



WORK INSTRUCTION

TAPING ASSEMBLY PROCESS

Process Name/Title:

Model code/Part number:

310D / 7N0197-7020B

Customer: TRJ

Car Model: TOYOTA-RAV4

Purpose:

☐ PROTOTYPE☐ PRE-LAUNCH☒ MASSPRO

Effectivity Date:

August 29, 2024

Validity Date:

n/a

Document No.:

WI-ENG-PDE-998A

Revision No.:

1

Page No.:

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PARTS:

1. Connector 6098-2220(W); Black Corrugated tube $\phi 5$ L=276 \pm 3mm; Connector 6098-3802 (W); Black Corrugated tube $\phi 5$ L=454 \pm 2mm; AVSSf 0.3 OR wires L=349 \pm 2mm; AVSSf 0.3 Y wires L=349 \pm 2mm; AVSSf 0.3 B-B wires L=646 \pm 3mm

JIG:

1. Insertion jig with switch cover
2. Insertion jig
3. Locking jig

NO.	PROCESS NAME	WORK PROCEDURE/ ILLUSTRATION	TOOLS/PPE	QUALITY POINTERS
1	P1	Table lay-out	<div>Safety Instruction Be sure to wear prescribed personal protective equipment during operation (gloves, finger cots, etc.)</div> <div>Housekeeping 1. Maintain and always practice 5's. 2. Personal things on the workplace is prohibited. Keep it in your locker.</div> <div>Alert level For any trouble, inform the Assembly Assistant Supervisor or Line Leader for immediate corrective action.</div>	<div>1. No missing parts/tools 2. No excess parts/tools</div> <div>Document reference/s: 1. Refer to WI-PRO-CNC-017 for Wire and Strip Length Tolerance</div>

Revision History

Eff. Date	Rev. No	Details of Change	Revised	Reviewed	Approved	Noted	Prepared by	Reviewed by	Approved by	Noted by
08/29/24	1	Change from Pre-launch to Masspro	A. Hernandez	C. Villanueva	A. Arañes	n/a	A. Hernandez	C. Villanueva	A. Arañes	n/a
08/06/24	0	Initial Issue	A. Hernandez	C. Villanueva	A. Arañes	n/a	A. Hernandez	C. Villanueva	A. Arañes	n/a

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PARTS: 1. Connector 6098-2220(W)

JIG:

1. Insertion jig with switch cover

NO.

PROCESS NAME

WORK PROCEDURE/ ILLUSTRATION

TOOLS/PPE

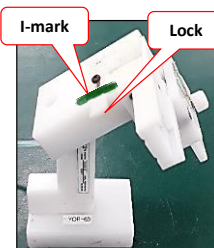
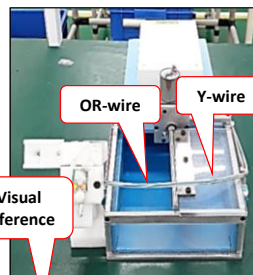
QUALITY POINTERS

2

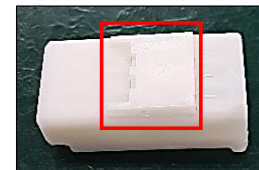
P1

Connector setting to insertion jig 6098-2220(W)

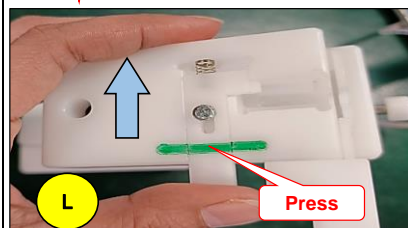
INSERTION JIG ILLUSTRATION



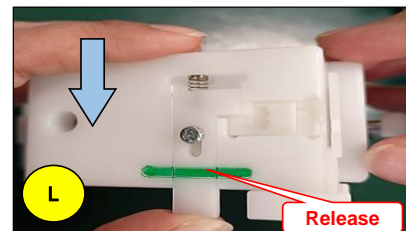
INSERTION JIG ORIENTATION



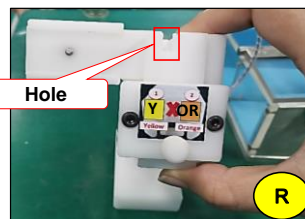
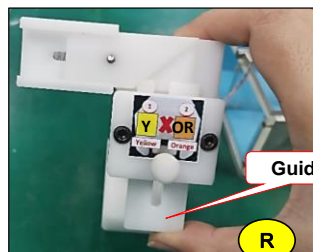
CONNECTOR ORIENTATION



1. Press the lock of insertion jig using left thumb.



2. Insert the connector 6098-2220 (W) into jig using right hand and release the lock.
Note: Follow the connector orientation.



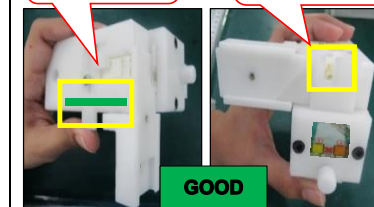
3. Push the guide using left hand. The slot for Y wire will be opened.

n/a

Connector Orientation Illustration

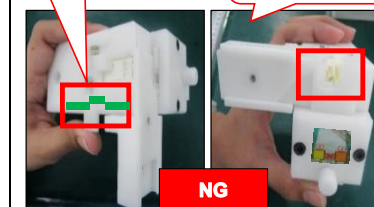
I-mark is align

1 hole is open



I-mark is not align

All holes were open



1. Use the provided jig per model
2. No wrong orientation of connector
3. No wrong use of connector
4. No damaged connector

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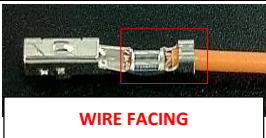
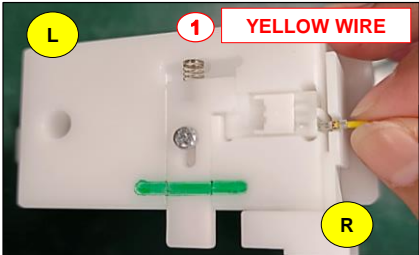
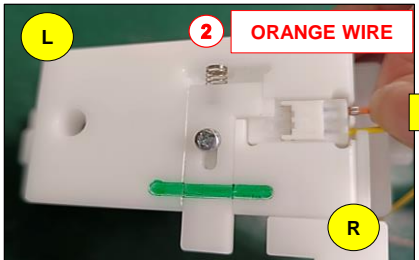
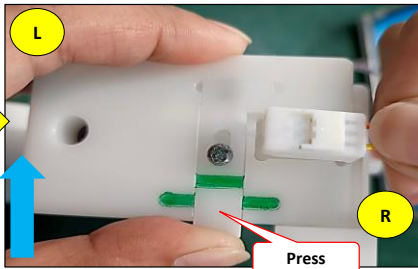
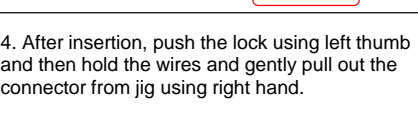
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PARTS:		1. AVSSf 0.3 Y L=349±3mm 2. AVSSf 0.3 OR L=349±3mm		JIG:	1. Insertion jig with switch cover
NO.	PROCESS NAME	WORK PROCEDURE/ ILLUSTRATION		TOOLS/PPE	QUALITY POINTERS
3	P1 Wire insertion to connector 6098-2220 (W)	<div><p>WIRE FACING</p></div> <div><p>1. Hold the insertion jig using left hand. Get the Y wire and insert to connector using right hand. Conduct 2x pull-push after insertion.</p></div> <div><p>2. Press the button using right thumb the slot for OR wire will be opened.</p></div> <div><p>3. Get the OR wire and insert to connector using right hand.</p></div> <div><p>4. After insertion, push the lock using left thumb and then hold the wires and gently pull out the connector from jig using right hand.</p></div>		n/a	<p>1. No loose insertion 2. No wrong insertion 3. One by one insertion 4. No deform terminal 5. No wrong wire facing</p> <p>Important reminders/Note/s: 1. Please hold the wire near terminal. 2. Make sure wires are properly inserted. Conduct Pull-Push-Pull-Push after insertion. Do not exert extra force.</p> <p>Document references: 1. Refer to GL-PRO-ASY-029 for Pull-Push procedure. 2. Refer to WI-PRO-CNC-017 for Wire and Strip Length Tolerance</p>

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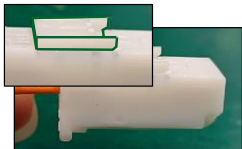
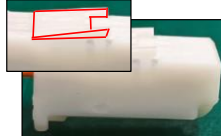
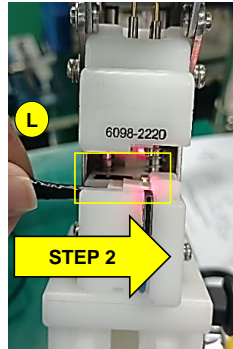
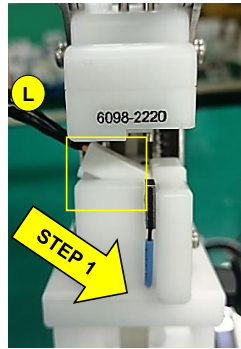
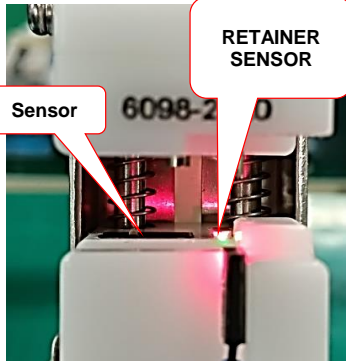

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PARTS:		1. Assy parts		JIG:	1. Locking jig
NO.	PROCESS NAME	WORK PROCEDURE/ ILLUSTRATION		TOOLS/PPE	QUALITY POINTERS
4	P1	Connector lock	<div><p>CONNECTOR RETAINER ILLUSTRATION</p><p>SIDE VIEW</p><div><p>GOOD</p></div><div><p>NG</p></div></div> <div></div> <p>2. Hold the assy parts using left hand and insert into connector locking jig based on the direction of arrow. Make sure the connector touch the sensor. Sound will be heard if properly lock. NOTE: CONNECTOR LOCKING JIG WILL NOT FUNCTION IF CONNECTOR NOT REACH THE SENSOR.</p>		<p>1. Please ensure that Connector lock/retainer will not touch or hit by any object prior insertion into locking jig to avoid half-lock connector.</p> <p>2. Maintain 10mm proper holding of wire to connector</p> <p>3.Connector must be fully inserted to connector slot.</p> <p>4. Make sure no offset setting before locking process.</p> <p>5.No wrong setting of connector.</p> <p>6. No damaged connector lock</p> <p>7. No unlocked/ half-locked connector.</p> <p>Important reminders/Note/s:</p> <p>1. Incomplete locking process will alarm the jig.</p> <p>2. No retainer in connector cannot proceed.</p> <p>3. If encountered abnormality, STOP and immediately CALL the attention of the leader. WAIT for further instruction and continue the process.</p>

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☐ PRE-LAUNCH

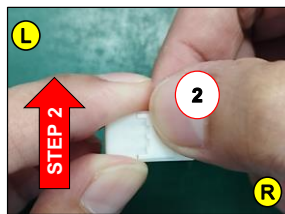
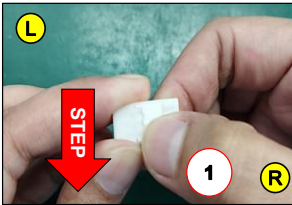
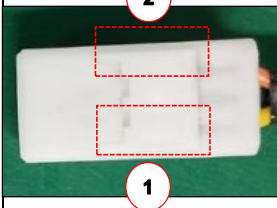
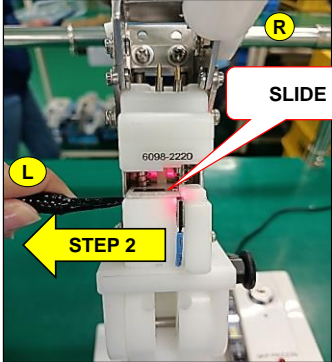
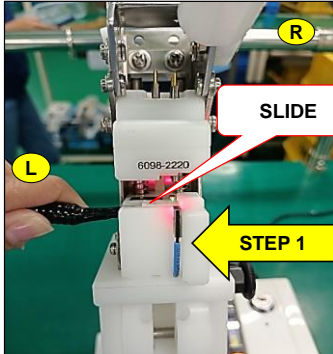
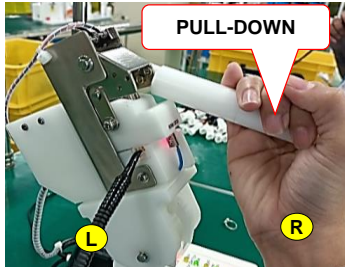
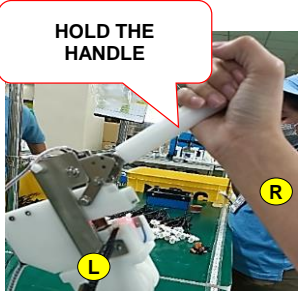
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PARTS:		1. Assy parts		JIG:	1. Locking jig
NO.	PROCESS NAME	WORK PROCEDURE/ ILLUSTRATION		TOOLS/PPE	QUALITY POINTERS
4	P1 Connector lock (Continuation)	<div></div> <div>3. Hold the handle of the connector locking jig using right hand then gently pull down and bring back to original position after locking. Note: Pull down one time only.</div> <div>4. Remove the locked connector using left hand based on the illustration, follow the direction of arrow.</div> <div>5. Ensure that connector is in locked condition by slide touching the connector lock based on the sequence illustrated.</div>			<div>1. Please ensure that Connector lock/retainer will not touch or hit by any object prior insertion into locking jig to avoid half-lock connector.</div> <div>2. Maintain 10mm proper holding of wire to connector</div> <div>3.Connector must be fully inserted to connector slot.</div> <div>4. Make sure no offset setting before locking process.</div> <div>5.No wrong setting of connector.</div> <div>6. No damaged connector lock</div> <div>7. No unlocked/ half-locked connector</div> <div>Important reminders/Note/s:</div> <div>1. Incomplete locking process will alarm the jig.</div> <div>2. No retainer in connector cannot proceed.</div> <div>3. If encountered abnormality, STOP and immediately CALL the attention of the leader. WAIT for further instruction and continue the process.</div>

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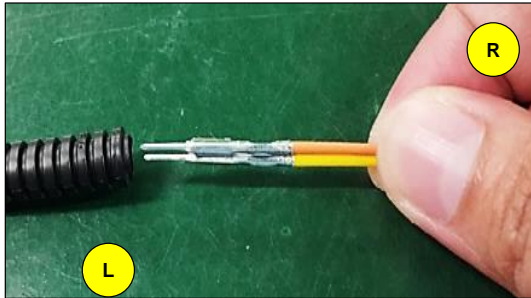


☐ PROTOTYPE☐ PRE-LAUNCH☒ MASSPRO

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PARTS:		1. Assy parts 2. Black Corrugated tube $\phi 5$ L=276 \pm 3mm		3. AVSSf 0.3 B-B wires L=646 \pm 3mm	JIG:	n/a	
NO.	PROCESS NAME		WORK PROCEDURE/ ILLUSTRATION			TOOLS/PPE	QUALITY POINTERS
5		Wire insertion to Black Corrugated tube $\phi 5$ L=276 \pm 3mm	<div></div> <div>1. Get the Black Corrugated tube $\phi 5$ L=276\pm3mm using left hand then insert the Y-OR wires using right hand. Set aside the assy part.</div>			n/a	1. No flip-out tape 2. No peel-off tape 3. No loose tape 4. No missing tape 5. No wrong dimension 6. No wrong use of tape
6	P1	Wire Insertion to Black corrugated tube $\phi 5$ L=454 \pm 3mm (no slit)	<div></div> <div>1. Get 2 pcs of AVSSf 0.3 Black wires L=646\pm3mm using left hand, Get the Black corrugated tube $\phi 5$ L=454\pm3mm (no slit) using right hand then insert the B-B wires using left hand.</div>			<div>MEASURING TAPE</div> 	Important reminders/Note/s: 1. Please use calibrated/verified measuring tape when getting the measurement.

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☐ PRE-LAUNCH

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PARTS:

1. Assy parts
2. Black Corrugated tube $\phi 5$ L=454 \pm 3mm

JIG:

n/a

NO.

PROCESS NAME

WORK PROCEDURE/ ILLUSTRATION

TOOLS/PPE

QUALITY POINTERS

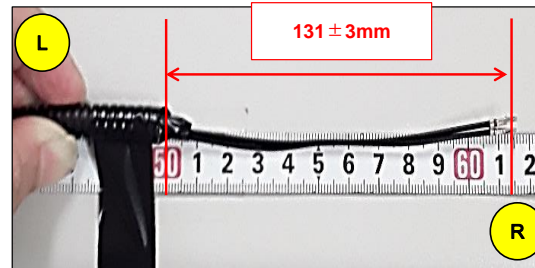
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P1

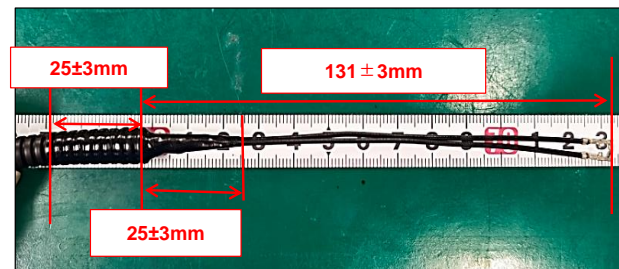
Taping 1
Black Corrugated tube to
Wire near terminal



1. Hold the assy parts using left hand. Get the **Black tape** using right hand then start taping process using both hands.



2. Measure from end of COT up to terminal pointed tip **131 \pm 3mm** then continue the taping process using both hands



3. After taping, check the measurement and taping condition.

MEASURING TAPE



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

Important reminders/Note/s:

1. Please use calibrated/verified measuring tape when getting the measurement.

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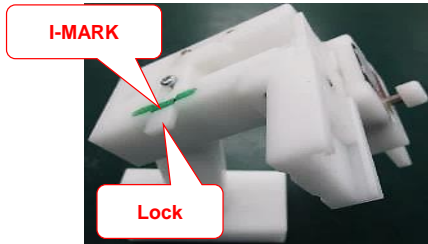


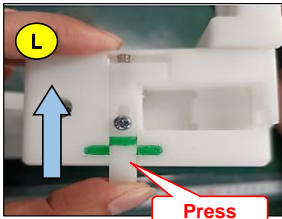
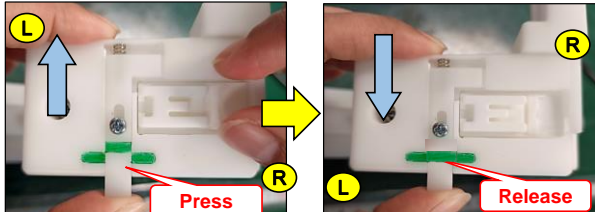
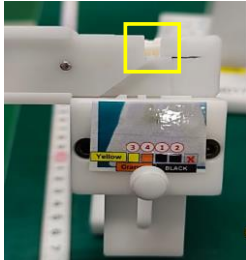
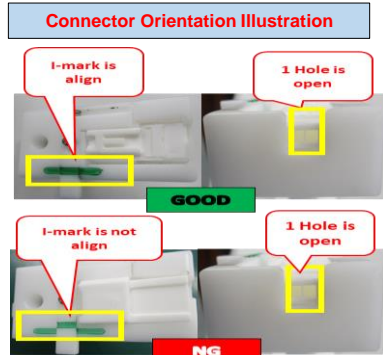
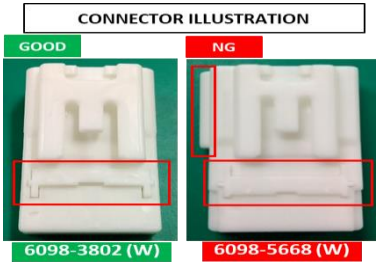
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PARTS:		1. Connector 6098-3802 (W)		JIG:	1. Insertion jig
NO.	PROCESS NAME	WORK PROCEDURE/ ILLUSTRATION		TOOLS/PPE	QUALITY POINTERS
8	P1	<div><div><div><p>I-MARK</p><p>Lock</p></div><div><p>CONNECTOR ORIENTATION</p></div><div><p>INSERTION JIG ORIENTATION</p></div><div><div><p>(L) Press</p></div><div><p>(L) Press (R) Release</p></div><div><p>3. Do not push the lower wire guide upward. Slot for 2 Black wires must be open.</p></div></div><div><p>1. Press the lock of insertion jig using left hand.</p><p>2. Get the connector using then Insert the connector 6098-3802 (W) using right hand into jig using and release the lock. <i>Note: Follow the connector orientation.</i></p></div></div></div>		n/a	<div><p>1. Use the provided jig per model</p><p>2. No wrong orientation of the connector.</p><p>3. No wrong use of connector</p><p>4. No damaged connector.</p></div> <div><div><p>Connector Orientation Illustration</p><p>I-mark is align</p><p>I-mark is not align</p><p>1 Hole is open</p><p>1 Hole is open</p><p>GOOD</p><p>NG</p></div><div><p>CONNECTOR ILLUSTRATION</p><p>GOOD</p><p>NG</p><p>6098-3802 (W)</p><p>6098-5668 (W)</p></div></div>

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PARTS:

1. Assy parts

JIG:

1. Insertion jig

NO.

PROCESS NAME

WORK PROCEDURE/ ILLUSTRATION

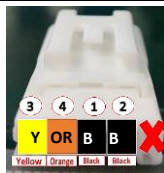
TOOLS/PPE

QUALITY POINTERS

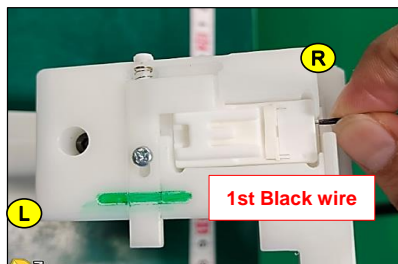
9

P1

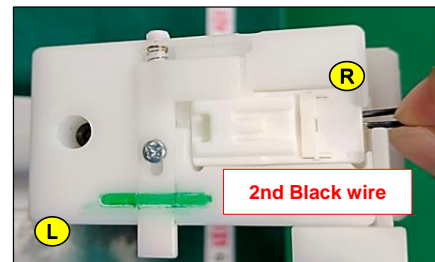
Wire insertion to connector
6098-3802 (W)



WIRE FACING



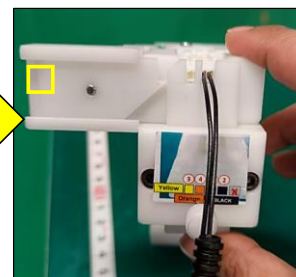
1st Black wire



2nd Black wire

1. Hold the insertion jig using left hand. Insert the **1st Black wire** to connector using right hand. Conduct **2x push-pull** after insertion.

2. Get the **2nd Black wire** then insert to connector using right hand. Conduct **2x push-pull** after insertion.



3. Press the lower guide using right hand. Slot for **Yellow wire** will be open.

n/a

1. Use the provided jig per model
2. No wrong orientation of connector
3. No wrong use of connector
4. No damaged connector

Important reminders/Note/s:

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

Document references:

1. Refer to GL-PRO-ASY-029 for Pull-Push procedure.

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WORK INSTRUCTION

TAPING ASSEMBLY PROCESS

Process Name/Title:

Model code/Part number:

310D / 7N0197-7020B

Customer: TRJ

Car Model: TOYOTA-RAV4

Purpose:

☐ PROTOTYPE☐ PRE-LAUNCH☒ MASSPRO

Effectivity Date:

August 29, 2024

Validity Date:

n/a

Document No.:




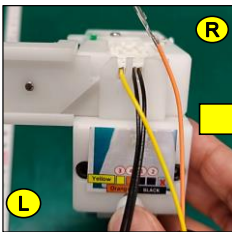


WI-ENG-PDE-998A

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1

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PARTS:	1. Assy parts		JIG:	1. Insertion jig
NO.	PROCESS NAME	WORK PROCEDURE/ ILLUSTRATION	TOOLS/PPE	QUALITY POINTERS
9	P1 Wire insertion to connector 6098-3802 (W) (Continuation)	<div><div></div><div></div><div></div><div></div><div></div><div></div><div>4. Hold the insertion jig using left hand. Get the Yellow wire to connector using right hand. Conduct 2x push-pull after insertion.</div><div>5. Press the button of insertion jig using right hand and slot for Orange wire will be open.</div><div>6. Hold the insertion jig using left hand. Get the Orange wire to connector using right hand. Conduct 2x push-pull after insertion.</div><div>7. After insertion, push the lock using left thumb and then hold the wires and gently pull-out the connector from jig using right hand.</div></div>	n/a	<div>1. Use the provided jig per model 2. No wrong orientation of connector 3. No wrong use of connector 4. No damaged connector</div> <div>Important reminders/Note/s: 1. Please hold the wire near terminal. 2. Make sure wires are properly inserted. Conduct Pull-Push-Pull-Push after insertion. Do not exert extra force. 3. Insertion of wires must be from left to right</div> <div>Document references: 1. Refer to GL-PRO-ASY-029 for Pull-Push procedure.</div>

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WORK INSTRUCTION

TAPING ASSEMBLY PROCESS

Effectivity Date:

August 29, 2024

Process Name/Title:

Model code/Part number:

310D / 7N0197-7020B

Customer: TRJ

Car Model: TOYOTA-RAV4

Validity Date:

n/a

Document No.:

WI-ENG-PDE-998A

Purpose:

☐ PROTOTYPE

☐ PRE-LAUNCH






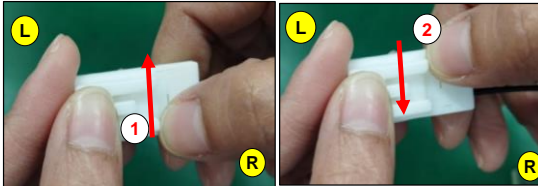

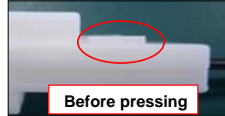



☒ MASSPRO

Revision No.:

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PARTS:		1. Assy parts		JIG:	1. Locking jig
NO.	PROCESS NAME	WORK PROCEDURE/ ILLUSTRATION		TOOLS/PPE	QUALITY POINTERS
10	P1	Connector lock	<div><p>1. Load the connector into the jig holding both side of the connector, tip first.</p></div> <div><p>2. Press the lower part of connector to fully insert into the locking jig.</p></div> <div><p>Right thumb-Lower Left thumb-middle</p><p>3. Press the lower parts of connector using right hand while left hand holding the middle.</p></div> <div><p>Right thumb-upper Left thumb-middle</p><p>4. Press the upper part of connector using right hand while left hand holding the middle.</p></div> <div><p>Right thumb-middle Left thumb-middle</p><p>5. Lift then press the connector in the middle using left and right hand.</p></div> <div><p>6. Ensure that connector is in locked condition by slide touching the connector lock based on the sequence illustrated.</p></div>	<div><p>LOCKING JIG</p></div>	<p>1. Use the provided jig per model 2. No wrong orientation of connector 3. No wrong use of connector 4. No damaged connector</p> <div><p>Before pressing</p><p>After pressing</p></div> <div><div><p>GOOD</p><p>Full Lock</p></div><div><p>NG</p><p>Half Lock</p></div></div> <p>Important reminders/Note/s: 1. Manual locking may cause damaged connector lock.</p>

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WORK INSTRUCTION

TAPING ASSEMBLY PROCESS

Effectivity Date:

August 29, 2024

Process Name/Title:

Model code/Part number:

310D / 7N0197-7020B

Customer: TRJ

Car Model: TOYOTA-RAV4

Validity Date:

n/a

Document No.:

WI-ENG-PDE-998A

Purpose:

☐ PROTOTYPE

☐ PRE-LAUNCH

☒ MASSPRO

Revision No.:

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PARTS:

n/a


JIG:

n/a

VISUAL INSPECTION/QUALITY CHECKPOINTS


P1

7N0197-7020B



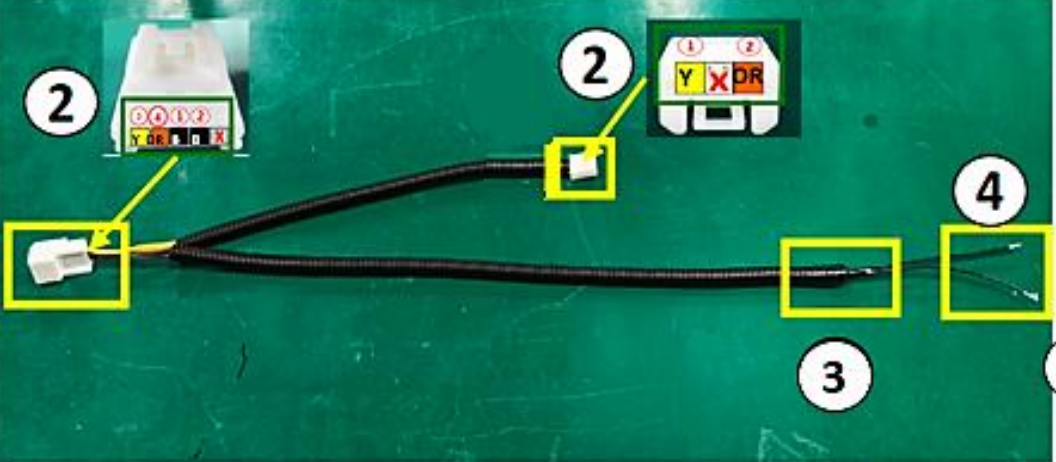
1

GOOD



2

GOOD




2


3

4

5



NO GOOD



NO GOOD

2

No Wrong Insert
(on 2 connector)

4

No Deformed
terminal

1


No Unlock/
Halflocked Connector

3


No Missing Tape

5


No Terminal
Backing Out




GOOD



GOOD



NO GOOD



NO GOOD

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