



Tissue-Tek® Glas® g2 New Open Gripper Sensor Cable Routing Manual

Issue Date: July 29, 2015

Reference: IECN #Glas g2-1503

1. Application

This manual explains how to route the new open gripper sensor cable, F53-808-00, in the Tissue-Tek® Glas® g2 Glass Coverslipper.

2. Routing Overview

One of the two screws that hold the open gripper sensor (photo micro sensor) in place is changed to a long screw with a nylon clamp attached. The sensor cable is secured with the nylon clamp near the sensor connector to prevent the repeated stress from being applied to the cable (see Figure #1).

In the previous routing, the sensor cable was tightly bound to the arm harness plate with a nylon clamp in the middle (at Point C in Figure #3) and two cable ties. If the cable is similarly secured in the new routing, a bending reaction force from the cable interferes with the rotation of the SG arm.

Therefore, two double rings (ID 17mm) are provided in place of the nylon clamp and one cable tie so that the cable can move freely inside the rings, which will lessen the bending reaction force and make the SG arm rotating smoothly (see Figures #4 to #6).

Parts required:

Part Code	Description	Model	Q'ty
A4030001	Nylon Clamp	NK-2N	1
A4091217	Cable tie	SKB-1MC	7
B6132012	Cross-recessed Pan Head Screw	M3x25, SUS	1
B6412008	Hexagon Nut	M3, SUS	2
B6522008	Plain Washer	3x8xT0.5, SUS	3
B6532007	Spring Washer	M3, SUS	2
D9000202	Double Ring	17mm, NR-17	2
F53-808-00	Open Gripper Sensor Cable N	E:Glas-89	1

For convenience in service, the replacement kit is available, consisting of the above parts.

F61-041-00	New Open Gripper Sensor Cable Kit		1
------------	-----------------------------------	--	---

<NOTE> New Arm Harness Plate for the SG arm rotation

The plate was partly modified due to the change of the cable routing. Because the new plate was not considered as interchangeable, the new part code and name were assigned.

	Part Code	Description	Q'ty	Interchangeability
New	N94-287-00	Arm Harness Plate N, SG arm rotation	1	NO
Old	N94-229-01	Arm Harness Plate, SG arm rotation	1	

Although both the old and new plates are compatible with the new cable routing in fact, one of the two double rings is difficult to be attached to the M3 screw hole on the old plate (at Point C in Figure #3) because the M3 screw hole is located far from the plate edge. If the old plate is used as it is, be careful not to injure your hands and/or scratch the painted surface of the old plate with the ring's tip when attaching the double ring to the M3 screw hole on the old plate.

The double ring can be attached to the old arm harness plate, Contrary to this, it is very difficult and troublesome to replace the old plate with the new one. For these reasons, the



Tissue-Tek® Glas® g2 New Open Gripper Sensor Cable Routing Manual

Issue Date: July 29, 2015

Reference: IECN #Glas g2-1503

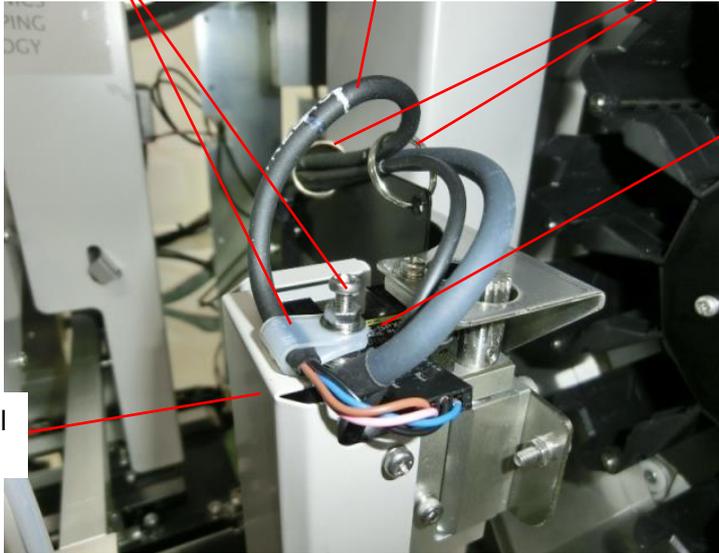
new arm harness plate is not included in the above replacement kit.

3. Routing Procedure

Open gripper sensor cable

Step 1: Secure both the sensor and a nylon clamp holding the cable with the long screw (one of two fixing screws).

Step 2: Attach two double rings.



A3601163
Photo micro sensor,
EE-SPX303N

SG Retrieval
Cover

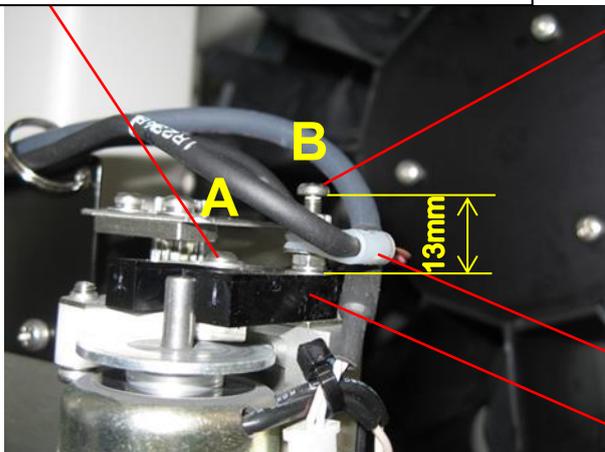
Figure #1 Appearance of New Cable Routing

Step 1:

Secure both the sensor and a nylon clamp holding the cable with the long screw (one of two fixing screws).

Screw A (the same screw as before):
B6122049 Hex socket head button bolt,
M3x12, SUS
B6522008 Plain washer, M3, SUS

Screw B (the new long screw):
B6132012 Cross-recessed pan head screw,
M3x25, SUS



A4030001 Nylon clamp, NK-2N

Sensor

Figure #2 Securing the sensor and nylon clamp

(1) Pass the sensor cable through the nylon clamp. Thread onto the long screw (Screw B), in



Tissue-Tek® Glas® g2 New Open Gripper Sensor Cable Routing Manual

Issue Date: July 29, 2015

Reference: IECN #Glas g2-1503

order from the screw head side, the hex nut, spring washer, plain washer, nylon clamp holding the cable, plain washer, hex nut, spring washer and plain washer.

- (2) Tighten the long screw to secure the sensor with the plain washers, spring washer and hex nut. The distance between the sensor surface and the screw head is 13mm.

<Caution> If the hex nut is not present or thick enough, the SG retrieval cover will hit the nylon clamp, so the step (2) is essential.

- (3) Further tighten the long screw to secure the nylon clamp with the plain washer, spring washer and hex nut.

<Note> If the sensor does not need to be replaced, use the Screw A as it is and replace the other screw with the Screw B together with other parts.

Step 2:

Attach two double rings to the middle of the sensor cable routing.

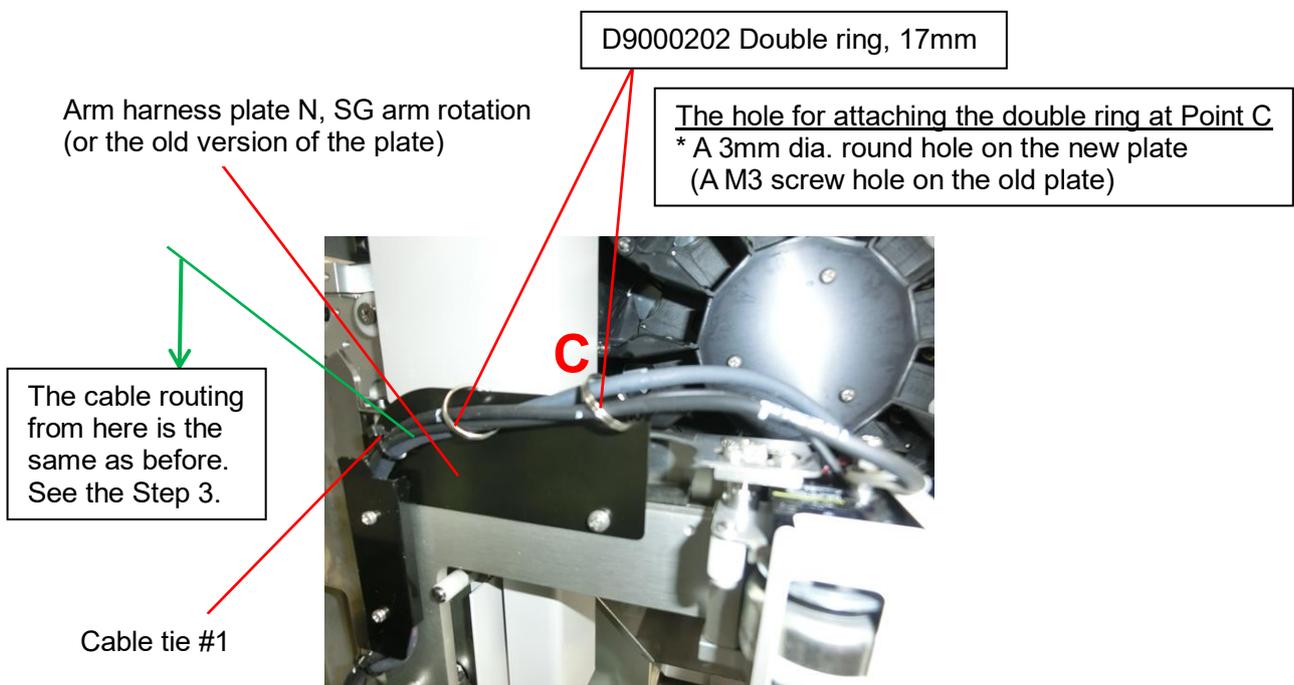


Figure #3 Attaching two double rings

<Caution> Be careful not to hit the tip of the double ring on the plate when you are rotating the ring to pass it through the hole. Failure to do so will damage the painted surface of the plate.

How to bind the sensor cable with the cable tie #1

- (1) Lift up the SG arm rotation unit to the uppermost position manually.
- (2) Tighten the cable tie #1 halfway. Adjust the length of the sensor cable so that the SG arm rotation unit can make a right-angled turn properly without stopping in the middle due to the bending reaction force from the sensor cable.
 - Pull the SG arm rotation unit toward you by hand and position it as shown in Figure #4. After letting go of the unit, ensure that the unit is back in the proper position as shown in Figure #5. If the unit stops in the middle, readjust the length of the cable.



SG arm rotation unit

The unit is positioned at right angle to that in Fig.#4.

The unit is positioned askew.

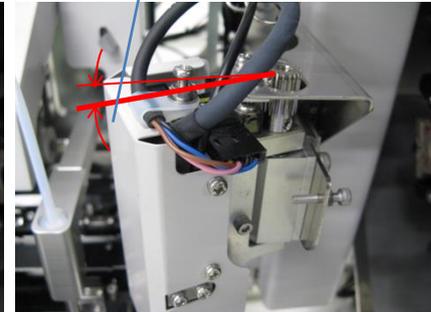
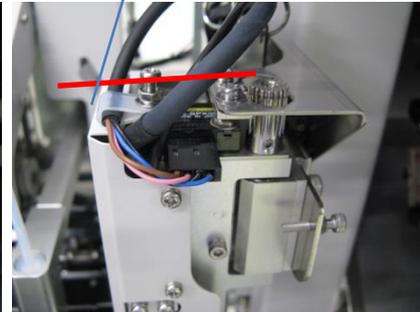
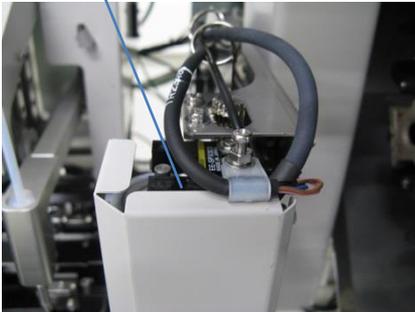


Figure #4

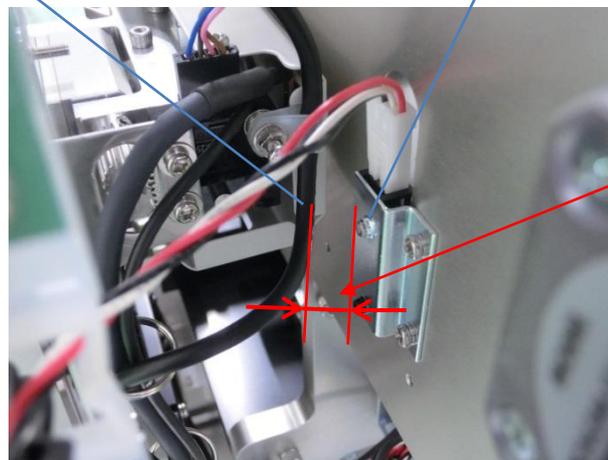
Figure #5 Properly positioned

Figure #6 Improperly positioned

- (3) As laying back the SG arm rotation unit, confirm that the open gripper sensor cable does not hit the screws that hold the nozzle rear position sensor with leaving 10mm or more of clearance.

Open gripper sensor cable

Fixing screws for the nozzle rear position sensor



The sensor cable does not hit the screws. The clearance is at least 10mm.

Figure #7

- (4) After the steps (2) and (3) have completed successfully, tighten the cable tie #1 firmly.
- (5) For reconfirmation of the steps (2) and (3), rotate the SG arm rotation unit and lay it back several times by hand.



Step 3:

Route the new open gripper sensor cable, from the cable tie #1 (Figure #3) and beyond, in the same way as the previous cable.

The work to be done from the front of the instrument

- * Cable routing up to where the cable is secured to the main base with a nylon clamp (NK-5N)

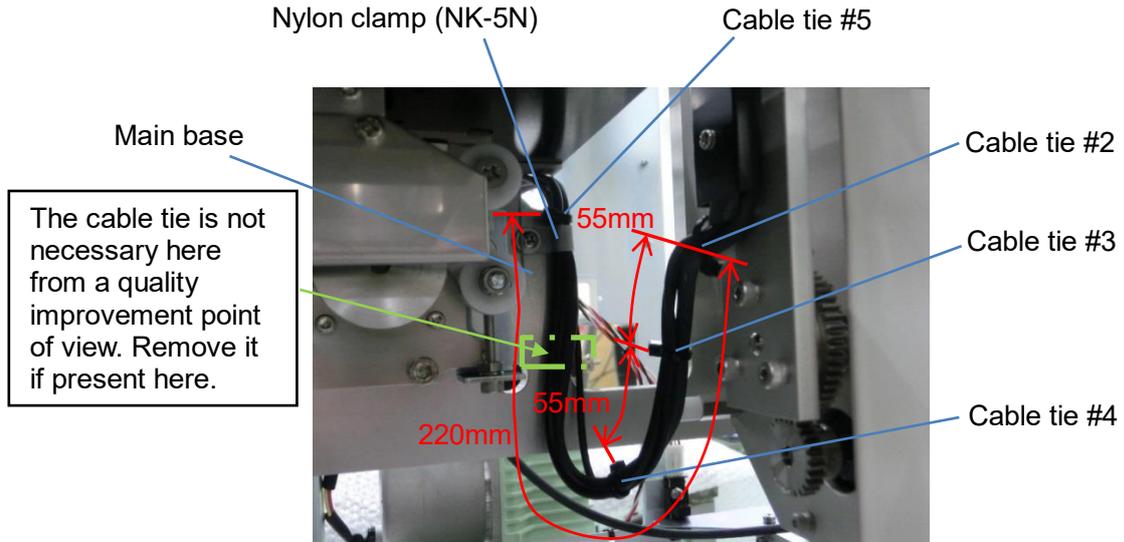


Figure #8

<Note> Arrows and figures in red represent each length of the sensor cable between the cable ties.

The work to be done from the rear of the instrument

- * Cable routing up to the controller board

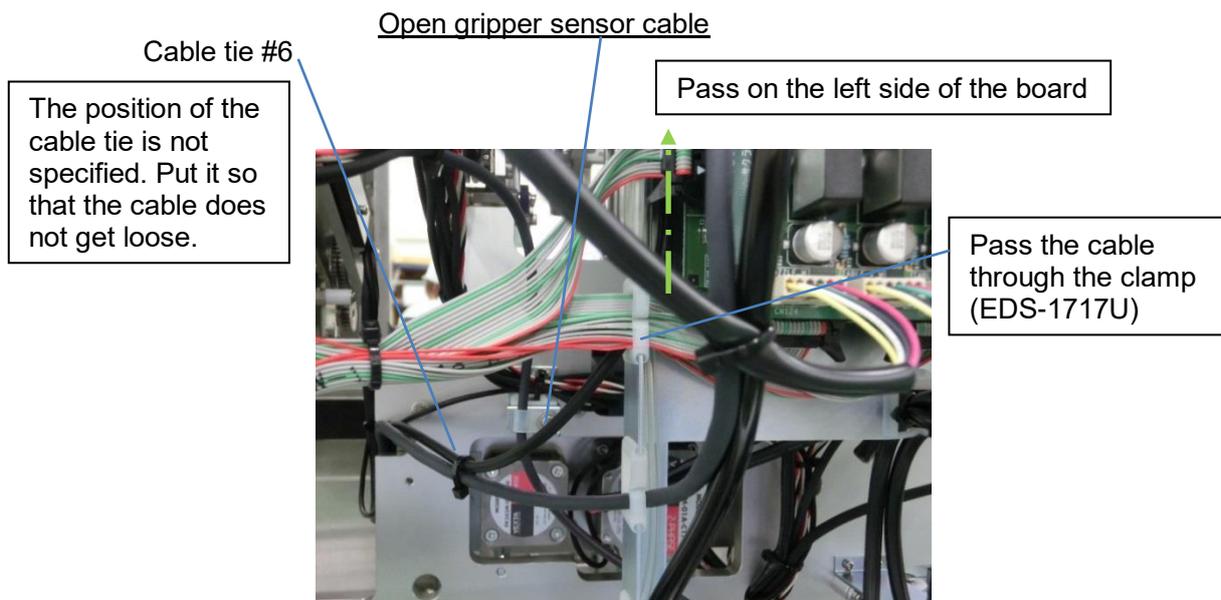


Figure #9



Tissue-Tek® Glas® g2 New Open Gripper Sensor Cable Routing Manual

Issue Date: July 29, 2015

Reference: IECN #Glas g2-1503

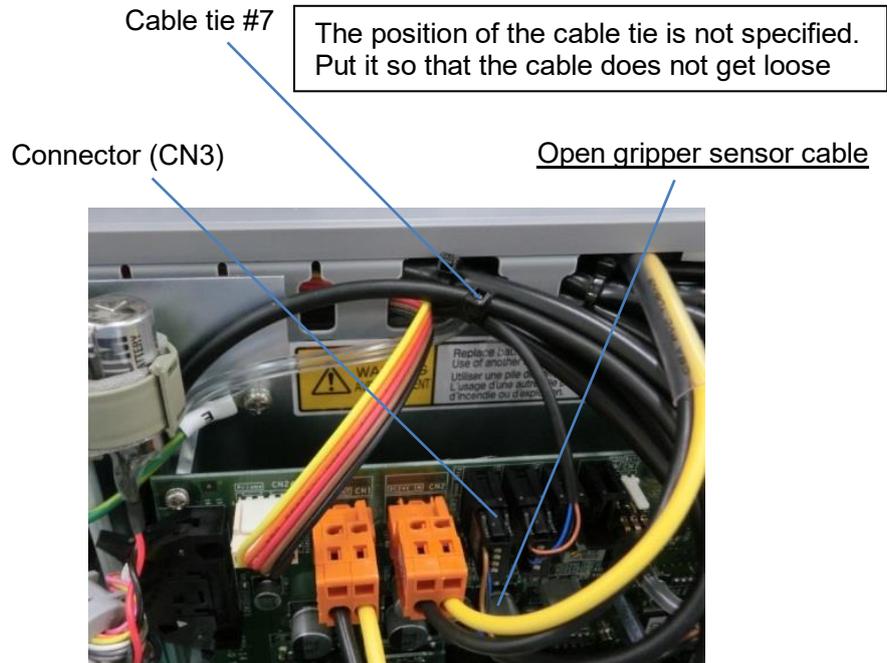


Figure #10

END