



WORK INSTRUCTION

TAPING ASSEMBLY PROCESS

Effectivity Date:

July 10, 2024

Process Name/Title:

Validity Date:

n/a

Model code/Part number:

311D / 7L0155-7022

Customer:

TRQSS

Car Model:

TOYOTA RAV4

Document No.:

WI-ENG-PDE-930

Purpose:

☐ PROTOTYPE☒ PRE-LAUNCH☐ MASSPRO

Revision No.:

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PARTS:



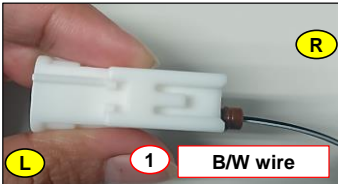

1. Connector 6188-0407 (W)

2. MR SW CP (TVSSf 0.3 G-BW wires L=588±3mm

3. Black Corrugated tube (No slit) ø7, L=297±4mm

JIG:

n/a

NO.	PROCESS NAME	WORK PROCEDURE/ ILLUSTRATION	TOOLS/PPE	QUALITY POINTERS
1	Wire insertion to Black Corrugated tube (No Slit) ø7, L=297±4mm	 1. Get the Black Corrugated tube (No slit) ø7, L=297±4mm using right hand then insert the wire using left hand.	Safety Instruction Be sure to wear required personal protective equipment during operation (gloves, finger cots, etc.)	1. No wrong usage of parts 2. No deformed terminal
2	Wire insertion to Connector 6188-0407 (W)	 CONNECTOR ORIENTATION  1. Hold the connector using left hand. Get the Black/White wire then insert to terminal slot 1 using right hand.  2. Get the Green wire and insert to terminal slot 2 .	Housekeeping 1. Maintain and always practice 5's. 2. Personal things on the workplace is prohibited. Keep it in your locker. Alert level For any trouble, inform the Assembly Assistant Supervisor or Line Leader for immediate corrective action.	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

Prepared by

Reviewed by

Approved by

Noted by

07/10/24	0	Initial issue	A. Hernandez	C. Villanueva	A. Arañes	n/a	A. Hernandez	C. Villanueva	A. Arañes	n/a
Eff. Date	Rev. No	Details of Change	Revised	Reviewed	Approved	Noted	Est. Date:	July 10, 2024		

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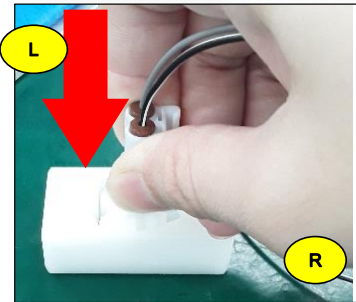

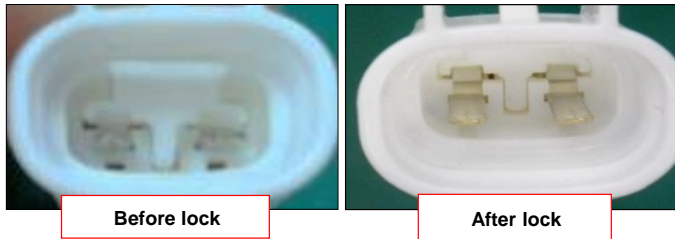

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PARTS:		1. Assy parts		JIG:	1. Locking jig
NO.	PROCESS NAME	WORK PROCEDURE/ ILLUSTRATION		TOOLS/PPE	QUALITY POINTERS
3	n/a	Connector lock	<div><p>Coupler Cross Sectional View</p><div>1. Put the connector into locking jig using right hand then press 2x to lock using both hands. Check the lock if properly locked.</div></div>	<div>LOCKING JIG</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 unlocked/half-locked connector.</p>

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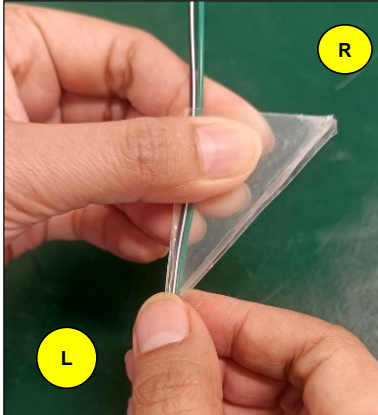
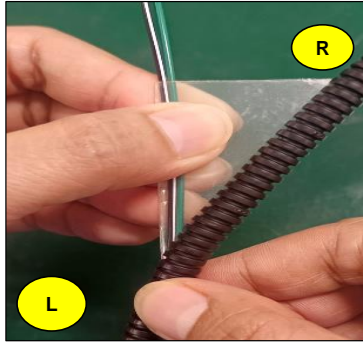
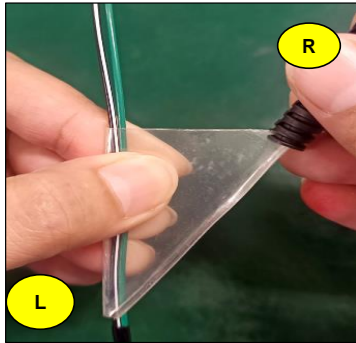

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PARTS:		1. Assy parts 2. Black Corrugated tube (with slit) Ø5 L=164±3mm		JIG:	n/a
NO.	PROCESS NAME	WORK PROCEDURE/ ILLUSTRATION		TOOLS/PPE	QUALITY POINTERS
4	n/a	<div><div>1. Hold the COT Adaptor using left hand. Insert the wires using right hand.</div><div>2. Hold the COT Adaptor with wires using left hand , get the Black Corrugated tube (w/ slit) Ø5 L=164±3mm using right hand then insert to COT adaptor. Hold the COT adaptor and push the COT (same timing) using both hands. Make sure all wires are inserted.</div></div>		<div>COT Adaptor</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>

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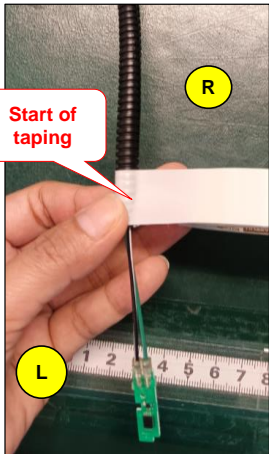
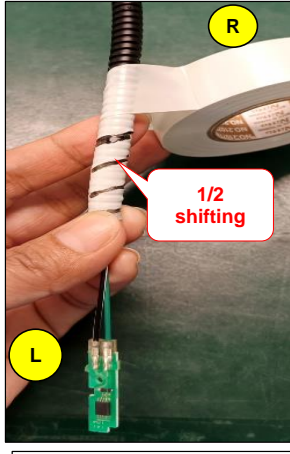
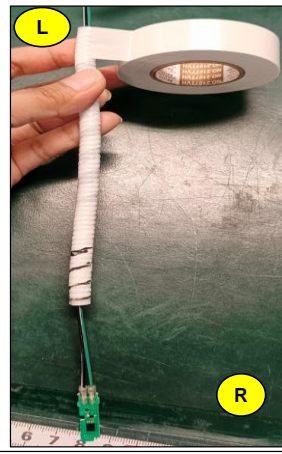
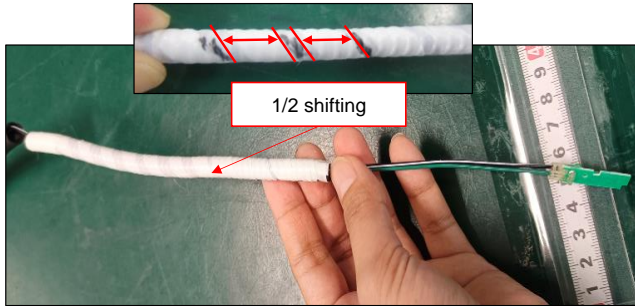

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PARTS:		1. Assy parts 2. Black tape		JIG:	n/a
NO.	PROCESS NAME	WORK PROCEDURE/ ILLUSTRATION		TOOLS/PPE	QUALITY POINTERS
5	n/a Half-wrap Taping	<div><p>Start of taping</p></div> <div><p>1/2 shifting</p></div> <div><p>1/2 shifting</p></div> <div><p>1. Hold the corrugated tube (w/slit) using left hand. Get the black tape using right hand. Conduct 2 windings of tape before shifting using both hands.</p><p>2. Make 1/2 shifting. Repeat the process until the end of corrugated tube. Make 3 windings of tape then cut the tape.</p><p>3. Check the taping condition.</p></div> <div><p>1/2 shifting</p></div>		<div>MEASURING TAPE</div> 	<p>Important reminders/Notes</p> <ol style="list-style-type: none">1. Please use calibrated/verified measuring tape when getting the measurement.2. Used WHITE TAPE to easily visualize the tape shifting, but actual should be BLACK TAPE.3. Internal tolerance for halfwrap taping shifting should be 0~14mm only. <ol style="list-style-type: none">1. No flip-out tape2. No peel-off tape3. No loose tape4. No missing tape5. No wrong use of tape

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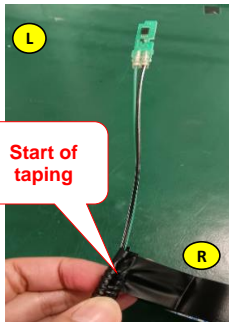

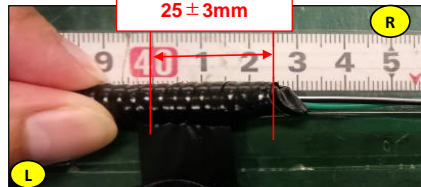
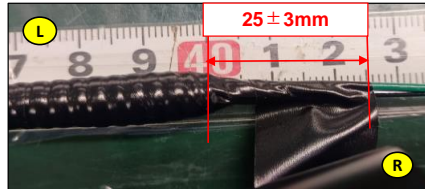
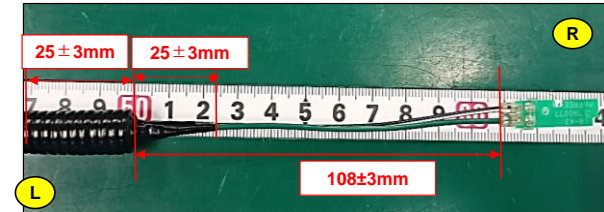

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PARTS:		1. Assy parts 2. Black tape		JIG:	n/a
NO.	PROCESS NAME	WORK PROCEDURE/ ILLUSTRATION		TOOLS/PPE	QUALITY POINTERS
6	n/a Taping 2 Black Corrugated tube to Wire near PCB	<div><p>1. Get the Black tape using right hand then start taping process using both hand.</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>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>5. After taping, check the measurement, wire alignment and taping condition.</p></div>		<p>MEASURING TAPE</p> 	<p>Important reminders/Notes</p> <p>1. Please use calibrated/verified measuring tape when getting 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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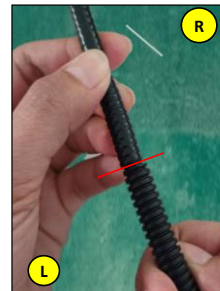

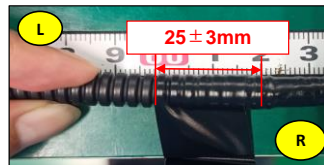
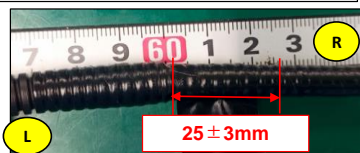
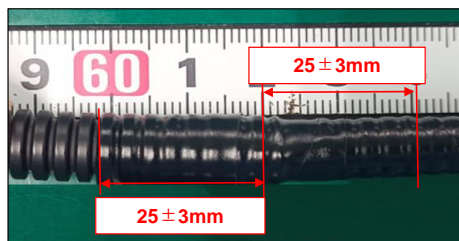

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PARTS:		1. Assy parts 2. Black tape		JIG:	n/a
NO.	PROCESS NAME	WORK PROCEDURE/ ILLUSTRATION		TOOLS/PPE	QUALITY POINTERS
7	n/a	<div><div><p>272 ± 3mm</p><p>1. Measure from end of the Corrugated tube (No slit) up to end of hotmelted wire 272mm using both hands.</p></div><div><div><p>2. Fix the Corrugated tube (No slit) and the Corrugated tube (w/slit) using both hands.</p></div><div><div><p>3. Get the black tape and start taping process using both hands.</p></div><div><div><p>25 ± 3mm</p><p>4. Measure from end of tape up to end of Corrugated tube (No slit) 25±3mm.</p></div><div><div><p>25 ± 3mm</p><p>5. Measure from end of Corrugated tube (No slit) to end of tape 25±3mm.</p></div><div><div><p>25 ± 3mm</p><p>6. After taping, check the measurement and taping condition.</p></div></div></div><div><p>MEASURING TAPE</p></div></div></div></div></div>		<p>Important reminders/Notes</p> <p>1. Please use calibrated/verified measuring tape when fetting the measurement.</p> <ol 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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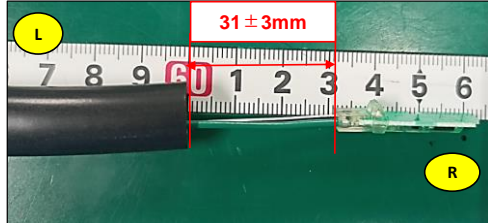

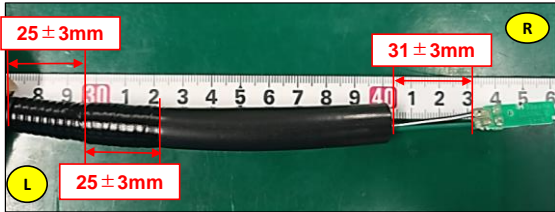

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PARTS:		1. Assy parts 2. Black VM tube (Sunprene) ø9, L=97±3mm		JIG:	n/a
NO.	PROCESS NAME	WORK PROCEDURE/ ILLUSTRATION		TOOLS/PPE	QUALITY POINTERS
8		Wire insertion to Black VM tube (Sunprene) ø9, L=97±3mm	<div></div> <div>1. Get the Black VM tube (Sunprene) ø9, L=97±3mm using right hand then insert the hotmelted wires (B/W-G) using left hand.</div>	n/a	1. No wrong use of parts.
9	n/a	Taping 4 Black Corrugated tube to VM tube (Sunprene)	<div></div> <div>1. Measure the end of VM tube (Sunprene) up to hotmelted wires L=31±3mm.</div> <div></div> <div>2. Hold the VM tube (Sunprene) using left hand, get the Black tape then start taping using right hand.</div> <div></div> <div>3. After taping, check the measurement and taping condition.</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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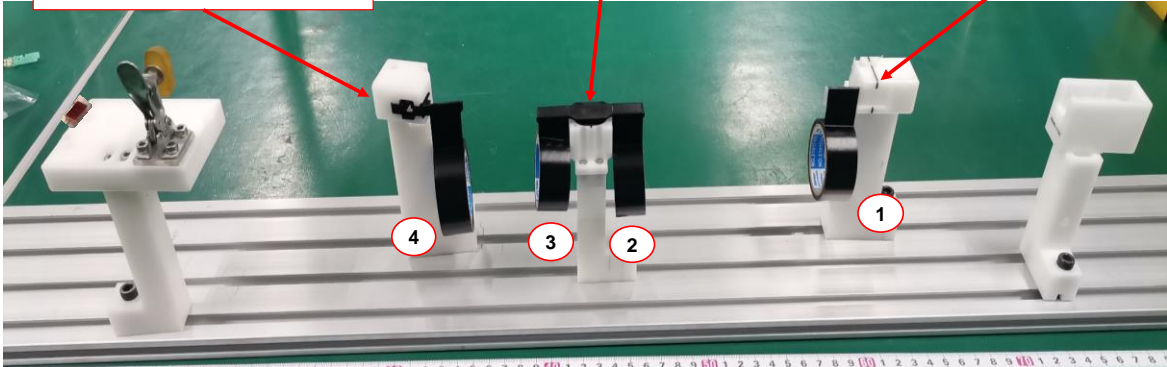
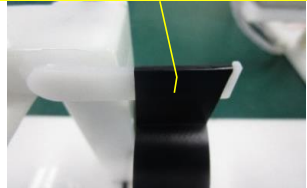


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PARTS:		1. Clamp 82711-48210 (B) 2. Clamp 82711-33650 (B) 3. Clamp 82711-3A540 (W) 3. Black tape [4pcs]		JIG:	n/a
NO.	PROCESS NAME	WORK PROCEDURE/ ILLUSTRATION		TOOLS/PPE	QUALITY POINTERS
10	n/a Clamp Settings	<div><div> 82711-33650 (B)</div><div> 82711-48210 (B)</div><div> 82711-3A540 (W)</div><div>1. Get 1pc of clamp 82711-3A540 (W) 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 82711-33650 (B) using right hand then set to Clamp location no. 4 using both hands.</div><div>4. Initially attach BLACK TAPE to location 1, 2, and 4 using both hands.</div></div>			<p>Important reminders/Note/s:</p> <p>1. Please check the Clamp first before start of assembly to avoid wrong use of clamp.</p> <p>Important reminders/Note/s:</p> <p>1. Make sure no gap between stopper and terminals 2. Make 2-3 windings for clamp taping.</p> <p>1. No loose attachment of clamp 2. No damaged clamp 3. No missing parts</p> <div><div>One wind for under tape</div><div>CLAMP ILLUSTRATION</div><div><div>GOOD</div><div>82711-52090(W)</div></div><div><div>NG</div><div>82711-12A80 (W)</div></div></div>

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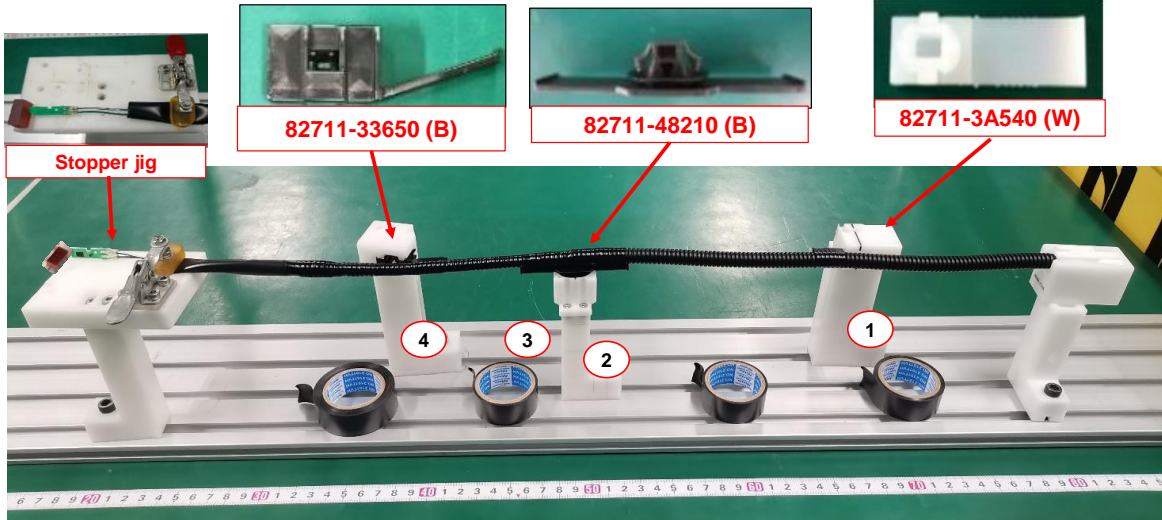
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PARTS:		1. Assy parts 2. Black tape [4pcs]		JIG:	1. Temporary jig
NO.	PROCESS NAME	WORK PROCEDURE/ ILLUSTRATION		TOOLS/PPE	QUALITY POINTERS
11	n/a Clamp Assembly	<div></div> <div>1. Get the assy parts using right hand then set into jig using both hands. <i>(See above picture for the correct setting)</i>. 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.</div> <div>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.</div> <div>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.</div> <div>4. Hold the tape on the clamp location no. 3 using right hand. Make 3 windings of tape using both hands then cut the tape. Proceed to clamp location 4.</div> <div>5. Hold the tape on the clamp location no. 4 using right hand. Make 3 windings of tape using both hands then cut the tape.</div> <div>6. After taping, conduct POINT CHECKING before removing the harness from jig</div>			<div>Important reminders/Notes</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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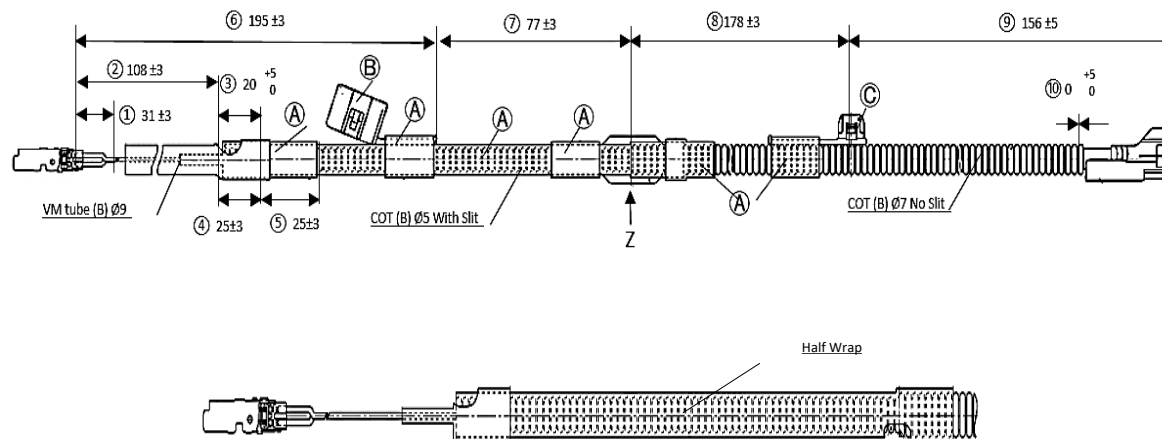
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NO.**PROCESS NAME****WORK PROCEDURE/ ILLUSTRATION****TOOLS/PPE****QUALITY POINTERS**

12

n/a

Measurement

**NOTE:**

- (A) - Taping (B)
- (B) - Clamp (B)
- (C) - Clamp (W)
- (3) - Dimension overlapped COT & sunprene tube

WIRE TYPE TABLE

No.	Color	Wire Type
1	G	AVSS 0.3 f
2	B/W	AVSS 0.3 f

1. No wrong dimension

Important reminders/Notes

1. Please use calibrated/verified measuring tape when fetting the measurement.
2. For Hatsumono, Nakamono and Owarimono

Document reference/s:

1. Please refer to WI-PRO-ASY-056 for Sub-Assy Hatsumono, Nakamono and Owarimono inspection.

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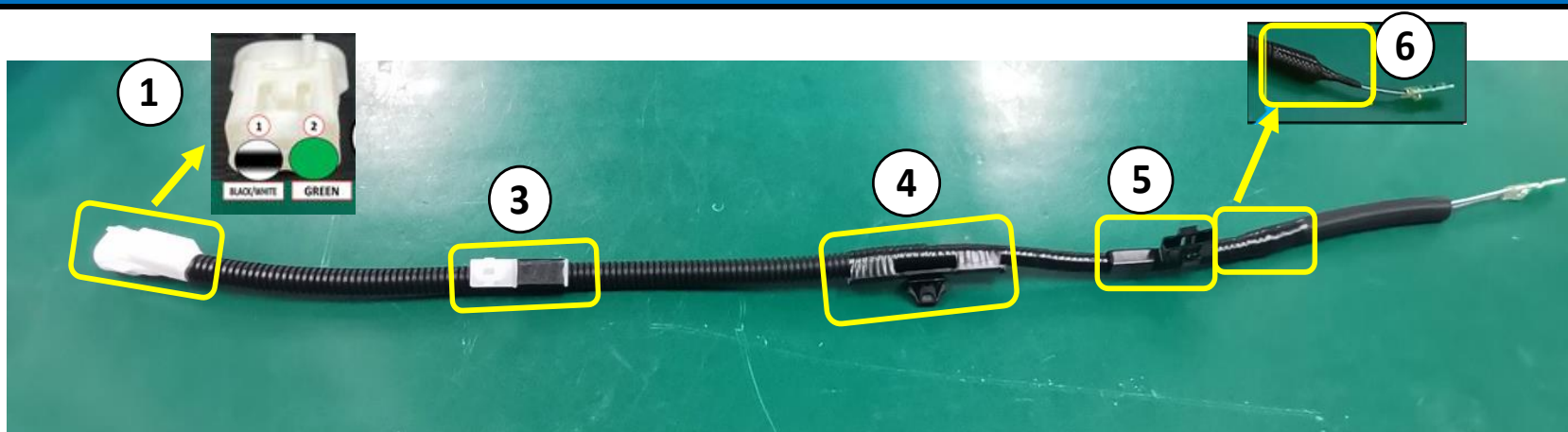
n/a

JIG:

n/a

VISUAL INSPECTION/QUALITY CHECKPOINTS

n/a

7L0155-7022**GOOD****NO GOOD**

3

4

5

No MISSING CLAMP

6

No MISSING TAPE

7

CHECK THE ALIGNMENT**No WRONG INSERT****No UNLOCKED/HALFLOCKED****NO TERMINAL BACKING OUT**

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DCC Stamp