

GENERAL NOTES:
(UNLESS OTHERWISE SPECIFIED)

- WORKMANSHIP QUALITY AS PER IPC-A-620, CLASS 3.
- MINIMUM CRIMP PULLOUT FORCE AS PER MIL-T-7928 OR EQUIVALENT (SAE-AS-7928).
- ALL CRIMPS AND CONNECTORS MUST MEET MANUFACTURER SPECIFICATIONS.
- ALL CONNECTORS ARE SHOWN AS VIEWED FROM THE CABLE ENTRY SIDE (NOT TO SCALE). REFER TO DRAWING FOR CONNECTOR CAVITY NUMBERS. CAVITY NUMBERS ARE AS SHOWN.
- HARNESS COMPONENTS SHALL NOT CHANGE UNLESS ALTERNATE COMPONENT APPROVAL IS ISSUED FROM BRAMMO ENGINEERING.
- HARNESS DIMENSIONAL TOLERANCING SHALL BE NON-CUMULATIVE.
- ALL WIRE LENGTHS SHALL BE AS LISTED ON THE WIRELIST TABLE. THE LISTED WIRE CUT LENGTH INCLUDES CUMULATIVE NODE TO NODE LENGTHS, ADD-ON AND DRESS ROUTE LENGTHS FOR CONNECTORS, ADD-ON LENGTHS PER JUNCTION AND ADD-ON LENGTHS FOR SPLICES. DEVIATION FROM THE WIRELIST TABLE WIRE CUT LENGTH IS NOT ALLOWED.
- TESTING TO COMPLY WITH IPC-A-620A, CLASS 2 (CONTINUITY AND SHORTS).
- FINISHED CABLE ASSEMBLIES SHALL BE SUFFICIENTLY PACKAGED TO PREVENT ANY DAMAGE DURING SHIPPING.

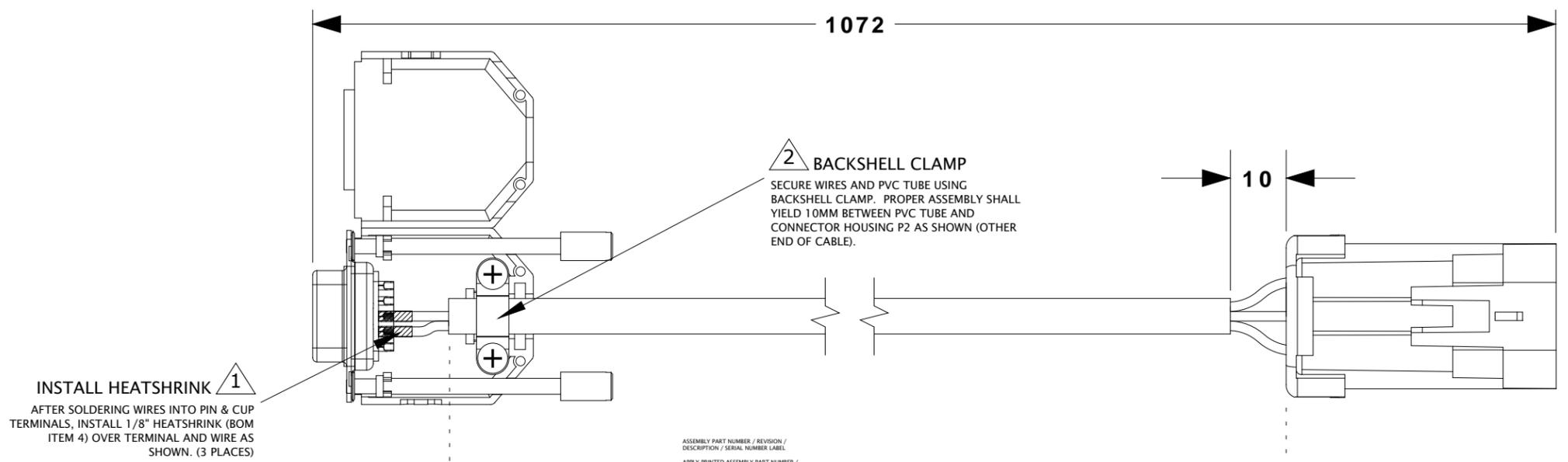
SPECIFIC NOTES:
(UNLESS OTHERWISE SPECIFIED)

- 20AWG WIRES ARE 10/30 STRANDED TINNED COPPER, PVC INSULATION RATED AT 300V -40°C TO +105°C, MINIMUM INSULATION OUTSIDE DIAMETER 1.70MM, MAXIMUM INSULATION OUTSIDE DIAMETER 1.80MM. APPLICABLE SPECIFICATIONS ARE ALPHA WIRE E163869-RU AWM STYLES 1569 105C OR 1007 80C VW-1 300V 20 AWG ---- LXXXX CSA TR-64 90C FT1 ROHS. ALTERNATE 20AWG WIRE MAY BE USED AS LONG AS IT MEETS OR EXCEEDS ALL LISTED WIRE SPECIFICATIONS. WIRE COLORS SHALL NOT CHANGE.
- WIRE COLOR CODES
BK - BLACK
BN - BROWN
RD - RED
OG - ORANGE
YE - YELLOW
DG - DARK GREEN
DB - DARK BLUE
VT - VIOLET
GY - GRAY
WH - WHITE
- TUBING (BOM ITEM 6) IS, 4.6MM MINIMUM I.D., 4.9MM MAXIMUM I.D., 0.5MM MINIMUM WALL THICKNESS, POLY VINYL CHLORIDE (PVC) NON-SHRINKABLE TUBING RATED AT -20°C TO 105°C. APPLICABLE SPECIFICATIONS ARE UL224 VW-1, ASTM D 922. ALTERNATE TUBING MAY BE USED AS LONG AS IT MEETS OR EXCEEDS ALL LISTED TUBING SPECIFICATIONS.

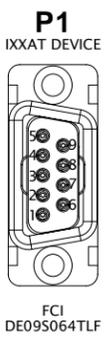
4. CONNECTORS SHOWN WITH A (S) SYMBOL REQUIRE WIRESEALS.

5. ALL LABELS SHOULD SHOW BLACK TEXT ON WHITE BACKGROUND. A PROTECTIVE LAYER SHOULD BE APPLIED OVER LABEL. REFER TO HARNESS DRAWING FOR LABEL CONTENT DETAILS.

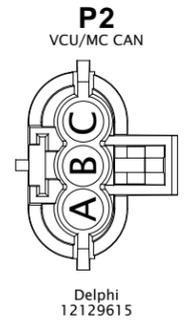
REVISION NOTE TABLE		
REVISION	DESCRIPTION	DATE
A.00	ECO 1164 - PRODUCTION RELEASE	1/16/2013



P1 IXXAT DEVICE					
Cav	Wire	Color	Spec	End 2 Name	End 2 Zone
1	-	-	-	-	-
2	DB9-DELPHI_CANL_1	DG	20AWG 10/30	P2	2-E
3	DB9-DELPHI_GND_1	BK	20AWG 10/30	P2	2-E
4	-	-	-	-	-
5	-	-	-	-	-
6	-	-	-	-	-
7	DB9-DELPHI_CANH_1	YE	20AWG 10/30	P2	2-E
8	-	-	-	-	-
9	-	-	-	-	-



Wire List											
Wire	Multicore	Color	Wire Spec	Wire Cut Length	From Zone	From Cavity	Strip Length	To Zone	To Cavity	Strip Length	
DB9-DELPHI_CANH_1		YE	20AWG 10/30	1040	2-B	P1	7	4	2-E	P2 C	4
DB9-DELPHI_CANL_1		DG	20AWG 10/30	1035	2-B	P1	2	4	2-E	P2 B	4
DB9-DELPHI_GND_1		BK	20AWG 10/30	1040	2-B	P1	3	4	2-E	P2 A	4



P2 VCU/MC CAN					
Cav	Wire	Color	Spec	End 2 Name	End 2 Zone
A	DB9-DELPHI_GND_1	BK	20AWG 10/30	P1	2-B
B	DB9-DELPHI_CANL_1	DG	20AWG 10/30	P1	2-B
C	DB9-DELPHI_CANH_1	YE	20AWG 10/30	P1	2-B

P2 Additional Parts					
Index	Part Description	Supplier name	Supplier part Number	Qty	Position
1	LOCK SECONDARY TPA M/P 150	Delphi	12052845	1	TPA

Bill Of Materials						
Index	BRAMMO P/N	Description	Qty	Unit of Measure	Supplier Name	Supplier Part Number
1	60653325	BACKSHELL DB9 CLAM SLIM BLACK	1	Each	Norcomp Inc.	972-009-01SR011
2	27900283	CONN DSUB RECEPT 9POS SOLDERCUP	1	Each	FCI	DE09S064TLF
3	37703902	CONN RCPT M 3 POS M/P 150	1	Each	Delphi	12129615
4	81570578	HEATSHRINK 3.18MM BL	18.0	Per Length	3M	FP-301 1/8" BL
5	10958300	LOCK SECONDARY TPA M/P 150	1	Each	Delphi	12052845
6	39373532	SLEEVING 5.3MM PVC BLK	990.0	Per Length	Alpha Wire	PVC-105-4
7	87801773	TERM M 22-24AWG TIN M/P 150	3	Each	Delphi	12077628
8	50639189	WIRE 20AWG UL1007/1569 PVC BK	1040.0	Per Length	Alpha Wire	3053 BK005
9	56175460	WIRE 20AWG UL1007/1569 PVC DG	1035.0	Per Length	Alpha Wire	3053 GR005
10	37891861	WIRE 20AWG UL1007/1569 PVC YE	1040.0	Per Length	Alpha Wire	3053 YL005
11	96122618	WIRESEAL 1.29-1.70MM M/P 150	3	Each	Delphi	12052925

GENERAL TOLERANCES (UNLESS SPECIFIED)	SCALE NOT TO SCALE	DRAWN BY DW 1/16/2013	DATE 1/16/2013	BRAMMO, Inc. 550 Clover Lane, Ashland, OR 97520, USA Phone: 541.482.9555 Fax: 541.552.0414
0 DECIMAL PLACES ±12.70MM	DESIGN UNITS MM	CHECKED BY JK 1/16/2013	DATE 1/16/2013	
1 DECIMAL PLACES ±6.35MM	MATERIAL SEE BOM	APPROVED BY RG 1/16/2013	DATE 1/16/2013	
2 DECIMAL PLACES ±2.54MM	ANGULAR ±1°	SIZE B	THIRD ANGLE PROJECTION	CABLE IXXAT-DELPHI 1M 71669785 A.00 SERVICE CABLES
DRAFT WHERE APPLICABLE MUST REMAIN WITHIN DIMENSIONS				THE INFORMATION CONTAINED HEREON SHALL BE CONSIDERED THE SOLE PROPERTY OF BRAMMO, INC. AND THE RECIPIENT THEREOF AGREES NOT TO DISCLOSE SAID INFORMATION TO PARTIES OUTSIDE THE RECIPIENT'S ORGANIZATION, AND NOT TO USE OR TO DUPLICATE SAID INFORMATION FOR ANY PURPOSE EXCEPT AS SPECIFIED BY BRAMMO, INC. THIS DOCUMENT IS BY BRAMMO, INC. THIS DOCUMENT IS LOANED IN CONFIDENCE, SUBJECT TO RETURN UPON DEMAND.
				SHEET NO. 1 of 1