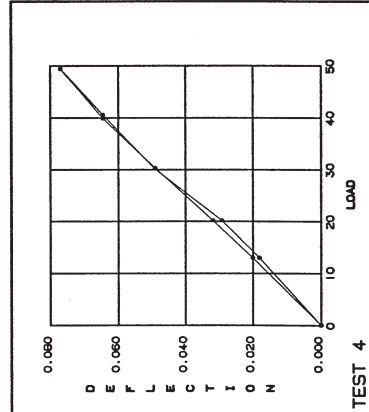
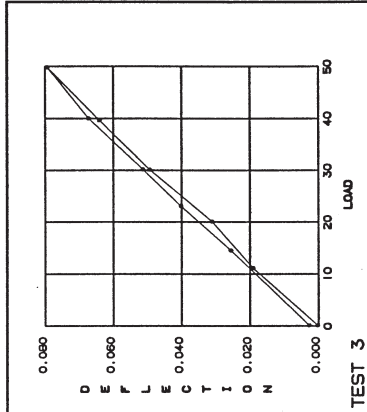
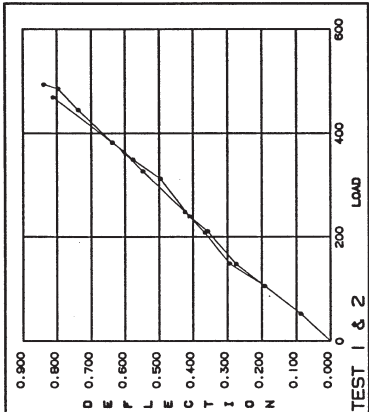




LOAD CASE	LOAD (LBS)	DEFLEC-TION (IN)	DIAL READING	COMMENTS
<b>TEST 1 (FULL LOAD)</b>				
1	0	0.000	0.938	
3	50	0.086	0.852	
4	100	0.174	0.764	
5	160	0.273	0.665	
6	210	0.353	0.585	
7	250	0.428	0.510	
8	300	0.492	0.446	
9	350	0.577	0.361	
10	390	0.654	0.284	
11	475	0.807	0.131	Pipe twisted during loading post 500 lbs.
<b>TEST 2 (FULL LOAD)</b>				
1	0	0.000	0.907	
3	160	0.288	0.619	
4	240	0.411	0.496	
5	325	0.547	0.360	
6	375	0.621	0.286	
7	450	0.742	0.185	
8	490	0.799	0.108	
9	500	0.839	0.068	Pipe twisted during loading post 500 lbs.
<b>TEST 3 (LOW LOAD DEFLECTION)</b>				
1	0	0.000	0.871	
2	11	0.019	0.852	
3	20	0.033	0.838	
4	30	0.050	0.821	
5	39	0.064	0.807	
6	49	0.079	0.792	
7	40	0.066	0.805	
8	31	0.052	0.819	
9	23.5	0.040	0.831	
10	15	0.026	0.845	
11	0	0.003	0.868	
<b>TEST 4 (WITH OUT DIAGONAL BRACES)</b>				
1	0	0.000	0.858	
2	12.5	0.018	0.840	
3	20	0.030	0.828	
4	30	0.048	0.810	
5	41	0.064	0.794	
6	49	0.077	0.781	
7	40	0.064	0.794	
8	30.5	0.048	0.810	
9	20	0.033	0.825	
10	12.5	0.020	0.838	
11	0	0.000	0.858	



**LOADING:**  
 All tests were run with an eccentric horizontal torque arm of 11.5 inches and a vertical dead load of 202 pounds applied to the top of the pipe. Deflection was recorded using a dial indicator gauge reading to the 0.001 inch. Full load measurement increments were made with a 6000 lb dynamometer with 50 pound increments. Loads between 50 pound increments were made at the inverse of the dial readings. The actual deflection is derived by subtracting the current dial reading from the initial or zero reading. Low load tests, loads were measured with a 50 pound scale with one pound increments.

**TEST 1**  
 Test 1 is a full load test to determine the ultimate load of the wall mount. Load was applied in small increments until failure was observed. The failure mode was pipe failure at the pipe connections. No permanent deformation occurred.

**TEST 2**  
 Test 2 is a repeat of test 1 after retightening the pipe clamp bolts to 55 foot pounds. The test was run in the same manner as test 1 and load confirmed test 1 results.

**TEST 3**  
 Test 3 is a low load test to determine deflection at low operational loads under 50 pounds. The loads and deflections were recorded until the limit of the 50 pound scale and then unloaded in a similar fashion.

**TEST 4**  
 Test 4 is a repeat of test 3 with the diagonal members removed. The test results are almost identical to test 3 indicating that the braces do not participate in the resistance of the horizontal load.

**CONCLUSIONS**  
 A maximum allowable horizontal load of 315 pounds or a maximum twist around the pipe of 3640 in-lbs may be applied to the mount. The maximum allowable vertical load is 130 pounds with a maximum vertical eccentric moment of 1500 in-lbs may be used. These allowable loads include a factor of safety of 1.5.

**DIAGONAL BRACES**  
 Diagonal braces are an optional item that is used to increase the strength of the attachment. Large vertical loads can cause loosening of the attachment bolts when the wall mount is attached to the wall. Diagonal braces are not required when attaching the wall mount to steel. They are recommended when attaching to wood anchors that can work loose with time. Diagonal braces that can work loose with time should be bolted to concrete or concrete block walls. The braces are required on all soft surfaces such as wood, that can deform or shrink behind the mount.

**ROHN**  
 FRANKFORT, INDIANA 46041

THIS ENGINEERING REPORT FOR W4212

DATE: 11/11/03  
 DRAWN BY: E-14-08  
 CHECKED BY: 10/22/03  
 APPROVED BY: [Signature]  
 PROJECT NUMBER: EF-44-3240  
 DRAWING NUMBER: D980020