



WORK INSTRUCTION

Process Name/Title:

TAPING ASSEMBLY PROCESS

Effectivity Date:

September 10, 2024

Model code/Part number:

311D

/

17L991-7110A

Customer:

TRMX

Car Model:

TOYOTA RAV4

Validity Date:

n/a

Purpose:

☐ PROTOTYPE☒ PRE-LAUNCH☐ MASSPRO

Document No.:

WI-ENG-PDE-986

Revision No.:

0

Page No.:

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PARTS:

1. Connector 4A1820-0000 (W)

2. Civus Wire 0.13 P-BR-R-B-G-LG-V-GR-L L= 116±1mm

JIG:

n/a

NO.

PROCESS NAME

WORK PROCEDURE/ ILLUSTRATION

TOOLS/PPE

QUALITY POINTERS

1

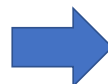
P1

Wire insertion to
Connector
4A1820-0000 (W)

WIRE INSERTION ILLUSTRATION

1	2	3	4	5	6	7	8	9	10	11
X	X	P	BR	R	B	G	LG	V	GR	L
116	116	116	116	116	116	116	116	116	116	116

WIRE FACING



1. Get 1 pc. of Connector **4A1820-0000 (W)** then hold the **P wire** and insert to terminal **slot 3** of connector using right hand. Conduct **2x** push pull after wire insertion. Repeat the process to **BR-R-B-G-LG-V-GR-L wires**.

Safety Instruction

Be sure to wear prescribed personal protective equipment during operation (gloves, finger cots, etc.)

Housekeeping

1. Maintain and always practice 5's.
2. Personal things on the work place 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 orientation of connector
2. No wrong use of connector
3. No damaged connector
4. No wrong insertion of wires
5. No loose insertion
6. No wrong insertion
7. One by one insertion
8. No deformed terminal
9. No wrong wire facing

Important reminders/Note/s:

1. Make sure wires are properly inserted. Conduct **Pull-Push-Pull-Push** after insertion. Do not exert extra force.
2. Please hold the wire near terminal during insertion.
3. Insertion of wire must be from left to right.

Document reference/s:

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

Revision History

Prepared by

Reviewed by

Approved by

Noted by

09/10/24 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:

September 10, 2024

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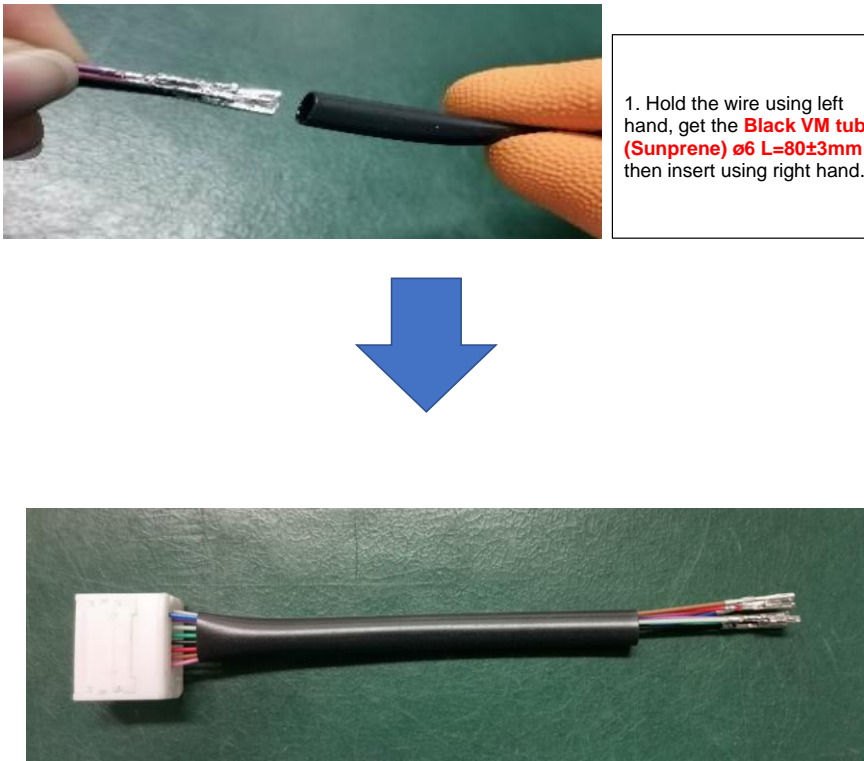

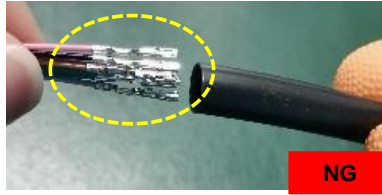
☐ PROTOTYPE☒ PRE-LAUNCH☐ MASSPRO

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PARTS:		1. Assy Parts 2. Black VM tube (Sunprene) $\varnothing 6$ L=80 \pm 3mm	JIG:	n/a
NO.	PROCESS NAME	WORK PROCEDURE/ ILLUSTRATION	TOOLS/PPE	QUALITY POINTERS
2	P1	Wire insertion to Black VM tube (Sunprene) $\varnothing 6$ L=80 \pm 3mm 	n/a	 GOOD  NG 1. No wrong use of parts 2. No deformed terminal

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PARTS:

1. Assy Parts

2. Civus Wire 0.13 R-LG-L-G-BR-Y-W L= 116±1mm

JIG:

n/a

NO.

PROCESS NAME

WORK PROCEDURE/ ILLUSTRATION

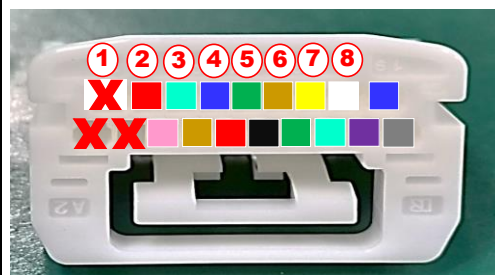
TOOLS/PPE

QUALITY POINTERS

3

P1

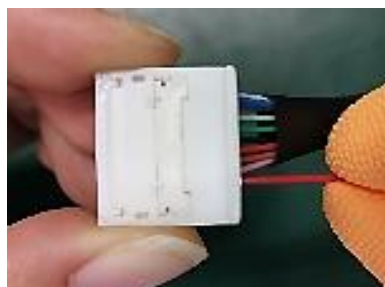
Wire insertion to
Connector
4A1820-0000 (W)



WIRE INSERTION ILLUSTRATION

1	2	3	4	5	6	7	8
X	R	LG	L	G	BR	Y	W
116	116	116	116	116	116	116	116

WIRE FACING



1. Get 1 pc. of Connector **4A1820-0000 (W)** then hold the **R wire** and insert to terminal **slot 3** of connector using right hand. Conduct **2x** push pull after wire insertion. Repeat the process to **BR-R-B-G-LG-V-GR-L wires**.

n/a

1. No wrong orientation of connector
2. No wrong use of connector
3. No damaged connector
4. No wrong insertion of wires
5. No loose insertion
6. No wrong insertion
7. One by one insertion
8. No deformed terminal
9. No wrong wire facing

Important reminders/Note/s:

1. Make sure wires are properly inserted. Conduct Pull-Push-Pull-Push after inserion.
- Do not exert extra force.
2. Please hold the wire near terminal during insertion.
3. Insertion of wire must be from left to right.

Document reference/s:

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

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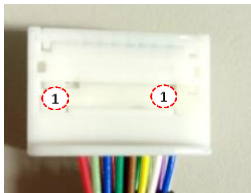
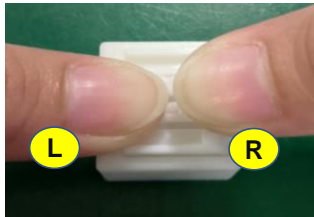



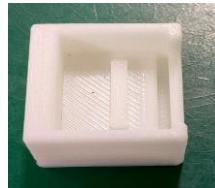
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PARTS:	1. Assy Parts			JIG:	1. Locking Jig
NO.	PROCESS NAME	WORK PROCEDURE/ ILLUSTRATION		TOOLS/PPE	QUALITY POINTERS
4	P1	Connector Lock	<div></div> <div><p>Sequence of Pressing the Double Lock: ① - ① Method: Press same timing using both thumbs</p></div> <div><div><p>1. Geat the assy parts using left hand then put the connector locking jig using right hand. 2. Press down the connector to locking jig 2x using left & right thumb (Same timing) 3. Touch the connector lock after locking (See below sequence in checking of connector lock)</p></div></div> <div><p>Checking point (Left to right)</p></div> <div><div><p>4. Ensure the connector is in locked condition by slide touching the connector lock LEFT TO RIGHT using thumb.</p></div></div>	<div><p>Locking Jig</p></div>	<p>Important reminders/Note/s: 1. Manual locking may cause damaged connector lock</p> <p>1. No damaged double lock. 2. No half-locked connector.</p>

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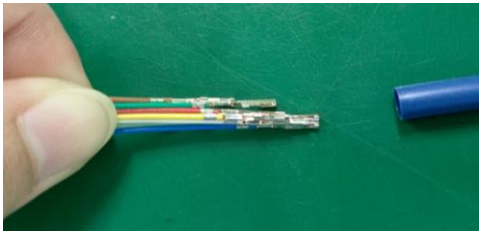


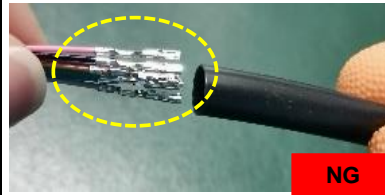

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PARTS:		1. Assy Parts 2. Blue VM tube (Sunprene) ø5 L=80±3mm		JIG:	n/a
NO.	PROCESS NAME	WORK PROCEDURE/ ILLUSTRATION		TOOLS/PPE	QUALITY POINTERS
5	P1	<div><div>1. Hold the wire using left hand, get the Blue VM tube (Sunprene) ø5 L=80±3mm then insert using right hand.</div></div> <div></div> <div></div>		n/a	<div><div>1. No wrong use of parts 2. No deformed terminal</div></div>

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PARTS:

1. Assy Parts

2. Civus Wire 0.13 G-R-BR-L-LG-P-V-B-GR L= 116±1mm

JIG:

n/a

NO.

PROCESS NAME

WORK PROCEDURE/ ILLUSTRATION

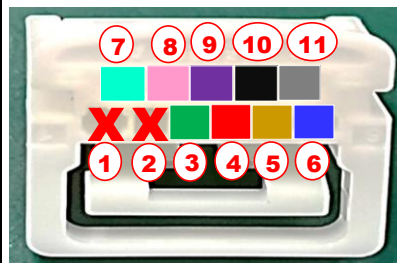
TOOLS/PPE

QUALITY POINTERS

6

P1

Wire insertion to
Connector
4A1720-0000 (W)



WIRE INSERTION ILLUSTRATION					
7	8	9	10	11	
LG	P	V	B	GR	
116	116	116	116	116	
1	2	3	4	5	6
X	X	G	R	BR	L
		116	116	116	116

WIRE FACING



1. Get 1 pc. of Connector **4A1720-0000 (W)** then hold the **G wire** and insert to terminal **slot 3** of connector using right hand. Conduct **2x** push pull after wire insertion. Repeat the process to **R-BR-L-LG-P-V-B-GR wires**.



n/a

1. No wrong orientation of connector
2. No wrong use of connector
3. No damaged connector
4. No wrong insertion of wires
5. No loose insertion
6. No wrong insertion
7. One by one insertion
8. No deformed terminal
9. No wrong wire facing

Important reminders/Note/s:

1. Make sure wires are properly inserted. Conduct Pull-Push-Pull-Push after insertion. Do not exert extra force.
2. Please hold the wire near terminal during insertion.
3. Insertion of wire must be from left to right.

Document reference/s:

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

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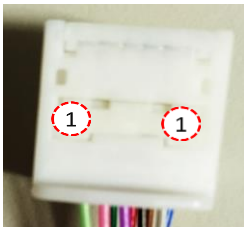
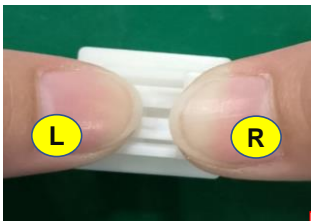

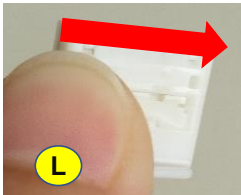


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PARTS:		1. Assy Parts		JIG:	1. Locking jig
NO.	PROCESS NAME	WORK PROCEDURE/ ILLUSTRATION		TOOLS/PPE	QUALITY POINTERS
7	P1	Connector Lock	<div></div> <div><p>Sequence of Pressing the Double Lock: ① - ① Method: Press same timing using both thumbs</p></div> <div></div> <div><p>1. Geat the assy parts using left hand then put the connector locking jig using right hand. 2. Press down the connector to locking jig 2x using left & right thumb (Same timing) 3. Touch the connector lock after locking (See below sequence in checking of connector lock)</p></div> <div><p>Checking point (Left to right)</p></div> <div></div> <div></div> <div><p>4. Ensure the connector is in locked condition by slide touching the connector lock LEFT TO RIGHT using thumb.</p></div>	<div><p>Locking Jig</p></div>	<p>Important reminders/Note/s: 1. Manual locking may cause damaged connector lock</p> <p>1. No damaged double lock. 2. No half-locked connector.</p>

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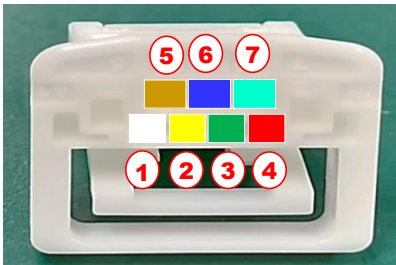




☐ PROTOTYPE☒ PRE-LAUNCH☐ MASSPRO

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PARTS:		1. Assy Parts 2. Connector 4A1810-0000 (W)		JIG:	n/a																					
NO.	PROCESS NAME	WORK PROCEDURE/ ILLUSTRATION		TOOLS/PPE	QUALITY POINTERS																					
8	P1 Wire insertion to Connector 4A1810-0000 (W)	<div><div></div><div><div>WIRE INSERTION ILLUSTRATION</div><table><tr><td>5</td><td>6</td><td>7</td></tr><tr><td>BR</td><td>L</td><td>LG</td></tr><tr><td>116</td><td>116</td><td>116</td></tr><tr><td>1</td><td>2</td><td>3</td><td>4</td></tr><tr><td>W</td><td>Y</td><td>G</td><td>R</td></tr><tr><td>116</td><td>116</td><td>116</td><td>116</td></tr></table><div>WIRE FACING</div></div><div></div><div>1. Get 1 pc. of Connector 4A1810-0000 (W) then hold the W wire and insert to terminal slot 3 of connector using right hand. Conduct 2x push pull after wire insertion. Repeat the process to Y-G-R-BR-L-LG wires.</div></div>		5	6	7	BR	L	LG	116	116	116	1	2	3	4	W	Y	G	R	116	116	116	116	n/a	<div>1. No wrong orientation of connector 2. No wrong use of connector 3. No damaged connector 4. No wrong insertion of wires 5. No loose insertion 6. No wrong insertion 7. One by one insertion 8. No deformed terminal 9. No wrong wire facing</div> <div>Important reminders/Note/s: 1. Make sure wires are properly inserted. Conduct <u>Pull-Push-Pull-Push</u> after insertion. Do not exert extra force. 2. Please hold the wire near terminal during insertion. 3. Insertion of wire must be from left to right.</div> <div>Document reference/s: 1. Refer to WI-PRO-CNC-017 for Wire and Strip length tolerance. 2. Refer to GL-PRO-ASY-029 for Pull-Push procedure.</div>
5	6	7																								
BR	L	LG																								
116	116	116																								
1	2	3	4																							
W	Y	G	R																							
116	116	116	116																							

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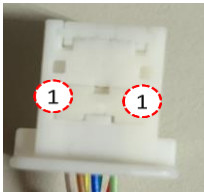
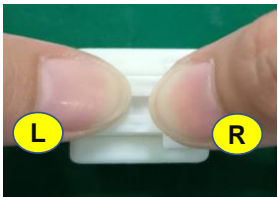

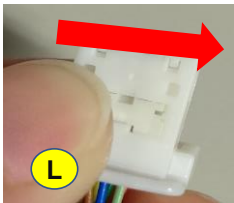
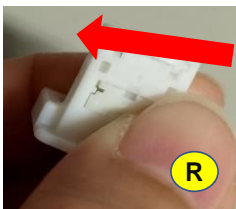

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PARTS:		1. Assy parts		JIG:	1. Locking jig
NO.	PROCESS NAME	WORK PROCEDURE/ ILLUSTRATION		TOOLS/PPE	QUALITY POINTERS
9	P1	Connector Lock	<div></div> <div><p>Sequence of Pressing the Double Lock: ① - ① Method: Press same timing using both thumbs</p></div> <div></div> <div><p>1. Geat the assy parts using left hand then put the connector locking jig using right hand. 2. Press down the connector to locking jig 2x using left & right thumb (Same timing) 3. Touch the connector lock after locking (See below sequence in checking of connector lock)</p></div> <div><p>Checking point (Left to right)</p></div> <div></div> <div></div> <div><p>4. Ensure the connector is in locked condition by slide touching the connector lock LEFT TO RIGHT using thumb.</p></div>	<div><p>Locking Jig</p></div>	<p>Important reminders/Note/s: 1. Manual locking may cause damaged connector lock</p> <p>1. No damaged double lock. 2. No half-locked connector.</p>

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PARTS:

1. Assy Parts
2. Tesa Tape 51036

JIG:

1. Tesa Tape Cutter

NO.

PROCESS NAME

WORK PROCEDURE/ ILLUSTRATION

TOOLS/PPE

QUALITY POINTERS

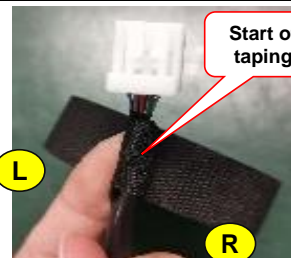
10

P1

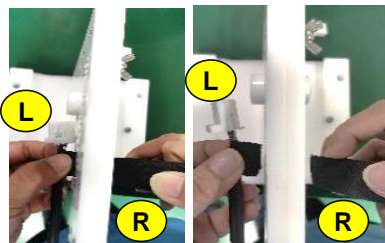
Taping 1
Black Tesa tape 51036
to Wire near connector



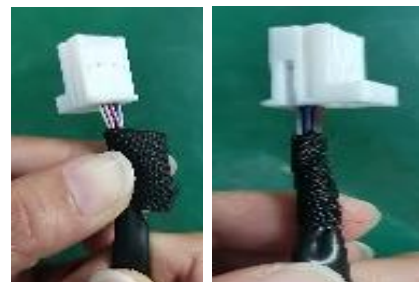
1. Measure from end of VM tube (Sunprene) up to edge of connector **0~15mm** using both hands.



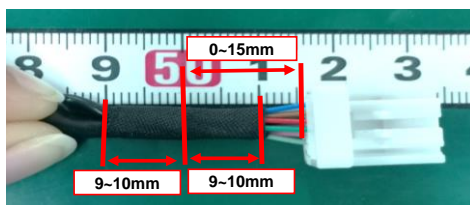
2. Hold the tube using left hand, get the **Black tesa tape 51036** using right hand then start taping process using both hands.



3. Cut the tape using tape cutter using both hands.



4. After cut, conduct pressing of end tape using both hands.



5. Check the taping condition,

MEASURING TAPE



TAPE CUTTER



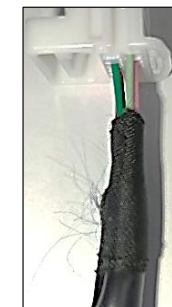
1. No flip-out tape
2. No peel-off tape
3. No loose tape
4. No missing tape
5. No wrong use of tape
6. No wrong dimension

Important reminders/Note/s:
Please use calibrated/verified measuring tape when getting the measurement.

TAPING CONDITION REFERENCE



GOOD
End tape with
out Hairline



NO GOOD
End tape with
Hairline

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PARTS:		1. Assy Parts 2. Tesa Tape 51036		JIG:	1. Tesa Tape Cutter
NO.	PROCESS NAME	WORK PROCEDURE/ ILLUSTRATION		TOOLS/PPE	QUALITY POINTERS
11	P1	Connector Lock	<div><p>1. Measure from end of VM tube (Sunprene) up to edge of connector 0~20mm using both hands.</p><p>2. Hold the tube using left hand, get the Black tesa tape 51036 using right hand then start taping process using</p><p>3. Cut the tape using tape cutter using both hands.</p><p>4. After cut, conduct pressing of end tape using both hands.</p><p>5. Check the taping condition,</p></div>	<div><p>MEASURING TAPE</p></div> <div><p>TAPE CUTTER</p></div>	<div><p>1. No flip-out tape 2. No peel-off tape 3. No loose tape 4. No missing tape 5. No wrong use of tape 6. No wrong dimension</p></div> <div><p>END TAPE CONDITION REFERENCE</p></div> <div><div><p>GOOD End tape</p></div><div><p>NO GOOD End tape in Fold VM tube</p></div></div>

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WORK INSTRUCTION

Process Name/Title:

TAPING ASSEMBLY PROCESS

Effectivity Date:

September 10, 2024

Model code/Part number:

311D

/ 17L991-7110A

Customer: TRMX

Car Model:

TOYOTA RAV4

Validity Date:

n/a

Purpose:

☐ PROTOTYPE☒ PRE-LAUNCH☐ MASSPRO

Document No.:


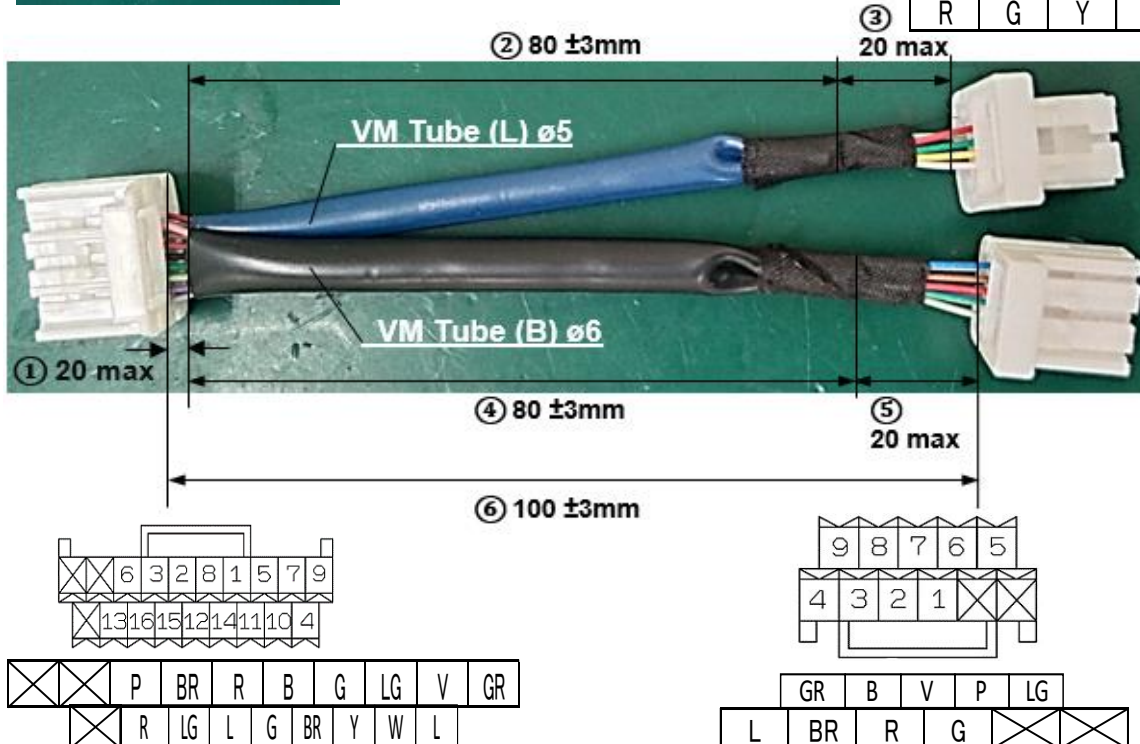
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PARTS:		1. Assy Parts		JIG:	n/a
NO.	PROCESS NAME	WORK PROCEDURE/ ILLUSTRATION		TOOLS/PPE	QUALITY POINTERS
12	P1	Connector Lock	<div><div>MEASURING TAPE</div><div></div><div></div></div>	<div><div><div><div>161514</div><div>13121110</div><div>LG L BR</div><div>R G Y W</div></div></div><div><div><div>98765</div><div>4321</div><div>GR B V P LG</div><div>L BR R G</div></div></div></div> <div><p>Important reminders and note/s:</p><p>1. Please use calibrated /verified measuring tape when getting the measurement.</p><p>2. For Hatsumono, Nakamono and Owarimono.</p><p>Document reference/s:</p><p>1. Refer to WI-PRO-ASY-056 for Sub-assembly Hatsumono Nakamono Owarimono Inspection.</p><p>1. No wrong dimension</p></div>	

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**WORK INSTRUCTION**Process Name/Title: **TAPING ASSEMBLY PROCESS**

Effectivity Date:

September 10, 2024Model code/Part number: **311D / 17L991-7110A** Customer: **TRMX** Car Model: **TOYOTA RAV4**

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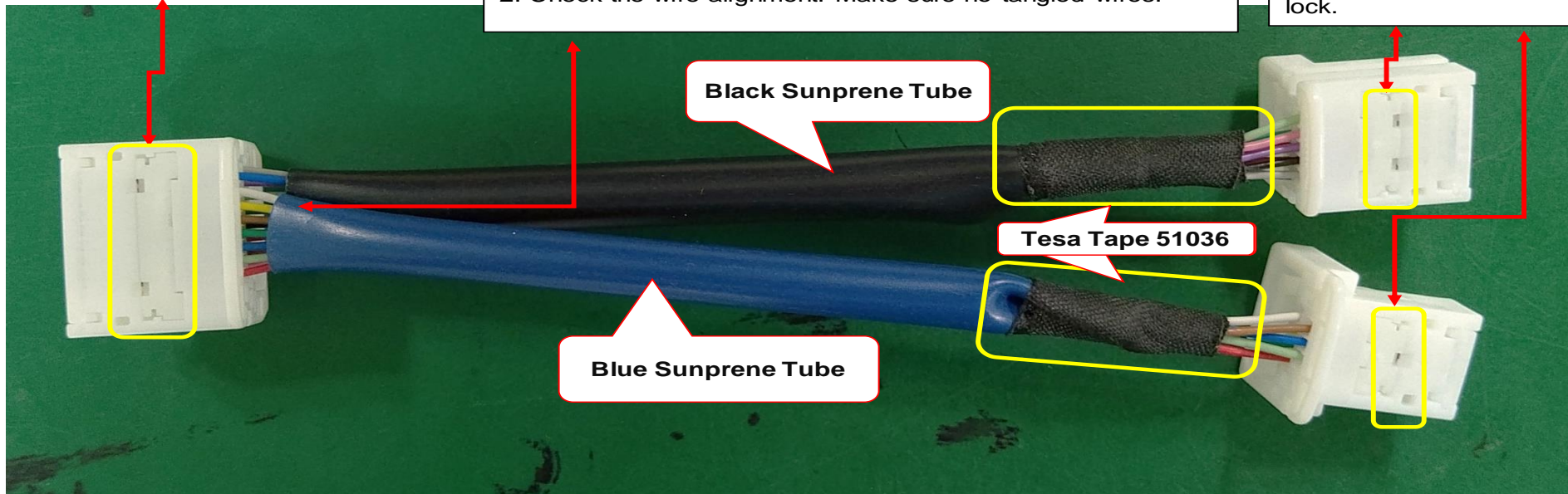
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13 of 13**PARTS:****n/a****JIG:****n/a****VISUAL/QUALITY CHECKPOINTS****P1****17L991-7110A**

1. Check the connector lock.

2. Check the wire alignment. Make sure no tangled wires.

1. Check the connector lock.



3. Check the orientation of harness.

4. Check if no missing parts.

5. Check the terminal if with backing out (not fully inserted) or deformed terminal.

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