

Standard Operating Sheet

Operation:- Testing - Voltage/Current check & Microcontroller Programming @ 12V

Department	Interface Process Engg.	Signature	Hirdesh	Bharat	Rohit Diwaker	Revision History:- Rev.01 - Initially review document and found no any change - 16.04.2018 Rev.02 - Add new parts 5438 1621 2007 (TSC 04) & 5446 1623 1201 (TSC 05) - 24.01.2020 Rev.03 - Add new part E- Breking ECU-1805AP601031N (EBE 01) - 05.08.2023	Document No.	97-19-DN1-4-250	Process Flow 																																																																																	
Part Name	TPMS CONTROLLER & E-Breking ECU	Name	Hirdesh	Bharat	Rohit Diwaker		Reference	A-97-19-DN1-4-00																																																																																		
Part No.	5502 5480 0102 (TSC 02), 5438 1621 2007 (TSC 04), 5446 1623 1201 (TSC 05) 1805AP601031N (EBE 01)	Authority	Prepared By	Review By	Approved By		Issue date	05.08.2023																																																																																		
Customer	TML	Date	10.08.2016				Rev. No.	0 2																																																																																		
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Start Up Instruction		Before (Incoming Unit)		During Process Work Flow Sequence				After Process																																																																																		
1. Working Table को साफ़ करें। 2. Check करें कि Testing jig & supply आपस में Properly connected हों। 4. Check करें कि instruments की Calibration date expire ना हों। Handling System:- ESD Tray with ESD Bubble sheet & separator use करें। Place the PCB in ESD Tray		Check Dot mark of previous stage						Put identification DOT Mark on Parts after process : TSC 05 TSC 04 TSC 02 																																																																																		
Environmental & Safety Instructions:- (A)Product safety 1. ESD दस्ताने / Finger coats पहनें। 2. ESD Wrist band पहनें। 3. ESD jacket & Cap पहनें। (B)Operator safety 1. कार्य करते समय सावधानी रखें।		Set Up Instruction:- 1. Power Supply को Testing jig से connect करें। 2. Positive Supply wire को Test Jig के Red Socket के साथ और Neutral supply wire को Black socket के साथ Testing Jig पर Connect करें। 3. Power supply में Power S/w को ON करें और Voltage को 12V पर Set करें। 4. OK तथा NG Master sample के साथ Set-up Verification करें, और उसका Data Setup & FPA Sheet में भरें।		Test set up IF program is not done on part, then FAIL indication show on test setup. Remove part from Test jig and Put in Red Drawer with Reject tag. IF program is done on part, then Program is flashed indication show on test setup.				NG Pictures For Refrence (If Any)																																																																																		
Document Required:- 1. Daily/Monthly Rejection Sheet 2. Control Chart 3. Set up & FPA Sheet 4. Startup check sheet 5. Rework Part Verification sheet		Abnormal Conditions:- Shop floor पर कार्य करते समय निम्नलिखित abnormal situations आ सकती हैं। 1. Fallen part on shop floor 2. Part related problem continues rejection more than or equal to 3 Nos. 3. Testing jig breakdown Reaction Plan:- उपरोक्त abnormal situations आने पर operator तुरंत अपने लाइन ईचार्ज को सूचित करें। Other abnormal situations: अन्य abnormal situations के लिए MANAGEMENT OF ABNORMAL SITUATION (Doc.No.-WI-12-01) में दिए गए निर्देशों का पालन करें।		Work Flow:- (For TSC 02) 1. PCB Assy. को Fixture पर रखें। 2. +B S/W को ON करें और Multimeter से Connector Pin No.-1,2,3,4, पर Voltage check करें। 3. उसके बाद Programming के लिए +B S/W, +Programming S/w को ON करें। 4. Cyclone Programmer में Start button को Press करें। 5. अगर Program run हो गया हो तो Success indication glow होगा नहीं तो Error indication glow होगा। 6. Check Dark Current & Crystal frequency after Programming as per PCS. 7. OK यूनिट पर Connector में DOT Mark करें। Work Flow:- (For TSC 04 & 05) 1. PCB Assy. को Fixture पर रखें। 2. +B S/W को ON करें और Probe द्वारा Multimeter में Connector Pin No.-1,2,3,4, पर Voltage check करें। 3. उसके बाद Programming के लिए +B S/W & Programming S/w को ON करें। 4. PC Display के ऊपर Program पर माउस द्वारा Press करें। 5. अगर Program run हो गया हो तो Program is Flashed होगा नहीं तो Fail indication show होगा। 6. Check Dark Current & Crystal frequency after Programming as per PCS. 7. यूनिट के OK होने पर यूनिट को Test setup से निकालें और ESD Tray में रखें। 8. OK यूनिट के ऊपर DOT Mark करें। (Refer - After process photo)				Work Flow:- (For EBE 01) 1. PCB Assy. को Fixture पर रखें। 2. उसके बाद Programming के लिए +B S/W, +Programming S/w को ON करें। 3. Renesas Software में START पर mouse की सहायता से Click करें Programming done होने के बाद OK Green show होगा। (IF Programming not done then show NG Red on test-setup) 4. OK यूनिट पर Connector में DOT Mark करें।																																																																																		
Tools required	Equipment Required																																																																																									
NA	Pinup Board test setup, DMM, CRO Cyclone Programmer																																																																																									
Check Point:- 1. Check all parameter as per PCS.		PROCESS CONTROL STANDARD (PCS) <table border="1"> <thead> <tr> <th>Class</th> <th>Process/Product Characteristics</th> <th>Specification</th> <th>Inspection method</th> <th>Frequency</th> <th>Recording</th> <th>Control I/C</th> <th>Remarks</th> <th>Reaction Plan</th> </tr> </thead> <tbody> <tr> <td></td> <td>Air Pressure</td> <td>2~4 kg/cm²</td> <td>Pressure gauge</td> <td>Per 4 Hour</td> <td>Yes</td> <td>Operator</td> <td>Use setup & FPA Sheet</td> <td>Reset Air Pressure</td> </tr> <tr> <td></td> <td>Check Pin Voltage @ Pin-1</td> <td>4.8~5.2 V</td> <td>DMM</td> <td>100%</td> <td>Yes (Per 4 Hour)</td> <td>Operator</td> <td>Use setup & FPA Sheet</td> <td>Put reject pcs in red tray, inform to incharge</td> </tr> <tr> <td></td> <td>Check Pin Voltage @ Pin-2</td> <td>4.8~5.2 V</td> <td>DMM</td> <td>100%</td> <td>Yes (Per 4 Hour)</td> <td>Operator</td> <td>Use setup & FPA Sheet</td> <td>Put reject pcs in red tray, inform to incharge</td> </tr> <tr> <td></td> <td>Check Pin Voltage @ Pin-3</td> <td>0 V</td> <td>DMM</td> <td>100%</td> <td>No</td> <td>NA</td> <td></td> <td></td> </tr> <tr> <td></td> <td>Check Pin Voltage @ Pin-4</td> <td>4.8~5.2 V</td> <td>DMM</td> <td>100%</td> <td>Yes (Per 4 Hour)</td> <td>Operator</td> <td>Use setup & FPA Sheet</td> <td>Put reject pcs in red tray, inform to incharge</td> </tr> <tr> <td></td> <td>Programming of microcontroller</td> <td>Cyclone programmer display OK-Pass (Green) / NG Fail (Red) indication after programming.</td> <td>Visually on cyclone programmer</td> <td>100%</td> <td>Yes (Per 4 Hour)</td> <td>Operator</td> <td>Use setup & FPA Sheet</td> <td>Put reject pcs in red tray, inform to incharge</td> </tr> <tr> <td>SC</td> <td>Check Dark Current after programming</td> <td>Less then 2mA EBE 01- Less then 1mA</td> <td>Test Set up</td> <td>100%</td> <td>Yes (Per 4 Hour) (5 Parts/Shift)</td> <td>Operator</td> <td>Use FPA Shhet & Use Control Chart</td> <td>Put reject pcs in red tray, inform to incharge</td> </tr> <tr> <td></td> <td>Check Crystal frequency(X1)</td> <td>8MHz</td> <td>CRO</td> <td>100%</td> <td>Yes (Per 4 Hour)</td> <td>Operator</td> <td>Use setup & FPA Sheet</td> <td>Put reject pcs in red tray, inform to incharge</td> </tr> </tbody> </table>								Class	Process/Product Characteristics	Specification	Inspection method	Frequency	Recording	Control I/C	Remarks	Reaction Plan		Air Pressure	2~4 kg/cm ²	Pressure gauge	Per 4 Hour	Yes	Operator	Use setup & FPA Sheet	Reset Air Pressure		Check Pin Voltage @ Pin-1	4.8~5.2 V	DMM	100%	Yes (Per 4 Hour)	Operator	Use setup & FPA Sheet	Put reject pcs in red tray, inform to incharge		Check Pin Voltage @ Pin-2	4.8~5.2 V	DMM	100%	Yes (Per 4 Hour)	Operator	Use setup & FPA Sheet	Put reject pcs in red tray, inform to incharge		Check Pin Voltage @ Pin-3	0 V	DMM	100%	No	NA				Check Pin Voltage @ Pin-4	4.8~5.2 V	DMM	100%	Yes (Per 4 Hour)	Operator	Use setup & FPA Sheet	Put reject pcs in red tray, inform to incharge		Programming of microcontroller	Cyclone programmer display OK-Pass (Green) / NG Fail (Red) indication after programming.	Visually on cyclone programmer	100%	Yes (Per 4 Hour)	Operator	Use setup & FPA Sheet	Put reject pcs in red tray, inform to incharge	SC	Check Dark Current after programming	Less then 2mA EBE 01- Less then 1mA	Test Set up	100%	Yes (Per 4 Hour) (5 Parts/Shift)	Operator	Use FPA Shhet & Use Control Chart	Put reject pcs in red tray, inform to incharge		Check Crystal frequency(X1)	8MHz	CRO	100%	Yes (Per 4 Hour)	Operator	Use setup & FPA Sheet	Put reject pcs in red tray, inform to incharge
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Significant Characteristics:- 1. Product:- 2. Process:-		Our Aim:- 0' Defect to Next Operation																																																																																								

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