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PPAP Package for:

Customer Name: Newark Electronics
Customer Part Number: 73W9187
(TE Connectivity Part Number): 1488991-5
Date: 10/03/2020

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Nondisclosure Agreement

If a nondisclosure agreement has been reached with your company, it will be included on the following page(s). Please review the terms of this agreement to ensure that further actions associated with information contained within this PPAP package do not violate these terms.

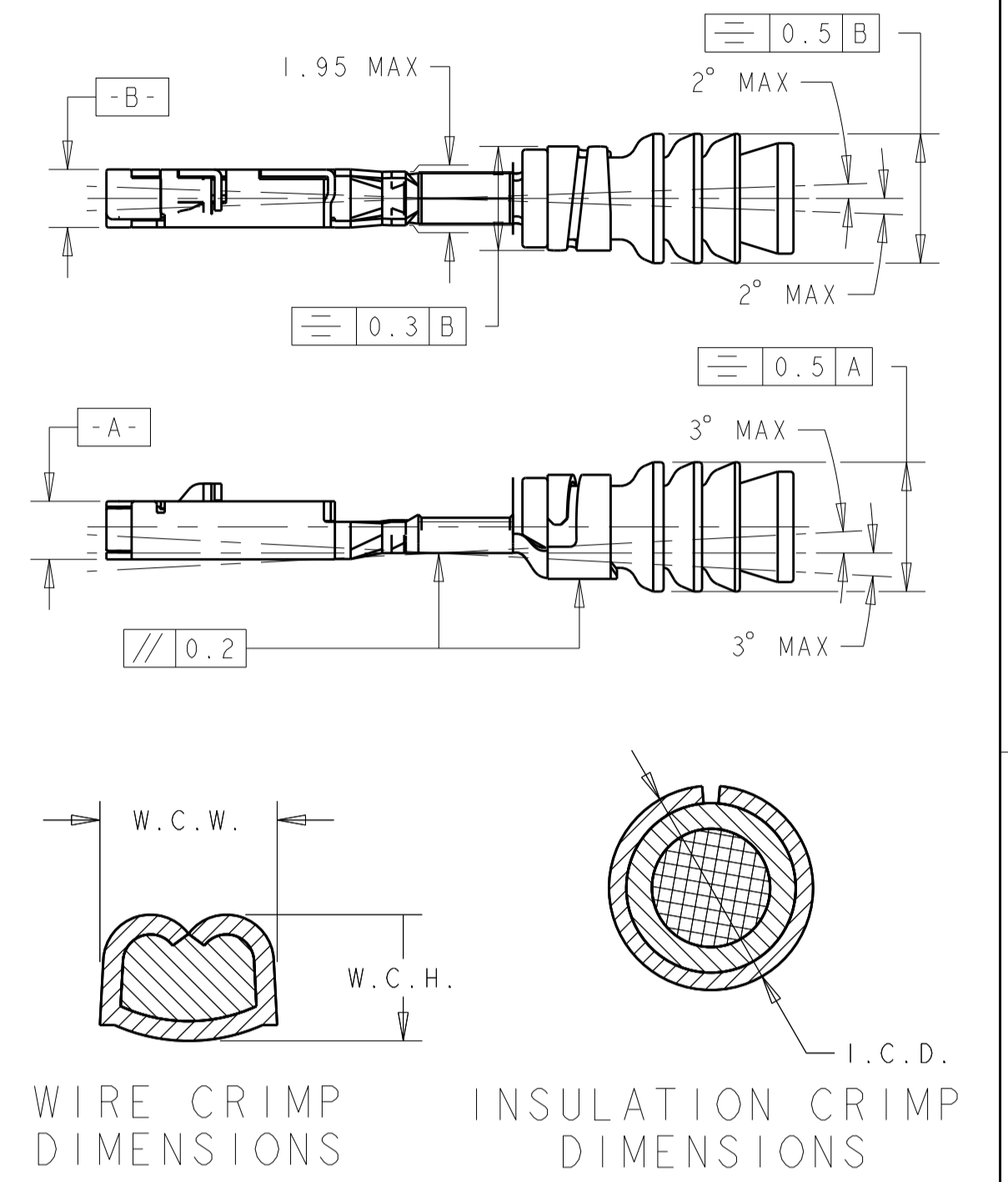
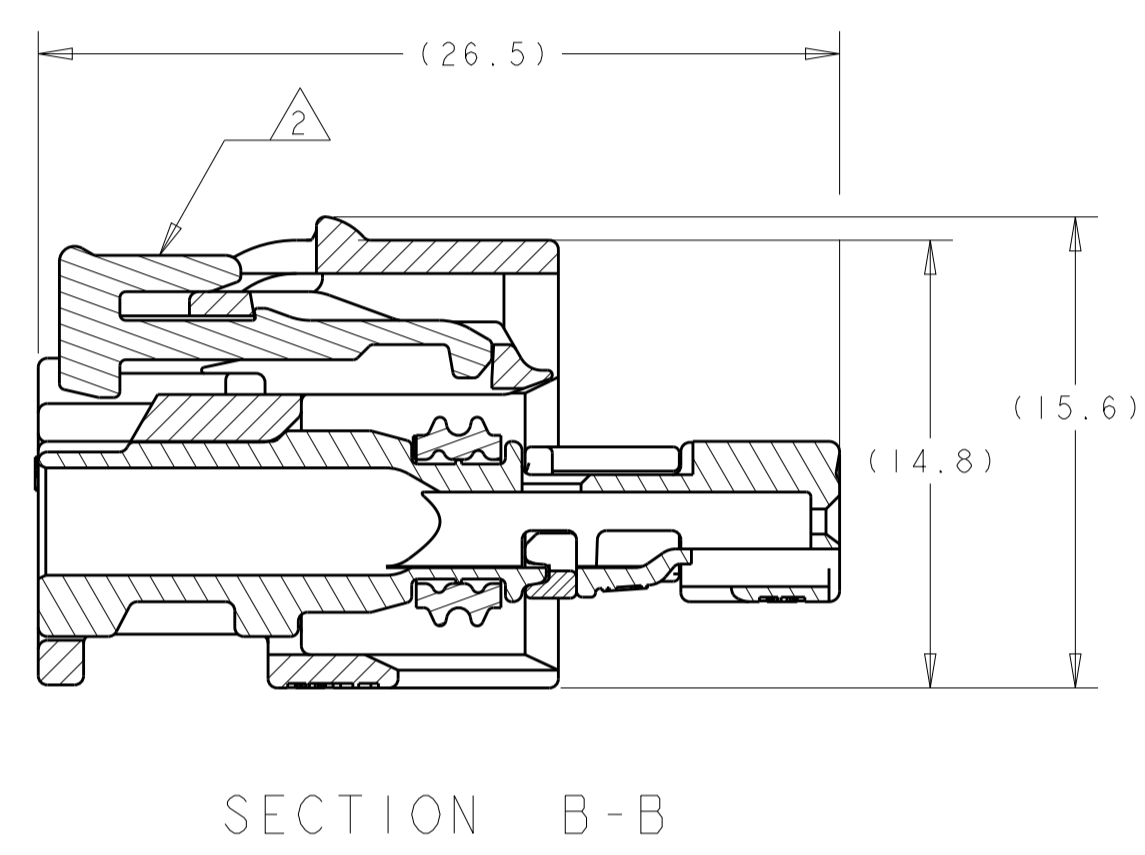
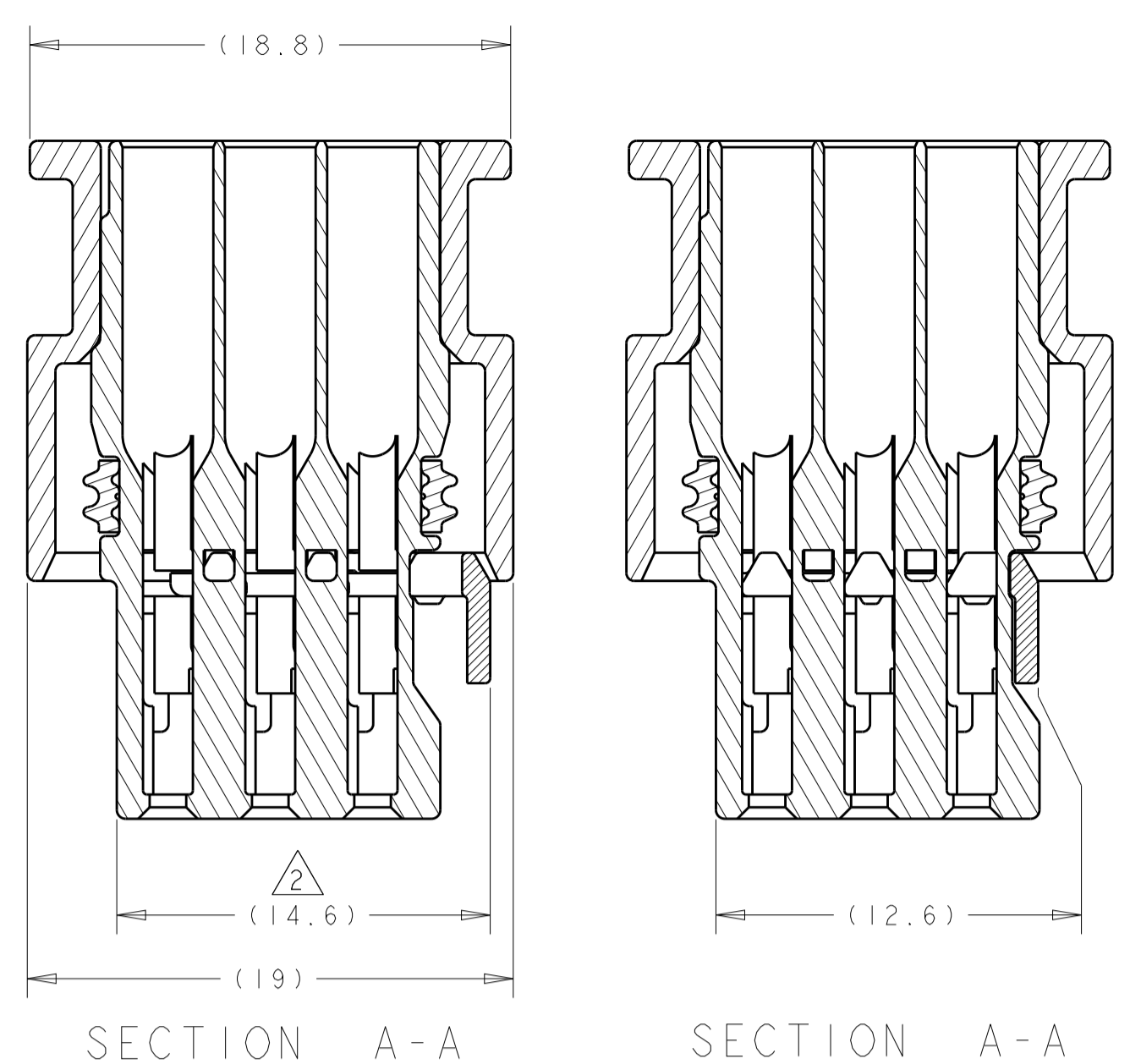
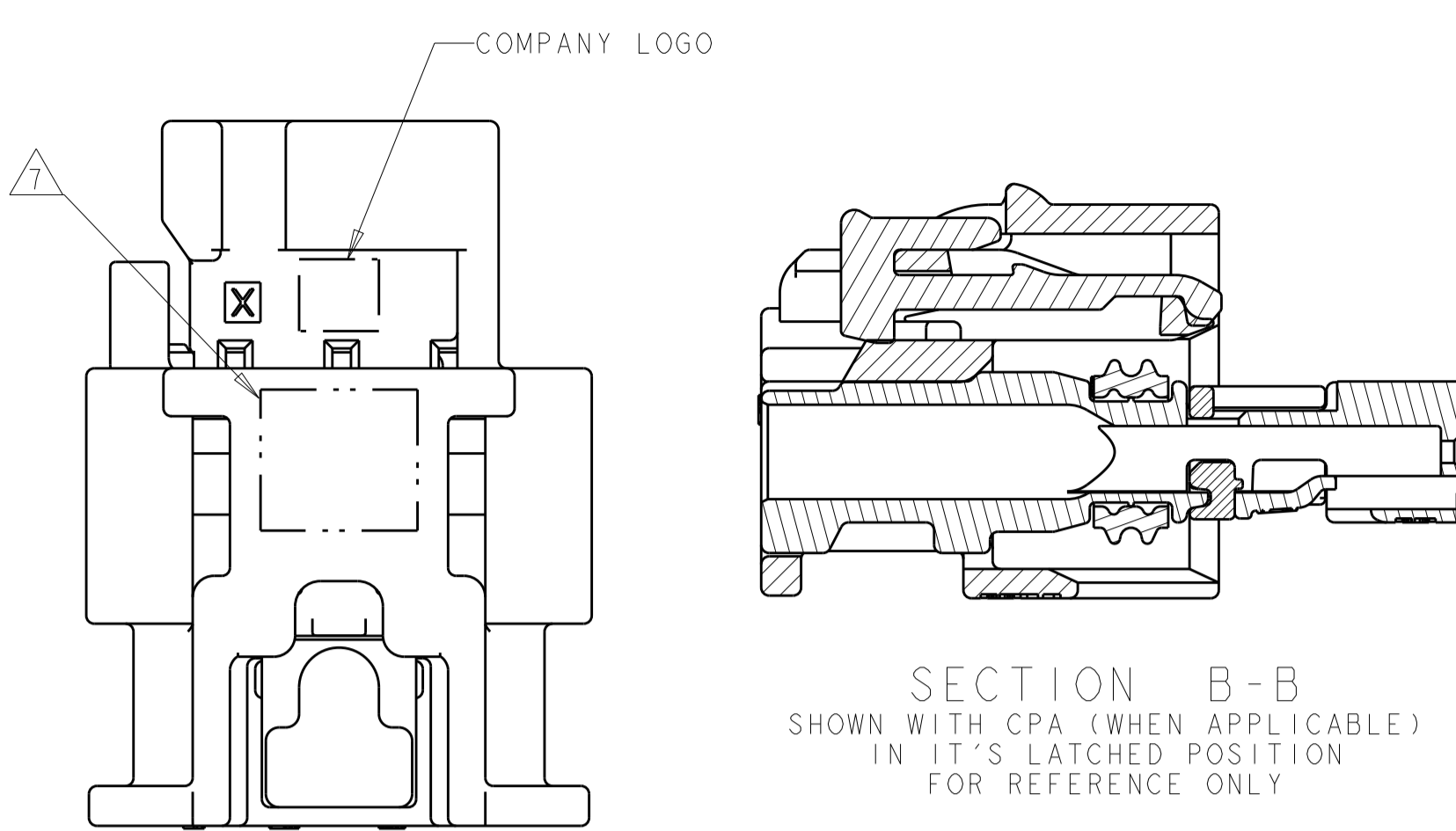
If a nondisclosure agreement HAS NOT been reached, certain documents deemed confidential by TE Connectivity will not be included in this PPAP package. These documents include but are not limited to the Design FMEA, the Process Flow Diagram, the Process FMEA and the Control Plan. These documents can be reviewed by you company but cannot be retained.



Section 1

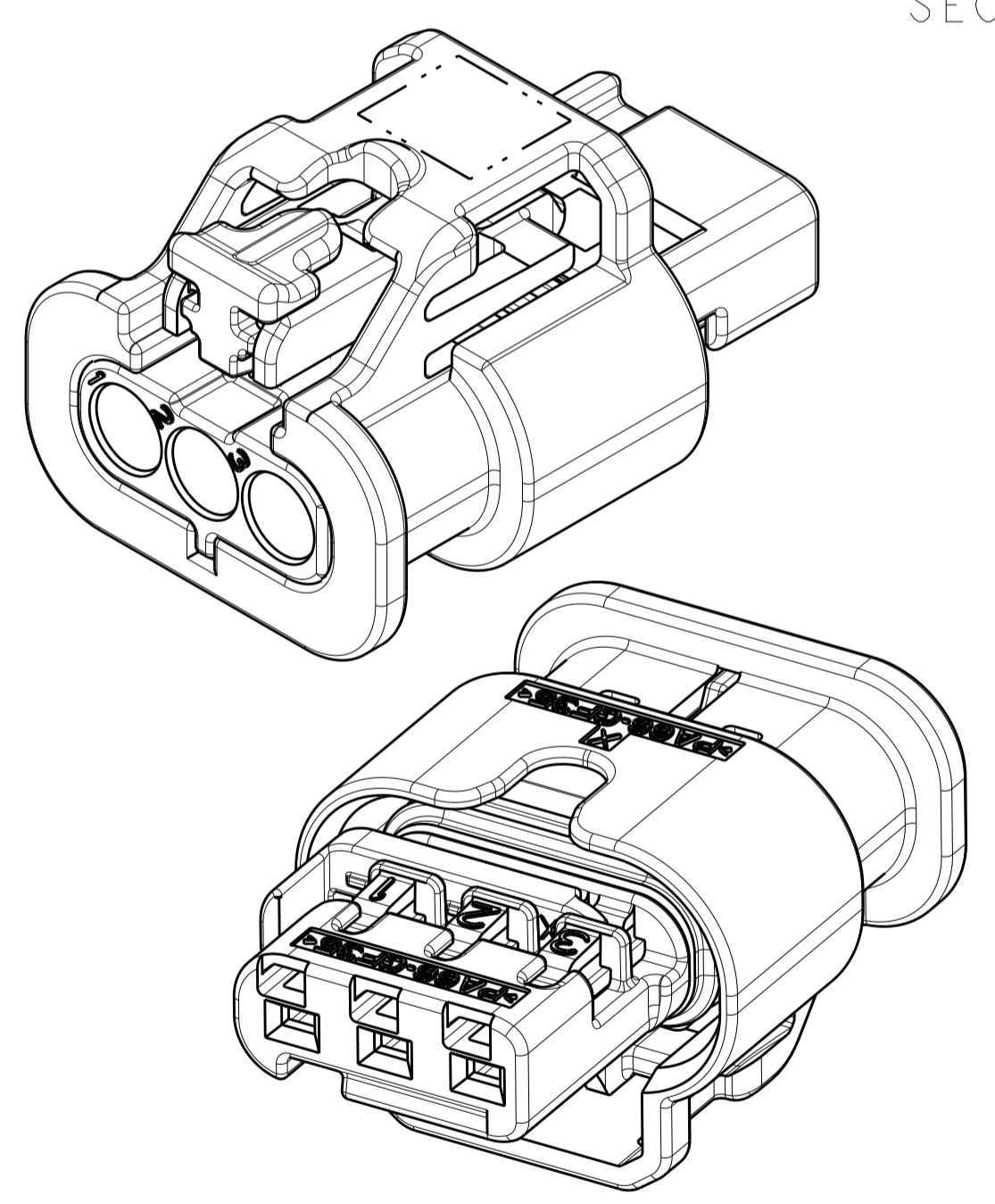
Design Records

- PART NUMBER 1488991-5 SHOWN ON DRAWING.
- TPA AND CPA (WHEN APPLICABLE) ARE SHIPPED IN THEIR PRE-LATCHED POSITIONS. SEE INSTRUCTION SHEET 408-8928 FOR DIRECTIONS ON MOVING THE CPA AND TPA TO THE PRE-LATCHED POSITION, IF NECESSARY.
- TERMINALS SOLD SEPARATELY. FOR USE WITH TE CONNECTIVITY MCON 1.2mm CLEAN BODY CONTACT WITH WIRE SEAL. SEE MCON 1.2-CB (CLEAN BODY) TABLE FOR APPLICABLE PART NUMBERS.
- APPLICABLE HEADER INTERFACE DRAWING 1488738 IS AVAILABLE UPON REQUEST. A COPY OF THIS DRAWING CAN BE OBTAINED FROM THE TE CONNECTIVITY PRODUCT MANAGER, VIA YOUR TE CONNECTIVITY SALES REPRESENTATIVE OR CUSTOMER SERVICE.
- MINIMUM FEED THROUGH CONDITION WITH 0.5mm CLEARANCE ALL AROUND.
- A "X" IN THIS TABLE INDICATES THAT THE TERMINAL CAVITY IS BLOCKED AND WILL NOT ALLOW INSERTION OF THE MATING TERMINAL. A "O" IN THIS TABLE INDICATES THAT THE TERMINAL CAVITY IS OPEN AND WILL ALLOW INSERTION OF THE MATING TERMINAL.
- TRACEABILITY PRINTED IN THIS LOCATION AT ASSEMBLY.
- CONNECTOR SYSTEM MEETS THE REQUIREMENTS OF USCAR-2, REVISION 3, EXCEPT WHERE NOTED:
 TPA ENGAGE AND DISENGAGE FORCES ARE 10N MIN - 30N MAX.
 PRIMARY TERMINAL-CONNECTOR FORCE IS 30N MIN.
 SECONDARY TERMINAL-CONNECTOR FORCE IS 75N MIN.
 CPA ENGAGE AND DISENGAGE FORCES (WITH MATING CONNECTOR) ARE 30N MAX.
 CPA REMOVAL FORCE FROM CONNECTOR IS 15N MIN.
- FOR OPTIONAL TERMINAL CAVITY BLOCKING, USE TE CONNECTIVITY BLIND PLUG PART NUMBER: 967056-1.
- TERMINAL 1670146-X REPLACES 1418847-X
- REFERENCE ISOMETRIC VIEWS ON SHEET 2.



REVISIONS				
P. LTM	DESCRIPTION	DATE	OWN	APP'D
F8	REVISED PER ECO-13-001652	12FEB2013	DLD	SLM
F9	REVISED PER ECO-15-002909	25FEB2015	DLD	SLM
F10	REVISED PER ECO-15-011380	05AUG2015	DLD	SLM

KEYING CONFIGURATIONS	TERMINAL CAVITY CONFIGURATIONS
KEYING OPTION A	ALL TERMINAL CAVITIES OPEN
KEYING OPTION B	TERMINAL CAVITY #3 CLOSED
KEYING OPTION C	TERMINAL CAVITY #2 CLOSED
KEYING OPTION D	TERMINAL CAVITY #1 CLOSED



MCON 1.2-CB (CLEAN BODY)								
PART NUMBER	PLATING	WIRE STRIP LENGTH	AWG	INSL. RANGE	W.C.H.	W.C.W.	I.C.D.	WIRE SEAL PART NUMBER
1418844-3	SILVER	3.3 ± 0.3	22	1.2 TO 1.4	0.86 ± 0.03	1.27 ± 0.05	3.15 ± 0.05	967067-2
1418844-2	GOLD							
1418844-1	TIN							
1670146-3	SILVER	3.6 ± 0.3	20	1.4 TO 1.9	0.84 ± 0.03	1.57 ± 0.05	3.25 ± 0.05	967067-1
1670146-2	GOLD							
1670146-1	TIN							
1418850-3	SILVER		18	1.9 TO 2.4	1.11 ± 0.05	1.78 ± 0.05	3.35 ± 0.05	964972-1
1418850-2	GOLD	3.6 ± 0.3	18		1.11 ± 0.05			
1418850-1	TIN		16		1.31 ± 0.05			

RELEASED	2138907-1	GRAY	D	O	O	O	4-1488991-4
RELEASED	2138907-1	BLUE	C	O	O	O	4-1488991-3
RELEASED	2138907-1	NATURAL	B	O	O	O	4-1488991-2
RELEASED	2138907-1	BLACK	A	O	O	O	4-1488991-1
NOT RELEASED	1488787-1	GRAY	D				3-1488991-2
	1488787-1	BLUE	C	X	O	O	3-1488991-1
	1488787-1	NATURAL	B				3-1488991-0
	1488787-1	BLACK	A				2-1488991-9
RELEASED	N/A	GRAY	D				2-1488991-8
NOT RELEASED	N/A	BLUE	C	X	O	O	2-1488991-7
	N/A	NATURAL	B				2-1488991-6
RELEASED	N/A	BLACK	A				2-1488991-5
NOT RELEASED	1488787-1	GRAY	D				2-1488991-4
	1488787-1	BLUE	C	O	X	O	2-1488991-3
	1488787-1	NATURAL	B				2-1488991-2
	1488787-1	BLACK	A				2-1488991-1
NOT RELEASED	N/A	GRAY	D				2-1488991-0
	N/A	BLUE	C		X	O	1-1488991-9
	N/A	NATURAL	B	O	X	O	1-1488991-8
	N/A	BLACK	A				1-1488991-7
NOT RELEASED	1488787-1	GRAY	D				1-1488991-6
	1488787-1	BLUE	C	O	O	X	1-1488991-5
	1488787-1	NATURAL	B				1-1488991-4
	1488787-1	BLACK	A				1-1488991-3
NOT RELEASED	N/A	GRAY	D				1-1488991-2
	N/A	BLUE	C	O	O	X	1-1488991-1
	N/A	NATURAL	B				1-1488991-0
	N/A	BLACK	A				1488991-9
RELEASED	1488787-1	GRAY	D				1488991-8
RELEASED	1488787-1	BLUE	C				1488991-7
RELEASED	1488787-1	NATURAL	B	O	O	O	1488991-6
RELEASED	1488787-1	BLACK	A				1488991-5
RELEASED	N/A	GRAY	D				1488991-4
RELEASED	N/A	BLUE	C	O	O	O	1488991-3
RELEASED	N/A	NATURAL	B				1488991-2
RELEASED	N/A	BLACK	A				1488991-1

THIS DRAWING IS A CONTROLLED DOCUMENT. DIMENSIONS: mm. TOLERANCES UNLESS OTHERWISE SPECIFIED: 0 PLC ±0.3, 1 PLC ±0.10, 2 PLC ±0.15, 3 PLC ±0.2, 4 PLC ±0.25, ANGLES ±0.5°. MATERIAL: SEE TABLE. FINISH: SEE TABLE.

OWN: M. FORLSKA 08MAR2004
 CHK: G. MARTIN 08MAR2004
 AP'D: G. MARTIN 08MAR2004

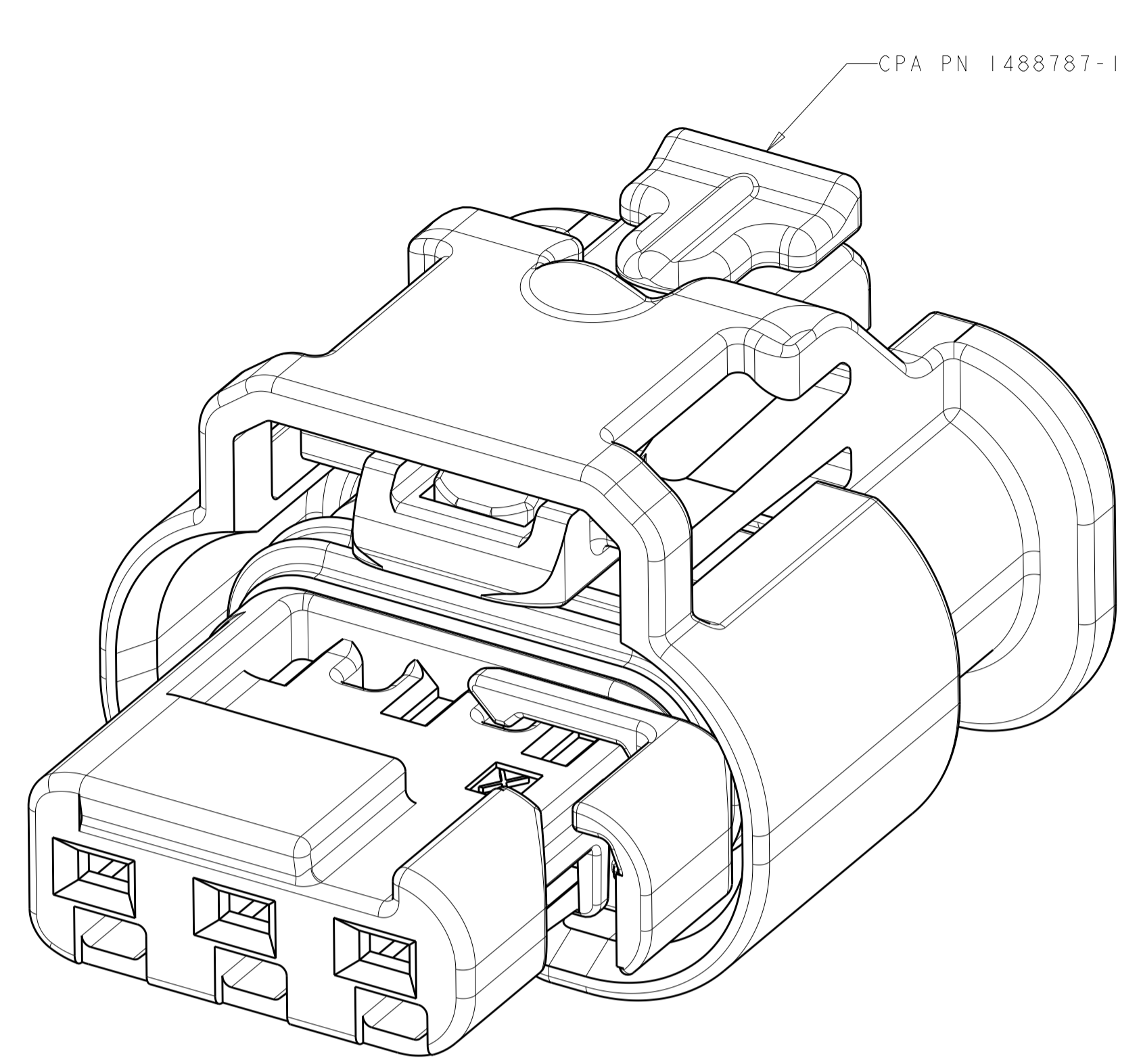
NAME: CONNECTOR ASSEMBLY, FEMALE, 3 POSITION, SEALED, 1.2mm (STANDARD LATCH VERSION)

PRODUCT SPEC: IS 408-8928
 APPLICATION SPEC: IS 408-8928
 WEIGHT: 3.0 GRAMS
 CUSTOMER DRAWING: A100779C=1488991

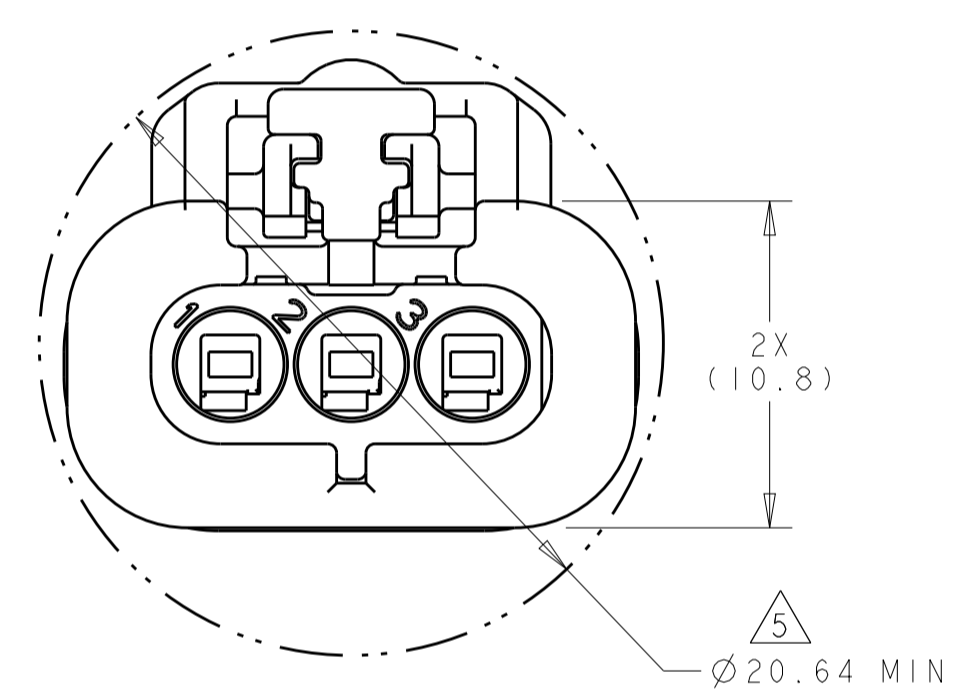
SCALE: 4:1 SHEET 1 OF 2 REV: F10

REVISIONS				
P.	LTN	DESCRIPTION	DATE	APVD
-	-	SEE SHEET 1	-	-

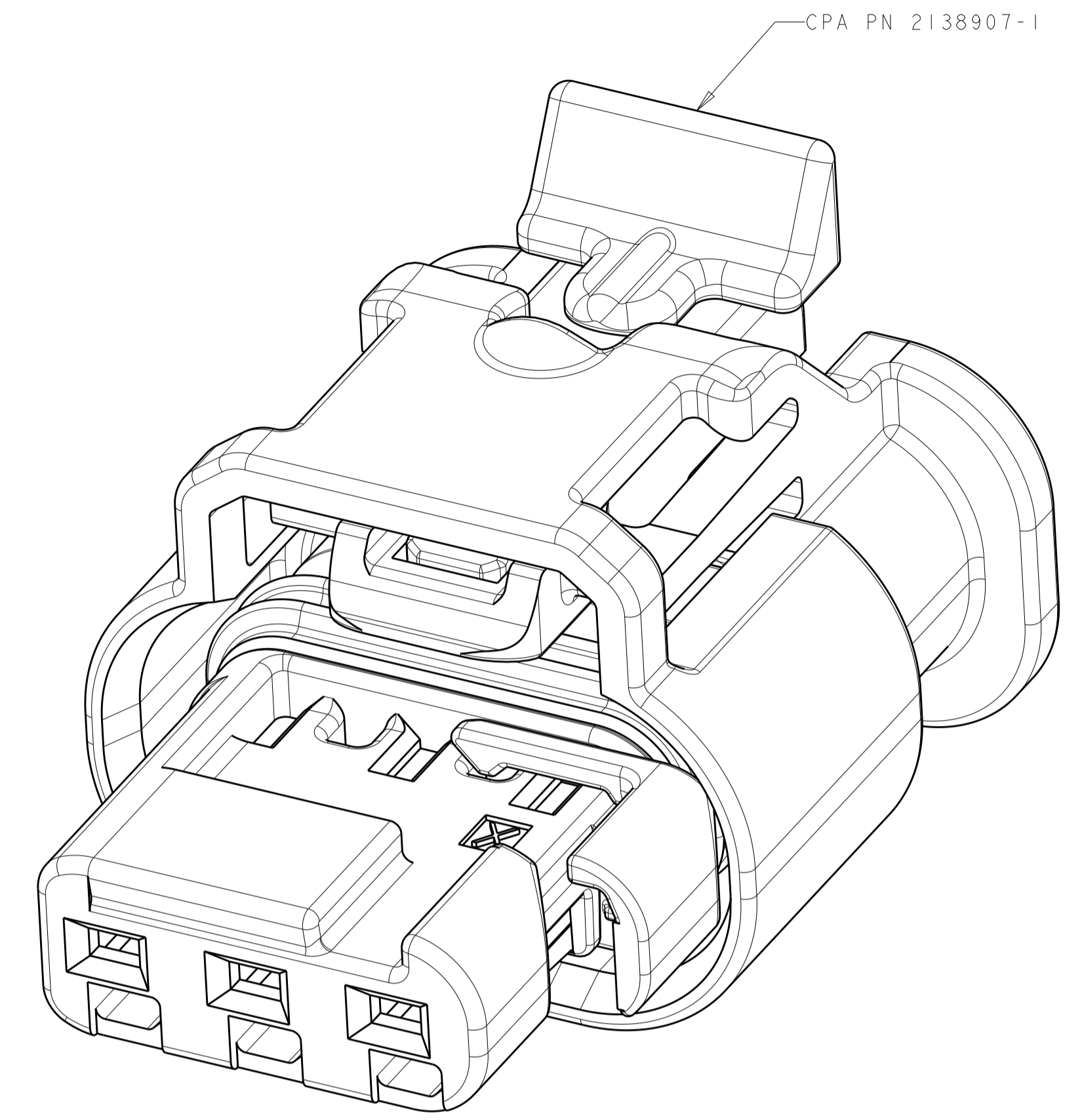
ISOMETRIC VIEWS



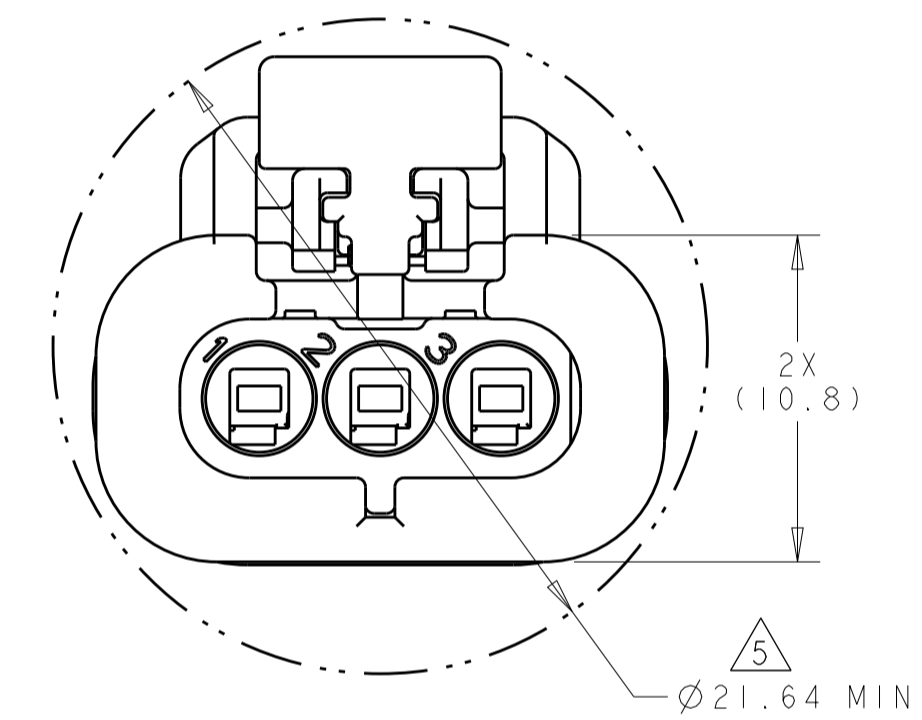
PN 1488991-5 SHOWN
SCALE 8:1



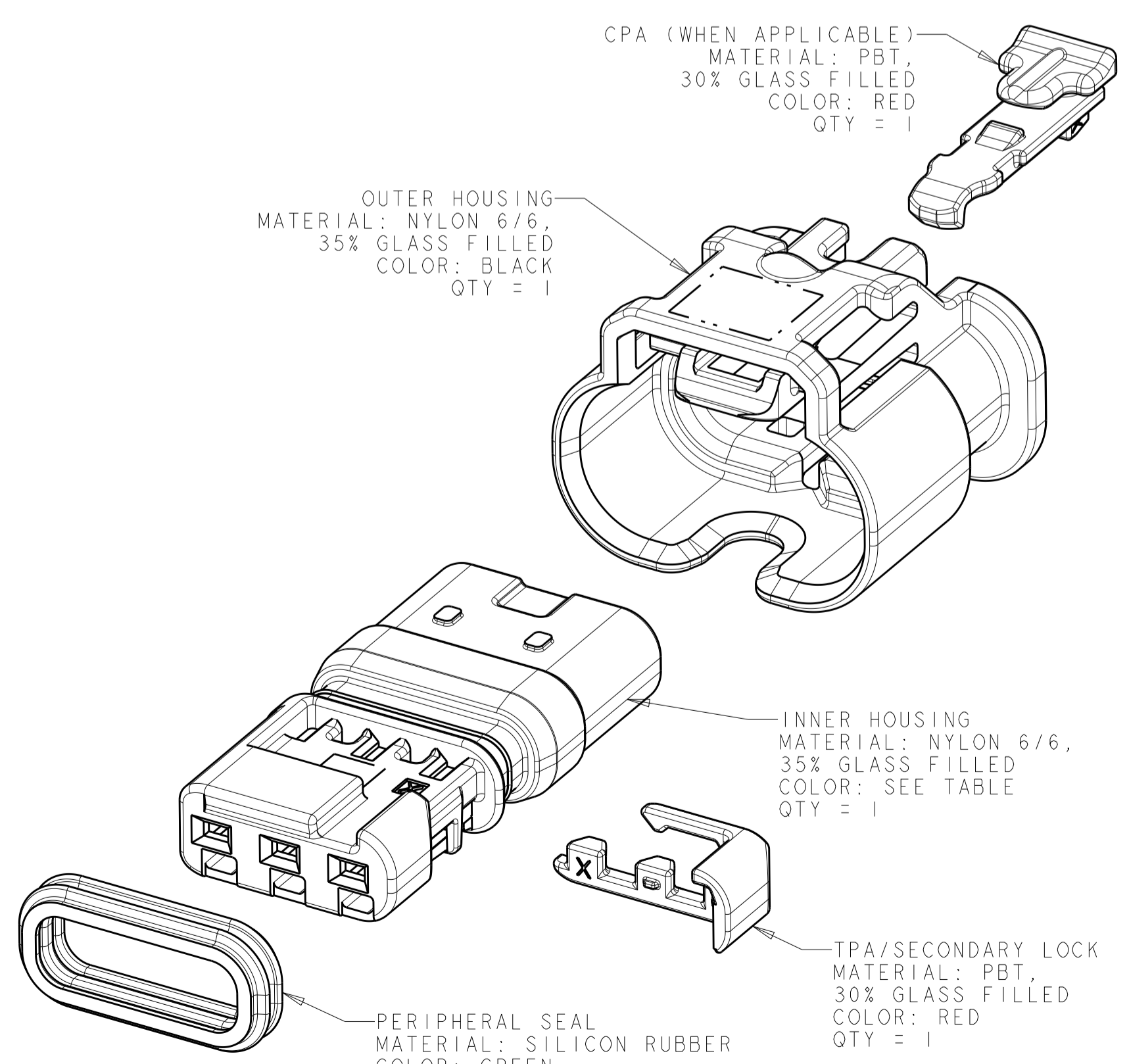
FEED THROUGH CONDITION



PN 4-1488991-1 SHOWN
SCALE 8:1



FEED THROUGH CONDITION



- CPA (WHEN APPLICABLE)
MATERIAL: PBT,
30% GLASS FILLED
COLOR: RED
QTY = 1
- OUTER HOUSING
MATERIAL: NYLON 6/6,
35% GLASS FILLED
COLOR: BLACK
QTY = 1
- INNER HOUSING
MATERIAL: NYLON 6/6,
35% GLASS FILLED
COLOR: SEE TABLE
QTY = 1
- TPA/SECONDARY LOCK
MATERIAL: PBT,
30% GLASS FILLED
COLOR: RED
QTY = 1
- PERIPHERAL SEAL
MATERIAL: SILICON RUBBER
COLOR: GREEN
QTY = 1

EXPLODED ISOMETRIC VIEW

THIS DRAWING IS A CONTROLLED DOCUMENT.		DWN M. FORISKA 08MAR2004 CHK G. MARTIN 08MAR2004 APVD G. MARTIN 08MAR2004	STE TE Connectivity
DIMENSIONS:	TOLERANCES UNLESS OTHERWISE SPECIFIED:	NAME	CONNECTOR ASSEMBLY, FEMALE, 3 POSITION, SEALED, 1.2mm (STANDARD LATCH VERSION)
mm	0 PLC ± 1 PLC ±0.3 2 PLC ±0.10 3 PLC ± 4 PLC ± ANGLES ±1°	PRODUCT SPEC	
MATERIAL	FINISH	APPLICATION SPEC	SIZE CAGE CODE DRAWING NO RESTRICTED TO
SEE TABLE		IS 408-8928	A100779C=1488991
		WEIGHT 3.0 GRAMS	
		CUSTOMER DRAWING	SCALE 4:1 SHEET 2 OF 2 REV F10



Section 2

Engineering Change Documents



Product Change Notification

Current Date: 13-Nov-2019

TE Connectivity

Product Change Notification: P-19-018198

PCN Date: 11-NOV-19

TE would like to inform you of the following change(s) to the listed TE Connectivity Product. In case of any further questions about this change(s), please contact your TE Connectivity Sales Engineer. Affected part, drawing and/or specification numbers are listed on the attached sheet(s).

General Product Description:

Multiple Part numbers. Phase 1. Americas Footprint Optimization.

Description of Changes

We hereby inform you about a transfer of tools and/or processes of the components of the Finished Goods that we ship to you to further improve our Supply Chain towards our customers. The transfer follows a strict procedure, which fully maintains quality, ability to supply and form-fit-function of the concerned products. The receiving manufacturing location operates under a certified quality management system in accordance with standard automotive requirements. These moves will be validated not to affect product FFF, tool geometry or quality performance. TE will uphold our responsibility to internally validate and approve these tools among appropriate first article dimensional and capability analysis, comparative 2-sample T-tests before and after moves, before and after CT scans where needed, and PV test as defined by TE product engineering. TE is willing to provide any such validation data to our customers as our joint non-disclosure agreement statuses allow. AMEND with PCN P-19-018058

Reason for Changes:

Product improvement. These changes are part of an overall effort from TE to improve our supply chain toward our customers and to focus each plant on core products and processes. A TE-internal release test based on the relevant part specifications will be executed before delivery and this notification serves to fulfill our notification requirements as prescribed by AIAG 4th edition. This change notification document accompanies a letter sent to your organization on September 13, 2019 signed by our Vice President of Sales and Marketing. Follow up conversations can occur upon request with your sales contact within 15 calendar days after receipt of this PCN. TE can share validation data with your organization upon request. If you have any questions or needs from this move, please contact your sales engineer within 15 days of receipt of this letter. If no response is received on this period, TE will consider this as an approval and tools must move to the new locations.

Estimated Dates:

Last Order Date (Obsolete Parts Only):	First Date To Ship (Changed Parts Only):
	03-JAN-2020
Last Ship Date (Obsolete Parts Only):	Last Date for Mixed Shipments: (Changed Parts Only):
	No Mixed Shipments

Part Number(s) being Modified:

Part Number	Part Discontinued per PCN	Customer Drawing	Alias Part Number(s)	Substitute Part Number	Substitute Alias Part Number(s)	Description Of Difference
1-1417746-2	NO					
1-1419168-1	NO		"V23542-G1506-D101"			
1-1419168-2	NO		"V23542-G1506-D102"			
1-1419168-3	NO		"V23542-G1506-D103"			
1-1419168-5	NO					
1-1438096-8	NO					
1-1438103-3	NO					
1-1438103-9	NO					
1-1438153-1	NO					
1-1438153-3	NO					
1-1438153-4	NO					
1-1438153-7	NO					
1-1438153-8	NO					
1-1438435-3	NO					
1-1438693-4	NO					
1-1438693-6	NO					
1-1438693-8	NO					
1-1438693-9	NO					
1-1438841-1	NO					
1-1438841-2	NO					
1-1438841-7	NO					
1-1456426-1	NO					
1-1456426-2	NO					
1-1456426-5	NO					
1-1456426-6	NO					

Part Number	Part Discontinued per PCN	Customer Drawing	Alias Part Number(s)	Substitute Part Number	Substitute Alias Part Number(s)	Description Of Difference
1-1456985-0	NO					
1-1587041-4	NO					
1-1670915-1	NO					
1-1670917-1	NO					
1-1718644-5	NO					
1-1732466-0	NO					
1-1924067-1	NO					
1-1924067-2	NO					
1-1924067-3	NO					
1-1924067-4	NO					
1-1924067-5	NO					
1-1924067-6	NO					
1-1924067-9	NO					
1-1924513-5	NO					
1-1924513-9	NO					
1-1924674-0	NO					
1-1924674-2	NO					
1-1924674-3	NO					
1-1924675-9	NO					
1-1924783-1	NO					
1-1924783-3	NO					
1-1924783-7	NO					
1-1924783-8	NO					
1-1924939-0	NO					
1-1924939-1	NO					
1-1924939-5	NO					
1-1924939-6	NO					
1-1924941-0	NO					
1-1924941-1	NO					
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1-1924944-8	NO					
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1-2098559-2	NO					
1-2098863-1	NO					
1-2098922-3	NO					
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1-2098923-7	NO					
1-2098924-2	NO					
1-2103177-1	NO					
1-2103177-2	NO					
1-2103177-4	NO					
1-2138020-0	NO					
1-2203455-0	NO					
1-2203515-0	NO					
1-2203515-1	NO					
1-2203515-3	NO					

Part Number	Part Discontinued per PCN	Customer Drawing	Alias Part Number(s)	Substitute Part Number	Substitute Alias Part Number(s)	Description Of Difference
1-2203515-4	NO					
1-2203515-7	NO					
1-2203529-2	NO					
1-2203654-2	NO					
1-2203654-7	NO					
1-2203663-0	NO					
1-2203663-6	NO					
1-2203769-1	NO					
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1-2203771-3	NO					
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1-2296695-2	NO					
1-2296695-3	NO					
1-2296696-1	NO					
1-2296696-2	NO					
1-2296696-3	NO					
1-2296702-1	NO					
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1-2296704-1	NO					
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1-2296704-3	NO					
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1-638514-4	NO					
1-638514-5	NO					
1-638514-6	NO					
1-776905-1	NO					
1-776905-2	NO					
1-776905-3	NO					
1419168-7	NO		"V23542-G1506-A101"			

Part Number	Part Discontinued per PCN	Customer Drawing	Alias Part Number(s)	Substitute Part Number	Substitute Alias Part Number(s)	Description Of Difference
1438098-1	NO					
1438099-1	NO					
1438099-8	NO					
1438136-1	NO					
1438136-3	NO					
1438136-4	NO					
1438136-5	NO					
1438426-1	NO					
1438426-3	NO					
1438435-2	NO					
1438435-4	NO					
1438435-7	NO					
1438435-9	NO					
1438442-4	NO					
1438483-1	NO					
1438486-1	NO					
1438545-1	NO					
1438617-1	NO					
1438618-1	NO					
1438618-3	NO					
1438619-1	NO					
1438620-1	NO					
1438691-1	NO					
1438691-2	NO					
1438691-6	NO					
1438691-7	NO					
1438691-8	NO					
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1438950-4	NO					
1438950-6	NO					
1438950-7	NO					
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1456630-2	NO					
1456897-2	NO					
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1456985-9	NO					
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1488991-1	NO					
1488991-2	NO					
1488991-4	NO					
1488991-5	NO					
1488991-6	NO					
1488991-8	NO					
1488992-5	NO					
1488992-6	NO					
1557300-1	NO					
1557304-1	NO					
1557321-1	NO					
1557404-1	NO					
1557405-1	NO					
1557406-1	NO					

Part Number	Part Discontinued per PCN	Customer Drawing	Alias Part Number(s)	Substitute Part Number	Substitute Alias Part Number(s)	Description Of Difference
1557408-2	NO					
1557408-3	NO					
1557409-3	NO					
1557409-4	NO					
1557410-2	NO					
1557410-3	NO					
1557410-4	NO					
1557485-3	NO					
1557485-4	NO					
1557671-1	NO					
1557671-2	NO					
1557676-1	NO					
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184010-1	NO					
184012-1	NO					
184014-1	NO					
184016-1	NO					
184022-1	NO					
184026-1	NO					
184032-1	NO					

Part Number	Part Discontinued per PCN	Customer Drawing	Alias Part Number(s)	Substitute Part Number	Substitute Alias Part Number(s)	Description Of Difference
184034-1	NO					
184042-1	NO					
184042-2	NO					
184046-1	NO		"EM3604-000", "AMP-0-0184046-1"			
184050-2	NO					
184060-1	NO					
184115-1	NO					
184116-1	NO					
184116-2	NO					
184124-1	NO					
184139-1	NO					
184140-1	NO					
184141-1	NO					
184207-1	NO					
184212-1	NO					
184212-2	NO					
184214-1	NO					
184216-1	NO					
184220-1	NO					
184240-1	NO					
184244-1	NO					
184248-1	NO					
184270-1	NO					
184292-1	NO					
184311-1	NO					
184315-1	NO					
184322-1	NO					
184340-1	NO					
184341-1	NO					
184349-1	NO					
184370-1	NO					
184375-1	NO					
184391-1	NO					
184392-1	NO					
184392-2	NO					
184393-1	NO					
184393-2	NO					
184394-1	NO					
184396-1	NO					
184397-1	NO					
184398-1	NO					
184399-1	NO					
184400-1	NO					
184401-1	NO					
184435-1	NO					
184452-1	NO					
184455-1	NO					
184471-1	NO					
184471-5	NO					
184471-7	NO					
1924211-1	NO					
1924211-3	NO					
1924211-6	NO					
1924227-2	NO					
1924292-1	NO					
1924292-5	NO					
1924292-6	NO					
1924484-1	NO					
1924513-1	NO					
1924674-9	NO					
1924675-1	NO					
1924675-4	NO					
1924683-1	NO					
1924684-1	NO					

Part Number	Part Discontinued per PCN	Customer Drawing	Alias Part Number(s)	Substitute Part Number	Substitute Alias Part Number(s)	Description Of Difference
1924685-1	NO					
1924686-1	NO					
1924689-1	NO					
1924783-4	NO					
1924940-5	NO					
1924940-6	NO					
1924941-7	NO					
1924941-9	NO					
1924942-1	NO					
1924942-2	NO					
1924942-3	NO					
1924942-4	NO					
1924942-5	NO					
1924942-6	NO					
1924943-1	NO					
1924943-2	NO					
1924943-3	NO					
1924943-5	NO					
1924943-6	NO					
1924944-2	NO					
1924944-4	NO					
1924944-6	NO					
2-1438099-8	NO					
2-1438103-2	NO					
2-1438103-3	NO					
2-1438103-4	NO					
2-1438103-6	NO					
2-1438103-7	NO					
2-1438103-8	NO					
2-1438136-3	NO					
2-1438153-1	NO					
2-1438454-1	NO					
2-1438950-1	NO					
2-1670917-1	NO					
2-1718643-1	NO					
2-1718644-1	NO					
2-1823608-4	NO					
2-1823608-5	NO					
2-1924067-0	NO					
2-1924211-1	NO					
2-1924513-4	NO					
2-1924513-6	NO					
2-1924513-7	NO					
2-1924513-9	NO					
2-1924675-1	NO					
2-1924675-2	NO					
2-1924783-6	NO					
2-1924783-7	NO					
2-1924783-8	NO					
2-1924783-9	NO					
2-1924939-2	NO					
2-1924939-4	NO					
2-1924939-7	NO					
2-1924939-9	NO					
2-1924940-3	NO					
2-1924940-4	NO					
2-1924941-0	NO					
2-1924941-1	NO					
2-2035383-2	NO					
2-2035383-7	NO					
2-2098922-3	NO					
2-2098922-5	NO					
2-2098922-8	NO					
2-2098922-9	NO					

Part Number	Part Discontinued per PCN	Customer Drawing	Alias Part Number(s)	Substitute Part Number	Substitute Alias Part Number(s)	Description Of Difference
2-2098923-0	NO					
2-2098923-1	NO					
2-2098923-2	NO					
2-2203654-3	NO					
2-2203654-4	NO					
2-2203654-9	NO					
2-2203663-6	NO					
2-2203663-8	NO					
2-2203663-9	NO					
2-2311078-0	NO					
2-2311078-1	NO					
2-2311078-5	NO					
2-2311078-6	NO					
2-2311078-7	NO					
2-2311078-8	NO					
2-2311078-9	NO					
2-2311082-0	NO					
2-2311082-1	NO					
2-2311082-2	NO					
2-2311082-3	NO					
2-2311082-4	NO					
2-2311082-5	NO					
2-2311082-6	NO					
2-2311082-9	NO					
2-2840440-1	NO					
2-2840672-1	NO					
2035383-3	NO					
2098198-5	NO					
2098256-7	NO					
2098269-1	NO					
2098269-4	NO					
2098541-1	NO					
2098541-2	NO					
2098541-5	NO					
2098541-6	NO					
2098641-1	NO					
2098641-2	NO					
2098641-5	NO					
2098641-6	NO					
2098863-2	NO					
2098863-3	NO					
2098863-4	NO					
2098864-3	NO					
2098865-1	NO					
2098865-2	NO					
2098865-3	NO					
2098865-4	NO					
2098865-5	NO					
2098866-1	NO					
2098866-3	NO					
2098866-4	NO					
2098866-5	NO					
2098866-7	NO					
2098922-1	NO					
2098922-2	NO					
2098922-6	NO					
2098922-8	NO					
2098922-9	NO					
2098923-5	NO					
2098923-6	NO					
2098923-8	NO					
2098923-9	NO					
2098924-5	NO					
2098924-7	NO					

Part Number	Part Discontinued per PCN	Customer Drawing	Alias Part Number(s)	Substitute Part Number	Substitute Alias Part Number(s)	Description Of Difference
2098924-8	NO					
2103022-1	NO					
2103177-5	NO					
2103385-4	NO					
2103628-1	NO					
2103628-2	NO					
2103628-4	NO					
2103628-5	NO					
2103628-6	NO					
2103628-7	NO					
2103741-2	NO					
2103741-3	NO					
2103742-2	NO					
2103742-3	NO					
2103743-2	NO					
2103743-3	NO					
2103744-1	NO					
2138020-1	NO					
2138020-2	NO					
2138020-3	NO					
2138020-4	NO					
2138020-5	NO					
2138020-6	NO					
2138020-8	NO					
2138020-9	NO					
2138041-1	NO					
2138041-2	NO					
2138043-6	NO					
2138161-1	NO					
2138161-2	NO					
2138161-3	NO					
2177376-1	NO					
2203109-6	NO					
2203455-1	NO					
2203455-7	NO					
2203455-8	NO					
2203455-9	NO					
2203515-5	NO					
2203516-7	NO					
2203516-8	NO					
2203516-9	NO					
2203663-5	NO					
2203773-7	NO					
2203919-1	NO					
2203973-2	NO					
2203973-5	NO					
2203973-6	NO					
2203973-7	NO					
2203973-8	NO					
2203973-9	NO					
2272033-1	NO					
2272723-1	NO					
2272723-5	NO					
2272723-9	NO					
2289050-1	NO					
2289050-2	NO					
2294430-1	NO					
2294430-5	NO					
2296698-1	NO					
2296700-3	NO					
2296700-6	NO					
2296701-1	NO					
2296701-3	NO					
2300498-1	NO					

Part Number	Part Discontinued per PCN	Customer Drawing	Alias Part Number(s)	Substitute Part Number	Substitute Alias Part Number(s)	Description Of Difference
2300498-2	NO					
2300498-6	NO					
2300498-7	NO					
2301631-2	NO					
2304305-2	NO					
2304306-1	NO					
2306039-1	NO					
2306271-1	NO					
2306883-1	NO					
2306884-1	NO					
2307223-1	NO					
2307235-1	NO					
2310207-1	NO					
2310239-1	NO					
2310242-1	NO					
2310242-2	NO					
2311069-1	NO					
2311069-3	NO					
2311069-4	NO					
2311069-5	NO					
2311069-6	NO					
2311071-1	NO					
2311073-9	NO					
2311074-1	NO					
2311075-1	NO					
2311077-1	NO					
2311077-2	NO					
2311084-1	NO					
2311084-2	NO					
2311084-3	NO					
2316020-1	NO					
2316023-1	NO					
2321028-1	NO					
2323660-1	NO					
2323661-1	NO					
2324336-1	NO					
2327375-1	NO					
2327375-2	NO					
2327611-1	NO					
2327611-2	NO					
2327904-1	NO					
2327904-2	NO					
2331832-1	NO					
2332200-6	NO					
2332200-7	NO					
2332470-1	NO					
2335239-1	NO					
2336315-1	NO					
2336318-1	NO					
2336334-1	NO					
2336677-1	NO					
2337306-1	NO					
2337311-1	NO					
2339949-1	NO					
2339949-2	NO					
2339949-3	NO					
2348609-1	NO					
2348609-3	NO					
2349476-1	NO					
2840368-2	NO					
2840595-1	NO					
2840624-1	NO					
2840789-1	NO					
2840822-1	NO					

Part Number	Part Discontinued per PCN	Customer Drawing	Alias Part Number(s)	Substitute Part Number	Substitute Alias Part Number(s)	Description Of Difference
2840837-1	NO					
2840838-1	NO					
2840960-1	NO					
2840960-2	NO					
3-1419171-9	NO					
3-1438099-1	NO					
3-1438099-4	NO					
3-1438099-5	NO					
3-1438103-1	NO					
3-1438103-3	NO					
3-1438103-4	NO					
3-1438103-8	NO					
3-1438691-1	NO					
3-1438693-1	NO					
3-1438693-2	NO					
3-1438693-6	NO					
3-1438841-2	NO					
3-1438841-5	NO					
3-1438841-8	NO					
3-1438950-5	NO					
3-1587041-0	NO					
3-1924513-2	NO					
3-1924513-6	NO					
3-1924513-8	NO					
3-1924672-4	NO					
3-1924672-7	NO					
3-1924939-0	NO					
3-1924939-1	NO					
3-1924939-4	NO					
3-1924939-5	NO					
3-1924939-8	NO					
3-2035383-3	NO					
3-2035383-5	NO					
3-2035383-7	NO					
3-2035383-8	NO					
3-2098269-1	NO					
3-2098269-2	NO					
3-2098269-3	NO					
3-2098269-6	NO					
3-2098269-7	NO					
3-2098269-8	NO					
3-2098922-0	NO					
3-2098922-3	NO					
3-2098922-5	NO					
3-2098922-7	NO					
3-2138020-1	NO					
3-2138020-2	NO					
3-2138020-4	NO					
3-2203654-2	NO					
3-2203654-4	NO					
3-2203654-5	NO					
3-2203663-1	NO					
3-2203663-3	NO					
3-2311078-0	NO					
3-2311078-1	NO					
3-2311078-2	NO					
3-2311078-3	NO					
3-2311078-4	NO					
3-2311078-5	NO					
3-2311078-6	NO					
3-2311078-7	NO					
3-2311078-9	NO					
3-2311082-0	NO					
3-2311082-2	NO					

Part Number	Part Discontinued per PCN	Customer Drawing	Alias Part Number(s)	Substitute Part Number	Substitute Alias Part Number(s)	Description Of Difference
3-2311082-5	NO					
3-2311082-6	NO					
3-2311082-7	NO					
3-2311082-8	NO					
3-2311082-9	NO					
319234-2	NO					
4-1419171-0	NO					
4-1419171-1	NO					
4-1438090-7	NO					
4-1438099-7	NO					
4-1438099-8	NO					
4-1438136-2	NO					
4-1438136-3	NO					
4-1438691-1	NO					
4-1438691-6	NO					
4-1438693-2	NO					
4-1438693-3	NO					
4-1438693-5	NO					
4-1438841-0	NO					
4-1438841-1	NO					
4-1438841-5	NO					
4-1456426-1	NO					
4-1488991-1	NO					
4-1488991-2	NO					
4-1587041-6	NO					
4-1924067-1	NO					
4-1924067-2	NO					
4-1924225-7	NO					
4-1924225-8	NO					
4-1924292-1	NO					
4-1924513-2	NO					
4-1924513-3	NO					
4-1924513-4	NO					
4-1924513-5	NO					
4-1924513-6	NO					
4-1924513-7	NO					
4-1924513-8	NO					
4-1924513-9	NO					
4-1924783-1	NO					
4-1924783-2	NO					
4-1924783-3	NO					
4-1924783-4	NO					
4-1924783-9	NO					
4-1924939-2	NO					
4-1924939-3	NO					
4-1924939-5	NO					
4-1924939-6	NO					
4-1924939-7	NO					
4-1924939-8	NO					
4-1924939-9	NO					
4-2035383-1	NO					
4-2035383-6	NO					
4-2035383-7	NO					
4-2035383-8	NO					
4-2035383-9	NO					
4-2098269-1	NO					
4-2098269-2	NO					
4-2098269-5	NO					
4-2098269-6	NO					
4-2098269-7	NO					
4-2098269-8	NO					
4-2098541-1	NO					
4-2098541-2	NO					
4-2098559-1	NO					

Part Number	Part Discontinued per PCN	Customer Drawing	Alias Part Number(s)	Substitute Part Number	Substitute Alias Part Number(s)	Description Of Difference
4-2098641-1	NO					
4-2098641-2	NO					
4-2098922-1	NO					
4-2098922-2	NO					
4-2098922-3	NO					
4-2098922-4	NO					
4-2098922-6	NO					
4-2098922-8	NO					
4-2103015-1	NO					
4-2103015-2	NO					
4-2103015-4	NO					
4-2103015-5	NO					
4-2103015-6	NO					
4-2103177-1	NO					
4-2103177-2	NO					
4-2103177-4	NO					
4-2103177-5	NO					
4-2103177-6	NO					
4-2103177-7	NO					
4-2103350-1	NO					
4-2103350-2	NO					
4-2103350-4	NO					
4-2103350-5	NO					
4-2103587-1	NO					
4-2103587-2	NO					
4-2203654-2	NO					
4-2203654-3	NO					
4-2203654-6	NO					
4-2203654-7	NO					
4-2203654-8	NO					
4-2203654-9	NO					
4-2203663-3	NO					
4-2203663-4	NO					
4-2203663-6	NO					
4-2203663-7	NO					
4-2203663-8	NO					
4-2203663-9	NO					
4-2272003-1	NO					
4-2272003-2	NO					
4-2272003-3	NO					
4-2272003-4	NO					
4-2272003-5	NO					
4-2272004-1	NO					
4-2272004-2	NO					
4-2272005-1	NO					
4-2272005-2	NO					
4-2272173-1	NO					
4-2272173-2	NO					
4-2272173-3	NO					
4-2840548-1	NO					
4-2840548-2	NO					
5-1438099-1	NO					
5-1438129-9	NO					
5-1438691-4	NO					
5-1438691-6	NO					
5-1438691-7	NO					
5-1438841-9	NO					
5-1557773-1	NO					
5-1557773-2	NO					
5-1557773-3	NO					
5-1557773-5	NO					
5-1557774-1	NO					
5-1557774-3	NO					
5-1557774-4	NO					

Part Number	Part Discontinued per PCN	Customer Drawing	Alias Part Number(s)	Substitute Part Number	Substitute Alias Part Number(s)	Description Of Difference
5-1557774-5	NO					
5-1557774-7	NO					
5-1557802-1	NO					
5-1557803-1	NO					
5-1557911-1	NO					
5-1557915-1	NO					
5-1557921-1	NO					
5-1557922-1	NO					
5-1587041-6	NO					
5-1587041-7	NO					
5-1924225-3	NO					
5-1924225-5	NO					
5-1924225-7	NO					
5-1924225-9	NO					
5-1924513-0	NO					
5-1924513-1	NO					
5-1924513-3	NO					
5-1924513-5	NO					
5-1924513-6	NO					
5-1924513-8	NO					
5-1924783-0	NO					
5-1924783-2	NO					
5-1924783-3	NO					
5-1924783-4	NO					
5-1924783-5	NO					
5-1924939-0	NO					
5-1924939-1	NO					
5-1924939-4	NO					
5-1924939-5	NO					
5-1924939-6	NO					
5-1924939-7	NO					
5-1924939-9	NO					
5-2035383-0	NO					
5-2035383-3	NO					
5-2035383-6	NO					
5-2098269-0	NO					
5-2098922-9	NO					
5-2103177-1	NO					
5-2203455-5	NO					
5-2203654-0	NO					
5-2203654-1	NO					
5-2203654-3	NO					
5-2203654-6	NO					
5-2203654-7	NO					
5-2203654-8	NO					
5-2203654-9	NO					
5-2203663-0	NO					
5-2203663-1	NO					
5-2203663-3	NO					
5-2203663-8	NO					
5-2203663-9	NO					
5-2272723-1	NO					
5-2272723-5	NO					
5-2272723-7	NO					
5-2272723-9	NO					
5-2311082-3	NO					
5-2311082-4	NO					
5-2311082-5	NO					
5-2311082-6	NO					
6-1438090-7	NO					
6-1438891-0	NO					
6-1438841-3	NO					
6-1438841-5	NO					
6-1438841-7	NO					

Part Number	Part Discontinued per PCN	Customer Drawing	Alias Part Number(s)	Substitute Part Number	Substitute Alias Part Number(s)	Description Of Difference
6-1924225-0	NO					
6-1924225-1	NO					
6-1924225-2	NO					
6-1924225-5	NO					
6-1924225-6	NO					
6-1924225-7	NO					
6-1924225-8	NO					
6-1924783-0	NO					
6-1924783-2	NO					
6-1924783-6	NO					
6-1924783-7	NO					
6-1924783-9	NO					
6-1924939-0	NO					
6-1924939-1	NO					
6-1924939-2	NO					
6-1924939-3	NO					
6-1924939-4	NO					
6-1924939-5	NO					
6-1924939-6	NO					
6-1924939-7	NO					
6-1924939-8	NO					
6-1924939-9	NO					
6-2035383-0	NO					
6-2035383-2	NO					
6-2035383-3	NO					
6-2035383-5	NO					
6-2035383-6	NO					
6-2035383-9	NO					
6-2098922-0	NO					
6-2098922-6	NO					
6-2098922-7	NO					
6-2098922-8	NO					
6-2103177-4	NO					
6-2203654-0	NO					
6-2203654-6	NO					
6-2203654-7	NO					
6-2203654-8	NO					
6-2203654-9	NO					
6-2203663-0	NO					
6-2203663-2	NO					
6-2203663-5	NO					
6-2203663-6	NO					
6-2203663-7	NO					
6-2203663-9	NO					
6-2272723-0	NO					
638514-1	NO					
638514-8	NO					
7-1438136-2	NO					
7-1438136-3	NO					
7-1438691-4	NO					
7-1438691-7	NO					
7-1438691-8	NO					
7-1438691-9	NO					
7-1438841-1	NO					
7-1438841-2	NO					
7-1438841-3	NO					
7-1438841-5	NO					
7-1438841-6	NO					
7-1456659-0	NO					
7-1456659-1	NO					
7-1456659-3	NO					
7-1456659-7	NO					
7-1456659-8	NO					
7-1456659-9	NO					

Part Number	Part Discontinued per PCN	Customer Drawing	Alias Part Number(s)	Substitute Part Number	Substitute Alias Part Number(s)	Description Of Difference
7-1924225-0	NO					
7-1924225-1	NO					
7-1924225-2	NO					
7-1924225-3	NO					
7-1924783-0	NO					
7-1924783-1	NO					
7-1924783-2	NO					
7-1924783-3	NO					
7-1924783-4	NO					
7-1924783-5	NO					
7-1924783-6	NO					
7-1924783-7	NO					
7-1924783-8	NO					
7-1924783-9	NO					
7-1924939-0	NO					
7-2035383-0	NO					
7-2035383-2	NO					
7-2035383-3	NO					
7-2035383-8	NO					
7-2098922-2	NO					
7-2098922-3	NO					
7-2098922-6	NO					
7-2098922-8	NO					
7-2203654-0	NO					
7-2203654-1	NO					
7-2203654-2	NO					
7-2203654-3	NO					
7-2203654-9	NO					
7-2203663-0	NO					
7-2203663-1	NO					
776905-8	NO					
8-1438129-4	NO					
8-1438129-5	NO					
8-1438136-2	NO					
8-1438691-0	NO					
8-1438691-1	NO					
8-1438691-2	NO					
8-1438691-3	NO					
8-1438691-4	NO					
8-1438691-5	NO					
8-1438691-7	NO					
8-1438691-8	NO					
8-1438841-3	NO					
8-1438841-4	NO					
8-1438841-5	NO					
8-1438950-3	NO					
8-1438950-5	NO					
8-1438950-6	NO					
8-1456659-0	NO					
8-1456659-7	NO					
8-1456659-9	NO					
8-1924783-1	NO					
8-2035383-0	NO					
8-2035383-3	NO					
8-2035383-9	NO					
828904-1	NO		"CF0547-000", "AMP-0-0828904-1", "80.264.00", "8202609390", "8202611101"			
828904-2	NO					
828922-1	NO		"EG9737-000", "AMP-0-0828922-1", "80.263.00", "820A-37376"			
828922-2	NO					
9-1438090-6	NO					
9-1438136-6	NO					
9-1438841-4	NO					

Part Number	Part Discontinued per PCN	Customer Drawing	Alias Part Number(s)	Substitute Part Number	Substitute Alias Part Number(s)	Description Of Difference
9-1438841-7	NO					
9-1456659-2	NO					
9-1456659-7	NO					
9-2035383-4	NO					
9-2035383-5	NO					
9-2035383-6	NO					
9-2035383-7	NO					
963292-1	NO					
963293-1	NO					
963530-1	NO		"1072609867", "820P-37717", "820P-37904", "43119-000"			
963531-1	NO		"1072607258"			
964972-1	NO					
967067-1	NO		"0-0967067-1", "EG9740-000", "AMP-0-0967067-1"			
967067-2	NO					



Product Change Notification

Current Date: 13-Nov-2019

TE Connectivity

Product Change Notification: P-19-018199

PCN Date: 11-NOV-19

TE would like to inform you of the following change(s) to the listed TE Connectivity Product. In case of any further questions about this change(s), please contact your TE Connectivity Sales Engineer. Affected part, drawing and/or specification numbers are listed on the attached sheet(s).

General Product Description:
Multiple Part numbers. Phase 1. Americas Footprint Optimization.

Description of Changes
We hereby inform you about a transfer of tools and/or processes of the components of the Finished Goods that we ship to you to further improve our Supply Chain towards our customers. The transfer follows a strict procedure, which fully maintains quality, ability to supply and form-fit-function of the concerned products. The receiving manufacturing location operates under a certified quality management system in accordance with standard automotive requirements. These moves will be validated not to affect product FFF, tool geometry or quality performance. TE will uphold our responsibility to internally validate and approve these tools among appropriate first article dimensional and capability analysis, comparative 2-sample T-tests before and after moves, before and after CT scans where needed, and PV test as defined by TE product engineering. TE is willing to provide any such validation data to our customers as our joint non-disclosure agreement statuses allow. AMEND with PCN P-19-018058

Reason for Changes:
Product improvement. These changes are part of an overall effort from TE to improve our supply chain toward our customers and to focus each plant on core products and processes. A TE-internal release test based on the relevant part specifications will be executed before delivery and this notification serves to fulfill our notification requirements as prescribed by AIAG 4th edition. This change notification document accompanies a letter sent to your organization on September 13, 2019 signed by our Vice President of Sales and Marketing. Follow up conversations can occur upon request with your sales contact within 15 calendar days after receipt of this PCN. TE can share validation data with your organization upon request. If you have any questions or needs from this move, please contact your sales engineer within 15 days of receipt of this letter. If no response is received on this period, TE will consider this as an approval and tools must move to the new locations.

Estimated Dates:

Last Order Date (Obsolete Parts Only):	First Date To Ship (Changed Parts Only):
	03-JAN-2020
Last Ship Date (Obsolete Parts Only):	Last Date for Mixed Shipments: (Changed Parts Only):
	No Mixed Shipments

Part Number(s) being Modified:

Part Number	Part Discontinued per PCN	Customer Drawing	Alias Part Number(s)	Substitute Part Number	Substitute Alias Part Number(s)	Description Of Difference
1-1438356-1	NO					
1-1438356-8	NO					
1-1438454-1	NO					
1-1924940-1	NO					
1-1924940-3	NO					
1-1924940-7	NO					
1-1924940-8	NO					
1-1924940-9	NO					
1-2203312-1	NO					
1-2203312-2	NO					
1-2203312-3	NO					
1-2203773-3	NO					
1438129-1	NO					
1438129-2	NO					
1438129-3	NO					
1456554-1	NO					
1557407-2	NO					
1557407-3	NO					
1557801-1	NO					
1557801-2	NO					
1557801-3	NO					
1557801-4	NO					
1557873-1	NO					
1587902-2	NO					
1670120-1	NO					
1670120-2	NO					

Part Number	Part Discontinued per PCN	Customer Drawing	Alias Part Number(s)	Substitute Part Number	Substitute Alias Part Number(s)	Description Of Difference
184002-1	NO					
184020-1	NO					
184097-1	NO					
184099-1	NO					
184344-1	NO					
184471-6	NO					
184471-8	NO					
2-1438693-0	NO					
2-1438693-1	NO					
2-1438693-8	NO					
2-1438693-9	NO					
2-1456659-4	NO					
2-1924225-9	NO					
2098557-1	NO					
2098557-2	NO					
2098557-4	NO					
2098557-7	NO					
2098559-5	NO					
2098559-6	NO					
2098559-7	NO					
2098559-8	NO					
2098863-5	NO					
2098863-6	NO					
2098863-7	NO					
2098863-8	NO					
2098863-9	NO					
2103149-1	NO					
2103149-4	NO					
2103149-7	NO					
2103534-1	NO					
2103534-2	NO					
2103534-4	NO					
2138089-1	NO					
2203654-5	NO					
2203654-9	NO					
2272763-1	NO					
2311072-1	NO					
2321027-1	NO					
2324337-1	NO					
3-1438136-4	NO					
3-1924783-0	NO					
3-1924783-7	NO					
3-1924783-8	NO					
3-1924783-9	NO					
4-2098557-1	NO					
4-2311082-0	NO					
4-2311082-1	NO					
4-2311082-2	NO					
4-2311082-4	NO					
4-2311082-5	NO					
4-2311082-6	NO					
4-2311082-7	NO					
4-2311082-8	NO					
5-1456659-3	NO					
5-1456659-8	NO					
5-1557909-1	NO					
5-1557910-1	NO					
5-1557910-2	NO					
5-1924670-0	NO					
5-2304580-1	NO					
6-1438136-2	NO					
6-1438136-8	NO					
6-1438136-9	NO					
6-1587041-6	NO					
6-1587041-9	NO					

Part Number	Part Discontinued per PCN	Customer Drawing	Alias Part Number(s)	Substitute Part Number	Substitute Alias Part Number(s)	Description Of Difference
776671-1	NO					
776834-3	NO					
776834-4	NO					
776834-5	NO					
776887-2	NO					
776887-3	NO					
776887-5	NO					
9-1438691-0	NO					
9-1438691-1	NO					
9-1438691-3	NO					
9-2301631-2	NO					
963294-1	NO					



Section 3

Customer Engineering Approval



ENGINEERING SAMPLE EVALUATION REPORT

PART NAME:
PLUG ASSEMBLY, 3 POSITION, 1.2mm MCON, 2pc, Class 3
Outer Housing Mold Move

PART NO.: See table below in "Change Details"

SUBMITTED BY:

CURRENT MANUFACTURING SITE:
 Pegg Road, Greensboro, NC

FUTURE MANUFACTURING SITE:
 Empalme, MX

TOOL MOVE:

PROCESS CHANGE:

MATERIAL/MATERIAL SUPPLIER CHANGE:

CAPACITY TOOL:

X

SUPPLIER: TE Connectivity

DATE SUBMITTED:
 2/13/2020

MADE TO DRAWING DATED:
 6W8T-14A464-EC

CHANGE DETAILS: Greensboro Consolidation
 As part of the Greensboro Consolidation, TE is moving the 3P 2pc MCON Plug Assembly Outer Housing mold (Mold M487681) from Pegg Road, Greensboro, NC to Empalme, MX.

This document is intended to obtain final approval for the testing performed to move the mold.

Ford Part Number	TE Part Number (Parent)	Component	Mold/Die Number
6W8T-14A464-EC	1488991-1	776933-1	M487681

APPROVED:

REJECTED:

PRODUCT ENGINEERING SIGNATURE*: *J. Chappelle*
 JCHAPP19 (Mar 2, 2020)

DATE: Mar 2, 2020

IDENTIFY WITH **REMARKS AFFECTING PRODUCT ENGINEERING CRITICAL REQUIREMENTS**

*By signing this document, you state that you have verified the physical part/s with the drawing/s and agree with key dimensional data, notes and appearance.

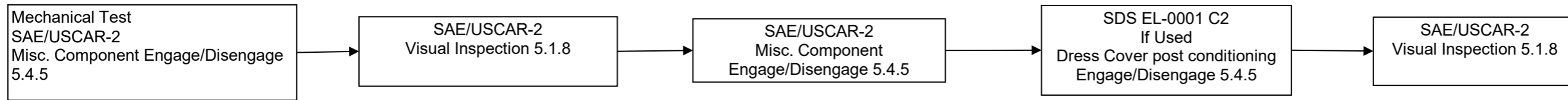


Design Verification Plan and Report

System: CPSC 18.01.07 Connectors		Ford part number (s): See ESER Tab		Model Year and Program: Multiple		Ford Design Engineer: Joe Chappelle <i>JChappelle</i> <small>JCHAPP19 (Mar 2, 2020)</small>			
Temperature Class	T3	T1, T2, T3, T4 T5	Supplier: TE Connectivity		Ford Design Engineer Approval Mar 2, 2020				
Vibration Class	V2	V1, V2, V3, V4, V5	Reason for Validation:	Tool Transfer	Part Level:	PV - production		Plan: 2/11/2020	Report: 2/13/2020
Sealing Class	S2	S1, S2, S3							

Test Name/Source	Acceptance Criteria	Test Results	Design Level Tested	Sample Size		Timing		Remarks
				Required	Tested	Sched.	Actual	

Group E -Mechanical Test Misc. Component Engage/Disengage 5.9.5



E-1. Visual Inspection - SAE/USCAR-2 5.1.8 To document the physical appearance of test samples.	The connectors assemblies must not show , with the aid of 10X magnification, any evidence of deterioration, cracks, deformities, etc., that could affect their functionality or distort their appearance. Connector locking mechanism must function without breaking	PASS			PV	10		2/10/2020	Test Request: 20200177ACL
E-2. Misc. Component Engage/Disengage 5.4.5	Acceptance Criteria found in USCAR 2 Table 5.4.5.2.4	Max	Min	Ave			2/10/2020		
E-2.d CPA Engage (Pre-set to Lock) SAE/USCAR-2, 5.4.5.2.3 A	Acceptance Criteria found in USCAR 2 Table 5.4.5.2.4	20.75N 92.73N	15.12N 70.96N	17.80N 80.84N			2/10/2020	Mated Unmated	
E-2.e CPA Disengage (Lock to preset) SAE/USCAR-2, 5.4.5.2.3 B	Acceptance Criteria found in USCAR 2 Table 5.4.5.2.4	15.21N	12.76N	13.96N			2/10/2020		
E-2.f CPA Disengage (Remove) SAE/USCAR-2, 5.4.5.2.3 B	Acceptance Criteria found in USCAR 2 Table 5.4.5.2.4	42.59N	40.28N	41.53N			2/10/2020		
E-5. Visual Inspection - SAE/USCAR-2 5.1.8 To document the physical appearance of test samples.	The connectors assemblies must not show , with the aid of 10X magnification, any evidence of deterioration, cracks, deformities, etc., that could affect their functionality or distort their appearance. Connector locking mechanism must function without breaking	PASS			PV	10		2/10/2020	

PF90012 Design Validation Plan & Report Document

Supplier:	TE Connectivity
Supplier Part Number:	X-1488991-X
Part Description	3P MCON 2pc, Top Latch
Lead Application:	
Lead Carline	
Lead MY:	
PF90012 Temperature Class	T3
PF90012 Vibration Class	V2

Were There Failures on Testing?	Yes
<i>(If yes, please explain on Failure Analysis Page)</i>	

Prepared By:	Stacie Ice
Date:	2/12/2020

Comments:	
This PV Report was to validate the move of Mold M487681 for TE Outer Housing PN 776933-X, per the TE/FCA Greensboro Consolidation agreement. Parts were originally validated to USCAR 2, rev 4 and this capacity testing also followed the same testing format.	



FIAT CHRYSLER AUTOMOBILES

Date:	Rev.	Content of Revision

FCA CoC Approval	
Laura Borthwick	<i>LJB</i> 2/19/2020
William Will	
Paul Dang	



Section 4

Design FMEA

See Section A for nondisclosure conditions.

The Design FMEA, if included, is a Class II confidential document belonging to TE Connectivity. A class II document may not be further distributed and is subject to the conditions of the nondisclosure agreement.



Section 5

Process Flow Diagram

See Section A for nondisclosure conditions.

The Process Flow Diagram, if included, is a Class II confidential document belonging to TE Connectivity. A class II document may not be further distributed and is subject to the conditions of the nondisclosure agreement.



Section 6

Process FMEA

See Section A for nondisclosure conditions.

The Process FMEA, if included, is a Class II confidential document belonging to TE Connectivity. A class II document may not be further distributed and is subject to the conditions of the nondisclosure agreement.



Section 7

Control Plan

See Section A for nondisclosure conditions.
The Control Plan, if included, is a Class II confidential document belonging to TE Connectivity. A class II document may not be further distributed and is subject to the conditions of the nondisclosure agreement.

Section 8

Measurement System Analysis



Gage Repeatability and Reproducibility (ANOVA)

Method: Externas - Internas	Equipment: Vernier	Elaborated Date: January 24, 2020 STANDARD RECORDS 2020-0273
Trainer: Miguel Rodriguez	ID Equipment: EEVE-426	
Area: MOLDEO	Sample Code: Moldeo-Vernier	
	Plant: Plant 2	

Number	Name
Operator A: 55694	Guillermo Hernandez
Operator B: 110596	Suseth Rodriguez
Operator C: 89173	Gretel Borbon

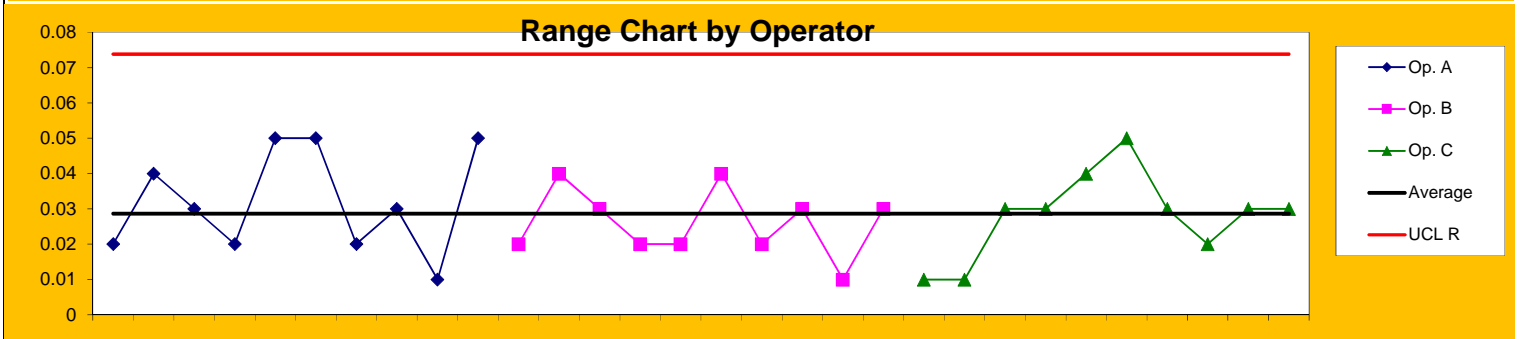
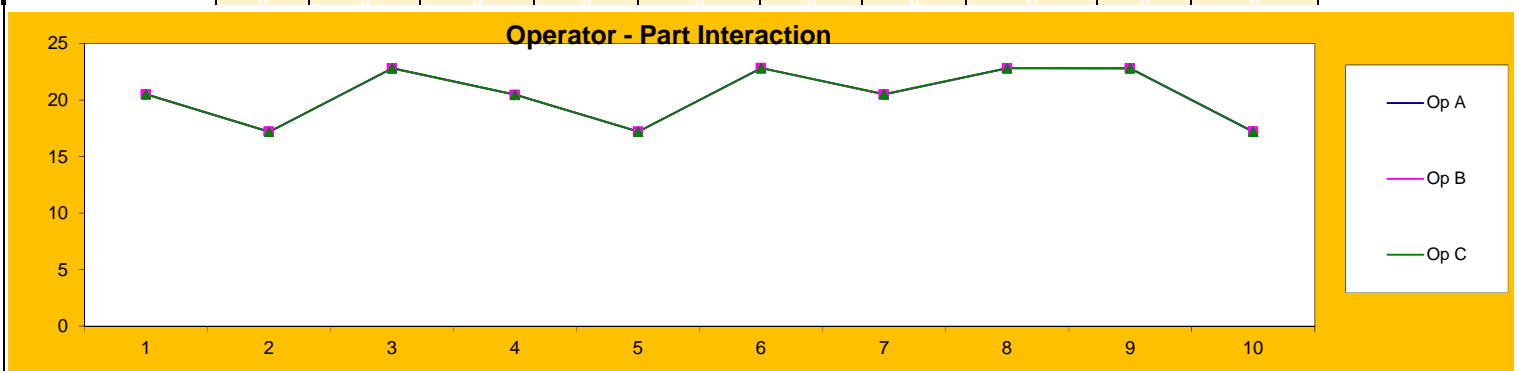
GR&R - %Study Variation:	0.62%
Number of Distinct Categories:	228
All points under line UCL R:	OK

Eng. Quality:	62982	Miguel Rodriguez
According Results:	Accepted	

Reason of the Study
Entrenamiento

# of Trials =	3	K ₁ =	0.5908	Xbar diff =	0.008333	D ₄ =	2.58
# of appraisers =	3	K ₂ =	0.5231	Rbarbar =	0.028667	R _p =	5.631111111
# of parts =	10	K ₃ =	0.3146	UCL R =	0.0740		

Appraiser/Trial #	Parts to measure										Average	
	1	2	3	4	5	6	7	8	9	10		
55694 Guillermo Hernandez	S-1	20.500	17.180	22.830	20.480	17.180	22.810	20.500	22.820	22.800	17.160	20.426
	S-2	20.510	17.190	22.800	20.470	17.210	22.840	20.510	22.830	22.810	17.200	20.437
	S-3	20.520	17.220	22.820	20.460	17.230	22.860	20.490	22.800	22.800	17.210	20.441
	Average	20.5100	17.1967	22.8167	20.4700	17.2067	22.8367	20.5000	22.8167	22.8033	17.1900	Xbar _a = 20.4347
Range	0.0200	0.0400	0.0300	0.0200	0.0500	0.0500	0.0200	0.0300	0.0100	0.0500	Rbar _a = 0.0320	
110596 Suseth Rodriguez	S-1	20.490	17.200	22.790	20.450	17.200	22.800	20.500	22.800	22.810	17.180	20.422
	S-2	20.510	17.190	22.820	20.460	17.190	22.820	20.510	22.800	22.810	17.210	20.432
	S-3	20.510	17.230	22.800	20.470	17.210	22.840	20.490	22.830	22.820	17.210	20.441
	Average	20.5033	17.2067	22.8033	20.4600	17.2000	22.8200	20.5000	22.8100	22.8133	17.2000	Xbar _b = 20.4317
Range	0.0200	0.0400	0.0300	0.0200	0.0200	0.0400	0.0200	0.0300	0.0100	0.0300	Rbar _b = 0.0260	
89173 Gretel Borbon	S-1	20.520	17.190	22.830	20.450	17.190	22.810	20.510	22.830	22.830	17.190	20.435
	S-2	20.510	17.200	22.800	20.480	17.200	22.830	20.530	22.820	22.810	17.220	20.44
	S-3	20.520	17.190	22.820	20.470	17.230	22.860	20.500	22.810	22.840	17.210	20.445
	Average	20.5167	17.1933	22.8167	20.4667	17.2067	22.8333	20.5133	22.8200	22.8267	17.2067	Xbar _c = 20.4400
Range	0.0100	0.0100	0.0300	0.0300	0.0400	0.0500	0.0300	0.0200	0.0300	0.0300	Rbar _c = 0.0280	



Gage Repeatability and Reproducibility (Crossed)

Method:	Externas - Internas	Equipment:	Vernier
Trainer:	Miguel Rodriguez	ID Equipment:	EEVE-426
Area:	MOLDEO	Sample Code:	Moldeo-Vernier
		Plant:	Plant 2

Elaborated Date:	January 24, 2020
STANDARD RECORDS	
2020-0273	

	Number	Name
Operator A:	55694	Guillermo Hernandez
Operator B:	110596	Suseth Rodriguez
Operator C:	89173	Gretel Borbon
Eng. Quality:	62982	Miguel Rodriguez
<u>According Results:</u>		Accepted

General Comments - Special Event

Gage R&R Study - ANOVA Method

Variance and Standard Deviation Components			
Source	St. Dev.	Variance	% of Variance
Total Gage R&R	0.015105	0.00022815	0.00%
Repeatability	0.016055	0.00025778	0.00%
Reproducibility	0	0	0.00%
Operator	0.00368	1.3539E-05	0.00%
Operator*Part	0	0	0.00%
Part to Part	2.451951	6.01206461	100.00%
Total Variation	2.451998	6.01229276	100.00%

Process Tolerance = 0

Gage R&R Using 5.15 Standard Deviations (99%)

Source	Study Variation	% Study Variation
Total Gage R&R	0.077789	0.62%
Repeatability	0.082686	0.65%
Reproducibility	0	0.00%
Operator	0.01895	0.15%
Operator*Part	0	0.00%
Part to Part	12.62755	100.00%
Total Variation	12.62779	100.00%

Gage R&R Using 6.0 Standard Deviations (99.7%)

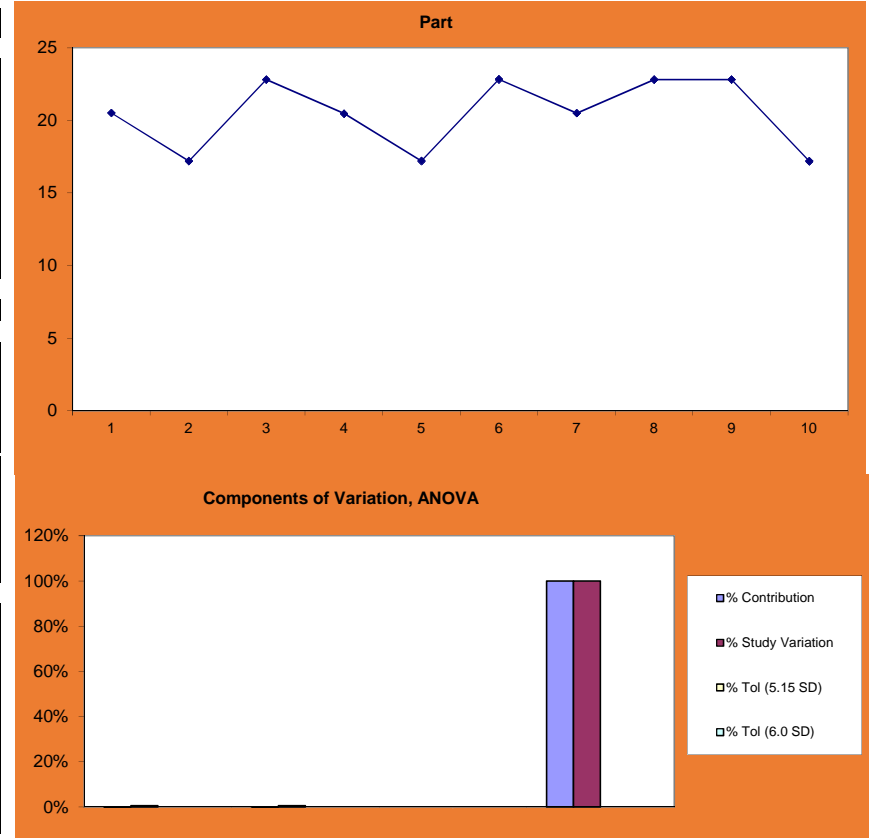
Source	Study Variation	% Study Variation
Total Gage R&R	0.090627	0.62%
Repeatability	0.096333	0.65%
Reproducibility	0	0.00%
Operator	0.022077	0.15%
Operator*Part	0	0.00%
Part to Part	14.71171	100.00%
Total Variation	14.71199	100.00%

Number of Distinct Categories = **228**

Analysis of Variance (ANOVA) Table

Source	DF	SS	MS	F	p
Part	9	486.9783878	54.1087098	209904.478	0.000
Operator	2	0.001068889	0.00053444	2.073	0.135
Op. x Part Interaction	18	0.002308889	0.00012827	0.498	0.949
Gage (error)	60	0.015466667	0.00025778		
Total	89	486.9972322			

p value for Op. x Part Interaction as error term = 0.25



Section 9

Dimensional Results

Final assembly dimensions not affected by this change.



Production Part Approval

DIMENSIONAL TEST RESULTS



TE Connectivity-Empalme is accredited by ANSI-ASQ National Accreditation Board for ISO/IEC 17025 under a defined calibration and/or testing scope.

ACT-1173

Organization: TE Connectivity	Part Number: 1488991-5
Supplier/Vendor Code: N/A	Part Name: CONNECTOR ASSEMBLY, FEMALE, 3 POSITION, SEALED, 1.2mm (STANDARD LATCH VERSION)
INSPECTION FACILITY: TE Connectivity Empalme Metrology lab	Design Record Change Level: DWG: C-1488991 REV: F10
	Engineering Change Documents: N/A
# Folio: 48307	Page 1 of 3

Item	Dim./Spec.	Spec. / Limits tol + tol -	Units	Organization Measurement Results (Data)						Ok	Not Ok	Instrument # ID
				SAMPLE 1	SAMPLE 2	SAMPLE 3	SAMPLE 4	SAMPLE 5	SAMPLE 6			
1	26.5	REFERENCE	mm.	26.56	26.55	26.55	26.56	26.55	26.56	✓		LMMC-010
2	15.6	REFERENCE	mm.	15.52	15.55	15.52	15.55	15.54	15.54	✓		LMMC-010
3	14.8	REFERENCE	mm.	14.76	14.80	14.77	14.80	14.77	14.76	✓		LMMC-010
4	4	REFERENCE	mm.	3.98	3.98	3.98	3.99	3.98	3.98	✓		LMMC-010
5	4	REFERENCE	mm.	3.98	3.96	3.97	3.97	3.97	3.97	✓		LMMC-010
6	18.8	REFERENCE	mm.	18.89	18.89	18.90	18.91	18.90	18.88	✓		LMMC-010
7	14.6	REFERENCE	mm.	14.54	14.56	14.56	14.55	14.54	14.57	✓		LMMC-010
8	19	REFERENCE	mm.	19.12	19.15	19.12	19.15	19.16	19.13	✓		LMMC-010
9	12.6	REFERENCE	mm.	12.44	12.43	12.45	12.43	12.43	12.45	✓		LMMC-010
10	10.8	REFERENCE	mm.	10.78	10.82	10.78	10.82	10.78	10.78	✓		LMMC-010
	10.8	REFERENCE	mm.	10.79	10.83	10.79	10.83	10.78	10.80	✓		
11	20.64	MINIMUM	mm.	OK	OK	OK	OK	OK	OK	✓		LMMC-010
12	PERIPHERAL SEAL MATERIAL: SILICON RUBBER. COLOR: GREEN. QTY: 1.		visual	OK	OK	OK	OK	OK	OK	✓		
13	TPA / SECONDARY LOCK MATERIAL: PBT, 30% GLASS FILLED. COLOR: RED. QTY: 1.		visual	OK	OK	OK	OK	OK	OK	✓		
14	INNER HOUSING MATERIAL: NYLON 6/6, 35% GLASS FILLED. COLOR: SEE TABLE. QTY: 1.		visual	OK	OK	OK	OK	OK	OK	✓		
15	OUTER HOUSING MATERIAL: NYLON 6/6, 35% GLASS FILLED. COLOR: BLACK. QTY: 1.		visual	OK	OK	OK	OK	OK	OK	✓		
16	CPA (WHEN APPLICABLE) MATERIAL: PBT, 30% GLASS FILLED. COLOR: RED. QTY: 1.		visual	OK	OK	OK	OK	OK	OK	✓		
NOTES:												
1	PART NUMBER 1488991-5 SHOWN ON DRAWING.			OK	OK	OK	OK	OK	OK	✓		
2	TPA AND CPA (WHEN APPLICABLE) ARE SHIPPED IN THEIR PRE-LATCHED POSITIONS. SEE INSTRUCTION SHEET 408-8928 FOR DIRECTIONS ON MOVING THE CPA AND TPA TO THE PRE-LATCHED POSITION, IF NECESSARY.			visual	OK	OK	OK	OK	OK	✓		

March 2006 CFG-1003
AEF004J-EG Rev: J

SIGNATURE Omar Sánchez	TITLE Metrology Chief	DATE December 5, 2019
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Production Part Approval

DIMENSIONAL TEST RESULTS



TE Connectivity-Empalme is accredited by ANSI-ASQ National Accreditation Board for ISO/IEC 17025 under a defined calibration and/or testing scope.

Organization: TE Connectivity	Part Number: 1488991-5
Supplier/Vendor Code: N/A	Part Name: CONNECTOR ASSEMBLY, FEMALE, 3 POSITION, SEALED, 1.2mm (STANDARD LATCH VERSION)
INSPECTION FACILITY: TE Connectivity Empalme Metrology lab	Design Record Change Level: DWG: C-1488991 REV: F10
	Engineering Change Documents: N/A
	# Folio: 48307 Page <u>2</u> of <u>3</u>

Item	Dim./Spec.	Spec. / Limits tol + tol -	Units	Organization Measurement Results (Data)						Ok	Not Ok	Instrument # ID
				SAMPLE 1	SAMPLE 2	SAMPLE 3	SAMPLE 4	SAMPLE 5	SAMPLE 6			
3	TERMINALS SOLD SEPARATELY, FOR USE WITH TE CONNECTIVITY MCON 1.2 mm CLEAN BODY CONTACT WITH WIRE SEAL, SEE MCON 1.2-CB (CLEAN BODY) TABLE FOR APPLICABLE PART NUMBERS.			NOTED PER APQP TEAM						✓		
4	APPLICABLE HEADER INTERFACE DRAWING 1488738 IS AVAILABLE UPON REQUEST. A COPY OF THIS DRAWING CAN BE OBTAINED FROM THE TE CONNECTIVITY PRODUCT MANAGER. VIA YOUR TE CONNECTIVITY SALES REPRESENTATIVE OR CUSTOMER SERVICE.			NOTED PER APQP TEAM						✓		
5	MINIMUM FEED THROUGH CONDITION WITH 0.5mm CLEARANCE ALL AROUND.			OK	OK	OK	OK	OK	OK	✓		
6	A "X" IN THIS TABLE INDICATES THAT THE TERMINAL CAVITY IS BLOCKED AND WILL NOT ALLOW INSERTION OF THE MATING TERMINAL A "O" IN THIS TABLE INDICATES THAT THE TERMINAL CAVITY IS OPEN AND WILL ALLOW INSERTION OF THE MATING TERMINAL.		visual	OK	OK	OK	OK	OK	OK	✓		
7	TRACEABILITY PRINTED IN THIS LOCATION AT ASSEMBLY.		visual	OK	OK	OK	OK	OK	OK	✓		
8	CONNECTOR SYSTEM MEETS THE REQUIREMENTS OF USCAR-2. REVISION 3. EXCEPT WHERE NOTED: TPA ENGAGE AND DISENGAGE FORCES ARE 10N MIN - 30N MAX. PRIMARY TERMINAL - CONNECTOR FORCE IS 30N MIN. SECONDARY TERMINAL-CONNECTOR FORCE IS 75N MIN. CPA ENGAGE AND DISENGAGE FORCES (WITH MATING CONNECTOR) ARE 30N MAX. CPA REMOVAL FORCE FROM CONNECTOR IS 15N MIN.			NOTED PER APQP TEAM						✓		
9	FOR OPTIONAL TERMINAL CAVITY BLOCKING, USE TE CONNECTIVITY BLIND PLUG PART NUMBER: 967056-1.		visual	OK	OK	OK	OK	OK	OK	✓		
10	TERMINAL 1670146-X REPLACES 1418847-X.		visual	OK	OK	OK	OK	OK	OK	✓		

March 2006 CFG-1003 AEF004J-EG Rev: J	SIGNATURE Omar Sánchez	TITLE Metrology Chief	DATE December 5, 2019
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Production Part Approval

DIMENSIONAL TEST RESULTS



TE Connectivity-Empalme is accredited by ANSI-ASQ National Accreditation Board for ISO/IEC 17025 under a defined calibration and/or testing scope.

ACT-1173

Organization: TE Connectivity	Part Number: 1488991-5
Supplier/Vendor Code: N/A	Part Name: CONNECTOR ASSEMBLY, FEMALE, 3 POSITION, SEALED, 1.2mm (STANDARD LATCH VERSION)
INSPECTION FACILITY: TE Connectivity Empalme Metrology lab	Design Record Change Level: DWG: C-1488991 REV: F10
	Engineering Change Documents: N/A
	# Folio: 48307 Page 3 of 3

Item	Dim./Spec.	Spec. / Limits tol + tol -	Units	Organization Measurement Results (Data)						Ok	Not Ok	Instrument # ID	
				SAMPLE 1	SAMPLE 2	SAMPLE 3	SAMPLE 4	SAMPLE 5	SAMPLE 6				
11	REFERENCE ISOMETRIC VIEWS ON SHEET 2.		visual	OK	OK	OK	OK	OK	OK	✓			
CONCLUSION:													
TOTAL # OF FEATURES										72			
LESS BASIC DIMENSIONS										0			
LESS REFERENCE DIMENSIONS										66			
REPORTED DIMENSIONS										6			
# DIMENSIONS IN TOLERANCE										6			
# DIMENSIONS OUT OF TOLERANCE										0			
% DIMENSION IN TOLERANCE										100.00 %			
% DIMENSION OUT OF TOLERANCE										0.00 %			



Section 10

Material, Performance Test Results

Certificate of Analysis

Customer:	Product Number	: 52568990
MAQUILAS TETAKAWI SA DE CV	Product Name	: ULTRAMID® A3EG7 BLACK 23189
CARRET INT KM 1969		POLYAMIDE 726KG FIBREBOARD IBC
85340 EMPALME SON	Vehicle	: 220351/15UC3G
	Batch/Lot	: A520018C1
Attention: BASFORDERINFO@TE.COM	Manuf.Date	: Jan-21-2020
eMAIL: BASFOderInfo@te.com	Shipped Date	: Mar-02-2020
Cust Prod: 702661-9	Shipped Quantity	: 9,603.336 LB
Cust Prod Name: ULT.A3EG7 BK23189 726KG 11G	Delivery Date	: Mar-02-2020
Cust P.O.: 2711392596	Order Number	: 117433342 000010
Cust P.O. Line: 1	Delivery Note	: 144304846 900001

Inspection Certificate 3.1 according to EN 10204

Characteristic	Result	UOM	-----Specification-----		Test Method
			Minimum	Maximum	
ASH-A	34.984	%	33.000	37.000	ASTMD5630
Moisture	0.07	%	-	0.15	ASTM6869 / ISO15512B
VN-PA	141	ml/g	130	160	ISO 307

Comments :

Results shown are the means of individual test values determined on samples taken during production of the lot specified.

This product is approved for the following specifications:

- MS-DB41 CPN 2224
- MS-DB41 CPN 3695
- M5600
- M53122

The information contained herein is based either on analytical tests of samples or on statistical process data; it is intended solely for purposes of comparison with the established specifications for the product. Warranties of the product are exclusively as set forth in the applicable contract documents.

Test Item	Test Requirement	Acceptance Criteria	Minimum Sample Size	Primary Terminal or Connector (****)										Secondary Terminal/Connector (****)										Notes		
				Sample Description		Test Number	Test Start Date	Test Completion Date	Test Results					Sample Description		Test Number	Test Start Date	Test Completion Date	Test Results							
				Terminal Size (mm)	Wire Size				Minimum	Maximum	Average	Standard Deviation	Pass/Fail	Terminal Size (mm)	Wire Size				Minimum	Maximum	Average	Standard Deviation	Pass/Fail			
Thermal Aging (Section 4.4.1) Test Sequence 31A																										
Pre Test Visual Examination (3.4)	Visually examine each test specimen before testing or conditioning	There shall not exhibit any evidence of deterioration, cracks and/or other deformities that could affect performance, function and/or appearance	10 Connector Pairs																							
Pre Test Isolation Resistance (4.3.5)	With mated connector pairs, apply 500VDC to adjacent terminal pairs, measure resistance 15s of stabilized reading. If the connector is equipped with a shorting bar, measure the resistance between the 2 terminal that are connected to the shorting bar	Isolation Resistance \geq 100M Ω																								
Pre Test Pressure/Vacuum Leak (Sealing Class 2) (3) (4.4.10)	Submerge test sample 300mm - 400mm in the salt water solution. Apply 7psig of pressure for 15 seconds. Switch the regulator source to vacuum 48kPa (7psig) for 15s.	Pressure - There shall be no loss of applied pressure and no bubbles visible exiting any test sample Vacuum - must meet isolation resistance acceptance criteria There must be no signs water inside the connector																								
Post Test Isolation Resistance (4.3.5)	With mated connector pairs, apply 500VDC to adjacent terminal pairs, measure resistance 15s of stabilized reading. If the connector is equipped with a shorting bar, measure the resistance between the 2 terminal that are connected to the shorting bar	Isolation Resistance \geq 100M Ω																								
Thermal Aging (4.4.1)	Place samples in chamber at the maximum temperature specified in GM 3191 Table 2 for a duration of 1008 hours.	Test samples shall meet visual examination requirements and all mechanical assists and/or other elements required to separate connectors for service shall function without breakage																								
Post Test Pressure/Vacuum Leak (Sealing Class 2) (3) (4.4.10)	Submerge test sample 300mm - 400mm in the salt water solution. Apply 4psig of pressure for 15 seconds. Switch the regulator source to vacuum 28kPa (4psig) for 15s.	Pressure - There shall be no loss of applied pressure and no bubbles visible exiting any test sample Vacuum - must meet isolation resistance acceptance criteria There must be no signs water inside the connector																								
Post Test Isolation Resistance (4.3.5)	With mated connector pairs, apply 500VDC to adjacent terminal pairs, measure resistance 15s of stabilized reading. If the connector is equipped with a shorting bar, measure the resistance between the 2 terminal that are connected to the shorting bar	Isolation Resistance \geq 100M Ω																								
Post Test Visual Examination (3.4)	Visually examine each test specimen after testing, note any observable changes, such as swelling, corrosion, discoloration, physical distortion, cracks, etc.	There shall be no corrosion, discoloration, cracks, etc which could affect the functionality of the part																								

Sealed Connector Environmental Tests

Test	USCAR req't	Deviation	Orig Val	Greensboro	Empalme
Connector to Connector Mating Force, TPA engaged	75N Max		Min: 16.04 Max: 20.08	Min: 16.78N Max: 18.25N	Min: 17.37N Max: 20.08N
Connector to Connector Un-Mating Force, TPA engaged, CPA not engaged	110 N Min.		Min: 137.70 Max: 171.70	Min: 152.99 Max: 176.20N	Min: 161.71N Max: 184.80N
Misc Component Engage/Disengage Force - CPA, Pre-set to Full Install (locked), no terminals, unmated	60N Min		Not tested	Min: 79.60N Max: 97.60N	Min: 70.96N Max: 92.73N
Misc Component Engage/Disengage Force - CPA, Pre-set to Full Install (locked), no terminals, mated	22N Max	30N Max Per Print	Small CPA 1488787-1 not tested	Min: 16.72N Max: 20.58N	Min: 15.12N Max: 20.75N
Misc Component Engage/Disengage Force - CPA, Full Install (locked) to Pre-set, no terminals, mated	10N Min 30N Max	30N Max Per Print	Small CPA 1488787-1 not tested	Min: 11.94N Max: 14.92N	Min: 12.76N Max: 15.21N
Misc Component Engage/Disengage Force - CPA, Pre-lock to Complete Removal, no terminals, unmated	30N Min	15N Min Per Print	Small CPA 1488787-1 not tested	Min: 40.13N Max: 43.05N	Min: 40.28N Max: 42.59N

DESIGN VERIFICATION PLAN AND REPORT			Date:	2/12/2020
Assembly/Part Number: X-1488991-X	Component Description: 3P 2pc MCON CB Plug Assembly, Top Latch, Class 3	Design Engineer: Stacie Ice		
System: N/A	Subsystem: N/A	DVP&R Level: <input type="checkbox"/> Prototype <input type="checkbox"/> Production		
Specifications: Chrysler PF90012 (Class TBD) Revision 1; USCAR 2, Rev 4				

Test Type	Test Sub-Category	Acceptance Criteria	Test Results				Minimum Required Data Points	Timing		Notes
			DV		PV			Sched	Actual	
			Pass/Fail	Result	Pass/Fail	Result		Start / End	Start / End	

Terminal - Connector Insertion/Retention Force PF90012.6.4.2 A-B									
---	--	--	--	--	--	--	--	--	--

Connector - Mechanical			Test Results					Timing		
			DV		PV			Sched	Actual	
			Pass/Fail	Result	Pass/Fail	Result		Start / End	Start / End	
Insertion Force 6.4.2.A	Insertion effort must be smooth with no stalling or false lock-up. Maximum Insertion Force (by wire cross section): < 1 mm ² : ≤ 15N = 1mm ² : ≤ 20N > 1mm ² : ≤ 30N	TBD	TBD	TBD	TBD	10 Lg Data Points 10 Sm Data Points See Sec. 6.4.2.A.B Notes 1 & 2	TBD	TBD		
	Forward stop must withstand a push-through force of: (By Terminal Size) 0.50mm: > 35N > 0.50mm: > 50N	TBD	TBD	TBD	TBD		TBD	TBD		
	Mating of a terminal with ISL fully seated shall not be possible.	TBD	TBD	TBD	TBD		TBD	TBD		
	A minimum load of at least twice the limits of maximum Insertion Force above is required for seated PLR's.	TBD	TBD	TBD	TBD		TBD	TBD		
Retention Force w/o Secondary Lock 6.4.2.B	Terminal retention w/o secondary lock: Terminal Size: ≤0.64: 30 N Min ≤ 1.5mm 45N Min ≤ 2.8mm 60N Min ≤ 6.3mm 80N Min ≤9.5mm 100N Min	TBD	TBD	TBD	TBD	10 Data Points Each Test	TBD	TBD		
Retention Force w/ Secondary Lock 6.4.2.B	Post Moisture Conditioning Terminal Size: ≤0.64: 60 N Min ≤ 1.5mm 70N Min ≤ 2.8mm 100N Min ≤ 6.3mm 130N Min ≤9.5mm 150N Min >9.5mm 200N Min	TBD	TBD	TBD	TBD	10 Data Points Each Test	TBD	TBD	NOTE 1: Includes connectors not designed for use with secondary lock.	

DESIGN VERIFICATION PLAN AND REPORT			Date:	2/12/2020
Assembly/Part Number:	Component Description:		Design Engineer:	Stacie Ice
X-1488991-X	3P 2pc MCON CB Plug Assembly, Top Latch, Class 3			
System	Subsystem		DVP&R Level:	<input type="checkbox"/> Prototype
N/A	N/A			<input type="checkbox"/> Production
Specifications: Chrysler PF90012 (Class <i>TBD</i>) Revision 1; USCAR 2, Rev 4				

Test Type	Test Sub-Category	Acceptance Criteria	Test Results				Minimum Required Data Points	Timing		Notes	
			DV		PV			Sched	Actual		
			Pass/Fail	Result	Pass/Fail	Result		Start / End	Start / End		
Terminal/Cavity Polarization Test -- PF90012 6.4.2 C											
Connector - Mechanical	Terminal/Cavity Polarization Test 6.4.2.C	Terminals inserted at a force 1.5 times the normal insertion force or 15N (whichever is greater) in any incorrect orientation shall not fit or lock into a connector cavity beyond the insulation wings (grips) or cable seal (see Figure 16). There shall be no visible damage to either the terminal or connector that would prevent subsequent correct insertion and function following any attempt at incorrect insertion per this procedure. The expert evaluation shall be completed and	TBD	TBD	TBD	TBD	10 LRG Data points per applicable orientation (minimum 4, see 6.4.2.C.A)	TBD	TBD	NOTE: Where wire buckling and operator sensitivity cause problems in obtaining test repeatability, terminals may be crimped to a gage pin, solid core wire, or other metal dowel material and used to obtain measurements. Samples prepared in this manner require additional connector samples.	
	Connector to Connector Mating/Unmating Force (Non-mechanical Assist Connectors) -- PF90012 6.4.2 D										
	Mating Force 6.4.2.D	Conn mating force shall adhere to USCAR-25: Small grip area < 22 N Medium grip area < 45 N Large grip area < 75 N.	PASS	Min: 16.78N, Max: 18.25N	PASS	Min: 17.37N, Max: 20.08N	10 Data Points	2/11/2020	2/11/2020	Test Request: 20200177ACL See Notes 1,2,3 in acceptance criteria	
	Unmating Force 6.4.2.D	Disengage force < 75N with lock disabled, w/o CPA	TBD	TBD	TBD	TBD	10 Data Points w/o terminals 5 Data Points w/ Terminals	2/11/2020	2/11/2020	See Note in Acceptance Criteria regarding latches with difficult service locations.	
Disengage force > 110N with lock enabled, w/o CPA		PASS	Min: 152.99, Max: 176.20N	PASS	Min: 161.71N, Max: 184.80N						
Force to Service: $6N \leq F \leq 51N$ w/o CPA		TBD	TBD	TBD	TBD						

DESIGN VERIFICATION PLAN AND REPORT			Date:	2/12/2020
Assembly/Part Number:	Component Description:		Design Engineer:	Stacie Ice
X-1488991-X	3P 2pc MCON CB Plug Assembly, Top Latch, Class 3			
System	Subsystem		DVP&R Level:	<input type="checkbox"/> Prototype
N/A	N/A			<input type="checkbox"/> Production
Specifications:				
Chrysler PF90012 (Class TBD) Revision 1; USCAR 2, Rev 4				

Test Type	Test Sub-Category	Acceptance Criteria	Test Results				Minimum Required Data Points	Timing		Notes
			DV		PV			Sched	Actual	
			Pass/Fail	Result	Pass/Fail	Result		Start / End	Start / End	
Connector to Connector Mating/Unmating Force (Mechanically Assisted Connectors) -- PF90012 6.4.2 E										
Connector - Mechanical	Pre-Lock Insertion/Removal 6.4.2 E Test A-B	Conn. to pre-lock shall adhere to USCAR 25: Small grip area < 22 N Medium grip area < 45 N Large grip area < 75 N.	TBD	TBD	TBD	TBD	10 Data Points	TBD	TBD	
		The force required to unseat the connector from pre-lock position shall be $\geq 15N$ and $\leq 75 N$.	TBD	TBD	TBD	TBD		TBD	TBD	
		The force required to move the lever from its shipping position while the connector IS NOT in pre-stage position: Class 1 and 2 connectors: 60N Min Class 3 connectors: 90N Min	TBD	TBD	TBD	TBD				
	Lock Insertion/Removal Force 6.4.2 E Test C	The force required to move the lever to and from the locked (engaged) position shall meet the requirements of USCAR- Class 1: 22N Max Class 2: 45N Max Class 3: 75N Max	TBD	TBD	TBD	TBD	10 Data Points For Each Test	TBD	TBD	
		The minimum force required to release the assist feature without depressing the release mechanism (if applicable) shall be $\geq 60 N$ for a fully mated connector.	TBD	TBD	TBD	TBD				
	Connector Latch Retention Force 6.4.2 E Test D	Un-mating force must be $\geq 110N$ with the primary lock fully engaged. A CPA must NOT be engaged.	TBD	TBD	TBD	TBD	5 Data Points	TBD	TBD	
		Un-mating force must be $\leq 75N$ with the primary lock completely disengaged/disabled.	TBD	TBD	TBD	TBD	1 Data Point			
Lever Release Latch Actuation Force 6.4.2 E Test E	The force to completely disengage the secondary connector lock, F, is $6N < F \leq 51N$	TBD	TBD	TBD	TBD	5 Data Points	TBD	TBD		

DESIGN VERIFICATION PLAN AND REPORT			Date:	2/12/2020
Assembly/Part Number:	Component Description:		Design Engineer:	Stacie Ice
X-1488991-X	3P 2pc MCON CB Plug Assembly, Top Latch, Class 3			
System	Subsystem		DVP&R Level:	<input type="checkbox"/> Prototype
N/A	N/A			<input type="checkbox"/> Production
Specifications:				
Chrysler PF90012 (Class <i>TBD</i>) Revision 1; USCAR 2, Rev 4				

Test Type	Test Sub-Category	Acceptance Criteria	Test Results				Minimum Required Data Points	Timing		Notes
			DV		PV			Sched	Actual	
			Pass/Fail	Result	Pass/Fail	Result		Start / End	Start / End	
Polarization Feature Effectiveness -- PF90012 6.4.2 F										
Connector - Mechanical	Polarization Feature Effectiveness 6.4.2.F	Minimum mis-mating force \geq 150N or 3 times the normal mating force unless otherwise specified. No electrical contact can be made under an applied force of less than 150N	TBD	TBD	TBD	TBD	1 Data Points For Each Incorrect Orientation or Mix-Index	TBD	TBD	
		No physical damage is permissible to mating halves. Expert evaluation has been completed	TBD	TBD	TBD	TBD	1 Data Points For Each Incorrect Orientation or Mix-Index	TBD	TBD	
	Scoop-Proofing -- PF90012 6.4.2 G									
	Scoop-Proofing 6.4.2 G	Based on the component manufacturer's drawings there shall be no deformation of male and female terminals, no internal damage to the female spring and no visible damage to either half of the connector housings.	TBD	TBD	TBD	TBD	1 Populated Pair per Polarity	TBD	TBD	
		Both connector housings must have sufficient plastic lead-in alignment features to prevent bent/damaged terminals.	TBD	TBD	TBD	TBD	N/A	TBD	TBD	
	Connector Seal Retention -- PF90012 6.4.2 H									
	Connector Seal Retention 6.4.2 H	Force to remove perimeter seal from female connector shall be $>$ 10N.	TBD	TBD	TBD	TBD	5 Data Points	TBD	TBD	
		Seal shall remain on the connector and in its design intended position to ensure connector system will pass sealing requirements defined in this document.	TBD	TBD	TBD	TBD	1 Conditioned Mated Pair			

DESIGN VERIFICATION PLAN AND REPORT			Date:	2/12/2020
Assembly/Part Number:	Component Description:		Design Engineer:	Stacie Ice
X-1488991-X	3P 2pc MCON CB Plug Assembly, Top Latch, Class 3			
System	Subsystem		DVP&R Level:	<input type="checkbox"/> Prototype
N/A	N/A			<input type="checkbox"/> Production
Specifications: Chrysler PF90012 (Class TBD) Revision 1; USCAR 2, Rev 4				

Test Type	Test Sub-Category	Acceptance Criteria	Test Results				Minimum Required Data Points	Timing		Notes
			DV		PV			Sched	Actual	
			Pass/Fail	Result	Pass/Fail	Result		Start / End	Start / End	
Miscellaneous Component Engage/Disengage Force -- PF90012 6.4.2 I-J										
Connector - Mechanical	Engage/Disengage Force TPA/ISL 6.4.2 I	Pre-set to Full Install: 20N < F < 40N without terminals 20N < F < 40N with terminals (properly installed)	TBD	TBD	TBD	TBD	10 Data Points Each Test	TBD	TBD	Force (F): Add 40N to the maximum force required to seat the device when all terminals are located properly. The minimum force is 80N for ≥1.5mm nominal size terminals and 60N for <1.5mm terminals.
		With Improperly Installed Terminals (1) ISL/TPA must not seat when force (F) is applied (2) Terminal Retention meets 6.4.2.B	TBD	TBD	TBD	TBD				
		Full Install to Pre-set: 20N < F < 45N	TBD	TBD	TBD	TBD				
		Removal from Housing: 20N Min	TBD	TBD	TBD	TBD				
		Connection Mating Force with ISL/TPA Improperly Assembled: Minimum 2x the mating force of the connector pair	TBD	TBD	TBD	TBD				
	Engage/Disengage Force CPA 6.4.2 J	Pre-set to Full Install: 60N Min unmated connector 15N Min -30N Max mated connector	PASS	Min: 79.60N, Max: 97.60N Min: 16.72N, Max: 20.58N	PASS	Min: 70.96N, Max: 92.73N Min: 15.12N, Max: 20.75N	10 Data Points Each Test	2/10/2020	2/10/2020	Test Request: 20200177ACL This test is required for connectors with CPAs only. See Note 1 for Squib Connections and Active CPA's
		Full Install to Pre-set: 15N Min-30N Max	FAIL	Min: 11.94N, Max: 14.92N	FAIL	Min: 12.76N, Max: 15.21N				
		Removal from housing: 60N Min	FAIL	Min: 40.13N, Max: 43.05N	FAIL	Min: 40.28N, Max: 42.59N				
	Engage/Disengage Force Wire Shield	Insertion Force 60N Max	TBD	TBD	TBD	TBD	10 Data Points Each Test	2/10/2020	2/10/2020	This test is required for connectors with wire shields only
		Extraction Force 110N Min	TBD	TBD	TBD	TBD				

DESIGN VERIFICATION PLAN AND REPORT				Date:	2/12/2020
Assembly/Part Number: X-1488991-X	Component Description: 3P 2pc MCON CB Plug Assembly, Top Latch, Class 3			Design Engineer:	Stacie Ice
System: N/A	Subsystem: N/A			DVP&R Level:	<input type="checkbox"/> Prototype <input type="checkbox"/> Production
Specifications: Chrysler PF90012 (Class <i>TBD</i>) Revision 1; USCAR 2, Rev 4					

Test Type	Test Sub-Category	Acceptance Criteria	Test Results				Minimum Required Data Points	Timing		Notes
			DV		PV			Sched	Actual	
			Pass/Fail	Result	Pass/Fail	Result		Start / End	Start / End	
Connector to Connector Audible Click -- PF90012 6.4.2 M										
	Connector to Connector Audible Click USCAR 5.4.7	No Criteria Required Values to be documented in Test Report	TBD	TBD	TBD	TBD	16 Data points	TBD	TBD	TEST IS FOR REFERENCE ONLY
Connector Drop Test -- PF90012 6.4.2 N										
	Connector Drop Test 6.4.2. M	Must pass Visual Inspection after test is performed. Components shall not be displaced from their intended shipping position All connectors with body mounting or sealing features must not exhibit any damage that would inhibit function	TBD	TBD	TBD	TBD	18 Data Points (3 for each connector surface)	TBD	TBD	
Connector Mounting Feature Mechanical Strength -- PF90012 6.4.2 O										
	Mounting Feature Mechanical Strength 6.4.2. O	The minimum force required to break the mounting feature or separate the connector from the mounting feature in the direction: F1 to F5 > 50 N F6 > 110N	TBD	TBD	TBD	TBD	30 Data points (5 for each direction)	TBD	TBD	
Mounting Clip Performance -- PF90012 6.4.2 P										
Connector - Mechanical	Mounting Clip Performance 6.4.2 P	Engagement force for Clip to Connector 40N Max	TBD	TBD	TBD	TBD	5 Data Points Each Test	TBD	TBD	
		Retention force for Clip to Connector 120N Min	TBD	TBD	TBD	TBD				
		Engagement force for Clip to Panel 45N Max	TBD	TBD	TBD	TBD				
		Retention force for Clip to Panel 110N Min	TBD	TBD	TBD	TBD				

DESIGN VERIFICATION PLAN AND REPORT			Date:	2/12/2020
Assembly/Part Number:	Component Description:		Design Engineer:	Stacie Ice
X-1488991-X	3P 2pc MCON CB Plug Assembly, Top Latch, Class 3			
System	Subsystem		DVP&R Level:	<input type="checkbox"/> Prototype
N/A	N/A			<input type="checkbox"/> Production
Specifications:				
Chrysler PF90012 (Class TBD) Revision 1; USCAR 2, Rev 4				

Test Type	Test Sub-Category	Acceptance Criteria	Test Results				Minimum Required Data Points	Timing		Notes
			DV		PV			Sched	Actual	
			Pass/Fail	Result	Pass/Fail	Result		Start / End	Start / End	
Mechanical Assist Integrity (Mechanically Assist Connectors) -- PF90012 6.4.2 Q										
	Mechanical Assist 6.4.2. Q	The lever/slide must withstand a 100N force in both the F direction and direction opposite of F in the open and closed positions without separation or damage.	TBD	TBD	TBD	TBD	5 Data Points	TBD	TBD	
		The lever/slide must withstand a 60N force in the midpoint position (lever halfway closed) in both the F direction and direction opposite of F without separation or damage	TBD	TBD	TBD	TBD				
Header Pin Retention -- PF90012 6.4.3 A										
	Header Pin Retention 6.4.3 A	terminal size < 1.2 : 15N Min terminal size ≥ 1.2: 50N Min **Record force required to displace terminal 0.2mm within housing or board attachment.**	TBD	TBD	TBD	TBD	10 Data points	TBD	TBD	This test is required for Header Connectors only
Vibration/Mechanical Shock -- PF90012 6.4.2 K										
	Visual Examination 6.2.1	There shall be no corrosion, discoloration, cracks, etc., which could affect the functionality of the part Swelling or physical distortion shall not exceed the tolerances specified on the part drawing.	TBD	TBD	TBD	TBD	10 Connector Pairs	TBD	TBD	
	Connector Conditioning 1.8.2	Conditioning Step Only	N/A	N/A	N/A	N/A	10 Connector Pairs	TBD	TBD	
	Dry Circuit Resistance 6.3.6 A	Total connection resistance (crimp-to-crimp): ≤ 0.64mm 10.0mΩ Max ≤ 1.50mm 8.0mΩ Max ≤ 2.80mm 5.0mΩ Max ≤ 6.35mm 1.5mΩ Max > 6.35mm 1.5mΩ Max While shorted resistance shall be < 20 mΩ	TBD	TBD	TBD	TBD	10 Data Points	TBD	TBD	
	Mechanical Shock 6.4.2 K	Conditioning Step Only	N/A	N/A	N/A	N/A	10 Connector Pairs	TBD	TBD	

DESIGN VERIFICATION PLAN AND REPORT								Date:	2/12/2020
Assembly/Part Number: X-1488991-X		Component Description: 3P 2pc MCON CB Plug Assembly, Top Latch, Class 3				Design Engineer:		Stacie Ice	
System: N/A			Subsystem: N/A			DVP&R Level:		<input type="checkbox"/> Prototype <input type="checkbox"/> Production	
Specifications: Chrysler PF90012 (Class <i>TBD</i>) Revision 1; USCAR 2, Rev 4									

Test Type	Test Sub-Category	Acceptance Criteria	Test Results				Minimum Required Data Points	Timing		Notes
			DV		PV			Sched	Actual	
			Pass/Fail	Result	Pass/Fail	Result		Start / End	Start / End	
Connector-Electrical Testing	Circuit Continuity 6.4.2 K	No loss of electrical continuity for more than 1μ second. 1μ sec > Resistance of terminal pair > 7Ω	TBD	TBD	TBD	TBD	10 Connector Pairs	TBD	TBD	Refer to Figure 20
	Dry Circuit Resistance 6.3.6 A	Total connection resistance (crimp-to-crimp): ≤ 0.64mm 10.0mΩ Max ≤ 1.50mm 8.0mΩ Max ≤ 2.80mm 5.0mΩ Max ≤ 6.35mm 1.5mΩ Max > 6.35mm 1.5mΩ Max While shorted resistance shall be < 20 mΩ	TBD	TBD	TBD	TBD	10 Data Points	TBD	TBD	
	Vibration 6.4.2 L	Conditioning Step Only	N/A	N/A	N/A	N/A	10 Connector Pairs	TBD	TBD	
	Circuit Continuity 6.4.2 K	No loss of electrical continuity for more than 1μ second. 1μ sec > Resistance of terminal pair > 7Ω	TBD	TBD	TBD	TBD	10 Connector Pairs	TBD	TBD	Refer to Figure 20
	Dry Circuit Resistance 6.3.6 A	Total connection resistance (crimp-to-crimp): ≤ 0.64mm 10.0mΩ Max ≤ 1.50mm 8.0mΩ Max ≤ 2.80mm 5.0mΩ Max ≤ 6.35mm 1.5mΩ Max > 6.35mm 1.5mΩ Max While shorted resistance shall be < 20 mΩ	TBD	TBD	TBD	TBD	10 Data Points	TBD	TBD	
	Voltage Drop 6.3.6 B	Total connection resistance (crimp-to-crimp): ≤ 0.64mm 10.0mΩ Max ≤ 1.50mm 8.0mΩ Max ≤ 2.80mm 5.0mΩ Max ≤ 6.35mm 1.5mΩ Max > 6.35mm 1.5mΩ Max	TBD	TBD	TBD	TBD	10 Data Points	TBD	TBD	
	Visual Examination 6.2.1	There shall be no corrosion, discoloration, cracks, etc., which could affect the functionality of the part Swelling or physical distortion shall not exceed the tolerances specified on the part drawing.	TBD	TBD	TBD	TBD	10 Connector Pairs	TBD	TBD	

DESIGN VERIFICATION PLAN AND REPORT			Date:	2/12/2020
Assembly/Part Number:	Component Description:		Design Engineer:	Stacie Ice
X-1488991-X	3P 2pc MCON CB Plug Assembly, Top Latch, Class 3			
System	Subsystem		DVP&R Level:	<input type="checkbox"/> Prototype
N/A	N/A			<input type="checkbox"/> Production
Specifications: Chrysler PF90012 (Class <i>TBD</i>) Revision 1; USCAR 2, Rev 4				

Test Type	Test Sub-Category	Acceptance Criteria	Test Results				Minimum Required Data Points	Timing		Notes
			DV		PV			Sched	Actual	
			Pass/Fail	Result	Pass/Fail	Result		Start / End	Start / End	
Thermal Shock -- PF90012 Section 5.2.1 (Electrical)										
Connector-Electrical Testing	Visual Examination 6.2.1	There shall be no corrosion, discoloration, cracks, etc., which could affect the functionality of the part Swelling or physical distortion shall not exceed the tolerances specified on the part drawing.	TBD	TBD	TBD	TBD	10 Connector Pairs	TBD	TBD	
	Connector Conditioning 1.8.2	Conditioning Step Only	N/A	N/A	N/A	N/A	10 Connector Pairs	TBD	TBD	
	Dry Circuit Resistance 6.3.6 A	Total connection resistance (crimp-to-crimp): ≤ 0.64mm 10.0mΩ Max ≤ 1.50mm 8.0mΩ Max ≤ 2.80mm 5.0mΩ Max ≤ 6.35mm 1.5mΩ Max While shorted resistance shall be < 20 mΩ	TBD	TBD	TBD	TBD	10 Data Points	TBD	TBD	
	Thermal Shock 6.4.2 K	Conditioning Step Only	N/A	N/A	N/A	N/A	10 Connector Pairs	TBD	TBD	
	Circuit Continuity 6.4.2 K	No loss of electrical contiinuity for more than 1μ second. 1μ sec > Resistance of terminal pair > 7Ω	TBD	TBD	TBD	TBD	10 Connector Pairs	TBD	TBD	Refer to Figure 20
	Dry Circuit Resistance 6.3.6 A	Total connection resistance (crimp-to-crimp): ≤ 0.64mm 10.0mΩ Max ≤ 1.50mm 8.0mΩ Max ≤ 2.80mm 5.0mΩ Max ≤ 6.35mm 1.5mΩ Max While shorted resistance shall be < 20 mΩ	TBD	TBD	TBD	TBD	10 Data Points	TBD	TBD	
	Voltage Drop 6.3.6 B	Total connection resistance (crimp-to-crimp): ≤ 0.64mm 10.0mΩ Max ≤ 1.50mm 8.0mΩ Max ≤ 2.80mm 5.0mΩ Max ≤ 6.35mm 1.5mΩ Max	TBD	TBD	TBD	TBD	10 Data Points	TBD	TBD	
	Visual Examination 6.2.1	There shall be no corrosion, discoloration, cracks, etc., which could affect the functionality of the part Swelling or physical distortion shall not exceed the tolerances specified on the part drawing.	TBD	TBD	TBD	TBD	10 Connector Pairs	TBD	TBD	

DESIGN VERIFICATION PLAN AND REPORT			Date:	2/12/2020
Assembly/Part Number:	Component Description:		Design Engineer:	Stacie Ice
X-1488991-X	3P 2pc MCON CB Plug Assembly, Top Latch, Class 3			
System	Subsystem		DVP&R Level:	<input type="checkbox"/> Prototype
N/A	N/A			<input type="checkbox"/> Production
Specifications:				
Chrysler PF90012 (Class TBD) Revision 1; USCAR 2, Rev 4				

Test Type	Test Sub-Category	Acceptance Criteria	Test Results				Minimum Required Data Points	Timing		Notes
			DV		PV			Sched	Actual	
			Pass/Fail	Result	Pass/Fail	Result		Start / End	Start / End	
Temperature/Humidity Cycling -- PF90012 Section 5.2.2 (Electrical)										
Connector-Electrical Testing	Visual Examination 6.2.1	There shall be no corrosion, discoloration, cracks, etc., which could affect the functionality of the part Swelling or physical distortion shall not exceed the tolerances specified on the part drawing.	TBD	TBD	TBD	TBD	10 Connector Pairs	TBD	TBD	
	Connector Conditioning 1.8.2	Conditioning Step Only	N/A	N/A	N/A	N/A	10 Connector Pairs	TBD	TBD	
	Dry Circuit Resistance 6.3.6 A	Total connection resistance (crimp-to-crimp): ≤ 0.64mm 10.0mΩ Max ≤ 1.50mm 8.0mΩ Max ≤ 2.80mm 5.0mΩ Max ≤ 6.35mm 1.5mΩ Max > 6.35mm 1.5mΩ Max While shorted resistance shall be < 20 mΩ	TBD	TBD	TBD	TBD	10 Data Points	TBD	TBD	
	Temp/Humidity Cycling 5.2.2	Conditioning Step Only	N/A	N/A	N/A	N/A	10 Connector Pairs	TBD	TBD	
	Circuit Continuity 6.4.2 K	No loss of electrical continuity for more than 1μ second. 1μ sec > Resistance of terminal pair > 7Ω	TBD	TBD	TBD	TBD	10 Connector Pairs	TBD	TBD	Refer to Figure 20
	Dry Circuit Resistance 6.3.6 A	Total connection resistance (crimp-to-crimp): ≤ 0.64mm 10.0mΩ Max ≤ 1.50mm 8.0mΩ Max ≤ 2.80mm 5.0mΩ Max ≤ 6.35mm 1.5mΩ Max > 6.35mm 1.5mΩ Max While shorted resistance shall be < 20 mΩ	TBD	TBD	TBD	TBD	10 Data Points	TBD	TBD	

DESIGN VERIFICATION PLAN AND REPORT			Date:	2/12/2020
Assembly/Part Number: X-1488991-X	Component Description: 3P 2pc MCON CB Plug Assembly, Top Latch, Class 3	Design Engineer: Stacie Ice		
System: N/A	Subsystem: N/A	DVP&R Level: <input type="checkbox"/> Prototype <input type="checkbox"/> Production		
Specifications: Chrysler PF90012 (Class <i>TBD</i>) Revision 1; USCAR 2, Rev 4				

Test Type	Test Sub-Category	Acceptance Criteria	Test Results				Minimum Required Data Points	Timing		Notes
			DV		PV			Sched	Actual	
			Pass/Fail	Result	Pass/Fail	Result		Start / End	Start / End	
	Voltage Drop 6.3.6 B	Total connection resistance (crimp-to-crimp): ≤ 0.64mm 10.0mΩ Max ≤ 1.50mm 8.0mΩ Max ≤ 2.80mm 5.0mΩ Max ≤ 6.35mm 1.5mΩ Max > 6.35mm 1.5mΩ Max While shorted resistance shall be < 20 mΩ	TBD	TBD	TBD	TBD	10 Data Points	TBD	TBD	
	Visual Examination 6.2.1	There shall be no corrosion, discoloration, cracks, etc., which could affect the functionality of the part Swelling or physical distortion shall not exceed the tolerances specified on the part drawing.	TBD	TBD	TBD	TBD	10 Connector Pairs	TBD	TBD	
High Temperature Exposure -- PF90012 Section 5.2.3 (Electrical)										
Critical Testing	Visual Examination 6.2.1	There shall be no corrosion, discoloration, cracks, etc., which could affect the functionality of the part Swelling or physical distortion shall not exceed the tolerances specified on the part drawing.	TBD	TBD	TBD	TBD	10 Connector Pairs	TBD	TBD	
	Connector Conditioning 1.8.2	Conditioning Step Only	N/A	N/A	N/A	N/A	10 Connector Pairs	TBD	TBD	
	Dry Circuit Resistance 6.3.6 A	Total connection resistance (crimp-to-crimp): ≤ 0.64mm 10.0mΩ Max ≤ 1.50mm 8.0mΩ Max ≤ 2.80mm 5.0mΩ Max ≤ 6.35mm 1.5mΩ Max > 6.35mm 1.5mΩ Max While shorted resistance shall be < 20 mΩ	TBD	TBD	TBD	TBD	10 Data Points	TBD	TBD	
	High Temp Exposure 5.2.3	Conditioning Step Only	N/A	N/A	N/A	N/A	10 Connector Pairs	TBD	TBD	

DESIGN VERIFICATION PLAN AND REPORT			Date:	2/12/2020
Assembly/Part Number: X-1488991-X	Component Description: 3P 2pc MCON CB Plug Assembly, Top Latch, Class 3	Design Engineer: Stacie Ice		
System: N/A	Subsystem: N/A	DVP&R Level: <input type="checkbox"/> Prototype <input type="checkbox"/> Production		
Specifications: Chrysler PF90012 (Class TBD) Revision 1; USCAR 2, Rev 4				

Test Type	Test Sub-Category	Acceptance Criteria	Test Results				Minimum Required Data Points	Timing		Notes
			DV		PV			Sched	Actual	
			Pass/Fail	Result	Pass/Fail	Result		Start / End	Start / End	
Connector-Element	Dry Circuit Resistance 6.3.6 A	Total connection resistance (crimp-to-crimp): ≤ 0.64mm 10.0mΩ Max ≤ 1.50mm 8.0mΩ Max ≤ 2.80mm 5.0mΩ Max ≤ 6.35mm 1.5mΩ Max > 6.35mm 1.5mΩ Max While shorted resistance shall be < 20 mΩ	TBD	TBD	TBD	TBD	10 Data Points	TBD	TBD	
	Voltage Drop 6.3.6 B	Total connection resistance (crimp-to-crimp): ≤ 0.64mm 10.0mΩ Max ≤ 1.50mm 8.0mΩ Max ≤ 2.80mm 5.0mΩ Max ≤ 6.35mm 1.5mΩ Max > 6.35mm 1.5mΩ Max While shorted resistance shall be < 20 mΩ	TBD	TBD	TBD	TBD	10 Data Points	TBD	TBD	
	Visual Examination 6.2.1	There shall be no corrosion, discoloration, cracks, etc., which could affect the functionality of the part Swelling or physical distortion shall not exceed the tolerances specified on the part drawing.	TBD	TBD	TBD	TBD	10 Connector Pairs	TBD	TBD	
Heavy Duty Test -- PF90012 Section 5.2.4										
Testing	Visual Examination 6.2.1	There shall be no corrosion, discoloration, cracks, etc., which could affect the functionality of the part Swelling or physical distortion shall not exceed the tolerances specified on the part drawing.	TBD	TBD	TBD	TBD	10 Connector Pairs	TBD	TBD	
	Connector Conditioning 1.8.2	Conditioning Step Only	N/A	N/A	N/A	N/A	6 Terminal Pairs	TBD	TBD	
	Dry Circuit Resistance 6.3.6 A	Total connection resistance (crimp-to-crimp): ≤ 0.64mm 10.0mΩ Max ≤ 1.50mm 8.0mΩ Max ≤ 2.80mm 5.0mΩ Max ≤ 6.35mm 1.5mΩ Max > 6.35mm 1.5mΩ Max While shorted resistance shall be < 20 mΩ	TBD	TBD	TBD	TBD	6 Data Points	TBD	TBD	

DESIGN VERIFICATION PLAN AND REPORT			Date:	2/12/2020
Assembly/Part Number: X-1488991-X	Component Description: 3P 2pc MCON CB Plug Assembly, Top Latch, Class 3		Design Engineer:	Stacie Ice
System: N/A	Subsystem: N/A		DVP&R Level:	<input type="checkbox"/> Prototype <input type="checkbox"/> Production
Specifications: Chrysler PF90012 (Class TBD) Revision 1; USCAR 2, Rev 4				

Test Type	Test Sub-Category	Acceptance Criteria	Test Results				Minimum Required Data Points	Timing		Notes
			DV		PV			Sched	Actual	
			Pass/Fail	Result	Pass/Fail	Result		Start / End	Start / End	
Connector-Electrical T	Heavy Duty Test 5.2.4	Conditioning Step Only	N/A	N/A	N/A	N/A	6 Data Points	TBD	TBD	
	Dry Circuit Resistance 6.3.6 A	Total connection resistance (crimp-to-crimp): ≤ 0.64mm 10.0mΩ Max ≤ 1.50mm 8.0mΩ Max ≤ 2.80mm 5.0mΩ Max ≤ 6.35mm 1.5mΩ Max > 6.35mm 1.5mΩ Max While shorted resistance shall be < 20 mΩ	TBD	TBD	TBD	TBD	6 Data Points	TBD	TBD	
	Visual Examination 6.2.1	There shall be no corrosion, discoloration, cracks, etc., which could affect the functionality of the part Swelling or physical distortion shall not exceed the tolerances specified on the part drawing.	TBD	TBD	TBD	TBD	6 Data Points	TBD	TBD	
	Temperature Rise at Max De-Rated Current (Per Cycle)	Maximum allowed T-Rise on the terminal at the end of each cycle is 50 deg C. Temperature on any terminal shall not exceed the terminal's max temperature rating at any time during the test	TBD	Cycle 1 = TBD Cycle 2 = TBD Cycle 3 = TBD Cycle 4 = TBD Cycle 5 = TBD	TBD	Cycle 1 = TBD Cycle 2 = TBD Cycle 3 = TBD Cycle 4 = TBD Cycle 5 = TBD	6 Data Points	TBD	TBD	
Thermal Shock -- PF90012 Section 5.2.1 (Environmental)										
	Visual Examination 6.2.1	There shall be no corrosion, discoloration, cracks, etc., which could affect the functionality of the part Swelling or physical distortion shall not exceed the tolerances specified on the part drawing.	TBD	TBD	TBD	TBD	10 Connector Pairs	TBD	TBD	
	Connector Conditioning 1.8.2	Conditioning Step Only	N/A	N/A	N/A	N/A	10 Connector Pairs	TBD	TBD	
	Insulation Resistance 6.3.7 A	Resistance between every combination of two adjacent terminals in the CUT must exceed 100MΩ at 500VDC.	TBD	TBD	TBD	TBD	10 Data Points	TBD	TBD	
	Pressure/Vacuum Leak 5.2.7	Pass/Fail via 5.2.7A (96 kPa min)	TBD	TBD	TBD	TBD	10 Connectors Pass/Fail	TBD	TBD	

DESIGN VERIFICATION PLAN AND REPORT								Date:	2/12/2020
Assembly/Part Number: X-1488991-X		Component Description: 3P 2pc MCON CB Plug Assembly, Top Latch, Class 3				Design Engineer:		Stacie Ice	
System: N/A			Subsystem: N/A			DVP&R Level:		<input type="checkbox"/> Prototype <input type="checkbox"/> Production	
Specifications: Chrysler PF90012 (Class <i>TBD</i>) Revision 1; USCAR 2, Rev 4									

Test Type	Test Sub-Category	Acceptance Criteria	Test Results				Minimum Required Data Points	Timing		Notes
			DV		PV			Sched	Actual	
			Pass/Fail	Result	Pass/Fail	Result		Start / End	Start / End	
Connector-Environmental Testing	Thermal Shock 5.2.1	Conditioning Step Only	N/A	N/A	N/A	N/A	10 Connector Pairs	TBD	TBD	
	Circuit Continuity 6.4.2 K	No loss of electrical continuity for more than 1μ second. 1μ sec > Resistance of terminal pair > 7Ω	TBD	TBD	TBD	TBD	10 Connector Pairs	TBD	TBD	Refer to Figure 20
	Pressure/Vacuum Leak 5.2.7	Pass/Fail via 5.2.7A (48 kPa min)	TBD	TBD	TBD	TBD	10 Connectors Pass/Fail	TBD	TBD	
	Water Submersion 5.2.6	Conditioning Step Only	TBD	TBD	TBD	TBD	10 Connectors Pass/Fail	TBD	TBD	
	Insulation Resistance 6.3.7 A	Resistance between every combination of two adjacent terminals in the CUT must exceed 100MΩ at 500VDC.	TBD	TBD	TBD	TBD	10 Data Points	TBD	TBD	
	High Pressure Spray 5.2.8	Conditioning Step Only	TBD	TBD	TBD	TBD	10 Connectors Pass/Fail	TBD	TBD	Only for S3 Applications
	Insulation Resistance 6.3.7 A	Resistance between every combination of two adjacent terminals in the CUT must exceed 100MΩ at 500VDC.	TBD	TBD	TBD	TBD	10 Data Points	TBD	TBD	Only for S3 Applications
	Retention Force w/ Secondary Lock 6.4.2.B	Post Moisture Conditioning Terminal Size: ≤ 0.64: 60 N Min ≤ 1.5mm 70N Min ≤ 2.8mm 100N Min ≤ 6.3mm 130N Min ≤ 9.5mm 150N Min >9.5mm 200N Min	TBD	TBD	TBD	TBD	10 Data Points Each Test	TBD	TBD	NOTE 1: Includes connectors not designed for use with secondary lock.
Visual Examination 6.2.1	There shall be no corrosion, discoloration, cracks, etc., which could affect the functionality of the part Swelling or physical distortion shall not exceed the tolerances specified on the part drawing.	TBD	TBD	TBD	TBD	10 Connector Pairs	TBD	TBD		

DESIGN VERIFICATION PLAN AND REPORT			Date:	2/12/2020
Assembly/Part Number:	Component Description:		Design Engineer:	Stacie Ice
X-1488991-X	3P 2pc MCON CB Plug Assembly, Top Latch, Class 3			
System	Subsystem		DVP&R Level:	<input type="checkbox"/> Prototype
N/A	N/A			<input type="checkbox"/> Production
Specifications:				
Chrysler PF90012 (Class TBD) Revision 1; USCAR 2, Rev 4				

Test Type	Test Sub-Category	Acceptance Criteria	Test Results				Minimum Required Data Points	Timing		Notes
			DV		PV			Sched	Actual	
			Pass/Fail	Result	Pass/Fail	Result		Start / End	Start / End	
Thermal Cycling -- PF90012 Section 5.2.2 (Environmental)										
mental Testing	Visual Examination 6.2.1	There shall be no corrosion, discoloration, cracks, etc., which could affect the functionality of the part Swelling or physical distortion shall not exceed the tolerances specified on the part drawing.	TBD	TBD	TBD	TBD	10 Connector Pairs	TBD	TBD	
	Connector Conditioning 1.8.2	Conditioning Step Only	N/A	N/A	N/A	N/A	10 Connector Pairs	TBD	TBD	
	Insulation Resistance 6.3.7 A	Resistance between every combination of two adjacent terminals in the CUT must exceed 100MΩ at 500VDC.	TBD	TBD	TBD	TBD	10 Data Points	TBD	TBD	
	Pressure/Vacuum Leak 5.2.7	Pass/Fail via 5.2.7A (96 kPa min)	TBD	TBD	TBD	TBD	10 Connectors Pass/Fail	TBD	TBD	
	Thermal Cycling 5.2.2	Conditioning Step Only	N/A	N/A	N/A	N/A	10 Connector Pairs	TBD	TBD	
	Circuit Continuity 6.4.2 K	No loss of electrical continuity for more than 1μ second. 1μ sec > Resistance of terminal pair > 7Ω	TBD	TBD	TBD	TBD	10 Connector Pairs	TBD	TBD	Refer to Figure 20
	Pressure/Vacuum Leak 5.2.7	Pass/Fail via 5.2.7A (48 kPa min)	TBD	TBD	TBD	TBD	10 Connectors Pass/Fail	TBD	TBD	

DESIGN VERIFICATION PLAN AND REPORT			Date:	2/12/2020
Assembly/Part Number: X-1488991-X	Component Description: 3P 2pc MCON CB Plug Assembly, Top Latch, Class 3	Design Engineer: Stacie Ice		
System: N/A	Subsystem: N/A	DVP&R Level: <input type="checkbox"/> Prototype <input type="checkbox"/> Production		
Specifications: Chrysler PF90012 (Class <i>TBD</i>) Revision 1; USCAR 2, Rev 4				

Test Type	Test Sub-Category	Acceptance Criteria	Test Results				Minimum Required Data Points	Timing		Notes
			DV		PV			Sched	Actual	
			Pass/Fail	Result	Pass/Fail	Result		Start / End	Start / End	
Connector-Environ	Water Submersion 5.2.6	Conditioning Step Only	TBD	TBD	TBD	TBD	10 Connectors Pass/Fail	TBD	TBD	
	Insulation Resistance 6.3.7 A	Resistance between every combination of two adjacent terminals in the CUT must exceed 100MΩ at 500VDC.	TBD	TBD	TBD	TBD	10 Data Points	TBD	TBD	
	High Pressure Spray 5.2.8	Conditioning Step Only	TBD	TBD	TBD	TBD	10 Connectors Pass/Fail	TBD	TBD	Only for S3 Applications
	Insulation Resistance 6.3.7 A	Resistance between every combination of two adjacent terminals in the CUT must exceed 100MΩ at 500VDC.	TBD	TBD	TBD	TBD	10 Data Points	TBD	TBD	Only for S3 Applications
	Retention Force w/ Secondary Lock 6.4.2.B	Post Moisture Conditioning Terminal Size: ≤ 0.64: 60 N Min ≤ 1.5mm 70N Min ≤ 2.8mm 100N Min ≤ 6.3mm 130N Min ≤ 9.5mm 150N Min >9.5mm 200N Min	TBD	TBD	TBD	TBD	10 Data Points Each Test	TBD	TBD	NOTE 1: Includes connectors not designed for use with secondary lock.
	Visual Examination 6.2.1	There shall be no corrosion, discoloration, cracks, etc., which could affect the functionality of the part Swelling or physical distortion shall not exceed the tolerances specified on the part drawing.	TBD	TBD	TBD	TBD	10 Connector Pairs	TBD	TBD	
High Temperature Exposure -- PF90012 Section 5.2.3 (Environmental)										
	Visual Examination 6.2.1	There shall be no corrosion, discoloration, cracks, etc., which could affect the functionality of the part Swelling or physical distortion shall not exceed the tolerances specified on the part drawing.	TBD	TBD	TBD	TBD	10 Connector Pairs	TBD	TBD	
	Connector Conditioning 1.8.2	Conditioning Step Only	N/A	N/A	N/A	N/A	10 Connector Pairs	TBD	TBD	
	Insulation Resistance 6.3.7 A	Resistance between every combination of two adjacent terminals in the CUT must exceed 100MΩ at 500VDC.	TBD	TBD	TBD	TBD	10 Data Points	TBD	TBD	

DESIGN VERIFICATION PLAN AND REPORT			Date:	2/12/2020
Assembly/Part Number: X-1488991-X	Component Description: 3P 2pc MCON CB Plug Assembly, Top Latch, Class 3	Design Engineer: Stacie Ice		
System: N/A	Subsystem: N/A	DVP&R Level: <input type="checkbox"/> Prototype <input type="checkbox"/> Production		
Specifications: Chrysler PF90012 (Class TBD) Revision 1; USCAR 2, Rev 4				

Test Type	Test Sub-Category	Acceptance Criteria	Test Results				Minimum Required Data Points	Timing		Notes
			DV		PV			Sched	Actual	
			Pass/Fail	Result	Pass/Fail	Result		Start / End	Start / End	
Connector-Environmental Testing	Pressure/Vacuum Leak 5.2.7	Pass/Fail via 5.2.7A (96 kPa min)	TBD	TBD	TBD	TBD	10 Connectors Pass/Fail	TBD	TBD	
	High Temp Exposure 5.2.3	Conditioning Step Only	N/A	N/A	N/A	N/A	10 Connector Pairs	TBD	TBD	
	Pressure/Vacuum Leak 5.2.7	Pass/Fail via 5.2.7A (48 kPa min)	TBD	TBD	TBD	TBD	10 Connectors Pass/Fail	TBD	TBD	
	Water Submersion 5.2.6	Conditioning Step Only	TBD	TBD	TBD	TBD	10 Connectors Pass/Fail	TBD	TBD	
	Insulation Resistance 6.3.7 A	Resistance between every combination of two adjacent terminals in the CUT must exceed 100MΩ at 500VDC.	TBD	TBD	TBD	TBD	10 Data Points	TBD	TBD	
	High Pressure Spray 5.2.8	Conditioning Step Only	TBD	TBD	TBD	TBD	10 Connectors Pass/Fail	TBD	TBD	Only for S3 Applications
	Insulation Resistance 6.3.7 A	Resistance between every combination of two adjacent terminals in the CUT must exceed 100MΩ at 500VDC.	TBD	TBD	TBD	TBD	10 Data Points	TBD	TBD	Only for S3 Applications
	Retention Force w/ Secondary Lock 6.4.2.B	Post Moisture Conditioning Terminal Size: ≤0.64: 60 N Min ≤ 1.5mm 70N Min ≤ 2.8mm 100N Min ≤ 6.3mm 130N Min ≤9.5mm 150N Min >9.5mm 200N Min	TBD	TBD	TBD	TBD	10 Data Points Each Test	TBD	TBD	NOTE 1: Includes connectors not designed for use with secondary lock.
	Visual Examination 6.2.1	There shall be no corrosion, discoloration, cracks, etc., which could affect the functionality of the part Swelling or physical distortion shall not exceed the tolerances specified on the part drawing.	TBD	TBD	TBD	TBD	10 Connector Pairs	TBD	TBD	

DESIGN VERIFICATION PLAN AND REPORT								Date:	2/12/2020
Assembly/Part Number: X-1488991-X		Component Description: 3P 2pc MCON CB Plug Assembly, Top Latch, Class 3				Design Engineer:		Stacie Ice	
System: N/A			Subsystem: N/A			DVP&R Level:		<input type="checkbox"/> Prototype <input type="checkbox"/> Production	
Specifications: Chrysler PF90012 (Class <i>TBD</i>) Revision 1; USCAR 2, Rev 4									

Test Type	Test Sub-Category	Acceptance Criteria	Test Results				Minimum Required Data Points	Timing		Notes
			DV		PV			Sched	Actual	
			Pass/Fail	Result	Pass/Fail	Result		Start / End	Start / End	
Fluid Resistance -- PF90012 Section 5.2.5 (Environmental)										
Connector-Environmental Testing	Visual Examination 6.2.1	There shall be no corrosion, discoloration, cracks, etc., which could affect the functionality of the part Swelling or physical distortion shall not exceed the tolerances specified on the part drawing.	TBD	TBD	TBD	TBD	10 Connector Pairs	TBD	TBD	
	Connector Conditioning 1.8.2	Conditioning Step Only	N/A	N/A	N/A	N/A	10 Connector Pairs	TBD	TBD	
	Insulation Resistance 6.3.7 A	Resistance between every combination of two adjacent terminals in the CUT must exceed 100MΩ at	TBD	TBD	TBD	TBD	10 Data Points	TBD	TBD	
	Pressure/Vacuum Leak 5.2.7	Pass/Fail via 5.2.7A (96 kPa min)	TBD	TBD	TBD	TBD	10 Connectors Pass/Fail	TBD	TBD	
	Fluid Resistance 5.2.3	Conditioning Step Only	N/A	N/A	N/A	N/A	10 Connector Pairs	TBD	TBD	
	Insulation Resistance 6.3.7 A	Resistance between every combination of two adjacent terminals in the CUT must exceed 100MΩ at 500VDC.	TBD	TBD	TBD	TBD	10 Data Points	TBD	TBD	
	Unmating Force 6.4.2.D	Disengage force < 75N with lock disabled, w/o CPA	TBD	TBD	TBD	TBD	10 Data Points w/o terminals 5 Data Points w/ Terminals	TBD	TBD	See Note in Acceptance Criteria regarding latches with difficult service locations.
		Disengage force > 110N with lock enabled, w/o CPA	TBD	TBD	TBD	TBD				
		Force to Service: 6N ≤ F ≤ 51N w/o CPA	TBD	TBD	TBD	TBD				
Retention Force w/ Secondary Lock 6.4.2.B	Post Moisture Conditioning	TBD	TBD	TBD	TBD	10 Data Points Each Test	TBD	TBD	NOTE 1: Includes connectors not designed for use with secondary lock.	
	Terminal Size:									
	≤ 0.64:	60 N Min								
	≤ 1.5mm	70N Min								
	≤ 2.8mm	100N Min								
≤ 6.3mm	130N Min									
≤ 9.5mm	150N Min									
> 9.5mm	200N Min									
Visual Examination 6.2.1	There shall be no corrosion, discoloration, cracks, etc., which could affect the functionality of the part Swelling or physical distortion shall not exceed the tolerances specified on the part drawing.	TBD	TBD	TBD	TBD	10 Connector Pairs	TBD	TBD		

DESIGN VERIFICATION PLAN AND REPORT			Date:	2/12/2020
Assembly/Part Number: X-1488991-X	Component Description: 3P 2pc MCON CB Plug Assembly, Top Latch, Class 3	Design Engineer: Stacie Ice		
System: N/A	Subsystem: N/A	DVP&R Level: <input type="checkbox"/> Prototype <input type="checkbox"/> Production		
Specifications: Chrysler PF90012 (Class <i>TBD</i>) Revision 1; USCAR 2, Rev 4				

Test Type	Test Sub-Category	Acceptance Criteria	Test Results				Minimum Required Data Points	Timing		Notes
			DV		PV			Sched	Actual	
			Pass/Fail	Result	Pass/Fail	Result		Start / End	Start / End	
Flammability -- PF90012 Section 5.2.9										
	Visual Examination 6.2.1	There shall be no corrosion, discoloration, cracks, etc., which could affect the functionality of the part Swelling or physical distortion shall not exceed the tolerances specified on the part drawing.	TBD	TBD	TBD	TBD	Per ISO-3795	TBD	TBD	
	Flammability 5.2.9	The burn ratio of the material test samples when tested according to ISO-3795 shall be less than 100mm/minute.	TBD	TBD	TBD	TBD				
	Visual Examination 6.2.1	There shall be no corrosion, discoloration, cracks, etc., which could affect the functionality of the part Swelling or physical distortion shall not exceed the tolerances specified on the part drawing.	TBD	TBD	TBD	TBD				

DESIGN VERIFICATION PLAN AND REPORT			Date:	2/12/2020
Assembly/Part Number:	Component Description:			Design Engineer:
X-1488991-X	3P 2pc MCON CB Plug Assembly, Top Latch, Class 3			Stacie Ice
System	Subsystem		DVP&R Level:	<input type="checkbox"/> Prototype
N/A	N/A			<input type="checkbox"/> Production
Specifications:				
Chrysler PF90012 (Class TBD) Revision 1; USCAR 2, Rev 4				

Test Type	Test Sub-Category	Acceptance Criteria	Test Results				Minimum Required Data Points	Timing		Notes
			DV		PV			Sched	Actual	
			Pass/Fail	Result	Pass/Fail	Result		Start / End	Start / End	
Pressure/Vacuum Leak Stand Alone -- PF90012 Section 5.2.7										
Connector-Environmental Testing USCAR 5.9.8	Visual Examination 6.2.1	There shall be no corrosion, discoloration, cracks, etc., which could affect the functionality of the part. Swelling or physical distortion shall not exceed the tolerances specified on the part drawing.	TBD	TBD	TBD	TBD	10 Connector Pairs	TBD	TBD	
	Connector Conditioning 1.8.2	Conditioning Step Only	N/A	N/A	N/A	N/A	10 Connector Pairs	TBD	TBD	
	Insulation Resistance 6.3.7 A	Resistance between every combination of two adjacent terminals in the CUT must exceed 100MΩ at 500VDC.	TBD	TBD	TBD	TBD	10 Data Points	TBD	TBD	
	Pressure/Vacuum Leak 5.2.7	Pass/Fail via 5.2.7A (48 kPa min)	TBD	TBD	TBD	TBD	10 Connectors Pass/Fail	TBD	TBD	
	Insulation Resistance 6.3.7 A	Resistance between every combination of two adjacent terminals in the CUT must exceed 100MΩ at 500VDC.	TBD	TBD	TBD	TBD	10 Data Points	TBD	TBD	
	70 Hour Heat Soak	Conditioning Step Only	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	Pressure/Vacuum Leak 5.2.7	Pass/Fail via 5.2.7A (48 kPa min)	TBD	TBD	TBD	TBD	10 Connectors Pass/Fail	TBD	TBD	
	Insulation Resistance 6.3.7 A	Resistance between every combination of two adjacent terminals in the CUT must exceed 100MΩ at 500VDC.	TBD	TBD	TBD	TBD	10 Data Points	TBD	TBD	
	Pressure/Vacuum Leak 5.2.7	TEST TO FAILURE	N/A	Record Values Reference Only	N/A	Record Values Reference Only	10 Data Points	TBD	TBD	

Test	USCAR req't	Deviation	Orig Val	Greensboro	Empalme
Connector to Connector Mating Force, TPA engaged	75N Max		Min: 16.04 Max: 20.08	Min: 16.78N Max: 18.25N	Min: 17.37N Max: 20.08N
Connector to Connector Un-Mating Force, TPA engaged, CPA not engaged	110 N Min.		Min: 137.70 Max: 171.70	Min: 152.99 Max: 176.20N	Min: 161.71N Max: 184.80N
Misc Component Engage/Disengage Force - CPA, Pre-set to Full Install (locked), no terminals, unmated	60N Min		Not tested	Min: 79.60N Max: 97.60N	Min: 70.96N Max: 92.73N
Misc Component Engage/Disengage Force - CPA, Pre-set to Full Install (locked), no terminals, mated	22N Max	30N Max Per Print	Small CPA 1488787-1 not tested	Min: 16.72N Max: 20.58N	Min: 15.12N Max: 20.75N
Misc Component Engage/Disengage Force - CPA, Full Install (locked) to Pre-set, no terminals, mated	10N Min 30N Max	30N Max Per Print	Small CPA 1488787-1 not tested	Min: 11.94N Max: 14.92N	Min: 12.76N Max: 15.21N
Misc Component Engage/Disengage Force - CPA, Pre-lock to Complete Removal, no terminals, unmated	30N Min	15N Min Per Print	Small CPA 1488787-1 not tested	Min: 40.13N Max: 43.05N	Min: 40.28N Max: 42.59N



Design Verification Plan and Report

System: CPSC 18.01.07 Connectors		Ford part number (s): See ESER Tab		Model Year and Program: Multiple		Ford Design Engineer: Joe Chappelle		
Temperature Class	T3	T1, T2, T3, T4 T5	Supplier: TE Connectivity		Ford Design Engineer Approval			
Vibration Class	V2	V1, V2, V3, V4, V5	Reason for Validation:	Tool Transfer	Part Level:	PV - production		
Sealing Class	S2	S1, S2, S3			Plan: 2/11/2020	Report: 2/13/2020		
Test Name/Source	Acceptance Criteria	Test Results	Design Level Tested	Sample Size		Timing		Remarks
				Required	Tested	Sched.	Actual	
G-5. Visual Inspection - SAE/USCAR-2 5.1.8 To document the physical appearance of test samples.	The connectors assemblies must not show , with the aid of 10X magnification, any evidence of deterioration, cracks, deformities, etc., that could affect their functionality or distort their appearance. Connector locking mechanism must function without breaking	PASS	PV					

Test Part Inventory Page

	Male Connector Test	Female Connector Test
Terminal Test Part Numbers	2141116-3	1670146-3
Seal Test Part Numbers	967067-1	967067-1
Clip/Cover etc. Test Part Numbers	N/A	N/A
Mating Device Used Part Numbers	N/A	N/A
Terminal Test Part Numbers	N/A	N/A



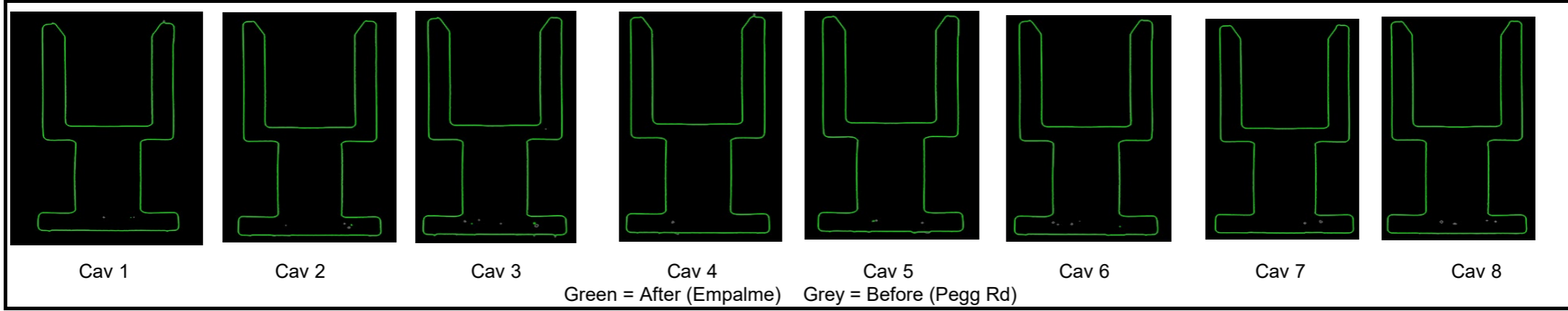
Design Verification Plan and Report

System: CPSC 18.01.07 Connectors		Ford part number (s): See ESER Tab		Model Year and Program: Multiple		Ford Design Engineer: Joe Chappelle		
Temperature Class	T3	T1, T2, T3, T4 T5	Supplier: TE Connectivity		Ford Design Engineer Approval			
Vibration Class	V2	V1, V2, V3, V4, V5	Reason for Validation:	Tool Transfer	Part Level:	PV - production		
Sealing Class	S2	S1, S2, S3			Plan: 2/11/2020	Report: 2/13/2020		
Test Name/Source	Acceptance Criteria	Test Results	Design Level Tested	Sample Size		Timing		Remarks
				Required	Tested	Sched.	Actual	
Connector Test Part Numbers	2203318-1 same as 2203780-1			6W8T-14A464-EC TE 1488991-1				
Wire Gauge and Type	XLPE 0.50mm2			XLPE 0.50mm2				

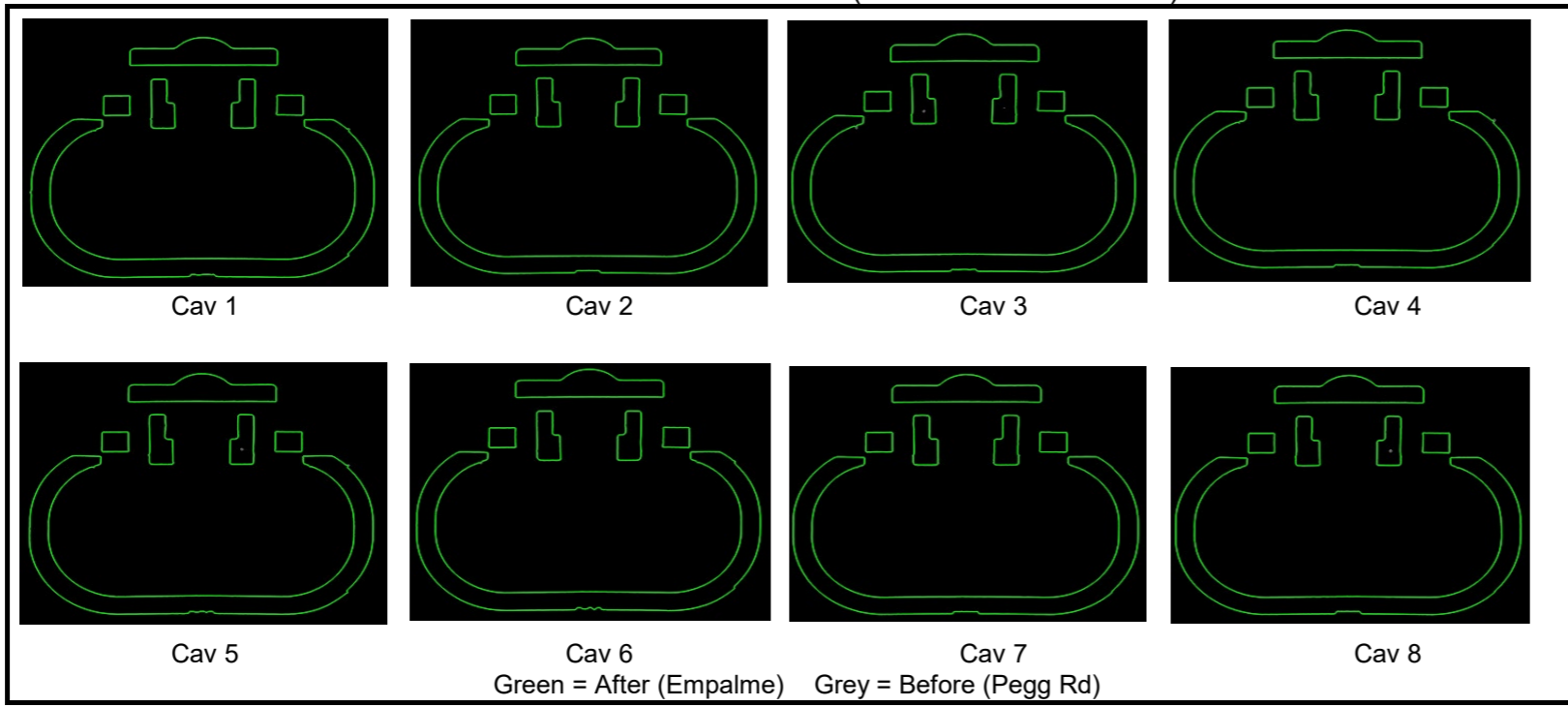
Test	USCAR req't	Deviation	Orig Val	Greensboro	Empalme
Connector to Connector Mating Force, TPA engaged	75N Max		Min: 16.04 Max: 20.08	Min: 16.78N Max: 18.25N	Min: 17.37N Max: 20.08N
Connector to Connector Un-Mating Force, TPA engaged, CPA not engaged	110 N Min.		Min: 137.70 Max: 171.70	Min: 152.99 Max: 176.20N	Min: 161.71N Max: 184.80N
Misc Component Engage/Disengage Force - CPA, Pre-set to Full Install (locked), no terminals, unmated	60N Min		Not tested	Min: 79.60N Max: 97.60N	Min: 70.96N Max: 92.73N
Misc Component Engage/Disengage Force - CPA, Pre-set to Full Install (locked), no terminals, mated	22N Max	30N Max Per Print	Small CPA 1488787-1 not tested	Min: 16.72N Max: 20.58N	Min: 15.12N Max: 20.75N
Misc Component Engage/Disengage Force - CPA, Full Install (locked) to Pre-set, no terminals, mated	10N Min 30N Max	30N Max Per Print	Small CPA 1488787-1 not tested	Min: 11.94N Max: 14.92N	Min: 12.76N Max: 15.21N
Misc Component Engage/Disengage Force - CPA, Pre-lock to Complete Removal, no terminals, unmated	30N Min	15N Min Per Print	Small CPA 1488787-1 not tested	Min: 40.13N Max: 43.05N	Min: 40.28N Max: 42.59N

CT SCANS

BEFORE / AFTER OVERLAY (QIP LOC C6 Dimension)



BEFORE / AFTER OVERLAY - (QIP Note 5 Dimension)








Ford DVPR PV Report_GSO Consolidation_3P 2pc MCON Plug Outer Housing Mold 681 Move_12Feb2020

Final Audit Report

2020-03-02

Created:	2020-02-27
By:	Sumit Das (sumit.das@te.com)
Status:	Signed
Transaction ID:	CBJCHBCAABAAWWIsোধoY0KiuNgWf-d59HITtEXwXErZ

"Ford DVPR PV Report_GSO Consolidation_3P 2pc MCON Plug Outer Housing Mold 681 Move_12Feb2020" History

-  Document created by Sumit Das (sumit.das@te.com)
2020-02-27 - 9:28:14 PM GMT- IP address: 104.129.196.203
-  Document emailed to JCHAPP19 (jchapp19@ford.com) for signature
2020-02-27 - 9:29:41 PM GMT
-  Email viewed by JCHAPP19 (jchapp19@ford.com)
2020-03-02 - 4:38:22 PM GMT- IP address: 136.2.32.185
-  Document e-signed by JCHAPP19 (jchapp19@ford.com)
Signature Date: 2020-03-02 - 4:52:02 PM GMT - Time Source: server- IP address: 136.2.32.185- Signature captured from device with phone number XXXXXXXX8750
-  Signed document emailed to JCHAPP19 (jchapp19@ford.com) and Sumit Das (sumit.das@te.com)
2020-03-02 - 4:52:02 PM GMT



Section 11

Initial Process Studies

Not Applicable



Section 12

Qualified Laboratory Documentation

Certificate of Registration

QUALITY MANAGEMENT SYSTEM - IATF 16949:2016

This is to certify that:

TE Connectivity
Global Automotive Division
Americas North
Carretera Internacional, KM 1969
Guadalajara-Nogales Km 2
Empalme
Sonora
85340
Mexico

operates a Quality Management System which complies with the requirements of IATF 16949:2016 for the following scope:

Design and manufacture of electrical interconnecting devices.

For and on behalf of BSI:



Carlos Pitanga, Chief Operating Officer Assurance – Americas

BSI Certificate Number: 514458-003

IATF Number: 0315420



Certification Date: 2018-07-11

Latest Issue: 2018-07-11

Page: 1 of 2

...making excellence a habit.™

Expiry Date: 2021-07-10

This certificate remains the property of BSI and shall be returned immediately upon request.

An electronic certificate can be authenticated [online](http://www.bsigroup.com/ClientDirectory). Printed copies can be validated at www.bsigroup.com/ClientDirectory

To be read in conjunction with the scope above or the attached appendix.

Further clarifications regarding the scope of this certificate and the applicability of IATF 16949 requirements may be obtained by consulting the organization.

IATF Contracted Office: BSI Assurance UK Limited, registered in England under number 7805321 at 389 Chiswick High Road, London W4 4AL, UK.

Location

TE Connectivity
Global Automotive Division
Americas North
Carretera Internacional, KM 1969
Guadalajara-Nogales Km 2
Empalme
Sonora
85340
Mexico

Registered Activities

Manufacture of interconnecting devices.

Including the following remote support functions:

TE Connectivity
Global Automotive Division
Americas North
900 Wilshire Boulevard
Suite 150
Troy, MI 48084
Design and Development.

TE Connectivity
Global Automotive Division
Americas North
Fulling Mill Road
Middletown, PA 17057
Design and Development, Product Testing and Customer Service.

TE Connectivity
Global Automotive Division
Americas North
3800 Reidsville Road
Winston-Salem, NC 27102
Design and Development, Product Testing and Calibration, Business Office (Quote Process) and Purchasing.

TE Connectivity
Global Automotive Division
Americas North
20 Esna Park Drive
Markham, Ontario
L3R 1E1 Canada
Design and Development and product testing (optics lab)

TE Connectivity
Global Automotive Division
Americas North
2100 Paxton Street
Harrisburg, PA 17111
Provision of Product Testing to TE Connectivity Manufacturing Sites.

TE Connectivity North Carolina
Distribution Center
8000 Piedmont Triad Parkway
Greensboro, North Carolina 27409
Receiving Inspection, Storage / Inventory.

BSI Certificate Number: 514458-003

IATF Number: 0315420



Certification Date: 2018-07-11

Latest Issue: 2018-07-11

Expiry Date: 2021-07-10

Page: 2 of 2

This certificate remains the property of BSI and shall be returned immediately upon request.

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To be read in conjunction with the scope above or the attached appendix.

Further clarifications regarding the scope of this certificate and the applicability of IATF 16949 requirements may be obtained by consulting the organization.

IATF Contracted Office: BSI Assurance UK Limited, registered in England under number 7805321 at 389 Chiswick High Road, London W4 4AL, UK.



Section 13

Appearance Approval Report

Not Applicable



Section 14

Sample Product

**Sent in separate package
(if required)**



Section 15

Master Sample

Retained at manufacturing location



Section 16

Checking Aids

Not Applicable



Section 17

Records of Compliance with Customer-Specific Requirements

MDS Report

Substances of assemblies and materials

This report is for internal Automotive industry use only. Distribution to non-Automotive clients is a violation of the Terms of Use, and is not permitted unless a written permission was given by DXC Technology. Parsing is not allowed.

1. Company and Product Name

1.1 Supplier Data

Name [ID]: **Tyco Electronics GAD [913]**
DUNS Number: **-**
Street/Postal Code: **Amperestr. 12-14**
Nat./ZipCode/City: **DE 64625 Bensheim**
Supplier Code: **-**
Contact Person: **IMDS Team (India) Engineering Services**
- Phone: **-**
- Fax No.: **-**
- E-Mail Address: **IMDS@te.com**

1.2 Product Identification

Part/Item No.: **1488991-5**
Description: **Conn Assy Female 3 Posn Sealed 1.2mm**
Report No.: **-**
Date of Report: **-**
Purchase Order No.: **-**
Bill of Delivery No.: **-**
Preliminary MDS: **No**
IMDS ID / Version: **137530976 / 12**
Node ID: **854081388**
MDS Status (Change Date): **Internally released (08/08/2019)**

Tree Level	Description Article Name Name Substance name	Part/Item No. Item- /Mat.-No. Material-No. CAS No.	IMDS ID / Version	Quantity	Weight [g]	Portion [%]	Portion (from - to) [%]	Classif. GADSL, SVHC	Parts Marking Recyclate (Indust./Consumer) Application [ID]
└4	Further Additives, not to declare	system				0.5			
└4	GF-Fibre	-				35			
└4	Carbon black	1333-86-4				0.5			
└4	PA66	-				64			
└2	Inner Housing Female, 3 Position, Sealed, 1.2 mm-Black	0-1456519-1	49327655 / 5	1	1.221				Yes
└3	PA66-GF35	702661-9	70521492 / 3		1.221			5.1.a	No
└4	Further Additives, not to declare	system				0.5			
└4	GF-Fibre	-				35			
└4	Carbon black	1333-86-4				0.5			
└4	PA66	-				64			
└2	TPA, Female, 3 Posn, Sealed, 1.2mm - Red	1488996-1	16532266 / 17	1	0.072				Not Applicable
└3	PBT-GF30	703395-4	175341184 / 3		0.072			5.1.a	No
└4	PBT	-				69.25			
└4	GF-Fibre	-				30			
└4	Further Additives, not to declare	system				0.5			
└4	Pigment portion, not to declare	system				0.25			
└2	1.2 Sealed Perimeter Seal	1488651-1	507336923 / 3	1	0.0921				Not Applicable
└3	VMQ	AL2701GN			0.0921			5.3	No
└4	VMQ	-				98.5	98 - 99		

Tree Level	Description Article Name Name Substance name	Part/Item No. Item- /Mat.-No. Material-No. CAS No.	IMDS ID / Version	Quantity	Weight [g]	Portion [%]	Portion (from - to) [%]	Classif. GADSL, SVHC	Parts Marking Recyclate (Indust./Consumer) Application [ID]
└4	Chromium(III)oxide	1308-38-9				0.6			
└4	Siloxanes and silicones, di-Me, vinyl group-terminated	68083-19-2				0.9			
└2	CPA, Sealed System-Red	1488787-1	16531770 / 11	1	0.12				Not Applicable
└3	PBT-GF30	703395-4	175341184 / 3		0.12			5.1.a	No
└4	PBT	-				69.25			
└4	GF-Fibre	-				30			
└4	Further Additives, not to declare	system				0.5			
└4	Pigment portion, not to declare	system				0.25			

This is an uncontrolled copy of a document created by IMDS. End of the report.



Section 18

Part Submission Warrant

Part Submission Warrant

Part Name	CONNECTOR ASSEMBLY, FEMALE, 3 POSITION, SEALED, 1.2mm	Cust. Part Number	73W9187
Shown on Drawing No.	C-1488991	Org. Part Number	1488991-5
Engineering Change Level	F10	Dated	05-Aug-15
Additional Engineering Changes	N / A	Dated	N / A
Safety and/or Government Regulation	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Purchase Order No.	N / A
Weight (kg)	0.0029		
Checking Aid Number	N / A	Checking Aid Engineering Change Level	N / A
Dated	N / A		

ORGANIZATION MANUFACTURING INFORMATION

TE Connectivity / **588115092**

Supplier Name & Supplier/Vendor Code

Carretera Int. Km. 1969 Guadalajara-Nogales

Street Address

Empalme **85340** **Mexico**

City Region Postal Code Country

CUSTOMER SUBMITTAL INFORMATION

Newark Electronics

Customer Name/Division

N/A

Buyer/Buyer Code

Various

Application

MATERIALS REPORTING

Reporting of all materials, not just Substances of Concern, may be required by certain OEMs or other customers.

Has customer-required Substances of Concern information been reported? Yes No

Submitted by IMDS or other customer format: **137530976 / 12**

Are polymeric parts identified with appropriate ISO marking codes? Yes No N/A

REASON FOR SUBMISSION

- | | |
|--|--|
| <input type="checkbox"/> Initial submission | <input type="checkbox"/> Change to Optional Construction or Material |
| <input type="checkbox"/> Engineering Change(s) | <input type="checkbox"/> Sub-Supplier or Material Source Change |
| <input checked="" type="checkbox"/> Tooling: Transfer, Replacement, Refurbishment, or additional | <input type="checkbox"/> Change in Part Processing |
| <input type="checkbox"/> Correction of Discrepancy | <input type="checkbox"/> Parts produced at Additional Location |
| <input type="checkbox"/> Tooling Inactive > than 1 year | <input type="checkbox"/> Other - please specify |

REQUESTED SUBMISSION LEVEL (Check one)

- Level 1 - Warrant only (and for designated appearance items, an Appearance Approval Report) submitted to customer.
- Level 2 - Warrant with product samples and limited supporting data submitted to customer.
- Level 3 - Warrant with product samples and complete supporting data submitted to customer.
- Level 4 - Warrant and other requirements as defined by customer.
- Level 5 - Warrant with product samples and complete supporting data reviewed at supplier's manufacturing location.

SUBMISSION RESULTS

The results for dimensional measurements material and functional tests appearance criteria statistical process package

These results meet all design record requirements: YES NO (If "NO" - Explanation Required)

Mold / Cavity / Production Process **M487681**

DECLARATION

I affirm that the samples represented by this warrant are representative of our parts, which were made by a process that meets all Production Part Approval Process Manual 4th Edition Requirements. I further affirm that these samples were produced at a production rate of Proprietary /1 hour. I also certify that the documented evidence of such compliance is on file and available for review. I have noted any deviation from the declaration below.

EXPLANATION/COMMENTS: **Production Rate is TE proprietary.**
P-19-018198 & P-19-018199: Component 776933-1

Is each Customer Tool properly tagged and numbered? Yes No N/A

Organization Authorized Signature *Alejandra Lara H.* Date **10/03/2020**

Print Name **Alejandra Lara** Phone No. **N/A** Fax No. **N/A**

Title **PPAP Technician** E-mail alejandra.lara@te.com

FOR CUSTOMER USE ONLY (IF APPLICABLE)

Part Warrant Disposition: Approved Rejected Other

Customer Signature _____ Date _____

Print Name _____ Customer Tracking Number (optional) _____

March 2006 **CFG-1001**

Optional customer tracking number: _____



Section 18a

Bulk Material Requirements



Not Applicable