

Regulatory Docket File

DUKE POWER COMPANY

OCONEE NUCLEAR STATION

UNIT 2

REACTOR BUILDING

POST-TENSIONING SYSTEM

END ANCHORAGE SURVEILLANCE

50-270

Rec'd w/ltc OCTOBER 29, 1974

11175

1.0 INTRODUCTION

The end anchorage concrete surveillance program for the Oconee Nuclear Station, Unit 2 reactor building post-tensioning system was defined and is executed in order to assure the continued structural integrity of the Reactor Building. The program consists of periodic inspections of selected end anchorages and adjacent concrete surfaces.

The requirements for the program are detailed in Oconee Nuclear Station, Technical Specification 4.4.2.3. The inspection interval, as specified therein, will be one-half year and one year after the operation of the unit and will occur during the warmest and coldest part of the year. Consequently, the specified surveillance was performed on January 22, 1974 and July 31, 1974. Results were compared with similar surveillance performed prior to the Reactor Building Structural Integrity Test of June 14 through June 22, 1973.

Surveillance was conducted in accordance with approved test procedure TP/2/B/0150/13, Prestressing Tendon Anchor Zone Surveillance Program, and the results of this program are reported herein.

2.0 SUMMARY AND CONCLUSIONS

The inspections at the one-half year and one year intervals after operation were performed as specified during the warmest and coldest part of the year. Due to a very mild winter, there was little difference in outside air temperatures during the inspection.

Visual inspection of the end anchorage exterior surfaces revealed no symptoms of abnormal cracking or deterioration.

Measurements of tendon anchor movement showed no abnormal motion during the surveillance program.

Based on the tests and inspections described herein, it is concluded that greater than normal cracking or movements have not occurred and that the functional capability of this portion of the post-tensioning system has not diminished. Therefore, the requirements of Technical Specification 4.4.2.3 have been completed.

3.0 RESULTS

3.1 END ANCHORAGE CONCRETE SURVEILLANCE

Six locations along the 90⁰ buttress and one location on top of the ring girder in line with the 90⁰ buttress were selected and examined during the Reactor Building Structural Integrity Test. Each of these areas were selected after an overall visual inspection of the accessible buttress areas. Results of inspections made prior to the Reactor Building Structural Integrity Test and at the one-half year and one year intervals following initial operation, are presented on Figures 1-7.

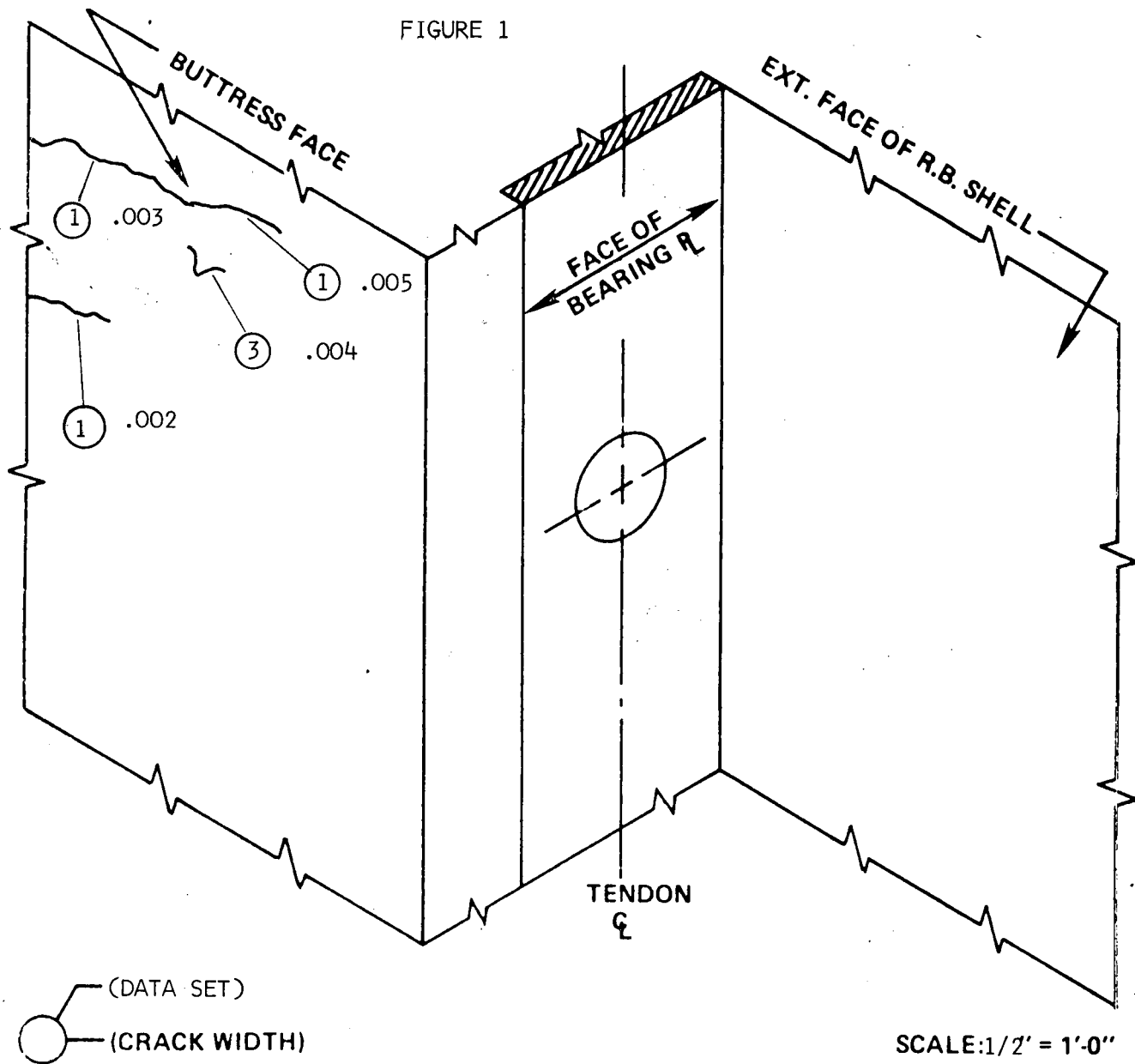
3.2 TENDON ANCHOR MOVEMENTS

Position measurements for seven of the tendon anchors were made during the Reactor Building Structural Integrity Test and at the one-half year and one year intervals following initial operation. Results of these measurements are given in Table 1. Details of the demountable reference frames and the location of measurements are shown on Figure 8.

TABLE 1
PRESTRESSING TENDON ANCHOR MOVEMENTS

Tendon	Elevation (Feet)	Date	Temp. Outside °F	Micrometer Readings (Inches)			
				<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>
24H89	811	6-14-73	72	3.322	4.264	4.562	4.936
		1-22-74	76	3.314	4.312	4.615	4.933
		7-31-74	78	3.397	4.294	4.608	4.940
24H75	834	6-13-73	85	3.534	2.436	2.701	4.692
		1-22-74	76	3.532	2.433	2.710	4.700
		7-31-74	78	3.525	2.429	2.740	4.695
24H61	857	6-13-73	85	3.359	2.827	2.860	5.110
		1-22-74	76	3.349	2.832	2.855	5.109
		7-31-74	78	3.347	2.819	2.865	5.112
24H47	880	6-13-73	85	3.221	3.315	3.258	4.928
		1-22-74	76	3.218	3.320	3.260	4.928
		7-31-74	78	3.240	3.312	3.256	4.927
24H33	904	6-13-73	84	3.745	3.715	3.661	4.385
		1-22-74	76	3.745	3.715	3.658	4.380
		7-31-74	78	3.739	3.719	3.656	4.385
24H19	927	6-13-73	84	3.547	2.116	2.635	4.632
		1-22-74	76	3.547	2.110	2.632	4.652
		7-31-74	78	3.550	2.110	2.643	4.653
12V28	970	6-14-73	73	4.730	5.246	4.507	
		1-22-74	76	4.743	5.249	4.502	
		7-31-74	80	4.750	5.243	4.498	

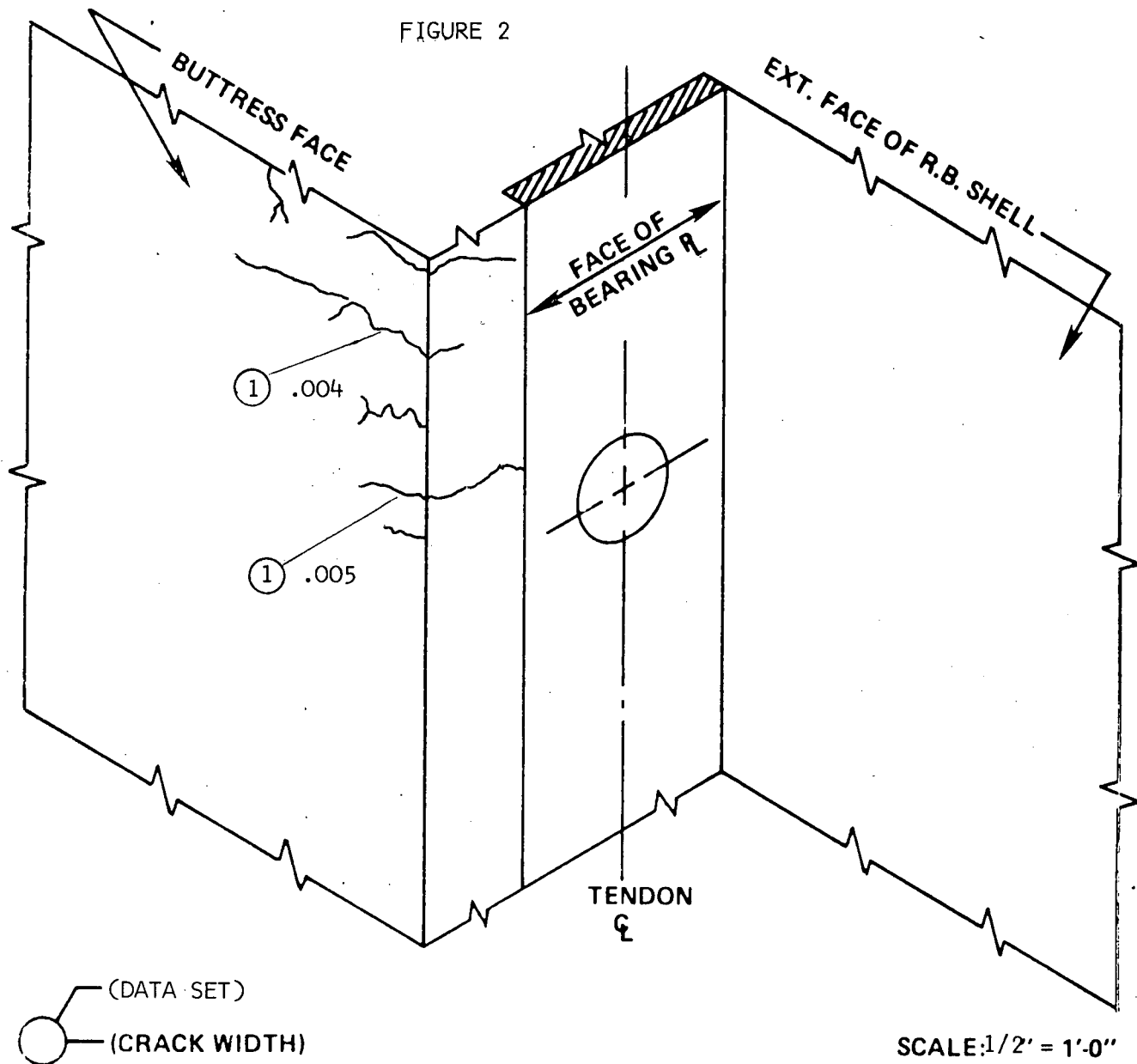
FIGURE 1



TENDON 26H37
 ELEVATION 841'

<u>DATA SET</u>	<u>DATE</u>	<u>TEMP INSIDE °F</u>	<u>TEMP OUTSIDE °F</u>	<u>REMARKS</u>
1	6-12-73	81	85	
2	1-22-74	76	67	NO NEW CRACKS
3	7-31-74	130	78	ONE NEW CRACK FOUND

FIGURE 2

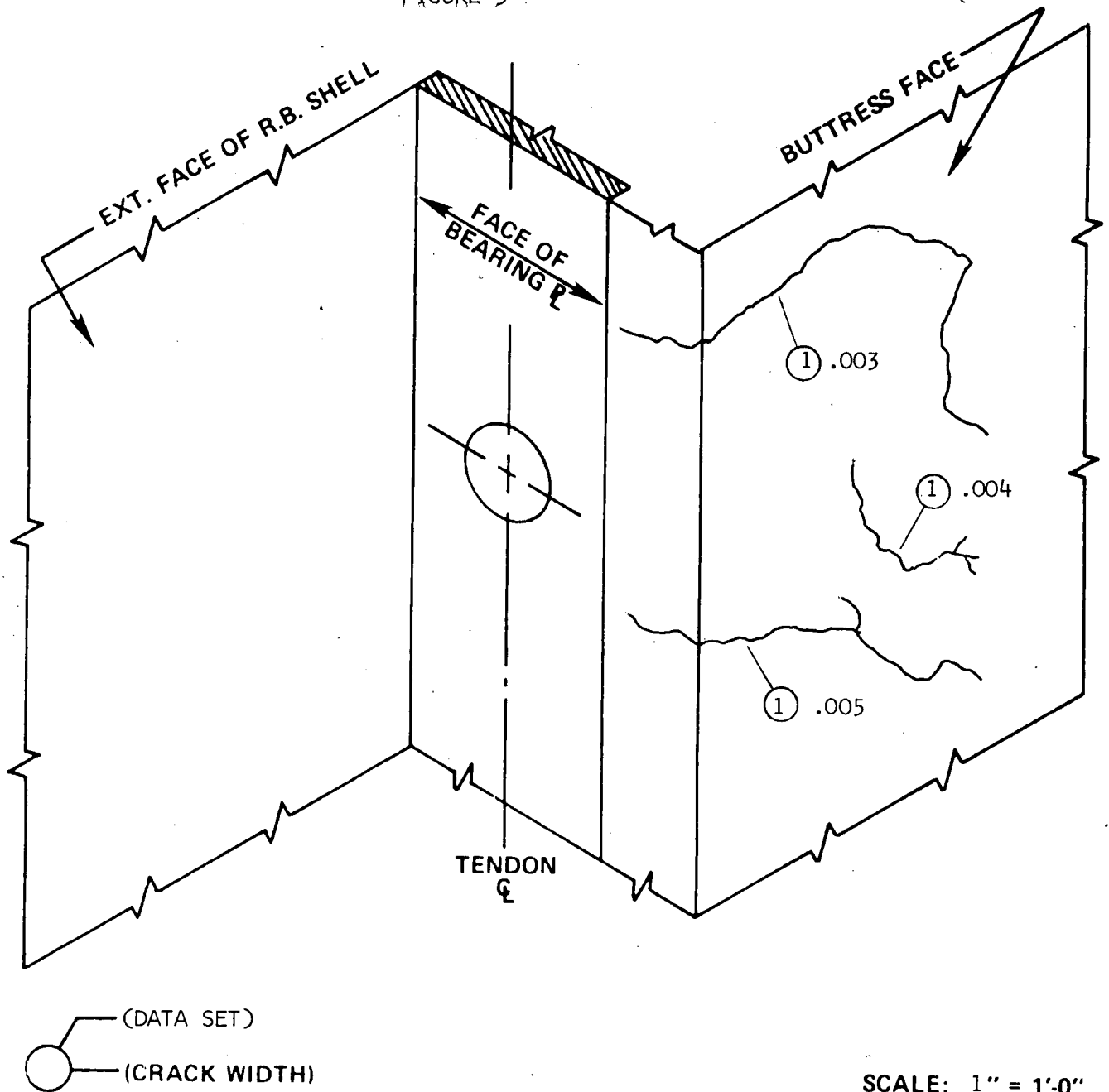


TENDON 26H37

ELEVATION 841'

<u>DATA SET</u>	<u>DATE</u>	<u>TEMP INSIDE °F</u>	<u>TEMP OUTSIDE °F</u>	<u>REMARKS</u>
1	6-12-73	81	85	
2	1-22-74	76	67	NO NEW CRACKS
3	7-31-74	130	78	NO NEW CRACKS

FIGURE 3

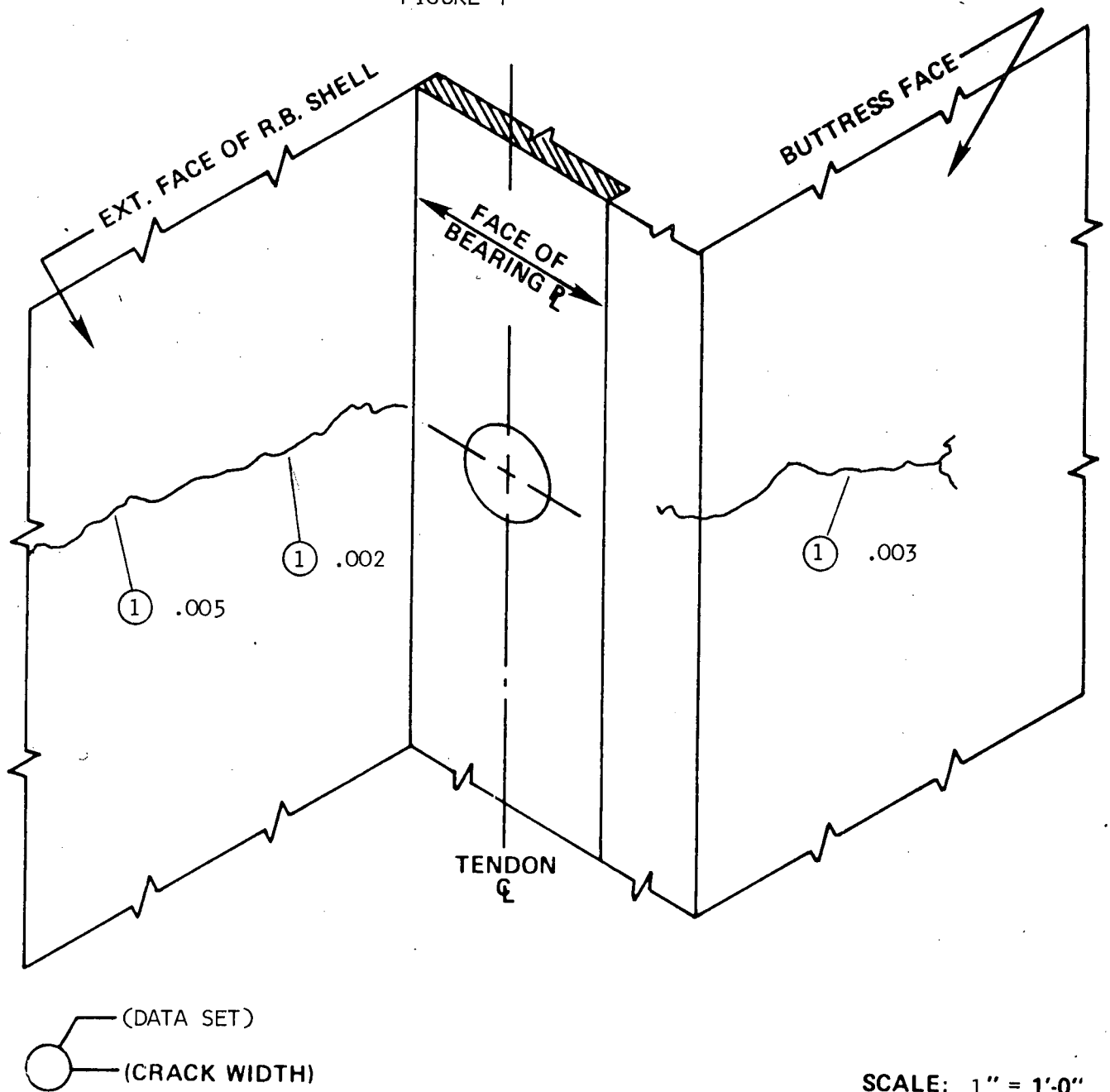


TENDON 24H70

ELEVATION 896'

<u>DATA SET</u>	<u>DATE</u>	<u>TEMP INSIDE °F</u>	<u>TEMP OUTSIDE °F</u>	<u>REMARKS</u>
1	6-12-73	81	85	
2	1-22-74	76	67	NO NEW CRACKS
3	7-31-74	130	78	NO NEW CRACKS

FIGURE 4

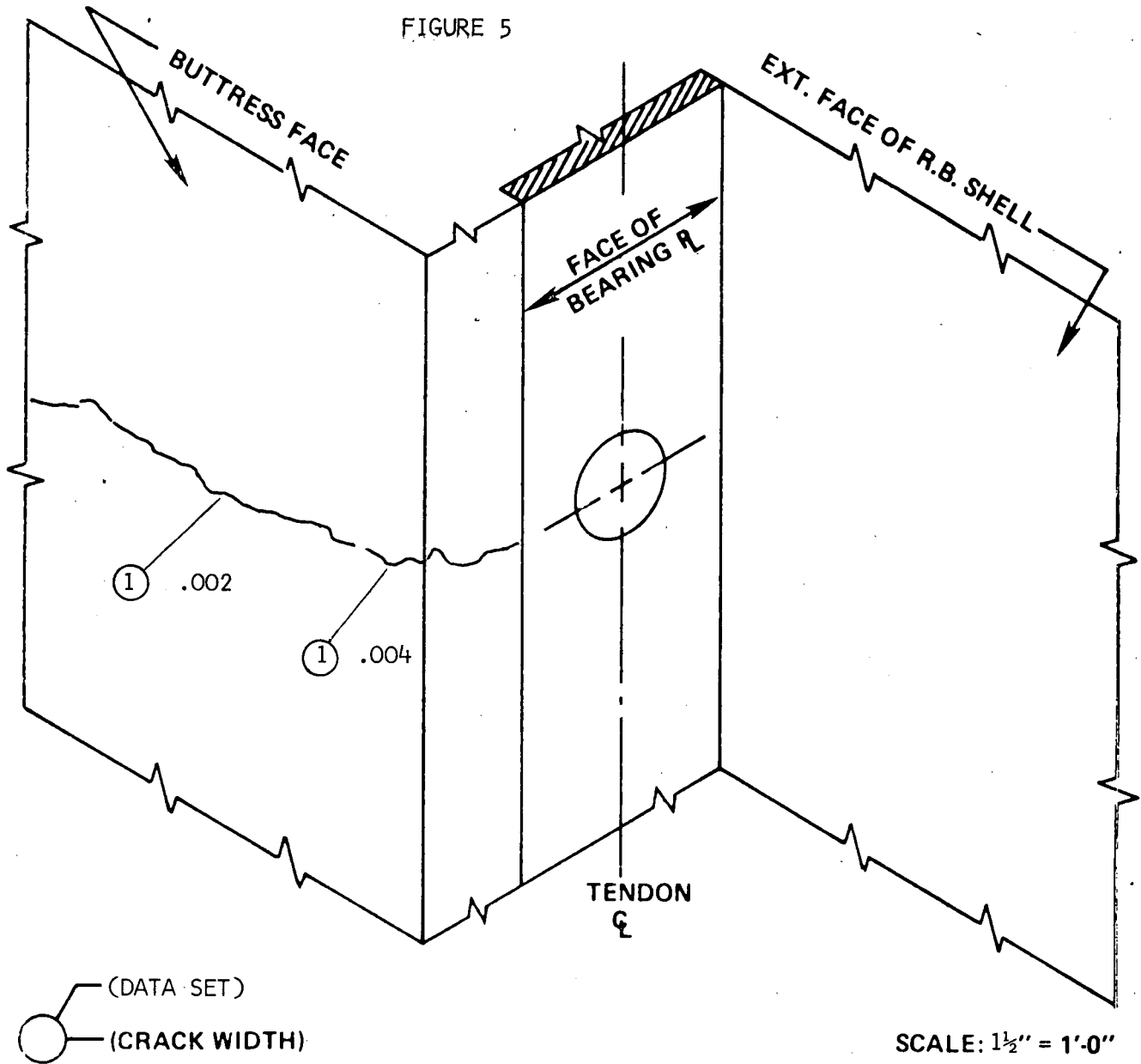


TENDON 24H76

ELEVATION 906'

<u>DATA SET</u>	<u>DATE</u>	<u>TEMP INSIDE °F</u>	<u>TEMP OUTSIDE °F</u>	<u>REMARKS</u>
1	6-12-73	81	85	
2	1-22-74	76	65	NO NEW CRACKS
3	7-31-74	130	78	NO NEW CRACKS

FIGURE 5

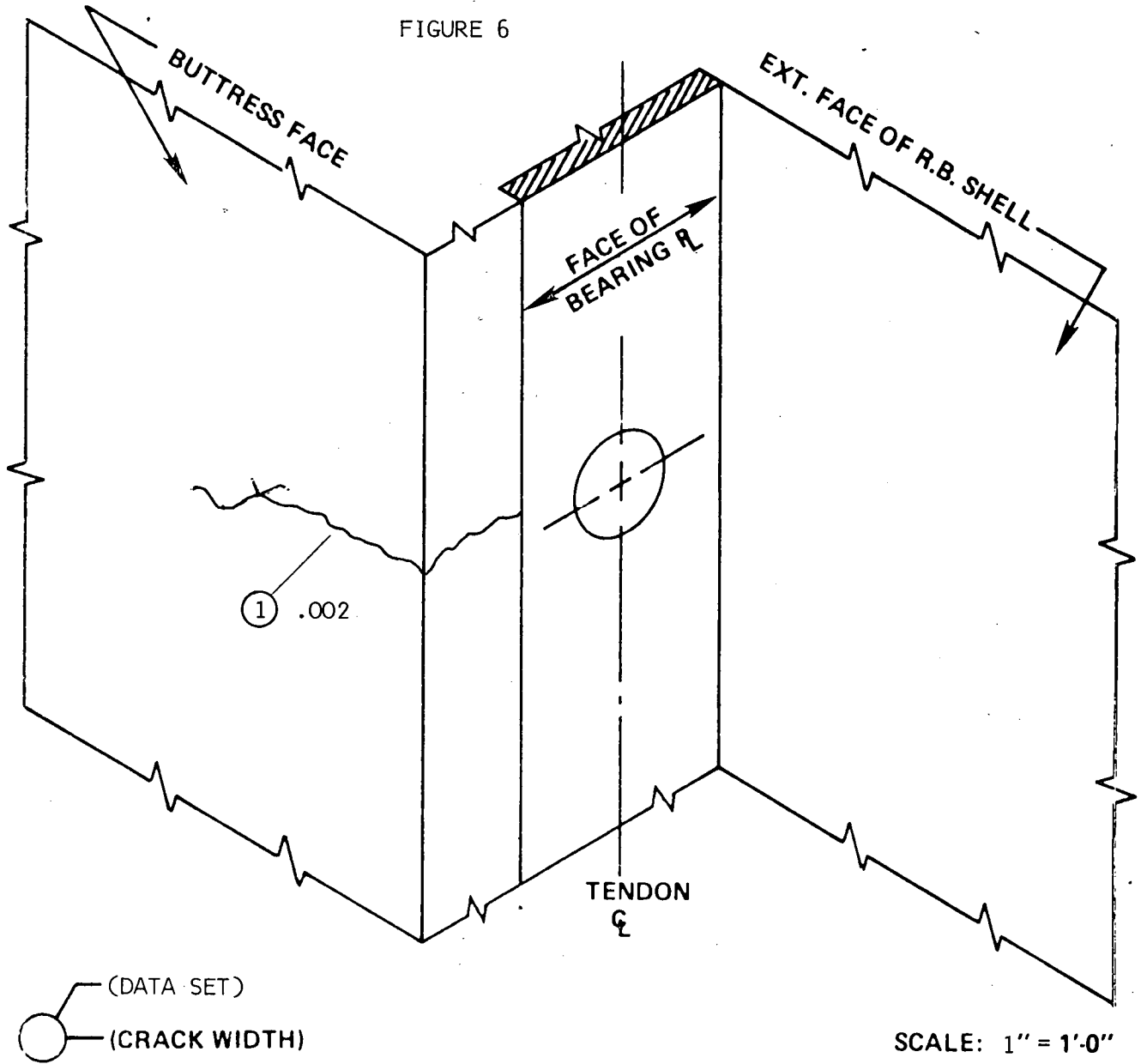


TENDON 24H86

ELEVATION 920'

<u>DATA SET</u>	<u>DATE</u>	<u>TEMP INSIDE °F</u>	<u>TEMP OUTSIDE °F</u>	<u>REMARKS</u>
1	6-12-73	81	85	
2	1-22-74	76	67	NO NEW CRACKS
3	7-31-74	130	78	NO NEW CRACKS

FIGURE 6

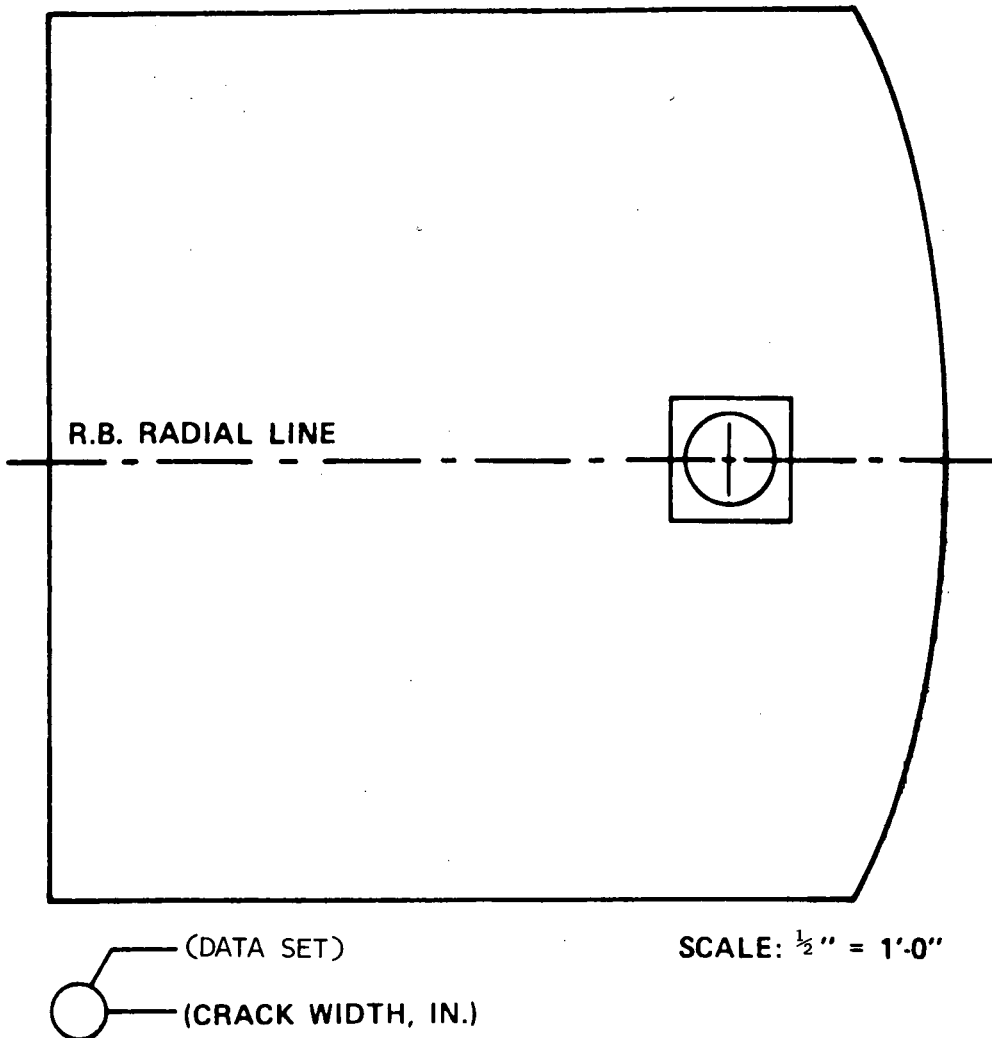


TENDON 26H89

ELEVATION 927'

<u>DATA SET</u>	<u>DATE</u>	<u>TEMP INSIDE °F</u>	<u>TEMP OUTSIDE °F</u>	<u>REMARKS</u>
1	6-12-73	81	85	
2	1-22-74	76	67	NO NEW CRACKS
3	7-31-74	130	78	NO NEW CRACKS

FIGURE 7



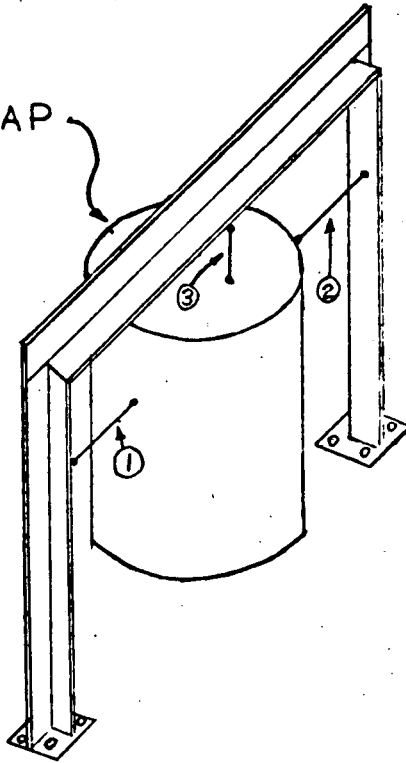
TENDON 12V28

ELEVATION 970'

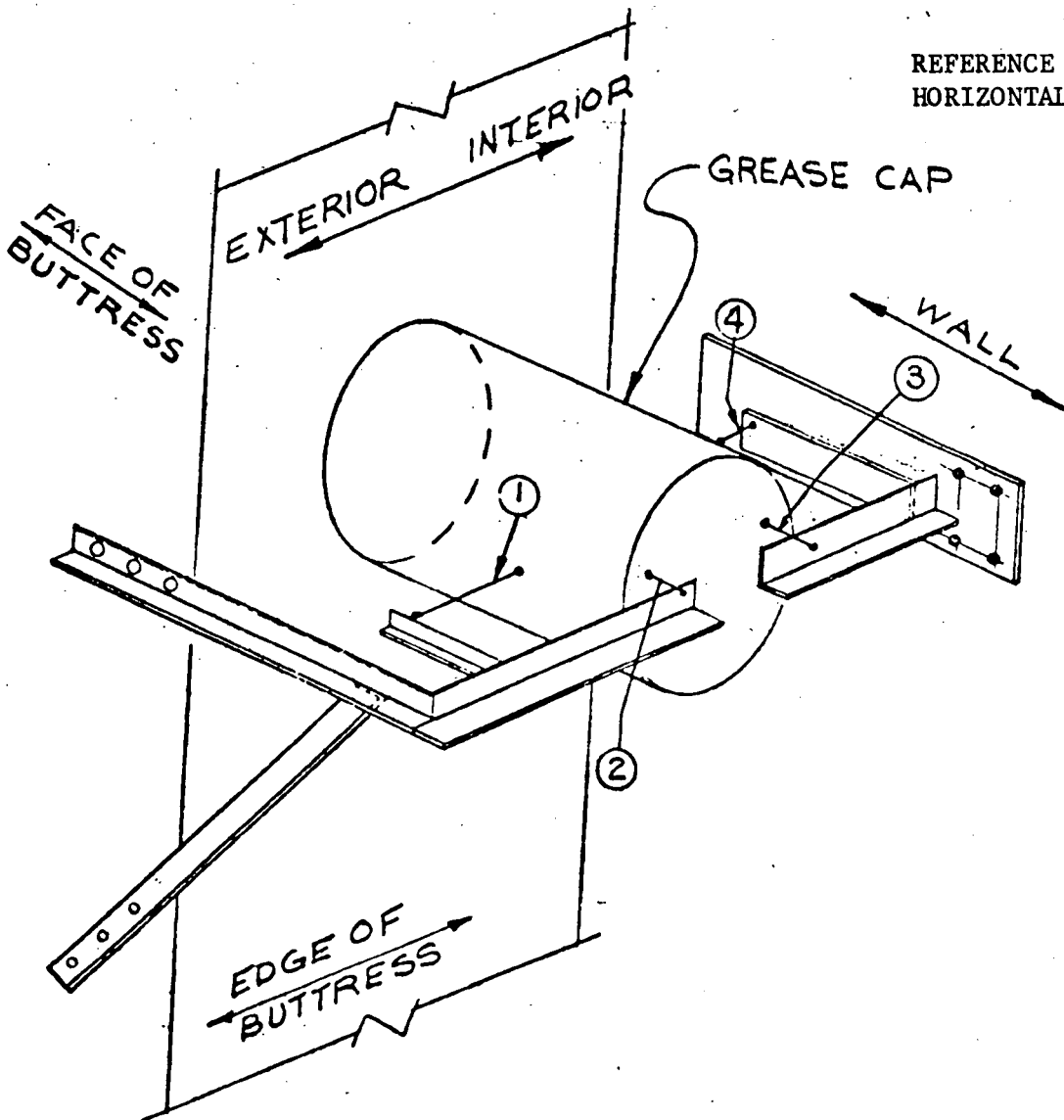
<u>DATA SET</u>	<u>DATE</u>	<u>TEMP INSIDE °F</u>	<u>TEMP OUTSIDE °F</u>	<u>REMARKS</u>
1	6-12-73	81	85	NO CRACKS FOUND
2	1-22-74	76	65	NO NEW CRACKS
3	7-31-74	130	78	NO NEW CRACKS

FIGURE 8

GREASE CAP



REFERENCE FRAME FOR
VERTICAL TENDONS



REFERENCE FRAME FOR
HORIZONTAL TENDONS