



## WORK INSTRUCTION

## TAPING ASSEMBLY PROCESS

Process Name/Title:

Model code/Part number:

310D

/

7N0195-7020B

Customer: TRJ

Car Model:

TOYOTA- RAV 4

Purpose:

☐ PROTOTYPE☒ PRE-LAUNCH☐ MASSPRO

Effectivity Date:

February 13, 2024

Validity Date:

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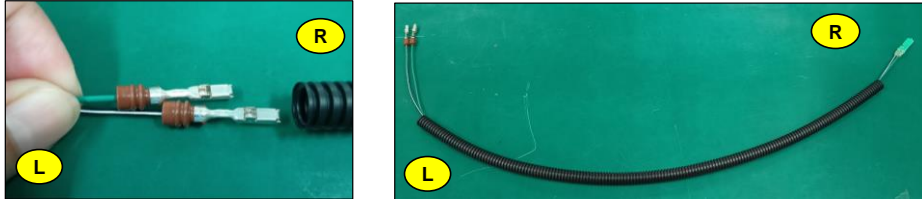
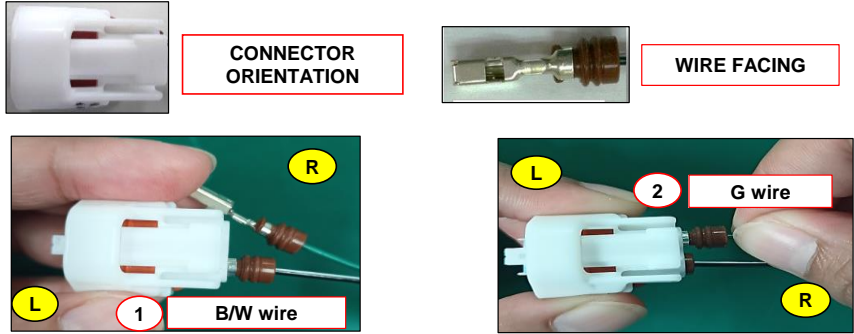
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## PARTS:

1. Connector 6189-0451 (W)  
2. MR SW CP (TVSSf 0.3 G wires L=613±3mm; TVSSf 0.3 B/W wires L=613±3mm)  
3. Black Corrugated tube (No slit) Ø7, L=461±3mm

JIG:

n/a

NO.	PROCESS NAME	WORK PROCEDURE/ ILLUSTRATION	TOOLS/PPE	QUALITY POINTERS
1	Wire insertion to Black Corrugated tube (No Slit) Ø7, L=461±3mm	 <p>1. Get the <b>Black Corrugated tube (No slit) Ø7, L=461±3mm</b> using right hand then insert the wire using left hand.</p>	<b>Safety Instruction</b> Be sure to wear prescribed personal protective equipment during operation (gloves, finger cots, etc.)	1. No wrong usage of parts 2. No deformed terminal
2	Wire insertion to Connector 6189-0451 (W)	 <p><b>CONNECTOR ORIENTATION</b></p> <p><b>WIRE FACING</b></p> <p>1. Hold the connector using left hand. Get the <b>Black/White wire</b> then insert to terminal <b>slot 1</b> using right hand.</p> <p>2. Get the <b>Green wire</b> and insert to terminal <b>slot 2</b>.</p>	<b>Housekeeping</b> 1. Maintain and always practice 5's. 2. Personal things on the workplace is prohibited. Keep it in your locker.	1. No wrong use of connector 2. No damaged connector 3. No wrong insertion 4. One by one insertion 5. No deformed terminal 6. No wrong wire facing

**Alert level**

For any trouble, inform the Assembly Assistant Supervisor or Line Leader for immediate corrective action.

**Important reminder/Notes/:**

1. Please hold the wire near terminal during insertion.  
2. Make sure wires are properly inserted. Conduct **Pull-Push-Pull-Push** after insertion.  
Do not exert extra force.

**Document reference/s:**

1. Please refer to **WI-PRO-CNC-017** for Wire and Strip length tolerance.  
2. Please refer to **GL-PRO-ASY-029** for Pull-Push procedure.

## Revision History

Eff. Date	Rev. No	Details of Change	Revised	Reviewed	Approved	Noted	Prepared by	Reviewed by	Approved by	Noted by
02/13/24	0	Initial issue	C.Hernandez	C.Villanueva	A. Arañes	n/a	C.Hernandez	C. Villanueva	A. Arañes	n/a

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☒ PRE-LAUNCH


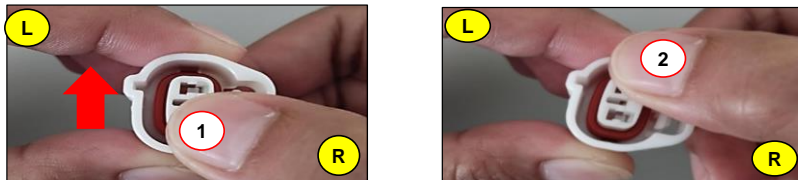





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PARTS:	1. Assy parts		JIG:	1. Locking jig
NO.	PROCESS NAME	WORK PROCEDURE/ ILLUSTRATION	TOOLS/PPE	QUALITY POINTERS
3	P1 Connector lock	<div><p>1. Put the connector into locking jig using right hand. Then press to lock 2x using both hands.</p></div> <div><p>2. Ensure that connector is in locked condition by slide touching the connector lock based on the sequence illustrated.</p></div> <div><div><p>BEFORE PRESSING</p><p>AFTER PRESSING</p></div><div><p>GOOD</p><p>NG</p><p>Check the double lock deformation</p></div></div> <div><p>LOCKING JIG</p></div>	<p><b>Important reminders/Notes</b></p> <p>1. Manual locking may cause damaged connector lock</p> <p>1. Use the provided jig per model 2. No unclocked/half-locked connector.</p>	

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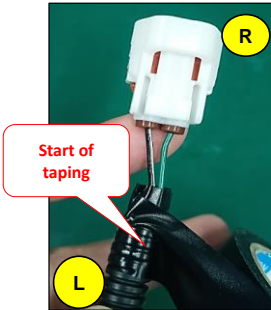
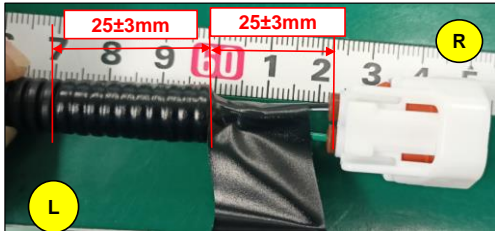
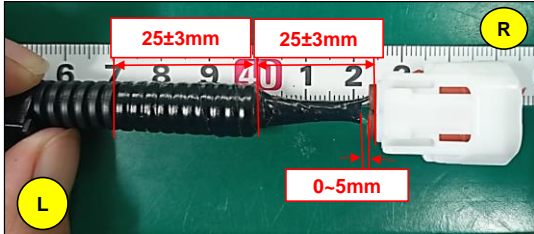

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PARTS:		1. Assy parts 2. Black tape		JIG:	n/a
NO.	PROCESS NAME	WORK PROCEDURE/ ILLUSTRATION		TOOLS/PPE	QUALITY POINTERS
4	P1 Taping 1 Black Corrugated tube to Wire near connector	<div><p>1. Hold the Corrugated tube using left hand, Get the <b>Black tape</b> and start pre-taping using right hand.</p></div> <div><p>2. Measure from end of Corrugated tube up to edge of connector <b>25±3mm</b> then continue the taping process using both hands</p></div> <div><p>3. After taping, check the measurement and taping condition</p></div>		<div><b>MEASURING TAPE</b></div> 	<p><b>Important reminders/Notes</b></p> <p>1. Please use calibrated/verified measuring tape when fetting the measurement.</p> <p>1. No peel-off tape 2. No flip out tape 3. No loose tape 4. No wrong use of tape 5. No wrong dimension 6. No missing tape</p>

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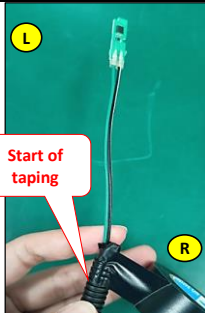
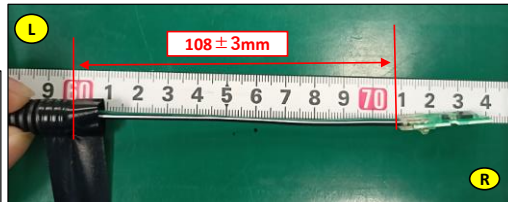
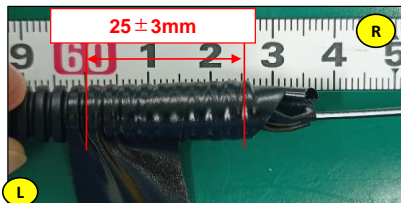
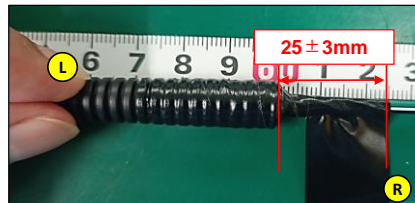
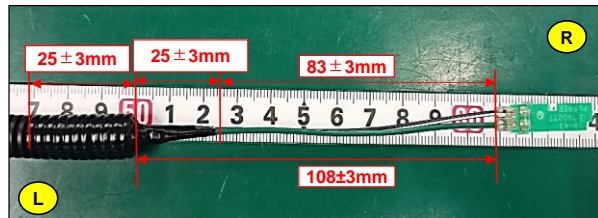

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NO.	PROCESS NAME	WORK PROCEDURE/ ILLUSTRATION		TOOLS/PPE	QUALITY POINTERS
5	P1  Taping 2 Black Corrugated tube to Wire near PCB	<div><div><p>1. Get the <b>Black tape</b> using right hand then start taping process using both hand.</p></div><div><p>2. Measure from end of COT up to Hotmelted wires <b>L=108±3mm</b> then continue the taping process using both hands.</p></div><div><p>3. Confirm measurement from end of tape up to end of COT <b>25±3mm</b> then continue the taping process using both hands.</p></div><div><p>4. Confirm measurement from end of COT up to end of tape <b>25±3mm</b> then continue the taping process using both hands.</p></div><div><p>5. After taping, check the measurement, wire alignment and taping condition.</p></div></div> <div><div>MEASURING TAPE</div></div> <div><p><b>Important reminders/Notes</b></p><p>1. Please use calibrated/verified measuring tape when fetting the measurement.</p><p>1. No peel-off tape 2. No flip out tape 3. No loose tape 4. No wrong use of tape 5. No wrong dimension 6. No missing tape</p></div>			

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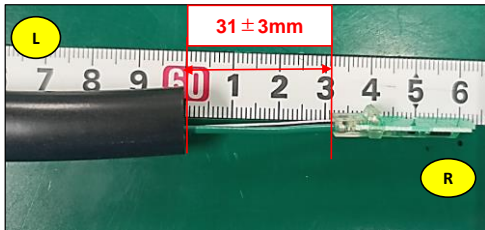
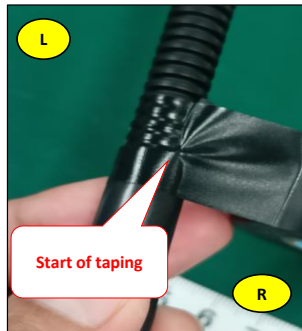
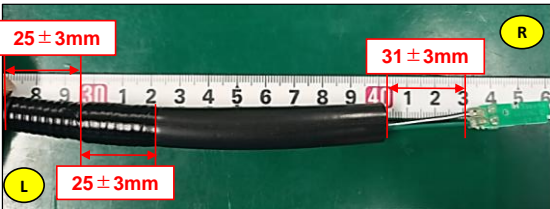

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PARTS:		1. Assy parts 2. Black VM tube (Sunprene) $\phi 11$ , L=97 $\pm$ 3mm		JIG:	n/a
NO.	PROCESS NAME	WORK PROCEDURE/ ILLUSTRATION		TOOLS/PPE	QUALITY POINTERS
6		Wire insertion to Black VM tube (Sunprene) $\phi 11$ , L=97 $\pm$ 3mm	 <p>1. Get the Black VM tube (Sunprene) <math>\phi 11</math>, L=97<math>\pm</math>3mm using right hand then insert the hotmelted wires (B/W-G) using left hand.</p>	n/a	1. No wrong use of parts.
7	P1	Taping 3 Black Corrugated tube to VM tube (Sunprene)	 <p>1. Measure the end of VM tube (Sunprene) up to hotmelted wires L=31<math>\pm</math>3mm.</p>  <p>2. Hold the assy parts using left hand then measure the end of VM tube (Sunprene) tube up to the hotmelted wires L=31<math>\pm</math>3mm.</p>  <p>3. After taping, check the measurement and taping condition.</p>	 <p>MEASURING TAPE</p>	<p><b>Important reminders/Notes</b></p> <p>1. Please use calibrated/verified measuring tape when fetting the measurement.</p> <p>1. No peel-off tape 2. No flip out tape 3. No loose tape 4. No wrong use of tape 5. No wrong dimension 6. No missing tape</p>

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PARTS:		1. Clamp 82711-48210 (B) [2pcs] 2. Clamp 82711-33650 (B)		3. Black tape [5pcs]	JIG:	1. Temporary clamp assembly jig	
NO.	PROCESS NAME		WORK PROCEDURE/ ILLUSTRATION			TOOLS/PPE	QUALITY POINTERS
8	P1	Clamp setting	<div><p>1. Get <b>1pc</b> of clamp <b>82711-33650 (B)</b> using right hand then set to Clamp location no. <b>1</b> using both hands.</p><p>2. Get <b>1pc</b> of clamp <b>82711-48210 (B)</b> using right hand then set to Clamp location no. <b>2</b> and <b>3</b> using both hands.</p><p>3. Get <b>1pc</b> of clamp <b>82711-48210 (B)</b> using right hand then set to Clamp location no. <b>4</b> and <b>5</b> using both hands.</p><p>4. Initially attach <b>BLACK TAPE</b> to location <b>1,2,3,4 and 5</b> using both hands.</p></div>				<p><b>Important reminders/Notes</b></p> <p><b>1. Please check the clamp first before start of clamp assembly to avoid wrong use of clamp.</b></p> <p>1. No wrong use of parts 2. No wrong use of tape 3. No damaged clamp 4. No wrong clamp position</p>

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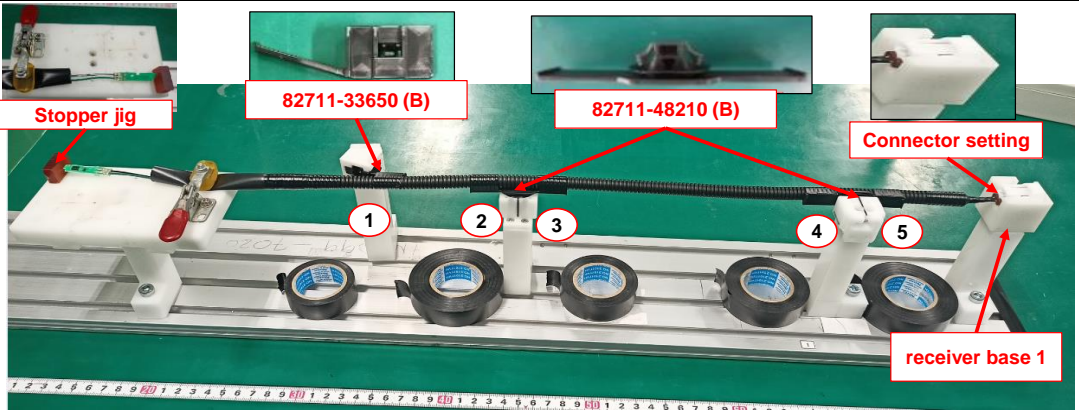
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PARTS:		1. Assy parts 2. Black tape [5pcs]		JIG:	1. Temporary clamp assembly jig
NO.	PROCESS NAME	WORK PROCEDURE/ ILLUSTRATION		TOOLS/PPE	QUALITY POINTERS
9	P1	Clamp assembly	<div></div> <div>1. Get the assy parts using right hand then set into jig using both hands. <b>(See above picture for the correct setting)</b>. First put the connector <b>6189-0451 (W)</b> into receiver base 1. Continue setting the harness in jig. Last, set the hotmelted wires (B/W-G) within the stopper jig then press by the toggle clamp.</div> <div>2. Hold the tape on the clamp location no. <b>1</b> using right hand. Make <b>3 windings</b> of tape using both hands then cut the tape. Proceed to clamp location <b>2</b>.</div> <div>3. Hold the tape on the clamp location no. <b>2</b> using right hand. Make <b>3 windings</b> of tape using both hands then cut the tape. Proceed to clamp location <b>3</b>.</div> <div>4. Hold the tape on the clamp location no. <b>4</b> using right hand. Make <b>3 windings</b> of tape using both hands then cut the tape. Proceed to clamp location <b>5</b>.</div> <div>5. Hold the tape on the clamp location no. <b>5</b> using right hand. Make <b>3 windings</b> of tape using both hands then cut the tape.</div> <div>6. After taping, conduct <b>POINT CHECKING</b> before removing the harness from jig</div>		<div><b>Important reminders/Notes</b></div> <div>1. Please check the clamp first before start of clamp assembly to avoid wrong use of clamp.</div> <div>1. No wrong use of parts 2. No wrong use of tape 3. No damaged clamp 4. No wrong clamp position</div>

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NO.	PROCESS NAME	WORK PROCEDURE/ ILLUSTRATION		TOOLS/PPE	QUALITY POINTERS
10	P1	<p>Visual/ By two's inspection</p> <p>ASSEMBLED PARTS</p> <p>ENGINEERING SAMPLE</p> <p>1. Conduct alignment of harness (Master sample vs. Assembled parts) using both hands.</p> <p>2. Check the connector lock condition, insertion, terminal and taping condition.</p> <p>3. Check the presence of all clamp attachment and taping condition. Conduct slightly bending of parts with wing-type clamp.</p> <p>4. Conduct slightly pulling (UP and Down) of VM tube (Sunprene) to confirm the presence of tape.</p> <p>5. Check the hotmelted wires (B/W-G) appearance. Must be no deformed terminal.</p>		<p>ACTUAL PRODUCTS</p> <p>ENGINEERING SAMPLE</p> <p>MASTER SAMPLE</p>	<p>1. No skip checking during inspection.</p>

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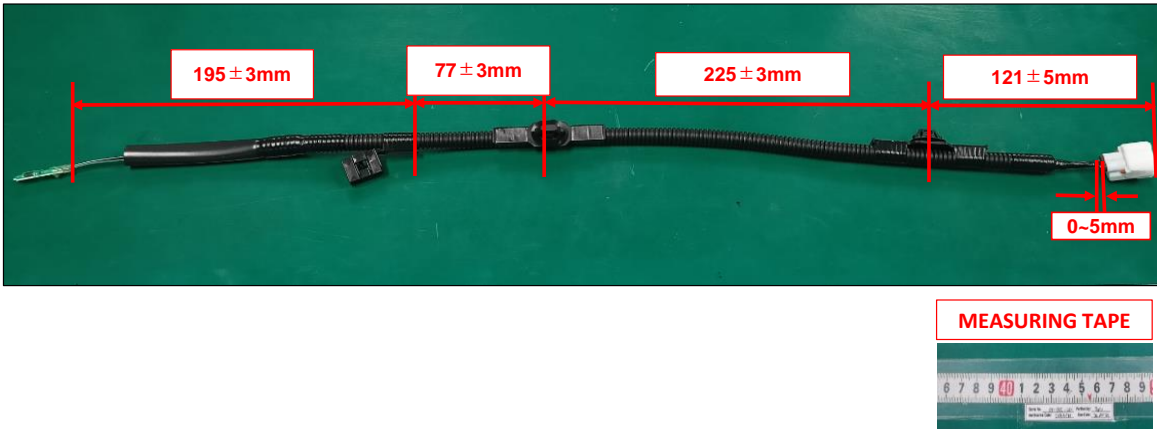
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PARTS:		n/a		JIG:	n/a
NO.	PROCESS NAME	WORK PROCEDURE/ ILLUSTRATION		TOOLS/PPE	QUALITY POINTERS
11	P1	Measurement			<p>1. No wrong dimension</p> <p><b>Important reminders/Notes</b></p> <p>1. Please use calibrated/verified measuring tape when fetting the measurement.</p> <p>2. For Hatsumono, Nakamono and Owarimono</p> <p><b>Document reference/s:</b></p> <p>1. Please refer to WI-PRO-ASY-056 for Sub-Assy Hatsumono, Nakamono and Owarimono inspection.</p>

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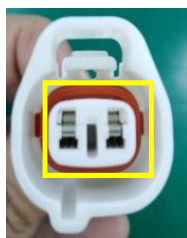
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n/a

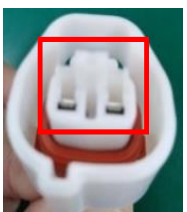
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P1

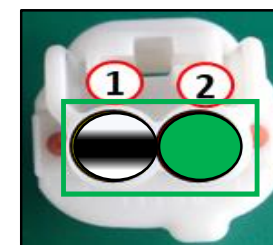
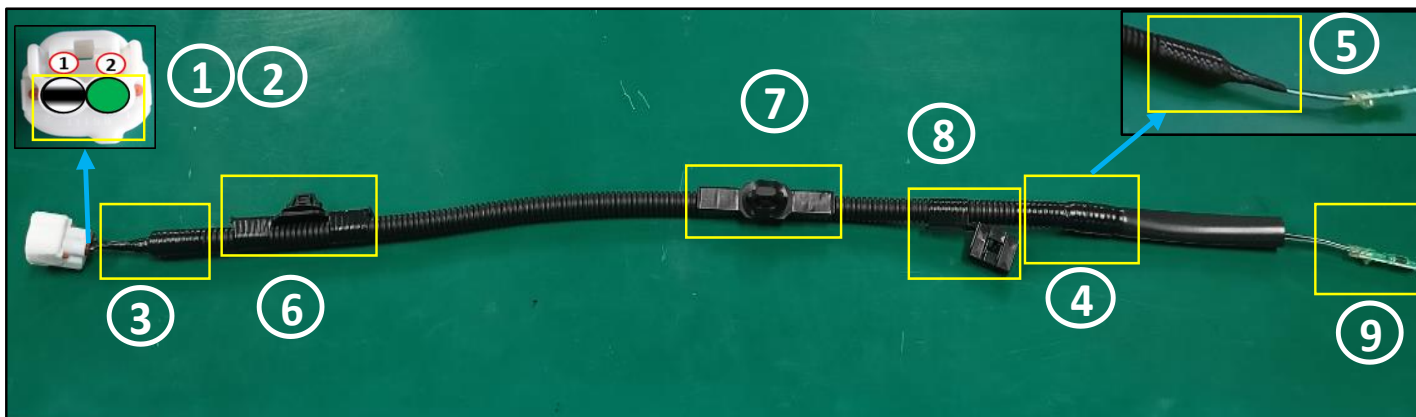
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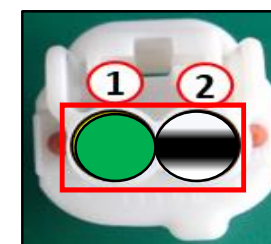
GOOD



NO GOOD



GOOD



NO GOOD

- ① ② No **WRONG INSERT**  
No **TERMINAL BACKING OUT**  
No **UNLOCKED/HALFLOCKED**

- ③ ④ ⑤ No **MISSING TAPE**  
⑥ ⑦ ⑧ No **MISSING CLAMP**

- ⑨ No **DAMAGED PCB/TERMINAL**

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