

REDUCED NICKEL THICKNESS

15.0 MIN AREA 3

14.00 MIN AREA 2

7.00 MIN AREA 1

8.00 MIN AREA 4

Z

Y

Z

Y

FOR SHORTING BAR PART NUMBERS ONLY, (AREA 2, 3)

N

SEE CRIMP NOTE 3

CONDUCTOR CRIMP

SECTION Z-Z

CRIMP WIDTH (CW)

CRIMP HEIGHT (CH)

CRIMP HEIGHT (CH)

NO ARRL FLASH ALLOWED ON TIGS

D' STYLE

INSULATION CRIMP

SECTION Y-Y

CRIMP WIDTH (CW)

CRIMP HEIGHT (CH)

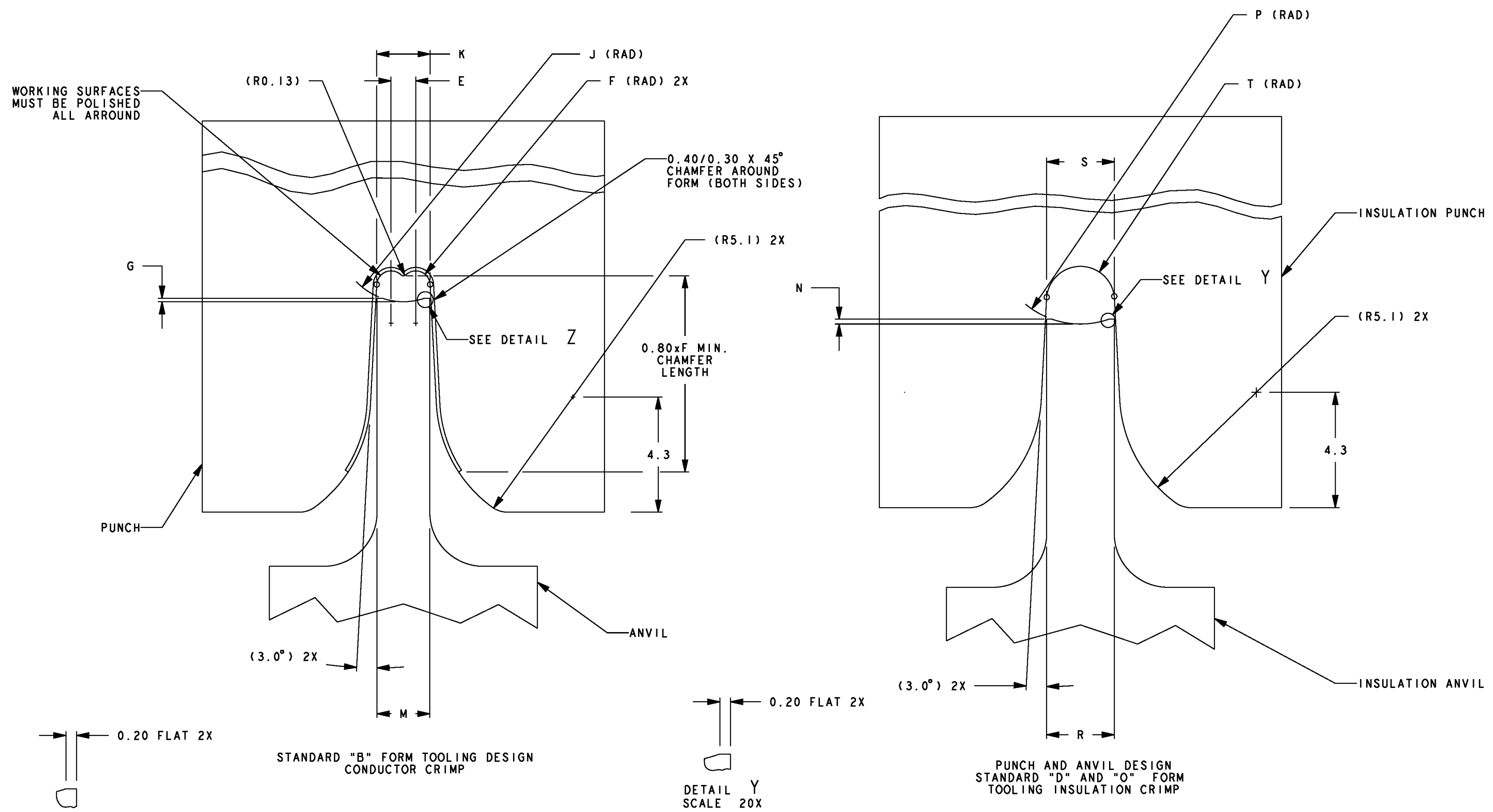
OPTIONAL O' STYLE

TABLE 2 - PLATING DETAILS

| MATERIAL                       | PLATING TYPE/PROCESS                                                                          | THICKNESS                                                                       | APPLICABLE SPEC.        | PLATING AREA        |
|--------------------------------|-----------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|-------------------------|---------------------|
| TYPE ①<br>TIN                  | 100% ELECTROMATTE TIN                                                                         | 0.0012 -<br>0.0026                                                              | NONE                    | ALL OVER            |
|                                | a) SULFAMATE DUCTILE<br>NICKEL                                                                | 0.00127 -<br>0.0026<br>(MEASURED AT POINT N<br>FOR AREA 2, 3)                   | ASTM B 689-90<br>TYPE 2 | #3                  |
|                                | b) NICKEL FLASH                                                                               | 0.000127 MAX                                                                    | ASTM B 689-90<br>TYPE 2 | #4                  |
| TYPE ②<br>PALLADIUM OR<br>GOLD | c) 100% PURE<br>ELECTROMATTE TIN<br>(POST PLATED)                                             | 0.0012 -<br>0.0026                                                              | NONE                    | #4                  |
|                                | d) PALLADIUM OPTION<br>GOLD FLASH - 99% PURE<br>PER ASTM B488 TYPE 2 CODE C<br>OVER PALLADIUM | PD - 0.000508 MIN<br>AU - 0.00001 MIN<br>(MEASURED AT POINT N<br>FOR AREA 2, 3) | ASTM B 488-95           | #1 OR #2<br>SEE P/N |
|                                | e) GOLD OPTION<br>GOLD - 99% PURE<br>PER ASTM B488 TYPE 2 CODE C                              | AU - 0.00076 MIN<br>(MEASURED AT POINT N<br>FOR AREA 2, 3)                      | ASTM B 488-95           | #1 OR #2<br>SEE P/N |

PLATING NOTES:

1. TIN PLATE NOT TO OVERLAP PRECIOUS METAL
2. TIN AND NICKEL OVERLAP IS NECESSARY TO AVOID EXPOSURE OF BARE METAL



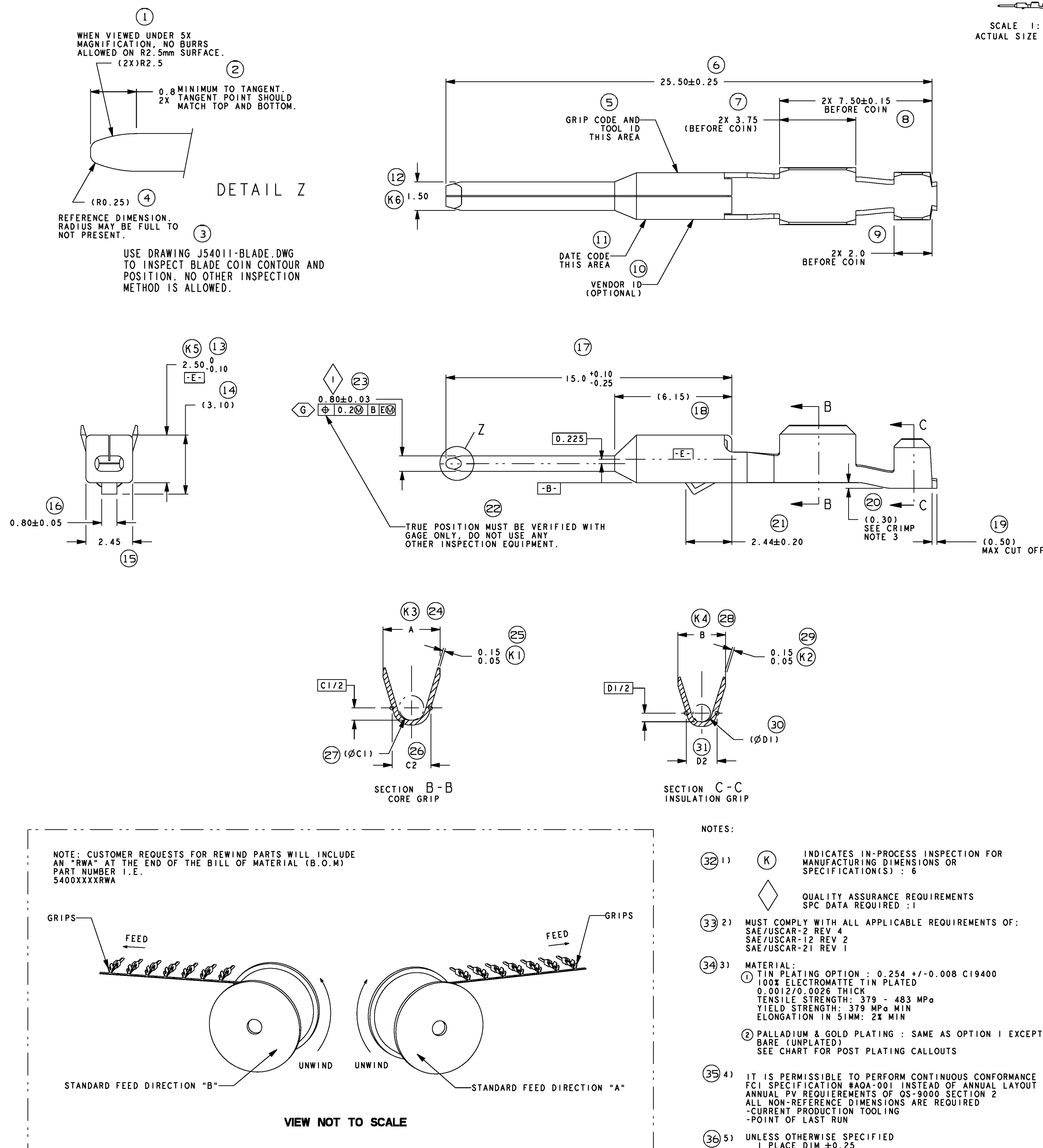
CRIMP TOOL INFORMATION (REF. ONLY)

TABLE 3 - TERMINAL GRIP / CRIMP TOOL DIMENSION TABLE (CRIMP TOOL DIMENSIONS (E-T) FOR REFERENCE ONLY)

| PART NUMBER  |                  |                       |                  |                       | GRIP CODE | WIRE SPECIFICATION       | A   | B   | (ØC1) | C2  | (ØD1) | D2  | E+/ -0.02 | F+/ -0.02 | G+/ -0.02 | J+/ -0.02 | K+/ -0.02 | M+/ -0.02 | N+/ -0.02 FOR "D" STYLE | N+/ -0.02 FOR "O" STYLE | P+/ -0.02 FOR "D" STYLE | P+/ -0.02 FOR "O" STYLE | R+/ -0.02 | S+/ -0.02 | T+/ -0.02 |
|--------------|------------------|-----------------------|------------------|-----------------------|-----------|--------------------------|-----|-----|-------|-----|-------|-----|-----------|-----------|-----------|-----------|-----------|-----------|-------------------------|-------------------------|-------------------------|-------------------------|-----------|-----------|-----------|
| TIN ALL OVER | PALLADIUM        |                       | GOLD             |                       |           |                          |     |     |       |     |       |     |           |           |           |           |           |           |                         |                         |                         |                         |           |           |           |
|              | AREA 1 (IN-LINE) | AREA 2 (SHORTING BAR) | AREA 1 (IN-LINE) | AREA 2 (SHORTING BAR) |           |                          |     |     |       |     |       |     |           |           |           |           |           |           |                         |                         |                         |                         |           |           |           |
| 54001626     | 54001626         | 54001629              | 54001633         | 54001634              | 16        | ESB-MIL123-A/<br>MS 8286 | 3.0 | 3.7 | 1.00  | 1.6 | 1.75  | 2.4 | 0.92      | 0.53      | 0.13      | 2.56      | 1.99      | 1.97      | 0.18                    | 0.67                    | 2.34                    | 1.15                    | 2.52      | 2.53      | 1.23      |
| 54002001     | 54002003         | 54002004              | 54002008         | 54002009              | 20        | ESB-MIL123-A/<br>MS 8286 | 2.5 | 3.1 | 0.76  | 1.4 | 1.40  | 2.0 | 0.74      | 0.43      | 0.09      | 2.06      | 1.59      | 1.59      | 0.16                    | 0.60                    | 2.16                    | 1.10                    | 2.33      | 2.33      | 1.17      |

|             |   |          |    |    |          |    |    |          |
|-------------|---|----------|----|----|----------|----|----|----------|
| 54001633    | L | 13768448 | 01 | AH | 15502060 | 01 | AB | M6575H94 |
| 54002008    | L | 13783476 | 01 | AG | 15502062 | -  | AB | M6575H94 |
| 54002004RWA | L | 15520259 | 01 | AA | -        | -  | -  | 33500641 |
| 54002004    | L | 33500641 | 01 | AB | 15502062 | 01 | AB | M6575H94 |
| 54002003RWC | L | 15502257 | 01 | AA | -        | -  | -  | 13851003 |
| 54002003RWA | L | 15548865 | 01 | -  | -        | -  | -  | 13851003 |
| 54002003    | L | 13851003 | 01 | AE | 15502062 | 01 | AB | M6575H94 |
| 54002001RWA | L | 15502256 | 01 | AA | -        | -  | -  | 13624759 |
| 54002001    | L | 13624759 | 01 | AH | -        | -  | -  | M6576H94 |
| 54001629    | L | 13755243 | 01 | AH | 15502060 | 01 | AB | M6575H94 |
| 54001628    | L | 13795935 | 01 | AB | 15502060 | 01 | AB | M6575H94 |
| 54001626RWA | L | 15502054 | 01 | AA | -        | -  | -  | 13630404 |
| 54001626    | L | 13630404 | 01 | AH | -        | -  | -  | M6576H94 |

| PART NUMBER | REV | PART NUMBER | REV | N/P | PART NUMBER | REV | N/P | MAT'L SPEC |
|-------------|-----|-------------|-----|-----|-------------|-----|-----|------------|
|             |     | PLATED      |     |     | UNPLATED    |     |     |            |
| MVL         |     | DELPHI      |     |     |             |     |     |            |



CRIMP NOTES:

1. THE CRIMP AND CRIMP TOOLING DIMENSIONS HAVE BEEN ESTABLISHED AND VALIDATED TO USCAR-21 USING FCI TOOLS, MACHINES AND PROCESSES. THE DIMENSIONS SHOWN ARE FOR REFERENCE.
2. WIRING SUPPLIERS ARE TO DEVELOP AND VALIDATE THEIR CRIMPING SPECIFICATIONS AND PROCESSES TO ALL ASPECTS OF USCAR-21 REV. 2. NOTE THAT AS STATED IN USCAR-21, WIRING SUPPLIER DEFINED CRIMPING SPECIFICATIONS AND CRIMPING PROCESSES FOR CONTACT CONNECTOR FUNCTION. (SEE USCAR-21 REV. 2. 4.2.5.1); CONTACT FCI ENGINEERING FOR ANY NEEDED ASSISTANCE IN THIS REGARD.
3. DESIGN REFERENCE INFORMATION: IT IS RECOMMENDED THAT THE NOTED NOMINAL OFFSET BETWEEN CONDUCTOR GRIP AND INSULATION GRIP NOT BE CHANGED BY THE CRIMPING PROCESS. RESISTING THIS FEATURE TO THE CRIMPING PROCESS COULD BE THE CAUSE OF THE ACTUAL CRIMPING PROCESS NOT BEING THE NOTED CRIMPED OFFSET. CRIMPING SPECIFICATION, AND CRIMPING PROCESS USED IS TO BE DETERMINED AS DEFINED IN CRIMP NOTE 2.
4. DESIGN REFERENCE INFORMATION: CRIMPED TERMINALS ARE USED ON VARIOUS CONNECTOR APPLICATIONS. NORMALLY, TWO PROPOSED CONDUCTOR AND INSULATION GRIP ANGLE TOLERANCE OF  $\pm 3^\circ$  DEGREES RELATIVE TO TERMINAL DUTY CAN BE ASSUMED. ACTUAL CRIMP TOLERANCES DEFINED WITHIN THIS HARNESSE MAKER CRIMPING PROCESS FOR A SPECIFIC CONNECTOR APPLICATION MUST BE VERIFIED WITH SUITABLE STATISTICAL DATA TO ASPECTS OF USCAR-21 INCLUDING SECTION 4.2.5.

NOTES:

(32) 1) (K) INDICATES IN-PROCESS INSPECTION FOR MANUFACTURING DIMENSIONS OR SPECIFICATION(S) : 6

 QUALITY ASSURANCE REQUIREMENTS  
SPC DATA REQUIRED : 1

(33) 2) MUST COMPLY WITH ALL APPLICABLE REQUIREMENTS OF:  
SAE/JUSCAR-2 REV 4  
SAE/JUSCAR-12 REV 2  
SAE/JUSCAR-21 REV 1

(34) 3) MATERIAL:  
TIN PLATING OPTION : 0.254 +/- 0.008 C19400  
① 100% ELECTROWETTING TIN PLATED  
0.00125" 0.028 THICK  
TENSILE STRENGTH: 370 - 483 MPa  
TILT STRENGTH: 370 MPa MIN  
ELONGATION IN 51MM: 2% MIN

② PALLADIUM & GOLD PLATING : SAME AS OPTION 1 EXCEPT  
BUT UNPLATED 2X  
SEE CHART FOR POST PLATING CALLOUTS

(35) 4) IT IS PERMISSIBLE TO PERFORM CONJUNCTIVE CONFORMANCE PER  
FCI SPECIFICATION #A04-011 INSTEAD OF ANNUAL LAYOUT AND  
ANNUAL PV REQUIREMENTS OF QS-9000 SECTION 2  
ALL REFERENCE DIMENSIONS ARE REQUIRED  
- CURRENT PRODUCTION TOOLING  
- POINT OF LAST RUN

(36) 5) UNLESS OTHERWISE SPECIFIED  
1 PLACE DIM ±0.25  
2 PLACE DIM ±0.1  
ANGULAR DIM ±2°

(37) 6)  DENOTES GAGE REQUIREMENTS FOR  
USER AND MANUFACTURER

|       |    |          |     |                |                                                                                                                     |
|-------|----|----------|-----|----------------|---------------------------------------------------------------------------------------------------------------------|
| 11883 | L  | 01/11/11 | C11 | ISSUED NOTE 3. |                                                                                                                     |
| 1675  | K  | 06/06/10 | 011 | 289            | ADDED DETAILS "D" AND RELATED NOTES.                                                                                |
| 11063 | J  | 06/06/10 | 001 | 289            | ADDED TYPE POSITION CALLOUT AND BASIC DIM.                                                                          |
| 10707 | N3 | 11/13/10 | N20 |                | UPGRADE TO 1/2" DIA. HANGER. 2" DIAMENSION<br>ADD A NOTE, UPDATE CRIMP TOOL.                                        |
| 10592 | H2 | 05/12/10 | N20 |                | ADD NICKEL FLASH SPECIFICATIONS<br>ADD REDUCED MIN. THICKNESS SPECIFICATIONS                                        |
| 14009 | H1 | 02/27/09 | C21 |                | 14009 MIN. IS 11 MIN FOR AREA 2                                                                                     |
| 13396 | H1 | 01/19/09 | M18 |                | 14009 MINIMUM PLATING THICKNESS TO 0.000500MM (ENGLISH) INCHES;<br>UPDATE PLATING DETAILS FOR AREA 3, 4 & 5         |
|       |    |          | Q21 |                | 14009 MINIMUM PLATING THICKNESS TO 0.000500MM (ENGLISH) INCHES;<br>UPDATE PLATING DETAILS FOR AREA 3, 4 & 5         |
|       |    |          | M15 |                | 14009 MINIMUM PLATING THICKNESS TO 0.000500MM (ENGLISH) INCHES;<br>UPDATE PLATING DETAILS FOR AREA 3, 4 & 5         |
| 9987  | G1 | 01/29/07 | F18 |                | 2007 DESIGNATION CHANGED TO NEW PART. SEE KEY "Y" FOR PREVIOUS CHANGES.<br>REVIEW WELDING VIEW ADDED TO THE DRAWING |

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| APR 150      |  |      |  | APR 150     |  |          |  |    |  |     |  |
| ISSUED NOTES |  |      |  | SEE NOTES   |  |          |  |    |  |     |  |
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| DATE         |  | TIME |  | DESCRIPTION |  | REVISION |  | BY |  | CHK |  |
| APR 150      |  |      |  | APR 150     |  |          |  |    |  |     |  |
| ISSUED NOTES |  |      |  | SEE NOTES   |  |          |  |    |  |     |  |
| 254001-020   |  |      |  | 254001-020  |  |          |  |    |  |     |  |

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| DATE         |  | TIME |  | DESCRIPTION |  | REVISION |  | BY |  | CHK |  |
| APR 150      |  |      |  | APR 150     |  |          |  |    |  |     |  |
| ISSUED NOTES |  |      |  | SEE NOTES   |  |          |  |    |  |     |  |
| 254001-020   |  |      |  | 254001-020  |  |          |  |    |  |     |  |

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| DATE         |  | TIME |  | DESCRIPTION |  | REVISION |  | BY |  | CHK |  |
| APR 150      |  |      |  | APR 150     |  |          |  |    |  |     |  |
| ISSUED NOTES |  |      |  | SEE NOTES   |  |          |  |    |  |     |  |
| 254001-020   |  |      |  | 254001-020  |  |          |  |    |  |     |  |

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| DATE         |  | TIME |  | DESCRIPTION |  | REVISION |  | BY |  | CHK |  |
| APR 150      |  |      |  | APR 150     |  |          |  |    |  |     |  |
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| DATE         |  | TIME |  | DESCRIPTION |  | REVISION |  | BY |  | CHK |  |
| APR 150      |  |      |  | APR 150     |  |          |  |    |  |     |  |
| ISSUED NOTES |  |      |  | SEE NOTES   |  |          |  |    |  |     |  |
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| APR 150      |  |      |  | APR 150     |  |          |  |    |  |     |  |
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| APR 150      |  |      |  | APR 150     |  |          |  |    |  |     |  |
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| 254001-020   |  |      |  | 254001-020  |  |          |  |    |  |     |  |

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| DATE         |  | TIME |  | DESCRIPTION |  | REVISION |  | BY |  | CHK |  |
| APR 150      |  |      |  | APR 150     |  |          |  |    |  |     |  |
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| 254001-020   |  |      |  | 254001-020  |  |          |  |    |  |     |  |

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| DATE         |  | TIME |  | DESCRIPTION |  | REVISION |  | BY |  | CHK |  |
| APR 150      |  |      |  | APR 150     |  |          |  |    |  |     |  |
| ISSUED NOTES |  |      |  | SEE NOTES   |  |          |  |    |  |     |  |
| 254001-020   |  |      |  | 254001-020  |  |          |  |    |  |     |  |

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| 254001-020   |  |      |  | 254001-020  |  |          |  |    |  |     |  |

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| APR 150      |  |      |  | APR 150     |  |          |  |    |  |     |  |
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| APR 150      |  |      |  | APR 150     |  |          |  |    |  |     |  |
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| 2            |  |      |  |             |  |          |  |    |  |     |  |

LAST BALLOON: (

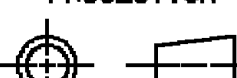
## NOTES

1. UNLESS OTHERWISE SPECIFIED AND/OR INDICATED:

DIMENSIONS ARE TO FACE OF VIEW SHOWN AND AUTOMATICALLY ROUNDED BY COMPUTER FOR INSPECTION (SEE MATH MODEL FOR PRECISE DIMENSIONS). FOR ALL OTHER DIMENSIONS NOT SHOWN BUT REQUIRED FOR TOOL BUILD, SEE MATH MODEL FOR PRECISE TOOL PATH DATA.

TOLERANCE UNLESS  
OTHERWISE SPECIFIED:  
DECIMAL:           ANGULAR  
TWO PLACE SEE DRAWING  
THREE PLACE SEE DRAWING

| DWG STATUS |        |     |     |     | ZONE | REVISION HISTORY                                                                                                                                                                                        | AUTH   | DR  | NPV/APP/1 |     |
|------------|--------|-----|-----|-----|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|-----|-----------|-----|
| DATE       | STATUS | REV | NPV | CHG |      |                                                                                                                                                                                                         |        |     | 1         | 2   |
| 11MR13     | R      | 09  | -   | -   |      | ALL PARTS - CLEARED REV COLUMN. UPDATED WASTE UP AND PRV AND INSPECTION SYMBOLS/BALLONS: 15520260, 15520261, 15520262, 15520265, 15520294, 13795935, 15520295, 15520297, 33500641 & 15520299 - RELEASED | 421190 | COB | JAA       | DAB |
| 16AP13     | R      | 10  | -   | -   |      | 13768446, 13783746, 33500641, 13851003, 13795243, 13795935 - UPDATED "DELPHI P/V/N UNPLATED" AND MAT'L SPEC WAS 5676H94                                                                                 | 422138 | AHG | JAA       | DAB |
| 08AUI1     | R      | 11  | -   | -   |      | ALL PARTS - INSPECTION SYMBOL/BALLON #17 WAS 15.0                                                                                                                                                       | 423505 | IMF | JAA       | BC  |
| 20AUI1     | R      | 12  | -   | -   |      | 15548865 - RELEASED                                                                                                                                                                                     | 423622 | COB | JAA       | DAB |

|                                                                                                                                                                                                                                                                                            |                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| LINE DRAWING THROUGH A PART NUMBER<br>INDICATES THAT PHYSICAL PARTS ARE NOT AVAILABLE<br>FOR ORDERING.<br>PART NUMBERS THAT DO NOT HAVE A LINE PRESENT INDICATE<br>THAT PHYSICAL PARTS ARE AVAILABLE FOR ORDERING.<br>CONTACT DELPHI SALES TO ASSURE AVAILABILITY<br>OF PARTS.<br>DWD TYPE |                                                                                                                                                                        | <h1 style="text-align: center;">DELPHI</h1> <h2 style="text-align: center;">DELPHI PACK-AGE ELECTRICAL/ELECTRONIC ARCHITECTURE</h2> <p style="text-align: center;">COPYRIGHT 2013 DELPHI CORPORATION AND/OR ITS AFFILIATES.<br/>         REVISED 2013<br/>         THIS DRAWING IS THE PROPERTY OF DELPHI CORPORATION<br/>         AND CONTAINS DELPHI CONFIDENTIAL INFORMATION.<br/>         THE REPRODUCTION, DISTRIBUTION AND UTILIZATION<br/>         OF THIS DOCUMENT AND ANY INFORMATION THEREIN<br/>         AS WELL AS COMMUNICATION OF ANY CONTENT TO OTHERS,<br/>         WITHOUT EXPRESS AUTHORIZATION, IS PROHIBITED.</p> |                    |
| STYLE                                                                                                                                                                                                                                                                                      |                                                                                                                                                                        | DATE:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                    |
| VOLUME (TOP)                                                                                                                                                                                                                                                                               | DISTR CODE<br><div style="border: 1px solid black; width: 100px; height: 100px; display: flex; align-items: center; justify-content: center; font-size: 40px;">D</div> | DR CARLOS DELGADILLO                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 11MR13             |
|                                                                                                                                                                                                                                                                                            |                                                                                                                                                                        | APV01 J. S. ALVARADO                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 11MR13             |
|                                                                                                                                                                                                                                                                                            |                                                                                                                                                                        | APV02 DANIEL A. BUCCINO                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 11MR13             |
|                                                                                                                                                                                                                                                                                            |                                                                                                                                                                        | APV03                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                    |
|                                                                                                                                                                                                                                                                                            |                                                                                                                                                                        | APV04                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                    |
|                                                                                                                                                                                                                                                                                            |                                                                                                                                                                        | APV05                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                    |
| UNLESS OTHERWISE SPECIFIED<br>THIS DOCUMENT IS IN ACCORDANCE WITH AEC 114.5W-1994<br>AND AEC 114.5W-2000. ALL DIMENSIONS ARE IN MILLIMETERS<br>AND TOLERANCES ARE SHOWN SEPARATELY. SEPARATE PATTERNS OF<br>REFERENCES, IF APPLICABLE, SHOULD BE OBTAINED.                                 |                                                                                                                                                                        | SUBSTANCES OF CONCERN AND RECYCLED<br>CONTENT PER DELPHI 10349001                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                    |
| ALL DIMENSIONS ARE IN MILLIMETERS                                                                                                                                                                                                                                                          |                                                                                                                                                                        | MATERIAL<br>SEE CHART                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                    |
| REFERENCE                                                                                                                                                                                                                                                                                  | DRAWING NAME<br>TAXI TERM M APEX 1.5                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                    |
| THIRD ANGLE<br>PROJECTION<br>                                                                                                                                                                         | DO NOT<br>SCALE<br> USE MATH<br>DATA                                              | DRAWING NUMBER<br><div style="font-size: 40px; font-weight: bold;">136784140</div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                    |
| SIZE<br>A0                                                                                                                                                                                                                                                                                 | SCALE<br>NONE                                                                                                                                                          | FRAME NO<br>1 OF 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | SHEET NO<br>1 OF 1 |
|                                                                                                                                                                                                                                                                                            |                                                                                                                                                                        | STG<br>R                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | REV<br>12          |

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