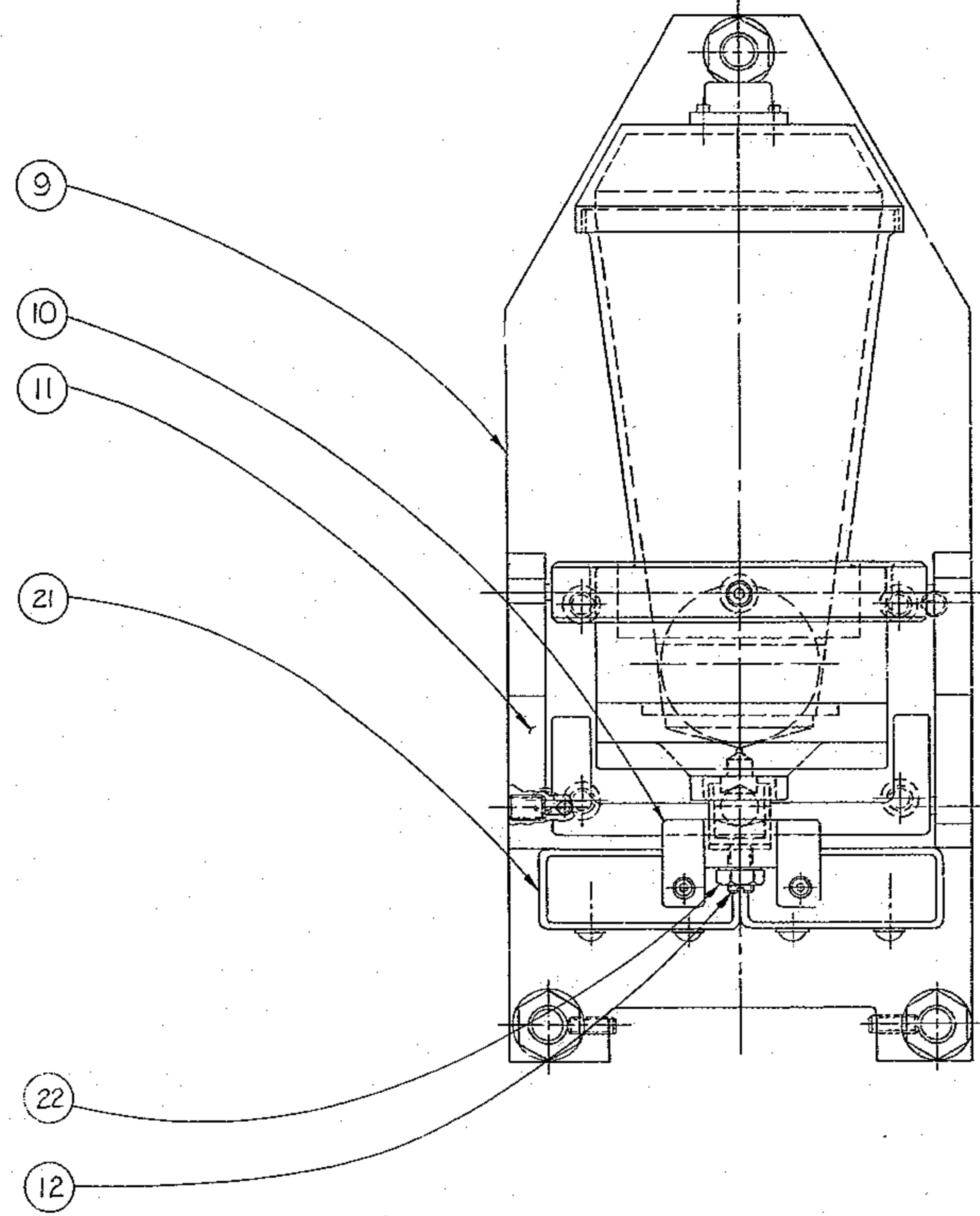
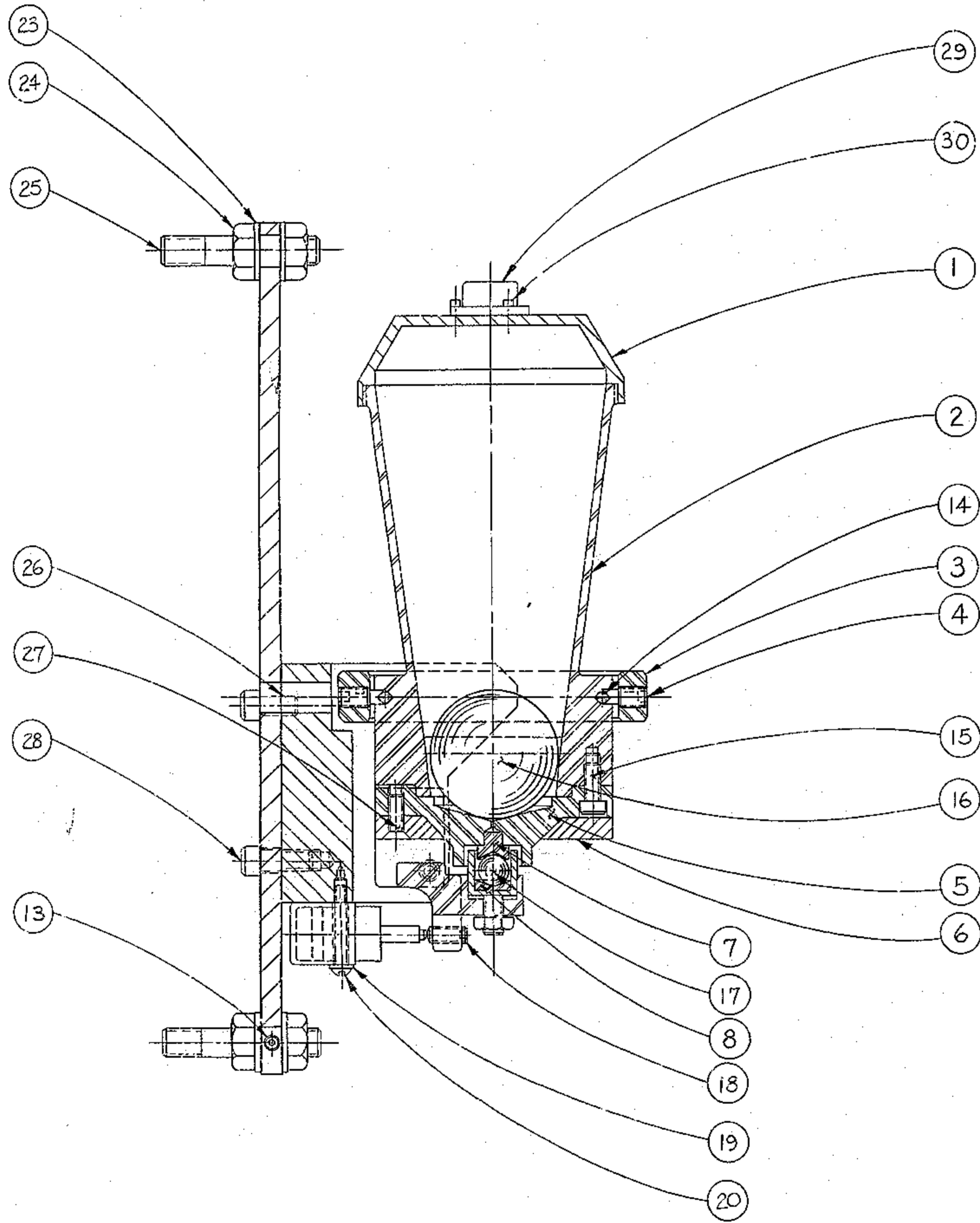


BILL OF MATERIAL				
ITEM	QTY.	MATERIAL	DESCRIPTION	WEIGHT
1	1	2150.290-0103	SCREW CAP	
2	1	-D104	CONE	
3	1	-C005	RING	
4	6	-B006	PIVOT PIN	
5	1	-C007	CAP	
6	1	-B105	COUNTERWEIGHT	
7	1	-B009	CONE CAM	
8	1	-B010	CONE CAM	
9	1	-D011	SWITCH BASE PLATE	
10	1	-D012	SWITCH ACTUATING LEVER	
11	1	-D013	GIMBAL YOKE	
12	1	-B014	BALL RETAINER	
13	2	STAINLESS STEEL	*6-32 X 1/2 LG. LOCKING SOC SET SCREW	
14	6	440 STAINLESS STEEL	1/2 DIA. (125) BALL - HARTFORD-UNIVERSAL CO.	
15	4	STEEL	*10-24 X 1/2 LG. SOC. HD. CAP SCREW	
16	1	440 STAINLESS STEEL	1 5/8 DIA. (425) BALL - HARTFORD-UNIVERSAL CO.	
17	1	440 STAINLESS STEEL	3/8 DIA. (375) BALL - HARTFORD-UNIVERSAL CO.	
18	2	STAINLESS STEEL	*10-32 X 1/2 LG. FLAT HD. CAP SCREW	
19	4	STAINLESS STEEL	*5 FLAT WASHER	
20	4	"	*5-40 X 1/8 LG. RD. HD. MACH. SCREW	
21	2	"	MICRO SWITCH - 1/2" ENCLOSURE - SP41	
22	1	STAINLESS STEEL	1/4-28 JAM NUT	
23	6	"	3/8 PLAIN FLAT WASHER	
24	6	"	3/8-16 STD. HEX NUT	
25	3	STEEL	3/8-16 X 2 LG. STD. PART NO. ALB. 40204	
26	2	STAINLESS STEEL	1/4 DIA. X 1/2 LG. DOWEL	
27	4	"	*10-24 X 1/2 LG. FLAT HD. SOC. CAP SCREW	
28	4	"	1/4-20 X 5/8 LG. SOC. HD. CAP SCREW	
29	1	"	CIRCULAR LEVEL - 1/2" MOUNTED - NSI 10-068	
30	3	STAINLESS STEEL	*2-56 X 1/4 LG. SOC. HD. CAP SCREW	



NOTES:

- THE GIMBALED BELL HOUSING ASSEMBLY, COMPOSED OF ITEMS 1, 2, 5, 6, 7, 15, 16, & 27 MUST BALANCE ON ALL ITS AXES WHEN MOUNTED IN THE GIMBAL ASSEMBLY, COMPOSED OF ITEMS 3, 4, 11 & 14, AND WITH THE 1 5/8 DIA. STEEL BALL HELD IN THE BOTTOM OF THE SMALL END OF THE HOUSING. ALTER ITEM 6, AS SHOWN ON DWG. 2150.290-B105, TO ATTAIN THIS BALANCE.
- THE LEVER ASSEMBLY COMPOSED OF ITEMS 8, 10, 12, 18 & 22 MUST BALANCE ABOUT THE AXIS DETERMINED BY ITS PIVOT POINTS. THE LEVER IS BALANCED BY REMOVING MATERIAL FROM ITS BALANCING ARMS.
- THE AXIS OF THE CONE CAMS (ITEMS 7 & 8) AND THE AXIS OF THE BELL HOUSING (ITEM 2) MUST BE IN LINE WITH ITEM 17 IN PLACE WHEN THE ASSEMBLY IS IN NEUTRAL POSITION SHOWN. (ADJUST ITEMS 4 & 12 TO ATTAIN ALIGNMENT.)
- ADJUST SET SCREW (ITEM 18) TO OPERATE SWITCHES (ITEM 21) SEQUENTIALLY .002 APART, WITH MINIMUM POSSIBLE DELAY FROM NEUTRAL POSITION.
- THE 1 5/8 DIA. BALL (ITEM 16) AND THE INNER SURFACE OF ITEM 2, MUST BE CLEANED AND DUST FREE AT TIME OF ASSEMBLY, AS MUST ITEMS 14 & 17 AND THEIR CONE SEATS, (ITEMS 2, 4, 7 & 8).
- ITEM 29 MUST INDICATE A LEVEL CONDITION WHEN AXIS OF BELL HOUSING IS PERPENDICULAR. IT IS PROVIDED AS A REFERENCE TO ALIGN ϕ OF SWITCH (IN NORMAL POSITION), WITH ϕ OF TELESCOPE (IN ZENITH POSITION).
- THE SWITCH ASSEMBLY IS TO BE BENCH TESTED FOR RELIABLE OPERATION AS FOLLOWS:
 - THE SWITCH ASSEMBLY MUST OPERATE WITHIN 1/2 DEGREE BEFORE ITS REQUIRED OPERATING POSITION OF 6 DEGREES ABOVE HORIZON. THIS REQUIREMENT IS TO BE TESTED IN ALL FOUR QUADRANTS, AND AT LEAST THE BISECTING LOCATIONS OF THESE QUADRANTS.
 - AUTOMATIC RESET MUST BE DEMONSTRATED TO OCCUR WITHIN 5 DEGREES ABOVE THE REQUIRED OPERATING POSITION OF THE SWITCH AT EACH OF THE TESTED LOCATIONS.
- SWITCH ASSEMBLIES MUST BE CAREFULLY PACKED AND HANDLED DURING SHIPMENT TO ASSURE RELIABILITY.
- DRYLUBE SURFACES OF ITEMS 14 & 17 AND PIVOT SEATS OF ITEMS 2, 3, 4, 7, 8, & 10, WITH DOW CORNING MOLYKOTE BRAND Z POWDER.

FOR BILL OF MATERIAL SEE 2150.290-A102

FOR ASSEMBLY SEE 2120-E141

TOLERANCES UNLESS OTHERWISE NOTED		KITT PEAK NATIONAL OBSERVATORY	
DECIMAL DIMENSIONS .0010 - .010 00.000 - .003		OPERATED BY THE ASSOCIATION OF UNIVERSITIES FOR RESEARCH IN ASTRONOMY, INC.	
FRACTIONAL DIMENSIONS UP TO 1" = 1/64 1" TO 2" = 1/32 2" & OVER = 1/16		UNDER CONTRACT WITH NATIONAL SCIENCE FOUNDATION	
BREAK SHARP EDGES		150" STELLAR TELESCOPE	
ALL SURFACES TO HAVE 1/8" FINISH UNLESS OTHERWISE NOTED		SCALE FULL	
		6" HORIZON DISCRIMINATING SWITCH ASSEMBLY	
		PRINT ISSUED	
DESIGNED BY	APPROVED BY	DATE	DRAWING NUMBER
2150	2150	11-27-57	2150.290-E102
CHECKED BY	APPROVED BY	DATE	REV.
LET.	REVISION	ECR	DATE