



ASSEMBLY PART NUMBER CHART												
MVL		DELPHI		INDEX TYPE	① INSULATOR (HOUSING)		② TPA		③ RING SEAL		④ CPA	
NUMBER	REV	NUMBER	REV		COLOR	MVL	DELPHI	MVL	DELPHI	MVL	DELPHI	MVL
54200378	H	13578335	01	A	BLACK	54200382		54200386				
54200379	H	13800877	01	B	LT GRAY	54200383		54200387				
54200380	H	33511473	01	C	BROWN	54200384		54200388			NA	NA
54200381	H	13576035	01	D	DK GRAY	54200385		54200389				
F519600	K	13893234	02	A	BLACK	54200382		54200386	54200392			
F500900	K	13982959	02	B	LT GRAY	54200383		54200387			F752210	
F600900	K	33511474	02	C	BROWN	54200384		54200388				
F177010	K	13925686	02	D	DK GRAY	54200385		54200389				
		33126400	01	A	BLACK		33109603	54200386				

APPLICABLE COMPONENTS CHART										
ITEM NO.	ITEM DESCRIPTION	PLATING OR COLOR	SUPPLIER		GRIP CODE	WIRE SIZE	INSULATION DIAMETER RANGE	MATERIAL/SPEC NO		
			NAME	NUMBER						
5	1.20 SYSTEM TERMINAL	TIN	MVL	54001864	13576990	18	18-16 AWG 0.75-1.25mm ²	1.70mm-2.41mm	COPPER ALLOY / NA	
	1.20 SYSTEM TERMINAL	TIN	MVL	54002006	13806233	20	22-20 AWG 0.35-0.50mm ²	1.20mm-1.90mm	COPPER ALLOY / NA	
	1.20 SYSTEM TERMINAL	TIN/SILVER	MVL	54001866	13587331	18	18-16 AWG 0.75-1.25mm ²	1.70mm-2.41mm	COPPER ALLOY / NA	
	1.20 SYSTEM TERMINAL	TIN/SILVER	MVL	54002007	15521522	20	22-20 AWG 0.35-0.50mm ²	1.20mm-1.90mm	COPPER ALLOY / NA	
	1.20 SYSTEM TERMINAL	SILVER	MVL	F731400	13805376	18	18-16 AWG 0.75-1.25mm ²	1.70mm-2.41mm	COPPER ALLOY / NA	
	1.20 SYSTEM TERMINAL	SILVER	MVL	F931400	13805375	20	22-20 AWG 0.35-0.50mm ²	1.20mm-1.90mm	COPPER ALLOY / NA	
	1.20 SYSTEM TERMINAL	GOLD	MVL	54001863	13579640	18	18-16 AWG 0.75-1.25mm ²	1.70mm-2.41mm	COPPER ALLOY / NA	
6	1.20 SYSTEM CABLE SEAL ROUND	RUST RED	MVL (OSR)	C528010 (A-0419)	13898958		18-16 AWG 1.00-1.25mm ²	1.90mm-2.41mm	SILICONE	
	1.20 SYSTEM CABLE SEAL ROUND	BLUE	MVL (OSR)	54200391 (A-0131)	13819956		22-20 AWG 0.50-0.75mm ²	1.40mm-1.90mm	SILICONE	
	1.20 SYSTEM CABLE SEAL ROUND	TAN	MVL (OSR)	C073510 (A-0419B)	33511987		0.35mm ²	1.20mm-1.40mm	SILICONE	
7	1.20 SYSTEM CAVITY PLUG	GREEN	MVL (OSR)	C628010 (A-0412)	13898957				SILICONE	OPTIONAL AS REQUIRED

NOTES:

- VALIDATED TO SAE/USCAR-2 REV 4
- VALIDATED TO THE FOLLOWING TEMP, VIBRATION, AND SEALING CLASSES:
 - GMW3191 SECTION 4.28 V4 T4 (155°C) WITH GOLD OR SILVER TERMINALS
 - SAE/USCAR-2 V3 T4 (150°C) WITH GOLD OR SILVER TERMINALS
 - SAE/USCAR-2 V3 T3 (125°C) / V2 T4 (150°C) WITH TIN/SILVER TERMINALS
 - SAE/USCAR-2 V2 T3 (125°C) WITH TIN TERMINALS
 - SAE/USCAR-2 SEALING S3 T4 (150°C) (ISO16750 9K EQUIVALENT)
- CONNECTOR MAY BE USED WITH THE FOLLOWING TERMINALS:
 - DELPHI APEX 1.2 TERMINALS LISTED IN THE APPLICABLE COMPONENTS CHART ON THIS DRAWING WITH WIRE SIZES DEFINED IN NOTE 4.
 - SEE DELPHI DRAWING C18001-1-2-CUST FOR SPECIFIC TERMINAL DETAILS AND CRIMPING REQUIREMENTS
 - PLATING OF TERMINALS AND MATING DEVICE BLADES MUST BE COMPATIBLE
- CONNECTOR SYSTEM VALIDATED TO USCAR-2 REQUIREMENTS WITH THE FOLLOWING RANGE OF WIRE SIZES AND TYPES IN CONJUNCTION WITH APPROPRIATE COMPONENTS FOUND IN THE "APPLICABLE COMPONENTS" CHART:
 - AWG - WIRE SIZES: 22AWG - 16AWG
 - INSULATION DIAMETER: 1.50mm MIN - 2.41mm MAX
 - WIRE TYPE: MIL123-A, MS-8288, MS-9502 OR EQUIVALENT (STRUCTURE AND PROPERTIES ACCORDING TO SAE J1128)
 - METRIC - WIRE SIZES: 0.35mm² - 1.25mm²
 - INSULATION DIAMETER: 1.20mm MIN - 2.30mm MAX
 - WIRE TYPE: FLR2X, FLR9X OR EQUIVALENT (STRUCTURE AND PROPERTIES ACCORDING TO ISO 6722)

CONTACT DELPHI ENGINEERING REGARDING USE OF OTHER WIRE SIZES AND /OR TYPES

WIRE AND INSULATION TYPE MUST BE APPROPRIATE FOR TEMPERATURE CLASS & APPLICATION ENVIRONMENT
- CONNECTOR IS MATE COMPATIBLE WITH DEVICES WHICH CONFORM WITH THE FOLLOWING USCAR INTERFACE SPECIFICATIONS:
 - I20-S-003-1-Z01 (WITH EWCAP-001 TYPE 120-T BLADES)
 - I20-S-003-1-Z02 (WITH EWCAP-001 TYPE 120-T BLADES)
- ANNUAL QUALITY REQUIREMENTS:
 - IT IS PERMISSIBLE TO PERFORM CONTINUOUS CONFORMANCE PER DELPHI SPECIFICATION #AQA-001 INSTEAD OF ANNUAL LAYOUT AND ANNUAL PV REQUIREMENTS OF ISO TS16949 AND SAE/USCAR-2 REV 5. FOR TERMINAL TO CONNECTOR AND TPA TO CONNECTOR ONLY.
- SOURCE ID, MOLD & CAVITY ID SIGNIFIES TOOL OWNERSHIP, FOR REFERENCE
- (K) INDICATES IN-PROCESS INSPECTION FOR MANUFACTURING DIMENSIONS OR SPECIFICATIONS.

ECN-NO.	ZONE	DESCRIPTION	DATE	BY	REASON
ECN-13-01229	CHART	ECO 424611 - ADD PART NUMBER 33126400 FOR NEW CLEARANCE SLOT OPTION			
	H2-H4	ADD VIEWS OF KEY A HOUSINGS 54200382 & 33109603			
	NOTES	REVISED NOTE 1 - REV 4 WAS REV 3, REMOVED EXCEPTIONS			
ECN-13-01030	PART BOM	ECO 423850 CORRECT DELPHI AND MVL PCL LEVELS			
ECN-13-01007	CHARTS	ECO 423850 - ADD DELPHI ASSY AND APPLICABLE COMPONENT P/N'S FOR MVL WITH REV LEVELS			
		- UPDATE VIEWS FOR DESIGN IMPROVEMENT TO CPA P/N F752210			
	NOTES	REVISE NOTE 2 PERFORMANCE DATA			
ECN-12-01303	APP CHRT	ADD 0.35 CABLE SEAL C073510, ADD 0.35mm ² and 22 AWG WIRE			
	PART BOM	REMOVE F534300, C434300, TEMP CLASS COLUMN			
	BTI	ADD INSULATION DIA RANGE TO APP CHART			
	NOTES	REVISE NOTE 4			
12-00271	CHART	F752210 WAS 54200016 (NEW CPA), PCL UPDATED TO 'H', 0.75-1.25mm ² WAS 0.75-1.50mm ²			
	NOTES	NOTE #4 WAS CORRECTED (0.50-1.25mm ² WAS 0.50-1.50mm ²)			
11970	N13	CORRECTED DIMENSION: 33.3±0.75 WAS 33.1±0.3			
11903	CHART	APPLICABLE COMPONENTS CHART REVISED			
	CHART	F519600 WAS F400900 (CORRECTION)			
11891	CHART	ADDED KEY OPTION D WITH CPA (F177010)			
11838	CHART	APPLICABLE COMPONENTS CHART REVISED			
	NOTES	REVISED NOTE #5			
	CHART	CORRECTED PCL CODES			
10700	ALL	REVISED AND REDRAWN IN FCI - CUSTOMER FRAME.			
----	D16	ASSY P/N F5434300 FOR FLUOROSILICONE MATERIAL APPLICATION ADDED, CHART UPDATED WITH FLUOROSILICONE SEAL P/N'S (NOT AVAILABLE).			
ECN-NO.	ZONE	DESCRIPTION	DATE	BY	REASON

PROJECT SPEC:	PACKAGING SPEC:	APPLICATION SPEC:	COPYRIGHT DELPHI CORPORATION AND/OR ITS AFFILIATES. ALL RIGHTS RESERVED. REVISED
USCAR-2 REV 4	NONE	NONE	THIS DRAWING IS THE PROPERTY OF DELPHI CORPORATION AND CONTAINS DELPHI CONFIDENTIAL INFORMATION. THE REPRODUCTION, DISTRIBUTION AND UTILIZATION OF THIS DOCUMENT OR ITS RELATED CAD DATA, AS WELL AS COMMUNICATION OF ANY CONTENT TO OTHERS, WITHOUT EXPRESS AUTHORIZATION, IS PROHIBITED.

TOLERANCES UNLESS OTHERWISE SPECIFIED:	MATERIAL:	(SEE TABLE)	SURFACE FINISH:
DO NOT MEASURE DRAWING	COLOR:	SEE TABLE	
CREATED BY: 2013/07/26 J.LABRIN	TOOL NO.:	A-126	ECO Loc. Code: AN
MODIFIED BY: 2013/11/15 Matt MAJOR	DATE:		
CHECKED BY: 2013/11/15 Suebia BIAN	TITLE:	CHART ASSEMBLY - 3-WAY FEMALE (12MM APEX SEALED CONNECTOR SYSTEM)	DRAWING NUMBER: K29002
APPROVED BY: 2013/11/15 JIM CAMPBELL	ESR NO.:	AM030093	STATE: N
FILE NAME: K29002	DOCUMENT UNDER PDS CONTROL, NO MODIFICATION ALLOWED OUTSIDE		APPROVAL LEVEL: A1

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