



NEO DIAGNOSIS FLOWS

Dealer training, winter 2014



1

SUMMARY

Error Diagnosis Flows

NEO Error description Chart	3
Error 1 – Over Circuit	4
Error 2 – Static current over limit – Diagnosis flow	5
Error 3 – Throttle or atypical TTM signal	6-8
Error 3 – Throttle or atypical TTM signal – Diagnosis flow	9
Error 4 – Motor phase absence – Diagnosis flow	10
Error 5 – Motor hall sensor error	11-12
Error 5 – Motor hall sensor error – Diagnosis flow	13-14
Error 6 – Walk or push mode icon	15
Error 7 – Brake sensor input	16
Error 8 – Battery low – Diagnosis flow	17
Error 9 – Motor blocked	18-19
Error 9 – Motor blocked – Diagnosis flow	20-21
Error 10 – Current over limit – Diagnosis flow	22
Error 11-12 – Controller over-heat protection – Diag. flow	23
Error 13 – Communication problem	24-25
Error 13 – Communication problem – Diagnosis flow	26-27
Error 14 – Foot error	28
Error 14 – Foot error – Diagnosis flow	29
Other errors: Controller	30
Other errors: Motor	31
Other errors: Display	32
Error summary	33

After Sales

Controller settings programming	35
Battery charge status	36
NEO Spare parts	37
NEO Spare parts numbers	38

ERROR DIAGNOSIS FLOWS

NEO ERROR DESCRIPTION CHART

ERROR CODE	DESCRIPTION	LIMIT	POSSIBLE REASON AND TROUBLE SHOOTING
00	Normal		
01	Over current		Check if connector motor – controller is loose. If correct, replace the controller
02	Static current over limit		Change the controller
03	Throttle or atypical TMM Signal		Check if connector TMM – controller is loose. Check output current from TMM exceeds the normal values (0,1V – 3,5V)
04	Motor phase absence		Check motor connector or controller
05	Motor hall sensor error		Check if connector motor – controller is loose Hall sensor inside the motor may be faulty. Change motor. Faulty contact of the controller – motor cable. Change controller
06	Walk or push mode icon	6 km/h	
07	Brake sensor input		EBS regenerating mode signal. Non available in current models
08	Battery low		Check battery output or replace battery
09	Motor blocked		Motor stalled.. Go to the nearest service
10	Current over limit		Faulty contact of the controller – motor connector. Replace the connector.
11	Motor over-heat alarm	>100°C	The current will start to weaken progressively until the motor cools down
12	Motor over-heat protection	>120°C	Entering into the temperature protection mode. The controller stops.
13	Communication error		Check all the cabling and connectors
14	Foot error		Switch off, stop applying force on the pedal and switch on again.

4

ERROR 1: OVER CURRENT

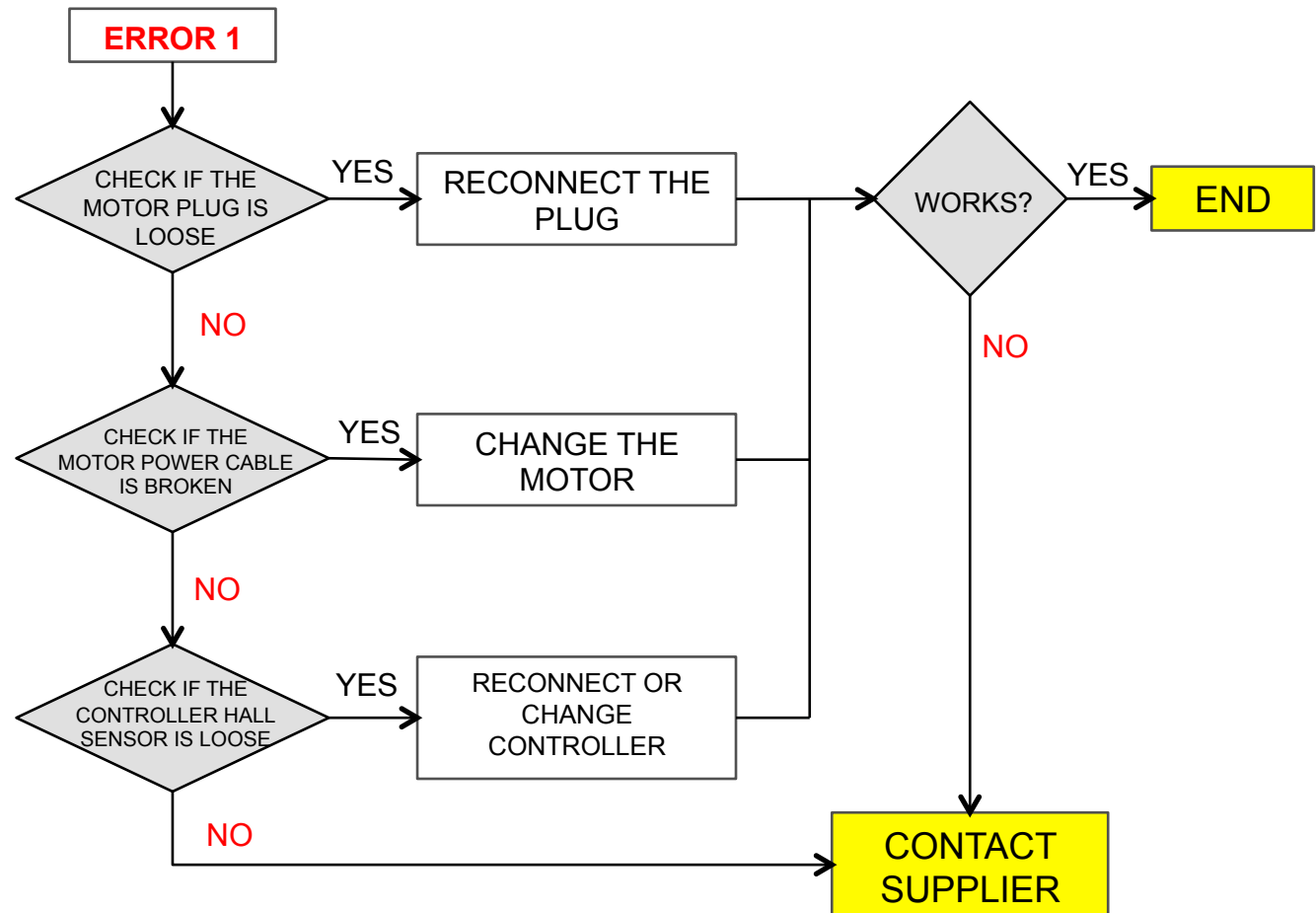
1

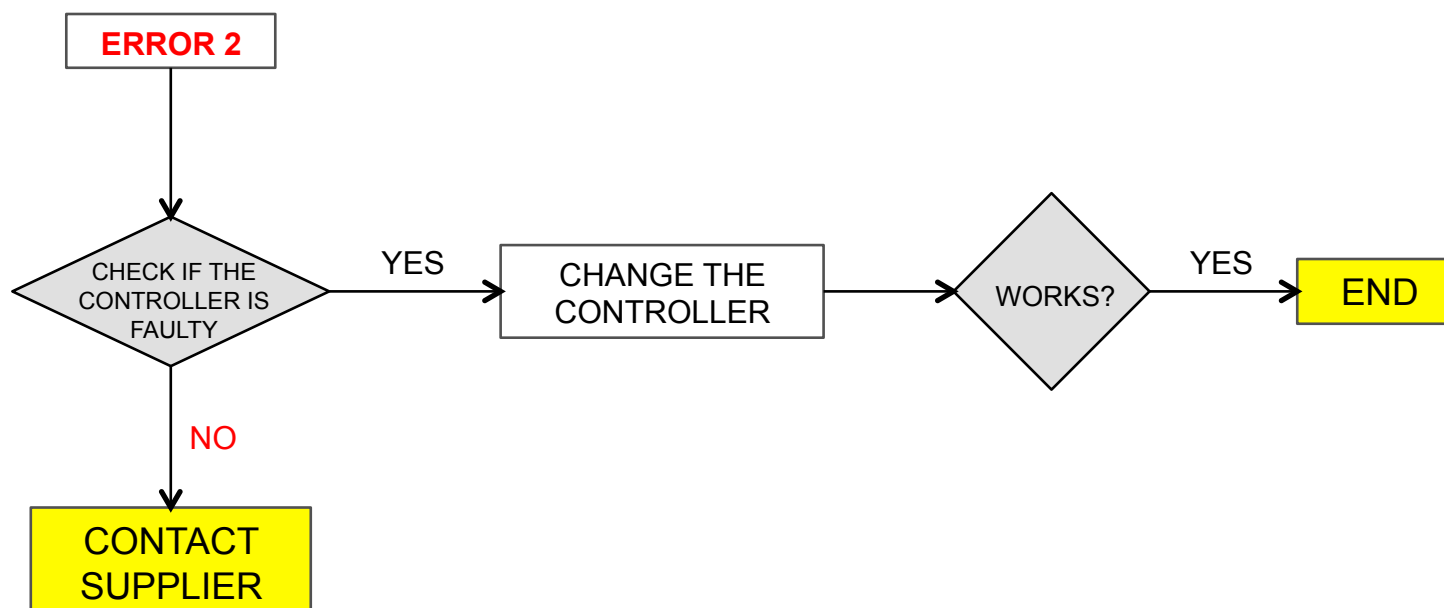


2



3





6

ERROR 3: THROTTLE OR ATYPICAL TTM SIGNAL (1)



- Check TMM sensor cable:
 - Sensor cable could be cut



- Sensor is not calibrated or faulty (Use sensor checker)
 - Sensor could be damage
 - Calibrate the sensor: Tension must be between 0,6V to 2V
- ✓ **REPAIR (if any defect found): Change sensor or replace sensor cable**

ERROR 3: THROTTLE OR ATYPICAL TTM SIGNAL (2)

SENSOR : DIAGNOSIS CHART

- Typically, this error occurs when the user switches on the system (push display button ON) while applying pressure on the pedal.

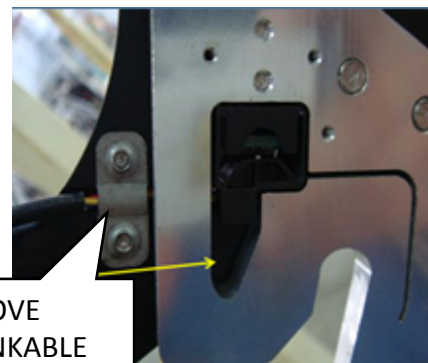
✓ **ACTION: SWITCH OFF AND RESTART WITHOUT APPLYING FORCE ON THE PEDAL**

If the problem persists:

- Remove sensor plate cover (located in the interior side of the plate)
- Removal of the shrink-wrap around the sensor cable and attention to the cable routing.
- Switch on again and check if the problem has disappeared.



REMOVE SENSOR
PLATE COVER
(INTERIOR SIDE)



REMOVE
SHRINKABLE
TUBE

ERROR 3: THROTTLE OR ATYPICAL TTM SIGNAL (3)

HOW TO ADJUST THE TORQUE SENSOR

The incorrect adjustment of the torque sensor may cause incorrect functions in the motor assistance. To prevent from this, the controller software includes several additional security parameters.

The torque sensor reads the instant chain tension, which is proportional to the torque generated on the pedal by the cyclist. It is located at the rear right dropout, and it is attached to the frame by 3 x M6 screws.

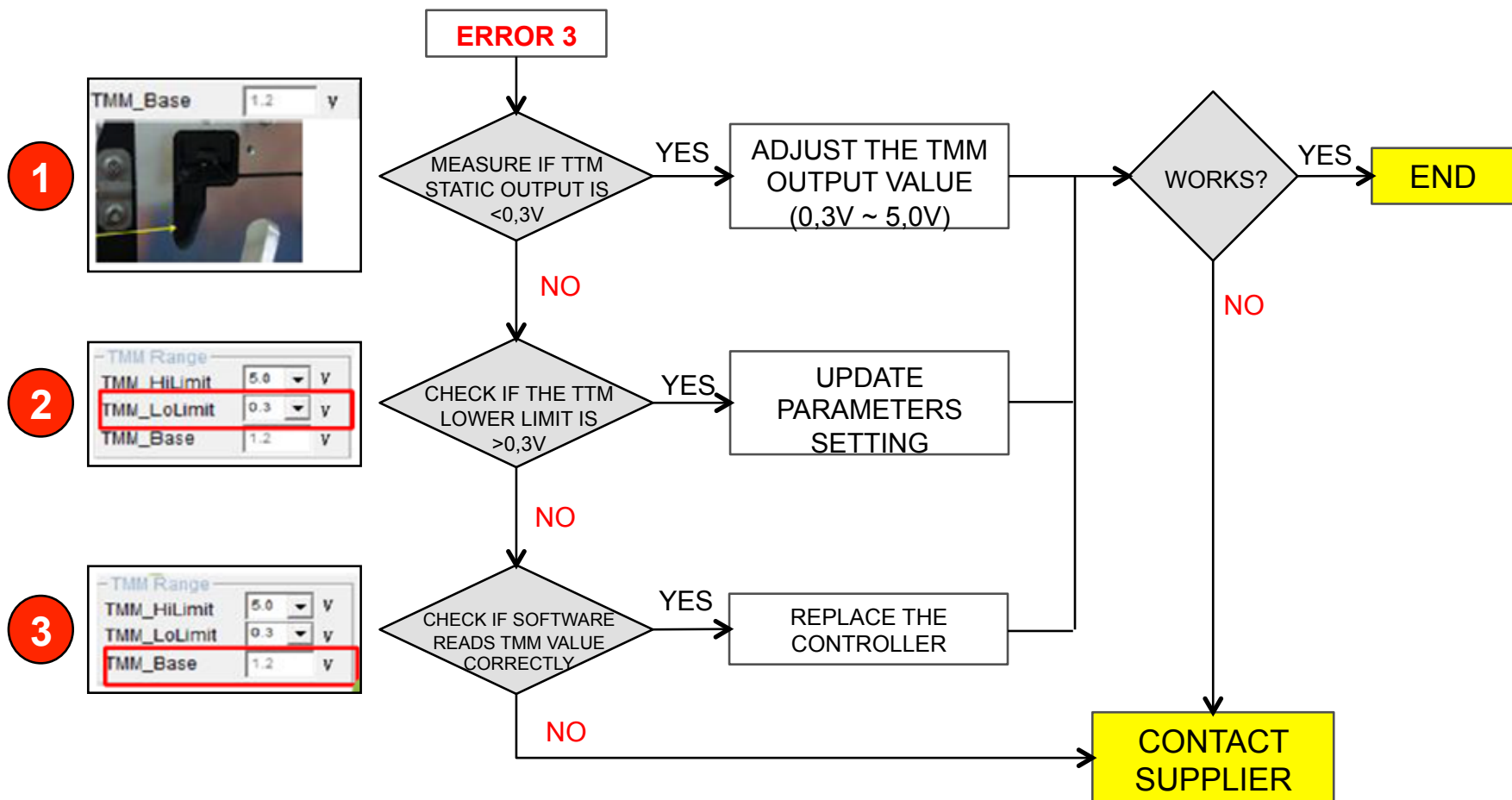
The torque sensor is totally sealed and can be washed with water for a correct functioning.

It can be easily adjusted just applying the correct torque to the screws (see indications). A higher or lower torque will produce the system malfunction.

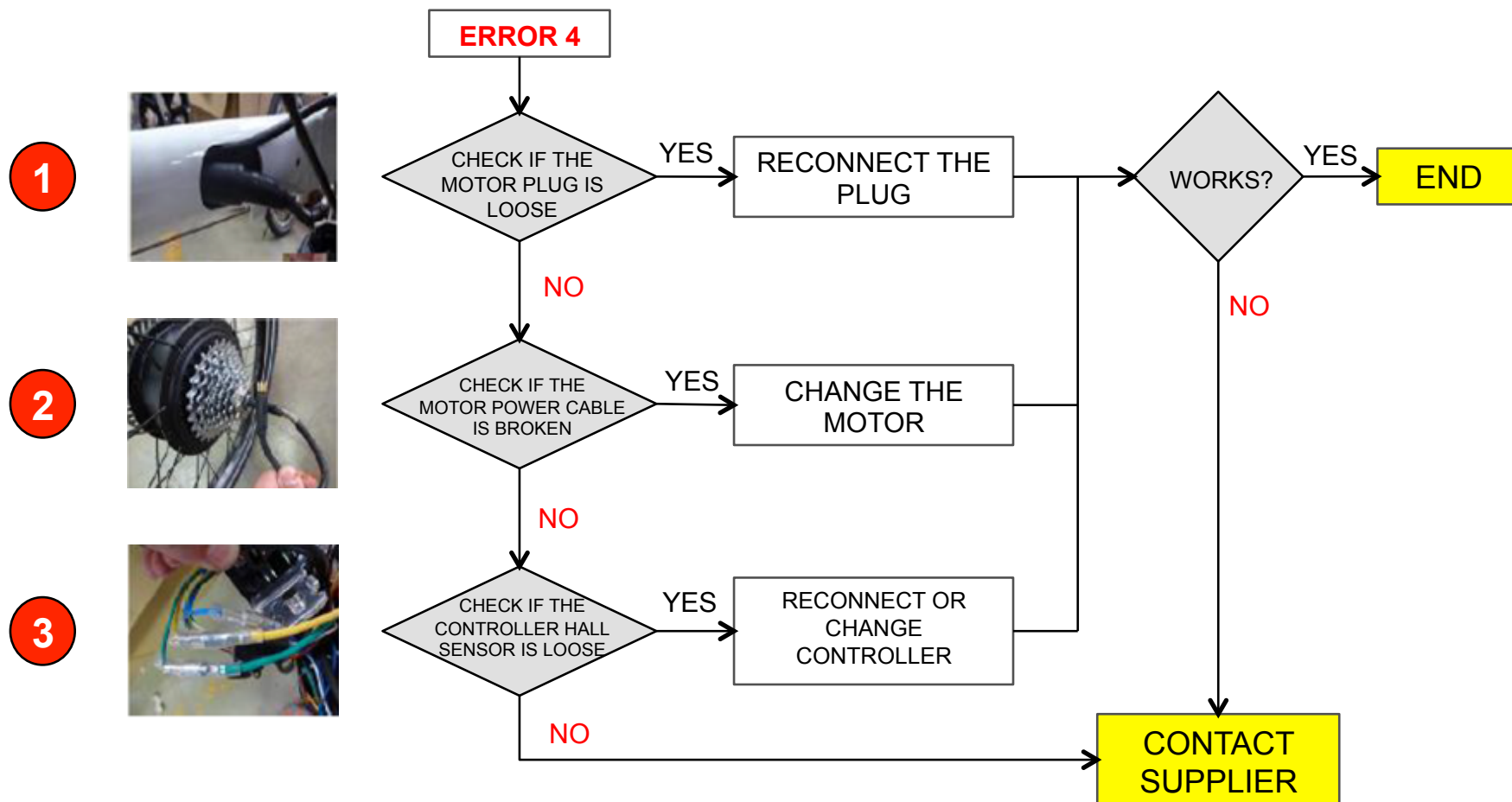


9

ERROR 3: THROTTLE OR TTM SIGNAL ATYPICAL – DIAGNOSIS FLOW



ERROR 4: MOTOR PHASE ABSENCE – DIAGNOSIS FLOW



ERROR 5: MOTOR HALL SENSOR ERROR (1)

➤ **Check motor status:**

- Any electric wires could be cut in rear motor cable output
- Motor plug and pins
- Motor hall sensor

✓ **REPAIR (if any defect found): Change motor**

➤ **Check controller status,**

- Any electric wires could be cut in rear motor cable output
- Motor plug and pins

✓ **REPAIR (If any defect found): Change controller**

ERROR 5: MOTOR HALL SENSOR ERROR (2)

- 1 Check if the motor output cable is damaged
Try with a new rear wheel and check if the system functions correctly

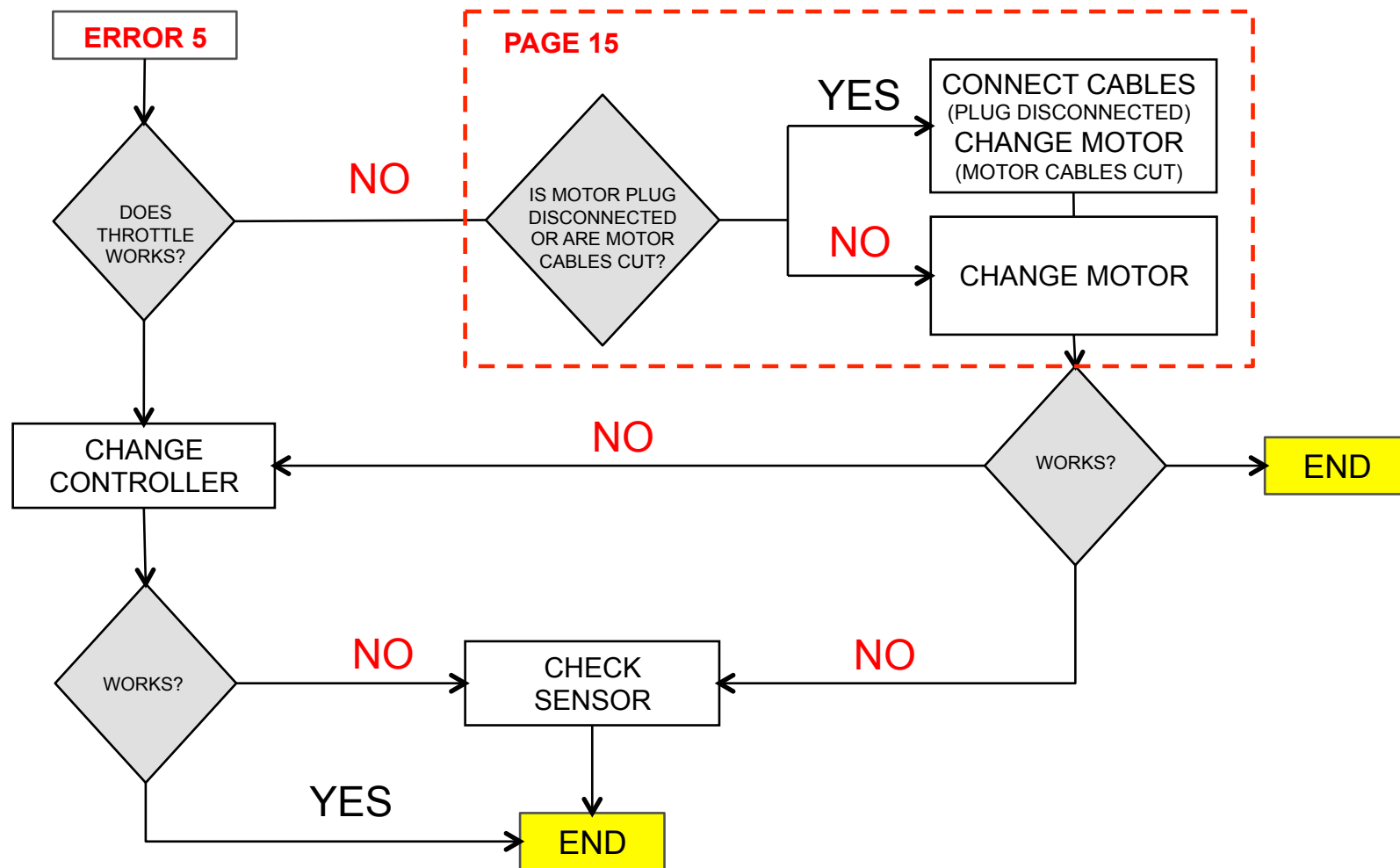


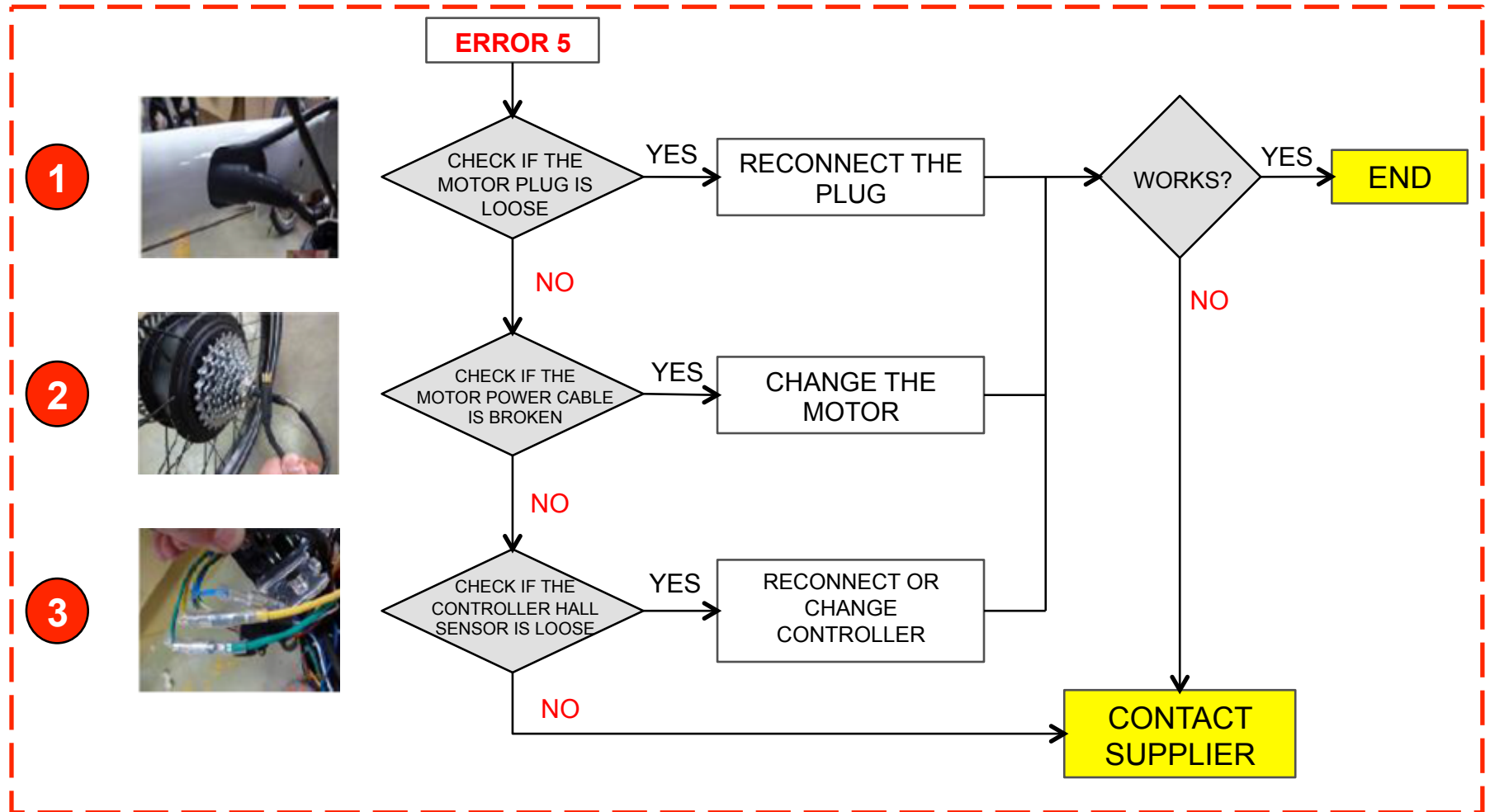
- 3 The motor connector is not welded inside
Check the motor hall status with the checker tool. . If it is damaged, change the motor

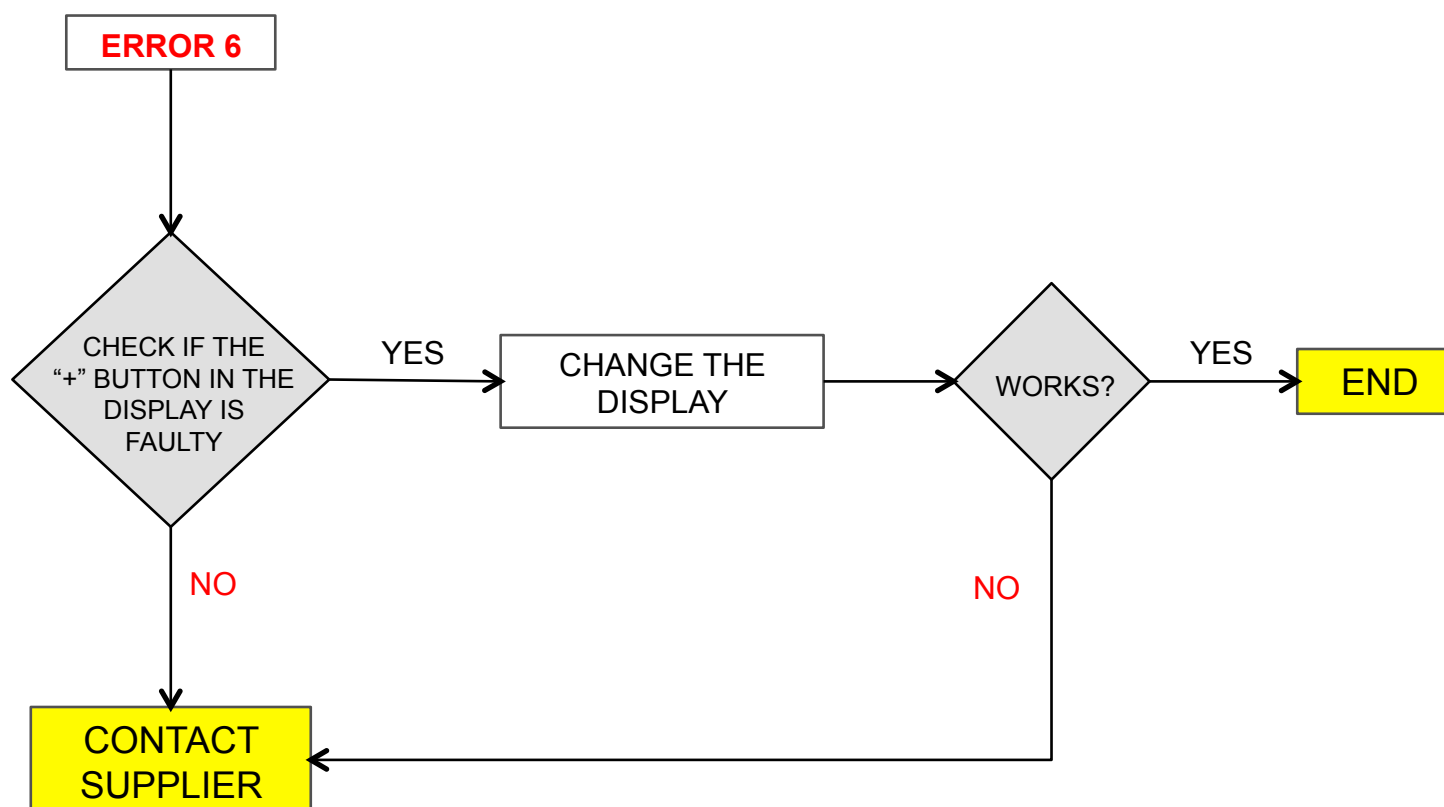


- 2 The hall sensor is damaged, no magnetic field is generated
Check the motor hall status with the checker tool. If it is damaged, change the motor

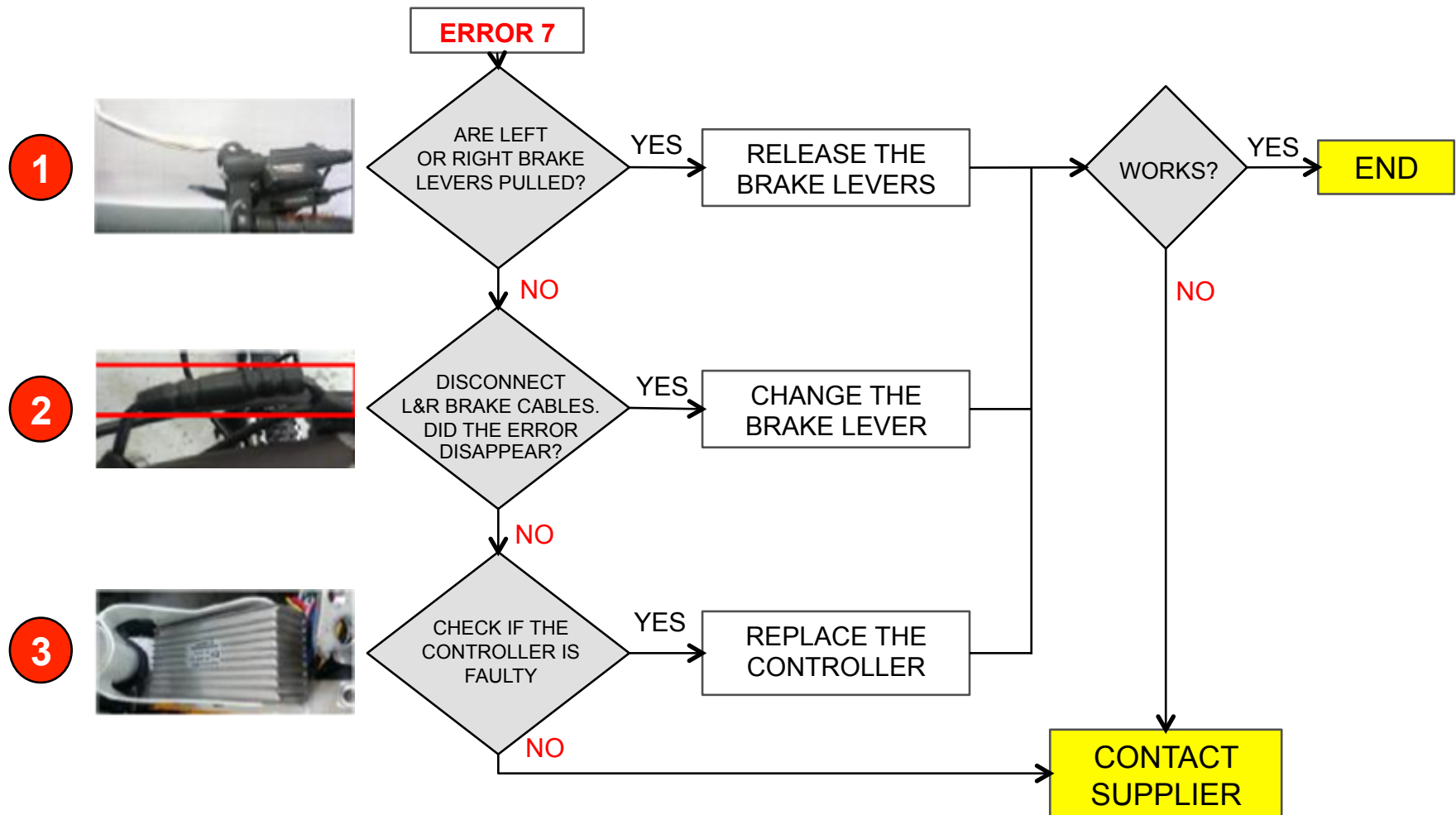




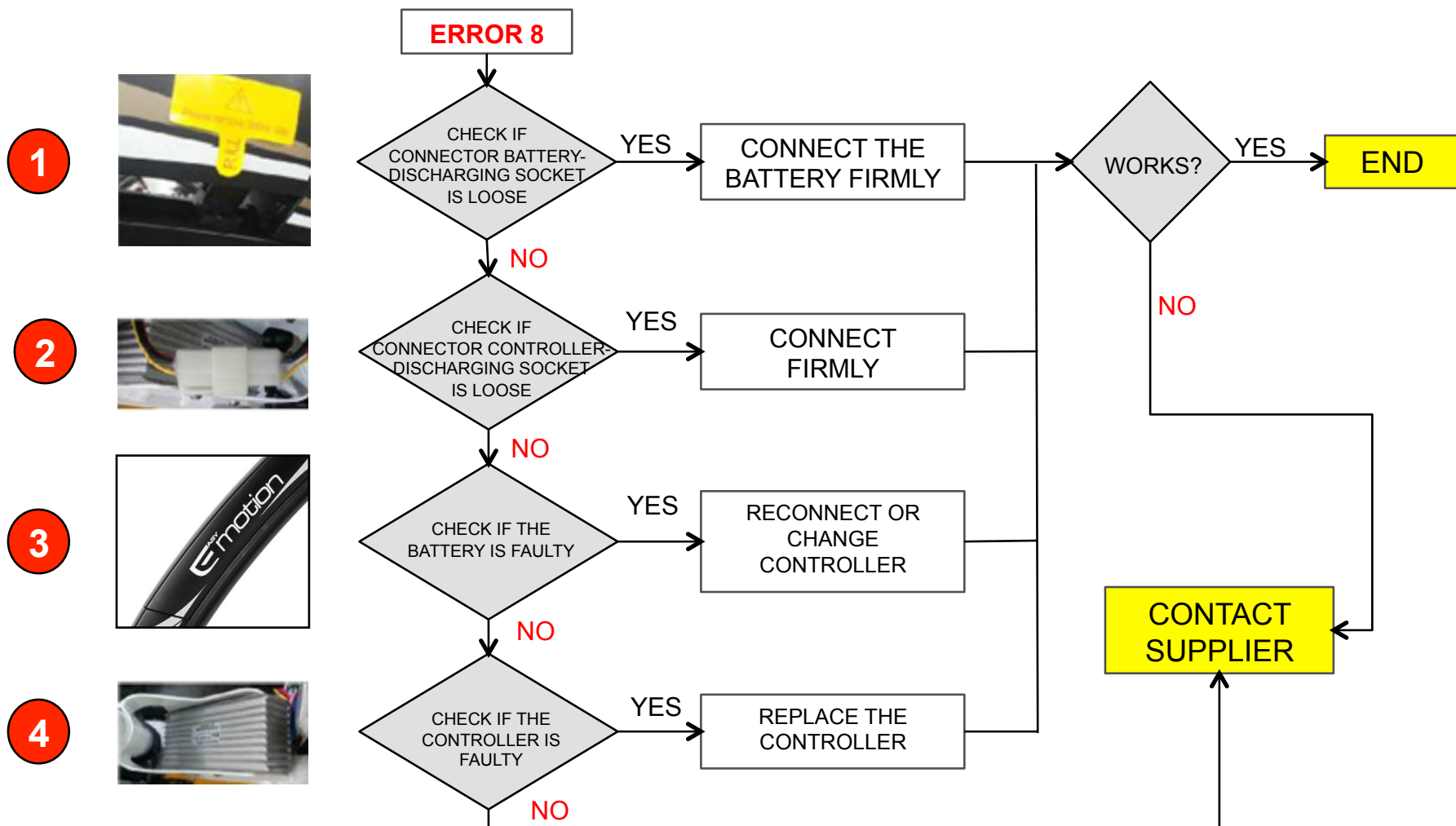




ERROR 7: BRAKE SENSOR INPUT



ERROR 8: BATTERY LOW – DIAGNOSIS FLOW



➤ Check motor status:

- The electric cables may be cut around the motor cable output
- Motor plug and pins may be faulty

✓ **ACTION (if any defect found): Change motor**

➤ Check controller status

- The electric cables may be cut or disconnected in the controller
- Controller plug and pins may be faulty

✓ **ACTION (If any defect found): Change motor**

ERROR 9: MOTOR BLOCKED (2)

- 1 The connector between the motor cable & motor and the extension cable may be loose

Ask your dealer to confirm if these cables are connected



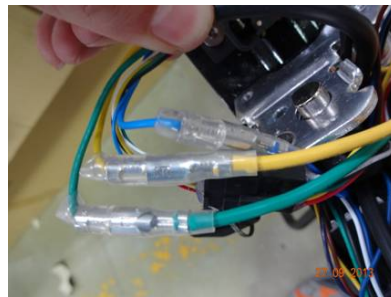
- 3 The motor extension cable may have a defective wire welding inside

Ask your dealer to replace the motor extension cable



- 2 The connectors between the motor phase wire at the controller side & motor extension cable may be loose

Ask your dealer to confirm if these cables are connected

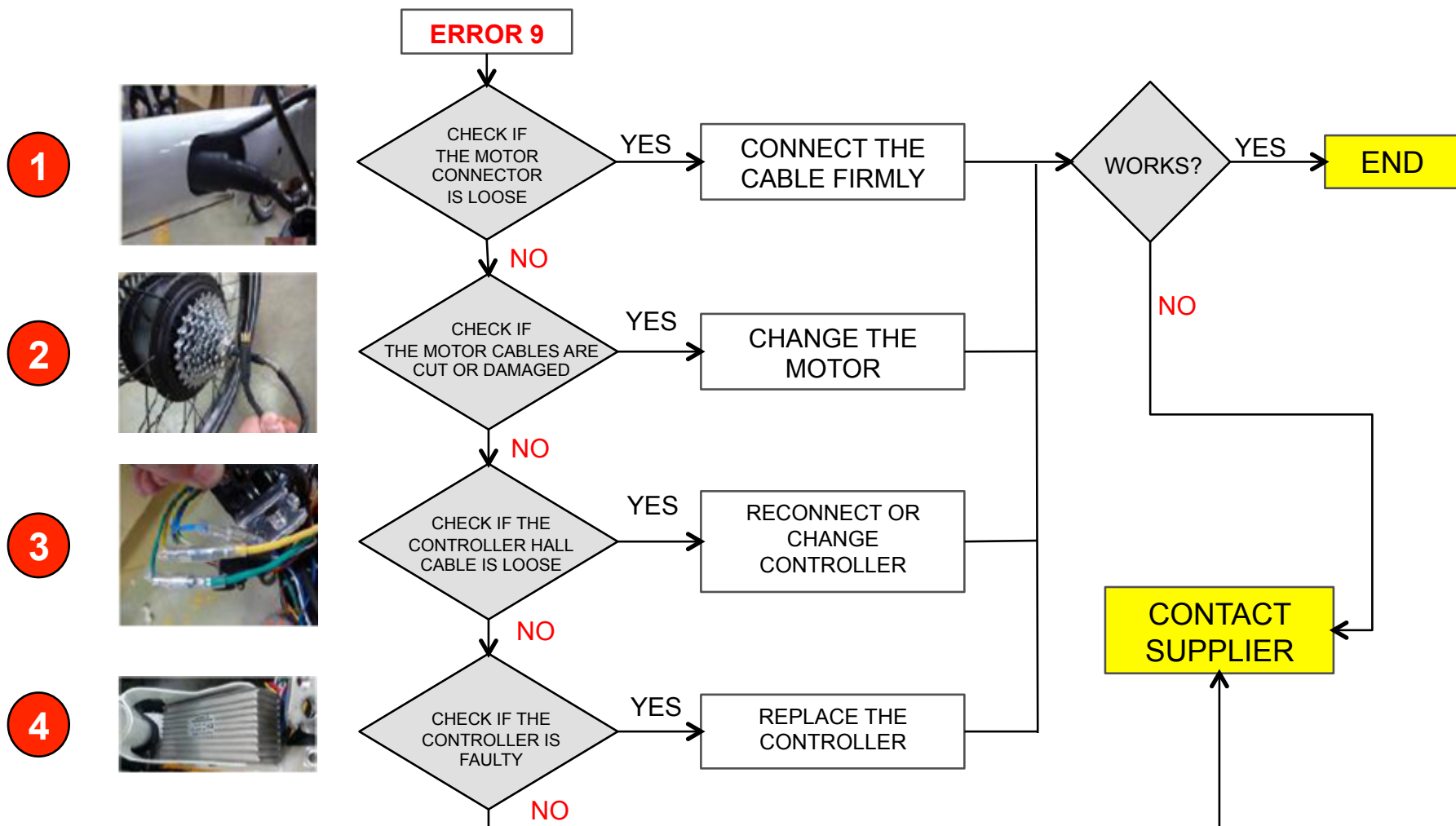


- 4 Dapu motor connector was not correctly welded inside

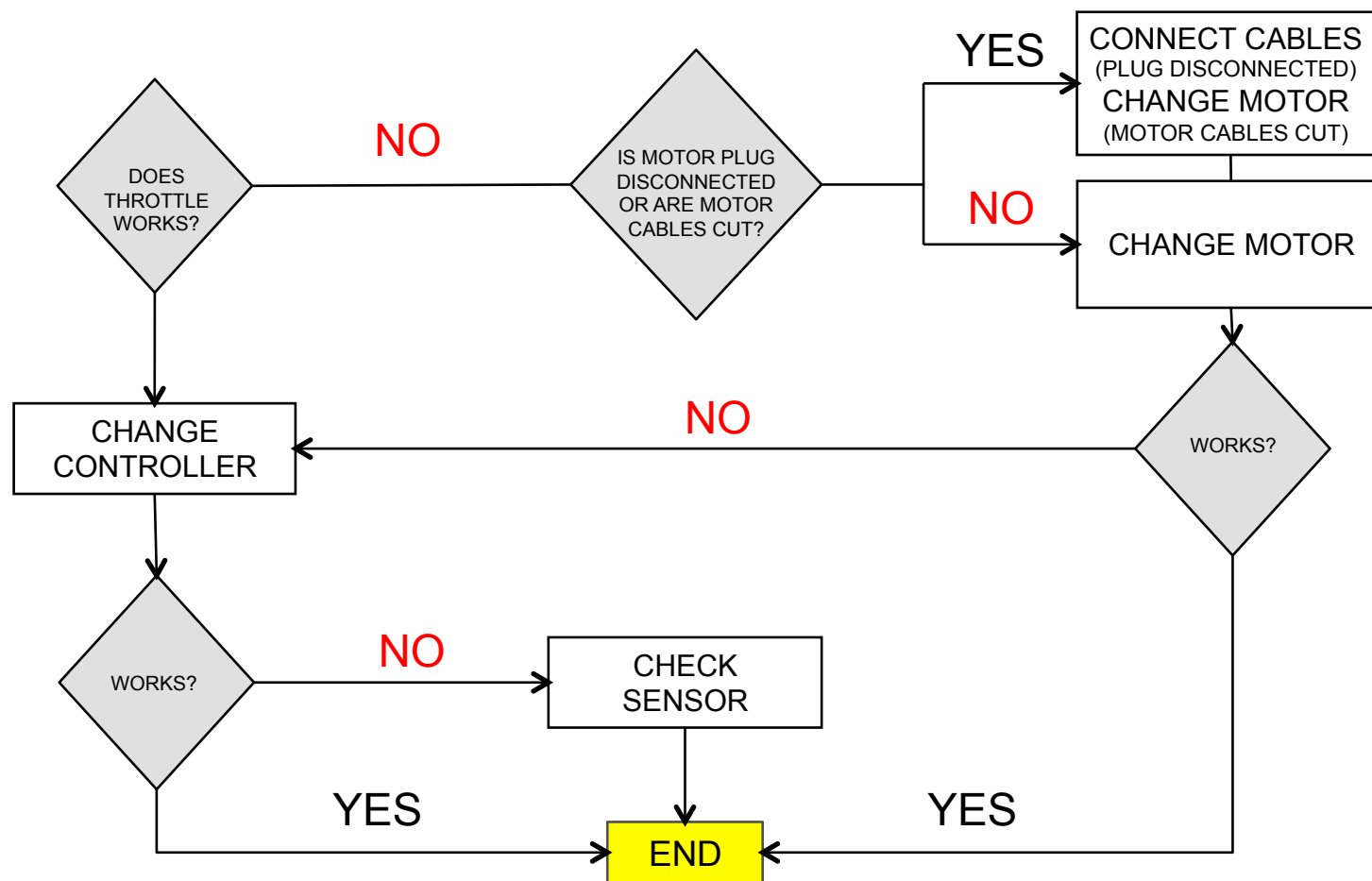
Replace the rear wheel

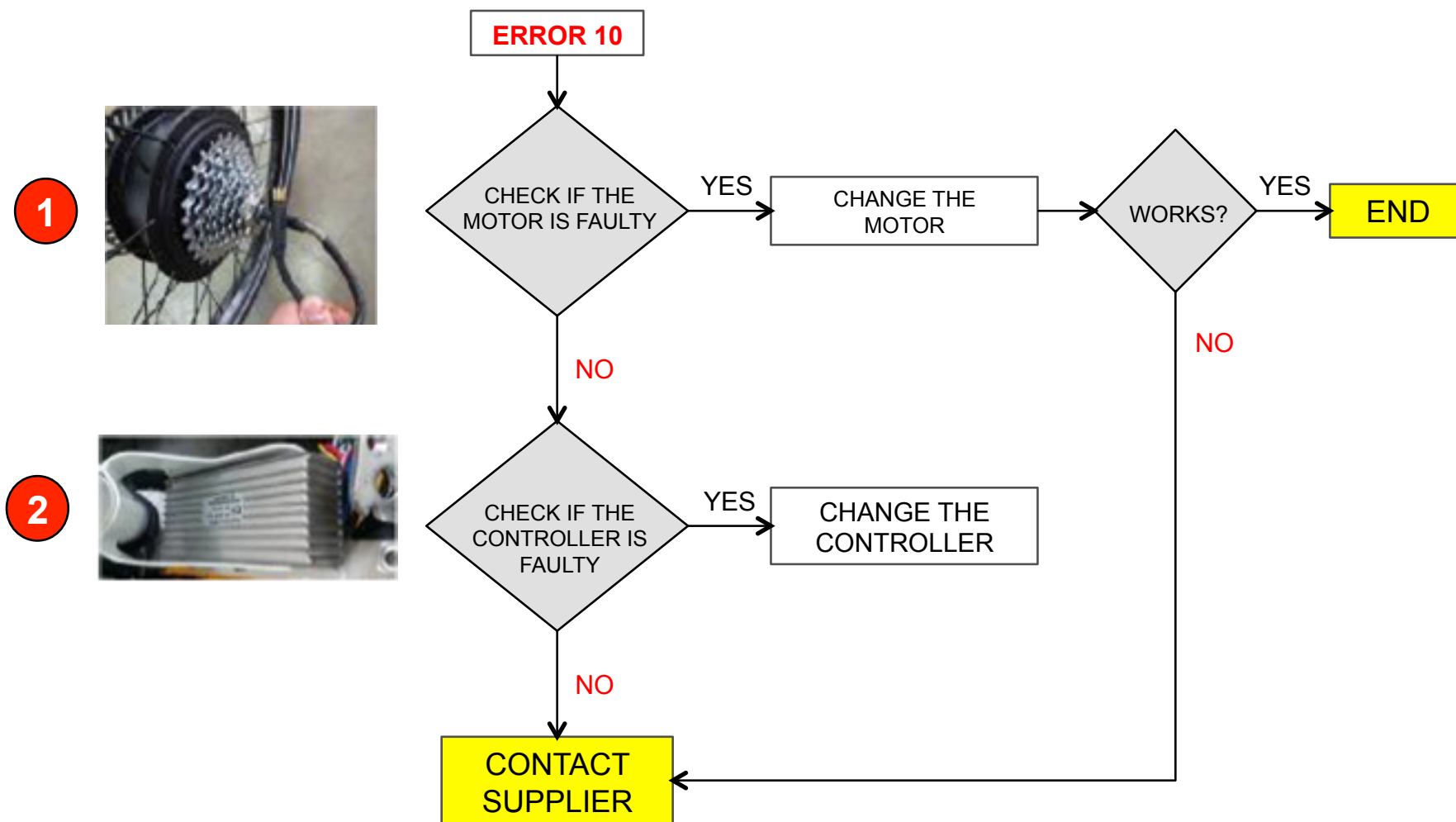


ERROR 9: MOTOR BLOCKED – DIAGNOSIS FLOW (1)

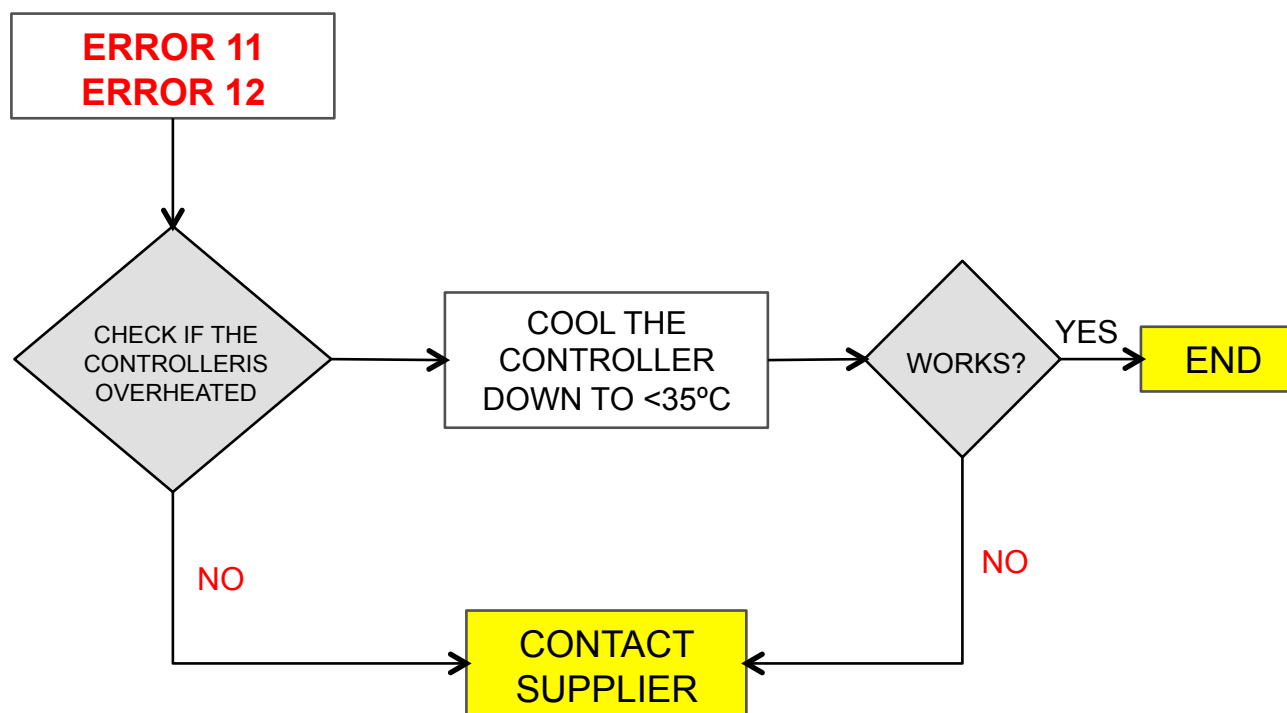


ERROR 9: MOTOR BLOCKED – DIAGNOSIS FLOW (2)





1



ERROR 13: COMMUNICATION PROBLEM (1)

- Display
 - Change the display and check

✓ **ACTION: Change Display**

- Display Holder
 - Change display holder and check

✓ **ACTION: Change display holder**

- Controller
 - Change controller

✓ **ACTION: Change controller**

- Electric connections
 - Change the connection kit

✓ **ACTION: Change connection cables**

ERROR 13: COMMUNICATION PROBLEM (2)

- 1 Check display status with Display checker tool

Replace the display if it is damaged and check if the new one works. If it does not, go to 2



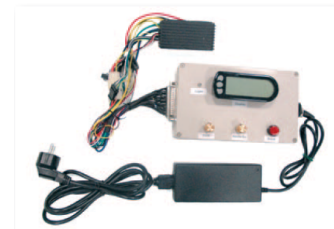
- 2 Check display holder status using the Display Holder Checker Tool

Replace the display holder if it is damaged and check if the new one works. If it does not, go to 3



- 3 Check controller status using the Controller Checker Tool

Replace the controller if it is damaged and check if the new one works. If it does not, go to 4

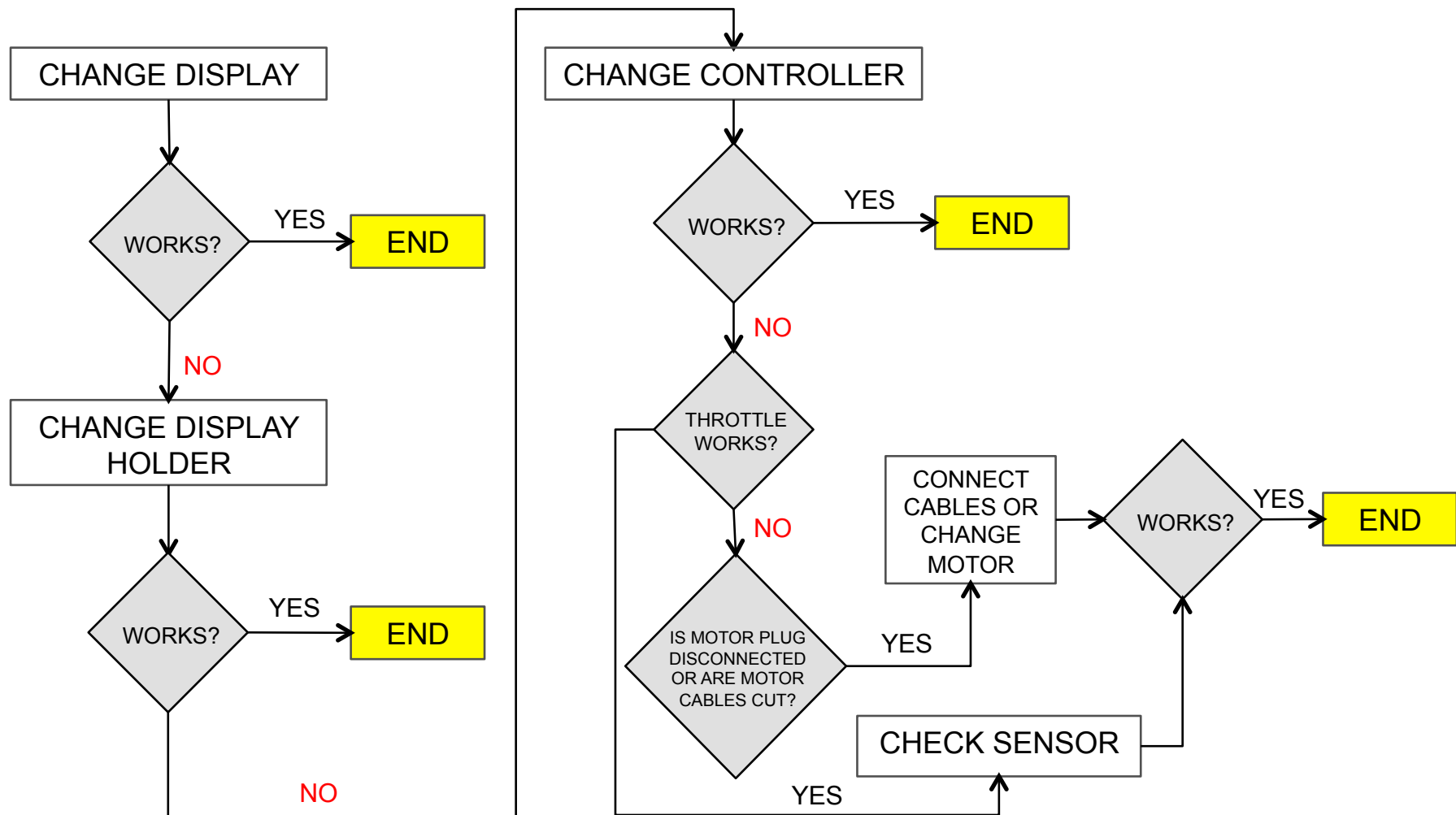


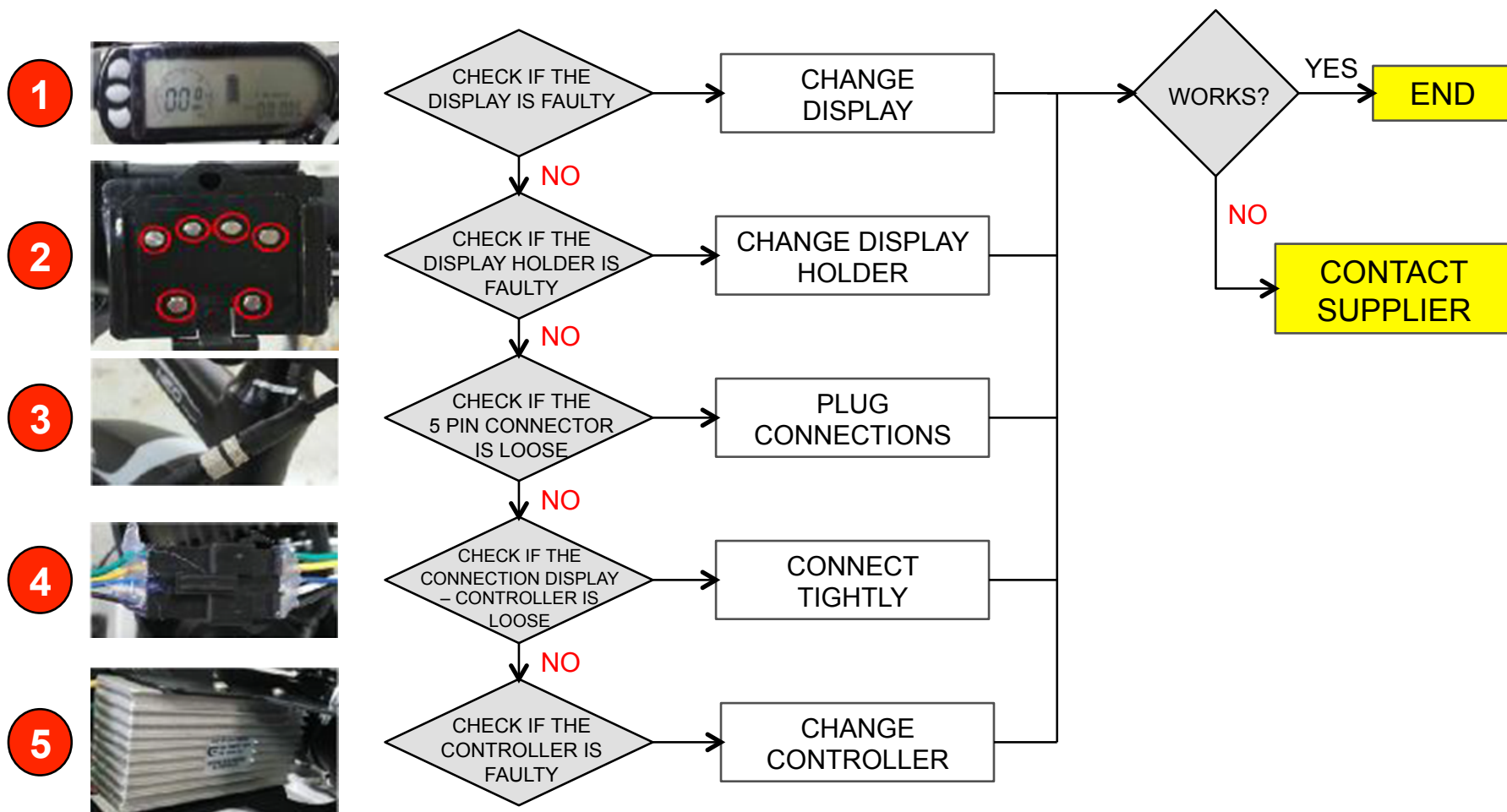
- 4 Check the motor status using the Motor Checker Tool (see page 10)

Replace the motor if it is damaged and check if the new one works. If it does not, go to 5

- 5 Check the torque sensor status using the Sensor Checker Tool (see page 5)

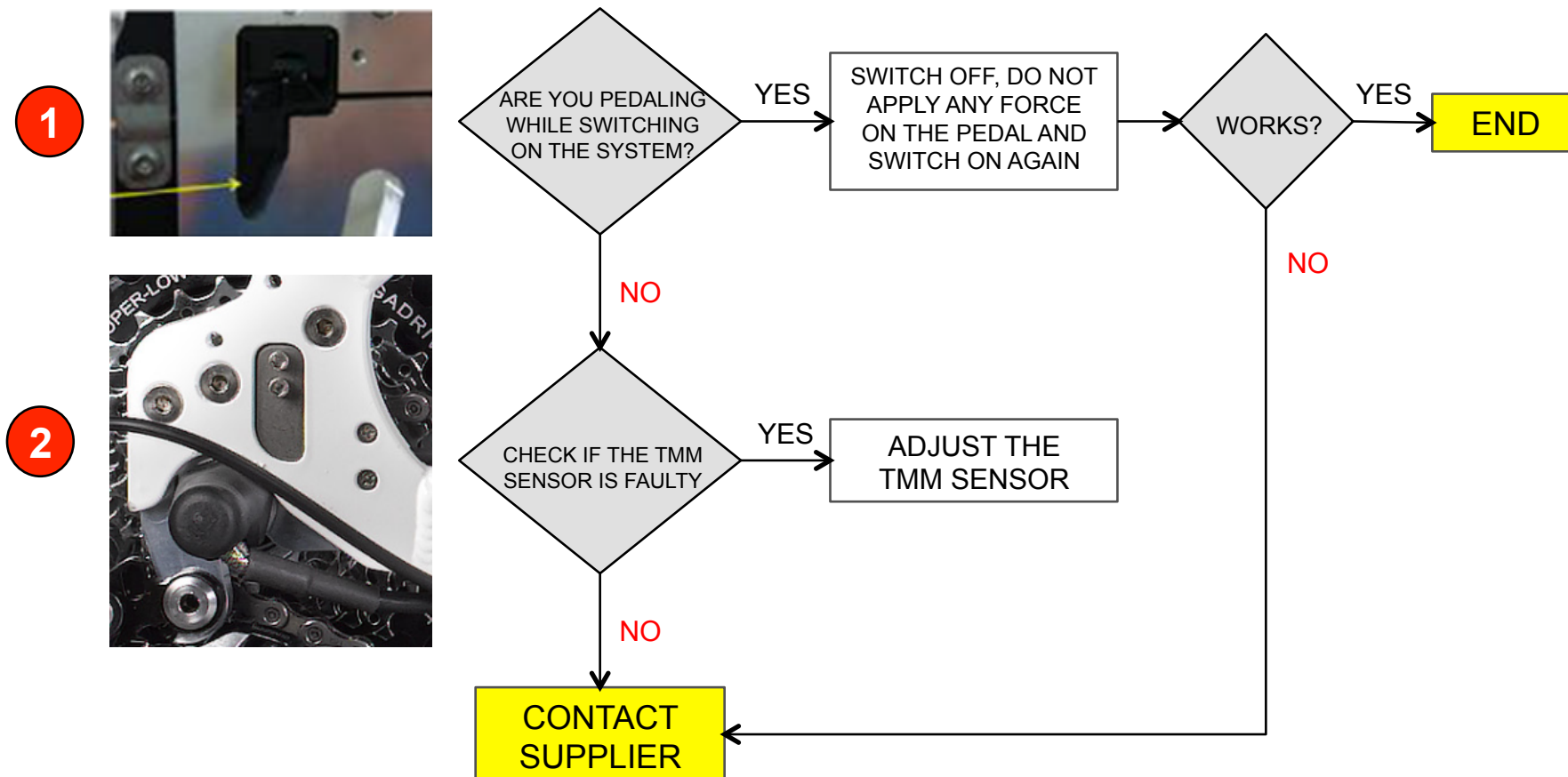
Replace the torque sensor if it is damaged





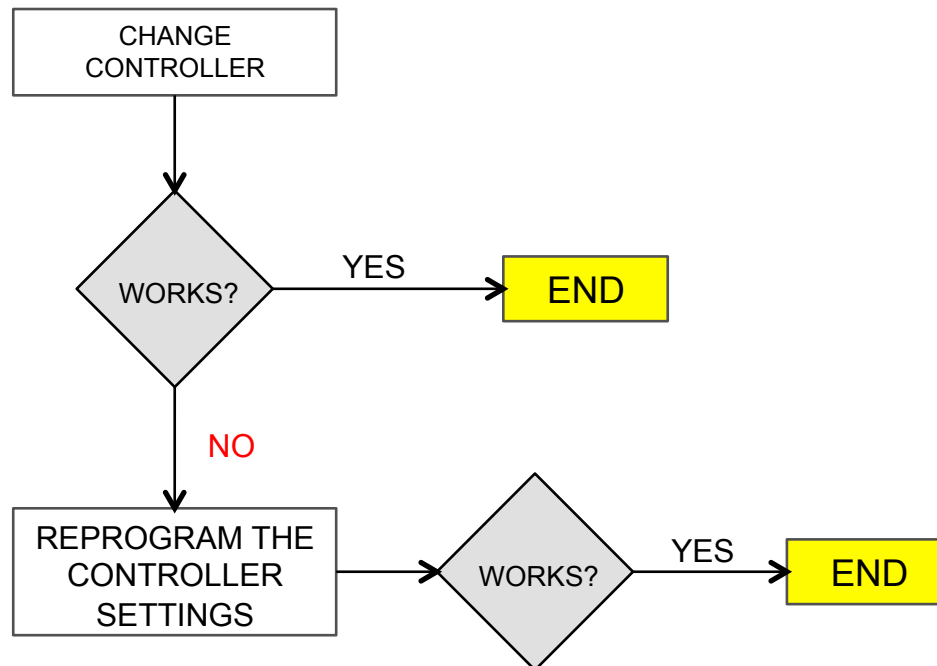
- Typically, this error occurs when the user turns on the system (Push display button ON) while applying pressure on the pedal
 - ✓ **ACTION: Switch off and re-start without applying any pressure on the pedals**
- Re-program the system

ERROR 14: FOOT ERROR – DIAGNOSIS FLOW



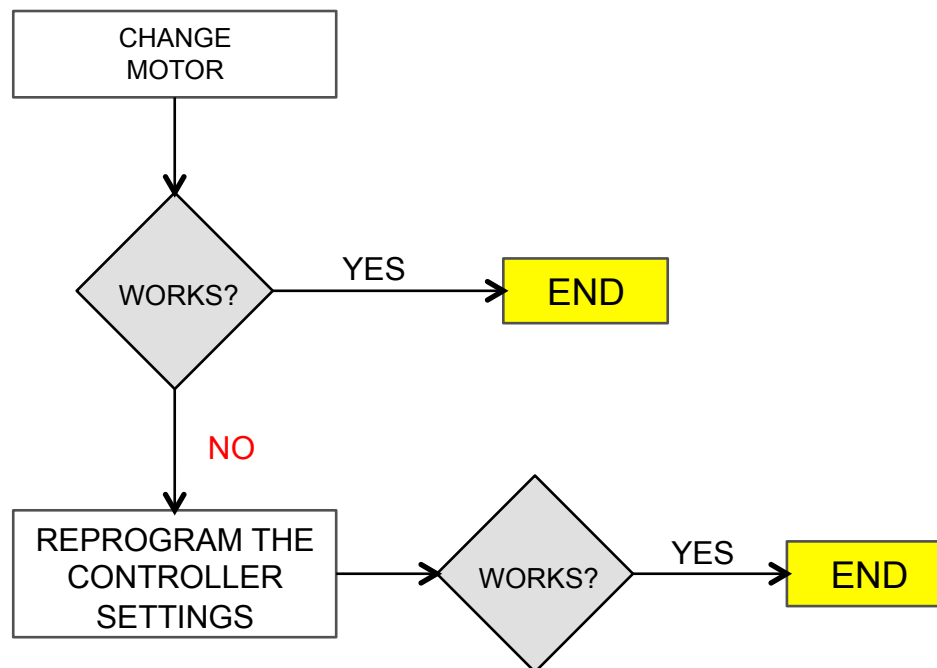
PROBLEM: Display does not switch on. Screen flash

✓ **ACTION: Replace the controller**



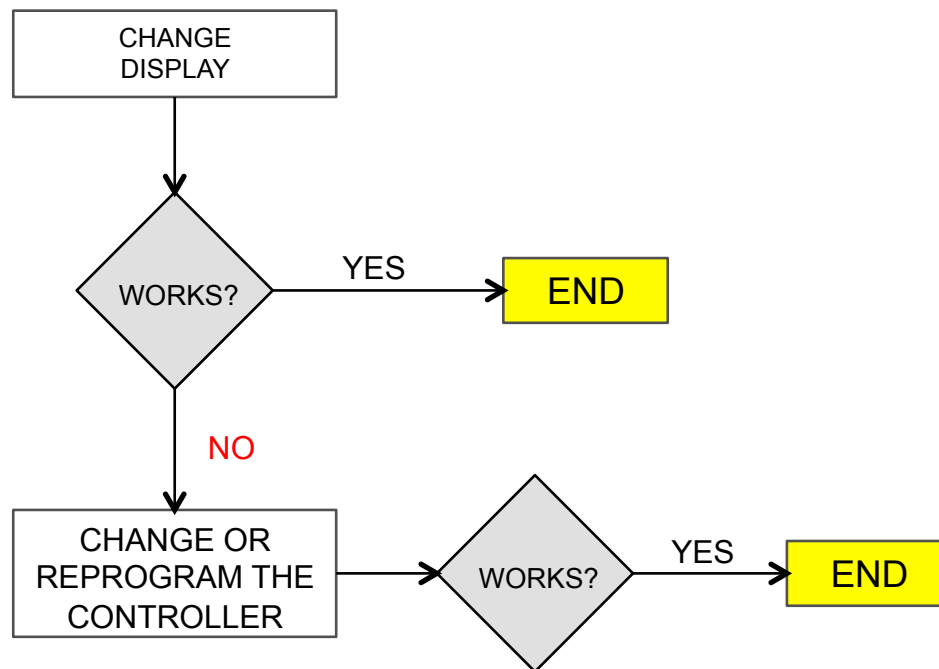
PROBLEM: Display does not indicate the speed: motor speedometer is damaged

✓ **ACTION: Change the motor**



PROBLEM: The bike works only using the ECO mode. Selecting other assistant level does not increase the power. The user will perceive the same assistance through all the levels.

✓ **ACTION: Change display or controller**



This summary guides you through the most common actions when any error happens:

1. Error 3 – Action: Change TMM Sensor
2. Error 5 – Action: Change motor or controller
3. Error 9 – Action: Change motor or controller
4. Error 13 – Action: Change display, display holder or controller
5. Error 14 – Action: Reprogram the controller
6. Display Flash – Action: Change the controller
7. Display does not indicate the speed – Action: Change motor
8. Assistance does not increase – Action: Change display or controller
9. Irregular assistance – Action: Change sensor
10. Motor noise – Action: Change motor or replace bearings
11. Battery charge indicator empty (battery charged) - Action: Change display
12. Short range – Action: Check battery status, change or reprogram controller



34

AFTER SALES SERVICE

CONTROLLER SETTINGS REPROGRAMMING

Some parameters will be customizable by the dealer. The parameters that will be open to modify will affect to the maximum range and the riding sensations.

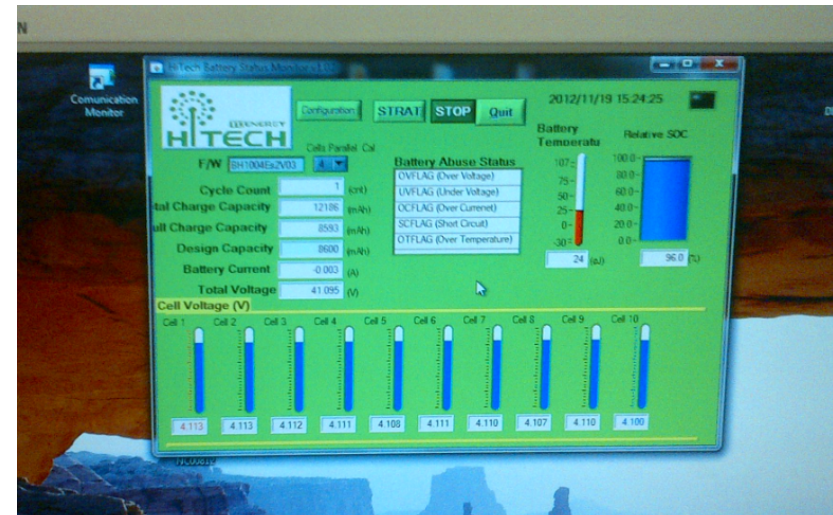
		CUSTOMIZABLE VALUE		
MODE	DEFAULT VALUE	LOW	MEDIUM	HIGH
ECO	HIGH	⊙	⊙	⊙
NORMAL	HIGH	⊙	⊙	⊙
SPORT	HIGH	⊙	⊙	⊙
BOOST	HIGH	⊙	⊙	⊙

MODE	DEFAULT VALUE	SLOW	AVERAGE	FAST
START SPEED	FAST	⊙	⊙	⊙

MODE	DEFAULT VALUE	PROMPT	DELAYED
START DELAY	PROMPT	⊙	⊙

BATTERY CHARGE STATUS

Refer to the Checker Tool manual.



NEO MAIN SPARE PARTS

- Battery
- Charger
- Controller
- TMM torque sensor
- Connection cables
- Display
- Battery
- Spoke kits
- Motor
- Brakes

OTHER NEO SPARE PARTS

- Display Holder
- Battery Lock
- Battery lock plate
- Chain guard

NEO KITS

- Neo light kit
- Neo Bluetooth module
- Neo Premium app



38

NEO SPARE PARTS NUMBERS

PART NUMBER	DESCRIPTION
387191800	BATTERY NEO XTREM 9AH
387191900	BATERIA NEO CITY 9AH
387192000	BATTERY NEO CROSS 9AH
387196700	BATTERY NEO VOLT 9AH
387196800	BATTERY NEO VOLT SPORT 9AH
387203700	BATTERY NEO PROX 9AH
387196600	BATTERY NEO STREET 9AH
387196900	BATTERY NEO JUMPER 9AH
387197000	BATTERY NEO 29ER 9AH
387197100	BATTERY NEO RACE 9AH
387197200	BATTERY NEO CARBON 9AH
387200300	BATTERY NEO NITRO 9AH
387200500	BATTERY NEO 650B 12AH
387201100	BATTERY 29ER 12AH
387201000	BATTERY JUMPER 650B 12AH
387202300	BATTERY NEO CROSS 12AH
387203800	BATTERY NEO RACE 12AH
387188100	CHARGER NEO
387200000	NITRO CHARGER 48V
345108300	SWITZERLAND CHARGER CABLE
387198600	UK CHARGER CABLE
387196300	MOTOR AND REAR WHEEL NEO JUMPER
387196400	MOTOR AND REAR WHEEL NEO 29ER
387196500	MOTOR AND REAR WHEEL NEO RACE
387198900	MOTOR AND REAR WHEEL NEO CROSS
387199300	MOTOR AND REAR WHEEL NEO XTREM
387198200	MOTOR AND REAR WHEEL NEO STREET
387198300	MOTOR AND REAR WHEEL NEO CITY
387202500	MOTOR AND REAR WHEEL NEO 650B
387202200	MOTOR AND REAR WHEEL NEO VOLT
387202400	MOTOR AND REAR WHEEL NEO VOLT SPORT
387202200	MOTOR AND REAR WHEEL NEO NITRO
386107200	FRONT BRAKE LEVER DISC
386107300	REAR BRAKE LEVER DISC
384554400	FRONT BRAKE LEVER V-BRAKE
384554500	REAR BRAKE LEVER V-BRAKE
386107500	CONTROLLER 36V
387200100	CONTROLLER 48V (NEO NITRO)

PART NUMBER	DESCRIPTION
386107600	NEO DISPLAY BLACK
386108500	NEO DISPLAY WHITE
386109100	NEO NITRO DISPLAY
386109300	NEO HOLDER LONG
386108000	BATTERY LOCK PLATE
387192500	BATTERY LOCK AND KEYS
387192700	TORQUE SENSOR
364250900	NEO CITY CHAIN COVER
386109000	CONNECTOR CABLE BETWEEN BATTERY AND CONTROLLER
386108800	CONNECTOR CABLE BETWEEN SENSOR AND CONTROLLER
386108900	CONNECTOR CABLE BETWEEN DISPLAY AND CONTROLLER
391503400	NEO DROP-OUT
386109200	NITRO CONNECTOR CABLE BETWEEN SENSOR AND CONTROLLER
387183600	FRONT LIGHT BASTA SPRINT
387359900	REAR LIGHT SPANNINGA BRASA
342284800	REAR CARRIER 28"
342275300	CONNECTORS REAR CARRIER 28"
382272300	FENDERS SKS 28" BLACK
364250900	CHAINCOVER BLACK
387203900	EVO ECO BATTERY 9AH
387204000	EVO STREET BATTERY 12AH
387204100	EVO CITY BATTERY 12AH
387204200	EVO CITY WAVE BATTERY 12AH
387204300	EVO DIAMOND BATTERY 12AH
387204400	EVO DIAMOND WAVE BATTERY 12AH
387204500	EVO GACELA BATTERY 12AH
387204600	NEO HOLDER LONG MAGURA
387204800	EVO BATTERY CONNECTOR
387205100	EVO CONTROLLER
387198200	MOTOR AND REAR WHEEL NEO STREET
387199300	MOTOR AND REAR WHEEL NEO XTREM
387198300	MOTOR AND REAR WHEEL NEO CITY
387198900	MOTOR AND REAR WHEEL NEO CROSS
386108200	NEO LIGHT KIT
386109400	NEO & EVO BLUETOOTH KIT PREMIUM
386110000	NEO & EVO QUICK RELEASE UPGRADE KIT
384252000	NEO & EVO CHECKERS