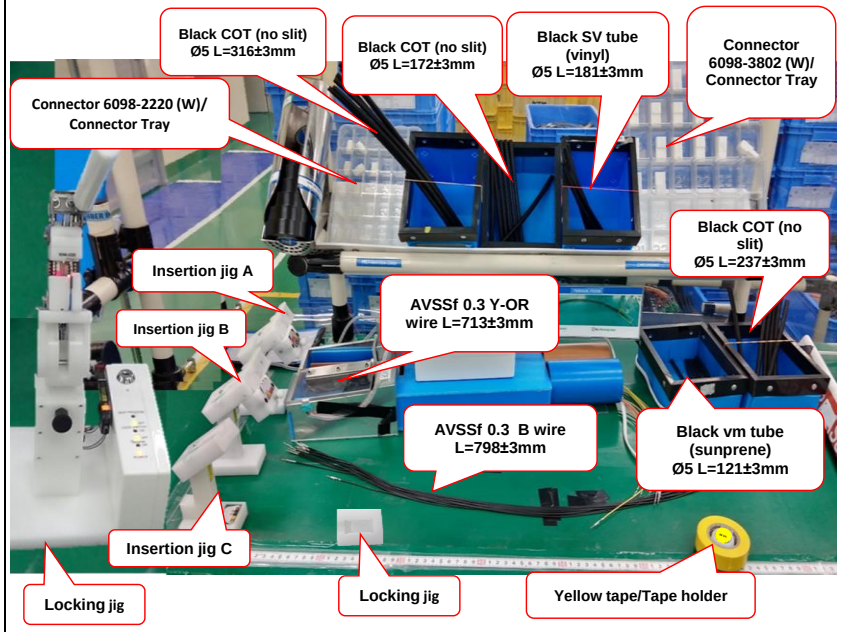
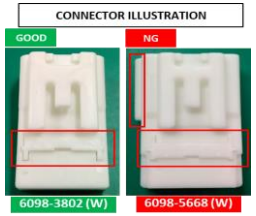
	WORK INSTRUCTION			Effectivity Date:	June 18, 2024	
	Process Name/Title:	TAPING ASSEMBLY PROCESS		Validity Date:	n/a	
	Model code/Part number: 096D / 7L0118-7021A	Customer: TRQSS	Car Model: TOYOTA-HIGHLANDER	Document No.:	WI-ENG-PDE-392A	
	Purpose: ☐ PROTOTYPE ☐ PRE-LAUNCH ■ MASSPRO			Revision No.:	3	Page No.: 1 of 13

PARTS:	1. All parts: Connector 6098-2220 (W); Y-OR wire L=713±3mm; Black COT (no slit) Ø5 L=316±3mm; Black COT (no slit) Ø5 L=172±3mm; Black SV tube (vinyl) Ø5 L=181±3mm; Connector 6098-3802 (W); B wire L=798±3mm; Black VM tube (sunprene) Ø5 L=121±3mm; Black COT (no slit) Ø5 L=237±3mm; Yellow tape [1pc.]	JIG:	1. Insertion jig 2. Locking jig

NO.	PROCESS NAME		WORK PROCEDURE/ ILLUSTRATION	TOOLS/PPE	QUALITY POINTERS
1	P1	Table Lay-out	**Table Lay-out**  	**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 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.	***Document reference/s:*** ***1. Refer to WI-PRO-CNC-017 for Wire and Strip Length Tolerance*** 1. No missing parts/tools 2. No excess parts/tools 

Revision History

Eff. Date	Rev. No	Details of Change	Revised	Reviewed	Approved	Noted
06/18/24	3	Transfer Taping 2 and Taping 3 to WI-ENG-PDE-392B due to process improvement. Update table lay-out and Visual inspection. Inclusion of Car model "TOYOTA-HIGHLANDER". Additional Work procedure/Illustration and notes on page 4~5 as countermeasure for the customer claim(Broken lock of Connector 6098-2220 (W)).	D. Castillo	C. Villanueva	A. Arañes	n/a
07/26/23	2	Changed Table lay-out illustration; Inclusion of locking process 6098-2220 (W); Standardized tube description: VM tube (Sunprene) and SV tube (Vinyl); Improve Quality pointers: Reminders and notes (page no.4 and 5 process no.4) as document improvements.	M. Ariola	J. Loterte	C. Villanueva	A. Arañes
12/03/22	1	Merge from 3MP to 2MP Transfer process of Taping 1-Black vinyl tube to wire near connector and process of Taping 3-Black Corrugated tube to Black sunprene tube) from P1 to P2 due to process improvement. Improve Quality pointers: Reminders/notes and references on pages no.1,3,4,7,8,9,10,11,12 and 13 due to documents improvement. Process no.4 and process no.13 for the improvement and countermeasure of connector locking process. Removal of folding in Vinyl tube Ø5 with 4 wires. inclusion of Quality checkpoints.	M. Ariola	J. Loterte	C. Villanueva	A. Arañes

Prepared by	Reviewed by	Approved by	Noted by
D. Castillo	C. Villanueva	A. Arañes	n/a
Est. Date:	February 4, 2022		

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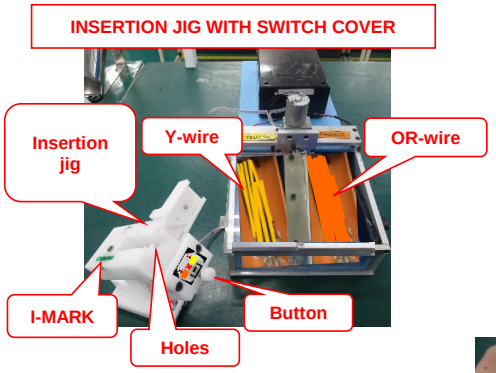
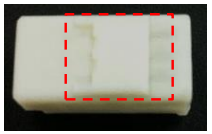
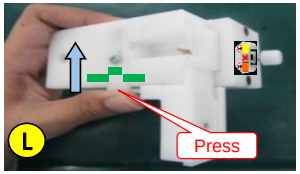
PARTS:	1. Connector 6098-2220 (W)	JIG:	1. Connector 6098-2220 (W)

NO.	PROCESS NAME		WORK PROCEDURE/ ILLUSTRATION	TOOLS/PPE	QUALITY POINTERS
2	P1	Connector setting to insertion jig 6098-2220 (W)		n/a	

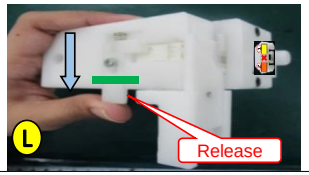




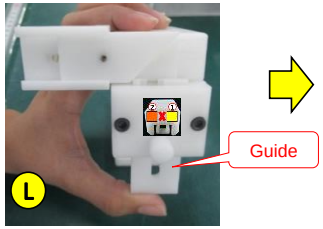
CONNECTOR ORIENTATION

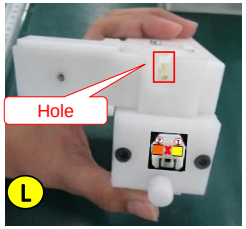


1. Press the lock of insertion jig using left thumb.



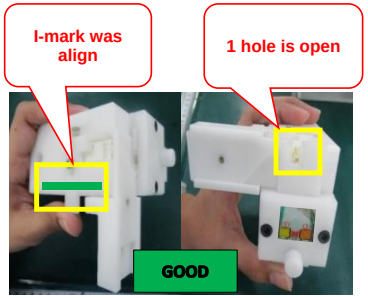
2. Insert the connector **6098-2220 (W)** into jig using right hand and release the lock.
Note: Follow the connector orientation.

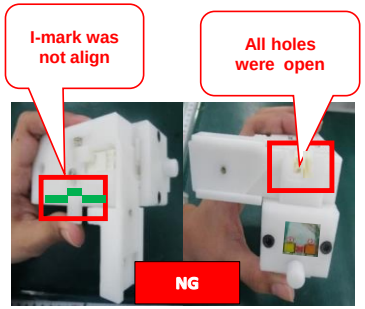




3. Push the guide using left hand. The slot for **Y wire** will be opened.

Connector Orientation Illustration





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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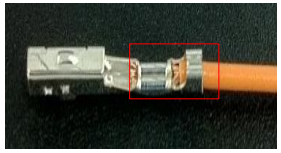
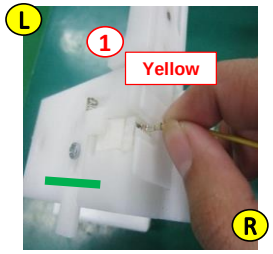
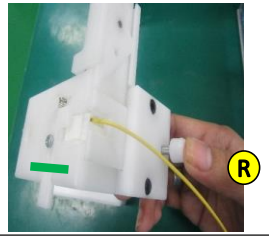
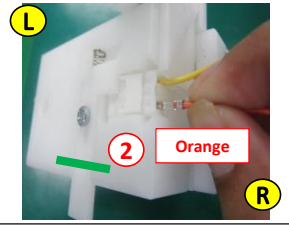
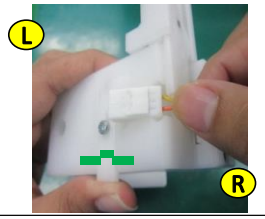
PARTS:	1. AVSSf 0.3 Y/OR wires L=713±3mm	JIG:	1. Insertion jig with switch cover

NO.	PROCESS NAME		WORK PROCEDURE/ ILLUSTRATION	TOOLS/PPE	QUALITY POINTERS
3	P1	Wire insertion to connector 6098-2220 (W)	 WIRE FACING  1. Get the **Y wire** then insert to terminal slot **1** using right hand.  2. After insertion of **Y wire,** press the button using right thumb. The slot for **OR wire** will be opened.  3. Get the **OR wire** then insert to terminal slot **2** using right hand.  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.	n/a	1. No loose insertion 2. No wrong insertion 3. One by one insertion 4. No deform terminal 5. No wrong wire facing ***Important reminders/Note/s:*** ***1.Please hold the wire near terminal during insertion.*** ***2.Insertion of wire must be from left to right.*** ***3.Make sure wires are properly inserted.*** ***Conduct Pull-Push-Pull-Push after insertion.*** ***Do not exert extra force.*** ***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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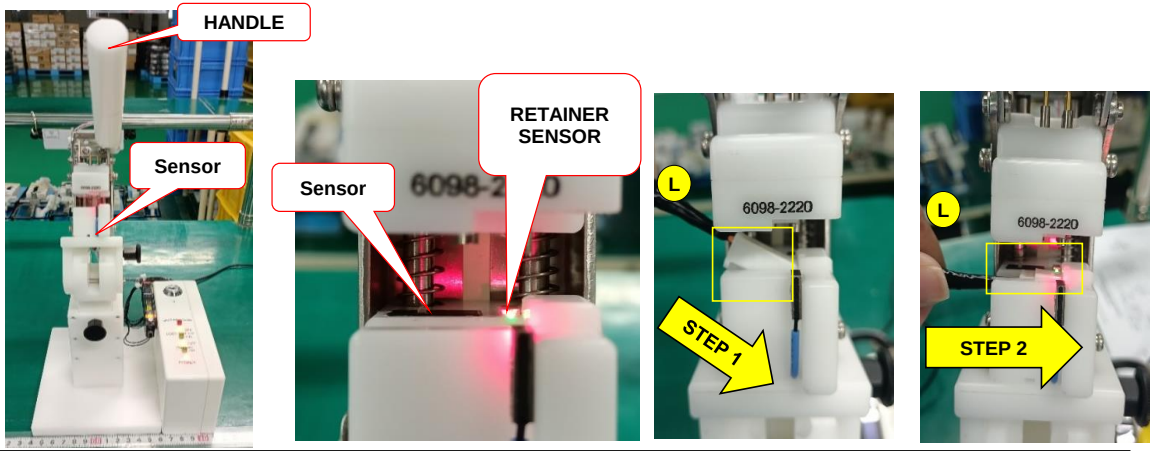
PARTS:	1. Assy part	JIG:	1. Locking jig

NO.	PROCESS NAME		WORK PROCEDURE/ ILLUSTRATION △3	TOOLS/PPE	QUALITY POINTERS
4	P1	Connector lock	△3 **CONNECTOR RETAINER ILLUSTRATION** SIDE VIEW GOOD NG 1.Check the Retainer lock of connector before insertion to locking jig. *Note: Must be **NO** half-locked condition prior connector locking.*  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.***		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. 2. Maintain 10mm proper holding of wire to connector 3.Connector must be fully inserted to connector slot. 4. Make sure no offset setting before locking process. 5.No wrong setting of connector. 6. No damaged connector lock 7. No unlocked/ half-locked connector. ***Important reminders/Note/s:*** △3 ***1. Incomplete locking process will alarm the jig.*** ***2. No retainer in connector cannot proceed.*** ***3. If encountered abnomality, STOP and immediately CALL the attention of the leader. WAIT for further instruction and continue the process.***

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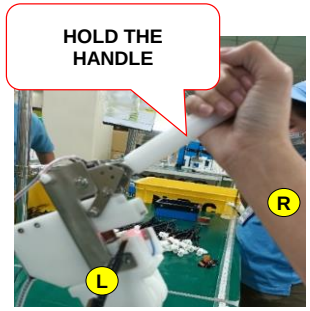
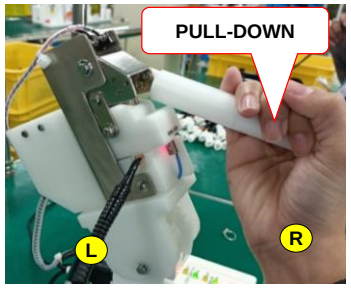
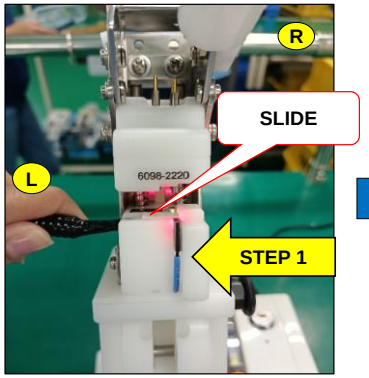
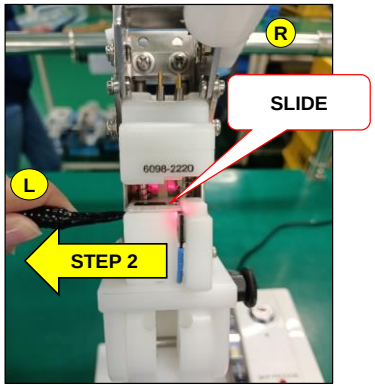
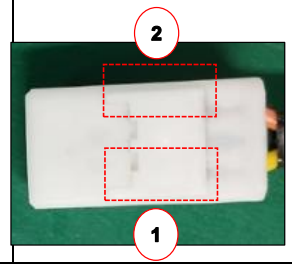
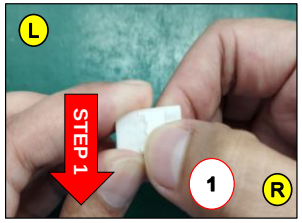
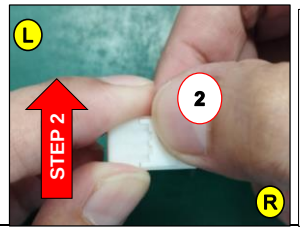
PARTS:	1. Assy part	JIG:	1. Locking jig

NO.	PROCESS NAME		WORK PROCEDURE/ ILLUSTRATION	TOOLS/PPE	QUALITY POINTERS
4	P1	Connector lock (Continuation)	  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.   4. Remove the locked connector using left hand based on the illustration, follow the direction of arrow.    5. Ensure that connector is in locked condition by slide touching the connector lock based on the sequence illustrated.		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. 2. Maintain 10mm proper holding of wire to connector 3.Connector must be fully inserted to connector slot. 4. Make sure no offset setting before locking process. 5.No wrong setting of connector. 6. No damaged connector lock 7. No unlocked/ half-locked connector ***Important reminders/Note/s:*** ⚠3 ***1. Incomplete locking process will alarm the jig.*** ***2. No retainer in connector cannot proceed.*** ***3. If encountered abnomality, STOP and immediately CALL the attention of the leader. WAIT for further instruction and continue the process.***

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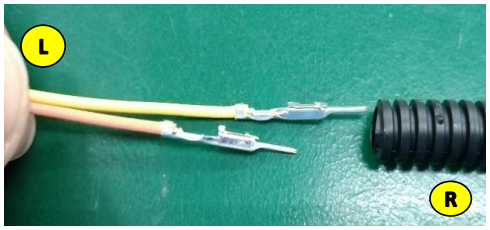
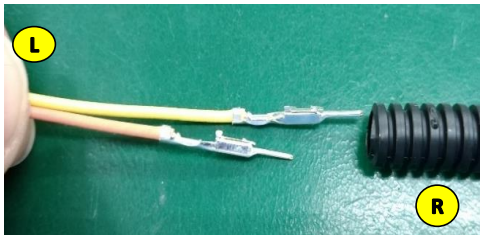
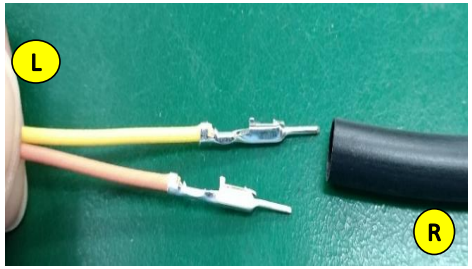
	WORK INSTRUCTION			Effectivity Date:	June 18, 2024		
	Process Name/Title:	TAPING ASSEMBLY PROCESS		Validity Date:	n/a		
	Model code/Part number: 096D / 7L0118-7021A	Customer: TRQSS	Car Model: TOYOTA-HIGHLANDER	Document No.:	WI-ENG-PDE-392A		
	Purpose: ☐ PROTOTYPE	☐ PRE-LAUNCH	■ MASSPRO	Revision No.:	3	Page No.:	6 of 13

PARTS:	1. Assy parts 2. Black corrugated tube (no slit) Ø5 L=316±3mm	3. Black corrugated tube (no slit) Ø5 L=172±3mm 4. Black vinyl tube Φ5 L=181±3mm	JIG:	n/a

NO.	PROCESS NAME		WORK PROCEDURE/ ILLUSTRATION	TOOLS/PPE	QUALITY POINTERS
5	P1	Wire insertion to Black corrugated tube (no slit) Ø5 L=316±3mm Ø5 L=172±3mm	 1. Get the corrugated tube **Ø5 L=316±3mm** using right hand then insert the **Y-OR wire** using left hand.  2. Get the corrugated tube **Ø5 L=172±3mm** using right hand then insert the **Y-OR wire** using left hand.	n/a	1. No wrong use of parts 2. No deformed terminal
6		Wire insertion to Black SV tube (vinyl) Ø5 L=181±3mm	 1. Get the **SV tube (vinyl) Ø5 L=181±3mm** using right hand then insert the **Y-OR wire** using left hand.	n/a	1. No wrong use of parts 2. No deformed terminal

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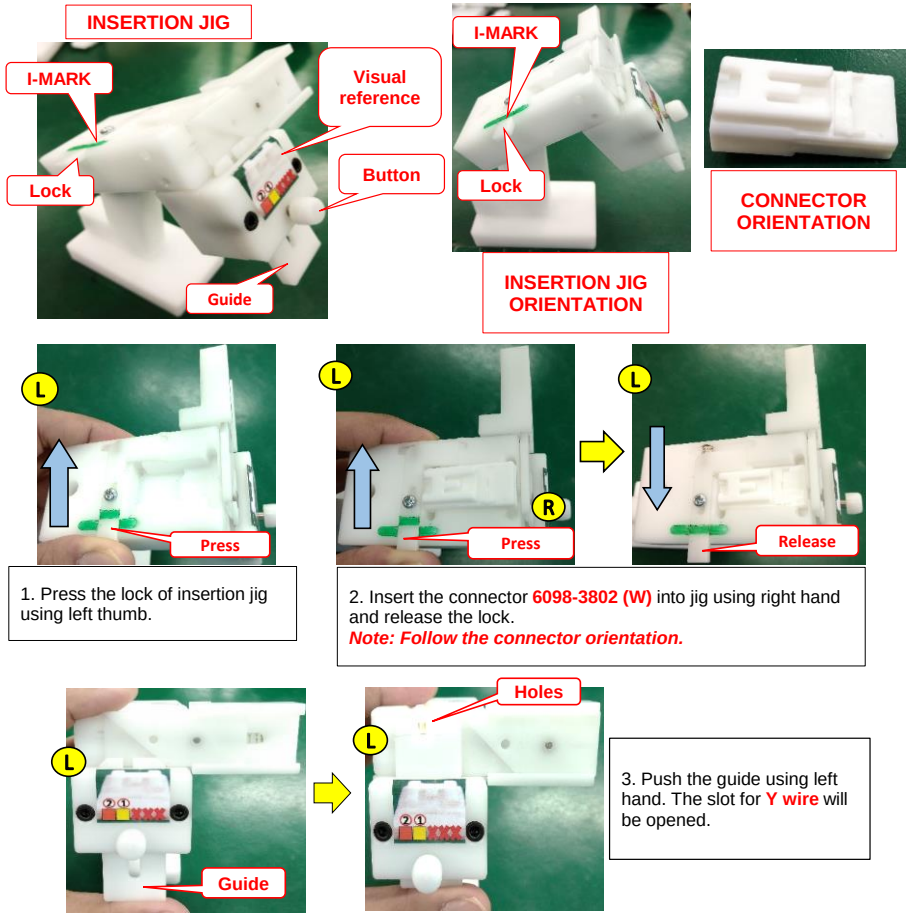
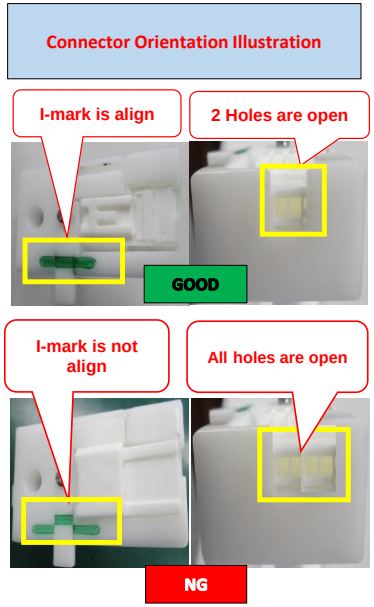
	WORK INSTRUCTION			Effectivity Date:	June 18, 2024		
	Process Name/Title:	TAPING ASSEMBLY PROCESS		Validity Date:	n/a		
	Model code/Part number: 096D / 7L0118-7021A	Customer: TRQSS	Car Model: TOYOTA-HIGHLANDER	Document No.:	WI-ENG-PDE-392A		
	Purpose: ☐ PROTOTYPE ☐ PRE-LAUNCH ■ MASSPRO			Revision No.:	3	Page No.:	7 of 13

PARTS:	1. Connector 6098-3802 (W)			JIG:	1.Insertion jig
NO.	**PROCESS NAME**		**WORK PROCEDURE/ ILLUSTRATION**	**TOOLS/PPE**	**QUALITY POINTERS**
7	P1	Connector setting to insertion jig 6098-3802 (W)	 1. Press the lock of insertion jig using left thumb. 2. Insert the connector **6098-3802 (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	 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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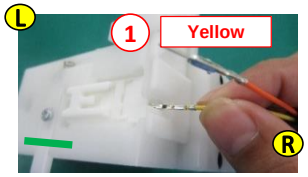
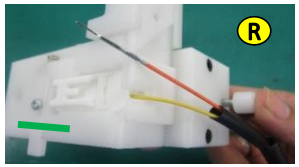
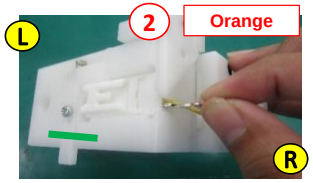
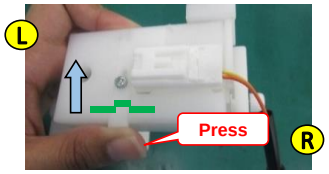
	Model code/Part number: 096D / 7L0118-7021A	Customer: TRQSS	Car Model: TOYOTA-HIGHLANDER	Document No.:	WI-ENG-PDE-392A		
	Purpose: ☐ PROTOTYPE ☐ PRE-LAUNCH ■ MASSPRO			Revision No.:	3	Page No.:	8 of 13

PARTS:	1. Assy parts 2. AVSSf 0.3 B wires L=798±3mm [2pcs.] 3. Black VM tube (Sunprene) Ø5 L=121±3mm	JIG:	1.Insertion jig

NO.	PROCESS NAME		WORK PROCEDURE/ ILLUSTRATION	TOOLS/PPE	QUALITY POINTERS
8	P1	Wire insertion to connector 6098-3802 (W)	 Wire facing  1. Get the assy part and hold the **Y wire** then insert to terminal slot **1** using right hand.  2. After insertion of **Y wire** press the button using right hand. Slot for **OR wire** will be opened.  3. Get the **OR wire** then insert to terminal slot **2** using right hand.  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.	n/a	1. No loose insertion 2. No wrong insertion 3. One by one insertion 4. No deform terminal 5. No wrong wire facing ***Important reminders/Note/s:*** ***1.Please hold the wire near terminal during insertion.*** ***2.Insertion of wire must be from left to right.*** ***3.Make sure wires are properly inserted.*** ***Conduct Pull-Push-Pull-Push after insertion.*** ***Do not exert extra force.*** ***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.***
9		Wire insertion to Black VM tube (sunprene) Ø5 L=121±3mm	 1.Get the black **VM tube (sunprene) Ø5 L=121±3mm** using right hand then insert the **B-B wires L=798±3mm (n=2)** using left hand.	n/a	1. No wrong use of parts

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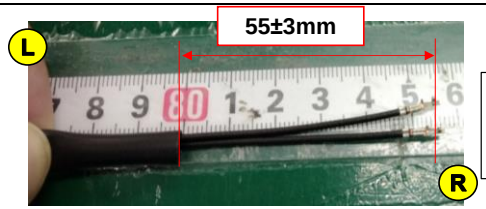
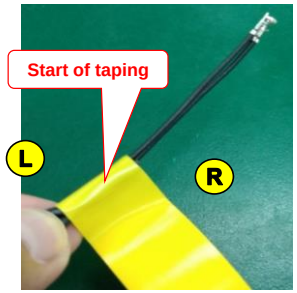
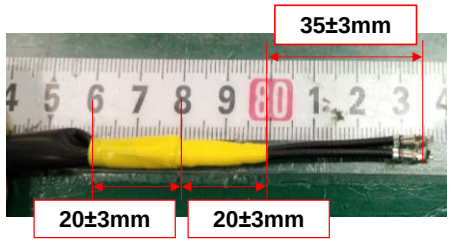
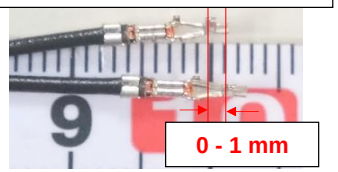
	WORK INSTRUCTION			Effectivity Date:	June 18, 2024	
	Process Name/Title:	TAPING ASSEMBLY PROCESS		Validity Date:	n/a	
	Model code/Part number: 096D / 7L0118-7021A	Customer: TRQSS	Car Model: TOYOTA-HIGHLANDER	Document No.:	WI-ENG-PDE-392A	
	Purpose: ☐ PROTOTYPE ☐ PRE-LAUNCH ■ MASSPRO			Revision No.:	3	Page No.: 9 of 13

PARTS:	1. Assy parts 2. Yellow tape 3. Black corrugated tube (no slit) Ø5 L=237±3mm	JIG:	n/a

NO.	PROCESS NAME		WORK PROCEDURE/ ILLUSTRATION	TOOLS/PPE	QUALITY POINTERS
10	P1	Taping 1 Black corrugated tube to wire near terminal	 1. Measure from end of sunprene tube up to terminal pointed tip **55±3mm** using both hands.   2. Get the **Yellow tape** using right hand then start taping process using both hands. 3. After taping, check the measurement, wire alignment and taping condition.	**MEASURING TAPE** 	**Wire alignment tolerance**  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:*** ***1.Please use calibrated/verified measuring tape when getting the measurement.*** ***2.USE YELLOW TAPE ONLY.*** ***Document reference/s:*** ***1. Refer to WI-PRO-ASY-001 for taping procedure.***
11		Wire insertion to Black corrugated tube (no slit) Ø5 L=237±3mm	 1. Get the corrugated tube **Ø5 L=237±3mm (no slit)** using right hand and insert **B-B wires** using left hand.	n/a	1. No wrong use of parts 2. No deformed terminal

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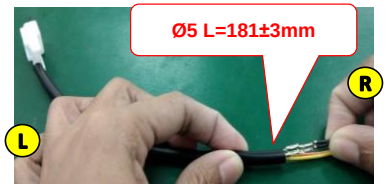
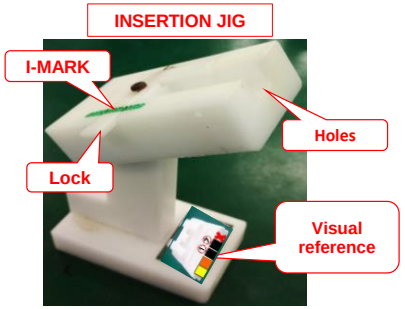
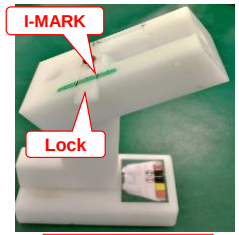
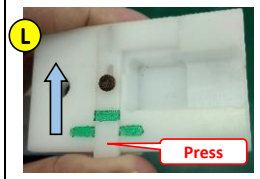
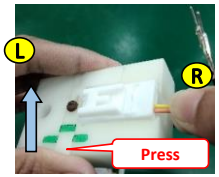
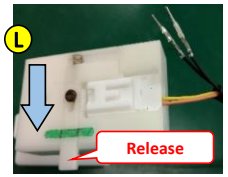
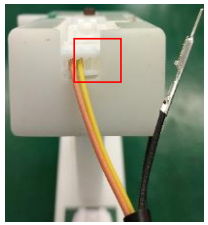
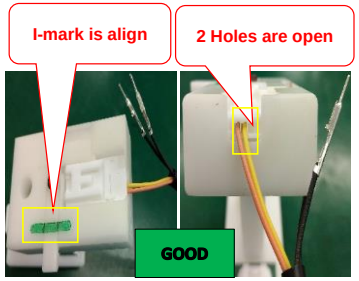
PARTS:	1. Assy parts	JIG:	1.Insertion jig

NO.	PROCESS NAME		WORK PROCEDURE/ ILLUSTRATION	TOOLS/PPE	QUALITY POINTERS
12	P1	Wire insertion to assy parts	1. Hold the corrugated tube (no slit) **Ø5 L=172±3mm** using left hand then insert the assy parts using right hand.  2. Hold the SV tube (vinyl) **Ø5 L=181±3mm** using left hand then insert the assy parts using right hand.	n/a	1. No wrong use of parts 2. No deformed terminal 3. No wrong insertion
13		Connector setting to insertion jig 6098-3802 (W) (Assy parts)	  INSERTION JIG ORIENTATION CONNECTOR ORIENTATION  1. Press the lock of insertion jig using left thumb.   2. Insert the connector **6098-3802 (W)** into jig using right hand and release the lock. ***Note: Follow the connector orientation.***  3. Check the holes for **B-B wires,** it must be opened.	n/a	**Connector Orientation Illustration**  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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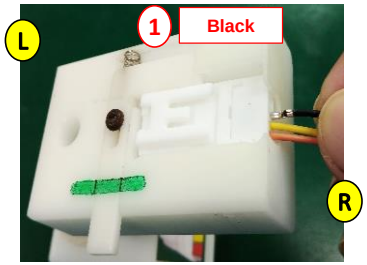
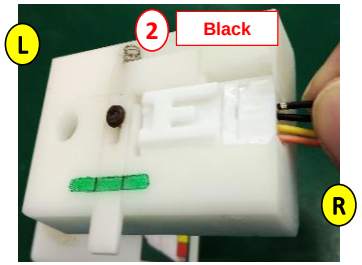
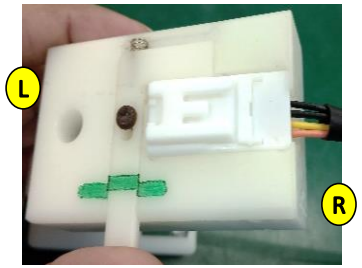
	WORK INSTRUCTION			Effectivity Date:	June 18, 2024		
	Process Name/Title:	TAPING ASSEMBLY PROCESS		Validity Date:	n/a		
	Model code/Part number: 096D / 7L0118-7021A	Customer: TRQSS	Car Model: TOYOTA-HIGHLANDER	Document No.:	WI-ENG-PDE-392A		
	Purpose: ☐ PROTOTYPE ☐ PRE-LAUNCH ■ MASSPRO			Revision No.:	3	Page No.:	11 of 13

PARTS:				JIG:	
NO.	**PROCESS NAME**		**WORK PROCEDURE/ ILLUSTRATION**	**TOOLS/PPE**	**QUALITY POINTERS**
14	P1	Wire insertion to connector 6098-3802 (W) (Assy parts)	WIRE FACING  1. Get the assy part and hold the **B wire** then insert to terminal slot **1** using right hand. ***Note: Insertion of wire must be from left to right.***  2. Hold the **B wire** then insert to terminal slot **2** using right hand.  3. After insertion, push the lock using left thumb and then hold the wires and gently pull out the connector from jig using right hand.	n/a	***Important reminders/Note/s:*** ***1.Please hold the wire near terminal during insertion.*** ***2.Insertion of wire must be from left to right.*** ***3.Make sure wires are properly inserted.*** ***Conduct Pull-Push-Pull-Push after insertion.*** ***Do not exert extra force.*** ***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.*** 1. No loose insertion 2. No wrong insertion 3. One by one insertion 4. No deformed terminal 5. No wrong wire facing

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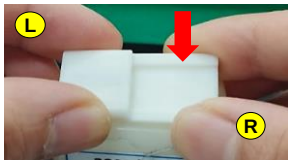
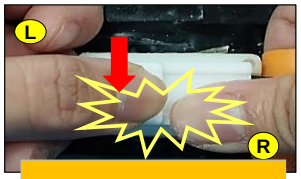
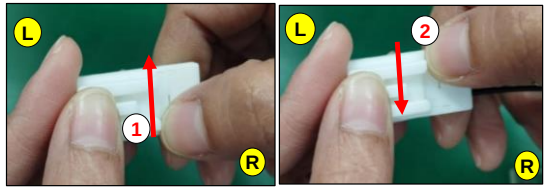
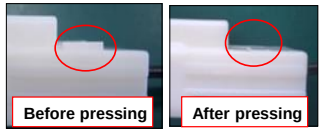
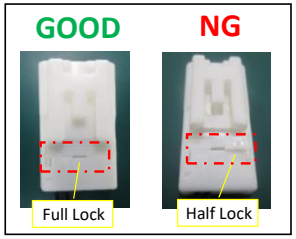
PARTS:	1. Assy parts	JIG:	1. Locking jig

NO.	PROCESS NAME		WORK PROCEDURE/ ILLUSTRATION	TOOLS/PPE	QUALITY POINTERS
15	P1	Connector lock	 1. Load the connector into the jig holding both side of the connector, tip first.  2. Press the lower part of connector to fully insert into the locking jig.  **Right thumb-Lower** **Left thumb-middle** 3. Press the lower parts of connector using right hand while left hand holding the middle. **Right thumb-upper** **Left thumb-middle** 4. Press the upper part of connector using right hand while left hand holding the middle. **Right thumb-middle** **Left thumb-middle** 5. Lift then press the connector in the middle using left and right hand.  6. Ensure that connector is in locked condition by slide touching the connector lock based on the sequence illustrated.	**LOCKING JIG** 	1. No Unlock and half-locked 2. Use provided jig tools per model to avoid damaged lock. ***Important reminders/note/s:*** *1.MANUAL LOCKING MAY CAUSED DAMAGED LOCK* *2. Use provided jig tool per model to avoid damaged lock.* ***Document reference/s:*** *1. Refer to GL-PRO-ASS-017 for the Verifiction of Coupler lock*  

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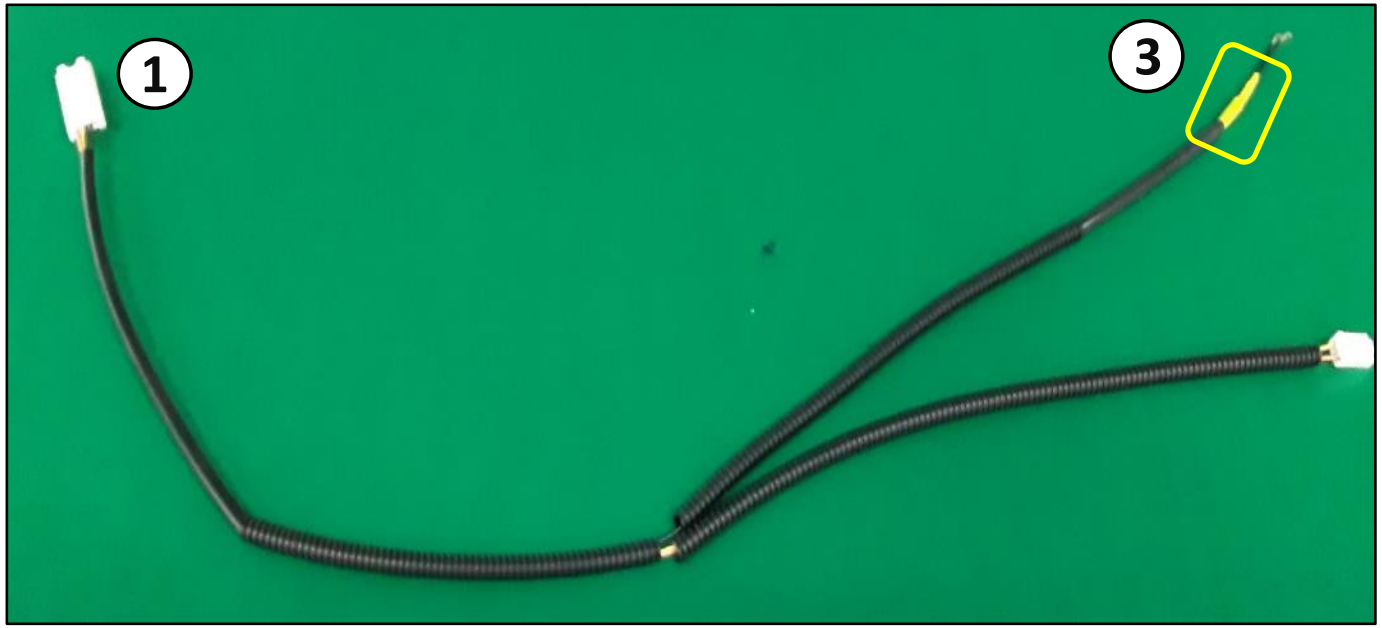
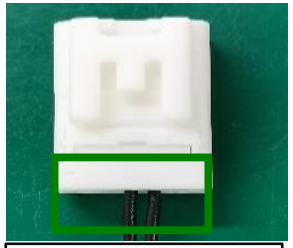
PARTS:	1. Assy parts	JIG:	n/a

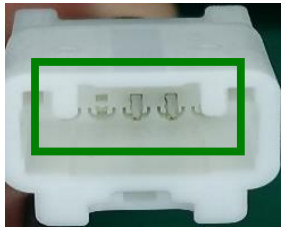
3 **VISUAL INSPECTION**

TAPING - P1 | 7L0118-7021A

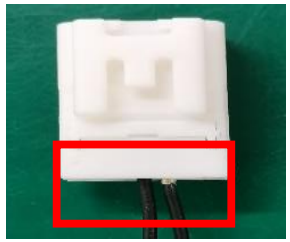




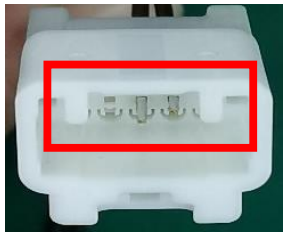
GOOD



GOOD



NO GOOD



NO GOOD

1 No Deformed terminal

2 No Terminal Backing Out

3 No Missing tape/Wrong Used of Tape (Yellow tape)

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