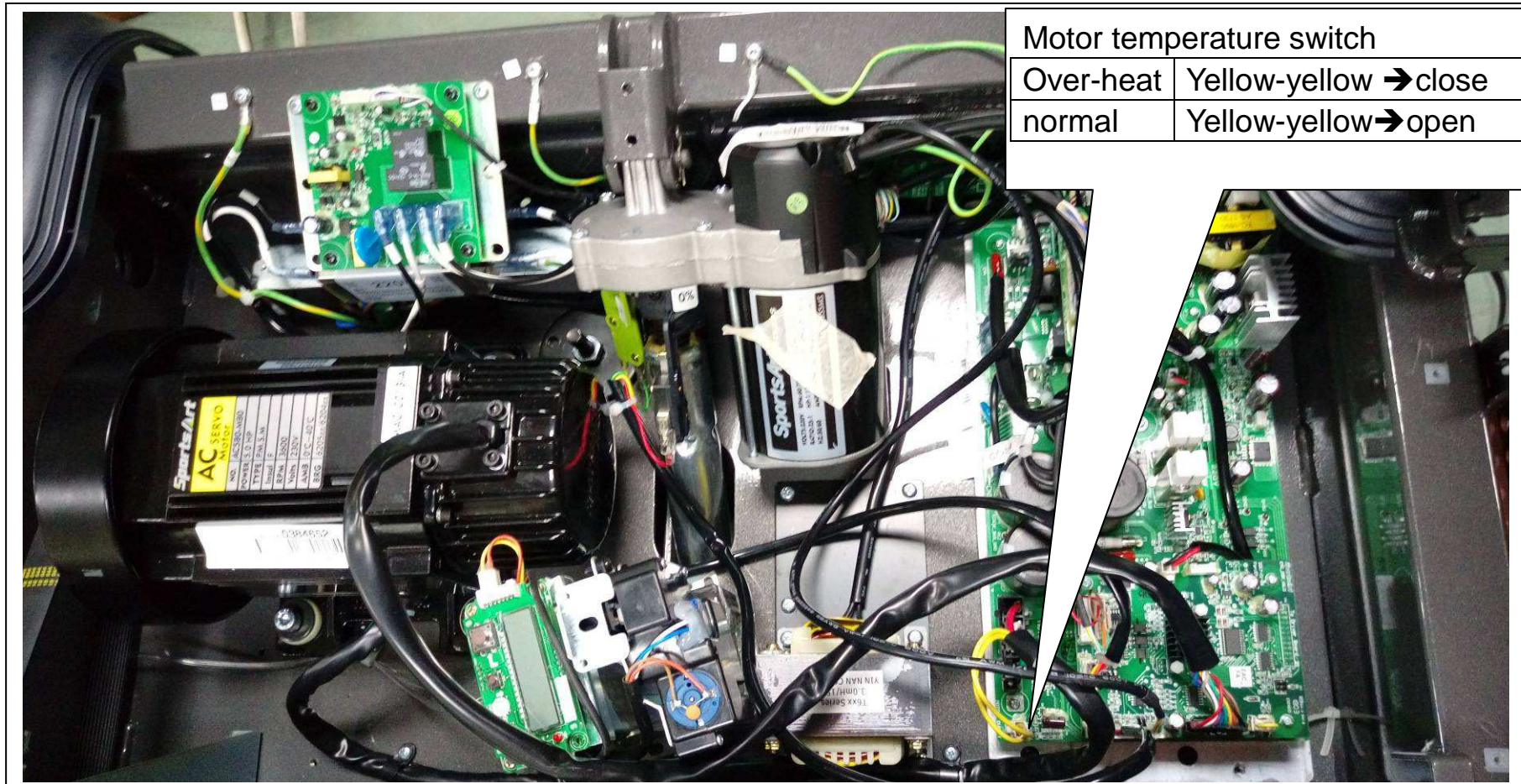
Testing item : Motor temperature switch test

Method : 1. When temperature is normal, there is no abnormality on display.

Unplug motor temperature switch wiring and running treadmill for a while.

Display will show the message of " ERROR_1_2"

2. Display shows message of" ERROR 1_2" indicates that motor temperature is overheat and both ends of yellow wire are shorted.



Inspection and measurement

Model T656

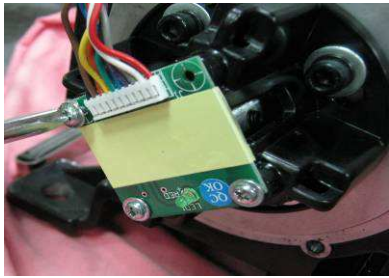
Testing item : Motor Encoder signal test

Method : 1. If "ERROR 1_1" message appears when power on, there could be an encoder issue.

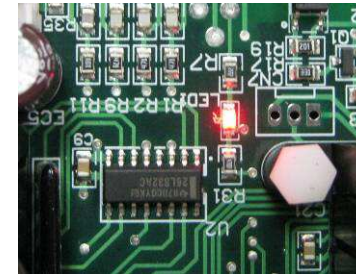
Remove the motor cover to see if Encoder board is damaged or not.

2. When the motor is turning, encoder indicator on the drive board will light up.

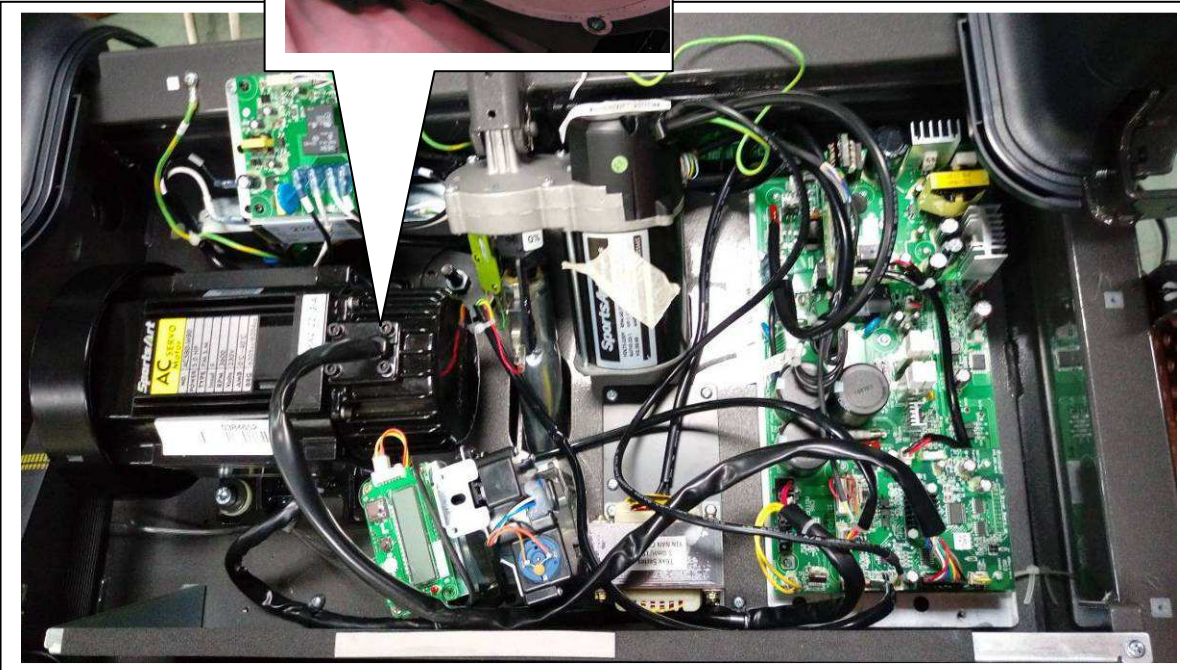
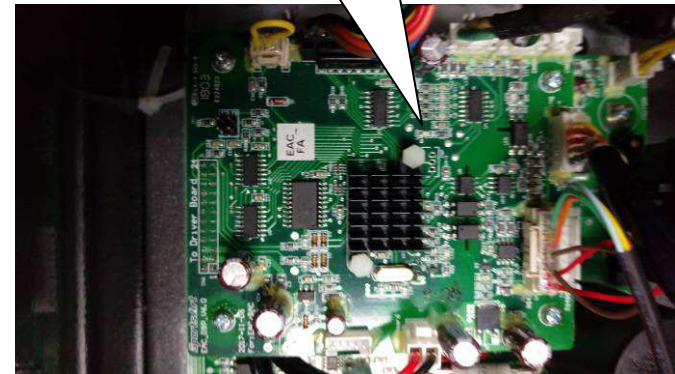
Encoder



Encoder indicator



DSP board



Inspection and measurement

Model T656

Testing item : Self-lubrication system

Method : 1. Check model

Open power switch and check the model of lubrication board

2. Check speed sensor indicator signal

Shut down lubrication speed sensor, and make drive board to detect encoder signal

3. Any error message or abnormal condition?

Check error message or abnormal of lubrication board

4. Check lubrication motion

Turn on power and press<RESET> to check single lubrication operating normally

5. Check lubrication bottle capacity

Eye-measure the capacity of lubrication bottle

