



WORK INSTRUCTION

TAPING ASSEMBLY PROCESS

Process Name/Title:

Model code/Part number:

310D

/

7N0195-7020A

Customer: TRJ

Car Model:

TOYOTA- RAV 4

Purpose:

☐ PROTOTYPE☒ PRE-LAUNCH☐ MASSPRO

Effectivity Date:

November 29, 2023

Validity Date:

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WI-ENG-PDE-757

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PARTS:





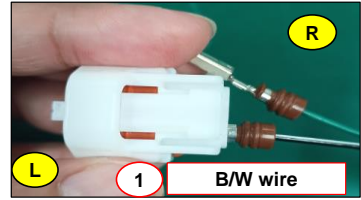
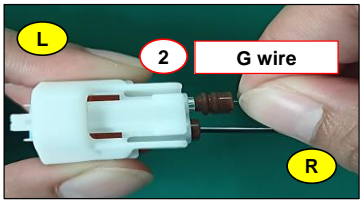
1. Connector 6189-0451 (W)

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 Black Corrugated tube (No slit) Ø7, L=461±3mm using right hand then insert the wire using left hand.</p>	Safety Instruction 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>1. Hold the connector using left hand. Get the Black/White wire then insert to terminal slot 1 using right hand.</p> <p>2. Get the Green wire and insert to terminal slot 2.</p>	Housekeeping 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 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
11/29/23	0	Initial issue	M. Ariola	C. Villanueva	A. Arañes	n/a	M. Ariola	C. Villanueva	A. Arañes	n/a
Est. Date:								November 29, 2023		

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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></div> <div><p>1. Put the connector into locking jig using right hand. Then press to lock 2x using both hands.</p></div> <div></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><p>BEFORE PRESSING</p><p>AFTER PRESSING</p><p>GOOD</p><p>NG</p><div><p>Check the double lock deformation</p></div></div> <div><div>LOCKING JIG</div></div> <div><p>Important reminders/Notes</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></div>		

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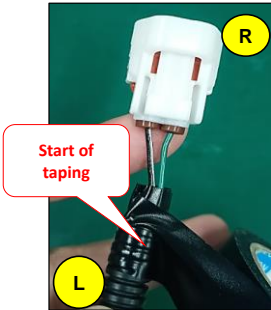
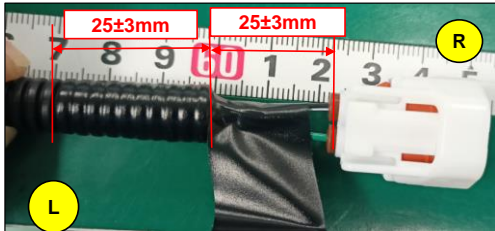
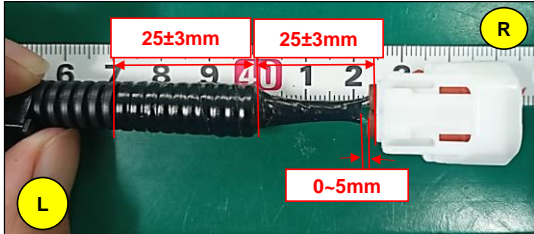

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PARTS:		1. Assy parts 2. Black tape		JIG:	n/a
NO.	PROCESS NAME	WORK PROCEDURE/ ILLUSTRATION		TOOLS/PPE	QUALITY POINTERS
4	P1 Taping 1 Black Corrugated tube to Wire near connector	<div><p>1. Hold the Corrugated tube using left hand, Get the Black tape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

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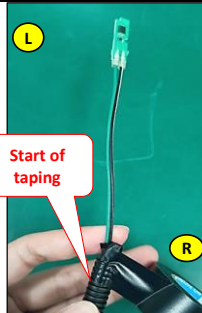
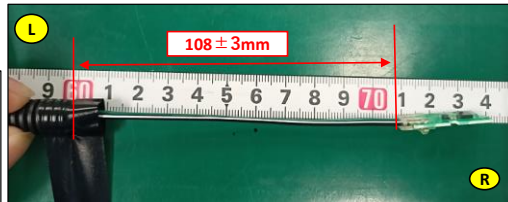
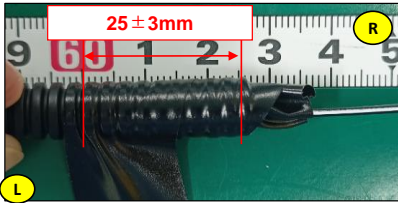
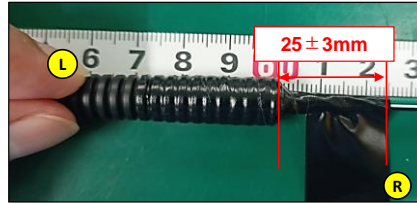
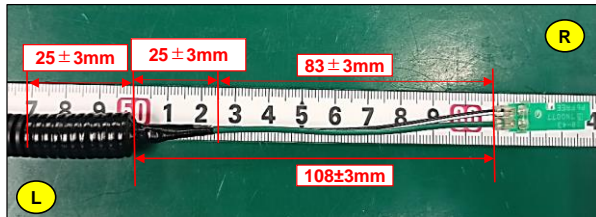

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PARTS:		1. Assy parts 2. Black tape		JIG:	n/a
NO.	PROCESS NAME	WORK PROCEDURE/ ILLUSTRATION		TOOLS/PPE	QUALITY POINTERS
5	P1 Taping 2 Black Corrugated tube to Wire near PCB	<div><div><p>Start of taping</p></div><div><p>1. Get the Black tape using right hand then start taping process using both hand.</p></div><div><p>108 ± 3mm</p></div><div><p>2. Measure from end of COT up to Hotmelted wires L=108±3mm then continue the taping process using both hands.</p></div><div><p>25 ± 3mm</p></div><div><p>25 ± 3mm</p></div><div><p>3. Confirm measurement from end of tape up to end of COT 25±3mm then continue the taping process using both hands.</p></div><div><p>4. Confirm measurement from end of COT up to end of tape 25±3mm then continue the taping process using both hands.</p></div><div><p>25 ± 3mm 25 ± 3mm 83 ± 3mm 108 ± 3mm</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>Important reminders/Notes</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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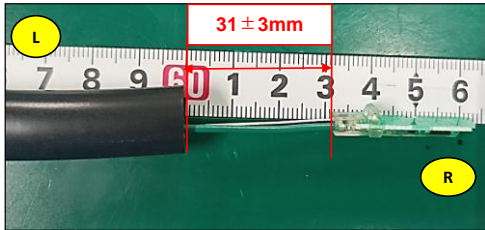
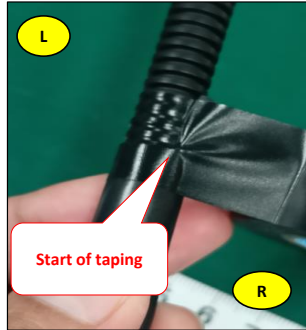
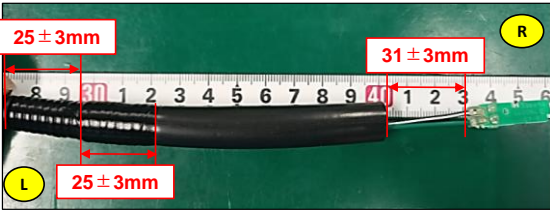

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PARTS:		1. Assy parts 2. Black VM tube (Sunprene) $\phi 11$, L=97 \pm 3mm		JIG:	n/a
NO.	PROCESS NAME	WORK PROCEDURE/ ILLUSTRATION		TOOLS/PPE	QUALITY POINTERS
6		Wire insertion to Black VM tube (Sunprene) $\phi 11$, L=97 \pm 3mm	 <p>1. Get the Black VM tube (Sunprene) $\phi 11$, L=97\pm3mm 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\pm3mm.</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\pm3mm.</p>  <p>3. After taping, check the measurement and taping condition.</p>	 <p>MEASURING TAPE</p>	<p>Important reminders/Notes</p> <p>1. Please use calibrated/verified measuring tape when fetting the measurement.</p> <ul style="list-style-type: none">1. No peel-off tape2. No flip out tape3. No loose tape4. No wrong use of tape5. No wrong dimension6. No missing tape

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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>82711-33650 (B)</p><p>82711-48210 (B)</p><p>1 2 3 4 5</p><div>1. Get 1pc of clamp 82711-33650 (B) using right hand then set to Clamp location no. 1 using both hands.</div><div>2. Get 1pc of clamp 82711-48210 (B) using right hand then set to Clamp location no. 2 and 3 using both hands.</div><div>3. Get 1pc of clamp 82711-48210 (B) using right hand then set to Clamp location no. 4 and 5 using both hands.</div><div>4. Initially attach BLACK TAPE to location 1,2,3,4 and 5 using both hands.</div></div>			<p>Important reminders/Notes</p> <p>1. Please check the clamp first before start of clamp assembly to avoid wrong use of clamp.</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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PARTS:

1. Assy parts
2. Black tape [5pcs]

JIG:

1. Temporary clamp assembly jig

NO.

PROCESS NAME

WORK PROCEDURE/ ILLUSTRATION

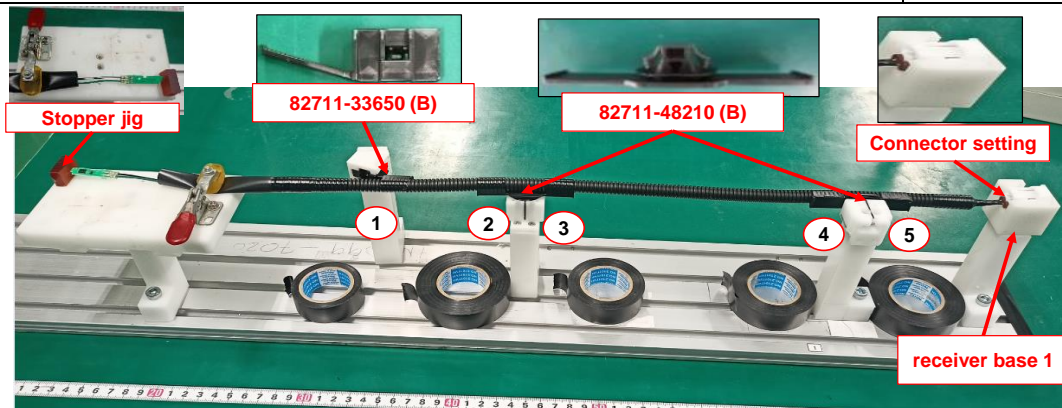
TOOLS/PPE

QUALITY POINTERS

9

P1

Clamp assembly



1. Get the assy parts using right hand then set into jig using both hands. **(See above picture for the correct setting)**. First put the connector **6189-0451 (W)** 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.

2. Hold the tape on the clamp location no. **1** using right hand. Make **3 windings** of tape using both hands then cut the tape. Proceed to clamp location **2**.

3. Hold the tape on the clamp location no. **2** using right hand. Make **3 windings** of tape using both hands then cut the tape. Proceed to clamp location **3**.

4. Hold the tape on the clamp location no. **4** using right hand. Make **3 windings** of tape using both hands then cut the tape. Proceed to clamp location **5**.

5. Hold the tape on the clamp location no. **5** using right hand. Make **3 windings** of tape using both hands then cut the tape.

6. After taping, conduct **POINT CHECKING** before removing the harness from jig

Important reminders/Notes

1. Please check the clamp first before start of clamp assembly to avoid wrong use of clamp.

1. No wrong use of parts
2. No wrong use of tape
3. No damaged clamp
4. No wrong clamp position

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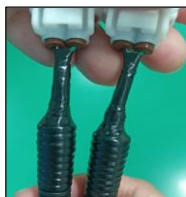







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PARTS:	n/a			JIG:	n/a	
NO.	PROCESS NAME	WORK PROCEDURE/ ILLUSTRATION			TOOLS/PPE	QUALITY POINTERS
10	P1	<div>Visual/ By two's inspection</div> <div><p>ACTUAL PRODUCTS</p></div> <div><p>ASSEMBLED PARTS</p></div> <div><p>ENGINEERING SAMPLE</p></div>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

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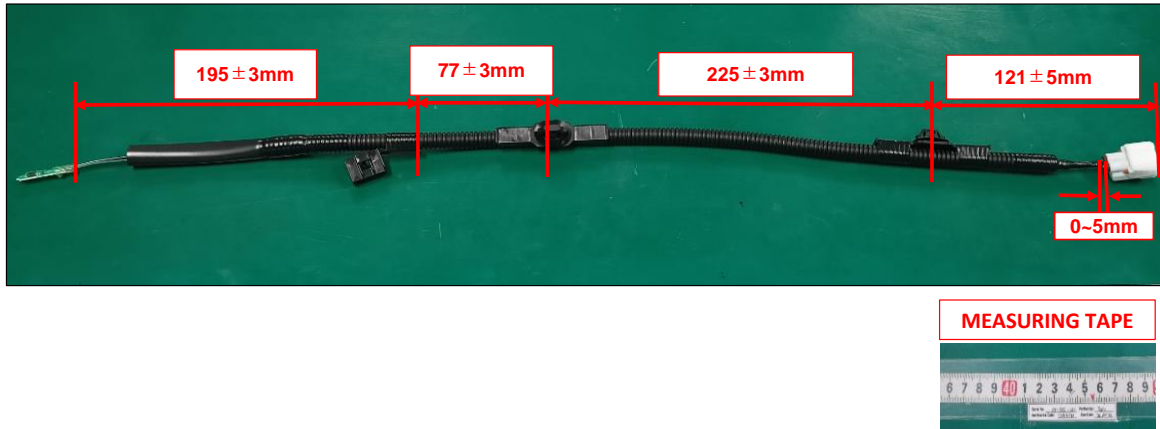
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NO.	PROCESS NAME	WORK PROCEDURE/ ILLUSTRATION		TOOLS/PPE	QUALITY POINTERS
11	P1	Measurement			<p>1. No wrong dimension</p> <p>Important reminders/Notes</p> <p>1. Please use calibrated/verified measuring tape when fetting the measurement.</p> <p>2.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

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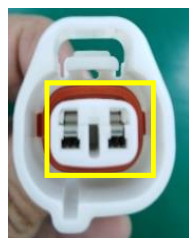
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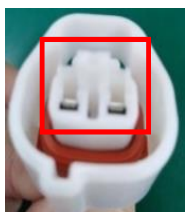
QUALITY CHECKPOINTS

P1

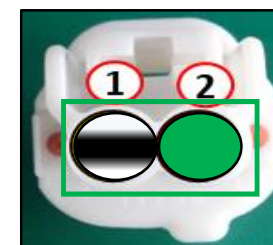
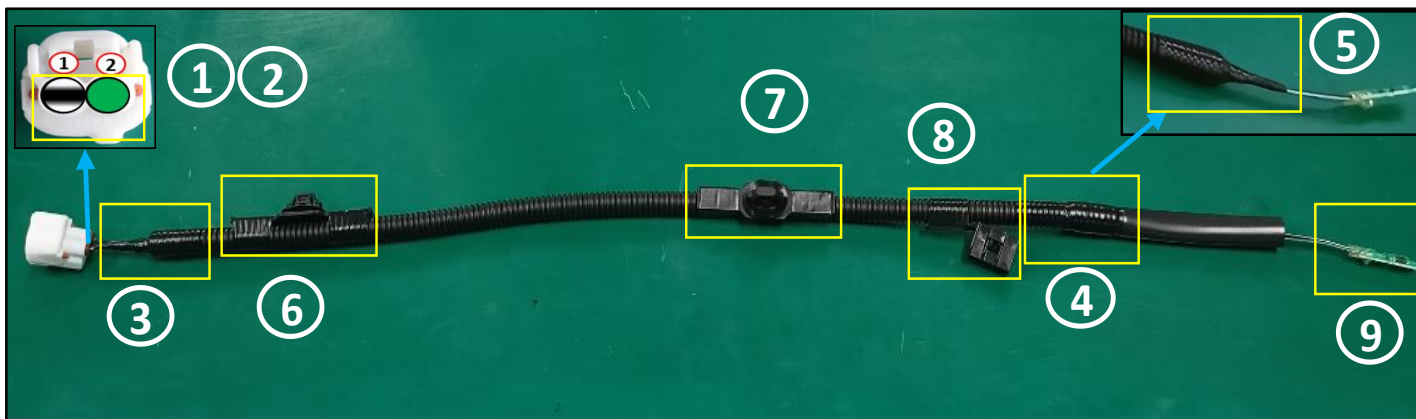
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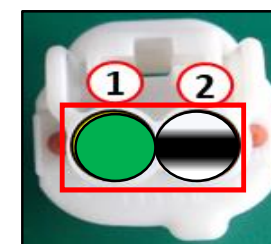
GOOD



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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