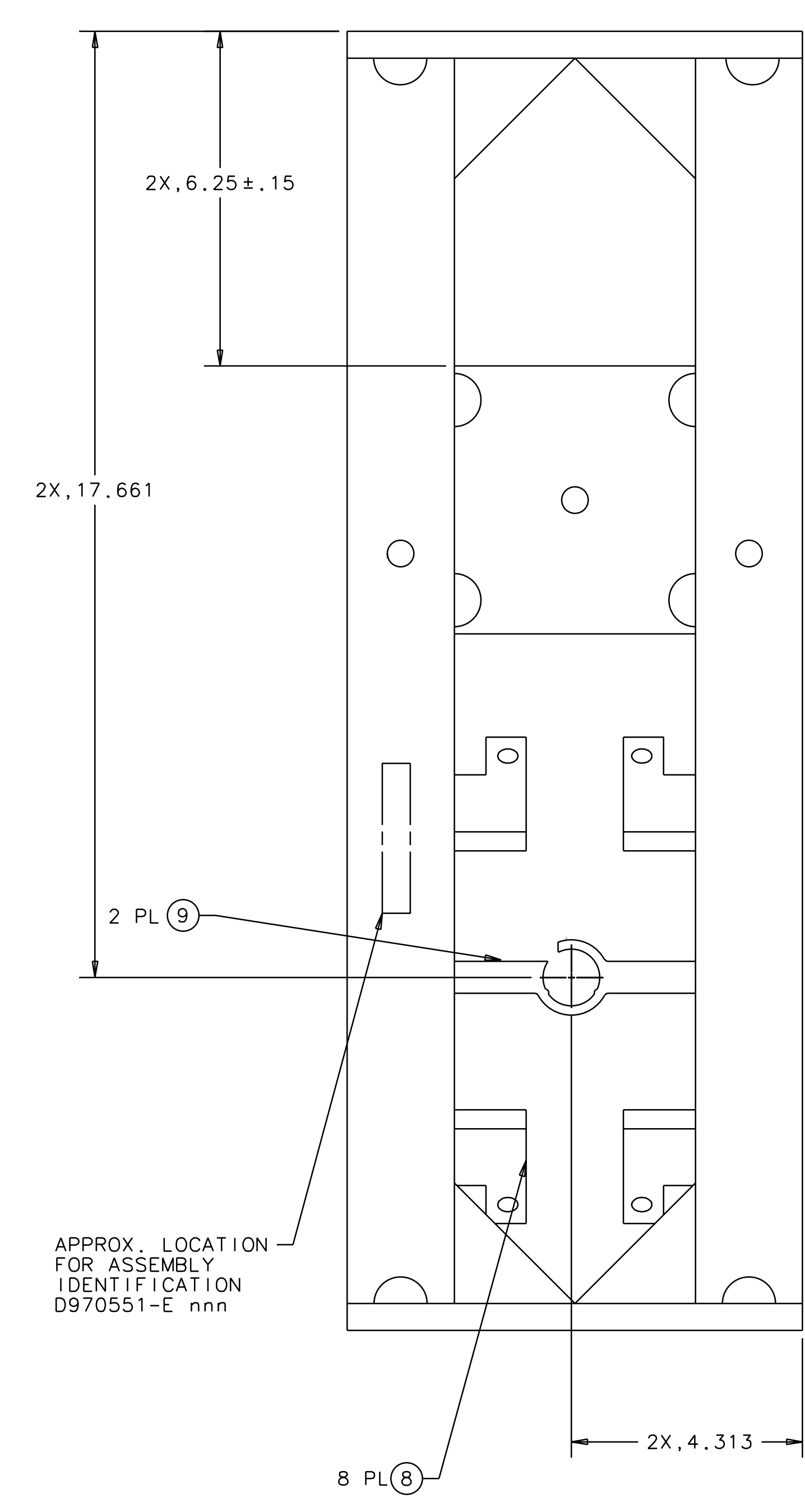
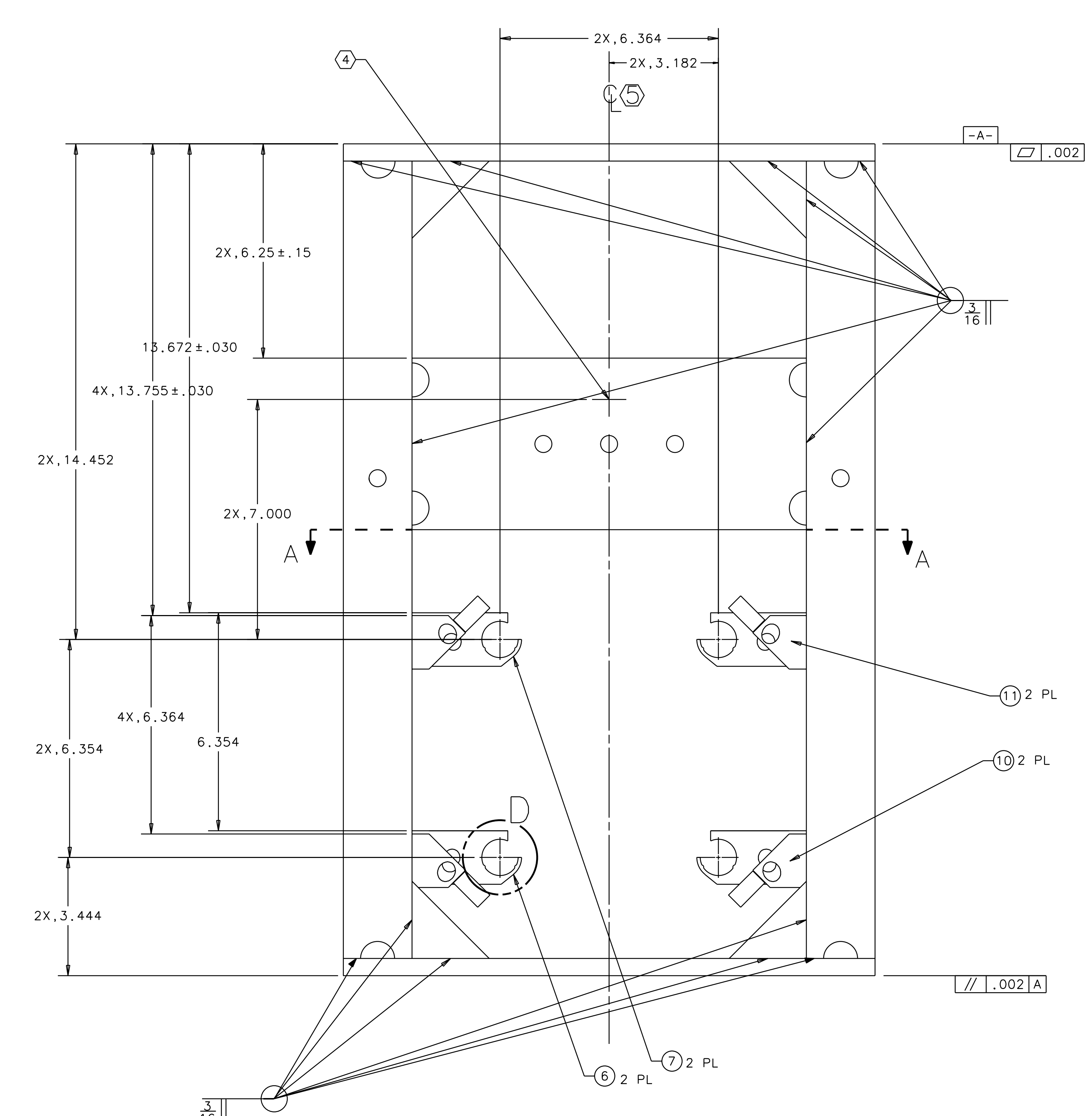
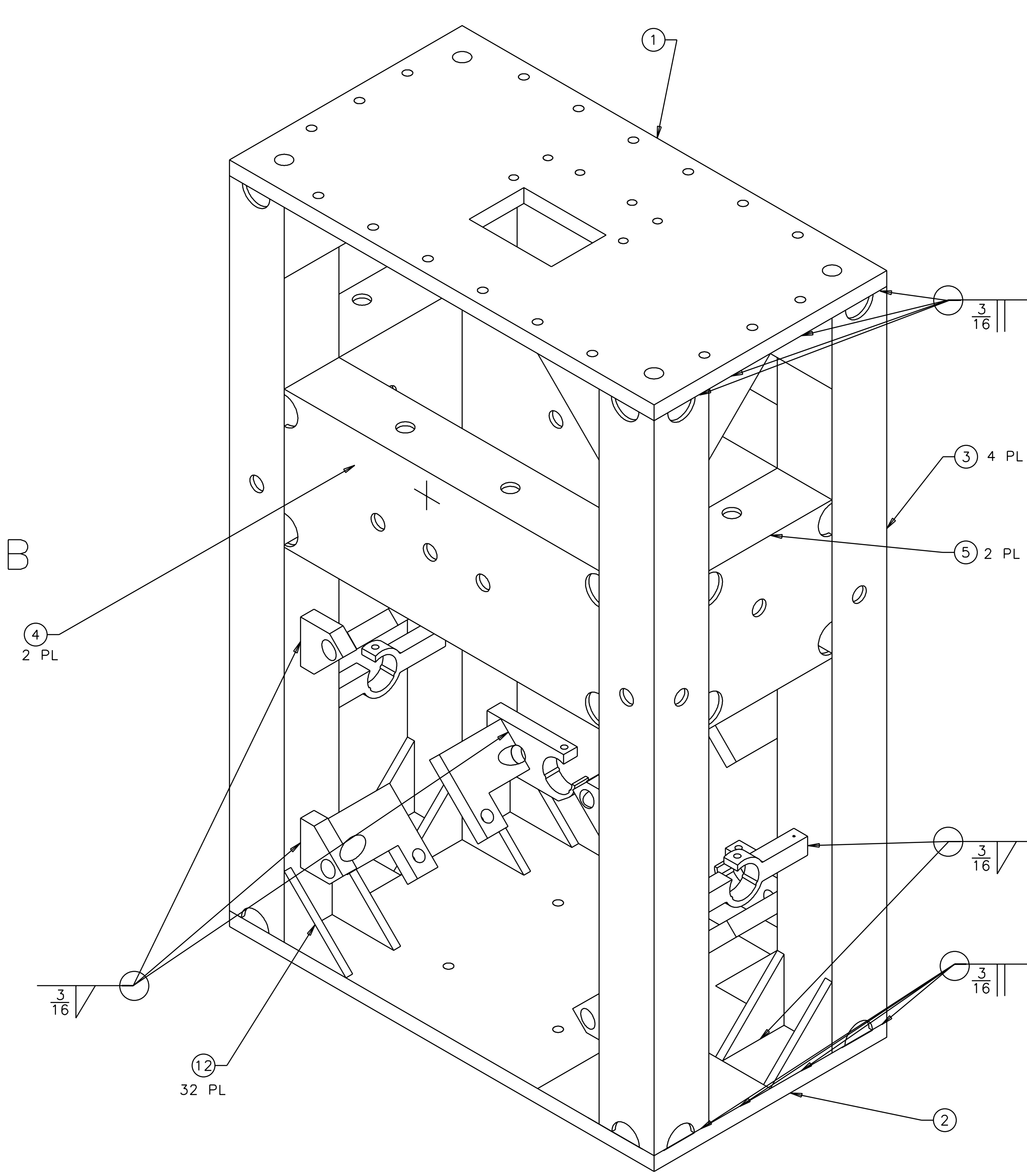
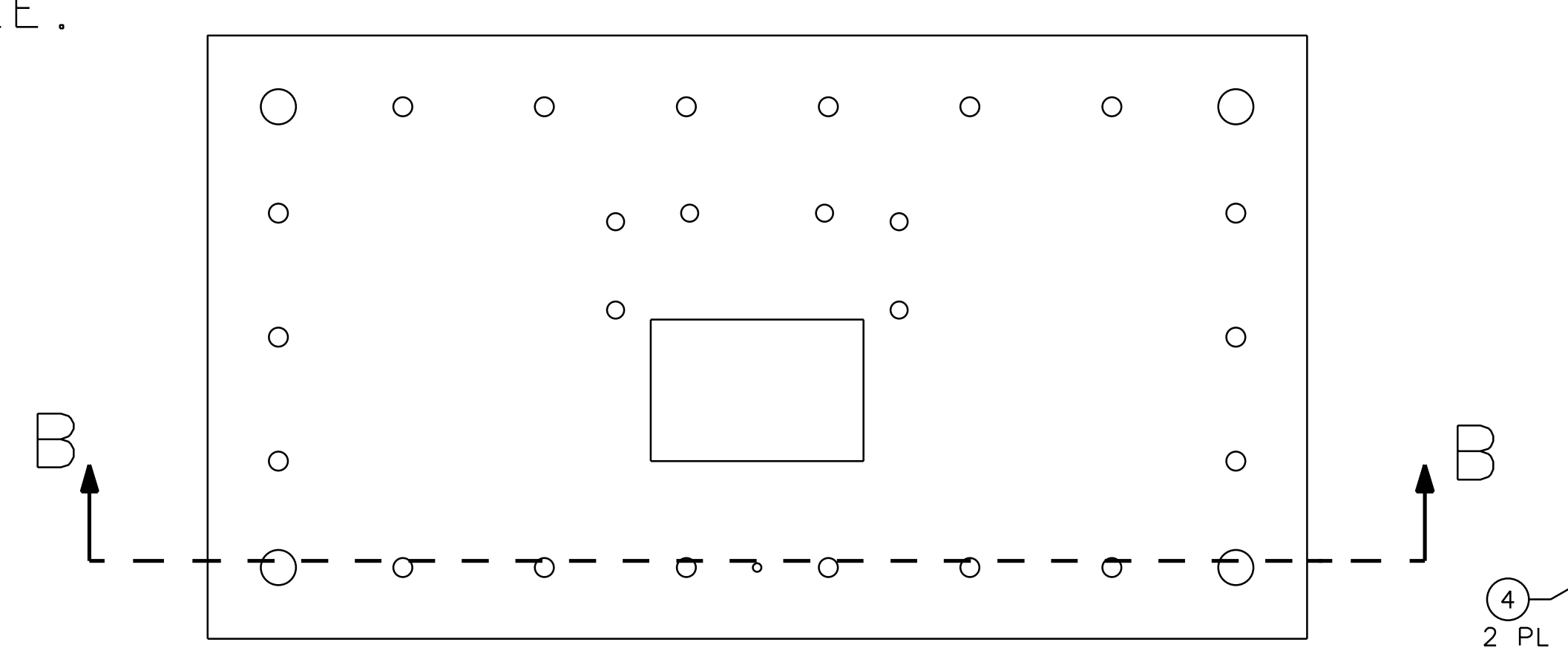


NOTES: (UNLESS OTHERWISE SPECIFIED)

- SPECIFICATIONS FOR THE CONSTRUCTION OF THIS ASSEMBLY ARE DETAILED IN LIGO E970038, THE LARGE OPTIC SUSPENSION STRUCTURAL FABRICATION SPECIFICATION.
- THESE FEATURES TO BE MACHINED AFTER ANNEALING.
- 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.
- 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.
- LINE OF SYMMETRY FOR ASSEMBLY AND ALL MACHINED FEATURES.



REV	DATE	DRAWN BY	CHECKED	DCC	DCN/DESCRIPTION
A	1/19/98	J. Hozel			E980004/INITIAL RELEASE
B	2/5/98	J. Hozel			E980011/CHANGE TO NOTE 3 CHANGE TO SECTION A-A
C	4/2/98	J. Hozel			E980075/ADD SHEET 4
D	5/1/98	J. Hozel			E980088/ ATTACHED, ID PLACEMENT
E	5/7/98	J. Hozel			E980090/CHANGE CHAMFER STOP DEFINITION
F	7/16/98	J. Romie			E980133/ADD DRAIN HOLES, OPEN TOLERANCES AND CHANGE S/A DIMENSIONS
G	7/31/98	J. Romie			E980201/MOVE 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

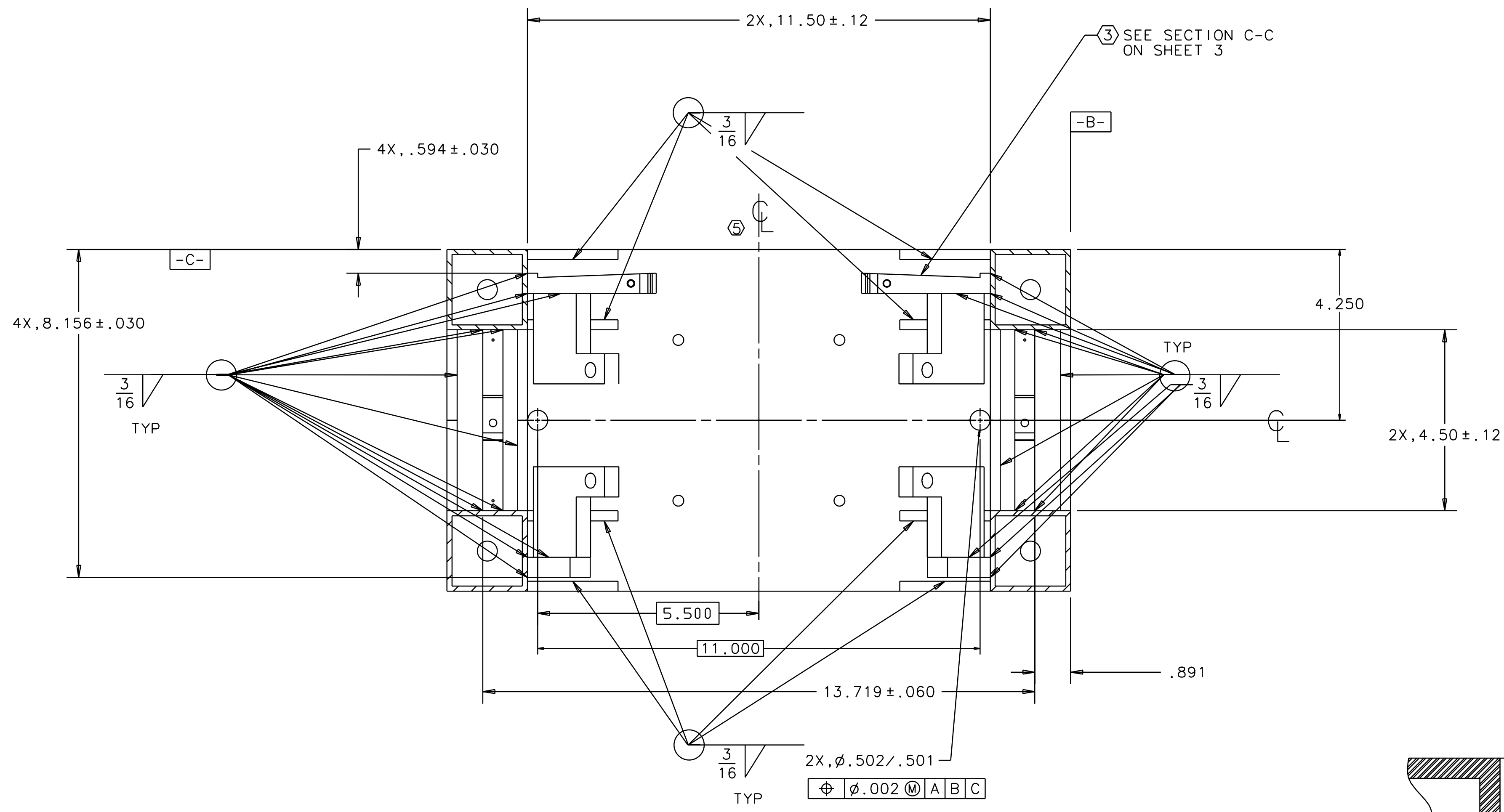
APPROVALS: DATE: 1/98  
DRAWN: J. Hozel  
CHECKED: [ ]

TITLE: LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY  
RECYCLING MIRROR LOS STRUCTURE ASSEMBLY

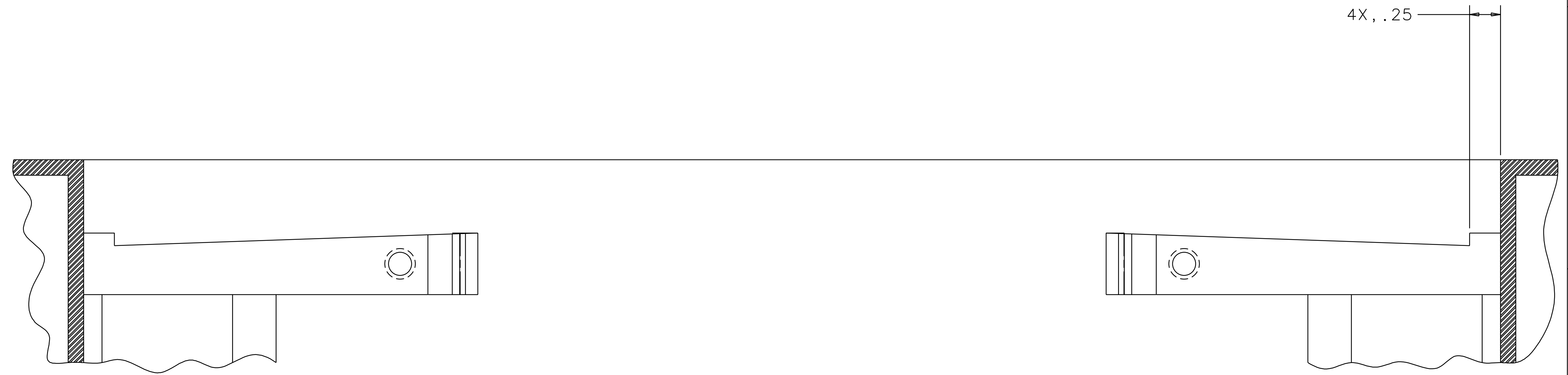
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SCALE: 1/2  
D970551  
REV: G  
SHEET: 1 OF 6

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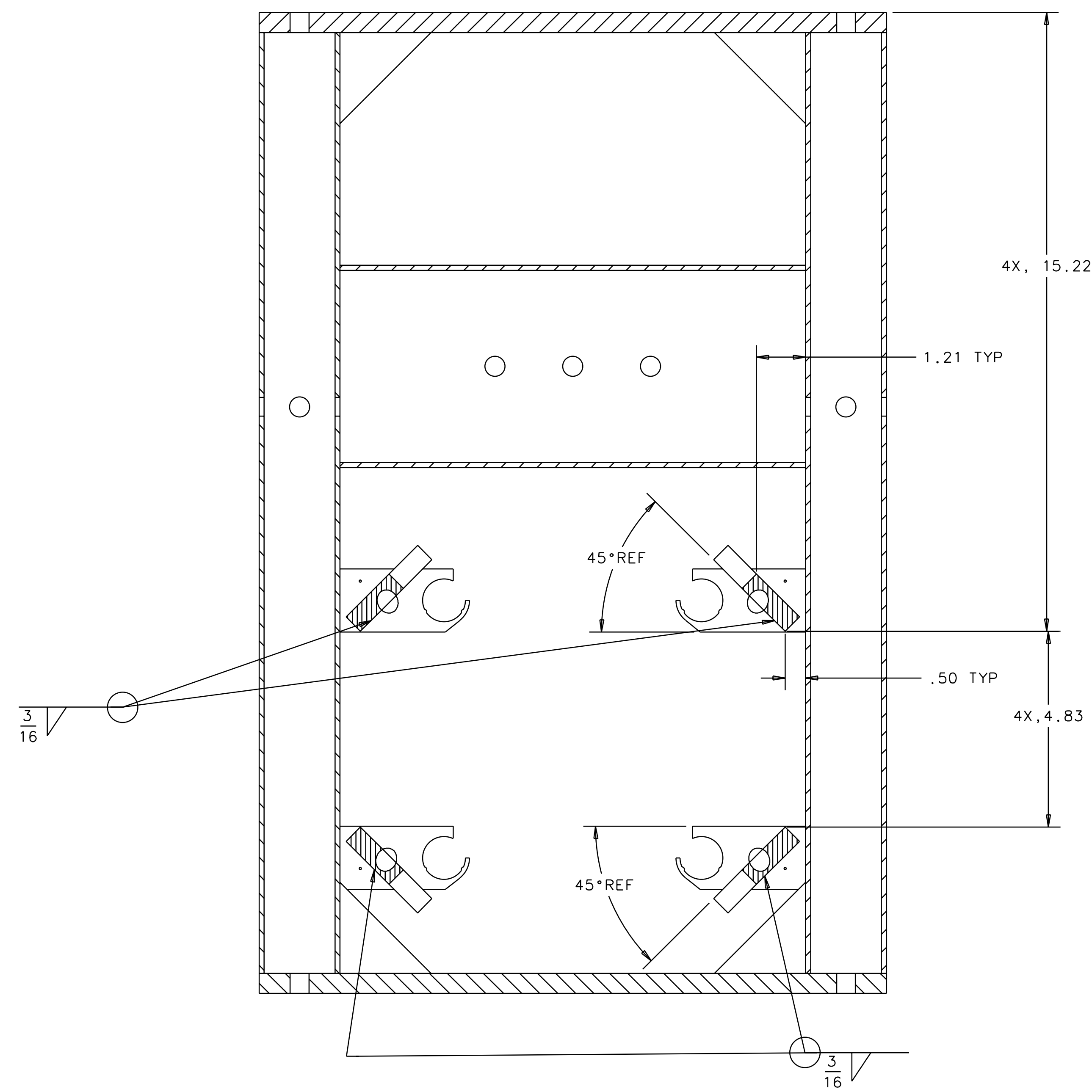
REV	DATE	DRAWN BY	CHECKED	DCC	DCN/DESCRIPTION
A	1/19/98	J.Hazel			E980004/INITIAL RELEASE
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C	4/2/98	J.Hazel			E980075/ADD SHEET 4
D	5/1/98	J.Hazel			E980088/ ATTACHED, ID PLACEMENT
E	5/7/98	J.Hazel			E980090/CHANGE CHAMFER STOP DEFINITION
F	7/16/98	J.Romie			E980173/ADD DRAIN HOLES, OPEN TOLERANCES AND CHANGE S/A DIMENSIONS
G	7/31/98	J.Romie			E980291/MOVE CROSSHAIR UP BY 1.000" CHANGE DRAIN HOLE CONFIG., PER DETAILS.



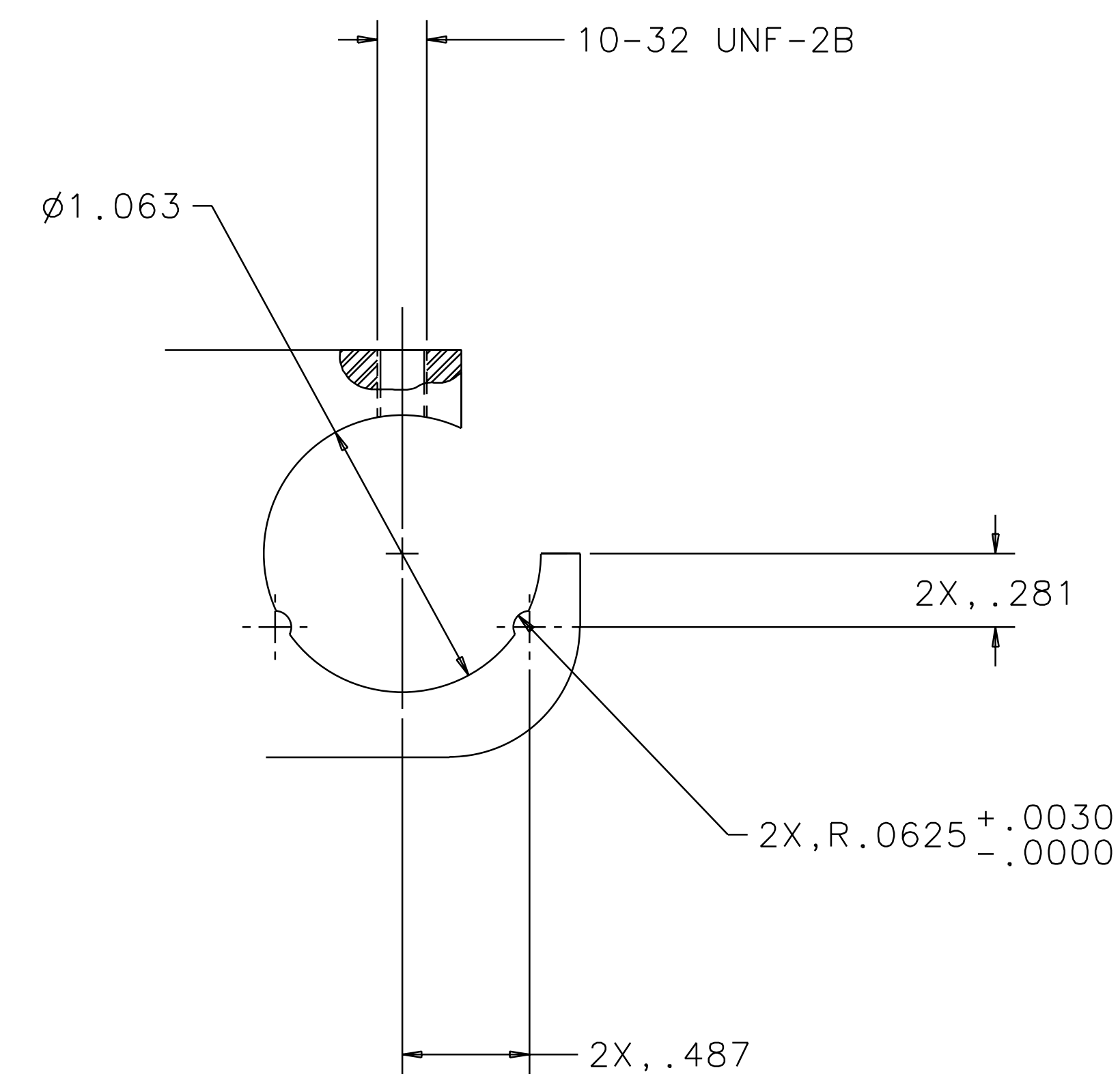
SECTION A-A



SECTION C-C  
FLY CUT DEFINED  
IN NOTE ③



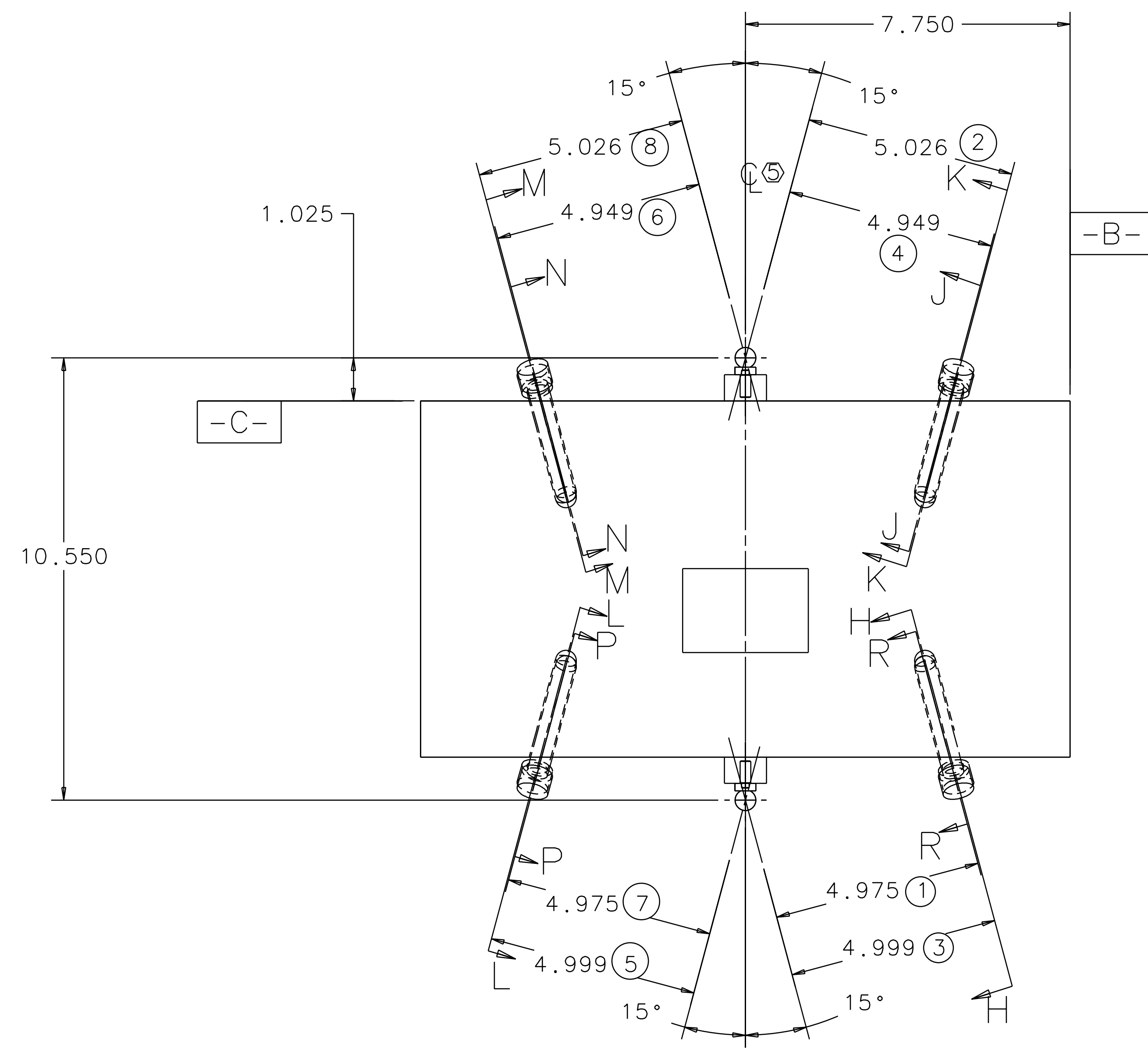
SECTION B-B



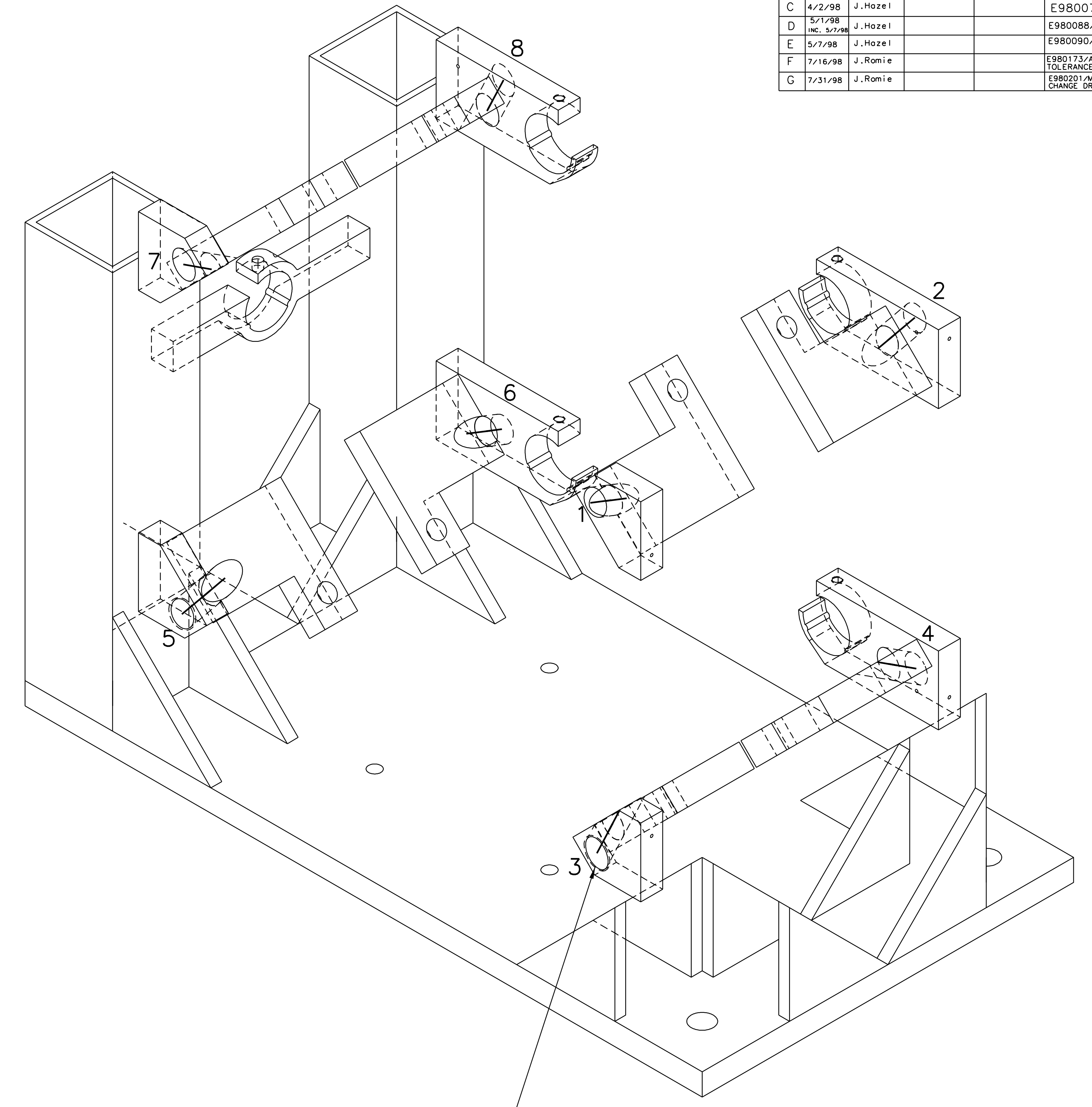
VIEW D ②  
SCALE 4/1  
TYPICAL 6 PLACES

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°				
DO NOT SCALE DRAWING				
APPROVALS		DATE	LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY	
DRAWN J. Hazel		1/98	TITLE RECYCLING MIRROR LOS STRUCTURE ASSEMBLY	
CHECKED			SIZE E D970551	
NEXT ASSEMBLY D970564, D970577		MATERIAL		REV G
FILE LOCATION home/dcc/docs/D970551.pdf		FINISH		SHEET 2 OF 6
SCALE 1/2				

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	5/17/98	J.Hazel			E980088/ ATTACHED, ID PLACEMENT
E	5/7/98	J.Hazel			E980090/CHANGE CHAMFER STOP DEFINITION
F	7/16/98	J.Romie			E980173/ADD DRAIN HOLES, OPEN TOLERANCES AND CHANGE S/A DIMENSIONS
G	7/31/98	J.Romie			E980201/MOVE CROSSHAIR UP BY 1.000" CHANGE DRAIN HOLE CONFIG. PER DETAILS



VIEW F



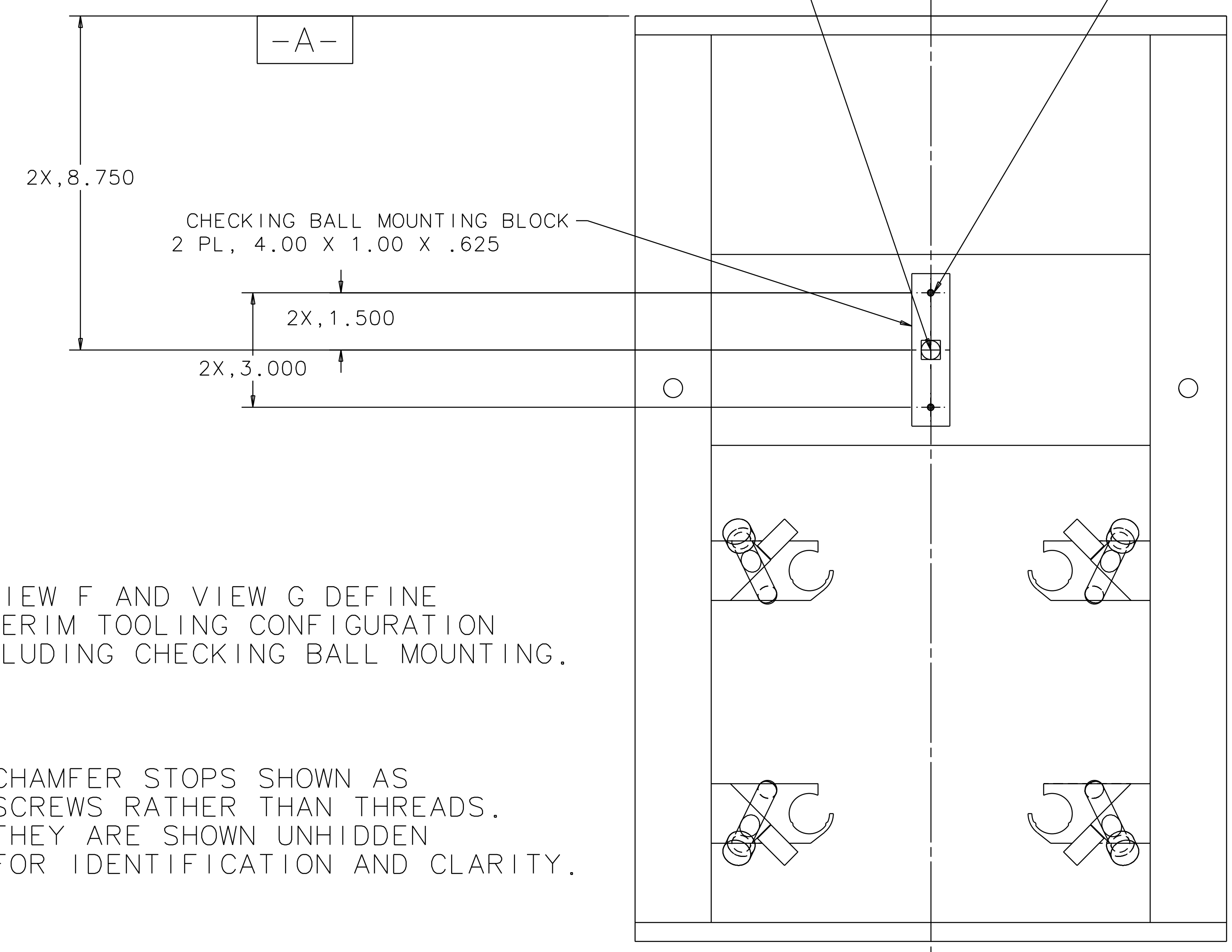
CHAMFER STOPS  
8X, 1/2 -13 UNC-2B

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.

2 PL, CHECKING BALL, JERGENS P/N 29013  
4X, #4-40 SCREW  
MATCH DRILL TO  
STIFFENER IN  
STRUCTURE



VIEW G

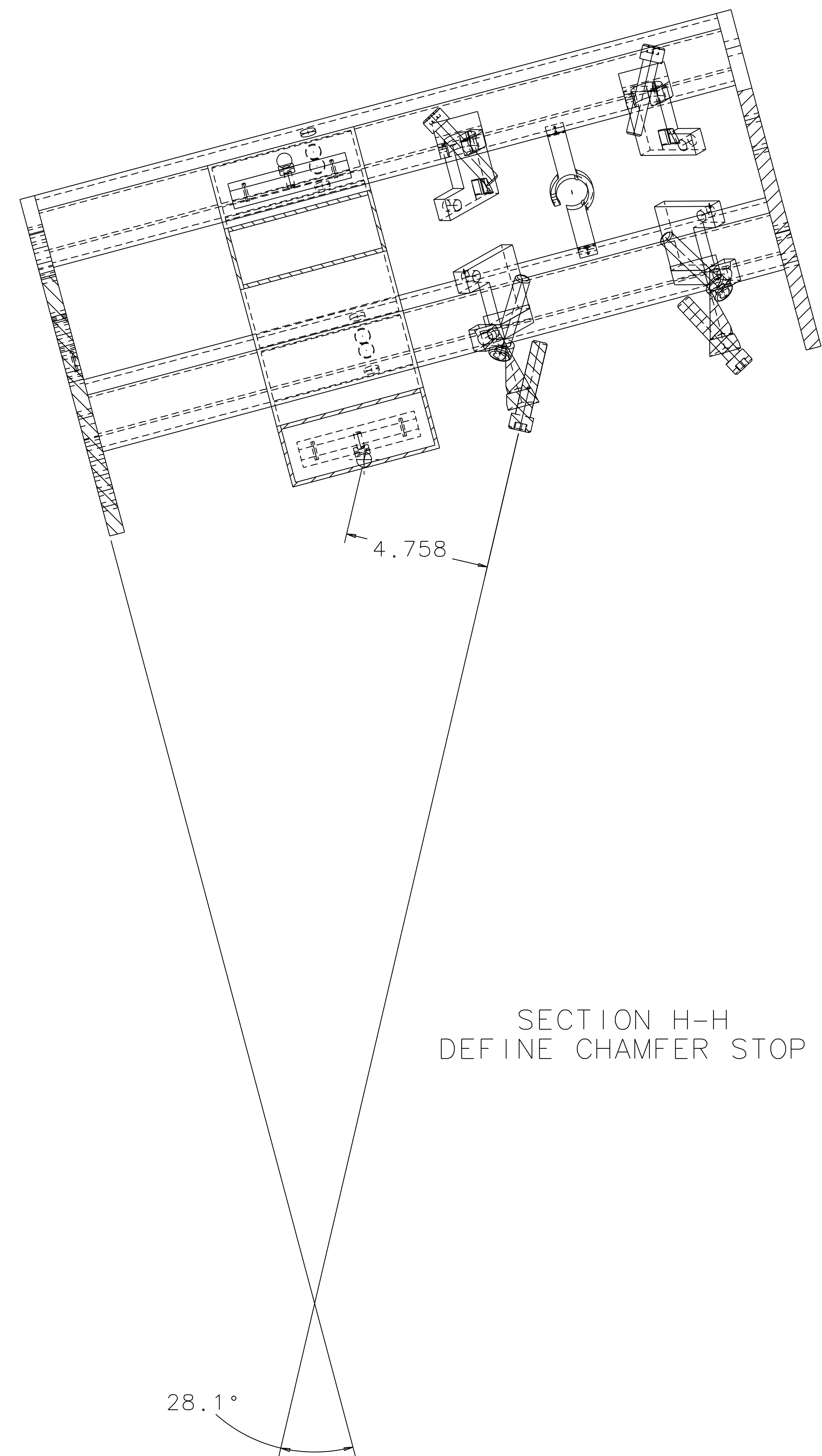
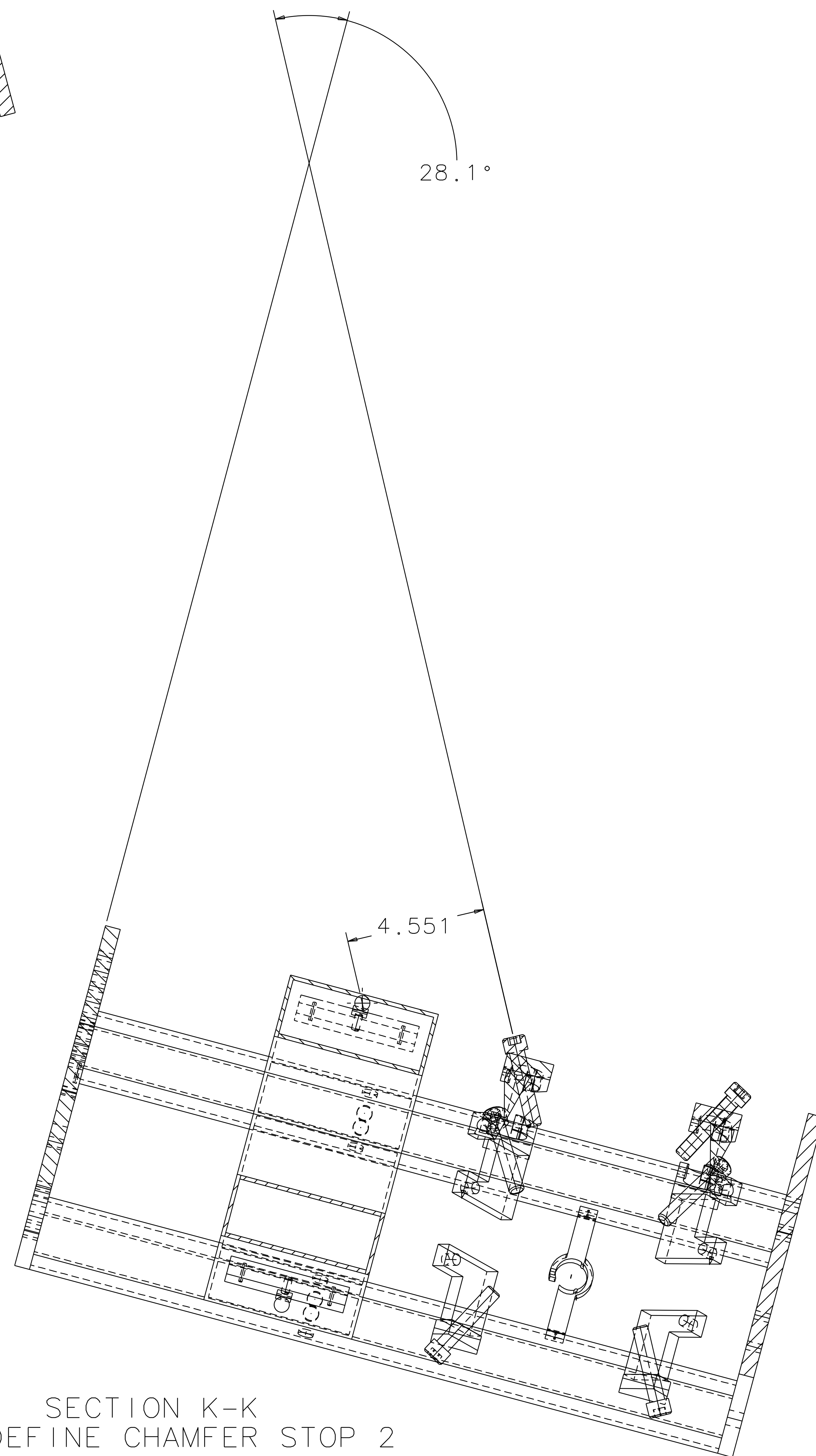
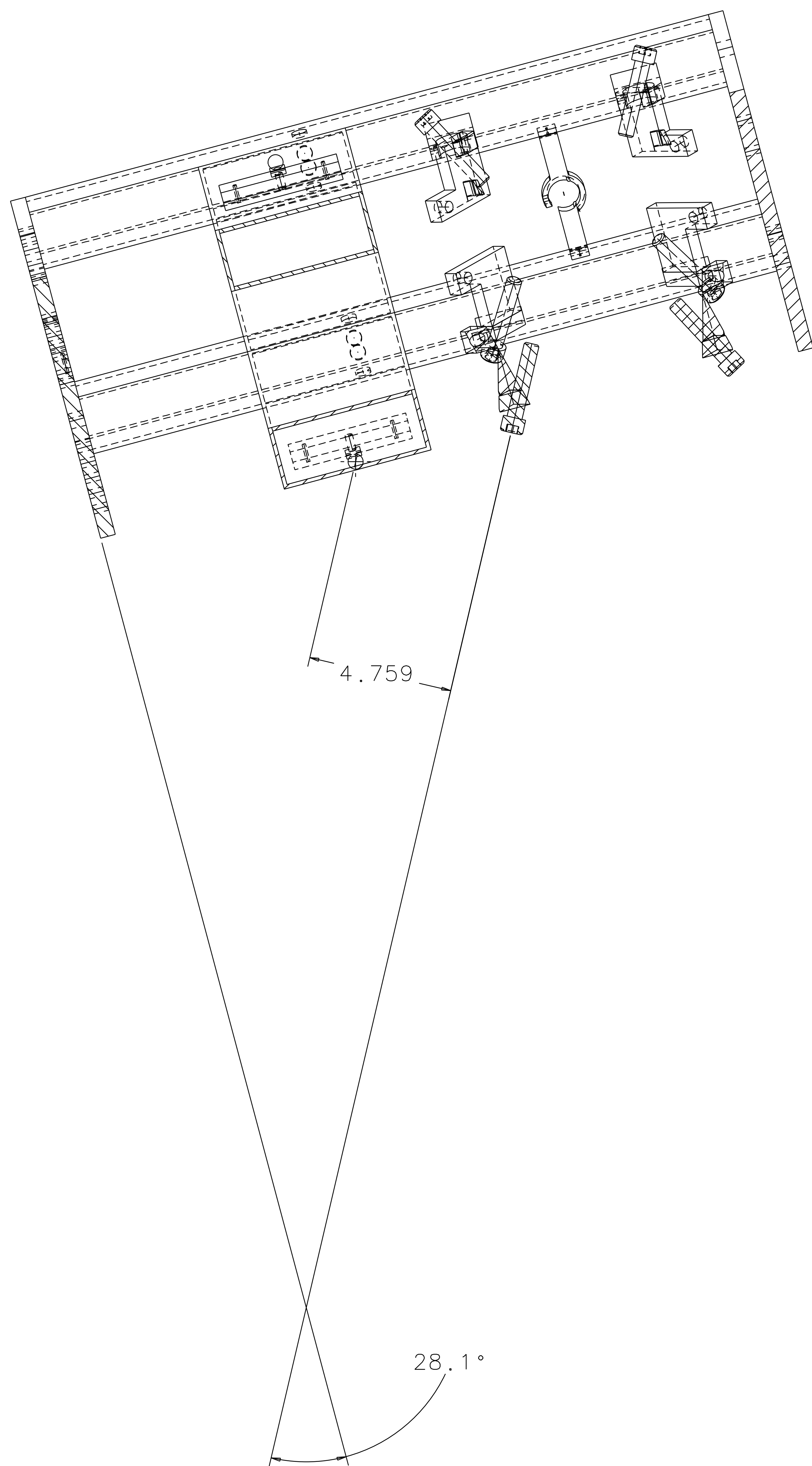
VIEW F AND VIEW G DEFINE  
INTERIM TOOLING CONFIGURATION  
INCLUDING CHECKING BALL MOUNTING.

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

QTY 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 1/98				
CHECKED				
DO NOT SCALE DRAWING				
NEXT ASSEMBLY		MATERIAL		
D970564, D970577				
FILE LOCATION		FINISH		
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APPROVALS		DATE	TITLE	
		1/98	LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY	
			RECYCLING MIRROR LOS STRUCTURE ASSEMBLY	
			SIZE	REV
			D970551	G
			SCALE 1/2	SHEET 3 OF 6

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
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D	5/1/98	J. Hazel			E980088/ ATTACHED, ID PLACEMENT
E	5/7/98	J. Hazel			E980090/CHANGE CHAMFER STOP DEFINITION
F	7/16/98	J. Romie			E980133/ADD DRAIN HOLES, OPEN TOLERANCES AND CHANGE S/A DIMENSIONS
G	7/31/98	J. Romie			E980207/MOVE CROSSHAIR UP BY 1.000", CHANGE DRAIN HOLE CONFIG., PER DETAILS

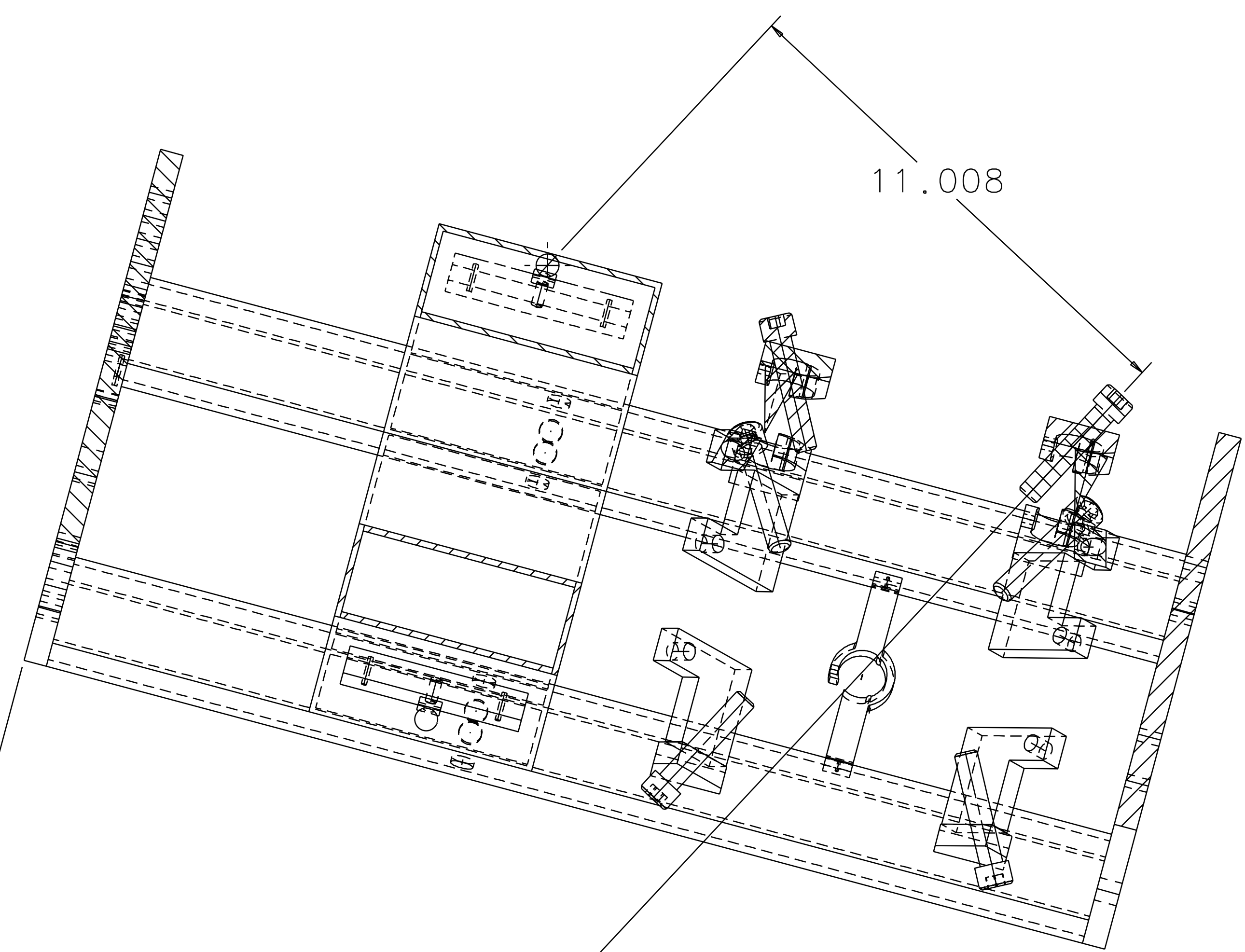


QTY REQ	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION	MATERIAL SPECIFICATION	ITEM NO.
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES				
TOLERANCES ARE:				
FRACTIONS DECIMALS ANGLES				
. . .0 .5				
0.XX=+0.03				
0.XXX=±0.005				
DO NOT SCALE DRAWING				
APPROVALS		DATE	LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY	
DRAWN J. Hazel		1/98	TITLE RECYCLING MIRROR LOS STRUCTURE ASSEMBLY	
CHECKED			SIZE E D970551	
MATERIAL			REV G	
NEXT ASSEMBLY D970564, D970577			SCALE 1/2	
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FINISH				

1 2 3 4 5 6 7 8

1 2 3 4 5 6 7 8

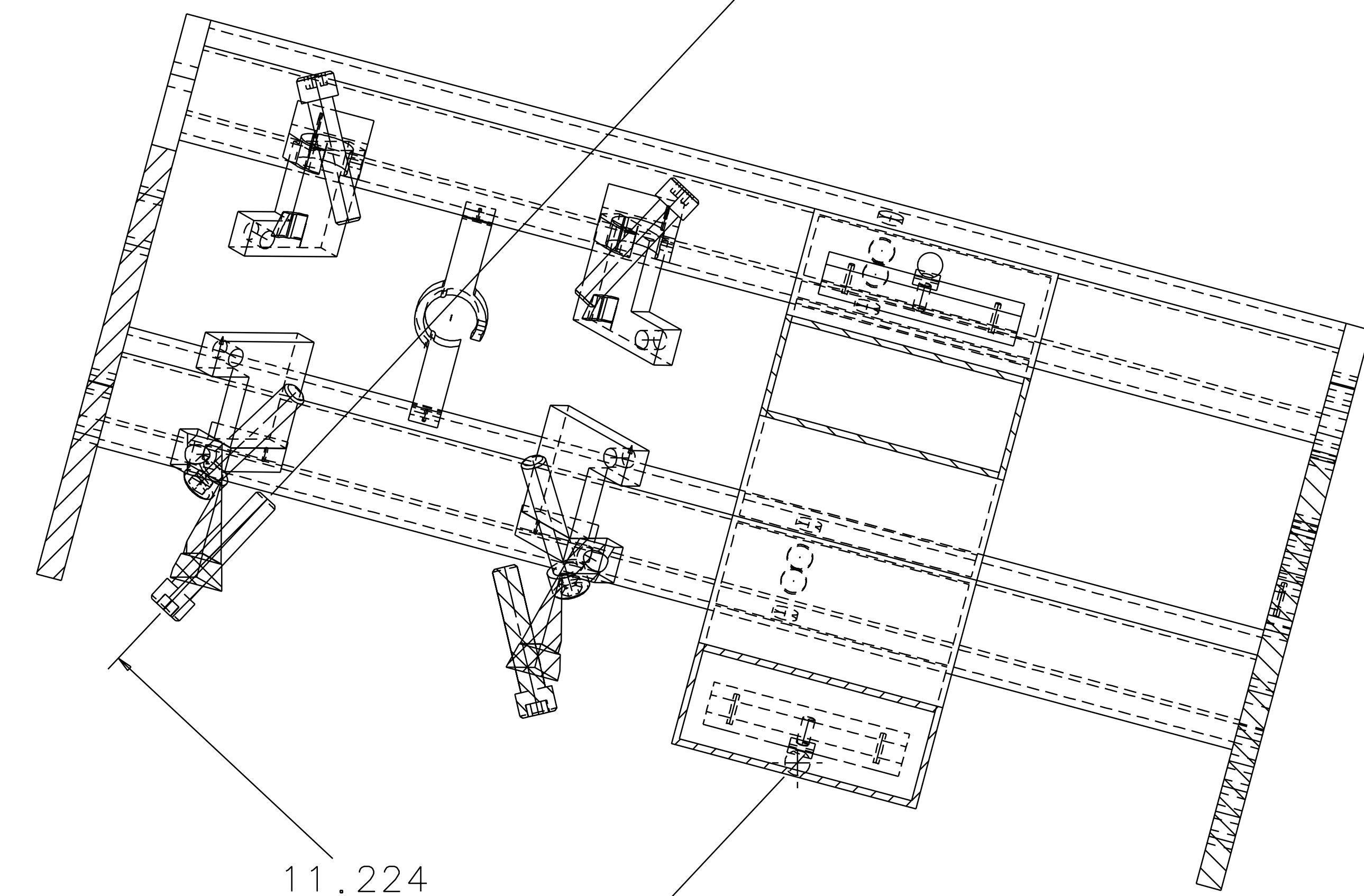
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G	7/31/98	J. Romie			E980207/MOVE CROSSHAIR UP BY 1.000", CHANGE DRAIN HOLE CONFIG., PER DETAILS



SECTION J-J  
DEFINE CHAMFER STOP 4

28.1°

28.1°



SECTION L-L  
DEFINE CHAMFER STOP 5

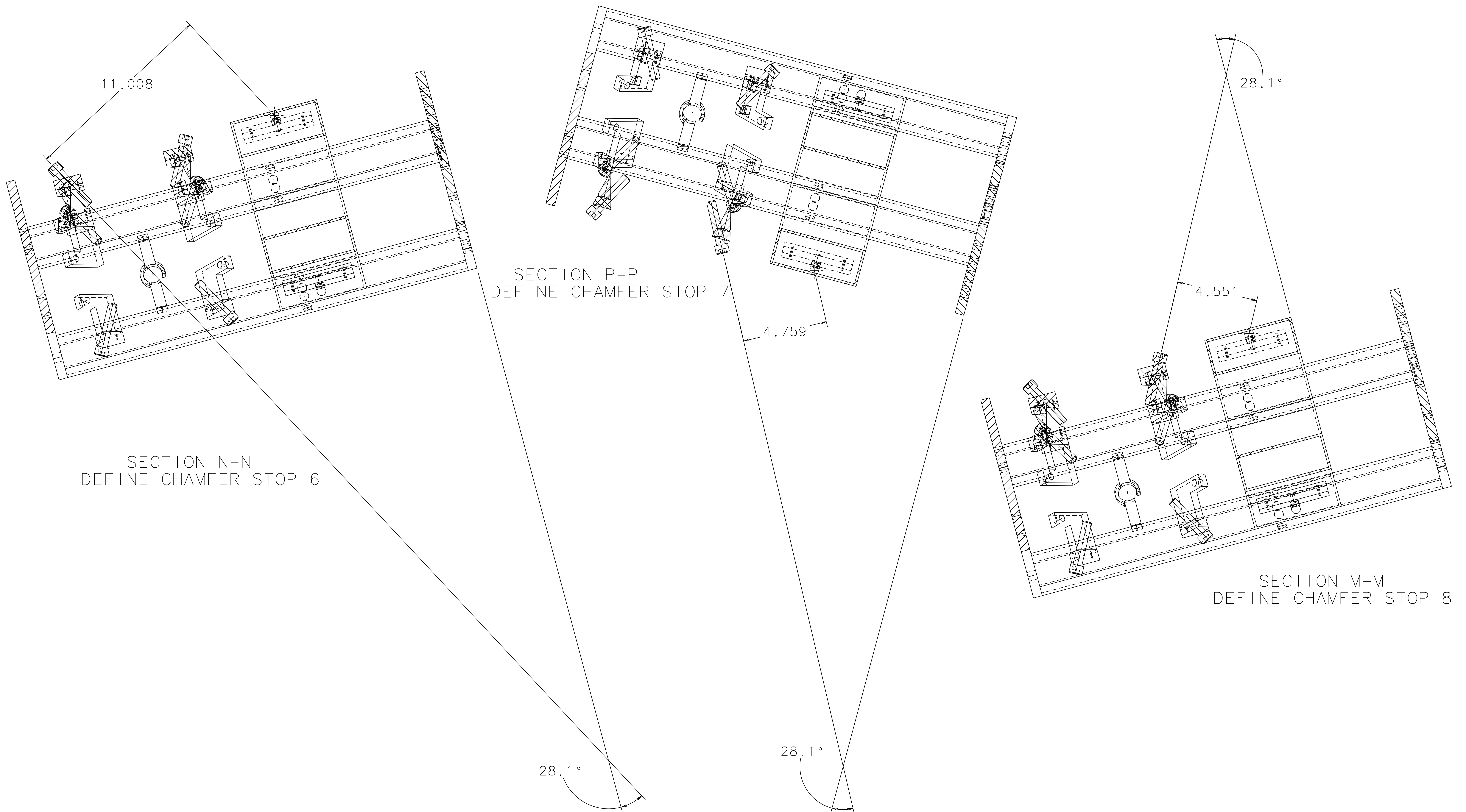
11.224

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°	
DO NOT SCALE DRAWING				
APPROVALS		DATE	LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY	
DRAWN J. Hazel		1/98	TITLE RECYCLING MIRROR LOS STRUCTURE ASSEMBLY	
CHECKED			SIZE E D970551	
MATERIAL			REV G	
NEXT ASSEMBLY D970564, D970577			SCALE 1/2	
FILE LOCATION home/dcc/docs/D970551.pdf			SHEET 5 OF 6	
FINISH				

1 2 3 4 5 6 7 8

1 2 3 4 5 6 7 8

REV	DATE	DRAWN BY	CHECKED	DCC	DCN/DESCRIPTION
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SECTION N-N  
DEFINE CHAMFER STOP 6

SECTION P-P  
DEFINE CHAMFER STOP 7

SECTION M-M  
DEFINE CHAMFER STOP 8

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°				
0.XX±0.03				
0.XXX±0.005				
DO NOT SCALE DRAWING				
NEXT ASSEMBLY		MATERIAL		
D970564, D970577				
FILE LOCATION		FINISH		
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APPROVALS		DATE	TITLE	
DRAWN J. Hazel		1/98	LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY	
CHECKED			RECYCLING MIRROR LOS STRUCTURE ASSEMBLY	
			SIZE	REV
			E	G
			SCALE 1/2	SHEET 6 OF 6

1 2 3 4 5 6 7 8