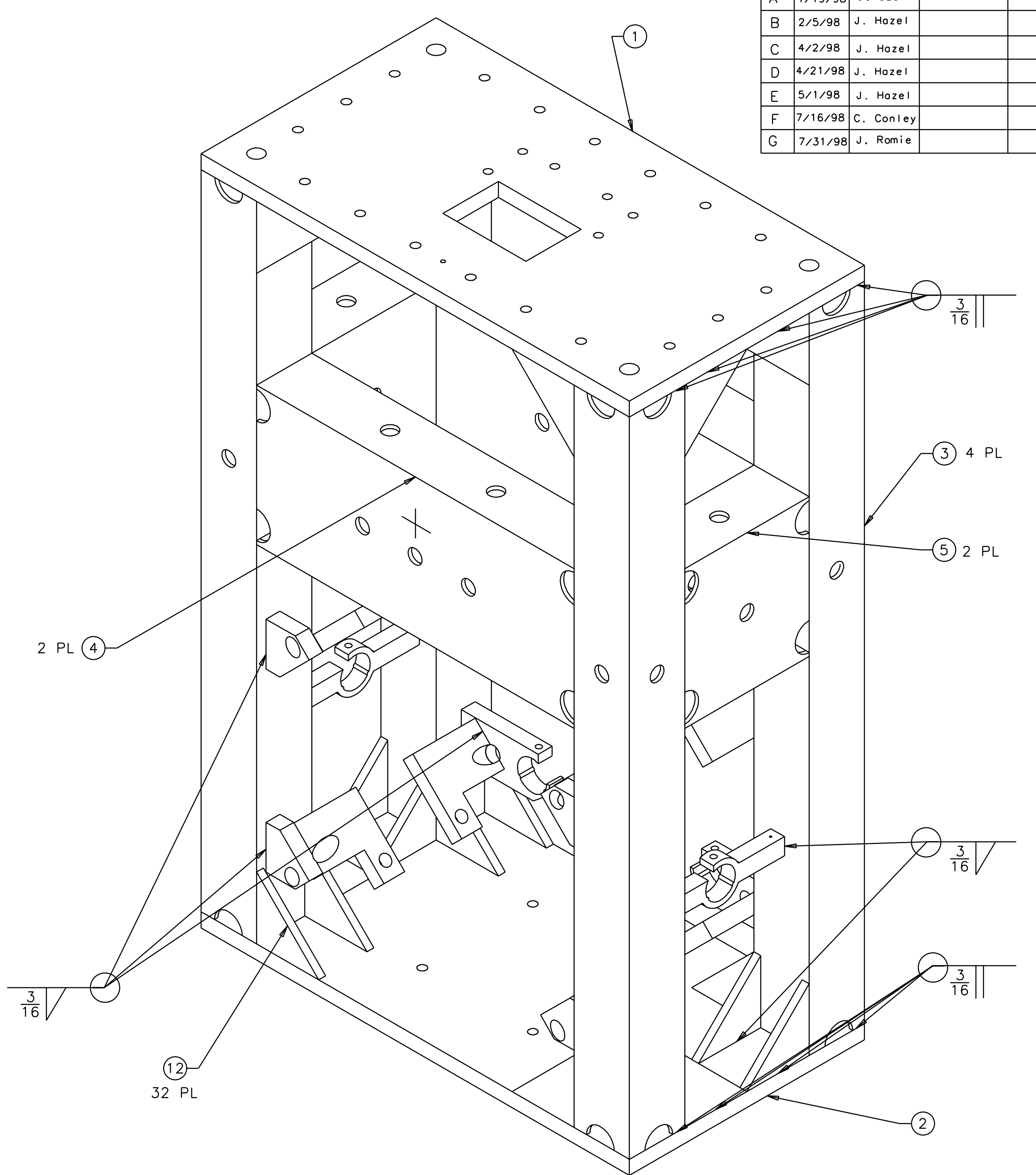
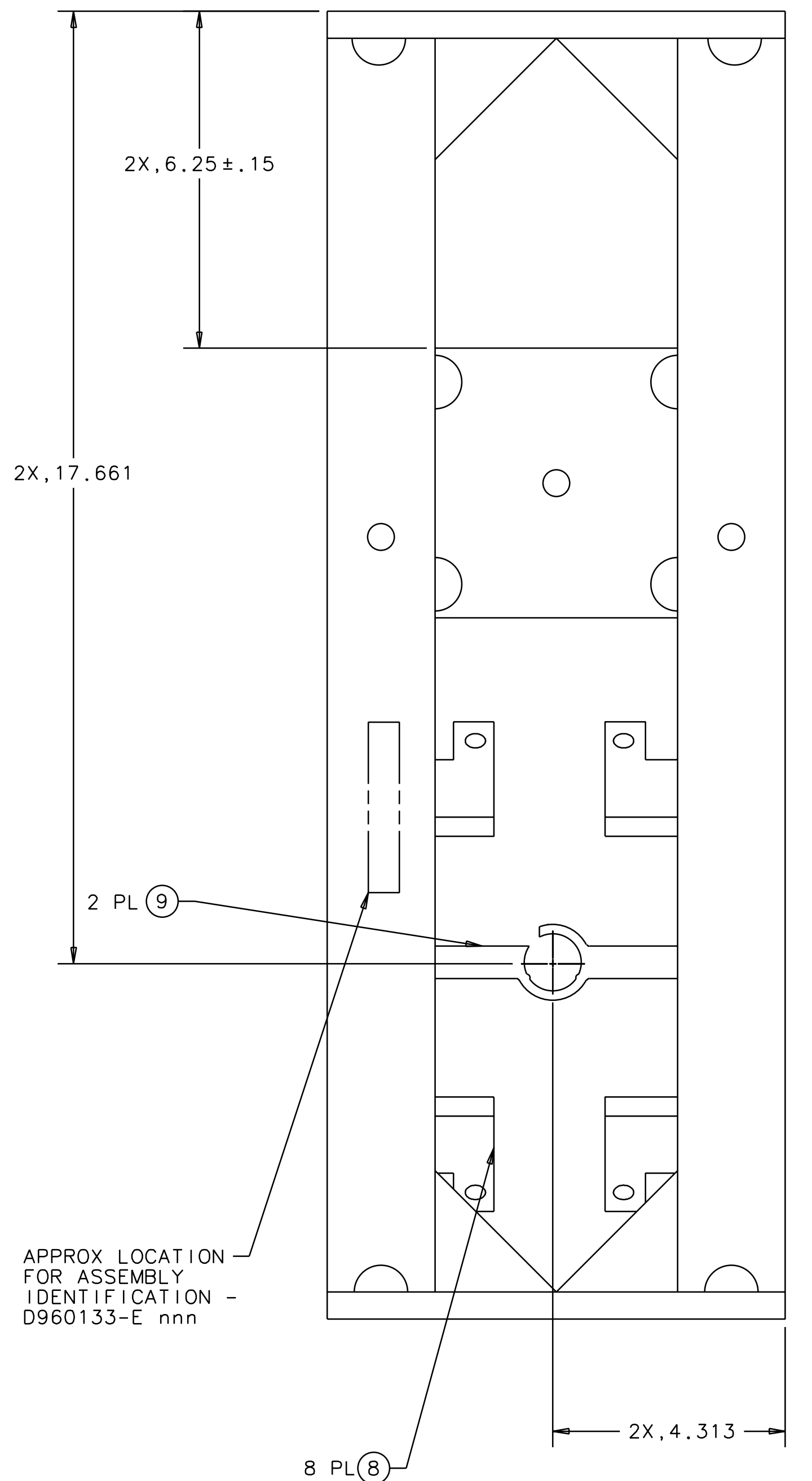
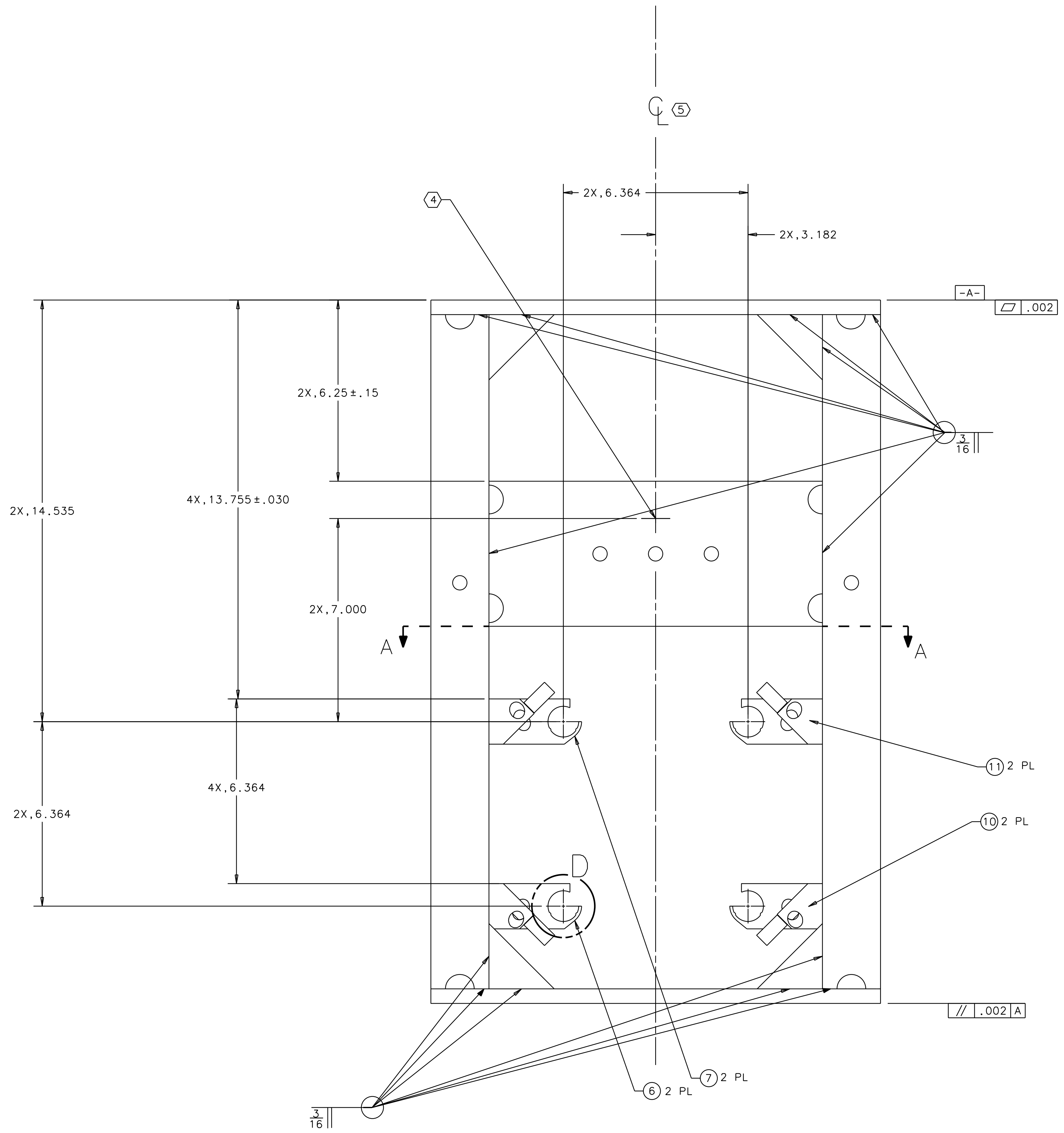
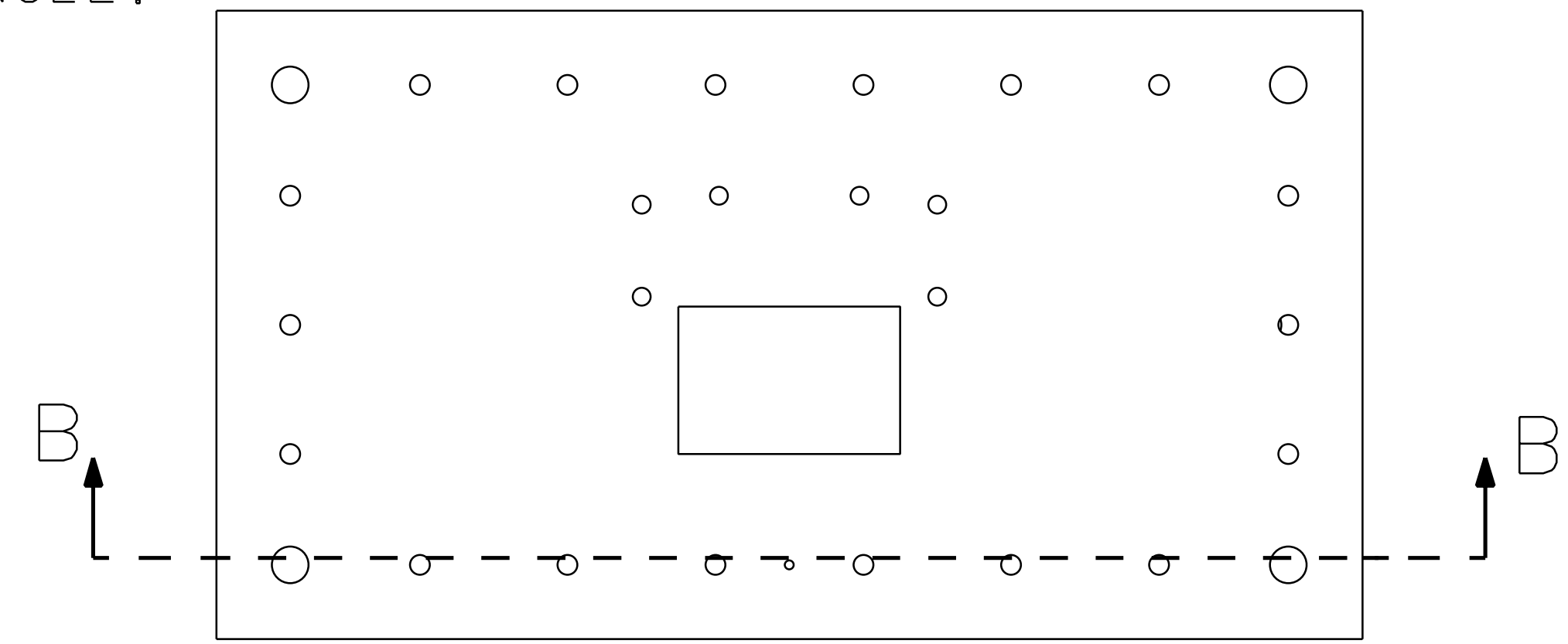


NOTES: (UNLESS OTHERWISE SPECIFIED)  
 1. SPECIFICATIONS FOR THE CONSTRUCTION OF THIS ASSEMBLY ARE DETAILED IN LIGO E970038, THE LARGE OPTIC SUSPENSION STRUCTURAL FABRICATION SPECIFICATION.  
 ② THESE FEATURES TO BE MACHINED AFTER ANNEALING.  
 ③ FLY CUT THESE SURFACES, OF BRACKETS FIND NOS. 6 AND 7, AT A  $.5^\circ/3^\circ$  ANGLE. REMOVE MATERIAL FROM THE CENTER OF THE ASSEMBLY TO .25 FROM THE LEGS. MEASURE ANGLE TO DATUM C.  
 ④ ETCH OR SCRIBE CROSSHAIRS, POSITION AND APPROX SIZE AS SHOWN, ONTO FRONT AND BACK OF STRUCTURE. ETCH .01 WIDE MAX. AND .02 MAX BELOW SURFACE, AFTER ANNEALING.  
 ⑤ LINE OF SYMMETRY FOR ASSEMBLY AND ALL MACHINED FEATURES.



REV	DATE	DRAWN BY	CHECKED	DCC	DCN/DESCRIPTION
A	1/19/98	J. Hazel			E980004/INITIAL RELEASE
B	2/5/98	J. Hazel			E980011/CHANGE TO NOTE 3 CHANGE TO SECTION A-A
C	4/2/98	J. Hazel			E980075/ADD SHEET 4
D	4/21/98	J. Hazel			E980085/CHANGE CHAMFER STOP IDENTIFICATION
E	5/1/98	J. Hazel			E980088-00/ADD I.D. CALLOUT
F	7/16/98	C. Conley			E980117/ADD DRAIN HOLES, OPEN TOLERANCES AND CHANGE S/A DIMENSIONS
G	7/31/98	J. Romie			E980203/ADD CROSSHAIR UP BY 1.000 CHANGE DRAIN HOLE CONFIG. PER DETAILS

QTY	REQD	PART OR IDENTIFYING NO	DESCRIPTION OR IDENTIFICATION	MATERIAL SPECIFICATION	ITEM NO.
		32	GUSSET, 2.25 x 2.25 x 45°	.13 THICK 304 STAINLESS	12
		2	D960143	LOS BRACKET, FRONT, TOP	11
		2	D960142	LOS BRACKET, FRONT, BOTTOM	10
		2	D960141	LOS BRACKET, SENSOR/ACTUATOR, SIDE	9
		8	D960140	LOS BRACKET, SAFETY STOP	8
		2	D960137	LOS BRACKET, SENSOR/ACTUATOR, TOP	7
		2	D960136	LOS BRACKET, SENSOR/ACTUATOR, BOTTOM	6
		2	D960506	LOS SIDE STIFFENER	5
		2	D960502	LOS FRONT STIFFENER	4
		4	D960504	LOS LEG	3
		1	D960505	LOS BOTTOM PLATE	2
		1	D960503	LOS TOP PLATE	1

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES  
 TOLERANCES ARE:  
 FRACTIONS DECIMALS ANGLES  
 . . . . . ±0.5°  
 0. XX = ±0.03  
 0. XXX = ±0.005  
 DO NOT SCALE DRAWING

APPROVALS: \_\_\_\_\_ DATE: 4/96  
 DRAWN: J. Hazel  
 CHECKED: \_\_\_\_\_

TITLE: LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY  
 LARGE OPTIC SUSPENSION STRUCTURE ASSEMBLY

SCALE: 1/2

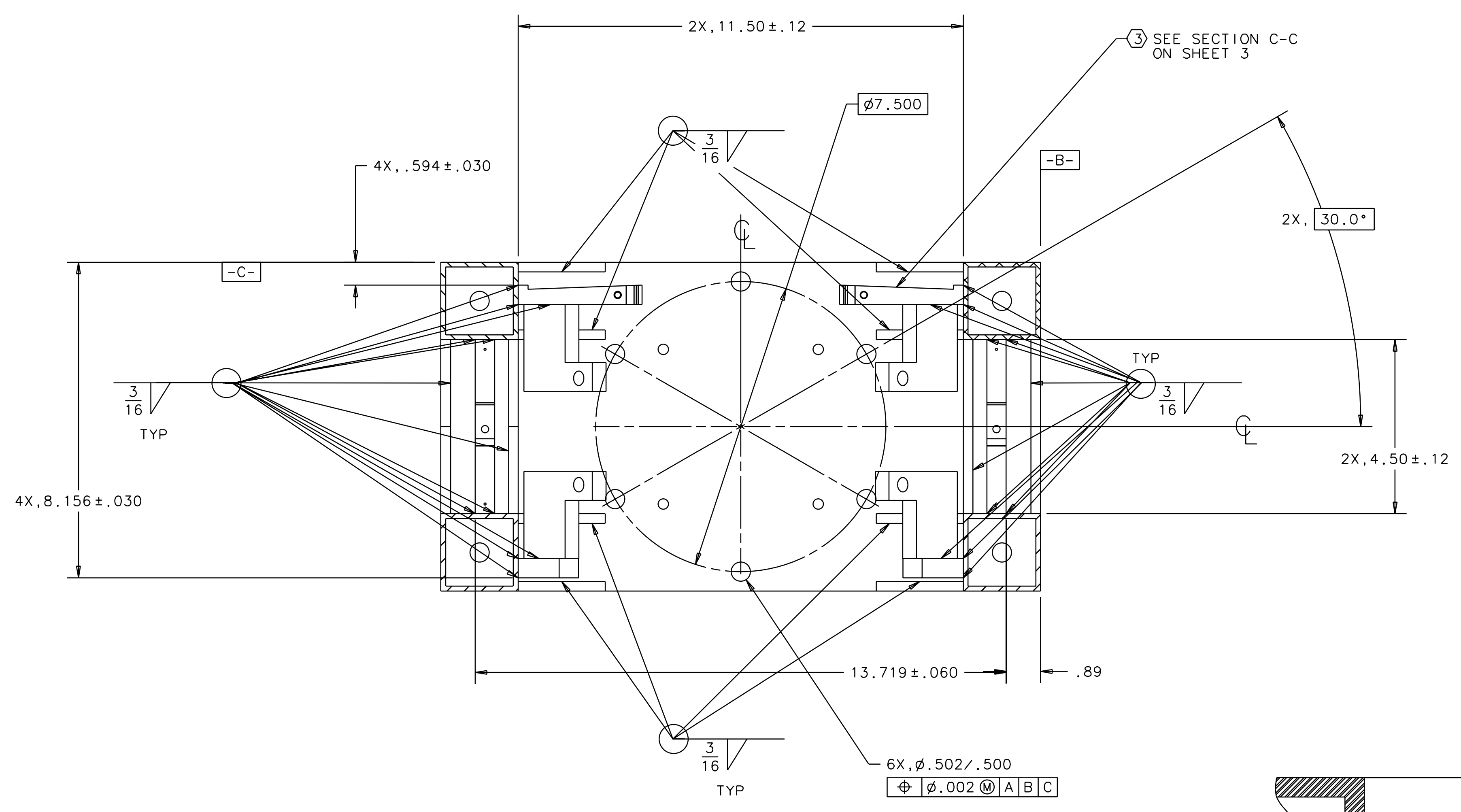
REV: G

SHEET: 1 OF 5

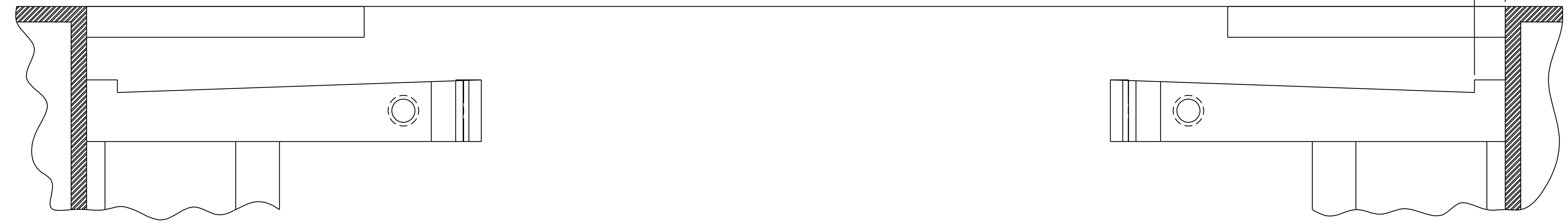
NEXT ASSEMBLY: D960132  
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1 2 3 4 5 6 7 8

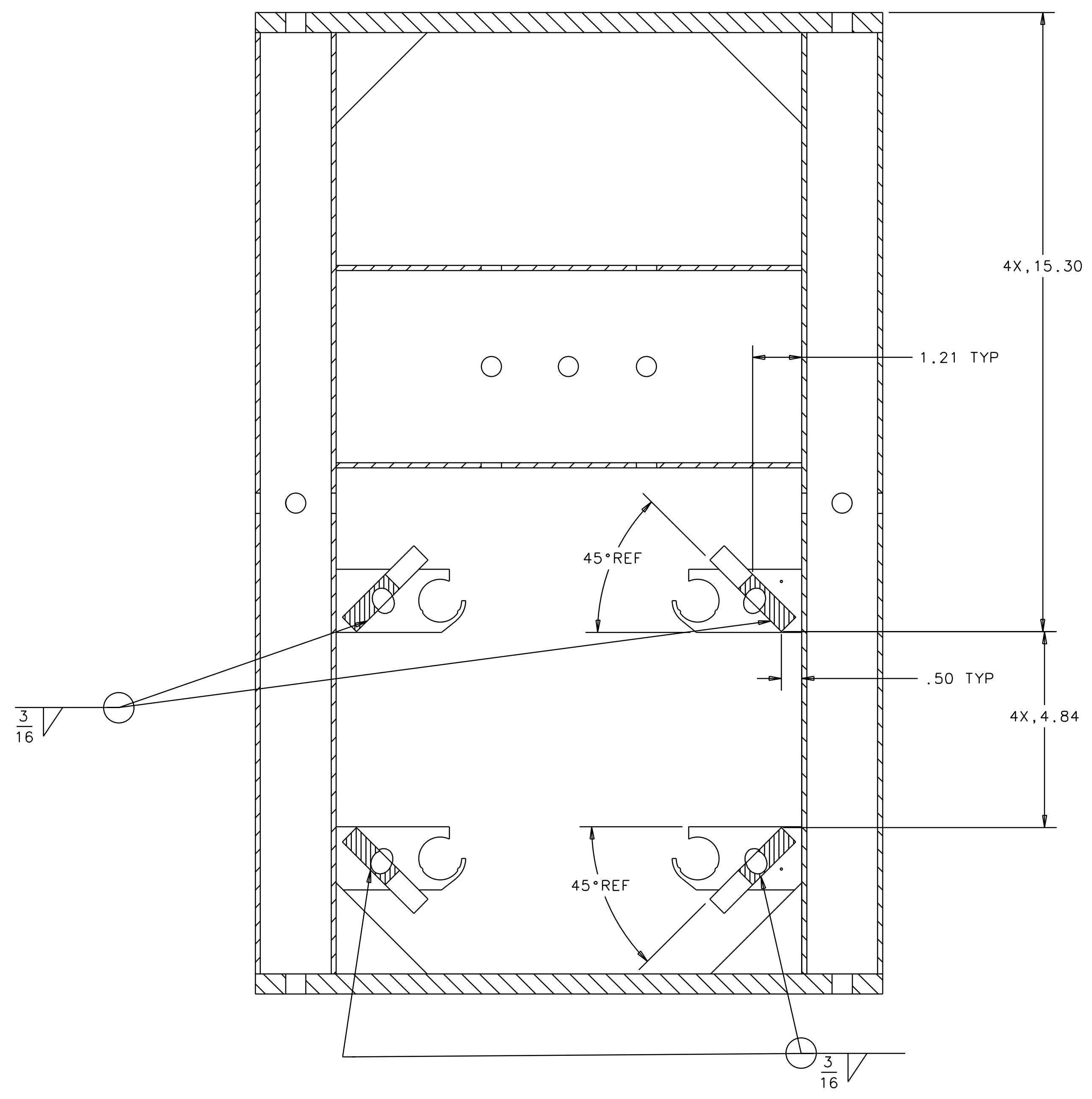
REV	DATE	DRAWN BY	CHECKED	DCC	DCN/DESCRIPTION
A	1/19/98	J. Hazel			E980004/ INITIAL RELEASE
B	2/5/98	J. Hazel			E980011/CHANGE TO NOTE 3 CHANGE TO SECTION A-A
C	4/2/98	J. Hazel			E980075/ADD SHEET 4
D	4/21/98	J. Hazel			E980085/CHANGE CHAMFER STOP IDENTIFICATION
E	5/1/98	J. Hazel			E980088-00/ADD I.D. CALLOUT
F	7/16/98	C. Conley			E980173/ADD DRAIN HOLES, OPEN TOLERANCES AND CHANGE S/A DIMENSIONS
G	7/31/98	J. Romie			E980201/REMOVE CROSSHAIR UP BY 1.000" CHANGE DRAIN HOLE CONFIG. PER DETAILS.



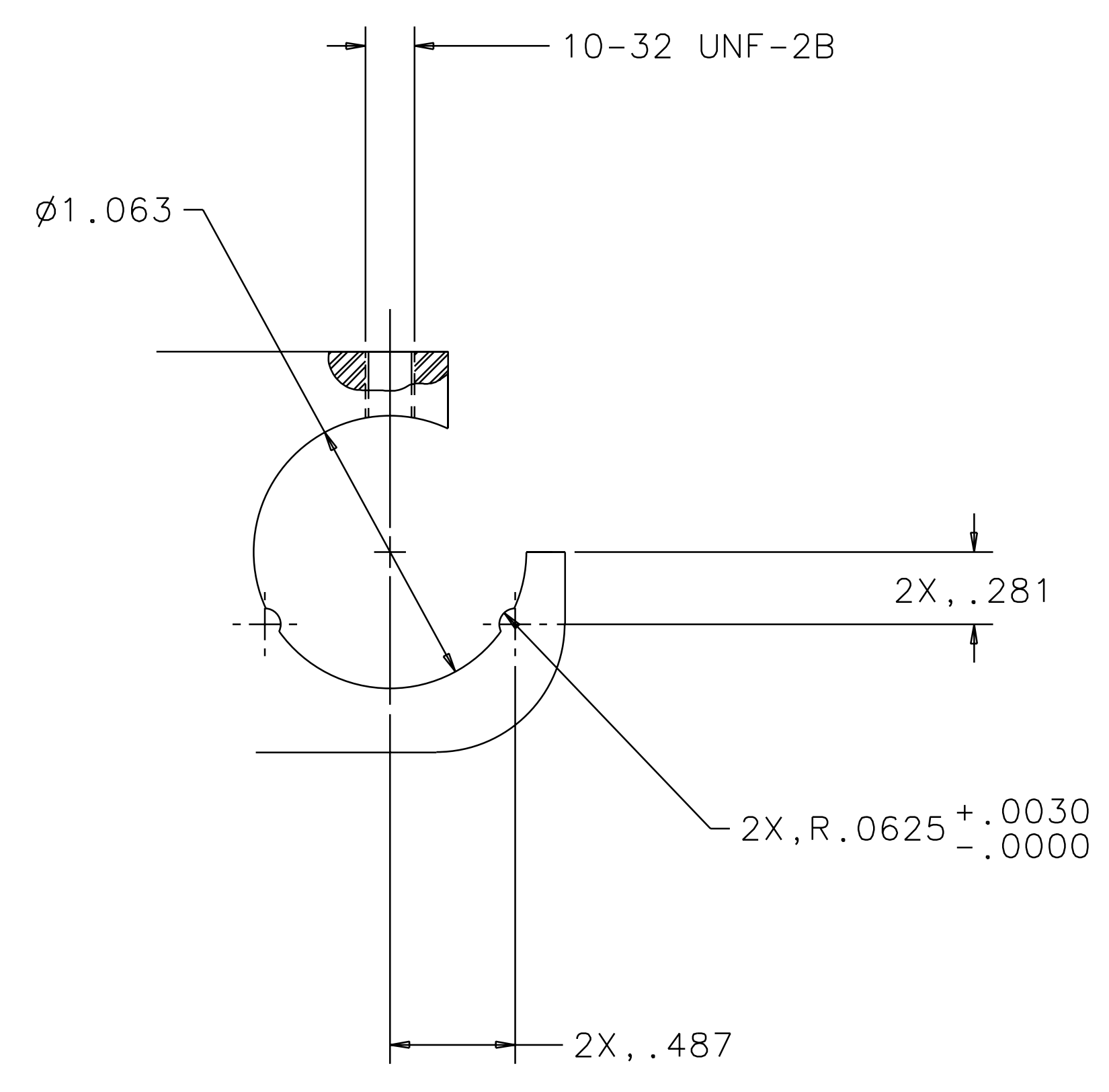
SECTION A-A



SECTION C-C  
FLY CUT DEFINED  
IN NOTE 3



SECTION B-B

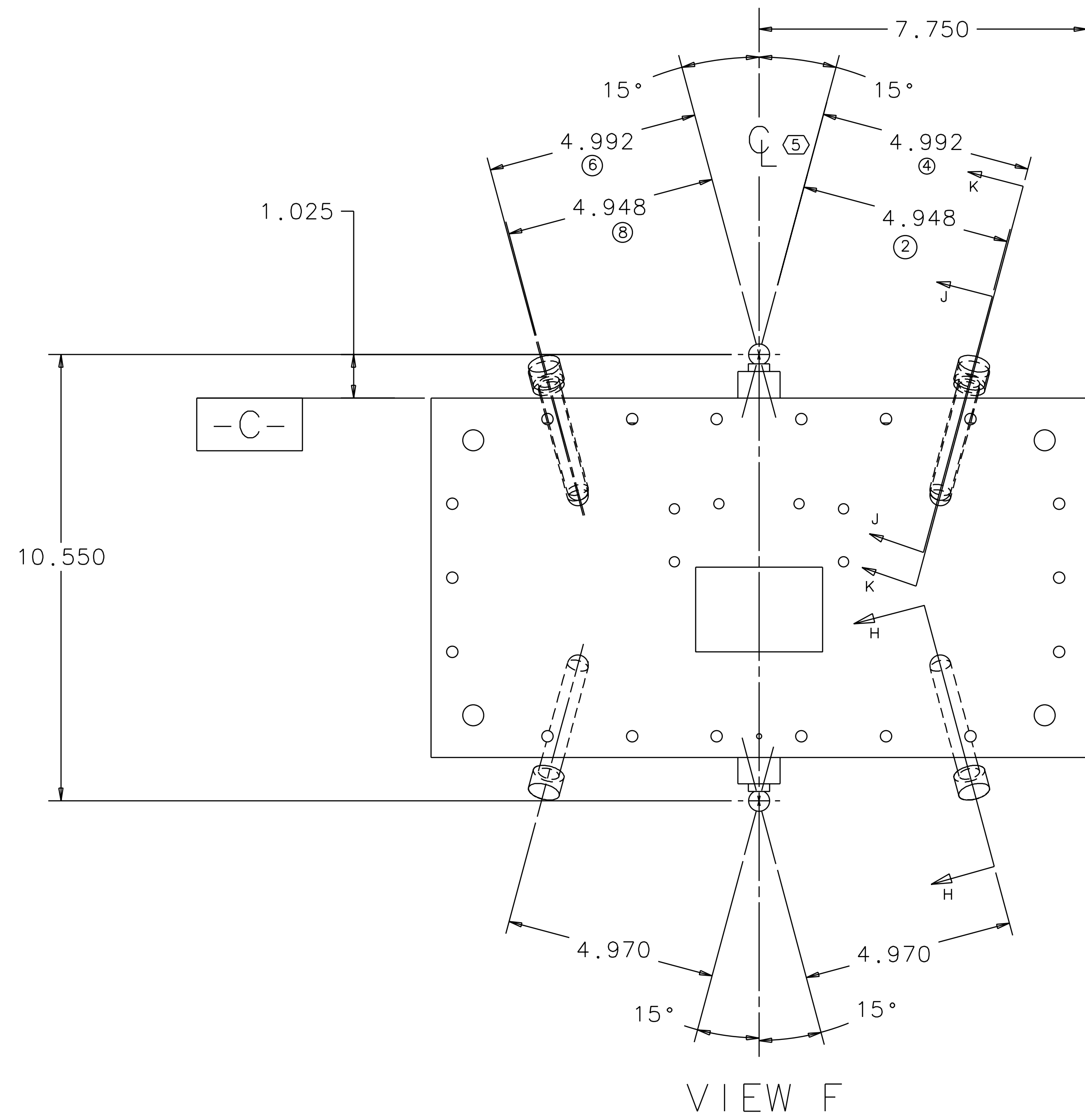


VIEW D 2  
SCALE 2/1  
TYPICAL 6 PLACES

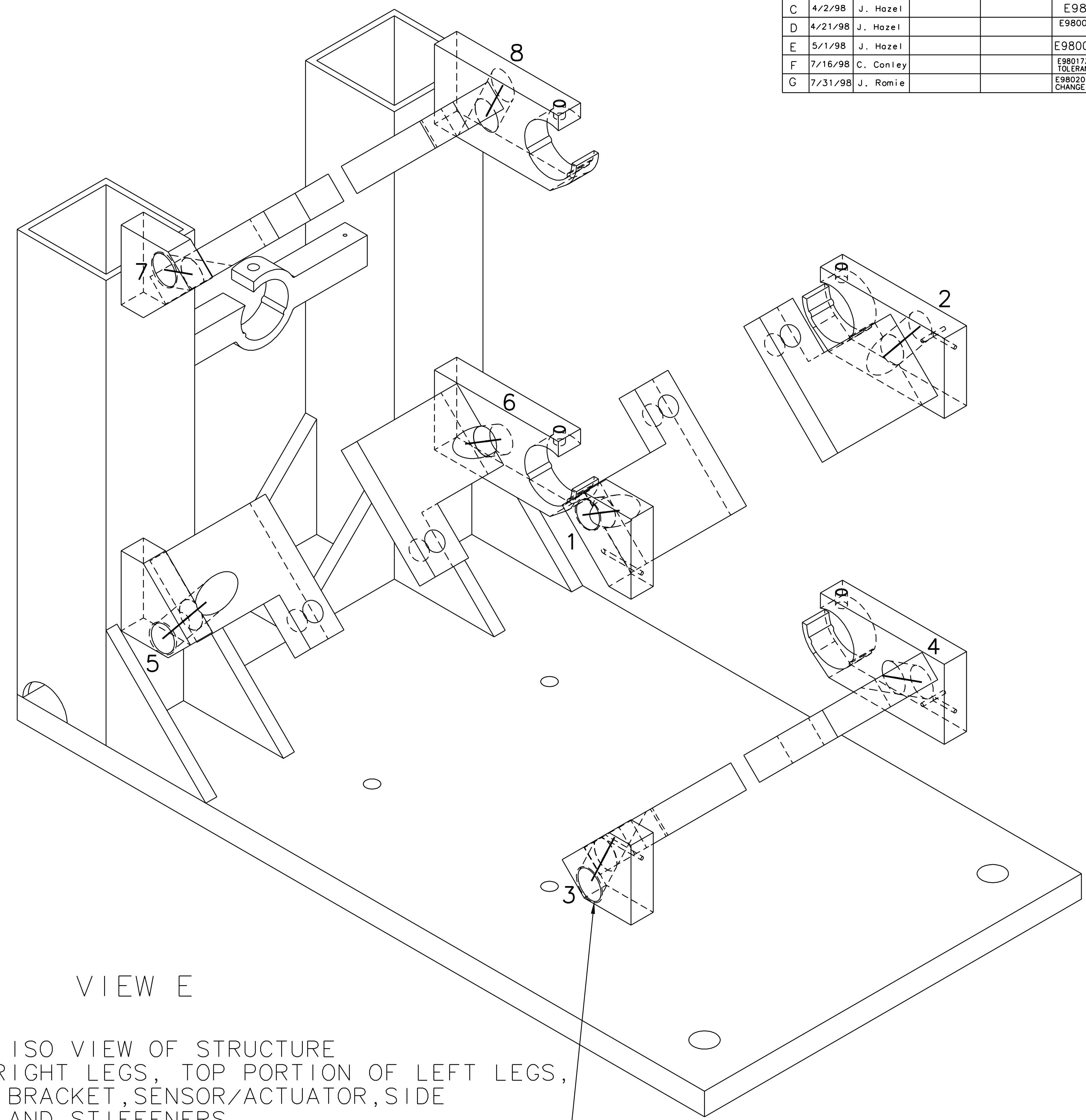
QTY REQ	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	MATERIAL SPECIFICATION	ITEM NO.
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		APPROVALS	DATE	TITLE
TOLERANCES ARE:		LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY		
FRACTIONS .015"		DRAWN J. Hazel 4/96		
DECIMALS .015"		CHECKED		
ANGLES .5°		SCALE 1/2		
DO NOT SCALE DRAWING		SIZE D960133		
NEXT ASSEMBLY D960132		REV G		
FILE LOCATION home/dcc/docs/D960133.pdf		SHEET 2 OF 5		

1 2 3 4 5 6 7 8

REV	DATE	DRAWN BY	CHECKED	DCC	DCN/DESCRIPTION
A	1/19/98	J. Hazel			E980004/ INITIAL RELEASE
B	2/5/98	J. Hazel			E980011/CHANGE TO NOTE 3 CHANGE TO SECTION A-A
C	4/2/98	J. Hazel			E980075/ADD SHEET 4
D	4/21/98	J. Hazel			E980085/CHANGE CHAMFER STOP IDENTIFICATION
E	5/1/98	J. Hazel			E980173/ADD DRAIN HOLES, OPEN TOLERANCES AND CHANGE S/A DIMENSIONS.
F	7/16/98	C. Conley			E980231/RAISE CROSSHAIR UP BY 1.0007 CHANGE DRAIN HOLE CONFIG. PER DETAILS.
G	7/31/98	J. Romie			



VIEW F



VIEW E

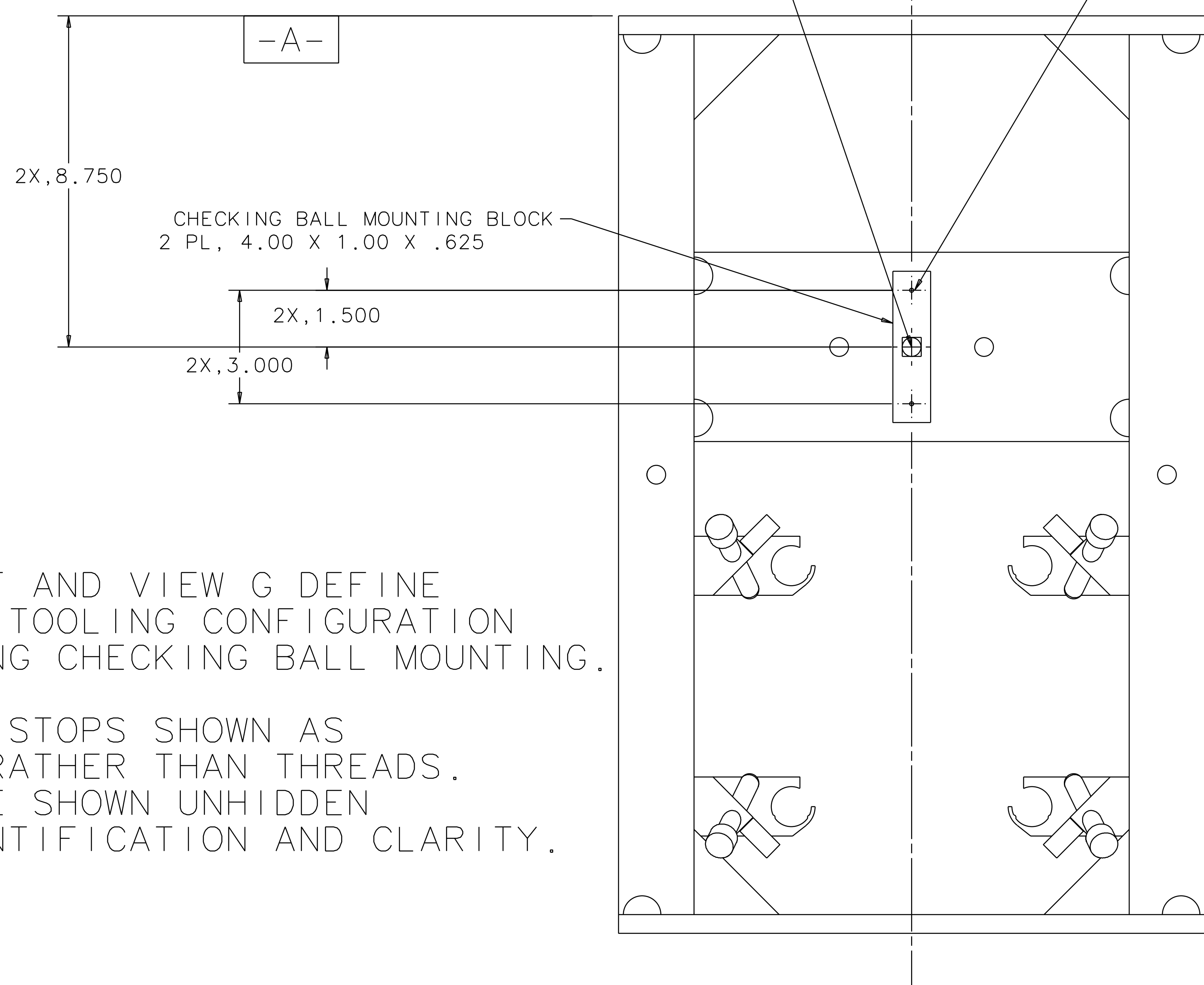
ISO VIEW OF STRUCTURE  
WITHOUT: RIGHT LEGS, TOP PORTION OF LEFT LEGS,  
RIGHT LOS BRACKET, SENSOR/ACTUATOR, SIDE  
TOP PLATE AND STIFFENERS.

CHAMFER STOP CENTERLINES  
HIGHLIGHTED AND NUMBERED

CHAMFER STOPS  
8X, 1/2-13 UNC-2B

2 PL, CHECKING BALL, JERGENS P/N 29013

4X, #4-40 SCREW  
MATCH DRILL TO  
STIFFENER IN  
STRUCTURE



VIEW G

VIEW F AND VIEW G DEFINE  
INTERIM TOOLING CONFIGURATION  
INCLUDING CHECKING BALL MOUNTING.

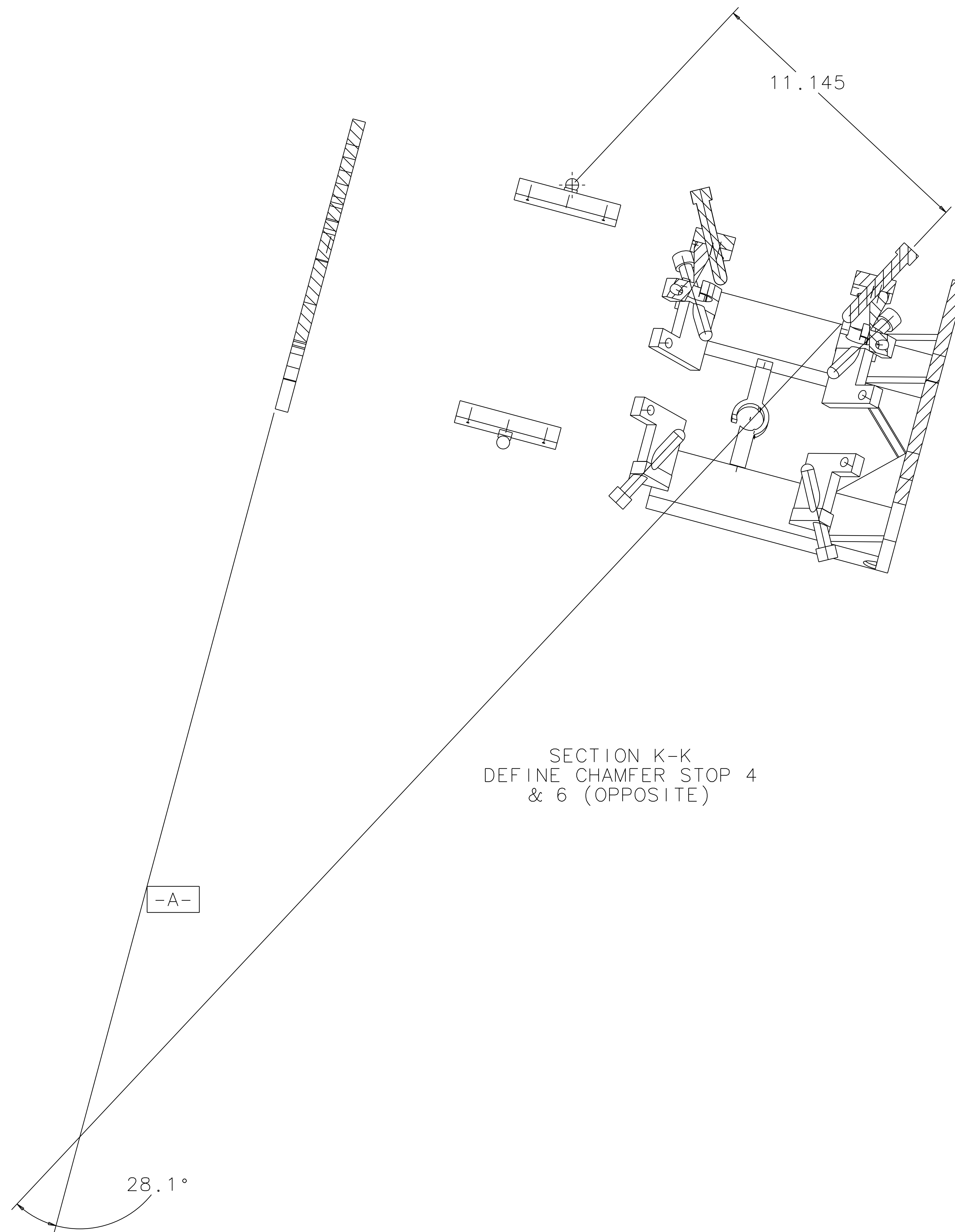
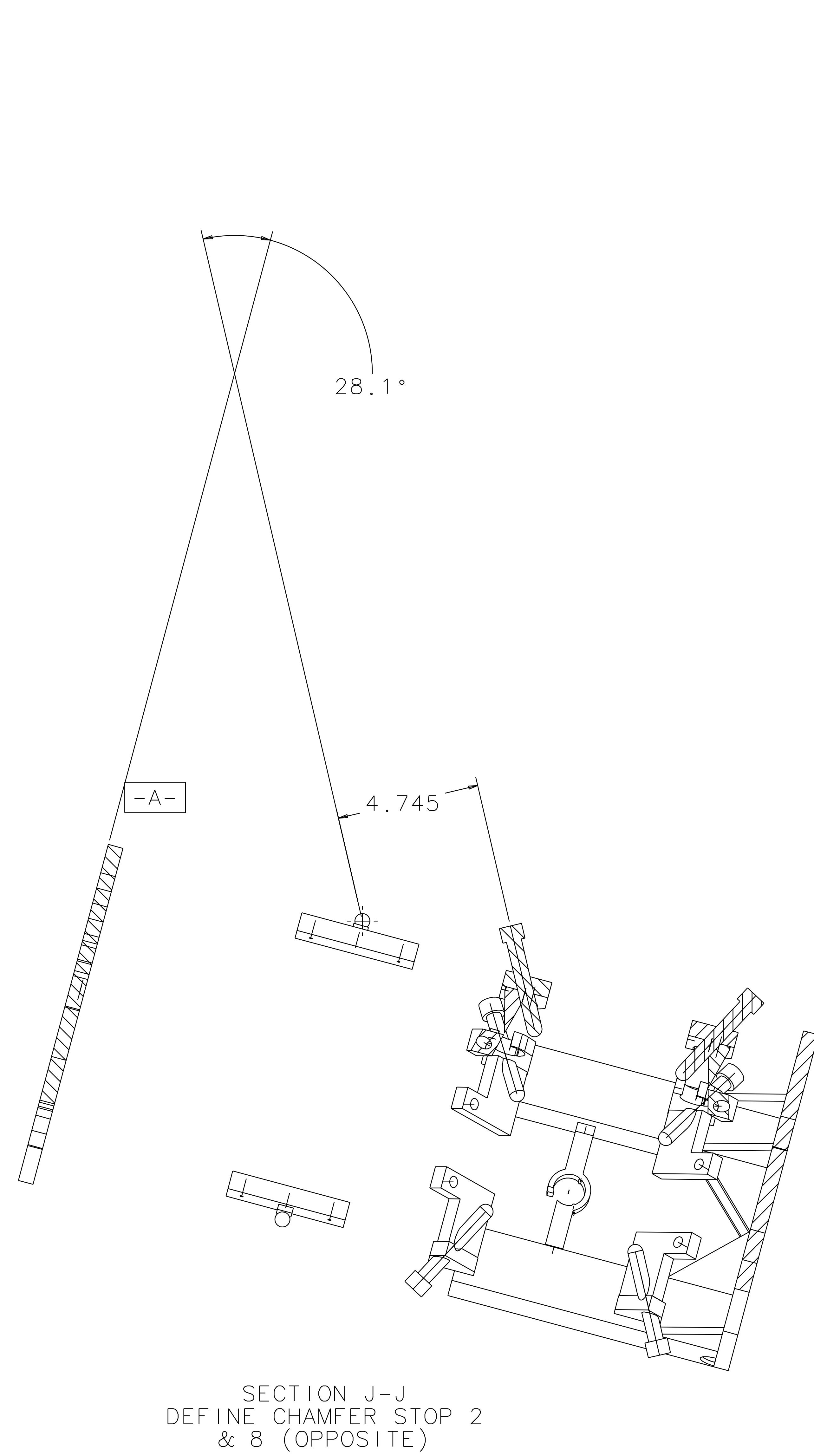
CHAMFER STOPS SHOWN AS  
SCREWS RATHER THAN THREADS.  
THEY ARE SHOWN UNHIDDEN  
FOR IDENTIFICATION AND CLARITY.

QTY REQ	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	MATERIAL SPECIFICATION	ITEM NO.
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES				
TOLERANCES ARE: FRACTIONS DECIMALS ANGLES				
.0 .XX = +0.03				
.0 .XXX = ±0.005				
DO NOT SCALE DRAWING				
APPROVALS		DATE	LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY	
DRAWN J. Hazel		4/96	TITLE	
CHECKED			LARGE OPTIC SUSPENSION STRUCTURE ASSEMBLY	
NEXT ASSEMBLY D960132		MATERIAL	SIZE E	REV G
FILE LOCATION home/dcc/docs/D960133.pdf		FINISH	SCALE 1/2	SHEET 3 OF 5



1 2 3 4 5 6 7 8

REV	DATE	DRAWN BY	CHECKED	DCC	DCN/DESCRIPTION
A	1/19/98	J. Hazel			E980004/ INITIAL RELEASE
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G	7/31/98	J. Romie			E980201/REMOVE CROSSHAIR UP BY 1.000" CHANGE DRAIN HOLE CONFIG. PER DETAILS.



SECTION J-J  
DEFINE CHAMFER STOP 2  
& 8 (OPPOSITE)

SECTION K-K  
DEFINE CHAMFER STOP 4  
& 6 (OPPOSITE)

QTY	REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	MATERIAL SPECIFICATION	ITEM NO.
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES					
TOLERANCES ARE:					
		FRACTIONS	DECIMALS	ANGLES	
				:0.5°	
		DRAWN		J. Hazel	4/96
		CHECKED			
		DO NOT SCALE DRAWING			
NEXT ASSEMBLY		D960132		MATERIAL	
FILE LOCATION		home/dcc/docs/D960133.pdf		FINISH	
APPROVALS			DATE	LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY	
TITLE			LARGE OPTIC SUSPENSION STRUCTURE ASSEMBLY		
SCALE			1/2		REV G
SHEET			5 OF 5		

1 2 3 4 5 6 7 8