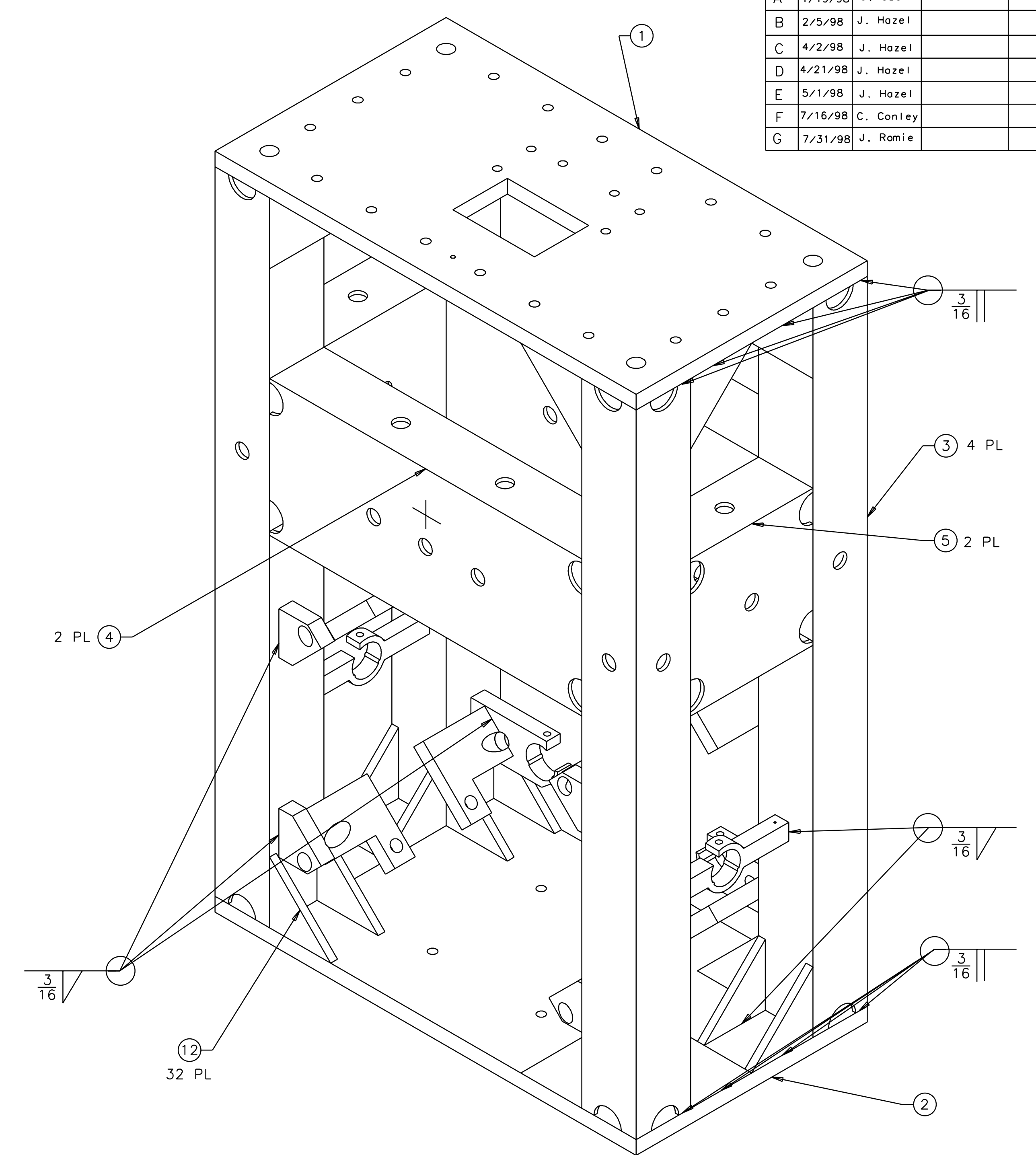
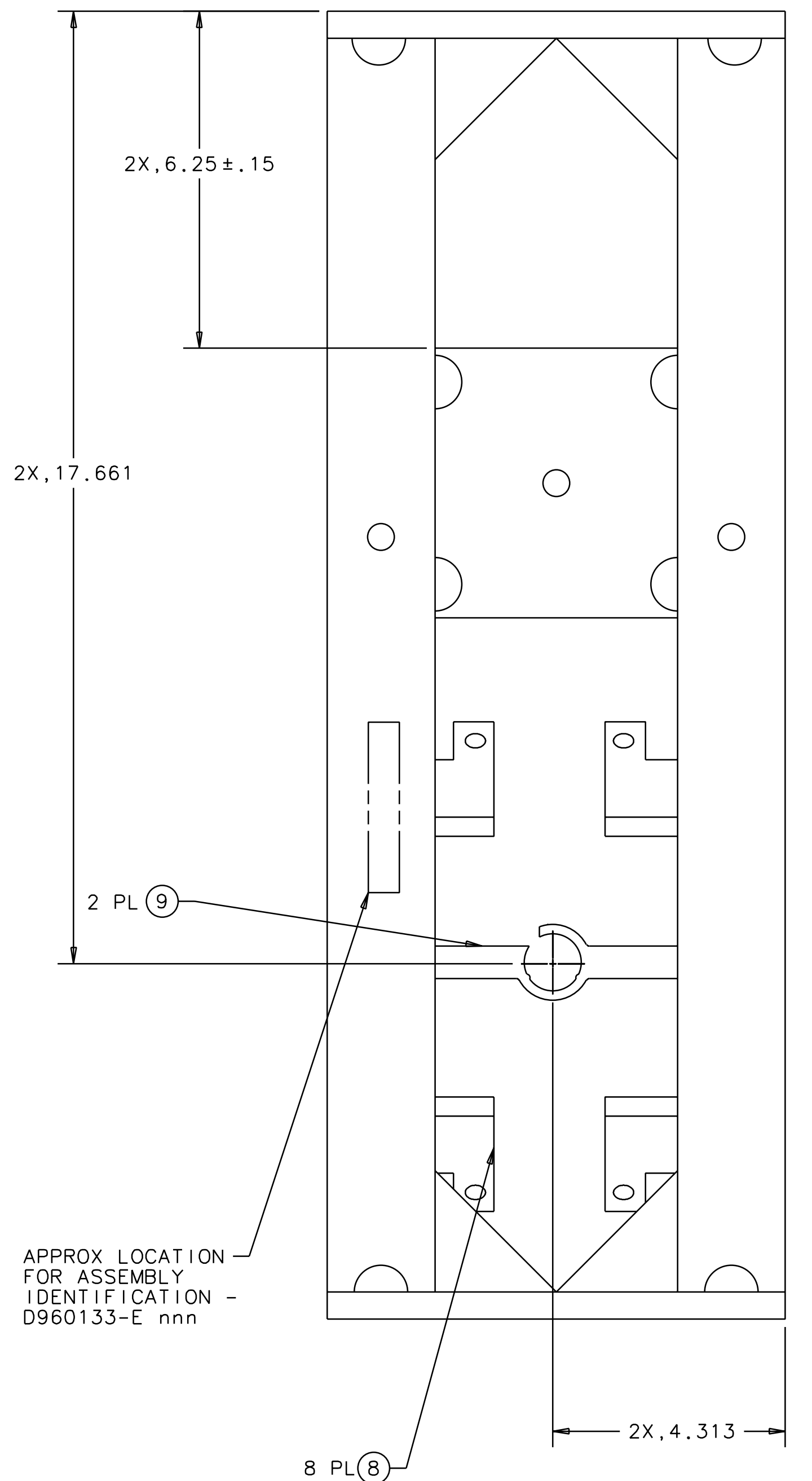
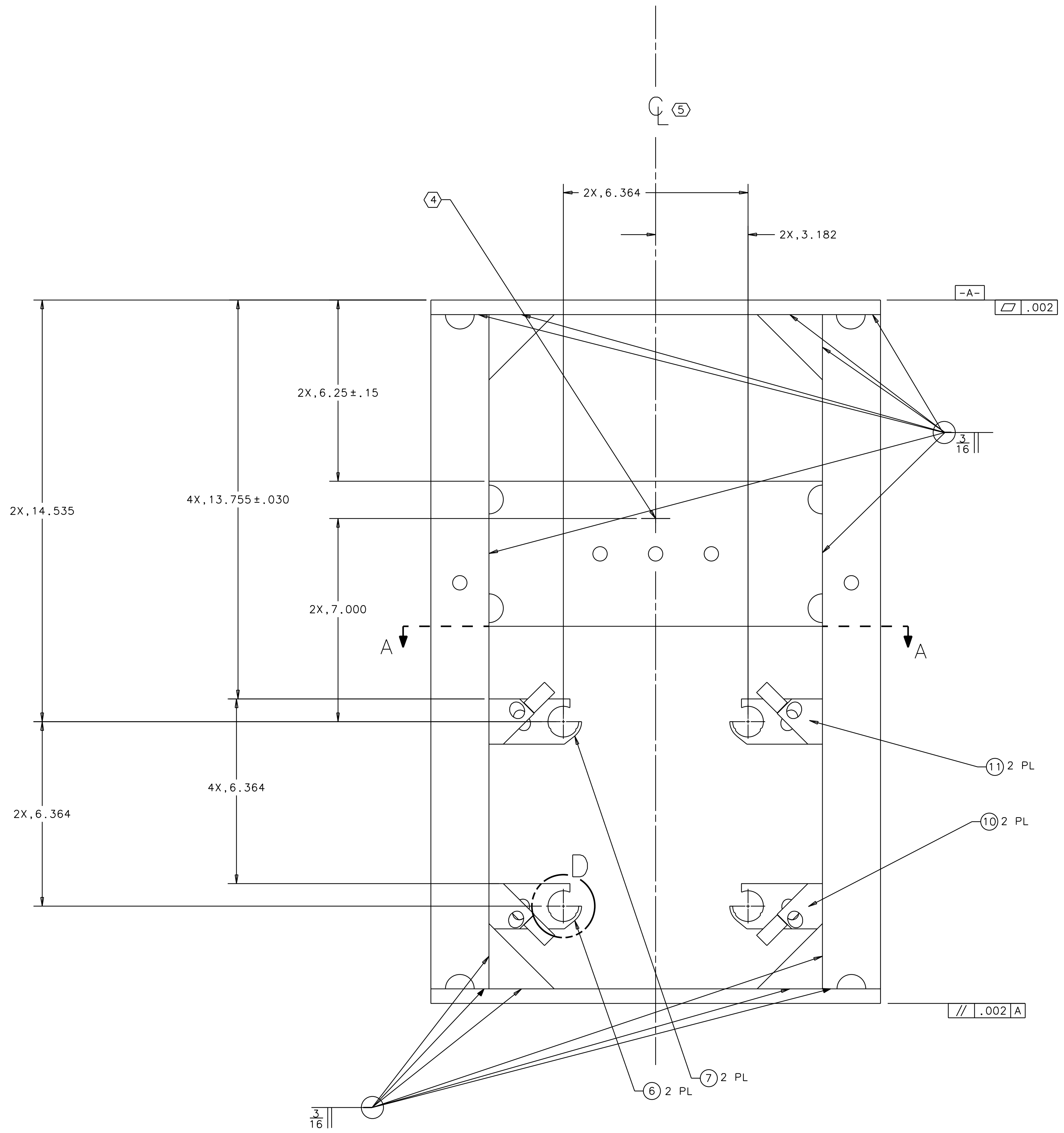
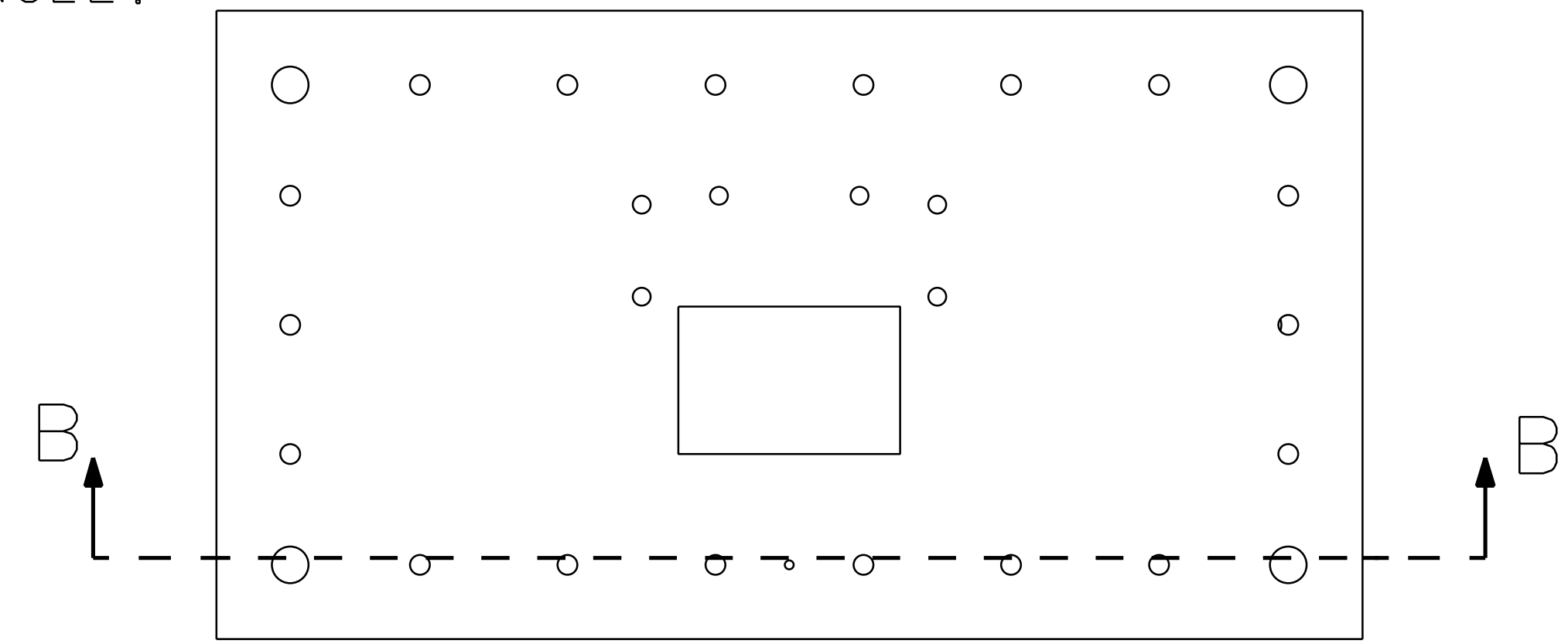


NOTES: (UNLESS OTHERWISE SPECIFIED)
 1. SPECIFICATIONS FOR THE CONSTRUCTION OF THIS ASSEMBLY ARE DETAILED IN LIGO E970038, THE LARGE OPTIC SUSPENSION STRUCTURAL FABRICATION SPECIFICATION.

- 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 DESCRIPTION	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: [Signature]

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

SCALE: 1/2

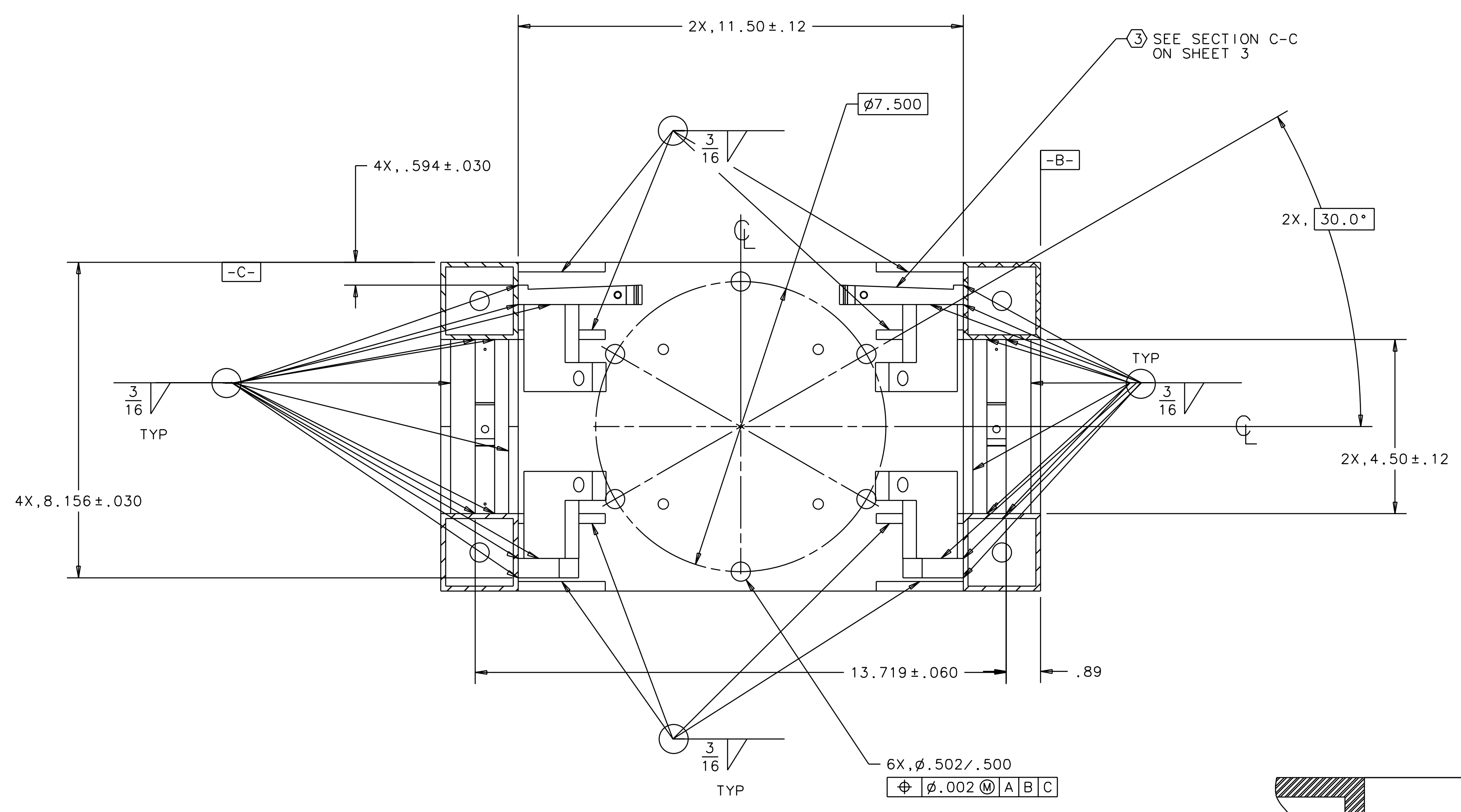
REV: G

SHEET: 1 OF 5

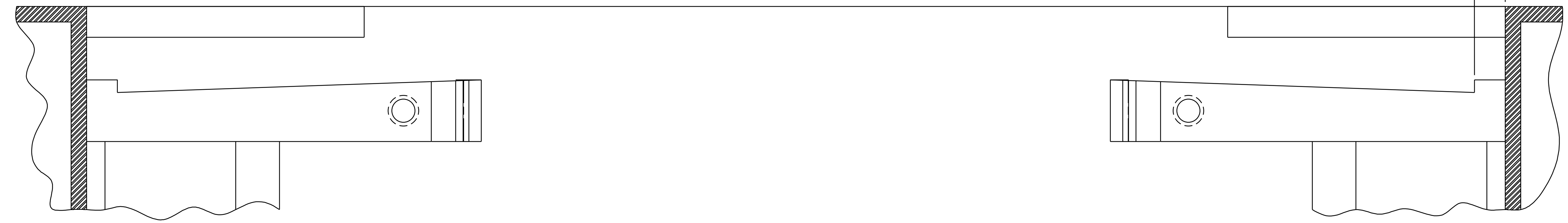
NEXT ASSEMBLY: D960132
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1 2 3 4 5 6 7 8

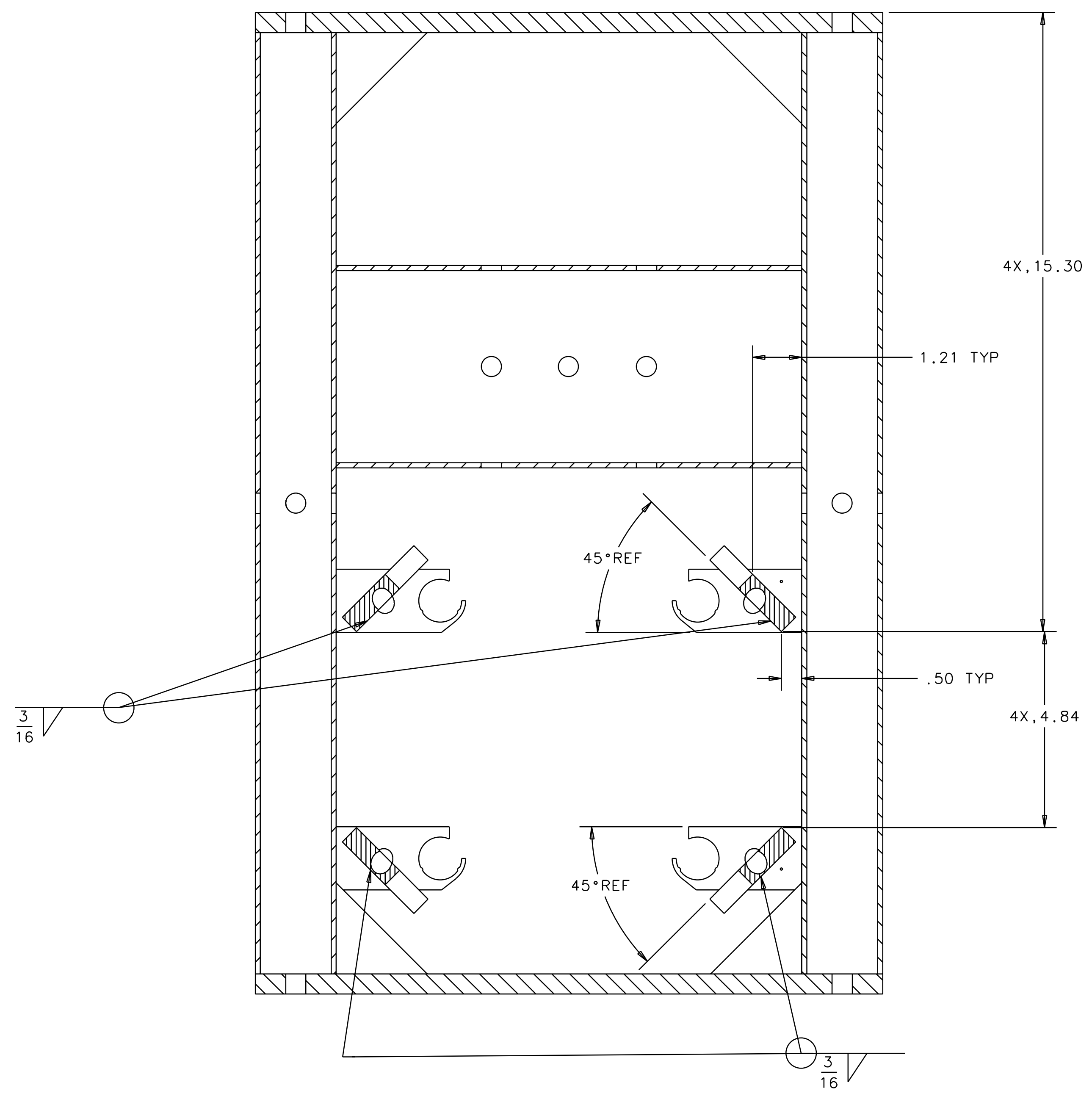
REV	DATE	DRAWN BY	CHECKED	DCC	DCN/DESCRIPTION
A	1/19/98	J. Hazel			E980004/ INITIAL RELEASE
B	2/5/98	J. Hazel			E980011/CHANGE TO NOTE 3 CHANGE TO SECTION A-A
C	4/2/98	J. Hazel			E980075/ADD SHEET 4
D	4/21/98	J. Hazel			E980085/CHANGE CHAMFER STOP IDENTIFICATION
E	5/1/98	J. Hazel			E980088-00/ADD I.D. 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.



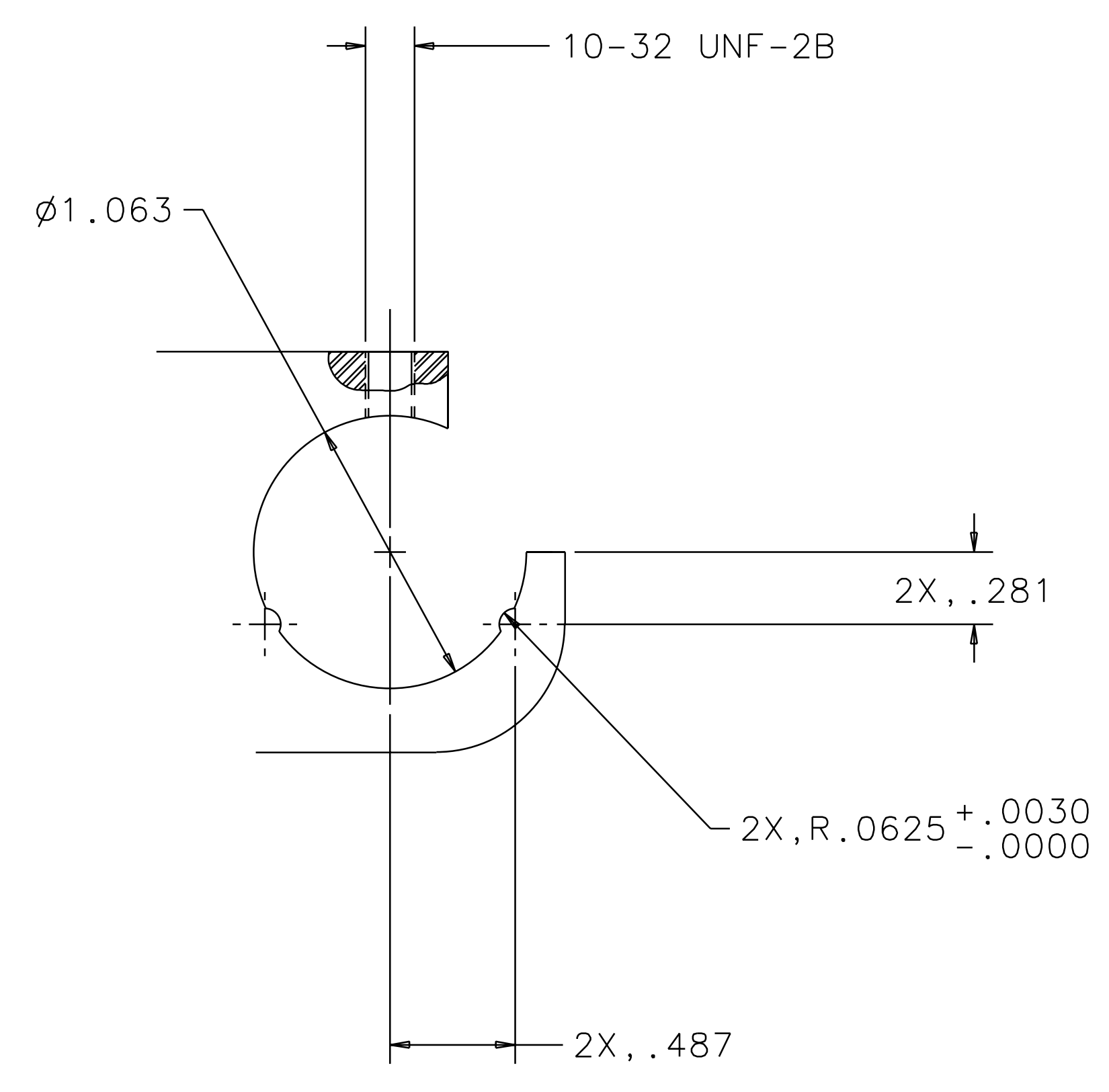
SECTION A-A



SECTION C-C
FLY CUT DEFINED
IN NOTE 3



SECTION B-B

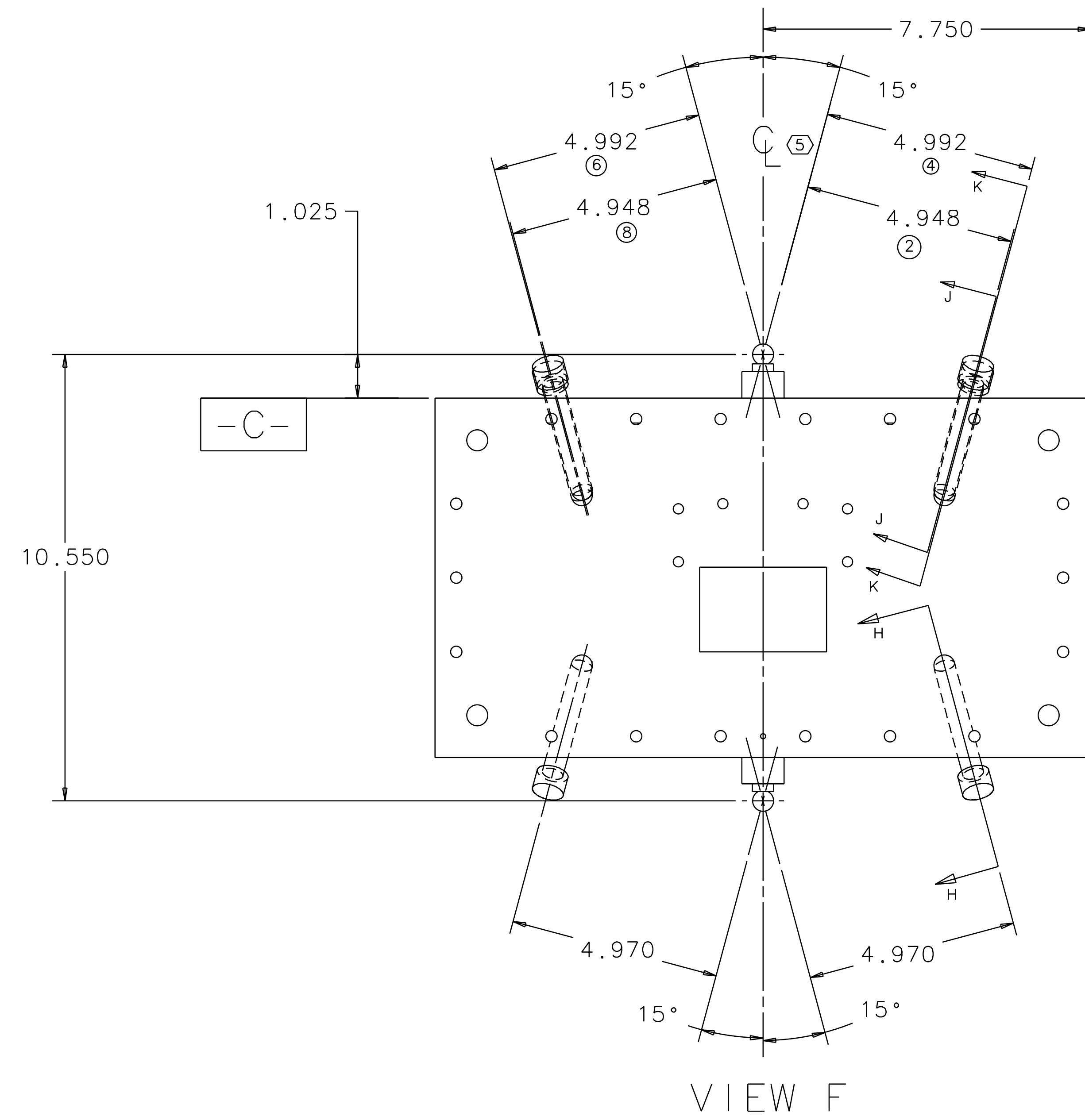


VIEW D 2
SCALE 2/1
TYPICAL 6 PLACES

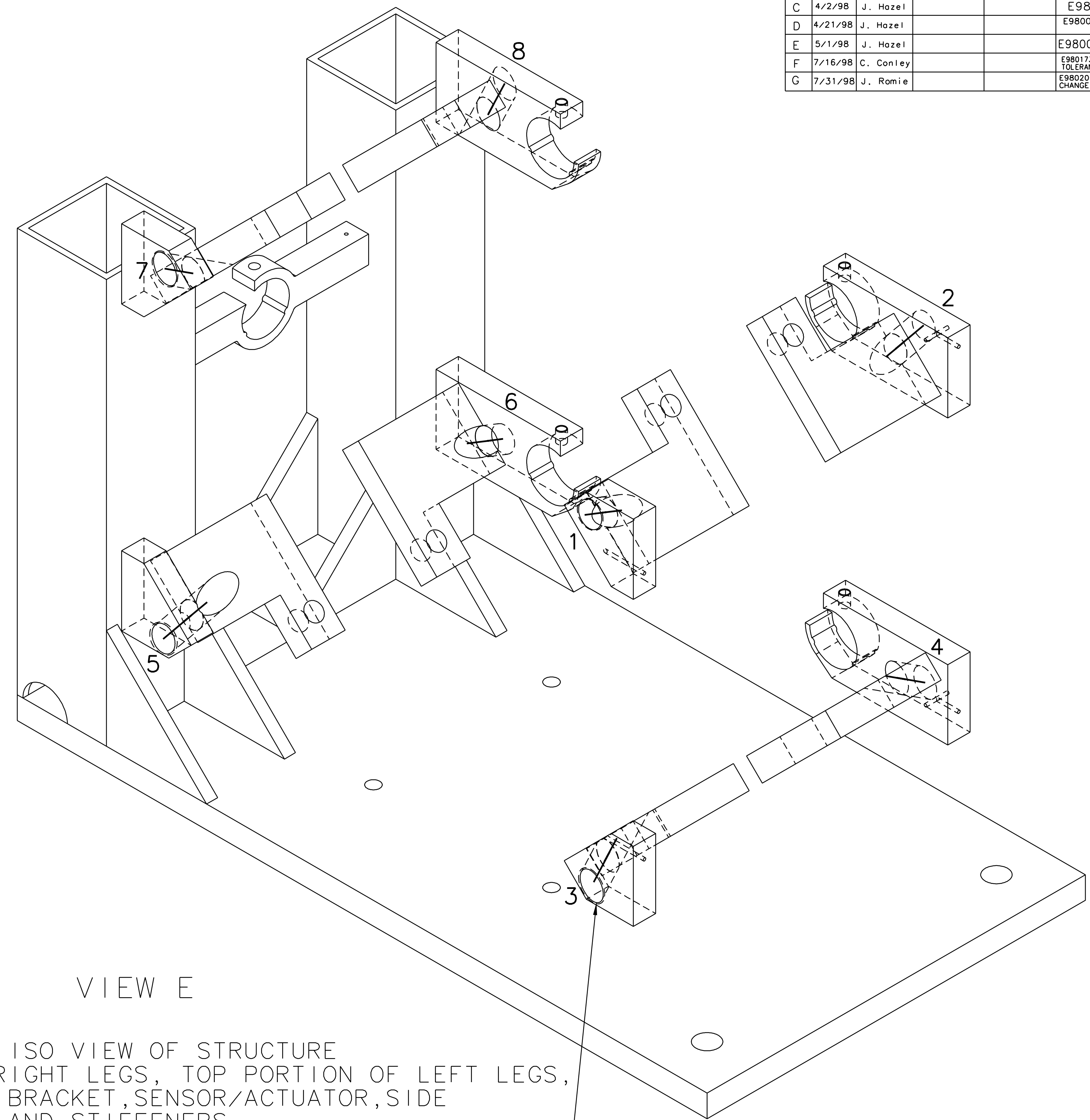
QTY REQD	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	MATERIAL SPECIFICATION	ITEM NO.
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		APPROVALS		
TOLERANCES ARE:		DATE	LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY	
FRACTIONS .015"		J. Hazel	MASSACHUSETTS INSTITUTE OF TECHNOLOGY	
DECIMALS .015"		4/96	TITLE	
ANGLES .5°		LARGE OPTIC SUSPENSION		
0.XX = +0.03		STRUCTURE ASSEMBLY		
0.XXX = ±0.005		SIZE		
DO NOT SCALE DRAWING		E D960133		
NEXT ASSEMBLY D960132		SCALE 1/2		
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/MOVE CROSSHAIR UP BY 1.0007 CHANGE DRAIN HOLE CONFIG. PER DETAILS.
G	7/31/98	J. Romie			



VIEW F

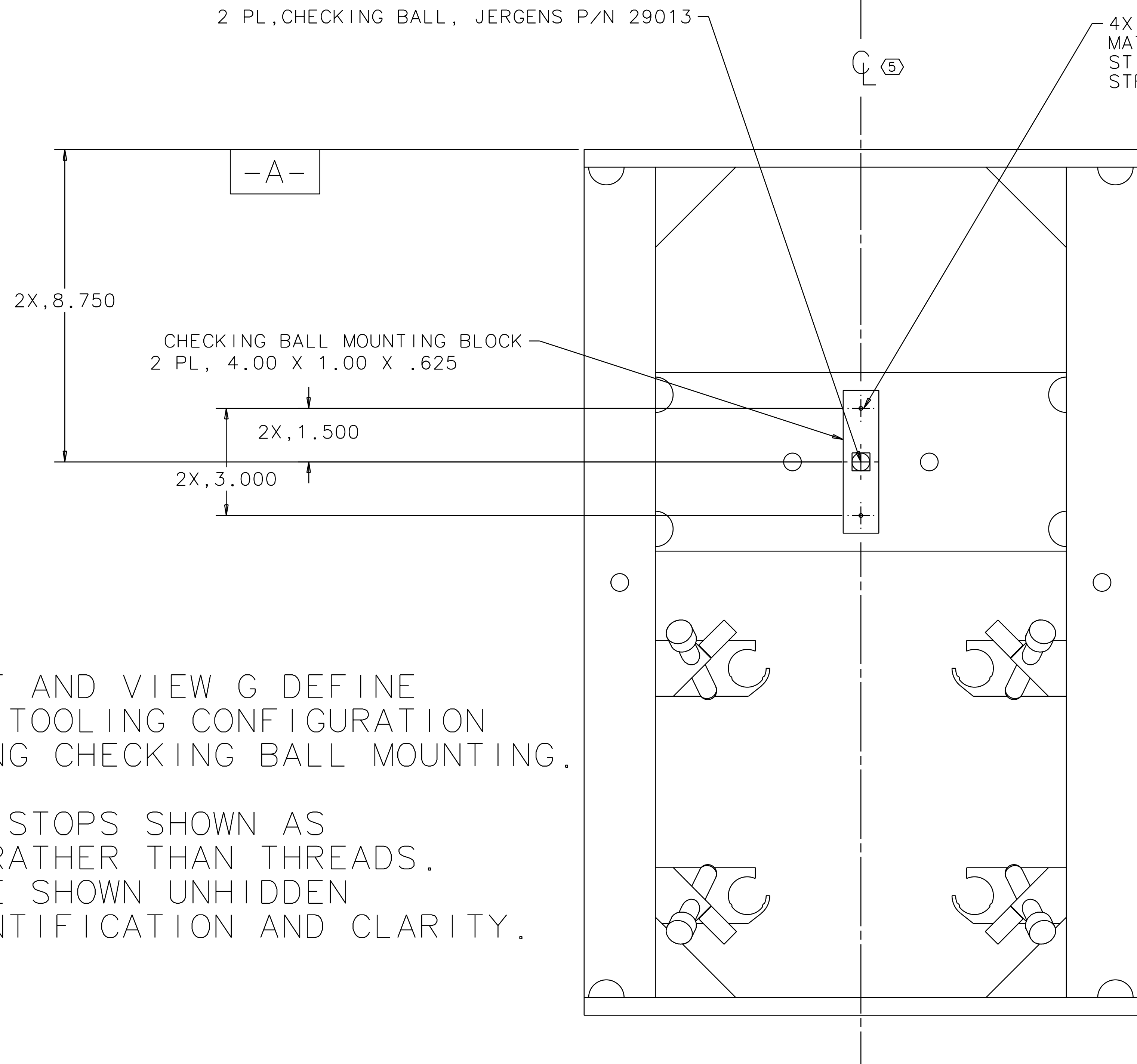


VIEW E

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



VIEW G

2 PL, CHECKING BALL, JERGENS P/N 29013

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

CHECKING BALL MOUNTING BLOCK
2 PL, 4.00 X 1.00 X .625

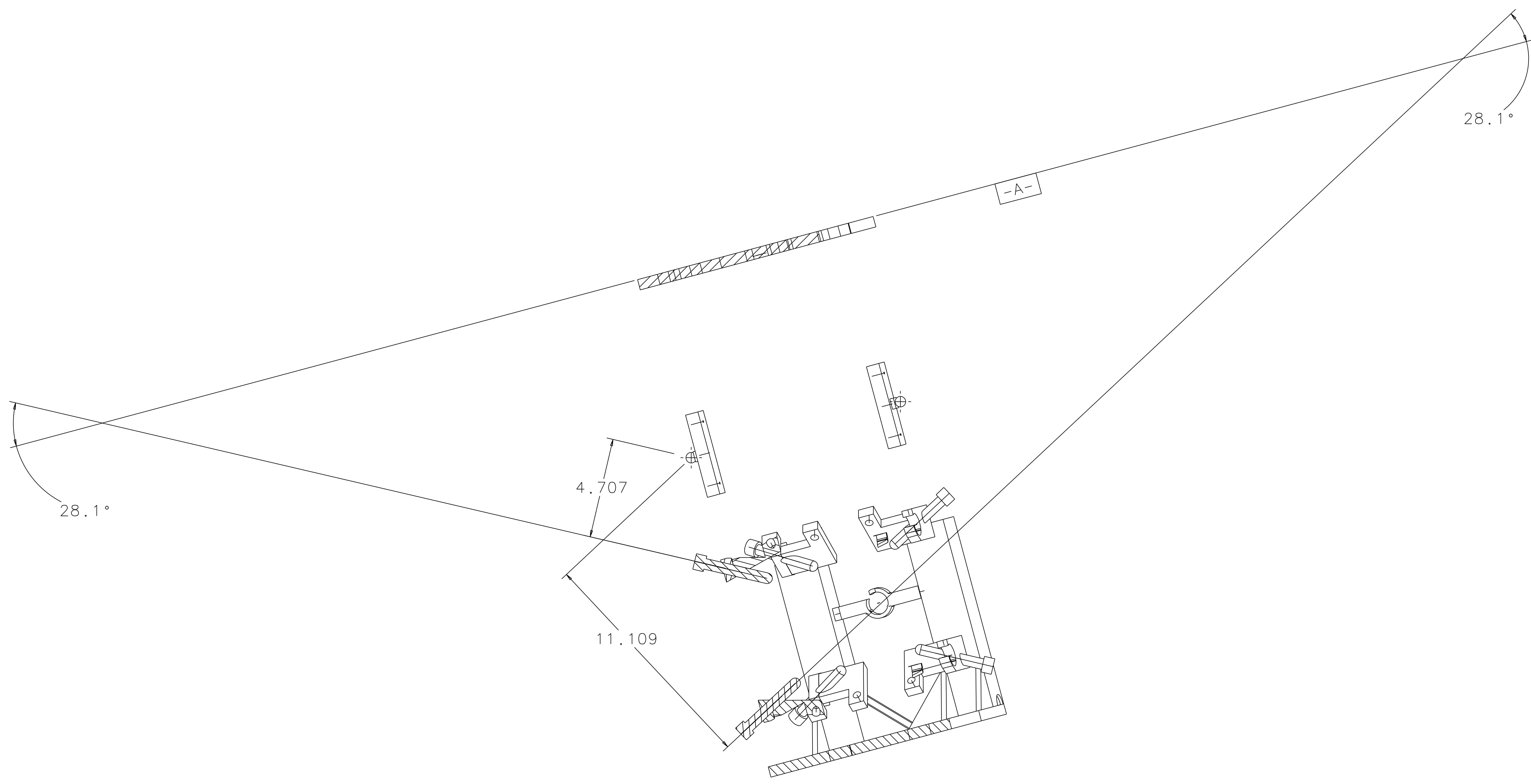
VIEW F AND VIEW G DEFINE
INTERIM TOOLING CONFIGURATION
INCLUDING CHECKING BALL MOUNTING.

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	D960133
FILE LOCATION home/dcc/docs/D960133.pdf		FINISH	SCALE	1/2
			REV	G
			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
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			E980203/MOVE CROSSHAIR UP BY 1.0007 CHANGE DRAIN HOLE CONFIG. PER DETAILS



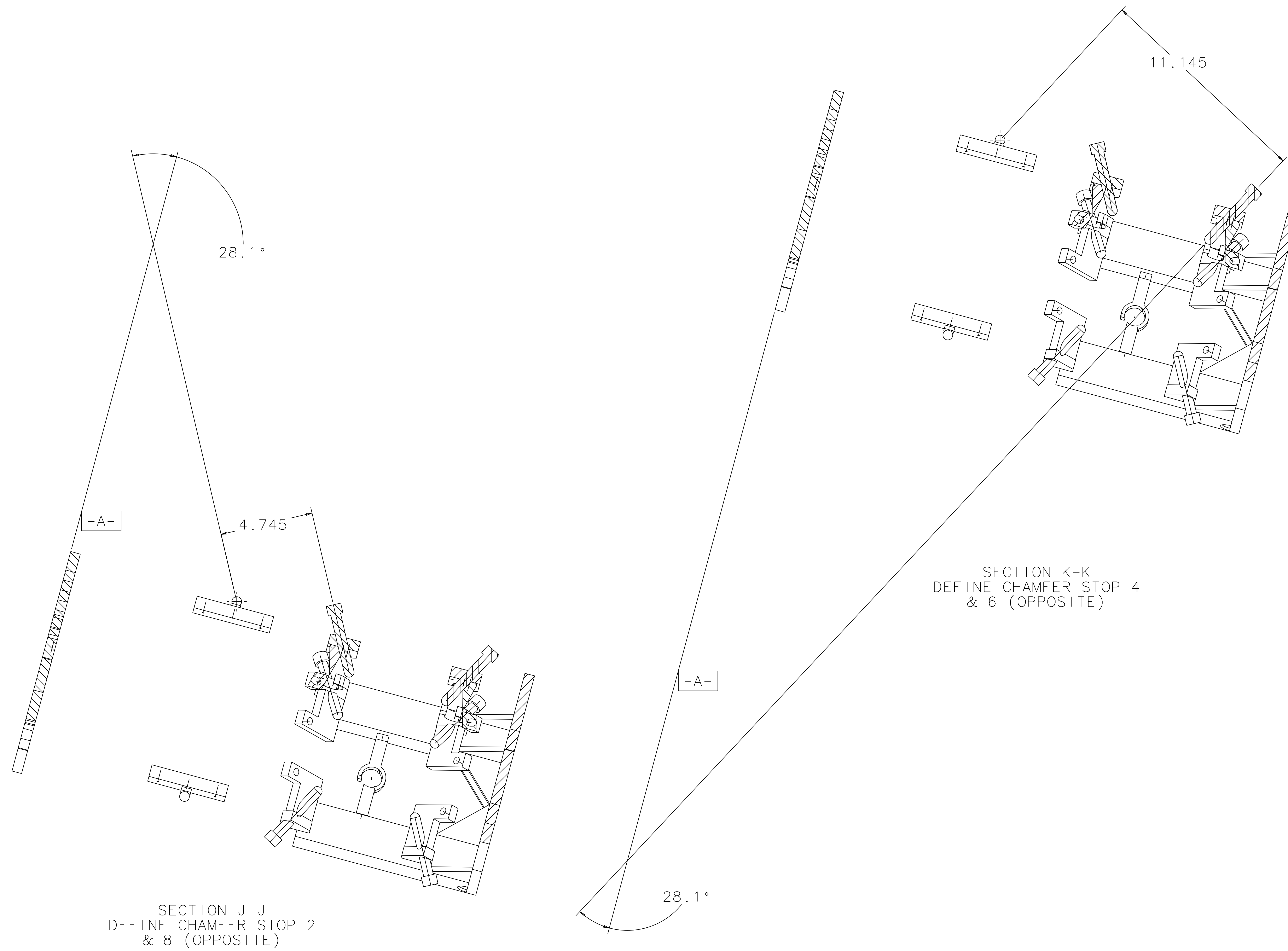
SECTION H-H
 DEFINE CHAMFER STOP 1 & 3,
 AND 7 & 5 (OPPOSITE)
 ROTATED 90° CLOCKWISE

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 ±0.5° 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	REV
FILE LOCATION home/dcc/docs/D960133.pdf		FINISH	E D960133	G
		SCALE 1/2	SHEET 4 OF 5	

1 2 3 4 5 6 7 8

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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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	
		±0.005		±0.5°	
DO NOT SCALE DRAWING					
APPROVALS			DATE	TITLE	
DRAWN J. Hazel			4/96	LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY	
CHECKED				PARTS LIST	
MATERIAL				SIZE D960133	
FINISH				REV G	
NEXT ASSEMBLY D960132				SCALE 1/2	
FILE LOCATION home/dcc/docs/D960133.pdf				SHEET 5 OF 5	

1 2 3 4 5 6 7 8