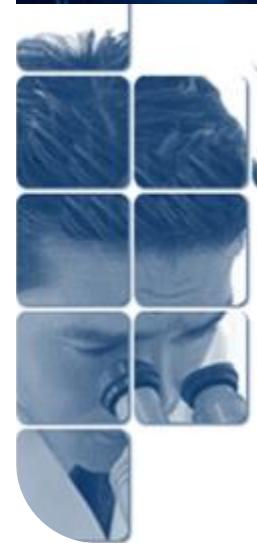


N5 A/S MANUAL



NUGA R&D Center

Contribute to human health with highest
and best efforts and service





CONTENTS

1. N5의 구성.

N5 Product Package

2. A/S 필요한 공구

A/S Tools required

3. 제품 규격

Product Specifications

4. 주요 연결 부분 명칭.

Names of Main Connecting Ports

5. 회로 PCB

PCBs

6. 본체 구조

Main Equipment Components

7. 증상에 따른 ERROR CODE

Symptoms and Error Codes

8. 점검 및 수리

Inspection and Repair

9. 주요 점검 및 수리

Major Inspection and Repair

10.본체 설치 조립 순서

Main Unit Assembly Order

11.내부 투광기 초기 세팅방법.

Initial Setup Method for the Internal Light Projector



1.N5의 구성

N5 Product Package



사용설명서
User Manual



전원 케이블
Power cable



5구 투광기 및
보호밴드
5P light projector and
protective band



저주파패드
Low-
frequency
pad



겉 천
Outer cloth



본체
Body of the device (main unit)



바스켓
Basket



복부온열패드(OPTION)
Abdominal heating pad (optional)

2. A/S에 필요한 기본 공구 Repair Tools



스페너 8,10, 12, 13 mm
Wrenches/Spanners (8,10,
12, 13 mm)



니퍼, 롱 오우즈 (노우즈)
Nipper and long nose plier



테스터기
Tester



육각렌치 셋트
Hex key set



드라이버류
Screwdrivers



장력 게이지
Tension gauge



전동드라이버
Power tool (drill)

3. 제품 규격 Product Specifications

	구 분 Category	규격 Specification
표시사항 Labeled information	제품전체길이 Total length	1925mm
	제품중량 Total weight	48kg
	제품 전체 소비전력 Power consumption	MAX 370W
본체& 보조& 틀 일체형 Main unit, auxiliary unit, and frame- integrated	본체 크기 Dimensions (main unit)	1925 × 580 × H516mm
	모터 Motor	DC 24V × 1/2
	내부 투광기로 입력되는 전압 Input voltage (light projector)	AC 24V
	구동방식 Driving system	CHAIN 구동방식 Chain drive
	본체부 무게 Weight (main unit)	48kg
저주파패드 Low-frequency pad	비만 클리닉 재질 Material (Obesity Clinic)	Silicon(내열성 200도) Silicone 이 아닌지 (heat resistance: 200°)
	비만 클리닉 소비전력 Power consumption (Obesity Clinic)	MAX 19 W
5구 발열도자 5P heating unit	5구 발열도자 재질 Material (5P heating unit)	내열성 ABS Heat-resistant ABS
	5구 발열도자 소비전력 Power consumption (5P heating unit)	MAX 45W
복부온열패드 (OPTION) Abdominal heating pad (optional)	복부온열 패드 Abdominal heating pad	무자개 열선 & PU FOAM, Magnetic field-shielded hot wires and PU foam
	복부온열 패드 소비전력 Power consumption (abdominal heating pad)	MAX 90 W

4. 주요 연결부 명칭 Names of Main Connecting

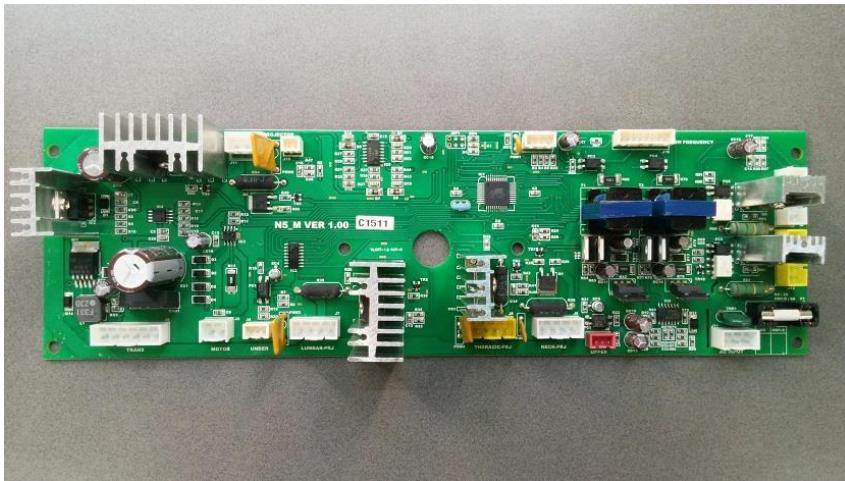


5구 발열도자
복부온열패드 연결부
5P heating unit and
abdominal heating
pad port

저주파 패드 연결부
Low-frequency pad
port

AC 전원 연결부& MAIN 전원 스위치
AC power port and main power
switch

5.회로 PCB류 PCBs



메인 PCB
Main PCB



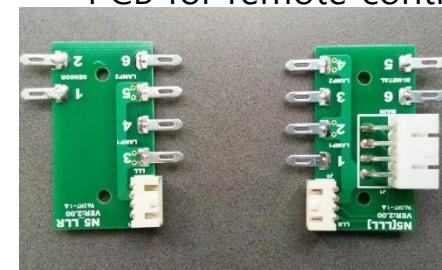
REMOCON PCB
PCB for remote control



경추부 발열봉 PCB
PCB for cervical
vertebrae heating
rod



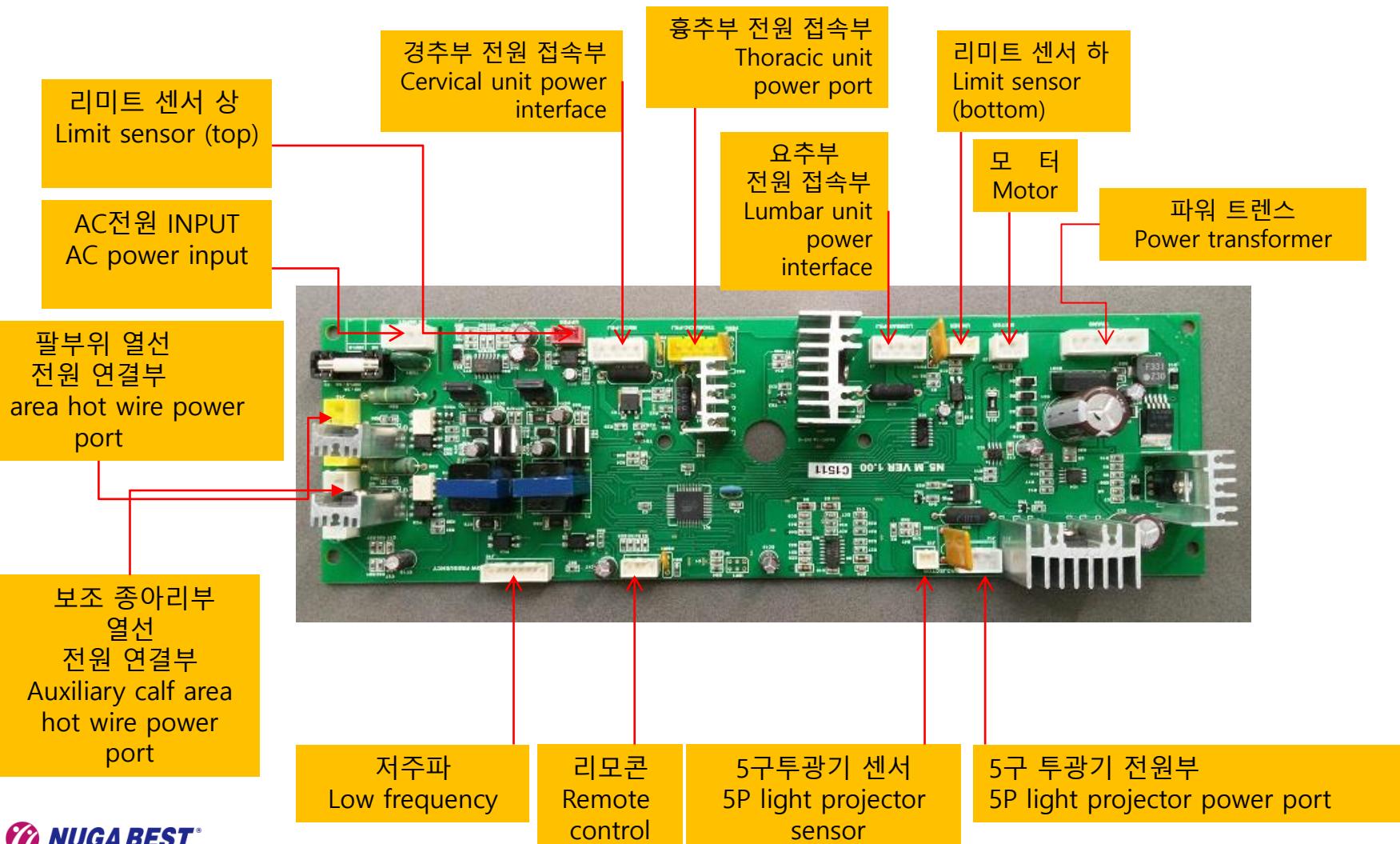
흉추부 발열봉 PCB
PCB for the thoracic
vertebrae heating rod



요추부 발열봉 PCB
L & R PCB
Left and right PCBs for
the lumbar vertebrae heating rod

5.회로 PCB류-메인PCB

PCBs – Main PCB



6. 본체 구조 Main Equipment Components

① 경주부 마사지 모듈: 경주 시압을 하는 부위

Cervical vertebrae massage module: Applies acupressure on the cervical vertebrae

② 흉추부 마사지 모듈: 흉추부 지압을 하는 부위

Thoracic vertebrae massage module: Applies acupressure on the thoracic vertebrae

③ 요주부 마사지 모듈: 요주부 지압을 하는 부위

Lumbar vertebrae massage module: Applies acupressure on the lumbar vertebrae

④ Motor : 내부 투광기(경주, 흉주, 요주부)를 움직여 주는 장치

Motor : Drives the internal light projector (cervical, thoracic and lumbar area)

⑤ Main PCB : 치료기의 모드 시스템을 관리하는 부분

Main PCB : Manages the mode system of the therapeutic device

⑥ Power Trans : 매인 PCB에 전원을 공급해 주는 부품

Power transformer : Supplies power to the main PCB

⑦ Limit s/w(상) : 내부 투광기의 행정거리를 제한하는 부품

Limit switch (top) : Limits the travel distance of the internal projector

⑧ Limit s/w(하) : 내부 투광기의 행정거리를 제한하는 부품

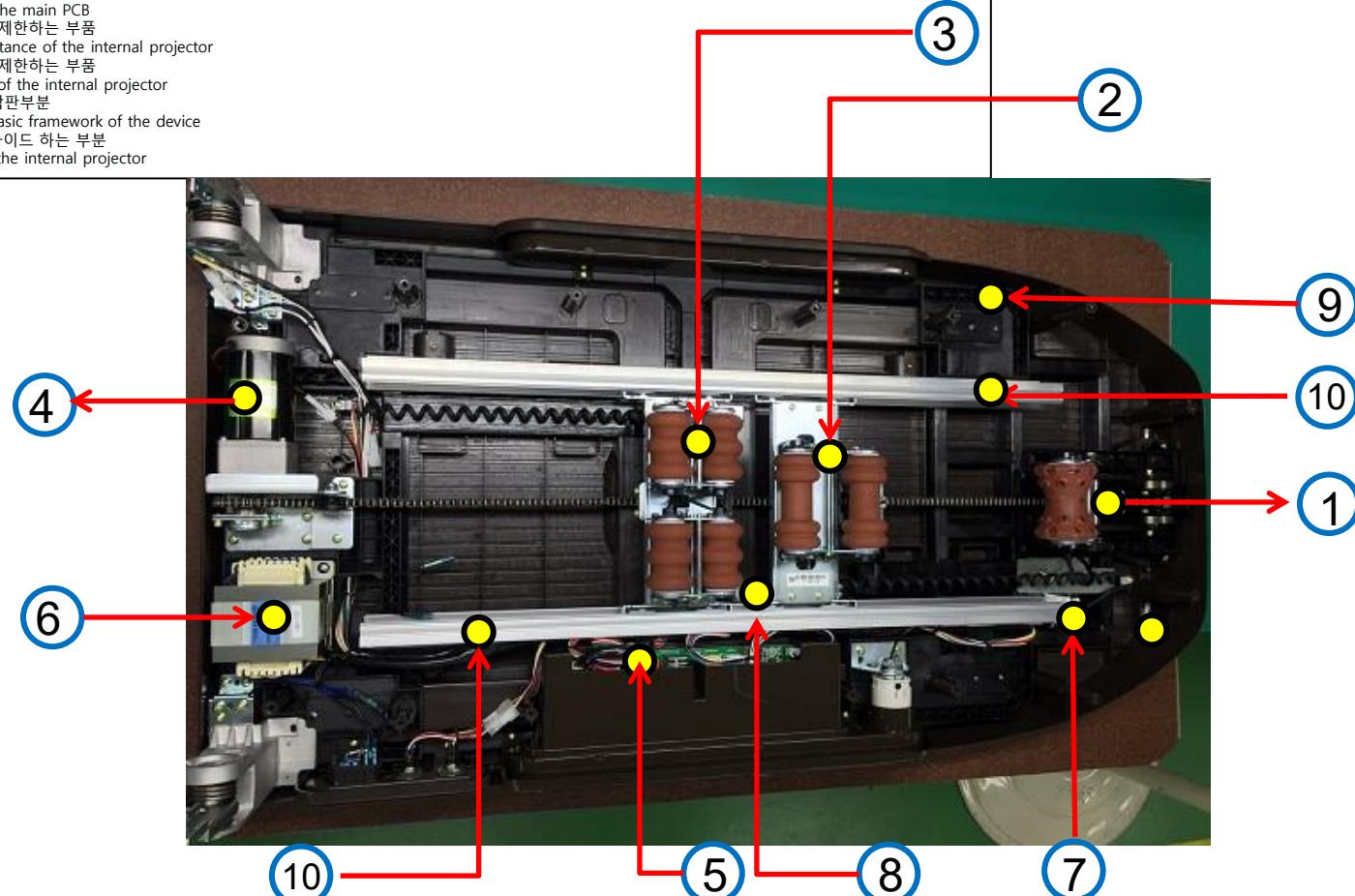
Limit switch (bottom) : Limits the travel distance of the internal projector

⑨ Main FRAME : 제품의 기초 뼈대가 되는 합판부분

Main frame : Plywood that forms the basic framework of the device

⑩ Guide Rail : 내부 투광기의 움직임을 가이드 하는 부분

Guide rail : Guides the movement of the internal projector



7.증상에 따른 ERROR CODE

Symptoms and Error Codes

내부발열도자		ERROR CODES	
	E0 요추:온도센서 이상 Problem in the lumbar unit temperature sensor	E5 경추: 발열봉 단선 Disconnection of the cervical unit heating rod	
	E1 요추:발열봉 단선 Disconnection of the lumbar unit heating rod	E6 내부 발열도자 과열 Overheating of the internal heating device	
	E2 흉추: 온도센서 이상 Problem in the thoracic unit temperature sensor	E7 리미트 센서 이상 Problem in the limit sensor	
	E3 흉추:발열봉 단선 Disconnection of the thoracic unit heating rod	E8 모터 이상 Problem in the motor	
	E4 경추: 온도센서이상 Problem in the cervical unit temperature sensor	E9 조절기 통신 이상 Problem in the controller communication	

보조 온열부		ERROR CODES	
	E0 본체 온열부 온도센서 이상 Problem in the temperature sensor of the main heating unit	-- 외부 발열도자 온도센서 단선(미체결) Disconnection of the temperature sensor of the external heating device	
	E1 본체 온열부 단선 Disconnection of the main heating unit	E0 외부 발열도자 온도센서 이상 Problem in the temperature sensor of the external heating device	
	E2 하부 온열부 온도센서 이상 Problem in the temperature sensor of the lower heating unit	E1 외부 발열도자 램프 단선 Disconnection of the external heating device lamp	
	E3 하부 온열부 단선 Disconnection of the lower heating unit	E6 외부 발열도자 과열 Overheating of the external heating device	
	E6 발열체 과열 Overheating of the heating element		

**외부발열도자
(복부온열패드)**

**External
heating
device
(abdomi
nal
heating
pad)**

7-1.증상에 따른 ERROR CODE-1(내부 발열도자) Symptoms and Error Codes – 1 (Internal Heating Device)





7-2.증상에 따른 ERROR CODE-2(보조 온열부) Symptoms and Error Codes – 2 (Auxiliary Heating Unit)

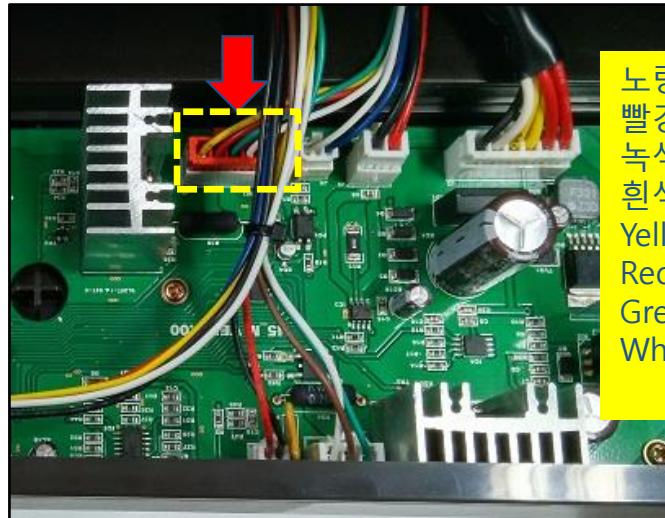
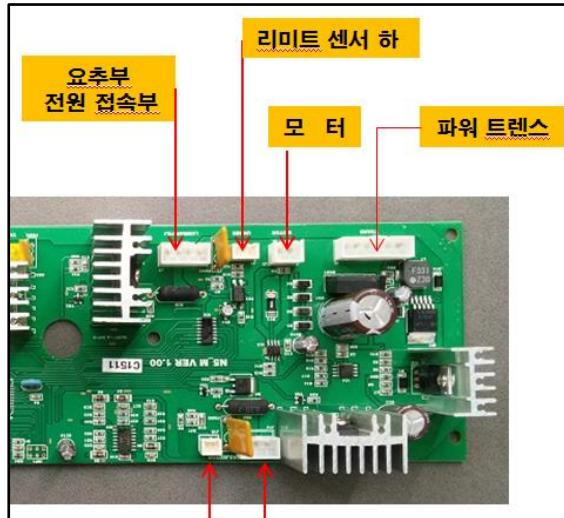




7-3.증상에 따른 ERROR CODE-3(외부 발열도자) Symptoms and Error Codes – 3 (External Heating Device)

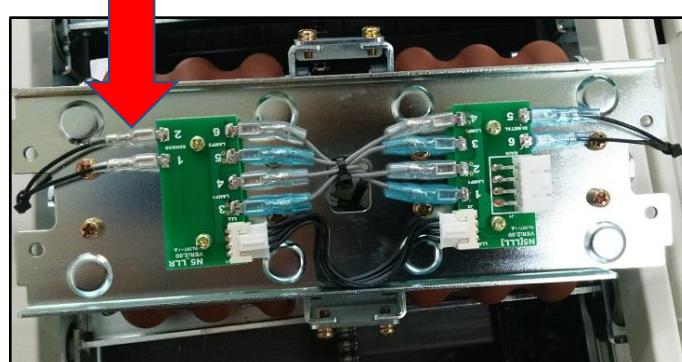


8. 점검 및 수리-내부 발열도자 요추부 온도 센서 이상[EO] Inspection and Repair – Problem in the lumbar unit temperature sensor of the Internal Heating Device [EO]



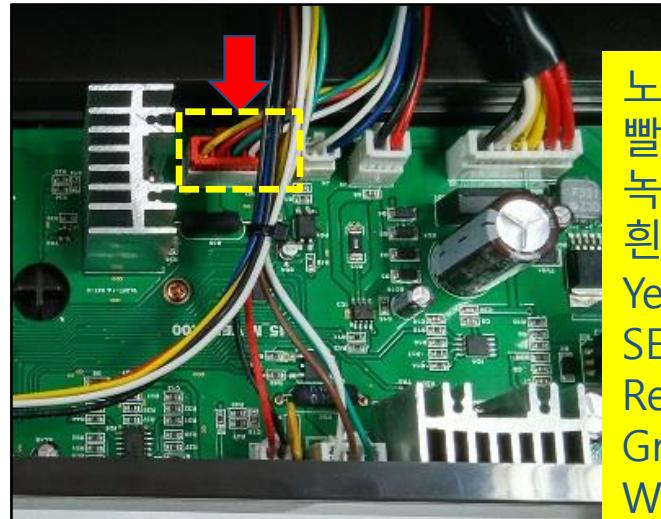
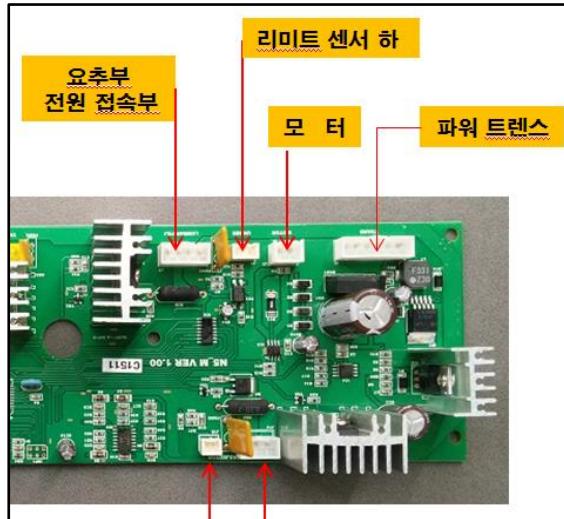
노랑-SENSOR
빨강-SENSOR
녹색- AC24V
흰색- AC24V
Yellow-SENSOR
Red-SENSOR
Green- AC24V
White- AC24V

지시한 PCB부위의 연결부 및 접속부 연결상태 확인(오삽입 확인)
Check the connections in the ports and interfaces in the PCB area shown above
(erroneous insertion).



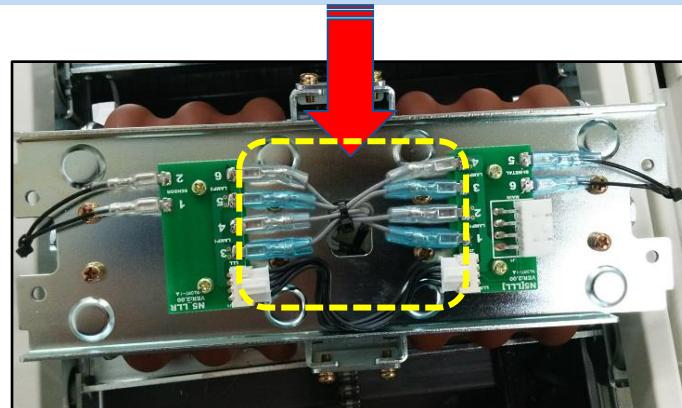
8-1. 점검 및 수리-내부 발열도자 요추부 발열봉 단선[E1]

Inspection and Repair – Disconnection of the Lumbar Unit Heating Rod of the Internal Heating Device [E1]

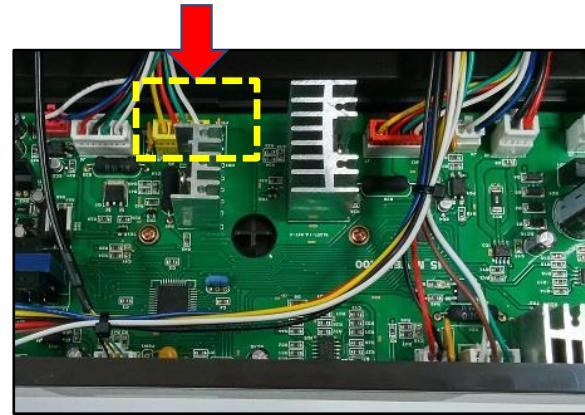


노랑-SENSOR
빨강-SENSOR
녹색- AC24V
흰색- AC24V
Yellow-
SENSOR
Red-SENSOR
Green- AC24V
White- AC24V

지시한 PCB부위의 배선확인 및 발열봉 접속부 연결상태 확인 단순 부품 불량시 교체
Check the wiring in the PCB area shown above and the connections in the heating rod power interface.
If the problem was caused by a defective component, simply replace the component.

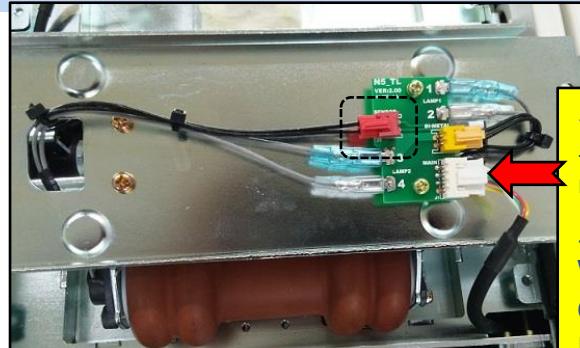
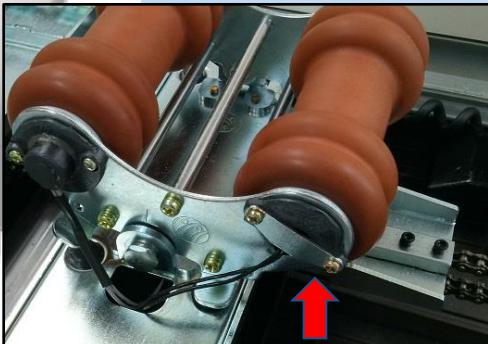


8-2. 점검 및 수리-내부 발열도자 흉추부 온도센서이상[E2] Inspection and Repair – Problem in the Thoracic Unit Temperature Sensor of the Internal Heating Device [E2]



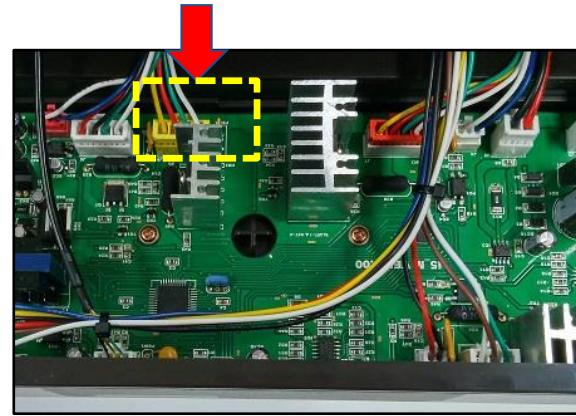
노랑-SENSOR
빨강-SENSOR
녹색- AC24V
흰색- AC24V
Yellow-
SENSOR
Red-SENSOR
Green- AC24V
White- AC24V

지시한 PCB부위의 배선확인 핀 접촉확인 및 흉추부 온도센서 접속부 접점확인, 단순 부품 불량시 교체
Check the wiring and pin contact in the PCB area shown above, check the contact point of the thoracic unit temperature sensor interface; If the problem was caused by a defective component, simply replace the component.



흰색- AC24V
녹색- AC24V
빨강-SENSOR
노랑-SENSOR
White- AC24V
Green- AC24V
Red-SENSOR
Yellow-SENSOR

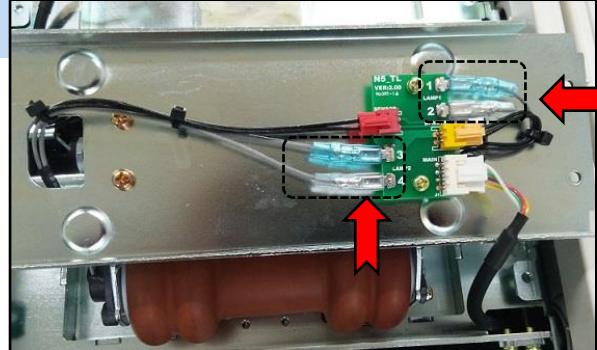
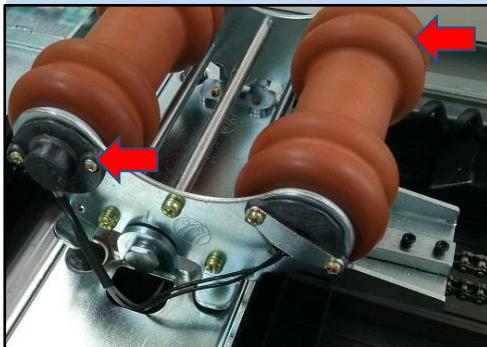
8-3. 점검 및 수리-내부 발열도자 흉추부 발열봉 단선[E3] Inspection and Repair – Disconnection of the Thoracic Unit Heating Rod of the Internal Heating Device [E3]



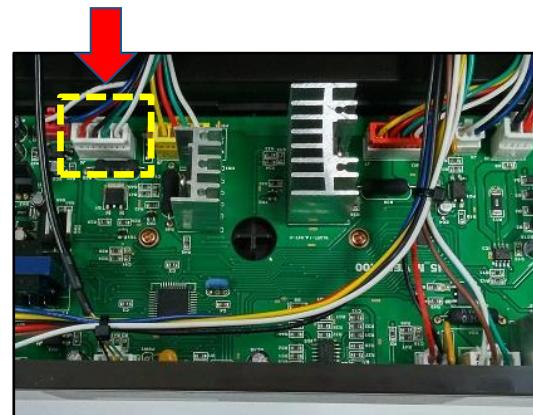
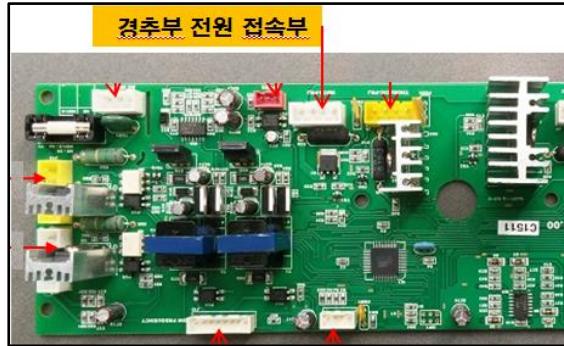
노랑-SENSOR
빨강-SENSOR
녹색- AC24V
흰색- AC24V
Yellow-
SENSOR
Red-SENSOR
Green- AC24V
White- AC24V

지시한 PCB부위의 배선확인 핀 접촉확인 및 흉추부 발열봉
접속 접점부 확인, 단순 부품 불량시 교체

Check the wiring and pin contact in the PCB area shown above, check the contact point of the thoracic unit heating rod interface; If the problem was caused by a defective component, simply replace the component.

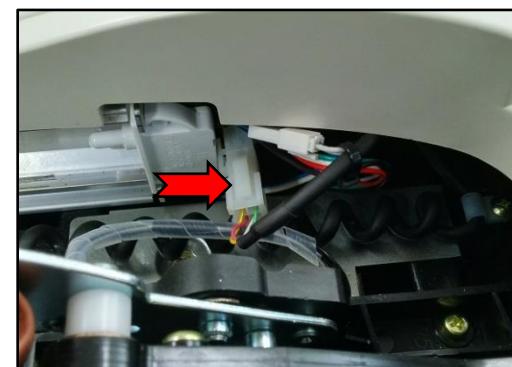
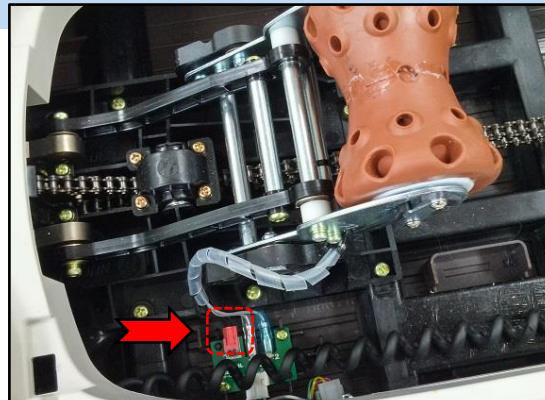
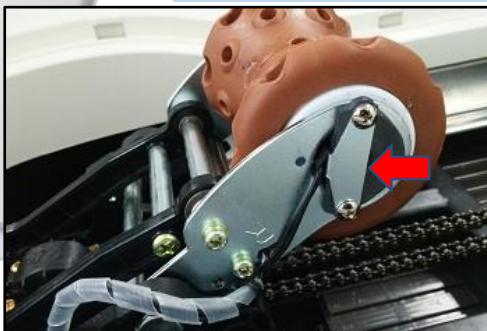


8-4. 점검 및 수리-내부 발열도자 경추부 온도센서이상[E4] Inspection and Repair – Problem in the Cervical Unit Temperature Sensor of the Internal Heating Device [E4]

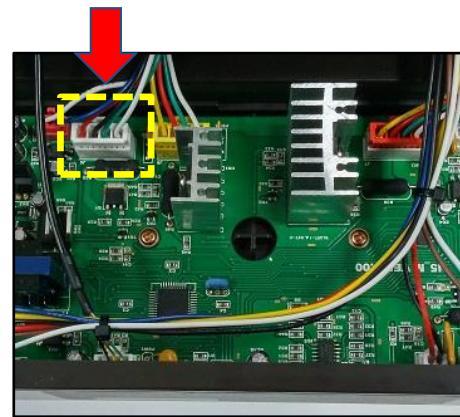
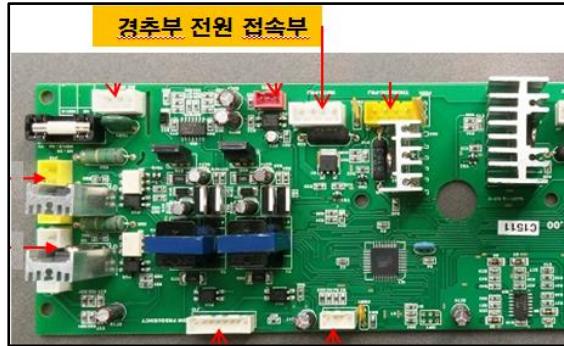


빨강-SENSOR
검정-SENSOR
녹색- AC24V
흰색- AC24V
Red-SENSOR
Black-SENSOR
Green- AC24V
White- AC24V

지시한 PCB부위의 배선확인, 핀 접촉확인 및 경추부 접속 접점부 확인, 단순 부품 불량시 교체
Check the wiring and pin contact in the PCB area shown above, check the contact point of the cervical unit interface; If the problem was caused by a defective component, simply replace the component.

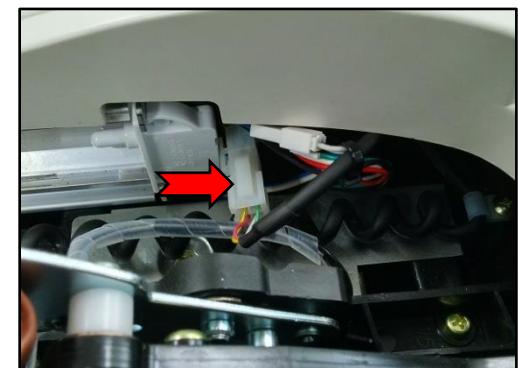
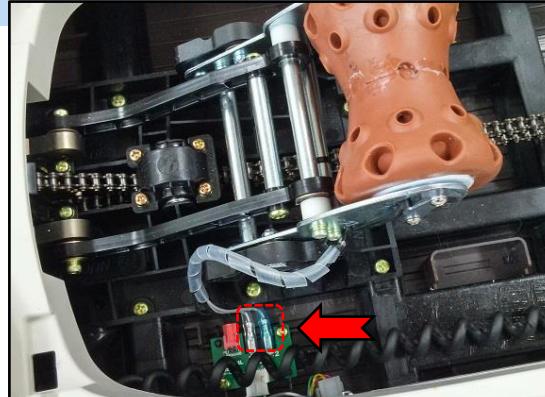
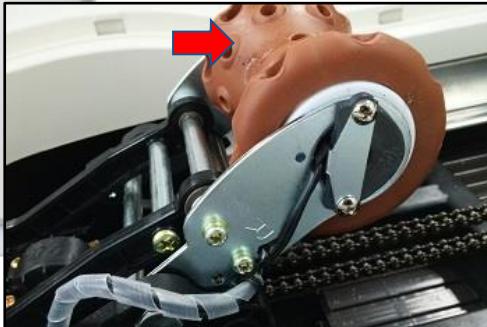


8-5. 점검 및 수리-내부 발열도자 경추부 발열봉 단선[E5] Inspection and Repair – Disconnection of the Cervical Unit Heating Rod of the Internal Heating Device [E5]

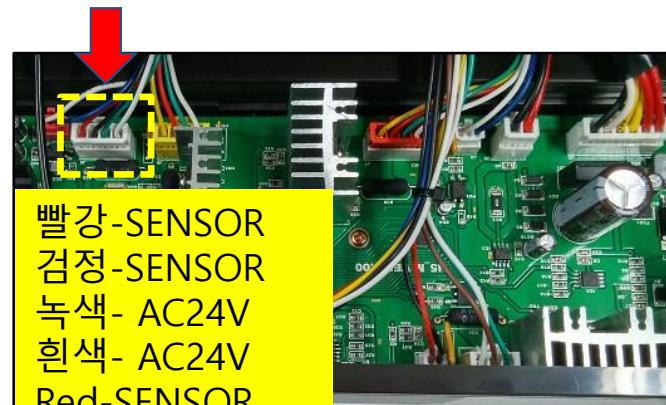


빨강-SENSOR
검정-SENSOR
녹색- AC24V
흰색- AC24V
Red-SENSOR
Black-SENSOR
Green- AC24V
White- AC24V

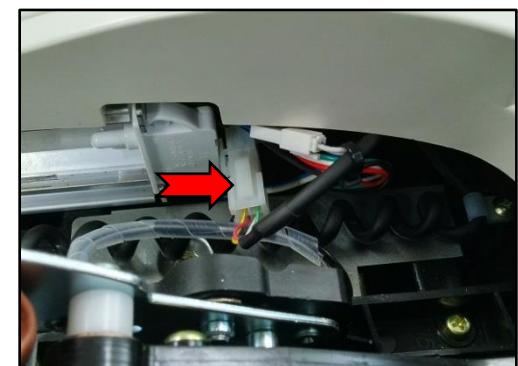
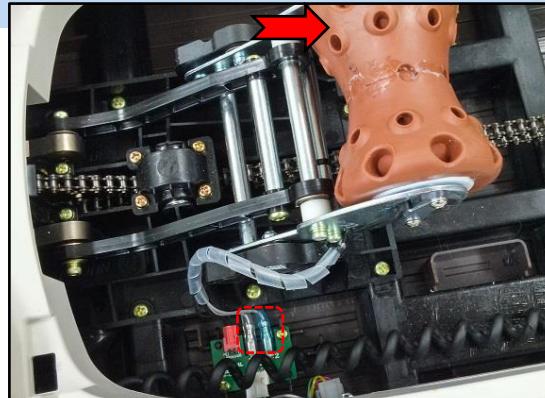
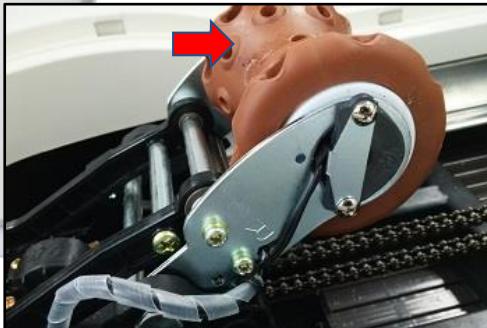
지시한 PCB부위의 배선확인, 핀 접촉확인 및 경추부 접속 접점부 확인, 단순 부품 불량시 교체
Check the wiring and pin contact in the PCB area shown above, check the contact point of the cervical unit interface; If the problem was caused by a defective component, simply replace the component.



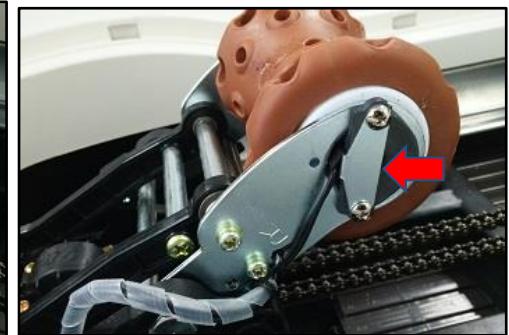
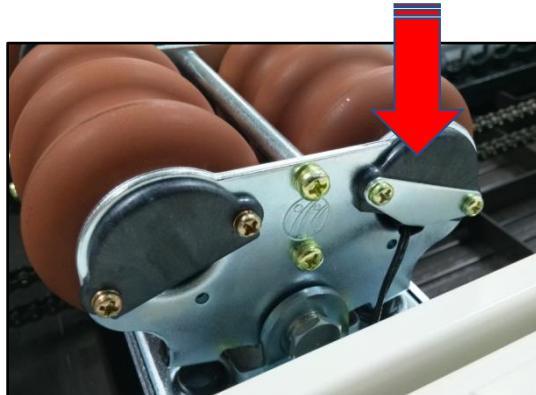
8-6. 점검 및 수리-내부 발열도자 경추부 발열봉 단선[E5] Inspection and Repair – Disconnection of the Cervical Unit Heating Rod of the Internal Heating Device [E5]



지시한 PCB부위의 배선확인, 핀 접촉확인 및 경추부 접속 접점부 확인, 단순 부품 불량시 교체
Check the wiring and pin contact in the PCB area shown above, check the contact point of the cervical unit interface; If the problem was caused by a defective component, simply replace the component.



8-7. 점검 및 수리-내부 발열도자 내부 발열도자 과열[E6] Inspection and Repair – Overheating of the Internal Device[E6]

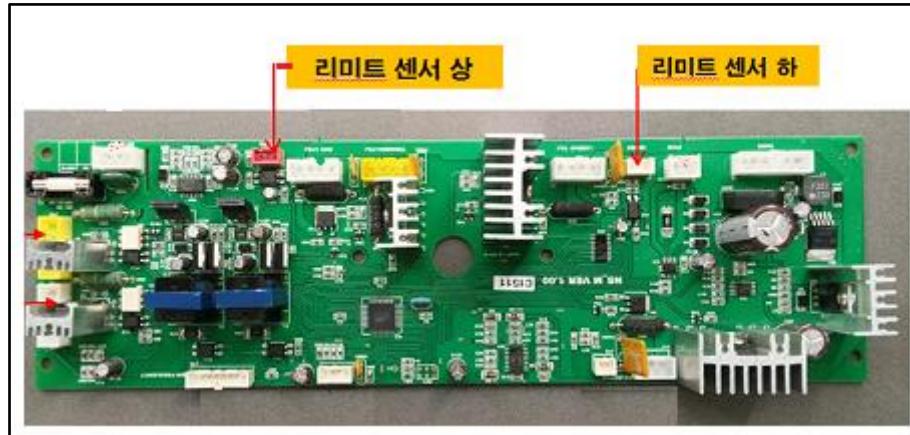


지시한 부위의 (경추, 흉추, 요추온도센서 확인 및 발열봉과 온도센서 접촉확인 단순 부품 불량시 교체

Check the contact between the heating rod and temperature sensor in the areas shown above (cervical, thoracic and lumbar unit temperature sensors). If the problem was caused by a defective component, simply replace the component.

8-8. 점검 및 수리-내부 발열도자 리미트센서 이상[E7]

Inspection and Repair – Problem in the Limit Sensor of the Internal Heating Device [E7]

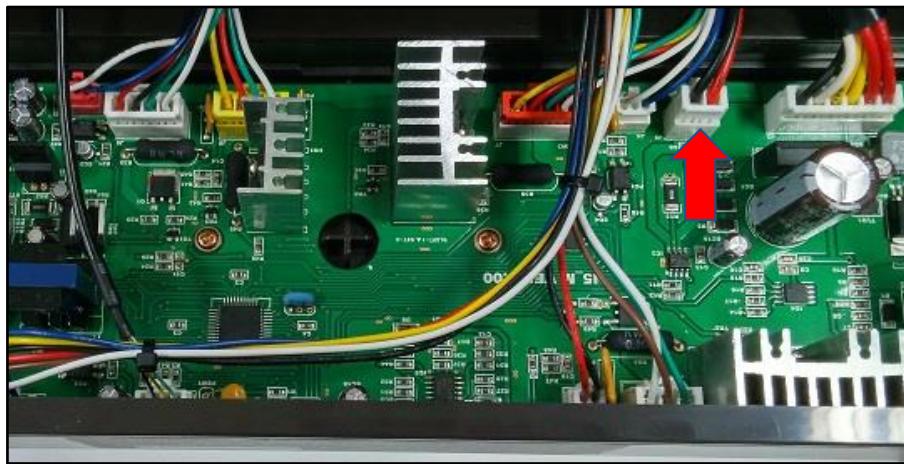
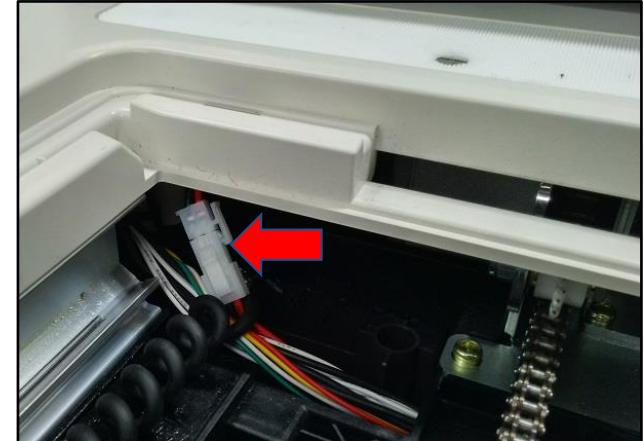
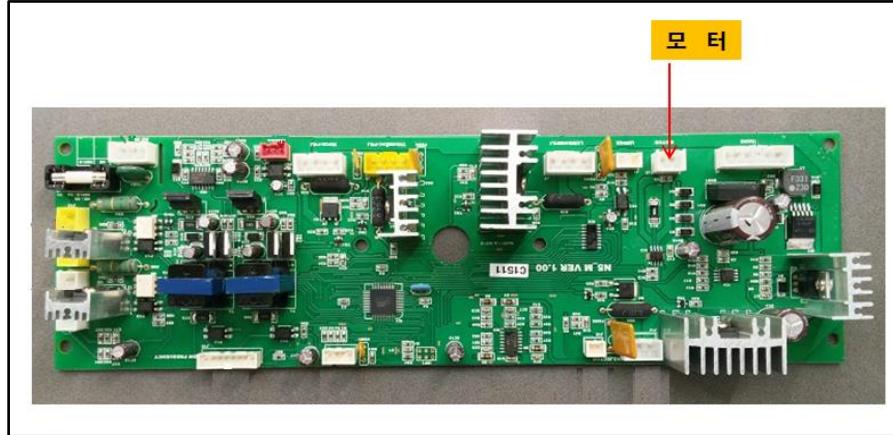


지시한 부위의 (리미트 스위치(상), (하))의 커넥팅 상태 및 PCB
부위의 커넥팅 상태 확인, 단순 부품 불량시 교체할것.

Check the connections of the limit switch (top/bottom) in the areas shown above, and the connections in the PCB. If the problem was

8-9. 점검 및 수리-내부 발열도자 모터 이상[E8]

Inspection and Repair – Problem in the Motor of the Internal Heating Device [E8]

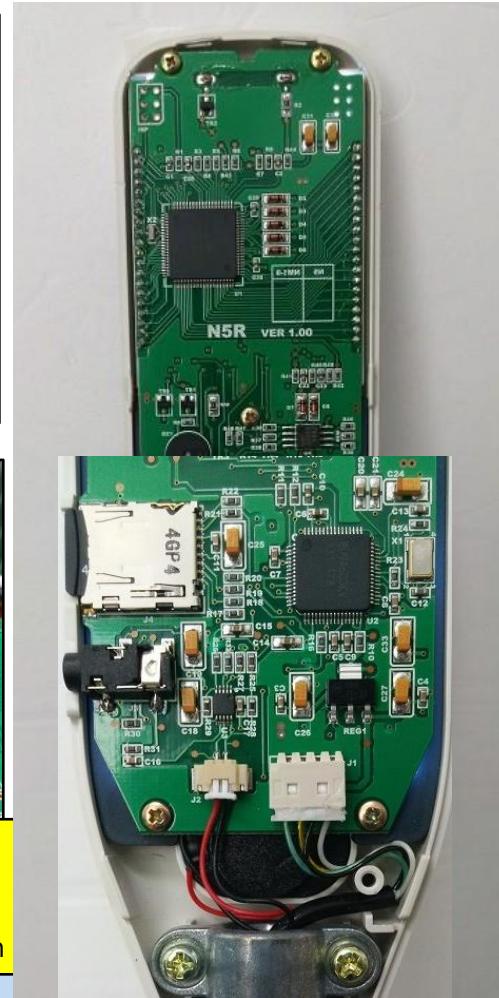
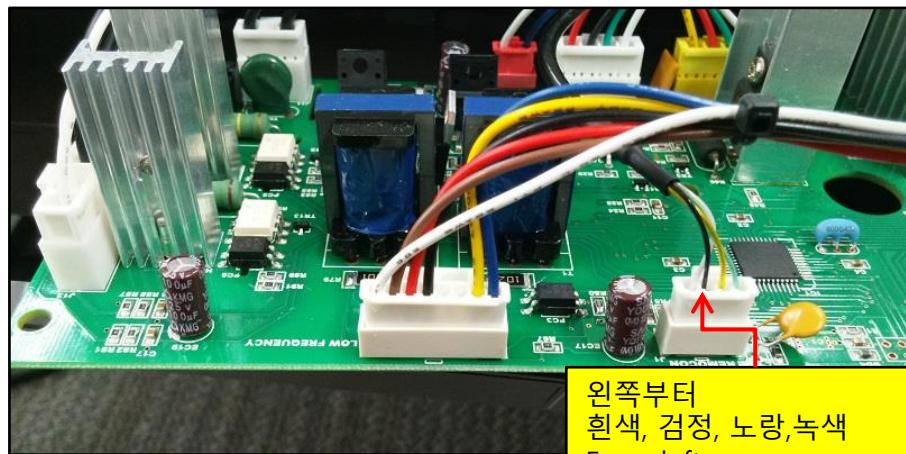


1)지시한 PCB부위의 접속상태 확인, 2)중간 연결부 커넥터부위 접속상태 확인.

Check 1) the connections in the PCB in the areas shown above, and
2) connectors of the middle connecting unit.

8-10. 점검 및 수리-조절기 통신 이상[E9]

Inspection and Repair – Problem in the Controller Communication [E9]



- 1) 지시한 PCB 부위의 배선 접속상태 확인,
- 2) 리모콘 PCB 연결 커넥터부위 접속상태 확인.

Check 1) the wiring connections in the PCB in the area shown

8-11. 점검 및 수리-외부 발열도자 온도센서 단선(미체결)[--]

Inspection and Repair – Disconnection of the Temperature Sensor of the internal Heating Device (Unconnected [--])



온도센서 단락

Short-circuit of temperature sensor



센서선 연결 접촉 확인 및 교체
Check sensor wire connection
and replace if necessary

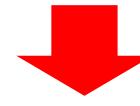


CABLE 단선

Disconnected cable



투광기 케이블 교체
Replace the light projector cable

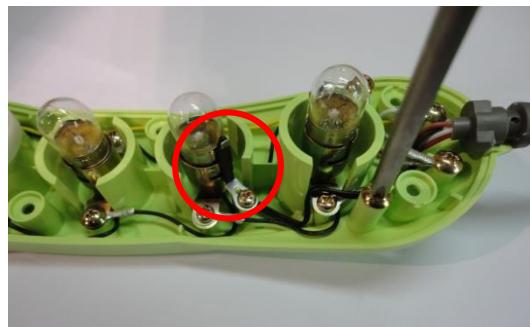


컨넥터 연결 불량

Faulty connector connection



투광기 연결선 점검
(왼쪽: 센서, 오른쪽: 전원)
Check the light projector connecting cable
(left: sensor, right: power)



8-12. 점검 및 수리-외부 발열도자 온도센서 이상(미체결)[E0]

Inspection and Repair – Problem in the Temperature Sensor of the internal Heating Device (Unconnected [E0])

온도센서 단락

Short-circuit of temperature sensor



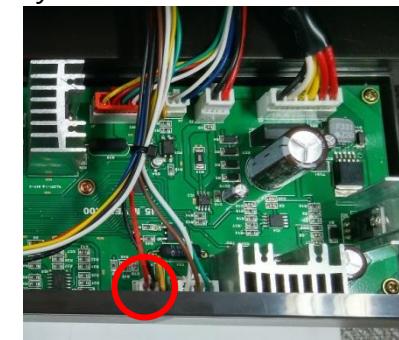
CABLE 단선

Disconnected cable



컨넥터 연결 불량

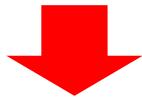
Faulty connector connection



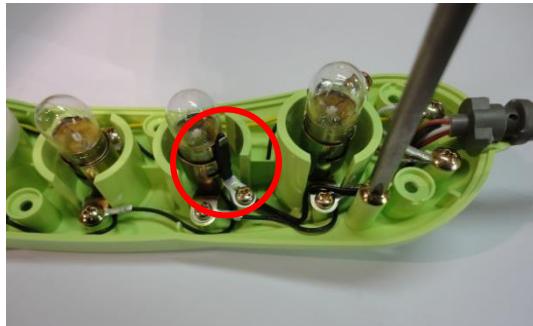
센서선 연결 접촉 확인 및 교체
Check sensor wire connection
and replace if necessary



투광기 케이블 교체
Replace the light projector cable



투광기 연결선 점검
(왼쪽:센서. 오른쪽: 전원)
Check the light projector connecting cable
(left: sensor, right: power)



8-13. 점검 및 수리-외부 발열도자 램프 단선(미체결)[E1]

Inspection and Repair – Disconnection of the internal Heating Device Lamp (Unconnected [E1])

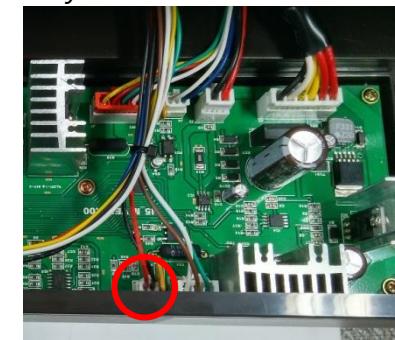
온도센서 단락
Short-circuit of temperature sensor



CABLE 단선
Disconnected cable



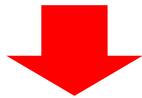
컨넥터 연결 불량
Faulty connector connection



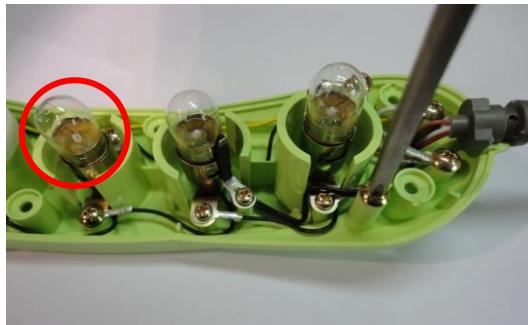
센서선 연결 접촉 확인 및 교체
Check sensor wire connection
and replace if necessary



투광기 케이블 교체
Replace the light projector cable



투광기 연결선 점검
(왼쪽:센서. 오른쪽: 전원)
Check the light projector
connecting cable
(left: sensor, right: power)



8-14. 점검 및 수리-외부 발열도자 과열[E6]

Inspection and Repair – Overheating of the internal Heating Device (Unconnected [E6])

온도센서 단락

Short-circuit of temperature sensor



센서선 연결 접촉 확인 및 교체
Check sensor wire connection
and replace if necessary



CABLE 단선

Disconnected cable



투광기 케이블 교체
Replace the light projector cable



컨넥터 연결 불량

Faulty connector connection



투광기 연결선 점검
(왼쪽:센서. 오른쪽: 전원)
Check the light projector connecting cable
(left: sensor, right: power)



8-15. 점검 및 수리-본체 온열부 온도센서 이상[E0]

본체 온열부

단선[E1]

Inspection and Repair – Problem in the Temperature Sensor of the Main Heating Unit [E0]
Disconnection of the Main Heating Unit [E1]

온도센서 이상

Problem in temperature sensor



흰색 -SENSE
검정색-AC220V
White - SENSOR
Black - AC220V

온도 센서선 접촉 확인 및 교체
Check connection of
temperature sensor wire
and replace if necessary

온열부 단선

Disconnection of heating u



흰색 -SENSE
검정색-AC220V
White - SENSOR
Black - AC220V

온열부 접촉상태 확인.
Check connection of
the heating unit



온도센서 이상

Problem in temperature sensor



8-16. 점검 및 수리-하부 온열부 온도센서 이상[E2]

하부 온열부 단선[E3]

Inspection and Repair – Problem in the Temperature Sensor of the Lower Heating Unit [E2]
Disconnection of the Lower Heating Unit [E3]



온도센서 이상

Problem in temperature sensor



흰색 -SENSE
검정색-AC220V
White - SENSOR
Black - AC220V



센서선 연결 접촉 확인 및 교체
Check connection of
temperature sensor wire
and replace if necessary



흰색 -SENSE
검정색-AC220V
White - SENSOR
Black - AC220V



투광기 연결선 점검
(왼쪽:센서, 오른쪽: 전원)
Check the connecting wire
of the light project
(left: sensor, right: power)

9. 주요 점검 및 수리-외부 전원 FUSE

Main Types of Inspection and Repair –External Power Fuse



1



2



3



4



5



6



10. 본체 설치 조립순서

Order of Assembly for the Main Unit



STEP 1



STEP 2



STEP 3



STEP 4



STEP 5



STEP 6

11. 내부 투광기 초기 세팅 방법.

Initial Setup Method for the Internal Light Projector



세팅1단계:

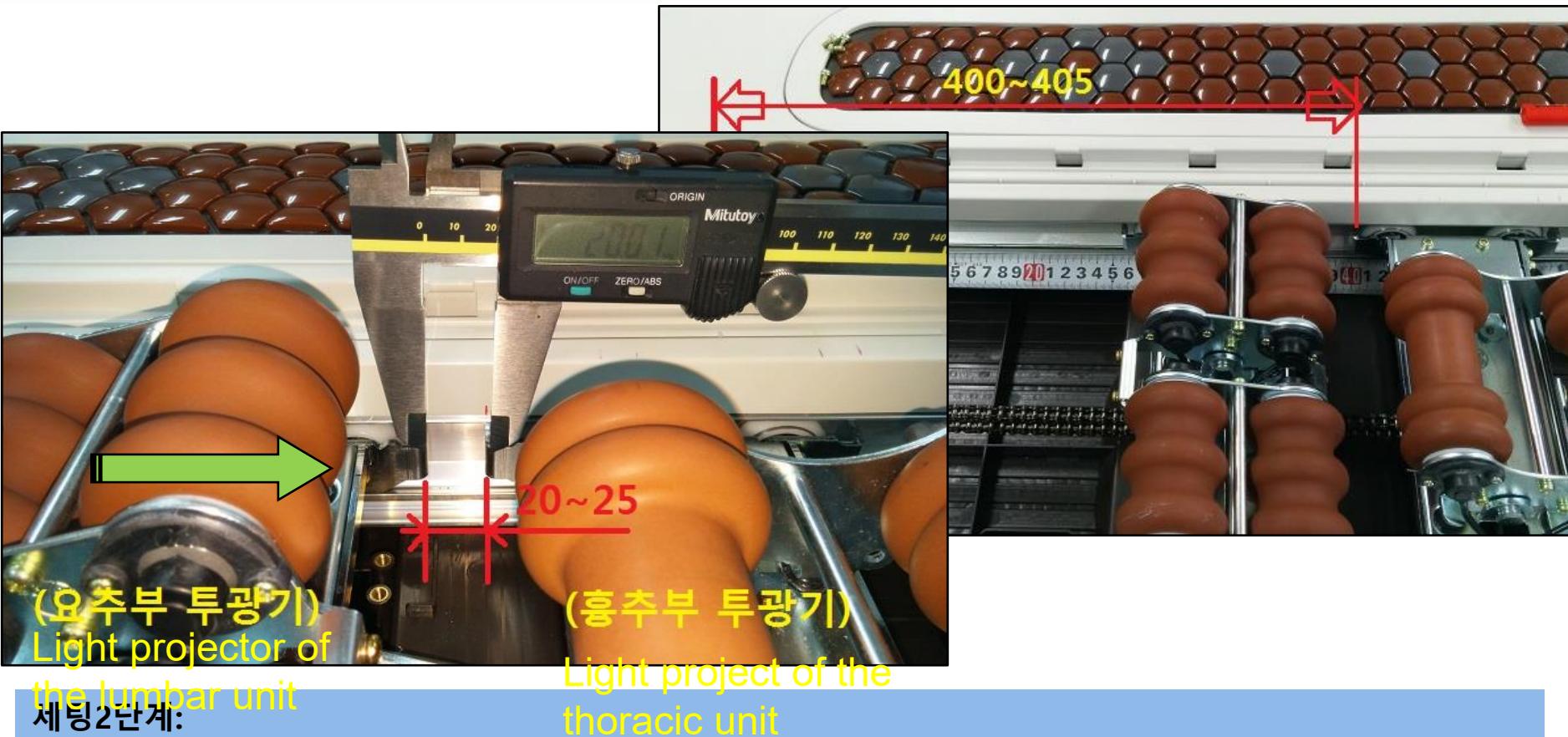
Setup: Step #1

먼저 흉추부 투광기의 위치를 하부측 레일끝단부터 길이치수(400~405mm)로 사진처럼 맞춰 장력 조정 후 고정한다. 이때 주의할 점은 경추 마사지의 위치는 반드시 흉추 투광기 방향으로 완전히 젖혀진 상태일것--
(사진③참고)

Place the light projector of the thoracic unit at 400-405mm from the end of the lower rail, as shown in the photograph, and adjust the tension before fixing it in place. Note: Make sure the cervical vertebrae massage unit is completely pushed back toward the light projector of the thoracic unit (Refer to Photograph ③)

11. 내부 투광기 초기 세팅 방법.

Initial Setup Method for the Internal Light Projector



Setup: Step #2

먼저 설치되어 있는 흉추부 투광기쪽으로 요추부 투광기를 손으로 옮겨서 흉추, 요추 투광기 사이 틈새거리를 사진처럼 맞춰서 요추부 투광기를 고정한다.(치수관리 유지, 흉추부 투광기 움직임 없어야함).

Move by hand the light projector of the lumbar unit toward the light projector of the thoracic unit that has already been set up. Adjust the light projectors to create a gap, as shown in the photograph, and fix the light projector of the lumbar unit in place (the gap distance must be maintained, and the light projector of the thoracic unit should not be moved).



수고하셨습니다!

Good job!

건승을 기원합니다!

Best of luck!

