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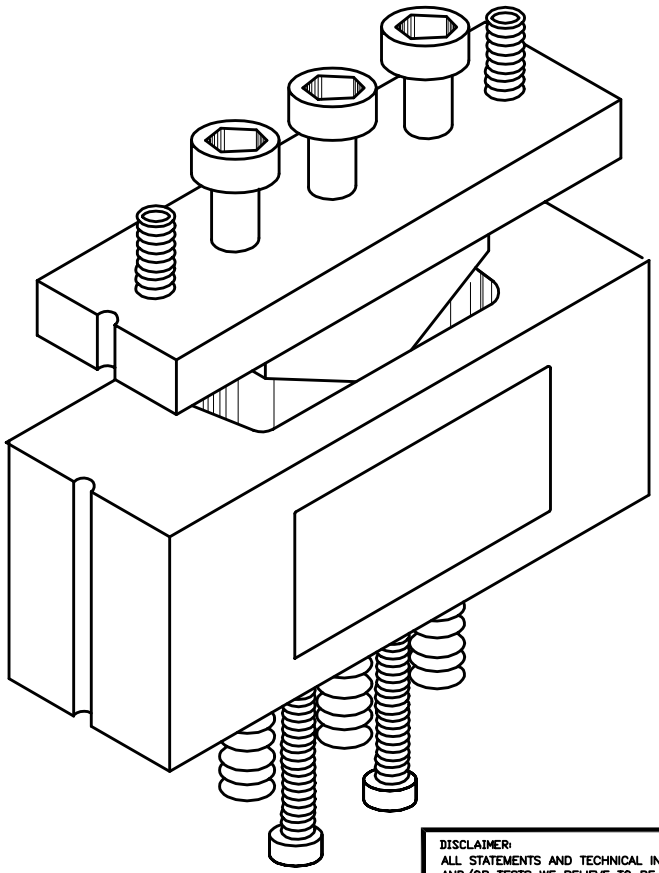
REVISIONS			DOC. NO. SPC-F005 * Effective: 12/21/98 * DCP No: 680					
DCP #	REV	DESCRIPTION	DRAWN	DATE	CHECKD	DATE	APPRVD	DATE
	B	REVISE AND REDRAWN	J.A.P.	4/28/93	J.C.	5/12/93	K.D.	5/13/93
583	C	Change file name. was RBC-24*	HYO	7/3/01	J.C.	7/9/01	J.C.	7/9/01

PANEL PUNCHES FOR RIBBON CONNECTORS

RBC-24 - Having the same trapezoidal shape as the D-subminiature is a line of connectors that are called "Ribbon" connectors. They differ from the D-subminiature in that they have buss type rather than pin and socket type contacts; they also require a larger opening. These types of contacts are usually identified by their number of contacts. Adhesive backed templates included along with screws and wrenches. Punches are designed for recommended thicknesses from 22 gauge to 16 gauge steel and aluminum panels.



DISCLAIMER:
ALL STATEMENTS AND TECHNICAL INFORMATION CONTAINED HEREIN ARE BASED UPON INFORMATION AND/OR TESTS WE BELIEVE TO BE ACCURATE AND RELIABLE. SINCE CONDITIONS OF USE ARE BEYOND OUR CONTROL, THE USER SHALL DETERMINE THE SUITABILITY OF THE PRODUCT FOR THE INTENDED USE AND ASSUME ALL RISK AND LIABILITY WHATSOEVER IN CONNECTION THEREWITH.

UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE FOR REFERENCE PURPOSES ONLY.

DRAWN BY:	DATE:
J.A.P.	4/28/93
CHECKED BY:	DATE:
JOHN COLE	5/12/93
APPROVED BY:	DATE:
K.D.	5/13/93

SPC TECHNOLOGY

DRAWING TITLE: RIBBON CONNECTOR PANEL PUNCHES, 24 CONTACTS

SIZE	DWG. NO.	ELECTRONIC FILE	REV
A	RBC-24	46N7349.DWG	C

SCALE: NTS | U.O.M.: INCHES | SHEET: 1 OF 5

SPC-F005.DWG

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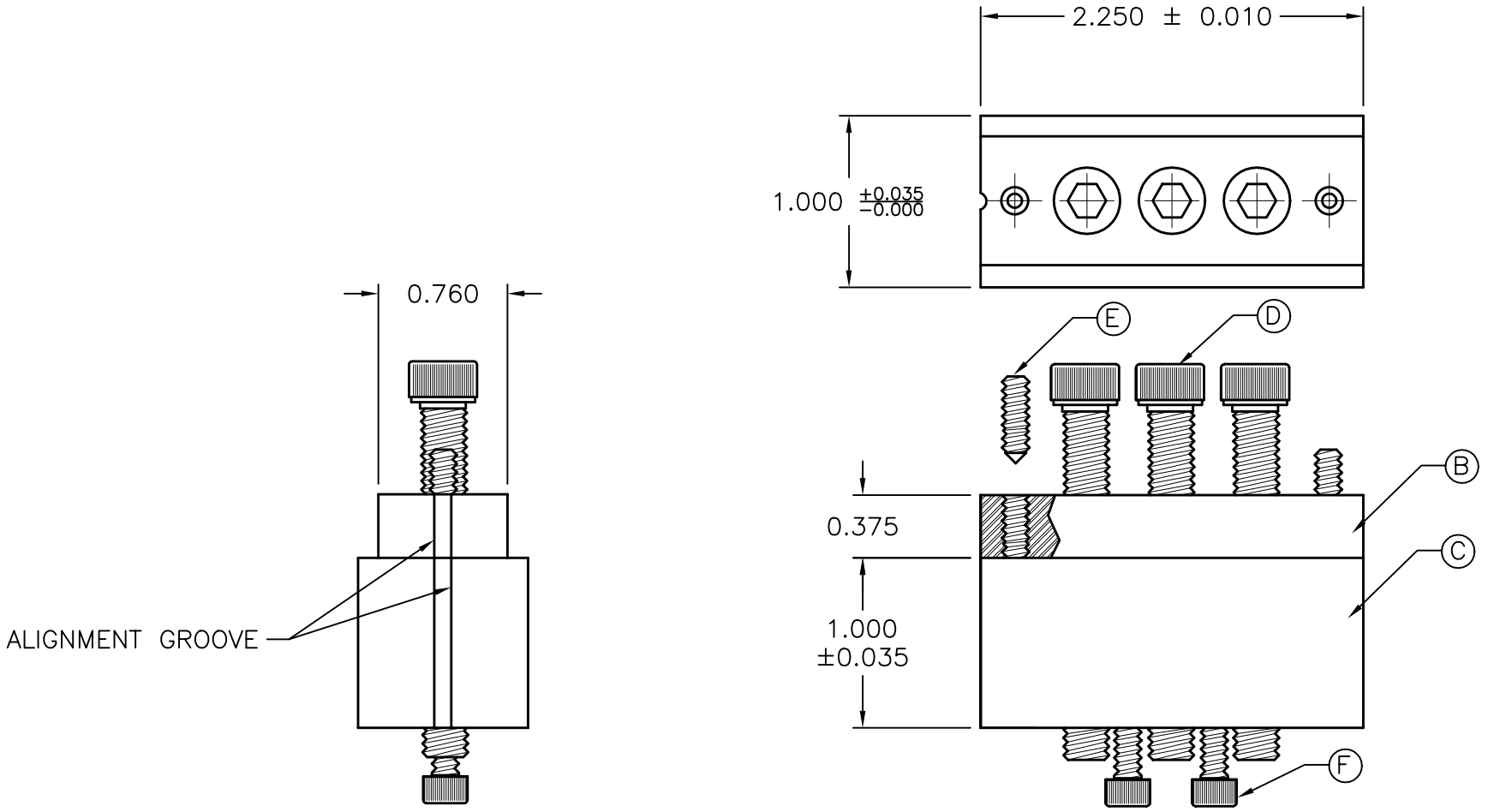
NOTES:

1. MATERIAL: D-2 TOOL STEEL
2. HEAT-TREAT: NORMALIZED
3. FINISH: BLACK OXIDE
4. ALL SCREWS ARE MILL RUN GRADE 5 STEEL OR LESS.

ITEM	QTY	DESCRIPTION
B	1	PUNCH
C	1	DIE
D	3	DRAW SCREW; SOCKET HEAD SCREW (M6 x 50 MM)
E	2	SOCKET SET SCREW, CONE POINT #8-32 UNC X .51 LG.
F	2	SOCKET HEAD CAP SCREW, #8-32 UNC X 1 LG.



SIZE	DWG. NO.	ELECTRONIC FILE	REV
A	RBC-24	46N7349.DWG	C
SCALE: NTS	U.O.M.: INCHES	SHEET: 2 OF 5	

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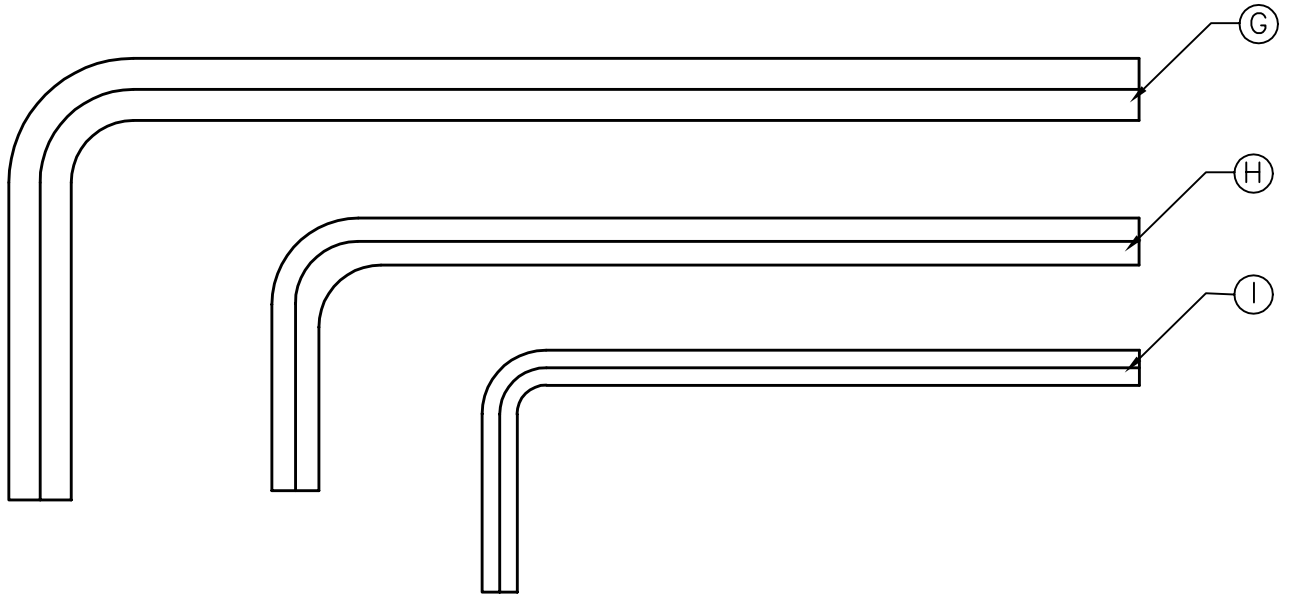
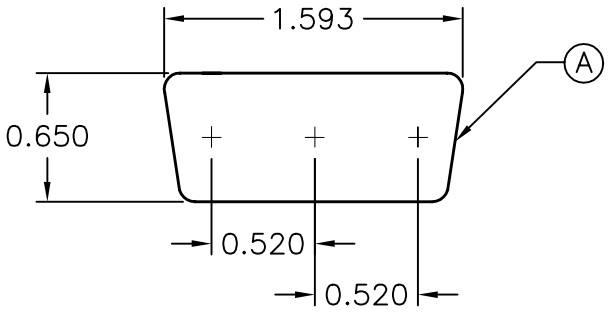
ITEM	QTY	DESCRIPTION
A	25	ADHESIVE-BACKED TEMPLATE
G	1	HEX KEY, SHORT ARM (5 mm)
H	1	HEX KEY, (9/64)
I	1	HEX KEY, (5/64)

NOTES:

1. MATERIAL: COLD ROLLED STEEL
2. FINISH: BLACK OXIDE





SIZE	DWG. NO.	ELECTRONIC FILE	REV
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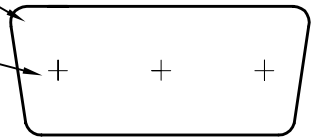
INSTRUCTIONS

WARNING: THIS IS A HAND TOOL AND USE OF POWER TOOLS INSTEAD OF THE ALLEN WRENCHES PROVIDED VOIDS ALL WARRANTIES.

(1) MOUNT adhesive backed template at the location you wish to make plug installation. CAUTION: be sure there will be room to use both punch and die at this place. Surface must be clean so template will adhere.

PLEASE NOTE (6) & (7): IF THESE INSTRUCTIONS ARE NOT READ AND FOLLOWED THE DIE WILL BREAK. THERE IS NO WARRANTY PROVIDED FOR THIS MISUSE.

(2) CENTER punch and drill 3 ¼ inch holes at points marked "+" on template.



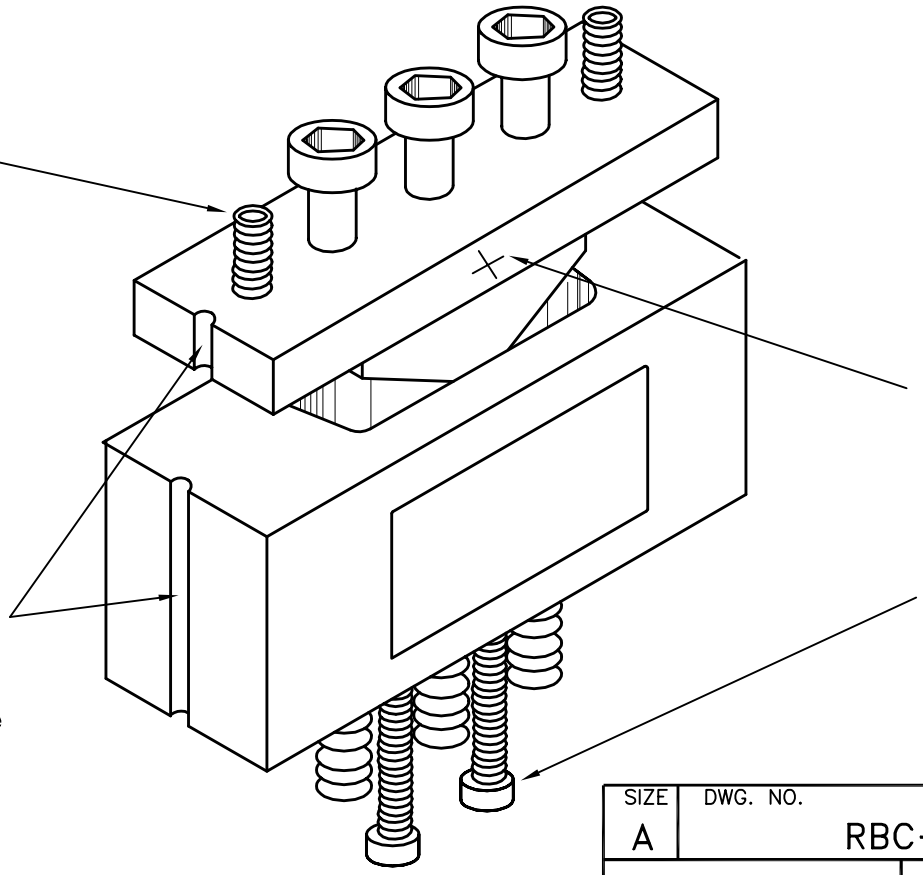
(3) REMOVE template and clean surface.

(4) LUBRICATE the area that is to be punched with oil (or even vegetable shortening) to make the punch work easier.

(5) THREAD the two hard point screws into their holes so that points do not project beyond the face of the flange. IF THEY PROJECT BEYOND THE FLANGE FACE THEY WILL CAUSE THE PUNCH TO BREAK AND THE WARRANTY IS VOIDED.

(6) NOTE the template has tapered ends; so do the punch and die. When the punch and die are installed to make the hole they must be aligned properly with each other.

(7) INSERT these three Draw Bolts into their holes on the punch, through the 3 holes you drilled in the panel and thread them into their holes in the die. You will note there is a vertical groove on the end of the punch; there is a corresponding groove on the die. These marks must BOTH be on the same end, as shown in the sketch. THERE IS NO WARRANTY AGAINST BREAKAGE DUE TO MIS-USE. If you install the punch/die wrong the die will break.



(8) AFTER properly aligning punch to die and snugging the Draw Bolts hand tight, use the large hex wrench to tighten the Draw Bolts, alternately if necessary, and thus cut the hole. Most times the entire hole can be made by use of the center Draw Bolt only and the bolts on either side to only prevent tilting of the punch.

(9) AFTER the hole is punched and BEFORE THE 3 DRAW BOLTS ARE LOOSENED the two hard point set screws are tightened to mark the mounting screw locations for you to center-punch and drill. Then back these 2 screws OUT.

(10) REMOVE the 3 Draw Bolts and Die.

(11) REMOVE the punch from the panel. By gripping the punch with vise grip pliers in the center of the flange and applying slight up-and-down motion the punch should release. Do NOT pry the punch out with a screwdriver.

(12) By screwing the 2 ejector bolts into the die the slug is readily removed.

(13) STORE the tool after applying a light oil coating.

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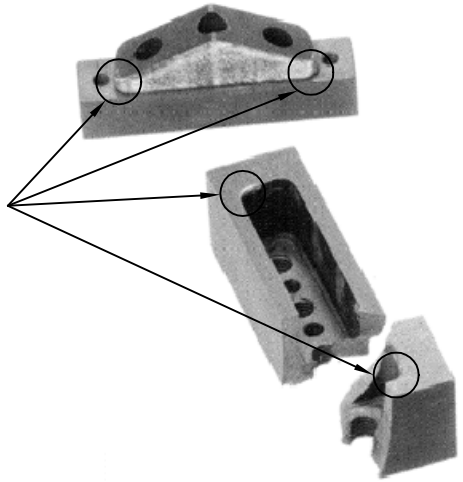
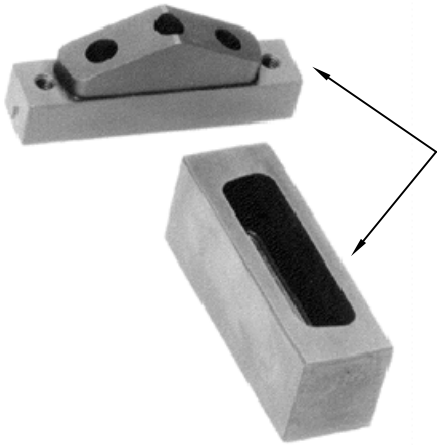
RECOGNIZING THE CAUSES OF PANEL PUNCH DAMAGE

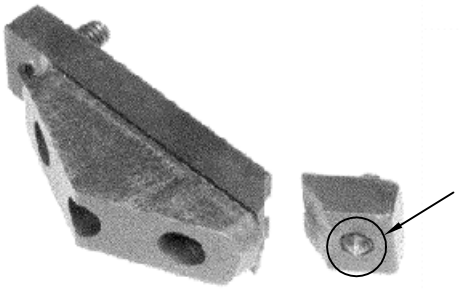
The Panel Punch Instructions outline the proper procedure for assembly of the Punch/Die unit in order to punch a hole. If the instructions are not followed and the Punch is inserted into the Die incorrectly, 180 degrees from its proper placement, an end load will be applied to the die section which exceeds design load and the die will break. See the example below, left. The actual load that caused this damage was not measurably higher than the force that would be required to punch 16 gauge mild steel if the punch and die were not lubricated.

Note these distorted corners. Both the die unit and the punch are damaged. In this case the die is destroyed. The punch has been damaged to a point beyond repair.





This Punch and Die are new and undamaged. Properly used, this unit could last indefinitely.



Because the Hard Point Set Screw was not retracted (backed-off; unscrewed) before the punching of subsequent holes, unequal loading of the flange occurred, resulting in breakage of the flange.

Read the directions. The above types of breakages are not covered by warranty.

READ THE DIRECTIONS. THE ABOVE TYPES OF BREAKAGES ARE NOT COVERED BY WARRANTY. WARRANTY AND DISCLAIMER: There are no express warranties which extend beyond the description and face hereof. SELLER DISCLAIMS ANY IMPLIED WARRANTIES AS TO MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE. Since seller can not control the manner of use of its products after the sale, Seller will not be responsible for any consequential or indirect damages. Rather, Seller will, at it option, either replace the products sold or refund the chase price. No warranty will apply if product is in any way altered or modified after delivery by Seller.

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SCALE: NTS	U.O.M.: INCHES	SHEET: 5 OF 5	

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